**AIR COMM CORPORATION**
**3300 AIRPORT ROAD**
**BOULDER, COLORADO 80301**

**McDONNELL DOUGLAS HELICOPTER**
**MODEL MD-900**

# FLIGHT MANUAL SUPPLEMENT
FOR
# AIR CONDITIONING SYSTEM

**MD900AC-100M**

**SERIAL No. 900-00012**

The information contained in this document is FAA approved material, which must be carried in the basic Flight Manual, after the rotorcraft has been modified by installation of the cabin air conditioning system in accordance with Air Comm Corporation STC No. SR00174DE.

The information in this document supplements or supersedes the basic manual only in the items contained herein. For Limitations, Procedures, and Performance Data not contained in this supplement, consult the basic Flight Manual.





**FLIGHT MANUAL**
**MODEL MD-900 AIR CONDITIONER**

CABIN AIR CONDITIONING SYSTEM

Log of Pages

Original . . . 0

| Pages | Date | Appr | Rev. No. |
|---|---|---|---|
| 1-11 | | | N/C |

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APPROVED:
Ron May, Manager
Denver Aircraft Certification
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**MODEL MD-900 AIR CONDITIONER**

**SYSTEM DESCRIPTION**

**SECTION I**

The vapor cycle system installation consists of two forward evaporators, one aft evaporator, a condenser, and a compressor which is belt driven by the right engine main rotor drive shaft. These components provide "conditioned air" through the existing air distribution system when the engines are operating during both ground and flight operations. Component locations are shown in figure 1.

The system can be operated in either the **AC** or **VENT** mode. In the **AC** mode, conditioned air is provided to the cockpit and cabin through the forward and aft evaporators. A five position rotary switch **AC/VENT** controls the vent fan and air-conditioning. **COOL HIGH** provides air-conditioning at a high setting. **COOL LOW** provides air-conditioning at a low setting, selected from the center console utility panel assembly. Air conditioning temperature may be controlled by an **AC TEMP CONTROL** switch located overhead on the windscreen center brace. ( See figure 3)

In the **VENT** mode the forward evaporator blowers are used to circulate cabin air. The aft evaporator blower draws fresh air through the fresh air inlet duct and existing water separator. The fresh air is then distributed to the cabin and cockpit through existing outlets. The blowers can be operated on either **VENT HI** or **VENT LOW** speeds. **VENT LOW** provides vent air at a low setting. **VENT HIGH** provides air at a high setting. ( See figure 2)

The cabin heater can be operated simultaneously with the AC to achieve desired cabin temperature, or to defog cabin windows.





**MODEL MD-900 AIR CONDITIONER**

**SYSTEM DESCRIPTION** (cont'd)

The compressor is mounted forward of the right engine and the drive pulley is bolted to the Right Main Rotor Transmission drive shaft adapter. Power is transmitted to the compressor by means of a 3/8" V-belt.

The air flow pumping action through the condenser heat exchanger is provided by two six inch diameter Jetfans. (ejectors). These units are powered by engine bleed air. The bleed air flow is controlled by a firewall mounted solenoid operated shutoff valve. The failure mode of the shutoff valve is closed.

The air conditioning electrical system is designed so that the system automatically "drops off line" in case of failure of either engine.

The original rotorcraft fresh air electrical system is modified to include the inlet door actuator, and both the forward and rear evaporator blowers. The fresh air inlet source is retained, while the original vent system fan is removed. The new aft evaporator blower replaces the function of the original vent fan. The fresh air inlet duct door is incorporated as part of the evaporator assembly. This door is operated by means of an electric actuator.

