

Service Manual

JS 200W

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Introduction

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

The remaining sections are alphabetically coded and deal with Dismantling, Overhaul etc. of specific components, for example:

- A** = **Optional Equipment**
- B** = **Body & Framework** ...etc

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.

All sections are listed on the front cover; tabbed divider cards align directly with individual sections on the front cover for rapid reference.

Page cross references are generally made by presenting the subject title printed in bold, followed by the title of the section containing the subject. For example:

"24 If the axle is still on the machine, fit the brake calipers (see **Brake Caliper Removal and Replacement**, Section G)."

Note: If only the subject title in bold is given, i.e. no section title, the cross reference is to another part of the same section.

Use the contents list at the beginning of each section to find the exact page number.

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.

Sample of manual. Download All 452 pages at:

<https://www.arepairmanual.com/downloads/jcb-js200w-wheeled-excavators-service-repair-manual/>

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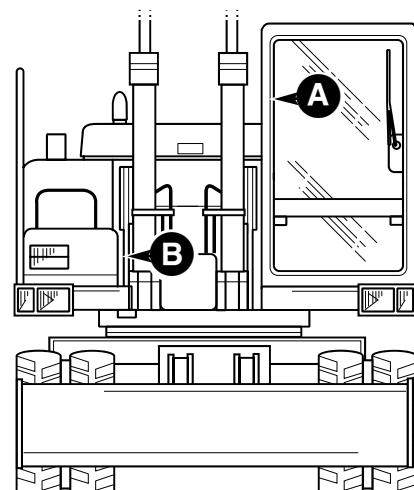
Your machine has a Data Plate, located inside the cab, as shown at **A**. The machine serial number is inscribed at **B** and the engine number has two serial number plates **C** and **D**.

Tier 2 engine number plate is positioned at **E**.

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 you order replacement parts.

Typical Engine Identification Number

YH 50727 U 500405 D
 L M N O P



JS06050

L Engine Type

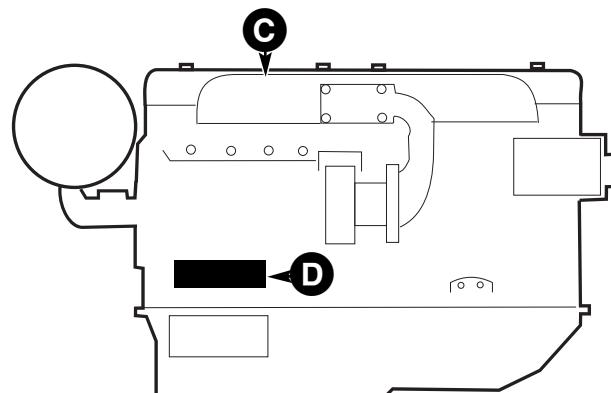
YH = 6 cylinder turbo

M Build Number

N Country of Origin

O Engine Sequence Number

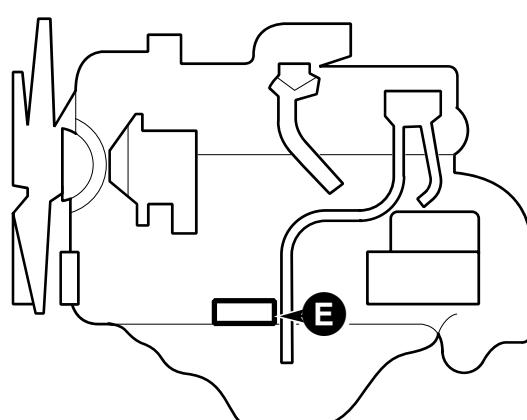
P Year of Manufacture



Axle Serial Plate

The axle serial number is stamped on a plate mounted to the rear face of the axle.

- 1 When replacement parts are required, always ensure that the correct parts are obtained, e.g. in the case of gear replacements, always check the part number stamped on the gear, and the number of teeth.
- 2 When ordering replacement parts, quote the details on the serial plate as shown.



JS06060

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.

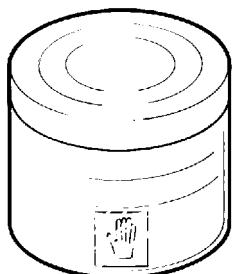
Note 2: The 4T grade settings DO NOT APPLY to fasteners used on the engine. If any 4T specification fasteners are found on the engine, these must be tightened to the figure quoted in the relevant engine manual.

Bolt Size	Strength Grade of Bolt or Stud											
	4T			8.8			10.9			12.9		
	Nm	kgf m	lbf ft	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	48.0	4.9	35
M10	14.0	1.43	10.3	39.1	3.99	28.8	55.0	5.61	40.6	94.0	9.6	69
M12	24.6	2.51	18.1	68.5	6.98	50.5	96.2	9.81	71	166	16.9	122
M16	61.9	6.31	45.7	173	17.6	127.6	242	24.7	178.5	400	40.8	295
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	-	-	-

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

Service Tools

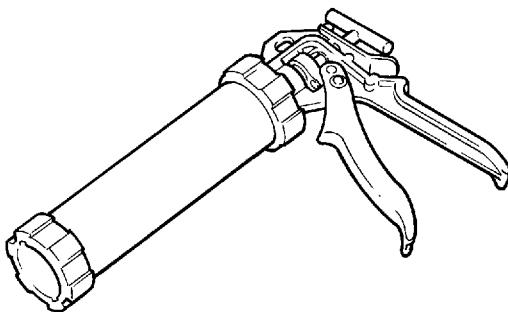
Body and Framework (Section B)



S186240

Hand Cleaner - special blend for the removal of polyurethane adhesives.

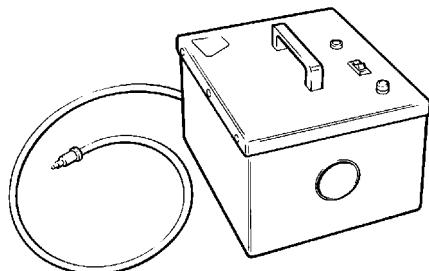
4104/1310 (454g; 1lb tub)



S186270

Cartridge Gun - hand operated - essential for the application of sealants, polyurethane materials etc.

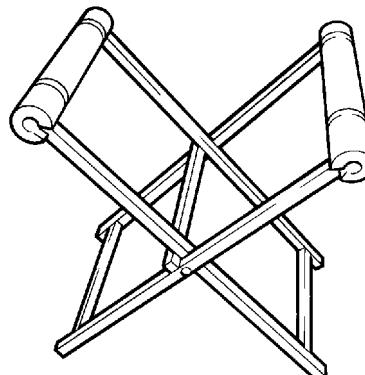
892/00845



S186250

12V Mobile Oven - 1 cartridge capacity - required to pre-heat adhesive prior to use. It is fitted with a male plug (703/23201) which fits into a female socket (715/04300).

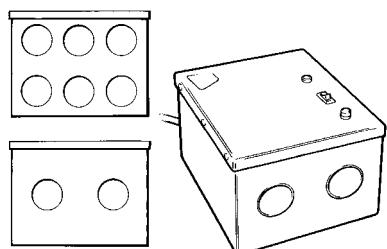
992/12300



S186280

Folding Stand for Holding Glass - essential for preparing new glass prior to installation.

