



VOL.13, NO.4  
DECEMBER '87

# CAPTAIN'S LOG

Airline and Airliner quarterly



**BOEING 707 / 720**

BRANIFF INTERNATIONAL AIRWAYS "EL DORADO SUPER JET" BOEING 720-027, N7077, ON A PRE-DELIVERY FLIGHT OUT OF BOEING Renton in early 1961. GEORGE CEARLEY SURVEYS THE EARLY DEVELOPMENT OF THE BOEING 707 AND 720 FROM THE EARLY 1950s TO 1963 IN THIS ISSUE OF THE CAPTAIN'S LOG. (Boeing photo via J. Gerritsma)





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Thank you



American Airlines' 707-123 "Flagship Pennsylvania", N7512A, c/n 17639, at the start of another revenue flight before conversion to -123B standard in 1961. (ATP/Lawrence Smalley, via George Cearley, Jr.)

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# TAKE-OFF TALK

Season's Greetings

Log

This has been both an easy and a difficult issue of the LOG for me to put together.

Easy because George Cearley alone did 35 pages of the total issue. Not only did he write the story on the development and operations of the Boeing 707 & 720 up to 1964, he also laid out the pages and did the complete paste-ups for these. That alone saved me a great deal of time.

Difficult, because the length of this excellent article forced me to cut back on the contributions by other editors, something I hate to do. From experience in my day job as a newspaper journalist I know all too well how it hurts when the editor cuts a story to make it fit the available space, after you have written it the best way you know how.

I apologize to them, but I believe they and you, the readers, will agree with me that Mr. Cearley's 707/720 history and early schedules deserve all the space they received.

As Mr. Cearley researched the topic, he came across some factual errors about the 707 which have crept into the popular aviation literature over the years. In this issue of the LOG he has set the record straight for all time.

Several other editors have piggybacked on the 707/720 history with their own material on these aircraft. Don Thomas shows some fine stickers promoting the type, Bill Demarest presents several fine postcards of early 707/720s, Dick Koran remembers the days when he flew the type for American Airlines, Carl Reese looks at safety cards used on board 707s and Al Tasca shows some swizzle sticks used on TWA and Lufthansa 707 services. Dick Luckin, although not referring directly to the 707/720, included some pieces of china used by airlines which operate(d) the aircraft.

Model editor Gerry Cole presents his followers with two pages of photos and helpful hints on modeling, contributed by readers.

WAHS president and LOG publisher Paul Collins gave some extra pages for this issue. It

helped a bit. (Thanks, Paul!), but I still have a lot of very fine copy and photos left over for the next issue. about half of Mr. Thomas's stickers (all non-707/720); nearly 20 post-1963 707 cards from the collection of Mr. Demarest as well as a long list of new airline-issue postcards and cards from commercial and hobby publishers.

A long list of new products by Mr. Cole with photos, some photos and supporting material from Mr. Luckin and a several wings photos plus descriptions from Mr. Koran are also left over. Included in the latter are four unique photos of prototype American Airlines pilots' wings, which were never adopted by the airline.

Also bumped out of this issue was a pile of material on the DC-1, -2 and -3, including (again!) a rare photo of a Cordova Airlines DC-3, from Ron Suttell of Kent, WA and stories and photographs on several famous DC-1 and -2 flights, and on the efforts by the Dutch Dakota Association to restore a DC-2 and preserve a DC-3 to the year 2010 to fly it again on 17 DEC, the 75th anniversary of the maiden flight of the first Douglas DST, the original version of the DC-3.

I apologize to Mr. Suttell for holding his Cordova DC-3 photo (again!) and to WAHS members Michael Prophet and Jan Koppen for holding their story and photo on a tramp 707 freighter operating out of Amsterdam. Both were scheduled for this issue, but ...

Reviews of several new and exciting airline books, prom-

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used in 12/3 for this issue, must also wait for LOG 14/1.

With all this material - and much more - waiting for publication, and no doubt additional material coming from your editors, we have an exciting first issue for our 14th year coming up! Are you listening, members whose memberships expire with this issue? If you renew right away when you get your notice from Paul, you not only help him a great deal, but you'll also be assured of receiving the next issue of your CAPTAIN'S LOG right after it is published. It is worth waiting for!

Last but not least, I thank WAHS member Jerry Soltis of Buffalo, NY, who played an important role in getting this issue out. There was a postal strike in Canada in late September and the first two weeks of October. Mr. Soltis agreed to have your editors send their copy to him, where I picked it up.

That is all for now. See you in the next issue!

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# AIRCRAFT PROFILE

by GEORGE W. CEARLEY JR.

## BOEING 707/720

DEVELOPMENT AND EARLY HISTORY TO 1963

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George W. Cearley, Jr.

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FIRST PRODUCTION MODEL 707 WAS THIS 707-121, N708PA, WHICH MADE ITS FIRST FLIGHT OUT OF BOEING RENTON ON DECEMBER 20, 1957. (Boeing Photo via J. Gerritsma)

## Boeing 367-80 ("Dash Eighty")

The prototype jet transport, the 367-80, was developed and intended solely to be a test aircraft and demonstrator. It was first flown on July 15, 1954, over three years before the first production model 707. Smaller than the later production model 707's, the 367-80 had a length of 119 ft. 6 in. and width of 132 in. Both dimensions were increased on the production models. The "Dash Eighty" was initially powered by four Pratt & Whitney JT3C-1 turbojet engines, which represented a commercial version of the military J57 engine initially used on the B-52. The JT3C (or J57) is a two spool axial flow turbojet engine which utilizes water injection during takeoff.

The "Dash Eighty" has been involved in a number of test programs including: (1) radar controlled landings; (2) weather radar, being fitted with a Bendix AMQ-15 unit; (3) demonstrations to the USAF as a KC-135-type tanker, equipped with a dummy refueling boom and forward cargo door on the left fuselage; (4) noise level tests with the aircraft operating with various types of sound suppressors; (5) flights with different kinds of auto pilot systems; (6) in-flight tests with three different engine types mounted at the same time - with one inboard JT3-6 engine, one inboard JT4A, and two outboard JT3C-1's (the inboard JT3-6 representing that used on the 707-120, the inboard JT4A, that on the 707-220 and -320, and the outboard JT3C-1's, those originally used on the "Dash Eighty"); (7) anti-icing studies with an ice producing machine mounted on the right inboard engine; (8) an intentional landing on an unprepared surface, the dry bed of Harper Lake in Southern California - using a high flotation landing gear; (9) landings at low speed demonstrated with boundary layer control in which engine bleed air is directed over control and air foil surfaces; (10) tests of highlift devices with first plain and then slotted leading edge flaps, also double then triple trailing edge flaps and a plain flap on the wing fillet; (11) operation and stress with a fifth JT3C engine mounted on the aft fuselage with a "clam neck" pipe to direct exhaust gases over the tail plane to test aft engine performance as part of developmental projects for the Boeing 727.



AT LEFT: BOEING 367-80, THE 707 PROTOTYPE AT ROLL OUT CEREMONIES, JULY 15, 1954. (Boeing Photo via J. Gerritsma)





THE "DASH EIGHTY" WHEN IT WAS EQUIPPED WITH A DUMMY REFUELING BOOM AND FORWARD CARGO DOOR FOR DEMONSTRATION TO THE USAF AS A KC-135-TYPE TANKER. (Boeing Photo via J. Gerritsma)

In the first seven years between 1954-1961, the "Dash Eighty" completed 24 test projects, logging over 1400 flying hours for these programs. In 1962 the 367-80 was fitted with four Pratt & Whitney JT3D-1 turbofan engines. Later a fifth engine was mounted on the aft fuselage for 727 test programs, this time a JT8D turbofan engine like that actually powering the 727.

The "Dash Eighty" over the years served well as a test bed airplane for many design innovations and as a mode of experimentation for many new aeronautical projects.

PRODUCTION MODEL 707'S

The production commercial jet transport, the Boeing 707, was offered in four basic types, the -120, -220, -320, and -420, with subvariants in the -120 and -320 series, but not the -220 and -420. The -120 represented the domestic version while the -320 and -420 were longer range or "intercontinental" versions. The -220 had the dimensions of the standard -120 but the larger and more powerful engines of the -320.

The first airline to order the 707 was Pan American World Airways, Inc., which announced an initial order for 20 aircraft on October 13, 1955. Six of these were ultimately delivered as 707-120's and 14 as 707-320's.

Assignment of Customer Numbers for Boeing Aircraft

As noted above, the 707 was initially offered in four basic types, the 707-120, -220, -320, and -420. The number "20" (or last two digits of the suffix) represented the basic "customer" number assigned to the Boeing Commercial Airplane Co. Airline customer numbers were originally built on this number "20". Pan American was customer "01"



AT LEFT: 707-121, N709PA, THE THIRD PRODUCTION AIRCRAFT, BEGAN OPERATING EXPERIMENTAL CARGO FLIGHTS BETWEEN NEW YORK AND SAN JUAN FOR PAN AMERICAN IN AUGUST 1958. (Boeing Photo via J. Gerritsma)

and "01" added to "20" became "21". Pan American's 707-120 and 707-320's thus were 707-121's and 707-321's, respectively. TWA was assigned customer number "11". Adding "11" to "20" gave "31", and TWA's 707-120's and 707-320's were thus 707-131's and 707-331's. This original way of determining customer numbers has been lost over the years and the need to abandon this original manner of deriving suffix numbers occurred as the numbers between -21 and -99 were eventually almost completely taken. A few numbers between -21 and -99 were intentionally left open for major airlines which did not initially purchase Boeing equipment. For example, the number "32" or (20+12) was not used until twelve years after the 707 went into service. It was assigned to Delta initially for the airline's 747-132's which entered service in 1970.

After the numbers -21 through -99 were essentially exhausted, the numbers between -01 and -19 were used. These were then followed in later years by assigning various alphanumeric (letter-number) combinations as "B7" for Allegheny, "H4" for Southwest, etc.

707-120 (Offered in Standard Long and Short Fuselage Versions)

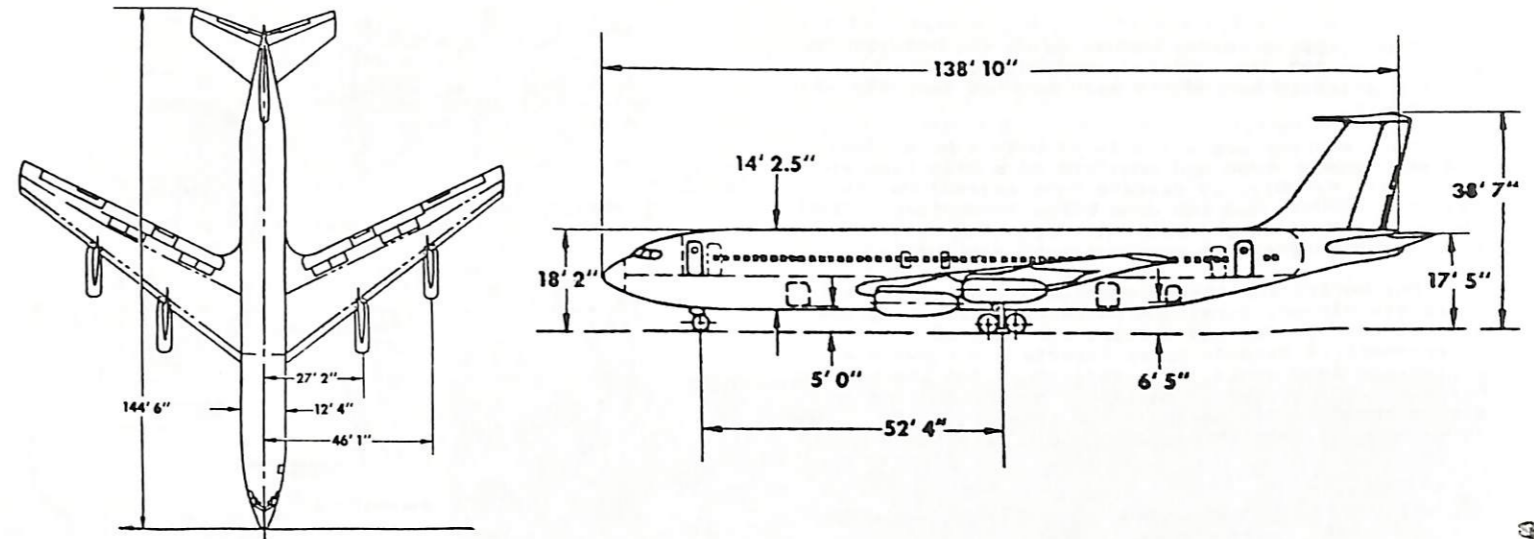
The long version 707-120 had an overall length of 144 ft. 6 in. and fuselage length of 138 ft. 10 in. This difference in overall and fuselage lengths has led to some confusion in later years regarding the lengths in particular of the 707-138, 707-220, and Boeing 720. For example, the 707-220 has the same overall length and fuselage length as the 707-120 long version. However, the 707-220's fuselage length has been confused in articles with the overall length, erroneously quoting the overall length as 138 ft. 10 in. and leading one to believe the -220 is six feet shorter, although it is not.

Wingspan of the 707-120 (long and short versions) is 130 ft. 10 in. and height from ground level to top of vertical stabilizer before tail modification was 38 ft. 7 in.

With the production model 707-120, Boeing increased the fuselage width to 141 in. (9 in. wider than the 132 width fuselage of the 367-80). This made possible six across seating with three seats on either side of the aisle, and thus more passenger capacity.

Also, with more powerful derivatives of the JT3C engine (JT3C-6 instead of the JT3C-1 used on the "Dash Eighty"), fuselage length could be increased and more fuel could be carried, allowing increases in gross weight.

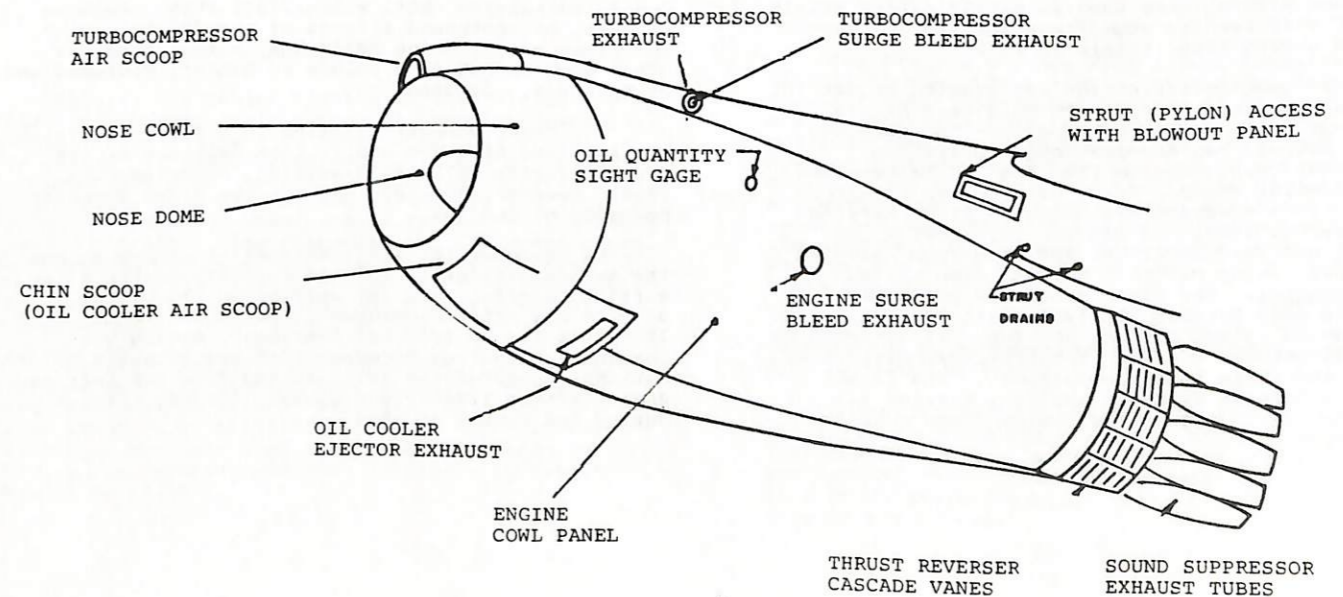
The short version 707-120 had an overall length of 134 ft. 6 in. and fuselage length of 128 ft. 10 in., thus it was 10 ft. shorter than the long version 707-120; however, wingspan and height were the same. The only customer for this version was Qantas of Australia, which also became the first non-U.S. airline to offer 707 service (summer 1959).



TOP RIGHT AND ABOVE LEFT: DRAWINGS ILLUSTRATE DIMENSIONS OF LONG VERSION 707-120 AND 707-227. ON RIGHT: 707 EXTERIOR LIGHTING CONFIGURATION.

Both the long and short version 707-120's were powered by four Pratt & Whitney JT3C-6 turbojet engines which were an improved version of the "Dash Eighty's" JT3C-1 engine. Each engine developed 13,000 lbs. thrust on takeoff with the use of water injection (11,000 lbs. thrust with dry engine). One feature of this engine was that it took longer to build up to takeoff speeds than more recent powerplants. To compensate for this water injection was added. Water was introduced into the torrent of air

entering the engine intake to increase density and lower temperature. More fuel could be burned in the takeoff roll and takeoff thrust was increased. Each plane carried close to 700 gallons of water for the injection process. A large column of dark black smoke was put out by the engines on the takeoff roll and was to a large extent associated with the water injection process. As soon after takeoff as the injection process ceased most of the smoke subsided.



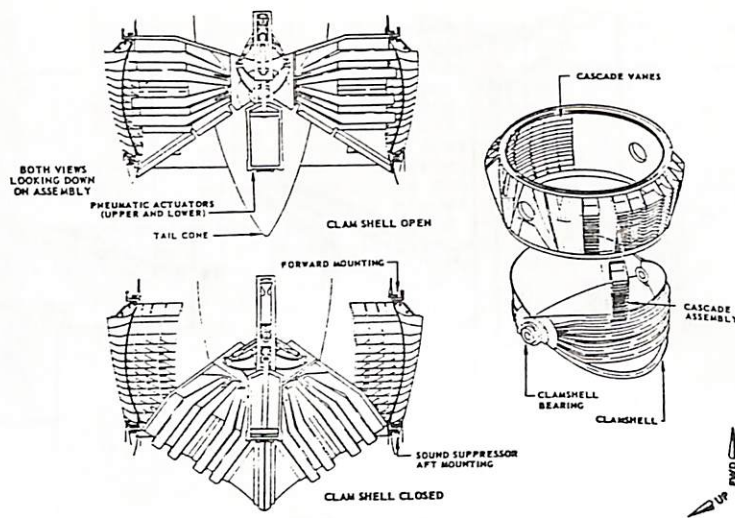


The thrust reverser mechanism on the 707-120 (as well as the 707-220, 707-320, and 707-420), is mounted slightly behind the main turbine assembly of the engine.

The reverser mechanism is of both a mechanical and aerodynamic type and consists of a main ring and deflector assembly, 20 cascade vane assemblies, two clamshell doors, and two door hinge assemblies. The thrust reverser is pneumatically operated by bleed air from the high pressure compressor of the engine.

During reverse thrust operation, the clamshell doors are closed, forming a half-sphere blocking the exhaust gas pathway and forcing air forward. Arrangement of cascade vanes directs air forward at a predetermined angle. The deflectors for the various cascade vane assemblies on each side of each engine are arranged at different angles to prevent the ingestion of exhaust gases by the adjacent engine.

BASIC THRUST REVERSER MECHANISM, TURBOJET 707-120, -220, -320, AND ROLLS ROYCE CONWAY 707-420; ALSO TURBOJET 720-020.



SECOND PRODUCTION 707 WAS THIS 707-121, N707PA, BUILT FOR PAN AMERICAN. IT, ALONG WITH N708PA AND N709PA, WAS USED IN CERTIFICATION TRIALS. (Boeing Photo via J. Gerritsma)

#### 707-120 Developmental History and Early Service

The first production model 707-120, Aircraft N708PA, was not flown until over three years after the Dash Eighty - its first flight being December 20, 1957. The second production plane was N707PA, although this latter plane has been erroneously quoted as being the first production aircraft, which it was not. N707PA was not rolled out of the factory until January 30, 1958, and its first flight was not until March 21, 1958, over three months after the first flight of N708PA on December 20, 1957. Both planes were 707-121's built for Pan American World Airways, Inc.

The first three production aircraft, N708PA, N707PA, and N709PA, were used in certification trials. Automatic wing leading edge flaps for the 707 were developed during these trials in 1958.

Provisional certification was granted August 15, 1958, and the first 707-121 (in this case Aircraft N709PA) was delivered to Pan American the same day. Later in August, Pan American began operating experimental cargo service with the 707 between New York (Idlewild) and San Juan, using N709PA, Clipper America. This aircraft crashed at Elkton, Maryland, on December 8, 1963. On October 16, 1958, a pre-inaugural and preview flight was made from Idlewild to Brussels, using Aircraft N710PA, also called Clipper America. The first scheduled passenger flight was made October 26, 1958, with 707-121, N711PA, again called Clipper America. It operated as Flight 114 between New York International Airport at Idlewild and Paris LeBourget Airport. The flight, piloted by Captain Samuel H. Miller, carried 111 passengers, including Dallas resident and actress Greer Garson.

The 707-121's were operated on Pan American's transatlantic flights during winter 1958-59 even though they were a domestic version aircraft. This allowed Pan American to remain competitive at this time in the transatlantic market.

BOAC had begun its own jet service across the Atlantic with the DeHavilland Comet IV, G-APDC, almost a month earlier on October 4, 1958, between New York and London Heathrow.

The Pan American 707-121 designed for domestic operation had a lesser range and lower fuel capacity than the 707-320, which would not be available for scheduled service until summer/fall 1959. Because of this, on westbound flights of the 707-121, with the plane encountering headwinds, a fuel stop was often required at such points as Gander, Newfoundland, or Keflavik, Iceland.

The first domestic airline to order the 707-120 was American Airlines and it took delivery of its first aircraft, N7501A, a 707-123, on October 23, 1958. However, American was not the first domestic operator of the 707.

On December 10, 1958, National Airlines became the second airline to operate the 707 and the first airline to offer pure jet service in the U.S.A. Service was offered between Idlewild and Miami using 707-121's leased from Pan American. Making the inaugural flight on December 10th was Aircraft N710PA. National operated the 707's leased from Pan American during winter 1958-59 and winter 1959-60, but not during the summer of 1959.

American became the second carrier to offer 707 service in the United States and the first not only to offer transcontinental jet service, but also the first airline to operate its own rather than leased jets in domestic operation. The first service was inaugurated January 25, 1959, with "707 Jet Flagship" Flight 2, from Los Angeles to Idlewild, with Captain Charles A. Macatee at the controls. One daily round trip was initially operated. Three weeks later, on February 15, 1959, a second daily round trip was added. This later service on February 15th was discussed in the book, Boeing 707, by Martin Caidin.

The customers for the non-fan 707-120, number of aircraft ordered, customer number, and date of first service are shown below:

- (1) Pan American, six 707-121's, October 26, 1958.
- (2) National - 707-121 leased from Pan American, December 10, 1958.
- (3) American Airlines - twenty-five 707-123's, January 25, 1959.
- (4) Trans World Airlines (TWA) - fifteen 707-131's, March 20, 1959.
- (5) Continental Air Lines - five 707-124's, June 8, 1959.
- (6) Qantas - seven 707-138's, July 29, 1959.
- (7) Western Air Lines - two 707-139's (originally ordered by Cubana but leased from Boeing) - June 1, 1960.
- (8) AVIANCA - 707-121 leased from Pan American - N711PA, October 17, 1960.

BOEING 707-124, N70773, ONE OF FIVE 707-120'S DELIVERED TO CONTINENTAL IN 1959-60, IS SHOWN HERE IN ORIGINAL GOLD, RED, WHITE, AND BLUE "GOLDEN JET" COLOR SCHEME OF 1959-62. (Photo via Continental and J. Gerritsma)



QANTAS WAS THE FIRST NON-U.S. OPERATOR OF THE 707 AND THE ONLY CUSTOMER FOR THE SHORT-BODIED 707-120. SHOWN HERE IS 707-138, VH-EBA. (Boeing Photo via J. Gerritsma)

#### 707-120B

This is the fanjet version of the 707-120 ("B" suffix designates the presence of turbofan powerplants). The 707-120B is powered by four Pratt & Whitney JT3D-1 turbofan engines. It was actually developed after the Boeing 720 and consequently incorporates many designs and systems of the 720. A "glove" on the wing leading edge inboard of the inner engines decreases wing thickness via increased chord, permitting a Mach 0.02 increase in speed. Also present are Kruger-type wing leading edge flaps which improve takeoff performance and aircraft flight characteristics at lower air speeds.

The -120B was initially developed for American Airlines and first flown June 22, 1960. The type certification was granted March 1, 1961, with the first aircraft entering service with American March 12, 1961. American also instituted a program to convert all existing turbojet 707-123's to fanjet powered 707-123B's.

The Pratt & Whitney JT3D-1 is a turbofan engine similar to the JT3C-6 engine, with a fan mounted forward of the compressor section of the engine. Fan air is exhausted from the annulus around the aft fan cowlings. Main turbine air is exhausted from an opening in the translating cowlings on the aft of the engine. The fan air forms a cylinder of cooler air around the hotter turbine exhaust gases and helps to smooth out air flow and reduce air turbulence aft of the engines. At the same time noise level is reduced. No separate sound suppressor mechanism is fitted to these engines.

Air reversal is both of the mechanical and aerodynamic type. Both fan air and turbine main gas flow air can be reversed.

A fan air deflection ring is present around the aft portion of the fan cowlings. When opened aft (translated aft) on landing a series of cascade vanes are exposed which direct air forward rather than aft at a predetermined angle. This is an aerodynamic type of air reversal.



Located aft of the main engine nacelle (or pod) is a translating cowling (thrust reverser sleeve). When opened on landing, two clam shell buckets close in a half sphere manner inside the cowling to create a mechanical blockage of air flow aft and direct air flow forward. At this same time, cascade vanes are exposed by the aft movement of the translating cowlings. The cascade vanes and clam shell buckets together combine to direct air forward rather than aft at a predetermined angle. Thus, the reversal accomplished by the translating cowling is both mechanical (clam shell doors) and aerodynamic (cascade vanes).

Original customers for the 707-120B, number of aircraft ordered, and first service dates are shown below:

1. American Airlines, one 707-123B (new), March 12, 1961, plus conversion of all turbojet 707-123's in fleet to fanjet 707-123B's.
2. QANTAS, four 707-138B's, September 1961 (plus conversion of its non-fan turbojet 707-138's to fanjet 707-138B's).
3. Trans World Airlines, eighteen 707-131B's, April 29, 1962.

Each 707-120B was fitted with a tall vertical stabilizer and a vestigial-type (or small) ventral fin. When American's 707-123B's and QANTAS' 707-138B's were delivered, they were also equipped with an HF antenna atop the forward vertical stabilizer. 707-131B's delivered to Trans World Airlines did not have an HF antenna.



QANTAS, 707-138B, VH-EBA, WAS ONE OF SEVERAL 707-138'S CONVERTED TO TURBOFAN STANDARDS. IN ADDITION, FOUR AIRCRAFT WERE DELIVERED NEW AS 707-138B'S TO THE AUSTRALIAN CARRIER BEGINNING IN SUMMER 1961. (QANTAS Photo via J. Gerritsma)

THE FIRST OF EIGHTEEN 707-131B'S ENTERED SERVICE WITH TWA ON APRIL 29, 1962. THIS AIRCRAFT, ALONG WITH THE 720-051B WHICH JOINED THE TWA FLEET IN 1961, WERE FIRST TO CARRY THE SERVICE MARK, "STARSTREAM". (TWA Photo via J. Gerritsma)

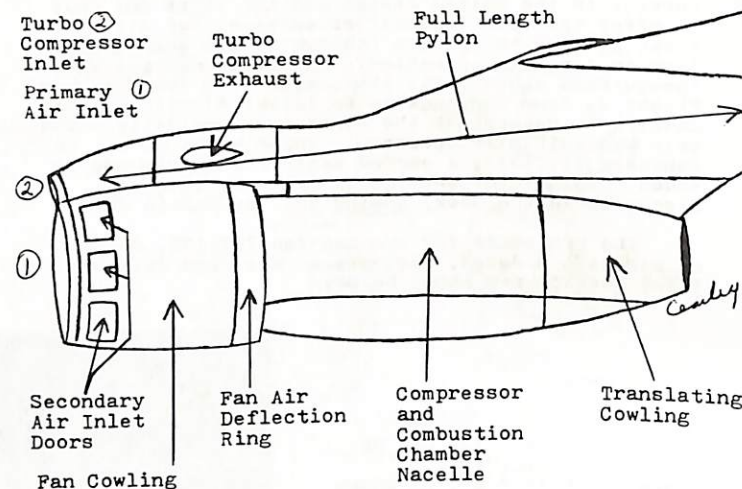
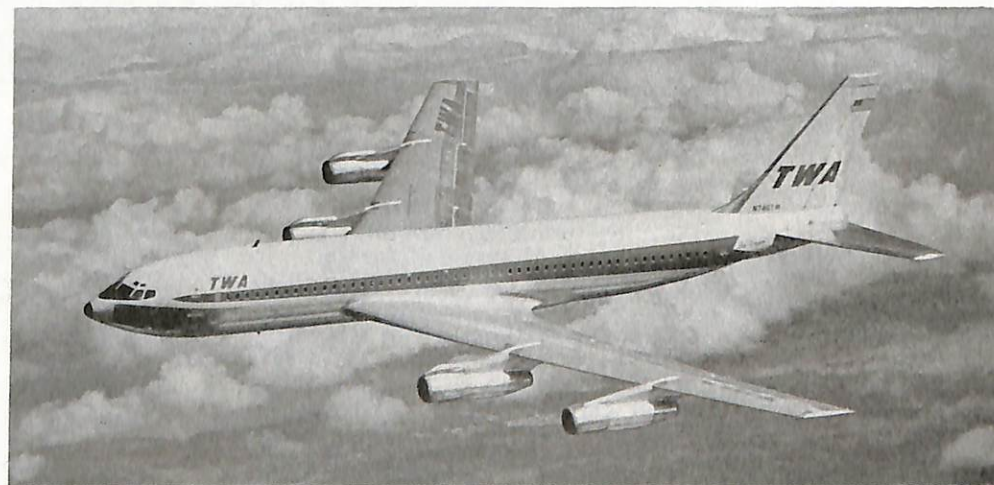


ILLUSTRATION OF EXTERIOR OF INBOARD PRATT & WHITNEY JT3D-1 TURBOFAN ENGINE ON THE 707-120B WITH FULL LENGTH PYLON AND TURBOCOMPRESSOR.



