

PARTS & SERVICE NEWS

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This Parts & Service News supersedes the previous issued AA99176B dated September 10, 2001.

SUBJECT: IMPROVED DRIVE TRAIN OIL COOLING

PURPOSE: To provide additional cooling capacity when traveling extended distances during cooler temperatures and installation instructions for the engine thermostat bypass kit

APPLICATION: WA320-3L Wheel Loader, S/N A30001 and up
 WA320-3MC Wheel Loader, S/N A31001 and up
 WA380-3L Wheel Loader, S/N A50001 and up
 WA380-3MC Wheel Loader, S/N A51001 and up
 WA420-3L Wheel Loader, S/N A30001 and up
 WA420-3MC Wheel Loader, S/N A31001 and up

FAILURE CODE: 036852

DESCRIPTION:

When traveling a distance of 4 to 5 miles or greater at maximum ground speeds during cooler temperatures, the thermostat may not open or only partially open. This will create only a partial flow of coolant to remove heat from the bottom tank cooler. The installation of this kit will ensure 100% of the available coolant passes through the cooler regardless of thermostat position to maximize heat removal.

PREPARATIONS FOR WORK:

IMPORTANT: Please observe all safety and precautionary standards as dictated by the environment and work conditions under which the equipment will be inspected, reworked and repaired. Consult the appropriate "Shop Manual" and your Komatsu District Service Manager with any and all questions regarding safety, removal, installation and repair instructions not contained in this publication.

1. Park the machine on a flat level surface, lower the boom and bucket to the ground. Shut off the engine and cycle the controls to remove any residual hydraulic pressure from the boom and bucket circuits. Fully apply the parking brake.
2. Place chocks at the front and rear of all wheels to prevent the machine from moving.
3. Remove the key from the start switch and retain it until the repairs are complete. Place a tag on the steering wheel advising: "**This machine is being repaired. It should not be started or moved for any reason until the tag is removed by the person doing the repairs.**"

INSTRUCTIONS

Modify thermostats on all models as follows

1. Remove engine hood assembly.
2. Remove the radiator assembly, then remove the fan shroud.
3. As shown in Figure 1, remove the existing thermostat housing and components.

