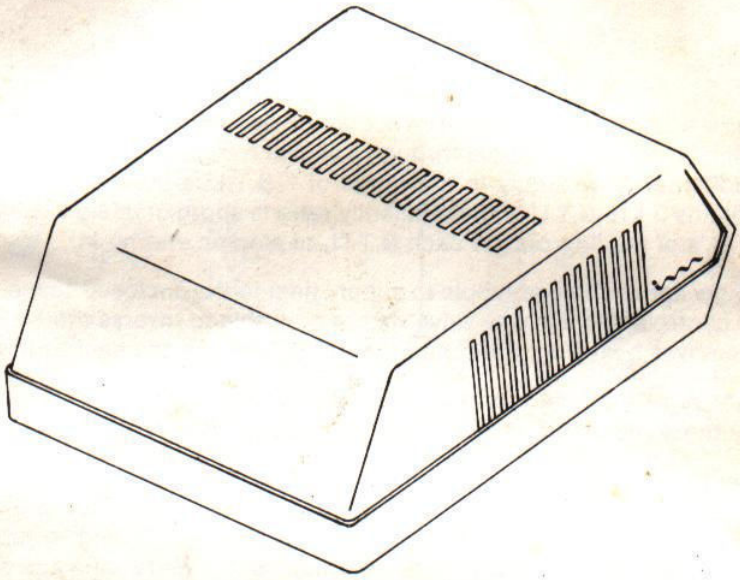
INSTALLATION
and OPERATING INSTRUCTIONS



ROOF-MOUNT
HEAT PUMP AIR CONDITIONERS
MODELS
IM 20 IM 22 IM 24

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INSTAMATIC™
DIVISION LaSalle-Deitch Co., Inc.
A North American Philips Company
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YOU AND YOUR NEW AIR TO AIR HEAT PUMP AIR CONDITIONER

As you know an Air Conditioner is a device which removes heat from an enclosed space and transfers the heat to the outdoors through a sealed refrigeration system. The efficiency of an Air Conditioner is generally in the range of 7 B.T.U.'s per watt.* Since (1) watt of electricity contains 3.415 B.T.U.'s the efficiency ratio is approximately 2-1. In basic terms you get 2 B.T.U.'s of cooling out for each B.T.U. of electric energy in.

We have now applied this principle to supply heat to the enclosed space. Through the use of proper controls and a 4-way valve we are now able to reverse the Air Conditioning cycle which removes heat from the outdoor air and transfers the heat to the indoors.

