Service Manual

JS200-JS260 - Tier III Auto

Publication No.

9803/6580-6

Issued by JCB Technical Publications, JCB Aftermarket Training, Woodseat, Rocester, Staffordshire, ST14 5BW, England. Tel +44 1889 591300 Fax +44 1889 591400

World Class
Customer Support

Notes:

Section 1

General Information

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Introduction

About this Manual

Machine Model and Serial Number

This manual provides information for the following model(s) in the JCB machine range:

JCB JS200-220 from serial number 1610000 to 1612499 and 1459000 to 1461999.

JCB JS235 from serial number 1314000 to 1314099

JCB JS240-260 from serial number 1504700 to 1505099.

JCB JS240 - JS260 from serial number 1773500 to 1774499

Using the Service Manual

T11-004

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.

The illustrations in this publication are for guidance only. Where the machines differ, the text and/or the illustration will specify.

General warnings in Section 2 are repeated throughout the manual, as well as specific warnings. Read all safety statements regularly, so you do not forget them.

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.

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.

The manufacturer's policy is one of continuous improvement. The right to change the specification of the machine without notice is reserved. No responsibility will be accepted for discrepancies which may occur between specifications of the machine and the descriptions contained in this publication.

Finally, please remember above all else safety must come first!

Section Numbering

T11-005

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 and Safety - includes warnings and cautions pertinent to aspects of workshop procedures etc.

3 Maintenance - includes service schedules and recommended lubricants for all the machine.

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

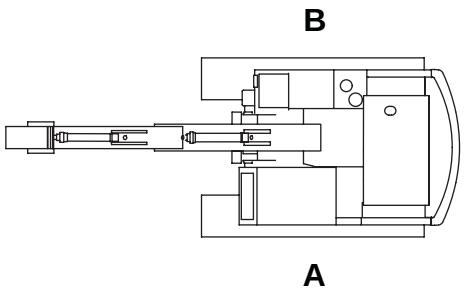
A Attachments

B Body and Framework, etc.

Section contents, technical data, circuit descriptions, operation descriptions etc. are inserted at the beginning of each alphabetically coded section.

Left Side, Right Side

In this manual, 'left' **A** and 'right' **B** mean your left and right when you are seated correctly in the machine.



Cross References

T1-004_2

In this publication, page cross references are made by presenting the subject title printed in bold, italic and underlined. It is preceeded by the 'go to' symbol. The number of the page upon which the subject begins, is indicated within the brackets. For example: ***Cross References (1-2)***.

Identifying Your Machine

Machine Identification Plate

Your machine has a data plate, located on the outside the cab as shown at **A**. The machine serial number is inscribed at **B** which is the base plate of the rear frame.

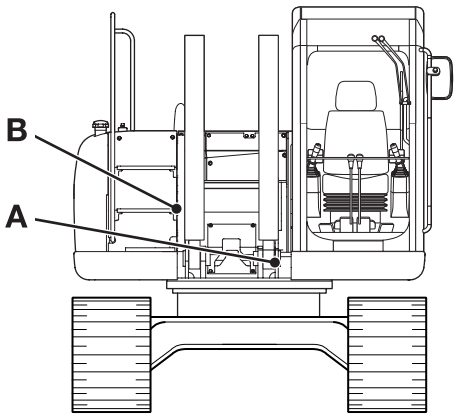


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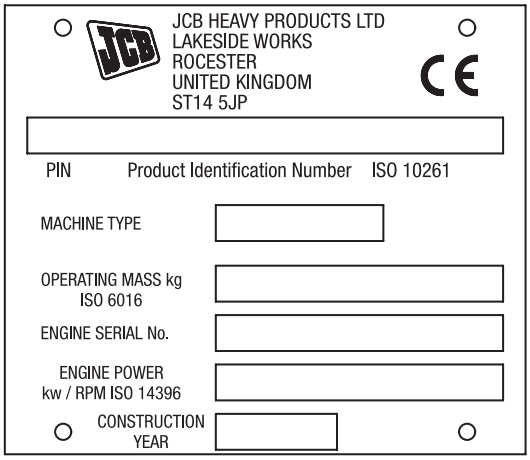
Fig 1.



732821

Fig 2.

Typical Product Identification Number (PIN)

1	2	3	4
JCB	JS20C	C	01421200

1 World Manufacturer Identification (JCB)

2 Machine Type and Model (J20C= JS200)

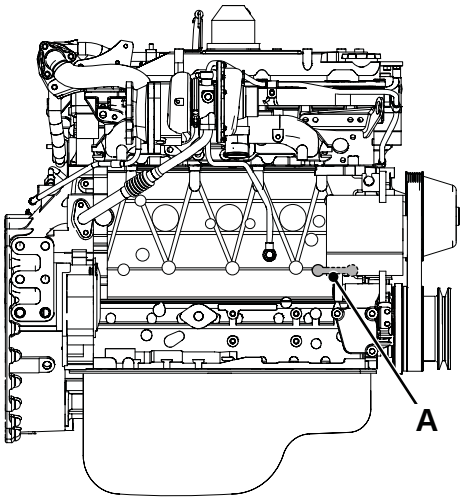
3 Randomly Generated Check Letter.

4 Machine Serial Number (01421200)

Typical Engine Identification Number

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.

The engine number is at **A**.



T016910-1

Fig 3. 4HK

a	b
4HK1	578550

a Engine Type

b Engine Serial Number

Torque Settings

Zinc Plated Fasteners and Dacromet Fasteners

T11-002

Introduction

Some external fasteners on JCB machines are manufactured using an improved type of corrosion resistant finish. This type of finish is called Dacromet and replaces the original Zinc and Yellow Plating used on earlier machines.

The two types of fasteners can be readily identified by colour and part number suffix. ⇒ *Table 1. Fastener Types (1-5)*.

Table 1. Fastener Types

Fastener Type	Colour	Part No. Suffix
Zinc and Yellow	Golden finish	'Z' (e.g. 1315/3712Z)
Dacromet	Mottled silver finish	'D' (e.g. 1315/3712D)

Note: *As the Dacromet fasteners have a lower torque setting than the Zinc and Yellow fasteners, the torque figures used must be relevant to the type of fastener.*

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

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

Note: *Dacromet bolts, due to their high corrosion resistance are used in areas where rust could occur. Dacromet bolts are only used for external applications. They are not used in applications such as gearbox or engine joint seams or internal applications.*

Bolts and Screws

Use the following torque setting tables only where no torque setting is specified in the text.

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

Torque settings are given for the following conditions:

Condition 1

- Un-lubricated fasteners
- Zinc fasteners
- Yellow plated fasteners

Condition 2

- Zinc flake (Dacromet) fasteners
- Lubricated zinc and yellow plated fasteners
- Where there is a natural lubrication. For example, cast iron components

Verbus Ripp Bolts

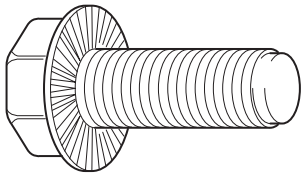


Fig 1.

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

Zinc Plated Fasteners and Dacromet Fasteners

Table 2. Torque Settings - UNF Grade 'S' Fasteners

Bolt Size		Hexagon (A/F)	Condition 1			Condition 2		
in.	mm	in.	Nm	kgf m	lbf ft	Nm	kgf m	lbf ft
1/4	6.3	7/16	11.2	1.1	8.3	10.0	1.0	7.4
5/16	7.9	1/2	22.3	2.3	16.4	20.0	2.0	14.7
3/8	9.5	9/16	40.0	4.1	29.5	36.0	3.7	26.5
7/16	11.1	5/8	64.0	6.5	47.2	57.0	5.8	42.0
1/2	12.7	3/4	98.00	10.0	72.3	88.0	9.0	64.9
9/16	14.3	13/16	140.0	14.3	103.2	126.0	12.8	92.9
5/8	15.9	15/16	196.0	20.0	144.6	177.0	18.0	130.5
3/4	19.0	1 1/8	343.0	35.0	253.0	309.0	31.5	227.9
7/8	22.2	1 15/16	547.0	55.8	403.4	492.0	50.2	362.9
1	25.4	1 1/2	814.0	83.0	600.4	732.0	74.6	539.9
1 1/8	31.7	1 7/8	1181.0	120.4	871.1	1063.0	108.4	784.0
1 1/4	38.1	2 1/4	1646.0	167.8	1214.0	1481.0	151.0	1092.3

