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SPRING ISSUE  
MARCH 2010

# Air-Britain ARCHIVE

The AIR-BRITAIN Civil Aviation Historical Quarterly



**FMA : IA.50 Guarani**

**Curtiss-Reid Rambler**

**China : CNAC 1945-1949**

**YU- and F- Registers**

**Handley Page Herald**

**AIR-BRITAIN - Founded 1948**



The AIR-BRITAIN Civil Aviation  
Historical Quarterly

No.1 2010

ISSN: 0262-4923

31st YEAR

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The ARCHIVE website may be visited at  
<<http://www.air-britain.com>> where details  
of the Association, membership and other  
current publications will also be found.

ARCHIVE is published quarterly, in March,  
June, September and December by  
Air-Britain (Historians) Ltd., in association  
with *Air-Britain Aviation World*, *Aeromilitaria*  
and the monthly *Air-Britain News*.

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### COVER PHOTO



Handley Page Herald G-ASBP c/n 163 was  
used as a demonstrator at the SBAC  
Farnborough Show in September 1966 before it  
was delivered to Air Manila with whom it  
became PI-C869.

(Photo: Mike Hooks)

**CLOSING DATE for contributions to next  
ARCHIVE: April 17th 2010**

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### HEAD-ON VIEW - WHAT IS IT? Number 35

Here's a nice smooth machine, not a T-6 but a 4-seater by a well-respected designer, first example built by students, several used by the CAA and later developed into a 2-seat trainer. Full details in the next issue. (via JM Collection)

### In this issue

The subject matter in this issue covers a wide range of aircraft, probably with a greater commercial bias than usual, co-incidentally. The Post-War register of **Yugoslavia** is, while running through the YU-A series, dealing mainly with airline acquisitions although there were also some interesting deliveries in the form of Ansons and Oxfords for example which were intended for the JRV. Then we find JAT operating Ilyushin 14s and Convairliners side by side in its position at the East-West political crossroads.

In Michael Magnusson's series on the FMA aircraft we have now reached the **IA-50 Guarani**. This interesting turboprop transport barely found a niche in the civil market, even in its homeland, which tends to emphasise the fact that the Argentine aircraft industry relied almost exclusively on internal state demand while helping to build a skills base in return.

Our Head-on View feature this time features the **Curtiss-Reid Rambler** which takes us into pre-war Canadian civil flying. The Rambler was yet another promising design which had the misfortune to be conceived and built during the Depression years. If it had not been for the flying schools that the Curtiss-Reid company itself created it is difficult to imagine that sales

would have progressed even as far as they did, with a mere 43 Ramblers of different Marks being built.

Meanwhile, back in China we see **CNAC** attempting to get back on its feet after the war and the political machinations involving Pan American, the USA, the British in Hong Kong and the new Chinese Communist authorities. That the aircraft were largely impounded in Hong Kong and finally sold to CATI is by now well known, but Martin Best adds much detail to the story - which continues next time with a detailed look at the individual aircraft in the fleet and their disposal.

The **French** Register moves on into 1929 with mainly indigenous types and we can add that a further French type study is planned for the future. Also progressing are the histories of the **HP Heralds** amongst which we were surprised to find that one, or maybe two, examples were apparently flying for some time without any official status pending confirmed sale!

Finally we have some space for a little **Feedback** and intend to try to cover a backlog of items in the next couple of issues - though we are grateful to Nigel Hitchman for the opportunity to illustrate some of the extant Ranquels in colour on the back page in this edition.

### Now available !

Many readers will be aware of the series entitled "Post-War Surplus AT-6s" which ran in *Archive* from 2002 to 2006. In it, Dan Hagedorn covered the disposal of surplus USAF and US Navy examples within the USA and overseas, information unearthed during research for his latest book, now published by Air-Britain. Within this 352-page A4 hardback Dan covers every Central and South American country that operated the type, military and civil, in the greatest detail, with units, codes, serials, fates and operators. With colour used throughout whenever available, together with historical photo evidence, this extensively-illustrated book must be the definitive work on the subject. The entire *Archive* series is also incorporated as an appendix, fully updated with later data incorporated. Now available from the Sales Department at £39.50 for Air-Britain members, this is a must for the serious historian and for any T-6 enthusiast.

### TEXANS AND HARVARDS IN LATIN AMERICA



Air-Britain

DAN HAGEDORN

## COMPLETE CIVIL REGISTERS: 15

# X- UN- YU- YUGOSLAVIA

With thanks to the following for their contributions to this issue:

John Wegg, Jack Meaden, Vojislav Jereb, John Hamlin's "The Oxford, Consul & Envoy File" and Jennifer Gradidge's "The DC-1, DC-2, DC-3 - The First Seventy Years".

### The post-war Yugoslavian Civil Aircraft Register - (continued)



**Above:** One of five Avro Ansons supplied to the JRV from the Royal Norwegian Air Force was W-4AF, ex EG276, which was delivered as YU-ABU in 1951. (via JM Collection)

<b>YU-ABQ</b>	Avro 652A Anson I Ex NK719, RNorwAF W-AI . To JRV.	nil	3.51
<b>YU-ABR</b> (1)	Avro 652A Anson I Ex NK297, RNorwAF W-AD. To JRV.	nil	3.51
<b>YU-ABR</b> (2)	Ikarus Type 214-D Ex JRV 61002. VSBIH Bosnia-Herzegovnia, Sarajevo .68.	unknown	?
<b>YU-ABS</b> (1)	Avro 652A Anson I Ex LT298, RNorwAF W-AG. Flown from Norway 11.7.51. To JRV.	nil	3.51
<b>YU-ABS</b> (2)	Ikarus Type 214-D Ex JRV 61005. ZLOS Slovenia, Ljubljana .68.	unknown	?
<b>YU-ABT</b> (1)	Avro 652A Anson I Ex LT536, RNorwAF W-AB. To JRV.	nil	3.51
<b>YU-ABT</b> (2)	Ikarus Type 214-D Ex JRV 61022. VSS Serbia, Novi Sad .68.	unknown	?
<b>YU-ABU</b> (1)	Avro 652A Anson I Ex EG276, RNorwAF W-AF. To JRV.	nil	3.51
<b>YU-ABU</b> (2)	Douglas C-47A-15-DK Ex 42-92857, SP-LCB, OY-AIC, FrAF 92857, F-BRGM, JRV 71241. Del to JRV .72 then to Obrazovni Centar Zracnog Saobracaja Zagreb (official abbreviation OCZS), Zagreb 2.8.79. To N8071X, 5.11.79. Stored Munich. Delivered as "TN-ADS" to South Africa 8.81, to SAAF.6887 in .81 and converted to C-47TP.	12704	2.8.79
<b>YU-ABV</b> (1)	Airspeed AS.10 Oxford II Ex AS728, RNorwAF V-AM. To JRV (9704 ?).	1374	.51?
<b>YU-ABV</b> (2)	Douglas C-47B-1-DK Ex 43-48285, FrAF 348285, F-BTDE, JRV 71254. Del to JRV 27.11.72. To OCZS Zagreb 2.8.79. Cld 2.10.79. To N8071Y, 5.11.79. Delivered as "TN-ADT" to South Africa 25.6.81, to SAAF.6880 in .81 and converted to C-47TP 1995. To N330RD 4.00; ZS-OJL .00; 9U-BHL 12.00; ZS-OJM 2.01; .N330RD 4.03; ZS-OJM 9.03.	14101/25546	2.8.79
<b>YU-ABW</b> (1)	Airspeed AS.10 Oxford II Ex V3945, RNorwAF V-AT. To JRV (9702 ?).	unknown/nil	.51?
<b>YU-ABW</b> (2)	Douglas C-53D-DO Ex 42-68819, SE-APG, F-BEIS, FrAF 68819, F-BRGI, JRV 71237. Del .72 to JRV. To OCZS, Zagreb 2.8.79. To N8071Z, 5.11.79. Stored Munich. To 9Q-CYI 3.81, to SAAF.6875, 1981. Converted to C-47TP.	11746	2.8.79
<b>YU-ABX</b>	Airspeed AS.10 Oxford II Ex N4602, RNorwAF V-AS. To JRV (9701 ?).	2442	.51?

**YU-ABY**      Airspeed AS.10 Oxford II      PAC.125      .51?  
Ex AB663, RNorwAF V-AD. To JRV (9703 ?).

**YU-ABZ**      Airspeed AS.10 Oxford II      1499      .55?  
Ex AS900, RNorwAF V-AN. To JRV (9705 ?)

(Note regarding all Avro Ansons, Airspeed Oxfords and DH Doves: as all these aircraft were delivered for use in the JRV, it is believed that the civil registrations were used only for ferry flights or to disguise the purpose of their acquisition and they did not receive official CofAs. There is no note of any use of these examples in civil hands – unlike the ex-JRV Ikarus 214s.)

YU-ACA to ACZ series: 2-or 3-engined piston a/c

**YU-ACA**      Douglas C-47A-1-DK      12210      2.5.47  
Ex 42-92412, FZ651. Del 2.5.47 to JAT (cargo a/c). To Yemen 1.1.74 as 4W-ABW; to ET-AHP 16.5.81, w/o 24.8.82 Makele.  
(Note: Also reported as c/n 12381 but this was YU-ABE)

**YU-ACB**      Douglas C-47A-25-DK      13367      .50  
Ex 42-93454, KG608. Del. 1.4.50 to JAT. Crashed in Sava River, Belgrade 20.2.65. Cld. TT in JAT service 9916,48 hrs.

**YU-ACC**  
(1)      Junkers Ju 52/3m      ?      ?  
Used by JAT in the 1951-52 period. Believed leased from JRV. Believed w/o.?

**YU-ACC**  
(2)      Douglas C-47A-20-DK      13014      26.4.51  
Ex 42-93136, KG531, ZS-BCY. Bought 30.8.50. Del 26.4.51 to JAT. Burnt out in accident 24.10.51 (confirmed by Lloyds but some sources say 24.11.51 or 27.11.51), near Skopje. TT in JAT service 662,46 hrs.



**Above:** Five ex-Norwegian Airspeed Oxfords were also delivered to the JRV in civil marks; YU-ABW is illustrated. (P Jarrett/The Oxford, Consul & Envoy File)

<b>YU-ACD</b>	Douglas C-47A-20-DL Ex 42-23472, ZS-AVO, XY-ACU. Del 30.8.50 to JAT. In JAT service until 29.2.68. To Yemen as 4W-ABI 23.6.69. W/o 16.9.71, Presevo, Yugoslavia.	9334	31.8.50
<b>YU-ACE</b>	Junkers Ju 52/3m (AAC-1 Toucan) Ex F-BCHK. Del. to JRV as 7208. Leased to JAT. Crashed 29.6.51 at Mrzle Vodice en route Rijeka-Zagreb, total loss, all 3 crew and 11 passengers killed.	316	3.51
<b>YU-ACF</b>	Junkers Ju 52/3m Ex JRV ? Used by JAT from 1951-1953. Believed returned to JRV.	?	.51
<b>YU-ACG</b>	Junkers W 34 Ex JRV. Delivered to JAT. Used for photogrammetric purposes.	?	?
<b>YU-ACH</b>	Avro 652A Anson (Identity unknown, c/n may be part of frame number, is not a recognisable serial)	"3720"	?
<b>YU-ACI</b>	Junkers Ju 52/3m (AAC-1 Toucan) Ex JRV ? Used by JAT. Believed returned to JRV.	?	?

Note:

It is possible that YU-ACC and YU-ACF were also French-built AAC-1 versions.

An unidentified JAT a/c crashed 'between 1945-48' with 22 fatalities.

YU-ADA to ADZ series: 2-engined piston a/c (with nosewheel u/c after first two Ansons)

<b>YU-ADA</b> (1)	Avro 652A Anson Details unknown.	nil	?
<b>YU-ADA</b> (2)	Convair 340-58 JAT d/d 25.3.54. Crashed Grub, Austria, on approach to München 22.12.56.	162	4.54
<b>YU-ADB</b> (1)	Avro 652A Anson Details unknown. Crashed 6.10.48.	nil	?
<b>YU-ADB</b> (2)	Convair 340-58 JAT d/d 23.2.55. Converted to CV.440. Wfu Belgrade by 1972. Most probably b/u in Belgrade	177	2.55
<b>YU-ADC</b>	Convair 340-58 JAT d/d 25.2.55. Crashed near Vienna 10.10.55.	178	2.55
<b>YU-ADD</b>	Convair 440-61 JAT d/d 22.2.57. Sold 20.11.73 as N94478. Then XA-GAJ 2.78, HH-PRV 7.88.	398	2.57

Left: JAT timetable cover featuring one of the airline's Convairliners.

Below: Ilyushin Il-14M of JAT at Frankfurt-Main. Part of the regn visible on the rear passenger door suggests that this is YU-ADG. (both via Maurice Wickstead)



Above: Cargo being loaded by hand into JAT C-47 YU-ACD. (via Maurice Wickstead)

<b>YU-ADE</b>	Ilyushin Il-14M JAT d/d 28.1.57. Wfu from commercial use .63 due to being uneconomical. To JRV as 7402, later 71402. However, Belgrade's Muzej Vazduhplovstva quotes its example with this c/n and regn as JRV 7401* and 71301.	146001121	.57
<b>YU-ADF</b>	Ilyushin Il-14M JAT d/d 28.1.57. Wfu from commercial use .63 due to being uneconomical. To JRV as 7403, later 71403. To Yemen AF as 1141	146001141	.57
<b>YU-ADG</b>	Ilyushin Il-14M JAT d/d 28.1.57. Wfu from commercial use .63 due to being uneconomical. To JRV as 7404, later 71404. Returned to Soviet Union.	147001317	.57
<b>YU-ADH</b>	Ilyushin Il-14M (Also quoted as IL-14P c/n 147001341) JAT d/d 28.1.57. Wfu from commercial use .63 due to being uneconomical. To JRV as 7405, later 71405. Returned to Soviet Union.	147001318	.57

*To be continued . . .*



# FMA : from 1945

## The story of Fabrica Militar de Aviones, Argentina

Michael Magnusson

Part 10

**Right:** The Guarani prototype in its original form as LQ-HER, probably at Moron in 1962 with Meteors in the background. (A Marino collection)



### The IA-50 Guarani

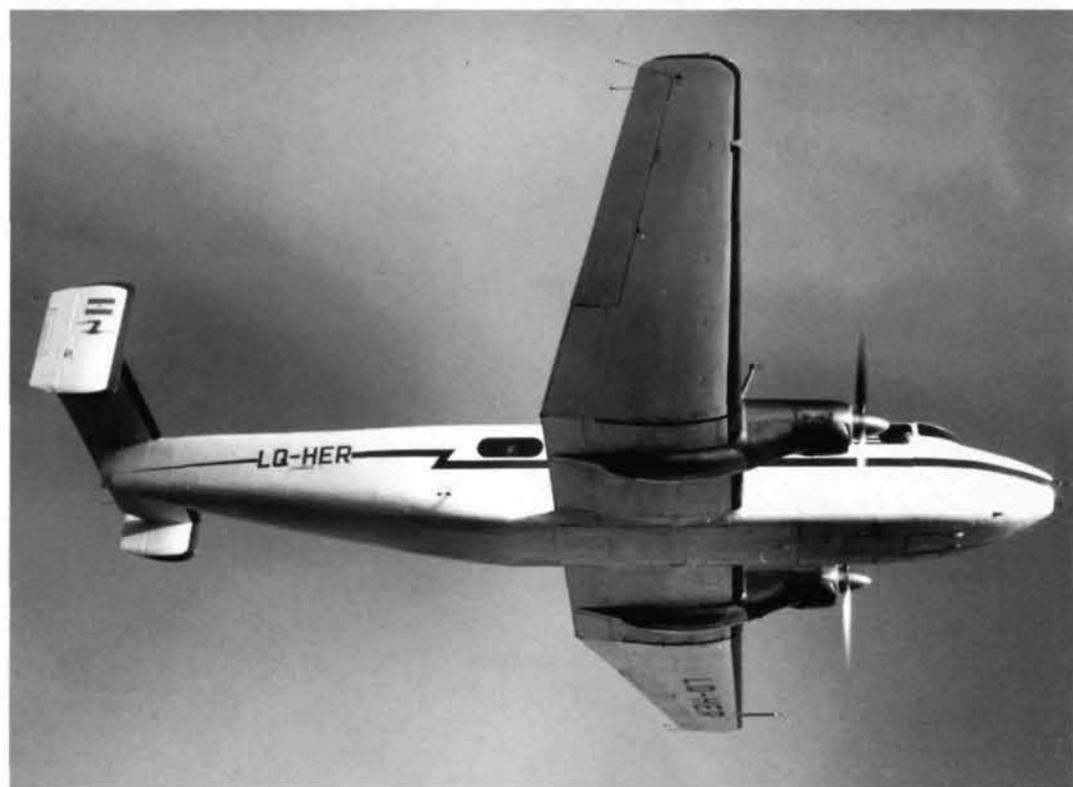
As described in the previous article about the IA-35 Huanquero, FMA began to question the wisdom of continuing with the piston powered Huanquero into the early 1960s. The design was obviously getting dated and new reliable turboprop engines were now available. It was consequently decided to cancel outstanding orders for Huanqueros in August 1961 and use the 38th Huanquero in the production line as a basis for a redesigned turboprop version using the new French Turbomeca Bastan III engine of 850hp. In charge of the redesign was a young local engineer, Hector Eduardo Ruiz. The small remaining design team around Reimar Horten was also utilized and the new project was initially referred to as "IA-35-Bastan" or simply "IA-35T".

FMA had at this time an extensive relationship with French industry through its local license production of the MS760 Paris (ref *Aviation World* March 2009). Thus the choice of a French engine for the Guarani was perhaps expected. The Bastan was at this time considered an advanced light-weight turboprop engine, also chosen for the Shorts Skyvan, Nord 262 and Potez 842 programme (later cancelled). However, the Skyvan later switched to the Garrett TPE331 and the Nord 262s in the US were re-engined with the PT-6 which indicates something about the Bastan engine.

The twin tail of the Huanquero remained but otherwise the airframe was extensively redesigned so only 20% of original Huanquero parts were used. The engine nacelles were obviously redesigned around the Bastan engine. Max take off weight was now 6500kg from 5,800kg and max payload 1000kg. The cabin was designed for 12 passengers with a side entry door versus the old somewhat unusual ventral door arrangement on the Huanquero.

This new version was named "Guarani" from the local indian tribe living in northern Argentina and Paraguay. This prototype was "registered" LQ-HER using the initials of its designer Cap. Ing. Hector Eduardo Ruiz. FMA requested this registration from the registration office in Buenos Aires, the problem being that it had already been assigned to Macchi MB-308 C/n 529 on 17th Jan.1962 so FMA's request was rejected. However the aircraft still flew on February 6th, 1962 with this registration ! (it was later changed). It was flown down to Buenos Aires and shown to the public on May 3rd. By now it wore the name "Constancia III".

At this time FMA was quite busy finishing off the Mentor license production as well as the Huanquero. (Note: FMA built 75 Mentors on licence, not 82 as quoted in previous article, I stand corrected by



**Above:** The prototype Guarani in flight with its original twin-fin tailplane and interim registration LQ-HER containing the initials of the designer. (H E Ruiz via JM Collection)

**Below:** Work progressing on the conversion of the tail unit to a single swept fin in the Cordoba factory, probably in early 1962. The designer Hector Ruiz is in the centre of the group. (H E Ruiz via JM Collection)





**Left:** The prototype at Cordoba during the conversion to the new sharply-swept tailplane and updated Bastan VI engines, after which it was known as the Guarani II.  
(H E Ruiz via JM Collection)

**Below:** Guarani prototype as LV-X27 after conversion. A more streamlined cockpit window was introduced later as other photos show.  
(A Marino collection.)

V.Cettolo). The MS760 production also peaked so entering 1963 the factory could assign more resources to the evolving Guarani effort (as well as the IA.46 Ranquel program described earlier).

After further flight testing it was decided to redesign the twin-tail into a single tail in order to better take advantage of the performance capability with a turboprop engine. Hence "LQ-HER" was hauled back into the hangar in Cordoba for refitting of a new rear fuselage and tail. It was also decided to install more powerful Bastan VI engines of 930hp. It was now given the name "IA-50 Guarani II" to reflect its revised new design. The Max Take Off Weight was increased to 7120kg and max payload 1180kg with a cruise speed of 450 km/h. Following a request from the registration office in July 1962, the aircraft was now given initially the "proper" registration LV-X23 reflecting its experimental status. But in early April 1963 it was changed to LV-X27 and it flew again as such on April 6th, 1963, little over a year from its previous maiden flight. The pilot was Rogelio Balado. It seems strange that the registration was changed in a short time but one document from August 1964 refers to LV-X23 as a "Guarani I" and LV-X27 as "Guarani II" so that may be the reason



The Guarani was a traditional low-wing design with a 42 square metre wing. It had a single spar structure, with fabric covered ailerons and single split flap on each side. It was equipped with Kleber-Colombes de-icing system. The fuselage was a semi-monocoque structure. The hydraulically retractable landing gear was fitted with double Dunlop wheels on main and single Dunlop wheel on nose-gear.

However, it turned out that the copyright to the name "Guarani" was already taken and after a legal dispute it was decided to discontinue its use and just refer to the aircraft officially as "IA.50 G-II", but the name Guarani stuck anyway.

The aircraft was a technical success, and the decision was taken to put it into production, hence two pre-production aircraft were launched in 1964. The first was rolled out October 1964 with registration LV-X30 and it flew on March 20th, 1965. The other, registered LV-X32, flew February 8th, 1966. These were assigned c/n "1" and "2" in a document dated 20th November 1964. There is still confusion in other documents about the exact c/n of these two aircraft, some quote "01" and "02" instead.



**Above:** The first pre-production example TX-01 was flown to Paris for the 1965 Salon and stayed in France for several months for a test programme.  
(Author's collection)

**Left:** The prototype in Guarani II form as LV-X27 outside the main FMA factory at Cordoba.  
(A Marino collection)





**Left:** The second pre-production aircraft at Cordoba on 9.9.66 as T-124 in Air Force colours but with no titles yet applied. (A Marino collection)

**Below, upper:** The first production IA-50 in its original I Brigada Aerea livery as T-111. It became LQ-JXN in 1971. (A Marino collection)

**Below, lower:** The second production aircraft T-112 at Palomar in August 1975, a couple of months before its accident the following December. (Horacio Gareiso)

The propeller used was a three bladed 2.75m diameter Ratier-Figeac 2.75m constant pitch design. Internal fuel capacity was 1,910 litres with the option to fit wing-tip tanks of 340 litres each. This became standard once in service. Cockpit for two pilots with a cabin now for 10-15 passengers. Overall dimensions: length 14.29m, span 19.5m and height 5.8m. Max speed 500 km/h, and economic cruising speed 490 km/h. Service ceiling 9,500m. Max range with max fuel 2,570km, or with max payload 2,000km.

It was decided to exhibit a Guarani at the June 1965 Salon in Paris in order to garner international attention. The first pre-production aircraft, LV-X30, was chosen and given a new registration "TX-01" in April 1964. Publicly quoted price was then between \$370,000 and \$400,000 US.

To handle the long distance flying to get to Paris, a spare tank from an F-86 Sabre was used in the cabin giving it 10 hours of endurance. In May 1965 it was flown to France via Rio de Janeiro, Recife, Dakar, Las Palmas and Madrid, departing on May 22nd, and arriving on the 25th. The flight from Recife to Dakar took 9 hours and 15 minutes. Crew consisted of pilots Rogelio Balado and Andres Arneodo, navigator Roberto Mela and the chief designer Hector Ruiz himself was also on board. Whilst in France, they took the opportunity to do static flutter tests in Istres and flight tests in Bretigny. Hence the return flight was not begun until 13th February 1966 from Paris following same route in reverse arriving at Aeroparque in Buenos Aires on Feb 16th to a great reception from the Chief of the Air Force. A few days later the then President Dr. A U Illia received them as well.

Following further tests it received US Federal air worthiness certification and there were hopes for export customers. FMA was at this time a busy

**Right:** Production of the Guarani in full swing at Cordoba together with licence-built Cessna A182s in the background, of which 148 were built between 1966 and 1976. (A Marino collection)





**Left:** The pre-production prototype TX-110 in an attractive but short-lived colour scheme at Ezezia airport in 1968. (Alex Reinhard)

**Below:** T-110 wearing Aerea Material Cordoba titles, taxis in past a Hughes OH-6A at Buenos Aires - Aeroparque in November 1970. In the distance is C-47 TA-05 of I Brigada Aerea destined for the Museum. (Alex Reinhard)



place, with Ranquel production in full swing and a new licence agreement with Cessna for the 150/182/188 about to be launched. FMA then employed over 8,000 people and they still also produced light motorcycles and small trucks.

Of course by now various similarly sized aircraft had emerged. The Twin Otter flew in May 1965, Beech 99 in July 1966 and the "new" aircraft factory Embraer in Brazil launched the E-110 Bandeirante in October 1968. These three aircraft types would be produced in large quantities so obviously there was a demand for a small passenger aircraft, mostly by emerging "commuter" airlines. But all three types had the PT6 engine. Meanwhile both the Bastan-powered Nord 262 and Short Skyvan struggled to reach 100 sales each. One can't help speculating whether the engine was one of the reasons for such different

sales results between the PT6-powered aircraft and the Bastan-powered types.

The Air Force committed to a production run of 15 units, later increased to 20 per a contract dated 6th September 1965 with deliveries to be completed by May 1967. The two pre-prototypes were also refurbished and delivered with new registrations TX-110 and T-124 respectively as part of his contract.

The first true production aircraft, T-111, was delivered in June 1966 to I Brigada Aerea at Palomar in Buenos Aires. It was put into service during October replacing the final DH Dove light communication aircraft. This was followed by T-112 to T-117 by December 1967 as well as a photographic version, F-31, in March 1967, all to I Brigada Aerea



**Left:** One of the exhibits at the first Rural Exhibition in November 1968 was Guarani T-117 in I Brigada titles. (A Marino collection)

**Right:** Guarani T-125 was successfully tested with a retractable ski undercarriage in 1968 but the armed forces never actually operated the type with this option.  
(A Marino collection)



**Below left:** Here T-125 demonstrates the ski undercarriage in the retracted position. (www.argothypermedia)

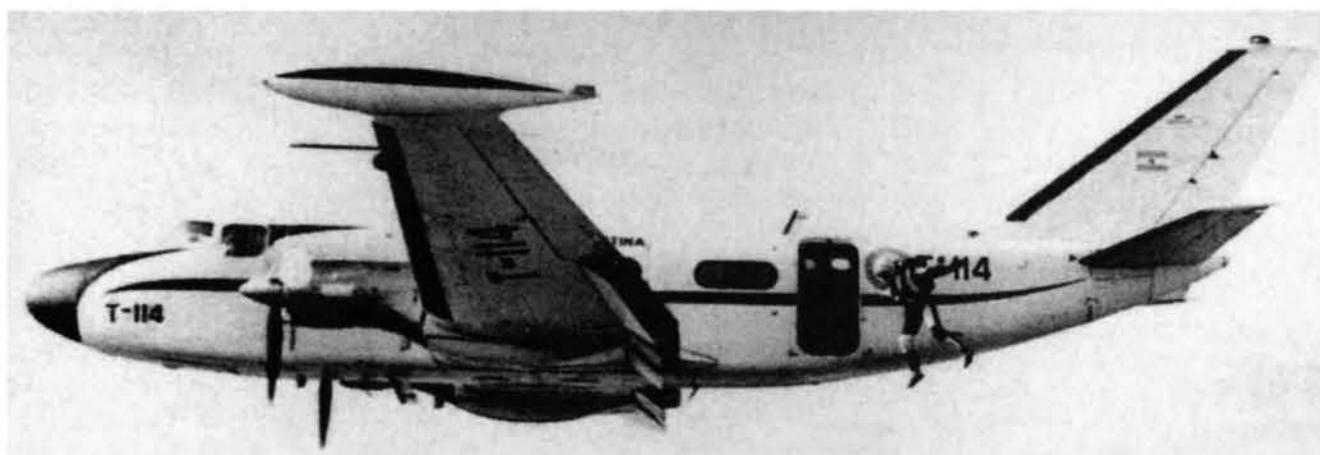
**Below right:** The only IA-50 to be painted in LADE livery, T-114 was photographed at Ezezia in the late 1960s.  
(Alex Reinhard)



except F-31 which was assigned to II Brigada Aerea in Parana (replacing IA-35 Huanqueros). In 1968, T-118 to T-123 followed as well as F-32. Thus 15 transport versions had been delivered to I Brigada (T-110/T-124) and 2 photographic versions to II Brigada (F-31/32). The newly delivered Guaranis at Palomar made up a new "Escuadron III" within the Grupo I de Transporte Aereo. One, T-115, was assigned to "Escuela de Aviacion Militar" (EAM) in Cordoba from 1968 until 1973 when it returned to Palomar. T-122 became the personal aircraft of the Air Force Commander in 1968 and T-124 that of the Joint Chief of Staff.

As such, they spent most time at Aeroparque within easy reach of Air Force headquarters and they sported special titles and insignias.

As mentioned above there was a photographic version of the Guarani. This was an early requirement and thus the sixth production aircraft was redesigned as a photographic platform with German Zeiss camera and was delivered to the Air Force as F-31 in August 1967. Since the II Brigada Aerea in Parana was responsible for reconnaissance flights, this was delivered directly to Parana. There the photo-



**Left:** Another role for T-114, here being used for trials dropping parachutists.  
(G Pavlovic collection)

**Right:** T-113 of the Argentine Air Force was modified at the factory and then leased to the Navy as 5-T-30 for evaluation but this did not result in an order.  
(Alex Reinhard)

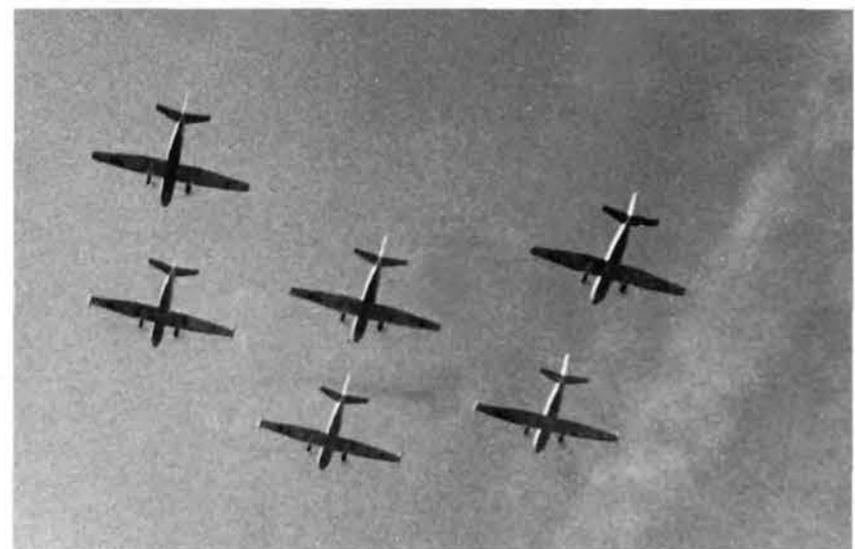




**Left:** Guarani T-114 being towed along a rural road with wings removed after being recovered from an accident in 1971. (A Marino collection)

**Below left:** Model of a proposed enlarged 21-seat pressurised version of the Guarani. (www.argohypermedia)

**Below right:** Formation of six Guaranis over Buenos Aires on July 9th, National Independence Day, 1971. (Horacio Gareiso)



graphic Guaranis (five were eventually manufactured) made up the "Grupo Aereo 2" and would spend their entire careers flying out of Parana (along with the Canberras).

In a document from February 1966 there is mention of planned serial allocations with "Transport" version being from T-111 and upwards, "Photographic" version F-31 and upwards and "Ambulance" version "S-21" and upwards but this last model was never implemented.

The Air Force was proud of the new Argentine aircraft and soon used it for various missions to neighbouring countries. T-112/113/114 took an official delegation to Asuncion, Paraguay in March 1967 and T-114 flew officials to Santa Cruz (Bolivia) in October 1967. On Independence Day festivities, July 9th 1971, IA-50 participated in a formation flypast with five others over central Buenos Aires. TX-110 flew down to Antarctica in November 1968 with extra tanks in the fuselage, but the Guarani was never employed on any other Antarctic flights and this was just a PR-initiative. It did not have sufficient range and the runway in Antarctica was poor (as was later discovered with an F-27 that was severely damaged...). The Air Force flew scheduled services to neighbouring countries supporting its diplomatic missions, in particular to Montevideo, where the Guarani was regularly employed starting in February 1967. For the other services, the Air Force used DC-6s and later Caravelles.

The early in-service history of the aircraft was marred by a serious accident in Cordoba where T-123 exploded after take off on May 27th, 1969 and all 6 on board were killed.

Both FMA and the Air Force were looking for new opportunities for the Guarani. In December 1968, T-113 was taken back to the factory to be prepared for lease to Argentine Navy for evaluation. As "5-T-30" it was handed over in April 1969 and tested by the Navy until December when it was returned, without an order. They would later buy the Beech King Air to replace their old Beech C-45s. T-114 was painted up in "LADE" livery with metallic fuselage and white top for evaluation by LADE, however it did not do well in the austere conditions of Patagonia so the Air Force ordered 7 Twin Otters to handle the rough strips. These are still in service, 40 years later.

FMA nevertheless continued to explore new uses for the Guarani. Dropping paratroops was tried but this was not successful because of

small cabin and door. In 1968 T-125 was modified with skis in order to explore operations from snow-covered runways. The skis were attached to the landing gear and could be partially retracted. The tests were successful but the Guarani never used skis operationally.

Meanwhile a second production run was launched in March 1970 for 14 aircraft. This was based on interest shown by various provinces for a light transport aircraft. Amongst these were the Provinces of Buenos Aires, Cordoba, Corrientes, and Formosa (which took DC-3s from the Air Force instead). Of these only Cordoba would end up buying the IA-50. Obviously with the factory based in Cordoba there was pressure on the local province to buy the aircraft. However other provinces such as La Rioja, Catamarca and Entre Rios eventually ordered the aircraft.

Another new mission was found for the IA-50, namely airways calibration. At that time DC-3s were used for calibration of navigational aides at the airports. Two new Guaranis were suitably modified before being handed over as VR-15 and VR-16 in 1971 and 1972. These were operated by "INAC" at the Moron airbase outside Buenos Aires and would continue in service for the next decade. Two other government agencies purchased Guaranis from the 2nd production batch. One was the Ministry of Social Welfare which purchased one for ambulance duties (appropriately registered LQ-MBS for the initials of the ministry, "Ministerio de Bienestar Social"). The other was the Federal Prison Administration which purchased one to ferry staff and prisoners between facilities, this was registered LQ-JXY and based at Aeroparque, as was LQ-MBS.

The Guarani continued to perform special flights, such as a visit to Falklands by T-122 on February 17th, 1973. The runway at Port Stanley had just been completed and LADE had replaced the HU-16 Albatross with F-27s on its scheduled service. In the Falklands conflict in 1982 the Guaranis did not participate in any meaningful way.

FMA was still hoping to secure further orders but this proved to be an elusive effort. Meanwhile they had begun the new IA-58 Tucana project amongst various other new initiatives and, as this gathered momentum, interest was lost in developing the Guarani. But there were thoughts of developing a larger pressurised version with four-bladed propellers.



**Above:** The first production aircraft was registered as LV-AMC for a short time - as seen here in late 1970 or early 1971. (Alex Reinhard)

**Right:** F-31 was the first photographic Guarani, seen here at Aeroparque in March 1973 with II Brigada Aerea titles. (Horacio Gareiso)



Hence as the 2nd production batch came to a close it was decided to shut down production with the 34th airframe. This was F-35, the final photographic version for Parana. It was delivered in January 1975, and now attention turned to the new Pucara program.

In the 1970s the Guaranis were allocated mostly to I Brigada Aerea at Palomar (initially 15 examples but T-113 was lost in an accident in October 1974 and T-112 in December 1975 so then there were 13). But II Brigada Aerea in Parana grew to five (F-31/35) photographic Guaranis and the two calibration aircraft (VR-15/16) were at Moron.

In the late 1970s the Air Force added five ex-civilian Guaranis and assigned them military serials, some of these serials had already been used on Guaranis lost in accidents, hence creating some confusion

amongst historians. These were T-111 (ex LV-LAM), T-112 (ex LV-JZS), T-113 (ex LV-LAJ), T-114 (ex LV-LAF), and T-123 (ex LQ-JXN).

With a larger Guarani fleet it was now decided to spread them amongst more airbases, so T-116 went to IX Brigada (Com.Rivadavia), T-118 to V Brigada (Villa Reynolds), T-119 to III Brigada (Reconquista), T-121 to IV Brigada (Mendoza), T-124 to Escuela de Aviacion Militar (EAM) in Cordoba and T-125 to VI Brigada (Tandil). Utilization of the Guarani fleet obviously increased from about 9,000 hours per year in the 1970s to about 12,000 hrs and numbers reached an all-time maximum of 26.

The Air Force did not absorb all civilian Guaranis however. LQ-MBS and LQ-JXY, both now reregistered LV-, continued being flown from Aeroparque into the 1990s.

**Right:** F-33 of II Brigada Aerea suffered a serious accident in July 1974 with 80% damage and is seen back in the factory during repair on 3.2.75. (Marcelo Miranda)





**Left:** The first calibration Guarani was VR-15 No.20, seen here at its base of Moron in March 1975 in its original paintscheme of yellow and red with a dayglow orange nose and black lettering. Wingtip tanks are fitted to extend the operational range.  
(Horacio Gareiso)

The most active civilian operator of the Guarani was without doubt the Entre Rios Province. It's two Guaranis (LV-LAE/LAI) were delivered in 1973 to what was originally known as "LAPER" (Lineas Aereas Provinciales Entre Rios). This was a provincially operated local airline connecting various communities with Buenos Aires. They originally began in the late 1960s with a Cessna 337 and then briefly used a de Havilland Dove before they acquired the two Guaranis. These were based at Parana airport, across the runway from the II Brigada. They remained in service until the early 1990s and went through various livery changes, finally being replaced by Jetstreams 31s. They mostly flew the Parana-Buenos Aires (Aeroparque) service but also served other communities in the Entre Rios Province. One was scrapped, the other has been preserved at the Aeroclub in Parana.

In the late 1980s the next major Guarani shift occurred when all remaining examples were concentrated at II Brigada in Parana with just 5 assigned to I Brigada but mostly operated from Aeroparque for senior Air Force staff. At the same time the two calibration aircraft were converted to transports, given new serials T-110 (ex VR-15) and T-129 (ex VR-16) and also assigned to Parana. Annual utilization had now dropped to about 7,000 hrs for the fleet of 24 aircraft. However EAM in Cordoba managed to hang on to T-124.

Over time the aircraft developed vibrations and ensuing fatigue in the tailplane. Thus in 1987, a program was launched to modify the horizontal tailplane with 14 degrees dihedral to bring it out of the propeller slipstream. In all 28 aircraft were modified, the first of these being F-32 in 1988. This version became known internally as the "IA-50B".

The Guarani had developed a good safety record but in 1983 the worst Guarani accident happened. T-125 suffered engine failure after take off from the factory airfield in Cordoba on October 10th. It tried to return to the airport but crashed locally and 12 on board were killed.

In 1990 the Air Force began slowly deactivating Guaranis, spares for the Bastan engines being an issue. The first to go was T-111 in June, soon followed by T-115 and T-120. Corrosion and fatigue would determine in which order aircraft would be retired. By 1992 21 Guaranis were still in service with I Brigada in Palomar (based Aeroparque), II Brigada in Parana, and one with EAM in Cordoba. Utilization had now dropped to just 2,000 hrs per year for the fleet.

In 1994-95 eleven Guaranis were removed from service and another had been lost in an accident leaving just 8 flying less than 1,500 hours per year. But Guaranis would still participate in the 9th of July air parade in 1998 with 4 aircraft joining Boeing 707, C-130, F28 and F27s.

A few more trickled away so entering the new century just 4 remained in Parana (F-31, F-33, T-110 and T-129). T-129 was donated to a private collection in 2002 and then there were 3. These were now flying a total of 500-600 hours/year. T-110 had the dubious honour of being the last Guarani sent to Cordoba for a major overhaul in 1999/2000. F-33 entered inspection in Parana in 2004 and sufficient corrosion was found to ground the aircraft leaving just F-31 and T-110 in service. It was decided to run both as long as they had enough engines and hours on the airframes.

Overhauls on the Bastan engines had by this time been stopped. T-110 made its final flight on May 31st 2006 having accumulated 9,396 hours. F-31 remained until January 7th, 2007. On that day an emotional ceremony was held at Parana terminating 40 years of Guarani flying in the Air Force. After the ceremony, F-31 flew directly to Moron outside Buenos Aires and was towed into the Air Force museum. It had accumulated 10,331 hours and 11,325 cycles. An era had ended. Even so, T-110 is maintained by the mechanics school in Parana and occasionally the Bastan engines are fired up and the aircraft taxied around on the ramp...

**To be continued with full production list in next issue**

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- IA50 Archive at FMA in Cordoba
- Individual aircraft log-books
- Flight Manual for IA50 Guarani



**Left:** The first truly civilian Guarani was No.21 LQ-JXY seen here with the Federal Police at Cordoba in 12.71 wearing its original paint scheme. The aircraft was used to ferry staff and prisoners between institutions.  
(Hiracio Gareiso)

# The Curtiss-Reid Rambler

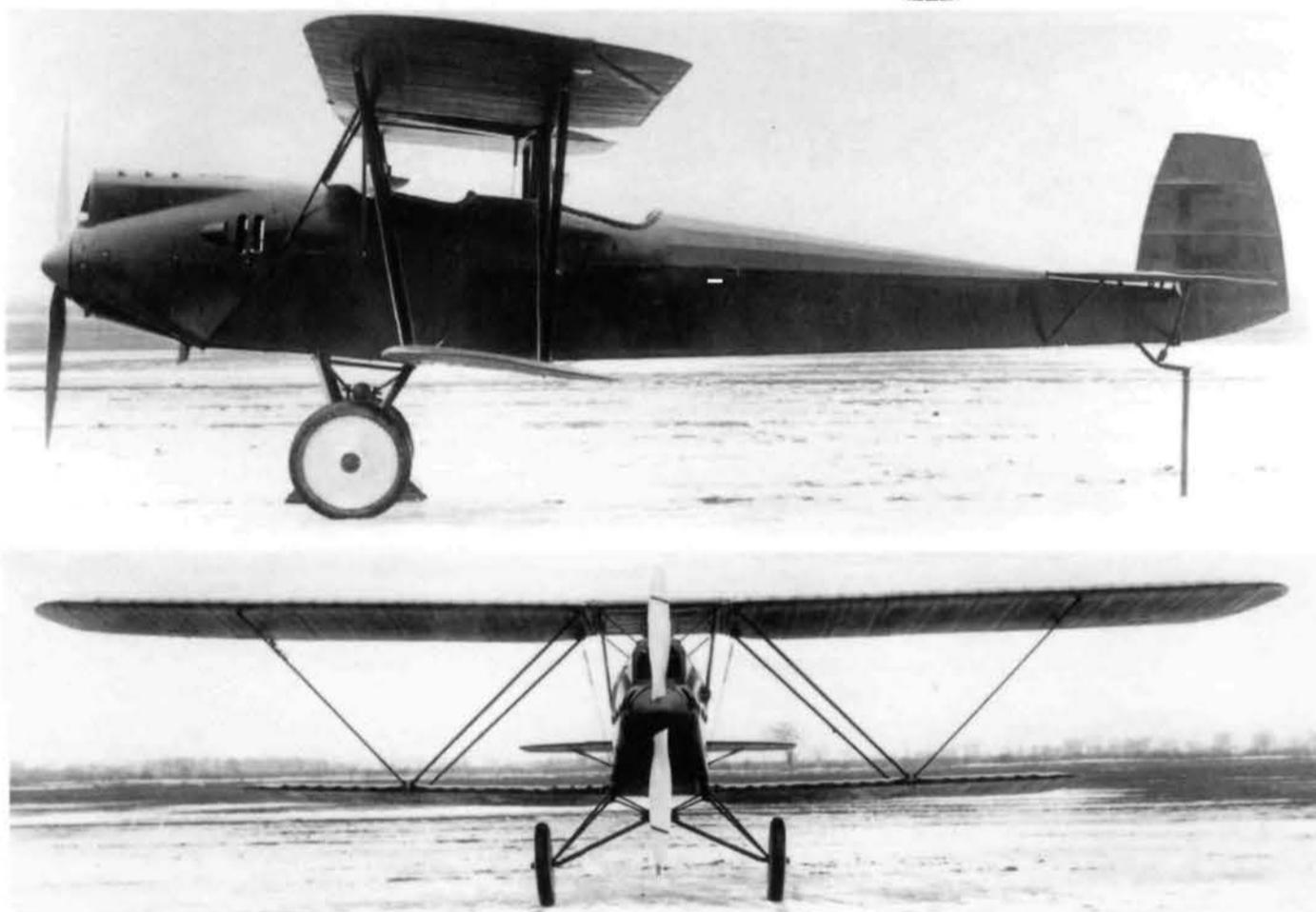
HEAD-ON VIEW

No.33



**Right:** Two views of the Reid Rambler, later to be registered G-CAVO. The sesquiplane layout is clearly visible, with the lower wing of smaller span and chord than the upper wing. The angular balanced rudder, close-cowled engine and single stub exhaust are further notable features.

(JM Collection)



The Curtiss-Reid Aircraft Co Ltd was formed in December 1928 when the New York-based Curtiss Aeroplane and Motor Company Inc took a controlling interest in the Reid Aircraft Company of Montreal. The Canadian company had itself only been set up in February of that year by former Canadian Vickers designers William T Reid and M J Berlyn. Together they designed a two-seat sesquiplane as a club trainer, private tourer and light transport aircraft. Yhis aircraft first flew at Cartierville, Montreal on 23rd September 1928, piloted by Martin Berlyn, and was named the Reid Rambler at a demonstration ceremony on 29th September.

The Rambler's fuselage was a rectangular structure of welded steel tube, fabric-covered, as was the tailplane which consisted of a one-piece horizontal unit and a balanced rudder with no fixed fin. Tandem

open cockpits with full dual control were to be standard. The wings, which folded for storage, consisted of duralumin spars and ribs, fabric-covered, with the top wing supported above the fuselage on steel tube struts. The interplane struts, also of steel tube, were circular in section on the prototype but streamlined on production Ramblers, forming a vee when viewed from the front. A 20 gallon (90 litre) fuel tank was fitted in the centre section of the top wing. Sharply angled, almost triangular, ailerons were fitted to the top wing only.

The undercarriage consisted of a pair of interchangeable vee-strut units with rubber shock absorbers. On the prototype a braking system linked to rudder application was designed to aid ground handling but this was not used on production aircraft. A tailskid was fitted as standard and ski or float undercarriages were available as options.



**Above:** A Curtiss-Reid Rambler I with DH Gipsy I engine and the long Moth-type exhaust extending to beyond the rear cockpit. On this particular example there is a fixed fin and the rudder conforms more or less to the angular shape of the prototype's. The central rubber shock absorbers acted as compression discs when the aircraft landed and the wheels attempted to splay. JM Collection)



**Left:** A Rambler I c/n 39 CF-CBI was owned by the Montreal Light Aeroplane Club but was short-lived, being written off after less than 8 months service. Note the rounded rudder on this example.

(via JM Collection)

**Below:** Another view of CF-CBI. The medallion on the front fuselage contains the letters CRAC for Curtiss-Reid Aircraft Co.

(via JM Collection)

Power was provided initially by an 80hp ADC Cirrus Mk.II 4-cyl in-line engine, fully cowled, with metal propeller and spinner and with a short downward-aligned stub exhaust.

Dimensions were: Span 33 ft (10.05 m), Length 22 ft 6 in. (6.85 m), Height 8 ft (2.43 m), Empty weight 850 lbs (385.9 kgs), All-up weight 1,445 lbs (656 kgs). It was noted that at this all-up weight the Rambler was fully aerobatic, but for commercial, non-aerobatic use the AUV could be increased to 1,650 lbs (750 kgs).

The prototype, said to be c/n 1000 in some sources - but see later, was G-CAVO and was registered to Reid Aircraft Co, Montreal on 29.9.28. It had been fortunate to survive its first flight when the ailerons seized and control was limited, but the problem was quickly solved. The aircraft was used for development but was cancelled on 12.12.29 and dismantled, the fuselage being used in the construction of the Elton Monoplane CF-BPB.

Production Ramblers came in three main versions according to engine type but major redesign of the main components did not occur until the Mk.III was introduced.

**Rambler I** production made use of an 85-100 hp Gipsy I engine giving a maximum speed of 102 mph (163.2 kmh) and a cruise of 90 mph (144 kmh). Stalling speed was 38 mph (60.8 kph). One example used a US-built Wright Gipsy with clockwise rotation, this was NC661W. A long port side exhaust was fitted on the Rambler I and the tailplane was modified with a fixed fin and rounded rudder. A streamlined headrest



was fitted behind the rear cockpit and Goodyear doughnut wheels could also be selected. Two examples, CF-ABV and -ABX were fitted with Handley Page slots, as was the RCAF's C-CYXC and possibly their others (see photo of CF-CEA).

The **Rambler II** actually went into production in 1929 before the Rambler I, and the first example, CF-AAU, was given the c/n 1000 which may indicate that this would be incorrect for G-CAVO. Unfortunately it was damaged beyond repair in a forced landing during its delivery flight in March 1929. Now known as the Curtiss-Reid Rambler II, this model was available with either ADC Cirrus II (80hp), Cirrus III (95hp) or Cirrus Hermes (115hp) engines. In many ways the Mk.II resembled the prototype, with balanced rudder, short exhaust and triangular ailerons. Some individual aircraft were modified with later features or with Gipsy engines and at least one, CF-ABP, was fitted with independently-mounted Curtiss-Reid floats and at least one other

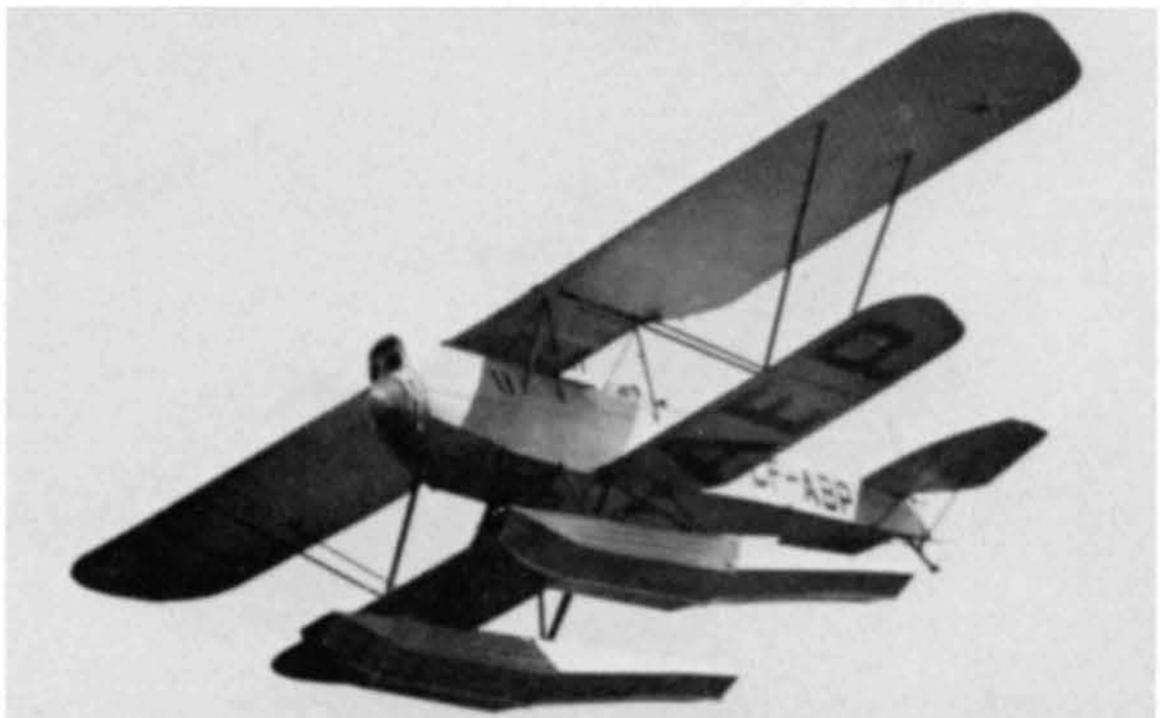


**Above:** An unmarked Rambler II outside the Cartierville factory. This model retained the balanced rudder of the prototype and could be fitted with a variety of Cirrus engines. (via JM Collection)



**Above:** A rear view of the same Rambler II as in the previous photo. The centre-section fuel tank is clearly visible, as are the vee wing bracing struts and the lower starboard wing walkway for access to the front cockpit (via JM Collection)

**Right:** Rambler II CF-ABP (Cirrus III) was fitted with a pair of independent Curtiss-Reid floats which had no cross-bracing. Later as a landplane it was Gipsy I powered and was one of the Ramblers that crashed as a result of incorrect wing-locking procedures. (via JM Collection)



floatplane conversion was reported. The Cirrus III version was identified by a modified cowling which created the impression of a double intake above the propeller boss.

Performance figures for the Rambler I and Rambler II were:

	<i>Rambler I</i>	<i>Rambler II</i>
Engine type	Gipsy I 90hp	Hermes 115hp
Max speed	102mph (163kmh)	112mph (179kmh)
Cruising speed	90mph (144kmh)	95mph (152kmh)
Stalling speed	38mph (61kmh)	40mph (64kmh)
Empty weight	1,000 lb (454 kg)	900 lb (408 kg)
All-up weight	1,650 lb (749 kg)	1,500 lb (681 kg)
Rate of climb	750ft/min (229m/min)	8 5 0 f t / m i n (259m/min)
Service ceiling	12,000ft (3,660 m)	13,000ft (3,965m)
Range at cruise	315mls (504km)	332mls (531km)

A more substantial redesign produced the **Rambler III** in 1931. This was fitted with a 120hp DH Gipsy III inverted in-line engine, the front fuselage was lowered and lengthened, the undercarriage moved forward to compensate, and the fin and rudder were enlarged and rounded in shape. Apart from the increase in length to 24 ft (7.31 m) the dimensions were the same as the Mk.I and



**Above:** Rambler I CF-CEA was the former RCAF 150 and is seen here fitted with leading edge slots, a Gipsy I engine and Goodyear doughnut tyres. (via JM Collection)

**Right:** Another anonymous Rambler II, this one is clearly a Cirrus III version as distinguished by the cowling design. (via JM Collection)





**Left:** Rambler II with Cirrus III demonstrating the wing-folding mechanism. Failure to lock the wing in the correct sequence led to a number of accidents. (via JM Collection)

**Below:** Rambler II CF-ABQ is clearly showing the 'triangular' skewed ailerons on the upper wing. (via JM Collection)



**Above:** RCAF's G-CYXC was originally a Cirrus III Rambler II model but was converted to a Hermes engine as shown here before it was sold as civil. The leading edge slots are closed and the rudder converted to Rambler I standard. (via JM Collection)

II and the empty weight increased to 1,075 lbs (488 kg), loaded 1,650 lbs (749 kg). Performance figures increased to Max speed 126 mph (202 kmh), cruise 107 mph (172 kmh), rate of climb 1,060 ft/min (323 m/min) and ceiling 14,000 ft (4,270 m).

The prototype Rambler III was CF-ABZ c/n 1020 which flew in early 1931. This aircraft was used in an attempt on the Canadian altitude record on 26.5.31 and is thought to have reached 22,000 ft (6,705 m) but the barograph froze and the record could not be confirmed. Another



example, CF-ALL c/n 1031, was flown in the summer of 1931 as a high-wing monoplane and re-converted to biplane as a seaplane with Edo floats, in which form it was exported to Hong Kong.

Attempts to interest the RCAF in the Rambler III were unsuccessful in competition with the DH.60 Moth, even with the improved performance now offered. Indeed, it was this promising performance that led to John C Webster entering CF-ABZ, which he now owned, in the King's Cup Air Race of 1931 - for which it qualified by being 'British'. The Rambler was shipped to the UK on board the *Empress of Australia* simply with its wings folded and, with its front cockpit covered over and wearing Race No.35, was eventually flown to 13th place by Webster in the King's Cup at Heston on 25.7.31. A further British connection with this



**Above:** Rambler III CF-ABZ seen at Montreal wearing the badge of the Montreal Light Aeroplane Club just to the right of the registration. The figure standing in front of the aircraft is assumed to be the owner, J C Webster. (via JM Collection)

**Above:** CF-ABZ being unloaded from the Empress of Australia after being shipped from Canada in order to take part in the 1931 King's Cup Air Race. In the days before containerisation an aircraft could be transported with little protection - but having folding wings certainly helped!  
(via JM Collection)



**Below:** CF-ABZ in King's Cup mode with the front cockpit faired over and Race No.35 on the rudder. The Rambler averaged 114.2 mph in the race, which was won by a Blackburn Bluebird IV G-AACC in terrible weather conditions.  
(via JM Collection)



**Above:** Port side view of CF-ABZ shows completely clear cowlings and single stub exhaust.  
(via JM Collection)

**Below:** Head-on View of the Rambler III - the lower nose improved forward visibility over the inverted engine.  
(via JM Collection)



aircraft was established when CF-ABZ returned to Canada and Miss Winifred Spooner flew it in events in the USA. As for Webster, sadly he was killed at Montreal in an aerobatic display accident, after which a Canadian trophy was named after him.

Many of the Ramblers had relatively short flying careers. Engine failures seem to have blighted a number of them and the wing-folding mechanism, when improperly applied, resulted in at least three accidents, one of them fatal. When it was formed, the Curtiss-Reid company had estimated sales of 250 aircraft per year, in addition to which it operated a number of flying



**Above left:** Rambler III CF-ALL c/n 1031 moored on its Edo floats. In this form it was sold in Hong Kong but previously it had been unsuccessfully trialed as a parasol monoplane. (via JM Collection)

**Above right:** NC661W, c/n 1040 was one of only two Ramblers registered in the USA and the only example to be fitted with a Wright Gipsy engine with right-hand (clockwise) rotation. (via JM Collection)

schools and commercial air services. Its timing was bad. The stock market crash and the depression, allied no doubt to the competition from the likes of Fleet and de Havilland, brought an end to operations in 1931. The Curtiss link ended and the remains of the company became Montreal Aircraft Industries. Curtiss-Reid Flying Service, the school based at the factory airfield at Cartierville, continued operating and over the next few years assembled a few remaining airframes. No Curtiss-Reid Ramblers are known to exist today.

**Brief histories:**

Reid Rambler:

1000? G-CAVO 29.9.28 cld 12.12.29, dism and fuselage used to build Elton Monoplane CF-BPB.

Curtiss-Reid Ramblers:

1000 II CF-AAU .29 cr 21.3.29 Gananoque, Ont on dely.  
 1001 II CF-AAV 12.4.29 re-engined Gipsy I, 11.29; cr Cartierville, PQ 16.8.31 practising spins.  
 1002 - ? development aircraft?  
 1003 II G-CYXC 6.5.29 Cirrus III then Hermes; to CF-CDY 7.3.32, stalled on t/o Napinka, Man 12.7.34, w/o.  
 1004 - ? development aircraft?  
 1005 II CF-ABO 5.4.29 re-engined Gipsy I, 11.29; stalled & cr Cartierville, PQ 6.10.30.  
 1006 II G-CYXD 17.10.29 damaged 25.5.30.  
 1007 ? R-175 4.7.30 later LV-TAA, cld 2.6.59.  
 1008 II NC779Y .29? 75hp Cirrus; to CF-ATP 23.10.32; spun in & dbr Steinbach, Man 14.7.34.  
 1009 II CF-ABP 9.7.29 re-engined Gipsy I, 10.29; sometime floatplane; cr Cartierville, PQ 30.7.30, wing folded on t/o.  
 1010 II CF-ABQ 10.6.29 cld 12.2.30.  
 1011 II CF-ACI 20.7.29 re-engined Gipsy I, 11.29; Mk.III tail 8.33; stalled & cr Ville St Laurent, PQ 26.5.35.  
 1012 II CF-ABR 22.8.29 re-engined Gipsy I, 11.29; Gipsy III, 11.32; cld 24.11.36. Rebt with new fuselage as c/n 1036 CF-BIB, 1937.  
 1013 II CF-ABS 22.8.29 re-engined Gipsy I, 1.30; cr Toronto, Ont, 13.1.30, wing folded on t/o.  
 1014 II CF-ABT 6.2.30 re-engined Gipsy I, .30; Hermes, .30; Gipsy II, 5.32; stalled & cr Cartierville, PQ 19.10.34.  
 1015 I CF-ABU 2.5.30 dbr landing Gypsumville, Man .39.  
 1016 I CF-ABV 13.5.30 to RCAF as Instructional Airframe.  
 1017 II CF-ABW 29.1.30 Hermes I, floatplane; dbr landing on Back River, Cartierville, PQ 20.6.30.

1018 I CF-ABX 29.1.30 dbr on t/o nr Lakefield, Ont 8.9.37.  
 1019 I CF-ABY 1.3.30 dbr St Hubert, PQ 10.8.31.  
 1020 III CF-ABZ 31.3.31 re-engined Gipsy I, 16.7.32; collided with Travel Air CF-AME on t/o, Cartierville, PQ 28.5.33.  
 1021 I RCAF145 2.4.30 to CF-CDZ 13.10.33; dbr, engine failed on overshoot, Kitchener, Ont 7.7.34.  
 1022 I RCAF146 2.4.30  
 1023 I RCAF147 2.4.30  
 1024 I RCAF148 2.4.30 to CF-CDS 17.2.33; dbr on t/o Walkerville, Ont 14.5.33.  
 1025 I RCAF149 2.4.30  
 1026 I RCAF150 2.4.30 to CF-CEA 25.10.33; wfu 8.5.41.  
 1027 I CF-ALH 3.5.30 cld 28.6.43 as wfu.  
 1028 I CF-ALI 19.5.30 dbr in heavy landing, Cartierville, PQ 14.8.32.  
 1029 I CF-ALJ 17.5.30 engine failure, dbr, St Catherines, Ont 27.5.33.  
 1030 II CF-ALK 9.8.30 Hermes; stalled & cr Victoriaville, PQ 11.3.31.  
 1031 III CF-ALL 26.6.31 monoplane 7.31 - 10.31; floatplane, to Hong Kong 2.32, sold locally 9.34. Curtiss-Reid Courier.  
 1032 - CF-ALM not built? Intended Courier?  
 1033 - ?  
 1034 I CF-ALO 11.9.35 hit cable & dbr, Dorval, PQ 5.7.41.  
 1035 I CF-ALP 24.8.36 cr Cartierville, PQ 20.5.40.  
 1036 III CF-ALQ - Allocation, ntu  
 III CF-BIB 16.7.37 new fuselage to rebuild c/n 1012; stalled & cr St Johns, PQ 26.9.46.  
 1037 I CF-ALR - Allocation, ntu  
 II CF-BMH 28.6.39 stalled & cr Cartierville 29.9.41; parts used to build CF-BVL, regn appln 23.10.41 but not completed.  
 1038 - CF-ALS - Allocation, ntu, not built.  
 1039 I CF-CBI 16.4.30 engine failure, cr Montreal 6.12.30.  
 1040 I NC661W 4.31 Wright Gipsy; w/o 8.31.  
 1041 I CF-CCB 15.7.30 re-regd CF-AUO 20.10.33; cr London, Ont, wing folded after t/o 16.3.34.  
 1042 ? ? ? to Chile?  
 1043 ? VT-ACX 6.31 cld 14.2.41, to XY-AAG, destr WW2.  
 1044 ? VT-ACY 6.31 cld 3.9.39, to XY-AAF, destr WW2.

End of Curtiss-Reid production.



**Left:** While no photograph seems to exist of the Rambler CF-ALL as a parasol monoplane, we are able to illustrate the Elton Monoplane CF-BPB which utilised the abandoned fuselage of the original Reid Rambler G-CAVO with a 5-cylinder radial for power. (via JM Collection)

# The Development of Commercial Aviation in China

PART 10A

## China National Aviation Corporation 1945-1949

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GROUP



### Introduction

This article concludes the history of China National Aviation Corporation (CNAC) by covering the post-war period from 1945 to 1949. The pre-war period from 1929 to 1941 was covered in Parts 1 & 2 [Archive, Spring & Summer 2007] and the wartime period (1941-1945), including operations over the Hump, was covered in Part 6 [Archive, Autumn & Winter 2008]. The background to this post-war period is the Chinese civil war, which has been described in detail in Part 8A [Archive, Summer 2009].

### The rise and fall of China National Aviation Corporation

#### 1945: Return to Shanghai

Early in September 1945, shortly after the surrender of Japan, William Langhorne Bond headed a party of CNAC personnel that flew from Chungking to Shanghai.

The C-46 was so heavily loaded that they flew from Luhsien, the new field 90 miles up river from Chungking, which had a concrete runway about 6,000 feet long. This had recently been built on the Yangtze River so that aircraft flying from India could deliver cargo for onward distribution into China by water.

The aircraft carried twelve passengers including the crew; a jeep and a trailer; 260 pounds of food, as they were uncertain of the food situation in Shanghai; a radio station; and nine drums of gasoline for the return trip and for the jeep. Although the aircraft weighed approximately 50,000 pounds, they had no trouble getting off. They landed at Tachang Field; a new airport built by the Japanese about eight miles northwest of Lunghwa Field.

The next day Bond turned to the business of examining facilities in preparation for re-establishment of air services from Shanghai. CNAC first planned to make their base on Tachang Field, which had a good runway and good parking strips; two big hangars and four smaller ones; and an engine overhaul building. Kiangwan Field, about four miles due east of Tachang Field, was a bigger and better field, but they figured it would be very congested and they would do well to stay off it. It had been a military field and everything was arranged for dispersal, with twenty hangars as far apart as possible and all small. There were still Japanese troops and planes on Tachang Field as well as at Kiangwan.

They went out to their old operating base of Lunghwa and found their two hangars in fairly good condition. These had been machine gunned but had received no direct hits from bombs. There were a lot of small buildings and barracks, and many of them had been bombed. The field was covered with small concrete bombproof single-plane hangars and

*Above: CNAC Douglas C-54B XT-T02 which operated the trans-Pacific service to San Francisco from October 1947 seen en route at Hawaii. (Ian D Johnson collection)*

a number of revetments. The runways at Lunghwa, which had been made of broken bricks and cinders, were all overgrown with weeds.

On their return to Chungking, Bond learned that their plan to use Tachang as their Shanghai base was not possible. General Chow, head of the Chinese Air Force, wished to reserve Tachang and Kiangwan for military purposes and instructed CNAC to go back to Lunghwa. They did not consider this much of a disappointment, as Lunghwa was a better location. The day after receiving these instructions from General Chow, there was a meeting called by the US Army to discuss aviation problems in Shanghai, to which all of the operating agencies were invited, including General Moseley; General Stone, 14th Air Force; General McConnell, Chief of Staff for General Stratemyer; and CNAC.

It was decided that the USAAF Air Transport Command, Air Service Command, and the Troop Carrier Command would use Kiangwan, and the 14th Air Force would use Lunghwa. The Chinese Air Force would exclusively use Tachang. Although that initially left CNAC out in the cold; CNAC would temporarily join the American Army Group at Kiangwan.

CNAC would move to Lunghwa as soon as the 14th Air Force gave it up, probably around the middle of November 1945 or later. Bond thought they were getting a very good break. Lunghwa needed a lot of work and a great deal of money spent on it. The 14th Air Force would get it in shape far quicker than CNAC could. The 14th Air Force would be off the field before CNAC could have it in operating condition. In the meantime, Kiangwan would be adequate and CNAC would have the advantage of being close to the US Army where they could get supplies and gasoline.

CNAC made considerable progress in the re-establishment of services during the next few months. The airline moved more than 10,000 tons of equipment and some 1,000 employees from Calcutta to Shanghai. A maintenance base, capable of performing major overhauls of aircraft and engines, was established at Lunghwa. Runway improvements and construction of hangars and other ground facilities throughout China were undertaken by the airline when the Chinese government - as usual - proved reluctant to provide expenditures for such purposes. A communications and weather reporting network, involving 48 radio stations and an investment of \$1.5 million, covered the areas of operation. CNAC acquired approximately 50 C-47s and C-46s, in various states of repair and useful mainly for spare parts, from the Army-Navy

Liquidation Commission and the Surplus Property Administration; it also purchased six C-54s for \$540,000 and had them converted to airline use at a total cost of \$2.1 million. By May 1946, CNAC had 25 aircraft in operation.

CNAC's initial task at the end of the war involved transportation of government employees from Chungking to Shanghai, Peking, Canton, and other points throughout China. Between September 1945 and January 1946, CNAC carried 20,857 passengers and 1,004 tons of freight, mostly government documents and property. CNAC next moved to reopen its pre-war lines from Shanghai to Peking, Chungking, and Hong Kong. The airline reached 1,900 miles to the northwest: to Hami in the Gobi Desert via Chengchow, Lanchow, and Suchow. New routes were opened to Haikow on Hainan Island and Taipei on Taiwan. International service extended to Bangkok, Rangoon, and Calcutta, while plans went forward for service to Manila and Tokyo, as well as a transpacific route to San Francisco. By the summer of 1946, CNAC was flying 400,000 miles a month. [Bond pp.361-364; Leary TDW pp.193-195]

### **New contract, new company**

In November 1944, Bond had sent a memorandum to Chinese vice-premier H H Kung in which he laid out guidelines for a reduced post-war relationship between Pan American and the Chinese government in the ownership and operation of CNAC:

*"With the approaching expiration on July 8, 1945 of the contract between your Government and Pan American Airways in the operation of China National Aviation Corporation, we believe it is to the mutual interest of the Chinese Government and the American partner that an early understanding be reached regarding the terms and conditions upon which our association may be continued. We anticipate that China will desire that the new arrangement provide an increase in China's interest and decrease in Pan Am's interest in CNAC so that China's position will conform generally with the position taken by other sovereign states with respect to the ownership of air transportation companies.*

*"The United States Government permits a maximum 25% foreign ownership of stock in domestic aviation companies. This is as large as, or larger than, the foreign interest allowed by other countries having advanced systems of air transportation. With this in mind, we propose that the new ownership be Chinese Government 75%, Pan American 25%, and that the change be accomplished by CNAC purchasing a portion of the stock now held by Pan American. The Chinese Government would not be required to pay anything or make any financial commitment in effecting this adjustment in ownership. Under the new agreement the Chinese Government would continue to receive full operational and technical assistance from Pan American and all of the benefits of cooperation provided under the old agreement."*

Bond described the subsequent negotiations in a letter to Harold Bixby in April 1945. Knowing that the present Minister of Communications, General Yu Fei-peng, had far greater experience in military affairs than in business or international matters, Bond decided to take the question of the termination and extension of the CNAC contract up with Dr T V Soong. Dr Soong was very pleased with Bond's proposal and sent it to the Generalissimo with his support. Later Dr Soong sent for Bond and informed him that the Generalissimo had approved his proposal with the exception that the ten year extension should be reduced to five years.

Dr Soong told Bond to see General Yu Fei-peng at once. He saw General Yu and told him that Pan American considered three and a half million dollars to reduce their interest to 20% their absolute minimum but Bond hoped he would increase it. This seemed to amuse the general! Bond then met with the CNAC directors. CNAC Managing Director General Shen thought two and a half million was a reasonable price, basing his opinion on an estimated total value of ten and a half million. As the meeting progressed, all the points were agreed except the price. After the meeting Bond, the Minister and all the Directors had dinner and played drinking games. General Yu had a reputation as a drinker but Bond managed to put him under the table and they had to get a sedan chair and four coolies to take him downstairs.

The next morning Bond met General Shen and Dr Soong. Shen said he thought a fair valuation of the Company was ten and a half million. Bond told him he thought twelve million was closer. Bond went over his figures and showed him some items Shen had left off, and got him up

to eleven million one hundred and eighty-eight thousand. Dr Soong told him to get it in writing and to General Yu at once. Bond returned to the office and wrote out the agreement, which he and General Shen signed. A letter was drawn up to Minister Yu, translated into Chinese, and sent to Minister Yu Fei-ping. Bond gave full credit to Dr Soong for what had been accomplished but was frustrated by the continued absence of George Sellett, the senior Pan American representative, who was required to close out the negotiations in China. [Bond pp.358-359]

The new contract between the Ministry of Communications (MOC) and Pan American Airways Corporation defining Pan American's post-war role finally became effective in November 1945. The negotiations leading to the signature of this contract were also described in Part 6, *Archive* p.2008/186. Pan American lowered its share in the new company to 20%, as Bond had proposed, and succeeded in getting eight prime routes, listed below:

"While this contract is in force the Chinese Company shall operate and furnish air transport services on the following routes:

**Route No.1:** Shanghai – Nanking – Kiukiang – Hankow – Ichang – Wanh sien – Chungking - Chengtu;

**Route No.2:** Shanghai – Nanking – Tsingtao – Tientsin - Peiping;

**Route No.3:** Shanghai – Ningpo – Wenchow – Foochow – Amoy – Swatow - Hong Kong - Canton;

**Route No.4:** Chungking – Kweilin – Liuchow – Wuchow – Canton - Hong Kong;

**Route No.5:** Chungking – Kweiyang – Kunming – Burma - Calcutta; Kunming - Rangoon; Kunming - Hanoi;

**Route No.6:** Chungking – Lanchow – Suchow - Hami;

**Route No.7:** Chungking – Hangchung – Paochi - Sian;

**Route No.8:** Hankow - Changsha.

It is understood, however, that another airline operator or operators may also operate on any route which may be operated by the Chinese Company if the Government determines that such parallel operation is necessary. Operation by the Chinese Company into foreign territory on any route may be delayed until consent is given by the foreign government concerned."

[Article V – Air Routes, Section 1; TNA CO537/5633 #466 RPH1] ('RPH' numbers refer to documents in an affidavit of Richard P Heppner, attached to the legal opinion of Mr Eldon Potter, KC, counsel for C&W.)

The first three routes were essentially the old CNAC core routes, with Routes 4 and 5 being the routes developed after the start of the Sino-Japanese War. One key paragraph in Article V, Section 1(see above) left CNAC open to undesired competition.

The contract also provided less long-term assurances than Bond had sought. The contract was for only five years with automatic five year extensions, but contained a clause allowing the Chinese government to terminate the contract at the end of the first five years with one year's written notice of such termination. (Article IX, Section 3)[Bond p.366-367]

The contract stipulated that "*Share certificates of the Chinese Company shall be in the form of registered shares and bear the name of the owner. No shares shall be transferable except as provided for in this contract.*" [TNA CO 537/5633]

There is a copy of this contract in legal papers in TNA file ref. CO 537/5633 together with the Memorandum and Articles of Association of China National Aviation Corporation.

### **1946: International expansion**

By January 1946, CNAC announced that it would begin flights from Hong Kong to Taiwan and Hainan Island. Connecting flights via Shanghai were already available to Beijing, Hankow, and Nanking, while Chungking was the location for onward journeys to Kunming and then on to Calcutta. The airline had resumed its Manila to Hong Kong service at the end of March, and by the end of April had extended routes available out of Hong Kong to many cities in China. [WOHK p.176]

In January 1946, Bond wrote to General Shen, Managing Director of CNAC, with his thoughts on CNAC's development of international routes and the equipment that would be required:

*"My original opinion was that CNAC ... should not attempt to fly beyond those countries immediately adjacent to China, such as Japan, the*

**Right:** CNAC routes in 1946 following the resumption of internal services.

KEY: Kw Kweiyang      Ta Taihoku  
Fo Foochow

Philippines, Malaya, Dutch East Indies, Indo-China, Burma and India for the next several years. However, I am now firmly convinced that there are no limits to what CNAC can do from a financial and economic point of view, provided we do it safely and with reasonable efficiency.

"We have just bought six C-54s and they will be a great help, but CNAC cannot hope to compete in international air transport service if we use C-54s. The competition among international routes is going to be terrific, and we must be prepared to meet this competition right from the beginning. In agreeing to let CNAC have two new Constellations from its orders at this time, Pan American is demonstrating its desire to cooperate with CNAC in every way. Two Constellations, like two of any other type plane, will be uneconomical to operate. Mr Trippe has agreed to let CNAC have five more Constellations which have been used by Pan American Airways within a year. These Constellations will be in excellent condition and priced on a depreciated basis, an excellent transaction for CNAC worked out to fit CNAC's needs.

"The Chinese Government will need to negotiate details with the foreign governments concerned for CNAC to get operating permission from China through Europe to London, and from China to the United States. Seven planes will enable us to operate schedules of at least two per week to both of these Continents." [Bond pp.367-368] (CNAC did not receive any of Pan American's Constellations.)

China's need for internal communications remained as great as ever, but air transportation depended upon imported equipment and fuel, and this meant a constant drain on the nation's depleted reserves of foreign exchange. One DC-3 flying 200 hours per month cost approximately \$500,000 a year in foreign exchange to operate. The estimated demand in 1946 for gasoline and lubricants for all forms of transportation amounted to \$50 million.

A partial solution to China's transportation dilemma lay in adoption of a comprehensive scheme for efficient air services, with major equipment purchases financed by long-term loans. Although several proposals were developed to that end, China's need for communications was too pressing and the will of the central government was too weak for the implementation of such a programme. In fact, the Nationalists allowed two additional airlines to emerge after the war: Central Air Transport Corporation (CATC) (see *Archive* Part 8) and Civil Air Transport (CAT) (to be discussed in Part 11). [Leary TDW pp.195-196]

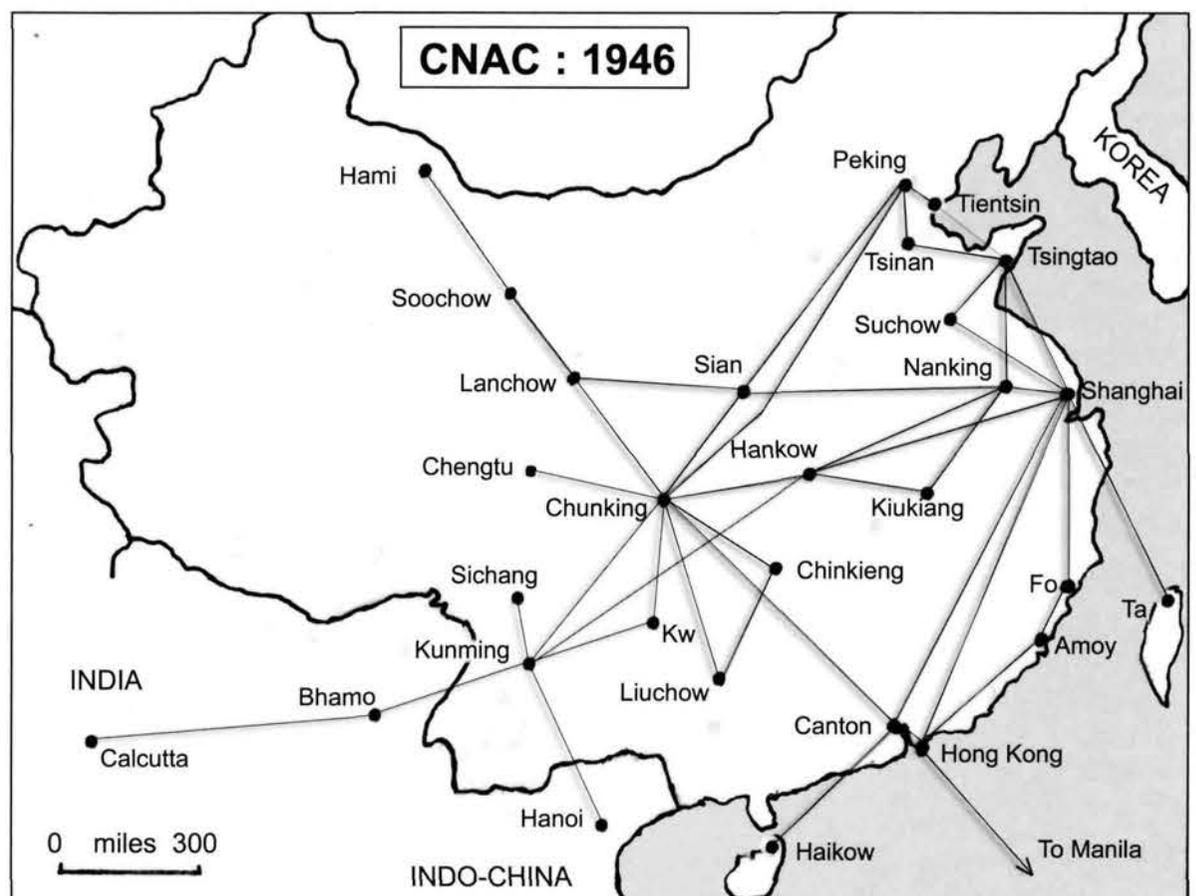
The following are extracts from the text of a telegram dated February 1st 1946 from Col. James C Davis (General Marshall's representative in Washington) to General of the Army George C Marshall (Special Representative of President Truman in China):

"Surplus Planes Purchased from the U.S.

"CNAC recently purchased as surplus from FLC 8 C-47s and 3 C-53s. It is also operating an additional 20 C-47s and 16 C-46s, which were obtained under Lend-Lease prior to V-J Day. CNAC recently leased six C-54Bs from FLC.

"Prior to V-J Day U.S. turned over to the Chinese Government on Lend-Lease 72 C-47s, 24 C-46s and 14 C-53s for use by CNAC and CAF.

"From V-J Day to December 15, 1945, 68 C-47s were transferred to the Chinese Government for use of the CAF under Lend-Lease. An additional 40 to be transferred when the Chinese have crews available." [JMD 11Nov2004]



Increased competition from CATC and the threat of CAT on the horizon were only part of CNAC's problems in 1946. CNAC had entered the war as a small, compact organisation, with a few highly trained and motivated pilots operating a limited number of aircraft. The post-war CNAC was a large, amorphous commercial company, marked by inefficient operations and unhappy personnel. Many of the newer pilots, and a few of the older ones, sought to unionise the flight crews; considerable ill will and several dismissals resulted. Employment of experienced Army-trained pilots to operate the four-engine C-54s instead of training personnel from within the ranks of the company also caused much resentment.

Difficulty with the Chinese pilots proved an especially vexing problem. CNAC was hailed as a model of Sino-American cooperation, yet the company discriminated against Chinese flight personnel in the payment of wages. This practice had been tolerated in silence before the war. The Chinese pilots then had come from two major groups: native-borne Chinese, who were content to receive higher wages than those paid to Air Force pilots, and foreign-borne persons of Chinese descent, who deemed themselves fortunate to find a job during the depression. The war brought a new breed of man to the airline. This type of person did not suffer in silence.

There were two main stumbling blocks in according Chinese flight personnel equality of pay. Payment at the same rate as American pilots would have resulted in salaries higher than those paid to the airline's Chinese managers. Also, it would mean a further drain on foreign exchange. CNAC's Chinese management, therefore, opposed such a move, and they were supported to some extent by the American partner. As a result, many highly qualified Chinese pilots left CNAC after the war and joined CATC; the remainder agitated for equal pay.

A more immediate problem in 1946 was a threatened strike by Chinese mechanics. Post-war inflation cut deeply into the wages of Chinese personnel. CNAC's chief mechanic in Nanking, for example, made CN\$300,000 a month after sixteen years with the airline. Also, pay rises failed to keep pace with the ever-increasing inflationary rises. American mechanics, on the other hand, were paid US\$600 to US\$1,200 a month in American funds, plus a living allowance, if married, of US\$300 a month.

The Chinese Air Force used the threat of a strike to take over CNAC in June 1946. An Air Force colonel took charge, and military pilots and ground personnel ran the airline. In three weeks they were only flying one third of the schedules and none of them on schedule. The military never again tried to operate CNAC, but they never stopped harassing CNAC whenever and wherever they could.

Management problems also plagued the airline during the period of hectic expansion in 1946. Bond was no longer able to devote his full energies to CNAC; he had been promoted by Pan American to vice president for the Orient, responsible for the territory from Tokyo to Bangkok. In addition, Bond's health began to show the strain of his wartime duties. The operations manager, Charles Sharp, had done an excellent job during the war years but Sharp lacked Bond's diplomatic talents. This had not been a problem during the war, when relations with the Chinese partner were largely separate from flight operations, but after the war the Chinese wanted a more amenable person, and brought pressure to bear for Sharp's removal. Bond suffered a heart attack in the fall of 1946 and returned to the United States. CNAC was unable to find a suitable replacement. [Leary TDW pp.198-200]

### Black Christmas

By Christmas, China had signed the Sino-American Air Transport Agreement, paving the way for American and Chinese airlines to begin transpacific flights between the two countries. But CNAC was running into difficulties with civil war disrupting large areas of the country as the Nationalists and Communists battled for supremacy. [WOHK p.176]

The strain of rapid expansion and the lack of leadership became tragically apparent during the winter of 1946-1947, when CNAC experienced a series of major accidents. Lincoln Reynolds, former diplomat in China during the 1930s and now assistant to Harold Bixby in Pan American, was in Shanghai on Christmas Day, 1946, awaiting transportation to Nanking. He went out to the airport in the morning, but heavy fog caused all flights to be cancelled. He had lunch with Hugh Woods, who had replaced Sharp as operations manager, and spent the remainder of the day at Wood's house. At about 6:45 pm, the airport called with news that a CATC aircraft (C-47 '48') had crashed on approach to Kiangwan field. There were twelve fatalities, eleven in the aircraft and one on the ground. What is more, three CNAC aircraft were circling above the murk waiting to land.

Reynolds went out to the airport with Woods and Gordon Tweedy, who had replaced Bond as Pan American's chief representative in CNAC. Captain J M Greenwood was overhead in a DC-3 (f/n 140), and was running low on fuel. Radar approaches (GCA) at Kiangwan had been unsuccessful because Greenwood had lost voice communication and had to rely on Morse code (CW). The aircraft did not have sufficient fuel to reach Tsingtao, the nearest alternate.

For something like 45 minutes the aircraft flew around in the fog overhead. Greenwood made several attempts to 'feel' his way down to a sight of the lights. Instead of clearing, the weather seemed to get worse. By this time the drizzle was thick and without let-up. Finally Greenwood told William McDonald, the chief pilot, on the radio that he was so low on gas that he was coming in. The fire engine was standing by near the runway, and ambulances were on their way to the field. All was deathly silent on the field. The only sound was that of the aircraft in the distance, getting louder and louder as it approached the field from out of the southwest.

The engines grew to a roar, and by now the whistling of the airfoils was clearly audible. Suddenly there was a dull red cone in the fog about two hundred yards away, followed in an instant by a muffled boom; then for an instant the silence was complete. There was no large blaze because there had been no gasoline left in the aircraft to burn. The rudder, which was covered with fabric, was burning, and odd pieces of fabric scattered about the ground were on fire, but the blaze was quickly put out.

"Capt. James M Greenwood, pilot of a DC-3 which crashed, was killed, but he succeeded in saving the lives of 10 of his 27 passengers and one crew member." [LAT 27Dec46] There were 19 fatalities.

Reynolds went back to the control tower and learned that the second CNAC aircraft had made a successful radar approach at Kiangwan. The third CNAC aircraft, C-46 (f/n 115) piloted by Rolf Preus, was unable to make contact with the radar unit. Preus decided to try Lunghwa.

Preus flew back and forth over the field several times, coming down as low as he dared. The Lunghwa Pagoda and chimneys of a nearby

*Luxurious*  
DC-4  
*Four-Engine Skyliner* ENTERED SERVICE

HONGKONG-SHANGHAI: FIRST FLIGHT: FEB 2ND  
EVERY SUNDAY THEREAFTER

HONGKONG-CALCUTTA: FIRST FLIGHT: JAN. 29TH  
SPECIAL FLIGHT JAN. 31ST  
EVERY MONDAY THEREAFTER

**CHINA NATIONAL AVIATION CORP.**

Cleopatra Bldg. H.K.      Paterson Arcade, Kowloon  
Tel. 31166-9      Tel. 58870.

Merry Christmas & Happy New Year

Let  
**C.N.A.C.**  
take you home for Xmas

**Above left:** CNAC advertised the forthcoming luxurious DC-4 services from Hong Kong weekly to Shanghai and to Calcutta in the South China Morning Post on 14.12.46.

**Above right:** Unfortunately-timed advertisement in the SCMP of 24.12.46 - on Christmas Day one CATC and two CNAC airliners crashed at Shanghai, followed by three more in January 1947. (Ian D Johnson collection)

cement plant were serious hazards in the fog. At one time the fog seemed to break up a little and Reynolds got a glimpse of the aircraft as it roared overhead at about 500 or 600 feet. The pilot saw the runway lights and had a positive fix on his position. Four of the pilots who had come out to the field (Pottschmidt, Watson, Schilling and one other) had gone down to the south end of the runway over which the aircraft would come in to land. Preus, after getting his fix, made a dry run through his approach procedure and as he passed over these pilots, they fired Very shells, which the pilot clearly saw. He asked that they not be fired for his next approach, as they would blanket out the runway lights, which were only oil smudge pots.

Next the pilot climbed up to the altitude called for in the standard approach procedure. As the pilot made his turn into the final leg, McDonald asked him not to reply to his transmissions from the control tower. He instructed him calmly to come on down the final leg at 110 mph, and at 150 feet altitude as he passed over the inner marker - a radio beacon near the approach end of the runway.

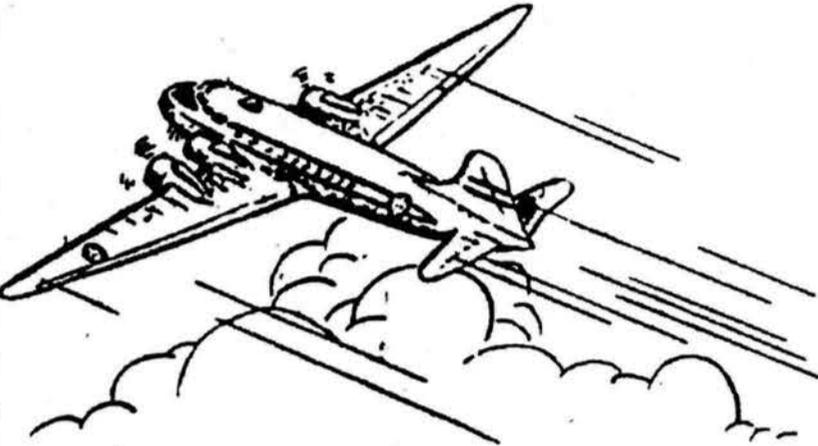
Preus's altitude sounded all right in the distance and fog. McDonald was talking to him all the time. The fog had seemed to lighten a little. When it seemed he was nearing the inner marker, there was a sudden dull thud-like sound and then again that awful silence. The wreckage and survivors were located a few hours later directly in line with the runway, but about two miles short of it. The heavy rain and the fact that this part of the country was cut criss-cross with canals delayed the search and rescue. It was finally necessary to use landing craft and crash-boats sent up by the Navy for this purpose even though the aircraft had crashed on the Lunghwa side of the river. It had hit a Chinese school, which fortunately was empty at that hour of the night. The pilot and several others were removed to the hospital. There were 31 fatalities. "In the crash, Capt. R B Preus survived, but 30 of his 33 passengers and one of his crew mates were killed." [LAT 27Dec46]

The death toll for these 3 crashes stood at 71, with 16 survivors. [Leary TDW pp.200-203] [ASN: 12 + 19 + 31 = 62] See also Bond pp. 369 & 370, Leary PM pp.22-24, and [www.cnac.org/blackchristmas01.htm](http://www.cnac.org/blackchristmas01.htm).

### 1947

Unfortunately CNAC's troubles were far from over. On 5th January 1947, Charles J Sharkey crashed a C-46 (f/n 121) into the side of a mountain near Tsingtao; 44 people perished. Three weeks later, on 26th January, Jack Blackmore crashed a C-47 (f/n 138) outside of

*China National Aviation Corp.*



**TO SHANGHAI:** Daily except Monday & Wednesday  
**CANTON:** Daily except Thursday & Sunday  
**MANILA:** Every Monday & Friday  
**CHUNGKING:** Every Wednesday & Saturday  
**AMOY & FOOCHOW:** Every Tuesday; Alternate Friday & Saturday  
**KWEILIN, HANKOW, NANKING:** Every Tuesday  
**HAIKOW:** Every Monday & Alternate Friday

**FREE BAGGAGE ALLOWANCE 62 LBS**

*Above:* Schedule of CNAC services from Hong Kong advertised in *South China Morning Post* 16.1.47 and *Right:* Map showing services to be resumed in 13.1.47 issue. (Ian D Johnson collection)

*China National Aviation Corp.*



**PASSENGER SERVICE TO ALL POINTS RESUMED**

Chungking. On 28th January, John Papajik went down in a C-46 (f/n?) about 100 miles west of Hankow; 25 of the 26 persons on board died. The Chinese government then grounded all commercial passenger aircraft.

In the wake of these accidents, a group of pilots from CNAC and CATC presented a petition to the Chinese government in which they outlined the 'minimum requirements' for safe operations in China. The pilots demanded improved airport facilities, adequate lighting for night operations, equipment for instrument landings, expanded weather reporting, qualified dispatchers and air traffic control personnel, and additional ground and airborne radio facilities.

The pilots were no doubt right; inadequate facilities and training did contribute to the rash of accidents in December 1946-January 1947.

Although he had not fully recovered from his heart attack, Bond returned to China in February 1947 in an effort to solve the airline's management problems. He had several conferences with the Minister of Communications. Bond promised greater safety of operations but demanded in return a freer hand to run the company. The minister promised to grant the necessary authority. Colonel C Y Liu replaced General T H Shen as managing director. Hugh Woods was pressured to resign, and Bond brought back Ernest Allison, chief pilot and operations manager in the pre-war years, to take charge of operations. J H McDivitt succeeded 'Mac' McDonald as chief pilot. At the same time, Bixby sent out Quentin Roosevelt to assist in the re-establishment of liaison between Pan American Airways and CNAC. [Leary TDW pp.203-204]

**Arrival of Quentin Roosevelt**

Quentin Roosevelt, one of the bright young men of Pan American, was destined to play an important role in the future of CNAC. He was the grandson of President Theodore Roosevelt and a graduate from Harvard who had travelled to Western China in 1939 as part of an undergraduate project. Roosevelt arrived in China in mid-February 1947, just as the country was undergoing a violent financial upheaval. Prices had skyrocketed throughout 1946 at an average monthly rate of 12%, but there had been no panic. January 1947 saw a further climb in prices, followed by a dizzying rise in February. The exchange rate of the Chinese dollar (CN) went absolutely wild. The open or black market

rate rose from US\$1 = CN\$6,500 in December 1946 to US\$1 = CN\$18,000 in February 1947. Meanwhile, the official exchange rate, set in August 1946, had remained a wildly unrealistic US\$1 = CN\$3,350. CNAC's fare structure was based on the even older official exchange rate of US\$1 = CN\$2,020. Using the black market rate, passengers could fly from Shanghai to Chungking for the equivalent of US\$15. At this price, each flight produced barely enough revenue to pay for fuel.

These financial difficulties constituted only one of CNAC's major problems. Operating facilities were poor throughout China. Adequate well-paved and lighted runways and modern navigational aids were "sadly lacking". Dispatching procedures were "unsatisfactory". The airline faced "critical shortages of vital spare parts and equipment". Relations with the Chinese management were poor. The extremely low level of morale was "one of the most serious single difficulties faced by CNAC". In part, loss of confidence in the company could be attributed to poor living conditions, shortage of housing, and unduly high prices. Another factor "is apparent when we consider that CNAC performed a brilliant wartime function during its Hump flying and that it has had to go through a re-adjustment to peacetime operations which had produced many of the morale problems that have become familiar in the case of American occupation troops in Europe and Asia. This let-down effect has had its effect in operations and maintenance since the small but important precautions which should be taken by each pilot are sometimes omitted under such circumstances, and the extra effort normally exerted by an average mechanic might be cut short with disastrous effects".

Roosevelt was convinced that many of these problems were already on the way to solution. The runway at Lunghwa was being repaired and the Chinese government seemed prepared to renovate facilities throughout China. The government had granted an increase in rates, alleviating CNAC's immediate financial distress. A new managing director had been appointed. Allison had come in with a good reputation and a fresh, vigorous approach; he had gone far to eliminate the general let-down. Good progress had been made in overcoming the difficulties that had plagued CNAC. Nevertheless, many more difficult problems, particularly financial, still lay ahead for CNAC, as they could not be immune from the poor economic and political situation in China.

Young Roosevelt evidently impressed Bond. Here was the vigour, intelligence, and tact that CNAC's management needed so badly. He asked Roosevelt to remain in China as Pan American's chief representative in CNAC. There was an urgent need for an American representative who would be steady under all circumstances, whom the Chinese knew and respected, and who had a good knowledge of CNAC's background, present situation, and who had the necessary experience and ability. The proposition flattered and tempted Roosevelt. His salary would be doubled, and the job would mean opportunity for advancement within Pan American. Nevertheless, Roosevelt turned down the offer, as he was justifiably concerned about the future of CNAC and China.

The Nationalist government took drastic action in the spring of 1947 to deal with the financial crisis. It prohibited speculative activity in gold and foreign exchange, and adopted a new exchange rate of US\$1 = CN\$12,000. Relief, however, proved temporary. By August 1947, the open market rate had shot up to US\$1 = CN\$45,000, a decline of almost 200% in the Chinese dollar. Meanwhile the civil war increased in fury, with the situation favouring the Communists. The Red Army mounted its first major offensive in Manchuria early in 1947, and by mid-year most Nationalist garrisons in the north were under siege.

Demand for CNAC's services increased as the situation in China worsened. Flying hours for CNAC's 6 DC-4s, 17 DC-3s and 18 C-46s rose from 2,900 in March to 5,000 in December. During 1947 the airline logged 5,654,831 revenue miles and carried 173,317 passengers, 16,166 tons of freight, and 2,696 tons of mail. On 7th October 1947, CNAC inaugurated 40-hour, bi-weekly, transpacific service from Shanghai to San Francisco via Guam, Wake, and Honolulu. Thanks in large part to its international routes, CNAC made good progress in meeting obligations in foreign exchange. Early in 1947, CNAC's indebtedness to Pan American for purchases of equipment and supplies stood at \$1.5 million, and the parent company had no choice but to cut off all shipments to China. CNAC made various economies, including reduction of the foreign payroll and payment of a portion of salaries in Nationalist currency. As a result, the airline paid Pan American \$1.5 million by the end of the year and pledged \$100,000 monthly to meet current expenses. [Leary TDW pp.205-208]

A gasoline shortage threatened CNAC's domestic service, and on 23rd September 1947 the company announced it was considering closing down the route to Chungking. But it was still flying daily services out of Hong Kong to Shanghai on DC-4 Skymasters at \$380 with free baggage up to 72 pounds. [WOHK p.176]

Despite CNAC's progress, Bond and Bixby remained dissatisfied with Pan American's representation in China. Gordon Tweedy, who had borne the brunt of CNAC's problems since the war, wanted relief. Bond did not feel that his own health could stand the strain of full-time activity in China. Roosevelt finally gave in to considerable pressure and agreed to go to China as vice president and director of CNAC, effective from 1st April 1948. [Leary TDW pp.208-209]

## 1948

The following is a fleet list for CNAC on 27th February 1948, kindly provided by Liang-yan Wen:

XT-regn fleet no. function

### Douglas DC-4

XT-T 02	-	Transpacific route
XT-T 03	-	Domestic route
XT-T 04	-	Domestic route
XT-T 05	-	Domestic route
XT-T 06	-	Transpacific route
XT-T 07	-	Domestic route

### Curtiss C-46

XT-T-11	125	passenger
XT-T-41	131	passenger
not assigned	122	passenger
XT-13	117	cargo & passenger
XT-15	134	cargo & passenger
XT-16	135	cargo & passenger
XT-18	148	cargo & passenger
XT-43	143	cargo & passenger
XT-44	144	cargo & passenger
XT-46	146	cargo & passenger
XT-50	120	cargo & passenger
XT-T-08	128	cargo
XT-T-12	126	cargo
XT-T-14	130	cargo
XT-T-42	132	cargo
XT-T-53	123	cargo
XT-T-59	129	cargo

### Douglas DC-3

XT-45	54	passenger
XT-48	89	passenger
XT-51	87	passenger
XT-54	91	passenger
XT-55	55	passenger
XT-56	136	passenger
XT-82	62	passenger
XT-84	107	passenger
XT-85	92	passenger
XT-86	86	passenger
XT-87	67	passenger
XT-88	68	passenger
XT-90	50	passenger
XT-91	41	passenger
XT-92	47	passenger

### Douglas C-47

XT-T-20	100	cargo
XT-T-52	112	cargo
XT-T-58	108	cargo
XT-T-60	?	training
XT-T-81	111	cargo
XT-T-83	103	cargo

[LYW 22Mar2003, 23Mar2003]

Further information on these aircraft is given in the 'CNAC fleet list by aircraft type' section below. Aircraft with fleet numbers not included here were presumably no longer in service at this time.

In March 1948 CNAC added Hong Kong to San Francisco via Honolulu to its route structure and direct flights to Taipei shortly afterwards. Indeed, such was the success of its Hong Kong routes that on 1st June 1948 the company was able to offer passengers a significant fare reduction and five new routes were established by the end of the year: Bangkok, Singapore, United States, Burma, and Taiwan, extending its network to connect with some ten million overseas Chinese. [WOHK p.176]

## Return of Quentin Roosevelt

Quentin Roosevelt returned to China in the spring of 1948 to find the outlook for the Nationalist government had not improved since his last visit. The inflationary spiral continued at an accelerating rate and the military picture remained bleak. Although no one could predict it with certainty, Chiang Kai-shek's regime was on the verge of collapse. Roosevelt learned that the demand for CNAC's services was greater than ever, as surface transportation became disrupted. The airline flew

nearly 5,000 hours in February, and the Chinese management called for 10,000 hours by the end of the summer.

The first problem to require immediate attention involved a festering dispute over salaries for American personnel. In order to conserve foreign exchange, CNAC had instituted a programme in September 1947 whereby one-third of the basic salary of Americans was paid in Nationalist currency. Payment had been made on the first and fifteenth of each month, based on the open market rate for the preceding fifteen days; the company had guaranteed that personnel would not suffer a financial loss under this arrangement. The system had worked reasonably well for the first six months,

*Far left:* The daily Hong Kong - Shanghai service operated by two DC-4s for reliability, as flown in 1947. *Left:* This October 1947 advert emphasised routes from Shanghai, a number of which had been added during the year. (Ian D Johnson collection)



*Day in and Day out*  
**CNAC HONGKONG-SHANGHAI SERVICE**  
 by **DC-4 SKYMASTER** is always  
*The MOST REGULAR,*  
*The MOST DEPENDABLE and*  
*The MOST SPEEDY*

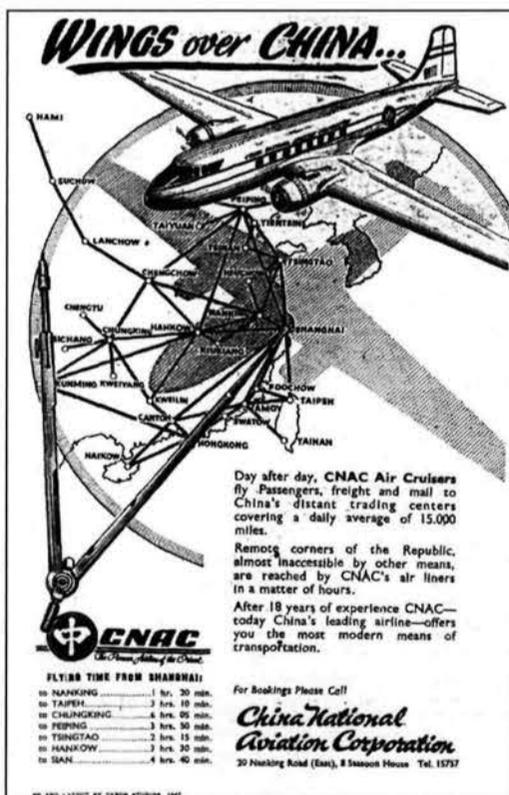
LEAVING DAILY AT  
**10 A.M.**  
 (SUMMER TIME)

FOR SPEED IN FLIGHT AND FOR SPEED IN TRANSIT ON GROUND.

C.N.A.C. daily Hongkong-Shanghai DC-4 service is operated with two DC-4's, one from each end. This ensures punctual departures from both ends.

Take advantage of the service only CNAC offers you can check-in your baggage on Hongkong side.

**CNAC**  
 Gloucester Building, Hong Kong Tels. 31166-31169



**WINGS over CHINA...**

Day after day, CNAC Air Cruisers fly Passengers, freight and mail to China's distant trading centers covering a daily average of 15,000 miles.

Remote corners of the Republic, almost inaccessible by other means, are reached by CNAC's air liners in a matter of hours.

After 18 years of experience CNAC—today China's leading airline—offers you the most modern means of transportation.

**CNAC**  
 China National Aviation Corporation

FLYING TIME FROM SHANGHAI:  
 to NANKING.....1 hr. 30 min.  
 to TAIPEI.....3 hrs. 10 min.  
 to CHUNGKING.....4 hrs. 05 min.  
 to PEKING.....3 hrs. 30 min.  
 to TIENTSIN.....2 hrs. 15 min.  
 to HANKOW.....3 hrs. 35 min.  
 to SIAM.....4 hrs. 40 min.

For Bookings Please Call  
**China National Aviation Corporation**  
 30 Nanking Road (East), 8th Season House Tel. 15717

because the weekly fluctuation in exchange rate had not been great. Beginning in March 1948, however, the exchange rate skyrocketed so fast that the average received by employees was substantially less than the rate prevailing on the date of payment. Seething discontent had resulted.

Fortunately, CNAC had a reserve of Hong Kong funds, derived from air services operated out of the British colony. Roosevelt arranged to pay one-third of salary in the more stable Hong Kong currency instead of Nationalist money, thus averting a serious morale problem.

Roosevelt also came under pressure from the Chinese managers to eliminate living allowances paid to American employees. Tweedy argued that the allowance - \$200 monthly for married employees and \$150 for bachelors - was justifiable, because American pilots flying in China for a limited period might not receive similar employment on their return to the USA and would therefore need to save money for their futures.

Prior to Roosevelt's arrival, the managing director had ordered Allison to abolish the living allowance. Allison had not acted, fearing the resignation of the airline's experienced American pilots. Roosevelt, Allison and Managing Director Liu met on 7th May to resolve this crisis. Roosevelt agreed to end living allowances. In return, Liu permitted increase in base pay, higher maximum limits for base salaries, and increased flying pay.

These adjustments forestalled a crisis with the airline's personnel, but the problem of spiralling costs remained unresolved. In early June 1948, the price of aviation gasoline increased by 80%. Working in astronomical numbers, Roosevelt tried to project expenses for June:

Disbursements:

Payroll for Chinese personnel	CN\$350,000,000,000
Gasoline and oil	CN\$600,000,000,000
Purchase of US\$200,000	CN\$240,000,000,000
Miscellaneous expenses	CN\$200,000,000,000
Total	CN\$1,390,000,000,000

Receipts:

Revenue	CN\$1,340,000,000,000
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From these figures it was apparent that CNAC would have a monthly deficit of 50 billion CN\$ at the end of June. The only way to reduce losses was to secure further rate increases, although the government had already granted increases of 286% since 1st February 1948. If increases could not be obtained at once, then flying hours would have to be curtailed despite the continuous demand from the government and from the public for increased air service at almost every point in China.

During the remainder of June, the government granted increases in rates as gasoline prices soared. The airline managed to survive the month: revenue amounted to CN\$1,386,000,000,000, while expenses were CN\$1,333,000,000,000. July brought no relief; by the middle of the month, daily revenue reached CN\$500,000,000,000. Depreciation of Nationalist currency was so rapid, however, that it was possible to fly from Shanghai to Nanking for the equivalent of one US dollar.

With its currency nearly worthless as a medium of exchange, the central government instituted drastic fiscal reforms. With effect from 19th August 1948, a new gold yuan (GY) replaced the old currency at a ratio of GY1 = CN\$3,000,000. Exchange with American currency was at the rate of US\$1 = GY4. Market prices were fixed by the government, and black market dealings brought severe penalties. The public were required to sell gold, silver, and foreign exchange to the government at fixed prices. In return, Nanking promised to limit the new note issue to GY2,000,000,000. Although not convertible, the new currency would be backed by gold, silver, foreign exchange holdings, and the securities of certain government-owned enterprises.

Fiscal reform did produce temporary economic stability. In November 1948, Roosevelt noted that the introduction of the new currency did CNAC more good than harm. Tight control imposed on the price of gasoline eliminated their main worry during the last months of the old currency. They were also fortunate to have received a substantial fare increase shortly before the new currency regulations were promulgated. [Leary TDW pp.209-212]

## C-46s leased from the Chinese government

The Chinese Government acquired thirteen Curtiss C-46Fs from the USAAF in the spring of 1948. Seven of these were leased to CNAC and six to CAT. [Leary PM p.46] According to Air-Britain's C-46 monograph, these were all purchased from the Foreign Liquidation Commission (FLC) on 17th June 1948. All were previously stored in Tachikawa, Japan. The c/ns were: 22370, 22379, 22433, 22459, 22461, 22465, 22466, 22500, 22502, 22507, 22508, 22510, and 22526. By June 1948, a new series of XT- registrations was being allocated. We believe that these thirteen aircraft were given Chinese registrations from XT-30 to XT-54, even numbers only. Eleven of these thirteen aircraft were later registered to Civil Air Transport, Inc. (CATI) or C.A.T., Inc. in the USA, as shown below.

XT-reg.	c/n	p/i	operator	s/i	notes
XT-30	22379	44-78556	CNAC	N8388C, B-130	
XT-32	?	?	CNAC		see note
XT-34	22459	44-78636	CNAC	N8389C, N4881V	
XT-36	22465	44-78642	CNAC	N8390C, B-136	
XT-38	22500	44-78677	CNAC	N8391C, B-138	
XT-40	22508	44-78685	CNAC	N8392C, N4882V	
XT-42	?	?	CNAC		see note
XT-44	22502	44-78679	CAT	(N8400C)	crashed
XT-46	22461	44-78638	CAT	N8401C, B-146	
XT-48	22510	44-78687	CAT	N8402C, B-148	
XT-50	22526	44-78703	CAT	N8403C, B-150	
XT-52	22466	44-78643	CAT	N8404C	crashed
XT-54	22370	44-78547	CAT	N8405C, B-154	

[MM 04Dec2003]

Note: XT-32 & XT-42 were c/ns 22433 (44-78610) & 22507 (44-78684), tie-ups and fates unknown.

## More C-46s purchases

When Roosevelt arrived in China in April 1948, CNAC derived approximately half its revenue from regular passenger service and half from contract freight operations. Increases in passenger fares required the government's approval, whereas charges for freight service were negotiated between the airline and the shipper. Because even a brief delay in obtaining approval for fare increases meant that inflation would wipe out any profit, passenger service usually operated at a loss. It was only because of the C-46 freight runs that CNAC had avoided bankruptcy.

To expand freight operations, Roosevelt ordered ten additional C-46s at a cost of \$400,000 in late April. As CNAC had \$350,000 on deposit in New York, Bixby believed that Pan American would be fully protected in the event that additional funds were not made available by CNAC. He therefore sought and obtained Trippe's approval to make the necessary purchases. [Leary TDW p.212]

These ten C-46A/D were acquired from United Services for Air, Inc., who had bought them from the War Assets Administration (WAA), and are believed to be as follows:

p/i	c/n	model	BoS date	US export CofA	CofA fate	XT-reg.
NC51820	33371	C-46D	26Jul48	E-17305, 4.8.48	(N8378C)	XT-154
NC51929	33372	C-46D	11Aug48	E-17306, 15.8.48	N8379C	XT-156
NC51743	32950	C-46D	25Aug48	E-17307, 1.9.48	N8380C	XT-158
NC51802	32960	C-46D	30Sep48	E-17309, 19.10.48	N8381C	XT-160
NC51768	32954	C-46D	16Sep48	E-17308, 30.9.48	N8382C	XT-162
NC50263	30196	C-46A	15Oct48	E-17356, 25.10.48	N8383C	XT-164
NC51385	30377	C-46A	28Oct48	E-17357, 9.11.48	N8384C	XT-166
NC51386	30380	C-46A	18Nov48	E-17313, 22.11.48	N8385C	XT-168
NC50316	30222	C-46A	?	E-17312, 15.12.48	N8386C	XT-170
NC51384	30369	C-46A	23Dec48	E-17314, 31.1.49	(N8387C)	XT-172

[FAA; JMD 08Aug2004, 14Jul2007, 20Aug2007]

#### Notes:

1. The date of cancellation of NC51820 on export to China is given as 08Apr1948.
2. The Bill of Sale for N51385 is dated 28Oct1948. The date of cancellation is not readable but was in November 1948.
3. The Bill of Sale for N51768 is dated 16Sep1948. The date of cancellation is 21Sep1948.
4. The Bill of Sale for N51386 is dated 18Nov1948. The date of cancellation is 25Nov1948.
5. C/n 32950 is sometimes reported as XT-156" or XT-156(2), but there cannot have been two XT-156s flying at the same time. [MSB 06Jun2004] A CAA memo in the file for N8380C shows the incorrect registration, XT-156", corrected by hand to XT-158.
6. The XT- registrations were allocated prior to delivery. No Chinese names or CNAC fleet numbers are known. Note that the N-numbers allocated to Chennault & Willauer (C&W) are in sequence with the XT-numbers, given use of even numbers only on C-46s.
7. NC51384 may have been reregistered (in theory) as N51384 on 1Jan1949, although this is after the Bill of Sale date.

While awaiting delivery of the new aircraft, CNAC's cargo fleet undertook a major airlift operation into the besieged city of Mukden under contract to the Nationalist government. The airline established bases at Peking and Chinchow under Captain C C Parish. Flights began in late April, reached twelve a day in early June, and rose to twenty per day by the end of the month. CNAC averaged thirty flights daily in July. Between 21st April and 2nd July, the airline carried 3,418 tons of supplies, mainly food, into the isolated northern city.

Roosevelt made a trip to Peking, Mukden, and Taiyuan in August to promote the freight service. As a result, CNAC obtained contracts to transport 8,000 tons of salt and 5,000 tons of foodstuffs into Taiyuan and large quantities of raw cotton from Sian to Shanghai. In addition, CNAC agreed to carry a further 1,000 tons of flour into Mukden for the Economic Cooperation Administration. Freight operations now accounted for 75% of CNAC's revenue.

CNAC's increased business during the summer of 1948 paralleled the declining fortunes of the Nationalists. On 23rd-24th September, the strategic city of Tsinan, key to the Nationalist position in north-eastern China, fell to the Communists.

Roosevelt shifted CNAC's northern base of operations from Peking to Tientsin following the surrender of Chinchow on 15th October. The airline continued to operate into Taiyuan and Mukden, as Communist forces drew their siege ring tighter around the Nationalist strongholds. By the end of the month, however, Mukden capitulated and Taiyuan could be supplied only by air-drops.

Late November 1948 brought the crucial battle of Hsuechow. Chiang Kai-shek committed the last of his troops in a vain effort to stop the advancing Communists. CNAC, CATC, and CAT provided paramilitary support for the Nationalists at this critical time. CNAC carried rice into Hsuechow and wounded Nationalist soldiers from Hsuechow to Nanking. At one point, the airline made 33 flights with 46 to 60 casualties per trip in a single day.

Roosevelt defended CNAC's participation in the Chinese civil war. Although the airline did not go as far as CAT in support of the Nationalists, CNAC did carry military cargoes on occasion.

While the battle of Hsuechow was in progress, the Minister of Communications ordered CNAC to begin preparations for movement of the airline's main base to Hong Kong. Roosevelt needed little urging; CNAC had been making such plans for three months.

The physical transfer of the airline's equipment would take place in December 1948. Roosevelt expected problems during the transitional period, but he was confident that they could be overcome. He planned to reduce the staff of the operations department by about 50% in order to conserve Hong Kong funds, and he hoped to increase schedules from the Colony in order to generate additional revenue. CNAC now operated twice-weekly transpacific service and carried full loads both ways. Preparations were underway to inaugurate a route to Tokyo. Roosevelt also noted that there appeared to be a lot of lucrative business in the area South China – Thailand – Indo-China – Philippines, etc. [Leary TDW pp.212-215]

## Death of Quentin Roosevelt

On 21st December 1948, Roosevelt boarded one of CNAC's plush DC-4s for a flight from Shanghai to Hong Kong. As the aircraft neared its destination, pilot Charles Sundby received reports of fog and low ceilings along the coast. Kai Tak airport is bounded on three sides by mountains and was one of the most difficult airports in the world to approach, even in the best of weather. CNAC's instrument procedure called for a let-down out to sea; after breaking out in the clear, the pilot would reverse course and proceed to the field while maintaining visual contact with the ground. Sundby did not follow the procedure. He came down through a hole in the overcast to an altitude of 200 feet. He became trapped as the weather closed in; he reversed course and tried to make it out to sea through the lowering overcast. Sundby probably never saw the top of the small mountain on Basalt Island that the aircraft struck. Roosevelt and all aboard (29 passengers and 4 crew members) were killed.

Allison, for one, could not understand the causes of the accident. CNAC's approach procedure was specifically designed to keep aircraft away from the area where the DC-4 XT-104 crashed. Ten days prior to the accident, Allison had been in the cockpit and observed Sundby conduct a perfect let-down to Hong Kong through low overcast.

Roosevelt was thirty years old at the time of his death. Handsome, intelligent, and ambitious, he had the brightest future before him. He left a young wife and three daughters. Roosevelt's body was cremated, and his ashes buried on the island of Basalt where he had crashed. [Leary TDW pp.215-216]

## 1949

On 5th January 1949, CNAC was granted permission by Hong Kong aviation authorities to run a weekly service to Tokyo, and increase its daily Canton flights to seven. Conditions in China deteriorated as the Communists took over ever-expanding areas of the country and the future of CNAC became ever more precarious. As the civil war led to increasingly difficult circumstances, particularly in Shanghai, the airline began special services on 27th April to assist in the evacuation of British nationals. The day before, 43 commercial aircraft had left Kai Tak and 44 arrived from Shanghai as the Communist forces began to encircle the city. [WOHK p.176]

CNAC accomplished the move to Hong Kong without incident following Roosevelt's death. The airline erected two buildings to house stores and maintenance facilities at a cost of \$500,000. CNAC continued to fly international passenger service and cargo operations to the areas of the mainland controlled by the Nationalists. By mid-1949, CNAC had cash assets in America and Hong Kong currency of \$2 million. Pan American placed the value of the airline at approximately \$15 million. [Leary TDW pp.216-217]

#### CNAC Fleet Composition (1949)

Item	Model	Reg. No.	No. of Seats	Usage
1	C-54B-DC	XT-101	44	Passenger
2	C-54B-DC	XT-102	44	Passenger
3	C-54B-DC	XT-103	44	Passenger
4	C-54B-DC	XT-105	30	Passenger
5	C-54D-DC	XT-106	44	Passenger
6	C-47A	XT-111	27	Passenger & Cargo
7	C-47A	XT-115	27	Passenger & Cargo
8	C-47B	XT-119	32	Air Bus
9	C-47B	XT-123	27	Passenger & Cargo
10	C-47A	XT-127	27	Passenger & Cargo
11	C-47B	XT-131	27#	Passenger & Cargo
12	C-47B	XT-133#	27	Passenger & Cargo
13	C-53-DC	XT-121	21	Passenger
14	C-47A-DC	XT-125	21	Passenger
15	C-47-DC	XT-129	21	Passenger
16	C-47-DC	XT-137	21	Passenger
17	C-47A-DC	XT-139	21	Passenger
18	C-53-DC	XT-141	21	Passenger
19	DC-3	XT-117##	32	Air Bus

[CF 01Jun2002, 04Nov2009, LYW 23Mar2003]

Notes (as per original document):

- # Plane equipped with bucket seats & cushions (XT-131?)
- ## Plane under conversion (XT-133?)
- ### Plane under repair at JAMCO (XT-117?)



