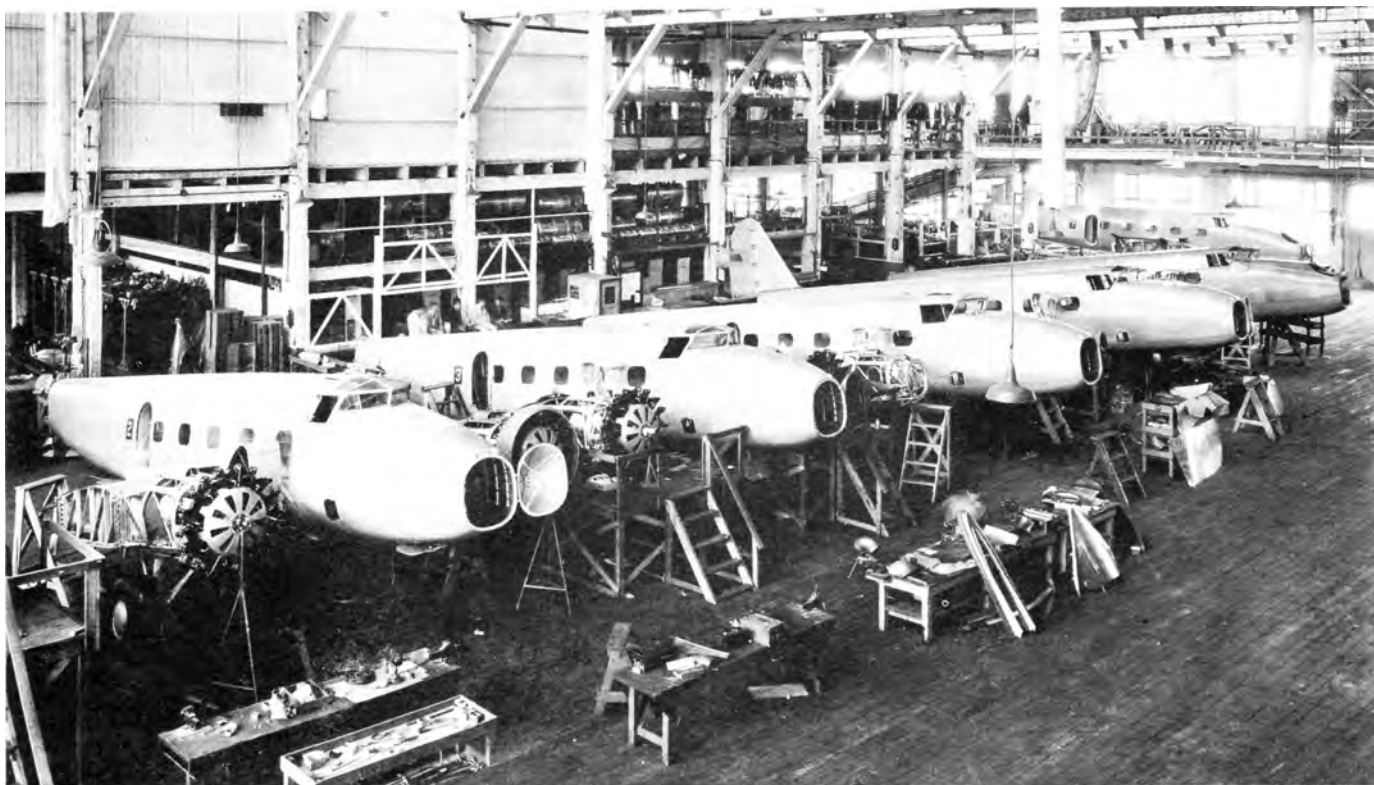




Boeing 247s, Nos. 2 thru 7, nearing completion on 25 February 1933. the top door to the baggage/mail compartment in the nose. (Photo

Boeing's Pacesetting 247

By VICTOR D. SEELY

The London to Melbourne race in October 1934 was undoubtedly the highlight in the career of the Boeing model 247. Colonel Roscoe Turner and Clyde Pangborn flew their 247-D into third place out of a field of 20 competing aircraft. First and second place were captured by the DeHavilland Comet and the Douglas DC-2, respectively. The impact of this race on the European aviation world can best be expressed by a quotation from the London Morning Post of October 24, 1934:

"The results of the England-Australia air race have fallen like a bomb in the midst of British everyday commercial and military aviation. Preconceived ideas of the maximum speed limitations of standard commercial aeroplanes have been blown sky-high. It has suddenly and vividly been brought home that, while the race has been a triumph for the British DeHavilland Comet, British standard aeroplane development both commercial and military, has been standing still while America has been going ahead. It has been realised with astonishment that America now has, in hundreds, standard commercial aeroplanes with a higher top speed than the fastest aeroplane in regular service in any squadron in the whole of the Royal Air Force."

When the 182 mph Boeing Model 247 was first flown in Seattle in February of 1933, a somewhat similar situation existed. The fastest American fighters in service were the Boeing F4B-4, 184 mph and the Curtiss P-6E, 198 mph. By the time the race took place, the 247-D was in airline service with a top speed of 200 mph and the contemporary Douglas DC-2 was in widespread use with its 212 mph top speed.

October 1934 found the United States with two operational fighters which exceeded the performance of these two large commercial type aircraft; the Boeing P-26A, 234 mph and the Curtiss BF2C-1, 225 mph.

The factor of speed, as well as payload and range, played a significant role in the destiny of the 247. The first "three-mile-a-minute" transport, it claimed many firsts for airline equipment, including first use of trim tabs, first airline use of super-charged engines, first twin engine monoplane capable of climbing under full load with one engine out and first use of cabin air conditioning. About a year after the 247 entered service, the DC-2 began attracting airline passengers with a cruising speed 25 mph higher, and the 247 fleet was gradually transferred to less competitive routes starting in the fall of 1934. The 247 series, however, was instrumental in winning the 1934 Daniel Guggenheim Medal for William E. Boeing. The announcement accompanying the award read:

"He deserves particular credit for the development of an outstanding aviation manufacturing and transport organization throughout the United States. It was his vision and willingness to spend his own money which has resulted in the formation of one of the best manufacturing and transport organizations in the world."

At least three distinct design studies by the Boeing Aircraft Company preceded the final 247 design. In mid-1931, Boeing submitted Preliminary Design Numbers 238 and 239 to the airline division management of the United Aircraft and Transport Corporation for comments.

The Model 238 design was a high-wing monoplane

powered with three Pratt & Whitney Hornets of 550 hp each. With a 90-foot wing span and a top speed of 165 mph, it grossed 20,000 pounds with twelve passengers and a crew of three.

The projected Model 239 was a biplane of 85-foot span powered by three Hornet A-2s of 550 hp each. With 12 passengers and a crew of three, the 239 would have weighed 19,328 pounds and reached a top speed of 152 mph.

Further correspondence led to a new Boeing monoplane design, Model 243, that was circulated amongst the United group in the summer of 1931. The 243 was a projected high-wing, twin-engine design having an estimated 169 mph top speed with nine passengers and a crew of three. The 90-foot span monoplane would have grossed 18,016 pounds with its 800 hp P & W Twin-Hornets.

Reactions from the heads of the four airline systems making up the United group (Boeing Air Transport, Pacific Air Transport, National Air Transport and Varney Air Lines) showed widely differing views as to which of these designs would best replace the Ford Trimotors, Boeing 80 Trimotors and other transports then in service. D. B. Colyer, Vice-President of Boeing Air Transport, saw advantages in a twin-engine design over a tri-motor, but an official of National Air Transport thought that more effort should be applied to biplane designs. Colyer and others also recommended design studies utilizing the well proven Pratt & Whitney Wasp in lieu of the newer Hornet engines. E. P. Lott of National Air Transport, after reviewing the Boeing Model 243 proposal, commented (to no avail) that the ability to carry up to 16 passengers would be beneficial.

Throughout this period of discussion, Frederick B. Collins was recommending a twin-engined, transport monoplane be built. Such an aircraft would be, as he saw it, a natural outgrowth of the revolutionary Boeing B-9 bomber—first flown on 29 April 1931, the B-9 was an all-metal, low wing monoplane with an internally braced cantilever wing and retractable landing gear, powered by two Pratt & Whitney Hornets of 575 hp which gave it a top speed of better than 180 mph with a gross weight of over 14,000 pounds. There was only one drawback to the idea, C. N. Monteith, Boeing Chief Engineer, had made preliminary calculations that showed such an aircraft would have very poor single-engine performance. In fact, it would have a service ceiling of only 4,000 feet on one engine over transport routes sometimes requiring flight at 10,000 feet or above.

When the heads of the United group's air lines could not reach agreement on the various transport design proposals, Claire Egtvedt, Boeing Vice-President, turned his attention to the transport potential of the B-9.



The revolutionary Boeing Model 215, which became the Boeing YB-9 and was directly responsible for the Boeing 247, as it appeared on 28 April 1931. the day before its first flight. (Photo - Boeing #4522-B)

He asked Monteith to concentrate on it, to get the single-engine ceiling up and to improve passenger accommodations over other transports. Boeing President Philip G. Johnson wanted speed and better climb performance than had so far been offered. Finally, on 2 September 1931, the first work order (No. 9045) allocated 250 man hours to begin preliminary design on the Model 247. At this time about 93 people were in the Boeing engineering department, including one stenographer.

By the winter of 1931/32 the design looked right—the 247 was an all metal, low winged transport with retractable landing gear, accommodations for 10 passengers and two P & W Wasp engines of 550 hp that gave the plane a cruising speed of 161 mph, with three blade, fixed propellers. The highly advanced merits of the 247 allowed Phil Johnson to sell Fred Rentschler, President of United Aircraft & Transport group, on replacing the entire United fleet with the new plane. The United Board agreed, and a three million dollar order was placed for 59 transports and one (247-A) executive aircraft—to be built in secret and thus give United a great jump over all of its competitors in the air line business.

Detail design began in February 1932 and one year later, 8 February 1933, the first 247 (X13301, c/n 1682) flew for the first time. On 30 March 1933, the first 247 (NC13302, c/n 1683) was handed over to an air line, Boeing Air Transport. During April, 14 more were turned over to air lines, 13 in May, 10 in June, 11 in July and the final 10 in August. On 22 May 1933 the 247 went into regular passenger service, shrinking cross country time by air from 27 hours to 19.5 hours between New York and San Francisco, with seven stops. A number of 247s were fitted with two-blade, controllable pitch propellers of 9-foot diameter while in service, and this provided better all-round performance including an increase in cruising speed of 10 mph.

A design change early in the 247 production program left the first airplane with its own distinguishing beauty mark. For a short time X13301 had two access doors to the forward baggage/mail compartment, but the upward opening door was soon relieved of its hinges and latch. Airplane No. 2 and subsequent planes were re-worked before delivery to seal over the oval shaped door and no easily discernible sign of the door remained.

More important modifications were undertaken on X13301 that delayed its final delivery to United Air Lines, as NC13301, until August 1934. At least three distinct fin/rudder configurations were tried and dropped before the selection of a final form. Dr. Schatzki, on behalf of the German airline Lufthansa, recommended that the 247 rudder be changed after his February 1934 test flights in two 247s ordered for Lufthansa (c/n 1944 and 1945). Dr. Schatzki observed that the 247 had a tendency to nose down, especially during a right turn, and it was impossible to bring it out of a turn without use of ailerons; that turns without rudder were easy but turns without ailerons were difficult; that a more efficient rudder was desirable; and that the 247 was impossible to side-slip due to excessive directional stability.

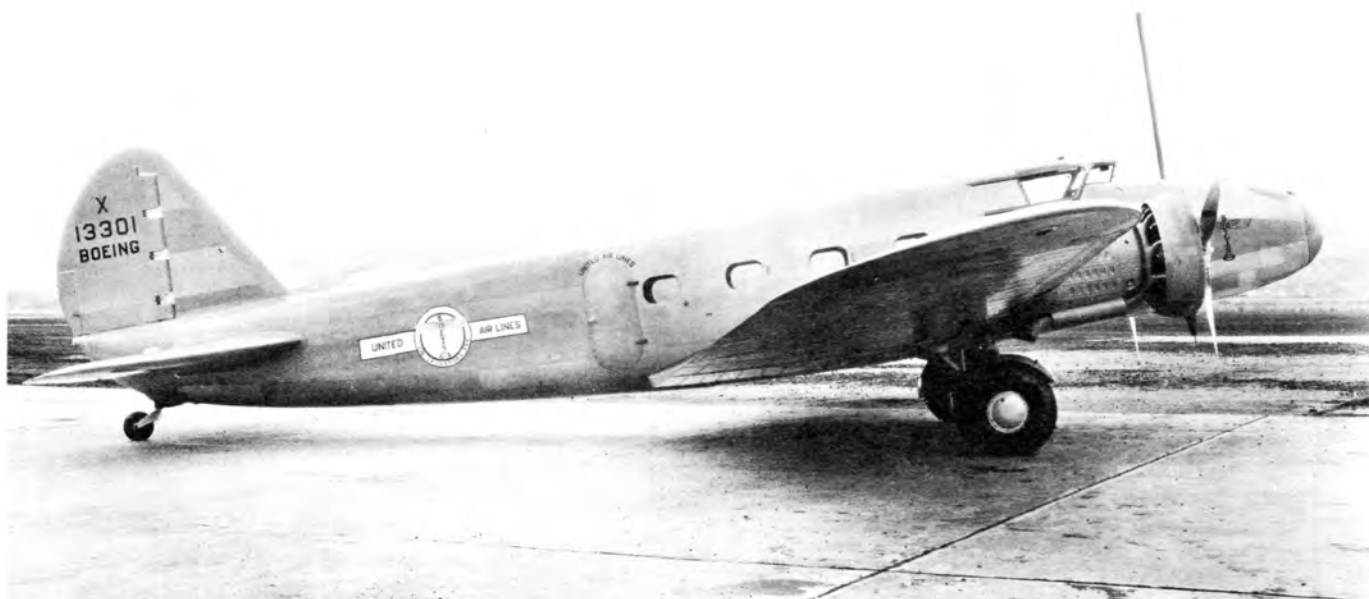
Subsequently fin and rudder tests were undertaken on X13301 to reduce rudder pedal forces and to reduce directional stability in order to enable a side-slip maneuver. The April 1934 version had an abbreviated fin with a forward balanced rudder and a single "flap" (proper nomenclature for trim tab at the time). In May further changes were made by adding an extra "flap" for rudder balance in lieu of the forward balance. A third version incorporated the May version rudder with a standard 247 fin.

Other experiments were also carried out on X13301. The elevators underwent tests where each elevator had a separate trim "flap" and control "flap". The nacelles were lengthened and geared P & W Wasp engines installed with deeper ring cowlings, and a number of nacelle venting methods were tried. Various noise and vibration tests were conducted by Pratt & Whitney in mid-1934 and X13301 was identified with the designation, 247-E.

BOEING MODEL 247 SPECIFICATIONS

ITEM	MODEL 247		247-A	247-E	247-D	247-D (TURNER)	247-D (CHINA)	247-D (PHILLIPS)	247-Y
ATC NUMBER	500		524	558	558	-	-	558	-
NO. BUILT	61		1	0)247 MOD	13	0)	0)	0)	(0
DATE FIRST FLIGHT	8 FEB. 33		14 SEPT. 33	1934	1934	5 SEPT. 34	DEC. 34	SEPT. 35	1937
WING SPAN	74 FEET								
LENGTH	51'4"		51'4"	51'7"	51'7"	51'7"	51'7"	51'7"	51'7"
HEIGHT	16'		16'5"	12' 6"	12' 6"	12' 1 3/4"	12' 1-3/4"	12' 6"	12' 1 -3/4"
AIRFOIL SECTION	BOEING 106 MODIFIED								
TAIL SPAN	25 FEET 6 INCHES								
DIHEDRAL	3 DEG.52MIN.								
INCIDENCE	3 DEG. 30MIN.								
ROOT CHORD	180 INCHES								
TIP CHORD (THEORETICAL)	88 INCHES								
WING AREA	836.13 SQ. FT. (753.5 NET)								
AILERON AREA (EACH)	30.4 SQ. FT.								
HORIZONTAL STAB. AREA	82.84 SQ. FT.								
ELEVATOR AREA (EACH)	23.83 SQ. FT.								
FIN AREA	17.6 SQ. FT.	17.6 SQ. FT.	22.8 SQ. FT.	22.8 SQ. FT.	22.8 SQ. FT.	22.8 SQ. FT.	22.8 SQ. FT.	22.8 SQ. FT.	22.8 SQ. FT.
RUDDER AREA	27.9 SQ. FT.	27.9 SQ. FT.	24.9 SQ. FT.	24.9 SQ. FT.	24.9 SQ. FT.	24.9 SQ. FT.	24.9 SQ. FT.	24.9 SQ. FT.	24.9 SQ. FT.
LANDING GEAR TREAD	17 FEET 2 11/16 INCHES								
MAIN WHEELS	42 x 15.00-16								
TAIL WHEEL	16x7.00-3								
PRATT & WHITNEY ENGINE TYPE	WASP S1D1 550 HP @ 2200 RPM		TWIN-WASP JR. SGR-1535 625 HP @ 2400 RPM	WASP S1D1-G 550 HP AT 2200 RPM	WASP S1H1-G 550 HP @ 2200 RPM	WASP S1H1-G 550 HP AT 2200 RPM	WASP S1H1-G 550 HP AT 2200 RPM	WASP S1H1-G 550 HP @ 2200 RPM	WASP S1H1-G 550 HP AT 2200 RPM
PROPELLER DIAMETER	9 FT.		10 FT	10 FT	10 FT	10 FT	10 FT	10FT	10 FT
NO. PROP BLADES	2	3	3	3	3	3	3	3	3
CONTROLLABLE PITCH	YES	NO	NO	YES	YES	YES	YES	YES	YES
GROSS WEIGHT LB	13,100	12,650	12,405 LB.	13,650 LB.	13,650 LB.	16,805 LB.	13,650 LB.	13,650 LB.	15,684 LB.
EMPTY WEIGHT LB.	8,412	8,375	8,975 LB.	9,227 LB.	8,940 LB.		—		9,740 LB.
PAYLOAD LB.	2,400	2,372	1200 LB.	2,580 LB.	2582 LB.	—	2582 LB.		—
CREW / PASSENGERS	2/10	2/10	2/6	3/10	3/10	3/0	2/6	2/6	3/5
USEFUL LOAD LB.	4,700	4700	3891 LB.	4423 LB.	4,710 LB.				—
FUEL CAPACITY	273 GAL.		356 GAL.	273 GAL.	273 GAL.	1125 GAL.	273 GAL.	273 GAL.	699 GAL.
OIL CAPACITY	20 GAL.		26 GAL.	20 GAL.	20 GAL.	52 GAL.	20 GAL.	20 GAL.	52 GAL.
WING LOADING LB. PER SQ. FT.	15.64	15.13	14.88	16.3	16.3	20.1	16.3	16.3	18.8
POWER LOADING (LB. PER HP)	11.91	11.5	9.94	12.4	12.4	15.3	12.4	12.4	14.2
MAX. PLACARD SPEED	-	-	230 MPH	230 MPH	230 MPH	230 MPH	230 MPH	230 MPH	230 MPH
MAX. SPEED @ 8,000 FT	182 MPH	182 MPH	198 MPH	200 MPH	200 MPH	184 MPH AT S/L	200 MPH	200 MPH	190 MPH
CRUISE SPEED @ 75% POWER @ 12,000 FT	171 MPH	161 MPH	170 MPH (60%)	189 MPH	189 MPH	190 MPH	189 MPH	189 MPH	176 MPH
STALL SPEED @GROSS WEIGHT	—	—	55.3 MPH	55.3 MPH	55.3 MPH	—	55.3 MPH	55.3 MPH	—
LANDING SPEED @ S/L	59 MPH	58MPH	62 MPH	62 MPH	62 MPH	72 MPH	62 MPH	62 MPH	72.5 MPH
S/L TAKEOFF RUN	740 FT.	790 FT.		925 FT.	925 FT.	1950 FT.	925 FT.	925 FT.	1650 FT.
CRUISING RANGE@ 75% POWER @ 12,000 FT	750 MI.	485 MI. 203 GAL.	650 MI. (290 GAL.)	750 MI.	750 MI.	—	750 MI.	750 MI.	
CRUISING RANGE @ 62% POWER @ 12,000 FT	—	—	—	840 MI.	840 MI.	OVER 2500 MI	840 MI.	840 MI.	1800 MI.
RATE OF CLIMB @ S/L FT./MIN.	1320	1070	1170 FT/MIN	1150 FPM	1150 FT/MIN		1150 FT/MIN	1150 FPM	835 FT/MIN
LANDING RUN (BRAKED)	—	—		750 FT.	750 FT.		750 FT.	750 FT.	1020 FT.
MAXIMUM ENDURANCE	—	—		4.96 HR.	4.96 HR.		4.96 HR.	4.96 HR.	10.3 HR.
ONE ENGINE CEILING @ GROSS WEIGHT	4,000 FT.	2,000 FT.		11,500 FT.	11,500 FT.	—	11,500 FT.	11,500 FT.	8,300 FT.
SERVICE CEILING	20,750 FT.	18,400 FT.	22,700 FT.	25,400 FT.	25,400 FT.	—	25,400 FT.	25,400 FT.	20,700 FT.
ABSOLUTE CEILING	22,800 FT.	20,500 FT.	24,100 FT.	27,200 FT.	27,200 FT.	—	27,200 FT.	27,200 FT.	22,500 FT.

