

# INSTALLATION MANUAL

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**SUBJECT:** IMPROVING CLOGGING-RESISTANCE OF RADIATOR CORE ON WA800-1 M/C, -2

**PURPOSE:** To introduce a newly prepared radiator with improved clogging resistance for use on WA800-1 (m/c) and WA800-2 wheel loaders

**APPLICATION:** WA800-2 Wheel Loaders, Serial Nos. 10501 and up

**FAILURE CODE:** 031165

## DESCRIPTION:

### 1. Introduction

This Installation Manual will introduce a newly prepared D type copper finned radiator with improved clogging resistance for use on the WA800-1 (m/c) and WA800-2 wheel loaders operating in sandy areas.

Meanwhile, to facilitate the cleaning work for the radiator core at time when it is clogged concurrently when this new radiator is installed, we have supplemented cleaning windows to both sides of the radiator guard.

Since D type radiators are slightly inferior in the heat radiation performance as compared with G type radiators, we have compensated this disadvantage by improving the cleaning ease.

When locally installing this new radiator, follow the installation procedures outlined in this document.

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- g. Installing the exterior parts

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## 2. List of parts

Part No.	Part Name	Q'ty	Remarks
4270321911 (4270311303)	Radiator ass'y (Radiator ass'y)	1 (1)	D 7, copper finned radiator (w/o hydraulic oil cooler)
0101081290	Bolt	20	} Hydraulic oil cooler mounting parts
0164331232	Washer	20	
4270321921	Spacer	2	
4270321931	Bracket	2	
4270321941	Spacer	2	
4270321951	Spacer	1	
4270321810	Bracket LH	1	
4270321820	Bracket RH	1	
4270321830	Cover LH	1	
4270321840	Cover RH	1	
4270321850	Sheet	2	
4270321860	Sheet	2	
4270321870	Sheet	2	
4270321890	Baffle, lower	1	
0101081225	Bolt	6	
0164331232	Washer	4	
0143501016	Bolt	8	
4270321990	Plate	2	Parts necessary for reworking of the oil cooler
4270322110	Tube	1	} Piping parts for the cooling circuit
0143501230	Bolt	4	
0215617360	Gasket	1	
07000E3045	O-ring	4	} Piping parts for the hydraulic oil cooler
4276225631	Tube	1	
4276225621	Tube	1	
4275425451	Door	2	} Parts necessary for reworking of the radiator guard
4248751160	Seat	2	
1755486270	Boss	8	
0157101016	Seat	2	

Part No.	Part Name	Q'ty	Remarks
0158001210	Nut	2	} Parts necessary for reworking of the radiator guard
0158001008	Nut	2	
4275425411	Baffle L.H	1	} Radiator guard baffling parts
4275425531	Seal	2	
4275425611	Baffle R.H	1	
0101081016	Bolt	8	
0164331032	Washer	8	
4275425431	Baffle L.H	1	
4275425441	Baffle R.H	1	
4275425630	Plate	2	
4275425650	Plate	2	
0143500816	Bolt	4	
4275425550	Seal	2	
4275425560	Seal	2	
0101081016	Bolt	4	
0164331032	Washer	4	
4275425491	Rubber	4	
4275425520	Plate	8	
3625641740	Nut	16	
4175424470	Cushion	8	
4255413570	Plate	2	
0101081223	Bolt	4	
0164331232	Washer	4	
4275425660	Baffle L.H	1	
4275425670	Baffle R.H	1	
0143501016	Bolt	8	
4275422940	Plate	1	} Top hood mounting parts
4275422950	Plate	3	
0143501210	Bolt	16	
0158001210	Nut	16	Parts necessary for reworking of the top hood

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Part No.	Part Name	Q'ty	Remarks
4270221120	Cover, front	1	} Muffler cover
4270221130	Cover, rear	1	

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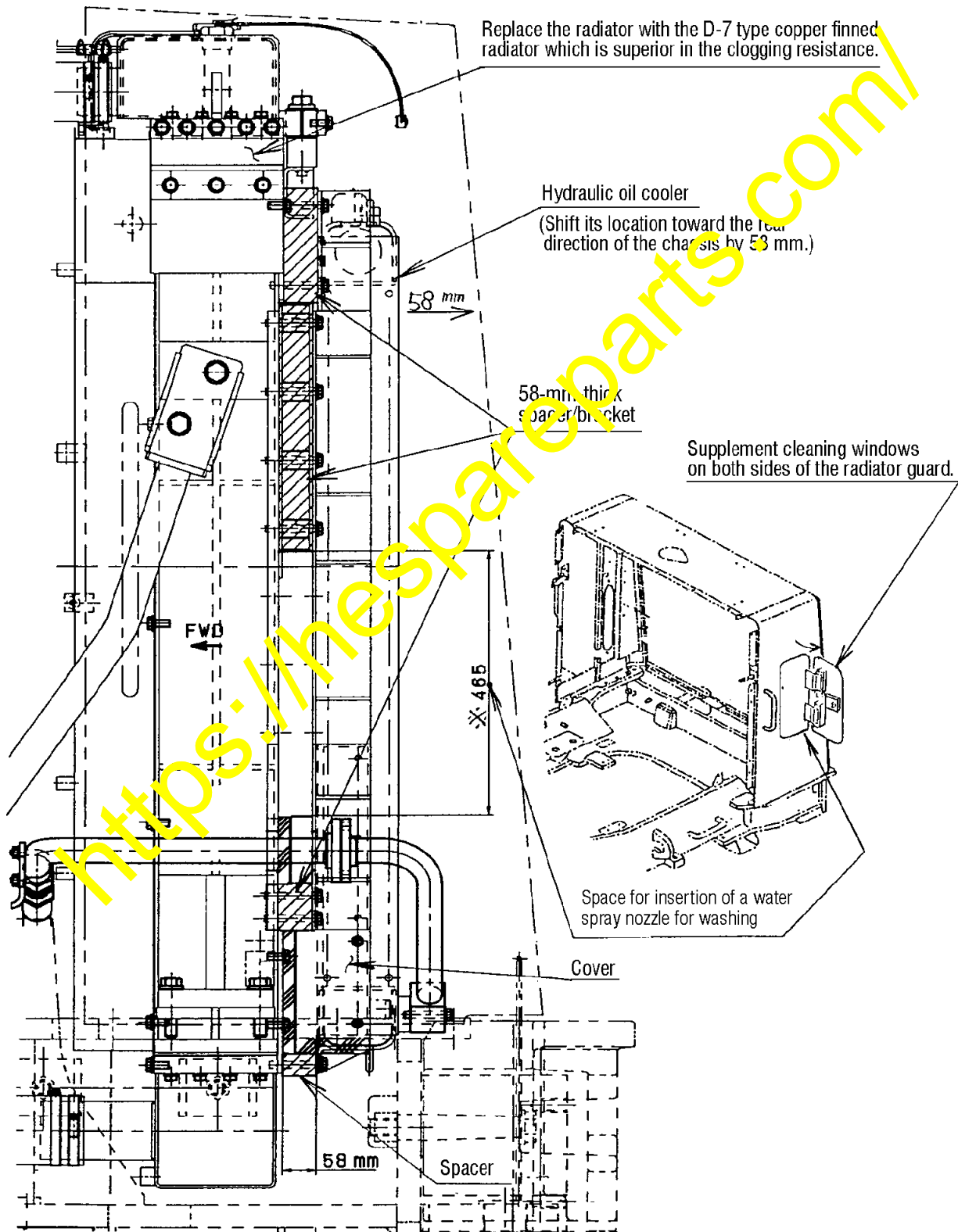
3. Contents of the modification

① Changing the radiator

- The current radiator is to be replaced with the D-7 type copper finned radiator.

② Supplementing the cleaning windows on both sides of the radiator guard to facilitate the cleaning work for the radiator core.

- By shifting the current location of the hydraulic oil cooler behind the radiator toward the rear direction of the chassis by 58 mm, insertion of a water spray nozzle for use to wash machine body or an air-blow nozzle into the space (at area marked ※) between the radiator core and the hydraulic oil cooler has been made possible.

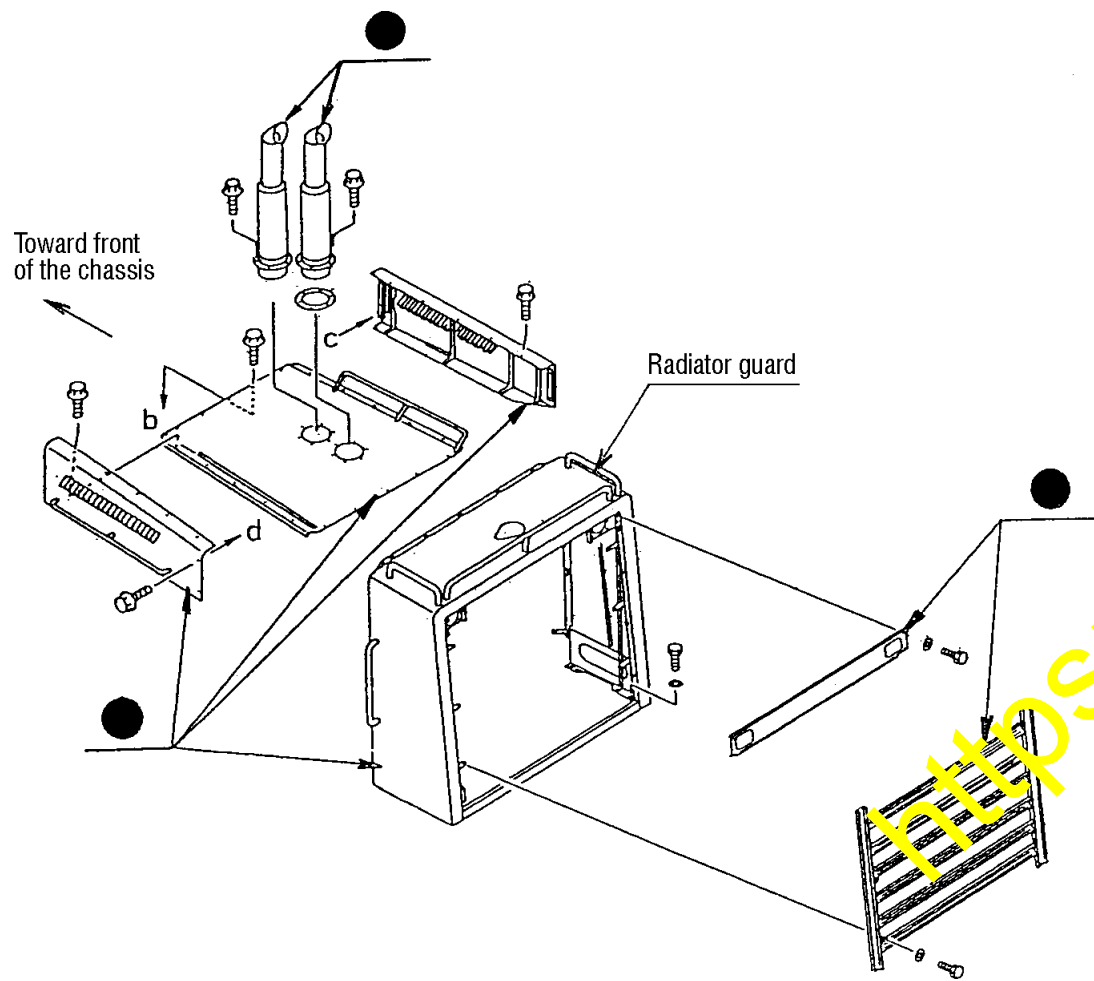


4. Removing the parts and structures which need to be removed for this modification

- Remove those parts and structures which are marked ● in the schematic diagram indicated below.

