Service Manual

JCB 8250 Fastrac

Publication No.

9803/8040-6

World Class
Customer Support

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Identifying the Machine

Serial Numbers

Serial Number Plate

Each machine has a serial number plate located at **X.** The 17 digit Vehicle Identification Number (VIN), and the serial numbers of the engine and transmission are stamped on the plate.

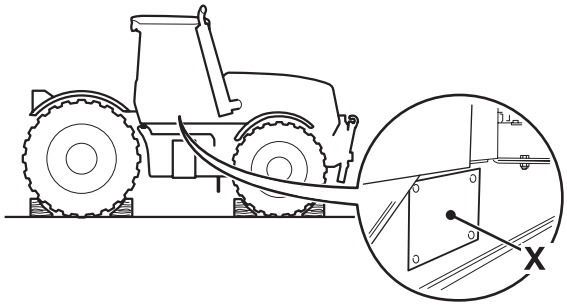

Fig 1.

Typical Vehicle Identification No. (VIN)

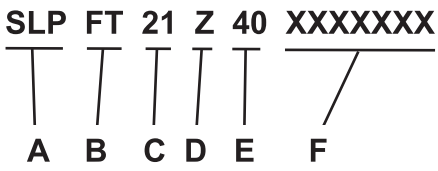

Fig 2.

A **Manufacturing code**

B **Machine range**

FT = Fastrac

C **Engine type**

D **Transmission type** (gearbox & axle combination)

E **Vehicle max. speed**

40 = 40 kph

50 = 50 kph

65 = 65 kph

F **Serial number**

Unit Identification

The serial number of each major unit is also stamped on the unit itself as shown below. If a major unit is replaced by a new one, the serial number on the 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.

Engine	**M**
Gearbox	**N**
Front axle	**P**
Rear axle	**R**

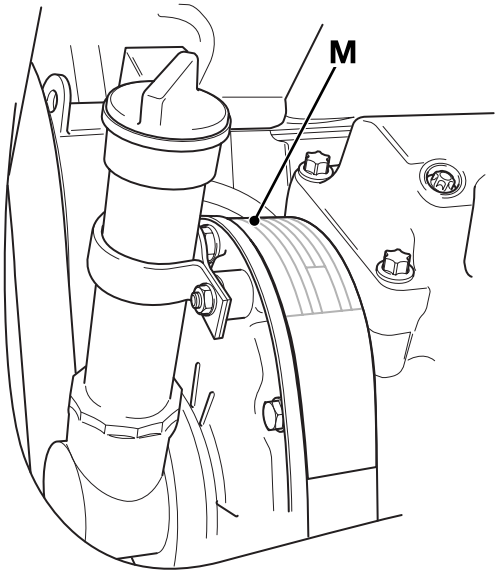

Fig 3.

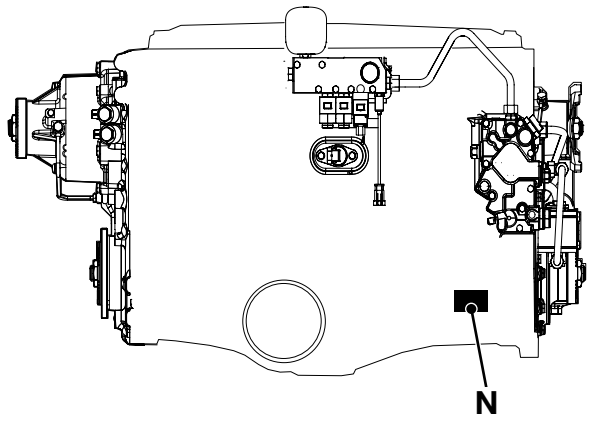

Fig 4.

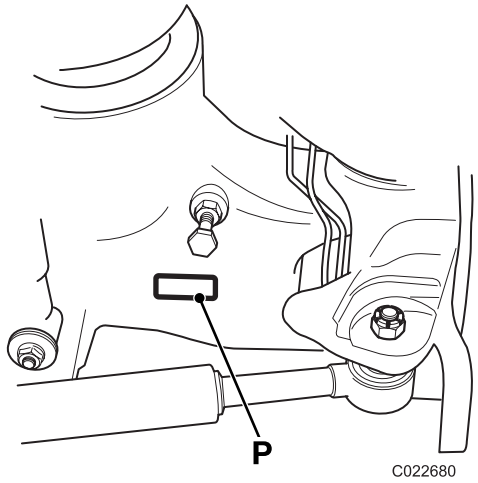

Fig 5.

