Service Manual

Open front screen

515-40

Section 1 - General Information

Section 2 - Care and Safety

Section 3 - Maintenance

Section A - Attachments

Section B - Body and Framework

Section C - Electrics

Section D - Controls

Section E - Hydraulics

Section F - Transmissions

Section G - Brakes

Section H - Steering

Section K - Engine

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World Class
Customer Support

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Notes:

General Information

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Contents **Page No.**

Introduction
About This Publication 1-1
Identifying Your Machine 1-3

Standard Torque Settings
Zinc Plated Fasteners and Dacromet Fasteners 1-7
Hydraulic Connections 1-11

Service Tools
Numerical List 1-15
Tool Detail Reference 1-18

Service Consumables
Sealing and Retaining Compounds 1-35

Terms and Definitions
Colour Coding 1-37

Contents Page No.

Introduction

About This Publication

Machine Model and Serial Number

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

– 515-40 from SN 1627500 to 1628499

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.

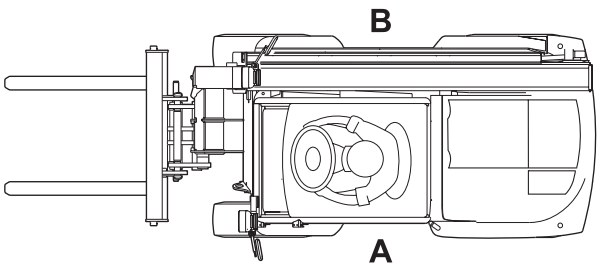
Units of Measurement

T1-001_2

In this publication, the S.I. system of units is used. For example, liquid capacities are given in litres. The Imperial units follow in parentheses ( ) eg 28 litres (6 gal).

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.



447200-2

Fig 1.

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

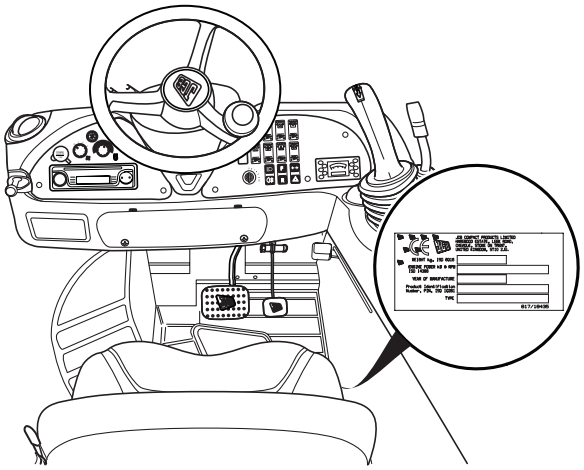
Machine Identification Plate

Your machine has an identification plate mounted as shown. The serial numbers of the machine and its major units are stamped on the plate.

Note: *The machine model and build specification is indicated by the PIN. Refer to* ***Typical Product Identification Number (PIN)****.*

The serial number of each major unit is also stamped on the unit itself. If a major unit is replaced by a new one, the serial number on the identification plate will be wrong. Either stamp the new number of the unit on the identification plate, or simply stamp out the old number. This will prevent the wrong unit number being quoted when replacement parts are ordered.

The machine and engine serial numbers can help identify exactly the type of equipment you have.

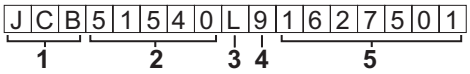


C091000

Fig 2. Machine identification plate

Typical Product Identification Number

The PIN, weight, engine power, year of manufacture and serial number of the machine are stamped on the identification plate.



1 World Manufacturer Identification (3 Digits)

2 Machine Model (5 Digits)

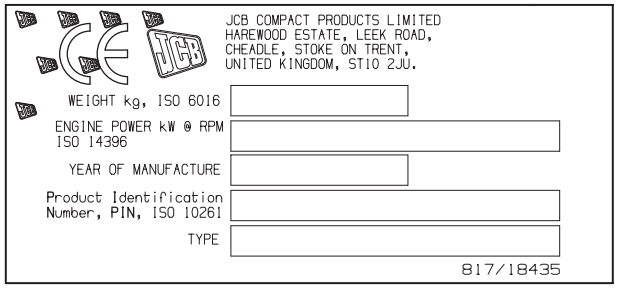
3 Randomly Generated Check Letter (1 Digit)

4 Year of Manufacture (1 Digit)

9 = 2009	A = 2010
B = 2011	C = 2012

5 Machine Serial Number (7 Digits)

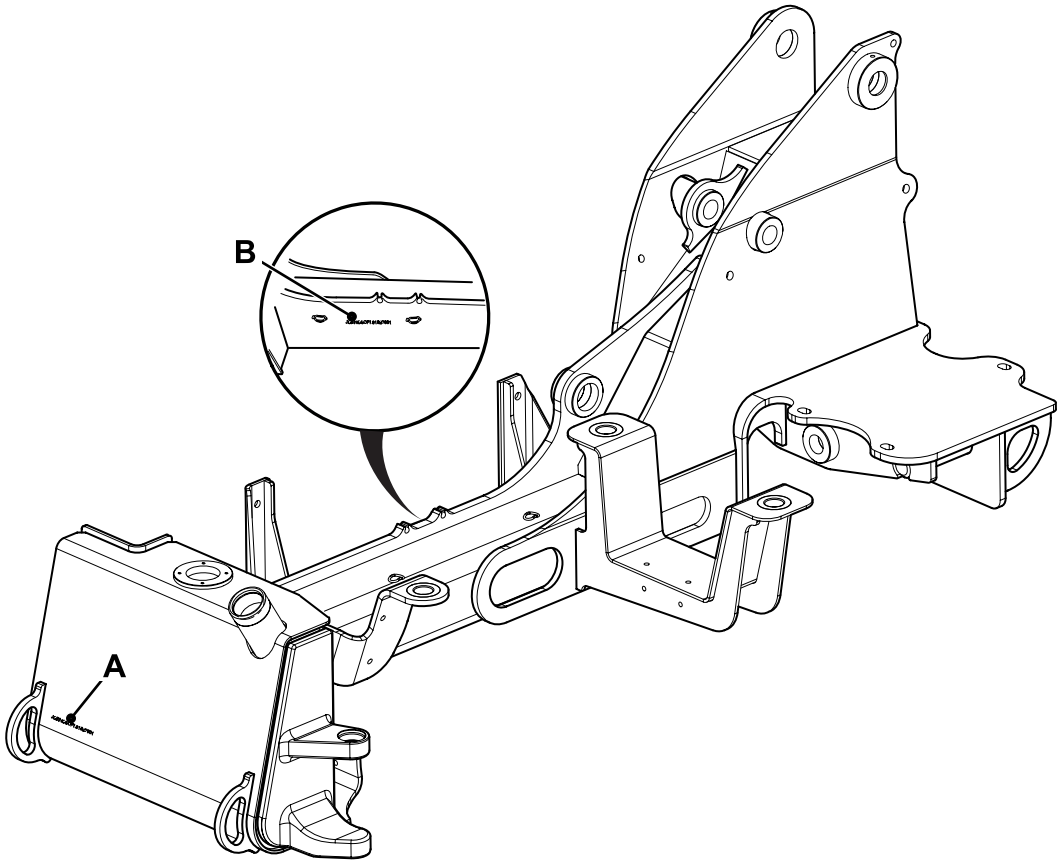
Each machine has a unique serial number.