THE 707-227 HAD THE SAME DIMENSIONS AS THE LONG VERSION 707-120 BUT WAS EQUIPPED WITH THE LARGER AND MORE POWERFUL JT4A TURBOJET ENGINES. SHOWN HERE IS AIRCRAFT N7071 IN FLIGHT OVER THE CASCADE MOUNTAINS IN 1959. (Braniff Photo via J. Gerritsma)

#### 707-220 (BRANIFF'S 707-227)

The 707-227 has the dimensions of the long version 707-120, with an overall length of 144 ft. 6 in. and fuselage length of 138 ft. 10 in. Wingspan is 130 ft. 10 in. and tail height originally 38 ft. 7 in. It has been reported that the 707-220 was a shorter length than the long version 707-120 (like the 707-138 or 720) but this was not the case.

Although the 707-220 had the airframe of the long version 707-120, it was equipped with the much larger and more powerful JT4A turbojet engines, also used on the 707-320. The JT4A, derived from the military J75 engine, was a "dry" engine which did not utilize or require water injection on takeoff. Each engine developed 15,800 lbs. thrust on takeoff. Much better airfield performance was provided with the JT4 and shorter distances for takeoff were possible.

The 707-220 with its larger and more powerful engines like those on the 707-320, but the fuselage of the domestic 707-120 (long version) made it a higher performance or "hot rod" aircraft. Cruising at 636 mph, it was the fastest variant of the 707 family and equivalent to, if not faster than, the Convair 880 and 990, making it the fastest subsonic airliner. In Braniff Airways' ad campaigns it was promoted as "World's Fastest Jetliner".

Each of the 707-227's JT4A turbojet engines was mounted in larger diameter pods (or nacelles) than those of the 707-120. Because of this, the 707-227 earned the nickname "The Jet With The Big Engines".

All engine pods are mounted to the wings via full length pylons which extend to the forward portion of each engine. Three of the four pylons are equipped in their forward portions with turbocompressors used in cabin air conditioning. Only the number one engine pylon does not contain a turbocompressor. Again, however, all pylons are of the full length type and all four contain an inlet or opening for air entering the turbocompressors.

Each engine is equipped with thrust reversers mounted aft of the turbine section of the JT4 engine.

Sound suppressors are also present, but are of a different design than those of the JT3C-6. When viewing the suppressor from behind and looking forward, it is composed of an outer ring of "organ pipes" and an inner "daisy petal". The JT3C-6 suppressor had an inner and outer ring of "organ pipes".

Only five 707-220's were built, all for Braniff Airways, which announced the purchase on December 1, 1955.

The rollout of the first 707-227, N7071, was April 30, 1959, and the first flight was made on June 11th from Boeing Renton. During the next four months a number of test and training flights were made.

While on an acceptance flight before delivery on October 19, 1959, Aircraft N7071 crashed near Oso in the Snohomish area along the Stillaguamish River. The CAB concluded that the accident was "the result of structural failure of the Nos. 1, 2, and 4 nacelle pylons and a fire in the area where the No. 2 nacelle had separated". It also concluded "the nacelles failed as a result of overloads imposed on them during several violent uncontrolled gyrations which were encountered when the pilot trainee applied improper control movement in an attempt to recover from a Dutch Roll". The CAB further concluded "the instructor pilot initiated the Dutch roll to an angle of bank far in excess of the limitations imposed by the company".

As a result of this accident and of findings made in test flights with the 707-420 in early 1960, it was concluded certain modifications were needed. The height of the vertical stabilizer was increased and a large or full size ventral fin was added. The heightened vertical stabilizer and ventral fin helped to improve lateral control of the aircraft during periods of asymmetric thrust. The ventral fin also served to prevent a too high rotation angle on takeoff.

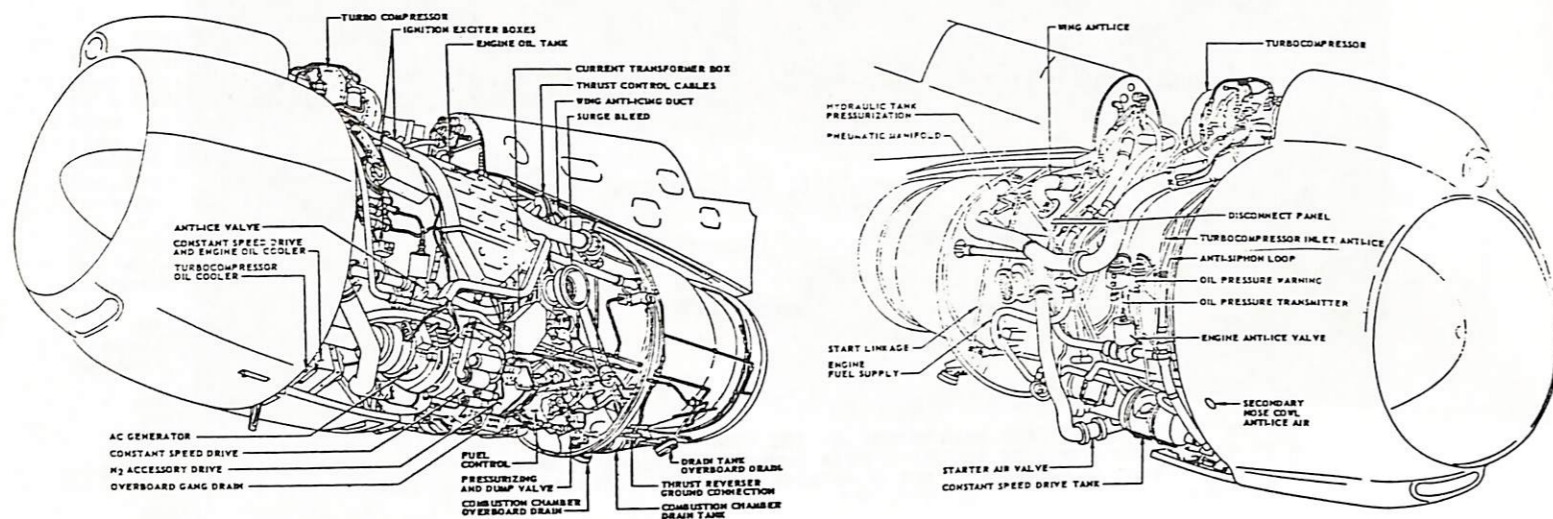
Type certification was granted the 707-227 in November 1959 and the first aircraft, N7072, was delivered to Braniff December 3, 1959. The flight was made from Seattle to the Dallas Love Field Base in 2 hrs. 52 min.

Inauguration of 707-227 service was made December 19, 1959, with "El Dorado Super Jet" Flight 6 nonstop from Dallas to Idlewild. The following day Dallas-Chicago (O'Hare) jet flights were added. Jet service began at San Antonio March 1st (the first pure jet service for that city) and at Houston March 10, 1960.

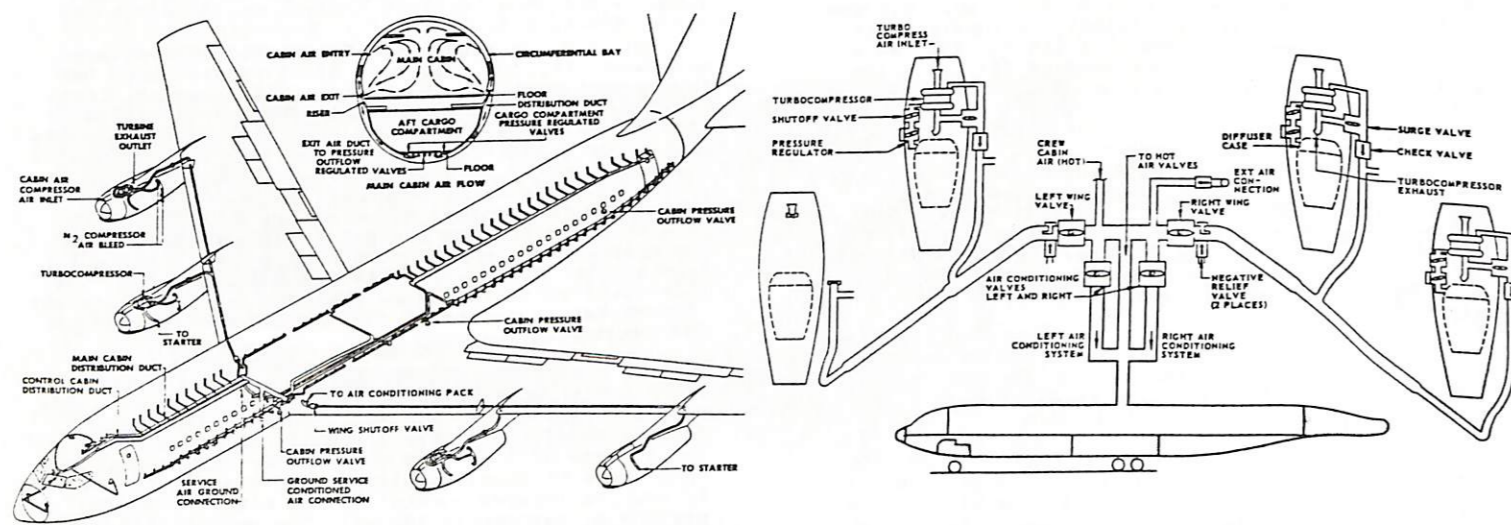
Three weeks later on April 1st, 707-227 flights were inaugurated over the Braniff-Eastern interchange from Idlewild to Miami, Panama, Lima, and Buenos Aires. Service was extended to other cities in South America during 1960 - Sao Paulo, April 27th; Bogota, July 18th; and Rio de Janeiro, August 2nd.

The 707-227 initially carried 106 passengers; however, this was soon increased to 112, with 38 first class and 74 coach or tourist class passengers. In addition there was room for eight passengers in a first class lounge located in the left forward first class cabin.





LEFT AND RIGHT SIDE VIEWS OF THE BOEING 707-227'S JT4A-3 TURBOJET ENGINE.



LEFT: AIR CONDITIONING SYSTEM DISTRIBUTION. RIGHT: PNEUMATIC DISTRIBUTION AND TURBOCOMPRESSOR ARRANGEMENT. BOTH ILLUSTRATIONS: 707-227.

#### 707-320 - "707 INTERCONTINENTAL"

This series is a truly long range version with increased fuel capacity and incorporates an increase in overall length to 152 ft. 11 in. and a 12 foot increase in wingspan to 142 ft. 5 in.

It is powered by four Pratt & Whitney JT4A-3, -5, -7, -9, -10, or -11 turbojet engines not requiring or using water injection. Takeoff thrust for each engine ranges from 15,800 lbs. for the JT4A-3 to 17,500 lbs. for the JT4A-11.

The first flight with a 707-320 was made January 11, 1959, and type certification was granted July 15th that year. Pan American was the first operator of the 707-320 and inaugurated service August 26, 1959.

Most aircraft were delivered with a short vertical stabilizer and no ventral fin. All were modified to include the full size ventral fin and taller vertical stabilizer as on the 707-227.

The 707-320 has increased fuel capacity and more wing leading edge flaps than the 707-120 and 707-220.

Each engine is equipped with thrust reversers fitted behind the aft turbine of the JT4.

Aft of the thrust reversers are sound suppressors like those on the 707-227. When viewed from behind looking forward, they have an inner "daisy petal" and outer ring of "organ pipes".

Below are listed original customers, number of aircraft ordered, customer number, and date of first service:

1. Pan American World Airways, twenty 707-321's and five 707-331's (formerly ordered by TWA but not taken up), August 26, 1959.
2. Trans World Airlines, Inc., twelve 707-331's, November 23, 1959.
3. Northeast Airlines, Inc., 707-331 (leased from TWA), December 17, 1959.
4. SABENA, seven 707-329's, January 19, 1960.
5. Air France, twenty-one 707-328's, January 25, 1960.
6. Pakistan International Airlines, 707-321 (leased from Pan American), March 7, 1960.
7. South African Airways, three 707-344's, October 1, 1960.

RIGHT: FIRST OPERATOR OF THE NON-FAN 707-320 WAS PAN AMERICAN. INITIAL SERVICE BEGAN ON AUGUST 26, 1959, ON POLAR ROUTES FROM THE U.S. WEST COAST TO EUROPE. (Boeing Photo via J. Gerritsma)



BOEING 707-320B

The 707-320B is powered by four Pratt & Whitney JT3D-3 or JT3D-3B turbofan engines, each developing 18,000 lbs. thrust on takeoff. All engines except the left outboard (#1) have full length pylons and the numbers 2, 3, and 4 engines are equipped with turbocompressors.

Wing span is increased by three feet over the 707-320 to 145 ft. 8½ in. with the addition of new low drag wing tips. Also added are slotted leading edge flaps and improved trailing edge flaps. A redesigned aft inboard wing is incorporated as well.

Aircraft are equipped with the taller vertical stabilizer, HF antenna, and a full size ventral fin.

The first flight of a 707-320B was made from Boeing Renton on February 1, 1962.

Early customers, number of aircraft initially ordered, and first delivery dates were as follows:

1. Pan American, six 707-321B, June 15, 1962.
2. Trans World Airlines, five 707-331B, March 11, 1963.
3. Air France, four 707-328B, December 15, 1962.
4. Lufthansa, two 707-330B, February 28, 1963.
5. USAF, one 707-353B (or VC-137C), October 29, 1962 (Reg. as 62-6000, Ship 26000).

AIR FRANCE 707-328B, F-BHSV, "CHATEAU DE VINCENNES", THE FIRST OF AN INITIAL ORDER OF FOUR 707-328B'S BY THE FRENCH CARRIER, WAS DELIVERED ON DECEMBER 15, 1962. (Air France Photo via J. Gerritsma)





**BOEING 707-320C**

The 707-320C is a passenger/cargo convertible version of the 707-320B with a cargo door on the left forward fuselage and strengthened landing gears.

The engine pylon and turbocompressor arrangement is like that of the 707-138B and 707-320B in most cases with all but the number one engines having full length pylons and turbocompressors. An exception to this is the American Airlines 707-323C, having only full length pylons and turbocompressors on the inboard engines.

All aircraft were delivered with a tall vertical stabilizer and HF antenna. Most have no ventral fin.

In April 1962 Pan American announced an order for 707-321C's for delivery in 1963.

Prior to the 707-320C, Boeing had studied freighter designs based on the 707 and known as the Boeing 735. These included all cargo aircraft, swing tail designs, and options of turbojet or turbofan engines.

Early 707-320C customers, initial number of aircraft ordered, customer numbers, and initial delivery dates included (for 1963-64):

1. Pan American, fifteen 707-321C's, June 7, 1963.
2. World Airways, five 707-373C's, July 16, 1963.
3. American Airlines, four 707-323C's, November 19, 1963.
4. Northwest Airlines, three 707-351C's, April 9, 1964.
5. Trans World Airlines, five 707-331C's, April 25, 1964.
6. Aer Lingus, one 707-348C, June 10, 1964.

Other early customers in the mid-1960's included QANTAS, Continental, SABENA, BOAC, Lufthansa, Olympic, TAP, LAN Chile, Braniff, Pakistan, Air France, VARIG, Flying Tiger Line, Caledonian, Airlift Int'l, Executive Jet Aviation, El Al, British Eagle, South African, Ethiopian, Wardair, and Saudia.



AT LEFT: AMERICAN RECEIVED THE FIRST OF AN INITIAL ORDER OF FOUR 707-323C'S ON NOVEMBER 19, 1963. BELOW: AER LINGUS 707-348C, EI-AMW, WENT TO THE IRISH CARRIER IN 1964. (Boeing and Aer Lingus Photos, respectively, via J.Gerritsma)



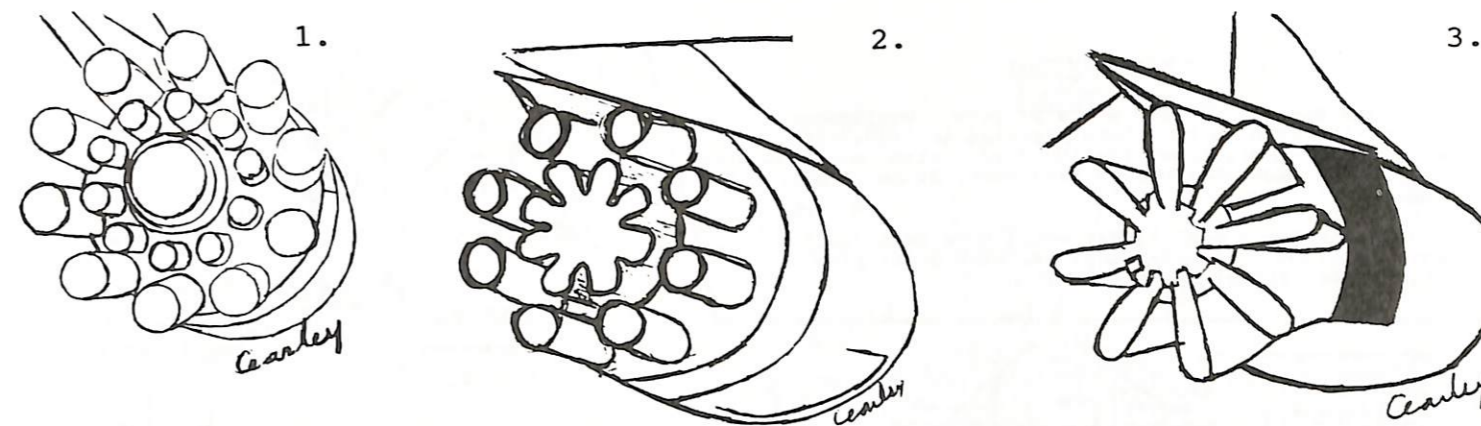
**707-420 "ROLLS ROYCE INTERCONTINENTAL 707"**

This version has the dimensions of the non-fan 707-320 (not the 707-320B or -320C), but is powered by four Rolls Royce RCo.12 Conway MK508 or 508A bypass engines rather than Pratt & Whitney JT4 turbojet engines.

The Rolls Royce Conway engine is significant in that it represented the first bypass (or turbofan) engine used on the Boeing 707 and 720. The engine, however, has a lower bypass ratio than the Pratt & Whitney JT3D model turbofan engines. The Conway engines develop 17,500 lbs. thrust per each on takeoff.

Engine pods are similar in appearance to those on the turbojet-powered 707-120, -220, and -320; however, the Conway engine pods lack a "chin scoop" (or air inlet which on the JT3C and JT4 engines, is located on the forward ventral aspect of the engine nose cowl, and serves as an inlet for the oil cooler on those engine types). A bypass duct from the low pressure compressor extends aft along the inside of the engine pod. Bypass air joins turbine exhaust gases and both are ejected through a common exhaust duct.

Just aft of each Conway engine is a thrust reverser mechanism behind which is a flared "daisy petal" sound suppressor.



ENGINE SOUND SUPPRESSOR DESIGN BASED UPON ENGINE THRUST VS. AMOUNT OF BACK PRESSURE:  
 (1) TURBOJET 707-120, CENTRAL OUTLET PLUS INNER AND OUTER CONCENTRIC RINGS OF "ORGAN PIPES";  
 (2) TURBOJET 707-220, 707-320, AND 720-020, INNER "DAISY PETAL" AND OUTER RING OF ORGAN PIPES; AND (3) ROLLS ROYCE CONWAY 707-420, FLARED DAISY PETAL.

Six airlines originally ordered the 707-420 including BOAC, Air India, Lufthansa, VARIG, El Al, and Cunard Eagle. Aircraft originally delivered to BOAC, Air India, and Lufthansa had a shorter vertical stabilizer, HF antenna, and no ventral fin. As a result of flight tests on the 707-420 and based on data obtained from the crash of 707-227, N7071, certain modifications were made. Tail height was increased and a large full size ventral fin was added. These were done, as stated earlier, to improve lateral control aspects during flight. The ventral fin also prevented the aircraft from rotating to a too high angle on takeoff.

The first of the airlines to order the 707-420 was BOAC and the first flight was made in May 1959. A U.S. type certification was granted on February 12, 1960; however, British certification was not obtained until April 27th. Because of the delay in British certification, BOAC was not the first 707-420 operator, even though it had been first to order this type.

The original customers for the 707-420, number of aircraft ordered, customer number, and date of first service are shown below:

1. Lufthansa, five 707-430, March 17, 1960.
2. Air India, six 707-437, April 19, 1960.
3. BOAC, eighteen 707-436, May 27, 1960 (first 707-420 customer).
4. VARIG, two 707-441, June 21, 1960.
5. El Al -
  - a. 707-441 leased from VARIG, January 5, 1961.
  - b. Three 707-458's (own aircraft), June 11, 1961.
6. Cunard Eagle Airways, two 707-465's, May 5, 1962.

BOAC ROLLS ROYCE CONWAY-POWERED 707-436, G-APFE. THE BRITISH AIRLINE WAS FIRST TO ORDER THE 707-420, BUT ACTUALLY THE THIRD CARRIER TO PLACE THE AIRCRAFT IN SERVICE. (BOAC Photo via J. Gerritsma)



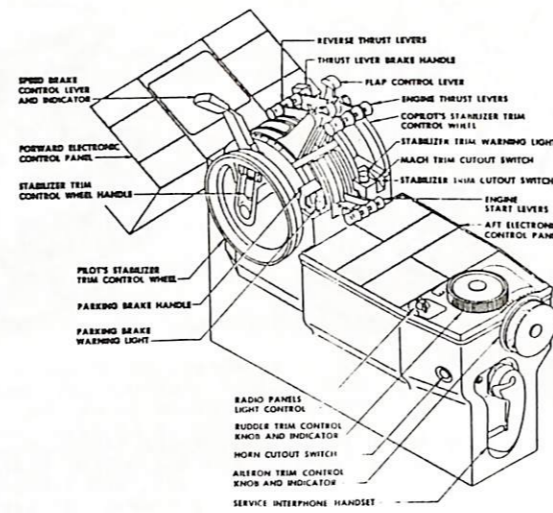
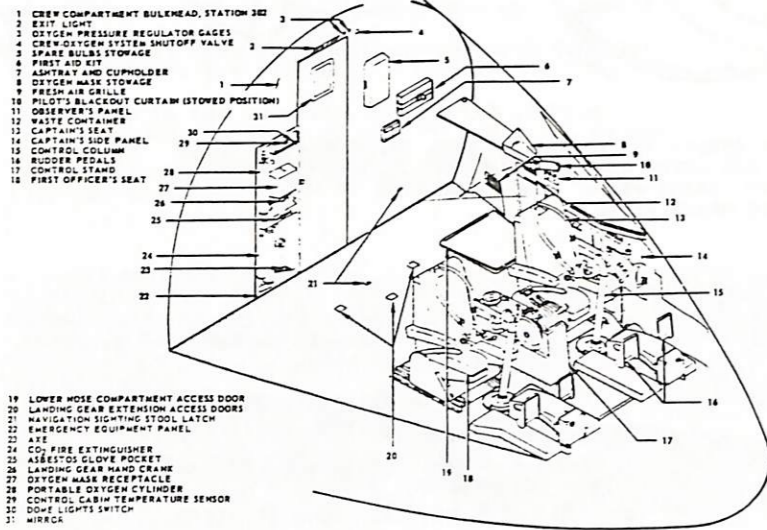
LUFTHANSA WAS THE FIRST AIRLINE TO PLACE THE 707-420 IN SERVICE - BEGINNING MARCH 17, 1960. SHOWN HERE IS 707-430, D-ABOF. (Lufthansa Photo via J. Gerritsma)



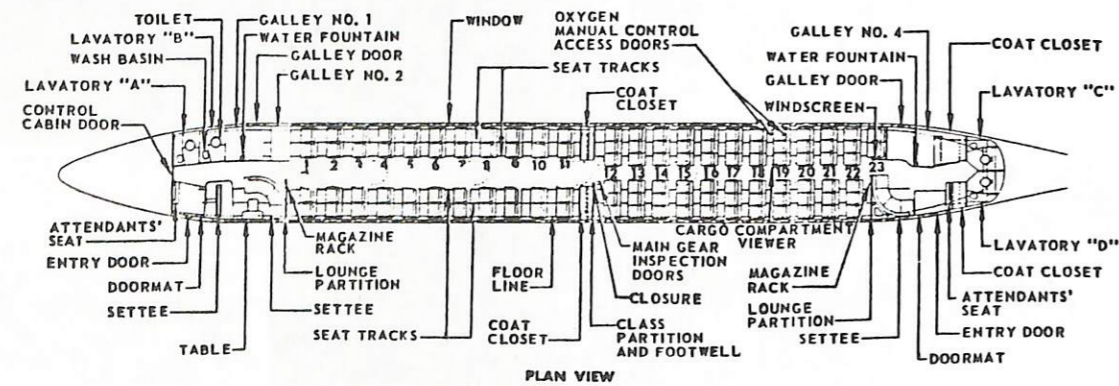
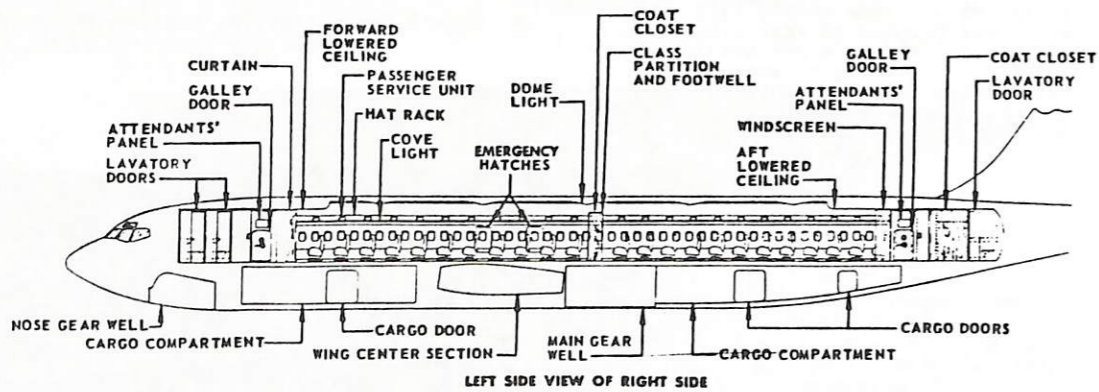
**BOEING 707-520B**

The Boeing 707-520B was a proposed development of the 707-320B to have been marketed in 1963. It would have incorporated the improved control surfaces of the 707-320B, but was to have had a 12 ft. longer fuselage.

Powerplants most likely would have been Pratt & Whitney JT3D-5A turbofan engines, each developing 21,000 lbs. thrust on takeoff.

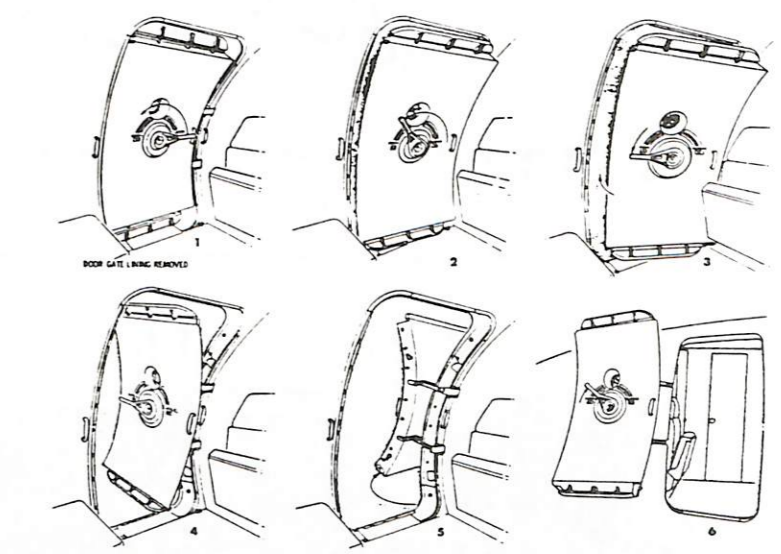
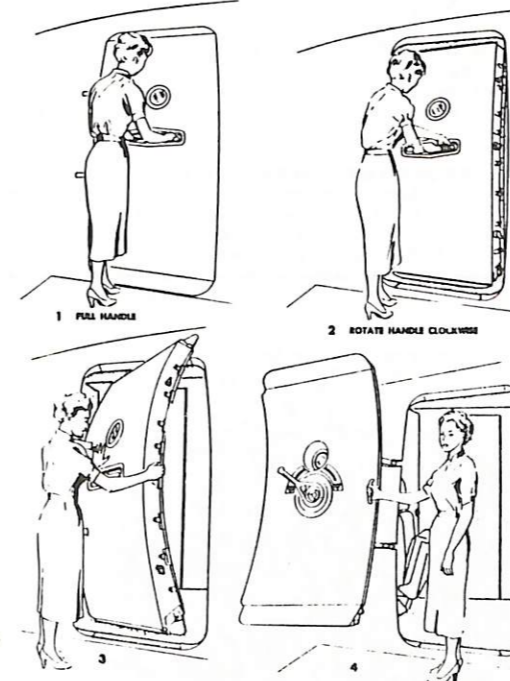
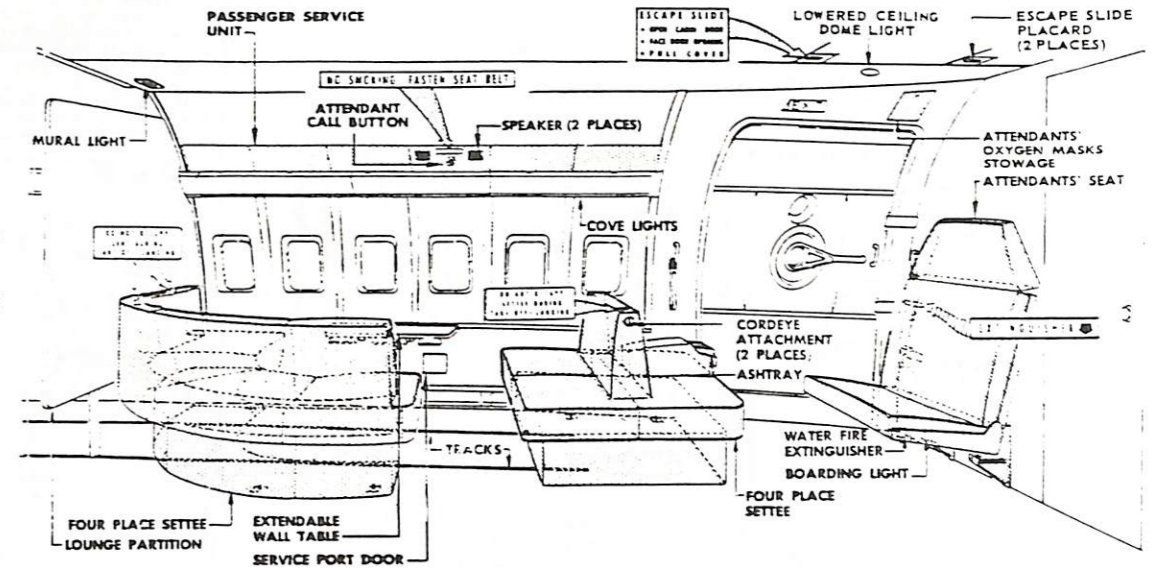


AT LEFT: 707 CONTROL CABIN (COCKPIT). ABOVE: CONTROL STAND. BOTH ILLUSTRATIONS: 707-227.