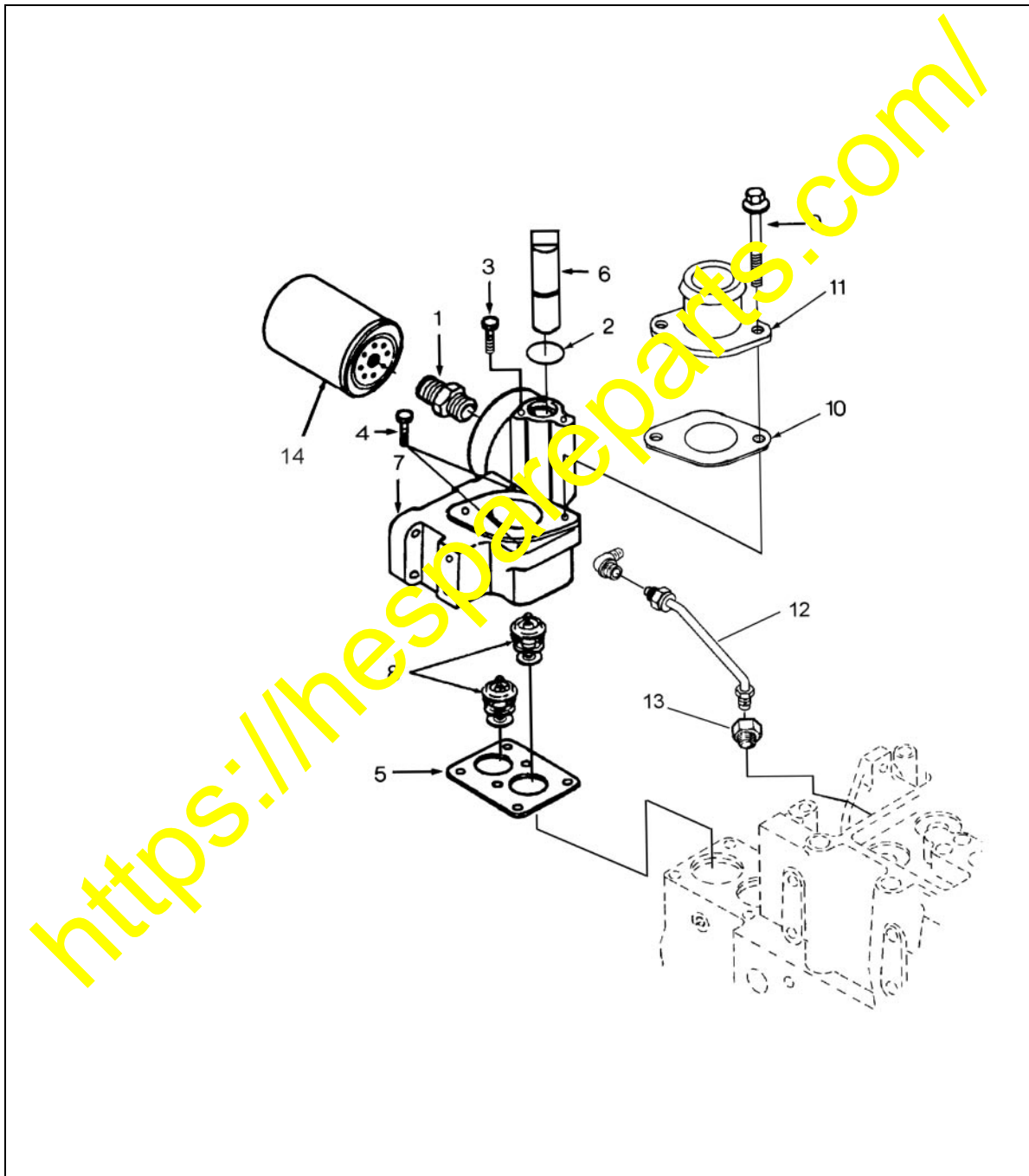


Figure 1 Existing Thermostat Housing

NOTE; The following parts are to be removed and discarded

Item	Part Number	Description	Qty.	Remarks
1	1238 773 H1	Adaptor, Filter Head	1	
2	1240 894 H1	O-ring	1	
3	1240 896 H1	Bolt (M6 x 1.00 x 10)	1	
4	1240 950 H1	Bolt (M8 x 1.25 x 80)	2	
5	1261 093 H1	Gasket, Thermostat Housing	1	
6	1258 650 H1	Shaft, Shut-off Valve	1	
7	1241 152 H1	Housing, Thermostat	1	
8	1241 057 H2	Thermostat	2	
9	1241 026 H1	Bolt (M8 x 1.25 x 95)	2	
10	1295 718 H1	Gasket, Connection	1	
11	1304 940 H1	Connection, Water Outlet	1	
12	6742-01-3540	Tube, Vent	1	
13	6742-01-3520	Connector, Male	1	
14	1240 893 H1	Element, Corrosion Resistor	1	

4. Clean all gasket surfaces.

- As shown in Figure 2, install new thermostat components.