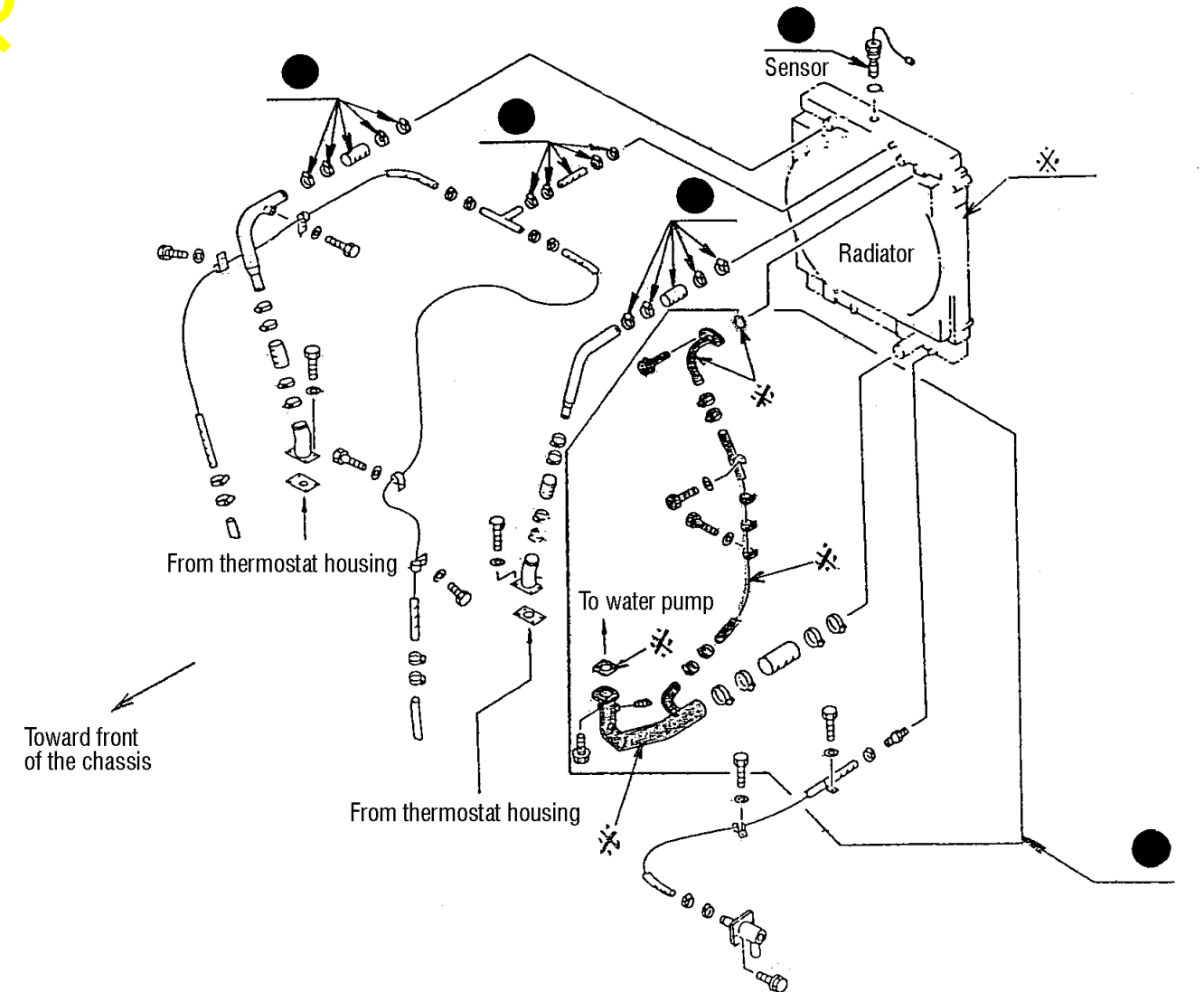
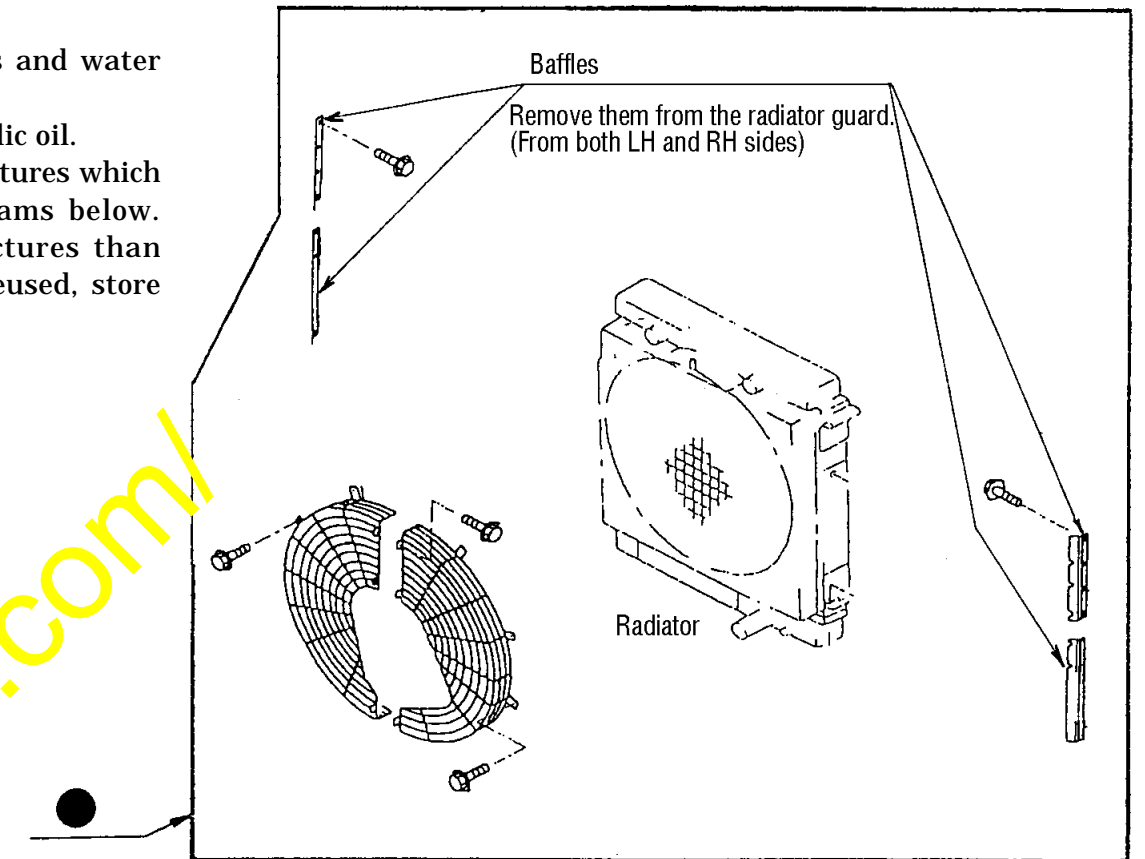
a. Removing the exterior parts

- (Note) · The radiator guard is being reworked according to the instructions given on pages 10 and 11.
- Since the parts and structures marked ● are being reused, store them carefully.
  - The top hood is being reworked on page 13.



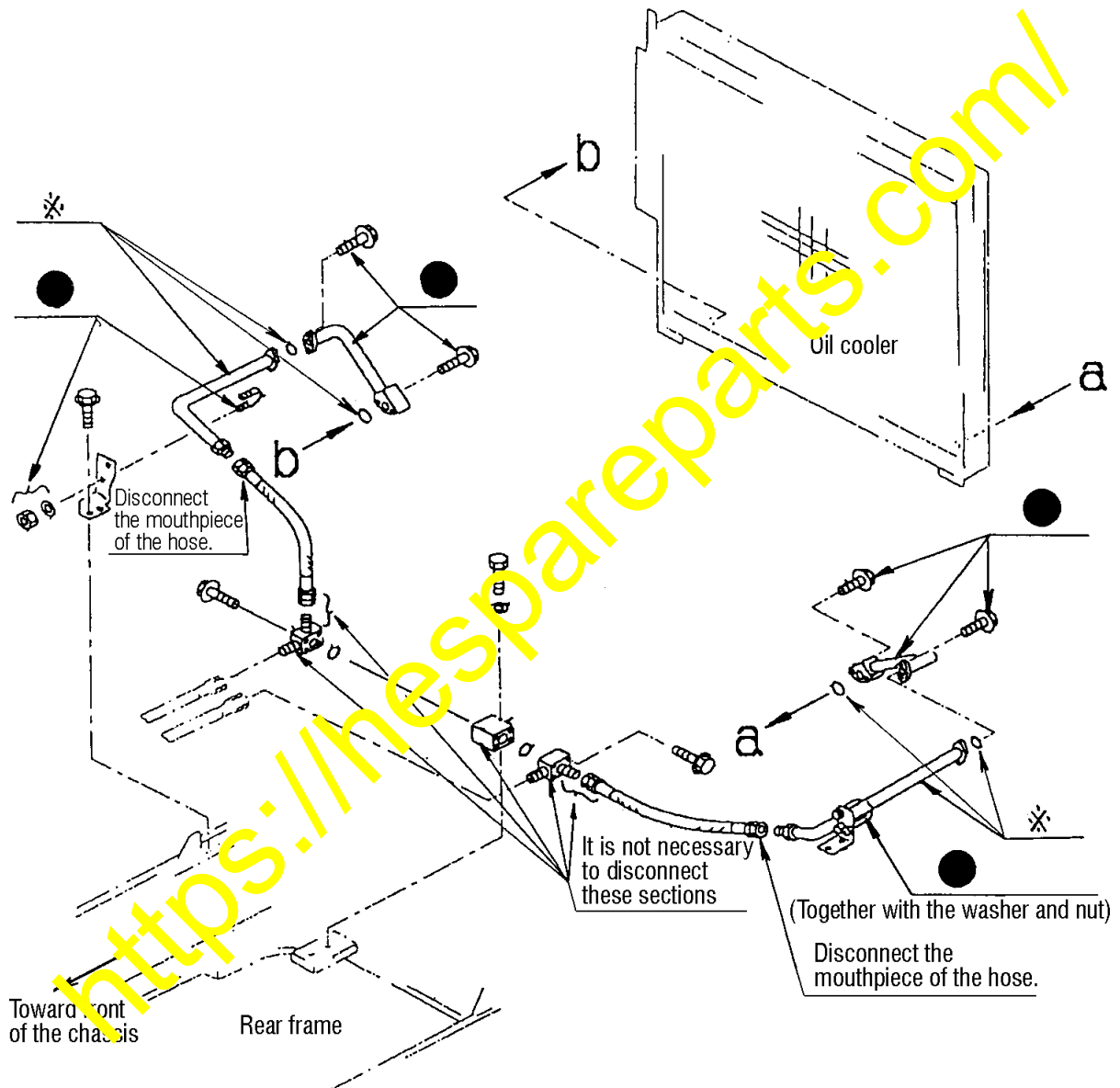
b. Removing the radiator accessories and water pipings

