SERVICE MANUAL

BACKHOE LOADER
3CX Compact

EN - 9813/5450 - ISSUE 5 - 11/2017

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

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Foreword

The Operator's Manual

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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.

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Install

1. The installation procedure is the opposite of the removal procedure. Additionally do the following steps.
2. Identify the correct size of the kingpost which is required to install.
   2.1. To aid the kingpost identification, the number is embossed on the casting.
   2.2. The embossed 6 number denotes the specified casting bores diameter size of the 15ft 6in kingpost.
   Dimension: 60mm
3. If you install new liner bearings, use a close fitting shouldered mandrel.
   3.1. If necessary, use oil or a suitable lubricant to minimise scoring of mating faces, to help to install the bearings.
4. The boom end and rear frame liner bearings have a tempered section, always install the smaller diameter first into the pivot bore.
5. Make sure that the boom end liner bearings are fully engaged in the boom pivot bores.
   5.1. There must be a specified size of recess to install the boom end seals.
   Dimension: 5mm
6. Make sure that the rear frame liner bearings are fully engaged in the boom pivot bores.
   6.1. There must be a specified size of recess to install the rear frame seals.
   Dimension: 6mm
7. The boom end and rear frame seals are lip seals.
   7.1. When you install the seals to the pivot pins, make sure that the seal lip faces are outwards.
8. Check the pivot bores, pivot pins and liner bearings for any burrs and sharp edges, before you assemble.
   8.1. Remove the burrs and sharp edges to minimise the installation damage.
9. Make sure that all the pivot bores and pins are clean and coated with grease.
   9.1. After the installation is complete, apply grease at each grease nipple of the pivot pins, before you operate the machine.
10. When you install the kingpost bottom pivot pin, make sure that the thrust washers are installed.
11. Check the bottom pivot pin end float, the locking plate must be engaged in the kingpost casting at all times.
12. If necessary install the shims between the circlip and the bottom thrust washer.
    12.1. Do not install more than the specified number of shims. Refer to Table 11.
13. Make sure that the thin lock nuts (used to attach the pivot pin retaining bolts) are free to turn when locked into position.
14. Before you install the bolt, clean the threads.
    14.1. Apply JCB Threadlocker and Sealer on the bolt threads.
    Consumable: JCB Threadlocker and Sealer (Medium Strength)
    14.2. Tighten the bolt to the specified torque value.
    Torque: 98N·m
15. If you remove the slew ram trunnion plate bolts for any reason, make sure that the bolts are tightened.
    15.1. Tighten the slew ram trunnion plate bolts (unplated) to the specified torque value.
    Torque: 565N·m
    15.2. Tighten the slew ram trunnion plate bolts (plated) to the specified torque value.
    Torque: 510N·m
16. Check the operation of the boom lock.
    16.1. If you install a new kingpost casting to the machine, adjust the boom lock cable and boom stop.

Table 11. Shims - Kingpost Bottom Pivot Pin

Thickness	Quantity
0.5mm	Not more than 2
1.5mm	Not more than 3

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Cause	Remedy
Low pump flow	Check the pump flow, if required, Service or replace pump.
Steer relief valve set incorrectly	Check the pressure setting of the steer unit relief valve, adjust as required.
Worn or damaged parts in the steer control valve	Remove and inspect the steer control valve.
Priority valve not operating correctly	Check if the priority valve is sticking, rectify as required. Check the load sense line from the steer unit to the priority valve for signs of leaking or poor connection.
Steer mode valve not operating correctly (4WSMachines only)	Check if spools sticking, rectify as required. Check if solenoids operating, replace solenoids as required.
Mechanical failure	Check for damaged axle components, such as rams, track rods, linkages.
Steer column splined shaft not fully engaged in steer valve	Check the shaft engagement.
Power track rod failure	Check the power track rod for signs of damage or leaks.

Table 170. Steering fails to respond to selected mode

Cause	Remedy
Defective selector switch	Check the selector switch, replace as required.
Proximity switches not operating correctly	Check setting of the proximity switches, reset or replace switches as required.
Steer mode valve not operating correctly	Check if spools sticking, rectify as required. Check if solenoids operating, replace solenoids as required.
Leaks in the relevant hoses or component connections	Check the hoses and connections for leaks.
Electrical failure	Check relevant electrical connectors, if problem still persists, do a wiring continuity check on relevant circuits.

