



SERVICE MANUAL

ROLLER
JCB116, JCB116D, JCB116DD, VM116

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This manual contains original instructions, verified by the manufacturer (or their authorized representative).

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Foreword

The Operator's Manual

 You and others can be killed or seriously injured if you operate or maintain the machine without first studying the Operator's Manual. You must understand and follow the instructions in the Operator's Manual. If you do not understand anything, ask your employer or JCB dealer to explain it.

Do not operate the machine without an Operator's Manual, or if there is anything on the machine you do not understand.

Treat the Operator's Manual as part of the machine. Keep it clean and in good condition. Replace the Operator's Manual immediately if it is lost, damaged or becomes unreadable.

Contents

01 - Machine

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Operation

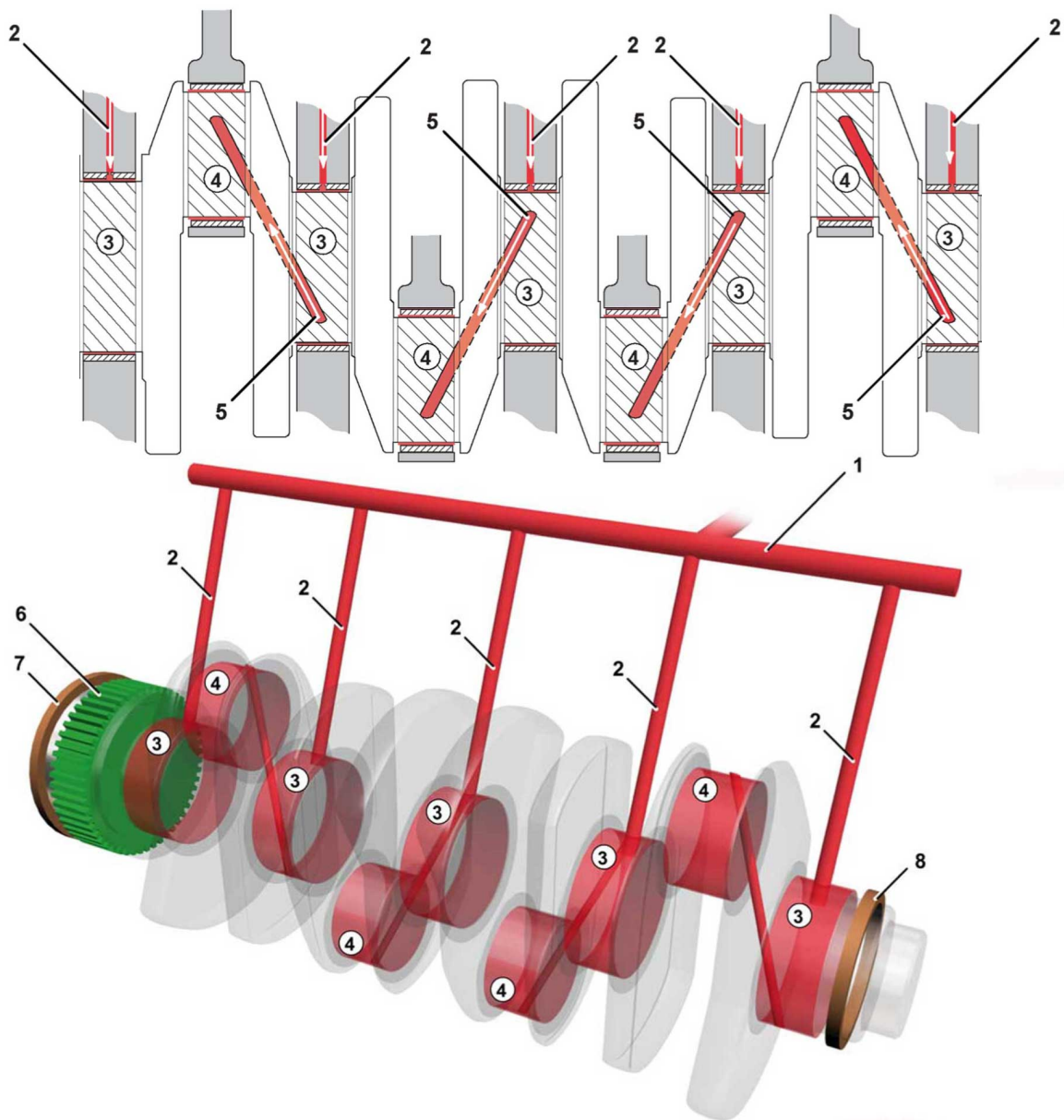
Refer to Camshaft-Operation [PIL 15-15-00](#) .

Lubrication

Oil is fed from the main gallery via five drillings, one to each of the main bearings. A groove around the

diameter of the upper main bearing shell allows oil transfer to cross drillings in the crankshaft to feed each of the big end bearings. Crankshaft gear is 'splash' lubricated. Front and rear crankshaft oil seals prevent oil leakage from, and dirt ingress to, the engine.

