



YAMAHA VIKING HEATER KIT p/n: 9PH20S56 (fits Yanmar Bull and Yanmar Longhorn model years 2017-)

BEFORE YOU START

HELPFUL REMINDERS:

Read and understand all instructions before beginning.
Approximate installation time: 3-4 Hours

TOOLS REQUIRED:

Drill
2 1/2" Hole Saw
2 1/16" Hole Saw
1" Hole Saw or step bit
1/8" Dia. Drill
1/4" Dia. Drill
3/8" Dia. Drill

8mm Socket and Ratchet
5/32" Allen Wrench or Driver
5/16" Nut Driver or Flat Screwdriver
#2 Phillips Screwdriver
Snips
Drain Pan
Saw (to cut through plastic dashboard)

SAFETY INFORMATION:

⚠ **WARNING: Serious injury or death:**

Lift only one end of the vehicle at a time. Use a suitable lifting device (chain hoist or hydraulic floor jack) with 1500 lb. (681 kg) minimum lifting capacity. Do not use lifting device to hold vehicle in raised position. Use approved jack stands of proper weight capacity to support the vehicle and chock the wheels that remain on the floor. Lock the brakes.

⚠ **WARNING: Serious injury or death:**

Hot! Do not attempt to service hot engine, exhaust system, or motor. Failure to heed this warning could result in severe burns.

⚠ **WARNING: Damage to vehicle:**

When drilling, always check behind hole locations for clearance and secure any wires etc. out of the way before drilling holes.

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

VEHICLE PREP

STEP 1:

1. Drill two (2) 2-1/2" holes in the dashboard of the vehicle as shown in Figure 1.1. (Note: if the cab is installed, disconnect the latches and prop the windshield open for easier access)
2. Drill one (1) 2 1/16" hole in the underside of driver's side of the dashboard as shown in Figure 1.2.
3. Using Fan Mounting plate as a template, place it under the driver's side dashboard of the vehicle as show in Figure 1.3 (make sure point on mounting plate follows contour on underside of dashboard).
4. Mark off the four (4) fan holes and the four mounting holes on the under side of the dash, per Figure 1.4.
5. Drill the eight (8) holes with a 1/8" drill then using a 3/8" drill open up the four mounting holes.
6. Drill the four fan holes with a 1" dia drill.
7. Scribe a line on the outside edges of these four holes to make a rectangle, per Figure 1.4.
8. Cut along the four scribed lines and make an opening in the dash for the fan.

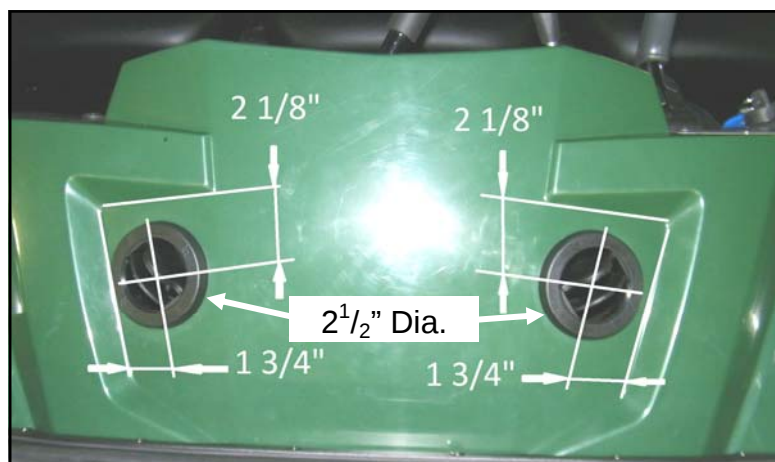


FIGURE 1.1 (Dash Vent Location)

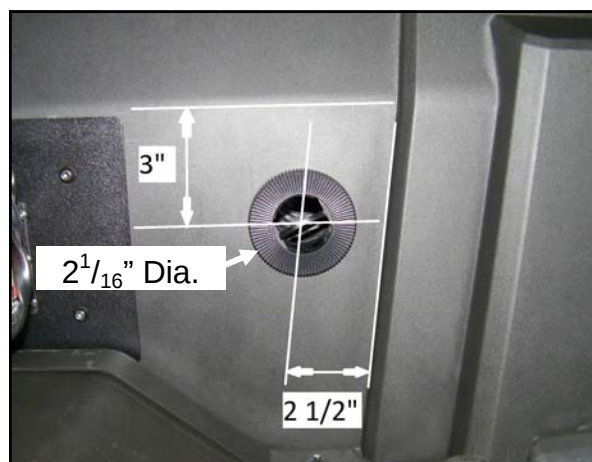


FIGURE 1.2 (Under dash Vent Location)

