# Service Manual

## FASTRAC
## 125 135 145
## 150 155 185

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## Contents

## Serial Number Plate

Each machine has a serial number plate located at either **X** or **Y**. Various designs of serial number plate have been used but in each case the Vehicle Identification Number (VIN), and the serial numbers of the engine and transmission are stamped on the plate.

**Typical Early Style Vehicle Identification No. (VIN)**

SLP HMV125 000635001
A B C

**A** = Manufacturing Code
**B** = Machine Model
**C** = Serial Number

**Typical Later Style Vehicle Identification No. (VIN)**

* SLP HMV 02 3 30 636381
A B C D E F

**A** = Manufacturing Code
**B** = Machine Range
**C** = Engine Type
01 = 1006-6
02 = 1006-6T
03 = 145T
04 = 160T
05 = 1006-6
06 = 1006-6THR5
07 = 1006-6T4
09 = 160TW
10 = Cummins 6BTA

**D** = Transmission Speed
3 = 30 km/h
4 = 40 km/h
5 = 55 km/h
6 = 65 km/h
7 = 75 km/h

**E** = Vehicle Max. Speed
30 = 30 km/h

**F** = Serial Number

**Typical Engine Identification Number**

YA 50347 U 123456 X
G H J K L

**G** = Engine Type:-
YA = Normally Aspirated
YB = Turbocharged
YD = Turbocharged/intercooled

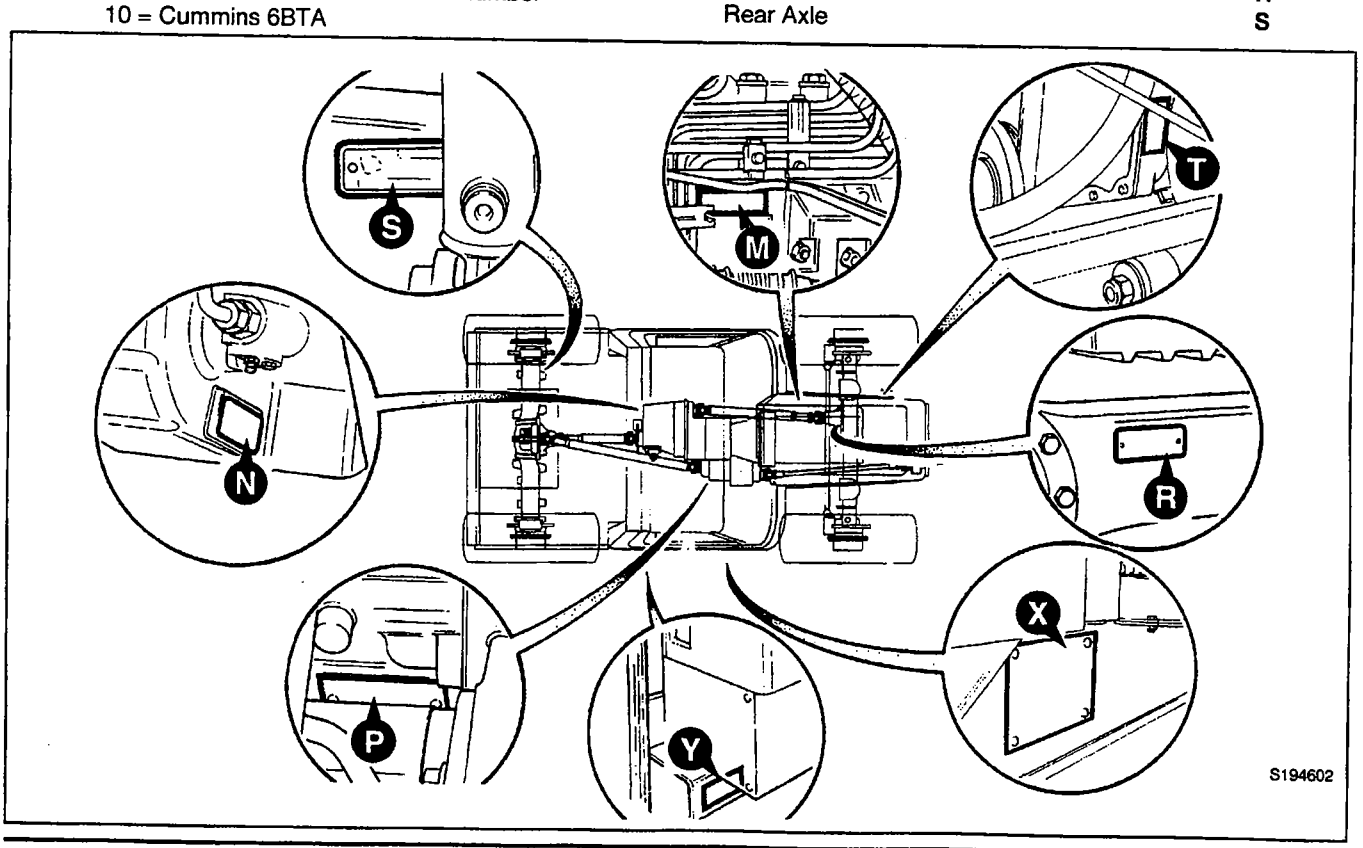
**H** = Build List Number
(see **Engine Technical Data** for details)
**J** = Country of Origin
**K** = Engine Serial Number
**L** = Year of Manufacture

***Note:*** *Cummins engines are identified by the model number 6BTA and a separate engine serial number.*

**Unit Identification**

The serial number of each major unit is also stamped on the unit itself as shown below. If a major unit is replaced by a new one, the serial number on the 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.

| | |
|---|---|
| Perkins Engine | **M** |
| Cummins Engine | **T** |
| Transmission (Assembly of all three gearboxes) | **N** |
| Speed Gearbox | **P** |
| Front Axle | **R** |
| Rear Axle | **S** |



## 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.

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

**Metric Grade 8.8 Bolts**

| * Dia. | Bolt size (mm) | Hexagon (A/F) mm | Torque Settings 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 |
| M18 | (18) | 27 | 350 | 36 | 258 |
| M20 | (20) | 30 | 476 | 48 | 352 |
| M24 | (24) | 36 | 822 | 84 | 607 |
| M30 | (30) | 46 | 1633 | 166 | 1205 |
| M36 | (36) | 55 | 2854 | 291 | 2105 |

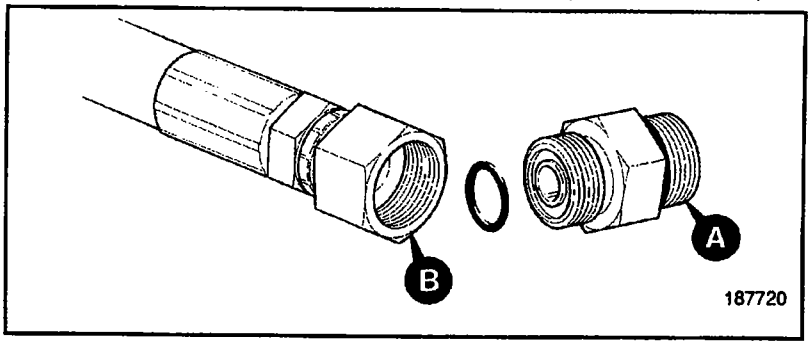
**Metric - All Internal Hexagon Headed Cap Screws**

| Diameter mm | Torque Nm | kgf m | lbf ft |
|---|---|---|---|
| M3 | 2 | 0.2 | 1.5 |
| M4 | 6 | 0.6 | 4.5 |
| M5 | 11 | 1.1 | 8 |
| M6 | 19 | 1.9 | 14 |
| M8 | 46 | 4.7 | 34 |
| M10 | 91 | 9.3 | 67 |
| M12 | 159 | 16.2 | 117 |
| M16 | 395 | 40 | 292 |
| M18 | 550 | 56 | 406 |
| M20 | 770 | 79 | 568 |
| M24 | 1332 | 136 | 983 |

**Hose and Pipe Connections**

* All the hydraulic fittings on the Fastrac to machine number 636000 use the 'O' ring face seal system, with the 'O' ring located between the hose or pipe **B** and the adapter **A** as shown below. Adapters screwed into valve blocks etc. seal onto an 'O' ring which is compressed into a 45° seat machined in the face of the tapped port. Later machines have BSP hose connections without 'O' rings. Adapters are then sealed into components by means of bonded washers. See next page for torque settings.

