Open front screen

Service Manual

JS110
JS130
JS150LC

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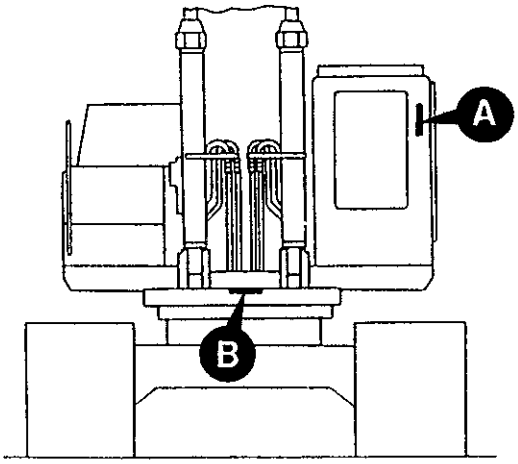
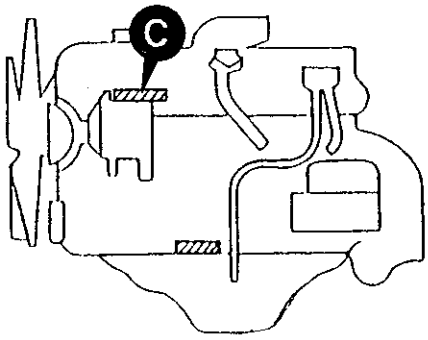
1 - 1 Machine Identification 1 -1

Each machine has a Data Plate, located to the rear left, inside the cab as shown at **A**. The machine serial number is inscribed at **B** and the engine number at **C**.

If the engine is replaced by a new one, the data plate serial number will be wrong. Either stamp the new number on the plate or stamp out the old one. This will prevent the wrong number being quoted when ordering replacement parts.





Torque Settings

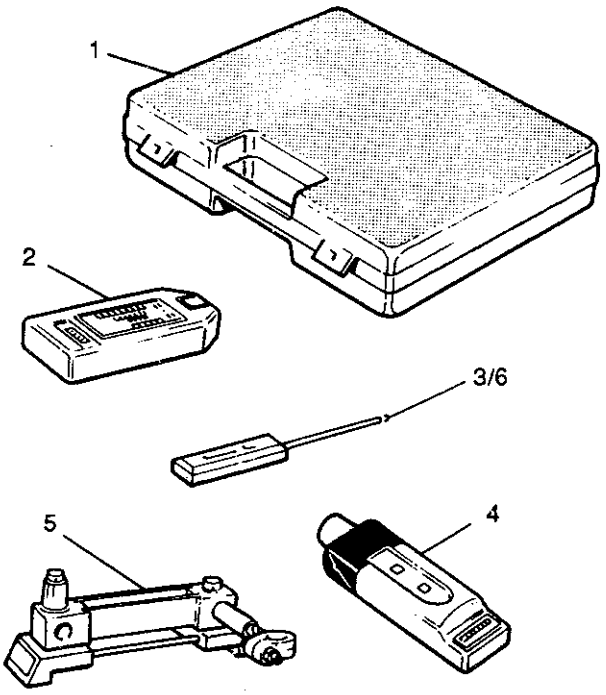
Note 1: The figures quoted are for non-plated fasteners and are to be used only when there is no torque setting specified in the relevant procedure in this service manual.

Note 2: The 4T grade settings DO NOT APPLY to fasteners used on the engine. If any 4T specification fasteners are found on the engine these must be tightened to the figure quoted in the relevant engine manual.

Bolt Size	Strength Grade of Bolt or Stud								
	4T			**8.8**			**10.9**		
	Nm	kgf m	lbf ft	Nm	kgf m	lbf ft	Nm	kgf m	lbf ft
M3	0.39	0.04	0.28	-	-	-	-	-	-
M4	0.78	0.08	0.57	-			-	-	-
M5	1.67	0.17	1.2	-	-	-	-	-	-
M6	2.84	0.29	2.1	8.04	0.82	5.9	11.3	1.15	8.3
M8	7.06	0.72	5.2	19.6	2.00	14.5	27.7	2.82	20.4
M10	14.0	1.43	10.3	39.1	3.99	28.8	55.0	5.61	40.6
M12	24.6	2.51	18.1	68.5	6.98	50.5	96.2	9.81	71
M16	61.9	6.31	45.7	173	17.6	127.6	242	24.7	178.5
M20	122	12.4	90	337	34.4	249	475	48.4	350
M22	167	17.0	123	464	47.3	342	652	66.5	481
M24	210	21.4	155	584	59.5	431	821	83.7	606
M27	311	31.7	229	864	88.1	637	1220	124	900
M30	420	42.8	310	1170	119	863	1650	168	1217
M33	576	58.7	425	1600	163	1180	2260	230	1667
M36	736	75.1	543	2050	209	1512	2880	294	2124
M39	961	98.0	709	2680	273	1977	3760	383	2773
M42	1190	121	878	3300	336	2434	4640	473	3422
M45	1490	152	1099	4140	422	3054	5820	593	4293
M48	1780	182	1312	4960	506	3659	6970	711	5141

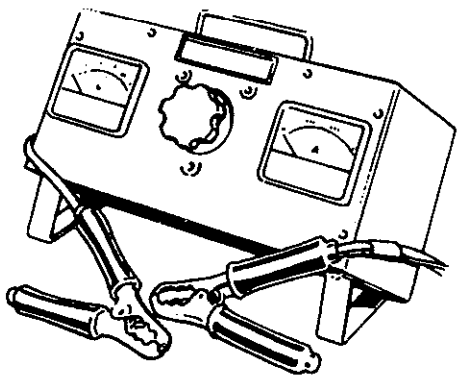
Service Tools

SECTION C - ELECTRICS



Electrical Test Equipment

1	892/00283	Tool Kit Case
2	892/00281	AVO Meter
3	892/00286	Surface Temperature Probe
4	892/00284	Microtach Digital Tachometer
5	892/00282	Shunt - open type
6	892/00285	Hydraulic Oil Temperature Probe
7	892/00298	Fluke 85 Multimeter



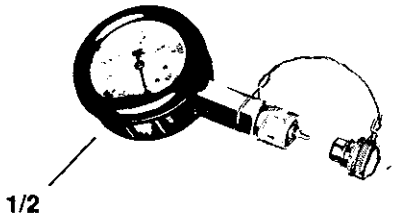
892/00121 High Rate Discharge Tester (400 Amps) for testing battery discharge condition

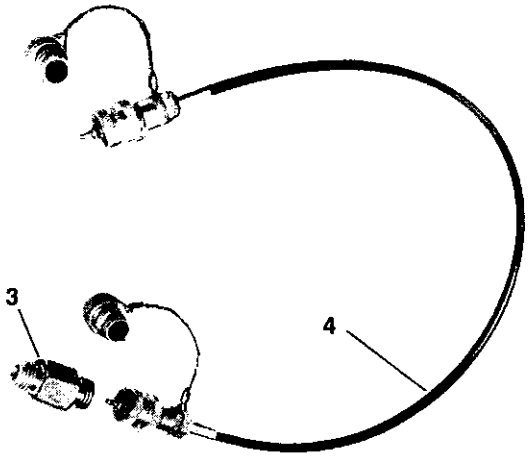
Service Tools (continued)

