

Integrated Flight Systems  
1900 Flightline Drive, Suite 3  
Lincoln, CA 95648  
Supplement No: RFMS-355-00-31

**FAA APPROVED**

**ROTORCRAFT FLIGHT MANUAL SUPPLEMENT**

**TO THE EUROCOPTER MODEL**

**AS355E, AS355F, AS355F1, AS355F2, AS355N &  
AS355NP**

**EUROCOPTER APPROVED ROTORCRAFT FLIGHT MANUAL  
when equipped with**

**Integrated Flight Systems, Inc. Air Conditioning  
System**

REGISTRATION # \_\_\_\_\_ SERIAL # \_\_\_\_\_

This supplement must be attached to the Eurocopter Approved Rotorcraft Flight Manual when the rotorcraft is modified by the installation of Integrated Flight Systems, Inc. Air Conditioning System in accordance with

**STC No. SH5947SW**

The information contained herein supplements or supersedes the basic manual only in those areas listed herein. For limitations, procedures, and performance information not contained in this supplement, consult the basic Rotorcraft Flight Manual.

FAA Approved *Richard F. Cohen, for*

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Federal Aviation Administration  
Los Angeles Aircraft Certification Office  
Transport Airplane Directorate


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RFM Supplement to the Eurocopter  
 Models AS355E, AS355F, AS355F1, AS355F2  
 AS355N & AS355NP Flight Manual when modified with  
 Integrated Flight Systems Air Conditioner  
 STC No SH5947SW

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### RECORD OF REVISIONS

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A	Title Log Cont 1-7	10/27/ 1988	Change Company Name to: Av-Aire Corporation Added Model F2	Michael H. Borfitz, Manager, Denver ACFO Date: 10/27/88
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C	Title i 1-6		Changed IFS address Added Model NP Repaginated & Clean Up	 Mgr., Flight Test Br., ANM-160L FAA, Los Angeles ACO, Transport Airplane Directorate Date: <u>December 31, 2008</u>

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## SECTION I GENERAL

The installation consists of a belt drive vapor-cycle air conditioning system.

## SECTION II LIMITATIONS

### Compatibility

- Operation of the air conditioning system is prohibited on one generator if the total electrical load will exceed 150 amps (100amps if AMS 07.1123 has not been incorporated).
- "MAG" compass deviation may be excessive with air conditioner fan – "ON".

## SECTION III EMERGENCY PROCEDURES

### Engine Failure

- Air Conditioner "OFF".

### DC Generator Failure

#### Note

Load shedding of the air conditioning system does not occur if a generator failure occurs. Automatic load shedding is not provided.

- Air conditioning – "OFF"
- Ammeter to operating system – Monitor.
- Ammeter 129 amps or less (AMS 07.1123 incorporated) or
- Ammeter 69 amps or less w/o AMS 07.1123.
- Reduce electrical load – As required.

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- Air conditioning – “ON”, as desired.
- Ammeter – Monitor – 150 amps maximum continuous w/ AMS 07.1123.

## **Excessive Temperature, Fire, Smoke**

- Air conditioning – “OFF”

## **SECTION IV NORMAL PROCEDURES**

The Normal Procedures specified in the basic Flight Manual apply with the addition of the following:

### **Preflight Checks**

#### **Exterior Checks**

- Air Conditioner belts and compressor – general condition and security.
- Hoses and tubing - condition and security.
- Heat Exchanger – clear of obstructions.

#### **Interior Checks**

- Prior to engine start – Air Conditioner – “OFF”

### **Ground Operation – One Engine – One Generator**

- Ammeter of operating generator - Monitor
- If 129 amps or less (AMS 07.1123 incorporated) or 69 amps w/o AMS 07.1123
- To turn air conditioner “ON” – Move switch to “A/C”
- To turn air conditioner “OFF” – Move switch to “OFF”
- For air circulation without cooling – Move switch to “FAN”
- Select desired blower speed for cockpit
- Select desired blower speed for cabin

## Ground and Flight Operations

- Ventilation Control – as desired (Close for cockpit cooling)
- Air Conditioning Control Switch – as desired
- Air Conditioning Fan Speed Control Switch – as desired (Cockpit and Cabin)

### Note

Turn Air Conditioning – “OFF” to obtain correct  
Magnetic Compass heading.

## SECTION V PERFORMANCE DATA

- The air conditioning system must be turned “OFF” to obtain FAA approved Rotorcraft Flight Manual performance above 7000 feet density altitude.

## SECTION VII MANUFACTURER’S DATA

### System and Description

The air conditioning installation consists of a belt driven vapor cycle air-conditioning system using R-134A as the refrigerant.

