

Service Kit

FAA/DER APPROVED

Service Kit: SK-427EC-800-1

Title: Replacement of Model 427 Air Conditioner Evaporator & Condenser Blower Motors to eliminate HF radio RF interference.

Date: June 23, 2002

Applicability: Bell Model 427 equipped with HF Radio Equipment.
S/N 56034

Reference: STC SR00418DE; Bell Model 427 Cabin Air Conditioner System.

Compliance: Optional, at the discretion of the operator.

Purpose: To eliminate RFI interference between 2 and 30 MHz with the Air Conditioner System Blower Motors and the HF Radio.

Information was added to remove "Free-Wheeling" diodes at each of the four evaporator blower motors and the condenser blower motor.

Discussion: This change replaces the existing evaporator blower motors with ones that have been modified with the installation of capacitors and inductors for the purpose of RFI/EMI filtering. In addition the condenser blower is replaced by a new blower which features a brushless DC Motor.

The details of the modifications that are required to up-grade the existing system to the 427EC-204 Configuration that are summarized below.

1. Remove and replace the forward & Aft evaporator blower motors.
2. Remove and replace the condenser blower assembly.

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Installation / Replacement Instructions

CAUTION

Handle blower wheel assembly with extreme care. Rough handling can cause the blower wheel to become unbalanced causing the wheel to vibrate or rub inside the blower housing.

NOTE

Disconnect battery and remove external power source before starting work.

1. **Replacement of forward & aft evaporator motors.** (Typical for both L/H and R/H forward & Aft evaporator motors).
 - a. Identify and cut forward & aft evaporator blower motor power wires.
 - b. Remove the four (4) screws that secure the evaporator motors to the evaporator housing. Remove the blower motor & blower wheel assembly from the evaporator housing.
 - c. Note the location of the blower wheel on the motor shaft. Install blower wheel on new motor shaft in the same position on the motor shaft.

NOTE

Care should be taken to locate the blower wheel as shown in Figure 1-1. The blower wheel must not rub the inlet venture ring.

- d. Splice the electrical wire using two (2) 320559 butt splices between the new motor and the existing wires in the evaporator housing using the previous wire logic.

NOTE

No external "Free-Wheeling" diode is required when RFI/EMI filtered evaporator blower motors and brushless condenser blower motor are installed.

If "Free-Wheeling" diode was previously installed, then remove it during installation of the RFI/EMI filtered evaporator blower motors and brushless condenser blower motor
(See Schematic 1 on Page 5)

NOTE

Improper electrical connection will cause the blower wheel to turn in the wrong direction. Apply power and insure that the blower wheel rotates in the direction of the blower outlet.

2. Replacement of the Condenser Blower Motor.

- a. Remove the fourteen (14) panel screws that secure the condenser blower assembly to the belly of the aircraft, and lower the condenser blower assembly.

CAUTION

It is important to note that the condenser scoop assembly is not secured to the airframe once the panel screws are removed. It is therefore important to support the condenser assembly to insure it or the aircraft is not damaged during the removal or installation process.

- b. Disconnect the condenser blower at the Molex connector, and remove the condenser blower assembly from the aircraft.
- c. Cut the safety wire between the condenser blower retaining bolts (2 Pls) and remove the retaining bolts and blower & motor assembly from the condenser blower plate assembly.

JUL 07 2004

Ans'd.....

3. Replacement of the Condenser Blower Motor (Cont'd)

- d. Install the new brush-less motor and blower assembly in the reverse order of its removal. Torque the blower assembly mounting bolts 50 to 70 inch lbs., and safety using .032 safety wire.
- e. Re-connect the Molex connector, and reinstall the fourteen (14) panel screws that secure the condenser blower assembly to the belly of the aircraft.
- f. Confirm the direction of rotation of the blower motor is pulling air into the condenser scoop assembly.

4. Maintenance Operational Check (MOC)

- a. Reconnect aircraft battery, or Ground power equipment.
- b. Recharge the air conditioner system I/A/W the Instructions for Continued Airworthiness manual 427EC-200M-1.
- c. Turn on aircraft power, and place the air conditioner control switches in the "blower" & "low" positions. Observe, and insure that both the cockpit and cabin blowers are all operational. With the system remaining in the "blower" position, place the cockpit and cabin blower switches in the "High" position, and again observe and insure that all blowers are operational. See Schematic 1 on page 5 to confirm proper direction of rotation of the blower wheels.
- d. Next move the air conditioner control switch from "blower" to the "A/C" position, and again observe that both the cockpit, cabin, and condenser blowers are now functioning.
- e. Operate the HF radio along with the air conditioner system to insure there is no radio interference, and return the aircraft to service.

