

SHOP MANUAL

KOMATSU

**PC200-6
PC200LC-6
PC210LC-6
PC220LC-6
PC250LC-6
EXCAVATOR**

MACHINE MODEL	SERIAL NUMBERS
PC200-6	A80001 and up
PC200LC-6	A80001 and up
PC210LC-6	A80001 and up
PC220LC-6	A80001 and up
PC250LC-6	A80001 and up

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Due to this continuous program of research and development, periodic revisions may be made to this publication. It is recommended that customers contact their distributor for information on the latest revision.



CONTENTS

01	GENERAL	01-1
10	STRUCTURE AND FUNCTION	10-1
20	TESTING AND ADJUSTMENT	20-1
30	DISASSEMBLY AND ASSEMBLY	30-1
40	MAINTENANCE STANDARD	40-1



IMPORTANT SAFETY NOTICE

Proper service and repair is extremely important for the safe operation of your machine. The service and repair techniques recommended and described in this manual are both effective and safe methods of operation. Some of these operations require the use of tools specially designed for the purpose.

To prevent injury to workers, the symbols  and  are used to mark safety precautions in this manual. The cautions accompanying these symbols should always be followed carefully. If any dangerous situation arises or may possibly arise, first consider safety, and take the necessary actions to deal with the situation.



SAFETY

GENERAL PRECAUTIONS

Mistakes in operation are extremely dangerous. Read the Operator's Manual carefully BEFORE operating the machine.

1. Before carrying out any greasing or repairs, read all the precautions given on the decals which are fixed to the machine.
2. When carrying out any operation, always wear safety shoes and helmet. Do not wear loose work clothes, or clothes with buttons missing.
 - Always wear safety glasses when hitting parts with a hammer.
 - Always wear safety glasses when grinding parts with a grinder, etc.
3. If welding repairs are needed, always have a trained, experienced welder carry out the work. When carrying out welding work, always wear welding gloves, apron, glasses, cap and other clothes suited for welding work.
4. When carrying out any operation with two or more workers, always agree on the operating procedure before starting. Always inform your fellow workers before starting any step of the operation. Before starting work, hang UNDER REPAIR signs on the controls in the operator's compartment.
5. Keep all tools in good condition and learn the correct way to use them.
6. Decide a place in the repair workshop to keep tools and removed parts. Always keep the tools and parts in their correct places. Always keep the work area clean and make sure that there is no dirt or oil on the floor. Smoke only in the areas provided for smoking. Never smoke while working.

PREPARATIONS FOR WORK

7. Before adding oil or making repairs, park the machine on hard, level ground, and block the wheels or tracks to prevent the machine from moving.
8. Before starting work, lower blade, ripper, bucket or any other work equipment to the ground. If this is not possible, insert the safety pin or use blocks to prevent the work equipment from falling. In addition, be sure to lock all the control levers and hang warning signs on them.
9. When disassembling or assembling, support the machine with blocks, jacks or stands before starting work.
10. Remove all mud and oil from the steps or other places used to get on and off the machine. Always use the handrails, ladders or steps when getting on or off the machine. Never jump on or off the machine. If it is impossible to use the handrails, ladders or steps, use a stand to provide safe footing.

PRECAUTIONS DURING WORK

11. When removing the oil filler cap, drain plug or hydraulic pressure measuring plugs, loosen them slowly to prevent the oil from spurt- ing out.
Before disconnecting or removing compo- nents of the oil, water or air circuits, first remove the pressure completely from the circuit.
12. The water and oil in the circuits are hot when the engine is stopped, so be careful not to get burned.
Wait for the oil and water to cool before carrying out any work on the oil or water circuits.
13. Before starting work, remove the leads from the battery. Always remove the lead from the negative (-) terminal first.
14. When raising heavy components, use a hoist or crane.
Check that the wire rope, chains and hooks are free from damage.
Always use lifting equipment which has ample capacity.
Install the lifting equipment at the correct places. Use a hoist or crane and operate slowly to prevent the component from hitting any other part. Do not work with any part still raised by the hoist or crane.
15. When removing covers which are under inter- nal pressure or under pressure from a spring, always leave two bolts in position on oppo- site sides. Slowly release the pressure, then slowly loosen the bolts to remove.
16. When removing components, be careful not to break or damage the wiring. Damaged wiring may cause electrical fires.
17. When removing piping, stop the fuel or oil from spilling out. If any fuel or oil drips on to the floor, wipe it up immediately. Fuel or oil on the floor can cause you to slip, or can even start fires.
18. As a general rule, do not use gasoline to wash parts. In particular, use only the mini- mum of gasoline when washing electrical parts.
19. Be sure to assemble all parts again in their original places.
Replace any damaged part with new parts.
 - When installing hoses and wires, be sure that they will not be damaged by contact with other parts when the machine is being operated.
20. When installing high pressure hoses, make sure that they are not twisted. Damaged tubes are dangerous, so be extremely careful when installing tubes for high pressure cir- cuits. Also check that connecting parts are correctly installed.
21. When assembling or installing parts, always use the specified tightening torques. When installing protective parts such as guards, or parts which vibrate violently or rotate at high speed, be particularly careful to check that they are installed correctly.
22. When aligning two holes, never insert your fingers or hand. Be careful not to get your fingers caught in a hole.
23. When measuring hydraulic pressure, check that the measuring tool is correctly assem- bled before taking any measurements.
24. Take care when removing or installing the tracks of track-type machines.
When removing the track, the track separates suddenly, so never let anyone stand at either end of the track.

FOREWORD

This shop manual has been prepared as an aid to improve the quality of repairs by giving the serviceman an accurate understanding of the product and by showing him the correct way to perform repairs and make judgements. Make sure you understand the contents of this manual and use it to full effect at every opportunity.

This shop manual mainly contains the necessary technical information for operations performed in a service workshop.

For ease of understanding, the manual is divided into the following sections. These sections are further divided into each main group of components.

STRUCTURE AND FUNCTION

This section explains the structure and function of each component. It serves not only to give an understanding of the structure, but also serves as reference material for troubleshooting.

TESTING AND ADJUSTING

This section explains checks to be made before and after performing repairs, as well as adjustments to be made at completion of the checks and repairs.

Troubleshooting charts correlating "Problems" to "Causes" are also included in this section.

DISASSEMBLY AND ASSEMBLY

This section explains the order to be followed when removing, installing, disassembling or assembling each component, as well as precautions to be taken for these operations.

MAINTENANCE STANDARD

This section gives the judgement standards when inspecting disassembled parts.

NOTICE

The specifications contained in this shop manual are subject to change at any time and without any advance notice. Contact your distributor for the latest information.

HOW TO READ THE SHOP MANUAL

VOLUMES

Shop manuals are issued as a guide to carrying out repairs. They are two manuals for each machine, **Chassis volume** and **Engine volume**.

These volumes are designed to avoid duplication of information. Therefore to deal with all repairs for any model, both chassis and engine volumes are needed.

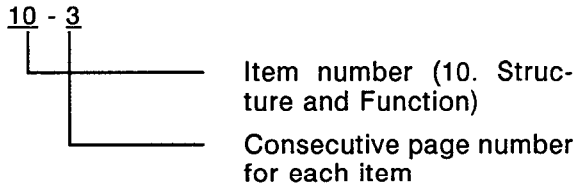
DISTRIBUTION AND UPDATING

Any additions, amendments or other changes will be sent to your distributors. Get the most up-to-date information before you start any work.

FILING METHOD

1. See the page number on the bottom of the page.
File the pages in correct order.
2. Following examples show how to read the page number:

Example 1 (Chassis volume):



Example 2 (Engine volume):
Refer to the pertinent engine manual.

3. Additional pages: Additional pages are indicated by a hyphen (-) and numbered after the page number. File as in the example.

Example:
20-4
20-4-1 Added pages
20-4-2
20-5

REVISED EDITION MARK (① ② ③)

When a manual is revised, an edition mark is recorded on the bottom outside corner of the pages.

REVISIONS

Revised pages are shown at the LIST OF REVISED PAGES between the title page and SAFETY page.

SYMBOLS

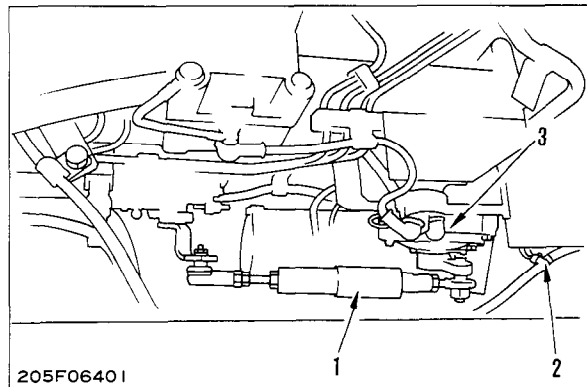
So that the shop manual can be of ample practical use, important places for safety and quality are marked with the following symbols.

