

WLS 432ZX

Service Manual - WLS 432ZX

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No need to wait.

Thanks for continuing to read the documentation.

Best wishes.



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General Information

Introduction

This publication is designed for the benefit of JCB INDIA LTD. distributor Service Engineers who are receiving, or have received, training by JCB INDIA 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

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.








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

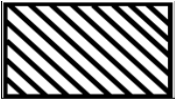


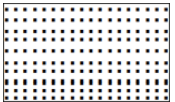
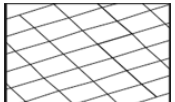

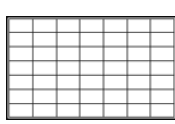
Table 1.

	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		
			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).

Black and 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

Table 2.

	<p>Neutral Circuit Pressure.</p>
	<p>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.</p>
	<p>Pressure that is above Neutral Circuit Pressure but lower than that denoted above.</p>
	<p>Exhaust.</p>
	<p>Oil subjected to a partial vacuum due to a drop in pressure (cavitation).</p>
	<p>Oil trapped within a chamber or line preventing movement of components (lock-up).</p>
	<p>Oil pressure used in a controlling device (servo).</p>

Identification Plate

Your machine has an identification plate X mounted on the left hand side of the machine. The serial numbers of the machine and its major units are stamped on the plate
 ⇒ [Fig 1. \(□ 1-4\)](#)

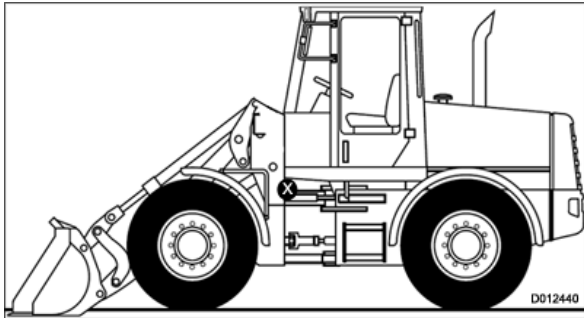


Fig 1.

Explanation of Vehicle Identification Number (VIN)

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 ⇒ [Fig 2. \(□ 1-4\)](#).

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 ⇒ [Fig 3. \(□ 1-6\)](#).

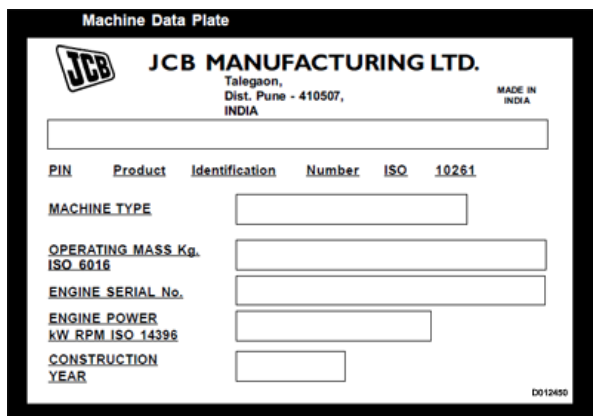


Fig 2.

Table 3.

Bolt Size		Hexagon (A/F)		Torque Settings	
in	(mm)	in	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 15 /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

Table 4.

Bolt Size		Hexagon (A/F)		Torque Settings	
	(mm)	mm	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

Table 5.

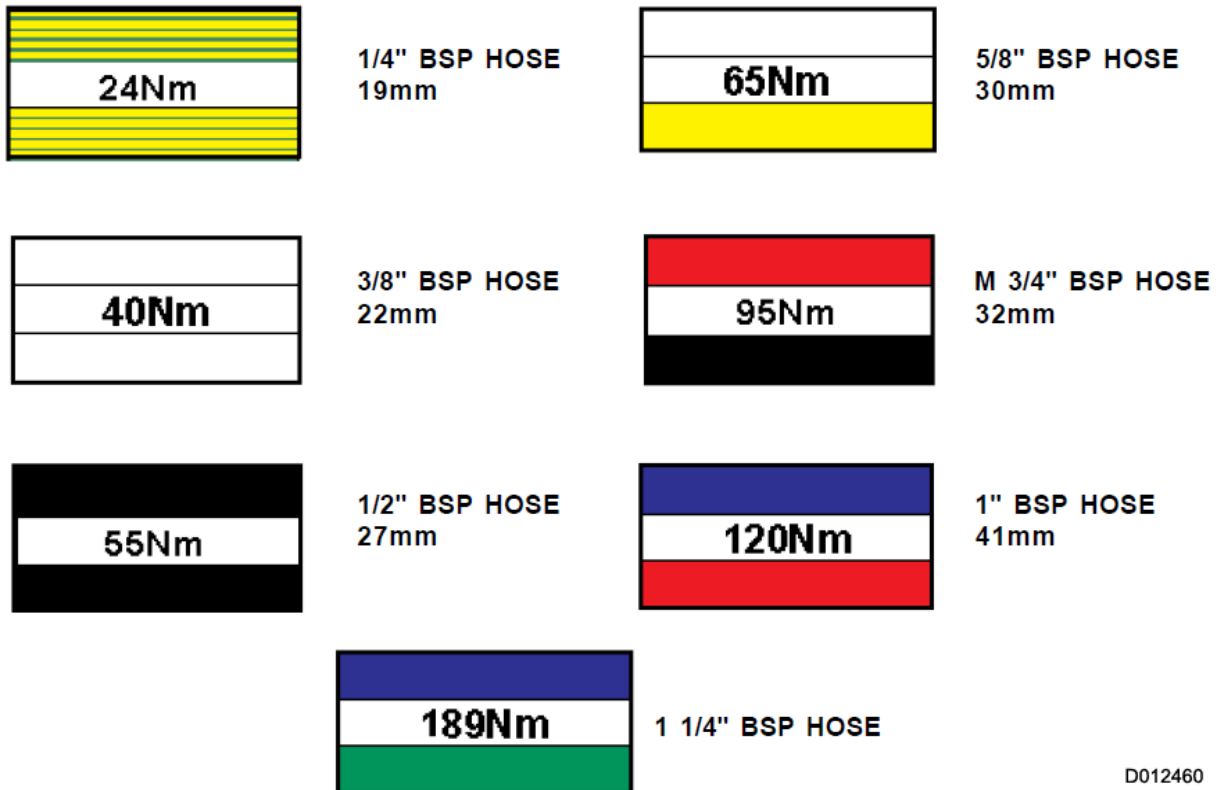
Bolt Size		Torque Settings		(for steel rivet nuts)	
	(mm)	Nm	kgf m	kgf m	
M3	(3)	1.2	0.12	0.9	
M4	(4)	3.0	0.3	2.0	
M5	(5)	6.0	0.6	4.5	
M6	(6)	10.0	1.0	7.5	

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.