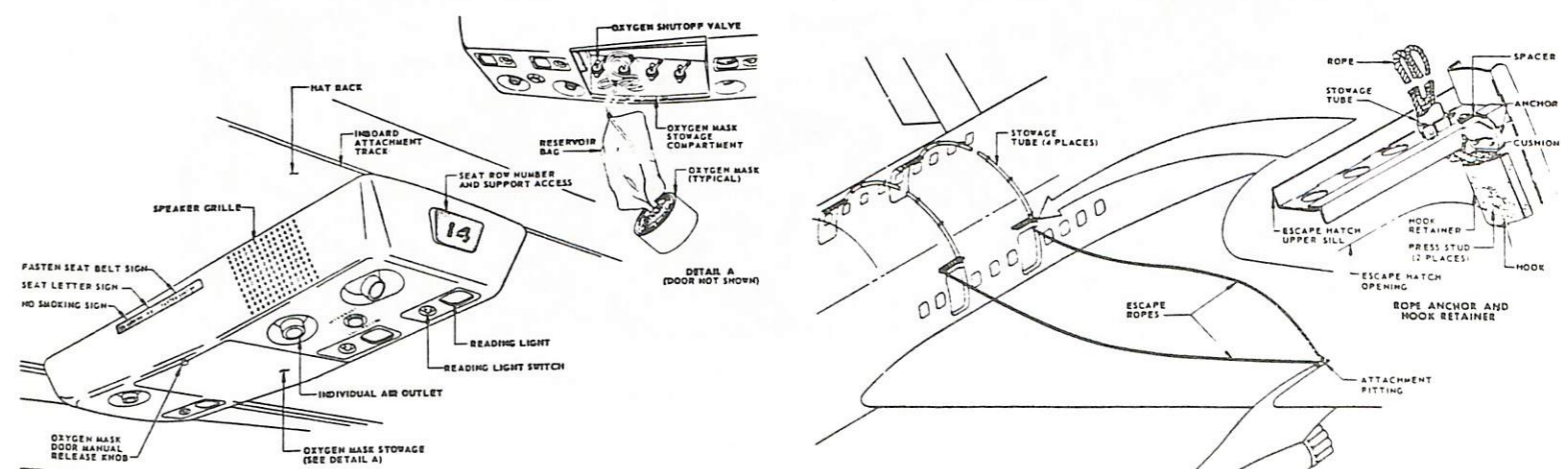


TYPICAL EARLY 707 PASSENGER CABIN ARRANGEMENT.

ON RIGHT: 707 LOUNGE AREA, LEFT FORWARD PASSENGER CABIN. NOTE: ESCAPE SLIDE ORIGINALLY WAS OVERHEAD RATHER THAN MOUNTED ON DOOR.



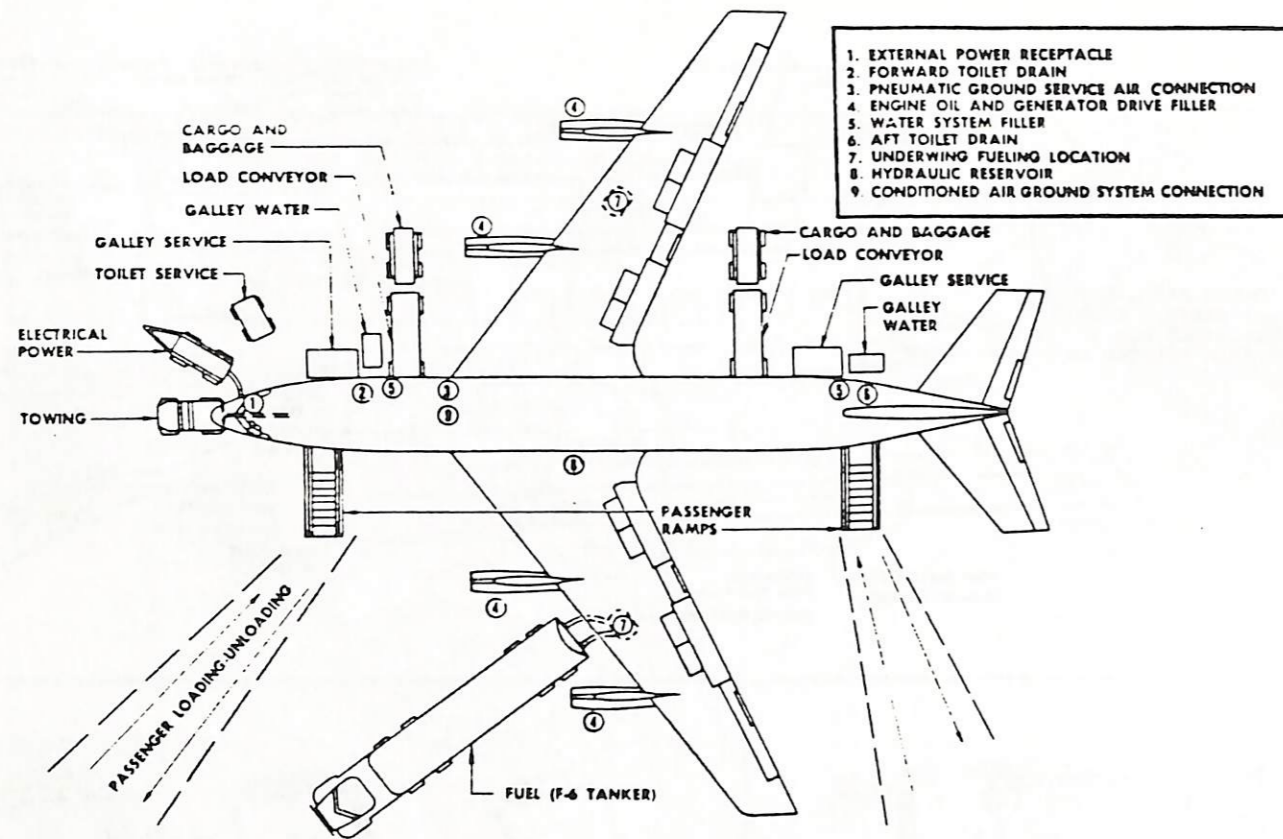
OPERATION OF 707 PLUG-TYPE PASSENGER DOOR. AT LEFT: FROM OUTSIDE AND, AT RIGHT, FROM INSIDE.



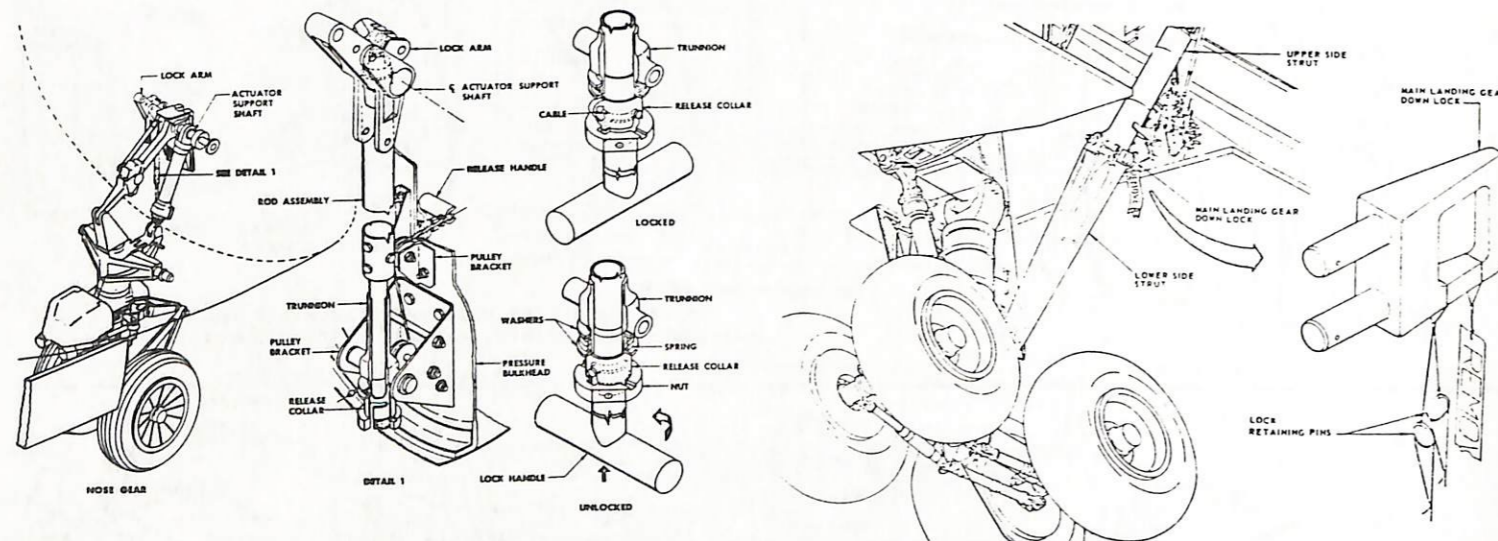
ON LEFT: PASSENGER SERVICE UNIT. AT RIGHT: EMERGENCY EXITS AND ESCAPE ROPE INSTALLATION, 707.



# BOEING 720



TYPICAL 707 SERVICING ARRANGEMENT AT TERMINAL AREA IN THE LATE 1950'S AND EARLY 1960'S.



LEFT: NOSE GEAR, GROUND LOCK. RIGHT: MAIN LANDING GEAR, EXTERNAL DOWN LOCK.

The 720-020 is the non-fan turbojet version of the 720, being powered by four light weight Pratt & Whitney JT3C-7 or JT3C-12 (on the Eastern 720-025) turbojet engines. These are "dry" engines and do not use or require water injection on takeoff.

Fresh air intakes and turbocompressors are deleted on the outboard engine pylons. Consequently the pylons are shorter on both outboard engines and do not extend to the forward portion of the outboard nacelles. This arrangement also applies to the 720B.

The first 720 for United Air Lines initially had a short vertical stabilizer, lacked an HF antenna, and had no ventral fin. All other aircraft delivered to United and other carriers have a tall vertical stabilizer and a vestigial-type (small) ventral fin. An HF antenna may or may not be present.

Shown below are the original customers for the 720-020, number of aircraft ordered, customer number, date of first service, and whether or not the plane had an HF antenna:

1. United Air Lines, twenty-nine 720-022's, July 5, 1960 (no HF antenna).
2. American Airlines, ten 720-023's, July 31, 1960 (no HF antenna). Note: All ten aircraft converted to fanjet-powered 720B's in 1961. Also, note that all American 720's and 720B's carried 707 (not 720) titles.
3. Aer Lingus Teoranta (Irish Airlines), three 720-048's, December 14, 1960 (HF antenna present).
4. Capital Airlines, two (later a third) 720-022's of United Air Lines, January 8, 1961 (no HF antenna).
5. Braniff Airways, five 720-027's, February 20, 1961. Later operated an additional three 720-048's and one 720-022 (HF antenna except -022).
6. Eastern Air Lines, fifteen 720-025's, August 15, 1961 (HF antenna present).
7. Pacific Northern Airlines, two 720-062's, May 1, 1962 (HF antenna present).

The Boeing 720 is eight feet shorter than the long version 707-120, and although externally similar, is really a much different aircraft. It was constructed of lighter weight alloys (particularly engines and landing gear) and several internal systems were different from those of the 707.

With a reduced fuel capacity and a lower gross weight the 720 was capable of operating from airports with shorter runways than those required for the 707.

The Boeing 720 was designed and developed to operate over shorter stage length flight segments than the 707 and was considered a medium range aircraft.

When the 720 was first publicly announced in July 1957, it was known as the Boeing 717. This designation of "717" is still regarded as a civilian equivalent of the military KC-135.

In November 1957 the Boeing 717 was redesignated Boeing 720. At this time United Air Lines announced an initial order for eleven 720's. The number ordered by United would eventually total twenty-nine.

The first 720 (a 720-022 for United) was flown November 23, 1959, and type certification was granted June 30, 1960, with the first aircraft entering service with United Air Lines on July 5th that year.

The 720 introduced a "glove" on the wing's inboard leading edge (see discussion under 707-120B). Most but not all 720's were delivered with only one emergency exit over the wing on either side of the fuselage. An exception is the 720-025 for Eastern Air Lines which had two overwing exits on either side of the fuselage.



UNITED WAS THE FIRST CUSTOMER FOR THE BOEING 720 AND ALSO TOOK DELIVERY OF THE GREATEST NUMBER OF 720'S OF ANY CARRIER. INITIAL FLIGHTS WERE OFFERED BEGINNING JULY 5, 1960. SHOWN ABOVE IS 720-022, N7202U, ON A PRE-DELIVERY FLIGHT. NOTE SHORT VERTICAL STABILIZER AND ABSENCE OF VENTRAL FIN ON THIS PLANE PRIOR TO TAIL MODIFICATION. (United Photo via J. Gerritsma)



AER LINGUS, 720-048, EI-ALA, IN ORIGINAL DELIVERY COLORS OF 1960. (Aer Lingus Photo via J. Gerritsma)



720-020B

This is the fanjet version of the Boeing 720, being powered by four Pratt & Whitney JT3D-1 turbofan engines, each developing 17,000 lbs. thrust on takeoff.

The first aircraft was flown on October 6, 1960, and like the first 707-120B, it had been ordered by American Airlines. Type certification was granted March 3, 1961, and the first aircraft entered service with American a little over a week later, on March 12th, between Idlewild, Chicago (O'Hare) and Mexico City.

All 720-020B's have the tall vertical stabilizer and a vestigial-type ventral fin. An HF antenna may or may not be present atop the vertical stabilizer.

Shown below are original customers for the 720-020B, number of aircraft initially ordered, customer number, date of first service, and whether or not the plane possessed an HF antenna:

1. American Airlines, fifteen 720-023B's, March 12, 1961 (No HF antenna). Note: An additional ten 720-023's were converted to 720-023B's in 1961, bringing the total number of 720-023B's to twenty-five. Note also that all American 720B's carried 707 titles.

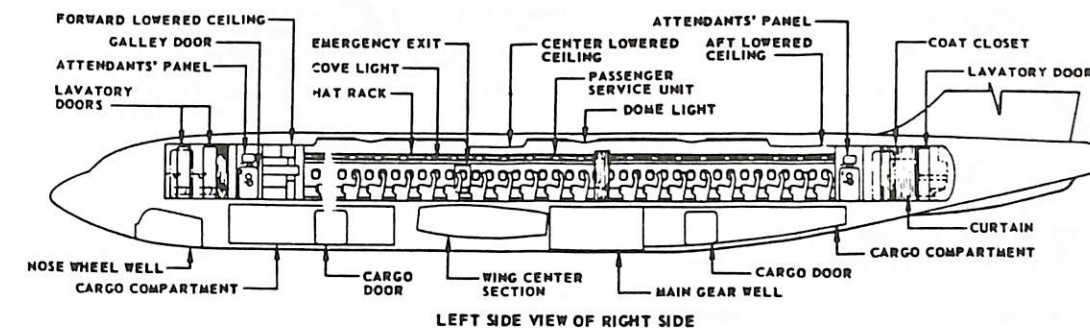
2. Western Air Lines, four 720-047B's (later increased to a total of twenty-seven), May 15, 1961 (HF antenna present).
3. Lufthansa, eight 720-030B's, May 20, 1961 (HF antenna present).
4. Northwest Airlines, nine 720-051B's, July 1, 1961 (HF antenna present).
5. Trans World Airlines, four 720-051B's (built for Northwest), August 18, 1961 (HF antenna present).
6. AVIANCA, two 720-059B's, November 24, 1961 (HF antenna present).
7. Pakistan, two 720-040B's, February 1962 (HF antenna present).
8. Saudi Arabian, two 720-068B's, February 1962 (HF antenna present).
9. El Al, two 720-058B's, April 1, 1962 (HF antenna present).
10. Continental Air Lines, four 720-024B's, July 13, 1962 (HF antenna present).
11. Ethiopian, two 720-060B's, September 1962 (HF antenna present).



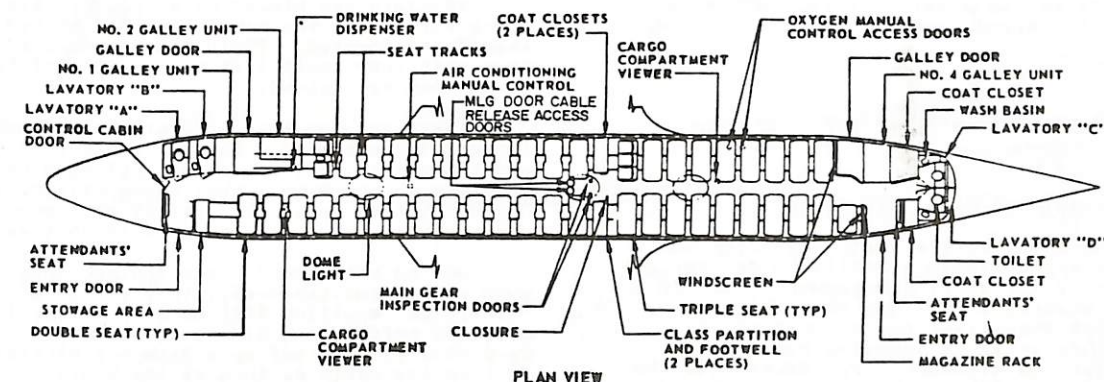
AT LEFT: LUFTHANSA 720-030B, D-ABOH. BELOW: CONTINENTAL 720-024B, N57203. (Lufthansa and Continental Photos, respectively, via J. Gerritsma)



WESTERN 720-047B, N93143, ONE OF 27 BOEING 720B'S OPERATED BY THE AIRLINE. (Western Photo via J. Gerritsma)



LEFT SIDE VIEW OF RIGHT SIDE



PLAN VIEW

TYPICAL CABIN ARRANGEMENT, BOEING 720.

## Function of Special 707 and 720 Structures

### Vortex Generators (Wings)

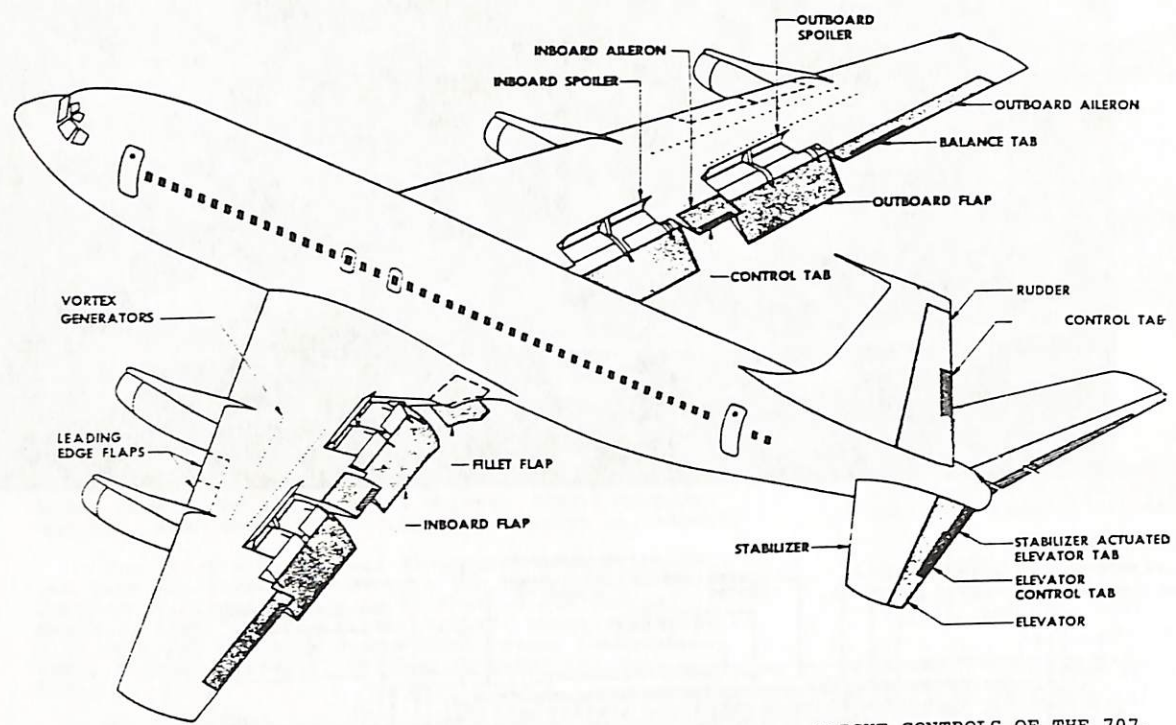
The vortex generators are the 96 square metal vanes which are mounted in two parallel rows along the upper surface of each 707 wing. They function in decreasing drag and buffet and also in increasing speed and range at cruising conditions.

There are a total of 48 vortex generators on each wing. These, again, are mounted in two parallel rows with a forward row of 23 and aft row of 25 generators. Each vortex generator is die cast with one curved face and one flat face. They are cemented perpendicular to the wing surface, aft of the inboard engine pods, in complementary pairs (in a given row with flat sides and curved sides facing one another). This shape and arrangement helps to develop a circular motion of air (or vortex) around the generator tips.

Air flowing over the wing follows a spiralling path aft of the vortex generator because of a combined effect of the vortex and the rearward motion of air flow over the wing. This spiralling air flow brings high energy air into the slower moving boundary layer air flowing directly over the wing's upper surface. This aids in the transition from supersonic\* to subsonic air flow over the aft upper wing surface at cruising speeds, reducing the normal shock wave effect (occurring at the transition from supersonic to subsonic flow). With the reduction in the shock wave effect there is a decrease in drag.

\*Note: Even though the 707 does not fly at supersonic speeds, at cruising speeds close to Mach 1, localized areas of the upper wing surface experience supersonic air flow. When the plane flies near the speed of sound air flow passes through the speed of sound into the supersonic region. Transition from subsonic to supersonic flow is smooth, but without vortex generators the transition back to subsonic from supersonic flow would occur through a rapid compression called a shock wave. Also without vortex generators an air flow separation behind the shock wave would occur with resultant drag. However, the vortex generator, as stated above, reduces the shock wave effect and reduces drag.





FLIGHT CONTROLS OF THE 707.

The MEL allows the following for the wing vortex generators:

1. Up to 5% can be missing with no airspeed restriction.
2. 6% to 50% may be missing if the mach trim inoperative speed restrictions are observed.

\*MEL = minimum equipment list

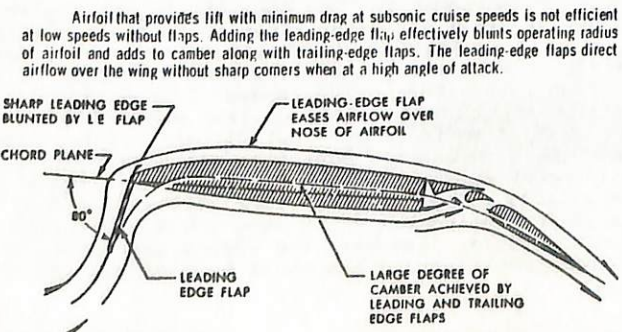
Vortex Generators (Horizontal Stabilizers)

Vortex generators derive their name from the tendency of low-aspect-ratio airfoils to develop a circular motion or vortex of air around their tip. The horizontal stabilizer has one row of 13 on the underside of each stabilizer for a total of 26. Their primary purpose is to increase control tab effectiveness for the elevator. The MEL\* allows the aircraft to be flown with two missing on each side.

Leading Edge Flaps

Leading edge flaps are small flaps located on the wing's leading edge and are extended during takeoffs and landings to improve the wing's lift characteristics. They remain flush with the wing at other portions of the flight.

Leading edge flaps function as low speed high lift devices, and they improve low speed performance by modifying wing stall pattern. The rate of climb is increased and a local increase in drag is delayed. They, thus, provide an additional safety factor or margin of error during low speed flight.



Spoilers

Spoilers are hinged metal plates attached to the upper surface of the wing which can be hydraulically raised and lowered. Their name is derived from the fact that they spoil the lift in the area of the wing where they are raised.

There are two sets of spoilers on each wing, both inboard and outboard. Lateral control of the aircraft about the roll axis can be accomplished by raising the spoilers on one wing. When the spoilers are raised on one wing, they spoil the lift of that portion of the wing, causing the plane to bank in that same direction.

On the other hand, when the spoilers are raised on both wings simultaneously, they act as so-called "airbrakes" spoiling lift on both wings, increasing drag and buffet, and aiding in descent of the aircraft. Used thusly, they set up a harmless vibration which is felt in the cabin as long as the spoilers remain up.

On landing, the spoilers are raised and help in keeping the plane on the ground through spoiling lift on the wings and thus helping to place the plane's weight on its wheels, making wheel brakes fully effective.

Again, there are two sets of spoilers on each wing, with two inboard and two outboard pairs for a total of eight. All spoilers are operated together to a maximum of 60 degrees. Spoilers also augment lateral control during all stages of flight in conjunction with the ailerons through control wheel input. The maximum deflection in this stage is 40 degrees. The MEL\* requires all spoilers to be operative for flight.

Movable Horizontal Stabilizer

The horizontal stabilizer of the Boeing 707 and 720 is movable and can be adjusted to different angles of incidence to effect pitch trim. It aids the elevator in providing effective pitch control during both low and high speed flight.

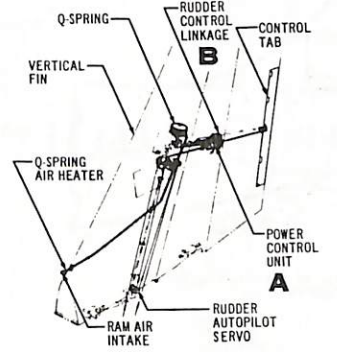
To eliminate the need of using the elevators for something other than primary control, longitudinal trim is obtained by varying the angle of incidence of the horizontal stabilizer.

"Q"-Inlet Probe (Ram Air Intake)

The "Q" inlet is located on the leading edge of the vertical stabilizer, about 1/4 distance up the vertical stabilizer from the fuselage at the point of attachment of the vertical stabilizer. It is the visible external portion of the Q-bellows, Q-spring and Q-rod system which is located inside the vertical stabilizer. The system is designed to give better "feel" at the rudder pedals for rudder control and to provide for better control during certain conditions of asymmetric thrust (such as one engine being out). The Q-spring provides this "feel" through the "Q" rod. In flight the Q bellows develops a dynamic head from ram air pressure received through a tubing system which has an intake on the leading edge of the vertical stabilizer. This intake is known as the ram air port, ram air intake, or Q-inlet probe.

The letter "Q" reflects a pressure measured in pounds per square foot, where  $Q = \frac{(KEAS)^2}{295}$

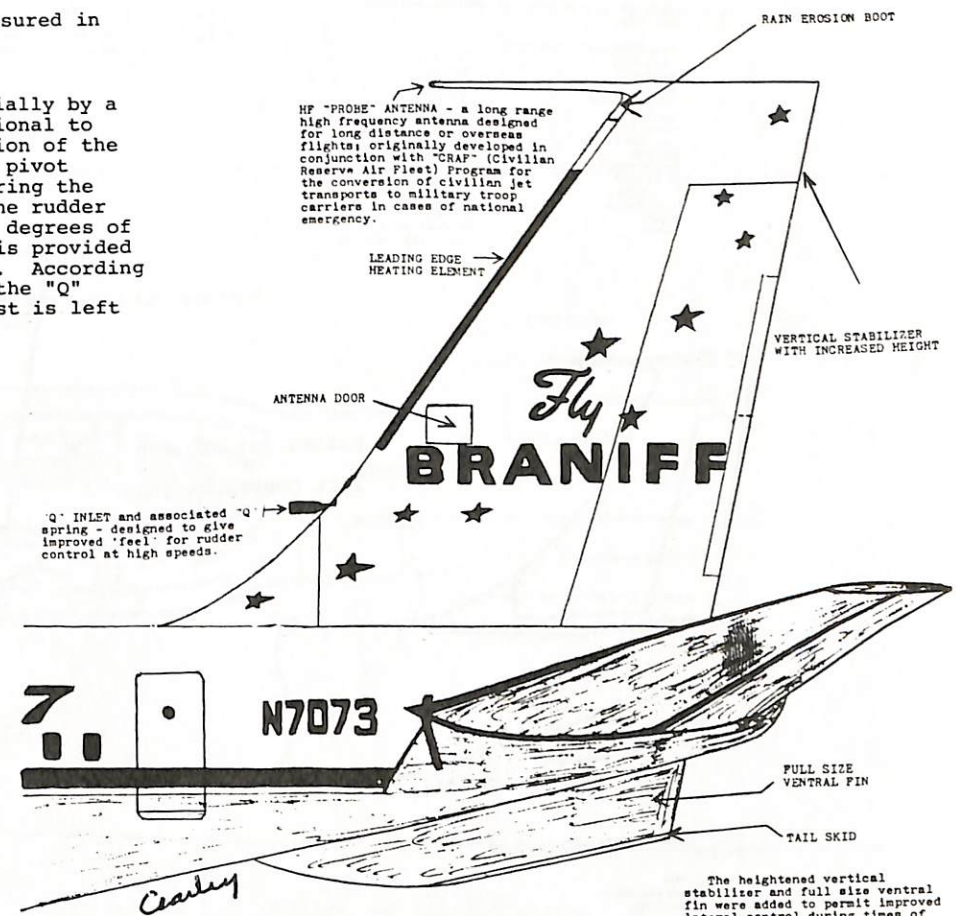
Rudder pedal feel is produced artificially by a cam and "Q" spring assembly and is proportional to rudder deflection and airspeed. The function of the "Q" bellows and "Q" spring is to provide a pivot point for rudder control tab deflection during the first 17 degrees of rudder travel. When the rudder control tab starts to reverse, at about 17 degrees of rudder travel, a new source of pedal feel is provided by the "Q" bellows and "Q" spring assembly. According to the MEL\* the aircraft may be flown with the "Q" Inlet Heater inoperative if the rudder boost is left off at airspeeds greater than 250 knots.