Symbol	Item	Remarks
	Safety	Special safety precautions are necessary when performing the work
		Extra special safety precautions are necessary when performing the work because it is under internal pressure.
	Caution	Special technical precautions or other precautions for preserving standards are necessary when performing the work.
	Weight	Weight of parts or systems. Caution necessary when selecting hoisting wire or when working posture is important, etc.
	Tightening torque	Places that require special attention for tightening torque during assembly.
	Coat	Places to be coated with adhesives and lubricants etc.
	Oil, water	Places where oil, water or fuel must be added, and the capacity.
	Drain	Places where oil or water must be drained, and quantity to be drained.

REMOVAL OF STARTING MOTOR ASSEMBLY

⚠ Disconnect the cable from the negative (–) terminal of the battery.

1. Open engine hood and disconnect 2 governor motor wiring connectors (1).
2. Disconnect governor motor rod (2).
3. Remove governor motor assembly (3).
4. Remove starting motor wiring (4) and connector (5).
5. Remove starting motor assembly (6).



INSTALLATION OF STARTING MOTOR ASSEMBLY

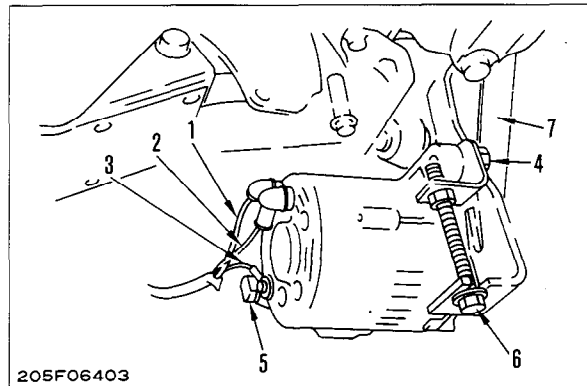
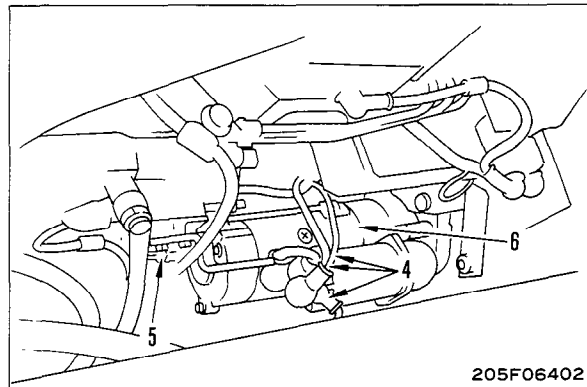
- Carry out installation in the reverse order to removal.

REMOVAL OF ALTERNATOR ASSEMBLY

⚠ Disconnect the cable from the negative (–) terminal of the battery.

1. Open engine hood, and disconnect alternator wiring (1), (2), and (3).
2. Loosen adjustment plate mounting bolt (4) and mount bolt (5).
3. Loosen tension adjustment bolt (6), and remove belt (7).
4. Remove adjustment plate mounting bolt (4) and mount bolt (5), then remove alternator assembly (8).

※ 1




INSTALLATION OF ALTERNATOR ASSEMBLY


- Carry out installation in the reverse order to removal.

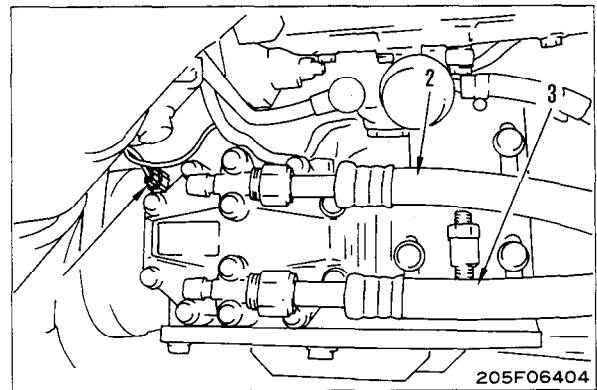
※ 1

- ★ Adjust the belt tension. For details, see TESTING AND ADJUSTING, Testing and adjusting of fan belt tension.

REMOVAL OF AIR CONDITIONER COMPRESSOR ASSEMBLY

 Loosen the sleeve nut of the air conditioner hose, and release the refrigerant (R-134a) slowly.

1. Disconnect connector (1).
2. Disconnect hoses (2) and (3).
3. Loosen 3 slide plate mounting bolts (4).
4. Loosen locknut, turn adjustment bolt (5) to loosen belt tension, then move air conditioner compressor towards engine and remove belt (6).
5. Remove mounting bolt (7), then remove air conditioner compressor (8). 



INSTALLATION OF AIR CONDITIONER COMPRESSOR ASSEMBLY

- Carry out installation in the reverse order to removal.

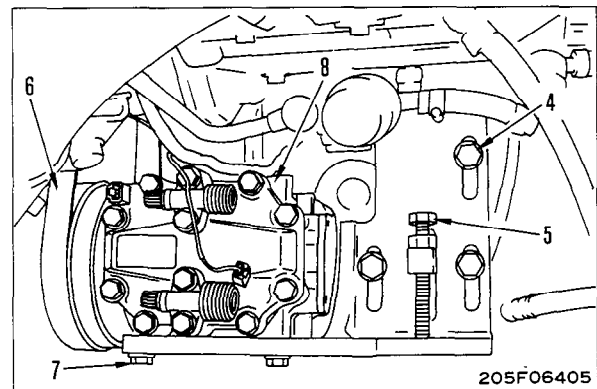
 1

- ★ When installing the hoses, check that the O-ring is not damaged or deteriorated, then connect the hoses.

 2

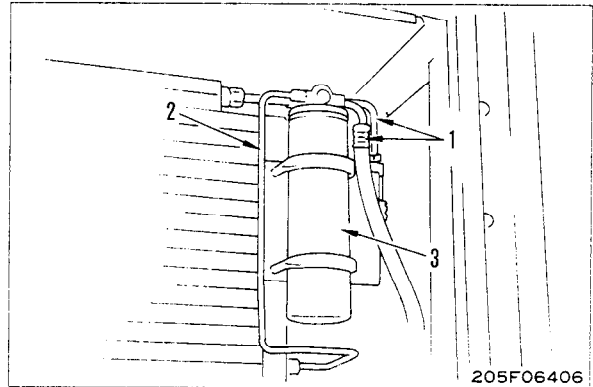
- ★ Adjust the belt tension. For details, see TESTING AND ADJUSTING, Testing and adjusting belt tension for air conditioner compressor.

- Fill with refrigerant (R-134a).



REMOVAL OF CONDENSER ASSEMBLY

1. Open engine hood, then open left side cover and condenser top cover.
2. Disconnect air conditioner hoses (1) and disconnect tube (2) at condenser end. ※ 1
 - ★ Loosen the sleeve nut slightly and release the refrigerant (R-134a) completely before disconnecting hoses (1) and tube (2).
 - ★ Fit blind plugs into the hoses and tubes to prevent the entry of moisture, dust or dirt.
3. Remove evaporator (3).
4. Remove condenser assembly (4).

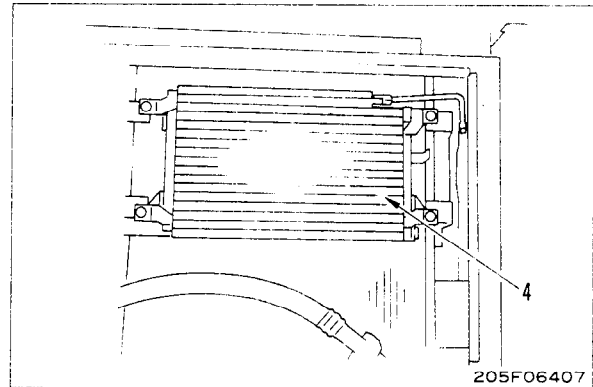


INSTALLATION OF CONDENSER ASSEMBLY

- Carry out installation in the reverse order to removal.