817-18435-2

Fig 3.

The machine PIN is also stamped onto the fuel tank as at **A** and onto the chassis behind the fan assembly as shown at **B**.



C093310

Fig 4.

Component Identification Plates

Typical Engine Identification Number

The engine data label is located on the top of the engine. 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.

a	b	c	d	e
D	2009	L	04	9999999

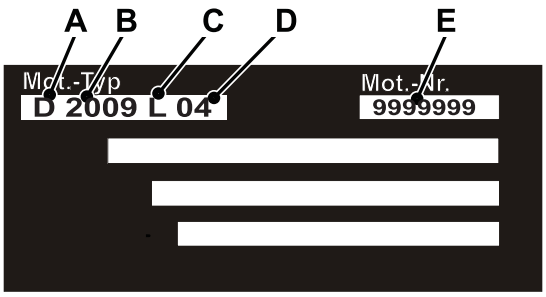
a Type (D = Diesel)

b Series (2009)

c Cylinder layout (L = In series)

d Number of cylinders (04 = 4 Cylinder)

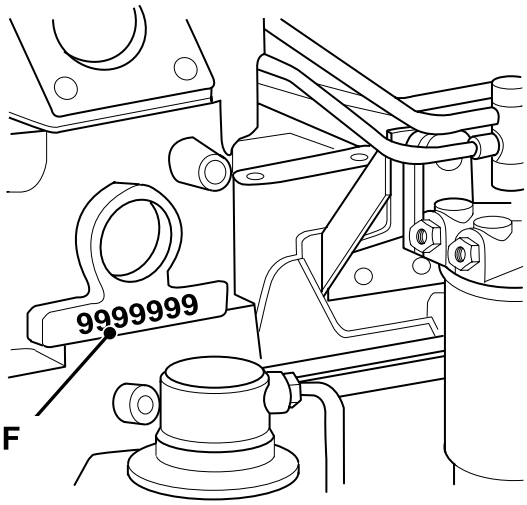
e Engine Serial Number (7 Digits)



C089970-C3

Fig 5.

Note: *The engine serial number* ***F*** *is also stamped on the engine.* *⇒ Fig 6. (1-5)**.*



C089980

Fig 6.

FOPS Data Plate

WARNING

Do not use the machine if the falling objects protection level provided by the structure is not sufficient for the application. Falling objects can cause serious injury.

8-2-8-17

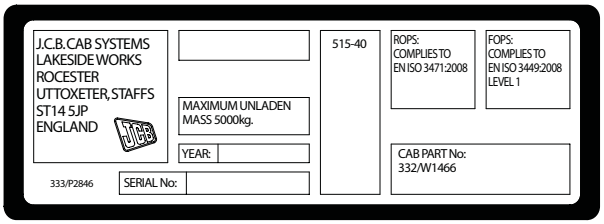
If the machine is used in any application where there is a risk of falling objects then a falling-objects protective structure (FOPS) must be installed. For further information contact your JCB Dealer

The falling objects protection structure (FOPS) is fitted with a dataplate. The dataplate indicates what level protection the structure provides.

There are two levels of FOPS:

- **Level I Impact Protection** - impact strength for protection from small falling objects (e.g. bricks, small concrete blocks, hand tools) encountered in operations such as highway maintenance, landscaping and other construction site services.
- **Level II Impact Protection** - impact strength for protection from heavy falling objects (e.g. trees, rocks) for machines involved in site clearing, overhead demolition or forestry.

For an example of the FOPS data plate, refer to ⇨ *Fig 7. (1-6)*.



C090690

Fig 7.

ROPS Data Plate

WARNING

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

INT-2-1-9_6

WARNING

Seat Belts

The ROPS/FOPS is designed to give you protection in an accident. If you do not wear your seat belt, you could be thrown out of the machine and crushed. You must wear a seat belt when using the machine. Fasten the seat belt before starting the engine.

0153

The machine is built to the ROPS standard and has a data plate attached to the frame. ⇨ *Fig 8. (1-6)*.

For an example of the ROPS data plate, refer to ⇨ *Fig 8. (1-6)*.

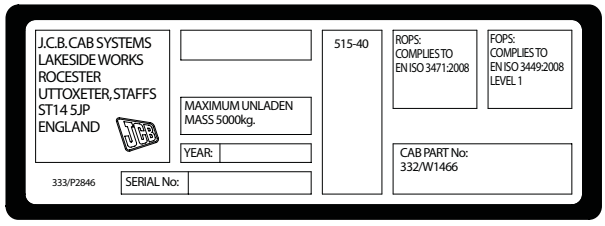


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Fig 8.

Standard 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 (1-7)*.

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

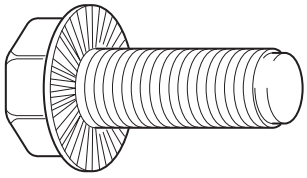


Fig 9.

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

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

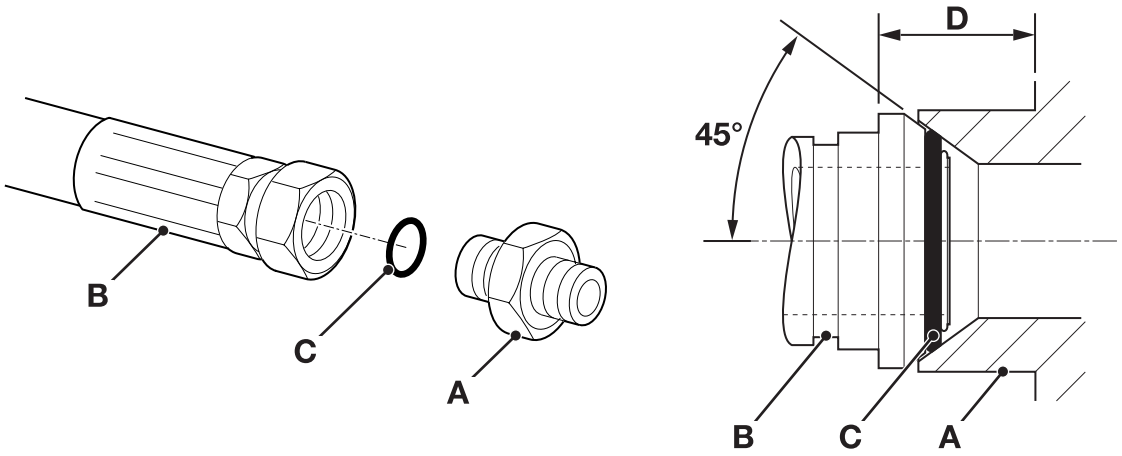


Fig 10.

Hoses **10-B** screwed into adaptors **10-A** seal onto an `O' ring **10-C** which is compressed into a 45° seat machined into the face of the adaptor port.

