

# THE *NORTHLINER*

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DC-9  
SPECIAL  
EDITION

**THE NORTHLINER**

OFFICIAL PUBLICATION OF THE EMPLOYEES OF NORTH CENTRAL AIRLINES, INC.

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**To our passengers:**

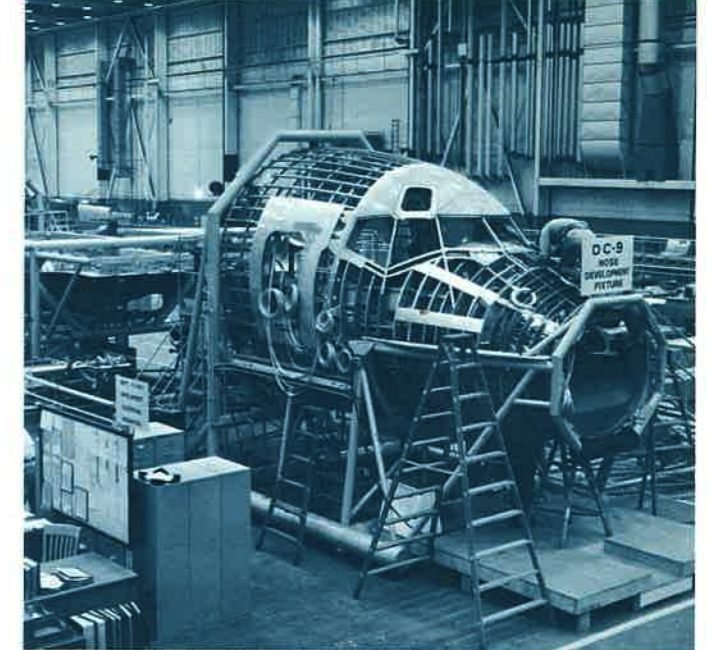
North Central Airlines is pleased to introduce Douglas DC-9 jet service to many communities on its route system. The Douglas DC-9 provides the long-sought answer to North Central's particular need for an intermediate-range jet aircraft.

Now, in the 100-passenger all first-class DC-9 you will enjoy faster flights, brief en route stops and the smooth, quiet Jetliner comfort of high altitude flying. With congratulations to Douglas and the DC-9, North Central welcomes you aboard its new jet aircraft.

Hal N. Carr  
Chairman of the Board  
and President  
North Central Airlines



THE BEGINNING — A workman starts the assembly of a fuselage section for North Central's first DC-9 jetliner with a curving frame installed on a carefully aligned jig.