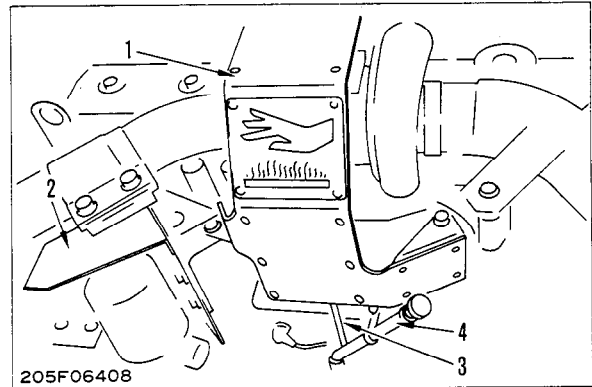
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- ★ Check that the O-ring is not damaged or deteriorated, then connect the hoses.
- Fill with refrigerant (R-134a).



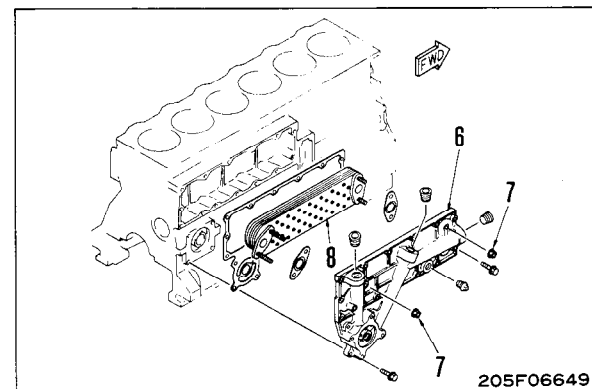
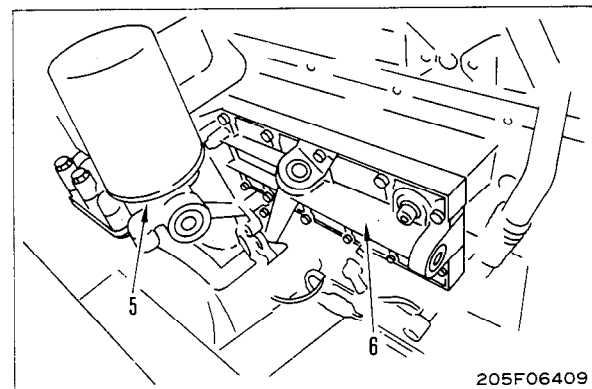
REMOVAL OF ENGINE OIL COOLER CORE ASSEMBLY

1. Open engine hood and remove turbocharger heat insulation cover (1) and oil filter heat insulation cover (2).
2. Disconnect turbocharger lubrication inlet tube (3) and oil level detection pipe (4).
3. Remove oil filter and head assembly (5).
4. Remove oil cooler and cover assembly (6).
5. Remove nut (7) from oil cooler and cover assembly, then remove cooler core (8).



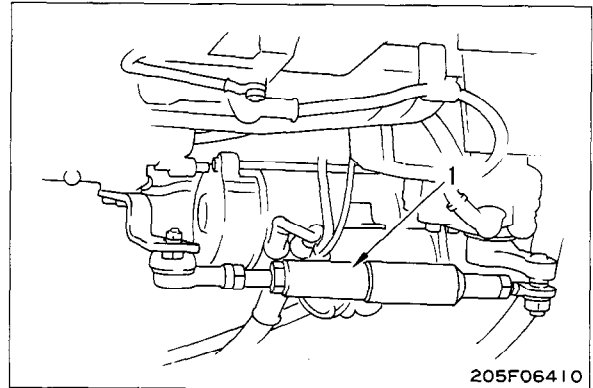
INSTALLATION OF ENGINE OIL COOLER CORE ASSEMBLY

- Carry out installation in the reverse order to removal.



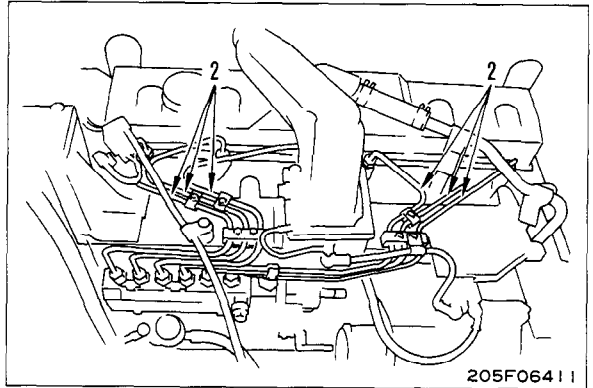
REMOVAL OF FUEL INJECTION PUMP ASSEMBLY

1. Open engine hood and disconnect governor motor rod (1). ※ 1
 - ★ Rotate the shaft of the governor motor and do not stop it suddenly.
 - ★ Always disconnect governor motor connector CN-E5 before disconnecting the rod.

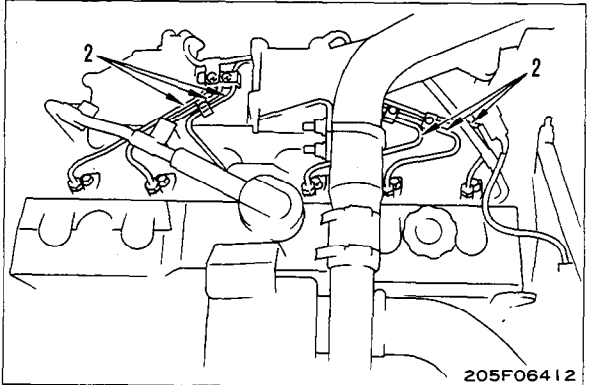


PC200-6, PC210-6

2. Disconnect 6 delivery tubes (2). ※ 2

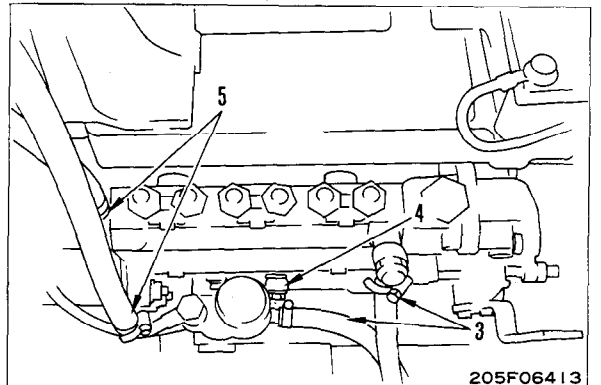


PC220-6, PC250-6

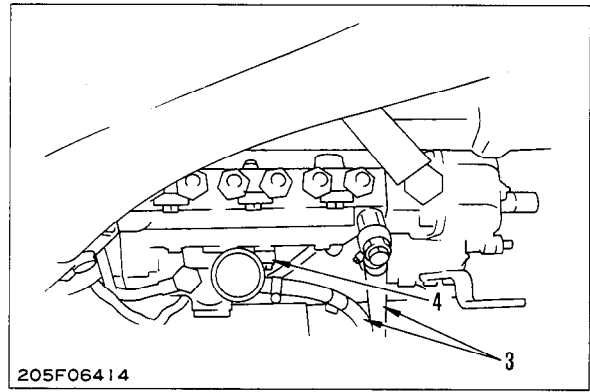


PC200-6, PC210-6

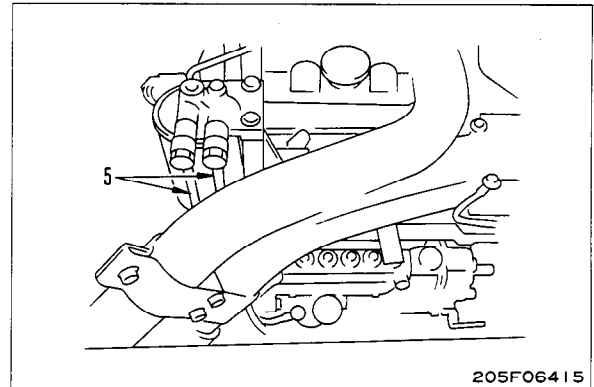
3. Remove fuel hoses (3) and lubrication tube (4).
4. Remove 2 hoses (5) between fuel filter and injection pump.



