



SERVICE MANUAL

PS760, PS764, PS766

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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.

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Introduction

The park brake also called the hand brake is a latching brake usually used to keep the vehicle stationary. It is also used to prevent a vehicle from rolling when the operator needs both feet to operate the clutch and throttle pedals.

The park brake usually consists of a cable directly connected to the brake mechanism on one end, and to a hand-operated lever, on the floor at the side of the driver.

Technical Data

Table 2. Park Brake Multi-pack Brakes (If Installed)

Description	Acceptable Tolerances (mm)
Friction pack assembly thickness	37.1 to 39.6

Check (Condition)

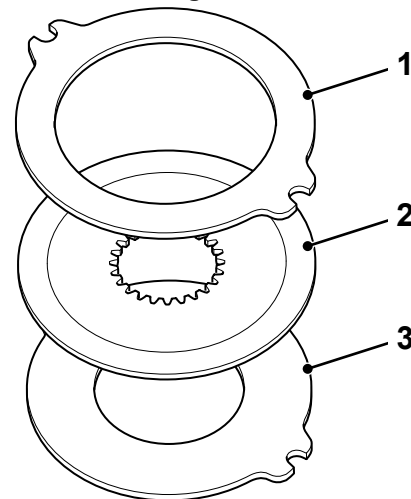
(For: PS764, PS766)

Before inspecting the brake components carefully remove all traces of sealing compound from component mating faces. Use a suitable degreaser, clean the brake components including the brake housing in the gearbox rear case.

Multi-Plate Pack

- Carefully inspect the friction plates and counter plates. If any of the plates show signs of damage or distortion, renew the complete plate pack.

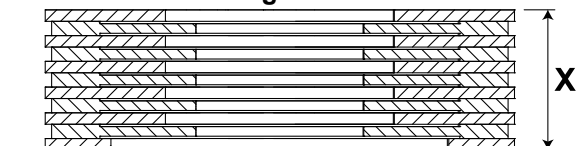
Figure 5.



- 1 Thrust plate
- 2 Counter plates
- 3 Friction plates

- Assemble the friction and counter plates (including the thrust plate) on a suitable datum table. Measure the overall thickness of the assembled friction pack. The thickness X must be between the recommended tolerances, refer to Technical Data.

Figure 6.



X Friction pack assembly thickness

- 2.1. If the friction pack is outside these limits, the complete friction pack assembly must be renewed.

Note: The friction pack may be outside the maximum thickness value if the plates are distorted, typically after the brake has performed an emergency stop.



