

# E-6100

## Rooftop Air Conditioner

### INSTALLATION INSTRUCTIONS

#### MODEL E-6100 ROOFTOP AIR CONDITIONER INSTALLATION INSTRUCTIONS

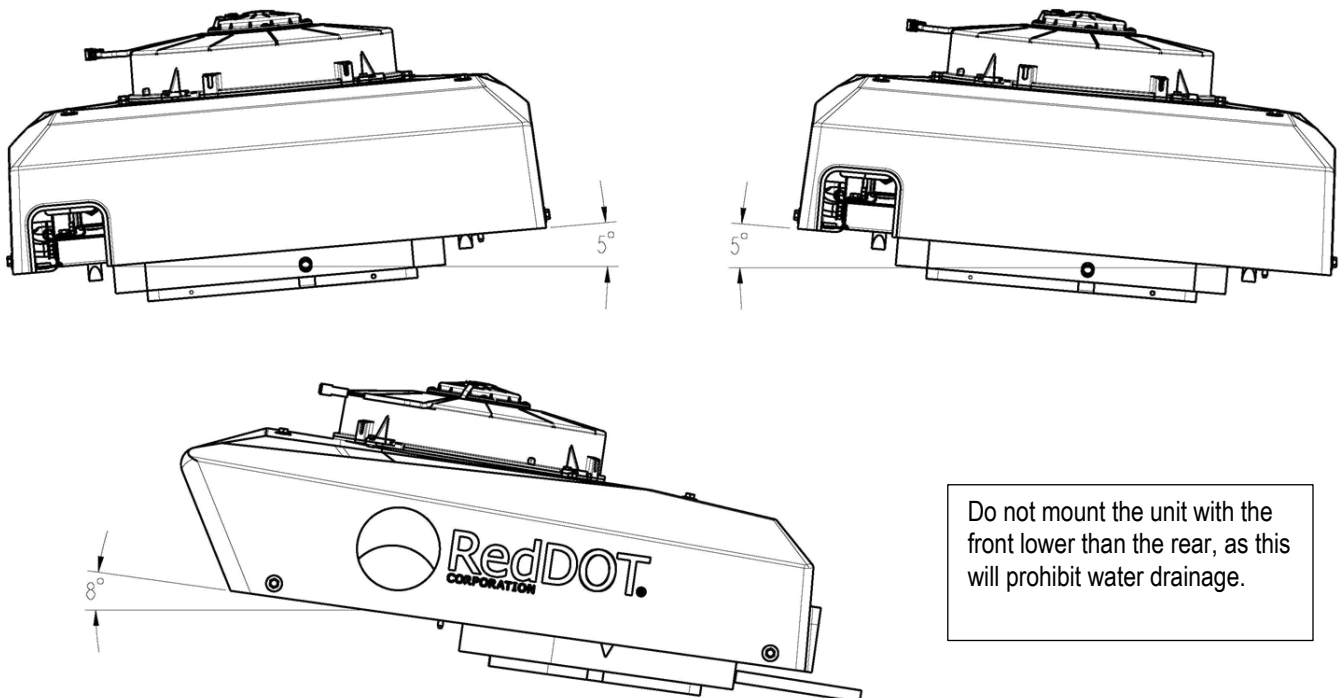
**NOTE:**

1. Please read instructions all the way through before beginning work. **Not following these instructions may result in voided warranty.**
2. Check that all items called out on the RD-2-7784-0 accessory kit list have been included.
3. **It is critical that minimum 4GA cable be used for the compressor power/ground runs. Direct connection to battery or nearby terminal blocks is recommended. Maximum 26 foot runs allowable for 4GA cable. Using larger wire is acceptable, but voltage drop must be considered. Using cables smaller than 4GA may result in voided warranty and/or damage to vehicle.**