Table 3. Torque Settings - Metric Grade 8.8 Fasteners

Bolt Size		Hexagon (A/F)	Condition 1			Condition 2		
ISO Metric Thread	mm	mm	Nm	kgf m	lbf ft	Nm	kgf m	lbf ft
M5	5	8	5.8	0.6	4.3	5.2	0.5	3.8
M6	6	10	9.9	1.0	7.3	9.0	0.9	6.6
M8	8	13	24.0	2.4	17.7	22.0	2.2	16.2
M10	10	17	47.0	4.8	34.7	43.0	4.4	31.7
M12	12	19	83.0	8.5	61.2	74.0	7.5	54.6
M16	16	24	205.0	20.9	151.2	184.0	18.8	135.7
M20	20	30	400.0	40.8	295.0	360.0	36.7	265.5
M24	24	36	690.0	70.4	508.9	621.0	63.3	458.0
M30	30	46	1372.0	139.9	1011.9	1235.0	125.9	910.9
M36	36	55	2399.0	244.6	1769.4	2159.0	220.0	1592.4

Zinc Plated Fasteners and Dacromet Fasteners

Table 4. Metric Grade 10.9 Fasteners

Bolt Size		Hexagon (A/F)	Condition 1			Condition 2		
ISO Metric Thread	mm	mm	Nm	kgf m	lbf ft	Nm	kgf m	lbf ft
M5	5	8	8.1	0.8	6.0	7.3	0.7	5.4
M6	6	10	13.9	1.4	10.2	12.5	1.3	9.2
M8	8	13	34.0	3.5	25.0	30.0	3.0	22.1
M10	10	17	67.0	6.8	49.4	60.0	6.1	44.2
M12	12	19	116.0	11.8	85.5	104.0	10.6	76.7
M16	16	24	288.0	29.4	212.4	259.0	26.4	191.0
M20	20	30	562.0	57.3	414.5	506.0	51.6	373.2
M24	24	36	971.0	99.0	716.9	874.0	89.1	644.6
M30	30	46	1930.0	196.8	1423.5	1737.0	177.1	1281.1
M36	36	55	3374.0	344.0	2488.5	3036.0	309.6	2239.2

Table 5. Metric Grade 12.9 Fasteners

Bolt Size		Hexagon (A/F)	Condition 1			Condition 2		
ISO Metric Thread	mm	mm	Nm	kgf m	lbf ft	Nm	kgf m	lbf ft
M5	5	8	9.8	1.0	7.2	8.8	0.9	6.5
M6	6	10	16.6	1.7	12.2	15.0	1.5	11.1
M8	8	13	40.0	4.1	29.5	36.0	3.7	26.5
M10	10	17	80.0	8.1	59.0	72.0	7.3	53.1
M12	12	19	139.0	14.2	102.5	125.0	12.7	92.2
M16	16	24	345.0	35.2	254.4	311.0	31.7	229.4
M20	20	30	674.0	68.7	497.1	607.0	61.9	447.7
M24	24	36	1165.0	118.8	859.2	1048.0	106.9	773.0
M30	30	46	2316.0	236.2	1708.2	2084.0	212.5	1537.1
M36	36	55	4049.0	412.9	2986.4	3644.0	371.6	2687.7

Table 6. Torque Settings - Rivet Nut Bolts/Screws

Bolt Size				
ISO Metric Thread	mm	Nm	kgf m	lbf ft
M3	3	1.2	0.1	0.9
M4	4	3.0	0.3	2.0
M5	5	6.0	0.6	4.5
M6	6	10.0	1.0	7.5
M8	8	24.0	2.5	18.0
M10	10	48.0	4.9	35.5
M12	12	82.0	8.4	60.5

Table 7. Torque Settings - Internal Hexagon Headed Cap Screws (Zinc)

Bolt Size			
ISO Metric Thread	Nm	kgf m	lbf ft
M3	2.0	0.2	1.5
M4	6.0	0.6	4.5
M5	11.0	1.1	8.0
M6	19.0	1.9	14.0
M8	46.0	4.7	34.0
M10	91.0	9.3	67.0
M12	159.0	16.2	117.0
M16	395.0	40.0	292.0
M18	550.0	56.0	406.0
M20	770.0	79.0	568.0
M24	1332.0	136.0	983.0

Hydraulic Connections

T11-003

'O' Ring Face Seal System

Adaptors Screwed into Valve Blocks

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

Table 8. Torque Settings - BSP Adaptors

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

Table 9. Torque Settings - SAE Connections

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

Hoses Screwed into Adaptors

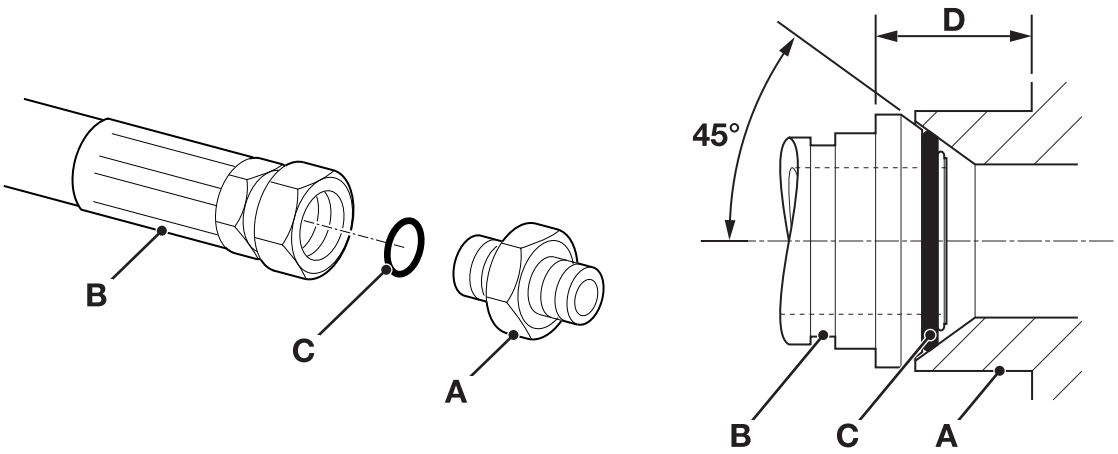


Fig 2.

Hoses **2-B** screwed into adaptors **2-A** seal onto an `O' ring **2-C** which is compressed into a 45° seat machined into the face of the adaptor port.

Note: *Dimension **2-D** will vary depending upon the torque applied.*

Table 10. BSP Hose - Torque Settings

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

Adaptors into Component Connections with Bonded Washers

Table 11. BSP Adaptors with Bonded Washers - Torque Settings

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

'Torque Stop' Hose System

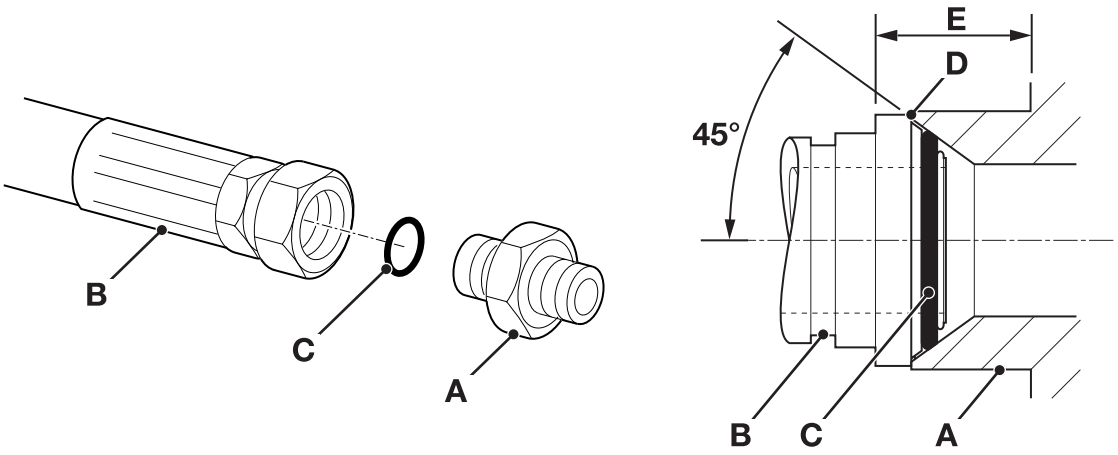


Fig 3.

`Torque Stop' Hoses **3-B** screwed into adaptors **3-A** seal onto an 'O' ring **3-C** which is compressed into a 45° seat machined in the face of the adaptor port. To prevent the 'O' ring being damages as a result of over tightening, 'Torque Stop' Hoses have an additional shoulder **3-D**, which acts as a physical stop.

Note: *Minimum dimension **3-E** fixed by shoulder **3-D**.*

Table 12. BSP `Torque Stop' Hose - Torque Settings

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

Service Tools

Numerical List

The tools listed in the table are special tools required for carrying out the procedures described in this manual. These tools are available from JCB Service.

Some tools are available as kits or sets, the part numbers for parts within such kits or sets are not listed here. For full details of all tools, including the content of kits and sets, refer to ***Tool Detail Reference, Section 1***.

