



Service Manual

TM200
TM270
TM300

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Introduction

This publication is designed for the benefit of JCB Distributor Service Engineers who are receiving, or have received, training by JCB Technical Training Department.

These personnel should have a sound knowledge of workshop practice, safety procedures, and general techniques associated with the maintenance and repair of hydraulic earthmoving equipment.

Renewal of oil seals, gaskets, etc., and any component showing obvious signs of wear or damage is expected as a matter of course. It is expected that components will be cleaned and lubricated where appropriate, and that any opened hose or pipe connections will be blanked to prevent excessive loss of hydraulic fluid and ingress of dirt. Finally, please remember above all else **SAFETY MUST COME FIRST!**

The manual is compiled in sections, the first three are numbered and contain information as follows:

- 1** = **General Information** - includes torque settings and service tools.
- 2** = **Care & Safety** - includes warnings and cautions pertinent to aspects of workshop procedures etc.
- 3** = **Routine Maintenance** - includes service schedules and recommended lubricants for all the machine.

The remaining sections are alphabetically coded and deal with Dismantling, Overhaul etc. of specific components, for example:

- A** = **Attachments**
- B** = **Body & Framework** ...etc.

The page numbering in each alphabetically coded section is not continuous. This allows for the insertion of new items in later issues of the manual.

Section contents, technical data, circuit descriptions, operation descriptions etc. are inserted at the beginning of each alphabetically coded section.








All sections are listed on the front cover; tabbed divider cards align directly with individual sections on the front cover for rapid reference.

Where a torque setting is given as a single figure it may be varied by plus or minus 3%. Torque figures indicated are for dry threads, hence for lubricated threads may be reduced by one third.

'Left Hand' and 'Right Hand' are as viewed from the rear of the machine facing forwards.

Colour Codes

The following colour coding, used on illustrations to denote various conditions of oil pressure and flow, is standardised throughout JCB Service Publications

-  **Red** — **Full Pressure**
Pressure generated from operation of a service. Depending on application this may be anything between neutral circuit pressure and M.R.V. operating pressure.
-  **Pink** — **Pressure**
Pressure that is above neutral circuit pressure but lower than that denoted by red.
-  **Orange** — **Servo**
Oil pressure used in controlling a device (servo).
-  **Blue** — **Neutral**
Neutral circuit pressure.
-  **Green** — **Exhaust**
-  **Light Green** — **Cavitation**
Oil subjected to a partial vacuum due to a drop in pressure (cavitation).
-  **Yellow** — **Lock Up**
Oil trapped within a chamber or line, preventing movement of components (lock up).

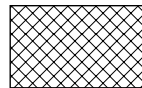
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Black & White Codes

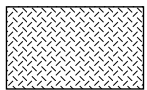
The following black and white coding, used on illustrations to denote various conditions of oil pressure and flow, is standardised throughout JCB Service Publications



Neutral Circuit Pressure.



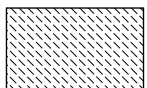
Oil subjected to a partial vacuum due to a drop in pressure (cavitation).



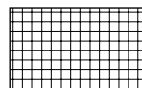
Pressure generated by the operation of a service. Depending on application this may be anything between Neutral Circuit Pressure and M.R.V. Operation Pressure.



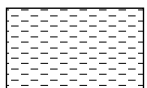
Oil trapped within a chamber or line preventing movement of components (lock-up).



Pressure that is above Neutral Circuit Pressure but lower than that denoted above.



Oil pressure used in a controlling device (servo).



Exhaust.

