



Service Manual Loadall

Models:

520-50
from Serial No. 754001

525-50
from Serial No. 789308

525-50S
from Serial No. 1037581

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Product: JCB 520-50,525-50,525-50S Loadall Telescopic Handler Service Repair Manual
Full Download: <https://www.arepairmanual.com/downloads/jcb-520-50525-50525-50s-loadall-telescopic-handler-service-repair-manual/>

Sample of manual. Download All 282 pages at:
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Introduction

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

These personnel should have a sound knowledge of workshop practice, safety procedures, and general techniques associated with the maintenance and repair of hydraulic earthmoving equipment.

Renewal of oil seals, gaskets, etc., and any component showing obvious signs of wear or damage is expected as a matter of course. It is expected that components will be cleaned and lubricated where appropriate, and that any opened hose or pipe connections will be blanked to prevent excessive loss of hydraulic fluid and ingress of dirt. Finally, please remember above all else **SAFETY MUST COME FIRST!**

The manual is compiled in sections, the first three are numbered and contain information as follows:

- 1** = **General Information** - includes torque settings and service tools.
- 2** = **Care & Safety** - includes warnings and cautions pertinent to aspects of workshop procedures etc.
- 3** = **Routine Maintenance** - includes service schedules and recommended lubricants for all the machine.

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

- A** = **Attachments**
- B** = **Body & Framework** ...etc.

The page numbering in each alphabetically coded section is not continuous. This allows for the insertion of new items in later issues of the manual.

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

READ the section contents to locate machine types, machine type identification **IS NOT** listed on individual pages.

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

Where a torque setting is given as a single figure it may be varied by plus or minus 3%. Torque figures indicated are for dry threads, hence for lubricated threads may be reduced by one third.

'Left Hand' and 'Right Hand' are as viewed from the rear of the machine facing forwards.

This Service Manual covers the following machines:

520-50 (520 N. Am.) - from Machine Serial Number 754001

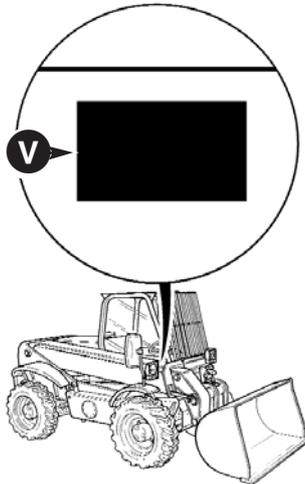
525-50 - from Machine Serial Number 789308

525-50S - from Machine Serial Number 1037581

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Identification Plate

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



430250

Explanation of Vehicle Identification Number (VIN)

SLP52050RE0754001

A B C D E

A	World Manufacturer Identification	SLP = JCB
B	Machine Model	520-50
C	Year of Manufacture	S
	P = 1993	V = 1997
	R = 1994	W = 1998
	S = 1995	X = 1999
	T = 1996	Y = 2000
D	Manufacturing Location	E = England
E	Machine Serial Number	0754001

Machine Model Explanation

520 - 50
F G H

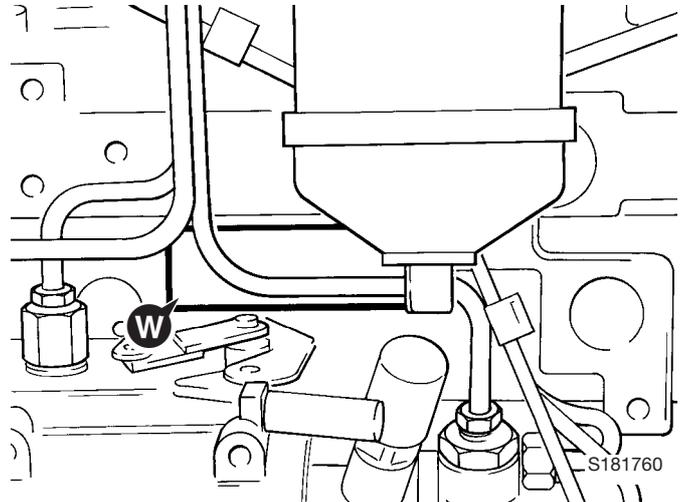
- F** 500 Series machine range
- G** 2.0 tonnes lift capacity
- H** 5.0 metres lift height

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.

Unit Identification

The engine serial number is stamped on label **W** which is fastened to the right side of the cylinder block, near the fuel filter.



Explanation of Engine Identification Number

AA 50261 U 500405 P
A B C D E

A Engine Type:

A series

- AK = 4 cylinder turbo - low emission, stage 1
- AR = 4 cylinder naturally aspirated - low emission, stage 1

R Series

- RE = 4 cylinder naturally aspirated, low emission, stage 2
- RG = 4 cylinder turbo, low emission stage 2
- RJ = 4 cylinder air to air charge cooled, low emission, stage 2

- B** Build Number
- C** Country of Manufacture
- D** Engine Serial Number
- E** Year of Manufacture

If service information or parts are required, the complete engine number should be quoted.

If there is also a number marked 'TPL No', this should be quoted also.

If a short engine has been fitted in service, two engine serial numbers and a TPL No. are stamped on the serial number plate as at **Z**. All the numbers should be quoted when requiring parts or information.

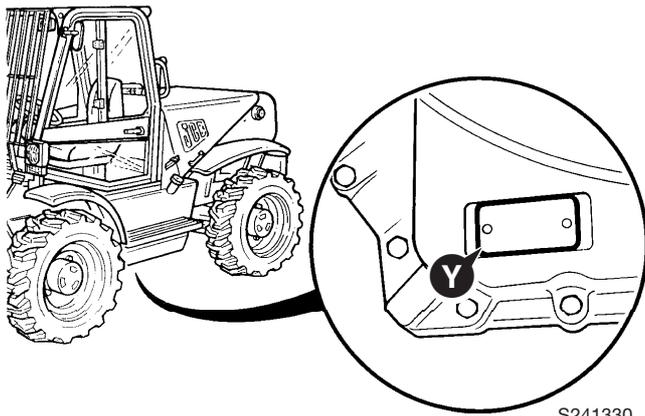
Note: Where the procedures in this manual differ according to engine types, the text and/or illustrations will specify which engine types apply.

Transmission and axle identification is shown on the next page.

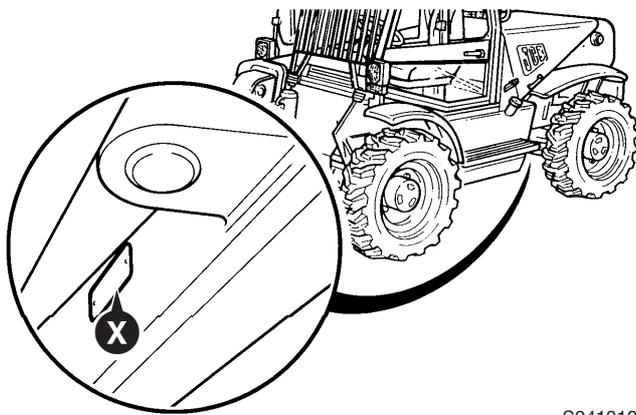
The Transmission serial number is stamped on label **Y** which is mounted on the rear face.

The rear axle serial number is stamped on plate **X** mounted to the front face of the axle.

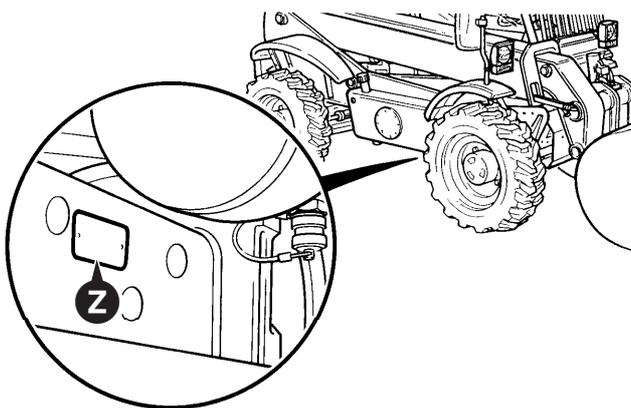
The front axle serial number is stamped on plate **Z** mounted on the rear face of the arm.



S241330



S241310



S241320

Torque Settings

Use only where no torque setting is specified in the text. Values are for dry threads and may be within three per cent of the figures stated. For lubricated threads the values should be REDUCED by one third.