Note: *Tools other than those listed will be required. It is expected that such general tools will be available in any well equipped workshop or be available locally from any good tool supplier.*

Part Number	Description	See Section
993/68100	Slide Hammer Kit - see ***Tool Detail Reference (Section 1)*** for content	**B**
-	Rivet Nut Tool - see ***Tool Detail Reference (Section 1)***	**B**
892/00842	Glass Lifter	**B**
892/00843	Folding Stand for Holding Glass	**B**
892/00845	Cartridge Gun	**B**
892/00846	Glass Extractor (Handles)	**B**
892/00847	Nylon Spatula	**B**
892/00848	Wire Starter	**B**
892/00849	Braided Cutting Wire	**B**
926/15500	Rubber Spacer Blocks	**B**
992/12300	12V Mobile Oven	**B**
992/12400	240V Static Oven (2 Cartridge)	**B**
992/12800	Cut-Out Knife	**B**
992/12801	'L' Blades	**B**
4104/1310	Hand Cleaner	**B**
892/00281	AVO Meter (not illustrated)	**C**
892/00298	Fluke Meter	**C**
892/00285	Hyd. Oil Temperature Probe	**C**
892/00284	Digital Tachometer	**C**
892/01174	DLA Kit	**C**
331/22966	Pump Drive Alignment Tool (not illustrated)	**E**
-	Male Adapters - BSP x BSP - see ***Tool Detail Reference (Section 1)***	**E**
-	Male Adapters - BSP x NPT (USA only) - see ***Tool Detail Reference (Section 1)***	**E**
-	Pressure Test Points - Adaptors - see ***Tool Detail Reference (Section 1)***	**E**
-	Pressure Test Points - 'T' Adaptors - see ***Tool Detail Reference (Section 1)***	**E**
-	'T' Adaptors - see ***Tool Detail Reference (Section 1)***	**E**

Numerical List

Part Number	Description	See Section
-	Female Blanking Caps - see ***Tool Detail Reference (Section 1)***	**E**
-	Male Cone Blanking Caps - see ***Tool Detail Reference (Section 1)***	**E**
-	Female Connectors - see ***Tool Detail Reference (Section 1)***	**E**
-	Bonded Washers - see ***Tool Detail Reference (Section 1)***	**E**
-	Ram Protection Sleeves - see ***Tool Detail Reference (Section 1)***	**E**
892/00334	Ram Seal Fitting Tool	**E**
	Hexagon Spanners - see ***Tool Detail Reference (Section 1)***	**E**
892/01027	Piston Seal Assembly Tool	**E**
-	Hydraulic Flow Test Equipment - see ***Tool Detail Reference (Section 1)***	**E**
-	Hydraulic Circuit Pressure Test Kit - see ***Tool Detail Reference (Section 1)*** for content	**E**
-	Hydraulic Hand Pump Equipment - see ***Tool Detail Reference (Section 1)***	**E**
992/10100	Spool Clamp	**E**
892/00039	Spool Clamp	**E**
992/02800	ARV Extractor	**E**
331/31069	Test Block for A.R.V.	**E**
892/00891	Valve Spool Seal Fitting Tool	**E**
892/00346	Gauge	**E**
892/00279	Gauge	**E**
892/00280	Gauge	**E**
892/00347	Connector	**E**
892/00254	Hose	**E**
-	Ram Jigs - see ***Tool Detail Reference (Section 1)***	**E**
-	Ram Piston Nut Spanners - see ***Tool Detail Reference (Section 1)***	**E**
-	Socket Box Wrench	**E**
-	Nut Adapter	**E**
-	Seal Ring Tool	**E**
-	Stopper	**E**
-	Bearing Rig	**E**
-	Inserting Seal Ring and Correction Jig - see ***Tool Detail Reference (Section 1)***	**E**
-	Jig for Pulling Out, Press-fitting Bushing - see ***Tool Detail Reference (Section 1)***	**E**
-	Jig for Press-fitting Wiper Ring - see ***Tool Detail Reference (Section 1)***	**E**
-	Jig for Inserting Cylinder Head - see ***Tool Detail Reference (Section 1)***	**E**
-	Seal Ring and Connector Jig - see ***Tool Detail Reference (Section 1)***	**E**
-	Bush Removal Jig - see ***Tool Detail Reference (Section 1)***	**E**
-	Bush Fitting Jig - see ***Tool Detail Reference (Section 1)***	**E**
-	Wiper Ring Fitting Jig - see ***Tool Detail Reference (Section 1)***	**E**
-	Wiper Ring Fitting Jig - see ***Tool Detail Reference (Section 1)***	**E**

Numerical List

Part Number	Description	See Section
892/00041	De-glazing Tool	K

Tool Detail Reference

Section B - Body and Framework

Note: *Not all service tools are illustrated.*

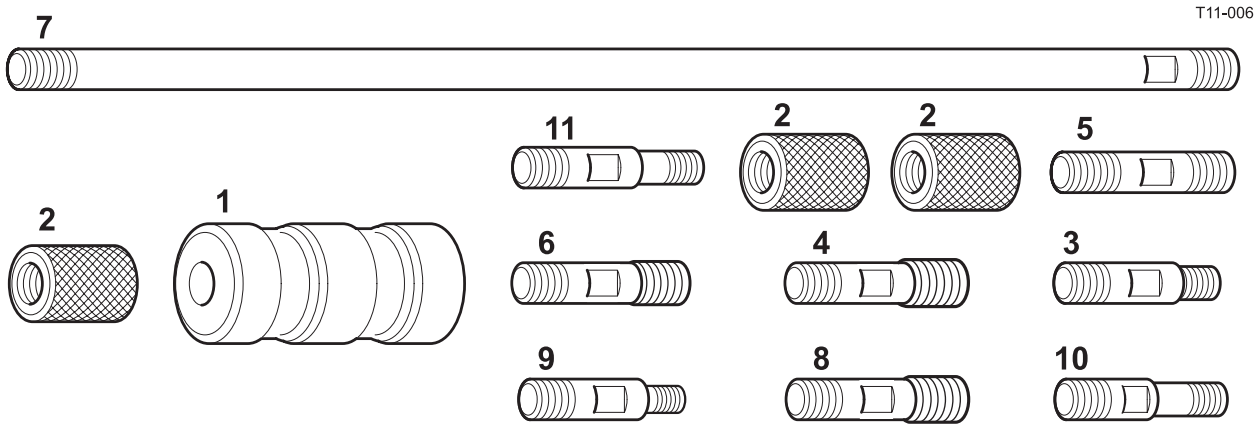


Fig 1. 993/68100 Slide Hammer Kit

1	993/68101	Slide Hammer	**7**	993/68107	Bar - M20 x M20 X 800 mm
2	993/68102	End Stops	**8**	993/68108	Adaptor - M20 x 7/8" UNF
3	993/68103	Adaptor - M20 x 5/8" UNF	**9**	993/68109	Adaptor - M20 x M12
4	993/68104	Adaptor - M20 x 1" UNF	**10**	993/68110	Adaptor - M20 x 5/8" UNF (Shoulder)
5	993/68105	Adaptor - M20 x M20	**11**	993/68111	Adaptor - M20 x 1/2" UNF
6	993/68106	Adaptor - M20 x M24			

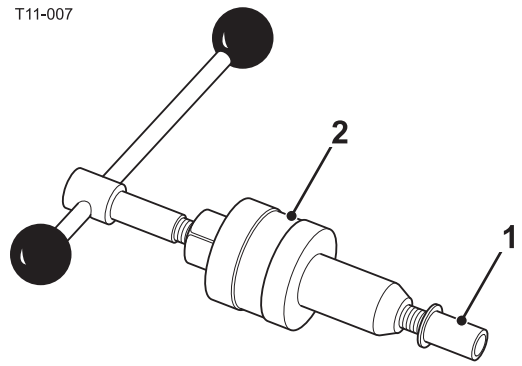


Fig 2. Rivet Nut Tool

1	826/01099	M6 x 16 mm Rivet Nut
	826/01101	M6 x 19 mm Rivet Nut
	826/01102	M8 x 18 mm Rivet Nut
	826/01103	M8 x 21 mm Rivet Nut
	826/01104	M10 x 23 mm Rivet Nut
	826/01105A	M10 x 26 mm Rivet Nut
2	-	Installation Tool available from: Bollhoff Fastenings Ltd (***www.bollhof.com***)

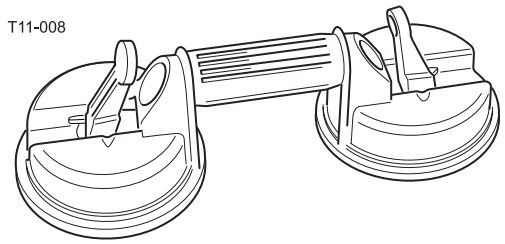


Fig 3. 892/00842 Glass Lifter

Minimum 2 off - Essential for glass installation, 2 required to handle large panes of glass. Ensure suction cups are protected from damage during storage.

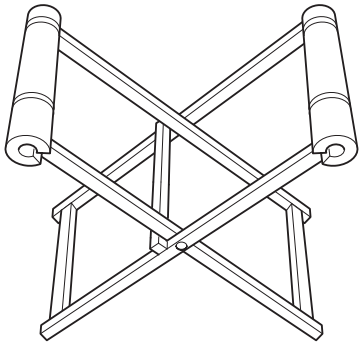


Fig 4. 892/00843 Folding Stand

Essential for preparing new glass prior to installation.

