

VM 115 - TIER III

Service Manual - VM 115 - TIER III

[Section 1 - General Information](#)

[Section 2 - Care and Safety](#)

[Section 3 - Maintenance](#)

[Section B - Body and Framework](#)

[Section C - Electrics](#)

[Section E - Hydraulics](#)

[Section F - Transmission](#)

[Section H - Steering](#)

[Section K - Engine](#)

[Section L - Vibration](#)



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World Class
Customer Support

General Information

Service Manual - VM 115 - TIER III

[Section 1 - General Information](#)

[Section 2 - Care and Safety](#)

[Section 3 - Maintenance](#)

[Section B - Body and Framework](#)

[Section C - Electrics](#)

[Section E - Hydraulics](#)

[Section F - Transmission](#)

[Section H - Steering](#)

[Section K - Engine](#)

[Section L - Vibration](#)



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Notes:



Section 1 - General Information

Contents	Page No.
Introduction	
About this Manual	1-1
Machine Model and Serial Number	1-1
Using the Service Manual	1-1
Section Numbering	1-1
Left Side, Right Side	1-2
Cab/Canopy	1-2
Cross References	1-2
Identifying Your Machine	1-3
Machine Identification Plate	1-3
Component Identification Plates	1-4
JCB Engine Identification	1-5
Service Tools	
Numerical List	1-7
Tool Detail Reference	1-9
Section B - Body and Framework	1-9
Section C - Electrics	1-13
Section E - Hydraulics	1-14
Torque Settings	
Zinc Plated Fasteners and Dacromet Fasteners	1-19
Introduction	1-19
Bolts and Screws	1-19
Vibromax Specific Torque Settings	1-23
Hydraulic Connections	1-25
'O' Ring Face Seal System	1-25
'Torque Stop' Hose System	1-28

Introduction

About this Manual

Machine Model and Serial Number

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

- VM 115 from SN 1705097 onwards.

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.

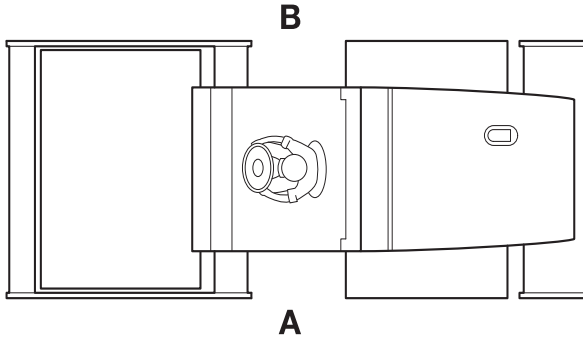


Fig 1.

Cab/Canopy

T1-003_2

This manual frequently makes references to the cab. For instance, 'do not operate the machine without a manual in the cab'. It should be noted that these statements also apply to canopy build machines.

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 preceded 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. → [Fig 2.](#) (1-3).

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

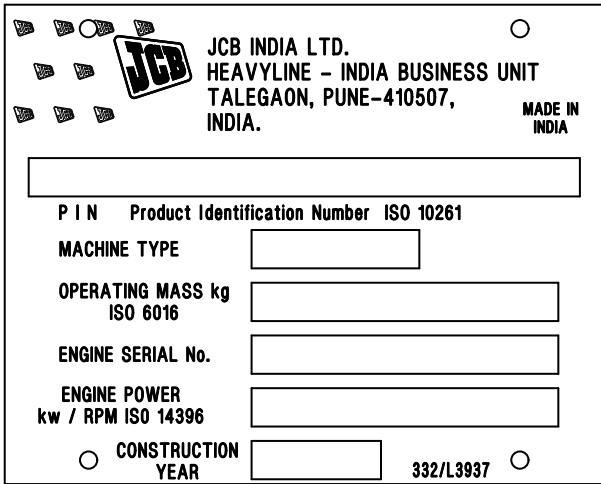


Fig 2.

