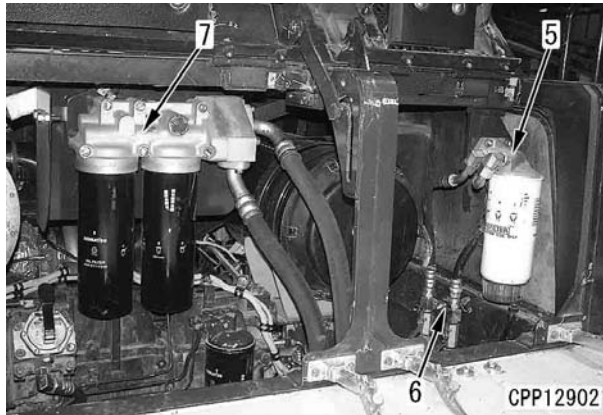
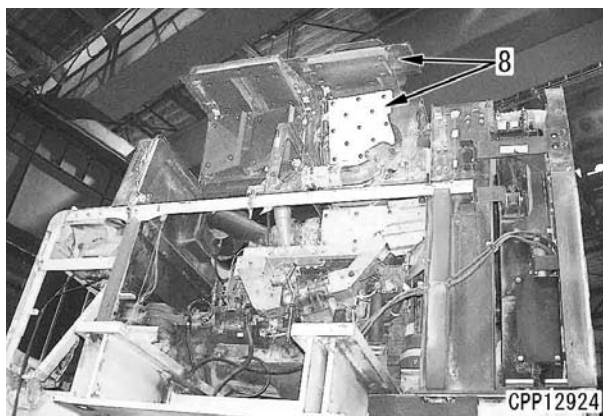


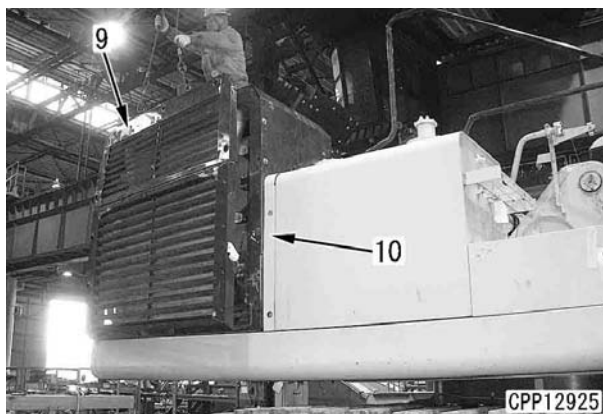
7. Disconnect filter (5).
8. Disconnect clamp (6).
9. Disconnect filter (7).
 - ★ Disconnect the hose clamp.



10. Lift off engine hood (8).

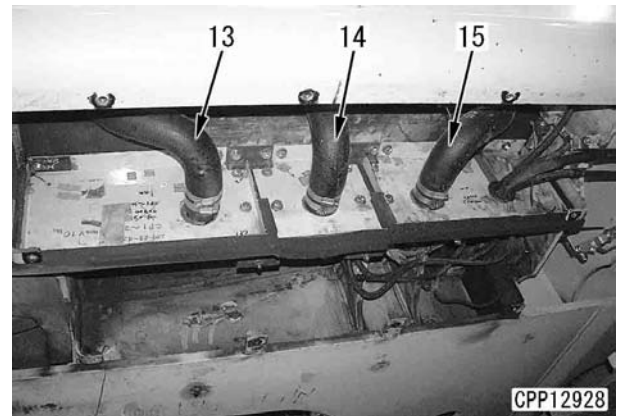


11. Open radiator grille (9) and sling it temporarily.
12. Lift off radiator grille (9).
13. Remove cover (10).



14. Disconnect radiator lower hoses (13) – (15).

[*1]