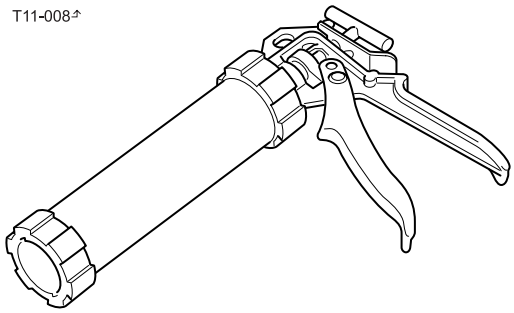


Fig 5. 892/00845 Cartridge Gun

Hand operated. Essential for the application of sealants, polyurethane materials etc.

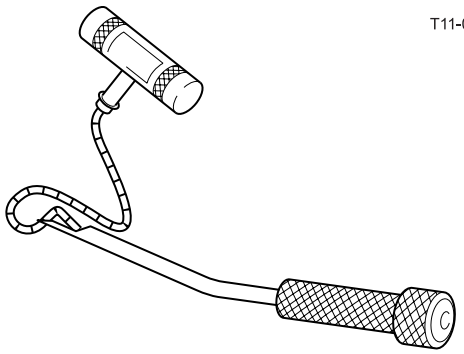


Fig 6. 892/00846 Glass Extractor (Handles)

Used with braided cutting wire to cut out broken glass. ⇒ *Fig 9. (1-18)*.

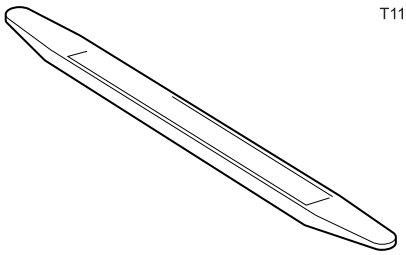


Fig 7. 892/00847 Nylon Spatula

General tool used for smoothing sealants - also used to re-install glass in rubber glazing because metal tools will chip the glass edge.

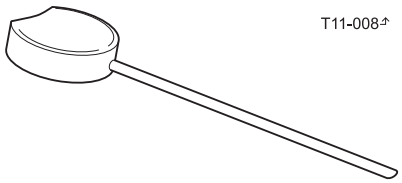


Fig 8. 892/00848 Wire Starter

Used to access braided cutting wire through original polyurethane seal. ⇒ *Fig 9. (1-18)*.

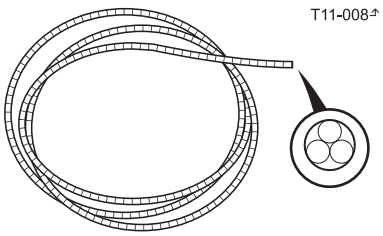


Fig 9. 892/00849 Braided Cutting Wire

Consumable heavy duty cut-out wire used with the glass extraction tool. ⇨ *Fig 6. (1-17)*. Approx 25 m length.

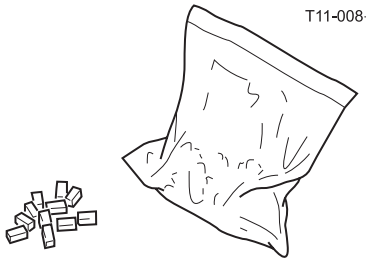


Fig 10. 926/15500 Rubber Spacer Blocks

Used to provide the correct set clearance between glass edge and cab frame. Unit quantity = 500 off.

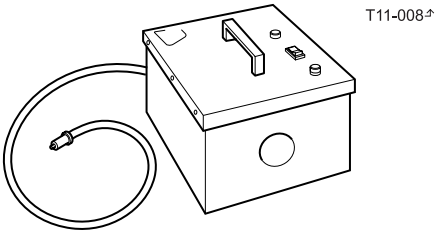


Fig 11. 992/12300 Mobile Oven 12V

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).

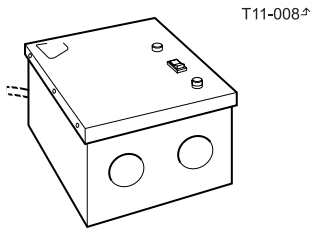


Fig 12. 992/12400 Static Oven 240V

Required to pre-heat adhesive prior to use. No plug supplied.

Note: *110V models available upon request - contact JCB Technical Service.*

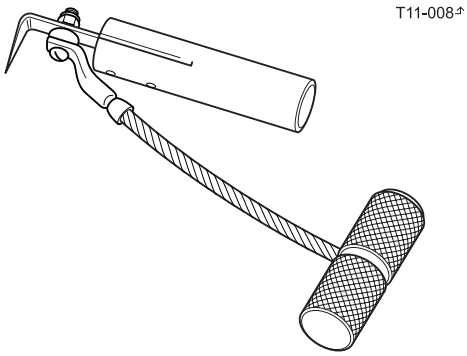


Fig 13. 992/12800 Cut-Out Knife

Used to remove broken glass.

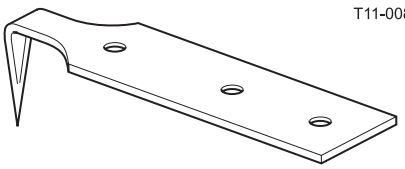


Fig 14. 992/12801 'L' Blades

25 mm (1 in.) cut. Replacement blades for cut-out knife. ⇨ *Fig 13. (1-18)*. Unit quantity = 5 off.

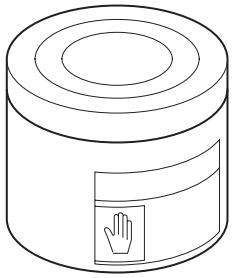


Fig 15. 4104/1310 Hand Cleaner

Special blend for the removal of polyurethane adhesives (454g; 1 lb tub).

Section C - Electrics

Note: *Not all service tools are illustrated.*

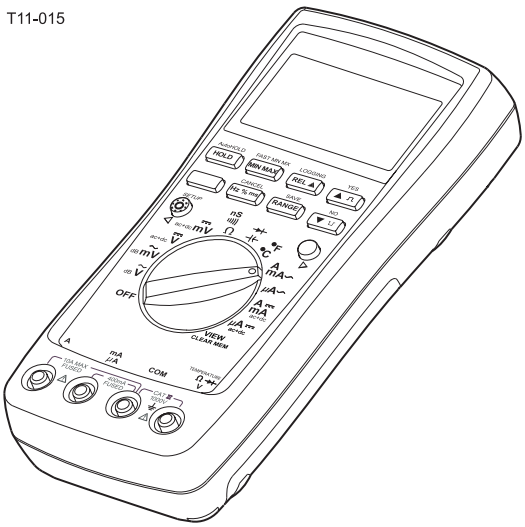


Fig 16. 892/00298 Fluke Meter

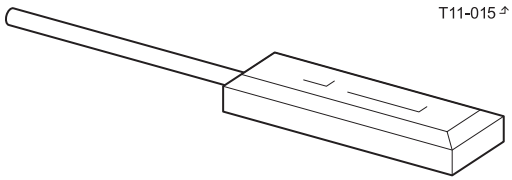


Fig 17. 892/00285 Hydraulic Temperature Probe

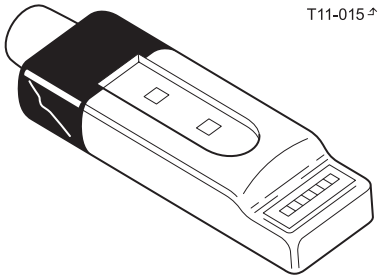


Fig 18. 892/00284 Venture Microtach Digital Tachometer

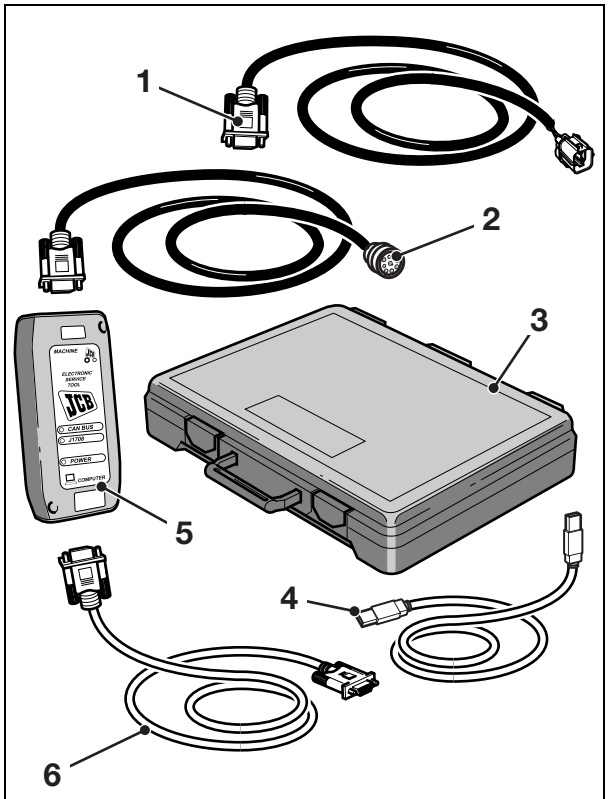


Fig 19. 892/01174

1	Interconnecting cable, DLA to machine ECU diagnostics socket.
2	Interconnecting cable, DLA to machine ECU diagnostics socket.
3	Kit carrying case.
4	Interconnecting cable, DLA to laptop PC.
5	Data Link Adaptor (DLA), enables data exchange between the machine ECU (Electronic Control Unit) and a laptop PC loaded with the applicable diagnostics software.
6	Interconnecting cable, DLA to laptop PC.