**Above:** CNAC C-46 XT-30 was leased from the Chinese Government and later became N8388C and then B-130 with CAT as seen above at Hong Kong. (Ian D Johnson coln)

**Below:** C-54B XT-101 receiving a make-over at Hong Kong c.1949. (HKHAA via IDJ)



This list dates from after the accident to C-54 XT-104 on 21st December 1948. We do not understand why C-46s are not included in the listing. (No purely cargo aircraft are included.)

Whereas many of the XT-T.. registered aircraft had CNAC fleet numbers as well as registrations, there is no evidence that fleet numbers were also used with the XT-1.. registrations. For example, no fleet numbers are known for the C-54s but these had names.

### End of civil war in China

Meanwhile, the struggle in China reached its denouement. Tientsin fell to the Communists on 15th January 1949. Chiang Kai-shek 'retired' the next week, transferring the government's gold, silver, and foreign exchange to Taiwan. The Communist occupied the old Imperial capital of Peking on 31st January. Taiyuan surrendered on 24th March. The Red Army crossed the Yangtze River on 20th April; Hankow and Shanghai fell in May.

Harold Bixby visited the Far East in June 1949 to assess the situation. The new Communist regime had so far adopted a 'considerate attitude' toward CNAC. Bixby learned that the Communists welcomed the American interest in the airline and wished to continue operations. Above all, the new Peking regime wanted Pan American to preserve the assets of the company against possible looting by the Nationalists. Bixby was suspicious of these professions of friendship. After weighing the alternatives, Bixby recommended that they should sell out as soon as possible for as much as they could get. The main problem, he thought, would be the policy of the American government.

Shortly after Bixby returned to the United States in late July, Pan American's representative in Communist-occupied Shanghai called over the transpacific telephone and reported that the Communists had offered to permit Pan American to operate commercial services into Shanghai. There were two strings attached to the offer. As the Nationalists were blockading Shanghai, the State Department would have to guarantee safe conduct for American aircraft – and thus be a party to breaking Chiang's blockade. Also, Pan American would have to exert its best efforts to preserve CNAC's assets. Colonel C H Wang, former finance manager for CNAC who had joined the Communists, had assured Pan American's representative that the new regime considered the CNAC contract as fair and equitable and would like to see it continue. The Communists also indicated that negotiations were in progress with Northwest Airlines, Pan American's competitor on the Pacific route, and with the British firm of Jardine Matheson looking toward re-establishment of domestic air services.

**Above:** CNAC's DC-4 service from Hong Kong to Tokyo began in January 1949, as advertised in the South China Morning Post of 9.1.49. (Ian D Johnson collection)

Bixby and Bond went to Washington on 3rd August to discuss the offer with Livingston Merchant of the State Department. Merchant, Bixby reported, stated that the American government took the position that unless and until the Chinese Communists were willing to regularise relations with foreign carriers, especially the two American lines, more particularly a validation by the Communists of the existing bilateral agreements, the Department would prefer that the American carriers should not service Shanghai. The department, Merchant continued, had requested Northwest Airlines not to enter Peking or Shanghai and to desist from attempts to organise a domestic company in Communist territory. Similar representations had been made to the British government.

At the conclusion of the interview, Bixby wired Shanghai: "Unable at this time (to) make arrangements suggested. However, will use best efforts to preserve CNAC assets." [Leary TDW pp.217-219]

### CNAC training unit

According to Liang-yen Wen, CNAC operated the following training aircraft with CNAC serial numbers (not XT- registrations): Ryan PT-22 were allocated 1011, 1012 & 1014; Ryan STC-5 were allocated 1015, 1016 & 1017; and North American AT-6F were allocated 1030 to 1035. [LYW 23Mar2003] These may be ex-Chinese Air Force aircraft. Nothing is known about the gaps in this series. Surviving aircraft may have been registered later in the XT-400 series (see below).

### CNAC's move to Hong Kong

CNAC's move to Hong Kong had initially been encouraged but as conditions deteriorated in China, CNAC was requested to leave without reimbursement or assistance. In June 1949, Bond wrote to the US Consul General in Hong Kong to ask for his help to arrange a more businesslike and reasonable solution to the problem.

In November 1948, because of the rapid collapse of the political and military situation in North China, it became clear that CNAC would have to move its operational base from Shanghai to a safer place. It was decided to move to Hong Kong. Representatives of CNAC proceeded to Hong Kong to discuss the matter with the Civil Aviation authorities. The Hong Kong authorities assured CNAC representatives, including the late Quentin Roosevelt and E M Allison, they would be welcome.

In December 1948, accompanied by Colonel C Y Liu, Managing Director of CNAC, Bond called on Mr Moss, Director of Civil Aviation, Hong Kong. He assured CNAC of his full cooperation. CNAC told him



**Left:** CNAC and CAT aircraft detained at Hong Kong were coated with black preservative and had outer wings removed prior to shipment to the USA  
(Ian D Johnson collection)

that they planned to put in complete workshops and facilities and gave him the general idea of the space they would require. CNAC were assured this space would be made available. CNAC started dismantling workshops in Shanghai and loading its equipment for shipment to Hong Kong. Complete plans were drawn up and approved for workshops and warehouses to be erected on Kai Tak and were presented to the Civil Aviation authorities for approval. Steel and other materials were purchased and work started. CNAC spent approximately 6 million Hong Kong dollars in the purchase of steel and other supplies in the United States with the full knowledge and assistance of the Civil Aviation authorities. Foundations were put in, and in the latter part of April the erections started. The work had been going on as rapidly as possible with the full knowledge and consent of everyone concerned. There was no formal signing of a lease covering this work but there had been voluminous correspondence between CNAC and the Director of Civil Aviation fully describing the buildings to be erected. Blueprints were initialled by CNAC and the Director of Civil Aviation.

On 3rd June, the Governor of Hong Kong informed Colonel Liu that CNAC must discontinue work as it was no longer permissible on Kai Tak. On 10th June, CNAC received a letter from Mr Moss informing CNAC that they would have to remove their workshops from Kai Tak within one month. Bixby and Bond called on the Governor and expressed their hope that some other solution could be worked out. They called his attention to the amount of money CNAC had spent, to the great value of these workshops, and also the potential value to the military in case of an emergency. Bixby suggested that PAA might purchase the CNAC shops and operate them, granting the right of inspection to the Hong Kong police and military for security purposes. The Governor later informed them that he regretted to say that the answer was no; neither CNAC nor PAA could have the shops at Kai Tak Airport. Bond informed the Governor that he considered this to be a most serious and unfortunate matter, tantamount to putting CNAC out of business.

Bond suggested that CNAC be allowed to maintain its present warehouse and engine overhaul shops in the Nissen huts close to the boundary fence along Clear Water Bay Road and to continue to operate until some other solution could be worked out. He further suggested that CNAC, at its own expense, would encircle this temporary shop with a wire fence similar to the one encircling the airport. This in effect would remove the shops, which could be operated by either PAA or CNAC, from the airport for security purposes. The Governor said he would consider this and advise them.

CNAC were in complete sympathy with the Governor of Hong Kong in the efforts to maintain security. They had done everything they could to assist in this. They believed that the CNAC staff were as loyal and dependable as hundreds of other Chinese and other foreign nationals working at Kai Tak with whom no security restrictions were being taken. Although CNAC was encouraged to move its base to the Kai Tak Airport at great cost in both time and money, and although CNAC was encouraged to commit itself to this movement to such a degree that it cannot withdraw in the manner instructed, the Hong Kong Government made no offer to aid CNAC in making an orderly change. It had made no offer to help CNAC to secure another suitable site near the airport on which to erect its shop. It had made no offer to reimburse CNAC for the work done, which was now useless. It had made no effort with CNAC to work out a progressive plan under which the movement could be made in steps under full security inspection so that CNAC would not be too severely injured. [Bond pp.373-375]

The British authorities in Hong Kong grew apprehensive about the fate of the Colony as Communist armies reached southern China. In June, the government ordered CNAC to remove its facilities from Kai Tak. When the British authorities sought to execute the order in August, CNAC obtained an injunction from the local courts on the grounds that the government could not issue such instructions without declaring a state of emergency. The government promptly proclaimed a state of emergency and requisitioned CNAC's facilities under emergency defence regulations. CNAC suspended all flights.

Although only partially recovered from a second heart attack suffered the previous January, Bond returned to Hong Kong in the late summer of 1949 to represent Pan American's interest in CNAC. He managed to obtain permission for limited operations from the Colony. CNAC could utilise half its warehouse space on the airport and perform maintenance work in facilities adjacent to Kai Tak.

Otherwise, Bond was no more impressed than Bixby had been with the situation in China. Canton had fallen without a struggle. The Nationalists, both on the mainland and on Taiwan, had lost the will to fight.

Bond noted that the Chinese staff of CNAC had become convinced that their future depended upon holding the airline together for the new government. They would refuse to move to Taiwan, if ordered, and they wanted Bond's support. He pointed out that Pan American held only a 20% interest in the company and therefore could not set policy. Furthermore, Pan American had to be guided by the policy of the American government. He urged caution lest they jeopardise their own lives and the lives of their families on the mainland. [Leary TDW pp.219-220]

### **Aircraft defections to Communist China**

Based in Hong Kong since the fall of Shanghai in May 1949, CNAC and CATC had been operating sporadic air service to Nationalist-held areas. Although rumours had been circulating for months about discontent among employees, many of whom feared for the safety of relatives on the mainland should the Nationalist government attempt to relocate the companies on Taiwan, the defection of the general managers of both airlines to Peking with twelve fully manned aircraft on 9th November was a shock. Seventy-one transports, including modern Convairs and DC-4s, remained on the ground in Hong Kong. Communist authorities promptly claimed the aircraft as the 'sacred property' of the Chinese People's Republic. [Leary PM p.91]

On 9th November 1949, Colonel C Y Liu, CNAC's managing director, and Colonel C L Chen, general manager of CATC, declared for the Communists and left Hong Kong for Peking with eleven aircraft and crews. [Bond p.378; Leary TDW p.220]

"Eleven commercial aircraft (9 owned by CNAC and 2 by CATC) which left Kai Tak yesterday morning between 6 and 8 a.m. have according to reliable information defected to the Chinese Communists. Among those on board were Mr Liu Ching-yi and Mr Chen Cheuk-lin managing directors of CNAC and CATC respectively. The planes were [originally] destined for Kweiyang, Taipeh, Liuchow and Nanning, areas under Nationalist control. They are believed headed either to Peking or Shanghai. Both CNAC and CATC have suspended all flights indefinitely. Three CNAC planes returned from Liuchow, Kunming and Chungking. They were XT-122, XT-168, and XT-141 respectively. At Kai Tak yesterday it was ascertained that CATC have 39 planes of all

types on the airfield while CNAC's fleet numbers 29 (sic) planes." [SCMP 10Nov49/CFM 14Apr2003]

The following ten CNAC aircraft were among the twelve Nationalist aircraft that defected to Communist China on 9 November 1949:  
C-47: XT-115, XT-121, XT-123, XT-125, XT-129, XT-131, XT-139 (7);  
C-46: XT-144, XT-154, XT-172 (3).  
[*'Fei Shian Guan Ming'* (Fly to Brightness)/CF 01Apr2002]

A week of moves and countermoves by the Nationalists, Communists, CNAC's employees, Pan American, and the government of Hong Kong ensued. CNAC's Chinese staff, largely sympathetic to the *de facto* government in Peking, took physical possession of the remaining aircraft and announced that the aircraft belonged to the new regime. The Nationalist government appointed a new managing director and withdrew the airworthiness certificates (sic) of the aircraft. The authorities in Hong Kong stated that the aircraft would not be permitted to depart without proper registration and placed guards around the CNAC employees guarding the aircraft. Pan American froze the airline's assets held by American banks. [Leary TDW p.221]

Chennault and Willauer reacted with surprise and dismay to news of the defection. Communist control of the aircraft, they feared, would place the final resistance of Chiang Kai-shek in grave danger. According to their information, the Communists were training paratroopers for an assault on Chiang's last and somewhat shaky redoubt.

Willauer flew to Taipei on November 10th to consult with Nationalist officials. Conversations with General Chou Chih-jou, the air force commander, and other senior officials revealed that everyone was very distressed about the situation, but that no one had any idea what to do about it. Willauer realised that it was up to him to formulate a plan of action before a scheduled meeting with Chiang Kai-shek the following morning. [Leary PM p.92]

Negotiations for the resumption of CNAC and CATC schedules were proceeding between the managing directors of the Corporations who defected recently and the Communist Government in Peking. A spokesman for the Airlines declared at a dinner at the Cathay Hotel that the reasons for the departure from Kai Tak on Wednesday morning by 12 commercial aircraft (one more than previously stated), 10 owned by CNAC and 2 by CATC, were: a) CNAC belonged to China and not to any individual; b) CNAC primarily was a non-political concern and c) that CNAC must therefore survive and exist. [SCMP 11Nov49/CFM 14Apr2003]

## Overtures from Peking

On 20th October 1949, Bond wrote to Pan American Vice President J H Towers at Pan Am headquarters:

"Several Chinese men I have known for 18 years, and who are here now, have come to me and indicated that they have Communist connections. They tell me the Central Government is finished, that the Generalissimo is completely mad and at the end will destroy all of CNAC that goes to Taiwan. They tell me that CNAC should change over to the other side. I merely repeat that the American partners own only 20% and that our actions would be guided by the policy of our own Government.

"CNAC is an airline of China which cannot live off the China and nor can it stay in a foreign hideout. It must go back to China and resume operations in China. As head of CNAC my responsibility calls for a challenge and resolution."

In a memo to E M Allison, CNAC Managing Director C Y Liu explains his actions and recommends that the American representatives of CNAC come to Peking to discuss reinstating CNAC service under the Communists:

"Regarding PAA's part in CNAC. I quote you the following assertions made by the representative of the People's Government in Peking.

"The People's Government realize that CNAC is an airline of Sino-American cooperation. As long as it is on equitable basis and it works in the interests of the Chinese people as represented by the People's Government, this cooperation will continue;  
The contract between PAA and the Kuomintang Ministry of Communications will be recognized;

All American personnel with whom CNAC has valid contracts will remain in the employ of CNAC according to the terms of the contracts; CNAC's next move will be the resumption of operation in China as may suit the interests of the People's Government.

"You will see these are compatible with the spirit of the contract and it is for you to perpetuate this cooperation. At this time of difficulty, it is imperative that all CNAC's employees, Chinese and Americans, be united together and immediately set to work for the repatriation of CNAC to China. It is also my wish that you and other directors will come immediately to Peking for an emergency meeting of the Board of Directors."

Liu's offer was counter to Pan American's global interests, and Bond received a confidential memo on 11th November 1949 from Bixby indicating he should not consider going to Peking. [Bond pp.378-379]

## Aircraft detained at Kai Tak airfield

"Nationalist Minister of Communications, Mr Tuen Mo-chi, and Foreign Minister, George Yeh, arrived from Taipei by CAT plane, XT-54 to attend to the affairs of CNAC and CATC." [SCMP 14Nov49/ CFM 14Apr2003] See above for this MOC/CAT C-46F.

On November 13 the Nationalist Civil Aeronautics Administration in Taiwan suspended the registration certificates of the aircraft (of CNAC and CATC).

Three days later, after 'disloyal' employees of the two airlines had been dismissed, a squad of twenty newly hired Sikh guards went on duty to prevent removal of the transports. Willauer personally led a group of CAT pilots and crew chiefs in a midnight foray to the airport, where they immobilised the aircraft, at least temporarily, by letting the air out of the tyres. [Leary PM p.92]

The following is the text of a letter dated 16th November, 1949 from M Oxford, the Acting Director of Civil Aviation (DCA), to the CNAC office at Gloucester Building, Hong Kong [TNA CO 537/5629 #207]:

"I have been advised by the Chinese Civil Aeronautics Administration that the Certificates of Registration of aircraft owned by your Corporation have been suspended. From my records it appears that the following China National Aviation Corporation aircraft are at present stationed at Kai Tak Airfield:-

<u>C-46</u>		<u>DC-4</u>	<u>C-47</u>	<u>Catalina</u>
XT136	XT130	XT101	XT141	XT147
XT166	XT164	XT102	XT111	
XT148	XT120	XT103	XT119	
XT118	XT142	XT105	XT137	
XT140	XT162	XT106	XT117	
XT168	XT170		XT127	
XT122	XT160		XT 34 (sic)	
XT116	XT199 (sic)			
XT114	XT 42			

"Article 4 of the Air Navigation (Colonies, Protectorates and Mandated Territories) Order states that aircraft shall not fly unless registered and consequently it will be an offence against this Order for any of the above aircraft to take off from Hong Kong Airport. Article 11 of the Order gives a person authorised by the Governor authority to take steps, by way of detention or otherwise of aircraft, to prevent flight in contravention of the Order.

"In accordance with these powers conferred upon me I therefore direct that no aircraft of the China National Aviation Corporation shall fly, or attempt to fly to or from Hong Kong Airport."

Notes:

1. Subsequent analysis suggests that XT 34 is probably a C-46, not a C-47.
2. The identity of C-46 "XT199" is a mystery. C-46s were allocated even numbers and '199' is too high a number. [MSB 30Jun2007]
3. "C-47" may include C-53 and DC-3 aircraft.

On 17th November, Sir Alexander Grantham, the governor of Hong Kong, announced that no aircraft would be permitted to depart for the mainland until the Sino-British air agreement had been clarified. At the same time, in an effort to avoid trouble with Communist sympathisers,

May 15, 1950

Civil Air Transport, Inc.,  
and C.A.T., Inc.  
c/o Mr. Duncan Lee  
Attorney  
1511 K Street, N. W.  
Washington 5, D. C.

Gentlemen:

We have your letter of May 6, requesting cancellation of United States registration numbers assigned Curtiss aircraft as follows:

REGISTRATION NUMBER	SERIAL NUMBER
8369C	22451
8370C	2358-00
8379C	33372
8380C	32950
8406C	22228
8410C	22236
8412C	22351
8430C	22362

In accordance with your request, the above listed registration numbers were cancelled on our records on May 10, 1950.

Very truly yours,

George W. Haldeman  
Chief, Aircraft Division

he ordered the removal of CAT's security force. No sooner had the guards left than a number of CNAC and CATC employees, who had declared their allegiance to Peking, took physical possession of the aircraft. The pro-Communist group vowed to stay until the British government recognised the new Chinese regime, which was expected by the end of the year, and the assets of the two airlines passed over to the People's Republic. Although Willauer obtained an injunction from Sir Leslie Gibson, Chief Justice of Hong Kong, to restrain the defectors from remaining on Kai Tak airport and from removing or tampering with the disputed property, the civil authorities refused to enforce it, fearing a riot that might endanger the security of the colony. [Leary PM p.93]

### CNAC aircraft at Taipei

"Major-General C L Chennault became the custodian all CNAC and CATC planes in Free China. CAT is authorized to make use of them, seven in all wherever required. In Taipeh, the military authorities handed over four planes belonging to CNAC and CATC to CAT on a loan basis. CAT will use its own crew to man the aircraft but the original CNAC insignia will remain." [SCMP 27Nov49/CFM 15Apr2003]

A US CAA memo dated 10th July 1950 lists the N-numbers of aircraft under the control of CAT in Taiwan. This list includes the following ex-CNAC aircraft: N-8369C, N-8370C, N-8372C, N8379C and N-8380C, as well as a number of ex-CAT aircraft. The memo says: "These forms are for the aircraft which are under the control of C.A.T. The registration certificates for the aircraft which are tied up in litigation and are in Communist hands are being retained at our Manila IFO as evidence of U.S. registry. The only exception of complete cancellation of the aircraft under C.A.T. control is N-8372C, which until this time has been on a tour with a Korean delegation and is expected to have returned to Formosa on or about July 5, 1950. We expect to receive notification of cancellation of registration on this aircraft in the near future."

We know that the CNAC aircraft in Taiwan and Hainan were registered to CATI in the N8300C sequence and were cancelled in 1950 (see above). These were the following eight C-46s: N8369C, N8370C, N8372C, N8379C, N8380C, N8388C, N8390C and N8391C. Of these, N8372C, was on tour with a Korean delegation, so perhaps was not counted in the seven aircraft. (In fact N8372C was cancelled in 1951.) We know that no CATC aircraft were in Taiwan in November 1949, as none of these US registrations was cancelled in 1950.

The FAA file for N8380C includes the following Western Union telegram possibly dated 7Jan50 (see above):

"Instructed by Colonel Cy Liu Managing Director of China National Aviation Corporation to deny claim of ownership by Major General

<p>CLASS OF SERVICE This is a full-rate Telegram or Cablegram unless its deferred character is indicated by a suitable symbol above or preceding the address.</p>	<h1 style="margin: 0;">WESTERN UNION</h1> <p style="font-size: small; margin: 0;">W. P. MARSHALL, PRESIDENT</p>	<p>1201</p> <p>SYMBOLS</p> <p>DL=Day Letter NL=Night Letter LC=Deferred Cable NY=Cable Night Letter R=Radiogram</p>
<p>The filing time shown in the date line on telegrams and day letters is STANDARD TIME at point of origin. Time of receipt by addressee is indicated by the date line on telegrams and day letters.</p>		
<p>.0A02 0 O.SFA042 56/55 INTL PB=SF HONGKONG VEA COMPACIFIC 7 115P CIVIL AERONAUTIC ADMIN OF USA WASHDC INSTRUCTED BY COLOMEL CY LIU MANAGING DIRECTOR OF CHINA NATIONAL AVIATION CORPORATION TO DENY CLAIM OF OWNERSHIP BY MAJOR GENERAL CHENNAULT WHITING WILLAUER AND/OR CAT INC TO 7 PLANES NOS XT-30 XT36 XT38 XT-132 XT-134 XT-138 AND XT158 AND RESERVE RIGHT TO CLAIM THESE PLANES FORD KWAN AND COMPANY 7 XT-30 XT36 XT38 XT-132 XT-134 XT-138 XT158</p>		

**Above:** Western Union telegram of 7.1.50 in which Communist China represented as CNAC claimed ownership of the seven aircraft in Taiwan, three of which XT-30, -36, -38, were leased from the CAA.

**Left:** Letter of 15th May 1950 from the US CAA to CATI confirming cancellation of, amongst others, the four CNAC-owned C-46s in Taiwan N8369C, N8370V, N8379C and N8380C which had been registered to Chennault and Willauer's CATI. (both via M S Best)

Chennault Whiting Willauer and/or CAT Inc to 7 planes nos XT-30 XT36 XT38 XT-132 XT-134 XT-138 and XT158 and reserve right to claim these planes Ford Kwan and Company."

At first sight it looks as if these are the Chinese identities of the seven CNAC aircraft at Taipei. All are Curtiss C-46s. XT-30, XT-36 & XT-38 were owned by the MOC and leased to CNAC (with XT-34 & XT-42, which were at Kai Tak). The remaining four C-46s were not listed by the DCA at Kai Tak in November 1949 and were not listed by the MOC as sold to Chennault & Willauer (C&W) on 12 December 1949, as they had already been transferred to CAT (see fleet list below). An analysis of the data suggests that the eight CNAC C-46 aircraft transferred to CAT in November 1949 were:

CNAC regn.	N-number	CAT regn.
XT-132?	N8369C	XT-850, B-850
XT-134?	N8370C	XT-852?
XT-138?	N8372C	XT-848, B-848
XT-156	N8379C	XT-854, B-854
XT-158	N8380C	XT-856, B-856
XT-30	N8388C	B-130 (CAA)
XT-36	N8390C	B-136 (CAA)
XT-38	N8391C	B-138 (CAA)

Registration tie-ups need to be confirmed for some aircraft. [MSB 11Jun2007, 01May2009]

### Sale of CNAC aircraft to Chennault & Willauer

In an effort to prevent the aircraft in Hong Kong from falling under Communist control, Willauer offered Chiang Kai-shek the services of CAT. CAT would act as agent for the Nationalist government, with full authority to change title of the aircraft or to take any other action necessary to forestall Communist possession of the transports and, it was hoped, to deliver them to Taiwan. Chiang agreed. An official from the Ministry of Finance would attempt to freeze the bank accounts of CNAC and CATC. [Leary PM p.92]

Chennault and Willauer, operators of CAT, sought to assist the Nationalist government. Willauer flew from Hong Kong to Taipei on 10th November for discussions with Chiang Kai-shek. He offered the Generalissimo a scheme which would involve transfer of ownership of CNAC and CATC from the Nationalist government to an American company to be incorporated by Chennault and Willauer. The aircraft then would be registered under American law. In this way, they believed, the aircraft could be recovered; at a minimum, litigation would keep the aircraft out of Communist hands for a long time. Chiang Kai-shek welcomed this proposal. Before the plan could be put into effect, however, the government would have to acquire Pan American's interest in CNAC. [Leary TDW p.221]

The attempt by Chennault & Willauer to act as agents of the Nationalist Government in Hong Kong was unsuccessful, so a new approach was taken. On 5th December 1949, Chennault & Willauer wrote to the Minister of Communication a 6-page letter offering to purchase the government's shares in and the assets of CATC and CNAC. (The text of these letters will be included in a future article.) It should be noted, however, that only "airplanes" were specified within the assets and no aircraft identities or numbers were mentioned. No additional information is included in the onward "Bill of Sale" from the Chennault & Willauer partnership to Civil Air Transport, Inc., though US (not Chinese) identities are specified in CAA documentation.

The following 48 CNAC aircraft are listed in a Chinese document from the MOC for sale to Chennault and Willauer on 12th December 1949:

XT-101 (37-28), XT-102 (37-29), XT-103 (37-30), XT-105 (37-32), XT-106 (37-33), XT-111 (37-36), XT-114 (37-43), XT-115 (37-38), XT-116 (37-44), XT-117 (37-39), XT-118 (37-40), XT-119 (37-34), XT-120 (37-41), XT-121 (37-35), XT-122 (37-73), XT-123 (37-93), XT-125 (37-94), XT-127 (37-95), XT-129 (37-96), XT-130 (37-83), XT-131 (37-97), XT-136 (37-86), XT-139 (37-128), XT-140 (37-88), XT-141 (37-129), XT-142 (37-89), XT-144 (37-90), XT-147 (38-17), XT-148 (37-92), XT-154 (37-137), XT-160 (37-141), XT-162 (37-142), XT-164 (37-143), XT-166 (37-144), XT-168 (37-145), XT-170 (37-146), XT-172 (37-147), XT-401 (37-45), XT-402 (37-46), XT-403 (37-47), XT-404 (37-48), XT-405 (37-74), XT-406 (37-75), XT-407 (37-76), XT-408 (37-77), XT-409 (37-78), XT-410 (37-79), XT-411 (37-149). [Archive p.96/111]

Numbers in brackets are Chinese Certificate of Airworthiness numbers. Prefix 37- is for 1948 and 38- is for 1949. Aircraft types were not included but are proposed in the fleet lists given below.

Note: this list does not include the CNAC aircraft on Taiwan that were transferred to CAT in November 1949. Also, XT-137 is not included but was listed by the DCA at Hong Kong in November. [MSB 30Jun2007]

The (US) CAA waived airworthiness inspection requirements and granted American registration to the aircraft in Hong Kong (on 19th December 1949). [Leary PM p.96] See Archive p.2009/088. There are marked differences between the aircraft listed by the MOC and those registered by the US CAA. Leary (PM p.96) says that Willauer needed "to bribe Communists with access to the disputed aircraft for information on registration numbers and other data required by the CAA to issue American documentation." Why did he need to do this when the MOC had already prepared a list (in Taiwan)? Perhaps these two courses of action explain the two different lists.

CAT Bulletin, Vol.3, No.5 includes a transcript of a press conference given by General Donovan (legal advisor to CATI) in Hong Kong, with Chennault & Willauer in attendance. Chennault stated that 94 CAT aircraft had been registered in the USA and "about 70" were "here in Hong Kong". "Seven" other disputed aircraft were "there in Nationalist China, either Taiwan or Hainan Island." The number '94' is derived from 43 ex-CATC and 51 ex-CNAC aircraft, registered N8300C to N8393C. [MSB 11Jun2007] The Bill of Sale of these aircraft from Chennault & Willauer to Civil Air Transport, Inc. also shows 94 aircraft. N8394C has also been reported as a CNAC aircraft for CATI but this is omitted from this BoS (see below).

### Pan American sell share of CNAC

The Chinese government transferred all CNAC assets to Civil Air Transport without consulting Pan American. Bond provided a detailed description of the end of Pan American's involvement in CNAC in a letter to George Sellett, a senior Pan American official, dated 6th March 1950:

"PAA had no intention and no desire to get out of CNAC. We had planned to continue our services in China as long as possible. This, of course, would be contingent upon the approval of the US Government. As you know, we refused to take any part in the fight for control of CNAC which took place between the Communist Government and the Central Government after November 9, 1949, when the majority of the staff of CNAC declared themselves in favour of the New People's Government. It has always been our policy to keep out of the domestic politics of any country in which we operate. This obviously is a necessity.

FORM ACA-500 (5-47)		DEPARTMENT OF COMMERCE CIVIL AERONAUTICS ADMINISTRATION	
PART. G		BILL OF SALE <i>on</i>	
FOR AND IN CONSIDERATION OF <u>1 and other good</u> consideration LEGAL AND BENEFICIAL TITLE OF THE AIRCRAFT DESCRIBED AS FOLLOWS: THE UNDERSIGNED OWNER OF THE FULL			
AIRCRAFT MAKE <u>As per the annexed schedule made a part</u>	SERIAL NO. <u>488562</u>	CAA REGISTRATION NO. <u>488562</u>	
DOES THIS <u>19</u> DAY OF <u>December</u> <u>1949</u> HEREBY SELL, GRANT, TRANSFER, AND DELIVER ALL OF HIS RIGHT, TITLE AND INTEREST IN AND TO SUCH AIR- CRAFT UNTO: <u>WASHINGTON, D.C. on</u>			
NAME OF PURCHASER <u>CIVIL AIR TRANSPORT, INC.</u>			
ADDRESS OF PURCHASER (Number, street, city, zone, and state) <u>317-325 South State St., Dover, Del., USA</u> <b>CIVIL AERONAUTICS ADMINISTRATION</b>			
AND TO EXECUTORS, ADMINISTRATORS, AND ASSIGNS, TO HAVE AND TO HOLD TO HOLD SINGULARLY, THE SAID AIRCRAFT FOREVER, AND CERTIFIES THAT SAME IS NOT SUBJECT TO ANY MORTGAGE OR OTHER ENCUMBRANCE EXCEPT:			
TYPE OF ENCUMBRANCE	AMOUNT	DATE	RECORDED
			<u>DEC-20-49</u>
IN FAVOR OF			
IN WITNESS WHEREOF <u>We</u> HAVE SET OUR HANDS AND SEALS			
THIS <u>19</u> DAY OF <u>December</u> , 19 <u>49</u>			
NAME OF SELLER <u>C. L. Chennault and Whiting Willauer (L.S.)</u>			
BY (Signature in Ink) <u>[Signature]</u>			
TITLE (If signed on behalf of a Corporation or Partnership or if signed by an Agent) <u>Attorney-in-Fact Authority in Sales</u>			
ACKNOWLEDGMENT			
<u>City of Washington</u>			
<u>District of Columbia</u>			
ON THIS <u>19</u> DAY OF <u>December</u> , 19 <u>49</u>			
BEFORE ME PERSONALLY APPEARED THE ABOVE-NAMED SELLER, TO ME KNOWN TO BE THE PERSON DESCRIBED IN AND WHO EXECUTED THE FORE- GOING BILL OF SALE, AND ACKNOWLEDGED THAT HE EXECUTED THE SAME AS HIS FREE ACT AND DEED, GIVEN UNDER MY HAND AND OFFICIAL SEAL THE DAY AND DATE ABOVE WRITTEN.			
NOTARY PUBLIC <u>Conetta M. Bohan</u>	MY COMMISSION EXPIRES <u>3/14/50</u>		
READ INSTRUCTIONS AT RIGHT CAREFULLY			

Above: Bill of Sale for the ex-CNAC aircraft to CATI, dated 19.12.49. The schedule listed 51 aircraft by manufacturer, c/n and N registration from N8343C to N8393C. (via M S Best)

"I returned to the U.S. arriving home December 1. On December 19 a Washington newspaper carried the news that the Central Government had sold its 80% interest in CNAC to a new Company called Civil Air Transport of Delaware which was controlled by General Chennault and Mr Willauer. This was the first indication that anyone in CNAC had that such a sale was being considered. Actually the sale had taken place approximately 10 days sooner but was being kept quiet while the new Delaware Corporation was being set up and the registration of the planes with the CAA was being consummated. On December 19, in Washington, Mr Thomas Corcoran, Attorney for Chennault and Willauer and for the new corporation, called me over the telephone and informed me that Pan American's interest would be fully protected by the new corporation and asked me to support same and the registration of the planes with CAA.

"This I refused to do although he talked to me at great length and called me several times. I was called over the phone by a Mr Shaw of the CAA telling me that he had been informed by Mr Corcoran that Pan American Airways had approved the registration of all CNAC planes with CAA as the property of Civil Air Transport, Delaware. I told Mr Shaw that this was a mistake and requested him not to register these planes. I went to New York early the next morning and we immediately had a conference in Mr Trippe's office. Present were Mr Juan Trippe, President; Mr Howard Dean, Executive Vice President; Mr H J Friendly, Chief Counsel; and myself. Mr Bixby was in Europe and did not attend.

"I told those present of my talks with Mr Corcoran and with Mr Shaw. Mr Dean then called the head of the CAA in Washington regarding the registration of the planes and was told that the planes had already been registered as the property of Civil Air Transport, Delaware. This clearly was chicanery on someone's part but it could also indicate support from somewhere in the U.S. Government for this transaction. As a result it became clear to everyone that PAA was in an impossible position. PAA operates only at Government levels. It could not be a junior partner to CAT. We decided we had but one recourse and that was to get out. I

was therefore appointed to call on Dr T V Soong who was then in New York and see what could be arranged. I called on him at once and told him that we felt very badly mistreated and that we could not and would not work with Civil Air Transport, Delaware, and that we could not be partners with them. The outcome was that the Central Government agreed to buy Pan American Airway's 20% interest for US\$1,250,000 cash plus payment of the inter-company debt which amounted to US\$75,000. It was not a happy solution for me after nearly 19 years of work in China but I fully agreed that there was no other alternative. I also felt that if we had not taken this option the following results could be expected:

"The Hong Kong Government, as soon as the British recognized the People's Government of China, would declare all assets of CNAC in Hong Kong the property of the new government. It was well known to many people in Washington including our own State Department that the British were going to recognize the Communists. Subsequently, the British did recognize the Communist Government and the Hong Kong courts did rule that all assets of CNAC were the property of the Communists. So our actions did not affect anything in that respect. However, in San Francisco then, CNAC had approximately US\$1,800,000 in cash in the Banks. This amount was just about enough to pay off CNAC's debts and to reimburse the Central Government for the amount paid to PAA for their 20% interest. With the American Government still recognizing the Central Government of China, there appeared to be no doubt that Civil Air Transport, Delaware, would acquire title to these deposits. This would have been quite a tidy sum for the new corporation and it would mean a clear loss to settle with PAA for its 20% interest. However, due to the actions which we took, all this cash will be used in a way that will be helpful to CNAC regardless of who owns it, since there will be no 20% outside interest which will have to be paid for. This action on the part of PAA has no hate or prejudice, no claim or interest of CNAC but it did keep that cash from being used." [Bond pp.380-381]

Preliminary discussions between the Chinese Embassy in Washington and Pan American began on 20th November. Negotiations continued into December, with T V Soong representing the Chinese government while Bond and Vice President Henry J Friendly spoke for Pan American. As the two sides neared a settlement, Bixby and Bond called on Livingston Merchant in the State Department to seek the American government's sanction for any agreement that might be made. Three days later, on 19th December, Bixby was shown in draft form the department's reply. Although phrased in the usual legalistic jargon, one part of the letter was clear: "*The Department would prefer to see Pan American disassociate itself from any connection with CNAC ... as rapidly and as completely as its contractual obligations and its responsibilities to its stockholders would permit.*"

The following day, 20th December, Pan American sold its interest in CNAC to the Chinese government for \$1,250,000, which was covered by the airline's assets in American banks. Shortly thereafter, the Nationalist authorities transferred ownership to Chennault's and Willauer's new American company. [Actually the assets were transferred to C&W on 12th December and to CATI on 19th December]

Only the formalities remained. Bond flew to Hong Kong for the last meeting of CNAC's Board of Directors. The board assembled in Room 231 of the Hong Kong and Shanghai Bank building on 31st December and confirmed the terms of purchase. Later that evening, Bond, representing the American shareholders, and C S Nibson, acting for the Chinese owners, ratified the board's action on behalf of the airline's stockholders. Shortly after 8 pm, Saturday, 31st December 1949, the China National Aviation Corporation passed out of existence. [Leary TDW pp.221-222]

Extract of Minutes of Board of Directors meeting of CNAC held in Hongkong-Shanghai Bank Building, Hong Kong on 31st December 1949:

"RESOLVED that the Power of Attorney from Pan American to W.L. Bond is accepted as showing that he is authorised to act in all matters concerning CNAC and the Pan American Airways' interest therein.

"RESOLVED that the action of the Government of the Republic of China in accepting the December 5, 1949 offer of Chennault and Willauer to purchase all the shares and assets of every nature of CNAC and the transfer of the said shares and assets to Chennault and

Willauer as contained in the letter of the Republic of China dated December 12, 1949, and signed by the Premier Yen Hai-Shen, be and it hereby is approved, ratified and confirmed.

"RESOLVED that the acceptance of said offer of Chennault and Willauer as contained in the endorsement on their letter of offer signed on December 13, 1949, by C.S. Nibson, Deputy Secretary-General of the Executive Yuan, be and it hereby is approved, ratified and confirmed.

"RESOLVED that the assignment of all said assets by Chennault and Willauer to Civil Air Transport, Inc., a Delaware Corporation, be and it hereby is approved, ratified and confirmed:

"WHEREAS the Government of the Republic of China has purchased all the shares in CNAC owned by Pan American Airways, NOW THEREFORE BE IT

"RESOLVED that the Government of the Republic of China be authorised to sell said shares to Chennault and Willauer for transfer to Civil Air Transport, Inc., a Delaware corporation, for the sum of U.S. Dollars One Million Two Hundred Fifty Thousand (US\$1,250,000.00).

"I hereby certify the foregoing to be true copies of resolutions duly passed at a meeting of the Board of Directors of CNAC held in Hongkong on 31 December 1949. Sd. C.S. Nibson, Chairman." [TNA CO 537/5633 #466 RPH2]

The resolutions of the Old Shareholders of CNAC held on 31st December 1949 were as follows:

"RESOLVED that the action of the Government of the Republic of China in accepting the offer of Chennault & Willauer dated December 5, 1949, and the transfer of said shares and assets to Chennault & Willauer as contained in the letter of the Republic of China dated December 12, 1949, and signed by the Premier Yen Hai-Shen be and it hereby is approved, ratified and confirmed:

"RESOLVED that all actions taken by the Board of Directors of CNAC at a meeting held in Hongkong on 31 December 1949, be and they hereby are approved, ratified and confirmed.

"I certify the foregoing to be a true copy of resolutions passed at a meeting of the old shareholders of CNAC held in Hongkong on 31 December 1949. (Sd.) C.S. Nibson, Chairman." [CO 537/5633 #466, RPH4]

Bond spent January 1950 wrapping up loose ends in the sale of CNAC to Civil Air Transport. In Hong Kong, he assisted American CNAC pilots and other personnel in obtaining back pay and in assuring their transportation back to the United States. [Bond p.381]

The following notice was included in the CAT Bulletin dated 15th February 1950 (page 10):

"Notice to all employees of CNAC and CATC. Civil Air Transport, Inc., a Corporation organised under the laws of the State of Delaware, USA, hereby announces that, on December 11, 1949, all the property and assets of CNAC and CATC were sold to Chennault and Willauer, a Partnership, and were subsequently resold to Civil Air Transport, Inc., which is now owner of all aforesaid assets.

"All employees of CNAC and CATC are hereby notified that CAT, Inc. considers their employment terminated as of December 12, 1949. CAT, Inc. undertakes no obligations with respect to the further employment of such former employees except as contained in its agreement to purchase or as it may hereafter make with employees individually. CAT, Inc. will endeavour to employ all loyal employees as its operations permit." [TNA FO 371/84786 GA81/72]

The American personnel were given a month's salary for every year of service, and they were soon scattered to the four winds.

Chennault and Willauer staged a three-year legal battle for possession of CNAC's assets. The case involved politics at the highest level and finally reached the Privy Council in London in 1952. The Americans won the case, and the aircraft were shipped by sea to the United States for disposal. [Leary TDW p.222] The legal action to recover CNAC's assets in the USA will be described in a later article.

TNA file FO 371/84782 includes a statement on the United States attitude towards the sale of CNAC and CATC to the "Chennault organisation":

"The Department of State has been officially informed by the Government of the Republic of China that it had sold its interest in the China National Aviation Corporation to General C. L. Chennault and Mr Whiting Willauer, a partnership formed under the laws of Delaware. Furthermore, the Department of State has been informed by counsel for Pan American Airways that it had disposed of its 20% stock interest in the China National Aviation Corporation to the Government of the Republic of China. On January 3, 1950, the Chinese Embassy in Washington, acting on behalf of its Government, communicated to the Department of State a certification by Premier Hsi-shan of the transfer of the entire assets of the China National Aviation Corporation and the Central Air Transport Corporation to Civil Air Transport, Inc. The Communist element in the Chinese management of the China National Aviation Corporation is the only party known to the Department of State to be questioning in any way the legality of the transfer and hence the title of Civil Air Transport, Inc. to the assets of the China National Aviation Corporation. The Department of State recognises Premier Yen Hsi-shan as representing the legal Government of China with which the United States Government maintains full diplomatic relations." [GA81/12]

### **Sabotage at Kai Tak**

"Seven of the 71 communist controlled aircraft were damaged by homemade time-bombs. The bombs planted in the engine cowlings and tails of the aircraft exploded shortly after 5.30 a.m. and continued going off at 15-20 minute intervals for nearly 3 hours. The seven sabotaged aircraft – all owned by CNAC, three C-47s had their starboard engines wrecked while the other four C-46s sustained damage to their tails. It has not been possible to estimate the amount of damage caused. It is believed that culprits got in through a barbed-wire fence separating the roadway and the aircraft. The aircraft were parked only 40 yards from the fence!" [SCMP 03Apr50/CFM 23Apr2003, IDJ 08Sep2002]

"The concern of the Nationalist government over the fate of the aircraft was made clear on the morning of 2 April when Nationalist agents planted time bombs which damaged seven aircraft." [Leary CAT pp.660-661]

The Governor of Hong Kong reported to the Secretary of State for the Colonies on 2nd April 1950:

"At about 5.30 this morning, Sunday six C.N.A.C. planes of old types were sabotaged by light explosive charges strategically placed. None of the planes has been destroyed, but they have been put out of action, probably indefinitely. It would appear that planes were deliberately not destroyed, but only put out of action. Last explosion was about 8 a.m. There may still be some more. C.N.A.C. and C.A.T.C. authorities have agreed to search remainder of the planes under Police supervision. They would be unwilling to risk the lives of Police officers by having them do the actual search.

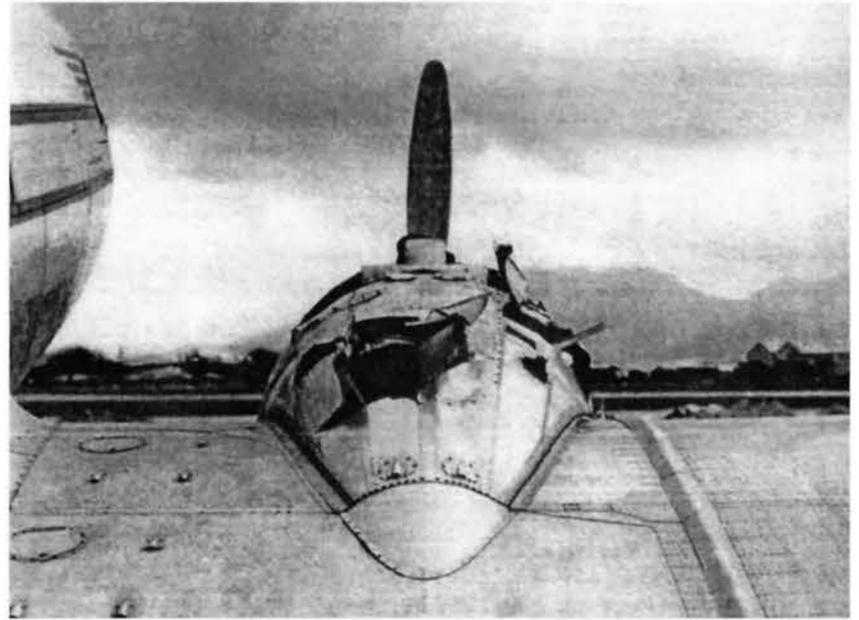
"2. On explosions occurring area was cleared and about 12 C.N.A.C. and C.A.T.C. employees are being held by the Police for interrogation.

"3. Area was well guarded by Police, and it is probable that explosive charges were placed in position by C.N.A.C. and C.A.T.C. employees just before they left work yesterday evening. In this connection, it is interesting to note that at 6 a.m. this morning, it was discovered that nationalist flag had been hoisted over buildings occupied by employees. This looks as if some of them have re-defected back nationalists." [TNA CO 537/5629 #199, FO 371/84788 GA81/115]

Wright [p.30] shows a picture of a starboard engine nacelle after damage by a bomb. The identities of the seven damaged aircraft are unknown.

### **Shipments of aircraft to the USA**

The legal ownership of the ex-CATC aircraft was finally resolved in favour of CATI by the Privy Council in London on 28th July 1952, whereas the legal ownership of the ex-CNAC aircraft was resolved by the Supreme Court in Hong Kong on 8th October 1952, also in favour



**Above:** Home-made bomb damage to the starboard engine of a CNAC C-47 at Hong Kong 2.4.50. **Below:** Restoration work on a C-47 while legal proceedings on ownership continued. (HKHAA via Ian D Johnson)



**Above:** Restoration work by Communist Chinese groups taking place on a CNAC C-54 and **Below** on a C-46, prior to the Supreme Court decision on ownership. (HKHAA via Ian D Johnson)





**Above:** Victorious J J Brennan of CATI beneath a CNAC C-54 following the Supreme Court decision. (HKHAA via Ian D Johnson)

of the Americans. The company was allowed to inspect the aircraft, which were under police guard until after any appeal that might be made. The Chief Justice allowed six weeks for an appeal by the Chinese People's Government (CPG), but no appeal was submitted by the deadline of 19th November 1952.

Meanwhile the Governor of Hong Kong (Sir Alexander Grantham), the US Consul-General in Hong Kong (Mr Karl Rankin) and the CATI representative (Mr James J Brennan) started to make arrangements to ship this second group of aircraft to the USA. The initial plan was to use another US non-combatant aircraft carrier (USS *Windham Bay*, CVE 92) to move the C-54s and some other aircraft, and commercial shipping would take the remaining aircraft and stores [FC1382/71]:

- a) Carrier to take 11 aircraft, including 5 Skymasters; earliest possible date 10 December;
- b) Remaining aircraft to be removed by commercial shipping; might start 10 December;
- c) Removal of stores by commercial shipping (later).

Later Mr Ringwalt of the US Embassy in London informed Mr McKenzie that the US Consul-General in Hong Kong had reported that a non-combatant aircraft carrier would enter Hong Kong on 9th January 1953 to help in the removal of the CNAC aircraft. [FC1382/76]

This limited information is given in TNA files ref. FO 371/99341 (1952) and CO 1023/170 (1952). Clearly this operation continued in January 1953 but the FCO report that relevant Colonial Office and Foreign Office files for this period have been "Destroyed under statute, Sec 3(6) Public Records Act 1958". Fortunately some additional information is available from other sources.

Matt Miller has examined newspaper reports from California in the period October 1952 to January 1953. The majority of the CATI aircraft were shipped to Long Beach, California:

The first shipment consisted of 22 aircraft (all ex CATC):  
The USS *Cape Espérance* (CVE-88) carried five Convair 240s and nine C-46s.

The Pacific Far East Lines *Flying Dragon* carried six C-46s.  
Both vessels were unloaded on 20th October 1952, although the *Flying Dragon* docked the day before. It was reported that two further aircraft



**Above:** The USS *Cape Espérance* (CVE-88) docking at a US west coast port, probably Long Beach, with five CV240s and nine C-46s on board for CATI, October 1952. (Ian D Johnson collection)

were en route on another ship. Another report stated that these aircraft were the first shipment of a batch of 53 to be returned to the U.S.A. (The 17 CATC C-47/C-53/DC-3s were taken by ocean-going barges, belonging to and operated by Luzon Stevedoring Company, to Sangley Point Naval Base, near Manila.) [FC1382/43] (See *Archive* pp.2009/088-089 & 2009/112.)

Known to be aboard the *Cape Espérance* were the CATC Convairs and CATC C-46s XT-516, XT-512 and possibly XT-526. Known to be aboard the *Flying Dragon* were CATC C-46s XT-524 and XT-540. [MM 05Apr2009] Wright (p.310) says "On 28 September the USS *Cape Espérance* arrived in Hong Kong to transport aircraft to a neutral destination. Five Convairs and 18 C-46s were loaded aboard the carrier." Leary [CAT p.665] says: "On 28 September 1952, the light escort carrier USS *Cape Espérance* arrived in Hong Kong to load aircraft for CATI on a 'reimbursable basis'. *Cape Espérance* sailed two days later in company with the Pacific Far East Lines freighter *Flying Dragon*, and arrived in Long Beach on 19 October."

A total of 40 ex-CATC aircraft were due to be shipped out of Hong Kong:

14	<i>Cape Espérance</i>	5 CV240, 9 C-46
6	<i>Flying Dragon</i>	6 C-46
3	?	3 C-46
17	Barges to Manila	17 C-47/C-53/DC-3

There is a possible correlation with the cancellation of US registrations. It is known that the aircraft shipped to the USA were cancelled in groups in 1952 and 1953. Looking at the ex-CATC aircraft:

On 18th December 1952, 21 registrations were cancelled by the CAA, namely 5 Convair 240s (N8300C to N8304C) and 16 C-46s (N8306C to N8318C & N8320C to N8323C)[MSB 28Aug2004], which accounts for all available CATC Convairs and C-46s and the shipments by *Cape Espérance* and *Flying Dragon*. [MM 07Apr2009] Of the 17 DC-3s, 11 were cancelled on 22 July 1953 and 6 on 12 August 1953, suggesting that perhaps these were shipped from the Philippines in two groups.

The second shipment was of up to 30 ex-CNAC aircraft:  
Five aircraft were on board the *President Jefferson*, which was unloaded on 4th January 1953.

Four aircraft were on the Pacific Far East Lines *Indian Bear*, which arrived on 3rd January 1953. (Press photographs show C-46s.) The US Navy escort carrier USS *Windham Bay* (CVE-92) arrived on 28th January 1953. The cargo was reported to be 17 passenger aircraft, including the five C-54s, and represented the final shipment of the planned 53 aircraft. [MM 05Apr2009] (See illustration on *Archive* p.2009/107 but ignore caption.)

"Days later, while flying, I was told another aircraft carrier, the *Wyndham Bay* (sic), took more planes, and the American President Line's *Flying Cloud* took the rest." [Smith p.214]

17	<i>Windham Bay</i>	5 C-54 + 12 type?
5	<i>President Jefferson</i>	5 type?
4	<i>Indian Bear</i>	4 C-46?
4	<i>Flying Cloud?</i>	4 type?

On 27th January 1953, twelve registrations were cancelled by the CAA, namely three ex-CNAC DC-3s (N8350C, N8357C & N8362C), and nine ex-CNAC C-46s (N8364C, N8365C, N8368C, N8373C, N8374C, N8382C, N8383C, N8389C & N8392C), which does not quite match the shipping reports.

On 26th February 1953, sixteen registrations were cancelled by the CAA, namely five C-54s (N8343C to N8347C), two DC-3s (N8348C & N8352C), and eight C-46s (N8363C, N8367C, N8371C, N8377C, N8381C, & N8384C to N8386C) and one AT-6F (N8393C) [MM 07Apr2009; MSB 28Aug2004] These were presumably the aircraft on USS *Windham Bay*, noting that C-46 N8366C was cancelled on 26th March 1953 with two ex-CNAC DC-3s that were reportedly broken up in Hong Kong.

The prediction of 53 aircraft to be shipped from Hong Kong to the USA was presumably based on 70 aircraft (40 ex-CATC & 30 ex-CNAC) minus the 17 ex-CATC DC-3s taken to the Philippines but without taking into account the decision not to ship two ex-CNAC DC-3s, so it is possible that only 51 aircraft were shipped in the period October 1952 to January 1953.

We will discuss the court cases and the aircraft awarded to CATI in a later article.

### CNAC fleet list by aircraft type

The full CNAC 1945-1949 fleet tables will appear in the next issue but we just have space for the one Catalina here:

#### Consolidated 28/OA-10A Catalina

XT-reg.	f/n	CofA	d/d	c/n	p/i	fate
XT-147	?	38-17		?	?	?

At Hong Kong, 16Nov49, sold to C&W, fate unknown [Archive p. 2009/177-178; HK DCA 16Nov49; Legg p.137]

Notes:

1. Photographic evidence exists to confirm that a CNAC Catalina or Canso A amphibian registered XT-147 was stored at Kai Tak in late

1949. The former Cathay Pacific Catalina VR-HEG (c/n ?) is a strong candidate. VR-HEG (possibly Canso A c/n CV-309?) of Air Hoe was sold to CNAC on 22 June 1949. [SEA p.137] See also Part 9 [Archive p.2009/177-178]

2. RCAF Canso A s/n 11027 c/n CV-309 was declared surplus (SOC) on 6 December 1947 and later registered as N1358V. [RJR 18Oct2009] The FAA file for N1358V needs to be examined to see if there is any possibility that it could have become VR-HEG. An ex-USAAF OA-10A from Tacloban would seem to be a more likely candidate. (See *Archive* p.2009/180)

3. John Davis reports on the FAA record card for N1358V: "Registration only" RCAF 11027. Unassigned. 'Registration only' normally indicates the marks were issued for a ferry flight, and no CofR or CofA were issued. This could also indicate that the owner held a 'dealer's certificate'. And, although nothing is shown on the card, this could well indicate Babb & Co., especially as they seem to have had a lock on ex-RCAF surplus sales to the US. The exact date is hard to fix, but what is known with aircraft in the same sequence – say between NC1331V and NC1341V – was that they were all registered in 1947. Also NC1372V to NC1374V were cancelled on 23Apr48. Unfortunately NC1358V was not reused prior to 1972, so the cancellation date is not known. And, of course, if it was Babb he probably did not bother to tell the CAA that he was through with the registration! [JMD 20Jan2010] This information does not rule out the possibility that N1358V became VR-HEG, and maybe even XT-147, but it is hard to understand why this Canso would be imported from Canada when so many OA-10As were already available in the region.

3. Another rumoured Chinese Catalina is the former Amphibian Airways OA-10A XY-ABY c/n CV-588 that may have gone to CNAC when the former company moved out of Burma in 1949. [Archive p. 2009/178; Legg p.137]

4. The fate of XT-147 is unknown. Although it is included in the MOC list of aircraft sold to C&W, it was not allocated an N-number by the US CAA. It is not known how CNAC intended to use this Catalina/Canso.

5. There is a photo of XT-147 at Hong Kong on the CNAC website at [www.cnac.org/aircraft15.htm](http://www.cnac.org/aircraft15.htm). See also Legg p.137.

To be continued . . .



Above: The Catalina clearly marked XT-147 seen impounded at Kai Tak, Hong Kong with other CNAC aircraft. (Ian D Johnson collection)

### CNAC fleet inventories

Type	Smith p.253 Aug45	Leary TDW p.218	Leary TDW p.208 19Jun47	LYW 22Mar03 Feb48 Dec47	DCA 16Nov49	MOC 12Dec49	FAA 19Dec49	MSB 1945-49
AT-6	-	-	-	-	-	-	1	3
Catalina	-	-	-	-	1	1	0	1
C-46	21	?	18	17	19	19	30	31?
DC-3	31	?	17	21	6	12	15	31?
DC-4	-	-	6	6	5	5	5	6
L-5	-	-	-	-	-	-	-	1
Others	-	-	-	-	-	11	-	7
Total	52	56	41	44	31	48	51	80

Notes:  
1. Smith p.253: 31 DC-3 are 5 C-53 & 26 C-47;  
2. DCA data are CNAC aircraft listed at Kai Tak on 16Nov49; include leased aircraft but exclude defectors (10) and aircraft on Taiwan or Hainan (8);  
3. MOC data are aircraft to be sold to C&W on 12Dec49, exclude leased aircraft, defectors and aircraft transferred to CAT in November.

## Chronology

See *Archive* p.2009/082 for a Chronology of the Chinese civil war.

### 1945

September CNAC resumes service from Shanghai  
December 21 Chinese government and Pan American Airways sign new five-year contract; Pan American share in CNAC reduced to 20%

### 1946

June 18 Chinese Air Force took over CNAC's operations  
December 25 "Black Christmas", 3 CATC & CNAC aircraft crash

December 1946

- January 1947 6 CNAC aircraft crash, killing 156 passengers and crew

### 1947

June 10 CNAC inaugurates Shanghai-San Francisco trans-Pacific service [Davies]

October 7 CNAC inaugurates Shanghai-San Francisco transpacific service [Leary]

### 1948

December CNAC transfers base of operations from Shanghai to Hong Kong

December 21 Crash of C-54 XT-104, death of Quentin Roosevelt

### 1949

October 1 Formation of the People's Republic of China (PRC) announced

November 9 10 CNAC aircraft defect from Hong Kong to Communist China

November 13 ROC MOC suspends certificates of registration of CATC & CNAC aircraft

December 12 CNAC aircraft sold to Chennault & Willauer partnership

December 19 Ex-CNAC aircraft sold by C&W to CATI and registered by US CAA

December 31 Pan American sells interest in CNAC to Chinese government (or 20th?)

### 1950

January 5/6 Britain recognised Communist government of China (at midnight)

### 1952

July 28 Privy Council rule in favour of CATI in CATC aircraft case

October 8 Hong Kong Supreme Court rule in favour of CATI in CNAC aircraft case

November 19 Ex-CNAC aircraft at Kai Tak released to C&W/CATI

December 1952

- January 1953 CNAC aircraft shipped from Hong Kong to USA for resale by CATI

[Davies pp.363-364; Leary TDW pp.229-230]

## Abbreviations

BoS	Bill of Sale
BU	Broken up (scrapped)
CAA	Civil Aeronautics Administration (US)
C&W	Chennault & Willauer partnership
CAT	Civil Air Transport
CATC	Central Air Transport Corporation
CATI	Civil Air Transport, Inc. and C.A.T., Inc.
CKS	Chiang Kai-shek
cld	cancelled
c/n	construction number
CNAC	China National Aviation Corporation
CofA	Certificate of Airworthiness
CofR	Certificate of Registration
CPG	Chinese People's Government
DCA	Director of Civil Aviation, Hong Kong
d/d	delivery date
FAA	Federal Aviation Administration
FCO	Foreign & Commonwealth Office (UK)
FLC	Foreign Liquidation Commissioner
f/n	fleet number
FOI	Freedom of Information
GCA	Ground Controlled Approach
MOC	Ministry of Communications
PAA	Pan American Airways (Pan Am)
p/i	previous identity

PRC	People's Republic of China (Communist)
ROC	Republic of China (Nationalist)
SCMP	South China Morning Post
SOC	Struck Off Charge
TBC	To Be Confirmed
TBD	To Be Determined
TNA	The National Archives, Kew
s/i	subsequent identity
USAAF	United States Army Air Forces
UTD	University of Texas at Dallas
WAA	War Assets Administration
W/O	written off

## Acknowledgements

The author would like to thank the following for their help in the preparation of this article: Carl Modder, Clarence Fu, David Legg, Ian Johnson, Ian Terry, Dr Joe F Leeker, John M Davis, Liang-yen Wen, Marco Dijkshoorn; Martin J Willing, Matt Miller, Moon Chin (via John Wegg), Paul Howard; Ragnar J Ragnarsson, Stephen Darke, William M Leary, Jr.

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# F-1922

## The French Civil Aircraft Register from 1922

Part 25

By Bernard Martin, Dave Sparrow and Robert Espérou

Having now reached the mid-1928 period we are continuing with the New Registrations in alphabetical order as they no longer correspond to CofR Number order. Other data will be listed in monthly batches in each issue. Readers are reminded that the F-AIxx series continued until F-AIZZ in April 1929 instead of ending after one year on 31.12.26 as earlier series had.

### F-Update 11.28 to 12.29 (contined)

#### **New Registrations**

2015	<b>F-AIVY</b>	Nieuport 390	5
Cie Aérienne Française, Suresnes (21.1.29), (based Le Bourget).			
2014	<b>F-AIVZ</b>	Nieuport 390	6
Cie Aérienne Française, Suresnes (21.1.29), (based Le Bourget).			
1975	<b>F-AIXA</b>	Morane 147	1
Sté des Aéoplanes Morane Saulnier, Puteaux (16.11.28), (based Velizy-Villacoublay).			
2063	<b>F-AIXB</b>	Nieuport 390	7
Cie Aérienne Française, Suresnes (8.4.29), (based Le Bourget).			
2064	<b>F-AIXC</b>	Nieuport 390	8
Cie Aérienne Française, Suresnes (8.4.29), (based Le Bourget).			
1986	<b>F-AIXD</b>	Bréguet 281T	1
Cie Air Union, Paris/Le Bourget. (30.11.28).			
1976	<b>F-AIXE</b>	Morane 147	3/3212
A Jomain, Paris (19.11.28), (based Velizy-Villacoublay).			
1997	<b>F-AIXF</b>	Lioré-et-Olivier H.198	2
Cie Air Union, Paris (18.12.28), (based Marseille)			
1991	<b>F-AIXG</b>	Hanriot 14.E2	-
C Moench, Nancy (6.12.28).			
2011	<b>F-AIXH</b>	Potez 29/4	1385
Cie Internationale de Navigation Aérienne, Paris/Le Bourget (21.1.29), (based Prague).			
(1970)	<b>F-AIXI</b>	Nieuport 640	1
Nieuport, Issy (11.28), (based Villacoublay). [Quoted as CofR no.1970 - incorrect, already used on F-AIVL]			
2012	<b>F-AIXJ</b>	Potez 29/4	1386
Cie Internationale de Navigation Aérienne, Paris/Le Bourget. (21.1.29).			



**Above:** A line of Latécoère 26s outside the Toulouse factory. The second and third aircraft from the front are F-AIXR and F-AIXS for Aéropostale. (via JM Collection)

2008	<b>F-AIXK</b>	Lioré-et-Olivier H.198	3
Cie Air Union, Paris (9.1.29), (based Marseille).			
2060	<b>F-AIXL</b>	Farman 190	2/7111
Sté Générale de Transports Aériens, Paris/Le Bourget; (5.4.29) named "L'Actif".			
2061	<b>F-AIXM</b>	Farman 190	3/7112
Sté Générale de Transports Aériens, Paris/Le Bourget; (5.4.29) named "L'Agressif".			
unkn	<b>F-AIXN</b>	Nothing known	
2138	<b>F-AIXO</b>	Albert 120 STE.1	14
Baron de Perignon, Paris (22.6.29), (based Phanrang (Annam), Indo-China).			
2052	<b>F-AIXP</b>	Bréguet 19 ter	1
SA des Ateliers d'Avions Louis Bréguet, Paris (30.3.29), (based Vélizy-Villacoublay).			
2016	<b>F-AIXQ</b>	Farman 190	4/7113
Sté Air Afrique, Paris/Le Bourget (24.1.29)			
1998	<b>F-AIXR</b>	Latécoère 26/2R	681
Cie Générale Aéropostale, Paris (20.12.28 ), (based Toulouse).			
1999	<b>F-AIXS</b>	Latécoère 26/2R	682
Cie Générale Aéropostale, Paris (20.12.28 ), (based Toulouse).			
2000	<b>F-AIXT</b>	Latécoère 26/2R	683
Cie Générale Aéropostale, Paris (20.12.28 ), (based Toulouse).			
2001	<b>F-AIXU</b>	Latécoère 26/2R	684
Cie Générale Aéropostale, Paris (20.12.28 ), (based Toulouse).			

**Right:** The Bréguet 280T F-AIXV of Air Union was an eight-seater powered by a 500 hp Renault 12Jb and used mainly on internal routes. The type was built in Japan as the Nakajima N-36. (via JM Collection)





**Left:** The Bernard 197GR "Spécial Grand Raid" F-AIYI seen during a brief stop at Drigh Road, Karachi during its France - Indo-China flight. Departing from Istres on 19.2.29, it made a crash landing near the Gulf of Martaban in what is now Myanmar en route to Saigon when the 450hp Lorraine failed on 26.2.29.  
(via JM Collection)

2003	<b>F-AIXV</b>	Bréguet 280T	3	2032	<b>F-AIYK</b>	Morane 147	17
Cie Air Union, Paris/Le Bourget (2.1.29).				Cie Générale Aéropostale, Paris (1.3.29), (based Toulouse).			
2002	<b>F-AIXX</b>	Bernard 190T	101	2034	<b>F-AIYL</b>	Guerchais T.12	1
Cie Internationale de Navigation Aériennes, Paris/Le Bourget. (28.12.28).				Sté d'Exploitation des Carburateurs l'Hanriot, Paris/Le Bourget (1.3.29).			
2006	<b>F-AIXY</b>	Breguet 281T	2	2049	<b>F-AIYM</b>	Farman 190	11/7117
Cie Air Union, Paris/Le Bourget (8.1.29).				André Bailly, Nancy (21.3.29), (based Toussus-le-Noble).			
2005	<b>F-AIXZ</b>	Blériot-Spad 56/4	17/4410	2040	<b>F-AIYN</b>	Schreck FBA.17 HT.4	120/1247
Cie Air Union, Paris/Le Bourget (7.1.29).				M Schreck, Argenteuil. (8.3.29).			
2017	<b>F-AIYA</b>	Blériot-Spad 56/4	18/4411	2184	<b>F-AIYO</b>	Farman 200	1/7116
Cie Air Union, Paris/Le Bourget (24.1.29).				Sté des Avions H&M Farman, Billancourt (30.7.29), (based Toussus-le-Noble).			
2029	<b>F-AIYB</b>	Bréguet 284T	1	unkn	<b>F-AIYP</b>	Farman 190	9
Sté des Ateliers d'Aviation L Bréguet, Paris (19.2.29), (based Vélizy-Villacoublay)..				Sté des Avions H&M Farman, Billancourt			
2051	<b>F-AIYC</b>	Farman 190	5/7114	2653	<b>F-AIYQ</b>	Farman 192	1/7119
Cie Générale Aéropostale, Paris (28.3.29), (based Toulouse).				Sté des Avions H&M Farman, Billancourt (17.12.30)			
2042	<b>F-AIYD</b>	Farman 190	6/7115	unkn	<b>F-AIYR</b>	Farman 190	unkn
Sté des Avions M Farman, Boulogne (15.3.29), (based Le Bourget).				Sté des Avions H&M Farman, Billancourt			
2106	<b>F-AIYE</b>	Nieuport 391	2	2043	<b>F-AIYS</b>	Morane 191	46
Cie Aérienne Française, Suresnes (23.5.29), (based Le Bourget; later Lyon).				Cie Française d'Aviation, Boulogne sur Seine (15.3.29), (based Nimes).			
2107	<b>F-AIYF</b>	Nieuport 391	3	2044	<b>F-AIYT</b>	Morane 191	47
Cie Aérienne Française, Suresnes (23.5.29), (based Le Bourget; later Lyon).				Cie Française d'Aviation, Boulogne sur Seine (15.3.29), (based Angers).			
2727	<b>F-AIYG</b>	Nieuport 391	9	2125	<b>F-AIYU</b>	Fokker F.VIIa	5129
Cie Aérienne Française, Suresnes (20.3.31).				ex PH-AGC. Cie Internationale de Navigation Aérienne, Paris/Le Bourget (5.6.29).			
2021	<b>F-AIYH</b>	Morane 180	1	2124	<b>F-AIYV</b>	Fokker F.VIIa	5130
Sté des Aeroplanes Morane Saulnier, Puteaux (1.2.29). [This entry already listed as F-AIVH but -AIYH believed correct.]				ex PH-AGD. Cie Internationale de Navigation Aérienne, Paris/Le Bourget (5.6.29).			
2027	<b>F-AIYI</b>	Bernard 197 Grand Raid	1	2126	<b>F-AIYX</b>	Fokker F.VIIa	5131
Sté des Avions Bernard, La Courneuve (15.2.29), (based Orly); ff 9.28. Crashed Theinzeik, Gulf of Martaban, India 26.2.29.				ex PH-AGE Cie Internationale de Navigation Aérienne, Paris/Le Bourget (5.6.29).			
2033	<b>F-AIYJ</b>	Morane 147	16	2045	<b>F-AIYY</b>	Caudron 155	1/6189
Cie Générale Aéropostale, Paris (1.3.29), (based Toulouse).				Avions Caudron, Issy (18.3.29).			

**To be continued . . . .**



**Left:** The Farman 200 prototype F-AIYO was a parasol-winged 2-seat open-cockpit trainer powered by a 120hp Salmson 9Ac radial and was intended as a smaller version of the F.190.  
(via JM Collection)

# The Whole Truth: THE HANDLEY PAGE HERALD

PART 3



Compiled by Derek King

"Orders for the Herald were never placed in large quantities, they were usually purchased in ones and twos. The largest orders received were the launch order from Jersey Airlines for six, that from the Royal Malaysian Air Force for four in March 1963 plus another four the following month and the five for Sadia de Transportes Aereos (later Transbrasil) in January 1965. Other operators did build up quite large fleets but with several separate small orders. In this and the following instalments we will give background histories of as many of the operators as possible, beginning with those who placed orders for new aircraft.

## Jersey Airlines (and its successors)

The third day of the 1960 SBAC show at RAE Farnborough was a red-letter day for Handley Page Aircraft Ltd, when it was announced that Jersey Airlines had placed an order for six Dart Heralds. This was the first firm order to be placed for the type (though only three were actually firm initially) but it came with the agreement that Handley Page increase the fuselage length by 42 inches (106.7cm), to accommodate 48 to 50 passengers. This model became the Series 200 for all production aircraft. The earlier aircraft thus retrospectively became the Series 100 (c/ns 148-152). The airline chairman Mr M L Thomas stated "No other aircraft showed such a high profit potential over short stage lengths" he was also impressed by the reliability of the Herald during its intensive tours and demonstrations.

Evaluation by Jersey Airlines began in 1956 with the original Leonides Herald (G-AODF c/n 148) and its short-field capabilities impressed the airline profoundly, especially at Alderney where the grass airstrip was used as a cow pasture and was only 960 yards (877.8m) long, with high cliffs at one end and the sea close by. When an aircraft was due the locals had to drive the cattle to one side to clear the runway.

During the holiday season, the Heralds were to make some 600 flights each, and in the two-month peak season the fleet would be required to undertake some 21,600 flights. Due to the late delivery of its order several of the early aircraft (c/ns 148 to 151) were loaned or leased to Jersey Airlines for route-proving and crew training and a Viscount was leased from Middle East Airlines for July and August 1961. The first aircraft of the order was delivered on 3rd January 1962, thus introducing the Herald into airline service almost simultaneously with BEAC. The remaining five were delivered at regular intervals until all six were in service on the airline's routes within the Channel Islands and to mainland UK and the continent. A selection of available destinations from Jersey included London, Bournemouth, Glasgow, Southampton, Manchester, Exeter, Paris and Dinard; with London and Paris served from Guernsey. Inter-Island services to all three main islands (Jersey, Guernsey and Alderney) were undertaken.

*Above:* When the order for Heralds for Eastern Provincial Airways was announced this mock-up photo was released with company titles and fake registration 'CF-ABC'. (Aeroplane via Mike Hooks)

Soon after the Heralds were settled into service, and prior to the delivery of G-APWI and 'J', the company began to suffer upheavals in its ownership. In 1962 there was a series of mergers and amalgamations within the British independent airline companies. Several larger operators merged under the banner of Air Holdings Ltd, which created the British United Airways group of companies. On 20th May 1962 Jersey Airlines was taken over by Air Holdings Ltd and became part of the British United Airways (BUA) group. On 1st November 1962 Jersey Airlines' name was changed to British United (Channel Islands) Airways (usually abbreviated as BU(CI)A) and operations under this title commenced on January 1st 1963.

Initially each component company retained its own colour scheme but with BUA titles, then changing to a black cheat line with red British United titles. However the BU(CI)A name was never painted on the aircraft in their new British United Airways livery, and only the letters "BUA" actually appeared when the new sandstone and blue livery with stylised bird logo was introduced across the group. Thus one could not tell from the livery which division of BUA any given aircraft was operated by. The sales potential of the "Jersey Airlines" name was such that the aircraft may have remained in their original liveries for some time. Herald operations under the BUA banner expanded to operate other company services, including such destinations as Blackpool and the Isle of Man. Two extra aircraft were added to the fleet (c/ns 161 and 169) with another (c/n 165) leased for a period.

From January 1st 1968 BU(CI)A commenced operating independently of the main BUA group, with instructions that it must operate profitably on its services by 1st September 1968. The result of this action was that BU(CI)A left the Air Holdings group to become a subsidiary of BUA (Holdings) Ltd and on 1st November 1968 the company name became British United Island Airways (BUIA). The BUA livery on the aircraft was modified to become BUIA by deleting the stylised bird. Operations continued much as before, with the same fleet of aircraft, under this banner until 20th July 1970 when another upheaval resulted in yet another name change. The British Air Transport (Holdings) group was formed by British and Commonwealth Shipping and Eagle Star Insurance and they took over British United Airways and its subsidiaries, resulting in yet another name change, to British Island Airways (BIA) and a completely revised livery in bright orange replaced the familiar BUA blue and sandstone. Extra Heralds were added to the fleet (full listing below) and the company offices were relocated to Redhill, Surrey, with the main engineering base at Blackpool. Outstations were set up at Antwerp, Exeter, Guernsey, Isle of Man, Jersey, Southampton and Paris. Route networks expanded from the Channel Islands to include many European destinations.



**Left:** Herald G-APWI c/n 157 parked at Gatwick on 9.9.68 wearing the BUA 'sandstone and blue' colour scheme. (Jack Meaden Collection)

**Below:** G-APWJ c/n 158 in early British United colours with black cheat line and red company titles. (APN via D Thompson collection)

A fifth and final upheaval began in late 1978 when the owners of BIA took over Air Anglia, however at first the two companies continued to operate separately. On 1st January 1979 BIA took over the scheduled routes operated by British Air Ferries (BAF) and became part of one of the largest regional airline groups in Europe. From 16th January 1980 all the operators under the British Air Transport (Holdings) banner were merged into one and named Air UK, this included two smaller carriers, Air West and Air Wales. It was under the Air UK banner that many of the Heralds operated reached the end of their service lives.

Heralds operated by Jersey Airlines and successors (by c/n)

Jersey Airlines: 148 to 151, 153 to 158  
 British United (Channel Islands) Airways: 153 to 158, 161, 165, 169  
 British United Island Airways: 153 to 158, 161, 169  
 British Island Airways: 153 to 159, 161, 164, 166, 169, 171, 175, 176, 177, 179, 180, 183 to 187, 191, 196  
 Air UK: 153 to 159, 161, 164, 166, 169, 175, 176, 179, 183, 184, 185, 187, 191

**Eastern Provincial Airways - EPA  
 Maritime Central Airways - MCA  
 Nordair**

The orders placed by the Canadian operators have a rather complicated history. On 1st February 1961 Maritime Central Airways placed an order for two Herald Series 202s one for itself and one for its subsidiary company Nordair, allocated to c/ns 159 and 160. On that date the registration marks CF-NAA to CF-NAL were reserved for Heralds. However the actual registrations issued in 1962 to c/ns 159 and 160 were CF-NAC and CF-NAF respectively. Only CF-NAC was actually delivered to Nordair with CF-NAF being delivered directly to Maritime Central Airways but leased to Nordair. Nordair recorded a 62 per cent increase in traffic with the Herald. Both aircraft then reverted on 30th April 1963 to Maritime Central Airways. However, both aircraft were sold on 1st October 1963 to Eastern Provincial Airways (1963) Ltd (EPA). The latter company, EPA, had itself placed an order for two Series 206s in February 1962 and the Canadian DoT allocated CF-EPC and EPI to them on 19th March 1962 with no c/ns known at that date. Eastern Provincial requested the marks CF-EPA but were told that those marks were already allocated. (CF-EPA was already in use by an Aeronca 11AC-1389, allocation only noted as a "would like to have" regn with possible switch of registrations had the order been confirmed). No Herald flew as CF-EPA. Then, on 9th April CF-EPC was allocated to c/n 165 and CF-EPI to 166, but on 11th April this was changed to c/n's 166/167 and so finally two days later CF-EPC became c/n 167 and CF-EPI c/n 166. Both were duly delivered as such to Eastern Provincial.

To complicate matters still further MCA made a repeat order for two Heralds in February 1962, again one for itself and one for Nordair, specifying that weather radar be installed, and the registrations CF-MCK (161) and CF-MCM (162) were allocated for them. In fact both aircraft were fully painted and flown in MCA colours with these markings, one even appearing at Farnborough, but neither was ever officially taken up and the order was cancelled.



The above complications are explained by the fact that Nordair was, at the time the 1961 order was placed, a wholly-owned subsidiary of MCA. Nordair itself was formed in 1957 by the merger of Mont Laurier Aviation and Boreal Airways, in which MCA had the controlling interest. MCA then passed certain of its services to Nordair but later relinquished its holding in the company, which became fully independent. MCA made parallel orders for two Heralds in February 1962 and February 1962 but in 1963 took over both Nordair's Heralds and their routes. MCA was itself taken over by EPA in May 1963, and with EPA already operating their own two Heralds, the order for MCA was cancelled by arrangement with Handley Page Ltd. Thus, of the six aircraft ordered by Canadian operators, only four were actually delivered.

Canada was a particularly testing sphere of operations for the Herald, as the weather conditions there varied enormously, ranging from temperate summers to savage sub-zero winter temperatures with huge amounts of snow and ice to cope with. The Heralds were operated on many types of service ranging from inter-city networks to bush operations, carrying mail and any form of cargo needed in the barren Arctic of Canada. No matter what was asked of them the Heralds rose to the occasion with exemplary reliability in such harsh conditions. In February 1964 one aircraft was leased to Bahamas Airways until May 1964 (c/n 167). Sadly it was with one of these aircraft that the Herald's structural problems were discovered, when CF-NAF (c/n 160) mysteriously broke up in flight on 17th March 1965 en route from Halifax to Sydney, Nova Scotia. Once the problems were solved and other aircraft modified, the remaining three Heralds served admirably in Canada (with only an incident involving CF-NAC in 1974) until March 1975 when they were sold.

Canadian Herald deliveries by c/n:

Eastern Provincial Airways	159, 160, (165), 166, 167
Maritime Central Airways	159, 160, (161), (162)
Nordair	159, 160

With production now being transferred from Woodley to Radlett and Cricklewood, a steady flow of aircraft was being produced, but not in the orderly sequence that original records may have led us to believe. Heralds were not built in c/n order, and the following listings will reveal the actual position of each aircraft on the production line as stated at the beginning of each aircraft's history.

**Right:** G-APWJ in Air UK colours arriving at a major display event in the early 1980s. (Aeroplane via Mike Hooks)



**Below:** Sequence showing changing Herald colour schemes from Jersey Airlines through British United to British Island Airways. (via Jack Meaden Collection - original source unidentified)



**Above:** G-APWJ departing on a service in the mid sixties wearing standard BUA livery. (Jack Meaden Collection)

**Below:** The same aircraft at Gatwick in March 1969 showing the ease with which titles were changed to BUJA and with 'British United' removed from below the windows. (Jack Meaden Collection)



#### 157 HPR.7 HERALD 201

**G-APWI** Regd 28Sep59 to Handley Page (Reading) Ltd (CofR R.6719/1). Completion deferred by customer to await traffic build-up, thus allowing export orders to be fulfilled. Became 13th Radlett-built aircraft. F/F 8May63 and CofA number A6719 issued on 22May63 to Handley Page Ltd, Radlett. Deld 24May63 to Jersey Airlines in Jersey colours but with BUA titles below windows. Regd 28May63 (CofR R.6719/2) to Transair Ltd, Gatwick, a BUA company, but operated as Jersey Airlines. Company name changed 1Aug63 to BU(CI)A (but not regd to them). CofA renewals made on 22May each year 1964-68. Company trading from 1Nov68 as BUJA. Cld 6Dec68 as sold in Taiwan (Formosa). Sold 6Dec68 and deld 19Feb69 to Far Eastern Air Transport (FEAT) and regd to them as **B2009**.

Crashed 24Feb69 eighteen minutes after taking off from Kaohsiung, Taiwan, en route for Taipei. When No.2 engine caught fire the aircraft was unable to turn back and in attempted forced landing it skidded into a creek in rough terrain near Tainan. All 4 crew and 32 passengers were killed.

#### 158 HPR.7 HERALD 201

**G-APWJ** Regd 28Sep59 to Handley Page (Reading) Ltd (CofR R.6720/1). Completion deferred by customer to await traffic build-up, thus allowing export orders to be fulfilled. Became 14th Radlett-built aircraft. F/F 29May63 in Jersey colours but with BUA titles under windows and CofA number A6720 issued on 12Jun63 to Handley Page Ltd, Radlett. Regd 13Jun63 (CofR R.6720/2) to Transair Ltd, Gatwick for operation by BU(CI)A. CofA renewals made on 12Jun each year 1964-68. Leased 21Mar68 to 27Mar68 to Handley Page Ltd for demonstra-

tion on 24-25Mar68 at Jeddah in Saudi Arabia. Company trading from 1Nov68 as BUJA. CofA renewed on 12Jun69 and 12Jun70. Regd 4May70 (CofR R.6720/3) retrospectively to British United Island Airways. Transferred 20Jul70 to BIA and ledger amended 7Aug70 to British Island Airways. CofA renewals on 12Jun71, 12Jun72. Damaged when starboard undercarriage failed to lower on landing at Blackpool inbound from Isle of Man 10Oct72. Repaired. Further renewals 7Jun73, 7Jun74 and 11Jul75. As of 31Oct78 TT 25,305 hr and 31,629 landings. Tfd 16Jan80 and regd 15May80 (CofR G-APWJ/R4) to Air UK. As of 31Mar84 TT 41,545 hr. Flew the last Air UK Herald service on 29Jun85. and parked at Norwich. Deld 7Jul85 to Duxford Aviation Society and preserved at Duxford. TT 33,900 hr. Regn cld 10Jul85 as PWFU

#### 159 HPR.7 HERALD 202

Ordered by Maritime Central Airways for its subsidiary Nordair Ltd. On 2Dec57 Canadian DoT reserved marks CF-NAA to CF-NAL for Nordair Ltd. This was the first Herald built at Cricklewood/Radlett (with Woodley built nose-section).

**CF-NAC** F/F 15Jan62 at Radlett. Ferry permit issued 28Nov61 for flight from Radlett UK to Montreal, PQ, not used and second ferry permit issued 31Jan62 for same route. Deld 13Feb62, noted en route at Prestwick 17Feb62 with underwing fuel tanks fitted. Fully regd 20Feb62 (CofR 28613) as CF-NAC and CofA number 9124 issued on 20Feb62 to Nordair Ltd, Dorval, Montreal. Inspected for CofA renewal 5Feb63 (TT 1,254.49 hr). Regd 31May63 (CofR 29847) to Maritime Central Airways, Moncton NB. Regd 10Oct63 (CofR 29894) to Eastern Provincial Airways (1963), Gander NF.



**Left:** This slightly-cropped view of CF-NAC c/n 159 shows the similarity, apart from the tail logo, of the actual EPA colour scheme in comparison with the artist's impression in the 'CF-ABC' photo. (JM Collection)

**Below:** This partial view of CF-NAC earlier in Nordair titles shows a very simple tail logo with the company name in English and French and just Nordair in script below the windows. (JM Collection)

Inspections and CofA renewals on 29Jan64 (TT 2,654.27 hr), 19Jan65 (TT 4,225.22 hr), 26Jan66 (TT 5,724.09 hr), 20Jan67 (TT 7,005.28 hr), 27Jan68 (TT 8,454.57 hr), 28Jan69 (TT 10,110.44 hr), 19Jan70 (TT 11,575.37 hr), 27Nov70 (TT 12,478.05 hr), 30Nov71 (TT 13,731.25 hr based at Moncton), 10Jan73 (TT 15,076.22 hr based at Moncton) and finally 15Jan74 (TT 16,528.14 based at Moncton). Damaged 27Apr74 en route Montreal PQ to Charlo NB, during approach to Charlo, nose-wheel was found to be deflected 35 degrees to starboard. Diverted to Moncton and after 1,200ft ground run nosewheel was lowered onto runway and aircraft veered to the right and became mired in heavy mud. Caused by hydraulic malfunction of nose-wheel unit (Report Number A44005). Repaired. CofA renewed 10Jan75 with TT 17,886.52 hr. Bill of sale issued 28Feb75 from Eastern Provincial Airways (1963) to Trans World Leasing Ltd. Arrived Southend as CF-NAC on 12Mar75 and Canadian regn cld 18Mar75. Regd as **G-BCZG** 19Mar75 to Transworld Leasing Ltd (CofR G-BCZG/R1) for operation by British Air Ferries and named "Rupert Keegan", later renamed "Jean Batten". CofA issued 13Apr75. Damaged 1Jul75 when nosewheel leg collapsed after landing at Southend, repaired. As of 31Oct78 TT 22,480 hr with 36,972 landings. Leased 31Oct78 to 16Jan80 to British Island Airways. Regd 23Oct79 (CofR G-BCZG/R2) to British Air Ferries, Southend. Remained on lease to BIA but lease transferred to Air UK on 16Jan80 until returned to BAF on 1Jan82. (By Mar81 had made 41,277 landings). Leased 24Apr82 to Jun82 to Oman Aviation Services. Leased 12Nov82 to 3Apr83 to Tunisavia. UK regn cld 6Oct83 as sold in Zaire, and regd as **9Q-CAH** having been sold 4Apr83 and deld 11Apr83 to MMM Air Service of Zaire and named "Tshikapa" As of Oct83 TT recorded as 42,595 hr with 42,595 landings. Crashed 10Sep84 at Kandala airstrip, near River Kwango, Bandundu Province, Zaire. Attempted forced landing due to engine failure en route from Kinshasa to Tshikapa, but over-ran the short runway into village main street, and caught fire after stopping. 30 of 36 occupants killed.



#### 160 HPR.7 HERALD 202

Ordered as Series 202 by Maritime Central Airways. Canadian marks CF-NAA to CF-NAL having been reserved for Nordair Ltd 2Dec57. Second Radlett- built aircraft.

**CF-NAF** F/F 2Mar62 at Radlett in full Nordair colours. Ferry permit issued 9Mar62 for flight from Radlett to Montreal, PQ. Deld 13Mar62 to Maritime Central Airways Ltd (MCA), and noted at Prestwick 14Mar62. Fully regd 21Mar62 (CofR 28626) as CF-NAF and Cof A number 9120 issued 21Mar62 to Maritime Central Airways, Montreal. Leased from delivery to Nordair Ltd, Dorval. CofR amended 10Sep62 to Commercial. Inspected and CofA renewed 6Mar63 (TT 1,251.58 hr). Regd 1Oct63 (CofR 29895) to Eastern Provincial Airways (1963), Gander. Inspected for CofA renewals on 15Feb64 (TT 2,491.03 hr), 25Feb65 (TT 4,052.37 hr).

Crashed 17Mar65 near Upper Musquaduboit NS, en route Halifax NS to Sydney NS. During climb at FL120 the underfloor fuselage skin ruptured, opening out to strike propeller, aircraft broke up and crashed into woods. Salvage hampered by heavy snow, wreckage taken to Kelly



**Left:** CF-MCK c/n 161 pausing on the Farnborough runway markers before beginning its display at the 1962 SBAC show. (Peter Keating via JM Collection)

**Right:** C/n 161 still in Cruz colours as G-ASKK but with Autair titles at Luton while leased to them in late 1963. (via I Callier)



**Below:** G-ASKK was leased to British Midland Airways in 1965, seen here with steps and chocks arriving. (Mike Hooks)

**Below, right:** G-ASKK was then added to the BUA fleet in 1967. (JM Collection)



Lake. 3 crew and five passengers killed. (Report number 2492). TT 4,135 hr. Cause recorded as initial failure of structure below stringer No.32 due to corrosion (see p.2009/184). Regn cld 1Oct65.

#### 161 HPR.7 HERALD 202

Ordered by Maritime Central Airways (MCA) as Series 202. Regn CF-MCK allocated 16May61 but not officially regd as such. (This regn already used on a DC-6 from 5.58 to 3.59)

Fifth Radlett built, with Woodley built nose-section.

**CF-MCK** F/F 5Jul62 at Radlett in full MCA colour scheme and appeared as such at 1962 SBAC Show, Farnborough. Undertook 12,000 miles sales tour in MCA livery in 1962. Order cancelled and aircraft not delivered to Canada. On 13Dec62 Cruz Airways of Philippines, ordered two Series 211 Heralds. Regn **PI-C910** allocated to c/n 161 for Cruz Airways and noted as such in Cruz livery making approaches at Bournemouth on 22Feb63. Unfortunately Cruz Airways went bankrupt in summer 1963 before the aircraft could be delivered and the regn was not officially taken up (it was not on the register of 7.63 and in 11.64 the marks were issued to a Cessna 150E). Stored at Luton and in Jul63 Autair titles were painted over the Cruz fuselage logo and it was regd **G-ASKK** as a **Series 211** on 17Jul63 (CofR R.7339/1) with CofA number A7339 issued on 7Aug63 to Handley Page Ltd, Radlett.

[Note: up to this point the aircraft had been active for a year apparently without a CofA or a legal registration!]

Leased 10Aug63 to Sep63 to Autair International Airways, replacing

G-APWA, due to late delivery of ex-Globe Air Ambassadors. Cld 17Dec63 as sold in Brazil (after delivery in UK marks). Regd in Brazil as **PP-ASU** and leased 6Dec63 to Sadia de Transportes Aereos. Returned and regd 19Oct64 as **G-ASKK** (CofR R.7339/2) and CofA issued 29Jan65 to Handley Page Ltd. Regd 1Feb65 (CofR R.7339/3) on charter to British Midland Airways. Repairs required to corrosion in chine "top-hat" in May65. CofA renewed 29Jan66 and 29Jan67. Regd 8Mar67 (CofR R.7339/4) to Airlines (Jersey) Ltd and operated by BU(CI)A. Ledger amended 17Mar67 to British United Airways (C.I.) Ltd. CofA renewed 1Mar68. Transferred 1Nov68 to BUIA (but not regd to them). Ledger amended 2Jan69 to Jersey Airlines (Channel Islands) Ltd, but operated by BUIA. CofA renewed 19Mar69 and 19Mar70. Ledger amended 5May70 to British Island Airways (Jersey) Ltd (still operated as BUIA). Transferred 20Jul70 to BIA. CofA renewed 19Mar71, 29Mar72 and 28Mar each year 1973-75. As of 31Oct78 TT 25,465 hr with 31,250 landings. Transferred 16Jan80 to Air UK; not regd to them until 8Apr83 (CofR G-ASKK/R5) as Air UK (Jersey) Ltd. Flew last service for them on 29Mar85 Jersey to Southampton and WFU 30Mar85 and stored at Norwich. Regn cld 29Apr85 as PWFU. Handed over May85 to City of Norwich Aviation Museum and preserved.

#### 162 HPR.7 HERALD 202

Originally ordered by Maritime Central Airways (MCA) as Series 202. Regn CF-MCM allocated 16May61 but not officially regd as such.

**Right:** After a spell in BUIA colours, G-ASKK was transferred to BIA and is seen here in their orange and black livery. (D Thompson collection)





**Above:** Classic publicity photo showing c/n 162 after sale to Swiss company Globe Air AG as HB-AAG. The name "Herald of Bern" can be seen on the rear freight door. (Handley Page via Aeroplane/Mike Hooks)



**Left:** HB-AAG was exhibited at the 1963 Paris Salon and is seen here in the British park together with a Lightning, Vulcan, Victor and Argosy. It left Paris after a demonstration flight on Saturday 15.9.65 (Mike Hooks)

Sixth Radlett built and fitted with the final Woodley built nose-section. **CF-MCM** F/F 8Aug62 at Radlett in full MCA colour scheme but not delivered. Noted as CF-MCM at Gatwick 22Aug62. In Nov62 Globe Air AG of Switzerland ordered two (plus one option) **Series 210**. This aircraft was prepared as **HB-AAG**, regd 2May63 and deld 4May63 to Globe Air AG named "Herald of Bern". Demonstrated at Paris Salon Jun63. Swiss regn cld 7Jul65. Repurchased and regd 22Jul65 (CofR R.7556/1) as **G-ATHB** and CofA number A7556 issued on 4Feb66 to Handley Page Ltd, Radlett. Sold 16Feb66 to Far Eastern Air Transport and regd to them as **B2001**, UK regn cld 24Feb66 as sold in Taiwan. WFU/stored in 1973 at Taipei. Proposed sale to Air Comores in 1974 but NTU. As of 27Jul76 TT 12,264 hr with 10,868 landings. Sold in May87 to Channel Express Air Services of UK for spares only and broken up in May87 at Taipei. In Oct96 fuselage noted being built into a house north of Shuillien, Huliien County, Taiwan. Remains noted

derelict 11Mar03 behind large shed by a road. Believed scrapped 2007/8.

#### **163 HPR.7 HERALD 204**

Ordered 16Mar62 as management executive transport. Seventh Radlett built Herald.

**G-ASBF** Registered 22Jun62 to British United Airways but NTU and re-regd (due to inappropriate call-sign conotation) as **G-ASBP** and regd 27Jun62 (CofR R.7463/1) to British United Airways. F/F 22Sep62. Flown 24Sep62 to Wisley and return, reason not stated, and made a second production test flight on 25Sep62. Deld Radlett to Southend 9Oct62 for furnishing by AT(E)L and returned 22Nov62. CofA number A7463 issued on 26Nov62 to Handley Page Ltd, Radlett. Formal handover 26Nov62 to British United Airways as a VIP and executive aircraft in standard BUA black colour scheme but did not wear BUA titles. CofA



**Left:** G-ASBP c/n 163 was built as an executive transport for BUA and wore the basic black cheat line but without company titles. (JM Collection)



**Above:** Side view of c/n 163 G-ASBP in Air Manila colours at Farnborough, with the slogan 'The Vinta of the Sky' visible on the lower part of the fin and 'Dart Herald' on the top. (Mike Hooks)



**Right:** Attractive front-end view of Herald G-ASBP in Air Manila colours at the 1966 SBAC show. The asymmetric layout of the engine nacelles and undercarriage housing shows clearly from this angle. (Leslie Davis via Jack Meaden Collection)

renewed on 26Nov each year 1963-65.

Air Manila ordered two Heralds in 1965 and Handley Page re-purchased this aircraft from BUA to accelerate delivery. CAA were notified 17Mar66 of its sale and cancelled its regn on 25Mar66 as sold in Manila, Philippines. Regn **PI-C869** allocated. Regd 16May66 (CofR R.7463/2) to Handley Page Ltd, Radlett as **G-ASBP** for configuration to airline passenger operation. Displayed as such at the SBAC show in Sep66 at Farnborough in Air Manila livery with "The Vinta of the Sky" title on the fin. UK regn cld 3Nov66 as returned to Philippines having been regd as **PI-C869** on arrival 21Oct66 to Air Manila. Damaged 13Aug67 at Davao, details unknown, possibly minor. Damaged beyond repair when its hangar collapsed on to it at Manila during typhoon 'Patsy' on 19Nov70; no occupants. Broken up in 1975-78 at Manila.

#### 164 HPR.7 HERALD 203

**G-ASBG** Regd 26Jun62 (CofR R.7652/1); eighth Radlett built. F/F 13Nov62 and CofA number A7652 issued on 8Feb63 to Handley Page Ltd, Radlett. Cld 17Apr63 as sold in Italy and deld 12Apr63 to Aerolinee Itavia and regd to them as **I-TIVA** 18May63. Sold to British Island Airways and deld 11Jul73, regd 18Sep73 (CofR R.7652/2) as **G-ASBG** and CofA issued on 24Sep73 to BIA. CofA renewed 24Sep74 and 24Sep75. Damaged 14Sep75 when both port mainwheel tyres burst on landing at Exeter, no other damage or injuries to 52 occupants. As of 31Oct78 TT 25,516.5 hr with 29,265 landings. Transferred 16Jan80 and regd 15May80 (CofR G-ASBG/R3) to Air UK. WFU and stored 23Sep81 and regn cld 13Jun83 as PWFU. Broken up Aug84 at Norwich.



**Right:** Itavia's I-TIVA c/n 164 taxis in on a wet apron at Milan-Linate Airport. with an Alitalia DC-9 in the background. (Mike Hooks)



**Above:** The first of two Heralds sold to Jordan, c/n 165 was first painted in Royal Arab Air Force titles with the serial '109'. It was delivered on January 22nd 1963 and in this photograph dated January 31st 1963 it is seen touching down on a sand runway. Soon afterwards the unit became known as the Royal Jordanian Air Force and the Herald was retitled but at the end of the year it was civilianised as Royal Jordanian Airlines JY-ACR. (Handley Page via Aeroplane/Mike Hooks)

#### 165 HPR.7 HERALD 207

Canadian DoT (Department of Transport) reserved regns **CF-EPC** and **CF-EPI** for Eastern Provincial Airways (c/n's unknown) on 19 Mar 62 and on 9 Apr 62 allocated them to c/ns 165 and 166 respectively but on 11Apr 62 the allocations changed to 166 and 167 with **CF-EPI** as 166 and **CF-EPC** as 167. Thus c/n 165 was NTU for Canada.

Ordered by the Royal Arab Air Force in Jul62; ninth Radlett built. F/F 21Dec62 as "109" and deld 22Jan63 in Royal Arab Air Force titles, changing to Royal Jordanian Air Force after delivery. Transferred Dec63 to newly-formed ALIA - Royal Jordanian Airlines and regd to them as **JY-ACR**. Damaged 19Feb64 when the nose gear would not lower, slight damage on landing at Beirut. Returned to Handley Page

and regd 26Jul65 as **G-ATHE** (CofR R.7717/1) and CofA Number A7717 issued on 17Aug65 to Handley Page Ltd, Radlett. Leased to various airlines while remedial skin work was carried out on their own aircraft. Leased 17Aug65 to 15Sep65 to British Midland Airways. Also Leased in 1965/66 to BU(CI)A. Noted at Southampton on 6Nov65 operating a BU(CI)A service still with Alia cheatline. Regn cld 18Mar66 as sold in Germany and regd as **D-BOBO** for lease 4Apr66 to Bavaria Fluggesellschaft named "Herald of the Alps". Returned Oct68 and Regd 14Oct68 (CofR R.7717/2) as **G-ATHE** to Handley Page Ltd, Radlett. Sold to Far Eastern Air Transport - FEAT, Taiwan 19Feb69. Regn cld 4Mar69 on delivery to FEAT and regd **B-2011**. WFU and stored in 1975 at Taipei. TT 10,550 hr with 8,884 landings quoted on 27Jul76. Sold May87 to Channel Express Air Service for spares and broken up at Taipei.

*To be continued . . .*

**Below:** On returning from Italy, c/n 164 became G-ASBG and joined the BIA fleet. Here it taxis out of the domestic apron at Manchester-Ringway on 6.3.77, passing the cargo sheds and an unusual visitor, the Seychelles-registered Piper Seneca 200T VQ-SAM. (D Partington)





#### THE HANDLEY PAGE HERALD

To clarify the model numbers:

- Herald 500 - a Series 200 airframe with RR Dart 10, reversing props and lift dump for very short field operations.
- Herald 600 - Dart 7 Mk 532/9; 60 inch fuselage extension; 64" X 36" front door on starboard side; max 68 seats.
- Herald 700 - Dart 7 Mk 532/9; series 200 size airframe but with the enlarged starboard front door; max 60 seats.
- Herald 800 - Military version of 700 with strengthened floor.

Photos above show c/n **148 G-ARTC** in open storage at Radlett in the sixties. (A Clarke ) and c/n **151** as **HK-715** in 1965 with La Urraca in 1974 in a quite different colour scheme to either of those seen on page 2009/186! (I Callier)  
 C/n **149 G-APWA**: Fuselage delivered Southend to Woodley 29.8.92 and wing likewise on 24.10.92. The **pressure test** fuselage was returned to Woodley (page 2009/134) and remained there until 1962. Don Clayton, who worked as a Technician at Radlett, confirms that the **static test** rig (also on page 2009/134) was used to stiffen the structure while achieving the minimum acceptable weight and strength. These tests probably took place in 1955/56. The rig was probably designed by Tony Reece under the section leader John Swann.

#### DH.85 LEOPARD MOTH

From André Dillien we have received the photo (right) of c/n **7092** as **L51** with the Force Publique in the Avimil hangar at Leopoldville-Ndolo in the Belgian Congo around 1950 - surrounded by Doves, Consuls and a Tiger Moth. Correcting p2009/022: the date of cancellation of OO-AVD should read **7.5.40**; regd OO-CAF to **Albert Fischer**; serial L51 allotted **26.10.40**; **soc 7.10.54** and re-regd **OO-CAF** on same date. The cancellation on 27.6.58 was due to a crash at Boma (perhaps on an earlier date?).



#### THE COMPER SWIFT

C/n **S32/6** An interesting story has emerged thanks to Ian Callier and Malcolm Fillmore. **LV-YEA** was owned in 1950 by a Javier Molina. It was purchased on 2.6.50 by Vicente Bonvissuto (with a T/T of 185 hrs) and registered to him on 1.8.50 as **LV-FCE**. There is no known link to any organisation called wholly or partly 'Sociedad IPT' which was quoted in our history. Bonvissuto and friends prepared the Swift for its first flight for some time, at the aerodrome of San Justo in Buenos Aires Province. On 29.9.50 he took off and all went well until the Pobjoy radial's number 5 cylinder exploded. Narrowly avoiding buildings, he crash landed the Swift on the airfield boundary, seriously damaging the aircraft and his own legs. The remains of the Swift were scrapped in 1951. According to Eduardo Bonvissuto, the pilot's son, it was his father's intention to be the first man to parachute onto Antarctica. To achieve this aim he would of course have had to sacrifice the Swift. He designed a seat-shaped extra fuel tank for the intended flight to give sufficient range and planned to allow the Swift to run out of fuel and crash after he had left it. Who knows? It might have been found alongside that vintage Bristol monoplane that recently emerged from the Antarctic snow and ice!

C/n **S33/2** We knew that **F-AOTP** was based at Evreux and was registered there to the AC de l'Eure in March 1936. Now Tom Dunstall has come up with a photo (above) from a French motoring magazine showing the Swift in the showroom of a garage owned by Edmund Hee in Evreux, taken not earlier than November 1936. The car in the picture is a Peugeot 202 convertible but the caption wrongly describes the Swift as a 'Pou de Ciel'! There was also the information that it was restored following its earlier crash there (as G-ACDS) by one Franck Munster. Of course we still do not know what happened to it after it was flown to the UK in March 1942 by F Lecoq !

#### CALLAIR PRODUCTION

Thanks to Peter Vercrujisse and Barry Colman we now know that c/n **1460 EP-AHH** is preserved and on display at the Teheran Aerospace Exhibition Centre, Iran.



## The IA-46

### Ranquel

Thanks to Nigel Hitchman we are now able to illustrate a selection of civil Ranquels unearthed during several visits to Argentina.

**Left:** LV-HMA c/n 031 glider towing at Xarate 9.3.09.

**Below, left:** LV-HOU c/n 034 hangared at Xarate 9.3.09.

**Below, right:** LV-GZV c/n 022 at Tolosa (La Plata) 3.06.



**Left:** Immaculate LV-GZR c/n 018 at Pergamino 3.06. Glider tugs and sprayers carry Restringida (Restricted) signs.

**Below, left:** Equally smart, c/n 052 LV-HSC at Las Varillas 3.09.

**Below, right:** LV-HYD c/n 060 with spraybars on the wing struts and chemical tank in the cabin, at Villa Mercedes 13.3.06



**Left:** LV-JFC c/n 112 at Las Varillas 3.09 has seen better days as has LV-HRY c/n 048 dismantled in the far corner.

**Right:** Behind a hangar at Mar del Plata 3.02, this is said to be c/n 001 but is 01 more likely?



£6.50

SUMMER ISSUE  
JUNE 2010

# Air-Britain ARCHIVE

The AIR-BRITAIN Civil Aviation Historical Quarterly



**Guarani Production**

**The Harlow Monoplanes**

**China : CNAC Fleet Lists**

**YU- Register**

**Handley Page Herald**

**AIR-BRITAIN - Founded 1948**



The AIR-BRITAIN Civil Aviation  
Historical Quarterly

No.1 2010

ISSN: 0262-4923

31st YEAR

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The ARCHIVE website may be visited at  
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current publications will also be found.

ARCHIVE is published quarterly, in March,  
June, September and December by  
Air-Britain (Historians) Ltd., in association  
with *Air-Britain Aviation World*, *Aeromilitaria*  
and the monthly *Air-Britain News*.

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## COVER PHOTO



Another Handley Page Herald photo, but  
this time we feature the colourful TG-ASA  
c/n 166 of Aerovias SA, Guatemala taken  
around 1988.  
(Photo via Michael Magnusson)

**CLOSING DATE for contributions to next  
ARCHIVE: July 17th 2010**

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## HEAD-ON VIEW - WHAT IS IT? Number 36

This one is probably much too easy to identify but it must have given the residents of Woodley a bit of a surprise when it happened! Details next time. (via JM Collection)

## Of ash clouds and consequences -

If anyone has noticed that this issue seems a little lighter as it bounces across the doormat, may we re-assure them that there is a good reason for this, and a solution! Naturally the Editor timed his spring holiday in order to return in good time to prepare this issue of Archive which was already partly under way. It was nice of the Icelandic gods to find a new way to annoy us without actually burning our investments and indeed we thoroughly enjoyed an compulsory extra week on a Greek island. Of course the irony of being accommodated in an hotel adjacent to an airport runway when there was no airline traffic to see has not entirely escaped notice! Once released from the purgatory of warm sun, warm food and even warm wine the Editor returned home to find two Air-Britain annuals which still needed to be prepared for print, one urgently, the other very urgently. Naturally not all went smoothly but on finally turning his hand to Archive, it was realised that to produce the full 48-page issue would take far too long if it was to reach the printers the right side of June! Prioritising always results in winners and the rest!

The solution therefore has been to use mainly the material that was already checked and partially prepared. With more time there may have been more photos and fewer typos but, by reducing this issue to 36 pages, it should mean that you receive it with the other magazines. Never fear, the next issue will grow to accommodate what you have missed and by the end of the year only the unusual page numbers will remind us of what happened to Eyjafjallajökull .....  
Thank you for your patience.

## In this issue

Michael Magnusson's series on the FMA aircraft has now reached the **IA-50 Guarani** production listing which Michael modestly suggests is the most detailed yet in print. It will not be unnoticed that most of the illustrations to this section are his own.

Our Head-on View feature this time takes a look at the **Harlow Monoplanes**, the result of a 1936 project by Pasadena Junior College students well led by an established aeronautical engineer. Once more this turns out to be a case of an excellent design which failed to make it commercially due to the approach of war, despite a valiant attempt to produce one variant in India.

Our Chinese section completes the **CNAC** history with a detailed look at the airline's fleet

list and at some of the attendant problems. We had intended adding further Feedback to the series as Martin Best's team dig ever deeper, but that will now have to wait.

Moving on through the Handley Page **Herald** histories, thanks to Derk King's thirst for The Whole Truth, we now enter a period of steady production, made the more interesting by the second-hand sales of aircraft that had succeeded in establishing operators in business only to be replaced by larger or faster models.

Finally we still had some colour page availability so we have moved the **Yugoslav** register section to allow Ognan Petrovic's excellent drawings and photos to benefit. We also have a number of interesting earlier photos to use as soon as space is available. The French register, which can be a time-consuming feature to prepare, will certainly return next time!

# FMA : from 1945

## The story of Fabrica Militar de Aviones, Argentina

Michael Magnusson

Part 11

**Right:** P1-TX01 at Aeroparque in December 1979 in its unique red livery and wearing titles 'Centro de Ensayos en Vuelo' (H Gareiso via A Marino)



### The IA-50 Guarani (continued)

Following the previous article on the general history of the IA-50, this section will cover the entire production list of the 34 examples of the Guarani. I believe this is the most complete production list of the Guarani ever published. But before we go into this, let me just make a correction in the previous article. I stated that the Shorts Skyvan was Bastan powered originally. As Graham Skillen pointed out to me, this is obviously incorrect as it was Astazou powered. However I just wanted to make the point that engine problems forced Shorts to switch to Garrett TPE-331 which became the standard power-plant. - MM

### Production list

**"P-1"** (Ex#038 of the Huanquero series intended as **E-532**). Modified whilst in production into a "Guarani I". Registration "**LQ-HER**" painted on prototype after initials of designer, Hector Eduardo Ruiz but never "official". First flight 6.2.62 (as "LQ-HER"). Instead registered **LV-X23** on 14.2.62 but was this painted on the aircraft? . Modified as "Guarani II" with single fin. Registered as **LV-X27** 4.4.63 and first flown as such 6.4.63. Accident at FMA 6.8.65 when nose-wheel collapsed, repaired. Assigned registration **TX-110** in Aug67 after being assigned T-110 by mistake in May-67. LV-X27 cld Aug67. Transferred Argentine Air Force as **TX-110** approx 1968 (seen March 1968). Accident 9.4.69 when landing short at Paso de los Libres, 10% damage, repaired. Registered **LQ-JNG** 22.9.69 to "Commando de Jefe Fuerza Aerea", canceled 4.5.70. Re-serialized **T-110**

May70. Accident 28.1.72 at Guiñazú (Prov Cordoba) with 20% damage, repaired. Rereg back as **TX-01** 11.4.72. Based at FMA in Cordoba during 1970s. Transferred **I Brig Aerea** approx 1984. By March 1989 had accumulated 12,107hrs and 10,240 cycles. Wfu Aug 1994. Seen Parana Dec98 with no engines. Donated to Tancacha (Prov Cordoba) and repainted as "T-121".

**"PPS" (01)** ("**Primer Prototipo de Serie**" or "**Prototipo 2**", both used in internal documents). Reg as **LV-X30** 4.11.64 and first flown 20.3.65. Rereg **TX-01** April 65. Exhibited at Paris Air Show June 1965. Allocated "maintenance code" 293-14. TX-01 cld May 66. Delivered **I Brig Aerea** 15.11.66 as **T-124**. Reg **LQ-JLV** 18.7.69 to "Commando en Jefe Fuerza Aerea". In register, this is quoted as c/n 02, but also quoted as ex T-124 and to LV-AMC. Reg cld 22.9.69. (Was this reg ever painted on the aircraft ?). Reg **LV-AMC** 6.5.70 with "Comando en Jefe Fuerza Aerea". These being the initials of **Aerea Material Cordoba**. In register c/n quoted as "02" which is again incorrect. Cld 20.9.71. Rereg **T-124** 1971. Back to **I Brig Aerea**. Transferred **EAM** May81. Transferred **II Brig Aerea** Aug89 (but still allocated to EAM 1990 to 1993), wfu Jul94, stored at FMA .95. Seen April 2006 in poor condition. Still there ?

**02** Just to add to c/n confusion, some documents incorrectly refer to this aircraft as "03". First flown 1966. According to DNA, this aircraft was reg **LV-X32** 8.2.66. It was cancelled same month (April ?). Named "**Patria**" at a ceremony. H/o CEV 28.8.66. Declared fit, rated "alta" 30.12.66. Delivered **I Brig Aerea** 3.1.67 as **T-112**. Allocated "maintenance code" 293-02. Accident 2.12.75 Comodoro Rivadavia, landed long due to fuel starvation, 25% damage, wfu.

**Right:** The sorry remains of the first production prototype / second prototype c/n 01 as T-124 at FMA in April 2006 still with Escuela de Aviacion Militar titles. (M Magnusson)





**Above:** C/n 03 as T-123 taxiing at Aeroparque in September 1989 with II Brigada titles. (M Magnusson)

**03** First flown 1966 (no LV-X reg assigned ?). Del I Brig Aerea approx -67 as **T-111**. Allocated "maintenance code" 293-01. Reg **LQ-JXN** 23.7.71 to "Ministerio de Interior-Policia Federal". (In the register, this is quoted as c/n 04 !, must mean the 4th built IA50 as "04" could not have been LQ-JXN). In logbook also quoted as "04" !. Cld. 23.12.81. Transferred to I Brigada as **T-123** 1981. (Serial T-111 already re-allocated to #32). Loaned IV Brig Aerea 4-6.82, returned 28.6.82. Again 3.9.82, returned 3.1.83. Loaned III Brig Aerea 18.1.83, returned 13.5.83. Transferred II Brig Aerea Dec87. Wfu Apr94 (95?). Seen still stored poor condition Parana Oct04. Broken up and sold to local scrap-dealer in Parana mid-05 (Aug ?) in time for a local "open day".

**06** First flown 1967. Reg **F-31**. Delivered Aug67 to II Brig Aerea. Allocated "maintenance code" 293-15. Accident Rosario 20.5.83, left runway during take-off, 14% damage, repaired. Taken to FMA by truck 2.6.83 for repair and 4000 hrs inspection. Flew again 1.12.83. Last flight 30.11.96, had 8552 hrs, stored. Overhauled at Parana. Flew again 19.3.97. Became the last IA-50 in service. Farewell ceremony at II Brigada Aerea January 7, 2007. Ferried same day to Moron for museum. Had 10,331 hours & 11,325 cycles.

**04** First flown 1966. Del I Brig Aerea approx -67 as **T-113**. Ferried to FMA Dec68 for preparation for Navy. Loaned to Argentine Navy for trial as **5-T-30**, delivered 10.4.69. Returned FMA Dec69. Delivered back to I Brig Aerea 4.12.69 as **T-113**. Allocated "maintenance code" 293-03. Accident Cutral Co 11.10.74 when prop feathered and aircraft landed outside runway. 80% damaged, not repaired. Had 2,743 hours. There is a FMA document dated June 1983 that indicates the Air Force had delivered the remains of the aircraft to FMA for cannibalization.

**07** First flown 1967. Delivered I Brig Aerea 6.7.67 as **T-115**. Delivered Escuela de Aviacion Militar (EAM) 15.11.68. Allocated "maintenance code" 293-05. Seen with "Comando Logistico" t/s late 60s. Transferred back to I Brig Aerea 17.4.73. Accident 21.2.76, nose-wheel dug in,

**05** First flown 1966. Del I Brig Aerea 6.12.66 as **T-114**. Allocated "maintenance code" 293-04. Accident 25.5.71 Las Mostazas (Province of Buenos Aires) due to engine failure and other engine feathered, 30% damage. Taken by truck back to FMA, arrived 8.7.71. Stored pending repair decision. Modified to photo-version, finished Dec.72, flew again 22.12.72. Delivered II Brig Aerea 12.1.73 as **F-34**. Last flight 30.11.92 ?, wfu Aug.94, then had 9,958 hrs. Seen stored FMA April 1996. Seen again November 2000 derelict. Fuselage taken to Museo de la Industria in Cordoba late-04/early-05 and mated with wings of T-121.



**Above:** C/n 04 as T-113 seen after the accident at Cutral Co in 1974 which ended its flying career. (Author's Collection)



**Left:** C/n 05 as F-34 after installation in the Museo de la Industria in Cordoba, June 2005. It is actually a composite using parts of c/n 13 T-121 which was earlier vandalised at the museum. (M Magnusson)

**Right:** C/n 07 as T-115 at Ezeiza in the late 1960s with Comando Logistico titles. (Alex Reinhard)



**Below, right :** T-116 c/n 08 was mounted on a pole at OroVerde when photographed on 16 April 2007 but was destroyed in an arson attack in May 2009 (M Magnusson)

Laboulage (Prov Cordoba) 10% damage, repaired. Seen with "Comando de Instruccion" titles 1980 and 1987. Transferred Jan88 to II Brig Aerea. Wfu Jun91. Fate? This may be the IA50 mounted on a tower near Villa Carlos Paz and used for paratroop training (?).

**08** First flown 1967. Delivered I Brig Aerea as T-116 13.10.67. Allocated "maintenance code" 293-06. Accident Palomar 12.9.71, gear problem during take-off, 12% damage, repaired. Accident 17.1.79 during take-off Quilmes, 10% damage, repaired. Transferred IX Brig Aerea -81. Transferred X Brig Aerea -88. Transferred II Brig Aerea Feb91. Wfu Apr94 (95?). Seen Parana stored Aug-96. Donated Oro Verde May97, seen Apr07. Destroyed by arson May 2009.



**09** First flown 1967. Delivered I Brig Aerea as T-117 13.10.67. Allocated "maintenance code" 293-07. Exhibited at Rural Show 1968. Accident 5.1.74, soft ground Trenque Lauquen, 10% damage, repaired. Accident 16.3.75, right gear retracted Bariloche 60% damage, repaired. Transferred II Brig Aerea Jan87. Wfu 1999. (seen wfu Aug96 !). Donated Aeroclub San Fransisco (Prov Cordoba) Aug02.

