



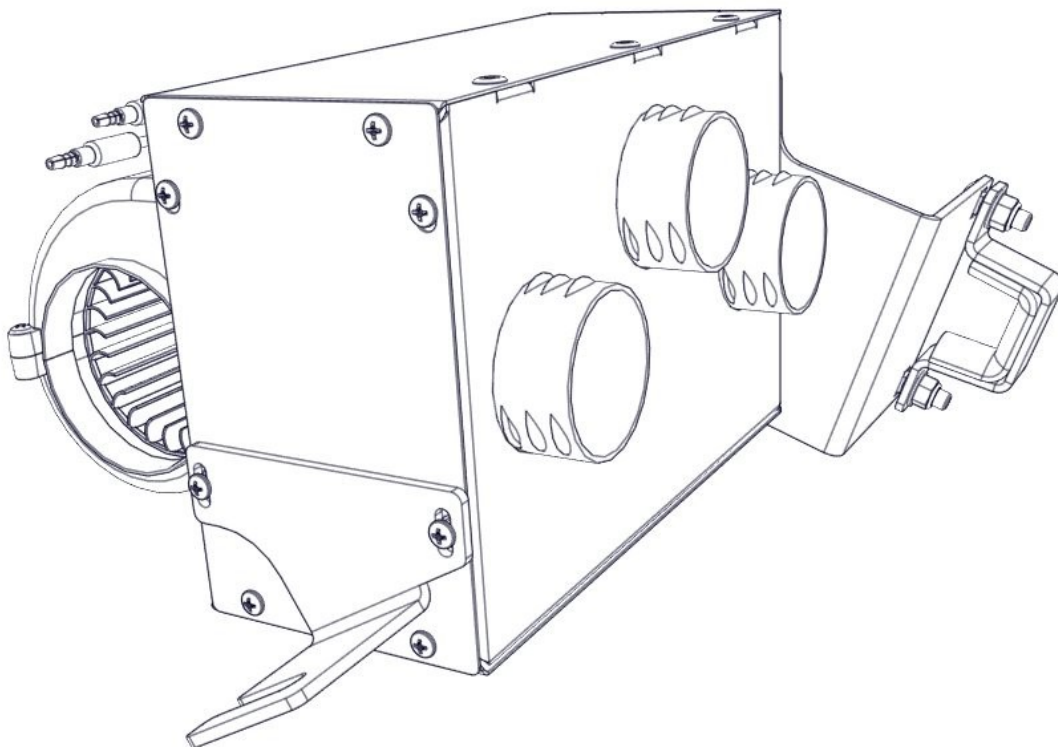
**KAWASAKI MULE**  
**HEATER KIT**  
**P/N 9PH20S61**  
**FITS PRO-FX, PRO-FXT**

**IMPORTANT!**

**MULTIPLE ACCESSORY INSTALLATION**

If multiple accessories are being installed to the vehicle, they should be installed in this order for ease of installation:

- 1st Heater
- 2nd Fuse Block
- 3rd Winch
- 4th Cab



**Approximate Installation Time**

Experienced Dealer Technician – 3 Hours

Average Dealer Technician – 4 Hours

Do-It-Yourself – 5 Hours

The contents of this envelope are the property of the owner.  
 Be sure to leave with the owner when installation is complete.



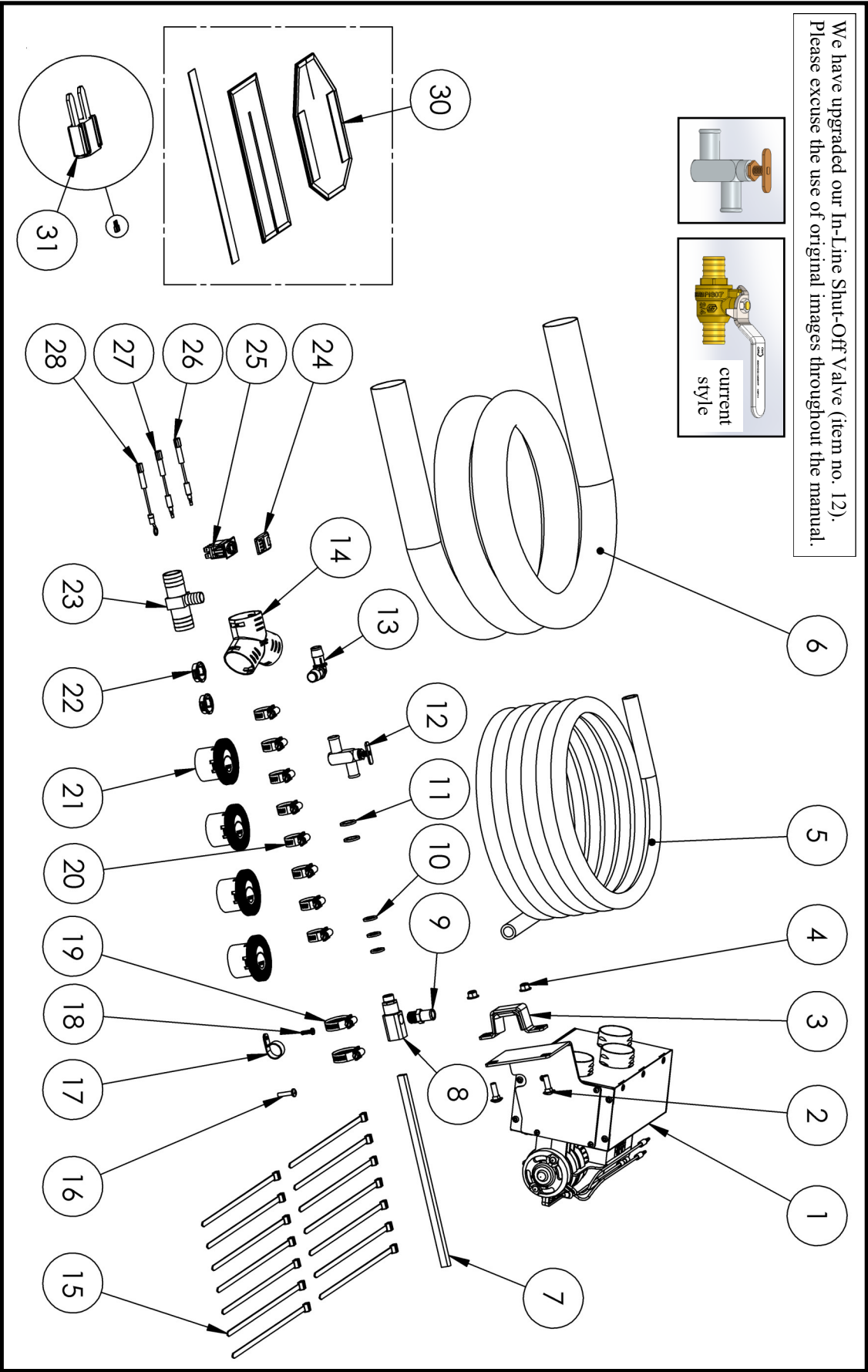
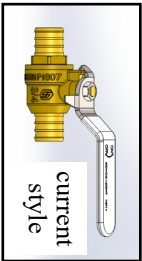
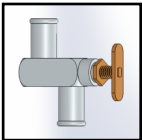
## PARTS IN THIS KIT

#	PART NUMBER	DESCRIPTION	QTY.
1	9PH20U4	HEATER W 5/8" INLETS, (3) 2" OUTLETS & 8" WIRE LEADS	1
2	70-69-0288	SCREW, CB, -, 5/16-18, 1, S, 5, HB	2
3	110-00015	HEATER CLAMP ASSEMBLY, PFX	1
4	72-21-0037	NUT, HF, NIL, 5/16-18, -, S, G, HB	2
5	9HR0061	HEATER HOSE (5/8" I.D.)	15
6	OCH-13	2" I.D. EPE HEATER HOSE	10
7	9PRO1	TRIM LOK, STD, 1/16" - 1/8" GRIP	12
8	9HR0051MF	EXTENDED SENDING UNIT ADAPTOR	1
9	9HR0045	BLOCK ADAPTER (3/8" NIPPLE)	1
10	71-39-0024	WASHER, SL, NSD, M12 X 21, 2.5, N, -, WHT	3
11	71-39-0025	WASHER, SL, NSD, M16 X 24, 2.5, N, -, WHT	2
12	9HR-00025	IN-LINE MANUAL SHUT-OFF VALVE, 3/4" NSF 14	1
13	9HR0039	90 DEGREE HEATER HOSE ELBOW, 5/8" BARBED ENDS	1
14	9HR-00003	Y-FITTING, 2.0"	1
15	WTHD11B	WIRE TIE 11" BLACK, HEAVY DUTY (120 LB)	14
16	70-31-0289	SCREW, PH, MS, M6x1, 25, S, -, HB	1
17	9HR0060-P	P-CLAMP, 7/8", PP	1
18	70-32-0290	SCREW, PH, SMS, #10, 0.75, S, -, HB	1
19	9HR0060-1.5	HOSE CLAMP #16 (1.25")	2
20	9HR0060-1.0	HOSE CLAMP #10 (1")	8
21	1HAP1D	VENT, 2" ROUND 360 DEGREE, HEATER UNIT	4
22	9DPSB	SNAP BUSHING, .750" X 1.093"	2
23	9HR-00005	TEE FITTING, 1-1/8"X1-1/8"X5/8"	1
24	9PCD1-B	CONSOLE ROCKER SWITCH COVER, FOR HEATER SYMBOL	1
25	OHC-6	LIGHTED 3 POSITION SWITCH, CARLING (OFF-ON-ON)	1
26	WH-00009	WIRING HARNESS, JUMPER, BLACK, BULLET T. TO MALE PUSH ON T	1
27	WH-00010	WIRING HARNESS, JUMPER, RED, BULLET T. TO MALE PUSH ON T	1
28	WH-00011	WIRING HARNESS, JUMPER, BLACK, 3/8" RING TO MALE PUSH ON T	1
29	KX9-HTRWH1	WIRE HARNESS, HEATER, X900/1120D (NOT SHOWN)	1
30	CFP-00003	CURTAIN FILLER PACKAGE, PFX	1
31	85-00-0002	15 AMP ATM MINI BLADE FUSE	1
32	85-00-0003	15 AMP ATC/ATO FUSE	1

Refer To Figure On Next Page.



We have upgraded our In-Line Shut-Off Valve (item no. 12).  
Please excuse the use of original images throughout the manual.





# CAUTION



- 
1. Read all instructions and safety instructions in this manual and on your machine safety decals.
  2. Use proper personal protective equipment during all phases of installation.
  3. NEVER work on a vehicle that is only supported with a Jack. A service lift or jack stands are required for safe working conditions.
  4. ALWAYS shut off engine before leaving the operator's seat to perform any portion of the procedures listed in this manual.
  5. ALWAYS allow engine to cool down completely before installation of auxiliary heater or any components of the coolant system. Hot engine coolant may cause severe injury.
  6. Disconnect the battery negative cable when working with any electronics components.
  7. Hang a "DO NOT OPERATE" tag in the operator station.
  8. Never dispose of waste fluids on the ground, in the gutter, a river, pond or lake. Always dispose of hazardous substances like waste oil, coolant and electrolytic fluid in accordance with the relevant environmental protection regulations.

## TOOLS REQUIRED

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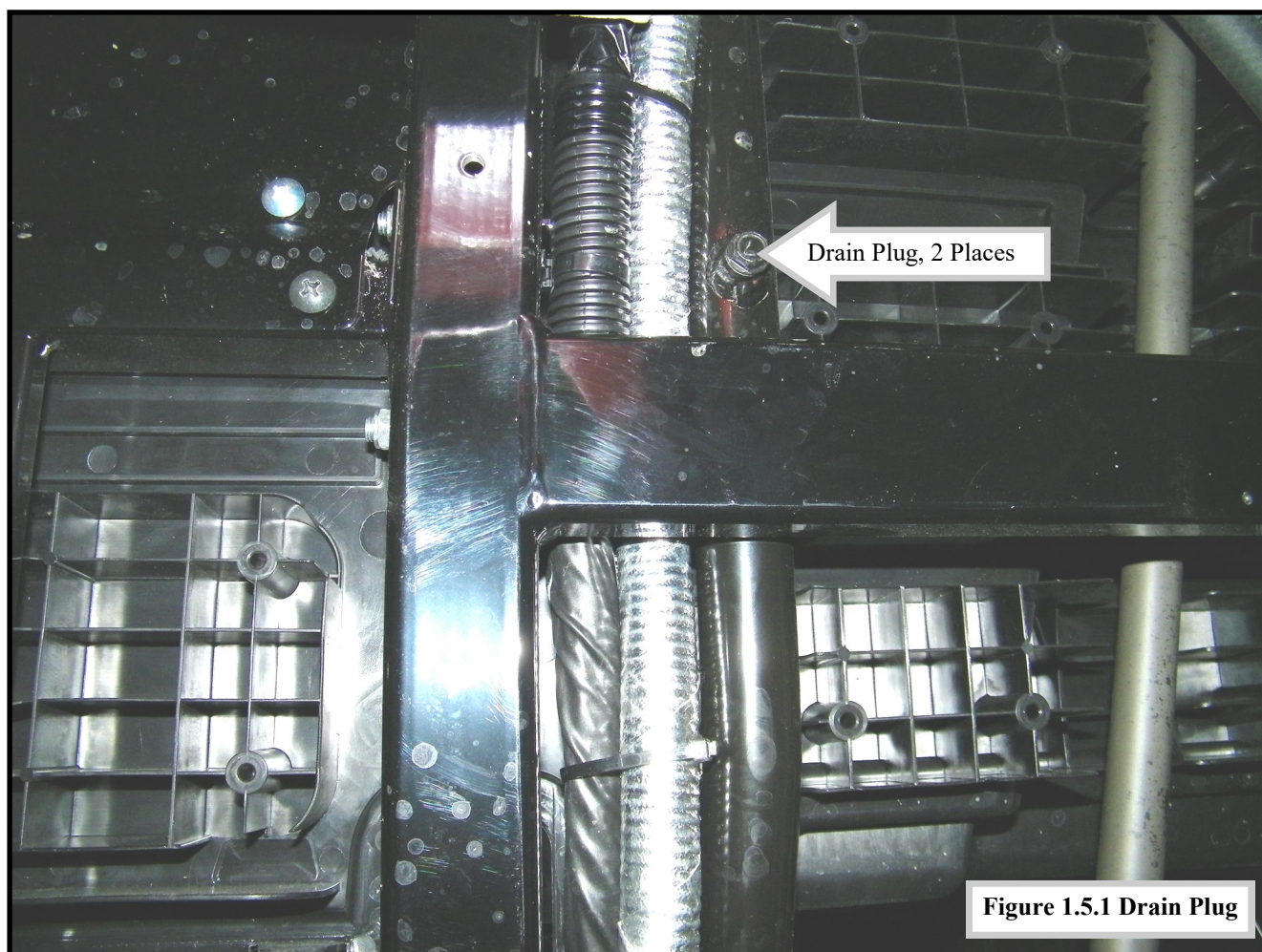
Antifreeze  
Drain Pan  
Snips or Scissors  
Standard & Metric Wrenches  
Ratchet  
Standard & Metric Sockets  
Flat Head Screw Driver, #2  
Phillips Head Screw Driver, #2  
Drill & Drill Bits (1/4" Or 6mm)  
1-1/8" Hole Saw  
2-1/16" Hole Saw (2" Hole Saw & Dremmel Or File May Be Used As An Alternative)



