

Service Manual

JS330

from machine no. 712501

JS450

from machine no. 714501

JS460

from machine no. 714550

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Issue 3

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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 = Attachments**
- 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.

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.

Note: In this manual the term 'swing' may sometimes be used in place of 'slew' and the term 'arm' may sometimes be used in place of 'dipper'.

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*

JS330/JS450/460 and Variants

Tighten the bolts and nuts according to the table. Before and after daily work, check the bolts and nuts for looseness and for those missing. Tighten if loose and renew if missing.

Tighten the bolts and nuts after the first 50 hours of the running-in stage and every 250 hours thereafter.

Tightening Torque Table

No	Tightening Point	Bolt Diameter	Wrench mm	Tightening Torque		
				Nm	kgf m	lbf ft
				JS330/JS450-460	JS330/JS450-460	JS330/JS450-460
1†	Travel Motor	M24	36	900~1051	92~107	663~775
2†	Drive Sprocket	M20/M24	30/36	521~608/900~1051	53~62/92~107	384~448/663~775
3†	Take-up Roller	M16	24	267~312	27~32	197~230
4†	Upper (Carrier) Roller (Standard)	M16	24	267~312	27~32	197~230
	(Heavy Duty)	M18	27	371~432	38~44	273~318
5†	Lower (Track) Roller	M20/24	30/36	521~608/900~1051	53~62/92~107	384~448/603~775
6†	Track Guard	M20/24	30/36	521~608/900~1051	53~62/92~107	384~448/603~775
7	Shoe Bolt (Standard)	M20	30	755~931	77~95	557~687
	(Heavy Duty)	M22	32	980~1180	100~120	723~871
8	Counter weight	M27/M42	41/65	1335~1540/1470	136~158/150	985~1136/1084
9†	Turntable Bearing (Lower Frame)	M24	36	900~1050	92~107	664~775
10†	Turntable Bearing (Slew Frame)	M24	36	900~1050	92~107	664~775
11†	Slew Equipment	M24	36	900~1050	92~107	664~775
12†	Engine (Engine Mount)	M20	30	289~337	30~34	213~248
13†	Engine Bracket	M12&M14	19&22	108~127/176~196	11~13/18~20	79~93/130~144
14	Radiator	M16	24	127~147	13~15	93~108
15†	Hydraulic Pump	M12	19	63~73	6.4~7.4	46~54
16†	Oil Tank	M16	24	196	20	144
17†	Fuel Tank	M16	24	245	25	180
18†	Control Valve	M16/M20	24/30	196/343	20/35	144/253
19†	Rotating Joint	M12&M16	19&24	65~95/245~290	7~10/25~30	48~70/180~214
20	Cab	M16	24	128~142	13~15	94~105
21	Battery	M10	17	20~29	2~3	14.7~21.4

Note: Use JCB Threadlocker and Sealer (High Strength) on those marked † and tighten to the torque listed in the above table.

The tightening torques for the bolts and nuts not listed above are as follows:

Bolt Diameter (size)			M6	M8	M10	M12	M14	M16	M18	M20
Hex. bolt	Wrench	mm	10	13	17	19	22	24	27	30
	Tightening Torque	Nm	6.9	15.7	32.3	58.8	98.0	137.2	196.0	274.4
		kgf m	.69	1.7	3.3	5.9	9.9	13.9	20	28
		lbf ft	5	12	24	43	72	101	145	203
Hex. socket head bolt	Wrench	mm	5	6	8	10	12	14	14	17
	Tightening Torque	Nm	8.8	21.6	42.1	78.4	117.6	176.4	245.0	343.0
		kgf m	.89	2.2	4.3	8.0	12	17.9	24.9	34.9
		lbf ft	6.5	16	31	58	87	130	180	253

Torque Settings

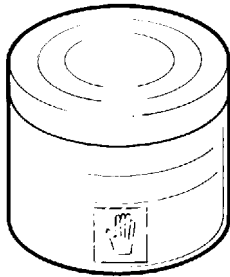
Note 1: The figures quoted are for non-plated fasteners and are to be used only when there is no torque setting specified in the relevant procedure in this service manual.