* **Note:** Adapters have a UNF thread for the ORFS hose connection **B** but the thread **A** on the opposite end of the adapter may be either UNF or metric. Measure the thread diameter carefully before choosing the relevant torque setting table.



## Torque Settings (continued)

### 'O' Ring Boss Adapters (Item A to machine number 636000)

| Nominal Diameter of UNF Thread (inches) | Torque Settings Nm | kgf m | lbf ft |
|---|---|---|---|
| 7/16 | 20 | 2.1 | 15 |
| 9/16 | 35 | 3.6 | 26 |
| 3/4 | 81 | 8.3 | 60 |
| 7/8 | 108 | 11.1 | 80 |
| 11/16 | 183 | 18.7 | 135 |
| 15/16 | 298 | 30.5 | 220 |
| 15/8 | 380 | 38.8 | 280 |
| 17/8 | 488 | 50 | 360 |

| Nominal Diameter of Metric Thread (mm) | Torque Settings Nm | kgf m | lbf ft |
|---|---|---|---|
| 8 | 10 | 1.1 | 7 |
| 10 | 20 | 2.1 | 15 |
| 12 | 35 | 3.6 | 26 |
| 14 | 45 | 4.7 | 33 |
| 16 | 55 | 5.8 | 41 |
| 18 | 70 | 7.1 | 52 |
| 20 | 80 | 8.2 | 59 |
| 22 | 100 | 10.2 | 74 |
| 27 | 170 | 17.3 | 125 |
| 33 | 310 | 32 | 229 |
| 42 | 330 | 34 | 243 |
| 48 | 420 | 43 | 310 |
| 60 | 500 | 51 | 369 |

### ORFS Hydraulic Hose Connections (Item B to machine number 636000)

| Nominal Thread Diameter (inches) | Torque Settings Nm | kgf m | lbf ft |
|---|---|---|---|
| 9/16 | 24 | 2.5 | 18 |
| 11/16 | 33 | 3.3 | 24 |
| 13/16 | 44 | 4.8 | 35 |
| 1 | 58 | 6.0 | 43 |
| 13/16 | 84 | 8.6 | 62 |
| 17/16 | 115 | 11.8 | 85 |
| 111/16 | 189 | 19.4 | 140 |
| 2 | 244 | 24.9 | 180 |

### Hydraulic Hose to Adapter Connections (from machine number 636001)

| BSP Size (inches) | Torque Settings Nm | kgf m | lbf ft |
|---|---|---|---|
| 1/8 | 14 | 1.4 | 10 |
| 1/4 | 24 | 2.5 | 18 |
| 3/8 | 33 | 3.3 | 24 |
| 1/2 | 44 | 4.8 | 35 |
| 5/8 | 58 | 6.0 | 43 |
| 3/4 | 84 | 8.6 | 62 |
| 1 | 115 | 11.8 | 85 |
| 11/2 | 244 | 24.9 | 180 |

### Hydraulic Adapter into Component Connections with bonded washers (from machine number 636001)

| BSP Size (inches) | Torque Settings Nm | kgf m | lbf ft |
|---|---|---|---|
| 1/8 | 20 | 2.1 | 15 |
| 1/4 | 34 | 3.4 | 25 |
| 3/8 | 75 | 7.6 | 55 |
| 1/2 | 102 | 10.3 | 75 |
| 5/8 | 122 | 12.4 | 90 |
| 3/4 | 183 | 18.7 | 135 |
| 1 | 203 | 20.7 | 150 |
| 11/2 | 305 | 31 | 225 |

## Service Tools Numerical List

| | | Page No. |
|---|---|---|
| * 1370/0901Z | Nut | 5 - 4 |
| 1406/0021 | Bonded Washer | 4 - 1 |
| 1604/0006 | Adapter | 4 - 1 |
| 1604/0008 | Adapter | 4 - 1 |
| 1606/0012 | Adapter | 4 - 1 |
| 1606/0015 | Adapter | 4 - 1 |
| 1612/0006 | Adapter | 4 - 1 |
| 4101/0202 | Lock and Seal | 3 - 2 |
| 4101/0602 | High Strength Retainer | 3 - 2 |
| 4101/0402 | Threadlock | 3 - 2 |
| 4102/0502 | High Strength Gasketing | 3 - 2 |
| 4102/0933 | Clear Silicone Sealant | 3 - 2 |
| 4102/1201 | Multi Gasket | 3 - 2 |
| 4102/1901 | Loctite 577 | 3 - 2 |
| 4102/2002 | Loctite 518 | 3 - 2 |
| 4102/2210 | Clayton System Seal SC1251 | 3 - 2 |
| 4102/2309 | Black Polyurethane Sealant | 3 - 2 |
| 4103/2109 | Ultra Fast Adhesive | 3 - 2 |
| 4104/0101 | Activator N (Aerosol) | 3 - 2 |
| 4104/0102 | Activator N (Bottle) | 3 - 2 |
| 4104/0601 | Super Clean Solvent | 3 - 2 |
| 4104/1203 | Active Wipe 205 (250 g) | 3 - 2 |
| 4104/1206 | Active Wipe 205 (30 ml) | 3 - 2 |
| 4104/1310 | Hand Cleaner | 3 - 3 |
| 4201/4906 | Black Primer | 3 - 2 |
| 477/00437 | Gearbox Lifting Adapter | 5 - 2 |
| 816/15118 | Adapter/Test Point | 4 - 1 |
| 816/20008 | Adapter | 4 - 1 |
| 816/20013 | Adapter | 4 - 1 |
| 816/55040 | Adapter/Test Point | 4 - 1 |
| * 892/00041 | Deglazing Tool | 5 - 5 |
| 892/00078 | Connector | 4 - 1 |
| 892/00137 | Micro Bore Hose | 4 - 2 |
| 892/00174 | Measuring Cup | 5 - 2 |
| 892/00179 | Bearing Press | 5 - 1 |
| 892/00223 | Hand Pump | 4 - 2 |
| 892/00224 | Impulse Extractor | 5 - 2 |
| 892/00225 | Adapter for Impulse Extractor | 5 - 1 |
| 892/00253 | Pressure Test Kit | 4 - 1 |
| 892/00255 | Adapter/Test Point | 4 - 1 |
| 892/00256 | Adapter/Test Point | 4 - 1 |
| 892/00257 | Adapter/Test Point | 4 - 1 |
| 892/00258 | Adapter/Test Point | 4 - 1 |
| 892/00259 | Adapter/Test Point | 4 - 1 |
| 892/00260 | Adapter/Test Point | 4 - 1 |
| 892/00261 | Adapter/Test Point | 4 - 1 |
| 892/00262 | Adapter/Test Point | 4 - 1 & 4 - 2 |
| 892/00263 | Adapter/Test Point | 4 - 1 |
| 892/00264 | Adapter/Test Point | 4 - 1 |
| 892/00265 | Adapter/Test Point | 4 - 1 |
| 892/00268 | Flow Monitoring Unit | 4 - 1 |
| 892/00269 | Sensor Head | 4 - 1 |
| 892/00270 | Load Valve | 4 - 1 |
| 892/00271 | Adapter | 4 - 1 |
| 892/00272 | Adapter | 4 - 1 |
| 892/00273 | Sensor Head | 4 - 1 |
| 892/00274 | Adapter | 4 - 2 |
| 892/00275 | Adapter | 4 - 1 |
| 892/00276 | Adapter | 4 - 1 |
| 892/00277 | Adapter | 4 - 1 |
| 892/00278 | Gauge 0 - 40 bar | 4 - 2 |
| 892/00279 | Gauge 0 - 400 bar | 4 - 2 |
| 892/00281 | Avo Meter | 3 - 6 |
| 892/00282 | Shunt | 3 - 6 |
| 892/00283 | Tool Kit Case | 3 - 6 |
| 892/00284 | Digital Tachometer | 3 - 6 |
| 892/00285 | Oil Temperature Probe | 3 - 6 |
| 892/00286 | Surface Temperature Probe | 3 - 6 |
| 892/00293 | Connector Pipe | 4 - 1 |
| 892/00298 | Fluke Multimeter | 3 - 6 |
| 892/00294 | Connector Pipe | 4 - 1 |
| * 892/00311 | Brake Test Kit | 5 - 4 |
| 892/00312 | Dummy End Plate | 5 - 2 |
| 892/00313 | Clutch Alignment Tool | 5 - 1 |
| 892/00314 | Accumulator Adapter | 5 - 4 |
| 892/00315 | Engine Support Brackets | 5 - 1 |
| 892/00316 | Hexagon Extension | 4 - 2 |
| 892/00317 | Diagnostic Test Kit | 4 - 2 |
| 892/00318 | Hose and Adapter Kit | 4 - 2 |
| 892/00333 | Heavy Duty Socket, 19 mm A/F | 5 - 2 |
| 892/00334 | Gland Seal Fitting Tool | 4 - 2 |
| 892/00706 | Test Probe | 4 - 2 |
| 892/00800 | Splitting Frame | 5 - 1 |
| 892/00801 | Clutch spanner | 3 - 5 |
| 892/00802 | Rotor puller set | 3 - 5 |
| 892/00803 | Rotor installer set | 3 - 5 |
| 892/00807 | Front plate puller | 3 - 5 |
| 892/00808 | Shaft protector | 3 - 5 |
| 892/00812 | Drive Coupling Spanner | 5 - 1 |
| 892/00817 | Heavy Duty Socket, 17 mm A/F | 5 - 2 |
| 892/00819 | Heavy Duty Socket, 15 mm A/F | 5 - 2 |
| 892/00842 | Glass Lifter | 3 - 3 |
| 892/00843 | Folding Stand | 3 - 3 |
| 892/00844 | Long Knife | 3 - 4 |
| 892/00845 | Cartridge Gun | 3 - 3 |
| 892/00846 | Glass Extractor Handles | 3 - 4 |
| 892/00847 | Nylon Spatula | 3 - 5 |
| 892/00848 | Wire Starter | 3 - 4 |
| 892/00849 | Braided Cutting Wire | 3 - 4 |
| * 892/00864 | PD90 Axle Locknut Spanner | 5 - 3 |
| * 892/00871 | Frame | 5 - 4 |
| * 892/00874 | Brace | 5 - 4 |
| * 892/00875 | Bar | 5 - 4 |
| * 892/00876 | Block | 5 - 4 |
| 892/00882 | Socket | 3 - 6 |
| * 892/00883 | Spanner | 5 - 4 |
| * 892/00884 | 'C' Spanner | 5 - 4 |
| * 892/00891 | Oil Seal Insertion Tool | 5 - 3 |
| * 892/00892 | Speed Gearbox Locking Tool | 5 - 3 |
| 992/12300 | Mobile Oven | 3 - 3 |
| 992/12400 | Static Oven | 3 - 3 |
| 992/12600 | Static Oven | 3 - 4 |
| 992/12800 | Cut-out Knife | 3 - 4 |
| 992/12801 | 'L' Blades | 3 - 4 |
| 926/15500 | Rubber Spacer Blocks | 3 - 5 |
| 993/45400 | Torque Multiplier | 5 - 2 |
| 993/55700 | Direct Glazing Kit | 3 - 2 |
| * 993/59300 | Pressure Test Adapter/Clamp | 5 - 3 |
| 993/69800 | Seal Kit | 4 - 1 |
| * 993/85700 | Battery Tester | 3 - 6 |
| FABLM10 | Ball End Allen Key | 4 - 2 |
| FXW11A | Wobble Drive Extension | 4 - 2 |