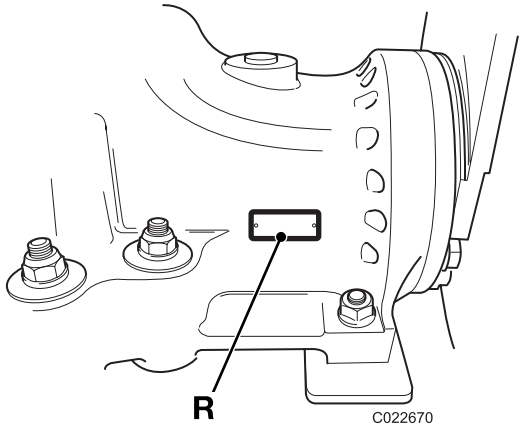

Fig 6.

Standard Torque Settings

Zinc Plated Fasteners and Dacromet Fasteners

Introduction

Some external fasteners on Fastrac machines are assembled 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 as follows:

Fastener Type	Colour	Part Number
Zinc and Yellow	Golden finish	Z (e.g. 1315/3712Z)
Dacromet	Mottled silver finish	D (e.g. 1315/3712D)

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 fasteners.

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

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 and engine joint seams or internal applications.

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

Zinc Plated Fasteners (golden finish)

Use the values on these pages 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.

Metric Grade 8.8 Bolts

Size			Torque Settings		
			Nm	kgf m	lbf ft
Diameter (mm)		Hexagon (A/F) mm			
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
M18	(18)	27	350	36	258
M20	(20)	30	476	48	352
M24	(24)	36	822	84	607
M30	(30)	46	1633	166	1205
M36	(36)	55	2854	291	2105

Metric Grade 10.9 Bolts

Size			Torque Settings		
			Nm	kgf m	lbf ft
Diameter (mm)		Hexagon (A/F) mm			
M6	(6)	8	16	1.6	12
M8	(8)	13	39	4	29
M10	(10)	17	78	8	57
M12	(12)	19	137	14	101
M16	(16)	24	343	35	253
M20	(20)	30	657	67	485
M24	(24)	36	1157	118	853

Metric - All Internal Hexagon Headed Cap Screws

Diameter	Torque Settings		
mm	Nm	kgf m	lbf ft
M3	2	0.2	1.5
M4	6	0.6	4.5
M5	11	1.1	8
M6	19	1.9	14
M8	46	4.7	34
M10	91	9.3	67
M12	159	16.2	117
M16	395	40	292
M18	550	56	406
M20	770	79	568
M24	1332	136	983

Verbus Ripp Bolts

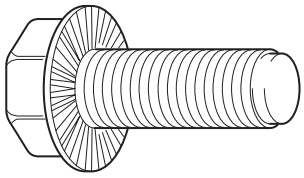

Fig 7.

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

Dacromet Fasteners (mottled silver finish)

Use the values on these pages only where no torque setting is specified in the text.

Note: *Dacromet fasteners are lubricated as part of the plating process. Do not lubricate*

Metric Grade 8.8 Bolts

Bolt size	Torque Settings		
Dia.	Nm	kgf m	lbf ft
M6 x 1.0	9	0.9	7
M8 x 1.25	22.5	2.3	17
M10 x 1.5	47.5	4.8	35
M12 x 1.75	80	8.2	59
M14 x 2	133	13.6	98
M16 x 2	200	20.4	148
M18 x 2.5	278	28.4	205
M20 x 2.5	392	40	289
M24 x 3	675	69	498
M30 x 3.5	1348	138	994

Metric Grade 10.9 Bolts

Bolt size	Torque Settings		
Dia.	Nm	kgf m	lbf ft
M6 x 1.0	13.5	1.4	10
M8 x 1.25	35	3.6	26
M10 x 1.5	62.5	6.4	46
M12 x 1.75	115	11.7	85
M14 x 2	175	17.9	129
M16 x 2	300	30.6	221
M18 x 2.5	395	40	291
M20 x 2.5	559	57	412
M24 x 3	962	98	710
M30 x 3.5	1920	196	1416

Metric Grade 12.9 Bolts

Bolt size	Torque Settings		
Dia.	Nm	kgf m	lbf ft
M6 x 1.0	15	1.5	11
M8 x 1.25	40	4.1	29
M10 x 1.5	80	8.2	59
M12 x 1.75	133	13.6	98
M14 x 2	225	23	166
M16 x 2	350	35.7	258
M18 x 2.5	463	47	342
M20 x 2.5	654	67	482
M24 x 3	1125	115	830
M30 x 3.5	2247	229	1657

Hydraulic Connections

T11-003

'O' Ring Face Seal System

Adaptors Screwed into Valve Blocks

Adaptor screwed into valve blocks, seal onto an 'O' ring which is compressed into a 45° seat machined into the face of the tapped port.