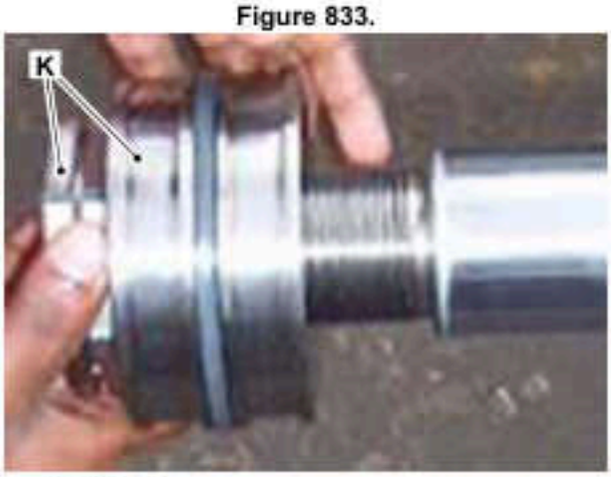
Table 171. Steering fails to phase accurately or drifts out of phase during operation

Cause	Remedy
Incorrect re-phasing procedure	Make sure that the phasing is carried out correctly and at the correct intervals.
Air in steer hydraulic system	Bleed the steer system. Refer to: PIL 25-00-00.
Incorrectly set proximity switches	Re-set the proximity switches.
Power track rod internal or external hydraulic leaks	Check relevant hose and pipework for leaks. Check track rod seals for leakage.
Steer mode valve internal or external hydraulic leaks	Check relevant hose and pipework for leaks.

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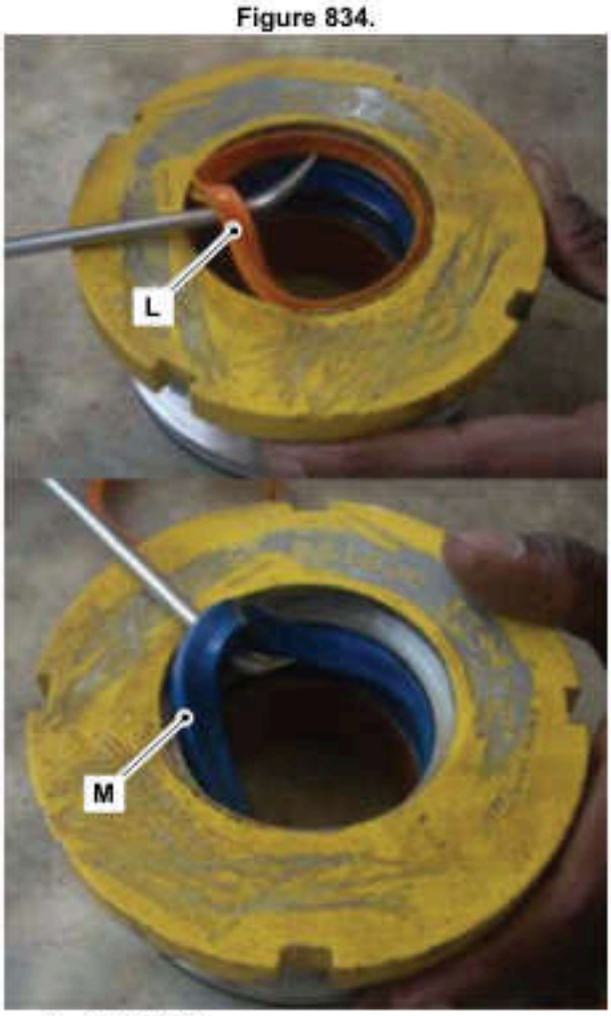
Figure 833.



K Piston

14. Remove the head end cover. Refer to Figure 834.
15. Use a bent screwdriver to remove the wiper seal and the secondary rod seal. Refer to Figure 834.

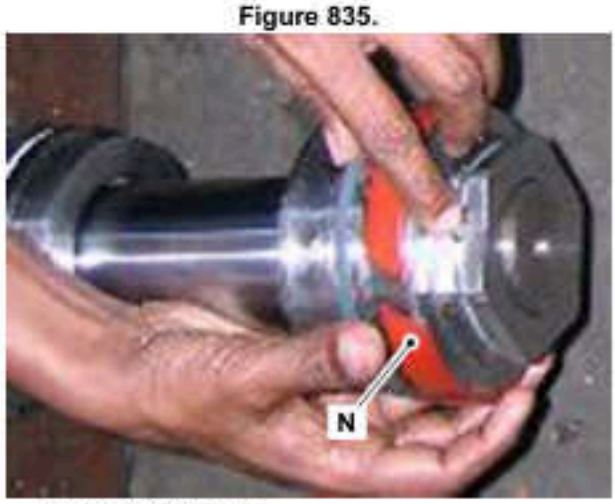
Figure 834.