Typical Product Identification Number (PIN)

1	2	3	4
JCB	VM115	C	01801240

- 1 World Manufacturer Identification (JCB)
- 2 Machine Type and Model (VM115 = VM115)
- 3 Randomly Generated Check Letter
- 4 Machine Serial Number (01801240)

Component Identification Plates

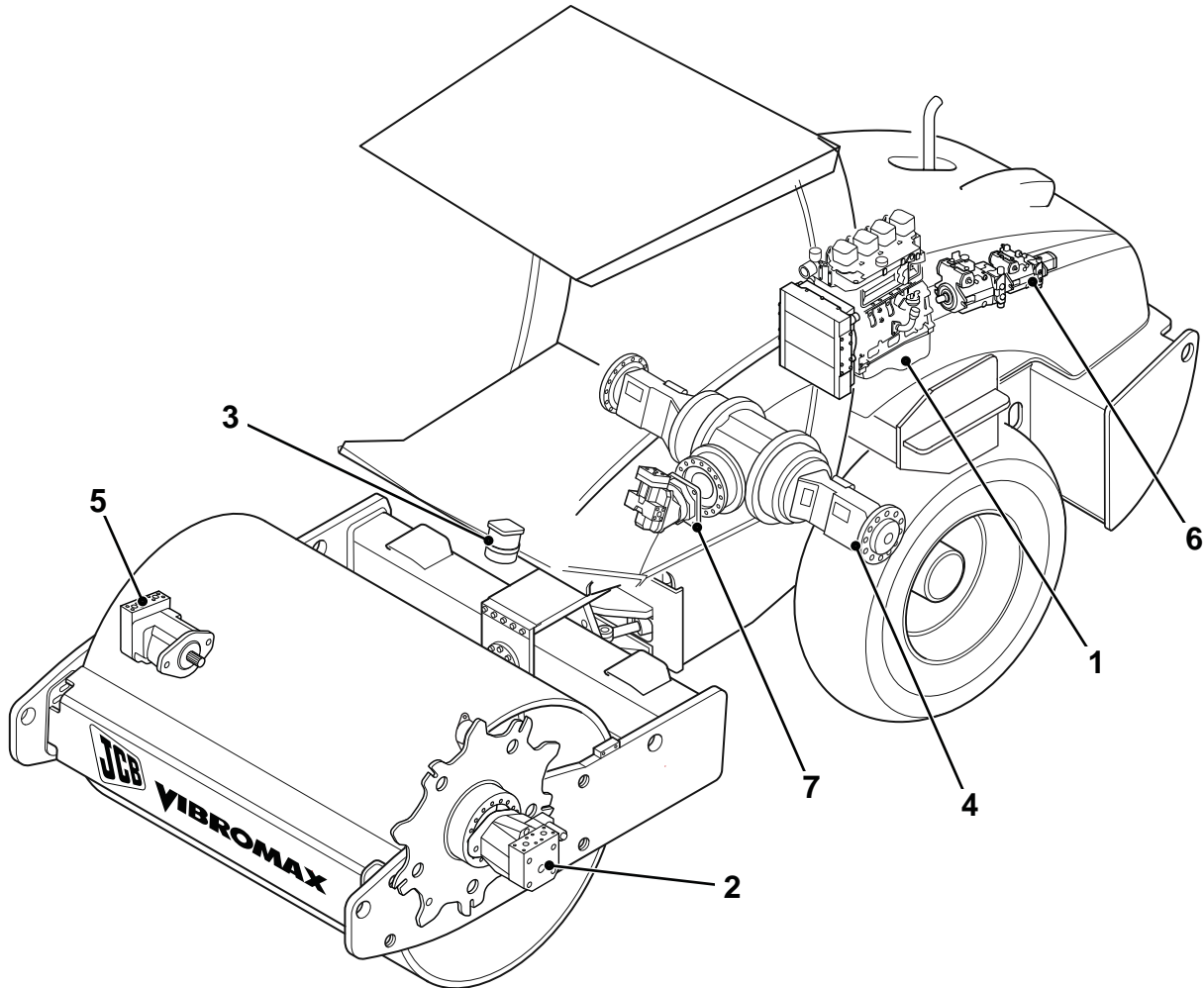


Fig 3.