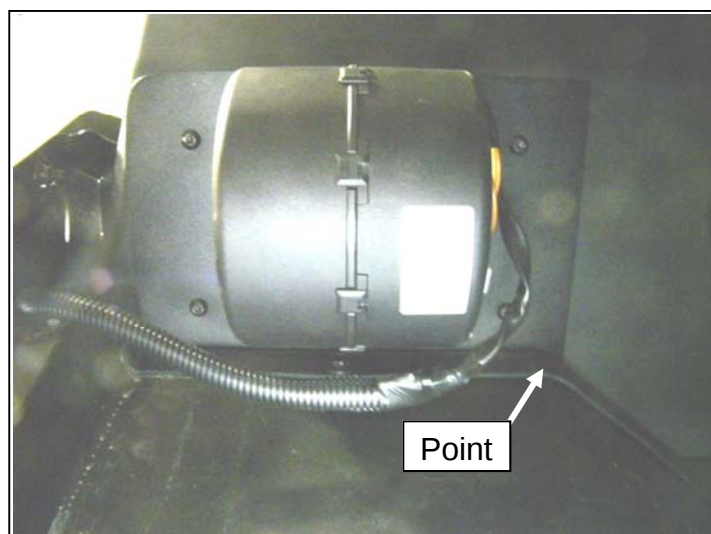


FIGURE 1.3 (Fan to be installed later)

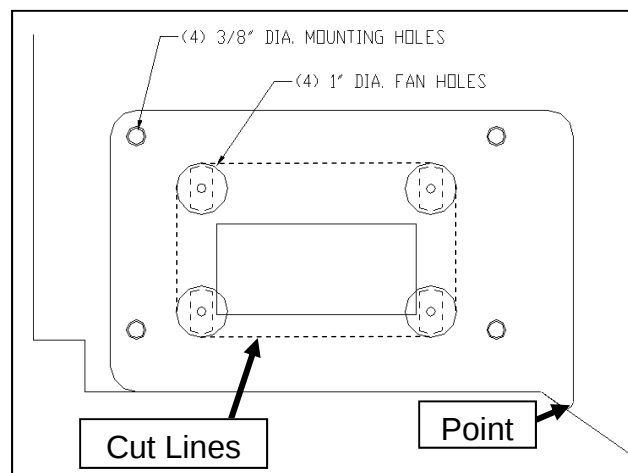


FIGURE 1.4

STEP 2: HEATER HOSES

Note: Use Figure 2.1 as a guide for the following steps

1. Cut two 3" lengths of 5/8" heater hose and install them on the heater core nipples. Secure with 1" hose clamps.
2. Install 90° fittings onto the previously installed heater hose lengths. Orient as shown in Figure 2.1, secure each with 1" hose clamps.
3. Cut two 7" lengths of 5/8" heater hose, install each onto the 90° fittings and secure with 1" hose clamps.
4. Install bleeder valves on the end of each 7" length of heater hose and secure each with 1" hose clamps. Slip an 18 inch long, nylon protective sleeving over each bleeder valve and slide the sleeving down to the heater box. This is to protect each exposed hose from the heater box to the bleeder valves. Secure with cable ties at each end of the sleeving.
5. Cut a 25" length of heater hose and attach it to the bleeder valve on the driver's side nipple. Secure with a 1" hose clamp.
6. Install a 7/8" x 7/8" x 5/8" metal tee fitting onto the end of the 25" hose. Install a 1" hose clamp, but do not tighten yet.
7. Cut a 7" piece of heater hose and attach to the bleeder valve on the passenger's side nipple. Secure with a 1" hose clamp.
8. Install the shut-off valve onto the end of the other 7" length of heater hose and secure with a 1" hose clamp.
9. Cut a 38" length of 5/8" heater hose and install it onto the shut-off valve. Secure with a 1" hose clamp.
10. Install a 7/8" x 7/8" x 5/8" metal tee fitting onto the end of the 38" hose and install a 1" hose clamp, but don't tighten yet.
11. Put the heater box into position under the dashboard and feed the longer hose over to the passenger side of the vehicle. The hose should pass over the radiator fan.