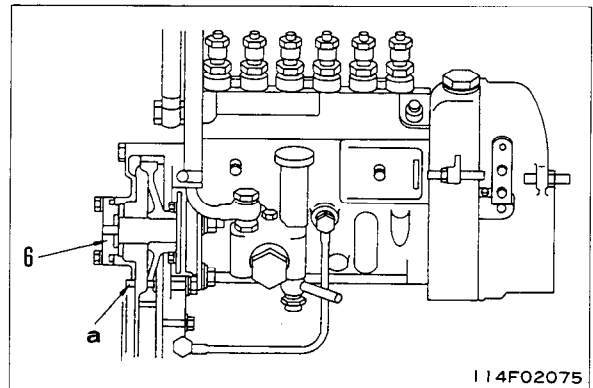
PC220-6, PC250-6



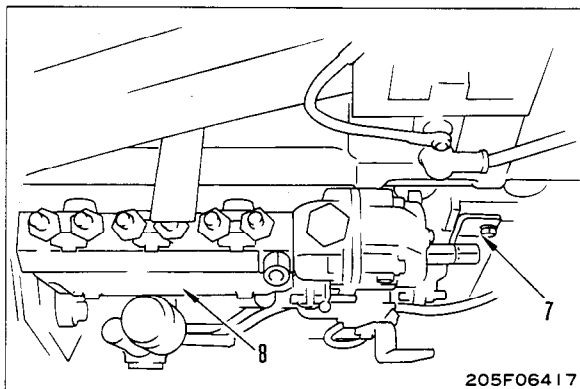
PC220-6, PC250-6



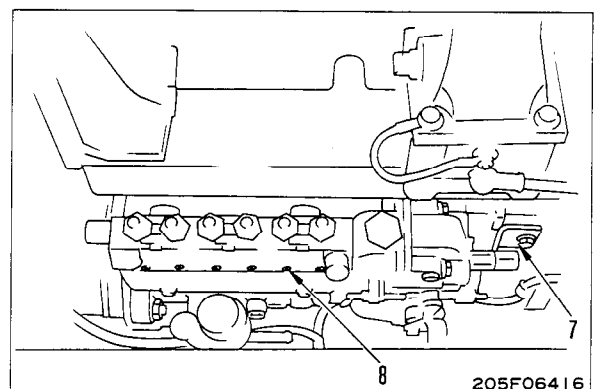
5. Remove cover (6), and crank to a position where pin ① (ϕ 4.0 – 4.5 mm, length = approx. 100mm) enters injection pump drive gear from portion a.
6. Remove rear bracket (7), then remove fuel injection pump assembly (8). ※ 3



PC220-6, PC250-6



PC200-6, PC210-6



INSTALLATION OF FUEL INJECTION PUMP ASSEMBLY

- Carry out installation in the reverse order to removal.

※ 1

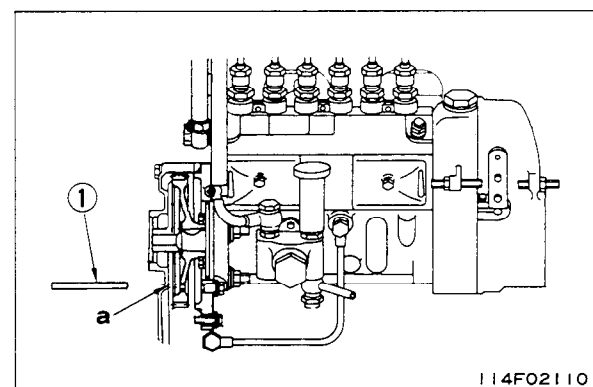
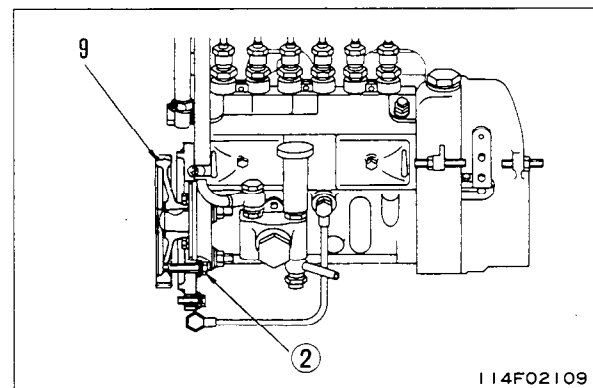
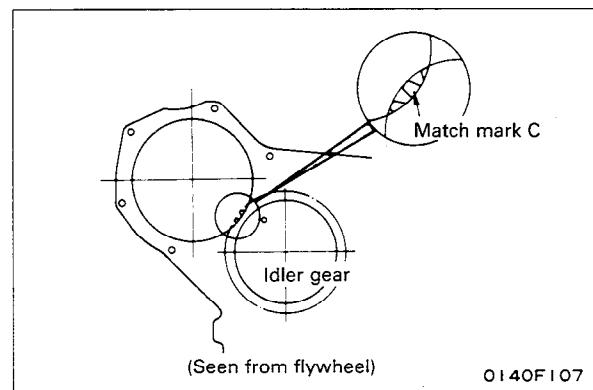
- ★ Adjust the governor motor rod. For details, see TESTING AND ADJUSTING, Adjusting governor motor lever stroke.

※ 2

- ⌚ **kgm** Fuel injection pump sleeve nut:
23.5 ± 1.0 Nm (2.4 ± 0.1 kgm)

※ 3

- Install the fuel injection pump as follows.
 - 1) Set No. 1 cylinder at compression top dead center.
 - ★ Rotate the crankshaft in the normal direction and align the pointer with the 1-6TOP line on the crankshaft pulley. If no match mark can be seen on the idler gear, rotate the crankshaft one more turn.
 - 2) Replace the normal bolt with bolt ②, and lock drive gear (9) in position.
 - 3) Fuel injection pump assembly
 - ★ Insert pin ① (φ 4.0 – 4.5 mm, length = approx. 100mm) through cover mounting bolt hole a, and check that the pin enters the casting hole in the drive gear smoothly.
 - 4) Remove bolt ② and tighten the normal bolt again.
- ★ Adjust the injection timing and bleed the air from the fuel system. For details, see TESTING AND ADJUSTING.



REMOVAL OF WATER PUMP ASSEMBLY

- Drain engine coolant.
- 1. Open engine hood, disconnect heater hose (1) and radiator upper hose (2), then remove fan guard (3).
- 2. Loosen adjustment bolt and mount bolt of alternator assembly (4), and remove belt (5) from water pump pulley. ※ 1
- 3. Disconnect radiator lower hose (6) and coolant temperature sensor connector (7).
- 4. Remove water pump assembly (8).

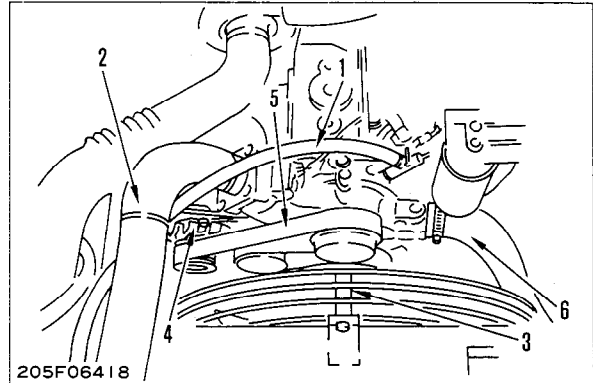
INSTALLATION OF WATER PUMP ASSEMBLY

- Carry out installation in the reverse order to removal.
- Refilling with water
 - ★ Add water through the water filler to the specified level. Run the engine to circulate the water through the system. Then check the water level again.

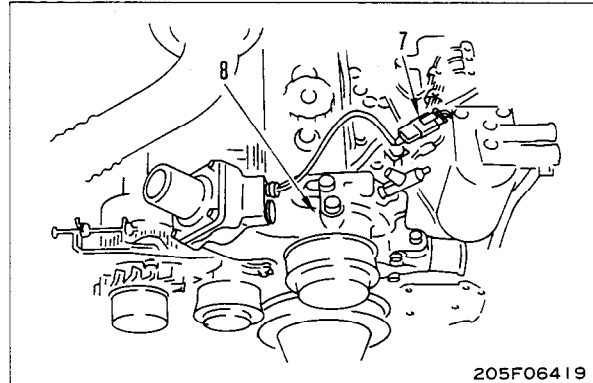
※ 1

- ★ Adjust the belt tension. For details, see TESTING AND ADJUSTING, Testing and adjusting of fan belt tension.

