



TRANSPORTS



The CITY OF OAKLAND, Martinliner 202, N93042, originally purchased by Northwest Airlines, shown here in California Central Airlines colors.

The "Martinliner"

By CHARLES E. ANDERSON

Shortly after VE Day in 1945, Martin management decided that the war would end soon and that a jump could be had on the rest of the aircraft industry in capturing postwar airliner markets if a design were started immediately. Therefore, a small group of engineers headed by Allan I. Roshkind was moved to downtown Baltimore away from government inspectors and the confusion of a wartime aircraft plant, and they started the design of a new airliner. By VJ Day, some months later, a wooden mock up was completed.

Several facts had been kept in mind during early design stages. It was known that the DC-6 would soon be available using R2800 engines, so it was decided that the new Martin "Mercury" would use the same engine. Since the DC-6 obviously filled the need for a four engine, long haul airliner, it was decided to concentrate on the short haul, two engine market.

Many airlines were contacted in a search for a buyer, but the principal contact was with American Airlines, and the 202 was designed almost expressly to their specifications in close cooperation with their engineers. American wanted an airplane which could be guided down the I.L.S. course by rudder movement alone, and as a result, it was specified that the airplane be unstable laterally. Very little dihedral (3°) was used and a small vertical stabilizer designed. During later certification tests, the CAA would not tolerate such instability, so more dihedral had to be added as well as

a larger vertical fin and a dorsal fin. Production on 202's so far advanced when the change became necessary that NX93037, the number one Northwest ship, had been completed and was flying.

The familiar tail loading ramp on Martinliners was also not part of the original design, and early design sketches show front loading doors on right or left sides and a rear door on the left side. Some models were even built with self-contained stairs in the left front door although these have probably been removed now (N174A of Allegheny Airlines was built with these stairs). The tail ramp became a part of the design at the insistence of Pennsylvania Central.

Market surveys by Martin indicated that the airlines wanted a simple, even austere, airplane which would require as little maintenance as possible, be easy to service on the ground, and which could offer "no-frills" service. Pressurization was not required since the aircraft were to be up and down too often to need it.

The survey was about as misleading as a survey could be, for the airlines rapidly turned to luxury and first class service during the late 40's, and only today is the air shuttle or air bus idea again starting to catch hold. Acting upon the survey, however, Martin developed several innovations which are considered standard equipment today. One major advantage Convair attained over Martin was the introduction of the 240 with cabin pressurization.

The announcement by American Airlines that they were going to buy Convair 240's came as a blow to Martin, for the 202 had essentially been designed to American's specifications, and Martin had assumed a large order was a foregone conclusion. With the loss

The TRANSPORT Section of this Journal is edited by Robert G. Hufford. Editorial Material for publication here should be submitted to him at 4908 Wortser Ave., Sherman Oaks, Calif.

of the order, Martin tried to round up new orders and finally sold a batch of 202's to Pennsylvania Central Airlines as well as a group to Northwest Airlines and LAV of Venezuela. The final design features of the airplane were made to Pennsylvania Central specifications, and this included the rear loading ramp which had been opposed by Martin engineers as being wasteful of weight, since a complicated fuselage structure was necessary to accommodate it.

The final blow came to Martin when Pennsylvania Central finally announced that they could not afford the new airliner and all promises were off. This left only Northwest, LAV, and LAN of Chile as firm customers, and even LAV cut back its original order to two airplanes. The Pennsylvania Central airplanes were finally sold to NWA, giving a grand total of 31 production airplanes and two prototypes.

United Air Lines had also been approached with the 202, but they wanted an airliner with more speed, pressurization, and better suited to United's routes. Working with Martin, they put over a million dollars of United's money into what was to have been the 303. A prototype was built and flown in July of 1947, but shortly after this United withdrew from the project. United Air Lines was to have bought thirty-five 303's, so when they cancelled out it killed the project. Even though a few more had been sold to NWA and others, there were not enough orders to warrant the tooling investment. The 36-passenger 303 was to have been 20 m.p.h. faster than the 202, and pressurized.

