# Lockheed L-049

Sales Brochure 1946

# Lockheed Constellation

# LOCKHEED *Constellation*

The Lockheed Constellation marks the turning point in man's winning of the air . . . the real beginning of the Age of Air Transportation. Not only does it bring to full expression the combined triumphs of the past, but it establishes new world standards in performance and load capacity that will stand as guideposts to designers of the future . . . *Highest Speed . . . Longest Range . . . Biggest Load-Carrying Capacity . . . Greatest Rate of Climb . . . of any transport in use today.* And its advanced safety devices plus its ability to fly over, around or away from adverse weather make the Constellation the safest of any transport. The importance of its flight across America lies not in the shattering of all transport records but in its meaning to the progress of aviation.


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LEADERSHIP

# COMFORT

THE exceptional passenger comfort of the Constellation is obtained, basically, through design features of the fuselage which include numerous structural and mechanical advancements . . . advancements that provide a high level of comfort to all types of interior arrangements and constitute an important factor in passenger appeal.

Low-level passenger ease is prevalent at high altitudes through automatic cabin pressurization (8,000-foot pressure at 20,000 feet) . . . stale air and galley odors are eliminated by superior ventilation air filters . . . uniform cabin warmth is facilitated by heated walls and floor . . . flight noise is excluded by a revolutionary and highly effective method of sound-proofing developed by Lockheed . . . operating vibration is damped by "floating" engine mounts. These are but a few of the advancements that set a new standard for extreme cabin comfort.

# DEPENDABILITY

THE Constellation reflects the same high traditions of dependability and leadership which have distinguished Lockheed airplanes down through the years. Etched indelibly on the pages of history are the names of many illustrious airplanes . . . each a Lockheed, and each a trail-blazer in the progress and achievement of aviation . . . Vega, Electra, Orion, Lodestar, Hudson, Ventura, Lightning.

The rich heritage established by these Lockheeds is carried on and enhanced by the Constellation. Dependability is designed and engineered into this great airplane. It's an inherent characteristic, proved first by exhaustive pre-flight tests, in the Research Laboratory, of every structural and mechanical part . . . then substantiated, beyond question, during months of flight testing.

# DESIGN FEATURES

## OPERATING SAFETY

Those same basic characteristics which are responsible for the Constellation's spectacular performance also provide extra factors of safety. To illustrate: its superior aerodynamic cleanliness (low drag) permits full utilization of the tremendous power of its four engines in providing not only record speed but also its remarkable rate of climb with one or two engines inoperative, its high ceiling and flexibility in operating range.

Mechanically and structurally, the Constellation is equipped with numerous protective features such as its hydraulic power boost system, clear vision windshield, improved thermal anti-icing facilities, extensive system for fire detection and extinguishing, dual wheel landing gear equipped with hydraulic brakes, steerable dual-wheel nose wheel. These items, and many others, provide the high element of safety essential in commercial passenger transportation.

## SERVICE AND MAINTENANCE

The Service and Maintenance provisions of the Constellation are designed to meet the operational requirements of commercial airlines. The great number of access openings, accessibility of plumbing lines marked for purpose and direction of flow, design features that permit complete power plant change in less than 30 minutes, and numerous other improvements increase air hours by cutting the time and manpower needed for service.

Maintenance has been facilitated by reducing the number of right and left hand parts to a minimum. This results in an increase in the number of interchangeable parts and facilitates the replacement of components. Actual time studies, in connection with design, assure that each part can be inspected, removed, replaced, and readied for operation with a minimum expenditure of manhours and ground time.

## VERSATILITY

In addition to all its other advantages, the Constellation is the most versatile airplane ever built.

Its ability to perform efficiently at **all** ranges . . . across an ocean, or a continent non-stop, or in city-to-city service . . . is an advantage that is unexcelled. Throughout, it is so far advanced in design that it represents an investment for years of dependable service.

High cruising speed, plus wide range, saves time and operating costs. Pressurization makes it possible to fly at above-weather altitudes. Weatherization permits operation in extreme temperatures ranging from +160°F to −65°F. Thus regular service can be maintained and revenues gained that otherwise might be lost.

Increased payloads reduce costs. Simplicity of service and maintenance saves time and money.