**STEP 1: VEHICLE PREPARATION:**

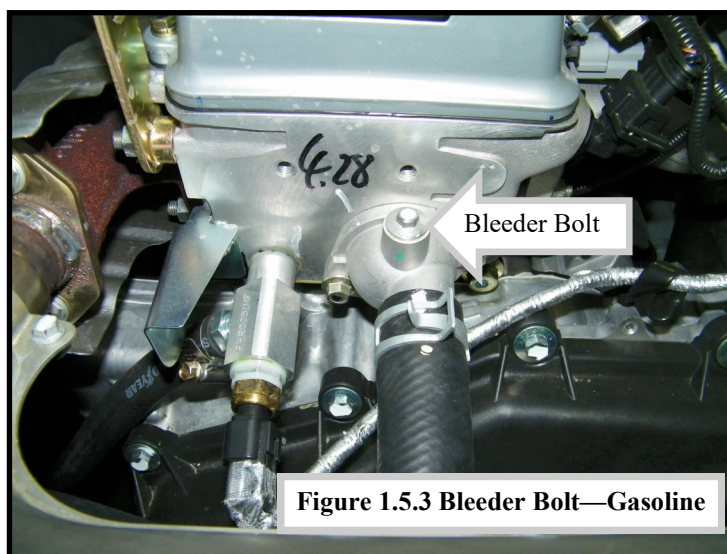
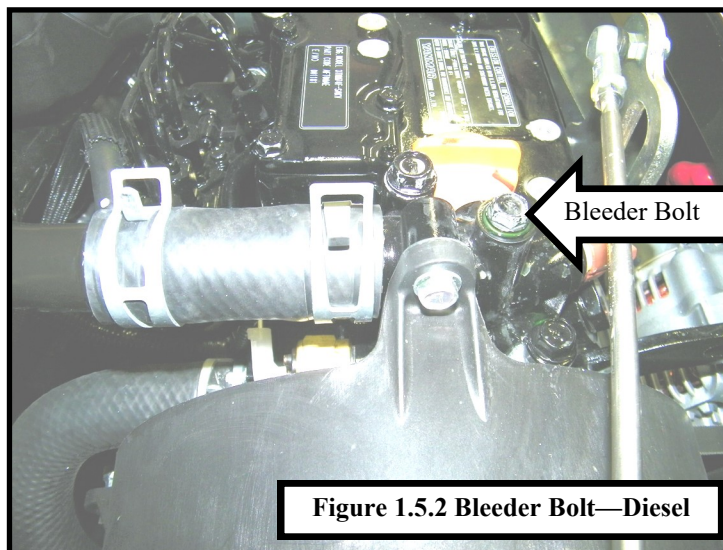
- 1.1 Lift the vehicle and secure. A service lift or jack stands are required for safe working conditions. Never work on a vehicle that is only supported with a jack.
- 1.2 Remove skid plates from bottom of vehicle.
- 1.3 Disconnect the negative terminal of the battery.
- 1.4 Remove hood from front of vehicle.
- 1.5 Drain cooling system by removing the drain plugs located under the vehicle. There is a drain plug in both the supply and the return radiator lines. Both drain plugs must be removed. (Figure 1.5.1)

Remove the radiator cap and loosen the bleeder bolt at the motor to aid in the draining process. (Figure 1.5.2 & 1.5.3 on next page)



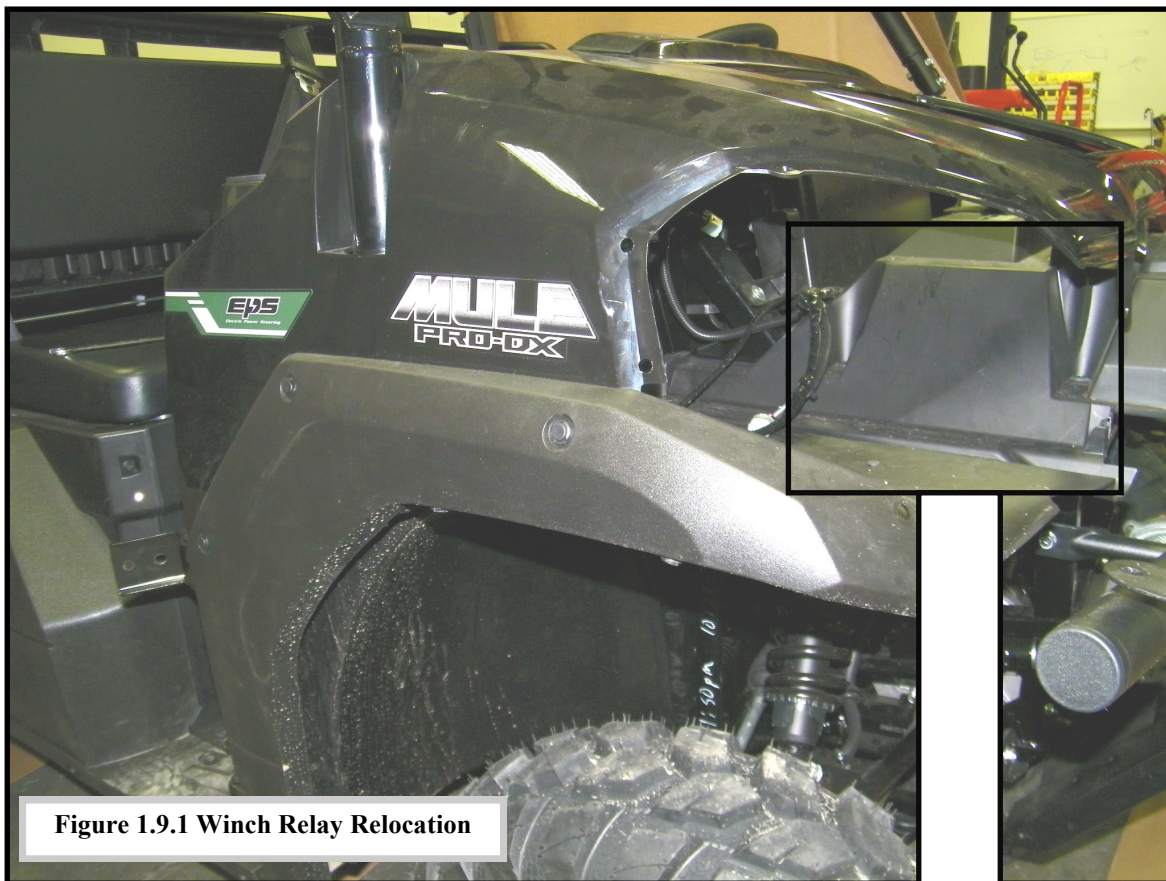


## STEP 1: VEHICLE PREPARATION (CONTINUED):

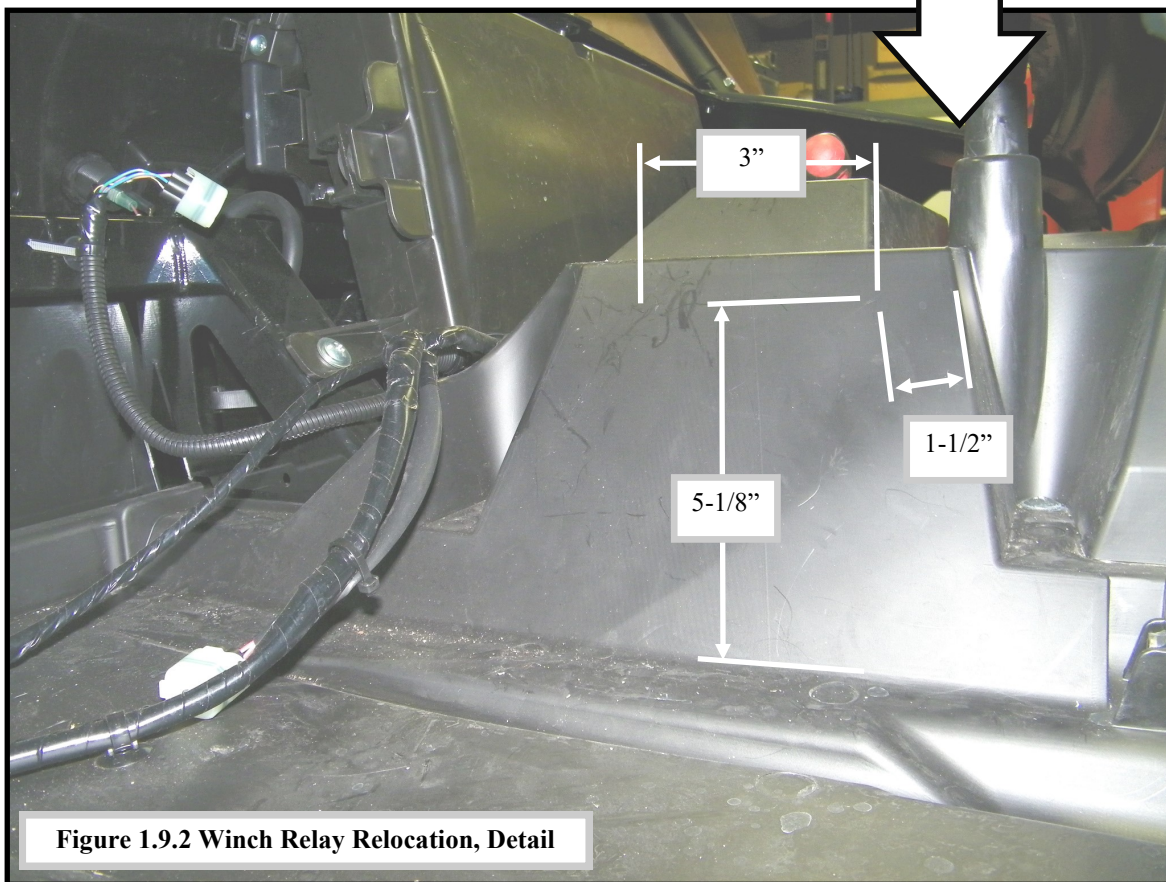


- 1.6 Unfasten upper dashboard panel by removing the (5) plastic rivets that hold it in place. The vehicle's wiring harnesses may stay in place as it is not necessary to completely remove this panel.
- 1.7 Remove the (9) plastic rivets and the (4) screws from the lower dashboard panel. Maneuver the lower dashboard panel so that it is only restrained by the steering column. This may be accomplished without removing the front wheel well fairings on each side of the vehicle. It is not necessary to completely remove the lower dash panel or the steering wheel.
- 1.8 If the vehicle is equipped with a winch, remove the headlight grill from the front of the vehicle. If there is no winch, skip to step 1.10.
- 1.9 If Kawasaki winch has been installed, remove fasteners for the winch's relay and drill new holes (6mm or 1/4"). Place a 2x4 piece of wood or similar between the radiator cover and the radiator to prevent puncturing the radiator. Do not install the relay until step 9.2 of this manual. (Figures 1.9.1 & 1.9.2 on next page)
- 1.10 If Kawasaki fuse box has been installed, remove fasteners to maneuver fuse box out of the way for future steps.