Disassemble and Assemble

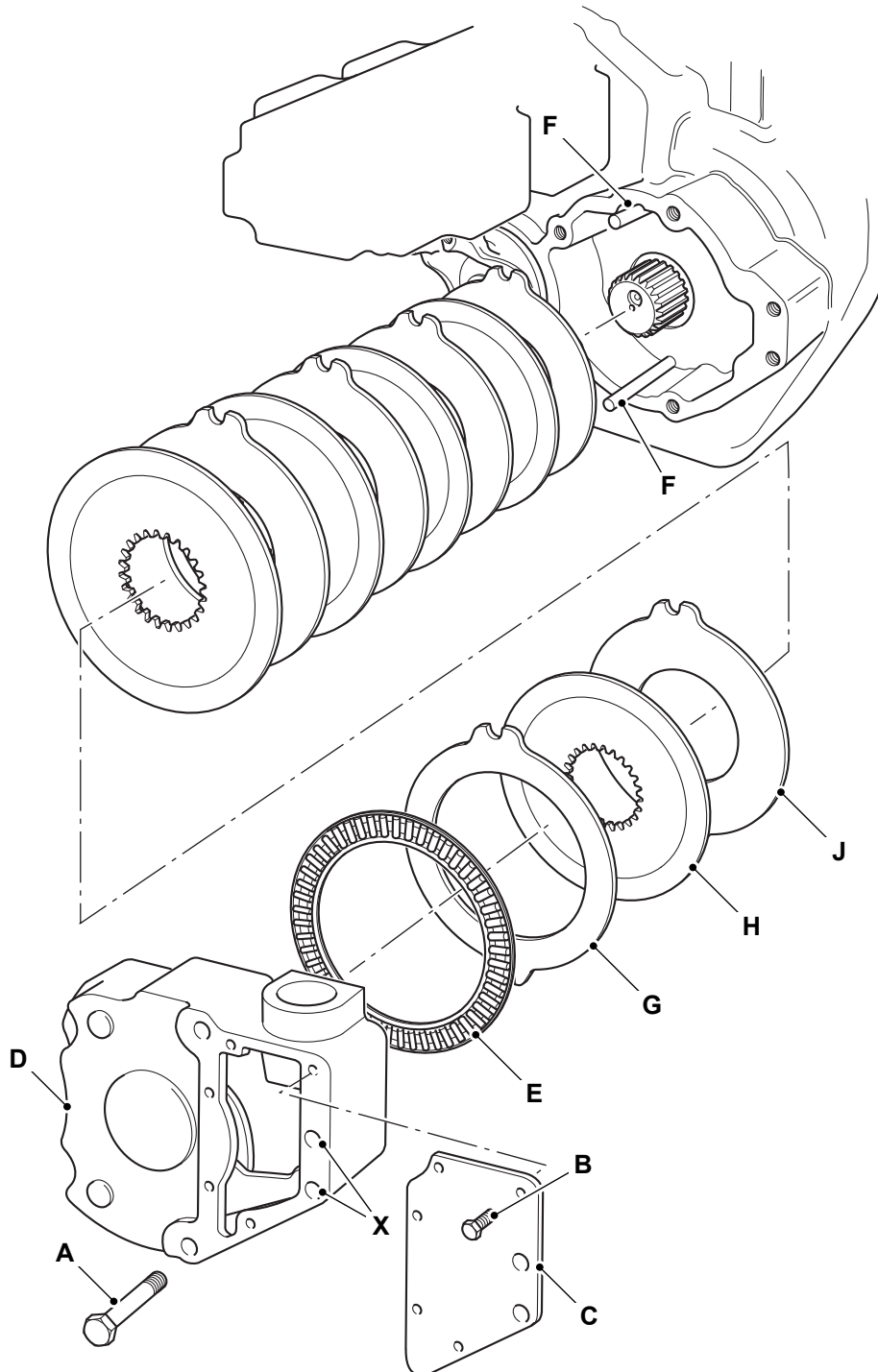
(For: PS764, PS766)

Consumables

Description	Part No.	Size
JCB Multi-Gasket	4102/1212	0.05 L

Disassemble

Figure 7.

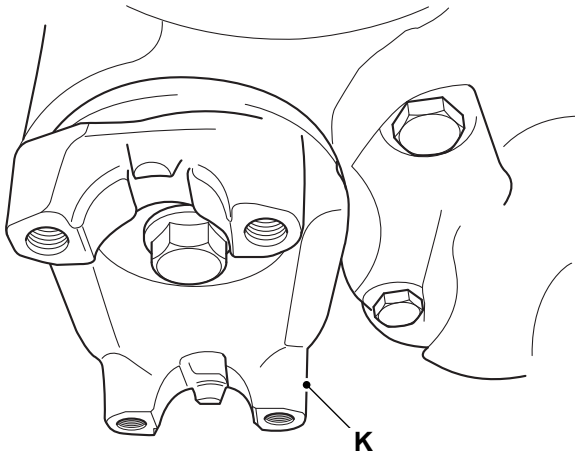


- A** Bolt (x2)
- C** Cover plate
- E** Needle roller thrust bearing.
- G** Thrust plate
- J** Counter plate

- B** Screw (x5)
- D** Cover
- F** Reaction pins
- H** Friction plate
- X** Location1 and Location 2 for bolt removal

1. Position the output yoke as shown. Refer to Figure 8.

Figure 8.