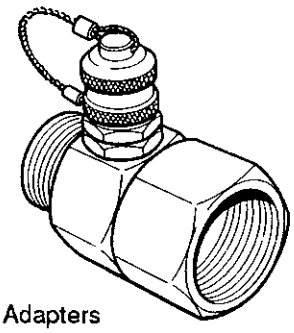
SECTION E - HYDRAULICS

Hydraulic Pressure Test Gauges and Connections

1	892/00279	Pressure Gauge 0-400 bar (0-6000 lbf/in²)
2	892/00346	Pressure Gauge 0-70 bar (0-1000 lbf/in²)
3	892/00347	Connector
4	892/00254	Hose

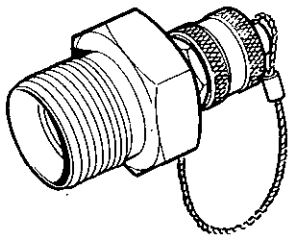






Pressure Test 'T' Adapters

892/00262	1/4 in M BSP x 1/4 in F BSP x Test Point
816/55038	3/8 in M BSP x 3/8 in F BSP x Test Point
816/55040	1/2 in M BSP x 1/2 in F BSP x Test Point
892/00263	5/8 in M BSP x 5/8 in F BSP x Test Point
892/00264	3/4 in M BSP x 3/4 in F BSP x Test Point
892/00265	1 in M BSP x 1 in F BSP x Test Point
892/00266	1,1/4 in M BSP x 1,1/4 in F BSP x Test Point
892/00267	1,1/2 in M BSP x 1,1/2 in F BSP x Test Point

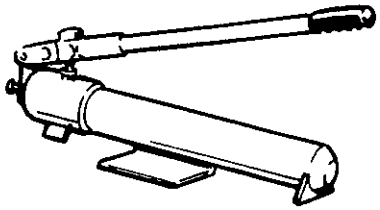


Pressure Test Adapters

892/00255	1/4 in BSP x Test Point
892/00256	3/8 in BSP x Test Point
892/00257	1/2 in BSP x Test Point
892/00258	5/8 in BSP x Test Point
816/15118	3/4 in BSP x Test Point
892/00259	1 in BSP x Test Point
892/00260	1.1/4 in BSP x Test Point
892/00261	5/8 in UNF x Test Point

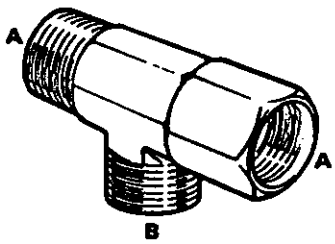
Service Tools (continued)

SECTION E - HYDRAULICS



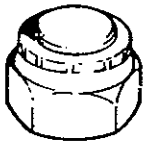
Hand Pump Equipment

892/00223	Hand Pump
892/00137	Micro-bore Hose 1/4 in BSP x 5 metres
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
892/00278	Gauge 0 - 40 bar (0 - 600 lbf/in^2)
892/00279	Gauge 0 - 400 bar (0 - 6000 lbf/in^2)
892/00280	Gauge 0 - 600 bar (0 - 8500 lbf/in^2)



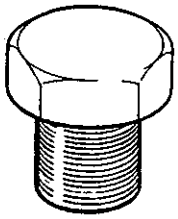
Tee Adapters

816/50005	1/2 in. BSP (A) x 1/2 in. BSP (B)
816/60096	3/4 in. BSP (A) x 3/4 in. BSP (B)
816/00018	1 in. BSP (A) x 1 in. BSP (B)



Female Cone Blanking Plug

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



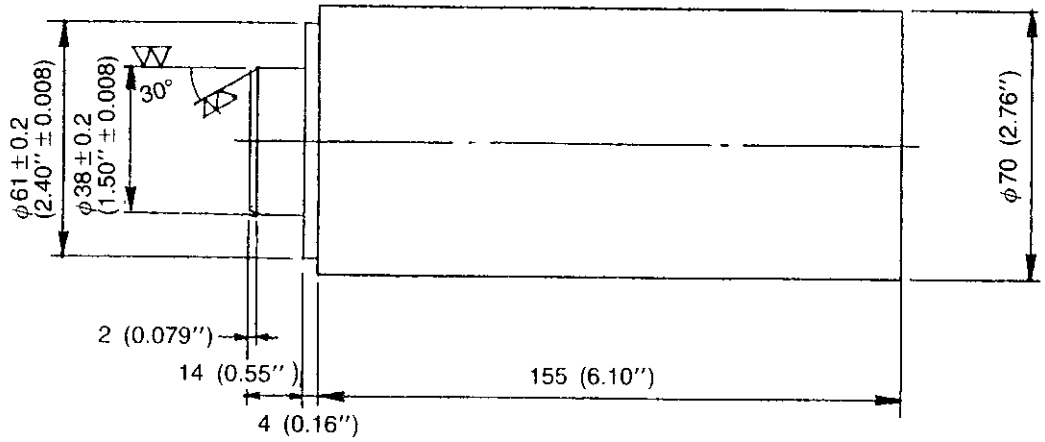
Male Cone Blanking Cap

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

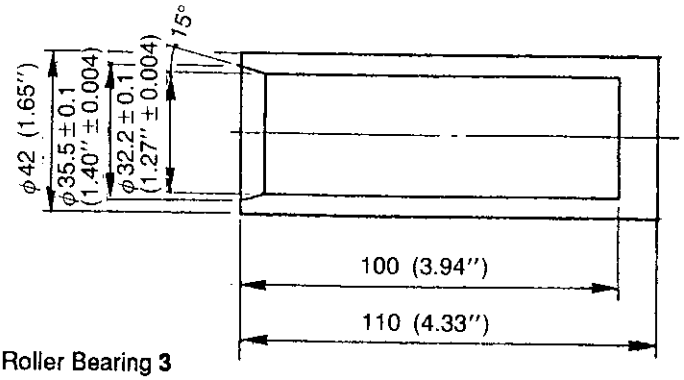
Service Tools (continued)

SECTION E - HYDRAULICS

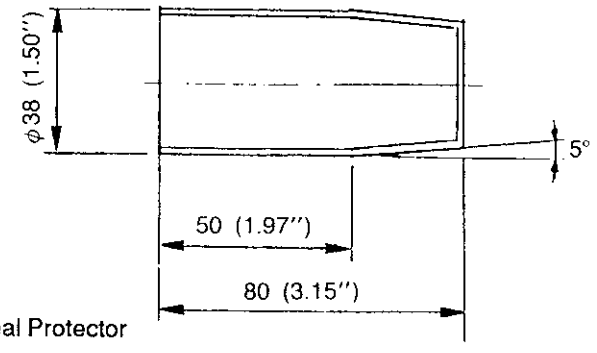
Swing Motor Unit - JS 110 and 130



Seal Fitting Tool (Oil Seal **2**)

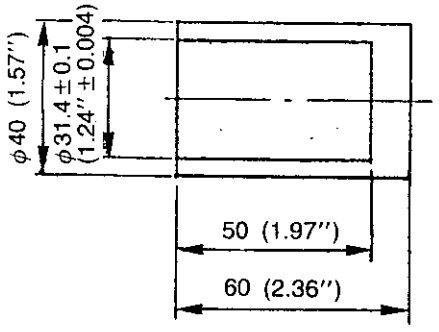


Fitting Tool for Inner Ring of Taper Roller Bearing **3**



Seal Protector

Heat polyvinyl tube in hot water and form to required shape.