844210-2

- 1 Engine serial number
- 2 Drum drive motor serial number
- 3 Steering unit serial number
- 4 Rear axle serial number
- 5 Vibration motor serial number
- 6 Hydraulic pump serial number
- 7 Axle hydraulic drive motor serial number

JCB Engine Identification

Engine Data Plate

Each JCB Engine has an emissions legislation table.

⇒ [Fig 4.](#) (□ 1-5)

IMPORTANT ENGINE INFORMATION		JCB INDIA LTD	
JCB	P/N: SA320/45000	Serial No. : H00000001	Date: YZA
Type Approval : CT 1 EF 0161 DATED: 25/06/2010			
Bharat Stage - II CEV	Rated kW : 57.0 @ 2200 RPM	SEQ. : 0010000001	
Displacement: 4.4 L	Valve Lash Cold (mm) : Exhaust 0.60 Inlet 0.23		
Idle: 350 RPM	Idle speed set with transmission in neutral and Air Conditioning off.		
This engine conforms to Gazette of India notification GSR 270(E) dt.10/04/07 & GSR 642(E) dt 25/07/2000 Certified to operate on diesel fuel.			
JCB INDIA LTD, 23/7 Mathura Road, Ballabgarh-121004, Haryana, INDIA			320/09981

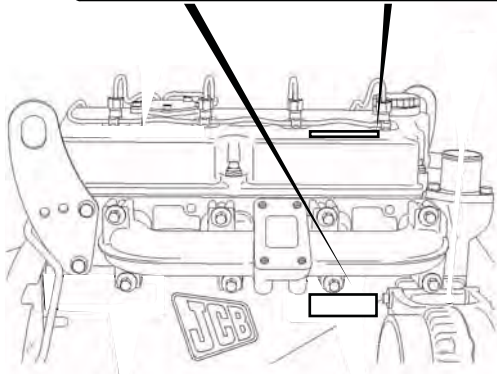


Fig 4.

D021990



Section 1 - General Information

Introduction

Identifying Your Machine

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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
-	Bonded Washers - see Tool Detail Reference (Section 1) for content	E
-	Female Cone Blanking Caps - see Tool Detail Reference (Section 1) for content	E
-	Female Connectors - see Tool Detail Reference (Section 1) for content	E
-	Hydraulic Flow Test Equipment - see Tool Detail Reference (Section 1) for content	E
-	Male Adapters - BSP x BSP - see Tool Detail Reference (Section 1) for content	E
-	Male Adapters - BSP x NPT (USA only) - see Tool Detail Reference (Section 1) for content	E
-	Male Cone Blanking Caps - see Tool Detail Reference (Section 1) for content	E
-	Pressure Test Points - Adaptors - see Tool Detail Reference (Section 1) for content	E
-	Pressure Test Points - 'T' Adaptors - see Tool Detail Reference (Section 1) for content	E
-	Rivet Nut Tool - see Tool Detail Reference (Section 1) for content	B
4104/1310	Hand Cleaner	B
892/00253	Hydraulic Circuit Pressure Test Kit - see Tool Detail Reference (Section 1) for content	E
892/00254	Hose	E
892/00279	Gauge	E
892/00280	Gauge	E
892/00284	Digital Tachometer	C
892/00285	Hyd. Oil Temperature Probe	C
892/00298	Fluke Meter	C
892/00346	Gauge	E
892/00347	Connector	E
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



Section 1 - General Information Service Tools

Numerical List

Part Number	Description	See Section
892/00848	Wire Starter	B
892/00849	Braided Cutting Wire	B
892/01246	Vibromax male to JCB female threaded adaptor	E
892/01247	JCB male to Vibromax female threaded adaptor	E
892/12345	Frequency and Vibration Measuring Tool	E
926/15500	Rubber Spacer Blocks	B
992/12300	12V Mobile Oven	B
992/12400	24V Static Oven (2 Cartridge)	B
992/12800	Cut-Out Knife	B
992/12801	'L' Blades	B
993/68100	Slide Hammer Kit - see Tool Detail Reference (Section 1) for content	B

Tool Detail Reference

Section B - Body and Framework

Note: Not all service tools are illustrated.

