

Installation and Start-Up Instructions

Electric Air Conditioner

AC1B

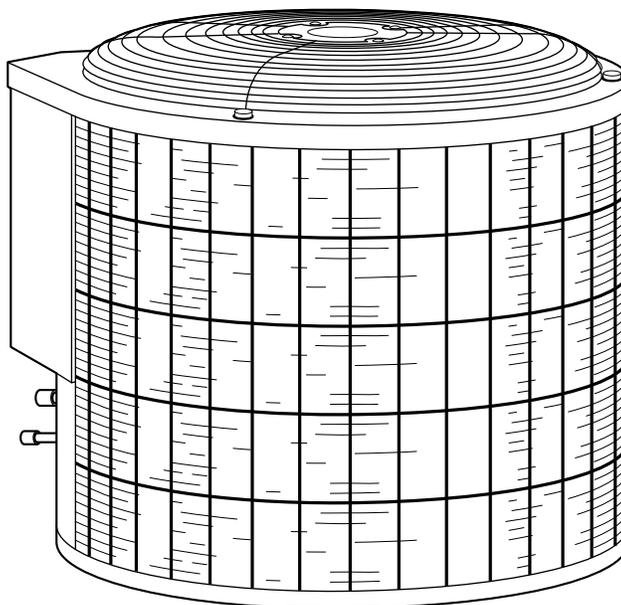


Fig. 1—Model AC1B

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NOTE: Read the entire instruction manual before starting the installation.

SAFETY CONSIDERATIONS

Improper installation, adjustment, alteration, service, maintenance, or use can cause explosion, fire, electrical shock or other conditions which may cause personal injury or property damage. Consult a qualified installer, service agency, or your distributor or branch for information or assistance. The qualified installer or agency must use factory-authorized kits or accessories when modifying this product. Refer to the individual instructions packaged with the kits or accessories when installing.

Follow all safety codes. Wear safety glasses and work gloves. Use quenching cloth for brazing operations. Have fire extinguisher available. Read these instructions thoroughly and follow all warning or cautions attached to the unit. Consult local building codes and National Electrical Code (NEC) for special requirements.

Recognize safety information. This is the safety-alert symbol . When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury.

Understand the signal word DANGER, WARNING, or CAUTION. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards which **will** result in severe personal injury or death. WARNING signifies hazards that **could** result in personal injury or death. CAUTION is used to identify unsafe practices which **would** result in minor personal injury or product and property damage.

 **WARNING:** Before installing or servicing system, always turn off main power to system. There may be more than 1 disconnect switch. Turn off accessory heater power if applicable. Electrical shock can cause personal injury or death.

INSTALLATION

PROCEDURE 1—CHECK EQUIPMENT AND JOBSITE

A. Unpack Unit

Move to final location. Remove carton taking care not to damage unit.

10. Isolate the hangar straps from the insulation by using metal sleeves bent to conform to the shape of the insulation. If refrigerant tubes or indoor coil is exposed to atmospheric conditions for longer than 5 minutes, it must be evacuated to 500 microns to eliminate contamination and moisture in the system.

⚠ CAUTION: DO NOT BURY MORE THAN 36 IN. OF REFRIGERANT TUBING IN GROUND. If any section of tubing is buried, there must be a 6-in. vertical rise to the valve connections on the outdoor unit. If more than the recommended length is buried, refrigerant may migrate to cooler buried section during extended periods of unit shutdown, causing refrigerant slugging and possible compressor damage at start-up.

Table 1—Refrigerant Connections and Recommended Liquid and Vapor Tube Diameters (In.)

UNIT SIZE	LIQUID		VAPOR	
	Connect Diameter	Tube Diameter	Connect Diameter	Tube Diameter
024	3/8	3/8	5/8	5/8
030, 036	3/8	3/8	3/4	3/4
042, 048	3/8	3/8	7/8	7/8
060	3/8	3/8	7/8	1-1/8

Tube diameters are for lengths up to 50 ft. For tubing lengths greater than 50 ft, consult your local distributor or the Long-Line Application Guideline.

B. Outdoor Units Connected to Factory-Approved Indoor Units

Outdoor unit contains correct system refrigerant charge for operation with indoor unit of the same size when connected by 15 ft of field-supplied or factory accessory tubing. Check refrigerant charge for maximum efficiency. (See Procedure 9—Checking Charge.)

C. Install Solenoid Valve in Liquid Tube

⚠ CAUTION: All models require liquid line solenoid for performance enhancement. Solenoid valve must be energized during evacuation for complete removal.