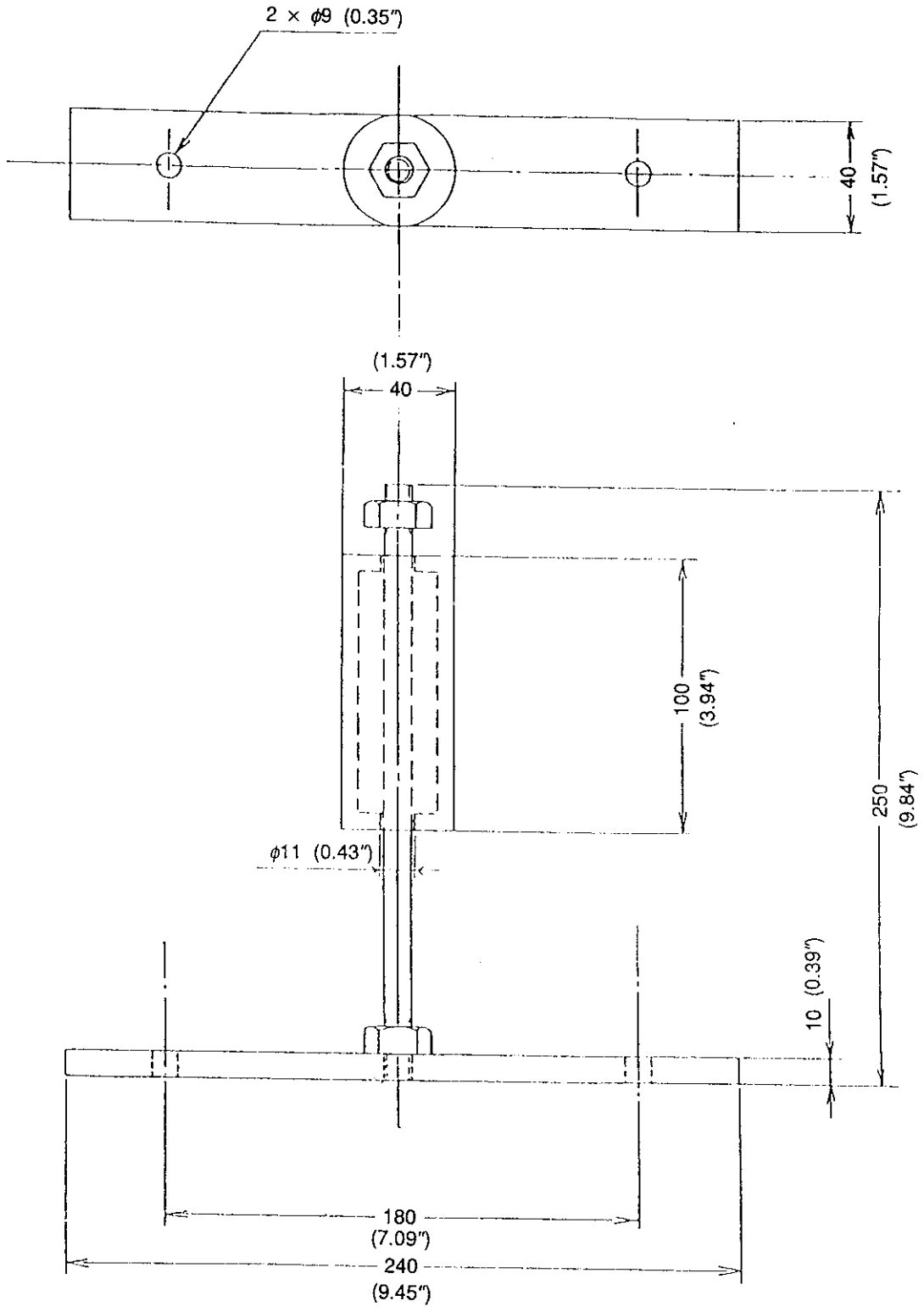


Fitting Tool for Inner Ring **1**

Service Tools (continued)

SECTION E - HYDRAULICS

Swing Motor Unit - JS 150LC



Puller for Brake Piston

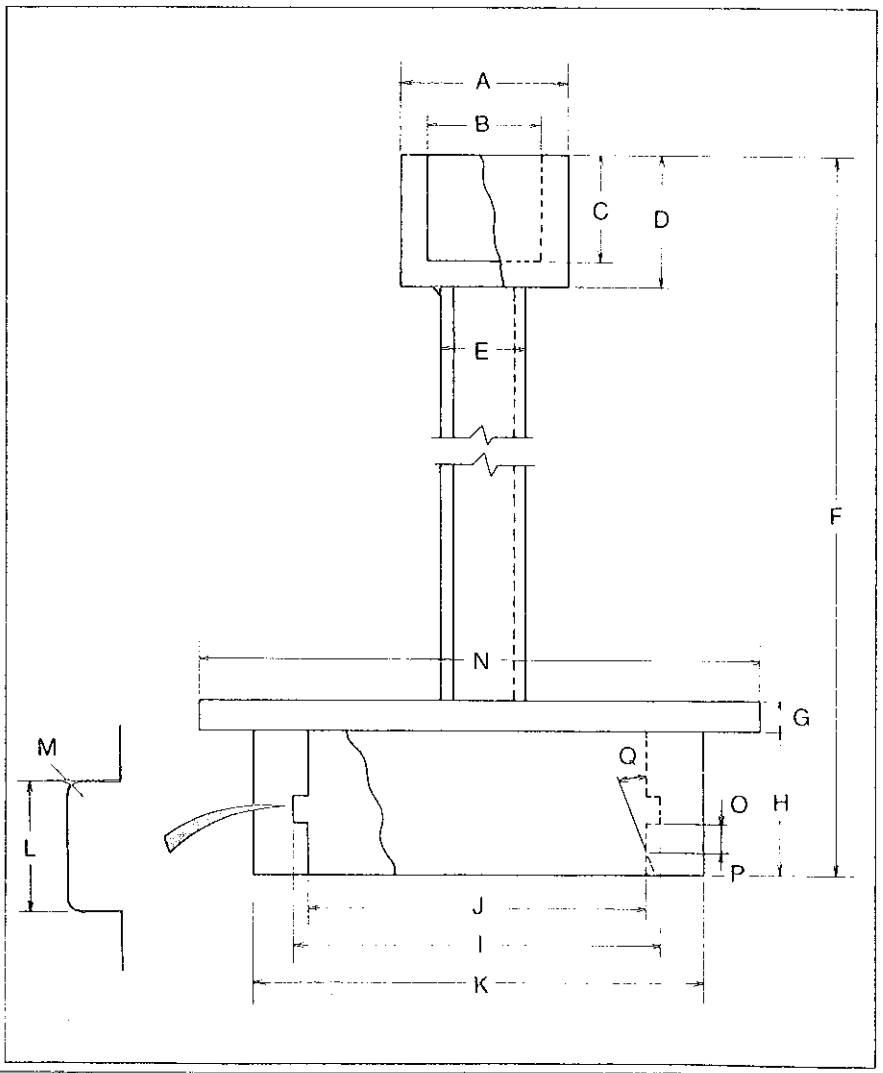
Stud is threaded M10 on both ends for 20 mm (0.8 in) and fitted with two M10 nuts.