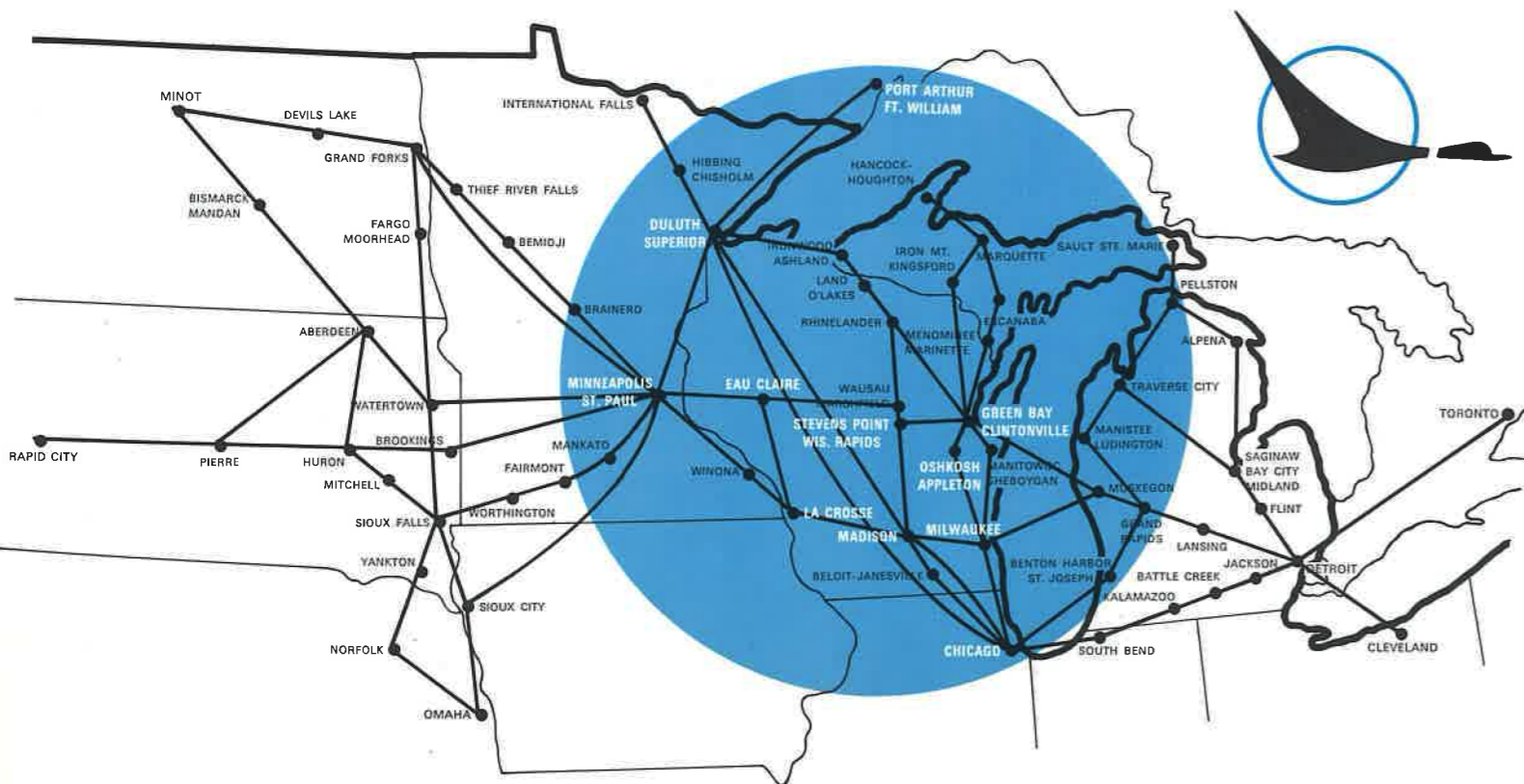


NOSE ASSEMBLY — The DC-9 enters a nose development fixture where nose assembly begins and the exterior is riveted into place.

**Two DC-9's Serve Seventeen Cities**

- |                                |                        |
|--------------------------------|------------------------|
| Minneapolis/St. Paul           | Madison                |
| Duluth/Superior                | Green Bay/Clintonville |
| Eau Claire                     | Oshkosh/Appleton       |
| La Crosse                      | Milwaukee              |
| Stevens Point/Wisconsin Rapids | Chicago                |
| Port Arthur/Fort William       |                        |

**FIRST CITIES RECEIVING DC-9 FAN JET SERVICE  
NORTH CENTRAL AIRLINES**



**Arrival Culminates Years of Planning**

The arrival of North Central's first DC-9 on July 28 heralded the company's entry into the jet age. The delivery of the first 100-passenger jet to the Minneapolis/St. Paul main operations base culminated the airline's equipment modernization program.

In July 1965, North Central announced its 10-jet program, indicating that the Douglas DC-9 was the most suitable jet aircraft for its operations.

For several years, the company had made an extensive evaluation study of the jets that could meet North Central's particular requirements. The factors which had to be considered were capacity, speed, range, and design features of the aircraft; operating costs and purchase price; and adaptability of the plane to the airline's route system and airport runways.

In 1966, the company secured an option on five more of the DC-9 Series 30 jets.