VS. 9-13-64



The first Boeing 247 c/n 1682, on the day before its first flight. The main landing gear has mud guards, the early type wing fillet is installed, and the Boeing bug emblem is under upper nose door. (Photo - Boeing 6110-B)

Also, the cockpit enclosure was modified to a swept-back configuration--the windshield previously was swept forward.

Following the construction of 59 model 247s and 1 model 247-A, 15 more aircraft were built beginning with c/n 1944. The first two were 247s for Lufthansa but with an aft sloping windshield, and the remaining 13 were 247-D aircraft (completed with features similar to the Lufthansa models but modified before delivery), 10 of these going to United Air Lines. The D model was equipped with the geared Wasp, which afforded better altitude performance, a long NACA cowling to cover the longer engines and give better streamlining, and three blade, controllable pitch propellers of 10 foot diameter. The D also had a redesigned tail with a straight rudder hinge line, and the cockpit enclosure was modified to remove the glass over the pilot's head and to include an aft sloping windshield. The 247-D had a cruising speed 28 mph faster than the original 247 (18 mph faster than the 247 with controllable pitch propellers) and in service cut the flight time from New York to San Francisco to 16 hours. A few 247s were returned to the factory in the fall of 1934 for treatment of corroded parts. In 1935, at a cost of one million dollars, United converted at least 32 of its remaining fleet of 247s into 247-Ds, with the exception in most cases of the aft sloping windshield.

The entire 247 series was originally scheduled as 74 247 models under ATC-500, and one 247-A model under ATC-524. Delivery of the last 13 aircraft was delayed for some months, however, as tests were completed and modifications made so that they were delivered as 247-D models under ATC-558. Cost for a single 247-D was \$69,000.00 or \$53,133.00 less engines and propellers. Direct total operating costs were \$0.2665 per mile based on 2500 hours use per year.

GENERAL INFORMATION: BOEING MODEL 247

Recently, it has been asked why the Boeing 247s were always painted gray. Actually they were not painted. The external finish featured anodized aluminum which appeared gray and only the fabric surfaces and markings were painted when the aircraft were delivered. The shinier aluminum alloys were not commonly used when the 247 was designed in 1932. Basic structure was all metal, such as 17 SRT used for the outboard spars, and SAE

X4130 steel tubes were used for the inboard spar chords.

Wing Group: The wing stub was integral with the body and the engine nacelle supports. The all-metal cantilever wing was designed so the outboard wings were interchangeable as were the wing tip assemblies. Four bolts held each wing tip while each outboard wing spar attachment had eleven bolts. The trussed spars were fabricated of square and rectangular aluminum alloy tubes and riveted gussets. The main spar terminal fittings at the stub to the outboard panel joint were steel. The ribs were Warren truss structures. The wing skin was stressed to carry a portion of the drag loads. The balanced ailerons were constructed of aluminum alloy and had a travel of 21.5 degrees up or down from neutral. A trim tab was installed on the left aileron only.

Tail Group: The fixed tail surfaces incorporated aluminum alloy Warren truss structure and the fabric covered rudder and elevators had a formed aluminum framework. The stabilizer was fixed for correct attitude at cruising speed with a full load. The pilot could trim the airplane by means of "flaps" on the trailing edge of both elevators. Both rudder and elevator travel were 27 degrees either side of neutral. The elevators and rudder on the 247 had a leading edge aerodynamic balance, while the 247-D rudder sported a trailing edge control tab for aerodynamic balance. Correction for engine torque or single engine operation was made by adjusting the rudder "flap" from the cockpit.

Body Group: The longerons and main stiffeners of the all-metal semi-monocoque fuselage were formed aluminum alloy channels. The body consisted of four major units bolted together, joints being located at each of the two wing spars and just aft of the tail wheel.

The cargo and baggage were carried in two compartments, one in the nose and the other in the aft fuselage, making a total capacity of 125 cubic feet. The upper rear portion of the nose, mail compartment accommodated the radio installation.

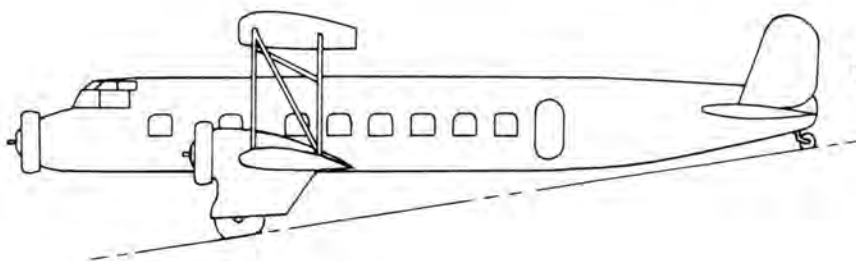
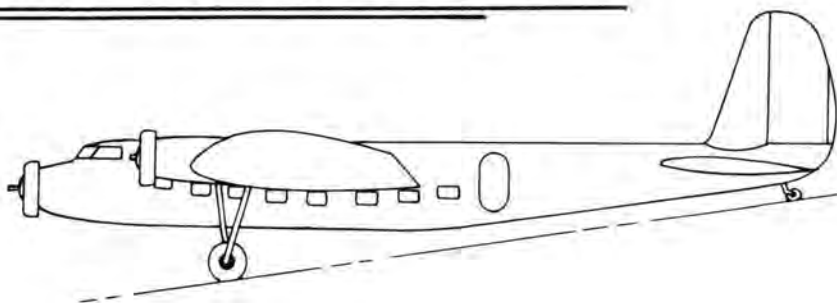
The passenger cabin had five seats on each side of the aisle and a jump seat for the stewardess at the aft end of the aisle. Just opposite the passenger entrance door was the lavatory with a small skylite in the top of the fuselage.

In order to obtain minimum fuselage depth it was

PROPOSALS RELATED TO THE 247...

MODEL 238

15 PLACE TRIMOTOR DESIGNED EARLY 1931 WITH 165 MPH TOP SPEED.

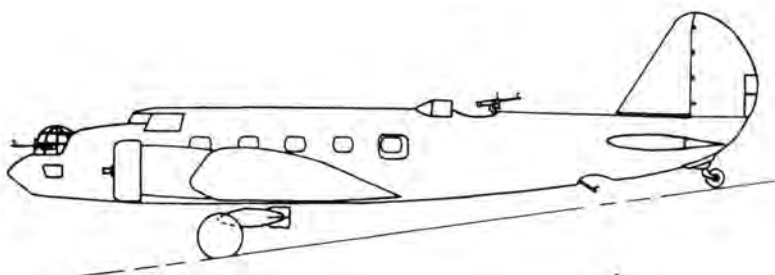
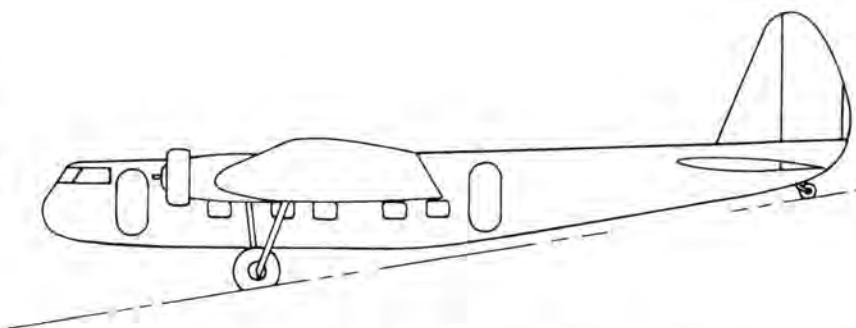


MODEL 239

ANOTHER 15 PLACE DESIGN OF 1931 WITH A TOP SPEED OF 152 MPH.

MODEL 243

IN MID-1931 THIS MODEL WAS OFFERED TO THE UNITED GROUP. SPEED: 169 MPH.

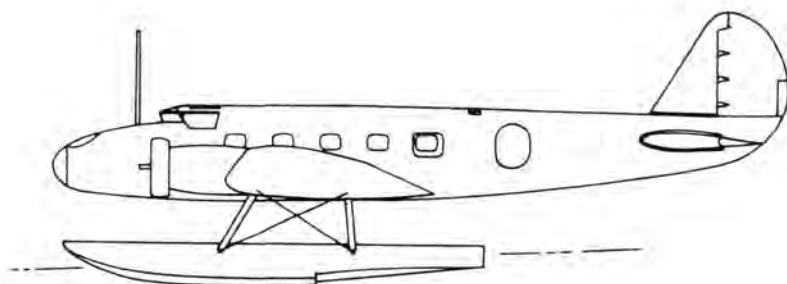
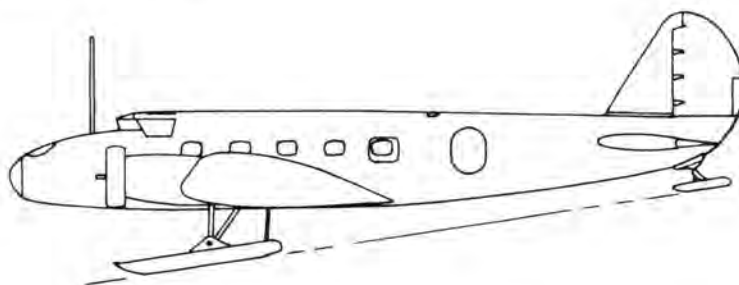


MODEL 247-X

BASED ON THE 247-D, THE BOMBER VERSION WAS OFFERED IN LATE 1934.

MODEL 247

WITH RETRACTABLE SKIS THE TOP SPEED WAS 180 MPH.



MODEL 247

ON EDO FLOATS THE RATE OF CLIMB WAS 890 FPM. TOP SPEED 168 MPH.

decided to compromise by allowing the front and rear spars to obstruct the aisle. Engineers are still faced with similar problems in modern low-silhouette automobiles where the humps in the floor are quite noticeable.

Nacelles and Engine Installation: The engine mounts were conventionally constructed of electrically welded chrome-molybdenum tubing. A five pound Lux fire extinguisher was located in the fuselage with tubing to each nacelle. There were selective controls in the cockpit to activate either extinguisher. Thermocouples were installed so the pilot could monitor temperature of the number 1 and number 4 cylinders on each engine and also the carburetor air intakes. Fuel and oil lines were 4-SO aluminum alloy tubing.

Landing Gear: The main landing gear was interconnected and electrically operated. In an emergency the aircraft could be landed with the landing gear in any position from full up to full down without the gear collapsing. The brakes were actuated hydraulically from the rudder pedals on the pilot's side only. All three wheels were equipped with oleo shock absorbers. The tail wheel was fullswivelling with centering springs but was not steerable.

Equipment Installations: The battery was mounted in the leading edge of the left wing stub between the nacelle and the body.

The two aluminum fuel tanks, one in each wing stub on either side of the fuselage, held a total of 273 gallons. The right hand tank contained a reserve compartment of 70 gallons. One 10-gallon oil tank was fitted in each nacelle.

Cockpit: The pilot's seat was adjustable up and down over a six inch range. The side windows and the cockpit roof could be opened in flight.

The instrument panel of the 247-D was divided into three shock-mounted sections and contained:

- Instruments - Left Hand Panel
 - LC Thermocouple selector switch
 - Ice warning thermometer
 - Landing gear position indicator
 - Parking brake
 - Right tank fuel gauge
- Instruments - Center Panel
 - Directional gyroscope
 - Artificial horizon
 - Airspeed indicator
 - Turn and bank indicator
 - Rate of climb indicator
 - Altimeter
 - Clock
 - Supercharger pressure gauge
 - Thermocouple indicator
 - Fuel gauges - left and right tanks
 - Oil thermometers for each engine
 - Tachometers for each engine
- Instruments - Right Hand Panel
 - Fuel pressure gauges for each engine
 - Oil pressure gauges for each engine
 - Ammeter

The instrument panel used on the earlier 247s was a single panel with somewhat similar instrumentation.

PROJECTED 247 VERSIONS

Various design studies accompanied the major 247 design effort, some attaining a 247 series letter suffix although none of the following were built. The Edo Aircraft corporation made a study for float installations on a 247 but no identifying letter suffix was added. The seaplane could have carried a maximum of nine passengers at 168 mph at 5000 feet. The twin floats would have upped the empty weight to 9929 pounds against a gross of 13,650 pounds.

Other versions not receiving a specific designation included a retractable ski-equipped version, a tri-motor 247, a twin-tail design and a swept-wing 247. The ski plane would have weighed 9350 pounds empty and hit a top speed of 180 mph at 5000 feet.

247-B: The basic 247 was proposed as a flying post office with a crew of three; pilot, copilot and mail clerk. The 247-B mailplane had an estimated gross weight of 12,250 pounds.

247-F: Early in 1935 Boeing completed a design study for a 12 passenger version of the 247 with sleeper accommodations. Gross weight was increased to 16,876 pounds and the wing span was enlarged to 77 feet.

247-S: A design study was made by the Boeing School of Aeronautics to install Besler steam-engines in the 247.

247-X: The 247-D was offered as a bomber in late 1934 with external bomb racks and a variety of gun emplacements including a nose turret.

UNITED AIR LINES

United's order for 60 of the 247 transports was a family affair, the Boeing Airplane Company and United Air Lines were both members of the giant United Aircraft and Transport Corporation. At the time, United Air Lines was not an operating company. The aircraft were purchased for use by Boeing Air Transport, Pacific Air Transport, National Air Transport and Varney Air Lines. The large order was unusual in that no prototype existed, the production go-ahead having been given only a few weeks after detail engineering began. Airplane number one was delivered and then returned to Boeing for test flying, and within seven months of the first flight of the "production prototype" all 247s ordered had been delivered. The 247 became an immediate success as the operating companies reached new highs in passenger and freight revenues.

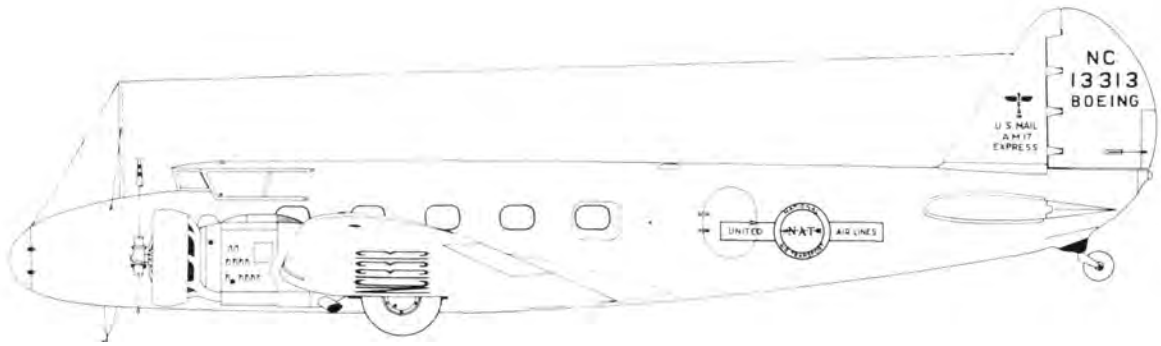
The United groups were hard hit by the government's cancellation of all air mail contracts in 1934, but the 247s continued to fly. The U.S. Army Air Corps took over the mail routes but suffered a number of fatal accidents due largely to its equipment not being suited for the job. The mail contracts were returned to the air lines after just a few months, but the United combine was then faced with anti-trust suits which succeeded in breaking up the group. United Air Lines became an operating company on 1 May 1934 as the Boeing (including Varney), Pacific, and National Air Transport companies became inactive.

On 17 June 1936 United became the first air line in the world to reach a total of 100-million miles of flying. The Boeing 247 was instrumental in this, and a retouched illustration in the 1937 Yearbook shows NC13318 with "100,000,000 MILES" printed above the UAL insignia.

According to the 1935 Aircraft Yearbook, the 247 was used by United for more than just passenger flights. Ray Little, a UAL pilot, used one as a search plane in locating a Department of Commerce airfield caretaker who had become lost in a blizzard while fetching supplies on snowshoes. Don Broughton piloted his 247 over a snow-bound Nevada mining camp while Stewardess Ida Novelli pushed out food and supplies for six isolated miners. The sacks reportedly landed within 100 feet of the despairing group. In 1934, a 247 set a record for scheduled airline service between Rock Springs and Cheyenne, Wyoming, by averaging 270 mph with the help of a tail wind.

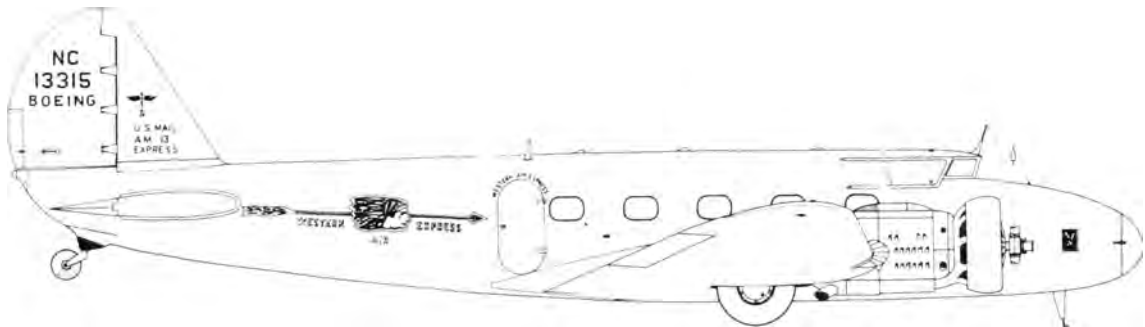
By the time the first "247 replacement" was delivered (to TWA) in early 1934, it became obvious that the 247's earning capacity would be reduced. Delivery of the improved 247-D model and popularity of the DC-2 caused some of the first batch of 247s to be farmed out to the feeder lines in October 1934.

