SERVICE MANUAL

JCB Transmission

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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

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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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01 - Machine

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03 - Safety

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Cause	Remedy
Gearbox oil cooler faulty, gearbox oil contaminated with engine coolant. (Liquid to liquid oil coolers only.)	Remove and test the oil cooler.
Gearbox casings damaged.	Inspect the gearbox casing. Renew missing or damaged parts. Drain the oil and flush the gearbox. Refer to driveline- semi-automatic gearbox, refer to (PIL 27-06).
Gearbox oil circuit pipework or hoses damaged.	Inspect the pipework and hoses. Renew missing or damaged parts. Drain the oil and flush the gearbox. Refer to driveline- semi-automatic gearbox, refer to (PIL 27-06).

Table 177. Consequential Faults (Gearbox faults caused typically by water contamination and other factors related to the gearbox oil.)- Pressurisation of gearbox casing. Dipstick blows out and oil escapes from dipstick tube.

Cause	Remedy
Water in the oil combined with heat may cause steam.	Replace or renew the dipstick.
	Drain the oil and flush the gearbox. Refer to driveline- semi-automatic gearbox, refer to (PIL 27-06).

Table 178. Consequential Faults (Gearbox faults caused typically by water contamination and other factors related to the gearbox oil.)- Clutch failure due to friction lining separation.

Cause	Remedy
Water ingress.	Remove and dismantle gearbox. Inspect relevant clutch components for signs of damage or excessive wear. Install new as applicable.
Overheating transmission oil.	Drain the oil and flush the gearbox. Refer to driveline- semi-automatic gearbox, refer to (PIL 27-06).

Table 179. Consequential Faults (Gearbox faults caused typically by water contamination and other factors related to the gearbox oil.)- Badly worn or noisy bearings.

Cause	Remedy
Water ingress.	Remove and dismantle the gearbox. Inspect all components for signs of damage or excessive wear. Install new components as applicable.
Insufficient lubrication.	Drain the oil and flush the gearbox. Refer to driveline- semi-automatic gearbox, refer to (PIL 27-06).
	Carry out oil pressure and flow tests. Refer to driveline- semi-automatic gearbox, refer to (PIL 27-06).

Table 180. Gear shifts fail to function normally or shifts occur at the incorrect road speed.

Cause	Remedy
Gear selector switch faulty	Check the function of the gear selector switch. Also Inspect the condition of the associated electrical wiring, plugs and connectors for damage and make sure that the relevant fuses are intact.

(For: P/Tronic 6x4 Smoothshift, PS700, PS750 MK2, PS750 MK3, PS750 MK4, PS760, PS764, PS766)

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(For: 40-Series)

Table 304. PD 40 Axle

Type	JCB Drivetrain Systems Ltd spiral bevel input with epicyclic hub reduction.					
Designation	PD40					
Installation	Rigid pad mount					
Weight (dry and without wheels)	Pad: 195kg					
Ratios	Option1	Option2	Option3	Option4	Option5	Option6
Overall	12.24:1	16.2:1	18.6:1	19.2:1	20.93:1	23.625:1
Crownwheel and Pinion	2.26:1	3.0:1	3.44:1	3.55:1	3.875:1	4.375
Number of Teeth						
Crownwheel	34	33	31	32	31	35
Pinion	15	11	9	9	8	8
Hub Reduction	5.4:1					
Input Type	1480 Half yoke (1310 Half yoke option)					

Table 305. Service Brake - 2 Plate, Positive Retraction (Power Braked Machines)

Type	Oil-immersed multi-plate disc
Actuation	Hydraulic
Location	Outboard - Axle hub
Friction plates	2 per brake (i.e. 4 per axle)
Outside diameter	166mm
Inside diameter	117mm
Nominal facing area/ plate	0.019 m²

Table 306. Service Brake - 3 Plate, Standard Retraction

Type	Oil-immersed multi-plate disc
Actuation	Hydraulic
Location	Outboard - Axle hub
Friction plates	3 per brake (i.e. 6 per axle)
Outside diameter	166mm
Inside diameter	117mm
Nominal facing area/ plate	0.019 m²

(For: 70-Series)

Important: It is essential that the correct ratio axle in relationship to the gearbox ratio is installed to a machine. Do not install a new axle with a different ratio to the axle being replaced.

Table 307. PD 70 Axle - Central Drivehead (Inboard Brakes) and Integral Parking Brake