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

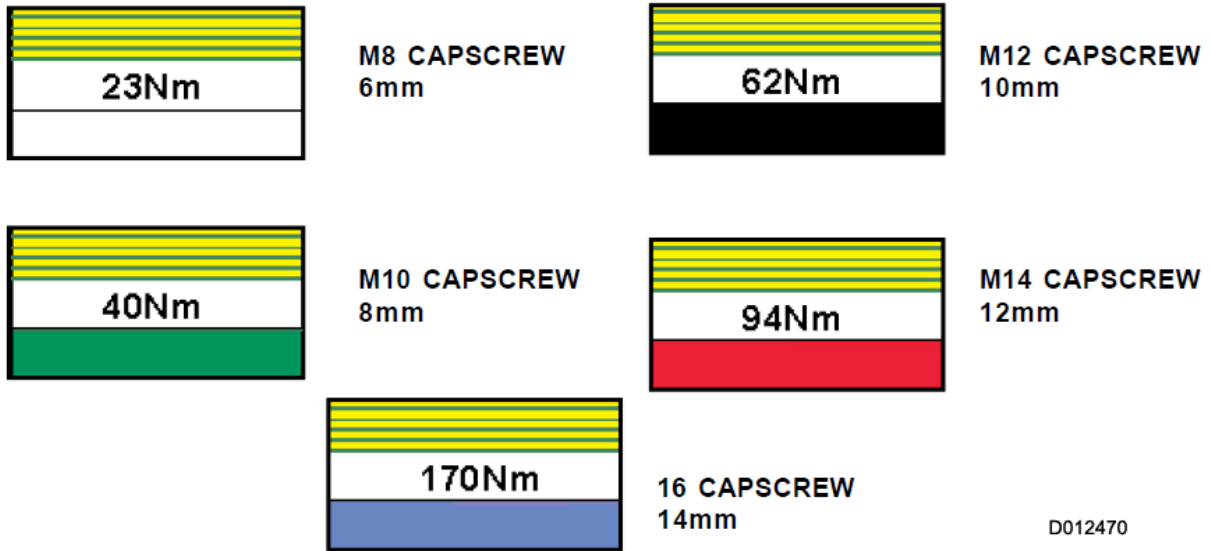
HOSE END FITTINGS



D012460

Fig 3.

SPLIT FLANGE and FLANGED PIPE FITTINGS

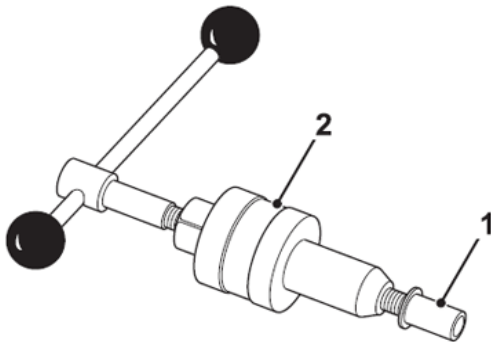


D012470

Fig 4.

Service Tools

Section B - Body and Framework



- 826/01179 M6 x 16mm Rivet Nut
- 826/01106 M6 x 19mm Rivet Nut
- 826/01177 M8 x 18mm Rivet Nut
- 826/01176 M10 x 23mm Rivet Nut
- 826/01333 M10 x 26mm Rivet Nut

Installation Tool Available from : Bollhoff Fastenings Ltd.

Midacre
 The Willenhall Estate
 Rose Hill
 The Willenhall
 Willenhall
 West Midlands, WV13 2JW

Folding Stand for Holding Glass

Essential for preparing new glass prior to installation. JCB part number - 892/00843 → [Fig 5. \(1-8\)](#)

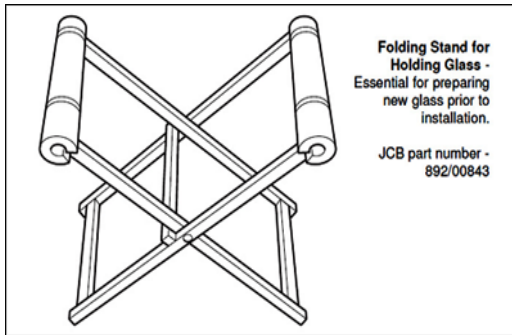


Fig 5.

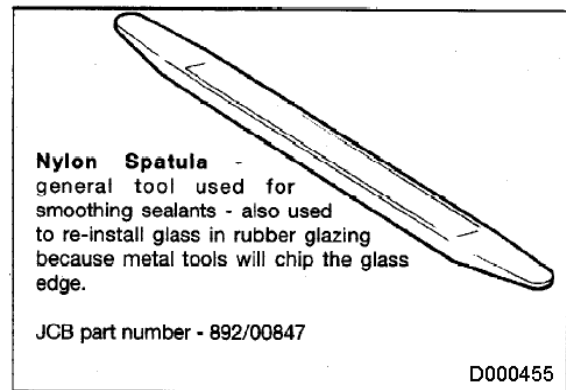


Fig 7.

Glass Lifter

Minimum 2 off - essential for glass installation, 2 required to handle large panes of glass. Ensure suction cups are protected from damage during storage. JCB part number - 892/00842 ⇒ [Fig 6.](#) (□ 1-8)

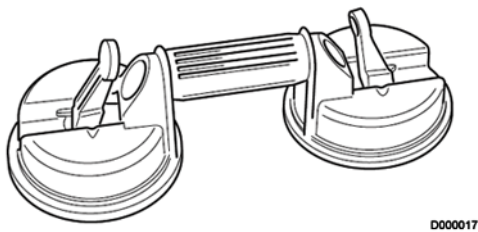


Fig 6.

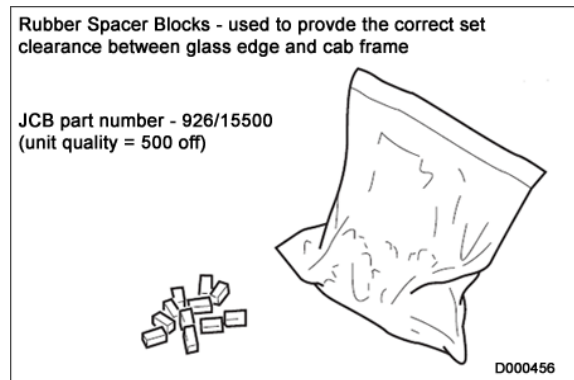


Fig 8.

Nylon Spatula

General tool used for smoothing sealants - also used to re-install glass in rubber glazing because metal tools will chip the glass edge. JCB part number - 892/00847 ⇒ [Fig 7.](#) (□ 1-8)

Service Tools

JCB part number - 892/00846

Wire Starter - used to access braided cutting wire (below) polyurethane seal → [Fig 9. \(□ 1-9\)](#).

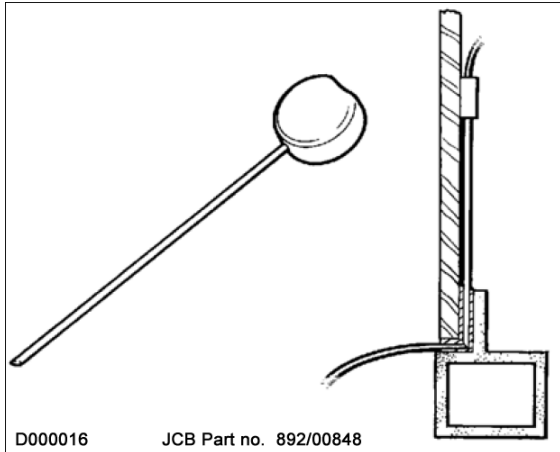
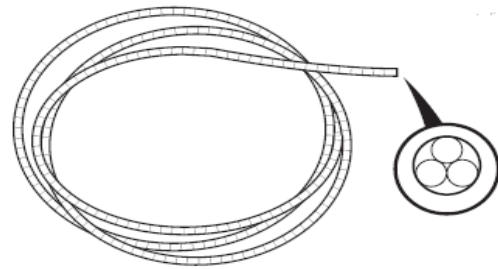


Fig 9.



892/00849 Braided Cutting Wire

Consumable heavy duty cut-out wire used with the glass extraction tool.
Approx 25 m length

D000449

Fig 11.