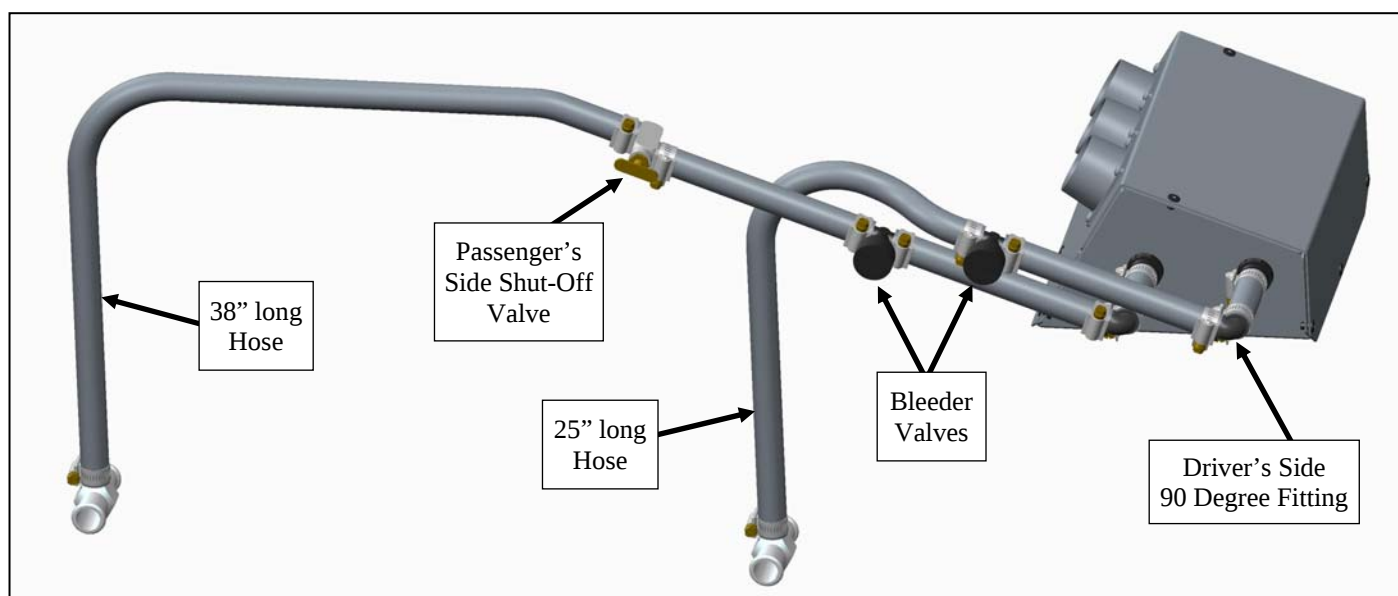


FIGURE 2.1 (Heater hoses)

STEP 3: DRAIN COOLANT

1. Make sure engine is completely cooled down before draining the cooling system.
2. Engage the parking brake, raise front of vehicle, and support on jack stands. **Caution: see warning on page 1!**
3. Remove the drain bolt from the underside right rear passenger side of the vehicle with an 8mm socket. See figures 3.3a and 3.3b.
4. Drain the cooling system into a drain pan and replace the drain bolt.
5. With the front of the vehicle off the ground, remove the driver's side front wheel for easier access during assembly.
6. Per figure 3.6, find the radiator hose coming out of the driver's side of radiator.
7. Cut the driver's side radiator hose 4" from the radiator and install the T-fitting, securing with 1-1/4" hose clamps. Tighten the hose clamp on the 5/8" hose as well.
8. Per Figure 3.8, cut the passenger's side radiator hose 2" from the radiator and install the second metal tee fitting, securing with 1-1/4" hose clamps. Tighten the hose clamp on the 5/8" hose as well.
9. Be sure the hoses are free of kinks.



