

Ground Care FM30

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Section 1 - General Information

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Section 1 - General Information

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Introduction

About this Publication

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

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

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.

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

This Service Manual covers the following machines:

JCB FM30 from SN 1303000 to SN 1303999.



Section 1 - General Information

Introduction

About this Publication

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Machine Identification

Identifying Your Machine

Machine Identification Plates

The machine has an identification plate 1, attached as shown. → [Fig 1.](#) ([□ 1-3](#)).

The Information contained on this plate is the Product Identification Number, Serial Number, Weight in kg, Year of Manufacture and the Engine Power in kW.

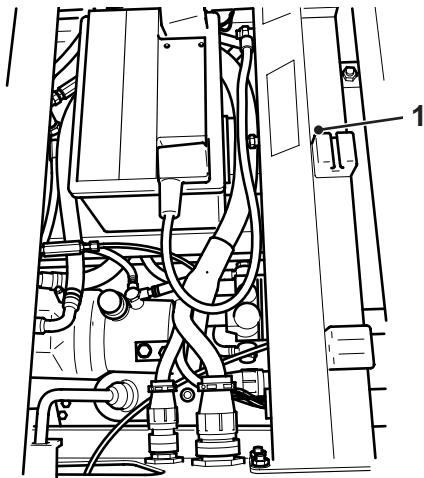


Fig 1.

V016790-1

The manufacturer's name and serial number are printed on the gearbox. → [Fig 2.](#) ([□ 1-3](#)).

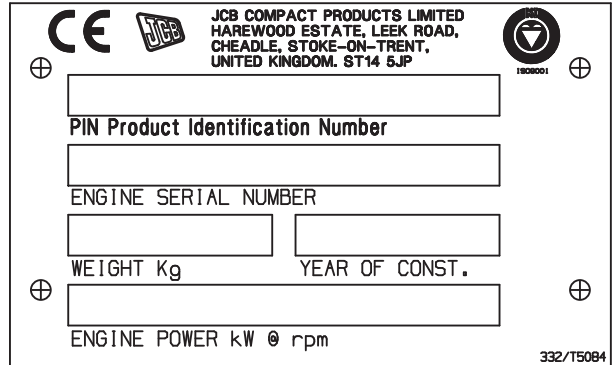


Fig 2.

T021680

Component Identification

Engine Identification

The JCB FM30 Mower is powered by a Yanmar™ 3TNV82A-DM1 liquid cooled diesel powered engine.

The engine information is shown on the data plates **1** attached to the engine as shown. → [Fig 3.](#) ([□ 1-4](#)).

This data plate decal contains the engine model, the type, and the engine serial number.

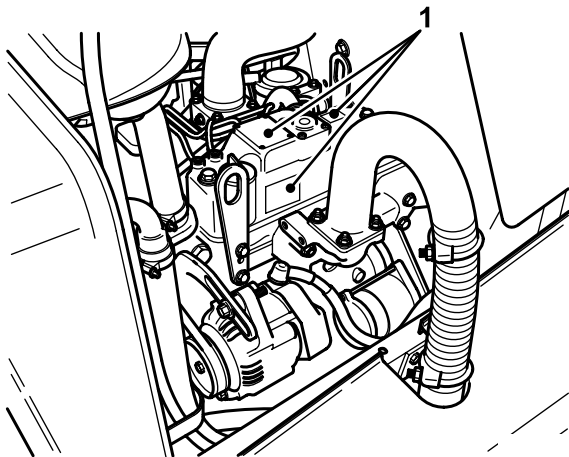


Fig 3.

Always refer to this information when ordering parts, requesting warranty, etc.

Engine information can be obtained through the Yanmar Europe web-site.

When working on or repairing the engine, use genuine engine service parts only. Engine warranty may be invalidated if “after market” parts are used.

Important: All matters concerning service and warranty for the Yanmar engine is handled by Yanmar. JCB assumes NO service or warranty responsibility for engine concerns.

Hydraulic Pump Identification

Always refer to this information when ordering parts, requesting warranty, etc.

Consumables

Sealing and Retaining Compounds

T11-001_3

Table 1.