Service Tools (continued)

SECTION E - HYDRAULICS

Hydraulic Tank - JS 110 and 130

	JS110/130
A	Dia. 40mm (1.57in)
B	Dia. 26mm (1.02in)
C	40mm (1.57in)
D	50mm (1.97in)
E	Dia. 10mm (0.39in)
F	550mm (21.7in)
G	9mm (0.35in)
H	24mm (0.94in)
I	Dia. 81mm $^{+0}_{-0.1}$ (3.19in $^{+0}_{-0.004}$)
J	Dia. 76mm $^{+0}_{-0.1}$ (2.99in $^{+0}_{-0.004}$)
* K	95 mm (3.74 in)
L	95mm (3.74in)
M	Radius 0.7mm (0.028in)
* N	120mm (4.72in)
O	4.0mm (0.157in)
P	3.0mm (0.118in)
Q	15°
O-ring	G75

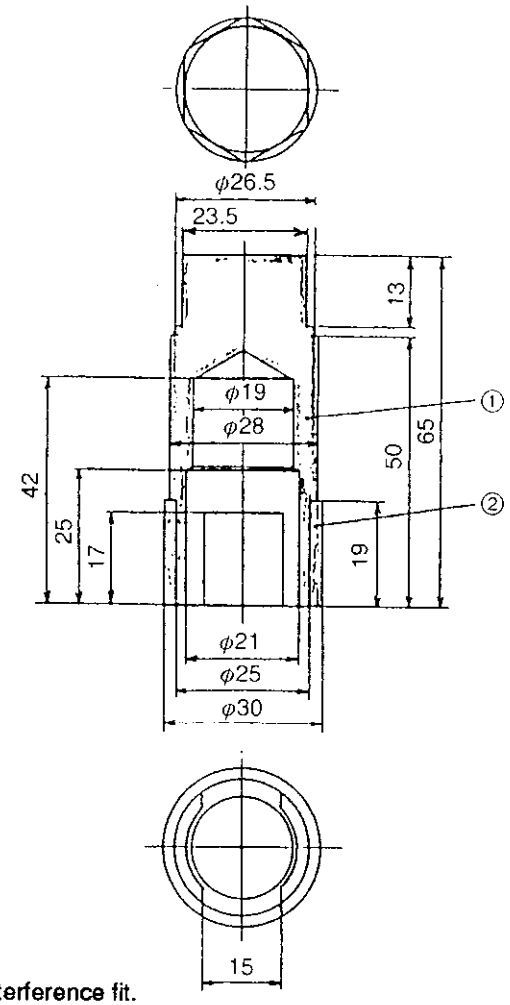


Blank for Suction Strainer

Service Tools (continued)

SECTION E - HYDRAULICS

Servo Hand Control Valve - JS 110, 130 and 150LC



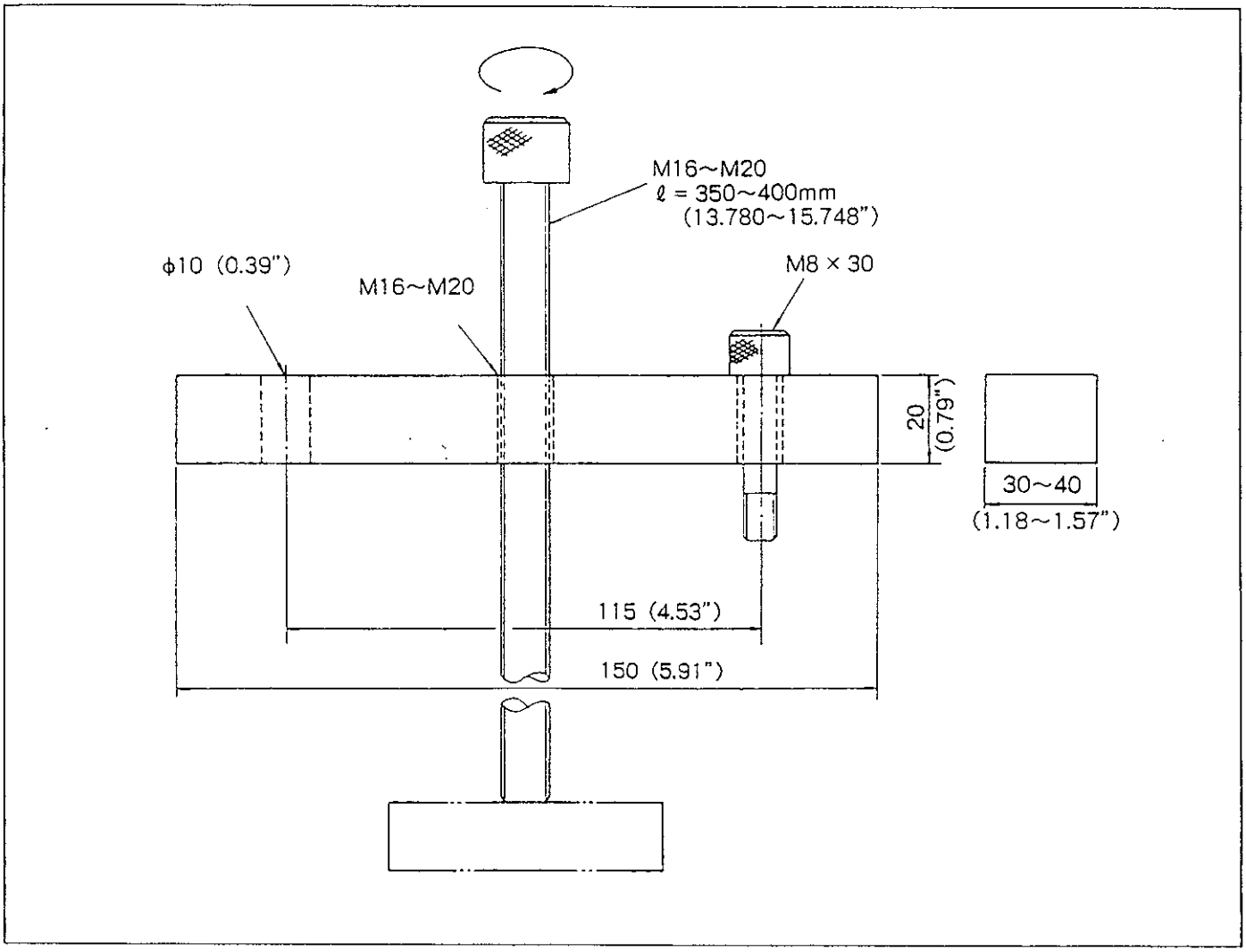
Joint Removal Tool

Items 1 and 2 are assembled with an interference fit.

Service Tools (continued)

SECTION E - HYDRAULICS

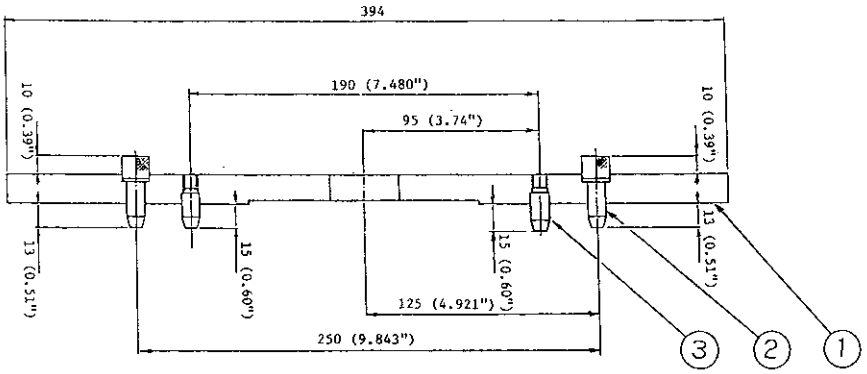
Rotary Coupling - JS 110, 130 and 150LC



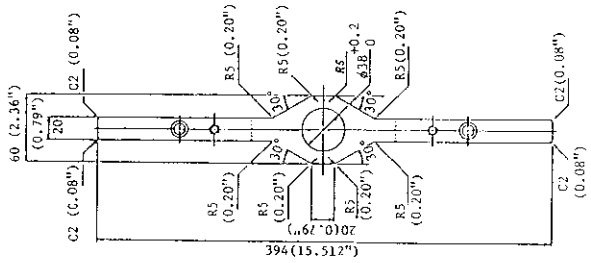
Service Tools (continued)