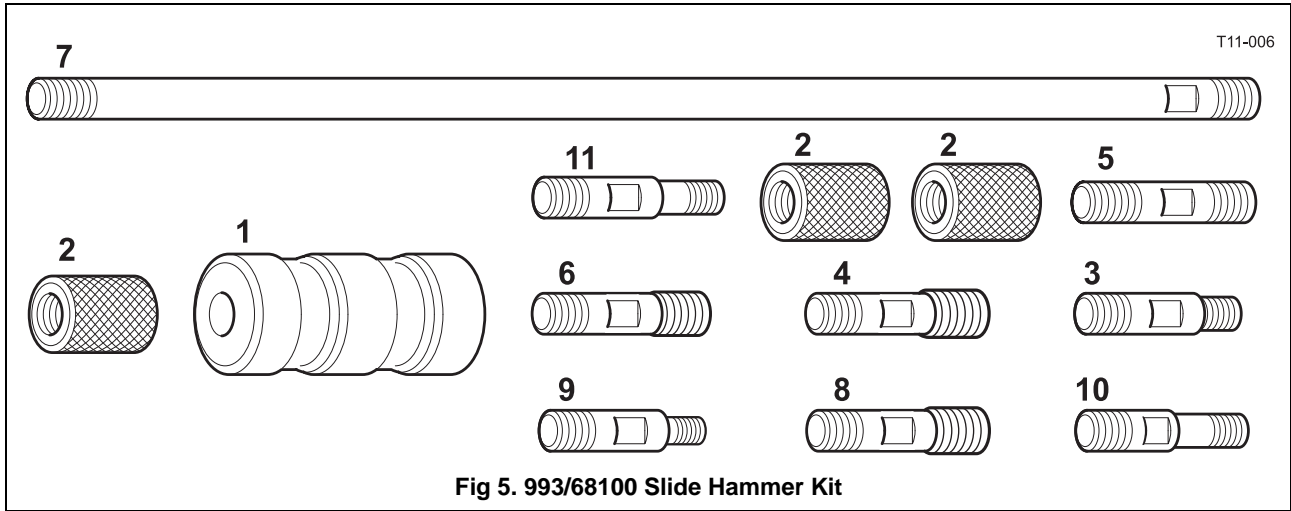


Fig 5. 993/68100 Slide Hammer Kit

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			

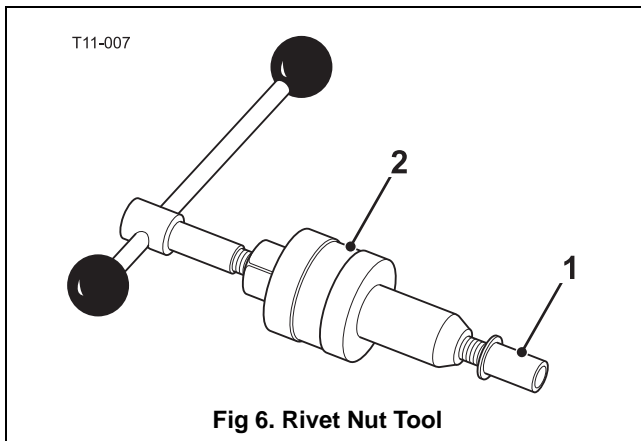


Fig 6. Rivet Nut Tool

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.bollhoff.com)