FIGURE 3.3a (Approx. location of drain)

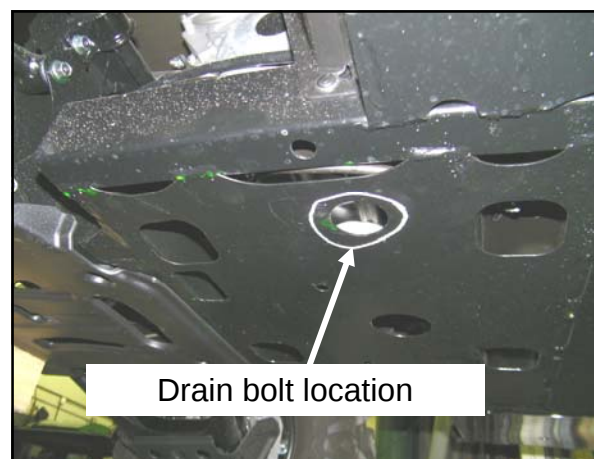


FIGURE 3.3b (Drain bolt)

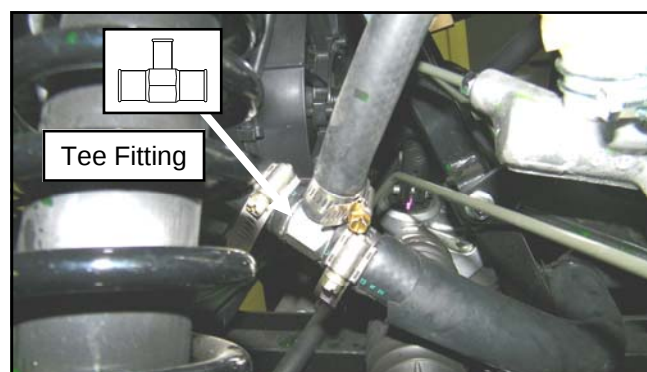


FIGURE 3.6 (driver's side tee fitting)

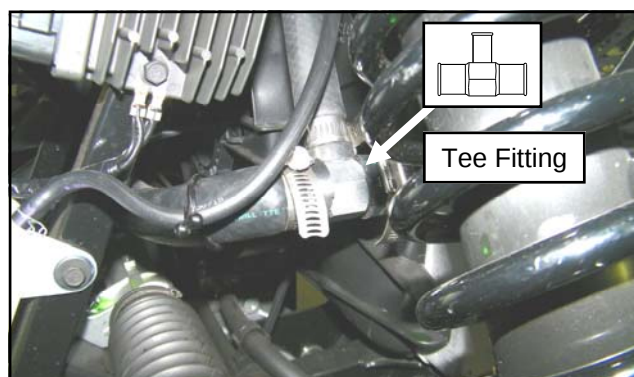


FIGURE 3.8 (passenger's side tee fitting)

STEP 4: REFILL AND BLEED SYSTEM

1. Make sure that coolant drain plug is in place and tight
2. Refill the cooling system with drained coolant at the radiator cap. Confirm that the in-line shut-off valve is open. Confirm that the bleeder valves are both cracked open while topping off the radiator with a 50/50 coolant – antifreeze mix.
3. Tilt the rear of the heater box towards the ground, so that the nipples aim up, as you refill the coolant system. Once coolant starts to flow from bleeder, close them off.
4. Top off radiator with a 50/50 coolant – antifreeze mix.
5. Crack open the bleed screw on the engine as shown in Figure 4.5. Close screw as soon as air is clear and coolant begins to flow out.
6. Install the radiator cap. Start engine and check system for leaks. **If the temp indicator on the dashboard illuminates while running the vehicle, shut the vehicle off immediately to prevent engine damage.** Run the engine at full throttle. Allow engine to warm up until thermostat opens. Check the temperature of the heater hoses. If one of the heater hoses is cooler than the other, shut the engine off and continue with step 7. If the heater is functioning properly, proceed to next page.
7. Allow the system to cool and then open the bleed screw on the engine as shown in Figure 4.5. Shake the heater box with the nipple pointing upward and open the bleeders on the heater lines to eliminate any additional trapped air. Check the coolant level in the radiator and repeat step 6.