#### A. Mounting The Unit On Cab Roof

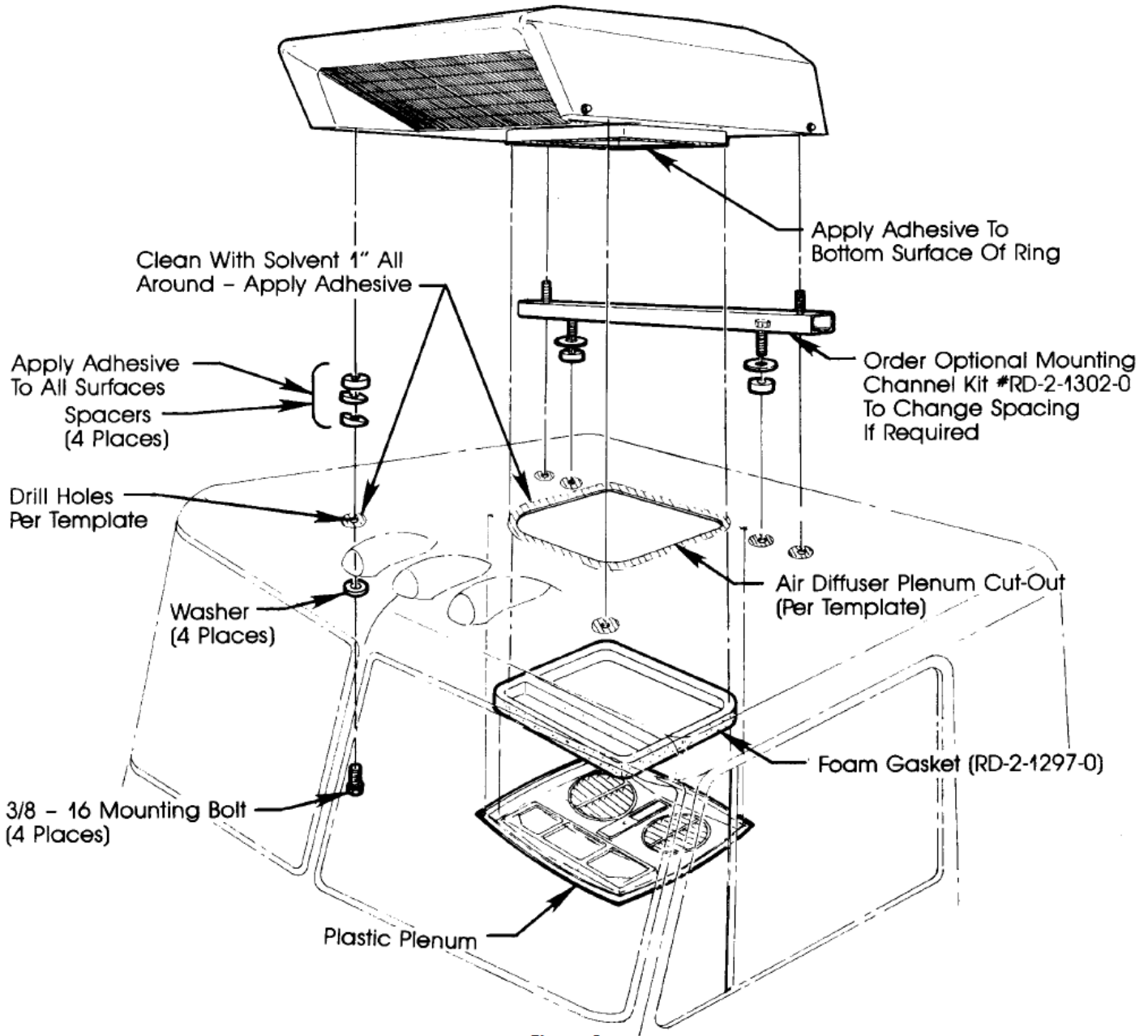
**Note:**

- a. To maintain proper oil circulation and condensate drainage, unit must be mounted within the maximum tilt angles shown here (exceeding these angles may result in compressor damage and/or voided warranty):