Table 1. Torque Settings - BSP Adaptors

BSP Adaptor Size	Hexagon (A/F)			
in.	mm	Nm	kgf m	lbf ft
1/4	19.0	18.0	1.8	13.0
3/8	22.0	31.0	3.2	23.0
1/2	27.0	49.0	5.0	36.0
5/8	30.0	60.0	6.1	44.0
3/4	32.0	81.0	8.2	60.0
1	38.0	129.0	13.1	95.0
1 1/4	50.0	206.0	21.0	152.0

Table 2. Torque Settings - SAE Connections

SAE Tube Size	SAE Port Thread Size	Hexagon (A/F)			
		mm	Nm	kgf m	lbf ft
4	7/16 - 20	15.9	20.0 - 28.0	2.0 - 2.8	16.5 - 18.5
6	9/16 - 18	19.1	46.0 - 54.0	4.7 - 5.5	34.0 - 40.0
8	3/4 - 16	22.2	95.0 - 105.0	9.7 - 10.7	69.0 - 77.0
10	7/8 - 14	27.0	130.0 - 140.0	13.2 - 14.3	96.0 - 104.0
12	1 1/16 - 12	31.8	190.0 - 210.0	19.4 - 21.4	141.0 - 155.0
16	1 5/16 - 12	38.1	290.0 - 310.0	29.6 - 31.6	216.0 - 230.0
20	1 5/8	47.6	280.0 - 380.0	28.5 - 38.7	210.0 - 280.0

Hoses Screwed into Adaptors

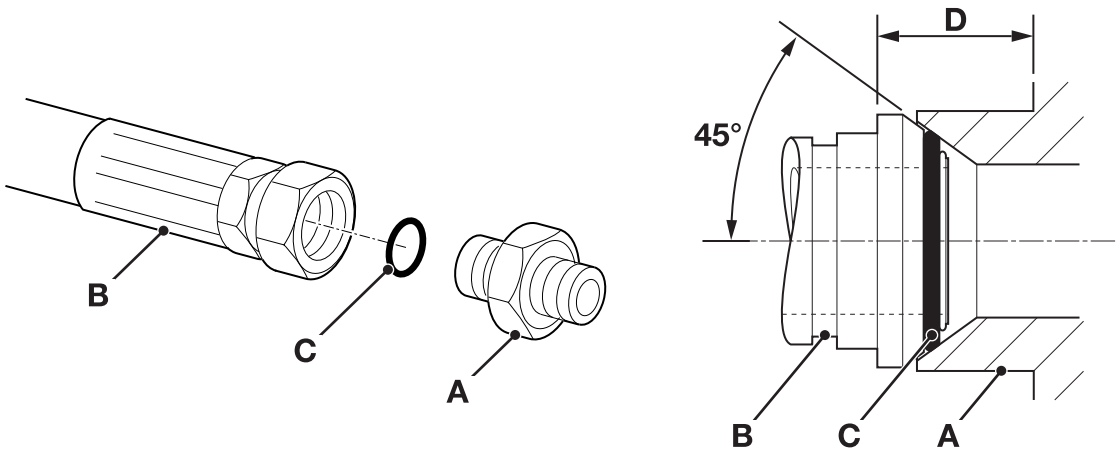

Fig 8.

Hoses **8-B** screwed into adaptors **8-A** seal onto an `O' ring **8-C** which is compressed into a 45° seat machined into the face of the adaptor port.