January 1st of 1934 saw 54 247s in service with the



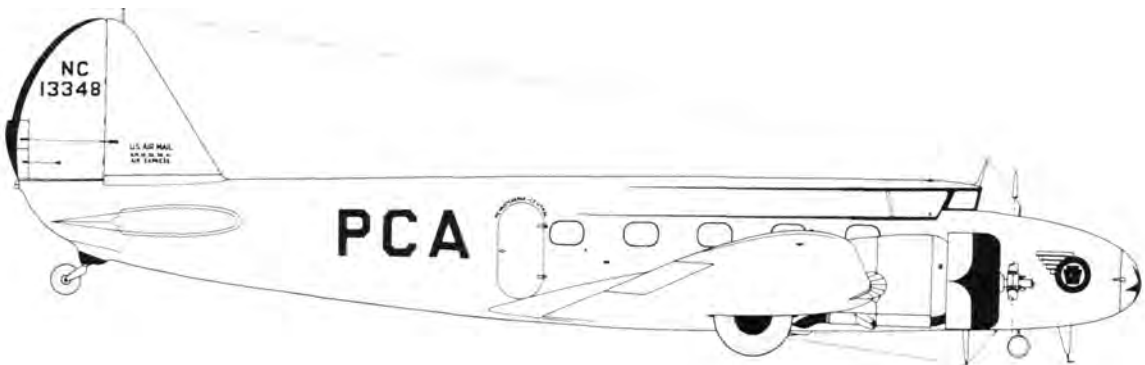
c/n 1694 NATIONAL AIR TRANSPORT 247-VINTAGE 1933

The tall antenna mast was replaced by a smaller unit shortly after the 247 entered service. The anodized aluminum gave a gray appearance.



c/n 1696 WESTERN AIR EXPRESS 247 WITH 1936 STYLE INSIGNIA

A Railway Express Agency emblem is on the side of the nose.



C/n 1730 PENNSYLVANIA-CENTRAL 247-D IN 1937 MARKINGS

Pennsylvania-Central Airlines trim was silver and crimson. The crimson five-pointed star on the nose provided a background for the number "148".



C/n 1707 UNITED'S "CITY OF SAN DIEGO" AS IT APPEARED IN 1941

Basic trim is blue. Airline name, upper third of shields, upper rudder stripe and inboard-most aileron stripes are red. Yellow-gold trim is used around the winged shield.

airlines controlled by United. A year later 60 247s were owned by United Air Lines, including 10 D models. United disposed of 10 247s during 1935, 11 more in 1936 and 15 in 1937 as the Douglas transports took over the main airways (United began operating DC-3s in 1936). United converted its 247 fleet in 1935 to 247-D configuration by changing engines, nacelles, fin, rudder and some of the cockpit enclosures. When the 247 models were offered for sale or lease the customers were given a choice of whether or not the modifications would be incorporated. A number of the unmodified versions were used by feeder lines where the 15-20 mph speed difference was not too significant.

During the 1934 period United was busy developing better navigation aids for safety and radios for use in weather observation and recording. Eventually, one airplane, NC13365, was assigned to United's research group full time and was nicknamed the "Flying Lab". This famous airplane began a series of rain and snow radio static investigations in 1937 with Ben O. Howard as chief pilot. United engineers discovered that the radio noise was caused by static build-up and discharge from various parts of the airframe. It had previously been the general opinion that the noise was generated by charges in the atmosphere striking the antennas or airframe. Subsequent testing in Oakland satisfactorily demonstrated a new instrument landing system. NX13365 was used for various other experimental work involving radio equipment, including development of a new radio altimeter. For a while another 247-D was used in a similar capacity and its registration was changed from NC13336 to NR13336.

United continued to operate 247-Ds for passenger service on its less competitive routes until mid-1942 when the government purchased all but the 247-D "Flying Lab". In 1940 it became a practice to name aircraft after places on the airline routes and 13 247-Ds were assigned names. One aircraft, NC13312, was named CITY OF SEATTLE and later CITY OF DES MOINES. A short time before, the fleet was painted in white and blue with red trim. The "Flying Lab" was restored to airline configuration in late 1945 and sold to LAMSA in Mexico, where it was christened ESTADO DE SINALOA.

PENNSYLVANIA - CENTRAL AIRLINES

Pennsylvania Airlines and Transport Company announced the purchase of a fleet of Boeing 247-Ds in December 1934 for use on its Washington to Detroit route. The Pennsylvania Airlines marking was revised concurrently with the November 1936 merger of PAL and Central Airlines which formed Pennsylvania-Central Airlines. PAL adapted the United outline of a circle and bar inset with a keystone and symmetrical wings. Pennsylvania Airlines' 247s also included a keystone on the forward tip of the nose inscribed with the initials "PAL". The PCA markings consisted of a large "PCA" on the aft fuselage with a keystone/circle/wing insignia on the side of the nose.

A number of Pennsylvania-Central's 247 fleet was sold in the late 1930s, some finding their way to Mexico. Part of PCA's 247 fleet was purchased by Canada in 1940 and the last half dozen or so were appropriated by the USAAF in 1942.

Pennsylvania-Central changed its name to Capital Airlines after WW II and Capital was subsequently absorbed by United Air Lines.

WESTERN AIR LINES AND PREDECESSORS

General Air Lines procured its first 247 in December 1934 from United who released some 247 models upon delivery of its new 247-Ds. General Air Lines was superseded by Western Air Express on 1 January 1935. WAE added more 247 transports to its fleet in 1935, including one new model 247-D from Boeing in September 1935. Next to the last 247-D to be delivered, NC13770 was originally intended for United but was used by Boeing for

test purposes instead. One of the photographs taken during the test program clearly shows the United air mail contract numbers and also another registration number that was painted over (probably NC13369 which was re-assigned to Col. Turner's racer when it went into airline service early in 1935).

Western Air Express adorned its fleet with a colorful red, white, bronze and black Indian chief profile and arrow. The 247 fleet carried at least three variations of the basic insignia, one of the last insignia changes affecting 247s was made in 1941 when WAE changed its name to Western Air Lines.

At least 33 different 247s were operated by WAE although only nine were actually WAE owned. Twenty-four aircraft were leased for varying periods from United Air Lines throughout the 1935 to 1940 era.

NATIONAL PARKS AIRLINES

Boeing 247s were introduced on the Utah to Montana routes of National Parks Airlines in November 1934. The aircraft were leased from United for about one year and then were purchased by NPA. Photos in the Aircraft Year-book for 1935 and 1936 show two versions of the NPA insignia, and a 247 model drawing sponsored by the Richfield Oil Company shows a third version. The model drawing depicts a triangle with the apex pointed downward and the words "Carried by Air", "NPA" and "National Parks Airways, Inc."

Three 247s are known to have been used by NPA before the airline was acquired by Western Air Express on 1 August 1937.

WYOMING AIR SERVICE

The first 247 purchased by Wyoming Air Service, NC13307 was christened CITY OF DENVER in honor of the largest city on the Billings, Montana to Pueblo, Colorado route. Only sketchy data has turned up on two WAS markings, both types using a shield and arrow design. Wyoming Air Service became Inland Airlines on 1 July 1938 and Inland became a division of Western Air Lines in 1944. Between them, Inland Air Lines and Wyoming Air Service operated at least six Boeing bi-motors and a few were still in use with Inland when the government purchased them in 1942.

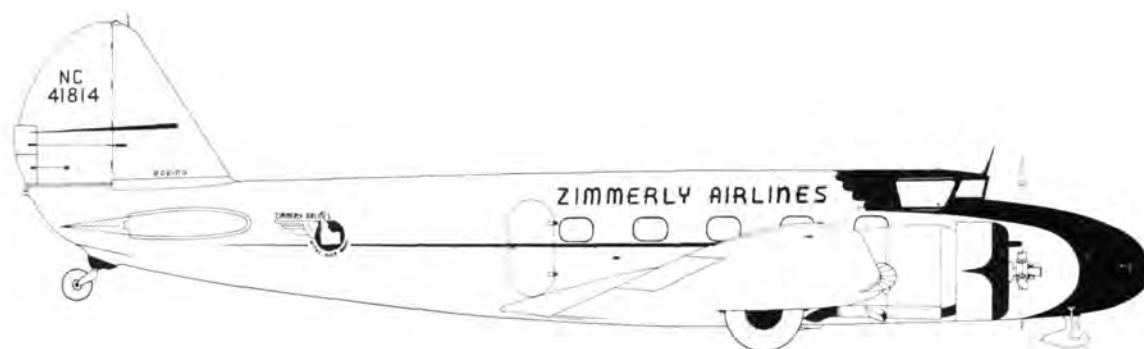
USAAF C-73

Twenty-seven Boeing 247-Ds were purchased by an agency of the government in 1942 and assigned to the U.S. Army Air Force as type C-73. The C-73s were assigned to the Air Transport Command and some carried the ATC insignia on the aft fuselage sides. The engines were replaced by Pratt & Whitney R-1340-53s of 600 hp obviously for standardization reasons (North American T-6s also used the R-1340 series). The serial numbers were: 42-38274, 42-38275, 42-56642, 42-57153, 42-57208 thru 42-57211, 42-57508 and 42-57509, 42-61094, 42-68336, 42-68363 thru 42-68373, 42-68853 and 42-68854, 42-68859, and 42-78017.

Following service use, during which 4 C-73s became instructional airframes and 4 were wrecked, 18 went back into airline service and one went to a broker.

ZIMMERLY & EMPIRE AIRLINES

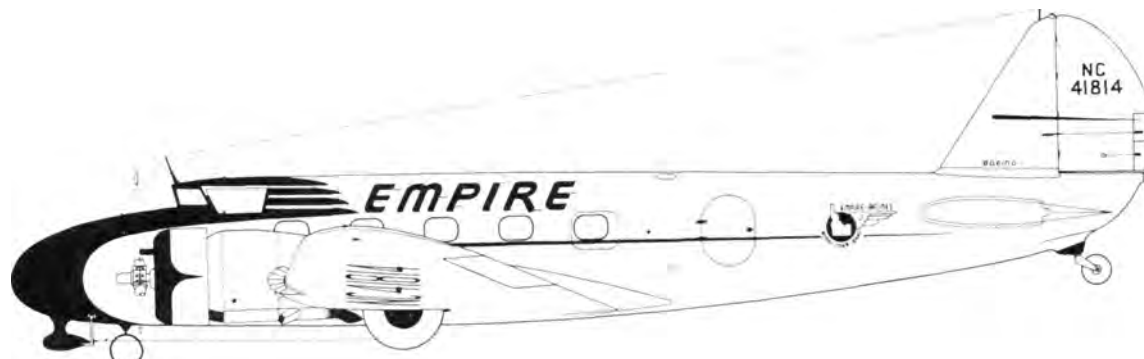
Bert Zimmerly obtained three 247-Ds from Canadian Pacific Airlines and began operations with them on 28 July 1945 within the boundary of Idaho. Zimmerly Airlines changed its name to Empire Air Lines upon receiving a CAB certificate in May 1946 and began interstate operations on 28 September 1946. Zimmerly placed a tentative order with Boeing for their new model 417 feeder transport and also purchased two additional 247-Ds as the airline grew. The 247-Ds were phased out of operation on 10 March 1948 as spares became hard to obtain or make and the DC-3s were put into service as the Boeing 417 never



c/n 1735

ZIMMERLY AIRLINES 247-D IN 1945 MARKINGS

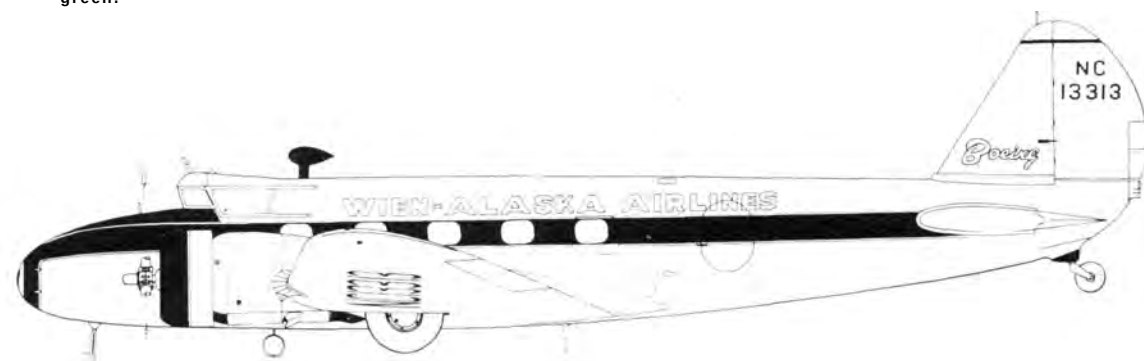
A white "4" was painted on the nose of NC41814. Color of the trim is believed to be green.



c/n 1735

EMPIRE AIRLINES 247-D IN 1946 MARKINGS

The Empire Airlines main color is believed to be green — company letterheads of the time were red and green.



c/n 1694

WEIN ALASKA'S 247-D IN FEBRUARY 1946

Wien colors were yellow and black. Nose has a black "W" and the fin/rudder is yellow above the black stripe.



c/n 1693

LINEAS AEREAS MEXICANA-OWNED 247-D ABOUT 1945

LAMSA color were white with red, white and green trim. Registration letters are believed to be black.

went into production. Zimmerly flew about 3,500,000 miles with its 247-Ds the first few years, maintaining a perfect safety record that was carried on by West Coast Airlines which absorbed Empire in 1952.

THE EXECUTIVE VERSIONS

One 247 was designed specifically as an executive transport for the United Aircraft & Transport Corporation. Designated as Model 247-A this aircraft was registered NC13300 and carried the "United Airports of Connecticut" eagle emblem.

The 247-A, the sole example of its type, differed from the 247 mainly in the power plants, nacelle details and fuselage interior. The two Pratt & Whitney Twin-Wasp Juniors provided the "A" version with a top speed of 198 mph and a cruising speed of 170 mph at 60% power. The cowling was lengthened slightly for the twin-row engine and new intakes were mounted on the nacelles. Extra fuel tanks boosted fuel capacity to 356 gallons. Other modifications included a special ventilation system for the maximum of six passengers. Later modifications to the 247-A included newer Twin-Wasp, Jr. engines, new cowling and nacelles, new radio antennas and 247-D fin and rudder revisions. By December of 1945 this aircraft had logged only 4,086 hours, including some experimental flight testing by Pratt and Whitney.

United Aircraft's Bee-Hive for Spring 1947 ran a story entitled "A Requiem for Old 247" as the 247-A was sent to the scrap pile in early 1947. Although they affectionately nick-named NC13300 the "Stumble-Bum" in later years, the pilots' attitude was expressed by Ralph Bourdon: "That airplane had no bad flying characteristics at all. You could land her on a dime and get out of fields not much larger. We always asked for the Boeing when we had a tough job to do. This winter Charlie Cowan had a night hop to Montreal. It was snowing, visibility was low and he had to land on a short, icy runway. He called for the Boeing, and from then on it was just routine." George Tranberry commented on the maintainability: "Maintenance work on the Boeing was much lower than on present day planes. She took very little work: it would be hard to beat the 247 from a maintenance standpoint."

The 247-A was used in two successful mercy flights, one in 1938 when it raced from Baltimore to Hartford with sulfa for a critically ill 15-year-old girl and again in 1943 when it carried a young woman to Temple Hospital in Philadelphia for removal of a lung obstruction. In the latter case the flight was made on instruments while the patient was under an oxygen tent throughout the flight.

Total time logged on the 247-A was only 4,438 hours and one minute and she "wasn't even brushed" as Ben Whelan put it (not even a minor accident.) By coincidence, Whelan, who logged 3000 hours in the 247-A between 1933 and 1942, had FAI license number 247 which he earned in 1913.

A different Boeing executive transport was delivered to the Phillips Petroleum Co. about two years after the 247-A first flew. Registered X12772 during flight tests, c/n 1946 was originally built for, but never delivered to, Lufthansa. After being stored for about a year by Boeing, the airplane was sold to Frank Phillips' company and appropriately licensed NC2666. The modifications centered on a plush interior with radio, telephone, writing desk and refrigerator. Named the W00LAROC III, NC2666 also carried Frank Phillips' honorary title on the nacelles: WAH-SHAH AHE-HLU-AH-KI-HE-KAH (meaning Osage Eagle Chief), underlined with the owner's name. The pilot who flew the W00LAROC III away from Boeing Field on 16 September 1935 was Billy Parker, well known for his Antique Pusher air show flying.

NC2666 went to Canada in World War II where it served both the RCAF and Canadian Pacific Air Lines. Back in the USA in 1945, it served Zimmerly and then Empire Airlines in the Pacific Northwest.

THE 247-D IN THE MacROBERTSON INTERNATIONAL AIR DERBY

Colonel Roscoe Turner, Clyde Pangborn and Reeder Nichols, carrying race number 5, took off from Mildenhall (London) early on the morning of 20 October 1934 in the 11,300 mile race to Melbourne, Australia. Their total elapsed time was 92 hours, 55 minutes, 30 seconds over the unfamiliar route. They lost about three hours flying time when they overshot Allahabad, India, by 200 miles at night, due to bad weather. With a flying time of 85 hours, 22 minutes, 50 seconds and ten stops en route, their average speed was 121.5 mph. Engine trouble was developing as the 247-D approached the required stop at Darwin and the temporary repairs made there did not hold up, forcing Turner to land some 15 minutes from the finish line for further repairs.

Elapsed time for the winning DH.88 Comet was 70 hours, 54 minutes, 18 seconds, in spite of engine trouble during the final stages of the race. The second place DC-2 operated by KLM, with an elapsed time of 90 hours, 13 minutes, 36 seconds, averaged 125 mph including stopovers.

The aircraft used by Turner and Pangborn was modified by Boeing to incorporate four 90-gallon and four 123-gallon fuel tanks, increasing the fuel capacity to 1125 gallons. Officials required one of the 90-gallon tanks to be sealed off since race rules made it mandatory to comply with approved weight limits. Other modifications included: 1) revised oil line plumbing and larger oil tanks, totaling 52 gallons to allow for the average 5 quart per hour per engine oil consumption, 2) deletion of the airline type radio equipment and addition of Col. Turner's preferred radio equipment, 3) a special vacuum system and 4) revised fuel line plumbing.

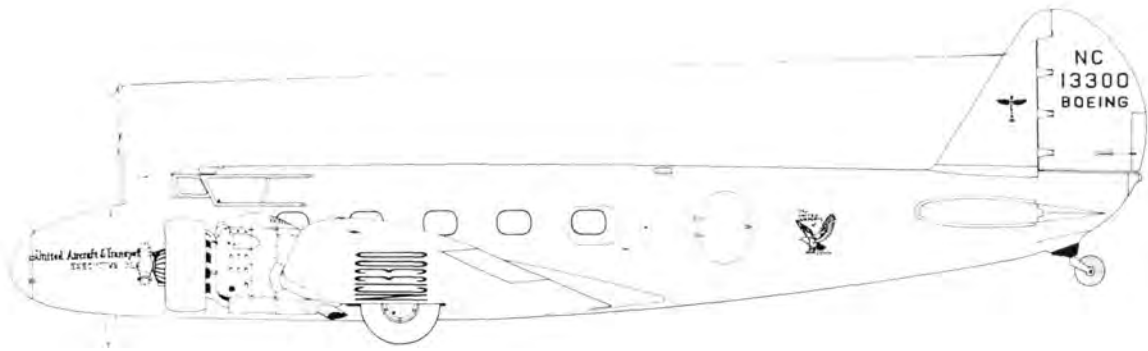
Various markings were applied to the 247-D during its race career. When the plane left the factory as NR257Y, it had the Boeing Bug emblem on the fin and a large "5" on the rudder and a still larger "5" repeated on the fuselage underside. Turner's old race number "57" was on both sides of the nose and both sides of the aft fuselage. The port cowling eventually carried the name "Nip", an American flag, and the phrase "Powered by Pratt & Whitney Wasp". The starboard cowling was similarly labeled with the name "Tuck". After the race, still registered NR257Y, the plane carried a map of the race plus the words "This plane carried the stars and stripes across the finishing line in the world's greatest air race".