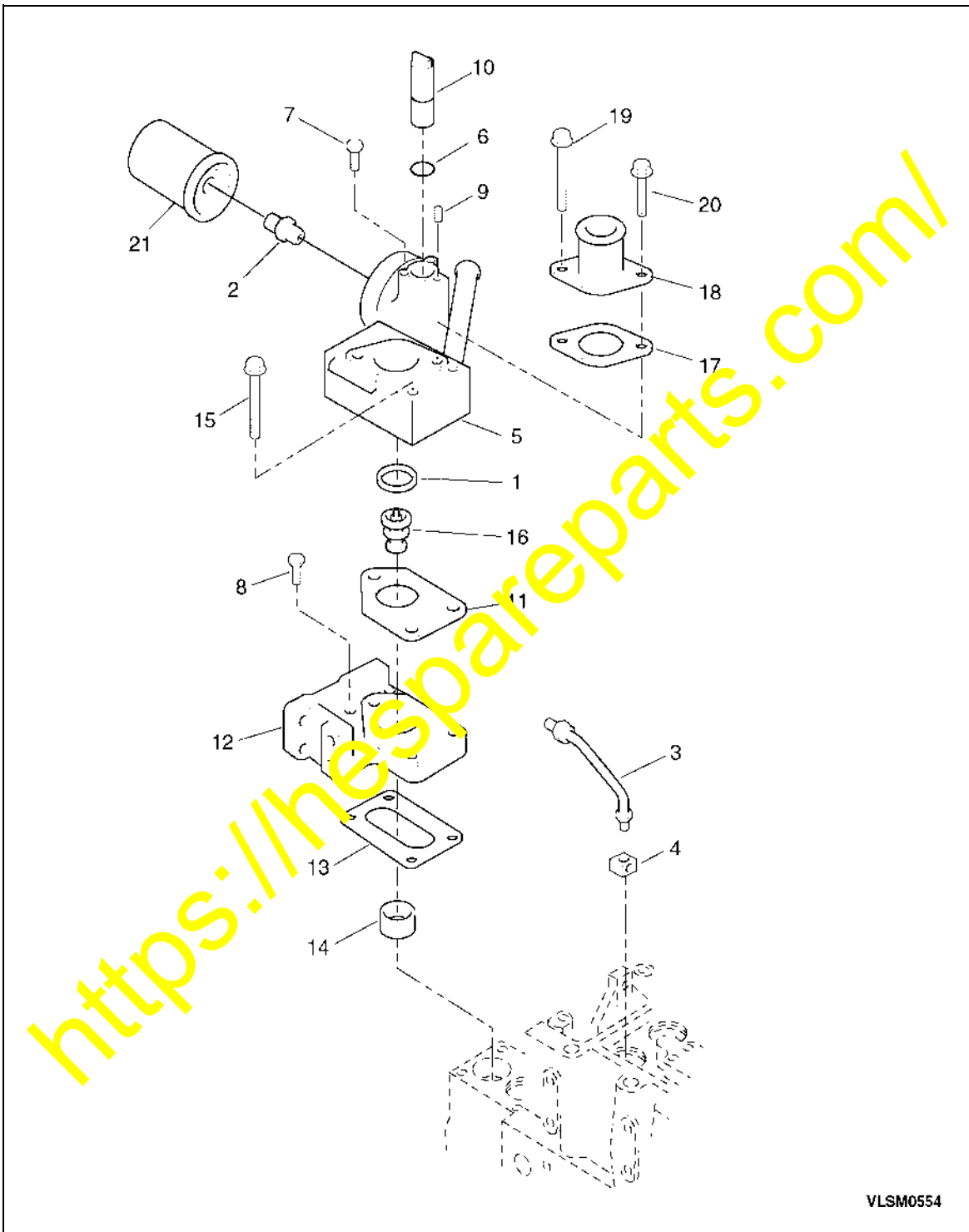


Figure 2 New Thermostat Housing

NOTE: The following new parts are to be installed

Item	Part Number	Description	Qty.	Remarks
1	1310 554 H1	Seal, Thermostat	1	
2	6742-01-3410	Adaptor, Filter Head	1	
3	6742-01-4510	Tube, Vent	1	
4	1237 979 H1	Elbow	1	
5	6742-01-4410	Housing, Thermostat	1	
6	6742-01-3390	Seal, O-ring	1	
7	6742-01-3770	Screw, Hex	1	
8	6732-21-6630	Screw, Hex	2	
9	6732-11-1930	Plug, Pipe	1	
10	6731-71-4410	Shaft, Shutoff Valve	1	
11	6742-01-4420	Gasket, Thermostat Housing	1	
12	6742-01-4430	Support, Thermostat Housing	1	
13	6742-01-4440	Gasket, Support	1	
14	6742-01-4450	Plug, Expansion	1	
15	6742-01-4460	Screw	2	
16	6742-01-4400	Thermostat	1	
17	6742-01-4500	Gasket, Connection	1	
18	6742-01-4490	Connector, Water Outlet	1	
19	6742-01-4480	Screw	1	
20	6732-71-3220	Screw	1	
21	1240 893 H1	Element, Corrosion Resistor	1	

Modify WA380-3L and WA420-3L radiators as follows

NOTE: Prior to removing radiator from its frame, a line must be drawn on the bottom of the frame.

1. As shown in Figure 3, draw a line through the center of the drain plug, front to back, on the bottom of the radiator frame. This line will be used for modification layout.