1. Remove the headliner or loosen enough to drop the center portion. (Disregard if no headliner).
2. Determine the most suitable location for mounting the air conditioning unit.
  - a. Mark the front-to-rear centerline of the cab on the outside of the cab roof.
  - b. Place the mounting template on the roof using the centerline as a guide.
  - c. Consider position of horns and marker lights.
  - d. Ensure that air flow to the unit is not obstructed.
  - e. Do not mount the unit with the front lower than the rear, as this will prohibit water drainage.
  - f. Avoid cutting roof stiffeners if possible. If stiffeners are cut or roof is weakened due to the cutout, reinforcement may be required.
  - g. A Mounting Channel Kit No. RD-2-1302-0 is available if it is necessary to reduce the bolt spacing width. The minimum recommended spacing width is 14 inches to ensure proper support. The channels bolt directly to the unit and either one large or two tapered rubber spacers are used to space the unit away from the roof. See Figures 1 and 2.
3. Tape the template to the roof at the desired location. Mark the mounting hole location and the roof cut-out area (punch or scribe the roof).
4. Cut the roof where marked and drill the mounting holes 1/2". Remove burrs and sharp edges.
5. Temporarily install the headliner and trace the cut-out onto it from the roof. Remove the headliner and cut out the area marked. Use caution and do not cut headliner opening larger than roof opening (check against template if in doubt).
6. Should roof reinforcing be required, fabricate and install at this time.
7. Clean the outside roof area around the cut-out and mounting holes using a mild solvent.
8. Apply a thin film of adhesive 1" wide around upper surface of roof cut-out and mounting holes. Apply sealer to the face of the sealing ring on the unit. See Figure 1. Make sure that the drain tube is located within the sealing ring. A wire or string may be wrapped around sealing ring to keep it in place if necessary.
9. Set unit on cab. Make sure that drain tube is not pinched and roof brace is installed, if required.
10. Select spacers as required to level and support unit. See Figure 2.
11. Apply adhesive to the faces of all spacers and locate over mounting holes.
12. Tighten the four cap screws provided evenly until the spacers take the load and just begin to "bulge" slightly. Do not over-tighten. Bottom of unit and roof may distort and cause water leakage.
13. Remove cover and install (4) 3/8 - 16 nuts on mounting cap screws to prevent them from backing out. Apply sealant around bolt threads and nut plates to prevent water leakage into cab.

**ROOFTOP AIR CONDITIONER INSTALLATION SCHEMATIC**  
**CHECK INSTALLATION KIT TO MAKE CERTAIN THAT ALL PARTS LISTED ARE INCLUDED**