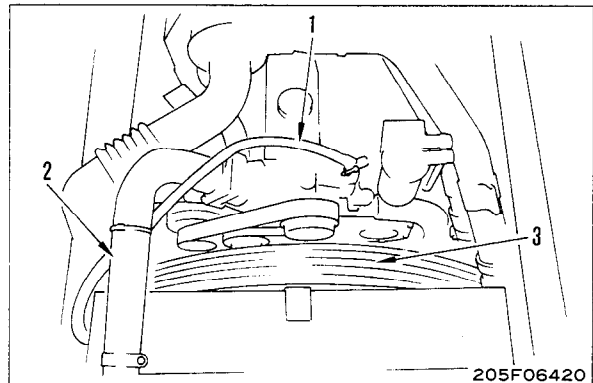
PC200-6, PC210-6



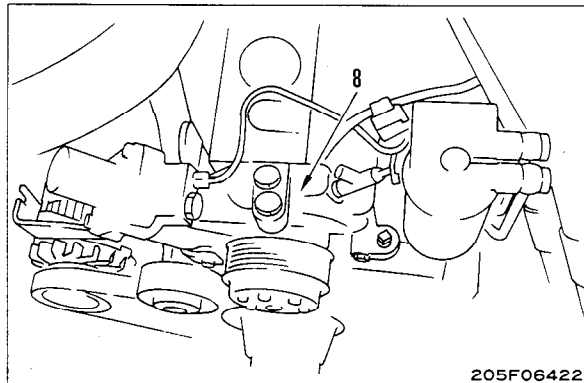
PC200-6, PC210-6



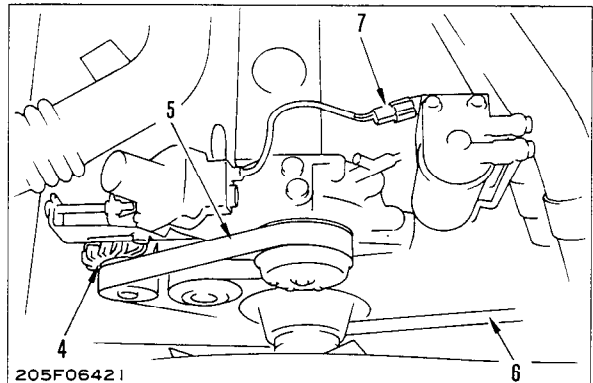
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PC220-6, PC250-6



PC220-6, PC250-6

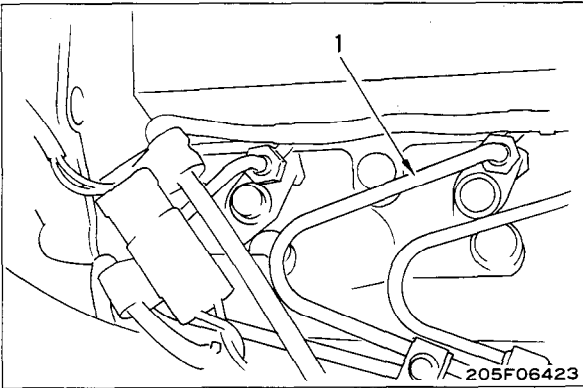


REMOVAL OF NOZZLE HOLDER ASSEMBLY

- 1. Remove delivery tube (1).
- 2. Remove spill tube (2).
- 3. Remove holder (3).
- 4. Remove nozzle holder (4).

※ 1


※ 2




INSTALLATION OF NOZZLE HOLDER ASSEMBLY

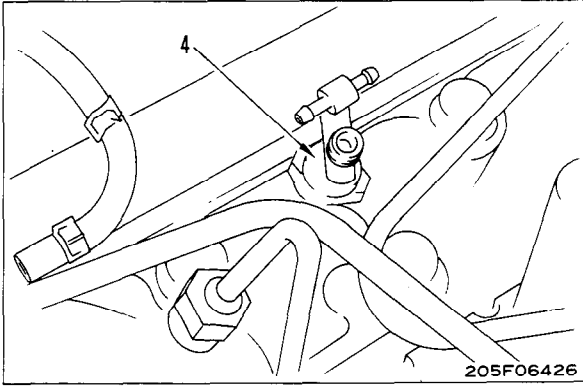
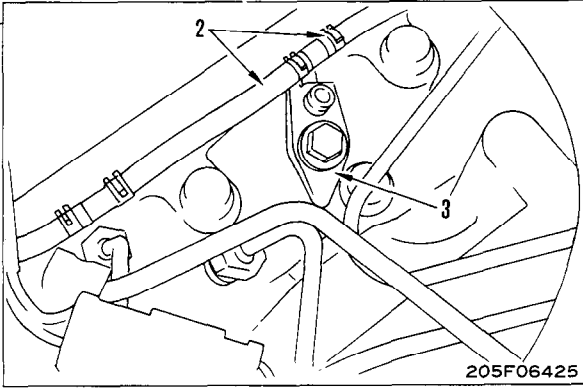
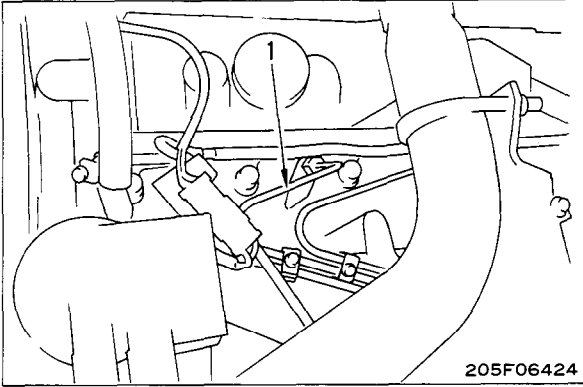
- Carry out installation in the reverse order to removal.

※ 1

 Delivery tube sleeve nut:
22.1 ± 2.5 Nm (2.25 ± 0.2 kgm)

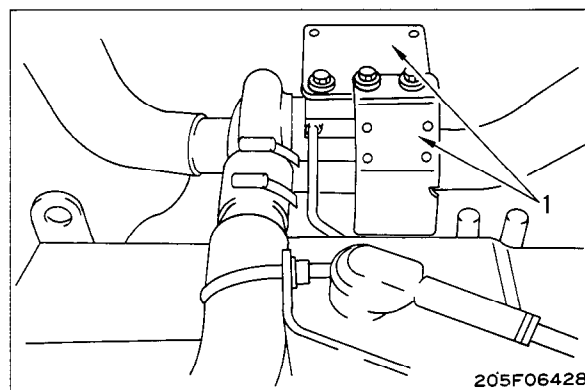
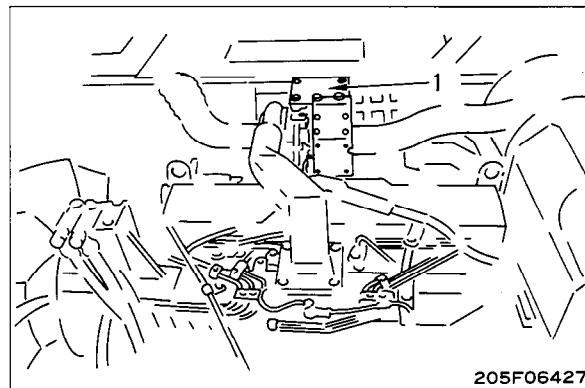
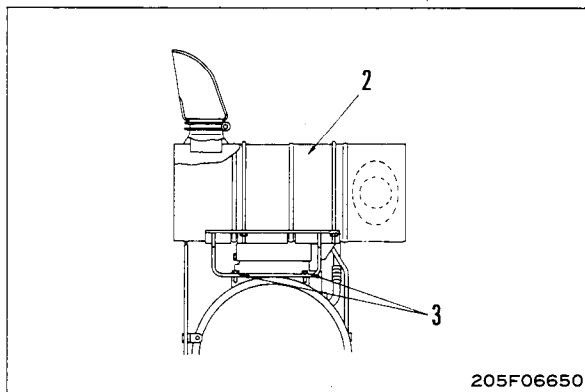
※ 2

 Holder mounting bolt:
44.1 ± 4.9 Nm (4.5 ± 0.5 kgm)

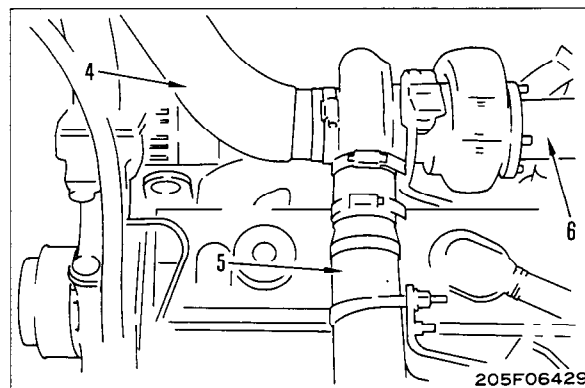


REMOVAL OF TURBOCHARGER ASSEMBLY

1. Open engine hood, and remove turbocharger heat insulation cover (1).
 - ★ After removing cover (1), remove the mounting bracket under it also.
2. Remove partition plate between engine and main pump assembly, then remove 4 bracket mounting bolts (3) of muffler assembly (2).