Section E - Hydraulics

Note: *Not all service tools are illustrated.*

T11-010

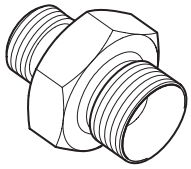


Fig 20. Male Adaptors

	Male Adapters - BSP x NPT (USA only)
816/00439	3/8 in. x 1/4 in.
816/00440	1/2 in. x 1/4 in.
816/15007A	3/8 in. x 3/8 in.
816/15008	1/2 in. x 3/8 in.

	Male Adapters - BSP x BSP
1606/2052	3/8 in. x 1/4 in.
1604/0003A	3/8 in. x 3/8 in.
892/00071	3/8 in. x 3/8 in. taper
1606/0004	1/2 in. x 1/4 in.
1606/0007A	1/2 in. x 3/8 in.
1604/0004A	1/2 in. x 1/2 in.
1606/0017	5/8 in. x 1/2 in.
1606/0008	3/4 in. x 3/8 in.
1606/0009	3/4 in. x 1/2 in.
1604/2055	3/4 in. x 3/4 in.
1606/0012	3/4 in. x 1 in.
1606/0014	3/4 in. x 1.1/4 in.
1606/0015	1 in. x 1.1/4 in.

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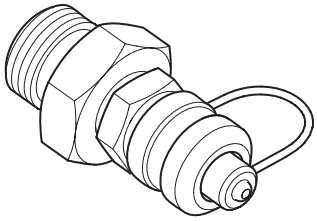

Fig 21. Pressure Test Adapters

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

T11-010

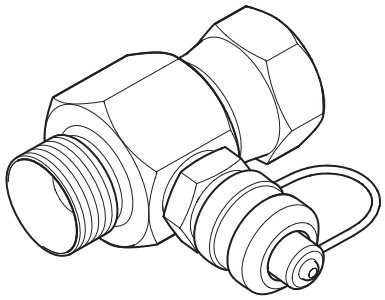

Fig 22. Pressure Test 'T' Adapters

816/55045	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	1.1/4 in. M BSP x 1.1/2 in. F BSP x Test Point

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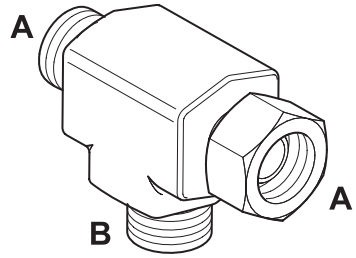

Fig 23. 'T' Adapters

892/00047	3/8 in. BSP (**A**) x 1/4 in. BSP (**B**)
892/00048	1/2 in. BSP (**A**) x 1/4 in. BSP (**B**)
892/00049	5/8 in. BSP (**A**) x 1/4 in. BSP (**B**)
816/50043	3/4 in. BSP (**A**) x 1/4 in. BSP (**B**)
892/00051	1 in. BSP (**A**) x 1/4 in. BSP (**B**)
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**)
816/00017	1 in. BSP (**A**) x 1 in. BSP (**B**)

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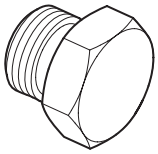

Fig 24. Female Blanking Caps

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

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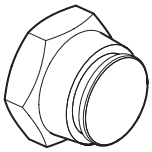

Fig 25. Male Cone Blanking Caps

816/90045	1/4 in. BSP
816/00189A	3/8 in. BSP
816/00190A	1/2 in. BSP
816/90022	5/8 in. BSP
816/90274	3/4 in. BSP
816/90205	1 in. BSP

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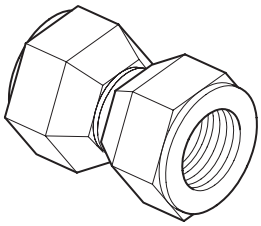

Fig 26. Female Connectors

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

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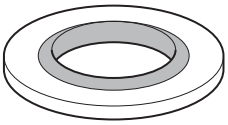


Fig 27. Bonded Washers

1406/0011	1/4 in. BSP
1406/0018	1/2 in. BSP
1406/0014	5/8 in. BSP
1406/0021	3/4 in. BSP
1406/0029	1.1/4 in. BSP

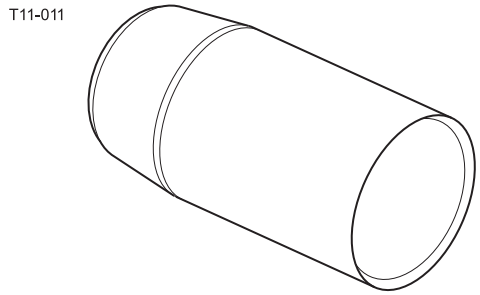


Fig 28. Ram Protection Sleeves

892/01016	For 25 mm Rod Diameter
892/01017	For 30 mm Rod Diameter
892/01018	For 40 mm Rod Diameter
892/01019	For 50 mm Rod Diameter
892/01020	For 50 mm Rod Diameter (slew ram)
892/01021	For 60 mm Rod Diameter
892/01022	For 60 mm Rod Diameter (slew ram)
892/01023	For 65 mm Rod Diameter
892/01024	For 70 mm Rod Diameter
892/01025	For 75 mm Rod Diameter
892/01026	For 80 mm Rod Diameter
892/00167	For 90 mm Rod Diameter

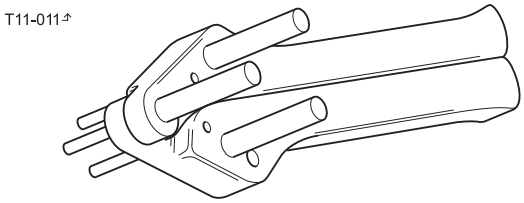


Fig 29. 892/00334 Ram Seal Fitting Tool

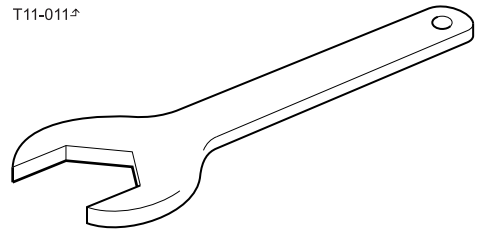


Fig 30. Hexagon Spanners for Ram Pistons and End Caps

992/09300	55mm A/F
992/09400	65mm A/F
992/09500	75mm A/F
992/09600	85mm A/F
992/09700	95mm A/F
992/09900	115mm A/F
992/10000	125mm A/F

