

Keith

LEARJET
MODELS 31/31A
35/35A/36/36A



**KEITH PRODUCTS, L. P.
ENVIRONMENTAL SYSTEMS**

CERTIFICATION REPORT NO. CR-L30-9

FAA APPROVED AIRPLANE FLIGHT MANUAL SUPPLEMENT

FOR

LEARJET MODEL 31/31A, 35/35A, 36/36A

S/N: _____

REG: _____

WITH

KEITH PRODUCTS, L. P. AIR CONDITIONING SYSTEM

This supplement shall be attached to the applicable FAA approved flight manual when a Keith Products refrigerant R134a air conditioning system is installed in accordance with STC ST09366SC.

The information contained herein supplements the basic manual only in those areas listed herein. For limitations, procedures, performance, and weight and balance information not contained in this supplement, consult the basic flight manual.

APPROVED BY:

Manager, Airplane Certification Office
Federal Aviation Administration
Fort Worth, Texas 76193-0190

FAA APPROVED: FEB 08 2002
REVISION: B

LOG OF REVISIONS

REV.	PAGE NO.	DESCRIPTION	FAA APPROVAL BY/FOR	DATE
ORIG	1 thru 4	Original Release		
A	Pg. 3	Revised Sect. 2, <u>Was</u> Aft co-pilot sidewall rheostat is a dual potentiometer that control both cabin flood and air outlets. Fwd rheostat controls cockpit blower. <u>Now</u> Individual potentiometers control both the cabin and cockpit blower.	A. J. Merrill	3/21/97
B	1	LEARJET MODEL <u>WAS</u> 31/35/36 <u>NOW</u> 31/31A, 35/35A, 36/36A	<i>Paul J. ...</i>	FEB 08 2002
	3	Added Descriptive Data		
	4	Section 2 <u>WAS</u> "The vapor cycle R-134a refrigerant based cooling system is installed for cockpit and cabin cooling during ground operations, in-flight cooling, and cabin dehumidification. Power must be supplied by both aircraft generators or a ground power unit. Individual potentiometers control both the cabin and cockpit blowers."		
	5	Section 3 <u>WAS</u> "Refer to DC buses and their associated loads on the Pilot's Circuit Breaker Panel, Page 3.13 of AFM."		
	5	Section 4 <u>WAS</u> "No Change." REASON: ENHANCEMENT PER ER1803		

FAA APPROVED: ~~FEB 08 2002~~
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FAA APPROVED
AIRPLANE FLIGHT MANUAL SUPPLEMENT
TO
LEARJET MODEL 31/31A, 35/35A, 36/36A
GENERAL DESCRIPTIVE DATA

The Keith Products Air Conditioning System is electrically powered and consists of the following components:

- A motor-driven compressor mounted on a pallet assembly in the tailcone.
- A condenser coil and blower mounted in the tailcone.
- A cabin evaporator and fan mounted in the aft section of the cabin ceiling.
- An optional cockpit evaporator and fan assembly mounted above the cockpit headliner panels.
- Optional air distribution ducting routed from the cockpit evaporator to the air outlets above the pilot/copilot.
- Refrigerant hoses routed from the tailcone to the cabin evaporator and to the optional cockpit evaporator.
- A COOL/OFF switch located on the copilot's switch panel.
- Individual potentiometers that control both the cabin and cockpit blowers.
- A 15 Amp circuit breaker labeled "CAB BLO" and a 7.5 Amp circuit breaker labeled "FREON CONT."

Power to the compressor drive motor will be available under the following conditions:

- Ground power cart on
- One generator operating on ground
- Both generators operating on ground
- Both generators operating in flight

Power to the compressor drive motor will **not** be available under the following conditions:

- Battery power only
- One generator in flight
- Either "START-OFF-GEN" switch in "START" position
- Refrigerant over/under pressure switch activated

SECTION 1**LIMITATIONS**

No Change.

SECTION 2**NORMAL PROCEDURES****Description****AIR CONDITIONING**

The air conditioning system utilizes R-134a refrigerant and has an evaporator and fan for the cabin, and an optional evaporator and fan for the cockpit. Cabin and cockpit fan speeds are variable. Air conditioning can be selected by placing the COOL/OFF switch in the COOL position.

On Ground: Air conditioning may be operated with a GPU or with one or two generators providing 28 VDC.

Starting (GPU): The load shedding system drops out the compressor drive motor during starts. However, it is recommended that the COOL/OFF switch be in the OFF position for engine starts.

Starting (Battery): The system incorporates a load shedding system that prevents the operation of the compressor drive motor while on battery power. However, it is recommended to prevent the drive motor from re-starting when the start is complete, the COOL/OFF switch should be in the OFF position. This allows time for the generator to stabilize and the batteries to charge prior to seeing the load of the drive motor. Before turning on the air conditioning, monitor generator load to ensure adequate power is available following a battery start.

NOTE: After start with one or two generators on-line, selecting the COOL/OFF switch to COOL may cause the AMPS load to momentarily exceed 400 Amps.

In Flight: The automatic load shed system requires both generators to be online supplying 28 volts to operate the air conditioning system. The in flight failure of either generator will disable the air conditioning drive motor.

NOTE: When descending from altitude, the air conditioning system may not be immediately available due to system cold soak.

SECTION 3**EMERGENCY PROCEDURES****LEFT AND RIGHT GENERATOR FAILURE**

The system incorporates a load shedding circuit that disables the compressor drive motor if either/both generators are lost in flight. In the event of a dual generator failure, it is recommended that the COOL/OFF switch be turned OFF and the cockpit fans be turned OFF.

SECTION 4**ABNORMAL PROCEDURES****LEFT OR RIGHT GENERATOR FAILURE**

The system incorporates a load shedding circuit that disables the compressor drive motor if a generator is lost in flight. In the event of a single generator failure, it is recommended that the COOL/OFF switch be turned off.

For power management reasons, the pilot may elect to disable the fans. It will be necessary to manually turn them off by turning the fan speed potentiometers to the OFF position (CCW.)

SECTION 5**PERFORMANCE**

No Change