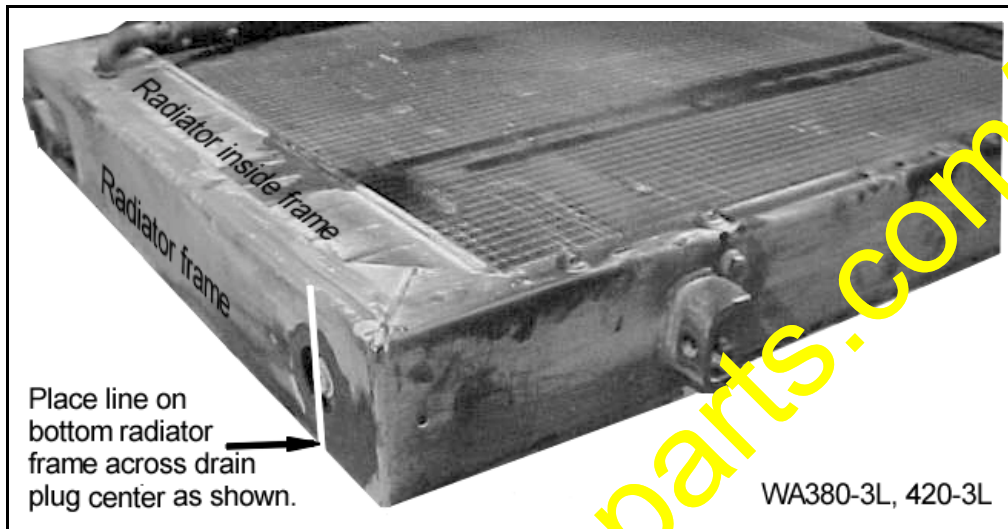


Figure 3 Radiator Frame Layout

2. As shown in Figure 4, remove the six capscrews on each side of the bottom frame.

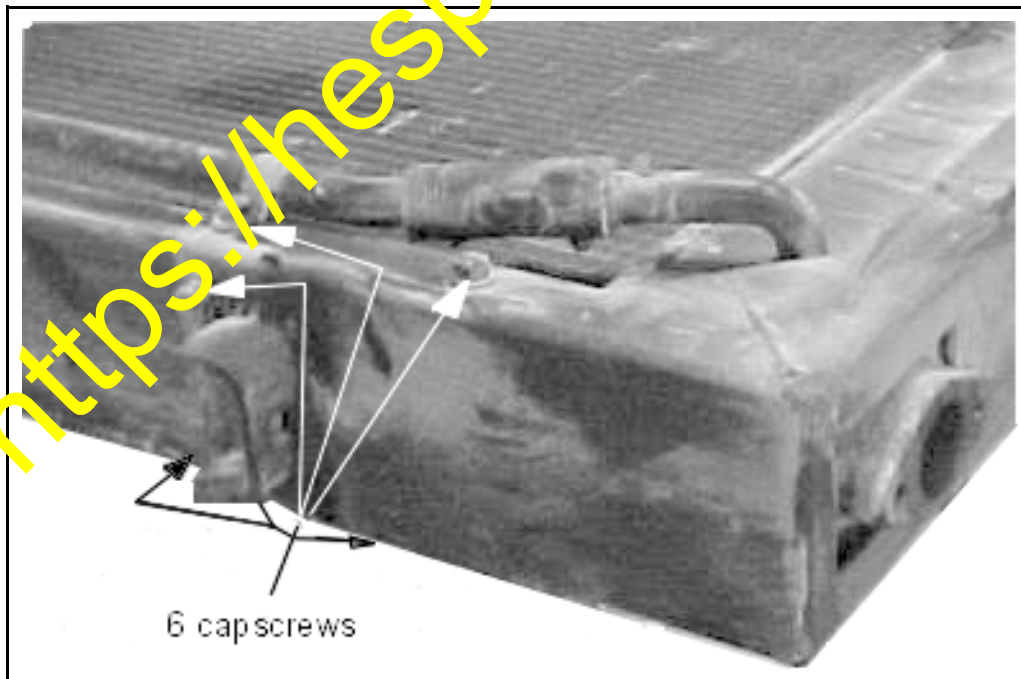


Figure 4 Radiator Mounting Bolts



WARNING! There are rubber pads between the tank and frame, These pads are secured in place with adhesive and it will be necessary to pry the tank loose and break the adhesive. **ONLY** pry against the bottom tank port bosses, prying against the tank will cause severe damage.