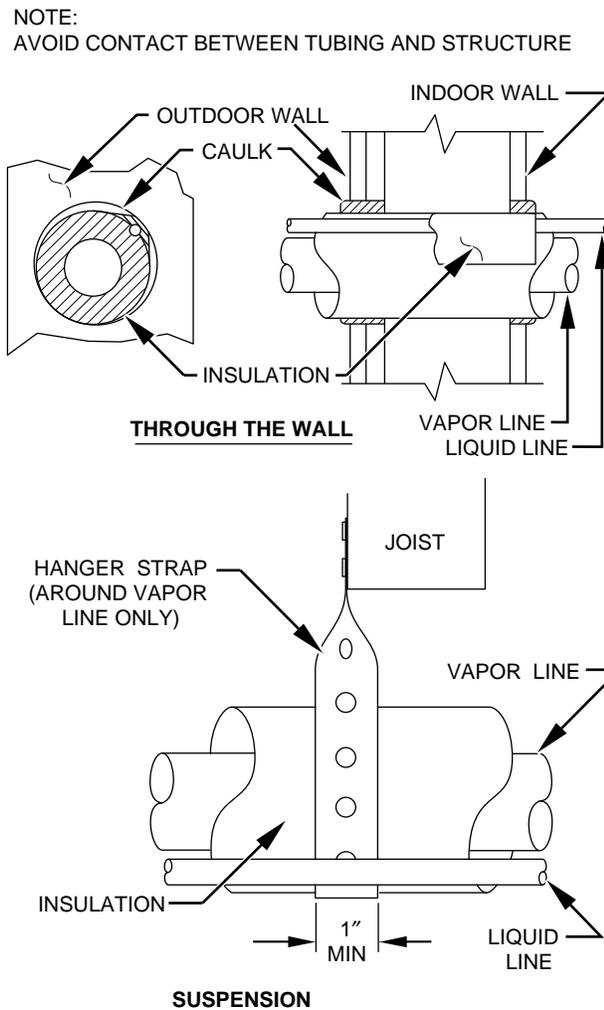
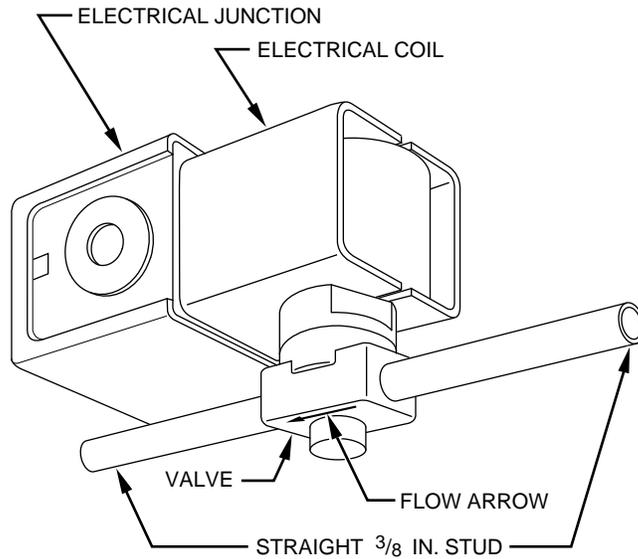


Fig. 3—Piping Installation



NOTE: System flow direction must match arrow on bottom of body.

Fig. 4—Solenoid Valve Installation

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Before making liquid tube connections, install factory-supplied solenoid valve on indoor liquid fitting. (See Fig. 4.) Be sure to use flare adapter supplied with the indoor coil when making connections.

⚠ CAUTION: If a field-supplied power source is needed when adding solenoid, wiring must comply with local codes and NEC requirements.

1. Remove coil liquid connection cap and discard.
2. Mount solenoid valve on liquid tube, making sure valve flow arrow points toward indoor coil. Mount valve in any position except valve body at top and electric coil at bottom. (See Fig. 4.) The solenoid valve is to be installed a maximum of 2 ft from indoor coil.
3. Braze valve onto end of liquid tube using silver bearing or non-silver bearing brazing material. Consult local code requirements.
4. Braze flare adapter onto outlet end of the solenoid valve.
5. Wire solenoid coil into system control circuit as shown in Fig. 6.

D. Refrigerant Tubing

Connect tubing to fittings on outdoor unit vapor and liquid service valves. (See Fig. 2.)

⚠ CAUTION: To avoid valve damage while brazing, service valves must be wrapped with a heat-sinking material such as a wet cloth.

E. Sweat Connection

Use refrigerant grade tubing. Service valves are closed from factory and ready for brazing. After wrapping the service valve with a wet cloth, the tubing set can be brazed to the service valve using either silver bearing or non-silver bearing brazing material. Consult local code requirements. Refrigerant tubing and indoor coil are now ready for leak testing. This check should include all field and factory joints.

PROCEDURE 5—MAKE ELECTRICAL CONNECTIONS

⚠ WARNING: To avoid personal injury or death, do not supply power to unit with compressor terminal box cover removed.

