BC BRONCOS AIR CONDITIONING UNIT

CAUTION
If you are not familiar with the principals of air conditioning, have an authorized air conditioning technician evacuate and charge the system. Serious damage to the ac unit could occur if the system is over filled/under filled with refrigerant or compressor oil.

WARNING
Serious cold injury could occur from compress refrigerant.

1. Set the parking brake or block the wheels for safety.
2. Raise and safely support the hood.
3. Disconnect and remove the battery.
4. Remove the air cleaner to make the installation easier.
5. Remove the serpentine/v-belt.

NOTE
Due to the addition of the ac compressor, a longer serpentine/v-belt will be required.

6. Disconnect and remove the upper and lower radiator hoses from the engine and the radiator. Inspect and replace the hoses as necessary.
7. Remove the fan shroud from the radiator.
8. Remove the bolts attaching the upper radiator supports to the radiator core support and remove upper radiator supports.
9. Carefully lift the radiator off of the lower radiator supports and remove the radiator from the Bronco.
10. Remove the fan shroud.

NOTE
The ac unit will put a load on the engine cooling system. This would be a good opportunity to completely check the system. New hoses, thermostat, water pump, and radiator is recommended.

11. Disconnect the heater control cable from the heater control valve.
12. Disconnect the heater hoses from the water pump and the coolant fitting located on the front of the intake manifold.
13. Disconnect the heater hoses from the heater core inlets located on the passenger side of the fire wall.
14. The heat control knob and cable will not be reused and may be removed from the dash panel.
15. The defrost control knob and cable will not be reused and may be removed from the dash panel.
16. The fan control switch will not be reused and may be removed from the dash panel.
17. Locate and mount the new ac/heater/defroster controls as desired.

18. Disconnect and remove the flexible fresh air duct from the passenger kick panel and the heater/fresh air box.
19. Remove the 4 nuts on the passenger side fire wall that attached the heater/fresh air box to the fire wall. See Figure 1.
20. Disconnect the defroster ducts from the heater/fresh air box.
21. Disconnect the heater/defrost control cable from the heater/fresh air box.
22. Disconnect the power supply to the heater/fresh air box fan motor.
23. Remove the heater/fresh air box from under the dash.
24. Remove the flexible fresh air duct attaching ring and replace with the provided cover plate using the provided attaching hardware. See Figure 2.
25. Drill the lower front fresh air duct mounting hole using a 5/8" drill to accept the ac condensation hose. See Figure 2.

NOTE
The fresh air ducting is no longer used.
It may be removed for a cleaner installation.

26. Locate and mount the ac unit's controls in the dash holes vacated by the stock Bronco's heater/de-froster/fan/temp controls.
27. Carefully straighten the capillary tube on the ac temperature control switch.

CAUTION
The capillary tube is liquid filed and must not be kinked.
Use care when unrolling.

NOTE
The stock fan knob can be removed and can replace the knobs on the new ac/heater/defroster controls.

28. Locate and mount the dash ac registers.

NOTE
The ac registers may be disassembled and the vent can be mounted directly in the dash panel.

29. Locate the ac unit under the dash and temporarily support it.

NOTE
Measure the flex ducting so there will be approximately 1/4" between the ribs when installed. **DO NOT** stretch the flex ducting too tight.

30. Measure from the driver's (left) de-froster duct and the passenger's (right) de-froster duct to the de-froster outlets (rear two outlets) on the ac unit. Cut the ac flex ducting to length and note the two pieces.
31. Measure from the driver's ac register, center ac register and the passenger's ac register ac to the ac outlets on the ac unit (three forward outlets). Cut the ac flex ducting to length and note the three pieces.

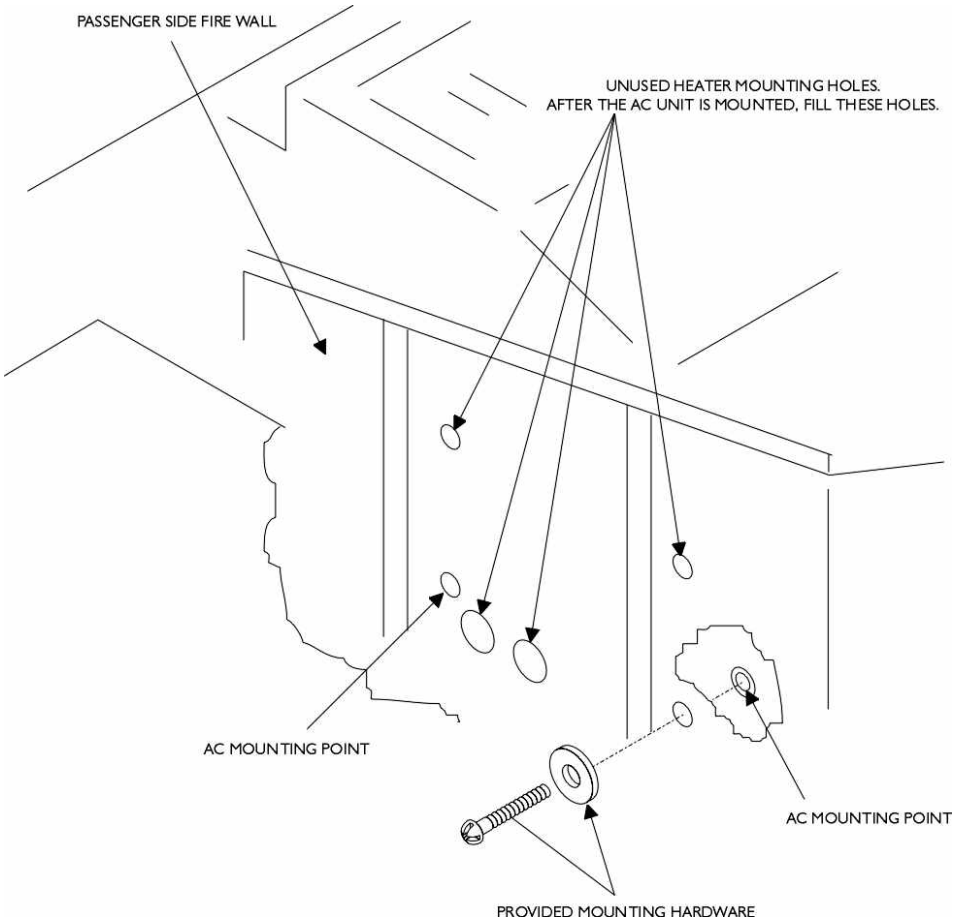


Figure 1

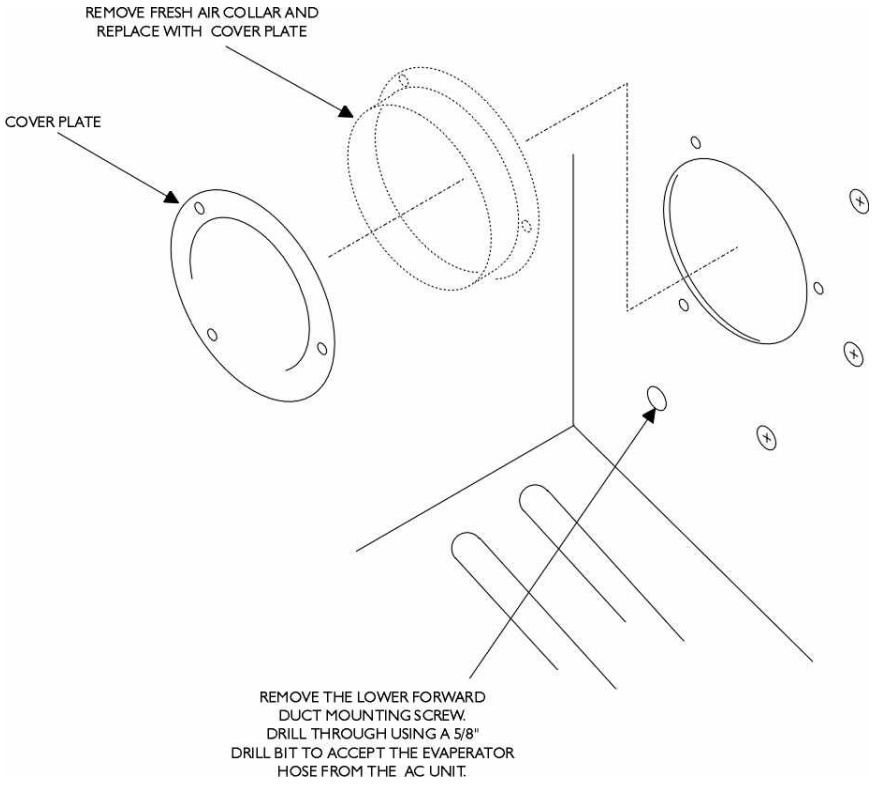


Figure 2

32. Lower the ac unit to connect the flex ducting.
33. Connect the flex ducting to the two rear de-frost outlets on the ac unit and secure it with a supplied zip tie. Reference Figure 3 and Figure 4.
34. Connect the flex ducting to the three front ac outlets and secure it with a supplied zip tie. Reference Figure 3 and Figure 4.
35. Carefully insert the end of the capillary tube into the ac unit at the point noted by the "bull's eye" sticker approximately 4". See Figure 4.

CAUTION
The capillary tube is liquid filed and must not be kinked.

36. Locate the ac unit under the dash. See Figure 1.

TIP

Cut the heads off two 1/4"-20x2" machine screws. Thread the studs into the ac box. The studs now help you locate and hold the ac box on the fire wall. From inside the engine compartment, remove one stud at a time and replace it with the provided mounting hardware.

37. Route and attach the two de-froster flex ducts to the de-froster ducts and secure it with a supplied zip tie.
38. Route and attach the three ac register flex ducts to the ac registers and secure it with a supplied zip tie.
39. Run binary switch wire thru the OEM heater mounting hole as shown in Figure 5.
40. Attach the ac condensation hose to the ac unit and insert it into the 5/8" hole referencing Figure 2.
41. Using the provided strap, secure the front of the ac unit to the dash board. See Figure 4.