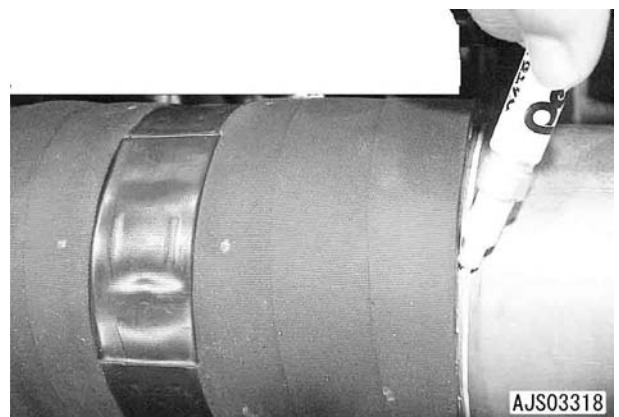
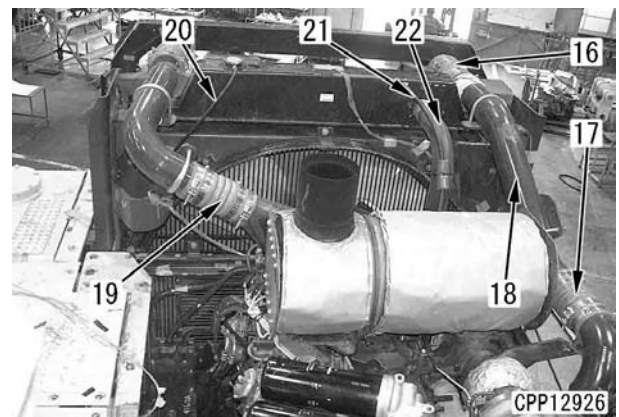
15. Disconnect air hoses (16) and (17). [*2]
 - ★ Make a mark at the hose end of each tube to indicate the connecting position.

16. Remove tube (18).

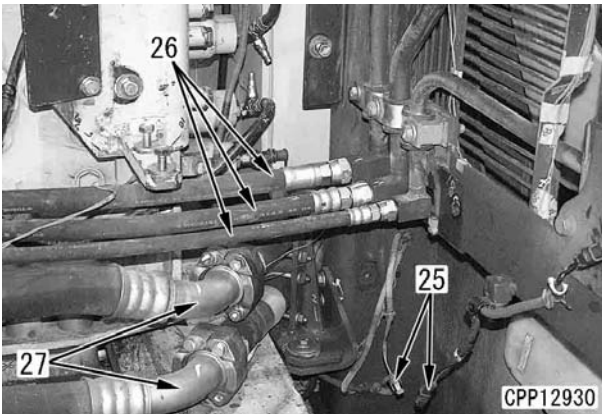
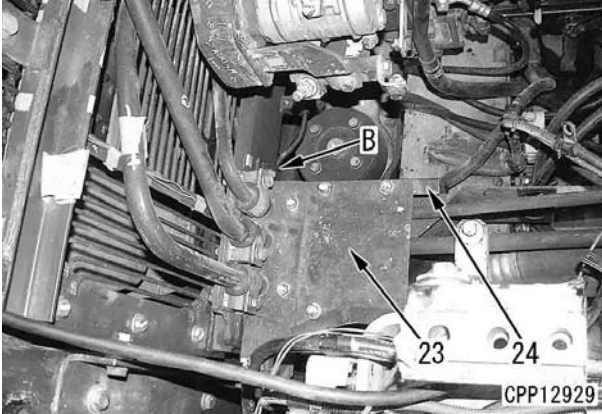
17. Disconnect air hose (19). [*3]
 - ★ Make a mark at the hose end of the tube to indicate the connecting position.

18. Disconnect reservoir tank hose (20).

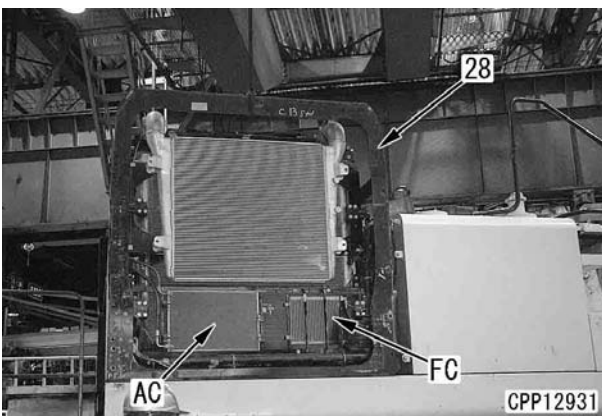
19. Disconnect radiator hoses (21) and (22). [*4]



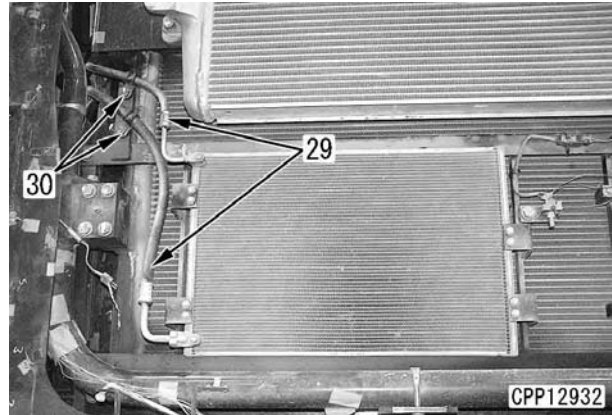
- 20. Remove 3 covers (23) and cover (24).
- 21. Disconnect connector (25) from (B).
- 22. Disconnect 3 hoses (26) and 2 hoses (27).
★ Prepare an oil receiver.