SECTION F - TRANSMISSION

Track Brake - JS 110 and 130



Brake Piston Positioning Jig (Assembly Drawing above comprises items 1, 2 and 3 shown below)



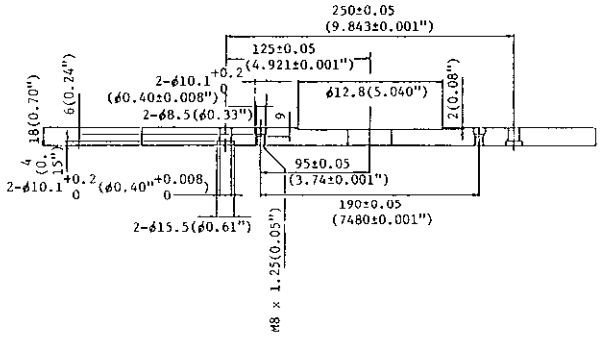
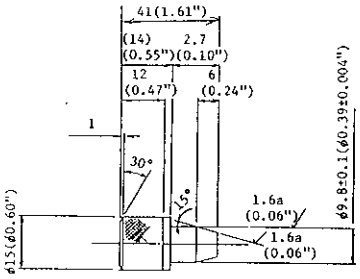
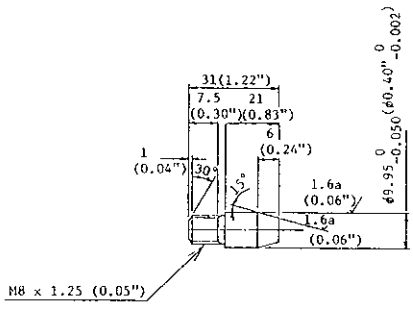


Plate (Item 1 of Brake Piston Positioning Jig shown above)



Pin (Item 2 of Brake Piston Positioning Jig shown above)

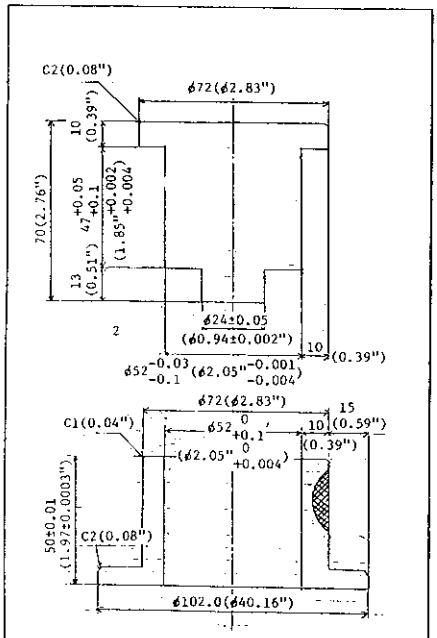


Pin (Item 3 of Brake Piston Positioning Jig shown above)

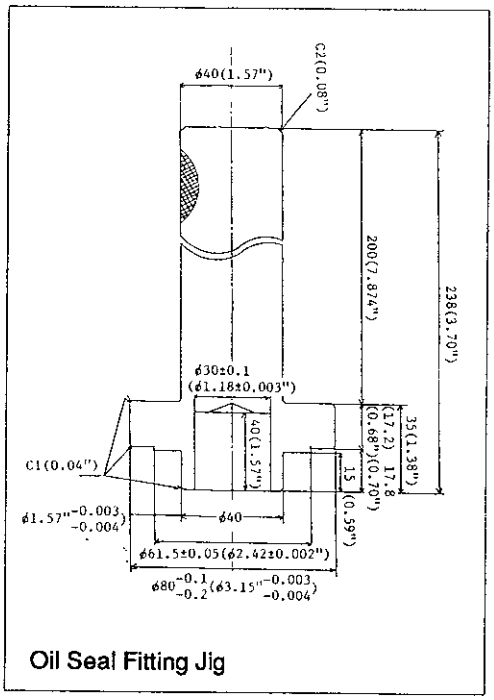
Service Tools (continued)