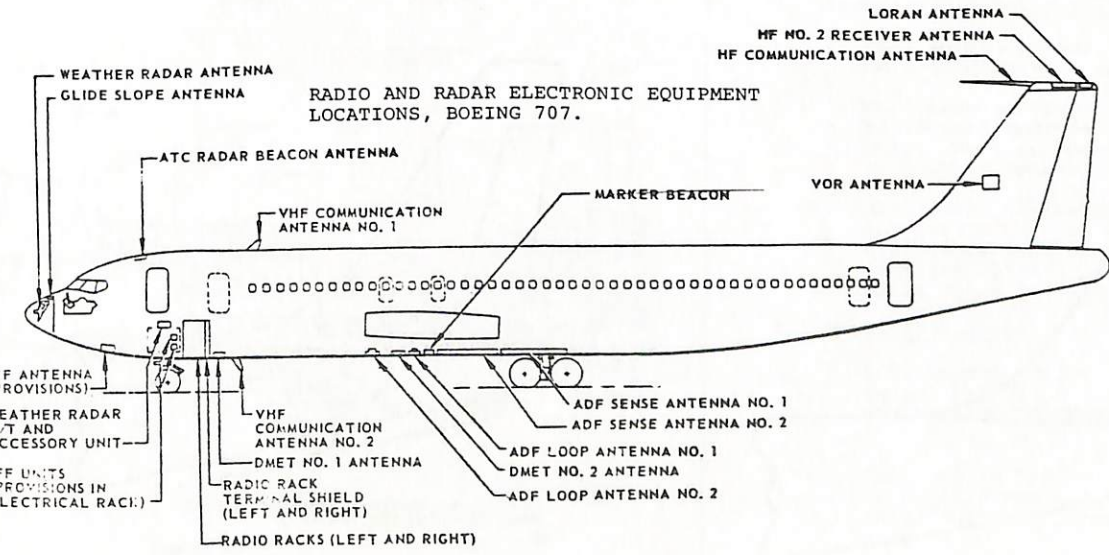
"Q" SYSTEM DIAGRAM.

HF (Probe) Antenna

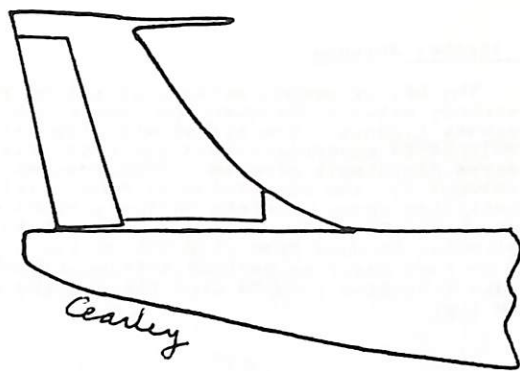
The HF, or probe, antenna is a long range high frequency antenna designed for long distance or overseas flights. The system was originally developed in connection with the CRAF (Civilian Reserve Air Fleet) program. This program was developed for the conversion of commercial airliners to military troop carriers during periods of national emergency. Aircraft were equipped with an HF antenna protruding forward from atop the vertical stabilizer (or in some cases on certain intercontinental 707 models extending forward from the leading edge right wing tip).



The heightened vertical stabilizer and full size vertical fin were added to permit improved lateral control during times of asymmetric thrust when greater thrust is applied to the engines of one wing than the other. The vertical fin is also designed to prevent a too high rotation angle on take-off.

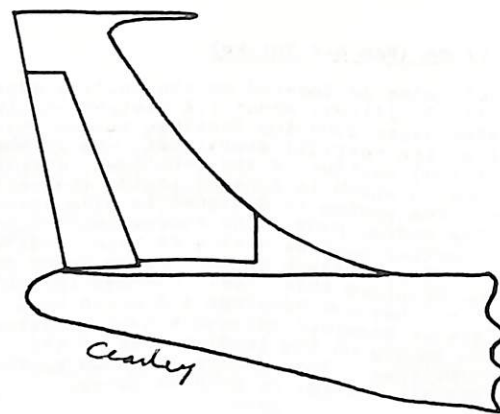






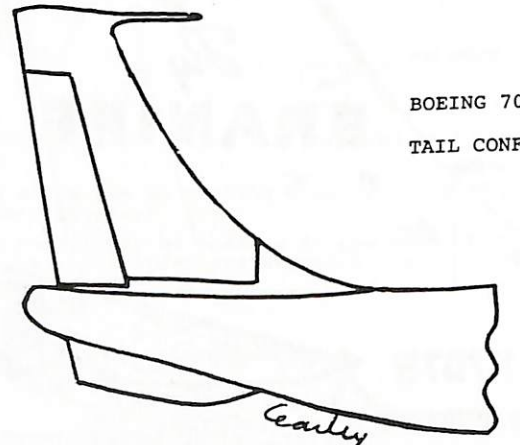
SHORT VERTICAL STABILIZER, HF ANTENNA PRESENT, NO VENTRAL FIN.

Pan American, National,	707-121.
Aviance	707-123
American	707-131, -331.
TWA	707-124
Continental	707-138
QANTAS	707-227
Braniff	707-321
Pan American	707-329
SABENA	707-328
Air France	707-321
Pakistan	707-430
Lufthansa	707-437
Air India	707-436
BOAC	707-441 (Pre-delivery Only???)
VARIG	



TALL VERTICAL STABILIZER, HF ANTENNA PRESENT, NO VENTRAL FIN

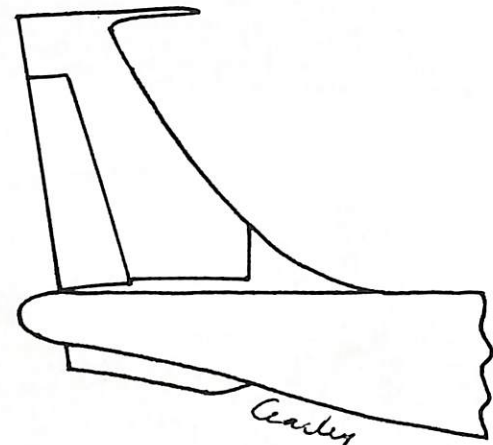
Pan American	707-321C
TWA	707-331C
World	707-373C
American	707-323C
Northwest	707-351C
Aer Lingus	707-348C



BOEING 707 AND 720 TAIL CONFIGURATIONS

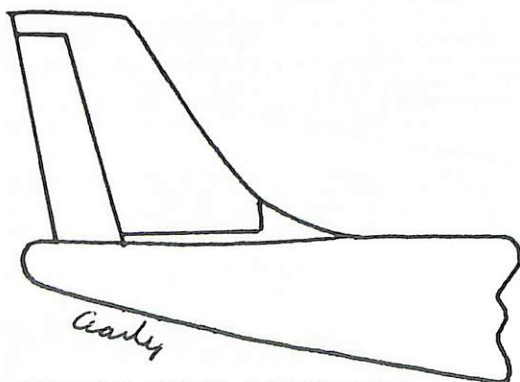
TALL VERTICAL STABILIZER, HF ANTENNA PRESENT, LARGE (FULL SIZE) VENTRAL FIN

TWA	707-131, -331, -331B
Continental	707-124
Western	707-139
Braniff	707-227
Pan American	707-321, -321B
SABENA	707-329
Air France	707-328, -328B
South African	707-344
Lufthansa	707-430
Air India	707-437
BOAC	707-436
VARIG	707-441
El Al	707-458
Cunard Eagle	707-465



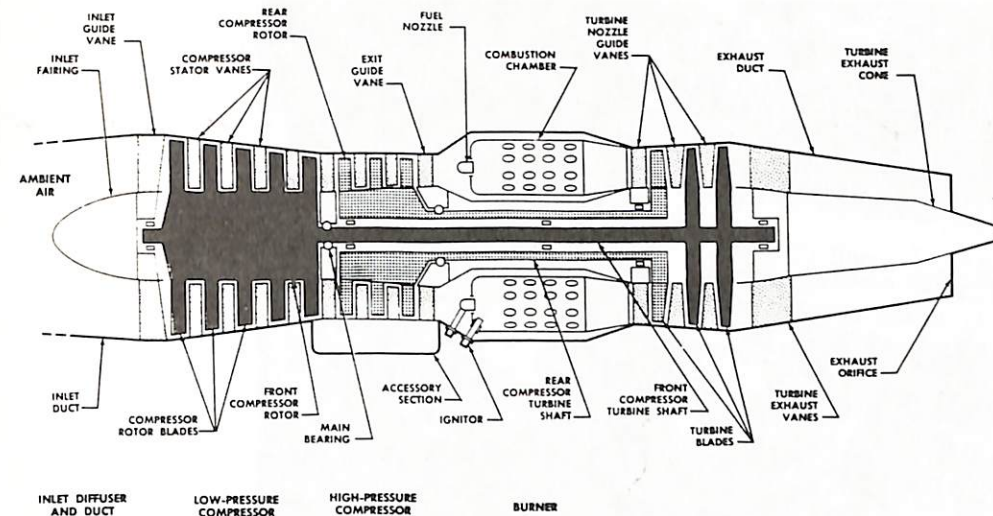
TALL VERTICAL STABILIZER, HF ANTENNA PRESENT, SMALL (VESTIGIAL TYPE) VENTRAL FIN

Pan American	707-121B
American	707-123B
QANTAS	707-138B
Aer Lingus	720-048
Braniff	720-027
Eastern	720-025
Pacific Northern	720-062
Western	720-047B
Lufthansa	720-030B
Northwest	720-051B
TWA	720-051B
AVIANCA	720-059B
Pakistan	720-040B
Saudi Arabian	720-068B
El Al	720-058B
Continental	720-024B
Ethiopian	720-060B



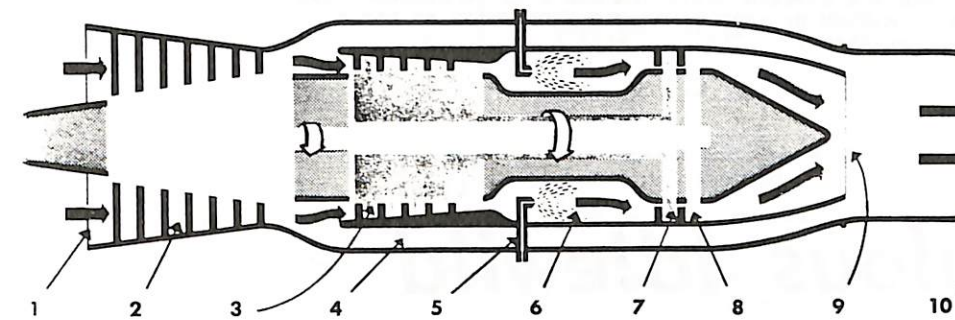
SHORT VERTICAL STABILIZER, HF ANTENNA ABSENT, NO VENTRAL FIN

United	720-022
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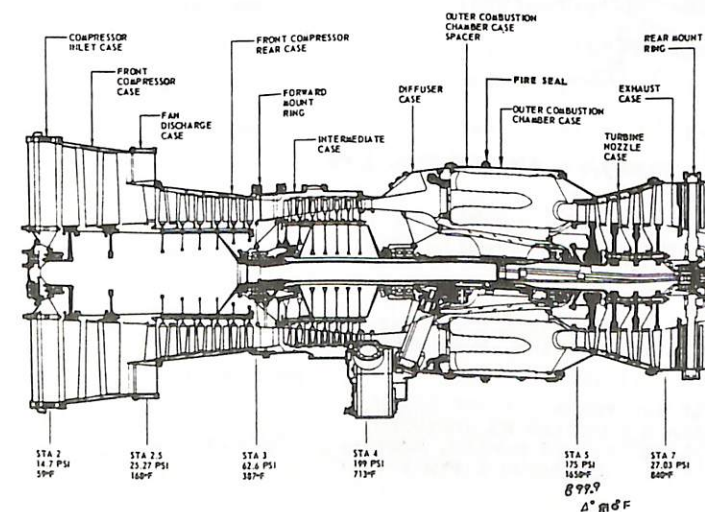
PRATT & WHITNEY MODEL JT3C-6 TURBOJET ENGINE

DIAGRAM OF A BY-PASS JET ENGINE (ROLLS ROYCE CONWAY R. CO. 12)



- 1 Air Intake
- 2 Low-pressure compressor
- 3 High-pressure compressor
- 4 By-pass duct
- 5 Fuel injection nozzle
- 6 Combustion chamber
- 7 High-pressure turbine
- 8 Low-pressure turbine
- 9 Diffuser
- 10 Jet nozzle

PRATT & WHITNEY JT3D-3B TURBOFAN ENGINE



BOEING 707 AND 720 ENGINE PYLON ARRANGEMENT

A. Turbojet and Rolls Royce Conway Models

1. Full Length Pylons - 707-120, 707-220, 707-320, 707-420. On all Engines
2. Full Length Pylons - 720-020. on Inboard Engines Only. Both outboards with Short Pylons.

Note: The engine pylon arrangement on the turbojet 720 is an easy and quick way to distinguish the non-fan 720 from the turbojet 707-120, -220, and -320, and Rolls Royce 707-420.

B. Turbofan Models

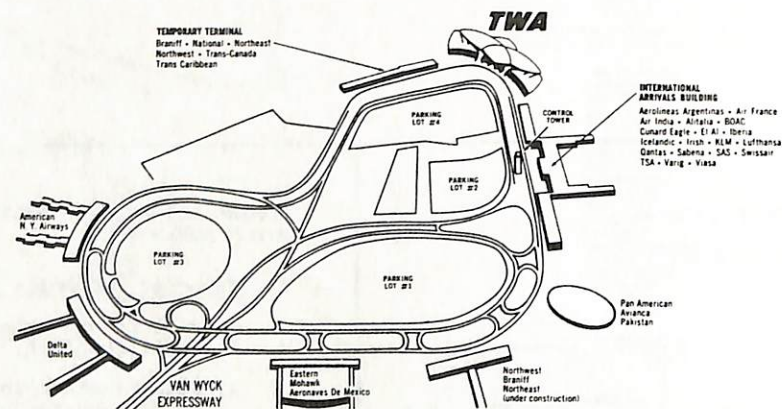
1. Full Length Pylons - 707-120B's of Pan American, TWA, QANTAS; 707-320B's and most 707-320C's. on all but No. 1 engine (left outboard)
2. Full Length Pylons - 707-120B's of American; 707-320C's of American. on inboard engines only; outboard pylons short.





AIR FRANCE INAUGURATED 707-328 SERVICE BETWEEN PARIS AND NEW YORK IN JANUARY 1960. SHOWN HERE IS AIRCRAFT, F-BHSA, "CHATEAU DE VERSAILLES" AT CEREMONIES AT PARIS ONLY. (Air France Photo via J. Gerritsma)

## Fabulous Idlewild



### NEW YORK INTERNATIONAL AIRPORT AT IDLEWILD

ON THE FOLLOWING THREE PAGES IS A CHRONOLOGICAL SURVEY OF ALL PURE JET ARRIVALS BY BOTH DOMESTIC AND INTERNATIONAL CARRIERS INTO NEW YORK INTERNATIONAL AIRPORT AT IDLEWILD ON FRIDAY, JULY 7, 1961, BETWEEN THE HOURS OF 4:00 P.M. AND 12:00 P.M. (MIDNIGHT).

THIS PARTICULAR DATE WAS CHOSEN SINCE BY THIS TIME EVERY AIRLINE THEN SERVING IDLEWILD HAD INAUGURATED PURE JET SERVICE, SOME WITH MORE THAN ONE AIRCRAFT TYPE.

THIS SURVEY IS ARRANGED IN THE STYLE AND FORMAT OF THE FLIGHT ARRIVALS BOARD IN THE INTERNATIONAL ARRIVALS BUILDING AT IDLEWILD, LISTING IN ORDER FROM LEFT TO RIGHT, AIRLINE, FLIGHT NUMBER, ARRIVAL TIME, CITIES FROM WHICH ARRIVING, AND REMARKS (COVERING AIRCRAFT TYPES AND SERVICE MARKS).

AIRLINE	FLT.	ARR.	FROM	REMARKS
Pan American	133	4:00 PM	Bermuda	Jet, President Special, Rainbow Service
SAS	917	4:05 PM	Copenhagen, Hamburg, Glasgow	DC-8 Royal Viking
American	14	4:25 PM	San Francisco	707 Astro Jet, Mercury/Royal Coachman
Pan American	115	4:30 PM	Baghdad, Ankara, Istanbul, Rome, Paris	Jet, President Special, Rainbow Service
American	2	4:35 PM	Los Angeles	707 Astro Jet, Mercury/Royal Coachman
United	84	4:40 PM	Honolulu, San Francisco	DC-8 Jet, Mainliner, Red Carpet Service
Lufthansa	402	4:45 PM	Munich, Cologne/Bonn	707 Jet, Senator Service
American	26	4:50 PM	Los Angeles, Phoenix, Chicago (O'Hare)	707 (Model 720) Jet Flagship
Trans World Airlines	100	4:50 PM	Los Angeles	707 Intercontinental, Ambassador Luxury Service, Golden Banner Coach Service
Trans World Airlines	146	4:50 PM	Los Angeles, Phoenix, Chicago (O'Hare)	Convair 880 Super Jet
United	816	4:50 PM	Los Angeles	DC-8 Jet Mainliner, Red Carpet Service
Pan American	105	5:05 PM	London, Glasgow	Jet, President Special, Rainbow Service
Pan American	73	5:15 PM	Frankfurt	Jet, President Special, Rainbow Service
Pan American	252	5:15 PM	San Juan	Jet, President Special, Rainbow Service
SABENA	545	5:20 PM	Brussels, Manchester, Shannon	707 Boeing Jet Intercontinental
Trans World Airlines	42	5:20 PM	San Francisco	707, Ambassador Luxury Service, Golden Banner Coach Service
United	756	5:20 PM	Minneapolis/St. Paul, Chicago	720 Jet Mainliner
United	800	5:20 PM	San Francisco	DC-8 Jet Mainliner, Red Carpet Service
Air France	21	5:40 PM	Paris (Orly)	707 Intercontinental
American	68	5:50 PM	Los Angeles, San Diego, Tucson, Chicago	707 (Model 720) Jet Flagship
Alitalia	610	5:55 PM	Rome	DC-8 Rolls Royce Jet
Northwest	16	5:55 PM	Seattle, Chicago (O'Hare)	DC-8C Intercontinental, Imperial Service
Eastern	800	6:00 PM	San Juan	Golden Falcon DC-8B Jet
Trans World	180	6:05 PM	Kansas City, St. Louis	Convair 880 Super Jet
Alitalia	652	6:10 PM	Rome, Milan, Montreal	DC-8 Rolls Royce Jet
BOAC	682	6:10 PM	Kingston, Montego Bay	Rolls Royce 707
Trans World	800	6:10 PM	Kansas City, Chicago (O'Hare)	707 Intercontinental, Ambassador First Class Service, Golden Banner Coach Service
KLM	623	6:20 PM	Amsterdam, Shannon	DC-8 Intercontinental
Pan American	155	6:20 PM	Rome, Nice, Barcelona, Lisbon, Santa Maria	Jet, President Special, Rainbow Service
American	6	6:30 PM	Los Angeles	707 Jet Flagship, Mercury/Royal Coachman
Pan American	137	6:30 PM	Bermuda	Jet, President Special, Rainbow Service
Trans World	701	6:35 PM	Frankfurt, London	707 Intercontinental Royal Ambassador Luxury Service



AIRLINE	FLT.	ARR.	FROM	REMARKS
BOAC	509	6:40 PM	London	Rolls Royce 707, Monarch
United	834	6:40 PM	Seattle, Chicago (O'Hare)	DC-8 Jet Mainliner, Red Carpet Service
United	862	6:44 PM	Denver	DC-8 Jet Mainliner, Red Carpet Service
Pan American	218	6:45 PM	Caracas	Jet, President Special, Rainbow Service
Eastern	604	6:55 PM	Miami	Golden Falcon DC-8B Jet
BOAC	688	7:00 PM	Lima, Nassau	Rolls Royce 707
Lufthansa	400	7:00 PM	Hamburg, Frankfurt	707, Senator Service
Trans World	801	7:00 PM	Rome, Paris (Orly)	707 Intercontinental, Royal Ambassador Luxury Service
SABENA	547	7:20 PM	Brussels	707 Intercontinental
American	72	7:25 PM	Los Angeles, St. Louis, Cincinnati	707 (Model 720) Jet Flagship
Swissair	850	7:25 PM	Zurich, Shannon	DC-8 Intercontinental
Irish	105	7:30 PM	Dublin, Shannon	720 Shamrock Jet
Pan American	212	7:30 PM	San Juan	Jet, President Special, Rainbow Service
United	846	7:30 PM	San Francisco, Chicago (O'Hare), Pittsburgh	DC-8 Jet Mainliner
Pan American	1	7:35 PM	Teheran, Ankara, Istanbul, Munich, Frankfurt, London	Jet, President Special, Rainbow Service
Trans World	104	7:45 PM	Chicago (O'Hare), Pittsburgh	Convair 880 Super Jet
United	722	7:50 PM	Chicago (O'Hare)	720, Jet Mainliner
Northeast	56	7:55 PM	Miami	880 Jet
National	6	8:10 PM	Miami	DC-8 Jet Star Service
Eastern	300	8:20 PM	Mexico City	Golden Falcon DC-8B Jet
Trans World	136	8:20 PM	Kansas City, Chicago (O'Hare)	Convair 880 Super Jet
Northeast	34	8:30 PM	Miami, Tampa, Jacksonville	880 Jet
Northeast	58	8:35 PM	Fort Lauderdale	880 Jet
Delta	880	8:40 PM	Atlanta	Convair 880, Royal Jet Service
National	8	8:40 PM	Miami	DC-8 Jet Star Service
United	712	8:40 PM	San Francisco, Denver, Kansas City, Baltimore	720 Jet Mainliner
United	818	8:50 PM	Los Angeles	DC-8 Jet Mainliner, Red Carpet Service
United	838	8:55 PM	Seattle, Portland, Chicago (O'Hare)	DC-8 Jet Mainliner, Red Carpet Service
BOAC	493	9:00 PM	Bermuda	Rolls Royce 707
Pakistan	705	9:05 PM	Karachi, Teheran, Beirut, Rome, London	707 Intercontinental
Trans World	160	9:05 PM	San Francisco, Los Angeles, Oklahoma City, St. Louis	Convair 880 Super Jet
Trans World	6	9:15 PM	Los Angeles	707, Ambassador Luxury Service, Golden Banner Coach Service
American	8	9:20 PM	Los Angeles	707 Astrojet
American	34	9:20 PM	Los Angeles, Chicago, Detroit (Metro)	707 (Model 720) Astro Jet

AIRLINER	FLT.	ARR.	FROM	REMARKS
Air France	11	9:20 PM	Paris	707 Intercontinental
Eastern	818	9:25 PM	Tampa	Golden Falcon DC-8B Jet
American	96	9:30 PM	St. Louis	707 (Model 720) Jet Flagship
Delta	826	9:30 PM	Atlanta	DC-8 Royal Jet Service
Irish	115	9:30 PM	Shannon	720, Shamrock Jet
KLM	643	9:30 PM	Amsterdam	DC-8 Intercontinental
United	732	9:35 PM	Cleveland	720 Jet Mainliner
American	24	9:45 PM	El Paso, Dallas	707 Jet Flagship
American	16	9:50 PM	San Francisco	707 Jet Flagship
American	66	9:50 PM	Phoenix, Chicago (O'Hare)	707 (Model 720) Astro Jet
Delta	872	10:20 PM	Houston, New Orleans	Convair 880 Royal Jet Service
Pan American	254	10:30 PM	San Juan	Jet, President Special, Rainbow Service
Trans World	10	10:45 PM	Los Angeles	707, Ambassador Luxury Service, Golden Banner Coach Service
American	52	10:50 PM	Mexico City, Chicago (O'Hare)	707 (Model 720) Astro Jet
Braniff	6	10:55 PM	San Antonio, Dallas	El Dorado Super Jet Boeing 720
Pan American	206	10:55 PM	Nassau	Jet, President Special, Rainbow Service
El Al	229	11:00 PM	Tel Aviv, London	Rolls Royce 707 Intercontinental
Trans World	148	11:05 PM	Los Angeles, Las Vegas, Chicago	Convair 880 Super Jet
United	868	11:25 PM	San Francisco, Denver, Baltimore	DC-8 Jet Mainliner, Red Carpet Service
United	728	11:30 PM	Los Angeles, Denver, Chicago	720 Jet Mainliner
American	92	11:50 PM	Chicago	707 (Model 720) Jet Flagship

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Also: Issues of *Boeing Airliner*, 1958-1962; Official Airline Guide, 1958-1963; Timetables of Various 707 and 720 operators; and Braniff Airways 707-227 and 720-027 Aircraft Manuals.

#### With Thanks to:

Steve Caisse, Joop Gerritsma, Charlie Haus, Paul Kowalewski, Jon Proctor, Joe Romeo, and Wilfred Wann.



# AROUND THE WORLD



## of Airline Schedules

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George W. Cearley, Jr.

"AROUND THE WORLD OF AIRLINE SCHEDULES" WITH THIS ISSUE OF THE CAPTAIN'S LOG FEATURES SEVERAL DIFFERENT TOPICS ON EARLY JET SERVICES IN THE LATE 1950'S AND EARLY 1960'S. THESE INCLUDE (1) A CHRONOLOGICAL SURVEY OF THE FIRST JET SERVICE IN MAJOR CITIES OF THE U.S.A., 1958-59; (2) A CHRONOLOGICAL SURVEY OF BOEING 707 AND 720 JET INAUGURALS FROM 1958-1962; AND (3) ILLUSTRATIONS OF U.S. AND FOREIGN TIMETABLES SHOWING INITIAL 707 AND 720 SERVICES BY THE ORIGINAL OPERATORS OF THESE AIRCRAFT.

### CHRONOLOGICAL SURVEY OF FIRST JET SERVICE IN MAJOR CITIES OF THE U. S. A. 1958 - 59

CITY	AIRLINE	EQUIPMENT	DATE	ROUTE(S)
New York (Idlewild)	British Overseas Airways Corporation (BOAC)	DeHavilland Comet IV	Oct. 4, 1958	Idlewild-London (Heathrow)
New York (Idlewild)	Pan American World Airways, Inc. (1st Jet Service by a U.S. Airline)	707-121	Oct. 26, 1958	Idlewild-Paris (LeBourget)
Miami	National Airlines, Inc.	707-121	Dec. 10, 1958	Miami-Idlewild
Los Angeles	American Airlines, Inc.	707-123	Jan. 25, 1959	Los Angeles-Idlewild
San Francisco	Trans World Airlines, Inc.	707-131	Mar. 20, 1959	San Francisco-Idlewild
Chicago	American Airlines, Inc.	707-123	Mar. 22, 1959	Idlewild-Chicago (O'Hare)
Boston	American Airlines, Inc.	707-123	June 1, 1959	Boston-Los Angeles
Baltimore	American Airlines, Inc.	707-123	June 7, 1959	Baltimore (Friendship)-Los Angeles
Dallas	American Airlines, Inc.	707-123	July 12, 1959	Dallas (Love Field)-Idlewild
St. Louis	Trans World Airlines, Inc.	707-131	July 21, 1959	St. Louis-Idlewild
Denver	Continental Air Lines, Inc.	707-124	Aug. 15, 1959	Chicago-Denver-Los Angeles
Kansas City	Continental Air Lines Inc.	707-124	Aug. 15, 1959	Chicago-Kansas City-Los Angeles
Atlanta	Delta Air Lines, Inc.	DC-8-11	Sep. 18, 1959	Atlanta-Idlewild
Detroit	Delta Air Lines, Inc.	DC-8-11	Nov. 15, 1959	Detroit (Metropolitan)-Miami
Houston	Delta Air Lines, Inc.	DC-8-11	Dec. 1, 1959	Houston-Idlewild

### CHRONOLOGICAL SURVEY OF BOEING 707 AND BOEING 720 INAUGURALS 1958 - 1962

AIRLINE	EQUIPMENT TYPE	DATE	ROUTE(S) SERVED INITIALLY
Pan American World Airways, Inc. (First 707 Service)	707-121 (N711PA)	Oct. 26, 1958	New York (Idlewild)-Paris (LeBourget) (Flt 114)
National Airlines, Inc. (First Domestic U.S. Jet Service)	707-121 (Leased from PA) (N710PA)	Dec. 10, 1958	Idlewild-Miami (Flt 1)
American Airlines, Inc. (First Transcontinental U.S. Jet Service)	707-123	Jan. 25, 1959	Los Angeles-Idlewild (Flt 2)
Trans World Airlines, Inc.	707-131	Mar. 20, 1959	San Francisco-Idlewild (Flt 46)
Continental Air Lines, Inc.	707-124	Jun. 8, 1959	Chicago (O'Hare)-Los Angeles (Flt 3)
QANTAS (First Non-U.S. Airline to Operate 707's)	707-138	Jul. 29, 1959	London-Idlewild-San Francisco-Honolulu-Fiji-Sydney-Melbourne
Pan American World Airways, Inc. (First 707-320 Service)	707-321	Aug. 27, 1959	Los Angeles-San Francisco-London (Heathrow)
Trans World Airlines, Inc.	707-331	Nov. 23, 1959	Idlewild-London-Frankfurt
Northeast Airlines, Inc.	707-331 (Leased from TWA (N761TW))	Dec. 17, 1959	Idlewild-Miami
Braniff Airways, Inc. (First 707-220 Service)	707-227 (N7072)	Dec. 19, 1959	Dallas (Love Field)-Idlewild (Flt 6)
SABENA (First European Airline to Operate 707)	707-329 (00-SJA)	Jan. 19, 1960	Brussels-Leopoldville
Compagnie Nationale Air France	707-328	Jan. 25, 1960	Paris (Orly)-Idlewild
Pakistan International Airlines	707-321 (Leased from PA)	Mar. 7, 1960	Karachi-London
Deutsche Lufthansa A.G.	707-430	Mar. 17, 1960	Idlewild-Frankfurt
Eastern Air Lines, Inc.	707-227 (Braniff Equipment on Braniff-Eastern Interchange)	Apr. 1, 1960	Idlewild-Miami-Panama-Lima-Buenos Aires
Air India	707-437	Apr. 19, 1960	Bombay-London
B.O.A.C.	707-436	May 27, 1960	London (Heathrow)-Idlewild
Western Air Lines, Inc.	707-139	Jun. 1, 1960	Los Angeles-San Francisco-Portland-Seattle
VARIG	707-441	Jun. 21, 1960	Brasilia-Idlewild
United Air Lines, Inc. (First Airline to Operate Boeing 720)	720-022	Jul. 5, 1960	Chicago-Denver-Los Angeles
Delta Air Lines, Inc.	707-123 (AA Plane on American-Delta-National Interchange)	Jul. 12, 1960	Los Angeles-Dallas/Fort Worth-New Orleans-Miami
American Airlines, Inc.	720-023	Jul. 31, 1960	Cleveland-St. Louis-Los Angeles
South African Airways (Suid Afrikaanse Lugdiens)	707-344	Oct. 1, 1960	Johannesburg-London
AVIANCA (Aerovias Nacionales de Colombia)	707-121 (N711PA) (Leased from PA)	Oct. 17, 1960	Bogota-Idlewild
Aer Lingus Teoranta (Irish Int'l Airlines)	720-048	Dec. 14, 1960	Idlewild-Boston-Shannon-Dublin)
El Al	707-441 (Leased from VARIG)	Jan. 5, 1961	Idlewild-Tel Aviv
Capital Airlines, Inc.	720-022	Jan. 8, 1961	Cleveland-Pittsburgh-Miami
Braniff Airways, Inc.	720-027 (N7076)	Feb. 20, 1961	Chicago (O'Hare)-Dallas-Houston



AIRLINE	EQUIPMENT TYPE	DATE	ROUTE(S) SERVED INITIALLY
American Airlines, Inc. (First 707 Fanjet Service)	707-123B	Mar. 12, 1961	Idlewild-Los Angeles
American Airlines, Inc. (First 720 Fanjet Service)	720-023B	Mar. 12, 1961	Idlewild-Chicago (O'Hare)-Mexico City
Western Air Lines, Inc.	720-047B	May 15, 1961	Los Angeles-Mexico City
Deutsche Lufthansa, A.G.	720-030B	May 20, 1961	(1) Idlewild-Frankfurt (2) Frankfurt-Paris-Dakar-Rio de Janeiro-Sao Paulo-Montevideo-Buenos Aires-Santiago
El Al	707-458 (First Service with its Own 707-420)	Jun 11, 1961	Idlewild-Tel Aviv
Northwest Airlines, Inc.	720-051B	Jul. 1, 1961	(1) Chicago (O'Hare)-Minneapolis (2) Idlewild-Milwaukee-Minneapolis
Eastern Air Lines, Inc.	720-025	Aug. 15, 1961	Idlewild-Miami
Trans World Airlines, Inc.	720-051B	Aug. 18, 1961	Idlewild-Kansas City
QANTAS	707-138B	Sep. 1961	London-Idlewild-San Francisco-Honolulu-Fiji-Sydney-Melbourne
AVIANCA (First jet owned by AVIANCA)	720-059B	Nov. 24, 1961	Idlewild-Miami-Montego Bay-Kingston-Bogota
Pakistan International Airlines (First jet owned by Pakistan Int'l)	720-040B	Feb. 1962	London-Frankfurt-Geneva-Teheran-Karachi
Saudi Arabian Airlines	720-068B	Feb. 1962	Jeddah-Ruyadh-Dhahran-Beirut-Cairo
El Al	720-058B	Apr. 1, 1962	London-Zurich-Tel Aviv
Trans World Airlines, Inc.	707-131B	Apr. 29, 1962	Idlewild-Los Angeles Idlewild-San Francisco Idlewild-Indianapolis
Pacific Northern Airlines, Inc.	720-062	May 1, 1962	(1) Seattle-Anchorage (2) Seattle-Ketchikan-Juneau
Cunard Eagle Airways	707-465	May 5, 1962	Miami-Nassau-Bermuda-London
Continental Air Lines, Inc.	720-024B	Jul. 13, 1962	(1) Dallas-Midland-Albuquerque-Denver (2) Dallas-El Paso

OCTOBER 10, 1958

# NATIONAL

AIRLINE OF THE STARS

FIRST WITH JET SERVICE IN U.S.A.