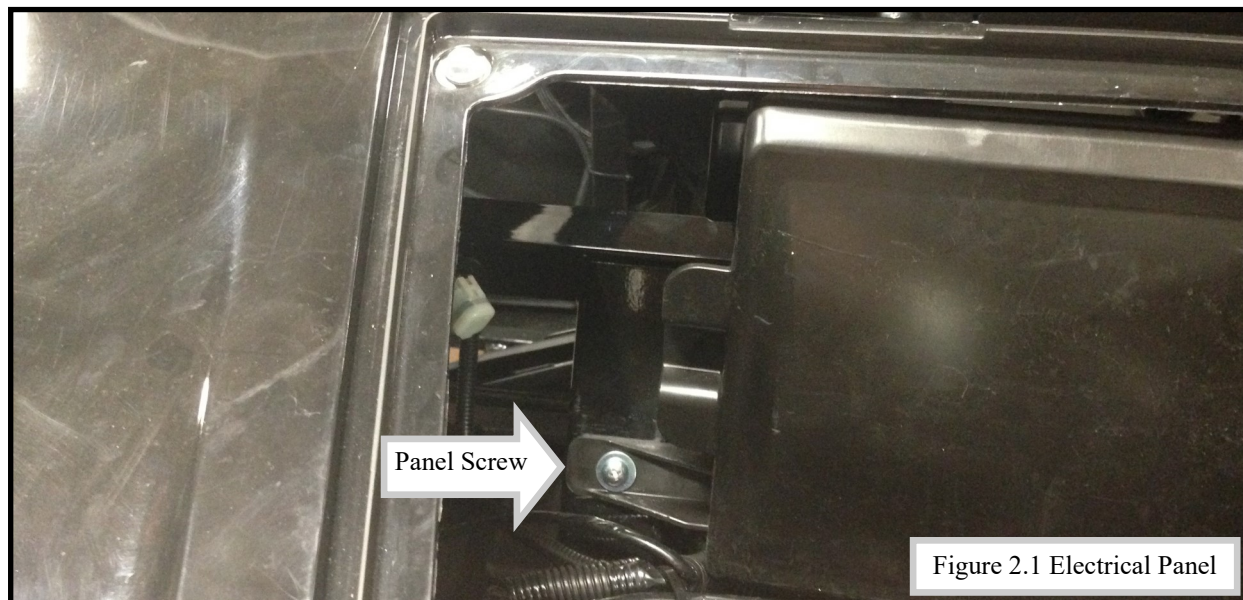
**Figure 1.9.1 Winch Relay Relocation**



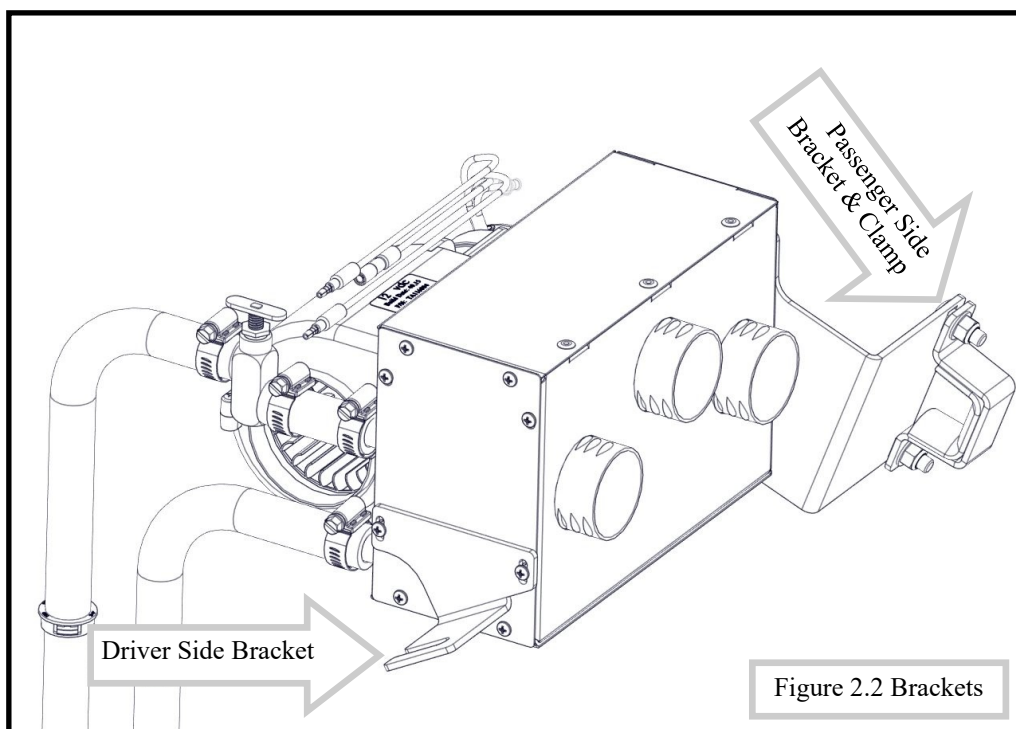
**Figure 1.9.2 Winch Relay Relocation, Detail**

**STEP 2 HEATER INSTALLATION:**

- 2.1 Remove the screw securing the plastic electrical panel to the vehicle's frame. Replace this screw with the Phillips head screw supplied with the kit (M6-1.0 x 25). Do not tighten the screw, it must remain loose for the next step. (Figure 2.1)



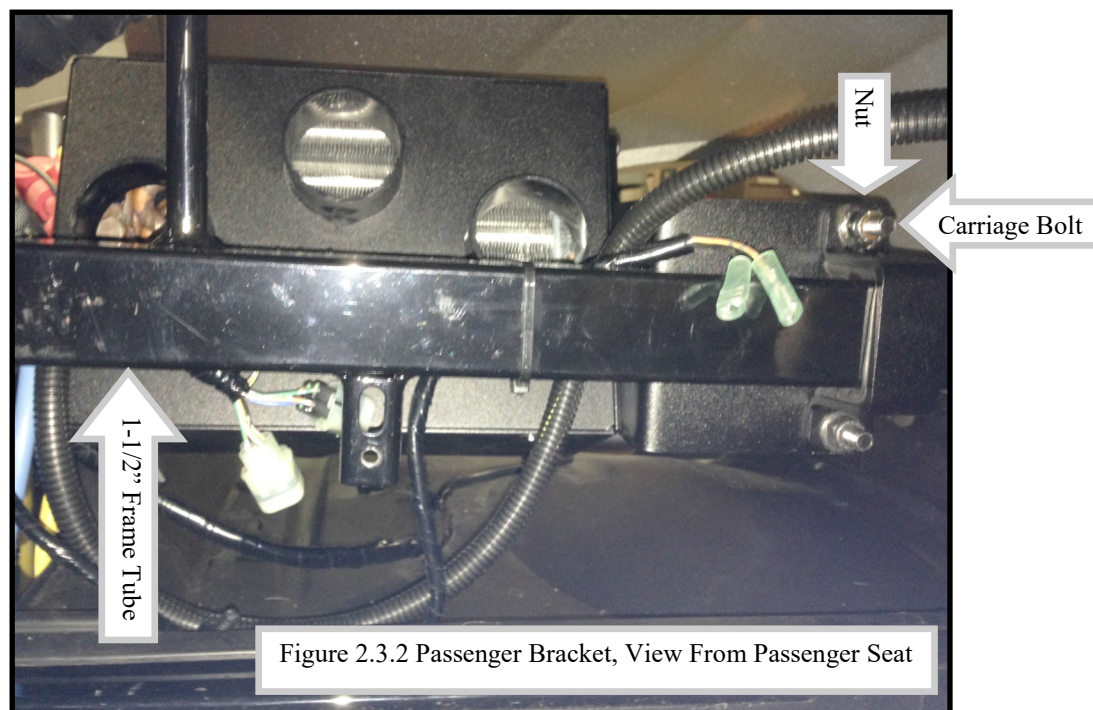
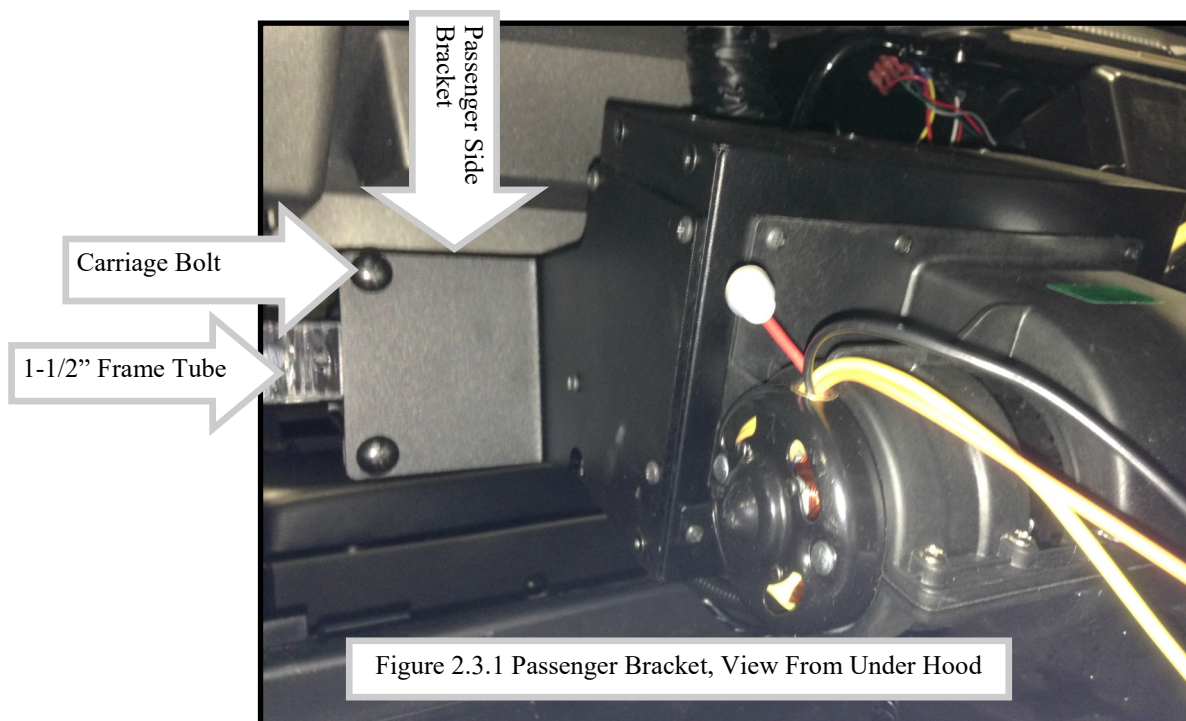
- 2.2 Insert the heater assembly under the hood on the passenger side of the vehicle. The vents shall face the passenger seat. Position the heater such that the driver's side bracket of the heater assembly hooks around the replaced screw (from step 2.1) and underneath the plastic electrical panel. Leave the screw finger tight. (Figures 2.1 & 2.2)





**STEP 2 HEATER INSTALLATION (CONTINUED):**

- 2.3 Install the passenger side bracket of the heater assembly to the 1-1/2" square horizontal frame tube. Secure the heater assembly with the U-shaped bracket, (2) carriage bolts, and (2) nuts. (Figures 2.3.1 & 2.3.2)
- 2.4 Tighten the screw that secures the driver's side bracket and the plastic electrical panel and the fasteners from the previous step. (from step 2.2).





### STEP 3 HEATER PLUMBING, SUPPLY:

**3.1** With all of the coolant drained from the system, disconnect and remove the sending unit from the motor.

**3.2 Diesel Engine:** For the supply line into the heater, remove the sending unit. Install the sending unit in the end of the sending unit adaptor.

Install the hex bushing onto the male end of the adaptor with a small plastic washer. Install a large plastic washer onto the end of the hex bushing, and install into the engine block where the sending unit was removed. If the sending unit adaptor does not tighten so that the port on the side for the 3/8" NPT nipple points as shown in Figure 3.2, then remove it and install another small plastic washer and try again. Reconnect the sending unit wire.

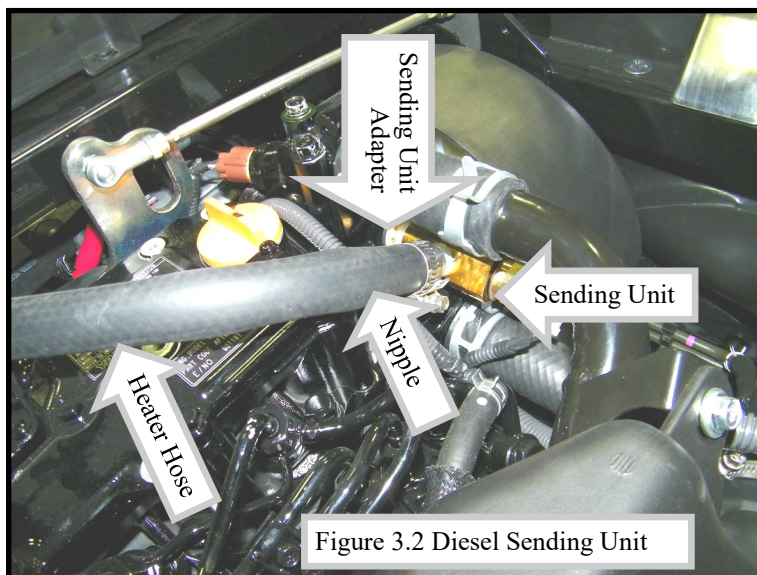


Figure 3.2 Diesel Sending Unit

**3.3 Gasoline Engine:** For the supply line into the heater, remove the sending unit. Install the sending unit in the hex bushing of the sending unit adaptor. Install the hex bushing into the end of the adaptor with a large plastic washer. Gasoline models have a heat shield next to the sending unit. The heat shield can be temporarily removed to gain better access. Ref.: fig. 3.3 shows the latest additional guards installed to the exhaust.

Install a small plastic washer onto the end of the sending unit adaptor and install into the engine block where the sending unit was removed. If the sending unit adaptor does not tighten so that the port on the side for the 3/8" NPT nipple points as shown in Figure 3.3, then remove it and install another small plastic washer and try again. Reconnect the sending unit wire.