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	4.90	35.4
M10	14.0	1.43	10.3	39.1	3.99	28.8	55.0	5.61	40.6	94	9.2	66.4
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	-	-	-

Service Tools

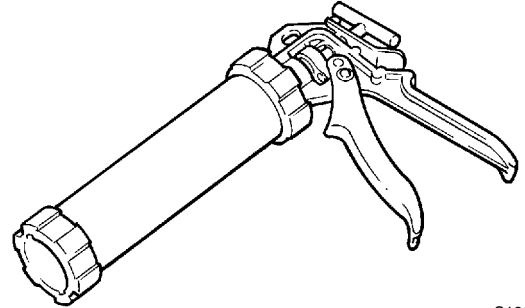
Body and Framework (Section B)



S186240

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

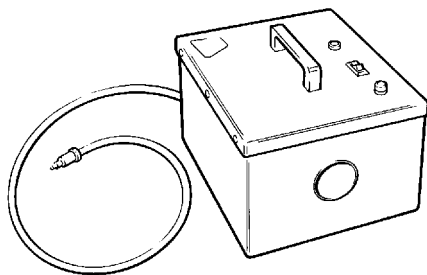
4104/1310 (454g; 1lb tub)



S186270

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

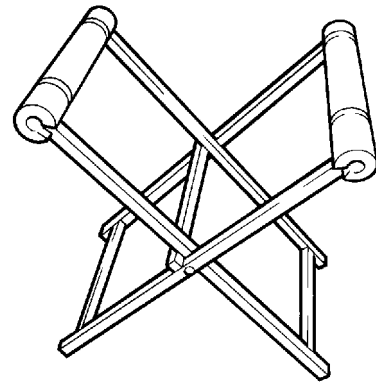
892/00845



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).

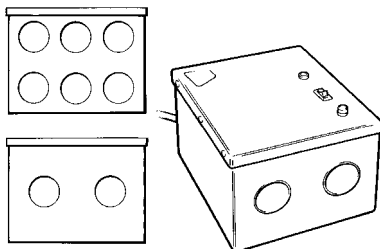
992/12300



S186280

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

892/00843

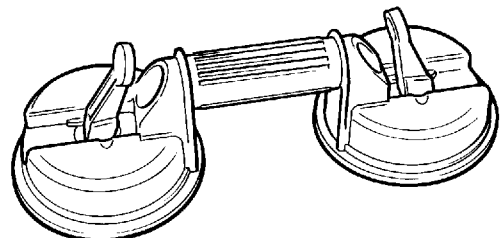


S186260

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



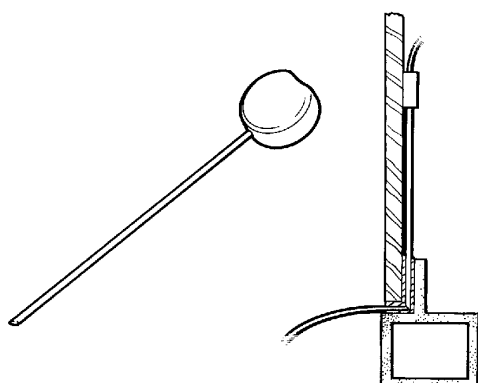
S186300

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)

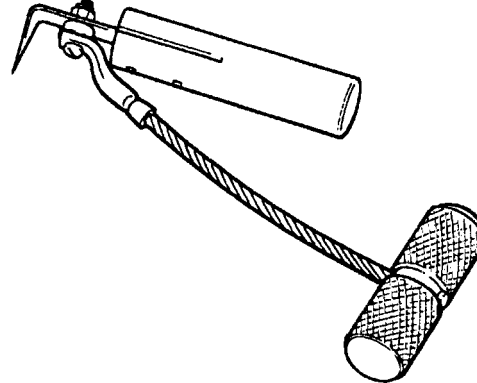
Body and Framework (Section B) (cont'd)



S186310

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

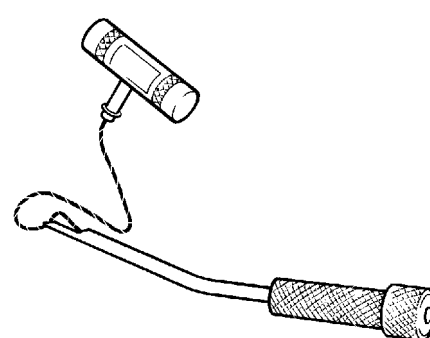
892/00848



S186340

Cut-out Knife - used to remove broken glass.