K Output yoke

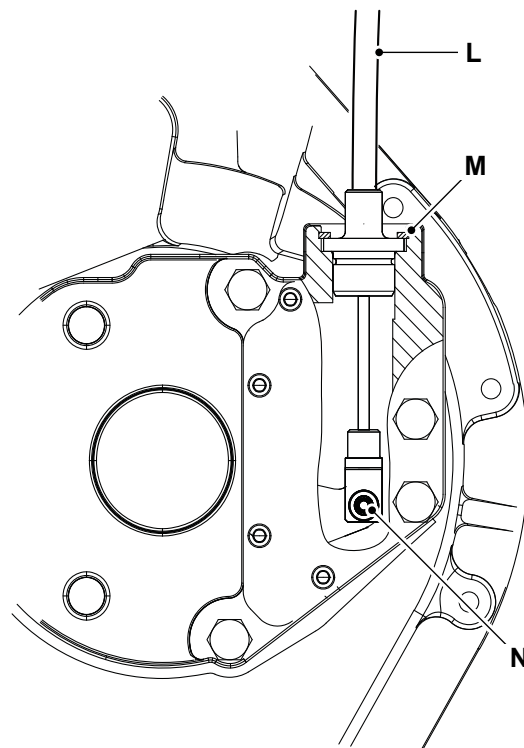
2. Remove the cover plate as follows: Refer to Figure 7.
 - 2.1. Remove only two bolts from location 1 and location 2.
 - 2.2. Remove the screws.
 - 2.3. Before the cover plate is removed, place a container below to collect the gearbox oil.
 - 2.4. Remove the cover plate with a flat bladed screwdriver.
3. Remove the remaining bolts (x4) and carefully remove the cover, keeping it parallel to the mating face of the gearbox. Refer to Figure 7.
4. Be aware that the needle roller thrust bearing and the reaction pins may come away with the cover. Refer to Figure 7.
5. Remove the following: Refer to Figure 7.
 - 5.1. Needle roller thrust bearing.
 - 5.2. Thrust plate

5.3. Friction plates.

5.4. Counter plates.

6. If the brake assembly is being removed before you disassemble the gearbox, then remove the reaction pins. Refer to Figure 7.
7. If the brake actuator is to be disassembled, or the cable is to be replaced, then remove the park brake cable as follows: Refer to Figure 9.

Figure 9.