UNF Grade 'S' Bolts

Bolt Size		Hexagon (A/F)	Torque Settings		
in	(mm)	in	Nm	kgf m	lbf ft
1/4	(6.3)	7/16	14	1.4	10
5/16	(7.9)	1/2	28	2.8	20
3/8	(9.5)	9/16	49	5.0	36
7/16	(11.1)	5/8	78	8.0	58
1/2	(12.7)	3/4	117	12.0	87
9/16	(14.3)	13/16	170	17.3	125
5/8	(15.9)	15/16	238	24.3	175
3/4	(19.0)	1 1/8	407	41.5	300
7/8	(22.2)	1 5/16	650	66.3	480
1	(25.4)	1 1/2	970	99.0	715
1 1/4	(31.7)	1 7/8	1940	198.0	1430
1 1/2	(38.1)	2 1/4	3390	345.0	2500

Metric Grade 8.8 Bolts

Bolt Size		Hexagon (A/F)	Torque Settings		
	(mm)	mm	Nm	kgf m	lbf ft
M5	(5)	8	7	0.7	5
M6	(6)	10	12	1.2	9
M8	(8)	13	28	3.0	21
M10	(10)	17	56	5.7	42
M12	(12)	19	98	10	72
M16	(16)	24	244	25	180
M20	(20)	30	476	48	352
M24	(24)	36	822	84	607
M30	(30)	46	1633	166	1205
M36	(36)	55	2854	291	2105

Rivet Nut Bolts/Screws

Bolt Size		Torque Settings (for steel rivet nuts)		
	(mm)	Nm	kgf m	lbf ft
M3	(3)	1.2	0.12	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

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

Service Tools

Numerical List		Page No			Page No
1406/0011	Bonded Washer	5-1	892/00223	Hand Pump	5-3
1406/0014	Bonded Washer	5-1	892/00225	Adapter - Impulse Extractor	6-2
1406/0021	Bonded Washer	5-1	892/00253	Pressure Test Kit	5-1
1406/0029	Bonded Washer	5-1	892/00255	1/4" BSP Test Point	5-3
1604/0003	Adapter	5-3	892/00256	3/8" BSP Test Point	5-3
1604/0004	Adapter	5-3	892/00257	1/2" BSP Test Point	5-3
1604/0006	Adapter	5-1	892/00258	5/8" BSP Test Point	5-3
1606/0003	Adapter	5-3	892/00259	1" BSP Test Point	5-3
1606/0004	Adapter	5-3	892/00260	1 1/4" BSP Test Point	5-3
1606/0007	Adapter	5-3	892/00261	5/8" UNF Test Point	5-3
1606/0008	Adapter	5-3	892/00262	1/4" M BSP 1/4" F BSP	5-1
1606/0009	Adapter	5-3	892/00263	5/8" M BSP 5/8" F BSP	5-1
1606/0012	Adapter	5-3	892/00264	3/4" M BSP 3/4" F BSP	5-1
1606/0014	Adapter	5-3	892/00265	1" M BSP 1" F BSP	5-1
1606/0015	Adapter	5-3	892/00268	Flow Monitoring Unit	5-1
1606/0017	Adapter	5-3	892/00269	Sensor Head	5-1
1612/0006	Adapter	5-1	892/00270	Load Valve	5-1
4101/0251	Threadlocker and Sealer	8-1	892/00271	Adapter	5-1
4101/0451	Threadlocker	8-1	892/00272	Adapter	5-1
4101/0552	Threadlocker and Sealer (High Strength)	8-1	892/00274	Adapter	5-3
4101/0651	Retainer (High Strength)	8-1	892/00275	Adapter	5-1
4102/0551	High Strength Threadlocker	8-1	892/00276	Adapter	5-1
4102/1201	Multi-Gasket	8-1	892/00277	Adapter	5-1
4102/1951	Threadseal	8-1	892/00279	Gauge	5-3
4104/0251	Activator (Aerosol)	8-1	892/00281	AVO Meter	4-1
4104/0253	Activator (Bottle)	8-1	892/00282	Shunt	4-1
4104/1557	Cleaner/Degreaser	8-1	892/00283	Tool Kit Case	4-1
816/00189	Blanking Cap	5-2	892/00284	Digital Tachometer	4-1
816/00190	Blanking Cap	5-2	892/00285	Hyd. Oil Temperature Probe	4-1
816/00193	Blanking Cap	5-2	892/00286	Surface Temperature Probe	4-1
816/00196	Blanking Cap	5-2	892/00295	End Float Setting Tool	6-1
816/00197	Blanking Cap	5-2	892/00301	Flow Test Adapter	6-1
816/00294	Blanking Cap	5-2	892/00302	Flow Test Adapter	6-1
816/15118	Pressure Test Adapter	5-3	892/00304	Flow Test Adapter	6-1
816/20008	Adapter	5-1	892/00333	Heavy Duty Socket	6-2
816/55038	Pressure Test Adapter	5-1	892/00706	Test Probe	5-3
816/55040	Pressure Test Adapter	5-1	892/00817	Heavy Duty Socket	6-2
816/50043	'T' Adapter	5-2	892/00818	Heavy Duty Socket	6-2
892/00039	Spool Clamp	5-2	892/00819	Heavy Duty Socket	6-2
892/00041	De-glazing Tool	7-1	* 892/00836	Lifting Wire Assembly	7-2
892/00047	'T' Adapter	5-2	892/00891	Seal Fitting Adaptor	6-2
892/00048	'T' Adapter	5-2	892/00923	Test Block for ARV	5-3
892/00049	'T' Adapter	5-2	892/00936	Timing Pin	7-2
892/00051	'T' Adapter	5-2	892/01054	Compression Adaptor	7-2
892/00055	Blanking Plug	5-2	892/01111	Rocker Assembly Tool	7-2
892/00056	Blanking Plug	5-2	892/01112	Timing Case Alignment Tool	7-2
892/00057	Blanking Plug	5-2	892/01113	Thermostat Fitting & Removal Tool	7-2
892/00058	Blanking Plug	5-2	892/01114	Camshaft Gear Timing Pin	7-2
892/00059	Blanking Plug	5-2	892/01115	Crankshaft Timing Pin	7-2
892/00060	Blanking Plug	5-2	992/02800	ARV Extractor	5-2
892/00071	Adapter	5-3	992/04000	Torque Multiplier	6-2
892/00074	Female Connector	5-2	992/04800	Drive Coupling Spanner	6-1
892/00075	Female Connector	5-2	992/07603	Replacer- Bearing Cup	6-1
892/00076	Female Connector	5-2	992/07608	Bearing Adapter	6-1
892/00077	Female Connector	5-2	992/07609	Bearing Adapter	6-1
892/00121	Discharge Tester	4-1	992/07610	Bearing Adapter	6-1
892/00137	Micro-Bore Hose	5-3	992/07611	Bearing Adapter	6-1
892/00179	Bearing Press	6-1	992/07612	Bearing Adapter	6-1
892/00180	Seal Fitting Tool	7-1	992/07613	Bearing Adapter	6-1
892/00181	Plastic Boss	7-1			

Service Tools (cont'd)

Numerical List		Page No
* 992/09500	Spanner	5-2
992/09700	Spanner	5-2
992/10100	Spool Clamp	5-2
992/10900	Test Harness for S.L.I	4-1
993/59300	2/4 Wheel Pressure Tester & Clamp	6-2
993/59500	Adapter - Impulse Extractor	6-2
993/99412	Adaptor Harness	4-1

The following parts are replacement items for kits and would normally be included in the kit numbers above.