3. Remove air cleaner intake connector (4) and air supply tube (5) between turbocharger and aftercooler.
4. Remove mounting nut of exhaust tube (6), move muffler assembly (2) to side, then disconnect exhaust tube (6) from turbocharger.
5. Remove lubrication inlet tube (7) and return tube (8), then remove turbocharger assembly (9). ※ 1
 - ★ When removing the mounting bolts inside the lubrication return tube, first remove the engine head cover. Taking care not to let any mud or dirt get in, remove the tube, then temporarily install the head cover again.



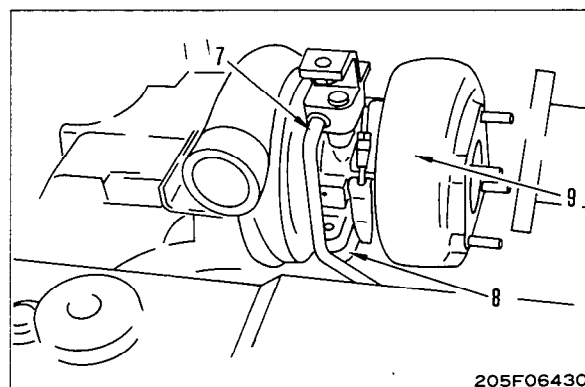
INSTALLATION OF TURBOCHARGER ASSEMBLY

- Carry out installation in the reverse order to removal.

※ 1

kgm Head cover mounting bolt:
8.8 ± 1.0 Nm (0.9 ± 0.1 kgm)

kgm Turbocharger assembly mounting bolt:
36.8 ± 7.4 Nm (3.8 ± 0.8 kgm)

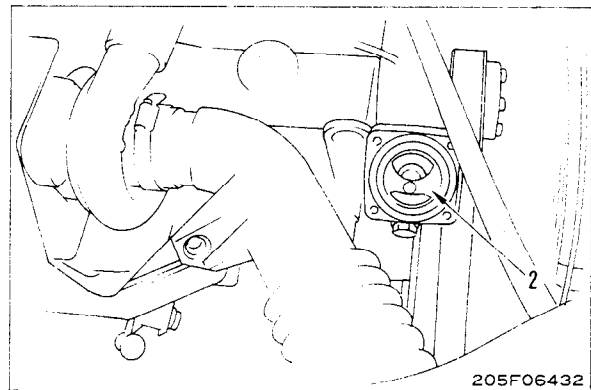
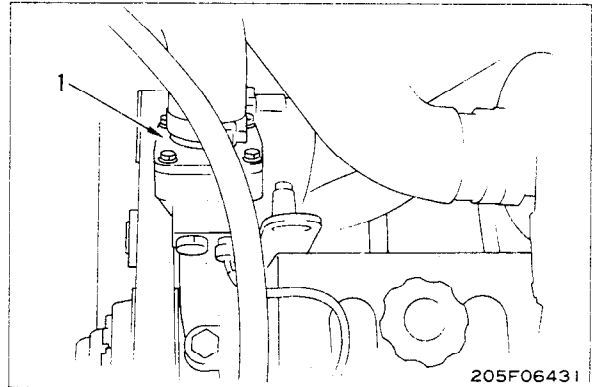


REMOVAL OF THERMOSTAT ASSEMBLY

1. Drain engine coolant.
2. Remove cover (1).
 - ★ Do not disconnect the hose.
3. Remove thermostat (2).

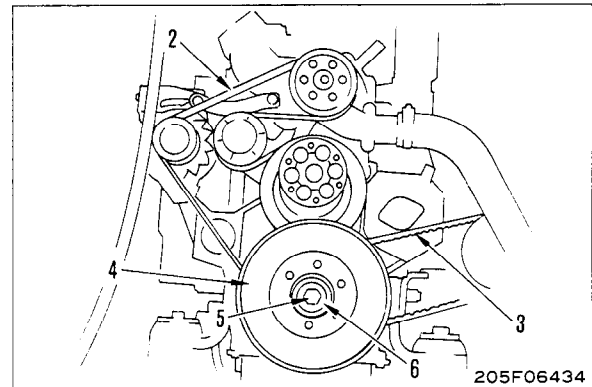
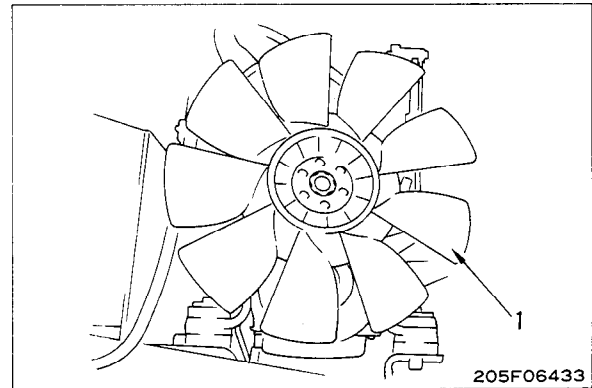
INSTALLATION OF THERMOSTAT ASSEMBLY

- Carry out installation in the reverse order to removal.
- Refilling with water
 - ★ Add water through the water filler to the specified level. Run the engine to circulate the water through the system. Then check the water level again.



REMOVAL OF ENGINE FRONT OIL SEAL ASSEMBLY

1. Remove radiator and hydraulic oil cooler assembly. For details, see REMOVAL OF RADIATOR - HYDRAULIC OIL COOLER ASSEMBLY.
2. Remove fan (1).
3. Loosen mount bolt, adjustment plate mounting bolt, and adjustment bolt of alternator assembly, then remove alternator and fan drive belt (2). ※ 1
4. Loosen air conditioner compressor mounting bolt and adjustment bolt, then remove air conditioner drive belt (3). ※ 2
5. Remove damper (4).
6. Remove pulley mounting bolt (5) and spacer (6). ※ 3
7. Using tool C, remove pulley (7) and collar (8). ※ 4
8. Remove front oil seal (9). ※ 4



INSTALLATION OF ENGINE FRONT OIL SEAL ASSEMBLY

- Carry out installation in the reverse order to removal.


※ 1

- ★ Adjust the belt tension. For details, see TESTING AND ADJUSTING, Testing and adjusting of fan belt tension.

※ 2


- ★ Adjust the belt tension. For details, see TESTING AND ADJUSTING, Testing and adjusting of air conditioner compressor belt tension.

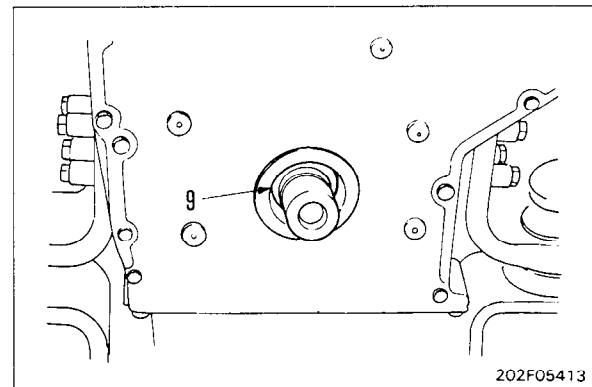
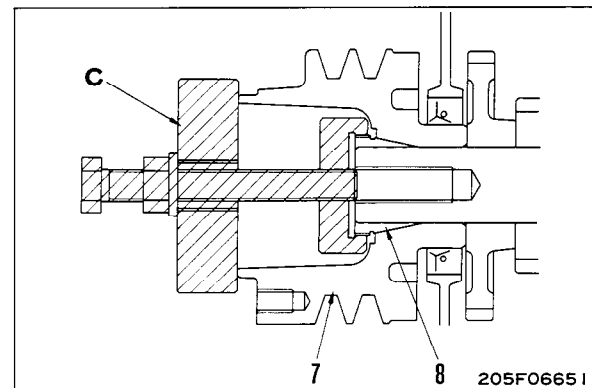
※ 3

 Mounting bolt: $372.4 \pm 29.4 \text{ Nm}$ ($38 \pm 3 \text{ kgm}$)


※ 4

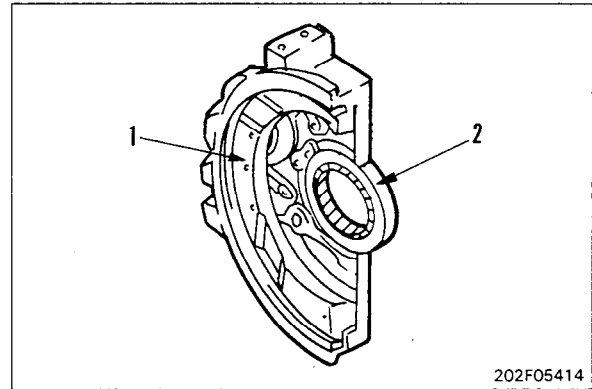
Press fit the front seal until it is level with the surface of the front cover.