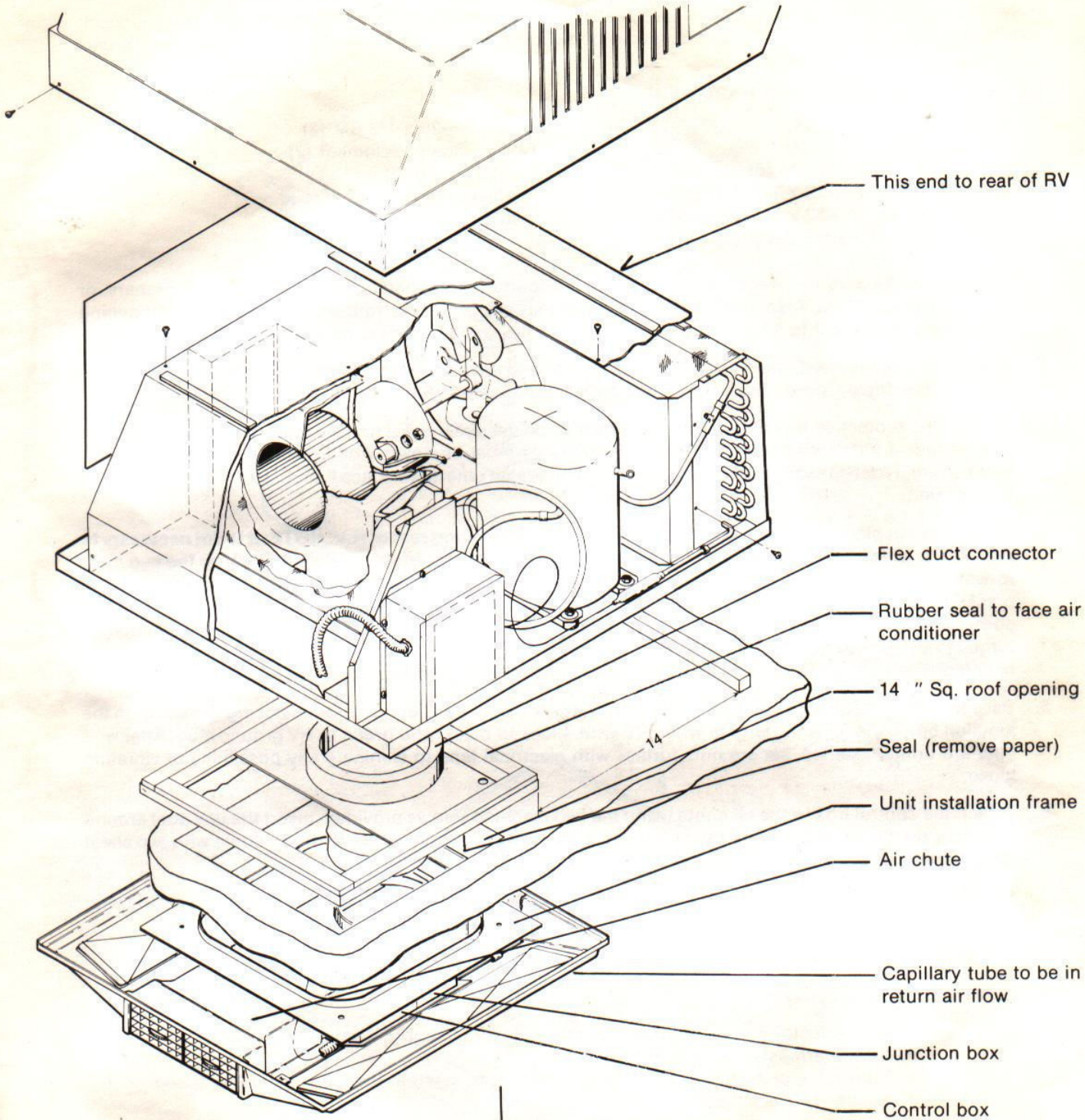
The efficiency of the heat pump will vary with the outdoor temperature, but will be approximately the same at 42° outdoors as the cooling cycle at 95° outdoors.

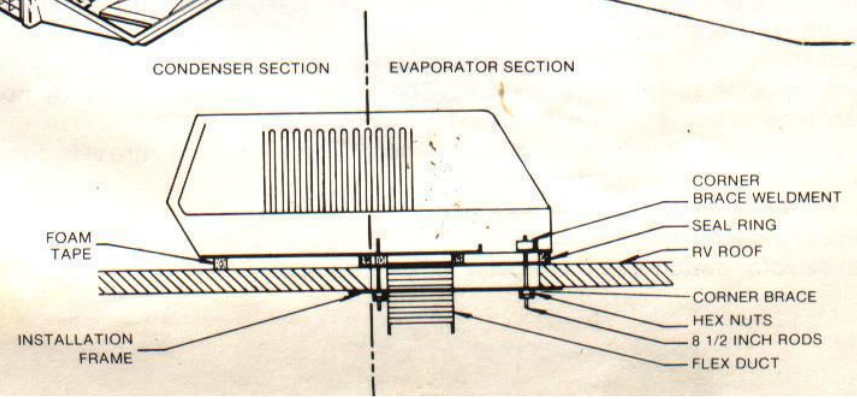
In order for the Air Conditioner to remove heat from the outdoor air, the temperature of the outdoor coil must be lower than the air being circulated over it, therefore when the outdoor temperature approaches the freezing temperature 32° F., the temperature of the outdoor coil must be lower than 32° F. This condition could create Icing and damage to the unit. In order to eliminate this problem we have installed a thermostat to sense the outdoor temperature and when the temperature reached 36° F. the unit will shut down.

Your new Heat Pump will provide you not only with the same reliable cooling capacity as the conventional Air Conditioner, but will also supply heating at approximately 2 times the efficiency of conventional heat strip models.

* At ARI Rating Conditions 80° Indoors
95° Outdoors

ASSEMBLY VIEW — All Models





INSTALLATION INSTRUCTIONS

Note: The anchor bolts and return air duct supplied as standard equipment will cover a range of 1 inch to 6 inch roof thickness. For larger roof thicknesses, special bolt kits and air connectors can be obtained by special order.