Replacement item for kit no. 892/00180

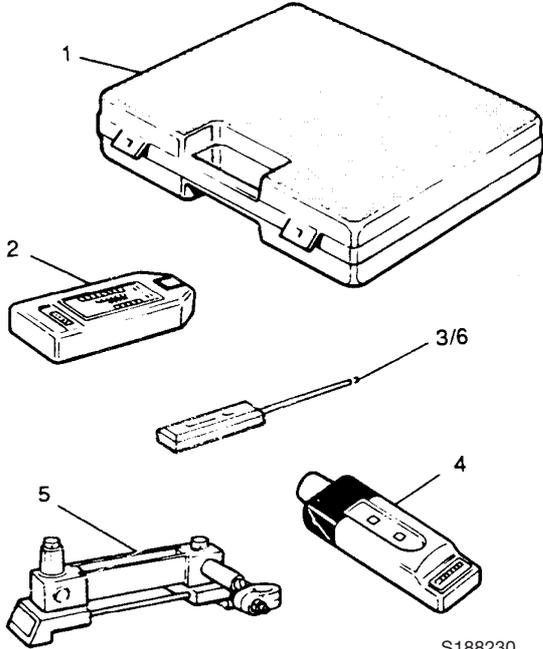
892/00181	Replacement Boss	7-1
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Replacement item for kit no. 892/00253

892/00201	Replacement Gauge	5-1
892/00202	Replacement Gauge	5-1
892/00203	Replacement Gauge	5-1
892/00254	Replacement Hose	5-1

Service Tools

Section C - Electrics



1 892/00283 Tool Kit Case

2 892/00281 AVO Meter

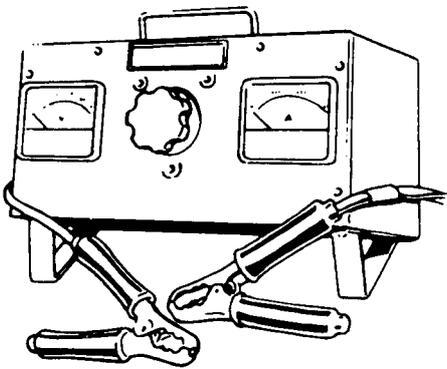
3 892/00286 Surface Temperature Probe

4 892/00284 Venture Microtach Digital Tachometer

5 892/00282 100 amp Shunt - open type

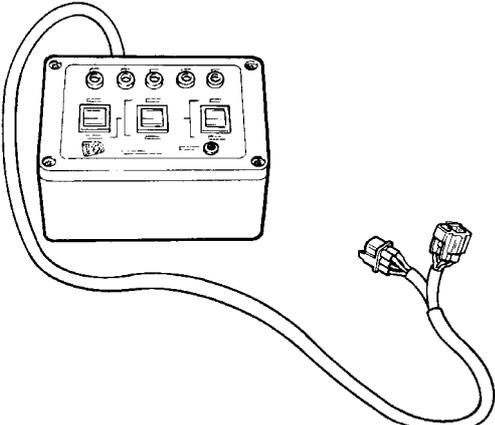
6 892/00285 Hydraulic Temperature Probe

S188230



892/00121 High Rate Discharge Tester (400 amps) for testing battery condition

S188240



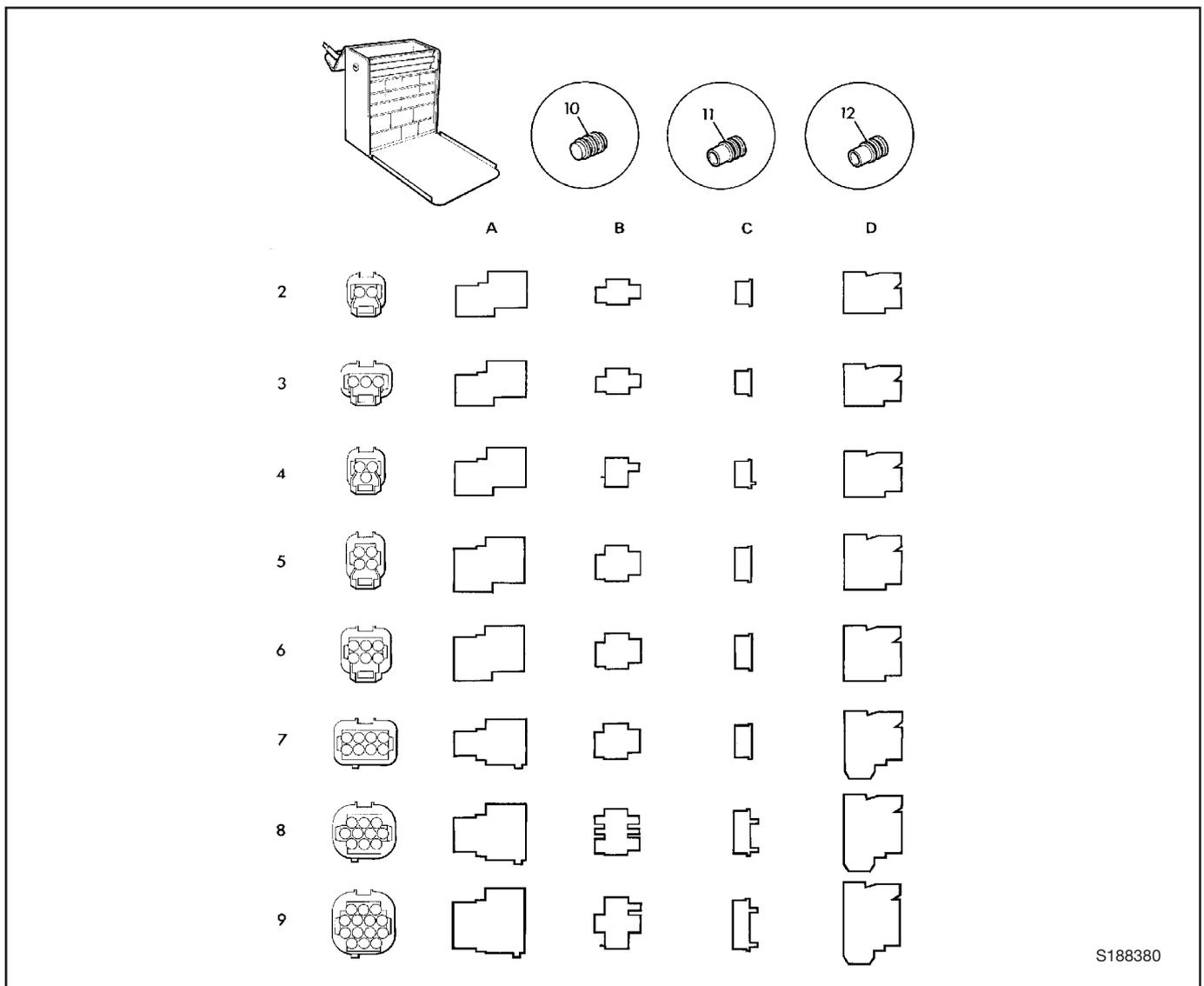
892/00905 Test Box for Safe Load Indicator

S244961

Service Tools

Section C - Electrics

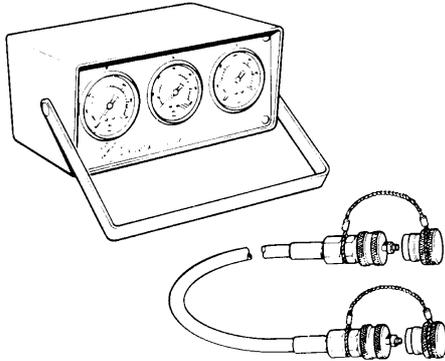
	Electrical Repair Kit		
2A :7212/0002	2 Way Pin Housing	6A :7216/0002	6 Way Pin Housing
2B :7212/0004	2 Way Pin Retainer	6B :7216/0004	6 Way Pin Retainer
2C :7212/0003	2 Way Socket Retainer	6C :7216/0003	6 Way Socket Retainer
2D :7212/0001	2 Way Socket Connector	6D :7216/0001	6 Way Socket Connector
3A :7213/0002	3 Way Pin Housing	7A :7218/0002	8 Way Pin Housing
3B :7213/0004	3 Way Pin Retainer	7B :7218/0004	8 Way Pin Retainer
3C :7213/0003	3 Way Socket Retainer	7C :7218/0003	8 Way Socket Retainer
3D :7213/0001	3 Way Socket Connector	7D :7218/0001	8 Way Socket Connector
4A :7213/0006	3 Way Pin Housing (DT)	8A :7219/0002	10 Way Pin Housing
4B :7213/0008	3 Way Pin Retainer (DT)	8B :7219/0004	10 Way Pin Retainer
4C :7213/0007	3 Way Socket Retainer (DT)	8C :7219/0003	10 Way Socket Retainer
4D :7213/0005	3 Way Socket Connector (DT)	8D :7219/0001	10 Way Socket Connector
5A :7214/0002	4 Way Pin Housing	9A :7219/0006	14 Way Pin Housing
5B :7214/0004	4 Way Pin Retainer	9B :7219/0008	14 Way Pin Retainer
5C :7214/0003	4 Way Socket Retainer	9C :7219/0007	14 Way Socket Retainer
5D :7214/0001	4 Way Socket Connector	9D :72190005	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.)