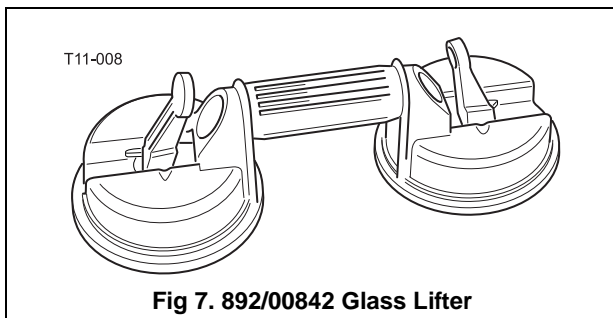


Fig 7. 892/00842 Glass Lifter

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

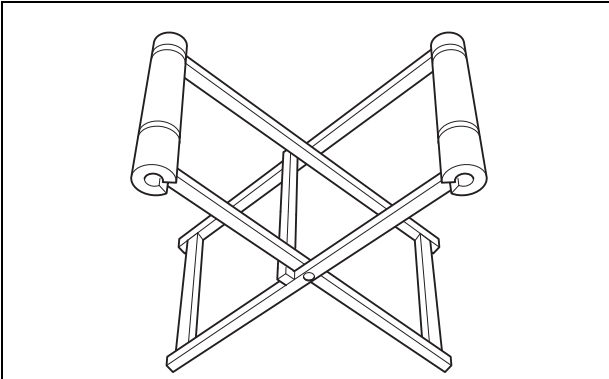
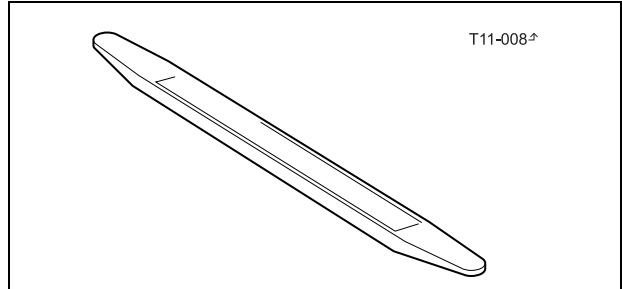


Fig 8. 892/00843 Folding Stand

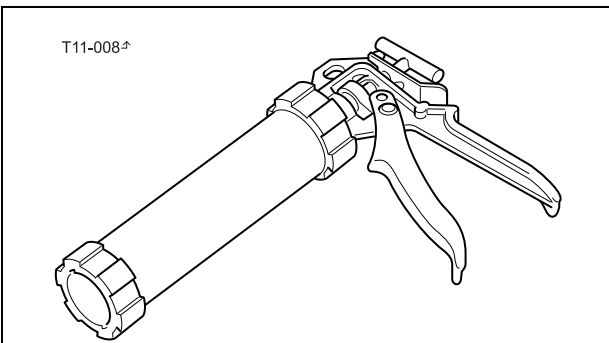
Essential for preparing new glass prior to installation.



T11-008[±]

Fig 11. 892/00847 Nylon Spatula

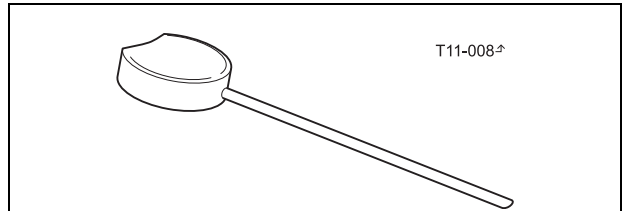
General tool used for smoothing sealants - also used to re-install glass in rubber glazing because metal tools will chip the glass edge.



T11-008[±]

Fig 9. 892/00845 Cartridge Gun

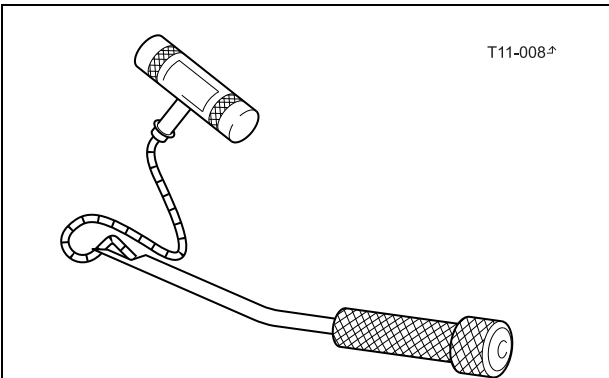
Hand operated. Essential for the application of sealants, polyurethane materials etc.