- (Notes) · Drain the coolant and hydraulic oil.
- Remove those parts and structures which are marked ● in the diagrams below. Since other parts and structures than those marked ✖ are being reused, store them carefully.



c. Removing the hydraulic oil cooling circuit pipings

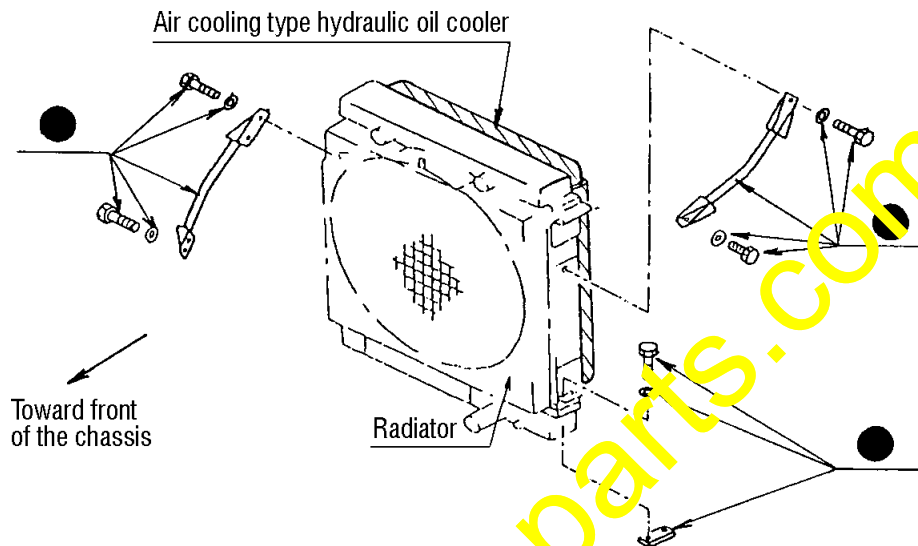
- Remove those parts and structures which are marked ● in the diagram below. Since other parts and structures than those which are being marked ※ are being reused, store them carefully.



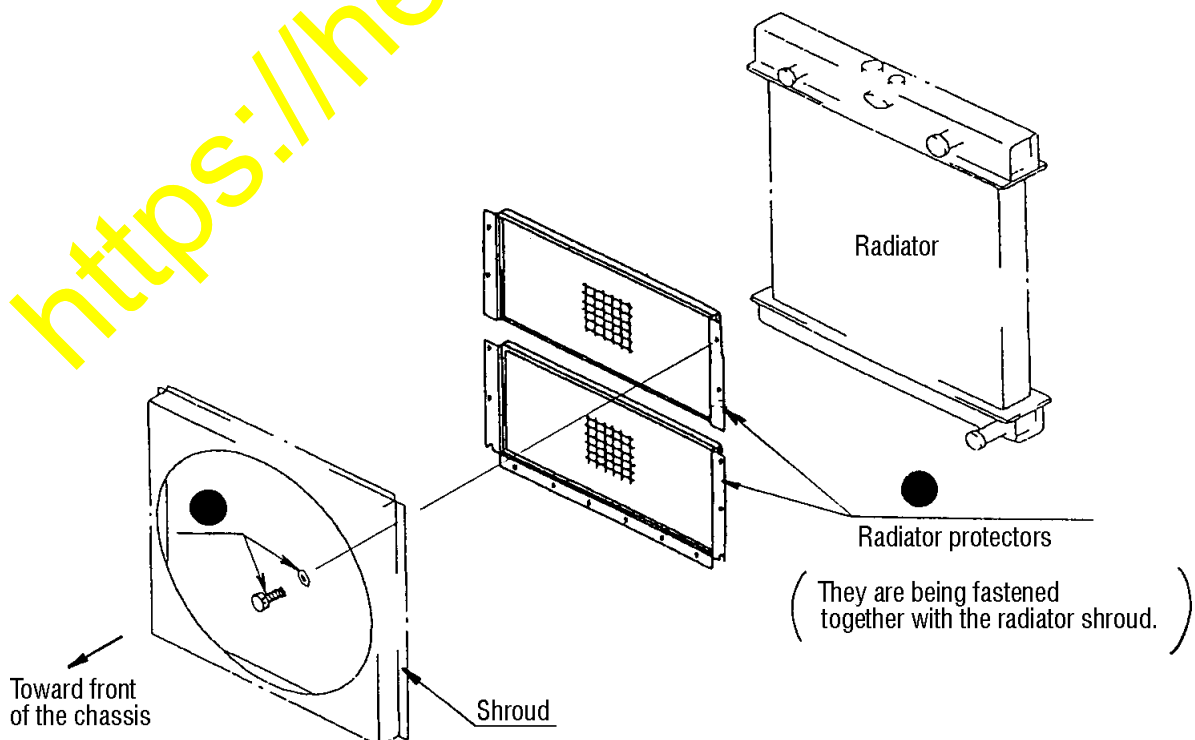


## d. Removing the radiator

- Remove those parts and structures which are marked ● in the diagrams below. Since other parts and structures than the radiator are being reused, store them carefully.
- Also, since the air cooling type hydraulic oil cooler (installed to the rear section of the radiator) is being reused, remove it from the radiator and wash it after removal.



(Note) · In case of machines equipped with the radiator protectors, detach the shroud and remove both of the upper and lower protectors. They are being reused. (Parts marked ●)