SECTION F - TRANSMISSION

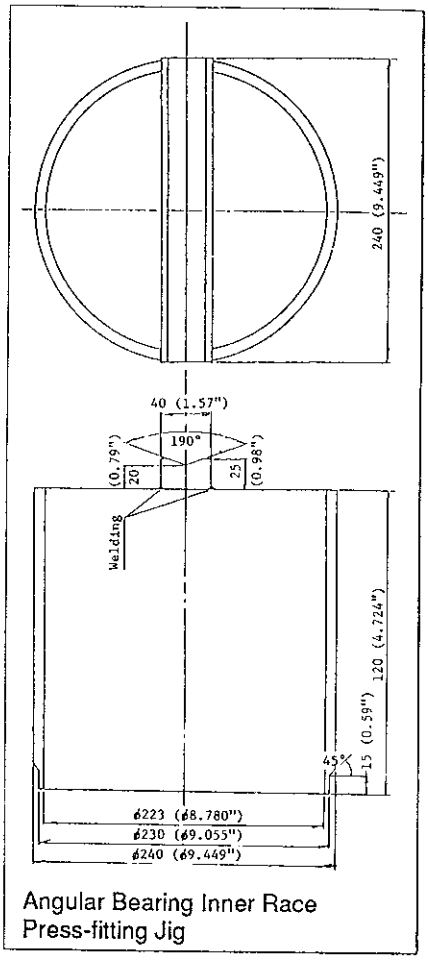
Track Gearbox - JS 110 and 130



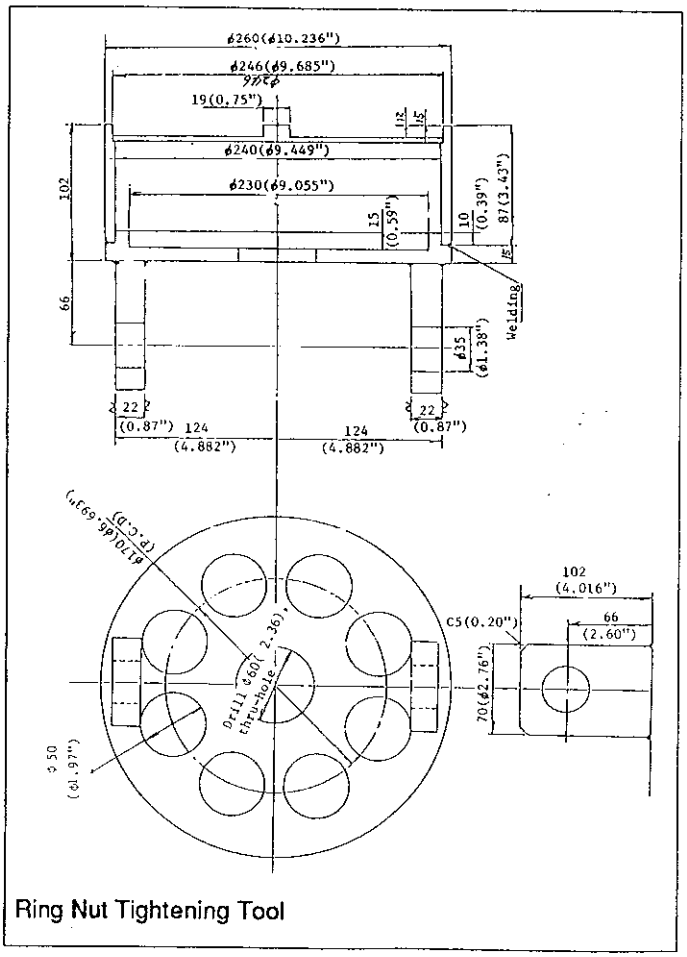
Bearing Press-fitting Jig



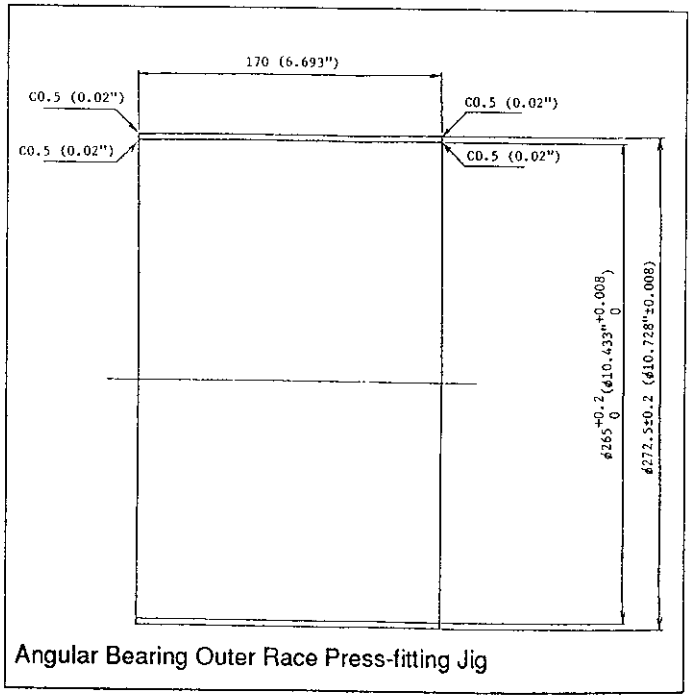
Oil Seal Fitting Jig



Angular Bearing Inner Race Press-fitting Jig



Ring Nut Tightening Tool



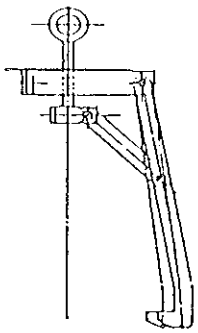
Angular Bearing Outer Race Press-fitting Jig

Service Tools (continued)

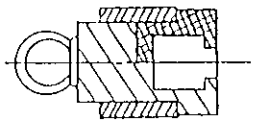
SECTION F - TRANSMISSION

Track Gearbox - JS 150LC

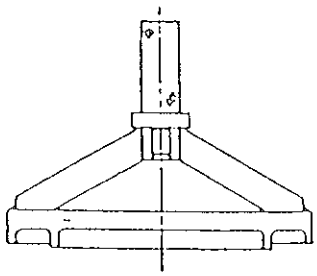
Note: Dimensions of the tools on this page were not available in time for publication.



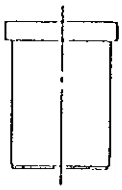
Lifting Device for Planet Carrier



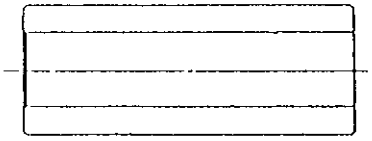
Lifting Hook for Cylinder Block and Shaft Assembly



Press-fitting Jig for Main Bearings



Press Tool for Compressing Spring in Cylinder Block

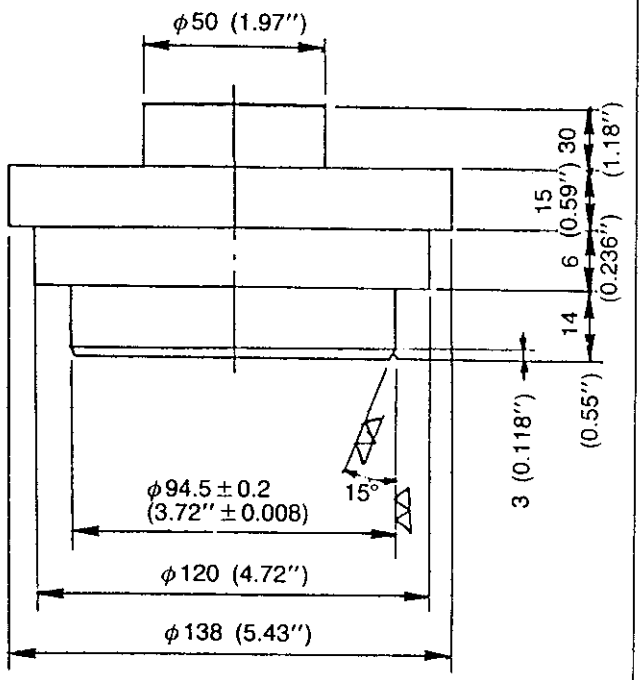


Support Tube for Pressing Inner Race from Shaft

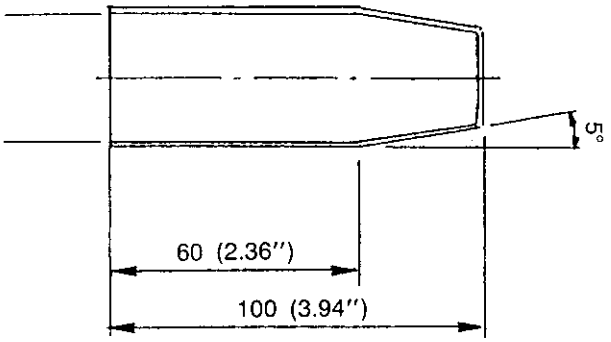
Service Tools (continued)

SECTION F - TRANSMISSION

Swing Gearbox - JS 110 and 130



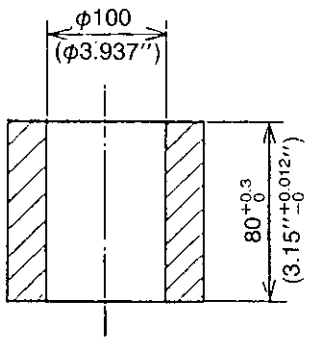
Seal Fitting Jig



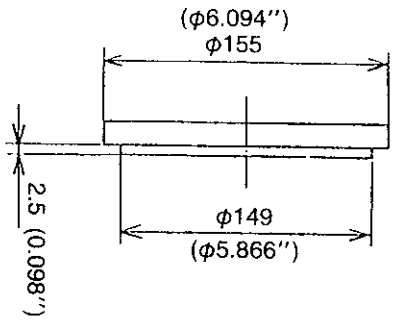
Seal Protector

Heat polyvinyl tube in hot water and form to the required shape on the pinion shaft

Swing Gearbox - JS 150LC



Bearing and Oil Seal Assembly Jig



Seal Fitting Jig

Sealing and Retaining Compounds

JCB Multi-Gasket	A medium strength sealant suitable for all sizes of gasket flanges, and for hydraulic fittings of 25-65 mm diameter.	4102/1201	
***JCB High Strength Threadlocker**	A high strength locking fluid for use with threaded components.	4102/0502	
***JCB High Strength Retainer**	For all retaining parts which are unlikely to be dismantled.	4101/0602	
JCB Lock and Seal	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.	4101/0202	
Loctite Activator N	A cleaning primer which speeds the curing rate of anaerobic products.	4104/0101 4104/0102	Aerosol Bottle
***JCB Cleaner and Degreaser**	For degreasing components prior to use of anaerobic adhesives and sealants.	4104/1538	Aerosol

Contents	**Page No.**

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 Excavator 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.