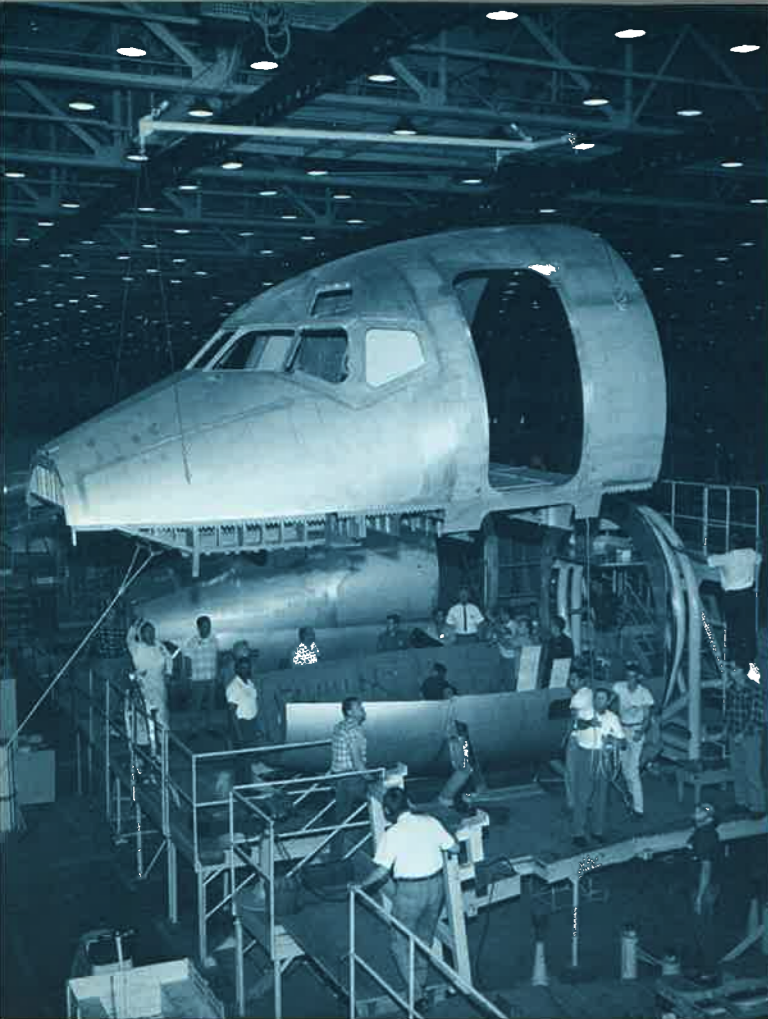
The sleek jetliner will bring a new look to many airports served by North Central. Distinctive physical features of the DC-9 are the high-level "T" tail and the two engines mounted at the rear of the fuselage. This positioning of the engines produces an even quieter ride for the passenger.

The color scheme of the DC-9 has been carried out in the company's Convair 580 prop-jets which were put into service this Spring. The airline's 33-aircraft plan calls for the initial conversion of 20 Convair 440's to prop-jets, with an option on the other 13.

The Convair 580's, combined with the new DC-9's, will give North Central an all jet-powered fleet by 1968.

**DC-9 Series 30 Specifications**

- Overall length . . . . . 119 feet, 3 inches
- Wingspan . . . . . 93 feet, 4 inches
- Height of tail . . . . . 27 feet, 6 inches
- Weight . . . . . 98,000 pounds (takeoff)  
53,000 pounds (empty)
- Load capacity . . . . . 100 passengers  
13,000 pounds of cargo
- Engines . . . . . Two rear-mounted Pratt & Whitney JT8D-7 fan jets, each developing 14,000 pounds thrust
- Cruising speed . . . . . 560 miles per hour
- Range . . . . . 1,700 statute miles
- Operating altitude . . . . . 35,000 feet maximum
- Fuel capacity . . . . . 3,675 gallons
- Fuel consumption . . . . . 450 gallons (per hour, per engine)
- Rate of climb (average) . . . . . 10,000 feet in four minutes
- Crew . . . . . Captain, First Officer, two Stewardesses
- Manufacturer . . . . . McDonnell Douglas Corporation (formerly Douglas Aircraft Company)
- DC-9 Equipment Program . . . . . North Central has 10 Douglas DC-9 fan jets on order, with an option on five more. Delivery of 10 to be completed in 1968.