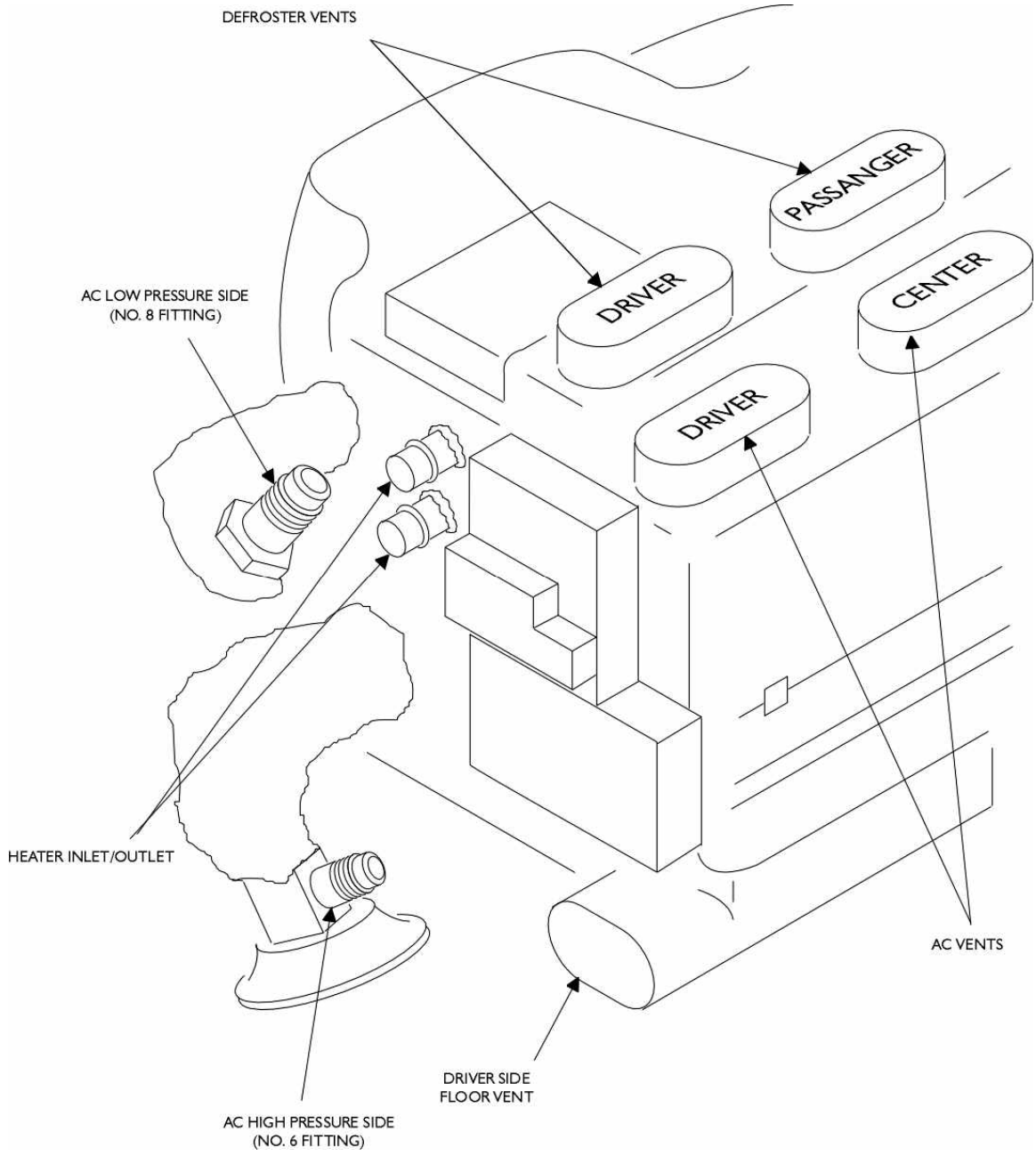

DEFROSTER VENTS
PASSANGER
DRIVER
CENTER
DRIVER
AC LOW PRESSURE SIDE
(NO. 8 FITTING)
HEATER INLET/OUTLET
AC VENTS
DRIVER SIDE
FLOOR VENT
AC HIGH PRESSURE SIDE
(NO. 6 FITTING)

Figure 3

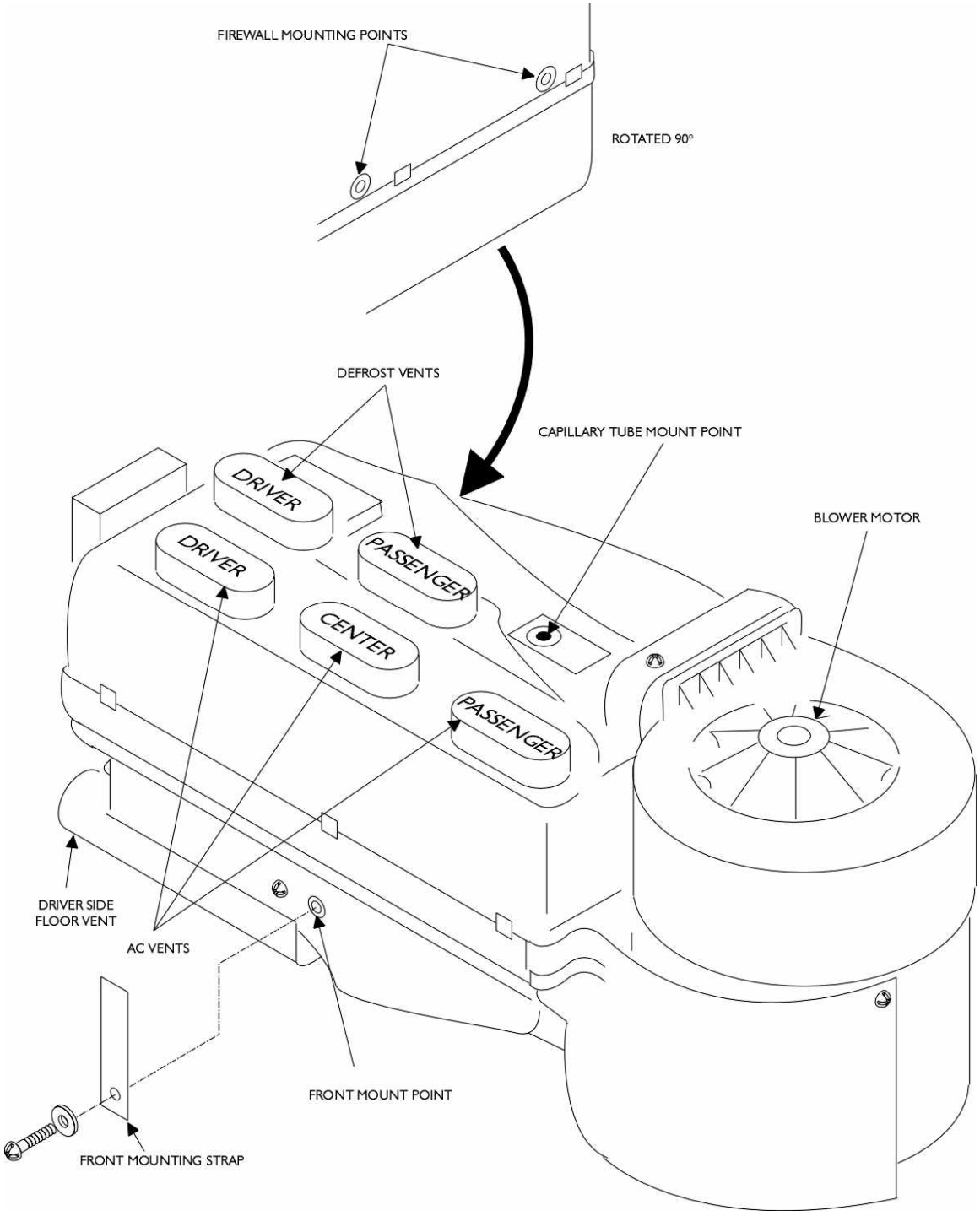

FIREWALL MOUNTING POINTS
ROTATED 90°
DEFROST VENTS
CAPILLARY TUBE MOUNT POINT
BLOWER MOTOR
DRIVER
DRIVER
PASSENGER
CENTER
PASSENGER
DRIVER SIDE
FLOOR VENT
AC VENTS
FRONT MOUNT POINT
FRONT MOUNTING STRAP

Figure 4

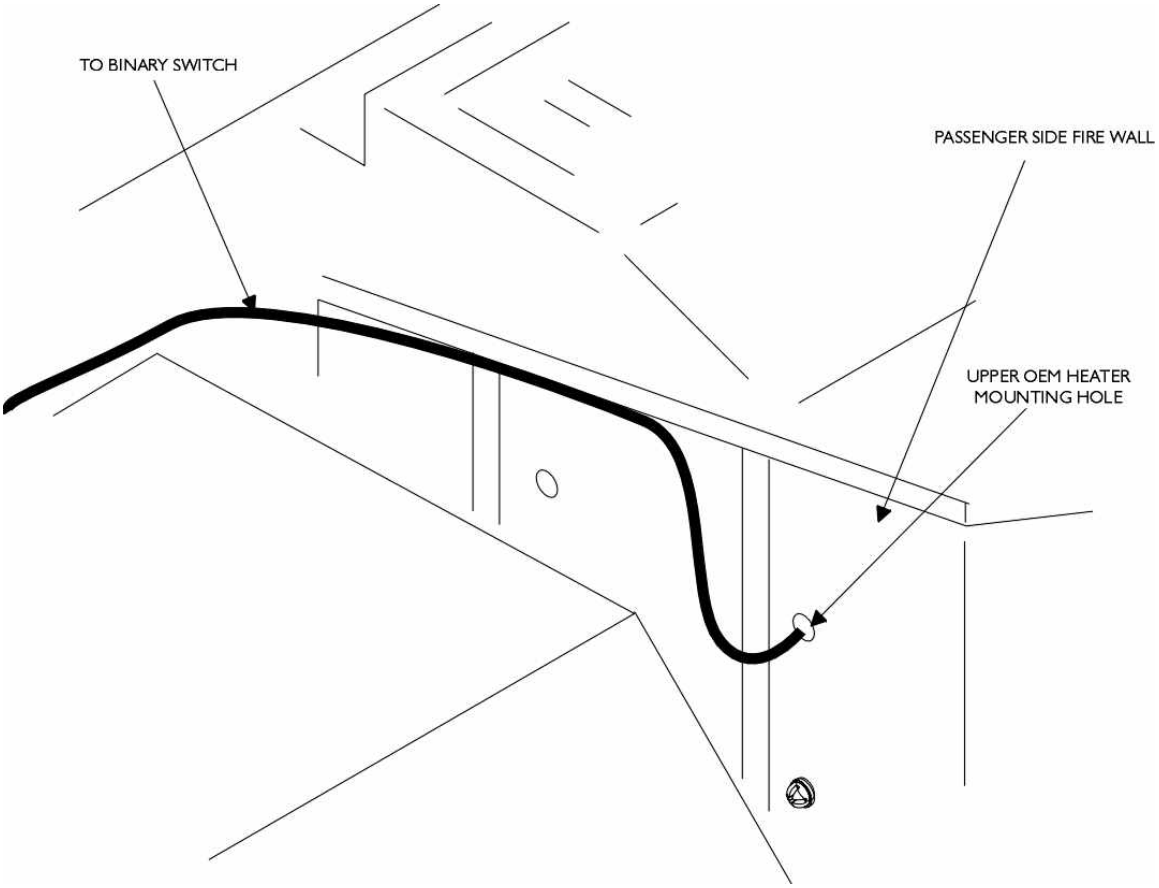

TO BINARY SWITCH
PASSENGER SIDE FIRE WALL
UPPER OEM HEATER
MOUNTING HOLE

Figure 5

AC BULKHEAD FITTING INSTALLATION

1. Using the template (Figure 1), locate and layout the ac bulkhead fitting opening.
2. Using a 7/8" hole saw, cut four holes as shown in Figure 1.
3. Locate the ac bulkhead fitting in the opening. Seal it with RTV (or similar) and attach with the supplied hardware per Figure 2.
4. Route and attach the #6 ac high pressure hose to the upper port on the ac bulkhead fitting and the ac unit using a #6 O-ring with O-ring lube as shown in Figure 3.