## THERMAL ANTI-ICING

The improved thermal anti-icing system gives positive protection to the wings and empennage during icing conditions. Two surface heaters located in each outer wing panel provide heat for the wings; three heaters of a similar type, located aft of the rear pressure bulkhead, supply heat to the leading edges of the empennage. Each heater has a unit capacity of 125,000 B.T.U. per hour, which is ample for the efficient functioning of the system.

Ease of service is a paramount feature of the system. Wing heaters are mounted on hinged access panels. Service can be accomplished either by opening the panel or by removing it from the wing while tail heaters are reached by removing the tail cone. Through practical design, wing and empennage structure is used in lieu of the conventional type of ducts at the leading edges which means a minimum of replaceable parts. This method of heat distribution permits the removal of a large portion of the thermal system during summer operation.

## EASE OF CONTROL

The Constellation's hydraulic power boost system for control surfaces eliminates fatigue and provides the pilot with an ease of control superior to that of many smaller airplanes. The flight controls are also directly connected with the control surfaces by conventional cables so that the pilot retains positive "feel."

Duplicate hydraulic systems minimize the possibility of failure of the boosters. The Constellation can readily be flown, maneuvered and landed manually with the booster controls completely inoperative.

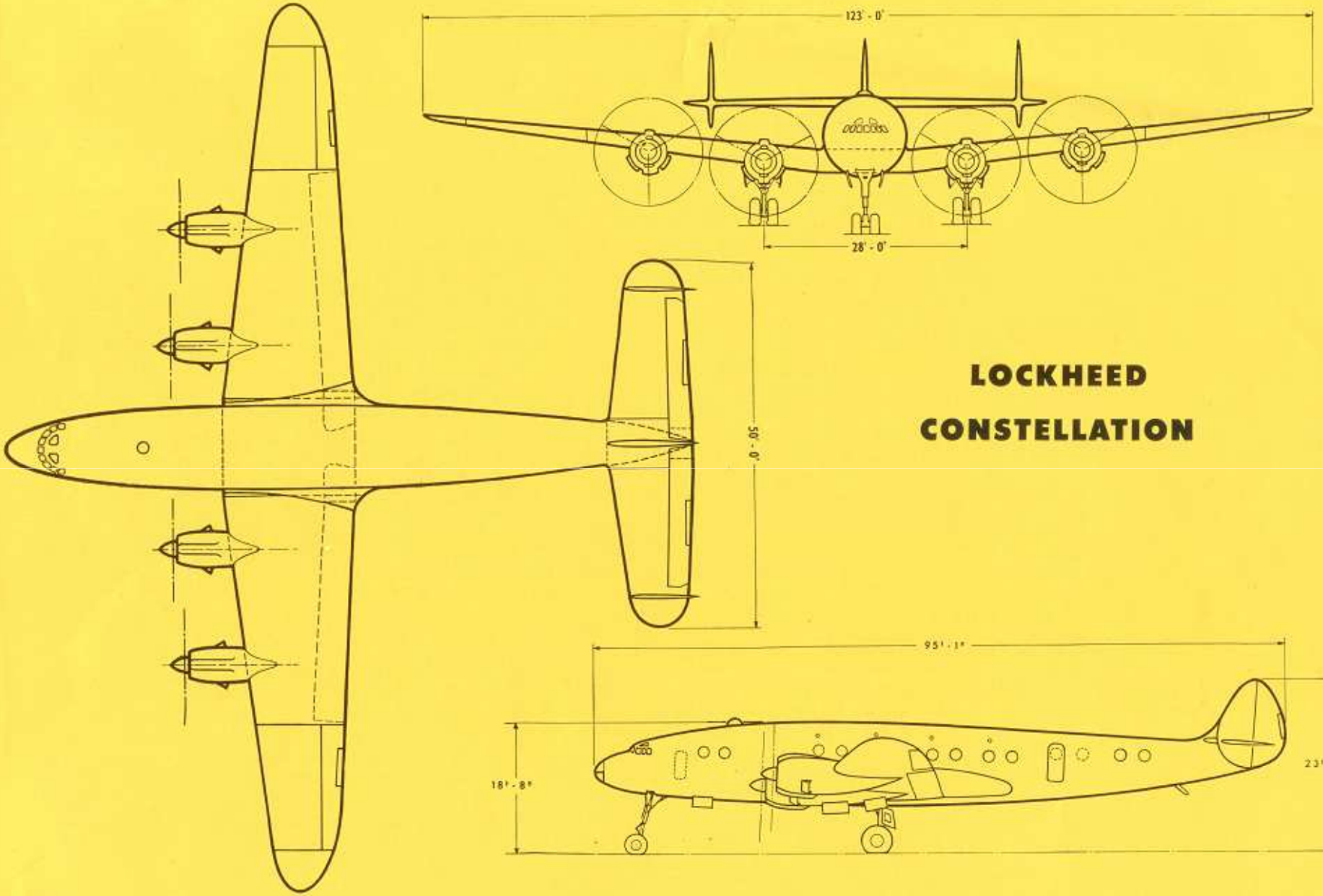
The value of the power boost system is directly reflected in airline operations. By allowing use of smaller control surfaces than otherwise possible, it reduces drag and results in increased speeds and reduced operating costs.