- 23. Lift off frame (28).
★ AC: Air conditioner condenser,
FC: Fuel cooler



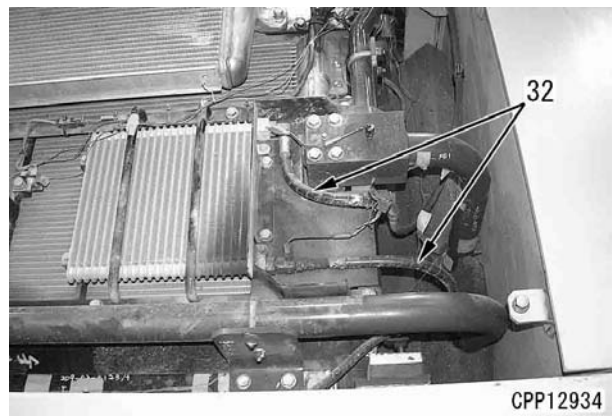
- 24. Disconnect 2 air conditioner hoses (29). [*5]
- 25. Disconnect clamps (30).



- 26. Disconnect clamps (31).

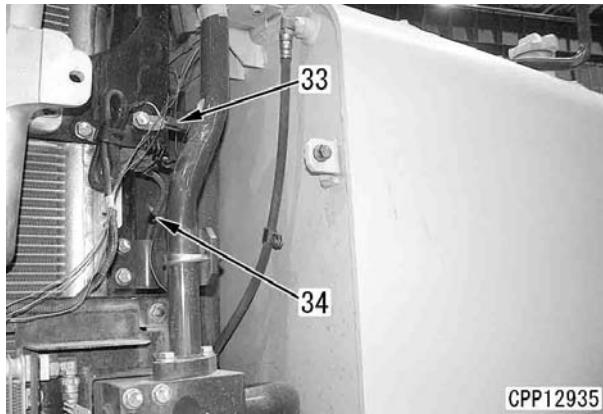


- 27. Disconnect 2 fuel hoses (32).

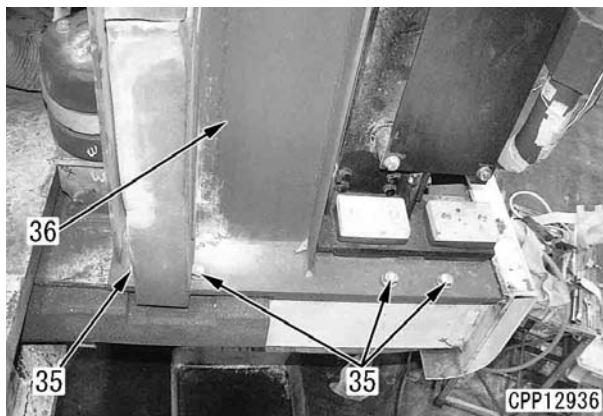


28. Disconnect connector (33).


29. Disconnect clamp (34).

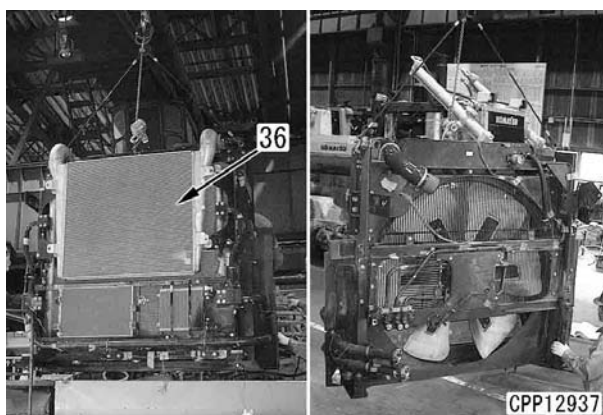


30. Sling cooling assembly (36) temporarily and remove 4 mounting bolts (35) on the right and left sides.



31. Lift off cooling assembly (36).

 Cooling assembly: 1,020 kg



Installation

- Carry out installation in the reverse order to removal.