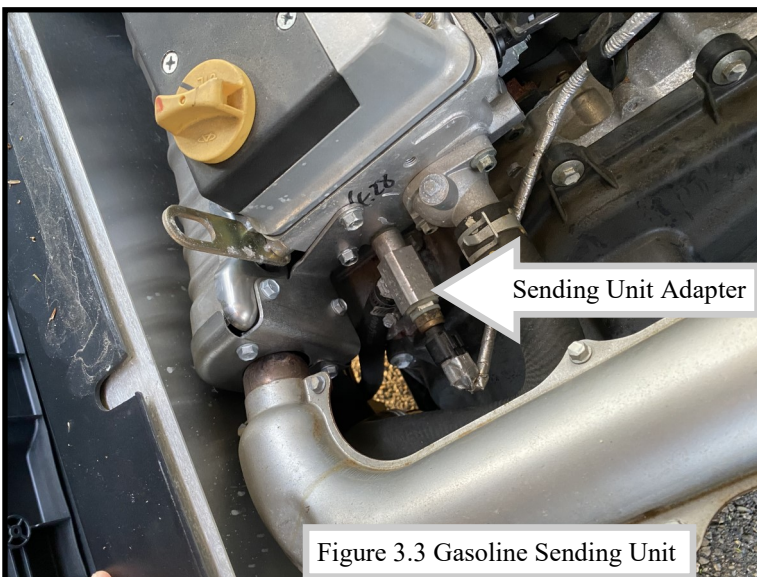


Figure 3.3 Gasoline Sending Unit

**3.4** Apply Teflon tape (not supplied) to the 3/8" NPT nipple and install into the side port of the adaptor.





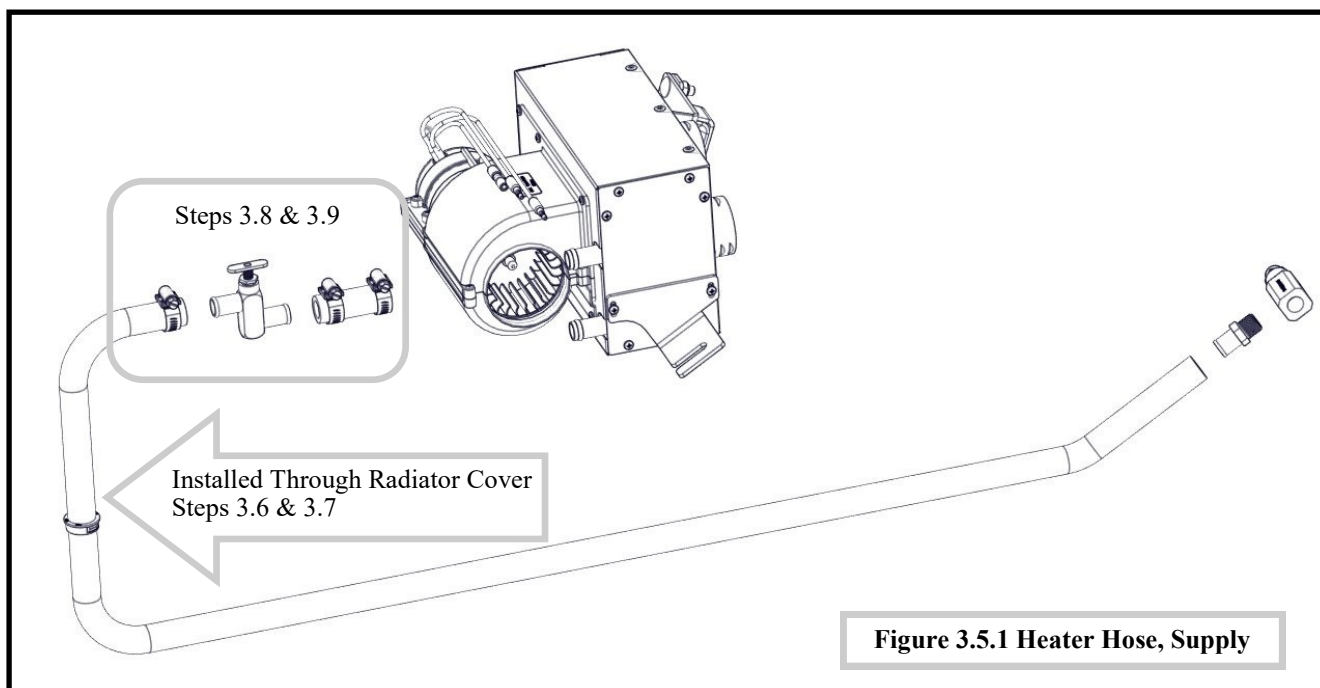
### STEP 3 HEATER PLUMBING, SUPPLY (CONTINUED):

**3.5** Refer to Figures 3.5.1 through 3.5.6 on this page and the next.

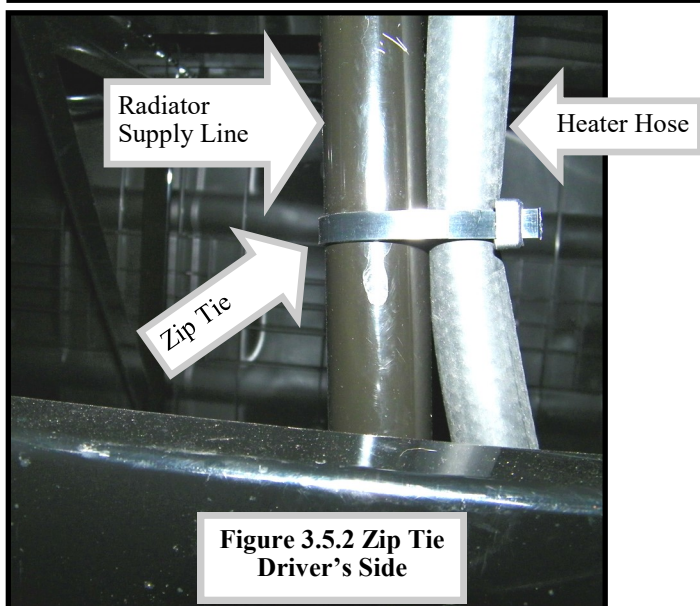
Attach the 5/8" ID heater hose to the nipple, secure with small hose clamp.

Install the supplied hose following the vehicle's steel radiator tube to the front of the vehicle. Secure with Zip Ties and P-Clamp. Install the P-Clamp into one of the round bosses of the floorboard with the #10 sheet metal screw provided. Take care to keep the hose away from the drive shaft. The hose of the gasoline model vehicles will have to cross under the drive shaft. Do this at the front of the vehicle, where clearance is greatest.

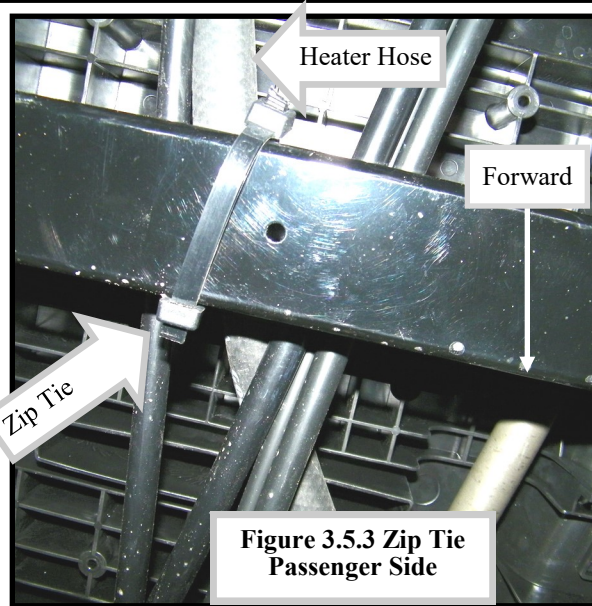
Install Trim Lok (aka edge guard) as the hose turns under the vehicle and where it turns back up towards the hood compartment.



**Figure 3.5.1 Heater Hose, Supply**



**Figure 3.5.2 Zip Tie  
Driver's Side**

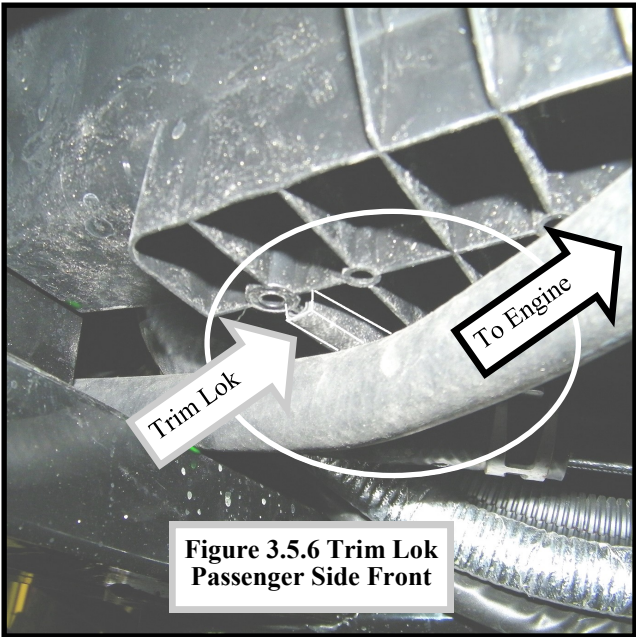
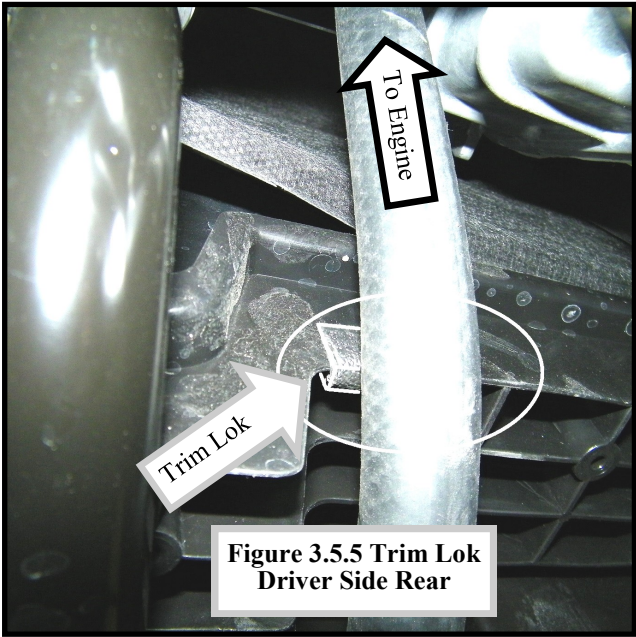
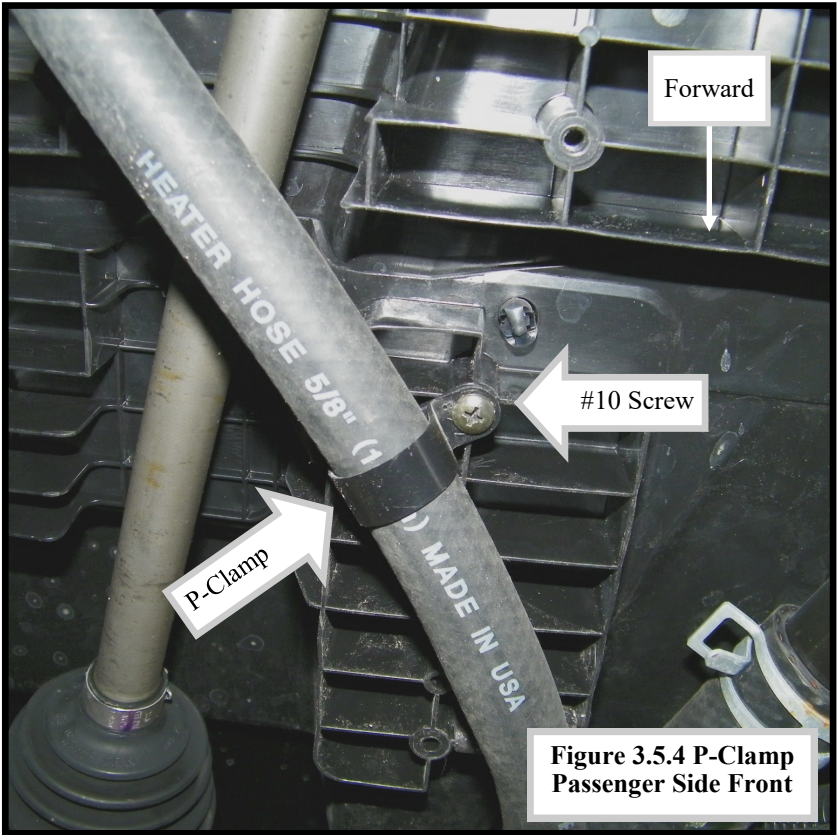