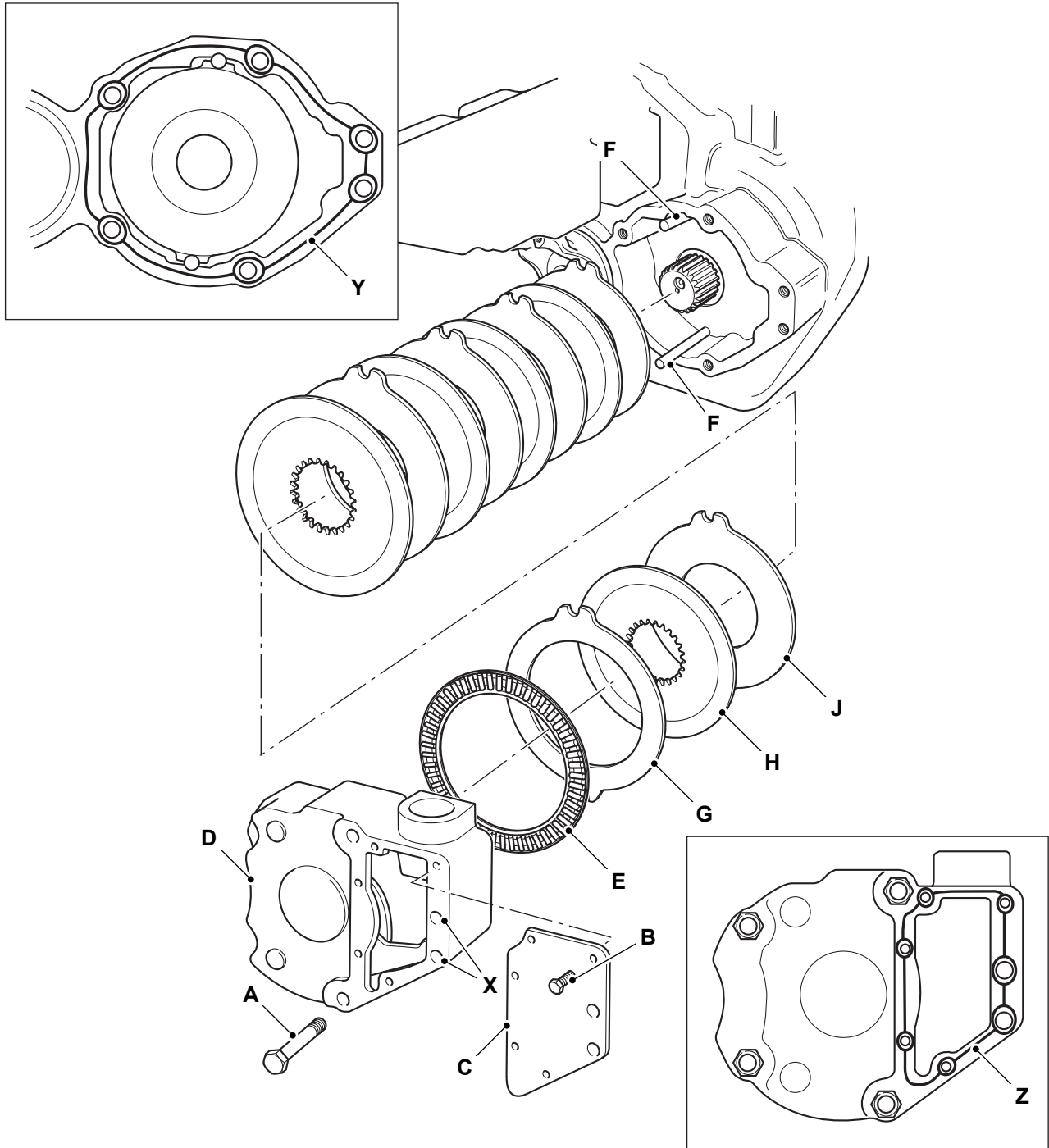
L Brake cable

M Circlip

N Clevis pin

7.1. Remove the clevis pin.

7.2. Remove the circlip and then remove the cable from the cover.

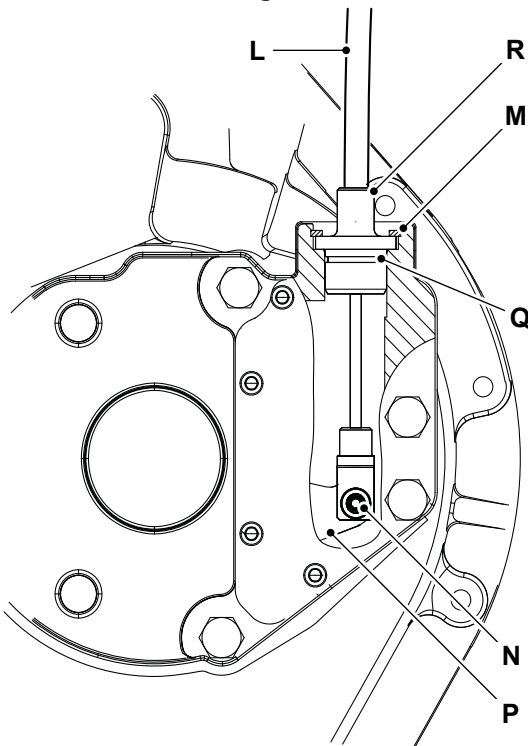
Assemble
Figure 10.


- A** Bolt (x2)
- C** Cover plate
- E** Needle roller thrust bearing.
- G** Thrust plate
- J** Counter plate
- Y** Sealant location on gearbox case

- B** Screw (x5)
- D** Cover
- F** Reaction pins
- H** Friction plate
- X** Location 1 and Location 2 for bolt installation
- Z** Sealant location on cover

1. Inspect the brake pack.
2. Assemble the reaction pins and then install the friction pack in the gearbox case. Refer to Figure 10.
 - 2.1. Note that a counter plate is installed first followed by a friction plate and so on.
 - 2.2. Install the thrust plate last.
3. If removed during disassembly install the park brake cable as follows: Refer to Figure 11.

Figure 11.



- L Brake cable
- M Circlip
- N Clevis pin
- P Brake actuator
- Q O-ring
- R Collar

- 3.1. Put the cable into the housing and connect the fork end to the brake actuator with clevis pin.
 - 3.2. Never replace the clevis pin with a normal bolt or screw.
 - 3.3. Make sure that the O-ring is not damaged and correctly installed on the collar.
 - 3.4. Locate the collar inside the brake housing and secure with the circlip.
4. Make sure that the needle roller thrust bearing is correctly installed on the actuator assembly.

5. Apply a bead of sealant to the mating face on the gearbox case. Refer to Figure 10.
Consumable: JCB Multi-Gasket
6. Attach the cover with the bolts (x4). Refer to Figure 10.
 - 6.1. Note that 2 bolts at location 1 and location 2 are not installed at this stage.
7. Tighten the bolts to the correct torque value. Refer to Figure 10.
8. Apply a bead of sealant to the mating face on the cover. Refer to Figure 10.
Consumable: JCB Multi-Gasket
9. Attach the cover plate with screws (x5) and the bolts (x2). Refer to Figure 10.
10. Tighten the screws and bolts to the correct torque value. Refer to Figure 10.