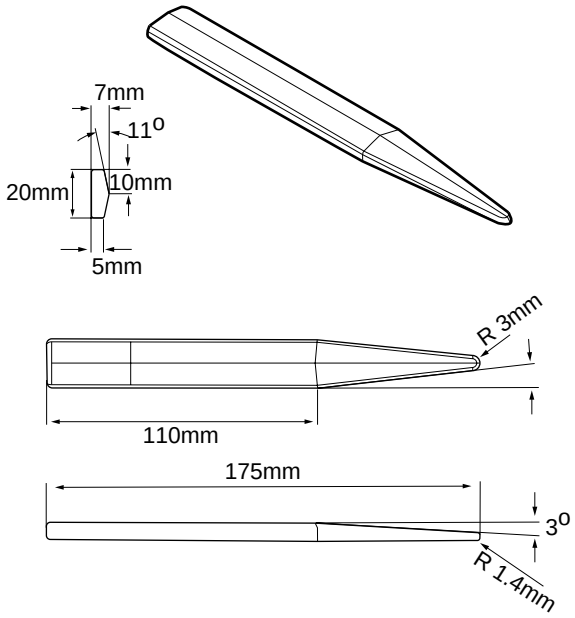
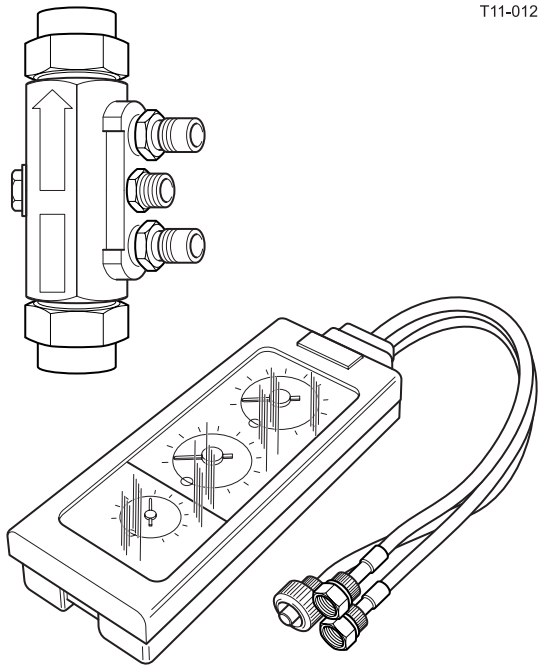
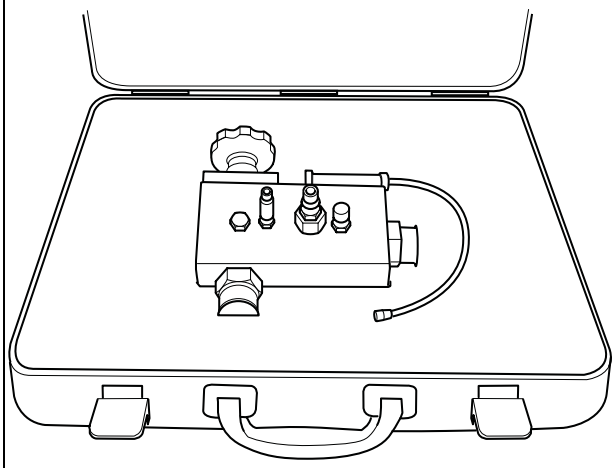
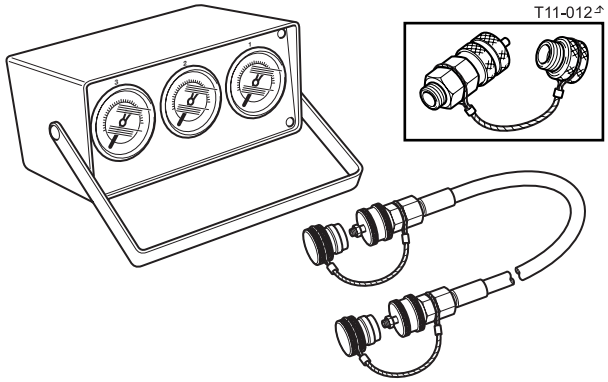
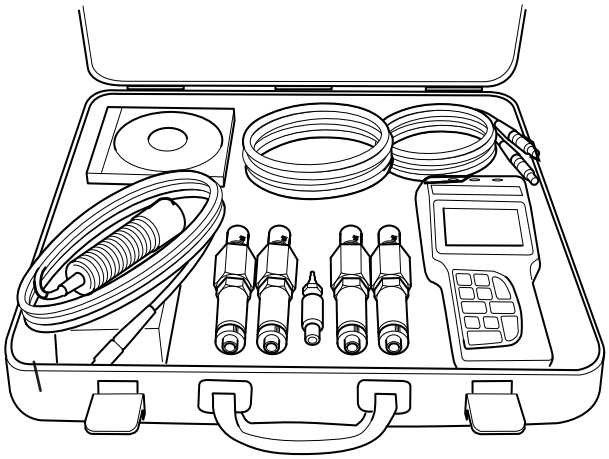


Fig 31. 892/01027 Piston Seal Assembly Tool

Note: *No longer available, refer to 998/11046 JCB ServiceMaster Flow Test Kit.* ⇨ *Fig 33. (1-24)**.*	892/00268	Flow Monitoring Unit
 **Fig 32. Flow Test Equipment**	892/00269	Sensor Head 0 - 100 l/min (0 - 22 UK gal/min)
	892/00273	Sensor Head 0 - 380 l/min (0 - 85.5 UK gal/min)
	892/00293	Connector Pipe
	892/00270	Load Valve
	1406/0021	Bonded Washer
	1604/0006A	Adapter 3/4 in M x 3/4 in M BSP
	1612/2054	Adapter 3/4 in F x 3/4 in M BSP
	892/00271	Adapter 3/4 in F x 5/8 in M BSP
	892/00272	Adapter 5/8 in F x 3/4 in M BSP
	816/20008	Adapter 3/4 in F x 1/2 in M BSP
	892/00275	Adapter 1/2 in F x 3/4 in M BSP
	892/00276	Adapter 3/4 in F x 3/8 in M BSP
	892/00277	Adapter 3/8 in F x 3/4 in M BSP
	1606/0015	Adapter 1.1/4 in M BSP x 1 in M BSP
	892/00078	Connector 1 in F x 1 in F BSP
	1604/0008	Adapter 1 in M x 1 in M BSP
	1606/0012	Adapter 1 in M x 3/4 in M BSP
	816/20013	Adapter 3/4 in F x 1 in M BSP

 **Fig 33. 998/11046 JCB ServiceMaster Flow Test Kit**	998/11047	600 LPM Flow Turbine with Loading Valve
	998/11048	1-7/8" UNF x1 - 1/4" BSP Flow Block Adaptors x2
	998/11049	Carrying Case for Flow Test Kit
	998/11050	Temperature Sensor (125°C Max)

Note: *No longer available, refer to 998/11051 JCB ServiceMaster Digital Hydraulic Datalogger Pressure Test Kit.* ⇨ *Fig 35. (1-25)*.	892/00201	Replacement Gauge 0-20 bar (0-300 lbf/in²)
 **Fig 34. 892/ 00253 Hydraulic Circuit Pressure Test Kit**	892/00202	Replacement Gauge 0-40 bar (0-600 lbf/in²)
	892/00203	Replacement Gauge 0-400 bar (0-6000 lbf/in²)
	892/00254	Replacement Hose
	993/69800	Seal Kit for 892/00254 (can also be used with probe 892/00706)
	892/00706	Test Probe
	892/00347	Connector - Hose to gauge

 **Fig 35. 998/11051 JCB ServiceMaster Digital Hydraulic Datalogger Pressure Test Kit**	998/11052	Hand Held 4-Channel ServiceMaster Unit
	998/11053	SensoWin Software Kit and PC Cable
	998/11054	Equiment Case SCC-750
	998/11055	0-600 Bar Pressure Transduce x2
	998/11056	0-100 Bar pressureTransducer x2
	998/11057	RPM Tachometer (includes fixed cable, 2 meters)
	998/11058	5 Meter Connecting Cable
	998/11059	M16 Metric Adaptors for Test Points x4
	998/11060	400mm Test Hose 90˚ HSP to M16 x2
	998/11061	400mm Test Hose Straight HSP to M16 x2

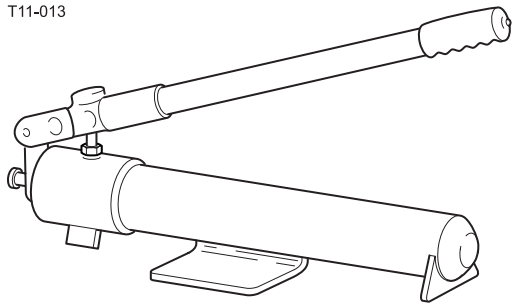


Fig 36. Hand Pump Equipment

892/00223	Hand Pump
892/00137	Micro-bore Hose 1/4 in BSP x 3 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)

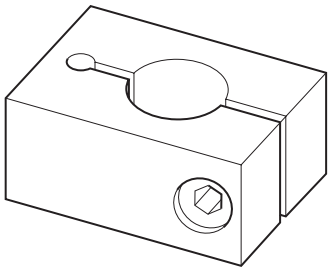


Fig 37. Spool Clamps

892/00039	Spool Clamp
992/10100	Spool Clamp - Diameter 19mm (3/4 in)
992/02800	ARV Extractor

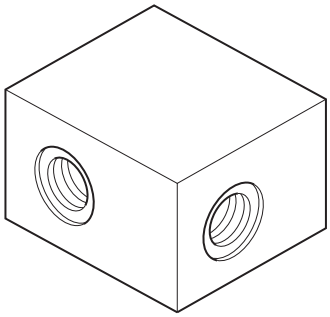


Fig 38. 331/31069 - Test Block for A.R.V.