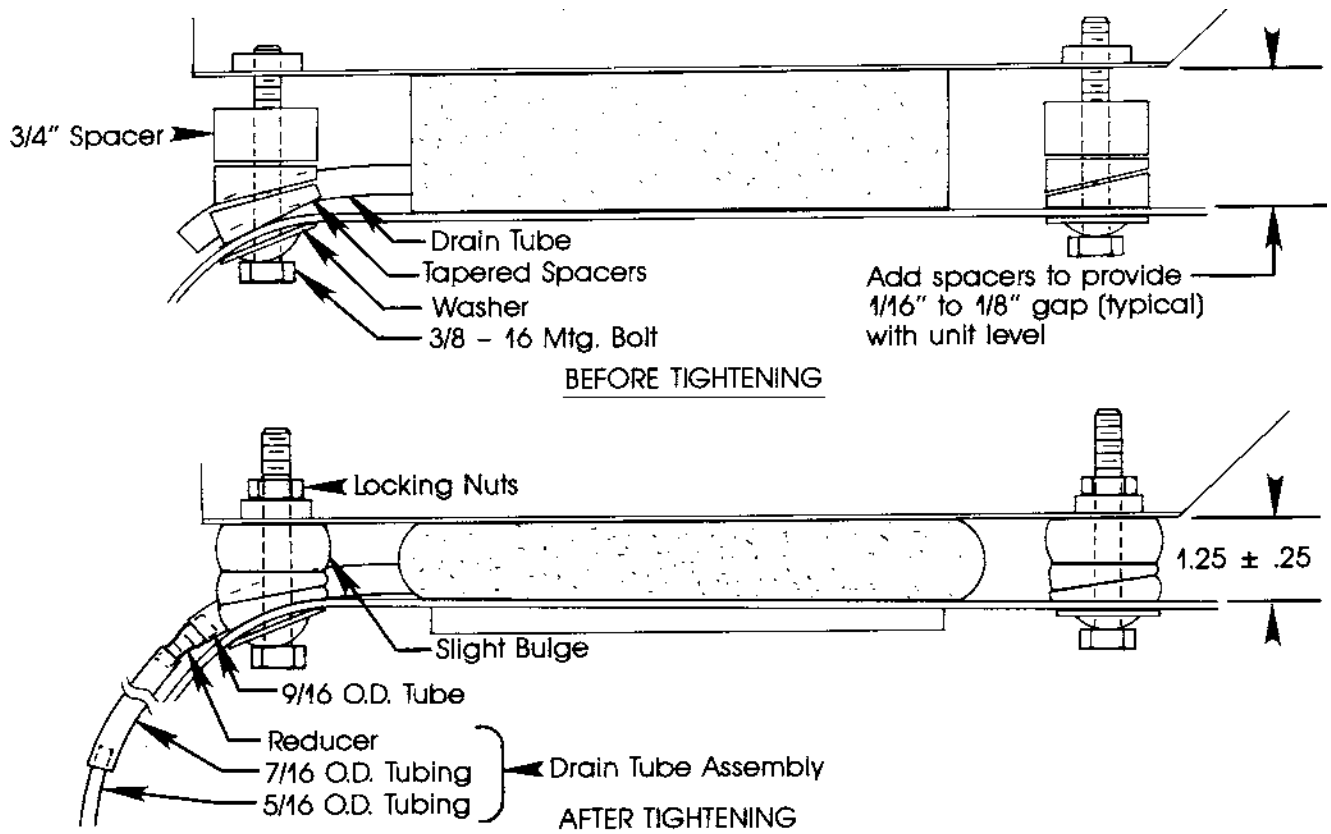


Figure 2

## B. Drain Hose Installation

**Note:** The drain hose is stepped down in size at two places to promote siphoning water from the drain pan under evaporator. The reduction in diameter forces the water to flow in a solid column. This creates a suction that draws the rest of the water out of the pan. For this effect to work properly, the last two feet of 5/16 O.D. drain tube should point straight down or as close to this as possible.

1. Locate small end of drain tube (5/16 O.D.) so that it exits at desired location. Make sure that it points downhill and secure with clamps or tie wraps. Do not crush the tube or cut off the 5/16 O.D. tubing.
2. Route the drain tube to the unit so that it travels in a downward direction from the unit.
3. Cut off the 7/16 O.D. tube to length and connect to reducer fitting on drain hose from unit. Secure drain tubes with tie wraps. Attach to refrigerant hoses if they run downhill properly.
4. Inspect to make sure that drain tubes are not kinked, especially at back of cab and at drain pan within plenum.