It is essential that the park brake cable is adjusted correctly when the gearbox is installed into the machine. Incorrect adjustment of the cable can result in damage to the brake components and excessive overheating of the brake assembly. See the applicable machine Service Manual for the cable adjustment procedure.

Table 3. Torque Values

Item	Nm
A	56
B	16
N	9

48 - Actuator

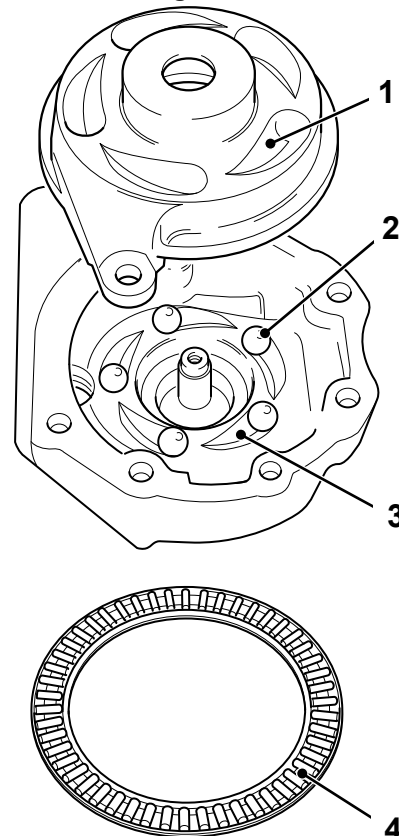
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Check (Condition)

(For: PS764, PS766)

1. Before you check the brake components use a suitable degreaser to clean the brake components.
2. Check the ball bearings and their tapered locating slots for signs of excessive wear or damage.
3. Check the needle roller thrust bearing and the corresponding bearing surfaces for signs of excessive wear or damage.
 - 3.1. Make a note that some discolouration of the needle rollers is acceptable providing the surface of the rollers is otherwise undamaged.

Figure 12.

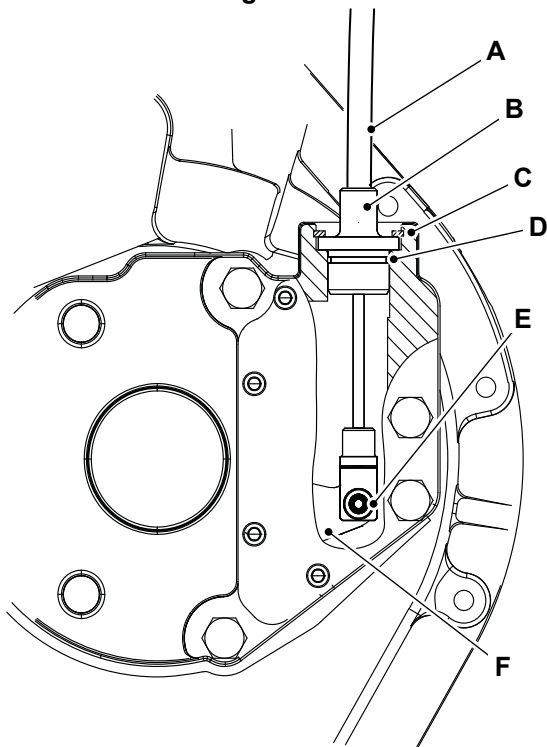


- 1 Tapered locating slots
- 2 Ball bearings
- 3 Tapered locating slots
- 4 Needle roller thrust bearing

4. Check condition of the park brake cable as follows.
 - 4.1. Make sure that the cable is smooth and free in operation.

- 4.2. Make sure that the cable cover is not cut or split. They cut cable cover may allow water ingress into the transmission.
- 4.3. Make sure that there is no corrosion or debris passed through the O-ring seal.
- 4.4. Replace the cable if it is damaged or hard to operate.
- 4.5. Tighten the screw to the correct torque value.

Figure 13.



- A Park brake cable
- B Collar
- C Circlip
- D O-ring
- E Screw
- F Brake actuator

Table 4. Torque Values

Item	Nm
E	9

Disassemble and Assemble

(For: PS764, PS766)

Disassembly

1. Carefully remove the screw.
 - 1.1. Be careful the screw is under tension from spring 1 and spring 2.

2. Remove the washer 1 and washer 2.
3. Remove the spring 1 and spring 2.
4. Remove the brake actuator plate then the ball bearings.

Figure 14.