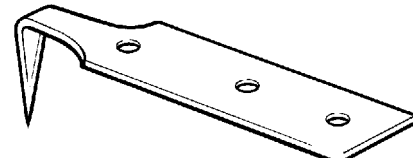
992/12800



S186320

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

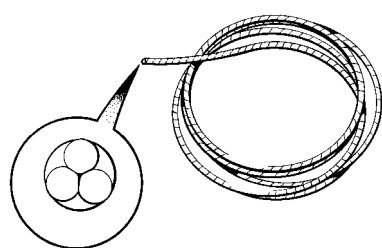
892/00846



S186350

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

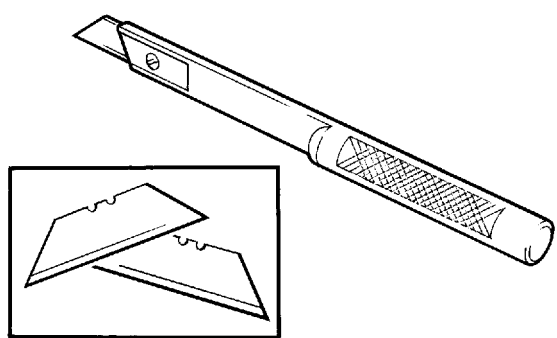
992/12801 (unit quantity = 5 off)



S186330

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

892/00849 (approx 25m length)



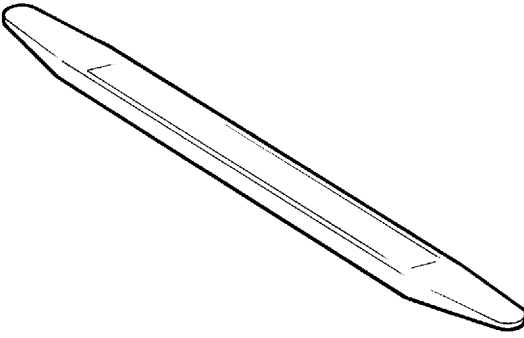
S186360

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

892/00844

Service Tools (cont'd)

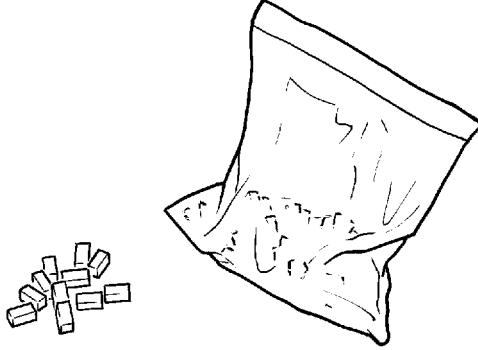
Body and Framework (Section B) (cont'd)