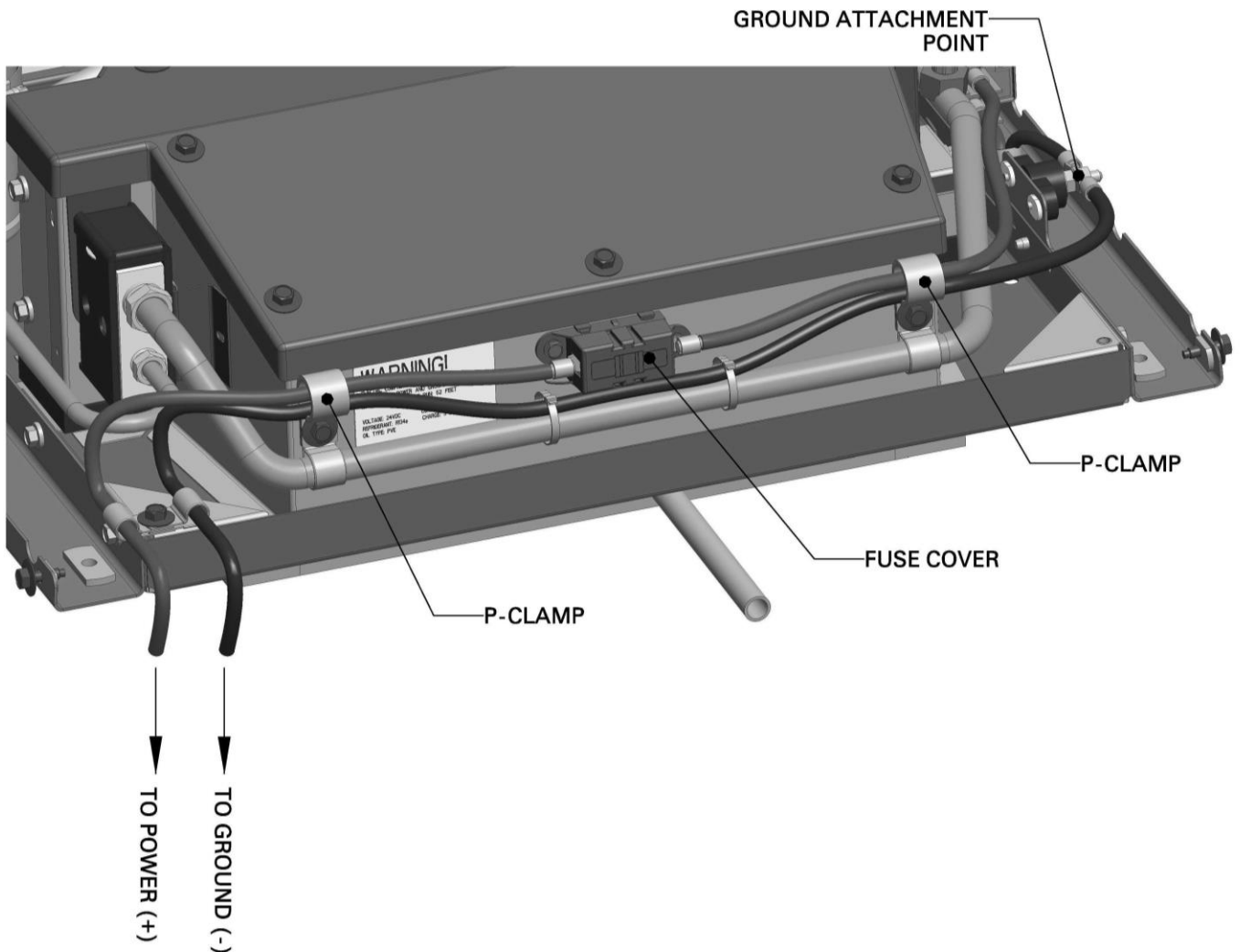
## C. Wiring

**Note:**

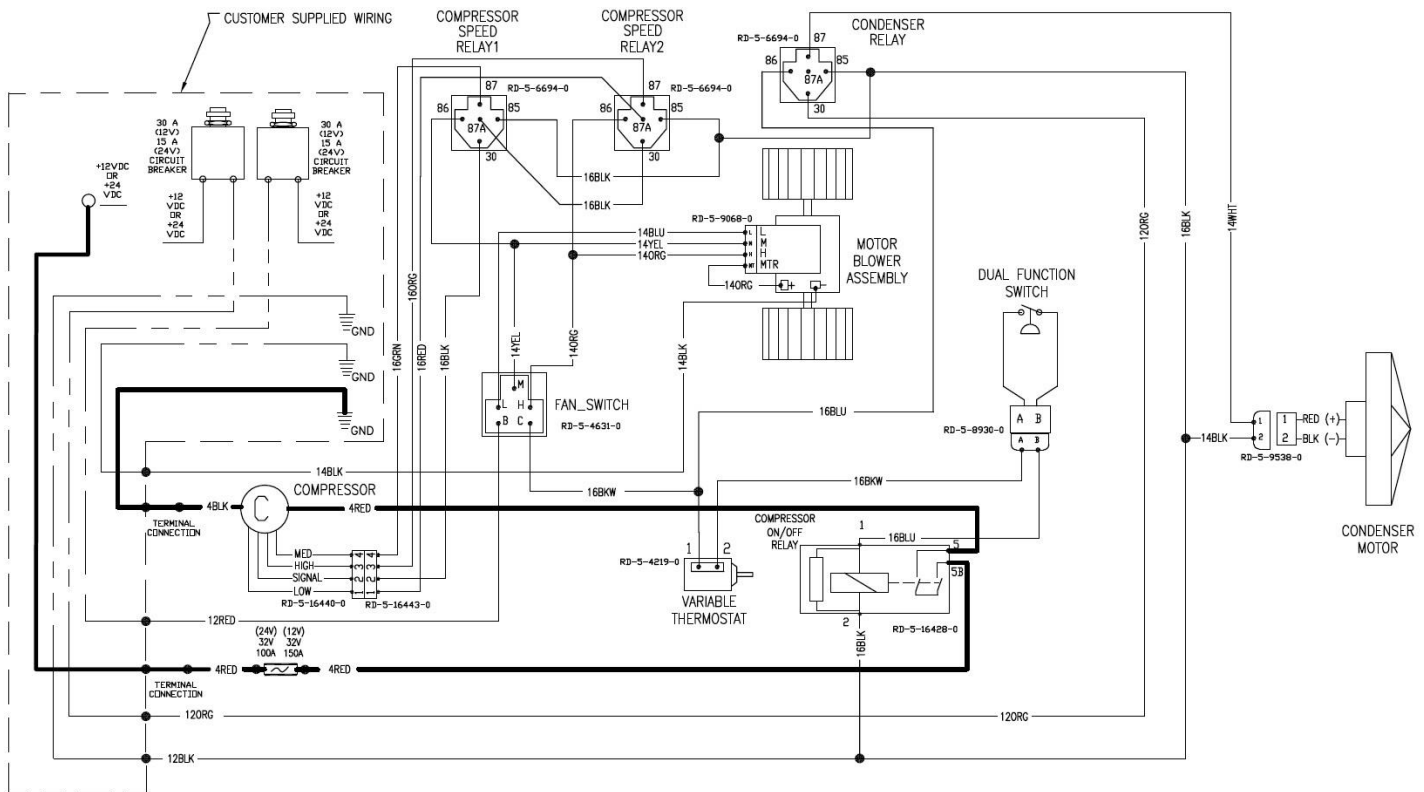
- a. Unit is wired for negative ground.
  - b. Compressor Power and Ground Cables **must be minimum 4GA.**
  - c. Fused power source must be used or warranty may be voided.
1. Disconnect battery.
  2. Route wire harness through 3/4" slot in plenum ring, then across inside of roof and down center or side post of windshield to lower dash area.
  3. Black Wires: Connect to suitable ground.
  4. Red Wire (motor blower circuit): Connect to an ignition switch supply through a 15 amp circuit breaker (24V) or 30 amp circuit breaker (12V).