[*1]

Hose insertion depth: **65 mm**

 Radiator hose clamp:

10.8 – 11.8 Nm {1.1 – 1.2 kgm}


[*2], [*3]

MIKALOR clamp


★ Use a new MIKALOR clamp.

- 1) Set the hose to the original position.
(Insertion depth of air hose: **80 mm**)
- 2) Set the bridge (BR) under the clamp bolt and lap it over band (BD) at least (b) reaches 5 mm.
- 3) Tightening of the clamp.

★ Do not use an impact wrench.

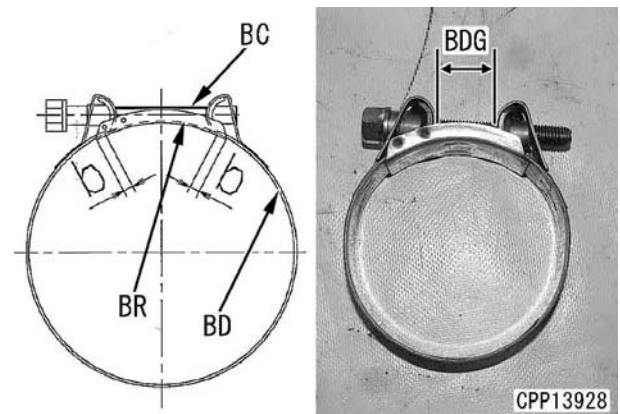
 Clamp bolt (BC): **Lubricating oil (THREE-BOND PANDO 18B)**

- **When reusing the hose**
Install the clamp to the clamp mark made on the hose.

 Clamp bolt (BC):

Min. 6 Nm {0.6 kgm}.

- **When using a new hose**
Tighten until dimension (BDG) is **7 – 10 mm**.



[*4]

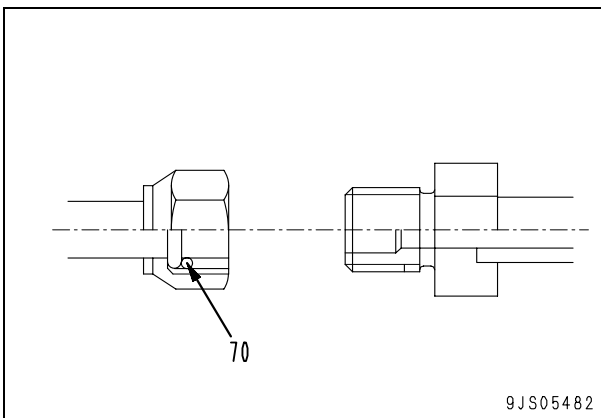
Hose insertion depth: **70 mm**


 Radiator hose clamp:

10.8 – 11.8 Nm {1.1 – 1.2 kgm}

[*5]

- ★ Install each hose so that it will not be twisted.
- ★ When installing the air conditioner hoses, take care that dirt, dust, water, etc. will not enter them.
- ★ When tightening each joint of the air conditioner hose, check that O-ring (70) is fitted to it.
- ★ Apply sufficient amount of compressor oil for **R134a [DENSO: ND-OIL8, ZEXEL: ZXL100PG (equivalent to PAG46)]** to each O-ring.



 Tightening torque for air conditioner refrigerant piping

Thread size	Tightening torque
16 × 1.5	11.8 – 14.7 Nm {1.2 – 1.5 kgm}
22 × 1.5	19.6 – 24.5 Nm {2.0 – 2.5 kgm}
24 × 1.5	29.4 – 34.3 Nm {3.0 – 3.5 kgm}


- **Filling air conditioner circuit with refrigerant (R134a)**

Fill the air conditioner circuit with refrigerant (R134a).

- ★ Quantity: **1,330 ± 50 g**

- **Refilling with compressor oil**

- ★ If any air conditioner hose was replaced, add compressor oil for R134a (DENSO: ND-OIL8, ZEXEL: ZXL100PG (equivalent to PAG46)) to the air conditioner compressor by the following quantity. (If the compressor oil is added too much, the cooling performance lowers. Take care.)