Note: *Dimension* ***10-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

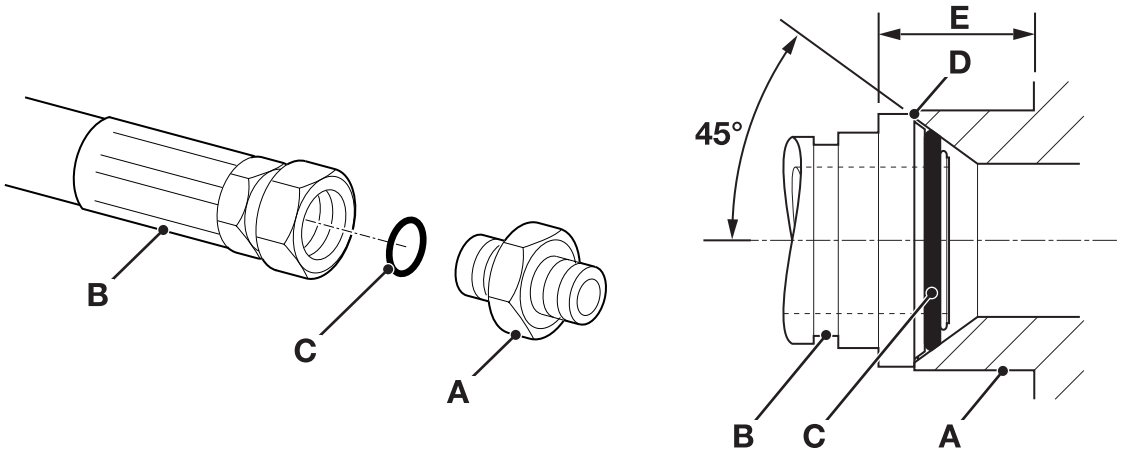


Fig 11.

`Torque Stop' Hoses **11-B** screwed into adaptors **11-A** seal onto an 'O' ring **11-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 **11-D**, which acts as a physical stop.

Note: *Minimum dimension **11-E** fixed by shoulder **11-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:	Tool Detail Reference:
-	Bonded Washers - see tool detail reference for content	⇨ *Fig 43. (1-26)*
-	Female Cone Blanking Plugs - see tool detail reference for content	⇨ *Fig 40. (1-26)*
-	Female Connectors - see tool detail reference for content	⇨ *Fig 42. (1-26)*
-	Hydraulic Hand Pump Equipment - see tool detail reference for content	⇨ *Fig 52. (1-30)*
-	Male Adaptors BSP x BSP - see tool detail reference for content	⇨ *Fig 36. (1-25)*
-	Male Cone Blanking Caps - see tool detail reference for content	⇨ *Fig 41. (1-26)*
-	Pressure Test Point `T' Adaptors - see tool detail reference for content	⇨ *Fig 38. (1-25)*
-	Pressure Test Point Adaptors - see tool detail reference for content	⇨ *Fig 37. (1-25)*
-	Rivet Nut Tool - see tool detail reference for content	⇨ *Fig 13. (1-18)*
-	Mandrel for bearing support and sealing ring (Poclain Drive Motor)	⇨ *Fig 60. (1-32)*
-	Mandrel to install the bearing outer races (Poclain Drive Motor)	⇨ *Fig 61. (1-32)*
-	Tool to install the bearing support circlip (Poclain Drive Motor)	⇨ *Fig 62. (1-33)*
332/V8611	Carriage Alignment Adjustment Tool	⇨ *Fig 27. (1-21)*
4104/1310	Hand Cleaner	⇨ *Fig 26. (1-21)*
892/00011	Spool Clamp	⇨ *Fig 57. (1-31)*
892/00180	Seal Fitting Tool - Hydraulic Steer Unit	⇨ *Fig 63. (1-33)*
892/00253	Hydraulic Pressure Test Kit - see tool detail reference for content	⇨ *Fig 50. (1-29)*
892/00268	Flow Monitoring Unit - Other components required, see tool detail	⇨ *Fig 49. (1-28)*
892/00334	Ram Seal Fitting Tool	⇨ *Fig 45. (1-27)*
892/00349	Crimp Tool	⇨ *Fig 34. (1-24)*
892/00350	Butane Heater Assembly	⇨ *Fig 33. (1-23)*
892/00351	Splice 0.5-1.5 mm (Red)	⇨ *Fig 35. (1-24)*
892/00352	Splice 1.5-2.5 mm (Blue)	⇨ *Fig 35. (1-24)*
892/00353	Splice 3.0-6.0 mm (Yellow)	⇨ *Fig 35. (1-24)*
892/00842	Glass Lifter	⇨ *Fig 14. (1-19)*
892/00843	Folding Stand for Holding Glass	⇨ *Fig 15. (1-19)*

Numerical List

Part Number:	Description:	Tool Detail Reference:
892/00844	Long Knife	⇨ Fig 24. (1-20)
892/00845	Cartridge Gun	⇨ Fig 16. (1-19)
892/00846	Glass Extractor (Handles)	⇨ Fig 17. (1-19)
892/00847	Nylon Spatula	⇨ Fig 18. (1-19)
892/00848	Wire Starter	⇨ Fig 19. (1-19)
892/00849	Braided Cutting Wire	⇨ Fig 20. (1-20)
892/00881	Valve Spool Seal Fitting Tool	⇨ Fig 53. (1-30)
892/00905	LMI Test Box	⇨ Fig 31. (1-22)
892/00905	Test Box for Load Moment Indicator	⇨ Fig 31. (1-22)
892/00923	Test Block for A.R.V.	⇨ Fig 58. (1-31)
892/01016	Ram Protection Sleeve for 25 mm Rod Diameter	⇨ Fig 44. (1-27)
892/01017	Ram Protection Sleeve for 30 mm Rod Diameter	⇨ Fig 44. (1-27)
892/01018	Ram Protection Sleeve for 40 mm Rod Diameter	⇨ Fig 44. (1-27)
892/01019	Ram Protection Sleeve for 50 mm Rod Diameter	⇨ Fig 44. (1-27)
892/01020	Ram Protection Sleeve for 50 mm Rod Diameter	⇨ Fig 44. (1-27)
892/01021	Ram Protection Sleeve for 60 mm Rod Diameter	⇨ Fig 44. (1-27)
892/01022	Ram Protection Sleeve for 60 mm Rod Diameter	⇨ Fig 44. (1-27)
892/01023	Ram Protection Sleeve for 65 mm Rod Diameter	⇨ Fig 44. (1-27)
892/01024	Ram Protection Sleeve for 70 mm Rod Diameter	⇨ Fig 44. (1-27)
892/01025	Ram Protection Sleeve for 75 mm Rod Diameter	⇨ Fig 44. (1-27)
892/01026	Ram Protection Sleeve for 80 mm Rod Diameter	⇨ Fig 44. (1-27)
892/01027	Piston Seal Assembly Tool	⇨ Fig 47. (1-27)
926/15500	Rubber Spacer Blocks	⇨ Fig 21. (1-20)
992/09100	Spool Clamp	⇨ Fig 57. (1-31)
992/00800	Extractor for Rear Axle Pivot Pin	⇨ Fig 59. (1-32)
992/09300	Hexagon Spanner 55 mm A/F	⇨ Fig 55. (1-31)
992/09400	Hexagon Spanner 65 mm A/F	⇨ Fig 55. (1-31)
992/09500	Hexagon Spanner 75 mm A/F	⇨ Fig 55. (1-31)
992/09600	Hexagon Spanner 85 mm A/F	⇨ Fig 55. (1-31)
992/09700	Hexagon Spanner 95 mm A/F	⇨ Fig 55. (1-31)
992/09900	Hexagon Spanner 115 mm A/F	⇨ Fig 55. (1-31)
992/10000	Hexagon Spanner 125 mm A/F	⇨ Fig 55. (1-31)
992/12300	12V Mobile Oven	⇨ Fig 22. (1-20)
992/12400	24V Static Oven (2 Cartridge)	⇨ Fig 23. (1-20)
992/12800	Cut-Out Knife	⇨ Fig 24. (1-20)
992/12801	`L' Blades	⇨ Fig 25. (1-20)
993/68100	Slide Hammer Kit - see tool detail reference for content	⇨ Fig 12. (1-18)