S188380

Service Tools (cont'd)

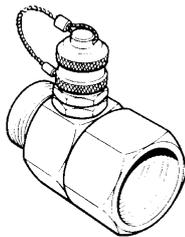
Section E - Hydraulics



Hydraulic Circuit Pressure Test Kit

892/00253	Pressure Gauge Kit
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

S188120



S188130

*Pressure Test 'T' Adaptors

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



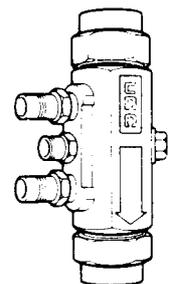
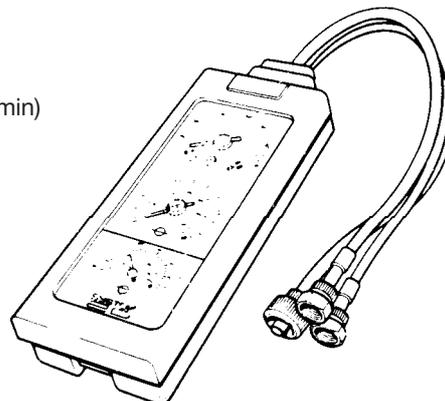
S188140

* 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

Flow Test Equipment

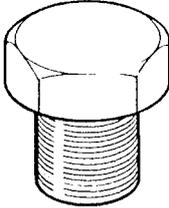
892/00268	Flow Monitoring Unit
892/00269	Sensor Head 0 to 100 l/min (0 to 22 UK gal/min)
892/00270	Load Valve
1406/0021	Bonded Washer
1604/0006	Adapter 3/4 in M x 3/4 M BSP
1612/0006	Adapter 3/4 in F x 3/4 M BSP
892/00271	Adapter 3/4 in F x 5/8 M BSP
892/00272	Adapter 5/8 in F x 3/4 M BSP
816/20008	Adapter 3/4 in F x 1/2 M BSP
892/00275	Adapter 1/2 in F x 3/4 M BSP
892/00276	Adapter 3/4 in F x 3/8 M BSP
892/00277	Adapter 3/4 in F x 3/4 M BSP



S188150

Service Tools (cont'd)

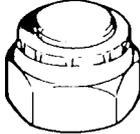
Section E - Hydraulics



S193870

Female Cone Blanking Cap

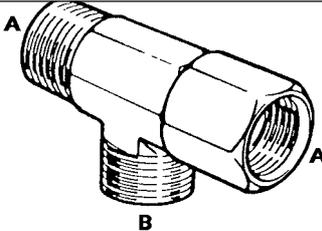
892/00055	1/4 in. BSP
892/00056	3/8 in. BSP
892/00057	1/2 in. BSP
892/00058	5/8 in. BSP
892/00059	3/4 in. BSP
892/00060	1 in. BSP



S193880

Male Cone Blanking Cap

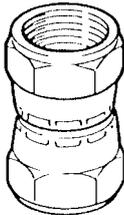
816/00294	1/4 in. BSP
816/00189	3/8 in. BSP
816/00190	1/2 in. BSP
816/00197	5/8 in. BSP
816/00196	3/4 in. BSP
816/00193	1 in. BSP



S193890

T Adapters

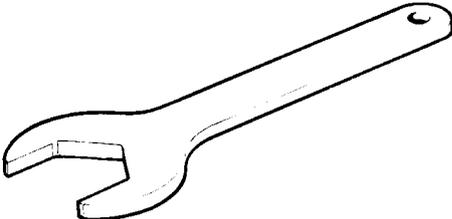
892/00047	3/8 in. BSP (A) x 1/4 in. BSP (B)
892/00048	1/2 in. BSP (A) x 1/4 in. BSP (B)
892/00049	5/8 in. BSP (A) x 1/4 in. BSP (B)
816/50043	3/4 in. BSP (A) x 1/4 in. BSP (B)
892/00051	1 in. BSP (A) x 1/4 in. BSP (B)



S193900

Female Connectors

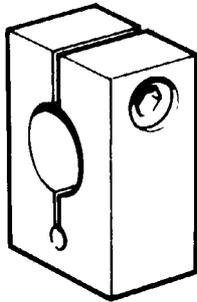
892/00074	3/8 in. BSP x 3/8 in. BSP
892/00075	1/2 in. BSP x 1/2 in. BSP
892/00076	5/8 in. BSP x 5/8 in. BSP
892/00077	3/4 in. BSP x 3/4 in. BSP



S192420

Hexagon Spanners for Ram Pistons and End Caps

992/09500	75mm A/F
992/09700	95mm A/F



S192410

Spool Clamps

892/00039	Spool Clamp
992/10100	Spool Clamp
992/02800	ARV Extractor

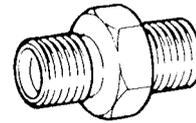
S188150

Service Tools (cont'd)

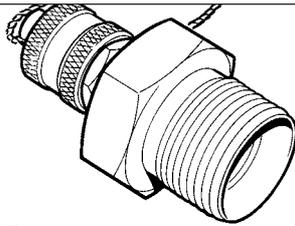
Section E - Hydraulics

Male Adapters - BSP x BSP

- 1606/0003 3/8 in. x 1/4 in.
- 1604/0003 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.
- 1606/0007 1/2 in. x 3/8 in.
- 1604/0004 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.
- 1604/0006 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.

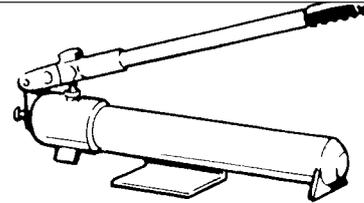


S193860



Pressure Test Adapters

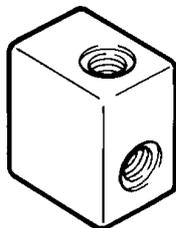
- 892/00255 1/4 in. BSP x Test Point
- 892/00256 3/8 in. BSP x Test Point
- 892/00257 1/2 in. BSP x Test Point
- 892/00258 5/8 in. BSP x Test Point
- 816/15118 3/4 in. BSP x Test Point
- 892/00259 1 in. BSP x Test Point
- 892/00260 1.1/4 in. BSP x Test Point
- 892/00261 5/8 in. UNF x Test Point



S193850

Hand Pump Equipment

- 892/00223 Hand Pump
- 892/00137 Micro-bore Hose 1/4 in BSP x 5 metres
- 892/00274 Adapter 1/4 in M BSP x 3/8 in M BSP Taper
- 892/00262 1/4 in M BSP x 1/4 in F BSP x Test Point
- 892/00706 Test Probe
- 892/00279 Gauge 0 - 400 bar (0-6000 lbf/in²)



S270650

*892/00923

Test Block for A. R. V

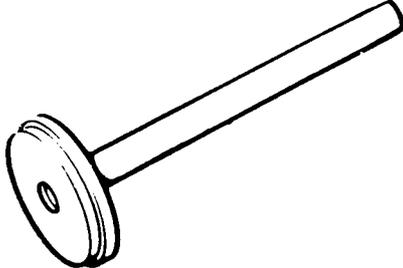
Service Tools (cont'd)

Section F - Transmission



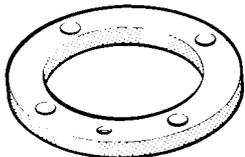
S188160

992/07608 Bearing Adapter
 992/07609 Bearing Adapter
 992/07610 Bearing Adapter
 992/07611 Bearing Adapter
 992/07612 Bearing Adapter
 992/07613 Bearing Adapter



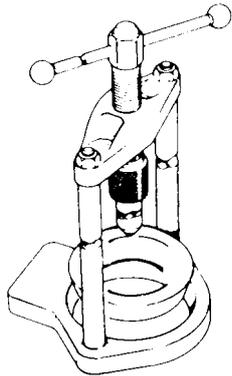
S188170

992/07603 Replacer- Bearing Cup



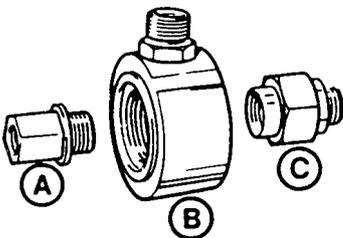
S188190

892/00295 End Float Setting Tool



S188200

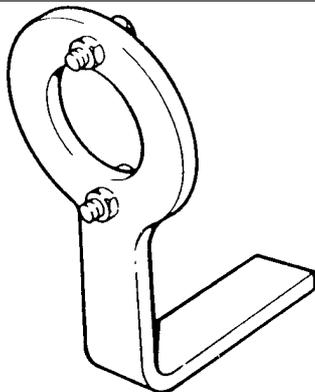
892/00179 Bearing Press



S188210

892/00237 Flow Test Adaptor Complete

A 892/00304 Flow Test Adapter
B 892/00301 Flow Test Adapter
C 892/00302 Flow Test Adapter