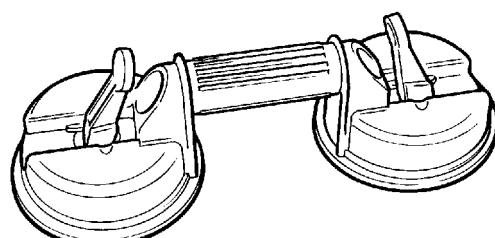
892/00843



S186260

240V Static Oven - available with 2 or 6 cartridge capacity - required to pre-heat adhesive prior to use. No plug supplied. Note: 110V models available upon request - contact JCB Technical Service

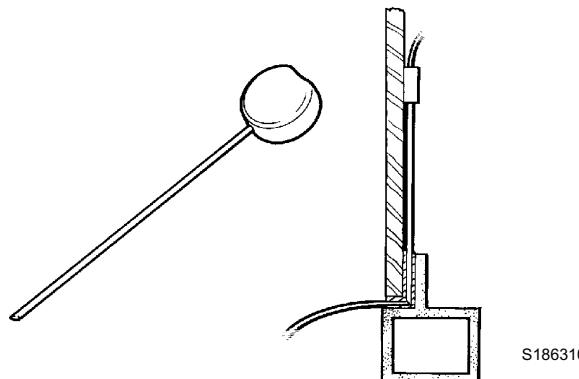
992/12400 - 2 cartridge x 240V
992/12600 - 6 cartridge x 240V



S186300

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.

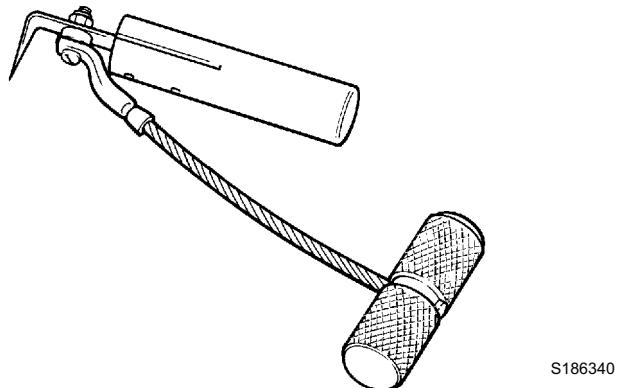
892/00842

Service Tools (cont'd)**Body and Framework (Section B) (cont'd)**

S186310

Wire Starter - used to access braided cutting wire (below) through original polyurethane seal.

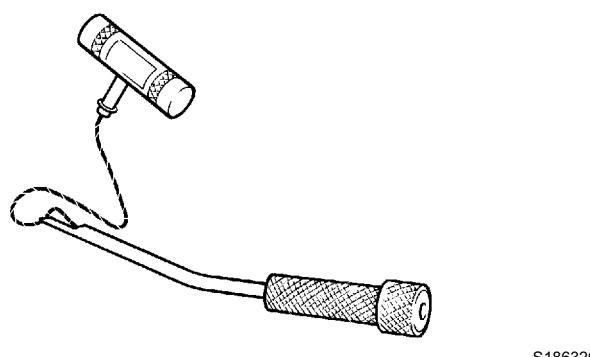
892/00848



S186340

Cut-out Knife - used to remove broken glass.

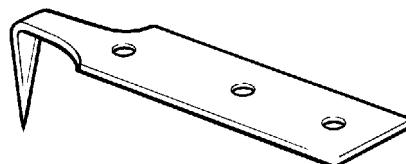
992/12800



S186320

Glass Extractor (Handles) - used with braided cutting wire (below) to cut out broken glass.

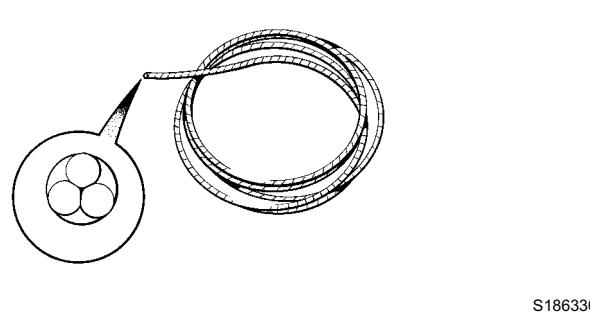
892/00846



S186350

'L' Blades - 25mm (1in.) cut - replacement blades for cut-out knife (above).

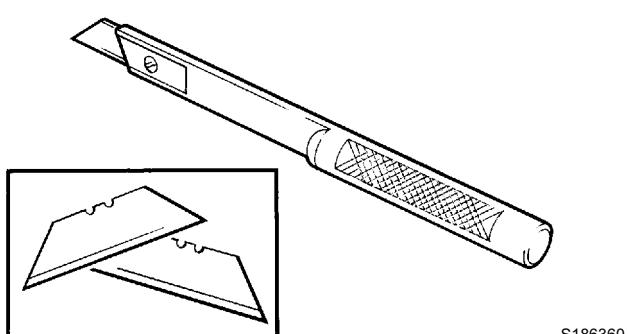
992/12801 (unit quantity = 5 off)



S186330

Braided Cutting Wire - consumable heavy duty cut-out wire used with the glass extraction tool (above).

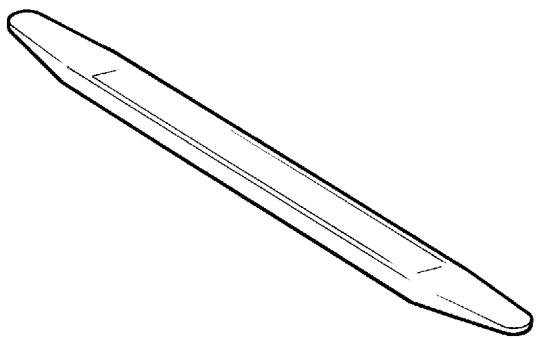
892/00849 (approx 25m length)



S186360

Long Knife - used to give extended reach for normally inaccessible areas.

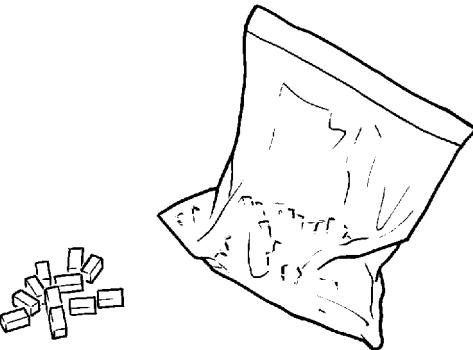
892/00844

Service Tools (cont'd)**Body and Framework (Section B) (cont'd)**

S186470

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.