3. As shown in Figure 5, remove the tank from the bottom frame.

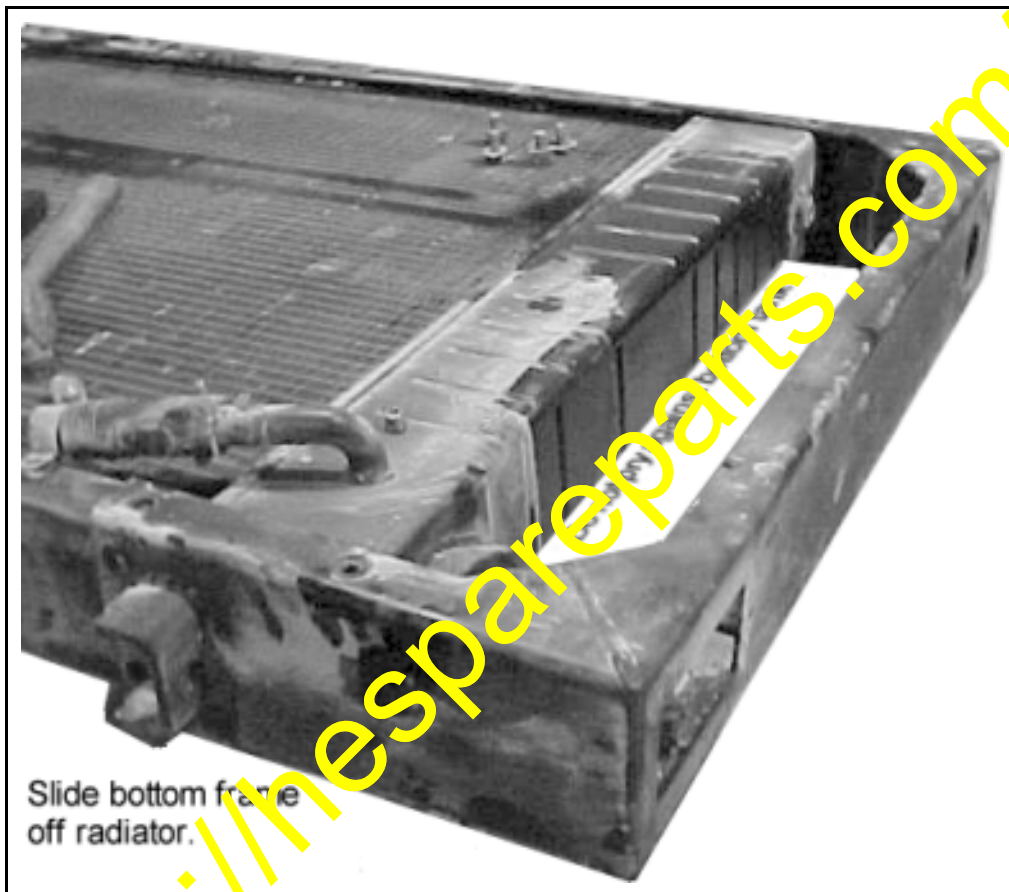


Figure 5 Bottom Frame Removal

4. Modify the radiator as follows:

- a. From the center of the radiator drain, measure 255mm towards the center of the bottom tank. The mark should be in the center of a flat section between the embossed grooves. If it does not, adjust the dimension to the center and record the final dimension.

Final Dimension from drain: _____ mm

- b. Determine the center of the flat section and center punch the center mark.



WARNING! Care must be taken when drilling through the bottom tank. Drilling may damage the oil coolers.

- c. Using a 1-1/2" hole saw with a short pilot drill, drill through the bottom tank at the center punch mark. Be careful not to let the drilled slug fall in the radiator.
- d. Clean and prepare the area around the hole for welding.
- e. Align half coupling (P/N 423-03-A1330) over the hole and have a qualified welder weld the coupling to the tank.
- f. Pressure check the radiator to ensure weld is water tight.