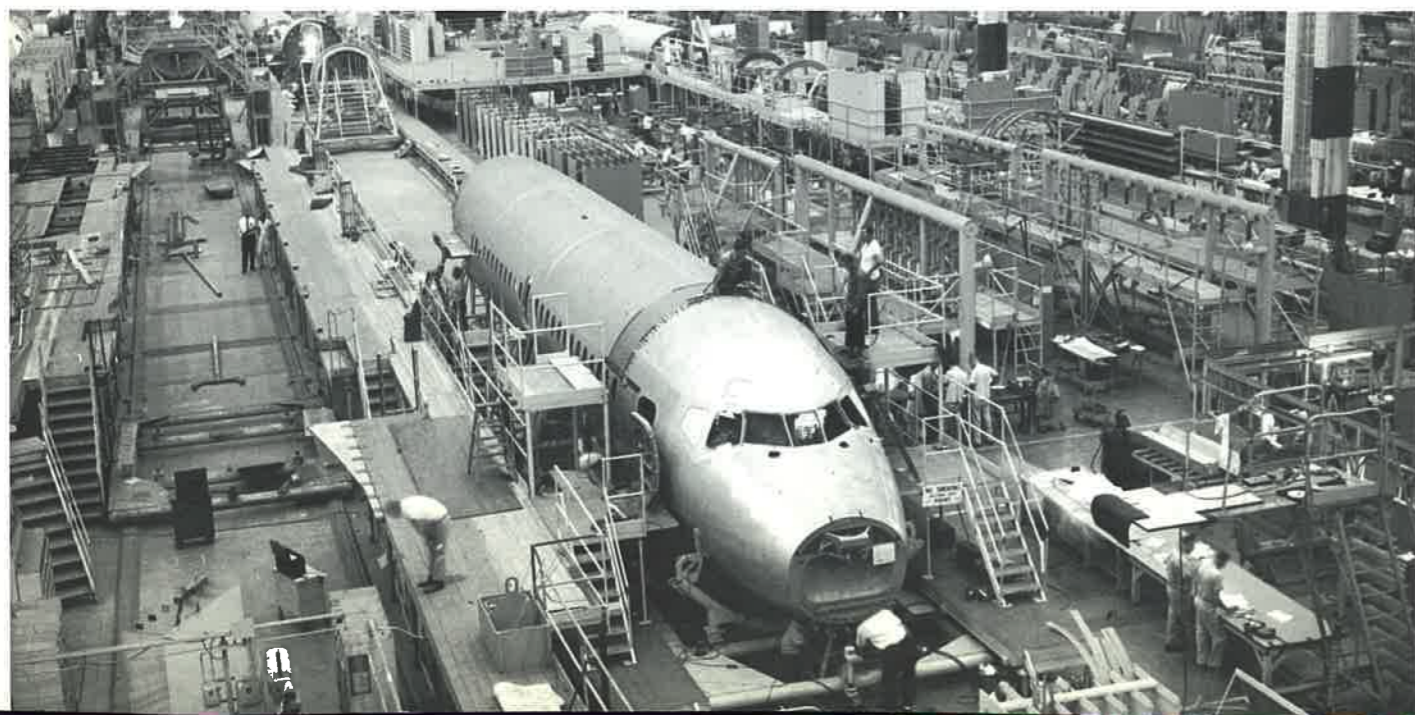


**INTO POSITION** — The upper half of the nose section is lowered into position before being joined with the bottom half. This process occurs after both sections have had their skin riveted into place.



**PRECISE WORK** — Douglas workmen are shown riveting a portion of the DC-9 fan jet fuselage.

**TAKING SHAPE** — Now beginning to resemble a plane, the fuselage and nose sections of the DC-9 have been joined at the Douglas Aircraft plant in Long Beach, California.



**NEW UNIFORMS** — Stewardesses Pat Andres, left, and Jill Kilgore, model their new apparel which includes the basic aqua uniform and gold-colored raincoat.