T11-008[±]

Fig 12. 892/00848 Wire Starter

Used to access braided cutting wire through original polyurethane seal. → [Fig 13.](#) (□ 1-11).



T11-008[±]

Fig 10. 892/00846 Glass Extractor (Handles)

Used with braided cutting wire to cut out broken glass. → [Fig 13.](#) (□ 1-11).

T11-008[±]

Fig 13. 892/00849 Braided Cutting Wire

Consumable heavy duty cut-out wire used with the glass extraction tool. ⇒ [Fig 10.](#) (□ 1-10). Approx 25 m length.

T11-008[±]

Fig 16. 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.

T11-008[±]

Fig 14. 926/15500 Rubber Spacer Blocks

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

T11-008[±]

Fig 17. 992/12800 Cut-Out Knife

Used to remove broken glass.

T11-008[±]

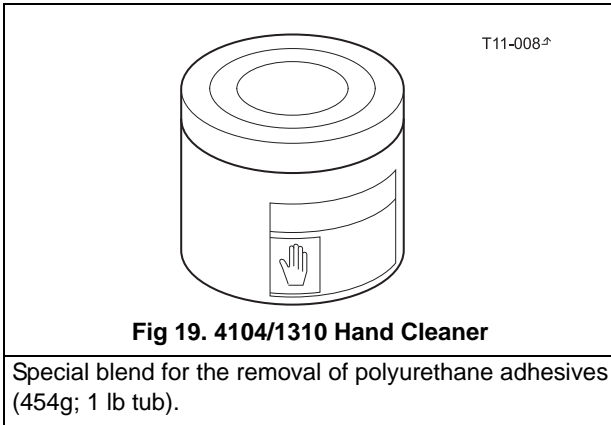
Fig 15. 992/12300 Mobile Oven 12V

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).

T11-008[±]

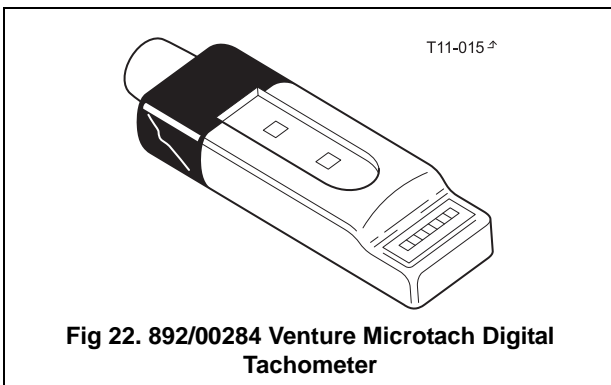
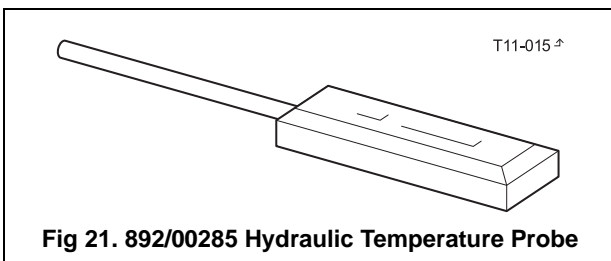
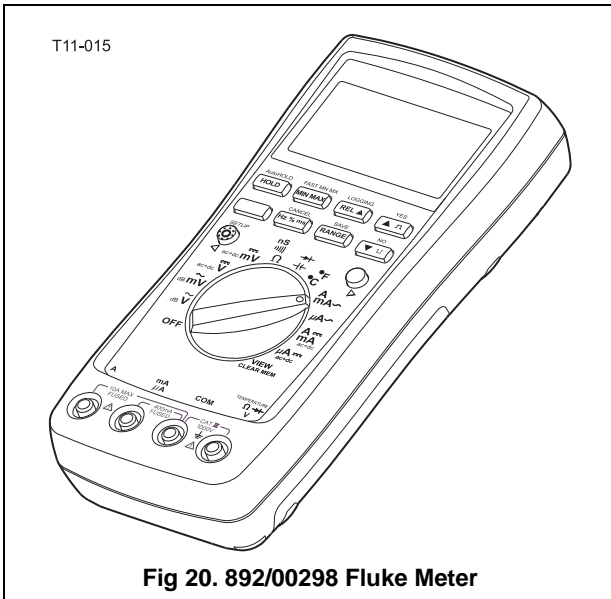
Fig 18. 992/12801 'L' Blades