Numerical List

Part Number:	Description:	Tool Detail Reference:
892/00298	Fluke Meter	⇨ *Fig 28. (1-22)*
892/00285	Hydraulic Temperature Probe	⇨ *Fig 29. (1-22)*
892/00284	Venture Microtach Digital Tachometer	⇨ *Fig 30. (1-22)*

Tool Detail Reference

Section B - Body and Framework

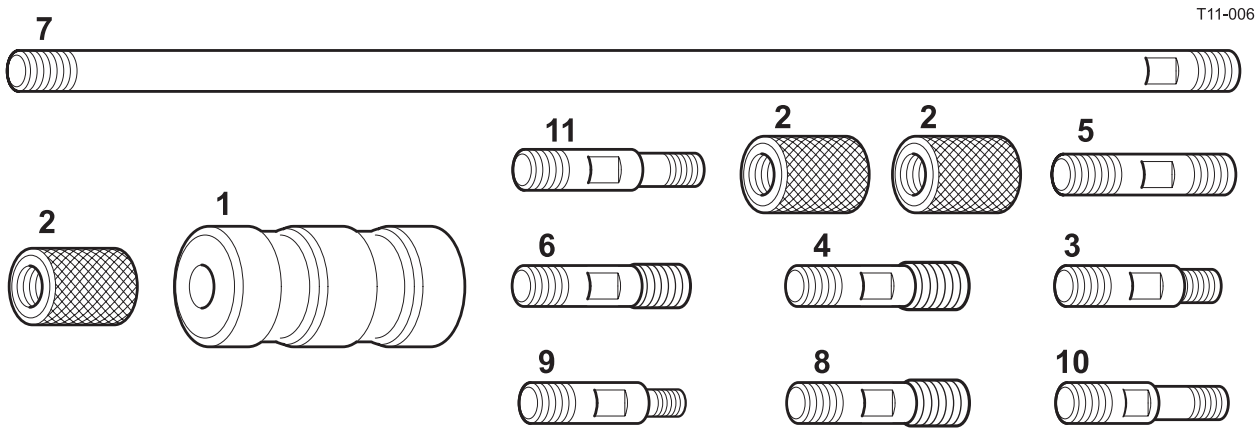


Fig 12. 993/68100 Slide Hammer Kit

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			

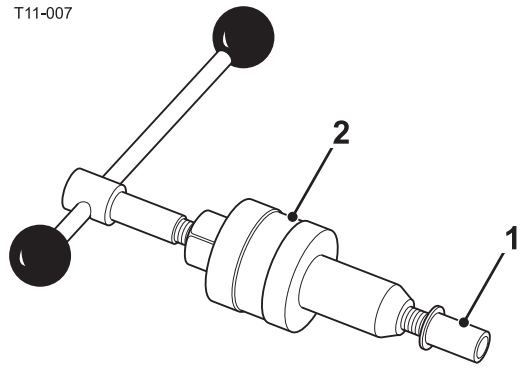


Fig 13. Rivet Nut Tool

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***)

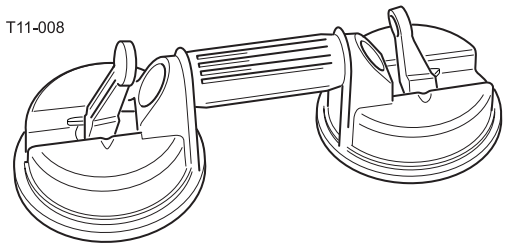


Fig 14. 892/00842 Glass Lifter

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

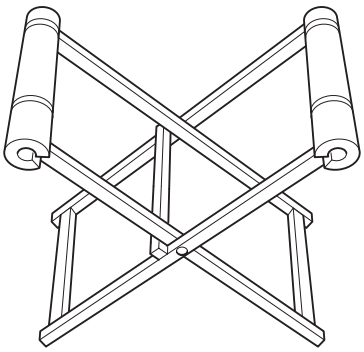


Fig 15. 892/00843 Folding Stand

Essential for preparing new glass prior to installation.

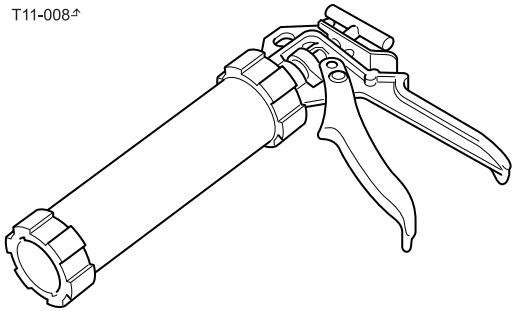


Fig 16. 892/00845 Cartridge Gun

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

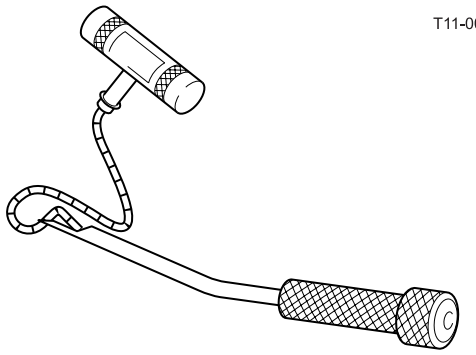


Fig 17. 892/00846 Glass Extractor (Handles)

Used with braided cutting wire to cut out broken glass. ⇨ *Fig 20. (1-20)*.

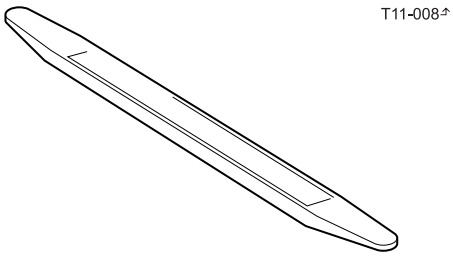


Fig 18. 892/00847 Nylon Spatula

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

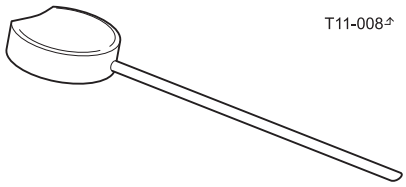


Fig 19. 892/00848 Wire Starter

Used to access braided cutting wire through original polyurethane seal. ⇨ *Fig 20. (1-20)*.