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

GEN-1-6

As well as the warnings in the following pages, 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.

Note: This section includes a certain amount of operating safety information. But remember that whenever you drive the machine or operate its controls you are in effect a machine operator. Therefore you should read and understand the information given in the Operator Handbook before driving the machine or operating its controls.

General Safety

⚠ 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

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

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

Raised Equipment

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

13-1-1-6

⚠ DANGER

Before removing the boom from the machine, ensure that the counterweight is adequately supported as in certain ground conditions the machine could tip backwards. Never travel or transport the machine with the boom removed.

BF 6-3

Operating Safety

⚠ WARNING

Engine

The engine has rotating parts. Do not open the engine cover while the engine is running. Do not use the machine with the cover open.

INT-2-1-6

⚠ WARNING

Entering/Leaving

Always face the machine when entering and leaving the cab. Use the step(s) and handrails. 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

⚠ WARNING

Controls

You or others can be killed or seriously injured if you operate the controls levers from outside the cab. Operate the control levers only when you are correctly seated inside the cab.

INT-2-1-3

⚠ WARNING

Visibility

Accidents can be caused by working in poor visibility. Keep windows clean and use your lights to improve visibility. Do not operate the machine if you cannot see properly.

INT-2-1-11

⚠ 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

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. Get out of the cab into fresh air.

INT-2-1-10

* **⚠ WARNING**

Hazardous Atmospheres

This machine is designed for use in normal outdoor 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

⚠ 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

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

⚠ 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

Controls

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

2-2-3-6

Maintenance Safety

⚠ WARNING

Soft Ground

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

INT-3-2-4

⚠ WARNING

Metal Splinters

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

INT-3-1-3

⚠ 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

Diesel Fuel

Diesel fuel is flammable; keep naked flames away from the machine. Do not smoke while refuelling the machine or working on the engine. 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

⚠ 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

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

⚠ WARNING

Fires

* If your machine is equipped with a fire extinguisher, make sure it is checked regularly. Keep it in the operator's cab 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-3-2-7/1

⚠ WARNING

Battery

A battery with frozen electrolyte can explode if it is used or charged. Do not use a machine with a frozen battery. To help prevent the battery from freezing, keep the battery fully charged.

INT-3-1-7

⚠ 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

⚠ 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

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

Never use water or steam to clean inside the cab. The use of water or steam could damage the on-board computer and render the machine inoperable. Remove dirt using a brush or damp cloth.

8-3-4-8

Maintenance Safety (cont'd)

⚠ CAUTION
Arc Welding

Before carrying out any arc welding on the machine, completely remove the Control Computer to avoid damage to the circuits; also disconnect the alternator plug and battery leads.

When welding items to the mainframe make sure that the earth clamp is positioned on the mainframe and when welding to the undercarriage make sure that the earth clamp is positioned on the undercarriage. If you earth one and weld the other, you may cause severe damage to the slew ring.

Always connect the earth clamp to any other component being welded, i.e. boom or dipper, to avoid damage to pivot pins and bushes.
8-1-2-6/1

⚠ WARNING
Hydraulic Hoses

Damaged hoses can cause fatal accidents. Inspect the hoses regularly for:
Damaged end fittings
Chafed outer covers
Ballooned outer covers
Kinked or crushed hoses
Embedded armouring in outer covers
Displaced end fittings.
INT-3-3-2

⚠ WARNING

DO NOT remove the hydraulic tank filler cap or cover plate when the engine is running. The hydraulic system is under pressure. You or others could be injured. First stop the engine and then release the pressure.
8-3-4-4/1

⚠ WARNING
Hydraulic Pressure

Hydraulic fluid at system pressure can injure you. Before disconnecting or connecting hydraulic hoses, stop the engine and operate the controls to release pressure trapped in the hoses. Make sure the engine cannot be started while the hoses are open.
INT-3-1-11/1

⚠ WARNING
Hydraulic Fluid

Fine jets of hydraulic fluid at high pressure can penetrate the skin. Do not use your fingers to check for hydraulic fluid leaks. Do not put your face close to suspected leaks. Hold a piece of cardboard close to suspected leaks and then inspect the cardboard for signs of hydraulic fluid. If hydraulic fluid penetrates your skin, get medical help immediately.
INT-3-1-10/1

⚠ 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

⚠ 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
Hot Coolant

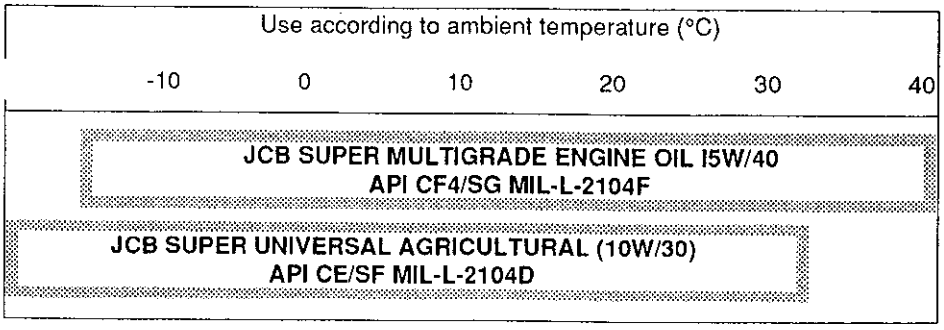
The cooling system is pressurised when the engine is hot. Hot coolant can spray out when you remove the radiator cap. Let the system cool before removing the radiator cap. To remove the cap; turn it to the first notch and let the system pressure escape, then remove the cap.
INT-3-2-9

Contents

Note: *New engines DO NOT require a running-in period. The engine/machine should be used in a normal work cycle immediately glazing of the cylinder bores, resulting in excessive oil consumption, could occur if the engine is gently run-in. Under nc circumstances should the engine be allowed to idle for extended periods (e.g. warming-up without load).*

*Item	Lubricant	International Specification	Capacity		
			JS110	JS130	JS150LC
ENGINE	See separate chart	-	13.8 litres (3 UK gal)	13.8 litres (3 UK gal)	13.8 litres (3 UK gal)
TRACK GEARBOX	JCB Gear Oil HD90	API-GL-5, MIL-L-2105D	2 x 2.5 litres (2 x 0.55 UK gal)	2 x 2.5 litres (2 x 0.55 UK gal)	2 x 3 litres (2 x 0.66 UK gal)
SWING GEARBOX	JCB Gear Oil HD90 JCB HP Grease	API-GL-5, MIL-L-2105D Lithium based, No. 2 consistency	1.7 litres (0.37 UK gal) 0.47 litres (0.1 UK gal)	1.7 litres (0.37 UK gal) 0.47 litres (0.1 UK gal)	6 litres (1.32 UK gal) Not applicable
TRACK ROLLERS AND IDLER WHEEL	Engine Oil (see separate chart)	-	-	-	-
HYDRAULIC SYSTEM	JCB Special Hydraulic Fluid HP46	Vickers 35VQ25/V104C: Sundstrom Denison and FZG Approval Tests	157 litres (34.5 UK gal)	157 litres (34.5 UK gal)	170 litres (37.4 UK gal)
SWING RING - BEARINGS - GEAR TEETH	 JCB HP Grease JCB HP Grease	 Lithium based, No. 2 consistency	 - 10 kg (22 lb)	 - 10 kg (22 lb)	 - 13 kg (28.7 lb)
EXCAVATOR GREASE POINTS	JCB HP Grease	Lithium based, No. 2 consistency			
COOLING SYSTEM	See ***Coolant Mixtures***	ASTM D3306-74	17.8 litres (3.9 UK gal)	17.8 litres (3.9 UK gal)	17.8 litres (3.9 UK gal)
FUEL TANK	See ***Fuel Systems, Types of Fuel*** in in Operator Handbook	ASTM D975-66T Nos. 1D, 2D	240 litres (52.8 UK gal)	240 litres (52.8 UK gal)	240 litres (52.8 UK gal)

***ENGINE LUBRICATION CHART**



It is most important that you read and understand this information and the publications referred to. Make sure that all of your colleagues who are concerned with lubricants read it too.