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



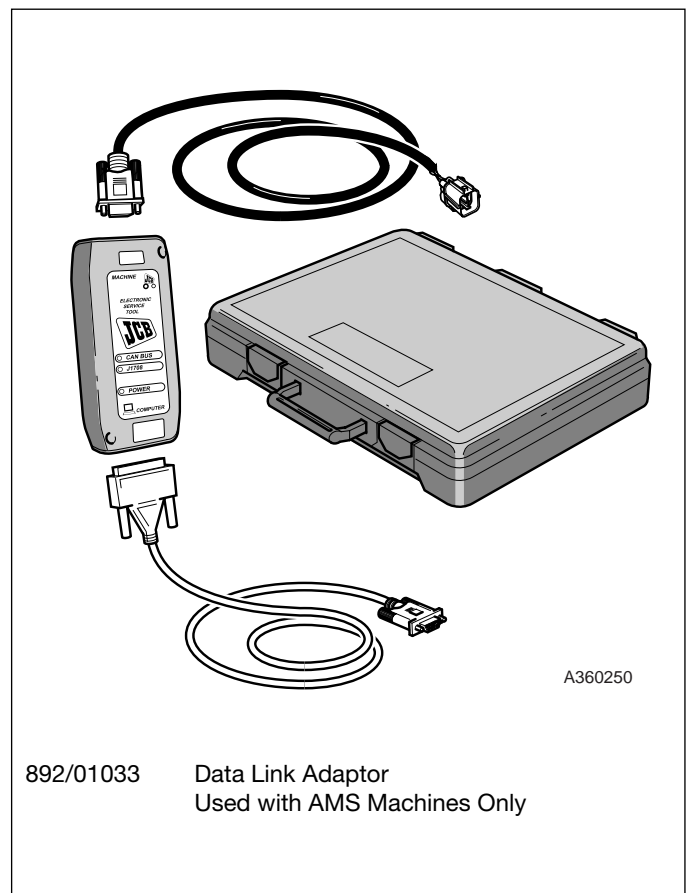
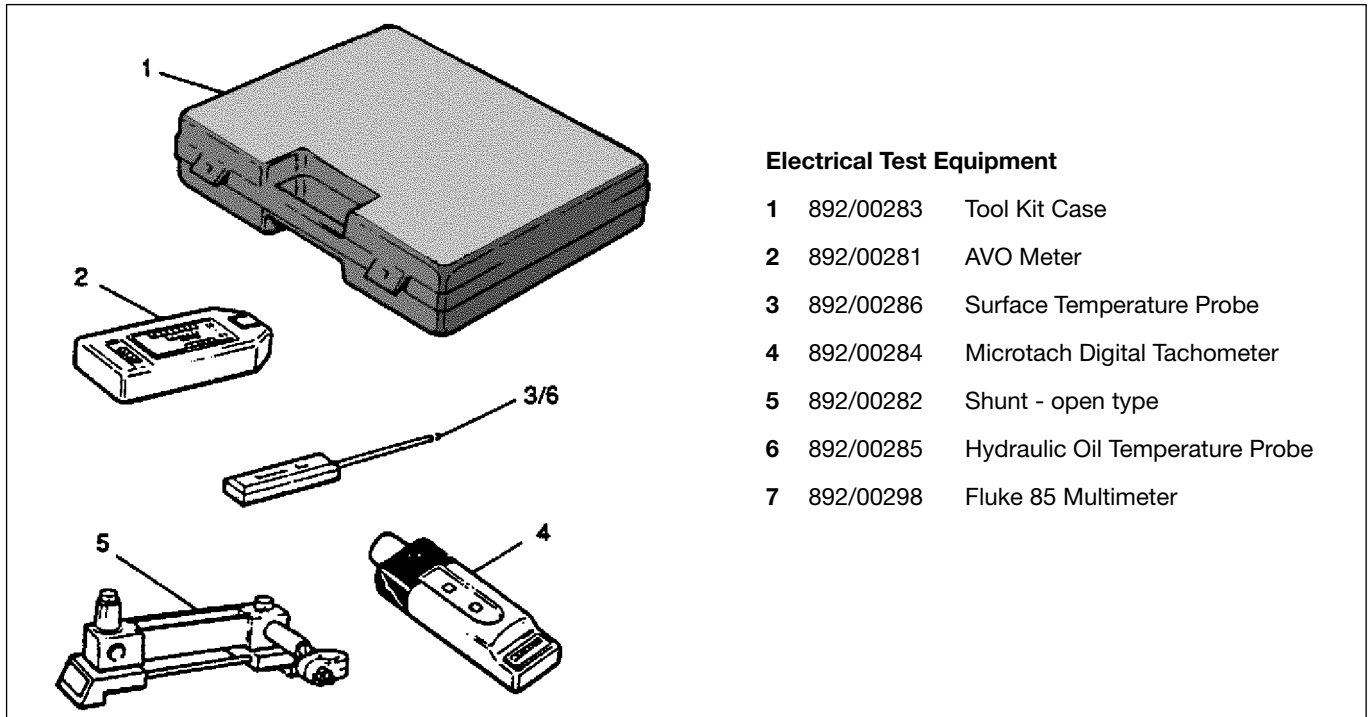
S186550