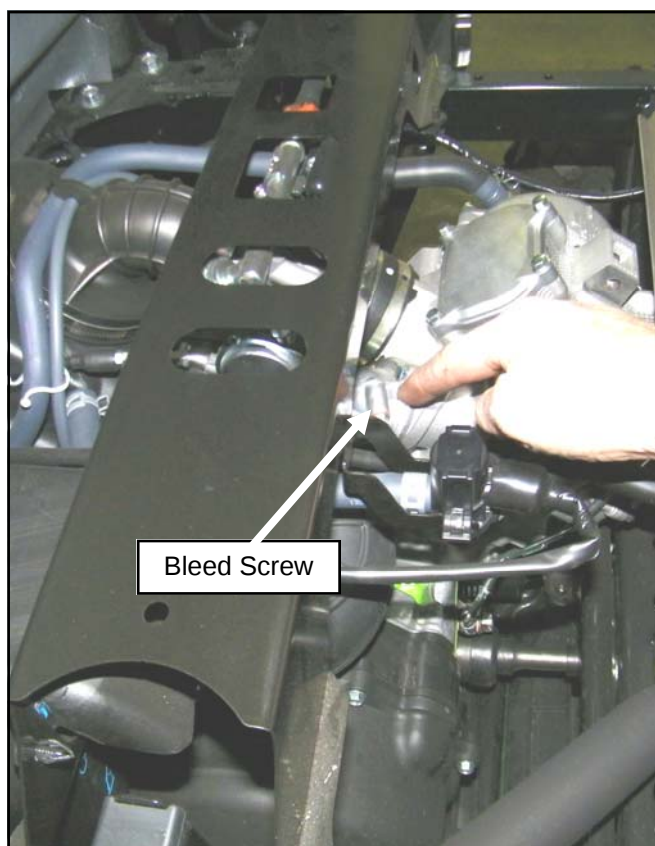


FIGURE 4.5

STEP 5: HEATER SWITCH WIRING

1. Drill one (1) 3/8" hole in the dashboard of vehicle as shown in Figure 3.1 next to the steering column for heater switch.
2. Connect the ring terminals on the supplied wire harness to the respective red (positive) and black (negative) terminals on the battery posts under the hood of the vehicle.
3. Run the harness out of the battery compartment and over to the driver's side of the vehicle.
4. Route the harness along the driver's side round vehicle tube frame. Locate the switch and connect red wire to terminal B, per Figure 3.4
5. With the fan inside the cab, run the fan wire harness from the fan up along the left side wall of the cab, through the opening where the wall and dashboard meet and out under the dash.
6. Connect the red wire from the fan to terminal H and the yellow to terminal L, per Figure 3.4.
7. Connect the black wire from the fan to the black wire on the fuse harness
8. Install the switch into drilled hole, secure with the nut and install the knob.
9. Test fan operation. Be sure to keep fingers away from moving fan parts.