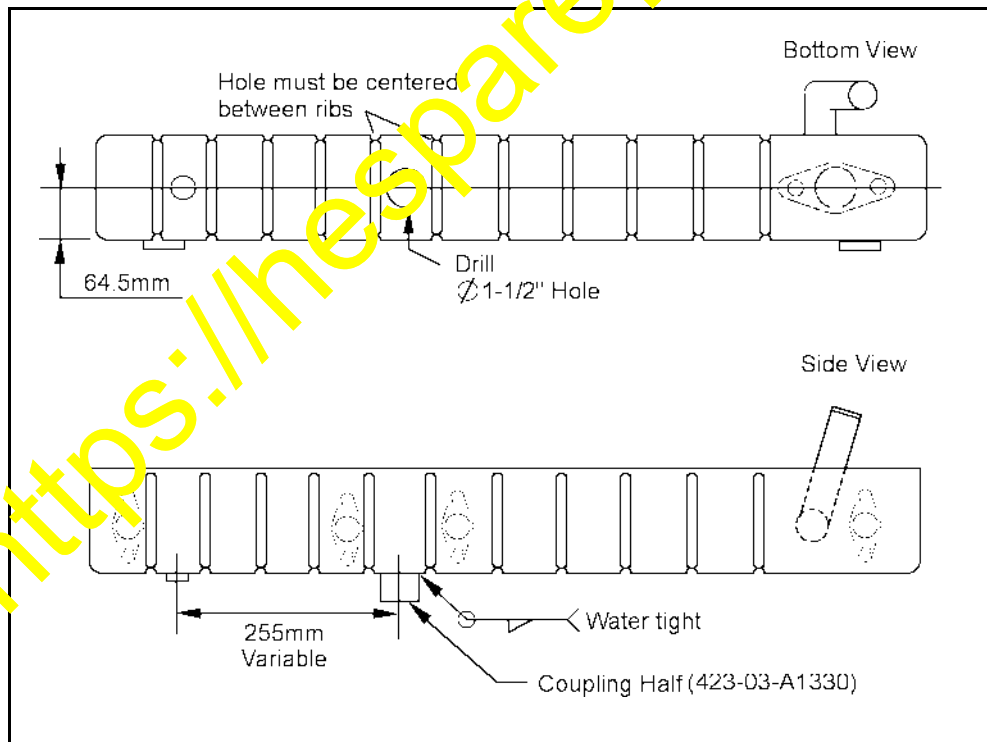


Figure 6 Radiator Modification Dimensions

5. Modify bottom frame as follows
 - a. From the center line drawn on the bottom frame in step 1, measure towards the center 255mm or the adjusted measurement in step 4.
 - b. Mark the center, front to back, of the frame.
 - c. Center punch the mark for the new hole.
 - d. As shown in Figure 7 and using a hole saw, drill a 2-3/4" hole in the bottom frame.

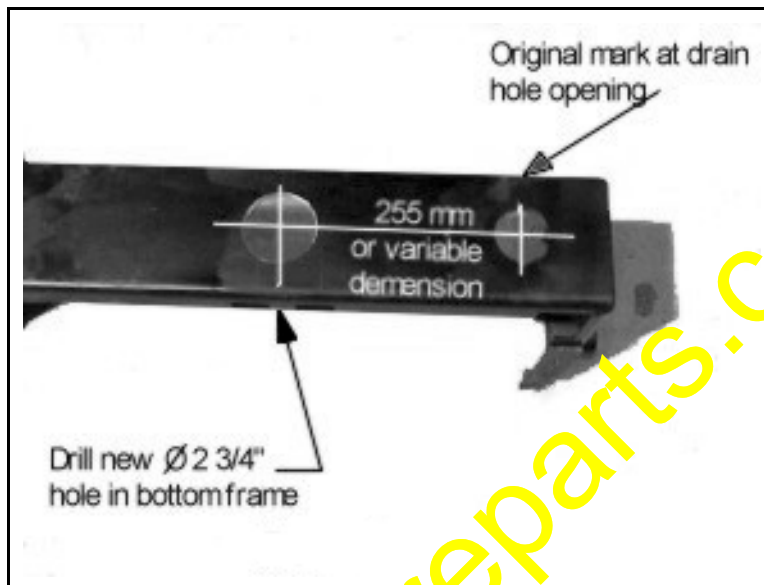


Figure 7 Frame Modification Dimensions

6. Reinstall the radiator into the bottom frame, then install the capscrews and tighten.
7. As shown in Figure 8 and using thread sealant, install 90 degree street elbow into the coupling half toward the left front of the machine at a 45 degree angle.

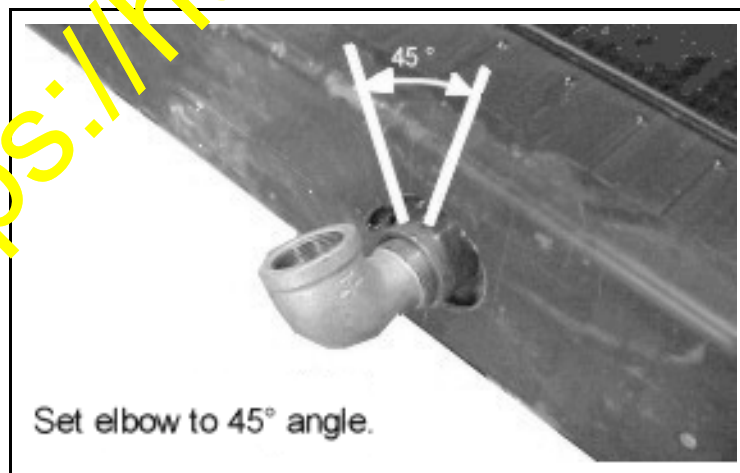


Figure 8 Street Elbow Installation

8. Using thread sealant, install bead connector (P/N 423-03-A1320) into street elbow.

Modify WA320-3L radiator as follows

1. As shown in Figure 9, on the lower left side of the radiator bottom tank, measure up from the bottom on the slanted surface 2 inches and mark the spot.
2. Measure the tank thickness, front to back and place a mark in the center.



WARNING! Use caution when drilling as not to damage the oil cooler inside of the bottom tank.