MAKE YOUR WINTER RESERVATIONS NOW—see pages 14 and 15

AMERICA'S FIRST JET SERVICE TIMETABLE

# NATIONAL

AIRLINE OF THE STARS

JET SCHEDULES—NEW YORK—MIAMI



Boeing 707	Boeing 707	Boeing 707	Boeing 707
1	3	2	4
READ DOWN	READ UP	READ UP	READ UP
9:30 AM L. NEW YORK (International)	(EST) M.	4:15 PM	8:45 AM
11:45 AM L. MIAMI	(EST) M.	2:00 PM	6:30 AM

\* Effective December 10, 1958  
\*\* Effective December 18, 1958

AT LEFT AND ABOVE: NATIONAL WAS THE FIRST AIRLINE TO OFFER DOMESTIC JET SERVICE IN THE UNITED STATES. AT 9:30 A.M. ON THE MORNING OF DECEMBER 10, 1958, "JET STAR" FLIGHT ONE, OPERATING WITH BOEING 707-121, N710PA, ON LEASE FROM PAN AMERICAN TO NATIONAL, DEPARTED NEW YORK INTERNATIONAL AIRPORT AT IDLEWILD BOUND FOR MIAMI ON THE FIRST SCHEDULED PURE JET FLIGHT IN THE U.S.A. AT THE CONTROLS WERE CAPT. ROGER WHITAKER, CO-PILOT GEORGE CAVAIANI, AND FLIGHT ENGINEER ROY STRONG. HOSTESSES ON THE FLIGHT WERE LEE HADDOCK, ANITA PHILIPP, SALLY BRENNER, AND ESTHER ARANGO. ALSO ON THE FLIGHT WAS NATIONAL'S PRESIDENT AND FOUNDER, TED BAKER.

EFFECTIVE JANUARY 23, 1959

# AMERICAN AIRLINES

AMERICAN AIRLINES TO AMERICAN AIRLINES OF MEXICO S. A.

COMPLETE SYSTEM TIMETABLE

QUICK REFERENCE INDEX ON PAGES 2 and 3



Now  $4\frac{1}{2}$  Hours Coast to Coast

on the 707 JET FLAGSHIP

America's Leading Airline

TOP RIGHT AND IMMEDIATE RIGHT AMERICAN AIRLINES WAS THE FIRST AIRLINE TO OFFER TRANSCONTINENTAL U.S. JET SERVICE. ON JANUARY 25, 1959, AMERICAN INAUGURATED NONSTOP SERVICE FROM LOS ANGELES TO IDLEWILD WITH "707 JET FLAGSHIP" FLIGHT 2. AT THE CONTROLS WAS CAPTAIN CHARLES A. MACATEE.

### COAST-TO-COAST FIRST CLASS and AIRCOACH Service — EASTBOUND

From LOS ANGELES to NEW YORK

TABLE I	Mercury Service (PT) #11-707 2	The Mercury DC-7 702	The Mercury DC-7 702	The Mercury DC-7 710	The Mercury DC-7 704	Mercury Service (PT) #11-707 10	AIRCOACH SERVICE						
							The Royal Coachman DC-7 670	The Royal Coachman Service (PT) #11-707 2	The Royal Coachman DC-7 672	The Royal Coachman DC-7 684	The Royal Coachman Service (PT) #11-707 10	The Royal Coachman 117-7 694	
Los Angeles (Int'l Airport)	PST Lv	A 8:46 EF. 1:25	AL 9:00 Dec. 1:25	AL 9:15 EF. 1:25	L 9:30	S 9:00 Dec. Feb. 14	S 11:30 EF. 2:15	L 8:30 Dec. Feb. 14	A 8:45 EF. 1:25	B 8:45	B 11:00	S 11:30 EF. 2:15	B 12:10
New York (Newark)	EST Ar	L 4:15	7:20	7:35	D 9:55	B 7:20	A 7:00	L 4:15	L 4:15	7:05	10:30	A 7:00	12:25
New York (LaGuardia)	EST Ar												

For more detail Refer to Table Nos. 1-10



ATLANTIC SERVICES  
PAN AMERICAN WORLD AIRWAYS, INC.—PAA  
OCTOBER 26—NOVEMBER 30, 1958

Read Down

DE LUXE, FIRST, TOURIST AND ECONOMY CLASS SERVICES

Hours from O.M.T.	CLASS	FLIGHT NO. AIRCRAFT	Daily JET S				Daily Ex. We				Daily							
			SU	MO	TU	TH	SU	MO	TU	TH	SU	MO	TU	TH	SA			
-4	CHICAGO* (O'Hare)	LA																
-4	DETROIT* (W. Maj)	LA																
-4	PHILADELPHIA* (A)	LA																
-4	NEW YORK* (Int'l)	LA	15 00	15 00	15 00	14 30	14 30	14 30	14 30	14 30	14 30	14 30	14 30	14 30	14 30	14 30	14 30	14 30
-4	BOSTON*	LA																
0	SHANNON	LA																
0	GLASGOW	LA																
0	LONDON (L. A. N.)	LA																
+1	BRUSSELS	LA																
+1	AMSTERDAM	LA																
+1	DUSSELDORF	LA																
+1	FRANKFURT	LA																
+1	MUNICH	LA																
+1	VIENNA (Schwechat)	LA																
+1	PARIS (Le Bourget Airport)	LA																

EFFECTIVE APRIL 1, 1959

# TWA

TRANS WORLD AIRLINES  
U.S.A. · EUROPE · AFRICA · ASIA

FLY TWA JETS



TWA BOEING 707 (see back cover)

Fly the Finest... FLY TWA

### TWA EXPRESS FLIGHTS IN THE U.S.A. FOR COMPLETE SCHEDULES IN THE U.S.A.

#### Between NEW YORK and SAN FRANCISCO

FLIGHT NO.	Leave NEW YORK	Arrive SAN FRANCISCO	Stops	Aircraft	Service Features
45	Internal 9:30 AM	12:15 PM	NON-STOP	BOEING 707	—
43	Internal 1:00 PM	7:59 PM	NON-STOP	Jetstream	—
529	LaGuardia 9:00 PM	9:39 AM	Internal, stop	Constellation	—
49	Internal 9:45 PM	6:12 AM	One-stop	Super-G	—

ON MARCH 20, 1959, TWA INAUGURATED ITS FIRST JET SERVICE WITH THE BOEING 707-131, FLIGHT 46, FROM SAN FRANCISCO TO IDLEWILD WITH CAPT. GORDON GRANGER AT THE CONTROLS. SCHEDULES ABOVE AND AT LEFT FROM APRIL 1, 1959.

TWA DID NOT INAUGURATE ITS FIRST TRANSATLANTIC JET SERVICE UNTIL NOVEMBER 1959, OVER A YEAR AFTER PAN AMERICAN. THE INAUGURAL 707-331 FLIGHT WAS MADE FROM NEW YORK TO LONDON AND FRANKFURT ON NOVEMBER 23RD THAT YEAR.





**CONTINENTAL**  
AIRLINES

fly the jet with the golden tail!

**THE GOLDEN JET**  
CONTINENTAL'S CUSTOM-BUILT BOEING 707

STARTING JUNE 8  
NON-STOP • CHICAGO • LOS ANGELES

Time table effective April 26, 1959

WESTBOUND

All Flights Operate Daily Except As Noted

FLIGHT NUMBER	DC-7B CU	Boeing 707 JT	Boeing 707 JT	Boeing 707 JT	Boeing 707 JT	Boeing 707 JT	Boeing 707 JT	Boeing 707 JT
CHICAGO-O'HARE (CDT) Lv	9:43	227	201	1	263	205	223	241
CHICAGO-MIDWAY (MST) Lv	9:43	227	201	1	263	205	223	241
ST. LOUIS (MST) Lv	9:43	227	201	1	263	205	223	241
KANSAS CITY (CDT) Lv	9:43	227	201	1	263	205	223	241
KANSAS CITY (MST) Lv	9:43	227	201	1	263	205	223	241
TULSA (MST) Lv	9:43	227	201	1	263	205	223	241
WICHITA (MST) Lv	9:43	227	201	1	263	205	223	241
COLORADO SPRINGS (MST) Lv	9:43	227	201	1	263	205	223	241
DENVER (MST) Lv	9:43	227	201	1	263	205	223	241
DENVER (MST) Lv	9:43	227	201	1	263	205	223	241
SANTA FE (MST) Lv	9:43	227	201	1	263	205	223	241
ALBUQUERQUE (MST) Lv	9:43	227	201	1	263	205	223	241
EL PASO (MST) Lv	9:43	227	201	1	263	205	223	241
LOS ANGELES-INT'L (PDT) Lv	9:43	227	201	1	263	205	223	241
LOS ANGELES-INT'L (MST) Lv	9:43	227	201	1	263	205	223	241
PORTLAND (PST) Lv	9:43	227	201	1	263	205	223	241
SEATTLE-TACOMA (PST) Lv	9:43	227	201	1	263	205	223	241

AT LEFT AND ABOVE: THE NEXT U.S. CARRIER AFTER PAN AMERICAN, NATIONAL, AMERICAN, AND TWA TO OFFER JET SERVICE WAS CONTINENTAL AIR LINES. THE INAUGURAL GOLDEN JET FLIGHT 3 (SHOWN ABOVE) WAS MADE FROM CHICAGO (O'HARE) TO LOS ANGELES ON JUNE 8, 1959. MIDDLE LEFT: QANTAS WAS THE FIRST NON U.S. OPERATOR OF THE 707 AND ON JULY 29, 1959, INAUGURATED SERVICE FROM LONDON TO THE U.S.A., PACIFIC POINTS, AND AUSTRALIA (SCHEDULES ILLUSTRATED FROM SEPTEMBER 1959). MIDDLE RIGHT: BRANIFF WAS THE FIRST AND ONLY AIRLINE TO ORDER THE 707-220. INAUGURAL FLIGHTS WERE MADE FROM DALLAS TO NEW YORK (DECEMBER 19, 1959) AND DALLAS TO CHICAGO (DECEMBER 20TH).



**BRANIFF AIRWAYS**

... exclusively on BRANIFF!

the Different and Superior BOEING 707-227 the JET with the BIG engines



**WORLD'S FASTEST JETLINER**

FLIGHT	EQUIPMENT	FLIGHT	EQUIPMENT
Lv NEW YORK (IDLEWILD)	Ar	8	707-227
Lv CHICAGO (O'HARE)	Ar	2:00p	↑
Ar DALLAS	Lv	12:16p	8:00p

BELOW LEFT: SABENA BEGAN ITS FIRST 707 SERVICE BETWEEN BRUSSELS AND LEOPOLDVILLE JANUARY 19, 1960, WITH 707-329, OO-SJA. BELOW RIGHT: AIR FRANCE OFFERED ITS FIRST 707 SERVICE A WEEK LATER - JANUARY 25, 1960, BETWEEN PARIS (ONLY) AND IDLEWILD.

**SABENA**

FLIGHT	CLASS	TIME	CLASS	TIME
BRUXELLES/BRUSSEL National	12:10	16:30	12:45	20:25
ROMA Ciampino-Ovest	22:15	23:15	-	-
LISBOA (a) Portela de Sacavem	20:50	21:50	-	-
ATHINA Central Airport	19:00	20:00	-	-
CAIRO (b) International Airport	20:10	21:10	-	-
LEOPOLDVILLE N/Dijl	20:10	21:10	-	-

**AIR FRANCE JET**

EFFECTIVE JANUARY 25th

EXCEPT AS NOTED

	LOS ANGELES	MEXICO	NEW YORK - PARIS	CHICAGO	MONTREAL
CI	LY JET	LY S / JET	LY JET	XYFY S	XYFY S
FLY	020 (2)	072 / 0730	0730	012 (1)	060
Ar	TuSa 12:30	TuThSaSu 10:30	Daily 19:30	SuWeThSa 23:55	TuWeSa 16:00
Lv	WeSu 08:15	WeFrSuMo 08:05	Next Day 08:05	MoThFrSu 12:35	WeThSu 20:45
				13:35	

**LUFTHANSA**  
GERMAN AIRLINES



LOCAL TIMES

NORTH AMERICA — EUROPE

SUBJECT TO CHANGE

CLASS	F/Y	F/Y	F/Y	F/Y	F/Y	F/Y	F/Y	F/Y	F/Y	F/Y	F/Y	F/Y	F/Y
FLIGHT NO.	LH 421	LH 421	LH 451	LH 421	LH 423	LH 421	LH 421	LH 421	LH 423	LH 433	LH 451	LH 421	LH 421
AIRCRAFT	JET	JET	JET	JET	JET	JET	JET	JET	JET	JET	JET	JET	JET
FREQUENCY	MO	TU	TU	WE	WE	WE	TH	FR	SA	SA	SA	SU	SU

Y — First Class  
X — Economy Class

LEFT: FIRST OPERATOR OF THE ROLLS ROYCE 707-420 WAS LUFTHANSA. ON MARCH 17, 1960, LUFTHANSA INAUGURATED 707-430 SERVICE BETWEEN IDLEWILD AND FRANKFURT. RIGHT: ON APRIL 1, 1960, BRANIFF AND EASTERN INAUGURATED 707-227 INTERCHANGE SERVICE BETWEEN NEW YORK, MIAMI, PANAMA, LIMA, AND BUENOS AIRES.



**AIR-INDIA**  
Boeing 707 Intercontinental Jets

Flight Number	AIRCRAFT—JET	FLT. 109 LY FRIDAY	FLT. 111 LY SATURDAY	FLT. 115 LY SUNDAY
NEW YORK	ARR	14:30	14:30	14:30
LONDON	DEP	12:00	12:00	12:00
LONDON	ARR	10:30	10:30	10:30
PARIS	DEP	09:35	09:35	09:35
PARIS	ARR	08:50	08:50	08:50
FRANKFURT	DEP	09:25	09:25	09:25
FRANKFURT	ARR	08:40	08:40	08:40
ROME	DEP	07:00	07:00	07:00
ROME	ARR	06:10	06:10	06:10
GENEVA	DEP	07:00	07:00	07:00
GENEVA	ARR	07:05	07:05	07:05
CAIRO	DEP	05:00	05:00	05:00
CAIRO	ARR	04:30	04:30	04:30
BEIRUT	DEP	03:45	03:45	03:45
BEIRUT	ARR	03:15	03:15	03:15
BOMBAY	DEP	01:00	01:00	01:00

ON LEFT: AIR INDIA OFFERED ITS FIRST JET SERVICE ON APRIL 19, 1960, BETWEEN BOMBAY AND LONDON, OPERATING THE BOEING 707-437. ABOVE: ALTHOUGH FIRST TO ORDER THE 707-420, BOAC WAS ACTUALLY THE THIRD CARRIER TO OPERATE THE AIRCRAFT. INITIAL FLIGHTS WERE OFFERED BETWEEN LONDON NORTH AIRPORT AT HEATHROW AND IDLEWILD, BEGINNING MAY 27, 1960, WITH THE 707-436.

**B.O.A.C.** NOW!  
by B.O.A.C. ROLLS-ROYCE 707

LOCAL TIMES

	EM 773	509	507	AI 109	501
TEHRAN (Mehrabad)	Mo We Fr	Daily	Daily	Fr Sa Su	Fr
TEL AVIV/YAFO (Lod)	Wed Flight Subject to Govt Approval	MONDAY	MONDAY	MONDAY	MONDAY
GENEVA					
LONDON AIRPORT (North Side)					
LONDON AIRPORT (North Side)	10:00	13:00	12:00	12:00	13:30
MANCHESTER/LIVERPOOL (Ringway)					
GLASGOW (Prestwick)					
BOSTON					
NEW YORK (Idlewild)	14:00	15:20	16:50	14:30	18:20
NEW YORK (Idlewild)	15:30				
SAN FRANCISCO (International)	18:50				

ON LEFT: IN 1960 WESTERN AIR LINES LEASED TWO 707-139'S (WHICH HAD ORIGINALLY BEEN ORDERED BY CUBANA) FROM THE BOEING COMMERCIAL AIRPLANE CO. ON JUNE 1, 1960, WESTERN INAUGURATED 707 FLIGHTS IN THE FOLLOWING MARKETS: (1) LOS ANGELES-PORTLAND-SEATTLE; (2) LOS ANGELES-SAN FRANCISCO-SEATTLE; AND (3) LOS ANGELES-SEATTLE.

FLIGHT NUMBER	Electra	Coach	Coach	Boeing 707	Electra	Coach	Coach	Boeing 707	Electra	Coach	Coach	Boeing 707
MEXICO CITY (CST) Lv	8:02	497	608	728	10	730	818	488	208	318	740	824
PHOENIX (MST) Lv	4:25	5:35	6:45	7:55	10:10	10:50	11:30	12:20	13:10	14:00	14:50	15:40
SAN DIEGO (PDT) Lv	6:10	7:20	8:30	9:40	11:50	12:40	13:30	14:20	15:10	16:00	16:50	17:40
SAN FRANCISCO (PDT) Lv	8:30	9:40	10:50	12:00	13:10	14:20	15:30	16:40	17:50	19:00	20:10	21:20

JET/Champagne Flights—Incomparable Champagne Flight cuisine with lavish extras on Boeing 707 jets. G—Champagne Flights include champagne with luncheon, deluxe hors d'oeuvres or dinner and all-luxury service.



Effective June 1 through June 30, 1960

# WESTERN AIRLINES

ALONG THE PACIFIC COAST

NOW!

## 707 JETS

FASTEST and FINEST ALONG THE PACIFIC COAST

BETWEEN  
LOS ANGELES - SAN FRANCISCO  
PORTLAND - SEATTLE/TACOMA

TIMETABLE EFFECTIVE JUNE 14, 1960

# VARIG JETS

TO SOUTH AMERICA

NON-STOP TO BRASILIA\*  
\*Beginning June 21, 1960

NON-STOP TO RIO\*\*  
\*\*Beginning August 18th, 1960

SCHEDULES/FARES/GENERAL INFORMATION

VARIG SOUTHBOUND

FLIGHT NO. EQUIPMENT	MON	TUE	WED	THU	FRI	SAT
NEW YORK	13	13	13	13	13	13
CUADRUZILLO	14	14	14	14	14	14
PORT OF SPAIN	15	15	15	15	15	15
SELEM	16	16	16	16	16	16
BRASILIA	17	17	17	17	17	17
BRASILIA RIO DE JANEIRO	18	18	18	18	18	18
SÃO PAULO	19	19	19	19	19	19
PORTO ALEGRE	20	20	20	20	20	20
MONTEVIDEO	21	21	21	21	21	21
BUENOS AIRES	22	22	22	22	22	22

ABOVE: ON JUNE 21, 1960, VARIG INAUGURATED 707-441 SERVICE BETWEEN NEW YORK (IDLEWILD) AND BRASILIA. SERVICE WAS EXTENDED TO RIO DE JANEIRO IN AUGUST THAT YEAR. MIDDLE RIGHT: ON JULY 12, 1960, NATIONAL, DELTA, AND AMERICAN BEGAN INTERCHANGE JET SERVICE WITH AA'S 707-123 BETWEEN LOS ANGELES, DALLAS/FT. WORTH, NEW ORLEANS, AND MIAMI (FLTS 930, 931). THIS GAVE DELTA THE DISTINCTION OF BEING THE FIRST AIRLINE TO OPERATE ALL THREE U.S. BUILT JETS THEN IN SERVICE - THE DC-8, CONVAIR 880, AND BOEING 707.

## SOUTH AFRICAN AIRWAYS

707 JETS

LOCAL TIMES	SA213	SA217	SA219	SA223
LONDON AIRPORT (North)	11 30	11 30	17 00	11 30
BARCELONA (Muntadas)	(Via Zurich)	13 35	(Via Amsterdam)	
FRANKFURT	15 45	15 50	21 20	14 35
ROME (Fiumicino)	16 30	16 30	22 06	15 35
ATHENS (Central)				18 10
TRIPOLI (Iris El Aual)				19 10
KHARTOUM (Cair)				
KANO			Fr 02 45	
ACCRA			03 30	
LAGOS (Ikeja)				
ENTEBBE (Kampala)				
NAIROBI	We 01 30	Su 01 35	(Via Brazzaville)	01 55
DAR-ES-SALAAM	02 15	02 20		02 40
SALISBURY	04 00	04 05	04 50	04 25
JOHANNESBURG (Jan Smuts)	04 15	04 20	11 40	06 40

F—First Class, O—Tourist Class, Y—Economy Class.

# AVIANCA

COLOMBIA VENEZUELA ECUADOR PERU

Red Ruana JET SERVICE

### UNITED STATES—JAMAICA—COLOMBIA—ECUADOR—PERU—VENEZUELA

F/T JET 711 Sa	F/T JET 711 Tu	F/T JET 711 We	F/T JET 711 Th	F/T JET 711 Fr	F/T JET 711 Sa	F/T JET 711 Su
8 30	9 30	12 00	2 10	3 00	11 40	12 20
AM	AM	PM	PM	PM	PM	AM
NEW YORK (Idlewild)	NEW YORK (Idlewild)	MONTEGO BAY	KINGSTON	BARRANQUILLA	MEDELLIN	BOGOTA
NEW YORK (Idlewild)	MONTEGO BAY	KINGSTON	BARRANQUILLA	MEDELLIN	BOGOTA	CALI
CARACAS	BOGOTA	CALI	QUITO	LIMA		

BEGINNING ON OCTOBER 1, 1960, SOUTH AFRICAN AIRWAYS OFFERED INTERCONTINENTAL 707-344 SERVICE BETWEEN LONDON NORTH AIRPORT AT HEATHROW AND JAN SMUTS AIRPORT IN JOHANNESBURG.

AVIANCA LEASED BOEING 707-121, N711PA, FROM PAN AMERICAN AND ON OCTOBER 17, 1960, INAUGURATED 707 FLIGHTS BETWEEN BOGOTA AND IDLEWILD, OFFERING "RED RUANA" SERVICE.

Effective July 5, 1960

## WESTBOUND—COMPLETE SCHEDULES

(Contained on six pages 10, 11, 12, 13, 14, 15)

DC-8 JET	DC-8 JET	B-720 JET	DC-8 JET
BOSTON (EDT)	NEW YORK (LaGuardia)	PHILADELPHIA	PITTSBURGH
CHICAGO (O'Hare)	DENVER	SALT LAKE CITY	LOS ANGELES

### Service between MIAMI, CHARLOTTE, ATLANTA, NEW ORLEANS, DALLAS and the WEST COAST via Intermediate Points

Complete Delta-American and Delta-National-American Interchange Schedules

TABLE 7

FLIGHT NO.	CLASS	MIAMI	CHARLOTTE	ATLANTA	NEW ORLEANS	DALLAS	LOS ANGELES
DC-8	Y	11 35	11 35	11 35	11 35	11 35	11 35
B-720	Y	11 35	11 35	11 35	11 35	11 35	11 35

Refer to page 21 for explanation of symbols.

# AMERICAN AIRLINES

### JET FLAGSHIPS—INCL. MERCURY/ROYAL COACHMAN SERVICE—WESTBOUND

FLIGHT NO.	CLASS	MIAMI	CHARLOTTE	ATLANTA	NEW ORLEANS	DALLAS	LOS ANGELES
DC-8	Y	11 35	11 35	11 35	11 35	11 35	11 35
B-720	Y	11 35	11 35	11 35	11 35	11 35	11 35

# IRISH INTERNATIONAL AIRLINES

## SHAMROCK JET SCHEDULES EFFECTIVE DECEMBER 14

### U.S.A.—IRELAND

#### NEW YORK and BOSTON—SHANNON—DUBLIN

Boeing 707/013	PERIOD	SPECIAL CHRISTMAS SCHEDULE EFF. DECEMBER 14 THRU 28	DECEMBER 29 THRU MARCH 31
NEW YORK (International)	Lv.	21.00Y	21.00
BOSTON (Logan International)	Ar.	21.40A	21.40A
SHANNON	Ar.	08.50	07.40
DUBLIN	Ar.	10.05	08.55

# EL AL ISRAEL AIRLINES

## Announces FIRST DIRECT BOEING 707 Jet Flights New York to Tel Aviv

### EFFECTIVE THROUGH FEBRUARY 18, 1961

FLIGHT NO.	CLASS SERVICE	AIRCRAFT TYPE	NEW YORK	LONDON	PARIS	ROME	ATHENS	TEL AVIV
LY 229	F/T	B	15 30	15 30	15 30	15 30	15 30	15 30
LY 206	F/T	B	15 30	15 30	15 30	15 30	15 30	15 30

ON DECEMBER 14, 1960, IRISH INTERNATIONAL-AER LINGUS BECAME THE FIRST NON-U.S. AIRLINE TO OPERATE THE BOEING 720. ON THAT DATE FLIGHTS WERE INAUGURATED WITH THE 720-048 FROM IDLEWILD TO BOSTON, SHANNON, AND DUBLIN.

ON JANUARY 5, 1961, EL AL INAUGURATED ITS FIRST PURE JET SERVICE WITH A 707-441 LEASED FROM VARIG. SCHEDULES ABOVE EFFECTIVE FEBRUARY 1961. IN JUNE THAT YEAR EL AL FIRST OFFERED SERVICE WITH ITS OWN PURE JET EQUIPMENT, THE 707-458.



**CAPITAL AIRLINES**

DECEMBER 1, 1960

STARTING JANUARY 8

# FIRST JETS TO MIAMI

FROM PITTSBURGH AND CLEVELAND

**SOUTHBOUND**

READ DOWN Effective December 1, 1960 (Except As Shown) All Schedules Local STANDARD TIME

City	Day	Time	Day	Time
NEW YORK	MON	4:47	TUE	4:47
PHILADELPHIA/AMDEN	MON	5:30	TUE	5:30
ROCHESTER	MON	6:15	TUE	6:15
HUFFALO	MON	7:00	TUE	7:00
DETROIT	MON	7:45	TUE	7:45
CLEVELAND	MON	8:30	TUE	8:30
PITTSBURGH	MON	9:15	TUE	9:15
CHARLESTON, W. VA.	MON	10:00	TUE	10:00
WASHINGTON	MON	10:45	TUE	10:45
BALTIMORE	MON	11:30	TUE	11:30
PHILADELPHIA	MON	12:15	TUE	12:15
ALBANY	MON	13:00	TUE	13:00
MASSACHUSETTS	MON	13:45	TUE	13:45
NEW YORK	MON	14:30	TUE	14:30

ON MARCH 12TH

## THE NEW 707 ASTROJET OPENS JET AGE STAGE II

Between New York and Los Angeles

Flight No.	Leave NEW YORK	Arrive LOS ANGELES	Freq.	Stops	Type Aircraft	Class	Meals
781	9:25 N.Y. Int'l.	6:35	Daily	3-Stop	DC-7	F, T, S, L, D	
1	9:45 N.Y. Int'l.	12:35	Daily	NONSTOP	707-JET	F, T, L	
3	11:45 N.Y. Int'l.	2:35	Daily	NONSTOP	707-JET	F, T, L	
13	12:00 N.Y. Int'l.	3:25	Daily	1-Stop	707-JET	F, T, L	
5	4:45 N.Y. Int'l.	7:35	Daily	NONSTOP	707-JET	F, T, D	
7	6:45 N.Y. Int'l.	9:10	Daily	NONSTOP	ASTROJET	F, T, D	

Between New York and Chicago

Flight No.	Leave NEW YORK	Arrive CHICAGO	Freq.	Stops	Type Aircraft	Class	Meals
57	8:00 N.Y. Int'l.	9:05 O'Hare	Daily	NONSTOP	ASTROJET	F, T, S	
65	9:00 N.Y. Int'l.	10:10 O'Hare	Daily	NONSTOP	707-JET	F, T, S	
51	10:00 N.Y. Int'l.	11:10 O'Hare	Daily	NONSTOP	707-JET	F, T, S	
33	12:00 N.Y. Int'l.	1:10 O'Hare	Daily	NONSTOP	707-JET	F, T, L	
41	1:00 N.Y. Int'l.	2:20 O'Hare	Daily	NONSTOP	707-JET	F, T, L	
45	3:00 N.Y. Int'l.	4:10 O'Hare	Daily	NONSTOP	707-JET	F, T, L	
63	4:00 N.Y. Int'l.	5:10 O'Hare	Daily	NONSTOP	707-JET	F, T, L	
313	5:00 LaGuardia	6:45 Midway	Ex.Sa.	NONSTOP	ELECTRA	F, I, D	
315	5:15 Newark	6:55 Midway	Ex.Sa.	NONSTOP	ELECTRA	F, I, D	
63	6:00 N.Y. Int'l.	7:20 O'Hare	Daily	NONSTOP	707-JET	F, T, D	
47	8:00 N.Y. Int'l.	9:10 O'Hare	Daily	NONSTOP	707-JET	F, T, D	

EFFECTIVE JULY 1, 1961

# NORTHWEST AIRLINES

Now! **720B JETS**

Minneapolis/St. Paul to Chicago  
Minneapolis/St. Paul to Milwaukee and New York

INTERCONTINENTAL DC-8C JETS  
New York, Chicago, Minneapolis/St. Paul, Seattle/Tacoma, Portland, Hawaii, Alaska, The Orient

SERVICE

FLIGHT NO.	CLASS	DEPART	ARRIVE	DEPART	ARRIVE	DEPART	ARRIVE	DEPART	ARRIVE
143	135	131	125	163	265	273	141	49	81
143	135	131	125	163	265	273	141	49	81

الخطوط الجوية العربية السعودية  
**SAUDI ARABIAN AIRLINES**

ADEN-JEDDAH-CAIRO, BEIRUT, BAGHDAD

SV - South Arabian Airlines - 720 - Boeing 720; D3 - Douglas DC-3; C3 - Convair 440

FLIGHT NO.	CLASS	DEPART	ARRIVE	DEPART	ARRIVE	DEPART	ARRIVE	DEPART	ARRIVE
709	720	711	707	713	718	721	723	727	731

CAPITAL AIRLINES LEASED TWO 720-022'S FROM UNITED AND ON JANUARY 8, 1961, OFFERED ITS FIRST PURE JET SERVICE BETWEEN CLEVELAND, PITTSBURGH, AND MIAMI. THAT SPRING SERVICE WAS ADDED BETWEEN CLEVELAND-IDLEWILD, AND IDLEWILD-ATLANTA-NEW ORLEANS.