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

926/15500
(unit quantity = 500 off)

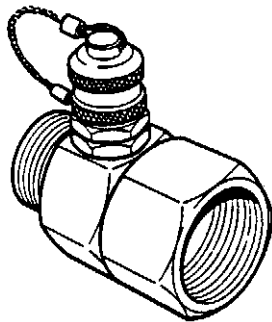
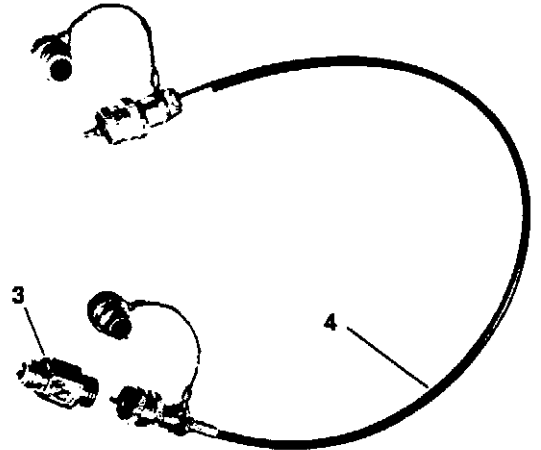
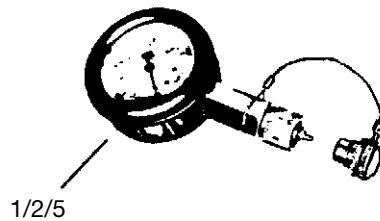
Service Tools

SECTION C - ELECTRICS

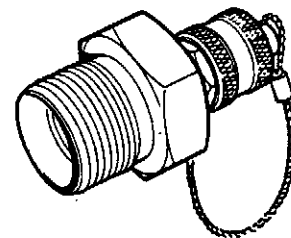


Service Tools (continued)**SECTION E - HYDRAULICS****Hydraulic Pressure Test Gauges and Connections**

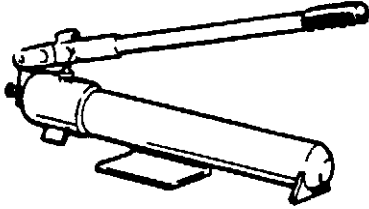
1	892/00279	Pressure Gauge 0-400 bar (0-6000 lbf/in ²)
2	892/00346	Pressure Gauge 0-70 bar (0-1000 lbf/in ²)
3	892/00347	Connector
4	892/00254	Hose
5	892/00280	Pressure Gauge 0-600 bar (0-9000 lbf/in ²)

**Pressure Test 'T' Adapters**

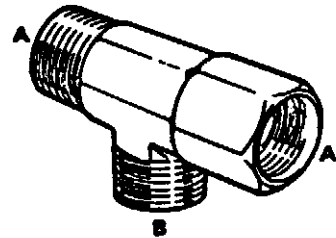
892/00262	1/4 in BSP x 1/4 in F BSP x Test Point
816/55038	3/8 in BSP x 3/8 in F BSP x Test Point
816/55040	1/2 in BSP x 1/2 in F BSP x Test Point
892/00263	5/8 in BSP x 5/8 in F BSP x Test Point
892/00264	3/4 in BSP x 3/4 in F BSP x Test Point
892/00265	1 in M BSP x 1 in F BSP x Test Point
892/00266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