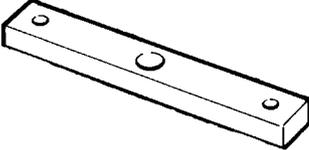


S188220

992/04800 Flange Spanner
 For locking pinion flange while nut is slacked or torque set

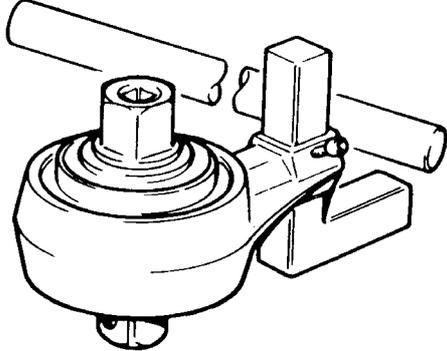
Service Tools (cont'd)

Section F - Transmission



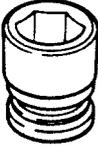
892/00893
Torque Converter Alignment Bar

S228921



992/04000 Torque Multiplier S197030

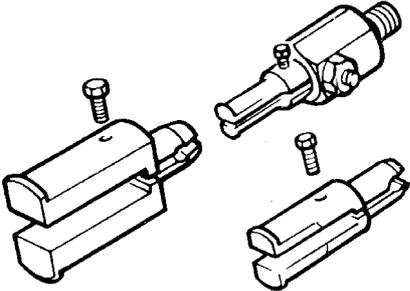
Use in conjunction with a torque wrench to give a 5:1 multiplication when tightening pinion nuts etc.



S197250

Heavy Duty Sockets for Durlok bolts

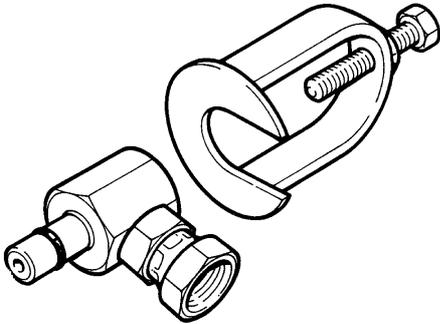
892/00817 17mm A/F x 3/4in square drive
 892/00818 22mm A/F x 3/4in square drive
 892/00819 15mm A/F x 1/2in square drive
 892/00333 19mm A/F x 3/4in square drive



S197080

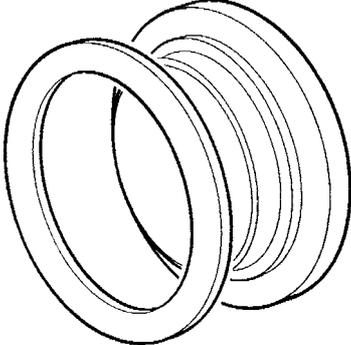
892/00225 Adapter - Impulse Extractor
 Small 17mm to 25mm
 Medium 25mm to 45mm
 Large 45mm to 80mm

993/59500 Adapter - Extractor



S196750

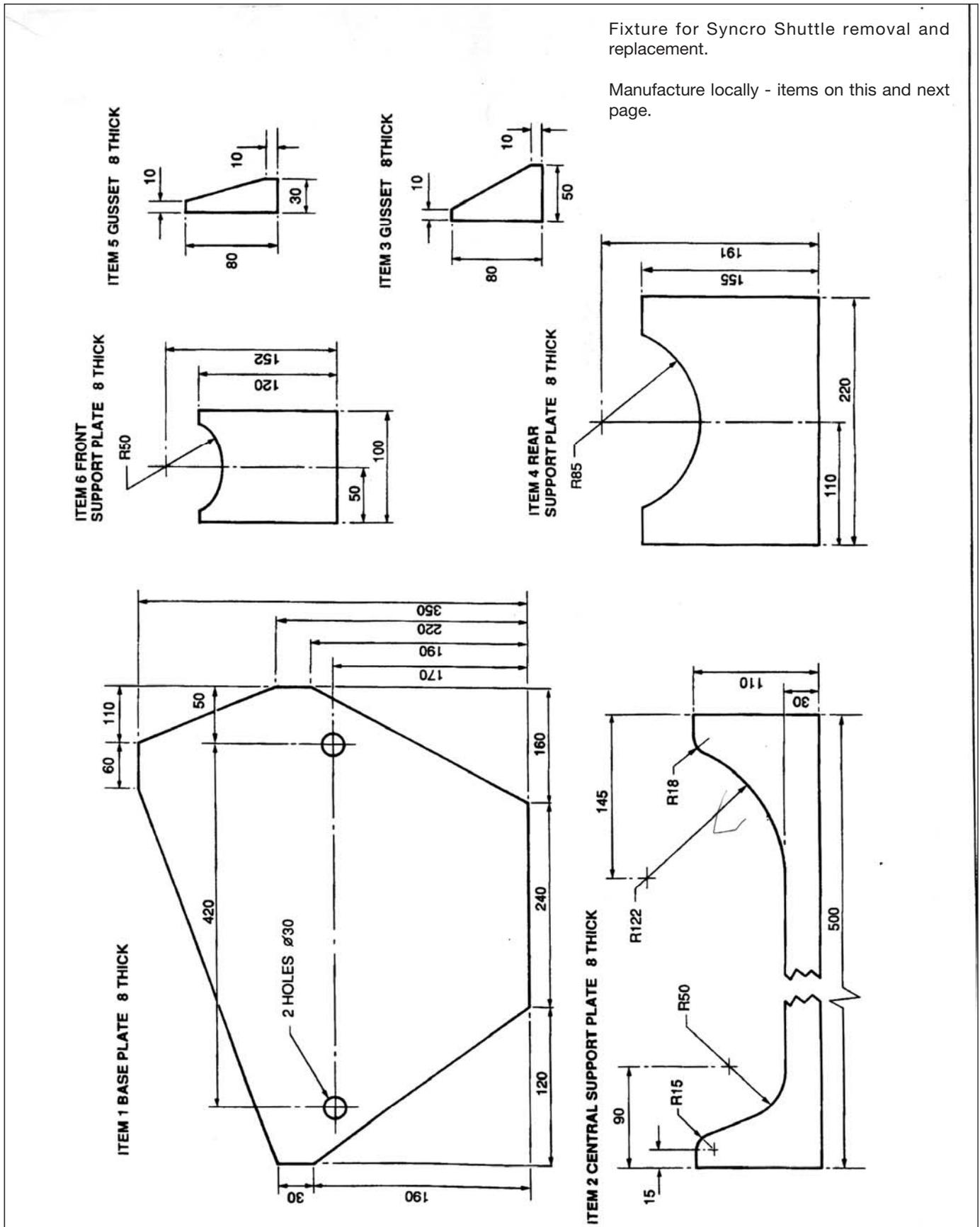
993/59300
2/4 Wheel Drive Clutch Pressure Test Adaptor & Clamp