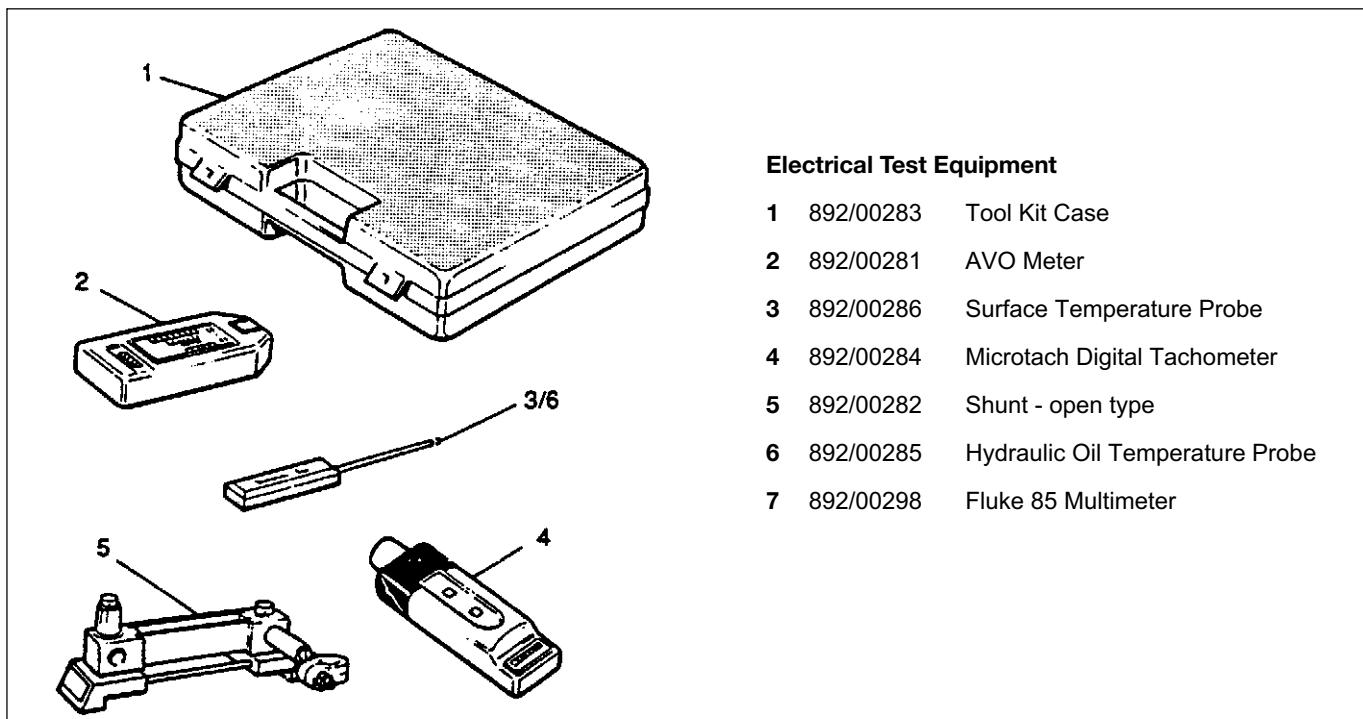
892/00847



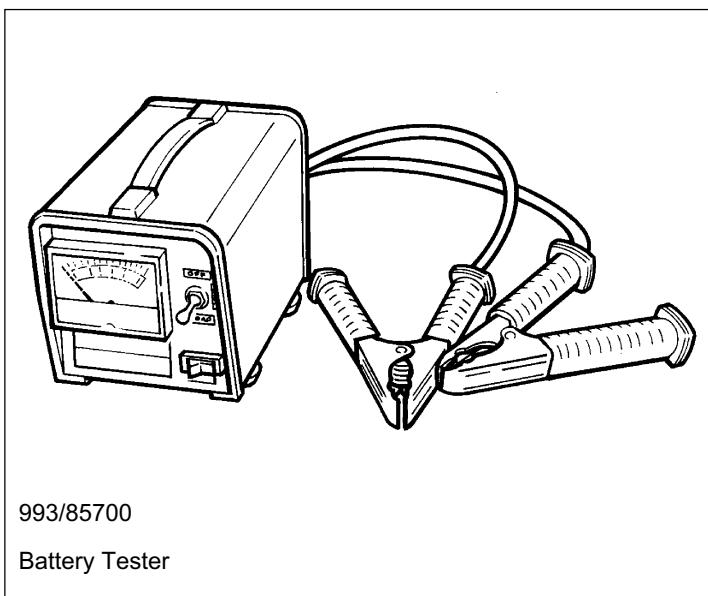
S186550

Rubber Spacer Blocks - used to provide the correct set clearance between glass edge and cab frame.

926/15500
(unit quantity = 500 off)

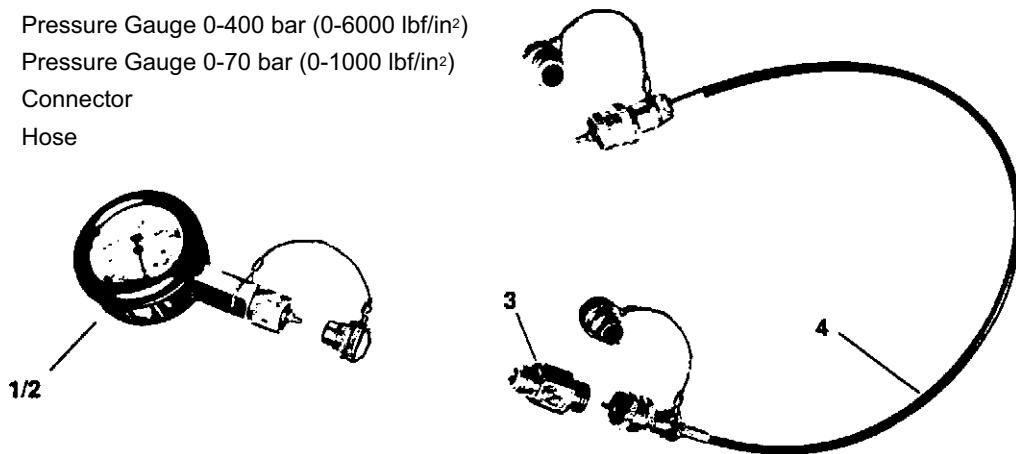
Service Tools (cont'd)**Electrics (Section C)****Electrical Test Equipment**

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

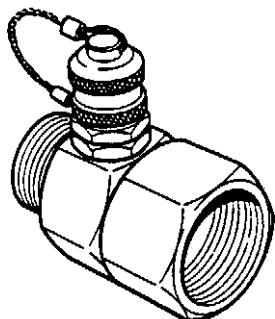


Service Tools (cont'd)**Hydraulics (Section E)****Hydraulic Pressure Test Guages and Connections**

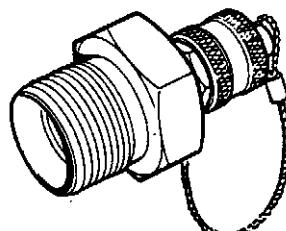
1	892/00279	Pressure Gauge 0-400 bar (0-6000 lbf/in ²)
2	892/00346	Pressure Gauge 0-70 bar (0-1000 lbf/in ²)
3	892/00347	Connector
4	892/00254	Hose

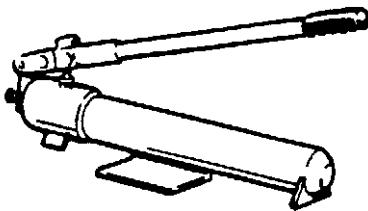
**Pressure Test 'T' Adapters**

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

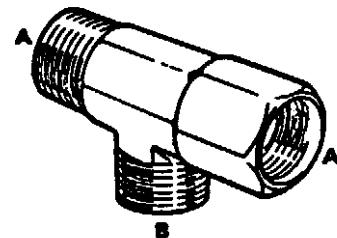
**Pressure Test Adapters**

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

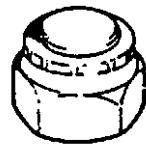


Service Tools (cont'd)**Hydraulics (Section E) (cont'd)****Hand Pump Equipment**

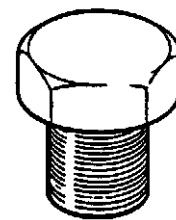
892/00223	Hand Pump
892/00137	Micro-bore Hose 1/4 in BSP x 5 metres
892/00274	Adapter 1/4 in M BSP x 3/8 in M BSP Taper
892/00262	1/4 in M BSP x 1/4 in F BSP x Test Point
892/00706	Test Probe
892/00278	Gauge 0 - 40 bar (0 - 600 lb/in ²)
892/00279	Gauge 0 - 400 bar (0 - 6000 lb/in ²)
892/00280	Gauge 0 - 600 bar (0 - 8500 lb/in ²)