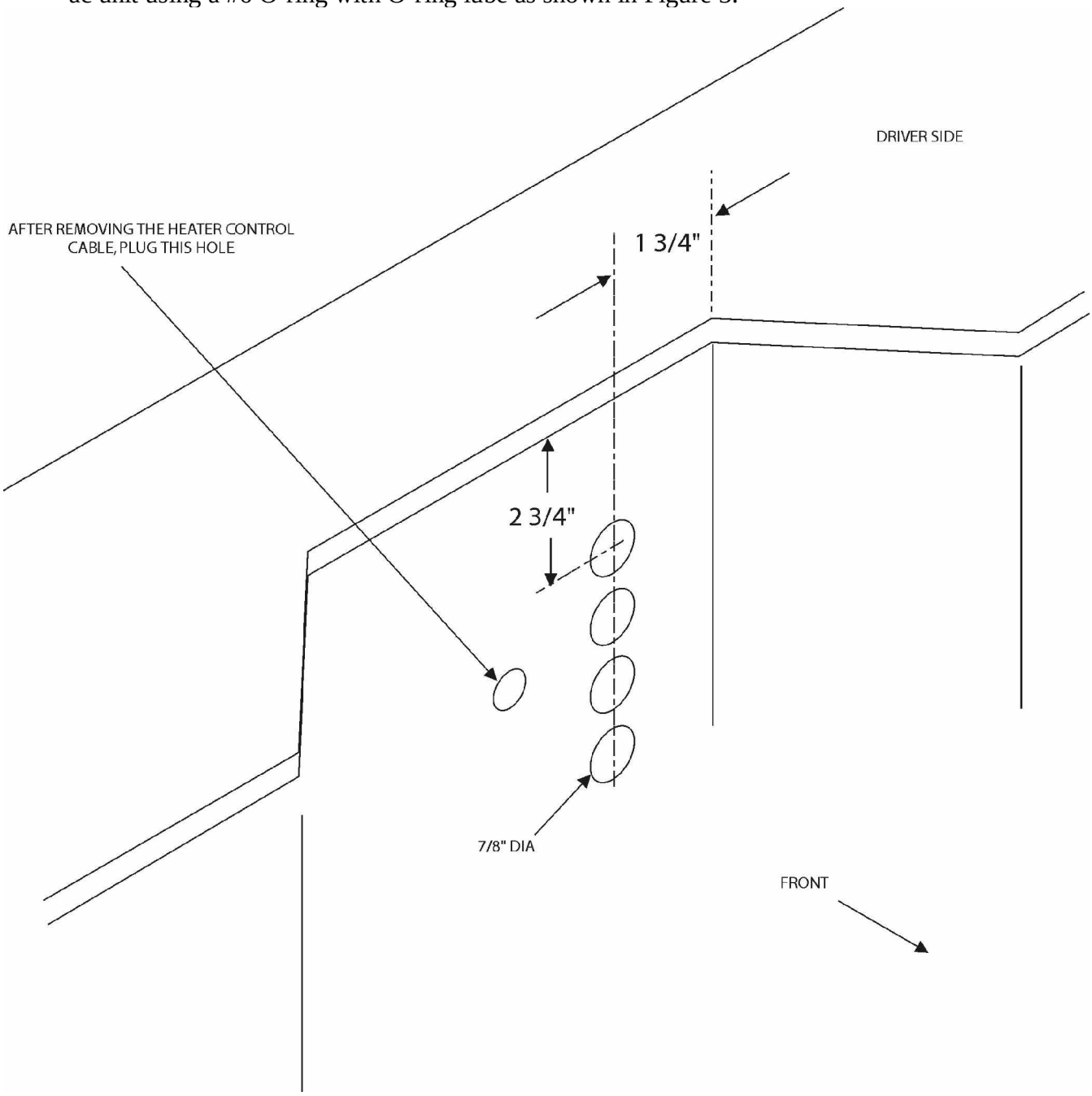
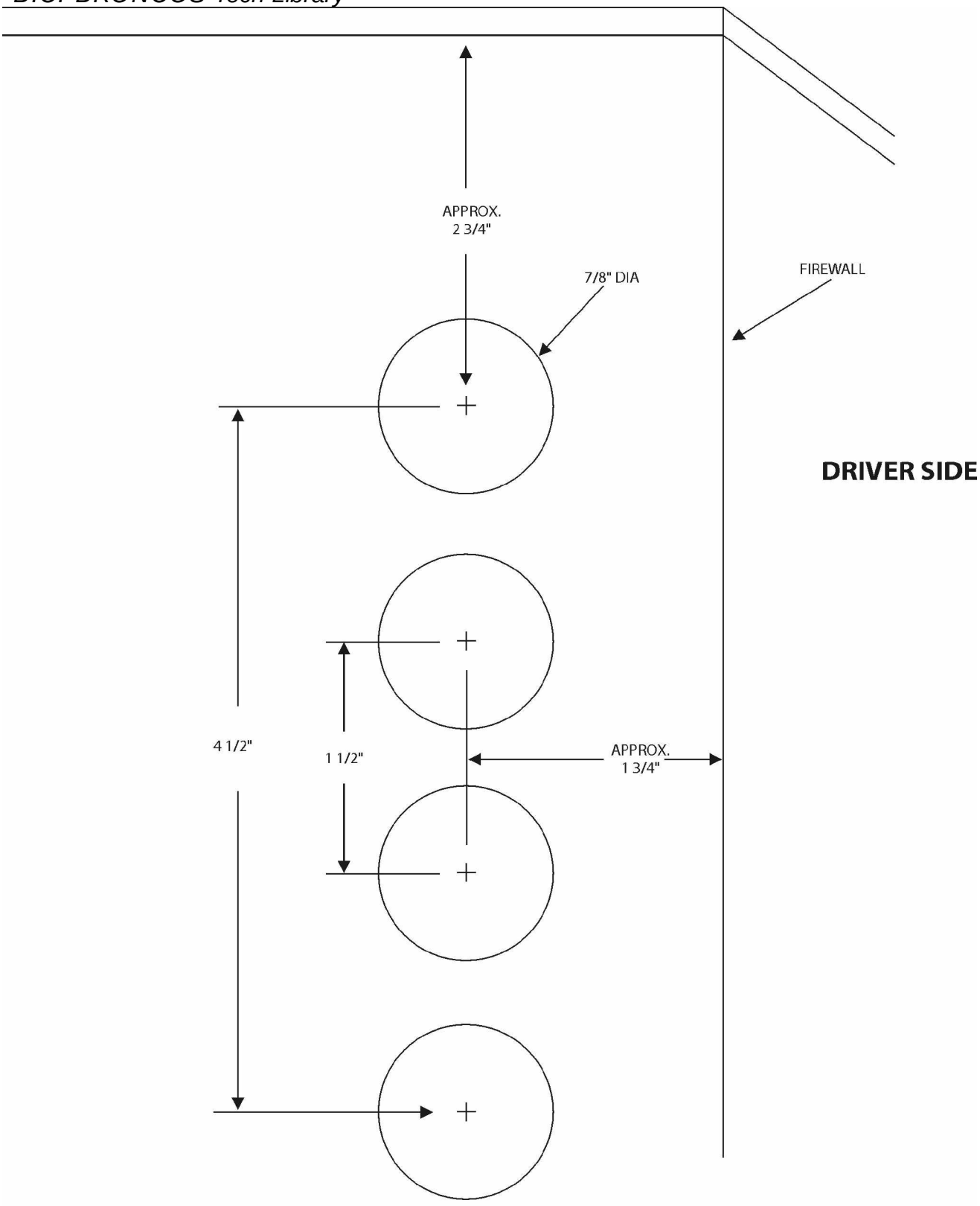


Figure 1. Bulkhead fitting placement. (Sh 1 of 2)



NOTE: THIS VIEW IS LOOKING AT THE FACE OF THE FIREWALL FROM INSIDE THE ENGINE COMPARTMENT.