Figure 64.



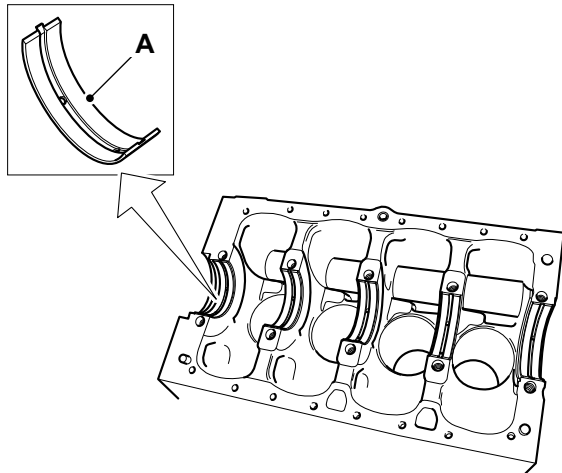
- 1 Main gallery
- 3 Main bearings
- 5 Cross drillings
- 7 Crankshaft oil seal

- 2 Drillings (x5)
- 4 Big end bearings
- 6 Crankshaft gear
- 8 Crankshaft oil seal

Check (Condition)

1. Check the main bearing surfaces for damage and excessive wear.

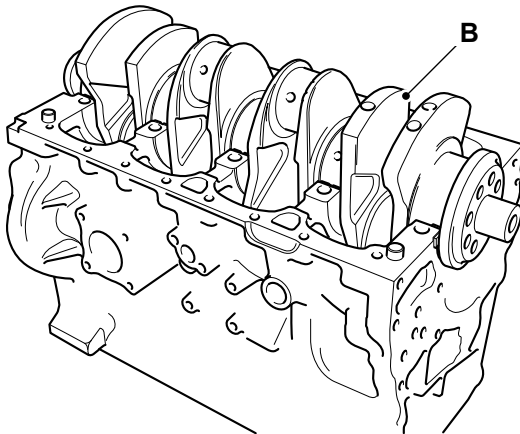
Figure 65.



A Main bearing shells

2. Measure the crankshaft diameters to confirm they are within service limits, refer to Technical Data (PIL 15-12).

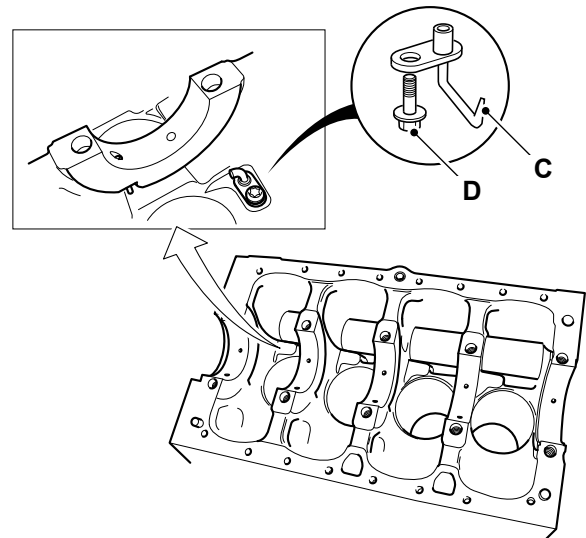
Figure 66.



B Crankshaft

3. Check that the oil-way cross drillings in the crankshaft are clear and free from debris. Blocked or restricted oil-ways will cause oil starvation at the big end bearings.
4. Check that the piston cooling J-jets are clear. If the J-jets cannot be cleared remove the fixing screws. Remove the J-jets and discard them.
5. Install new J-jets.

Figure 67.



C J-jets
D Fixing screws

Remove and Install

Consumables

| Description | Part No. | Size |
|--|-----------|------|
| Cleaner/Degreaser - General purpose solvent based parts cleaner | 4104/1557 | 0.4L |

▲ CAUTION This component is heavy. It must only be removed or handled using a suitable lifting method and device.

Before Removal

1. This procedure requires service parts. Make sure you have obtained the correct service parts before you start, refer to Parts Catalogue.
2. Make sure that the engine is safe to work on. If the engine has been running, let it cool before you start the service work.
3. Remove the engine, refer to (PIL 15-00).
4. Remove the drive belt, refer to (PIL 15-18).
5. Remove the crankshaft pulley, refer to (PIL 15-12).
6. Remove the oil sump, refer to (PIL 15-45).
7. Disconnect and remove the fuel pipes from the injectors, refer to (PIL 18-96).
8. Remove the rocker cover, refer to (PIL 15-42).
9. Remove the fuel injectors, refer to (PIL 18-18).
10. Remove the rocker assembly including the push rods, refer to (PIL 15-42).
11. It is not necessary to remove the cylinder head assembly to remove the crankshaft. If however the cylinder head needs to be removed for other