 Air conditioner compressor: **Compressor oil for R134a [DENSO: ND-OIL8, ZEXEL: ZXL100PG (equivalent to PAG46)]**

: 45 ml

(After replacement of hose between compressor and condenser)

: 30 ml

(After replacement of hose between condenser and receiver drier)

: 21 ml

(After replacement of hose between receiver drier and air conditioner unit)

: 80 ml

(After replacement of hose between compressor and air conditioner unit)

- ★ Since the compressor oil for R134a absorbs moisture very easily, put the cap on the oil container to shut off air immediately after supplying the oil.
- ★ The compressor oil for R134a can dissolve acrylic resin and polystyrene. Take care.

- **Refilling with oil**

Add oil through the oil filler to the specified level. Run the engine to circulate the oil through the system. Then, check the oil level again.

 Hydraulic tank: **470 ℓ**

- **Refilling with coolant**

Add coolant through the coolant filler to the specified level. Run the engine to circulate the coolant through the system. Then, check the coolant level again.

 Coolant: **100 ℓ**

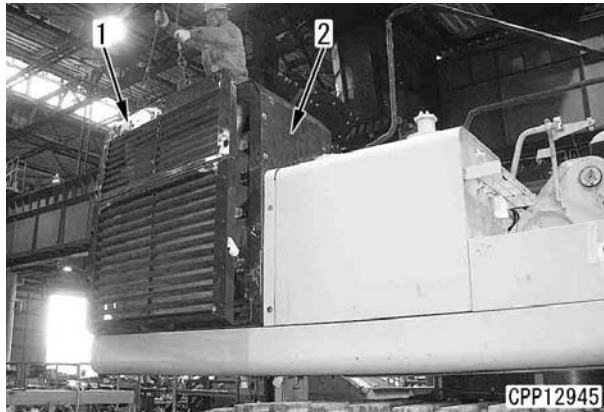
- Bleed air from the fuel system. For details, see Testing and adjusting, "Bleeding air from fuel circuit".

Removal and installation of aftercooler assembly

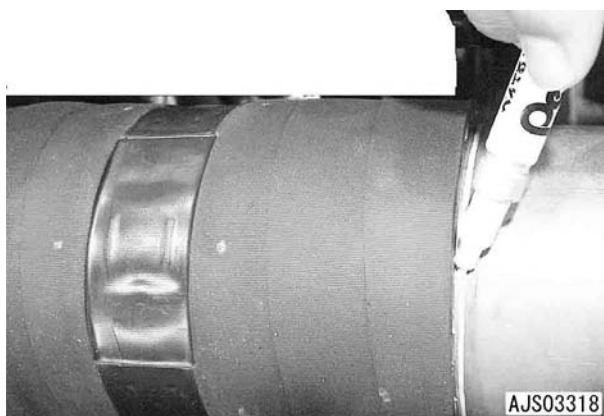
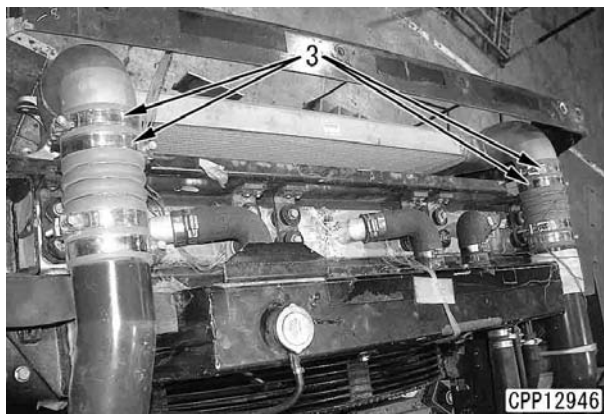
Removal

⚠ Lower the work equipment to the ground and stop the engine.


1. Open radiator grille (1) and lift it off.
2. Remove 3 radiator upper covers (2).

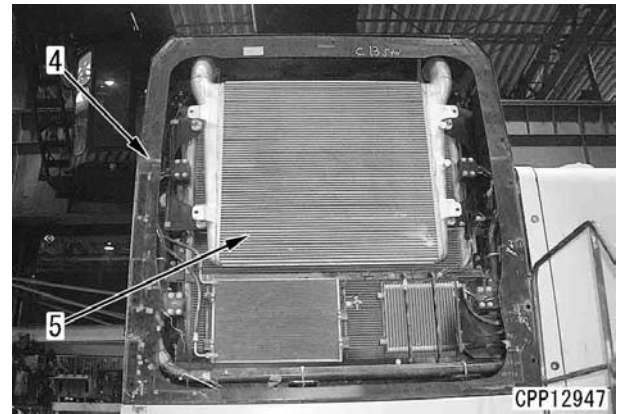


3. Loosen clamps (3) of the rubber hose. [*1]
 ★ Make a mark at the tube of each hose end to indicate the connecting position. (See the following figure.)