Figure 1. Bulkhead fitting placement.(Sh 2 of 2)

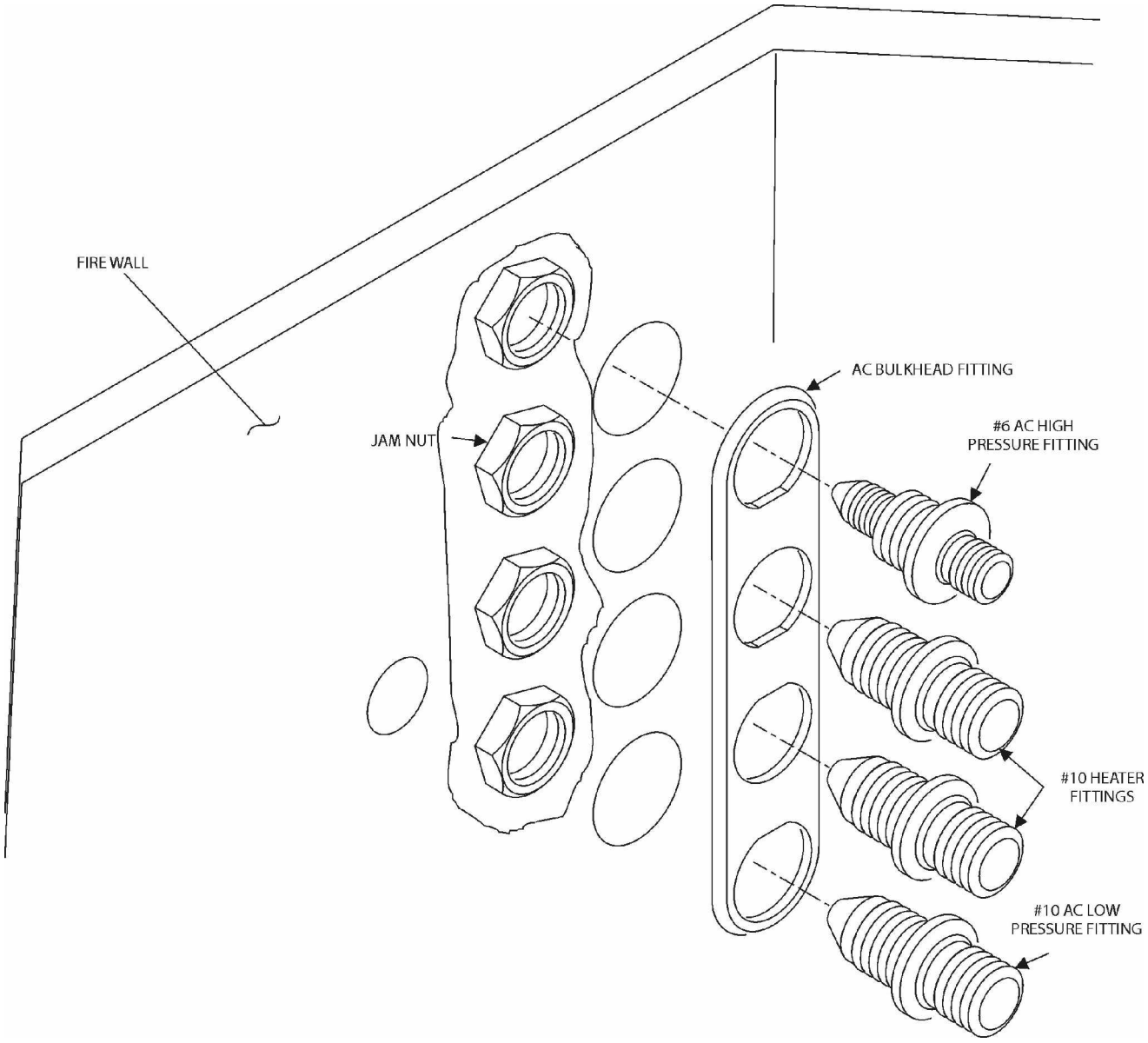


Figure 2. Bulkhead fitting installation.

CAUTION
All threaded connections can be easily cross threaded. Start all connections by hand to ensure proper thread engagement and DO NOT force. Use a backup wrench on all connections where noted.

CAUTION
Hand tighten all fittings + 1/4 turn only.

CAUTION
Use r134 Freon rated O-rings only. If one is lost or damaged a replacement may be obtained at any auto ac shop.

CAUTION

O-rings must be inserted into the hose end fitting prior to threading onto hard-line fittings. Apply a small amount of o-ring lube prior to threading onto hard-line fittings.

5. Route and attach the #10 ac high pressure hose to the lower port on the ac bulkhead fitting and the ac unit using a #10 O-ring with O-ring lube as shown in Figure 3.
6. Attach the 5/8" heater hoses to the 90° fitting using hose clamp. See Figure 4.

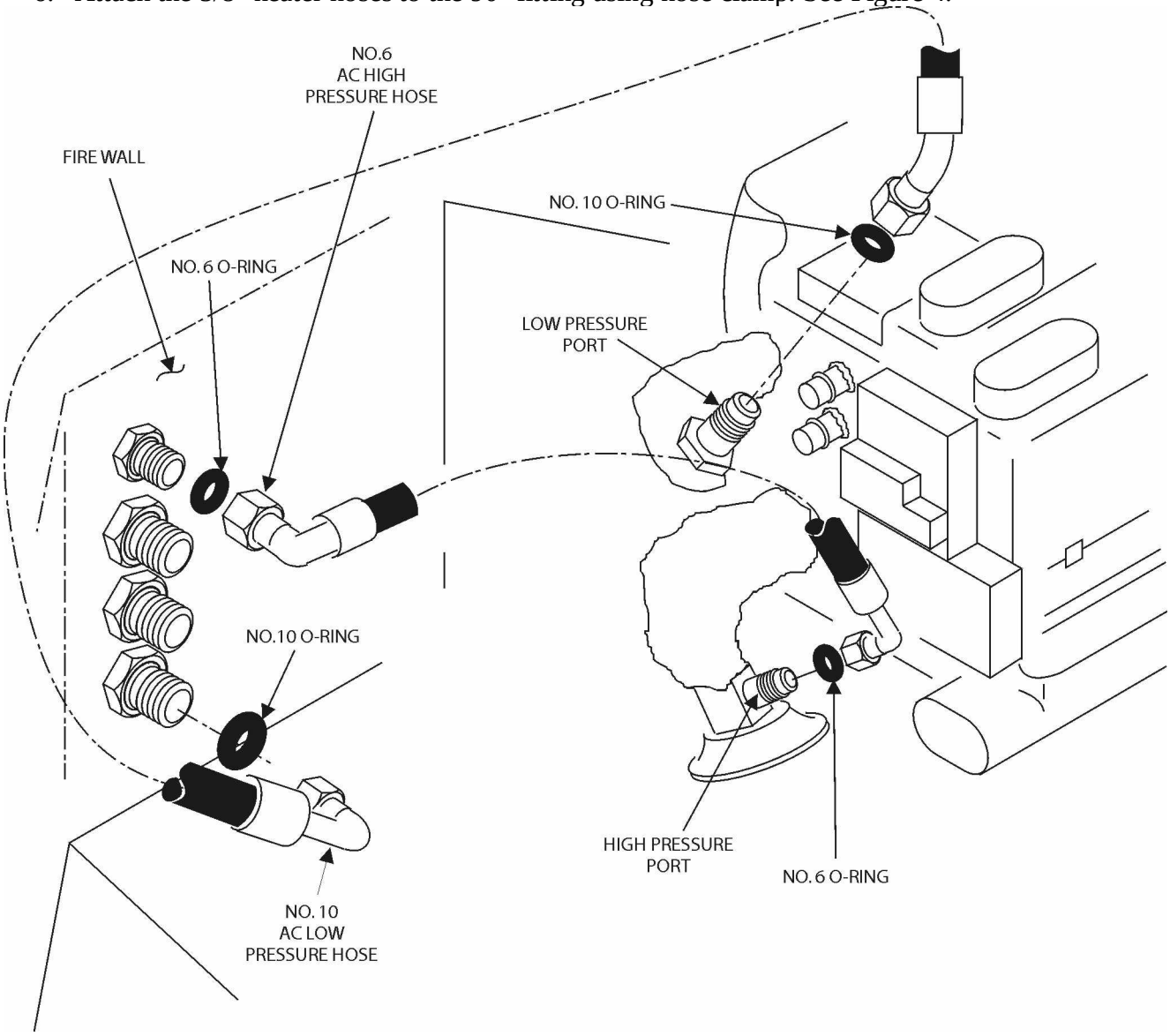


Figure 3. AC High and Low pressure to bulkhead fitting connections.

7. Attach the 45° fitting to the center two ports on the ac bulkhead fitting. See Figure 4.
8. Attach the 5/8" heater hoses and the supplied electrical heater control valve to the ac unit using hose clamps. See Figure 4.
9. Locate and attach the ac condenser guard plate directly behind the hood safety latch.

See Figure 5.

10. The lower core support cross member flanges must be bent 90° so the ac condenser will fit between the radiator core support and the radiator. See Figure 6 for details.
11. Remove the plug from the upper portion of the filter/dryer and install the binary switch. See Figure 7.
12. Locate and attach the filter/dryer per Figure 7 using supplied attaching hardware.

CAUTION
The FLOW arrow ([ ) MUST point to the rear of the Bronco or possible AC system damage could occur.

CAUTION
DO NOT remove the caps on the inlet/outlet of the filter/dryer until you are ready to attach the hoses or the internal dryer medium will be damaged.

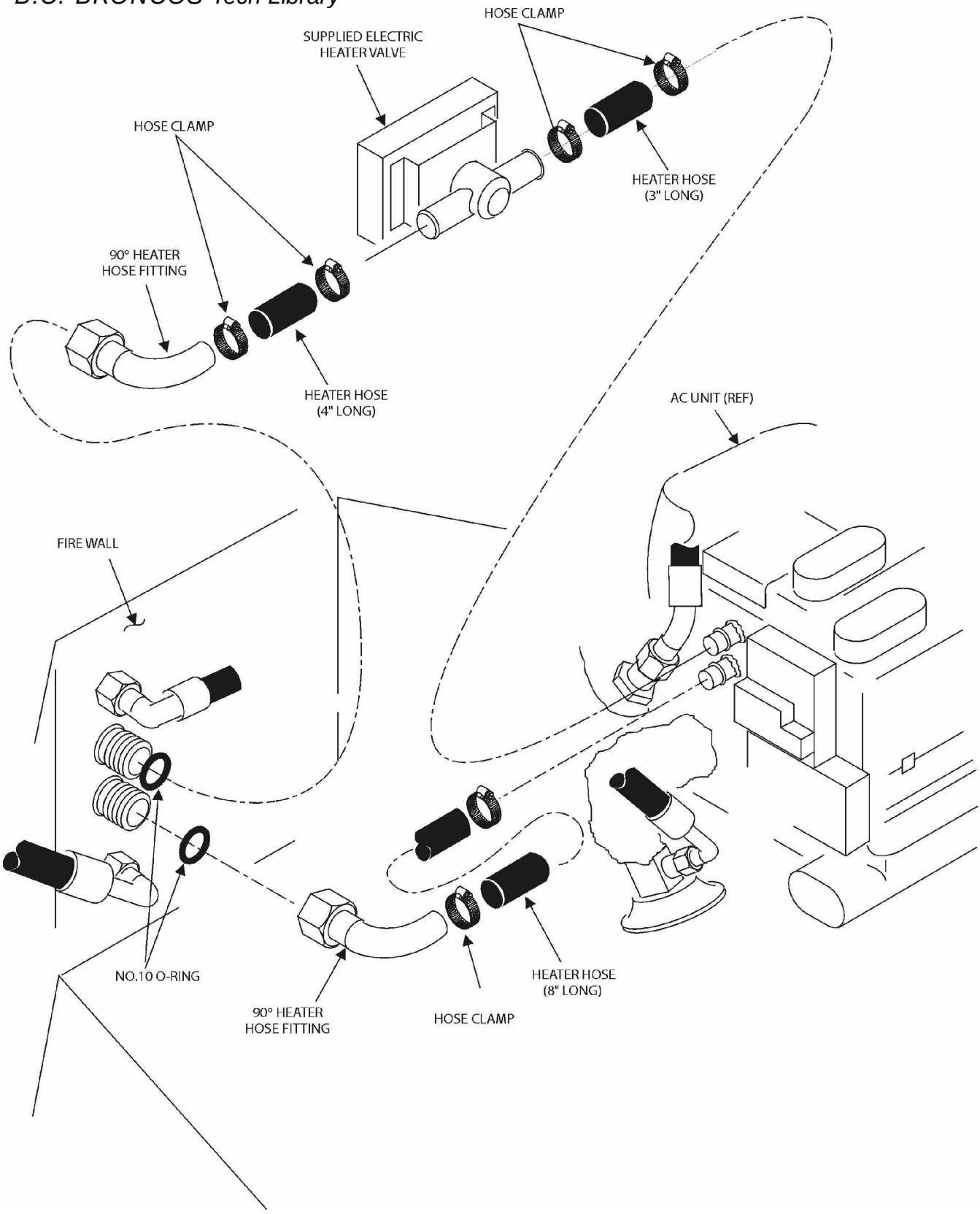


Figure 4. Heater to bulkhead fitting connections.