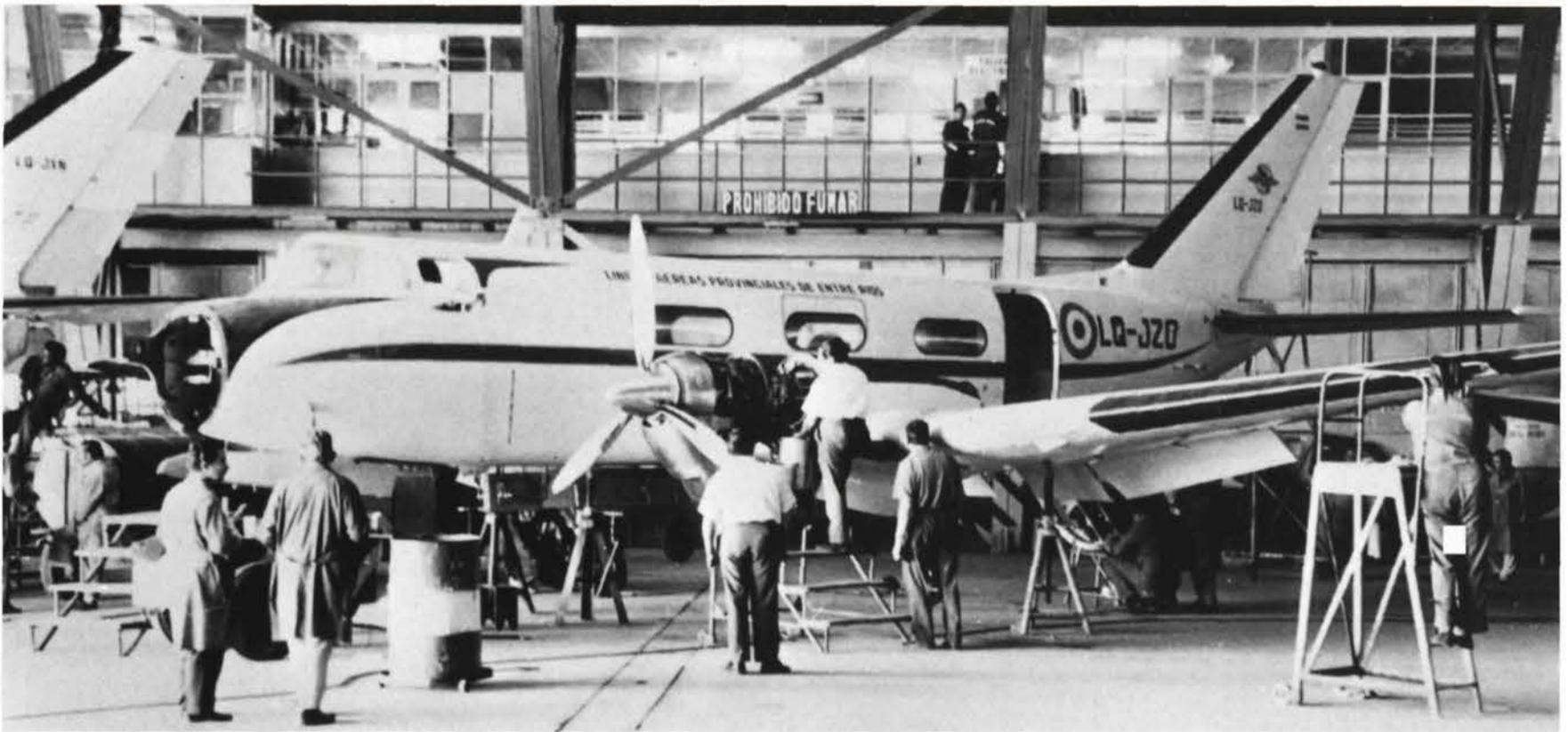
Army 1971-75, seen with "Jefe EJE" titles -72. (In 1974 Army got a new Sabreliner AE-175 which was assigned to chief of Army). Transferred V Brig Aerea 11.2.81. Transferred II Brig Aerea Feb91. Last flight 31.5.98, 10,699 hrs & 9,888 cycles. Donated Crespo School Mar01. Seen Oct04.

**10** First flown 1967. Delivered I Brig Aerea as T-118 26.12.67. Allocated "maintenance code" 293-08. Exhibited at Rural Exhibition 1972. Allocated to chief of

**11** First flown 1968. Delivered I Brig Aerea as T-119 14.6.68. Allocated "maintenance code" 293-09. Accident 12.4.70 Neuquen 12% damage, repaired. Accident Palomar 23.11.70, landed long 40% damage, repaired. Reg LQ-JZO 17.5.72 with "Comando de Jefe". Leased and delivered to LAPER (Lineas Aereas Provinciales de Entre Rios)



**Right:** C/n 10 preserved in an even more dramatic pose as T-118 at Crespo- where it was seen in October 2004. (M Magnusson)



**Above:** A rare picture of LQ-JZO c/n 11 with Lineas Aereas Provinciales de Entre Rios (LAPER) titles around 1972. (V Cettolo Collection)



**Left:** C/n 13 T-121 at Aeroparque in July 1986 with IV Brigada titles. (Pablo Cepero)

24.5.72. Rereg **LV-JZO** 6.6.73. Incident at Don Torcuato 6.7.73 and at Parana 13.8.73. Ferried to FMA early.74 upon delivery of their own IA-50s. Cld 19.4.74. Declared ready at FMA 21.3.74 as **T-119**. Ret I Brig Aerea. Accident Palomar 14.4.76 20% damage, repaired. Transferred III Brig Aerea May79. Transferred II Brig Aerea Feb91. Accident San Augustin, in-flight fire (Prov de Cordoba) 1.10.93; w/o (at least 5 crew killed).

**12** First flown 1968. Delivered I Brig Aerea as **T-120** 30.5.68. Allocated "maintenance code" 293-10. Had "Comando Aereo de Defensa" titles Dec80 & Mar81. Short-term assigned EAM 14.3.83 until 12.5.83. Transferred II Brig Aerea 15.12.86. By Sep87 had 7,135hrs. Wfu .90 (or .91), sold to private individual in Cordoba. Seen Oct96 in private garden.

**13** First flown 1968. Delivered I Brig Aerea as **T-121** late-68. Allocated

"maintenance code" 293-11". Accident Rio IV 12.9.73 35% damage, light injuries. Transferred IV Brig Aerea Jan81. Transferred II Brig Aerea Jan91. wfu Oct94. Seen Aug96. Donated Museo de la Industria, Cordoba approx Nov96. Seen Jan01. Set on fire by vandals, fuselage destroyed, wings in storage. Later wings mated to fuselage of F-34 c/n 05 now displayed in Museum.

**14** First flown 1968. Delivered I Brig Aerea as **T-122** 12.7.68. Assigned "Comando de Jefe Fuerza Aerea" Aug68. Transferred I Brig Aerea. Allocated "maintenance code" 293-12". Seen with "EMG" titles Jun76. Seen with "Estado Mayor General" titles Dec79. Seen with "Comando De Instrucción" titles Nov86 & Jul87. Transferred II Brig Aerea Apr89 (3.11.89?). By Feb91 had 8,173 hrs & 6,826 cycles. Donated to Aeroclub Argentino, San Justo, Apr99. Flown to San Justo and then many components changed for time-expired components. Placed next to club-house. Still there 2009.



**Left:** C/n 14 T-122 climbing away at Aeroparque June 1976 with EMG titles and peeling paint. (M Magnusson)



**Above:** Guarani T-110 c/n 20 as it appears today in Parana, June 09, with oil drip pans under the engines. It is used as an instructional airframe and the engines are run regularly. (M Magnusson)

**15** First flown 1968. Delivered I Brig Aerea as **T-123** late .68. Exploded after take off Cordoba, Pajas Blancas Airport 27.5.69, 6 killed. Allocated "maintenance code" 293-13" ?

**16** First flown 1968. Delivered I Brig Aerea as **T-125** Approx .69. Allocated "maintenance code" 293-14" ? Test-flown with skis. Transferred II Brig Aerea Jun81 ? Engine failure after take off Cordoba-FMA 10.10.83. CofG out of limit. Tried to return to airfield but crashed, 12 killed.

**17** First flown 1968. Delivered II Brig Aerea as **F-32** Oct68. Allocated "maintenance code" 293-16. Accident 5.3.82, repaired. Last flight 15.12.94, 9,056 hrs, 9,544 cycles. Seen Parana "dumped" Aug96. Supposedly donated to IV Brig Aerea (Mendoza) Sep99 (fuselage only ?) BUT not seen during visit in spring .05 nor mid .08 so whereabouts remain unknown. (Was this the metallic fuselage seen at FMA?)

**18** Static test specimen.

**19** First flown 1970. Delivered II Brig Aerea as **F-33** 8.10.70. Allocated "maintenance code" 293-17?. Accident Cordoba 23(21?).7.74, 80% damage, repaired. Flew again 23.12.75. Returned II Brigada 9.1.76. During a military exercise, it took off from Parana 13.7.76. This was during guerilla activity and a local army unit thought aircraft had been hijacked and began firing on it during take-off. Two passengers in the cabin were killed but pilot managed to return and land. During heavy maintenance in 2004, extensive corrosion was found and the aircraft was grounded in Parana. Last flight was 31.1.04, had 10,541 hrs & 12,003 cycles. Used as instructional airframe in Parana, seen being prepared Apr07. But no sight of fuselage Jul09. Wings lying in dump-area July-09.

**Below:** LQ-JXY c/n 21 partly assembled with fuselage in poor condition at Moron in October 2008. (M Magnusson)



**20** First flown 1971 Tested at FMA during early 1972. Tfd "Commando de Regiones Aereas" 16.6.72 as calibration aircraft reg **VR-15**. Based at Moron. Seen in service September 1972. Transferred II Brig Aerea 18.1.90 with 6207hrs. Reg changed to **T-110** 27.4.90. Converted to 10 seat configuration, finished Jun90. Tfd to **EAM** Jun95, ret II Brigada Aerea 30.5.02. Last IA-50 to be sent to FMA in Cordoba for overhaul 1999/2000. Last flight 31.5.06, had 9,396:30hrs and 9,528 cycles. Stored Parana, seen Apr07 in storage. Used as instructional airframe in Parana. Seen nice condition July 2009. Engines run up regularly and aircraft taxied around on ramp.

**21** First flown 1971 **AE-1001** Option for Army ntu but may have been painted. Reg **LQ-JXY** 13.1.72 with "Direccion Nacional del Servicio Penitenciario Federal". Delivered 22.9.71. Always based at Aeroparque. Rereg **LV-JXY**. (when???) Last flight 18.6.93. Attempts were made to resurrect aircraft but deemed not worthwhile. Wfu. Donated Museo Nacional .96. Exhibited at Aeroparque, later moved to Moron. Reg cancelled 5.9.97. Stored disassembled in hangar next to museum, future uncertain, poor condition.

**22** First flown 1972. Delivered "INAC" as Calibration aircraft reg **VR-16** Oct72. Tfd II Brig Aerea Jan90 as **T-129**. Wfu 2002. Donated Estancia Santa Romana Sep03. Transported to Santa Romana by truck, wings swapped with another IA50 (which?). Inspected Apr06, very nice condition. Original wings remain in Parana, seen Apr07.

**23** First flown 1972. Provincia de Cordoba, reg **LQ-JZS** 27.6.72. Delivered 29.6.72. Did one belly landing (when ?). Rereg **LV-JZS** 14.8.73. Ferried to FMA 23.9.80 for preparation work. Transferred I Brig

**Aerea T-112** Oct80 by official degree of Cordoba Province #3423 dated 24.10.80. "Dado de Baja" ("discarded") in register 30.10.80 but not cancelled until 20.11.96 !. Transferred II Brig Aerea .83 (.81?), Transferred X Brig Aerea -85, Transferred VI Brig Aerea -87, Transferred II Brig Aerea Dec90 (or Feb-91). Wfu Oct94 ~7,950hrs. Seen 19.8.96 without engines. Stored Parana in poor condition, seen Oct04. Supposed to be donated to "Tranchera" but due to corrosion swapped to TX-01. Broken up and sold to local scrap-dealer in Parana mid-05 (Aug ?).

**24** First flown 1972. Delivered to "Ministerio de Bienestar Social" 11.10.72 and got "special" registration **LQ-MBS** 2.10.72. Rereg **LV-MBS** 7.2.73. Based Aeroparque. Incident Pocitos 2.7.80. Accident 21.9.95 at San Fernando, light damage (not repaired ??). When due for major o/h, it was donated to ESFA late-95. Used for training at Escuela Sub Oficiales Cordoba (ESFA). Still (Jun05) officially registered.

*In July 1972, FMA was informed that the following registrations were assigned for civil IA-50s: LQ-LAD, LQ-LAE, LQ-LAF, LQ-LAG, LQ-LAH, LV-LAI, LV-LAJ, LV-LAL, LV-LAM and LV-LAN. Of these, LQ-LAG, LQ-LAH, LV-LAL and LV-LAN were never used.*

**25** First flown 1972. "alta final" 13.11.72. Provincia de Salta, reg **LV-LAD** 6.12.72, delivered same day. Named "Señor de Milagro". Accident 23.9.83 Las Bolsas, Prov de Salta, 65% damage, not repaired. Remains transferred to Air Force. Reg cancelled 5.9.97.

**26** First flown 1972. Delivered I Brigada Aerea as **T-126** (11.7.73?), allocated "Jefe de la Fuerza Aerea" .72. Painted in unique light-blue colors, only IA50 painted as such. Seen with "Comandante General" t/s Jan74. Allocated "Jefe Estado Mayor General, JEMG", seen Aug79. Allocated "Comando en Jefe", seen Jan-81. Transferred II Brig Aerea Sep89 (May81??). Last flight (?) 20.5.98, 7,267hrs & 5,139 cycles. Wfu .99. Donated to Municipio Diamante Jan05. Seen Apr07, has inscription honouring Brig Chevalier who flew in Malvinas war and was born in Diamante.

**27** First flown 1973. **LV-LAE** reg 15.2.73 to Prov de Entre Rios. Delivered to Gobierno de Entre Rios 20.3.73. Transferred "Lineas Aereas Entre Rios Sociedad del Estado" 8.7.92. Wfu Nov92. Back in service (when ?). Gear collapsed on landing Parana 23.1.94 considerable damage, repaired??. Still (Jun05) officially registered. Seen wfu Parana 20.8.95 many parts missing. Sold to local scrap dealer 2001 and b/u.

**28** First flown 1973. **LV-LAF** reg 1.6.73 Provincia de Cordoba. Also **LQ-?** Incident Cordoba 20.12.74. Accident at Cordoba-EAM 12.10.78 10% damage, repaired. Incident Villa Dolores 30.12.78. Transferred Argentine AF I Brigada Aerea ? **T-114** Oct80. "Dado alta" 24.10.80 as T-114. "Comando de Material" Sep80. Transferred II Brig Aerea Oct87. Wfu Jun95 (or .90?) with 7,680hrs TT. Donated "Escuela de SubOficiales" in Cordoba. Exhibited outside main building with no registration. LV-LAF cancelled 20.11.96.

**29** First flown 1973. **LV-LAI** reg 10.10.73 Prov de Entre Rios. Delivered 2.10.73. Incident Aeroparque 28.3.74. Transferred "Lineas Aereas Entre Rios Sociedad del Estado" 8.7.92. Wfu Nov92. Cld 5.9.97. Exhibited near terminal and painted in "new" LAER livery. Donated to

Aero Club Parana . Fuselage moved to Aeroclub approx Apr09. Wings followed later. Exhibited at Aeroclub Parana.

**30** First flown 1973. "alta final" 19.12.73. **LV-LAJ** reg 26.12.73. Provincia de Catamarca. Transferred Argentine AF(I Brigada?) **T-113**. approx Sep80. LV-LAJ cld (no date). Accident Aeroparque 13.12.82, left runway during take-off, 16% damage. Wfu Jun83. Fate???

**31** First flown 1974. **LV-LAL** ntu? Prov de Cordoba ? Delivered I Brig Aerea as **T-127** 29.11.74. Accident Bariloche 17.3.75, main landing gear collapsed, 60% damage, repaired, flew again 3.9.75. Transferred V Brig Aerea 2.6.82, ret I Brig Aerea 30.10.82. Transferred II Brig Aerea .89. Wfu .95. Seen FMA Sep99 poor conditions. Exhibited Cordoba airport, occasionally used by fire-services for training.

**32** First flown 1974. **LV-LAM** reg 28.6.74. Prov de Catamarca , named "Santa Maria". Transferred Argentine AF, IV Brig Aerea as **T-111** 14.11.80. Transferred I Brig Aerea 19.1.81. Transferred II Brig Aerea Jan89. Wfu Jun90. Fuselage used on T-122???. Amusement park Santa Cruz de Lago .92-98?. b/u?. LV-LAM cld 20.11.96.

**33** First flown 1974. **LV-LAN** ntu??. A FMA document dated 14.11.74 declares the aircraft ready for flight and quotes reg LV-LAN. Delivered I Brig Aerea as **T-128** 3.12.74. Seen Sao Paulo-Congonhas 27.12.74. Transferred to "Comando de Material" Oct80. Transferred II Brig Aerea 10.7.84 (temp?). Allocated "Comando de Operaciones Aereas", seen Jul87. By Aug92 had 5,794hrs. Wfu Aug94 FMA, seen Sep99 in poor condition. Gone by April 2006, where yo?

**34** First flown 1975 (or late .74?). Delivered II Brig Aerea as **F-35** Jan75. Had 7,650hrs by 1996. Wfu. Gate-guardian II Brig Aerea Parana 2001 (still there 2009, no registration visible).

*There have been (and still are?) plans to preserve a Guarani at Palomar Base (I Brigada Aerea) where so many Guarani's served but so far no example has appeared.*

*Original research by Vladimiro Cettolo and Javier Mosquera in 1996. Accident information supplied by Gabriel Pavlovic. Civil registration information courtesy DNA Registro Nacional. Also II Brig Aerea Technical Library and FMA archive in Cordoba. Individual aircraft log-books. Author's notes during 30 years...*

*Additions and corrections most welcome.....*



**Left:** Calibration Guarani c/n 22 VR-16 in the second version of the special red and yellow livery at Aeroparque in December 1983. (H Gareiso)



**Below left:** C/n 23 LV-JZS was operated by the Province of Cordoba when seen taxiing at Aeroparque in January 1975. (M Magnusson)

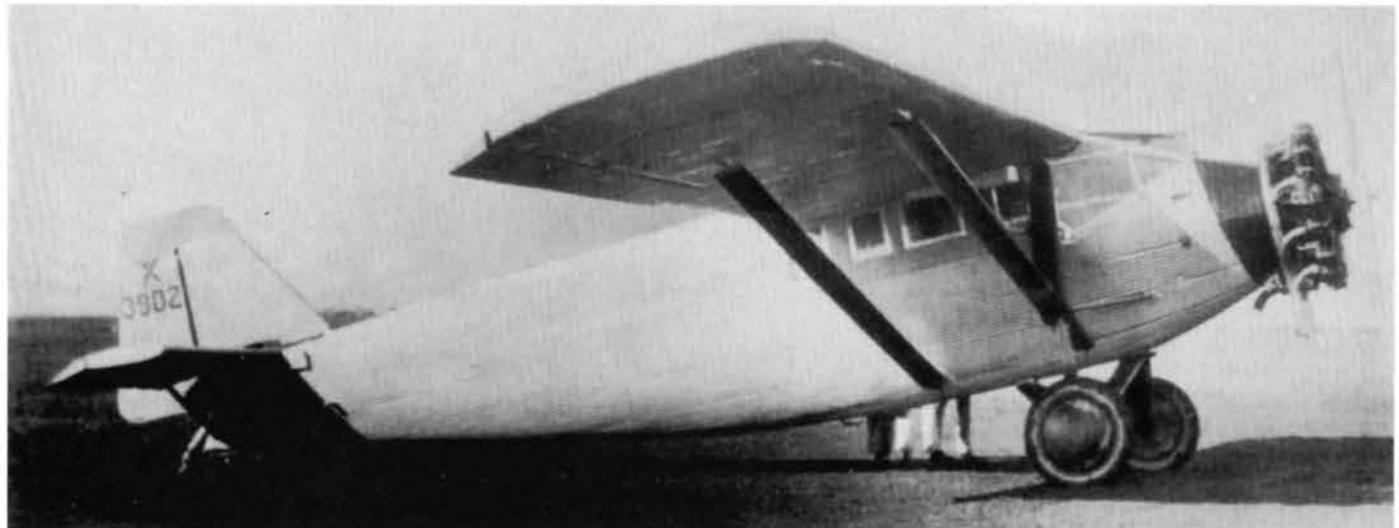
# The Harlow Monoplanes

HEAD-ON VIEW

No.34



**Right:** The Thaden T-1 "Argonaut" all-metal seven-seater, X3902 illustrated, was the first major project on which Max Harlow is known to have worked. It was powered by a single 425hp P&W Wasp A. (JM Collection)



Max B Harlow was an early Stanford University (California) graduate in Aeronautical Engineering who found employment as an engineer with a number of designers before establishing his own company.

In 1927 he worked on the first all-metal aeroplane built on the west coast of America. This was the Thaden T-1, designed by Herbert V Thaden as a 6-8 seat cabin monoplane powered by a 425 hp Pratt & Whitney Wasp A. It was constructed almost entirely of duralumin and built by the Thaden Metal Aircraft Company of San Francisco. This later became the Pittsburgh Metal Airplane Co and later still the Metalair Corporation.

Harlow did not follow the company, instead in 1928 he became chief engineer for the Bach Aircraft Co of Van Nuys, CA where they produced a three-engined 8-passenger transport known as the Bach "Air Yacht". This high-wing tri-motor of standard format was basically a wooden aeroplane with steel reinforcement and was notable for having one high-powered engine in the nose and two of much lower power mounted on the wing struts. In the case of the popular 3-CT-6 model a 525 hp P&W Hornet was supported by two Comet radials of 130 hp each, but other combinations were available.

Still preferring the west coast, Harlow worked on other projects such as Waldo Waterman's "Rubber Duck" and on Allan Lockheed's "Uni-Twin". More significantly in design terms, he was next employed by Bert Kinner to work on his successful Sportster and Sportwing models and on the more experimental Sedan (see *Archive* 1/2006 and 2/2006). When the Kinner company folded in 1934, Harlow worked briefly with Northrop and Douglas. He was appointed Professor of Aeronautics at Pasadena Junior College in 1935 and at the same time was collaborating on the Hughes Racer design (see *Archive* 3/2000).

His all-metal design for a low-wing cabin monoplane project was built by the College students under Harlow's supervision as the PJC-1 with the aid of sponsorship from local investors. Construction began in November 1936 and the PJC-1 first flew in the following September. The PJC-1 was a relatively small aircraft which, deceptively, appeared larger. Although a standard two-seater, it could be fitted out with a three or four seat cabin with consequent reduction of its otherwise generous baggage capacity.

The fuselage consisted of an Alclad-covered dural frame and similarly the one-piece cantilever wing was built of dural ribs and stringers covered with Alclad sheet. The cabin, fitted with dual controls, was entered from the wing by a large door on the starboard side. With only two seats it could accommodate up to 130 lbs of baggage, reducing to 25 lbs as a four-seat arrangement, or 80 lbs with reduced fuel load.



**Above:** Bach 3-CT-6 Air Yacht registered 302E with Pickwick Airways, one of the main users of the type. Harlow was chief engineer for Bach while the type was under development. (JM Collection)

**Right:** An early photograph of the Harlow PJC-1 with the cowlings removed. The high-quality finish of the all-metal aircraft can be seen, as can features such as retractable undercarriage, leading edge landing lights, perforated flaps and elevator trim tab. Experimental category registration X18136 is clearly applied. (JM Collection)





**Left:** Rear view of the PJC-1 prototype with the generous fin and rudder area and twin elevator trim tabs visible. The cowlings on the ground show a three-piece arrangement. (JM Collection)

**Below:** The large door of the PJC-1 opening into the spacious cabin with dual controls. A large sliding window is fitted on the left side. (JM Collection)

Power was provided by a 145 hp 7-cyl Warner Super Scarab 50 fitted with a Hartzell wood propeller which, combined with the lightness of the structure, produced an excellent performance.

The wing, of NACA-23012 section, had a gently-swept leading edge, tapering from 90 ins chord at the root to 42 ins at the rounded tips. The centre-section contained the 34 gallon fuel tank below the cabin, with an electric pump. Split trailing edge perforated flaps were fitted inboard of the half-span ailerons. The undercarriage, with 90 inch track, retracted inwards electrically into wells in the wing root leading edge. A fully-swivelling, optionally steerable, tailwheel was fitted. The tail assembly was cantilevered, again of aluminium but with control surfaces fabric-covered. Rudder and elevators were fitted with adjustable trim tabs.

The prototype PJC-1, X18136, was first flown on 14th September 1937 by 'Jack' Kelly who was later to become Sales Manager of the Harlow Aircraft Company. Impressive in its manoeuvrability and speed, the aircraft was undergoing final certification tests when crossed controls during a spin resulted in an uncontrollable flat spin. The pilot took to his parachute safely but the prototype was destroyed. By the time that the second aircraft was completed, control limitations had been established to prevent a recurrence of the problem. With this aircraft, the first PJC-2, a Type Certificate (ATC#659) was finally issued on 26Aug38.

In 1939 the Harlow Aircraft Co was established, with some backing from Howard Hughes, at Alhambra Airport, CA. Max Harlow was Vice-



President and General Manager, which he combined with his professorship at PJC and work for Waldo Waterman and Security Aircraft. Initially, the company President was J B Alexander, John C 'Jack' Kelly was Sales Manager and Dave C Mendenhall was Project Engineer. The company was then able to put into production the PJC-2, virtually the same design but for an increased fin chord, offering an increased payload counterbalanced by a slight performance reduction.

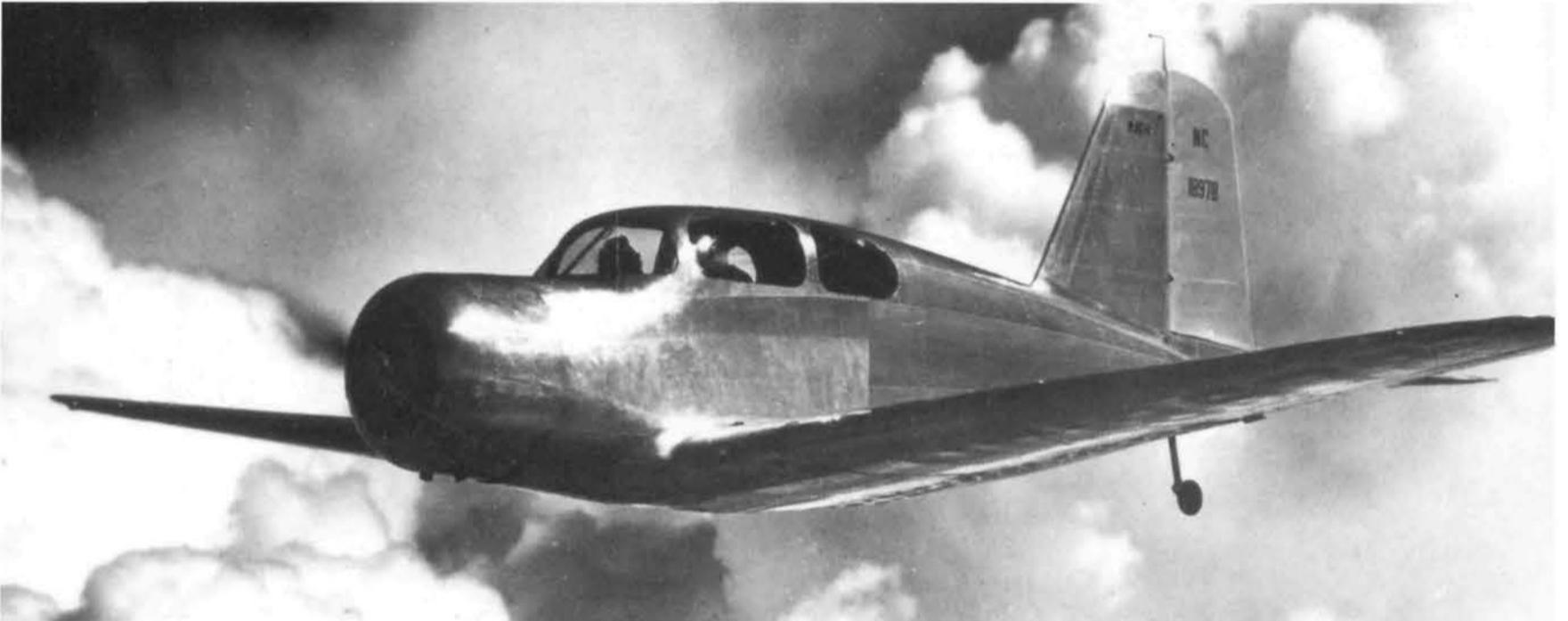


**Above:** Harlow company Vice-President 'Jack' Kelly is reflected in the mirror-like polished aluminium surface of the nose of X18136. The engine is almost completely baffled and the cowling fits tightly to the fuselage. (JM Collection)

**Right:** Officers of the Harlow Aircraft Company. On the left is John C 'Jack' Kelly Jr, Vice President in charge of sales; centre is Max B Harlow, Vice President and aircraft design engineer; on the right is J B Alexander, President. (JM Collection)



**Below:** In-flight photo of the second aircraft, the first PJC-2 model which was registered NC189778. There was little external difference between this and the PJC-1 other than increased fin chord. (JM Collection)

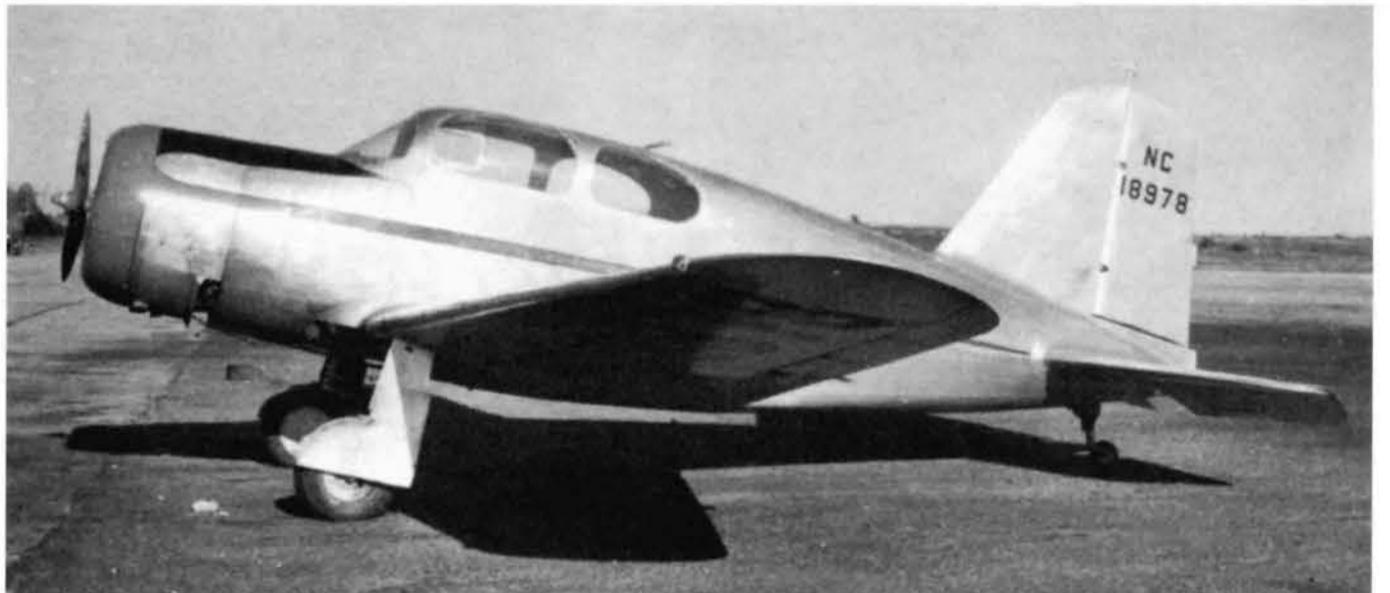


The first customer for the PJC-2 was the US Bureau of Commerce, renamed the CAA, which ordered three examples, followed by three more later. These were used by CAA Inspectors on a District basis. Sadly, private sales were few in number although many attractive options were offered in addition to a wealth of standard features. These options included a Curtiss-Reid metal propeller, cabin heat and lights, radio, landing lights and flares. One is said to have been ordered by film actor Jimmie Dunn. Eleven PJC-2s have been traced (see table), four of which saw wartime service after impressment by the USAAF.

Max Harlow, meanwhile, was modifying the design in 1939 to create a

two-seat tandem trainer, the PC-5, which first flew in July 1939. Initially parts were produced under outside contract for assembly at Alhambra and it was claimed that there was encouraging interest, which unfortunately did not translate into actual sales. Although intended for the USAAC as a trainer, the PC-5 was never accepted, probably due to its reliance on metals which in wartime were in short supply. It was offered as both a primary and secondary trainer, allowing more advanced features (such as flaps and retractable undercarriage) to be phased in during tuition without having to change basic aircraft type. From all accounts it had a military-style performance, was highly manoeuvrable and yet stable.

**Right:** Side view of the PJC-2 NC18978 c/n 1 with later addition on an anti-dazzle panel on the nose and minimal paintwork. (JM Collection)





**Left:** One Harlow PCJ-2 that seems to have lost its sheen is this former CAA example c/n 7 which was NC67 but was re-registered in private ownership to become N65296 and is still current as such with an owner in Seattle. (JM Collection)

### Harlow Monoplanes: selected Specifications

Dimensions:	PJC-1	PJC-2	PC-5A
Length	23ft 4in (7.11m)	23ft 4in (7.11m)	23ft 7in (7.18m)
Height	7ft 3in (2.21m)	7ft 3in (2.21m)	7ft 8in (2.33m)
Wing span	35ft 10in (10.92m)	35ft 10in (10.92m)	35ft 7in (10.84m)
Wing area	185 sq ft (17.18 sq m)	185 sq ft (17.18 sq m)	185 sq ft (17.18 sq m)
Weight empty	1,607 lbs (728.9 kgs)	1,661 lbs (753.4 kgs)	2,015 lbs (914 kgs)
Max All-up Weight	2,294 lbs (1,040.5 kgs)	2,600 lbs (1,179.3 kgs)	2,600 lbs (1,179.3 kgs)
Performance:			
Max speed	165 mph (265.5 km/hr)	160 mph (257.4 km/hr)	163 mph (262.3 km/hr)
Cruising speed	145 mph (233.3 km/hr)	140 mph (225.3 km/hr)	145 mph (233.3 km/hr)
Landing speed (with flaps)	48 mph (77.2 km/hr)	52 mph (83.6 km/hr)	56 mph (90.1 km/hr)
Initial rate of climb	850 ft/min (259m/min)	750 ft/min (228.6 m/min)	700 ft/min (213.3 m/min)



**Above:** C/n 6 as NC15, one of the six Harlow monoplanes operated by the CAA on inspection visits. (JM Collection)

As the PC-5A it received its Type Certificate on 4.4.41 and at about the same time the Intercontinent Corp acquired a major share in Harlow Aircraft. This company was chiefly an exporter and had demonstrated the PC-5 overseas, claiming 28 orders. They were also involved in helping to set up the first aircraft manufacturing plant in India, for Hindustan Aircraft Ltd at Bangalore. Accordingly, an order for 50 PC-5As for the Indian Air Force was announced with delivery to be in kit form from Harlow's factory for assembly at Bangalore.

Little is known of the number of units actually supplied, though photographic evidence exists of at least 8 or 9 in various stages of assembly. Depending on source, either 4 or 5 of the IAF order were completed, commencing at serial number DR423. However, on investigating FAA entries for known



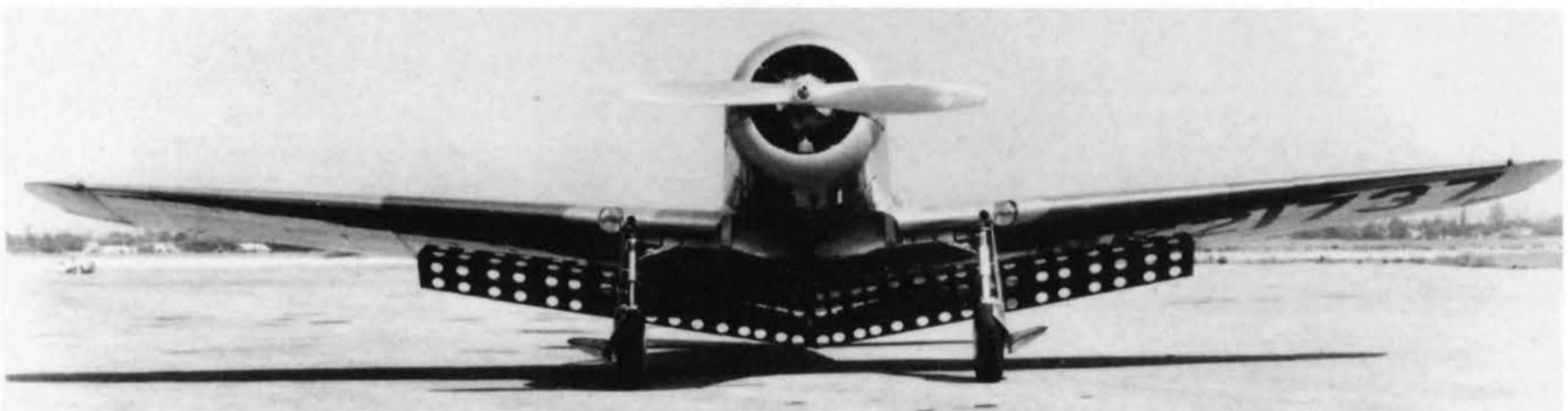
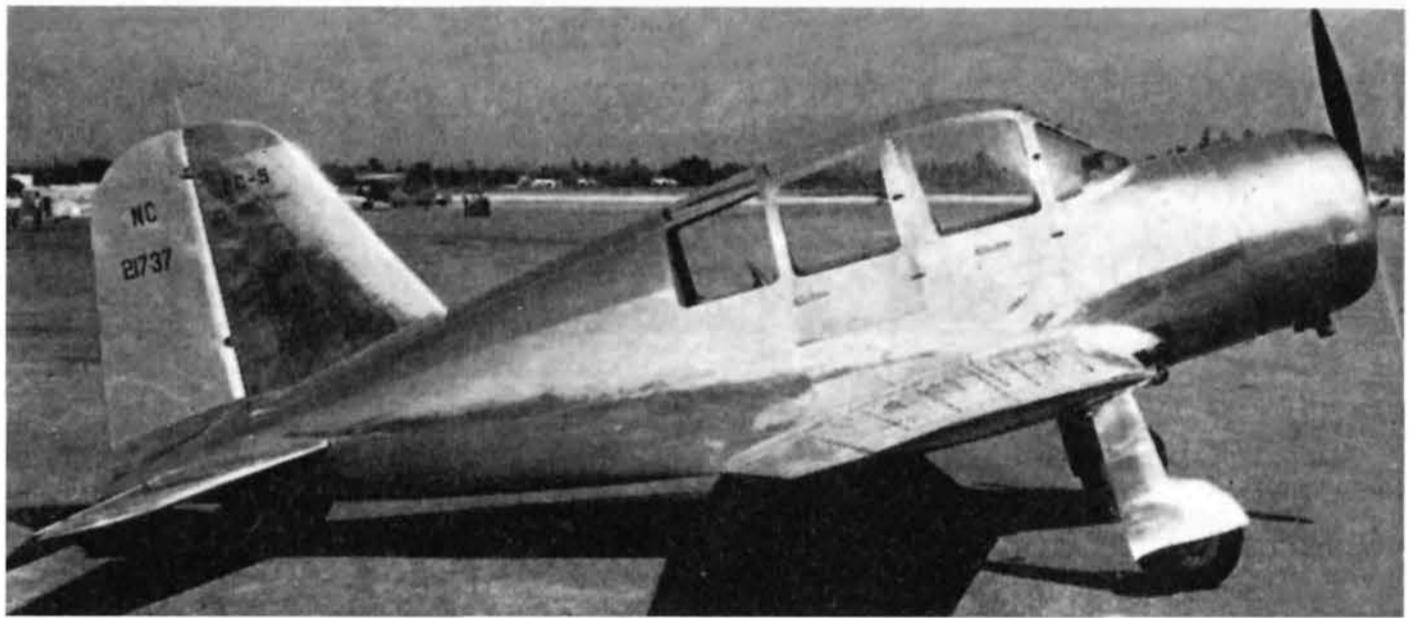
**Above:** Under bright lights in the EAA Museum at Oshkosh in July 2004, this surviving Harlow PJC-2 is c/n 6, the former CAA NC15 seen above and now registered N3947B. The front of the cowling and the cheat-line are in red. (Dave Partington)



**Above, left:** PJC-2 c/n 9 NC19983 seen sporting a prominent DF loop in teardrop fairing. The letter C is partially deleted on wing and rudder. (JM Collection)

**Above, Right:** N64760 PJC-2 c/n 3 included here by virtue of its non-standard colour scheme! (JM Collection)

**Right:** Prototype PC-5 NC21737 in bare metal finish. Note the increased area of cockpit glazing essential in a tandem training aircraft. (JM Collection)



PC-5 registrations it becomes apparent that four examples were actually constructed in the US and exported to India, also confirming one as the identity of the civil-registered VT-ATN. What became of all the others is lost in the past, as was the proposal to build the PC-5 under licence by the Cub Aircraft Corp of Hamilton, Ontario.

There was only one further development and that was the PCC-10 which first flew in 1945. It appears to have been a much-modified PJC-2 design and was built by Pasadena City College students - hence the PCC designation. A four-seater, it had a

**Above: page centre:** The original Head-on View showing PC-5 prototype NX21737 with full area of perforated flaps deployed.

**Above:** NX19978 was the second PC-5A. All the four US-registered examples were transferred to India.

**Right:** An air-to-air shot of PC-5A NC19979 c/n 503 with the position of the two occupants clearly demonstrating the tandem seating arrangements for this trainer. (All: JM Collection)





**Left:** A view of the Bangalore assembly line with eight PC-5A fuselages clearly visible. How many were actually completed is a matter of conjecture. (JM Collection)

wingspan of 37ft9in and increased length of 28ft 3in due mainly to the use of a larger, in-line engine. At one time it is said to have been used to test a geared-drive Lycoming GO-435-C2 but later William Nash of Long Beach, CA fitted a 400 hp Lycoming IO-720-A1A with a 3-blade constant speed propeller, extra fuel tanks and a beefed-up Bonanza undercarriage. In this form it was capable of cruising at 195 mph! The PCC-10 was registered as N37463, c/n 1, but in this form it was also known as the Atlas H-10. It was last registered to Eve K Nash of Orange, California but was cancelled on 24.9.96 as 'destroyed', since then it has been reported as dismantled and the owner reserved the marks again on 16.10.2000.

### HARLOW AIRCRAFT - KNOWN PRODUCTION

Model	c/n	Registration	Notes
PJC-1	1	NX18136	Prototype. Crashed during flight testing.
PJC-2	1	NC18978	To USAAF as UC-80, 42-97054
		NC46341	Cancelled.
PJC-2	2	NC31	CAA, 1940.
PJC-2	3	NC54	CAA, 1940
		NC64760	
		N54KC	Oct82; current in Colorado, no CofA.
PJC-2	4	NC102	CAA, 1940
		NC102E	cancelled 8.11.51.
PJC-2	5	NC19981	To USAAF as UC-80, 42-68692
		N19981	cancelled 17.8.48
PJC-2	6	NC15	CAA, 1940; cancelled 10.8.48
		N3947B	To EAA Museum, Oshkosh, WY.
PJC-2	7	NC67	CAA, 1940
		N85296	current in Seattle, WA.
PJC-2	8	NC82	CAA, 1940.
PJC-2	9	NC19983	cancelled.
PJC-2	10	NC19996	To USAAF as UC-80, 42-53513.
PJC-2	11	NC19997	To USAAF as UC-80, 42-97040.
PC-5A	(1) 501	NX21737	FAA quotes c/n as 501. Cancelled as 'exported to India 31.3.42. Indian register also quotes c/n 501, regd Nov45, cld 22.1.55.
		VT-ATN	
PC-5A	502	NX19978	Regd 12.3.40 and cld 21.6.41 as 'exported to India'.
PC-5A	503	NC19979	Regd 21.1.41 and cld 20.6.41 as 'exported to India'.
PC-5A	504	NC19980	Regd 25.1.41 and cld 5.8.42 as 'exported to India'

In India: VT-ATN is known and confirmed from c/n as 501 above. Registered post-war it must be ex-military but not necessarily DR423 as c/ns 502 and 503 went to India before it and the first Indian example was flown on 29th July 1941. DR423 to DR426 (or '7) are said to be the only IAF examples completed, presumably matching the four identified US c/ns.

Credits for listing details are due to the late Charles Trask and also to AB-IX..

**Right:** The sole example of the Harlow PCC-10, N37463 had a slightly more streamlined appearance due to the longer nose which accommodated a 400 hp 8-cylinder horizontally-opposed Lycoming IO-720-A1A engine with three-blade propeller. This aircraft was later re-named the Atlas H-10. (JM Collection)



**Above:** PC-5A DR424 of the Indian Air Force. Little is known of the histories of the IAF examples other than DR423 being with No.155 Sqn in 1942, DR424 and DR425 were with No.22 AACU and DR426 was with No.225 Group Com.Flt.in 1943. DR425 crashed on 23.4.43 and one of the others must have become VT-ATN post-war. (JM Collection)

**Below:** A grainy shot of VT-ATN c/n 501 from an old cutting. Note the modified cockpit glazing in comparison with the military version above. (JM Collection)



# The Development of Commercial Aviation in China

PART 10B

## China National Aviation Corporation 1945-1949

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### CNAC fleet list by aircraft type

Generally the FAA files do not give the previous Chinese (XT-) registrations but there are some exceptions. For example, the FAA file for C-46D N8381C c/n 32960 gives "XT-34" for C-46 c/n 22459; "XT-42" for C-46F c/n 22508; "XT-160" for C-46D c/n 32960; "XT-122" for C-46A c/n 364CK, and "XT-102" for C-54B c/n 18370. These XT-numbers are hand-written on a letter from the Director Gral. de Aeronáutica of the Republica de Panamá, dated 19 May 1953, confirming that these aircraft (belonging to C.A.T., S.A.) had never been registered in Panama. The data for XT-122 contradicts the Air-Britain C-46 monograph, which gives "XT-120" for c/n 387 (364-CK). John Davis, an author of this monograph, says that they used "XT-120?" in a draft version but the "?" was omitted in the final version. As no source for this information was noted, we therefore assume that the FAA data is correct. [JMD 05Nov2004] Another example (for two C-47As) is given below. Clearly the CAA knew what the previous Chinese identities were.

For an overall record of CNAC accidents, see:  
[www.cnac.org/allaccidents01.htm](http://www.cnac.org/allaccidents01.htm) and [www.cnac.org/hanks02.htm](http://www.cnac.org/hanks02.htm)

### Consolidated 28/OA-10A Catalina

Although the notes which follow on the Catalina were published in the previous issue, further information has now been obtained therefore we are repeating the original notes together with the later evidence as an Addendum.

XT-reg.	f/n	CofA	d/d	c/n	p/i	fate
XT-147	?	38-17		?	?	?

At Hong Kong, 16Nov49, sold to C&W, fate unknown  
[Archive p. 2009/177-178; HK DCA 16Nov49; Legg p.137]

#### Notes:

1. Photographic evidence exists to confirm that a CNAC Catalina or Canso A amphibian registered XT-147 was stored at Kai Tak in late 1949. The former Cathay Pacific Catalina VR-HEG (c/n ?) is a strong candidate. VR-HEG (possibly Canso A c/n CV-309?) of Air Hoe was sold to CNAC on 22 June 1949. [SEA p.137] See also Part 9 [Archive p.2009/177-178]
2. RCAF Canso A s/n 11027 c/n CV-309 was declared surplus (SOC) on 6 December 1947 and later registered as N1358V. [RJR 18Oct2009] The FAA file for N1358V needs to be examined to see if there is any possibility that it could have become VR-HEG. An ex-USAAF OA-10A from Tacloban would seem to be a more likely candidate. (See Archive p.2009/180)



**Above:** CNAC cabin crew pose halfway up the elaborate entry steps to a Douglas C-54B. (Ian D Johnson collection)

3. John Davis reports on the FAA record card for N1358V: "Registration only" RCAF 11027. Unassigned. 'Registration only' normally indicates the marks were issued for a ferry flight, and no CofR or CofA were issued. This could also indicate that the owner held a 'dealer's certificate'. And, although nothing is shown on the card, this could well indicate Babb & Co., especially as they seem to have had a lock on ex-RCAF surplus sales to the US. The exact date is hard to fix, but what is known with aircraft in the same sequence – say between NC1331V and NC1341V – was that they were all registered in 1947. Also NC1372V to NC1374V were cancelled on 23Apr48. Unfortunately NC1358V was not reused prior to 1972, so the cancellation date is not known. And, of course, if it was Babb he probably did not bother to tell the CAA that he was through with the registration! [JMD 20Jan2010] This information does not rule out the possibility that N1358V became VR-HEG, and maybe even XT-147, but it is hard to understand why this Canso would be imported from Canada when so many OA-10As were already available in the region.
3. Another rumoured Chinese Catalina is the former Amphibian Airways OA-10A XY-ABY c/n CV-588 that may have gone to CNAC when the former company moved out of Burma in 1949. [Archive p. 2009/178; Legg p.137]
4. The fate of XT-147 is unknown. Although it is included in the MOC list of aircraft sold to C&W, it was not allocated an N-number by the US CAA. It is not known how CNAC intended to use this Catalina/Canso.
5. There is a photo of XT-147 at Hong Kong on the CNAC website at [www.cnac.org/aircraft15.htm](http://www.cnac.org/aircraft15.htm). See also Legg p.137.

## Consolidated 28/OA-10A Catalina – Addendum

Notes 1, 2 and 3 under this heading in *Archive* page 2010/35 refer to the need to examine the FAA registry file of Canso c/n CV-309 to see if there is any evidence to support the theory that this aircraft became VR-HEG, as claimed in some sources. Ragnar Ragnarsson has obtained this FAA file and kindly passed the Registration pages to the author. The content is as follows:

Bill of Sale dated 18 November 1947 of Canadian Vickers PBY-5A s/n 11027 (1358V), c/n 1830-92 (sic) from The Babb Company, Inc., New York, to John F Shoemaker and Russell A Gibson, c/o American Consul, Hong Kong.

Application for Registration (form ACA-500 Part B) from John F Shoemaker and Russell A Gibson dated 24Nov47; Make Canadian Vickers PBY5A, serial no. 11027. The CAA wrote back on 4 December 1947, because they needed the chain of title from "War Assets Administration of Canada to The Babb Company, Inc." and payment of \$4.00. The CAA followed this up on 24 February 1948 to complain that the owners had not replied to the earlier letter. The subject line says: "Canadian Vickers, serial 11027, NC1358V".

John F Shoemaker replied on 3 March 1948 to say that the CAA had not received their previous correspondence. "Regarding our aircraft, Canadian Vickers, Serial #11027, NC1358V, we would like to cancel the registration. This aircraft, purchased in Canada, is being considered a foreign aircraft and is headed for Hong Kong, China, via the United States, on a Custom's Visitor's Permit #..." (no number given). He gave a contact address at c/o Park's Aircraft, Port Columbus, Ohio.

Reservation NC1358V was cancelled on 10 March 1948 as "Exported. (See letter of March 3, 1948.)" No CofR was issued.

This evidence satisfies previous scepticism that VR-HEG might be Canso c/n CV-309. Ragnar reports that both Shoemaker and Gibson were former CNAC captains who quit CNAC in 1947 and started a small charter airline in Hong Kong. [RJR 08Apr2010] This was probably Air Carriers Ltd but possibly Tradeeastern Ltd, which was founded later. Shoemaker was a close associate of AW Hoe. [IDJ 10Apr2010] (See histories of C-47B VR-HEP c/n 32530 ex XT-133 and C-47A VR-HET c/n 19895 ex PI-C57.) The DCA file for VR-HEG needs to be examined for further information. Both Shoemaker (American) and Gibson (British) feature as pilots on the CNAC web site at [www.cnac.org/shoemaker01.htm](http://www.cnac.org/shoemaker01.htm) and [www.cnac.org/gibson01.htm](http://www.cnac.org/gibson01.htm). AW Hoe was the third son of the *Tiger Balm* king, Aw Boon Haw, and was killed in the crash of VR-HEP in Thailand on 13 January 1951.

## Curtiss C-46 Commando

### CNAC fleet list by fleet number:

XT- reg.	fleet no.	d/d	c/n	model	p/i	fate
?	113	Dec44	?	C-46A	?	Missing on flight from Luzhou to Tingjiang, crashed at Sichuan 11Sep45, pilot R L Greene [MM]
?	114	Dec44	?	C-46A	?	Crashed on takeoff from Dinjan 9Aug45, pilot B Hahn, co-pilot Sullivan, repaired. (Description of accident & photo of wreck at <a href="http://www.cnac.org/hahn01.htm">www.cnac.org/hahn01.htm</a> )
?	115	Apr45	?	C-46A	?	(photo: <a href="http://www.cnac.org/aircraft11.htm">www.cnac.org/aircraft11.htm</a> ) Crashed in fog at Shanghai-Lunghwa 25Dec46, pilot R B Preuss (29k or 31k) [ACRO, ASN, Leary PM p.23, MM, PCI]
?	116	Apr45	?	C-46A	?	(photo: <a href="http://www.cnac.org/aircraft11.htm">www.cnac.org/aircraft11.htm</a> ) Fate unknown. See note 5.
XT-13	117	Apr45	?	C-46A	?	Cargo & passenger; To PLAAF as 97042
?	118	May45	?	C-46A	?	Accident 9Aug45, repaired [Hanks] Fate unknown
?	119	May45	?	C-46A	?	Fate unknown
XT-50	120	May45	?	C-46A	?	Cargo & passenger
XT-T51	121	May45	?	C-46A	?	Hit high ground 8 km NE of Qingdao, Shandong, on flight from Shanghai to Beijing 5Jan47, pilot C J Sharkey (42k) [Leary PM p.23, MM]
?	122	Jun45	?	C-46A	?	Passenger (XT- not assigned)
XT-T53	123	Jun45	415	C-46A	43-47344	Cargo (photo of '123' at Dum Dum, 1944: <a href="http://www.cnac.org/dumdum01.htm">www.cnac.org/dumdum01.htm</a> )
?	124	Jun45	?	C-46A	?	Fate unknown
XT-T11	125	Jun45	?	C-46A	?	Passenger
XT-T12	126	Jul45	?	C-46A	?	Cargo
XT-T57	127	Jul45	?	C-46A	?	(photo ABD Mar71), not listed in Feb48
XT-T1		Jul45	?	C-46A	?	Cargo
XT-T1		Jul45		C-46A		Cargo
XT-T1		Aug45	?	C-46A	?	Cargo
XT-T2		Aug45	?	C-46A	?	Passenger
XT-T2		Aug45	?	C-46A	?	Cargo
?		Aug45	?	C-46F	?	Fate unknown
XT-T1		?	?	C-46F	?	Cargo & passenger
XT-T1		?	?	C-46F	?	Cargo & passenger (photo of '135' at Chungking: <a href="http://www.cnac.org/manning01.htm">www.cnac.org/manning01.htm</a> )
XT-T1		?	?	C-46	?	Crashed (date pre Feb48, where?)(photo) [LYW 13Apr2003]
XT-43		?	?	C-46	?	Cargo & passenger
XT-44		?	?	C-46	?	Cargo & passenger; photo of XT-T44 [IT]
XT-46		?	?	C-46	?	Cargo & passenger
				?		Type unknown
XT-18		?	?	C-46	?	Cargo & passenger
?		?	?	C-46	?	Crashed 20Sep46 China [ACRO] - see C-47 f/n 81
?		?	?	C-46	?	Crashed 28Jan47 nr Hankow (25k)[ASN, PCI] pilot John Papajik, Hankow to Chungking
?		?	?	C-46	?	Crashed 29Jan47 Huangtcheou, China (26k)[ACRO]
?		?	?	C-46	?	"A CNAC C-46 was hit by anti-aircraft fire while airdropping at Taiyuan in mid-January (1948) and crash-landed." [Leary PM p.61]
XT-T47		?	?	C-46	?	Crashed 20Jan48 Mukden (11k)[ACRO, ASN, PCI] Crashed on takeoff at Huan He airport, Shenyang, overloaded, too much weight in aft fuselage, out of balance, pilot Carl Wiss [MM] or 'take-off from Hun Ho' [Leary PM p.39]



**Above:** The end for Curtiss C-46 XT-T47 - scene after the accident at Mukden on 20.1.48. (Ian D Johnson collection)



**Above:** Unidentified CNAC C-46A XT-T57, fleet number 127, location also unknown. (W Schonfield via AB Digest March 1971)

**CNAC fleet list by XT-1.. registration:**

XT- reg.	CofA	d/d	c/n	model	p/i	fate
XT-30	?	leased	22379	C-46F	44-78556	At Taipei Nov49, to N8388C, B-130
XT-32	?	leased	?	C-46F	?	Fate unknown; c/n 22433 or 22507
XT-34	?	leased	22459	C-46F	44-78636	At Hong Kong, 16Nov49; sold to C&W as N8389C (12Dec49), N4881V
XT-36	?	leased	22465	C-46F	44-78642	At Taipei Nov49, to N8390C, B-136
XT-38	?	leased	22500	C-46F	44-78677	At Taipei Nov49, to N9391C, B-138
XT-40	?	leased	?	C-46F	?	Fate unknown; c/n 22433 or 22507
XT-42	?	leased	22508	C-46F	44-78685	At Hong Kong, 16Nov49; sold to C&W as N8392C (12Dec49), N4882V
XT-112				?		Nothing known
XT-114	37-43	?	419/396-CK	C-46	43-47348	At Hong Kong, 16Nov49; sold to C&W as N8363C (12Dec49)
XT-116	37-44	?	421/398-CK	C-46	43-47350	At Hong Kong, 16Nov49; sold to C&W as N8364C (12Dec49)
XT-118	37-40	?	?	C-46	?	At Hong Kong, 16Nov49; sold to C&W as N83..C (12Dec49)
XT-120	37-41	?	387	C-46A	43-47316	At Hong Kong, 16Nov49; sold to C&W as N8367C (12Dec49) (see Note 11)
XT-122	37-73	?	?	C-46	?	<i>Air Prince</i> At Hong Kong, 16Nov49; sold to C&W as N83..C (12Dec49)
XT-124				?		Nothing known
XT-126				?		Nothing known
XT-128				?		Nothing known
XT-130	37-83	?	?	C-46	?	At Hong Kong, 16Nov49; sold to C&W as N83..C (12Dec49)
XT-132	?	?	?	C-46	?	At Taipei Nov49, to CAT as XT-8..?
XT-134	?	?	?	C-46	?	At Taipei Nov49, to CAT as XT-8..?
XT-136	37-86	?	?	C-46	?	At Hong Kong, 16Nov49, sold to C&W as N83..C (12Dec49)
XT-138	?	?	?	C-46	?	At Taipei Nov49, to CAT as XT-8..?
XT-140	37-88	?	?	C-46	?	At Hong Kong, 16Nov49, sold to C&W as N83..C (12Dec49)
XT-142	37-89	?	?	C-46	?	At Hong Kong, 16Nov49, sold to C&W as N83..C (12Dec49)
XT-144	37-90	?	460	C-46A	?	Defected to China from Hong Kong on 9Nov49. (N8375C)
XT-148	37-92	?	?	C-46	?	At Hong Kong, 16Nov49, sold to C&W as N83..C (12Dec49)
XT-150				?		Nothing known
XT-152				?		Nothing known
XT-154	37-137	R08/48	33371	C-46D	NC51820	Defected to China from Hong Kong on 9Nov49. (N8378C)
XT-156	?	R08/48	33372	C-46D	NC51829	Probably at Taipei in Nov49; sold to C&W as N8379C (12Dec49); to XT-854
XT-158	?	R09/48	32950	C-46D	NC51743	At Taipei Nov49; sold to C&W as N8380C (12Dec49); to XT-856
XT-160	37-141	R10/48	32960	C-46D	NC51802	At Hong Kong, 16Nov49; sold to C&W as N8381C (12Dec49)
XT-162	37-142	R09/48	32954	C-46D	NC51786	At Hong Kong, 16Nov49; sold to C&W as N8382C (12Dec49)
XT-164	37-143	R10/48	30196	C-46A	NC50263	At Hong Kong, 16Nov49; sold to C&W as N8383C (12Dec49)
XT-166	37-144	R11/48	30377	C-46A	NC51385	At Hong Kong, 16Nov49; sold to C&W as N8384C (12Dec49)
XT-168	37-145	R11/48	30380	C-46A	NC51386	At Hong Kong, 16Nov49; sold to C&W as N8385C (12Dec49)
XT-170	37-146	R12/48	30222	C-46A	NC50316	At Hong Kong, 16Nov49; sold to C&W as N8386C (12Dec49)
XT-172	37-147	R01/49	30369	C-46A	NC51384	Defected to China from Hong Kong on 9Nov49. (N8387C)
XT-199	?		?	'C-46'		At Hong Kong, 16Nov49 [DCA] (sic)(see note)

**CNAC fleet list by subsequent N-number:**

XT- reg.	c/n	model	p/i	N-number	cancelled	fate
XT-114	419	C-46A	43-47348	Sold to C&W as N8363C (12Dec49)	26Feb53	[FAA] To (N1376N), N1381N
XT-116	421	C-46A	43-47350	Sold to C&W as N8364C (12Dec49)	26Jan53	[FAA] To (N1377N), N1382N
XT-1..	369	C-46A	43-47298	Sold to C&W as N8365C (12Dec49)	26Jan53	To N2053A
XT-1..	448	C-46A	43-47328	Sold to C&W as N8366C (12Dec49)	26Mar53	To N2051A
XT-122	387	C-46A	43-47316	Sold to C&W as N8367C (12Dec49)	26Feb53	[FAA] To N4894V (see Note 11)
XT-1..	429	C-46A	43-47358	Sold to C&W as N8368C (12Dec49)	26Jan53	Fate unknown
XT-1..	22451	C-46F	44-78628	Sold to C&W as N8369C (12Dec49)	10May50	Probably at Taipei Nov49; to XT-850
XT-1..	22449	C-46F	44-78626	Sold to C&W as N8370C (12Dec49)	10May50	Probably at Taipei, to XT-8..?
XT-1..	416	C-46A	43-47345	Sold to C&W as N8371C (12Dec49)	26Feb53	To N2024A
XT-1..	427	C-46A	43-47356	Sold to C&W as N8372C (12Dec49)	13Apr50	On tour with Koreans Nov49; to XT-848

XT-1..	425	C-46A	43-47354	Sold to C&W as N8373C (12Dec49)	26Jan53	To N1379N
XT-1..	22428	C-46F	44-78605	Sold to C&W as N8374C (12Dec49)	27Jan53	To N4863V
XT-144	460	C-46A	43-47370	Sold to C&W as N8375C (12Dec49)	07Oct65	Defected to PRC?
XT-1..	410	C-46A	43-47339	Sold to C&W as N8376C (12Dec49)	11Jan50	See note.
XT-1..	415	C-46A	43-47344	Sold to C&W as N8377C (12Dec49)	26Feb53	To N90619
XT-154	33371	C-46D	44-77975	Sold to C&W as N8378C (12Dec49)	07Oct65	Defected to PRC?
XT-156	33372	C-46D	44-77976	Sold to C&W as N8379C (12Dec49)	10May50	Probably at Taipei Nov49, to XT-854
XT-158	32950	C-46D	44-77554	Sold to C&W as N8380C (12Dec49)	10May50	Probably at Taipei Nov49, to XT-856
XT-160	32960	C-46D	44-77564	Sold to C&W as N8381C (12Dec49)	26Feb53	[FAA] To N4658V
XT-162	32954	C-46D	44-77558	Sold to C&W as N8382C (12Dec49)	26Jan53	To N1380N
XT-164	30196	C-46A	42-96534	Sold to C&W as N8383C (12Dec49)	26Jan53	To N1386N
XT-166	30377	C-46A	42-96715	Sold to C&W as N8384C (12Dec49)	26Feb53	To N1377N
XT-168	30380	C-46A	42-96718	Sold to C&W as N8385C (12Dec49)	26Feb53	To N2028A
XT-170	30222	C-46A	42-96560	Sold to C&W as N8386C (12Dec49)	26Feb53	To N2023A
XT-172	30369	C-46A	42-96707	Sold to C&W as N8387C (12Dec49)	07Oct65	Defected to PRC?
XT-30	22379	C-46F	44-78556	Sold to C&W as N8388C (12Dec49)	22Mar50	To B-130
XT-34	22459	C-46F	44-78636	Sold to C&W as N8389C (12Dec49)	26Jan53	[FAA] To N4881V
XT-36	22465	C-46F	44-78642	Sold to C&W as N8390C (12Dec49)	22Mar50	To B-136
XT-38	22500	C-46F	44-78677	Sold to C&W as N8391C (12Dec49)	22Mar50	To B-138
XT-42	22508	C-46F	44-78685	Sold to C&W as N8392C (12Dec49)	27Jan53	[FAA] To N4882V
XT-1..	30466	C-46A	44-96804	Returned to W C Wilcox as N8394C (Mar50)	?	(leased) To HK-331X, N3944C (see note)

[ACRO; Andersson p.206; *Archive* pp.2008/184, 188; ASN; CF 25Jan2002, 01Apr2002; DP 20Aug2009; Hanks p.252; IT 27Sep2002; MM 19Oct2002, 22Oct2002, 04Dec2003; MSB 05Jun2006, 26Oct2009; PCI]

Notes:

1. N8370C and N8376C may possibly have become XT-852 and XT-862 with CAT, which are currently unidentified. [MSB 11Jun2007]
2. May 1945: 45 aircraft delivered (under Lend-Lease), mostly C-46s. [Davies p.360]
3. "During the first eight months of 1945 CNAC received 21 C-46s." [Andersson p.204]
4. "Roosevelt ordered ten additional C-46s at a cost of \$400,000 in late April (1948) to expand freight operations." [Leary TDW p.212]
5. Aircraft that defected to China on 9Nov49 are listed in a message from C Fu dated 01Apr2002.
6. Aircraft impounded in Hong Kong are listed in a letter from the HK DCA dated 16Nov1949.
7. The C-46 3-digit fleet numbers are often applied with a very short initial number '1'. [MM 27May2002] See photo of C-46 '116' in flight, 1945 [Leary TDW p.185] and also '115' at Dum Dum Airport on the CNAC website at [www.cnac.org/aircraft11.htm](http://www.cnac.org/aircraft11.htm).
8. A letter from Duncan C Lee, Attorney for Civil Air Transport, Inc., dated January 9, 1950 in the FAA file for N8376C says: "We are advised by the Civil Air Transport, Inc. office in Hongkong that the registration under Registration Number 8376-C of Curtiss Aircraft 483-CK was made in error and that no aircraft bearing that Serial Number was ever transferred to the company. Apparently this error was due to a mistake in transmission since I find upon rechecking the original cable that Number 483-CK followed immediately upon a listed Serial Number 438-CK. I assume that the effect of what happened is that nothing will be considered under Number 8376-C and that the registration numbers of the other aircraft in this series remain unaffected. P.S. I am returning herewith Certificate Number 8376-C for cancellation." As a result of this letter, the CAA cancelled N8376C on 11Jan1950. N8376C was c/n 410/387-CK (also quoted as "483-CK" on the CofR), whereas N8375C was c/n 460/438-CK.
9. CATI wrote to the CAA on March 17, 1953 to request the cancellation of N8366-C Curtiss C-46A s/n 426-CK. The CAA replied on March 26, 1953 to say that N8359C, N8360C and N8366C had been cancelled (on 26Mar1953). They also said: "Please advise this office as to the disposition of aircraft N8366C." but no reply is on file.
10. "Months before, a China National plane had been hijacked. The American captain and crew were invited, at gunpoint, to the passenger cabin while a Communist pilot took over the controls. It quickly became obvious that he didn't know a C-46. ... After the easy landing, the Reds released the China National crew and they got back to Tsingtao via donkey cart and on foot." [Smith p.83] The date and landing place is not specifically mentioned but, from the context, the area is Shantung and the route may have been between Tsingao and Tsinan. This occurred before the fall of Tsinan, which was in September 1948. Presumably this C-46 was not returned to CNAC, so it may have joined the fleet of CAAC or PLAAF. Candidates are XT-124, -126, -128, -132, -150 and -152. [MSB 05Jun2006]
11. The Air-Britain C-46 monograph (p.143) gives XT-120 as c/n 387 but a letter in the FAA file for N8381C shows "XT-122" hand written above c/n 364CK (see above).
12. Exhibit WW 4 (Hong Kong court papers: Schedule attached to Bill of Sale of Civil Aeronautics Administration, via JFL) lists 8383C as c/n 30195 but this is an error for 30196 – given in the FAA file for N8383C.
13. Three C-46s were cancelled on 7Oct1965 following defections to China on 9Nov1949 of XT-144, XT-154 & XT-172, i.e. N8375C, N8378C (XT-154) & N8387C (XT-172), so N8373C c/n 460 was XT-144. [MSB 05Jun2006]
14. See *Archive* pp.2008/184 for Lend-Lease C-46A/F candidates. The speculative model designation is shown as C-46A or C-46F above, where the 'A' or 'F' are italic and no c/n is known.
15. N8394C, mentioned on page 79 of the Air-Britain C-46 monograph, is not included in the BoS of ex-CNAC aircraft sold by C&W to CATI on 19Dec1949. The FAA file for N3944C shows that C-46A s/n 42-96804, c/n 30466 was sold by the WAA to William C Wilcox of Yuma, Arizona on 6Nov1947. Page 11 of the Air-Britain C-46 monograph update says that this aircraft was leased to CNAC but returned in March 1950 and registered as N8394C on 17Mar1950. There are no airworthiness pages or a cancellation sheet for N8394C but c/n 30466 was restored as N3944C on 16May1952 following the sale of HK-331 of Líneas Aéreas del Caribe Ltda. to IBA Trading Corporation on



**Above:** As noted above (see Note 8) there has been confusion over the the identity of N8367C c/n 387/364CK which was quoted as ex XT-120 and also as XT-122 - see later Analysis. What is known is that it later became N4894V and, operated by Westair Transport, was a Blackbushe visitor in 1957. (Jack Meaden Collection)

15Nov1951. [FAA N3944C; JMD 23Jan2010] The lack of airworthiness papers or ID for 1947-1950 supports the theory that this aircraft was operated in China, possibly on lease to CNAC, but CAT would have been in a better position to return the aircraft to USA in March 1950. Further research is required.

16. The identity of C-46 "XT-199" is a mystery. C-46s were allocated even numbers and '199' is too high a number. [MSB 30Jun2007]

17. There is photographic evidence that it was XT-T47 that crashed at Mukden on 20Jan48, not XT-T57 (see previous page).

**Right:** Extract from the Schedule to the Bill of Sale documents showing a note added to the entry for N8376-C regarding cancellation of the entry (see Note 8 opposite). The note by N8366-C may be as a result of the request for cancellation (see Note 9). The c/ns quoted for the C-46s with CK suffixes are in fact the Louisville factory sequence numbers (see also Analysis section) which are a regular source of identity confusion. (Ian D Johnson collection)

396-CK	8363-C
398-CK	8364-C
346-CK	8365-C
426-CK	8366-C
364-CK	8367-C
406-CK	8368-C
2560-CU	8369-C
2558-CU	8370-C
393-CK	8371-C
404-CK	8372-C
402-CK	8373-C
2537-CU	8374-C
438-CK	8375-C
<del>483-CK</del>	<del>8376-C</del>
392-CK	8377-C
33371	8378-C
33372	8379-C

*See Bill of Sale  
William -  
in 8300 C.  
in*

*Included in list  
in error - see explain-  
ation in letter of  
1-9-50 in 8376C  
mon*

## Douglas DC-3 / C-47 / C-53 Dakota

### CNAC fleet list by fleet number:

XT-reg.	f/n	d/d	c/n	model	p/i	fate
XT-T91	41	09Aug39	2135	DC-3-228B	-	XT-BTA/B; Passenger DC-3; XT-1..? Sold to C&W as N8360C (12Dec49)
	46	Jan41	2148	DC-3-294A	-	Damaged during forced landing at Yangtze River 13Feb46 [MC], repaired? Crashed at Chungking 13Feb43 [TDW] Totalled [Hanks]
XT-T92	47	Jul41	2261	DC-3-268C	NC19971	Passenger DC-3; XT-1..? Sold to C&W as N8359C (12Dec49)
	48	26Feb42	4852	C-53	41-20082	Missing during Dinjan-Kunming flight 11Aug43, crashed at Fort Hertz (3k) [ASN, Hanks, MC, TDW]
	49	26Feb42	4853	C-53	41-20083	Missing during Kunming-Dinjan flight 13Mar43 (3k) [ASN, Hanks, MC, TDW]
XT-90	50	12Apr42	4871	C-53	41-20101	Passenger DC-3; XT-1..? Sold to C&W as N8362C (12Dec49)
	51	12May42	4879	C-53	41-20109	Crashed near Chengtu 24Mar44, totalled [ASN, Hanks, MC] or 23Mar44 [TDW]
	52	19May42	4902	C-53	41-20132	Crashed & burned at Dinjan during practice flight 10Oct42 [MC] or Crashed on landing at Balijan during training flight 10Oct42 [TDW] Totalled [Hanks]
XT-45	53	25May42	4904	C-53	41-20134	Missing during Kunming-Dinjan flight 11Mar43, crashed near Luishui (3k) [ASN, Hanks, MC, TDW]
	54	28May42	4927	C-53	42-6475	Passenger; XT-1..? Sold to C&W as N8361C (12Dec49)
XT-T55	55	04Jun42	4929	C-53	42-6477	Passenger DC-3; Destroyed May45
	56	09Jun42	4881	C-53	41-20111	Crashed on side of Digboi Mountain, Naga Hills 30Nov44 (3k) [ASN] or Lost on Hump 12Dec44 [Hanks, TDW]
XT-62	57	12Jun42	4883	C-53	41-20113	Crashed on landing at Dinjan 18Feb44 [MC] or Crashed on take-off at Dinjan [TDW] or 17Feb44, totalled [ASN, Hanks]
	58	18Sep42	7407	C-53	42-15890	Missing during Dinjan-Kunming flight 7Apr43 (1k) [Hanks, MC], crashed into side of mountain near Minzong [ASN, TDW]
	59	07Oct42	7406	C-53	42-15889	Crashed & burned at Kunming when landing 19Nov43 (2k) [ASN, Hanks, MC, TDW]
	60	18Oct42	4681	C-47	41-18556	Missing during Kunming-Dinjan flight 17Nov42 (3k) [ASN, Hanks, MC, TDW]
	61	26Nov42	4729	C-47	41-38626	Crashed near Dinjan 23Oct43, totalled [Hanks, MC, TDW]
	62	02Dec42	4730	C-47	41-38627	Passenger DC-3; fate unknown
	63	05Jan43	6034	C-47	41-38651	(photo, Hanks p.231) Burned near Kunming 19Nov43 (3k) [ASN, Hanks, MC, TDW]
	64	06Jan43	6035	C-47	41-38652	?, 10 AF Karachi, Tata 21Dec45
	65	10Jan43	6037	C-47	41-38654	Returned to US Army on 19Jan43 (see note 10)
	66	10Feb43	6150	C-47	41-38691	?, Tata 21Dec45
XT-87	67	21Feb43	6151	C-47	41-38692	Passenger DC-3; Crashed into a GCAC C-47 Dec46 but repaired. XT-1..? Sold to C&W as N8357C (12Dec49)
XT-88	68	04Mar43	6221	C-47	41-38762	Passenger DC-3; fate unknown
	69	04Mar43	6222	C-47	41-38763	Burned at Kunming after taking off 6Oct43, totalled [ASN, Hanks, MC, TDW]
	70	30Mar43	9014	C-47	42-32788	Crashed on Burma-China border 14Jan45 (4k) [ASN, Hanks], rice dropping mission at Ledo Road [TDW]
	71	10Apr43	9013	C-47	42-32787	Missing Kunming-Chungking 16Jun44 [MC] or One passenger killed Kunming-Chungking 23Jun44 [TDW] or Crashed at Chungking; or near Kweilin 18Jun44 (1k) [ASN, Hanks]
	72	17Apr43	9110	C-47	42-32884	Missing Dinjan-Kunming flight; chased by Jap pursuit plane 13Oct43 (3k) [ASN, Hanks, MC]

	73	13Apr43	9109	C-47	42-32883	'883' Crashed 1Jul44 [MC] or Crashed 1Aug44 Baldy Mountain (3k) [ASN, CNAC, Hanks, JMG] or Crashed on take-off Kunming 1Aug44 [TDW]
	74	25Jun43	9291	C-47A	42-23429	Missing on a flight from China to Dinjan [MM-Q] Crashed 6Jan45 in Patkai Mountains (3k) [ASN, Hanks] or Drifted north of course in severe crosswinds Hump, 1Jan45 [TDW]
	75	25Jun43	9416	C-47A	42-23554	Missing Dinjan-Kunming 20Feb44 (2k) [ASN, Hanks, TDW]
	76	04Jul43	9417	C-47A	42-23555	Fate unknown
	77	15Jul43	9596	C-47A	42-23734	Crashed 6Jan45 near Dinjan, Kunming to Dinjan (4k) [ASN, Hanks, TDW]
	78	15Jul43	9597	C-47A	42-23735	Crashed during landing Dinjan 27Oct43 [MC] or Crashed on landing at Calcutta 26Oct43, repaired [Hanks, TDW]
	79	12Aug43	9760	C-47A	42-23898	Crashed during Dinjan-Suifu flight 18Dec43 [Hanks, MC]
	80	13Aug43	9761	C-47A	42-23899	Crashed near Dinjan 4Nov44, totalled [ASN, Hanks] or Crashed landing at Dinjan 13Nov44 [TDW]
	81	04Sep43	9955	C-47A	42-24093	Crashed between Yunnanyi & Suifu 15Jun45 (3k) [ASN] or Missing on flight from Xi Chang to Kunming, hit Lou Zi Mountain 30 km from Xi Chang, Sichuan, in bad weather 20Sep46, pilot A W Longbotham (31k), not found until 9Oct46 [MM]
	82	05Sep43	9956	C-47A	42-24094	Missing Calcutta-Dinjan 26May44 (12k) [ASN, Hanks, MC]
	83	03Oct43	10159	C-47A	42-24297	Crashed on Dinjan-Suifu flight 18Dec43 (3k) [ASN, Hanks, MC, TDW]
	84	05Oct43	10158	C-47A	42-24296	Burned at Kunming while taking off 17Oct43 [MC, TDW] or 16Oct43 [ASN, Hanks]
	85	10Nov43	18902	C-47A	42-100439	Burned in midair over Kunming 8Jun44 [Hanks, MC, TDW] or Crashed at Dinjan (6k) [ASN]
XT-T86	86	17Nov43	18901	C-47A	42-100438	Lost and out of fuel on Hump 11Mar44, rebuilt [Hanks, TDW] Passenger DC-3; XT-1..? Sold to C&W as N8358C (12Dec49)
XT-51	87	07Dec43	19062	C-47A	42-100599	Crashed on runway at Dinjan Jun45 [TDW] or 20May44, repaired [Hanks] Passenger DC-3; XT-1..? Sold to C&W as N8355C (12Dec49)
	88	14Dec43	19061	C-47A	42-100598	Gear collapsed on landing at Suifu 10Jan44, repaired [Hanks, TDW] and crashed 9Apr45 between Sichang & Kunming (3k) [ASN, Hanks, TDW]
XT-T48	89	21Jan44	19313	C-47A	42-100850	Passenger DC-3; XT-111. Sold to C&W as N8348C (12Dec49)
	90	10Feb44	19314	C-47A	42-100851	Missing Dinjan-Kunming 15May44 (3k) [ASN, Hanks, MC] Crashed on descent into Kunming [IT] or 16May44 [TDW]
XT-T54	91	15Mar44	19452	C-47A	42-100989	Crashed 7Mar44 (2k) (or XT-T91?) [ASN]. Passenger DC-3; XT-127. Sold to C&W as N8352C (12Dec49)
XT-85	92	12Apr44	19620	C-47A	43-15154	Accident at Dinjan 18May44, brake locked on landing, ground looped into General Old's B-25. [ASN, IT, TDW], totalled [Hanks]; Passenger DC-3; XT-1..? Sold to C&W as N8349C (12Dec49)
	93	14Apr44	19621	C-47A	43-15155	Lost over the Hump 16Jan45 Chungking to Kunming, crashed near Kunming (3k) [ASN, Hanks, TDW]
	94	03May44	19803	C-47A	43-15337	Crashed at Dinjan 9May45 (2k) [ASN, Hanks]
	95	05May44	19804	C-47A	43-15338	Fate unknown
	96	13Jun44	20091	C-47A	43-15625	Power failure on take-off Kunming 24May44 [TDW] Undercarriage collapsed 18Mar45 at Kunming, repaired [Hanks] (c/n from interpolation) Missing on flight Kunming to Tinjiang, 30Nov45, pilot Y G Wong [MM]
	97	21Jun44	20253	C-47A	43-15787	Crashed 31Aug44 over Huhuang Valley near Shimbuwang (2k) [ASN, Hanks, TDW]
	98	03Jul44	20252	C-47A	43-15786	Crashed 16Nov44 takeoff from Yunnanyi, undercarriage retracted prematurely, repaired [Hanks, TDW]
	99	1944	?	C-47B		Fate unknown
XT-T20	100	1944	?	C-47B		Cargo
	101	1944	?	C-47B		Crashed 7Oct44 over Sadiya (3k) [ASN, Hanks], wing torn off by severe turbulence [TDW]
	102	1944	?	C-47B		Crashed 7Jan45 above the city of Tali by Tali Lake (3k) [ASN, Hanks]
XT-T83	103	1944	?	C-47B		Cargo
	104	1944	?	C-47B		Hit high ground at Sui Chang, Zhejiang on flight from Shanghai to Hong Kong, 20Oct45, pilot F L Higgs [MM]
	105	1944	?	C-47B		Crew bailed out over the Hump, crashed 16Feb45 over Hukawng Valley, totalled [ASN, Hanks, TDW]
	106	1944	?	C-47B		Crew bailed out over the Hump, crashed 24Nov44 near Kunming, totalled [ASN, Hanks] or 25Nov44 [TDW]
XT-84	107	1944	?	C-47B		Passenger; Still active in early 1947
XT-T58	108	1944	?	C-47B		Cargo [IT; MM]
	109	1944	?	C-47B		Fate unknown
	110	1944	?	C-47B		Fate unknown
XT-T81	111	1944	?	C-47B		Cargo
XT-81?	?	22Mar45	32817	C-47B	44-76485	XT-1..? Sold to C&W as N8353C (12Dec49)
XT-T52	112	1944	?	C-47B		Cargo
XT-56	136		?	DC-3		Passenger
	137		?	?		Nothing known
	138		?	C-47		Hit high ground in Sichuan on flight from Guangzhou to Chongqing, 25Jan47, pilot J M Blackmore (19k) [MM] Crashed 120 miles S of Chongqing 25Jan47 (19k)[ASN]

	139			?		Missing on flight from Chungking to Shanghai, crashed near Enshi , Hubei, 19Mar46, pilot H C McCracken (30k) [MM], type unknown.
	140			?	C-47	Crashed in fog at Shanghai-Lunghwa, 25Dec46, pilot J M Greenwood (19k) [ASN, MM 29Sep2002, Leary PM pp.22-23]
	141			?	C-47	Engine failed on takeoff at Shanghai-Lunghwa, overshot when attempted to abort takeoff, 25Apr47, pilot A P Moore, 3 farmers killed on ground [Archive p.93/26, ASN, MM]
	145			?	C-47	Crashed due to engine fire at Zhou Jia Wan, Tian Men County, SE of Wuhan, Hubei, 28Jan47, pilot J S Papajik (25k) [MM]
?	?		4573	C-47	41-18481	XT-1..? Sold to C&W as N8356C (12Dec49) – possibly XT-T56
XT-T60	?		?	C-47		Training
	?	4Dec45	20309	C-47A	43-15843	Fate unknown
?	?		?	DC-3		Crashed 16Dec46 Shanghai-Lunghwa (5k) (crashed into 3 parked a/c) [ASN] - possibly f/n 67 – see Archive p.2009/113
?	'89'		?	DC-3		Crashed 27Oct47 nr Yulin (2k)[ASN] Shot down by PLA on approach to Yulin during flight from Xian, pilot Chao Chi-tan [MM], believed to be XT-T89 (see note below)

#### CNAC fleet list by XT-1.. registration:

XT- reg.	CofA	c/n	model	p/i	fate
XT-34	?	?	(C-46?)		At Hong Kong, 16Nov49 [DCA] (sic) (C-46)
XT-111	37-36	19313	C-47A	42-100850	At Hong Kong, 16Nov49, sold to C&W as N8348C (12Dec49)
XT-113	?	?	C-47		Hit mountain on approach to Taipei, 32 km NE of Dan Bei, 12Dec48 [MM] Crashed on landing at Taipei, Taiwan 12Dec48 (2k) The 2 crew members lost their lives but all 8 passengers survived. [ASN; <a href="http://www.cnac.org/accident_074.htm">www.cnac.org/accident_074.htm</a> ]
XT-115	37-38		C-47A		Defected to China from Hong Kong on 9Nov49. Preserved at Chinese AF Museum, Datang Shan (N83..C) (TBC, see note)
XT-117	37-39	?	DC-3		At Hong Kong, 16Nov49, sold to C&W as N83..C (12Dec49)
XT-119	37-34	?	C-47B		At Hong Kong, 16Nov49, sold to C&W as N8350C (12Dec49)
XT-121	37-35	4927	C-53	42-6475	Defected to China from Hong Kong on 9Nov49 (N8361C)
XT-123	37-93	?	C-47B		Defected to China from Hong Kong on 9Nov49 (N83..C)
XT-125	37-94	?	C-47A		Defected to China from Hong Kong on 9Nov49 (N83..C)
XT-127	37-95	19452	C-47A		At Hong Kong, 16Nov49, sold to C&W as N8352C (12Dec49)
XT-129	37-96	4573	C-47		Defected to China from Hong Kong on 9Nov49 (N8356C)
XT-131	37-97	?	C-47B		Defected to China from Hong Kong on 9Nov49 (N83..C)
XT-133	?	32530	C-47B	44-76198	To Air Hoe as VR-HEP (Jul49), crashed in Thailand on 13Jan51. (N8354C)
XT-135			?		Nothing known
XT-137	?	6151	C-47		At Hong Kong, 16Nov49, sold to C&W as N8357C (12Dec49)
XT-139	37-128	?	C-47A		Defected to China from Hong Kong on 9Nov49 (N83..C)
XT-141	37-129	4871	C-53	41-20101	At Hong Kong, 16Nov49, sold to C&W as N8362C (12Dec49).
XT-143			?		Nothing known
XT-145			?		Nothing known

#### CNAC fleet list by subsequent N-number:

XT-reg.	model	c/n	N-#	cancelled	fate	candidates
XT-111	C-47A	19313	N8348C	26Feb53	[FAA] To N4884V	-
XT-1..?	C-47A	19620	N8349C	07Oct65	Defected to PRC?	XT-125, XT-125 or XT-139
XT-119	C-47B	20806	N8350C	27Jan53	Fate unknown	c/n '4193'
XT-1..?	C-47B	32847	N8351C	07Oct65	Defected to PRC?	XT-123 or XT-131; c/n '10699'
XT-127	C-47A	19452	N8352C	26Feb53	[FAA] To N4883V	-
XT-1..?	C-47B	32817	N8353C	07Oct65	Defected to PRC?	XT-123 or XT-131; c/n '16069'
XT-133	C-47B	32530	N8354C	07Oct65	To VR-HEP	c/n '15782'
XT-1..?	C-47A	19062	N8355C	07Oct65	Defected to PRC?	XT-125, XT-125 or XT-139
XT-129	C-47	4573	N8356C	07Oct65	Defected to PRC?	-
XT-137	C-47	6151	N8357C	26Jan53	To N75097	-
XT-1..?	C-47A	18901	N8358C	07Oct65	Defected to PRC?	XT-125, XT-125 or XT-139
XT-1..?	DC-3	2261	N8359C	26Mar53	Broken up ('junked') at Hong Kong	XT-117 or ?; c/n 'M2261'
XT-1..?	DC-3	2135	N8360C	26Mar53	Broken up ('junked') at Hong Kong	XT-117 or ?; c/n 'M2135'
XT-121	C-53	4927	N8361C	07Oct65	Defected to PRC?	-
XT-141	C-53	4871	N8362C	27Jan53	To N26H -	-

[Andersson pp.205-206; Archive p.93/26, pp.2008/133-13, pp.2008/185-186; ASN; CF 01Apr2002; Gradidge pp.174-175; Hanks pp.251-252; HK DCA 16Nov49; IT 21Oct2002; Leary TDW Appendix D pp.233-235; LYW 17Mar2003; MC; MM 29Sep2002; MSB 05Jun2006, 27Jun2007, 26Oct2009]

#### Notes:

1. See Archive pp.2008/185-186 for Lend-Lease C-47B candidates. The speculative model designation is shown as C-47B above, where the 'B' is italic and no c/n is known.
2. CNAC C-47 f/n '67' ran into a parked GCAC C-47 at Shanghai-Lunghwa airport in December 1946 but was repaired. (See Archive p.2009/113.)
3. Aircraft that defected to China on 9Nov49 are listed in a message from C Fu dated 01Apr2002.
4. Aircraft impounded in Hong Kong are listed in a letter from the HK DCA dated 16Nov1949.

**Right:** XT-62 was a passenger DC-3 of CNAC, seen here at Lunghwa airfield, Shanghai. (Ian D Johnson collection)



5. Model data for XT- registered aircraft taken from 'CNAC Fleet Composition' attached to message from C Fu dated 01Jun2002.
6. The "XT-115" at the Aviation Museum of China in Beijing is reportedly a fake one, because it is a Li-2. The "XT-115" markings have been removed. [MM 30Mar2002]
7. #60 was delivered to CNAC in error. It crashed soon after delivery. #65 was returned to the US Army on 19Jan1943 to replace #60. [MM 25Aug02]
8. For Lend-Lease aircraft, c/ns are either taken from Capt. Moon Chin's list or from my 'DC-2s & DC-3s in China' listing, with the exception of #96, where it has been interpolated using the latter's data (extracted from the AB DC-3 book).
9. "27Oct1947, CNAC C-47 type No.89 aircraft flew from Sian to Yulin, transporting materials for the GHQ of Joint Services. When the aircraft was landing at Yulin, it was shot down by PLA. Pilot Chao Chi-tan and radio operator Ma Tse-he were captured, co-pilot Yen Bao-shen dead." [CF 16Oct2003]
10. Pan American transferred a DC-3 from Alaska after the last DC-2 crashed at Kunming on 14Mar42. [Davies p.358]
11. Ten C-47s supplied under Lend-Lease arrangements (from 01Jul42). [Davies p.359]
12. "Two C-53s and 8 C-47s had been received under Lend-Lease between September 21, 1942 and February 21, 1943. These are shown as planes 58-67." [Bond p.350]
13. June 1945: CNAC bought six C-47s and three C-53s (DC-3s) from the Army-Navy Liquidation Commission and Surplus Property Commission. [Davies p.360]
14. CATI wrote to the CAA on March 23, 1953 about Douglas DC-3 N8359-C s/n M2261: "When Civil Air Transport, Inc. recovered this plane in Hong Kong it was found to be valueless and consequently was junked in Hong Kong. Therefore no plane bearing the above serial number is in existence." A similar letter was sent on the same date about C-47A N8360-C s/n M2135. As a result of these and other letters, N8359C, N8360C and N8366C (C-46 426-CK) were cancelled on 26 March 1953 at owner's request, N8359C as "junked".
15. The FAA file for C-47A N8348C c/n 19313 includes a letter from the Director Gral. De Aeronáutica of the Republica de Panamá dated 9 April 1953 on which "XT-111" has been written above c/n 19313 and "XT-127" has been written above c/n 19452.
16. Details differ between sources.
17. For CNAC website see [www.cnac.org/aircraft06.htm](http://www.cnac.org/aircraft06.htm) and [www.cnac.org/aircraft07.htm](http://www.cnac.org/aircraft07.htm).

## Douglas DC-4/C-54

### CNAC fleet list by XT-T.. registration

XT-reg.	f/n	CofA	d/d	c/n	model	p/i	name	fate
XT-T01	n/a	none	18Jan45	10529	C-54B	42-72424	n/a	CKS (not CNAC) to CAF C-72424, C-54001?
XT-T02	?	E-10916	18Oct46	10442	C-54B	42-72337	Nanking	To XT-101?, N8343C
XT-T03	?	E-10967	28Oct46	18370	C-54B	43-17170	?	To XT-102, N8344C
XT-T04	?	E-14604	06Oct46	10538	C-54B	42-72433	?	To XT-103?, N8345C
XT-T05	?	E-11263	13Jan47	18348	C-54B	43-17148	?	To XT-104 & crashed 21Dec48 (33k) [CF]
XT-T06	?	E-14718	20Nov46	10510	C-54B	42-72405	Chungking	To XT-105?, N8346C
XT-T07	?	E-11262	13Jan47	10748	C-54D	42-72643	?	To XT-106?, N8347C

### CNAC fleet list by XT-1.. registration

XT-reg.	CofA	model	c/n	p/i	name	fate
XT-101	37-28	C-54B	10442?	?	?	At Hong Kong, 16Nov49, sold to C&W as N834.C (12Dec49)
XT-102	37-29	C-54B	18370	XT-T03	The Canton	At Hong Kong, 16Nov49, sold to C&W as N8344C (12Dec49)
XT-103	37-30	C-54B	10538?	?	?	At Hong Kong, 16Nov49, sold to C&W as N834.C (12Dec49)
XT-104	?	C-54B	18348	XT-T05	?	Crashed into high ground in low clouds and fog Basalt Island, Hong Kong, 21Dec48, pilot Sundby [MM]
XT-105	37-32	C-54B	10510?	?	?	At Hong Kong, 16Nov49, sold to C&W as N834.C (12Dec49)
XT-106	37-33	C-54D	10748	XT-T07	?	At Hong Kong, 16Nov49, sold to C&W as N8347C (12Dec49)
XT-107	n/a	C-54	?	n/a	n/a	(sic) [AB DC-4]
XT-108	n/a	C-54	10442	n/a	n/a	(sic) See below

### CNAC fleet list by subsequent N-number:

XT-reg.	model	c/n	N-number	cancelled	fate
XT-10?	C-54B	10442	sold to C&W as N8343C (12Dec49)	26Feb53	FAC-692?
XT-102	C-54B	18370	sold to C&W as N8344C (12Dec49)	26Feb53	[FAA] N4270, N100J
XT-10?	C-54B	10538	sold to C&W as N8345C (12Dec49)	26Feb53	N4665V
XT-10?	C-54B	10510	sold to C&W as N8346C (12Dec49)	26Feb53	N4837V
XT-106	C-54D	10748	sold to C&W as N8347C (12Dec49)	26Feb53	N4890V

[CF; IDJ 22Oct2009; FAA; JMD 04Nov2004; MM 21Aug2002; MSB 27Jun2007; PCI; SEA79 p.21; WDAC]

#### Notes:

1. In 1946, CNAC ordered 6 C-54B and the ROC government ordered a C-54D as a VIP aircraft for Chiang Kai-shek. All seven C-54s were converted by the Martin Aircraft Company at Baltimore before delivery. The first C-54B for CNAC, 42-72424 c/n 10529, was taken by Chiang Kai-shek in exchange for his C-54D, 42-72643 c/n 10748. [Archive p.2009/038]
2. "(CNAC) also purchased six C-54s for \$540,000 and had them converted to airline use at a total cost of \$2.1 million." [Leary TDW pp.194-195]
3. XT-104 c/n 18348 crashed on Basalt Island, Hong Kong on 21Dec48 (33k) [PCI] This was c/n 18348, ex XT-T05.
4. "According to the CNAC website, C-54 XT-T05 (sic) crashed on 21Dec48 on Basalt Island near Hong Kong." [CF 30Mar2002]

**Right:** Extract from the Schedule to the Bill of Sale showing the c/ns quoted and US regns allocated to the CNAC DC-3/C-47s. See notes for aircraft later deleted.  
(Ian D Johnson collection)

Douglas	19313	8348-C
	19620	8349-C
	4193	8350-C
	10699	8351-C
	19452	8352-C
	16069	8353-C
	15782	8354-C
	19062	8355-C
	4573	8356-C
	6151	8357-C
	18901	8358-C
Douglas	M2261	8359-C
	M2135	8360-C
Douglas	4927	8361-C
	4871	8362-C

**Below, right:** C-54B XT-T06 "Chungking" became N8346C and is believed to have ended its days in Bolivia - see Note 8 below.  
(Ian D Johnson collection)

5. "The personal C-54 of Chiang Kai-shek was planned to be donated by CNAC, but the American persons didn't agree, so the Government pay the bill." [CF 25Jan2002] This was probably the original XT-T01. For a discussion on Chiang Kai-shek's C-54, see *Archive* pp.2009/037-038.

6. XT-106 is identified as a C-54D (see text above), so must be c/n 10748 ex XT-T07, the only C-54D. [MSB 27Jun2007]

7. The FAA file for N8343C says: "Now being operated under Chinese identification mark XT-T02." "This aircraft was modified by Martin Aircraft Corporation in Baltimore, Maryland in December, 1946 and cabin Configuration changed from Military Cargo conversion to existing 44 passenger Airline version. Original Cargo door was removed and Standard DC-4 passenger door installed." "Converted to air carrier passenger use in accordance with Specification 762-3, Glenn L. Martin Company drawing numbers attached." "Certificate of Airworthiness for Export E-10916, October 18, 1946." The Application for CofA for Export is signed by Hugh L Grundy, Resident Representative at the G.L.M. Co., CNAC. [MSB 16Jun2009]



8. The FAA file for N8346C says: "formerly assigned China XT-T06". Bolivian records for CP-609 show that c/n 10510 was 'ex XT-106' [JMD 25Aug2002], which can't be accurate, so perhaps this was a misreading of XT-T06. XT-T06 was exported to CNAC, China, with Export CofA E-14718 dated 20Nov46 [JMD 06Jun2007; SMD 04Jun2007] and returned as N8346C for Civil Air Transport, Inc. [FAA N8346C]

9. Apart from XT-T01, all the US Export CofAs were issued to CNAC as exporter for delivery to CNAC, Shanghai. In the cases of XT-T05 & XT-T07, the US address for CNAC was given as c/o Glenn L Martin, Baltimore. Martin converted those aircraft and probably all six. [JMD 4Nov2004]

10. Hugh L Grundy "returned to PAA HQ in the Chrysler building NYC to help with their project of converting surplus military C-54 transports to civil DC-4 airliners for affiliate CNAC's post-war fleet and to prepare a special 'Air Force One' DC-4 for the President of China. Later, I was manager of that CNAC conversion project at Glenn Martin plant at Baltimore ... Upon completion of the CNAC/presidential plane conversions and their delivery to China, PAA sent me to CNAC (Shanghai)." [www.cnac.org/grundy01.htm]

11. Hugo Hoofman's book (published 1982) on the Dutch DC-4s mentions that XT-T04 became PH-MAE. There is a photo in the book of XT-T04 arriving at Djakarta's Kemoyoran airport in August 1947 on the inaugural Shanghai-Batavia service. [PH 23Aug2002] A translation of the article says: "PH-MAE, c/n 10538 (sic), ex 42-72433 and XT-104, of China National Aviation Corporation. Despite the reported crash on 21Dec48 at Basalt, this might as well have been XT-105. The aircraft went to CAT as N8345C and became N4665V later." The caption for photo of XT-T04 was translated as follows: "The PH-MAE had a turbulent history. Here we see the aircraft as XT-104 (sic) of the China National Aviation Corporation on 31Aug47, during the opening of the Shanghai-Batavia route." [MD 13Sep2002]

12. Presumably XT-104 had Chinese CofA 37-31. [MSB 03Nov2004]

13. There is a photo of XT-T03 taken at Tokyo on 7May1948 that shows a small "T03" on the nose but no name. [CF 07Nov2004]

14. A "DC-4" reportedly crashed at Tsingtao, China on 5Jan47 (38k) [PCI] (WDAC reports this as "DC-4 (or C-46)".) This was CNAC C-46 XT-T51 #121.

15. Some lists (e.g. SEA79) report N8342C as a C-54 but this registration was allocated to ex CATC DC-3 (DST-A-207) c/n 1954.

16. There is no strong evidence that XT-107 or XT-108 ever existed.

17. For CNAC website, please see [www.cnac.org/aircraft03.htm](http://www.cnac.org/aircraft03.htm)

#### Comparison of published data:

XT-reg.	AB DC-4	ATDB	CNAC	J&MW	MM 21Aug02	SEA79 p.21	TAHS	notes
XT-100	18370	18370	18370	18370	(10529)	18370	18370	incorrect reg.
XT-101	?	10529	10529	10529	10442?	x	10529	at Hong Kong 16Nov49
XT-102	10748	10748	10748	10748	18370?	10748	10748	at Hong Kong 16Nov49
XT-103	?	x		?	10538?	x	18370	at Hong Kong 16Nov49
XT-104	10538	10538	10538	10538	18348?	10538	10538	crashed 21Dec48
XT-105	10510	10510	10510	x	10510?	10510	10510	at Hong Kong 16Nov49
XT-106	?	x	x	10510	10748?	x	x	at Hong Kong 16Nov49
XT-107	?	x	x	x	x	x	x	incorrect reg.
XT-108	x	10442	10442	10442	x	x	10442	incorrect reg.
?		18348	18348		x		(18348)	

#### Notes:

1. The XT-T## aircraft are listed in SEA79 p.21, which gives XT-T-03 > XT-100 (sic); XT-T-04 > XT-104; XT-T-06 > XT-105; and XT-T-07 > XT-102, all noted as "also quoted as".

2. According to "Piston Engine Airliner Production List", by John Roach (TAHS, 1996): c/n 10529 became XT-101; 10442 became XT-108 (sic); 10510 became XT-105, and N8342C (sic) c/n 18348 crashed at Basalt Island. [RJWM]



**Left:** CNAC C-54D XT-T07 seen at low level near Shanghai in 1946, offering a clear view of the overwing markings. (Ian D Johnson collection)

## North American AT-6 Harvard II

#	model	c/n	Chinese reg.	CofA	fate
?			XT-401	37-45	CofA tests, Kai Tak 30Jun49
?			XT-402	37-46	CofA tests, Kai Tak 30Jun49
?	AT-6F	121-42649	?		sold to C&W as N8393C (12Dec49)

[Archive p. 96/111; FAA]

Note: There is a picture of an unidentified North American AT-6 Harvard in CNAC markings in *Wings over Hong Kong*. The caption says: "This North American Harvard, owned by CNAC, was used for daily meteorological flights in 1947-1948." [WOHK p. 168] Other Harvards/Texans may have been used for training.

## Stinson L-5 Sentinel

#	model	c/n	Chinese reg.	CofA	fate
?	L-5	3714	XT-411	37-149	Flown at Kai Tak 22May49, to VR-HEW Dec49

[Archive p. 96/111, p.2009/092; IDJ 24Feb2009; SEA79 p.137]

## Unidentified aircraft

#	c/n	make	model	Chinese reg.	CofA	fate
?	?	?	?	XT-403	37-47	?
				XT-404	37-48	
				XT-405	37-74	
				XT-406	37-75	
				XT-407	37-76	
				XT-408	37-77	
				XT-409	37-78	
				XT-410	37-79	

[Archive p.96/111]

Note: These are probably relatively light aircraft used for training, such as North American T-6 Texan, Piper L-4 Cub, Ryan PT-22, Ryan STC-5, and/or Stinson L-5 Sentinel. Several STC-5s were used for training. [LYW 22Mar2003] None of these types is mentioned by Leary in *The Dragon's Wings*, and none of these aircraft were allocated US registrations for CATI in December 1949, although they were listed by MOC for sale to C&W on 12 December.

## Analysis of XT-1## to N83##C registration hypothesis

Generally there is little official data on the correlations between Chinese XT-1## registrations and CATI N-numbers in the N83##C sequence, so only published data have been included in the fleet list tables above. Nevertheless, some years ago, when we were discussing CNAC C-54 XT-1## registrations, Matt Miller postulated that the N-numbers might be allocated in the numerical order of the XT-numbers for each airline fleet and aircraft type. This hypothesis certainly works for the CATC Convair 240s, as shown in *Archive* p.2009/104, but the hypothesis did not work so well for CATC C-46s and DC-3s [Archive pp.2009/111-112]. In the following sections we will test this hypothesis for CNAC C-46s, DC-3s and DC-4s. The rather crude tests are: 1) Do the quantities match? 2) Do the locations match the cancellation dates? 3) Do the models match (where known)? Any conclusions drawn from these analyses are not a substitute for confirmation.

## Analysis of CNAC C-46 registrations

There were 29 or 30 CNAC C-46s that were allocated N-numbers N8363C to N8392C. Using the sequential hypothesis, these would have been renumbered as follows:

Postulated XT-number	CofA	model	c/n	Possible N-number	Comments
XT-114	37-43	C-46A	419/396-CK	N8363C	Confirmed by FAA
XT-116	37-44	C-46A	421/398-CK	N8364C	Confirmed by FAA
XT-118	37-40	C-46A	369/346-CK	N8365C	At Kai Tak; cld 26Jan53 OK
XT-120	37-41	C-46A	448/426-CK	N8366C	At Kai Tak; cld 26Mar53 OK
XT-122	37-73	C-46A	387/364-CK	N8367C	Confirmed by FAA
XT-130	37-83	C-46A	429/406-CK	N8368C	At Kai Tak; cld 26Jan53 OK
XT-132	?	C-46F	22451/2560-CU	N8369C	To XT-850; cld 10May50 OK
XT-134	?	C-46F	22449/2558-CU	N8370C	To XT-8..; cld 10May50 OK

XT-136	37-86	C-46A	416/393-CK	N8371C	At Kai Tak; cld 26Feb53 OK
XT-138	?	C-46A	427/404-CK	N8372C	On tour, to XT-848; cld 13Apr50 OK
XT-140	37-88	C-46A	425/402-CK	N8373C	At Kai Tak; cld 26Jan53 OK
XT-142	37-89	C-46F	22428/2537-CU	N8374C	At Kai Tak; cld 27Jan53 OK
XT-144	37-90	C-46A	460/438-CK	N8375C	To PRC; cld 7Oct65 OK
n/a		C-46A	410/387-CK '383-CK'	N8376C	'Did not exist', cld 11Jan50 See comment below.
XT-148	37-92	C-46A	415/392-CK	N8377C	At Kai Tak;; cld 26Feb53 OK
XT-154	37-137	C-46D	33371	N8378C	Confirmed by FAA
XT-156	?	C-46D	33372	N8379C	Confirmed by FAA; to XT-854
XT-158	?	C-46D	32950	N8380C	Confirmed by FAA; to XT-856
XT-160	37-141	C-46D	32960	N8381C	Confirmed by FAA
XT-162	37-142	C-46D	32954	N8382C	Confirmed by FAA
XT-164	37-143	C-46A	30196	N8383C	Confirmed by FAA
XT-166	37-144	C-46A	30377	N8384C	Confirmed by FAA
XT-168	37-145	C-46A	30380	N8385C	Confirmed by FAA
XT-170	37-146	C-46A	30222	N8386C	Confirmed by FAA
XT-172	37-147	C-46A	30369	N8387C	Confirmed by FAA
XT-30	?	C-46F	22379	N8388C	Confirmed by FAA; to B-130
XT-34	?	C-46F	22459	N8389C	Confirmed by FAA
XT-36	?	C-46F	22465	N8390C	Confirmed by FAA; to B-136
XT-38	?	C-46F	22500	N8391C	Confirmed by FAA; to B-138
XT-42	?	C-46F	22508	N8392C	Confirmed by FAA

[JMD 20Jun2004; MM 01Nov2004; MSB 09Nov2004]

Note: model data only applies to the c/ns given for stated N-numbers.

Comment: with a bit of manipulation this seems to broadly support the hypothesis. The main problem is with N8377C: Nothing is known about XT-150 & XT-152, of which one would fill this gap. If N8376C c/n 383-CK "did not exist" then XT-148 could be N8377C, which would solve this problem.

There are no obvious clashes in the rest of this list but confirmation is still required.

## Analysis of CNAC DC-3 registrations

Fifteen CNAC DC-3s were allocated N-numbers N8348C to N8362C:

<i>Postulated</i>				<i>Possible</i>	
<i>XT-number</i>	<i>model</i>	<i>CofA</i>	<i>c/n</i>	<i>N-number</i>	<i>Comments</i>
XT-111	C-47A	37-37	19313	N8348C	Confirmed by FAA
XT-115	C-47A	37-38	19620	N8349C	To PRC; cld 7Oct65 OK
XT-117	DC-3	37-39	20806	N8350C	At Kai Tak; cld 27Jan53 OK
XT-119	C-47B	37-34	32847	N8351C	At Kai Tak; cld 7Oct65. Clash
XT-121	C-53	37-35	19452	N8352C	To PRC; cld 26Feb53. Clash
XT-123	C-47B	37-93	32817	N8353C	To PRC; cld 7Oct65 OK
XT-125	C-47A	37-94	32530	N8354C	To PRC; cld 7Oct65 OK but XT-133 is c/n 32530. Clash
XT-127	C-47A	37-95	19062	N8355C	At Kai Tak; cld 7Oct65. Clash XT-127 is c/n 19452
XT-129	C-47	37-96	4573	N8356C	To PRC; cld 7Oct65 OK
XT-131	C-47B	37-97	6151	N8357C	To PRC; cld 26Jan53. Clash
XT-133	C-47B	?	18901	N8358C	To VR-HEP; cld 7Oct65 but VR-HEP is c/n 32530. Clash
XT-137	C-47	?	2261	N8359C	At Kai Tak; BU at Kai Tak, cld 26Mar53 OK?
XT-139	C-47A	37-128	2135	N8360C	To PRC; BU at Kai Tak, cld 26Mar53. Clash
XT-141	C-53	37-129	4927	N8361C	At Kai Tak; cld 7Oct65. Clash
'XT-34'	C-47?		4871	N8362C	At Kai Tak; cld 27Jan53 OK

[MSB 01Nov2004]

Note: model data only applies to the stated XT-numbers; c/ns apply only to the stated N-numbers.

Comment: there is poor agreement with the hypothesis. Quantities only match if "XT-34" is included and many cancellation dates do not match locations.

## Analysis of CNAC DC-4 registrations

Five CNAC C-54s were allocated US registrations N8343C to N8347C:

<i>Postulated</i>				<i>Possible</i>	
<i>XT-number</i>	<i>model</i>	<i>CofA</i>	<i>c/n</i>	<i>N-number</i>	<i>Comments</i>
XT-101	C-54B	37-28	10442	N8343C	At Kai Tak; cld 26Feb53 OK
XT-102	C-54B	37-29	18370	N8344C	Confirmed by FAA
XT-103	C-54B	37-30	10538	N8345C	At Kai Tak; cld 26Feb53 OK
XT-105	C-54B	37-32	10510	N8346C	At Kai Tak; cld 26Feb53 OK
XT-106	C-54D	37-33	10748	N8347C	Confirmed from model

[MM 21Aug2002; MSB 03Nov2004]

Note: model data is not in contention; c/ns apply only to the stated N-numbers.

Comment: Limited available evidence supports the hypothesis but confirmation is still required.

## CNAC aircraft seized at Don Muang Airport, Bangkok

There are newspaper reports that a CNAC aircraft was seized at Don Muang airport, Bangkok in 1949:

*"A Siamese civil court today ordered the seizure of a C.N.A.C. plane at Don Muang airport as a result of an action filed by the semi-Government Pacific Overseas Airline claiming over 500,000 ticals from the Chinese company.*

*"The P.O.A.S. managing director claimed that US\$25,000 was owing to his airline for the leasing by C.N.A.C. of a P.O.A.S. plane for a chartered flight from Hong Kong to San Francisco.*

*"A cheque given in payment for the flight was refused by the bank in Hong Kong, he said.*

*"The C.N.A.C. plane had been parked at Don Muang since before the fall of Shanghai to the Communists [in May 1949], and was en route from Hong Kong on a chartered flight with an unidentified cargo to Burma when it was grounded by conditions in that country." [The Straits Times 20Jan1950/IDJ 25Feb2010] This story was also reported in the Bangkok Post on 27Jan1950. [SMD 08Mar2010]*

The POAS aircraft chartered by CNAC was probably the POAS C-54 HS-PC204, which was also chartered by CAT in 1949. The identity of the CNAC aircraft is not so clear. Presumably CNAC or CAT, who had bought CNAC in December 1949, would have paid this debt and recovered the aircraft to Taiwan, in which case it would have been included in the MOC list of aircraft sold to Chennault and Willauer in December 1949, would not be reported at Kai Tak in November 1949, and would be cancelled from the USCAR in 1950 and registered in Taiwan that year. No CNAC C-47 or C-54 meet these criteria but one candidate is C-46D XT-156. This is listed as "Probably at Taipei in Nov49; sold to C&W as N8379D (12 Dec49); to XT-854." This was not listed at Taipei, however, but was registered with the other ex-CNAC aircraft that were in Taiwan, e.g. XT-158, which was reregistered as XT-856. (See *Archive* p.2010/30.)

### Bailey's dockyard

In 1948-49 CNAC moved its base of operations to Hong Kong, where it developed hangars and workshop facilities, but was then given one month's notice to vacate the site to make room for expansion by the RAF. In Part 10A (*Archive* pp.2010/27-28) we described CNAC's reaction to this eviction notice but not their solution to this problem. Newspaper reports say that CNAC purchased the Bailey dockyard, which is also mentioned in TNA files.

*"The China National Aviation Corporation, whose maintenance workshops have been requisitioned for the Royal Air Force have found permanent accommodation in Hong Kong according to usually reliable reports today.*

*"The reports said the CNAC purchased the British-owned Bailey dockyard which is situated slightly over a mile from the airport.*

*"The CNAC plans to move some of their plan[es] there in a day or two. The purchase price is reported to be many million dollars.*

*"The Corporation's alternative to purchasing the Bailey dockyard was removal to Taiwan. It is estimated that such a removal would cost \$10,000,000 to \$15,000,000.*

*"The decision to buy the dockyard is said to have been reached with the approval of the Ministry of Communications and the knowledge of C.N.A.C.'s American partner, Pan American Airways." [The Straits Times, 13Sep1949/IDJ 25Feb2010]*

During 1949 the RAF was reinforcing their capability in Hong Kong, as it was expected that the Communists might try to cross the border at any time. They brought up another squadron of Spitfires from Singapore and even a Hawker Tempest squadron for a while. Sek Kong airfield in the New Territories, which is closer to the

border where the RAF was expected to position themselves, was not yet available. [IDJ 19Mar2010]

Whereas CNAC acquired Bailey's dockyard in 1949, CATC purchased Sun Ah Godown at Kowloon City Road. These two facilities were occupied by Communist former employees of the two corporations until they were evicted by bailiffs in May and June 1955 respectively. [TNA CO1030/377] These operations will be described in more detail in a future article.

### Need for further research

Generally there is only limited information available on the c/n tie-ups of CNAC C-46s, C-47/C-53/DC-3s and C-54/DC-4s. In time, further information may become available, either from FAA registry files for N8300C and records other than the standard registry files, or from Chinese sources. It is known that the original XT- register remained in Communist China, possibly in the national archives in Nanking, which are now open to the public. There is a growing interest in civil aviation history in China and hopefully more historical information will be uploaded to the www in due course. Dr Joe F Leeker is currently working through the CAT/Air America archives at UTD, Dallas, TX and it is hoped that more valuable information may become available from this research. CNAC records would have been taken over by CAT and may have survived in CAT archives and other records may be included in Pan American archives. No significant additional information has been found in British FCO documents recently released to TNA under the FOI Act and the FCO report that all other relevant files have been destroyed; copies may still be held in Hong Kong. Further research may be possible using archives in the USA. Another book on CNAC is in preparation.

It is difficult to understand why aircraft listed by MOC for sale to CNAC were not registered to CATI by the CAA. Clearly two different lists were used. We do not know the fates of the aircraft listed by MOC but not the CAA, such as Catalina XT-147 and lighter aircraft in the XT-400+ register. We will review the XT- register and CATI fleet in later articles.

There is an excellent resource at the CNAC website ([www.cnac.org](http://www.cnac.org)) that grows steadily each year. It is quite easy to check the aircraft and accident sections for new information but sometimes aircraft are mentioned in the personnel files, for which there is a large and complex structure covering management staff, pilots, mechanics, etc. The site is arguably stronger on personnel than it is on aircraft histories. A Yahoo group was launched to support this site but it is now virtually inactive.

The author would welcome feedback with any additional information on these articles. Such additional information can be included in the Feedback section of *Archive*.

### Abbreviations

A full list of abbreviations for this section appeared at the end of Part 10A, page 2010/36.

### Acknowledgements

The author would like to thank the following for their help in the preparation of this article: Carl Modder, Clarence Fu, David Legg, Ian Johnson, Ian Terry, Dr Joe F Leeker, John M Davis, Liang-yen Wen, Marco Dijkshoorn, Martin J Willing, Matt Miller, Moon Chin (via John Wegg), Paul Howard; Ragnar J Ragnarsson, Stephen Darke, William M Leary, Jr.

### List of References

Source codes used in the text are identified in [square brackets] and a complete list also appeared in Part 10A, page 2010/36.

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# The Whole Truth: THE HANDLEY PAGE HERALD

PART 4



Compiled by Derek King

To begin this part we continue to describe the background to some of the original operators of the Herald who ordered new aircraft.

## **Aerolinee Itavia Spa, Italy**

Originally formed in April 1958 as Società di Navigazione Aerea Itavia and started operations in the July of the following year with de Havilland Dove and Heron aircraft. Operations ceased for a time in 1961 but were resumed in May 1962 under the revised name, Aerolinee Itavia. The company was 29% owned by Handley Page who provided two of the four DC-3s acquired for expansion (These being I-TAVO and I-TAVI which crashed on Mt Pizzodeta 30Mar63 killing the company president). During this reorganisation, two Heralds were ordered in September 1961, also taking an option for a third. The sale included the part exchange of some of the Itavia Heron fleet (including I-AOZM and I-AOBI), which Handley Page then sold on. The remaining DC-3s were also disposed of in 1963. At this time Itavia was the only privately owned Italian airline allowed to operate scheduled services in Italy.

The Heralds operated on the network of services radiating from Rome, and on charter flights throughout Europe and the Middle East. The company did not have an easy life, and operations were again suspended in February 1965, with the company in limbo until 1969, when it was re-financed. The Herald fleet was eventually replaced by the Fokker F.28 Fellowship and the Heralds sold to other operators. Their first Herald was I-TIVA delivered on 12Apr63, followed by I-TIVE on 4May63, the option for the third aircraft was exercised and this became I-TIVU delivered 29May64. A fourth Herald was purchased as I-TIVI, this being the penultimate Herald built. A fifth example was leased from Handley Page on 21Jul67, as G-AVPM, but purchased by Itavia as I-TIVB on 2Jul70. Sadly one of the Itavia fleet (I-TIVA) was lost on 4Nov71 after an accident on a training flight.