5. Orange Wire (condenser fan circuit): Connect to an ignition switch supply through a 15 amp circuit breaker (24V) or 30 amp circuit breaker (12V).
6. Open the fuse cover on the unit, and remove the M5 nut and lock washer from the open position of the fuse holder.
7. Connect a 4GA Red power cable with ring terminal connection to the open position of the 100A (24V)/150A (12V) fuse, reinstall M5 nut and lock washer (torque 35-44 in-lb), and reinstall fuse cover.
8. Remove the M6 nut and lock washer from the black grounding terminal block near the compressor, attach a 4GA black ground cable with ring terminal, and reinstall M6 lock washer and nut (max. torque: 60 in-lb).
9. Remove the (2) M6 screws holding the 5/8" P-Clamps to the air plenum box and route both the black ground and red power cables through the P-Clamps.
10. Route black ground cable along #10 copper suction tube and secure with (2) tie wraps.
11. Secure P-Clamps back into place using the same M6 screws.
12. Remove the M6 screw holding the (2) 1/4" P-Clamps to the housing gusset and route the red power cable through one clamp, and the black ground cable through the other clamp.
13. Secure P-Clamps back into place using the same M6 screw.
14. Route power and ground cables to battery. Route cables around pivot point before connecting to battery on tilt-cab trucks.
15. Secure power and ground cables with P-Clamps as needed.