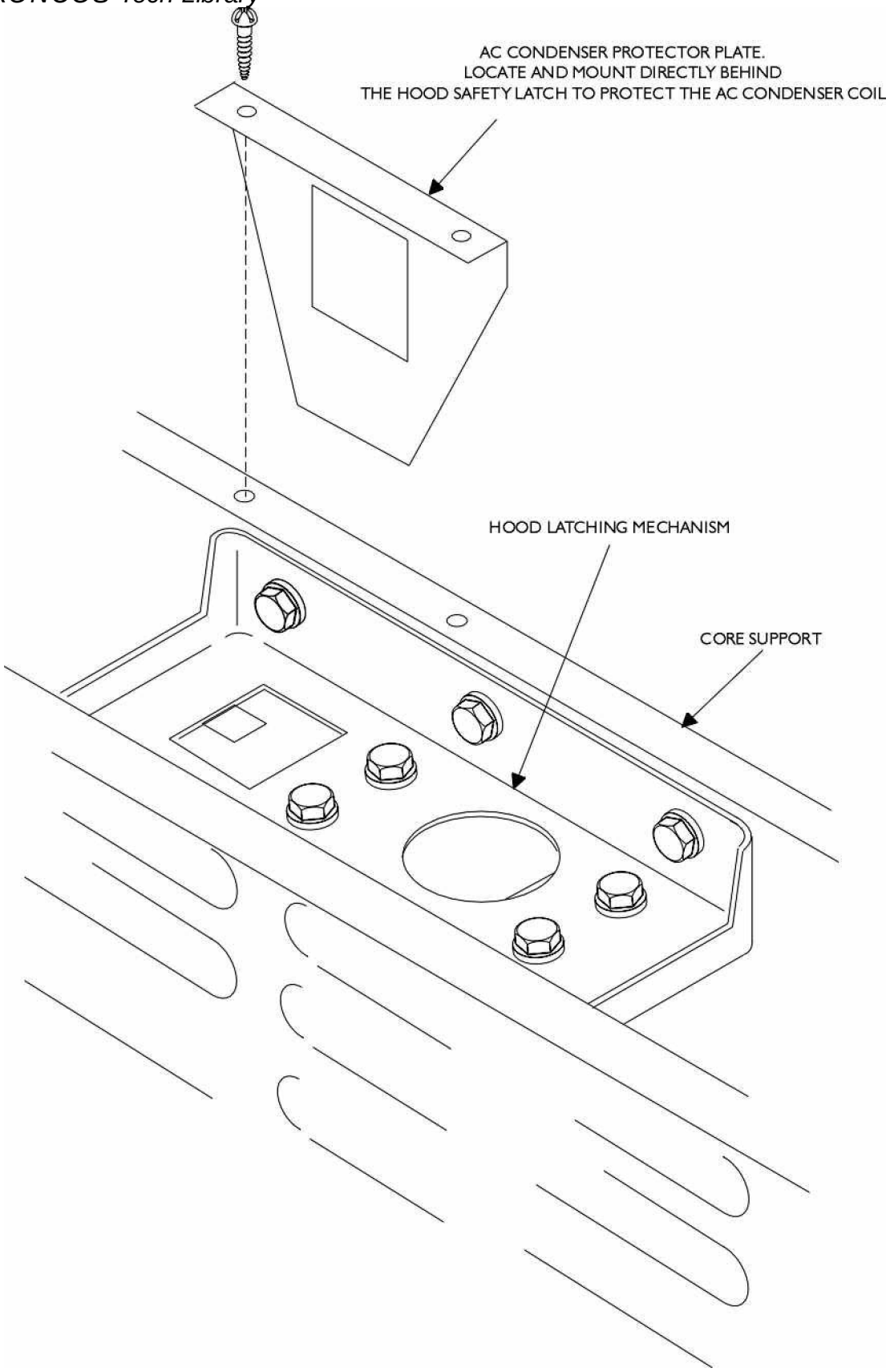
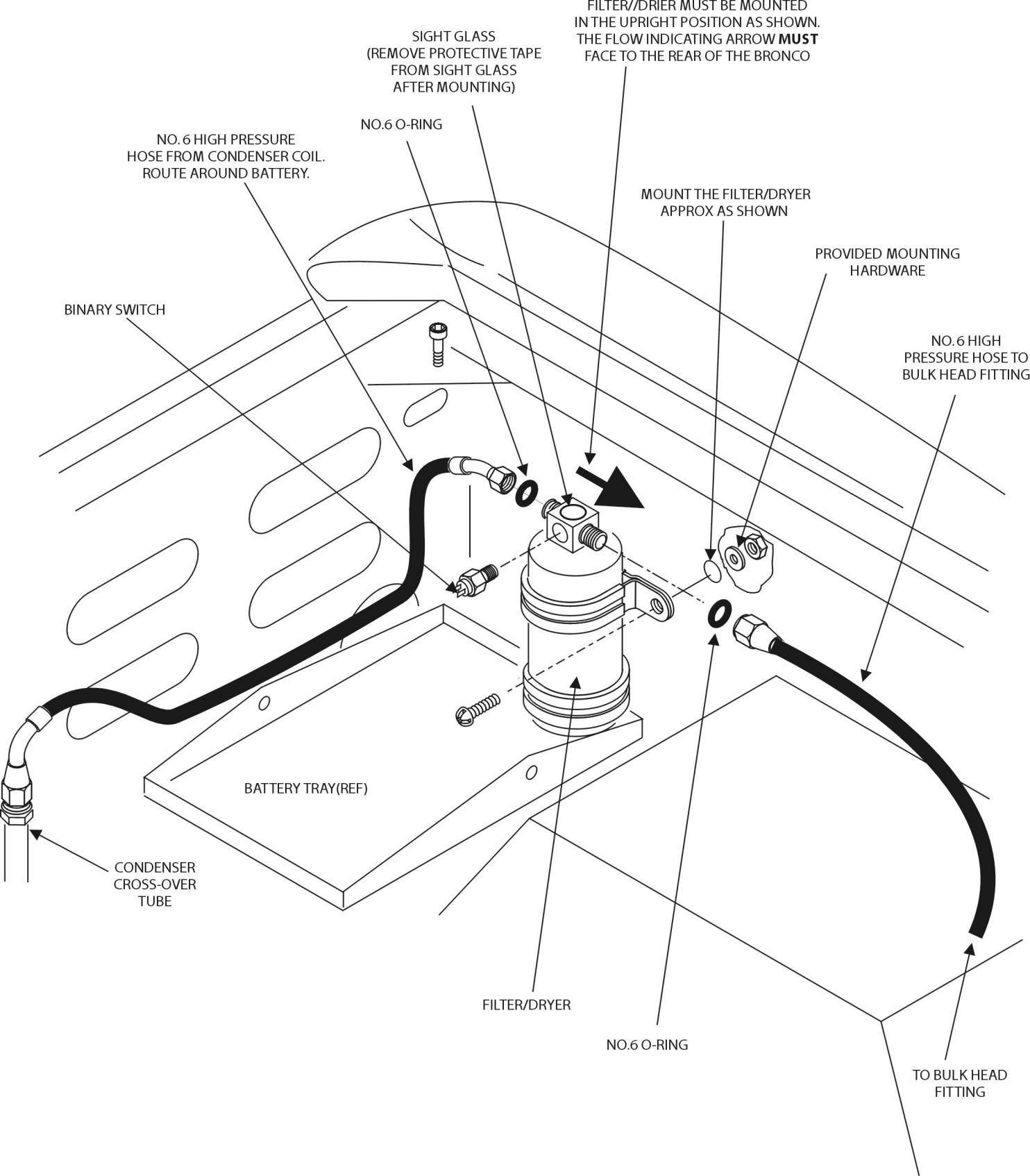
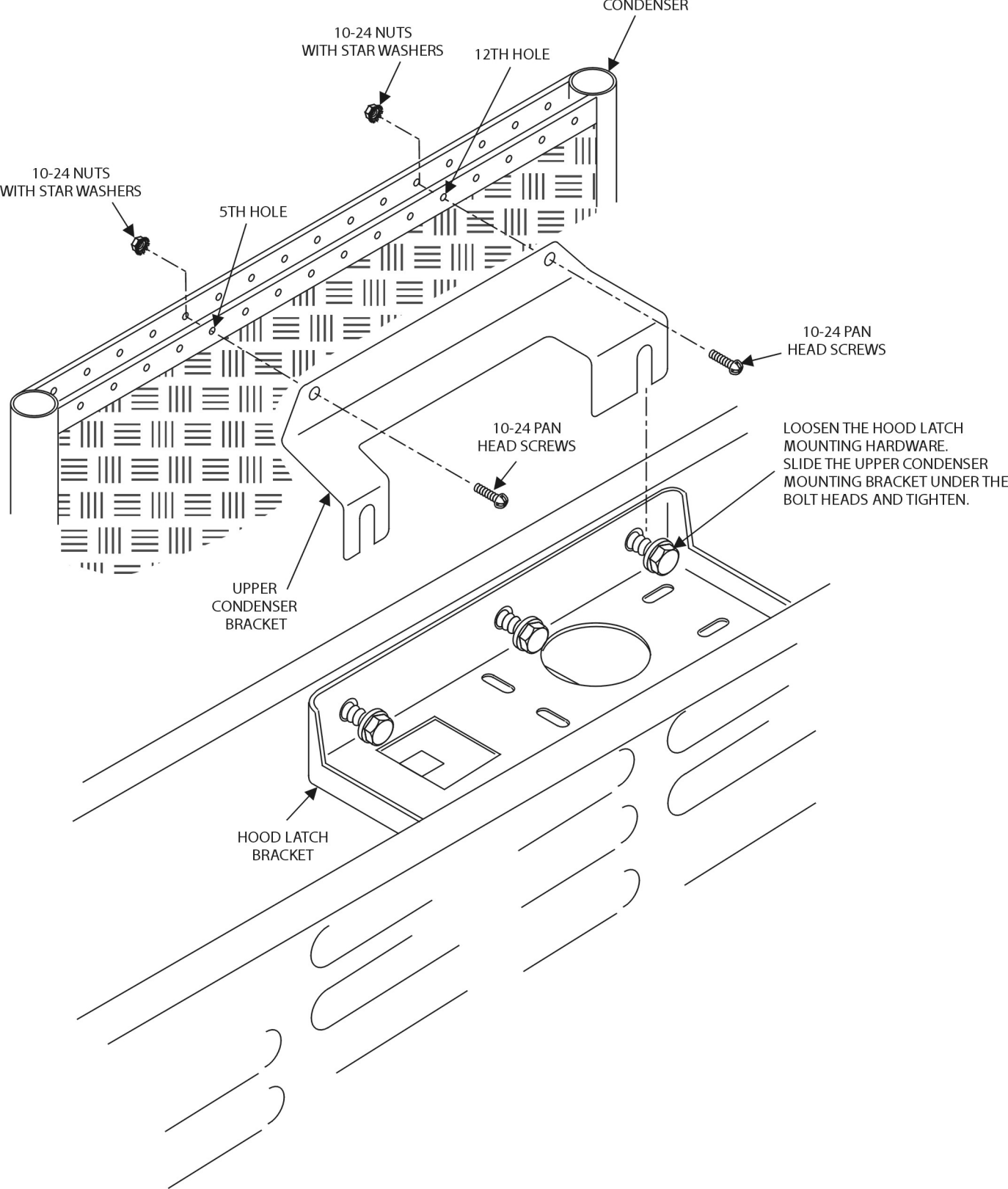
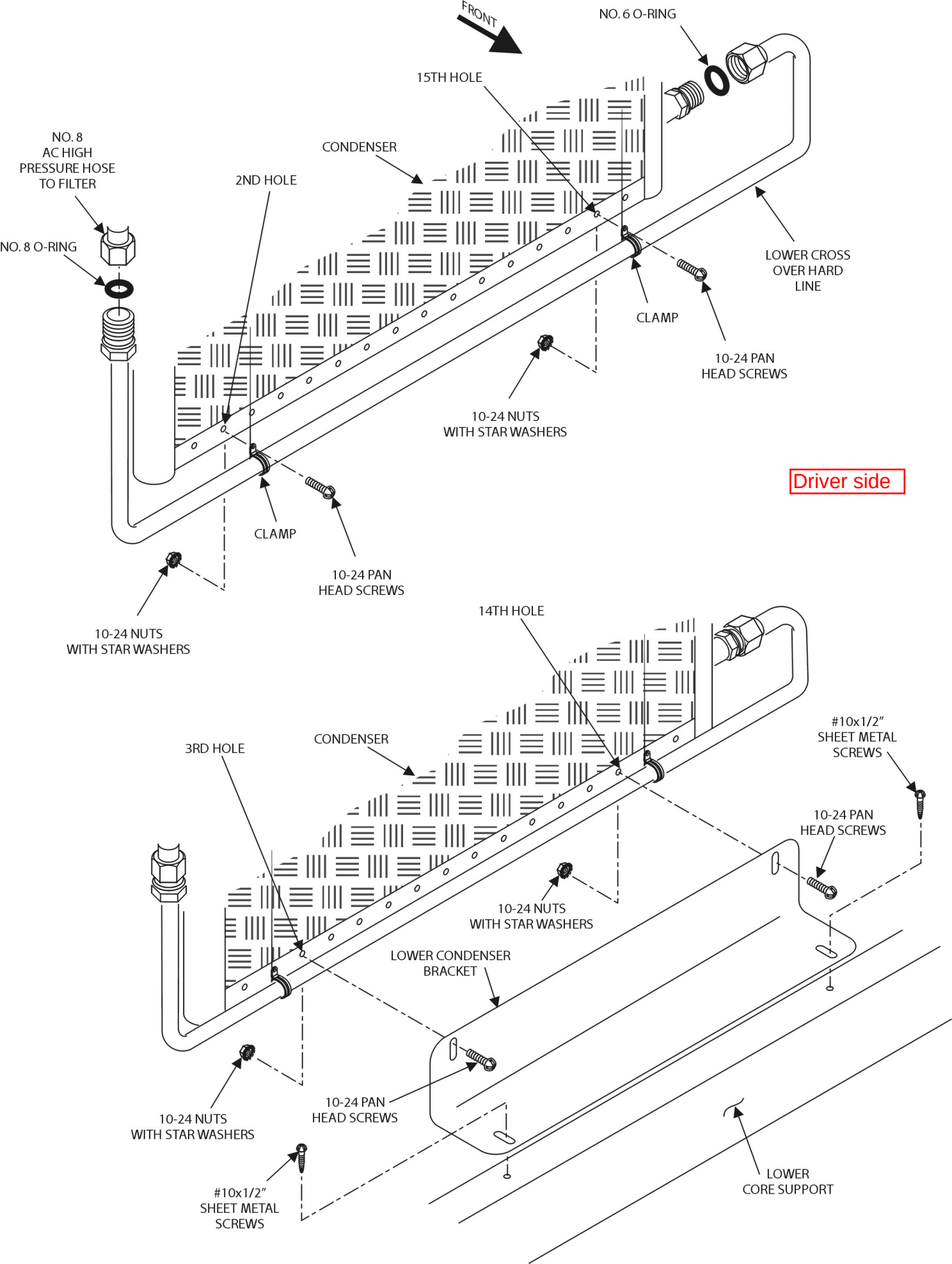