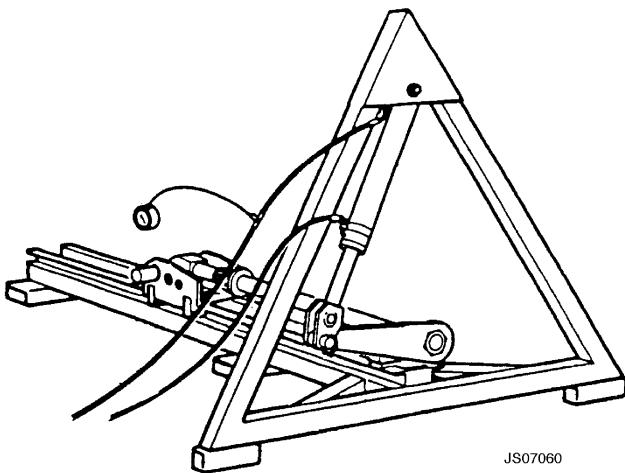
816/50005	1/2 in BSP (A) x 1/2 in BSP (B)
816/60096	3/4 in BSP (A) x 3/4 in BSP (B)
816/00018	1 in BSP (A) x 1 in BSP (B)

**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 Plug**

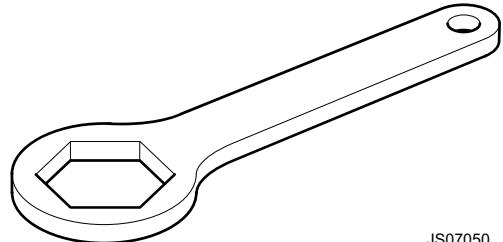
816/00294	1/4 in BSP
816/00189	3/8 in BSP
816/00190	1/2 in BSP
816/00197	5/8 in BSP
816/00196	3/4 in BSP
816/00193	1 in BSP

Service Tools (cont'd)**Hydraulics (Section E) (cont'd)**

JS07060

Ram Piston Nut Removal/Fitting Rig

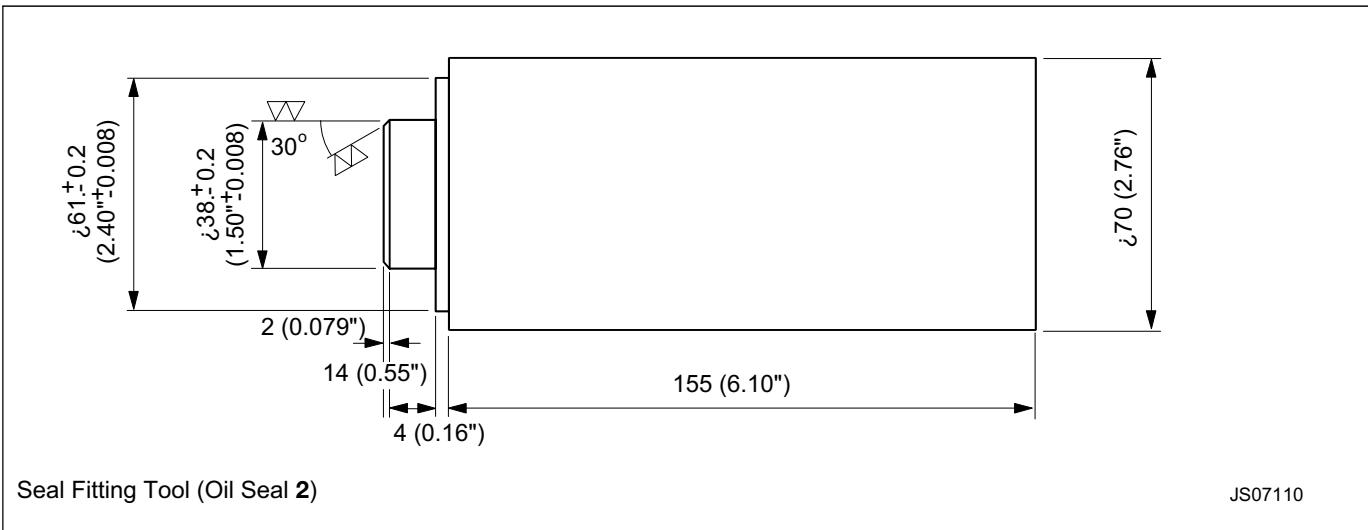
993/99525 Rig Assembly (not including spanners and ram)
993/99522 Anchor Side Plate (supplied loose unwelded)
993/99523 Anchor Cross Member (supplied loose unwelded)
993/99524 Ram Eye End Modification Plate Assembly
556/43400 Lift Ram
545/18000 Lynch Pin
811/50232 1,1/4" Pivot Pin



JS07050

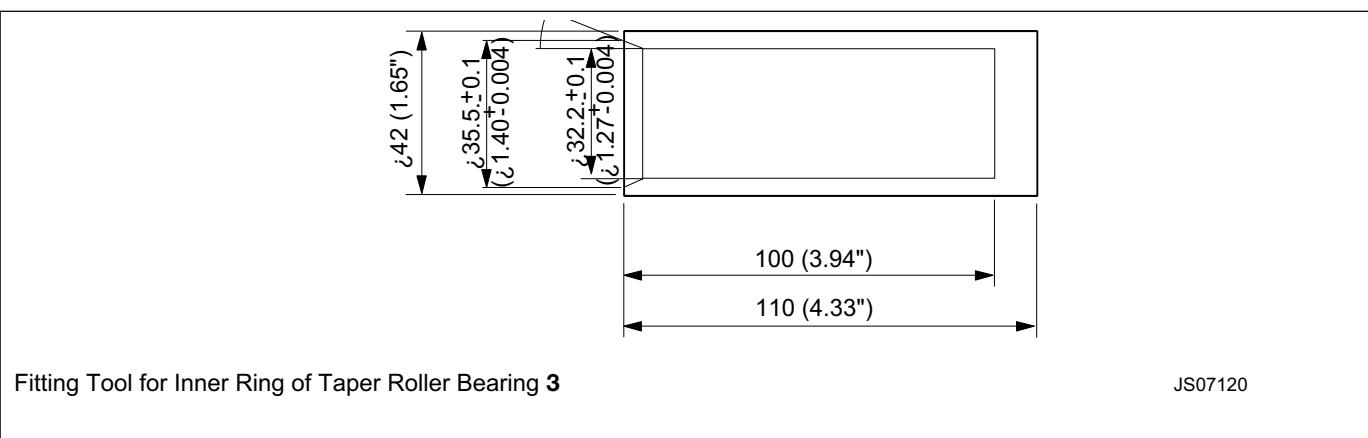
Ram Piston Nut Removal/Fitting Spanner

993/99512	Spanner 55 mm A/F
993/99513	Spanner 60 mm A/F
993/99514	Spanner 65 mm A/F
993/99515	Spanner 70 mm A/F
993/99516	Spanner 75 mm A/F
SSP0046	Spanner 80 mm A/F
993/99517	Spanner 85 mm A/F
993/99518	Spanner 90 mm A/F
SSP0047	Spanner 95 mm A/F
993/99519	Spanner 100 mm A/F
993/99520	Spanner 110 mm A/F
993/99521	Spanner 115 mm A/F