Cut - Out Knife

Used to remove broken glass JCB part number - 992/12800 → [Fig 12. \(□ 1-9\)](#)

Glass Extractor (Handles)

Used with braided cutting wire (below) to cut out broken glass. JCB part number → [Fig 10. \(□ 1-9\)](#)

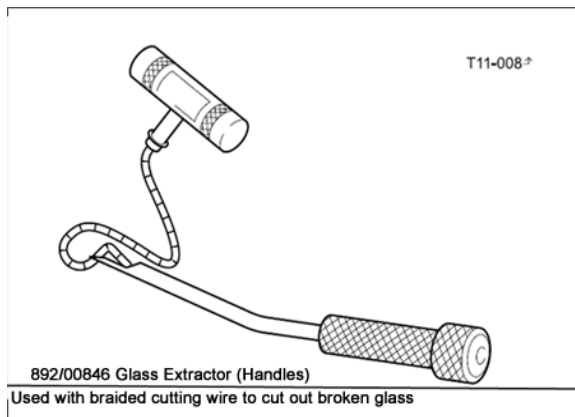


Fig 10.

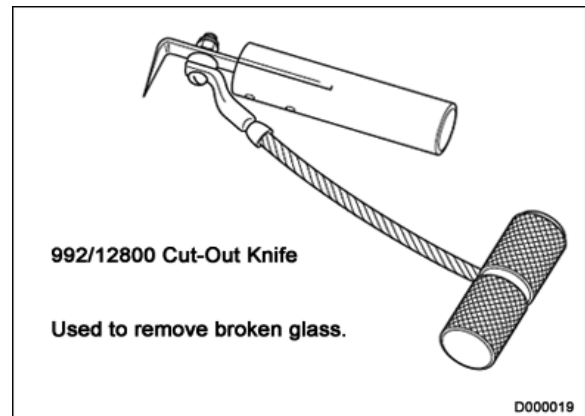


Fig 12.

'L' Blades

25 mm (1 in) cut - replacement blades for cut-out knife (above). JCB part number - 992/12801 (unit quantity = 5 off) → [Fig 13. \(□ 1-10\)](#)

Braided Cutting Wire

JCB part number - 892/00849 (approx 25 m length) → [Fig 11. \(□ 1-9\)](#)

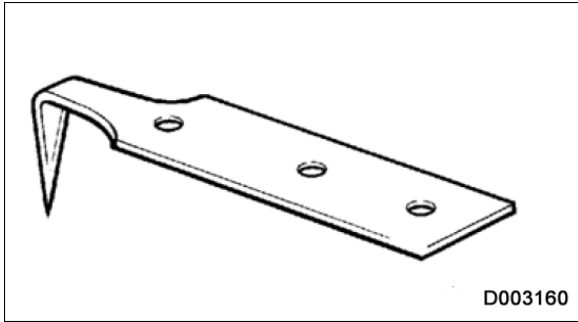


Fig 13.

Section B - Body & Framework

Long Knife

25 mm (1 in) cut - replacement bladed for cut-out knife (avbove). JCB part number - 992/12801 (unit quantity = 5 off) ⇒ [Fig 14.](#) (□ 1-10)

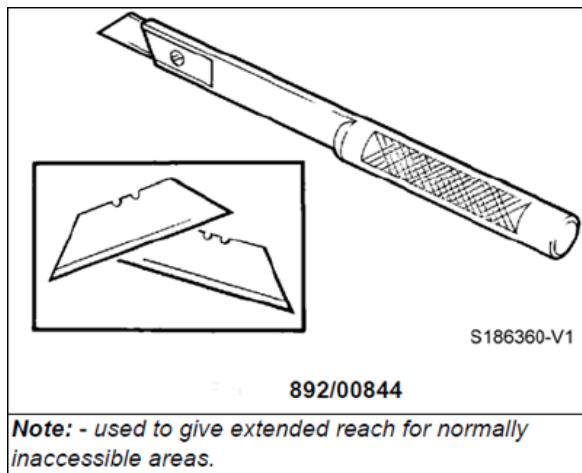


Fig 14.

Bearing Locator

Used with dummy bush to set up Upper Centre Pivot. JCB part number - 825/99851 ⇒ [Fig 15.](#) (□ 1-10)

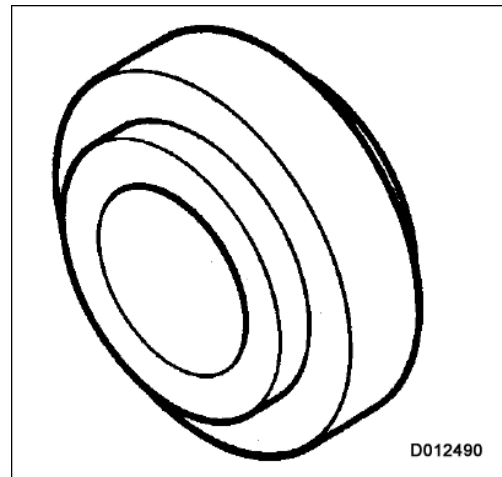


Fig 15.

Dummy Bush

Used with bearing locator to set up Upper Centre Pivot. JCB part number - 825/99849 ⇒ [Fig 16.](#) (□ 1-10)

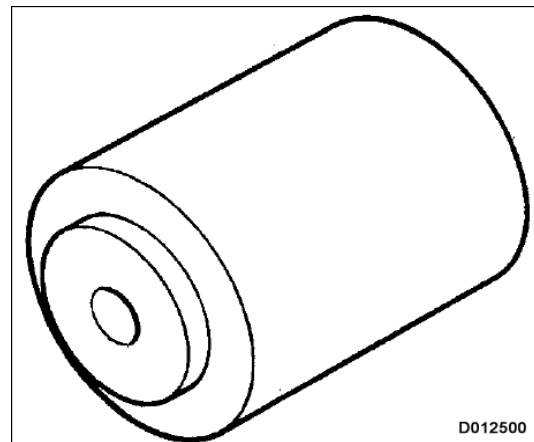


Fig 16.

Service Tools

Section C - Electrics ⇒ [Fig 17.](#) (□ 1-11) and ⇒ [Fig 18.](#) (□ 1-11)

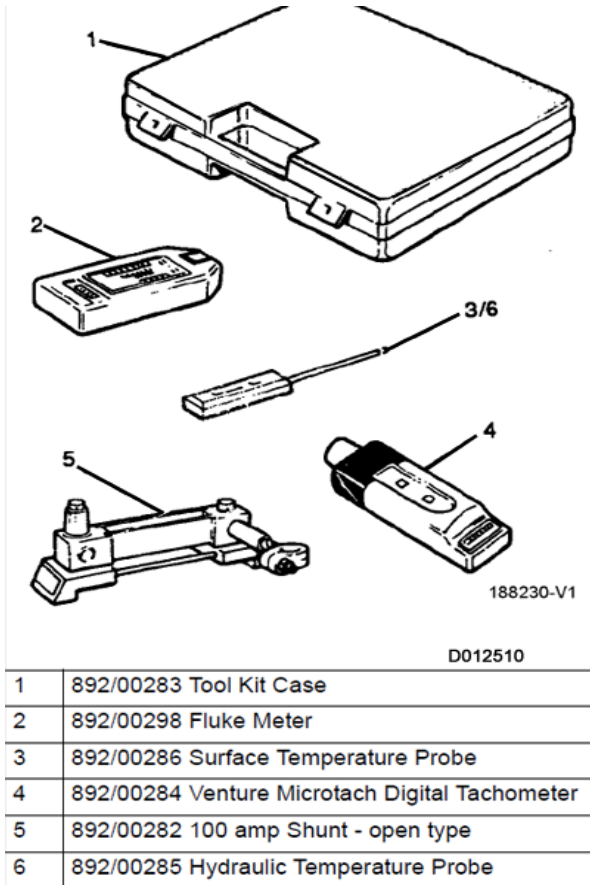


Fig 17.