NR257Y was returned to the Seattle factory on 2k December 1934, where it was reworked to airline configuration and relicensed as NC13369. Turner left Seattle on 2 January 1935 to deliver NC13369 to United in Chicago. The plane served United, still carrying the race map and commemorative words, until January 1937, when it was sold to the Union Electric Company for use as an executive transport. Before entering the Smithsonian Institution in July 1953, the plane was used by the Department of Commerce for 14 years, carrying registration NC11 and N11.

NORTH TO ALASKA

At least four of the Boeings were operating in Alaska at the end of World War II. Two were operated by Woodley Airways primarily between Anchorage and Juneau. Woodley reorganized as Pacific-Northern Airlines on 23 August 1945 and phased out the 247s about 7 months later. Incidentally, PNA today still operates two Boeing transports (besides their "Connies") but the newer Boeings are capable of around 50 times more revenue-passenger-miles.

Wien-Alaska Airlines also operated two ex-C-73s during the mid-1940s. One of the aircraft, NC13313, was returned to Seattle in 1946 where it was modified to incorporate fuel cells in the outboard wings, adding 276 gallons to the fuel capacity and increasing the range to nearly 1200 miles. A year earlier a large cargo door was installed on NC13313 by Northwest Air Service for Wien. Other modifications, including ADF (Automatic Direction Finder), de-icers, flares and fire extinguishers



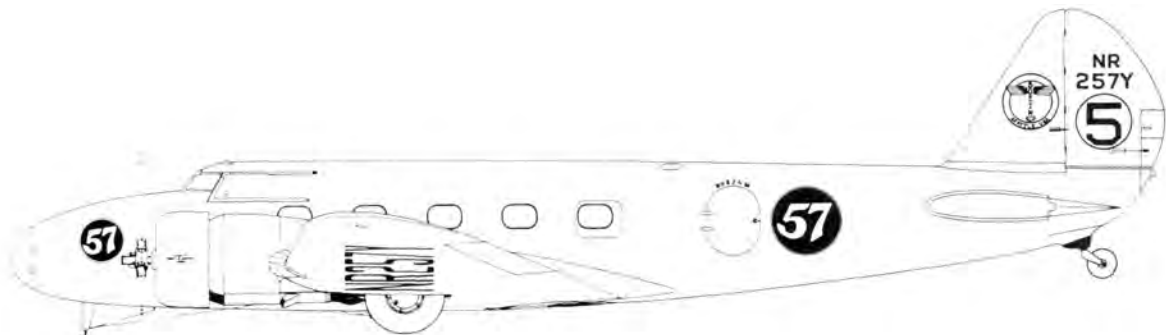
c/n 1711 UNITED AIRCRAFT & TRANSPORT'S 247-A IN NOVEMBER 1933

Lettering around the eagle emblem is "The United Airports of Conn."



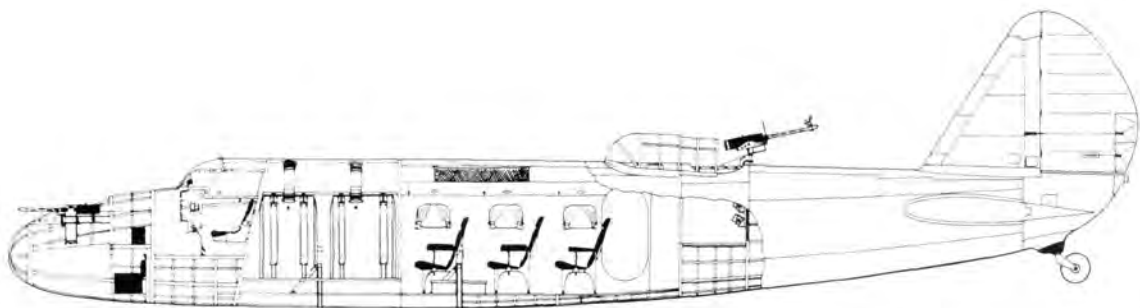
c/n 1946 THE "WOOLAROC 111" BELONGING TO PHILLIPS PETROLEUM - SEPT. 1935

The Phillips 66 emblem was orange and black. Registration NC2666 on lower LH wing is not shown.



c/n 1953 COL ROSCOE TURNER'S NR257Y AT THE TIME OF DELIVERY

Colors: Gray appearance to anodized skin
 White "57" on red background
 Black "5" on a 30-inch diameter white circle (rudder)
 Black "5" on a six-foot diameter white circle (underside)



C/n 1952 247-Y PARTIALLY CUT AWAY TO SHOW INTERNAL MODIFICATIONS

Visible in the nose are the twin 50 cal M-G's, ammo boxes, radios and fire extinguisher. The front spar runs between the 90 and 123 gallon tanks. Ammo boxes are below the aft M-G position. Note the 3° cant of the gunners "greenhouse".

pushed the empty weight up to 10,546 pounds. NC13313 also received a new color scheme which further distinguished it from its more ordinary looking sister ship, NC13354.

Sig Wien, one of Alaska's best known bush pilots, expressed his opinion of the 247-D in a letter to Boeing shortly after he acquired two of the airplanes. The text of the letter, slightly abridged, follows:

"It seems that now is a good time to write a letter of praise and appreciation...for building an airplane with the sturdiness and dependability...of our Boeing 247-Ds. ...a winter operation in Alaska (is a) story (that) starts with the transportation of strange cargo. Arriving at the office one morning I find a D2 Caterpillar, blade and all, driving up behind me and the driver says take this to Point Barrow. Our policy is to handle anything so I accepted the job. The airline distance to Point Barrow from Fairbanks is too great so we selected a lake just north of the Arctic watershed for refueling. Pieces of the Cat were loaded aboard the 247 and we took off for Chandalar Lake, where the wind blows almost continuously reaching 60 mph about every day. We knew the snowdrifts would be large and hard from weather reports brought back by other pilots. Landing on the frozen lake looked impossible since the wind was nearly calm--such drifts you never saw! Picking a likely looking spot and giving the old girl a pat or two we came in for a landing with thoughts of the heavy cargo behind us. The wheels touched the top of a large drift and then all at once we were in them, drifts of solid ice it seemed--with large solid pieces thrown up over the wings. No ship could stand this and I cursed myself for attempting such a landing but too late now--best we could do is to ride her out and let come what may. Wo, she didn't bounce--not with that load. She settled to the glass ice plowing through those hard drifts--yes, they were so hard a footprint could not be made in any of them. When it stopped we were surprised to find the gear and the entire ship in one piece. Believing a takeoff impossible with such a load on such a field we unloaded our cargo and took off empty in our own tracks. We had four more loads to take up there, 350 miles from anywhere. ...we loaded up again the next day and hoped our tracks would still be there but the wind was blowing 30 mph and the temperature was 35°F below. Finding the same place was impossible due to the blowing snow. Needless to say it was worse than the previous day except we had the wind to slow us down. ...we were (next) called to St. Lawrence Island to land on a 1700 foot strip of soft sand...with a house on one end. Landing conditions at Gambell on St. Lawrence Island were next to impossible with our ship but who would fly a single engine ship over 200 miles of water? We drew the line here and used our Boeing. 1700 feet of soft sand with a 25 mph cross-wind and rough air? You guessed it. I kept telling myself not to use brakes in that sand or we would dig a hole.... The landing and also the takeoff were made easily enough much to my surprise--you see the ship was still new to us as was bush flying with any kind of multi-engine ship in Alaska. By now the performance, sturdiness and dependability of our Boeing has been realized. ...a seemingly dangerous operation is now just a routine operation.... The 247 is tops."

A not uncommon load for the twin-engine Boeing was a dog-sled team complete with drivers, cargo and sled.

The CAA used one 247 in Alaska just after World War II for general utility work.

THE CHINA 247s

Factory serial number 1955 was a standard 247-D modified for the personal use of Marshal Chang Hsuehliang. The passenger cabin was compartmented by a partition at the rear spar, with door and lock. The forward compartment contained a bunk and two airline standard seats.

The aft section had four standard seats. This aircraft was shipped to J. A. Barr, Shanghai, on 9 November 1934 by sea. It was assembled at Lungghwa Aerodrome the following month and began test flights on 16 December 1934. Delivery to the owner, Marshal Chang, who was referred to by the Chinese press as "The Young Marshal" and also "The Red Suppression Chief" of Honan, Hupeh and Anwei Provinces, took place a few days later. He also owned a Waco trainer at that time and previously operated a Ford Trimotor. Competitive transport aircraft in use by the Chinese during late 1934 and early 1935 were identified by Boeing representatives in China as a Junkers G-52, a Curtiss Condor, a Savoia Marchetti S-72 and two Ford Trimotors. Julius Barr, who served as Marshal Chang's personal pilot on the 247-D, had flown with United Air Lines' divisions for a time after first flying for the Marshal in 1932. Barr's crew members in early 1935 included Frank Cole and Ted Smith. Late in 1935 Barr enticed a Kelly Field classmate, Royal Leonard, to join him in the employ of the Young Marshal.

Difficulty in pronouncing the name Boeing led the Chinese to use the phonetically similar BAI YING meaning WHITE EAGLE in referring to the 247-D. The WHITE EAGLE broke many records for point-to-point speed in China and was prominent in Chinese newspapers for well over six months. About 1 May 1935 it averaged 167 mph for a 1500 mile round trip between Hankow and Kweiyang and often averaged 190 mph on shorter runs. Pictures of the 247-D published in the North China Daily News for 14 June 1936 and The China Press for 6 January 1936 show no markings on the fuselage (the empennage and upper wing surfaces not being visible in the photographs).

In his book, I FLEW FOR CHINA, Royal Leonard describes numerous activities involving c/n 1955. The winter of 1935/1936 saw the 247-D suffer much damage from Chinese Communist bullets. The bullet holes were acquired when Barr delivered bread to a besieged garrison by dropping the packages from just a few hundred feet. The holes became so numerous that they were forced to try pin-point supply dropping from about 3000 foot altitude. Chinese pilots, flying Capronis, were not as successful in their own bread-bombing missions as they dropped their load from around 11,000 feet and nearly all the bread fell into communist hands. Royal Leonard took over most of the flying duties as Julius Barr accepted additional responsibilities. Barr left China in 1938 to rejoin Boeing and shortly thereafter was killed in the crash of the prototype Stratoliner near Seattle.

It may be recalled that Marshal Chang Hsueh-liang gained some notoriety in December of 1936 when he "kidnapped" Chiang Kai-shek. The "Young Marshal" intended to persuade Chiang Kai-shek to cease operations against the Japanese. Chiang was released without making any commitments but the Japanese invasion in 1937 succeeded in temporarily directing attention away from the Nationalist-Communist struggle. Chang Hsueh-liang, however, was placed under house arrest immediately thereafter and was still confined as of early 1942.

With Chang's imprisonment, the Boeing was seized by General Ho Ying-chin but he shortly turned it over to Generalissimo Chiang Kai-shek. After repairs to the airplane, it was used by the Generalissimo beginning about April 1937, with Royal Leonard retained as the pilot. During its service with Chiang Kai-shek it is believed to have carried Chinese markings to assist Chinese fighter pilots in recognizing it. Japan began all-out war in July 1937 and within a few months the Boeing was destroyed on the ground by bombs at Ichang.

The 247-Y designation appeared early in 1937 with the modification of a former United Air Lines 247-D. J. C. (Jimmy) Elder, who bought the 247-D from United, was mentioned by Royal Leonard as the English-born financial advisor to the Young Marshal. Serial number 1952, originally bearing registration WC13366, was equipped with three .50 caliber Colt Model MG-53 machine guns. Two of the machine guns were fixed in the top of the nose while one was flexibly mounted with the protection of a small



In 1940, c/n 1726, was one of eight 247s that was sold to the Canadian Government Department of Munitions and transferred to the RCAF. It became number 7655 and was equipped with a special nose. (Photo - G.S. Williams)

"greenhouse" in the dorsal position. Each gun was provided with 150 rounds of ammunition.

Four fuel tanks, numbers 3, 4, 7 and 8 from Roscoe Turner's NR257Y were installed in the fuselage and boosted fuel capacity by 426 gallons to make a total of 699 gallons. With the tanks filling much of the cabin, there was space for only six seats in the aft section of the fuselage. Larger oil tanks, providing a total of 52 gallons, were fitted to be compatible with the increased range. Empty weight grew to 9,739.5 pounds with an all-up weight of 15,683.5 pounds.

Photos of the 247-Y modification were dated mid-February 1937, suggesting a possible shipping date of March 1937, with J. A. Barr again noted as the customer, (in 1937, Barr was in the employ of Chiang Kai-shek.)

The 247-Y flew into the side of a mountain according to officials of the present Nationalist China government.

IN CANADA AND GREAT BRITAIN

Eight of the Boeing airliners were sold to the Canadian Government Department of Munitions in 1940. They were assigned temporary civilian registrations for importing and then received military serial numbers upon transfer to the RCAF. After little more than a year, the 247-Ds began to be "sold or leased to the scheduled air lines in Canada and new civilian registrations again were issued. One was purchased by Maritime Central Airways and five were leased to Canadian Pacific Air Lines and its associated air lines, Yukon Southern Air Transport and Quebec Airways. One was written off by the RCAF and cannibalized for spares while one other was sent to Britain.

The RAF aircraft, serial numbered DZ203, was used from 1942 thru about 1948 as a test vehicle for electronic systems. According to Group Captain John A. McDonald in his letter to Flight International (published 30 April 1964) the first automatic landing was made in DZ203 while it was based at Defford with the Telecommunications Flying Unit. The auto approach and landing trials added about 300 hours to the 247's logbook with the first successful auto-landing taking place in October 1944. The system was designed around an autopilot connected to respond to ILS signals and it also included specially built radar equipment.

During the war DZ203 carried standard RAF camouflage and marking. The aircraft later carried yellow triangles to indicate use by the Blind Landing Experimental Unit at Martlesham Heath. The nose had been modified prior to these tests by replacing the baggage door and forward structure with a somewhat differently contoured nose cone.

All of the 247-Ds were exported from Canada by the



During 1941, 7655 went to England and became DZ203 with the Royal Air Force being used in research and communications work until it was finally scrapped during 1948. (Photo - Boeing #P30076 from William Green)

end of 1945 but one later returned after 13 years absence and a complete renovation. C/n 1699 was rebuilt by the Oakland Airmotive Company in the late 1950s for use by California-Standard Oil of Calgary and is still in use by the company at Whitehorse as of mid-1964. It carries registration CF-JRQ. CF-JRQ had its spar caps replaced with 24ST aluminum alloy which provided greater resistance to fatigue and the interior was fitted for bush-type operations.

247s IN MEXICO

The first Boeings to be used in Mexico were not sent there for that purpose, but were being shipped to Spain, via the port of Veracruz. In March 1937, four of the 247s were in Veracruz awaiting shipment to the Spanish Republican government for use in the civil war with the Nationalists. To keep the aircraft from falling into the hands of the Nationalists, the Mexican Government was asked to take the aircraft as part payment of debts owed by Republican Spain to Mexico. The four 247s were confiscated and then sold at auction, some to Capt. Sixto del Rio who in turn sold them to the Mexican air lines.

At least 14 additional 247 types found their way into Mexico, exports beginning in late 1943 as the USAAF began releasing them. Mexican aviation organizations known to have used the twin-engine Boeing were:

- Compania Mexicana de Aviacion, S.A.
- Aeronaves de Mexico, S. A.
- Lineas Aereas Mexicanas, S. A.
- Servicios Aereos Panini
- Lineas Aereas Querrero Oaxaca, S. A.
- Lineas Aereas Unidas, S. A.
- Aeronaves Oaxaca
- Taxis Aereos Nacionales, S. A.
- Servicios Aereos de Chipas, S. A.
- Aero Transportes, S. A.
- Aerovias Reforma, S. A.
- Aeronaves Michoacan, S. A.
- Lineas Aereas Del Pacifico

Honors for the most colorful paint scheme used on the 247 go to Lineas Aereas Mexicanas S. A. (LAMSA). Similar to United's 1941 marking pattern, the LAMSA scheme was white with green, white and red trim. In addition, LAMSA named each of the five airplanes after state names of Mexico. The interiors of these "Aguila Azteca" ("Aztec Eagles") were gray with dark red and various greens. Five surplus USAAF C-73s were converted back to airline standard at United's Cheyenne facility for LAMSA. By December 1946 only one 247-D was operated by LAMSA, on their Mexico City to Juarez cargo run.

An interesting episode concerning XA-GUW (247-D serial number 1693) occurred in February 1952, as related by Ing. Jose Villela Jr. in the December-January 1960

issue of Aviacion. It seems that XA-GUW lost power in one engine after taking off on a flight from Mexico City. The pilot elected to make a forced landing in an open area some distance from any towns. The forced landing was successful and the pilot and co-pilot left the passengers with the plane while they struck out for the nearest settlement to report the incident and send for help. The settlement turned out to be a cattle-rustlers or thieves hideout and the crew were fearful of letting the banditos learn the exact whereabouts of the plane in order to protect the passengers. Just like in the movies, the Federal Auxiliary Force arrived in the nick of time and all ended well.

A number of the Boeings were returned to the United States for use as crop dusters by Jesse Bristow of Florida about 1956 to 1960.

247s FOR GERMANY

Two model 247s and one model 247-D were built for Lufthansa. The first two received U. S. registrations NC90Y and NC91Y prior to delivery to the customer where they were registered as D-AGAR and D-AKIN. (The author could not ascertain which of these registrations was assigned to c/n 1944 and which to 1945.)

C/ns 1944 and 1945 differed from the standard 247 in having the new 247-D cockpit enclosure with the aft sloping windshield. The original 247 nacelles, cowling and rudder were retained on both aircraft. During acceptance trials in February 1934 "the Lufthansa test pilot, Dr. Schatzki, recommended that rudder efficiency be improved and also that directional stability be decreased. Other comments by the Lufthansa test pilot included "...the hand operated (emergency) landing gear retraction was too tiresome," and "...the seat belts were too short."

One of these 247s is reported to have crashed while ferrying pilots in September 1939, right at the beginning of WW II. Other information published on the fate of these 247s indicates that one 247 was scrapped in October 1936 and the other in December 1937. A 1935 newspaper article stated that the 247s were used on the Berlin-Moscow service. This route was flown by Derluft (Deutsch-Russische Luftverkehrs-Gesellschaft) at that time.

The third aircraft earmarked for Lufthansa completed flight trials in September 1934 as X12772 with Dr. Kaumann as the acceptance test pilot. Prior to delivery, the order was cancelled and the aircraft was stored in the factory until it was sold to Phillips Petroleum with registration NC2666, in late 1935.

CENTRAL AND SOUTH AMERICA

The first 247 operated in Latin America was c/n 1720 which was sold to SCADTA on 5 December 1936 by United Air Lines. SCADTA, initials for Sociedad Colombo-Alemana de Transportes Aereos (German-Colombian Air Transport Co.), was founded in 1919 by ex-WW I German pilots. In 1939 SCADTA combined with Sociedad Aerea Colombiana to form Aerovias Nacionales de Colombia (AVIANCA). At least 13 247s were operated in Colombia by AVIANCA up thru the mid-1940s. One special assignment given to the 247 was ferrying the national symphony orchestra between Bogota and Medellin (Colombia's second largest city). Three or four trips were required to complete the operation. It is certain that the string section with all their instruments did very little practicing en route as the bas viol alone was taller than the fuselage cross section and would have taken up considerable space.