25 mm (1 in.) cut. Replacement blades for cut-out knife. ⇒ [Fig 17.](#) (□ 1-11). Unit quantity = 5 off.



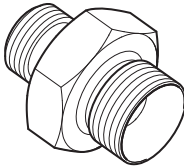
Section C - Electrics

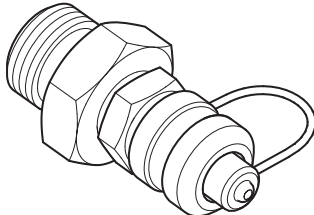
Note: Not all service tools are illustrated.

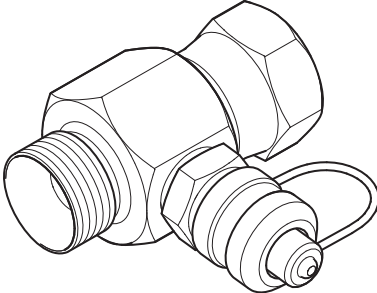


Section E - Hydraulics

Note: Not all service tools are illustrated.

<p>T11-010</p>  <p>Fig 23. Male Adaptors</p>		Male Adaptors - 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.	
	Male Adaptors - BSP x NPT (USA only)	1606/0009	3/4 in. x 1/2 in.
816/00439	3/8 in. x 1/4 in.	1604/2055	3/4 in. x 3/4 in.
816/00440	1/2 in. x 1/4 in.	1606/0012	3/4 in. x 1 in.
816/15007A	3/8 in. x 3/8 in.	1606/0014	3/4 in. x 1.1/4 in.
816/15008	1/2 in. x 3/8 in.	1606/0015	1 in. x 1.1/4 in.

<p>T11-010[±]</p>  <p>Fig 24. Pressure Test Adaptors</p>	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

<p>T11-010[±]</p>  <p>Fig 25. Pressure Test 'T' Adaptors</p>	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

<p>T11-010[±]</p> <p>Fig 26. 'T' Adapters</p>	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)

<p>T11-010[±]</p> <p>Fig 27. Female Blanking Caps</p>	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

<p>T11-010[±]</p> <p>Fig 28. Male Cone Blanking Caps</p>	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

<p>T11-010[±]</p> <p>Fig 29. Female Connectors</p>	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

<p>T11-010[±]</p> <p>Fig 30. Bonded Washers</p>	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

<p style="text-align: right;">T11-012</p> <p style="text-align: center;">Fig 31. Flow Test Equipment</p>	892/00268	Flow Monitoring Unit
	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
	1604/0008	Adapter 1 in M x 3/4 in M BSP
816/20013	Adapter 3/4 in F x 1 in M BSP	

<p style="text-align: right;">T11-012⁺</p> <p style="text-align: center;">Fig 32. 892/00253 Hydraulic Circuit Pressure Test Kit</p>	892/00201	Replacement Gauge 0-20 bar (0-300 lbf/in ²)
	892/00202	Replacement Gauge 0-40 bar (0-600 lbf/in ²)
	892/00203	Replacement Gauge 0-400 bar (0-6000 lbf/in ²)
	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

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