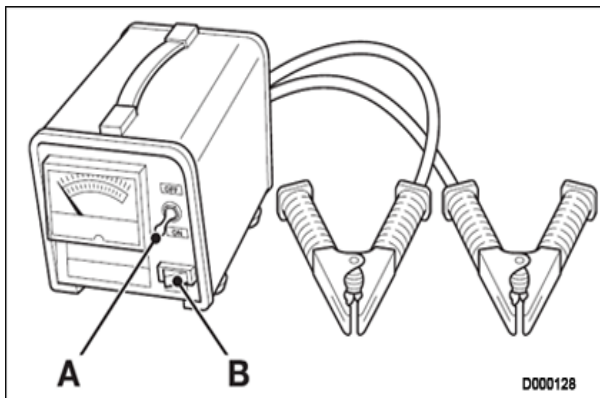


Fig 18.

⇒ Fig 19. (□ 1-11) and ⇒ Fig 20. (□ 1-11)

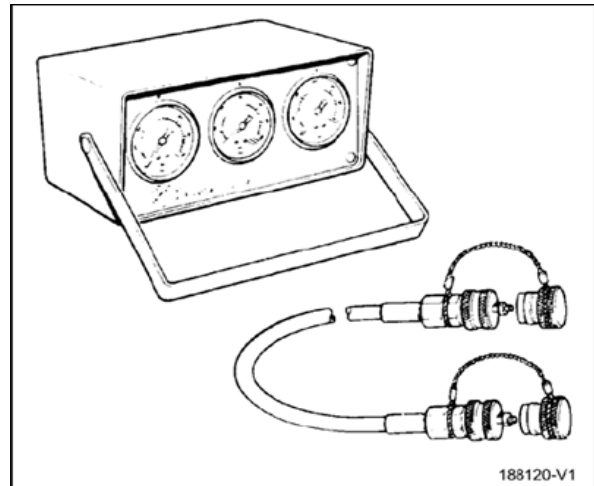


Fig 16. Hydraulic Circuit Pressure test Kit

892/00253 Pressure Test Kit	
892/00201 Replacement gauge 0-20 bar (0-300 lbf/in ²)	
892/00202 Replacement gauge 0-40 bar (0-600 lbf/in ²)	
892/00203 Replacement gauge 0-400 bar (0-6000 lbf/in ²)	
892/00254 Replacement Hose	D012520

Fig 19.

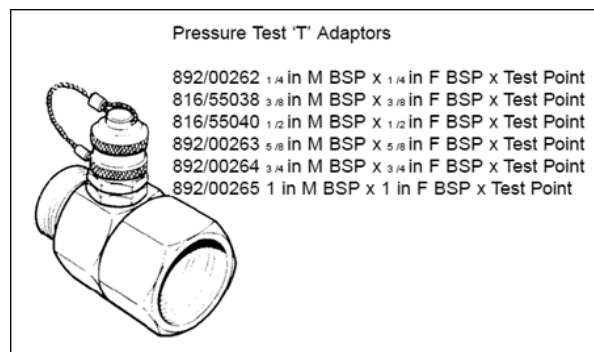


Fig 20.

⇒ Fig 21. (□ 1-12) and ⇒ Fig 22. (□ 1-12)

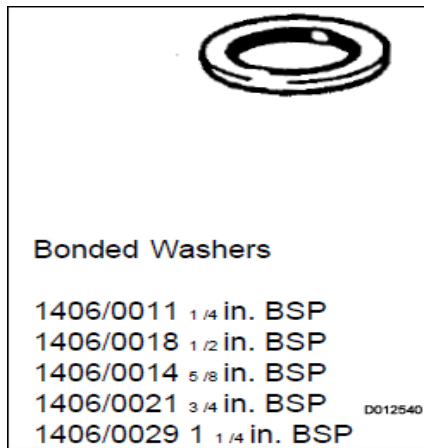


Fig 21.

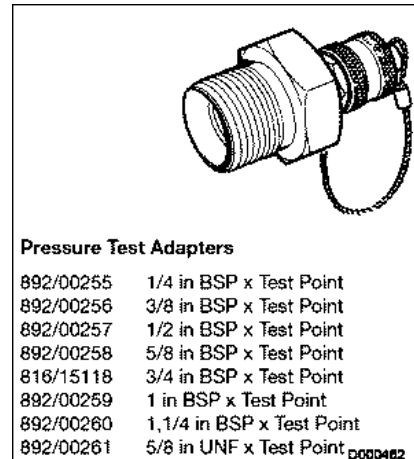


Fig 23.

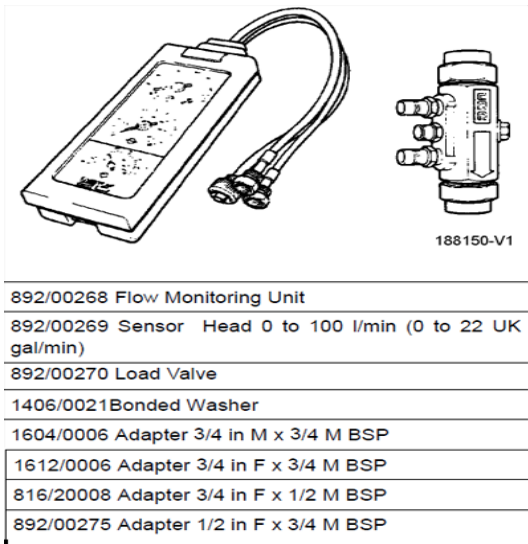
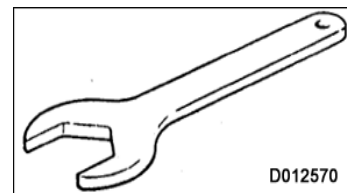
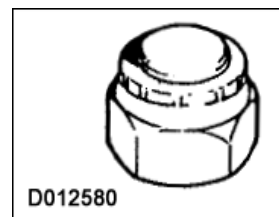


Fig 22.



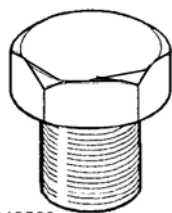
Hexagon Spanners for Ram Pistons and End Caps

- 992/09300 55 mm
- 992/09400 65 mm
- 992/09500 75 mm
- 992/09600 85 mm
- 992/09700 95 mm
- 992/10000 125mm



Male Cone Blanking Cap

- 816/00294 1/4 in. BSP
- 816/00189 3/8 in. BSP
- 816/00190 1/2 in. BSP
- 816/00197 5/8 in. BSP
- 816/00196 3/4 in. BSP
- 816/00193 1 in. BSP



Female Cone Blanking Cap

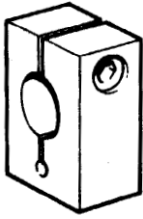
- 892/00055 1/4 in BSP
- 892/00056 3/8 in BSP
- 892/00057 1/2 in BSP
- 892/00058 5/8 in BSP
- 892/00059 3/4 in BSP
- 892/00060 1 in BSP



Female Connectors

- 892/00074 3/8 in. BSP x 3/8 in.
- 892/00075 1/2 in. BSP x 1/2 in.
- 892/00076 5/8 in. BSP x 5/8 in.
- 892/00077 3/4 in. BSP x 3/4 in.