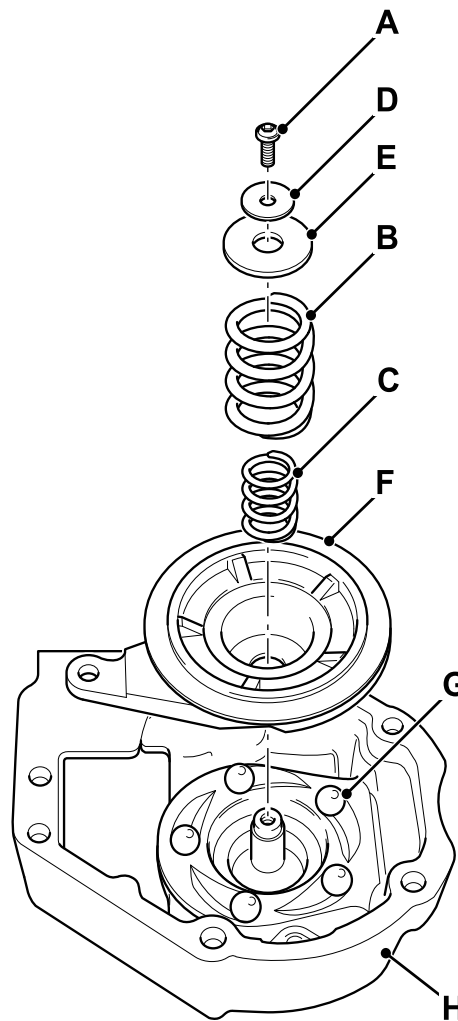


Table 5.

Item	Description
A	Screw
B	Spring 1
C	Spring 2
D	Washer 1
E	Washer 2

Item	Description
F	Actuator plate
G	Ball bearings (x5)
H	Brake actuator cover

Assembly

1. Locate the ball bearings in their slots in the cover.



2. Install the actuator plate then the springs.
3. Install the washers.
4. Compress the springs and install the screw.
 - 4.1. Tighten the screw to the correct torque value.

Table 6. Torque Values

Item	Description	Nm
A	Screw	16



Notes:



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Acronyms Glossary

2WD	Two Wheel Drive
4WD	Four Wheel Drive
DTI	Dial Test Indicator
LSRV	Load Sense Relief Valve
PTFE	Polytetrafluoroethylene
PTO	Power Take-Off
RPM	Revolutions Per Minute



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Introduction

(For: PS760, PS764, PS766)

Semi-automatic gearboxes are a hybrid form of transmission where an integrated control system handles manipulation of the clutch automatically, but the driver can still take manual control of gear selection.

Many of these transmissions allow the driver to fully delegate gear shifting choice to the control system, which then effectively acts as if it is an automatic transmission. An automatic transmission uses a torque converter instead of a straight friction clutch to manage the connection between the transmission gearing and the engine.

A typical JCB semi-automatic transmission is called Powershift, it has an (A) on the gearshift to signify Automatic. In this mode the machine will gear change automatically according to road speed. The following types exist:

- PS700
- PS750
- PS764
- PS766
- P-Tronic 6x4 Smoothshift

Not all types of transmission are available on all types of machine. Check the operators manual or transmission dataplate for the type of transmission installed on your machine.

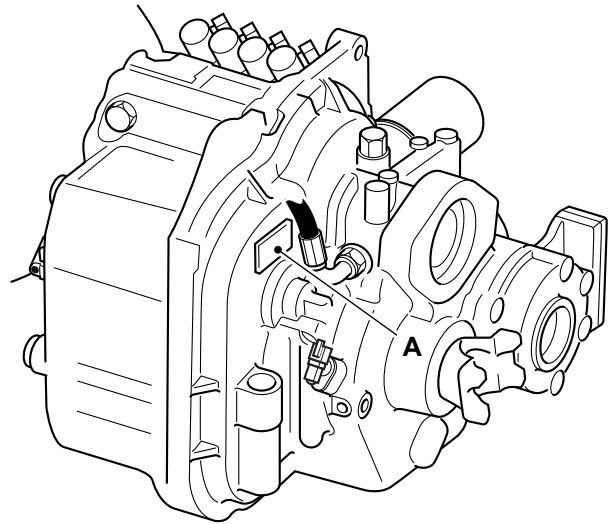
Component Identification

(For: PS764, PS766)

Unit Identification

The gearbox serial number is stamped on the unit identification plate as shown. When you make an order for parts replacement, always quote the details on the unit identification plate. In the case of gear replacements, always check the part number stamped on the gear, and the number of teeth.