Note: *Dimension **8-D** will vary depending upon the torque applied.*

Table 3. BSP Hose - Torque Settings

BSP Hose Size	Hexagon (A/F)			
in.	mm	Nm	kgf m	lbf ft
1/8	14.0	14.0 - 16.00	1.4 - 1.6	10.3 - 11.8
1/4	19.0	24.0 - 27.0	2.4 - 2.7	17.7 - 19.9
3/8	22.0	33.0 - 40.0	3.4 - 4.1	24.3 - 29.5
1/2	27.0	44.0 - 50.0	4.5 - 5.1	32.4 - 36.9
5/8	30.0	58.0 - 65.0	5.9 - 6.6	42.8 - 47.9
3/4	32.0	84.0 - 92.0	8.6 - 9.4	61.9 - 67.8
1	38.0	115.0 - 126.0	11.7 - 12.8	84.8 - 92.9
1 1/4	50.0	189.0 - 200.0	19.3 - 20.4	139.4 - 147.5
1 1/2	55.0	244.0 - 260.0	24.9 - 26.5	180.0 - 191.8

Adaptors into Component Connections with Bonded Washers

Table 4. BSP Adaptors with Bonded Washers - Torque Settings

BSP Size			
in.	Nm	kgf m	lbf ft
1/8	20.0	2.1	15.0
1/4	34.0	3.4	25.0
3/8	75.0	7.6	55.0
1/2	102.0	10.3	75.0
5/8	122.0	12.4	90.0
3/4	183.0	18.7	135.0
1	203.0	20.7	150.0
1 1/4	305.0	31.0	225.0
1 1/2	305.0	31.0	225.0

'Torque Stop' Hose System

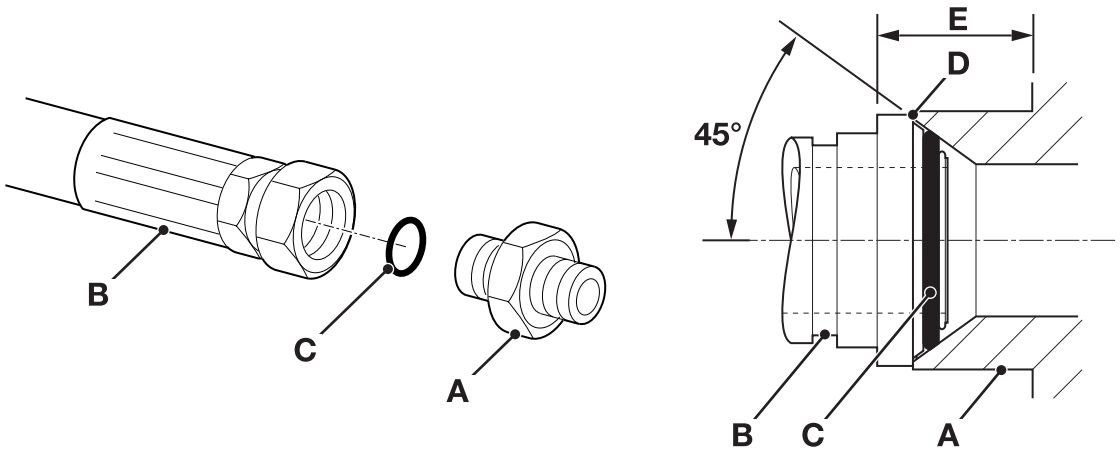

Fig 9.

`Torque Stop' Hoses **9-B** screwed into adaptors **9-A** seal onto an 'O' ring **9-C** which is compressed into a 45° seat machined in the face of the adaptor port. To prevent the 'O' ring being damages as a result of over tightening, 'Torque Stop' Hoses have an additional shoulder **9-D**, which acts as a physical stop.

Note: *Minimum dimension **9-E** fixed by shoulder **9-D**.*

Table 5. BSP `Torque Stop' Hose - Torque Settings

BSP Hose Size	Hexagon (A/F)			
in.	mm	Nm	kgf m	lbf ft
1/8	14.0	14.0	1.4	10.0
1/4	19.0	27.0	2.7	20.0
3/8	22.0	40.0	4.1	30.0
1/2	27.0	55.0	5.6	40.0
5/8	30.0	65.0	6.6	48.0
3/4	32.0	95.0	9.7	70.0
1	38.0	120.0	12.2	89.0
1 1/4	50.0	189.0	19.3	140.0
1 1/2	55.0	244.0	24.9	180.0

Service Consumables

Sealing and Retaining Compounds

T11-001_3

Table 6.

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: – 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

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Safety Check List

Introduction

T1-006

⚠ WARNING

Study the Operator Manual before starting the machine. You must understand and follow the instructions in the Operator Manual. You must observe all relevant laws and regulations. If you are unsure about anything, ask your JCB dealer or employer. Do not guess, you or others could be killed or seriously injured.