It also permits the use of enclosed control surface leading edges which afford maximum protection against ice.

## CARGO FACILITIES

The forward cargo compartment occupies the entire "below floor" section of the fuselage from the nose wheel well to the wing forward beam . . . a distance of 14½ feet. Entrance to this area, comprising 180 cubic feet, is located in the after end of the wheel well and is sufficiently large to permit unobstructed cargo movement between the compartment and ground. The rear compartment is the larger of the two areas and contains a total stowage space of 265 cubic feet. This section, also below the floor, extends from the wing aft beam . . . a distance of 25½ feet. The entrance door is located in the middle of the section. A 7-foot, 3-inch clearance from the ground allows free movement of hand trucks below.

When additional facilities are required, a third cargo compartment can be provided above the floor. To obtain this area, revisions are made in the arrangements for passengers and galley or lounge in the forward end of the cabin. Access for this additional section is gained through a door in the side of the fuselage. Extra cargo space of this nature is not standard in the Constellation but may be installed to meet the operator's individual requirements.




# LOCKHEED CONSTELLATION

Model 549

# STATISTICS

**Type:** All range, high performance passenger-cargo transport.

**Construction:** All metal, low wing, semi-monocoque land monoplane.

**Crew and Number of Seats:** Many arrangements, including:

64 passengers, crew of 5 or more, cargo.

24 berths or 48 seats, crew of 5 or more, cargo.

48 seats, lounge-bar, crew of 5 or more, cargo.

30 siesta-type reclining seats, crew of 5 or more, cargo, game room.

Paratrooper—100 soldiers with full packs and rifles.

Military Personnel Transport—60 seats or 22 berths, crew of 5, relief crew of 4, cargo (now in production).

Military Personnel Transport—42 seats, crew of 5, relief crew of 4, cargo (now in production).

## Power Plant

4 Wright Cyclone Engines R-3350, 18-cyl. aircooled radial.

(Note: Alternative installation of 4 Pratt & Whitney R-2800 engines is possible.)

Hamilton Standard Propellers, super hydromatic, quick-feathering, 15 ft. diameter.

## Landing Gear (dual-wheel tricycle)

| | |
|---|---|
| Main Wheels and Tires | Four 17:00 x 20 Low Pressure |
| Nose Wheels and Tires | Two 33-inch Smooth Contour |

## Performance

**(Meets all Civil Air Regulations requirements for transport aircraft)**

| | |
|---|---|
| Top Speed (with full load) | Over 350 miles per hour |
| Top Cruising Speed (60% power) | Over 310 miles per hour |
| Landing Speed | 80 miles per hour |
| Useful Load | Over 24 tons |

## Performance (Continued)

| | |
|---|---|
| Range, nonstop | Over 4,000 miles maximum |
| Service Ceiling, four engines | Over 25,000 feet |
| Usable Ceiling, three engines | Over 20,000 feet |
| Usable Ceiling, any two engines | Over 6,700 feet |
| Take-off Distance (at sea level) | Less than 2,000 ft. fully loaded |
| Landing Run (to full stop after clearing 50 ft. obstacle) | Less than 2,750 ft. at 75,000 lbs. |
| Transcontinental Nonstop Time | 6 hrs. 58 min. demonstrated (record) (8½ hrs. anticipated schedule) |

## Weights

| | |
|---|---|
| Operating Weight Empty | 54,000 to 58,500 lbs. |
| (Including crew and all passenger service equipment) (Variation depends upon arrangement) | |
| Maximum Take-off Gross Weight | 100,000 lbs. |
| Maximum Landing Gross Weight | 75,000 lbs. |