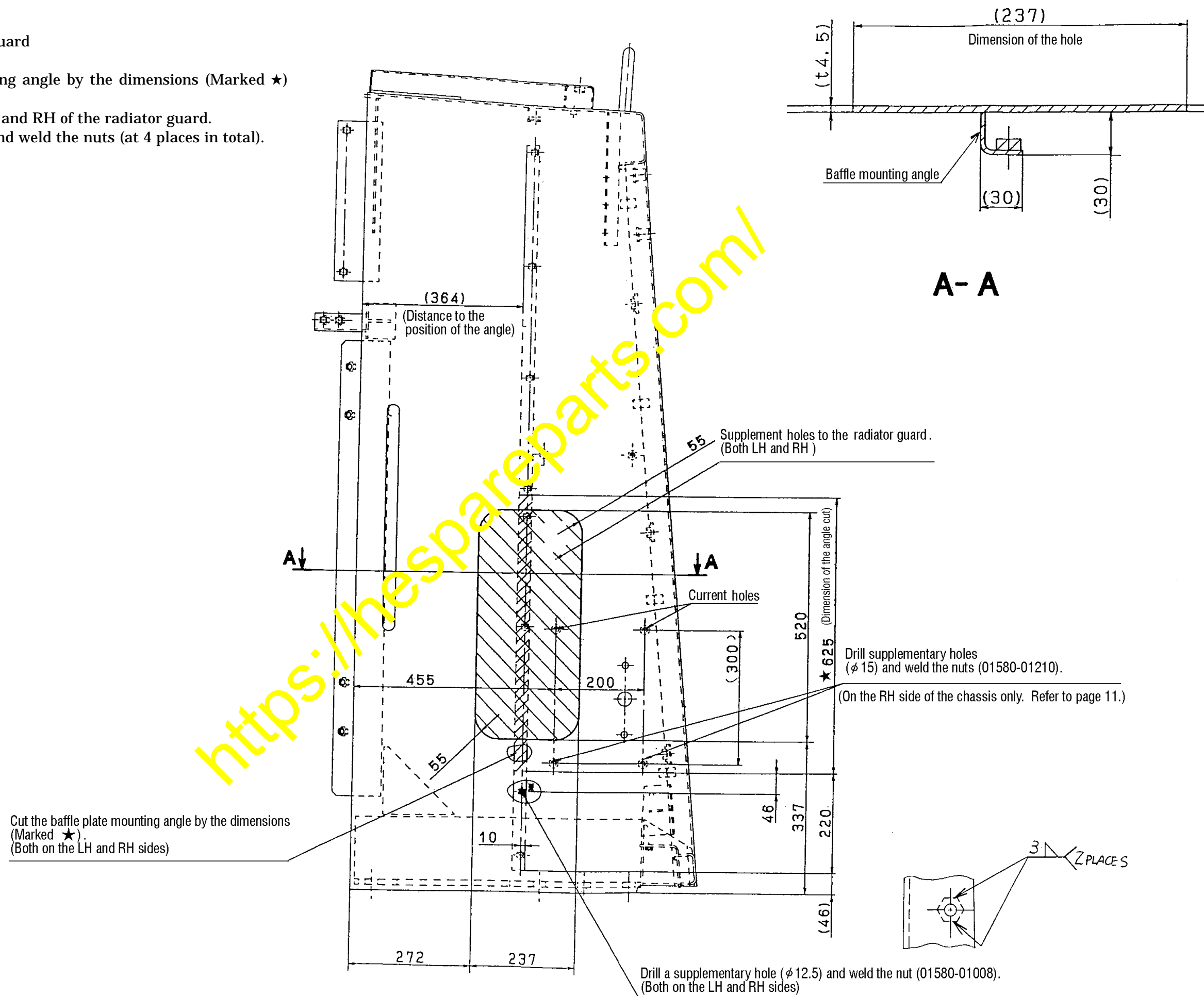


5. Reworking procedures

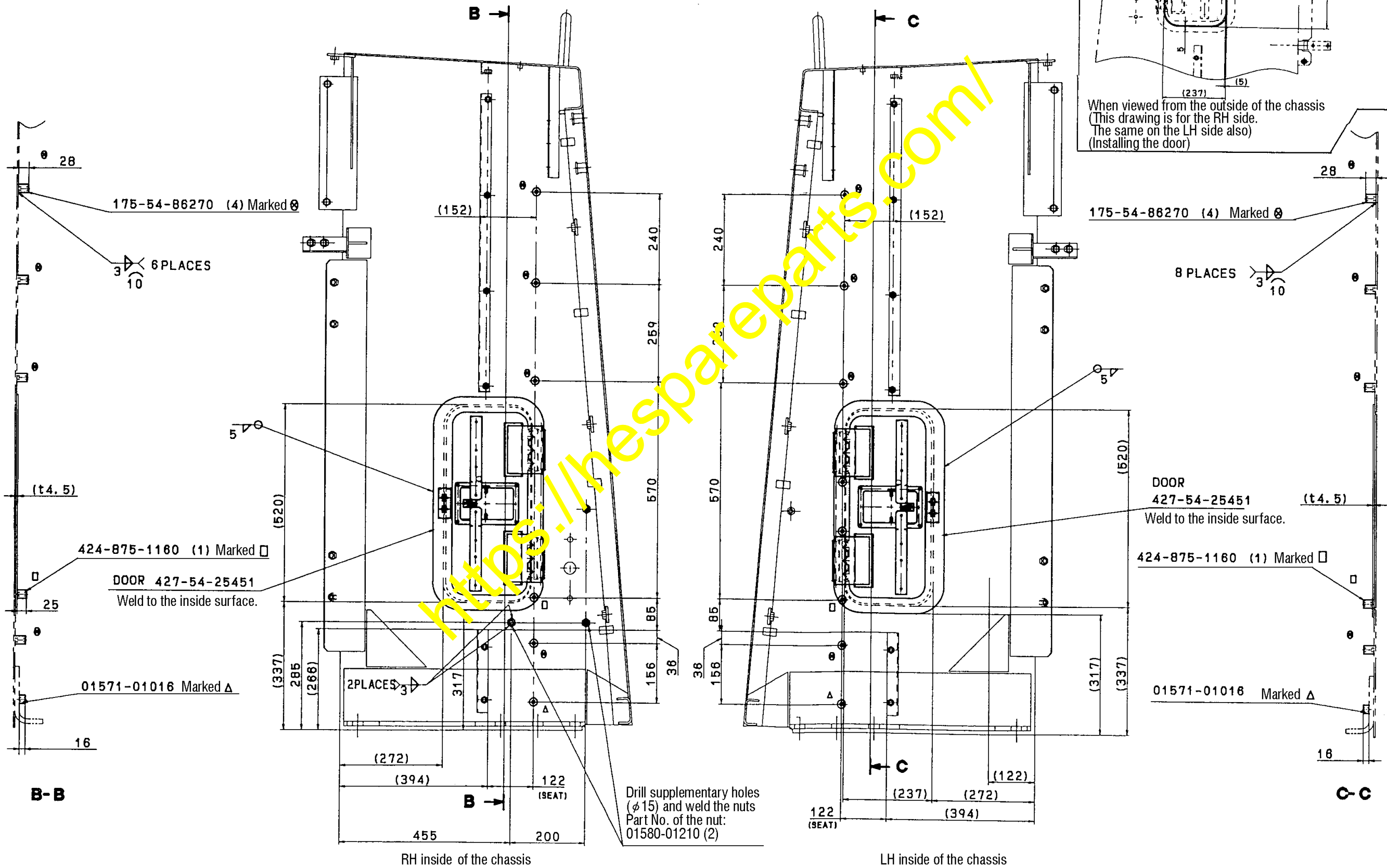
a. Reworking with the radiator guard

Execute the following reworks.

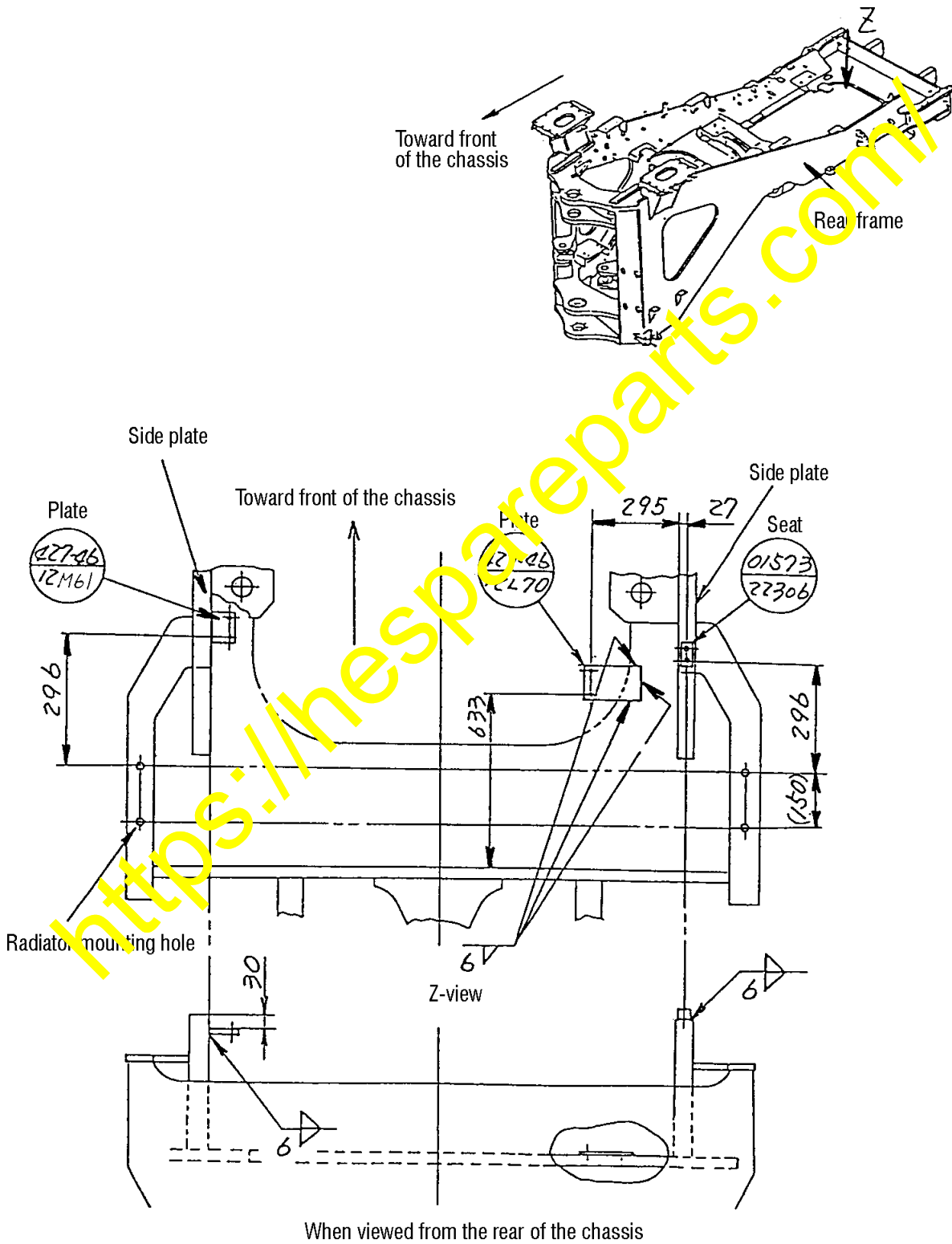
- ① Cut the baffle plate mounting angle by the dimensions (Marked ★) indicated below.
- ② Supplement holes to the LH and RH of the radiator guard.
- ③ Drill supplementary holes and weld the nuts (at 4 places in total).



- ④ Weld the doors (427-54-25451) to the LH and RH sides of the radiator guard from the inside.
  - ⑤ Weld the seats to the inside surface of the radiator guard.
- (Note) Apply corrective painting after finishing the above reworking.



- b. Reworking with the rear frame (depending on the machine, this rework may be already done and check if this rework has been done with the subject machine.)
- Weld the parts shown below to the positions instructed in the schematic diagrams indicated below.
- Apply corrective painting after finishing the above reworking.



c. Reworking with the top hood

(Note) Depending on the serial numbers of the machine, the top hood is not being provided with the slotted perforations.

Check the subject machine and make either of the following reworking.