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

**Replacement items for kit no. 892/00253**

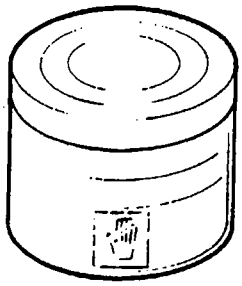
| | | |
|---|---|---|
| 892/00201 | Gauge 0 - 20 bar | 4 - 1 |
| 892/00202 | Gauge 0 - 40 bar | 4 - 1 |
| 892/00203 | Gauge 0 - 400 bar | 4 - 1 |
| 892/00254 | Hose | 4 - 1 |

## Sealing and Retaining Compounds

| | | | |
|---|---|---|---|
| **JCB Multigasket** | A medium strength sealant suitable for all sizes of gasket flanges, and for hydraulic fittings of 25-65 mm diameter. | 4102/1212 | 50ml |
| **JCB Threadlocker** | For threads of 50mm diameter upwards, eg. suction strainer. | 4101/0451 | 50ml |
| **JCB Threadlocker** (High Strength) | A high strength locking fluid for use with threaded components. Gasketing for all sizes of flange where the strength of the joint is important. | 4102/0551 | 50ml |
| **JCB Retainer** (High Strength) | For all retaining parts which are unlikely to be dismantled. | 4101/0651 | 50ml |
| **JCB Threadlocker And Sealer** | A medium strength locking fluid for sealing and retaining nuts, bolts, and screws up to 50 mm diameter, and for hydraulic fittings up to 25 mm diameter. | 4101/0250<br>4101/0251 | 10ml<br>50ml |
| **JCB Threadlocker And Sealer** (High Strength) | A high strength locking fluid for sealing and retaining nuts, bolts, and screws up to 50 mm diameter, and for hydraulic fittings up to 25 mm diameter. | 4101/0550<br>4101/0552 | 10ml<br>200ml |
| **JCB Threadseal** | A medium strength thread sealing compound. | 4102/1951 | 50ml |
| **JCB Activator** | A cleaning primer which speeds the curing rate of anaerobic products. | 4104/0251<br>4104/0253 | Aerosol (1 ltr)<br>Bottle (200 ml) |
| **JCB Cleaner/Degreaser** | For degreasing components prior to use of anaerobic adhesives and sealants. | 4104/1557 | Aerosol (400ml) |
| **Direct Glazing Kit** | For one pane of glass; comprises items marked † below plus applicator nozzle etc. | | |
| **† Ultra Fast Adhesive** | For direct glazing | 4103/2109 | 310 ml |
| **† Active Wipe 205** | For direct glazing | 4104/1203 | 250 g |
| **† Black Primer 206J** | For direct glazing | 4201/4906 | 30 ml |
| **Clear Silicone Sealant** | To seal butt jointed glass. | 4102/0901 | |

## Service Tools (continued)

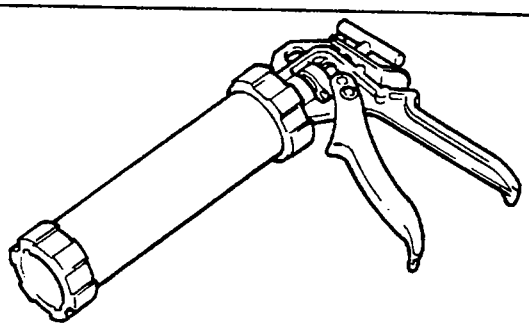
**Body and Framework (continued)**



S186240

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

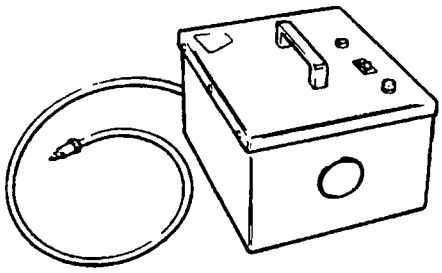
JCB part number - 4104/1310 (454g; 1lb tub)



S186270

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

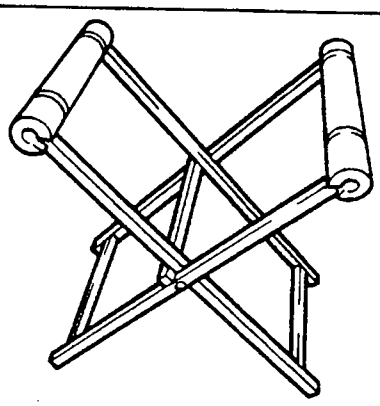
JCB part number - 892/00845



S186250

**12V Mobile Oven** - 1 cartridge capacity - required to pre-heat adhesive prior to use. It is fitted with a male plug (703/23201) which fits into a female socket (715/04300).