4. Lift off frame (4).
5. Sling aftercooler assembly (5) temporarily.
6. Remove the mounting bolts. While disconnecting aftercooler assembly (5) from the rubber hose, lift it off.

 Aftercooler assembly: **45 kg**




Installation


- Carry out installation in the reverse order to removal.

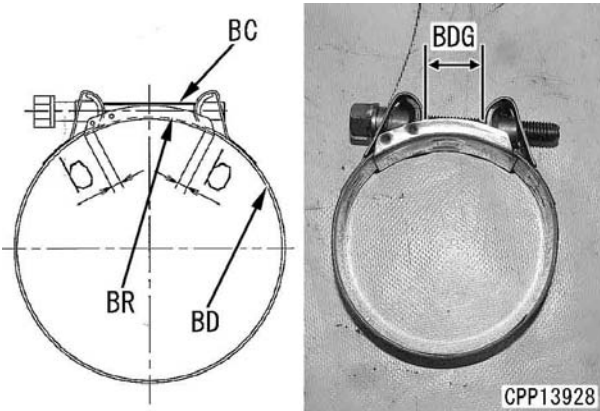
[*1]

MIKALOR clamp

- ★ Use a new MIKALOR clamp.
 - 1) Set the hose to the original position.
(Insertion depth of air hose: **80 mm**)
 - 2) Set the bridge (BR) under the clamp bolt and lap it over band (BD) at least (b) reaches 5 mm.
 - 3) Tightening of the clamp.
- ★ Do not use an impact wrench.

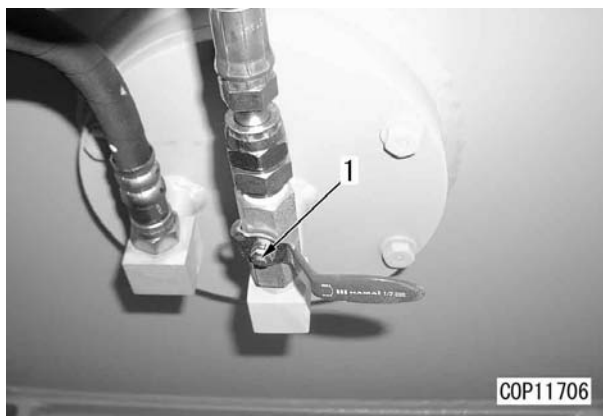
 Clamp bolt (BC): **Lubricating oil (THREEBOND PANDO 18B)**

- **When reusing the hose**
Install the clamp to the clamp mark made on the hose.
 Clamp bolt (BC):
Min. 6 Nm {0.6 kgm}
- **When using a new hose**
Tighten until dimension (BDG) is **7 – 10 mm**.