## Equipment Isn't All That's New

The DC-9 fan jet isn't all that's different in the company's bright and distinctive "New Look" program. North Central stewardesses are now displaying colorful new fashions aboard all company aircraft.

Designed for North Central by Ben Rieg of New York, the uniforms are of light aqua-colored wool crepe fabric. The ensemble includes a box jacket with three-quarter length sleeves and skirt, a pillbox hat, and black patent leather heels and handbag. A dacron shell blouse of an aqua and white design completes the outfit.

Among the new additions to the stewardess attire is a gold wrap-around serving smock with belt and double pockets. Also lending a "New Look" concept is the new classic gold raincoat designed by the Samuel Martin Company Ltd., of London. Made of polyester and cotton, the coat is specially designed to be worn with both the summer and winter uniforms.

**FIRST CLASS SERVICE** — Jill serves passengers in her new wrap-around smock. The colorful outfits complement the company's overall "New Look" program.



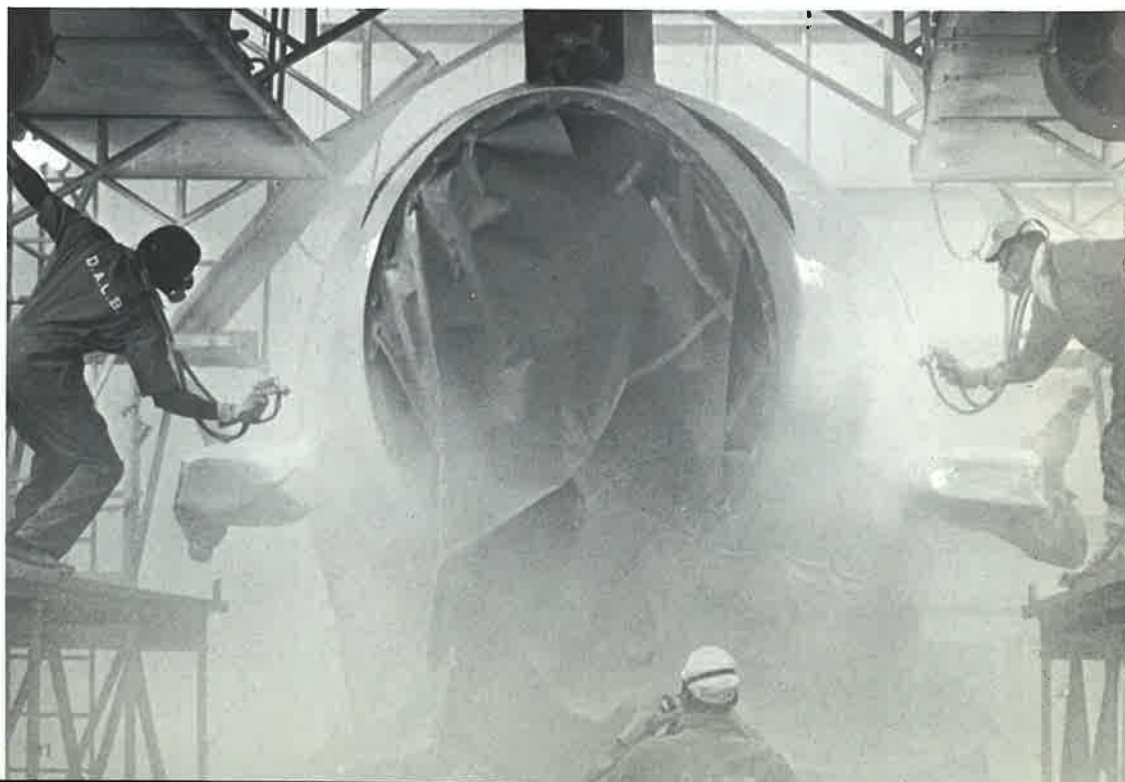


**INTERIOR PROGRESSES**—Interior work in the aircraft begins with the installation of insulation materials to provide soundproofing and weatherproofing.