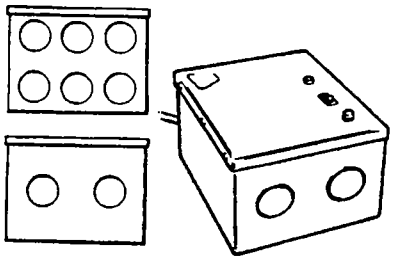
JCB part number - 992/12300



S186280

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

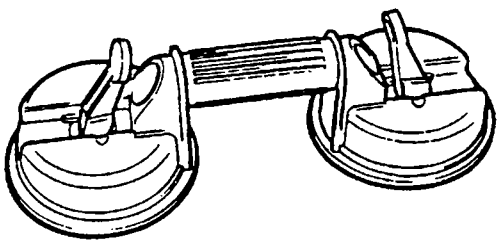
JCB part number - 892/00843



S186260

**240V Static Oven** - available with 2 or 6 cartridge capacity - required to pre-heat adhesive prior to use. No plug supplied. Note: 110V models available upon request - contact JCB Technical Service

JCB part number:
992/12400 - 2 cartridge x 240V
992/12600 - 6 cartridge x 240V



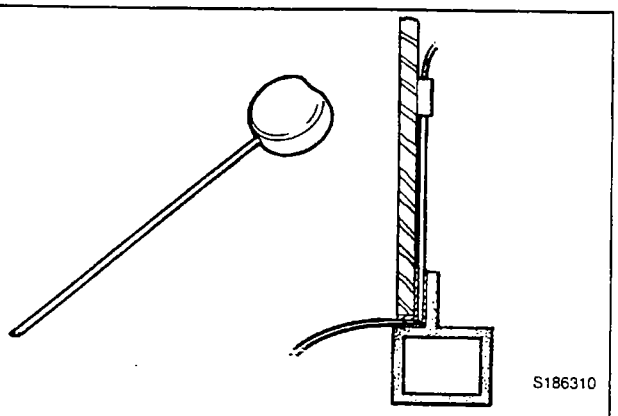
S186300

**Glass Lifter** - minimum 2 off - essential for glass installation, 2 required to handle large panes of glass. Ensure suction cups are protected from damage during storage.

JCB part number - 892/00842

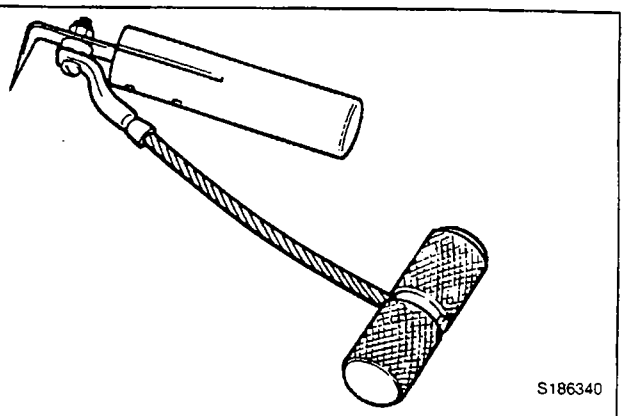
## Service Tools (continued)

**Body and Framework (continued)**



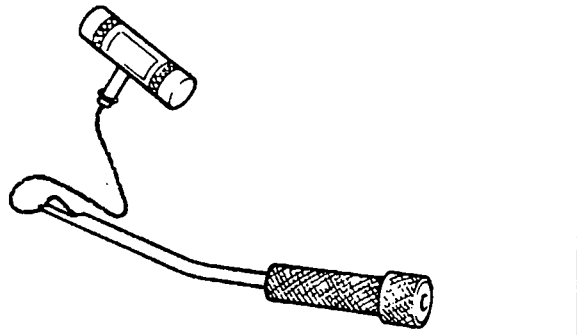

**Wire Starter** - used to access braided cutting wire (below) through original polyurethane seal.

JCB part number - 892/00848



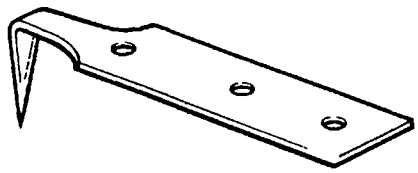

**Cut-out Knife** - used to remove broken glass.

JCB part number - 992/12800



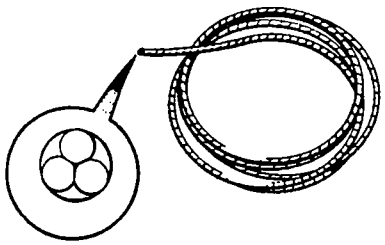

**Glass Extractor (Handles)** - used with braided cutting wire (below) to cut out broken glass.

JCB part number - 892/00846



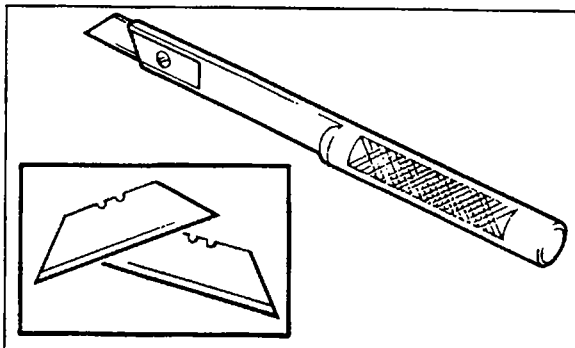

**'L' Blades** - 25mm (1in.) cut - replacement blades for cut-out knife (above).

JCB part number - 992/12801 (unit quantity = 5 off)




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

JCB part number - 892/00849 (approx 25m length)

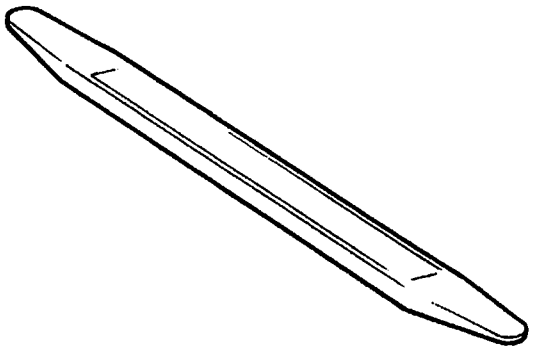



**Long Knife** - used to give extended reach for normally inaccessible areas.

JCB part number - 892/00844

## Service Tools (continued)

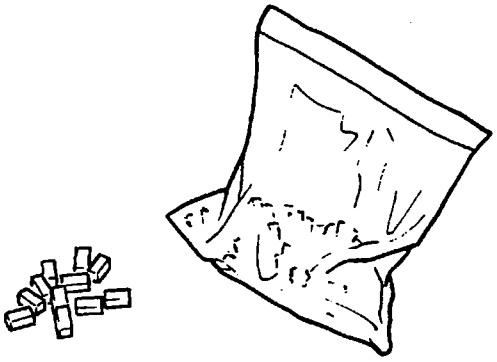
### Body and Framework (continued)



S186470

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

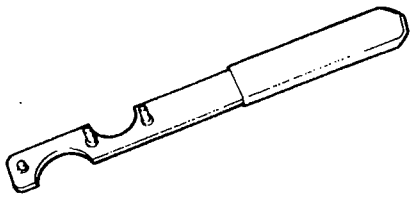
JCB part number - 892/00847



S186550

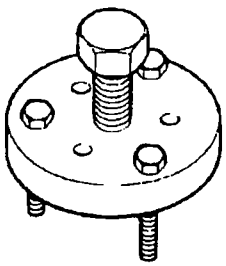
**Rubber Spacer Blocks** - used to provide the correct set clearance between glass edge and cab frame.