Fleet - c/ns 164, 168, 176, 184, 196

## **Air Manila / Air Manila International, Philippines**

Air Manila was formed in January 1965 to serve scheduled and tourist services throughout the Philippine Islands. It received its operating licence in March 1964 and began operations with Beech 18s and then in 1965 with Douglas DC-3s. Two Heralds were ordered in 1965 in a

*Above: Manufacturer's photo of mid-1963 showing Itavia's second Herald I-TIVE c/n 168 flying with Globe Air's HB-AAG c/n 162 on a pre-delivery sortie. (Handley Page Ltd via JM Collection)*

£1.5 million contract, including spares. The first was PI-C866 (192), delivered on 18Mar66. The second, PI-C869 (163) was leased at first prior to full delivery on 21Oct66. The Heralds were operated on the airline's island-hopping services and carried the legend "The vinta of the sky" on the tail in memory of the sailing vessels used for the same purpose in earlier years. Financial problems led to the company suspending operations from August to December 1969, then political turmoil in the country led to martial law being declared in September 1972 but by that time the Herald fleet had been halved by the loss, in November 1970, of PI-C869 during a typhoon. Despite these setbacks, charter services resumed in 1974 with international services licenced from December 1974, hence the addition of "International" to the company name. The remaining Herald soldiered on until winter 1977-78, when it is believed to have been withdrawn from service. Its final fate is unknown.

Fleet - c/ns 163, 192

## **Arkia - Israel Inland Airlines, Tel Aviv .**

Formed in 1949 as Israel Inland Airlines to connect Tel Aviv with other parts of Israel, especially Eilat, the main port on the Gulf of Aqaba. Early equipment was the DH Dragon Rapide from 1949 and the ubiquitous Douglas DC-3. The national airline EI Al held half the shares, with Israel's labour foundation Histadrut holding the other half. Various titles were used, including Eilata Airlines - Aviron and the more commonly known Arkia Israel Airline (in Hebrew meaning *I will soar*). Growth during the 1950s was such that Arkia began to evaluate more modern aircraft and contemplated ordering three Fokker F.27 Friendships but, after comparisons, opted for two Heralds in November 1963. These were delivered on 17 April and 18 May 1964 (4X-AHR and 4X-AHS). A third was ordered in August 1965 and delivered 28 July (4X-AHT). Their fourth was purchased in January 1968 and delivered 10 April (4X-AHO), with the fifth and last Herald being delivered 16 Aug 1968 (4X-AHN, the final Herald built). This made Arkia an important Herald operator in terms of sales.

The fleet formed the main means of domestic air travel in Israel and a wide variety of operations were undertaken including flying invalids to



**Left:** Herald c/n 166 CF-EPI wearing later Eastern Provincial tail colours (see CF-EPC opposite) at an unidentified Canadian location in March 1969. (Mike Hooks)

natural springs and educational trips for schoolchildren. The airline also became involved in the 1967 Arab-Israeli "Six-Day War" with three aircraft being seconded to the Air Force to assist in support flights during the conflict. Such was the demand for aircraft that Arkia had to lease D-BEBE from Bavaria Flug on two occasions from November 1967 to April 1968 and from November 1968 to November 1970. In 1972 a new company was formed as Kanaf-Arka to operate commuter and charter services, with Arkia holding a half share. Heralds may well have been operated on this carriers routes at times but no official dates have been recorded. Such was the success of the Herald with Arkia that they wished to obtain more aircraft but sadly the collapse of Handley Page prevented this. In fact the company plans were based upon a fleet of up to twelve Heralds, which could have been in service had Handley Page continued in business.

Fleet - c/ns 174, 179, 183, 189, 195, 197

#### **Bavaria Fluggesellschaft, Munich, Germany**

Founded at Munich in 1957 as Bavaria Fluggesellschaft Schwabe & Co, part of the name being taken from the founder-director Max Schwabe. Operations began in January 1958 using a Piper Apache on taxi flights, with a Beech 18 added the following year. Three Douglas DC-3s arrived commencing 1960, obtained from Lufthansa and used for contract cargo work on their behalf. In November 1963 the owner began talks with Handley Page which resulted in an order, signed on 28th January 1964 for a single Herald with two further options. The first Herald (D-BIBI) was delivered on 1May64 and used to fly tourists to holiday destinations. Such was the success of this that the two options were exercised and the second Herald arrived on 29Mar65 (D-BEBE) with the Apache D-GIGI being traded Jul65 via Handley Page to Dan-Air. The third Herald (D-BOBO) was delivered on 4Apr66, for which Beech D18S D-IANA was traded in to Handley Page in March 1966. All three Heralds were kept busy on inclusive tour contracts for 1966, with over 80,000 passengers carried and some 8,000 hours achieved by the fleet. IT flights were made to North Africa, the Balkans, Italy and Spain. Such was the expansion of the airline that the Heralds were quite quickly overtaken by more modern jets and relegated to early morning newspaper flights to Milan, Hamburg and Venice. During the slack winter periods, the Herald fleet was often leased out to other operators, but all were sold on by November 1970 and replaced by BAC One-Elevens.

Fleet - c/ns 165, 176, 179

#### **British European Airways – BEA, London**

In June 1959 the Ministry of Supply ordered three Dart Herald on behalf of BEA for evaluation on the Highlands and Islands services, and in December 1959 G-APWA (149) was painted in BEA livery and leased for just three days of route proving trials, prior to its Royal Tour of South America (which it undertook in BEA livery). All three BEA Heralds were Series 100, and were the only ones completed to this standard as all subsequent aircraft were Series 200, with longer fuselages. The first BEA delivery was G-APWC on 5 January 1962, but this did not immediately enter service as it accompanied G-APWA to South America until 15 May 1962. G-APWB was delivered on 10 March 1962, followed by G-APWD on 30 April 1962.

The Heralds operated from Glasgow (Renfrew) to destinations such as Islay in the Hebrides, Sumburgh in the Shetland Isles and to Kirkwall-Grimsetter on Orkney; Aberdeen, Inverness and Edinburgh, plus other locations. They were the first modern turboprop aircraft to serve these destinations and much publicity was made of the services. The fleet operated six days a week and utilisation was 1,500 hours per year. Apart from passengers the cargo services were highly significant and varied from parcels and mail, to such things as television sets, gas stoves, machinery, lobsters and day-old chickens. By March 1965 the fleet had carried over 280,000 passengers and 1,650 tons of freight. By 30 April 1965 G-APWB had logged 5,050 hours and 8,858 landings, the highest Herald hours and second highest number of landings. The

three Heralds served BEA until November 1966 when they were sold to Autair.

Fleet 149, 150, 151, 152.

We now continue with further production histories, all from Radlett as deliveries began to accelerate.

#### **166 HPR.7 HERALD 206**

As described earlier, the Canadian DoT reserved registrations CF-EPC and CF-EPI (c/n's unknown) on 19Mar62 for Eastern Provincial Airways (EPA). On 9Apr62 the c/n's were allocated as CF-EPC (165) and CF-EPI (166), but on 11Apr62, EPA informed the DoT that c/n allocations had changed to 166 and 167. On 13Apr62 the DoT confirmed that CF-EPI would retain c/n 166 and that CF-EPC would become c/n 167.

**CF-EPI FF** 27Jan63 at Radlett. Tenth Radlett-built and handed over 13Feb63 to Eastern Provincial Airways (EPA). Ferry permit issued 25Feb63 for ferry flight UK to Gander and delivered via Prestwick 28Feb63. UK CofA (Export) number E.7719 issued 26Feb63. Canadian CofA number 5721 issued on same day. Regd 4Mar63 (CofR 29829) to Eastern Provincial Airways, Gander. Regd 30Sep63 (CofR 29877) to Eastern Provincial Airways (1963), Gander, on company name change. CofA inspections and renewals on 4Feb64 (TT 1,558.25 hr), 2Feb65 (TT 3,249.43 hr), 8Feb66 (TT 5,028.08 hr), 11Feb67 (TT 6,579.08 hr), 7Feb68 (TT 8,437.33 hr), 28Jan69 (TT 10,120.34 hr), 14Feb70 (TT 11,935.34 hr), 2Feb71 (TT 13,414.35 hr based Moncton), 28Feb72 (TT 14,798.55 hr based Moncton), 18Jan73 (TT 16,608.16 hr based Moncton). Damaged 15Oct73 en route Fredericton to Chatham NB, crew could not confirm undercarriage was down and locked, but landed safely and passengers disembarked. Crew had not noted that the hydraulic relief valve had tripped and gear selector was in the 'up' position. When engines were re-started the port main gear retracted and aircraft came to rest on port propeller and aft fuselage. (Details from Accident Report number A30022). Ferry permit issued on 17Oct73 for flight from Chatham NB to Gander NF for repair. Inspected 21Feb74 and CofA renewed with TT 18,125.03 hr. Bill of sale issued 20Jan75 from EPA (1963) to Trans World Leasing Ltd. Arrived Southend as CF-EPI 28Jan75. Regn cld 30Jan75.

Regd 30Jan75 (CofR R.14673/1) as **G-BCWE** to Trans World Leasing Ltd. CofA issued 14May75 to Transworld Leasing Ltd for operation by British Air Ferries, Southend and named "Jeremy Keegan". Leased 1Apr76 to 2May 76 to Air Anglia. As of 31Oct78 TT 24,233 hr and 29,417 landings. Leased 1Jan79 to 1Jan82 to British Island Airways – BIA and named "Caroline Frost" (During this lease BIA became Air UK on 16Jan80 and lease continued). Also during above lease was regd 23Oct79 (CofR G-BCWE/R2) to British Air Ferries, Southend, but remained on lease to BIA. Returned to BAF service Jan 82. Painted Apr82 in Trans Azur Aviation livery but lease NTU. Noted 6Apr82 on BAF service at Basle named "Caroline Frost". Sale agreed 24Feb 83 to Chemco Equipment Finance Ltd, London, presumed for lease to Trans Azur, but again NTU. Impounded Sep83 by Southend Council in lieu of unpaid airport charges, if not paid by 5Jan84 the aircraft was to be sold. Regd 9Nov83 (CofR G-BCWE/R3) to Chemco Equipment Finance Ltd, London and stored at Southend, noted 21May85 minus engines. Leased 14Jul85 to British Air Ferries and named "Herald Angel". Cld 23Jul85 as "Sold in the USA". Regd 30Jul85 (CofR G-BCWE/R4) to Ronald Cannel, Derby, but operated by BAF, still named "Herald Angel". In Jan86 used as support aircraft for the Paris-Dakar car rally. Sold Feb87 to General Aviation Spares (but not regd to them). WFU and stored Feb87 at Southend. Cld 18Feb87 as "sold in USA" but noted still at Southend until delivered 26Apr88 to Aerovias SA of Tegucigalpa, Guatemala as **TG-ASA**. WFU and stored in Oct91 at Guatemala-La Aurora. Derelict there in good condition, but destined for scrapping, noted there Nov01, gone by 23Nov07.



**Above:** C/n 166 as G-BCWE seen wearing Trans Azur Aviation colours at Rotterdam on 10.5.82. (Wim Zwakhals)

**Right:** Eastern Provincial's second Herald was CF-EPC c/n 167, also photographed when passing through Prestwick on delivery, thus dating this photo as 29Mar63. (Jack Meaden Collection)



**Below:** On return from Canada, c/n 167 became G-BDFE with Transworld Leasing in a VIP/executive layout with no company titles but bearing the name "Rory Keegan". (D Thompson collection)



#### 167 HPR.7 HERALD 206

Allocated to CF-EPI on 11Apr62 for EPA and confirmed 13Apr62 as CF-EPC.

**CF-EPC** FF 8Mar63 at Radlett, as eleventh Radlett-built. Ferry permit issued 23Feb63 for ferry UK to Gander, Newfoundland. UK CofA for export (number E.7724) issued 28Mar63, Canadian CofA number 5723 issued 28Mar63. Bill of sale issued 29Mar63 Handley Page to Eastern Provincial Airways (EPA). Deld 29Mar63 via Prestwick and regd 16Apr63 (CofR 29839) to Eastern Provincial Airways, Gander. Regd 30Sep63 (CofR 29876) to Eastern Provincial Airways (1963), Gander, on name change. Regd 31Jan64 as **VP-BCG** and leased 1Feb64 to Handley Page (Leasing) Ltd for operation by Bahamas Airways Ltd, Nassau. Canadian marks canx 12Feb64. At end of lease a ferry permit was issued 25May64 from Nassau to Gander. CofA issued 31May64 (number 5735) and regd 12Jun64 (CofR 29958) as **CF-EPC** to Eastern Provincial Airways (1963), Gander. CofA inspections and renewals made on 4May65 (TT 3,316 hr), 4May66 (TT 5,111.16 hr), 17May67 (TT 6,696.22 hr), 12May68 (TT 8,378.18), 12May69 (TT 10,339.30 hr based Gander), 18Mar70 (TT 11,465.38 hr based Gander), 15Mar71 (TT 12,958.28 hr based Moncton), 19Apr72 (TT 14,503 hr based Moncton), 7Apr73 (TT 16,373.50 hr based Moncton) and 12Apr74 (TT 18,345.02 hr based Moncton). Damaged 8Feb75 en route Grindstone, Magdalen Islands to Charlottetown PE. Landing gear warning system inoperative and crew failed to confirm undercarriage down and locked. Unintentionally landed with gear retracted (accident report Number A50001) TT 19,522.57 hr. Temporary repairs completed at Charlottetown. Sold by insurers to BAF for \$1 Canadian, "as is - where

is". Bill of sale issued 17Jun75 from EPA (1963) to Trans World Leasing Ltd. Cld 18Jun75 as sold as **G-BDFE**. Moved to Moncton and full repairs made by working party from British Air Ferries and delivered as G-BDFE Moncton -Gander - Reykjavik - Southend 7Jul75. Regd 19Jun75 (CofR G-BDFE/R1) as G-BDFE to Transworld Leasing Ltd and CofA number 6754 issued to them on 7Jul75. Leased 10Jul75 to British Air Ferries and named "Rory Keegan" but without BAF titles (configured in 50-seat VIP/ 21 seat executive quick-change layout). Noted at Southend 18Feb76 with "United Towing (Star Offshore Drilling) Ltd" on engine nacelles. Leased Feb77 to Touraine Air Transport (return date not recorded). Noted at Munich 16Apr77 with "Fleetwood Mac" titles. As of 31Oct78 TT 22,774 hr 28,504 landings. Leased 2Dec78 to 12Dec78 to Europe Aero Service. Leased 6Apr79 to 27Apr79 to Touraine Air Transport. Noted 24Aug79 as owned by Black Arrow Leasing Ltd (but not regd to them) and leased to BAF. Leased 24Apr80 to 4Jul80 and again 2Aug80 to 2Jan81 to Air Algerie. Regd 23Sep82 (CofR G-BDFE/R2) to Keegan Leasing & Management Ltd, operated by BAF. Leased 20May83 to Feb84 to Janus Airways. Cld 4Feb84 as sold in Zaire. Flown 27Feb84 Southend to Ostend and painted as **9Q-CAA**, deld 4Mar84 to MMM Aero Services, Zaire. Noted at Kinshasa 27Apr85 still in BAF livery with MMM titles. WFU/Stored Apr86 and broken up Mar87 at Kinshasa, Zaire.

#### 168 HPR.7 HERALD 203

Twelfth Radlett built. FF 4Apr63 as **I-TIVE** and delivered 4May63 to Aerolinee Itavia Spa, Rome. Regd as such 18May63, CofR no.6655. Damaged beyond repair 4Nov71 in landing accident at Rome-



Ciampino Airport on a crew training flight. Two crew uninjured, aircraft remained at Ciampino until 1974 when it was broken up for usable spares for BIA and the remains then scrapped.

**169 HPR.7 HERALD 210**

Sixteenth Radlett built. FF 25Jul63 as **HB-AAH** and delivered 7Aug63 to Globe Air AG and named "Herald of Zurich". From Mar to Jun 66 flew nightly (Mon-Fri) cargo services Frankfurt to Heathrow on behalf of Lufthansa. Leased 12Dec66 to Airlines (Jersey) Ltd and operated by BU(CI)A. Swiss regn cancelled 21Jan67 and then regd 31Jan67 (CofR R.7906/1) as **G-AVEZ** and CofA (number A7906) issued 7Mar67 to Airlines (Jersey) Ltd and operated by BU(CI)A. Ledger amended 17Mar67 to British United Airways (CI) Ltd, operating as BU(CI)A. CofA renewed 5Jan68. Delivered ex-Jersey 6Jan68 to Sadia. Cld 13Jan68 as sold in Brazil. Leased 13Jan68 to Sadia de Transportes Aereos and regd as **PP-ASW**. Ferried back to UK with underwing tanks and re-regd 9Apr68 (CofR R.7906/2) as **G-AVEZ** to BU(CI)A (Entered in ledger as BUA(CI) Ltd). Company became BU(A) 1Nov68. Noted at Manchester-Ringway 6Dec68 in full BU(A) livery. Ledger amended 2Jan69 to Jersey Airlines (Channel Islands) Ltd but operated as BU(A). CofA renewed 5Jan69 and 6Jan70. Ledger amended 5May70 to British Island Airways (Jersey) Ltd. Transferred 20Jul70 to BIA. CofA renewals 6Jan every year from 1971 to 1975. As of 31Oct78 TT 26,671 hr 30,175 landings. Merged 16Jan80 into Air UK (but not regd to them). WFU and stored 5Jan81 at Norwich. Cld 4Jan83 as PWFU. Deld Apr84 to City of Norwich Aviation Museum. Transferred to Norwich Airport Fire Section Apr85. Tail only remained by Nov96, remains gone by Jun08.

**170 HPR.7 HERALD 207**

Fifteenth Radlett built. FF 26Jun63 as **110** and deld 12Jul63 to the Royal Arab Air Force, Jordan, later renamed Royal Jordanian Air Force with serial number 110. Transferred in Dec63 to newly-formed ALIA - Royal Jordanian Airlines and regd as **JY-ACQ**. Suffered structural failure of the fuselage 10Apr65 en route Beirut-Amman. Fell onto high ground at 4,200ft at Demas, 22km ENE of Damascus, 4 crew and 50 passengers killed. Cause due to corrosion of structure (see c/n 160). TT 1,500 hr with 1,450 landings

**Above:** C/n 168 I-TIVE served only with Itavia, having been damaged beyond repair after eight and a half years as a result of an accident during crew training. (Handley Page via Mike Hooks)

**171 HPR.7 HERALD 401**

Seventeenth Radlett built. FF 28Sep63 and deld 1Nov63 with serial number **FM1020** to the Royal Malaysian Air Force (Tentera Udara Diraja Malaysia). Arrived 8Nov63 at Kuala Lumpur and assigned to No.4 Sqn RMAF - Damaged 21Jul66 during training flight when flaps were lowered a loud bang heard and aircraft rolled violently to port due to asymmetric lowering of flaps. Control regained when flaps retracted. Fault caused by breakage of control chain which fractured the chain guard, landed safely. Withdrawn from service and sold via Hants & Sussex Aviation to the Keegan group; regd 13Jul77 as **G-BEYD** (CofR G-BEYD/R1) to Killyspae Ltd, Southend. Arrived Southend with long-range tanks 18Oct77 for operation by British Air Ferries (BAF) and named "Amy Johnson". Regd 3Mar78 (CofR G-BEYD/R2) as G-BEYD to T.F.S.Finance Ltd, Southend (still operated by BAF). Entered service with BAF on 12 Mar78. Leased 24Jun78 to 28Oct78 to Nile Valley Aviation, Cairo. As of 31Oct78 TT 9,781 hr 6,625 landings. Leased 1Nov78 to Mar79 to SATA Air Acores. Leased Apr79 to Sep79 to British Island Airways (BIA). Leased 23Sep79 to 27Sep79 to Touraine



**Above:** After initial service with Globe Air as HB-AAH, Herald c/n 169 was acquired by the Air Holdings Group as G-AVEZ and is seen here in BUA colours in 1967. (Mike Hooks)



**Left:** G-AVEZ with BUA titles painted out and with 600 gallon long-range tanks fitted prior to delivery from Jersey 6.1.68 to Sao Paulo on four-month lease to Sadia in Brazil. (Ian Law via Mike Hooks)

**Right:** C/n 171 was the first of a significant military order for the Royal Malaysian Air Force, with whom it is seen here as FM1020. (Jack Meaden Collection)



**Below:** After returning to the UK, c/n 171 was leased to a number of companies as G-BEYD. Amongst these was Libyan Arab Airlines as seen here in 1982. (D Thompson collection)



Air Transport, Tours. Leased 16Jan80 to Jan80 to Air UK. Leased Feb80 to Mar80 to Air Inter. Leased Jun80 to Jul80 to Touraine Air Transport. Noted 26Nov80 as owned by Black Arrow Leasing Ltd (but not regd to them) and operated by BAF. Leased 12Oct80 to 7Jan81 to Air Algerie. Regd 3Dec80 (CofR G-BEYD/R3) to British Air Ferries, Southend (but remained leased to Air Algerie until above date). Leased again on 10Jan81 to Mar81 to Air Algerie. Leased 25Apr81 to Apr82 to Arabian Gulf Oil Co - AGOCO Oil, Libya. Leased May82 to Jun82 to Libyan Arab Airlines. Leased 19Jul82 to 29Jul82 to Express Air Services, Guernsey. WFU and stored after CofA lapsed 27May83 at Southend. Noted 30Jun83 at Southend with Libyan Arab titles, these were then removed by 10Aug83. Ledger amended 4Jan84 to Panavia Air Cargo, Southend (although still WFU). Derelict Oct84 and broken up Feb85 at Southend. Cld 12Nov84 as PWFU

#### 172 HPR.7 HERALD 401

Eighteenth Radlett built. FF 8Nov63 as **FM1021** and deld 20Dec63 to No 4 Sqn Royal Malaysian Air Force (Tentera Udara Diraja Malaysia) Sold via Hants & Sussex Aviation and regn **G-BEYE** allocated 13Jul77. Officially regd 5Oct77 (CofR G-BEYE/R1) as **G-BEYE** to African Safari Travel Ltd, Southend (for operation by BAF and named "Rupert Keegan"). Arrived Southend 14Nov77. Regd 4May78 (CofR G-

BEYE/R2) to Staymond Investments Ltd, Southend (for operation by BAF). Entered BAF service on 17Jun78. As of 31Oct78 TT 10,637 hr 7,162 landings. Leased 24Oct78 to Sep79 to Nile Valley Aviation, Cairo. Leased 23Sep79 to 27Sep79 to Touraine Air Transport, Tours. Leased 1Feb80 to Jun80 to Arabian Gulf Oil Co - AGOCO Oil, Libya. Leased 12Oct80 to 6Feb81 to Air Algerie. Regd 15Jan81 (CofR G-BEYE/R3) to British Air Ferries, Southend (remaining on lease to Air Algerie as above). Leased Mar81 to Jun81 to Nile Valley Aviation, Cairo. Leased Sep81 to Jan82 to Mobil Oil (Libya). Leased 20Feb82 to 19May82 to Arabian Gulf Oil Co - AGOCO Oil, Libya. Leased Jul82 to Libyan Arab Airlines (return date unknown). Impounded Sep83 by Southend Council in lieu of unpaid airport charges, if not paid by 5Jan84 the aircraft was to be sold. Ledger amended 4Jan84 to Panavia Air Cargo, Southend. WFU and stored Oct84 at Southend and stripped for spares. Sold Feb87 to General Aviation Spares. Broken up 3Feb87 at Southend. Cld 5Mar87 as PWFU.

#### 173 HPR.7 HERALD 210

Twenty first Radlett built and allocated **HB-AAI** for Globe Air AG but not taken up (this regn was actually used by a Fokker F27 regd 2Apr64).. FF 18Feb64 (as HB-AAI) but registered 26Feb64 (CofR R.8033/1) as **G-ASPJ** to Handley Page Ltd, Radlett. Used for demonstration flights for Saudi Arabian Airlines. Cld 6Mar64 as sold in Switzerland. CofA issued 12Mar64 (number A8033) to Handley Page Ltd, Radlett. Regd 12Mar64 as **HB-AAK** and delivered 13Mar64 to Globe Air AG, named "Herald of Basel". Company ceased trading 18Oct67 and HB-AAK parked and Basle without titles. Sold and regd 18Jul68 as **F-OCLY** to Europe Aero Service, Tunis. Re-registered 22Jul68 as **F-BLOY** to Sté Tunisienne de reparations aero et construction, Tunis-Carthage. Re-regd on same date to SA Europe Aero Service (division Aero Sahara), Perpignan. Regd 17Mar78 to IFPO Bail SA, Courbevoie, still operated by EAS. Leased Aug78 to Nov78 to Air Inter. As of 30.9.78 TT 15,903 hr 9,664 landings. Regd 24Mar83 to SA Europe Aero Service (Aero Sahara). Cancelled as sold abroad 23Aug88 and regd 30Aug88 (CofR G-SCTT/R1) as **G-SCTT** to Channel Express (Air Services),

**Right:** C/n 173 served with Globe Air as HB-AAK from 1964-67 as "Herald of Basel", which can be seen painted to the rear of the passenger door. Here it shares the apron at Salzburg, Austria, with a local Vessna 150 and a Bolkow 207. (Wim Zwakhals collection)





**Left:** C/n 173 seen later in Europe Aero Service colours as F-BLOY. It actually served as such for twenty years. (via Mike Hooks)

Bournemouth. Regd 29Mar89 (CofR G-SCTT/R2) to Channel Express Group PLC, Bournemouth. Last flown on 19Jan97 and spares removed by Feb97 at Hurn, transferred to fire dump 5Mar97. Cld 8Apr97 as PWFU, destroyed by Sep00.

**174 HPR.7 HERALD 209**

Twenty third Radlett built. FF 18Apr64 under "B" conditions as G-8-2. Deld 18May64 as 4X-AHS to Arkia - Israel Inland Airlines, Tel Aviv. Damaged 28Aug75 in wheels up landing at David Ben Gurion Airport, no casualties. Cld 1Aug77. Delivered to Castle Donnington 28Jul77 and regn cancelled 1Aug77. Regd as G-BEZH 2Aug77 to Field Aircraft Services Ltd (CofR G-BEZH/R1) for operation by Express Air Freight. Merged 1Aug77 with Intra Airways and named "Blossom" but operated by Express Air Freight and delivered to them at Hurn 10Dec77. Entered service 15Jan78 Bournemouth to Guernsey. As of 29Nov78 TT 209,946 hr 26,218 landings. Regd 4Sep81 (CofR G-BEZH/R2) to Express Air Services (Channel Islands), Bournemouth. Refurbished during Nov83 and painted in new Channel Express livery. Regd 15Nov84 (CofR G-BEZH/R3) to Channel Express (Air Services) (still named "Blossom"). Damaged 13Mar84 on landing at Guernsey when the port main undercarriage leg failed to lower, with damage to nose and port propeller. Ferried to Norwich and stored there 29Mar84. Repaired and leased 29Sep86 to 1Dec86 to Skyguard-Securicor Air, Birmingham. WFU and stored at Bournemouth Nov87 regn cld 8Mar88 as PWFU and broken up 24Jan92.



**Above:** After Arkia service c/n 174 is seen in Express Air Freight colours as G-BEZH. (D Thompson collection)

**Below:** The last airline operator of G-BEZH was Channel Express. C/n 174 was painted in their titles in 1983-84. (D Thompson collection)



**Above:** Arkia operated six Heralds in all, the second of which was 4X-AHS c/n 174. The company logo seen on the fin incorporates a stylised bird soaring above a map of Israel. (Jack Meaden Collection)

**Right:** C/n 175 was the third delivery to No.4 Squadron of the Royal Malaysian Air Force where it was in use for thirteen years as FM1022. (D Thompson collection)



**Below:** The sad remains of the former FM1022, now G-BEYF, lying at Booker on 19.4.10. (Ian Haskell)



#### 175 HPR.7 HERALD 401

Nineteenth Radlett built. FF 3Jan64 as **FM1022** and deld 17Jan64 to No 4 Sqn Royal Malaysian Air Force (Tentera Udara Diraja Malaysia). Withdrawn from service and sold via Hants & Sussex Aviation to UK. Regd 13Jul77 (CofR G-BEYF/R1) as **G-BEYF** to Bembridge Air Hire, Southend and delivered to Southend 15Aug77 for operation by British Air Ferries, named "Wendela Keegan" and entered service 6Oct77. Leased 20Oct77 to 9Jan78 to Gulfair, Bahrain. Regd 3Mar78 (CofR G-BEYF/R2) to African Safari Travel, Southend (but still operated by BAF). Leased May78 to Sep78 to British Island Airways – BIA. As of 31.10.78 TT 10,175 hr 7,830 landings. Leased 31Oct78 to 16Jan80 to British Island Airways – BIA. Lease transferred 16Jan80 to Air UK on merger. Leased 16Jan80 to 29Sep80 to Air UK. Leased 26Mar81 to 1Jul81 to Occidental Oil, Libya. Leased 8Dec81 to 28Apr82 to Azienda Generale Italiana Petroli - AGIP Oil Co. Leased 2May82 to Libyan Arab Airlines (return date unknown). Leased Jul83 to 6Apr84 to Tunisavia. Deld 6Apr84 to East Midlands Airport for overhaul for Elan International Airways and leased to them Jun84. Leased Dec85 to 14Oct86 to Air Bridge Carriers and operated for TNT-IPEC. Regd 29Apr86 (CofR G-BEYF/R3) to Elan-Air, Longford (operated by above). Noted at Heathrow 3May88 on Channel Express service. Regd 9Aug88 (CofR G-BEYF/R4) to Channel Express (Air Services), Bournemouth. Regd 17Feb93 (CofR G-BEYF/R5) to Dart Group PLC, Bournemouth (Operated by Channel Express). Made last ever Herald flight on 9Apr99 at Hurn and noted Oct99 minus engines. Deld Apr99 to Bournemouth

Aviation Museum and preserved. Regn cld 18Nov99 as PWFU. Broken up 30Jun08 after closure of museum. Remains to Parkhouse Aviation, Booker by 30Aug08 and still present in spring 2010.

#### 176 HPR.7 HERALD 213

Twenty fourth Radlett built. FF 2Apr64 as **D-BIBI** and deld 1May64 to Bavaria Fluggesellschaft, Munich and named "Herald of Munich". Returned to Handley Page 22Jun67 and regd 22Jun 67 (CofR R.8065/1) as **G-AVPN** to Handley Page (Leasing) Ltd, Radlett. CofA number A8065 issued 5Jul67 to Handley Page (Leasing) Ltd. Leased 21Jul67 (as G-AVPN) to Aerolinee Itavia Spa. CofA renewed 5Jul68 and 5Jul69. Cld 2Jul70 as sold in Italy. Sold 2Jul70 and regd 12Nov70 as **I-TIVB** to Aerolinee Itavia Spa. Deld as I-TIVB to BIA at Blackpool-Squires Gate 13Jul73 and regd 18Sep73 (CofR R.8065/2) as **G-AVPN** to British Island Airways. CofA renewed 11Jan74 and 11Jan75. As of 31Oct78 TT 23,198 hr 25,084 landings. Transferred 16Jan80 and regd 15May80 (CofR G-AVPN/R3) to Air UK (on merger). Leased 9Jul85 to 23Jul85 to BAF. Leased 3Aug85 to Sep85 to Skyguard Ltd. Converted for coastal patrol tasks at Norwich (with underwing tanks). Deld 7Jan86 to Nordic Oil Services, Edinburgh. Leased Feb86 to Business Air Centre (BAC Leasing) (return date unknown). Leased 29Mar86 to Sep86 to Euroair Transport Ltd, London. Regd 28Aug87 (CofR G-AVPN/R4) to Nordic Oil Services, Edinburgh. WFU and stored Aug87 at Norwich. Leased 16Nov89 and regd 24Nov89 (CofR G-AVPN/R5) to BAF. Delivered 26Nov91 to Channel Express (Air Services), Bournemouth. Regd 6Jan92 (CofR G-AVPN/R6) to Channel Express (Air Services), Bournemouth. Regd 7Feb92 (CofR G-AVPN/R7) to Dart Group PLC (operated by Channel Express). WFU and stored Feb97 at Bournemouth. Ferried 20Oct97 to Yorkshire Air Museum, Elvington and preserved. Regn cld 8Dec97 as PWFU

#### 177 HPR.7 HERALD 214

Radlett built. Reserved 5Mar64 as **HB-AAM** for Globe Air AG but ntu. Regd 25Aug65 (CofR R.8698/1) as **G-ATIG** to Handley Page Ltd, Radlett. FF 9Sep65 in Sadia colours as G-ATIG and CofA number A8698 issued on 16Sep65 to Handley Page Ltd. Delivered 18Sep65 as G-ATIG to Sadia de Transportes Aereos and regd as **PP-SDI** on arrival. UK regn cld 10Oct65 as sold in Brazil. Regd 18Apr73 (CofR R.8698/R2) as **G-ATIG** and deld 28Apr73 to British Midland Airways – BMA, East Midlands. CofA renewed 10Jul74 and 10Jul75. Leased 6Mar75 to 31Oct75 to British Island Airways – BIA. Noted in BMA livery 15Mar76 at Amsterdam with "On contract to Air Anglia" inscription. Deld 9Jan77 and regd 14Jan77 (CofR G-ATIG/R3) to Brymon Airways and utilised on Heathrow - St Mawgan service. Leased 29Aug77 to 6Oct77 to

**Right:** Itavia's I-TIVB c/n 176 was initially operated on lease from Handley Page as G-AVPN. It is seen here as such at Milan-Linate Airport on 18.10.67. (Jack Meaden Collection)





**Left:** C/n 176 was restored after Itavia lease as G-AVPN and emerged in BIA colours in 1974. (J Martin via D Thompson collection)

**Below:** G-ATIG c/n 177 was owned by British Midland but was leased for the summer season 1975 by British Island Airways. It is seen here in full BIA colours parked on the domestic terminal at Manchester-Ringway on 2.7.75. (Dave Partington)



British Air Ferries – BAF, Southend. As of 31Oct78 TT 22,107 hr 23,787 landings. Last Brymon service 29Oct82. Sold Nov82 to Janus Airways (noted in service 16Dec82 at Ostend). Regd 28Dec82 (CofR G-ATIG/R4) to Hards Travel Service (a Janus associate) and operated by Janus Airways. First Lydd-Ostend service 2Jan83. Regd 23Jan86 (CofR G-ATIG/R5) to Janus Airways. Transferred Apr86 to Euroair Transport (who took over Janus Airways). WFU and stored 20Apr86 at Norwich. Leased 26Jun87 to Aug87 to South-East Air, Biggin Hill. Regd 28Aug87 (CofR G-ATIG/R6) to Nordic Oil Services, Edinburgh. Lease to South-East Air continued to 1Apr88. WFU and stored 1Apr88 at Norwich. Leased 3May88 to 17Jun88 to Ryanair, Dublin. WFU and stored 18Jun88 at Norwich. Leased 29Sep88 to Oct80 to Westair International Airways. Leased 1Nov89 to Jul91 to British Air Ferries.

Noted 22Jan91 at Ostend in Janes Aviation service. Regd 17Jul91 (CofR G-ATIG/R7) to Janes Aviation (on lease until Dec92). WFU and stored Dec92 at Blackpool. Ferried 5Jan93 Blackpool to Norwich. WFU and stored 5Jan93 at Norwich. Regd 10Feb93 (CofR G-ATIG/R8) to Nordic Oil Services, Millport. Leased Oct93 to BAC Aircraft. Transferred 4Jun94 to BAC Cargo. As of 31Dec94 TT 32,692 hr. WFU 5Apr95 at Norwich and to Airport fire dump. Regn cld 29Oct96 as PWFU. Gone from fire dump by Jun08.

**To be continued . . .**

**Below:** In the late 1970s G-ATIG c/n 177 was owned and operated by Brymon Airways whose fleet mostly consisted of Twin Otters. (D Thompson collection)



## COMPLETE CIVIL REGISTERS: 15

# X- UN- YU- YUGOSLAVIA

With thanks to the following for their contributions to this issue: John Wegg, Jack Meaden, Vojislav Jereb, Ognan Petrovic.

### Editor's note:

We have now learned that the First Post-War Register which began in 1947 used both CofR and CofA numbers, but not in the same sequence. Most of these numbers remain unknown. In 1950 a Second Register was opened which incorporated all survivors from the first and began a new series of CofR (only) numbers, most of which are known. These are quoted in the extract below. In the process, a few registrations were re-used.



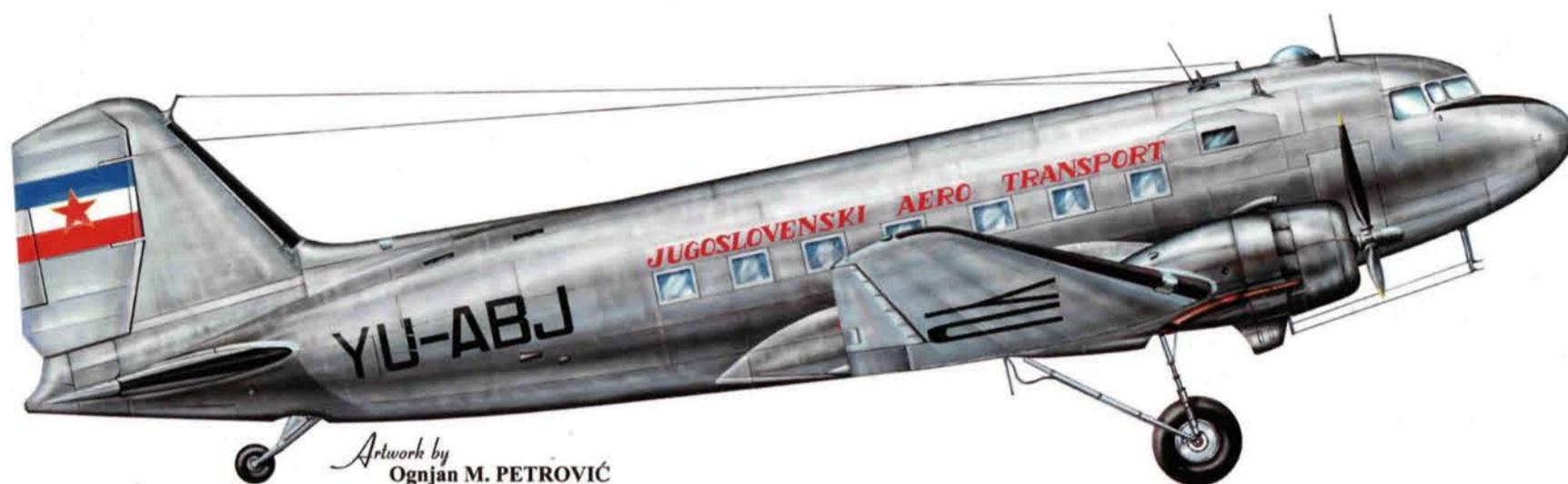
**Above:** Convair/JAT publicity photo showing Convair 440 YU-ADK flying off the US coast in 1957 prior to delivery. It wears the second JAT livery (overall metal, white upper fuselage and blue cheat-line). Note JAT emblem on the nose and non-standard blue registrations. (via O M Petrovic)

### The post-war Yugoslavian Civil Aircraft Register -(continued)

<b>YU-ADI</b>	Ilyushin Il-14M JAT d/d 28.1.57. CoR 252. Wfu from commercial use 12.7.63 due to being uneconomical. To JRV as 7406, later 71406. Returned to Soviet Union.	147001319	.57	<b>YU-ADS</b>	Convair 440-11 Ex HB-IMN. Pan Adria, d/d 8.12.69. CoR 756. Wfu 30.1.75. Sold as N47099, 11.77, later to HP-1200CTH, 9.91 and w/o 20.2..93.	413	11.69
<b>YU-ADJ</b>	Ilyushin Il-14M JAT d/d 28.1.57. CoR 253. Wfu from commercial use 12.7.63 due to being uneconomical. To JRV as 7407, later 71407. Returned to Soviet Union.	147001320	.57	<b>YU-ADT</b>	Convair 440-38 Ex HB-IMP. Pan Adria, d/d 5.12.69. CoR 757. Wfu 30.1.75. Sold as N47095, 10.77, later to CP-1358, 2.78 and dbf 11.1.80.	414	11.69
<b>YU-ADK</b>	Convair 440-58 JAT d/d 19.9.57. CoR 258 Sold 20.11.73 as N94479. Then N4403 9.74, (N31KA), N29KA 4.76, N29KE 9.84, N21BF 3.89, N115BF 4.95.	461	9.57	<b>YU-ADU</b>	Convair 440-11 Ex HB-IMB, CA+034, 12+02. Pan Adria 12.5.71.CoR 855. Wfu 30.1.75. Sold as N47098, 1975, laterXA-KEH, 7.80, w/o 21.5.81.	327	12.71
<b>YU-ADL</b>	Convair 440-41 Ex (N3449), N8449H, I-DUGA. Converted from CV.340. To JAT 1.61. CoR 318. Damaged in belly landing at Titograd 4.2.69, not repaired. Cld 2.4.70.	112	9.61 ?	<b>YU-ADV</b>	Convair 440-11 Ex HB-IMR, CA+035, 12+03. Pan Adria. 12.5.71.CoR 856. Crashed in heavy fog at Ronchi dei Legionari Airport, Trieste 17.12.71; 3 crew and 1 passenger injured, 1 crew and 18 passengers unhurt. Not repaired. Cld 9.2.72.	429	5.71
<b>YU-ADM</b>	Convair 440-41 Ex (N3446), I-DOGO. Converted from CV.340. To JAT. CoR 319. Leased to Cardair. Sold as 5A-DBB 5.71, wfu Tripoli 1981.	87	8.61	<b>YU-ADW</b>	Convair 440-11 Ex D-ACAD. JAT 12.5.73. CoR 912. Owned by Cardasey National Air Transport Co, Tripoli, Libya. For lease to JAT for 6 months. Regn reserved but not issued.	198	5.73
<b>YU-ADN</b>	Convair 440-41 Ex (N3447), I-DOGU. Converted from CV.340. To JAT. CoR 320. Sold as N94436, 3.74; TG-ABA 3.76; N94436 5.79. Dbr 4.80.	102	9.61	<b>YU-ADX to YU-ADZ</b>	Not used.		
<b>YU-ADO</b>	Convair 440-0 Ex D-ADIL, D-ACEK. JAT d/d 5.4.68. Damaged when starboard undercarriage leg collapsed, Belgrade 18.11.70, cancelled as wfu 11.1.71 and donated to Muzej Jugoslovenskog Vazduhoplovstva, Belgrade. (Was 'converted' into 4-engined version for ground shots in film production, Surcin)	470	4.68				
<b>YU-ADP</b>	Convair 440-68 Ex D-ACIG. To JAT d/d 11.3.69, converted from CV.340. CoR 738. Wfu 12.73 and sold 9.1.74 as N94480; then XA-DUY 3.77; N94480, dbr 16.4.79.	211	3.69				
<b>YU-ADR</b>	Convair 440-88 Ex D-ACYL. JAT d/d 11.3.69. CoR 739. Wfu 1973; cld 30.1.76 and sold 5.76 as N985, w/o 30.10.76.	448	3.69				



**Above:** Ilyushin Il-14M YU-ADH preparing for departure. The JAT Ilyushins wore the same basic 'second' company livery as the Convairs in the fifties and early sixties. (JAT via O M Petrovic)



Artwork by  
Ognjan M. PETROVIĆ



Artwork by  
Ognjan M. PETROVIĆ



**Above:** Drawings by Ognjan Petrovic illustrate the first two post-war colour schemes used by JAT. The DC-3 YU-ABJ shows the first livery which also existed with some minor variations - see adjacent photos. The Convair YU-ADA illustrates the second livery with white top, blue cheat-line and blue lettering.

**Right:** Amongst the variations to the first scheme, **top:** YU-ABJ wears non-standard lettering and, **centre,** YU-ACC has acquired a thin blue cheat-line below the windows. **Bottom,** YU-ABF at Belgrade wearing the third livery introduced in the late sixties and featuring the JAT "egg" on the vertical tail surfaces. (All, JAT via O M Petrovic)



**YU-AEA to AEZ series: single-engined a/c.**

YU-AEA	Aero 2D	03014133	.49
	Believed used by JAT for basic training. To JRV .51		
YU-AEB	Aero 2D	03015156	.49
	Believed used by JAT for basic training. To JRV .51		
YU-AEC	Aero 2D	03014146	.49
	Believed used by JAT for basic training. To JRV .51		
YU-AED	Aero 2D	03014145	.49
	Believed used by JAT for basic training. To JRV .51		
YU-AEE	Aero 2F	03015181	.49
	Believed used by JAT for basic training. To JRV .51		
YU-AEF	Aero 2F	03015182	.49
	Believed used by JAT for basic training. To JRV .51		
YU-AEG	Aero 2F	03015186	.49
	Believed used by JAT for basic training. W/o .50		
YU-AEH	Aero 2F	03015185	.49
	Believed used by JAT for basic training. To JRV .51		

**To be continued . . .**

£6.50

AUTUMN ISSUE  
SEPTEMBER 2010

# Air-Britain ARCHIVE

The AIR-BRITAIN Civil Aviation Historical Quarterly



China : CAT - Civil Air Transport, 1946-1950

FMA : Argentine Cessnas

Somers-Kendall SK-1

YU- and F- Registers

Handley Page Herald



The AIR-BRITAIN Civil Aviation  
Historical Quarterly

No.3 2010

ISSN: 0262-4923

31st YEAR

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The ARCHIVE website may be visited at  
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ARCHIVE is published quarterly, in March,  
June, September and December by  
Air-Britain (Historians) Ltd., in association  
with *Air-Britain Aviation World*, *Aeromilitaria*  
and the monthly *Air-Britain News*.

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## COVER PHOTO



Refugees streaming out to board the Curtiss  
C-46s of CAT at Mukden in 1948, with  
"Hankow" in the foreground. The early history of  
the company can be found in this issue.

(Ian D Johnson collection)

**CLOSING DATE for contributions to next  
ARCHIVE:** October 22nd 2010

## Contents:

<b>FMA: Projects &amp; licence- built Cessnas</b>	<b>2010/87</b>	<b>F-1922 Register</b>	<b>2010/125</b>
<b>Commercial Aviation in China:</b>		<b>Registers of Yugoslavia</b>	<b>2010/129</b>
<b>CAT 1946-1950</b>	<b>2010/95</b>	<b>Handley Page Herald</b>	<b>2010/131</b>
		<b>Head-on View:</b>	
		<b>The Somers-Kendall SK-1</b>	<b>2010/138</b>



## HEAD-ON VIEW - WHAT IS IT? Number 37

What have we here? Large wings, a nine-cylinder radial and a rather ungainly undercarriage, but this was just one of a series which grew from the same basic design. All will of course be revealed in the next issue. (via JM Collection)

## In this issue

While the previous issue lost some 12 pages, for reasons explained therein, we have been able in this issue to make up 8 of these. This helps to keep our printers happy as they prefer eights to smaller measures! The next issue will also contain extra pages.

The extra pages have actually enabled us to include all of Part 11 of the China story, covering the early years of Civil Air Transport (CAT), and next quarter's episode will be shorter as a result. We will be covering at least two new topics in the next issue which may have a slightly more Gallic, or at least European, feel to it.

Taking the contents of this issue in order, the **FMA** story covers a few still-born projects and the licence production of various Cessna models at Cordoba, including a production list. Thanks are due to Michael Magnusson for his efforts.

Meanwhile, the development of civil aviation in **China** covers the creation of the second major post-war operator, CAT, which rose, fell and rose again under the influence of Chennault and Willauer. We are most grateful for the research carried out by Martin Best for this series and also for the efforts of Ian Johnson for the use of images from his collection.

Our **French** register moves on through 1929 and we find it remarkable that virtually all the civil fleet at that time was French designed and built, although this was doubtless true in many countries at that time as indigenous production was favoured over imports. Having concentrated on new registrations for some time now, mainly because of the way in which the register itself has been organised (or not!), we need to look at cancellations and other significant changes soon.

Our other register feature, that of **Yugoslavia**, moves on with the addition of new details for the YU-AEA to AEZ block which previously

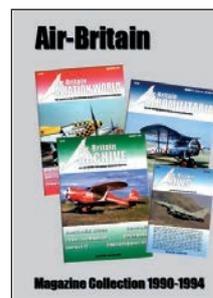
had been somewhat sparse in our records. We must thank Ognjan Petrovic for access to his records and for his commitment to this project.

Derek King's **HP Herald** histories also move along and continue to throw up interesting details. With only eight more examples completed this series should come to a close in the next issue. The Head-on View feature this time takes a look at the little **Somers-Kendall SK-1** but it is also worth remembering that the French had the lead in the development of light jet designs with some of the Fouga types which eventually led to the CM.170 Magister in 1952. It would be instructive to take a look at some of these designs in the next issue.

Also in the next issue we hope to begin a new series, *La Verité Entière* perhaps (!), covering the Farman 190 series in detail. There are other plans afoot, or in hand, but we will always welcome new contributors with a piece of research, a simple story or a potential series. Photo collections, log-book entries, even reports from air displays of long ago, all are possible *Archive* material. Please let us know if there is anything that you think might appeal to the readership.

A further reminder - there is a full **index** of *Archive* articles since Issue 1 of 1980. A file may be found on the ab-ix site but a pdf version can be requested from the Editor or you can have a print-out if you can provide an A4 size envelope with a 'Large' stamp on it, UK only unfortunately.

If you want to refer to back issues of *Archive* we should mention the **Air-Britain Magazine Collections** now available on CD. Four of the CDs contain all issues between 1980 and 1997 (and all the other magazines) at a cost of £7.95 each to members - for full details see the Sales List.



# FMA : from 1945

## The story of Fabrica Militar de Aviones, Argentina

Michael Magnusson

Part 12

**Right:** A model of the proposed IAe.52 in 1963, very much in the Skyvan style. (A Marino collection)

### General Activities of 1960s to early 1970s

In parallel to the previously described IA-50 Guarani and Ranquel programmes, FMA conducted a number of other projects in the 1960s and early 1970s.

One project, the **IAe.52**, reached mockup stage. It was intended as a small transport aircraft (similar in size and layout to the Short Skyvan) with twin fin arrangement and fixed gear, with an intended payload of two tons. Length was 13.6m (44ft 7in), span 20m (65ft 7in), height 4.9m (16ft 9in) with a wing area of 39m<sup>2</sup> (419.8 ft<sup>2</sup>). The proposed empty weight was 3,250kg (7,165 lb) and max take off weight 5,335kg (11,760 lb). The project, begun in 1962 under Ricardo Olmedo, never got beyond the mockup stage.

Since agriculture is important in Argentina and represents a major part of the economy, it was not surprising that FMA turned their attention to a dedicated agriculture aircraft. Named the **IAe.53 Mamboreta** and initiated in 1963 again by Ricardo E. Olmedo, this did reach prototype stage during 1965. The first of two prototypes (actually the second aircraft, LV-X35) made its maiden flight on 10th November 1966 piloted by Pedro L. Rosell. The first prototype, LV-X33, flew later in the same month.

The IAe.53 had fixed gear and a 235hp Lycoming O-540 engine. Dimensions were: span 11.6m (38ft 1in), length 8.2m (26ft 11in), height 3.3m (10ft 10in), wing area 21.5m<sup>2</sup> (231.4ft<sup>2</sup>), and max speed 220 km/h (136mph). Empty weight was 844kg (1,860 lb) and max weight 1525 kg (3,362 lb). One example was exhibited at the 1968 Rural aviation exhibition but the type did not reach the production stage, being replaced by the Cessna 188 licence-built programme. The two prototypes continued flying as "PGAX-01" and "PGAX-02" from 1970 with the Air Force until they were both grounded in late 1976. The prototype is preserved at the Air Force Museum in Moron, after being transferred there in 1980.

FMA also turned their attention to gliders again with the **IAe.54 Carancho**, just as they had done in the 1950s with the Horten designs. Project manager was again Ricardo Olmedo and in order to speed up development, they used the fuselage of an existing glider LV-EHI with new wings made in wood using an aerodynamic shape designed by Reimar Horten. The prototype, now LV-X31, first flew on 4th March 1965. It had a span of 19m (62ft 4in), length 8m (26ft 3in), wing area 29m<sup>2</sup> (312ft<sup>2</sup>), and max speed of 240 km/h (150mph). The glider was turned over to the local gliding school "Los Caranchos" for further evaluation until it was damaged during a competition on 11th February 1966 near Rafaela. It was stored at FMA without being repaired and became another type which did not reach the production stage.

**Right:** IAe.53 LV-X33 in flight. The aircraft carried a useful load of 1,500 lb and the extended cockpit area was fitted with a jump seat to allow ground crew to be carried on ferry flights. (A Marino collection)



**Above:** The fill-scale mock-up of the IAe.52 under construction. (via argohtypermedia.jpg)

**Below:** The prototype IAe.53 agricultural monoplane LV-X33 of which two examples were built. The under-belly tank, wind generator and under-wing spray bars can clearly be seen. (A Marino collection)





**Left:** The prototype IAE.53 as PGAX-01 seen at the museum in Moron in May this year. The wing end-plates have been replaced with aerodynamic tips and the undercarriage legs and knuckle joints have been faired in. The name "Mamboreta" is visible on the lower cowling.  
(Michael Magnusson)

**Below:** The only IAE.54 Carancho to be built was the prototype.  
(A Marino collection.)

After this there followed three projects that never flew. The **IAe 55** was an advanced training/COIN aircraft designed by Hector Ruiz (of Guarani fame), to be equipped with the French Aztazou engine. Its original concept of 1963 was developed later into the IAE58 Pucara. Span was 11m (36ft), height 3.7m (12ft 2in), wing area 20.6 m<sup>2</sup> (221.7 ft<sup>2</sup>), empty weight 1235kg (2,722 lb) and max take off weight 2303kg (5,077 lb). Then came another glider, the **IAe.56**, for which FMA did begin production of a prototype in 1966 but it was never completed. Finally the **IAe.57**, which was a small basic trainer with a 100hp Continental engine, again never went beyond the drawing board. After this FMA began focusing their attention on the **IAe.58 Pucara** which will be described in the next part as it became a major project in the 1970s and early 1980s.



In 1967 FMA celebrated 40 years since its foundation and thus received much attention in the local media. By then, FMA had 123,000 sq metres of factory space and about 7,800 employees. The actual aircraft factory itself covered 41,000 sq metres. FMA was still making motorcycles named "Puma" (over 100,000 produced), tractors called "Pampa" (3600 produced since 1953) and a small pickup truck called "Rastrojero" (35,000 produced since 1952). It was also developing small rockets. The factories had established the IA50 Guarani in production as well as licence production of the Cessna 182 (described below). There were hopes for the IAE.53 which obviously did not materialize.



The company's flight test department had 60 people including 7 test pilots that used procedures developed by French "Centre d'Essais en Vol". FMA had during its 40 years since 1927 built almost 500 aircraft of their own design and almost 400 under licence (Avro Gosport, Dewoitine D21, Bristol, Fw44, Curtiss 75 Hawk, Beech Mentor, and MS760 Paris).



**Above:** A model of the IAE.55 COIN proposal which was to be powered by a Turbomeca Astazou. Although not built, this concept was later developed into the Pucara.  
(A Marino collection)

**Left:** The first of the FMA-assembled Cessna 182s was initially registered LV-IPJ before becoming PG-341 with the Argentine Air Force.  
(A Marino collection)

To follow Ranquero production which was beginning to wind down, FMA began considering licence production of a light aircraft in order to meet the rapid growth of general aviation in Argentina. As described previously, they briefly considered the French MS880 Rallye. But they soon focused on various Cessna models. In October 1965, Cessna announced the agreement with FMA to locally produce the Cessna 182, the original intention being to build 500 aircraft in five years. The first aircraft, a model 182J using components supplied by Cessna, was completed in August 1966, assigned c/n A182-0001 and registered LQ-IPJ on 13th September 1966. Later it went to the Air Force as "PG-341" and is still in service. FMA completed 116 Cessna 182 aircraft between 1966 and 1968. These were all initially civilian registered but the 39 which had been assigned to the Argentine Air Force where all given military serials in 1970 ranging from "PG-341" to "PG-380". One other in this range, PG-354, was a US-built Cessna 182E (C/n 53858).



**Above:** The first Cessna A182, c/n A182-0001, is still active as PG-341 wearing VI Brigada Aerea titles and based at Tandil when seen in November 2006. (M Magnusson)

**Below:** LV-IPW, c/n A182-0012 when with YPF - Yacimientos Petroliferos Fiscales the state-owned oil company - in February 1987. (M Magnusson)

These were assigned to various Air Force units all over the country but by the early 1980s it was decided to donate some to local aeroclubs. So during 1985 eight were put back on the civil register and donated to Aeroclubs in Formosa (LV-IRB), Jardin America (LV-ITW), Pergamino (LV-IXH), Santa Rosa (LV-IZG), Concepcion (LV-IZM), San Rafael (LV-JBE), Bolivar (LV-IPL), and San Cristobal (LV-IXB). One was delivered to the Army aviation as "AE-215" and sold back to civilian market in 1977 as LV-LZY. Another two were sold to the state-owned oil company YPF, as LQ-IPW & -IPY. LQ-IPW continued flying after privatization with Tapsa, but now as LV-IPW; LQ-IPY was passed on to the local aeroclub in Salta. The Province of San Luis acquired LQ-IRJ, the local municipality of Olavarria LQ-IZP, state-owned gas company "Gas del Estado" bought LQ-JCV, -JCZ & -JDN and finally the Federal Police in Buenos Aires acquired LQ-JCW. Otherwise aircraft ended up with local aeroclubs and private individuals. FMA took the opportunity to exhibit LV-JBF at the 1968 Rural Aviation Exhibition



**Above:** LV-IPV was a 1966 model 182J, c/n A182-0011, still in very good condition when photographed at San Justo in October 2008. (Michael Magnusson)

FMA renegotiated its agreement with Cessna in 1972 so that the Cessna 150 and 188 models were also included. The first 150, LV-LAV c/n A-1501001, was exhibited at the 1972 Rural aviation show and then delivered to a local aeroclub in January 1973. Another one had an interesting history first as LV-LFB in 1973, then briefly as "LV-FMA" in 1978 followed by LV-DNA same year. It finally went to the Air Force as "PG-395" and is still in service based at Moron. The last Cessna A-150 was LV-LNM in 1977. The first 188 was LV-LBD in 1972 and the last of 34 became LV-LYV in 1978, all to local civilian customers.

When Cessna-production ended, FMA had produced 148 Ce 182J/K, 39 Cessna 150, 10 Cessna 150 Aerobat and 34 Cessna A188B AgTrucks. Most of these are still flying including about 26 with the various Air Force units. There were more kits that were not completed, at least one was used to rebuild a damaged aircraft (PG-353).

**Right:** C/n A182-0021 became AE-215 with the Argentine Army, as seen here at Moron in November 1969. Since a later c/n -0054 was quoted subsequently it seems possible that it was rebuilt at some stage with a replacement fuselage. The cowling has "Instituto Geografico Militar" titles. (Horacio Gareiso)





**Below, left:** PG-365 c/n A182-0033 at Tandil in 11.06 accompanied by an Aero Commander. (Michael Magnusson)

**Below, right:** C/n A182-0040 as LQ-IXA with the Argentine Air Force before it became PG-350 in 1970. (Alberto Martin)



The breakdown of kits supplied by Cessna was as follows:

1966: 56 kits Ce182J c/n A182-0001 / 0056  
 1967: 40 kits Ce182K c/n A182-0057 / 0096  
 1968: 20 kits Ce182L c/n A182-0097 / 0116  
 1972: 20 kits Ce182N c/n A182-0117 / 0136  
 1974: 10 kits Ce182N c/n A182-0137 / 0146  
 1976: 2 kits Ce182N c/n A182-0147 / 0148  
 (Total 148, possibly another 3 kits not finished)  
 1972/6: 34 CeA188B AgWagon as A-A188B c/n A-A188-0001 / 0034  
 1972/75: 45 Ce150L as c/n A-1501001 / 1039 for A-150L version  
 (another 5? kits were never finished, c/ns A-1501040/ 1044)  
 and c/n A-A1500001/ 0010 for the A-150L Aerobat.

**References:**

"FMA, Cronicas y Testimonios" by Agel Cesar Arreguez  
 "Historia de la Industria Aeronautica Argentina" by Fransisco Halbritter  
 News articles, Argentine civil aircraft register.



**Left, above:** C/n A182-0045 as PG-367 in its original paint scheme with "Junta Investigaciones Accidentes de Aviacion" titles at Aeroparque 8.71. (H Gareiso)

**Left:** LQ-IXF c/n A182-0049 at Aeroparque in the late 1960s with Air Force titles and "Base Oficial de Aviacion Civil" on the cowling. (H Gareiso)

**Production Lists:**

Regn	C/n	Owner	Reg Date	Comments
<b>Cessna A182</b>				
LQ-IPJ	A182-0001	Secretaria Estado Aeronautica	13.9.66	To Arg AF <b>PG-341</b> -.1970?. Cld 9.12.75. Allocated VI Brigada (Tandil) in 2009
LV-IPL	A182-0002	Comando Gral.de Fuerza Aerea	20.10.66	To Arg AF <b>PG-362</b> -70. Re-regd <b>LV-IPL</b> 16.10.85 when donated to AC Bolivar
LQ-IPM	A182-0003	Comando Gral.de Fuerza Aerea	20.10.66	To Arg AF <b>PG-366</b> . Cld 9.12.75. Alloc INAC. Acc 5.4.91 Villa Reynolds, 45%dam, not rep.
LV-IPN	A182-0004	Private	20.1.67	Acc 30.4.83, 30% dam.
LV-IPO	A182-0005	Private	16.2.67	
LV-IPP	A182-0006	Private	16.2.67	Acc 18.8.67, 30% dam.
LV-IPR	A182-0007	AC Rio Turbio	26.9.67	Acc 28.3.72, 65% dam.
LV-IPS	A182-0008	Private	18.4.67	Acc 23.4.74, 30% dam.
LV-IPT	A182-0009	Private	5.5.67	
LV-IPU	A182-0010	Private	26 9 67	Acc 21 3 80, 60% dam, 3inj.
LV-IPV	A182-0011	Private	15.5.67	Orig used by Dinfia as <b>LQ-IPV</b> . <b>LV-IPV</b> reg 19.3.73. Incident 1.4.74. Current
LV-IPW	A182-0012	TAPSA	16.3.67	Orig YPF as <b>LQ-IPW</b> . <b>LV-IPW</b> reg 19.3.73.
LV-IPX	A182-0013	AC Henderson	16.10.67	Orig AC Venado Tuerto
LV-IPY	A182-0014	AC Salta	16.3.67	Orig YPF as <b>LQ-IPY</b> . <b>LV-IPY</b> reg 19.3.73.
LV-IPZ	A182-0015	AC Charata	8.9.67	
LV-IRA	A182-0016	Private	26.9.67	
LQ-IRB	A182-0017	Comando Gral. de Fuerza Aerea	19.4.67.	To Arg AF <b>PG-342</b> .70; wfu.84. Rereg <b>LV-IRB</b> donated AC Formosa 16.10.85
LQ-IRC	A182-0018	Comando Gral. de Fuerza Aerea	22.5.67.	To Arg AF <b>PG-351</b> .70. W/o Matanza 22.2.78. Cld 9.12.75.
LV-IRD	A182-0019	Private	5.5.-67	
LV-IRE	A182-0020	Private	30.8.-67	
LV-IRF	A182-0021	/ A-0054!!	Las Celmiras S.A.C.I.F. 13.10.67	Orig <b>LQ-IRF</b> , To Arg Army <b>AE-215</b> , To <b>LV-LZY</b> 29.4.77. (Replacement fuselage ??)
LV-IRG	A182-0022	Private	31.10.67	
LV-IRH	A182-0023	AC Bell Ville	31.10.67	W/o 9.12.71, 4 killed. Cancelled.
LV-IRI	A182-0024	AC Lincoln	14.11.67	
LV-IRJ	A182-0025	Private	22.8.67	Orig <b>LQ-IRJ</b> Provincia San Luis. <b>LV-IRJ</b> reg 2.8.73.
LV-IRL	A182-0026	Supiso S.A.	14.11.67	
LQ-IRM	A182-0027	D.I.N.F.I.A.	15.5.67	To Air Force <b>PG-???????</b>
LV-IRN	A182-0028	Private	31.10.67	
LV-ITN	A182-0029	Arbol Solo S.A.G.A.C.	31.10.67	
LV-ITO	A182-0030	Private	14.11.67	
LV-ITR	A182-0031	Private	31.10.67	w/o 12km S of Carrilobo (Cbda) 28.1.00
LV-ITS	A182-0032	Private	14.11.67	
LQ-IRS	A182-0033	Comando Gral. de Fuerza Aerea	20.3.67	To AF <b>PG-365</b> .70. Cld 10.12.75. Acc 11.9.80 Bernardo Hirigoyen (Misiones) 64% dam. Long landing. Repaired. Allocated VI Brigada (Tandil) in 2009. Seen i/s Nov2006.
LV-ITU	A182-0034	AC San Francisco	10.4.68	Damaged on ground 12-4.89, repaired?

**Right:** LV-JBN, seen in superb condition at San Fernando in August 2009, is a model 182K with Argentine c/n A182-0080.  
(Gabriel Pavlovic)



<b>LV-ITV</b>	A182-0035 Private 14-11.67	<b>LV-IZA</b>	A182-0055 Transportes Vidal S.A. 16.10.67 Acc: 16.2.70 85% dam. Cld.
<b>LV-ITW</b>	A182-0036 Batistuta & Batistuta S.A 19.4.67 To Arg AF <b>PG-343</b> .70. Reg <b>LV-ITW</b> 16.10.85 AC Jardin de America (Misiones)	<b>LV-IZB</b>	A182-0056 Alas del Centro S.A. 16.10.67
<b>LV-ITX</b>	A182-0037 Volar S.A.14.11.67	<b>LV-IZC</b>	A182-0057 Private 7.2.68
<b>LQ-ITY</b>	A182-0038 Comando Gral. de Fuerza Aerea 11.4.67 To Arg AF <b>PG-345</b> .70. Cancelled. Allocated to V Brigada (V.Reynolds) in 2009. Seen March06.	<b>LV-IZD</b>	A182-0058 AC Carlos Casares 7.2.68
<b>LV-ITZ</b>	A182-0039 Private 14.11.67	<b>LV-IZE</b>	A182-0059 Hangar Mendoza SRL. 7.2.68. Acc: 21.2.72, 30% dam.
<b>LQ-IXA</b>	A182-0040 Comando Gral. de Fuerza Aerea 18.5.67 To Arg AF <b>PG-350</b> 1970. Accident S.Fernando 29.9.76, repaired. Allocated INAC (Moron) 2009. Seen May2010.	<b>LQ-IZF</b>	A182-0060 Comando Gral. de Fuerza Aerea 7.2.67 Orig <b>LV-IZF</b> . <b>LQ-IZF</b> reg 11.8.69. To Arg AF <b>PG-360</b> 1970. Cld 10.10.75. Allocated V Brigada (V.Reynolds) 2009. Damaged in hangar collapse 2006, wreck seen Apr2006.
<b>LQ-IRO</b>	A182-0041 Comando Gral. de Fuerza Aerea 16.3.67 To Arg AF <b>PG-368</b> 1970. Cld 9.12.75. Allocated to V Brigada (V.Reynolds) in 2009. Seen i/s 2008.	<b>LV-IZG</b>	A182-0061 Private 7.2.68 Orig <b>LQ-IZG</b> . To Arg AF <b>PG-356</b> .70, Acc: 9.2.75 Tucuman, 10% dam. Donated to <b>LV-IZG</b> AeroClub Pampeano 8.85.
<b>LQ-IRP</b>	A182-0042 Comando Gral. de Fuerza Aerea 16.3.67 Acc. 23.1.69, 35%dam. To Arg AF <b>PG-364</b> . Cld 10.12.75. Allocated Aerea Material Rio Cuarto in 2009. Seen i/s July2005.	<b>LV-IZH</b>	A182-0062 Private 7.2.68
<b>LQ-IRR</b>	A182-0043 Comando Gral. de Fuerza Aerea 6.8.69 To Arg AF <b>PG-373</b> ?. Cld 10.12.75. Acc: 18.7.73 Estancia San Carlos (E.Rios), 30% dam. Acc: 18.9.86 Morteros (Cdba) 15% dam. Rough landing. Allocated III Brigada (Reconquista) in 2009. Seen i/s June-2008.	<b>LV-IZI</b>	A182-0063 Comando Gral. de Fuerza Aerea 14.7.69 Orig <b>LQ-IZI</b> . <b>LV-IZI</b> reg 16.2.68 Cygnus. To Arg AF <b>PG- ?</b>
<b>LV-ITT</b>	A182-0044 AC Curuzu Cuatia 14.11.67	<b>LV-IZJ</b>	A182-0064 Comando Gral. de Fuerza Aerea 11.8.67 Orig <b>LQ-IZJ</b> . <b>LV-IZJ</b> reg 16.2.68 Cygnus. To Arg AF <b>PG-355</b> , allocated INAC (Moron) 2009. Noted disassembled May2010 (following accident?)
<b>LQ-IXB</b>	A182-0045 Comando Gral. de Fuerza Aerea 4.4.67 To Arg AF <b>PG-367</b> 1970, Reg <b>LV-IXB</b> when donated AC San Cristobal 16.10.85	<b>LV-IZL</b>	A182-0065 Private 16.2.68? Reg 16.2.68 Cygnus.
<b>LQ-IXC</b>	A182-0046 Comando Gral. de Fuerza Aerea 12.4.67 To Arg AF <b>PG-344</b> 1970. Cld 10.12.75. Acc: 28.11.77 Miramar, 15%dam. Acc 17.11.86 15%dam. Allocated INAC (Moron) in 2009. Seen i/s May-2010.	<b>LV-IZM</b>	A182-0066 AC Concepcion 9.9.69 Orig <b>LQ-IZM</b> . To Arg AF <b>PG-358</b> .70. Donated to <b>LV-IZM</b> 5.8.85 AC Concepcion.
<b>LQ-IXD</b>	A182-0047 Comando Gral. de Fuerza Aerea 12.4.67 To Arg AF <b>PG-348</b> 1970. Cld 10.12.75. Allocated VI Brigada (Tandil) in 2009.	<b>LV-IZN</b>	A182-0067 Private 10.4.68
<b>LQ-IXE</b>	A182-0048 Comando Gral. de Fuerza Aerea 26.4.67 To Arg AF <b>PG-346</b> . Cld 10.12.75. Alloc V Brigada (V.Reynolds) in 2009. Seen 3-2006.	<b>LV-IZO</b>	A182-0068 Comando Gral. de Fuerza Aerea 11.8.69 <b>LV</b> -reg 28.3.68 Cygnus. To Arg AF <b>PG-361</b> .70. Acc: 11.12.73 Moron, 18% dam. Allocated INAC (Moron) 2009. Seen i/s May2009.
<b>LQ-IXF</b>	A182-0049 Comando Gral. de Fuerza Aerea 26-4-67 To Arg AF <b>PG-347</b> . Cld 10.12.75. Acc: 23.9.91 Parana 60%dam. Forced landing. Repaired. Allocated III Brigada (Parana) in 2009. Seen without engine June-2009.	<b>LV-IZP</b>	A182-0069 Prodinsa Argentina S.A. 28.3.68. Reg <b>LQ-IZP</b> 27.1.69 Municip.Olavarrria. <b>LV-IZP</b> reg date ?
<b>LQ-IXG</b>	A182-0050 Comando Gral. de Fuerza Aerea 11.5.67. W/o 26.6.67, 2 killed	<b>LV-JBB</b>	A182-0070 AC Rio Turbio 28.3.68
<b>LQ-IXH</b>	A182-0051 Comando Gral. de Fuerza Aerea 31.5.67 To Arg AF <b>PG-352</b> 1970. Reg <b>LV-IXH</b> when donated AC Pergamino 2.8.85.	<b>LQ-JBD</b>	A182-0071 Comando Gral. de Fuerza Aerea 14.5.68 Orig Cygnus as <b>LV-JBD</b> . <b>LQ-JBD</b> reg 1.8.69. Cld 11.12.75. To Arg AF <b>PG-?</b>
<b>LQ-IXI</b>	A182-0052 Comando Gral. de Fuerza Aerea 22.6.67 To Arg AF <b>PG-353</b> 1970. Cld 10.12.75. Allocated "RANE" in 2009. Received new fuselage approx 2009 (which one is not identified)	<b>LV-JBE</b>	A182-0072 Cygnus 10.4.68 Orig <b>LQ-JBE</b> . To Arg AF <b>PG-359</b> .70. <b>LV-JBE</b> reg 16.10.85 when donated AC San Rafael.
<b>LQ-IXJ</b>	A182-0053 Comando Gral. de Fuerza Aerea 23.6.67 To Arg AF <b>PG-349</b> 1970, wfu.84. <b>LV-IXJ</b> 16.10.85 donated AC Zapala.	<b>LV-JBF</b>	A182-0073 Private 10.4.68 Exhibited Rural .68.
<b>-?-</b>	A182-0054 See c/n A182-0021 (Replacement fuselage?)	<b>LV-JBG</b>	A182-0074 Comando Gral. de Fuerza Aerea 10.4.68 <b>LQ-JBG</b> reg 9.9.69. To Arg AF <b>PG-371</b> .70. Cld 11.12.75. Allocated II Brigada (Parana) 2009. Seen i/s April07.
		<b>LV-JBH</b>	A182-0075 Santa Agustina SRL 14.5.68
		<b>LV-JBI</b>	A182-0076 Private 14.5.68
		<b>LV-JBJ</b>	A182-0077 AC Genera Pico 10.12.68
		<b>LQ-JBL</b>	A182-0078 Comando Gral. de Fuerza Aerea 10.12.68 <b>LQ-JBL</b> reg 9.9.69. To <b>PG-370</b> .70. Cld 12.12.75. Acc: Gral Acha 1.2.72, 30% dam, repaired. Allocated IV Brigada (Mendoza) in 2009. Seen, no engine June2008 Mendoza.
		<b>LV-JBM</b>	A182-0079 AC Coronel Dorrego 10.12.68
		<b>LV-JBN</b>	A182-0080 AC Gualaguay 10.12.68
		<b>LV-JBO</b>	A182-0081 AC Lago Buenos Aires 10.12.68
		<b>LV-JBP</b>	A182-0082 C.P.SRL 18.6.69
		<b>LV-JBR</b>	A182-0083 Fundacion APE 7.2.69



**Left:** C/n A182-0119 was a model 182N and as PG-375 was one of the few painted all-red in the early 1970s. (Horacio Gareiso)

**Below left:** C/n A182-0069 LQ-IZP at Aeroparque in July 1972 when with Olavarría Municipality. (Horacio Gareiso)

**Below right:** LV-JCV c/n A182-0109 with Gas del Estado at Neuquen in August 1986. (Michael Magnusson)



**LV-JBS** A182-0084 AC Galvez 7.2.69  
**LV-JBT** A182-0085 AC Alejandro Roca 7.2.69 Acc: 8.1.94 Villa Carlos Paz  
**LV-JBU** A182-0086 AC Las Varillas 7.2.69  
**LV-JBV** A182-0087 Cygnus S.A.C.I. 31.3.69 Also **LQ-JBV** 70?. To Arg AF **PG-357** ? Cld 12.12.75. Fate unkn.  
**LV-JBW** A182-0088 Private 31.3.69  
**LV-JBX** A182-0089 Private 1.7.69  
**LV-JBY** A182-0090 AC Lago Argentino 22.7.69  
**LV-JBZ** A182-0091 La Tatabra SA 1.7.69  
**LV-JCB** A182-0092 AC Com. Rivadavia 22.7.69  
**LV-JCD** A182-0093 Private 22.7.69  
**LV-JCE** A182-0094 AC Reconquista 1.7.69  
**LV-JCF** A182-0095 AC Pehuajo 9.1.70  
**LV-JCG** A182-0096 Jucal SA 22.7.69  
**LV-JCH** A182-0097 AC Bahía Blanca 28.9.70 Acc: 18.9.87 Bahía Blanca 2 inj.  
**LV-JCI** A182-0098 Electromecanica Vobe SRL. 1.10.70 Originally AC Alto Parana.  
**LV-JCJ** A182-0099 Private 4.11.70  
**LV-JCL** A182-0100 Private 2.9.70 Orig. AC Gral Villegas  
**LV-JCM** A182-0101 Private 3.12.70 Orig. AC Neuquen  
**LV-JCN** A182-0102 AC Chaco 3.12.70  
**LV-JCO** A182-0103 Private 3.12.70  
**LV-JCP** A182-0104 Private 24.6.70 **LQ-JCP** reg 20.10.70, **LV-JCP** reg 15.2.73.  
**LV-JCR** A182-0105 Centro Av.Civil San Juan 4.11.70  
**LV-JCS** A182-0106 Provincia de Buenos Aires 10.3.71. **LQ-JCS** reg 29.4.71. **LV-JCS** reg 10.5.73.  
**LV-JCT** A182-0107 AC Saenz Pena 22.3.71  
**LV-JCU** A182-0108 AC Coronel Pringles 2.9.70  
**LV-JCV** A182-0109 Indumetal SA 16.2.71. Orig. Gas del Estado as **LQ-JCV**. **LV-JCV** reg 7.2.73.  
**LQ-JCW** A182-0110 Policia Federal, Code "PF-19" 17.3.71. Orig. Provincia de Buenos Aires. **LQ-JCW** reg 29.4.71. **LV-JCW** reg 10.5.73. **LQ-JCW** reg 2.1.01  
**LV-JCX** A182-0111 Private 22.3.71  
**LV-JCY** A182-0112 AC Trelew 28.9.70  
**LV-JCZ** A182-0113 Private 16.2.71. Orig **LQ-JCW** Gas del Estado. **LV-JCZ** reg 7.2.73.  
**LV-JDB** A182-0114 Private 27.4.71  
**LV-JDD** A182-0115 Don Tocho SA. 1.6.71  
**LV-JDE** A182-0116 Private 4.11.70 Orig. AC Junin  
**LV-JDF** A182-0117 F.A.A. Aerea Material Cordoba 7.11.67 Reg not used, to Arg AF **PG-374** .71. Acc: 23.6.92 Mendoza 20%dam. Hit animal during touch and go. Not repaired ?  
**LV-JDG** A182-0118 Private 26.10.71  
**LV-JDH** A182-0119 F.A.A. Aerea Material Cordoba 7.11.67 Reg not used, to Arg AF **PG-375** .71. Allocated IV Brigada (Mendoza) in 2009. Seen i/s June2008.

**LV-JDI** A182-0120 F.A.A. Aerea Material Cordoba 7.11.67 Reg not used, to Arg AF **PG-376** .71. Allocated IV Brigada (Mendoza) in 2009. Seen i/s 2008.  
**LV-JDJ** A182-0121 F.A.A. Aerea Material Cordoba 7.11.67 Reg not used, to Arg AF **PG-377** .71. Acc: 8.6.90 Com.Rivadavia, 20%dam, repaired. Allocated INAC (Moron) in 2009. Seen i/s May2010.  
**LV-JDL** A182-0122 AC Rosario 17.1.72  
**LV-JDM** A182-0123 Private 15.12.71  
**LV-JDN** A182-0124 Private 13.12.71 Orig. Gas del Estado as **LQ-JDN**. **LV-JDN** reg 7.2.73.  
**LV-JDO** A182-0125 F.A.A. Aerea Material Cordoba 7.11.67 Reg ever used ? To Arg AF **PG-378**. W/o 4.11.95 Bolivar, hit cables. 2 killed.  
**LV-JDR** A182-0126 F.A.A. Aerea Material Cordoba 7.11.67 Reg not used. To Arg AF **PG-379**. Allocated II Brigada (Parana) in 2009. Seen on/h April07.  
**LV-JDS** A182-0127 Estancias Langueyu SA. 5.7.72  
**LV-JDT** A182-0128 Private 30.8.72  
**LV-JDU** A182-0129 Ildarraz S.A.C.I.F.I.A SA. 15.11.72  
**LV-JDV** A182-0130 Private 11.10.72  
**LV-JDW** A182-0131 Private 8.1.73  
**LV-JDX** A182-0132 AGBA S.C.A. 23.2.73. Cld 26.5.78.  
**LV-JDY** A182-0133 Private 4.4.73  
**LV-JDZ** A182-0134 Anpal SA 29.6.73  
**LV-JEB** A182-0135 Private 18.5.73  
**LV-JED** A182-0136 Euro-Marche SA. 29.6.73  
**LV-JEE** A182-0137 Private 21.10.75  
**LV-JEF** A182-0138 Juan F.Scco SRL. 10.12.75  
**LV-JEG** A182-0139 Private 29.12.75  
**LV-JEH** A182-0140 Private 15.1.76  
**LV-JEI** A182-0141 Private 3.3.76  
**LV-JEJ** A182-0142 Private 23.3.76  
**LV-JEL** A182-0143 Private 8.6.76  
**LV-JEM** A182-0144 Private 22.6.76  
**LV-JEN** A182-0145 AC Jujuy 20.8.76  
**LV-JEO** A182-0146 Private 30.12.76  
**LV-JEP** A182-0147 F.A.A. Aerea Material Cordoba 7.11.67. To **LV-LYF** 30.Aug.78  
**LV-JER** A182-0148 F.A.A. Aerea Material Cordoba 7.11.67 Reg not used, **LV-LYG** ntu. To Arg AF **PG-380** Allocated INAC (Moron) .09. Seen i/s May2010  
**LV-JES** A182-0149 F.A.A. Aerea Material Cordoba 7.11.67 Reg used ? or not completed ? **LV-LYH** ntu?  
**LV-LYI** A182-0150 F.A.A. Aerea Material Cordoba. Not used. Not completed?  
**LV-LYJ** A182-0151 F.A.A. Aerea Material Cordoba. Not used. Not completed?  
**PG-363** A182-???? Allocated to "RANO" in 2009  
**PG-369** A182-???? Accident 2.11.74 Estancia Nuevo Escocia, 75% dam. Not repaired



**Above:** Brand new and unpainted, c/n A182-0145 LV-JEN at Don Torcuato in 1976. (Michael Magnusson)

**Right:** C/n A182-0148 was the last model 182 completed, seen here as PG-380 accompanied by PG-344. (Argentine Air Force)



**PG-372** A182-???? Accident 21.5.76 Nogoy (E.Rios) 60% dam., forced landing.

**Cessna A-A150L Aerobat**

- LV-LAU** A-A1500001 Private 8.2.73 Mfd 20.12.71 (First flight?). To **ZP-X014**. 2005.
- LV-LAZ** A-A1500002 AC Com.L.Piedra Buena 2.4.73. Acc: 8.8.94 Com. Piedra Buena, 2 inj. Fuselage dismantled San Fernando 11.01.
- LV-LBU** A-A1500003 Private 8.6.73
- LV-LFB** A-A1500004 F.A.A. Aerea Material Cordoba 8.5.73 . To **LV-FMA** 6.7.78, **LV-DNA**, Arg AF **PG-395**.
- LV-LFC** A-A1500005 AC San Martin 2.11.73
- LV-LFD** A-A1500006 AC Galvez 23.7.74
- LV-LFE** A-A1500007 AC Ciudad de Parana 15.11.74
- LV-LFF** A-A1500008 AC Salta 29.10.74
- LV-LFG** A-A1500009 Private 5.12.74
- LV-LFH** A-A1500010 F.A.A. Aerea Material Cordoba 8.5.73

**Cessna A-150L**

- LV-LAV** A-15073428 AC Apostoles 19.1.73 (C/n quoted as 1001/A-15073428. Exhibited at Rural.72. Accident 10.9.99 nr Rosario.
- LV-LAW** A-1501002 AC Olavarria 19.1.73
- LV-LAX** A-1501003 AC Vespucio 19.1.73
- LV-LAY** A-1501004 AC Jachal 28.4.73
- LV-LBT** A-1501005 Centro Univer Aviacion 3.5.73. Orig. AC Jacinto Arauz.
- LV-LBV** A-1501006 Private 31.5.73. Orig **LQ-LBV**. Acc: 16.12.05 Santa Monica (Tigre, BsAs), 2 killed
- LV-LBW** A-1501007 AC Chaco 26.7.73
- LV-LBX** A-1501008 AC General Roca 31.5.73
- LV-LBY** A-1501009 AC Bolivar 31.5.73
- LV-LBZ** A-1501010 AC Tres Arroyos 2.11.73
- LV-LCB** A-1501011 AC Canada de Gomez 10.9.74
- LV-LFI** A-1501012 Las Celmiras S.A.C.I.F. 16.1.74
- LV-LFJ** A-1501013 Private 15.4.74 W/o 12.5.91 Rio Gallegos, 2 killed
- LV-LFL** A-1501014 Sky Clear SRL 16.1.74
- LV-LFM** A-1501015 AC Rosario de Frontera 30.1.74
- LV-LFN** A-1501016 AC Dolores 17.4.74
- LV-LFO** A-1501017 AC Bahia Blanca 23.7.74. W/o 13.1.93 Tornqvist, 2 kill.



**Above:** The first Cessna A-150L produced, LV-LAV was exhibited at the 1972 Rural aviation show. (V Cettolo collection)

**Below:** The only A-150 to use an LQ- registration was c/n A-1501006 LQ-LBV. (V Cettolo collection)



- LV-LFP** A-1501018 AC Cordoba 17.5.74. W/o Barrio Pelegrini, V.Maria (Cdba) 12.3.06
- LV-LFR** A-1501019 Private 29.10.74
- LV-LFS** A-1501020 AC Azul 18.11.74
- LV-LFT** A-1501021 AC Alto Parana el Dorado 18.11.74
- LV-LFU** A-1501022 AC Intend Alvear 17.9.74
- LV-LFV** A-1501023 AC Villaguay 17.9.74
- LV-LFW** A-1501024 AC Santo Tome 17.9.74
- LV-LFX** A-1501025 AC Salliquello 17.9.74
- LV-LFY** A-1501026 AC Esquina 16.10.74
- LV-LFZ** A-1501027 AC Chivilcoy 16.10.74

**Right:** Only one FMA Cessna 150 ended up with the Air Force. This was A-A150L Aerobat c/n A-A1500004 serial PG-395 seen at an open day at Moron in May 2009. (Rafael Reca)





<b>LV-LGB</b>	A-1501028	Private	5.5.75
<b>LV-LGC</b>	A-1501029	AC Ayacucho	21.10.76
<b>LV-LGD</b>	A-1501030	AC Curuzu Cuatia	25.7.75
<b>LV-LGE</b>	A-1501031	AC Chajari	25.7.75. Accident 11.4.87 nr Monte Caseros, rep?
<b>LV-LGF</b>	A-1501032	Private	27.11.75
<b>LV-LLB</b>	A-1501033	AC Posadas	9.12.75. Accident 20.8.95 Posadas, 2 inj.
<b>LV-LLC</b>	A-1501034	AC Alta Gracia	27.11.75. Orig. AC San Justo.
<b>LV-LLD</b>	A-1501035	FBO San Fernando S.A	3.3.76
<b>LV-LLE</b>	A-1501036	AC Canada de Gomez	11.5.76
<b>LV-LLF</b>	A-1501037	AC Casilda	10.8.76
<b>LV-LNL</b>	A-1501038	AC Balcarce	12.11.76
<b>LV-LNM</b>	A-1501039	Circ. de Aviacion	22.6.77. Acc: 4.6.99 Pueblo Esther.
<b>LV-LYA</b>	1040	F.A.A. Aerea Material Cordoba.	Not used Not completed?
<b>LV-LYB</b>	1041	F.A.A. Aerea Material Cordoba.	Not used Not completed?
<b>LV-LYC</b>	1042	F.A.A. Aerea Material Cordoba.	Not used Not completed?
<b>LV-LYD</b>	1043	F.A.A. Aerea Material Cordoba.	Not used Not completed?
<b>LV-LYE</b>	1044	F.A.A. Aerea Material Cordoba.	Not used Not completed?

**Above, Left:** The author took flying lessons in this Cessna 150 c/n A-1501014 LV-LFL at Don Torcuato in June 1977. (M Magnusson)

**Above, Right:** LV-LGB c/n A-1501028 doing touch-and-goes at Gral Rodriguez on 27.6.09. (Michael Magnusson)

<b>LV-LLH</b>	A-A188-0018	Private	7.10.74
<b>LV-LLI</b>	A-A188-0019	Private	29.10.74
<b>LV-LLJ</b>	A-A188-0020	Agrober S.A.	15.11.74
<b>LV-LLL</b>	A-A188-0021	Private	26.11.74
<b>LV-LLM</b>	A-A188-0022	Agroaereo Srl	8.1.75
<b>LV-LLN</b>	A-A188-0023	Private	17.1.75
<b>LV-LNN</b>	A-A188-0024	Agricultora Fumigacion Srl	18.4.75
<b>LV-LYL</b>	A-A188-0025	Private	15.8.77
<b>LV-LYM</b>	A-A188-0026	Private	24.8.77
<b>LV-LYN</b>	A-A188-0027	Private	18.8.77
<b>LV-LYO</b>	A-A188-0028	Private	19.8.77
<b>LV-LYP</b>	A-A188-0029	Agrober S.A.	27.12.77
<b>LV-LYR</b>	A-A188-0030	Private	27.12.77
<b>LV-LYS</b>	A-A188-0031	Cesion de Derechos	2.2.78
<b>LV-LYT</b>	A-A188-0032	Private	8.2.78
<b>LV-LYU</b>	A-A188-0033	Private	25.7.78
<b>LV-LYV</b>	A-A188-0034	Private	31.7.78

(Production complete)

**Series to be continued . . .**

**Cessna A-A188B Agtruck**

<b>LV-LBD</b>	A-A188-0001	Private	6.12.72
<b>LV-LBE</b>	A-A188-0002	Ministerio De Agricultura y Ganaderia	26.12.72. Originally LQ-LBE. LV-LBE reg 26.11.73. Accident 19.1.85, 75% dam, Pacheco de Melo.
<b>LV-LBF</b>	A-A188-0003	Private	30.1.73. Mfd 22.5.72 (Or first flight date?)
<b>LV-LBG</b>	A-A188-0004	Yebila SA.	19.2.73
<b>LV-LBH</b>	A-A188-0005	Larrosa y Cia	2.5.73
<b>LV-LBI</b>	A-A188-0006	Private	4.4.73
<b>LV-LBJ</b>	A-A188-0007	Private	1.10.73
<b>LV-LBL</b>	A-A188-0008	Private	3.10.73
<b>LV-LBM</b>	A-A188-0009	Private	16.1.74
<b>LV-LBN</b>	A-A188-0010	Private	7.12.73
<b>LV-LBO</b>	A-A188-0011	Private	22.11.73
<b>LV-LBP</b>	A-A188-0012	Private	20.12.73
<b>LV-LGG</b>	A-A188-0013	Carlos M. Varela y Cia Srl	16.1.74
<b>LV-LGH</b>	A-A188-0014	Savesa S.A	16.1.74
<b>LV-LGI</b>	A-A188-0015	Private	16.1.74
<b>LV-LGJ</b>	A-A188-0016	Private	26.3.74
<b>LV-LLG</b>	A-A188-0017	Mangusta Srl	7.10.74



**Above:** A pair of Ag-Trucks seen at Rosario: the unpainted LV-LYN in 1977 and LV-LYV, the last example built, in 1978. (Both: Marcelo Miranda)



**Left:** The Cessna A-A188B AgTruck was the Argentine-built version of the A188B AgWagon - note the turned-down wingtips identifying this model. LV-LLG c/n A-A188-0017 was at Rosario in 1978. (Marcelo Miranda)

# The Development of Commercial Aviation in China

PART 11

## Civil Air Transport (CAT) 1946-1950



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### Introduction

This series of articles on Chinese Nationalist airlines continues with the history of CNRRA Air Transport, later renamed Civil Air Transport (CAT). This article covers the history of CAT from 1946 to 1950, when aircraft were used with Chinese XT- registrations, mostly in mainland China.

This is the first of at least three articles about CAT. Later articles will cover: Civil Air Transport, Inc. of Delaware, USA, and C.A.T., S.A. of Panama; and CAT's later history in Taiwan, when aircraft with B- registrations were used.

The background to the story of CAT in mainland China during this period is the Chinese Civil War, which has been described in Part 8A, *Archive*, Summer 2009.

### The Origins of CAT

Major General Claire Lee Chennault was the founding commander of the American Volunteer Group (AVG)(1941-42), popularly known as the "Flying Tigers", its successor organization, the China Air Task Force (1942-43) and then the United States Fourteenth Air Force (1943-45). (See *Archive* Part 6A, pp.2008/121-123, 126-127) He left China in the summer of 1945 in the midst of controversy. The Fourteenth Air Force had compiled an impressive record against the Japanese. In three years of combat, American fliers claimed some 2,600 enemy aircraft destroyed and 2,230 million tons of shipping sunk or damaged. Chennault enjoyed excellent working relationships with Generalissimo Chiang Kai-shek and Madame Chiang but not with General Joseph Stilwell and high command in Washington, so when Chiang Kai-shek finally succeeded in getting Stilwell recalled, Chennault had to leave too. An embittered Chennault retired from the USAAF shortly before Japan surrendered in August 1945.

Before his departure from Kunming in summer 1945, Chennault had extensive discussions with Lung Yun, governor of Yunnan province, and Dr Y T Miao, prominent businessman and government economist, about postwar possibilities in the area. The Yunnanese officials, anxious to preserve a measure of independence from the central government, suggested that Chennault return to China and head a provincial airline that would serve as Yunnan's link to the outside world. The airline would carry tin, Yunnan's main export, to ports in Indochina,

*Above:* A group of CAT Curtiss C-46s in identical black colour schemes with XT-814 in the foreground - which means that the photo must have been taken prior to December 1949. (via Ian D Johnson)

developing tourist traffic on the return trip. Chennault was sufficiently interested in the project to approach several subordinates about joining the airline in managerial positions.

Whiting Willauer was a graduate of Princeton University and Harvard Law School. In January 1939 he took a position with the Civil Aeronautics Board in Washington, DC but later that year transferred to the Department of Justice. The early months of 1941 saw rising international tensions as the United States edged closer to confrontations with Germany and Japan. Willauer, who held a reserve commission in naval intelligence, volunteered for active duty but failed the physical examination because of frequent dislocations of his right shoulder stemming from a lacrosse injury and a recent incidence of pleurisy. Distressed at the prospect of remaining behind a desk during times of crisis, Willauer contacted an old Exeter-Princeton roommate, Howard F Corcoran, about a job with the newly formed China Defense Supplies, Incorporated (CDS).

CDS had been formed in spring 1941 as the official Chinese counterpart agency to coordinate lend-lease activities after President Roosevelt had declared China eligible for American assistance. T V Soong, China's sometime foreign minister, headed CDS, aided by David M Corcoran (Howard's brother) and a group of Americans. Thomas G Corcoran, oldest of the Corcoran brothers and formerly a close personal adviser to President Roosevelt, was the organisation's political mentor.

Willauer joined CDS in July 1941 and assisted in setting up Chennault's AVG. He spent most of the war years in China on a variety of field assignments, mainly dealing with the logistical problems of Chennault's Fourteenth Air Force.

In May 1944 Willauer became director of the Far East and Special Territories Branch in the Foreign Economic Administration (FEA). Concerned with economic intelligence, procurement of strategic materials, and post-war planning, he spent the summer of 1945 in the Philippines, trying to restore the nation's economy.

In search of adventure, a sense of accomplishment, and enough money to finance the life he desired, Willauer returned to the United States in the autumn of 1945 and became involved in the Corcoran brother's plans to take advantage of post-war entrepreneurial opportunities around the world. Willauer wanted to start an airline in China, and he needed financial backing. In September 1945 Thomas and David



**Above:** Logos won by CAT aircraft: **Left:** the UNRRA tail logo; **Centre:** the CAT nose logo; **Right:** the Ministry of Communications tail logo. (via Ian D Johnson collection)

Corcoran and William S Youngman, a partner in Thomas Corcoran's Washington law firm, formed Rio Cathay, S.A., a Panamanian corporation, for the purpose of pursuing business ventures in China and South America. Rio Cathay arranged with Pennsylvania Central Airlines (PCA) for a fee of \$50,000 to fund preliminary work on Willauer's airline scheme. A letter of instruction to Willauer set forth the original scope of the venture: "You will, for the account of PCA, make in China a survey of the possibilities of ownership or operation by PCA of a civilian freight and passenger airline in China (including Manchuria), Burma and French Indo-China. The survey shall cover, among other things, technical, commercial, competitive and legal factors, and prospective relationships with lines entering China from other countries."

While making arrangements for the trip to China, Willauer approached General Chennault and suggested that he join the Rio Cathay group. The general told Willauer about his own plans for a post-war airline in Yunnan Province. That scheme, however, seemed less promising following the overthrow of Governor Lung Yun, Chennault's key supporter. Also, the central government no doubt would oppose Yunnan's bid for greater autonomy. After some discussion, they decided to merge the two ventures. Rio Cathay then secured \$35,000 from PCA for Chennault. The necessary financial arrangements completed, the two men headed for Shanghai, China's commercial centre, before the end of 1945.

After arranging for temporary offices and housing in Shanghai, Chennault and Willauer left in early January 1946 for a survey of Chungking and Kunming. Air transport seemed a natural field for development. China's inadequate road and railroad systems had been ravaged by nearly a decade of war. Air was the only means available for rapid movement of people and important cargo, and demand far exceeded supply. There was a passenger waiting list of fifty thousand in Kunming; even though willing to pay the full round trip fare to Shanghai, plus a black market premium, people were unable to obtain seats.

Chennault had no difficulty in arranging meetings with important Chinese officials to discuss plans for a new air service. T V Soong, now president of the Executive Yuan, was interested; General Chou Chih-jou, director of the National Aeronautical Commission, and Yu Fei-peng, minister of communications, promised support. Most important, Chennault had the sympathetic ear of Madame Chiang Kai-shek, his wartime patron.

Events during his first weeks in China filled Willauer with optimism. China's needs were so great the opportunity for additional air service was undeniable. The initial optimism soon faded as Chennault and Willauer learned more about the realities of Chinese politics. Two airlines were already entrenched in China. The China National Aviation Corporation (CNAC), 80% owned by the Chinese government and 20% by Pan American Airways, operated approximately thirty aircraft (see *Archive Part 10*), while the smaller Central Air Transport Corporation (CATC), entirely owned by the government, had a dozen C-47s in service (see *Archive Part 8*). Both companies, backed by powerful political interests within the factional Nationalist government, had plans to expand service and objected to increased competition. CNAC's officials, especially vociferous in guarding the airline's premier position in the field, argued that competition at this stage would probably hinder the orderly development of air transportation in China.

Potential competition was certainly not lacking. The Ministry of Communications (MOC) was flooded with applications from private and semi-official groups to establish new airlines. Most applicants could be fended off on the grounds that CNAC and CATC were China's chosen instruments in the field of air transport, but some interests were too powerful to be so easily thwarted. The government, for example, were under great pressure to permit operations by the Great China Aviation Corporation, an organisation backed by a coalition of influential businessmen and politicians. (see *Archive part 8B*)

Strong opposition to the two Americans also appeared from elements in the central government who viewed with hostility non-Chinese ownership of transportation facilities. Chennault, Willauer, and their supporters were well aware that nationalism was a volatile issue, part of a general anti-foreign bias in post-war China that was capable of generating considerable popular sentiment. Some proponents of Chinese control no doubt acted out of principle, but more cynical observers saw other motives on the part of certain individuals who sought to inflame public opinion against foreigners.

Finally, there existed considerable doubt that China's depleted reserves of foreign exchange could support additional aeronautical enterprises. Arthur N Young, financial adviser to the government, strongly opposed any increase in civil aviation, arguing that its expansion threatened to involve foreign exchange costs beyond what China could afford. He recommended that all airline flying be limited to the current level of five hundred thousand miles a month, representing an annual cost of \$10 million in foreign exchange.

What proved to be the key for operations in China came on 6 February 1946, when Colonel Ralph W Olmstead, director of operations for the United Nations Relief and Rehabilitation Administration (UNRRA), asked Chennault and Willauer to draft a proposal for an airline to carry UNRRA relief supplies that were piling up in coastal ports. Twenty-four hectic hours later, Olmstead had in hand the draft of a contract with "Chennault Airlines" to transport relief supplies to inland points and operate a commercial cargo service on the return portion of the trip. UNRRA, through its Chinese counterpart the Chinese National Relief and Rehabilitation Administration (CNRRA), would provide funds to purchase the necessary aircraft and equipment. Chennault and Willauer would operate the service and contribute working capital and their management skills. Olmstead recommended approval to his superiors in UNRRA.

Chennault and Willauer immediately went to work to obtain the necessary sanction of the Chinese government. The resulting negotiations proved to be difficult and tiring. At one point Chennault wanted to give up and go home. Even Willauer considered throwing in the towel. Finally progress was made. Willauer forced CNAC to admit that it could fill only a fraction of China's relief needs. He countered Young's objections by pointing out that foreign exchange would be supplied by UNRRA; there would be no additional drain on China's dwindling reserves. Emphasis on the relief character of the enterprise also helped to undermine opposition on nationalistic grounds. Following a series of deft manoeuvres, and with crucial support from T V Soong, the Chinese government in late April gave tentative approval for operation of the relief airline.

UNRRA's consent proved an even thornier problem when the airline project became the focal point in a continuing dispute between UNRRA and CNRRA over the conduct of relief operations in China. In early May

a long-simmering dispute between T V Soong and T F Tsiang (Chiang Ting-fu), director of CNRRA, came to a head when two senior UNRRA officials arrived in China to lend support to Tsiang and work for Olmstead's removal. Willauer, rightly or wrongly, viewed the dispute primarily as a battle by Soong and Olmstead against corrupt practices. Olmstead, supported by Soong, was trying to deliver supplies directly into the interior of China, bypassing Shanghai, where corrupt CNRRA officials could divert relief supplies onto the black market. Determined to control distribution, CNRRA wanted to operate the proposed relief airline as their own little racket, if it ran at all.

While Willauer and Olmstead struggled in China against efforts to undermine the airline project, the major battle for UNRRA's approval was being fought in the United States. It was at this juncture that Thomas Corcoran, a veteran Washington lobbyist, brought to bear his considerable political talents. The details of his activities are unclear. A cautious man by nature, even when communicating with close associates, Corcoran mentioned only the "hard fight" in gaining approval from UNRRA and the State Department for the airline and alluded to the machinations of "the old opposition". Corcoran's efforts proved successful, although only after the personal intervention of Fiorello LaGuardia, director-general of UNRRA and a former mayor of New York, was final clearance granted.

On 25 October 1946, Chennault and Willauer signed the contract with CNRRA creating CNRRA Air Transport (CAT). The agreement stipulated that UNRRA would allocate \$2 million to CNRRA for purchase of aircraft and equipment, and would provide an additional \$1.8 million in foreign exchange for payment of wages to foreign personnel, and purchase of fuel and other imports. CAT would operate the aircraft primarily to carry relief supplies from coastal ports into the interior of China. Although CNRRA cargo would have first priority. CAT could sell unused return space to the general public at prevailing commercial rates. CNRRA would pay CAT forty-six cents per ton-mile for the first 10% of relief cargo flown each month and ninety cents per ton-mile for the remainder. Chennault and Willauer were obligated to furnish \$1 million for working capital and to absorb any losses in the conduct of operations. Most important, they were granted an option to purchase the aircraft at cost plus 10% interest, compounded annually. Criticism of CAT appeared before the ink had dried on the contract. A group of disgruntled Chinese businessmen who had failed in their efforts to enter the commercial aviation field attacked the proposal as a thinly disguised scheme to establish a private American airline in China. The *China Press* cited the generous provisions for purchase of the aircraft and argued that the original humanitarian purposes of the operation had been steadily diluted by self-interest.

Stung by this public criticism, Willauer promptly responded in a letter to the editor of the *China Press*. He defended the sincerity of Chennault's desire to assist the Chinese people in time of need. Furthermore, the contract with CNRRA guaranteed that priority would be given to relief cargo. CAT's rates would be reasonable, and there was no guarantee of profit.

Near disaster came quicker than Willauer could have imagined. Just as months of difficult labour had come to happy fruition with conclusion of an operating agreement, the entire project threatened to collapse because of the lack of essential operating funds. During the early stages of negotiations, Pennsylvania Central Airlines, original backer of the project, appeared ready to supply the necessary funds to begin the operation. These plans fell through however and Chennault had to return to the United States to assist Corcoran in search of financial support. Sometime during the summer of 1946, Chennault concluded an agreement with Robert Prescott, former member of the American Volunteer Group and now head of Flying Tiger Line, a pioneer air freight operation, whereby Prescott would lend CAT the necessary operating capital in return for an equity of 24% in the airline. Following a personal survey of the situation in China, Prescott advanced an initial \$20,000 to CAT and sent out his brother, George Lewis Prescott, an accountant, to control expenses.

Unfortunately an accident destroyed these carefully laid plans. George Prescott was quietly sitting on a couch in the Hotel Manila on 5 October, having come to the Philippines to check on the purchase of surplus C-47s, when he was caught in the middle of a gun battle between rival Filipino gangs. Struck in the head by a stray .45 calibre slug, he died instantly. Robert Prescott, who apparently had reservations about the scheme, pulled out of the China venture in the wake of his brother's untimely death.

At the same time that arrangements with Prescott fell apart, Willauer received depressing news from Corcoran in early October. Corcoran wrote to say that the romance of investing in exotic projects in China had about worn out in the American securities market and now they were only interested in business plans that showed good profit-making capacity on the basis of real earnings. Furthermore, Corcoran said that he intended to concentrate on more lucrative projects in South America.

With CAT's meagre funds being rapidly depleted and lacking prospects – and time – for American financing, Willauer turned in desperation to Chinese businessmen. L K Taylor, a wartime associate, and Wang Wen-san, manager of the Kincheng Bank, a large Chinese commercial institution, put together a syndicate of financial backers, headed by Wang Yuan-ling, that offered a loan of \$250,000 (in Chinese currency). The terms, as Willauer expected, were stiff. The loan, which represented only one-quarter of the originally desired operating capital, would run for eighteen months at interest. In return, the Chinese financiers would obtain an equity of 42% in the airline. Willauer had no choice but to agree. The working capital was paid on 30th November 1946.

Although Willauer had saved CAT from an early demise, he received little thanks from backers in the United States. In a sharp letter, Corcoran argued that Willauer should have held out for a better agreement. Furthermore, Corcoran continued, American capital was still a possibility. He pointedly reminded Willauer that his associates had expended \$120,000 on the airline project over the past fifteen months, as well as enormous effort to secure UNRRA's blessing. During negotiations with Prescott, Chennault had agreed that Prescott would receive an equity of only 24% in the airline, with Chennault and Willauer obtaining 38.5%, and 37.5% going to Corcoran and his associates. The new arrangement, with greater Chinese equity, meant that Corcoran would receive only 28.5%.

Willauer may not have fully understood the problems in the United States, but Corcoran failed to appreciate the situation in China. Money had been needed immediately or everything would have been lost. Moreover, as Willauer pointed out to Corcoran, Chinese participation was proving essential to the success of the enterprise. Most disturbing to Willauer was an apparent lack of concern for Chennault's contribution to the scheme.

The talents of Chennault, Willauer, and Corcoran were equally crucial to the initial success of the project. They had brought the idea of an airline to the reality of aircraft, pilots, and routes. With great difficulty and after considerable frustration, they had secured a temporary franchise from the Nationalist government. The contract with CNRRA involved some risk, but it offered attractive possibilities for profit. And operating capital had been raised, even if not on the most favourable terms.

Ahead lay the challenging task of making an airline, which so far had existed only on paper, into a going concern. As events during the winter of 1946-47 made clear, operating aircraft in China was a hazardous undertaking. [Leary PM pp.3-21]

## **CNRRA Air Transport**

There was a series of fatal air transport accidents in China on 25th December 1946, which became known as "Black Christmas". The worst day in Chinese commercial aviation finally came to an end after seventy-two lives had been lost. Further fatal accidents followed in early 1947, as described in Part 10 (*Archive* pp.2010/22).

Among the welter of post-mortems, a report by Brigadier-General John P McConnell, director of the Air Division of the U S Army Advisory Group, is the most persuasive. McConnell had been asked by General George C Marshall, head of the peace mission to China, to prepare a confidential study of civil aviation, which Marshall intended to present to the generalissimo.

McConnell pulled no punches in his comprehensive inquiry into the causes of China's air disasters. The recent loss of commercial aircraft, he stressed, was "more than mere accident." Rather, it revealed glaring deficiencies in all areas of aeronautics. China lacked suitable airfields, point-to-point and air-to-ground communications were inadequate; few modern radio aids to navigations existed; and weather reports were sparse and unreliable. Maintenance standards at CNAC and CATC left

a good deal to be desired, and both airlines lacked a continuing training programme for pilots. The government had failed to set standards or exercise proper regulatory authority in all areas. McConnell concluded that commercial aviation in China was not satisfactorily organised, was improperly operated, was not adequately supervised or regulated, was not soundly backed financially, was not equipped with the necessary facilities to provide safe and efficient operations, was undesirably entangled with military aviation, did not receive support and cooperation with military aviation and was attempting a 1946 type of operation with 1926 type of facilities. McConnell offered a series of recommendations but acknowledged that it would take years to correct many of the problems. In the meantime, China would continue to be a hazardous environment for aviation.

It was in this context of public apprehension about air safety that CNRRA Air Transport prepared to commence operations.

Chennault had been working for months to bring together the necessary men and equipment to get CAT off the ground and into the air. Colonel Richard W Wise, a career officer who had served under Chennault in the Fourteenth Air Force, arranged detached service through Secretary of War Robert P Patterson and joined the airline as operations manager. Wise supervised establishment of airfield facilities and played a major role in recruitment and organisation of air and ground personnel. He was assisted by old China hand Charles W Hunter, who would take over operations when Wise returned to military duty in mid-1947. Major Kenneth W Buchanan, air inspector for the Air Transport Command at Shanghai and veteran of the Hump, became chief pilot. H L Richardson and Mervyn A Garrod were hired to set up maintenance facilities, while John M Williams and Roger Shreffler organized communications.

Great China Aviation Corporation, on the verge of bankruptcy after several months of sporadic operations, provided the former navy pilots Willis P Hobbs and Weldon D Bigony. The Marine Corps Air Wing at Tsingtao contributed several young aviators who were destined to play an important role in CAT's future, including A Lewis Burridge, Var M Green, and Lawrence R Buol. Robert E Rousselot, a marine stationed at Peking, also took his discharge and joined the airline. From the Peking-based 332nd Troop Carrier Squadron, Wise recruited Army Air Force pilots Harry B Cockrell, Stuart E Dew, Paul R Holden, and Frank L Hughes. Doreen Lonberg, Chennault's wartime secretary, established an office in Washington and began to recruit American personnel, arrange purchases in the United States, and set up a system of home pay allotments.

CAT's contract with CNRRA called for the continuous operation of twelve aircraft. To maintain this level, Chennault decided to acquire five C-47s and fourteen C-46s for flight and three for spare parts. Suitable C-46s were located among surplus stocks in Honolulu, but some time would be needed before they could be flown to China. The five C-47s, however, were available immediately in the Philippines. In early November, while Willauer negotiated with Chinese bankers and working capital was at an absolute minimum, Chennault gave Burridge and Green a certified cheque for \$500 and sent them to the Philippines with orders to get the C-47s to Shanghai as soon as possible.

The former marines found a depressing sight when they arrived at Clark Field. The aircraft had been in deep storage for over a year, and decay had taken a heavy toll. Preparing the rusting "gooney-birds" for flight seemed an impossible task. They hired two Filipino mechanics who had a jeep. With everyone working long hours and with liberal "borrowing" of parts and equipment from sympathetic Army Air Force former comrades-in-arms, the men worked a minor miracle. By mid-January the first three C-47s were ready for flight. There was even enough money remaining to paint #404 with airline colours.

[Note: "#404" is probably the "last three" of a USAAF serial number, such as 43-16404 c/n 20870, which saw use in China but reportedly with the CAF, not CAT. See CAT fleet list later in this issue.]



**Above:** The first C-46s arriving for CAT/CNRRA at Shanghai from Hawaii, led by "543" which became XT-830. (Ian D Johnson collection)

**Below:** 43-16215 was CNRRA's first C-47, later XT-801, and also wears the figure "314" in the logo on the rudder during early relief operations. (via M Miller/M S Best)



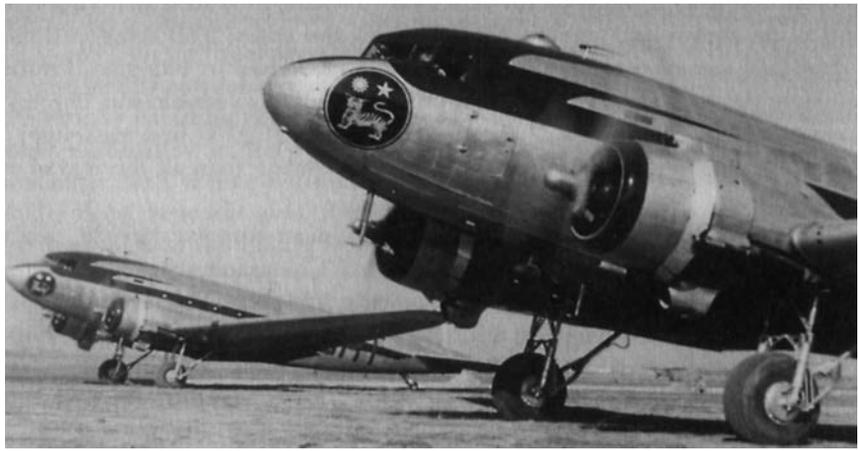
Meanwhile, CAT's staff at Shanghai accelerated preparations for the arrival of the first aircraft. The new boy on the block of Chinese aviation, CAT had to settle for two shanty-like buildings on Hungjao airfield, the least desirable of Shanghai's three airports. As they picked up rocks and filled in potholes preparing the landing area for operations, CAT personnel could only look with envy at the superior facilities at Kiangwa, used by the Army Air Force, and at Lungwha, CNAC's main base. Hungjao even lacked a windsock. Merv Garrod, demonstrating the "CAT spirit", solved the problem by designing one himself, purchasing several yards of silk, and arranging with a Russian dressmaker to stitch together the most elegant landing aid in China.

The three C-47s, flown by Burridge, Green, Cockrell, Dew, Holden, and Hughes, left the Philippines on 24th January 1947. Delayed at Canton because of low ceiling and poor visibility at Shanghai, the aircraft did not reach Lungwha, the designated port of entry, until the afternoon of 27th January. But discomfort was forgotten when the C-47s taxied up the ramp. All eyes turned to #404. Painted in silver trimmed with blue, with C A T in bold red letters on the side of the fuselage and the company insignia on the nose, the transport produced an excitement and pride that would remain vivid through the years. Following customs formalities and picture-taking, the aircraft were flown to Hungjao.

The "official" start of the airline came – almost – on 29th January, when #404 left Shanghai for Canton with General Chennault, twelve company and CNRRA employees, a jeep and office equipment. Seventy-five miles out of Shanghai, however, the aircraft ran into severe icing. Because #404 lacked de-icing boots, Captain Hughes had no choice but to return. With bad weather forecast (wrongly) for the next day, the flight was rescheduled for 31st January.

Although the weather finally cooperated on 31st January, CAT's problems were not over. When Captain Hughes hopped over to Lungwha

*Right: Photo said to show the arrival of the first CAT C-47s in January 1947 - although both these unidentified examples are already in the new colour scheme! (R E Rousselot via IDJ collection)*



for fuel on the morning of the flight, Chinese customs agents impounded the aircraft on the grounds that the cargo had not been inspected. Everything would have to be unloaded and approved, they demanded, before the aircraft could depart. Frustrated CAT officials estimated that this procedure would entail at least another twenty-four-hour delay. After considerable conversation, customs relented and permitted #404 to leave in the early afternoon.

Canton, designated by CNRRA as the main base for airlift of supplies into the interior, became the focal point of activity in early February, as CAT personnel worked to set up permanent maintenance facilities at the Tien Ho military airport. Two C-47s inaugurated relief operations on 2nd February when they left for Liuchow with nine thousand pounds of medical supplies. Earmarked for distribution throughout Kwangsi Province, the supplies had been sitting in Canton godowns for three months, awaiting shipment inland. Even had a junk been available, the journey to Liuchow would have taken three weeks. CAT delivered the cargo in two hours.

Two additional C-47s arrived from the Philippines by mid-February, and the pace of operations quickened. Employees were added to the payroll at a rapid rate, reaching a total of 158 by the end of the month. Despite a plague of icing, low ceilings, and poor visibility, CAT crews continued to pile up flight hours. The airline flew 40,117 ton-miles in February, a modest but respectable beginning.

Early March brought the arrival of the first three of seventeen C-46s, aircraft destined to form the backbone of CAT's fleet over the next decade. After hearing reports about surplus C-46s in Hawaiian depots, Chennault had asked his son-in-law, Robert Lee, to inspect the large twin-engine transports at Wheeler Field. Lee reported that the aircraft were in mint condition, with a bare 165 hours the highest time on any one. Chennault snapped them up. Based on initial reports he hoped to have the seventeen airplanes ready for delivery in two weeks. Unfortunately, the C-46s had been thoroughly "pickled". The preservatives had to be removed, engines and flight instruments cleaned and checked, overwater navigation equipment installed, and test flights conducted. CAT's staff in Honolulu grew from half a dozen to fifty, and the weeks stretched into months.

Dave Hinkler's first job as crew chief was to service and install long range fuel tanks in fifteen of seventeen C-46s that the General and Willauer had purchased from the War Surplus Administration (sic). The aircraft were at Wheeler Field, Oahu. These aircraft were almost brand new with less than a hundred hours out of the factory. They got the C-46s serviced and the B-24 bomb bay tanks installed and sent off to China. [Rosbert p.84]

The detached personnel, especially pilots, later recalled this period with great fondness. Newly available operating capital eased the financial crisis, and there was no longer the need for the penny-pinching that Burrige had needed to do in the Philippines. The ground staff worked hard to get the aircraft ready for flight, although the previous sense of urgency seemed lacking. The pilots drew their salary, \$10 per diem, and had their bill paid at the Niumalu Hotel. With little to do, they rented cars and enjoyed the Hawaiian social scene.

The first four aircraft, flown by John R Rossi, C Joseph Rosbert, Robert Conrath, and Ozzie Young, left Honolulu in late February. Young was grounded on Johnson Island with engine trouble, but the remaining three fliers continued the island-hopping route to Manila. Following a brief layover in the Philippines they flew in formation to Canton, completing the four-thousand-mile trip on 2 March. Additional aircraft kept coming for several months, with William A Dudding bringing in the last C-46 at the end of May. Bill Dudding later flew for the Lutheran World Federation in China. (See Part 9).

March and April 1947 saw CAT make steady progress, amassing ton-miles of 91,343 and 109,426, both figures more than double February's total. UNRRA/CNRRA cargo included 100 tons of medical supplies for

a leper hospital at Nanchang, 150 tons of seeds needed for early spring planting, more than 1,300 displaced persons, and thousands of tons of miscellaneous relief items.

The most challenging operation came in early March, when UNRRA asked CAT to transport several hundred sheep into the far north-western province of Kansu. Colonel Wise argued that CAT should refuse the cargo because the aircraft would be left smelling so badly they could never be used for anything else. Louise Willauer suggested the use of diapers. To Wise's chagrin, Chennault sided with Louise. Instead of diapers, however, he ordered the floors covered with canvas and the aircraft disinfected afterward.