 Lip of oil seal: Grease (G2-LI)



REMOVAL OF ENGINE REAR OIL SEAL ASSEMBLY

1. Remove damper assembly. For details, see REMOVAL OF DAMPER ASSEMBLY.
2. Using eyebolts, sling flywheel (1), remove mounting bolts, then remove flywheel. ※ 1
 -  The pilot portion of the flywheel is short, and the flywheel may suddenly drop off, so be careful not to get your fingers caught.
3. Remove rear seal (2). ※ 2
 - ★ Measure the dimension from the end face of the housing.





INSTALLATION OF ENGINE REAR OIL SEAL ASSEMBLY

- Carry out installation in the reverse order to removal.

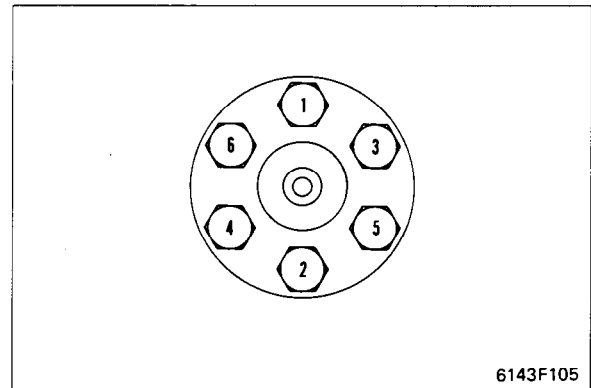
※ 1

- ★ Order for tightening mounting bolts

 Mounting bolt: Lubricating oil (SAE30)

 kgm Mounting bolt:


	Nm (kgm)
1st pass	88.3 ± 29.4 (9 ± 3)
2nd pass	191.2 ± 4.9 (19.5 ± 0.5)

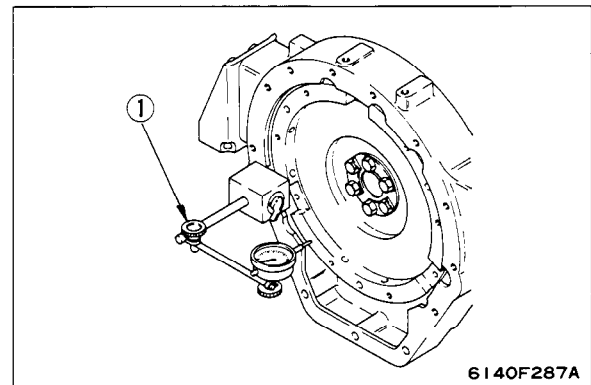


- Using dial gauge ①, measure the face runout and radial runout of the flywheel.
Face runout: 0.2 mm, Radial runout: 0.15 mm


※ 2


- ★ When assembling again, check the wear groove at the contact of the crankshaft and seal lip. If necessary, move the seal towards the flywheel up to the end face of the housing when assembling.

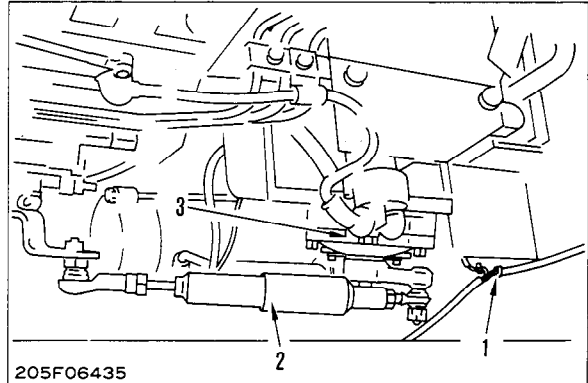
 Lip of oil seal: Grease (G2-LI)



REMOVAL OF GOVERNOR MOTOR ASSEMBLY

 Disconnect the cable from the negative (-) terminal of the battery.

1. Open engine hood and disconnect governor motor connector (1).
2. Remove motor rod (2).
3. Remove governor motor assembly (3). 
 - ★ Rotate the shaft of the governor motor and do not stop it suddenly.



INSTALLATION OF GOVERNOR MOTOR ASSEMBLY

- Carry out installation in the reverse order to removal.



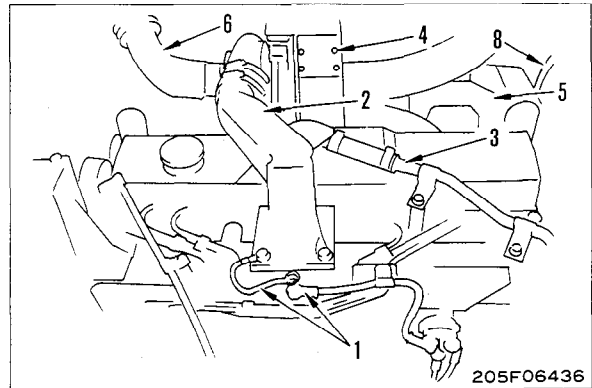
- ★ Adjust the rod. For details, see TESTING AND ADJUSTING, Testing and adjusting of governor motor lever stroke.

REMOVAL OF CYLINDER HEAD ASSEMBLY

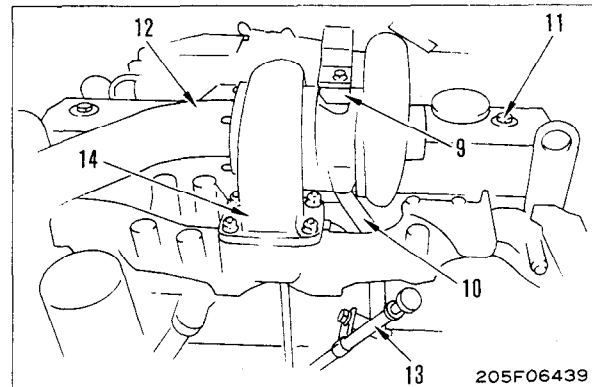
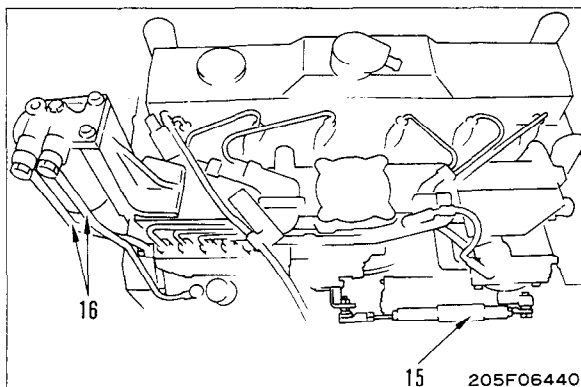
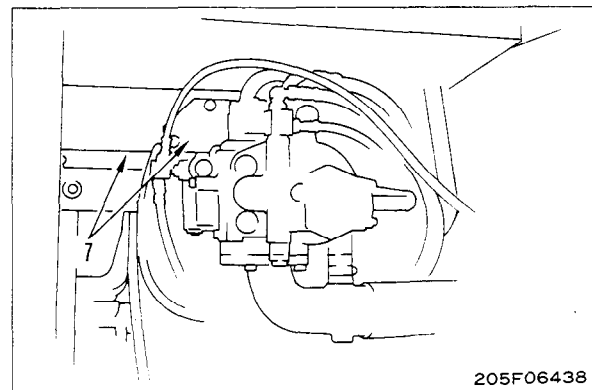
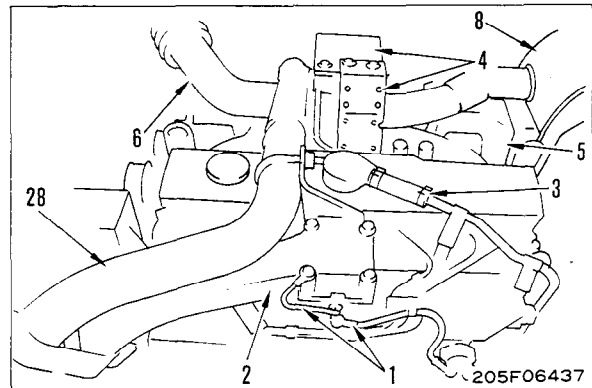
! Disconnect the cable from the negative (-) terminal of the battery.