L Wiper seal
M Secondary rod seal

16. Remove the piston bearing. Refer to Figure 835.

Figure 835.



N Piston bearing

17. Use a bent screwdriver to remove the piston seal. Refer to Figure 836.

Figure 836.

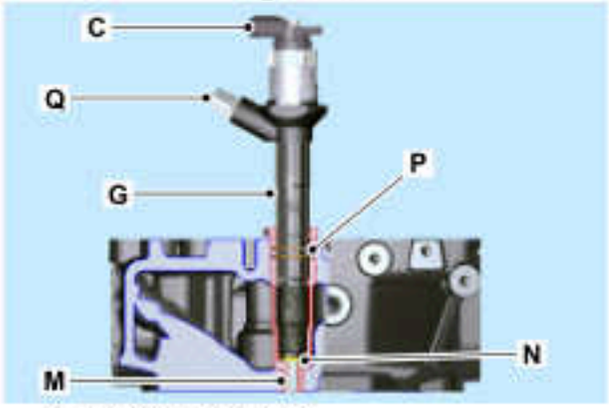


P Piston seal

18. Remove the piston O-ring and the piston backup ring. Refer to Figure 837.

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Figure 471.

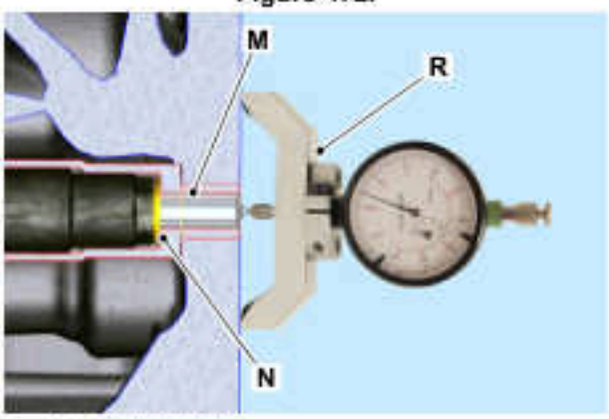


C Electrical connector
G Electronic injector
M Injector sleeve
N Gasket
P Gasket
Q High pressure pipe inlet

6. Make sure that you clamp the sleeve to the correct torque value.
7. Make sure that you put the injector into the sleeve.
8. Make sure that the injector is installed in the correct orientation, with the bleed-off port facing the right hand side (exhaust manifold) of the engine.
9. Make sure that you use a dial gauge to check that the projection of the electronic injector sleeve must be in the specified range.

   Length/Dimension/Distance: 1.68–2.42mm
   Special Tool: Tool for protrusion of pistons, injectors and glow plugs (Qty.: 1)

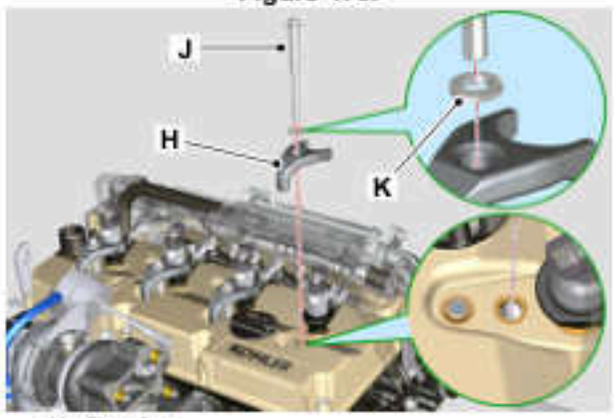
Figure 472.



M Injector sleeve
N Gasket
R Dial gauge

10. Install the rocker arm pin fixing screw.
11. Position the electronic injector fixing bracket and secure it with a screw and washer.

Figure 473.



H Bracket
J Screw
K Washer

12. Tighten the injector fixing bracket screw to the correct torque value.
13. Attach the fuel return pipe fitting to the injector head.
14. Connect the electrical connector.

Note: If the injector projection does not fall into the specified range then replace the gasket, on the base of the injector sleeve and repeat the inspection.

After Installation

1. Replace the rocker cover.
   Refer to: PIL 15-42-06.
2. Renew the high pressure fuel pipes.
   Refer to: PIL 18-96-03.
3. Start the engine and check for fuel leaks.

Table 126. Torque Values

Item	Nm
M	30
J	20

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