## Dimensions and Capacities

| | |
|---|---|
| Wing Span | 123 feet |
| Overall Length | 95 feet 1 inch |
| Fuselage Height (static) | 18 feet 8 inches |
| Height of Vertical Tail (static) | 23 feet 7 inches |
| Wing Area | 1,650 square feet |
| Total Mail and Baggage Capacity—445 cu. ft. below floor | 5,850 lbs. |
| With Auxiliary Flooring | 13,400 lbs. |
| Additional Space Above Floor | Optional |

# TYPICAL POINT-TO-POINT OPERATIONS

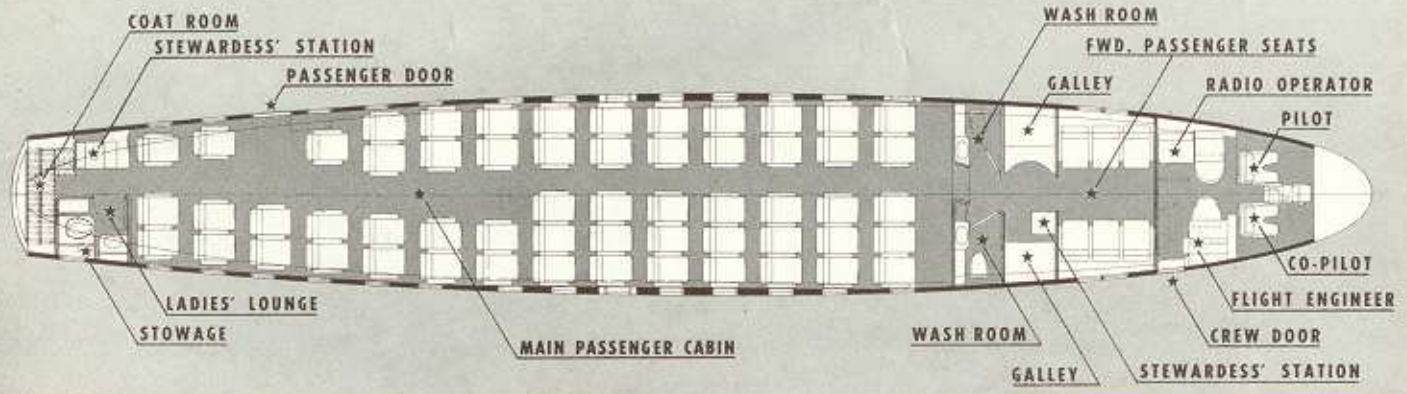
| | SCHEDULE | | PASSENGERS CARRIED IN ADDITION TO CARGO | | PERFORMANCE | OPERATING CONDITIONS | |
|---|---|---|---|---|---|---|---|
| Trip | Distance (miles) | Altitude (feet) | No. of Passengers | Block Time (hr.-min.) | Block Speed (mph) | Average Cruising Speed at Alt. (mph) | Land. Wt. Reserve Not Used (lbs.) |
| New York to Washington | 215 | 5,000 | 64 day | 0:56 | 230 | 285 | 75,000 |
| New York to Chicago | 724 | 18,000 | 64 day | 2:47 | 260 | 311 | 75,000 |
| San Francisco to Chicago | 1,825 | 20,000 | 48 day | 6:18 | 290 | 309 | 75,000 |
| New York to Los Angeles (non-stop) | 2,440 | 20,000 | 48 day 24 sleeping | 8:25 | 290 | 307 | 75,000 |
| Los Angeles to Honolulu | 2,500 | 20,000 | 44 day 22 sleeping | 8:37 | 290 | 307 | 75,000 |
| New York to London | 3,500 | 20,000 | 40 day 20 sleeping | 13:20 | 262 | 270 | 72,000 |

NOTE: Above figures assume no wind. Reserve fuel of approximately twenty percent of consumed fuel plus ¾ hour is included.

In all of the above schedules, the crew, equipment and furnishings correspond to the requirements of the flight and the number of passengers. Equipment includes food, water, pillows, blankets, loose equipment, thermos bottles and jugs, galley supplies, oxygen cylinders, pyrotechnics, lavatory supplies, compartment tables, and magazines. Life rafts are included in over-water flights.