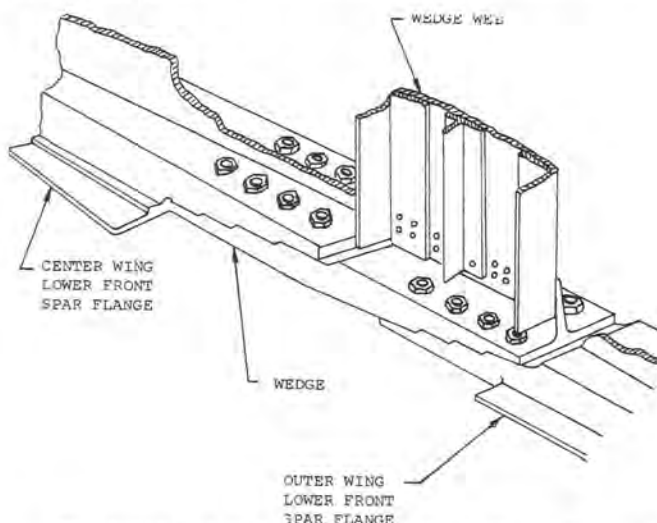
The Martin Company asked the Internal Revenue Service for a tax write-off on the 303, but the request was refused on the grounds that the one prototype plus the engineering data constituted a capital asset. Then Martin offered the 303 prototype to the military services at no cost if a tax loss could be taken. Again the Internal Revenue Service said, "no". They insisted that to take a loss, Martin would be obliged to destroy all of its engineering data as well as the airplane. As a result, all records were destroyed and the airplane reduced to scrap. For this reason, practically no record exists today of the 303. Neither the serial number or the registration of the 303 is known, although it might be the missing serial number 9124. FAA files show that N30300 was never used nor was NC50100 which was used in an artist's sketch of the 303.

The 202 was finally certified on 13 August 1947, and NX93037 was delivered to Northwest on August 2nd for crew training while still in NX category. The prototypes had accommodations for 40 passengers, and the original NWA order for ten airplanes was filled with aircraft in the 40-passenger configuration. A lavatory was at the top and to the right of the rear ramp, and a small galley was to the left of the stairs. There were ten rows of seats. Forward of the Sta. 304 bulkhead was a baggage compartment above which were the radio racks. To the left of the aisle was another smaller baggage compartment extending from the floor to the ceiling, while forward of that was the exit door. This arrangement did not work out well because stewardesses found that it was necessary to pile things in the aisle when using the galley, and this blocked the lavatory. In addition, no coat racks had been provided, and because NWA operated in some of the coldest regions of the U.S.A., passengers would board the 202's with all manner of coats and sweaters and then have no place to put them. Consequently, eleven of the early airplanes were returned to Martin and the interiors changed to a 36 passenger layout. The lavatory remained unchanged, but the aft galley was replaced by a carry-on baggage compartment and a jump seat for the stewardess. The front row of passenger seats was removed and the bulkhead moved back to station 346. A floor to ceiling baggage compartment was added on the right in the new space, while a coat rack was placed to the left in the new space. The left baggage compartment, however, was replaced with a galley. Later operators of the 202's removed the added baggage space,

moved the bulkhead forward again, and installed the tenth row of seats after cutting a new window.

The 202's had not been in service very long with Northwest when a serious flaw appeared in the design. Northwest's Flight 421, aircraft NC93044 enroute from Chicago to Minneapolis on 29 August 1948, encountered turbulence and the left wing tore loose outboard of the engine. A few hours after the crash of Flight 421, another 202 traveled the same route and reported only average turbulence but with two rather severe jolts. This same airplane made another flight to Duluth and back to Minneapolis, and then a mechanic servicing the airplane noticed a discontinuity in the right wing. Inspection showed the front spar lower flange had failed exactly where NC93044's spar had failed.

To increase lateral stability, a step-shaped wedge had been added to the bottom of the wing spars at the junction of the outer wing panels and the center section to increase the dihedral by 7°. Minute investigation of the damaged spars showed that fatigue cracks had developed in the spar flange in the corner of one of the steps.



The design of the wedge had caused stress concentrations in the step corners where inadequate fillet radii had been provided, and the wing of NC93044 had failed after only 1321 hours of flight. Ironically, a test wing had been cycled 1885 times from 30% to 100% load and passed as satisfactory, after visual inspection. This wing was re-inspected after the accident, and this time the protective chromate paint was removed and the root fitting caustic etched. Fatigue cracks were clearly visible.