Operation "Bo-Peep" began on 22 March. Captain Robert E Rousselot, who had grown up on a farm that had a few sheep, took charge of twenty-five pedigreed New Zealand rams and ewes, a gift of Corridale breeders, for the twelve-hundred-mile journey from Shanghai to Lanchow. Seventeen bales of hay divided the aircraft into pens. The sheep could nibble the hay en route; after arrival, it would be used for feed during the three-day truck ride to a final destination in the interior of the province. The flight went off without a hitch. "Bo-Peep" continued until 22nd May. Altogether, CAT carried 425 sheep from Shanghai to Lanchow and 200 from Shanghai to Peking. The success of the operation added to the airline's growing reputation that it would transport anything anywhere anytime.

Despite the shipment of tons of medical supplies and seeds, hundreds of sheep, and thousands of displaced persons, it was clear by early April that there was not enough priority relief cargo to keep the airline operating at full capacity. Unless additional cargo could be found, CAT would be in deep financial trouble. Chennault and Willauer flew to Nanking, met with Chiang Kai-shek, and asked for an amendment to their contract with CNRRA that would permit carriage of any cargo on China's approved import list. They argued that the import list represented the government's choice of items needed for relief and rehabilitation. Chiang readily agreed to this crucial contract revision, and CAT's owners breathed a sigh of relief.

The new policy on inbound cargo, plus a contract with the Chinese Post Office to carry mail, contributed to a sharp increase in ton-miles during May (286,343) and June (322,820). UNRRA/ CNRRA cargo, which continued to have priority, now represented only 40% of ton-miles flown. The increased totals also reflected progress in solving the continuing problem of locating return loads for the airline's growing fleet of transports.

Filling return cargo space, available to the public at prevailing commercial rates, had been left for the most part to the pilots, who handled this responsibility well on occasion. Rousselot, for example, made a double success of the first "Bo-Peep" flight by arranging in Lanchow for a return load of bristles. A valuable export commodity, the bristles brought the government \$18,000 in precious foreign exchange. But all too often CAT's airplanes flew empty. Willauer managed a partial solution to this vexing problem by filling an empty leg in the Canton-Liuchow-Kunming route.

CNRRA had abundant cargo at Canton for Liuchow, but CAT had to fly to Kunming, nearly four hundred miles away, to locate a return load for Canton. In April Willauer signed a contract with Standard Oil to carry

one thousand tons of petroleum products from Liuchow to Kunming. In return Willauer agreed to give CAT's fuel contract to Standard when UNRRA supplies came to an end on 30th June. Not only did the agreement mean a profit for the Liuchow-Kunming route, but Standard also made a down payment of CN\$1.5 billion (US\$130,000 at CN\$12.00 = US\$1). These funds came at a crucial time. CAT's working capital had been used up, and the large outstanding balance for freight carried to date had not yet been paid. The problem of return cargo, however, remained a source of concern throughout the year.

Another potential trouble spot was the dwindling reserves of spare parts for CAT's fifteen operational C-46s. By early April the airline had an estimated six-week supply of parts. Fortunately, twenty-five surplus C-46s were located in the Philippines. UNRRA, after some foot-dragging, agreed to provide \$183,000 to purchase the aircraft. Chief Engineer Richardson had the C-46s in China by late June, thus giving CAT an assured source of spares and a reserve for possible later expansion of its fleet.

The following twenty-five C-46Ds were acquired in the Philippines for use as spares by CAT; at least three were put into service.

#	c/n	p/i	acquisition	fate
#1	22342	44-78519	UNRRA	(19May47)
#2	30535	42-101080	UNRRA	(19May47)
#3	30538	42-101083	UNRRA	(19May47)
#4	30583	42-101128	UNRRA	(19May47)
#5	30596	42-101141	UNRRA	(19May47)
#6	30597	42-101142	UNRRA	(19May47)
#7	30618	42-101163	UNRRA	(19May47)
#8	32746	44-77350	UNRRA	(19May47)
#9	32755	44-77359	UNRRA	(19May47)
#10	32761	44-77365	UNRRA	(19May47)
#11	32768	44-77372	UNRRA	(19May47)
#12	32775	44-77379	UNRRA	(19May47)
#13	32781	44-77385	UNRRA	(19May47)
#14	32878	44-77482	UNRRA	(19May47)
			To CAT as XT8.. (see below)	
#15	32879	44-77483	UNRRA	(19May47)
#16	33128	44-77732	UNRRA	(19May47)
#17	33132	44-77736	UNRRA	(19May47)
			To CAT as XT8.. (see below)	
#18	33152	44-77756	UNRRA	(19May47)
#19	33153	44-77757	UNRRA	(20May47)
			To CAT as XT8.. (see below)	
#20	33173	44-77777	UNRRA	(19May47)
#21	33174	44-77778	UNRRA	(19May47)
#22	33185	44-77789	UNRRA	(19May47)
#23	33189	44-77793	UNRRA	(19May47)
#24	33322	44-77926	UNRRA	(19May47)
#25	33324	44-77928	UNRRA	(19May47)

[Air-Britain C-46 monograph; Leary PM p.31]

See fleet list below for possible subsequent identities of aircraft put into service.

Dave Hinkler, a CAT crew chief, went to the Philippines, Clark Air Base, where the General had purchased an additional twenty-five war-weary C-46s which they made flyable and sent to China. These aircraft were to be their spare part bins, because the General also bought a surplus parts depot in Tacloban, Leyte. They flew all the planes there from Manila, loaded them with all the spares they could carry, and flew them to Canton, China. [Rosbert p.85]

Chennault and Willauer were less successful in ongoing dealings with the Chinese Air Force, which required CAT to clear all flights with the Civil Aeronautics Administration (CAA). Although CAT's landing permits were routinely granted by the CAA, they were not always honoured by the Air Force. All too often, the CAF would allow an aircraft to land but then impound it. Kunming, where the airport, Chennault Field, was named after General Chennault, had an especially unsavoury reputation. The problem arose because the CAF's Troop Carrier Command was in fact in the airline business and the CAF did not appreciate competition. Earlier they had used the same technique to crush the Great China Aviation Corporation, and it seemed intent on undermining CAT. Although Chennault spoke to Chiang Kai-shek about the problem and received assurances of cooperation, the CAF remained a law unto itself.

Although relations with CNRRA had improved steadily, especially after P H Ho replaced T F Tsiang as director-general, UNRRA seemed intent

on making life difficult for the fledgling airline. Tardy payment of foreign exchange caused continuing crisis. On more than one occasion, Chennault and Willauer had to soothe disgruntled pilots and mechanics who were threatening to strike because home allotments had not been paid.

Despite the many problems, business remained good. In the first ten days of July, CAT flew 300,000 revenue ton miles, which equalled the entire month of June. And the pace continued throughout the summer. CAT flew 617,693 ton-miles in July, followed by 762,251 in August, and 690,948 in September.

A rapid growth of traffic north of the Yangtze River caused Shanghai to become the airline's main operational base by summer, with Canton remaining the centre for maintenance. CAT acquired additional facilities at Hungjao, investing CN\$300 million (US\$250,000) in runway improvement, installed runway lights, arranged housing for newly assigned flight crews, and consolidated its head offices on the seventh floor of number 17, The Bund.

CAT's management stressed safety in flight operations, a vital consideration in light of the many accidents suffered earlier in the year by China's commercial airlines. Thanks to this policy CAT managed to escape serious accidents during the summer of rapid expansion, but there were at least two close calls.

The first came in August, when Captain Rousselot lost an engine over mountainous terrain between Liuchow and Chungking. Gradually losing altitude in clouds, Rousselot ordered part of his cargo jettisoned. He broke out in a valley between high mountains and returned safely to Liuchow. As it happened, his cargo consisted of five-gallon-size rectangular canisters filled with the government's new CN\$10,000 notes. For a time CAT faced the threat of a claim for US\$1 million, the value of the bank notes, but nothing came of it.

The following month brought a serious incident in the Northwest. CAT was required by the CAA to use CNAC radio aids to navigation. CNAC, CAT's major competitor, charged what Willauer and Chennault considered to be exorbitant fees for the service. When CAT refused to pay, CNAC cut off service without warning, endangering an aircraft en route to Lanchow.

The Chinese economy took a sharp turn for the worse during the summer of 1947. Commodity prices skyrocketed, and attempts to stabilise the currency proved fruitless. In August, under great pressure, the government retreated from the increasingly unrealistic official exchange rate of CN\$12,000 to US\$1 and added an open market rate of CN\$40,000 to US\$1. Although the accelerating inflationary spiral forecast the ultimate doom of CAT and all other economic enterprises in Nationalist China, the immediate effects were mixed. CAT had to use the open market and, on occasion, black market rate to purchase dollars for home allotments, fuel, and other important items. Because changes in prevailing commercial rates for air freight, set by the government, lagged behind inflation, CAT's operational costs climbed steadily. Also, CNRRA continued to pay for transportation at CN\$12,000 to US\$1. But these difficulties were more than offset by CAT's ability to use the official rate in repaying its loan to CNRRA.

CAT's owners wisely ploughed back as much as possible to pay off the loan. A crucial breakthrough came in late September, when the Yunnan People's Development Corporation agreed to purchase a 7% equity in CAT, based on a valuation of \$3 million. This transaction not only brought powerful provincial interests into the company, but also established the airline's worth.

The Yunnan interests paid \$210,000 for the 7% equity at an open market rate of CN\$46,000 to US\$1, or CN\$9.66 billion. CAT's stockholders promptly loaned the money back to the company to pay off CNRRA's loan at the official rate. Using CN\$12,000 to US\$1, CAT paid CNRRA the equivalent of US\$805,000, or nearly half the total amount of the original loan. Added to prior payments, this meant that Chennault, Willauer, and associates owned nearly 90% of the airline. The sale of stock went a long way in assuring CAT's future.

CAT finished 1947 with a flourish, flying more ton-miles in the last three months of the year (3,414,996) than it had during the first eight months of operations. CAT carried 300 tons of wolfram ore from Kunming to Liuchow for the National Resources Commission; 138 baskets of silk-worm eggs from Kunming to Shanghai, which when hatched would

supply one-quarter of China's silk export; 3,000 tons of cotton and tobacco from Peking to Taiyuan; tons of high-denomination bank notes to cities throughout the country; 748 Japanese repatriates from Taiyuan to Peking; 220 orphans, 19 Sisters of Charity, 67 Trappist monks and mission staff, and eight cows from Shihchianchuang to Peking; and 55 Russian refugees from Lanchow to Shanghai. Requests for air transportation far exceeded supply. Ma Kuo-yi, chairman of the Sinkiang Moslem Cultural Association, implored CAT to fly 500 tons of critically needed cargo to Sian for delivery to Sinkiang by truck. The goods – paper, movie projectors, printing machines, well drillers, water pumps, and cotton – had been sitting in Shanghai for months. Ma was only one of many who begged CAT for assistance during the year.

Shantung Province registered the most dramatic increase in business. In April 1947 Chennault assigned A Lewis Burridge, an able young pilot, to shuttle medical supplies between the port city of Tsingtao and the provincial capital of Tsinan. The mission was supposed to last four days; however, because of red tape it took nearly a month to accumulate fifteen hours of flying. The energetic Burridge used the enforced free time to explore the province's transportation needs. The Communists, he found, controlled 80% of Shantung. As was usually the case, Nationalist elements held the large urban areas, while the Communists ruled the countryside. Railroads, the lifelines that connected government-held centres, were coming under heavy attack as the Communists stepped up their efforts to interdict traffic. Increasingly, the cities were becoming Nationalist islands in a Communist sea, with air the only means of transportation.

Largely through Burridge's efforts, CAT's activities in Shantung grew appreciably during the summer and autumn. The airline carried a variety of goods, ranging from cows for missionary dairy farms to hospital supplies. The main cargo, however, was raw cotton, airlifted two hundred miles from Tsinan to the government's China Textile Corporation at Tsingtao. The Corporation, one of the country's largest cotton mills, employed 19,000 workers, used 332,468 spindles, and produced each month 13,000 bales and 30,000 bolts of cotton cloth. Use of aircraft to haul raw cotton, which would normally move by rail, obviously made sense only because of the exigencies of war. The giant Tsingtao mill would have stood idle without CAT.

CAT extended service to Tientsin in early November, agreeing to carry one hundred tons of Tsinan cotton to the old treaty port on the Hai River and return with six hundred drums of badly needed kerosene. Burridge also opened a route to Lini, a Communist-isolated city in southern Shantung. December brought a contract with the Tobacco Development Company, a provincial concern, to airlift five hundred tons of tobacco from Tsinan to Tsingtao.

Flying in Shantung, an increasingly active war zone, was not without hazard. CAT aircraft were often fired on and sometimes hit. Captain Hughes took a bullet through the "tiger-cat" insignia on the nose of his C-46 while en route to Tsinan from Tsingtao. Captain Green found four bullet holes in the tail section of his airplane following an instrument letdown at Tsinan. These incidents turned out to be only a modest taste of what CAT pilots would face in the near future.

The approach of winter brought late sunrises and early sunsets to northern China, sharply cutting into available flight time. Undaunted, Burridge devised a system of runway lighting to permit limited night operations at Tsingtao. Mixing gasoline, oil, cotton, and sand in a specially cut GI vegetable tin, he improvised flares that would burn for four hours. The system worked extremely well.

The jerry-built lighting system represented only one of Burridge's many contributions to the success of CAT's operations in Shantung. Dr Frank Herrington, in charge of UNRRA operations in Tsingtao, wrote to Chennault that Burridge was the "main sparkplug" of CAT's "excellent organisation" in the province. Robert C Strong, American consul at Tsingtao, remembered the young, curly-headed former marine as a "gung-ho, can-do type, always full of ideas and plans, with great nervous energy, apparently thriving on pressure and confusion."

Evidence of the spirit that Burridge brought to the Tsingtao operation came once again on 22nd December. That day began long before sunrise when the call "Chow Be Ready!" sounded at 4:30 am in the CAT "Castle". Sleepy flight crews hurried through breakfast, then left for the airfield at 5:00 am. Four aircraft stood ready on the flight line; cargo had been loaded and manifested during the night. Burridge's improvised flares lighted the runway for takeoff at 5:45 am, some two hours

before the rising sun touched the red-tiled roofs of the city. While the twin-engined transports made the four-hundred-mile round trip to Tsinan, coolies staged the next load on the ramp. When an aircraft returned, a Standard Vacuum Oil Company gasoline truck appeared for refuelling even before the transport's propellers had stopped turning. Well-trained coolies offloaded and reloaded, a mechanic checked for problems, and the crews grabbed a quick sandwich. Everything was done in twenty minutes, and the fat-bellied C-46 was on its way again. The scene was repeated throughout the day until the last flight returned to Tsingtao long after dark. A weary but proud staff finally made their way back into town, content in the knowledge that they had set another record; 219.43 tons carried and 29,108 ton-miles flown in one day.

Chennault and Willauer also experienced the deep sense of satisfaction that comes when a long and tiring effort ends in success. December brought long-awaited news the airline's franchise would be renewed.

CAT's original agreement permitted operations only during the lifetime of CNRRA. With the relief agency scheduled to go out of business at the end of 1947, Chennault and Willauer quickly began work establishing the airline on a more permanent basis. In early July they toured the provinces hoping to drum up support for a reorganised and recapitalised company. The missionary work finally paid off in September, when Yunnan provincial interests purchase 7% of CAT. Use of these funds to push amortisation beyond 80% went far towards assuring the airline's continued operation; the agreement also brought a powerful provincial voice to CAT's side during negotiations on franchise renewal.

Clyde A Farnsworth, the airline's talented public relations officer, orchestrated an impressive publicity campaign, designed to fend off criticism and create a favourable climate of opinion for continued operations. He cultivated Shanghai newspapermen and kept them well supplied with stories about CAT's activities. The pieces stressed China's great need for air transportation and CAT's contribution to the relief and rehabilitation programme. The climax of Farnsworth's efforts came in October with publication of an "Anniversary Supplement" to the *CAT Bulletin*. CAT printed and widely distributed some fifteen hundred copies of this sixty-seven-page bilingual recitation of the airline's many services to China. Intense lobbying in Nanking by CAT's Chinese stockholders, led by Wang Wen-san, added a key element to the fight for renewal.

On 2nd January 1948, months of intense effort reached fruition when Chennault and Willauer signed a draft agreement for continued operations of the airline; Colonel Tai An-kuo, director of the Civil Aeronautics Administration, signed for the government. Under terms of the draft, confirmed in the final contract on 28th May 1948, the government granted Chennault and Willauer, personally, the right to operate an airline in China under the direct control of the Ministry of Communications. "Civil Air Transport of the Civil Aeronautics Administration, Ministry of Communications," the authorised name under which the partnership would function, was granted the right to conduct non-scheduled air service in all areas of the country for one year.

The government insisted on this partnership arrangement. The Ministry of Communications explained that the civil aviation law of China, which had been promulgated but not yet put into effect, prohibited foreign ownership of aviation companies. As a partnership (not a company) operating within the ministry, CAT would not be in violation of the law. Although this special status would cause bitter controversy in the future, it seemed at the time a reasonable way of resolving a difficult problem. Moreover, it was the only way for the airline to continue operations in China.

Looking back on the year's activities, Chennault and Willauer had every right to take pride in their accomplishments. CAT had flown nearly two million miles in fifteen thousand hours and had carried almost seven million ton-miles of cargo. The airline had transported tons of needed relief supplies to the interior and had brought out exports valued at over \$6 million. More than twenty-seven thousand passengers had been airlifted without fatality or serious injury, a remarkable safety record in light of the primitive operating conditions in China.

Chennault and Willauer had paid off the funds advanced by UNRRA. They and their partners owned an airline with currently eighteen operational aircraft, 822 enthusiastic employees, and a reputation for efficiency and flexibility. The transition had been made from CNRRA Air Transport to Civil Air Transport, and future profits seemed assured.

But all was not well in China. The new year brought heavy fighting in Manchuria between Nationalist and Communist forces. The civil war had taken a turn for the worse, and CAT would soon get caught up in the growing conflict. [Leary PM pp.22-37]

## CAT and the Chinese Civil War

The long-simmering civil war in China entered a new phase during the winter of 1947-48. Ignoring sound military advice, Chiang Kai-shek had concentrated his best troops in Manchuria. Nationalist forces had seized control of the major cities but were never able to extend their authority very far into the countryside. The generalissimo watched with growing apprehension as Communist forces tightened the noose around his isolated garrisons. November-December 1947 brought a series of Red offensives that threatened Mukden and caused panic among the civil population. To reinforce the provincial capital, the government stripped Kirin and Changchun of troops, increasing Mukden's strength to some 175,000 men. When Communist units destroyed the Alingho bridge near Chinchow, severing the vital rail line to Peking, air provided the sole link to the outside for the city's beleaguered inhabitants.

The deteriorating military situation in the North was the most compelling reason for the government's decision to continue CAT's franchise. Nationalist officials made clear at the time of renewal that they expected the airline to support military operations in Manchuria by transporting food and personnel. Accordingly, CAT signed a contract in early January 1948 – the first of many – to airlift seven thousand government technicians and their families from Mukden to Peking. This exodus did not portend a total evacuation of Mukden, the airline hastened to reassure the press.

Operation Mukden began on 18th January. Captain Richard L Bushbaum led the way, carrying five tons of flour from Peking to the besieged city and returning with a load of evacuees. CAT personnel, headed by operations agent David H Stauffer, arrived the following day to set up control procedures at Mukden's Hun Ho airfield. Facilities were meagre. There was no control tower, a bare half-mile of runway, a parking area, and a few abandoned, wind-swept hangars. Stauffer installed a VHF transmitter-receiver in a dilapidated bus and established air-to-ground communications at the airport. At the end of each day, the bus carried CAT personnel back to the warmth of the Railway Hotel.

Operations quickly settled into a routine. An aircraft would arrive from Peking, the crew covered in white flour dust that had sifted from the thin sacks. Coolies unloaded the transport while waiting passengers shivered in buses, unable to keep warm in the biting, subzero temperatures. Then fifty-odd men, women and children would board the pot-bellied C-46 for the 400-mile flight to comparative warmth and safety.

To avoid being hit by Communist ground fire, aircraft would circle the field after takeoff, climbing to five thousand feet before heading on course for Peking. Arriving aircraft would hold over the city at high alti-

tudes, then make a rapid, circling descent to land. The wreckage of a CNAC C-46, which had crashed on 20th January while attempting to take off from Hun Ho, served as a constant reminder of the "ordinary hazards of flight". [Note: From photographic evidence this was probably XT-T47. (See Part 10.)]

CAT completed its contract with the National Resources Commission in late February, ahead of schedule and without incident. Business continued to increase, however, as the military picture grew bleaker for the Nationalists. Working under a series of contracts with various government agencies, by 25th May CAT had flown 2,210 tons of flour into Mukden and brought out 22,173 passengers, including 4,571 wounded soldiers.

Mukden was only one point of Communist pressure. Nanking's forces, American diplomats noted, were "hard pressed and on the defensive in practically every theatre"; the government, in fact, controlled no more than 15% of China north of the Yellow River. CAT, CNAC and CATC joined the Chinese Air Force in providing crucial logistical support for isolated government outposts. The dangers of these paramilitary operations – and the growing extent of CAT's involvement in the civil war – became apparent in March and April 1948.

### Linfen

Linfen, a pocket of anti-Communist resistance in southern Shansi Province, came under heavy attack in early March. Red troops seized the outlying airfield, trapping CAT's James R Stewart and several Chinese employees inside the walled city. Aware that military assistance for Linfen's defenders would not be forthcoming, Willauer ordered Stewart to prepare a landing area for a light plane. After flying to the provincial capital of Taiyuan and securing permission from Governor Yen Hsi-shan to attempt a rescue mission, Willauer went to Peking and tried to persuade the Chinese Air Force to furnish air cover.

The CAF, as usual, was evasive. Nationalist aviators knew all too well the dangers of being forced down in Communist territory. They had no desire to share the fate of two comrades who had fallen into enemy hands the previous June. The Communists had returned the pilots – with their hands cut off and eyes put out. As diplomat John Melby noted, Mao's forces resorted to such atrocities "to dampen the enthusiasm of the Nationalist Air Force. It works rather well."

By 18th March desperate fighting around Linfen's perimeter made an immediate rescue effort imperative, with or without CAF assistance. Eric Shilling, CAT's chief pilot and AVG veteran, volunteered to take a single-engine Stinson L-5 into Linfen. With CAF support unlikely, James Bledsoe offered to fly cover in a C-46 and attempt to distract Communist troops by tossing out small bombs provided by Governor Yen.

Shilling and Bledsoe arrived over Linfen and were relieved to find a CAF fighter-bomber on station. The Chinese pilot, however, refused to fly lower than five thousand feet; his efforts to harass the ground troops were futile. Bledsoe, perhaps recalling his younger days as a fighter



CAT provided a vital service in support of the people of Mukden in 1948. On the **Left**, sacks of flour are unloaded from a C-46. In addition to Civil Air Transport titles the letters CAA MOC are added as can be seen on the cover photo. The view **Above** shows a line of refugees waiting to board C-46 XT-808 when the unloading is completed. (via Ian D Johnson)

**Right:** Another named CNAC C-46 was "Shanghai" seen here about to depart from Mukden. The registration, on the nose, begins XT-81 . but few of the named aircraft are positively identified. (via Ian D Johnson)

pilot, attacked. Not surprisingly, the sight of a lumbering C-46 making a low-level bomb run had the desired effect. Shilling slipped in unnoticed and evacuated the employees. While vehemently denying Communist reports of a "CAT bomber", airline executives breathed a sign of relief. But their respite was brief. Linfen turned out to be only a prologue for the great drama of Weih sien.

## Weih sien

An important halfway station on the rail line between Tsingtao and Tsinan, Weih sien lay in the heart of what had been the Kingdom of Wei thirty centuries before. A sandy-bedded river separated Weih sien into two distinct cities, the east city and the west city, each surrounded by massive stone walls. Just outside the walls Catholic missionaries had built an imposing church; further out lay an American Presbyterian mission school.

Weih sien had been isolated by the Communists since mid-1947. The Chinese Air Force made occasional landings with munitions and food, but civilian airlines refused to serve the city. Weih sien had no ground radio facilities or weather information, and the runway was in poor condition. To the dismay of local residents, the Japanese had built an airstrip just outside the city on a piece of flat land that had been used for centuries as a graveyard; heavy aircraft tended to break through the surface, and nothing larger than a C-47 could risk a landing. Undaunted, the aggressive Burr ridge brought the first CAT aircraft into Weih sien on 12th June 1947, in search of business. Burr ridge immediately ran into numerous problems, but at a conference on 30th July with local officials and the Chinese Air Force, District Commissioner Chang Tien-tso pledged full cooperation, enabling service to begin in earnest.

CAT assigned two C-47s to the hundred-mile run between Tsingtao and Weih sien. Inbound cargo included medical supplies, iron rails, water pumps, mail, and a variety of other daily needs. CAT brought out hog bristles for export and tobacco for Tsingtao and Shanghai factories. Citizens of Weih sien petitioned for increased air service. "Since the arrival of your planes," three community leaders explained to Chennault in September 1947, "the supplies have been regulated, prices lowered, gradually in line with those of Tsingtao. Moreover, the prices of food locally produced are also getting lower by 50% due to the stability of financial conditions."

Conditions deteriorated as Communist forces in Shantung prepared to launch a major offensive against Nationalist outposts in the province. By early April 1948 CAT's Chinese staff in Weih sien was filling the air to Tsingtao with frantic radio messages, begging to be evacuated. Burr ridge was not impressed. He had heard such cries before; the fears always had proved groundless. Chinese military authorities in Tsingtao gave firm assurances that Weih sien was not in any immediate danger. Together with assistant manager John R Plank, Burr ridge flew into the city with a scheduled run on the afternoon of 11th April to calm the jittery employees. To demonstrate their confidence in Weih sien's security, the two Americans decided to stay overnight. Early the next morning, Communist forces attacked. Supported for the first time by heavy artillery, the Reds quickly captured the Japanese-built airstrip and threatened to breach the city's walls.

Three Nationalist divisions garrisoned Weih sien, but their willingness to fight was questionable. Commissioner Chang had much more confidence in local militia he had trained and commanded, but the situation was perilous. American diplomat Robert C Strong telegraphed to Washington on 12th April: "Morale of Nationalist soldiers and population now low ebb and fall of city likely in next few days."

Burr ridge and Plank, hoping to repeat the success of Linfen, cleared a landing strip on a school playground in the west city, even though CAT's L-5 would not arrive from Shanghai for twenty-four hours and by then it might be too late.

Spurred on by Communist radio broadcasts warning that all CAT employees in Weih sien would be shot after the city had been captured, Burr ridge's assistants in Tsingtao asked Vice Admiral Oscar C Badger, senior American military commander, for the loan of a Marine Corps reconnaissance aircraft. Although the feisty admiral wanted to help, he was under strict orders to avoid actions that could be construed as intervening in the civil war.



Looking for a loophole in his instructions, Badger sought the advice of Consul Strong. Burr ridge was not engaged in combat and had a right to protection as an American citizen, the young diplomat reasoned. Because the aircraft would be used solely for the peaceful purpose of a rescue mission, the action should not constitute improper conduct. "As for the problems in case of loss of the plane," Strong recalled, "I was prepared to share the blame by confirming that I had recommended the loan of the plane in the interest of trying to save the life of a private American citizen employed by an American-led organisation famous in the United States." Badger was convinced. He ordered Marine Corps markings obliterated and the aircraft turned over to CAT.

Richard B Kruske arrived over Weih sien in the borrowed light airplane on the afternoon of the twelfth. He did not like what he saw. The landing strip, surrounded by buildings, was only four hundred feet long with a dogleg at one end. Demonstrating more courage than sense, Kruske decided to land. He touched down on the end of the strip, swerved to follow the dogleg, and stood on the brakes. To everyone's intense relief, the airplane stopped just short of a nearby house. But Kruske had used up his quota of luck for the day. Attempting to leave with Burr ridge, he clipped a wing on takeoff and demolished the aircraft. Fortunately, both occupants escaped injury.

As darkness fell, the Communists launched a series of sharp attacks. The Nationalist divisions fired a few shots to save face, then abandoned the west city. General Chang, however, rallied his militia to defend the east city. Dressed in a black uniform topped by a large black hat and smoking a long black cigar, he walked slowly along the top of the wall and defied Communist gunners to hit him. His soldiers cheered and fought with renewed spirit.

Chang had counted on the Chinese Air Force to drop flares and illuminate the attackers. When the promised air support failed to appear, CAT joined the fight. Burr ridge removed the landing lights from the now useless USMC aircraft, slung them over the shoulders of a soldier, and connected them to a battery on his back. The human searchlight prowled the walls of the city, turning himself on to pinpoint Communist attackers, then moving away to new targets after Chang's soldiers had eliminated the threat. At the same time, Captain Rousselot circled overhead in a C-47, dropping flares and empty beer bottles that fell with a whistling noise, causing Red soldiers to interrupt their assault and take cover.

Early the following morning Willauer flew over Weih sien to assess the situation. He observed the Nationalist divisions marching to the south-east, on their way to surrender. Burr ridge, Plank, and Kruske had moved to the east city and were smoothing a parade ground for a landing area. Returning to Tsingtao, Willauer began to put together a rescue fleet of small aircraft. CAT's disassembled L-5 arrived by C-46 from Shanghai; Willauer arranged to borrow a Piper Cub from L K Taylor, who had the Piper agency in China; and a local intelligence unit volunteered a small aircraft. No one had the courage to ask Admiral Badger for another USMC aircraft.

Operations got off to a good start on 13th April. By mid-afternoon Burr ridge and Kruske had been flown out by Roger Fry, leaving behind only Plank. But the tide of fortune turned when CAT's L-5, piloted by

Edwin L Trout, nosed over on landing and broke a propeller. Marshall J Stayner, newly hired from the Marine Corps and with limited light plane experience, followed with the Piper Cub. He set down too hard, bounced thirty feet, and cracked up the landing gear. As the three pilots spent an anxious night in Weihsien, two CAT transports circled the city, unloading flares, empty beer bottles, and an occasional bomb.

April 14th saw repairs completed on the damaged Cub, enabling Stayner and Trout to leave. Rousselot, eager to participate in the action despite his nearly two hundred pounds (a less than ideal weight for operating light planes off short runways), landed with an L-5 to pick up Plank. Belatedly, Rousselot realized he could not clear the surrounding buildings with Plank on board, so rather than waste the day's effort he decided to carry one of CAT's slightly built Chinese radio operators.

Spectators packed the parade ground, as they had since the beginning of the rescue drama, standing on every wall and rooftop. The crowd had sighed and moaned when an airplane made a pass at the field, missed, and went around for another try. A successful landing had brought loud cheers. Now they waited for Rousselot. The tough former marine pushed the throttle forward, waited until the engine reached maximum revolutions, then released the brakes. The L-5 slowly gathered speed across the parade ground, then staggered into the air as nearby houses and buildings loomed close ahead. But, hopelessly overweight, the plane crashed into a telephone pole, killing one spectator. The crowd, in Chinese fashion, gave the uninjured pilot a hearty round of applause for the marvellous show.

Later in the day, Stayner – who had flown out only hours earlier – brought in the Cub. Plank used it to leave Weihsien for the first time. Kruske arrived with another light plane and picked up Stayner. Only Rousselot remained as darkness brought operations to an end for the day.

CAT personnel, including Louise Willauer, went out to the Tsingtao airport that evening to load the aircraft assigned to the night's cover mission over Weihsien. Louise held a flashlight as the men lashed down the flares and bombs. CAT's "bomber" arrived over Weihsien to find the Chinese Air Force in action, for once. Communist attackers remained in their trenches during the night.

April 15th began poorly when Stayner, trying to pick up Rousselot and end the lengthy drama, damaged his aircraft upon landing. Kruske, next in line, added to the growing frustration by rolling over his L-5. To put a capstone of misery on an already depressing day, the pilots learned that the city's defenders were running out of ammunition and might not be able to hold out for another night.

Efforts to rescue had started on the twelfth. Three days later, after ten attempts that resulted in six crashes and one fatality, three Americans needed to be rescued. Lack of familiarity with light aircraft had taken its toll, but more than anything else the results mirrored the almost impossible operating conditions. A military commander, looking at the situation with a cold, hard eye, might have decided to cut his losses and abandon the operation at this point. But not CAT.

While the trapped aviators hastened repairs on the damaged aircraft, Willauer flew to Tientsin in a C-47 and obtained a load of hand grenades and rifle ammunition for airdrop at Weihsien. The mission nearly ended in disaster.

CAT did not have any parachutes for cargo dropping but the Chinese had some small ones made up out of cotton cloth. Var Green was the pilot, Willauer was the co-pilot, and Burrigge was in the rear handling the kicking out of the load, which was tied to these parachutes. Green asked Willauer to do the flying so that he could watch very carefully on his side as to when to ring the bell to kick out the load. When he rang the bell, the plane went out of control and started to climb almost vertically. Green and Willauer pushed her forward as hard as they could and did everything they could think of. Just as they were about to spin in, the aircraft suddenly levelled off. When they had recovered, Burrigge came forward and explained what had happened. The rip cord on these parachutes had been just the wrong length and the first load of about 100 pounds of hand grenades had caught its parachute on the tail and this was causing the aircraft to climb into a stalling position. Fortunately it shook loose just in time. They returned to Tsingtao to check for damage and sort out the ripcord problem before returning to Weihsien to drop their load, most of which they saw land within the city.

CAT's persistence finally paid off. Stayner and Kruske flew out in one repaired aircraft before nightfall on the fifteenth. Rousselot spent another restless night in a dugout, bothered more by the snoring of two Chinese generals than by Communist artillery, before Stayner picked him up on the morning of 16th April. The airline's Chinese staff members were left to slip through enemy lines, if possible.

Weihsien fought on, and CAT continued to support General Chang with airdrops of ammunition. But repeated Communist assaults wore down the stubborn defenders. Angered by the timidity of the Chinese Air Force, Burrigge cabled Willauer on 25th April: "*Wish to add that CAF air support failure responsible for effectiveness Communist big guns. CAF failure to fly continuous night bombing responsible for thousands Nationalist night casualties. This is a disgraceful exhibition of Chinese air power.*" Weihsien fell two days later. General Chang died fighting.

Reports of CAT's growing participation in the civil war sent ripples of concern through the Far Eastern division of the State Department. William McAfee spoke for a sizeable group in the division when he recommended that strong action be taken against the airline's American pilots. McAfee drafted a cable for Nanking, directing the embassy "*to express informally and orally to American CAT pilots this Government's concern over activities such as those participated in around Weihsien involving dropping of flares and bombs in support military operations.*" The fliers should be warned that "*future participation in such acts will result recall of passports which will not be returned until US national concerned leaves China.*"

W Walton Butterworth, head of the division, rejected McAfee's draft. In a memorandum to the secretary of state on 10th May, he reaffirmed the department's disapproval of participation by American nationals in the political affairs of foreign states. With regard to the CAT pilots, however, he wrote: "*We are of the opinion that the situation should be followed closely but that, in the light of existing conditions, the Department should take no action for the present.*"

The State Department's ambiguous attitude towards CAT mirrored American policy in China during the final stages of the civil war. The American government continued to follow a general policy of moderate aid to the Nationalists: enough to antagonise the Communists but not enough to make any real difference in the war. For example, the Nationalists had a pressing need for air transport in spring 1948, especially to increase the Mukden airlift. Washington responded in late April by declaring surplus thirteen flyable C-46s and authorising Air Force personnel to deliver them to Shanghai. In typical fashion, the American government attempted to maintain a low profile. Air Force markings on the aircraft were obliterated before delivery, and no more than three C-46s were to arrive in Shanghai at the same time. In equally typical fashion, the Shanghai press gave the transfer wide publicity. [Leary PM pp.38-46]

## **C-46s leased from the Chinese government**

The Chinese Government acquired thirteen Curtiss C-46Fs from the USAAF in the spring of 1948. Rather than give the C-46s to the Chinese Air Force, which had been using its transport to smuggle cigarettes and other saleable items into Mukden, Nanking leased seven aircraft to CNAC and six to CAT. Chennault and Willauer could use the additional aircraft. Demand for cargo space far exceeded supply as the Nationalist military position deteriorated.

According to Air-Britain's C-46 monograph, these were all purchased from the Foreign Liquidation Commission (FLC) on 17th June 1948. All were previously stored in Tachikawa, Japan. The c/ns were: 22370, 22379, 22433, 22459, 22461, 22465, 22466, 22500, 22502, 22507, 22508, 22510, and 22526. By June 1948, a new series of XT- registrations was being allocated. We believe that these thirteen aircraft were given Chinese registrations from XT-30 to XT-54, even numbers only. Eleven of these thirteen aircraft were later registered to either Civil Air Transport, Inc. (CATI) or C.A.T., Inc. in the USA, as shown below.

<i>XT-reg.</i>	<i>c/n</i>	<i>p/i</i>	<i>operator</i>	<i>subsequent identities notes</i>
XT-30	22379	44-78556	CNAC	N8388C, B-130
XT-32	?	?	CNAC	none see note 1
XT-34	22459	44-78636	CNAC	N8389C, N4881V
XT-36	22465	44-78642	CNAC	N8390C, B-136

**Right:** One of the C-46s supplied to CAT by the Chinese Government in spring 1948 was XT-50, seen here at Kai Tak airport, Hong Kong. (Ian D Johnson collection)



XT-38	22500	44-78677	CNAC	N8391C, B-138
XT-40	22508	44-78685	CNAC	N8392C, N4882V
XT-42	?	?	CNAC	none see note 1
XT-44	22502	44-78679	CAT	N8400C, XT-44 crashed 8Dec50 Yonpo, Korea
XT-46	22461	44-78638	CAT	N8401C, B-146
XT-48	22510	44-78687	CAT	N8402C, B-148
XT-50	22526	44-78703	CAT	N8403C, B-150
XT-52	22466	44-78643	CAT	N8404C, B-902, N8404C see note 2
XT-54	22370	44-78547	CAT	N8405C, B-154

[Leary PM p.46; MM 04Dec2003] See also *Archive* p.2010/25 (Part 10)

**Notes:**

1. XT-32 & XT-42 were c/ns 22433 (44-78610) & 22507 (44-78684), tie-ups and fates unknown. Presumably these two did not survive until December 1949.
2. N8404C was cancelled on 22Mar50 with other CAT aircraft restored to the ROC register, possibly as B-152, although this has been denied by the ROC CAA, who state that it was B-902. It is not included in Dr Leeker's Air America/C-46 file (4th edition) updated on 1Jun2009. Given that c/n 22502 crashed as XT-44 (not B-144) in December 1950, it is possible that XT-30, -36, -38, -46, -48, -50 and -54 were all restored in 1950 before re-registration with a B- prefix later. The ROC CAA say that these aircraft were registered in June 1948, which would probably have been with their original XT- registrations, as the B- prefix was not yet in use during 1948. This would also suggest that perhaps these marks were not cancelled in January 1950, which would make the US registrations illegal if ever worn.

The expanding civil war was at least temporarily good for the airline business. CAT averaged three million ton-miles a month by mid-1948 and ranked third among the world's airlines in this important category. But it was not easy to translate increased flying into profits when in a single month (June) the exchange rate on the black market soared from CN\$1 million = US\$1 to CN\$4 million – US\$1.

Chennault and Willauer, awash in rapidly depreciating Chinese currency, easily paid back the \$250,000 loan for working capital. They also funnelled through Hong Kong \$225,000 in dollars and gold for transfer to the United States. Surplus Chinese currency was used to buy "everything in sight" – stocks, bonds, real estate – for later liquidation.

Willauer concluded arrangements in June for a 20% participation by CAT's American partners in the Jardine Aircraft Maintenance Company (JAMCO) of Hong Kong, an investment that would prove highly profitable. JAMCO had been organised in 1947, primarily to provide maintenance facilities for Hong Kong Airways and BOAC. In 1948, when the company decided to expand its facilities to include engine overhaul, Willauer leaped at the opportunity to become a financial backer. CAT's engines would no longer need to be crated and shipped to the United States for major overhaul, a lengthy and costly (\$4,000 to \$5,000 each) procedure. Maintenance would be done expeditiously in Hong Kong at a saving of \$400 to \$500 an engine. The investment in JAMCO, however, turned out to be even more important than envisioned: in 1949-50 the shops in Hong Kong would be crucial for CAT's survival when Communist advances caused major dislocation of the airline's vital base maintenance facilities.

In an effort to cope with the never-ending search for foreign exchange, Chennault and Willauer got together with L K Taylor and the Kinchong Banking Corporation to organise International Suppliers' Corporation (ISC). ISC was an expanded version of an earlier scheme to stimulate return cargo from the interior and transfer dollars out of the country. For example, CAT would purchase weasel skins in Kunming worth approximately \$5 a pair in New York. In order to export the weasel skins, the exporter must sell his foreign exchange to the Central Bank at the open market rate. However, in order to encourage exports the Central Bank permits a valuation of say \$3.00 per pair. On a \$25,000 transaction, CAT would obtain \$10,000 in US currency and the equivalent of \$15,000 in Chinese money. The airline had made a small profit in Chinese currency, the value of air transport had been demonstrated to upcountry merchants, and, best of all, precious US dollars had been obtained.

ISC became a necessity in mid-1948, when the Chinese government responded to inflationary pressure and dwindling reserves of foreign currency by linking exports and imports. Under the new arrangements, CAT had to produce certificates showing the foreign exchange value of goods taken out of the country in order to import the equivalent value in parts and supplies. ISC provided the necessary export documents.

While Chennault and Willauer juggled currencies and commodities, trying to turn a profit in the midst of financial chaos, the government's military situation continued to decline. Shantung Province remained the scene of heaviest fighting. As Consul Strong and Admiral Badger pointed out following the fall of Weihshien, Communist use of heavy artillery and willingness to suffer severe casualties doomed Tsinan and other government strong points in the region. Major General David Barr, commander of the United States Advisory Group, agreed that an isolated defensive position could no longer be maintained. He recommended that the troops in Tsinan be withdrawn to Hsuchow but Chiang Kai-shek rejected this sage advice for "political reasons".

CAT suffered its first fatality while supporting Nationalist forces in Tsinan. On 29th July Captain Clyde T Tarbet, co-pilot Har Yung-shing, and radio operator Chan Wing-king were assigned to the shuttle run between Tsingtao and Tsinan. They had made two four-hour round trips, carrying rice, ammunition, and troops belonging to a division that Chiang had ordered airlifted into the beleaguered city. Shortly after 5:00 pm, Tarbet's C-46 XT-822 took to the runway for the day's final flight. Everything appeared normal as the aircraft lifted off the ground and began to fly. Suddenly, at about one hundred feet, the C-46 nosed up sharply, stalled, spun into the ground, and burst into flames. The crew and sixteen soldiers perished.

An investigation revealed that the accident should never have happened. The ground staff had failed to remove the gust locks from the control surfaces of the aircraft, a not uncommon oversight. The final item on the pre-departure check list was designed to deal with this problem. Pilots were taught to roll all directional controls "free and clear" before takeoff. Tarbet, normally a cautious pilot, had failed to follow this basic dictum.

The airlift continued. Although CAT flew more than 1,250 trips into Tsinan between mid-March and mid-September, the effort came to naught. On 17th September Burridge learned that the airfield was in



danger of capture. Fearing another Weihshien, he ordered the immediate evacuation of CAT's staff. Captain Shilling arrived early the next morning only to learn that many employees had run into trouble with their passes while trying to reach the airfield. Shilling waited three hours before leaving with only half the staff, spurred by the control tower's advice that Communist forces were approaching.

Burridge flew to Tsinan later in the day to see if the remaining staff, who had finally reached the airport, could be safely evacuated. He circled the area and saw heavy fighting to the east and north, a mile or two from the field, but everything below seemed quiet. He decided to go in. Besides the anxious CAT personnel, only a lonely army private remained to guard the control tower. About that time, a group of field guards came running around the corner of the tower, yelling "The Reds are here!" Their shouts were punctuated by the whine of bullets coming from the direction the guards were rapidly leaving. Everyone piled aboard the transport. Captain Raymond E Carleton started up the engines and began taxiing toward the runway. The rest of the crew stood in the back with both doors open, shoving off rice and hauling in the assorted citizens clinging to the outside of the ship. As the C-46 lifted off the rice-strewn runway, Burridge made a hasty head count: all airline personnel were safe.

CAT continued to airdrop rice for the city's garrison. Although a long siege of the heavily defended Nationalist bastion was anticipated, resistance collapsed when a division guarding the western approaches to the walled city went over *en masse* to the Communists.

Mukden came next. Since January 1948, when the airlift began, CAT, CNAC, and CATC had flown thousands of missions in support of the government's futile effort to hold the strategic northern city. During the first nine months of the year, CAT alone had carried 17,200 tons of cargo into Mukden and evacuated more than one hundred thousand people. As the Communist vice tightened in October, the airlift became frantic. CAT launched a maximum effort, flying in 1,289 tons of food and bringing out ten thousand people in twenty days. But on 15th October, the fall of Chinchow, a key supply base, signalled the end. CAT abandoned Mukden on 29th October, the last airline to leave the city. Two days later the Nationalist garrison surrendered.

The Manchurian debacle sent shock waves throughout China. General Barr predicted that the fall of Mukden was the beginning of the end and Mao Tse-tung announced that the military situation had reached a "new turning point". Ambassador J Leighton Stuart warned Washington that the fall of the present Nationalist Government was inevitable.

As if Nanking did not have enough to worry about, the country's economy took a sharp turn for the worse. In mid-August, the government had nationalised gold, silver, and foreign currency. A new gold



**Above:** The scene at Peiping in October 1948 with CAT C-46s operating the refugee run. The aircraft in the foreground is XT-810.

**Left:** In this line of C-46s at Peiping the closest is "Lanchow" with a registration that appears to end with 0 or 8. (both via Ian D Johnson)

yuan (GY), backed by reserves of precious metal and foreign currency, became the only circulating medium, with CN\$ exchanged for the new notes at the rate of CN\$3 million for GY1. At the same time, the government froze commodity prices. But despite harsh measures to enforce the law, Nanking's fiat could not alter economic realities. Black markets sprang up as the new currency slipped in value. On 1st November, the day after Mukden surrendered, the government admitted failure of currency reform and lifted price ceilings. Prices promptly skyrocketed. Within a few days, business had ground to a halt.

As the Kuomintang's senior bureaucrats began to gaze with longing at Hong Kong, Taiwan, and more distant friendly shores, General Chu Teh of the People's Liberation Army massed six hundred thousand troops for an assault on Nanking. Chiang Kai-shek, in personal command of an equal number of soldiers, chose to give battle on the plains around Hsuechow, where the terrain favoured the mechanised Nationalist Army.

A city of three hundred thousand about 175 miles north of Nanking, Hsuechow stood at the juncture of the Tientsin-Nanking railroad and the Lunghai line that ran from Kaiteng to the East China Sea. General Liu Chih, Chiang's field commander and an officer of limited ability, deployed his four group armies in and around the city.

The Communists struck on 8th November 1948, attacking General Huang Po-tao's Seventh Group Army. Huang, with ninety thousand men and a thousand artillery pieces, held strong defensive lines east of Hsuechow. In the midst of battle, however, two Nationalist generals and twenty-three thousand troops went over to the enemy. His position undermined by the defections, Huang fled westward, trying to reach the shelter of Hsuechow. Communist forces trapped the Nationalist general some fifty miles short of his objective. By 22nd November the Seventh Group Army ceased to exist.

Responding to Communist pressure, General Liu Chih concentrated his three remaining group armies in Hsuechow and turned over tactical command of the battle to his deputy, General Tu Yu-ming. This decision was unfortunate, as Tu had proved inept during the fighting in Manchuria and his dismal record would continue.

During the battle, CAT, together with CNAC and CATC, operated as a paramilitary adjunct of the Chinese Nationalist Air Force. As the fighting intensified around Hsuechow, the airlines began flying around the clock, carrying rice and ammunition to the garrison and evacuating wounded soldiers. Many of the casualties, jammed into the aircraft, were in critical condition; the flight crews could offer only a drink of water. Those who survived the trip found little aid and comfort in Shanghai. Hospital facilities, inadequate to begin with, could not cope with the thousands of wounded who poured into the city.

In late November Chiang Kai-shek ordered General Tu to march south-westward and link up with a relief column from Nanking. As Tu moved out of Hsuechow, the situation at the airfield turned ugly. By 30th November all semblance of order had disappeared. Officers and heavily armed soldiers pushed the wounded aside and scrambled onto the aircraft. One soldier, dazed by panic, ran into a whirling propeller. Captain Stuart E Dew found himself in a desperate situation as troops

swarmed over his C-46. He stood in the doorway and tried to beat off the fear-crazed soldiers with a cargo tie-down stick. His co-pilot ran to the cockpit, started the left engine, and ran it up to full power, blowing people away from the doorway and against the tail surface. Once in the air, Dew radioed Shanghai: "Situation Hsuechow very bad. Hundreds of troops swarming our ships. Have 60 or 80 on board. No stopping them." CAT abandoned the airlift. Hsuechow fell on 1st December.

The Government started to move out of Nanking and CAT joined the exodus south. Several months earlier, against Willauer's advice, Chennault had ordered the airline's base maintenance facilities transferred from Canton to Shanghai. Following Mukden's surrender, both men agreed that the shops had to be moved back to Canton. Although planned as a gradual, orderly relocation, with most heavy equipment going by sea, the move was hastened by the calamitous Nationalist defeat at Hsuechow.

By early December Hsuechow's two hundred thousand surviving defenders, harassed by Communist attacks, drew up in defensive positions about sixty miles southwest of the city. CAT began airdrops with ten aircraft based at Nanking.

Despite heavy anti-aircraft fire that began to find its mark, CAT made every effort to assist the Nationalist troops. The airdrops made from about two thousand feet could not supply the garrison adequately. Many of the parachutes caught in the stiff plains winds drifted into the Communist camp.

Red gunners opened a final artillery barrage on 6th January 1949, causing demoralised Nationalist soldiers to surrender in droves. David Tseng, CAT liaison to the government in Nanking, advised Shanghai on 11th January to cancel all airdrops over the area "because there is no longer such need now."

CAT had performed admirably during the battle of Hsuechow. Between 23rd November 1948 and 11th January 1949, the airline had transported 37,136 troops, 135 tons of ammunition, and 1,501 tons of rice, cakes, and biscuits. The effort came in a losing cause.

Chiang Kai-shek relinquished office – but not power – on 21st January 1949. The generalissimo began to move key personnel and the government's treasury to Taiwan, leaving acting President Li Tsung-jen to salvage something from the looming disaster. But as the Year of the Rat gave way to the Year of the Ox, most observers agreed that Nationalist China was finished.

CAT flourished in the adversity of China's civil war. Air transportation was at a premium in troubled times. During 1948 the airline carried 223,700 passengers and 88,238 tons of cargo and flew more than 34 million ton-miles. Profits sometimes proved elusive because of chaotic financial conditions, but Chennault and Willauer managed to wheel and deal with aplomb. Although a number of high officials in the State Department had grave reservations about CAT's paramilitary activities, the ambiguity of American policy worked against any attempt to restrain the airline's owners.

It was during these bittersweet days that the "CAT spirit" emerged in the face of danger, a determination to get the job done no matter the odds. Linfen, Weihsien, and Tsinan became legends. The exploits of Burridge, Shilling, Rousselot, Stayner, and other pilots who put their lives at hazard with a shrug of shoulders assumed mythic proportions. But the greatest adventure lay ahead: CAT would be tested to the limit during the siege of Taiyuan. [Leary PM pp.38-53]

## Siege of Taiyuan

Shansi Province, about the size of Kansas or Korea, stands on a great loess plateau in northern China. Protected by river and mountain barriers from the neighbouring provinces of Shensi, Hopeh, and Honan, Shansi retained a high degree of cultural and political autonomy during the first half of the twentieth century.

The governor of this province was Yen Hsi-shan. He attended National Military College at Taiyuan, followed by five years at the Imperial Military Academy in Japan, returning home to lead a revolt against Manchu rule in 1911. A reformer and modernizer, Yen reorganized provincial administration, campaigned against the queue and foot-binding, sponsored irrigation and other agricultural improvements, and



**Above:** A frequently-repeated scene during the Civil War with Nationalist soldiers, including many wounded, awaiting transport out of the war zone as the Communist forces advanced.

**Below:** The last three C-46s to leave Nanking in February 1949, with XT-832 identifiable in the foreground. (Both via Ian D Johnson)



emphasized school and road development. Exploiting local resources of coal and iron, he built the great Taiyuan Arsenal, among the largest facilities of its kind in China and centrepiece for an ambitious programme of industrialisation.

Commercial, industrial, and political centre of the province, Taiyuan lay on the east bank of the Fen River in the middle of the fertile central plain. It was heavily defended. There were nine thousand stone pill-boxes surrounding the city but these tall, awkward, imposing structures seemed to have been placed without regard to the field of fire. An armoured train made a daily run around Taiyuan on a special military railroad. More than seven hundred pieces of artillery ringed Yen's bastion.

Although the area was surrounded by mountains and Communists, large factories were going full blast and huge workshops, containing hundreds of machine tools, turned out complicated metal products. A fantastic import-export trade was going on by air between Taiyuan and other Nationalist areas of China. CAT, CNAC, and CATC were bringing in cotton, tobacco, oil, steel alloys, and dyes; they were taking out chemicals, steel products, and cement.

The Communists sent 150,000 troops against Taiyuan in July 1948. In a series of fierce battles, the attackers neared the city's forty-foot-thick walls but were thrown back. Yen seized the initiative and forced the Communists to retreat into the surrounding mountains. October brought renewed action. Again Yen held out, but the rest of the province fell to the enemy. Taiyuan now stood alone.

Following the Communist offensive in October, CAT had reorganised its operations in North China so as to support Yen more effectively. Tsingtao remained the airline's major base, while Tientsin (280 miles from Taiyuan) and Peking (250 miles away) became primary staging areas for the transport of food into the besieged city. Burridge, area manager at Tsingtao, was in overall command of the airlift, assisted by John R Plank at Tientsin and William J Wingfield at Peking.

Taiyuan needed two hundred tons of food a day to survive. CAT, together with CNAC and CATC, kept supplies above this critical level

until the airfields at Tientsin and Peking fell to Communist forces in mid-December, causing the airlift to falter. CAT delivered only twenty-two tons of rice on 26th December and forty-five tons the next day. Marshal Yen radioed a plea to CAT two days later, urging the airline to overcome any difficulty and deliver the daily minimum of two hundred tons.

With the airlift going badly, Chennault took steps to implement a desperate scheme to help Yen. An American, probably Chennault, had suggested to Yen that five US-piloted aircraft with napalm fire bombs could clear out Communists around Taiyuan in three days. On 28th and 29th December Chennault and Willauer conferred with Minister of Communications Yu Ta-wei about "Project Demonstration". Discussions continued after 1st January with General Chou Chih-jou, CAF commander. After some initial reluctance on Chou's part, the two Americans received the go-ahead on 8th January from the Chinese Air Force.

Chennault, assisted by Operations Manager C Joseph Rosbert and Chief Pilot Rousselot, secretly prepared the operational plan for Project Demonstration. Ten P-47N fighter-bombers would be staged at Sian, a Nationalist base 330 miles southwest of Taiyuan where tight security could be maintained. There a detachment of CAT volunteers with fighter experience, temporarily employed by the Chinese government, would fly three or four hours of practice, including one napalm drop. Two 6-aircraft missions would be launched on D-Day, followed by additional sorties on D+1 and D+2. As Communist units were cleared from the area, the detachment would operate from fields at Taiyuan. Project Demonstration would not only relieve the close siege of the city but would also impress the Chinese Air Force with the value of napalm drops. The CAF could then expand the scheme into a full scale operation.

Rousselot had the pilots lined up and ready to go, but at the last minute Chennault began to have second thoughts about conducting such an enterprise without at least tacit approval from the American government. On 12th January he sent Willauer to brief Consul General Cabot in Shanghai. Although disagreeing with Washington's stand about non-involvement in the war, Willauer assured Cabot that he and Chennault were loyal American citizens and would not defy official policy. Cabot's response is not recorded, but the next day Willauer jotted "*No demonstration*" in his diary.

Deep gloom settled over CAT's headquarters on The Bund. The Nationalists reeled southward following the bloody defeat at Hsuechow, while Washington seemed ready to simply watch the dust settle; the Chinese government owed the airline GY100 million for airdrops, causing a financial crisis for the airline; and disgruntled foreign personnel were three months behind in dollar allotments.

Chennault wanted to sell out and go home but the airline's policy board decided against the General's idea of just folding up CAT. Willauer predicted that Nanking would fall by mid-February, followed by Shanghai in mid-March, but he remained optimistic about prospects for reduced operations in the Northwest and Southwest.

Taiyuan remained defiant into the new year. CAT carried about four tons per aircraft, so at least fifty flights per day had to make the long round trip from Tsingtao, the major supply base following the loss of Tientsin and Peking. A mission to Taiyuan meant six hours over enemy territory, without alternative landing areas or en route navigational aids, and because cargo doors were removed for airdrops, temperatures reached well below zero.

To support the airlift, Marshal Yen completed two airfields, numbers 7 and 8, hard against the Communist-controlled mountains on the west bank of the Fen River. The fields were primitive dirt strips with steep gradients, well within range of enemy mortars. Communist gunners needed a few minutes to adjust fire, however, so it was possible to land, drop rice, and take off without getting trapped.

On 8th January Yen urged CAT to use the new fields so as to avoid the difficulties and losses sustained in making air drops. A few days later, he tried to make landing more attractive by offering a bonus of \$100, payable immediately on arrival, to those pilots willing to take the risk.

Pilots who landed at Taiyuan usually found the experience memorable. Captain Roy Watts recalled the day, 14th January, when three mortar shells fell within 150 yards on number 7 field. He managed a hasty departure and made no further daylight landings. Two days later Ernest W Loane ran into trouble on number 8. Two mortars bracketed his air-

craft, and then a third shell landed less than 200 feet behind the C-46, spraying shrapnel around the aircraft. He didn't wait for the fourth shell.

Despite the hazards, Willauer planned to visit Taiyuan and discuss important matters with Marshal Yen. He also hoped to persuade Yen to leave Taiyuan before the city fell to the Communists. Willauer tried to land on 21st January, but constant shelling put both airstrips out of action. An attempt to sneak in at night failed when the pilot could not pick up the unlighted runway.

Willauer showed the level of his determination to see Yen by accompanying Chief Pilot Rousselot with a vital cargo of TNT and detonators into Taiyuan on 26th January. Immediately after landing at Taiyuan, the aircraft came under mortar fire. Rousselot managed to park the shrapnel-punctured C-46 under the protection of a cliff. Willauer and Eva Wong (Yen's Eurasian secretary, who also had flown in on the C-46) dashed across the field between mortar rounds to a waiting station wagon. As they drove off, a mortar shell exploded behind the car as they were descending into a sunken road that ran alongside the airport. The result was that the other CAT men who were behind the aircraft thought that the occupants had been blown to smithereens.

Willauer drove into the city, met Yen, and apologised for the failure of Project Demonstration. He urged Yen to leave the doomed city. The marshal should blow up Taiyuan's factories, and then break out of the Communist encirclement with picked troops and head toward Paotow, 250 miles to the northwest. CAT would drop rice along the way and provide airlift from Paotow. Willauer alluded to a popular movement in the United States supporting Yen, led by such prominent figures as Senator Arthur H Vandenberg, Representative Walter Judd, former ambassador William C Bullitt, and Paul G Hoffman, director of the Economic Cooperation Administration (ECA). Aid to China, Willauer stressed, required a demonstration of the country's ability to resist: Yen could provide such an example. The marshal remained noncommittal.

Willauer returned to the airport and took off through heavy mortar fire. After landing at Tsingtao, Rousselot counted more than seventy shrapnel holes in the C-46. In view of the heaviest and most accurate shelling of number 7 field, he recommended no more hazardous cargo flights for the next few days.

Between the middle of December and the end of January, CAT averaged twenty-eight flights daily between Tsingtao and Taiyuan and airdropped or landed 1,869 tons of food and fourteen tons of miscellaneous cargo. CNAC and CATC also shared the burden of keeping Marshal Yen supplied. In January CAT had fourteen aircraft assigned to the Tsingtao-Taiyuan route, CNAC had twelve, and CATC had ten. The risks were also shared. A CNAC C-46 was hit by antiaircraft fire while airdropping at Taiyuan in mid-January and crash-landed. The identity of this CNAC C-46 is unknown; candidates include XT-32 and XT-40. (See Part 10.) Another CNAC aircraft landed the next day under hazardous conditions and rescued the crew.

February brought a crisis. Funds to operate the airlift were GY100 million in arrears, but officials in Nanking were more inclined to complain than to make good on the deficit. Additionally, Chinese ground crews at Tsingtao threatened to strike; Nationalist forces guarding the city grew nervous as Communist pressure increased; and the weather was atrocious; but there was no lack of spirit among the pilots. Enthusiasm for Marshal Yen's cause alone, however, could not keep the aircraft in the air. On 10th February operations came to a halt when Tsingtao ran out of gasoline.

A string of frantic radio messages poured out of Taiyuan protesting at the shutdown. Yen complained that his people had not had any food for three days; they were starving. He implored Burrige to get the airlift going again but CAT's area manager could do nothing. Finally, Yen came out of Taiyuan to put pressure on officials in Tsingtao, Nanking, and Shanghai. He promised his troops he would get food for them or return to die.

Yen first met with Burrige and Admiral Badger in Tsingtao. He told Burrige that his life depended on CAT and asked for a frank discussion of problems. Burrige told him that they were basically lack of gasoline and failure to pay freight money which caused strikes and other problems due to delay in payment of CAT personnel. The American naval commander promised to do what he could to help. He would be happy to assist with the gasoline shortage if anyone could show how to do so. In the meantime, Burrige ordered marines ashore on a "training exercise" to bolster local morale.

Yen continued to Nanking and called on Ambassador Stuart. The marshal wanted the Economic Cooperation Administration (ECA) to assist in the airlift. Stuart was unable to give him any encouragement, believing this operation one for the Chinese Government and not for ECA.

Chinese officials proved more responsive. Yen arranged to borrow seven hundred thousand gallons of fuel from the Chinese Air Force at Shanghai. Nearly five hundred thousand gallons would be shipped to Tsingtao, arriving by 26th February. At the rate of seventy flights a day, this fuel should permit operations until early March. The government also promised US\$450,000 in foreign exchange to purchase an additional month's supply of gasoline. Arrears in freight charges would be paid to anxious airlines and a system of prompt reimbursement established.

Although frustrated with Chinese officialdom, Willauer continued to support Yen's heroic struggle. The airlift began again in earnest when gasoline reached Tsingtao in late February, and CAT pilots once more flew long hours under difficult conditions to keep Taiyuan supplied. Randall S Richardson probably set the record when he logged twenty-one hours and forty-five minutes of flight time on 3rd March.

Dramatic incidents became commonplace. James B McGovern initiated one on 8th March when he made an emergency landing at Taiyuan after an engine froze up. A short time later, John Plank arrived over the city for a rice drop, heard about McGovern's plight, and landed on the same airstrip. Plank ordered McGovern to collect both crews and take off with the operable aircraft. The assistant area manager then spent an uneasy night under Communist gunfire as ground crews in Shanghai worked to remove a good engine from another aircraft. Norman A Schwartz arrived from Shanghai early the next morning with rice, a new engine, and four mechanics. He unloaded, picked up a full load of passengers, mail, and empty rice sacks, and made a hasty departure. As Yen's artillery kept up a massive counter-battery fire, the mechanics changed engines in record time. At 8:00 pm Plank and his tired colleagues flew out of the doomed but still defiant city.

Despite the heroism of the pilots, the courage of the defenders, and the indomitable will of Marshal Yen, Taiyuan could not stand against the Communist spring offensive. On 16th April the city's outer defences came under fierce attack. Yen, who had been summoned to Nanking for a conference, tried to return to his post, but the Chinese Air Force would not furnish an aircraft. He pleaded with BurrIDGE for CAT's assistance. BurrIDGE said that it was too risky. Yen offered to buy an aircraft. BurrIDGE replied that he could not hazard the lives of the crew. Desperate, the sixty-six-year-old marshal wanted to parachute in. BurrIDGE demurred.

The enemy breached the city's massive walls on 20th April, and house-to-house fighting ensued. That day BurrIDGE signalled Rosbert that airdrops were temporarily suspended because the troops were unable to reach the parcels. On 21st April David G Davenport told Operations that he was returning with a full load because the flack was too thick; Bushbaum's aircraft had been bracketed for sixteen bursts. Only two aircraft completed airdrops that morning. All pilots reported heavy concentrations of flak up to eleven thousand feet. No planes were hit. William D Gaddie reported more flak at 11,000 ft on April 22nd and advised that airdrops were not safe. On 23rd April BurrIDGE advised Rosbert that all Taiyuan airdrop aircraft were carrying oxygen as no anti-aircraft fire was observed over 15,000 feet. Rosbert advised BurrIDGE not to make airdrops in the face of anti-aircraft fire; the Taiyuan airdrops could not last indefinitely.

On 24th April, after bitter fighting in the streets, Taiyuan fell. Five hundred of Yen's close associates kept their vows and committed suicide, led by Acting Governor Liang Hua-chih. The old marshal survived to serve as premier of the dying Nationalist government and to live in exile in Taiwan.

As the end grew near for Taiyuan, President Li Tsung-jen in Nanking watched as Mao's legions poured across the undefended Yangtze River. Chiang Kai-shek had already ordered the government's treasury – gold and silver valued at US\$335 million – and selected air and naval units moved to Taiwan. Li, who held title but no power, asked his associates for plans to defend Southwest China but none were forthcoming.

Chennault, who was preparing to leave for the United States in a last-ditch effort to drum up support for continued resistance on the main-

land, left instructions to guide Willauer during the days ahead. Following the fall of Shanghai, probably in early May, Chennault expected the Communists to drive toward Canton via Changsha or Suichuan. If Mao's forces took either city, the airline should evacuate Canton. That might be the signal for the liquidation of CAT.

The siege of Taiyuan produced one of the most heroic – and least known – airlifts in history. When Taiyuan fell in April 1949, the great drama of Berlin airlift was at its height. [Leary PM pp.54-66]

## The Chennault Plan

CAT's plans for extensive operations in the north-western provinces of Kansu, Ninghsia, and Chinghai had begun in 1948. Lanchow, ancient walled city on the south bank of the Yellow River and capital of Kansu, was seen as the hub for a network of feeder routes, operated by light aircraft that would extend several hundred miles into adjacent areas. Savings in transportation times would be dramatic. A truck could take a week to cover 225 miles of poor road that linked Lanchow with Ninghsia; a light aircraft could make the round trip in a morning. Light planes would funnel into Lanchow personnel, mail, vital parts for machinery, and other lightweight, high-value cargo. C-46s would carry drummed gasoline into Lanchow, then pick up passengers, wool, and accumulated cargo for the thousand-mile trip to coastal points. In November 1948 CAT moved to implement this scheme and ordered – at a cost of \$15,000 each – six single-engine Cessna 195s, designed to haul five passengers or one thousand pounds of cargo over a distance of six hundred to nine hundred miles.

As the military fortunes of the Nationalists plummeted during the early months of 1949, Chennault raised the possibility of liquidating CAT. Willauer argued in opposition that liquidation would not only be difficult under existing circumstances but that operations in the Northwest and Southwest offered reasonable prospects for profit. If the Taiyuan airdrop continued into mid-February and if CAT was paid, there would be a good enough cushion to begin full-scale operations in the border areas. In the meantime, Willauer worked with Operations Director Rosbert to streamline CAT for what he feared might be slim times in the next few months. He also sent Judge Norman F Allman – an old China hand and editor of the *China Press* – to discuss with north-western leaders the prospects for American arms assistance.

In late February 1949, as the first four Cessnas arrived for assembly in Hong Kong, CAT received final permission from the Ministry of Communications to go ahead with the project. Chennault visited the area during the first week of April, hoping to cement trade relations and gather material for the resistance plan that he would soon present in the United States. As the large transport reached cruising altitude and passengers and crew settled in for the tedious flight to Lanchow, Chennault no doubt read the lengthy memorandum that Willauer and others had put together for him. It contained CAT's confidential view of the situation in the Northwest.



**Above:** One of the four Cessna 195s delivered to CAT by April 1949 seen at Sining with pilot Sterling Bemis prior to departure for Lanchow. The Cessnas could carry five passengers or 1,000 lb of freight. (via Ian D Johnson)



**Left:** General Ma Pu-fang greets pilot Felix Smith who has flown in a CAT Cessna 195 bringing air mail from Lanchow to Sining on May 15th 1949.  
(via Ian D Johnson)

CAT placed high hopes in General Ma Pu-fang, governor of Chinghai province and leader of Moslems throughout the Northwest. Ma Pu-fang had an army of fifty-thousand well-armed soldiers and the same number of partially armed men; in reserve he had two hundred thousand trained but unarmed troops. The memorandum stated: *"It is likely that, if this man were armed with sufficient weapons of the lighter type such as rifles, machine guns, Tommy guns, mortars, bazookas and mountain (pack) artillery, he would prove to be impossible to drive out of his province, and he would very possibly become a strong rallying point for Chinese anti-Communists. It is entirely possible that he could become a spearhead for a real drive against the Communists owing to the fighting qualities of his troops and his aggressive policy."* He was said to be *"fair dealing and sincere."*

General Ma Hung-k'uei, leader of Ninghsia province, possessed neither Ma Pu-fang's *"political stature nor his broad concept of political and industrial development in the north west."* He had an army of fifty thousand men, well trained and partially equipped, and an equal number of unarmed reserves. *"Acquisitive and petty"* in business, Ma Hung-k'uei should be treated with great care.

General Kuo Chih-hsiao, governor of Kansu, was serious, pleasant, fairly capable, and honest but could not be considered a major factor in the Northwest. A Nationalist functionary, Kuo had no troops of his own. The more aggressive Mohammedan leaders *"make no secret of the fact that if he does not go along with them, he is out."*

CAT had an agreement with Ma Pu-fang to buy and ship without interference all Sining wool – by far the best in China. Discussions for a similar arrangement were under way with Ma Hung-k'uei. The memorandum estimated that 25% of CAT's flying capacity of three thousand hours a month *"can be occupied on wool alone if in-bound cargoes can be found."*

Chennault reached Lanchow on 3rd April, sipped grape wine with Governor Kuo, and danced with his wife to American jazz music. The next day he went on to Ninghsia, where Ma Hung-k'uei put on a military exhibition. Although overweight and suffering from diabetes, the governor personally led his men in sword exercises.

Sining, ancient centre of trade high on the Tibetan plateau, was the final stop on the trip. A sand-filled wind blew constantly, covering everything with gray-white dust while Chennault met with the man whom he considered *"one of the most liberal and progressive officials in China."* Chennault toured Ma Pu-fang's reforestation projects, dined on mutton and lotus-seed soup, and assured the governor of CAT's continued support.

Impressed by what he had seen, Chennault returned to the United States and told Congress that *"These people are willing, indeed anxious, to fight if provided with the minimum of aid."*

While Chennault lobbied in Washington, Willauer struggled to keep CAT in business. After reaching an all-time high in March of 4,508

hours and 5,194,825 ton-miles, flying declined in April to 3,485 hours and 3,198,745 ton-miles. The bottom fell out in May, although there were a few bright spots. Operations in the Northwest got off to a promising start. After CAT established a radio station, homer beacon, and crew hostel at Lanchow, service to Sining began on 9th May, when Felix T Smith delivered a sack of mail to Ma Pu-fang. Sterling Bemis inaugurated the route to Ninghsia on 15th May, carrying as first passenger Ma Hung-k'uei's attractive wife. CAT flew two hundred tons of medical supplies from Canton to Chungking for ECA. The airline contracted with the Chinese army for thirty flights a month from Amoy to Lanchow, Chungking, and Hengyang, carrying silver dollars – Operation Payroll. Willauer reported to Chennault that for the first time in CAT's history they had to pay a bribe to win a contract.

But kickbacks to the Chinese army were the least of CAT's problems. Large contracts had ended with the fall of Taiyuan and evacuation of Nanking. Adding up the totals for May, Willauer found that CAT had flown only 1,705 hours and 249,906 ton-miles. The prospects for June seemed even bleaker. CAT, he estimated, would be lucky to fly 1,000 hours.

Willauer worked long and hard to drum up business. He sent men to scour the interior and coastal areas for cargo, he appealed to the government for contracts, and he increased scheduled flights in an attempt to attract small shippers. These efforts paid off, at least to the extent that the situation did not deteriorate in June. Light plane operations continued to expand. CAT stationed Cessnas at Taipei (Taiwan), and Amoy, hoping to promote business in portions of the Southeast that had fallen to the Communists. Using four Cessnas based at Lanchow, the airline extended service in the Northwest to include Pingliang, Wuwei, Siaho, Shantan, Tienshui, Dinyuanning, and Shansah.

On 19th June Edward R Norwich and two Chinese passengers became the first – and only – fatalities in CAT's light plane operation. Caught in a sudden sandstorm, the twenty-seven-year-old former Marine Corps navigator turned pilot crashed while attempting to land in rugged terrain outside Lanchow.

June's most promising development came in the Southwest with the start of an airlift of tin from Yunnan to French Indochina, the culmination of eighteen months of hard work. Yunnan had been one of the world's leading tin producers before World War II, exporting ten thousand metric tons a year. More than one hundred thousand people worked in the mines, while another million, or 10% of the province's population, depended on the industry for a living. After the war, however, production slumped to thirteen hundred metric tons a year. Lack of mining machinery and spare parts caused part of the decline, but inadequate transportation was the main problem. Tin reached the outside world on the backs of coolies, via sampans, and on ancient trucks that travelled on terrible roads from Kunming to Rangoon and Canton. In June 1948 CAT had offered to airlift eight hundred metric tons a month from the mining centre of Mengtze in southern Yunnan to the port of Haiphong in French Indochina. The trip would take two hours at a cost of six cents a pound.

CAT's proposal had manifest advantages. It would restore the depressed economy of Southwest China, channel tin to the United States and other world markets, reduce the price of tin by an estimated 25%, and provide China with sorely needed exchange. These rosy prospects were darkened by the difficulties of implementing the scheme. The French had to permit landings by Chinese-registered aircraft, and the Chinese had to grant reciprocal rights to French airlines; the United States had to agree to buy the tin, and the producers had to agree on price, method of payment, and other arrangements; ocean-going shipping had to call at Haiphong, and oil companies had to expand service facilities for aviation gasoline at the French port; the Ministry of Communications had to designate Mengtze as an international airport, and Chinese customs had to set up clearance procedures; finally, CAT had to establish communications, make billeting arrangements, and handle the myriad details connected with such an operation. The task would be challenging.

After months of frustrating negotiations, all the pieces began to fall into place. In January 1949 the Reconstruction Finance Corporation signed an agreement to purchase tin from the Yunnan Tin Producers' Association. In April the French gave permission for a limited number of flights into Haiphong, and Standard Vacuum Oil Company built storage tanks and feeder lines for aviation gasoline at the port. CAT contracted with Descours & Cabaud, a leading import-export firm, to act as agent in French Indochina and installed communications apparatus on the roof of its office building in Haiphong. Frank L Guberlet, one of the airline's two French-speaking employees, took over as operations manager.

The airlift began on 25th June. Over a three-day period, CAT flew thirty-three trips and airlifted 1,765 tons of tin from Mengtze to Haiphong. Waiting at the French port was the US Lines' *Pioneer Lake*, the first oceangoing freighter to call at Haiphong since the end of World War II.

Floods in late May severed Communist lines of communications and caused Mao to break off offensive operations following the fall of Shanghai. Now the Red armies were on the move again. Minister-Counsellor Clark advised Washington in July that no real resistance could be expected; he predicted Canton would fall in mid-August.

Willauer put into action longstanding plans to ensure CAT's mobility. A converted LST carrying the airline's machine shops and a barge loaded with spare parts and supplies moved alongside the Standard Vacuum installation in Hong Kong. At the same time, engineering personnel were shifted to the JAMCO facilities in the British colony. While the head office remained at Canton, ready to evacuate on a moment's notice, operations and line maintenance relocated to Kunming. [Leary PM pp.73-78]

When Felix Smith got back to Shanghai, Willauer sent him on a reconnaissance flight up the Yangtze River. "*We can't get any information from the government – we have to find out for ourselves – but how much time do we have? When do we evacuate Shanghai? When the Commies cross the Yangtze, Shanghai will go in a couple of days.*"

Chiang Kai-shek had vowed the Communists would never cross the famous river. His troops would make a life-or-death stand at the Yangtze, near Nanking. They would shield China's capital. "*Fly up the river and report what you see,*" Rousselot said. He assigned Captain Lampard to the right hand seat and Chu, one of CAT's best radio operators, sat behind the pilots.

It was late afternoon and the sky was clear when they headed north to intercept the Yangtze and then turned west and followed it inland where the river was two miles wide, and they saw soldiers gathering in orderly groups. "*Estimate ten thousand troops massing on north bank, fifty miles east of Nanking,*" they radioed. "*About fifty junks and barges in the river. No troops south of the river.*" The soldiers of the Communist Eighth Army did not look up, although they must have heard the aircraft overhead. The soldiers appeared to be unconcerned, unhurried, and unopposed.

They flew along the Yangtze until nightfall. When they landed back at Hungjao, Rousselot was waiting for them. "*We won't be in Shanghai much longer,*" he said quietly. [Smith pp.132-133]

As Communist units advanced toward Canton, the situation in the Northwest took a turn for the worse. In May a 150,000-man Communist army under General P'eng Te-huai had occupied Sian, strategic capital

of Shensi Province, and began to drive toward Lanchow. General Hu Tsung-nan, old Whampoa favourite of Chiang Kai-shek and in command of government forces in Shensi, withdrew toward Pinglian and called upon Ma Pu-fang for assistance. The Mohammedan leader responded by engaging P'eng about seventy miles outside Sian. A frontal assault halted the Communist column while Ma's twenty-nine-year-old son, General Ma Chi-yuan, attacked from the flank with twenty-five thousand cavalrymen. The Communists reeled back toward Sian, having suffered an estimated ten thousand casualties.

Ma's triumph proved short-lived. Two Communist armies, the Sixty-second and Sixty-third, rushed to P'eng's assistance. The Red forces, now two hundred thousand strong, renewed their offensive in early August, advancing on Lanchow in three columns. Ma Pu-fang planned a countermove. He would strike eastward from Lanchow, driving wedges between the communist columns, while Ma Hung-k'uei attacked from the north and Hu Tsung-nan moved in from the south. The enemy, outnumbered by one hundred thousand men, would be chopped up and destroyed. The scheme, however, depended upon adequate stocks of ammunition and the cooperation of Hu Tsung-nan.

Ma Pu-fang flew to Canton and Taipei in mid-August to plead for support. Results were disappointing. He told Minister-Counsellor Clark that any assistance from the United States should go directly to regional leaders and not to the central authorities. Willauer echoed Ma's frustration, but his target was the American government. He predicted that the Mohammedan leader, who was staying at Willauer's apartment in Canton while he called on President Li Tsung-jen, would be forced to surrender Lanchow because of lack of ammunition.

CAT began to airlift from Chungking to Lanchow small quantities of ammunition supplied by the central government, but most turned out to be the wrong kind. Nevertheless, on 18th August Ma Pu-fang attempted to launch a coordinated attack on the Communists. It broke down when Hu Tsung-nan failed to move and the Chinese Air Force refused to fly promised support missions. According to President Li Tsung-jen, Chiang Kai-shek had issued secret orders to Hu and the Air Force not to assist Ma Pu-fang and was glad to see the Mohammedan armies destroyed.

Ma Pu-fang's troops fought hard until they ran out of ammunition. Forced to give up Lanchow, Ma retreated toward Sining. On 28th August CAT evacuated the Mohammedan leader and \$1.5 million in gold bars. Ma Pu-fang stopped in Canton, called on President Li and asked his forgiveness, then continued on to Mecca. A short time later CAT brought out Ma Hung-k'uei and his treasury. The Ninghsia governor did not stop at Canton but went directly to southern California to raise horses. His cousin surrendered the province to the Communists and became vice-governor under the new regime.

Just as the Northwest collapsed, affairs in Yunnan reached a crisis. In mid-August rumours began to circulate that Governor Lu Han, known as an opportunist, would deliver the province to the Communists. At 5:30 pm on 2nd September the Ministry of Communications issued secret orders to CAT to evacuate Kunming within forty-eight hours. The airline no sooner had complied than the central government resolved its problems with Lu Han, at least temporarily. On 5th September CAT received instructions to return. This cost CAT \$250,000 worth of useless flying and did not encourage optimism about the stability of the Southwest.

Prospects for anti-Communist resistance in China appeared dismal as the summer wore on. Nationalist forces everywhere were in retreat. Paradoxically, the atmosphere in Washington seemed to improve as the situation in China got worse.

It was in this context of growing concern in Washington that OPC's plans for China, including the use of CAT, matured. On 24th and 25th August, as Ma Pu-fang retreated in anger and sorrow from Lanchow to Sining, Chennault met in Washington with Colonel Richard G Stillwell, head of OPC's Far East Division. Although a record of these discussions is not available, indirect evidence makes clear their purport.

Following a trans-Pacific telephone conversation with Corcoran on 28th August, Willauer informed his wife that the "*situation at the moment appears to be that aid of some sort to China is 90% sure, and that some of our people are counting on us heavily if there is such aid. I have suggested an operational plan covering Japan, China & Indo-China which seems to be meeting with some favour.*"

"Aid of some sort" came a giant step closer two days after the Corcoran-Willauer telephone call when Assistant Secretary of State Ernest A Gross appeared before an executive session of the Senate's committees on Foreign Relations and Armed Services. The committees were considering appropriations for military assistance, and a group of administration critics, led by Republican Senator William F Knowland, wanted to include \$100 million for China in the Europe-oriented programme. State, Gross testified, "flatly opposed" the Knowland amendment. But the department, through Senator Tom Connally, offered an alternative that would give the president broad discretionary authority to spend the money in the Far East as he saw fit.

As it finally emerged, Section 303 appropriated an emergency fund of \$75 million to be used in the "general area" of China. The president had to specify the fact but not the nature of expenditures. Although inclusion of the Far East in the Mutual Defense Assistance Act of 1949, signed into law in October, was in large part a nod in the direction of the China bloc in Congress, President Truman now had both funds and wide discretion to implement security programmes in Asia beyond public – and congressional – scrutiny.

CIA Director Hillenkoetter called at the State Department on 1st September and spoke to Secretary Acheson, Kennan, and Ambassador Philip C Jessup about OPC's plan to subsidize CAT. Three weeks later the department gave informal approval to the scheme at a meeting between Hillenkoetter, Undersecretary James E Webb, and Assistant Secretary Butterworth. Although not enthusiastic, Butterworth explained, the department would not object to minimal covert financial support to the airline if it would facilitate CIA secret operations.

The final element of the plan fell into place on 4th October. George Kennan, the department's representative on the OPC oversight committee, sent a memorandum to Wisner about plans for covert assistance to anti-Communist elements in China. Although the document neither approved nor disapproved of the project, Wisner interpreted the ambiguity in OPC's favour and ordered prompt implementation of the scheme.

CAT began to fly for OPC on 10th October 1949, China's national day. A formal agreement came on 1st November, Corcoran signing for CAT and Emmett D Echols of the CIA's Office of Finance representing the government. The CIA pledged up to \$500,000 to finance a CAT base and underwrite deficits that might occur in hazardous flying on agency missions. In return, CAT would give priority to agency cargo and personnel for one year at rates to be negotiated. An advance of \$200,000 confirmed the engagement between the CIA and CAT.

In China, Willauer turned his considerable managerial talents to the survival of CAT. As monthly aircraft hours plummeted from over four thousand to less than two thousand, he streamlined operations, executed complex schemes to expand business in border areas, supervised evacuations, wrestled with all manner of financial and personnel problems, and generally kept his head in the midst of continuing crisis.

In Washington, Chennault, guided by Corcoran, made a strenuous effort to mobilise support behind his plan – one of many floating around Capitol Hill at the time – to assist anti-Communist forces in China. In a series of public appearances and private meetings, the general sounded a clarion call of alarm, predicting dire consequences for the United States in the wake of a Communist victory on the mainland.

While Willauer watched conditions in China grow worse, Chennault saw glimmers of hope. To be sure, Chiang Kai-shek and his Nationalist cohorts remained anathema in the highest councils of government, but many officials registered increasing concern about the spread of communism in the Far East. Talk about domino theories and containment became common. A dramatic shift in policy did not occur during the summer of 1949; there would be no massive American assistance or advisers. But sufficient changes did take place to permit OPC's talented and ambitious director to go forward with a project of covert aid to anti-Communist groups in China. This scheme required secure air transport. CAT seemed ideal for the purpose. As the end approached in China, CAT and the CIA entered into what would prove a lengthy and intimate relationship. [Leary PM pp.78-83]

## OPC and CAT

Alfred T Cox, an OSS veteran, was selected at the last minute to head OPC's projects in China. After an all-night flight from Washington, Cox arrived in San Francisco on 4th October and checked into the St Francis Hotel. In the evening he wrote to his wife and reminded her not to indicate that he was connected with anything other than his job with Civil Air Transport. Early the next morning, Cox departed on Philippine Airlines for Hong Kong, a tedious three-day trip via Honolulu, Wake Island, Guam, and Manila (where he stayed overnight and changed planes).

After graduation from Lehigh University, Cox was employed by the Dravo Corporation, a Pittsburgh-based construction company. He was working as an engineer on the construction of huge submerged shipways at Newport News, Virginia, when the Japanese attacked Pearl Harbor. A reserve officer, he went on active duty early in 1942, took paratroop training, and volunteered for OSS. Cox became a pioneer in developing Operational Groups (OG), a pet project of OSS chief William J Donovan that called for small groups of highly trained men to drop behind enemy lines, contact local resistance groups, and cause as much trouble as possible.

General Donovan sent Cox to China in March 1945 on an experimental project to organise Chinese commando units. Under his direction, a training mission of 350 officers and men set up a weapons school, parachute facility, and tactical training area near Kunming. The aim was to produce twenty commando units of 200 men each. With limited personnel and constant delays in receipt of supplies, Cox faced a challenging task. Lieutenant Colonel Cox was discharged in 1946 and returned to a civilian life that lacked the excitement of front-line service. Approached by Wisner in spring 1949, Cox jumped at the invitation to join OPC.

Cox reached Hong Kong just in time for a unique operational briefing. Swept up in a CAT evacuation, he quickly learned about the airline's agility, ingenuity, determination, and daily operational dangers. CAT had been asked by the government to remain in Canton until the last minute, which airline officials judged would come in the week of 17th October. But on 9th October Nationalist troops withdrew from Kungong, a key defensive point ninety miles to the north, signalling the beginning of the end for the city. With the sound of Communist artillery echoing in downtown Canton, Willauer sent word from Hong Kong on 9th October to evacuate key office personnel and communications equipment. As news of the exodus spread, CAT field-coolies and security guards at White Cloud airport in Canton seized assistant personnel director Reese T Bradburn and traffic manager Arthur Fung and demanded "termination pay."

Willauer boarded a C-47, flew to Canton, and circled overhead to assess the situation. After lengthy radio conversations, he agreed terms and returned to Hong Kong to raise ransom money. While financial expert James J Brennan scoured the colony for the large quantity of Hong Kong dollars needed, Willauer prudently sought permission for a night landing on the return trip at Hong Kong's Kai Tak airport. British airport authorities at first agreed, but at 5:00 pm Willauer learned that Kai Tak would close at the usual curfew of 7:15 pm.

Pistols strapped to their hips and carrying bushel baskets of Hong Kong dollars, Willauer and Brennan hurried to the airport and in threatening weather took off at 5:30 pm. Chief Pilot Rousselot kept the airplane below the clouds, made a shuddering turn after takeoff, found the mouth of the Pearl River, and at about one hundred feet followed the river to Canton.

The money was unloaded at one end of the field at Canton, then Rousselot taxied to the takeoff end lest they also be taken hostage. Loyal CAT employees paid off the coolies and guards, "buying" their guns. Some eighty people then crammed into the aircraft for the short flight to Hong Kong. After coaxing the overloaded C-47 off the ground and snaking his way back down the Pearl River, Rousselot touched down at 7:13 pm. Hong Kong police inspectors took three hours to check in all the purchased weapons.

For CAT, operating a head office in the British colony became an exercise in improvisation. Some three thousand employees and their families needed housing in the refugee-crowded city, creating a problem more challenging, if less dangerous, than the evacuation. Willauer

finally decided to charter a riverboat. The moored steamer provided housing for most people, and Brennan found apartments for the remainder. Top executives worked out of a dress sample room in the Gloucester Hotel, while subsidiary officers were scattered all over town. Because telephones were unobtainable, department heads had to meet daily in a room on the mezzanine of the Gloucester.

Communications – the heart of the airline – posed the major difficulty. Because the British did not permit private radio facilities, CAT had to make do with a radio station in nearby Macao, an awkward arrangement. The various currencies required for operations also caused headaches. Willauer, Brennan, and a handful of trusted employees juggled gold bars, silver dollars, francs, pounds, and Hong Kong and American currency.

While CAT executives searched for telephones in Hong Kong, Cox began work on OPC's project to assist anti-Communist groups on the mainland. Details of the covert scheme remain locked in the CIA's archives, but the main outlines are clear. By the time Cox reached China, General Pai Ch'ung-hsi commanded the only viable military force left to oppose the Communists. Pai, a close associate of President Li Tsung-jen and member of the Kwangsi clique, had been an important regional figure during the inter-war years. A capable administrator and organiser in Kwangsi Province, he had very reluctantly accepted Chiang Kai-shek's authority. Although Pai remained outside the centres of power in the Nationalist government, he had gained prominence as a successful field commander against the Japanese. Later most observers considered him one of the best Nationalist strategists during the civil war, although his advice was rarely heeded.

In early October 1949 Pai again demonstrated his ability by handing Communist General Lin Piao a rare setback. Retreating from Changsha to Hengyang in the face of a strong enemy force, Pai abruptly turned and counter-attacked. He trapped and savaged a column of fifty thousand men at Tsin-shu-ping and sent Lin Piao reeling back to Changsha. Pai pleaded for supplies. Chiang Kai-shek turned a deaf ear. President Li had nothing to give.

Cox visited Pai in Kweilin on 14th October. During the course of a two-day stay, he no doubt learned of Pai's plans to defend Kwangsi on a line running southwest from Kweilin to Nanning, then bending southeast to Kwantung Province to the Liuchow peninsula and nearby Hainan Island. To implement this strategy, Pai had two hundred thousand tired and hungry troops. Paid one silver dollar a month, the men subsisted on a meagre rice ration. They lacked winter uniforms. Pai could not pay replacements and had no reserve supplies. He estimated that his army could fight one, perhaps two, major battles before losing combat effectiveness. He needed weapons and ammunition; specifically, he wanted ten thousand light machine guns and five thousand 60mm mortars.

Cox returned briefly to Hong Kong, then flew to Taipei for discussions with Nationalist leaders. Later he visited Chungking and Kunming, trying to assess prospects for resistance. Although arranging for a shipment of arms to Pai, he was not optimistic about the situation.

As Cox shuttled among the few remaining Nationalist pockets on the mainland, two fast-moving Communist columns converged on Pai's army. In mid-November President Li went to Nanning to review the situation with Pai. All of south-western China was doomed, but it was possible that the island of Hainan might be held as a future base. After Kweilin fell on 22nd November, Pai moved toward the Liuchow peninsula and Hainan. CAT established a base at Sanya on Hainan and began to transfer personnel and equipment from Kunming.

Chungking, last mainland capital of the Republic of China, surrendered on 30th November. Operating from Peishiyi, a wartime Fourteenth Air Force field that was located across a range of hills from Chungking, CAT had been airlifting government personnel out of the doomed city since the middle of the month. Conditions became frantic as the end approached. On the afternoon of 29th November, operations manager Roger W Severt loaded company equipment on three remaining CAT transports; as darkness fell, he awaited instructions.

Off over the hills Severt saw the frequent flash of guns and heard the rattle of fire. Then, at 8:30 pm, he saw a whole stream of vehicles pouring onto the field across the runway. It was the final exodus. Severt shut down the radio station, loaded final items of equipment, and made

space for several last-minute passengers. Enterprising crew members tossed aboard several crates of silver dollars that had been left by the fleeing Nationalists. Company officials did not applaud this act, and two pilots later reluctantly surrendered their treasure. One who failed to do so suddenly found himself unemployed twelve thousand miles from home.

By now, CAT was under intense pressure. The government wanted silver dollars flown to troops in the Southwest; local authorities impounded gasoline and demanded bribes; provincial officials threatened station managers with violence unless granted free air passage. Without regular communications between Hong Kong and outlying stations, the airline's management could do little except worry.

No one expected Kunming to last for long, but no one expected the situation to change as quickly as it did. Pressed to make accommodations with the Communists, Governor Lu Han of Yunnan Province told Vice-Consul La Rue R Lutkins on 3rd December that there would be no danger for at least two weeks. He promised to give at least three days' notice if it became necessary for Americans to leave. Shortly after midnight on 10th December, defecting provincial soldiers occupied Kunming's Chennault Field, trapping four CAT aircraft, crews, and other personnel. Only after Chennault telegraphed a personal plea to Lu Han, reminding the governor of services rendered over the years, did the guards permit the aircraft to leave. Three planes took off shortly after noon. The last C-46, flown by Var M Green, waited for Vice-Consul Lutkins and his staff, then taxied out for takeoff. The transport used most of the runway before staggering into the air, leaving Captain Green puzzled at the aircraft's sluggish performance. The answer came after arrival at Hainan, when eight stowaway soldiers tumbled out of the C-46's belly cargo compartment.

Stunned by the news that Yunnan had gone over to the Communists and threatened by an attack from the rear, General Pai led his troops toward a last stand on Hainan. It was not to be. Lin Piao attacked before Pai reached his goal and extracted bloody revenge for Tsin-shu-ping.

CAT had performed splendidly under trying conditions during the last quarter of 1949. Starting with Canton in early October, the airline had evacuated Kweilin, Kweiyang, Liuchow, Nanning, Pakoi, Kunming, Chungking, Chengtu, Hunchung, Amoy, and Swatow. Willauer took special pride in CAT's safety record, pointing out that only two aircraft had gone down during the frantic three-month period. The first one happened on 8th November, when an engine had failed on C-47 XT-805 while en route from Mengtze to Haiphong with a cargo of tin concentrates. Captain Norman R Jones, who stayed with the aircraft until his crew had bailed out, died in the crash; hostile tribesman in the isolated border area beheaded radio operator K V Chin, leaving co-pilot M H Kung the lone survivor. The other aircraft was lost on 5th December, when Captain James B McGovern in C-46 XT-812 made a forced landing on the Liuchow peninsula. Although no one was injured, Communist soldiers captured the crew. These accidents are each described in greater detail below.

During December the South China Morning Post (SCMP) reported that Communist forces were closing in on Chengtu. A CAT C-46, XT-828, was believed to be the last aircraft to leave the city. [SCMP 10Dec49/CFM 23Apr2003] Kunming was under fire. A CAT plane, XT-826, arrived safely at Kai Tak from Kunming. Two other CAT planes landed in Sanya (Hainan) and Haiphong. [SCMP 11Dec49/CFM 23Apr2003] About 3,000 taels of prepared opium were found on board a CAT plane, XT-830, during a stopover at Kai Tak. The plane arrived from Kunming and later departed for Taipei. [SCMP 3Dec49/CFM 23Apr2003] CAT attempted to send all 16 of its planes at Kai Tak to Taiwan. Due to a shortage of crews, only 8 departed. As the CAT planes were registered with and under the control of the Chinese Ministry of Communications, it was feared that there would be a possible seizure of the aircraft by the Hong Kong authorities. [SCMP 16Dec49/CFM 23Apr2003] Chennault and Willauer arrived in Taipei with 10 CAT aircraft. [SCMP 17Dec49/CFM 23Apr2003] An airport employee was sent to prison for severing the hydraulic cable of XT-810, which was about to leave for Taipei with Chennault. [SCMP 18Dec49/CFM 23Apr2003] The last 3 CAT planes left Kai Tak for Taiwan. [SCMP 19Dec49/CFM 23Apr2003]

The loss of James McGovern in C-46 XT-812 was reported in a number of editions of the SCMP [CFM 23Apr2003]: There was no news of a CAT plane, XT-810 (sic), which was reported missing on a flight from

Hong Kong to Kunming. The plane was piloted by Captain Jim McGovern and M L Lay. Capt. McGovern's last radio message was: "The plane is out of control and we are lost. We are about 5,000 ft above what appears to be a dry river bed. I am going to try and land." [SCMP 6Dec49] No trace of missing CAT plane. It is believed that the plane made a forced landing last Monday. [SCMP 11Dec49] The American Consul in Hanoi reported that the crew of XT-812 (previously reported as XT-810) are being held in Vietnam but are being well treated. [SCMP 14Dec49] The CAT plane that was lost recently with its 3 member crew and 1 passenger are being held by Vietnamese guerrillas. [SCMP 16Dec49] This last report may refer to C-47 XT-805, which had crashed on 5Dec49 in French Indochina. The capture of McGovern is also reported in *CAT Bulletin*, Volume 3, No. 5, dated 15 February 1950. [TNA FO371/84786] See below for details and Smith pp.152-160.

The attempted sabotage of Chennault's aircraft is reported by Felix Smith in *China Pilot*:

"The next morning, Rousselot and I stood among our own planes, waiting for Chennault and Willauer to show up for their trip to Taiwan. A few mechanics of JAMCO – Jardine's Aircraft Maintenance Company – hung around Chennault's plane and gabbled the way mechanics do while waiting for a pilot to take a plane off their hands. The scene was so familiar I didn't pay attention. Suddenly, hawk-eyed Rousselot ran the hundred yards to Chennault's plane, grabbed a JAMCO mechanic around the neck, and pulled pliers-like cutters from his hand. "Tried to cut the brake line," he said.

"The airport police whisked the offender away. Chennault and Willauer arrived. The pilot hurried to the cockpit and started the engines. Willauer called from the cabin door, "See that he's charged with attempted murder."

"An hour later, Rousselot and I were subpoenaed. At 3:00 pm on that same day we sat in a British court and saw the silvery pliers on a table. The JAMCO mechanic wore his jacket inside out. "Trying to confuse the witnesses," Rousselot whispered.

"In the witness box, Rousselot described the hazards of operating an airplane with a failed brake. I testified that I had seen him take the cutters from the defendant's hand.

"Sentenced to four years at hard labour, the mechanic was hoisted out of the dock in a caged elevator. I looked at my watch. Less than eight hours had elapsed since he tried to sever the brake line." [Smith pp.163-164]

OPC's project lay in shambles. Although Cox established contact with potential anti-Communist guerrilla forces in border provinces, his attempt to support Nationalist resistance on the mainland had come far too late. Chennault's view notwithstanding, the situation in 1949 was not analogous to World War II. As Governor Ku Han of Yunnan had pointed out in October, the Communists were not the Japanese; they would not be halted by the mountainous terrain of the Southwest because the people did not regard them as invaders.

During the waning months of 1949, as the Nationalists faced final defeat on the mainland, CAT officials on both sides of the Pacific fought political and legal battles to keep the bulk of China's air transport fleet out of Communist hands. The purchase of CATC and CNAC by Chennault and Willauer in December 1949 has been described in Parts 8 (CATC) and 10 (CNAC). The political and legal battles will be described in a future article in this series.

Flying through the hazardous skies of civil war, CAT had carried more than three hundred thousand people and piled up nearly 59 million ton-miles during three years on the mainland. Although operational success did not translate into profit because of runaway inflation, CAT was always more than a business venture. [Leary PM pp.84-99]

## Trans-Asiatic Airlines

In October 1950 five C-47s were leased from Trans-Asiatic Airlines (TAA) of the Philippines (*Archive* p.2009/175), which also had a subsidiary in Thailand (TAAS). These were probably registered XT-813 to XT-821 (odd numbers only). Later these were probably re-registered as B-811 to B-817 & B-821 (not B-819).

PI-reg	model	c/n	p/i	HS/XT-reg.	fate
PI-C180	C-47A	20583	43-16117	HS-TA180?	
					Possibly to HS-TA180 (q.v.)
PI-C181	C-47A	18947	42-100484	XT-811?	B-811
PI-C182	C-47B	26816	43-49555	?	unknown

PI-C183	C-47A	19258	42-100795	XT-815?	B-815, AAM
PI-C184	C-47A	19252?	42-100789?	?	
					Cr Rangoon 18Jan50, F-OAMU
'0789'	C-47A	19252?	42-100789?		To PI-C184 (q.v.)
?	C-47A	20583?		HS-TA180	
					Noted in crew logbooks Oct47-Feb49, fate unknown. DBR at Mingaladon, Burma 17Nov49 (stbd wing used to repair VR-HDB)
?	C-47A	?		HS-TA190	
					Noted in crew logbooks Aug48-Feb49, fate unkn
?	C-47A	?		HS-TA191	
					Noted in crew logbooks Mar48-Jan49, fate unkn

[*Archive* pp.2002/152-154; ATDB; IT 31Oct2004; JMG2 pp.207-208, 216; MSB 30Oct2004; PY 30Apr2006; SMD 17Mar2010]

### TAA C-47 impounded at Kunming

It was difficult to understand why CAT/MOC C-46F XT-52 became B-902 and not B-154 (see below), but there is an explanation in Dr Joe Leeker's file "Air America Japan – since the days of CAT" in his *The History of Air America* e-book. Paragraph 7(a) of memo no. DO 1-1163 dated 7 October 1950 says: "Lost one CAA plane to TAA in the beginning (CAA awarded plane to TAA for loss of C-47 KMG)." Elsewhere Dr Leeker says that B-902 was returned to TAA after lease, whereas previously TAA probably did not have any C-46s, only C-47s. [MSB 17Mar2010]

This incident that probably caused this transfer was reported in the South China Morning Post (SCMP). See for example:

"T.A.A. PLANE

#### Whereabouts Still Not Known

*The whereabouts of the T.A.A. plane which took off for Kunming on Dec.21 on an unknown mission, were still not known yesterday. However, the crew of the plane sent another message back to the company to be transmitted to their wives. The message, dated Dec.29, stated that their stay in Kunming was fine, according to Mr W Dudman, manager of the Trans-Asiatic Airways [To be pedantic, T.A.A. was Trans-Asiatic Airlines, not Trans-Asiatic Airways].*

*When asked whether the plane in Kunming had sustained any damage as the result of last week's bombing of the airport by the Nationalist Air Force, Mr Dudman said he personally did not believe that the plane was damaged ... on ... ground that the message received had not mentioned anything to that effect."* [SCMP Sunday, January 1, 1950]

"TAA PLANE CREW

#### Awaiting Exit Permits To Leave Kunming

*The crew of the Trans-Asiatic Airways, which left for Kunming on a special mission recently, was still waiting for exit permits from the Kunming authority to leave the city, it was learned from an official of the company yesterday.*

*Mr Dudman, manager of the company, said the latest news he received from them was a message dated January 20, which mentioned nothing about the condition of the aircraft. It advised their families not to worry about them.*

*Mr Dudman believed that the plane grounded there could still be flown, though it was reported in some of the local Chinese papers that it had sustained some damage as a result of strafing and bombing by CAF planes."* [SCMP Tuesday, January 24, 1950]

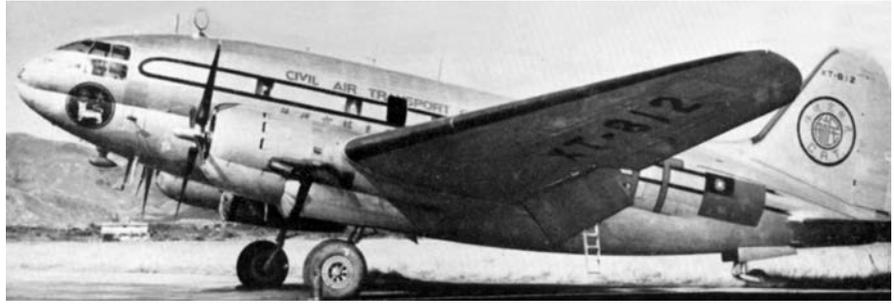
According to Leary, *Perilous Missions*, page 90, the last CAT planes left Kunming's Chennault Field on 4th December, so it is difficult to understand why the TAA C-47 should go there on 21st December and even odder that Chennault should resume the tin airlift the following January.

This is probably the "TAA ... C-47 KMG" mentioned above. Given reports that this C-47 was damaged by CAF bombing, one can understand why the ROC government would wish to replace this aircraft with their C-46 XT-52 but it means that there is yet one more TAA C-47 to account for if CAT wanted to charter seven after this one had been lost. We need to identify more USAAF C-47s in the Philippines that went to TAA or TAAS. [MSB 17Mar2010] Presumably this unidentified C-47 was later repaired and transferred to CAAC or the PLAAF.

Release of the crew was reported by the New York Times (NYT):

#### "New Jersey Flier Finally Out of Red China; McGowan and Associates Stayed in Kunming

*Two American commercial pilots and three members of their crew have*



**Left:** CAT Captain James B McGovern, the larger-than-life character, who was held by the Communists for several weeks after making a forced landing on a sandbar in a dry river bed near Yulin. (via Ian D Johnson)

**Above:** C-46 XT-812 was the aircraft lost in the McGovern incident on 5.12.49. (Jack Meaden coin)

been released by the Communists in Southwest China after having been marooned in Kunming for eight months, eleven weeks of which were spent in full confinement.

"The Trans Asiatic Airline Company, which employs the fliers, said they had arrived in Lashio, Burma, yesterday and were now en route to Rangoon.

"The five airmen were stranded last Dec.21 when they flew a chartered C-47 transport into Kunming from Hong Kong just as the Yunnan provincial capital switched from Nationalist to Communist rule. The plane had been chartered by the Ministry of Communications to evacuate Nationalist personnel from Kunming.

"The released American fliers are Daniel D. Carden of Dallas, Tex., pilot, and Francis A. McGowan, of Roselle, N.J., co-pilot. The other men are J. Pulgado, Filipino engineer; A. Adriano Filipino radioman and A. Ozorio, steward, who is a British subject." [NYT 02Sep1950 via MM]

Carden is mentioned in *Perilous Missions* as a C-119 pilot in Indochina in 1954. [MM 18Mar2010]

## James B McGovern

### Earthquake Magoon

CAT recruited a number of pilots from the US Marine Corps. One of these was James B McGovern, otherwise known as "Earthquake Magoon", the name of a cartoon character. Felix Smith met him in Shanghai when he was based on an aircraft carrier as liaison officer between the Chinese Air Force and U S Navy. Smith described him as a Falstaffian character; "a broad foreign man with a bluff face and a black Vandyke beard. Massive eyebrows, like inverted gull wings, reached around the sides of his forehead." He introduced himself as Jim McGovern, "Friends call me Earthquake Magoon." He accompanied Felix Smith and Paul Holden to the CAT offices on The Bund when they went to collect their per diem cheques. McGovern stared into a roomful of secretaries. Glossy hair flowed neatly over their high-necked *cheongsams*, but the modesty of the prim, neck-girdling collars was belied by the rest of the tailoring. Skin-tight, the dresses accentuated beguiling curves, while split skirts flashed glimpses of ivory thighs. After a period of quiet thought, McGovern asked how he could get a job with CAT. [Smith pp.41-43]

Felix Smith was assigned to the "soldier-cotton shuttle" between Tsingtao and Tsinan with James McGovern as co-pilot of a C-46. They ferried soldiers to Tsinan and return flights brought bales of cotton to Tsingtao's textile mills. By the time Smith had checked the escape hatches in the cabin and the latches on the starboard cargo door. McGovern had gone to the cockpit. When Smith got there he found McGovern relaxed, with the seat tilted to its full recline position and hands folded across his belly. His face telegraphed self-satisfaction. Smith couldn't see any tools for navigation. No protractor to plot courses, no circular slide rule that he could easily have carried in his shirt pocket, no charts. [Smith pp.62-63]

Smith told McGovern to fly. Smith knew that the C-46 would feel heavy and unwieldy after the fighters he had been flying. McGovern straightened the seat and called for the checklist. After takeoff Smith let McGovern take all the decisions. Half an hour later they saw their first checkpoint, which was the city of Weihsien, north of course – easy to identify because it was cut in two by a river and huge walls surrounded both halves and made a figure eight. Even though its distinctive appear-

ance made it a perfect landmark, McGovern did not pull a calculator out of his pocket or do anything else to determine their ground speed.

In another hour they saw the long suspension bridge over the Yellow River, and McGovern descended into Tsinan. They hit hard, bounced down the runway and stopped at the end. The soldiers disembarked, and labourers unlatched the wide cargo doors of the cabin and swung them open. Each bale of cotton weighing a hundred kilos (220 pounds) was carried on the shoulder of a single labourer, up a steep plank and into the cabin.

The cotton was loaded in twenty minutes, and a jeep was the last item to go aboard. A driver steered it up the planks, under its own power, but it stalled midway. The incline was too steep. Several men grabbed the bottom end of the planks and lifted them above their heads until they were level, and the jeep drove into the cabin.

After they had shuttled all day – soldiers to Tsinan, cotton to Tsingtao – a company station wagon took them to a castle that Willauer had rented for transient crews. [Smith pp.64-65]

Lawrence R Buol had written, for McGovern's personnel file: "*This pilot went on a check ride without so much as carrying a map or letdown procedure. By a quirk of luck he flew close enough to Taiyuan to locate the town. I would not call this confidence but stupidity. I assume he flies all the time without standard equipment. He is a very lazy pilot and takes much for granted. He definitely isn't responsible enough to be a good captain, and unless he overcomes this attitude I recommend he be given more co-pilot time.*" Another captain reported: "*McGovern is lazy. Won't do anything unless told.*" [Smith p.65]

### Loss of C-46 XT-812

Later Smith was appointed as CAT's station manager in Hong Kong. CAT's headquarters, now in Hong Kong, did not have direct contact with its aircraft. The British government ruled that operational messages must filter through its system. All other messages, including passenger and cargo reservations, were transmitted via a commercial company, Cable and Wireless Ltd. When Smith got to Kai Tak Airport on the morning of 5th December 1949, the operations manager, Ramsey, reported that McGovern's aircraft was missing. He had departed for Kunming at 5 pm, although no flights had been scheduled for that afternoon. McGovern had arrived at 4 pm with a passenger from Kunming but the Hong Kong immigration authorities would not admit her, although she had a Hong Kong visa, issued in Kunming. She was Mrs Liu, the White Russian wife of CATC's station manager at Liuchow and had her baby with her. Ramsey had sent McGovern and crew, Lay and Chang, back to Kunming with these two passengers.

The Teletype clattered: "XT-812 LANDED ON BEACH NEAR HAIKOW 0340, RADIO COMPASS OUT. IN AIR 9 HOURS."

Cockrell was about to board a leased DC-4 (see below) for Kunming. Haikow, a fishing village on Hainan Island, lay ninety miles south of his course to Kunming, twenty-seven minutes extra flying for a search.

The Teletype clattered again. "ALERT AIR TRAFFIC CONTROL AND ALL SHIPS NEAR HAINAN ISLAND. XT-812 LANDED ON SANDBAR NEAR COAST NEAR HAINAN ISLAND BUT POSSIBLY ON CHINA COAST. RELAY ANY INFORMATION."

Smith ran the message to Hewson, the chief of air traffic control, who would launch a search. Smith hurried to Hong Kong's air traffic control centre, where a civilian and a Royal Air Force flight leader sat at a lofty desk high above a massive table that depicted the South China Sea and all its coastlines and islands. Model ships and aircraft, pushed by clerks with croupier sticks, progressed across the table, according to their position reports. A box stored other models, including replicas of RAF Sunderland flying boats. Nobody put a flying boat on the table. [Smith p.154]

Smith returned to Hewson's office. Hewson said he needed to refer the emergency to the Director of Civil Aviation. Thirty minutes later, Hewson was not in his office. Smith hurried back to the ATC centre, where the toy ships and planes plied across the table. The search-and-rescue aircraft were still in the box. The civilian controller asked exactly where XT-812 was. Smith said that if he knew this, he wouldn't need to ask for a search. The controller asked Smith how he knew the aircraft was in Hong Kong's flight information region (FIR). They were not allowed to cover mainland China. Smith pointed out that Hainan Island was not in mainland China and Cathay Pacific flew over it every day. The RAF officer said he had a Sunderland flying boat ready to go but understood that CAT's DC-4 was searching. Having recognised the Communist government of China, the British were afraid that they might be fired on by the Nationalists, who were blockading the coast of China. Smith sent a message to CAT's liaison with the CAF: "NEED ASSURANCE THAT RAF SUNDERLAND FLYING BOAT CAN SEARCH HAINAN ISLAND AND CHINA COAST UNMOLESTED."

To add to Smith's difficulties, he was criticised by Buol, CAT's chief of flight operations, for sending a four-engined aircraft on a search mission. Smith pointed out that he had only diverted the DC-4 on a flight to Kunming. Later Buol called from Chennault's house to say that there would be no more search missions with CAT aircraft. CAT's flight surgeon, Thomas Gentry, who was previously the chief medical officer of the Fourteenth Air Force, went to Chennault's house and got permission to dispatch two C-47s on a search with himself on the manifest. The RAF assisted with rescue equipment. Leaflets were printed in Chinese, Burmese and Thai: "*Reward – gold bars – for information about silver airplane number XT-812 and crew.*" There was difficulty in finding crewmen for the search, as many off-duty pilots had gathered at the airport. The aircraft returned late that night after searching fruitlessly all the way to the French Indochina border. Additional leaflets were printed for distribution during further flights to Kunming. [Smith p.156]

A week later co-pilot Tang gave Smith a page from a small notebook with the number of McGovern's aircraft and a latitude and longitude. The coordinates put it 85 miles north of the coast, near a village called Yulin. Brongensur and his crew, scheduled for Kunming, dog-legged over Yulin. An hour and a half later, they got the message; "XT-812 ON BELLY ON SANDBAR. NO APPARENT DAMAGE. NO SIGN OF PASSENGERS OR CREW." [Smith p.156]

Several days later Smith found another message on his desk in McGovern's writing: "*Sorry about plane. ADF [radio compass] out. Landed on sandbar near Yulin. Everybody safe. Reds released Mrs Liu and baby. Lay and Chang escaped. Reds moving me.*" [Smith p.156]

Friends of McGovern in Hong Kong wanted to help rescue him. A water policeman called Dudman said he knew the chief of the pirates in these waters, who could locate McGovern and get him out if the price was right. E F Gingle, the American owner of a café near Hong Kong's Star Ferry, donated a letter of credit for \$60,000. A Belgian priest, Father Zeller, acted as intermediary and arranged a meeting between Smith and the pirate chief at the Miramar Hotel. Smith understood that the price would depend on the circumstances. Smith went the short distance to Chennault's house but the general did not support the plan, pointing out that the pirates were likely to destroy the evidence if they were intercepted. McGovern was safer where he was and the Chinese would let him go eventually. [Smith p.160]

CAT got word that McGovern's passengers, Mrs Liu and her baby, were safe in Hong Kong. A few days later, co-pilot Lay called to say that he was in Hong Kong and wanted to meet Smith at the Miramar Hotel, where he told the story of their ordeal. Local villagers had helped Lay and Chang to escape imprisonment in a small hotel with barred windows, but they could not help the oversized foreigner. Lay posed as a merchant travelling to Canton to buy goods, travelling part of the journey by junk at night. From Canton he dressed as a coolie and took a train to Hong Kong.

A couple of weeks later Chang walked into Hong Kong operations. The Communists had released him because he was an innocent employee. A month later McGovern also returned. There will be more to say about McGovern in a future article.

The following articles in the South China Morning Post give a contemporary version of events [IDJ 18Mar2010]:

#### **"Missing Plane. All-Day Search Proves Fruitless. Four on Board.**

*"Late last night there was still no news of the C.A.T. plane XT-810 (sic), which was reported missing early yesterday morning on a flight from here to Kunming. Two C.A.T. planes and a P.O.A.S. Skymaster, which spent most of yesterday searching the area from which the missing aircraft last radioed, returned to Kai Tak with no results.*

*"Aboard the plane, a C-46, was Capt. Jim McGovern (pilot), M. L. Lay (co-pilot), S. F. Chang (radio operator) and one passenger, Mrs Liu. They took off from Kai Tak at 5.06 p.m. on Sunday, flying on instruments as the weather was unfavourable.*

*"After nine hours, McGovern wirelessly back at 2.48 a.m. yesterday, "The plane is out of petrol, and we are lost. We are about 5,000 feet above what appears to be a dry river bed I am going to try and land." This was the last message received.*

#### **Search to be Continued**

*"An earlier message from McGovern said that he and his crew would not bail out because of the woman passenger. Mrs Liu is Russian-born and the wife of a Chinese.*

*"A fourth plane from Pakhoi joined in yesterday's searching mission.*

*"C.A.T. officials here stated that two more planes will be sent out today to continue the search. If they are successful a small single-engine plane will be flown out to pick up Mrs Liu and the crew.*

*"The officials added that McGovern is an excellent pilot and they are hoping that he brought the plane down safely.*

*"It is understood that the plane was also carrying three drums of aviation oil and 16 drums of aviation petrol." [SCMP 6Dec1949]*

#### **"Missing C.A.T. Aircraft. Crew Well Treated in Vietnam. Hanoi Message.**

*"The American Consul in Hanoi, Mr William Gibson, has told Mr Guberlet, of the C.A.T. Hanoi Office, that it was quite certain the crew of the C.A.T. XT-812 are being held by Vietnam but are being well treated.*

*"The missing plane was on a flight from Kai Tak to Kunming.*

*"C.A.T. officials in Hong Kong received the message yesterday. Mr Gibson did not state the source of his information.*

*"Since the plane disappeared nine days ago, aircraft have been sent out almost daily to search the area where the plane was last reported.*

*"Aboard the plane were a crew of three and a passenger, Mrs Liu. Nine hours after leaving Kai Tak on December 4, the plane's pilot, Capt. Jim McGovern, wirelessly back this message, "We are lost. I am going to try and land in what appears to be a dry river bed." These were the last words from the plane.*

*"Special planes, fitted with long-range petrol tanks, were out searching last weekend. They went along the South China coast, and west into Indo-China where they went 180 miles south and 50 miles inland.*

*"Before this thousands of hand-bills were dropped from the air, appealing in French, Siamese and Chinese for news of the plane." [SCMP 14Dec1949] The consul's information was wrong.*

#### **Loss of C-47 XT-805**

Jones left the mining town of Mengtsh with a C-47 full of tin ingots for Haiphong but his first position report did not come in. Smith sent a message to everyone: "*Attempt contact XT-805 and advise.*" When clocks said Jones's fuel tanks were dry, Smith advised everyone to watch for the downed plane. Nobody sighted a wreck, but a couple of days later, co-pilot M H Kung, guided by friendly natives, walked out of the jungle.

Kung told them that the right engine was on fire, the extinguishers did not put it out and perhaps the fire wall shut-off valve did not work. Captain Jones told the crew to jump out but they could not push the door open against the slipstream. Jones came to push them out but did not have time to get out himself.

The terrain where Kung and Chin landed was rugged. Smith guessed that Kung had landed on the lucky side of a mountain and Chin on the other. Lolo tribes roamed the area, and some of them still hunted heads.