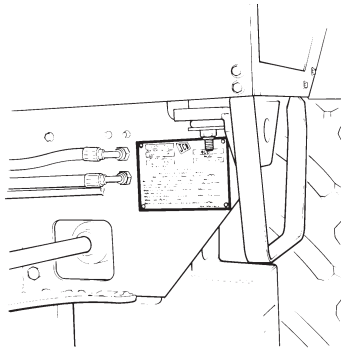
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Machine Identification Plate

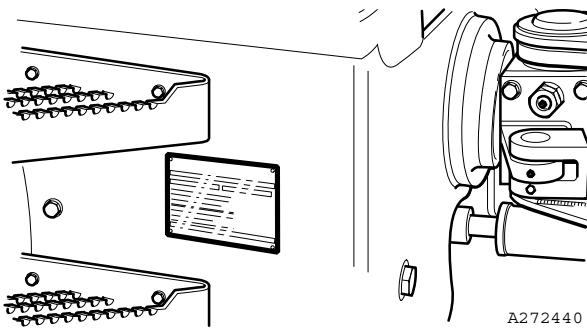
Your machine has an identification plate mounted as shown. The serial numbers of the machine and its major units are stamped on the plate.

TM200



S114730

* **TM270 & TM 300**



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The serial number of each major unit is also stamped on the unit itself. If a major unit is replaced by a new one, the serial number on the identification plate will be wrong. Either stamp the new number of the unit on the identification plate, or simply stamp out the old number. This will prevent the wrong unit number being quoted when replacement parts are ordered.

The machine and engine serial numbers can help identify exactly the type of equipment you have.

CE	JCB	J.C.BAMFORD EXCAVATORS LTD. ROCESTER, STAFFS, ENGLAND CONSTRUCTOR		EN 29001 REGISTERED FM21018
		Product Identification Number		
VIN Vehicle Identification Number				
ENGINE SERIAL NUMBER		FRONT AXLE SERIAL NUMBER		
TRANSMISSION SERIAL NUMBER		REAR AXLE SERIAL NUMBER		
WEIGHT kg		ENGINE POWER kW @ RPM		

#17/0000

U.K. and R.O.W.

Typical Vehicle Identification Number (VIN)

SLP 270 A T V E 0787034
 A B C D E F G

- A** World Manufacturer Identification
- B** Machine Model
- C** Steer Type (A = Articulated)
- D** Build Type (T = Telescopic Handler)
- E** Year of Manufacture:

R = 1994	1 = 2001
S = 1995	2 = 2002
T = 1996	3 = 2003
V = 1997	4 = 2004
W = 1998	5 = 2005
X = 1999	6 = 2006
Y = 2000	7 = 2007
- F** Manufacturer Location (E = England)
- G** Product Identification Number (PIN)