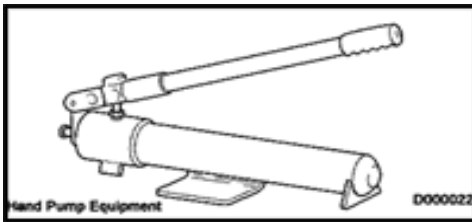
⇒ Fig 23. (□ 1-12)



892/00039 Spool Clamp
992/10100 Spool Clamp

Spool Clamps

Hand Pump Equipment



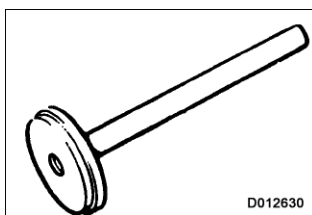
892/00223 Micro-bore Hose 1/4 in. BSP x 5 metres
892/00137 Adapter 1/4 in. M BSP x 3/8 in. M BSP Taper
892/00274 Adapter 1/4 in. M BSP x 3/8 in. M BSP Taper
892/00262 1/4 in. M BSP x 1/4 in. F BSP x Test Point
892/00706 Test Probe
892/00279 Gauge 0 - 400 bar (0 - 6000 lbf/in²)



892/00239 Charging Tool (Diaphragm Accumulators)
892/01042 Charging Tool (Diaphragm Accumulators)
892/01043 Adapter (use with 892/01042)

892/00948 Charging Tool (Piston Accumulators)

Section F - Transmission



992/07603

Replacer - Bearing Cup



Heavy Duty Socket for Durlock Bolts

892/00817

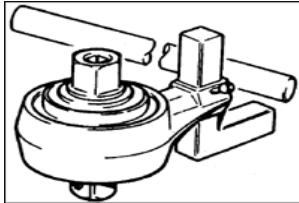
17 mm A/F x 3/4 in. Square Drive

892/00818

22 mm A/F x 3/4 in. Square Drive

892/00819

15 mm A/F x 1/2 in. Square Drive



Torque Multiplier

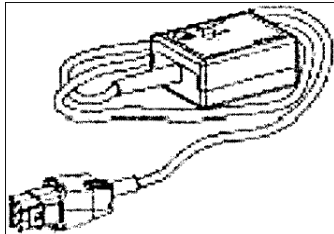
Use in conjunction with a torque

Wrench to give a 5:1

Multiplication.

992/04000

When tightening pinion nuts etc



AEB Starter for ZF Transmission

0501211778 AEB Starter for ZF Transmission



892/01001

Bearing Tool

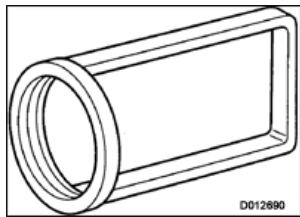
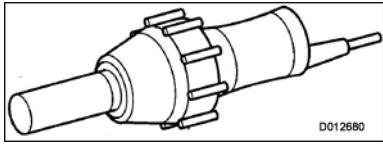
892/01004

Bearing Tool

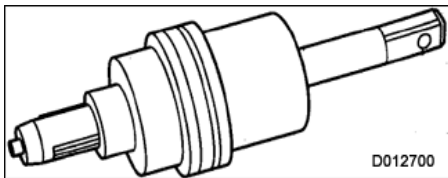
892/01005

Bearing Tool

892/01006 110 Volt Heater



892/01002 Spring compressor



892/01007

Pipe Swaging Tool

892/01008

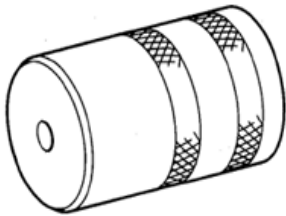
Pipe Swaging Tool

892/01009

Pipe Swaging Tool

892/01010

Pipe Swaging Tool



892/01014 Retainer



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Maintenance Safety	2-7
Safety Decals	2-12

Care & Safety

Safety Notices

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

All construction and agricultural equipment can be hazardous. When a JCB 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.

Remember

BE CAREFUL

BE ALERT

BE SAFE

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.

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 formaintenance practices.

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. Remove rings, watches and personal jewellery.

INT-1-3-6_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

Lifting Equipment

You can be injured if you use incorrect or faulty lifting equipment. You must identify the weight of the item to be lifted then choose lifting equipment that is strong enough and suitable for the job. Make sure that lifting equipment is in good condition and complies with all local regulations.

INT-1-3-7_2

WARNING

Entering/Leaving

Entering or leaving the cab or canopy must only be made where steps and handrails are provided. Always face the machine when entering and leaving. Make sure the step(s), handrails and your boot soles are clean and dry. Do not jump from the machine. Do not use the machine controls as handholds, use the handrails.

INT-2-1-7_1

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

Operating Safety

WARNING

Machine Condition

A defective machine can injure you or others. Do not operate a machine which is defective or has missing parts. Make sure the maintenance procedures in this manual are completed before using the machine.

INT-2-1-2_2

WARNING

Machine Limits

Operating the machine beyond its design limits can damage the machine, it can also be dangerous. Do not operate the machine outside its limits. Do not try to upgrade the machine performance with unapproved modifications.

INT-2-1-4

WARNING

Engine/Steering Failure

If the engine or steering fails, stop the machine as quickly as possible. Do not operate the machine until the fault has been corrected.

INT-2-1-5

WARNING

The engine has exposed rotating parts. Switch OFF the engine before working in the engine compartment. Do not use the machine with the engine cover open.

5-2-6-5

WARNING

Exhaust Gases

Breathing the machine exhaust gases can harm and possibly kill you. Do not operate the machine in closed spaces without making sure there is good ventilation. If possible, fit an exhaust extension. If you begin to feel drowsy, stop the machine at once and get into fresh air.

INT-2-1-10_2

WARNING

You could be killed or seriously injured if you operate a machine with a damaged or missing ROPS/FOPS. If the Roll Over Protection Structure (ROPS)/Falling Objects Protection Structure (FOPS) has been in an accident, do not use the machine until the structure has been renewed. Modifications and repairs that are not approved by the manufacturer may be dangerous and will invalidate the ROPS/FOPS certification.

INT-2-1-9_6

WARNING

Work Sites

Work sites can be hazardous. Inspect the site before working on it. Look for potholes, weak ground, hidden rocks etc. Check for utilities such as electric cables (overhead and underground), gas and water pipes etc. Mark the positions of the underground cables and pipes. Make sure that you have enough clearance beneath overhead cables and structures.

INT-2-2-1

WARNING

Communications

Bad communications can cause accidents. Keep people around you informed of what you will be doing. If you will be working with other people, make sure any hand signals that may be used are understood by everybody. Work sites can be noisy, do not rely on spoken commands.

INT-2-2-3

WARNING

Parking

An incorrectly parked machine can move without an operator. Follow the instructions in the Operator Manual to park the machine correctly.

INT-2-2-4_2

WARNING

Banks and Trenches

Banked material and trenches can collapse. Do not work or drive too close to banks and trenches where there is danger of collapse.

INT-2-2-5

WARNING

Ramps and Trailers

Water, mud, ice, grease and oil on ramps or trailers can cause serious accidents. Make sure ramps and trailers are clean before driving onto them. Use extreme caution when driving onto ramps and trailers.

INT-2-2-6

WARNING

Safety Barriers

Unguarded machines in public places can be dangerous. In public places, or where your visibility is reduced, place barriers around the work area to keep people away.