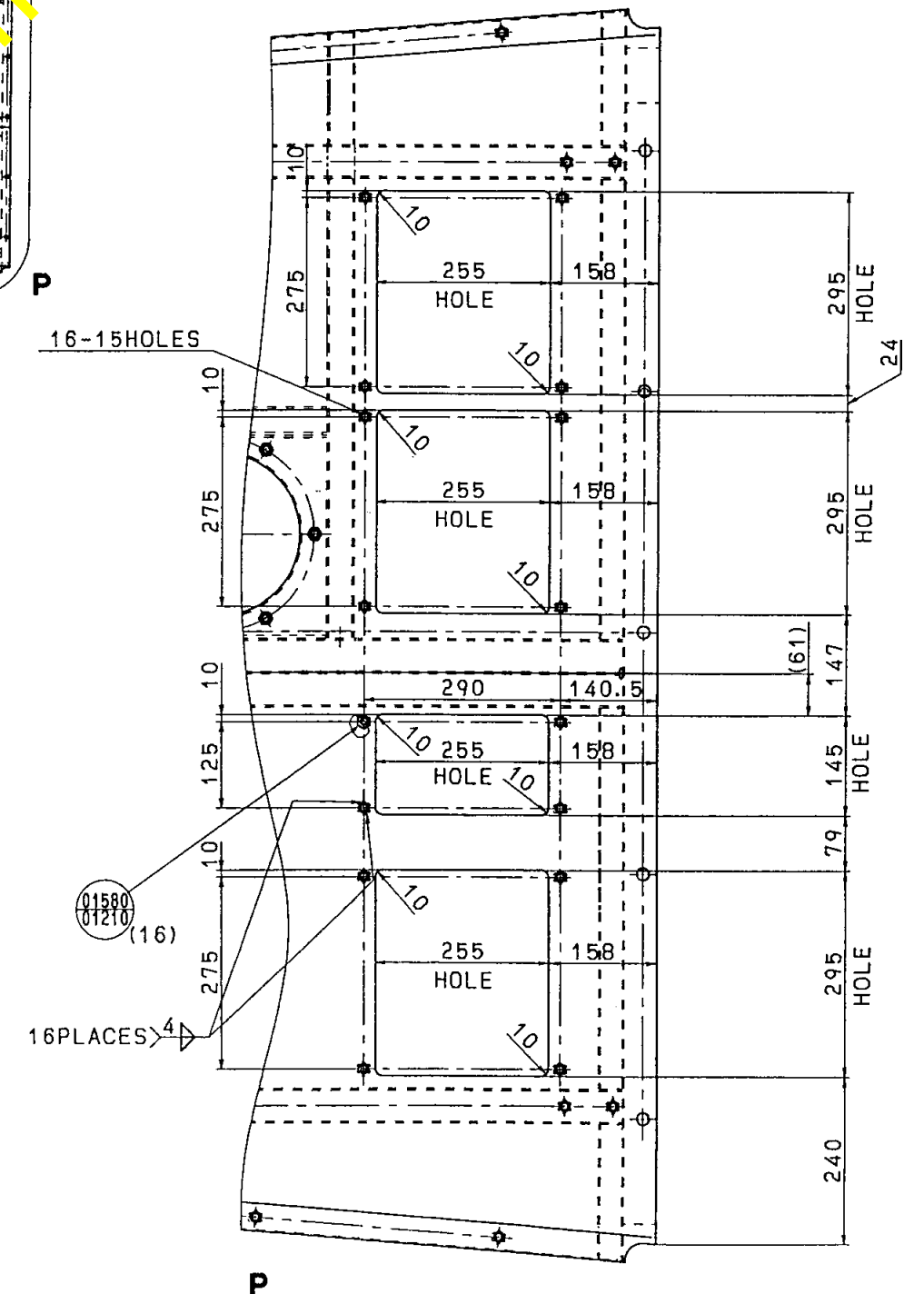
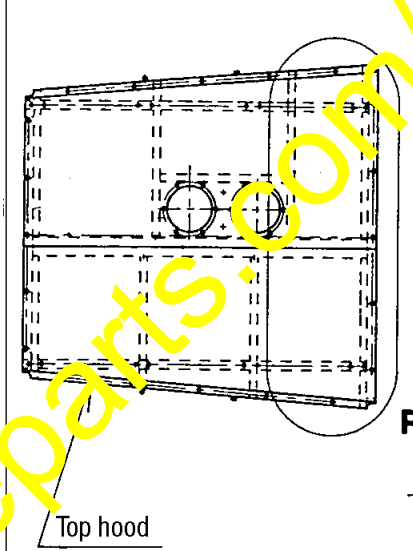
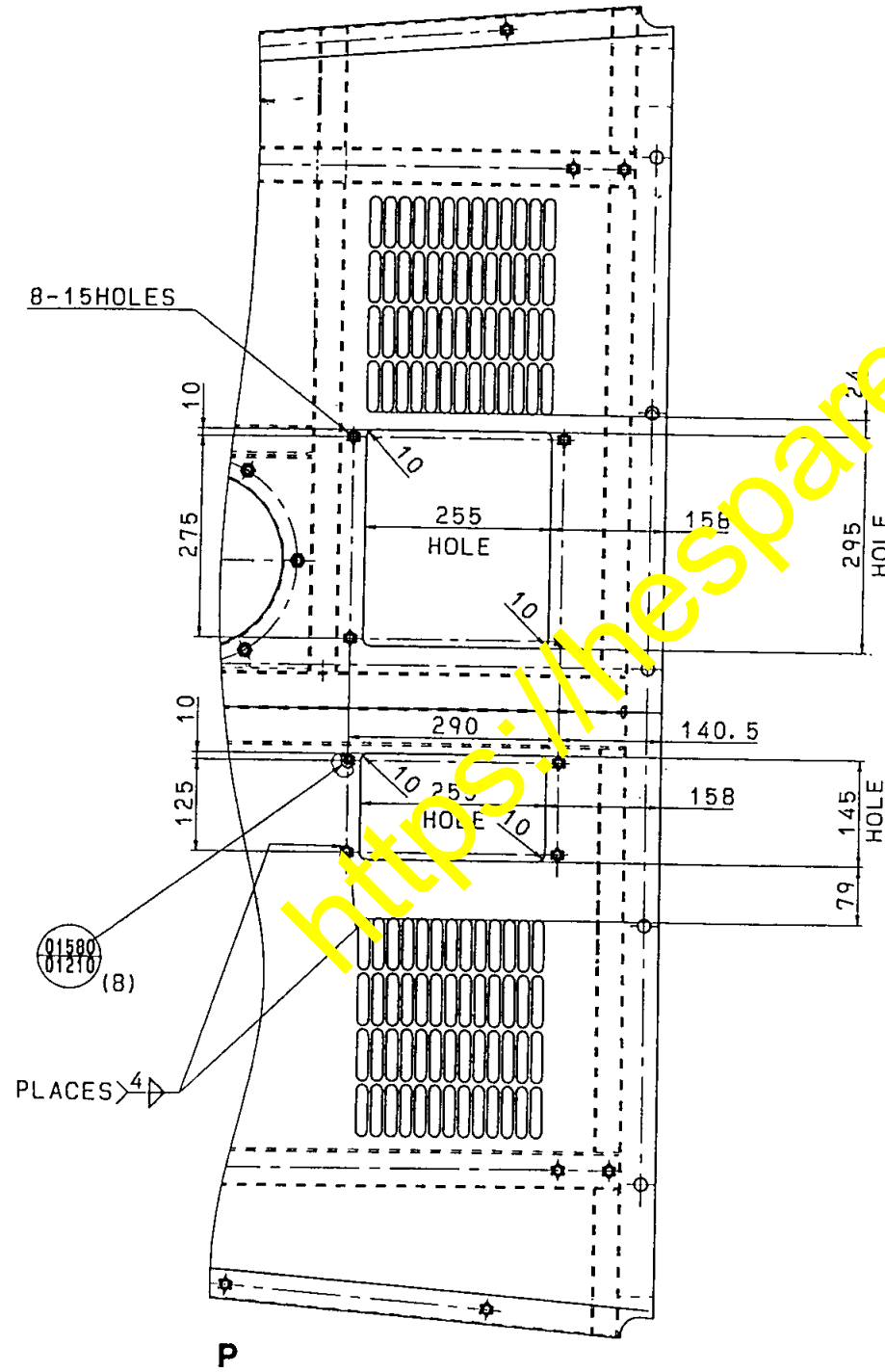
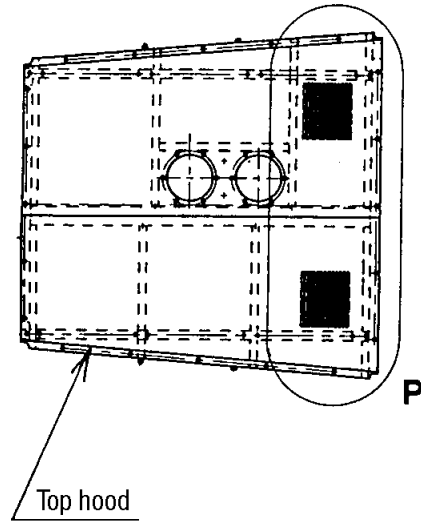
- ① Open the air intake holes.
- ② Drill holes for installation of the cover and weld the rear nuts.

When the top hood is being provided with the slotted perforations:

- ① Air intake holes (at 2 places)
- ② Drilled holes and rear nuts (at 8 places)

When the top hood is not being provided with the slotted perforations:

- ① Air intake holes (at 4 places)
- ② Drilled holes and rear nuts (at 16 places)

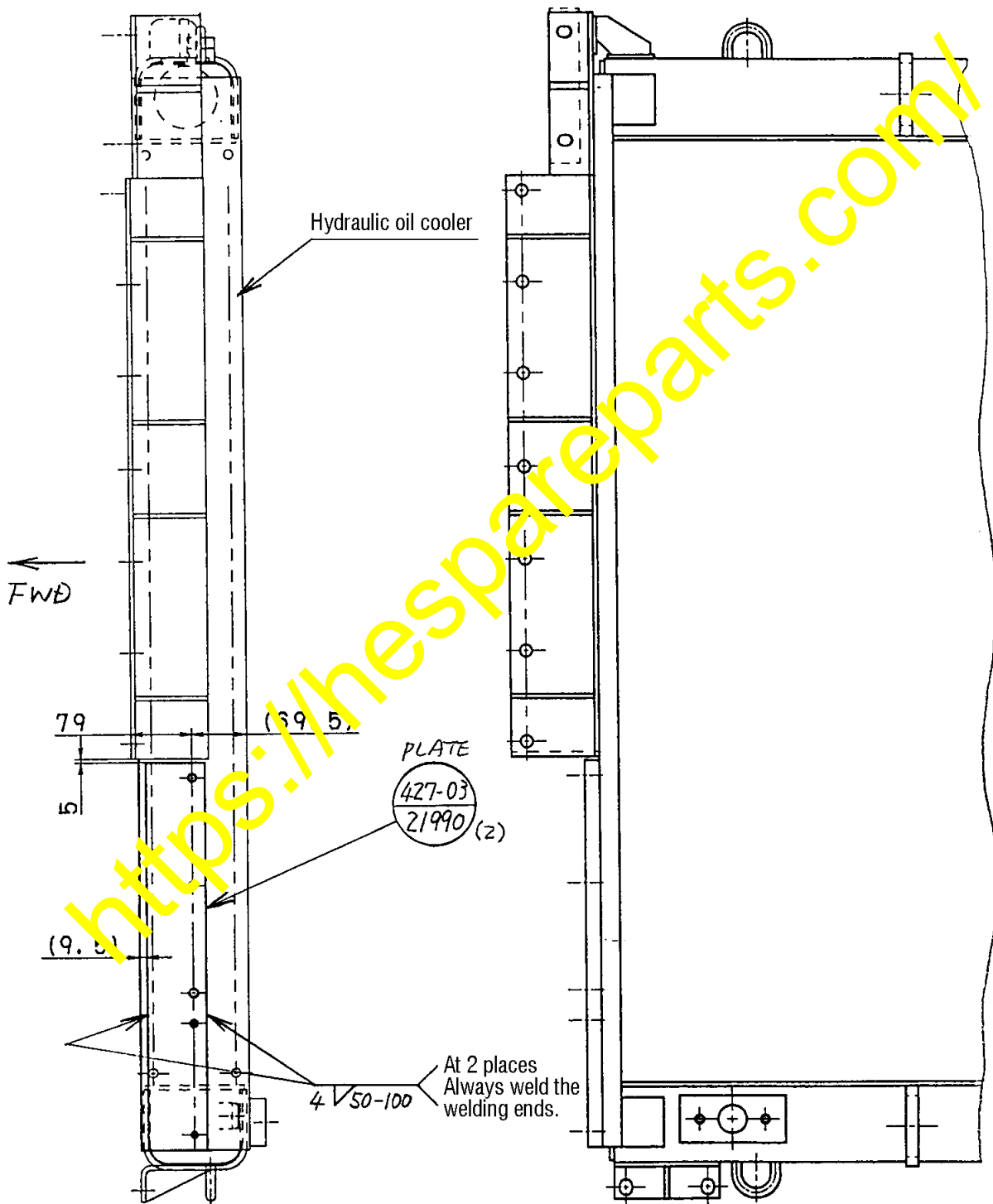


d. Reworking with the hydraulic oil cooler

- Weld the plate to the side surfaces (LH and RH side surfaces) of the hydraulic oil cooler as indicated below.

(Note)

If you have newly ordered for the oil cooler for this modification, the newly ordered oil cooler already incorporates this modification and it is not necessary to execute the reworking according to this page.