**Figure 3.5.3 Zip Tie  
Passenger Side**





**STEP 3 HEATER PLUMBING, SUPPLY (CONTINUED):**

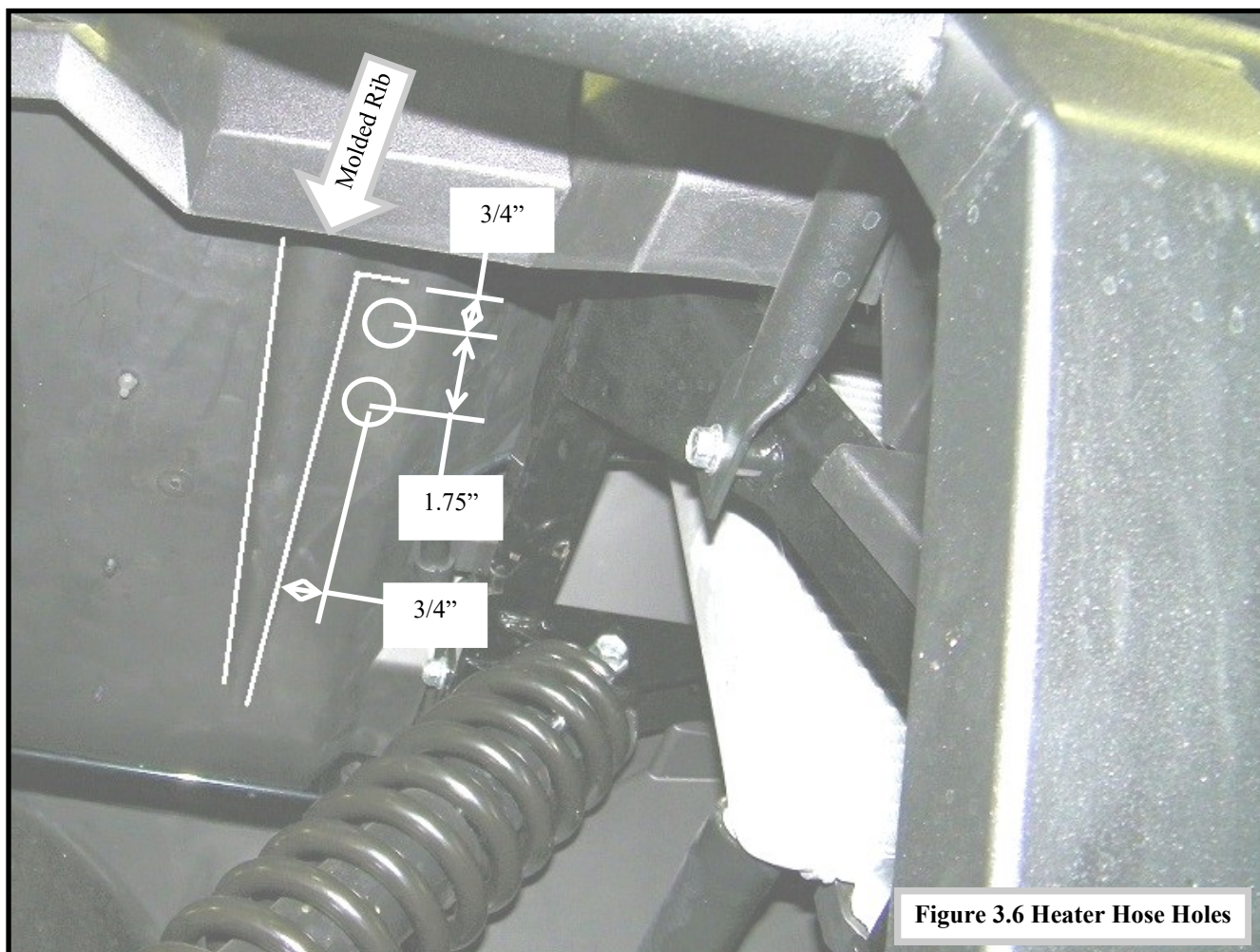






### STEP 3 HEATER PLUMBING, SUPPLY (CONTINUED):

**3.6** Drill two Ø1-1/8" holes through the bottom of the radiator cover. (Figure 3.6)



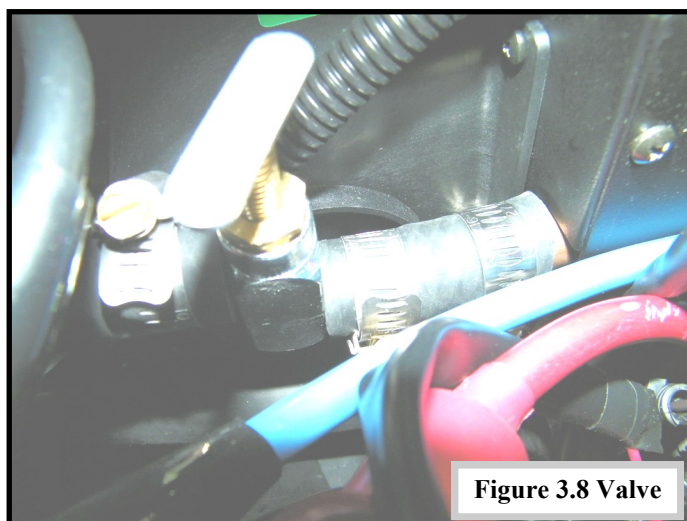
**Figure 3.6 Heater Hose Holes**

**3.7** Install plastic bushings into each of the holes that were drilled in the previous step.

**3.8** Cut a 2" length of heater hose, and connect to both the upper port of the heater core and the in-line shut-off valve. Secure each end with a small hose clamp. (Figures 3.5.1 & 3.8)

**3.9** Cut hose to length, then connect the heater hose that was routed under the vehicle to the in-line shut-off valve. Secure the end with a small hose clamp. (Figures 3.5.1 & 3.8)

**Note:** The in-line shut-off valve quickly converts the heater into a summer time blower by preventing hot water from flowing to the heater core. Confirm that this valve is fully open. Valve should always be either fully open or fully closed or it may leak.



**Figure 3.8 Valve**



#### STEP 4 HEATER PLUMBING, RETURN:

- 4.1 With all of the coolant drained from the system, cut the return line of the vehicle radiator hose. Insert the Tee Fitting and secure each end with large hose clamps. (Figures 4.1.1, 4.1.2)
- 4.2 Connect a 10-1/2" length of the supplied heater hose to the lower port of the heater. Run this length of hose through the other plastic grommet, and connect to an Elbow Fitting underneath the hood compartment. Secure each end with small hose clamps. (Figures 4.1.1, 4.1.2)
- 4.3 Connect a 12-1/2" length of the supplied heater hose to the Elbow Fitting. Run this length of hose to the Tee Fitting. Secure each end with small hose clamps. (Figures 4.1.1, 4.1.2)

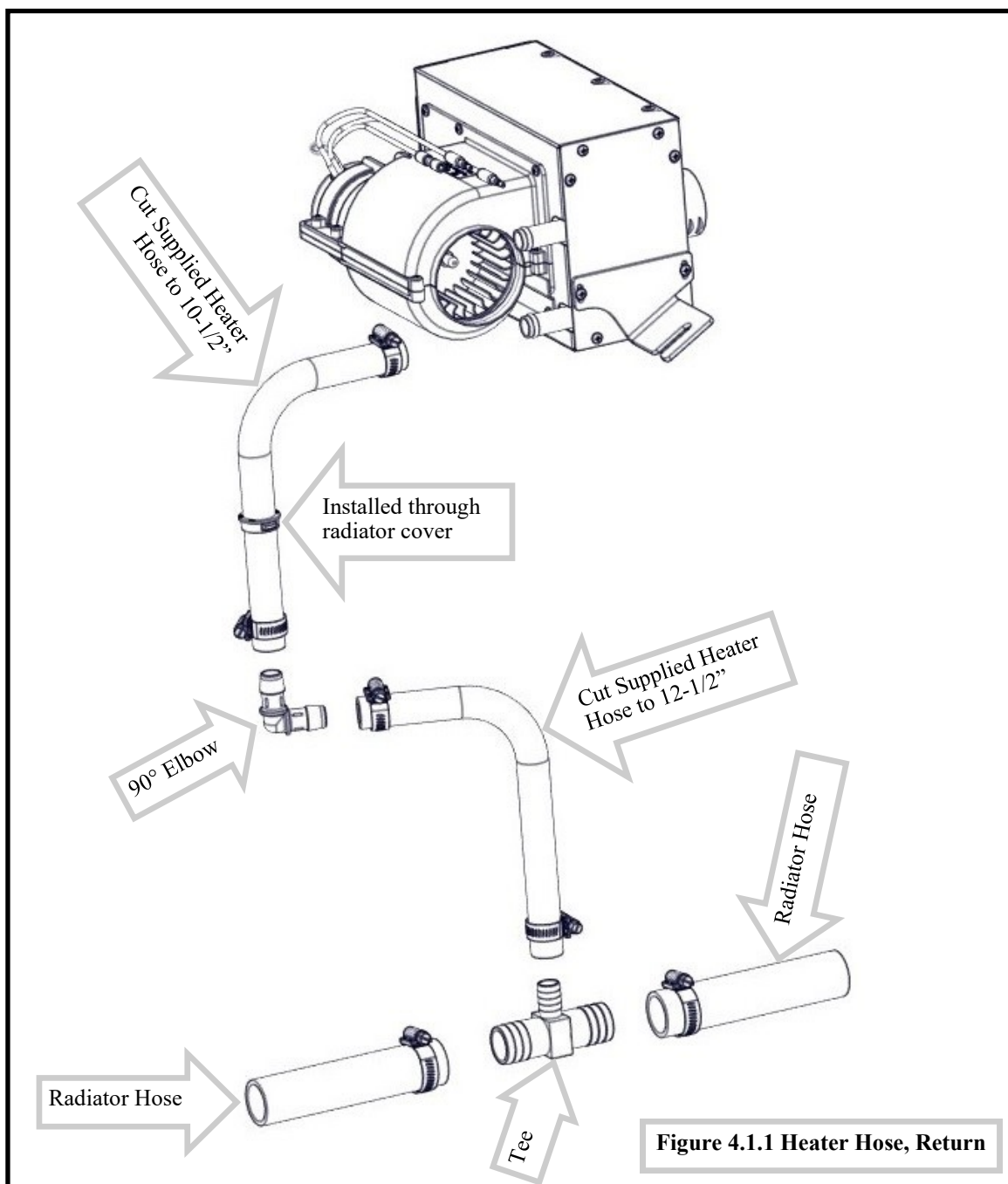


Figure 4.1.1 Heater Hose, Return



STEP 4 HEATER PLUMBING, RETURN (CONTINUED):

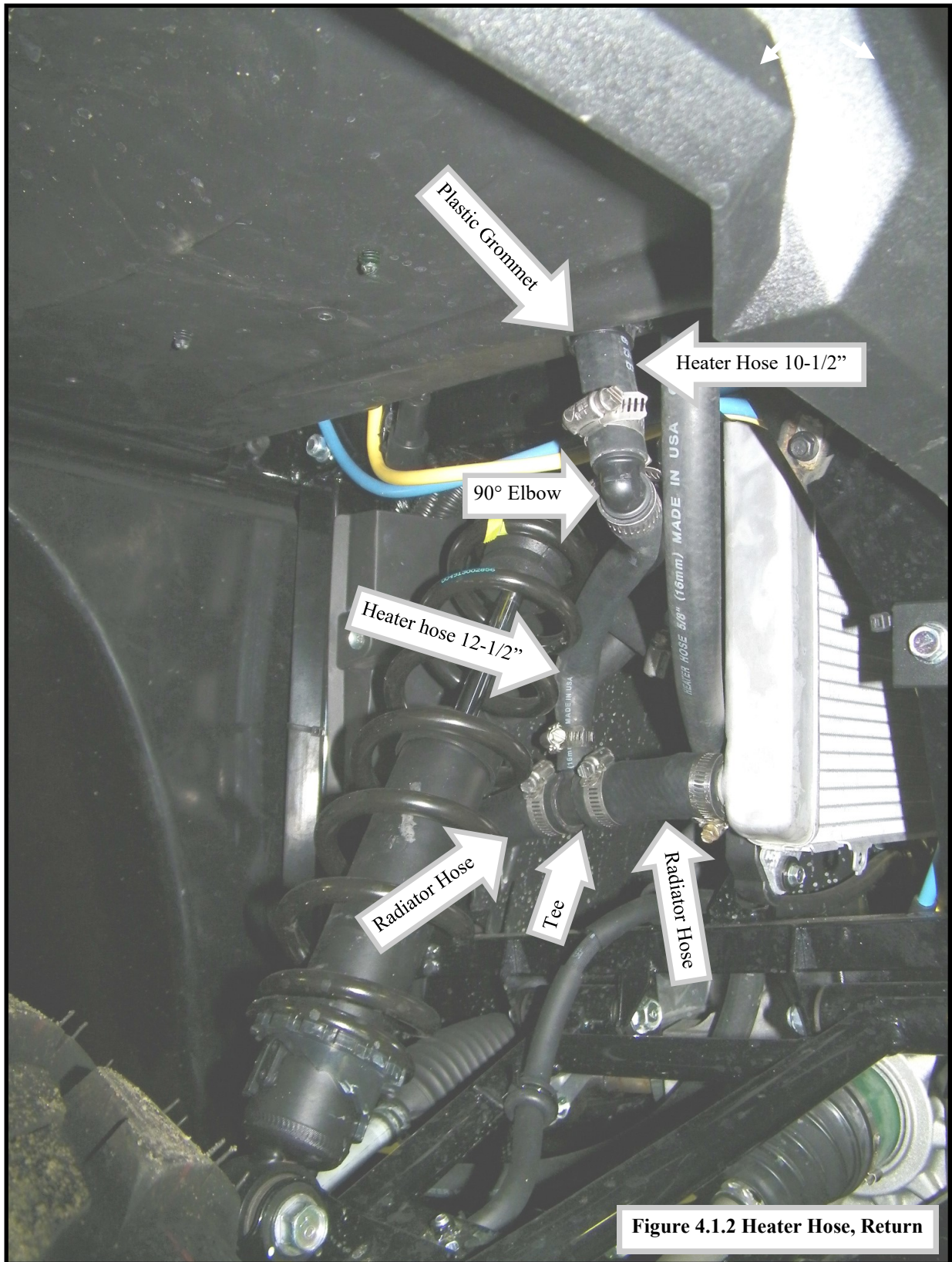


Figure 4.1.2 Heater Hose, Return



**STEP 5 INSTALL SWITCH:**

- 5.1 The dashboard panel has marked locations for switches. Cut the rectangular hole in the dashboard at the desired location.
- 5.2 Install the switch through the dashboard panel and connect the wiring harness to the switch and attach the switch cover. Note the installed orientation of the switch. (Figure 5.2)

**Figure 5.2 Switch Orientation**



## STEP 6 ELECTRICAL (No Kawasaki Fuse Block Installed):

- 6.1 Connect the bullet connectors of the wiring harness to those of the blower motor. Match the colors (red, yellow, black) of each component.
- 6.2 Connect the red jumper wire (bullet terminal & push-on terminal) and the black jumper wire (bullet terminal & push-on terminal) to the wiring harness via the push-on terminals. Match the colors of each component. (Figure 6.2)

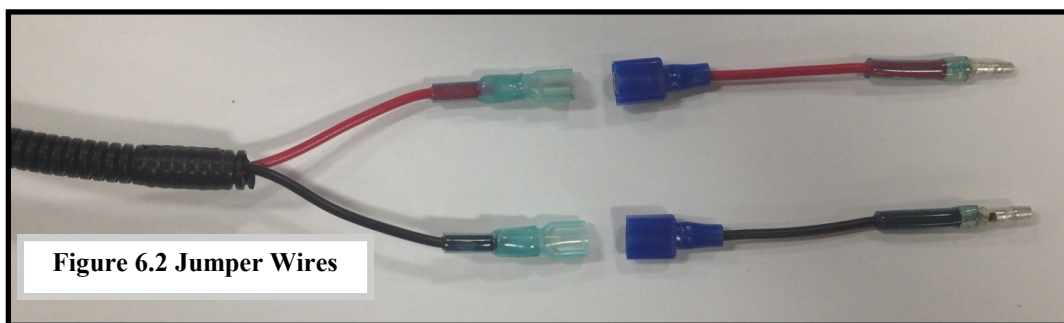


Figure 6.2 Jumper Wires

- 6.3 Connect the other end of the jumper wires to the accessory wires of the vehicle located under the upper dash board. Connect black to black, and red to brown via the bullet terminals. (Figure 6.3)