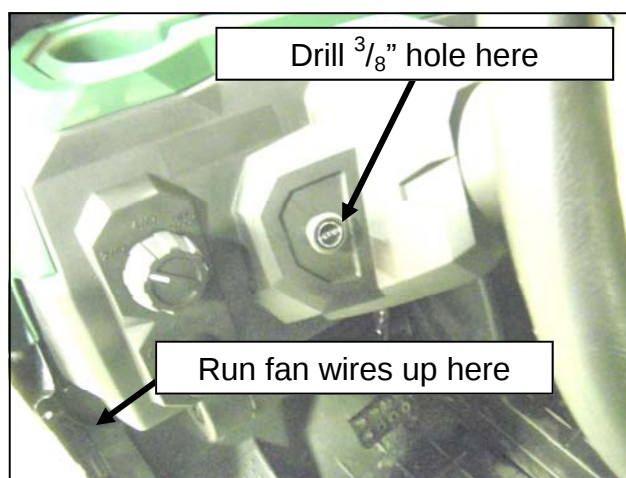


FIGURE 3.1

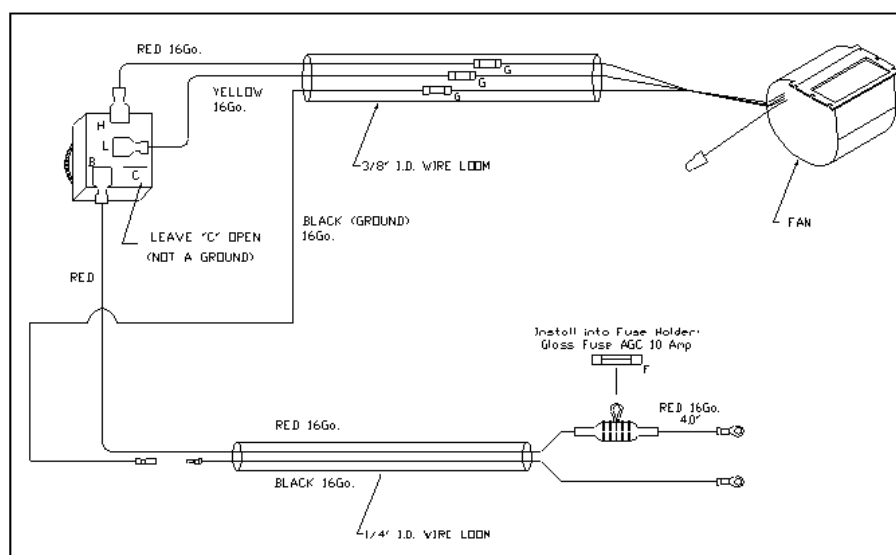


FIGURE 3.4 (Wire harness)

STEP 6: DUCTS

1. Allow heater components to cool
2. Attach a 2 $\frac{1}{2}$ foot length of vent hose to one of the right angle vents and secure with a cable tie.
3. Position the vent under the passenger's side hole cut in the dashboard with the hose routed to the driver's side.
4. Remove the twistable louver from its threaded trim ring, per Figure 6.4.
5. From the inside of the cab, install the trim ring into the hole and thread into the right angle vent.
6. Attach a 2 foot length of vent hose to the other right angle vent and secure with a cable tie.
7. Position the vent under the driver's side hole cut in the dashboard, with the hose routed to the driver's side.
8. Remove the twistable louver from its threaded trim ring.
9. From the inside of the cab, install the trim ring into the hole and thread into the right angle vent.
10. Once vents are tight, reinstall louvers.
11. Remove the adjustable louver from its trim ring as shown in Figure 6.11.
12. Position the trim ring in the hole on the underside of the dashboard.
13. Fasten with four (4) self drilling flat head screws.
14. Snap the louver back into place.
15. Connect a 1 $\frac{1}{2}$ foot length of vent hose to the back of this vent and secure with a cable tie.
16. Position the heater box up into the approximate location to be mounted.
17. Install the flexible vent ducts over the (3) vent outlets on the heater core box.
18. Make sure that the flexible vent ducts are not kinked and have as few turns as possible. Wire tie them to the heater core assembly outlets.