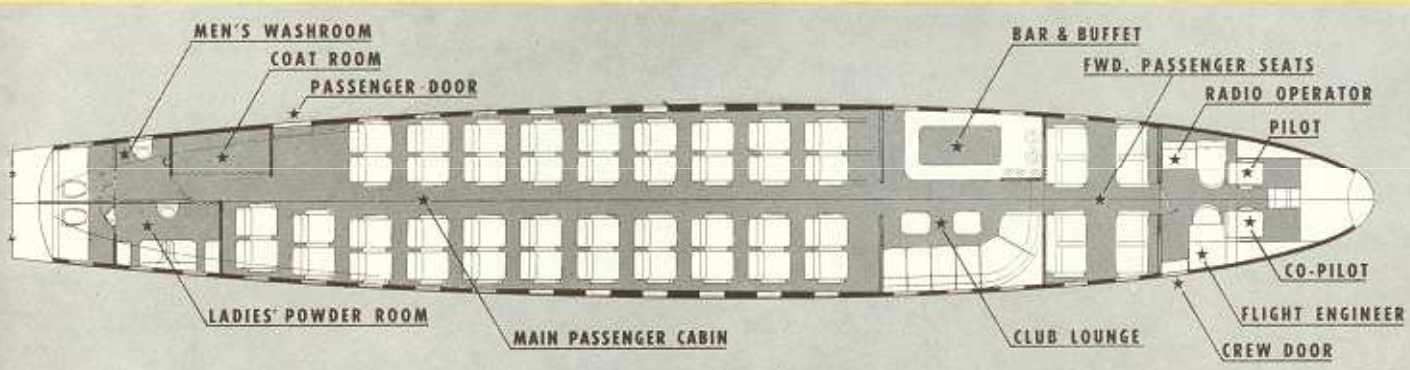
All of the standard flights listed above are shown at take-off and landing weights guaranteed for Civil Aeronautics Authority certification.

# INTERIOR ARRANGEMENTS




**Non-Convertible Day**

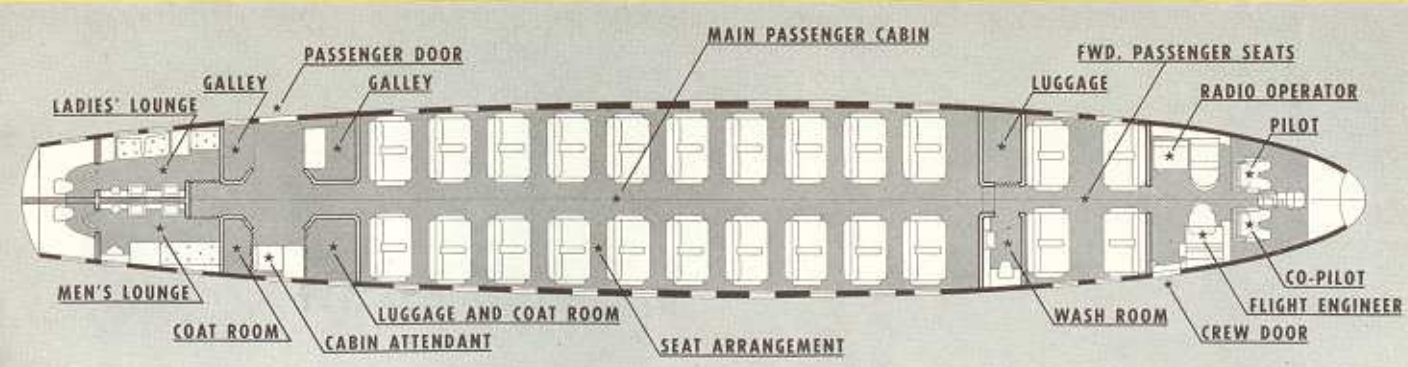
A maximum capacity chair-type interior arrangement which accommodates 64 passengers. Overhead baggage racks are provided at each seat location. Additional under-seat space is available for the stowage of small parcels or brief cases.




**Non-Convertible Club**

A deluxe day arrangement for 48 passengers. This interior features a bar-lounge in the forward section of the cabin and is provided with overhead baggage racks and underseat stowage space.

(48 passenger seats are exclusive of seats in bar-lounge)




**Convertible Day-Sleeper**

A maximum capacity convertible interior which provides accommodations for 48 day passengers, or 24 berth passengers. Adequate coat room and stewardess' storage space is featured in this arrangement.

The above are typical of the many useful arrangements possible with this airplane.

# LOOK TO *Lockheed* FOR LEADERSHIP

Years Ahead in the Science of Flight

LOCKHEED AIRCRAFT CORPORATION • BURBANK, CALIFORNIA