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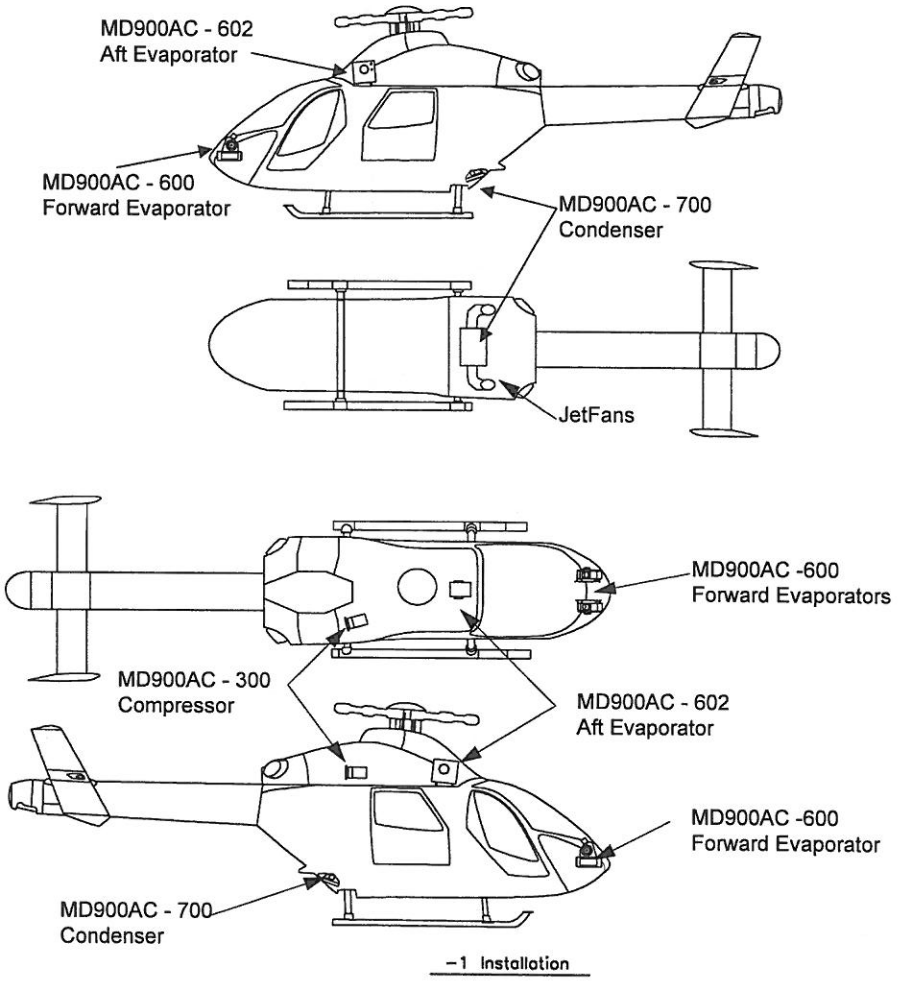