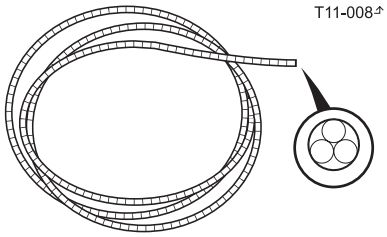


Fig 20. 892/00849 Braided Cutting Wire

Consumable heavy duty cut-out wire used with the glass extraction tool. ⇨ ***Fig 17. (1-19)***. Approx 25 m length.

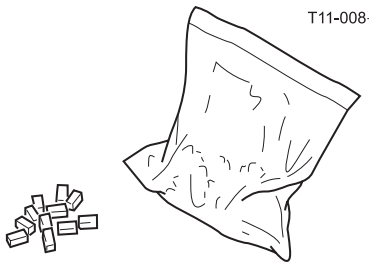


Fig 21. 926/15500 Rubber Spacer Blocks

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

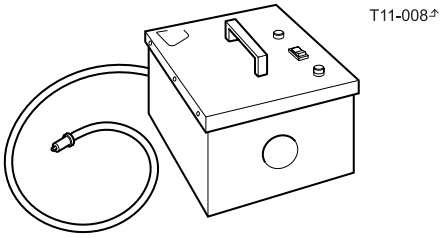


Fig 22. 992/12300 Mobile Oven 12V

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).

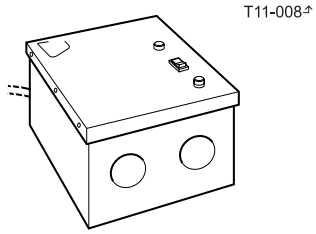


Fig 23. 992/12400 Static Oven 240V

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

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

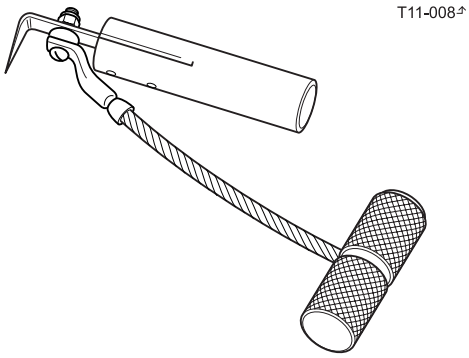


Fig 24. 992/12800 Cut-Out Knife

Used to remove broken glass.

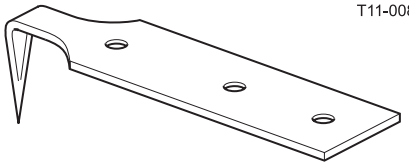


Fig 25. 992/12801 'L' Blades

25 mm (1 in.) cut. Replacement blades for cut-out knife. ⇨ ***Fig 24. (1-20)***. Unit quantity = 5 off.