AVIANCA identified their 247 fleet by the name "Conquistadores" and at least eight aircraft are known to have received individual names:

QUESADA

RODRIGO DE BASTIDAS (C-144, c/n 1949)

PASCUAL DE ANDAGOYA (C-147, c/n 1687)

DOMINGO DE IAS CASAS
VASCO NUUNEZ DE BALBOA
LAZARO DE FONTE
NICOLAS DE FEDERMANN
SEBASTIAN DE BELALCAZAR

Besides AVIANCA in Columbia, other Latin American 247 operators included Lineas Aereas de Nicaragua, S. A., about 1950 and Victor Inchausti in Panama around 1957. According to Neil Macdougall in a letter to Air Pictorial December 1962, a 247-D was in use in Brazil about 1960 with registration PT-APO and carried the name BERNARDO SAIAO. Another source attributed Servicios Aereos Panini (a Mexican company) of operating a fleet of 14 247s in Brazil in 1945.

THE 247 IN THE UTILITY ROLE

The 1950s saw about ten 247s being used for crop dusting and utility jobs around the United States. Jesse Bristow of Miami, Florida, imported a few 247s from Mexico and fitted them with 450 hp P & W Wasp Jr engines (probably R-985S from surplus BT-13s).

N75291 recently used by Robertson Aviation had extra windows installed, BT-13 cowling over the engines and provisions for crop spraying. N41809 was used for dusting by Central Aircraft in Yakima, Washington. Another 247-D, formerly used by Empire Airlines, crashed in the Walla Walla area while in use as a duster.

THE 247 IN THE FUTURE

The 1958 CAA Statistical Study listed six active and one inactive 247-D in the USA. A few additional 247-Ds have returned from Mexico since that date but only about three may be found in the 1963 FAA register. N18E is owned by Travelair Taxi of Cleveland, Ohio; N3977C is registered to Precipitation Control of Taft, California; and N7777B belongs to Airspray, Incorp. of Orlando, Florida.

One propeller-less 247 was photographed at Miami, Florida in July of 1964 but not identified as to c/n. The plane had been fitted with P & W R-1340-AN-1 engines, T-6 cowling and the nacelles had been modified similarly to Robertson's N75291. The forward passenger windows had been enlarged and a pair of the original size windows were added aft of them. CF-JRQ is still active in Canada and N11 is stored in Washington, D. C.

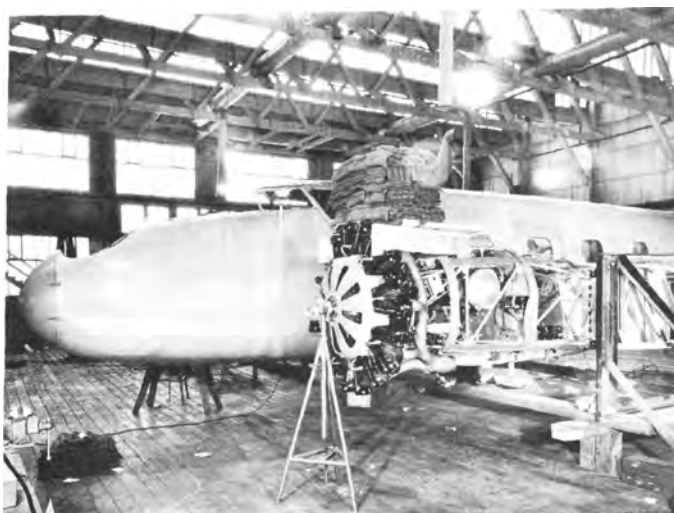
Present plans call for the National Air Museum to renovate N11, the same plane which was used by Col. Turner in the MacRobertson Race of 1934.

Of the 75 Model 247s built, at least six still exist, 25 are known to have been destroyed in various flying accidents, one burned in a hangar, one was bombed, another was destroyed purposely during static testing, and the others have just faded away.

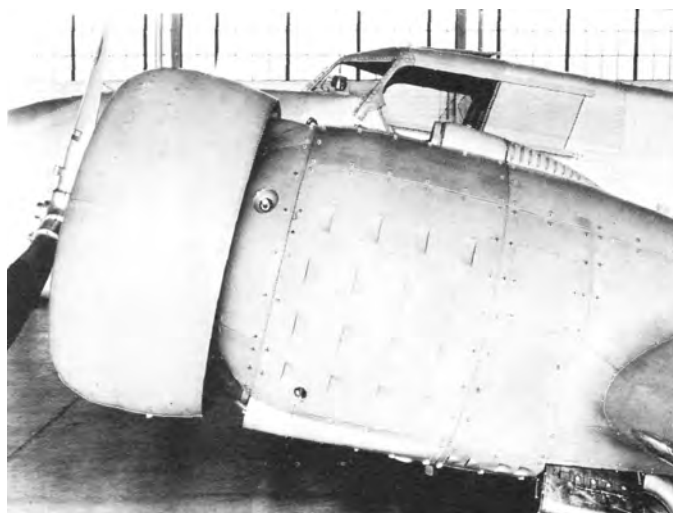
Eight Boeing C-73s were written off while in the USAAF—four were wrecked and surveyed and four others became instructional airframes.

CHRONOLOGY OF THE 247

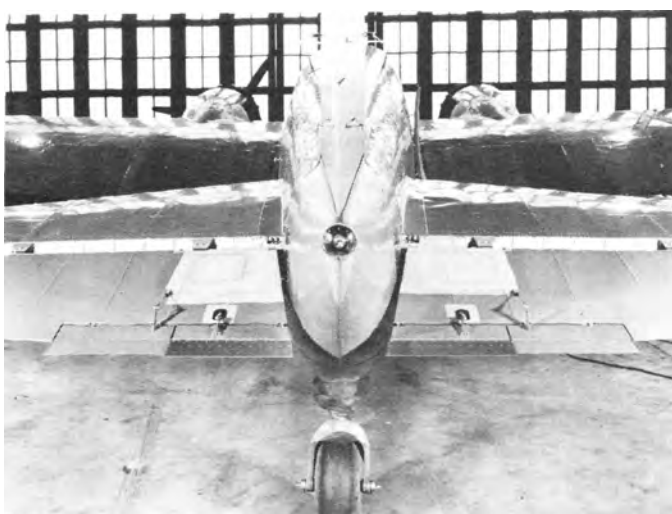
Feb 1932	Boeing starts engineering design on 247.
Jun 1932	Metal is cut for model 247.
Feb 8, 1933	First flight of the 247.
Mar 30, 1933	First 247 delivered to UAL
May 22, 1933	First 247 placed in service.
Sep 30, 1933	Varney absorbed by Boeing Air Transport.
Apr 30, 1934	Boeing Air Transport, Pacific Air Transport and National Air Transport operations transferred to United Air Lines.
May 1, 1934	United Air Lines becomes an operating company.
May 8, 1934	Western Air Express closes operations. General Air Lines takes over some routes.
Aug 31, 1934	United Aircraft 85 Transport dissolved.
Oct 1934	First 247s are leased or sold to feeder lines by United.



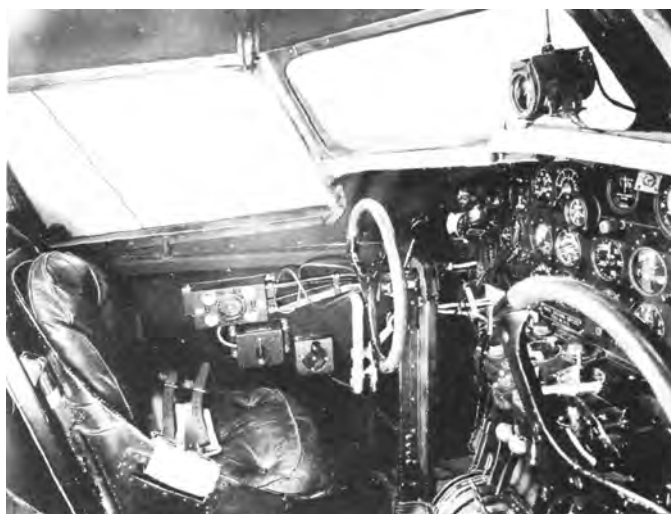
Static testing of the No. 1 Boeing 247 airframe, c/n 1682, was carried out in January 1933. Note the upper access cutout on top of the nose. (Boeing #6044B)



On 9 October 1933, c/n 1682, X13301, was equipped with lengthened nacelles and experimental NACA type cowling, plus a sloping windshield. (Boeing #6802B)



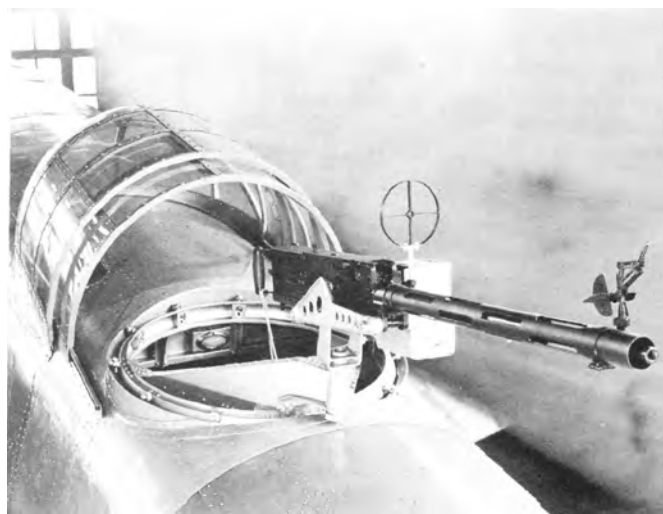
Experimental control tab 9 installation shows the elevator control tab extensions that were tried but were not used in production. (Photo - Boeing)



Interior of the cockpit of the Boeing 247-Y, shown on 16 February 1937, differed little from the standard 247-D. Radio gear at pilot's elbow. (Boeing #9377B)



In foreground are four of the six seats in the rear cabin of the 247-Y, c/n 1952, and beyond are the four extra fuel tanks from Turner's plane. (Boeing #9378B)



The rear gunner's station on the 247-Y included a .50 caliber Colt machine gun, and a canopy that was canted down 3 degrees at the aft end. (Boeing #9366B)

		C/N	LICENSE	OPERATOR, PERIOD OF USE AND REMARKS
Oct 15, 1934	General Air Lines adds 247s and Douglas DC-2s to operations.			
Nov 1, 1934	National Parks Airways begins 247 operation.	1684		Then auctioned off to reimburse Mexico for debts owed by Spanish Republican government.
Nov 1934	Boeing Aircraft Co. completes delivery of 73 model 247s, including 70 to the United Group.			Capt. Sixto del Rio (Mexican AF) 1941.
Dec 1934	Pennsylvania Airlines announces purchase of 247 fleet.		XA-BEY	Cia Mexicana de Aviacion, S.A. 1941.
Jan 1, 1935	General Air Lines ceases operations and Western Air Express takes over Salt Lake to San Diego route.		XA-CAB	Aeronaves de Mexico, S.A. (may be XA-CDA?)
			XA-CAB	Lineas Aereas Guerrero Oaxaca, S.A. 1947 to 1950. Crashed near Los Pajaritos on 7 Jan 1950.
Jan 1935	UAL's 247 fleet (including 247-D) totals 55.	1685	NC13304	National Air Transport 7 Apr 1933 to 10 Oct 1933. Crashed 10 Oct 1933 near Cherterton, Ind. due to cargo explosion, killing crew and 4 passengers.
May 1935	Wyoming Air Service uses 247s between Cheyenne and Denver.			
Jan 1936	UAL fleet reduced to fifty 247s, including at least 30 originals modified to 247-D configuration.	1686	NC13305	Boeing Air Transport 13 Apr 1933 to 30 Apr 1934.
Nov 1936	Pennsylvania Air Lines merges with Central Airlines.		NC13305	United Air Lines 1 May 1934 to 8 Jul 1942. Converted to 247-D standard 24 May 1935, retaining swept-forward windshield. It was named CITY OF BETHLEHEM about 1940.
Jan 1937	UAL operates fleet of 39 Boeing 247-Ds.		NC13305	Western Air Express (leased from UAL).
Mar 1937	Four 247s intended for Nationalist Spain are confiscated in Mexico.		42-68363	U.S. Army Air Force (as C-73) 7 Aug 1942 to 3 Jun 1944. To Modification Center Cheyenne 5 Apr 1944 and then to UAL Chicago for LAMSA - to Defense Supply Corp. 3 Jun 1944.
Aug 1, 1937	Western Air Express acquired National Parks Airways and continues 247-D use on Salt Lake City-Great Falls and Los Angeles-San Diego routes.		XA-DON	Lineas Aereas Mexicanas, S.A. Nov 1944 to Nov 1947. Named ESTADO DE SAN LUIS POTOSI by LAMSA. This aircraft had logged 19,035 hrs as of 6 Nov 1945.
Jan 1938	Boeing 247-Ds in UAL fleet total 24.		XA-DON	Ing. P. A. Luis Struck Nov 1947 to Dec 1947.
Jul 1, 1938	Wyoming Air Service changes name to Inland Air Lines.		XB-JEC	Efren Ochoa and Manuel Ramos Espinoza Dec 1947 to 1949.
Aug 1942	USAAF completes requisition of 27 247s.		XA-JAA	Lineas Aereas Piche Jul 1949 to 1952 (leased from J. L. Loperena).
			XA-JAA	Servicios Aereas Chiapas 1952 to at least 1960.
BOEING MODEL 247 TRANSPORT SERIES				C/n 1686 suffered a few minor accidents, one in Durango in '46, another in Tapchula in '54 and a third in Petalcingo in 1955.
Service History of Each Aircraft				
C/N	LICENSE	OPERATOR, PERIOD OF USE AND REMARKS		
1682	NC13301	Pacific Air Transport 5 Apr 1933 to ____.		
	X13301	Boeing used this airplane to develop various modifications that led to the 247-D version. During the test period plane was given the designation 247-E. (Recorded 247-E as of 21 Jun 1934.)		
	NC13301	United Air Lines ____ to 8 Jul 1942. Before final delivery NC13301 was brought up to 247-D standard and ATC558 was modified to include it. The 247-E designation stuck with the plane, however. Named CITY OF OAKLAND about 1940.		
	42-68372	U.S. Army Air Force 17 Jul 1942 to 30 Jun 1934. Received USAAF designation C-73. To Ogden 17 Jul 1942, to Cheyenne 11 Sep 1942, to National Airport 31 Dec 1942, to Boiling 10 Mar 1943, to Gravelly Pt. 29 Jun 1943, to Class 26, instruction airframe, 30 Jun 1943.		
1683	NC13302	Boeing Air Transport 30 Mar 1933 to 30 Apr 1934.		
	NC13302	United Air Lines 1 May 1934 to 7 Jun 1934. Crashed 6 mi. east of Selleck, Wash. 7 Jun 1934 in bad weather on a flight from Spokane to Seattle. Four persons were injured.		
1684	NC13303	Varney Air Lines 10 Apr 1933 to 30 Sep 1933.		
	NC13303	Boeing Air Transport 1 Oct 1933 to 30 Apr 1934.		
	NC13303	United Air Lines 1 May 1934 to 1 Apr 1935.		
	NC13303	Pennsylvania Air Lines 1 Apr 1935 to ____.		
		C/n 1684 was one of four 247s in Veracruz, Mexico, awaiting shipment to Spain in Mar 1937, when confiscated by Mexico.		
				1687 NC13306 National Air Transport 14 Apr 1933 to 30 Apr 1934.
				NC13306 United Air Lines 1 May 1934 to 23 Dec 1934.
				NC13306 General Air Lines 23 Dec 1934 to 31 Dec 1934.
				NC13306 Western Air Express 1 Jan 1935 to 15 Dec 1937.
				C-147 SCADTA (thru Interamerican) 15 Dec 1937 to 1939.
				C-147 AVIANCA 1939 to at least 1945.
				17,681 airframe hours had been accumulated by 1687 by 30 Sep 1945. Plane named PASCUAL DE ANDAGOYA by AVIANCA.
		1688	NC13307	Varney Air Lines 15 Apr 1933 to 30 Sep 1933.
			NC13307	Boeing Air Transport 1 Oct 1933 to 30 Apr 1934.
			NC13307	United Air Lines 1 May 1934 to 1 May 1935.
			NC13307	Wyoming Air Service 1 May 1935 to 1 Jul 1938. Named CITY OF DENVER by Wyoming Air Service.
			NC13307	Inland Air Lines 1 Jul 1938 to 17 Jun 1942.
			42-61094	U.S. Army Air Force (as C-73) 18 Jun 1942 to June 1944. To G.L. Martin, Omaha, 19 Jun 1942, to Cheyenne 18 Feb 1943, to Billings 12 Mar 1943, to Minneapolis 24 May 1943, to Kansas City 3 Jun 1943, to Cincinnati 15 Jun 1943 - restored to airline standard for resale by UAL, to Defense Supply Corp. Jun 1944.