WARNING! Ensure the drill slug does not go inside of the tank, component damage may occur if the slug is left in the tank.

3. Center punch the center position and drill a 1-1/4" hole in the bottom tank

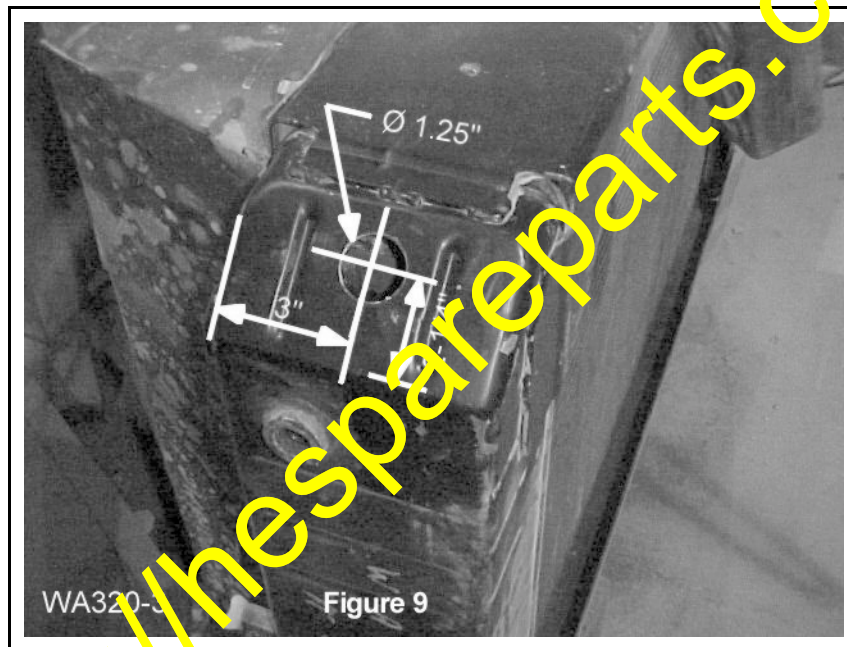


Figure 9 WA320 Radiator Modification Dimensions

4. Clean the area surrounding the hole in preparation for brazing.

- As shown in Figure 10, position the 90 degree fitting in the hole with the inlet end facing the machine front parallel to the tank bottom.

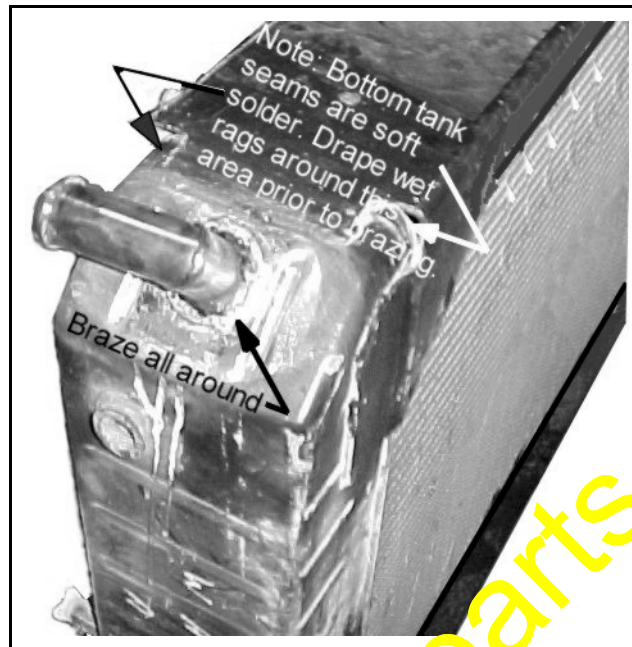


Figure 10 New Fitting Arrangement

- Protect the soft solder joint between the radiator header and bottom tank by placing water soaked rags over it, then braze new fitting into position.
- Pressure test the radiator to 15 PSI to ensure no leakage.

Reassembly for all Machines

NOTE: See Figure 11 for Modification Layout

- For convenience, hose (P/N 423-03-A1430) and hose clamp (P/N 279 027 R91) may be installed on the radiator prior to installation. Install fan shroud, then install radiator.
- Install the thermostat outlet elbow, hose reducer and clamps.
- Connect the bottom hose to the reducer. Adjust the hose length as required for a satisfactory fit.
- Using a hose clamp (P/N 278 43 R1), support the hose from the engine to reduce load on the elbow.
- Reinstall the hood assembly.
- Add coolant to the radiator and run the machine at normal operating temperatures. Check for leaks and make repairs as required.
- Return the machine to service.