Service Tools (cont'd)**Hydraulics (Section E) (cont'd)****Slew Motor Unit**

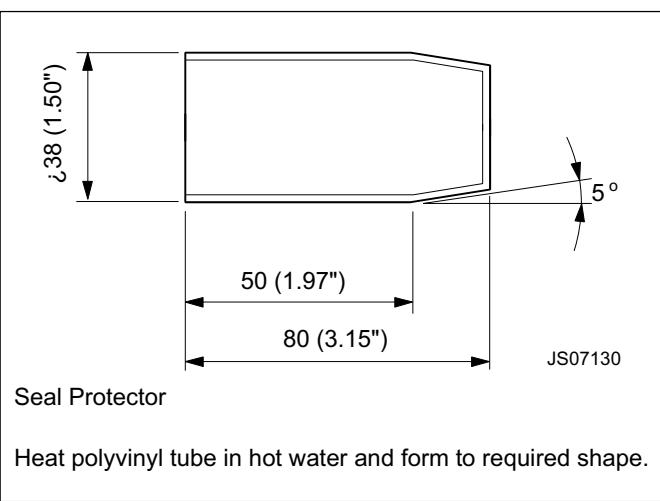
Seal Fitting Tool (Oil Seal 2)

JS07110



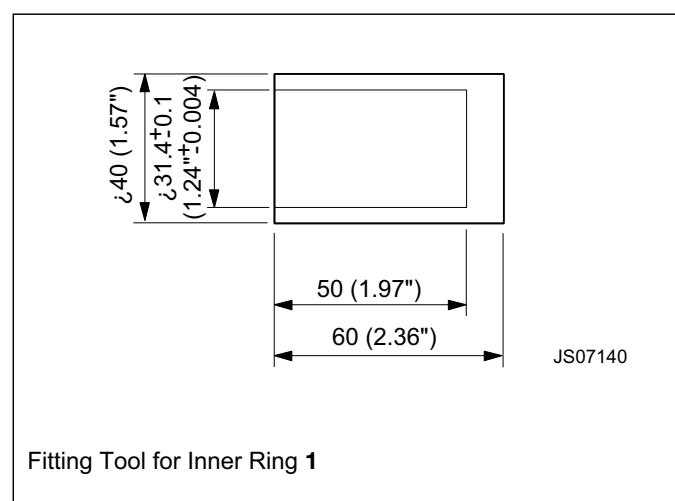
Fitting Tool for Inner Ring of Taper Roller Bearing 3