ON MARCH 12, 1961, AMERICAN BECAME THE FIRST AIRLINE TO OPERATE PRATT & WHITNEY TURBOFAN-POWERED BOEING 707'S AND 720'S - WITH THE 707-123B BETWEEN IDLEWILD-LOS ANGELES; AND THE 720-023B BETWEEN IDLEWILD-CHICAGO (O'HARE)-MEXICO CITY.

LEFT: NORTHWEST INAUGURATED 720-051B SERVICE ON JULY 1, 1961, IN THE MARKETS SHOWN: CENTER, TWA LEASED FOUR 720-051B'S FROM BOEING AND INAUGURATED SERVICE ON AUGUST 18, 1961, BETWEEN IDLEWILD AND KANSAS CITY. ON RIGHT, SAUDI ARABIAN BEGAN SERVICE WITH THE 720-068B IN THE MIDDLE EAST IN FEBRUARY 1962.

**WESTERN AIRLINES**

North Atlantic Services

**LUFTHANSA**  
GERMAN AIRLINES

FLIGHT NUMBER	EQUIPMENT	CLASS	DEPART	ARRIVE
638	720B	Coach	11:00	12:30
634	720B	Coach	12:00	1:30
432	720B	Coach	13:00	1:30
794	720B	Coach	14:00	1:30
475	720B	Coach	15:00	1:30

LOCAL TIMES

FLIGHT NO.	AIRCRAFT	CLASS	MONDAY	TUESDAY	WEDNESDAY	THUR
LH401	B-707	FY	19:30	21:30	19:30	19:30
LH403	B-707	FY	21:30	21:30	21:30	21:30
LH427	B-707	FY	18:00	18:00	18:00	18:00

PACIFIC NORTHERN AIRLINES  
THE ALASKA FLAG LINE

FLIGHT NUMBER	EQUIPMENT	CLASS OF SERVICE	FREQUENCY
6	720	JET	Daily
725	721	JET	Daily
1	723	JET	Daily

PACIFIC NORTHERN INAUGURATED 720-062 SERVICE BETWEEN SEATTLE AND ALASKA MAY 1, 1962.

# CUNARD EAGLE

Effective May, 1962

FLIGHT NUMBER	AIRCRAFT	FREQUENCY	CLASS				
EN 2	EB 500	EN 108	EN 200	EN 400	EN 400	EN 400	EN 400
JET 707	JET 707	JET 707	JET 707	JET 707	JET 707	JET 707	JET 707

CUNARD EAGLE, ON MAY 5, 1962, INAUGURATED 707-465 SERVICE BETWEEN MIAMI, NASSAU, BERMUDA, AND LONDON.

BELOW ETHIOPIAN OFFERED ITS FIRST PURE JET SERVICE WITH THE 720-060B IN SEPTEMBER 1962.

ON MAY 15, 1961, WESTERN INAUGURATED 720-047B FLIGHTS BETWEEN LOS ANGELES AND MEXICO CITY. TWO WEEKS LATER, ON JUNE 1ST, SERVICE WAS EXTENDED ALONG THE PACIFIC COAST FROM LOS ANGELES TO SAN FRANCISCO AND SEATTLE.

LUFTHANSA INAUGURATED 720-030B SERVICE BETWEEN IDLEWILD AND FRANKFURT, MAY 20, 1961 (SHOWN ABOVE). THE SAME DAY, 720B SERVICE WAS BEGUN BETWEEN EUROPE AND SOUTH AMERICA ON A ROUTE FROM FRANKFURT TO PARIS, DAKAR, RIO DE JANEIRO, SAO PAULO, MONTEVIDEO, BUENOS AIRES, AND SANTIAGO.

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# ETHIOPIAN

THE WONDERLAND ROUTE

## JETS TO THE LAND OF SHEBA

CITIES	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUN.
ADDIS ABABA	08:00	08:00	08:00	08:00	08:00	08:00	08:00
ADDIS ABABA	09:30	09:30	09:30	09:30	09:30	09:30	09:30



# POST CARD CORNER

by WILLIAM DEMAREST



1. N700700, c/n 17158, 367-80.

This issue of the LOG features my all-time favorite aircraft: the Boeing 707/720. Each of us has his or her 'special' aircraft and the Boeing 707 series happens to be mine. As a result, I am devoting this column to sharing a selection of early-707 post-

cards of this famous jetliner.

My personal collection includes more than 650 different cards from more than 150 operators of the 707/720.

George Cearly's profile on the early 707/720 provides an excellent background on the development of this aircraft.

(Mr. Demarest sent nearly 20 more 707/720 cards, all of post-1963 aircraft. Regrettably they must be held over to the next issue for lack of space here. A long list of new airline-issue and commercial cards is also held over. -JG)



2. OCT 55 artist's impression of PAA 707-121.



3. N731TW, c/n 17658, 707-131.



4. N17321, c/n 18825, 707-321C at Honolulu.



5. N7071, c/n 17691, 707-227.

38

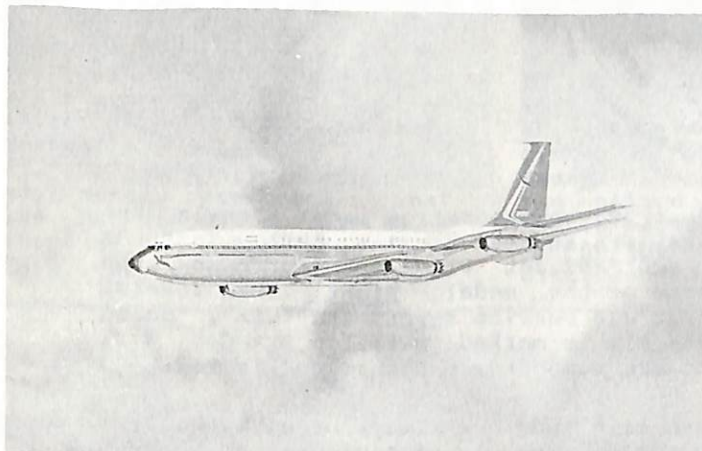


6. VT-DJI, c/n 17722, 707-437.

(1, 2 & 6 are B&W cards published in Holland).



7. Air France 707-328



9. South African Airways 707-344.



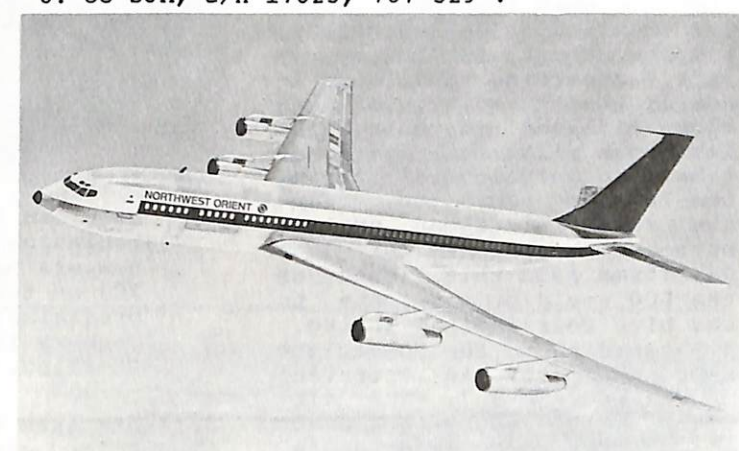
11. D-ABOF, c/n 177721, 707-430.



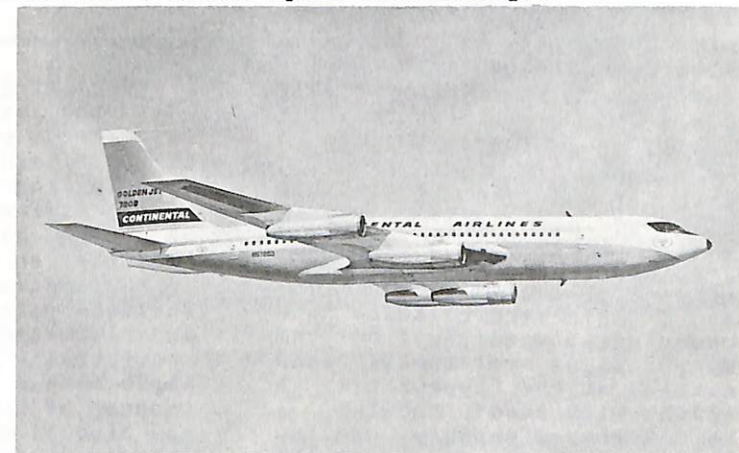
13. Pacific Northern 720, artist's impression.



8. OO-SJA, c/n 17623, 707-329 .



10. NW 707,351B (post-1969 livery).



12. N57203, c/n 18418, 720-024B.



14. Eastern Air Lines 720-025.

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# WINGS & THINGS

by RICHARD KORAN

"American launched the nation's Jet Age with the first domestic transcontinental commercial jet flight in January 1959. And with that flight, American took a major step forward in the expansion of its passenger service - a service renowned for speed, safety, comfort, dependability, and the utmost in luxury aloft," according to Welcome Aboard, the '59 edition of American Airlines' souvenir booklet. As a pilot for American, I had the privilege of flying the 707 and began to "hear" the sound of those engines once again when Editor Joop Gerritsma said this issue of the LOG would be a tribute to the big, four-engined Boeing.

According to the Powerplant section of the AA Operating Manual for the 707, "The airplane is powered by four Pratt and Whitney JT3D turbo fan engines. The engine is a twin-spool continuous flow gas turbine consisting of two axial flow compressors with a fan included in the first two stages of the front compressor." I will never forget the sound of those engines during take-off and climb to altitude - sound memories! Only the 707!

I also remember many captains I flew with on the 707 and I would like to share one short story with you from the many I began to recall when sitting at the typewriter. A flight with "Red" Knowles, a Chicago-based captain, was indeed an experience, especially on routes which took us over Southern Indiana. Red would begin to speak on the PA about Wabash Valley, ol'Casey Jones the train engineer, and the Wabash Cannonball. To make the story complete, though, you had to have Flight Engineer Ed Dubsik on board too, one of the venerable two-stripe FEs. Red would tell the passengers the tales of the Wabash and the sounds, low and mournful, and if they would only listen closely, he said, they might hear the Wabash Cannonball coming down the track with ol' Casey at the throttle - and with that, Dubsik would start his low train-whistle sound



American Airlines' 707 commemorative medal signals the beginning of a new era for the airline. Left: Text "A new era begins" and "707 Jet Flagship" surrounds the 707 on the obverse of the medal. Right: The reverse proclaims: "First Jet Service Across the USA", dated January 1959. The rim is marked: Metallic Art Co. N.Y. Sterling. Medals are numbered, and this one is #176.

effects into the same mike Red was using, creating quite an "illusion" for the folks. It

## A NEW PAINT SCHEME

In the late 1960s American initiated a plan to change the aircraft paint schemes, including a logo devoid of the eagle. Different combinations of red and blue stripes began to appear on various aircraft in the system, along with tail surfaces painted gray with red and blue "AA"s.

Virtually every American employee was "stricken" at the thought of losing the orange and blue lightning stripes - and our eagle! We could handle the new stripes, but we had to have the eagle.

There was a campaign to bring the eagle back to its rightful place with American. System-wide the employees started a "write-in" campaign, mailing the corporate offices yards and yards of yellow teletype weather paper with signatures. Each office and operations location hung blank yellow paper on the wall and whenever someone went by, we would sign it. When the paper was full, it would be boxed and sent to headquarters.

After a month or so of this effort, the company decided the eagle had to make a come-

always brought about a round of applause.

Those were the days!

back and the industrial design firm in charge of the new "look" came up with the stylized eagle we know today.

As part of the effort to restore the eagle to its rightful place, Dallas-based employees came up with a white button saying "Save the" and a drawing of an "eagle", to be worn 'til the eagle came back. The button shown here is one of fewer than 200 made.

Just by chance, the American Airlines employee newspaper, Flagship News, published a short story about the AA eagle and logo: "Ever wonder how the corporate symbol of American Airlines came to be an eagle within the AA logo?"

"Would you believe it was created back in 1931 by an American executive with the unlikely moniker of Goodrich Murphy, who beat out over 1,000 entries in a contest to come up with a corporate logo? You'd be right if you did."

"Murphy was general traffic manager of Colonial Airways, one of several small airlines which had just been formed into American Airways. The new officers decided the existing insignia, a lighttower with

beams shining from either side, was uninspiring. (See the second edition of George Cearley's American Airlines book, page 27, for a look at that old insignia.)

"So all employees - but no professional designers - were invited to enter a contest and submit drawings of their suggested logos.

"The prize was \$100 and I needed it badly," Murphy recalled in a 1967 interview. "We hadn't been married very long and we were still eating off a card table." He prepared three drawings and submitted them for consideration.

"On the last night of the contest, Murphy and his wife were having dinner with another couple when the conversation turned to the insignia contest.

"It suddenly dawned on me," Murphy remembered, "that the background of at least three of the judges was military. They would probably app-



rove of a patriotic insignia. So I sent my wife and the other couple to the theater and worked all evening on a new design. I managed to get it to the office and time-stamped before midnight."

"He (Murphy) described the circular insignia and its

Left: Save the 'eagle' button from the Dallas area appeared when American Airlines initiated a plan to change the aircraft paint schemes - and the logo - in the late 1960s (see main text). Fewer than 200 of these white buttons with blue lettering were made.

symbolism in nostalgic terms," wrote Flagship News. "It was red, white and blue, of course. It had to be, with the airline sharing the name of our country." Unable to find an eagle in an encyclopedia, he copied one from an ad for Gleneagles Hotel in Scotland.

"The other 1,000-plus entries fell by the wayside as Murphy's design emerged victorious. The hastily sketched insignia has been modified and refined over the years, but remains basically the same today as Goodrich Murphy's original."



Air Canada Lockheed L-10A Electra CF-TCC appeared at the 1987 Oskosh Fly-In of the Experimental Aircraft Association.

## OSHKOSH '87

"Anyone driving past Wittman Field the first week of August might have wondered if legions of true believers in 'harmonic convergence' had misread their Mayan calendars and gathered at a 'power center' a couple of weeks too soon. This was no 'dawning of a new age', however - just true believers in another kind of harmony gathering at their own power center to stage an 'aeronautic' convergence. They called it Oshkosh '87," says Jack Cox of EAA's Sport Aviation magazine.

Well, I had my uplifting experience and attended my first Experimental Aircraft Association Fly-In this year



American Airlines Stinson Reliant Route Survey airplane was another antique airliner at Oshkosh '87.

and began to wonder why I had missed all the others! Where had I been to have missed this aviation event? There is no easy way to describe the Oshkosh Fly-In event except to say "spectacular"! We spent four days there and I will not recount each and every plane we saw and touched. There were a number of airliners, however, which flew in to be part of the Transport Aircraft Section in the Antique Aircraft Category and they were indeed, special.

Airliners on the flight line included a Ford Tri-Motor in Eastern Air Transport markings, a Stinson Reliant in the markings of an American Airlines Route Survey craft, a

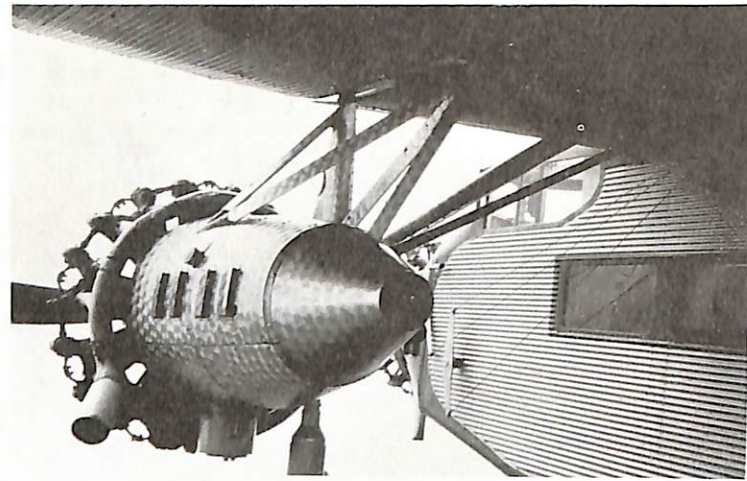
three-engined Stinson A in the Pennsylvania Central (PCA) paint scheme, an outstanding, recently-restored DC-3 in Piedmont Airlines colors, and my favorite of them all, the Trans-Canada Air Lines/Air Canada Lockheed L-10A Electra (CF-TCC). AC Capt. John Racey of Vancouver flew 'TCC' to Oshkosh and was our genial host for a tour of the airplane, inside and out. Real class! We even got cockpit time and my wife, Diane, got the left seat! She began to imagine, too, what it must have been like to be Amelia Earhart, jammed in that small cockpit for such a long flight.

Capt. Racey was also one of



the pilots who flew the Electra on its historic flight across Canada last year as part of the 50th anniversary celebrations of Air Canada.

In the award category for transport aircraft, a Lockheed L-12A with no markings took first place. The TCA/AC L-10A was runner-up and an award for outstanding went to the Piedmont DC-3 in their vintage 1942 scheme. This DC-3 had been found somewhere in Canada and was restored right in Oshkosh by Basler Flight Service. Both the L-10A and the DC-3 are still being used for promotional trips around the USA and Canada.



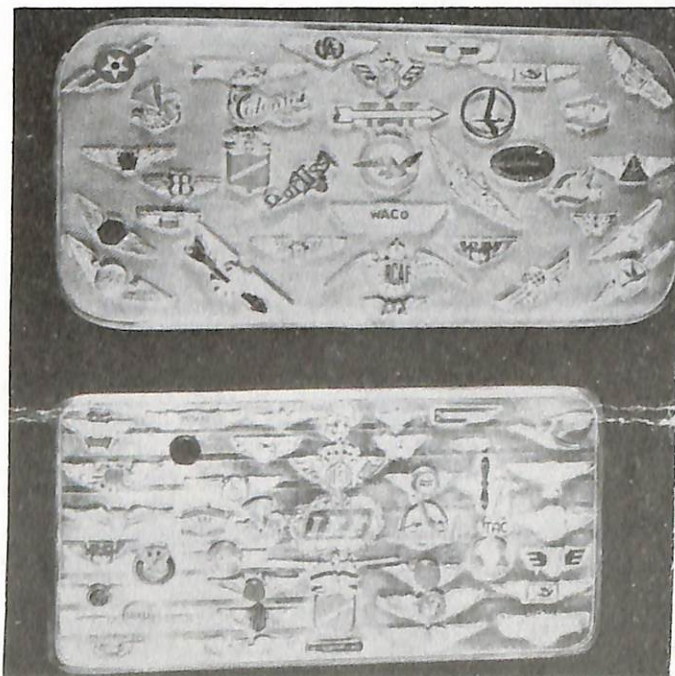
Left: NC8407, Ford Trimotor in Eastern Air Transport markings, was another of the marvellous restored vintage airliners on the Oshkosh '87 flight line. Markings included "U.S. Mail C.A.M. No. 19" along the fuselage.

### 'BOXED' PINS

I thought some of you collectors would like to see the photos of the cigarette box and cases covered with old pins and small wings. These cases appeared in a 1939 or 41 issue of The Sportsman Pilot magazine sent to me some time ago by old friend J. Duncan Campbell. The article was written by Howard L. Hartman, who, at the time, was associated with the Institute of Aeronautical Sciences, New York City.

(Does anyone know what happened to this institute???)

"Practically four out of every five of your best friends have it - that passion for collecting something or other," Hartman wrote, "whether it be match covers, old coins, carpet slippers, pipes, butterflies, or whatnot."



To the materialistic minded this seemingly mass departure from the work-a-day world to Hobbyland appears very irregular and wasteful. However, there seems to be a growing school of thought that a hobby checks our modern tendency to grow in only one direction and provides a special exhilaration and contentment.

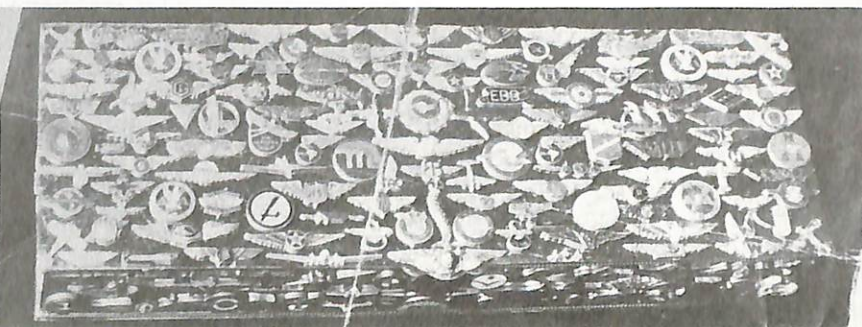
"At any rate, the ranks of the hobbyists grow by leaps and bounds. The same strange urge that makes the jeweller buy an airplane and take flying instruction now makes aviators collect jewelry, not diamonds or rubies, to be sure, but any sort of winged insignia that fall in the category of aviation emblems."

Fellow collector Ed Young sent me some additional information and photographs from the Hartman Collection. The

two fellows were collectors of pins and wings long before I ever got into the hobby and can be considered 'early birds' of pin collecting. The Hartman pin collection was removed from the Institute and eventually ended up on display in the International Aerospace Hall of Fame and San Diego Aerospace Museum in Balboa Park. Sadly the vast and priceless collection was only one part of the huge collection consumed in the 1978 fire which destroyed the museum facilities. I spent many hours looking over that pin and wings collection in the IAHF and Museum, dreaming of building my own. But I never did see the cigarette box or cigarette cases there and to date, I have been unable to locate them. They sure would make a great discovery!

Below, left: For the pin collector, these two old cigarette cases are adorned with a large number of older lapel pins from airlines and related companies, plus some military and industrial items. Back in the 1930s these aviation collectibles were quite 'en-vogue' and became the envy of all walks of life.

Below: Adorning the top and sides of this cigarette box are 260 pins assembled from far and wide - many of them are rare. Pins are from the personal collection of the late Howard L. Hartman. This photo appeared in The Sportsman Pilot magazine in the late 1930s.



# STICKER CHATTER

by DON THOMAS



#1



#2

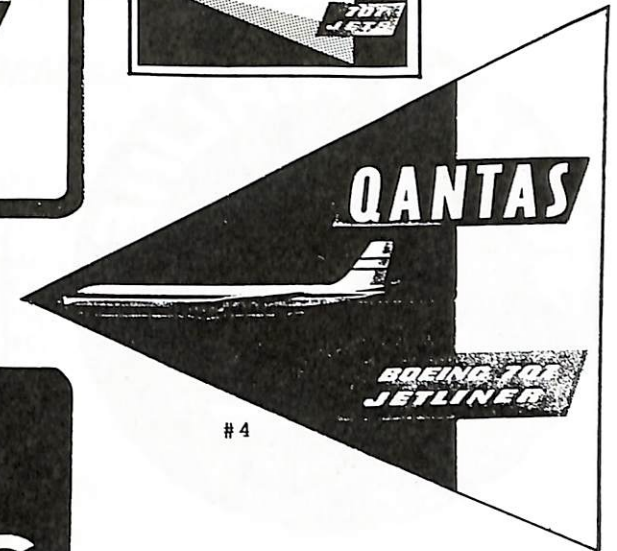


#3

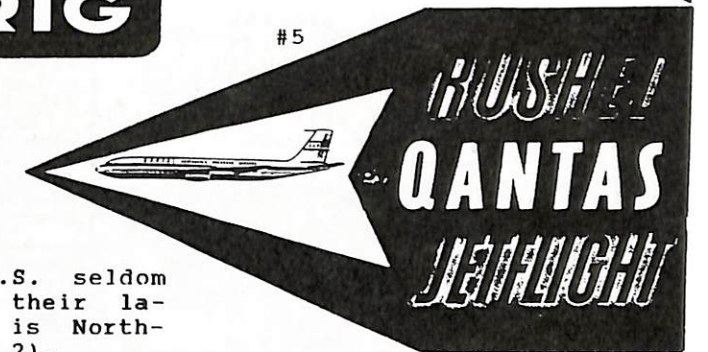
The Boeing 707, the outstanding long-range jet airliner for many years and first ordered by Pan American Airways, does not seem to have been featured on baggage labels by many U.S. airlines. We have labels of the Strato-cruiser and Strato-clipper, dozens of the DC-3 and the Ford Tri-motor, many of the 747 and lately the 737. But



#6



#4



#5



#7

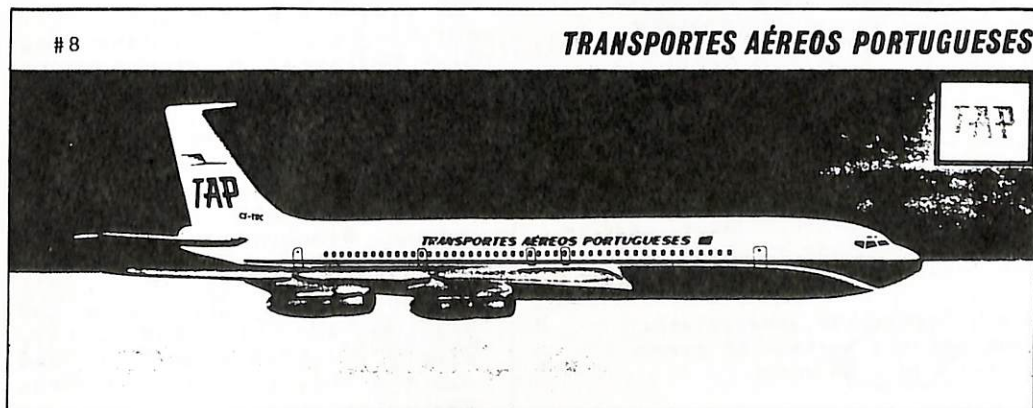
airlines in the U.S. seldom showed the 707 on their labels. One exception is Northeast Airlines (#1 & 2).

A few foreign airlines featured the 707 when they first acquired them for passenger services, including QANTAS of Australia (#3-5), VARIG of Brazil (#6), Lufthansa of Germany (#7), TAP of Portugal (#8) and Air Rhodesia (#9). Somali Airlines (#10) in northeast Africa operates two used 707s and now-defunct

Young Cargo of Belgium (#11) used the type for hauling freight. A number of passenger 707s have been converted to freighters.

My book Nostalgia Panameri- cana is now out. It was due the end of October from Singapore, where it was printed and it looks great. 64 pages in color, featuring flying boats of Pan American Airways, Panagra, Panair do Brasil, CNAC, Aeromarine, American Export, Curtiss-Cubana, NYRBA, Mexicana, Condor, Kohler, Thompson, Antilles Air Boats, Chalk's, Inter-Island and other airlines which operated flying boats in the 1930s. The price is \$16 U.S., plus \$1 for postage and packing, from Don Thomas, 1801 Oak Creek Drive, Dunedin, FL 34698, USA. Florida residents please add 80 cents sales tax.

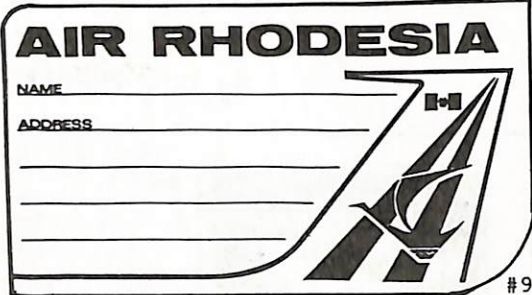
This book is a nice coffee-table production which would



#8

TRANSPORTES AÉREOS PORTUGUESES





make a good Christmas present for anyone interested in aviation. It shows the colorful brochures and timetables of these airlines, as well as some of their labels, post-cards etc. I haven't seen many of these aircraft shown in color before.

Ron Suttell of Kent, WA, submitted some interesting Alaska Airlines labels. The one I like best is the "I'm hooked on Alaska Airlines Cargo Network" with a green 'jetfish' between the blue printing (#12).

A great assortment of other new labels, BILs etc. was received from Dave Rowe in England, Lee Bachar of Chicago (IL), Frank Hines in Douglasville (GA), Bill Gawchik of Yonkers (NY), Tony Schneider of Louisville (KY), and several other people. I thank them all. Lack of space forces me, however, to hold them over to the next issue of the LOG.