**LANDING GEAR**—One of two main landing gear for the DC-9 is installed on the final assembly line. Prior to getting its own wheels, the DC-9 is supported by mobile hydraulic devices.



**FINAL CHECK** — Before installation, the DC-9 emergency exit doors are given a final examination. Each DC-9 Series 30 has four such doors, two on each side, located amidship over the wings.



**WHITE CLOUD OF MIST** — The fuselage of North Central's first DC-9 jet receives a final coat of gleaming white enamel. Over an eight-hour time span, the 2,550 square feet of the DC-9 fuselage are sprayed with three coats of paint. It takes about 35 gallons of paint to complete the job.

## First of Douglas "DC" Transports Developed in 1932

The first airplane built by the Douglas Aircraft Company was the Cloudster, in 1921. Designed by Donald W. Douglas, founder and board chairman, the Cloudster was the first aircraft in history to airlift a useful load equal to its own weight.

During the next decade, Douglas developed planes for the military, including the famed World Cruisers, before starting the distinguished "DC" series of commercial transports in 1932.

The first and only DC-1 was delivered to TWA in 1933 and exceeded the specifications set by the airline.

This was followed by the development of more powerful engines which brought the DC-2 into being. Douglas built 175 of these planes.

Further improvements led to the legendary DC-3 in 1935. The DC-3 is the plane that taught the world to fly. It was the first airliner that could make money for the airlines. At one time, the DC-3 carried 95 per cent of all commercial air traffic. Douglas built nearly 500 for airline use.

Over 10,000 more were manufactured for the armed services as C-47's, R4D's, and Dakotas. Former President Eisenhower has said that this aircraft belongs with the bulldozer, jeep, 2½-ton truck, and amphibious duck as "the equipment most responsible for Allied victory in World War II." After the war, many of the military aircraft were converted for airline operation.

Of the 11,000 DC-3's in civilian and military versions which were produced, it is estimated that 3,000 are still flying today.

Small wonder that the world's high-time aircraft is a DC-3 — owned by North Central (N21728) with a record of more than 84,000 hours aloft.

Strange but true, the DC-5 came out before the DC-4, but production was abandoned due to World War II. This aircraft was an improved version of the DC-3 with a high wing and tricycle landing gear. Only 12 were built.

Heading the second generation of DC aircraft was the



**EXECUTIVES WATCH** — Spectators at the "wing-joining" of North Central's first DC-9 are (from left), R. H. Bendio, vice president; L. J. Keely, vice president-maintenance and engineering; and G. F. Wallis, vice president-flight operations. Keely displays the device which controlled the electrically-powered crane that lowered the fuselage into position.



NEARING COMPLETION — Displaying the new exterior paint design in aqua, blue, and gold, North Central's 100-passenger DC-9 moves toward completion at the Douglas Aircraft Plant in Long Beach, California.

DC-4. It was the first four-engine Douglas transport and was about three times the size of the DC-3. It began service with the military in 1942 as the C-54 and R5D. Douglas manufactured over 1,200 of these.

The DC-6 featured improved engines — matched with increased strength, space, range, economy, and passenger appeal. Cabin pressurization was introduced in 1946 with the first of the 720 DC-6's produced.

In 1953, the DC-7 entered the scene. It was a larger, more powerful version that made possible realistic, non-stop transcontinental schedules. Douglas manufactured 390 of these.

In 1958, Douglas advanced to the third generation of the DC family with introduction of its jet-powered transport, the DC-8. By mid-1966, more than 400 DC-8's, including the Super DC-8-60 Series, had been ordered by the world's airlines.

With sub-sonic, long-range transport development at a high plateau, Douglas designers and market analysts turned their attention to another transport requirement: a commercial jet to fly the short-to-medium ranges.

The big four-engined jetliners could not be operated economically over the shorter airline segments of 100 to

800 miles. Obviously, a smaller airplane embodying the proven virtues of pure jet power was needed. Furthermore, hundreds of propeller-driven transports serving these short-haul routes were rapidly reaching obsolescence. To fill this vacuum, Douglas developed the twin-engine DC-9.