INT-2-2-8

DANGER

Sparks

Explosions and fire can be caused by sparks from the exhaust or the electrical system. Do not use the machine in closed areas where there is flammable material, vapour or dust.

INT-2-2-10

WARNING

Hazardous Atmospheres

This machine is designed for use in normal out door atmospheric conditions. It should not be used in an enclosed area without adequate ventilation. Do not use the machine in a potentially explosive atmosphere, i.e. combustible vapours, gas or dust, without first consulting your JCB Distributor.

INT-2-1-14

CAUTION

Regulations

Obey all laws, work site and local regulations which affect you and your machine.

INT-1-3-3

WARNING

Practice

You or others can be killed or seriously injured if you do unfamiliar operations without first practising them. Practise away from the work site on a clear area. Keep other people away. Do not perform new operations until you are sure you can do them safely.

INT-2-1-1

WARNING

Reversing

Reversing at high speeds can cause accidents. Do not reverse in a high gear with full throttle. Always drive at a safe speed to suit working conditions.

INT-2-2-9_1

WARNING

Airborne particles of light combustible material such as straw, grass, wood shavings, etc. must not be allowed to accumulate within the engine compartment or in the propshaft guards (when fitted). Inspect these areas frequently and clean at the beginning of each work shift or more often if required. Before opening the engine cover, ensure that the top is clear of debris.

5-3-1-12_3

WARNING

Keep the machine controls clean and dry. Your hands and feet could slide off slippery controls. If that happens you could lose control of the machine.

2-2-3-6

WARNING

Visibility

Accidents can be caused by working in poor visibility. Use your lights to improve visibility. Keep the road lights, windows and mirrors clean.

Do not operate the machine if you cannot see clearly.

5-1-4-7

WARNING

Electrical Power Cables

You could be electrocuted or badly burned if you get the machine or its attachments too close to electrical power cables.

You are strongly advised to make sure that the safety arrangements on site comply with the local laws and regulations concerning work near electric power lines.

Before you start using the machine, check with your electricity supplier if there are any buried power cables on the site.

There is a minimum clearance required for working beneath overhead power cables. You must obtain details from your local electricity supplier.

2-2-5-4

CAUTION

If you have an attachment which is not covered in the Operator Manual do not install it, use it or remove it until you have obtained, read and understood the pertinent information. Install attachments only on the machines for which they were designed.

5-5-1-1_2

WARNING

Use only the JCB approved attachments that are specified for your machine. Operating with non-specified attachments can overload the machine, causing possible damage and machine instability which could result in injury to yourself or others.

The use of non-approved attachments could invalidate your warranty.

2-4-5-2_1

WARNING

Powershift Transmission

Do not change from a high gear to a low gear (for instance, 4th to 1st) in one sudden movement when the machine is moving. Otherwise the machine will rapidly decelerate, you or others could be killed or seriously injured. When selecting lower gears, allow the engine speed to drop before each gear change.

2-1-1-9_1

Maintenance Safety

WARNING

Communications

Bad communications can cause accidents. If two or more people are working on the machine, make sure each is aware of what the others are doing. Before starting the engine make sure the others are clear of the danger areas; examples of danger areas are: the rotating blades and belt on the engine, the attachments and linkages, and anywhere beneath or behind the machine. People can be killed or injured if these precautions are not taken.

INT-3-1-5

WARNING

Repairs

If your machine does not function correctly in any way, get it repaired straight away. Neglect of necessary repairs could result in an accident or affect your health. Do not try to do repairs or any other type of maintenance work you do not understand. To avoid injury and/or damage get the work done by a specialist engineer.

GEN-1-5_2

WARNING

Metal Splinters

You can be injured by flying metal splinters when driving metal pins in or out. Use a soft faced hammer or copper pin to remove and fit metal pins. Always wear safety glasses.

INT-3-1-3_2

WARNING

Electrical Circuits

Understand the electrical circuit before connecting or disconnecting an electrical component. A wrong connection can cause injury and/or damage.

INT-3-1-4

CAUTION

Do not disconnect the battery while the engine is running, otherwise the electrical circuits may be damaged.

INT-3-1-14

WARNING

If you try to charge a frozen battery, or jump start and run the engine, the battery could explode. Do not use a battery if its electrolyte is frozen. To prevent the battery electrolyte from freezing, keep the battery at full charge.

0125

WARNING

Battery Gases

Batteries give off explosive gases. Keep flames and sparks away from the battery. Do not smoke close to the battery. Make sure there is good ventilation in closed areas where batteries are being used or charged. Do not check the battery charge by shorting the terminals with metal; use a hydrometer or voltmeter.

INT-3-1-8

DANGER

Electrolyte

Battery electrolyte is toxic and corrosive. Do not breathe the gases given off by the battery. Keep the electrolyte away from your clothes, skin, mouth and eyes. Wear safety glasses.

INT-3-2-1_3

WARNING

Battery Terminals

The machine is negatively earthed. Always connect the negative pole of the battery to earth.

When connecting the battery, connect the earth (-) lead last.

When disconnecting the battery, disconnect the earth (-) lead first.

INT-3-1-9

WARNING

Fluid Under Pressure

Fine jets of fluid at high pressure can penetrate the skin. Keep face and hands well clear of fluid under pressure and wear protective glasses. Hold a piece of cardboard close to suspected leaks and then inspect the cardboard for signs of fluid. If fluid penetrates your skin, get medical help immediately.

INT-3-1-10_2

WARNING

Hydraulic Pressure

Hydraulic fluid at system pressure can injure you. Before connecting or removing any hydraulic hose, residual hydraulic pressure trapped in the service hose line must be vented. Make sure the hose service line has been vented before connecting or removing hoses. Make sure the engine cannot be started while the hoses are open.

INT-3-1-11_2

WARNING

Petrol

Do not use petrol in this machine. Do not mix petrol with the diesel fuel; in storage tanks the petrol will rise to the top and form flammable vapours.

INT-3-1-6

WARNING

Diesel Fuel

Diesel fuel is flammable; keep naked flames away from the fuel system. Do not smoke while refuelling or working on the fuel system. Do not refuel with the engine running. There could be a fire and injury if you do not follow these precautions.

INT-3-2-2_1

WARNING

Oil

Oil is toxic. If you swallow any oil, do not induce vomiting, seek medical advice. Used engine oil contains harmful contaminants which can cause skin cancer. Do not handle used engine oil more than necessary. Always use barrier cream or wear gloves to prevent skin contact. Wash skin contaminated with oil thoroughly in warm soapy water. Do not use petrol, diesel fuel or paraffin to clean your skin.

INT-3-2-3

CAUTION

It is illegal to pollute drains, sewers or the ground. Clean up all spilt fluids and/or lubricants.

Used fluids and/or lubricants, filters and contaminated materials must be disposed of in accordance with local regulations. Use authorised waste disposal sites.

INT-3-2-14

WARNING

Soft Ground

A machine can sink into soft ground. Never work under a machine on soft ground.

INT-3-2-4

WARNING

Hot Coolant

The cooling system is pressurised when the engine is hot. Hot coolant can spray out when you remove the filler cap. Let the system cool before removing the filler cap. To remove the cap; turn it to the first notch and let the system pressure escape, then remove the cap.

INT-3-2-9_1

WARNING

Always wear safety glasses when dismantling assemblies containing components under pressure from springs. This will protect against eye injury from components accidentally flying out.

GEN-6-2

CAUTION

Rams

The efficiency of the rams will be affected if they are not kept free of solidified dirt. Clean dirt from around the rams regularly. When leaving or parking the machine, close all rams if possible to reduce the risk of weather corrosion.