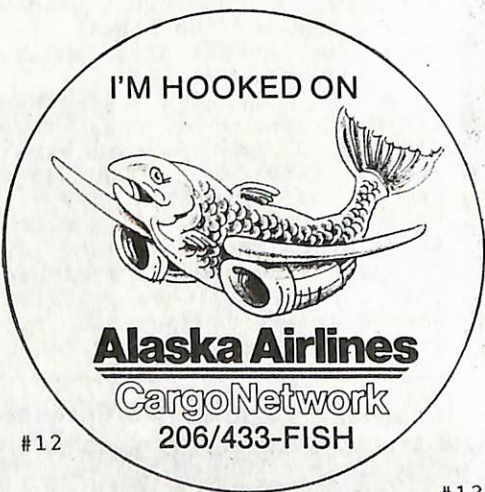


**ALASKA-WASHINGTON AIRWAYS**  
AWA started flying in 1929 in both Alaska and Washington state. In 1930 a Seattle-Juneau service was begun, but due to bad weather and lack of radio aids, it was discontinued and the airline was sold.

AL-1 114mm diameter. Red, yellow, green, black.  
AL-2 Same, dark bluish-green instead of green.  
AL-3 133mm x 76mm. Red & blue on white.



**SIZES & COLORS**  
#1. 3 in., 77 mm diam.; BOEING & outline of aircraft in black; 707 and aircraft in white, red backgr.  
#2. 4 3/8 x 3 in., 11 x 76 mm; gold border, text NEW YORK - MIAMI and horiz. lines between NE & 707 and 707 & JET; NE on red backgr.; alternating purple, light and dark blue spaces between 707 & JET; light blue aircraft and text below it on light beige background.  
#3. 1 7/8 x 1 3/8 in., 47 x 35 mm; black aircr. on white backgr.; < in grey, FLY in top left corner in black; top half of backgr. dark blue and bottom half light blue; QANTAS, 707 JETS in white on red background. Label has gummed back and has perforations all around, like a postage stamp.  
#4. 5x5 in., 127 x 127mm; Vert. area on right & all text in white; red background for text and trim of aircraft; top left backgr. dark blue-green; bottom left backgr. light blue-green. Gummed back.



#5. 5 3/4 x 3, 144x78 mm; area to the right in red with black & white text; black & white aircraft with red trim on white background, upper and lower parts or triangle in blue-grey, gummed back.  
#6. 4 5/16 x 2 3/16 in., 109 x 55 mm; black backgr.; VARIG in yellow; star logo to right in black & white on light blue circle; 707 in grey & blue on white backgr.  
#7. 3 5/8 in. sq., 91 mm sq.; white 707 tail with standard dark blue & yellow livery; LUFTHANSA dark blue; backgr. light blue, gummed back.  
#8. 7 3/4 x 3 1/8 in., 196 x 80 mm; backgr. white - blue-grey - white, TAP in black on white backgr. inside black box; full airline name in black; red trim & text on 707; light blue crane on tail, windows blue-grey, non-sticking back.  
#9. 3 3/8 x 2 in., 85 x 51 mm; sailing ship on tail in red, right diag. bar on tail in light blue; rest of printing in dark blue; comes three in a vertical strip.  
#10. 3 7/8 in., 109 mm diam.; bright blue backgr.; all text in white; tail colors in blue-green.  
#11. 8 x 4 1/16 in., 121 x 103 mm; white circle with black border; rest of backgr. blue-grey; aircraft white, gray & black, YOUNG on fuselage in red and in white on red tail; all other text black.  
#12. 3 14 in., 82 mm diam.; white background; light green 'jetfish'; all other text in dark blue.

Label collectors who have the 1987 North American Vol. III, Section A, catalogue may want to paste in Alaska-Washington Airways, (#13), perhaps at the foot of page 8. This was accidentally left out when the old catalogue was cut up to arrange the airlines alphabetically. Thank you to Bob McKain, Alaska specialist, for pointing this out.

(Ed's note: If you don't want to damage your issue of the LOG, and who wants to?, simply Xerox this section and use the copy to cut out the AWA entry from.)

# SAFETY CARDS

© 1987 Carl Reese



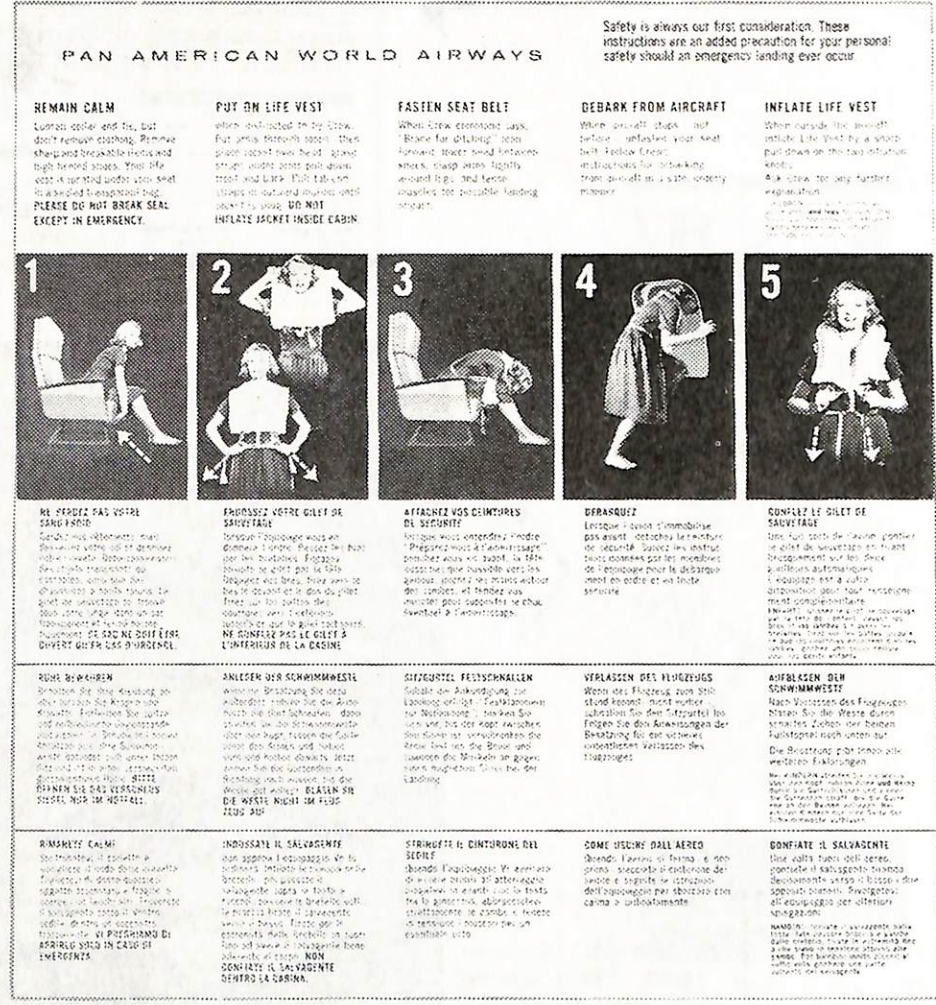
In line with the subject aircraft of this Captain's Log issue, the Safety Card article is devoted to the Boeing 707. This subject is a two-edged sword: In favor, the 707 Safety Cards are extremely varied in format and overall appearance (quite naturally, with over 25 years of service). Against, is that so many cards do exist with only limited space available to cover them...therefore leaving this author with a difficult task: Making a choice. Previous articles in the Captain's Log have covered several 707 cards therefore eliminating some of the choice. You are invited to review past issues for coverage of 707 Safety Cards for such airlines as Varig, Aerolineas Argentinas, LAN-Chile, Ecuatoriana, Aerocondor and others. With these aside, we will begin in an appropriate place: the beginning.

The first few cards will start with the late 1950s, beginning with the launch carrier, PANAMERICAN. Pan Am issued "Emergency Instructions" (figure 1) in a single card using Black and White photos and highlighted in the traditional light blue. This style has been noted as form 9253-7006. A booklet type (logo on cover) was also issued as forms 9253-7011, 9253-7011B, and 9253-7399. None of these cards carries a revision date and it is therefore impossible to determine which was the original 707 card. At this point, Pan Am has been very uncooperative in assisting with answers to this among many questions. You will note that none of the older Pan Am 707 cards carry identity as to aircraft type. The illustrations of exit operation, ceiling-mounted slides, and the old style Boeing PSU (Passenger Service Unit) are the only means by which to identify the aircraft type. Floorplans on Jet Clipper cards were not introduced until the mid-1960s.

cards were issued by T.W.A. for the inauguration of jet service. Shown in figure 2 is form number 4919 (11-59) with details of the passenger cabin shown on the floorplan. The other version is identical, using the same form and date, yet has no cabin details on the floorplan. Both cards are white plastic with red and black print. Incidentally,

T.W.A. used a separate card entitled "Over-Water Flight Procedures" to explain use of life vests.

AMERICAN AIRLINES' original Safety Card for jet equipment cannot be shown here as I've been able only to obtain a photo-copy (unsuitable for reproduction). It is



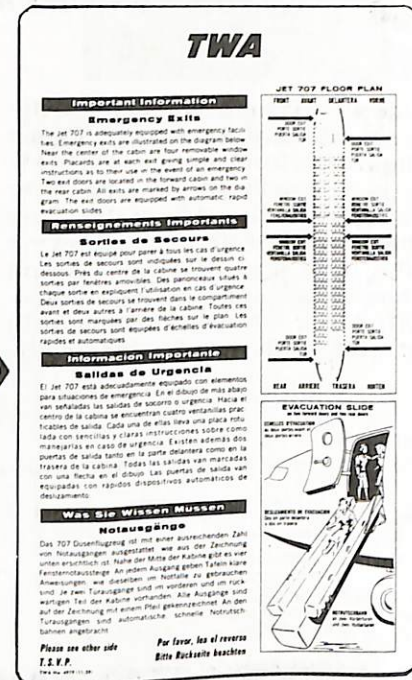
An early PAN AMERICAN 707 Jet Clipper card. The reverse shows oxygen, window exit, escape slide and life raft by drawings.



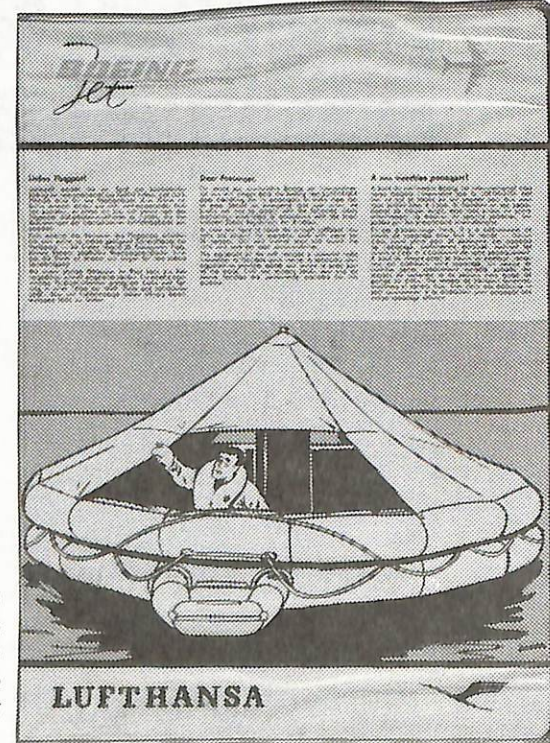
assumed that the "707 Jet Flagship" (form T352) was cardboard highlighted in light blue and black from remarks in the text. This card also shows the complete detailing of the passenger cabin arrangement on the floorplan. (If anyone has an example of this card, I would be delighted to share it with readers in future articles as it certainly holds many memories of olden days).

The first "Boeing Jet Intercontinental" Safety Card of **LUFTHANSA** is an excellent example of the German carrier's aggressive approach to detail and accuracy whilst addressing the subject of passenger safety. The large folding card (figure 3) is laminated and highlighted in pale blue, black, and red. Thoroughness of presentation included a fully detailed schematic of the aircraft with all emergency equipment shown. It is denoted as form Wbg 322 001 190/160/HL, the 160 indicating a January 1960

One of two almost identical T.W.A. Jet 707 cards from 11-59. Oxygen and PSU information is on the reverse side.



2



3

The original LUFTHANSA Boeing 707 card from 1960. The inside contains the elaborate floorplan with equipment locations. The back shows oxygen, slides and exit operations.

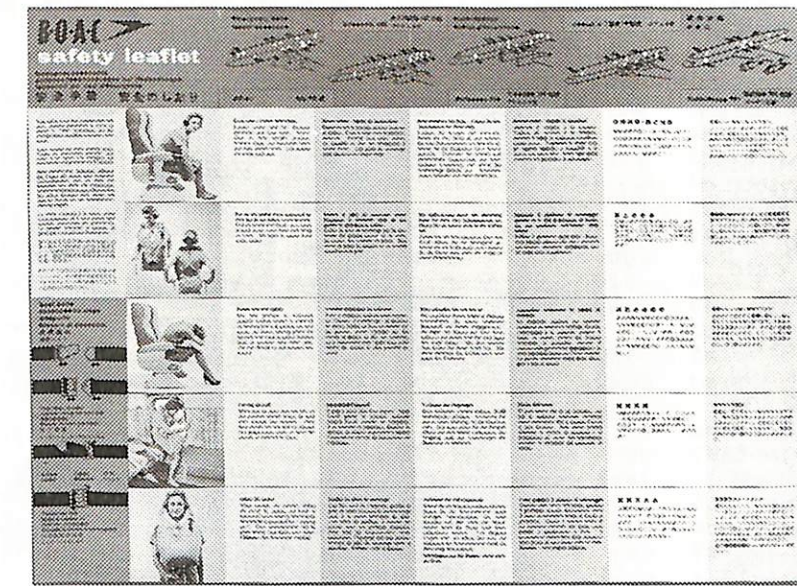
issue date.

Another European carrier, **AIR FRANCE**, was one of the early Boeing 707 operators. Shown in figure 4 is the cover of the folding, laminated Boeing 707 Consignes de Securite that measured about 13 inches high. This card was used to demonstrate 'state-of-the-art' presentation of a Safety Card for the April 1968 IATA circular (4007-B) entitled, "Guidance Material for Passenger Emergency Evacuation Cards". Although by today's standards considered antique, many airlines (M.E.A., P.I.A., El Al and others) have used this card style over the years. In fact, Air France used this same format (in smaller versions) until the early 1970s.

Yet another original 707 operator in Europe deserves a voice. **B.O.A.C.** (like most U.K. operators) was rather slow towards the introduction of individual Safety Cards applicable to a particular aircraft type. The original Rolls-Royce 707 coverage was included in their "Safety Leaflet" (figure 5) along with the DC-7C, Britannia 102 and 312, and the Comet 4. This multi-fold paper leaflet was highlighted with black, pink, aqua and purple. It must have been anything but discreet...opened fully it measures 15 in. X 20 in! Two versions were issued in 1960, one with Portuguese (60/320/400M/McC) and the other with Japanese and Chinese (form 60/320/200M/East/McC).

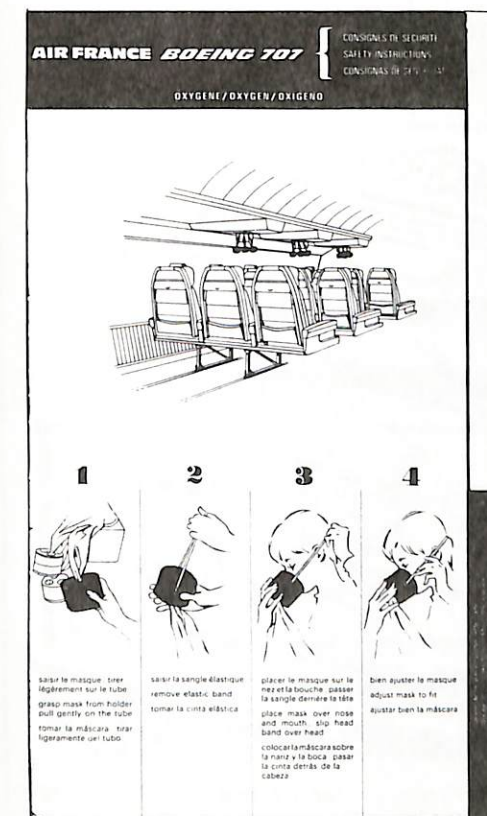
The Dark Continent's premiere jet operator, **SOUTH AFRICAN AIRWAYS**, was one of the few 707 operators to call the jet by its early name, the "Boeing Stratojet". As shown in figure 6, the orange and black multi-fold leaflet has the reference of 'Ela-ta H1165'. Another version was printed as a booklet (rather than leaflet) and was titled "Boeing 707 Stratojet". This second version is referenced with 'MACT'. Both versions are very similar in appearance and are written in English and Afrikaans.

Down under, **QANTAS** introduced the Boeing 707 safety instructions in booklet form, apparently combined with those of the Electra. This combination is positively known to exist, but unfortunately is not available for presentation here. Into the 1960s, Qantas safety procedure booklets continued with a gold and green version for "Boeing 707" and a purple and blue version for the "Boeing 338C"



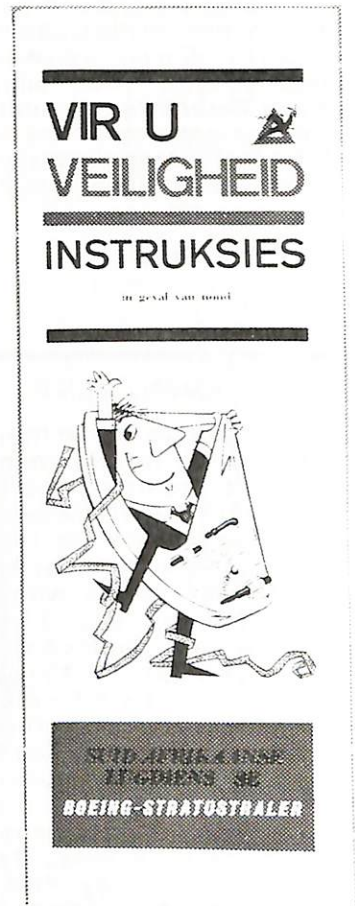
5

One side of the enormous paper Safety Leaflet of B.O.A.C. showing the common practice of a card covering the entire fleet.



4

The front of an ever popular format, that designed originally by AIR FRANCE.



6

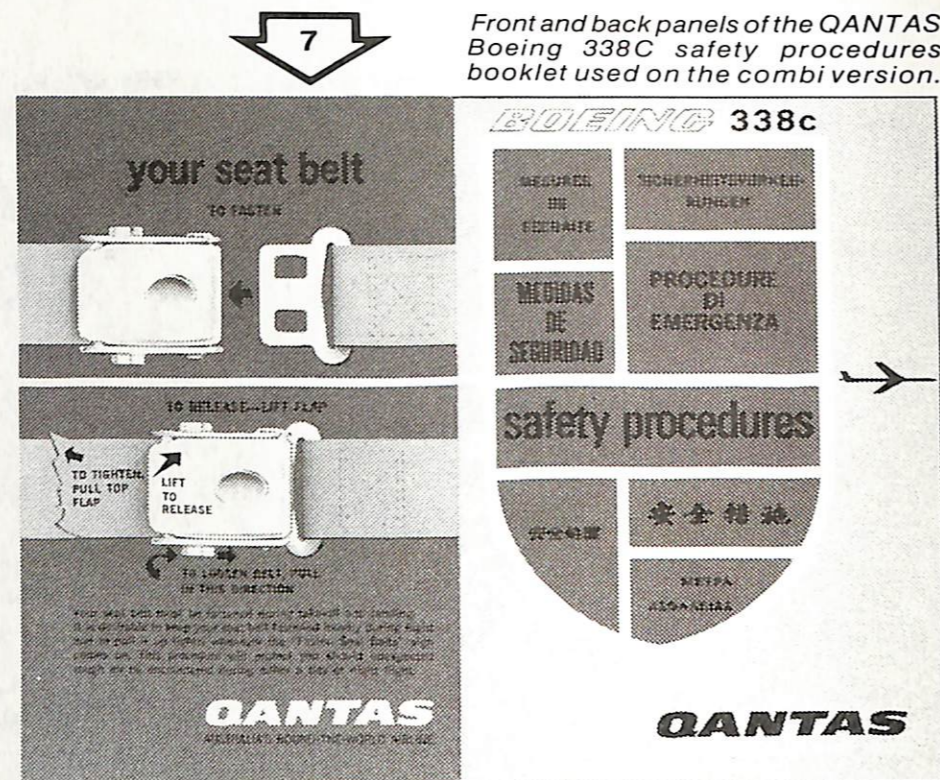
The Afrikaans cover (English reads from back cover) of the early SOUTH AFRICAN AIRWAYS Boeing Stratojet card.



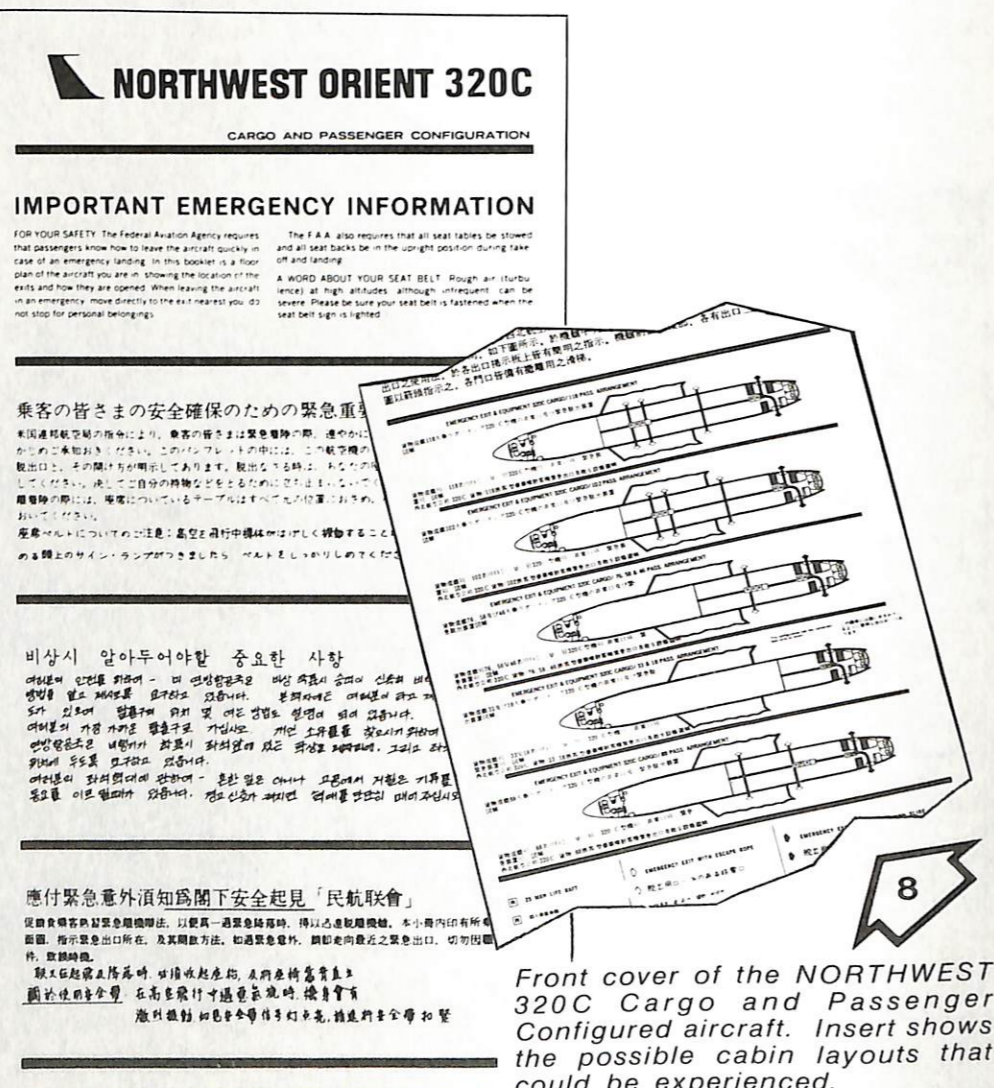
(Figure 7) which shows the aircraft in combi configuration only. (The gold and green version is available with a globe design on the back cover (earlier version) or with seatbelt instructions (on later version).

It has always been difficult to obtain any information or examples of Safety Cards used by NORTHWEST ORIENT prior to the late 1960s, therefore the original design of the first Northwest 707 FanJet card remains a mystery to this author. I have chosen to illustrate (figure 8) a more unusual Northwest card for the 707. It's important to note that Northwest always referred to the 707 as 320, 320B or 320C. In the illustration, the "320C Cargo & Passenger Configuration" card (form PF 161 revised 12/68) shows a total of five different cabin arrangements on the inside (shown by insert). This card also displays the interim logo used between the old detailed logo of the early 1960s (707 tail within a circle) and the highly-stylized logo that is still employed today.

On a closing note, I would like to thank Phil Brooks for his courteous response to a request for information on the Cubana TU-154 Safety Card (please see amendment). Also, allow me to thank Peter Krey of Kentucky for the photocopies of the American 707 Flagship card detailed in this article... sorry that I couldn't show it.



Front and back panels of the QANTAS Boeing 338C safety procedures booklet used on the combi version.



Front cover of the NORTHWEST 320C Cargo and Passenger Configured aircraft. Insert shows the possible cabin layouts that could be experienced.

**AMENDMENT**

With regard to Soviet transports in the west, information has been provided regarding the CUBANA DE AVIACION TU-154 Safety Cards. It is known that at least three different versions exist as follows: (1) TU-154 glossy with red and light blue, (2) TU-154B2 "Provisional" photocopy with red print, and (3) TU-154B2 glossy with red and dark blue print. All three cards are like current MALEV cards (tri-fold) with Cubana logo on the back showing all emergency equipment locations. The information on these cards has been provided by Phil Brooks having secured examples during the 1987 Pan Am Games in Indianapolis while chartered for the Cuban athletes.

# AIRLINE HAPPY HOUR

by AL S. TASCA

The Boeing 707 was introduced into commercial airline service in 1958. It revolutionized the airline industry into what it is today. TWA started 707 services in MAR 59 and the following sticks reflect this.

The stick in Fig. 1 shows a 707 complete with jetstream. It comes in quite a few variations. I am passing along all information I have been able to discover, but of course I always love to hear from others who can tell me more about these - and other - sticks.

This stick comes in white and cream colors and all have the letters TWA raised, either in red or in the same color as the stick. There are one- and two-sided versions. The latter has the letters TWA on both sides. When viewing the stick, one will see that the aircraft and the jetstream are actually

contoured on both sides of the two-sided stick, but the reverse of the one-sided stick is perfectly flat. Later a bump was added to one side of the round end of this stick so it would be easier to pick up. All sticks were made by Spirit U.S.A. and the name appears forward of the round end.

There are at least six variations of the basic stick that I know of. They are:

1. White with red 'TWA' on the front. The reverse is flat and contains no writing.
2. As 1, but it has the raised 'TWA' also on the reverse in the same color as the stick. It also has a bump on the round end.
3. As 2, but with the text 'Fly North Central and TWA' in flat gold writing on the reverse side just forward of the uncolored TWA. This stick also has the bump.
4. The reverse of this

white stick says 'Contessa, Nemo &' in red just forward of the raised red TWA. This stick is two-sided for the aircraft & jetstream contours and the red raised writing, but it does not contain the bump on the round end. This stick came in the packet shown in Fig. 2, but I don't know which world fair it refers to. Can anyone help, please?

5. As 4, but cream colored and with only the raised red TWA on both sides.

6. I have seen only a picture of this variation but it must be similar to 3 because it has the text 'USA - Europe - Africa - Asia' in flat gold writing also just forward of the red TWA.

The Red Baron stick in Fig. 3 was given to me by a fellow collector. I was told Lufthansa used it on its 707 flights. When/if I get more information about this one, I'll pass it on to you in a future column.

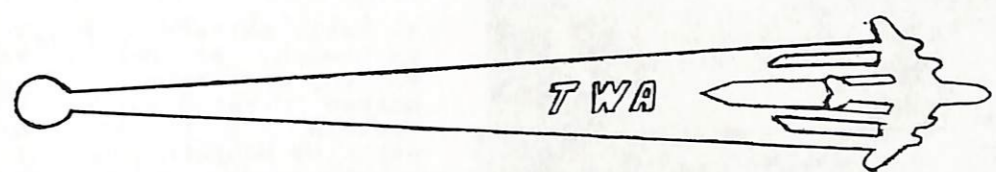


Fig. 1



Fig. 2



Fig. 3



# AIRLINE DINNERWARE

by RICHARD W. LUCKIN

In the previous two airline dinnerware columns I've tried to develop a theme for each one, and I continue this in this issue.

Those who collect airline china know how difficult it is to come by the ware used right after World War 2. Frankly, there is not much around. This column therefore will cover the period from 1945 to the early 1960s.

The Syracuse China Company is one of the major manufacturers of commercial china in the United States and produced the majority of china ware for the railroads during the 1930s, '40s and '50s.

In 1945 one of their sales catalogues featured their new "Airlite" china for American Airlines. The catalogue said "the world's first 'feather-light' china, 'Airlite' perfected for use on airlines, appeared in 1945." (#1 & a plate shown in LOG 13/4, p.48).

To the best of my knowledge, only three pieces (style) of ware were made in this lightweight pattern. They were a small plate, cup and small bowl and all carried the American Airlines logo in a light-blue color.

Airlite china was similar to bone china. For example, if you held a piece in front of a bright light and then passed your hand between the china and the light, you could see the outline of your hand. Because of the delicate weight of this ware, it is truly amazing that some of these pieces surfaced at the recent convention in Indianapolis and were offered for sale at a reasonable price.

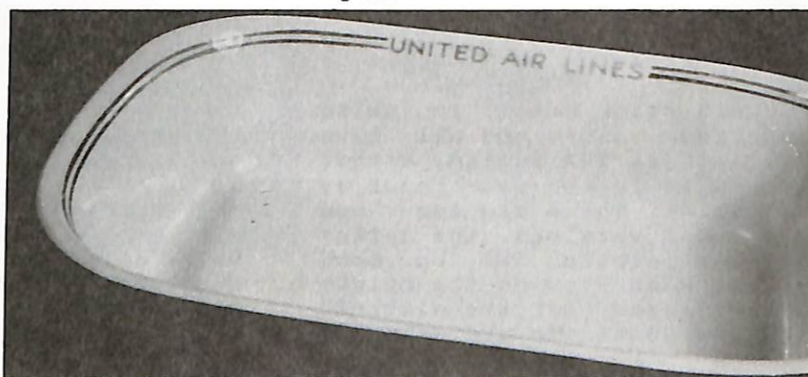
I know there was some flying boat china, but to date I have not seen a piece to photograph. Does any collector have any of this or other early aviation china they would like to share with us?

Another example of early china would be the early United pieces, such as the oblong piece pictured (#2), with a blue pinstripe and United lettering. This piece even came with a dark-blue cover made of plastic.

Some other early United pieces did not have a top-marked logo. They were back-



1. 1945 'Airlite' china by the Syracuse China Company.