Figure 15.



A Identification plate

Main component identification

Figure 16.

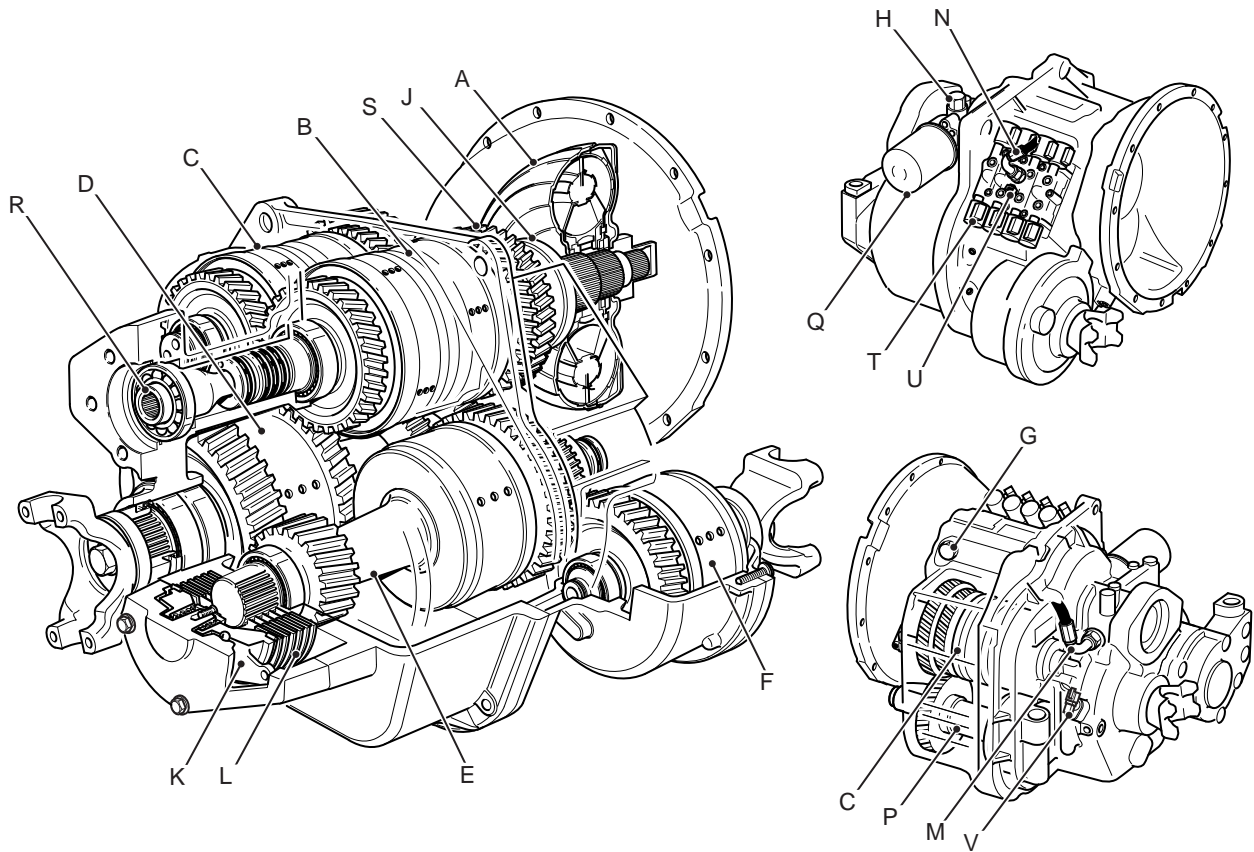


Table 7.

Item	Description
A	Torque converter
B	Forward and input clutch
C	Reverse clutch
D	Main shaft assembly
E	Layshaft assembly
F	2 and 4 Wheel drive clutch
G	Torque converter relief valve
H	Oil pressure maintenance valve
J	Transmission oil pump
K	Park brake actuator
L	Park brake friction pack

Item	Description
M	Hose connection (to oil cooler)
N	Hose connection (from oil cooler)
P	6 speed assembly (if installed)
Q	Oil filter
R	Driveshaft (typically drives a hydraulic pump)
S	Gear drive to reverse clutch
T	Solenoid control valves
U	Transmission oil pressure switch
V	Speed sensor



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