*
892/00891
Seal Fitting Adaptor S227760

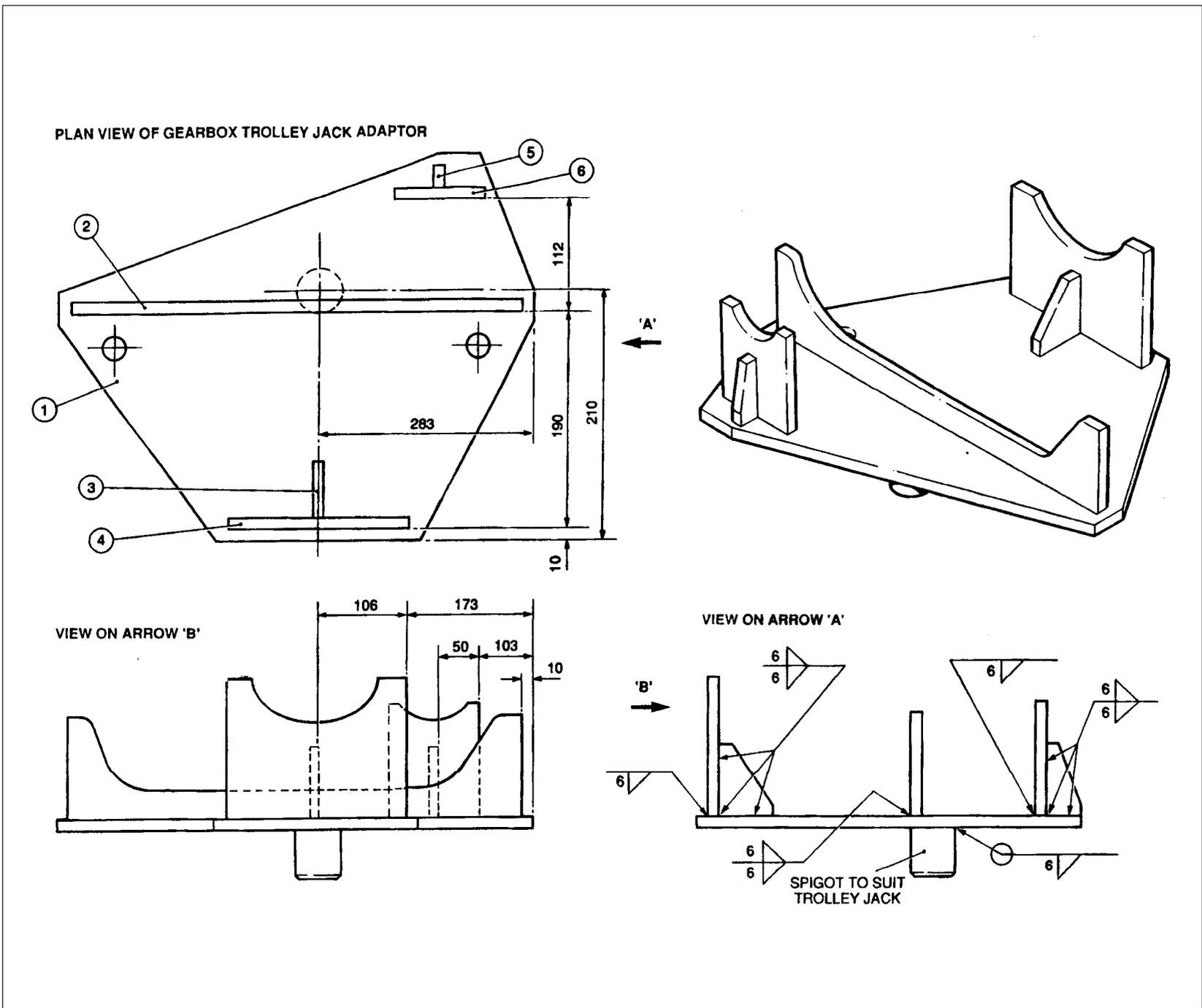
Service Tools (cont'd)

Section F - Transmission



Service Tools (cont'd)

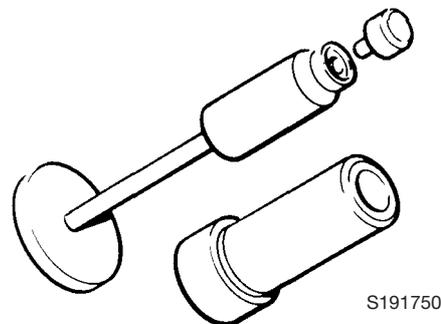
Section F - Transmission



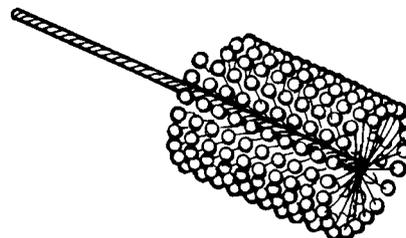
Service Tools (cont'd)**Section H - Steering**

892/00180 Seal Fitting Tool for fitting 'O' ring and back-up ring to Danfoss Orbitrol Unit

892/00181 Replacement Plastic Boss

**Section K - Engine**

892/00041 De-glazing Tool for Cylinder Bores
(to assist bedding-in of new piston rings)



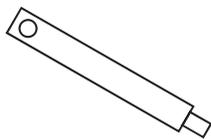
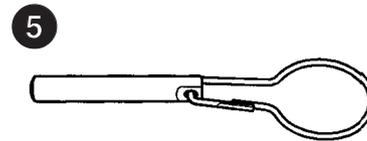
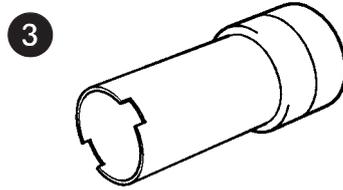
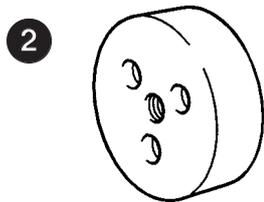
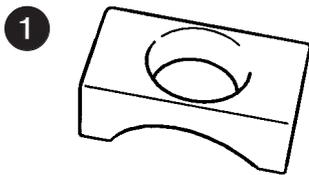
For details of other engine service tools refer to Perkins Service Manual Publication No. 9806/0100

Service Tools (cont'd)

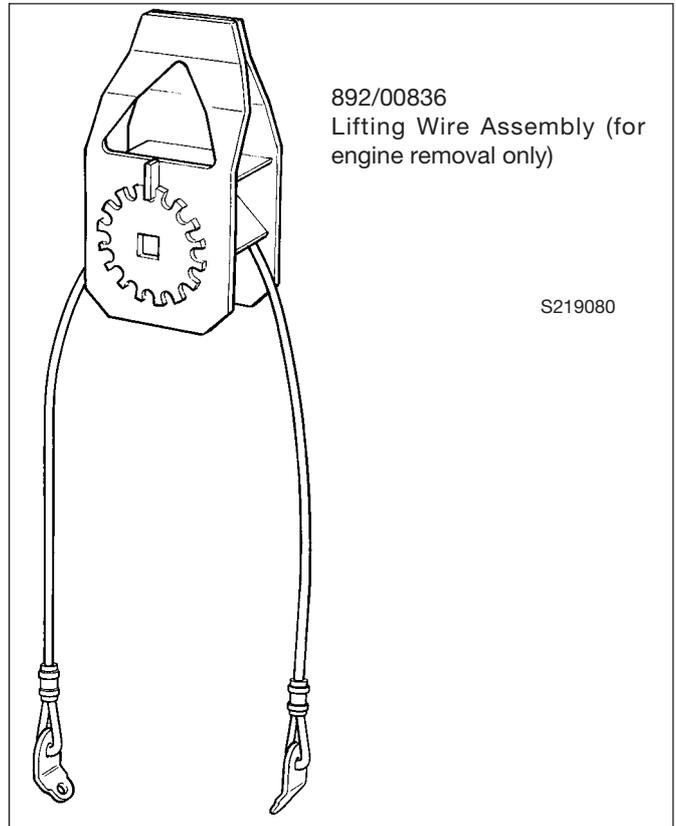
Section K - Engine

Note: "R" Series Engine only

- 1 892/01111 Rocker assembly tool
- 2 892/01112 Timing case alignment tool
- 3 980/01113 Thermostat fit & removal tool
- 4 892/01114 Camshaft gear timing pin
- 5 892/01115 Crankshaft timing pin

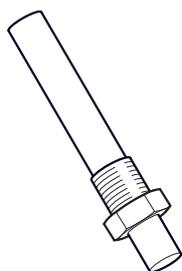


892/00936 Timing pin for fuel injection pump (AK, AR)



892/00836 Lifting Wire Assembly (for engine removal only)

S219080



892/01054 Adaptor for compression testing (AK, AR)

Sealing and Retaining Compounds

JCB Multi-Gasket	A medium strength sealant suitable for all sizes of gasket flanges, and for hydraulic fittings of 25-65mm diameter.	4102/1201	
JCB High Strength Threadlocker	For all size of flanges where the strength of the joint is important.	4102/0551	
JCB Retainer (High Strength)	For all retaining parts which are unlikely to be dismantled.	4101/0651	
JCB Threadlocker and Sealer	A medium strength locking fluid for sealing and retaining nuts, bolts, and screws up to 50mm diameter, and for hydraulic fittings up to 25mm diameter.	4101/0251	
JCB Threadseal	A medium strength thread sealing compound.	4102/1951	
JCB Threadlocker and Sealer (High Strength)	A medium to high strength locking fluid for retention and sealing of ram piston heads.	4101/0552	
JCB Threadlocker	A locking fluid for use on threads larger than 50mm dia.	4101/0451	
JCB Activator	A cleaning primer which speeds the curing rate of anaerobic products.	4104/0251 4104/0253	Aerosol Bottle
JCB Cleaner / Degreaser	For degreasing components prior to use of anaerobic adhesives and sealants.	4104/1557	Aerosol

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General safety	2 - 1
Operating safety	2 - 2
Maintenance safety	2 - 4
Lubricants - Health and Safety	3 - 1

Safety Notices

In this handbook and on the machine there are safety notices. Each notice starts with a signal word. The signal word meanings are given below.

DANGER

Denotes an extreme hazard exists. If proper precautions are not taken it is highly probable that the operator (or others) could be killed or seriously injured.