JS07120

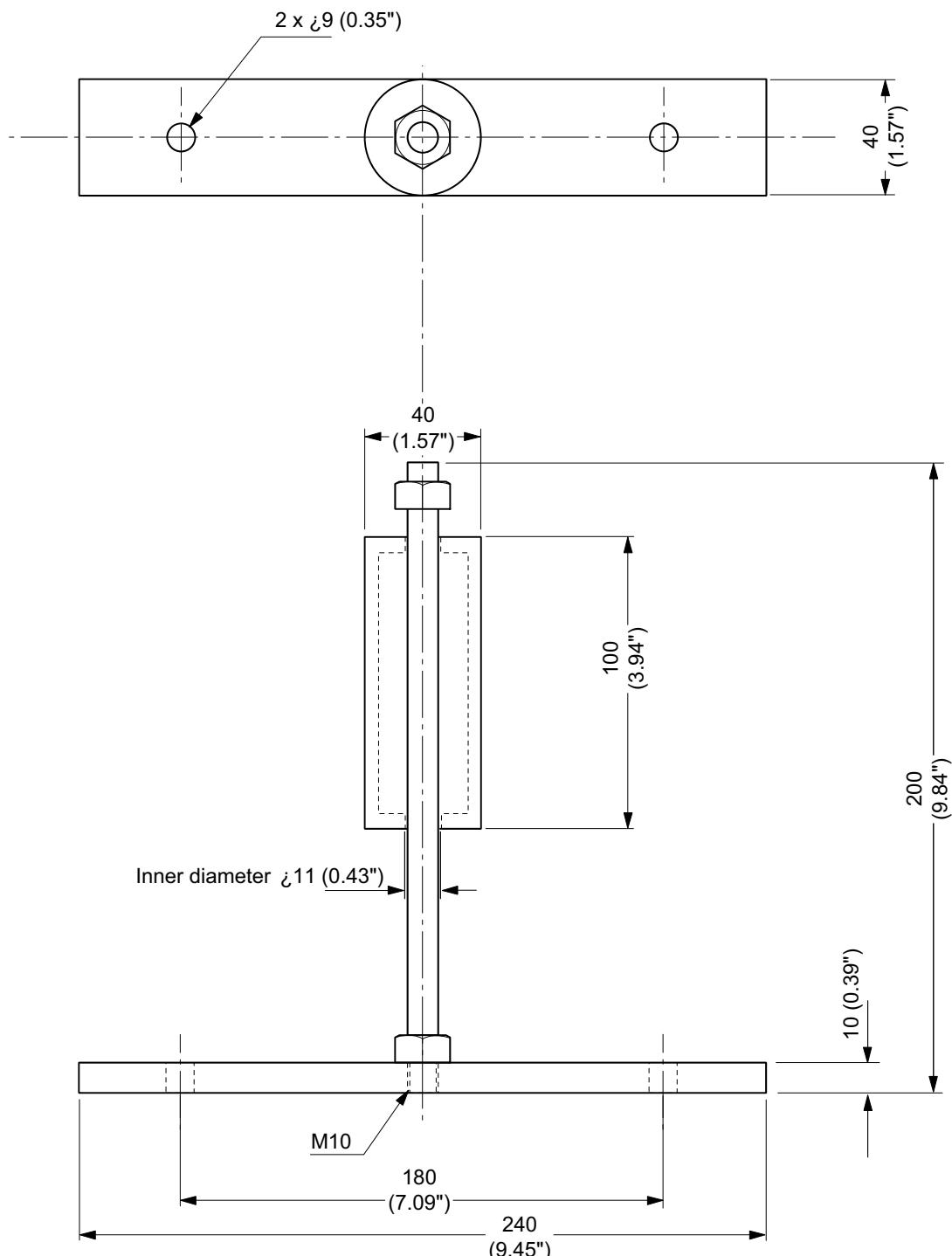


Seal Protector

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



Fitting Tool for Inner Ring 1

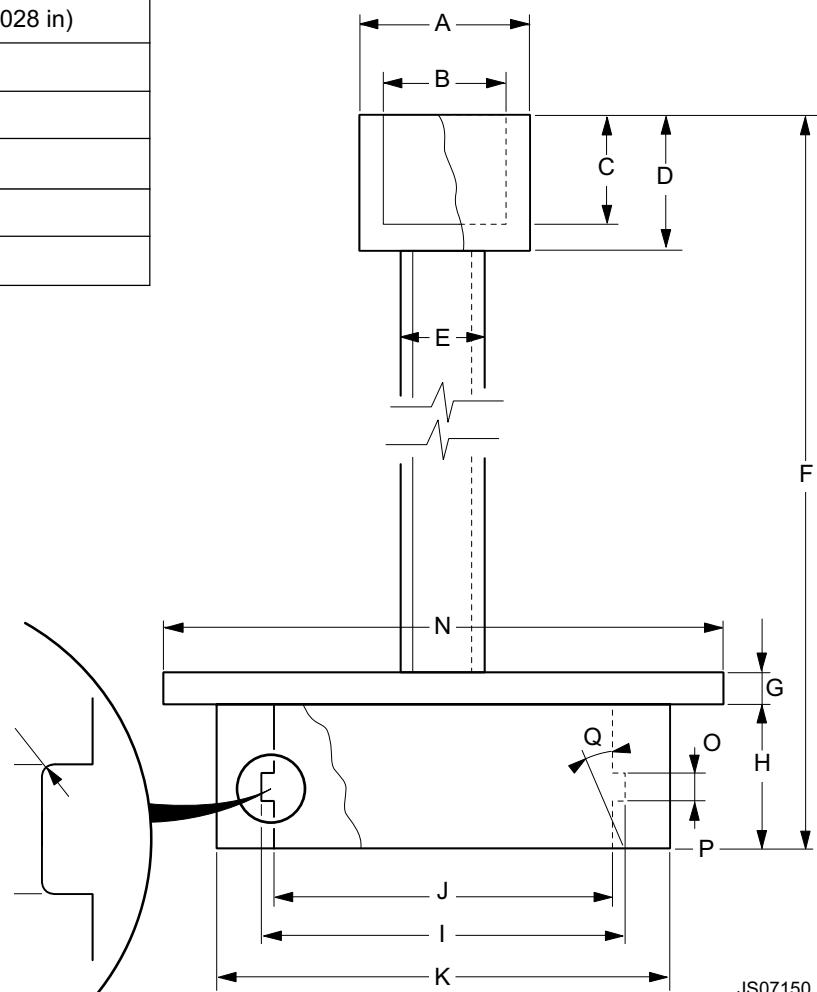
Service Tools (cont'd)**Hydraulics (Section E) (cont'd)****Slew Motor Unit**

Puller for Brake Piston

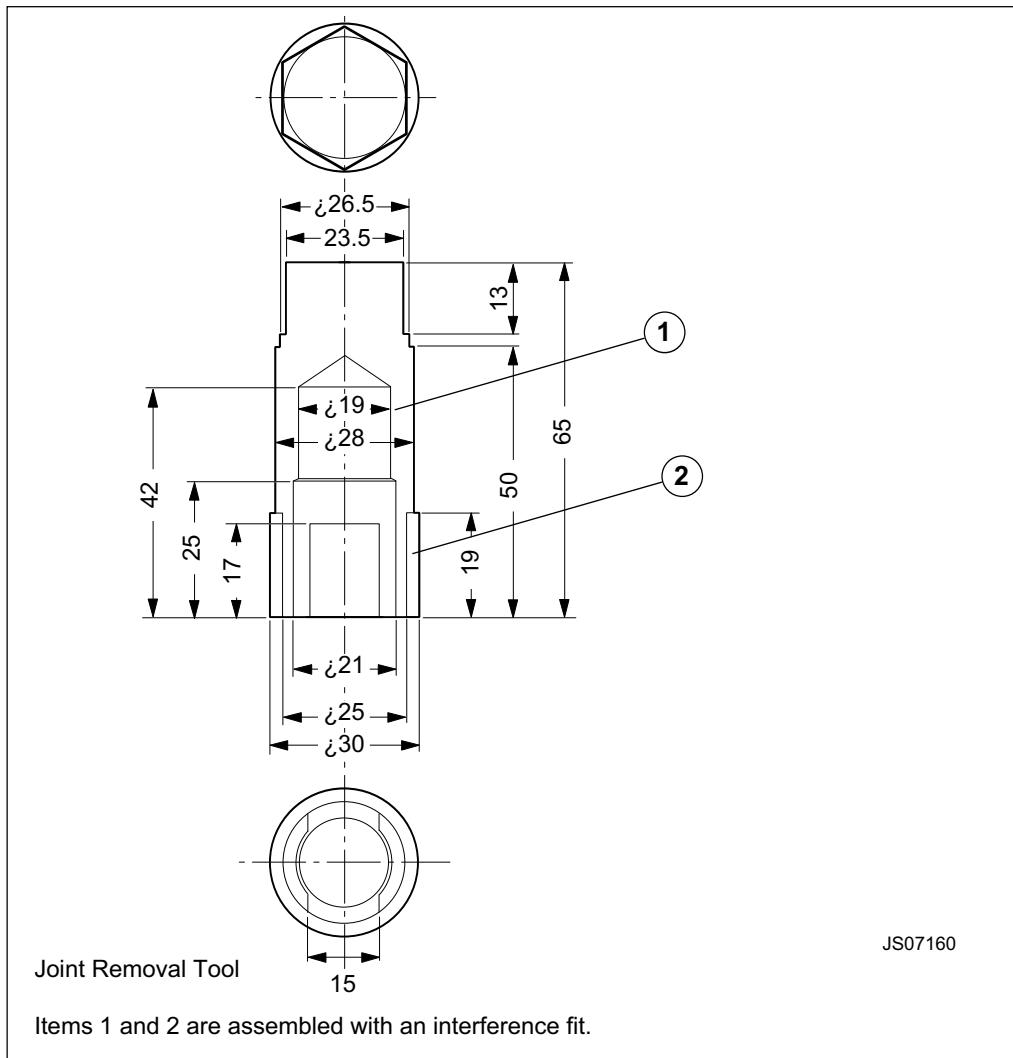
Stud is threaded M10 on both ends for 20 mm (0.8 in) and fitted with two M10 nuts.

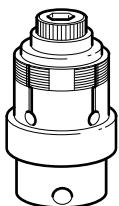
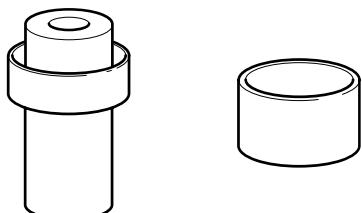
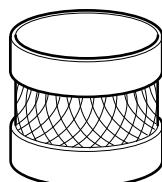
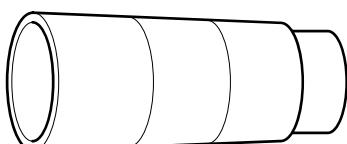
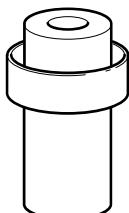
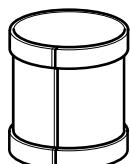
Service Tools (cont'd)**Hydraulics (Section E) (cont'd)****Hydraulic Tank**