**Figure 1. General Arrangement - MD900 Air Conditioning System**

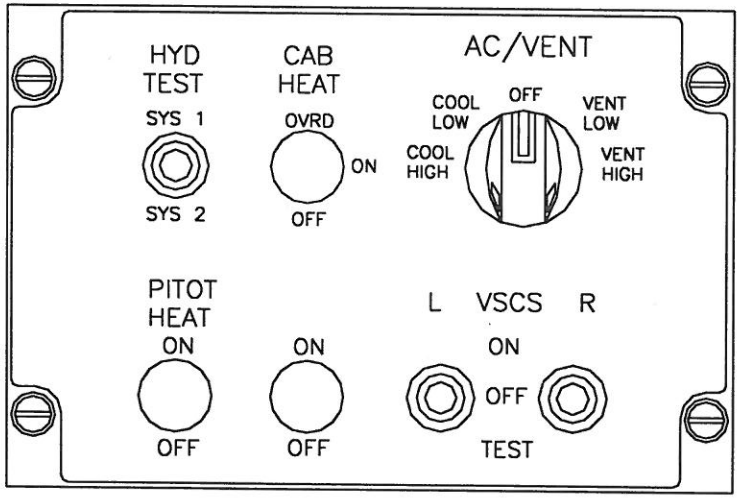




## SECTION II LIMITATIONS

### 2.1 PLACARDS & MARKINGS

**AC/Vent Controls**

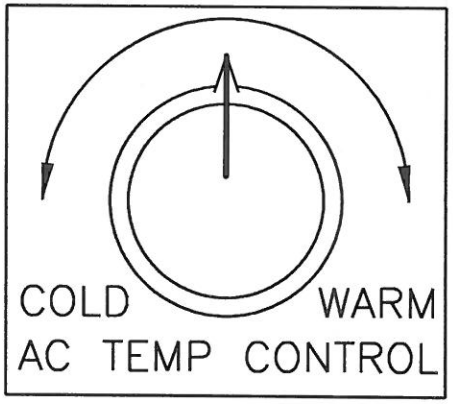



**Located in the center console utility panel.**

**Figure 2.**

2.1 PLACARDS & MARKINGS

**AC/Temp Control**



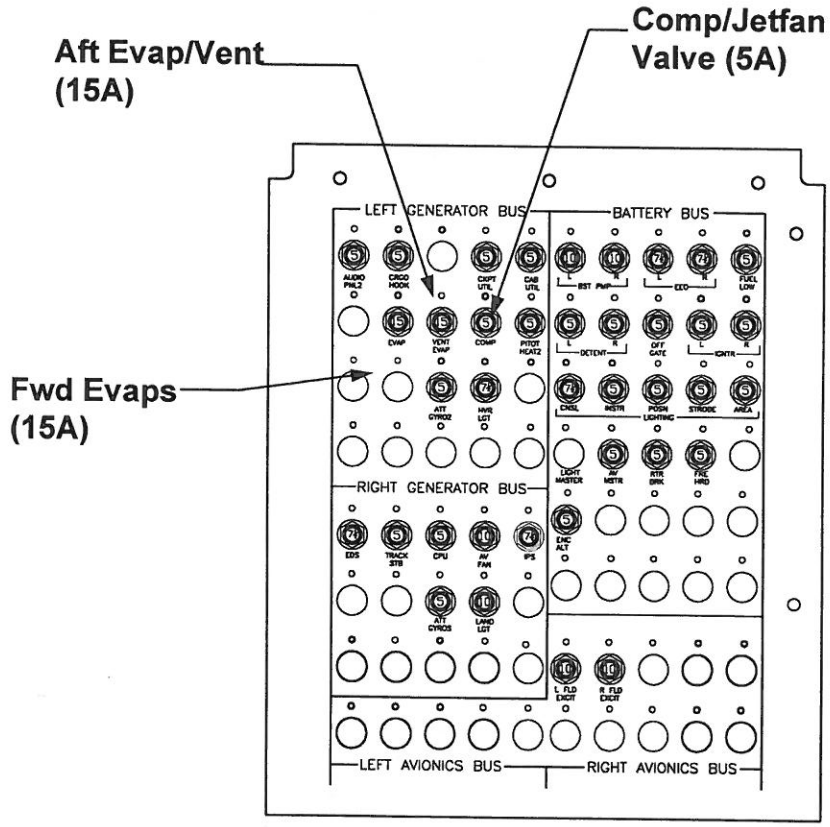

**Located on windscreen center brace.**

**Figure 3.**





2.1 PLACARDS & MARKINGS ( Cont'd)




**Located in Center CB Panel.**

**MODEL MD-900 AIR CONDITIONER**

## SECTION III EMERGENCY PROCEDURES

**AC/VENT switch OFF if any of the following Occurs:**

**Engine failure.**
**Smoke or fumes in cabin.**
**Engine over-temperature.**
**Insufficient power.**
**Generator failure.**
**Unusual engine, airframe, or control system vibration.**

**NOTE**

**Lack of cooling may be an indication of loss of refrigerant. Turn A/C to OFF, or to VENT to preclude damage to the compressor.**



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## SECTION IV NORMAL PROCEDURES

**PREFLIGHT CHECK (EXTERIOR)**
**Compressor - Check security**
**Compressor drive belt - check tension and general condition**

**ENGINE PRESTART CHECK**
**AC/VENT Switch - OFF**

**BEFORE TAKEOFF**
**AC/VENT ON as desired.**
**Select AC/VENT blower speed as desired.**

**IN FLIGHT OPERATIONS**
**AC/VENT on as desired.**
**Select AC/VENT blower speed as desired.**

**DESCENT AND LANDINGS**
**AC/VENT on as desired.**
**Select AC/VENT blower speed as desired.**

**MODEL MD-900 AIR CONDITIONER**

## SECTION V PERFORMANCE DATA

**When the A/C is operating, there is a slight decrease in performance due to the additional power required by the air conditioning system. If you should require maximum power or performance you may elect to turn the A/C system off.**