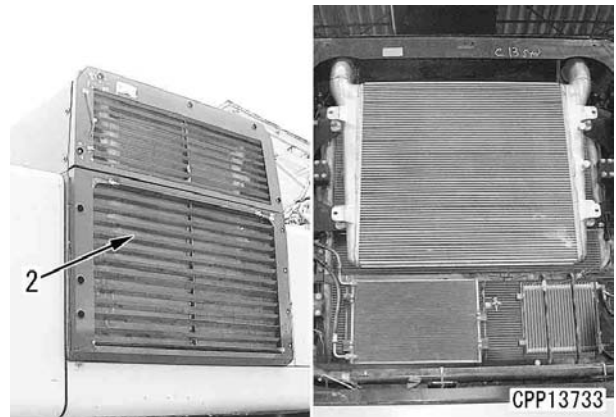


Removal and installation of fuel cooler and air conditioner condenser assembly

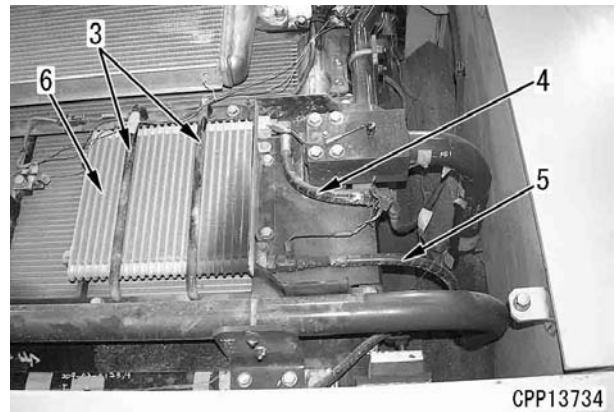
- ⚠ Lower the work equipment to the ground and stop the engine.
 - ⚠ Loosen the cap of the hydraulic tank gradually to release the internal pressure of the hydraulic tank.
 - ⚠ Disconnect the cable from the negative (-) terminal of the battery.
 - ⚠ In the case that you do not drain the coolant, if you disconnect the heater hose when the coolant temperature in the radiator is high, you may be scalded. In this case, wait until the coolant temperature lowers and then disconnect the heater hose.
 - ⚠ Collect the air conditioner refrigerant (R134a) from the air conditioner circuit in advance.
 - ★ Ask professional traders for collecting and filling operation of refrigerant (R134a).
 - ★ Never release the refrigerant (R134a) to the atmosphere.
 - ⚠ If refrigerant gas (R134a) gets in your eyes, you may lose your sight. Accordingly, put on protective goggles while you are collecting the refrigerant (R134a) or filling the air conditioner circuit with the refrigerant (R134a). Collecting and filling work must be conducted by a qualified person.
 - ★ Before disconnecting each hose, mark it with a tag etc. to indicate its position.
 - ★ Install oil stopper plugs to the disconnected tubes and hoses.
1. Close fuel tank valve (1).



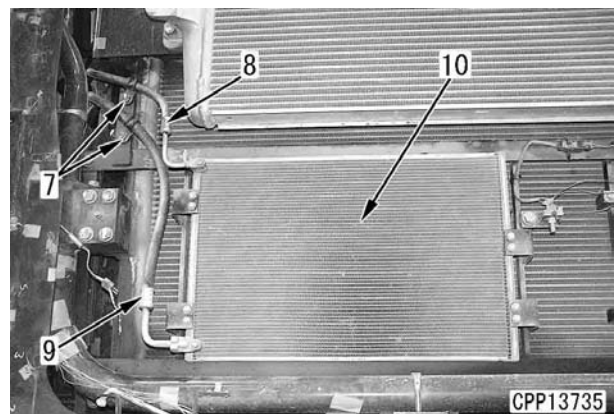
2. Open radiator grille (2).



3. Remove fuel cooler guard (3).
4. Disconnect fuel cooler hoses (4) and (5).
5. Remove fuel cooler (6).



6. Disconnect clamps (7).
7. Disconnect air conditioner condenser hoses (8) and (9). [*1]
8. Remove air conditioner condenser (10).

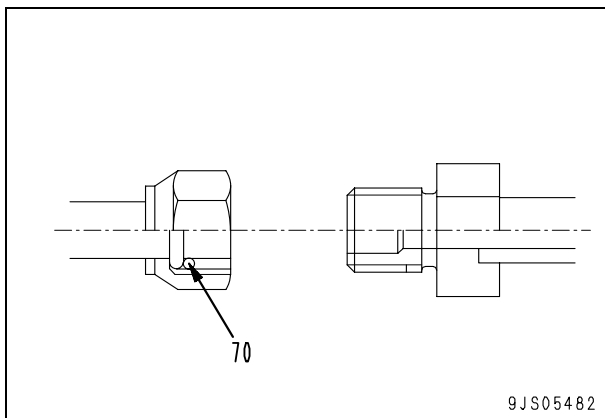



Installation

- Carry out installation in the reverse order to removal.

[*1]

- ★ Install each hose so that it will not be twisted.
- ★ When installing the air conditioner hoses, take care that dirt, dust, water, etc. will not enter them.
- ★ When tightening each joint of the air conditioner hose, check that O-ring (70) is fitted to it.
- ★ Apply sufficient amount of compressor oil for R134a [DENSO: ND-OIL8, ZEXEL: ZXL100PG (equivalent to PAG46)] to each O-ring.



 Tightening torque for air conditioner refrigerant piping

Thread size	Tightening torque
16 × 1.5	11.8 – 14.7 Nm {1.2 – 1.5 kgm}
22 × 1.5	19.6 – 24.5 Nm {2.0 – 2.5 kgm}
24 × 1.5	29.4 – 34.3 Nm {3.0 – 3.5 kgm}


- **Filling air conditioner circuit with refrigerant (R134a)**

Fill the air conditioner circuit with refrigerant (R134a).