JCB part number - 926/15500
(unit quantity = 500 off)



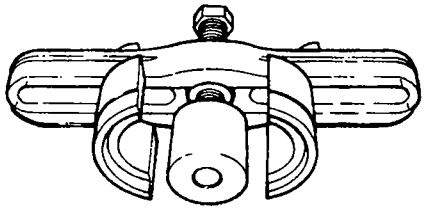
892/00801 Clutch spanner
for air conditioning compressor

S200940



892/00807 Front plate puller
for air conditioning compressor

S200970

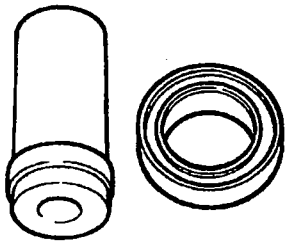


892/00802 Rotor puller set
for air conditioning compressor

S200950

892/00808 Shaft protector
for air conditioning compressor

S200980

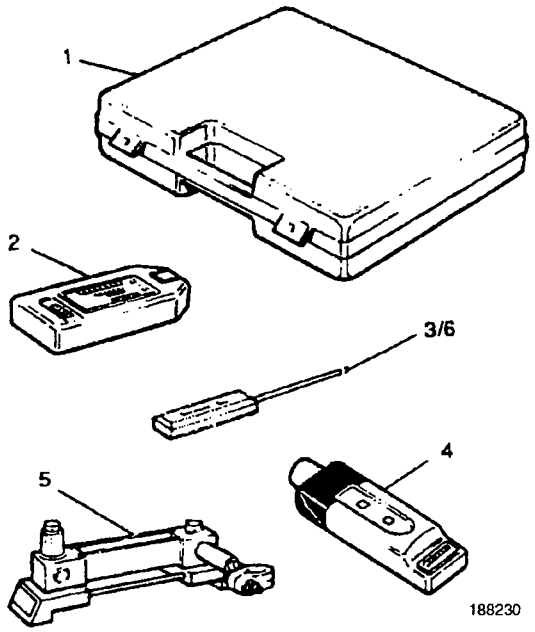


892/00803 Rotor installer set
for air conditioning compressor

S200960

## Service Tools (continued)

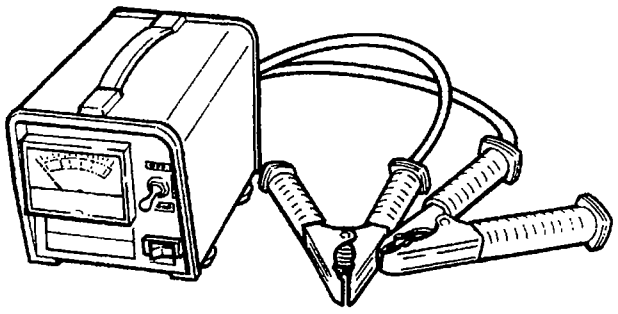
**Section C - Electrics**



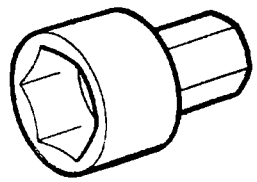

**Electrical Test Equipment**

| | | |
|---|---|---|
| 1 | 892/00283 | Tool Kit Case |
| 2 | 892/00281 | AVO Meter |
| 3 | 892/00286 | Surface Temperature Probe |
| 4 | 892/00284 | Microtach Digital Tachometer |
| 5 | 892/00282 | 100 Amp Shunt - open type |
| 6 | 892/00285 | Hydraulic Oil Temperature Probe |
| 7 | 892/00298 | Fluke 85 Multimeter |

*



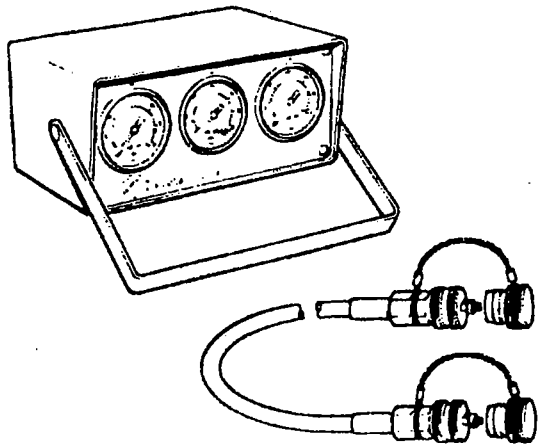

993/85700 Battery Tester




892/00882 Socket for Pulley Nut on Magneti Marelli Alternator.

## Service Tools (cont'd)

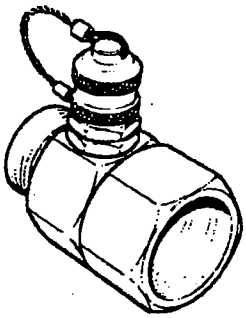
**Section E - Hydraulics**



Hydraulic Circuit Pressure Test Kit

| | |
|---|---|
| 892/00253 | Pressure Test Kit |
| 892/00201 | Replacement Gauge 0-20 bar (0-300 lbf/in²) |
| 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) |

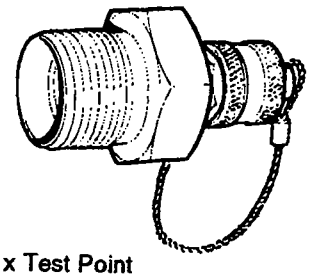
S188120



Pressure Test 'T' Adapters

| | |
|---|---|
| 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 |

S188130



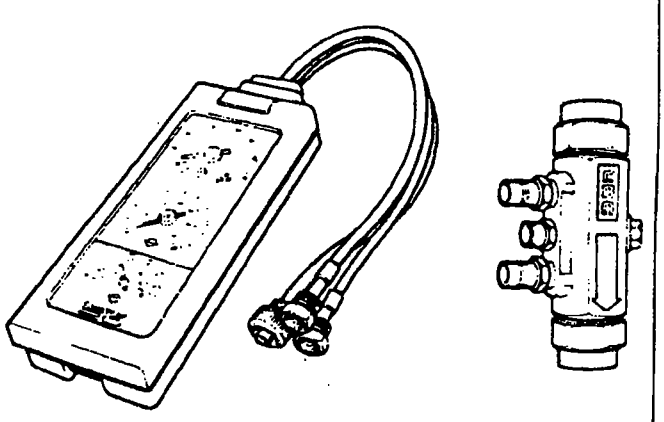
Pressure Test Adapters

| | |
|---|---|
| 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 |

S200140

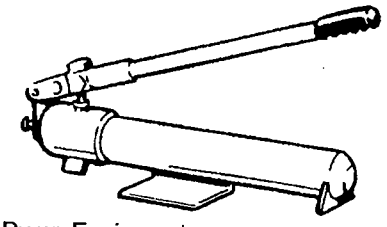
Flow Test Equipment

| | |
|---|---|
| 892/00268 | Flow Monitoring Unit |
| 892/00269 | Sensor Head 0 - 100 l/min (0 - 22 UK gal/min) |
| 892/00293 | Connector Pipe |
| 892/00270 | Load Valve |
| 1406/0021 | Bonded Washer |
| 1604/0006 | Adapter 3/4 in M x 3/4 in M BSP |
| 1612/0006 | 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 |
| 892/00273 | Sensor Head 0 - 380 l/min |
| 892/00294 | Connector Pipe |
| 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 |



S188150

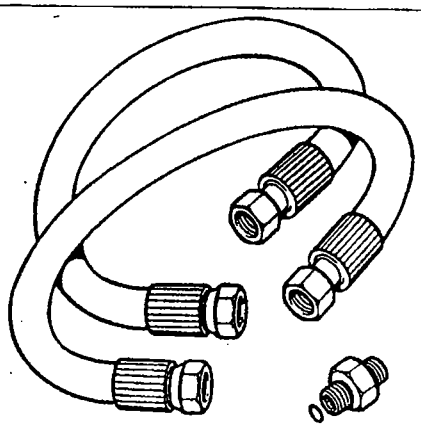
## Service Tools - Hydraulics (continued)