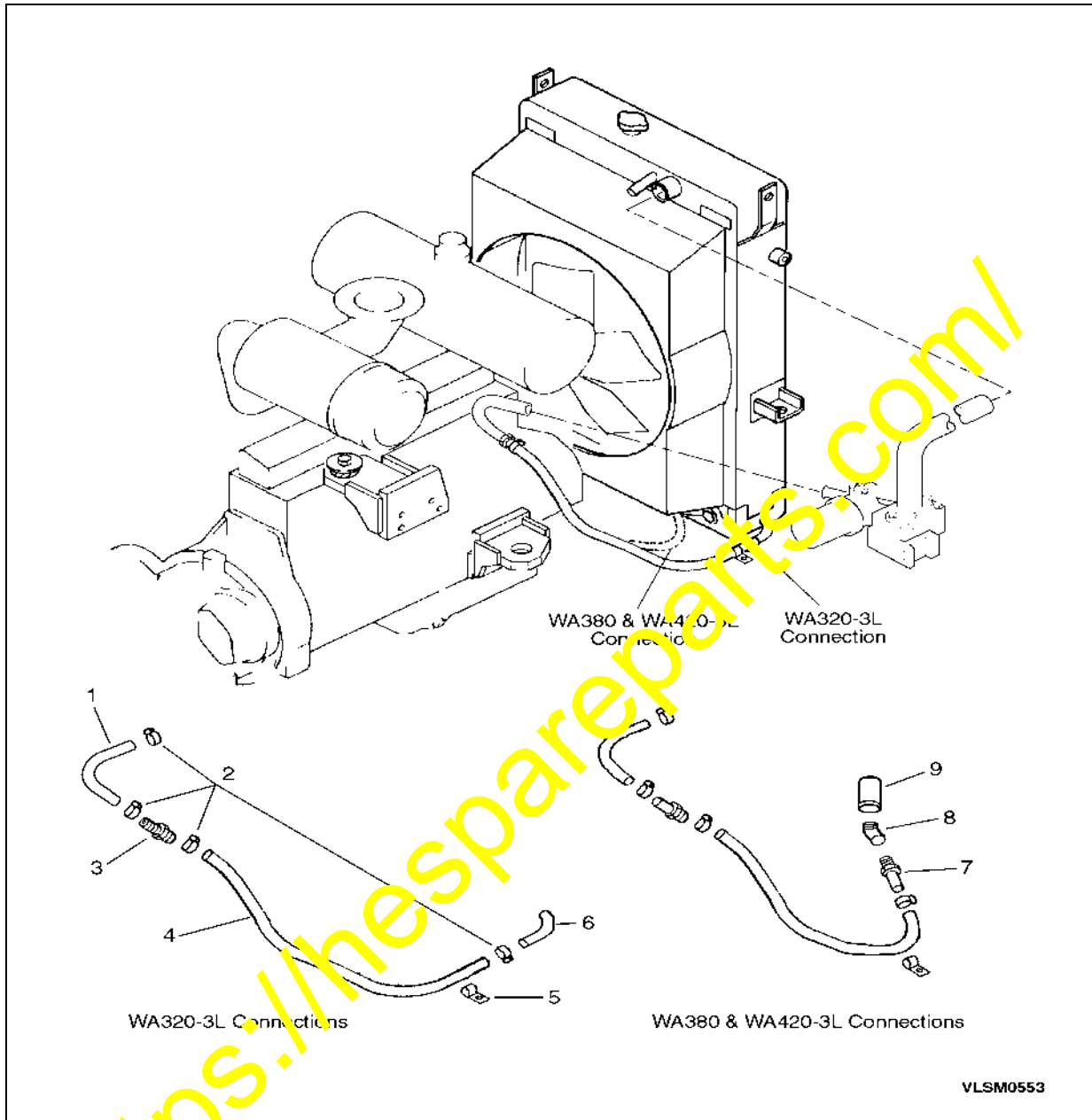


Figure 11 Modification Layout

Item	Part Number	Description
1	423-03-A1420	Hose, 90°
2	279 027 R91	Hose Clamp
3	1315 707 H1	Reducer
4	706 844 C1	Hose, 1219mm (48")
5	27 843 R1	Clip, Hose

Item	Part Number	Description
6	1315 708 H1	90° Elbow
7	423-03-A1320	Bead Adaptor
8	111 001	90° Street Elbow
9	107 358	Coupling, 1-1/4 "

NOTE: Items 1 thru 5 are the same for all machines