Figure 5. AC condenser guard.


FILTER//DRIER MUST BE MOUNTED
IN THE UPRIGHT POSITION AS SHOWN.
THE FLOW INDICATING ARROW **MUST**
FACE TO THE REAR OF THE BRONCO
SIGHT GLASS
(REMOVE PROTECTIVE TAPE
FROM SIGHT GLASS
AFTER MOUNTING)
NO.6 O-RING
NO. 6 HIGH PRESSURE
HOSE FROM CONDENSER COIL.
ROUTE AROUND BATTERY.
MOUNT THE FILTER/DRYER
APPROX AS SHOWN
PROVIDED MOUNTING
HARDWARE
BINARY SWITCH
NO. 6 HIGH
PRESSURE HOSE TO
BULK HEAD FITTING
BATTERY TRAY(REF)
CONDENSER
CROSS-OVER
TUBE
FILTER/DRYER
NO.6 O-RING
TO BULK HEAD
FITTING


CONDENSER
10-24 NUTS
WITH STAR WASHERS
12TH HOLE
10-24 NUTS
WITH STAR WASHERS
5TH HOLE
10-24 PAN
HEAD SCREWS
10-24 PAN
HEAD SCREWS
LOOSEN THE HOOD LATCH
MOUNTING HARDWARE.
SLIDE THE UPPER CONDENSER
MOUNTING BRACKET UNDER THE
BOLT HEADS AND TIGHTEN.
UPPER
CONDENSER
BRACKET
HOOD LATCH
BRACKET


FRONT
NO. 6 O-RING
15TH HOLE
NO. 8
AC HIGH
PRESSURE HOSE
TO FILTER
CONDENSER
2ND HOLE
NO. 8 O-RING
LOWER CROSS
OVER HARD
LINE
CLAMP
10-24 PAN
HEAD SCREWS
10-24 NUTS
WITH STAR WASHERS
Driver side
CLAMP
10-24 PAN
HEAD SCREWS
10-24 NUTS
WITH STAR WASHERS
14TH HOLE
3RD HOLE
CONDENSER
#10x1/2"
SHEET METAL
SCREWS
10-24 PAN
HEAD SCREWS
10-24 NUTS
WITH STAR WASHERS
LOWER CONDENSER
BRACKET
10-24 NUTS
WITH STAR WASHERS
10-24 PAN
HEAD SCREWS
#10x1/2"
SHEET METAL
SCREWS
LOWER
CORE SUPPORT