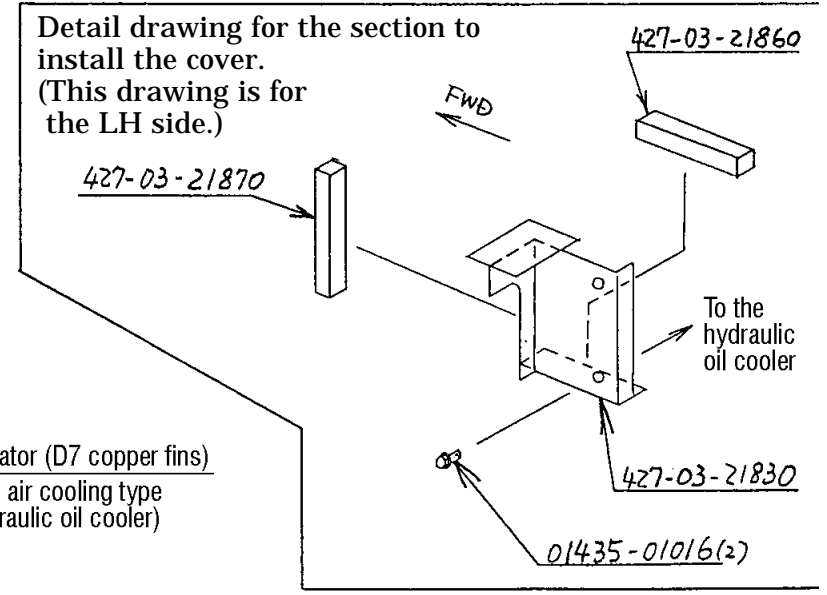
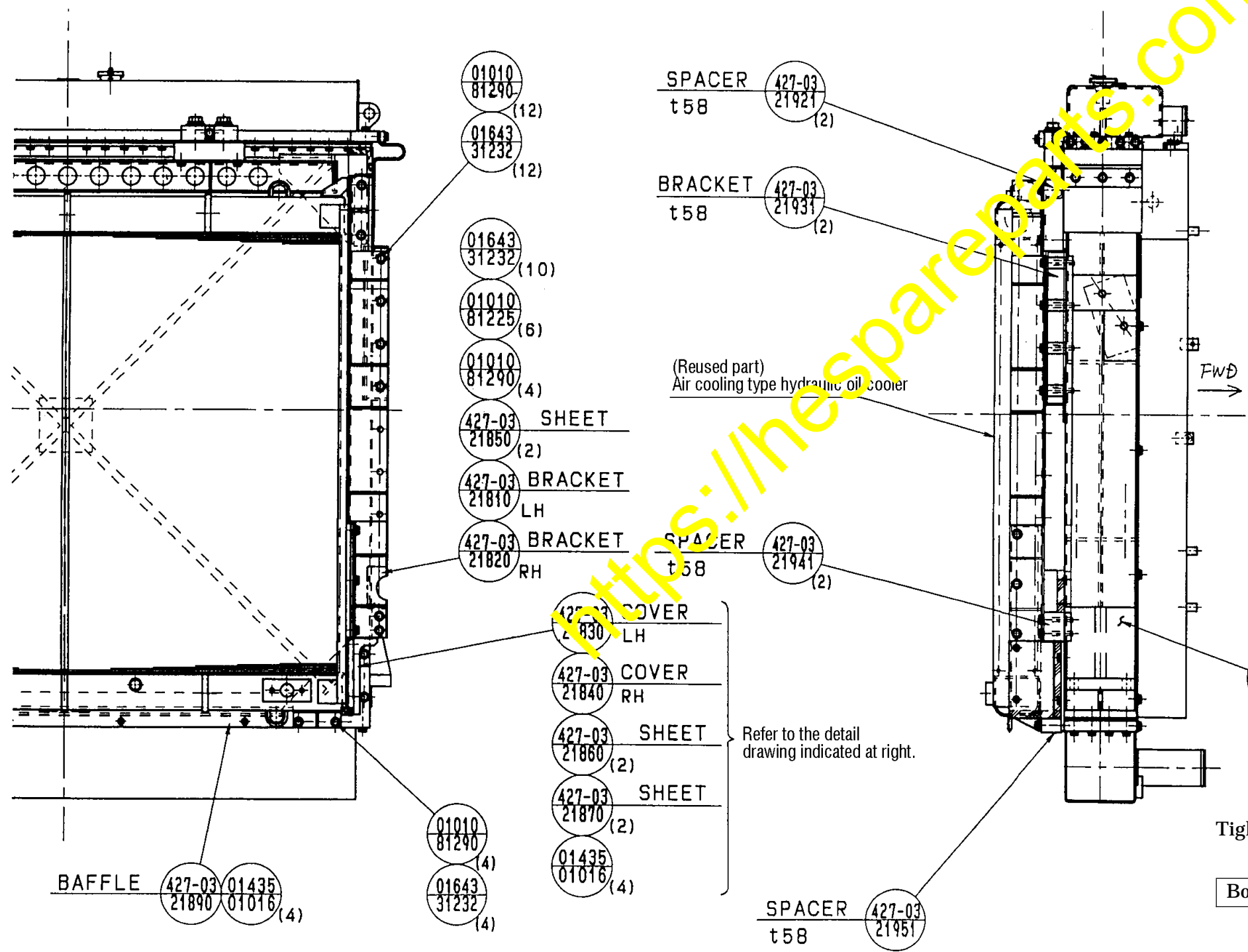
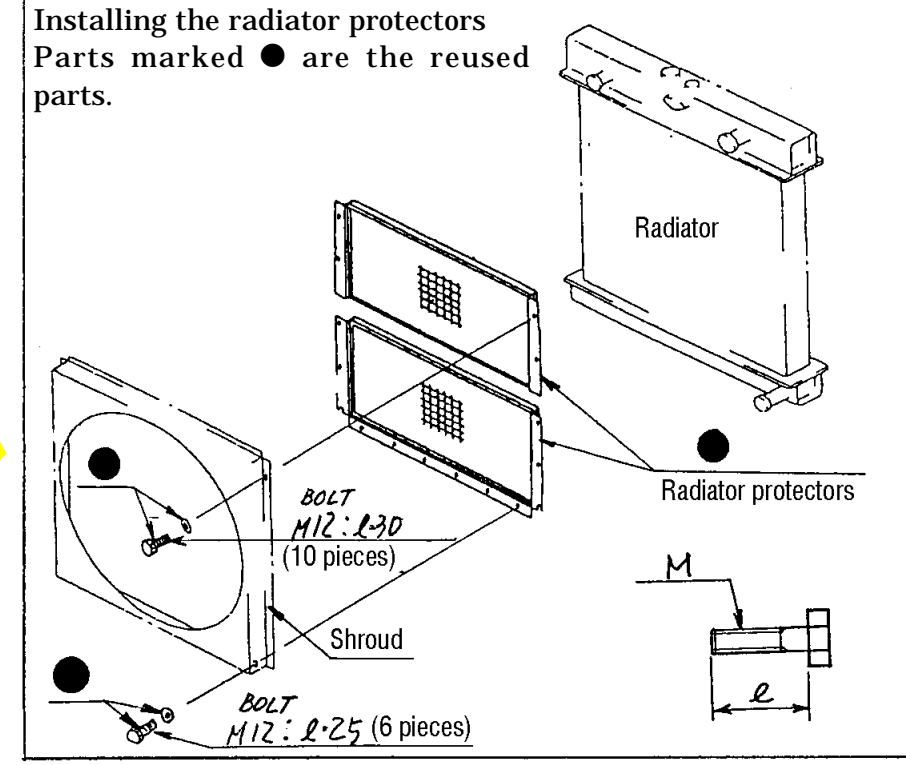
6. Installation procedures

a. Installing the air cooling type hydraulic oil cooler to the radiator

- Install the air cooling type hydraulic oil cooler to the radiator.
- As indicated below, supplement spacers between the radiator and the air cooling type hydraulic oil cooler before fastening them together.

(Replace the fastening bolts with the ones of the part number given in the schematic diagrams.)

(Note) In case of machines equipped with the radiator protector, detach the shroud and install the upper and lower protectors. (Refer to the schematic diagram indicated at right.)



Tightening torque

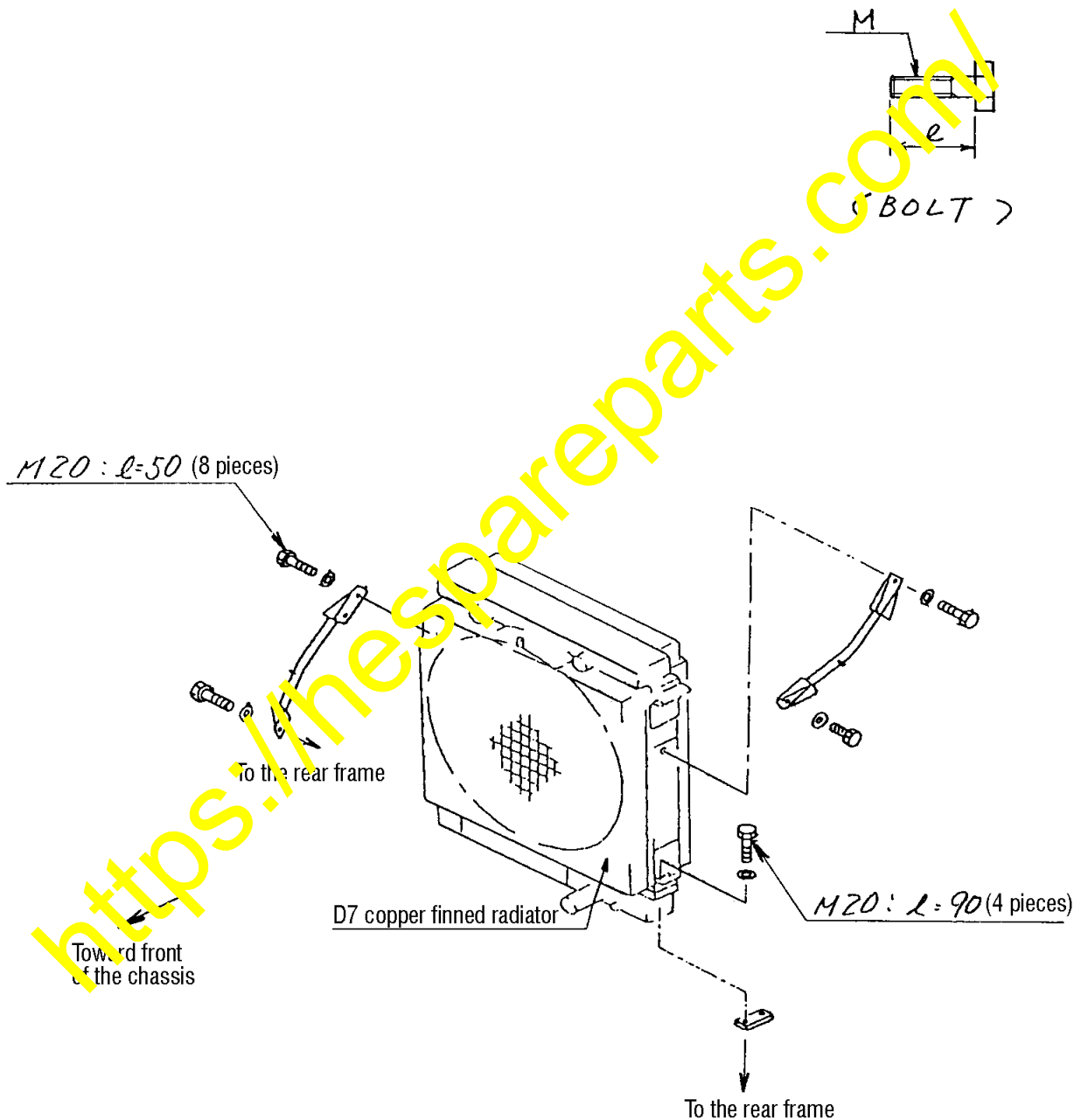
Bolt (M 12)	Tightening torque range (when using a torque wrench)	
	10.0 - 12.5 kgm	98 - 123 Nm

b. Installing the radiator

- Install the radiator to the chassis reusing the parts removed on the previous pages.