INT-1-2-1

WARNING

Denotes a hazard exists. If proper precautions are not taken, the operator (or others) could be killed or seriously injured.

INT-1-2-2

CAUTION

Denotes a reminder of safety practices. Failure to follow these safety practices could result in injury to the operator (or others) and possible damage to the machine.

INT-1-2-3

WARNING

Study this Service Manual before carrying out any maintenance work on the machine. You must always understand and observe the relevant laws and regulations. If you are unsure about anything, ask your JCB Distributor.

All construction and agricultural equipment can be hazardous. When a JCB machine is correctly operated and properly maintained, it is a safe machine to work with. But when it is carelessly operated or poorly maintained it can become a danger to you (the operator) and others.

Do not work with the machine until you are sure that you can control it.

Do not start any job until you are sure that you and those around you will be safe.

If you are unsure of anything, about the machine or the job, ask someone who knows. Do not assume anything.

Remember

**BE CAREFUL
BE ALERT
BE SAFE**

GEN-1-6

General Safety

WARNING

Decals

You can be injured if you do not obey the decal safety instructions. Keep decals clean. Replace unreadable or missing decals with new ones before operating the machine. Make sure replacement parts include warning decals where necessary.

INT-1-3-4

CAUTION

Hazardous Atmospheres

This machine is designed for use in normal out door atmospheric conditions. It should not be used in an enclosed area without adequate ventilation. Do not use the machine in a potentially explosive atmosphere, ie. combustible vapours, gas or dust, without first consulting your JCB Distributor.

INT-2-1-14

WARNING

Clothing

You can be injured if you do not wear proper clothing. Loose clothing can get caught in the machinery. Wear protective clothing to suit the job. Examples of protective clothing are: a hard hat, safety shoes, safety glasses, a well-fitting overall, ear-protectors and industrial gloves. Keep cuffs fastened. Do not wear a necktie or scarf. Keep long hair restrained.

INT-1-3-6

WARNING

Care and Alertness

All the time you are working with or on the machine, take care and stay alert. Always be careful. Always be alert for hazards.

INT-1-3-5

DANGER

Lightning

Lightning can kill you. Do not use the machine if there is lightning in your area.

5-1-1-2

WARNING

Raised Boom

A raised boom can fall or be lowered accidentally. Do not walk under a raised boom which is not fitted with a safety strut, or you could be injured.

5-1-1-1

WARNING

Lifting Equipment

You can be injured if you use faulty lifting equipment. Make sure that lifting equipment is in good condition. Make sure that lifting tackle complies with all local regulations and is suitable for the job. Make sure the lifting equipment is strong enough for the job.

INT-1-3-7

Operating Safety

WARNING

Practice

You and others can be killed or seriously injured if you do unfamiliar operations without first practising them. Practise away from the work site on a clear area. Keep other people away. Do not perform new operations until you are sure you can do them safely.

INT-2-1-1

WARNING

Machine Condition

A defective machine can injure you or others. Do not operate a machine which is defective or has missing parts. Make sure the maintenance procedures in this handbook are completed before using the machine.

INT-2-1-2

WARNING

Machine Limits

Operating the machine beyond its design limits can damage the machine, it can also be dangerous. Do not operate the machine outside its limits. Do not try to upgrade the machine performance with unapproved modifications.

INT-2-1-4

WARNING

Engine

The engine has rotating parts. Do not open the engine cover while the engine is running. Do not use the machine with the cover open.

INT-2-1-6

WARNING

Entering/Leaving

Entering or leaving the cab or canopy must only be made where steps and handrails are provided. Always face the machine when entering and leaving. Make sure the step(s), handrails and your boot soles are clean and dry. Do not jump from the machine. Do not use the machine controls as handholds, use the handrails.

INT-2-1-7/1

WARNING

ROPS/FOPS Structure

The machine is fitted with a Roll Over Protection Structure (ROPS) and a Falling Objects Protection Structure (FOPS). You could be killed or seriously injured if you operate the machine with a damaged or missing ROPS/FOPS. If the ROPS/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-2-1-9/3

WARNING

Engine/Steering Failure

If the engine or steering fails, stop the machine as quickly as possible. Do not operate the machine until the fault has been corrected.

INT-2-1-5

WARNING

Reversing

Reversing at high speeds can cause accidents. Do not reverse in a high gear with full throttle. Always drive at a safe speed to suit working conditions.

INT-2-2-9/1

WARNING

Passengers

Passengers in or on the machine can cause accidents. The JCB Loadall is a one man machine. Do not carry passengers.

INT-2-2-2

WARNING

Exhaust Gases

Breathing the machine exhaust gases can harm and possibly kill you. Do not operate the machine in closed spaces without making sure there is good ventilation. If possible, fit an exhaust extension. If you begin to feel drowsy, stop the machine at once. Get out of the cab into fresh air.

INT-2-1-10

WARNING

Communications

Bad communications can cause accidents. Keep people around you informed of what you will be doing. If you will be working with other people, make sure any hand signals that may be used are understood by everybody. Work sites can be noisy, do not rely on spoken commands.

INT-2-2-3

⚠ CAUTION**Work Site**

Work sites can be hazardous. Inspect the site before working on it. Check for potholes, weak ground, hidden rocks etc. Check for utilities (*electric cables, gas and water pipes etc.*) Mark the positions of underground cables and pipes. Make sure you have enough clearance beneath overhead cables and structures. See **Working With the Loadall** (*OPERATION section*) for more information about the danger of electrical cables.

5-1-3-1/1

⚠ DANGER**Sparks**

Explosions and fire can be caused by sparks from the exhaust or the electrical system. Do not use the machine in closed areas where there is flammable material, vapour or dust.

INT-2-2-10

⚠ WARNING**Safe Working Loads**

Overloading the machine can damage it and make it unstable. Study the lifting and/or digging specifications in this handbook before using the attachments

INT-2-2-11/1

⚠ WARNING**Banks and Trenches**

Banked material and trenches can collapse. Do not work or drive too close to banks and trenches where there is a danger of collapse.

INT-2-2-5

⚠ WARNING**Ramps and Trailers**

Water, mud, ice, grease and oil on ramps or trailers can cause serious accidents. Make sure ramps and trailers are clean before driving onto them. Use extreme caution when driving onto ramps and trailers.

INT-2-2-6

⚠ WARNING**Safety Barriers**

Unguarded machines in public places can be dangerous. In public places, or when your visibility is reduced, place barriers around the work area to keep people away.

INT-2-2-8

⚠ WARNING**Parking**

An incorrectly parked machine can move without an operator. Follow the instructions in this handbook to park the machine correctly.

INT-2-2-4

⚠ WARNING**Visibility**

Accidents can be caused by working in poor visibility. Keep windows clean and use your lights to improve visibility. Do not operate the machine if you can not see properly.

INT-2-1-11

⚠ WARNING**Rollover**

Should the machine start to roll over, you can be crushed if you try to leave the cab. If the machine starts to roll over, **DO NOT TRY TO JUMP FROM THE CAB. STAY IN THE CAB, WITH YOUR SEAT BELT FASTENED.**

INT-2-1-12

⚠ CAUTION**Fork Spacing**

Loads can fall off incorrectly spaced forks. Always space the forks correctly for the load. Make sure the forks are completely under the load before lifting.

5-1-4-2

⚠ CAUTION**One-Fork Lifting**

A load lifted on one fork can slip off. Never lift a load with one fork.

5-1-4-3

⚠ CAUTION**Unloading**

Never unload the forks by stopping the machine suddenly. Follow the procedures in this handbook for unloading.

5-1-4-4

⚠ CAUTION**Uneven Ground**

Loads stacked on uneven ground can topple. Never stack loads on uneven ground.

5-1-4-5

⚠ WARNING**Scaffolding**

Overloaded scaffolding can collapse. Never load scaffolding beyond the regulation capacity.

5-1-4-6

⚠ CAUTION**Overhead Clearance**

A raised boom can strike overhead objects. Always check for overhead clearance before before raising the boom.

5-1-5-1

⚠ WARNING**Boom/Travelling**

Operating the boom while travelling can cause accidents. You will not have total control of the machine. Never operate the boom while travelling.

5-1-5-2

⚠ DANGER**Forks/Working Platform**

Using the forks alone as a working platform is hazardous; you can fall off and be killed or injured. Never use the forks as a working platform.

5-1-5-3

⚠ CAUTION**Regulations**

Obey all laws, work site and local regulations which affect you or your machine.