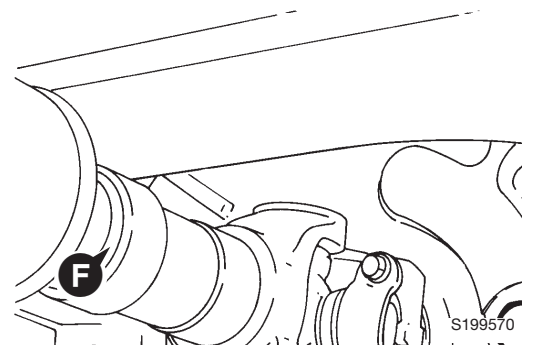
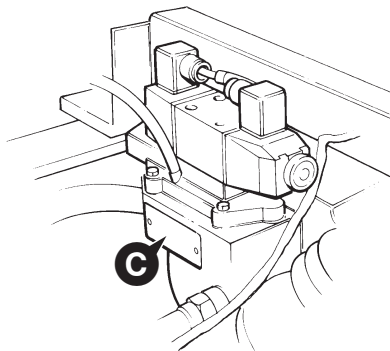
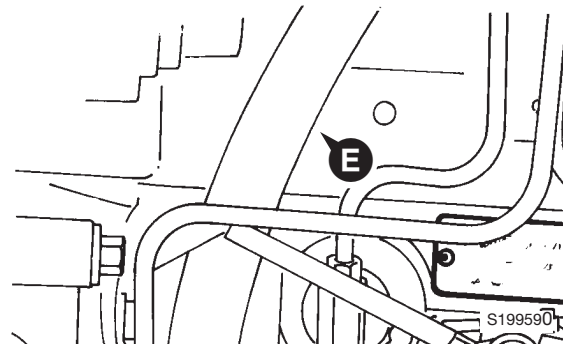
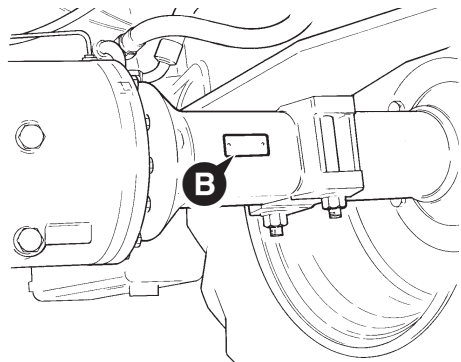
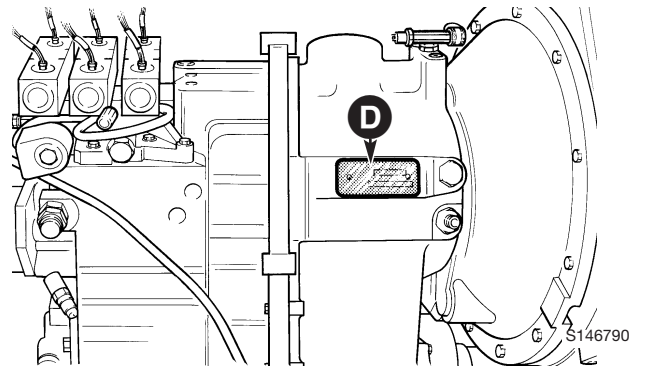
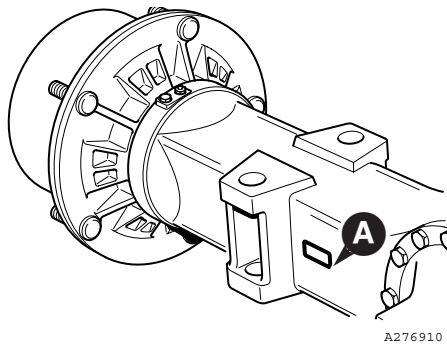
Typical Engine Identification Number

AB 50262 U 500405 P
 A B C D E

- A** Engine Type
AB = 4 cylinder turbo
- B** Build Number
- C** Country of Origin
- D** Engine Sequence Number
- E** Year of Manufacture

Serial Plates

- A** TM200 Axles
- * **B** TM270 & TM300 Axles
- C** Syncro Shuttle Transmission
- D** Powershift Transmission
- E** Engine
- F** Transfer Gearbox



TORQUE SETTINGS

Use only where no torque setting is specified in the text. Values are for dry threads and may be within three per cent of the figures stated. For lubricated threads the values should be REDUCED by one third.

UNF Grade 'S' Bolts

Bolt Size in	Hexagon (A/F) (mm)	Hexagon (A/F) in	Torque Settings		
			Nm	kgf m	lbf ft
1/4	(6.3)	7/16	14	1.4	10
5/16	(7.9)	1/2	28	2.8	20
3/8	(9.5)	9/16	49	5.0	36
7/16	(11.1)	5/8	78	8.0	58
1/2	(12.7)	3/4	117	12.0	87
9/16	(14.3)	13/16	170	17.3	125
5/8	(15.9)	15/16	238	24.3	175
3/4	(19.0)	1 1/8	407	41.5	300
7/8	(22.2)	1 5/16	650	66.3	480
1	(25.4)	1 1/2	970	99.0	715
1 1/4	(31.7)	1 7/8	1940	198.0	1430
1 1/2	(38.1)	2 1/4	3390	345.0	2500

Metric Grade 8.8 Bolts

Bolt Size (mm)	Hexagon (A/F) mm	Torque Settings			
		Nm	kgf m	lbf ft	
M5	(5)	8	7	0.7	5
M6	(6)	10	12	1.2	9
M8	(8)	13	28	3.0	21
M10	(10)	17	56	5.7	42
M12	(12)	19	98	10	72
M16	(16)	24	244	25	180
M20	(20)	30	476	48	352
M24	(24)	36	822	84	607
M30	(30)	46	1633	166	1205
M36	(36)	55	2854	291	2105