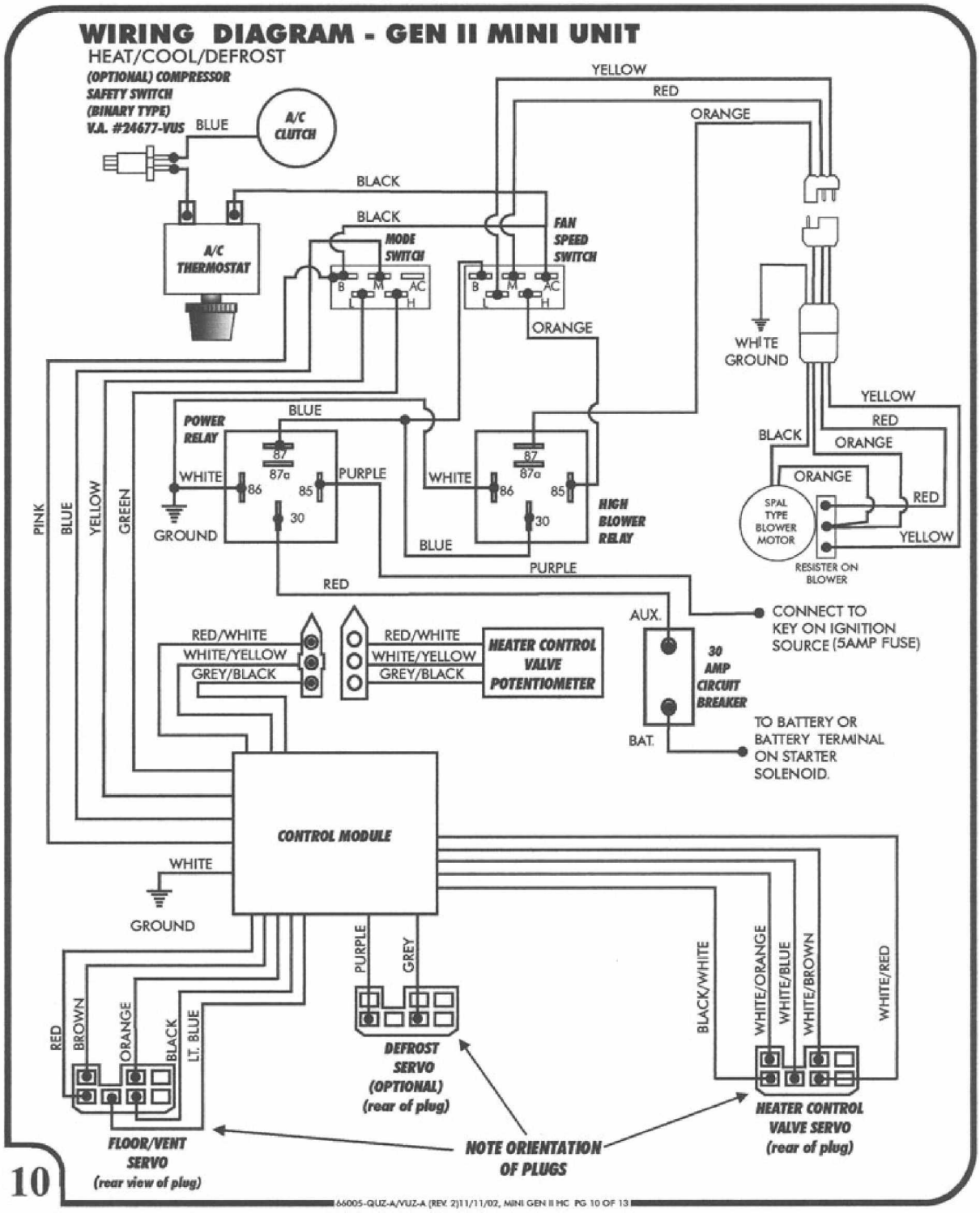
Controls / Wiring

1. Route and connect the wiring harness to the ac unit per the manufacturer's installation instructions.
2. Route and connect the wiring harness to the heater control per the manufacturer's installation instructions.
3. Run binary switch wire thru the OEM heater mounting hole as shown in Figure 2 and connect the binary switch sense lead per the manufacturer's installation instructions.
4. Route and connect the compressor clutch lead per the manufacturer's installation instructions.
5. Reinstall the fan belt(s).

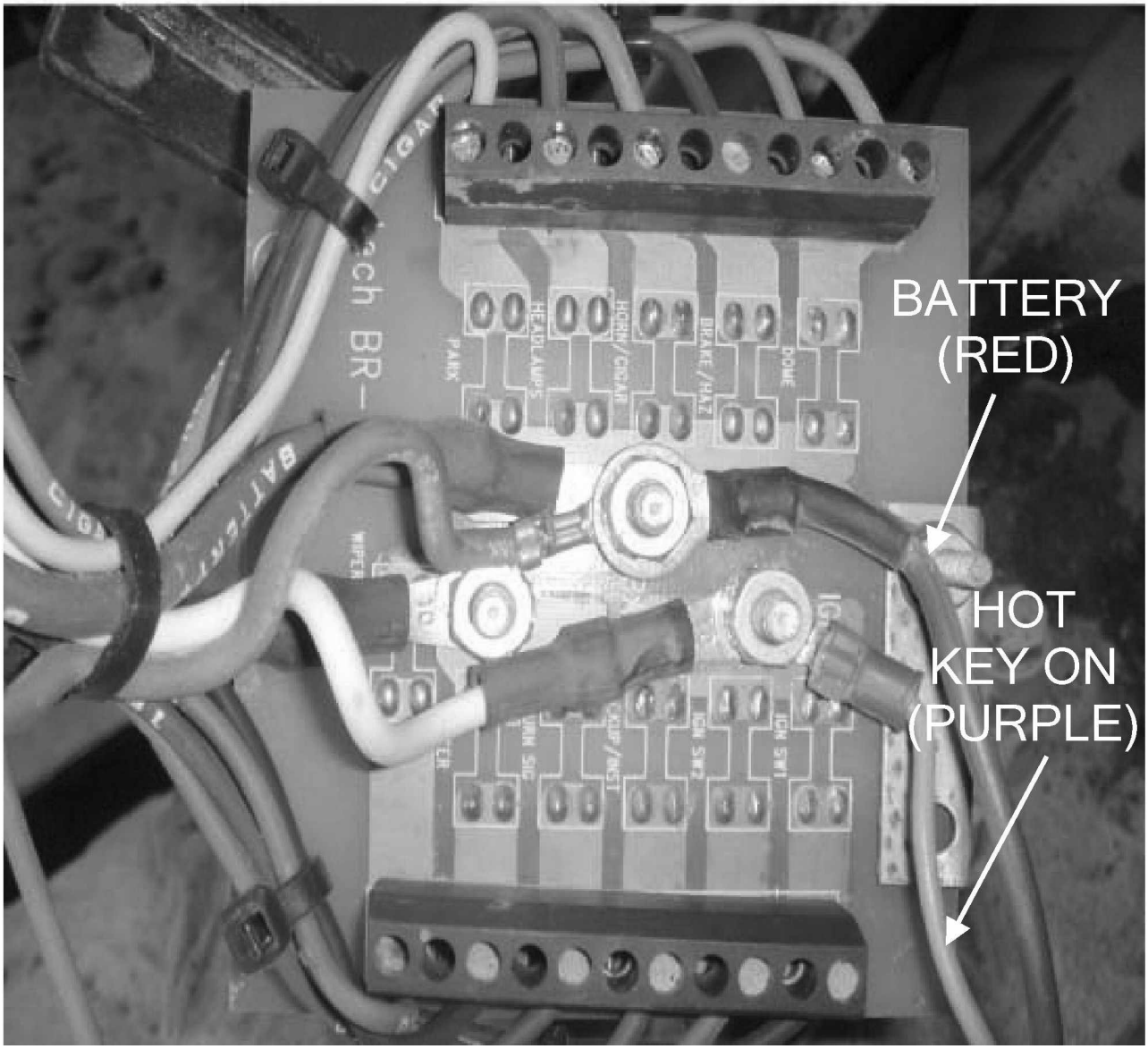
NOTE

Due to the addition of the ac compressor, a longer fan belt(s) will be required.

6. Reconnect the radiator hoses.
7. Refill the radiator with a quality coolant.
8. Reinstall the battery.
9. Reinstall the air cleaner.
10. Check all ac unit hoses and ac unit electrical harnesses for any contact or interference with carburetor linkage, exhaust manifolds, sharp edges, etc. Correct as necessary.



THE WIRES ON THE LEFT ARE THE STANDARD CENTECH WIRES.
WIRES ON THE RIGHT ARE THE VINTAGE AIR POWER LINES.
JUST UNSCREW THE NUTS ON THE BACK OF THE FUSE BLOCK
AND ATTACH THE NEW WIRES, THATS IT.



ATTENTION INSTALLERS!!

Please read before charging system

- Cooling system needs to have ***50/50 mix of distilled water and antifreeze***, also the heater coil needs to be purged (*cycle heater control valve*) to make sure *no* water, without antifreeze, is in the heater coil before you charge the A/C system.

- **134a** refrigerant charge = 1.8 *lbs* OR 28.8 *oz*.

- New Sanden compressor comes charged with oil - **NO additional oil needed** anywhere in the Vintage Air system.

- Vintage Air systems use an expansion valve and will operate at a *lower* suction pressure than on some OEM systems. ***Please note formula below.****

- Evacuate the system for 45 minutes (minimum) with the complete system @ 90 degrees before charging.

TEST CONDITIONS USED TO DETERMINE SYSTEM OPERATION

A. PLACE TEMPERATURE PROBE (THERMOMETER) INTO CENTER OUTLET.
B. CONNECT GAUGES OR SERVICE EQUIPMENT TO HIGH/LOW CHARGING PORTS
C. PLACE BLOWER FAN SWITCH ON MEDIUM.
D. CLOSE ALL DOORS AND WINDOWS ON VEHICLE.
E. PLACE SHOP FAN OR HEAVY DUTY SQUIRREL-CAGE BLOWER DIRECTLY IN FRONT OF CONDENSER.
F. RUN ENGINE IDLE UP TO 1500 RPM.

(THESE TEST CONDITIONS WILL SIMULATE THE AFFECT OF DRIVING THE VEHICLE AND GIVE THE TECHNICIAN THE THREE CRITICAL READINGS THAT THEY WILL NEED TO DIAGNOSE ANY POTENTIAL PROBLEMS)