INT-1-3-3

⚠ WARNING**Forks/Turning**

The forks extend beyond the end of the boom. Make sure there is enough clearance for the forks when making turns.

5-1-5-4

⚠ DANGER**Overhead Electrical Power Lines**

You can be electrocuted if you get your machine too close to live electrical power lines. Before starting work, find out if there are electrical power lines on the jobsite. If there are, contact the local electricity supplier and ask what safety precautions you must take. Also find out if there are any local laws and regulations concerned with work near electrical power lines.

When you have found out what safety precautions, laws and regulations apply to the jobsite, make sure they are all obeyed.

5-1-5-6

⚠ WARNING**Fires**

If your machine is equipped with a fire extinguisher, make sure it is checked regularly. Keep it in the operator's cab until you need to use it.

Do not use water to put out a machine fire, you could spread an oil fire or get a shock from an electrical fire. Use carbon dioxide, dry chemical or foam extinguishers. Contact your nearest fire department as quickly as possible. Firefighters should use self-contained breathing apparatus

INT-3-2-7/1

Maintenance Safety**⚠ WARNING****Repairs**

Do not try to do repairs or any other type of maintenance work you do not understand. Get a Service Manual from your JCB distributor, or get the work done by a specialist engineer.

INT-3-1-1

⚠ WARNING**Modifications and Welding**

Non-approved modifications can cause injury and damage. Parts of the machine are made from cast iron; welds on cast iron can weaken the structure and break. Do not weld cast iron. Contact your JCB distributor for advice before modifying the machine.

INT-3-1-2/1

⚠ WARNING**Boom Safety Strut**

A raised boom can drop suddenly and cause serious injury. Before working under a raised boom, fit the boom safety strut. See **Boom Safety Strut** (MAINTENANCE section).

5-1-5-7

⚠ WARNING**Communications**

Bad communications can cause accidents. If two or more people are working on the machine, make sure each is aware of what the others are doing. Before starting the engine make sure the others are clear of danger areas; examples of danger areas are: the rotating blades and belt on the engine, the attachments and linkages, and anywhere beneath or behind the machine. People can be killed or injured if these precautions are not taken.

INT-3-1-5

⚠ WARNING**Metal Splinters**

You can be injured by flying metal splinters when driving metal pins in or out. Use a soft-faced hammer or drift to remove and fit metal pins. Always wear safety glasses.

INT-3-1-3

⚠ WARNING**Asbestos**

Asbestos dust can damage your lungs. Some engine gaskets contain asbestos. Do not dismantle the engine or exhaust system; get these jobs done by a qualified person who has a copy of the engine service manual.

5-1-6-1

⚠ WARNING**Oil**

Oil is toxic. If you swallow any oil, do not induce vomiting, seek medical advice. Used engine oil contains harmful contaminants which can cause skin cancer. Do not handle used engine oil more than necessary. Always use barrier cream or wear gloves to prevent skin contact. Wash skin contaminated with oil thoroughly in warm soapy water. Do not use petrol, diesel fuel or paraffin to clean your skin.

INT-3-2-3

⚠ WARNING**Hydraulic Fluid**

Fine jets of hydraulic fluid at high pressure can penetrate the skin. Do not use your fingers to check for hydraulic fluid leaks. Do not put your face close to suspected leaks. Hold a piece of cardboard close to suspected leaks and then inspect the cardboard for signs of hydraulic fluid. If hydraulic fluid penetrates your skin, get medical help immediately.

INT-3-1-10/1

⚠ WARNING**Hydraulic Pressure**

Hydraulic fluid at system pressure can injure you. Before disconnecting or connecting hydraulic hoses, stop the engine and operate the controls to release pressure trapped in the hoses. Make sure the engine cannot be started while the hoses are open.

INT-3-1-11/1

⚠ DANGER**Electrolyte**

Battery electrolyte is toxic and corrosive. Do not breathe the gases given off by the battery. Keep the electrolyte away from your clothes, skin, mouth and eyes. Wear safety glasses.

INT-3-2-1/3

⚠ WARNING**Counterweights**

Your machine may be fitted with counterweights. They are extremely heavy. Do not attempt to remove them.

INT-3-2-5

⚠ WARNING**Jacking**

A machine can roll off jacks and crush you unless the wheels have been chocked. Always chock the wheels at the opposite end of the machine that is to be jacked. Do not work underneath a machine supported only by jacks. Always support a jacked-up machine on axle stands before working underneath it.

INT-3-2-8

⚠ WARNING**Hot Coolant**

The cooling system is pressurised when the coolant is hot. Hot coolant will burn you. Make sure the engine is cool before checking the coolant level or draining the system.

2-3-3-3

⚠ WARNING**Tyres and Rims**

Over-inflated or over-heated tyres can explode. Follow the instructions in this handbook for inflating the tyres. Do not weld or cut rims. Get a tyre/wheel specialist to do any repair work.

INT-3-2-6

⚠ WARNING**Battery Gases**

Batteries give off explosive gases. Keep flames and sparks away from the battery. Do not smoke close to the battery. Make sure there is good ventilation in closed areas where batteries are being used or charged. Do not check the battery charge by shorting the terminals with metal; use a hydrometer or voltmeter.

INT-3-1-8

⚠ WARNING**Battery**

A battery with frozen electrolyte can explode if it is used or charged. Do not use a machine with a frozen battery. To help prevent the battery from freezing, keep the battery fully charged.

INT-3-1-7

⚠ WARNING**Electrical Circuits**

Understand the electrical circuit before connecting or disconnecting an electrical component. A wrong connection can cause injury and/or damage.

INT-3-1-4

⚠ CAUTION
Cleaning

Cleaning metal parts with incorrect solvents can cause corrosion. Use only recommended cleaning agents and solvents.

INT-3-2-11

⚠ WARNING
Hydraulic Hoses

Damaged hoses can cause fatal accidents. Inspect the hoses regularly for:

- Damaged end fittings
- Chafed outer covers
- Ballooned outer covers
- Kinked or crushed hoses
- Embedded armouring in outer covers
- Displaced end fittings.

INT-3-3-2

⚠ WARNING
Petrol

Do not use petrol in this machine. Do not mix petrol with the diesel fuel; in storage tanks the petrol will rise to the top and form flammable vapours.

INT-3-1-6

⚠ CAUTION
'O' rings, Seals and Gaskets

Badly fitted, damaged or rotted 'O' rings, seals and gaskets can cause leakages and possible accidents. Renew whenever disturbed unless otherwise instructed. Do not use Trichloroethane or paint thinners near 'O' rings and seals.

INT-3-2-12

⚠ WARNING
Hot Coolant

The cooling system is pressurised when the engine is hot. Hot coolant can spray out when you remove the filler cap. Let the system cool before removing the filler cap. To remove the cap; turn it to the first notch and let the system pressure escape, then remove the cap.

INT-3-2-9/1

⚠ WARNING
Battery Terminals

The machine is negatively earthed. Always connect the negative pole of the battery to earth.

When connecting the battery, connect the earth (-) lead last.

When disconnecting the battery, disconnect the earth (-) lead first.

INT-3-1-9

⚠ WARNING
Fluoroelastomeric Materials

Certain seals and gaskets (e.g. crankshaft oil seal) on JCB machines contain fluoroelastomeric materials such as Viton, Fluorel and Technoflon. Fluoroelastomeric materials subjected to high temperatures can produce highly corrosive hydrofluoric acid. **THIS ACID CAN SEVERELY BURN.**

New fluoroelastomeric components at ambient temperature require no special safety precautions.

Used fluoroelastomeric components whose temperatures have not exceeded 300°C require no special safety precautions. If evidence of decomposition (e.g. charring) is found, refer to the next paragraph for safety instructions **DO NOT TOUCH COMPONENT OR SURROUNDING AREA.**

Used fluoroelastomeric components subjected to temperatures greater than 300°C (e.g. engine fire) must be treated using the following safety procedure. Make sure that heavy duty gloves and special safety glasses are worn:

- 1 Ensure that components have cooled then remove and place material into plastic bags.
- 2 Thoroughly wash contaminated area with 10% calcium hydroxide or other suitable alkali solution, if necessary use wire wool to remove burnt remains.
- 3 Thoroughly wash contaminated area with detergent and water.
- 4 Contain all removed material, gloves etc. used in this operation in sealed plastic bags and dispose of in accordance with Local Authority Regulations.

DO NOT BURN FLUOROELASTOMERIC MATERIALS.

If contamination of skin or eyes occurs, wash the affected area with a continuous supply of clean water or with calcium hydroxide solution for 15-60 minutes. Get medical attention immediately.

INT-3-3-5/1