### COMPRESSOR WIRING



## ELECTRICAL SCHEMATIC



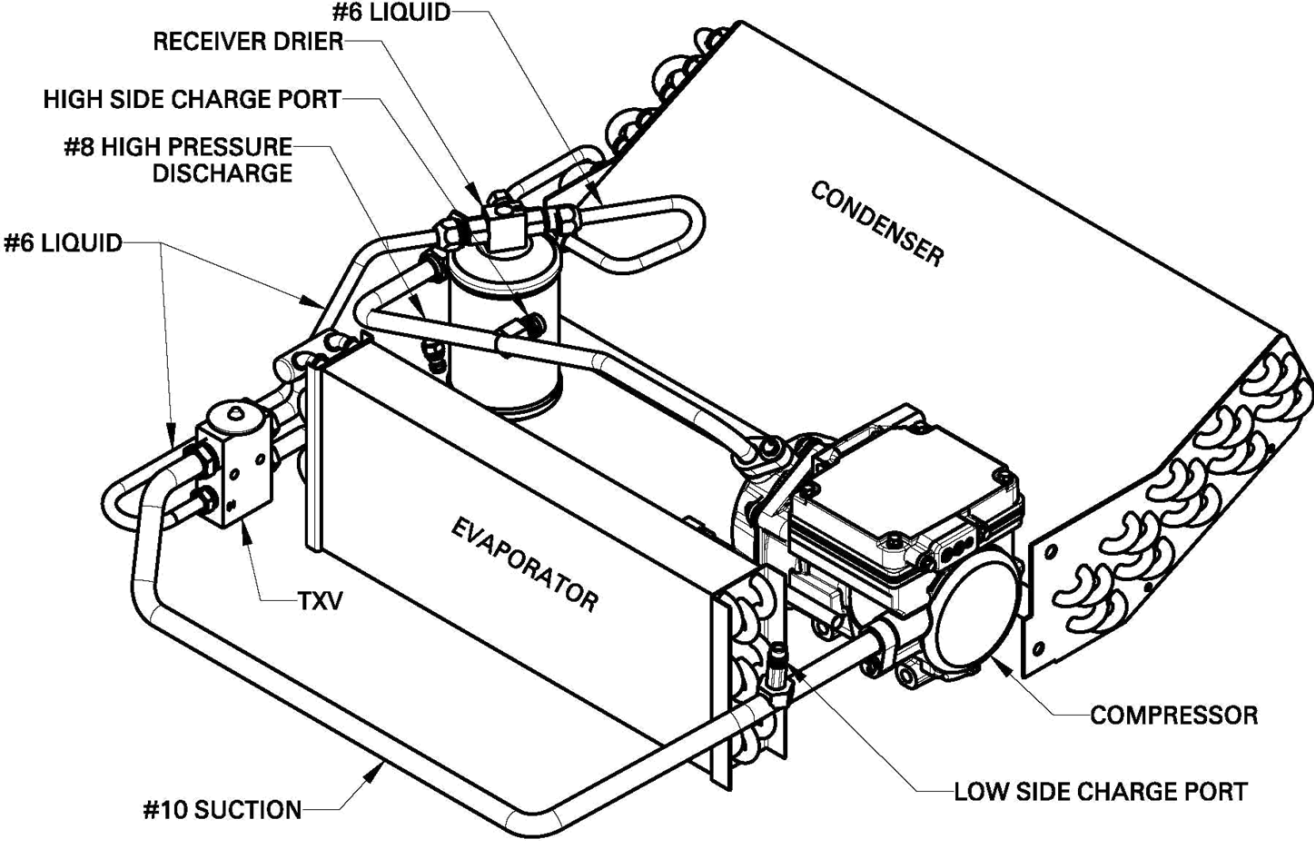
### D. Air Diffuser Plenum

1. Install headliner. Make sure that wire loom exits plenum ring properly and is not pinched.
2. Install four M5 x 0.8 x 75 screws in the plenum assembly and secure with retainers provided.
3. Place one foam gasket in plastic plenum assembly. If headliner is over 1 inch thick, glue two foam gaskets together. An extra foam gasket may be ordered (Part #RD-2-1297-0) if required.
4. Place the plenum assembly up to the unit and start one M5 x 0.8 x 75 screw.
5. Attach the switch and thermostat to the plenum with three 7/16–28 nuts (two with switch, one with thermostat).
6. Tighten the four plenum assembly screws evenly until the plenum fits snugly against headliner. **NOTE:** Do not use an impact wrench to tighten these bolts. Do not exceed 30 in-lb (3.4 Nm) torque for plenum bolts. Make sure that gasket does not shift out of place and electrical connectors remain attached.
7. Align D-flats and push on two knobs.

### E. Final Assembly And Check

1. Evacuate the system, test for leaks and charge with R-134a. **The unit requires 3.0 pounds of R-134a.**
2. Install cover. Check condenser fan for adequate blade clearance.
3. Connect the battery.
4. Turn the ignition switch to the “on” position, turn the thermostat to the coldest point and the fan switch to “high”.
  - a. The compressor should click on and be engaged.
  - b. The condenser fan and evaporator blower should be turning at high speed.
5. Turn the fan switch to medium and low positions and check that the evaporator blower slows down.
6. Turn the thermostat off and compressor should disengage.
7. Check thermostat to be sure compressor cycles on and off.

PLUMBING SCHEMATIC





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