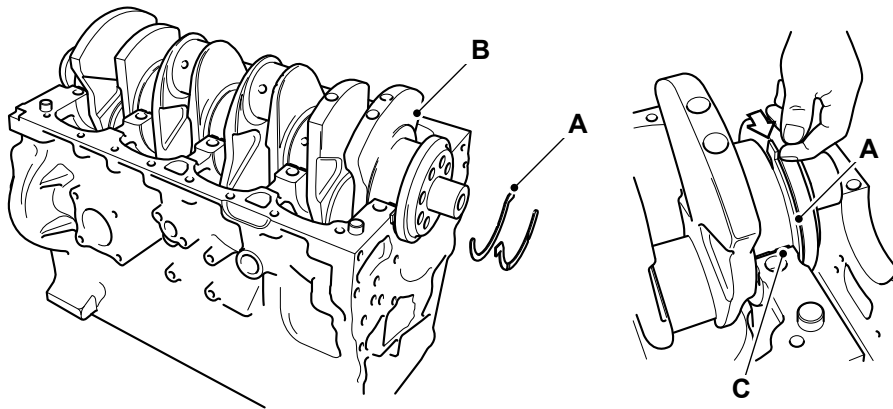
reasons (for piston and connecting rod removal for example) remove it now, refer to (PIL 15-06).

12. Remove the fuel injection pump, refer to (PIL 18-18).
13. Remove the starter motor, refer to (PIL 15-75).
14. Remove the high duty PTO device (if installed).
15. Position the engine upside down in a suitable jig or fixture, supported at the front of the cylinder block.
16. Remove the flywheel, refer to (PIL 15-54).
17. Remove the flywheel housing, refer to (PIL 15-54).
18. Remove the fuel injection pump drive gear, refer to (PIL 15-51).
19. Remove the oil pump, refer to (PIL 15-60).
20. Remove the high duty PTO idler drive gear (if installed), refer to (PIL 15-51).
21. Remove the crankshaft drive gear, refer to (PIL 15-51).
22. Remove the camshaft, refer to (PIL 15-15).
23. Remove the rear timing case, refer to (PIL 15-51).
24. If the pistons and connecting rods have not been removed, undo and remove the main bearing caps, refer to (PIL 15-12).
25. Remove the bedplate, refer to (PIL 15-09).

Remove

1. Remove the thrust washers between the crankshaft and crankcase rear main bearing.

Figure 68.



- A** Thrust Washers
- C** Rear main bearing

- B** Crankshaft

2. Put labels on the thrust washers to make sure that they are installed in the correct positions during assembly.
3. Use suitable lifting equipment to carefully lift the crankshaft from the crankcase (if the crankshaft is lifted manually, two people will be required).
4. Carefully lift out the bearing shells.

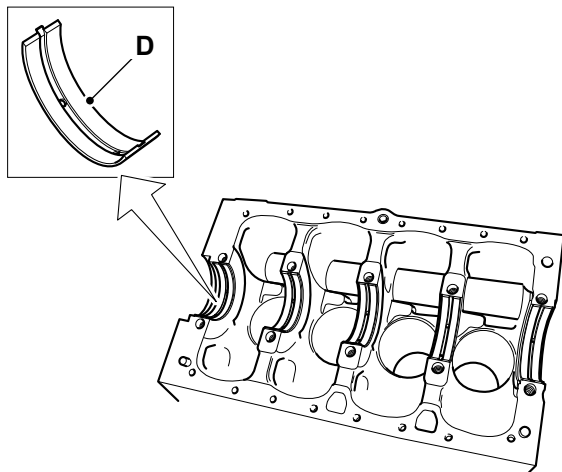
Before Installation

1. Clean off all traces of the old sealant compound from the crankcase and bedplate mating faces.
2. Use a suitable degreasing agent to carefully clean the main bearing saddles in the bedplate and crankcase. Take care not to block the oil ways or the piston cooling jets.

Consumable: [Cleaner/Degreaser - General purpose solvent based parts cleaner](#)

Important: Cleanliness is of the utmost importance. Blocked oil-ways or oil jets will cause engine failure. Before you install the crankshaft make sure that ALL oil-ways and jets are clear and free from debris.

Figure 69.



- D** Main bearing shells

5. It is recommended that the bearing shells are replaced. If however they are to be used again, put label on the shells to make sure that they are installed in their original positions during assembly.
6. Inspect the crankshaft and main bearings etc. for damage and excessive wear. Refer to Check Condition (PIL 15-12).

Install

1. The installation procedure is the opposite of the removal procedure. Additionally do the following steps.
2. Make sure that all items are clean and free from damage and corrosion.
3. If removed or a new crankcase is being installed then install cooling J jets as follows:

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