- ★ Quantity: 1,330 ± 50 g

- **Refilling with compressor oil**

- ★ If the air conditioner condenser was replaced, add compressor oil for R134a (DENSO: ND-OIL8, ZEXEL: ZXL100PG (equivalent to PAG46)) to the air conditioner compressor by 40 ml. (If the compressor oil is added too much, the cooling performance lowers. Take care.)

 Air conditioner compressor: **Compressor oil for R134a [DENSO: ND-OIL8, ZEXEL: ZXL100PG (equivalent to PAG46), 40 ml]**

- ★ If any air conditioner hose was replaced, add compressor oil for R134a (equivalent to PAG46) (DENSO: ND-OIL8, ZEXEL: ZXL100PG) to the air conditioner compressor by the following quantity. (If the compressor oil is added too much, the cooling performance lowers. Take care.)

 Air conditioner compressor: **Compressor oil for R134a [DENSO: ND-OIL8, ZEXEL: ZXL100PG (equivalent to PAG46)]**

: 45 ml

(After replacement of hose between compressor and condenser)

: 30 ml

(After replacement of hose between condenser and receiver drier)

: 21 ml

(After replacement of hose between receiver drier and air conditioner unit)

: 80 ml

(After replacement of hose between compressor and air conditioner unit)

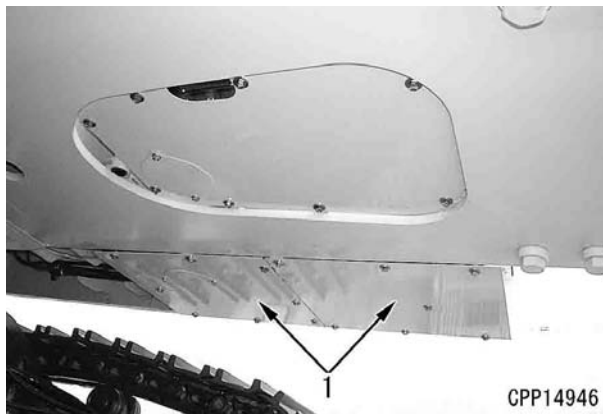
- ★ Since the compressor oil for R134a absorbs moisture very easily, put the cap on the oil container to shut off air immediately after supplying the oil.
- ★ The compressor oil for R134a can dissolve acrylic resin and polystyrene. Take care.

Removal and installation of fan motor assembly

Removal

- ⚠ Lower the work equipment to the ground and stop the engine.
- ⚠ Loosen the cap of the hydraulic tank gradually to release the internal pressure of the hydraulic tank.
- ⚠ Disconnect the cable from the negative (-) terminal of the battery.

1. Remove the counterweight assembly. For details, see "Removal and installation of counterweight assembly".
2. Remove undercover (1).



3. Remove undercover (2).



4. Remove the hydraulic tank strainer and stop the oil with oil stopper tool **S1**.
 - ★ When not using tool **S1**, remove the drain plug and drain the oil.

🛢 Hydraulic tank: 470 ℓ

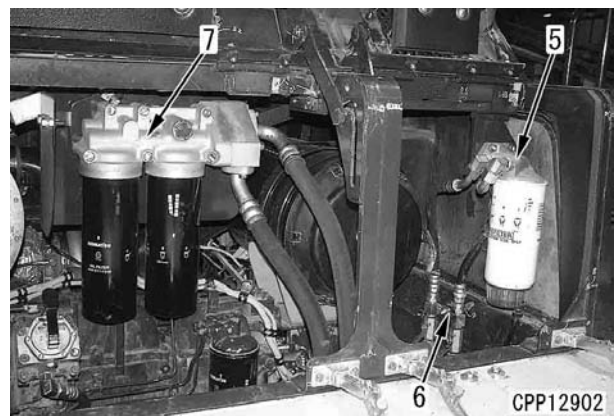
5. Drain the coolant.

🛢 Coolant: 100 ℓ

6. Remove 3 covers (3).
 - ★ Remove the rear side, too.
7. Open engine hood (4).
 - ★ Open the rear side, too.



8. Disconnect filter (5).
9. Disconnect clamp (6).
10. Disconnect filter (7).
 - ★ Disconnect the hose clamp.



11. Lift off engine hood (8).