Be sure field wiring complies with local and national fire, safety and electrical codes, and voltage to system is within limits shown on unit rating label. Contact local power company for correction of improper voltage. See unit rating label for recommended circuit protection device.

NOTE: Operation of unit on improper line voltage constitutes abuse and could affect unit reliability. See unit rating plate. Do not install unit in system where voltage or phase imbalance may fluctuate above or below permissible limits. Use copper wire only between disconnect switch and unit. Install branch circuit disconnect per NEC of adequate size to handle unit starting current. Locate disconnect within sight from and readily accessible from unit, per Section 440-14 of NEC.

A. Route Ground and Power Wires

Remove access panel to gain access to unit wiring. Extend wires from disconnect through power wiring hole provided and into unit control box. (See Fig. 2.)

⚠ WARNING: According to NEC, ANSI/NFPA 70, and local codes, the cabinet must have an uninterrupted or unbroken ground, to minimize personal injury if an electrical fault should occur. The ground may consist of electrical wire or metal conduit when installed in accordance with existing electrical codes. Failure to follow this warning could result in an electric shock, fire, or death.

B. Connect Ground and Power Wires

Connect ground wire to ground connection in control box for safety. Connect power wiring to contactor as shown in Fig. 5.

C. Connect Control Wiring

Route 24-v control wires through control wiring grommet and connect leads to control wiring. (See Fig. 6.)

Use No. 18 AWG color-coded, insulated (35° C minimum) wires. If thermostat is located more than 100 ft from unit, as measured along the control voltage wires, use No. 16 AWG color-coded wires to avoid excessive voltage drop.

Use furnace transformer, fan-coil transformer, or accessory transformer for control power, 24-v/40-va minimum.

NOTE: Use of available 24-v accessories may exceed the minimum 40-va power requirement. Determine total transformer loading and increase the transformer capacity or split the load with an accessory transformer as required.

PROCEDURE 6—COMPRESSOR CRANKCASE HEATER

A crankcase heater is required if the refrigerant tubing is longer than 50 ft.

PROCEDURE 7—INSTALL ELECTRICAL ACCESSORIES

Refer to the individual instructions packaged with the kits or accessories when installing.

PROCEDURE 8—START-UP

1. When equipped with a crankcase heater, energize heater a minimum of 24 hrs before starting unit. To energize heater only, set thermostat to OFF position and close electrical disconnect to outdoor unit.
2. Fully open liquid and vapor service valves.

⚠ CAUTION: Service valve gage ports are equipped with Schrader valves. To prevent personal injury, wear safety glasses and gloves when handling refrigerant.

3. Unit is shipped with valve stem(s) front seated, and caps installed. Replace stem caps after system is opened to refrigerant flow. Replace caps finger-tight and tighten additional 1/6 turn with wrench.
4. Close electrical disconnects to energize system.
5. Set room thermostat at desired temperature. Be sure set point is below indoor ambient temperature.
6. Set room thermostat at COOL and fan switch at FAN or AUTO, as desired. Operate unit for 15 minutes. Check system refrigerant charge. (See Procedure 9.)

PROCEDURE 9—CHECKING CHARGE

Factory charge is shown on unit rating label. Charge procedure is shown on information label.

⚠ CAUTION: Compressor damage may occur if system is overcharged.

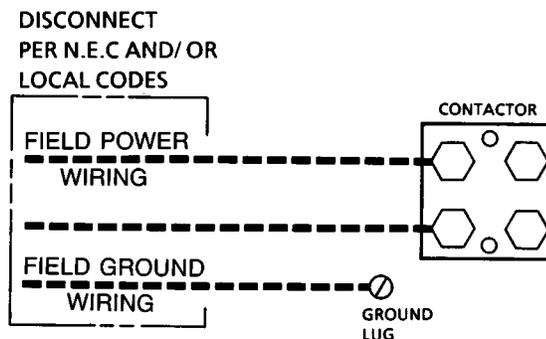


Fig. 5—Line Power Connections

⚠ CAUTION: Do not vent refrigerant to atmosphere. Recover during system repair or final unit disposal.

CARE AND MAINTENANCE

For continued high performance, and to minimize possible equipment failure, it is essential that periodic maintenance be performed on this equipment.

PROCEDURE 1—BEFORE YOU REQUEST A SERVICE CALL

Check the indoor and outdoor disconnect switches. Verify that circuit breakers are in ON position and that fuses have not blown.

Check for sufficient airflow. Check the air filter(s) for any accumulations of dirt. Check for blocked return-air or supply-air grilles. Be sure grilles are open and unobstructed.

Check setting of your indoor thermostat. If you desire cooling, see that the temperature control selector is set below room temperature and the SYSTEM switch is on the COOL or AUTO position.