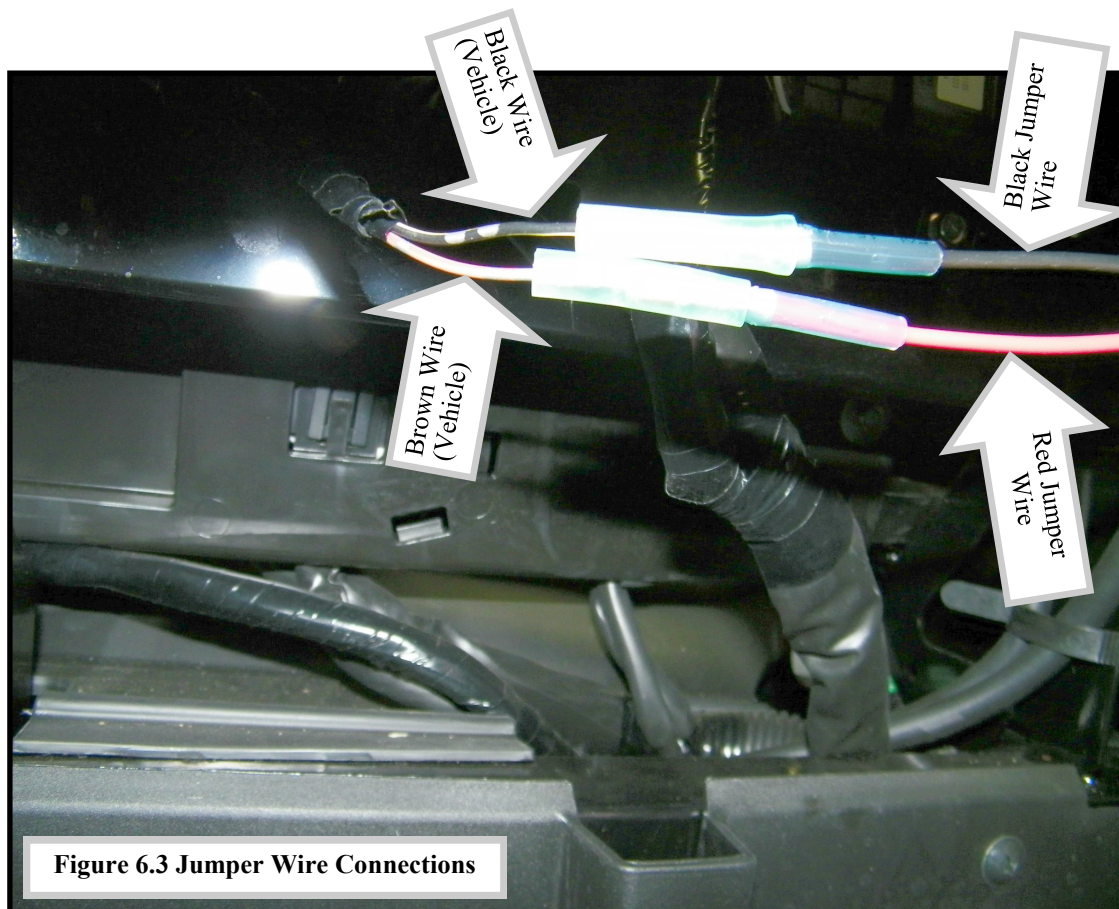


Figure 6.3 Jumper Wire Connections

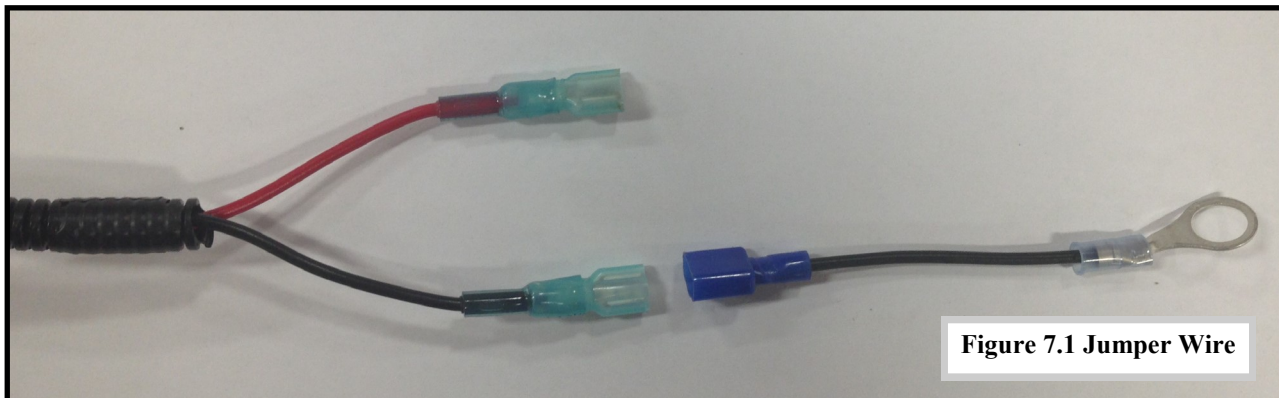
- 6.4 Connect the battery.
- 6.5 Turn on power to the vehicle without starting it. Verify that the blower motor can be activated to Off, Low, and High speeds with the switch.





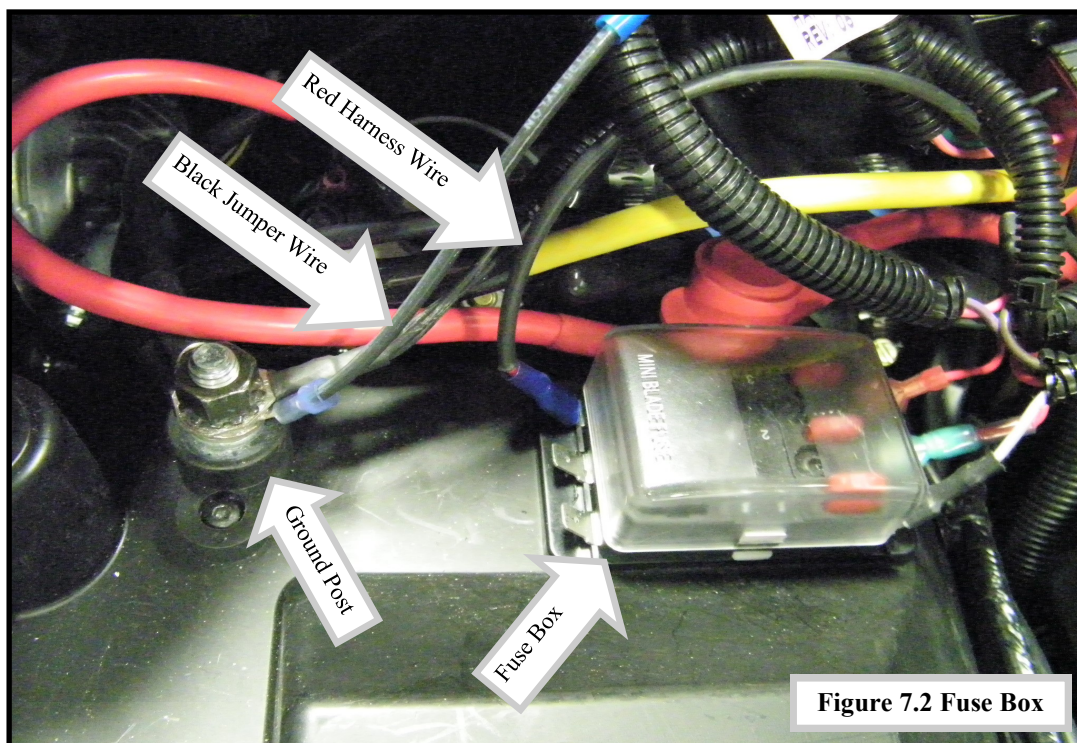
## STEP 7 ELECTRICAL (With Kawasaki Fuse Block Installed):

- 7.1 Connect the black jumper wire (ring terminal & push-on terminal) to the black wire of the wiring harness via the push-on connectors. (Figure 7.1)



- 7.2 Connect the other end of the black jumper wire to the ground post supplied with the fuse block. (Figure 7.2)
- 7.3 Connect the red wire of the harness to the fuse block. (Figure 7.2)
- 7.4 Install fuse into the fuse block, at the terminal corresponding to the heater. (Figure 7.2)

**Note:** If Kawasaki Fuse Box (P/N: KAF080-076) is installed, use 15 amp mini blade fuse provided.



- 7.5 Connect the battery.
- 7.6 Turn on power to the vehicle without starting it. Verify that the blower motor can be activated to Off, Low, and High speeds with the switch.



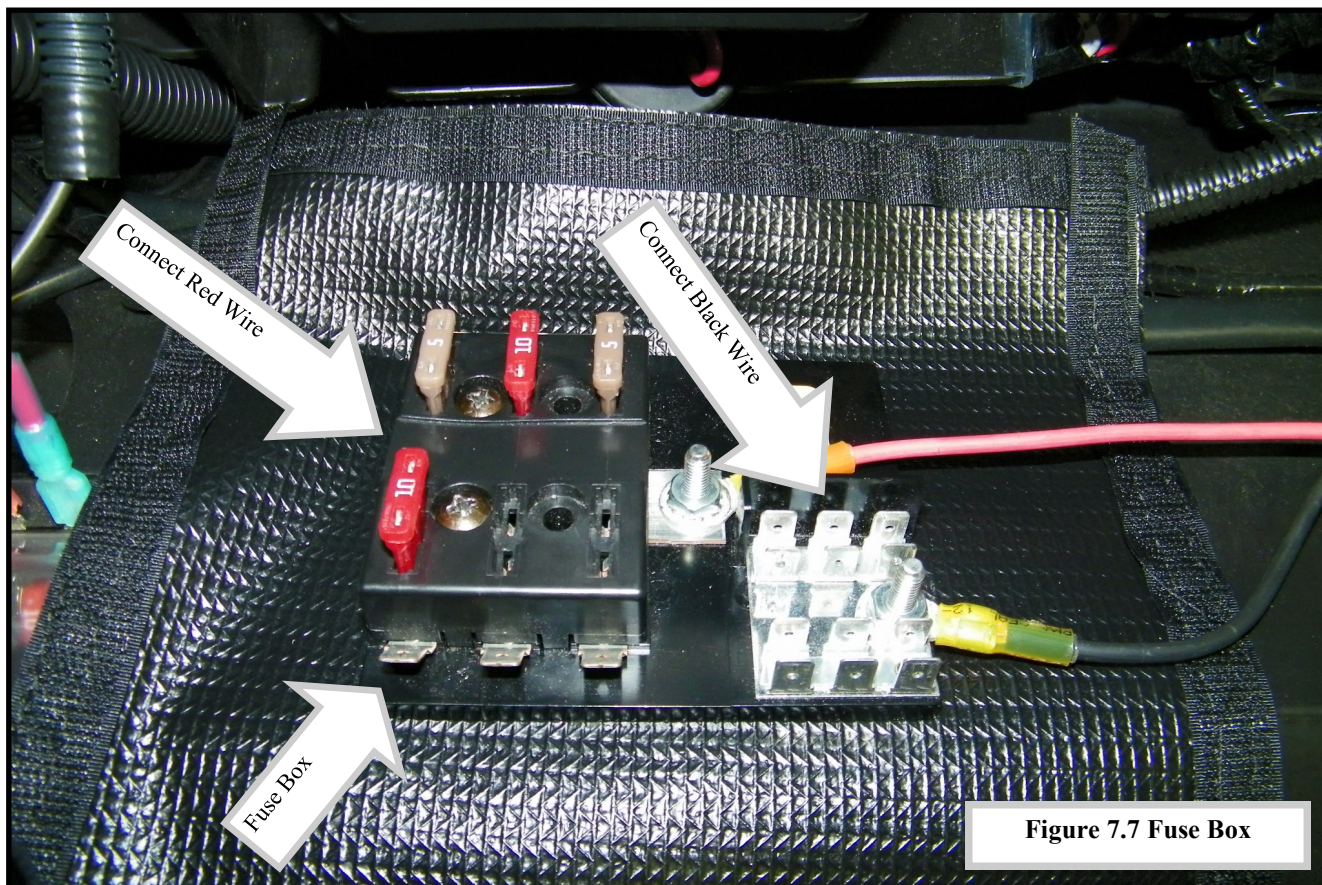
**STEP 7 ELECTRICAL CONTINUED (With Curtis Fuse Block Installed):**

7.7 Connect the black wire to the grounding section of the fuse panel noted. (Figure 7.7)

7.8 Connect the red wire of the harness to the fuse block noted. (Figure 7.7)

7.9 Install fuse into the fuse block, at the terminal corresponding to the heater. (Figure 7.7)

**Note:** If Curtis Fuse Panel (1KAPFXFP) is installed, use 15 amp ATC blade fuse provided.



**Figure 7.7 Fuse Box**

7.10 Connect the battery.

7.11 Turn on power to the vehicle without starting it. Verify that the blower motor can be activated to Off, Low, and High speeds with the switch.