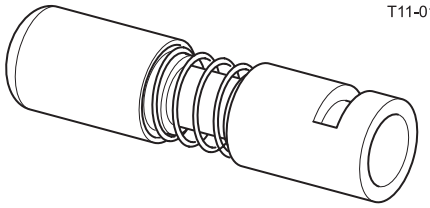


Fig 39. 892/00881 Valve Spool Seal Fitting Tool

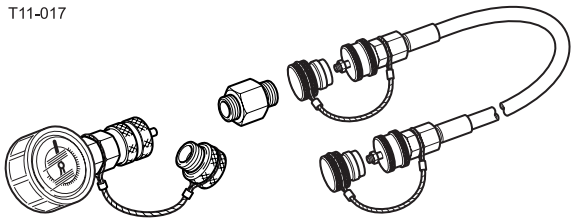


Fig 40. Hydraulic Circuit Test Gauges and Connections

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

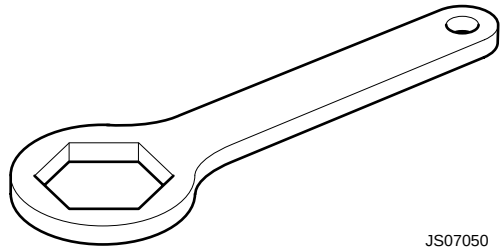


Fig 41. Ram Piston Nut Removal/Fitting Spanner

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

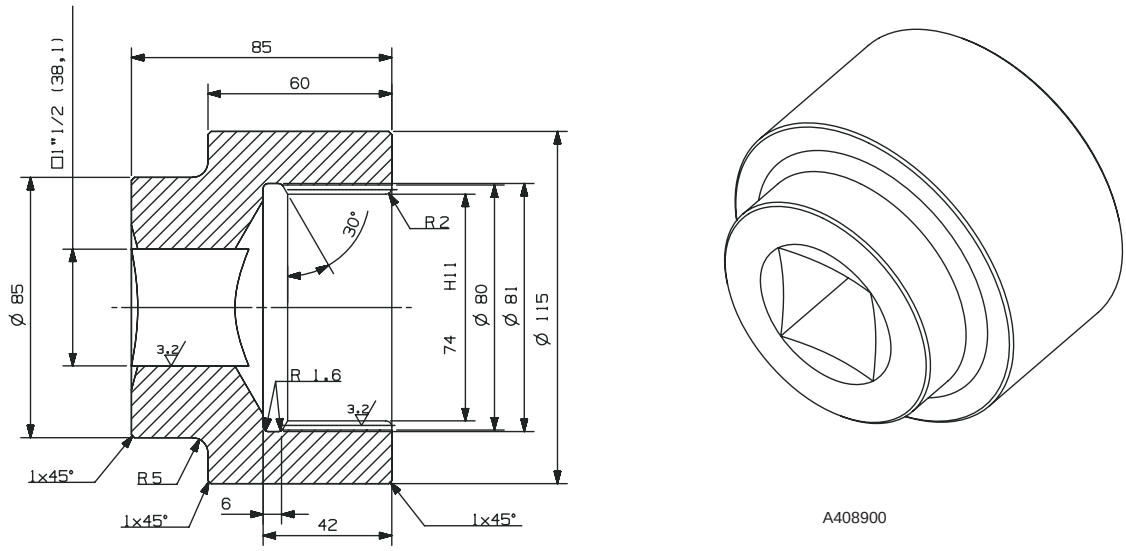


Fig 42. Socket Box Wrench

Note: *For disassembly and assembly of slew motor gearbox. This tool can not be ordered from JCB.*

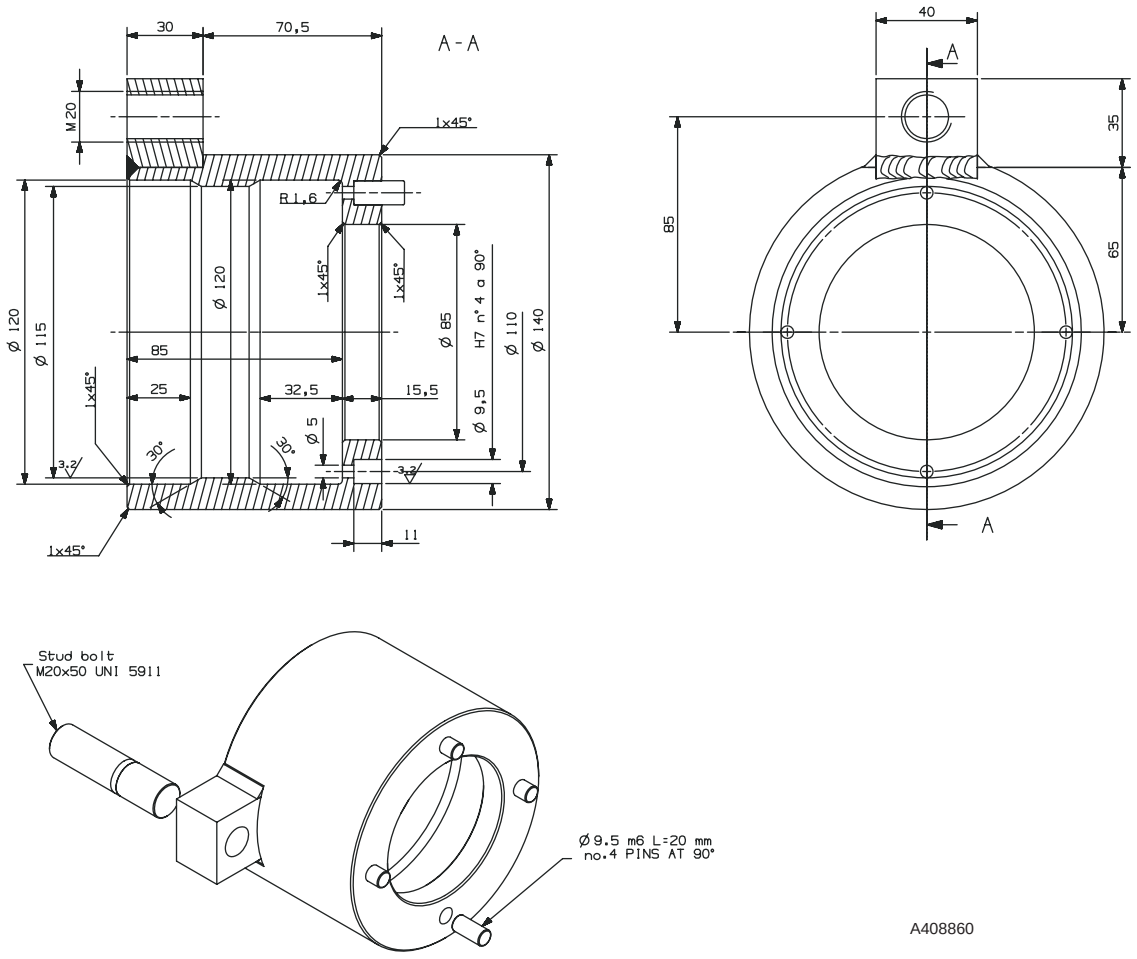


Fig 43. Nut Adapter

Note: *For disassembly and assembly of slew motor gearbox. This tool can not be ordered from JCB.*

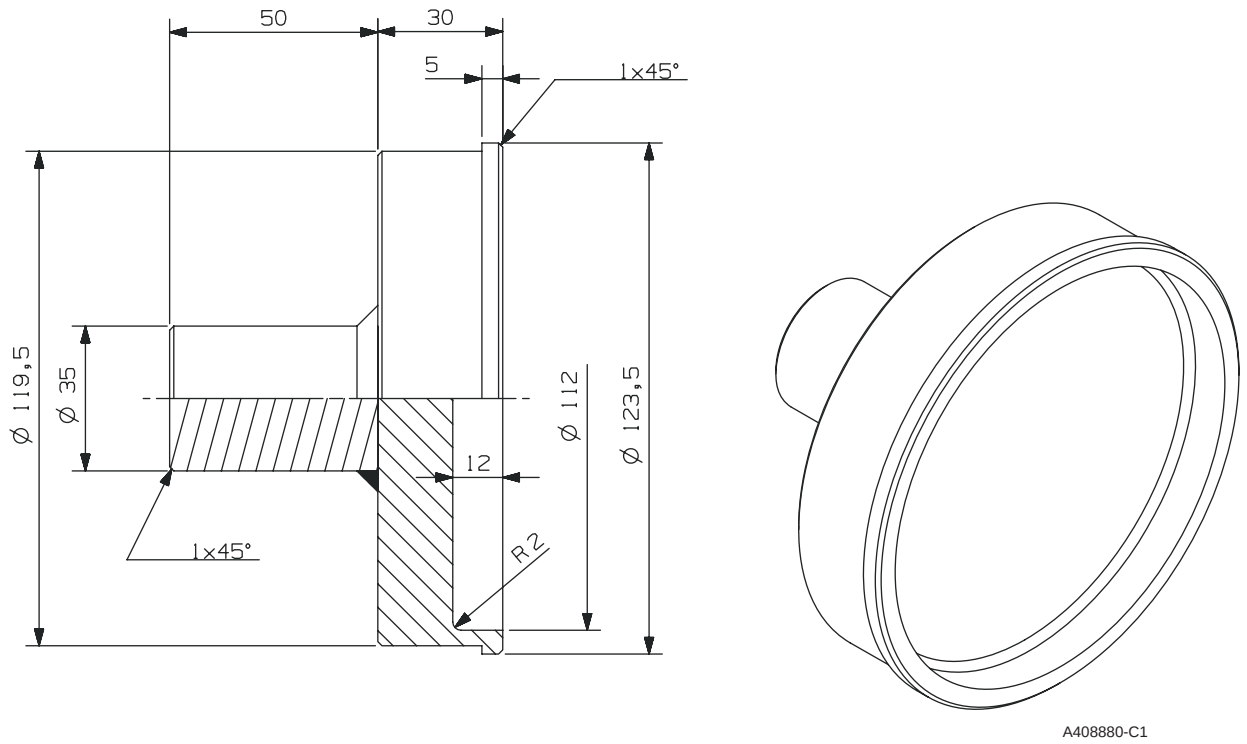


Fig 44. Seal Ring Tool

Note: *For assembly and disassembly of slew motor gearbox seal. This tool can not be ordered from JCB.*