C/n 1682 in front of the Boeing Field Terminal in February 1933 without radio mast. (Boeing 6127-B)



As the CITY OF OAKLAND, c/n 1682 in service with United Air Lines, about 1940. (Photo - Peter M. Bowers)



Still carrying Pacific Air Transport insignia, 1682 underwent stability tests in 1934. (Gordon S. Williams)



The second of three tail configurations tried on 1682 in 1934 and modified engine nacelles. (G. S. Williams)



C/n 1683 with Boeing Air Transport. Pitch of 3-blade propellers was adjustable only on ground. (Bowers)



C/n 1686 carrying United shields of 1937-40 period with sealed off upper baggage door visible. (Williams)



C/n 1688 as CITY OF DENVER with Wyoming Air Service, American Gyro Crusader in front. (Boeing 96707)



By the 1960s, c/n 1688 looked liked this, equipped with AT-6 cowlings and modified nacelles. (P. M. Bowers)

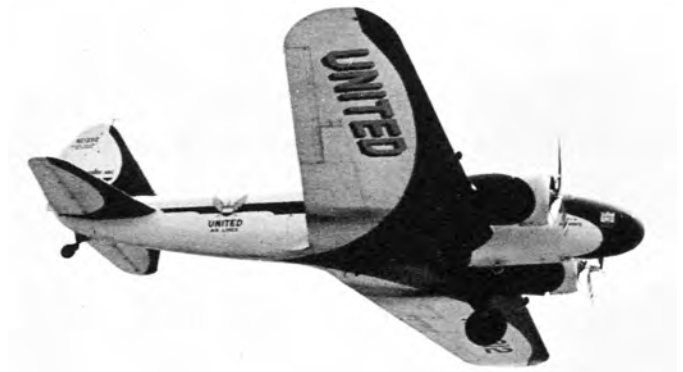
C/N	LICENSE	OPERATOR, PERIOD OF USE AND REMARKS	C/N	LICENSE	OPERATOR, PERIOD OF USE AND REMARKS
1688	XA-DIZ	Lineas Aereas Mexicanas, S.A. Jul 1944 to 1948. LAMSA named plane ESTADO DE COAHUILA. As of 6 Nov 1945, 16,456 hrs. had been logged.	1692	NC13311	Varney Air Lines 25 Apr 1933 to 30 Sep 1933.
	XA-DIZ	Arturo San Roman 1948.		NC13311	Boeing Air Transport 1 Oct 1933 to 30 Apr 1934.
	XA-DIZ	Taxis Aereos Nacionales 1948 to ____.		NC13311	United Air Lines 1 May 1934 to 1 Apr 1936.
	XA-DIZ	Aerovias Reformas (leased).		NC13311	Pennsylvania Air Lines 1 Apr 1936 to ____.
	XA-DIZ	Aeronaves de Michoacan, S.A. ____ up to 8 Oct 1956 (registration cancelled).		NC13311	Wyoming Air Service (?)
		Jesse Bristow, Florida 1956.		C-145	AVIANCA 1945; 13,430 hrs 30 Sep 1945.
	N7777B	Airspray Inc., Orlando, Fla. 1958 to '63.	1693	NC13312	Boeing Air Transport 26 Apr 1933 to 30 Apr 1934.
1689	NC13308	Boeing Air Transport 18 Apr 1933 to 30 Oct 1934.		NC13312	United Air Lines 1 May 1934 to 8 Jul 42. Converted to 247-D standard 30 Sep 1935. Named CITY OF SEATTLE and later CITY OF DES MOINES.
	NC13308	United Air Lines 1 May '34 to 1 Apr '35.		NC13312	Western Air Express (leased from UAL).
	NC13308	Pennsylvania Air Lines 1 Apr 1935 to ____.	42-68366		U.S. Army Air Force (C-73) 17 Jul 42 to 11 Jun 1944. To McClellan 19 Jul 42, to TWA 22 Jul 42, to DSC Jun 1944.
	42-57208	U.S. Army Air Force (C-73) 11 Jun 1942 to 1 Jun 1944. To Boiling 12 Jun 1942, to Newcastle 16 Jun 1942, to Presque Isle 28 Jun 1943, to commercial use 1 Jun 1944.		XA-DIY	Lineas Aereas Mexicanas, S.A. Jul 1944 to Dec 1947. Named ESTADO DE CHIHUAHUA. Logged 17,462 hrs 6 Nov 1945.
	XA-DIJ	Aero Transportes Dec 1943 to 1948.		XB-JEB	Ing. P.A. Luis Struck Dec 47 to Apr 48.
	XA-DIJ	Aeronaves de Michoacan (Tomas Calderon) 1948.		XA-GUW	Capt. P. A. Juan Tilghman Apr 48 to ____.
	XA-DIJ	Aeronaves Oaxaca. (Luis & Antonio Melgoza) N76390(?) Jesse Bristow, Fla. 1956 (N76390 was Cessna per FAA).			This a/c, XA-GUW, was involved in an incident due to power failure after leaving Mexico City 23 Feb 52.
	C/n 1689	was damaged in Acapulco 18 Jul 49 or 59.	1694	NC13313	National Air Transport 27 Apr 1933 to 30 Apr 1934.
1690	NC13309	National Air Transport 20 Apr 33 to 30 Apr 1934.		NC13313	United Air Lines 1 May 34 to 8 Jul 1942. Converted to 247-D standard 17 May 1935. Named CITY OF ALLENTOWN.
	NC13309	United Air Lines 1 May 1934 to Jul 1942. Converted to 247-D standard 4 Aug 1935. Named CITY OF SPOKANE about 1940.		NC13313	Western Air Express (leased from UAL).
	NC13309	General Air Lines 23 Dec 1934 to 31 Dec 1934 (leased from UAL).	42-68365		U.S. Army Air Force (C-73) 8 Jul 1942 to 29 Jul 1944. To Chicago 14 Sep 42, to LaGuardia 16 Oct 42, to Sperry
	NC13309	Western Air Express 1 Jan 35 to 3 Jul 1935 (leased from UAL).		NC13313	Wien Alaska Airlines 1943 to 1946. Logged 16,255 hrs 23 Oct 1945.
	42-68371	U.S. Army Air Force (C-73) 17 Jul 1942 to Jun 1944. To Ogden 17 Jul 42, to Eastern Airlines 28 Oct 42, to Cheyenne 17 Apr 43, to Milwaukee 6 Nov 43, to Newcastle 1 Jan 44, to Chicago 15 Jun 44, restored to airline standard by UAL, to Defense Supply Corp. Jun 1944.	1695	NC13314	Varney Air Lines 28 Apr 1933 to 30 Sep 1933.
	XA-DUX	Lineas Aereas Mexicanas, S.A. Apr 45 to late 1945. Named ESTADO DE SONORA. Logged 17,431 hrs 6 Nov 1945. Boeing records show XA-DUZ.		NC13314	Boeing Air Transport 1 Oct 33 to 30 Apr 1934.
	XB-JEA	Ing. Luis Struck 1945 to 1948.		NC13314	United Air Lines 1 May 34 to 12 Apr 1935.
	XB-JEA	Capt. P.A. Juan Tilghman 1948.		NC13314	Western Air Express 12 Apr 35 to 1 Sep 1935 (leased from UAL).
	XA-GUV	Servicios Aereos Nacionales.			Crashed near Burbank, Calif. 1 Sep 1935 in dense fog, killing three persons.
		The Mexican registration was cancelled 30 Jul 1957, apparently after a crash which occurred while in the service of Servicios Aereos Nacionales.	1696	NC13315	Boeing Air Transport 29 Apr 1933 to 30 Apr 1934.
1691	NC13310	National Air Transport 23 Apr 33 to 30 Apr 1934. At Chicago Worlds Fair 1933.		NC13315	United Air Lines 1 May 1934 to 13 Jun 1935.
	NC13310	United Air Lines 1 May 1934 to 3 May 1938. Converted to 247-D 12 Apr 1935.		NC13315	Western Air Express 13 Jun 1935 to 12 Jan 1937. (Leased on 12-23-34 from UAL and then purchased 3 Jul 1935 per Western or 13 Jun 1935 per UAL.)
	NC13310	Western Air Express (leased from UAL).			Crashed 12 Jan 1937 near Newhall, Calif.; 5 of 13 aboard were fatally injured. Martin E. Johnson died and wife Osa was injured.
	NC13310	Wyoming Air Service 3 May 1938 to 1 Jul 1938.	1697	NC13316	National Air Transport 2 May 1933 to 30 Apr 1934.
	NC13310	Inland Air Lines 1 Jul 1938 to 10 Jun 1942.		NC13316	United Air Lines 1 May 1934 to 29 Apr 1938. Converted to 247-D standard 7 Oct 1935.
	42-56642	U.S. Army Air Force (C-73) 11 Jun 1942 to 21 Jun 1944. To Fairfield AD 12 Jun 1942, had forced landing at Blytheville, Ark. due to failure of both engines 9 Jul 42, to Memphis 20 Jul 42, to Chey. 5 Jul 43, to commercial use 1 Jun 1944.		NC13316	Western Air Express 29 Apr 1938 to 30 May 1942 (Leased from UAL in 1937).
	NC13310	Woodley Airways, Alaska ____ to 23 Aug 45.	42-57209		U.S. Army Air Force (C-73) 11 Jun 1942 to 14 Jun 1944. To Newcastle 12 Jun 42, to Cheyenne 26 Mar 43, to Gore Fld, Long Beach 22 Apr 43, to Presque Isle 29 Apr 43, to N. Atlantic Wing 1 May 43, to "Carribb" 15 Apr 44, to DSC 14 Jun 1944. AVIANCA.
	NC13310	Pacific Northern Airlines 23 Aug 1945 to Feb 1946.			



C/n 1691 was operated in Alaska during 1945 and 1946, going to Woodley Airways from the Army Air Force and to Pacific Northern Airlines when Woodley became PNA. (Photo - Pacific Northern Airlines)



C/n 1690 came to the end of its days with a crash in Mexico on 30 July 1957. (Photo - J. Villela, Jr.)



CITY OF DES MOINES was the name given to c/n 1693 by United Air Lines around 1940. (Photo - P. M. Bowers)



About 1946, c/n 1694 had extra fuel tanks installed and other rework done at Boeing. (Photo - Boeing #H5160)



Varney Air Lines were the operators of c/n 1695 during the year 1933. (Photo - Gordon S. Williams)

C/N	LICENSE	OPERATOR, PERIOD OF USE AND REMARKS	C/N	LICENSE	OPERATOR, PERIOD OF USE AND REMARKS
1698	NC13317	Boeing Air Transport 2 May 1933 to 30 Apr 1934.			division routes where it accumulated 1,408 airframe hours.
	NC13317	United Air Lines 1 May 1934 to 7 Oct 1935.	1704	NC13323	Boeing Air Transport 19 May 1933 to 30 Apr 1934.
		Crashed 7 Oct 1935 near Cheyenne, Wyoming, when pilot reportedly misjudged altitude and hit the ground in a power glide. Crew of 3 and 7 passengers killed.		NC13323	United Air Line 1 May 1934 to 30 Oct 1935.
1699	NC13318	National Air Transport 3 May 1933 to 30 Apr 1934.			Crashed near Cheyenne, Wyoming 30 Oct 1935, killing crew of 4 on test flight. The accident was attributed to a too-abrupt maneuver at too-low an altitude.
	NC13318	United Air Lines 1 May 1934 to 1 Oct 1937. Converted to 247-D standard 13 Jul 1935.	1705	NC13324	National Air Transport 20 May 1933 to 24 Nov 1933.
	NC13318	Western Air Express (leased from UAL).			Crashed near Ottawa, Illinois on 9 Nov 1933, killing the crew.
	NC13318	Pennsylvania-Central Air Lines 1 Oct 1937 to _____.	1706	NC13325	Boeing Air Transport 23 May 1933 to 30 Apr 1934.
	CF-BQS	Canadian Government Dept. of Munitions 1940 (temporary license only).		NC13325	United Air Lines 1 May 1934 to 30 Apr 1938. Converted to 247-D standard 1 Sep 1935.
	7638	Royal Canadian Air Force 8 Jun 1940 to Apr 1942.		NC13325	Pennsylvania-Central Airlines 30 Apr 1938 to _____.
	CF-BVX	Quebec Airways 1 Jun 1942 to 1943.			White Pass Airways, Inc., Skagway, Alaska _____ to late 1941.
	CF-BVX	Canadian Pacific Air Lines 1943 to 1945.		CF-BVF	British Yukon Navigation Co. late 1941 to _____.
	NC41809	Maguire Industries, Inc., 1945.		CF-BVF	Yukon Southern Air Transport _____ to 1943. Named YUKON SOURDOUGH.
	NC41809	"Zigzag Airways" -about 1948. The slogan "California or Bust" also appeared on the nose.		CF-BVF	Canadian Pacific Air Lines 1943 to 1945.
	N41809	Central Aircraft, Yakima, Wash about 1956. Photos show an enlarged entrance door was used by Central.		NC33172	Columbia Airlines 1945 to _____. C/n 1706 had logged 17,138 hours in the air by 14 Dec 1945.
	CF-JRQ	California-Standard Oil of Calgary Jan 1959 to at least 1964. C/n 1699 was rebuilt for Standard Oil and featured new spar caps of 24-ST aluminum alloy in place of old 17-SRT material.		NC33172	J. H. Wentworth, Long Beach, Calif. _____ to 1948 (exported to Mexico in 1948).
	CF-JRQ	W. B. Patrick, Calgary about 1961 ?	1707	NC13326	National Air Transport 25 May 1933 to 30 Apr 1934.
1700	NC13319	Boeing Air Transport 8 May 1933 to 30 Apr 1934.		NC13326	United Air Lines 1 May 1934 to 8 July 1942. Converted to 247-D standard 15 Sep 1935, named CITY OF SAN DIEGO about 1940. NC13326 was damaged at Newark, N.J. in June 1933; it was repaired and reentered service sporting the new aft-sloping windshield.
	NC13319	United Air Lines 1 May 1934 to 23 Nov 1936. Converted to 247-D standard 11 Aug 1936. Crashed near Newark, N.J. 23 Nov 1936.		NC13326	Western Air Express (leased from UAL).
	NC13319	Western Air Express (leased from UAL).		42-68367	U. S. Army Air Force (C-73) 17 Jul 1942 to Nov 1942. To McClellan 19 Jul 42, to Inland Air Lines to TWA 28 Jul 42. Wrecked in landing accident at Allegheny City Airport, Pa., 17 Nov 42 & surveyed.
1701	NC13320	National Air Transport 10 May 1933 to 12 May 1933.	1708	NC13327	Boeing Air Transport 29 May 1933 to 30 Apr 1934.
		Crashed on delivery flight, 12 May 1933 near Provo, Utah. Cause was not disclosed. Photos indicate plane hit side of mountain in fog, severely damaging wings but sustained only a few dents in fuselage. Pilot and co-pilot were both injured.		NC13327	United Air Lines 1 May 1934 to 23 May 1935.
1702	NC13321	Boeing Air Transport 13 May 1933 to 30 Apr 1934.		NC13327	Western Air Express 12 Jun 1935 to at least April 1937 (leased 9 Feb 1935 from UAL).
	NC13321	United Air Lines 1 May 1934 to 1 Jun 1942. Converted to 247-D standard 27 May 1935. Named CITY OF LINCOLN about 1940.		C-146	SCADTA (thru Interamerican) 7 Dec 1937 to 1939.
	NC13321	Western Air Express (leased from UAL).		C-146	AVIANCA 1939 to ?
	42-57153	U.S. Army Air Force (C-73) 25 Jun 1942 to 3 May 1945. To Boeing 25 Jun 42, to Great Falls 4 Jul 42, to commercial use 3 Mar 1945.	1709	NC13328	Boeing Air Transport 31 May 1933 to 30 Apr 1934.
	XA-FE0	Aero Transportes July 1945 to _____.		NC13328	United Air Lines 1 May 1934 to 11 Jun 1942. Crashed near Western Springs, Ill. 20 Dec. 1934, injuring 1 passenger and crew of 3. One engine lost power and the other stopped due to carburetor icing. The plane was repaired and was later converted to 247-D standard on 8 Jul 1935 but retained the forward-sloping windshield. NC13328 was named PROVINCE OF B.C. about 1940.
	XA-KAJ	Aeronaves de Michoacan, S.A. _____ to about 1958 (T.R. Calderon).			
	N5501A	Cecil Coffrin, Brookley, N.Y. 8 Jan 1959 to _____.			
1703	NC13322	National Air Transport 18 May 1933 to 10 Dec 1933.			
		This aircraft was static-tested to destruction by the U.S. AAF at Dayton, Ohio prior to March 1934. The fuselage was broken under 160% design load. NC13322 was originally used on the Chicago-New York			



C/n 1699, with "California or Bust" on the nose, zig-zagged across the country in 1948. (Photo - Bowers)



With trailing edge fittings for spraying work installed, c/n 1699 served Central Aircraft in the 1950s. (Bowers)



C/n 1702 as N5501A, alias XA-KAJ, back in the U. S. after serving in Mexico until 1958. (Photo - Bowers)



C/n 1707 with 247-D cockpit enclosure after a minor accident at Newark. Other 247-D changes made 2 yrs later.



As the CITY OF SAN DIEGO, c/n 1707 is at rest across the field from Boeing Plant Number 2, busy on B-17 products at the moment, and carries United Air Lines' 1940 markings. (Photo - Boeing #P856)

C/N	LICENSE	OPERATOR, PERIOD OF USE AND REMARKS	C/N	LICENSE	OPERATOR, PERIOD OF USE AND REMARKS
1709	42-57210	U.S. Army Air Force (C-73) 11 Jun 1942 to Aug 1942. To Hensley 12 Jun 42, to SAAD 2 Jul 42, recommended Class 26 31 Jul 42, damaged in wind storm, Duncan Field, Texas, while moored 30 Aug 42 and surveyed.	1716	NC13334	National Air Transport 23 Jun to 30 Apr 1934.
				NC13334	United Air Lines 1 May 1934 to 22 Feb. 1937. Converted to 247-D standard 23 Apr 1935.
					Inter-American Aero Travel & Supply 22 Feb 1937 to _____.
1710	NC13329	Varney Air Lines 2 Jun 1933 to 30 Sep 1933.		C-143	AVIANCA 1945 - 15,740 hrs had been logged as of 30 Sep 1945.
	NC13329	Boeing Air Transport 1 Oct 1933 to 30 April 1934.	1717	NC13335	Boeing Mr Transport 24 Jun 1933 to 30 Apr 1934.
	NC13329	United Air Lines 1 May 1934 to 1 Jun 1942 Converted to 247-D standard 31 Aug 1935. Named IOWA CITY about 1940.		NC13335	United Air Lines 1 May 1934 to 8 July 1935. Named CITY OF VANCOUVER about 1940
	NC13329	Western Air Express (leased from UAL).		NC13335	Western Air Express (leased from UAL).
	42-68368	U.S. Army Air Force (C-73) 8 Jul 1942 to Jun 1945. To San Francisco 14 Sep 42.		42-68369	U.S. Army Air Force (C-73) 8 Jul 1942 to 14 Sep 1942. To Northwest Airlines 14 Sep 42 and a complete wreck at St. Paul 14 Sep 1942.
	NC13329	Chas. H. Babb 1945.			
1711	NC13300	United Aircraft Corp. 4 Nov 1933 to 1947. The solitary 247-A Executive Transport, NC13300 was marked with the "United Airports of Connecticut" emblem. It was also used by Pratt & Whitney for test purposes and had logged 4,086 hrs as of 11 Dec 1945. Scrapped in early 1947.	1718	NC13336	Boeing Air Transport 26 Jun 1933 to 30 Apr 1934.
				NC13336	United Air Lines 1 May 1934 to 29 Apr 1938. To 247-D standard 21 Sep 1935.
				NR13336	This plane carried restricted license about 1937 or 1938, possibly involving radio systems experiments.
1712	NC13330	National Air Transport 10 Jun 1933 to 30 Apr 1934.		NC13336	Western Air Express 30 Apr 1938 to 31 May 1942.
	NC13330	United Air Lines 1 May 1934 to 30 Jul 1938. Converted to 247-D standard 24 Aug 1935.		42-57211	U.S. Army Air Force (C-73) 11 Jun 42 to 11 Mar 44. To Berry Fd 28 Jun 42, to Nashville 18 Mar 43, surveyed 11 Mar 44.
	NC13330	Western Air Express (leased from UAL).			
	NC13330	Wilmington-Catalina Airlines 30 Jul 1938 to ____.	1719	NC13337	Boeing Air Transport 28 Jun 1933 to 30 Apr 1934.
		AVIANCA.		NC13337	United Air Lines 1 May 1934 to 28 Dec 1935.
1713	NC13331	National Air Transport 16 Jun 1933 to 30 Apr 1934.		NC13337	National Parks Airways 28 Dec 1935 to 1 Aug 1937.
	NC13331	United Air Lines 1 May 1934 to 1 Apr 1935.		NC13337	Western Air Express 1 Aug 1937 to 22 Jul 1942.
	NC13331	Pennsylvania Air Lines 1 Apr 1935 to ____.		1+2-78017	U.S. Army Air Force (C-73) 3 Aug 1942 to April 1945. To Lockheed 3 Aug 42, to Miami 29 Dec 42, to Love Fd 31 Jan 43, to 36th St. Ap. (Miami) 26 Jul 43, to "Caribb" 12 Aug 44, to Defense Supply Corp. Apr 1945.
		Seized by Mexican Govt in Veracruz, March 1937.		XA-DUA	Servicios Aereos Panini 1945 to 9 Sep 1947.
		Capt. Sixto del Rio of Mexican Air Force.			Crashed on 9 Sep 1947 near Obregon, Mexico and was totally destroyed.
	XA-BEZ	Cia Mexicana de Aviacion, S.A.			
		Aeronaves de Mexico, S.A. ?	1720	NC13338	Boeing Air Transport 29 Jun 1933 to 30 Apr 1934.
	XA-KAD	Servicios Aereos Panini 1		NC13338	United Air Lines 1 May 1934 to 5 Dec 1936.
1714	NC13332	National Air Transport 21 Jun 1933 to 30 Apr 1934.		C-141	SCADTA 5 Dec 1936 to 1939.
	NC13332	United Air Lines 1 May 1934 to 30 Jul 1938. Converted to 247-D standard 5 Jun 1935.		C-141	AVIANCA 1939 to at least 1945. 1720 had logged 16,934 hours as of 30 Sep 1945.
	NC13332	Wilmington-Catalina Airlines 30 Jul 1938 to ____.		PP-BHC	Brazil
		AVIANCA		PT-AP0	SAVA (Servicios Aereos de Abasterimento do Vale Amazonico). Named BERNARDO SAIAO 1960 and on.
	N75291	Robertson Aviation about 1962. Modifications included spray rig, extra windows and BT-13 cowl. Color: White top, red stripe, tan undersides.			
1715	NC13333	National Air Transport 20 Jun 1933 to 30 Apr 1934.	1721	NC13339	Boeing Air Transport 6 Jul 1933 to 30 Apr 1934.
	NC13333	United Air Lines 1 May 1934 to 8 July 1942. Converted to 247-D standard 19 Sep 1935. Named CITY OF SANTA BARBARA.		NC13339	United Air Lines 1 May 1934 to 12 Jan 1941. Converted to 247-D standard 27 Sep 1935. Destroyed in hangar fire at Salt Lake City on 12 Jan 1941.
	NC13333	Western Air Express (leased from UAL).		NC13339	Western Air Express (leased from UAL.)
	42-68370	U.S. Army Air Force (C-73) 17 Jul 1942 to June 1945. To Ogden 17 Jul 42, to Defense Supply Corp. Jun 1945.			
	XA-FEP	Aero Transportes, S.A. Jul 1945 to 1948. Tomas Calderon.	1722	NC13340	National Air Transport 7 Jul 1933 to 30 Apr 1934.
	XA-FEP	Aeronaves Michoacan 1948 to ____.			
		Tomas Calderon.			