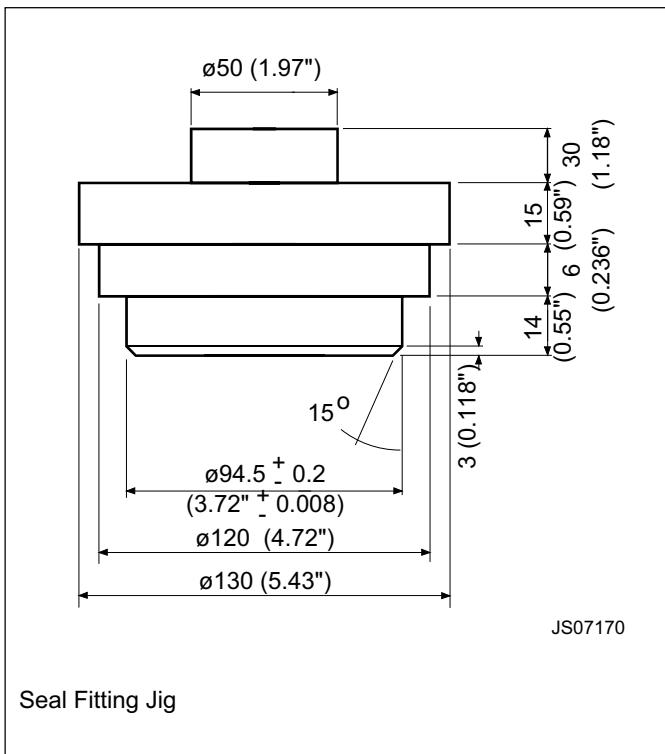
A	Dia. 40 mm (1.57 in)
B	Dia. 26 mm (1.02 in)
C	40 mm (1.47 in)
D	50 mm (1.97 in)
E	Dia. 10 mm (0.39 in)
F	550 mm (21.7 in)
G	9 mm (0.35 in)
H	24 mm (0.94 in)
I	Dia. 81 mm ⁺⁰ _{-0.1} (3.91 in ⁺⁰ _{-0.004})
J	Dia. 76 mm ⁺⁰ _{-0.1} (2.99 in ⁺⁰ _{-0.004})
K	24 mm (0.94 in)
L	95 mm (3.74 in)
M	Radius 0.7 mm (0.028 in)
N	120 mm (16.5 in)
O	4.0 mm (0.157 in)
P	3.0 mm (0.118 in)
Q	15°
O-ring	G75



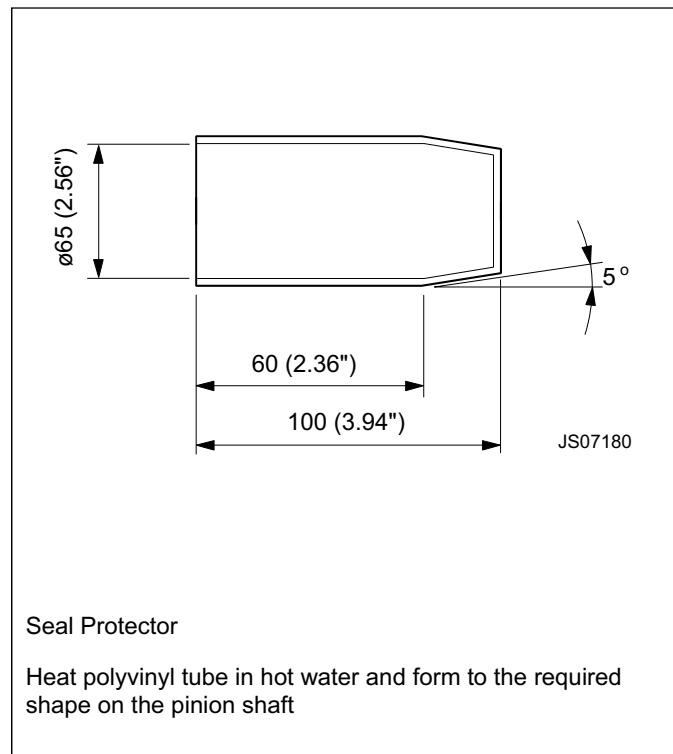
Blank for Suction Strainer

Service Tools (cont'd)**Hydraulics (Section E) (cont'd)****Remote Control Valve**

Service Tools (cont'd)**Hydraulics (Section E) (cont'd)****Hydraulic Rams****Reconditioning****Bush Removal/Assembly Jig****Seal Ring Insertion Jig (Inner)****Bush Removal/Assembly Jig****Seal Ring Bedding Jig****Cylinder Head Insertion Jig****Wiper Ring Installation Jig****Seal Ring Insertion Jig (Outer)**

Service Tools (cont'd)**Transmission (Section F)****Slew Gearbox**

Seal Fitting Jig

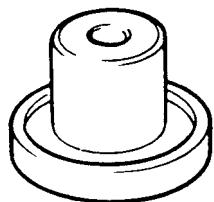


Seal Protector

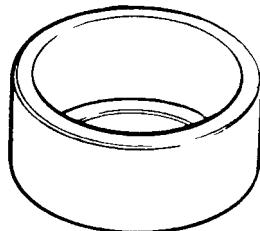
Heat polyvinyl tube in hot water and form to the required shape on the pinion shaft

Transmission (Section F) (cont'd)**Drive Gearbox**

892/00223	Hand Pump
892/00346	Pressure Gauge (0 - 70 bar)
SSP0027/SSP0028	Striker/Internal Puller
SSP0029/SSP0030/SSP0031	Puller Assembly
SSP0035	Installer
SSP0050	Fitting Tool
SSP0051	Handle
SSP0052	Fitting Tool
SST0011	Measuring Cover
SST0013	Installer Sleeve
SST0018	Hydraulic Connector
SST0019	Pressure Sleeve
SST0020	Clutch Jig
SST0032	Driver

Service Tools (cont'd)**Axles (Section F)**

992/07604 Replacer - Crownwheel Bearing and Differential Bearing Cones



992/07606 Measuring Cup - Pinion Bearing

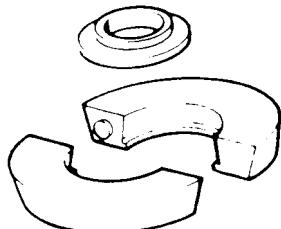


992/07609 Adapter - Steer/Drive Axle Pinion Bearing Cone

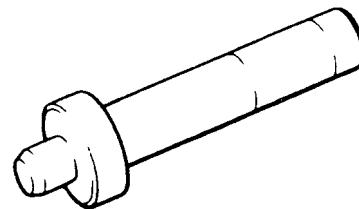


992/07607 Spacer - Pinion Bearing Preload

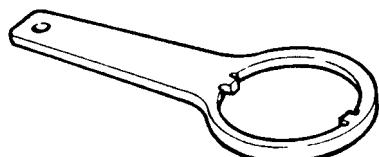
892/00817 17 mm A/F x 3/4 in square drive
892/00818 22 mm A/F x 3/4 in square drive
892/00819 15 mm A/F x 1/2 in square drive
892/00333 19 mm A/F x 3/4 in square drive



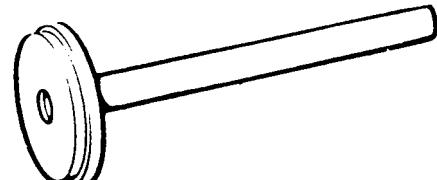
992/07614 Adapter Set - Bull Pinion Bearing Remover/Replacer