Type	Description	Part No.	Quantity
JCB Multi-Gasket	A medium strength sealant suitable for all sizes of gasket flanges, and for hydraulic fittings of 25-65 mm diameter.	4102/1212	50 ml
JCB High Strength Threadlocker	A high strength locking fluid for use with threaded components. Gasketing for all sizes of flange where the strength of the joint is important.	4102/0551	50 ml
JCB Retainer (High Strength)	For all retaining parts which are unlikely to be dismantled.	4101/0651	50 ml
JCB Threadlocker and Sealer	A medium strength locking fluid for sealing and retaining nuts, bolts, and screws up to 50 mm diameter, and for hydraulic fittings up to 25 mm diameter.	4101/0250	10 ml
		4101/0251	50 ml
JCB Threadlocker and Sealer (High Strength)	A high strength locking fluid for sealing and retaining nuts, bolts, and screws up to 50 mm diameter, and for hydraulic fittings up to 25 mm diameter.	4101/0550	10 ml
		4101/0552	200 ml
JCB Threadseal	A medium strength thread sealing compound.	4102/1951	50 ml
JCB Activator	A cleaning primer which speeds the curing rate of anaerobic products.	4104/0251	200 ml (Aerosol)
		4104/0253	1 ltr (Bottle)
JCB Cleaner/Degreaser	For degreasing components prior to use of anaerobic adhesives and sealants.	4104/1557	400 ml (Aerosol)
Direct Glazing Kit	For one pane of glass; comprises of: <ul style="list-style-type: none"> - 1 x Ultra Fast Adhesive (310 ml) - 1 x Active Wipe 205 (30 ml) - 1 x Black Primer 206J (30 ml) - plus applicator nozzle etc. 	993/55700	
Ultra Fast Adhesive	For direct glazing.	4103/2109	310 ml
Active Wipe 205	For direct glazing.	4104/1203	250 ml
Black Primer 206J	For direct glazing.	4201/4906	30 ml
Clear Silicone Sealant	To seal butt jointed glass.	4102/0901	
Plastic to Metal Bonder	To seal plastic to metal joints.	4103/0956	50 g
Black Polyurethane Sealant	To finish exposed edges of laminated glass.	4102/2309	310 ml



Section 1 - General Information

Consumables

Sealing and Retaining Compounds

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Service Tools

Numerical List

The tools listed in the table are special tools required for carrying out the procedures described in this manual. These tools are available from JCB Service.

Some tools are available as kits or sets, the part numbers for parts within such kits or sets are not listed here. For full

details of all tools, including the content of kits and sets, see the relevant section in this manual.

Note: *Tools other than those listed will be required. It is expected that such general tools will be available in any well equipped workshop or be available locally from any good tool supplier.*

Part Number	Description	Tool Detail Reference - see Section:
-	AVO Test Kit - see tool detail reference for content	C
-	Electrical Repair Kit - see tool detail reference for content	C
993/85700	Battery Tester	C



Section 1 - General Information

Service Tools

Numerical List

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Fastener Torque Chart

Zinc Plated Fasteners and Dacromet Fasteners

T11-002

Introduction

Some external fasteners on JCB machines are manufactured using an improved type of corrosion resistant finish. This type of finish is called Dacromet and replaces the original Zinc and Yellow Plating used on earlier machines.

The two types of fasteners can be readily identified by colour and part number suffix. ⇒ [Table 1. Fastener Types](#) (□ 1-9).

Table 1. Fastener Types

Fastener Type	Colour	Part No. Suffix
Zinc and Yellow	Golden finish	'Z' (e.g. 1315/3712Z)
Dacromet	Mottled silver finish	'D' (e.g. 1315/3712D)

Note: As the Dacromet fasteners have a lower torque setting than the Zinc and Yellow fasteners, the torque figures used must be relevant to the type of fastener.

Note: A Dacromet bolt should not be used in conjunction with a Zinc or Yellow plated nut, as this could change the torque characteristics of the torque setting further. For the same reason, a Dacromet nut should not be used with a Zinc or Yellow plated bolt.

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

Note: Dacromet bolts, due to their high corrosion resistance are used in areas where rust could occur. Dacromet bolts are only used for external applications. They are not used in applications such as gearbox or engine joint seams or internal applications.

Bolts and Screws

Use the following torque setting tables only where no torque setting is specified in the text.

Note: Dacromet fasteners are lubricated as part of the plating process, do not lubricate.

Torque settings are given for the following conditions:

Condition 1

- Un-lubricated fasteners
- Zinc fasteners
- Yellow plated fasteners

Condition 2

- Zinc flake (Dacromet) fasteners
- Lubricated zinc and yellow plated fasteners
- Where there is a natural lubrication. For example, cast iron components

Verbus Ripp Bolts

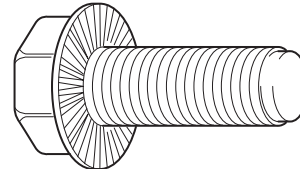


Fig 1.

Torque settings for these bolts are determined by the application. Refer to the relevant procedure for the required settings.