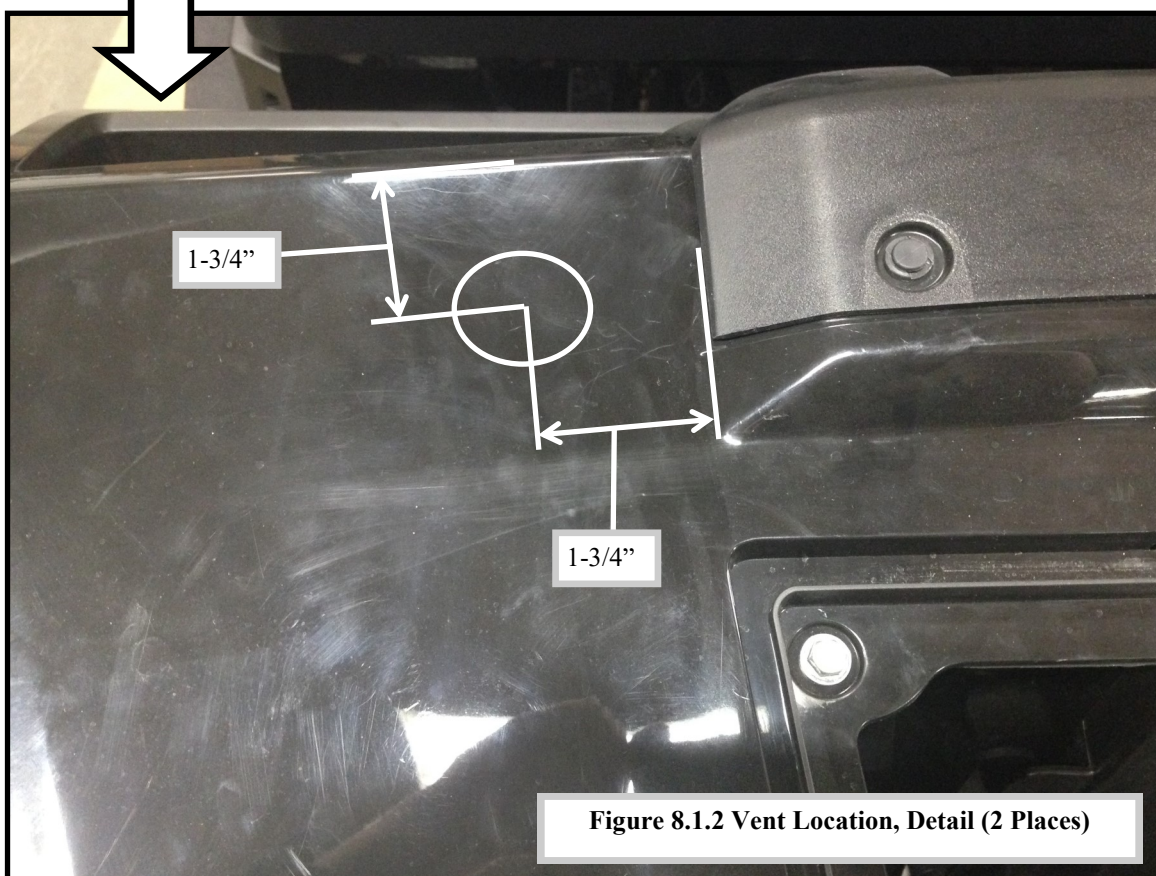
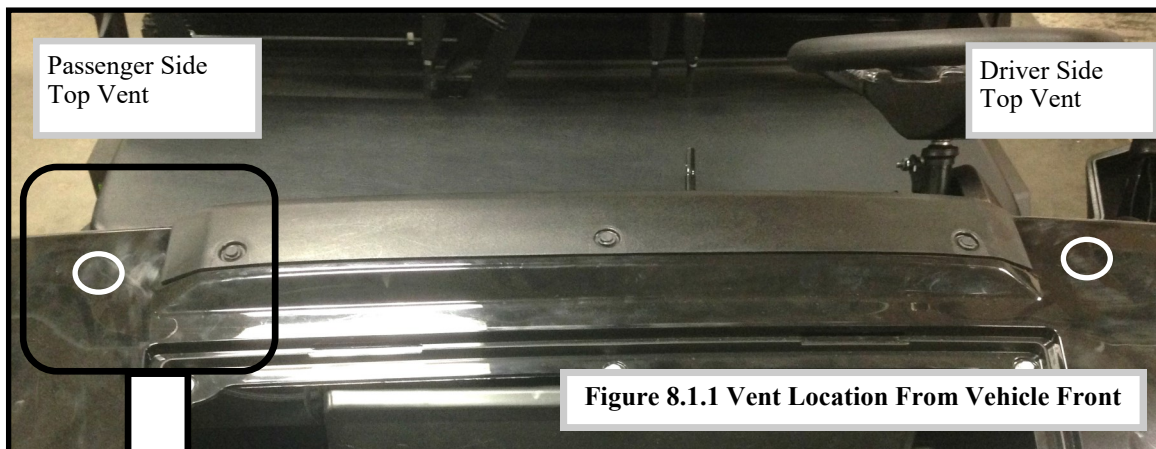


## STEP 8 DUCT ROUTING:

**8.1** Drill two 2-1/16" holes through the driver's side dash as shown. (Figure 8.1.1, 8.1.2)

Caution: before drilling, check underneath plastic cowl to be sure there is clearance for the hole saw.

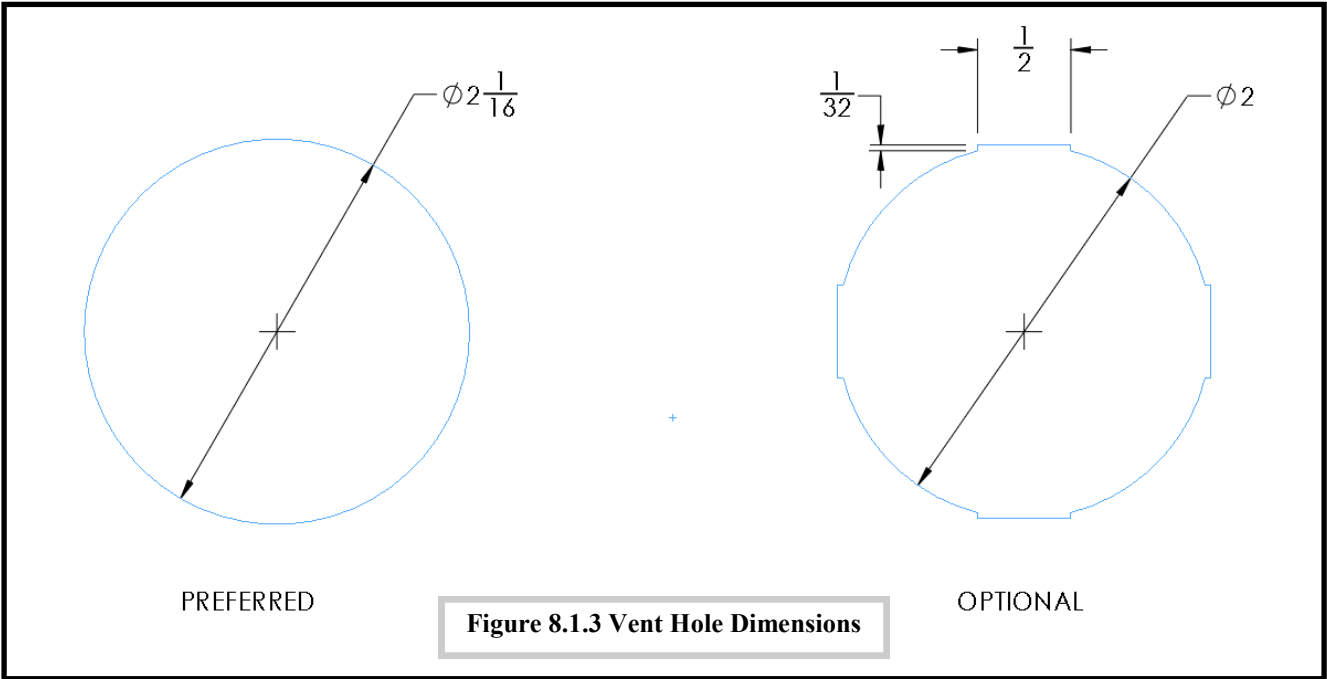
**Note:** if only a 2" hole saw is available, use a standard hand file or Dremmel to remove more material in four places for the vent retaining tabs. Test fit the round vent frequently before removing too much material. Ref.: approximately 1/32" per side. (Figure 8.1.3 on next page)



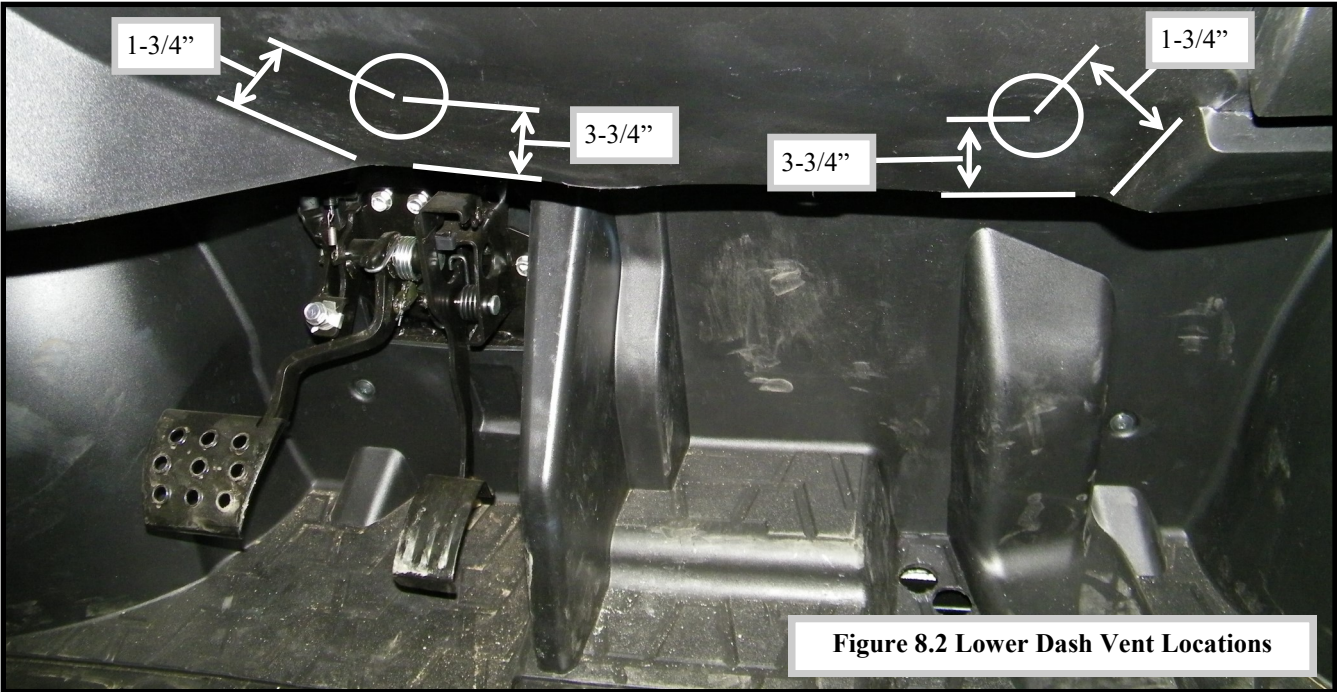




**STEP 8 DUCT ROUTING (CONTINUED):**



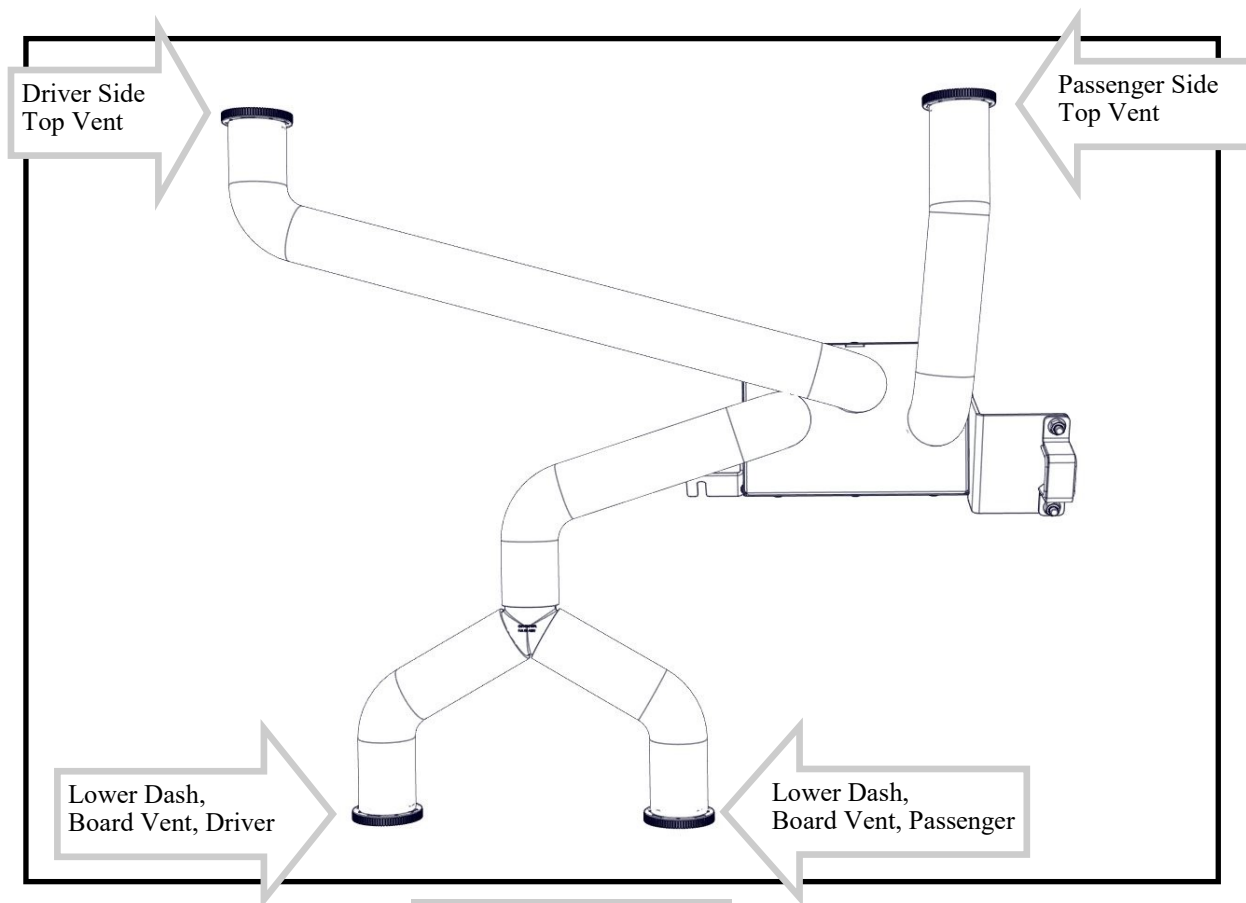
**8.2** Drill two (2-1/16") holes in the lower dashboard with a hole saw as outlined in the previous step. (Figure 8.2)



**8.3** Install vent into each of the holes drilled in Steps 8.1 & 8.2.

**STEP 8 DUCT ROUTING (CONTINUED):**

- 8.4 Connect Ø2" duct from the ports of the heater box to each of the vents and the "Y" Fitting as shown. Secure with a Zip Tie at every junction.
- 8.5 Turn on power to the vehicle without starting it. Verify that air is flowing to each of the vents.