INT-3-2-10

CAUTION

Cleaning

Cleaning metal parts with incorrect solvents can cause corrosion. Use only recommended cleaning agents and solvents.

INT-3-2-11

WARNING

When using cleaning agents, solvents or other chemicals, you must adhere to the manufacturer's instructions and safety precautions.

GEN-1-9

CAUTION

'O' rings, Seals and Gaskets

Badly fitted, damaged or rotted 'O' rings, seals and gaskets can cause leakages and possible accidents. Renew whenever disturbed unless otherwise instructed. Do not use Trichloroethane or paint thinners near 'O' rings and seals.

INT-3-2-12

WARNING

Hydraulic Hoses

Damaged hoses can cause fatal accidents. Inspect the hoses regularly for:

- Damaged hose ends
- Chafed outer covers
- Ballooned outer covers
- Kinked or crushed hoses
- Embedded armouring in outer covers
- Displaced end fittings.

INT-3-3-2

CAUTION

Waxoyl contains turpentine substitute which is flammable. Keep flames away when applying Waxoyl. Waxoyl can take a few weeks to dry completely. Keep flames away during the drying period.

Do not weld near the affected area during the drying period. Take the same precautions as for oil to keep Waxoyl off your skin. Do not breathe the fumes. Apply in a well-ventilated area.

5-3-1-9

WARNING

Working Under the Machine

Make the machine safe before getting beneath it. Ensure that any fitments on the machine are secure; engage the park brake, remove the starter key, disconnect the battery.

INT-3-3-8_2

WARNING

Certain seals and gaskets (e.g. crankshaft oil seal) on JCB machines contain fluoroelastomeric materials such as Viton, Fluorel and Technoflon. Fluoroelastomeric materials subjected to high temperatures can produce highly corrosive hydrofluoric acid. THIS ACID CAN SEVERELY BURN.

New fluoroelastomeric components at ambient temperature require no special safety precautions.

Used fluoroelastomeric components whose temperatures have not exceeded 300°C (572°F) require no special safety precautions. If evidence of decomposition (e.g. charring) is found, refer to the next paragraph for safety instructions DO NOT TOUCH COMPONENT OR SURROUNDING AREA.

Used fluoroelastomeric components subjected to temperatures greater than 300°C (572°F) (e.g. engine fire) must be treated using the following safety procedure. Make sure that heavy duty gloves and special safety glasses are worn:

- 1 Thoroughly wash contaminated area with 10% calcium hydroxide or other suitable alkali solution, if necessary use wire wool to remove burnt remains.
- 2 Thoroughly wash contaminated area with detergent and water.
- 3 Contain all removed material, gloves etc. used in this operation in sealed plastic bags and dispose of in accordance with Local Authority Regulations.

DO NOT BURN FLUOROELASTOMERIC MATERIALS.

INT-3-3-5_3

WARNING

Protect your eyes when grinding metal. Wear safety glasses or goggles. Remove or protect any combustible materials from the area which could be ignited by sparks.

GEN-1-12

WARNING

To avoid burning, wear protective gloves when handling hot components. To protect your eyes, wear goggles when using a wire brush to clean components.

HYD-1-3

WARNING

Arc Welding

To prevent the possibility of damage to electronic components, disconnect the battery and the alternator before arc-welding on the machine or attached implements.

If the machine is equipped with sensitive electrical equipment, i.e. amplifier drivers, electronic control units (E.C.U.s), monitor displays, etc., then disconnect them before welding. Failure to disconnect the sensitive electrical equipment could result in irreparable damage to these components.

Parts of the machine are made from cast iron; welds on cast iron can weaken the structure and break. Do not weld cast iron. Do not connect the welder cable or apply any weld to any part of the engine.

Always connect the welder earth (ground) cable to the same component that is being welded, i.e. boom or dipper, to avoid damage to pivot pins, bearings and bushes. Attach the welder earth (ground) cable no more than 0.6 metres (2 feet) from the part being welded.

INT-3-1-15_2

WARNING

Counterweights

Your machine may be fitted with counterweights. They are extremely heavy. Do not attempt to remove them.

INT-3-2-5

WARNING

Turning the Engine

Do not try to turn the engine by pulling the fan or fan belt. This could cause injury or premature component failure.

0094

WARNING

Accumulators

The accumulators contain hydraulic fluid and gas at high pressure. Prior to any work being carried out on systems incorporating accumulators, the system pressure must be exhausted by a JCB distributor, as the sudden release of the hydraulic fluid or gas may cause injury.

INT-3-1-17

WARNING

An exploding tyre can kill. Inflated tyres can explode if over-heated or over-inflated. Follow the instructions given when inflating the tyres. Do not cut or weld the rims. Use a tyre/wheel specialist for all repair work.

2-3-2-7_2

WARNING

Jacking

A machine can roll off jacks and crush you unless the wheels have been blocked. Always block the wheels at the opposite end of the machine that is to be jacked. Do not work underneath a machine supported only by jacks. Always support a jacked-up machine on axle stands before working underneath it.

INT-3-2-8

WARNING

Under no circumstances must the engine be run with the transmission in gear and only one driving wheel jacked clear of the ground, since the wheel on the ground will move the machine.

INT-3-1-16

WARNING

Wheels and tyres are heavy. Take care when lifting or moving them.

Store with care to ensure that they cannot fall and cause injury.

13-3-1-7_1

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

WARNING

Fires

If your machine is equipped with a fire extinguisher, make sure it is checked regularly. Keep it in the correct machine location until you need to use it.

Do not use water to put out a machine fire, you could spread an oil fire or get a shock from an electrical fire. Use carbon dioxide, dry chemical or foam extinguishers. Contact your nearest fire department as quickly as possible. Firefighters should use self-contained breathing apparatus.

INT-3-2-7_2

WARNING

Never walk or work under raised equipment unless it is supported by a mechanical device. Equipment which is supported only by a hydraulic device can drop and injure you if the hydraulic system fails or if the control is operated (even with the engine stopped).

13-2-3-7

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

WARNING

Make the machine safe before working underneath it. Park the machine on level ground, lower the attachments to the ground. Apply the park brake, put the transmission in neutral and stop the engine. Block both sides of all four wheels.

Disconnect the battery, to prevent the engine being started while you are beneath the machine.

GEN-4-1_1

WARNING

JCB Extradig Dipper Lubricant

JCB Extradig dipper lubricant contains 1.53% lead. The repeated swallowing of very small quantities can cause chronic lead poisoning. Do not smoke or touch food while handling this lubricant. Dispose of waste (rags etc.) in accordance with local regulations.

2-1-1-8

Safety Decals

Decals on the machine warn you of particular hazards. Each decal is attached close to a part of the machine where there is a possible hazard. Read and make sure you understand the safety message before you work with or on that part of the machine → [Fig 1.](#) (□ 2-12).

Keep all decals clean and readable. Replace lost or damaged decals. The decals and their attachment points are as illustrated. Each decal has a part number printed on it, use this number to order a new decal from your JCB dealer.