MOUNTING HARDWARE

Rod, 5/16-18 (4)
Washer, 5/16 (4)
Nut, 5/16-18 Hex (8)
Screw, #10-12 x 1.00 SM (8)
Screw, #10-32 x 1/2 Self-tapping (2)
Toggle Switch Bezel (1)
Screw, #6-20 x 1/2 SM (2)
Corner Brace Weldment (2)
Control Knob (2)
Foam Tape (1)
Corner Brace (4)

1. Remove the 14 x 14 roof vent and any obstruction found in the opening such as screens, crossbars, or electrical junction box. Also, remove any flange that may be protruding from around the opening. If opening has to be cut, frame it to 14 x14 but be sure stock is the same thickness as roof.

2. If vent fan was removed, the existing wiring may be used providing it complies with ANSI A-119-1 and the National Electrical Codes. The wiring must be adequate ampacity to run the air conditioner.

3. Peel off the protective wax paper from the adhesive on the square seal ring and carefully place in position around the 14 inch roof opening, Fig. 1. Adhesive side must be down. Additional caulking may be used around ring if roof has irregularities which cannot be sealed otherwise. Place Foam Tape one inch (1") from back of unit.

4. Set the unit in place over the vent opening with condenser facing rear of R.V. **NOTE: It is not necessary to remove the shroud to install this air conditioner.** Place the two corner brace weldments on the two most forward corners of the evaporator opening. The 8 1/2 inch rods can then be threaded through these corner braces and the two weld nuts in the base pan. With the installation frame in place from inside the coach, the corner brace, washers, and hex nuts can be applied to the threaded rods. After applying an even amount of torque to all four hex nuts, return to the roof of the coach to make sure of an even seal around the 14 x 14 inch opening. The additional four hex nuts should be used as lock nuts on the same 8 1/2 inch rods.

5. Pass the 115 volt RV supply wiring to the junction box using metal conduit for enclosing the wires. In the junction box connect white wire to white RV wire, black to black, and green to RV ground stud. After wire nuts are firmly fastened, secure nuts further with electrical tape to eliminate any possibility of vibrating loose.

6. Attach the control box to the air chute using the two machine screws provided. Insert the flex duct around the collar on the air chute. Bend the two sheet metal tabs at 90° and secure to the air chute with two sheet metal screws. (tabs must be flat as to prevent interference with the flow divider)