**Figure 8.5 Duct Routing**



## STEP 9 FINAL STEPS:

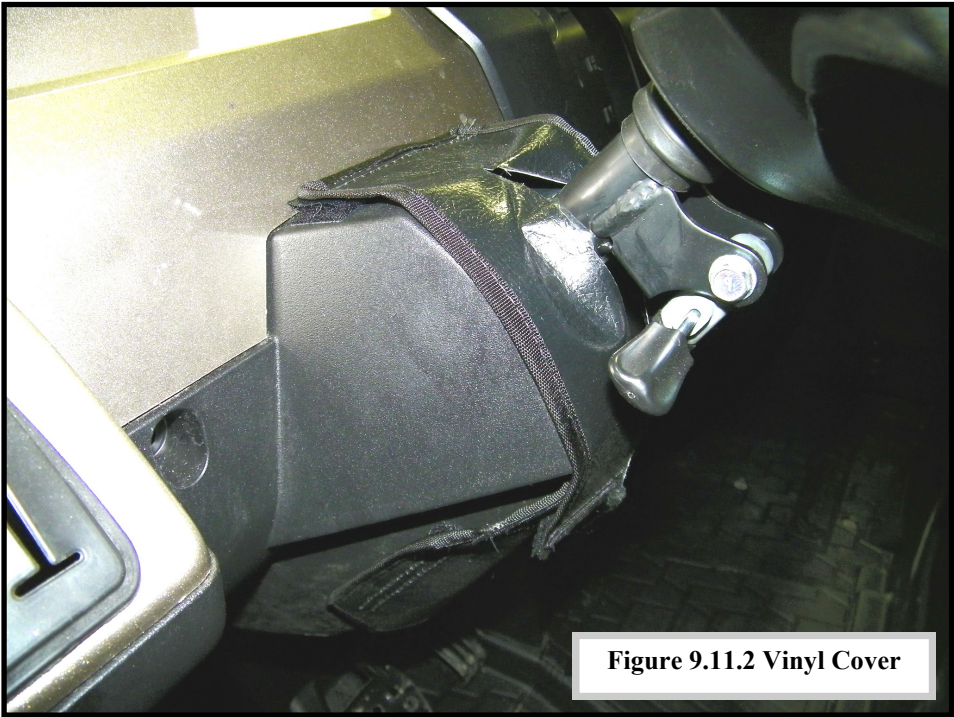
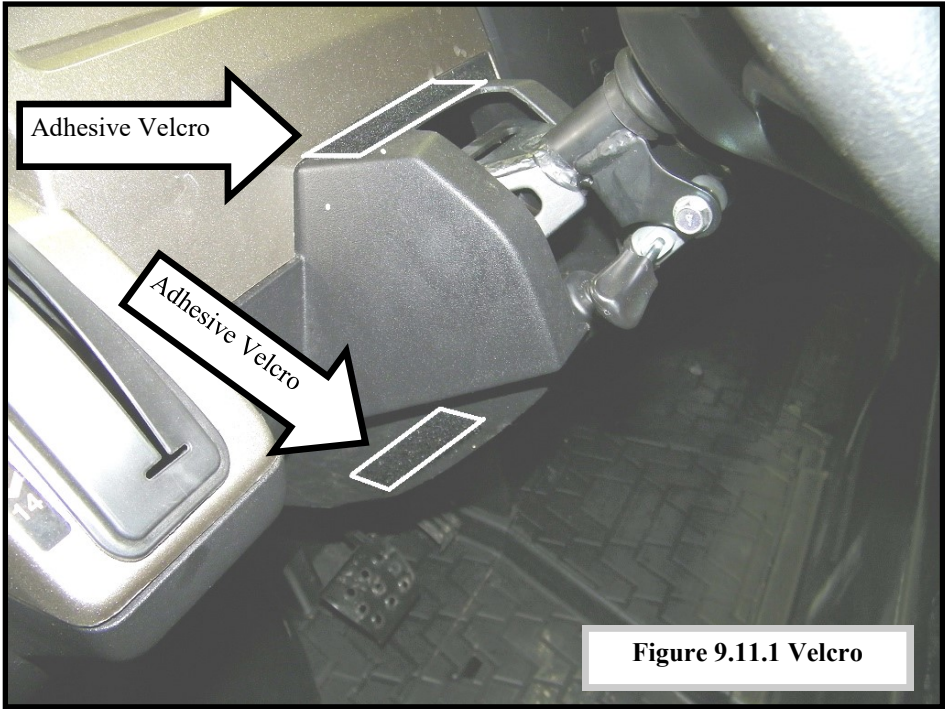
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- 9.1 Secure fuse box if the vehicle is so equipped.
- 9.2 Secure the winch relay in its new location if the vehicle is so equipped.
- 9.3 Confirm that all of the heater hose connections are tight, and that the radiator fluid drain plugs have been replaced. Loosen the bleeder bolt on the motor to allow air to escape from the system. Fill the radiator with radiator fluid (refer to the vehicle's user manual for fluid mixture if adding new fluid). Tighten the bleeder bolts on the motor when the coolant reaches the motor. (Refer back to figure 5.1.2 & 5.1.3)
- 9.4 Install the skid plates. Skip this step if the OEM fuse box is being installed after the heater installation is complete.
- 9.5 Install the upper and lower dash panels.
- 9.6 Install the head light panel if it was removed.
- 9.7 Install the hood cover.
- 9.8 Lower vehicle.
- 9.9 Start vehicle.
- 9.10 As the vehicle warms up, inspect coolant leaks and that hot air is flowing through vents.
- 9.11 Cut the adhesive backed Velcro to match the Velcro on the 2 supplied fillers.

Note: Adhesive backed Velcro should be installed to a clean dry surface at room temperature. Dry fit the filler panels, positioning them as shown in Figures 9.11.1 & 9.11.2 on the next page. Hold the fillers in place, then using them as a guide, apply the adhesive backed Velcro around the steering wheel.



**STEP 9 FINAL STEPS (CONTINUED):**







## TROUBLESHOOTING

- If the fan will not run, use a multi-meter to confirm that the blower is receiving power.
- If the fan is blowing but the air is cold, check the position of the shut-off valve. The valve must be all the way open to get the best efficiency from the heater.
- If the fan is blowing but the air is cold, check Ø5/8" heater hose for kinks.
- If the fan is blowing but the air is cold, bleed air from heater hoses.

## SERVICE PARTS

SERVICE P/N	DESCRIPTION	QTY
1HAP1D	2" LOUVER VENT	1
8SV-110-00015	HEATER CLAMP ASS'Y	1
8SV-9PH20U4B	HEATER BOX AND CORE ASSEMBLY	1
8SV-CFP-00003	FILLER PANELS	1
8SV-SM-00188	BRKT, PASSENGER SIDE	1
8SV-SM-00189	BRKT, DRIVER SIDE	1
9PH20S78BMA-A	BLOWER MOTOR	1
9SV-9DPSB	PLASTIC GROMMET	2
9SV-9HR-00003	Y-FITTING	2
9SV-9HR-00005	TEE 1.125 x 1.125 x 5/8"	1
9SV-9HR0045	BLOCK ADAPTER (3/8" NIPPLE)	2
9SV-9HR00601.0	HOSE CLAMP, 1"	6
9SV-9HR00601.5	HOSE CLAMP, 1.5"	2
9SV-9HR0060-P	P-CLAMP	1
9SV-9PCD1B	HEATER SWITCH COVER	1
9SV-HR0051MF	SENDING UNIT ADAPTER	1
9SV-HRH13-15	HEATER DUCT, 2" ID	15 FT
9SV-HRH61-20	HEATER HOSE, 5/8" ID	20 FT
9SV-KX9HTRWH1	WIRING HARNESS	1
9SV-OHC6	HEATER SWITCH	1
9SV-PRO1-10	EDGE PROTECTOR	10 FT
9SV-UHTRILV	SHUT OFF VALVE	2
9SV-WH-00009	WIRING HARNESS, JUMPER	1
9SV-WH-00010	WIRING HARNESS, JUMPER	1
9SV-WH-00011	WIRING HARNESS, JUMPER	1












# BOLT TORQUE

## BOLT TORQUE SPECIFICATIONS

### GENERAL TORQUE SPECIFICATION TABLE

Use the following torques when special torques are not given. These values apply to fasteners as received from suppliers, dry, or when lubricated with normal engine oil. They do not apply if special graphited or moly disulphide greases or other extreme pressure lubricants are used. This applies to both UNF and UNC threads. Remember to always use grade five or better when replacing bolts.

**IMPORTANT: On all PLATED GRADE 8 bolts, reduce torque 15% from listed bolt torque specification.**

SAE Grade No. Bolt head identification mark as per grade. NOTE: Manufacturing Marks Will Vary		2				5				8*			
						  				  			
Bolt Size		TORQUE				TORQUE				TORQUE			
Inches	Millimeters	Pounds Feet		Newton-Meters		Pounds Feet		Newton-Meters		Pounds Feet		Newton-Meters	
Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
1/4	6.35	5	6	7	8	9	11	12	15	12	15	16	20
5/16	7.94	10	12	14	16	17	20.5	23	28	24	29	33	39
3/8	9.53	20	23	27	31	35	42	48	57	45	54	61	73
7/16	11.11	30	35	41	47	54	64	73	87	70	84	95	114
1/2	12.70	45	52	61	70	80	96	109	130	110	132	149	179
9/16	14.29	65	75	88	102	110	132	149	179	160	192	217	260
5/8	15.88	95	105	129	142	150	180	203	244	220	264	298	358
3/4	19.05	150	185	203	251	270	324	366	439	380	456	515	618
7/8	22.23	160	200	217	271	400	480	542	651	600	720	814	976
1	25.40	250	300	339	406	580	696	787	944	900	1080	1220	1464
1-1/8	25.58	-	-	-	-	800	880	1085	1193	1280	1440	1736	1953
1-1/4	31.75	-	-	-	-	1120	1240	1519	1681	1820	2000	2468	2712
1-3/8	34.93	-	-	-	-	1460	1680	1980	2278	2380	2720	3227	3688
1-1/2	38.10	-	-	-	-	1940	2200	2631	2983	3160	3560	4285	4827

\*Thick Nuts must be used with Grade 8 bolts

### METRIC BOLT TORQUE SPECIFICATIONS

		5.6			8.8			10.9		
Size of Screw	Property Class	Course Thread			Fine Thread					
		Pitch (mm)	Pounds Feet	Newton-Meters	Pitch (mm)	Pounds Feet	Newton-Meters			
M6	5.6	1.0	3.6-5.8	4.9-7.9	-	-	-			
	8.8		5.8-9.4	7.9-12.7		-	-			
	10.9		7.2-10	9.8-13.6		-	-			
M8	5.6	1.25	7.2-14	9.8-19	1.0	12-17	16.3-23			
	8.8		17-22	23-29.8		19-27	25.7-36.6			
	10.9		20-26	27.1-35.2		22-31	29.8-42			
M10	5.6	1.5	20-25	27.1-33.9	1.25	20-29	27.1-39.3			
	8.8		34-40	46.1-54.2		35-47	47.4-63.7			
	10.9		38-46	51.5-62.3		40-52	54.2-70.5			
M12	5.6	1.75	28-34	37.9-46.1	1.25	31-41	42-55.6			
	8.8		51-59	69.1-79.9		55-68	75.9-92.1			
	10.9		57-66	77.2-89.4		62-75	84-101.6			
M14	5.6	2.0	49-56	66.4-75.9	1.5	52-64	70.5-86.7			
	8.8		81-93	109.8-126		90-106	122-143.6			
	10.9		96-109	130.1-147.7		107-124	145-168			
M16	5.6	2.0	67-77	90.8-104.3	1.5	69-83	93.6-112.5			
	8.8		116-130	157.2-176.2		120-138	162.6-187			
	10.9		129-145	174.8-196.5		140-158	189.7-214.1			
M18	5.6	2.0	88-100	119.2-136	1.5	100-117	136-158.5			
	8.8		150-168	203.3-227.6		177-199	239.8-269.6			
	10.9		175-194	237.1-262.9		202-231	273.7-313			
M20	5.6	2.5	108-130	146.3-176.2	1.5	132-150	178.9-203.3			
	8.8		186-205	252-277.8		206-242	279.1-327.9			
	10.9		213-249	288.6-337.4		246-289	333.3-391.6			