S193850

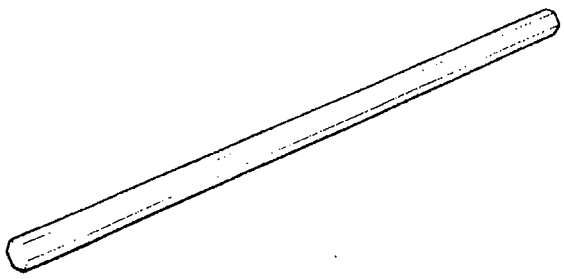
Hand Pump Equipment

| | |
|---|---|
| 892/00223 | Hand Pump |
| 892/00137 | Micro-bore Hose $\frac{1}{4}$ in BSP x 3 metres |
| 892/00274 | Adapter $\frac{1}{4}$ in BSP male x $\frac{3}{8}$ BSPT male |
| 892/00262 | Test Point on $\frac{1}{4}$ in BSP male x $\frac{1}{4}$ BSP female adapter |
| 892/00706 | Test Probe |
| 892/00278 | Gauge 0-40 bar (0-600 lbf/in²) |
| 892/00279 | Gauge 0-400 bar (0-6000 lbf/in²) |



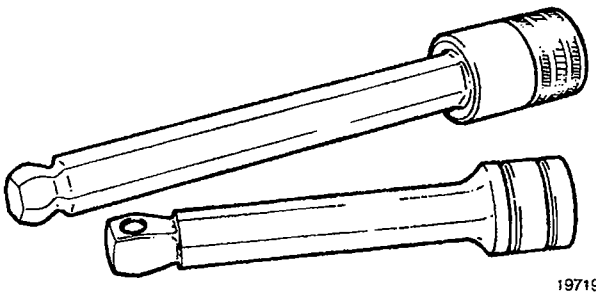
197210

892/00318 Hose And Adapter Kit
To enable flow and pressure test equipment to be connected to adapters fitted with 'O' ring face seals.



197230

892/00316 Hexagon Extension to reach the lower mounting capscrew on the transmission and external hydraulics pump.
(prior to machine no. 636001)

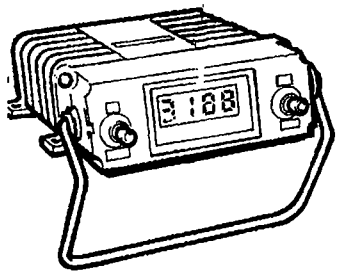


197190

Tools to reach the lower mounting capscrew on the transmission and external hydraulics pump.
(These suit all machines before and after serial no. 636001.)

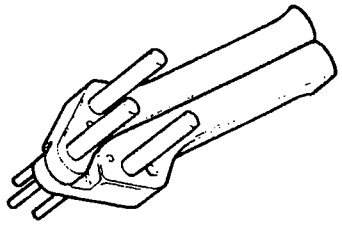
| | |
|---|---|
| 10 mm Ball End Allen Key | Part no. FABLM10 |
| 60 mm Wobble Drive Extension | Part no. FXW11A |

Obtain from Snap-on suppliers



S191580A

892/00317 Diagnostic Test Box for Electronic Draft Control

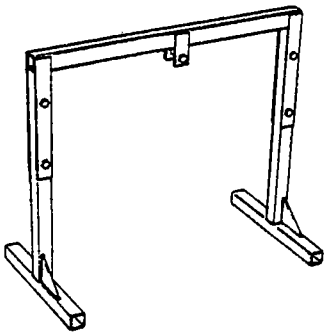


197220

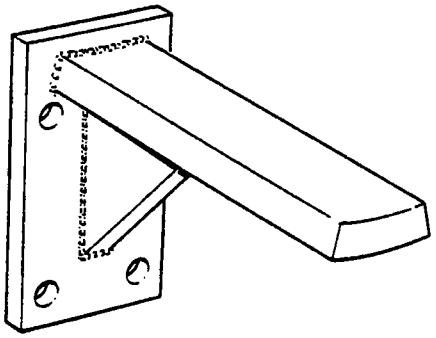
892/00334 Gland Seal Fitting Tool

## Service Tools (cont'd)

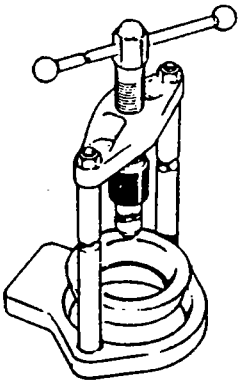
**Section F - Transmission**



892/00800 Splitting Frame (complete with ratchet hoist)

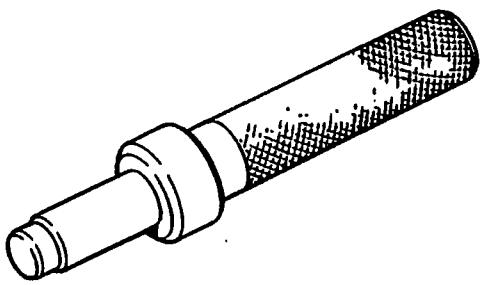


892/00315 Engine Support Bracket

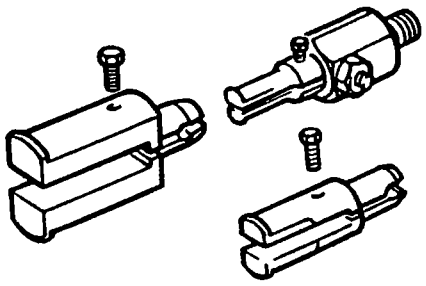


892/00179 Bearing Press

892/00812 Drive Coupling Spanner for front and rear axle yoke couplings



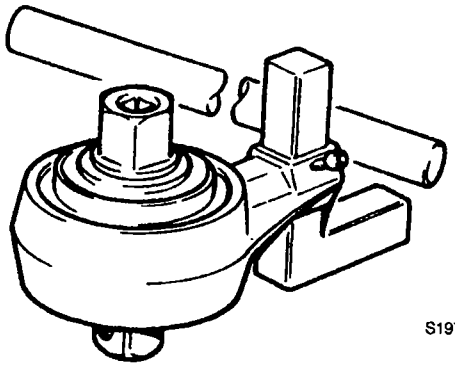
892/00313 Clutch Alignment Tool



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

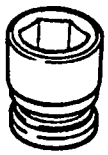
## Service Tools (continued)

**Section F - Transmission**



S197030

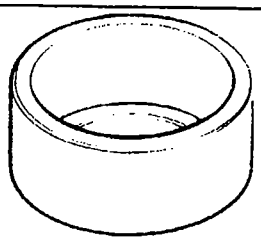
993/45400 Torque Multiplier
(use in conjunction with a torque wrench to give a 5 : 1 multiplication)



197250

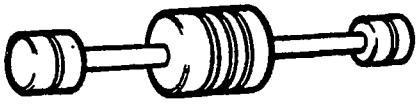
* Heavy Duty Sockets

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



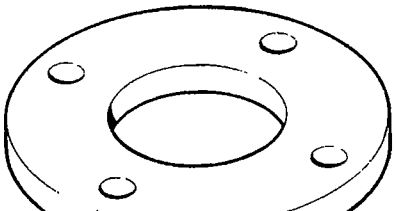
S190770

892/00174 Measuring Cup - Pinion Head Bearing



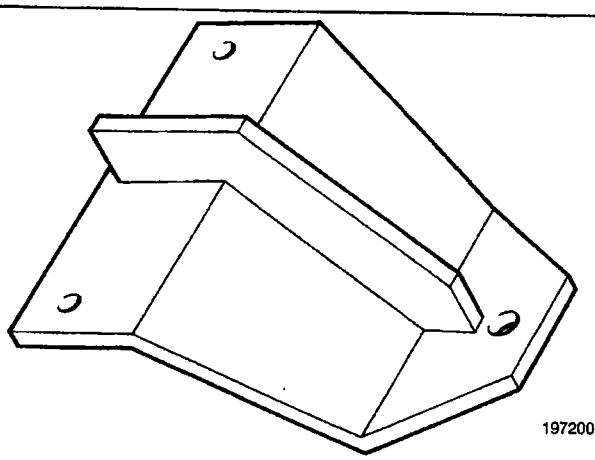
S197070

892/00224 Impulse Extractor Set for Hub Bearing Seals



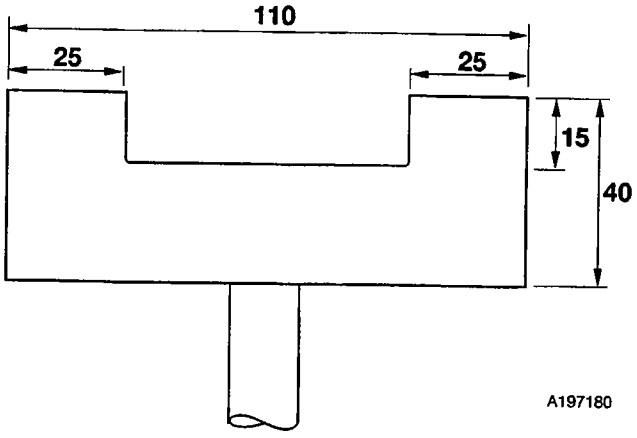
S197240

892/00312 Dummy End Plate for Range Gearbox



197200

477/00437 Gearbox Lifting Adapter
(from machine no. 636001)