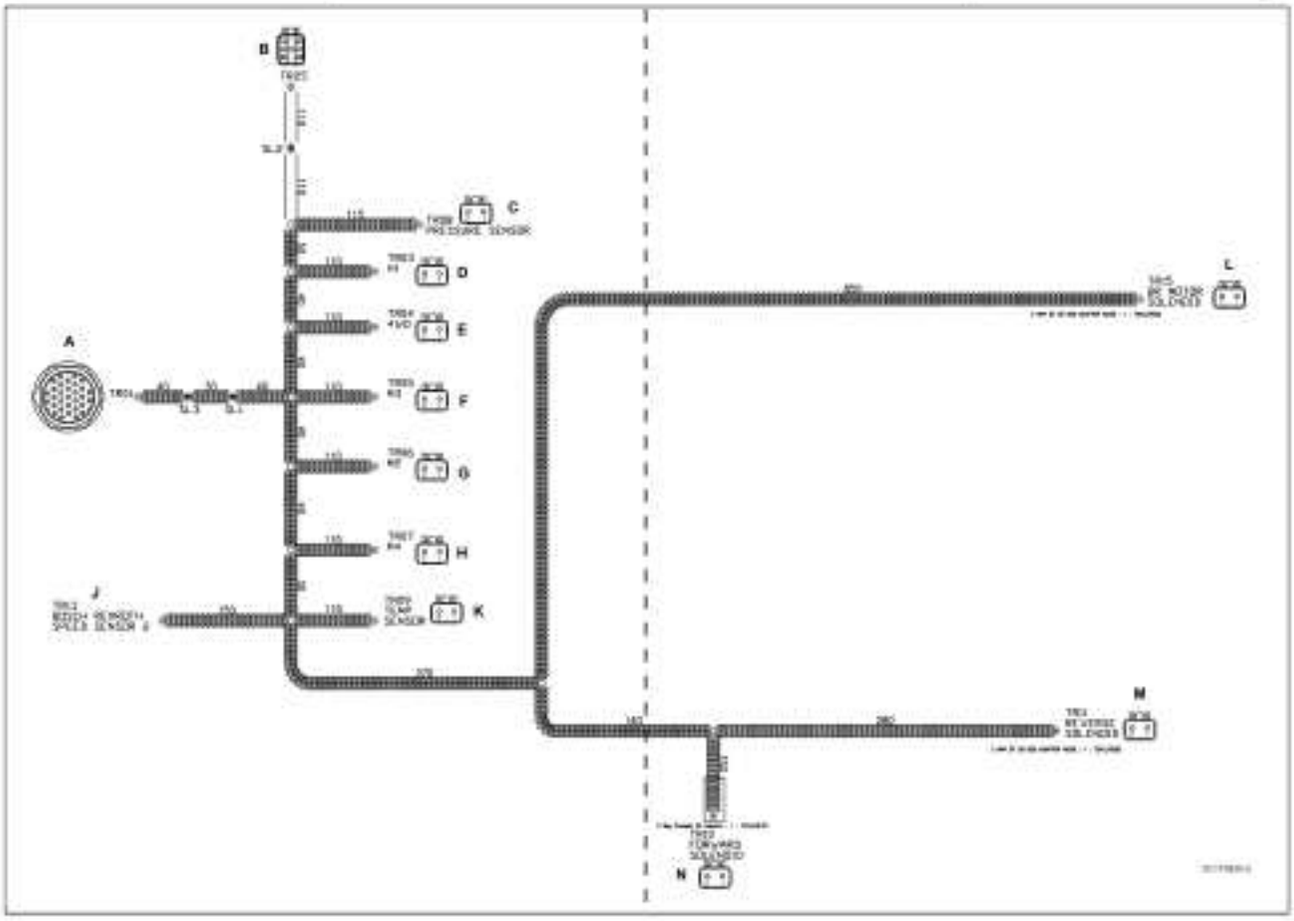
Type	3 piece, spiral bevel input with epicyclic hub reduction and inboard braking.
	Pinion mounted parking brake disc.
Designation	PD70
Installation	Rigid pad mount, pin mount or trunnion mount.

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Figure 1451. 721/T0830-2 Dual Tech Variable Transmission, Transmission Harness

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Step	Procedure Name	Notes
15	Repositions and use the same tools to measure the output shaft end float. The output shaft bearing is preloaded and deflection should be zero.	
16	Measure the pump clutch shaft end float	
17	Using the special tool, lock off the bevel pinion gear. Measure bevel gear backlash. The tool is installed the opposite side of the transmission case.	
18	Remove output shaft yolk RWD (Rear Wheel Drive).	-
19	Remove bevel gear carrier and shim. Refer to PIL (27-12).	
20	Remove input shaft stake nut and components. Special tools are required. Make sure you de-stake the nut or the shaft will be damaged. Refer to PIL (27-12). Use tool 332/M6571 and 459/M0155 (and setscrews 1314/0411Z).	

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Fault

Machine drives but lacks power in all gears. Gearbox oil may also be overheating.	Table 181.	Page 27-462
Machine does not drive in any gear.	Table 182.	Page 27-463
Some gears fail to engage or lack power.	Table 183.	Page 27-463
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Gear shifts fail to function normally or shifts occur at the incorrect road speed.	Table 193.	Page 27-467

Table 181. Machine drives but lacks power in all gears. Gearbox oil may also be overheating.

Cause	Remedy
Gearbox oil level low.	Check for leaks and top up oil level as required.
Gearbox oil contaminated or wrong grade.	Investigate the reason for the contamination and rectify as required. Drain the oil and flush the gearbox. Refer to driveline- semi automatic gearbox, refer to (PIL 27-06).
Suction strainer restricted or blocked.	Remove the suction strainer and clean or install new as applicable. Refer to driveline- semi-automatic gearbox, refer to (PIL 27-06).
Pressure maintenance valve defective.	Carry out oil pressure and flow tests. Refer to driveline- semi-automatic gearbox, refer to (PIL 27-06).
	Remove the pressure maintenance valve and inspect for signs of damage or excessive wear. Clean or install new as applicable.
Torque converter relief valve defective.	Carry out oil pressure and flow tests. Refer to driveline- Torque converter, refer to (PIL 27-14).
	Remove the torque converter relief valve and inspect for signs of damage or excessive wear. Clean or install new as applicable.
Oil cooler lines restricted or blocked. Internal blockage within the oil cooler matrix due to contamination.	Carry out oil pressure and flow tests. Refer to driveline- semi-automatic gearbox, refer to (PIL 27-06).
	Clear the restriction. Inspect the hose routing and install new the hoses or oil cooler matrix as applicable.
Faulty torque converter.	Carry out torque converter stall tests to confirm stall speeds are within specification. Refer to driveline- Torque converter, refer to (PIL 27-14).
	Remove the gearbox and install new the torque converter. Note that the torque converter assembly is a non serviceable item.

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