The decision to proceed with the DC-9 was announced in April 1963, and the resources of Douglas Aircraft were committed to the development of an intermediate-range jet. Low to the ground for quick loading and servicing, the DC-9 was made about the length of the DC-4. Two Pratt & Whitney turbofan engines were mounted on the aft fuselage, and the horizontal stabilizer crossed the top of the vertical fin like a capital "T".

The DC-9 Series 10 model made its first flight in February 1965, and entered regular airline service that December. Sound basic transportation design traditionally has a way of growing. This was the case with the DC-9. The original version was expanded into the DC-9 Series 30 which flew for the first time in August 1966. The Series 30 is 15 feet longer than the model 10. A month later, 30 of the world's airlines had ordered, leased, or optioned almost 450 of the larger DC-9's.

SPACIOUS CABIN — North Central's new DC-9 features a spacious cabin with alternating aqua and gold seats, blue and gold carpeting, beige walls, and white ceilings.

All first-class service is offered on the jet, with two stewardesses in attendance.





"HERMAN" — A Douglas employee applies final touch-up work on "Herman," North Central's mallard duck insignia.

**POWERFUL** — The first of two Pratt & Whitney JT8D-7 fan jet engines is about to be mounted on North Central's DC-9. Each of the rear-mounted engines develops 14,000 pounds of thrust.



**DELICATE PROCESS** — A Pratt & Whitney fan jet engine is slowly and carefully moved into position on the rear fuselage of the DC-9. Powered by two JT8D-7 engines, the aircraft cruises at 560 miles an hour.



**ROLLOUT** — After several months of construction, North Central's first DC-9 fan jet is shown leaving the Douglas Aircraft hangar on June 7. Final assembly occurs on the outdoor assembly line.

## Fleet Evolves From Lockheed 10A To 100-Passenger DC-9 Fan Jets

The Douglas DC-9 Series 30 fan jet is the latest addition to the North Central fleet, following right in the wake of the Convair 580 prop-jet which was inaugurated into service on April 1.

On February 24, 1948, when North Central began scheduled operations, its fleet consisted of three nine-passenger Lockheed 10A Electras. Then known as Wisconsin Central Airlines, the company flew to 19 cities on a route system of 1,028 miles.

Increased demand for service and airport development soon permitted larger aircraft to be introduced. Six Douglas DC-3's, each capable of carrying 21 passengers, were acquired in 1950. And when the DC-3's were put into service, the smaller Lockheeds were retired. In 1951, two more DC-3's were purchased and two leased. The next year, nine additional DC-3's were acquired, and in 1954, the entire DC-3 fleet was converted to 26-passenger aircraft.

But it was not long before the company's fleet, which had grown to 32 DC-3's, became inadequate to handle the traffic growth. In 1959, pressurized Convair 440 aircraft were inaugurated into service to supplement the DC-3's. The five Convairs initially purchased carried 44

passengers and cruised at 250 miles an hour, compared with the DC-3's, which flew 160 miles an hour. Rapid growth of the airline continued after 1960. Each year more Convairs were purchased to replace the DC-3's, and in 1964 the Convair seating capacity was increased to carry 48 passengers.