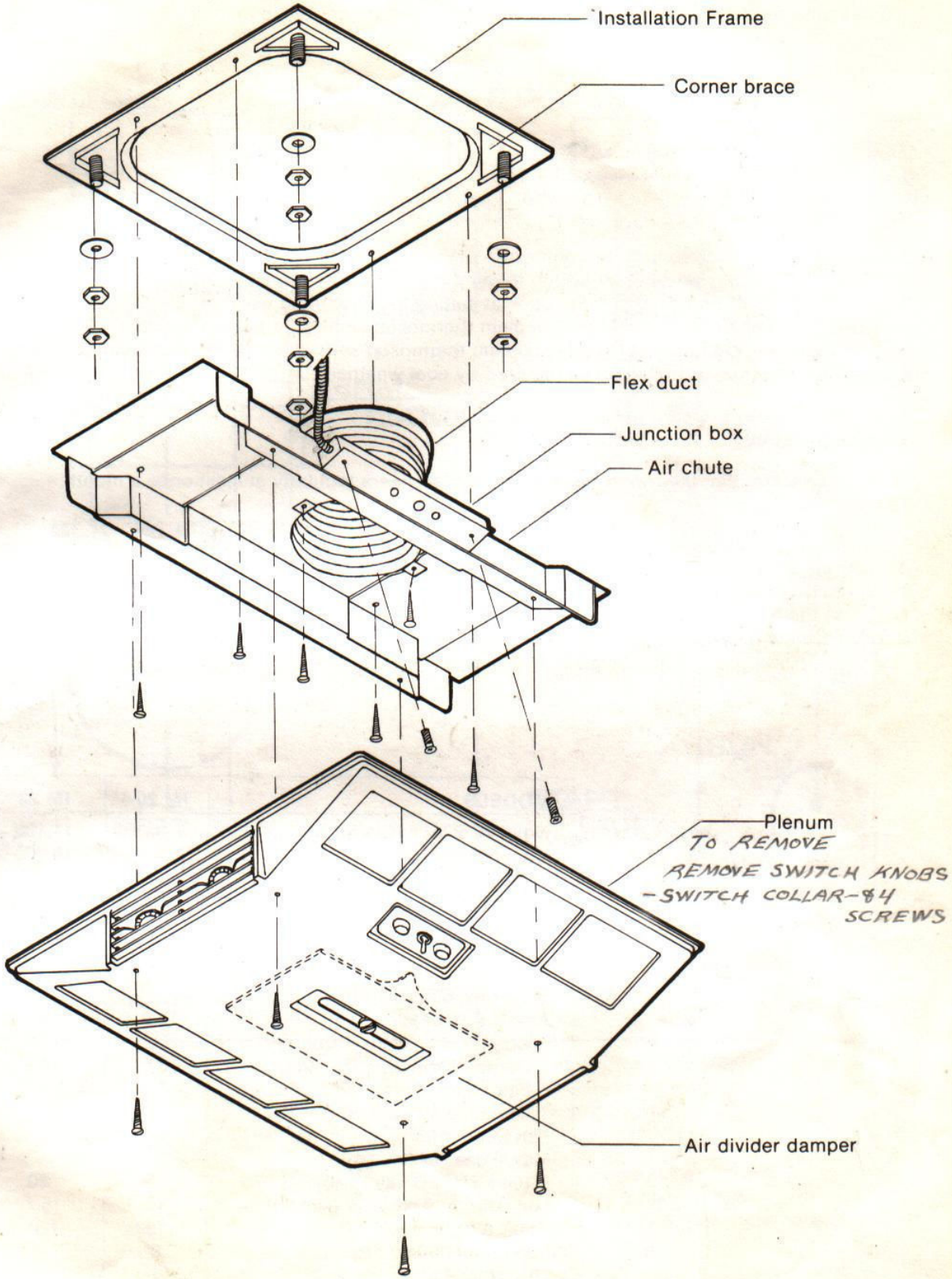
7. Align the four holes in the air chute with those in the installation frame, and attach air chute to ceiling with sheet metal screws.

8. Attach the plenum to the air chute using the four screws through the bottom of the plenum to the air chute.

9. Check operation of controls:

    a. With selector in "off" position, close the 115 volt supply circuit to the unit.
    b. Turn thermostat to coldest postion.
    c. Turn selector switch to "low" fan and check to see that the fan runs at low speed.
    d. Similarly, check "medium" and "high" fan.
    e. Turn "heat/cool" switch to "cool" position.
    f. Turn selector switch to "low cool". Check that compressor starts by noting cold air at discharge outlet. Blower will run at low speed.
    g. Similarly, check "medium" and "high" cool. When completed, turn selector switch to "off".
    h. Turn "heat/cool" switch to heat position.
    i. Turn thermostat to warmest position.
    j. Repeat steps f and g except note that discharge air should be warm.
    k. Set selector switch and thermostat for desired operation.

INSTALLATION ASSEMBLY INSTRUCTIONS



OPERATION and MAINTENANCE

■ OPERATION

1. Use selector switch to turn unit on or off.
2. Use "fan" settings on selector switch for air circulation during mild weather.
3. Use "high cool" and maximum thermostat setting for hot humid weather.
4. Use "medium" or "high cool" and medium thermostat setting for hot dry weather.
5. Use "low" or "medium cool" and maximum thermostat setting for mild humid weather.
6. Use low, medium or high heat as required by cool weather.

