LEARJET 31 Model Guide

The LEARJET 31 is a twin-turbofan business jet built by Learjet. The registry lists it with the 31A as one family. That family carries up to 10 passengers, cruises at up to 450 kt and has a range of up to 1290 nm. It has a service ceiling of up to 51000 ft. These are family-level maxima, not figures for one variant. The supplied documents cover the air conditioning system and the parts catalog, not flight performance.

KEY TAKEAWAYS

- Registry family (31 and 31A): up to 10 passengers, 450 kt cruise, 1290 nm range, 51000 ft ceiling, 7400 kg MTOW.
- The Keith Products R134a vapor-cycle air conditioning applies to serial 31-169 and on. Earlier aircraft follow TR134.
- Cooling runs in flight only with both generators online. Losing one generator sheds the compressor load.
- Check the fuel placards. Capacities and tire pressures differ by serial number, certification and fuel-tank fit.

AIR CONDITIONING SYSTEM

The Keith Products system uses R134a refrigerant and 28 VDC power. The compressor and condenser sit in the tailcone, and the compressor is belt driven by a motor turning about 7,500 RPM. One evaporator is above the cockpit headliner. The other is in the aft cabin ceiling and includes an auxiliary heater.

WHAT TO INSPECT

Check the compressor belt tension within 5 hours of a new belt, then at the 600 hour inspection. Check refrigerant hoses for chafing at 1200 hours. Motor brushes are due every 1200 motor hours, and the drive motor overhaul is at 2,000 hours. Use only POE oil. Mixing in PAG oil causes contamination and system failure.

FUEL, TIRES AND RECORDS

Placards show wing tanks of 211 gal excluding the fuselage tank, and 411 gal including it. Other placards show 209, 406 or 483 gal. Fuel is Jet A or Jet A-1 and must contain anti-icing additive. The IPC is revision 20, dated February 23, 2009. It lists the pitot-static and fuel drain points.

SPECIFICATIONS

Wing Tank Fuel Placard Gal	211
Total Fuel With Fuselage Tank Placard Gal	411
Nose Strut Charge Jacked Psi	58

WEIGHT & BALANCE

Tailstand Ballast Cockpit Lbs	170
Tow Ballast Pilot Seat Lbs	170

SAFETY NOTES

- With full fuel, ground handling needs the P/N 3170002 tailstand or 170 lbs of ballast in the cockpit. Some placards call for 300 lbs.
- When moving the aircraft aft with a tow bar, put a 170 lb person in the pilot seat or use equivalent ballast.
- The air conditioning pressure switch opens at about 350 psig. A fuse plug vents refrigerant overboard above 425 psig.

AI-aggregated guide for the LEARJET 31 · sources: Learjet 31/31A Maintenance Manual (#100028) · Learjet 31 Series Illustrated Parts Catalog (#101198) · generated 2026-11-25 · Reference only, not for flight. Check the original documents before relying on this guide.