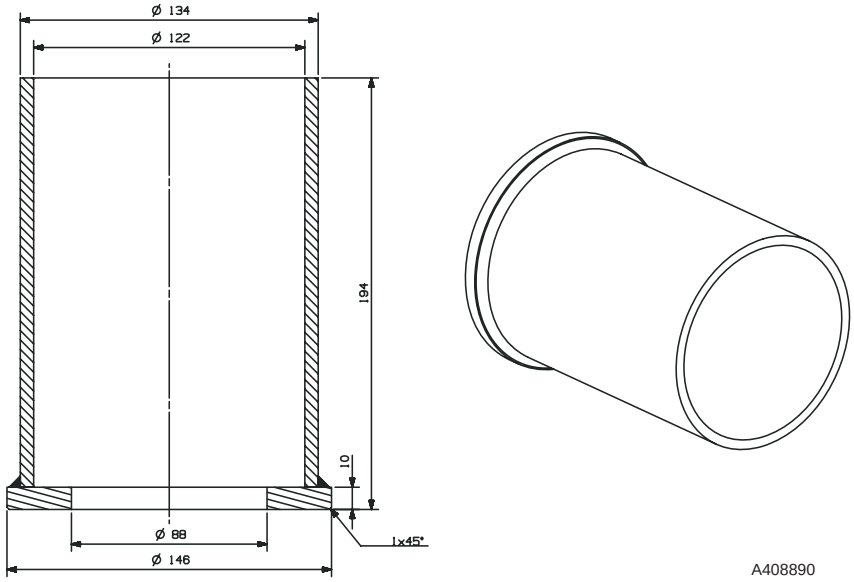


Fig 45. Stopper

Note: *For assembly of slew motor gearbox. This tool can not be ordered from JCB.*

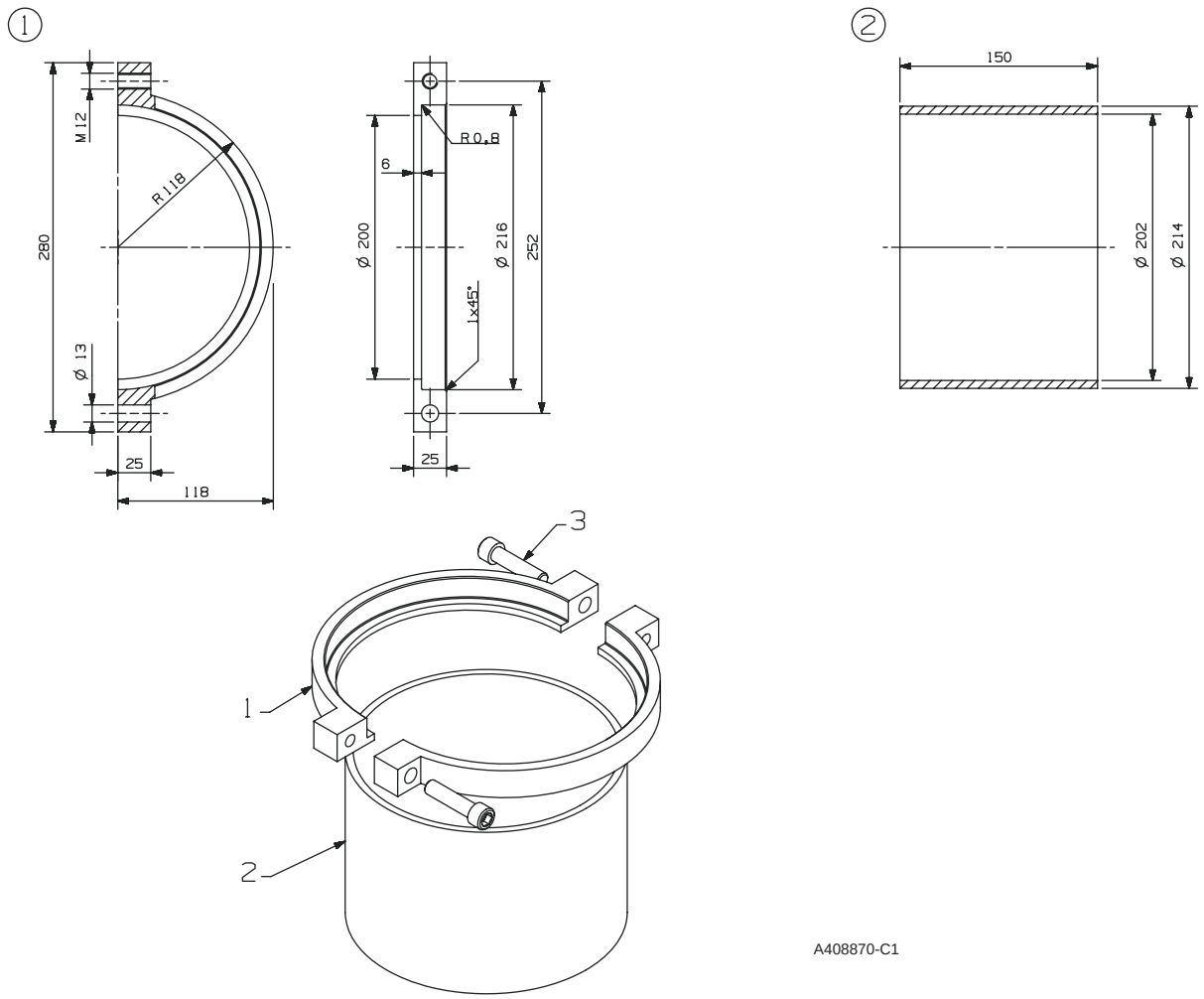


Fig 46. Bearing Rig

Note: *For removal of slew motor bearing. This tool can not be ordered from JCB.*

Inserting Seal Ring and Correction Jig

WDB 2052	Bucket	120mm Cylinder inner diameter
WDB 2054	Boom	125mm Cylinder inner diameter
WDB 2164	Boom	130mm Cylinder inner diameter
WDB 2056	Arm	150mm Cylinder inner diameter

Jig for Pulling Out, Press-fitting Bushing

WDB 2166	Bucket	80mm Piston Rod diameter
WDB 2167	Boom	85mm Piston Rod diameter
WDB 2170	Arm	100mm Piston Rod diameter
WDB 2168	Bucket	90mm Piston Rod diameter
WDB 2168	Boom	90mm Piston Rod diameter
WDB 2171	Arm	105mm Piston Rod diameter

Jig for Press-fitting Wiper Ring

WDB 2166-1	Bucket	80mm Piston Rod diameter
WDB 2167-1	Boom	85mm Piston Rod diameter
WDB 2170-1	Arm	100mm Piston Rod diameter
WDB 2168-1	Bucket	90mm Piston Rod diameter
WDB 2168-1	Boom	90mm Piston Rod diameter
WDB 2171-1	Arm	105mm Piston Rod diameter

Jig for Inserting Cylinder Head

WDB 2174	Bucket	80mm Piston Rod inner diameter
WDB 2175	Boom	85mm Piston Rod inner diameter
WDB 2178	Arm	100mm Piston Rod inner diameter
WDB 2176	Bucket	90mm Piston Rod inner diameter
WDB 2176	Boom	90mm Piston Rod inner diameter
WDB 2179	Arm	105mm Piston Rod inner diameter

Seal Ring and Connector Jig

WDB 2052	Seal Ring insert and connection jig set
Note: *The above Part no. is applicable to a tube diameter of 120mm*	

Bush Removal Jig

WDB 2166	Bush removal jig

WDB 2166-1	Retainer
Note: *The above Part no. is applicable to a rod diameter of 80mm*	

Bush Fitting Jig

WDB 2166	Bush press fitting jig
WDB 2166-1	Retainer
Note: *The above Part no. is applicable to a rod diameter of 80mm*	

Wiper Ring Fitting Jig

WDB 2166-1	Wiper Ring fitting
Note: *The above Part no. is applicable to a rod diameter of 80mm*	

Wiper Ring Fitting Jig

WDB 2174	Cylinder Head insertion guide jig
Note: *The above Part no. is applicable to a rod diameter of 80mm*	