Bill of Materials

Item	Part Number	Description	Qty.
1	ES61062-1	Motor Assembly	4
2	ES73190-1	*Condenser Blower Assembly	1
3	320559	Butt Splice	8

*This item packed as part of the Service Kit SK427EC-800-2

Weight and Balance

The weight change for this modification is negligible.

Required Documents

Dwg. # 427EC-704 Condenser Installation
Dwg. # 427EC-800 Electrical Installation

Instructions for Continued Airworthiness

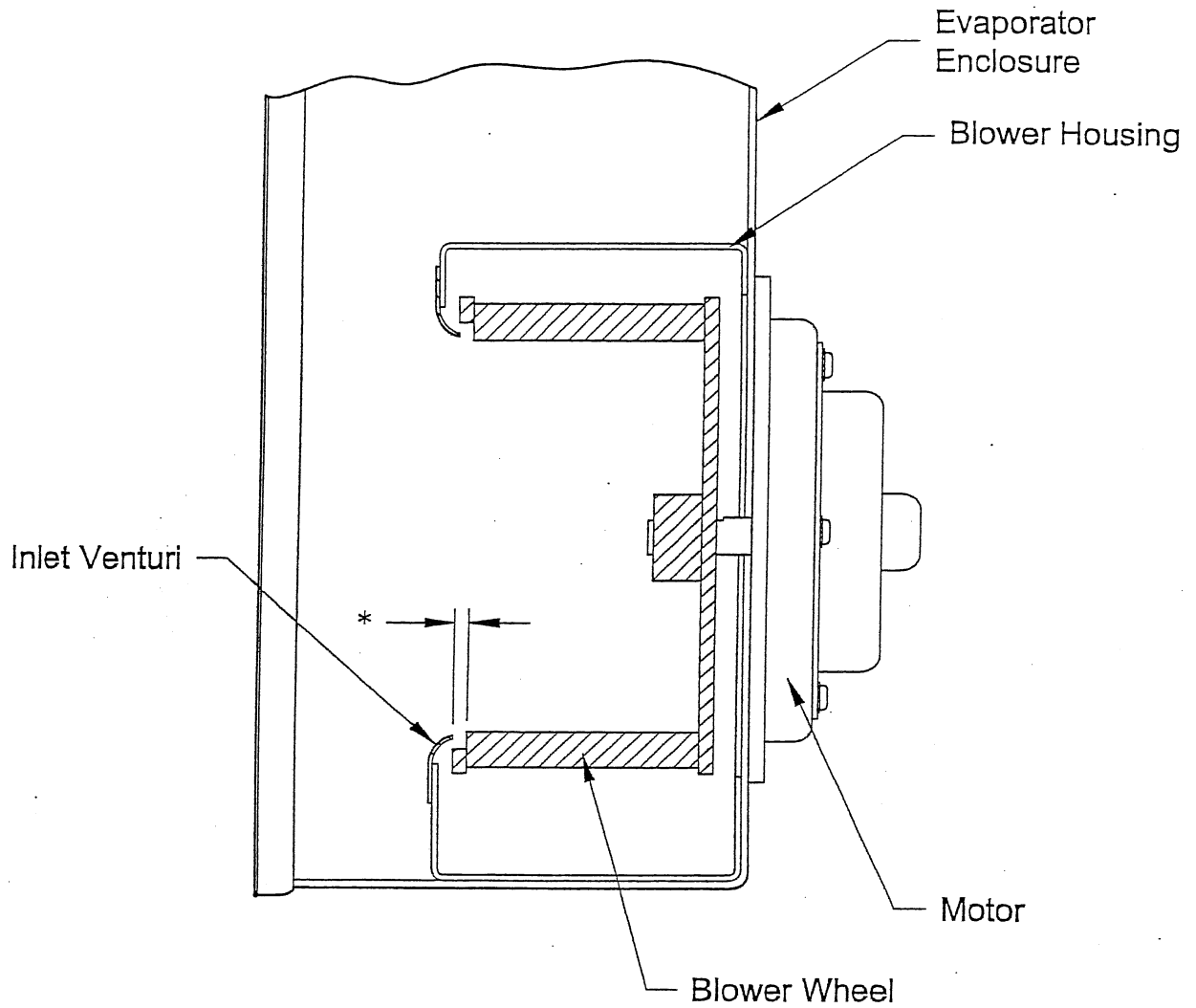
This change has no effect on the maintenance procedures for the installation, thus the 427EC-200M-1 Instructions for Continued Airworthiness is applicable.