If your comfort system still fails to operate, contact your servicing dealer for troubleshooting and repairs. Specify your apparent problem, and state the models and serial numbers of your equipment. (You should record them on your warranty.) With this information your dealer may be able to offer helpful suggestions over the telephone or save valuable time through knowledgeable preparation for the service call.

PROCEDURE 2—REGULAR DEALER MAINTENANCE

In addition to the routine maintenance you perform, your home comfort system should be inspected regularly by a properly trained service technician. The inspection (preferably twice each year, but at least once every year) should include the following:

Routine inspection of air filter(s). Replacement or cleaning as required.

Inspection and cleaning of the blower wheel, housing, and motor as required.

Inspection of the indoor coil drain pan, plus the primary and secondary drain lines. If supplied, the auxiliary drain pan and line should be inspected at this time. Service should include cleaning if required.

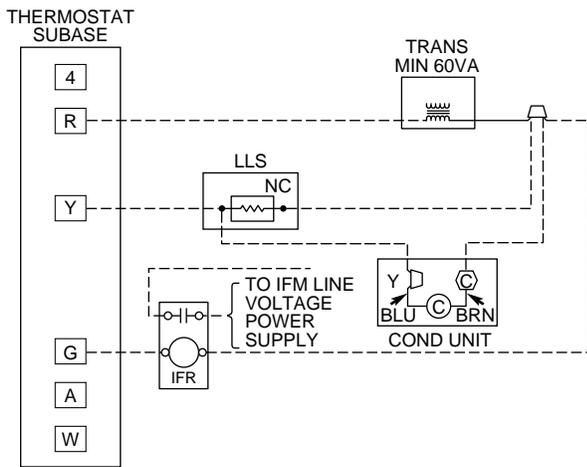
A check of all electrical wiring and connections.

A check for secure physical connections of individual components within units.

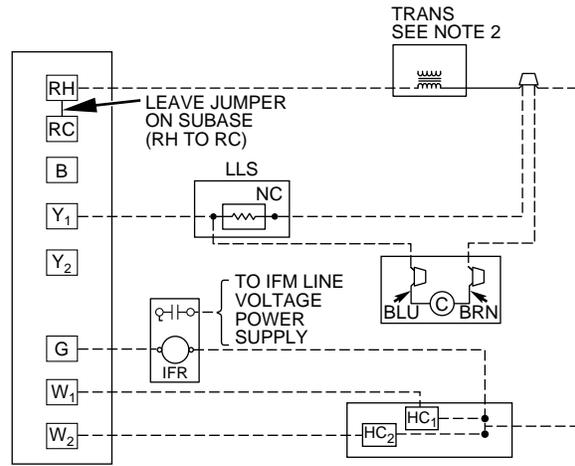
Your servicing dealer may offer an economical service contract that covers seasonal inspections. Ask for further details.

FOR THE RECORD

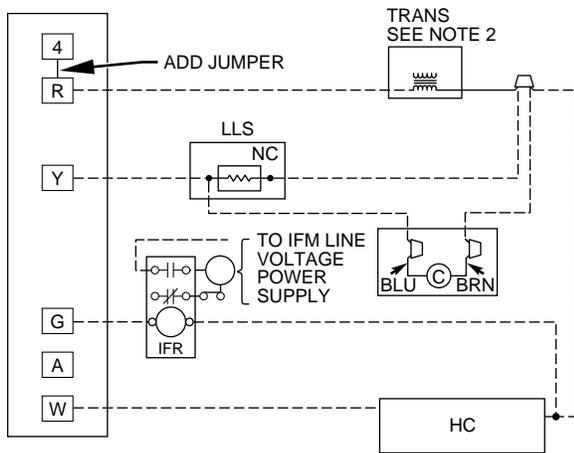
Record the models and serial numbers of your new equipment in the spaces provided on your warranty. This information is necessary should you ever require information or service.



ARRANGEMENT A-COOLING ONLY



ARRANGEMENT C-1 TRANSFORMER;
COOLING AND 2-STAGE HEATING



ARRANGEMENT B - 1 TRANSFORMER;
COOLING AND 1-STAGE HEATING

- NOTES:**
1. REFER TO UNIT LABEL WIRING DIAGRAM FOR WIRE COLORS. IFR, IFM AND LLS ARE LOCATED INDOORS ON HEATING-COOLING APPLICATIONS. IF ACCESSORY IFR IS REQUIRED FOR COOLING-ONLY APPLICATIONS, LOCATE IFR IN FAN COIL.
 2. N.E.C. CLASS 2, 24V CIRCUIT, MIN 40VA REQUIRED.

- C - CONTACTOR
- HC - HEATING CONTROL
- IFM - INDOOR FAN MOTOR
- LLS - LIQUID LINE SOLENOID VALVE
- NC - NORMALLY CLOSED
- TRANS - TRANSFORMER

Fig. 6-Typical 24-v Circuit Connections

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