Buol, who managed the tin shuttle in Kunming, said he would hunt for Jones and asked Governor Lu Han for soldiers. Marsh gave up his

home leave to go and help. When the expedition – Buol, Marsh, Jawbert, and a squad of Lu Han's soldiers – reached Lolo territory they heard rumours that Lolos had chopped off Chin's head. They found the crashed C-47 with Jones's body inside, beginning to rot. Buol decided to cremate the remains and take the ashes back. Jones's girlfriend took them back to his parents in America. [Smith pp.166-167]

## The CIA Buys an Airline

CAT faced bankruptcy in January 1950. Ejected from the mainland, with few routes and little business, the airline struggled to survive. Flying hours plummeted from three thousand a month to less than five hundred; employees had to be dismissed or placed on leave without pay in an effort to reduce soaring operating deficits. Unless Willauer could find funds in the United States, CAT would die.

With nowhere else to go, CAT joined Chiang Kai-shek on Taiwan. Taipei, the island's capital and major city, became the centre for flight operations, with dispatching, weather, and chief pilot offices at Sungshan airport. By mid-February, thanks to hard work by the airline's staff, Director of Operations Rosbert could report that Taipei "is operating smoothly."

Maintenance was more difficult. CAT's LST and supply barge, both crammed to the gunnels with a jumble of equipment tossed on board during hasty evacuations, docked at the port city of Kaoshiung, 185 miles south of Taipei. The LST had to be unloaded and parts sorted out before shops could be established. Meanwhile, engineering personnel set up line maintenance at a former Japanese airstrip at Tainan, twenty-six miles away, and began the tedious job of preserving CAT's numerous unemployed aircraft.

Just before leaving Hong Kong, Willauer had the foresight to hire Hugh L Grundy, CNAC's chief engineer. Despite the airline's financial woes, he offered the experienced Grundy the job of director of maintenance at a salary of \$1,400 a month. Because this was \$200 more than the director of operations' salary, Rosbert objected, wanting at least equal pay. He pointed out that Grundy occupied an inferior position on the organisation chart. Willauer agreed – and promptly changed the organisational chart. Although displeased with the disparity in salaries, Rosbert had high praise for the taciturn Kentuckian.

### Mengtze

With the mainland routes gone, CAT desperately needed business. Mengtze, tin shipping centre in southern Yunnan, had been evacuated by CAT in early December 1949 when Governor Lu Han went over to the Communists. Although the Peking government controlled most of the province, Mengtze remained under tenuous Nationalist authority. Eager to put CAT to work, Chennault decided to take a chance and airlift to Hainan as much as possible of the 472 tons of tin concentrates stockpiled at the airfield.

Operations began on 13th January and continued without incident for two days. For reasons that still remain obscure, Lawrence R Buol, in charge of the airlift, decided to ignore standing instructions and spend the night at the airfield. He paid a high price for this error in judgement.

Small arms fire broke out near the airfield shortly after midnight and continued for several hours. After the situation quietened down, Captain William J Welk flew in and attempted to rescue Buol. After landing, Welk turned around and began to taxi toward the end of the runway. A machine gun opened fire. A bullet smashed through the cockpit, hitting co-pilot Henry Davis in the leg. Welk jammed on full power and roared off. Communist soldiers took Buol into custody later in the day. The former marine flier, who had been one of CAT's first pilots, received a lengthy prison sentence. Released in September 1955, he died of heart failure the following May.

Termination of the Mengtze-Hainan shuttle left only daily scheduled service between Taipei and Sanya (Hainan), hardly enough to keep the airline in business. Attempting to develop routes on Taiwan, in February CAT began a daily round-the-island service with a "pushed" C-47. The aircraft started at Taipei, crossed the rugged mountains to Hualien on the east coast, then continued south to Taitung before crossing the southern end of the island to Tainan; it returned to the capital via Makung in the nearby Pescadores Islands. Competing with excellent rail and highway service at several points, the route carried only 230 passengers in the first month of operation. CAT opened

another domestic line on 2nd March when a five-passenger Cessna 195 inaugurated daily round trips between Taipei and Tainan.

Efforts to expand beyond the narrow confines of Taiwan bore fruit in February and March, when informal agreement between the Chinese authorities in Taipei and British officials in Hong Kong led to daily service between the two points by CAT and Hong Kong Airways. CAT also concluded arrangements with Pacific Overseas Airlines Siam (POAS) for a weekly charter flight between Singapore and Tokyo via Bangkok, Hong Kong, and Taipei.

Nevertheless, money kept pouring out of the company's treasury. Airline executives were forced to take ruthless action to cut expenditures. James Brennan, close associate of Corcoran and collector of Chinese art, led the economy drive and became the target of brickbats from disgruntled employees. Administrative assistant to Representative John J Dempsey of New Mexico during the 1930s and later congressional liaison for China Defense Supplies, Brennan had played an active role in CAT from the start. Following several inspection tours for Corcoran, he had moved to Hong Kong in 1949 to assist Chennault and Willauer with financial matters.

"Placed in charge of CAT's budget in January 1950, Brennan realised that personnel costs accounted for nearly one-half of operating expenses. He made few friends when he reduced staff to one hundred foreigners and four hundred Chinese, and even fewer when he ordered salaries of foreign personnel cut by 20%." [PM p.102]

"Brennan wielded the economic axe with vigour, but deficits continued to climb. The airline reached a low point in February when three hundred revenue hours flown produced a meagre income of \$20,000. In desperation, Brennan drew on \$29,000 of Willauer's personal funds and \$25,000 of Chennault's to keep the company going. Loss of his "nest egg" disheartened Willauer; Chennault was furious and even talked for a time about levying charges of embezzlement against Brennan." [PM .102]

CAT had lost \$671,000 during the first three months of 1950. The airline was broke. Financial succour would have to come from Washington. Indeed, OPC had been CAT's main hope for economic relief ever since Corcoran and General Donovan had developed an imaginative scheme to operate an airline for the CIA on the periphery of Communist China. This plan envisioned the creation of a giant air complex by combining CAT's fleet with the CNAC/CATC aircraft in Hong Kong. Preparing for meetings at OPC, Corcoran explained to Willauer on 18th December 1949: "*I think we've got an idea going for our 100 plane airline Oregon [CIA] owned but operated by you over the whole peripheral arc from Korea to Japan to Okinawa to Formosa, Manila, Hong Kong, Indo-China, Siam, Malaya, NEI [Indonesia] – and possibly through Pakistan to Turkey... This is all very hush – but when Donovan comes out [to Hong Kong] he may have this idea developed.*" *In any event, Corcoran continued, it would be best to "get out of ownership and into management of the equipment for Oregon's account – because this is no longer commerce but war."*

Awaiting Willauer's arrival in the United States, Corcoran stepped up pressure on OPC. Without immediate financial assistance, he announced at a meeting with OPC officials on 10th January 1950, the airline would have to be liquidated. The government must act immediately if CAT was to be saved for official use.

OPC had \$100,000 remaining from its original authorisation of \$500,000 for CAT's services. Although these funds could be advanced to the airline without going outside the CIA for policy decisions, agency officials were deeply divided on the issue of further assistance to CAT. Individuals concerned primarily with administration had considerable misgivings about the cost of supporting CAT. Their apprehensions grew when Robert E Terhaar, an accountant sent to Hong Kong in December to keep an eye on the agency's financial interests, expressed horror at the condition of CAT's records.

Support for the airline, however, was strong among individuals charged with executing covert projects. Before returning to the United States in January, and no doubt following conversations with General Donovan, Cox had recommended continued association with CAT. The airline, he said, would be of "immeasurable value" in providing secure transportation for CIA activities throughout the Far East. In the end, Cox' view prevailed. On 1st February OPC's project subsidy committee approved payment of \$100,000 to CAT.

Willauer reached Washington in late January and promptly joined Corcoran in the search for funds. The former government attorney and his well-connected wife moved easily into the capital's social scene, where the line between business and pleasure tends to blur.

Willauer and Corcoran spent their daylight hours at the State Department, ECA, and CIA, arguing the case for CAT. There was a decisive meeting at OPC on 20th February. Willauer – according to the CIA's account – dropped a bombshell: CAT's owners would have to act at once on several alternatives. They could sell the company to the Chinese Communists or to a third party who would sell to Peking; they could sell to the United States government, overtly or covertly; or they could liquidate on the open market. Clearly, CAT's owners had no desire to put the airline's assets on the block in a depressed market, and a deal with the Communists seemed unlikely, even had such an arrangement been possible. But their threats put Wisner under the gun: OPC would have to make a decision about CAT.

With the air alive with talk of covert action in the Far East, OPC obviously needed a secure, deniable source of transportation to move personnel, airdrop supplies to guerrillas on the mainland, and engage in various clandestine activities. Financial misgivings notwithstanding, CAT seemed ideal for the purpose.

On 24th March 1950, CAT's owners signed an option agreement with Richard P Dunn, a Washington banker acting as agent for "undisclosed principals." The "bankers" advanced \$350,000 to clear up arrears in payroll, gasoline bills, outstanding supply accounts, and other debts affecting the owners' equity in the airline. An additional \$400,000 would be made available to fund operating deficits until mid-June. The "bankers" then had the option to purchase the business, including physical properties and operating rights, for \$1 million.

CAT's value, set after lengthy negotiations, later became a festering source of controversy between the CIA and CAT's owners. Willauer always contended that the CIA had snapped up the airline at a bargain price; he placed the "real" worth of the business at between \$4 and 45 million. Critics countered that CAT was a bankrupt company with obsolete equipment and limited prospects that would have folded without agency backing.

During negotiations with the CIA, Corcoran and Willauer implied that other buyers were eager to acquire CAT; however, they probably used this threat as a bargaining ploy. CAT was not a "hot" property in March 1950. Had CAT's owners been forced to liquidate their assets on the open market, they would have been lucky to realise \$1 million after payment of debts. The airline owned nineteen C-46s, one C-47, and four Cessna 195s. Seventeen of the C-46s were older 'A' and 'D' models that would require modifications to control surfaces – each costing \$15,000 – to bring them up to 'F' standards. CAT, in short would be trying to sell obsolete aircraft on a depressed market. Although the value of other physical assets – spare parts, the LST, workshop equipment, real estate, and so forth – is hard to estimate, it could not have amounted to much. CAT no doubt was worth at least \$4 million as a going concern on the mainland, and the airline's value increased after the outbreak of the Korean War. But in spring 1950, CAT's owners had been lucky to find a buyer at any price. [Leary PM pp.100-106.]

## Korean National Airlines

Korean National Airlines (KNA) was founded under the Ministry of Transport in May 1947 and operated routes radiating from Seoul with Stinson Voyageurs. Douglas DC-3s were introduced in 1950 shortly before the Korean War, which started in June 1950, stopped commercial operations until early in 1952. Later that year an international route to Iwakuni and Tokyo was opened with aircraft chartered from C.A.T.; this route was extended to Hong Kong and Constellation aircraft were introduced. [Davies OUP pp.410-411; Flight 13Apr61 p.497; MSB 9Apr2010]

KNA started with three Stinson Voyagers in 1949 but replaced these with DC-3s in April 1950, shortly before the Korean War started on 25 June. Initially, KNA was based at the capital, Seoul, but moved to Pusan, because of the dangers of the Korean War. Although the Korean Ministry of Defence commandeered all available aircraft during the conflict, KNA continued services under ROK MoD control, providing air service to nearby Japan, before moving back to Seoul when the war was over.

Early in 1952 KNA resumed regular commercial services with DC-3s, from Seoul to Pusan and to Kunsan and Kwangju in the south-western area. Later in 1952, under an agreement with Civil Air Transport (CAT) in Taiwan, KNA started an international route, with aircraft chartered from Taipei, from Seoul to Iwakuni and Tokyo, to establish the first international route under the Korean flag. Soon after an armistice was signed, KNA acquired its own Douglas DC-4 from the Air Carrier Service Corporation. This was used regionally, starting service in 1954 to Taipei and Hong Kong. In July 1959, having won a US foreign carrier permit to fly to Seattle, KNA ordered a Lockheed Model 749A Constellation, also from the Air Carrier Service Corporation, but the service to Hong Kong was suspended because of a dispute with Cathay Pacific Airways, and was not resumed until 4th July 1960. The airline ceased operations in 1962. Korean Air Lines (KAL) was founded on 3rd March 1962 to take over KNA and its routes. KAL's initial fleet was one DC-4 and two DC-3s, possibly acquired from KNA and renumbered. [Davies Putnam pp.516-519; MSB 26Mar2010]

"In the beginning (of the early 1950s), there was little for CAT to do, until June of 1950 when the Korean War started. Then, things began to happen in a big way. On the commercial side, CAT expanded considerably, setting up Korean Airlines as an adjunct to its operation. Lew Burrige was instrumental in the success of that activity." [Rosbert p.163]

During early 1950, before the outbreak of the Korean War, Hong Kong Airways was seeking permission from the government of the Republic of Korea to operate unscheduled service between Hong Kong and Seoul. Although the ROK Foreign Minister had welcomed such service, the Minister of Transport was uncooperative until pressure was brought to bear via the President. Eventually, in April 1950, the ROK Government agreed to allow HKA to operate unscheduled charter flights on condition that reciprocal rights would be given to KNA. The Governor of Hong Kong accepted this condition. "They ask for reciprocal rights for similar flights by Korean National Airlines under certificate from Korean Government and using DC-3 aircraft." [TNA FO371/84788, 84789, 84790 GA81/167] This information confirms that KNA had the use of DC-3s in April 1950. [MSB 12Jun2010]

This begs the question of which two CAT C-47s were leased to KNA in 1950 (or 1951). Only one of the five original CAT C-47s (XT-801) was registered to CATI in January 1950 and XT-805 crashed in November 1949. CAT needed to lease in additional C-47s to support the BOOK-LIFT contract later in 1950. Fates are not known for XT-803, XT-807 and XT-809, which may have been removed from service before December 1949. Matt Miller has a very poor quality image of XT-803 sitting on wooden blocks. [MM 10Apr2010] Fates are also unknown for XT-819 and XT-821, which CAT acquired later in 1950 (see CAT fleet list below). Further research is required on the identity of the Korean DC-3s. There will be a further opportunity to discuss KNA DC-3s in a later article on CAT.

## Fleet list (KNA)

reg.	type	c/n	date	notes
HL-02	Stinson 108	*	Oct49	see Note 1
HL-03	Stinson 108	*	Oct49	see Note 1
HL-04	Stinson 108	*	Oct49	see Note 1
HL-05	Douglas DC-3	?	1953	
HL-06	Douglas DC-3	?	1953, 16Feb58	"Ki Bong Lee Ho", leased from CAT since 1951 "Jangtaeksang Ho", leased from CAT since 1951, kidnap incident
HL-07	Douglas DC-3	33200	Apr56	"Sinyonguk Ho", destroyed at Busan 7Jul57 or to HL4009
HL-08	Douglas DC-3	?		TBC
HL-101	Douglas DC-3	?		
HL-102	L-749A Constellation	2551	Aug59	To OE-IFE 12.62
HL-106	Douglas DC-3	?		kidnapped 16Feb58
HL-108	Douglas DC-4	43094	Oct53	"Rhee Ho", to HL4001
HL-109	L-749A Constellation	?	Jul59	leased from US
HL2001	Douglas C-47A	12017	Jan65	TBC
HL2002	Douglas C-47A	20203		TBC
HL2003	Douglas DC-3	25969		TBC

[ATDB; Flying4u; JMG1 p.171; JMG2 p.195; Marson p.226; SEA79 p.29]

**Notes:**

1. The c/ns of the three Stinsons were 108-4745, -4955 & -4975. [MSB 26Mar2010, SEA79 p.29]
2. Perhaps the CAT DC-3s flew with Chinese registrations from 1951 to 1953 before Korean registrations were assigned. [MM 26Mar2010]  
The transfer of two CAT C-47s to KNA in 1950 might explain the disappearance of XT-819 & XT-821. [MSB 26Mar2010]
3. A KNA DC-3 on a flight from Pusan to Seoul/Kimpo was hijacked to Pyongyang/Sunan Airport on 16Feb1958 by 8 hijackers who demanded to be taken to North Korea. [ASN] This is shown as HL-106 above and may previously have been HL-06 re "kidnap incident". JMG2 (p.195) says that HL06 was hijacked to N Korea on 16Feb58 and may never have been returned to South Korea.
4. DC-3 c/n 33200 (ex VR-HFE) is also reported as HL4009, so was presumably not destroyed at Pusan as HL-07. (No such accident is listed in Denham.) The delivery date of 21May63 [quoted in JMG2 p.608] is not consistent with data given above or KNA ownership.
5. DC-3 HL2001 c/n 12017 is listed with KAL in Jan65 [JMG2 p.403], whereas HL2002 & HL2003 are listed with KNA [JMG2 pp.494 & 542] but the date given for the latter (Jan64) is too late for KNA, so perhaps these were both with KAL instead. SEA79 p.29 lists all three DC-3s with KNA. None of these have connections with CAT.

## CAT's Navy

When Tsingtao fell, CAT lost the heavy maintenance equipment – whatever they couldn't squeeze through the C-46 cargo doors. The Communists got CAT's nose hangars, engine stands and trucks. Willauer wanted to stop making these 'donations'. Their best maintenance equipment was in Shanghai and the Communist Eighth Army was only twenty miles north. CAT obtained a World War II LST and an accompanying barge from the China Merchants Steam Navigation Company.

The LST was 327 feet in length, large enough to carry CAT's oversize equipment to the safety of south China. There were four thousand square feet of space below decks – enough for a machine shop, propeller shop, a dust-free air-conditioned instrument shop, and even room for a medical clinic.

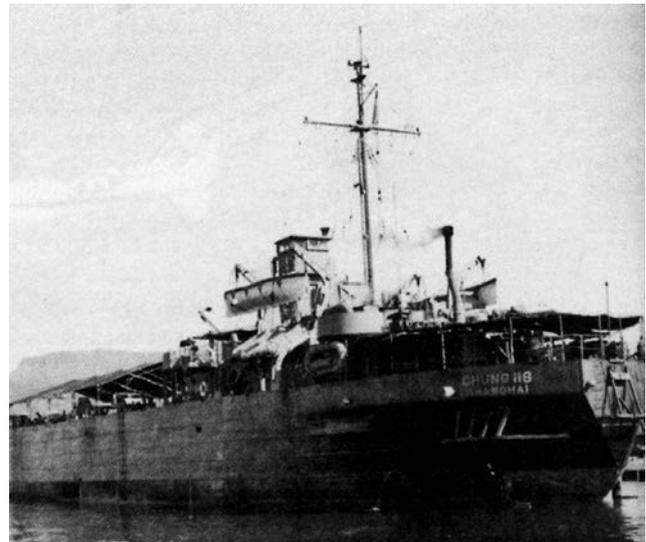
The steamship company furnished a crew to get the LST to Canton, and then CAT would hire its own. Felix Smith asked for temporary assignment to the ship to wet his US Merchant Marine third mate's licence, which would otherwise expire, and to act as navigator. Willauer assigned him the responsibility of keeping inventory of everything it carried to Canton. The route taken was down the Whangpoo River to the mouth of the Yangtze, south, along the China coast, past Hong Kong, and seventy-five miles up the Pearl River to Canton. [Smith pp.130-132]

From there the LST, now named *Chung 118*, and the barge, *Buddha*, were taken to Sanya on the south side of Hainan Island where the first stage of shop and supply installations were begun. It was not long before the enemy started hitting the north end of the island, however. That prompted the order to evacuate Sanya, yet another station to be lost. But, this time CAT's Navy proved its worth. Within a very short time, everything of value was loaded aboard, and the two vessels sailed for Kaohsiung, the southern port of Taiwan, to be ever ready to sail again should the situation worsen.

But, things got better instead of worse. Taiwan stabilised thus creating the atmosphere for the development of *Chung 118* and *Buddha*. The maintenance shops were equal to any land-based operations. As an example, the Chief of the Propeller Shop devised a way to compensate for the movement of the floating ship so that propellers could be balanced on board. Almost everything on an aircraft could be overhauled, plus all ground equipment including vehicle components. The reputation of the quality and capacity of this floating facility spread, to the point that CAT's Navy became known around the world.

Certainly, no one ever heard of an airline having a PT-boat. Well, one became available in the Philippines. It had been converted to a luxurious pleasure boat, just suited for public relations purposes that Chennault and Willauer had in mind. It was purchased and sailed to Hong Kong where it was named *Narcissus*. [Rosbert p.151]

Willauer hired a Chinese crew to evacuate the Hong Kong staff in case the Communists took over. He kept the crew proficient by operating open-house cruises on Sundays. On weekdays any employee could



**Above:** *Chung 118* was the former tank landing craft acquired by CAT to carry the airline's equipment and spares to Canton, Hainan and later to Taiwan, becoming a floating maintenance and supply depot. (via Ian D Johnson)

use the yacht and sign chits for refreshments from the galley or bar, although the company seldom billed employees. [Smith p.148]

The LST proved its versatility in Hong Kong where housing facilities for refugees from the mainland were practically non-existent. CAT personnel were put up on the ship, temporarily, until other arrangements were made. [Rosbert p.155]

On 22nd December 1949 Robert Lee sent Dave Hinkler to Kaohsiung, Taiwan, to select a suitable place to dock CAT's LST and the large barge which stored their aircraft parts and supplies. Later Hinkler was permanently transferred to Taiwan on 13th January 1950. They set up an aircraft maintenance base at Tainan in the southern part of the island, using a bombed out hangar and three tents.

Presumably the LST and PT-boat had been allocated US Navy serial numbers but these are not yet known.

## Inventory of CAT aircraft

	1947	1948	1949	FAA N8400C series (Jan50)	March 1950 [PM p.106]
Cessna 195	0	0	6	4	4
Curtiss C-46	14 + 3			21	19
Douglas C-47	5			1	1
Stinson L-5	0			0	0

**Notes:**

"The contract called for the continuous operation of twelve aircraft." [Leary PMp.26]

"Chennault decided to acquire five C-47s and fourteen C-46s for flight and three C-46s for spare parts. Suitable C-46s were located among surplus stocks in Honolulu ... The five C-47s ... were available immediately in the Philippines." "By mid-January the first three C-46s were ready for flight." [Leary PM p.26]

"Chennault ... went to the Philippines, where he bought 20 Curtiss C-46 Commandos and four Douglas C-47s that were all US war surplus. They were all in Oahu, in Hawaii." "Also, the General bought 25 war-weary Curtiss C-46s that were at Clark AFB, Philippines, and then flew them to China for spare parts for the new ones." [Wings of Air America, p.5]

"Nineteen C-46s and C-47s were obtained from American government surpluses in Manila and Honolulu." [Leary TDW p.198]

"15 Curtiss Commando C-46s and four Douglas C-47s were purchased from war surplus." [Air America, p.28]

"... an airline with 18 operational aircraft and 800 employees" (in 1947)[Leary TDW p.208]

"During the first six months of 1948, the airline operated twenty C-46s and two C-47s ..." [Air America, p.29]

"CAT owned 19 C-46s and one C-47." (August 1950) [Leary PM p.117]

"CAT's operations reached a peak in November [1950] with twenty-two C-46s and two C-47s assigned to BOOKLIFT." [Leary PM p.120]



**Left:** A group of Cessna 195s operating in Northwest China in 1949. Three are clearly visible but close inspection reveals a fourth behind the third example; the nearest to the camera being XT-985. (via Ian D Johnson)

**Below:** Cessna 195 XT-983 tied down next to C-46 XT-30. (via Martin S Best)

## Fleet list by aircraft type

In 1948 CAT aircraft were registered in China in the XT-800 block. C-47s were allocated odd numbers and C-46s even numbers. Generally these were cancelled for surviving aircraft in late December 1949 or early January 1950 and registered to C.A.T., Inc. in the USA as N8400C to N8425C on 5 January 1950 but cancelled later in 1950 and registered again in the Republic of China, usually with different (higher) XT-8.. numbers. When the national prefix was changed from XT- to B-, possibly in 1951, the new numbers were retained but with the B- prefix in place of the XT- prefix.

This begs the question: What registrations were used when CAT's aircraft were first delivered in 1947 when CATC and CNAC were using registrations in the XT-Txx numerical sequence? There is some limited evidence, given below, to suggest that CAT used registrations in the XT-T500 series in 1947, possibly in addition to the "last three" numbers visible in many photographs. Chinese civil aircraft registers will be discussed in Part 12.

No doubt the new XT- numbers were intended to disguise the origin of these aircraft and may also explain why no data on the XT- register is available from the ROC CAA. The Cessna 195s and C-46s were all renumbered but not the C-47 XT-801 = B-801, presumably because there could be no disguising this one aircraft of a type.

### Cessna 195

reg.	c/n	d/d China	p/i	fate/notes
?	7292	27Jan49	N11B	Fate unknown
?	7296	27Jan49	N11B	To N8422C (cancelled 13.4.50), XT-983, JA3002 (21.8.52) Export CofA # E-18579 [FAA]
?	7297	22Feb49	N11B	To N8424C (cancelled 13.4.50), XT-981, JA3001 (22.8.52)
?	7312	22Feb49	N11B, (N4390V)	Fate unknown
?	7313	9Mar49	N11B, (N4391V)	To N8423C (cancelled 13.4.50), XT-987, JA3003 (25.7.52)
?	7314	9Mar49	N11B, (N4392V)	To N8425C (cancelled 13.4.50), XT-985, JA3005 (25.7.52)
?	?			w/o 19Jun49 (see notes 4 & 5)
XT-885	?			[photo PM p.74; CF 28.8.2002]
XT-887	?			[MM 21.9.2002]
XT-889	?			[CF 28.8.2002, LA]
XT-981	7297		?	To B-981?, JA3001 [JFL]
XT-983	7296		?	To B-983?, JA3002 [JFL, WTL]
XT-985	7314		?	To B-985?, JA3005 [JFL]
XT-987	7313		?	To B-987, JA3003 [IDJ]

[Andersson p.179; CF 28Aug2002; IDJ 10Mar2009; JFL; JMD 10Mar2009; LA 12Jun2009; Leary PM p.74; MM 21Sep2002; SEA79 pp.22, 36; WTL 01Aug2007]

#### Notes:

Photo evidence on pages 43 & 74 of Leary PM and Rosbert pp.75, 77, & 79.

"In November 1948 CAT moved to implement this scheme and ordered – at a cost of \$15,000 each, six single-engine Cessna 195s". [Leary PM p.73] In late February [1949], as the first four Cessnas arrived for assembly in Hong Kong" [Leary PM p.73]

"Our five Cessna 195s, with 300hp engines, got to Hong Kong in the



hold of a ship." [Smith p.135]

Cessna crashed near Lanchow in a dust storm, pilot Norwich + 1 passenger killed. [Smith p.143] This was either c/n 7292 or 7312.

"On June 19 Edward R Norwich and two Chinese passengers became the first fatalities in CAT's light plane operations. Caught in a sudden sandstorm ... crashed while attempting to land in rugged terrain outside Lanchow." [Leary PM pp.76-77]

Andersson (p.179) says that CNRRA Air Transport had "probably ten Cessna 195s." This may be a mistake resulting from renumbering of the aircraft.

A few images of CAT Cessna 195s include the title "CIVIL AIR TRANSPORT MOC", where MOC refers to Ministry of Communications.

"The three major (Japanese) newspapers, Asahi, Mainichi, and Yomiuri each chartered one Cessna 195 high wing plane from CAT for their news gathering purposes." [IDJ 09Mar2009]

[JFL] lists c/ns with the type prefix "195-". (Never used)

The FAA registry file for N8422C has been received but the file for N8425C was reported missing in 2007. Intermediate files were ordered in 2004 but not received.

A Japanese book called "Aviation History of Showa period" says that four Cessna 195s were bought from CAT. [CF 28Aug2002]

Although only odd number registrations are known in the initial series (XT-885/887/889), it is possible that both odd and even numbers were allocated, e.g. XT-884 to XT-889 or XT-885 to XT-890 inclusive.

Although six Cessna 195s were bought by CAT, only four were re-registered in January 1950. One had crashed (which one?), but what happened to the other?

### Other Cessna types

CAT operated at least one other Cessna light aircraft, possibly from the following list of Chinese Cessna candidates:

XT-reg	model	c/n	date	p/i	fate
?	120	15034	23Nov48	N9199A	To VR-HEY (3.50)
?	140	15023	21Nov48	N9099A	To VR-HER (8.49)
?	170	18595	?	N9900A	To VR-HEI (1.49)
?	170	18910	Apr49	N11B	
?	170	18914	Apr49	N11B	To B-1906 (note)
?	170	18916	Apr49	N11B	

[JMD 03Mar2009; MSB 08Mar2009; SEA79 p.22]

Note: Cessna 170 c/n 18914 became B-1906 and was registered to CYAA on 25Mar1960. [ROC CAA; SEA79 p.27]

### Curtiss C-46 Commando

reg.	model	c/n	p/i	fate / notes
'392'	C-46D	22215	44-78392	> XT-802 (q.v.)
'395'	C-46D	22218	44-78395	> XT-804 (q.v.)
				(photo) Flown by Bruce Tingle in Jan48
'405'	C-46D	22228	44-78405	> XT-806 (q.v.)
				Flown by Bruce Tingle in Jan48

'524'	C-46D	22347	44-78524	> XT-814 (q.v.) Flown by Bruce Tingle in Jan48	XT-836	C-46	33153?		(photo) CAT-MOC. To XT-872/4/6?
'539'	C-46D	22362	44-78539	> XT-826 (q.v.) Flown by Bruce Tingle in Jan48	XT-838?	?	?		Type TBD Possibly to XT-878?
'540'	C-46D	22363	44-78540	> XT-828 (q.v.) Flown by Bruce Tingle in Jan48	Aircraft before XT-838 were registered in China after mid-1948 but before December 1949. Aircraft after XT-838 were registered (renumbered) in Taiwan after January 1950 and possibly re-registered in the B- register from later in 1950 to mid 1951, e.g. June 1951.				
'543'	C-46D	22366	44-78543	> XT-830 (q.v.) (photo)[Leary PM p.74; Rosbert pp.38-39]	XT-840	C-46D	22359	N8414C	r/r B-840 (L SAFE) (photo)
XT-T51x	C-46	?	44-78539	to XT-826, N8415C (photo) "Tsingtao"	XT-842	C-46D	22363	N8416C	r/r B-842
XT-30	C-46F	22379	44-78556	To N8388C, B-130 [WTL](photo) ex MOC/CNAC, leased	XT-844	C-46D	22353	N8413C	r/r B-844 (L SAFE)
XT-36	C-46F	22465	44-78642	To N8390C, B-136 Ex MOC/CNAC, leased	XT-846	C-46D	22215	N8406C	r/r B-846, VT-DRH, B-924, XW-PEJ
XT-38	C-46F	22500	44-78677	To N8391C, B-138 Ex MOC/CNAC, leased	XT-848	C-46A	427	N8372C	r/r B-848, B-910 Ex CNAC, c/n "347346"
XT-44	C-46F	22502	44-78679	To N8400C, XT-44 w/o 8Dec50 Yonpo, Korea (photo)(MOC leased) (see note) [JFL]	XT-850	C-46F	22451	N8369C	r/r B-850, N74811 Ex CNAC
XT-46	C-46F	22461	44-78638	To N8401C, B-146 (MOC leased)	XT-852	C-46F	22449	N8370C	w/o 8Dec50 Ex CNAC (see note)
XT-48	C-46F	22510	44-78687	To N8402C, B-148 (MOC leased)	XT-854	C-46D	33372	N8379C	At Pusan, Korea in 1951. r/r B-854, VT-DRI, B-922, B-926, XW-PGD
XT-50	C-46F	22526	44-78703	To N8403C, B-150 (MOC leased)	XT-856	C-46D	32950	N8380C	Ex CNAC (photo, Leary PM p.123) r/r B-856, B-908
XT-52?	C-46F	22466	44-78643	To N8404C (cld 22Mar50), B-902 (R27Nov50), cld 17Jan52 (MOC leased)	XT-858	C-46D	22228	N8408C	r/r B-858, XW-PFL
XT-54	C-46F	22370	44-78547	To N8405C, B-154 (MOC leased)	XT-860	C-46D	22236	N8410C	r/r B-860, B-912 [JFL]
XT-800	?	?		Type TBD, possibly not allocated	XT-862	C-46D	22351?	?	w/o 27Sep50 at Iwakuni, Japan [JFL] (see note)
XT-802	C-46D	22215	44-78392	To N8406C, XT-846, B-846, '392' HP-315, VT-DRH, B-924, XW-PEJ (photo)[Rosbert p.55] "Hankow"	XT-864	C-46D	22362	N8415C	r/r B-864 (L SAFE)
XT-804	C-46D	22218	44-78395	To N8407C, XT-868, '395' B-868?, 51-1120 To JASDF	XT-866	C-46D	22366	N8417C	r/r B-866, HP-314 (photo)[WTL]
XT-806	C-46D	22228	44-78405	To N8408C, XT-858, '405' B-858, XW-PFL "Canton"	XT-868	C-46D	22218	N8407C	r/r B-868
XT-808	C-46D	22232	44-78409	To N8409C, XT-870, '409'? B-870, B-914, XW-EAA, XW-PBV	XT-870	C-46D	22232	N8409C	B-870, B-914, XW-PBV
XT-810	C-46D	22236	44-78413	To N8410C, XT-860, B-860, B-912	XT-872	C-46D	32878	N8418C	r/r B-872, N9885F Ex XT-832/4/6?
XT-812	C-46D	22345	44-78522	(N8411C) w/o 05Dec49 (photo)(see note) Missing	XT-874	C-46D	33132	N8419C	r/r B-874, N9884F Ex XT-832/4/6?
?	C-46	?		w/o 4Dec49 French Indo- China (5k) [ASN] probably XT-812 (q.v.)	XT-876	C-46D	33153	N8420C	r/r B-876, N9883F Ex XT-832/4/6?
XT-814	C-46D	22347	44-78524	w/o 10Dec49 nr Hoikow, '524' China (17k) [ACRO, ASN, PCI](photo) Destroyed prior to Dec49.	x	C-46D	22337	44-78514	"Possibly to CAT" Used for spares?
XT-816	C-46D	22351	44-78528	To N8412C, XT-862?	x	C-46D	22338	44-78515	"Possibly to CAT" Used for spares?
XT-818	C-46D	22353	44-78530	To N8413C, XT-844, B-844, B-156	[ACRO; Andersson p.179; Archive p.96/112, p.2010/67-70; ASN; A-B C-46 monograph pp.15, 24; EM 03Feb2001; IDJ 04Feb2010; JFL 14Nov2003, C-46v4, Japan v2; MM 04Feb2001, 04Dec2003, 07Dec2003, 06Mar2005, 13Mar2005, 13Mar2009, 03Feb2010; MSB 07Mar2005, 26Mar2005, 27Mar2005, 27May2006; PCI; SEA79 p.22; WDAC]				
XT-820	C-46D	22354	44-78531	w/o 9Dec49 nr Lanchow, China (38k) [ACRO, ASN, PCI] Hit by ground fire on take-off 10Apr49 Taiyuan, Shanxi [MM] Destroyed prior to Dec49.	<i>Notes:</i> "... while the rest of us were to remain in Honolulu to prepare for flight a fleet of seventeen C-46s which had just been purchased by the new airline." [Rosbert p.17] "Wheeler Field, Honolulu, Hawaii, January, 1947. One of seventeen C-46s purchased by CAT." [Rosbert p.19] "First C-46 arrives Shanghai, March 2, 1947." [Rosbert p.37] "I was in the first formation of three C-46s to head out from Hawaii, bound for China." "Our, destination, Canton, ..." [China Pilot, p.27] The next day the three C-46s headed for Shanghai ..." [China Pilot, p.28]				
XT-822	C-46D	22355	44-78532	w/o 29Jul48 Tsingtao, China (18 or 19k) [ACRO, ASN](see note) Destroyed.					
XT-824	C-46D	22359	44-78536	To N8414C, XT-840, B-840, N9873F	<i>Above:</i> C-46D XT-860 being loaded with cylindrical containers at Tachikawa AFB, Japan, note two P-51s in the background. (James Dodds via Martin S Best)				
XT-826	C-46D	22362	44-78539	To N8415C, XT-864, B-864, '539' B-916					
XT-828	C-46D	22363	44-78540	To N8416C, XT-862, B-842, '540' N9874F					
XT-830	C-46D	22366	44-78543	To N8417C, XT-866, B-866, '543' HP-314, B-866?, N8417C, N9279L					
XT-832	C-46	32878?		(photo?) To XT-872/4/6?					
XT-834	C-46?	33132?		Type TBC. To XT-872/4/6?					



**Left:** C-47B XT-801 seen after re-registration as N8421C with the CAT/MOC tail insignia replaced by the Stars and Stripes. (Jack Meaden Collection)

"Twenty-five surplus C-46s were located in the Philippines. UNRRA ... agreed to provide \$183,000 to purchase the aircraft. Chief Engineer Richardson had the C-46s in China by late June." [*Perilous Missions*, p.31]

"Also, the General bought 25 war-weary Curtis C-46s that were at Clark AFB, Philippines, and then flew them to China for spare parts for the new ones." [WAA p.5]

"Washington responded in late April [1948] by declaring surplus thirteen flyable C-46s and authorized Air Force personnel to deliver them to Shanghai. ... Nanking leased seven planes to CNAC and six to CAT." [*Perilous Missions*, p.46]

"CAT also retained custody of eight C-46s that had been leased from the Chinese Civil Aeronautics Administration in May 1948;" [*Perilous Missions*, p.117]

"Chennault obtained permission to charter ... twelve flyable C-46s from CAF stocks. The transports arrived in such poor mechanical condition, however, that only three were considered safe enough to be flown to Japan. CAT cancelled the lease agreement at the end of the month when the more reliable CAA C-46s came into service." [*Perilous Missions*, p.119]

XT-822 Pilot Tud Tarbet, co-pilot H S Mar, R/O W K Chan (first CAT crash)[*China Pilot*, p.86] "On July 29 [1948] Captain Clyde T Tarbet, co-pilot Har Yung-shing, and radio operator Chan Wing-king were assigned to the shuttle run between Tsingtao and Tsinan. Shortly after 5:00 p.m., Tarbet's ... C-46 took to the runway ... Suddenly, at about 100 ft, the C-46 nosed up sharply, stalled, spun into the ground, and burst into flame. The crew and 16 soldiers perished." [*Perilous Missions*, p.48] See also ASN.

XT-812 crash landed on sandbar near Yulin. Crew OK. Pilot James McGovern [*China Pilot*, p.152-156] "The other aircraft was lost on December 5 [1949], when Captain James B McGovern in C-46 XT-812 made a forced landing in the Liuchow peninsula. Although no one was injured, Communist soldiers captured the crew." [*Perilous Missions*, p.91]

"Another setback occurred on September 27 [1950], when C-46 XT-862 was lost. George V Calhoun, a newly hired co-pilot, inadvertently opened the right throttle and left cowl flap, instead of both cowl flaps, after landing at Iwakuni, Japan. The aircraft veered off the runway onto rough ground, the landing gear sheared off, and the left wing crumpled. There were no injuries, but the C-46 would never fly again." [*Perilous Missions*, page 118]

"On December 8 [1950] Captain Paul Du Pree in XT-44 crashed at Yonpo [Korea] in marginal weather. One passenger was killed. Rousselot ordered the plane doused with gasoline and burned." [*Perilous Missions*, p.122]

"The following day [09Dec50], a C-46 (XT-852) en route from Tachikawa to Korea plowed into the side of Mount Fuji at the 8,000 ft level. Captain Robert Heising died in the crash, along with co-pilot Jimmy W H Chang and radio operator T W Wen." [*Perilous Missions*, p.122]

"On December 10 [1950], when C-46 XT-846, commanded by Robert L Brongersma, crashed on takeoff from Taegu after the landing gear had been raised prematurely. Fortunately, there were no injuries, and the aircraft could be repaired." [*Perilous Missions*, p.122]

'395' & '543' are illustrated in plates between pp.144 & 145 of [*China Pilot*].

Between April and July 1951, CAT made four C-46 aircraft available to SAFE Air in New Zealand (XT-840, 844, 846 & 864) – the registration prefix was changed to B- during the latter part of their stay in New Zealand. The first two C-46s arrived on 12 April 1951; the third arrived beginning of May. A fourth was also brought down from Hong Kong, but CAT generally flew only three at a time. [AHSNZ Journal, Vol. 14, No.8/161, 2Aug1971/EM 03Feb2001]

Aircraft names include: "Canton" (XT-806), "Hankow" (XT-802), "Kunming" & "Lanchow"[MM 13Mar2005; Rosbert p.97]; "Shanghai"; "Taiyuan" [Rosbert p.64]

"... the *Wuhari*'s construction number was 44-7800 and was an ex-CAT aircraft. It was deserted after a landing accident in Tien Ho Airfield. ... it was repaired. ... the repaired aircraft was named *Wuhan* (Civil Aviation Number 217)." [CF 19Apr2005] Possibly ex 44-77800 c/n 33196?

There are a number of interesting images of Chinese aircraft in the LIFE gallery hosted by Google at <http://images.google.com/hosted/life...> etc. One of these shows the wreck of an unmarked C-46 at Nanking in February 1949 in what could be CAT colours but no such accident is recorded above. See also <http://tinyurl.com/vz4ub3e> for a picture of C-46 XT-51x/539/Tsingtao. Of the first 17 C-46s, two were used for spares, so perhaps not registered in the XT-800 sequence, whereas the remaining 15 would probably have been registered from XT-802 to XT-830, even numbers only. Of the 25 extra C-46Ds acquired for spares, it is known that three of these were put into service, namely c/ns 32878, 33132 & 33153. Logically, these would have been registered as XT-832, XT-834 and XT-836 but tie-ups are not yet known and no photographic proof has been found. These three aircraft later became N8418C, N8419C & N8420C followed by B-872, B-874 & B-876.

'543' was one of the first C-46s delivered to CAT in China but was registered as XT-830 in 1948. Examination of the C-46 registrations suggests that XT-numbers were allocated in order of c/n. This was not the case when the aircraft were renumbered in 1950.

### Douglas C-47 Dakota

reg.	model	c/n	p/i	fate	notes
'215'?	C-47	20681	43-16215	> XT-801 (q.v.)	Photo of '316215'
'239'	C-47	20705	43-16239	> XT-803	"Taiyuan"
'404'	C-47	20870?	43-16404?	To CNAF as '16404'	[Leary PM pp.26, 27] TBC
'906'	C-47	27167	43-49906	> XT-805 (q.v.)	"Peiping" (photo) [Rosbert p.24]
348572	C-47B	25833	43-48572	> XT-807?	(photo) [Rosbert p.25] TBC
349571	C-47B	26832	43-49571	> XT-809?	TBC
XT-801	C-47B	20681	43-16215	To N8421C, B-801, 9N-AAC	Manila - CNRRA (04Jan47)(photo) [Rosbert p.90] "Tientsin" to AACL (R24Feb55)
XT-803	C-47B	20705	43-16239	Cancelled	Manila - CNRRA (04Jan47) (or c/n 32987?); B-803 = K-B 47G-2
XT-805	C-47B	27167	43-49906	Cr in Southern Yunnan	8Nov49 (1k)
XT-807	C-47	25833?	43-48572?	Fate unknown	Manila - CNRRA (01Jan47)(see note)
XT-809	C-47	26832?	43-49571?	Fate unknown	Manila - UNRRA (04Jan47) TBC
XT-811	C-47A	19932	43-15466, PI-C54, XT-543	To N8399C, VR-HEX, B-809	(photo)(leased from IAT) "St Paul", c/n '15437', w/o as B-809
XT-813?	C-47A	18947	42-100484, PI-C181	r/r B-811, w/o 20Oct54.	(leased from TAA)

XT-815? C-47B	26816	43-49555, PI-C182	r/r B-813, w/o 29Nov52. (leased from TAA) (see below)
XT-817? C-47A	19258	42-100795, PI-C183	r/r B-815 (R16Jan51), w/o 27Dec63. (leased from TAA) to AACL
XT-819? C-47A	19256	42-100793, PI-C???	r/r B-817 (R16Jan51) (acquired Jan52), XU-AAE. (leased from TAA) to AACL
XT-819 C-47	?	?	Fate unknown. (leased from TAA) B-819 = <i>Catalina</i> (R24Feb55)
XT-821 C-47	?	?	Fate unknown (leased from TAA)
XT-823? C-47	11921	42-92152, VR-HDP	r/r B-821. B-823 = C-47A c/n 13399
XT-825? C-47A	13399	42-93482	r/r B-823, N6634C, CF-MCC, N14636. (leased) B-825 = <i>Catalina</i> (R01Sep52)
XT-827? C-47A	13784	42-24413	r/r B-827 (R14Aug54) To AACL (R14Aug54)
XT-829? C-47B	34298	45-1030	r/r B-829 (R05May58), XW-TFB To AACL (R05May58)

[ACRO; Andersson p.179; *Archive* p.96/112; ASN; CLT 31Aug2002, 10Oct2003; JFL 12Mar2010; JMG2 p.175; Leary PM pp.218-219; MM 11Nov2003, 06Mar2005; MSB 07Mar2005; PCI; ROC CAA; WDAC]

**Notes:**

"The first CAT planes were five C-47s purchased from Clark Field in the Philippines and flown to Canton in January, 1947." [Rosbert p.23] "Five C-47s had been purchased earlier in the Philippines." [Rosbert p.17] "First C-47s arrive Shanghai, January 27, 1947." [Rosbert p.37] "A message from Shanghai said five Douglas C-47s, purchased at a military base in the Philippines, were airborne." [Smith p.27] "CNRRA acquired five C-47s in the Philippines in early 1947. From Air-Britain book (first edition), these are c/n 20681/43-16215; 20705/43-16239; 25833/43-48572; 26832/349571 and 27167/43-49906. Leary PM pages 26 and 27 describe the first plane as #404 but none of the five listed planes have any connection with '404'. In any event, if these five survived until mid-year 1948, they would have been allocated XT-801/803/805/807 and 809." [MM 11Nov2003]

"In early October Rosbert worked out an arrangement with ... Trans-Asiatic Airways, to charter five C-47, complete with crews." [Leary PM p.118] These C-47s may be PI-C180/181/182/183 & 184, c/ns unknown, and possibly registered as XT-813 to XT-821, odd numbers only (see above) [SEA79 p.103]

Flight from Mengtze (sic). Pilot Jones killed, co-pilot M H Kung & R/O Chin OK. [Smith p.166] "The first one happened on November 8 [1949], when an engine had failed on C-47 XT-805 while en route from Mengtze to Haiphong with a cargo of tin concentrates. Captain Norman R Jones died in the crash; hostile tribesmen in the isolated border area beheaded radio operator K V Chin, leaving co-pilot M H Kung the lone survivor." [Leary PM p.91; MM 11Nov2003]

C-47 B-813 shot down in Manchuria 29Nov52. Pilots Snoddy & Schwartz killed, 2 CIA passengers captured. [Smith p.218, Leary PM p.140] Aircraft names include: "*Peiping*" (906), "*Taiyuan*" (23x), "*Tientsin*" (XT-801). [MM 06Mar2005]

Rosbert (p.53) includes a 1946 picture of 332nd TCS C-47 349631 (43-49631 c/n 26892) with some CAT-pilots-to-be standing in front of it. This pre-dates the formation of CAT and there is no known connection between this aircraft and CAT. It was sold by FLC on 27Aug47. [MM 06Mar2005]

The history of C-47A XT-811 c/n 19932 (later B-809) was described in Part 9 (*Archive* pp.2009/171-177). JMG2 p.175 gives XT-811(1) c/n 19932 and XT-811(2) c/n 18947 but there cannot have been two aircraft registered XT-811 in service at the same time. The possible mistake was to assume that XT-809 = B-809, XT-811 = B-811, etc., which is only true for XT-801 = B-801 and may not be the case for any other examples. C/n 18947 may have been XT-813, later reregistered B-811.

JMG2 p.175 includes XT-827 & XT-829, acquired in 1954 & 1958 respectively, whereas CAT stopped using XT- registrations in 1951. Data is valid for B-827 & B-829, however.

ACRO & ASN both report that a CAT C-47 crashed near Hopie, China on 17Oct47 (3k). In fact this was CAT C-46 XT-T38, pilot Harley Moore.

Although five C-47s were acquired in January 1947, only one was re-registered (as B-801) in January 1950. One C-47 (XT-805) crashed but what happened to the other three? It seems likely that they were withdrawn from use through lack of spares but may have been returned to service early in 1950 for lease to KNA.

**Douglas C-54 Skymaster**

CAT did not acquire their first C-54A (B-1002 c/n 3078) until 1952 but there is evidence that a DC-4 was used before then. For example, in his book *China Pilot*, Felix Smith refers to a CAT DC-4 in a couple of places. The first, on pages 152-154, states the DC-4 was used to search for Jim McGovern following his C-46 accident near Hainan Island. This would be on 5th December 1949. The second, on page 168, is a reference to one of the last flights out of Kunming prior to its fall to Communist forces. [MM 01Mar2009] Matt Miller looked for an identity for this DC-4 without success but later he came across the following article in the *Portland Sunday Telegram and Sunday Press Herald*, 11December, 1949.

**"Maine Flier Unhurt As China Reds Fire On Plane Fleeing Kunming Hong Kong, Dec. 10. (AP)**

*South China's Yunnan Province went over to the Reds today and apparently the only shots fired were aimed at a plane carrying Americans from Kunming, the capital.*

*The plane a Skymaster under lease to Major Gen Claire L. Chennault's Civil Air Transport (CAT) was struck by one bullet but the 57 passengers aboard were unhurt.*

*A second plane with 20 passengers got away without any trouble. Both landed at Hong Kong. A third plane, bearing U S Consul Larue Lutkins is due at Hainan Island off the south coast today or Sunday the CAT announced.*

*The revolt came with dramatic suddenness in Kunming when 40,000 Nationalist troops changed allegiance. It was believed by aircrews arriving here that the rest of the province followed suit.*

*Gen Lung Yun former Yunnan governor who was fired by Chiang Kai-shek was believed to be behind the uprising. The revolt had been in the wind for weeks. Lung arrived only this week in Kunming.*

*Garry Wong senior Chinese CAT official said the defection was first noticed by outsiders when General Lung ordered impounded all nine Chinese Air Force carrier planes at the airport.*

*Governor Lu Han of Yunnan, a friend of Lung, had given a farewell dinner for U S consular officials and CAT officials only Friday.*

*Lu told the CAT that he would straighten out any trouble they might encounter at the air field.*

*At the air field, however, it was found that Nationalist troops also had seized the three CAT planes.*

*All personnel at the field were under guard. The soldiers wore their hats upside down to show they had changed loyalty.*

*Capt F E Birkman, San Francisco, pilot of the Skymaster, said plane crews were confined to their rooms shortly after midnight.*

*"Those guys (soldiers) were taking suitcases and opening them on the pretence of searching them", he related. Later the soldiers released the three CAT planes. The Skymaster took off. Larry Cabot, Old Orchard, ME was co-pilot. As the plane thundered down the runway troops began firing on it for some unexplained reason. "We laid on the floor during the takeoff", Birkman said. The second plane was piloted by*

*Capt Weldon Bigony, Big Spring, Tex. Co-pilot was J C Desheimer<sup>9</sup>, Somerset, Ky. (Sic, actually Mr Dexheimer. [FS 01Mar2009])*

*It was not known here how many Americans if any remain in Kunming."*

Comments: The article indicates the plane was leased. The obvious question remains the identity of this plane. How long was it used by CAT? [MM 01Mar2009]

A summary prepared by Ed Souter of CAT's Public Relations Office in August 1950 notes:

*"November 29, 1949: CAT evacuates Chungking at last minute. Due to the earlier defection of CNAC and CATC, CAT carried a tremendous evacuation burden during the final days of the city, chartering extra planes from POAS, Hong Kong Airways and CPA to help out."*

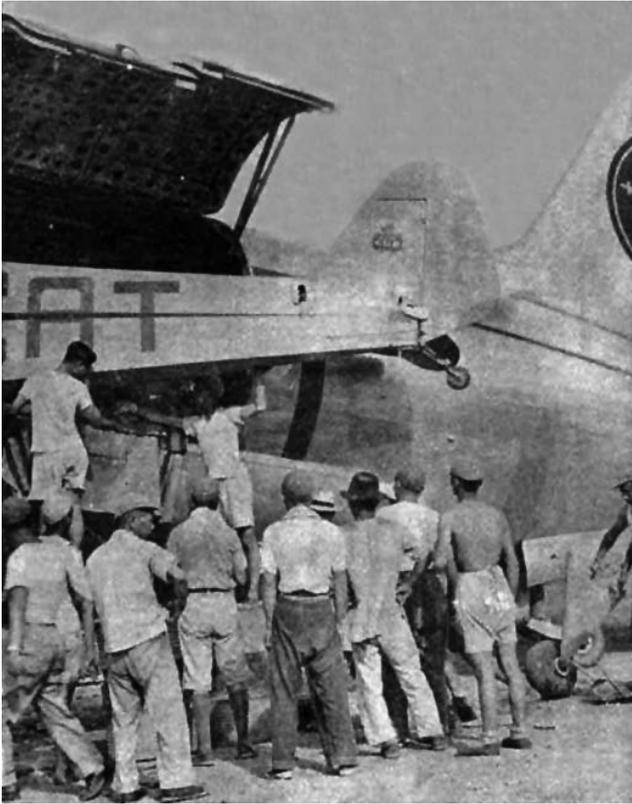
*"December 12, 1949: CAT charters POAS DC-4 for evacuation of government officials from Chengtu to Taipei." [JFL 02Apr2005]*

At this time, POAS only had one C-54 available for charter:

HS-PC204, C-54A c/n 18368, wet leased from POAS.

[*Archive* pp.2002/110, 151-152; MSB 01Mar2009; SMD]

The POAS pilot was Frank E Birkman. [MM 01Mar2009; FS 03Mar2009]



**Above:** Piper Cub XT-883 at Kai Tak in CAT titles during November 1949. (via Ian D Johnson)

**Left:** A Piper Cub being loaded into a CAT C-46, presumably being shipped from the mainland? (via Ian D Johnson)

**Below:** Stinson L-5 XT-T519 receiving some much-needed attention. (via Ian D Johnson)



### North American AT-6 Texan

reg.	model	c/n	p/i	fate
XT-882	AT-6	?	?	(photo) unknown

This registration would have been used between 1948 and 1950 but as no AT-6s are listed in the CAT inventory for March 1950, it had apparently gone by then.

[JFL 01Mar2010; MM 26Oct2003]

### Piper J-3C-65 Cub

reg.	c/n	p/i	fate	notes
XT-883	?	?	?	Floatplane, at Kai Tak 8Nov49

[Archive p.96/111; IDJ 10Mar2009; photo, Rosbert p.67]

Chinese candidate c/ns: 15878 (Apr46), 23028/23177 (Sep47)

[SEA79 p.22]

### Stinson L-5 Sentinel

reg.	c/n	p/i	fate	notes
XT-T519	?	?	?	photo evidence

[LA 12Jun2009; photo, Rosbert p.68]

For references to CAT L-5s, see Leary PM pp.41-44.

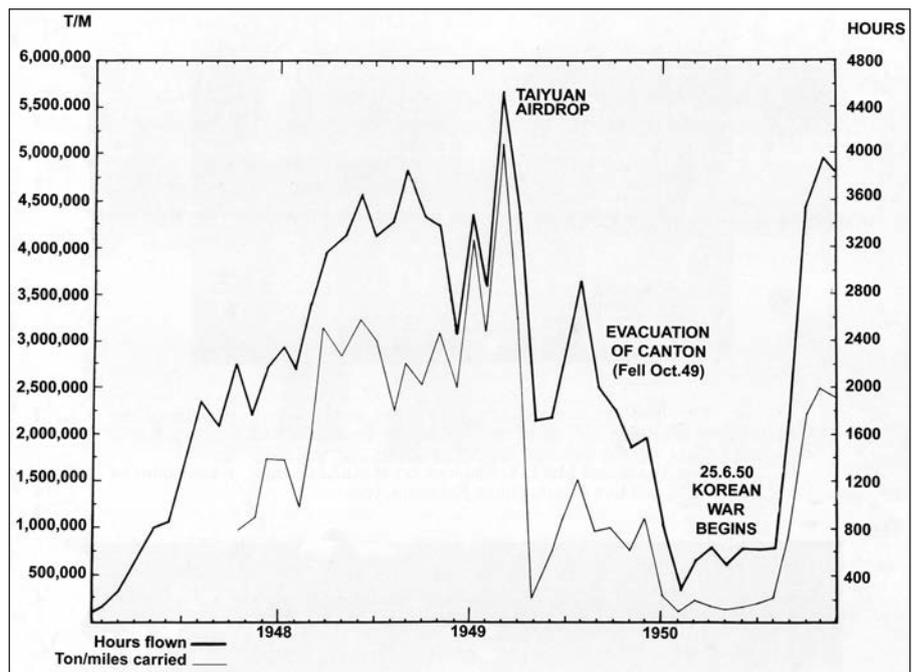
Possibly L-5B XT-703 c/n 76-3322, ex CATC, to VR-HEO [IDJ]

### Further research

Some of the sources of information on CATC and CNAC aircraft are lacking for CAT aircraft. For example, there is no list of aircraft for sale to Chennault & Willauer (with CofA numbers) in December 1949, because they already owned CAT, and the DCA in Hong Kong did not list CAT aircraft at Kai Tak in November 1949, because all CAT aircraft had flown to Taiwan. Nevertheless, we have the benefit of the original CAT aircraft being registered to C.A.T., Inc. in America (in the N8400C series) in January 1950, before they were cancelled on registration in Taiwan. Whiting Willauer bequeathed his entire collection of papers to Princeton University [CFM 05Dec2002]. Dr Joe F Leeker is continuing his research on the history of Air America by studying the history of CAT in the archives at the University of Texas at Dallas (UTD) and is expected to publish an update on the UTD website in August 2010.

**Right:** Graph showing CAT hours flown and ton/miles carried for the period covered by this article, (after Rosbert)

The author would like to thank the following for their help in the preparation of this article: Billy K C Chang (DG ROC CAA), CAT Association, Clarence Fu, C L Tai, Errol Martyn, Felix Smith, Ian D Johnson, James Dodds, Dr Joe F Leeker, John M Davis, Lennart Andersson, Matt Miller, Philip Yeadon, Stephen M Darke, William T Larkins. A full list of references will be included with the next issue.



# F-1922

## The French Civil Aircraft Register from 1922

Part 26

By Bernard Martin, Dave Sparrow and Robert Espérou

**Right:** Towards the end of Part 25 we listed the Breguet 284T c/n 1, F-AIYB. Here it is seen having force-landed out of fuel on a railway embankment at Dugny after taking off from Le Bourget. The date quoted, 19.2.29, is the same as the date of registration. It was not repaired. (via JM Collection)



As in recent issues we are continuing with the New Registrations in alphabetical order as they no longer correspond to CofR Number order. Readers will note that the F-Alxx series continued right through until F-AIZZ in April 1929 instead of changing to F-AJAA after one year on 31.12.26 as had been the pattern earlier.

### F-Update 11.28 to 12.29 (contined)

#### **New Registrations**

2067 **F-AIYZ** Morane 191 48  
Cie Française d'Aviation, Boulogne sur Seine (11.4.29), (based Orly; later Nimes).

2111 **F-AIZA** CAMS 53 11  
Cie Air Union Lignes d'Orient, Paris (27.5.29), (based Marseille-Marignane).

2159 **F-AIZB** CAMS 53 12  
Cie Air Union Lignes d'Orient, Paris (28.6.29), (based Marseille-Marignane).

2072 **F-AIZC** Potez 32 1305  
Cie Internationale de Navigation Aérienne, Paris/Le Bourget (18.4.29).

2073 **F-AIZD** Potez 32 1363  
Cie Internationale de Navigation Aérienne, Paris/Le Bourget (18.4.29).

2053 **F-AIZE** Potez 29/4 1405  
Cie Internationale de Navigation Aérienne, Paris/Le Bourget (4.4.29).

2054 **F-AIZF** Potez 29/4 1406  
Cie Internationale de Navigation Aérienne, Paris/Le Bourget (4.4.29) (based Prague).

2055 **F-AIZG** Potez 29/4 1407  
Cie Internationale de Navigation Aérienne, Paris/Le Bourget (4.4.29).

2056 **F-AIZH** Potez 29/4 1408  
Cie Internationale de Navigation Aérienne, Paris/Le Bourget (4.4.29).

2057 **F-AIZI** Potez 29/4 1409  
Cie Internationale de Navigation Aérienne, Paris/Le Bourget (4.4.29).

2059 **F-AIZJ** Potez 29/4 1411  
Cie Internationale de Navigation Aérienne, Paris/Le Bourget (4.4.29).

2068 **F-AIZK** Morane 191 49  
Cie Française d'Aviation, Boulogne sur Seine (11.4.29) (based Nimes).

2047 **F-AIZL** Latécoère 26/6 686  
Cie Générale Aéropostale, Paris (21.3.29) (based Toulouse).

2048 **F-AIZM** Latécoère 26/6 688  
Cie Générale Aéropostale, Paris (21.3.29) (based Toulouse).

2087 **F-AIZN** Lioré-et-Olivier 213 (4)  
Cie Air Union, Paris/Le Bourget; named "Rayon d'Or" (7.5.29).

2088 **F-AIZO** Lioré-et-Olivier 213 (5)  
Cie Air Union, Paris/Le Bourget (7.5.29).

2058 **F-AIZP** Potez 29/4 1410  
Cie Internationale de Navigation Aérienne, Paris/Le Bourget (4.4.29).

2069 **F-AIZQ** Morane 191 50  
Cie Française d'Aviation, Boulogne-s-Seine (based Angers) (11.4.29).

2081 **F-AIZR** Farman 190 12  
Sté des Avions H&M Farman, Billancourt (based Le Bourget) (29.4.29).



**Above:** Farman 190 F-AIZR was supplied to two Romanian Generals in June 1929 and eventually joined the Romanian register as YR-ABU. (via JM Collection)

2103 **F-AIZS** Farman 190 13  
Sté des Avions H&M Farman, Billancourt (based Le Bourget) (17.5.29).

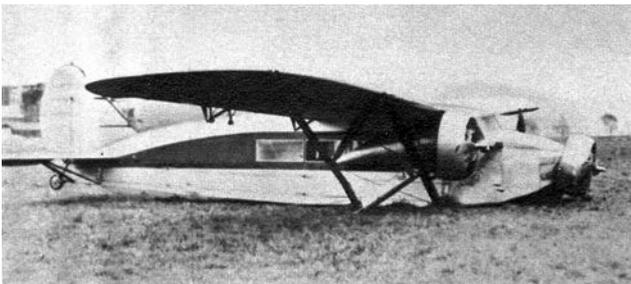
2127 **F-AIZT** Breguet 284T 2  
Sté Avions L Breguet, Paris (based Villacoublay) (6.6.29).

2148 **F-AIZU** Farman 63 ter Goliath 5/7124  
Sté Générale de Transports Aériens, Paris/Le Bourget (27.6.29).

2149 **F-AIZV** Farman 63 ter Goliath 6/7125  
Sté Générale de Transports Aériens, Paris/Le Bourget (27.6.29).

Unkn **F-AIZX** Farman 169 Goliath 1  
Sté Générale de Transports Aériens, Paris/Le Bourget (?.?.30)

2070 **F-AIZY** Potez 29/4 1412  
Cie Internationale de Navigation Aérienne, Paris/Le Bourget (15.4.29).



**Above:** Although most French operators were using aircraft designed and built in France, CIDNA was an exception in selecting the Fokker F.VIIa - F-AJBI for example. (via JM Collection)

**Left:** The Romano R 6 trimotor first flew on 20.12.32 but crashed when landing from its 9th test flight in early 1933 as seen here. Repaired and modified, it went to the SFA as F-AKGJ but was then re-registered F-AJAB and was written-off as such in summer 1934. (via JM Collection)

2071 **F-AIZZ** Potez 29/4 1413  
Cie Internationale de Navigation Aérienne, Paris/Le Bourget (15.4.29).

2079 **F-AJAA** Farman 190 10  
Paul Louis Weiller, Paris/Le Bourget (26.4.29).

Unkn **F-AJAB** Romano 60 01  
Ex F-AKGJ. Ministère de l'Air, Paris. (Reservation taken up 1933/4)

2150 **F-AJAC** Albert A.110 16  
Baron de Pérignon, Paris (based Phanrang (Annam), Indo China).  
27.6.29. (Parts reported found in Northern France 1999 and rebuild initiated).

Unkn **F-AJAD** Nothing known, possibly an export CofA.

2078 **F-AJAE** Caudron 157 8/6364  
Avions Caudron, Issy (based Amberieu, Ain) (24.4.29).

2065 **F-AJAF** Latécoère 26/6 687  
Cie Générale Aéropostale, Paris (10.4.29) (based Toulouse).

2066 **F-AJAG** Latécoère 26/6 689  
Cie Générale Aéropostale, Paris (10.4.29) (based Toulouse).

2080 **F-AJAH** Caudron 60 52/6365  
Avions Caudron, Issy (based Rochefort). (26.4.29).

2104 **F-AJAI** Farman 190 14  
Sté des Avions H&M Farman, Billancourt (based Le Bourget).  
(17.5.29).

2074 **F-AJAJ** Potez 32 1463  
Cie Internationale de Navigation Aérienne, Paris/Le Bourget (18.4.29).

2075 **F-AJAK** Potez 32 1464  
Cie Internationale de Navigation Aérienne, Paris/Le Bourget (18.4.29).

2082 **F-AJAL** Potez 32 1465  
Cie Internationale de Navigation Aérienne, Paris/Le Bourget (29.4.29).

2083 **F-AJAM** Potez 32 1466  
Cie Internationale de Navigation Aérienne, Paris/Le Bourget (29.4.29).

2077 **F-AJAN** Breguet 280T 4  
Cie Air Union, Paris/Le Bourget. (24.4.29)

2096 **F-AJAO** Breguet 280T 5  
Cie Air Union, Paris/Le Bourget. (10.5.29).

2076 **F-AJAP** Morane 147 6  
Cie Française d'Aviation, Boulogne sur Seine (based Angers).  
(19.4.29).

2084 **F-AJAQ** Morane 147 7  
Cie Française d'Aviation, Boulogne sur Seine (based Orly). (30.4.29)

2093 **F-AJAR** Morane 147 8  
Cie Française d'Aviation, Boulogne sur Seine (based Angers).  
(10.5.29)

2233 **F-AJAS** Hanriot 35 11  
Sté des Avions Hanriot, Carriere s/Seine (based Chalons s/Saone).  
(20.8.29)

2234 **F-AJAT** Hanriot 35 12  
Sté des Avions Hanriot, Carriere s/Seine (based Chalons s/Saone).  
(20.8.29).

2235 **F-AJAU** Hanriot 35 13  
Sté des Avions Hanriot, Carriere s/Seine (based Chalons s/Saone).  
(20.8.29).

2089 **F-AJAV** Potez 32 1467  
Cie Internationale de Navigation Aérienne, Paris/Le Bourget (8.5.29).

2090 **F-AJAX** Potez 32 1468  
Cie Internationale de Navigation Aérienne, Paris/Le Bourget (8.5.29).

2091 **F-AJAY** Potez 32 1469  
Cie Internationale de Navigation Aérienne, Paris/Le Bourget (8.5.29).

2092 **F-AJAZ** Potez 29/4 1414  
Cie Internationale de Navigation Aérienne, Paris/Le Bourget (8.5.29).

2094 **F-AJBA** Morane 147 9  
Cie Française d'Aviation, Boulogne sur Seine (based Clermont  
Ferrand). (10.5.29).

2113 **F-AJBB** Morane 147 12  
Cie Française d'Aviation, Boulogne sur Seine (based Orly). (27.5.29).

2095 **F-AJBC** Morane 147 10  
Cie Française d'Aviation, Boulogne sur Seine (based Orly). (10.5.29).

2112 **F-AJBD** Morane 147 11  
Cie Française d'Aviation, Boulogne sur Seine (based Angers). (27.5.29).

2146 **F-AJBE** Lioré-et-Olivier 213 6  
Cie Air Union, Paris/Le Bourget. (26.6.29).

2114 **F-AJBF** Morane 147 13  
Cie Française d'Aviation, Boulogne sur Seine (based Clermont-  
Ferrand). (27.5.29).

**Right:** Reflective view of Laté 32/3 F-AJBK of Aéropostale. This was a twin 500 hp Hispano Suiza 12Hbr powered flying boat designed to carry mail and up to four passengers in compartments within the hull, while the crew had an open cockpit below the leading tractor engine. (via JM Collection)



2135 **F-AJBG** Fokker F.VIIa 5132  
Ex PH-AGF. Cie Internationale de Navigation Aérienne, Paris/Le Bourget. (18.6.29).

2136 **F-AJBH** Fokker F.VIIa 5133  
Ex PH-AGG. Cie Internationale de Navigation Aérienne, Paris/Le Bourget. (18.6.29).

2139 **F-AJBI** Fokker F.VIIa 5134  
Ex PH-AGH. Cie Internationale de Navigation Aérienne, Paris/Le Bourget. (24.6.29).

2140 **F-ABJJ** Fokker F.VIIa 5135  
Ex PH-AGI. Cie Internationale de Navigation Aérienne, Paris/Le Bourget. (24.6.29).

2086 **F-AJBK** Latécoère 32/3 85  
Cie Générale Aéropostale, Paris (6.5.29) (based Marseille).

2187 **F-AJBL** Blériot Spad 92 1/4390  
SA Blériot Aéronautique, Suresnes (based Buc). (31.7.29).

2189 **F-AJBM** Blériot Spad 92 3/4420  
SA Blériot Aéronautique, Suresnes (based Buc). (31.7.29).

2191 **F-AJBN** Blériot Spad 92 5/4422  
SA Blériot Aéronautique, Suresnes (based Buc). (31.7.29).

2110 **F-AJBO** Morane AR.35C 49  
Maryse Hiltz, Paris/Le Bourget. (25.5.29).

2109 **F-AJBP** Bernard 190T 103  
Cie Internationale de Navigation Aérienne, Paris/Le Bourget. (23.5.29).

2108 **F-AJBQ** Bernard 190T 104  
Cie Internationale de Navigation Aérienne, Paris/Le Bourget. (23.5.29).

2098 **F-AJBR** Lioré-et-Olivier 198 11  
Cie Aérienne Française, Suresnes (based Argenteuil). (13.5.29).

2132 **F-AJBS** Farman 190 16/7131  
Sté Générale Transports Aérien, Paris/Le Bourget. (14.6.29).

2188 **F-AJBT** Blériot-Spad 92 2/4419  
SA Blériot Aéronautique, Suresnes (based Buc). (31.7.29).

2190 **F-AJBU** Blériot-Spad 92 4/4421  
SA Blériot Aéronautique, Suresnes (based Buc). (31.7.29).

2192 **F-AJBV** Blériot-Spad 92 6/4423  
SA Blériot Aéronautique, Suresnes (based Buc). (1.8.29).

2193 **F-AJBX** Blériot-Spad 92 7/4424  
SA Blériot Aéronautique, Suresnes (based Buc). (1.8.29).



**Above:** F-AJBL was the prototype SPAD 92 fast pursuit aircraft and first flew on 21.8.28 with conventional tail surfaces. Converted with other examples to a 2-seater as SPAD 92-2 with 230 hp Salmson 9Ab in 1930, it was experimentally fitted with a butterfly tail after it was found that airflow over the wings affected elevator control. It first flew in this form on 12.10.35. (via JM Collection)



**Left:** As well as the single-engined Fokker F.VIIa CIDNA also used the F.VIIb-3m trimotors, fitted with 250 hp Gnome Rhône Titans.  
(via JM Collection)

**Below:** Aéropostale's Laté 26 F-AJCN had to make a forced-landing in the desert in 1929 and another aircraft was sent out to give assistance.  
(via JM Collection)

2194 **F-AJBY** Blériot-Spad 92 8/4425  
SA Blériot Aéronautique, Suresnes (based Buc). (1.8.29).

2195 **F-AJBZ** Blériot-Spad 92 9/4426  
SA Blériot Aéronautique, Suresnes (based Buc). (1.8.29).

2196 **F-AJCA** Blériot-Spad 92 10/4427  
SA Blériot Aéronautique, Suresnes (based Buc). (1.8.29).

2197 **F-AJCB** Blériot-Spad 92 11/4428  
SA Blériot Aéronautique, Suresnes (based Buc). (1.8.29)

2117 **F-AJCC** Farman 190 15  
Sté des Avions H&M Farman, Boulogne (based Toussus-le-Noble). (27.5.29)

2330 **F-AJCD** Farman 192 2/7134  
M.Moreau (Entreprise de Photo Aeriennes), Paris/Le Bourget. (20.12.29).

2097 **F-AJCE** Latécoère 26/6 690  
Cie Générale Aéropostale, Paris (based Toulouse) (10.5.29).

2085 **F-AJCF** Latécoère 26/6 692  
Cie Générale Aéropostale, Paris (based Toulouse). (4.5.29).

2115 **F-AJCG** Morane 147 14  
Cie Française d'Aviation, Boulogne sur Seine (based Orly). (27.5.29)

2277 **F-AJCH** Fokker F.VIIb/3m 5136  
Ex PH-AGJ. Cie Internationale de Navigation Aérienne, Paris/Le Bourget. (24.9.29).

2278 **F-AJCI** Fokker F.VIIb/3m 5137  
Ex PH-AGK. Cie Internationale de Navigation Aérienne, Paris/Le Bourget. (24.9.29).

2315 **F-AJ CJ** Fokker F.VIIb/3m 5138  
Ex PH-AGL. Cie Internationale de Navigation Aérienne, Paris/Le Bourget. (18.11.29).

2116 **F-AJCK** Potez 32 1403  
Sté des Aeroplanes H.Potez, Paris (based Meaulte). (27.5.29)

2099 **F-AJCL** Latécoère 26/6 691  
Cie Générale Aéropostale, Paris (based Toulouse). (13.5.29).



2105 **F-AJCM** Latécoère 26/6 693  
Cie Générale Aéropostale, Paris (based Toulouse). (23.5.29).

2121 **F-AJCN** Latécoère 26/6 694  
Cie Générale Aéropostale, Paris (based Toulouse). (29.5.29).

2100 **F-AJCO** Latécoère 26/6 695  
Cie Générale Aéropostale, Paris (based Toulouse). (16.5.29).

Unkn **F-AJCP** Nothing known, possibly an export CofA.

2102 **F-AJ CQ** Schreck FBA.17.HT4 121  
Cie Aérienne Française, Suresnes (based Argenteuil). (16.5.29).

2145 **F-AJCR** Blériot-Spad 61/9 1  
Ex F-AIIU (Spad 61/6) SA Blériot Aéronautique, Suresnes (based Buc). (25.6.29)

2119 **F-AJCS** Morane 147 15  
Cie Française d'Aviation, Boulogne sur Seine (based Angers).(29.5.29)

2123 **F-AJCT** Morane 147 18  
Cie Française d'Aviation, Boulogne sur Seine (based Orly). (4.6.29)

2141 **F-AJCU** Morane 147 19  
Cie Française d'Aviation, Boulogne sur Seine (based Nimes).(24.6.29)

2142 **F-AJCV** Morane 147 20  
Cie Française d'Aviation, Boulogne sur Seine (based Clermont-Ferrand). (24.6.29)

2143 **F-AJCX** Morane 147 21  
Cie Française d'Aviation, Boulogne sur Seine (based Orly). (24.6.29)

**To be continued . .**



**Left:** Another of the Aéropostale Laté 26s, F-AJCO seen in almost head-on view.  
(via JM Collection)

## COMPLETE CIVIL REGISTERS: 15

# X- UN- YU- YUGOSLAVIA

With thanks to the following for their contributions to this issue:  
John Wegg, Vojislav Jereb and Ognjan Petrovic

**Right:** Ikarus Aero-2F crop-sprayer YU-AEB during the May Day Parade through Belgrade's streets, 1. 5. 50. Note the black registration letters, although white letters were standard form on dark red Aero-2Fs .  
(Foto centar via O. Petrovic)



### The post-war Yugoslavian Civil Aircraft Register -(continued)

#### YU-AEA to AEZ series: single-engined a/c, mainly agricultural

Having received more complete information about the YU-AEx series we are listing the first few again in full, along with the rest of the group. The Ikarus-built Aero-2F was a single seat agricultural aircraft which proved inefficient and all were cancelled, returned to the factory, and rebuilt to Aero-2C 2-seat trainers for the JRV with 97xx serials. Some later returned to civil use and some JRV Aero-2Ds (05xx serials) were also given civil registrations in the YU-AEx and YU-Cxx series.

<b>YU-AEA</b>	Ikarus Aero-2D	03034133	.49	Ex JRV 0533. To civil use with VSJ 1949. CoR 11. Regn cld 1952.	<b>YU-AEJ</b>	Ikarus Aero-2F	03015183	.49	JAT agricultural division. CoR 27. Regn cld 1952 and modified to Aero-2C 1952. Delivered to JRV as serial 9774.
<b>YU-AEB</b>	Ikarus Aero-2F	03015156	.49	JAT agricultural division. CoR 15. Regn cld 1952 and modified to Aero-2C trainer. To JRV as serial 9771.	<b>YU-AEK</b>	Ikarus Aero-2F	03015187	.49	JAT agricultural division. CoR 28. Cr 3.7.49 near Bitola, Macedonia.
<b>YU-AEC</b>	Ikarus Aero-2D	03014146	.49	Ex JRV 0579. To civil use with VSJ 1949. CoR 30.	<b>YU-AEL</b>	Junkers W 34hi	480	.49	Ex JRV 9677. JAT CoR 16. Cr 14.4.54 near Turropolje with engine trouble.
<b>YU-AED</b>	Ikarus Aero-2D	03014154	.49	Ex JRV 0577. To civil use with VSJ 1949. CoR 23. Probably to Aero Klub Zrenjanin.	<b>YU-AEM</b>	Ikarus Aero-2F	03015189	.49	JAT agricultural division. CoR 29. Regn cld 1952 and modified to Aero-2C trainer. To JRV as serial 9761.
<b>YU-AEE</b>	Ikarus Aero-2F	03015181	.49	JAT agricultural division. CoR 20. Regn cld 1952 and modified to Aero-2C trainer. To JRV as serial 9772.	<b>YU-AEN</b>	Ikarus Aero-2F	03015190	.49	JAT agricultural division. CoR 29. Regn cld 1952 and not returned to JRV
<b>YU-AEF</b>	Ikarus Aero-2F	03015182	.49	JAT agricultural division. CoR 21. Damaged 17.7.50. Regn cld 1952 and modified to Aero-2C 1952. To JRV as serial 9773.	<b>YU-AEO</b>	Ikarus Aero-2F	03015200	.49	(1) JAT agricultural division. CoR unkn. Regn cld 1952 and modified to Aero-2C trainer. To JRV as serial 9765.
<b>YU-AEG</b>	Ikarus Aero-2F	03015186	.49	JAT agricultural division. CoR 24. Destroyed 13.5.50.	<b>YU-AEO</b>	Fieseler Fi156C-5A/ Storch/Mraz K-65 Cap	.50/.51	(2) Ex JRV. C/n and serial unknown. CoR 17. JAT from .49 and used for crop spraying. Crashed, Avala mountain near Belgrade, 27.4.52.	
<b>YU-AEH</b>	Ikarus Aero-2F	03015185	.49	JAT agricultural division. CoR 25. Regn cld 1952 and modified to Aero-2C. To JRV as 9776. Later to VSJ. Crashed 27.5.62 on Mt Durmitor, Monte Negro.	<b>YU-AEP</b>	Zlin 381 (Bucker Bu.181C Bestmann)	7173	.47	(1) Ex JRV 9187. CoR 18. JAT. Returned to JRV by .49
<b>YU-AEI</b>	Aero 2F	03015184	.49	JAT agricultural division. CoR 26. Regn cld 1952 and modified to Aero-2C 1952. To JRV as serial 9775.	<b>YU-AEP</b>	Ikarus Aero-2F	03015191	.49	(2) JAT agricultural division. Returned to JRV 1949 and later modified to Aero-2C trainer with new serial 9782.
					<b>YU-AER</b>	Boeing Stearman PT-17	75-347	.47	(1) Ex 40-1790. UNRRA, del 1946 for crop spraying. To JAT as YU-AER 1947. CofR 19. Heavy damage 5.9.55 and again 26.10.72. Destroyed 10.2.74 at Ratari, near Obrenovac (Serbia), officially wfu 19.2.74.
					<b>YU-AER</b>	Ikarus Aero-2F	03015192	.49	(2) JAT agricultural division. Damaged 11.5.49 and later modified to Aero-2C trainer and returned to JRV with new serial 9782.



*Left: JAT Douglas DC-6B YU-AFB, the last example built, during ferry flight to Belgrade. (Douglas/JAT via O. Petrovic)*

*Below: YU-AFB without titles when operated by the Yugoslav government seen at Rotterdam 3.1.70. (Wim Zwakhals)*

*Bottom: Boeing Stearman PT-17 YU-AEW during JAT's crop-spraying activities in 1956 (Foto centar via O. Petrovic) and a poor newspaper image of YU-AET in JAT titles. (via John Wegg)*

<b>YU-AES</b>	Boeing Stearman PT-17	unkn	.47
	UNRRA, del .46. To JAT .47. CoR 14. Crop-sprayer. Destroyed 5.5.57.		
<b>YU-AET</b> (1)	Boeing Stearman PT-17	75-2076	.47
	Ex 41-8517. UNRRA, del .46. To JAT for crop spraying .47. CoR 8. Damaged (50%) 8.5.49 and (80%) 26.6.51. Crashed 13.2.66. Converted to 2-seater for training, winter 1970/71. Reverted to crop-sprayer. Crashed 8.4.73 at Atovac near Sid (Serbia).		
<b>YU-AET</b> (2)	Ikarus Aero-2F	03015195	.49
	JAT agricultural division. Returned to JRV 1949 and later modified to Aero-2C trainer with new serial 9778.		
<b>YU-AEU</b> (1)	Ikarus Aero-2F	03015196	.49
	JAT agricultural division. Returned to JRV 1949 and later modified to Aero-2C trainer with new serial 9779.		
<b>YU-AEU</b> (2)	Boeing Stearman PT-17	unkn	.51?
	Del .51? to JAT as crop-sprayer. CoR 255. Crashed and destroyed 4.7.57 Kozarac, near Osijek (Croatia).		
<b>YU-AEV</b> (1)	Ikarus Aero-2F	03015197	.49
	JAT agricultural division. Returned to JRV and modified to Aero-2C trainer with new serial 9780.		
<b>YU-AEV</b> (2)	Boeing Stearman PT-17	unkn	.51
	Del .51? to JAT as crop-sprayer. CoR 256. Damaged 20.6.59 and 10.9.60. Destroyed 22.2.73, Djurdjevo.		
<b>YU-AEW</b> (1)	Ikarus Aero-2F	03015202	.49
	JAT agricultural division. Returned to JRV and modified to Aero-2C trainer with new serial 9767.		
<b>YU-AEW</b> (2)	Boeing Stearman PT-17	unkn	.51?
	Del .51? to JAT as crop-sprayer. CoR 257. Damaged 25.7.58. Wfu 24.10.83. Seen 10.84 in Belgrade Museum, stored.		
<b>YU-AEX</b>	Ikarus Aero-2F	03015204	.49
	Ordered for JAT but ntu and delivered to JRV. Regn cld .49. Later modified to Aero-2C with new serial 9769.		
<b>YU-AEY</b>	Ikarus Aero-2F	03015201	.49
	Ordered for JAT but ntu and delivered to JRV. Regn cld .49. Later modified to Aero-2C with new serial 9766.		
<b>YU-AEZ</b>	Ikarus Aero-2F	03015190	.49
	Ordered for JAT but ntu and delivered to JRV. Regn cld .49. Later modified to Aero-2C with new serial 9783.		
<b>YU-AEŽ</b>	Ikarus Aero-2F	03015198	.49
	JAT agricultural division. CoR 32. Modified to Aero-2C trainer 1952 and returned to JRV with new serial 9781. [This is a rare registration as use of the Serbo-Croat letter Ž is non-standard according to international regulations.]		



#### **YU-AFA to AFZ series: 4-engined piston aircraft**

<b>YU-AFA</b>	Douglas DC-6B	45563	10.58
	JAT, del 24.10.58. CoR 262. To JRV as presidential aircraft 21.11.58, civil regn cld 12.9.59. In military markings .61 as 7451, later in .70 as 71511 and finally 73101 in .71. Donated to Zambian AF .75 as GMB 110, sold to Namibia Commercial Aviation 9.92 as V5-NCF, fully restored and sold 4.01 to Flying Bulls as N996DM.		
<b>YU-AFB</b>	Douglas DC-6B	45564	11.58
	JAT, del 17.11.58. Owned by Air Force Command but used as YU-AFB, leased back to JAT and Adria during summer seasons. Allocated JRV serial 7452 and later re-serialled 71512 and 73102 but never carried military markings. Wfu c.1972. Donated to Zambian AF .75 as GMB 112, sold to Namibia Commercial Aviation 9.92 as V5-NCG restored and leased .01 to Springbok Flying Safaris as ZS-OUF. [Note: This was the last DC-6 built]		

**To be continued . . .**

# The Whole Truth: THE HANDLEY PAGE HERALD

PART 5



Compiled by Derek King

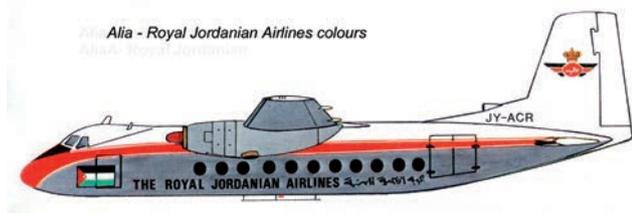
*Above:* Herald c/n 182 seen prior to delivery to Aerovias of Guatemala as TG-ALE. (D Thompson collection)

We begin with further Herald operator histories in brief.

## **ALIA – Royal Jordanian Airlines (Also Royal Arab Air Force and Royal Jordanian Air Force).**

The order for two Heralds came from the Royal Arab Air Force of Jordan, which was soon renamed as the Royal Jordanian Air Force. The two aircraft were serialised as “109” and “110” and delivered on 22Jan63 and 12Jul63 respectively, but they were not to remain in Air Force service for very long, because Alia – Royal Jordanian Airlines was created on 4th December 1963 as a wholly government owned vehicle to replace Jordan Airways, on the specific instructions of King Hussein and given the name “Alia” in honour of his wife. The two Heralds were transferred to Alia in December 1963 as JY-ACR and JY-ACQ. The service capabilities of the Herald were immediately evident with load factors of over 65 percent rising to near 100 percent with nearly seven hours a day utilisation regularly achieved. A classic example being the carriage of some 1,400 passengers between Cairo and Amman in one two-day period! The shortest stage length was from Amman to Jerusalem, a mere twelve minutes flying time. There was a minor accident to JY-ACR which resulted in the leasing of G-ASPJ c/n 173 from 27Feb to 10Mar64 whilst the former was repaired. Further tragedy struck on 10Apr65, when JY-ACQ became a victim of the structural problems mentioned earlier and crashed near Damascus. King Hussein showed his faith in the Herald by flying the remaining aircraft himself, but in the event, the company sold JY-ACQ on 26Jul65 and purchased Caravelles.

Fleet c/ns 165, 170, 173.



## **Far Eastern Air Transport, Taipei, Formosa (now Taiwan).**

Ordered two Heralds, one a 200 series and one 700 series, in Jun 1965 with an option on two more; which secured a foothold for Handley Page in the US-dominated Far Eastern market. FEAT had been activated in 1957 by former Civil Air Transport staff. The Herald was the first turbo-prop type to operate on scheduled services in Taiwan. The aircraft supplied were refurbished from previous operators and the first, B2001 c/n 162 was previously HB-AAG with Globe Air AG and delivered to FEAT on 16Feb66 (this aircraft was WFU in 1973). The new aircraft replaced

Beech C.45s and augmented cargo DC-3 aircraft on services between Taipei and Kaohsiung, Tainan, Hualien and Makung Island. The livery comprised a red cheat-line and fin flash with white lettering superimposed. The second aircraft was B2009 c/n 157 and previously G-APWI, it was delivered on 1Dec68 but tragically crashed with engine failure on 24 Feb 69 ten minutes after take-off from Kaohsiung for Taipei. The third aircraft was added as B2011 c/n 165, previously G-ATHE, sold to FEAT on 19Feb69 and delivered on 4Mar69. This aircraft remained in service until WFU in 1975.

Fleet: c/ns 157, 162, 165

## **Globe Air AG.**

This Swiss charter and inclusive tour operator initially ordered two Heralds in November 1962 but added one more order in early 1963 and a fourth in August 1963 plus a fifth on option (which, in the event was not purchased). The Herald was aimed at their services to Italy, the Mediterranean, North Africa and Middle Eastern destinations, even, on occasion to places such as Norway as required. The fleet was delivered as follows:

HB-AAG c/n 162 deld 4 May 1963 named “Herald of Bern”

HB-AAH c/n 169 deld 7 Aug 1963 named “Herald of Zurich”

HB-AAK c/n 173 deld 13 Mar 1964 named “Herald of Basle”

HB-AAL c/n 188 deld 18 May 1965 named “Herald of Interlaken”

Globe Air also took out options of three Series 700 aircraft in October 1965 but these were not proceeded with. Operating results with the new fleet were nothing short of astonishing, with 98 percent load factors and 18 hours a day utilisation being frequently achieved. This was despite the fact that the company had no maintenance base or hangarage facilities and all maintenance was done in the open. This, despite the climate of Switzerland, was a considerable achievement. Globe Air Heralds often made three return trips a day to Palma, Majorca, plus services to the Canary Islands, Malaga, Valencia, Venice and Dubrovnik, all served from Berne, Zurich, Geneva, Basle and Gatwick in the UK. Such was the success of these operations, that the company found it difficult to accept lucrative cargo contracts due to high demand on Herald services, but occasional charters were fitted in, such as ten flights from Bremen to Madrid to deliver 40,000 day old chicks. Sadly the bubble burst after the tragic accident to a Globe Air Britannia caused the death of its 126 occupants and the company was unable to recover, was put into liquidation on 17th October 1967 and the Herald fleet sold.

Fleet c/ns 162, 169, 173, 188.

## **Royal Malaysian Air Force**

Originally known as “Tentera Udara Diraja Persekutuan” (the Malay title for the Royal Malaysian Air Force), then on 15Aug63 became “Tentera Udara Diraja Malaysia”. The Royal Malayan AF was formed with offi-



**Left:** FM1027 of the Royal Malaysian Air Force carrying out ground runs. C/n 187, this was the last of eight delivered to the RMAF. (Wim Zwakhals Collection)

**Below:** Ex-Malaysian, c/n 178 G-BEYG is seen after a summer 1979 downpour, clearly labelled British Air Ferries Cargo and with the name "Jeremy Keegan" above the crew door. (D Thompson collection)

cers and NCOs seconded from the RAF on 2Jun58 with a small number of local members initially. The next two years were spent in training and organisation, with the aim of taking over responsibility from the RAF in the country. The Federation of Malaysia was formed on 16Sep63 and the name changed to Royal Malaysian Air Force. Early transport equipment consisted of Scottish Aviation Pioneers and Twin Pioneers, but it was quickly realised that a larger aircraft would be required to carry troops for considerable distances. The Handley Page Herald Series 400 was selected and orders placed for eight aircraft in two batches, four in March 1963 and four in June 1963. These were the only Series 400's to be ordered. This was a considerable tribute to the Herald, because Malayan Airways was already operating the rival Fokker F.27 Friendship. Crews for the Heralds were selected from Twin Pioneer units and Herald G-APWA (149) was leased from 31Aug63 to Jan64 to facilitate crew training. A large welcoming party gathered at Kuala Lumpur on 8Nov63, including the Base Commander Wing Commander G. Frain and many local dignitaries, to witness the arrival of the first RMAF Herald, FM1020. This was flown from Luton in the UK by pilot SqN Ldr D.R.Bryan, with Flt Lt Norman Rose and Flg Off B.H.Love. This and all other Heralds were put into service with Number 4 Squadron RMAF at Kuala Lumpur, with the aircraft delivered as follows:(with further detail in the individual histories)

FM1020 171 Deld 1Nov63	FM1021 172 Deld 20Dec63
FM1022 175 Deld 17Jan64	FM1023 178 Deld 30Jan64
FM1024 180 Deld 28Sep64	FM1025 181 Deld 3Nov64
FM1026 182 Deld 8Dec64	FM1027 187 Deld 11Jan65

As can be seen from the above table, the Herald fleet was delivered in two batches, commencing November 1963 and September 1964. The Herald served the RMAF with distinction, and was used in a wide variety of roles, from Royal Flights to casualty evacuation, supply dropping and paratrooping. Flights covered the whole of the territory of the Federation, including the former British Colonies on Borneo of Sabah and Sarawak. The Herald fleet served the RMAF for some fourteen years, until eventually replaced by six more modern Lockheed Hercules C.130H in 1976. During its service with the RMAF the aircraft suffered a few accidents and incidents, with only one aircraft suffering serious enough damage to be classed as "damaged beyond repair", this being FM1025, which belly-landed on 17Jun76 at Kuala Lumpur, and was deemed not worth repairing. The whole fleet was sold to Hants & Sussex Aviation who resold it to British Air Ferries prior to delivery and registered to BAF companies on 13Jul77 as G-BEYD to G-BEYK. The damaged aircraft noted above was stripped of useful spares on site, with these being ferried to the UK in the other seven aircraft as they were flown back to the UK.

Fleet: 171, 172, 175, 178, 180, 181, 182, 187.

**Norte Taxi Aereo – NOTA – See Sadia**

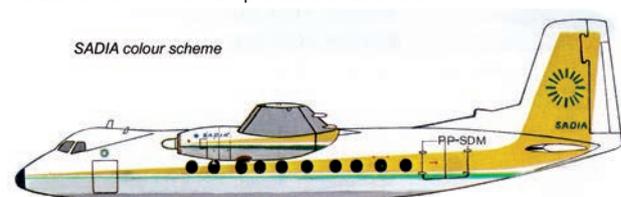
**Royal Arab Air Force / Royal Jordanian Air Force.**

The only other military operator of the Herald and these were standard series 200 aircraft, which lacked the larger freight door of the series 400. Two aircraft were ordered in 1962, but they did not serve long with the air force, because they were transferred to the new Jordanian airline, Alia – Royal Jordanian airlines on 4Dec63 (qv). Fleet c/ns 165, 170.



**Sadia SA de Transportes Aereos.**

One of the benefits of the extensive tours of South America described earlier was an order from Brazilian operator, Sadia. The company had been formed in 1955 at Sao Paulo as part of the Sadia organisation using DC-3s to transport meat products, and commenced scheduled passenger services in March 1956 to destinations in the South-East and North-East of Brazil. Negotiations began for a fleet of five aircraft, but were hampered by long delays to the paperwork and permits required to import foreign-built aircraft. Trade-ins involved Curtiss C-46A (G-ATXV) and four DC-3s (G-ATXS, T, U and G-AVNG) which were sold on by Handley Page. These were eventually resolved and Sadia became an important Herald operator with glowing testimonials granted to the type by the Brazilian Director of Civil Aviation. Sadia eventually purchased seven Heralds and operated a further three aircraft on lease pending delivery of their own aircraft. The first was delivered on 18 November 1966 and the last on 10 January 1968. One Herald, PP-SDJ, was lost in an accident in November 1967. As with other operators, the introduction of the Herald gave impetus to the operators' services, with utilisation and load factors vastly increased over the older DC-3. Such was the success that Sadia was able to order jet aircraft in the form of the BAC One Eleven, which eventually supplanted the Herald. In June 1972 the company was renamed as Transbrasil S/A Linhas Aereas. Three aircraft were involved in leases to another Brazilian operator, Transportes Aereos de Bacia Amazonias (TABA), which operated in the Amazonas region of Brazil and had merged with another company, Norte Taxi Aereo (NOTA) and used the title TABA/NOTA. Lease details are noted briefly in the table below, full details are in the relevant production histories.



161 PP-ASU Lsd 6Dec63 to Oct 64 from Handley Page
149 PP-ASV Lsd 20Feb64 to Oct 64 from Handley Page
169 PP-ASW Lsd 13Jan68 to 9Apr68 from BU(CI)A
149 PP-SDM Lsd 75/76 to TABA/NOTA
186 PP-SDH Lsd 4Apr76 to Jun 76 TABA/NOTA.
191 PP-SDL Lsd 1.76 to 2.76 TABA/NOTA

Fleet: 149, 161, 169, 177, 185, 186, 190, 191, 194,

**Right:** Herald c/n 178 as HK-2701 with Aerosucre, Colombia, seen parked at San Andres in February 1987. The largely bare metal finish is somewhat unusual amongst Heralds. (Karl Kramer via Michael Magnusson)



**Below:** D-BEBE c/n 179 in full Bavaria colours with the name "Herald of Bavaria" to the rear of the passenger door together with the Olympic Games 1972 symbol. (Wim Zwakhals collection)



**Below:** The slight variation on the Bavaria colour scheme and below that another view of c/n 179, this time as G-AYMG in Air UK colours in the early 1980s. (D Thompson collection)

Transportes Aereos de Bacia Amazonas – TABA – See Sadia

Transbrasil S/A Linhas Aereas – See Sadia

We now continue with further individual aircraft histories.

#### 178 HPR.7 HERALD 401

Twentieth Radlett built. FF 30Jan64 as **FM1023** and deld 8Feb64 to No 4 Sqn Royal Malaysian Air Force (Tentera Udara Diraja Malaysia). Withdrawn from service and regd 13Jul77 (Cofregn G-BEYG/R1) as **G-BEYG** to Bembridge Air Hire Ltd, Southend. Deld 12Sep77 to British Air Ferries - BAF and named "Jeremy Keegan". Noted at Southend 20Oct77 in RMAF livery minus engines. Regd 18Jul78 (Cofregn G-BEYG/R2) to Keegan Leasing, Southend (for operation by BAF). Entered BAF service as a freighter 14Sep78. As of 31Oct78 TT 8,162 hr 5,283 landings. Leased 27Sep79 to 29Sep79 to Touraine Air Transport –TAT. Leased again 8Feb80 to 26Mar80 to Touraine Air Transport. Cancelled 10Nov81 as sold in Colombia and deld 11Nov81 to Aerosucre Colombia with ferry regn **HK-2701X**, becoming **HK-2701** on arrival and named "Don Celso". Damaged, date unknown, in an accident in Costa Rica, repaired. As of 30Jun82 TT 12,441 hr 8,9176 landings. Sold Apr91 to Lineas Aereas Colombianas – LACOL. Crashed 16Sep91 on approach to Barranquilla, Colombia on a cargo flight. 3 crew and 2 passengers killed.

#### 179 HPR.7 HERALD 213

Thirty second Radlett built. FF 19Mar65 as **D-BEBE** and deld 29Mar65 to Bavaria Fluggesellschaft, named "Herald of Bavaria". Leased 16Nov67 to 16Apr68 to Arkia - Israel Inland Airlines. Leased again 24Nov68 to 13Nov70 to Arkia (not registered in Israel). WFU and stored by May70 at Luton as D-BEBE with titles painted out. Deld 13Nov70 and regd 13Nov70 (Cofregn R.8412/1) as **G-AYMG** to British Island Airways – BIA. CofA number A8412 issued on 10Feb71 to British Island Airways. CofA renewed 10Feb72, 10Feb73, 27Mar74 and 23Apr75 by BIA. As of 31Oct78 TT 22,711 hr 24,325 landings. Regd 16Jan80 (Cofregn G-AYMG/R2) to Air UK (on merger). Deld 7Mar83 and regd 29Mar83 (CofregnG-AYMG/R3) to Securicor Air. Transferred 26Nov86 to Securicor Express. Deld 12Mar89 and regd 10May89 (Cofregn G-AYMG/R4) to Channel Express (Air Services), Bournemouth. Regd 18Jan90 (Cofregn G-AYMG/R5) to Channel Express Group PLC, Bournemouth. Last service 7Jul92 Liverpool to Bournemouth. WFU and stored 7Jul92 at Hurn and broken up 4Aug94. Cancelled 10Jan97 as PWFU.



#### 180 HPR.7 HERALD 401

Twenty fifth Radlett built. FF 30Jul64 as **FM1024** and deld 28Sep64 to No 4 Sqn Royal Malaysian Air Force (Tentera Udara Diraja Malaysia). Damaged 18Apr68 in wheels up landing at Changi, Singapore, repaired. Withdrawn from service and regd 13Jul77 (Cofregn G-BEYH/R1) as **G-BEYH** to Killyspae Ltd, Southend and deld 18Jan 78 to British Air Ferries – BAF, Southend (Leased during 1978 to British Island Airways – BIA but dates not recorded). Noted 8Oct78 stored at



**Above:** C/n 180 G-BEYH in basic BAF colours wearing Oasis Oil Co titles in English and Arabic, which dates this photo as late 1980. (D Thompson collection)



**Above, Left:** C/n 180 still appears to be a BAF aircraft but it is wearing ferry registration HK-2702X and Aerosucre titles prior to delivery to Colombia. (D Thompson collection) **Above, Right:** Now in full Aerosucre colours, HK-2702 at Curacao in January 1986. (Michael Magnusson)



**Above:** C/n 182 as G-BEYJ with BAF fuselage stripes, white fin/rudder and AGOCO titles during one of its leases to the oil company in 1980 or 1981. The aircraft is not on fire but the field behind appears to be! (D Thompson collection)

**Below:** Pictured earlier as TG-ALE, c/n 182 is seen with its engines removed at Guatemala City in October 1992. (Michael Magnusson)



Southend minus engines. As of 31Oct78 TT 9,000 hr 5,858 landings. Regd 21Mar79 (Cofregn G-BEYH/R2) to Bembridge Air Hire, Southend (but still operated by BAF). Entered BAF service 21Mar79. Leased 1Apr79 to 8Apr79 to Touraine Air Transport – TAT. Leased again 27Apr79 to 30Jun79 to TAT. Leased Jul79 to Aug79 to Air Mauritanie. Leased Aug79 to Feb80 to Nile Valley Aviation, Cairo. Leased 2May80 to 7Aug80 to Air Algeria. Leased Aug80 to Sep80 to Skyways Cargo, Lydd. Leased Oct80 to 3Dec80 to Oasis Oil Co, Libya. Leased 14Dec80 to Mar81 to Occidental Oil, Libya. Noted 20Mar81 as owned by Black Arrow Leasing Ltd (but not regd to them) and leased to BAF. Regd 28May81 (Cofregn G-BEYH/R3) to British Air Ferries, Southend. Canx 23Dec81 as sold in Colombia and deld 24Dec81 with ferry regn **HK-2702X** to Aerosucre Colombia, becoming **HK-2702** on arrival. As of 30Jun82 TT 12,952 hr 8,859 landings. Crashed 5Nov89 at Tolina 300 km SW of Bogota in heavy rain on a cargo flight. The 3 crew and 3 passengers were killed.

#### 181 HPR.7 HERALD 401

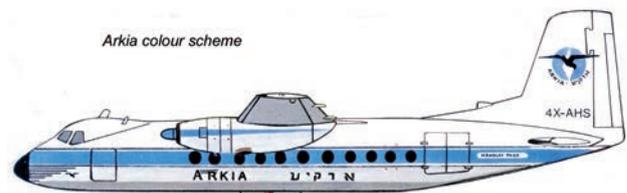
Twenty eighth Radlett built. FF 22Sep64 as **FM1025** and deld 3Nov 64 to No 4 Sqn Royal Malaysian Air Force (Tentera Udara Diraja Malaysia). Damaged beyond economical repair 17Jan76 in belly landing at Kuala Lumpur, not repaired and sold in that condition. Regd 13Jul77 (Cofregn G-BEYI/R10 as **G-BEYI** to Bembridge Air Hire, Southend for British Air Ferries but not imported to UK. Broken up for spares during 1977 at Kuala Lumpur, Malaysia. Registration NTU but not cancelled as PWFU until 28Jul83.

#### 182 HPR.7 HERALD 401

Twenty ninth Radlett built. FF 18Nov64 as **FM1026** and deld 8Dec64 to No 4 Sqn Royal Malaysian Air Force (Tentera Udara Diraja Malaysia). Withdrawn from service and sold. Regd 13Jul77 (Cofregn G-BEYJ/R1) as **G-BEYJ** to Bembridge Air Hire, Southend and deld 22Dec77 to British Air Ferries – BAF. Used for crew training until Oct78. Noted 8Oct78 stored at Southend minus engines. As of 31Oct78 TT 9,947 hr 6,628 landings. Regd 30Aug79 (Cofregn G-BEYJ/R2) to British Air Ferries, Southend. Entered BAF service 1Sep79. Leased 22Dec79 to Jan80 to Air Mauretanie. Ledger amended 15Sep79 to Panavia Air Cargo, Southend, still operated by BAF. Leased 30May80 to Sep80 to Arabian Gulf Oil Co – AGOCO Oil, Libya. Short lease 24Sep80 to Eagle Cairo. Leased Oct80 to Dec80 to Air Algérie. Leased 18Jan81 to 7Jul81 to Arabian Gulf Oil Co - AGOCO Oil, Libya. Leased Nov81 to 19Jun82 to Mobil Oil Co of Libya Inc. Leased 3Feb83 to 30Jul83 to Tunisavia. BAF was renamed Panavia Air Cargo on 18May83. WFU and stored Jul83 at Southend. Impounded Sep83 by Southend Council in lieu of unpaid airport charges, if not paid by 5Jan84 the aircraft was to be sold. Receiver appointed for Panavia Air Cargo on 8Sep83. Ownership amended 4Jan84 to Panavia Cargo. Cancelled 29Jan84 by the CAA. Rolled out 11Oct84 in full livery of Aerovias SA. Sold 28Oct84 and deld 11Dec84 as **TG-ALE** to Aerovias SA with fleet number “455”. WFU and stored Oct85 at Guatemala-Aurora. Extant Nov01 with parts missing. Regn re-allotted to DC-9, Mar03. Believed now scrapped.

#### 183 HPR.7 HERALD 209

Twenty second Radlett built. FF 26Mar64 in Arkia colours under “B” conditions as **G-8-1**. Deld 17Apr64 as **4X-AHR** to Arkia - Israel Inland Airlines. Cancelled May73 and sold 28May73. Regd 30May73 (Cofregn R.8058/1) as **G-BAZJ** and CofA issued 20Jul73 to Frank Dennis Wolfson, trading as Universal Aviation Supply Co. Ltd, Esher, Surrey. Regn cld 5Jun73 as sold, having been deld 1Jun73 and regd 9Jul73 (Cofregn R.8058/2) to British Island Airways – BIA. CofA renewals 20Jul74 and 20Jul75. As of 31Oct78 TT 24,279 hr 30,967 landings. Transferred 16Jan80 and regd 15May80 (Cofregn G-BAZJ/R3) to Air UK, on merger. As of 31Mar84 TT 40,964 hr. WFU 31Oct84, sold to Guernsey Fire Service for £1, to fire dump at Guernsey. Cancelled 4Jan85 as PWFU.



**Above:** On returning to the UK, c/n 183 spent over six years in service with BIA as G-BAZJ. (D Thompson collection)



**Above:** The first Herald delivered to Arkia was c/n 183 as 4X-AHR, seen here at Tel Aviv with a DC-3 4X-ADA of the same company. (Aeroplane via JM Collection)

**Right:** C/n 185 appeared at the Farnborough show in 1964 as G-ASVO in Sadia colours but without titles prior to delivery to Brazil. (M J Hooks)



**184 HPR.7 HERALD 203**

Twenty sixth Radlett built. FF 14May64 deld 29May64 as **I-TIVU** to Aerolinee Itavia Spa. Sold to BIA, deld 20Dec73 and regd 18Jan74 (Cofregn R.8213/1) as **G-BBXI** and CofA issued 8Apr74 to British Island Airways. As of 31Oct78 TT 24,384 hr 28,034 landings. Transferred 16Jan80 and regd 15May80 (Cofregn G-BBXI/R2) to Air UK, on merger. Leased 16Mar84 to Channel Express Air Services, Bournemouth. Damaged beyond repair 11Jun84 when wing hit by a National Freight Corporation truck at Bournemouth Airpor. Broken up between 6th and 28th July 84 for spares at Bournemouth. Cancelled 19Jul84 as PWFU.

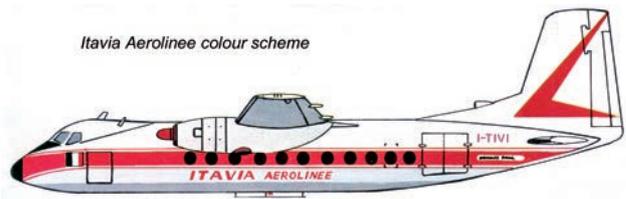


**Above:** By now a familiar location shot: I-TIVU c/n 184 on the apron at Milan-Linate on 29.2.68. (via JM Collection)

**185 HPR.7 HERALD 214**

Twenty seventh Radlett built. FF 2Jul64 under "B" conditions as **G-8-3** in Sadia colours. Regd 13Aug64 (Cofregn R.8099/1) as **G-ASVO** and CofA number A8099 issued 3Sep64 to Handley Page Ltd, Radlett. Shown at 1964 SBAC Show Farnborough in Sadia livery but without titles. Cld 14Oct64 as sold in Brazil. Deld 23Oct64 as **PP-SDG** to Sadia de Transportes Aereos. Regd 9Mar73 (Cofregn R.8099/2) as **G-ASVO** and deld 14Mar73 to British Midland Airways – BMA, East Midlands and arrived in England 23Mar73. CofA renewals 22Feb74 and 28Feb75. Leased 28Feb75 to 27Mar76 to Air Anglia, Norwich. Deld 7Jan77 and regd 14Jan77 (Cofregn G-ASVO/R3) to British Air Ferries and named "Kirsty Keegan". Leased 1Apr77 to 23Jul77 to Gulf Air, Bahrain. Leased 4Aug77 to Nov77 to Brymon Airways. Leased 25Nov77 to Apr78 to Nile Valley Aviation, Cairo. Leased 1May78 to 17Aug78 to Gulf Air, Bahrain. Leased 30Oct78 to 24Oct78 to Europe Aero Service, Perpignan. As of 31Oct78 TT 22,667 hr 25,660 landings. Leased 31Oct78 to 30Sep80 to British Island Airways (being

Itavia Aerolinee colour scheme



**Right:** Seen at work in Brazil, but in a different colour scheme to that above, Sadia's PP-SDG c/n 185. (Wim Zwakhals collection)





**Left:** C/n 185 G-ASVO was painted with this unusual logo for lease to Aero Turbo, Panama in October 1982 but was never delivered. With all the white surfaces painted yellow, perhaps this could be a forerunner of today's Aurigny scheme! (D Thompson collection)

**Below:** G-ASVO again, for once in standard BAF colours and named "Kirsty Keegan". (D Thompson collection)



**Below:** Herald c/n 186 as G-BEBB is seen in the colours of AGOCO Oil during one of its leases to the company from BAF. (D Thompson collection)



transferred 16Jan80 to Air UK on merger, but remained leased although new CofRegn G-ASVO/R4 issued to BAF on 9Sep80). Leased 30Oct80 to 31Mar81 to Nile Valley Aviation, Cairo. Leased Jun81 to 22Feb82 to Libyan Arab Airlines. Leased Feb82 to Mar82 to Azienda Generale Italiana Petroli - AGIP Oil Co, Libya. Leased 21Mar82 to 17Apr82 to Air Ecosse. Leased 24May82 to Sep82 to Azienda Generale Italiana Petroli - AGIP Oil Co, Libya. Noted with "BAF" on fin but "AGIP (Libyan Branch)" titles. Painted Oct82 for lease to Aero Turbo, Panama but NTU. Regd 2Mar83 (Cofregn G-ASVO/R5) to BAF Air Tours, Southend. Leased 2Mar83 to 27Aug83 to Guernsey Airlines and named "Sarnia". However on 18May83 ownership transferred to Panavia Air Cargo. Noted on 16Jul83 operating on BAF services. Ledger amended 2Nov83 to British Air Ferries, Southend and named "Herald Tribune". Damaged 15Feb85 at Dusseldorf when struck by LTU Tristar D-AERM causing severe damage to fin and rudder. Repaired. Leased 30Mar92 to Jul92 to Channel Express (Air Services), Bournemouth. Regd 2Mar93 (Cofregn G-ASVO/R5) to British World Airlines, Southend. Regd 22Nov93 (Cofregn G-ASVO/R6) to Dart Group PLC, Bournemouth and operated by Channel Express Air Services. Damaged beyond repair 8Apr97 when it hit a lighting post whilst taxiing at Bournemouth, severely damaging port wing. Scrapped at

Bournemouth-Hurn. Nose section saved (back to second window on port side) and taken to Shoreham, by 5May99 noted at Airport Archive Visitors Centre. Later sold to Thistle Aviation Services and used as ground instruction airframe. Cancelled 25Sep01 by the CAA. Nose section sold 15Jan05 and deld 20Jan05 to Highland Aviation Museum, Inverness and preserved.

#### 186 HPR.7 HERALD 214

Thirty First Radlett built. FF 5Jan65 as **PP-SDH** and deld 26Jan65 to Sadia de Transportes Aereos and named "Manana". Company name changed Jun72 to Transbrasil S/A Linhas Aereas. Leased 4Apr76 to Jun 76 to TABA/NOTA. Sold to BAF and regd 25Jun76 as **G-BEBB** (CofR G-BEBB/R1), deld 15Jul76 to British Air Ferries and named "Wendela Keegan" (later renamed "Shiela Scott"). Rolled out 25Sep76 in BAF livery and entered service on 26Sep76. As of 31Oct78 TT 26,306 hr with 27,868 landings. Leased 31Oct78 to Sep80 to British Island Airways (which became Air UK on 16Jan80 and lease continued). Leased 18Sep80 to Oct80 to Arabian Gulf Oil Co - AGOCO Oil, Libya. Leased 6Feb81 to Mar81 to Air Algeria. Leased 30Mar81 to Dec81 to Nile Valley Aviation. Leased 29Dec81 to Apr82 to Libyan Arab Airlines. Leased 9May82 to Arabian Gulf Oil Co - AGOCO Oil, Libya (return date not recorded). On 18May83 ownership officially transferred



to Panavia Air Cargo (but not regd to them) and leased 24May83 to 15Sep83 to Janus Airways. WFU/stored 15Sep83 at Hurn. Ledger amended 4Jan84 to Panavia Air Cargo, Southend as registered owners. Regd 11Apr85 (CofR G-BEBB/R2) to Channel Express Freight (UK), Bournemouth (operating as Channel Express Air Services), with TT 32,000 hr and 33,000 landings. Regd 31Jan86 as **G-CEAS** (CofR G-CEAS/R1) to Channel Express Freight (UK), Bournemouth. Leased Jun87 to Dec87 to South East Air, Biggin Hill. Transferred 17Feb93 to Dart Group PLC but still operated by Channel Express Air Services. WFU Feb97 at Hurn, Cancelled 23Jun97 as PWFU. Broken up Nov97 at Bournemouth-Hurn.

**187 HPR.7 HERALD 401**

Thirtieth Radlett built. FF 18Dec64 as **FM1027** and deld 11Jan65 to No 4 Sqn. Royal Malaysian Air Force (Tentera Udara Diraja Malaysia). Regd 13Jul77 as **G-BEYK** (CofR G-BEYK/R1) to Staymond Investments Ltd, Southend and deld 5Mar78 to British Air Ferries – BAF. Deld 23Mar78 and regn cld 28Mar78 upon sale to BIA and regd 7Apr78 (CofR G-BEYK/R2) to British Island Airways. As of 31Oct78 TT 7,808 hr with 5,254 landings. Company name changed 16Jan80 and regd 15May80 (CofR G-BEYK/R3) to Air UK. Sold Feb86 to Nordic Oil Services Ltd and leased Feb86 to Business Air Centre (BAC Leasing). Leased 30Mar86 to Apr87 to Euroair Transport. Leased Jun87 to Feb88 to South East Air. Impounded at Luton 15Feb88 and ferried to Norwich 1Apr88 for storage. Leased 10Jun88 to 3Jan89 to Channel Express (Air Services). Regd 12Jul88 (CofR G-BEYK/R4) to Nordic Oil Services, Edinburgh (but still operated by Channel Express Air Services). Leased 23Dec88 to Jun89 to Westair International Airways. WFU/stored Jun89 at Norwich. Leased 5Dec90 and regd 12Mar91 (CofR G-BEYK/R5) to Janes Aviation, Blackpool. Regd 10Feb93 (CofR G-BEYK/R6) to Nordic Oil Services, Millport, and stored Feb93 at Norwich. Leased Oct93 to Oct94 to BAC Cargo and used for GPO flights from Stansted to Northern Ireland. WFU/stored 1Nov94 at

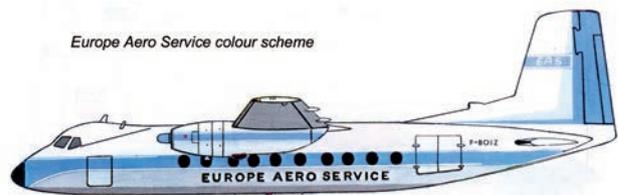
**Above:** Globe Air's "Herald of Interlaken" HB-AAL c/n 188 seen in service at Gatwick in 1966. (D Thompson collection)

Norwich and regn cld 29Oct96. Regd 6Aug97 (CofR G-BEYK/R7) to Trygon Ltd. For export to South Africa but NTU and broken up 6Feb98 to 12Feb98 at Norwich. Cancelled 26Feb98 as PWFU.

**188 HPR.7 HERALD 210**

Thirty third Radlett built. FF 11May65 as **HB-AAL** of GlobeAir and deld 18May65 to Globe Air AG, named "Herald of Interlaken". Company ceased operations October 1967 and aircraft parked at Basle. Sold to Europe Aero Service and regd 2Jul68 as **F-OCLZ** to Sté Tunisienne de Réparation Aéronautiques et de Construction, Tunis, based at Perpignan and operated in blue colour scheme. Cancelled and re-regd **F-BOIZ** to Sté Locafrance Service, 22Aug68, based Perpignan and operated by EAS. Regd 20Aug73 to Europe Aero Service, Perpignan. As of 8Nov78 TT 14,334 hr with 9,007 landings. Sold 23Aug88 and deld Aug88 from Perpignan to Exeter for overhaul and regd 30Aug88 as **G-STVN** (CofR G-STVN/R1) to Channel Express (Air Services), Hurn. Regd 29Mar89 (CofR G-STVN/R2) to Channel Express Group PLC, Hurn. Cancelled 8Apr97 as PWFU but CofA valid until 24Oct99, broken up at Hurn.

To be continued . . .



**Above:** C/n 188 at Radlett prior to delivery to Europe Aero Service as F-BOIZ. The painters have not removed the Globe Air "AL" from the nose-wheel door! (Handley Page Ltd via Mike Hooks)

# The Somers-Kendall SK-1

HEAD-ON VIEW

No.35



The SK-1 was designed by Hugh Kendall as a two-seat racing and training light jet aircraft and won third prize in a 1953 Royal Aero Club design competition for racers. With the financial backing of Mr W Megalow, Kendall and the racing pilot Nat Somers set up Somers-Kendall Aircraft Ltd at Woodley. The aircraft was constructed there in 1954-55, first flown on October 8th 1955 by Hugh Kendall and shown to the press and public at Woodley on the 14th on the occasion of its third flight.