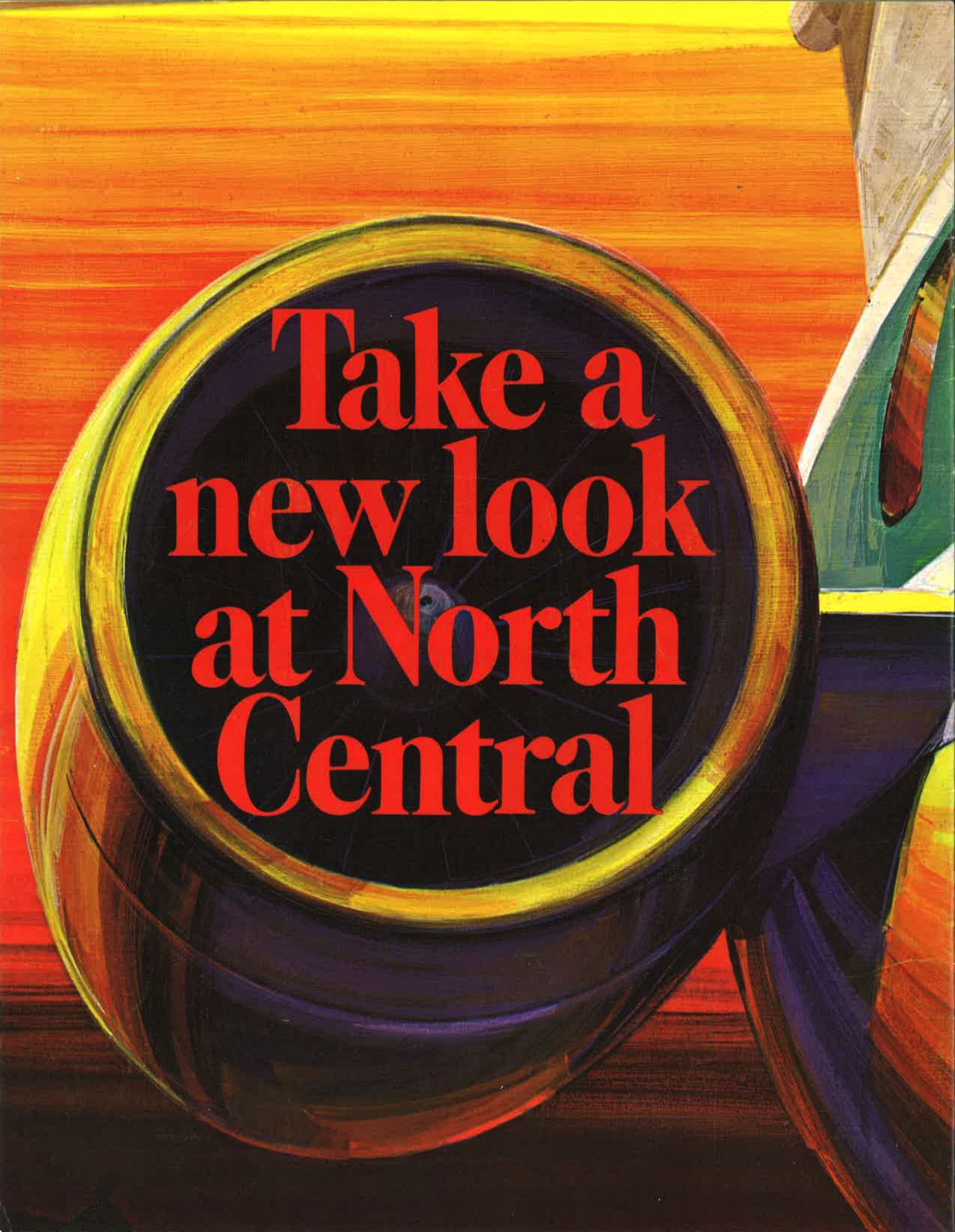
In August 1966, North Central expanded its equipment program again when plans were made to convert its fleet of Convair 440's to prop-jet powered Convair 580's. The first 580 was received in January 1967, and two entered scheduled service on April 1.

Aside from the powerful new prop-jet engines, North Central's Convair 580's have a new exterior design in aqua, blue, and gold, the company's corporate colors. This theme is carried to the interior which features alternating aqua and gold seats and carpeting, beige walls, and white ceilings.

North Central prepared for its entry into the jet age when the company announced its purchase of Douglas DC-9 fan jets in July 1965. Ten of the 100-passenger fan jets were ordered, with an option on five more. Now a completely new dimension of speed and comfort is available to Northliner passengers aboard the Douglas DC-9 fan jet.



**DELIVERY FLIGHT** — Going over the checklist prior to takeoff on the delivery flight from Long Beach to Minneapolis/St. Paul are G. F. Wallis, vice president-flight operations (left), and P. E. Wahl, manager-flight training. The first North Central DC-9 jet arrived in the Twin Cities on July 28.



**Take a  
new look  
at North  
Central**