C/n 1711, the one and only 247-A, runs up her engines at Boeing Field. Note stub antenna mast. (Williams)



With BT-13 cowlings, extra windows and spray rig attached, c/n 1714 was used by Robertson Aviation. (Bowers)



While participating in radio tests for UAL, c/n 1718 carried special registration, NR13336. (Photo - Bowers,



Before acquiring a name to go with United's 1940 color scheme, c/n 1721 was destroyed in hangar fire. (Bowers)



Wearing the livery of United Air Lines, c/n 1721 is seen at Boeing Field in 1935 before being modified to 247-D standard. Note the 2-blade controllable pitch propellers and Air Express insignia on the nose. (G. S. Williams)

C/N LICENSE OPERATOR, PERIOD OF USE AND REMARKS

1722 NC13340 United Air Lines 1 May 1934 to Dec 1939. Converted to 247-D standard 27 Jul 1935.
 NC13340 Pennsylvania-Central Airlines Dec 1939 to _____.
 Celanese Corp.
 NC18 U. S. Govt. Dept. of Commerce, A209 about 1945. Civil Aeronautics Administration. Jesse Bristow, Miami, Fla. 1954. (installed P & W R-985 450 hp.)
 N18E Sky Tours, Inc. (island Airlines) 1954 to 1962.
 N18E Travelair Taxi, Inc. Cleveland, Ohio 1963.

1723 NC13341 National Air Transport 10 Jul 1933 to 30 Apr 1934.
 NC13341 United Air Lines 1 May 1934 to Dec 1939. Converted to 247-D standard 6 Sep 1935.
 NC13341 Pennsylvania-Central Airlines Dec 1939 to 31 Jan 1941.
 NC13341 Western Air Lines 31 Jan 1941 to 19 Jul 1942 (also leased from UAL earlier in 1936).
 42-68853 U.S. Army Air Force (C-73) 19 Jul 1942 to Jun 1944. To Lockheed (Central Dist.) 19 Jul 42, to TWA 30 Dec 42, to Defense Supply Corp. Jun 1944.
 XA-DUY Lineas Aereas Mineras Jul 1945 to 1 Aug 1945.
 Crashed into mountains near San Luis Potosi, Mexico 1 Aug 1945. No survivors.

1724 NC13342 National Air Transport 17 Jul 1933 to 30 Apr 1934.
 NC13342 United Air Lines 1 May 1934 to Dec 1939. Converted to 247-D standard 7 Jul 1935. Named CITY OF WALLA WALLA.
 NC13342 Western Air Express (leased from UAL).
 NC13342 Pennsylvania-Central Airlines Dec 1939 to 1942.
 42-68373 U.S. Army Air Force (C-73) 11 Jul 1942 to Aug 1944. To Dallas 3 Aug 42, to Pan American Airways 12 Sep 42, Cincinnati to unknown 15 Aug 44, to Defense Supply Corp, to Varig Airlines, Brazil 1944.
 XA-DEZ Aero Transportes, S.A. Aug 1944 to 1945.
 XA-DEZ Servicios Aereos Panini 1945 to 1948.
 XA-DEZ Aeronaves Oaxaca (owners: L. & A. Melgoza)
 XA-DEZ Servicios Aereos Nacionales _____ to 26 Aug 1950.
 Crashed and burned at Veracruz on 26 Aug 1950.

1725 NC13343 National Air Transport 18 Jul 1933 to 30 Apr 1934.
 NC13343 United Air Lines 1 May 1934 to 22 Feb 1937. Converted to 247-D standard 29 Sept. 1935.
 NC13343 Pennsylvania-Central Airlines 22 Feb 1937 to _____.
 CF-BQT Canadian Govt. Dept. of Munitions 1940 (temporary license).
 7637 Royal Canadian Air Force 8 Jun 1940 to Mar 1942.
 CF-BVV Yukon Southern Air Transport 3 Mar 1942 to 1943.
 CF-BVV Canadian Pacific Air Lines 1944 to 1945.
 NC41813 Zimmerly Air Lines Jul 1945 to 27 Sep 1946. Aircraft modified to incorporate a large square window in the entrance door. Log showed 15,297 hrs as of 30 Oct 1945.
 NC41813 Empire Air Lines 28 Sep 1946 to 10 Mar 1948.
 N41813 Lineas Aereas del Pacifico (leased from Scott Aero, Long Beach, Calif. 1950).
 Crashed 1952 returning to L.B. from San Clemente Is.

C/N LICENSE OPERATOR, PERIOD OF USE AND REMARKS

1726 NC13344 National Air Transport 19 Jul 1933 to 30 Apr 1934.
 NC13344 United Air Lines 1 May 1934 to 14 May 1935.
 NC13344 Pennsylvania Air Lines 14 May 1935 to _____.
 NC13344 Inland Air Lines
 CF-BTA Canadian Govt. Dept. of Munitions 1940 (temporary license).
 7655 Royal Canadian Air Force 1940.
 DZ203 Royal Air Force (Research, communications) 1941 to 1948.
 In service with the RAF, this aircraft recorded its 10,000th hour of flight in 1944. Believed to have been scrapped in 1948.

1727 NC13345 Pacific Air Transport 20 July 1933 to 9 Nov 1933.
 Crashed and burned near Portland, Oregon 9 Nov 1933> in dense fog at night. Pilot and 3 passengers killed, 6 injured.

1728 NC13346 Pacific Air Transport 25 Jul 1933 to 30 Apr 1934.
 NC13346 United Air Lines 1 May 1934 to 8 Feb 1937. Converted to 247-D standard 15 Aug 1935.
 NC13346 Pennsylvania-Central Airlines 8 Feb 1937 to _____.
 CF-BQU Canadian Govt. Dept of Munitions 1940 (temporary license).
 7636 Royal Canadian Air Force 1940 to 25 Apr 1942 (scrapped).

1729 NC13347 Pacific Air Transport 26 Jul 1933 to 30 Apr 1934.
 NC13347 United Air Lines 1 May 1934 to 8 Feb 1937. Converted to 247-D standard 27 Aug 1935.
 NC13347 Pennsylvania-Central Airlines 8 Feb 1937 to _____.
 CF-BTD Canadian Govt Dept of Munitions 1940 (temporary license).
 7839 Royal Canadian Air Force 1940 to 1941.
 CF-BTB Maritime Central Airway 17 Nov 1941 to 1945.
 NC13347 Columbia Airlines 1945.
 N3977C Marsh (sprayer) about 1957.
 N3977C Precipitation Control Co. Taft, Calif. 1963.
 N3977C Miller Crop Dusting
 C/n 1829 had logged 16,211 hrs by 14 Dec 1945.

1730 NC13348 Pacific Air Transport 27 Jul 1933 to 30 Apr 1934.
 NC13348 United Air Lines 1 May 1934 to 30 Jan 1937.
 NC13348 Pennsylvania-Central Airlines 30 Jan 1937 to _____.
 42-38274 U.S. Army Air Force (C-73) 14 Mar 1942 to Oct 1944. To Boiling 14 Mar 42, to Ferry Command 22 Apr 42, blown backwards on incline at Hensley Fd 3 May 42, to Ellington 17 Jul 42, to Hensley 9 Oct 1942, to Love Fd 14 Oct 42, and to Class 26, instructional airframe, Oct 1944.

1731 NC13349 Pacific Air Transport 29 Jul 1933 to 30 Apr 1934. Returned to factory on 4 Oct 1933 after minor accident. Re-delivered to PAT 5 Feb 1934.
 NC13349 United Air Lines 1 May 1934 to 13 Jan 1937. Converted to 247-D standard 20 Jul 1935, NC13349 had the D-version cockpit enclosure installed at an earlier date.
 NC13349 National Parks Airways 1935 (leased?).
 _____ Inter-American Aero Travel 13 Jan 1937 to _____.
 _____ AVIANCA.



C/n 1724 as C-73, serial 42-68373, with The Air Transport Command, at McChord Field in July 1944. (P. M. Bowers')



C/n 1725 with Lineas Aereas Del Pacifico at La Paz, Baja California on 30 May 1950. (Photo - Robert G. Hufford)



C/n 1729 with modified nose, extra radio equipment and spray attachments. (Photo - Peter M. Bowers)



C/n 1730 is seen in the silver and crimson trim of Pennsylvania-Central Airlines. (Photo - Gordon S. William

WINTER - 1964

C/N	LICENSE	OPERATOR, PERIOD OF USE AND REMARKS	C/N	LICENSE	OPERATOR, PERIOD OF USE AND REMARKS
1732	NC13350	Pacific Air Transport 8 Aug 1933 to 30 Apr 1934.	1736	NC13354	1 Aug 1937.
	NC13350	United Air Lines 1 May 1934 to 30 Jan 1937. Converted to 247-D standard 8 Aug 1935.		NC13354	Western Air Express 1 Aug 1937 to 20 Jul 1942.
	NC13350	Pennsylvania-Central Airlines 30 Jan 1937 to ____.		42-68854	U.S. Army Air Force (C-73) 20 Jul 1942 to Jun 1944. To Lockheed (Central Dist.) 20 Jul 42, to Burbank 14 May 43, to Wien, Alaska.
	CF-BQV	Canadian Govt Dept of Munitions 1940 (temporary license).		NC13354	Wien Alaska Airlines Jun 1944.
	7639	Royal Canadian Air Force 8 Jan 1940 to 1941.		C/n 1736	had logged 20,164 hours as of 23 Oct 1945, and 22,000 hours by Feb 1946.
	CF-BVT	Yukon Southern Air Transport 23 Dec 1941 to 1943.	1737	NC13355	Boeing Air Transport 18 Aug 1933 to 30 Apr 1934.
	CF-BVT	Canadian Pacific Air Lines 1944 to 1945.		NC13355	United Air Lines 1 May 1934 to 27 Dec 1936.
	NC41812	Dan B. Southard, New York City 1945 to 1948. Registration cancelled 9/23/48.			Converted to 247-D standard 12 Sep 1935. Crashed about two miles southwest of Newhall, Calif, 27 Dec 1936, killing all 12 aboard. Aircraft hit mountains on its approach.
1733	NC13351	Pacific Air Transport 9 Aug 1933 to 30 Apr 1934.	1738	NC13356	Varney Air Lines 18 Aug 1933 to 30 Sep 1933.
	NC13351	United Air Lines 1 May 1934 to 22 Mar 1937. Converted to 247-D standard 9 Sep 1935.		NC13356	Boeing Air Transport 1 Oct 1933 to 30 Apr 1934.
	NC13351	Pennsylvania Central Airlines 22 Mar 1937 to ____.		NC13356	United Air Lines 1 May 1934 to 16 May 1935.
	42-38275	U. S. Army Air Force (C-73) 14 Mar 1942 to 6 Sep 1942. To Boiling 14 Mar 42, to Ellington 4 Apr 42, to Ferry Command 22 Apr 42, to Ogden 28 Jul 42, to Class 26, instructional air frame, at Ogden, 6 Sep 1942.		NC13356	Pennsylvania Air Lines 16 May 1935 to
1734	NC13352	Pacific Air Transport 10 Aug 1933 to 30 Apr 1934.			Peter S. Beasley, Detroit 1937
	NC13352	United Air Lines 1 May 1934 to 29 Jan 1937. Converted to 247-D standard 20 Jun 1935.		XA-BFK	Capt. P.A. Sixto del Rio 1937. Intended for Spain, c/n 1738 was seized by Mexico and sold at auction.
	NC13352	Western Air Lines (leased from UAL).		XA-BFK	Cia Mexicana de Aviacion, S.A. 1937 to 1941.
	NC13352	Pennsylvania-Central Airlines 29 Jan 1937 to Jun 1942.		XA-BFK	Aeronaves de Mexico, S.A. 1941 to 1946.
	42-57508	U.S. Army Air Force (C-73) 14 Jun 1942 to 22 Jul 1944.		XA-BFK	Lineas Aereas Guerrer Oaxaca 1946 to about 1950.
	NC13352	Woodley Airways 22 Jul 1944 to 23 Aug 1945.			This plane was involved in an incident near Harpers Ferry, West Virginia, while in the service of PAL. Three passengers were injured due to extremely rough air although the aircraft was not damaged. When C/n 1738 arrived in Mexico it was still in the original 247 configuration. Its end came in 1950 by crashing in Mexico.
	NC13352	Pacific Northern Airlines 23 Aug 1945 to Feb 1946.	1739	NC13357	Varney Air Lines 29 Aug 1933 to 30 Sep 1933.
1735	NC13353	Boeing Air Transport 11 Aug 1933 to 30 Apr 1934.		NC13357	Boeing Air Transport 1 Oct 1933 to 23 Feb 1934.
	NC13353	United Air Lines 1 May 1934 to 26 Jan 1937. Converted to 247-D standard 5 Oct 1935.			On 23 Feb 1934, NC13357 disappeared on a flight out-bound from Salt Lake City. Three days passed before the wreckage was found, due to a raging blizzard that hindered the search parties. The plane had hit the ground at a steep angle, killing all 8 aboard.
	NC13353	Western Air Express (leased from UAL).	1740	NC13358	National Air Transport 22 Aug 1933 to 30 Apr 1934.
	NC13353	Pennsylvania-Central Airlines 26 Jan 1937 to ____.		NC13358	United Air Lines 1 May 1934 to 25 Mar 1937. Converted to 247-D standard 21 Apr 1935.
	CF-BTC	Canadian Govt Dept of Munitions 1940 (temporary license).		NC13358	Pennsylvania-Central Airlines 25 Mar 1937 to 14 Jun 1942.
	7840	Royal Canadian Air Force 9 Oct. 1940 to Feb 1942.		42-57509	U.S. Army Air Force (C-73) 14 Jun 1942 to 31 Aug 1943. Wrecked AAB Romulus, Mich., 23 Oct 42 from propwash of other aircraft, to Class 26, instructional air frame, 31 Aug 1943.
	CF-BWV	Quebec Airways 28 Feb 1942 to 1943.	1741	NC13359	National Air Transport 25 Aug 1933 thru 30 Apr 1934.
	CF-BWV	Canadian Pacific Air Lines 1944 to 1945.		NC13359	United Air Lines 1 May 1934 to 31 Mar 1937.
	NC41814	Zimmerly Air Lines Jul 1945 to 27 Sep 1946.		NC13359	Western Air Express (leased from UAL).
	NC41814	Empire Air Lines 28 Sep 1946 to 10 Mar 1948.		NC13359	Pennsylvania-Central Airlines 31 Mar 1937 to 16 Apr 1941.
	N41814	Vest Aircraft & Finance Co. 1951.			Crashed near Charleston, W.Va., 16 Apr 1941 injuring
	XA-KAN	Aero Transportes, S.A. Jun 1951 (de la Pena).			
	XA-KAN	Servicios Aereos de Chiapas, S.A. 1951 to at least 1959.			
	C/n 1835	had logged 16,922 hours by 30 Oct 1945.			
1736	NC13354	Boeing Air Transport 15 Aug 1933 to 30 Apr 1934.			
	NC13354	United Air Lines 1 May 1934 to 31 Dec 1935.			
	NC13354	National Parks Airways 31 Dec 1935 to			



C/n 1735, NC41814, with Bert Zimmerly at Boeing Field during 1946. (Photo - Boeing #P6164)



C/n 1736 serving Western Air Express in the late 1930s with spinners to avoid icing prop mechanism. (Bowers)



C/n 1738 was awaiting shipment to Spain in 1937 when the Mexican government confiscated it. (J. Villela, Jr.)



D-AGAP was c/n 1944 and one of two Lufthansa 247s with 247-D windshields.



First of the Boeing transports to be built from the start as a 247-D, C/n 1947 is seen on 21 September 1934 at Boeing Field. This same aircraft is the subject of the three-view appearing on pages 268-69. (Photo - Boeing #7603B)



C/n 1953 with Col. Roscoe Turner at controls during the checkout period before MacRobertson Race. (Williams)



C/n 1953 after MacRobertson Race in 1935 and in service with United Air Lines. (Photo - Peter M. Bowers)



C/n 1953, ADAPTABLE ANNIE, in CAA markings. Rudder assembly cannibalized from modified 247. (P. M. Bowers)



Last of the 247s, c/n 1958 with United before being converted to UAL's famous flying lab in 1937. (Williams)

C/N LICENSE OPERATOR, PERIOD OF USE AND REMARKS

1741 two crew members and six passengers. One crew member was unhurt. The right-hand engine lost power 5 seconds after takeoff and the aircraft crash-landed in a wooded area.

1944 NC90Y United Aircraft Export, 16 Feb 1934. D-AGAR Lufthansa, 1934 to _____. C/n 1944 and 1945 differed from other 247s in having the aft-sloping wind-shield of the 247-D.

1945 NC91Y United Aircraft Export, 23 Feb 1934. D-AKTN Lufthansa, 1934 to _____.

1946 X12772 Flight tested for Lufthansa in Sep 1934 but never delivered. It was stored in the factory for about one year. NC92Y Believed intended for Lufthansa export via U.A.E., apparently not used. NC2666 Phillips Petroleum, 16 Sep 1935 to _____. Named W00LAR0C III. CF-BRM Dept. Munitions & Supply, 1940 (temp. license). 7635 Royal Canadian Air Force, 11 Jul 1940 to May 1942. CF-BVZ Canadian Pacific Air Lines, 16 May 1942 to 1945. NC41819 Zimmerly Air Lines, Jul 1945 to 27 Sep 1946. NC41819 Empire Airlines, 28 Sep 1946 to 10 Mar 1948. This aircraft had 4,868 airframe hours on 30 Oct 1945.

1947 NC13361 United Air Lines 21 Sep 1934 to 8 Jul 1942. Named CITY OF PENDLETON about 1940. 42-68364 U.S. Army Air Force (C-73) 7 Aug 1942 - Mar 1945. To Eastern Airlines 9 Aug 42, to Patterson. 1 Aug 43, to Defense Supply Corp. Mar 1945. XA-FEL Servicios Aereos Panini, Jun 1945 to July 1949. XA-D0Z Servicios Aereos Panini, Jun 1945 to Jul 1949. Boeing records show XA-D0X. XA-D0Z Aerovias Reformas, S.A. Jul 1949 until Sep 1955) when registration was cancelled. Reported as: To be shipped to Florida in 1960.

