

Ground Care FM25

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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 earth moving 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 FM25 from SN 1069600 to SN 1069999



Section 1 - General Information

Introduction

About this Publication

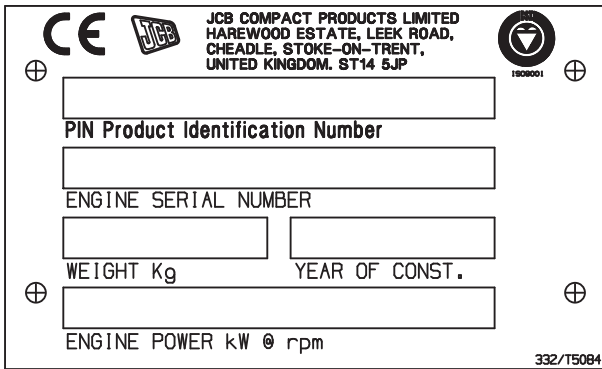
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Machine Identification

Identifying Your Machine

Machine Identification Plates

Your machine has an identification plate, mounted as shown. ⇒ [Fig 1. \(□ 1-3\)](#). Information contained on this plate is the Product identification number, Serial number, Weight in kg, Year of manufacture, and Engine power in kw.



The manufacturer's name and serial number are stamped on the chassis as shown (1). ⇒ [Fig 1. \(□ 1-3\)](#)

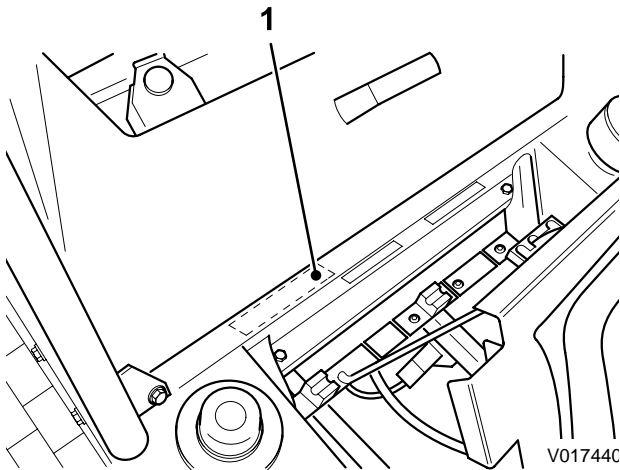


Fig 1.

Engine Identification Number Location

The engine serial number is printed on a plate (1) attached to the engine as shown. ⇒ [Fig 2. \(□ 1-3\)](#)

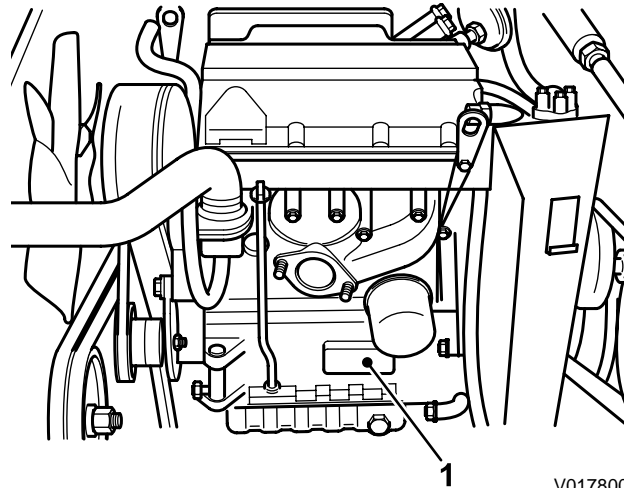


Fig 2.

V01780C

Identifying Your Machine

Roll Over Protection Structure (ROPS)

WARNING

Modified and wrongly repaired ROPS, TOPS & FOGS Structures are dangerous. Do not modify the TOPS Structure. Do not attempt to repair the ROPS, TOPS & FOGS Structure. If the ROPS, TOPS & FOGS Structure has been in an accident, do not use the machine until the structure has been inspected and repaired. This must be done by a qualified person. For assistance, contact your JCB dealer. Failure to take precautions could result in death or injury to the operator.

5-3-1-7_2

Component Identification

Engine Identification

The JCB FM25 Mower is powered by a Lombardini™ LDW1003 liquid cooled diesel powered engine.

The data information is located on the data plates (1) attached to the engine as shown. ⇒ [Fig 2. \(□ 1-3\)](#)

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

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.

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

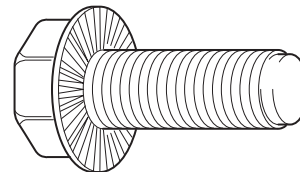


Fig 1.

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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