All NWA 202's were returned to the Martin Company for rework of the root fitting, and at the same time numerous other modifications were carried out including such items as extending the oleo struts by 2" on the landing gear to increase prop clearance. Engines on some aircraft were tilted up by 1-1/2°, and when this was done, an A was placed after the serial number.

Several other items found on the 202 were and still are troublesome, but were not serious enough to warrant mandatory changes. One such item involves the interesting arrangement on the 202 whereby the angle of incidence of the horizontal stabilizer is varied as the wing flaps are lowered or raised. The idea was carried on to the 404 but with certain very desirable changes. The 202 system consisted of torque tubes which ran back inside the fuselage, thus providing a positive mechanical link between flaps and stabilizer. Proper gearing, bearings, and universal joints were provided to translate flap motion into stabilizer motion. The system was extremely noisy, but the more serious problem was that the shafts could be broken if direction of travel of the flaps was reversed while the flaps were in motion, thus leaving the pilot unable to return the stabilizer to a neutral position. The 404 is im-

proved in this respect by having an electrical servo system which drives the stabilizer and does not use mechanical linkages.

A close look at the wing of all versions of the Martinliner shows that the aileron area is quite small. It apparently is adequate although the controls are very heavy. One pilot reports that if a wing is to be kept down in a cross wind landing and the wheel pulled back to keep the nose up, the stick pressure is excessive and two hands are needed on the control wheel. Boost was added to the 404 which helps a great deal. Because of the large wing dihedral, the Martinliner flies as if it were in the bottom of a large rut.

Visibility out of the 202 cockpit is terrible! It reminds one of the view seen through the slits in an armored tank. The 404 is slightly better although this may be partially psychological because the roof is higher, accomplished by eliminating the two eyebrow windows. This was no great loss, however, for they leaked great quantities of water when flying in rain.

The crash of N93044 through the loss of its wing was just one of many troubles that plagued not only the 202 but Northwest Airlines in general. On the same day that N93044 crashed, another NWA 202 lost its forward cargo door which in turn damaged the fuselage, wing center section, and the horizontal stabilizer. Fortunately a safe landing was made at Spokane, Wash. Other NWA 202 accidents in 1950 were:

January 17: The nose gear failed when the aircraft veered from the runway and struck a snow bank. Cold weather caused unequal lag in propeller reversal during the landing roll at Kalispell, Montana.

March 7: N93050 was attempting an IFR approach to Minneapolis but was off the ILS course and struck a 70' high flag pole with the left wing. The pilot continued, attempting to circle for another approach, but the left wing eventually failed, and the aircraft struck a house killing its two occupants as well as 13 persons aboard the plane. Minneapolis, Minn.

September 4: A hydraulic line broke and allowed complete loss of hydraulic pressure. The cockpit filled with smoke, so the pilot aborted the take off and reversed the propellers. A slight downhill gradient to the runway permitted the brakeless aircraft to strike a culvert. Billings, Montana, N93051.

October 9: The gear was not down and properly locked, and it retracted on the landing roll. Detroit, Michigan.

October 13: A propeller on N93037 reversed accidentally on a crew training flight, and the aircraft dove into the ground killing its 6 crew members. Almelund, Minnesota. A similar reversal had occurred during certification flying of the prototype and the aircraft was so difficult to control that the test pilot made an emergency landing at a private strip.

November 6: N93040 struck a mountain in IFR conditions during an approach to Butte, Montana.

After the unexplained fatal dive of N93054 in January, 1951, near Reardon, Washington, Northwest management decided it had had enough of the 202, and plans were made to dispose of the remaining fleet of 20 aircraft. It may possibly have been a hasty decision, for the planes gave excellent service later in the hands of other operators. One often heard theory for the reason behind the Northwest debacle was that 202 maintenance was neglected because the bigger and more troublesome Boeing 377's had been delivered at about the same time and were requiring the services of the best mechanics. It seems more likely, however, that Northwest simply paid the price of introducing a new airliner and had a string of bad luck in addition.

In late 1951, five aircraft were sold to California Central Airlines in California to be used in intra-state service between San Diego, Los Angeles, and San Francisco, and the remaining fifteen were both sold and leased to Transocean Airlines.