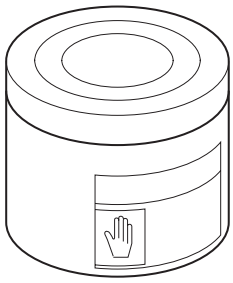


Fig 26. 4104/1310 Hand Cleaner

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

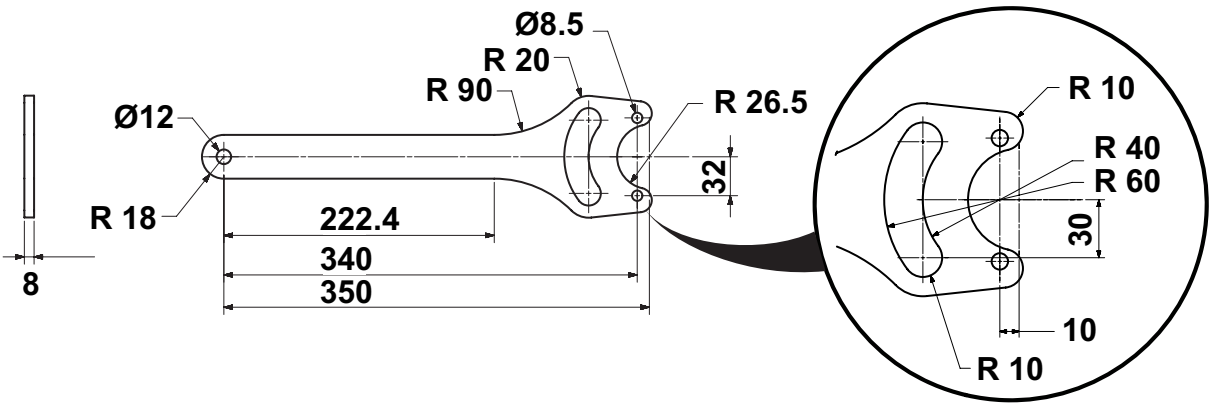


Fig 27. 332/V8611 Carriage Alignment Adjustment Tool

Section C- Electrics

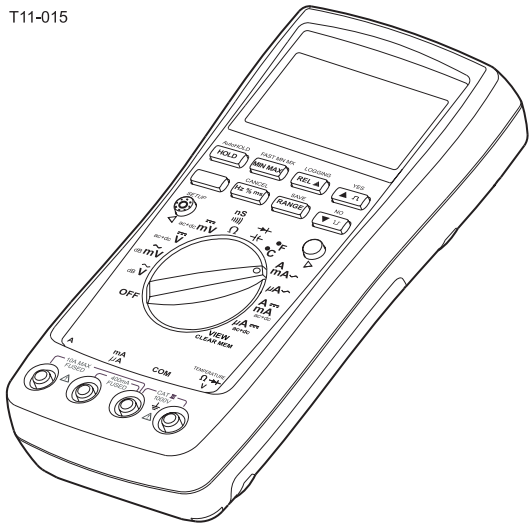


Fig 28. 892/00298 Fluke Meter

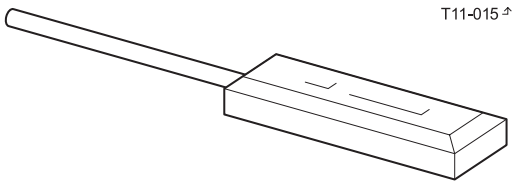


Fig 29. 892/00285 Hydraulic Temperature Probe

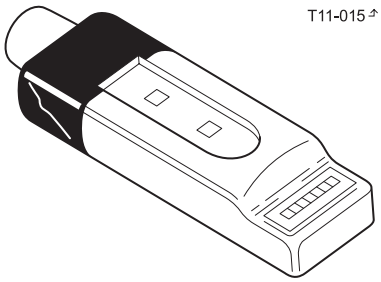


Fig 30. 892/00284 Venture Microtach Digital Tachometer

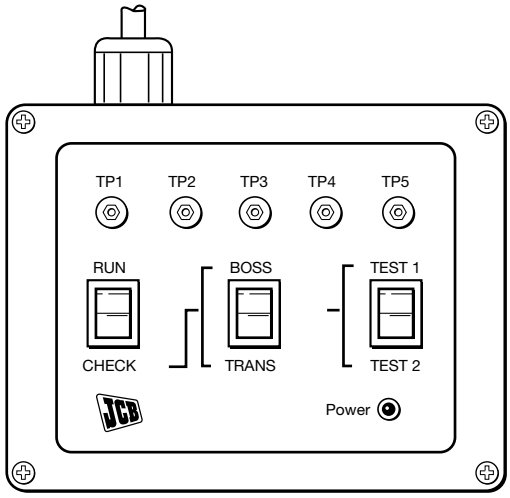


Fig 31. 892/00905 - Test Box for Load Moment Indicator

⇨ *Electrical Repair Kit (1-23)*		
1		Electrical Repair Kit
2A	7212/0002	2 Way Pin Housing
2B	7212/0004	2 Way Pin Retainer
2C	7212/0003	2 Way Socket Retainer
2D	7212/0001	2 Way Socket Connector
3A	7213/0002	3 Way Pin Housing
3B	7213/0004	3 Way Pin Retainer
3C	7213/0003	3 Way Socket Retainer
3D	7213/0001	3 Way Socket Connector
4A	7213/0006	3 Way Pin Housing (DT)
4B	7213/0008	3 Way Pin Retainer (DT)
4C	7213/0007	3 Way Socket Retainer (DT)
4D	7213/0005	3 Way Socket Connector (DT)
5A	7214/0002	4 Way Pin Housing
5B	7214/0004	4 Way Pin Retainer
5C	7214/0003	4 Way Socket Retainer
5D	7214/0001	4 Way Socket Connector
6A	7216/0002	6 Way Pin Housing
6B	7216/0004	6 Way Pin Retainer
6C	7216/0003	6 Way Socket Retainer
6D	7216/0001	6 Way Socket Connector
7A	7218/0002	8 Way Pin Housing
7B	7218/0004	8 Way Pin Retainer
7C	7218/0003	8 Way Socket Retainer
7D	7218/0001	8 Way Socket Connector
8A	7219/0002	10 Way Pin Housing
8B	7219/0004	10 Way Pin Retainer
8C	7219/0003	10 Way Socket Retainer
8D	7219/0001	10 Way Socket Connector
9A	7219/0006	14 Way Pin Housing
9B	7219/0008	14 Way Pin Retainer
9C	7219/0007	14 Way Socket Retainer
9D	7219/0005	14 Way Socket Connector
10	7210/0001	Dummy Plug
11	7210/0002	Wire Seal (1.4 - 2.2 mm dia.)
12	7210/0003	Wire Seal (2.2 - 2.9 mm dia.)

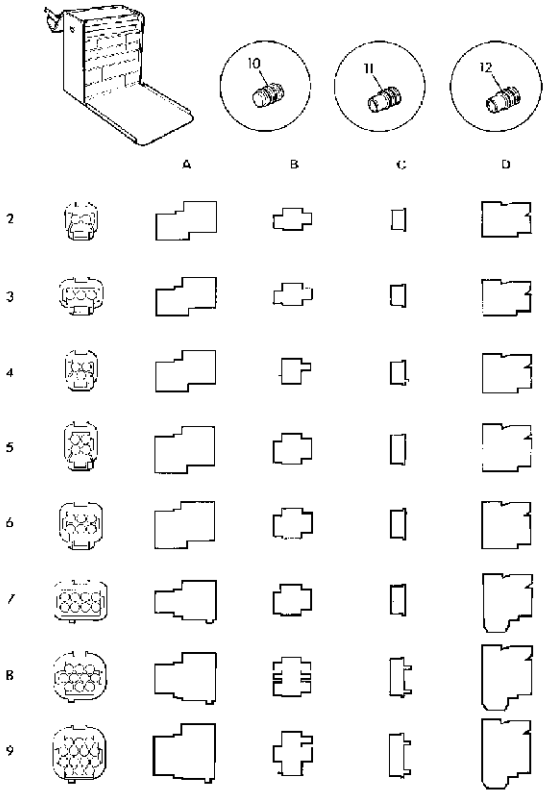


Fig 32. Electrical Repair Kit

Fig 33. 892/00350 Butane Heater Assembly

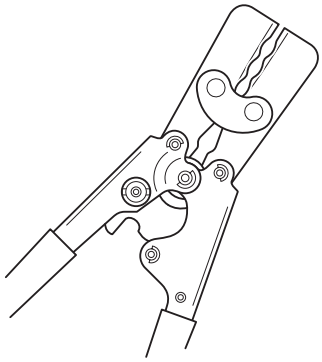


Fig 34. 892/00349 Crimp Tool

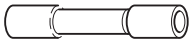


Fig 35. Splice

892/00351	Splice 0.5-1.5 mm (Red)
892/00352	Splice 1.5-2.5 mm (Blue)
892/00353	Splice 3.0-6.0 mm (Yellow)

Section E - Hydraulics

T11-010

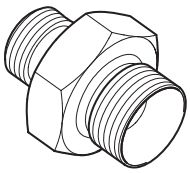


Fig 36. Male Adaptors

	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.

T11-010

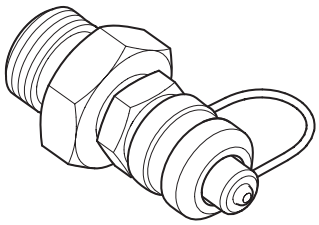


Fig 37. Pressure Test Adapters

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

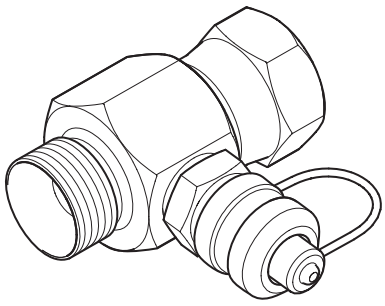


Fig 38. Pressure Test 'T' Adapters

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

T11-010

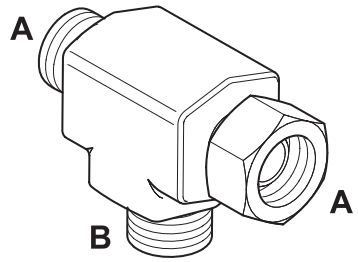


Fig 39. 'T' Adapters

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**)