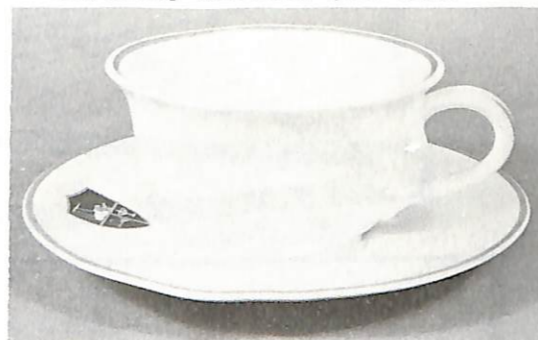
2. Hall China Company of East Liverpool, Ohio, made this early United Air Lines piece. Hall is still in business, but most china now comes from Japan.



3. Very elegant-shaped ware. Gold logo on cup and saucer. Very few cups have survived because the delicate handles often break off after a great deal of use.



5. Cup & saucer set imported from Noritake, Japan, a fine name in china-ware. Gold logo and black lettering.



6. White Qantas logo and lettering on maroon pitcher.



stamped with the letters UA and were made by Coors Porcelain Company of Golden, Colorado. Yes, the company is related to the brewers of Coors Beer.

A mid-1960s United china which was for first class service, was a very attractive and fairly light-weight ware of ivory color with the logo and trim in a burnished gold (#3).

Western also had a fairly early pattern which featured their logo in black with gold trim (#4). Continental also had a pattern with just their older logo (#56).

An early serving item but not in the DC-3 or DC-6 era is a QANTAS pitcher which turned up at the convention. The piece features a Boeing 707 as part of the decoration (#6).

The Greater Pittsburgh Airport issued a souvenir plate showing some earlier aircraft. It looks like a gift shop sort of item to me (#7).

More up to date is the Midwest Express china. The carrier operates DC-9-14 aircraft. Midwest Express gained approval for scheduled services from the Civil Aeronautics Board in NOV 83 and began DC-9 jet flights on 11 JUN 84. Kimberly-Clark, a major paper products manufacturer, is the owner of this airline (#8-10).

A new addition to our collection is a set of Air Atlanta ware complete with a table cloth which has also the logo imprinted. This carrier was established in MAY 81 and is now out of business (#11).

Please send me your china ware news for publication in the LOG. Thank you!  
Until next time,

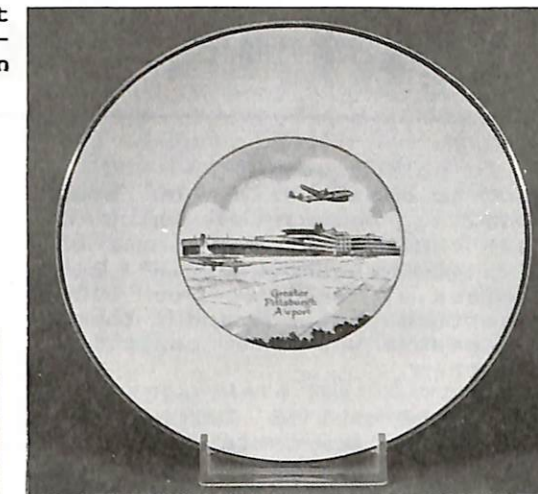
Happy Collecting!

## OUR APOLOGIES !!!

Due to a mistake made at the printer's, the photos of the American Airlines and Kuwait Airways plates on page 48, LOG 13/3, were transposed. Our apologies to author Dick Luckin and to you, the readers.

JG

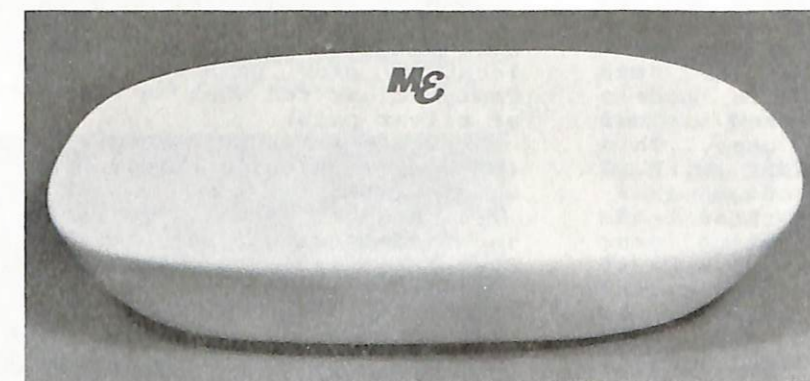
7. Greater Pittsburg Airport plate. Ivory with gold pinstripes and colored decal in the center.



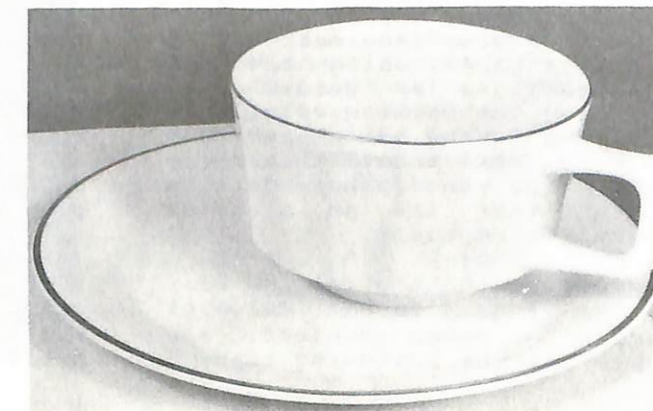
8. Repetitive Midwest-Express logo design and pinstripe are gray.



9. Cup and saucer both back-stamped as shown with a decal rather than a rubber stamp which is more-frequently used to reduce costs.



10. Plain white Midwest-Express ware with "ME" logo in cobalt blue. Imported from Japan.



11. Air Atlanta china is plain white with logo as backstamp. Made by Rego of China.



# AIRLINE MODELING

by GERRY COLE

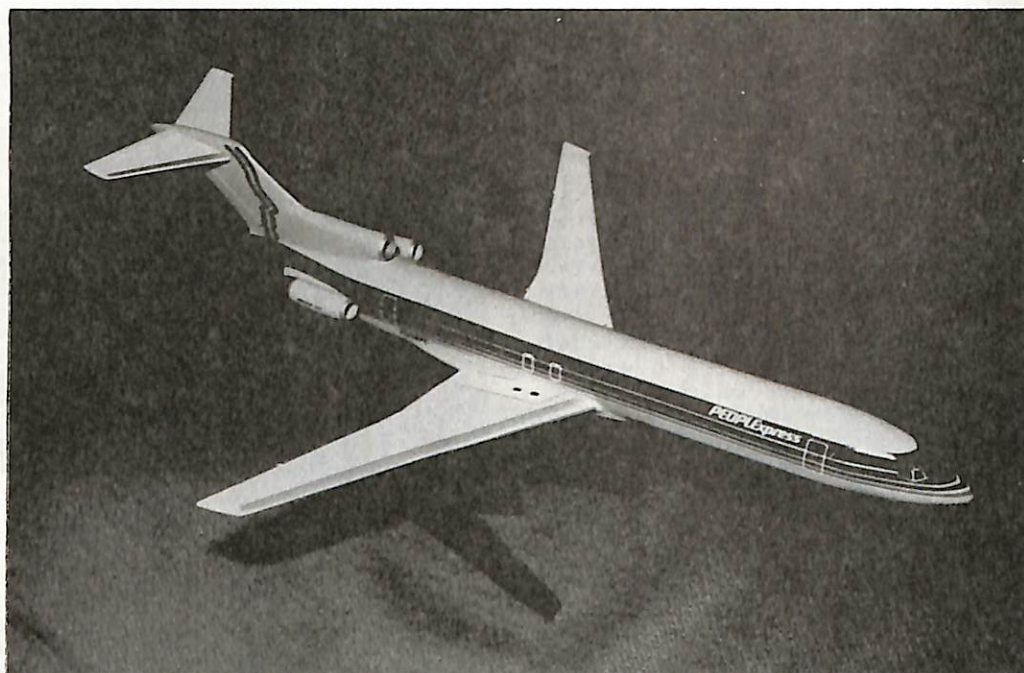
In this issue of the LOG I want to share with you some modeling techniques which I have received from a number of WAHS members and CAPTAIN'S LOG readers. I believe you will find these helpful and I thank the people who have contributed them.

Gene Jacobi of Tuscaloosa, AL, likes 'low-luster' finishes, as he believes they are more realistic than the high gloss we often see on airliner models. A good gloss finish is still required as a base, both before and after decals are applied. Gene uses a Badger 200 airbrush and low air pressure achieved by enlarging the brass compressor fitting hole to .0625 in. He uses a base of multiple coats of Tamiya or Future clear gloss, thinned 50/50 with Tamiya thinner or denatured alcohol respectively. After the last of these gloss coats have dried at least 24 hours, he further thins the clear until it is about 60 to 70% thinner. With the airbrush adjusted to give a very fine mist, the model is 'dusted' to soften the gloss. Parts of the model he wants to retain a high gloss are later coated with Future, applied with a cotton swab.

In addition to the soft gloss, Gene improves the surface detailing of his models by converting raised panel lines to engraved ones. This requires careful work with a needle or the tip of a modeling knife. He uses this technique on engine cowling panels, intake lips, exhaust cones, wing leading edges and fuselage panels. The engraved lines make painting much easier, especially the wingtip lights and intake lips where hand-painting may be used. For large panels, Gene masks with Frisket paper, using the engraved lines as guides when cutting the masking film. When final painting has been completed, Gene treats the engraved line and other details with either ink or a paint wash for emphasis.

## IMPORTANT SMALL DETAILS

Small details can make or break a model project, and Gene has the following tips:



Best display model at Hartford 1986: People Express Airfix 727-200 by Dennis Andrews. (Cole photo)

- Antennas: cut from sheet plastic or from last year's pocket calendar.

- Beacon lights: Make from a mixture of Microscale's Kristal Klear and food coloring. If this is allowed to dry somewhat before application, it can be lifted with a toothpick to give a more realistic height. Gene has also used locating pins painted with Tamiya clear red over a base of silver paint.

- Vents & exhausts: Drill out and/or highlight with a wash or ink.

- Engine fans: Highlight fan blades using a dark wash. Check references to determine the proper color for the fan spinner.

- Wingtip lights: Paint silver, then later overcoat with Tamiya red or green.

- Metal textures: jet intake lips are usually duller than the rest of the engine. Gene feels that wing leading edge finishes sometimes have a rougher texture than the rest of the wing. To get a rough surface, Gene varies the air pressure on his airbrush.

- For natural metal finishes, Gene has had success with Monogram/Humbrol Metalcote, thinned 50/50 with Model Master Airbrush Thinner and applied using the low air

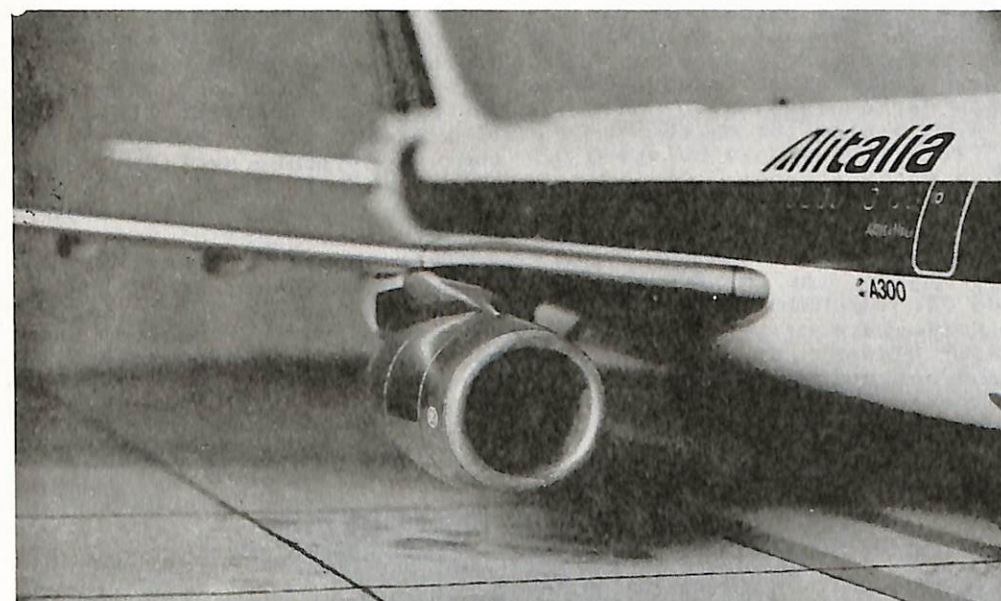
pressure discussed earlier. The surface is allowed to dry 20 to 25 minutes, then is buffed very lightly. After coating with clear Future and allowing a few days to completely dry, the metal finish can be masked with Scotch drafting or Magic-Plus tape. For airliner aluminum color, Gene suggests a Metalcote mix of 75% polished aluminum and 25% polished steel.

Carl Reinisch of Fort St. John, B.C., Canada, has another suggestion for simulating airliner lights. For wingtip lights he first covers the light area with aluminum foil. Next he paints the 'color' with Tamiya clear red (X-27) or clear green (X-25) paint. To make red anti-collision beacons he suggests dipping the head of a pin into clear red Tamiya paint, covering only the top of the head. After allowing to dry and after re-coating a few times, a good lead is formed on the head. Carl then drills a hole in the fuselage to accept the shank of the pin and countersinks the fuselage just enough to accept all but the top painted part of the head.

If you like your anti-collision beacons ready-made, I



'Soft gloss' DC-9 in Ozark colors, by Gene Jacobi of Tuscaloosa, AL. (Jacobi photo)



Engine nacelle details on Alitalia Airbus A300 built by Gene Jacobi. (Jacobi photo)



Wardair Boeing 727-100 in 1/144 scale, built by Carl Reinisch of Fort St. John, B.C., Canada. (Reinisch photo)

suggest you try some of the excellent parts now available for 1/43 scale model cars. They have red tail lights for beacons in many sizes, as well as clear types for landing and taxi lights. Unlike MV model railroad headlight and marker light lenses, model car parts have flat backs making installation easier. If you can't find these parts, write to Valley Plaza Hobbies, 12160 Hamlin St., North Hollywood, CA 91606, USA for information.

I appreciate the diversity reader input has given this column and I hope you feel the same way. Although it is not yet exhausted, the supply of reader-submitted material is getting low. Don't be discouraged by the long time it may take between submission and printing. If you have something you'd like to share, please forward it to me. It will be used!

## BETTER LATE THAN NEVER

In the 12/3 issue of the LOG I could not include the photo of one Hartford model contest winner because it was not available to me at the time. The People Express 727-200 built by Dennis Andrews of Jersey City, NJ, was gone from the model room before I could photograph it.

It happened to meet Dennis at an IPMS Region II convention in the fall and as luck would have it, he had his 727 in the car. A quick photo session was arranged and the Best Display Model of the 1986 Airliners International Convention in Hartford, CT, is finally pictured in the LOG.

## FROM THE DEPARTURE LOUNGE

My personal attempts to get samples of Coro-gard, the 3M corrosion resistant coating used on the center portion of many airliner wings, have been unsuccessful. If you have access to this material and are willing to let me borrow a sample, I'd appreciate it.

Don't forget the 1988 Airliners International Convention model contest in Denver, CO. Although I was not able to get details in time for this issue, I am sure the guys in Colorado will put on a good show. Hope to see you there.

---  
In the next issue I will look at a number of new products with you.



# JUNIOR CREW INSIGNIA

by STAN BAUMWALD

Since my previous article I have received or seen several new wings. Some are new and others have surfaced recently. The older ones which have just now come to light, include:

Two PanAm wings which are new to me. The metal wing (#1) is the mate for PAA-5, only it is a stewardess kiddie wing rather than a pilot wing. When I compiled my book (see previous issue) I did not show a color. It now appears there are two distinct varieties, one in bronze and the other in silver (#2).

At the 10 OCT Atlanta mini-convention I saw a stick-on Transtar kiddie wing, depicting an airplane. Sorry, but I do not have a picture of this available.

Staying with the older material, a patch has shown up similar to several of the patches we collect. This one is for a Western Airlines Junior Flight Stewardess (#3).

Now for some new wings. LOT Polish Airlines have two new additions. A Junior Stewardess (#4) and a Junior Pilot (#5) badge. Both are made of plastic, pin-back and are blue

with gold lettering on a white background.

The West-German charter airline Condor Flugdienst has produced a kiddie wing (#6). It is pin-back with yellow and black colors. LTU is another German airline with a first-time effort in public relations with kiddie wings (#7). This is an exact replica of their real pilot wing. In solid black plastic with gold wings and a red center, it is so detailed that when I first saw it, I had to look close for the words "Junior Club" because I first thought it was a reproduction of the real wing. Very cleverly done!

Air Portugal (Transportes Aereos Portugueses) also came out with a wing for us to enjoy (#8). It has gold coloring with a white center. Of the letters in the center, the "t" is only outlined in red, while the "AP" are solid red. The lettering on the bottom bar reads PILOTO JUNIOR. The wing is in pin-back.

Air Midwest of Wichita, Kansas has joined the list of airlines in the U.S. which issue kiddie wings. They chose

the Stoffel company to make them and used one of the company's gold-colored generic designs with red lettering. Unfortunately the red doesn't show up in the photocopy but the overall design is shown. (#9).

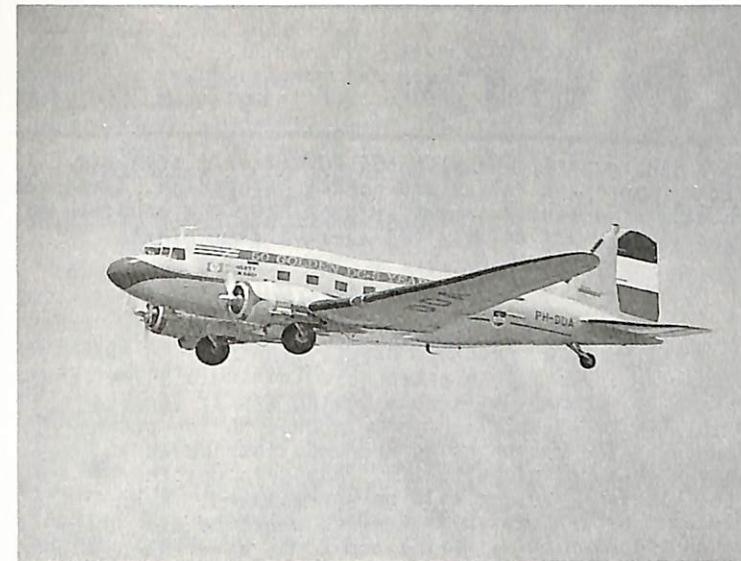
I also found a new PanAm issue. It is almost the exact same style of their latest plastic issue. However, this one is in paper and was made in Taiwan (#10). This wing should be easy for everyone to pick up as they are still a large airline.

In the miscellaneous category, the Atari computer company produced a wing (#11) in silver with a maroon center. The bar reads "FLYING HIGH".

I also found a new addition for the military section. This JR. ASTRONAUT wing (#12) is fairly heavy and metal-looking. It is a replica of the U.S. Air Force astronaut wing.

Again my thanks to Shirley Ibsen and Dave Lang for supplying me with information and with some of the wings which I have now added to my collection.

Happy collecting.



....from the left hand seat....

by

Paul F. Collins

With this issue of the LOG, we will close out our 13th year of operations. This has been a good year for the Society, with the addition of a number of new members, the retention of old members and a very successful annual convention. It looks like 1988 will be just as good to the organization. New people are being attracted to the Society and the convention in Denver in June should attract a record crowd. The quality of the CAPTAIN'S LOG continues to improve, as does the contents. Mr. Gerritsma and his staff are producing a product that is probably the best "hobby" type publication available, in any field.

This issue of the LOG may or may not reach you before the Christmas Holidays. Either way, the Staff of the LOG would like to wish you and your family a very happy Holiday Season. Each year a number of Christmas cards are received at Society HQ, many of them of the "actual photo" types. Your thinking of the Society at this time of the year is greatly appreciated and I hope you can understand that it would be almost impossible to send each and every member an individual card. You can be sure that the staff wishes you the best of everything in the coming year.

The sale of books and pins has been very good. I would like to thank all of you that have sent in your orders for the two books that we have available as well as the two pins advertised in the last issue of the LOG. These two books are still available, as is the two pins, so if you have not ordered these items, and you want them, you had best get your order in as soon as possible. The book supply is getting low, but we have plenty of pins on hand. (See advertisement in the back section of this issue on the items mentioned above.)

Included with this issue of the LOG you will find two flyers from the Aviation Art Museum. One of the flyers announces a sale on discontinued airline prints. Friends, if you have every wanted a quality print, then this is your opportunity to get

a number of them for only \$1.00 each! You could not steal prints like these, for this price. I have a number of these prints and I value them very much. I can recommend that you buy as many of these that you can--well worth the dollar price tag! The second flyer promotes two high quality colored prints that would be a great addition to your aviation collectables. One features the aircraft and likeness of Amelia Earhart. The color on this print is fantastic. The other features the SPIRIT OF ST. LOUIS, and a likeness of Charles Lindbergh. Once again, the artist has caught the "spirit" of the moment with the color in this print. You will never have an opportunity like this again to purchase a quality print or prints for \$30 each. The choice is yours!

Renewal information!!! Please check your membership number on the label this issue of the LOG arrived in. If the first line ends with 13/4 your subscription to the LOG ENDS with this issue and you will not receive additional copies until your renewal check is received. If your membership line ends with 14/1, your subscription ends with the NEXT issue or issue Number 1 of Volume XIV. A number of you renewed late this year and may feel that your renewal is not due yet. Please check the numbers at the end of your membership number line. If it ends with 13/4, or any number less, your renewal should be sent in now. To have your name listed in the roster that will be mailed out with the next issue of the LOG, your renewal must be received by February 1, 1988. Anyone having an expiration number of 14/2 or greater, need not worry about their renewal at this time. If you have any questions about your renewal date, please write HQ and we will try to answer it for you.

A new airline magazine will be coming out after the first of the year. You will find a flyer enclosed advising of the features and rates on this publication. Mr. John Wegg, the editor, promises that this will be a very interesting and informative publication, covering the current and historical commercial scene with both black and white and color photos. I have sent in my subscription and look forward to receiving what promises to be a very interesting magazine.

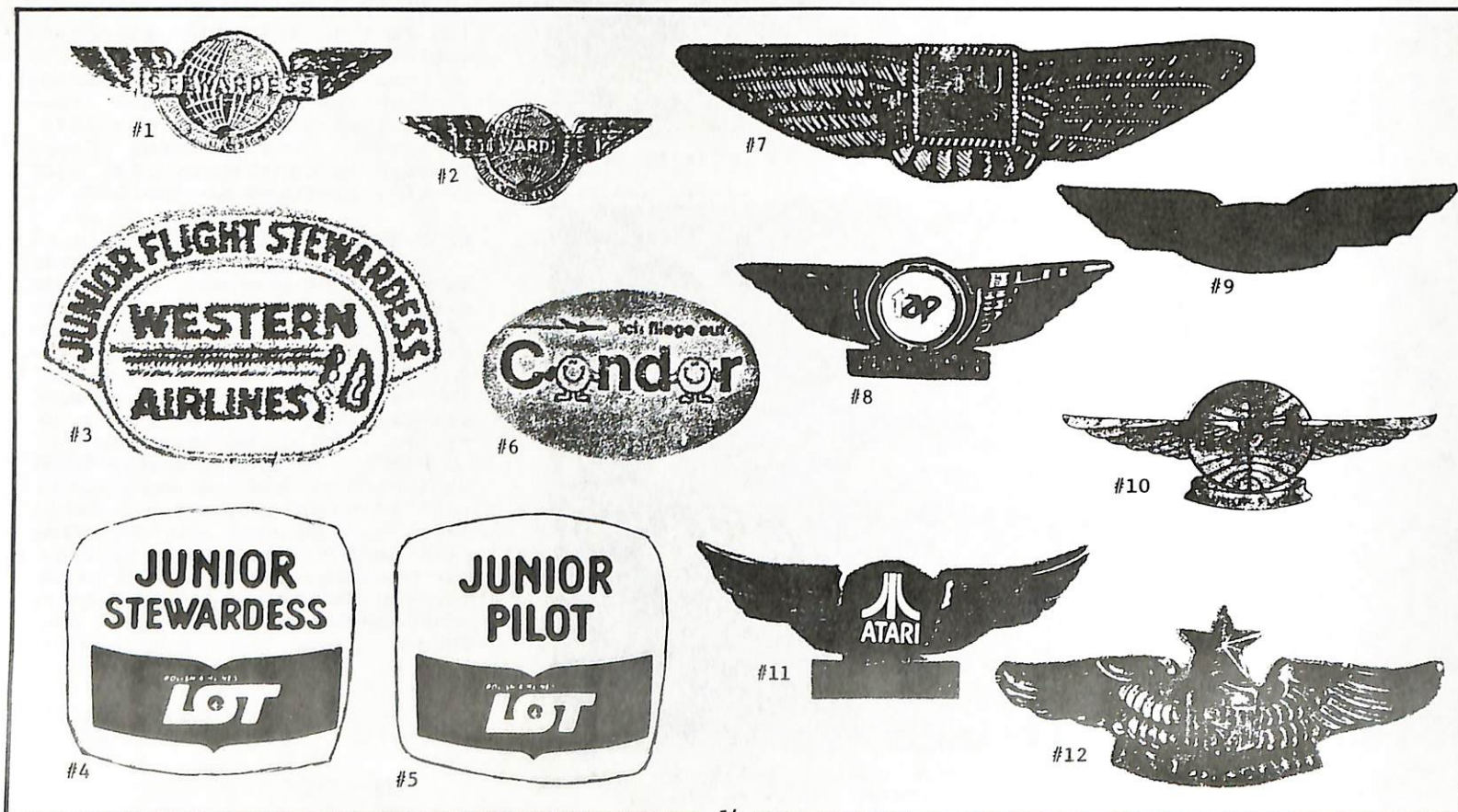
That just about covers everything that needed to be discussed this issue. If you can think of anything additional, please write and I will bring it up in the next issue. Until then, happy collecting!

*Paul*

MINI-CONVENTION  
HOLIDAY INN-DFW AIRPORT SOUTH  
Saturday, February 27, 1988

This mini-convention is sponsored by members of Airlines Int'l Dallas and is open to all airline hobbyists, enthusiasts and historians. For additional information contact:

George Cearley, Jr.  
P.O. Box 12312  
Dallas, TX 75225





line indicating that you are sending in an extra dollar with your renewal fee. Your participation in this voluntary program will be greatly appreciated. If you have already paid your dues for 1988 (Volume XIV) please feel free to send in a dollar anyway!

Answering mail from the membership is getting to be a task that I am finding less and less time to take care of. If your letter requires an answer, I will try to send you back an answer on the same day received. If I deem that your letter does not require an answer, you will not receive one, especially if the answer has been covered in a previous issue of the LOG or will be covered in a future issue of the LOG. This policy is necessary due to the time I now have available to take care of Society business. My job with CSX is now taking up more of my time as well as the time I am devoting to the F-4 Phantom Society. I would like to answer all of your letters with a full letter from me, but the time element is just not there. Please understand.

Several members have written inquiring why a reduced membership can not be given for multi-year membership renewal. I really have not given much thought to the subject, but will talk it over with some members and get their opinions. Also several members inquired about "life" memberships. This will also be taken under consideration and results will be published in a future issue of the LOG.

# DENVER IN 1988

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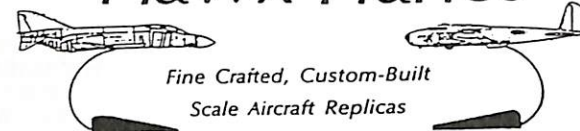
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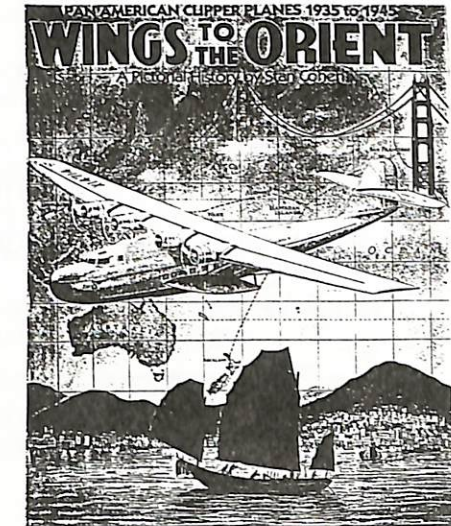
Make checks/money orders payable to WAHS.

With this issue of the LOG we are offering the two books described below, for the last time. In the next issue we will be offering two new books for your consideration. We have several of each of the books offered below still in stock and would like to sell them out before we order new items. Your response to Society "book sales" has been great. We will continue to try and find books and other material, such as video tapes, that we here at Society HQ believe you, the members, will be interested in. If you have any suggestions on material that we should be offering the membership, please feel free to advise and we will look into what you suggest. When ordering the books below, please use the order form at the bottom of this page or a xerox copy. Your order will be shipped out the same day it is received.

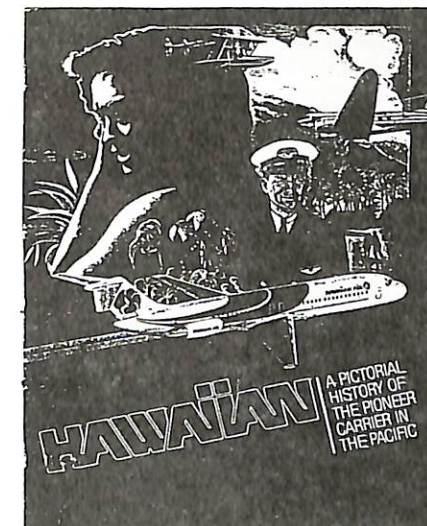
Thank you.

## WINGS TO THE ORIENT

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As indicated by its title, this book is a true "pictorial" history of Pan American operations in the Pacific from 1935 through 1945. This book, by Stan Cohen, and a preface by R.E.G. Davies, contains over 300 outstanding photographs within 224 pages. The book is softbound. Many of the photos in this work have never before been published. If you are interested in the development of passenger travel across the Pacific and/or the history of Pan American, this book is a must for your library. Price: \$12.95.



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Once again we have another book by author Stan Cohen. This is THE history of Hawaiian Airlines. The author takes you from the very beginning of aviation in the islands, and continues right up to the present. The book contains many super photos of the aircraft that have been used in Hawaii, not only by Hawaiian Airlines, but the many others that have seen the need for the use of aircraft to travel from island to island. This book contains 108 pages, several in color, and hundreds of photos. This book would be a welcomed addition to any library shelf. The book is softbound. Price: \$10.95.

I wish to order the following books from the World Airline Historical Society Book Department:

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