The air conditioning system provides for cabin comfort during all operations both on the ground and in flight. During ground operations when either engine is running, cooling may be provided. Controls for the air conditioning system are located on or near the instrument panel. Three switches are provided. The Master Control Selector consists of a rocker type switch, labeled “A/C”, “OFF”, and “FAN”. Selecting the “A/C” position turns on the system’s dual evaporator fans, and condenser blower, and belt driven compressor. The second rocker switch is “HIGH”, “MED”, “LOW” evaporator fan speed selection for the forward cockpit. The aft evaporator has a separate fan speed 2 position switch HI/LOW located in aft cabin.

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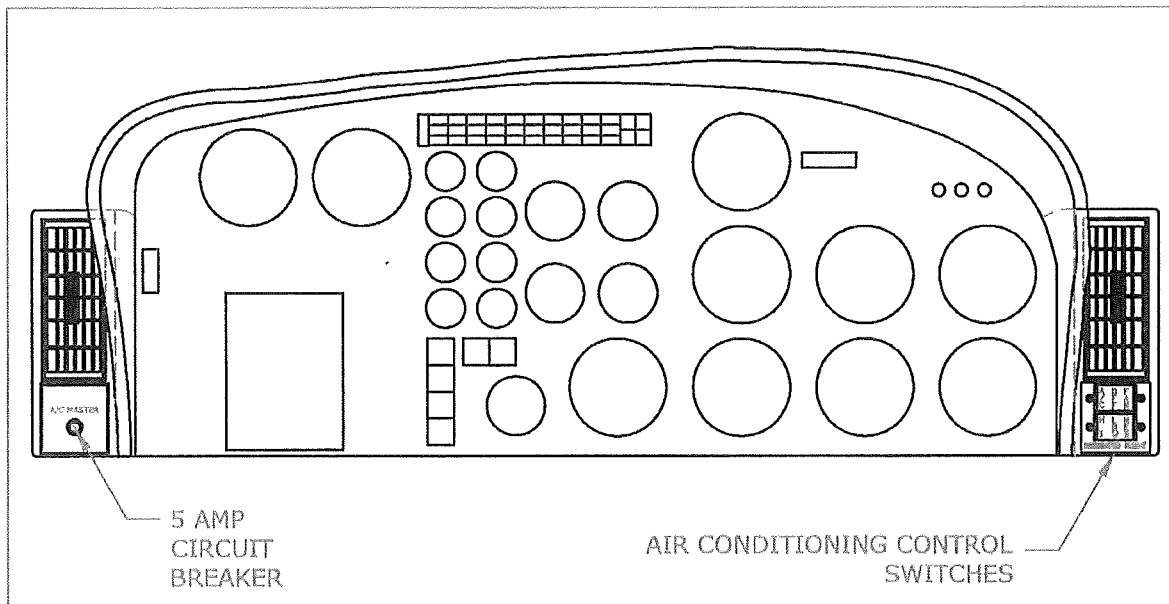
### Weight & Balance Data

Weight and Balance must update to show air conditioning system installation once installation has been performed. The system weight is 82.2 pounds with an arm of 132.88.

See Instructions supplied with kit for actual weights and moment information.

### Configurations / Options

This system may be utilized in multiple applications. See the following possible configurations and application for each specific installation possibility.



**Figure 1. Cockpit Layout (Typical)**

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A high-pressure safety switch, located under the cabin floor, disengages the compressor clutch and stops operation of the system in the event of excessive refrigerant pressures. This can occur due to failure of the condenser blower or restricted air intake. The switch will automatically reset itself, but a 1 amp circuit breaker will open and keep compressor off until reset. A low-pressure safety switch is also located under cabin floor. It opens and stops operation of the compressor clutch in the event refrigerant loss occurs. This switch will automatically reset. Maintenance personnel MUST correct the fault once the aircraft is on the ground. Air circulation is still available, even if a fault occurs. The evaporator fan system may be used anytime air circulation is desired. This is accomplished by placing the selector switch in the "FAN" position. Temperature control is not provided.

Dual 5" Vane Axial Condenser Blowers:

System electrical protection is provided by 1 each 15 amp, 3 each 20 amp, and 1 each 1 amp circuit breakers. Labeled EVAP (Fwd), EVAP (Aft), COND, and COND on the Air Condition Electrical Control Panel. This panel is located in the right side baggage compartment above the battery.

Electrical Loading (Dual 5" Blowers)

The maximum electrical loads of the air conditioning system components:

Condenser blower	2 each @	11amps =	22 amps
Compressor clutch coil	1 each @	3amps =	3 amps
Evaporator fan (fwd)	1 each @	9amps =	9 amps
Evaporator fan (aft)	1 each @	11amps =	11 amps
	System	Total =	45 amps

**Note**

During conditions of high DC current use, such as battery recharging after engine start or use of landing lights, it is possible that the electrical load requirements with the air conditioning operating may exceed the rated output of the DC generator system.