1. Remove water pump assembly. For details, see REMOVAL OF WATER PUMP ASSEMBLY.
2. Remove pipe (28) between turbocharger and after-cooler (PC220-6), remove heater relay wiring (1), then remove intake connector (2).
3. Remove blow-by hose (3) and turbocharger heat insulation cover (4), and oil filter cover (5), then remove intake connector (6).
4. Open side cover at main pump end, remove partition plate (7), then remove mounting bolts of bracket of exhaust muffler assembly (8) to make it possible to move exhaust muffler assembly (8).
5. Remove turbocharger lubrication inlet tube (9) and return tube (10).
 - ★ When removing the mounting bolts on the inside of the lubrication return tube, first remove head cover (11), then remove the mounting bolts. **※ 1**
 - ★ After removing the bolts, fit head cover (11) again temporarily to prevent the entry of dirt and dust.
6. Remove mounting nut of tube (12) of exhaust muffler assembly (8), move exhaust muffler assembly to side together with tube, then disconnect from turbocharger.
7. Remove engine oil level gauge pipe (13), then remove turbocharger and exhaust manifold assembly (14). **※ 2**
8. Remove governor motor rod (15) and 2 hoses (16) between fuel injection pump and filter.

PC200-6, PC210-6

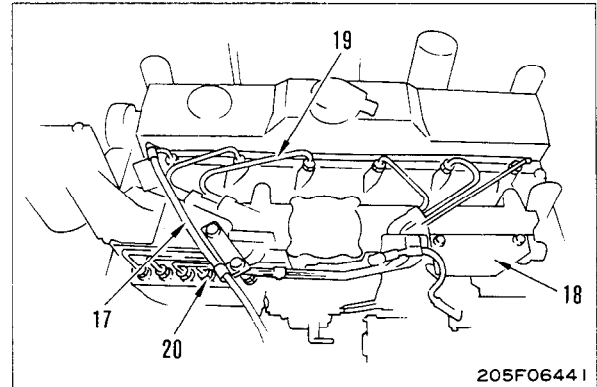


PC220-6



9. Remove spill hose (17), heater relay switch and bracket (18), then remove delivery tube (19) and delivery holder (20). ※ 3

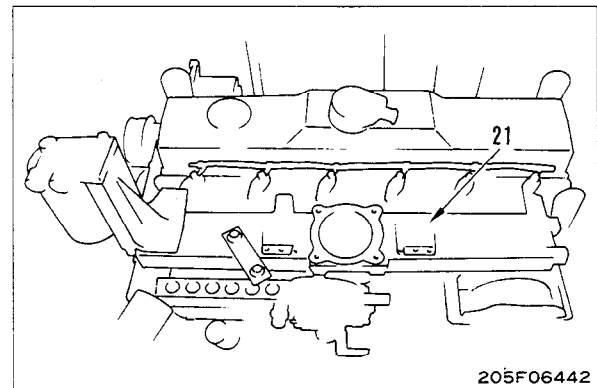
- ★ After removing the delivery holder, cover with a cloth to prevent dirt or dust from entering.
- ★ Remove 6 delivery tubes and 6 delivery holders.
- ★ When removing the delivery holders, be careful not to lose the springs and valves.



10. Remove intake manifold assembly (21). ※ 4

11. Remove spill tube (22), holders (23), and nozzles (24), then remove head cover (11). ※ 5

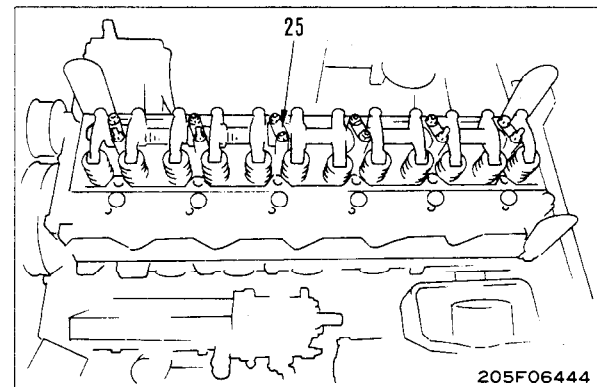
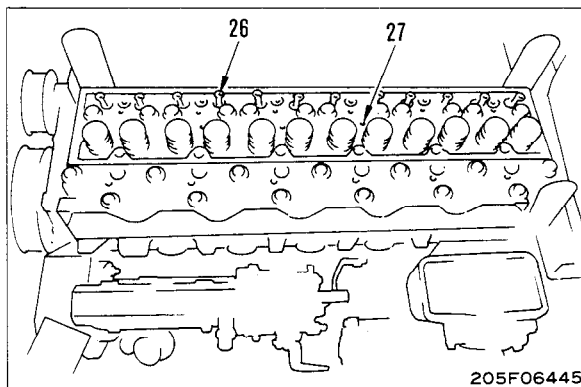
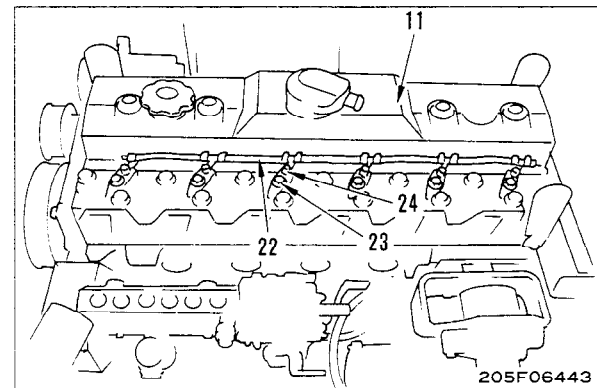
- ★ Remove 6 nozzles (24).



12. Remove rocker arm assembly (25). ※ 6

- ★ Loosen the locknut, then loosen adjustment screw 2 – 3 turns.


13. Remove 12 push rods (26), then remove mounting bolts, and lift off cylinder head assembly (27). ※ 7




INSTALLATION OF CYLINDER HEAD ASSEMBLY

- Carry out installation in the reverse order to removal.


※ 1


 Cylinder head cover:
8.8 ± 1.0 Nm (0.9 ± 0.1 kgm)

※ 2


 Turbocharger, exhaust manifold assembly mounting bolt: 44.1 ± 9.8 Nm (4.8 ± 1 kgm)


※ 3

 Delivery tube sleeve nut:
23.5 ± 1.0 Nm (2.4 ± 0.1 kgm)


 Delivery holder: 42.1 ± 2.9 Nm (4.3 ± 0.3 kgm)

※ 4

 Intake manifold mounting bolt:
40.1 ± 5.9 Nm (4.1 ± 0.6 kgm)


 Intake manifold gasket: Gasket sealant (LG-7)


※ 5


 Nozzle holder mounting bolt:
44.1 ± 4.9 Nm (4.5 ± 0.5 kgm)

- ★ The head cover must be removed when the turbocharger lubrication return tube is installed, so do not tighten the mounting bolts.

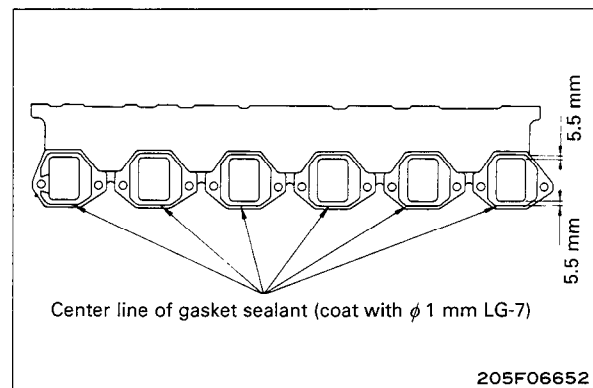
※ 6

 Rocker arm mounting bolt:
24.1 ± 10.2 Nm (2.5 ± 1 kgm)

 Rocker arm mounting nut:
24.5 ± 4.9 Nm (2.5 ± 0.5 kgm)

 Locknut: 44.1 ± 4.9 Nm (4.5 ± 0.5 kgm)

- ★ When tightening the mounting bolts and nuts, start from the center and work in turn to the outside.
- ★ Check that the ball of the adjustment screw is fitted securely in the socket of the push rod.
- Adjust the valve clearance. For details, see TESTING AND ADJUSTING, Adjusting valve clearance.





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