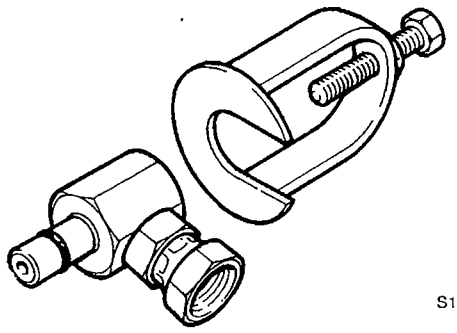



A197180

Rear Differential Setting Key (from machine no. 636001)
Cut from 5 mm plate to dimensions shown. Fabricate handle to suit.

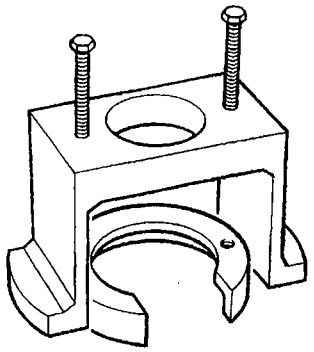
## Service Tools (continued)

**Section F - Transmission (continued)**



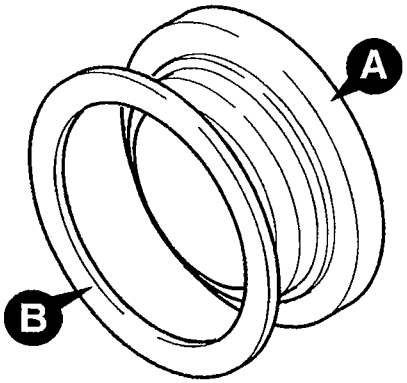
S196750

993/59300 2/4 WD Pressure Test Adaptor & Clamp



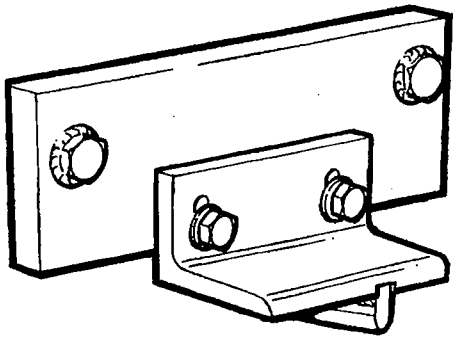
S267310

* 892/00916 Spring Compressor for Splitter & PTO Clutches



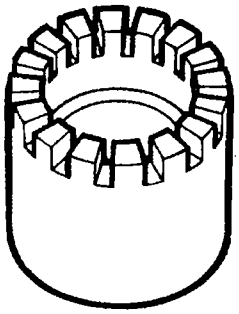

A234900

892/00891 Oil Seal Insertion Tool Assembly



S226300

892/00892 Speed Gearbox Locking Tool

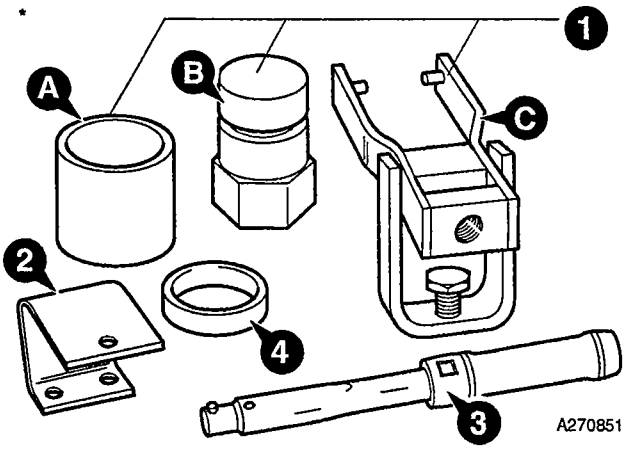


S234120

892/00864 PD90 Axle Locknut Spanner

## Service Tools (continued)

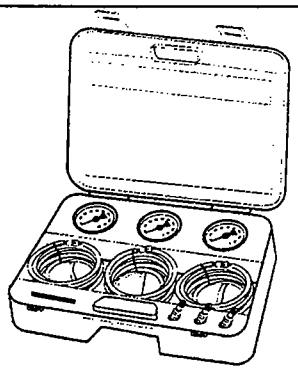
### Section F - Transmission (continued)




***Solid Spacer Setting Tools**

| | | | |
|---|---|---|---|
| 1 | 892/00918 | | Setting Tool Kit. Contains the following: |
| | | **A** | Sleeve for M24 Pinion |
| | | **B** | Adapter for M30 Pinion |
| | | **C** | Fork (suitable for all axles) |
| | The following setting tools must be purchased separately: | | |
| | 892/00945 | **A** | Sleeve for M30 Pinion |
| | 997/11100 | **B** | Adapter for M24 Pinion |
| 2 | 997/11000 | | Drive Head Setting Bracket |
| 3 | 993/70111 | | Break-back Torque Wrench |
| 4 | - | | Solid spacer (see parts CD or michrofiche for part numbers) |

### Section G - Brakes




892/00311 Brake Test Kit

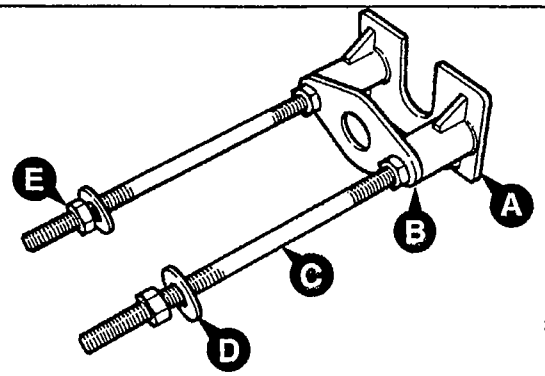
3 x Calibrated Test Gauges - 0-20 bar (0 - 290 lbf/in²)

3 x 5 Metre Hoses with Quick Release Adapters

3 x ISO Test Point Adapters

## Service Tools (continued)

### Section H - Steering

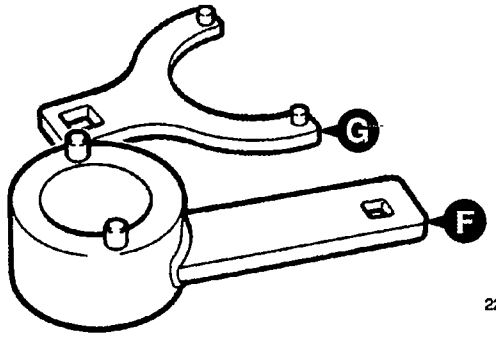



222490

Puller adapter assembly for removal of drop arm from steering box from machine no. 636372. Comprises:

| | | | |
|---|---|---|---|
| **A** | 892/00871 | Frame | 1 off |
| **B** | 892/00874 | Brace | 1 off |
| **C** | 892/00875 | Bar M24 | 2 off |
| **D** | 892/00876 | Block | 2 off |
| **E** | 1370/0901Z | Nut M24 | 2 off |

Use in conjunction with a 20 tonne hydraulic ram as obtainable from Sykes Pickavant to suit puller bars at 185 mm centres.