Tightening torque

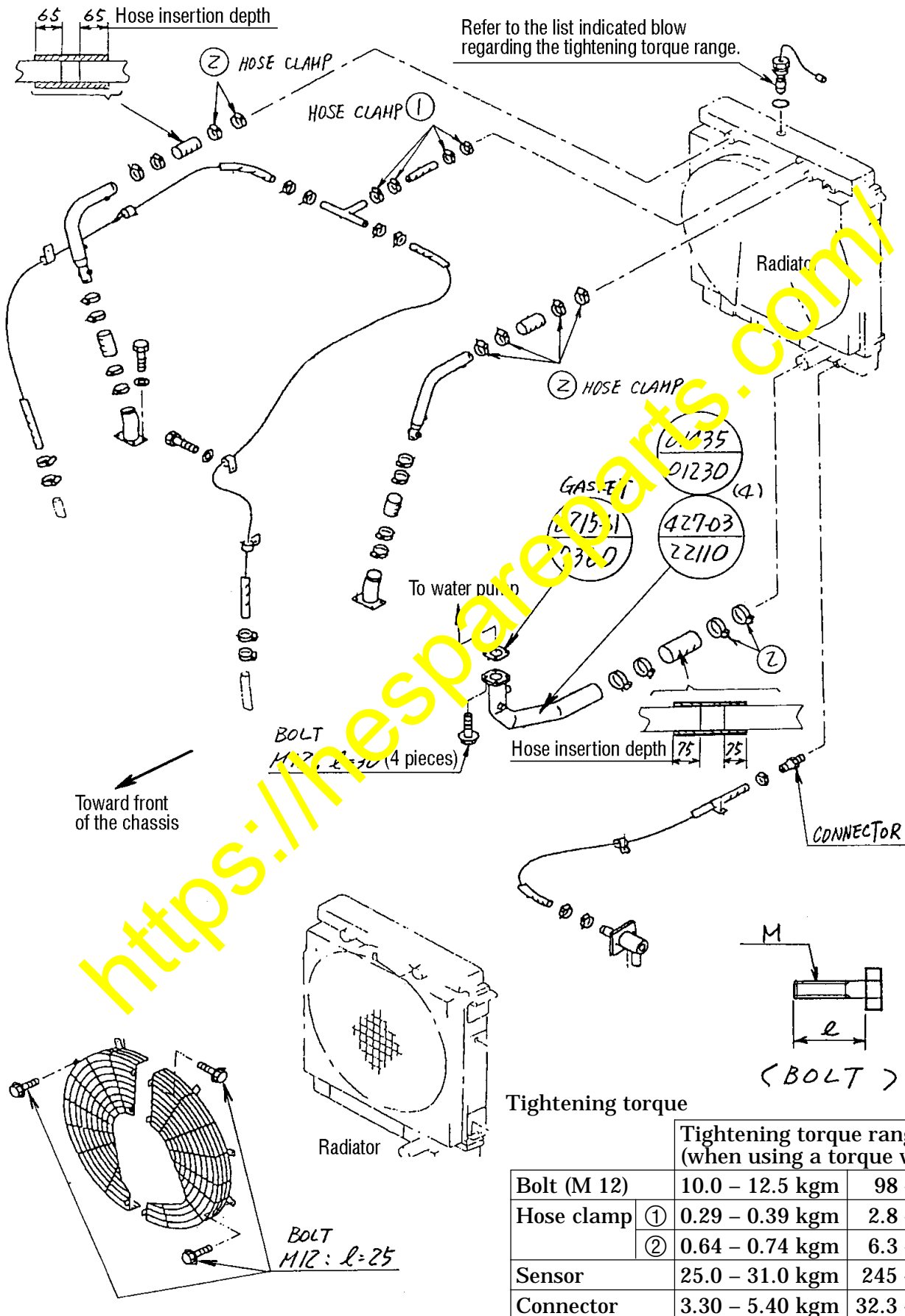
Tightening torque range (when using a torque wrench)		
Bolt (M 20)	50.0 – 62.0 kgm	490 – 608 Nm





c. Installing the radiator accessories and water pipings

- Install the radiator accessories and water pipings reusing the parts removed on the previous pages.



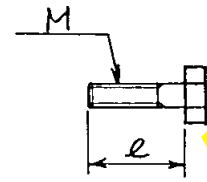
d. Installing the hydraulic oil cooling circuit pipings

Install the hydraulic oil cooling circuit pipings reusing the parts (parts marked ● below) which have been removed on the previous pages.

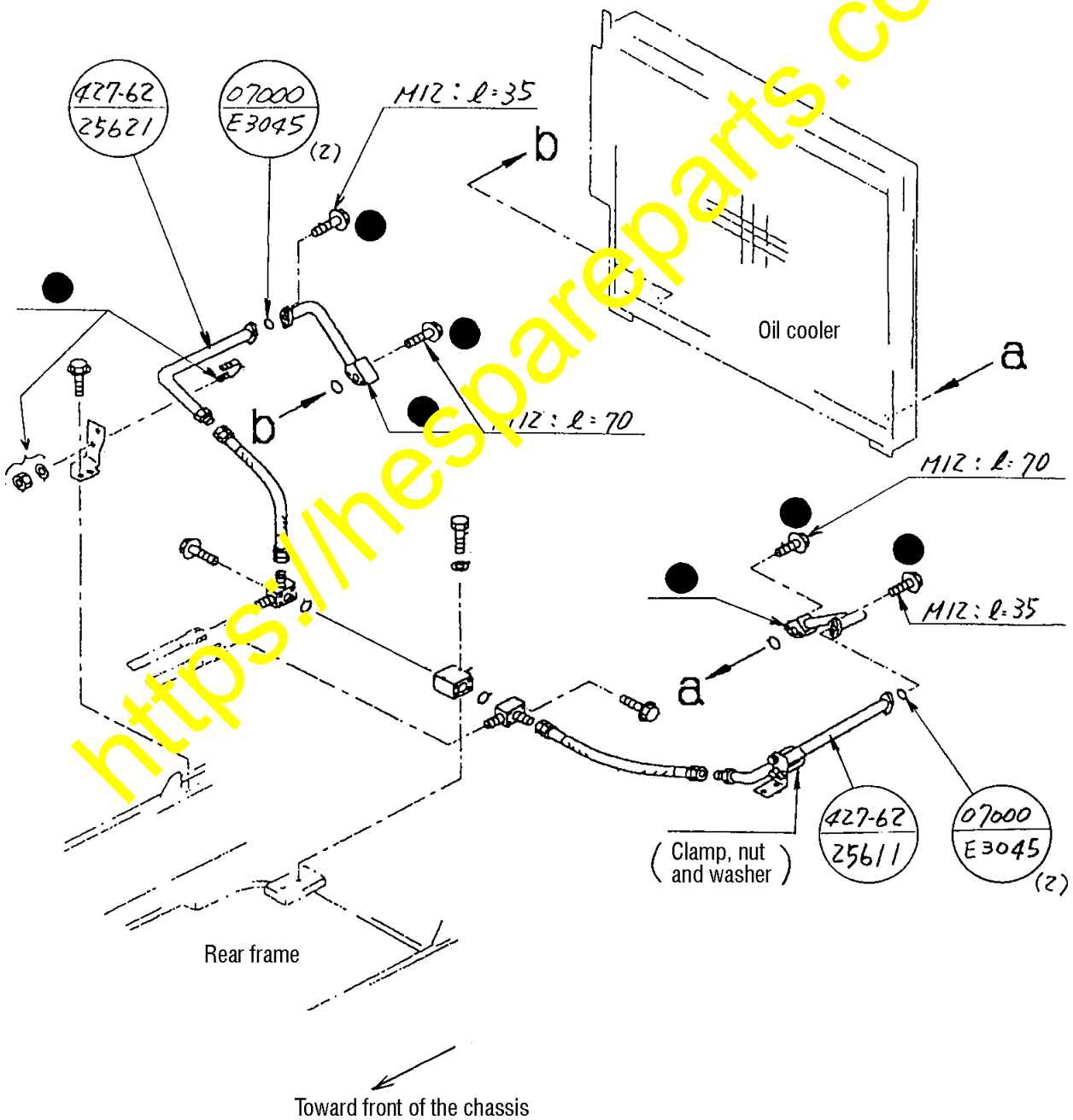
As for the O-ring, use the newly prepared part.

Tightening torque

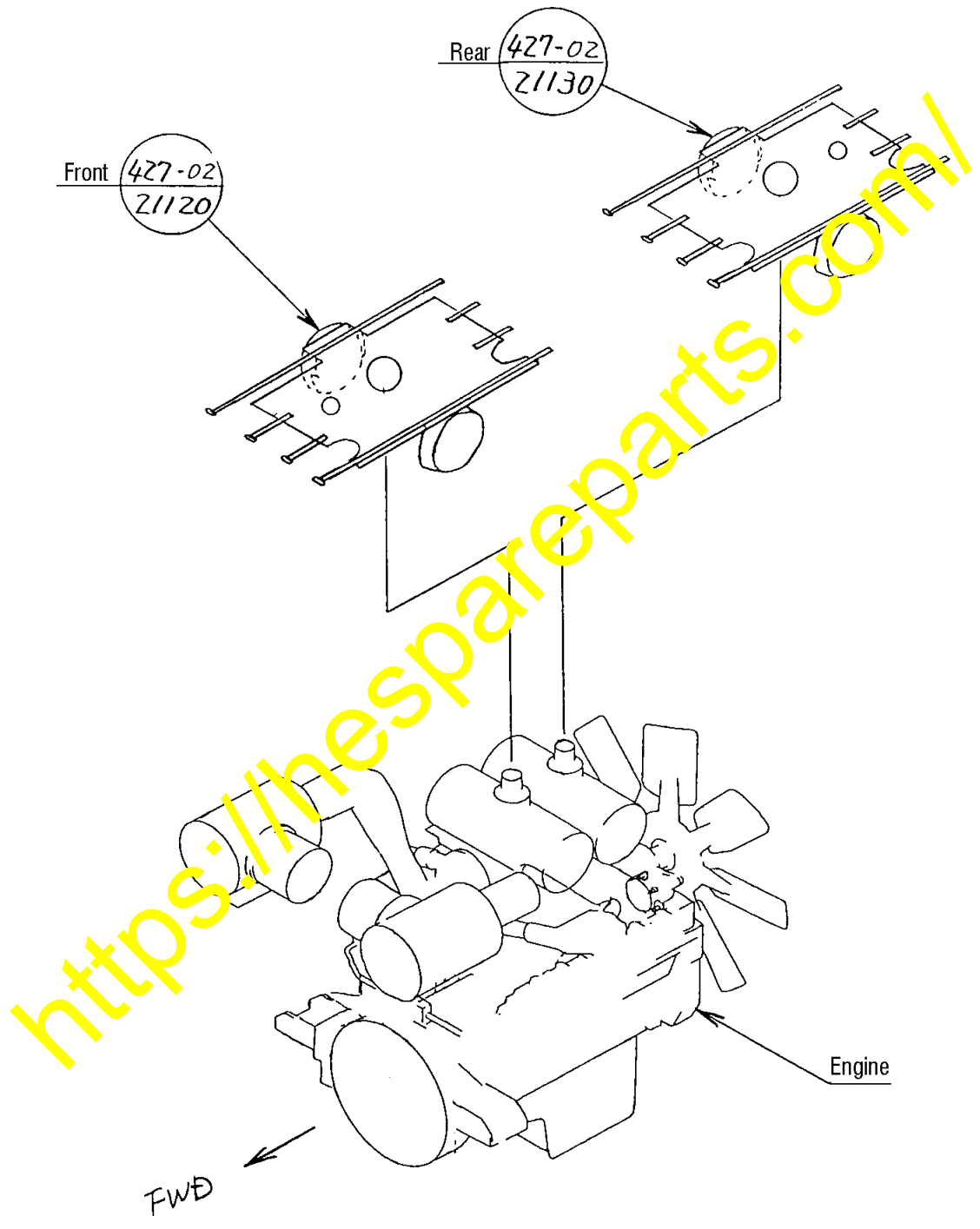
	Tightening torque range (when using a torque wrench)	
Bolt	10.0 – 12.5 kgm	98 – 123 Nm
Hose	25.0 – 35.0 kgm	245.2 – 343.2 Nm
U-clamp	1.10 – 2.70 kgm	10.8 – 26.5 Nm



(BOLT)



- e. Installing the muffler covers  
Install the covers to the mufflers located above the engine.