Section 1 - General Information Fastener Torque Chart

Zinc Plated Fasteners and Dacromet Fasteners

Table 2. Torque Settings - UNF Grade 'S' Fasteners

Bolt Size		Hexagon (A/F)	Condition 1			Condition 2		
in.	mm	in.	Nm	kgf m	lbf ft	Nm	kgf m	lbf ft
1/4	6.3	7/16	11.2	1.1	8.3	10.0	1.0	7.4
5/16	7.9	1/2	22.3	2.3	16.4	20.0	2.0	14.7
3/8	9.5	9/16	40.0	4.1	29.5	36.0	3.7	26.5
7/16	11.1	5/8	64.0	6.5	47.2	57.0	5.8	42.0
1/2	12.7	3/4	98.0	10.0	72.3	88.0	9.0	64.9
9/16	14.3	13/16	140.0	14.3	103.2	126.0	12.8	92.9
5/8	15.9	15/16	196.0	20.0	144.6	177.0	18.0	130.5
3/4	19.0	1 1/8	343.0	35.0	253.0	309.0	31.5	227.9
7/8	22.2	1 15/16	547.0	55.8	403.4	492.0	50.2	362.9
1	25.4	1 1/2	814.0	83.0	600.4	732.0	74.6	539.9
1 1/8	31.7	1 7/8	1181.0	120.4	871.1	1063.0	108.4	784.0
1 1/4	38.1	2 1/4	1646.0	167.8	1214.0	1481.0	151.0	1092.3

Table 3. Torque Settings - Metric Grade 8.8 Fasteners

Bolt Size		Hexagon (A/F)	Condition 1			Condition 2		
ISO Metric Thread	mm	mm	Nm	kgf m	lbf ft	Nm	kgf m	lbf ft
M5	5	8	5.8	0.6	4.3	5.2	0.5	3.8
M6	6	10	9.9	1.0	7.3	9.0	0.9	6.6
M8	8	13	24.0	2.4	17.7	22.0	2.2	16.2
M10	10	17	47.0	4.8	34.7	43.0	4.4	31.7
M12	12	19	83.0	8.5	61.2	74.0	7.5	54.6
M16	16	24	205.0	20.9	151.2	184.0	18.8	135.7
M20	20	30	400.0	40.8	295.0	360.0	36.7	265.5
M24	24	36	690.0	70.4	508.9	621.0	63.3	458.0
M30	30	46	1372.0	139.9	1011.9	1235.0	125.9	910.9
M36	36	55	2399.0	244.6	1769.4	2159.0	220.0	1592.4



Section 1 - General Information Fastener Torque Chart

Zinc Plated Fasteners and Dacromet Fasteners

Table 4. Metric Grade 10.9 Fasteners

Bolt Size		Hexagon (A/F)	Condition 1			Condition 2		
ISO Metric Thread	mm	mm	Nm	kgf m	lbf ft	Nm	kgf m	lbf ft
M5	5	8	8.1	0.8	6.0	7.3	0.7	5.4
M6	6	10	13.9	1.4	10.2	12.5	1.3	9.2
M8	8	13	34.0	3.5	25.0	30.0	3.0	22.1
M10	10	17	67.0	6.8	49.4	60.0	6.1	44.2
M12	12	19	116.0	11.8	85.5	104.0	10.6	76.7
M16	16	24	288.0	29.4	212.4	259.0	26.4	191.0
M20	20	30	562.0	57.3	414.5	506.0	51.6	373.2
M24	24	36	971.0	99.0	716.9	874.0	89.1	644.6
M30	30	46	1930.0	196.8	1423.5	1737.0	177.1	1281.1
M36	36	55	3374.0	344.0	2488.5	3036.0	309.6	2239.2

Table 5. Metric Grade 12.9 Fasteners

Bolt Size		Hexagon (A/F)	Condition 1			Condition 2		
ISO Metric Thread	mm	mm	Nm	kgf m	lbf ft	Nm	kgf m	lbf ft
M5	5	8	9.8	1.0	7.2	8.8	0.9	6.5
M6	6	10	16.6	1.7	12.2	15.0	1.5	11.1
M8	8	13	40.0	4.1	29.5	36.0	3.7	26.5
M10	10	17	80.0	8.1	59.0	72.0	7.3	53.1
M12	12	19	139.0	14.2	102.5	125.0	12.7	92.2
M16	16	24	345.0	35.2	254.4	311.0	31.7	229.4
M20	20	30	674.0	68.7	497.1	607.0	61.9	447.7
M24	24	36	1165.0	118.8	859.2	1048.0	106.9	773.0
M30	30	46	2316.0	236.2	1708.2	2084.0	212.5	1537.1
M36	36	55	4049.0	412.9	2986.4	3644.0	371.6	2687.7

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