An exception to this statement is that items 1 & 2 above are considered as suggested spares items.

A copy of this service kit should be retained with the aircraft maintenance records.

JUL 07 2004

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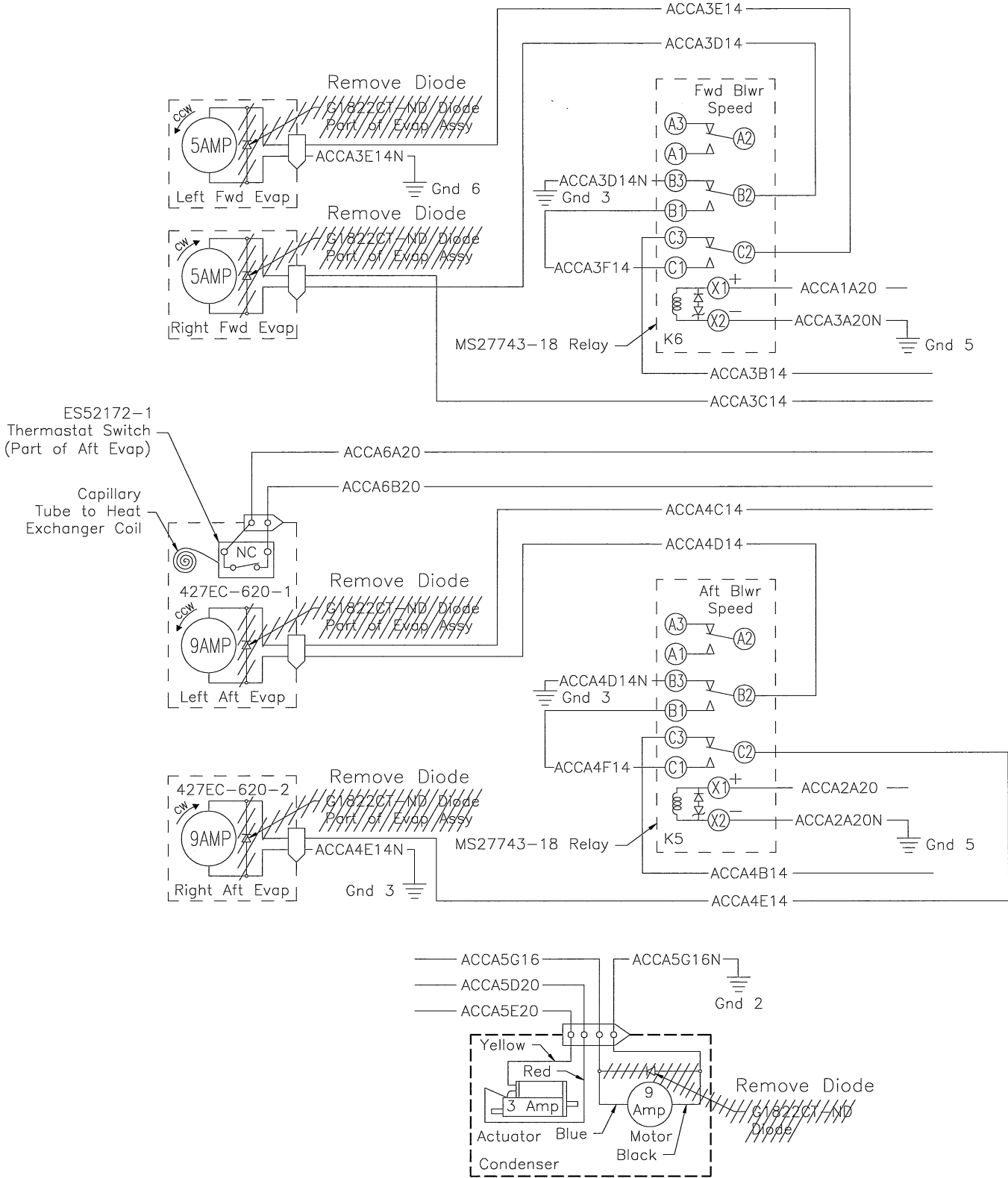


* Blower Wheel fins should be located approximately .10 from edge of Inlet Venturi. BLOWER WHEEL MUST NOT RUB DURING OPERATION.

Figure 1-1 Blower Wheel Clearance Criteria

JUL 07 2004

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Schematic 1

(Remove "Free-Wheeling" Diode from the shown locations during installation of the EMI/RFI filtered evaporator blower motors and brushless condenser blower motor)

JUL 07 2004

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