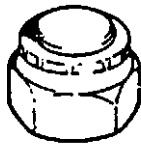
892/00255	1/4 in BSP x Test Point
892/00256	3/8 in BSP x Test Point
892/00257	1/2 in BSP x Test Point
892/00258	5/8 in BSP x Test Point
816/15118	3/4 in BSP x Test Point
892/00259	1 in BSP x Test Point
892/00260	1,1/4 in BSP x Test Point
892/00261	5/8 in UNF x Test Point

Service Tools (continued)**SECTION E - HYDRAULICS****Hand Pump Equipment**

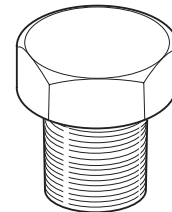
892/00223	Hand Pump
892/00137	Micro-bore Hose 1/4 in BSP x 5 metres
892/00274	Adapter 1/4 in M BSP x 3/8 in M BSP Taper
892/00262	1/4 in M BSP x 1/4 in F BSP x Test Point
892/00706	Test Probe
892/00278	Gauge 0 - 40 bar (0 - 600 lb/in ²)
892/00279	Gauge 0 - 400 bar (0 - 6000 lb/in ²)
892/00280	Gauge 0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



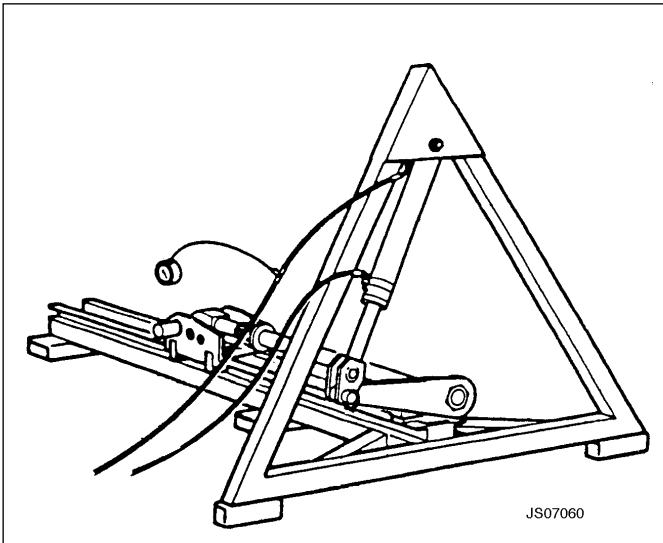
816/50005	1/2 in BSP (A) x 1/2 in BSP (B)
816/60096	3/4 in BSP (A) x 3/4 in BSP (B)
816/00018	1 in BSP (A) x 1 in BSP (B)

**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**

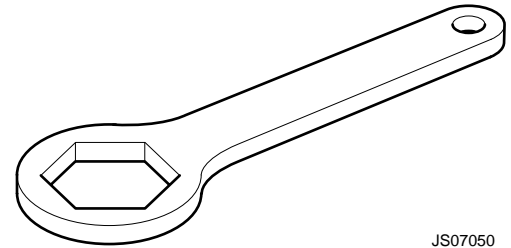
816/00294	1/4 in BSP
816/00189	3/8 in BSP
816/00190	1/2 in BSP
816/00197	5/8 in BSP
816/00196	3/4 in BSP
816/00193	1 in BSP

Service Tools (continued)**SECTION E - HYDRAULICS**

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

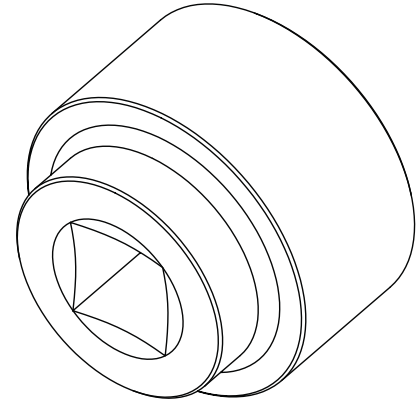
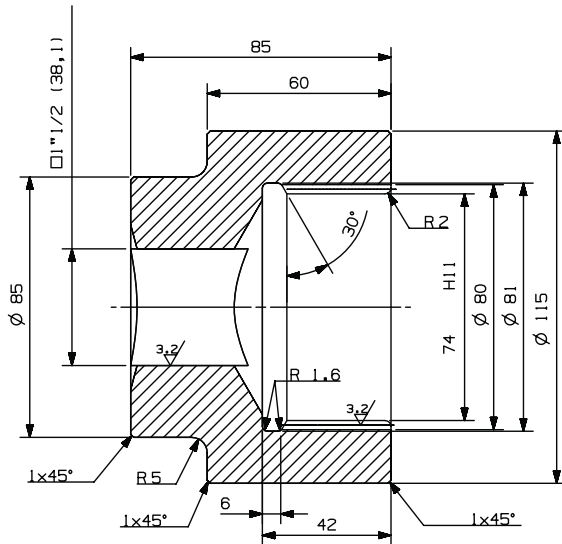
Ram Piston Nut Removal/Fitting Spanner