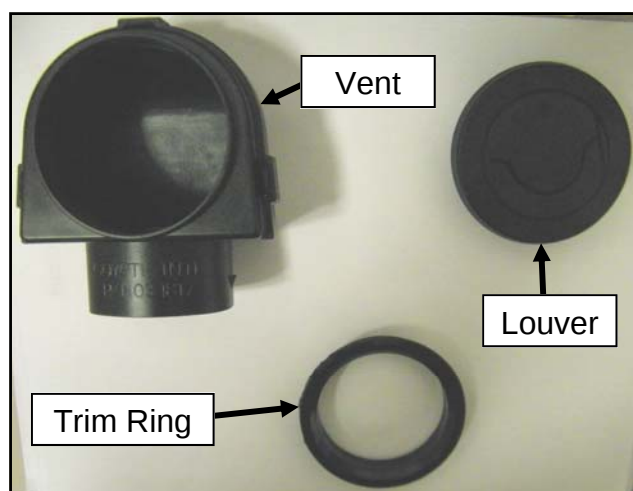


FIGURE 6.4

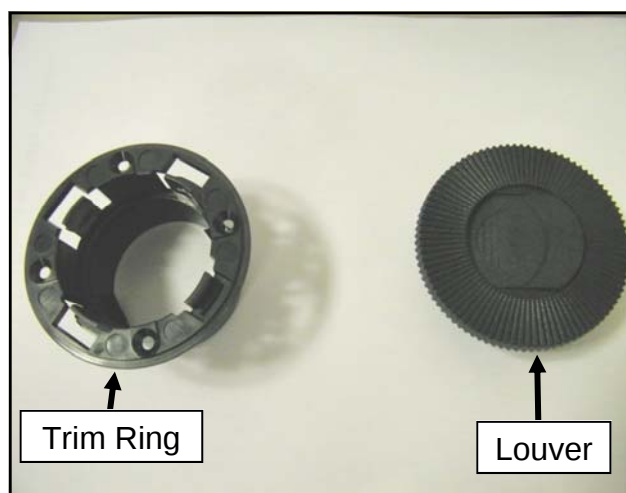


FIGURE 6.11

STEP 7: HEATER BOX ASSEMBLY AND FAN

1. Install the heater box oriented as shown in fig. 7.1, such that threaded inserts in the bottom of the box align with the four (4) drilled holes.
2. Place the fan mounting bracket on the underside of the dash, orient so that the weldnuts are on top in the hole in the dashboard and install the four 1/4-20 button head screws.
3. Place the fan assembly up against the fan mounting bracket as shown in fig. 7.3 and attach with the four #8 screws provided, oriented so that the wire is on the passenger side.
4. Secure wires and hoses with wire ties provided. **CAUTION! Make sure wires and hoses are secured away from moving parts and hot exhaust components. Pay extra attention to front wheel area, making sure the wires and hoses clear steering and suspension components in all positions.**
5. Make sure all hose clamps are tight and all bleeders are closed as well.

STEP 8: VINYL DRAFT BARRIERS

1. Install the large vinyl draft barrier under the center seat, per Figures 8.1. Begin by doing a dry fit to get a feel for where all areas fit best. Make sure the areas where the supplied self-adhesive hook Velcro will be applied are clean and dry and at room temperature for best adhesion. Apply the corresponding Velcro where deemed necessary and to match the Velcro on the vinyl filler.
2. Drill four 1/4" holes through the plastic under the seat using the punched holes in the vinyl as a template. Check clearance under the plastic before drilling.
3. Secure with four pine tree plugs
4. If the storage bin accessory is not installed under the driver's seat, orient the small vinyl filler in the rectangular opening under the seat and drill four 1/4" holes through the plastic using the vinyl as a template.
5. Secure with four pine tree plugs.

FOR WARM WEATHER USE:

1. Shut off the valve to keep excess heat from entering the cabin. With the valve shut, the heater can still be used to defog the windshield or circulate air inside of the cabin.



FIGURE 7.1



FIGURE 7.3

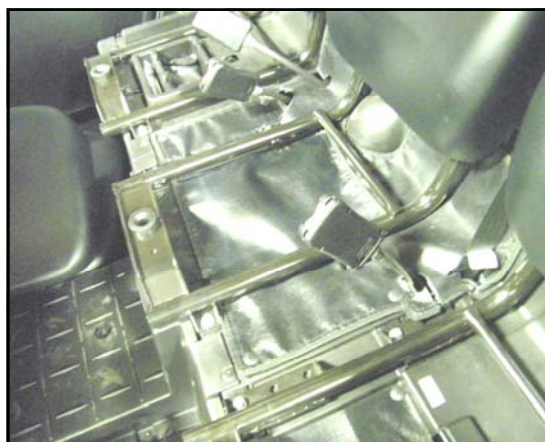


FIGURE 8.1

YAMAHA VIKING HEATER SERVICE PARTS

REF. NO.	SERVICE P/N:	QTY/SVC KIT	DESCRIPTION:
1	8SV-9PH20U3-B4	1	HEATER BOX
2	9PH20-550C	1	HEATER CORE
3	8SV-VKVWHF	1	HEATER FAN ASSEMBLY
4	9HR0078	1	7/8" X 7/8" X 5/8" TEE
5	9SV-9PH20S30P6	1	BLEEDER VALVE 5/8"
6	9HR0039	1	5/8" BARBED ELBOW
7	9HR0044	1	5/8" IN-LINE SHUT OFF VALVE
8	9SV-HRH13-15	1	2" VENT HOSE (6 FT.)
9	1HAP1D	1	2" VENT
10	9SV-VKVWWH	1	VIKING WIRE HARNESS - VEHICLE SIDE
11	9SV-9HR0046	1	SWITCH, ROTARY WITH KNOB (OFF-LOW-HIGH)
12	9SV-9HR0073	1	RIGHT ANGLE VENT WITH LOUVER
13	8SV-VKFUSA	1	VINYL FILLER ASSEMBLY UNDER SEAT
14	8SV-VKVSBC	1	VINYL FILLER STORAGE BIN COVER
15	NA	1	VELCRO 5/8" HOOK P.S.A. (109")
16	NA	1	FAN MOUNTING BRACKET
17	NA	1	HEATER HOSE (8 ft.)
18	NA	14	1" HOSE CLAMP (#10)
19	NA	4	1-1/4" HOSE CLAMP (#12)
20	NA	1	HARDWARE KIT, HEATER
21	IM-9PH20S56	1	INSTRUCTION MANUAL
22	NA	2	NYLON SLEEVING, HEATER HOSE PROTECTION