The five Cal-Central 202's flew between San Diego, Los Angeles, San Francisco, and Oakland until the firm was disbanded. Of these five, three were sold to Allegheny Airlines and formed the nucleus of that airline's future Martinliner fleet. One went to Southwest Airways (later to become Pacific Airlines) and became their fourth 202. The fifth airplane was sold back to the Martin Company where it joined the prototype 404, as a corporate business airplane.

The fifteen 202's leased or sold to Transocean Airlines led varied lives, and at this time the complete history of their activities for Transocean is not known. As an example, Transocean obtained a contract from the Japanese Government to assist in the re-establishment of Japan Airlines. To do this, five 202's were used on domestic routes and larger ships were used on international routes. (N93041, N93043, N93049, N93060, and N93061.) N93043 crashed in April, 1952 in Japan, and the remaining four returned eventually to the United States after having been sold to Southwest Airways to start their Martinliner fleet. The ships were ferried back from Japan with the aid of borrowed Northwest pilots and with Southwest pilots serving as copilots.

One of the Transocean 202's spun out of steep approach turn at Tucumcari, New Mexico, killing 1 of the 26 military passengers and 3 crew members, reducing the number of remaining domestic 202's to eighteen. The remaining nine Transocean 202's were sold to Pioneer Airlines in Texas where they operated without serious trouble until Pioneer was absorbed by Continental Airlines in 1954.

With the union of Pioneer and Continental, the Martins were transferred to Pioneer Aeronautical Services for disposal. In due time Allegheny Airlines purchased five, Pacific bought three, and one was retained by Pioneer Aeronautical Services and leased to the Martin Company where it was used as a flying test laboratory for electronic equipment until 1960.

Both Eastern Airlines and TWA had shown interest in the Martinliner, but they did not like its available payload and range nor the lack of pressurization. Martin engineers decided they could increase the gross weight to 44,900 pounds if R2800-CB16 engines were fitted, the fuselage lengthened 39" and pressurized, and certain structural beefing up accomplished thus creating Model 404. Payload would be increased by 3000 pounds and another 350 gallons of fuel could be carried. Many other things would be changed such as heater systems, aileron boost, cockpit layout, and various system components, but externally the 404 was hard to distinguish from the 202.

	202	303	404
Empty weight	24,660 lbs.	21,699 lbs.	29,126 lbs.
All up weight	38,000 lbs.*	35,000 lbs.	44,900 lbs.
Maximum landing weight	36,500 lbs.*	34,000 lbs.	43,000 lbs.
Engines	R2800-Cal8	R2800-CB15	R2800-CB16
Length	71', 4"	71', 4"	74', 7"
Height	28', 5"	26', 9"	28', 5"
Span	93', 3"	89', 4"	93', 3"
Wing Area	864 sq. ft.	925 sq. ft.	864 sq. ft.
	*Later increased		

Since the 404 would require a new lengthy certification program, TWA asked Martin to build and lease to them a dozen modified 202's. These were ultimately known as the 202A and varied from a standard 202 by having CB16 engines fitted, heavier wing and fuselage structure, larger gasoline capacity, better heater system, and a gross weight of 43,000 pounds, but they were built under the 202 type certificate. The second

202 prototype NX93002 was modified and served as the 202A prototype, and after completing the relatively simple 202A certification program, it was again modified and became the unpressurized 404 prototype. It is still flying (mid-1962) for the Martin Company as a special 202.

One hundred and three 404's were built including two for the U.S. Coast Guard, and all gave good, if unexciting, service. None of the few 404 crashes have ever been caused by a design fault in the airplane.

Until 1960, only one 404 originally ordered for Howard Hughes had found its way into non-airline use, but since 1960 TWX has completely disposed of its Martinliners and Eastern is currently doing so, and many have found homes with corporate owners as well as with local service airlines.

The 202 has also enjoyed a quiet life since Pacific and Allegheny acquired them, and the two airlines provide testimonials for the Martinliner, one directly and the other indirectly. Mr. Peter Brennan, Director of Public Relations for Allegheny Airlines says, "I doubt frankly that any aircraft could be subjected to a more rugged performance than day-to-day flying throughout Allegheny's type of system. The Martin, in our nearly 6 years' experience with it, has met and passed this test with flying colors." To emphasize these remarks, Allegheny added six 202A's to its fleet in 1958-59 and four more recently.