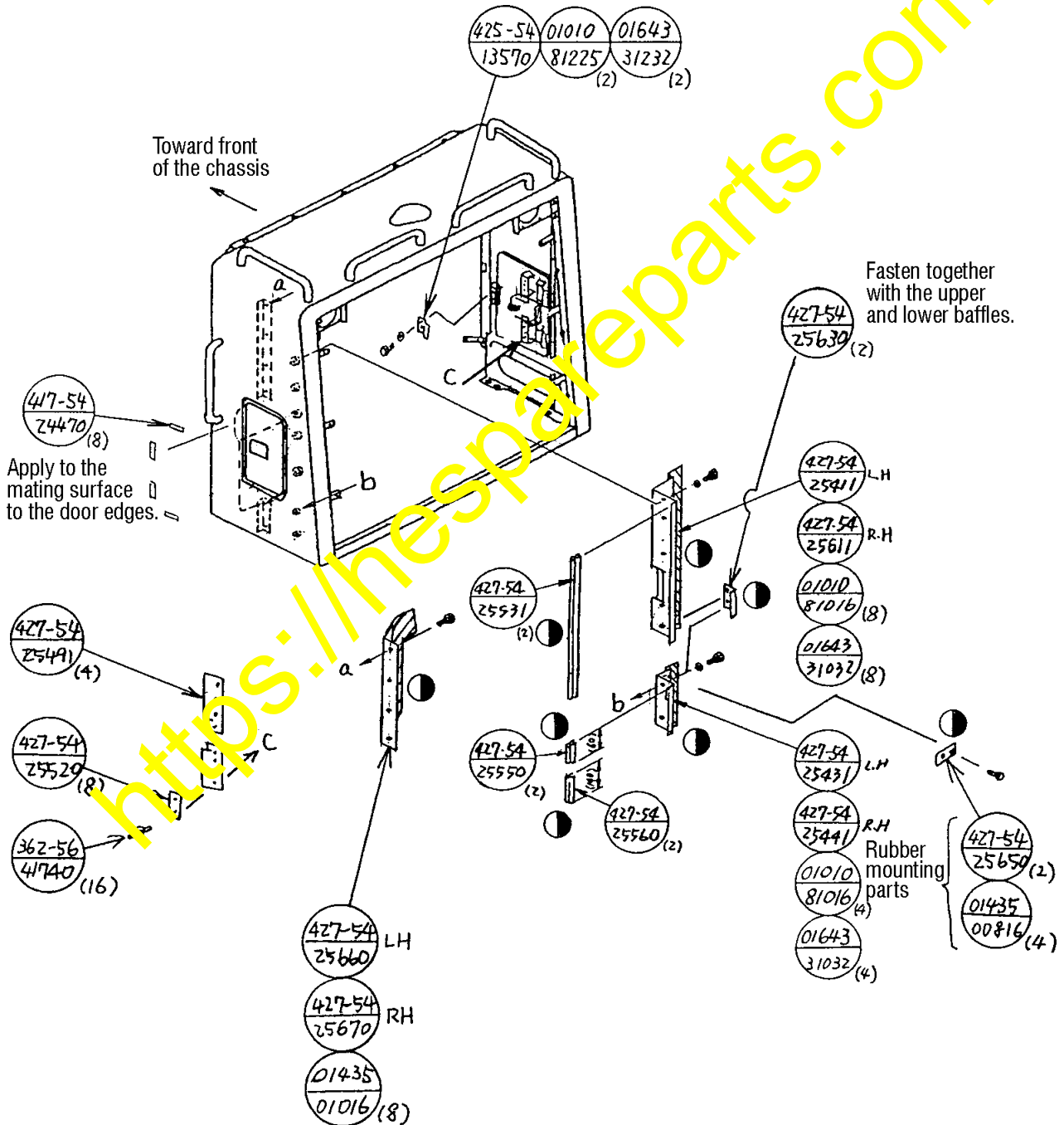
f. Installing the radiator guard baffle plates

- Install the newly prepared parts (baffles and door latch) to the radiator guard.

Tightening torque

	Tightening torque range (when using a torque wrench)	
Bolt (M 10)	6.0 – 7.5 kgm	59 – 74 Nm
Bolt (M 12)	10.0 – 12.5 kgm	98 – 123 Nm

(Note) Install the parts marked  in the schematic diagrams indicated below to the radiator guard.

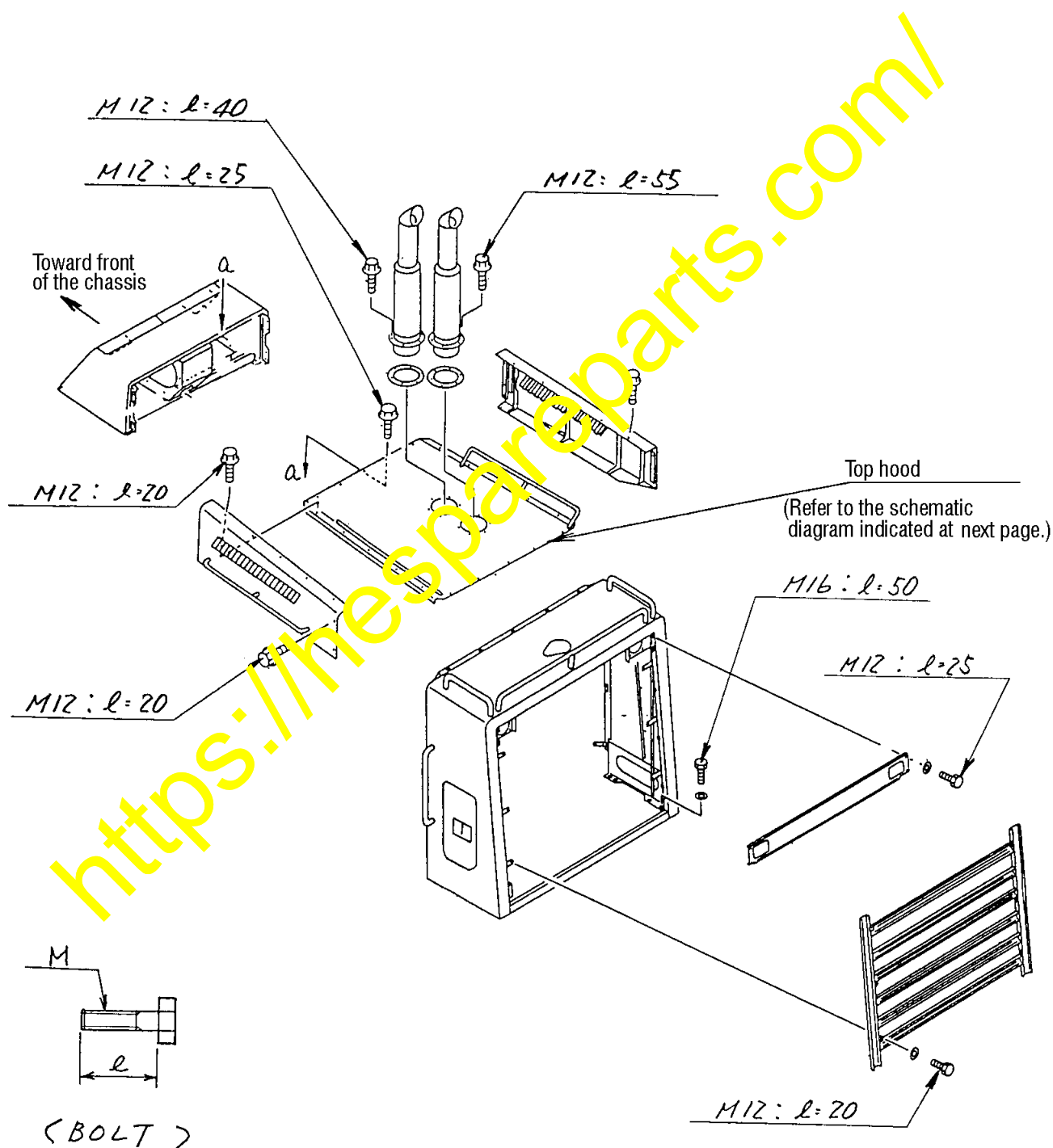


g. Installing the exterior parts

- Install the exterior parts which have been removed on the previous page (P7).

Tightening torque

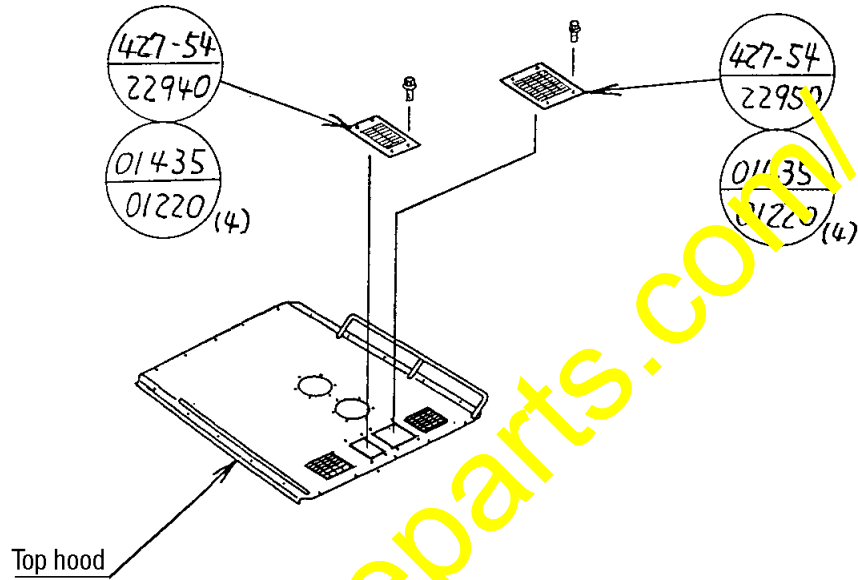
Tightening torque range (when using a torque wrench)		
Bolt (M 12)	10.0 – 12.5 kgm	98 – 123 Nm
Bolt (M 16)	25.0 – 31.5 kgm	245 – 309 Nm



Installing the top hood covers (plates)

Install the top hood cover plates to the top hood which has been reworked according to Section 5-c, fitting to the opened holes.

When opening two holes



When opening four holes