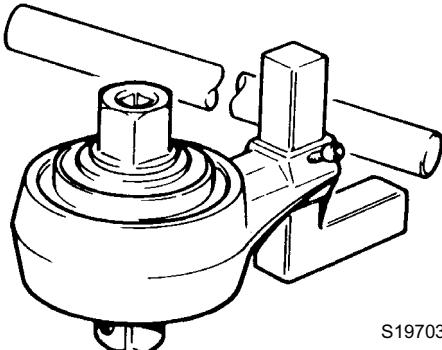
892/00182 Bearing Pad Driver



992/07601 Spanner for Half Shaft Nuts



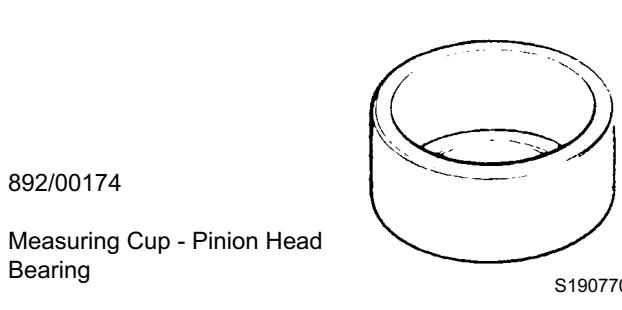
992/07603 Replacer - Pinion Head Bearing Cup

Service Tools (cont'd)**Axles (Section F) (cont'd)**

992/04000

Torque Multiplier (use in conjunction with a torque wrench to give a 5:1 multiplication when tightening pinion nuts)

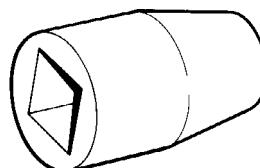
S197030



892/00174

Measuring Cup - Pinion Head
Bearing

S190770



892/00822

Splined Bolt Socket for
driveshafts

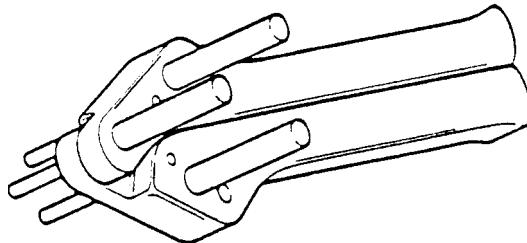
S197060



S197070

892/00224

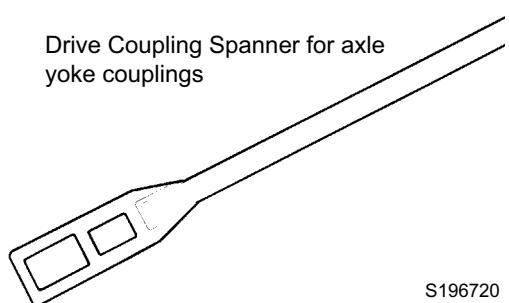
Impulse Extractor Set for Hub Bearing Seals



892/00334 Gland Seal Fitting tool

892/00812

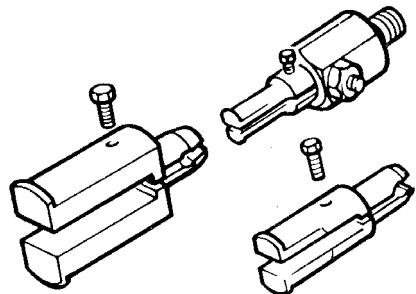
Drive Coupling Spanner for axle
yoke couplings



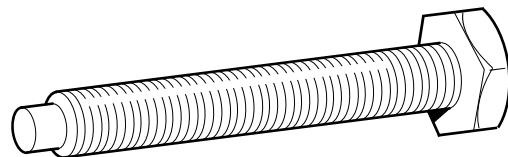
S196720



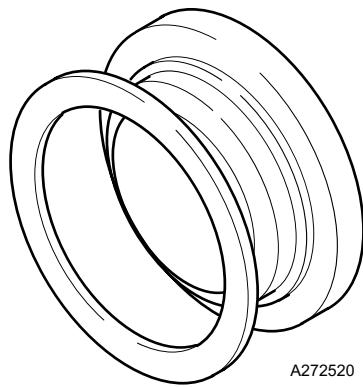
992/00800 Extractor for removing axle pivot pin

Service Tools (cont'd)**Axles (Section F) (cont'd)**

993/59500 Adapter - Impulse Extractor



892/00833 Annulus Removal Tool



892/00891 Oil Seal Insertion Tool

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.	4102/1212
JCB High Strength Threadlocker	A high strength locking fluid for use with threaded components.	4102/0551
JCB Retainer (High Strength)	For all retaining parts which are unlikely to be dismantled.	4101/0651
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.	4101/0251
JCB Threadlocker	A locking fluid for use on threads larger than 50 mm diameter.	4101/0451 50ml
JCB Threadlocker & Sealer (High Strength)	A medium to high strength locking fluid for retention and sealing of ram piston heads.	4101/0552
JCB Activator	A cleaning primer which speeds the curing rate of anaerobic products.	4104/0251 Aerosol 4104/0253 Bottle
JCB Cleaner & Degreaser	For degreasing components prior to use of anaerobic adhesives and sealants.	4104/1557
Anti-Seize Paste	A compound used for assembly and prevention of parts seizure.	4003/0211
Direct Glazing Kit	For one pane of glass; comprises items marked † below plus applicator nozzle etc.	
† Ultra Fast Adhesive	For direct glazing	4103/2109 310 ml
† Active Wipe 205	For direct glazing	4104/1203 250 g
† Black Primer 206J	For direct glazing	4201/4906 30 ml
Clear Silicone Sealant	To seal butt jointed glass.	4102/0901

The part numbers and descriptions of sealing and retaining compounds available from JCB Service have been revised with effect from January 1997 (see MI 563/H, 507/HA, 511/E).

References to these products on subsequent pages in this service manual will be progressively updated, but for convenience a cross reference table is shown below.

Old Description	Old Part Number	New Description	New Part Number
JCB High Strength Threadlocker	4102/0502	JCB High Strength Threadlocker	4102/0551
JCB High Strength Retainer	4101/0602	JCB Retainer (High Strength)	4101/0651
JCB Lock & Seal	4101/0202	JCB Threadlocker & Sealer	4101/0251
Loctite 243	4101/1101	Use 4101/0251	
High Strength Lock and Seal	4104/0502	JCB Threadlocker & Sealer (High Strength)	4101/0552
JCB Threadlocker	4101/0402	JCB Threadlocker	4102/0451
Loctite Activator N	4104/0101 Aerosol 4104/0102 Bottle	JCB Activator	4104/0251 4104/0253
JCB Cleaner & Degreaser	4104/1538 Aerosol	JCB Cleaner/Degreaser	4104/1557

Note: High Strength Threadlocker was previously called High Strength Gasketing (4102/0502).

Contents**Page No.**

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General Safety	2 - 1
Operating Safety	3 - 1
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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.

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

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 whilst operating the machine or attachments. Be aware of medicines which can cause drowsiness.

INT-1-3-9

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.

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 control 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

Front Axle Lock

DO NOT travel on the road unless the front axle is free to pivot. Lock the axle only while excavating or lifting.

8-2-9-1/1

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

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

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 carbondioxide, dry chemical or foam extinguishers. Contact your nearest fire department as quickly as possible. Fire fighters 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)**⚠ WARNING****Arc Welding**

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

⚠ 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

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