Pacific Airlines, which has operated 202's from 1953 onwards, recently had to make a decision regarding the updating of its fleet of 202's and DC-3's. The decision was made to purchase 6 Fairchild F-27's and stick to the Martin but to switch to the 404's which were available as TWX retired its 404 fleet. As of mid-1962, the transition is complete with only two 202's N93053 and N93059, being retained as stand-by aircraft.

Pacific Airlines has never had a serious or fatal crash with the 202 but did lose N93061 in a hangar fire in 1954. Allegheny Airlines has had one fatal crash for which the airplane was in no way responsible. Allegheny also lost one 202 as a result of an in-flight fire during a training flight. The airplane was landed safely. One crew member was injured as he dropped to the pavement from the burning plane after landing.

Of the 25 aircraft delivered to Northwest Airlines in 1947-1948, only fourteen remain today, thirteen years later.

Martin 202

C/N	REGISTRATION	OWNERS AND COMMENTS
9122	NX93001	Glenn L. Martin Co. Original prototype final fate unknown, presumed scrapped.
9123A	NX93002 N40400	Glenn L. Martin Co. Second prototype, first flown 27 Jan. 1947. Also used as 202A prototype, finally as uppressurized 404 prototype. Currently licensed as a special 202 with R2800-CB16 engines fitted Jan. 1950.
9124	-----	Might have been the 303 prototype, but no records as such have been found.
9125	CC-CLR CC-CLMA	Linea Aerea Nacional, Chile (LAN). Delivered Santiago, Chile 13 Nov. 1947.
9126	CC-CLS CC-CLMB	LAN
9127	CC-CLT CC-CLMC	LAN

9128 N93003
N93048

N176A

9129 CC-CLJ
CC-CLMD

9130 YV-C-AMB

9131 YV-C-AMC

9132 N93004
N93049

9133 N93047

9134 N93050

9135A N93057

Northwest Airlines #548. Registered to NWA on 27 Jan. 1948 as N93003, later changed to N93048 to follow previously delivered N93047 which had completed NWA's first order for 10 "Martinliners". Removed to Irregular Air Carrier category on 19 Sept. 1951. Transocean Airlines leased from NWA.

Pioneer Airlines registered to Pioneer on 8 May 1952. DAVID CROCKET.

Pioneer Aeronautical Services.

Registered 6 November 1953 Allegheny Airlines. Registered 31 Dec. 1956. Changed to N176A on 12 April 1957. THE DETROITER

LAN

Lineas Aereos Venezuela (LAV), RAFAEL URDANETA

LAV

Northwest Airlines #549. Mfgd. Dec. 1947, registered to NWA as N93004 on 27 Jan. 1948.

Transocean Airlines. Registered 10 Sept. 1951.

Japan Airlines, (Operated by Transocean).

Pacific Airlines (formerly Southwest Airways Co.) Registered 10 Nov. 1952.

Trans World Airlines. Registered 30 June 1960.

Martin Air Leasing, Inc. Registered 14 Dec. 1961.

Northwest Airlines #547. Mfgd. Dec. 1947. Registered to NWA on 2 Feb. 1948. Originally outfitted for LAV, then used as a demonstrator during early April 1948 by Martin before delivery to NWA. Airline Transport Carriers (Calif. Central). Registered 23 Oct. 1951. CITY OF SAN DIEGO. Pacific Airlines. Registered 25 March 1955.

Trans World Airlines. Registered 30 June 1960. Stored at San Francisco. Martin Air Leasing, Inc. Registered 14 Dec. 1961.

Northwest Airlines #550. Aircraft struck a neon-lighted flag pole during an IFR approach to Minneapolis, Minn, crashed 7 March 1950.

Northwest Airlines #557. Mfgd. May 1948. Registered 18 June 1948.

Airline Transport Carriers (Calif. Central). Registered 6 Sept. 1951. CITY OF LOS ANGELES.

The Martin Co. Registered 8 Oct. 1953. R2800-CB16 engines and 202A cowlings fitted 10 Feb. 1954. As of July 1960, total airframe time 13,737 hours. On 11 Oct. 1961 a letter from Martin to the FAA stated the aircraft was beyond economical repair and was being reduced to salvage.