INT-1-1-1_2

In this publication and on the machine, there are safety notices. Each notice starts with a signal word. The signal word meanings are given below.

⚠ DANGER

Denotes an extreme hazard exists. If proper precautions are not taken, it is highly probable that the operator (or others) could be killed or seriously injured.

INT-1-2-1

⚠ WARNING

Denotes a hazard exists. If proper precautions are not taken, the operator (or others) could be killed or seriously injured.

INT-1-2-2

⚠ CAUTION

Denotes a reminder of safety practices. Failure to follow these safety practices could result in injury to the operator (or others) and possible damage to the machine.

INT-1-2-3

Safety First

As well as the warnings in this chapter, specific warnings are given throughout the book. This section is designed to give a safety code for use of the machine generally and for operation and maintenance practices.

Safety - Yours and Others

INT-1-3-1_3

All machinary can be hazardous. When a machine is correctly operated and properly maintained, it is a safe machine to work with. But when it is carelessly operated or poorly maintained it can become a danger to you (the operator) and others.

In this manual and on the machine you will find warning messages. Read and understand them. They tell you of potential hazards and how to avoid them. If you do not fully understand the warning messages, ask your employer or JCB distributor to explain them.

But safety is not just a matter of responding to the warnings. All the time you are working on or with the machine you must be thinking what hazards there might be and how to avoid them.

Do not work with the machine until you are sure that you can control it.

Do not start any job until you are sure that you and those around you will be safe.

If you are unsure of anything, about the machine or the job, ask someone who knows. Do not assume anything.

Remember

BE CAREFUL
BE ALERT
BE SAFE

General Safety

T1-007

⚠ WARNING

Operator Manual

You and others can be injured if you operate or maintain the machine without first studying the Operator Manual. Read the safety instructions before operating the machine. If you do not understand anything, ask your employer or JCB dealer to explain it. Keep the Operator Manual clean and in good condition. Do not operate the machine without an Operator Manual in the cab, or if there is anything on the machine you do not understand.

INT-1-3-2_2

⚠ WARNING

Care and Alertness

All the time you are working with or on the machine, take care and stay alert. Always be careful. Always be alert for hazards.

INT-1-3-5

⚠ WARNING

Clothing

You can be injured if you do not wear the proper clothing. Loose clothing can get caught in the machinery. Wear protective clothing to suit the job. Examples of protective clothing are: a hard hat, safety shoes, safety glasses, a well fitting overall, ear-protectors and industrial gloves. Keep cuffs fastened. Do not wear a necktie or scarf. Keep long hair restrained.

INT-1-3-6

⚠ WARNING

Alcohol and Drugs

It is extremely dangerous to operate machinery when under the influence of alcohol or drugs. Do not consume alcoholic drinks or take drugs before or while operating the machine or attachments. Be aware of medicines which can cause drowsiness.

INT-1-3-9_2

⚠ WARNING

Feeling Unwell

Do not attempt to operate the machine if you are feeling unwell. By doing so you could be a danger to yourself and those you work with.

8-1-2-4

⚠ WARNING

Mobile Phones

Switch off your mobile phone before entering an area with a potentially explosive atmosphere. Sparks in such an area could cause an explosion or fire resulting in death or serious injury.

Switch off and do not use your mobile phone when refuelling the machine.

INT-3-3-9

⚠ WARNING

Lifting Equipment

You can be injured if you use faulty lifting equipment. Make sure that lifting equipment is in good condition. Make sure that lifting tackle complies with all local regulations and is suitable for the job. Make sure that lifting equipment is strong enough for the job.

INT-1-3-7

⚠ WARNING

Raised Equipment

Raised equipment can fall and injure you. Do not walk or work under raised equipment unless safely supported.

13-1-1-6

⚠ WARNING

Raised Machine

NEVER position yourself or any part of your body under a raised machine which is not properly supported. If the machine moves unexpectedly you could become trapped and suffer serious injury or be killed.

INT-3-3-7_1

⚠ DANGER

Lightning

Lightning can kill you. Do not use the machine if there is lightning in your area.

5-1-1-2

⚠ WARNING

Machine Modifications

This machine is manufactured in compliance with legislative and other requirements. It should not be altered in any way which could affect or invalidate any of these requirements. For advice consult your JCB Distributor.

INT-1-3-10_2

BUY NOW