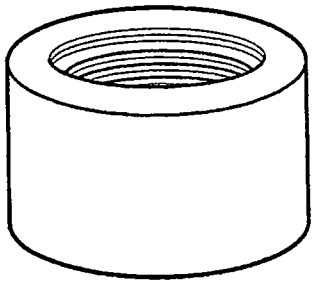



220130

Spanners for input shaft nuts on steering box from machine no. 6363372.

| | | | |
|---|---|---|---|
| * **F** | 892/00884 | 'C' Spanner | |
| **G** | 892/00883 | Spanner | |

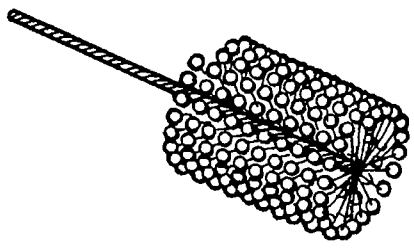
### Section S - Suspension



S199480

892/00314 Accumulator and Gas Spring Pressure Test Adapter

### Section T - Engine



S192390

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

**Note:** For other engine tools refer to the relevant Engine Service Manual.

## General

Do not tow a machine unless there is no alternative. Remember that more damage might be caused to the machine by towing it. If at all possible repair the machine where it stands.

**Note:** It is not possible to tow-start a machine fitted with JCB Powersplit.

Make sure you will be obeying all pertinent laws and regulations before towing the machine on public roads.

### ⚠ DANGER

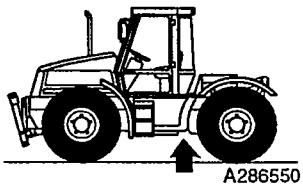
**If the engine is not running, there will not be enough air to apply the service brakes or release the parking brake. Carefully follow the precautions in this section before moving the machine or there may be a serious accident.**
13-2-2-6/1

### ⚠ CAUTION

**Towing a machine too far or too fast can damage the transmission. Do not tow the machine further than one mile. Use a trailer for greater distances. When towing do not travel faster than 25 km/h (15 mph).**

**Use a rigid drawbar. If you must use towing chains, then use two towing vehicles. One towing vehicle should be coupled to the front of the disabled machine. The other towing vehicle should be coupled to the rear of the disabled machine, to provide braking power.**

**The towing vehicle(s) must have enough pulling and braking power to move and stop the machine.**
2-2-7-3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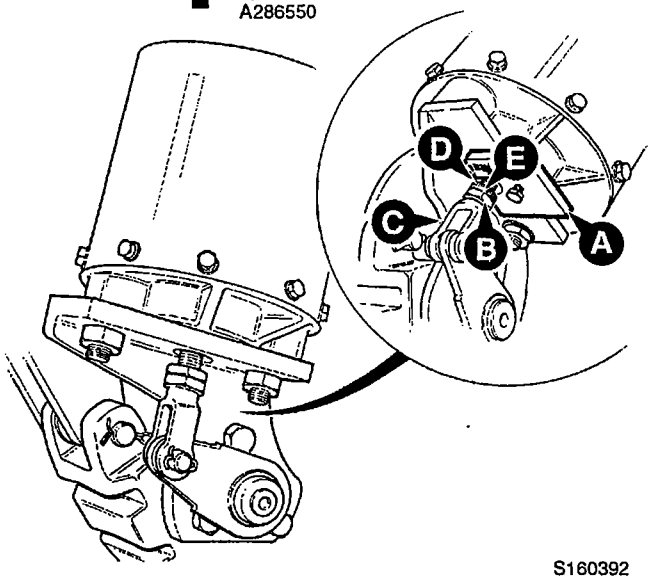


S160392

## Preparation for Towing

1 **Connect the towing vehicle.**
- a Apply the parking brakes on the towing vehicle and securely chock the wheels on the Fastrac.
- b Fit the drawbar between towing vehicle and Fastrac.

2 **Prepare the machine.**
- a Make sure that the range and speed gearboxes are both in neutral.
- b If the gearbox has failed, disconnect both propshafts (see Section F).
- c If an axle has failed, remove the sun gears (see Section F).

3 **Release the Fastrac parking brake.**

If there is not enough air pressure to release the brake, start the engine to charge up the air system. If the engine cannot be run but the brake air system is serviceable, charge the system to 120 psi (8 bar) through Schrader valve **X. This job must be done by a qualified mechanic, using the correct equipment.**

### ⚠ DANGER

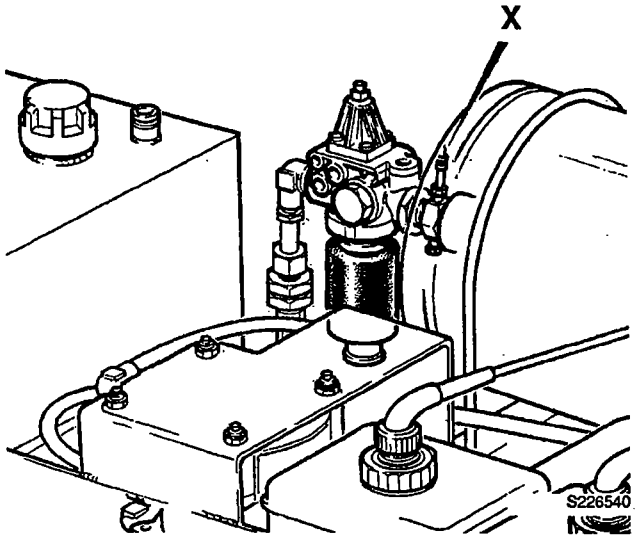
**Ensure that the chocks and towing vehicle will prevent the Fastrac from moving as it is necessary to work under the machine to release the parking brake. When the parking brake has been manually released as described below, it will be impossible to apply the brake until plate A has been removed.**
13-2-2-11

Alternatively, position plate **A** (if provided with the machine) as shown. Keeping nut **B** tight against clevis **C**, turn nut **D** against the plate so that rod **E** is drawn out of the actuator body and the parking brake is released.

**Note:** If the parking brake cannot be released, remove both propshafts (see Section F).

The machine is now ready for towing. If you will be steering the Fastrac, make sure you understand what the towing driver will be doing. Obey his instructions and all relevant regulations.

Remember that the steering will be much heavier if the engine is not running.



S226540

## *Transporting the Machine

**The safe transit of the load is the responsibility of the transport contractor and driver. Any machine, attachments or parts that may move during transit must be adequately secured.**
5-2-5-9

**Note:** Before transporting the machine make sure you will be obeying the rules and laws of all the areas that the machine will be carried through.

Make sure that the transporting vehicle is suitable. See **Static Dimensions** (SPECIFICATIONS section in the machine handbook) for the dimensions of the machine.

### ⚠ WARNING

**Before moving the machine onto the trailer, make sure that the trailer and ramp are free from oil, grease and ice. Remove oil, grease and ice from the machine tyres. Make sure the machine will not foul on the ramp angle. See** Static Dimensions in SPECIFICATIONS **section for the minimum ground clearance of your machine.**
2-2-7-5/1

1 Place blocks at the front and rear of the trailer wheels.

2 Move the machine on to the trailer as follows:
- **a** Make sure the ramps are correctly in place and secure.
- **b** Carefully drive the machine onto the trailer.
- **c** Set the drive to neutral and engage the parking brake.
- **d** Switch off the engine.
- **e** Ensure that the overall height of the load is within regulations.
- **f** Secure the cab.

3 Anchor the machine to the trailer with chains or suitable webbing straps. The preferred fixing is to use webbing straps individually fixing all four wheels to the deck of the trailer as at **A**. If chains are used they should be connected to a suitable part of the drawbar at the rear of the machine. At the front, use the tie down points. Avoid chaining any part of the machine where the chains may damage critical componentry. For example, chaining around either axle provides the possibility of damaging the steel brake pipes running along their length.

4 Measure the maximum height of the machine from the ground. Try to make sure the truck driver knows the clearance height before he drives away.