9136	N93051	Northwest Airlines #551. Mfgd. May 1948. <u>Transocean Airlines. Leased from NWA.</u> <u>Pioneer Airlines. BEN MILAN.</u> <u>Pioneer Aeronautical Services.</u> N173A <u>Allegheny Airlines. Purchased 13 May 1955.</u> 9142 N93052 <u>Northwest Airlines #552.</u> <u>Airline Transport Carriers (Calif. Central) CITY OF SAN FRANCISCO.</u> N172A <u>Allegheny Airlines. Purchased 6 March 1955. Had mid-air fire on training flight 14 Oct. 1955 but landed safely at Newcastle, Del. The spar was badly damaged, so the aircraft was trucked to Dover, Delaware where it provided spares until 1960 when the remains were hauled to a junk yard near Wilmington, Delaware.</u>	Pacific Airlines. Registered 15 Oct. 1952. <u>Trans World Airlines. Registered 30 June 1960.</u> <u>Martin Air Leasing, Inc. Registered 14 Dec. 1961.</u>
9150	N93061	Northwest Airlines #561. Mfgd. June 1948. <u>Transocean Airlines.</u> <u>Japan Airlines. Operated by Transocean.</u> <u>Pacific Airlines. Destroyed in hanger fire 30 Dec. 1955. Center section and wing now stored at San Francisco.</u>	
9158	N93037	Northwest Airlines #537. Mfgd. April 1947, delivered to NWA on 2 Aug. 1947 as the #1 NWA airplane. Crashed on training flight at Almelund, Minn. 13 Oct. 1950. 5289 hours flying time.	
9159	N93038	Northwest Airlines #538. Mfgd. August 1947, registered 4 Sept. 1947. Delivered in 40 passenger configuration. <u>Transocean Airlines. Leased from NWA.</u> <u>Pioneer Airlines. Registered 8 May 1952.</u> <u>STEPHEN F. AUSTIN.</u> <u>Pioneer Aeronautical Services. Registered 6 Nov. 1953.</u> N174A <u>Allegheny Airlines. Registered 12 Mar. 1956.</u> <u>R2800-85 engines installed 22 Mar. 1956.</u> <u>Crashed 1 Dec. 1959 at Williamsport, Pa., killing 25 persons. Pilot error missed approach.</u>	
9160	N93039	Northwest Airlines #539. <u>Transocean Airlines. Leased from NWA.</u> <u>Crashed 5 Nov. 1951 at Tucumcari, New Mexico. A series of pilot errors led to an approach and attempted landing below IFR minimums. Stalled out of low turn. Remains were sold to Pacific Airlines for spares.</u>	
9161	N93040	Northwest Airlines #540. Mfgd. August 1947, received by NWA 28 Sept. 1947, and placed in service 12 Oct. 1947. Struck mountain on approach to Butte, Montana 7 Nov. 1950 killing 17 passengers and 4 crewmen. Pilot off course and apparently flying VFR in IFR conditions.	
9162A	N93041	Northwest Airlines #541. Mfgd. 4 Sept. 1947, registered 9 Oct. 1947. <u>Transocean Airlines. Registered 10 Sept. 1951.</u> <u>Japan Airlines. Operated by Transocean.</u> <u>Pacific Airlines. Registered 10 Nov. 1952.</u> <u>Trans World Airlines. Registered 30 June 1960. Stored at San Francisco.</u> <u>Delta Aircraft and Engine Co., Inc. Registered 26 Sept. 1960</u> <u>Delta Leasing Corp. Registered 28 Nov. 1960.</u>	
9163	N93042	Northwest Airlines #542. <u>Airline Transport Carriers (Calif. Central) CITY OF OAKLAND.</u> N170A <u>Allegheny Airlines. Purchased 3 March 1955.</u>	
9164	N93043	Northwest Airlines #543. <u>Transocean Airlines.</u> <u>Japan Airlines. Operated by Transocean.</u> <u>Crashed on slope of Mihara Volcano, O'Shuma Isle, Japan on 9 April 1952.</u>	
9165	N93044	Northwest Airlines #544. Lost wing in storm	
9143	N93053	Northwest Airlines #553. <u>Transocean Airlines. Leased from NWA.</u> <u>Pioneer Airlines. WILLIAM B. TRAVIS.</u> <u>Pioneer Aeronautical Services.</u> <u>Pacific Airlines</u>	
9144	N93054	Northwest Airlines #554. Mfgd May 1948. Entered service 6 June 1948. Crashed 3 miles west of Reardon, Wash. 16 Jan. 1951 killing 7 passengers and 3 crew members, dove into the ground at high speed, cause of crash never determined. 5874:19 hours flying time.	
9145	N93055	Northwest Airlines #555. <u>Transocean Airlines.</u> <u>Pioneer Airlines KITT CARSON.</u> N175A <u>Allegheny Airlines.</u>	
9146	N93056	Northwest Airlines #556. <u>Transocean Airlines. Leased from NWA.</u> <u>Pioneer Airlines. JAMES BOWIE.</u> <u>Pioneer Aeronautical Services.</u> <u>Pacific Airlines.</u> <u>Trans World Airlines.</u> <u>Martin Air Leasing, Inc. Registered 14 Dec. 1961.</u>	
9147	N93058	Northwest Airlines #558. <u>Transocean Airlines.</u> <u>Pioneer Airlines. MIRABEAU, B. LAMAR.</u> <u>Pioneer Aeronautical Services.</u> N177A <u>Allegheny Airlines. Purchased 31 July 1957.</u>	
9148	N93059	Northwest Airlines #559. <u>Transocean Airlines. Leased from NWA.</u> <u>Pioneer Airlines. JAMES FANNIN.</u> <u>Pioneer Aeronautical Services.</u> <u>Pacific Airlines.</u>	
9149	N93060	Northwest Airlines #560. Mfgd. June 1948, registered 13 July 1948. <u>Transocean Airlines. Registered 23 Sept. 1952.</u> <u>Japan Airlines. Operated by Transocean.</u>	