T11-010

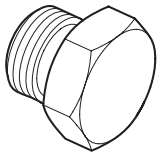


Fig 40. Female Blanking Caps

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

T11-010

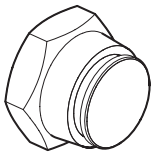


Fig 41. Male Cone Blanking Caps

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

T11-010

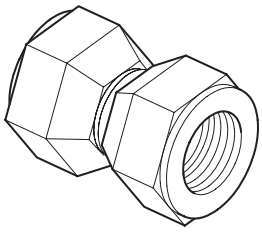


Fig 42. Female Connectors

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

T11-010

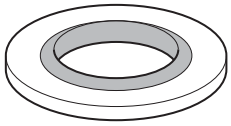


Fig 43. Bonded Washers

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

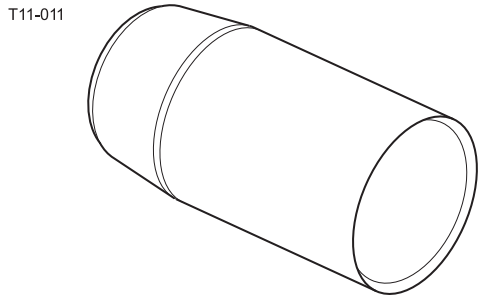


Fig 44. Ram Protection Sleeves

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

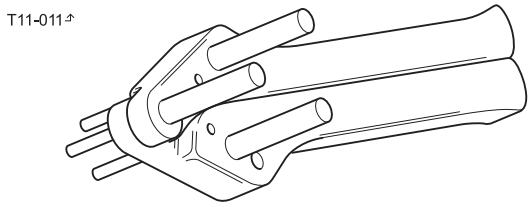


Fig 45. 892/00334 Ram Seal Fitting Tool

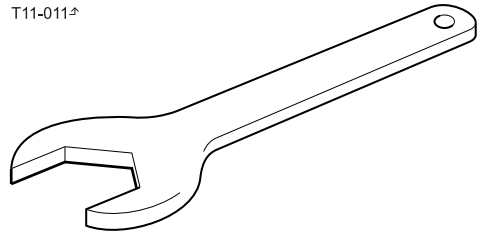


Fig 46. Hexagon Spanners for Ram Pistons and End Caps

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

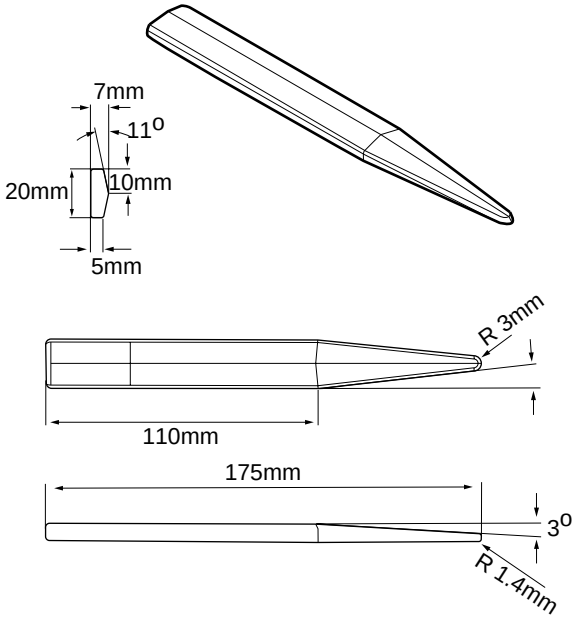
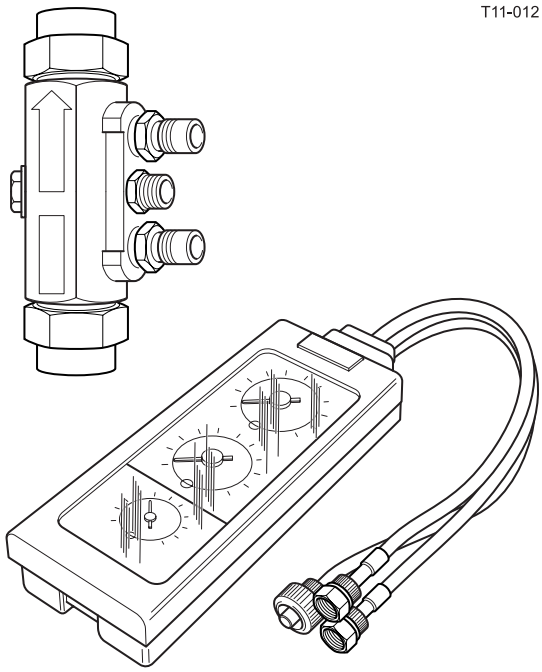
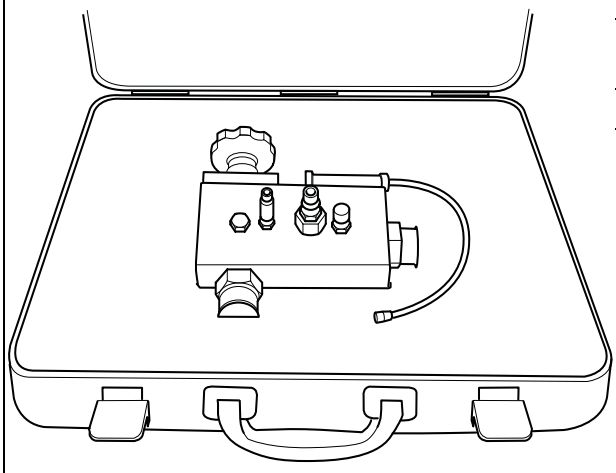
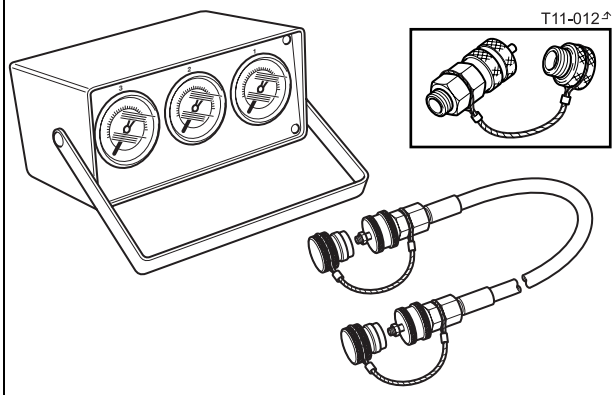
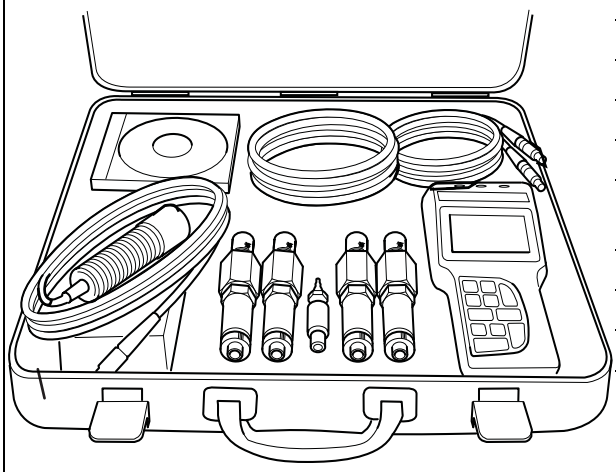


Fig 47. 892/01027 Piston Seal Assembly Tool

Note: *No longer available, refer to 998/11046 JCB ServiceMaster Flow Test Kit.* ⇨ *Fig 49. (1-28)**.*	892/00268	Flow Monitoring Unit
 **Fig 48. 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 49. 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 51. (1-29)*.	892/00201	Replacement Gauge 0-20 bar (0-300 lbf/in²)
 **Fig 50. 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 51. 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

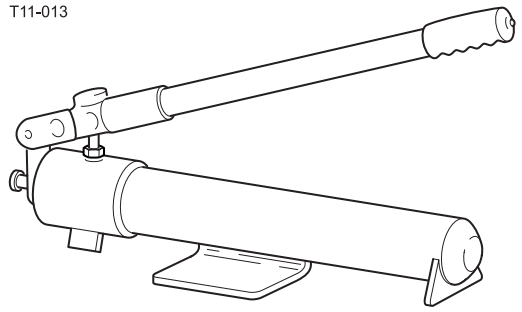


Fig 52. Hand Pump Equipment

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)