Rivet Nut Bolts/Screws

Bolt Size (mm)	Torque Settings (for steel rivet nuts)			
	Nm	kgf m	lbf ft	
M3	(3)	1.2	0.12	0.9
M4	(4)	3.0	0.3	2.0
M5	(5)	6.0	0.6	4.5
M6	(6)	10.0	1.0	7.5
M8	(8)	24.0	2.5	18.0
M10	(10)	48.0	4.9	35.5
M12	(12)	82.0	8.4	60.5

Note: All bolts used on JCB machines are high tensile and must not be replaced by bolts of a lesser tensile specification.

JCB Standard Torque Settings B.S.P. Port Connection (Colour Coded)

Note: All adapters, elbows and hoses should be tightened to JCB standard torque settings unless stated otherwise.



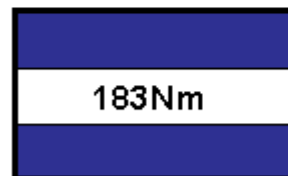
1/8" ADAPTER
14mm



5/8" ADAPTER
30mm



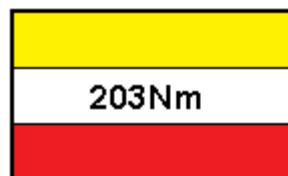
1/4" ADAPTER
19mm



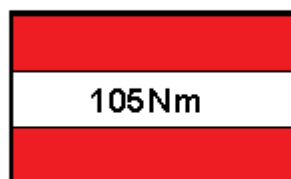
3/4" ADAPTER
32mm



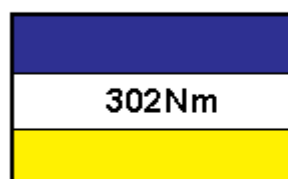
3/8" ADAPTER
22mm



1" ADAPTER
41mm



1/2" ADAPTER
27mm


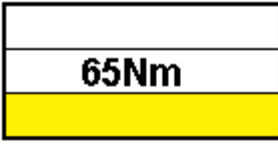
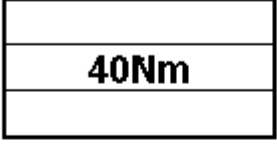


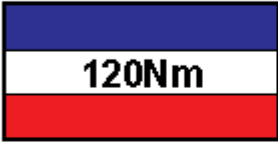
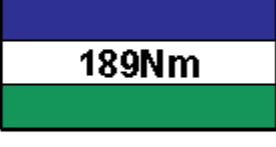


1 1/4" ADAPTER





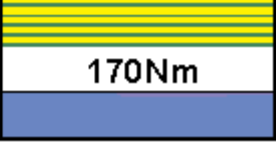
JCB Standard Torque Settings for Hose Ends and Flanged Fittings (Colour Coded)

Note: All adapters, elbows and hoses should be tightened to JCB standard torque settings unless stated otherwise.

HOSE END FITTINGS

 <p>24Nm</p>	<p>1/4" BSP HOSE 19mm</p>	 <p>65Nm</p>	<p>5/8" BSP HOSE 30mm</p>
 <p>40Nm</p>	<p>3/8" BSP HOSE 22mm</p>	 <p>95Nm</p>	<p>3/4" BSP HOSE 32mm</p>
 <p>55Nm</p>	<p>1/2" BSP HOSE 27mm</p>	 <p>120Nm</p>	<p>1" BSP HOSE 41mm</p>
 <p>189Nm</p>		<p>1 1/4" BSP HOSE</p>	

SPLIT FLANGE and FLANGED PIPE FITTINGS

 <p>23Nm</p>	<p>M8 CAPSCREW 6mm</p>	 <p>62Nm</p>	<p>M12 CAPSCREW 10mm</p>
 <p>40Nm</p>	<p>M10 CAPSCREW 8mm</p>	 <p>94Nm</p>	<p>M14 CAPSCREW 12mm</p>
 <p>170Nm</p>		<p>M16 CAPSCREW 14mm</p>	

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