First Aid - Oil

Swallowing.
If oil is swallowed you should not induce vomiting. Get medical advice.

Skin
In the case of excessive skin contact you should wash with soap and water.

Eyes
In the case of eye contact, flush with water for 15 minutes. If irritation persists, get medical attention.

Fires

Extinguish with carbon dioxide, dry chemical or foam. Firefighters should use self contained breathing apparatus.

⚠ WARNING

Do not use water to put out an oil fire. This will only spread it because oil floats on water.

Extinguish oil and lubricant fires with carbon dioxide, dry chemical or foam. Fire fighters should use self contained breathing apparatus.
7-3-1-3/1

Hygiene

JCB lubricants are not a health risk when used properly for their intended purposes.

However, excessive or prolonged skin contact can remove the natural fats from your skin, causing dryness and irritation.

Low viscosity oils are more likely to do this, therefore particular care is necessary in handling used oils which can be diluted with fuel contamination.

Whenever you are handling oil products you should maintain good standards of care and personal and plant hygiene. For details of these precautions we advise you to read the relevant publications issued by your local health authority, and note the following:

Storage

Always keep lubricants out of the reach of children.

Never store lubricants in open or unlabelled containers.

Handling

New Oil

There are no special precautions needed for the handling or use of new oil, beside normal care and hygiene practices.

Used Oil

Used engine crankcase lubricants contain harmful contaminants. In laboratory tests it was shown that used engine oils can cause skin cancer.

Here are precautions to protect your health when handling used engine oil:

1 Avoid prolonged, excessive or repeated skin contact with used engine oils.

2 Apply a barrier cream to the skin before handling used engine oil.

3 Note the following when removing engine oil from skin:

- a Wash your skin thoroughly with soap and water.
- b Using a nail brush will help.
- c Use special hand cleansers to help clean dirty hands.
- d Never use petrol, diesel fuel or gas oil.
- e Avoid skin contact with oil soaked clothing.
- f Don't keep oily rags in pockets.
- g Wash dirty clothing before re-use.
- h Throw away oil-soaked shoes.

Waste Disposal

All waste products should be disposed of in accordance with all the relevant regulations.

The collection and disposal of used engine oil should be in accordance with any local regulations. Never pour used engine oil into sewers or drains.

Spillage

Absorb on sand or a locally approved brand of absorbent granules. Scrape up and remove to a chemical disposal area.

Every 10 Operating Hours or Daily
Whichever occurs first

1 **Clean**

- **a** Machine generally

2 **Grease**
(if operating in very wet conditions)

- **a** Bucket/dipper pivot points

3 **Check (Engine stopped)**

- **a** Generally for damage
- **b** For oil and coolant leakage
- **c** Security of bolts and nuts †
- **d** For disconnected or shortened wiring, loose terminals
- **e** Hydraulic fluid level
- **f** Engine oil level
- **g** Engine coolant level
- **h** Windscreen washer fluid level
- **j** Fuel system for leaks
- **k** Fuel level

† Tapping with a hammer will identify any loose nuts and bolts which should then be tightened to the specified torque.

4 **Check (Engine running)**

- **a** Operation of warning lights and audible alarm
- **b** Operation of other electrical equipment
- **c** Exhaust for excessive smoke
- **d** Track tension
- **e** Excavator operation
- **f** Transmission operation
- **g** Operation of track and swing brakes
- **h** Operation of hourmeter

Every 50 Operating Hours or Weekly
Whichever occurs first

1 Do the Daily jobs plus:

2 **Clean**

- **a** Drain water and sediment from fuel tank
- **b** Drain fuel water separator

3 **Grease**

- **a** All pivot pins

Every 100 Operating Hours or 2-Weekly
Whichever occurs first

1 Do a 50 Hour Service plus:

2 **Clean**

- **a** Battery terminals

3 **Grease**

- **a** Swing ring bearing

* 4 **Change**

- **a** Engine oil ††
- **b** Hydraulic servo oil filter element ††
- **c** Hydraulic return filter element ††
- **d** Hydraulic drain filter element ††
- **e** Track and swing gearbox oil ††

* 5 **Check (Engine stopped)**

- **a** Hose and pipework for chafing or damage
- **b** Condition of ram piston rods
- **c** All grease seals
- **d** Track plate condition
- **e** Track and running gear condition
- **f** Tightness of engine mounting bolts
- **g** Wiring for chafing
- **h** Security of major unit mounting bolts and nuts ††
  If loose, tighten to specified torque.
- **j** Top and bottom track rollers for oil leaks ††
- **k** Track idler wheels for oil leaks ††

6 **Check (Engine running)**

- **a** Accumulator operation

* †† These procedures are only to be carried out after the **first 100 hours** use of a new machine. Thereafter they are to be carried out as detailed in the following periodic checks.

Every 250 Operating Hours or Monthly
Whichever occurs first

1 Do a 100 Hour Service (except checking engine oil level) plus:

2 **Clean**
- a Drain water and deposits from hydraulic oil tank

3 **Grease**
- a Door and canopy hinges

4 **Change**
- a Engine oil
- b Engine oil filter element

*5 **Check (Engine Stopped)**
- a Battery electrolyte level
- b Security of major unit mounting bolts and nuts.

  If loose, tighten to specified torque.
- c Track and swing gearbox oil level
- d Fan belt adjustment

Every 500 Operating Hours or 3-Monthly
Whichever occurs first

1 Do a 250 Hour Service plus:

2 **Clean**
- a Hydraulic fluid suction strainer
- b Radiator and oil cooler fins

3 **Grease**
- a Swing ring teeth and swing pinion

4 **Change**
- a Fuel filter element
- b Hydraulic servo oil filter element
- c Hydraulic return filter element
- d Hydraulic drain filter element

5 **Check (Engine stopped)**
- a Exhaust system security
- * b Top and bottom rollers for oil leaks
- * c Idler wheels for oil leaks

Every 1000 Operating Hours or 6-Monthly
Whichever occurs first

1 Do a 500 Hour Service, (except checking track and swing gearbox oil levels), plus:

2 **Clean**
- a The fuel system lift pump strainer

3 **Grease**
- a Replenish swing gearbox grease (JS110, JS130 only)

4 **Change**
- a Air filter element (outer)
- b Hydraulic tank air breather element
- c Track and swing gearbox oil

Every 2000 Operating Hours or Yearly
Whichever occurs first

1 Do a 1000 Hour Service, (except checking hydraulic fluid level), plus:

2 **Clean**
- a Injectors and test

3 **Change**
- a Hydraulic fluid suction strainer
- b Hydraulic fluid
- c Air filter element (inner)
- d Oil in top and bottom track rollers
- e Oil in track idler wheels

4 **Check (Engine stopped)**
- a Valve clearance and lubrication

Note: Use of a rockbreaker attachment will necessitate more frequent servicing of the hydraulic circuit of the machine. The actual servicing frequency will depend on what percentage of overall use involves the rockbreaker. Refer to page 10 - 1 for full details.