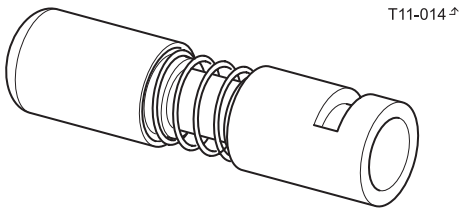


Fig 53. 892/00881 Valve Spool Seal Fitting Tool

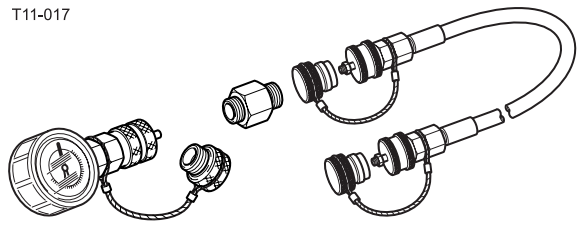


Fig 54. Hydraulic Circuit Test Gauges and Connections

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

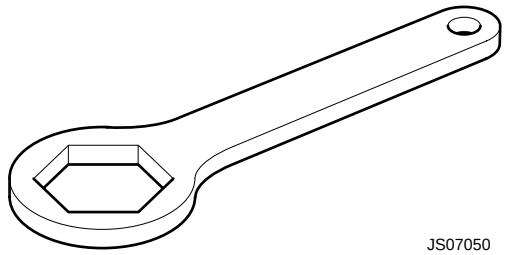


Fig 55. Ram Piston Nut Removal/Fitting Spanner

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

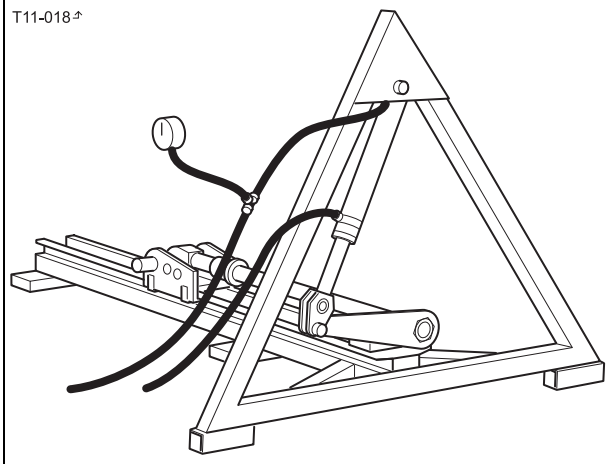


Fig 56. Ram Piston Nut Removal/Fitting Rig

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	1.1/4in Pivot Pin

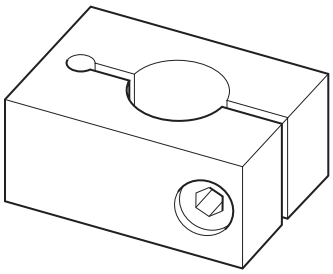


Fig 57. Spool Clamps

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

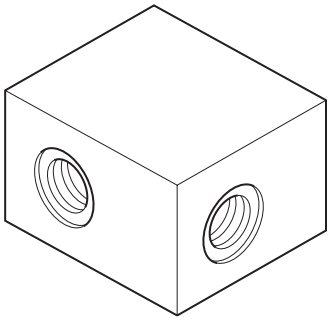


Fig 58. 892/00923 - Test Block for A.R.V.

Section F - Transmission

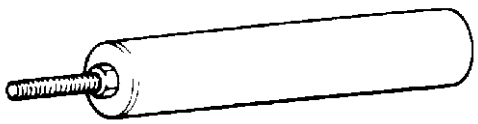


Fig 59. 992/00800 - Extractor for Rear Axle Pivot Pin

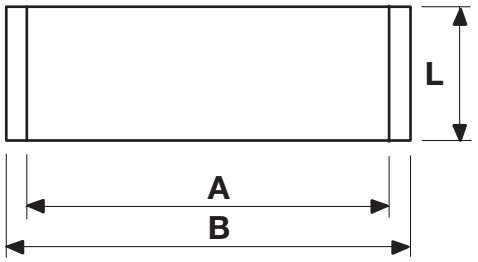


Fig 60. Mandrel for bearing support and sealing ring

Motor	Dimension	Size	
Front (MSE-05)		mm	inches
	A	45	1.78
	B	55	2.16
	L	110	4.33
Rear (MSE-02)			
	A	60	2.36
	B	70	2.75
	L	120	4.72

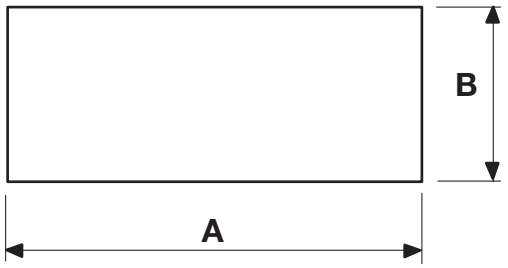


Fig 61. Mandrel to install the bearing outer races

Motor	Dimension	Size	
Front (MSE-05)		mm	inches
	A	109 (99)	4.29 (3.90)
	B	50	1.97
Rear (MSE-02)			
	A	89	3.5
	B	50	1.97

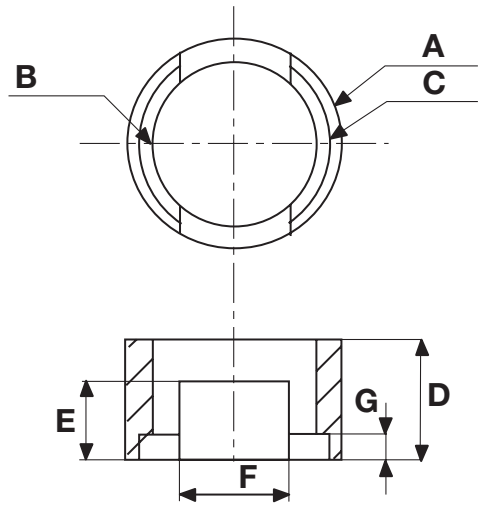


Fig 62. Tool to install the bearing support circlip

Motor	Dimension	Size	
Front (MSE-05)		**mm**	**inches**
	A	120	4.72
	B	100	3.94
	C	105	4.13
	D	72	2.83
	E	58	2.28
	F	60	2.36
	G	15	.59
Rear (MSE-02)		**mm**	**inches**
	A	70	2.75
	B	55	2.16
	C	0	0
	D	100	3.94
	E	30	1.18
	F	50	1.97
	G	0	0

Section H - Steering

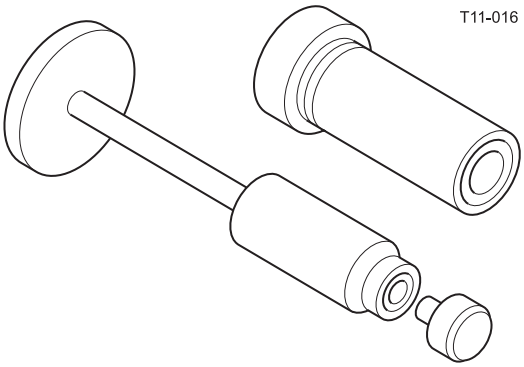


Fig 63. 892/00180 - Seal Fitting Tool

Seal Fitting Tool for fitting 'O' ring and back-up ring to Danfoss Orbitrol Unit.

892/00181 - Replacement Plastic Boss

Section K - Engine

For details of engine service tools refer to:

– Publication No. 9806/4020 (Tier 3 Engine Service Manual)

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