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
993/99517	Spanner 85 mm A/F
993/99518	Spanner 90 mm A/F
993/99519	Spanner 100 mm A/F
993/99520	Spanner 110 mm A/F
993/99521	Spanner 115 mm A/F
SSP0046	Spanner 80 mm A/F
SSP0047	Spanner 95 mm A/F

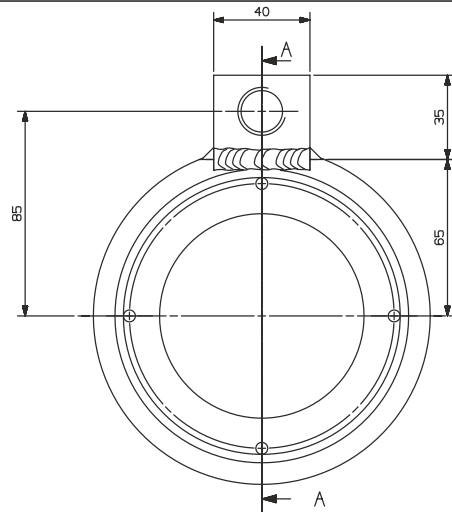
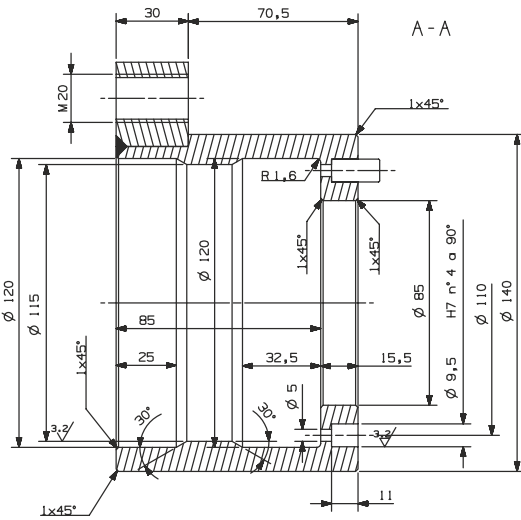
Service Tools (continued)

SECTION E - HYDRAULICS

Socket Box Wrench For disassembly and assembly of slew motor gearbox.

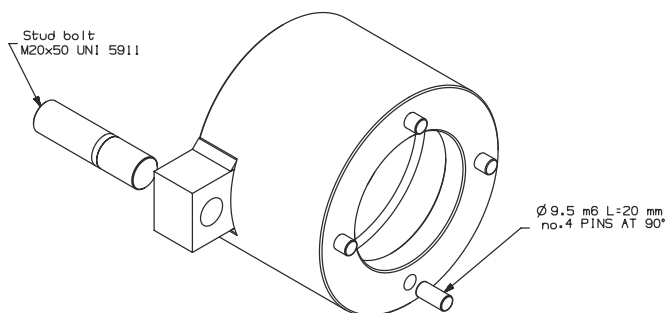


A408900



Nut Adapter

For disassembly and assembly of slew motor gearbox.



A408860

Service Tools (continued)

SECTION E - HYDRAULICS

Seal Ring Tool for assembly and disassemble of slew motor gearbox seal

A408880

Stopper for assembly of slew motor gearbox.

A408890

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