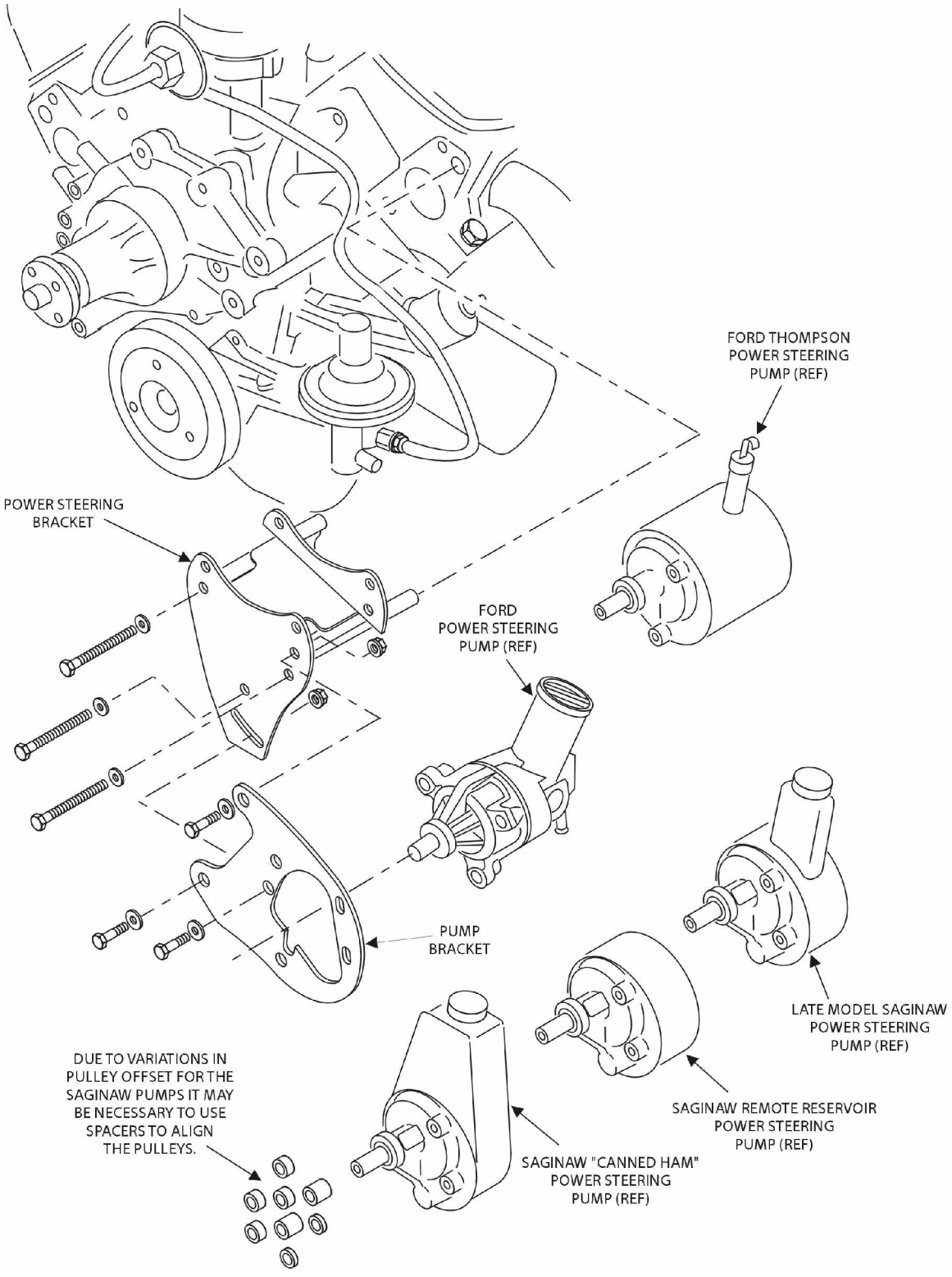
*** ACCEPTABLE OPERATING PRESSURE RANGES FOR VINTAGE AIR SYSTEMS**

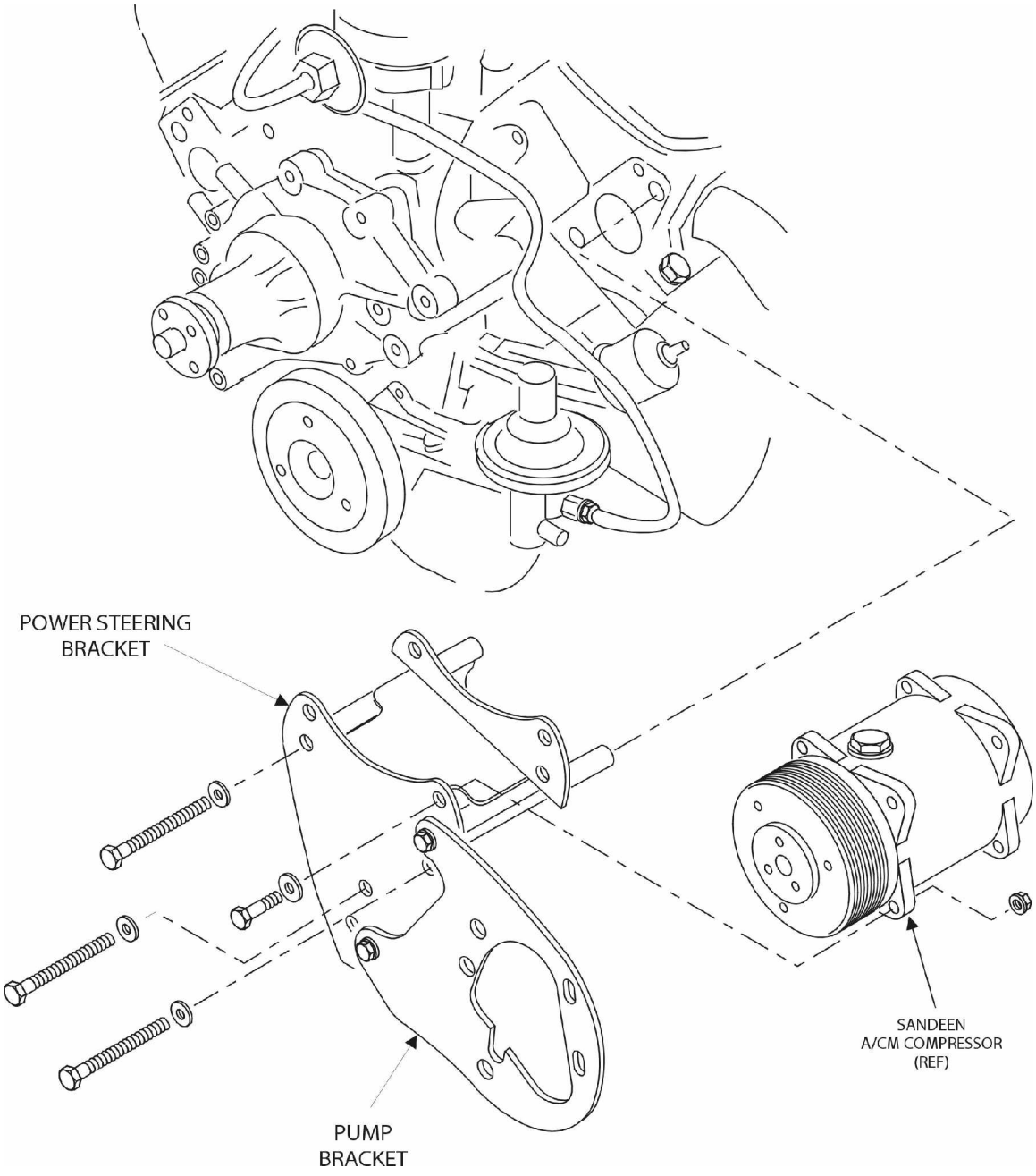
A. **R134A TYPE**

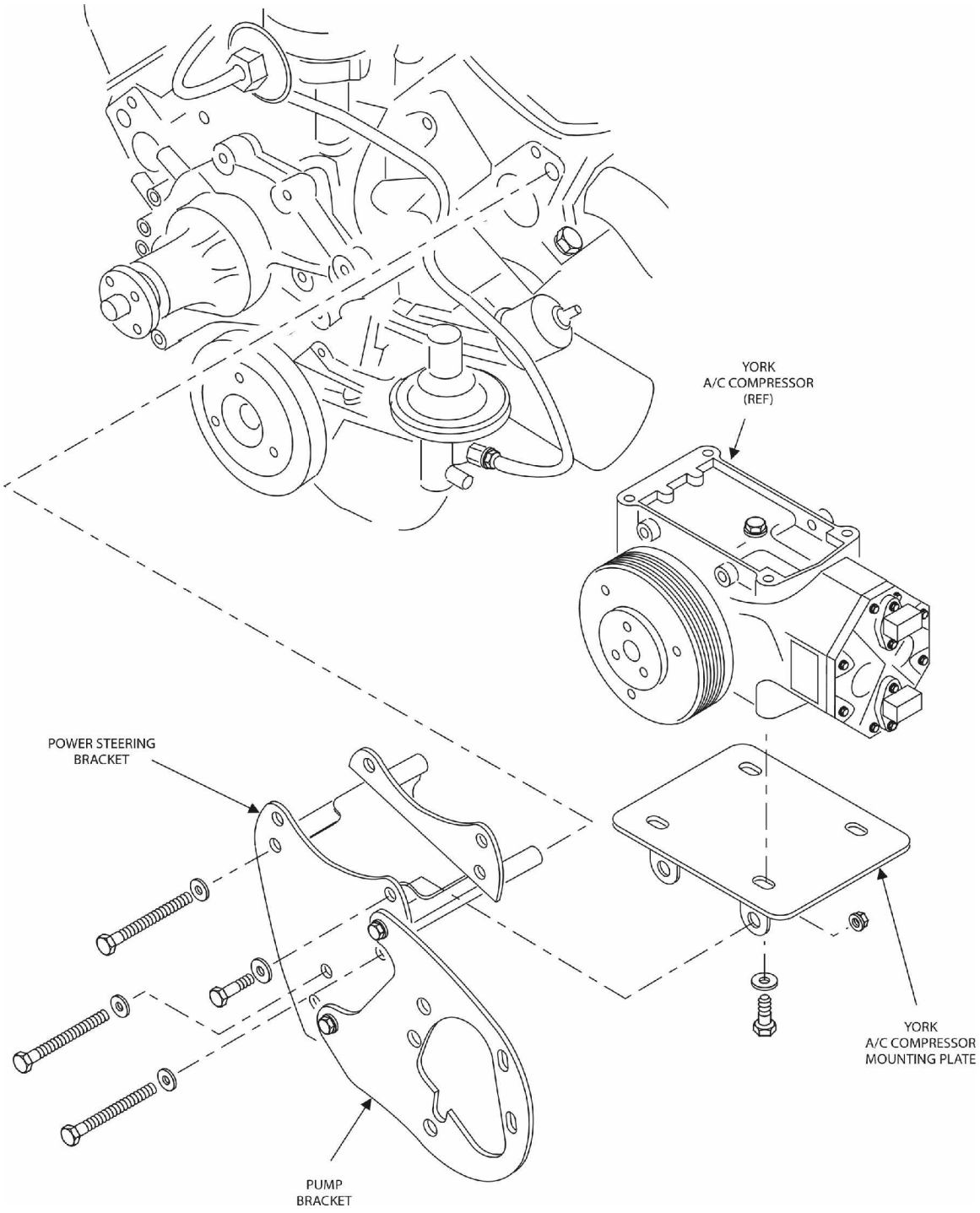
1. **HIGH-SIDE PRESSURES** (160-250 PSI) * Note- general rule of thumb is two times the ambient (daytime) temperature, plus 15-20%.
2. **LOW-SIDE PRESSURES** (06-12 PSI in a steady state)
3. **CENTER DUCT TEMPERATURE** (36-46 DEGREES F.)

Additional information available on our web site – www.vintageair.com -including install instructions, wiring diagrams for systems, Trinary switch, fan wiring diagrams and a more detailed Trouble Shooting Guide, if needed.
You can also call us @ 1.800.862.6658 during normal business hours.

BC BRONCOS MULTI PUMP POWER STEERING BRACKET




POWER STEERING
BRACKET
SANDEEN
A/CM COMPRESSOR
(REF)
PUMP
BRACKET


YORK
A/C COMPRESSOR
(REF)
POWER STEERING
BRACKET
YORK
A/C COMPRESSOR
MOUNTING PLATE
PUMP
BRACKET