Powered by a 330 hp thrust Turboméca Pallas, the SK-1 was intended to achieve a maximum level speed of 332 mph (530 km/h) at sea level. The aircraft can best be described as a mid-wing monoplane of wooden stressed-skin construction of exceptionally aerodynamic design. The circular monocoque fuselage section had a small frontal area with a glass fibre nose cone. A large streamlined sideways-hinged 6-foot Perspex canopy was fitted and immediately behind this, on top of the fuselage, were the twin intakes for the Palas engine. To the rear of the engine the fuselage tapered, ending in a glass fibre tail cone which housed a small parachute. This could be used as a landing brake but also served as a safety device during spinning trials.

The tailplane was a butterfly or V-tail unit which was the essential choice with a single engine mounted on top of the fuselage. This

**Above:** The completed SK-1 G-AOBG at Woodley. The clean lines of the aircraft are readily apparent, as is the 'monotrace' retractable undercarriage with wingtip stabilisers. (Aeroplane via JM Collection)



**Above:** The front fuselage of the SK-1 still under construction. The backward-retracting nosewheel is seen, with the mainwheel just visible behind the cockpit opening.

**Left:** The rear view shows the completely circular fuselage with metal spars to mount the V-tail. Behind it is the one-piece wing on which the 45° angled plywood skinning stands out clearly. The full-span ailerons and the air brakes can also be seen.

(Both: Aeroplane via JM Collection)





**Above:** The SK-1 in almost complete state. It is still unpainted and the engine covers are not yet fitted, neither is the canopy which is loosely positioned for the photograph. (Aeroplane via JM Collection)

**Right:** The uncovered Turboméca Pallas no.110 is in place, the ailerons fully extended and upper surface dive brake raised. (Aeroplane via JM Collection)

arrangement followed the pattern already established by the Fouga Cyclone of 1949 and its successors the Sylphe and Cyclope. While "The Aeroplane" debated which came first, the V-tail or the engine position, the answer seems to have been determined years earlier in France! The tailplane was of metal for heat resistance, the two units being set at 45°, hinged about their centre-lines and fitted with elevator-type balance tabs and mass balances on the tips.

The wing, of a mere 22 ft 10 in, span, was a one-piece unit of conventional wooden structure with two spars and laminated birch stiffeners with a plywood and balsa skin. The NACA 6 aerofoil section was chosen to give low drag combined with good lift over the high aspect-ratio tapered wings. Two flexible fuel tanks were fitted within the wing with a total capacity of 44 gallons (200 litres). Full-span ailerons were fitted which could be dropped 20 degrees to act as flaps and small dive



brakes operated on both the upper and lower wing surfaces. The wingtips were also of glass fibre and housed the sideways retractable stabilisers. The main undercarriage consisted of two pneumatically-retractable wheels in tandem under the fuselage. The main wheel positioned below and slightly behind the cockpit was a single complete Miles Gemini unit, while the nosewheel was a Gemini tailwheel with rearwards-retracting mechanism added. A small protective bumper unit was fitted below the tailplane.



**Above:** Left to right - Hugh Kendall, W Megalow, Mr Péru of Turboméca and Natt Summers pose beside the SK-1. (Aeroplane via JM Collection)

**Below:** A word of advice from Natt Summers (left) as Hugh Kendall prepares for the first flight. (Aeroplane via JM Collection)



**Above:** Instrumentation in the SK-1 was fairly minimal and at this stage dual controls and panel were not fitted in the rear. (Aeroplane via JM C)



**Left:** Hugh Kendall takes the SK-1 across the grass at Woodley for the first demonstration flight of the aircraft on 14.10.55, only six days after its first flight. (Aeroplane via JM Collection)

**Below:** A fast pass with undercarriage retracted as part of the demonstration. (Aeroplane via JM Collection)

The Palas engine, apparently unit number 110 as seen in the accompanying photographs, weighed only 135 lb (60 kg) and was estimated to produce 1 mph of speed for every 1 lb thrust. At the intended cruising speed of 280 mph (450 km/h) and an altitude of 25,000 ft a range of around 550 miles could be achieved. After installation and trials the jet efflux pipe was tilted upwards to give increased clearance of the tail surfaces. In an unfortunate incident during pre-flight testing a piece of rag was sucked into the engine which had to be flown back to the manufacturers for minor repairs.

The overall finish of the SK-1 was very smooth and the joints and surfaces well sealed. After completion the aircraft was painted yellow overall. It was registered G-AOBG on 30.3.55 and its CofA issued on 27.3.56. It was estimated that production versions could be sold for £10,000 and there were reports of "overseas interest" in the type as a military trainer.

**Dimensions and performance:**

Wing span	22ft 9in	6.95m
Length	20ft 10in	6.4m
Wing area	65 sq ft	6 sq m
Empty weight	810 lb	367.5 kg
All-up weight	1,500 lb	680 kg
Max speed sea level	330 mph	530 km/h
Cruise at sea level	280 mph	450 km/h
Initial rate of climb	1,850 ft/min	9.4 m/sec



On 5.5.56 Nat Summers was to attempt to set a new 100 km closed circuit record for the 500 - 1,000 kg weight limit from Hatfield. However, faulty undercarriage retraction prevented this. On a later flight the SK-1 nosed down on the runway after retraction had taken place. (Reading between the lines, it may be that the second incident was the 5.5.56 'crash'.) It seems likely that these incidents were the reason for the addition of a glider-type underbelly skid to protect the fuselage in such cases.

During a flight on 11.7.57 the SK-1 suffered a major engine failure and as a result was withdrawn from use. By the following year it was stored at Cranfield with the engine and tailplane removed, its CofA having expired on 26.6.58. It remained there for some time but was later featured in store at various other airfields before arriving at Brighton in 1990. On 26.5.06 it was registered to a new owner, Peter W Bishop of Woodley and Hamburg. The following year the fuselage was reported in good condition with Roger Targett Sailplane Services at Nympsfield. The wings and canopy however were missing although the glass fibre and metal parts appeared to be intact. The last report available puts the aircraft at Classique Aero Services, Orbigny, F37 for restoration in about October 2008. Further news would be welcome.



**Above:** Natt Somers taxis out at Hatfield for his record attempt. The anti-dazzle panel is new and the aircraft name has been removed. (Aeroplane via JM Collection)

**Below:** G-AOBG in storage at Cranfield on 21.9.62. (D Partington)



**Above:** The prototype Fougă Cyclone, a CM.8 glider with Turboméca TR 011 turbojet first flew in July 1949. (via JM Collection)

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WINTER ISSUE  
DECEMBER 2010

# Air-Britain ARCHIVE

The AIR-BRITAIN Civil Aviation Historical Quarterly



**Chinese Civil Aircraft Registers pre-1950s**

**FMA : The Pucara**

**Mauboussin Corsaires**

**The Farman 190 Series**

**Handley Page Herald**

**AIR-BRITAIN - Founded 1948**



The AIR-BRITAIN Civil Aviation  
Historical Quarterly

No.4 2010

ISSN: 0262-4923

31st YEAR

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The ARCHIVE website may be visited at  
<<http://www.air-britain.com>> where details  
of the Association, membership and other  
current publications will also be found.

ARCHIVE is published quarterly, in March,  
June, September and December by  
Air-Britain (Historians) Ltd., in association  
with *Air-Britain Aviation World*, *Aeromilitaria*  
and the monthly *Air-Britain News*.

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### COVER PHOTO



Featured in the Head-on View article in this  
issue, the Mauboussin Corsaire series was  
built in 3-figure numbers before and after the  
war. One modified survivor is M.127 c/n 181  
F-PCIO seen running up at Meaux 30.5.71.  
(Editor's photo)

**CLOSING DATE for contributions to next  
ARCHIVE: January 24th 2011**

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### HEAD-ON VIEW - WHAT IS IT? Number 38

Here is a Moth-type biplane trainer notable for the inequality of its biplane span. The oldest flying survivor in its country of origin, it is also available as a floatplane. All will of course be revealed in the next issue. (via JM Collection)

### In this issue

Something of a Gallic flavour about this issue? Purely a coincidence of course (nobody mention shared aircraft carriers...!) but at the same time as we planned to begin the new **Farman 190** series by Michel Barrière our Head-on View subject turned out to be the **Mauboussin Corsaire**. As if this was not enough, without thinking, we suggested last time that it would be good to look at the Somers Kendall SK-1's French cousins, which seemed all the more logical once we had opened the Mauboussin/**Fouga** file. At least we are making good use of Jack Meaden's legacy of photos and documentation. Even the Michael West occasional series **Airliners in Warpaint** deals with Air France in the early years of the war.

Thanks also to Derek King and a multitude of supporters, for the **Handley Page Herald** histories which come to an end in this issue. Thanks as usual to Martin Best and his team for drawing up the most informative and complete set of pre-1950 **Chinese Civil Registers** - can anyone add even the smallest fact? Finally we must not forget to thank Michael Magnusson for the continuing **FMA** series and this study of the Pucara.

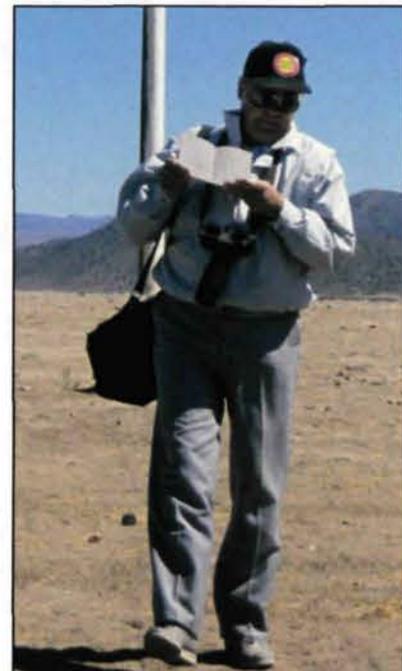
And that leaves us with just enough space to say that we have now made up the pages missing from earlier in the year with an extra four this issue, just in time to wish all readers the best of Season's Greetings and a Happy New Year. See you all in 2011!

### Eino Ritaranta

We are sad to record the death at the age of 79 on 1st October after a long illness of former Air-Britain Finnish aviation Specialist and Archive Special author Eino Ritaranta. His interest stimulated by wartime events and aeromodelling, Eino took his first ride at a Tampere air show in 1946 in DH60X OH-ILD - and was hooked. In 1947 he started flying gliders at Siikakangas and then qualified at Jami. He continued gliding until 1955 but the interest remained active all his life. Poor eyesight prevented an Air Force career or further pilot training but he immersed himself in the civil and military aviation history of his country. Eino must have produced hundreds of articles and contributions to books in Finland and abroad; he always responded to requests and willingly shared information and photos. In 1992 his *Complete Civil Registers of Finland* was published by Air-Britain and in 2000 he co-edited a version in Finnish which included a photo CD. Air Racing was just one of his many interests across the whole spectrum of aviation and his book about F1 pilot William F "Bill" Falck, of Finnish origin, is due for publication this year. Stories abound of Eino's kindness and consideration, particularly told by anyone who visited Finland and met him. Nothing was too much trouble, visits, events and activities were organised, introductions made, memories shared. We met for the last time at Jami in 2007 having spent over 40 years corresponding and exchanging slides and photos. It is fitting to remember him there surrounded by his acquaintances and by aircraft, a true gentleman and a friend that I was proud to know. I am told that he died in hospital with a copy of *Archive* at his bedside and I hope that it gave him as much pleasure as his many contributions gave to me.

Our personal and corporate condolences are due to his wife Terttu and sons Juha and Ismo who are both inoculated with their father's love of aviation. DP

Right: Checking the Race programme at Reno 1988. (JR)



# FMA : from 1945

## The story of Fabrica Militar de Aviones, Argentina

Michael Magnusson

Part 13

**Right:** The former glider A-X2 was exhibited at the Rural show in 1972 painted in Meteor-style camouflage. (M Magnusson)



### The IA.58 Pucara Programme

As mentioned in the previous article, FMA began analyzing various COIN alternatives during the mid-1960s. Not only the increasing activities in Vietnam, but also the beginning of insurgence activity in northern Argentina convinced FMA that there would be a future need for such an aircraft. After briefly considering the single engine configuration mentioned earlier, FMA decided to pursue a twin engine design given the project name IA-58. FMA studied carefully the American OV-10 Bronco which entered service 1966 with similar objectives. Towards the late 1960s the Argentine Air Force began using the IA35 Huanquero and the Beech Mentor for COIN missions, both now painted in camouflage and equipped with various light rockets. Neither was ideal for this type of activity but they did provide valuable feedback.



**Above:** The proof of concept glider A-X2 in its original form with single-seat cockpit and short engine nacelles. (via JM Collection)

**Below:** Glider prototype A-X2 after conversion to two-seat format with longer nacelles and white paint scheme. (V Cettolo collection)

The chief designer was again Hector Ruiz of IA-50 Guarani fame assisted by Ricardo Olmedo. The chief structural engineer was one of the last remaining Germans from the Kurt Tank era, namely Rudolph Freyer. The general layout with twin engine low wing T-tail design was frozen during 1966. Early in 1967 the project design was approved by senior officials. They decided to proceed carefully by first exploring an initial prototype without propulsion simply to test the aerodynamics of the general design, hence in 1967 FMA began building a single seat glider. This was towed by a DC-3 (TC-27) on its maiden flight on 27th December 1967. The "IA58 Glider" with serial A-X2 was piloted by legendary FMA test pilot Roberto Starc. He had completed work at the test pilots' school at Edwards Air Force Base in 1965 during which he flew T-33, T-38, MB-57, F-104 and B-26. By March 1968 it had completed 33 flights, mostly flown by Roberto Starc and Jose Videla. The glider was then modified to a two-seater and painted white, various other modifications were made as well. It flew again on 25th July 1968, again towed by "TC-27". Meanwhile a Bronco visited Argentina in November 1967 and this was carefully studied and flown in Cordoba. The glider A-X2 made its last flight on 8th May 1969 having completed 104 flights and 79 hours. It was then modified and repainted green & grey to be used for static exhibitions. One of its last exhibitions was the Rural 1972 show in Buenos Aires.



IA50 Guarani, the French had strong relations with FMA. But FMA decided anyway to equip the prototype with two 840shp TPE-331-03Hs and these were duly purchased in the US together with three-bladed Hamilton-Standard propellers and these were installed on the prototype also marked "A-X2". Roberto Starc took it up on its maiden flight on 20th August 1969.

Now came the important decision on the choice of engine. An early favorite was the Garret TPE-331 although with its approx. 900shp at this time it was felt as being a little too weak. Garret offered to develop a more powerful version as did Turboméca who were advocating an improved Astazou XIV (then on the Jetstream). Obviously due to the



**Right:** Another view of the glider A-X2 in its grey-green camouflage at Rural in 1972. (V Cettolo collection)



**Above Left:** The first prototype, confusingly also numbered A-X2, originally flew with Garret TPE-331 engines. (via JM Collection)

**Above Right:** Later re-numbered AX-01 the first prototype is shown with Astazou engines at Ezezia on 14.10.72. (Rolando Grasso)

**Left:** AX-01 in Astazou form, flying over Cordoba. (A Marino collection)



On 10th of October 1969 it participated in an airshow at Cordoba celebrating the 42nd anniversary of FMA. At the same time, the last overhauled Gloster Meteor at FMA made a display as did an IA-50 Guarani. The prototype continued its development flying in 1970, but in May that year its serial was changed from "A-X2" to "AX-01". Meanwhile construction began of a second prototype. This was equipped with the French Astazou and completed its first flight on 15th September 1970 with serial "AX-02". During 1970 it received its final name "Pucara" continuing the tradition of using local Indian tribal names. By now FMA decided to go with the French engines and AX-02 was flown in a C-130 (TC-63) to Pau in France for further tests in June 1971. Meanwhile work began to convert AX-01 from Garret to Astazou in 1971.

A third prototype, AX-03, was begun and this was the first with armament, it flew on 8th December 1973. In the following year AX-02 was grounded on 20th November 1974 to be used for structural tests.

Series production was now launched with the objective to produce 100 aircraft according to a directive of March 1974. The Air Force picked a new serial range for the Pucarás, the Huanqueros had been "A-300" series and the old Northrop 8A-2 "A-400" series so thus Pucarás used the "A-500" series. The first production Pucara, A-501 (c/n 001) was completed late in 1974 and officially rolled out on November 15th. This was followed by A-502/504 in 1975, A-505 in 1976, A-506/512



**Above:** The second prototype Pucara AX-02 which was the first to fly with the Astazou engines, seen at Moron on 9.8.74 shortly before it was grounded for structural tests. AX-03 stands behind. (Horacio Gareiso)

**Below:** All three prototypes lined up at Moron on the same day, 9.8.74. (Horacio Gareiso)

in 1977, A-513/524 in 1978 but -521 was not finished, and A-525/538 in 1979. As can be seen production built up slowly so by the beginning of 1980 about 37 Pucarás had been finished. In 1980 A-539/550 were completed and in 1981 A-551/569. These were delivered to "Grupo 3 de Ataque" at III Brigada Aerea in Reconquista replacing the Huanqueros. However by 1982, they had also deployed IA-58s to IX Brigada in Comodoro Rivadavia.

FMA had high hopes of exporting the Pucara, and already in March 1975 it had been demonstrated to the Bolivian Air Force. But the real international debut for the Pucara was the Paris Air Show in June 1977. A-507 was disassembled and transported in a C-130 (TC-67) to France whilst AX-03 equipped with a Bendix weather



**Right:** The rolling-out ceremony of the first production Pucara A-501 c/n 001 at FMA Cordoba on 15th November 1974. (A Marino collection)



radar actually flew all the way routing Cordoba-Porto Alegre-Recife-CapeVerde-Las Palmas-Seville-Pau (Turboméca factory). After the show, AX-03 continued various tests in Pau and returned in mid-July to Argentina. Unfortunately AX-03 was lost in a fatal accident on 4th October 1977 in Cordoba. Thus a production aircraft, A-509 (C/n009) was selected as a new development airframe and given serial "AX-04". This was later followed by A-519 which, equipped with a Bendix radar, did testing in 1978. In 1978 this was exhibited at the Farnborough Air Show as "A-19" just to confuse everyone as to how many Pucarás actually were flying. However A-519/A-19 was lost in an accident on 1st June 1979 killing two FMA pilots. The prototype AX-01 was deactivated in 1979 after completing its last flight in late 1978. It was also repainted in camouflage and used for static displays around the country.

Basic dimensions of the Pucara are the following: length 14.25m span 14.5m, height 5.36m, wing area 30sqm, two Astazou XVI of 1020hp each with three bladed Hamilton Standard propeller, empty 4000kg, max take-off weight 6800kg. Max loads +6 and -3 Gs. Service ceiling 10,000m, max level speed 485km/h, take off run 300m, internal fuel tank capacity 1260 litres, external tanks of 1730 litres available making a max ferry distance of about 3400km. Both crew members have 0/0 Martin-Baker ejection seats. Armament consisted of two Hispano Suiza 20mm cannons with 270 rounds each and four Browning 7.62mm machineguns with 900 rounds. It had three external hard points capable of holding 1500kg in total. Thus it could be fitted with 125kg bombs, 70mm rockets, a single 1000kg bomb, napalm, 20mm or 30mm gun-pods, ECM-pods, incendiaries, camera-pods etc.

In 1978 the 25th production aircraft was selected as a prototype with 30mm DEFA533 cannons and it flew as such May 1979 as "AX-05". It was exhibited at the 1979 Paris Air Show transported in a C130. This soon became known as "IA-58B" and became the standard production model.

Meanwhile FMA again explored a TPE331-equipped Pucara and built another prototype, AX-06 (Ex A-539?) with Garrett engines. This flew on 16th October 1980 and was grounded in late 1984, the project being cancelled for lack of funding. It became briefly known as the IA-66. FMA felt that the Garrett engine would be more attractive in the export market due to its widespread use. The fuselage was used in the production of c/n 107 (A-607).



**Above:** AX-04 was c/n 009 formerly A-509 which replaced AX-03 as the development airframe and was wearing this distinctive red/white colour scheme at Aeroparque in May 1986. (Horacio Gareiso)

**Below :** A-507 was selected to appear at the 1977 Paris Salon along with AX-03. (N Mendiburu collection)



**Above. Right:** The first prototype AX-01 is now used for static exhibition and is seen here in downtown Buenos Aires in November 1981. (Horacio Gareiso via A Marino collection)

**Right:** Wearing a bogus serial A-19, c/n 019 was actually A-519 and was the Farnborough Air Show demonstrator in 1978, shown here about to land at the exhibition. (M Magnusson collection)





**Left:** Being positioned in the exhibition area at the 1979 Paris Salon at Le Bourget, AX-05 wore a non-standard camouflage scheme. This example represented the new improved IA-58B production model. (ALPS)



**Above:** The FMA Flight Test Department's own Pucara A-561 on approach to Cordoba in August 2008. (Michael Magnusson)

**Below:** The first export customer for the Pucara was the Uruguayan Air Force, FAU 223 illustrated. (V Cettolo)



During 1982, the flight test department at FMA was allocated A-561 as its development airframe and it is still in service, painted in a camouflage scheme. AX-05 however was grounded in December 1982.

The first export customer was neighbouring Uruguay which signed a contract on 12th November 1980 for six Pucarás. The Argentine "Banco de la Nación" financed 80% of the deal. These would be based in Durazno. For this contract, FMA assigned following aircraft: A-542 (became FAU-220), A-546 (FAU-221), A-543 (FAU-222), A-544 (FAU-223), A-547 (FAU-224) and A-548 (FAU-225). These were all delivered in 1981. The Uruguayans would later buy a few more partially replacing original batch :A-605 (FAU-221, 2nd use), A-574 (FAU-226), and A-605 (FAU-227) all delivered 1998-99. Finally Argentine AF lent A-571 as FAU-226 (2nd use) in 2002. Just recently the Uruguayans decided to take the three Colombian AF Pucarás for spares. Only one has been lost in a fatal accident, FAU-225 on 22 July 1993. The original FAU-221 was grounded on reaching 2400hrs and it was cheaper to replace it rather than overhaul the airframe.

The second foreign user was the Colombian Air Force which received three which were donated by the Argentine government in 1989 for use against insurgent activity. The three selected airframes, A-578, A-579 and A-580 became FAC-2202, 2203, 2201 respectively. They were based at Apiay, 17km from Villavicencio. But the Colombians very soon had problems keeping all three flying due to logistical challenges from FMA. They soon got Broncos from USA, despite various attempts to improve the situation they were grounded in 1998. An idea surfaced to paint one Pucara for the Air Force museum in Bogota, thus FMA painted up A-518 as "2201" but it was never delivered and remained stored in Cordoba.

Final export customer was Sri Lanka who purchased four IA-58s to be used against the Tamil separatists. The agreement was announced in December 1992 and valued at \$11m USD. These would be brand new aircraft selected from the production line, A-600 to A-603 where chosen. First two were delivered disassembled in the Argentine AF L-100 LV-APW in December 1992 and January 1993. FMA technicians traveled to Colombo to assemble and test the aircraft. These became "CA-601" and "CA-602". These were based at Anuradhapura & Vavuniya in the north of the country. But since adding 6 and 2



**Left, above:** The second export customer was the Colombian Air Force. FAC 2203 was one of three used. (V Cettolo collection)

**Left:** A line-up of nine Pucarás at Cordoba in August 1984, the first three being A-591, 588 and 592. (Carlos Ay)

**Right:** CA-604 was the fourth Pucara exported to Sri Lanka, being delivered in 1993. It was written off in a mid-air explosion in March 1997. (V Cettolo collection)

**Below, right:** A-518 still painted in Mauritanian desert camouflage at Aeroparque in July 1983, several years after the order was frustrated. (H Gareiso via A Marino)



makes 8 which is an unlucky number in Sri Lanka, CA-602 was soon reserialled "CA-605". The third, CA-603, and fourth, CA-604 were delivered spring 1993. The Pucarás were used in many operations against the Tamils but, on 14th July 1995, CA-601 was brought down by a SA-7 missile killing its pilot. On 16th March 1997 CA-604 exploded after take off from Anuradhapura and the pilot ejected. Continuing problems with spares support from FMA forced the grounding of the remaining two aircraft in 1998, and CA-605 was eventually transferred to their museum whilst CA-603 is a gate guardian at Anuradhapura.

Another potential export customer was Mauritania which agreed to buy four in 1977 and FMA proceeded to paint up c/n 013 as 5T-MAB in desert camouflage, but last minute problems prevented the order from being fulfilled and this aircraft entered service with Argentine AF still in desert colors as A-518 ! Other intended aircraft were c/n 014 , 017 and 018 and registrations 5T-MAA, C, D but as only 013/5T-MAB was painted up in desert livery this slightly confused the possible tie up.

Other discussions were held with Venezuela for 24 (including licence production), Dominican Republic, Iraq 20 (A-534 was flown in a C130 to Iraq for demonstration August 1980), Iran, Bolivian AF 20 or 12, and Paraguay 8.

But ofcourse it was in the Falkland conflict that the Pucara would be tested for the first time in battle. As mentioned earlier, by early 1982 FMA had completed about 70 Pucarás. Much has been written about the Pucarás in the Falklands so in this article it will just be covered briefly. Over 40 Argentine AF Pucara pilots were based in the Falklands along with about 50 technicians and another 10-15 senior staff. The first 4 Pucarás were ferried over on 2nd April followed by 6 on April 26th, 2 on April 27th, 4 on May 15th, 2 on May 27th, 3 on May 28th and final 3 on May 29th making 24 in total. Of these, A-531 & A-511 were shot down on May 21st and an SAS unit destroyed A-502/520/556 on May 15th, A-529 & A-552 were also damaged. No Pucarás were repatriated and all were abandoned around the Falklands. Various were taken to the UK, and one, A-517 was registered G-BLRP on 3rd December 1984. Another three, A-515, A-533 & A-549 were given RAF serials ZD485-487 for evaluation. ZD485 is currently exhibited at Cosford museum and ZD487 at the Imperial War Museum.

Needless to say, the Argentine AF had seriously depleted its inventory during the Falklands conflict and this included its Pucara fleet which numbered about 35 in 1983, 25 in Reconquista and 10 in Com. Rivadavia, plus a few at FMA. By 1984 there were 29 in Reconquista and 6 in Com. Rivadavia. By 1991 all were at Reconquista and that is how it has remained until today.

In 1983 the material command made a thorough evaluation of its current fleet and part of the re-equipment plan was to keep the IA-58 production going, thus 12 (A-581/594 skipping A-586/587) were incorporated in late 1982/83 and 1 in 1986. At the same time Argentina passed from a military government to a democratically elected one under Dr Raul Alfonsín who needless to say would not devote as many resources to military re-equipment. This showed in the production of the Pucara because by 1986 it ground to a halt with various airframes half finished. FMA was then awarded new funding so that A-596/599



**Above:** A-532 in Falklands camouflage with special yellow band marking on the wings and fin. (V Cettolo)

**Below:** The single-seat conversion IA-58C, previously A-542, airborne as AX-06. (V Cettolo collection)



were completed in 1990. As mentioned earlier, A-600/603 were allocated to Sri Lanka in 1992. A-604 was delivered 1996 as A-504 to Argentine Air Force and A-605 was delivered to Uruguay as FAU221 and these two became the last Pucarás to be completed. A-606/608 were never finished although an attempt was made in 2005 to complete them. Total production thus became one glider, three prototypes (c/ns PO1-PO3) and 104 (c/ns 001/105, except 087 which was fatigue specimen) production aircraft with another 3 (c/ns 106/8) half finished.



**Left:** Pucarás A-524 and A-582 in flight along the River Parana in basic 1980s-1990s livery. (via V Cettolo)

**Below (Top to bottom):** A-534 in new low-visibility paint scheme with CruzEx 2006 logo on fin at Reconquista in July 2008.

(Michael Magnusson)

A-558 in Pucara 25th anniversary colours during a 19 aircraft formation flypast at Reconquista in October 2000. (Michael Magnusson)

A-585 arriving in spectacular fashion at the EAA convention, Gral Rodriguez, in March 2009.

(Michael Magnusson)

The final version explored by FMA was the single seat **IA-58C**. Based on the experience in the Falklands, it was decided to develop a more powerful single seat Pucara in 1984. The fuselage of c/n 042 was used to be converted to single-seat cabin and it was presented as a mockup in October 1984. It was equipped with 30 mm canon as well as an improved avionic configuration, air-conditioned cabin (still a problem in the standard version, cockpit gets very hot) and cameras. FMA struggled to get official funds for the project, thus they used the old IA-66 designation to "hide" the project from official funding sources, as well as using the "old" AX-06 serial. It first flew on 30th December 1985. The tests were successful and the Air Force wanted to convert existing Pucarás but lack of funding stopped the project and the last flight of AX-06 was on 30th November 1989. Equipped with wings from A-564 it was and still is preserved at Rio Cuarto maintenance facility.

In 1995 FMA was privatized and taken over by Lockheed Martin who renamed it "Lockheed Martin Argentina SA" (LMASA). They studied various upgrades of the Pucarás in the late 1990s including swapping out engines. However once again lack of funding reduced their ambitions and the Argentine financial crisis of 2001-2002 completely stopped all design work. Finally it was decided to launch a less ambitious modernization program for the Pucarás and the first, A-577 was completed in 2004 but A-524 was the first returned to the Air Force in October 2004. After that followed A-504, A-534, A-567, A-580, A-582, A-583, A-585, A-588, A-594, A-598 and others, and these became known as "IA-58Ds". The programme involves a reinforced structure to increase service life, as well as improved avionics. As part of the programme the aircraft are painted in low-visibility grey with no serials on the aircraft except inside nose-wheel doors!

Today about 35 Pucarás survive at III Brigada Aerea at Reconquista completing over 35 years of service along with a single one, A-561, based at flight test facility in Cordoba. Last budget year they flew about 2,300 hours, and the Pucara fleet has flown over 130,000 hours at Reconquista. About 20 are in operation and 10-15 rotate through maintenance. Major checks every 2,100 hours are done in Cordoba and at the same time they have been upgraded to IA-58D standard. The Astazou engine is overhauled every 1,200hrs also in Cordoba and this is becoming a real challenge and will probably determine how much longer the Pucara can fly. Parts and support are becoming increasingly difficult to obtain and more than once they have evaluated re-engining the aircraft but at this stage it is probably not worth it. Other serious complaints are lack of air-conditioning in the cockpit and no radar. The unit receives its newly-qualified pilots from Mendoza and conducts its own training at Reconquista, unfortunately no simulator is available. The main mission these days is supervising the border against Paraguay and Brazil to prevent smuggling. Every year many light aircraft are caught crossing the border with drugs or cigarettes. The unit works closely with a Brazilian AF unit across the border. The local pilots speak about the Super Tucano as a possible future replacement but there is no budget for any new aircraft so they will have to find ways to keep the old Pucarás flying.



#### References & further reading:

The most comprehensive book written on the Pucara is the 180 page "FMA IA-58 Pucara" by Avialatina (J.Mosquera, G.Gebel, H.Claria, V.Cettolo, A.Marino & G.Posadas) in 2005. This book is now sold out and a new edition is planned for 2011. Another recent one is "Series Fuerza Aerea #18 IA-58 Pucara" by Juan Cicales and Santiago Rivas in 2010 with very nice side-view drawings for the modelers (Airfix has done a 1/72 model of the Pucara and various decals sheets are available in Argentina).



# The Mauboussin Corsaire

HEAD-ON VIEW No.36



**Right:** The first successful Mauboussin design was the PM-X, or M-10, a single seater powered by a two-cylinder ABC Scorpion engine. (via JM Collection)



Pierre Mauboussin began building gliders, light aircraft and floatplanes in 1922 with various partners. His first successful design, in 1928, was the M.10 single-seat high-wing cabin monoplane. This was also known as the P.M.4 or the PM-X as it was designed in co-operation with engineer Louis Peyret. The M.10 first flew on 7th December 1928 powered by a 34 hp ABC Scorpion 2-cyl horizontally-opposed air cooled engine. It was designed for simplicity and economy, with a rectangular section fuselage, tapered cantilever wing with full span ailerons and a tall fin and rudder, all covered in varnished plywood. The horizontal tail surfaces were set very low down on the rear fuselage with a tail skid beneath and a split-axle main undercarriage below the cockpit.

Only one example was built, being registered F-AJGG on 2nd August 1929, and this proceeded to set several world records for altitude and distance and duration in the under 250kg (440 lbs) class, usually flown by Charles Fauvel. As the H.10 (for *hydravion*) equipped as a floatplane it first flew on 23rd November 1930 and again captured under 250kg (550 lbs) records for speed, altitude and distance. F-AJGG was damaged in an accident on 24th October 1932 and did not fly again.

Mauboussin M.10 dimensions and performance:

Span:	10 m	30ft 6in.
Length:	4.4 m	14ft 5in.
Height:	1.85 m	6ft 1in.
Wing Area:	10 m <sup>2</sup>	108 ft <sup>2</sup>
Maximum speed:	145 km/h	90 mph
Cruising speed:	125 km/h	77.6 mph
Landing speed:	65 km/h	40.3 mph

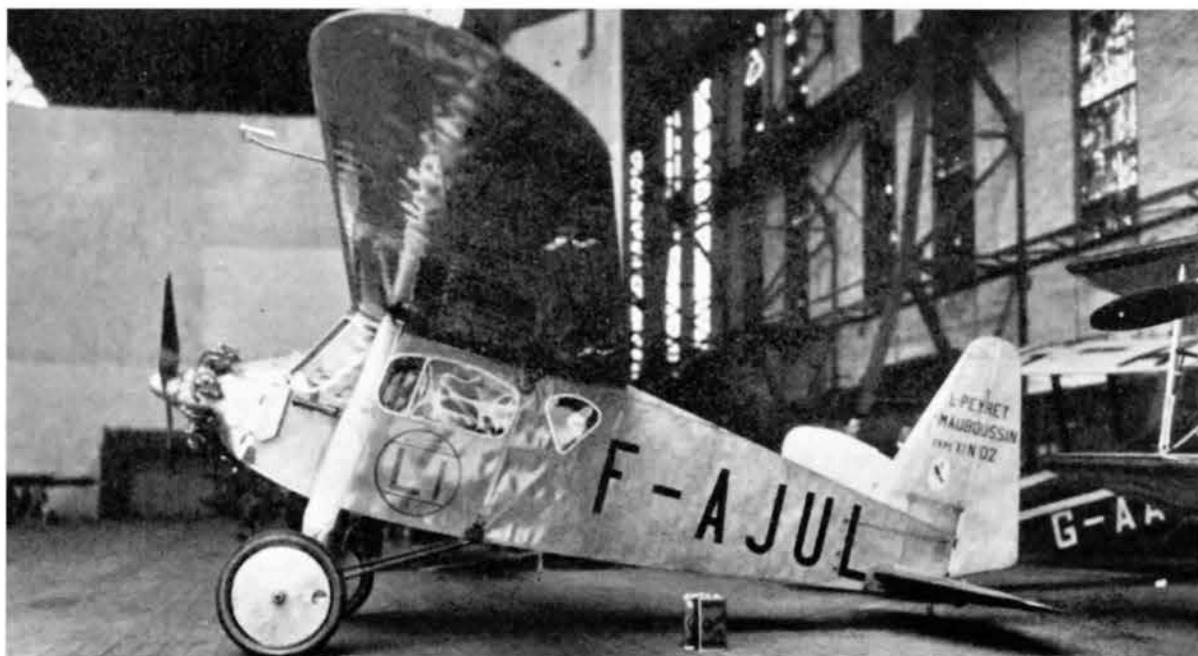


**Above:** The floatplane version of the PM-X, known as the H-10, complete with registration F-AJGG. (via JM Collection)

The next development was the M.11, or PM-XI, a side-by-side two seater based on the earlier design but with a proportionate increase in size and power. The wing span was now 11.75 m (38ft 6in.) and the fuselage length 5.5m (18 ft), the engine being a 45 hp 9-cyl Salmson 9.Ad radial. Although similar in appearance to the M.10 one clear difference was the wide track undercarriage linked to the forward wing spars by vertical struts. The wing could be pivoted to reduce storage space.

**Right:** The PM-XI was basically a scaled-up version of the PM-X, a two-seater with a 45hp Salmson radial. This example, F-AKFD, was c/n 01 but it was not the first to fly of the two built. Notable features include the undercarriage struts, low horizontal tail surfaces and the typically tall fin and rudder of Mauboussin designs. (via JM Collection)





**Left:** The Peyret-Mauboussin PM-XI-02 F-AJUL, with 45hp Salmson 9.Ad radial and metal propeller, was entered in the 1930 tour of Europe as "L1". Seen here with a British DH.60 Moth entry it did not manage to complete the tour due to a magneto failure.  
(via JM Collection)

**Below:** F-AJUL did however complete some epic long-distance flights. It is pictured here at Paris-Orly with pilot René Lefèvre at the time of the Paris to Saigon flight of December 1932. The fuselage of the aircraft still exists and is stored in the Castel-Mauboussin Museum at Cuers-Pierrefeu near Toulon.  
(via JM Collection)



The prototype, F-AKFD c/n 01 was ordered by the state Service Technique but the second aircraft, F-AJUL c/n 02, was actually the first to fly, on 9th July 1930. After having its wooden propeller replaced by a Levasseur metal version, the PM-XI-02 was entered for the German Aero Club 29-stage tour of Europe as "L1", flown by Charles Fauvel and Jean de Permangle, but did not complete the course.

The aircraft certainly was not a failure however as F-AJUL was flown to Madagascar via Cairo and back via the Belgian Congo, Nigeria, Morocco and Spain in 1931 by René Lefèvre, covering 35,000 kms at an average speed of 120 km/h (74.5 mph). In December 1932 Lefèvre flew the same aircraft 10,500 kms from Paris to Saigon in 10 days and back again in February 1933 in eight days. For these long-distance trips the aircraft was flown solo with extra tankage in the cabin.

Mauboussin then changed his design strategy to that of low-wing open-cockpit monoplane. This was the PM-XII, also known as the M.12, and which became the M.112 - the forerunner of the Corsaire series. The earlier principles still applied however. The fuselage was rectangular in section, the fin and rudder tall and of narrow chord, but the horizontal tail surfaces were now raised to the top of the rear fuselage. The wing was in three peices, the centre section which contained two 30-litre fuel tanks, was only slightly tapered with the detachable outer sections having full span ailerons and tapering to rounded tips. All surfaces were

again ply-covered. The main undercarriage was of two separate legs which were attached to the extremities of the centre-section front spar. Power was provided by the same 45hp Salmson 9.Ad as found on the M.11 and the aircraft was flown from the rearmost of the tandem open cockpits.

The PM-XII first flew in September 1931, was registered F-ALVX early in 1932 and the designation changed to M.112 as which it first flew on 5th August 1932. Mauboussin is then believed to have established a company in his own name. As a result, later models did not have the Peyret prefix, indeed Louis Peyret died prematurely on 23rd February 1933.

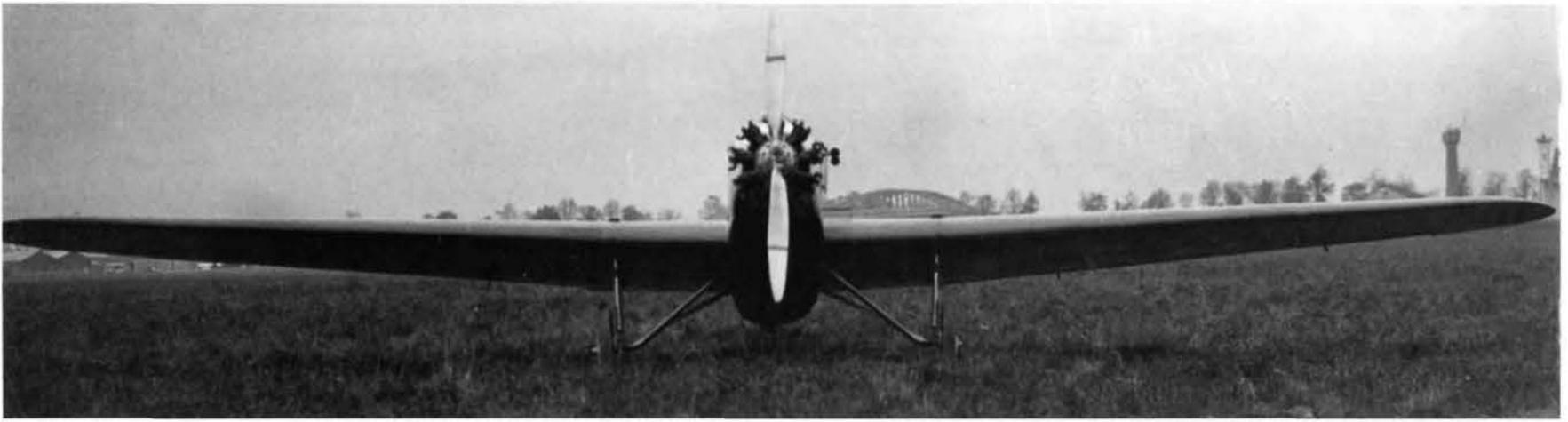
Mauboussin M.112 dimensions and performance:

Span:	11.75 m	38ft 6in.
Length:	6.4 m	21 ft
Height:	2.86 m	9ft 4in.
Wing area:	14.78 m <sup>2</sup>	155ft <sup>2</sup>
Maximum speed:	155 km/h	96.75 mph
Cruising speed:	135 km/h	83.8 mph
Landing speed:	60 km/h	37.26 mph

The M.112 design continued to be developed in typically French fashion, by utilising different engines but retaining the same basic wing and fuselage structure. The type found a ready market as a trainer and



**Left:** A view of the participants in the Europlafug 1932 at Berlin - Staaken airfield. In the foreground is the Mauboussin M.112 prototype F-ALVX with other French entries including two Potez 430s. The next row has Czech entries, a Breda 15S and three Praga BH-111s. In the background is the Zeppelin hangar.  
(via JM Collection)



**Above:** Head-on view of a Mauboussin, probably the M.12 (PM-XII), with Salmson radial and metal prop. The wide-track undercarriage is attached to the outer edge of the centre-section and the 11.75 metre span tapered wing became standard on most Corsaire models. (via JM Collection)

**Below:** F-AMET was a Zodiac-built M.112, c/n quoted as 4, which was operated by the Aero Club de Picardie whose insignia was applied below the cockpit. The rear cockpit 'door' is hinged open to allow the pilot better forward visibility when taxiing. (via JM Collection)



tourer but Mauboussin had no large scale production facilities of his own and short runs of his designs were to be built by Zodiac at Puteaux, Bréguet at Vélizy and Couzinet at Levallois. Engine, and therefore model, changes help to confuse the numbers of each type built, though at least six M.112 examples are readily traceable. It led naturally to the M.120 series known as the Corsaire.

Slightly longer than the M.112 at 6.8m (22ft 5in.), the **M.120** Corsaire was fitted with a 60hp geared Salmson 9.Adr engine. This model first appeared in 1932 as F-AMHT c/n 104 and was the first Mauboussin design to incorporate the model year into the designation, being known as the M.120/32. The complexity increased when it was also offered with a 60hp Hirth HM60 4-cyl in-line engine, making it the M.120H. On

60hp the M.120 was capable of a maximum speed of 165 km/h (102.4 mph). In course of time it was followed by the M.120/34 which had a three-blade propeller, ten examples of which were built by Bréguet such as F-ANGH c/n 111. Later still came the M.120/37 which actually became the highly-successful M.123.

A further increase in performance was achieved with the **M.121** which had a geared and supercharged Salmson 9.Ad of 65-80hp or a 75-80hp Pobjoy R (as the M.121P), raising the maximum speed to 180 km/h (118 mph). One example of the latter was F-AMCV c/n 103. In a switch from open cockpits, Mauboussin developed this model into the M.121/35 Corsaire Major which had an enclosed tandem cockpit with a backward-sloping front screen. With dual controls, but flown solo from

**Right:** On display at the Paris Salon of 1932 was this Zodiac-built M.121 fitted with a cowled 75hp Salmson 9.Ad and a smart set of wheel spats. This example remains unidentified as the earliest known pair were both registered as M.121P models with the Pobjoy R engine. (via JM Collection)





**Left:** Few photos were found of the M.121/35 Corsaire Major model, only three examples of which were built by Zodiac at Puteaux. This model featured enclosed cockpits with built-up rear decking and backward sloping windscreen, a 75hp Pobjoy R with two-blade propeller, and mainwheels fitted with low pressure tyres and brakes mounted on single unbraced oleo struts. (via JM Collection)

**Below:** A standard Fouga-built M.123, possibly F-ARDD c/n 146 which was used by the state-owned Aviation Populaire organisation. (via JM Collection)



the rear seat, this rather ungainly-looking model achieved 202 km/h (125.5 mph) with a 75hp Pobjoy R Cataract and cruised at 179 km/h (111 mph). Prototype was F-AMOY c/n 108 and four examples are known.

Mauboussin's earlier success in producing record-breaking aircraft returned with the **M.122**. In 1934 an M.121, F-ANGL c/n 115, was converted with a Salmson 9.Aers for Maryse Hilz who set a new women's altitude record of 7,388m (24,239 ft) in it on 24th September 1934.

In 1937 the M.120/37 morphed into the **M.123** Corsaire. This was basically the Salmson 9.AD version with a three-bladed propeller, slightly longer and lower but with the same wing. The prototype, F-APQA c/n 122, first flew in December 1937 and received its CofA on 10.2.38. It is thought that some 65 examples were built in all, 60 as a result of a government order. Fifty of these were built under licence by the Fouga company at Aire-sur-Adour and mostly registered in the F-APQx and F-ARDx blocks.

In performance terms the M.123 achieved the following during its certification tests:

- > Climb to 1,000 metres (3,280 ft) in 8 minutes
- > Climb to 2,000 metres (6,560 ft) in 19 minutes
- > Climb to 3,000 metres (9,840 ft) in 33 minutes
- > Clear an 8m (26ft) obstacle 195 metres (640 ft) from start of run
- > Reached 37.4m altitude (122 ft) at 600m (1,968 ft) from start of run.

It also met the requirement for an economical tourer in addition to being a basic trainer.

Three further versions were proposed. The M.123T with a 60hp Train engine; the M.123R aerobatic model with a 60hp Regnier; and the M.123M with a 70hp Minié and square wingtips. None of these were actually built. A more successful development was the M.123C which utilised a 65hp Continental A65-8F and some ten survivors were thus re-engined after the war.



**Left:** This M.123 Corsaire is clearly fitted with flaps inboard of the ailerons and has a tailwheel in place of the standard tail skid, possibly a postwar modification. The cowled Salmson radial has the usual three-blade propeller fitted and the broader chord rudder had become standard. (via JM Collection)

Mauboussin M.123 Corsaire dimensions and performance:

Span:	11.75 m	38ft 6in.
Length:	6.86 m	22ft 4in.
Height:	2.6 m	8ft 3in.
Wing Area:	14.78 m <sup>2</sup>	155 ft <sup>2</sup>
Empty Weight:	362 kg	798 lbs
Maximum Weight:	620 kgs	1,366 lbs
Maximum Speed:	160 km/h	100 mph
Range:	550 km	341 miles

A number of other models followed from 1937 until the Occupation but numerically speaking these did not amount to more than about ten aircraft in total. The M.124, M.125 and M.126 were all reduced-span and height versions in comparison with the basic M.123. Span was 10.35m (34 ft), height 2.01m (6ft 7in.) and wing area 13.8m<sup>2</sup> (148.5ft<sup>2</sup>). The **M.124** had covered cockpits with a long transparent rear fairing and was powered by a 60hp Aster 4A with a two-blade propeller, having been converted from an M.123 as F-BAOF. The **M.125** reverted to open cockpits and a 75hp Régnier 4E-O in-line engine. The **M.126** at first used an 80hp Salmson 5AP-01 but later adopted a 105hp Hirth on becoming the Bison PG-2, see below.

The next three models marked a return to the standard 11.75 metre wing coupled with a 7 metre fuselage. Only two examples are known of the **M.127**, built in 1940 and powered by a 95hp Régnier 4E-O. One of these, F-PCIO c/n 181 was converted to a model M.129 in 1948 having survived the war, but in 1955 reverted to M.127 status and is still in existence. The **M.128** appears to have been a M.124 in style with a 95hp Mathis G4G engine.

The **M.129** was developed from the original M.123M proposal, but with rounded wingtips, and used a 70hp Minié 4DO flat-four engine. Used as an observation aircraft by the French Army during the war, the type was in demand post-war as a primary trainer and the M.129/48 model, which first flew on 20th March 1948, was put into production by Fouga who built twenty new examples, other survivors being converted in addition.

There was also to be an M.130 short-span sports aircraft powered by a Pobjoy R but this was not built. Instead the designation became used on the **Mauboussin-Beaujard 130** F-PCIZ c/n 01 which was converted from M.129 c/n 226 and fitted with a 100hp Hirth HM504A. This in turn was converted in 1995 into the Alexandre Dewoitine D.501 F-PRJD at La Ferté-Alais.



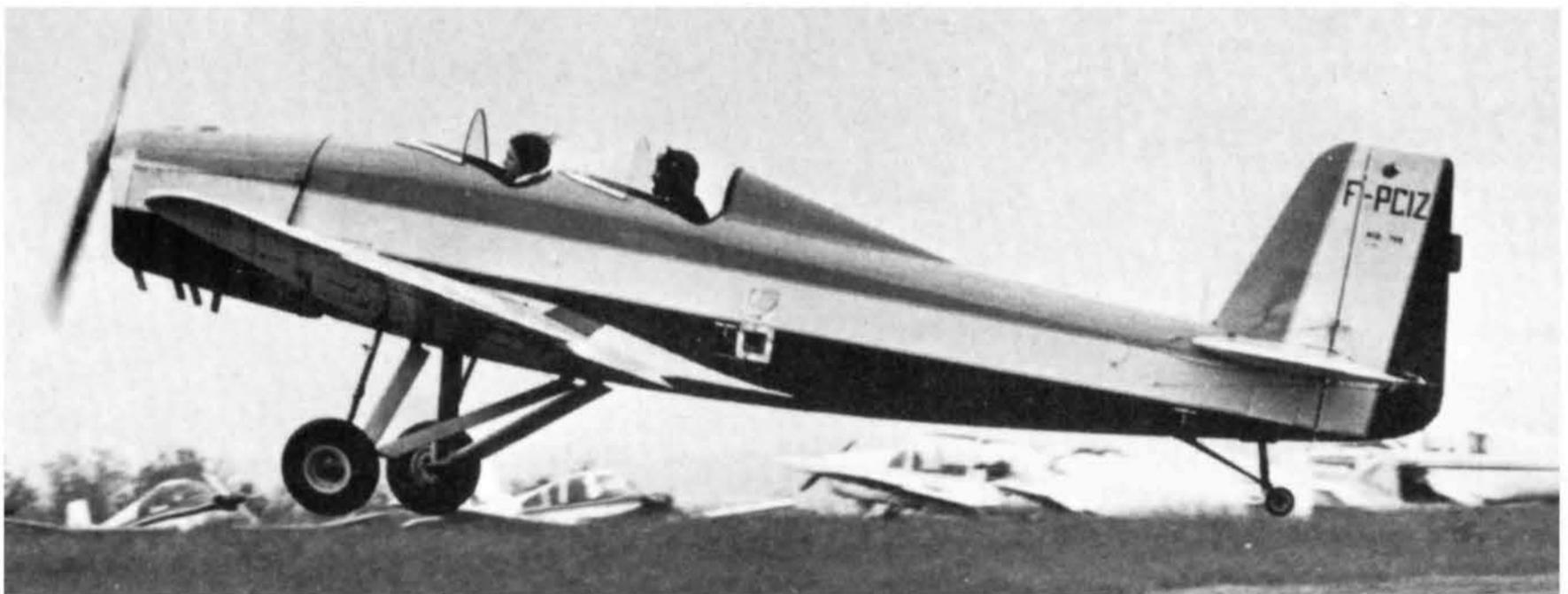
**Above:** Postwar conversions of the M.123 were fitted with 65 hp Continental A65-8F engines becoming the M.123C as seen here with F-PCEK c/n 179. (via JM Collection)

**Below:** A much less common version was the M.125 with a 75hp Régnier 4JO as fitted to this postwar conversion F-BBHL c/n 214. (via JM Collection)



**Above:** F-PCIO is one of the airworthy survivors having been built as an M.127 but converted to M.129 status before reverting to M.127 with a 95hp Régnier. Other modifications are visually obvious, in particular the large rounded wind-screen on the front cockpit and the Stampe screen on the rear cockpit. (via JM Collection)

**Left:** One of the Fouga-built postwar M.129/48 examples, F-BCIS with the 70hp Minié flat-four engine fitted with fully-cowled cylinder heads. (via JM Collection)



**Above:** The Mauboussin-Beaujard 130 F-PCIZ c/n 01 was converted from an M.129 c/n 226 and fitted with a 100hp Hirth HM504A. Seen here active at La Ferté-Alais, it has since been the subject of a further conversion and is now the Alexandre Dewoitine D.501 F-PRJD. (via JM Collection)

Two other post-war conversions are worthy of mention. The Aero Club des Métallurgistes at Persan-Beaumont, which operated several Mauboussins, converted c/n 178 F-BBHT between 1955 and 1957 to metal skinning and fitted a 145hp Régnier 4L-O 4-cyl inverted in-line engine. In this form it became the **Métalair 1** c/n 1 F-PCNX. An M.126, F-BBHQ c/n 182 was modified in 1959 by Pierre Grenet with reduced-span square-tipped fabric-covered wings, a 105hp Hirth 504A 4-cyl engine and a large blown canopy covering both cockpits. In this form it became the Grenet **Bison PG-2** F-PBHQ c/n 01.

A number of Corsaires still exist in France, although the type did not find favour elsewhere. Eight examples are to be found in various museum collections, two of which are believed airworthy and are still registered along with a further four listed as current in the CNRA F-Pxxx series.



**Above:** The Métalair 1 F-PCNX converted from an M.123. (via JM Collection)  
**Below:** Bison PG-2 F-PBHQ was formerly an M.126. (via JM Collection)



**Left:** A 1946 photo with F-BAOF in the foreground and military M.123 "981" behind. F-BAOF was originally and M.123 which became the Aster-engined M.124 c/n 01 in 1937. Even later it was M.123C F-PAOF. Notable here are the squared-off wingtips, the removable canopy and the close-fitting engine cowling. (via JM Collection)

# The Fouga light jets



**Above:** The Fouga CM.8R-13 Cyclone exhibited in the 1949 Paris Salon in the Palais Royal. (Aeroplane via JM Collection)

Following our comment in the last issue that it would be interesting to follow the Somers Kendall SK-1 article with a look at the French light jets of the early 1950s, we began by studying photographs and documents in an attempt to establish the development history of these types. Once begun however, the task seemed to become more complex as sources differed and captions apparently mixed up type names almost at random! What follows is very much an illustrated sketch which we hope will clarify the nature and purpose of the Fouga light jets.

The story begins when Messrs Castello and Mauboussin began work on designs for light gliders during the Occupation. Amongst these was the CM.8-13, a single-seat glider with a 13 metre wingspan. When the Turboméca TR-011 light jet engine was being developed a suitable mount was required for flight testing and the Castel-Mauboussin CM.8-13 was selected.

Now designated CM.8-R13 and named "Cyclone" this became the first aircraft to fly with a French-designed and built turbojet when Leon Bourrieau took it into the air on 14th July 1949 at Aire-su-l'Adour. The test marks F-WFOI, c/n 01, were allocated but not immediately worn and the prototype was followed by c/n 02 F-WFOJ on 23rd March 1950. The TR 011 engine generated 90 kgs thrust at 34,300 rpm and was said to produce a top speed of 160 mph (257 km/h).

Contemporary photographs show a number of variations which doubtless resulted from development work but are often confusing because some are ascribed to the "Cyclone" and some to the "Sylphe" when in reality they appear to be the same aircraft. This becomes clear however when the prototype's history is examined. The aircraft was demonstrated in the UK and also in the USA where it was flown as F-WFOI by Fred Nicole at Miami on 14th January 1950. It was no doubt the enthusiastic American reception given to the aircraft that led the Curtiss-Wright company to insist on the name "Cyclone" being withdrawn due to conflict with its famous engine of the same name. Thus the Cyclone became the Sylphe although the original name appears to have lingered on for some time.

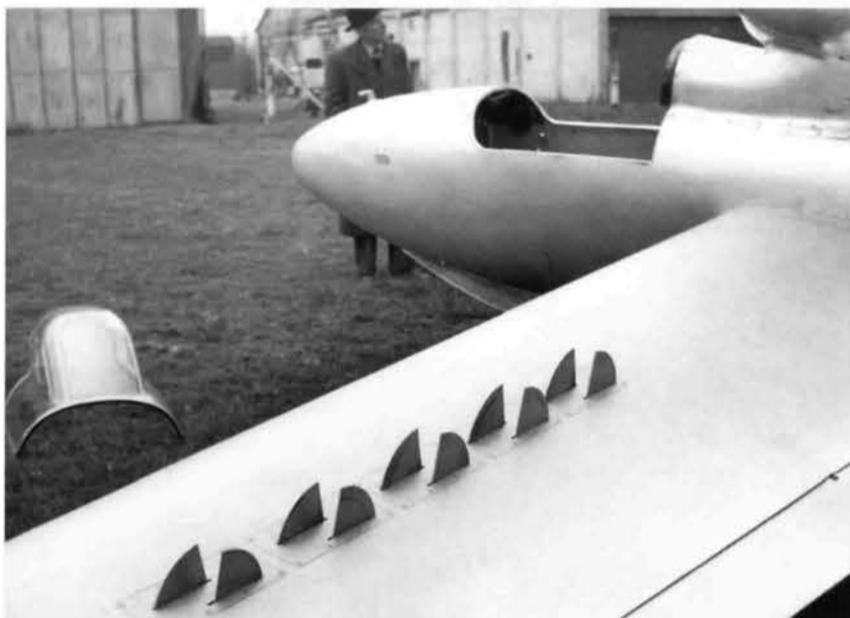
**Centre:** The cockpit of F-WFOI with basic instrumentation; throttle on the left with rpm meter in front of it; the wheel on the right being the flap adjustment. (Aeroplane via JM Collection)

**Right:** Engine start-up required an external power source. Leon Bourrieau ready at the controls. (Aeroplane via JM Collection)





**Above:** The Cyclone on an early flight, devoid of all markings. Compared with the photograph on the previous page the wingtip fairings have been fitted together with elevator mass balances, solid tail bumper and an extended tail cone. The cockpit transparency is shorter here making it appear that the engine nacelle is further back. (Aeroplane via JM Collection)



**Left:** Airbrakes consisted of rotating discs retracting into the thickness of the wing. Note the one-piece canopy alongside. (Aeroplane via JM Collection)

**Below:** Prototype flying as F-WFOI with the name Cyclone and with tri-colour tips to the tailplane. A single wheel is incorporated into the landing skid ahead of the non-retractable mainwheel. (Ets Fouga & Cie via JM Collection)

The second prototype F-WFOJ became known as the Sylphe II and is sometimes said to have been powered by the later Turboméca Piméné engine. As the Piméné is also said to have been first flown on the Cyclope later in 1950 this is more likely to have been simply a later substitution. The aircraft were, after all, test beds and many changes could be expected. There was even some confusion about the role of the aircraft, this being variously described as "turbojet test aircraft", or "meteorological research aircraft", or simply "self launching powered glider".

Basic dimensions for the Cyclone / Sylphe were:

Span:	13.1 m	42ft 11½in.
Length:	6.67 m	21ft 10in.
Wing area:	13 m <sup>2</sup>	140 ft <sup>2</sup>
Empty Weight:	364 kgs	803 lbs

The next development was to be the CM.8R-9 Cyclope which was a short-wing aerobatic version powered by the Turboméca Piméné. This had a span of 8.76m (28ft 9in.) and first flew, as F-WCZO c/n 01, on 31st August 1950. The Cyclope could be clearly identified as the skid was replaced by a fixed nosewheel. Nevertheless it was still occasionally identified in the press as a Sylphe!





**Above:** The Cyclone clearly showing its sailplane character during a demonstration in the USA.  
(via JM Collection)



**Right:** Whistling past the assembled press corps at the Miami All-American Air Manoeuvres meeting on January 15th 1950, its first public showing in the USA.  
(via JM Collection)

The next stage in development was to raise performance levels even further as the new Turboméca Palas engine was introduced and its thrust developed. With the Cyclope II F-WFKM c/n 01 which first flew on January 31st 1951 the Palas was producing 150 kg of thrust. The first flight date is also quoted as 28th April 1951 but this may be the date with an uprated engine as thrust was gradually increased, through the Cyclope II and III to 160 kgs (350 lbs). This resulted in a maximum speed of 350 km/h (217 mph). Unfortunately one of the Cyclopes was lost on 23rd June 1952 but test-pilot Bourrieau parachuted to safety.

It is said that some 8 or 12 Midjets were built, which tends to tie in with a reported order for eight Cyclopes intended for aerial displays and spectacles under the organisation of Col. Dhome. The photograph on the next page showing "13 Cyclones" in June 1952 probably represents this order together with some existing machines.

Based on the Cyclope III, the CM.8-R8.3 Midjet was the next development. This was intended as a competition version for racing and had the span was further reduced to 7.05 m (23ft 2in.). Using the 160 kg thrust Palas it was capable of 400 km/h (249 mph). The prototype was F-WGKF c/n 1, which first flew on May 30th 1952, later becoming F-BGKF.

Meanwhile a more unusual development took place on March 6th 1951 when F-WEPJ took to the air. This was the first CM.88 Gemeaux (Twins) consisting of two Cyclope airframes joined by a short central wing and powered by two Piméné turbojets of 100 kg (220 lbs) thrust

**Right:** The prototype Cyclope F-WCZO, short-wing aerobatic version of the Cyclone / Sylphe. (via JM Collection)



**Below:** The Cyclope II F-WFKM which followed in 1951 used a Palas engine with increased thrust. It appears to have a sprung mainwheel and a more imaginative paint scheme than earlier models. (via JM Collection)





**Above:** The Fouga Midjet on show at Paris as F-BGKF. The outrigger supports which retract into the wingtip fairings are clearly seen.

(via JM Collection)

**Left:** The line of 13 "Cyclones" at Aire-sur-l'Adour in June 1952, some without engines or canopies. They are presumed to include the order for 8 Midjets.

(via JM Collection)



each. The two fuselages carried the names "Castor" (left side) and "Pollux" (right side). Entirely intended as an engine test bed, the first Gemeaux proved to be an airworthy concept and was soon modified to take one Turboméca Marboré I of 275 kg (605 lbs) thrust, mounted on the central wing section. As the Gemeaux II it first flew in this form on 16th June 1951. The second CM.88-R c/n 02 was designated Gemeaux III and first flew on 24th August 1951 with a Marboré II engine of 350 kgs (770 lbs) thrust which, by January 1952 had been increased to 400 kgs (880 lbs).

**Below:** The Fouga Gemeaux F-WEPJ was basically two conjoined Cyclopes each with a Piméné turbojet. (Aeroplane via JM Collection)

A later role for the Gemeaux involved the development of the Turboméca Aspin ducted fan engine. This was first flown in 200 kg (440 lbs) form on 6th November 1951 as the Gemeaux IV, eventually developing 360 kgs (790 lbs) thrust from the Aspin II engine and thus becoming the Gemeaux V on 21st June 1952.

While this engine development was continuing at a rapid pace another Fouga design was being shown at the 1951 Salon. This was the CM.82R Lutin, a twin jet single-seater for competition use. The Palas engines were mounted in underwing pods but otherwise the general appearance was typical of the Fouga jets. The example shown was accompanied by underwing rockets and nose cannon and was intend-



**Right:** Head-on view of the Gemeaux III with a single Turboméca Marboré II in August 1951. In the background is the CM.101 transport F-WFAX which made its first flight in the same month. (Ets Fouga & Cie via JM Collection)



ed as a three-quarter scale model for the proposed CM.821R ground-attack aircraft which would have Marboré engines. Nothing further came of this plan.

numbers in France by Potez and elsewhere under licence, totalling some 920 units including the CM.175 version as the Zephyr for the French Navy.

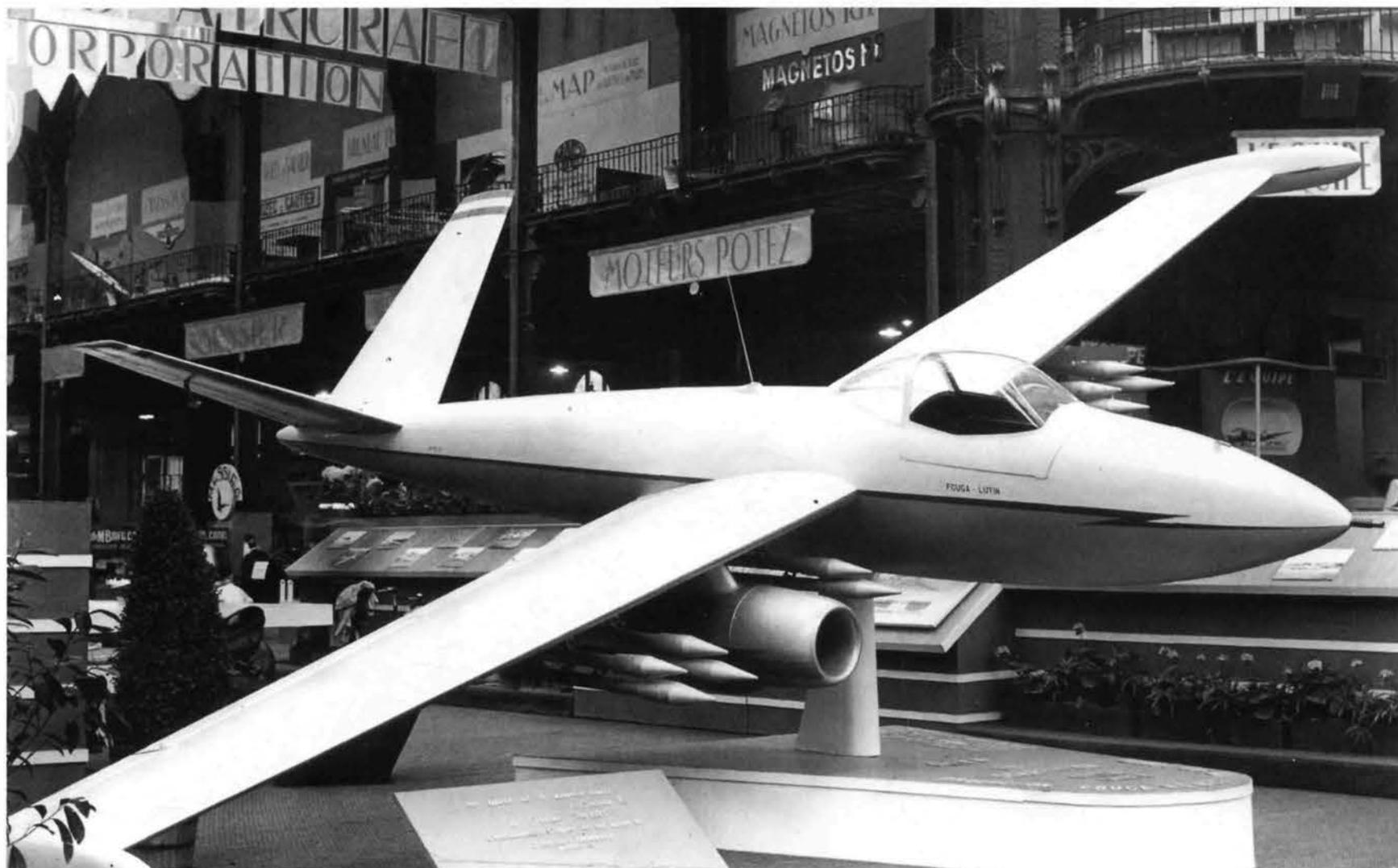
More successful however was the first flight on 23rd July 1952 of the first CM.170 Magister F-ZWRO, retaining the Fouga trademark of a butterfly tail unit but with two Marboré IIA engines buried in the fuselage. This was of course to become a highly successful design, built in large

As mentioned above, the pace of this development was extremely fast by today's standards. Only three years had passed from the first flight of the Cyclone to that of the Magister and the whole was managed by a relatively small company in south-west France.

**Right:** All the development work with butterfly-tailed small jets paid off when the highly-successful CM.170 Magister was produced. This example no.266 MT-8 of the Belgian Air Force "Diables Rouge" team was at Benson on 17.9.66. (Jack Meaden)



**Below:** The Fouga Lutin concept did not advance beyond a Salon appearance. (Aeroplane via JM Collection)



## Airliners in Warpaint - Warbirds in Civvies: 2

# Air France 1939 - 1942

Michael West

**Right:** The Dewoitine 338 F-ARIE "Ville de Paris" of Air France wearing the tricolour bands and international identity "F" on the cabin roof and fin. (Musée Air France)



By the Summer of 1939 Air France's fleet consisted mainly of land based monoplanes (the Dewoitine 338, Bloch 220, Potez 620/621 and the obsolete Wibault 283). Whilst it flew flying boat services over the Mediterranean (the Leo H.242) and experimentally across the Atlantic (the Latecoere series) Air France had not backed flying boats to the extent that Imperial Airways had. Indeed the pioneering Aeropostale mail service across the South Atlantic was being operated most reliably for the French Government with Farman landplanes, quite primitive types with large braced high wings and (except for the last of the batch) fixed undercarriages. The newly nationalized French Aircraft industry was producing some types which Air France rejected such as the Farman F.224 and Potez 661/662, and American aircraft were being considered. Air France bought one DC-3 for its trans-Andean route to Chile, Aeromaritime had bought Sikorsky S-43 amphibians and Air Afrique Lockheed 14s for their routes in Africa and some of the Air Afrique Lodestars which arrived in 1940 served with Air France.

*September 1939 France and Britain declare war on Germany after the invasion of Poland*

Tricolore nationality bands were applied to Air France aircraft, but they were not universally camouflaged, whereas those requisitioned by the military were mainly camouflaged whilst supporting the initial moves to battle readiness.

Overseas air services were maintained (with some disruption) to North Africa, French West Africa, across the South Atlantic to South America via Natal, Brazil and to French Indo-China via Syria/Lebanon. In mid-October 1939 the Air France service from Paris to London was resumed with Dewoitine 338s, routing Le Bourget, Dieppe, Shoreham, Heston (see Links).

On 22nd October 1939 Farman 2234 'Camille Flammarion', marked F-AQJM was sent on a bogus route-proving mission to neutral Rio de Janeiro, in reality to search for the *Graf Spee*, but due to technical problems it never flew the search missions.

In December 1939 a Marseilles-Lisbon Dewoitine 338 service was initiated when Pan Am abandoned Marseilles for Lisbon as its Clipper terminus in Europe.

24 February 1940 Farman 2234 'Jules Verne' F-ARIN (militarized) flew to Heston to plan the mining of the Swedish iron ore port of Lulea, (a plan abandoned but later adapted for the first French raid on Berlin which the 'Jules Verne' bombed from the North after flying from Bordeaux up the Channel, North Sea and Baltic Sea).

*May 1940 France invaded by Germany.*

*22 June 1940 Armistice signed dividing France into Occupied and 'Vichy' France, with the whole French Empire initially administered from Vichy*

*July 3 To prevent possible German use the Royal Navy opens fire on French warships moored at Mers-el-Kbir, Algeria, destroying 3 warships and killing ca. 1300 French sailors, embittering many Frenchmen, Petain breaks off relations with Britain*

Limited air services were re-established under General Pujol's SCLA organization (divisions SCLAM Metropolitan (Vichy) France, SCAFN North Africa, SCAOF French West Africa). This organization was later called RAeF combining Air France, Air Afrique, Aeromaritime. For convenience, 'Air France' in apostrophes will be used for the Vichy civil air operations in this account.

Vichy 'Air France' aircraft retained the tricolore bands but the fins and wing/tail extremities were painted yellow which often looked dark in photos taken with orthochromatic film.



**Above:** Farman 2234 F-ARIN. (M West collection)

**Below:** Another Farman 2234, F-AQJM which was sent to Rio to search for the *Graf Spee*, was lost at Beirut in 1941. (ECPAD/Don Hannah collection)





This selection was taken by a French serviceman at Marseilles about 1941. From top left, clockwise:  
 F-ANQH Leo H.242-1; F-ARTL Lodestar; F-BAFM Farman F2233;  
 F-ARIZ Dewoitine 342. (aerofossile2012/flickr)

On 2nd July 1940 Air France/ Aeropostale Transatlantic service to Rio de Janeiro and Buenos Aires was abandoned after the 512nd and last South Atlantic Natal-Dakar crossing by Farman F-AQCX. Air France's South American fleet was sold off locally.

The route from Marseilles to the African colonies via Algiers across the Sahara down to Dakar was maintained at reduced frequency mainly with Dewoitine 338s.

The Air France service to the 'Extreme Orient' (Vietnam/Cambodia) was also abandoned and replaced by an infrequent link to Damascus, Syria and Beirut, Lebanon, each flight requiring Italian permission.

Various circular mail/courier routes established linking major towns in unoccupied Vichy France. 'Air France' had no shortage of aircraft, and crews but fuel may have become restricted.

September 1940 Operation Menace A British/Free French task force fails to persuade the Vichy administration in Dakar Senegal to 'come over' to the Allies.



**Above:** F-BAAK was a Caudron 445 seen here with tricolour stripes across the wings. (ECPAD/Don Hannah collection)

**Right:** This Armstrong Whitworth Ensign in Air France titles was the former G-AFZV abandoned 1942 at Toulouse as F-BAHD. (Les Ailes 1939-45)



From July to November 1940 a British diplomatic mission with some Free French military pressure secures the French territories of Equatorial Africa, Chad (whose Governor was Felix Éboué, of mixed-race who distrusted the Vichy Government), Ubangi-Shari (C.A.R), Cameroon, and French Congo.

General Larminat signs Equatorial Africa over to the Allies on board Empire Flying Boat Clyde moored at Brazzaville.

de Gaulle was now able to set up a base in Bangui and the vital air route across Africa from the Atlantic coast to Egypt was secured, Vichy-controlled West Africa was now cut off from the Belgian Congo severing the route to Madagascar.

In June 1941 a British Empire force (Australian, Indian plus some Free French under General Catroux) invades Syria from Palestine... Vichy French garrisons in Syria and Lebanon capitulate after ca. 6,000 casualties including ca. 1,000 dead.

The majority of the garrison, more than 20,000 were repatriated to France... around 4,000 choose to join the Free French forces. Transport links between Vichy France and Syria/Lebanon severed after the repatriations in July 1941.

The Vichy Government organized an airlift Istres-Marseilles-Brindisi-Athens-Syria/Lebanon using military and Air France aircraft to support the garrison, and (after the armistice) to repatriate some servicemen. Several useable or repairable transport types in military markings and both French and Lebanese civil markings (OD-) were left behind. These formed the basis of de Gaulle's Lignes Aeriennes Militaires with 'civilian' registrations. FL-(France Libre), later FC-(France Combattant). From November 1941 L.A.M. flew regularly between Syria, Palestine, Egypt, Sudan and French Equatorial Africa.



After the loss of Syria and Lebanon, the only major route left for Vichy Air France was the trunk route Marseilles Algiers Dakar (either across the Sahara or via Morocco and down the Atlantic coast).

However the infrequent, lonely and rather heroic mail/courier flights from Marseilles to blockaded Djibouti (French Somali Coast) which had started in 1940, were continued, via the French garrison in Syria/Lebanon until its capture in June 1941, then via Bizerte/Tunisia and Libya. A few flights reportedly went on from Djibouti to isolated Madagascar.

'Air France' flew about 18 courier round trips to Djibouti between November 1940 and November 1942.. The huge Latecoere 521 flying boat 'Ville de St Pierre' made two round trips from Marseilles in November 1940 and February 1941, the Latecoere 611 'Achernar' one trip in May 1941, after which only converted bombers with extra tankage were used: Martin Maryland (2 trips), Amiot 356 (6 trips) and the streamline-nose Amiot 370 (7 trips).

In February 1942 Ensign G-AFZV force landed in Vichy French Mauretania, was impounded and repaired and registered F-AFZV then F-BAHD, flown back to Marseilles, and eventually abandoned at Toulouse. It is unclear if it was used for 'Air France' services. Contrary to the long-standing myth no Ensigns are now believed to have been used by the Germans, those abandoned in France in 1940 were too



Abandoned in Syria / Lebanon. **Left** is Caudron Simoun OD-AAG in distinctive markings (Jim Kinnear/3sqdn RAAF). **Above** OD-AAF was a Potez 54 (John Havers collection) and **Below** an unidentified Farman 52 (Jim Kinnear/3sqdn RAAF).



badly damaged, and F-BAHD was left derelict at Toulouse, possibly minus its Wright engines (see 'further reading' below)

November 1942 An American-led amphibious force invades Morocco and Algeria (Operation Torch) without the involvement or prior knowledge of De Gaulle's Free French. British combat aircraft involved over-marked with US star roundel

8th November Algiers taken by the US led invasion force  
11th November 1942 German forces move into 'unoccupied' Vichy France, 'Air France' flights across the Mediterranean cease until The Liberation.

'Air France' services in Africa become the responsibility of the Free French L.A.M. which is retitled R.A.M.F (Reseau Aerienne Militaire Francaise)

#### Footnotes

TinyURL 7-characters codes:

Gracie Fields arrives Heston (Getty)  
<http://preview.tinyurl.com/29ophnl>. also 3yt93m2

General Sikorski arrives Heston (Getty) 2fgmmok

Sumner Welles arrives Heston (Pathe/ITN Source)  
2ud88k8 also 25wnun6

**Further reading**...the recently published 'Les Ailes Francaises 1939-1945 #11 and #12 are full of new material and photos on WWII Air France and L.A.M.

**Above left:** The French Naval Laté 611 "Achernar" (aerofossile2012/flickr)

**Left:** Amiot 370 F-AREU wearing Air France titles and  
**Below:** three Air France Amiot 370s including F-AREU and F-BAGP (Musée Air France)

# The Development of Commercial Aviation in China

PART 12

## Chinese Civil Aircraft Registers



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### Introduction

This article describes the civil aircraft registration systems used in the Republic of China (ROC) (mainland China and Taiwan) and the People's Republic of China (PRC) until the 1950s.

It summarises and where possible updates the Chinese XT- registrations already published in the fleet lists for Eurasia (Part 3), Central Air Transport Corporation (CATC) (Part 8), Lutheran World Federation (LWF) (Part 9), China National Aviation Corporation (CNAC) (Parts 6 & 10) and Civil Air Transport (CAT) (Part 11). Chinese B- registrations issued by the ROC Government in Taiwan will be discussed in more detail in later articles.

The systems used in Japanese-occupied China and Manchukuo (Manchuria), described in Part 5B (*Archive*, Summer 2008, pp.2008/074-081), are also included in register format, where known. Unfortunately, so far, little additional data has become available since 2008.

As the information in this article is clearly incomplete, the author would welcome feedback with corrections or additional information.

### Before the first system – fleet numbers

Before international services were operated, Chinese airlines used aircraft names, fleet numbers or both, as shown in the fleet lists present-

*Above:* The Avro Avian IV registered X-CRIA "Amoy" which arrived at Shanghai on 28.5.29 after delivery by air from Croydon for the Chinese Naval Air Service which ordered 14 examples. (via Ian D Johnson)

ed in previous articles. South-western Aviation Corporation (SWAC) used names; CNAC used fleet numbers, sometimes with names; and Eurasia used fleet numbers in Roman numerals, sometimes with names. After international service commenced (to Burma and Hong Kong) it became necessary to use an internationally recognised registration system, perhaps initially only on those aircraft likely to cross Chinese borders, such as CNAC DC-2s and Eurasia Ju 52/3ms.

In April 1919, at the International Air Navigation Convention in Paris, China was allocated X-C... in the X-.... Group with Honduras (X-H...) and Serbia-Croatia-Slovenia (X-S...). Later Mexico was changed from M-S... to X-A... and X-B... in the late nineteen-twenties, when China remained with X-C... . Between 1929 and 1938 X-C... was changed into X-T... or XT-... . [LYW 19Mar2003]

The first known example of a Chinese civil aircraft registration is Avro 594 Avian IV X-CRIA c/n 220 "Amoy", which was given an international registration for its flight from England to China in 1929. No other Chinese registrations are known in the X-C... series. [Andersson p.306]

### The first (alphabetical) system

A civil aircraft register using the XT- national prefix for China was introduced in about 1938 for CNAC aircraft and July 1940 for Eurasia. Little is known about this system and listed examples have usually been noted in photographs. The registration "OBF" is visible in photographs of CNAC DC-2 c/n 1568 f/n 40 "Kweilin", which was attacked on 24 August 1938 and ditched in a river north of Macao. Pictures of the aircraft being recovered show the partial registration "OBF" (or DBF) under the port wing.



**Above:** The Chung: **Left:** on this CNAC C-46 with soldiers boarding in 1949; **Right:** on the right of the door of a CATC C-46 boarding refugees at Mukden in 1949. (via Ian D Johnson collection)

Reg.	make	model	c/n	owner	f/n
XT-ABE	Junkers	Ju 52/3m	5329	Eurasia	XIV, 15
XT-AGE	Junkers	Ju 52/3m	4072	Eurasia	XXIV, 24
XT-ATA	Junkers	Ju 52/3m	5472	CATC	Chung-5
XT-ATB	Nakajima	Ki.34	?	CATC	Chung-1
XT-ATC	Heinkel	He 111A	?	CATC	Chung-2
XT-ATD	Vultee	V-1A	?	CATC	Chung-3
XT-ATE	Vultee	V-1A	?	CATC	Chung-4
XT-ATF	Lockheed	A-29	?	CATC	Chung-6
XT-ATG	Lockheed	A-29	?	CATC	Chung-7
XT-ATH	Lockheed	A-29	?	CATC	Chung-8
XT-ATI	Lockheed	A-29	?	CATC	Chung-9
XT-ATJ	Lockheed	A-29	?	CATC	Chung-10
XT-ATK	Lockheed	A-29	?	CATC	Chung-11
XT-ATL	Lockheed	A-29	?	CATC	Chung-12
XT-ATM	Lockheed	A-29	?	CATC	Chung-14
XT-ATN	Lockheed	A-29	?	CATC	Chung-15
XT-ATO	Lockheed	A-29	?	CATC	Chung-17
XT-BTA	Douglas	DC-3	?	CNAC	?
XT-BTB	Douglas	DC-3	?	CNAC	?
XT-OBF	Douglas	DC-2	1568	CNAC	32
XT-OBF	Douglas	DC-2	1586	CNAC	40

[Andersson pp.219, 305-306; *Archive* pp.2007/070-072, 2007/136, 2009/109-110; LA 04Mar2009; MM 07Sep2002, 11Jan2004]

**Notes:**

XT-BTA & XT-BTB may have been CNAC DC-3s c/n 2135 & 2261, f/n 41 & 47 (see *Archive* p.2007/072).

XT-OBA to -OBF may have been CNAC DC-2s (see *Archive* p.2007/072).

Photographs of CNAC DC-2s f/n 32 *Kweilin* and 40 both show "OBF" under the port wing. [MM 08Jul2003]

This list assumes that XT-ATx registrations are related to the 'Xx' codes, which may be call signs (see Part 8a, CATC fleet list). Except for XT-ATC, these XT-ATx registrations are not yet confirmed by photographs (see [www.cnac.org/aircraft05.htm](http://www.cnac.org/aircraft05.htm)). There is a list of CATC CW MOC call signs on *Archive* page 2009/109 that supports the view that the A-29 'registrations' may also be call signs.

Shanghai documents list two "Voltees" as Chung-2 & -3, XC & XD, but these are not consistent with photographs and other sources.

## The Chung

In the latter part of July 1942 General Chennault sent CNAC a message, urging them to adopt an insignia and to put it on all their planes to help the Fourteenth Air Force pilots in identification. Captain Charles Sharp called in Z M Wong, Y Y Zee and W C McDonald, Jr and directed them to get this job done immediately. After considerable discussion the CHUNG was born. They painted the CHUNG on all their aircraft in short order, so advised General Chennault and sent him photographs of their planes with this character on them. CHUNG is a Chinese character which means "in the middle of" or "the centre", or, as applied to the CNAC aircraft, "Middle Kingdom Space Machine Family". [Andersson p.304; *Wings over Asia*, Vol.1; [www.cnac.org/chung01.htm](http://www.cnac.org/chung01.htm)]

Liang-yen Wen wrote: "I still remember those black or navy blue roundel of CNAC with Chinese character Chung, but later on it seems CATC were in red Chinese character in a black roundel instead." [LYW 21Mar2003]

## The second (numerical) system

The first alphanumeric register commenced with the Douglas C-54s for the Government of the Republic of China and CNAC in October 1946. For transport aircraft, this seems to be in the format XT-Tnn but some registrations have been reported without the second 'T'. (Photographic evidence only shows examples with this 'T'.) In this context, 'n' is used to indicate a digit. We don't know if the 'T' was for Transport. Some transport aircraft were registered in the XT-nn series under the subsequent numerical system but these were all government-owned aircraft (see below). Registrations have also been reported with two hyphens, XT-T-nn, (e.g. in SEA79 p.21) but photographic evidence suggests these may be incorrect. For some CNAC aircraft the XT-Tnn registration was used in addition to the fleet number, e.g. C-46 f/n 127 was also XT-T57.

Liang-yen Wen has suggested that the alphabetical system had to be changed to a numerical system because not many ground crews were familiar with the western alphabet. [LYW 21Mar2003]

When CAT received their first C-47s and C-46s in 1947, they were operated using only the 'last three' numbers of their USAAF serial numbers, rather like fleet numbers. Registrations in the XT-T5nn sequence were probably not allocated until about October 1947. (See Leeker "The History of Air America", "The early days 1 – CAT operations in China 1946-48" [China1])

Liang-yen Wen has provided a fleet list for CNAC in 1948 (included in the table below) that mixes XT-nn registrations with XT-Tnn registrations in a random manner. At first glance, it seems that passenger aircraft (pax) have XT-nn registrations but cargo aircraft have XT-Tnn registrations, e.g. XT-91 (f/n 41) (pax) and XT-T20 (f/n 100) (cargo), but there are some contradictions to this simple rule. [LYW 19Mar2003] An alternative suggestion is that all these registrations should be in the XT-Tnn format, as a photograph of "XT-44" shows it to be XT-T44. [MM27Mar2005] In a list of CATC call signs (*Archive* Part 8B), all aircraft numbers are given in the XT-Tnn format.



**Above:** CNAC C-46 wearing the Chung, fleet number 127 and registration XT-T57. This example is clearly a freighter - see comments in the paragraph above. (W Schonfield/*Air-Britain Digest* March 1971)



**Above:** C-54B XT-T02 of CNAC attracting a large crowd of onlookers, probably at Hawaii. (via Ian D Johnson collection)

XT-#	make	model	c/n	owner/operator	f/n	fate	notes
T01	Douglas	C-54B	10529	Chinese govt	?	C-72424, C-54001?	VIP
T02	Douglas	C-54B	10442	CNAC	?	XT-10?, N8343C	
T03	Douglas	C-54B	18370	CNAC	?	XT-102, N8344C	
T04	Douglas	C-54B	10538	CNAC	?	XT-10?, N8345C	
T05	Douglas	C-54B	18348	CNAC	?	XT-104, W/O	
T06	Douglas	C-54B	10510	CNAC	?	XT-10?, N8346C	
T07	Douglas	C-54D	10748	CNAC	?	XT-106, N8347C	
T08	Curtiss	C-46	?	CNAC	128	?	cargo
T09	Curtiss	C-46F	22416	CATC	CA22	?	
T10	Douglas	C-47	13186	CATC	CA8	XT-5..., N8325C	
T11	Curtiss	C-46	?	CNAC	125	?	pax
T12	Curtiss	C-46	?	CNAC	126	?	cargo
13	Curtiss	C-46	?	CNAC	117	?	c&p
T14	Curtiss	C-46	?	CNAC	130	?	cargo
15	Curtiss	C-46F	22451	CNAC	134	XT-132	c&p
16	Curtiss	C-46F	22449	CNAC	135	XT-134	c&p
T17	Curtiss	C-46	?	CNAC	142	w/o (photo)	
18	Curtiss	C-46	?	CNAC	148	?	c&p
19	?			CNAC?			
T20	Douglas	C-47	?	CNAC	100	?	cargo
T21	Douglas	C-53	7313	CATC	CA4	XT-5..., N8336C	
T22	Douglas	C-47B	32588	CATC	CA29	XT-5..., N8329C	
T23	Douglas	C-47	4483	CATC	CA1	Fate unknown	
T24	Douglas	C-47A	20388	CATC	CA3	XT-5..., N8324C	
25	?			CATC?			
26	?			CATC?			
T27	Curtiss	C-46F	22417	CATC	CA16	XT-502, N8306C	
T28	Curtiss	C-46F	22452	CATC	CA21	?	
T29	Curtiss	C-46F	22436	CATC	CA27	XT-5..., N8313C	
T30	Curtiss	C-46F	22410	CATC	CA37	XT-5..., N8316C	
T31	Douglas	C-47A	13296	CATC	CA39	XT-5..., N8326C	
T32	Douglas	C-47B	26704	CATC	CA42	XT-5..., N8330C	
T33	Douglas	C-47B	32578	CATC	CA43	XT-5..., N8331C	
T34	Douglas	C-47A	20387	CATC	CA47	?	
35	?			CATC?			
T36	Douglas	C-47A	20160	CATC	CA50	XT-5..., N8328C	
T37	Douglas	C-47B	26906	CATC	CA54	XT-5..., N8332C	
T38	Curtiss	C-46F	22439	CATC	CA51	?	
T39	Curtiss	C-46	449	CATC	CA52	XT-522, N8323C	"C-46F"
T40	Curtiss	C-46F	22422	CATC	CA53	XT-5..., N8307C	
T41	Curtiss	C-46A	427	CNAC	131	XT-138, N8372C	pax
T42	Curtiss	C-46	?	CNAC	132	?	cargo
43	Curtiss	C-46	?	CNAC	143	?	c&p
44	Curtiss	C-46	?	CNAC	144	?	c&p
45	Douglas	DC-3	4927	CNAC	54	XT-1..., N8361C	pax
46	Curtiss	C-46	?	CNAC	146		c&p
T47	Curtiss	C-46	?	CNAC	?	w/o Mukden 20Jan48	
48	Douglas	DC-3	19313	CNAC	89	XT-1..., N8348C	pax
49	?			CNAC?			
50	Curtiss	C-46	?	CNAC	120	?	c&p
51	Douglas	DC-3	19062	CNAC	87	XT-1..., N8355C	pax
T51	Curtiss	C-46	?	CNAC	121	W/O 5Jan47	
T52	Douglas	C-47	?	CNAC	112	?	cargo
T53	Curtiss	C-46	?	CNAC	123	?	cargo

T54	Douglas	DC-3	19452	CNAC	91	XT-1..., N8352C	pax
T55	Douglas	DC-3	4929	CNAC	55	W/O May45	pax
T56	Douglas	DC-3	?	CNAC	136	?	pax
T57	Curtiss	C-46	?	CNAC	127	W/O 20Jan48	
T58	Douglas	C-47	?	CNAC	108	?	cargo
T59	Curtiss	C-46	?	CNAC	129	?	cargo
T60	Douglas	C-47	?	CNAC	?	?	training
T61	Curtiss	C-46F	22453	CATC	CA55	XT-526, N8311C	
T62	Curtiss	C-46F	22419	CATC	CA24	XT-5..., N8310C	
T63	Curtiss	C-46D	33674	CATC	CA40	XT-5..., N8319C	
T64	Curtiss	C-46D	33644	CATC	CA45	?	
T65	Curtiss	C-46D	33595	CATC	CA46	XT-5..., N8321C	
T66	Curtiss	C-46D	33484	CATC	CA49	?	
T67	Douglas	C-47B	20891	CATC	CA56	XT-5..., N8333C	
T68	Douglas	C-47B	20817	CATC	CA57	XT-5..., N8334C	
T69	Curtiss	C-46F	22415	CATC	CA58	XT-5..., N8314C	
T70	Douglas	C-47B	25888	CATC	CA59	XT-5..., N8335C	
T71	Curtiss	C-46F	22423	CATC	CA60	XT-5..., N8317C	
T72	Douglas	C-47B	20894	LWF	CA41	W/O 10Feb49	St Paul
T73	Curtiss	C-46F	22445	CATC	CA61	XT-5..., N8308C	
T74	Douglas	C-53	4859	CATC	CA62	XT-5..., N8337C	DC-3A
T75	Curtiss	C-46F	22435	CATC	CA63	XT-5..., N8312C	
T76	Curtiss	C-46F	22455	CATC	CA64	XT-5..., N8315C	
T77	Curtiss	C-46	?	CATC	?		
T78	?						
T79	?						
T80	?						
T81	Douglas	C-47	?	CNAC	111	?	cargo
T82	Douglas	DC-3	4730	CNAC	62	Fate unknown	pax
T83	Douglas	C-47	?	CNAC	103	?	cargo
T84	Douglas	DC-3	?	CNAC	107	?	pax
T85	Douglas	DC-3	19620	CNAC	92	XT-1..., N8349C	pax
T86	Douglas	DC-3	18901	CNAC	86	XT-1..., N8358C	pax
T87	Douglas	DC-3	6151	CNAC	67	XT-1..., N8357C	pax
T88	Douglas	DC-3	6221	CNAC	68	Fate unknown	pax
T89	Douglas	DC-3	?	CNAC	?	W/O 27Oct47?	(See note below)
T90	Douglas	DC-3	4871	CNAC	50	XT-141, N8362C	pax
T91	Douglas	DC-3	2135	CNAC	41	XT-1..., N8360C	pax
T92	Douglas	DC-3	2261	CNAC	47	XT-1..., N8359C	pax
T?	Curtiss	C-46	?	CNAC	122	?	pax
T501	Douglas	C-47B	20681	CAT	215	XT-801, N8421C	(See notes below)
T502	Douglas	C-47B	20705?	CAT	239	XT-805?	TBC (See notes below)
T503	Douglas	C-47B	27167?	CAT	906	XT-803?	TBC (See notes below)
T504	Curtiss	C-46D	22215	CAT	392	XT-802, N8406C	
T505	Curtiss	C-46D	22218	CAT	395	XT-804, N8407C	
T506	Curtiss	C-46D	22228	CAT	405	XT-806, N8408C	
T507	Curtiss	C-46D	22232	CAT	409	XT-808, N8409C	
T508	Curtiss	C-46D	22236	CAT	413	XT-810, N8410C	
T509	Curtiss	C-46D	22345	CAT	522	XT-812	Swatow
T510	Curtiss	C-46D	22347	CAT	524	XT-814(1)	TBC
T511	Curtiss	C-46D	22351	CAT	528	XT-816, N8412C	
T512	Curtiss	C-46D	22353	CAT	530	XT-818, N8413C	
T513	Curtiss	C-46D	22354	CAT	531?	XT-820	TBC
T514	Curtiss	C-46D	22355	CAT	532?	XT-822	TBC
T515	Curtiss	C-46D	22359	CAT	536	XT-824, N8414C	
T516	Curtiss	C-46D	22362	CAT	539	XT-826, N8415C	Tsingtao
T517	Curtiss	C-46D	22363	CAT	540	XT-828, N8416C	
T518	Curtiss	C-46D	22366	CAT	543	XT-830, N8417C	
T519	Stinson	L-5	?	CAT		w/o Apr48?	
T5??	N Am	AT-6	?	CAT	?	XT-882	
T5??	Piper	Cub	?	CAT	?	XT-883	

[Archive Part 8 pp.2009/105-110, Part 10 pp.2010/63-72; DCA; JFL; Leeker China1 pp.13-16; LYW; MM; SAH; SEA79]

Notes::

The first CNAC C-54 was delivered in October 1946, suggesting that this is about the time when this registration system was introduced.

The accident to a CNAC C-47 on 27 October, 1947 identifies the aircraft as "89th airplane". As CNAC f/n 89 survived until at least 1949 as XT-48, it seems more likely that this was XT-(T)89 and this fits in with other CNAC DC-3s in the 1948 fleet list. [MM 29Sep2003]

In Part 11, we assumed that the first five CAT C-47s were registered as XT-801/803/805/807 and 809 but this did not take account of the period between their acquisition in early 1947 and their re-registration in 1948. In China1, Dr Leeker states that two of these C-47s were cannibalised for spares in 1947, because of corrosion and lack of spares, so only three of these five were registered (painted) as XT-T501/502/503 in October 1947 and re-registered as XT-801/803/805 in May 1948. Of these, we know that XT-805 crashed on 8Nov49 and only one C-47 survived to become N8421C and B-801. [China1 p.13]

Also in Part 11, we assumed that XT-803 was c/n 20705 and XT-805 was c/n 27167 but Leeker (China1 p.16) gives these c/ns reversed on the grounds that "906", i.e. ex 43-49906 c/n 27167, "Peiping" seems to have "XT-T503" painted below the wing and later became XT-803. XT-801 was "Tientsin" and C-47 "Taiyuan" was "239", i.e. 43-16239 c/n 20705, so by a process of elimination, this became XT-805, contradicting Part 11 and previous publications.

Many but not all CAT registrations are given in the CAT Maintenance Manual of 24Apr1950 and other sources. These suggest that for the C-46s the XT-T5nn registrations were allocated in the order of the c/ns, which would allow the remaining registrations to be guessed by interpolation (marked "TBC" above). CAT fleet numbers (f/n) were the 'last three' of the USAAF serial numbers.

Nothing is known about XT-T19, 25, 26, 35, 49 and 78-80.

Additions and corrections to this listing would be welcome.

## The third (numerical) system

From early 1948, the XT-Tnn two-digit alphanumerical system was progressively replaced by an XT-nnn three-digit alphanumerical system, with a new two-digit system reserved for government aircraft. In this system, blocks of three-digit numbers were allocated to airlines, for example:

XT-100 series: to China National Aviation Corporation (CNAC)

XT-400 series numbers were also allocated to some CNAC training aircraft

XT-500 series: to Central Air Transport Corporation (CATC)

XT-600 series: to CATC for their Convair 240s (even numbers).

XT-700 series numbers were also allocated to some CATC training aircraft

XT-800 series: to Civil Air Transport (CAT)

XT-900 series: unknown (includes four CAT Cessna 195s)

XT-1400 series: to Foshing Airlines

No examples are known in the XT-200 or XT-300 series, though these may exist.

XT-00 series: Ministry of Communication (MOC), as listed below.

"The Nationalists had a pressing need for air transport in spring 1948, especially to increase the Mukden airlift. Washington responded in late April by declaring surplus thirteen flyable C-46s and authorizing Air Force personnel to deliver them to Shanghai. In typical fashion, the American government attempted to maintain a low profile. Air Force markings on the aircraft were obliterated before delivery, and no more than three C-46s were to arrive in Shanghai at the same time. In equally typical fashion, the Shanghai press gave the transfer wide publicity. Rather than give the C-46s to the Chinese Air Force, which had been using its transport to smuggle cigarettes and other saleable items into Mukden, Nanking leased seven planes to CNAC and six to CAT." [Leary PM p.46]

These thirteen C-46s were purchased from the Foreign Liquidation Commission (FLC) on 17 June 1948 and were previously stored at Tachikawa, Japan. These were probably given registrations XT-30 through XT-54, even numbers only" [MM 04Dec2003]:

## XT-nn second series (R17Jun48)

XT-	make	model	c/n	p/i	owner	fate	notes
30	Curtiss	C-46F	22379	44-78556	MOC/CNAC	N8388C, B-130	on Taiwan Nov49
?	Curtiss	C-46F	22433	44-78610		unknown	XT-32 or XT-40? (See notes)
32	Curtiss	C-46F	?		MOC/CNAC?		
34	Curtiss	C-46F	22459	44-78636	MOC/CNAC	N8389C, N4881V	at Kai Tak Nov49
36	Curtiss	C-46F	22465	44-78642	MOC/CNAC	N8390C, B-136	on Taiwan Nov49 (See notes)
38	Curtiss	C-46F	22500	44-78677	MOC/CNAC	N8391C, B-138	on Taiwan Nov49
?	Curtiss	C-46F	22507	44-78684		unknown	XT-40 or XT-32?
40	Curtiss	C-46F	?		MOC/CNAC?		
42	Curtiss	C-46F	22508	44-78685	MOC/CNAC	N8382C, N4882V	at Kai Tak Nov49
44	Curtiss	C-46F	22502	44-78679	MOC/CAT	W/O (N8400C)	w/o 19Jun48
46	Curtiss	C-46F	22461	44-78638	MOC/CAT	N8401C, B-146	on Taiwan Nov49
48	Curtiss	C-46F	22510	44-78687	MOC/CAT	N8402C, B-148	on Taiwan Nov49
50	Curtiss	C-46F	22526	44-78703	MOC/CAT	N8403C, B-150	on Taiwan Nov49
52	Curtiss	C-46F	22466	44-78643	MOC/CAT	N8404C, B-902	w/o .52
54	Curtiss	C-46F	22370	44-78547	MOC/CAT	N8405C, B-154	on Taiwan Nov49

[Archive Part 10 p.2010/25, Part 11 pp.2010/104-105; DCA; JFL 14Nov2003; Leeker China1 p.32, China2 p.30; LYW; MM 04Dec2003; MSB 22Oct2004; SAH; SEA79 p.23]

Notes:

XT-32 was possibly c/n 22433 and XT-38 was possibly c/n 22507 but these tie-ups are unconfirmed.

Dr Leeker [China2 p.30] says that XT-36 was re-registered as XT-56. There is no mention of XT-56 in Leeker's Air America C-46 file. (B-156 was C-46D c/n 22353, formerly XT-844.)

In 1949, China was allocated the ICAO prefix B-... and in 1960 the ICAO XT- prefix was re-allocated to Upper Volta (Burkina Faso).

## XT-100 series register (CNAC)

XT-#	make	model	c/n	owner/operator	CofA	p/i	fate	notes
XT-101	Douglas	C-54B	?	CNAC	37-28	?	At Kai Tak 16Nov49, to N83..C?	
XT-102	Douglas	C-54B	18370	CNAC	37-29	XT-T03	At Kai Tak 16Nov49, to N8344C	
XT-103	Douglas	C-54B	?	CNAC	37-30	?	At Kai Tak 16Nov49, to N83..C?	
XT-104	Douglas	C-54B	18348	CNAC	?	XT-T05	w/o 21Dec48	
XT-105	Douglas	C-54B	?	CNAC	37-32	?	At Kai Tak 16Nov49, to N83..C?	
XT-106	Douglas	C-54D	10748	CNAC	37-33	XT-T07	At Kai Tak 16Nov49, to N8347C	
XT-111	Douglas	C-47A	19313	CNAC	37-36	42-100850	At Kai Tak 16Nov49, to N8348C	
XT-112	?							Nothing known
XT-113	Douglas	C-47	?	CNAC	?	?	w/o 12Dec48	
XT-114	Curtiss	C-46	419/396-CK	CNAC	37-43	43-47348	At Kai Tak 16Nov49, to N8363C	
XT-115	Douglas	C-47A	?	CNAC	37-38	?	Defected to PRC 9Nov49	
XT-116	Curtiss	C-46	421/398-CK	CNAC	37-44	43-47350	At Kai Tak 16Nov49, to N8364C	
XT-117	Douglas	DC-3	?	CNAC	37-39	?	At Kai Tak 16Nov49, to N83..C?	
XT-118	Curtiss	C-46	?	CNAC	37-40	?	At Kai Tak 16Nov49, to N83..C?	
XT-119	Douglas	C-47B	?	CNAC	37-34	?	At Kai Tak 16Nov49, to N8350C	
XT-120	Curtiss	C-46A	?	CNAC	37-41	?	At Kai Tak 16Nov49, to N83..C?	
XT-121	Douglas	C-53	4927	CNAC	37-35	42-6475	Defected to PRC 9Nov49	
XT-122	Curtiss	C-46A	387/364-CK	CNAC	37-73	43-47316	At Kai Tak 16Nov49, to N8367C	
XT-123	Douglas	C-47B	?	CNAC	37-93	?	Defected to PRC 9Nov49	
XT-124	?							Nothing known
XT-125	Douglas	C-47A	?	CNAC	37-94	?	Defected to PRC 9Nov49	
XT-126	?							Nothing known
XT-127	Douglas	C-47A	19452	CNAC	37-95	42-100989	At Kai Tak 16Nov49, to N8352C	
XT-128	?							Nothing known

XT-129	Douglas	C-47	4573	CNAC	37-96	41-18481	Defected to PRC 9Nov49	
XT-130	Curtiss	C-46	?	CNAC	37-83	?	At Kai Tak 16Nov49, to N83..C?	
XT-131	Douglas	C-47B	?	CNAC	37-97	?	Defected to PRC 9Nov49	
XT-132	Curtiss	C-46F	22451	CNAC	?	XT-T15	At Taipei Nov49, to CAT as XT-850	
XT-133	Douglas	C-47B	32530	CNAC	?	44-76198	To VR-HEP w/o (N8354C)	
XT-134	Curtiss	C-46F	22449	CNAC	?	XT-T16	At Taipei Nov49, to CAT as XT-852	
XT-135	?							Nothing known
XT-136	Curtiss	C-46	?	CNAC	37-86	?	At Kai Tak 16Nov49, to N83..C?	
XT-137	Douglas	C-47	6151	CNAC		41-38692	At Kai Tak 16Nov49, to N8357C	
XT-138	Curtiss	C-46A	427	CNAC	?	XT-T41	At Taipei Nov49, to CAT as XT-814(2)	
XT-139	Douglas	C-47A	?	CNAC	37-128	?	Defected to PRC 9Nov49	
XT-140	Curtiss	C-46	?	CNAC	37-88	?	At Kai Tak 16Nov49, to N83..C?	
XT-141	Douglas	C-53	4871	CNAC	37-129	41-20102	At Kai Tak 16Nov49, to N8362C	
XT-142	Curtiss	C-46	?	CNAC	37-89	?	At Kai Tak 16Nov49, to N83..C?	
XT-143	Douglas	C-47	?	CNAC	?	?	w/o 16Aug4?	TBC
XT-144	Curtiss	C-46	?	CNAC	37-90	?	Defected to PRC 9Nov49	
XT-145	?							Nothing known
XT-146	?							Nothing known
XT-147	Consolidated OA-10A?	?	?	CNAC	38-17	?	Fate unknown	
XT-148	Curtiss	C-46	?	CNAC	37-92	?	At Kai Tak 16Nov49, to N83..C?	
XT-150	?							Nothing known
XT-152	?							Nothing known
XT-154	Curtiss	C-46D	33371	CNAC	37-137	NC51820	Defected to PRC 9Nov49 (N8378C)	
XT-156	Curtiss	C-46D	33372	CNAC	?	NC51829	At Kai Tak 16Nov49, to N8379C, XT-854	TBC
XT-158	Curtiss	C-46D	32950	CNAC	?	NC51743	At Kai Tak 16Nov49, to N8380C, XT-856	TBC
XT-160	Curtiss	C-46D	32960	CNAC	37-141	NC51802	At Kai Tak 16Nov49, to N8381C	
XT-162	Curtiss	C-46D	32954	CNAC	37-142	NC51786	At Kai Tak 16Nov49, to N8382C	
XT-164	Curtiss	C-46A	30196	CNAC	37-143	NC50263	At Kai Tak 16Nov49, to N8382C	
XT-166	Curtiss	C-46A	30377	CNAC	37-144	NC51385	At Kai Tak 16Nov49, to N8384C	
XT-168	Curtiss	C-46A	30380	CNAC	37-145	NC51386	At Kai Tak 16Nov49, to N8385C	
XT-170	Curtiss	C-46A	30222	CNAC	37-146	NC50316	At Kai Tak 16Nov49, to N8386C	
XT-172	Curtiss	C-46A	30369	CNAC	37-147	NC51384	Defected to PRC 9Nov49 (N8387C)	
XT-199	Curtiss	C-46	?	CNAC				TBC (See note)

[Archive Part 6, Part 10 p.2010/63-71; CF; DCA; Leeker China2 pp.29-30; MOC; SEA79 p.21]

#### Notes:

Nothing is known about XT-107 to XT-110. Perhaps these XT-numbers were either not allocated or reserved and not taken up.

If XT-156 & XT-158 were at Kai Tak in Nov49, they can't have become XT-854 & XT-856 in Taiwan in 1950.

The registration "XT-199", quoted by the Hong Kong DCA, is thought to be an error for another (unknown) number.

CNAC & CATC aircraft were sold to Chennault & Willauer on 12Dec49 and registered in the N8300C series on 19Dec49 after sale to CATI.

### XT-400 series register (CNAC)

XT#	make	model	c/n	owner/operator	CofA	p/i	fate	notes
XT-401	North American	AT-6	?	CNAC?	37-45			
XT-402	North American	AT-6	?	CNAC?	37-46			
XT-403	?				37-47			Nothing known
XT-404	?				37-48			Nothing known
XT-405	?				37-74			Nothing known
XT-406	?				37-75			Nothing known
XT-407	?				37-76			Nothing known
XT-408	?				37-77			Nothing known
XT-409	?				37-78			Nothing known
XT-410	?				37-79			Nothing known
XT-411	Stinson	L-5	3714	CNAC?	37-149	44-17427	To VR-HEW Dec49	
?	North American	AT-6F	121-42649	CNAC	?		To N8393C (19Dec49)	

[Archive Part 10 p.2010/72; MOC; SEA79 p.21]

### XT-500 series register (CATC)

XT#	make	model	c/n	owner/operator	CofA	p/i	fate	notes
XT-501	Douglas	C-47	?		?		Defected from Canton to Nanking 25Aug49	
XT-502	Curtiss	C-46F	22417?	CATC	37-6	44-78594?	At Kai Tak 16Nov49, to N8306C 19Dec49	
XT-503	Douglas	C-47A	?	CATC	37-18		At Kai Tak 16Nov49, to N83..C?	
XT-504	Curtiss	C-46	?		?		Crashed at Wuhan 1Aug48	
XT-505	Douglas	C-53	?	CATC	37-110		At Kai Tak 16Nov49, to N83..C?	
XT-506	?							Nothing known
XT-507	Douglas	DC-3	?		?		Defected from Hong Kong to Canton 27Oct49	
XT-508	Curtiss	C-46F	22419	CATC	37-5	44-78596	At Kai Tak 16Nov49, to N8310C 19Dec49	
XT-509	Douglas	C-47D	?	CATC	37-17		At Kai Tak 16Nov49, to N83..C?	
XT-510	Curtiss	C-46F	?	CATC	37-7		At Kai Tak 16Nov49, to N83..C?	
XT-511	Douglas	C-47A	?	CATC	37-19		At Kai Tak 16Nov49, to N83..C?	
XT-512	Curtiss	C-46F	?	CATC	37-102		At Kai Tak 16Nov49, to N83..C?	
XT-513	Douglas	C-47A	?	CATC	37-26		At Kai Tak 16Nov49, to N83..C?	
XT-514	Curtiss	C-46D	33674	CATC	37-104	44-78278	Left behind on mainland? (N8319C)	
XT-515	Douglas	C-47B	?	CATC	37-131		At Kai Tak 16Nov49, to N83..C?	

XT-516	Curtiss	C-46D	?	CATC	37-105		At Kai Tak 16Nov49, to N83..C?
XT-517	Douglas	C-47D	?	CATC	37-20		At Kai Tak 16Nov49, to N83..C?
XT-518	Curtiss	C-46D	?	CATC	37-106		At Kai Tak 16Nov49, to N83..C?
XT-519	?						Nothing known
XT-520	Curtiss	C-46	?	CATC	?		Crashed 200 miles N of Chungking 2Jun49
XT-521	Douglas	C-47A	?	CATC	37-112		At Kai Tak 16Nov49, to N83..C?
XT-522	Curtiss	C-46A	449/427CK	CATC	37-8	43-47379	At Kai Tak 16Nov49, to N8323C
XT-523	Douglas	C-47B	?	CATC	37-21		At Kai Tak 16Nov49, to N83..C?
XT-524	Curtiss	C-46F	22422	CATC	37-9	44-78599	At Kai Tak 16Nov49, to N8307C 19Dec49
XT-525	Douglas	C-47B	?	CATC	37-113		Defected to PRC 9Nov49
XT-526	Curtiss	C-46F	22453	CATC	37-103	44-78630	At Kai Tak 16Nov49, to N8311C 19Dec49
XT-527	Douglas	C-47B	?	CATC	37-23		At Kai Tak 16Nov49, to N83..C?
XT-528	Curtiss	C-46F	?	CATC	37-108		At Kai Tak 16Nov49, to N83..C?
XT-529	Douglas	C-47B	?	CATC	37-24		At Kai Tak 16Nov49, to N83..C?
XT-530	Curtiss	C-46F	?	CATC	37-10		At Kai Tak 16Nov49, to N83..C?
XT-531	Douglas	DC-3	?	CATC	37-25		At Kai Tak 16Nov49, to N83..C?
XT-532	Curtiss	C-46F	?	CATC	37-109		At Kai Tak 16Nov49, to N83..C?
XT-533	Douglas	DC-3	?	CATC	37-22		At Kai Tak 16Nov49, to N83..C?
XT-534	Curtiss	C-46F	?	CATC	37-11		At Kai Tak 16Nov49, to N83..C?
XT-535	Douglas	DC-3	?	CATC	37-72		Fate unknown
XT-536	Curtiss	C-46F	?	CATC	37-12		At Kai Tak 16Nov49, to N83..C?
XT-537	Douglas	DC-3	?	CATC	37-114		At Kai Tak 16Nov49, to N83..C?
XT-538	Curtiss	C-46	?		?		Crashed at Kiangwan, Shanghai 5Dec48
XT-539	Douglas	DC-3	?	CATC	37-133		At Kai Tak 16Nov49, to N83..C?
XT-540	Curtiss	C-46D	?	CATC	37-14		At Kai Tak 16Nov49, to N83..C?
XT-541	Douglas	DC-3	?	CATC	37-134		At Kai Tak 16Nov49, to N83..C?
XT-542	Curtiss	C-46F	?	CATC	37-15		At Kai Tak 16Nov49, to N83..C?
XT-543	Douglas	C-47	19932	LWF	37-27?		To XT-811, N8399C, VR-HEX, B-809 (See note)
XT-544	Curtiss	C-46F	?	CATC	37-135		At Kai Tak 16Nov49, to N83..C?
XT-546	Curtiss	C-46	?	CATC	?		Crashed 32 km from Baiyun Airport, 29Jul49

[Archive Part 8 pp.2009/105-109]

Notes:

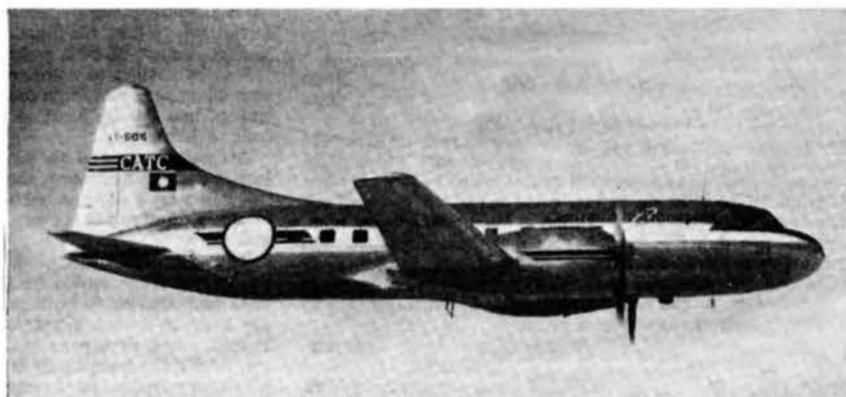
Was XT-500 allocated? (See XT-600.)

XT-543 was acquired in 1949 (ex PI-C54) but is listed by MOC with a 1948 CofA (37-27), which does not make sense, whereas the Hong Kong DCA file gives XT-811 (the same aircraft) with CofR No.38-18, i.e. 1949, which makes more sense, but is this a CofA or a CofR?