1948 NC13362 United Air Lines 2 Oct 1934 to 30 Jul 1938. NX13362 Paramount Pictures for "Men With Wings" 1935. NC13362 Western Air Express (leased from UAL). C-148 SCADTA 30 Jul 1938 to 1939. C-148 AVIANCA, 1939 to at least 1945. 15,145 hours logged as of 30 Sep 1945.

1949 NC13363 United Air Lines 5 Oct 1934 to 24 Feb 1937. NC13363 Wyoming Air Service 24 Feb 1937 to _____. 42-68859 U.S. Army Air Force (C-73) 20 Jul 1942 to 21 Apr 1944. To Cheyenne 20 Jul 42, to Defense Supply Corp. 21 Apr 1944. C-144 AVIANCA, 1945. Named RODRIGO DE BASTIDAS by AVIANCA. 16,791 hours logged as of 30 Sep 1945.

1950 NC13364 United Air Lines 10 Oct 1934 to 4 Sep 1937. NC13364 Western Air Express (leased from UAL). Inter-American Aero Travel & Supply 1937. C-_____ SCADTA 4 Sep 1937 to 1939. C-_____ AVIANCA 1939 to _____.

C/N LICENSE OPERATOR, PERIOD OF USE AND REMARKS

1951 NC13360 United Air Lines 23 Apr 1934 to 1 May 1936. Displayed at "A Century of Progress" exposition in Chicago during mid-1934 after which it was brought up to 247-D configuration. For its April delivery NC13360 was qualified under ATC 500. NC13360 Wyoming Air Service 1 May 1936 to 1 Jul 1938. NC13360 Inland Air Lines 1 Jul 1938 to _____. 42-68336 U.S. Army Air Force (C-73) 30 Jun 1942 to Oct 1944. XA-DOM Servicios Aereos Panini Nov 1944 to _____. XA-DOM Aerovias Reformas S.A., (leased _ to _____. N2547B Jesse Bristow, Florida 9 Jul 1956 to _____. N7836B International Air Service (clipped wings) about 1956-57. Latana, Florida. HP-231 Victor Inchausti, Panama 1957 to _____. Note: A photo of HP-231 appears in the April 1957 Air Pictorial. FAA records show that N7836B was not actually sold in Panama until 1958.

1952 NC13366 United Air Lines 28 Oct 1934 to 30 Sep 1936. NC13366 J. C. Elder, New York City 30 Sep 1936 to _____. Modified about Jan or Feb 1937 and designated model 247-Y. Fitted with two 50 Cal. MG fixed in the nose and one flexible 50 Cal. in the dorsal position plus four auxiliary fuel tanks in the fuselage.

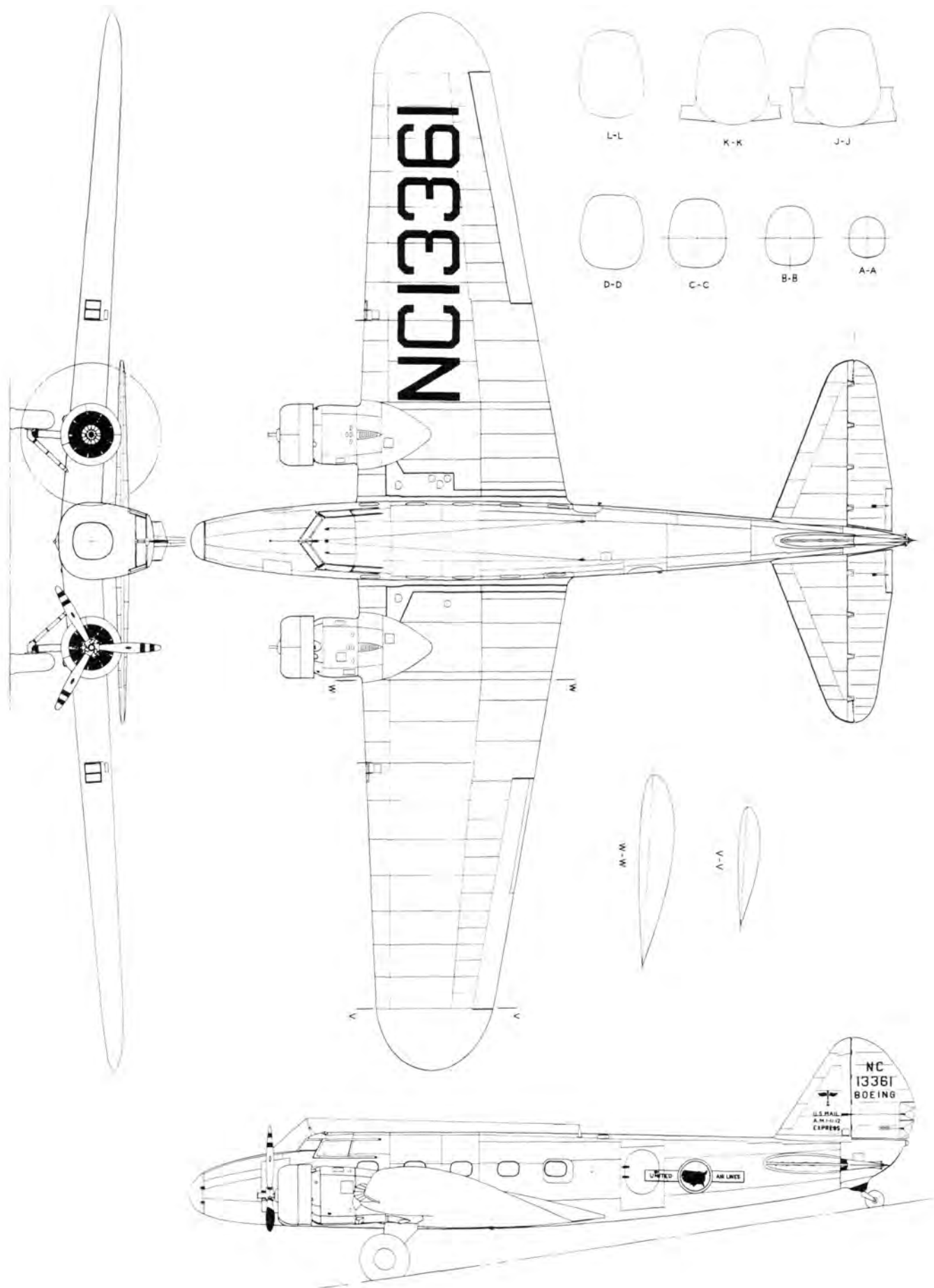
1953 _____ United Air Lines Sep 1934. NR257Y Roscoe Turner (leased) Oct 1934 to Dec 1934. NC13369 United Air Lines 31 Dec 1934 to 11 Jan 1937. NC13369 Western Air Express (leased from UAL). Union Electric Light & Power Co. (Exec.) 11 Jan 1937 to 1939, St. Louis, Mo. NC11 Dept of Commerce - Air Safety Board, then the CAA (A209) 30 Aug 1939 to 1953. N11 National Air Museum (Smithsonian) 17 Jul 1953 and on. This aircraft became known as ADAPTABLE ANNIE during its use with the CAA.

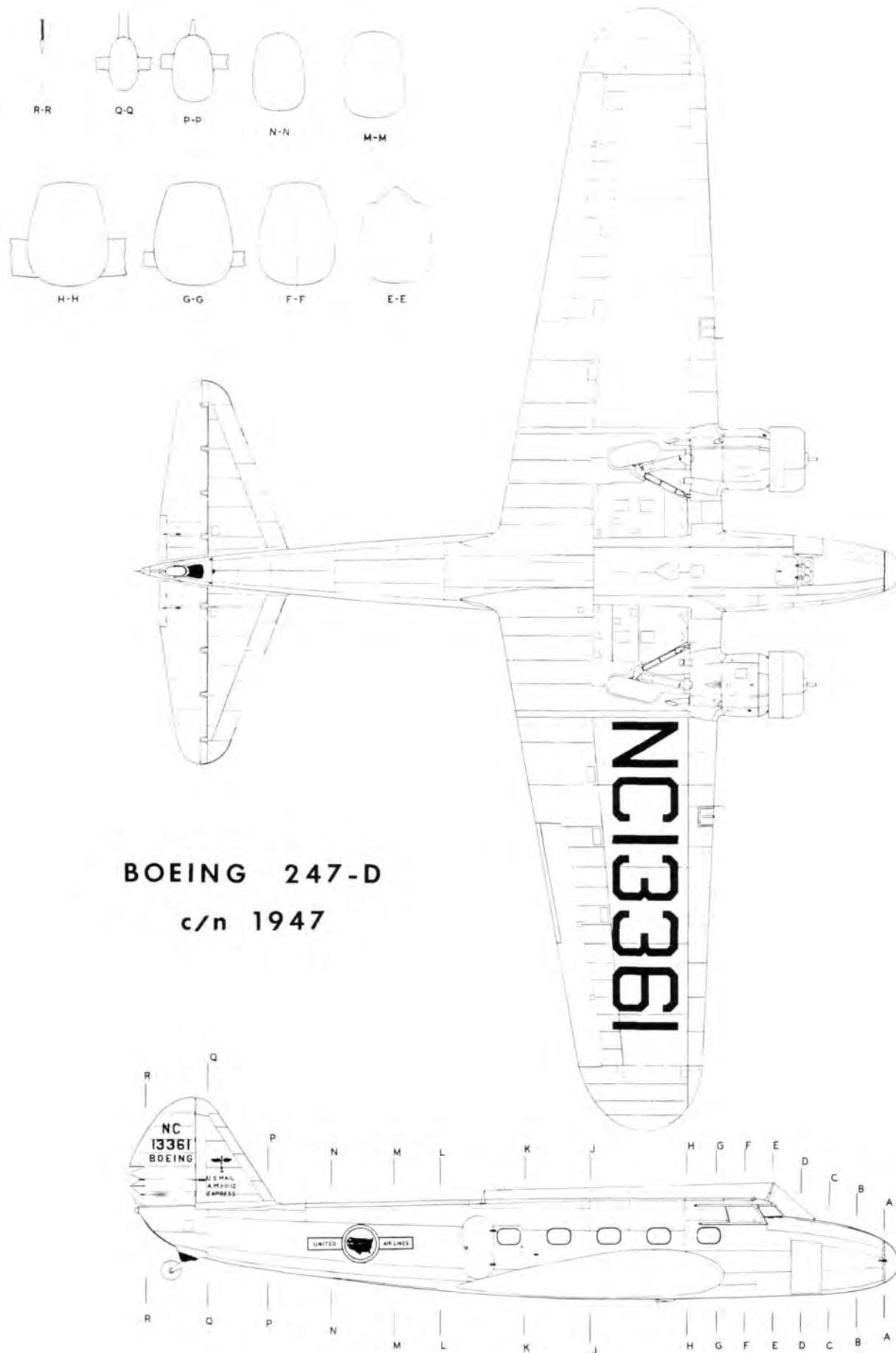
1954 NC13367 United Air Lines 1 Nov 1934 to 30 Jul 1938. NC13367 Western Air Express (leased from UAL). C-_____ SCADTA 30 Jul 1938 to 1939. C-_____ AVIANCA 1939 to _____.

1955 _____ J. A. Barr, Shanghai, 9 Nov 1934 (shipping date). _____ Marshall Chang Hsueh-liang, Dec 1934 to Dec 1936. _____ Government of China, Jan 1937 to late 1937. Informally named BAI YING (WHITE EAGLE). This was a 247-D with the cabin specially fitted with a bunk and 6 seats. This airplane was bombed to destruction at Ichang, China by the Japanese a few months after full-scale war broke out in July 1937.

1956 NC13368 United Air Lines 22 Nov 1934 to 31 Oct 1936. _____ George Beidermann, 1945. _____ Inter-American Aero Travel Co. 31 Oct 1936 to _____.

Continued on Page 270





BOEING 247-D
c/n 1947

C/N LICENSE OPERATOR, PERIOD OF USE AND REMARKS

- 1957 NX13370 Used by Boeing for flight testing 1934 to 1935.
 NC13370 Western Air Express 6 Sep 1935 to 15 Dec 1936.
 This airplane crashed 15 Dec 1936 into Hardy Peak near Alpine, Utah, killing the crew of three and 7 passengers. Cause was attributed to the inability of the pilot to identify the south leg of the Salt Lake City range due to local static conditions which rendered both receivers in the aircraft inoperative. It is believed that this aircraft was intended for United with license NC13369 originally being used. Photos show NC13370 painted over the earlier number which was then used on C/N 1953.
- 1958 NC13365 United Air Lines 23 Oct 1934 to 1937.
 NC13365 Western Air Express (leased from UAL).
 NX13365 United Air Lines (Flight Research) 1937 to 26 Oct 1945.
 XA-FIH Lineas Aereas Mexicanas, S.A. 26 Oct 1945 to Dec 1947.
 Airframe hours totaled 8,162 as of 6 Nov 1945. Named ESTADO DE SINALOA by LAMSA.
 XB-LID Ing. Struck, Dec 1947 to Jul 1949.
 XB-LID Ing. P.A. Claudio Robles Ochoa, 11 Jul 1949 to 1951.
 XA-JUV Taxis Aereos Nacionales, S.A. 1951 to 1952.
 This aircraft was wrecked at takeoff at Mexico City on 5 May 1952 near a lake. No serious injuries.

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 "Boeing Pioneer" RAF FLYING REVIEW Vol. XVII No. 6 (Feb. 1962) p. 45: General info on 247. Two photos, NR257Y and DZ203.
 "Empire Expands with 417*s" BOEING MAGAZINE Vol. XVI No. 9. Description of modifications to NC41814 and the operations of Bert Zimmerly's Empire Air Lines.
 "Turner, Pangborn, Boeing & Co.", WESTERN FLYING Vol. 14 No. 11 Nov. 1934: Contemporary story of 247-D in the MacRobertson Air Race.
 UNITED AIR LINES NEWS August 1942 p. 6. Photo of "City of Bethlehem" as the last 247-D turned over to the USAAF.
 UNITED AIR LINES NEWS August 1934 - NC13301 to be delivered as 247-E after completion of testing by Boeing.
 UNITED AIR LINES NEWS March 1934 - Story on static test of NC13322 by the Army Air Force Materiel Div. at Dayton.

III. NEWSPAPERS

BOEING NEWS Feb. 21, 1964 Vol. 5 No. 8 - Story about Wien-Alaska's NC13313 modified at Boeing.
 THE CHINA PRESS, Jan. 6, 1935 - Front view photo of the "Young Marshal's" 247-D. May 2, 1935 247-D establishes 167 mph speed record between Hankow and Kweiyang.
 THE CHINA PRESS, April 18, 1935 - Engine power temporarily lost while over Kweichow (Communist territory) in bad weather. Plane reached safety.
 "Martin Johnson, Explorer, Dies of Airplane Injuries" THE SEATTLE TIMES, Jan. 13, 1937 Vol. LX No. 13 - Accident report. Second death among the 13 persons aboard. Hit same area as WAE plane less than a month earlier.
 Osa Johnson had knee and head injuries.
 NORTH CHINA DAILY NEWS, June 14, 1935 - Clipped side view photo of 247-D in China shows no markings.
 "Passenger Wanders in Mountains; 4 Injured" SEATTLE TIMES June 8, 1934 Vol LVII No. 159 - Account of NC13302 accident with comments - wings torn off but cabin stayed intact. No fire.
 THE SHANGHAI EVENING POST Dec. 17, 1934 - Describes test flight plans for Marshal Chang's 247-D.
 THE SHANGHAI EVENING POST, May 29, 1935 - Explains name "Bai Ying" given to the 247-D by the Chinese.

IV. OTHER SOURCES OF INFORMATION

Harl V. Brackin Jr., Administrator of Historical Services, The Boeing Company, James A. Morrow, Peter M. Bowers, Gordon S. Williams, United Air Lines, Western Air Lines, West Coast Airlines, AVIANCA, Federal Aviation Agency, Oklahoma City, Al Adcock, Canadian Pacific Air Lines, Marily Young, and Pacific North Airlines.

EDITOR'S NOTE: Some eighteen months ago I welcomed a new Member to the Society, Dr. Gene Rideout. He was a

man whose practice left little time for his two favorite hobbies—Porsche cars and airplanes, particularly Boeing airplanes, as he lives in the State of Washington. After seeing his first JOURNALS, Gene asked if we had carried articles on the famous Boeing transport aircraft. Outside of the 307, we had not. This fact prompted Gene to begin beating the drum for something along this line to be written, although, due to his practice, he could not do it himself. His promptings and his enthusiasm were soon focused on Harl Brackin of Boeing, who readily agreed to support and strive for such articles, and on Bob Hufford, JOURNAL Transport Editor. As a first step, Harl set up a group of A.A.H.S. Boeing Members, including himself, Gordy Williams, Pete Bowers and Vic Seely, to study the subject and see it through. With Bob Hufford guiding the efforts for the JOURNAL, the group decided that the best aircraft for treatment would be the Boeing 247, and Vic took over the immense job of recording the history of this type. All parties concerned chipped in with suggestions, notes, photos and what other help they could give, and the idea that had begun with Gene Hideout came to life. After one year, the story of the Model 247 was completed, sent to Bob Hufford and turned over to me so that it might appear here. However, one major hole remained in the story. Research had failed to link the 247 c/n's to Army Air Force serial numbers, so a rush call went to Hal Andrews to check copies of the AFLC record cards at the Smithsonian In-

stitution in an attempt to get the necessary information. Hal went through the cards and found the information which linked serial numbers and c/n's, and much of the other history of the C-73s. In a dozen cases, though, facts on separation date from the AAF were not listed, and a rush call to Royal Frey of The Air Force Museum was made, another search carried out and then the last facts were to hand. Thus, with such expert assistance, the 247 story was put into print here. It is a great and remarkable story that stands as a tribute to the work of Vic Seely and all those who helped bring it to life. It is not finished, however. As in any endeavor of this scope, parts of the story are in doubt or unknown, and I hope that anyone who can add information or photos on the 247's history will do so by contacting me. The additional information will then be carried in a 1965 issue of the JOURNAL.

ABOUT THE AUTHOR: Victor D. Seely was born 36 years ago; exactly half that time ago he joined Boeing in the Engineering Department. His first detail design work was on the B-50. He has also worked on the B-29, B-54 and B-52 and is now involved with Minuteman ground electronics. A collector of books, magazines, photos and 1/72 scale model kits, this article is his first attempt to write and specialize on a single aircraft type, but, as he says himself, "I was ably assisted by Bowers, Williams and others in compiling the data."



On this page are four Boeing 247s that have not been identified as to their constructor/number. Can anyone help in identifying these planes, such as N1060M seen above? (Photo - Peter M. Bowers Collection)



This Boeing 247 found its way into the service of the Reno Casino. Name on side of N91R, in color stripe, reads: "Reno Champagne Cruiser, Colonial Beach, Va." (Photo - Peter M. Bowers Collection)



Between the mid-1930s and the mid-1940s, at least 13 Boeing 247s were operated in Colombia by AVIANCA. The exact identity of N1060M, above, is unknown. (Boeing, Avianca via G. S. Williams, P36060)



C/n of this AVIANCA Boeing 247-D is also unknown though it bears the Conquistadore name: QUESADA. At least 3 247-Ds with the aft sloping windshield saw service with AVIANCA. (Photo - Boeing, via Avianca, P30623)