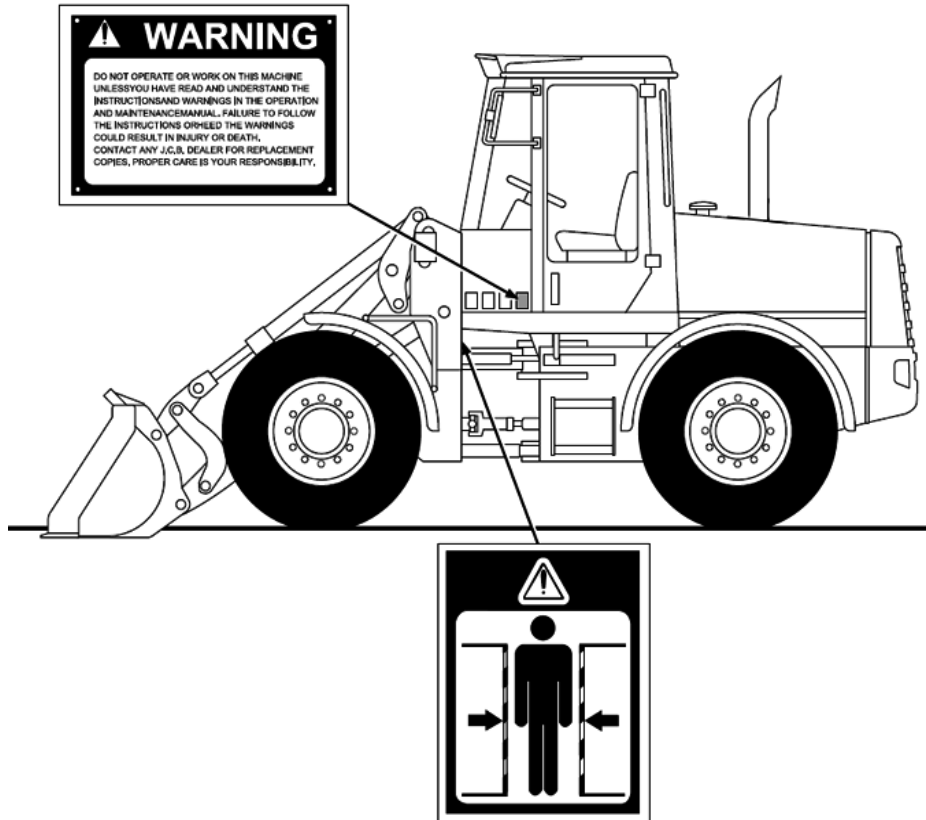


Fig 1.



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Routine Maintenance

Service Schedules

A badly maintained machine is a danger to the operator and the people working around him. Make sure that the regular maintenance and lubrication jobs listed in the schedules are done to keep the machine in a safe and efficient working condition.

machine which is due for a service. Make sure any defects found during the regular maintenance checks are rectified immediately.

● Initial 100 Hour Check Only

The schedules are based on machine running hours. Keep a regular check on the hourmeter readings. Do not use a

□ Regular Maintenance Check

Table 1.

Pre-start Cold Checks Service Points and Fluid Levels	Operation	10 Hr	100 Hr	250 Hr	As and When	500 Hr	1000 Hr	2000 Hr
ENGINE		□						
Oil level							□	□
Oil and Filter (First Change @ 250 Hrs. thereafter every 250 Hrs.)	- Check			□		□		
Air Cleaner Outer Element	- Change				□			□
Air Cleaner Inner Element	- Change					□	□	□
Fuel Filter	- Drain				□			
Fuel Filter	- Change		●			□		
Coolant Level	- Check	□						
Coolant	- Test							
Antifreeze Strength	- Check		●		□			
Coolant	- Change							
Fuel Sedimenter	- Drain				□			
Fan Belt Tension/Condition	- Check		●	□		□		
Engine Mount Security	- Check		●					



Section 3 - Maintenance Routine Maintenance

Service Schedules

Table 2.

TRANSMISSION AND AXLES	Operation	10 Hr	100 Hr	250 Hr	As and When	500 Hr	1000 Hr	2000 Hr
Transmission Oil Level	- Check	<input type="checkbox"/>						
Transmission Oil	- Change	●						
Transmission Strainer/Filter	- Change	●						
Axle(s) Oil Level	- Check	●						
Axle(s) Oil	- Change	●	<input type="checkbox"/>					
Hub Oil Levels	- Check							
Hub Oil	- Change				<input type="checkbox"/>			
Prop. Shaft and Universal joints	- Grease	●						
Prop. Shaft Security	- Check							
Centre Prop. Shaft Slide	- Grease	●						
Axle Breather(s)	- Check	●						
Tyre Pressures and Condition	- Check	<input type="checkbox"/>						
Wheel Nut Security	- Check	●						
Axle Mount Security	- Check	●						
Transmission Mount Security	- Check	●						
Parking Brake Operation	- Check and Adjust			<input type="checkbox"/>				
Rear Axle Pivot	- Grease	<input type="checkbox"/>						
Bevel Ring Gear Deflection Plunger	- Check and Adjust							

Table 3.

HYDRAULICS	10 Hr	100 Hr	250 Hr	As and When	500 Hr	1000 Hr	2000 Hr
Oil Level	- Check	<input type="checkbox"/>					
Oil Filter	- Change		●		<input type="checkbox"/>		
Oil	- Sample			<input type="checkbox"/>			<input type="checkbox"/>
Oil	- Change						<input type="checkbox"/>
Suction Strainer	- Clean						
Tank Filler Cap	- Check						<input type="checkbox"/>
Hoses & Pipework - Damage or Leaks	- Check						

Table 4.

Pre-start Cold Checks	Operation	10 Hr	100 Hr	250 Hr	As and When	500 Hr	1000 Hr	2000 Hr
Service Points and Fluid Levels								
ELECTRICS								
Instrument Panel Operation	- Check	<input type="checkbox"/>						



Section 3 - Maintenance Routine Maintenance

Service Schedules

Wiring for Chaffing	- Check		●	<input type="checkbox"/>				
Battery Terminals for Condition and Tightness	- Check		●				<input type="checkbox"/>	
Battery Charge Condition	- Check		●					
BODY AND FRAMEWORK								
Loader End Pivots	- Grease	<input type="checkbox"/>						
All Hinges	- Grease		●				<input type="checkbox"/>	
Lower Centre Pivot	- Grease	<input type="checkbox"/>						
Steer Ram Pivots	- Grease	<input type="checkbox"/>						
Upper Centre Pivot	- Grease		●					
Machine Condition Generally	- Check		●			<input type="checkbox"/>	<input type="checkbox"/>	
CAB								
ROPS/FOPS Structures	- Check						<input type="checkbox"/>	
Seat Belt Security and Condition	- Check					<input type="checkbox"/>		

Table 5.

Functional Test and Final Inspection	Operation	10 Hr	100 Hr	250 Hr	As and When	500 Hr	1000 Hr	2000 Hr
ENGINE								
Idle Speed	- Check and Adjust	<input type="checkbox"/>				<input type="checkbox"/>		<input type="checkbox"/>
Torque Converter Stall Speed	- Check					<input type="checkbox"/>		<input type="checkbox"/>
Combined Stall Speed	- Check	●				<input type="checkbox"/>		<input type="checkbox"/>
Max. No Load Speed	- Check	●						
Max. No Load Speed	- Check and Adjust	●						
Throttle System and Control Cable - Check		●						
Operation of Stop Control/E.S.O.S. - Check		●						
Exhaust Smoke	- Check	●						
Fuel System For Leaks and Contamination	- Check	●				<input type="checkbox"/>		<input type="checkbox"/>
Exhaust System Security	- Check	●				<input type="checkbox"/>		<input type="checkbox"/>
Air Inlet System Security	- Check	●						
Coolant System for Leaks								

Table 6.

Functional Test and Final Inspection	Operation	10 Hr	100 Hr	250 Hr	As and When	500 Hr	1000 Hr	2000 Hr

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for your reading.**

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back to our website.**

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