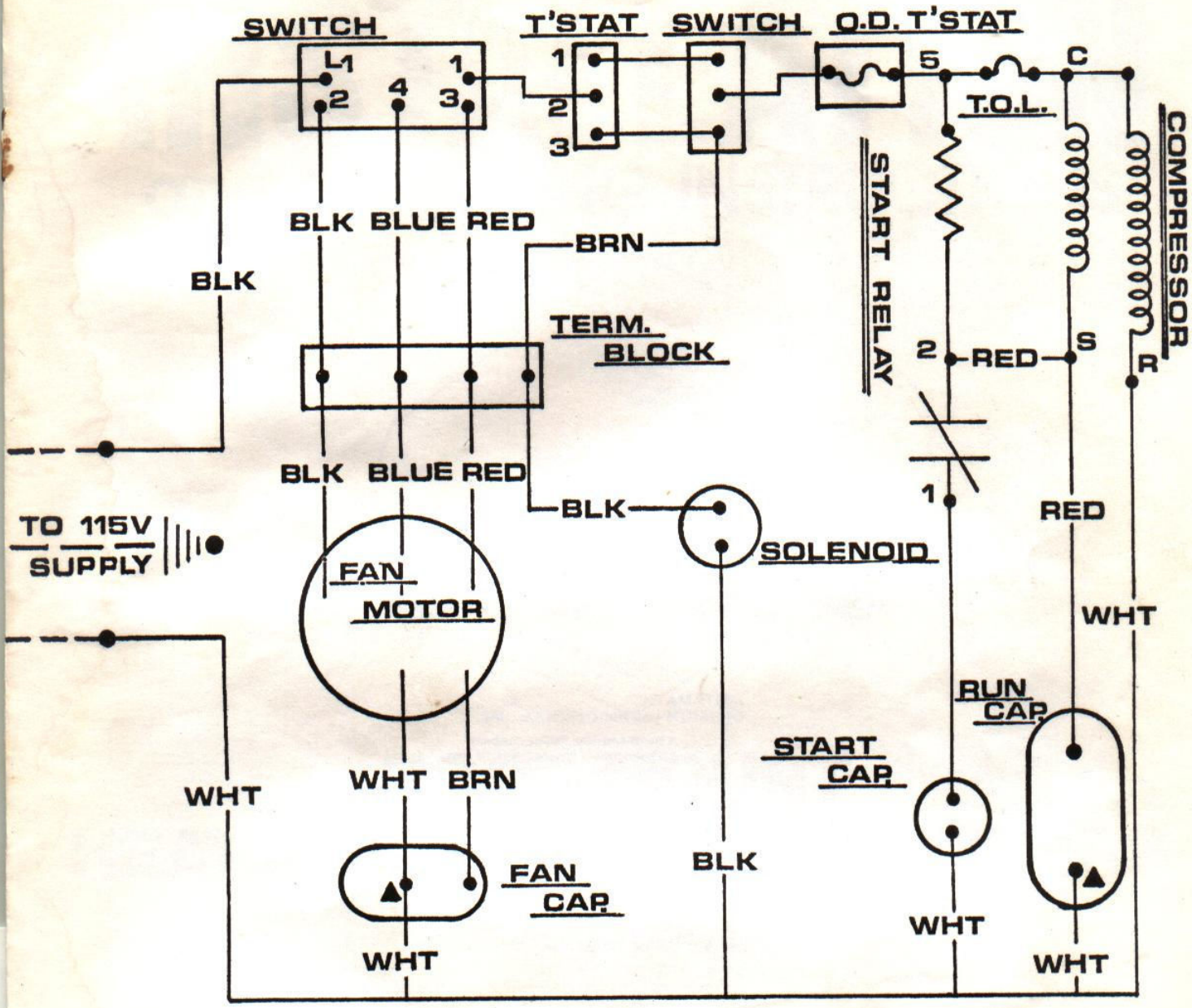
■ MAINTENANCE

It is necessary that the owner clean the return air filters regularly at least once a month. To clean the filters:

1. Turn the unit off.
2. Remove the return air grilles and filters.
3. Wash the filters in warm soapy water. Do not use solvent.
4. Rinse the filters and wring dry.
5. Replace the filters and return air grilles.

MODELS	IM 20	IM 22	IM 24
Nominal BTU's (Cooling)	9,400	11,100	13,700
Nominal BTU's (Heating)	9,000	10,000	12,000
Evaporator Air Flow (CFM)			
High Speed	272	306	386
Med. Speed	190	214	270
Low Speed	152	171	216
Electrical			
115 Volts, 60 Hz, 1 Phase			
Amps, Full Load	12.0	13.2	16.0
Compressor Only (Cooling)	10.5	11.2	13.8
Compressor Only (Heating)	10.5	11.2	13.8
Fan Motor Only	1.5	2.2	2.2
Compressor Locked Rotor	50.0	50.0	72.5
Fan Motor HP	1/5	1/4	1/4
Max. Fuse Size			
(Use Time Delay Fuse)	15	20	20
Min. Circuit Ampacity (Amps)	15	16.7	20
Total Weight, Installed	115	120	130
Max. Roof Thickness, In.	6	6	6
Min. Roof Thickness, In.	1	1	1

WIRING DIAGRAM



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