## XT-600 series register (CATC)

XT-#	make	model	c/n	owner/operator	CofA	p/i	fate
XT-600	Convair	240	100	CATC	38-1		At Kai Tak 16Nov49, to N8300C 19Dec49
XT-601	Curtiss	C-46A	?		?	CA-66	Fate unknown
XT-602	Convair	240	126	CATC	38-2		At Kai Tak 16Nov49, to N8301C 19Dec49
XT-604	Convair	240	127	CATC	38-3		At Kai Tak 16Nov49, to N8302C 19Dec49
XT-606	Convair	240	129	CATC	38-4		At Kai Tak 16Nov49, to N8303C 19Dec49
XT-608	Convair	240	130	CATC	38-5		At Kai Tak 16Nov49, to N8304C 19Dec49
XT-610	Convair	240	131	CATC	38-6		Defected to PRC 9Nov49 (N8305C), 401

[Archive Part 8 p.2009/104; SEA79 pp.21-22]



**Above:** Newsprint image of CATC Convair 240 XT-606 pre-delivery without the Chung painted in. (via JM Collection)



**Above:** CAT C-46 N8412C at Hong Kong, formerly XT-T511 and XT-816, this was said to be Chennault's personal aircraft. Note the lion(?) mask in place of the Chung. (via Ian D Johnson collection)

## XT-700 series register (CATC)

XT-#	make	model	c/n	owner/operator	CofA	p/i	fate	notes
XT-701	Stinson	L-5C	76-3698	CATC	37-1	44-17411	VR-HEQ Jul49	CA-28
XT-702	?			?	37-49			Nothing known
XT-703	Stinson	L-5B	76-3322	CATC	37-50	44-17035?	VR-HEO 2Jun49	

[Archive Part 8 p.2009/110; MOC]

## XT-800 series register (CAT)

XT-#	make	model	c/n	owner/operator	p/i	fate	notes
XT-801	Douglas	C-47B	20681	CAT	XT-T501	To N8421C, B-801, 9N-AAC	Tientsin
XT-802	Curtiss	C-46D	22215	CAT	XT-T504	To N8406C, XT-846, B-846, HP-315P, VT-DRH, B-924, XW-PEJ	TBC, Peiping
XT-803	Douglas	C-47B	27167?	CAT	XT-T503	Scrapped 25Oct48	
XT-804	Curtiss	C-46D	22218	CAT	XT-T505	To N8407C, XT-8??, B-8??, 51-1120 (13Aug55)	
XT-805	Douglas	C-47B	20705?	CAT	XT-T502	W/O 8Nov49	TBC, Taiyuan
XT-806	Curtiss	C-46D	22228	CAT	XT-T506	To N8408C, B-858, XW-PFL	
XT-807	Douglas	C-47	?	CAT		Possibly not allocated	
XT-808	Curtiss	C-46D	22232	CAT	XT-T507	To N8409C, XT-870, B-870, XW-PBV	
XT-809	Douglas	C-47	?	CAT		Possibly not allocated	
XT-810	Curtiss	C-46D	22236	CAT	XT-T508	To N8410C, XT-860, B-860, B-912	
XT-811(1)	Douglas	C-47A	19932	LWF	XT-543	To N8399C, VR-HEX, B-809	St Paul II
XT-811(2)	Douglas	C-47A	18947	CAT	PI-C181	To B-811 (Jun51), crashed in sea off Hua Hin, Thailand 20Oct54	
XT-812	Curtiss	C-46D	22345	CAT	XT-T509	w/o 5Dec49	
XT-813	Douglas	C-47B	26816?	CAT	PI-C182	To B-813, shot down over Kirin, China 29Nov52	
XT-814(1)	Curtiss	C-46D	22347	CAT	XT-T510	w/o 10Dec49 nr Hoikow, China (17k)	
XT-814(2)	Curtiss	C-46A	427	CAT	XT-138	to N8372C, XT-848, B-848	
XT-815	Douglas	C-47A	19258	CAT	PI-C183	To B-815 (R16Jan51)	
XT-816	Curtiss	C-46D	22351	CAT	XT-T511	To N8412C, XT-862, destroyed Sep50	
XT-817	Douglas	C-47A	19256	CAT	?	To B-817 (R16Jan51)	
XT-818	Curtiss	C-46D	22353	CAT	XT-T512	To N8413C, XT-844, B-844	
XT-819	Douglas	C-47	?	CAT		(B-819 = PBY-5A c/n 851)	
XT-820	Curtiss	C-46D	22354	CAT	XT-T513	w/o 9Dec49 nr Lanchow, China (38k)	
XT-821	Douglas	C-47A	11921	CAT	VR-HDP	To B-821	
XT-822	Curtiss	C-46D	22355	CAT	XT-T514	w/o 29Jul48 Tsingtao, China (18k)	
XT-823	Douglas	C-47A	13399	CAT	?	To B-823, N6634C, CF-MCC	
XT-824	Curtiss	C-46D	22359	CAT	XT-T515	To N8414C, XT-840, B-840, N9873F	
XT-825	Douglas	C-47	?	CAT		(B-825 = PBY-5A c/n 933)	
XT-826	Curtiss	C-46D	22362	CAT	XT-T516	To N8415C, XT-864, B-864	
XT-827?	Douglas	C-47A	13784	CAT	?	B-827	
XT-828	Curtiss	C-46D	22363	CAT	XT-T517	To N8416C, XT-842, B-842, N9874F	
XT-829?	Douglas	C-47B	34298	CAT		B-829	
XT-831	?	?				(B-831 = PBY-5A c/n 879)	
XT-830	Curtiss	C-46D	22366	CAT	XT-T518	To N8417C, XT-866, B-866, HP-314, B-866, etc.	
XT-832	Curtiss	C-46D	33152	CAT	44-77756	To N8418C, XT-872, B-872	"32878"
XT-834	Curtiss	C-46D	33132	CAT	44-77736	To N8419C, XT-874, B-874	
XT-836	Curtiss	C-46D	33153	CAT-MOC	44-77757	To N8420C, XT-876, B-876	
XT-838	?					nothing known	
XT-840	Curtiss	C-46D	22359	CAT	N8414C	To B-840, N9873F	
XT-842	Curtiss	C-46D	22363	CAT	N8416C	To B-842, N9874F	
XT-844	Curtiss	C-46D	22353	CAT	N8413C	To B-844	
XT-846	Curtiss	C-46D	22215	CAT	N8406C	To B-846, VT-DRH, B-924, XW-PEJ	
XT-848	Curtiss	C-46A	427	CAT	N8372C	(c/n "347346") To B-848, B-910	
XT-850	Curtiss	C-46	22451	CAT	N8369C	To B-850, HP-316, N74811	
XT-852	Curtiss	C-46F	22449	CAT	N8370C	destroyed 8Dec50 or crashed into the side of Mount Fuji on 09Dec50	
XT-854	Curtiss	C-46D	33372	CAT	N8379C	To B-854, HP-314P, VT-DRI, B-922, B-926, XW-PGD	
XT-856	Curtiss	C-46D	32950	CAT	N8380C	To B-856, B-908	
XT-858	Curtiss	C-46D	22228	CAT	N8408C	To B-858, XW-PFL	
XT-860	Curtiss	C-46D	22236	CAT	N8410C	To B-860, B-912	
XT-862	Curtiss	C-46D	22351	CAT	N8412C	w/o 27Sep50 at Iwakuni AB, Japan	
XT-864	Curtiss	C-46D	22362	CAT	N8415C	To B-864, B-916	
XT-866	Curtiss	C-46D	22366	CAT	N8417C	To B-866, HP-314, N8417C, N9279L, etc.	
XT-868	Curtiss	C-46D	22218	CAT	N8407C	To B-868	
XT-870	Curtiss	C-46D	22232	CAT	N8409C	To B-870, B-914, XW-PBV	
XT-872	Curtiss	C-46D	32878	CAT	N8418C	To B-872, N9885F	
XT-874	Curtiss	C-46D	33132	CAT	N8419C	To B-874, N9884F	
XT-876	Curtiss	C-46D	33153	CAT	N8420C	To B-876, N9883F	
XT-878	Curtiss	C-46D	?			nothing known	
XT-881	?	?				nothing known	
XT-882	N American	AT-6	?	CAT	?	fate unknown	
XT-883	Piper	Cub	?	CAT	?	(see note)	
XT-884	Cessna	195	7296	CAT	N11B	To N8422C, XT-983 (q.v.)	
XT-885	Cessna	195	7292?	CAT	N11B	? or w/o 19Jun49	
XT-886	Cessna	195	7297	CAT	N11B	To N8424C, XT-981 (q.v.)	
XT-887	Cessna	195	7312?	CAT	N11B	? or w/o 19Jun49	
XT-888	Cessna	195	7314	CAT	N11B	To N8425C, XT-985 (q.v.)	
XT-889	Cessna	195	7313	CAT	N11B	To N8423C, XT-987 (q.v.)	

[Archive Part 11 pp.2010/120-124; Leeker China2 p.12, Leeker Japan; SEA79 p.22]

### Notes:

The c/ns of XT-803 and XT-805, given in Leeker China1 p.32, are reversed from Part 11 and previous publications.

XT-832/834/836 were the three C-46s rehabilitated from the spares fleet. Nothing is known about XT-838. This seems to be a deliberate gap between the old sequence that certainly ran up to XT-836 and the new sequence starting from XT-840. When the C-46 fleet was renumbered in 1950, numbering started from XT-840 and these were then re-registered with the B- prefix during 1951. The c/n of XT-862 was unknown but has been deduced by a process of elimination.

**Right:** CAT registered C-46s and Cessna 195s in the XT-8nn series but both examples seen here are unidentified. (via Ian D Johnson)



**Below, right:** Photographed at Iwakuni, Japan, this CAT C-46D is clearly marked XT-876 under-wing. (via Ian D Johnson)

Registrations XT-840 to XT-876 are Taiwanese registrations from 1950, whereas XT-881 (?) to XT-889 are earlier Chinese registrations, so they are not in one continuous sequence, hence the dividing line. A new sequence was started at XT-902. Piper Cub Seaplane XT-883 was flown in Hong Kong on 8Nov49 (see Archive pp.97/111 & 97/21 and SEA79 p.22). Photographs show that this was a CAT aircraft. Chinese candidate c/ns are: 15878 (Apr46), 23028/23177 (Sep47) [SEA79 p.22] XT-885 & XT-887 were c/ns 7292 & 7312, tie-ups unknown. One of these Cessna 195s crashed on 19Jun49. We will discuss many of these aircraft again in future articles about CAT.



### XT-900 series register (CAT)

XT-#	make	model	c/n	owner/operator	p/i	fate
XT-902	Curtiss	C-46	22466	CAT	44-78643, N8404C	To N8404C
XT-904	Curtiss	C-46	33212	CAT	44-77816	
XT-906	Curtiss	C-46	33213	CAT	44-77817	
XT-981	Cessna	195	195-7297	CAT	XT-886, N8424C	To B-981, JA3001
XT-983	Cessna	195	195-7296	CAT	XT-884, N8422C	To B-983, JA3002
XT-985	Cessna	195	195-7314	CAT	XT-888, N8425C	To B-985, JA3005
XT-987	Cessna	195	195-7313	CAT	XT-889, N8423C	To B-987, JA3003

[Archive Part 11 p.2010/120; Leeker Japan p.18]

### XT-1400 series register (Foshing Airlines)

XT-#	make	model	c/n	owner/operator	date	fate
XT-1401	Consolidated	PBY-5A	425	Foshing	R17May51	To B-1401
XT-1402	Boeing of Canada	Canso A	22020	Foshing		To B-1402

[DG ROC CAA; Legg p.149; RJR 08Oct2009]

We will discuss Foshing Airlines in a future article in this series.

### Unidentified aircraft

The XT- registrations and CofA numbers are currently unknown. Given the time between delivery to China and registration in Hong Kong (9 months), registration in China seems probable. (No previous identity data are included in these HK DCA files.)

p/i	XT-reg	model	c/n	date	fate
N9199A	?	Cessna 120	15034	23Nov48	To VR-HEY Mar50
N9099A	?	Cessna 140	15023	21Nov48	To VR-HER Aug49
N9900A					
N4239V	?	Cessna 170	18595	?	To VR-HEI Jan49
N11B	?	Cessna 170	18910	Apr49	
N11B	?	Cessna 170	18914	Apr49	To B-1906
N11B	?	Cessna 170	18916	Apr49	

[JMD 03Mar2009; MSB 08Mar2009; ROC CAA 09Mar2010; SEA79 pp.22, 137]

Notes:

Cessna 140 VR-HER c/n 15023 (rgd. Aug49) is given as ex N9099A, XT-... in SEA79. N9099A was exported to Shanghai, China and delivered ex-Cessna on 21Nov48.

Cessna 120 VR-HEY c/n 15034, (rgd. date unknown) is given as ex N9199A, XT-... in SEA79. N9199A was exported to Shanghai, China and delivered ex-Cessna on 23Nov48. [IDJ 04Mar2009; JMD 03Mar2009; SEA79 p.137]

Cessna 170 B-1906 c/n 18914 was registered to CYAA on 25Feb1960. [ROC CAA 09Mar2010]

An order for six Piper PA-11 Cub Specials that were destined for Argentina was cancelled and the aircraft were diverted to China in June 1948. The aircraft were initially destined for Piper's dealer in Buenos Aires – Ronchetti, Razzetti y Cia, but the order was cancelled and they were issued Export CofAs to Hong Kong, for China on 1Jun48. The Export CofA numbers and destinée agent are currently unknown. Dr Leeker reports that "between 13 and 18 August 1948, CAT mechanics

at Canton assembled 6 Piper PA-11s for the Kwangtung Government." They were "for use in municipal and provincial police work and for other routine duties such as observing river levels. Five were land planes and one was mounted on floats for use on Pearl River." [CAT Bulletin, vol.1, no.24, 1Sep1948]

It is not known if these aircraft were allocated Chinese civil registrations or paramilitary serial numbers.

N-number	make	model	c/n	XT-number	date	fate
?	Piper	J-3C-65 Cub	15878	?	Mar46	
?	Piper	J-3C-65 Cub	23028	?	Sep47	
?	Piper	J-3C-65 Cub	23177	?	Sep47	
NC3935K	Piper	PA-11 Cub Special	11-1508	?	Jun48	
NC3936K	Piper	PA-11 Cub Special	11-1509	?	Jun48	
NC3937K	Piper	PA-11 Cub Special	11-1510	?	Jun48	
NC3938K	Piper	PA-11 Cub Special	11-1525	?	Jun48	
NC3943K	Piper	PA-11 Cub Special	11-1544	?	Jun48	To B-11103
NC3945K	Piper	PA-11 Cub Special	11-1549	?	Jun48	
?	Piper	PA-12	12-3443	?	Sep47	

[IT 04Oct2009; JMD 05Sep2009; Leeker China1 p.39; SEA79 p.22, p.27]

Notes:

One of the Piper Cubs is probably CAT's XT-883 (see below).

PA-11 B-11103 c/n 11-1544 was registered to Taiwan Aviation Corp. (T.A.C.) on 18Jun1966 and cancelled on 30Aug1976. [ROC CAA 10Nov2009]

## The Taiwanese system

The Government of the Republic of China had moved to Taiwan by December 1949. Nationalist aircraft continued to use XT-... registrations but these were progressively replaced by B-... registrations. The CAT aircraft were all registered in the USA (as N8400C to N8425C) on 5Jan50 but cancelled in March or April 1950, when they were restored to the XT- register, generally with new numbers, although apparently CAT C-47 XT-801 did not have its number changed before it was re-registered as B-801. The CAT C-46s, for example, were all renumbered in 1950, before the change of prefix, but the new numbers were retained with the B- prefix. (See Archive Part 11 pp.1010/120-122.)

The ROC CAA say that they have no XT-... register data on file, thus one might say that the B-... register commenced in early 1950 but may not have been applied to some aircraft until as late as 1952. The airlines would have had better things to do during the Korean War than repaint registrations on their aircraft! CAT C-46s leased to SAFE in New Zealand were re-registered in about June 1951.

"Sorry to inform you, after checking our archives, there is no register about "XT-", even in 1948. All records we can find are only "B-". [DG ROC CAA 02Mar2005] (Evidence in TNA files suggests that the XT- civil aircraft register remained on mainland China, possibly at Nanking. The Chinese government archive at Nanking is now open to the public. The register is written in Chinese.)

Annex 7 to the Convention on International Civil Aviation is entitled "Aircraft Nationality and Registration Marks". Standards for aircraft nationality and registration marks were first adopted by the council on 8 February 1949. They became effective on 1 July 1949 and "applicable" on 1 November 1949. Amendment 1 was not adopted until 12 November 1963, so there were no revisions to Annex 7 in the 1950 to 1963 timeframe. Thus it seems probable that China was allocated the B- prefix in 1949, during the civil war but it may not have been employed until 1950 or 1951. [MM 05Mar2005]

When the new B-... register was introduced in 1950, a similar system of allocating three-digit blocks to each airline was followed:

B-100 series: Ministry of Communications or ROC Government  
 B-200 series: Far Eastern Air Transport  
 B-300 series: Winner Airways  
 B-800 series: Civil Air Transport (CAT)  
 B-900 series: unknown (includes CAT Cessna 195s)

Later, the 3-digit series was replaced or augmented by a four-digit series including:

B-1000 series: CAT and Civil Air Transport Company Limited (CATCL).  
 B-1400 series: Foshing Airlines  
 B-1500 series: China Airlines  
 B-1800 series: China Airlines  
 B-2000 series: Far Eastern Air Transport  
 B-3000 series: Winner Airways  
 and then a five-digit series.

We will consider each of these airlines in later articles.

The ROC CAA say: "Due to the registers are far-off, it is hard to explain why there are numerical gaps on registration marks. At present, each airline choose different numerical systems on registration mark to identify." [ROC CAA 10Nov2009]

## Civil aircraft register of Japanese-occupied China

Nothing further is known about this register beyond what was given in Part 5B (Archive pp.2008/074/075). Much more research is needed on this subject.

C-reg.	make	model	c/n	owner	notes
C-215	Tachikawa	Ki-54			
C-501	Douglas	DC-3/L2D2			
C-5105	Mitsubishi	MC-29			

[Archive pp.2008/074-075]

## Civil aircraft register of Manchuria (Manchukuo)

So far there is little to add (or correct) to the information given in Archive Part 5B but Lennart Andersson has kindly drawn our attention to the Arawasi International Magazine (<http://www.arawasi.jp>), which is predicting publication of an article (or book?) on "An Aviation History of Manchuria", which will hopefully transform the following listing.

M-reg.	make	model	c/n	owner	notes
M-1 to 50	DH 80	Puss Moth			
M-21	DH 80A	Puss Moth		MKKK	
M-50+	Messerschmitt	Bf108 Taifun			
M-51	Messerschmitt	Bf108D Taifun			
M-58	Messerschmitt	Bf108D Taifun		MKKK	
M-65	Messerschmitt	Bf108D Taifun		MKKK	
M-81 to 84	Bucker	Bu 131B		MKKK	
M-100+	Fokker	Super Universal			
M-104	Fokker	Super Universal		MKKK	
M-105	Fokker	Super Universal			
M-109	Fokker	Super Universal		MKKK	
M-113	Fokker	Super Universal		MKKK	
M-117	Fokker	Super Universal		MKKK	
M-118	Fokker	Super Universal			
M-119	Fokker	Super Universal			
M-120	Fokker	Super Universal			
M-129	Junkers	Ju 160 A-0	4205		
M-130	Junkers	Ju 160 A-0	4248		
M-140	Fokker	Super Universal			
M-154	Fokker	Super Universal		MKKK	
M-182	Fokker	Super Universal			
M-183	Fokker	Super Universal		MKKK	
M-200+	Junkers	Ju 86			
M-201	Breguet	19A2			
	Nakajima	AT-2 (Ki-34)		MKKK	
M-202	Nakajima	AT-2 (Ki-34)			
M-203	Nakajima	AT-2 (Ki-34)			
M-204	Nakajima	AT-2 (Ki-34)			
M-205	Nakajima	AT-2 (Ki-34)			
M-206	Nakajima	AT-2 (Ki-34)			
M-207	Nakajima	AT-2 (Ki-34)			
M-208	Nakajima	AT-2 (Ki-34)			
M-209	Nakajima	AT-2 (Ki-34)			
M-210	Nakajima	AT-2 (Ki-34)			
M-211	Nakajima	AT-2 (Ki-34)			
M-212	Junkers	Ju 86Z-2		MKKK	
M-213	Junkers	Ju 86Z		MKKK	
M-214	Junkers	Ju 86Z		MKKK	
M-215	Junkers	Ju 86Z		MKKK	
M-216	Junkers	Ju 86Z		MKKK	
M-217	Junkers	Ju 86Z		MKKK	
M-218	Junkers	Ju 86Z		MKKK	
M-219	Junkers	Ju 86Z		MKKK	
M-220	Junkers	Ju 86Z		MKKK	
M-221	Junkers	Ju 86Z		MKKK	
M-222	Junkers	Ju 86Z		MKKK	
M-223	Junkers	Ju 86Z-2		MKKK	
M-224	Junkers	Ju 86Z		MKKK	
M-300	Manko	MT-1 Hayabusa			
M-301	Manko	MT-1 Hayabusa			
	Fokker	D XVI		MKKK	
M-302	Manko	MT-1 Hayabusa			
	Fokker	C VE		MKKK	
M-303	DH 85	Leopard Moth		MKKK	
	Manko	MT-1 Hayabusa			
M-304 to 338	Manko	MT-1 Hayabusa		MKKK	
M-305	Manko	MT-1 Hayabusa			
M-306	Manko	MT-1 Hayabusa			
M-307	Manko	MT-1 Hayabusa			
M-308	Manko	MT-1 Hayabusa			
M-309	Manko	MT-1 Hayabusa			
M-318	Manko	MT-1 Hayabusa			
M-400+	Nakajima	AT-2			
M-401	Nakajima	AT-2			
M-402	Nakajima	AT-2			
M-403	Nakajima	AT-2			
M-501	Fokker	F.VIIb-3m		MKKK	
M-502	Fokker	F.VIIb-3m		MKKK	
M-503	Fokker	F.VIIb-3m			
M-506	Northrop	Gamma 5A	291	MKKK	

M-600	Mitsubishi	MC-20		
M-601	Mitsubishi	MC-20		MKKK
M-602	Mitsubishi	MC-20		MKKK
M-603	Mitsubishi	MC-20		MKKK
M-604	Mitsubishi	MC-20		MKKK
M-605+	Mitsubishi	MC-20		
M-700	General Aviation Clark	GA-43		
M-701	General Aviation Clark	GA-43	7500	MKKK
M-702+	General Aviation Clark	GA-43		

[Andersson pp.168-172; Archive pp.2008/077-079; GYA; LA 14Sep2010]

## The first PRC system?

According to Ballantine & Tang, the first aircraft to be registered in Communist China were fourteen C-46s, two DC-3s and one PBY-5 Catalina. The early C-46s were numbered 'Shanghai 3' (sic) to 'Shanghai 10' and two further C-46s have been identified as 'Wuhan 1' and 'Chongqing 1'. The reason for these unusual registration marks was given as being the place where they were first overhauled after their defections in 1949. These markings were later replaced with serial numbers in the 100 range, as shown here. (The Convair 240 was not mentioned in this text.)

The following data is given by Ballantine & Tang (no page numbers shown) under the heading "1st Register 1949-1974". This data is inconsistent with data from other sources. Some dates have been disputed.

#	type	c/n	rgd.	canx.	name	notes
101	Douglas C-47	?	Dec49	1964	National Day	To "XT-115"
102	Douglas C-47	?	Dec49	1964	China Youth	Display BJS
103	Curtiss C-46	?	Nov49	1957	Chongqing	To PLA A/F
104	Curtiss C-46	?	Nov49	1957	Shanghai 1	To PLA A/F
105	Curtiss C-46	?	Nov49	1957	Shanghai 4	To PLA A/F
106	Curtiss C-46	?	Nov49	1957	Wuhan 1	To PLA A/F
107	Curtiss C-46	?	Nov49	1957	Shanghai 3	To PLA A/F
108	Curtiss C-46	?	Nov49	1957	Tianjin	Cargo, to PLA A/F
109	Curtiss C-46	?	Nov49	1957	Shanghai 7	To PLA A/F
110	Convair 240	131	Dec49	1966	Beijing	Ex XT-610; r/r 401
111	Consolidated PBY-5	?	Nov49	1954	?	Fate unknown
112	Curtiss C-46	?	Nov49	1957	Shanghai 10	To PLA A/F
113	Curtiss C-46	?	Nov49	1957	Guangzhou	Cargo, to PLA A/F
114	Curtiss C-46	?	Nov49	1957	Shanghai 5	To PLA A/F
115	Curtiss C-46	?	Nov49	1957	Shanghai 9	To PLA A/F
116	Curtiss C-46	?	Nov49	1957	Shanghai 2	To PLA A/F
117	Douglas C-47	?	Dec49	1966	?	To PLA A/F , display
118	Curtiss C-46	?	Nov49	1957	Shanghai 6	To PLA A/F
119	Curtiss C-46	?	Nov49	1957	Shanghai 8	To PLA A/F

[Ballantine & Tang]

This list includes 14 C-46s, three C-47s, one Convair 240 and one PBY-5 Catalina, total: 19 aircraft. This should include all known defectors and aircraft that remained on the mainland, assuming that none were directly conscripted by the PLA Air Force.

## The second PRC system?

One possible explanation of the inconsistency is that the first numbering system was replaced by the "second" system given here. This would be consistent with the statement '110' re-registered as '401' (above). On this assumption, the C-47s would be re-registered in the 100 series and the C-46s in the 200 series. The remaining mystery is the new identity of the Catalina but '501' appears to be vacant and that could be a logical assumption. The following 100- & 200-series data has been extracted from Shanghai Civil Aviation Review by Matt Miller; the 300-series data has been extracted from other sources, as shown below the table.

#	make	model	c/n	date	name	notes
101	?					
102	Douglas	DC-3	?			preserved
103	?					
104	?					
105	?					
106	?					
107	?					
108	Douglas	C-47	?	May51	China Youth	
109	Douglas	DC-3	?			
110	Douglas	C-47	?	Aug51	National Day	
201	?					
202	?					
203	?					
204	Curtiss	C-46	?	Dec50	Shanghai	
205	Curtiss	C-46	?	Dec50	Shanghai 2	
206	Curtiss	C-46	?	May51	Shanghai 3	
207	Curtiss	C-46	?	May51	Shanghai 4	
208	Curtiss	C-46	?	May51	Shanghai 5	
209	Curtiss	C-46	?	Aug51	Shanghai 6	
210	Curtiss	C-46	?	Aug51	Shanghai 7	
211	Curtiss	C-46	?	Aug51	Shanghai 8	
212	Curtiss	C-46	?	Aug51	Shanghai 9	

213	Curtiss	C-46	?	Aug51	Shanghai 10	
214	Curtiss	C-46	?	Jul51	Guangzhou	7915, ex CATC, 44-77915?
215	?					
216	?					
217	Curtiss	C-46	33196?	?	Wuhan	Ex "44-7800"
301	Lisunov	Li-2T	18433601	1949		Tianjin Tech School 1986
302	Lisunov	Li-2	18433806	1949		BU Xian 1984
303	Lisunov	Li-2	18433602	1949		BU Langzou 1984
304	Lisunov	Li-2	18433804	1949		
305	Lisunov	Li-2	18440206	1952		Tianjin Tech School 1986
306	Lisunov	Li-2	18433803	1949		
307	Lisunov	Li-2	18439602	1951		BU Shenyang
308	Lisunov	Li-2	18433808	1949		
309	Lisunov	Li-2	18433606	1949		BU Chengdu
310	Lisunov	Li-2	18439704	1952		canx 1982
311(1)	Lisunov	Li-2T	18433707	1949		BU Tianjin 1987
311(2)	Lisunov	Li-2	18439703	?		Preserved Changping Museum
312	Lisunov	Li-2T	18433510	1949		canx 1986
313	Lisunov	Li-2	18433608	1949		canx 1982
314	Lisunov	Li-2	18436305	1950		canx 1987
315	Lisunov	Li-2T	18433101	1949		BU Shenyang 1988
316	Lisunov	Li-2	18436304	1950		
317	Lisunov	Li-2	?			canx 1982
318	Lisunov	Li-2	18433809	1949		
319	Lisunov	Li-2	?			
320	Lisunov	Li-2	18433904	1949		BU Chengdu
321	Lisunov	Li-2	?			
322	Lisunov	Li-2	18439608	1952		BU Chengdu
323	Lisunov	Li-2	18439603	1951		BU Taiyuan 1990
324	Lisunov	Li-2	?			BU Taiyuan 1984
325	Lisunov	Li-2	18440508	1952		BU Taiyuan 1988
326	Lisunov	Li-2	?			
327	Lisunov	Li-2	18440509	1952		BU Taiyuan
328	Lisunov	Li-2	?			
329	Lisunov	Li-2	18440205	1952		BU Chengdu
401	Convair	240	131		Beijing	Ex XT-610, preserved
?	Canadian					
	Vickers	PBV-1A	CV386	Mar51?		Ex 44-33907, XY-ABX, VR-HEV
501	?					PBV-1A?
502	Ilyushin	Il-12	?	1948		BU Tianjin 1987
503	Ilyushin	Il-12	?	1948		Preserved Tianjin Tech School
504	Ilyushin	Il-12	?	1948		BU Tianjin Mar86
505	Ilyushin	Il-12D	?	1948		BU Chengdu

[ATDB; Ballantine & Tang; MM 15Dec2003, 18Apr2005(x2); CF 19Apr2005; JMG p.175; SEA79 p.20; Soviet Transports 4 pp.265, 381, 382, 386, 710]

#### Notes:

The PBV-1A Catalina/Canso would have been numbered next after the Convair 240 and '501' appears vacant before the first Il-12 at '502'.

The delay in numbering the Convair 240 after its defection in November 1949 may have been because it was used as a VIP aircraft identified only as "Beijing".

There is potential for confusion between these '100' series numbers and the first series.

We understand that a more detailed history of the Chinese Li-2s has been supplied to Air-Britain for use in the forthcoming (Volume 3) book on the DC-3 that celebrates the type's 75th anniversary. Unfortunately, we have not been able to obtain a copy of that data for use in this article but hope to include it in a future article about CAAC.

The blocks in the "1st Register" were also used for aircraft from later deliveries, thus:

100-series: Douglas DC-3/C-47

200-series: Curtiss C-46 + Antonov An-12 (odd numbers) & Ilyushin Il-18 (even numbers) + HS121 Trident

300-series: Lisunov Li-2

400-series: Convair 240 + Vickers Viscount (even numbers)

500-series: PBV-1A Catalina (to be confirmed) + Ilyushin Il-12 + DHC-6 Twin Otter (even numbers)

600-series: Ilyushin Il-14, Avia 14 & VEB-14

700-series: Mil Mi-4 + Antonov An-26 & other helicopter types

800-series: Antonov An-26 + Mil Mi-8 & Antonov An-30

900-series: Aero 45 & Yunshuji Y8

Clearly there is more than one series within this "1st Register", with some numbers being reused.

Some aircraft types used by CAAC are not mentioned within Ballantine & Tang, such as the DHC-2 Beaver, so more research is required. We will address CAAC aircraft again in a later article.

## The Chinese Nationalist Air Force systems

The Chinese Nationalist Air Force initially used 'squadron codes' for serial numbers, i.e. the first number of a 3-digit code or the first two numbers of a 4-digit code indicated the squadron number, whereas the last two numbers (01 to 99) were the aircraft number within the squadron. When lend-lease aircraft were delivered, it seems that aircraft continued with their USAAF numbers until a new numbering system was introduced, perhaps in about 1945. This alphanumeric system consisted of a type code: one or two letters followed by a hyphen and two numbers, followed continuously by three more numbers, e.g. C-46228. The type codes are similar to then current USAAF practice, e.g. B for Bomber, C for Cargo, and P for Pursuit. Not all type codes are known but a few examples are as follows:

Aircraft type	prefix code
Beech M18R	AT-10
Beech D18S	AT-11
Consolidated B-24	B-24
Curtiss C-46	C-46
Douglas DC-3	C-51
Douglas DC-4	C-54
Lockheed A-29 Hudson	B-31
North American B-25 Mitchell	B-312
North American F-86 Sabre	F-86
Republic F-84 Thunderjet	F-84
Vultee V-1A	C-23

[CF 20May2005; GL 20May2005] This system was replaced after the Second World War (when?) by a four-digit system.

# Chinese Certificates of Airworthiness

The Certificate of Airworthiness is called Sher Han Jen Shu in Chinese. Sher Han means 'suitable for flight', Jen Shu means 'certificate', so it is Certificate of Airworthiness. [CF 03Sep2002]

## 1948 (37-##)

C of A #	XT- reg.	type	fate	comment
37-1	XT-701	AT-6 Harvard or L-5 Sentinel		CATC
37-2	?			
37-3	?			
37-4	?			
37-5	XT-508	C-46	At Kai Tak 16Nov49	CATC
37-6	XT-502	C-46	At Kai Tak 16Nov49	CATC
37-7	XT-510	C-46	At Kai Tak 16Nov49	CATC
37-8	XT-522	C-46	At Kai Tak 16Nov49	CATC
37-9	XT-524	C-46	At Kai Tak 16Nov49	CATC
37-10	XT-530	C-46	At Kai Tak 16Nov49	CATC
37-11	XT-534	C-46	At Kai Tak 16Nov49	CATC
37-12	XT-536	C-46	At Kai Tak 16Nov49	CATC
37-13	?			Possibly XT-538
37-14	XT-540	C-46	At Kai Tak 16Nov49	CATC
37-15	XT-542	C-46	At Kai Tak 16Nov49	CATC
37-16	?			
37-17	XT-509	C-47	At Kai Tak 16Nov49	CATC
37-18	XT-503	C-47	At Kai Tak 16Nov49	CATC
37-19	XT-511	C-47	At Kai Tak 16Nov49	CATC
37-20	XT-517	C-47	At Kai Tak 16Nov49	CATC
37-21	XT-523	C-47	At Kai Tak 16Nov49	CATC
37-22	XT-533	C-47	At Kai Tak 16Nov49	CATC
37-23	XT-527	C-47	At Kai Tak 16Nov49	CATC
37-24	XT-529	C-47	At Kai Tak 16Nov49	CATC
37-25	XT-531	C-47	At Kai Tak 16Nov49	CATC
37-26	XT-513	C-47	At Kai Tak 16Nov49	CATC
37-27	XT-543	C-47	At Kai Tak 16Nov49	LWF
37-28	XT-101	C-54	At Kai Tak 16Nov49	CNAC
37-29	XT-102	C-54	At Kai Tak 16Nov49	CNAC
37-30	XT-103	C-54	At Kai Tak 16Nov49	CNAC
37-31	?			Possibly XT-104
37-32	XT-105	C-54	At Kai Tak 16Nov49	CNAC
37-33	XT-106	C-54	At Kai Tak 16Nov49	CNAC
37-34	XT-119	C-47	At Kai Tak 16Nov49	CNAC
37-35	XT-121	C-47	to China 9Nov49	CNAC
37-36	XT-111	C-47	At Kai Tak 16Nov49	CNAC
37-37	?			Possibly XT-113
37-38	XT-115	C-47	to China 9Nov49	CNAC
37-39	XT-117	C-47	At Kai Tak 16Nov49	CNAC
37-40	XT-118	C-46	At Kai Tak 16Nov49	CNAC
37-41	XT-120	C-46	At Kai Tak 16Nov49	CNAC
37-42	?			Possibly XT-112
37-43	XT-114	C-46	At Kai Tak 16Nov49	CNAC
37-44	XT-116	C-46	At Kai Tak 16Nov49	CNAC
37-45	XT-401	AT-6 Harvard	To VR-HDC?	CNAC
37-46	XT-402	AT-6 Harvard	?	CNAC
37-47	XT-403	?		CNAC?
37-48	XT-404	?		CNAC?
37-49	XT-702	?		CATC?
37-50	XT-703	Stinson L-5B	To VR-HEO	CATC
37-51	?			
37-52	?			
37-53	?			
37-54	?			
37-55	?			
37-56	?			
37-57	?			
37-58	?			
37-59	?			
37-60	?			
37-61	?			
37-62	?			
37-63	?			
37-64	?			
37-65	?			
37-66	?			
37-67	?			
37-68	?			
37-69	?			
37-70	?			
37-71	?			
37-72	XT-535	C-47		?
37-73	XT-122	C-46	At Kai Tak 16Nov49	CNAC
37-74	XT-405	?		CNAC?
37-75	XT-406	?		CNAC?
37-76	XT-407	?		CNAC?
37-77	XT-408	?		CNAC?
37-78	XT-409	?		CNAC?
37-79	XT-410	?		CNAC?
37-80	?			
37-81	?			
37-82	?			
37-83	XT-130	C-46	At Kai Tak 16Nov49	CNAC
37-84	?			Possibly XT-132
37-85	?			Possibly XT-134
37-86	XT-136	C-46	At Kai Tak 16Nov49	CNAC
37-87	?			Possibly XT-138
37-88	XT-140	C-46	At Kai Tak 16Nov49	CNAC
37-89	XT-142	C-46	At Kai Tak 16Nov49	CNAC
37-90	XT-144	C-46	to China 9Nov49	CNAC
37-91	?			Possibly XT-146
37-92	XT-148	C-46	At Kai Tak 16Nov49	CNAC
37-93	XT-123	C-47	to China 9Nov49	CNAC
37-94	XT-125	C-47	to China 9Nov49	CNAC
37-95	XT-127	C-47	At Kai Tak 16Nov49	CNAC
37-96	XT-129	C-47	to China 9Nov49	CNAC
37-97	XT-131	C-47	to China 9Nov49	CNAC
37-98	?			
37-99	?			
37-100	?			
37-101	?			
37-102	XT-512	C-46	At Kai Tak 16Nov49	CATC
37-103	XT-526	C-46	At Kai Tak 16Nov49	CATC
37-104	XT-514	C-46	?	CATC
37-105	XT-516	C-46	At Kai Tak 16Nov49	CATC
37-106	XT-518	C-46	At Kai Tak 16Nov49	CATC
37-107	?			
37-108	XT-528	C-46	At Kai Tak 16Nov49	CATC
37-109	XT-532	C-46	At Kai Tak 16Nov49	CATC
37-110	XT-505	C-47	At Kai Tak 16Nov49	CATC
37-111	?			
37-112	XT-521	C-47	At Kai Tak 16Nov49	CATC
37-113	XT-525	C-47	to China 9Nov49	CATC
37-114	XT-537	C-47	At Kai Tak 16Nov49	CATC
37-115	?			
37-116	?			
37-117	?			
37-118	?			
37-119	?			
37-120	?			
37-121	?			
37-122	?			
37-123	?			
37-124	?			
37-125	?			
37-126	?			
37-127	?			
37-128	XT-139	C-47	?	CNAC
37-129	XT-141	C-47	At Kai Tak 16Nov49	CNAC
37-130	?			
37-131	XT-515	C-47	At Kai Tak 16Nov49	CATC
37-132	?			
37-133	XT-539	C-47	At Kai Tak 16Nov49	CATC
37-134	XT-541	C-47	At Kai Tak 16Nov49	CATC
37-135	XT-544	C-46	At Kai Tak 16Nov49	CATC
37-136	?			
37-137	XT-154	C-46	to China 9Nov49	CNAC
37-138	?			
37-139	?			
37-140	?			
37-141	XT-160	C-46	At Kai Tak 16Nov49	CNAC
37-142	XT-162	C-46	At Kai Tak 16Nov49	CNAC
37-143	XT-164	C-46	At Kai Tak 16Nov49	CNAC
37-144	XT-166	C-46	At Kai Tak 16Nov49	CNAC
37-145	XT-168	C-46	At Kai Tak 16Nov49	CNAC

37-146	XT-170	C-46	At Kai Tak 16Nov49	CNAC
37-147	XT-172	C-46	?	CNAC
37-148	?			
37-149	XT-411	Harvard or L-5 Sentinel	To VR-HEW	CNAC

#### 1949 (38-##)

C of A #	XT- reg.	type	fate	comment
38-1	XT-600	CV240	At Kai Tak 16Nov49	CATC
38-2	XT-602	CV240	At Kai Tak 16Nov49	CATC
38-3	XT-604	CV240	At Kai Tak 16Nov49	CATC
38-4	XT-606	CV240	At Kai Tak 16Nov49	CATC
38-5	XT-608	CV240	At Kai Tak 16Nov49	CATC
38-6	XT-610	CV240	to China 9Nov49, to '401'	CATC
38-7	?			
38-8	?			
38-9	?			
38-10	?			
38-11	?			
38-12	?			
38-13	?			
38-14	?			
38-15	?			
38-16	?			
38-17	XT-147	Catalina	At Kai Tak 16Nov49	CNAC
38-18	XT-811	C-47A	To N8399C, VR-HEX, B-809	LWF

[Archive pp.96/111-112; LYW]

#### Notes

The known data are all for CATC and CNAC aircraft that were sold to Chennault & Willauer for Civil Air Transport, Inc. on 12Dec49. Data for Civil Air Transport (CAT), CAA-MOC, and CNAC aircraft transferred to CAT on Taiwan in Nov49 are therefore not included.

The prefix indicates the ROC year in which '1' is 1912, so '37' is 1948 and '38' is 1949.

The original document is from the Ministry of Communications, Civil Aviation Office, dated 2nd January 39, i.e. 02Jan1950. The date of intended handover was stated as 12 December 38, i.e. 12Dec1949.

Information on the aircraft detained at Kai Tak on 16Nov49 is taken from letters to CATC and CNAC from the HK DCA dated 16 November 1949.

Certain aircraft are listed at Kai Tak on 16Nov49 but are not on the CAA-MOC list for 12Dec49, e.g. XT-137 & XT-199. Aircraft that defect-ed before November 1949 are also not listed, i.e. XT-501 & XT-507.

The translation of a letter from the Chinese CAA dated 23Jan50 states that the Certificate of Registration of XT-811 was number 38-18, whereas that previously quoted for XT-543 was 37-27.

## Abbreviations

BU	Broken Up
CAA	Civil Aeronautics Administration
canx	cancelled
CAT	Civil Air Transport
CATC	Central Air Transport Corporation
CATI	Civil Air Transport, Inc.
c/n	construction number
CNAC	China National Aviation Corporation
CofA	Certificate of Airworthiness
CofR	Certificate of Registration
CW	Continuous Wave
DCA	Director of Civil Aviation
DG	Director General
f/n	fleet number
HK	Hong Kong
LWF	Lutheran World Federation
MKKK	Manshu Koko Kabushiki Kaisha (Manchurian Air Transport Co Ltd)
MOC	Ministry of Communications
PLA A/F	People's Liberation Army Air Force
PRC	People's Republic of China
ROC	Republic of China
SWAC	Southwestern Aviation Corporation
TBC	To Be Confirmed
TNA	The National Archives (UK)
W/O	Written Off

## Acknowledgements

The author would like to thank the following for their help in the preparation of this article: Billy K C Chang (former DG ROC CAA), Clarence Fu, Dave Fagan, Ian Johnson, Ian Terry, Dr Joe F Leeker, John Davis, Lee Long-Wen (current DG ROC CAA), Lennart Andersson, Liang-yen Wen, Matt Miller, and Peter Hillman.

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### Feedback on Part 3 (Autumn 2007) continued:

#### Hamiata

The history of Hamiata is given in Andersson at pages 188 and 189 with a fleet list at page 189.

#### Burma

The legal composition of Burma before the war was different from that following the formation of the Union of Burma in January 1948. This is described in "Aung San and the struggle for Burmese independence", Angelene Naw, Silkworm Books, 2001, ISBN 974-7551-54-3, pages 194-195:

"The British drew a further distinction between the frontier areas and Burma proper. While the latter was administered by the Indian Civil Service, the former was governed by the Burma Frontier Service.

"The frontier areas also included the Salween district and Siamese border area, where highland Karen tended to be concentrated. Unlike the Shan, Kachin, Chin and Kayah, who generally occupied well-defined regions, the plains Karen were widely interspersed with Burman populations in the delta region of Lower Burma."

### Feedback on Part 4 (Winter 2007)

#### South Western Aviation Corporation

The histories of MATC and SWAC are given in Andersson at pages 180 & 181, and 220 to 223 respectively.

A search of the National Archives (PRO) online catalogue identified the following file references:

CO 323/1440/25: Use of aerodrome by South Western Aviation Corporation, China (1937).

CO 323/1552/3: Hong Kong: South Western Aviation Corporation (1938).

The first of these files was checked in May 2008 and second file in September 2008 (see notes below).

CO 323/1440/25 contains copies of correspondence with HM Consul General at Canton regarding an application by South Western Aviation Corporation to operate service between Canton and Hong Kong. The covering letter No. 347, dated 20th May, 1937, from the Officer Administering the Government (OAG) of Hong Kong goes on to say:

"I am advised that South-Western Aviation Corporation is a Chinese owned and operated concern receiving free petrol from the Chinese Government in lieu of subsidy; at present neither the licenses of pilots nor the certificates of airworthiness would be recognised in this Colony."

The forwarded letter from the British Consulate General, Canton, dated 4th May, 1937 transmits a copy in translation of a letter which he had received from Dr Philip Tyau, Special Delegate for Foreign Affairs in Canton regarding the desire of SWAC to link up their air services with Hong Kong as is at present the case with CNAC.

"In this connection Mr Liu Pei-chuan, member of the Standing Committee of the South Western Aviation Corporation, and Mr Wu Kam Ya, Chief of the Flying Service Department, propose to pay a visit to Hong Kong with a view to discussing this matter with Your Excellency. They are now at Canton."

The translated letter from the Special Delegate for Foreign Affairs for Kwangtung and Kwangsi dated 30th April, 1937, reads in part as follows:

"We have the honour to observe that the air station in Hong Kong opened by the China National Aviation Corporation in order to link with international airmail services, started service on the 27th instant, and that henceforth communication between China and America will be more convenient. With a view to promoting communication between China and Germany, the Eurasia Aviation Corporation now also intends to establish a station at Hong Kong; and this intention will be materialized soon. Our Canton-Hanoi airline which is a Franco-Chinese international airline and links with postal and passenger air services in Europe, has started service for a long time. Now in order to link with international airmail services of Asia, Europe, and America, and to facilitate communications we desire to establish a station in Hong Kong. As a first step, we now appoint Mr Liu Pei-chuan, member of the Standing Committee, and Mr Wu Kam Ya, chief of the Flying Service Department, to Hong Kong in order to negotiate with the Hong Kong Authorities.

"We have the honour to request your office to ask the British Consul at Canton to write to the Hong Kong Government, introducing Mr Liu and Mr Wu, so that they may negotiate with the Hong Kong Government. When the negotiation is done, we shall ask the Ministry of Communications to refer the matter to the Ministry of Foreign Affairs so that our project will be realized."

The reply from OAG HK dated 20th May, 1937 to HBM Consulate-General, Canton reads as follows:

"With reference to your letter No.35 of 4th May, 1937 regarding the desire of the South-Western Aviation Corporation to link up their services with Hong Kong, I have the honour to inform you that this is not primarily a matter that can be dealt with by direct negotiation between this Government and the Corporation; the Committee should be invited as a first step to address their application to His Majesty's Government through the usual diplomatic channels. I shall be glad if Mr Tyau may be informed accordingly."

File CO 323/1458/50 includes hand-written notes by officials including: "The Special Delegate for Foreign Affairs for Kwangtung & Kwangsi proposed to get the approval of Nanking after the negotiations were completed, but it is no doubt right on our part to insist on the Nanking Govt's official support of the S.W. Aviation Co.'s application being obtained before we negotiate. There is a great deal of jealousy & distrust between the two S-W provinces & Nanking still, we must avoid getting HK into a position of becoming involved in an internal Chinese controversy. I think we should send a copy of this despatch to the A.M. [Air Ministry] saying we propose to comment on para. 2 as above, and ask whether they agree, ..."

File CO 323/1552/3 continues correspondence about SWAC into 1938.



This small file contains a letter from the British Consulate-General, Canton, dated 29 November, 1937 that forwards a translation of a communication dated 25 November from Dr Philip Tyau, the Special Delegate for Foreign Affairs for Kwangtung and Kwangsi:

"... I have received a letter from Messrs. Tseng Yang-fu, Liu P'ei Chuen, and Kan Chung Hew, Members of the Standing Committee of the South-western Aviation Corporation stating that, seeing that the communications at Macao are concerned with the international air transportation the Corporation is desirous of establishing an aerial station at Macao in the shortest possible time, and that the Corporation has sent its officers to discuss this matter satisfactorily with the Government of Macao whereby an aerial agreement has been concluded. The letter adds that at present they wish to extend the Canton-Macao air service to Hong Kong so as to improve means of communication, with the request that I communicate with you asking you to write a letter introducing Mr Liu P'ei Ch'uen, a member of the Standing Committee, and Mr Wu Wei, Chief of the Accounting Department of the Corporation, and they will take your letter of introduction with them to Hong Kong in order to hold a discussion with the authorities concerned."

The Consul-General explained that Mr Tseng Yang-fu was Mayor of Canton, Major-General Kan Chunh Haw was the representative of the Kwangsi Government at Canton, while Major-General Liu P'ei Ch'uen is an ex-Government official.

This correspondence was forwarded to the Foreign Office by the Governor of Hong Kong, Sir Geoffry Northcote, under despatch No. 122 of 11th February, 1938:

"With reference to your despatch No. 161 of the 10th November, 1937, regarding an application by the South Western Aviation Corporation to establish an air service between China and Hong Kong ... representatives of this Corporation have discussed with the Director of Air Services a proposal to establish air services between Hong Kong, Hankow and Hanoi.

"2. The Corporation is prepared to obtain Hong Kong Certificates of Airworthiness in respect of the machines used on these services, and to employ British or American pilots holding flying certificates which are acceptable here.

"3. In the circumstances I see no objection from the point of view of this Government, and I assume that the application may now be dealt with through the usual diplomatic channels."

The Colonial Office then forwarded this correspondence to the Air Ministry on 19th April 1938 and they replied on 28 April, 1938. The Air Ministry observed that:

"3. ...If the South Western Aviation Corporation fulfils the requirements of paragraph 2 (b) of Schedule I to the Air Navigation (Colonies, Protectorates and Mandated Territories) Order 1937, and aircraft are registered in Hong Kong, there can be no question of requiring the Company to submit their application through diplomatic channels.

"4. On the other hand, if, as is presumably the case, the Company are a Chinese concern and not eligible to register their aircraft in the Colony, their aircraft and operating personnel should... be provided with certificates and licenses issued or validated by the Chinese Authorities.

"5. If Chinese aircraft are permitted to operate to Hong Kong by virtue of a special and temporary authorisation issued under Article 27 (2) of the Order, the Governor should recognise certificates and licences issued by the Chinese authorities, subject to the requirements of Article 5 (l) (iv) that such members of the personnel of the aircraft as are British subjects shall also be provided with certificates of competency and licenses issued or rendered valid by a duly competent authority within his Majesty's dominions (not necessarily in Hong Kong).

"6. The Governor has no power under schedule II to the Order to issue a certificate of airworthiness in respect of an aircraft registered in China; nor has he any power under Schedule V to issue licences valid for the flight of Chinese aircraft."

This is the final document in CO 323/1552/3. Presumably the Colonial Office forwarded this Air Ministry advice to the Governor. There is no information on whether SWAC ever started operations to Macao or Hong Kong. When Japanese air raids started, all SWAC's services were suspended and the company's offices were moved to Kweilin in northern Kwangsi. SWAC was dissolved by the Central Government in 1938, when its personnel and nine aircraft were turned over to the Chinese Air Force.

### **Stinson Model A Tri-Motor**

Michael Coulson has written:

"Reading [the] history of the Stinson Model A ... reminded [me] that parts of VH-UHH c/n 9126 still exist in Australia. In 2005 I visited O'Reillys Rainforest Guest Lodge in the Lamington National Park. Much of the library there is given over to the flight and crash of this aircraft, the owner of the lodge being the person who found the wreck and guided others to it. On the wall are part of one of the wing struts, part of the windscreen and a propeller. The library also has a mass of newspapers of the day and other cuttings and makes for a fascinating evening's reading. Of the 7 passengers on board, 3 survived but one subsequently died when he fell over a cliff whilst trying to fetch help." [MC 08Dec2007 via DAK] Michael recommends a visit to the lodge, which is about 35miles south of Brisbane.

John Davis has written:

"Dr Miguel Narro, in Monterey, Mexico, has provided photographic evidence that XA-BHU was converted to a two-engined configuration, and thought he had leads to some other photos. Thus, despite my disbelief, I now suspect that XA-BHT and XA-BHU were both converted; whilst the status and fate of XA-BHV is still unknown." [JMD 02Jan2008]

### **Feedback 1**

On page 2007/190 we anticipated the publication of Lennart Andersson's book A History of Chinese Aviation. Encyclopedia of Aircraft and Aviation in China until 1949. This has just been published by the Aviation Historical Society of the Republic of China (AHS of ROC), 2008, ISBN 978-957-28533-3-7. Information about the contents of the book with sample pages and ordering information are at: <http://z-bok.se/catalog.html> and <http://z.bok.se/gpage1.html>. Elsewhere in the current Feedback article we refer to sections covered already in this series of articles. Additional time is required for information in these sections to be analysed; we will report any new information in a future Feedback article.

### **Feedback on Part 5 (Spring & Summer 2008)**

#### **Japan**

A search of the National Archives (PRO) online catalogue identified the following file reference, which was checked in May 2008:

CO 323/1368/4: Aviation developments in Foreign countries: Japan (1936-37). This big file is mostly to do with the Interdepartmental Committee on International Communications (IDIAC) and related to an unofficial Japanese enquiry about the use of Hong Kong on an air route from Formosa to Bangkok via Shanghai with the possibility of extension to Singapore at some time in the future. The main obstacle to this route was getting permission from the Chinese to use Shanghai. The British were willing to give permission in exchange for reciprocal rights but to Tokyo, not Formosa. Some papers discussed the Japanese MOC plans for expansion of Japanese air services in Asia but otherwise there is not much on the Japanese air industry. The Japanese had recognised that Hong Kong was becoming a hub for air communications in Asia. [MSB 02Jun2008]

Further information on the content of this file may be included in a future Feedback article.

#### **Soviet invasion of Manchuria**

On page 2008/19 the author commented that generally the Soviet invasion of Manchuria is barely mentioned in Western histories of the Second World War. "Nemesis; the battle for Japan, 1944-45", by Max Hastings, Harper Press, ISBN 13 978-0-00-721982-7, 2007, is an exception. Chapter 20: "Manchuria: The Bear's Claws" gives a good description of the Soviet invasion and mentions that the Soviet Army plundered Manchuria with the dubious justification that they were taking reparations from the Japanese. As the book is about the war with Japan, the Soviet occupation of Manchuria is mentioned only briefly.

#### **MKKK**

The stories of Chinese governments cooperating with Japan are given in Andersson at pages 168 to 173. A fleet list for MKKK is given on page 172 and known registrations are listed on page 170.

#### **Junkers Ju 160**

(Page 2008/078) Ian Johnson has received a card image showing a Ju 160 in MKKK colours carrying the registration M-211. [IDJ 18Jun08]

# The Whole Truth: THE HANDLEY PAGE HERALD

PART 6



Compiled by Derek King

## Second-hand Herald operators

Once the original purchasers began to re-equip with more modern aircraft, the Herald found a ready market when sold on. Quite a number of operators took them into their fleets and there followed a bewildering array of leases and sub-leases to other operators, sometimes wet-leased (with owner providing crews) or dry-leased (with operator providing crews). The term "leased" must serve to cover all aspects of these transactions and as many of such leases as possible have been included here, but there may be others that have gone unrecorded. Any additional details on this subject would be welcomed by the author, as would missing details on the dates of such arrangements.

## AGOCO Oil – Arabian Gulf Oil Company of Libya.

Operated a total of six aircraft at various times, all leased from British Air Ferries. They were used to ferry rig crews from and to the various wells served by their sphere of operations.

Fleet: c/ns 171, 172, 182, 186, 191, 194.

## Air Algerie, Algiers.

National carrier of Algeria, operated seven Herald's at various times, all leased from British Air Ferries.

Fleet: c/ns 167, 171, 172, 180, 182, 186, 194.

## Air Ecosse, Aberdeen, Scotland.

This Aberdeen-based commuter operator serving the cities of northern England and Scotland, such as Carlisle, Edinburgh, Glasgow and Liverpool in the 1970s and 80s including contracts for the Royal Mail. Operated four Herald's, all on lease.

Fleet: c/ns 149, 185, 195, 197.

## Autair International Airways, Luton.

Purchased the three Ministry of Aviation aircraft which had been leased to British European Airways. The aircraft were used to expand the Autair domestic scheduled services. Prior to this, because of late delivery of Ambassadors traded in by Globe Air, Autair had leased two others from Handley Page, these being G-APWA (149) from Apr63 to Aug63 and G-ASKK (161) from Aug63 to Dec63. Like most other Herald operators, Autair found the response to the type by its passengers was astonishing, and load factors were often 100 per cent! Apart from the domestic routes, the Herald's were also used on inclusive tour operations and charter flights. Autair crews were also seconded to Alia – Royal Jordanian Airlines when it was formed in late 1963 to assist with crew training.

Fleet: c/ns 149, 150, 151, 152, 161

*Above: Herald c/n 189 was originally G-ATDS but was quickly delivered to Arkia to become 4X-AHT in July 1965. (D Thompson collection)*

**British Air Ferries – BAF, Southend.** BAF can trace its history back to British United Airways (BUA), details of which were explained under Jersey Airways (*Archive* p.2010/39). When BUA was created, a number of British independent airlines merged, Jersey Airlines became part of British United (Channel Islands) Airways, whereas the two major cross channel car-ferry operators, Air Charter (operating as Channel Air Bridge) and Silver City Airways, became British United Air Ferries (BUAF). BUAF operated as such for several years, changing its title to British Air Ferries in 1967. On 27Oct71 the company was bought out by T D (Mike) Keegan, the name behind another airline, Transmeridian Air Cargo, which operated Canadair CL.44 freighters. The first Herald's were bought in January 1973, this being the start of a long and profitable association with the Herald, by 1978 their stock had increased to 16 aircraft. The Herald's operated were as follows, in order of acquisition by BAF. Further details are in individual histories.

1975: G-BCWE, G-BCZG, G-BDFE.

1976: G-BDZV, G-BEBB, G-APWA.

1977: G-ASVO, G-BAVX, (G-BEYI), G-BEYF, G-BEYG, G-BEYD, G-BEYE, G-BEYJ.

1978: G-BEYH, G-BEYK.

1985: G-AVPN (Leased)

1989: G-ATIG (Leased)

Thus it can be seen that BAF operated a total of 17 Herald's, of which two were leased in for short periods only, and one additional example that was used for spares only. The histories of these aircraft in service with BAF are incredibly complicated because BAF operated partly as a leasing company and its fleet was leased out to a bewildering array of companies, details of which are often difficult to confirm. At the same time BAF operated Herald's themselves on their scheduled services to Antwerp, Birmingham, Dusseldorf, Lille, Manchester, Rotterdam, plus a daily service to Basle via Luxembourg.

The history of BAF is also complicated by the number of other companies, within the Keegan Group, to which many of the Herald's were registered. These included Bembridge Air Hire, Killyspae Ltd, Staymond Investments and African Safari Travel. All known details of BAF operations are included in the individual aircraft histories. In 1983 the company began to suffer financial difficulties and on 26Nov83 its ownership was transferred to Jadepoint Ltd, a London based property development agency. T D Keegan remained on the board of directors and retained ownership of BAF Leasing (known as Panavia Air Cargo by this time). Panavia was placed into receivership in November 1983 but BAF struggled to survive and from 6Apr93 changed its name to

**Right:** C/n 189 returned to the UK in mid-1977 as G-ATDS for Field Aircraft Services and is seen here outside their hangar at East Midlands on 6.11.77 wearing EAF titles for their Express Air Freight subsidiary. (Wim Zwakhals Collection)



British World Airlines. However by that time most of the Heralds had been disposed of.

Fleet: c/ns 149, 159, 166, 167, 171, 172, 175, 176, 177, 178, 180, (181), 182, 185, 186, 187, 191, 194

**Express Air Services, Express Air Freight, Bournemouth, UK.**

**Express Air Freight (Channel Islands), Guernsey.**

**Channel Express (Air Services), Channel Express (Air Freight), Bournemouth, UK.**

**Dart Group PLC, Bournemouth, UK.**

This Herald operator also had a convoluted history, as can be seen from the names listed above. However the story is not that difficult to unravel. The company was formed in 1977 as Express Air Freight, based on Guernsey, bringing a welcome return of Heralds to the Channel Islands. Initially two aircraft were operated from January 1978, the main operation beginning on 15Jan78 with the carriage of flowers from the Channel Islands to Bournemouth. The two aircraft (G-BE2B and G-ATDS), were owned by Field Aircraft Services and operated by associated company Intra Airways on behalf of Express Air Freight. Two further aircraft were soon added via Fields (G-BFRJ, later G-CEXP) delivered 30Mar78 and G-BFRK (later G-GNSY) delivered 6Apr78; all four aircraft having been purchased from Arkia of Israel. Services were expanded with the increase in cargo shipments and Royal Mail contracts to the Channel Islands. The name Express Air Services was used for passenger charters and further parcel services on behalf of Royal Mail. The links with Fields were somewhat confused, as they were the parent company for Intra Airways and Air Bridge Carriers as well as Express. Field's own parent company was The Hunting Group, who wished to rationalise their portfolio and this resulted in the formation of Express Air Freight (Channel Islands) in early 1979. However, Intra Airways changed its name on 1Nov79 to Jersey European Airways and played no further part in this story.

In 1983 Philip Meeson bought out the Express companies and renamed them as Channel Express (Air Services) and began a steady expansion of Herald operations, adding a further eight aircraft to the fleet over the years. In 1986 a programme of modifications was undertaken to increase the efficiency of the Herald fleet by increasing payload from 5.4 tonnes to 6 tonnes, plus extensive avionics and flight deck equipment upgrades. The only external result was the application of "Super Herald" titles to the modified aircraft. Two Heralds were obtained from Far Eastern Air Transport of Taiwan in May87, but these were purely for spares and were broken up in Taiwan (B2001 and B2011). Two others were operated on lease, these being G-BBXI from 16Mar84 to 11Jun84 and G-BEYK from 11Jun88 to 3Jan89. All other Heralds operated by Channel Express ended their days with the company, the last examples (mainly late production aircraft) mainly being withdrawn in 1996-97.

In 1991 the company had been floated on the Stock Exchange under the name of Dart Group PLC, described as aviation specialists and specialised haulage operators, and it continued to operate as Channel Express until further expansion caused the aging Heralds to be replaced by Fokker F.27 aircraft and an Airbus A300 freighter to be acquired. From 2001 increasing numbers of Boeing 737s were introduced in freighter, QC and then pure passenger modes. In February 2003 Jet2.com began operations as a Dart Group subsidiary, initially based at Leeds/Bradford, to provide low-cost scheduled passenger services. The operation rapidly expanded to other UK bases. The Channel Express name finally ceased to exist in January 2006 with the charter and mail contracts being subsumed into Jet2.com although the 737 freighter G-CEWJ still wore Channel Express titles into 2009.

Fleet: c/ns (162), (165), 173, 174, 175, 176, 179, 184, 185, 186, 187, 188, 189, 194, 195, 197.

**Other minor owners and operators**

The minor Herald owners and operators are simply listed below by name and the relevant c/ns. Further reference to dates of acquisition or operation are included in the individual aircraft histories. C/ns in brackets were intended but not taken up; "Pres" indicates a preserved airframe.

Aerosucre Colombia SA (Colombia)	178, 180
Aero Turbo (Panama)	(185), (194)
Aerovias SA (Guatemala)	166, 182, 191
African Safari Travel, UK	172, 175
(see British Air Ferries)	
AGIP Oil (Azienda Generale Italiana Petroli)	149, 175, 185
Air Bridge Carriers – ABC	175, 194
Air Comores	(162)
Air Inter (France)	171, 173
Air Mauritanie	180, 182
Aligullia (Italy)	195, 197
(see Societa Columbia Italy)	
BAC Aircraft / Cargo	177, 187
BAF Air Tours	185, 194
(see British Air Ferries)	
Bahamas Airways	167
Bournemouth Aviation Museum	175 Pres
British Airways	194
British United Airways (BUA)	149, 163
British World Airlines	185
Business Air Centre (BAC Leasing)	176, 187
Cannel, Ronald (Derby)	166
Chemco Equipment Finance Co, UK	166
City of Norwich Aviation Museum	161 Pres
Cronin, J (Jersey)	155 (nose only Pres)
Cruz Airways, (Philippines)	(161)
Dan-Air Services / Leasing	191, 194
Duxford Aviation Society	158 Pres
Eagle Cairo, Egypt	182
Elan Air, UK	175
Euroair Transport, UK	176, 177, 187, 194
Field Aircraft Services (Aviation)	174, 189, 195, 197
General Aviation Spares, UK	149, 166, 172
Guernsey Airlines	185
Gulf Air, Bahrain	175, 185
Hards Travel, UK (see Janus Airways)	177
The Herald Society, UK	149 Pres
Highland Aviation Museum	185 (nose only Pres)
Intra Airways	174, 189
Janes Aviation, UK	177, 187
Janus Airways, UK	167, 177, 186, 194
Keegan Leasing and Management	167, 178
(see British Air Ferries)	
Killyspae Ltd	171, 180
(see British Air Ferries)	
Lineas Aereas Colombianas – LACOL	178
Lineas Aereas "La Urraca" (Colombia)	150, 151, 152
MMM Air Service (Zaire)	159, 167
Mobil Oil Co (Libya)	172, 182
Nordic Oil Services, UK	176, 177, 187
Norte Taxi Aereo - NOTA (Brazil)	149, 186, 191
Oasis Oil Co (Libya)	180, 191
Occidental Oil Co (Qatar)	175, 180
Oman Aviation Services	159



**Above:** Late in 1983 c/n 189 G-ATDS emerged in new Channel Express colours after refurbishment. The extra-wide cargo doors allowed rapid loading straight from the fork-lift truck. (Channel Express via M J Hooks)

**Left:** PP-SDJ c/n 190 of Sadia S/A which crashed on a Brazilian mountain after only 18 months in service. (M J Hooks)

SATA Air Acores (Azores)	171, 194
Securicor Air / Express (UK)	174, 179
Shell Oil Co (UK)	149
Skyguard (UK)	176
Skyways	180
Societa Columbia Italy	195, 197
Société Tunisienne de Republique Aéronautique (see Europe Aero Service)	188
South-East Air (UK)	177, 186, 187
Staymond Investments (UK) (see British Air Ferries)	172, 187
Sturgess, P (Jersey)	154 (nose only Pres)
Styx (Rock Group) UK tour	149
TFS Finance Ltd (UK)	171
Thistle Aviation Services (UK)	185
TNT / IPEC (UK)	175
Trans Azur Aviation (France)	(166), 191
Transportes Aereos de Bacia Amazonica – TABA (Brazil)	149, 186, 191
Transworld Leasing Ltd (UK) (see British Air Ferries)	159, 166, 167
Trygon Ltd (UK)	187
Tunisavia	159, 175, 182, 191
Uni Air (Taiwan)	149
United Kingdom Government	149, 194
Universal Aviation Supply Co (UK)	183
Westair Internationa Airways (UK)	177, 187
Yorkshire Air Museum	176 (Pres)

Several operators of Heralds went on to build up considerable fleets, the listing below shows the operators with the largest fleets over time.

British Island Airways	25
Air UK	18
British Air Ferries	18
Channel Express Group	16

British Island Airways (BIA) were the largest operator of the Herald, with half of total production of 50 serving with that company over time and eighteen of their aircraft were inherited by BIA's successor, Air UK. The operator of the largest fleet of purely second-hand aircraft was British Air Ferries, with eighteen aircraft owned or operated at various times. They were followed by the Channel Express Group with sixteen aircraft of which two were only for spares use.

We now continue with the final part of Herald production.

#### 189 HPR.7 HERALD 209

Thirty fourth Radlett built. Regd 12May65 (CofR R.8469/1) to Handley Page (Leasing) Ltd as **G-ATDS**, FF 12May65 and CofA No.A8469 issued 19Jul65 to Handley Page (Leasing). Cancelled 29.7.65 as sold in Israel having been deld 28Jul65 as **4X-AHT** to Arkia - Israel Inland Airlines. Damaged 18Dec72 when starboard undercarriage collapsed whilst taxiing at Lod Airport, Tel Aviv, damaging fuselage and wing. Damaged 15 Dec 75 during maintenance, port main undercarriage inadvertently unlocked and collapsed damaging wing, aileron and propeller. Delivered to Exeter 28Jly77, cancelled 1Aug77 and regd 2Aug77 as **G-ATDS** (CofR G-ATDS/R2) to Field Aircraft Services Ltd for operation by subsidiary company Express Air Freight/Express Air Services. Sold 1Aug77 to Intra Airways, another Field company, but not regd to them. Deld 2Jan78 to Express Air Freight, Bournemouth. Noted in service 15Jan78 Bournemouth-Guernsey. As of 29Nov78 TT 18,118 hr and 22,794 landings. Regd 5Oct81 (CofR G-ATDS/R3) to Express Air Services (Channel Islands). Refurbished during Nov83 and painted in new Channel Express livery. Regd 15Nov84 (CofR G-ATDS/R4) to Channel Express (Air Services) and named "Rose of Sarnia". Regd 18Jan90 (CofR G-ATDS/R5) to Channel Express Group PLC, Bournemouth. Last service 7Jan91 Guernsey-Bournemouth and WFU/stored 10Jan91 at Hurn. To airport fire service Oct95. Cancelled 7Feb96 as PWFU and broken up by Jan97.

#### 190 HPR.7 HERALD 214

Thirty sixth Radlett built. FF 2Nov65 as **PP-SDJ** and deld 7Dec65 to Sadia S/A Transportes Aereos and regd 7Mar66 as **PP-SDJ** (CofR 4996). On 3Nov67 departed Sao Paulo for Curitiba, strong turbulence encountered and hit Marumbi Peak at 4,635ft in the Graciosa Mountains, Brazil. 3 of five crew and 16 of 20 passengers killed. Cause stated as crew error in not following correct procedures in IFR conditions. Cancelled 6May68.

#### 191 HPR.7 HERALD 214

Thirty seventh Radlett built. FF 13Jan66 as **PP-SDL** and deld 1Feb66 to Sadia S/A Transportes Aereos and regd 14Apr66 as **PP-SDL** (CofR 5022). Company re-titled Jun72 as Transbrasil S/A Linhas Aeréas. Lsd Jan76 to Feb76 to Transportes Aereos Bacia Amazonica/Norte Taxi Aereo – TABA/NOTA. Noted 31.1.76 at Amazonica-Para with TABA-NOTA Titles. Traded to Boeing, July 1975 along with c/ns 149 and 186. Cancelled 23Jun76 having been regd 17Jun76 as **G-BDZV** (CofR G-BDZV/R1), deld 29Jun76 to British Air Ferries and named "Kevin



**Above:** C/n 191 PP-SDL in Sadia S/A colours in this manufacturer's pre-delivery photo. (Handley Page via M J Hooks)

**Below:** Much later, c/n 191 became a BAF aircraft and was leased to a number of operators until sold to France in 1981. It is seen here at Rotterdam in September 1982 as F-BVFP in Trans Azur Aviation titles and a colour scheme with diagonal bands somewhat reminiscent of that of BAF. (Wim Zwakhals)



**Above:** Another Herald that was originally delivered to Sadia S/A, c/n 194 PP-SDN was in Transbrasil colours when it was returned to the UK in 1973 and registered G-BAVX for new owner British Midland Airways. (via JM Collection)

Keegan". Rolled out 12Jul76 in new BAF livery. CofA issued 16Jul76 to BAF and entered service same day. Lsd 22Aug77 to Dec77 to Dan-Air Leasing (for Dan-Air Scottish services). Lsd 18Dec77 to Dec78 to Nile Valley Aviation, Cairo. As of 31Oct78 TT 21,707 hr and 22,789 landings. Lsd 1Jan79 to Jun79 to British Island Airways. Lsd Jun79 to Dec79 to Nile Valley Aviation, Cairo. Lsd Jan80 to Oct80 to Air UK. Lsd 5Nov80 to Feb81 to Oasis Oil Co. Lsd 1Mar81 to Mar81 to Arabian Gulf Oil Co - AGOCO Oil, Libya. Lsd 15Mar81 to Apr81 to Tunisavia. Lsd again Apr81 to Jly81 to AGOCO Oil, Libya. Regn cancelled 30Sep81 as sold in France. Deld 24Sep81 as **F-BVFP** to Trans Azur Aviation, Nice. Aircraft leased from Chemco Locavia SA from 10Sep82. Trans Azur was 48 percent owned by BAF. WFU/stored Oct82 at Southend but noted at Le Bourget 16Oct83. Sold Feb87 to Aerovias SA, Guatemala as **TG-AZE**. Noted still in service as of 23Oct92, later WFU/stored at Guatemala-Aurora. Scrapped by May01.

#### 192 HPR.7 HERALD 215

Thirty eighth Radlett built. FF 5Mar66 as **PI-C866** and deld 18Mar66 to Air Manila. Re-regd in 1974 as **RP-C866** to Air Manila. Became Air Manila International on company name change Dec74. Although stored in 1973 at Manila was noted 9Nov75 in new livery there. As of 29Feb76 TT 11,626 hr and 9,365 landings (one of the lowest at the time). Noted still in service 17Sep77. As of 10May78 TT 12,388 hrs and 10,213 landings. Believed WFU in 1978 but was extant 28May83 apparently in good condition. No further details known

#### 193 HPR.7 HERALD 209

This airframe was well into construction for Arkia but after the 1965 accident investigation the ARB insisted on a new series of water tank tests and this example was diverted for this purpose at Farnborough. To satisfy Arkia c/n 179 was leased to them by Handley Page.

#### 194 HPR.7 HERALD 214

Thirty ninth Radlett Built. FF 28Dec67 as **PP-SDN** and deld 10Jan68 to Sadia S/A Transportes Aéreos and regd 6Feb68 as **PP-SDN** (CofR 5416). Company re-titled Jun72 as Transbrasil S/A Linhas Aéreas. Cancelled 19Apr73. Regd 18Apr73 as **G-BAVX** (CofR R.9469/1), deld 28Apr73 and CofA issued 2Nov73 to British Midland Airways. Lsd Mar75 to May75 to Air Anglia (Leased on an 'as required' basis for three months). Last BMA service 26Sep76 Isle of Man to Birmingham to East Midlands. WFU/stored 27Sep76 at East Midlands Airport, overhaul due and "not economical" to undertake. Deld 13Jan77 to BAF, regn cancelled 14Jan77 and re-regd 27Jan77 (CofR R.9469/2) to British Air Ferries, named "Timothy Keegan". Lsd Apr77 to May77 to Brymon Aviation. Lsd May77 to Jun77 to Dan-Air Services. Lsd 16Jul77 to 3Aug77 to Gulf Air, Bahrain. Lsd 17Aug77 to 27Jun78 to Nile Valley Aviation, Cairo. As of 31Oct78 TT 16,794 hr and 18,059 landings. Lsd Oct78 to Apr79 to SATA Air Acores. Lsd 13May79 to Jun79 to Europe Aero Service (Whilst their own Herald, F-BOIZ, was overhauled). Lsd 1Jly79 to 15Jly79 to Touraine Air Transport - TAT. Lsd 10Feb80 to 9Mar80 to British Governmentt for Zimbabwe Elections. Lsd 24Apr80 to 1Jun80 to Air Algerie and also on the following dates 27Oct80 to 7Nov80, 22Nov80 to 30Dec80 and finsally 4Jan81 to 16May81. Noted 17Feb82 at Basle on BAF service. Lsd 19Feb82 to Mar82 to Libyan Arab Airlines. Lsd 19Apr82 to Aug82 to Arabian Gulf Oil Co - AGOCO Oil, Libya. Painted Oct82 for lease to Aero Turbo of Panama but NTU. Regd 9Mar83 (CofR G-BAVX/R3) to BAF Air Tours, Southend. Re-named in Sep83 "Herald Angel". Painted again in Oct83 for Aero Turbo of Panama but again NTU. Ledger amended 2Nov83 to British Air Ferries, Southend. Operated in Nov83 on XP Parcels service Luton-Maastricht. Lsd 8Jan84 to 10Mar84 to Dan-Air Services. Lsd 21Mar84 to 24Mar84 to Air Bridge Carriers - ABC and operated the Elan service Shannon-Castle Donington. Lsd 12Apr85 to 22Oct85 to Janus Airways. Lsd 19May86 to 16Aug86 Euroair Transport. Noted in BAF service at Luton 23Jun88 with Royal Mail "Datapost" titles and named "Thierry Sabina". Lsd 3Sep88 to 10Sep88 to British Airways. Regd 23Aug91 to Channel Express (Air Services), Exeter. Re-regd 30Oct91 as **G-DGLD** (CofR G-DGLD/R1) and deld 4Nov91 to Channel Express (Air Services). Entered service 4Nov91 Bournemouth to Liverpool. Regd 17Feb93 (CofR G-DGLD/R2) to Dart Group PLC but operated by Channel Express. WFU/stored 15Jul93 at Exeter, minus engines, props and landing gear. CofA expired 15Apr96. Broken up in 1996. Cancelled 19Jun96 as PWFU.

#### 195 HPR.7 HERALD 209

Fortieth Radlett built. FF 5Apr68 as **4X-AHO** and deld 10Apr68 to Arkia - Israel Inland Airlines. Cancelled 2Apr78 having been deld 30Mar78 to UK and regd 11Apr78 as **G-BFRJ** (CofR G-BFRJ/R1) to Express Air Freight (CI), Guernsey (Owned by Field Aircraft Services for operation by subsidiary company Express Air Freight/Express Air Services). Lsd 11Jun78 to 31Jly79 to Air Ecosse. As of 23Nov78 TT 16,207 hr and 20,278 landings. Regd 16Jun80 (CofR G-BFRJ/R2) to Field Aviation, Heathrow, still operated by Channel Express (Air Services). Tfd Jan83 to Channel Express Air Services - Dart Group PLC (but not regd to them). Cancelled 12Mar84 as sold in Italy. Deld 9Mar84 and regd 28May84 as **I-ZERC** to Societa Columbia Italy and named "San Candido". Lsd Oct85 to July86 to Aliguilia. WFU/stored 2Aug86 at East Midlands. Regd 29Oct87 as **G-CEXP** (CofR G-CEXP/R1) to Channel



**Above:** Photographed at Radlett before delivery, c/n 192 is in Air Manila colours and original Philippine marks as PI-C866. (Handley Page via M J Hooks)



**Left:** With the change of company name to Air Manila International and revised registration prefix RP-, c/n 192 later wore a two-tone blue livery and registration RP-C866. (K Butcher via D Thompson collection)

Itavia colour scheme



**Above:** C/n 194 as G-BAVX in revised BAF colours in early 1985 although the fuselage titles only read "British Air". (D Thompson collection)

**Right:** Like c/n 185, G-BAVX c/n194 was prepared for delivery to Aero Turbo Panama in 1982 and again in 1983 but remained with BAF. Eventually after other leases both found their way to Channel Express. (D Thompson collection)



Express (Air Services), Bournemouth. Regd 18Jan90 (CofR G-CEXP/R2) to Channel Express Group PLC, Bournemouth. Last flight Hurn - Gatwick 8Mar96; total 32,447 flights. Cancelled 22Mar96 as PWFU. Hoisted onto spectators' rooftop terrace at Gatwick on 27Mar96. Removed from there 10Sep03 and dumped next to fire training area. Condition gradually deteriorating but believed to have been used by the airport as a tug trainer.

**196 HPR.7 HERALD 203**

Forty first Radlett built. FF 25Jun68 as I-TIVI and deld 4Jul68 to Aerolinee Itavia Spa. Deld 18Dec73 and regd 18Jan74 as G-BBXJ to British Island Airways (CofR R.10217/1) and CofA issued 31May74. On 24Dec74 following take off from Southampton bound for Guernsey, starboard engine revs were low, returned to Southampton for checks and then took off again for Guernsey. On approach the starboard engine was feathered due to high temperature readings. Diverted to Jersey but was off the runway line and attempted to go-around, starboard wing and wheels struck ground and damaged beyond repair. Stripped for spares and fuselage to fire dump 24Feb75 (still there 30Aug78). Cancelled 10May83 as destroyed with TT 11,781 hr.

**197 HPR.7 HERALD 209**

Forty Second Radlett built. FF 12Aug68 as 4X-AHN and deld 16Aug68

**Right:** C/n 195 I-ZERC was the first of two *Heralds* operated by the Italian company *Societa Columbia*, seen here at Pisa on 10.10.84. (Wim Zwakhals collection)

**Below:** The second of *Columbia's* two *Heralds* was c/n 197, the last of the type to be completed. As G-BFRK it was fully painted in 1985 prior to becoming I-ZERD. (M J Hooks)



to Arkia - Israel Inland Airlines. Damaged 25Jun74, fell off jacks during maintenance at David Ben Gurion Airport, repaired. Damaged 9Dec74 when struck by a ground power unit at Dov Hoss Airport, repaired. Delivered to UK 6Apr78 and regn cancelled 9Apr78. Regd 11Apr78 as **G-BFRK** (CofR G-BFRK/R1) to Express Air Freight (CI). Bournemouth, owned by Field Aircraft Services for operation by Express Air Freight/Express Air Services. Deld 12Jul78 to Express Air Services. As of 29Nov78 TT 15,342 hr and 19,462 landings. Lsd Apr79 to May79 to British Island Airways. Lsd Jun79 to May80 to Air Ecosse. Regd 16Jun80 (CofR G-BFRK/R2) to Field Aviation, Heathrow. Tfd Jan83 to Channel Express Air Services - Dart Group PLC (but not regd to them). Regd 9Oct84 (CofR G-BFRK/R3) to Field Enterprises, Heathrow. Cancelled 21Jan85 as sold in Italy and regd 7Feb85 as **I-ZERD** to Societa Columbia Italy and named "San Lorenzo". Lsd Oct85 to Jly86 to Aliguilia. WFU/stored 2Aug86 at East Midlands. Regd 30Jun87 as **G-GNSY** (CofR G-GNSY/R1) to Channel Express (Air Services), Bournemouth. Regd 18Jan90 (CofR G-GNSY/R2) to Channel Express Group PLC, Bournemouth. Last service 24Dec96 and WFU at Hurn. Broken up 27Jan97 at Hurn. Cancelled 8Apr97 as PWFU.

C/ns 198 to 251 used for HP.137 Jetstream construction.

C/ns 252 to 257 (6 aircraft) were set aside for Herald700 series but only components were manufactured. VASP had ordered ten Series 700s on 21st April 1964 and finance was agreed by the Brazilian Finance Ministry but included provision for construction in Brazil. Following the Herald crashes the order was allowed to lapse and no Series 700 were built. At the Board meeting chaired by Sydney Tyzack in June 1969 when no *Heralds* were on order, still no decision had been made to terminate production, a contributory factor to the demise of Handley Page.

**HERALD FLYING HOURS AS OF 31Oct78 totalled TT 806,114 hr with 894,411 landings.**

This completes the production histories of the Handley Page HPR.7 *Heralds*. The author would like to thank everyone who contributed to the original research and took the time to send in additional information during the publication of this history. Specific credits are due to:

The Museum of Berkshire Aviation, Woodley.  
*The Handley Page Herald* by Graham Cowell, Janes Publishing Ltd, 1980

*The Herald Newsletter*, by Graham Cowell

*Handley Page Aircraft* (revised edition) C H Barnes, Putnam 1987  
 Several former Handley Page employees.

*Turboprop Airliner Production List*, Tony Eastwood and John Roach, TAHS 2007.

Extracts from various magazines, especially *Air Pictorial*, *Flight* and *The Aeroplane* together with *Air-Britain* magazines, including *British Civil Aviation News*, *Air-Britain News*, *Digest* and *Archive*. Important contributions were made by members of the Air-Britain Information Exchange (AB-IX).

Many individuals also contributed, to whom many thanks, particularly to Terry Judge who clarified the histories of the Canadian examples, to Ian Callier for additional data and photos, and to the *Archive* editor for the opportunity to publish this project.

#### HERALD REGISTRATION / C/n INDEX

<b>TAIWAN</b>		<b>FRANCE D'OUTREMER</b>	
B-2001	162	F-OCLY	173
B-2009	157	F-OCLZ	188
B-2011	165		
<b>CANADA</b>		<b>UNITED KINGDOM</b>	
CF-EPA	165	G-AODE	147
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**Above:** This engineless Herald, stripped completely of all paintwork, was photographed at Exeter on or just before November 1988 but remains unidentified. (M J Hooks)

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G-BBXJ	196	I-TIVI	196
G-BCWE	166	I-TIVU	184
G-BCZG	159	I-ZERC	195
G-BDFE	167	I-ZERD	197
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G-BEYI	181	PI-C869	163
G-BEYJ	182	PI-C910	161
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		PP-SDL	191
		PP-SDM	149
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G-8-2	174		
G-8-3	185		
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HB-AAH	169	TG-ASA	166
HB-AAI	173	TG-AZE	191
HB-AAK	173		
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<b>ROYAL ARAB AIR FORCE / ROYAL JORDANIAN AIR FORCE</b>		FM1026	182
109	165	FM1027	187
110	170		



**Above:** Herald c/n 191 ended its days in Guatemala where it was registered TG-AZE with Aerovias SA from 1987. (Aerogem)

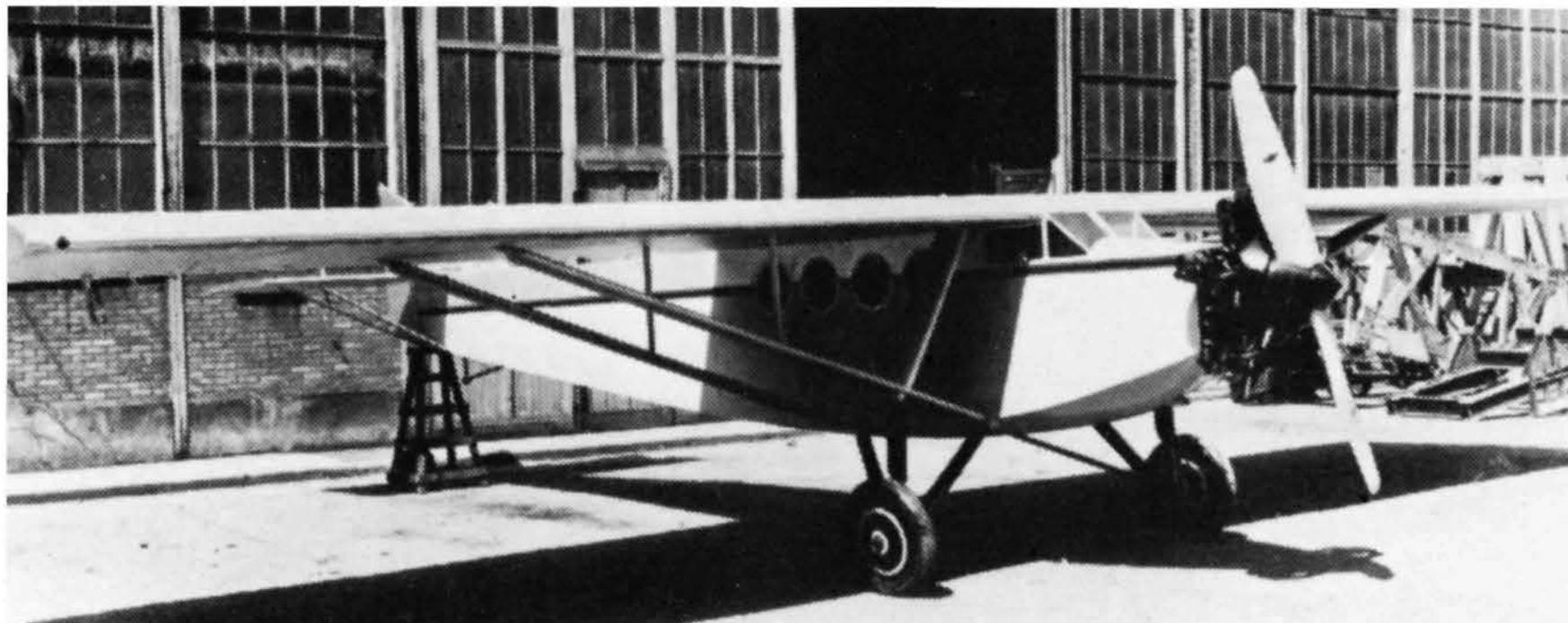
**Below:** An illustration used earlier in one of our Casualty Compendium series shows Alia - Royal Jordanian Airlines JY-ACQ c/n 170 which suffered structural failure and crashed near Damascus on 10.4.65, one of two tragic events involving Heralds in that year. (Tim Thewlis)



# The FARMAN 190 and its derivatives

Michel Barrière

PART ONE



## Introduction

At the end of the 1920s, French aircraft manufacturers followed with interest the success enjoyed in the United States by the combination of high wing monoplane types with enclosed cabin for 4 or 5 persons and equipped with a single 250 – 300 hp engine. The publicity surrounding the arrival of Lindbergh's Ryan NYP at Le Bourget, followed by the Atlantic crossing of Chamberlain's Bellanca, served to immediately intensify this interest. In this category after the Potez 32 there appeared successively the Aviameta 92-230hp and the Nieuport-Delage NiD 640.

The Farman brothers then developed what was to become one of the most successful families of aircraft in private aviation in France, the Farman 190. Built mainly of wood, fabric and aluminium, using only a little modern technology, and particularly sturdy, the Farman 190 was equally attractive to customers with a passion for long-distance touring as well as to commercial airlines, both in Metropolitan France and in the colonies. In response to the interest of political leaders in the role of aviation in strengthening and developing the colonial empire, the ministries of the Air and of the Colonies were supplied with aircraft for service or medical use. A total of nearly 150 examples were built and a number of these were to have unusual careers. Their stories and those of their pilots and engineers are the subject of this series of articles. The F.190's conception had a major effect on the company's growth because it directly influenced the commercial approach leading to the Farman 300 and to the large pre-war 4-engined airliners and military types.

The loss of the company archives began in 1940 with the useless and absurd destruction of official documents and was completed in 1942 and 1943 by the bombing of the Farman factories at Billancourt. This deprived us of virtually all the factory records and all structured documentation. Reference sources are therefore somewhat limited: "*Les avions Farman*" by Jean Liron (Éditions Larivière, 1984), "*Icare*" magazine No.82 (1977), the French civil registers and the Bureau Veritas are the most accessible of these. These sources have helped us to establish certain lines of enquiry. To progress further we have researched information and photographs found in contemporary publications of both general and specialised nature from France and overseas as well as the recollections of operators of the Farman 190. A bibliography will appear at the end of the article.

*Above:* Farman 190 no.1 outside the Billancourt factory following completion in 1928. It first flew in July of that year and was registered as F-AIVP in November. (Jack Meaden Collection)

This research is far from finished; nevertheless the information that has been gathered is sufficient to allow a fairly complete story of the Farman 190 family to be compiled.

## The Farman 190 to 390 family

### Brief description of the F.190 (Société Farman, 1929)

The Farman 190 was a single-engined monoplane with a semi-cantilever high wing supported by struts. It was intended for a motor of between 230 and 300 hp. The success of the design was confirmed by the fact that the six major engine manufacturers of the time, Gnome-Rhône, Salmson, Lorraine, Hispano, Renault and Farman, each made every effort to provide the power for the aircraft, leading to a large number of versions based on the same airframe.

In the initial version the construction of this airframe used only wood, fabric and aluminium. The fuselage was entirely built of plywood attached to a frame consisting of four longerons linked together by a set of struts designed to create a rigid shell which was then covered with linen fabric. Inside, the cockpit was planned for a single pilot while the cabin could accommodate four passengers and their luggage or an equivalent useful load.

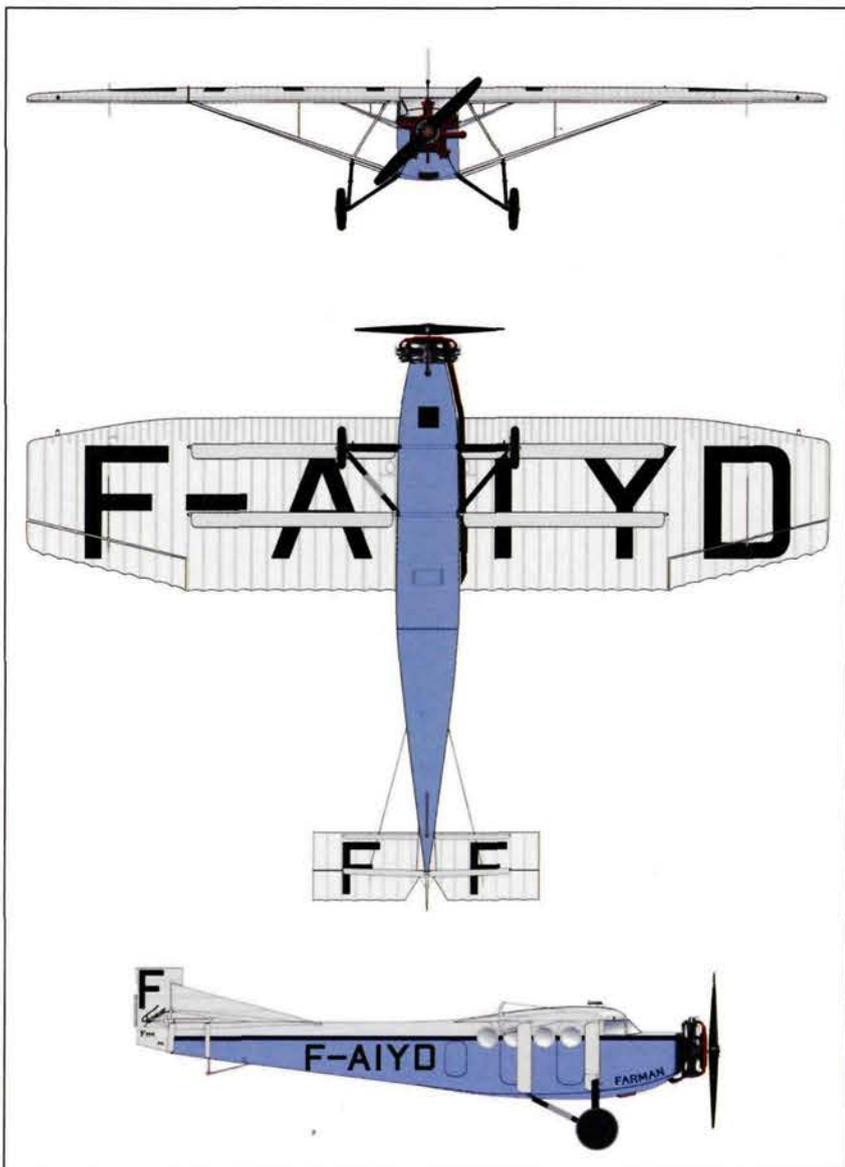
The aerofoil was built around two main spars, each wing being attached to hinges on either side of the fuselage. Reinforced ribs, known as rib boxes and joined together by a cross-bracing of piano wire, made the wing structure rigid. The wing was supported by two pairs of diagonal duralumin tube struts each covered with a streamlined spruce fairing. Each wing contained a shallow fuel tank with a capacity of between 140 and 275 litres.

The wide-track undercarriage (3.2m / 10ft 6in) had independent main wheels braced to the fuselage and to the wing struts. The suspension was very robust, fitted with Messier or Farman oleo-

pneumatic legs which allowed use on ill-prepared strips, which constituted a major advantage for the aircraft on its journeys in Africa and Asia. It could also be equipped with Messier brakes.

For the first series the linen-covered plywood fuselage could be painted to the client's taste, on the other hand the wings were covered with several layers of enamel coating and remained silver in appearance. In the absence of any specific request the fuselage was painted by Farman in a blue and white livery, the two colours separated by a darker blue cheat-line. It was not until about 1931 that colour came into use on the wings; the colour schemes of the final series, the Farman 390, being completely determined by the customer.

*Note:* A detailed technical description of the Farman F.190 can be found in issue no.177 of "Avions" magazine dated 24.8.2010.



Three-view drawing of F.190 no.6 F-AIYD in full 1930 SGTA livery.

## Principal dimensions and performance

(Gnome-Rhône 5 Ba Titan 230hp)

Wing span (^1)	14.38 m	47ft 2in
Chord at wing root	3.065 m	10 ft ½ in
Wing area	40.5 m <sup>2</sup>	436 ft <sup>2</sup>
Length (^2)	10.4 m	34 ft 1½ in
Empty weight	888 kg	1,874 lbs
Maximum weight (^3)	1,700 kg	3,748 lbs
Cruising speed @ 2,000m	160 km/h	100 mph
Maximum speed ground level	183 km/h	114 mph
Minimum speed ground level	85 km/h	53 mph

(^1) Quoted dimensions are subject to caution. We have used for the standard version the values quoted in the International Aircraft Register and an original technical document but numerous other official and factory documents such as aircraft register entries, commercial notes, etc., give a wing span of 14.1 m (46 ft 3in.).

(^2) Length varies according to model. The length of the standard fuselage unit, without rudder and engine, was 9.0 m (29 ft 6in.).

(^3) For GR 5 Ba standard version, but 1,800 kg for the reinforced

wing model. Generally speaking the maximum weight varied between 1,700 and 1,900 kg depending on version.

## Versions of the F.190 family

The Farman 190 family was developed successively into two major types, each of which was broken down into several sub-types. The F.190 to 199 and F.290 to 293, developed between 1928 and 1932, were transport aircraft which could be adapted to other uses. The numbering of the models may give the impression of a break between the F.190 series and the F.290, whereas the same concept was carried through and the numerical change was mainly due to the use of more powerful engines (mainly Gnome Rhône series K) which occurred after the F.199 had been produced. On the other hand, the models developed after 1932, the F.390 to 393, were primarily conceived as touring aircraft.

The fuselage of the F.190 and F.290 was not subjected to major change during its production. The most notable alteration was the replacing of the small portholes with large rectangular or square windows. To improve the interior lighting small ceiling windows were fitted in the roof of the cabin and cockpit.

The airline companies obviously wanted specific fittings in their own aircraft. In passenger service they generally used the F.190 as an air taxi for flights on request. The aircraft was not used on regular routes except for the carriage of night mail and freight. The only notable exceptions were the North African routes of Bône – Algiers – Oran by LANA, and Tunis – Bône by Air Union then Air France. (These F.190s were apparently the only ones to wear the official Air France livery.) For night flying work the aircraft were equipped with blind flying instruments, landing lights and TSF. One or two hatches were built into the roof of the cockpit and cabin to facilitate the evacuation of passengers and crew in the case of an accident. When several of the carriers merged to create Air France this national company was not well disposed towards single-engined aircraft and so only the best-equipped Farman 190s were retained.

The irregular, old-fashioned aerofoil of the F.190 and F.290 was available in two versions – plain or reinforced. We do not have details of the precise differences but they definitely accounted for an increase in weight of one hundred kilograms. The F.390 on the other hand was fitted with a more modern aerofoil and considerably modified tailplane. As will be seen later in this study, certain examples of the F.190 progressively acquired some of these modifications.

Farman F.190					
Type	Engine	hp	Role	Year	Remarks
F.190	GR 5Ba or GR 5Bc	230/ 240	Commercial	1928	
F.191	GR 5Bc	240	Specific	1928	
					Reinforced structure
F.192	Salmson 9Ab	230	Commercial	1929	
F.192/1	Salmson 9 Aba	280	Tourism	1935	
F.193	Farman 9Ea	250	Commercial	1929	
F.193/1	Farman 9Ebr	280	Tourism	1934	
F.194	Hispano 6Mb	250	Commercial	1929	
F.195	Salmson 9 Ab	230	Specific	1930	
					Rear turret
F.196	GR 7 Kb	300	Specific	1930	
					Metal structure
F.197	Lorraine 7 Me	240	Commercial	1930	
F.198	Renault 9 Pa	250	Commercial	1930	
F.199	Lorraine 9 Na	300	Commercial	1930	
Farman F.290					
F.290	GR 5 Kc	240	Specific	1931	
					Small military transport
F.291	GR 7 Kb	300	Tourism	1931	
F.291/1	GR 7Kd	350	Tourism	1934	
F.292	GR 7Kbr	280	Commercial	1931	

F.293	Hispano 9Qa	250	Commercial	1932
<b>Farman F.390</b>				
F.390	Farman 7Ear	150	Tourism	1932 Air Ministry subsidy
F.391	Farman 9Ecr	190	Tourism	1933
F.392	Farman 7 EAr	150	Tourism	1933 Air Ministry subsidy
F.393	Farman 9Ecr	190	Tourism	1934

Table 1 : Versions of the F.190 series

Each version of the aircraft was designated a type number according to the engine manufacturer (see Table 1 above). However this designation, used by the technicians, was not repeated in commercial records. To the press and customers the aircraft was known simply as the Farman F.190; but if need be the type of engine used could be clarified – the Farman 194 would thus become the “Hispano-engined Farman 190” or the “Farman-Hispano”.

Within this company naming system the designation F.190, generic for the whole type, was also the name of the version equipped with the Gnome-Rhône 5 Ba or Bc “Titan”, which does not help when attempting to understand the system. As Lucien Coupet, chief pilot of Farman who carried out the test flights of the F.190, said later “From the beginning, I was myself lost among the number of versions of the F.190.” (Recollections of engineer Louis Bonte, 1974)

## The complexity of Constructor’s Numbers

Study of the known production numbers and c/ns makes it clear that from 1928 to the end of 1930 all the versions of the aircraft built using the same basic structure received a number in the F.190 series. Only the F.195, for military use or export, does not appear in a list of this sequence, perhaps because the installation of the turret and the bomb racks required significant structural modifications. On the other hand this list seems to include the five F.290s built in 1930, their essential difference being that the sole cabin door became a sliding unit for ease of access.

Depending on the type of engine used, the aircraft also received a sequence number corresponding to that version. This in fact resulted in a double c/n. For the Titan-engined F.190s the two numbers were quoted together; for the other sub-types, for reasons unknown, the documentation used either one or the other system of numbering. The confusion progressively increased due to the fact that customers increasingly required modifications to the basic structure, changing the doors, the windows, the position of the fuel tanks, etc.

Commencing in 1931 this unique numbering system for airframes disappeared and the new F.290 and F.390 versions each had their own sequences. For the older models, particularly the basic F.190, the existing sequence was continued.

We have attempted to reconstruct a corresponding Farman production list. This list contains significant gaps but is relatively complete for the years 1928 to 1934 in which we are interested. The inevitable approximations do not call into question the consistency of the whole.

## Farman 190 prices

As a small commercial transport or as a private touring aircraft, the Farman 190 was expensive at a price in excess of 200,000 francs. In comparison a small touring aircraft such as the Potez 36 would cost about 50,000 francs.

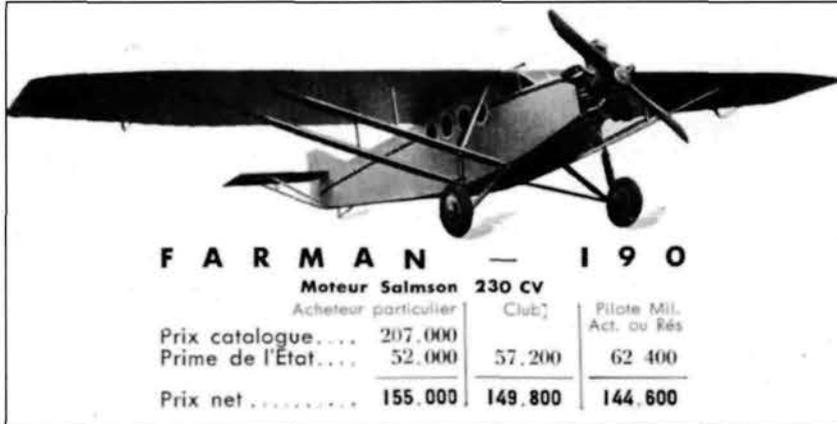
In 1930 and 1931 the purchase of a Farman 190 by a private individual benefited under certain conditions (principally in the

absence of commercial use including pleasure flights) from an Air Ministry subsidy of 60,000 francs. Subsequently this subsidy was restricted to touring aircraft powered by an engine of less than 200 hp and only certain F.390s were able to benefit from it.

Type	1931	1932	1933	1934-35	Second hand (1934)
[without engine]			[112.000]		
F.190	217,000	239,000	239,000	239,000	15 - 25,000
F.192	207,000	207,000	228,000	239,000	
F.193	217,000	217,000	239,000	239,000	
F.194	230,000		253,000		
F.197	222,000		244,000		
F.198			239,000		
F.390			150,000	150,000	30 - 45,000
F.393			160,000	160,000	

Table 2: Prices of various F.190 models (in Francs)

The F.393 was always sold in 1938 at a price of 195,000 francs.



<b>F A R M A N — 1 9 0</b>			
Moteur Salmson 230 CV			
	Acheteur particulier	Club	Pilote Mil. Act. ou Rés.
Prix catalogue....	207.000		
Prime de l'Etat....	52.000	57.200	62.400
Prix net .....	<b>155.000</b>	<b>149.800</b>	<b>144.600</b>

Extract from 1931 Saint Didier Aviation sales brochure featuring the F.192 and quoting the State subsidies available.

There were many possible options to be added to the basic price: map holder, climb and sink indicator, flight time recorder, battery for navigation lights, wheel brakes (Messier), rev counter, special paint scheme, metal propeller in place of wooden propeller; all of which could add up to a supplement of around 20,000 francs. Certain customers also added special features such as interior trim in leather or de luxe fabric, cabin heating, etc.

The technical options varied mainly as a result of the function and use intended by the customer.

## Fuel tanks

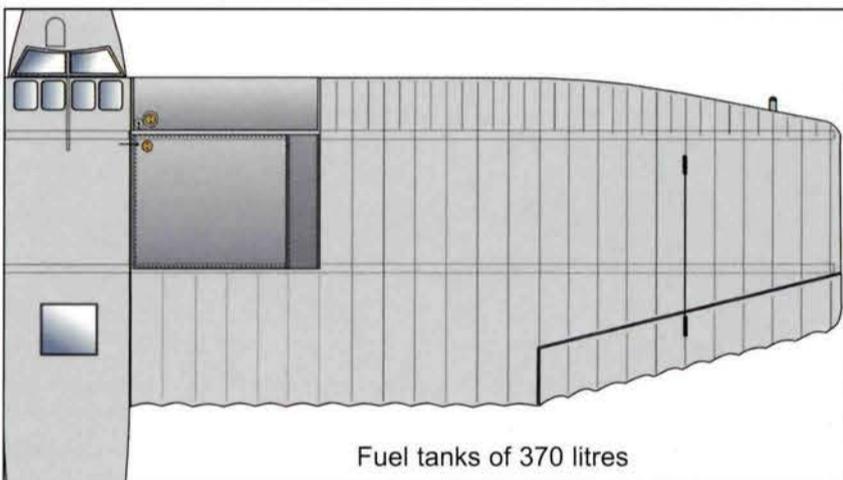
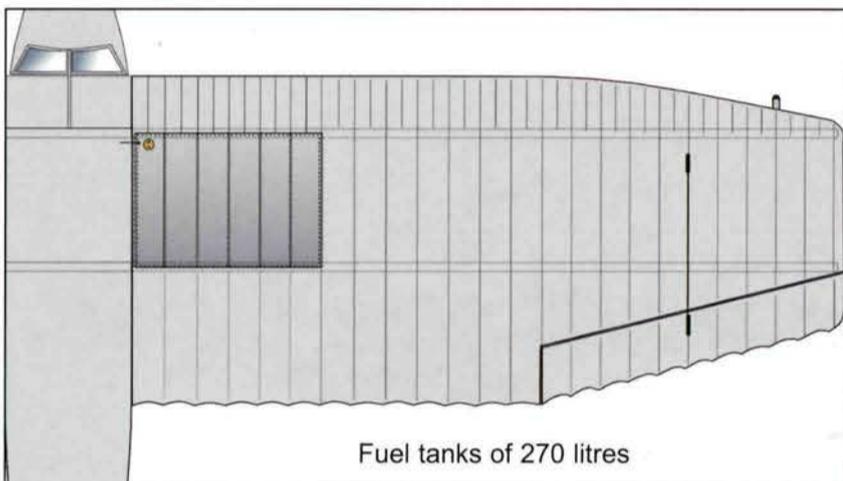
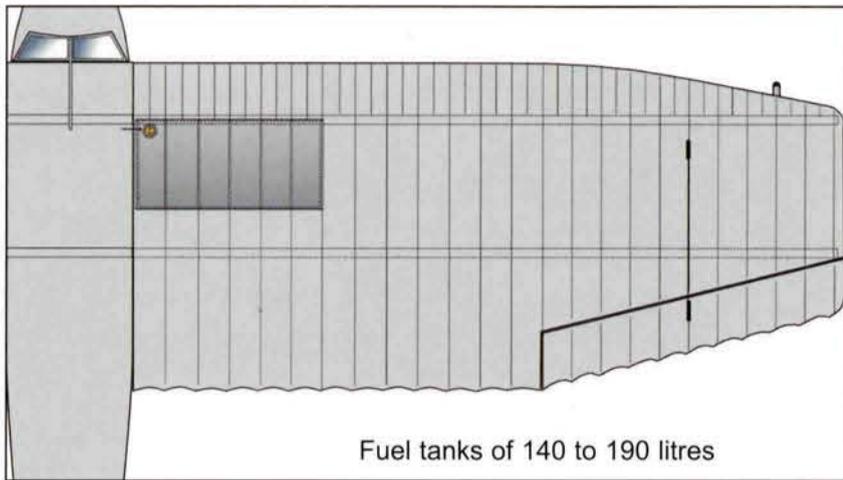
Conceived for commercial passenger, mail or freight transport and for air services, the F.190 was used just as much for long-distance and record flights, for touring and for pleasure flying in aero clubs. The various configurations of F.190s reflected the diversity of these roles.

### Wing tanks

The wing tanks of the standard F.190 were located between the two main spars. They provided gravity feed to the engine – no fuel pump was fitted. Their compartment was covered over by a sheet of aluminium reinforced by stiffeners. This configuration can be seen clearly on the F.192 preserved in the Musée de l’Air.

The literature usually quotes a capacity of 140 litres per tank, a quantity often found in commercial aircraft of European airlines in order to take advantage of a useful maximum load. However, the registers appear to show very different capacities for the private aircraft: 140, 175, 190 or 275 litres in particular. For this last size the housing is enlarged and the cover of the tank fills the whole space between the two spars.

The aircraft which carried out long distance flights in Asia or Africa, such as F.190s c/ns 50 and 52 or F.199 c/n 6, were equipped addi-



Variations in wing tank size and location

tionally with a leading edge tank originally developed for the F.197. In this case each wing was able to carry a 275 litre tank and a leading edge tank of around 105 litres, giving a total fuel capacity said to be of 770 litres.

More ambitious versions were also developed. The F.198 c/n 1 was able to carry 935 litres of fuel for example (Liron, 1984). In this case it seemed that the wing tanks supplied the engine through a central tank of about 200 litres, apparently located in the centre section of the wing above the cabin (Philippe d'Estaille-Chanteraine & Max Richou: *50,000 kilomètres au dessus de l'Asie*, Editions de France, Paris 1938).

#### Supplementary tanks in the cabin

Many operators fitted their F.190s temporarily, but sometimes permanently, with supplementary tanks in the cabin. The actual presence of such equipment can be explained specifically on a case by case basis. Most often it concerned tanks of limited capacity, about 150 to 300 litres. For C of G reasons their most common location was in the front left seat position, behind the pilot. On the other hand the tanks of the F.191, like those of Lindbergh's Ryan NYP, were located partly behind the engine.

Some long-distance and record-breaking aircraft were fitted with highly specific installations which allowed more than 1,500 litres of fuel to be carried. This was the case for the F.191 of Romeo Popesco and for the F.192 used by Lena Bernstein for their longest

duration flight records. For the F.190 'Classics', the prize went to the F.190 CH-245 used by the Swiss pilots Käser and Lüscher for their attempted Atlantic crossing in August 1929. This aircraft actually carried 2,400 litres of fuel and 740 litres of oil in large tanks occupying all the rear of the cabin.

## Cabin layout

### Transport version

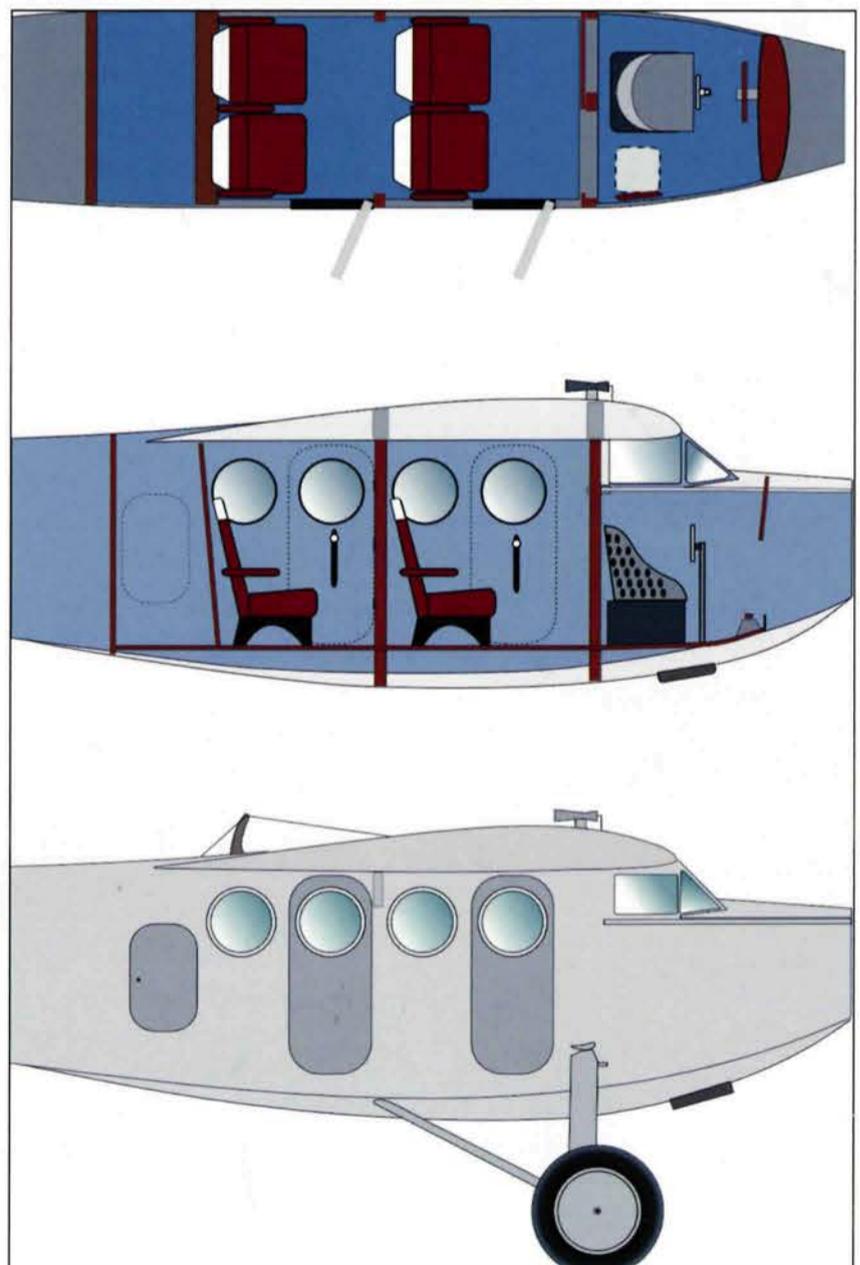
The F.190 cabin, between partitions, measured 2.20 m in length, 1.04 m in width and 1.5 m in height.

In the passenger transport version the cabin was fitted with two rows of two seats supplied with safety belts. The seats could be removed, either completely or partially, to accommodate freight, 200 kg being allowed for each row of seats removed. In the night flying version used notably by SGTA, then by Air France, only the rear seats were removed; the forward left position behind the pilot was occupied by the radio operator and his equipment.

Access to the cabin was by two side doors, the forward door also serving as access to the pilot's position. The cabin was lit and ventilated by four porthole windows which could be opened by means of sliding panes. A heating system was installed by means of a sleeve extracting warm air from around the exhaust pipe.

Particular attention was paid to sound proofing (which nevertheless remained highly relative) by the selection of a rubberised cladding. A generous baggage hold (of 0.6 m<sup>3</sup>) was located behind the cabin.

The frame separating the pilot's position from the cabin was often fitted with a partition which had a door on the right side. This partition could often be removed to allow the pilot and passengers to



Internal arrangement of the basic F.190 transport (1929)

communicate . The cockpit contained the pilot's seat, positioned slightly to the left of the aircraft centre line. It was equipped not with a classic joystick control but with a wheel. On the right a folding seat allowed a mechanic or navigator to join the pilot. (Fig.5) Some aircraft were authorised to carry a fifth passenger seat but we have not yet found any details about this fitting.

The version with porthole windows predominated in the design of the F.190 to F.199 models. Subsequently it developed by replacing the four portholes with two rectangular windows or two large square windows, one in each of the doors. (Fig.6)

In addition, a glazed ceiling panel was often used to increase the lighting in the cabin. On the commercial versions, one or two hatches were fitted in the aircraft's roof for ease of evacuation particularly in the event of ditching.

**Tourism version**

With the development of aerial tourism the 4-passenger cabin layout was not often justified. The trend was towards a version for a pilot and three passengers. The external view was improved by fitting the large rectangular or square windows.

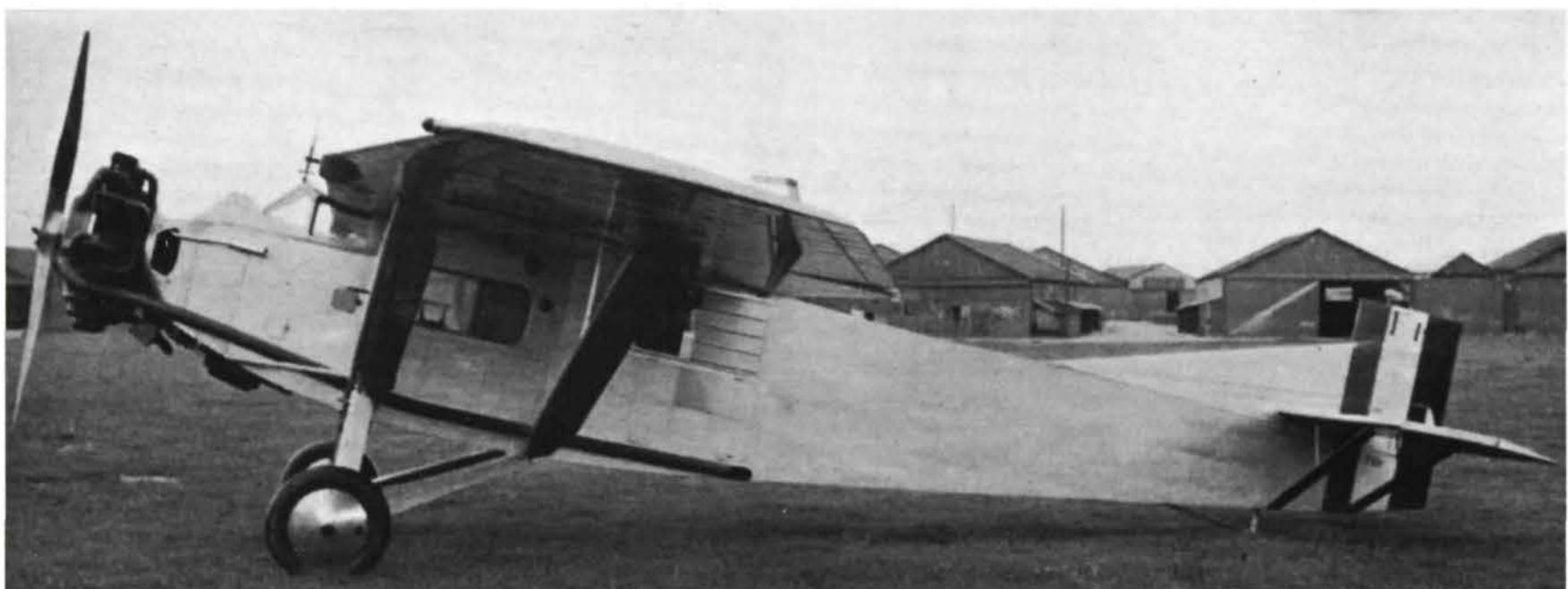
Inside the cabin the partition between pilot and passengers disappeared and the mechanic's folding seat was replaced by a proper seat. This was adjustable and allowed its occupant to converse with either the pilot or with the other two passengers who were seated on a bench seat in a cabin of reduced length.



Late transport version - square or rectangular windows were available.



Late four-seat F.190 (for 1 pilot and 3 passengers). Square or rectangular windows again available.



**Above:** An anonymous F.196 model (300hp Gnome-Rhône 7 Kb Titan) featuring a large rectangular window with another to the rear which may be a special-purpose fitting. (Jack Meaden Collection)



**Right:** A Farman F.190 with outer wings removed in the Paris showroom of Saint Didier Aviation. In the foreground is a Morane-built DH.60M Moth. (via M Barrière)



**Above:** F-ALUZ was a Renault-engined F.198 fitted with large square windows. Note the twin exhausts routed under the cabin floor.  
(Jack Meaden Collection)

### Special versions

Several aircraft were modified to enable aerial work to be carried out. On the aircraft intended for aerial mapping or photography tasks such as those used by "Entreprises de Photographies Aériennes" Moreau or by the Aérotopographie company, various openings were made to allow the installation and operation of photographic equipment. Several were modified for training by installing dual controls. As a result of testing carried out in Germany, one aircraft was specially equipped with hatches and a mechanism to allow newspaper drops in flight at low altitude.

In the F.290s used by the "Service Technique de l'Aéronautique" (Aeronautical technical service) for short-distance transport missions or for testing equipment, the two side doors were replaced by a single sliding door located over the second porthole position.

The most important modification was the F.190 ambulance version. This requirement was of increasing importance at the

time, notably for use in the colonies. In the official literature the designation "F.190 Colonial" seemed furthermore to be synonymous with the F.190 ambulance.

In this version a large upward-opening door was fitted on the left side of the aircraft. The cabin could accommodate one casualty on a stretcher and a second casualty on a higher level bunk supported by pillars. A nurse could be positioned on a stool in order to accompany the patients. A medical cabinet with a wash basin below were mounted in the rear compartment in place of the luggage hold.

The whole cabin interior was painted white.

**To be continued . . .**

**Below:** An ambulance version of the F.190 with room for two casualties (one stretcher and one upper fixed 'hammock') and a seat for an attendant.

(All drawings with thanks to Michel Barrière)