The first of the Northwest Airlines Martinliners. It shows the original wing configuration, (3° dihedral) and small vertical fin. (Photo - Dave Gauthier)

at Winona, Minn. 29 Aug. 1948. 37 killed.

9166 N93045 Northwest Airlines #545. Mfgd. 1 Oct 1947. Airline Transport Carriers (Calif. Central) CITY OF BURBANK.

N171A Allegheny Airlines. THE NEW YORKER. Purchased 5 March 1955.

9167 N93046 Northwest Airlines #546. Mfgd. 7 Oct. 1947, registered 21 Nov. 1947. Transocean Airlines. Leased from NWA. Pioneer Airlines. Registered 14 April 1952. SAM HOUSTON.

Pioneer Aeronautical Services. Registered 6 Nov. 1953. Name changed to Pioneer Hydrotex on 12 June 1959. Aircraft leased to the Martin Co. and based at Baltimore. Hubert M. Covert. registered 4 Nov. 1960. Lloyd Airlines, Miami, Florida. Registered 7 Dec. 1960.

Hubert M. Covert. Registered 12 April 1961.

9171 Stored at Martin Co. Incomplete.

14071 N93201 Transworld Airlines #211 SKYLINER SAN FRANCISCO. Allegheny Airlines. Purchased 15 April 1958.

14072 N93202 Transworld Airlines #212 SKYLINER OAKLAND. Mfgd. 30 June 1950. Registered 1 Sept. 1959. Calif. Airmotive. Registered 1 Sept. 1959. Calif. Airmotive paid \$110,000 for this plane. The tail was torn off 22 Oct. 1959 when C-46 N111E struck it in a ground accident at Burbank, Calif. 28 April 1960

Aerojet-General Corp. uses Model 404 for its interplant business transportation. Reg. No. AG241. (Photo - ACC)



The prototype Model 202. This views shows the nearly straight wing. Vertical fin carries NX93001. (Photo - Al Roshkind)



N40400 when it was no longer a 202A and still not a 404; extra fuselage section not yet added. (Photo - Harry Sievers, The Martin Co.)

14073 N93203 Transworld Airlines #213 SKYLINER FRESNO. Allegheny Airlines. Purchased 31 Dec. 1958.

14074 N93204 Transworld Airlines #214 SKYLINER BURBANK. California Airmotive. Lone Star Airlines. Leased. California Airmotive. Stored at Las Vegas. Allegheny Airlines Purchased 21 July 1961.

14075 N93205 Transworld Airlines #215 SKYLINER LOS

(Continued on Page)

The Model 404 as RM-1Z, one of the only two U.S. Coast Guard Martinliners. (Photo - U.S.C.G.)

