

**INTRODUCTION**

Contained in this section are recommended service tools and equipment required for maintenance, overhaul and troubleshooting. In certain instances, both Metric and Imperial equivalents of the same tools are listed.

**Note:** A tool may be of one piece construction or consist of a number of parts.

**General**

- \*15269784 - Multi-Gauge - Pressure range of 30 in of vacuum to 5 000 lbf/in<sup>2</sup>
- 15269785 - Non-contact Infrared Thermometer
- 15271082 - ORFS 'O' Ring Kit
- 15268968 - Strap Type Filter Wrench
- 15268969 - Socket Type Filter Wrench
- 15268970 - Universal Belt Tension Gauge
- 15269858 - Digital Tachometer
- 15269859 - Multimeter
- 15269813 - Water Manometer
- 15269802 - Dial Indicator Gauge - Metric
- 15269803 - Dial Indicator Gauge - Imperial
- 15269804 - Magnetic Base for Dial Indicator Gauge
- 15269805 - Micrometer - 0 to 25 mm
- 15269806 - Micrometer - 0 to 1 in
- 15269860 - 92 Piece Heavy Equipment Tool Kit
- 15269861 - Torque Wrench - 3/8 in drive, 20 - 100 Nm (15 - 80 lbf ft) range
- 15269862 - Torque Wrench - 1/2 in drive, 60 - 330 Nm (45 - 250 lbf ft) range
- 15269863 - Torque Wrench - 3/8 in drive, 4 - 20 Nm (40 - 180 lbf in) range
- 15269864 - Torque Wrench - 3/4 in drive, 300 - 1 000 Nm (200 - 750 lbf ft) range
- 15269865 - Torque Wrench - 3/4 in drive, 700 - 1 500 Nm (500 - 1 000 lbf ft) range
- 15269866 - Torque Multiplier - 1/2 in to 1 in drive, 25:1 Ratio, 3 000 Nm (2 200 lbf ft) range

\* - The following items should be added to the multi-gauge to enable the gauge to be used on diagnostic test points:

- 15018226 - Diagnostic Coupling
- 00118748 - Connector (2 off)
- 15004085 - Hose Assembly (-4 HP, 84 in long)

**Engine****QSM - Electronic Diagnostic Tooling**

- 15500622 - Insite Kit - Includes Insite program and inline adaptor. Note; 15500716 Deutsch Cable should be added to this kit.
- 15500623 - Insite Program (Individual Spare)

- 15500624 - Inline Connector (Individual Spare)
- 15500716 - Deutsch Cable (Individual Spare)
- 15500388 - QuickCheck II Kit (For use with palm top) - Includes; Adaptors, Software and Cables.

The following tools are recommended for Engine Maintenance Procedures. These tools should be used in conjunction with procedures outlined in the engine manufacturers service manual.

- 15270076 - Vacuum Gauge
- 15270075 - Dial Depth Gauge
- 15270006 - Connecting Rod Checking Fixture
- 15269956 - Standard Puller
- 15269958 - Piston Ring Expander
- 15270078 - Manometer
- 15269959 - Main Bearing Cap Puller
- 15270081 - Pressure Gauge
- 15269960 - Dial Gauge Attachment
- 15270009 - Threaded Insert Kit
- 15269962 - Dial Bore Gauge Kit
- 15270079 - Manometer Tool
- 15270042 - Pressure Gauge (0 - 160 lbf/in<sup>2</sup>)
- 15270010 - Crack Detection Kit
- 15270082 - Pressure Gauge (0 - 300 lbf/in<sup>2</sup>)
- 15269971 - Connecting Rod Guide Pins
- 15269966 - Cylinder Liner Puller Plate
- 15269961 - Dial Indicator Gauge
- 15269973 - Oil Seal Guide
- 15269974 - Oil Seal Guide
- 15269975 - Pulley Installation Tool
- 15269980 - Regulator Retainer Plug Driver
- 15269981 - Oil Seal Guide
- 15269982 - Torque Wrench - lb in
- 15269985 - Flywheel Housing Alignment Plate
- 15270070 - Coupling Puller
- 15270004 - Magnetic Base
- 15269994 - Cylinder Head Lifting Bracket
- 15270084 - Blowby Check Tool
- 15269996 - Injector Puller
- 15269997 - Piston Ring Compressor
- 15269999 - Gauge Block
- 15270072 - Drive Gear Driver
- 15270020 - Needle Bearing Kit
- 15270021 - Bearing Installation Tool
- 15269984 - Engine Barring Tool
- 15270003 - Cylinder Liner Clamping Tool
- 15274125 - Cooling System Test Kit
- 15274126 - Refractometer
- 15274129 - Hose Adaptor
- 15274130 - Hose Adaptor
- 15274127 - Belt Tension Gauge
- 15274128 - Hose Assembly Tools
- 15274060 - Heavy Duty Cam Gear Puller Kit
- 15274131 - Wrench, Air Impact

## Miscellaneous - Service Tools

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### Section 300-0070

15274138 - Installer, Valve Guide  
15274146 - Adaptor, Fuel Restriction  
15274141 - Lubriplate 105 Lubricant  
15274136 - Kit, Torque Wrench  
15274139 - Pliers, Boot  
15274142 - Lamp, 100W Black Light Kit  
15274143 - Charger Set International  
15274135 - Kit, Guide Pin  
15274140 - Fixture, Pulley Alignment  
15274134 - Kit, Inline II Datalink Adaptor  
15274059 - Liner Puller  
15274061 - Injector Protrusion Comparator  
15274062 - Tube, Fuel Line Sight #12  
15274063 - Pilot, Oil Seal Puller Drills  
15274064 - Kit, Turbo Rebuild  
15274065 - Digital Tachometer Kit  
15274066 - Bent Wrench  
15274067 - Adaptor, Fuel Line Sight #16 Hose  
15274068 - Gear Puller, Jaw  
15274069 - Guide, Valve Installation  
15274070 - Expander, Fan Hub Seal  
15274071 - Capscrew, Pulley Puller  
15274072 - Driver, Regulator Valve Seat  
15274073 - Gauge, Cylinder Liner Ring  
15274074 - Tube, Fuel Line Sight  
15274075 - Cam Guide Expander - Large Dia  
15274076 - Fluorescent Tracer  
15274077 - Expander, Accessory Drive Shaft Seal  
15274078 - Fuel Pump S Wrench  
15274079 - Kit, Torque Wrench  
15274080 - Fitting Quick Connect  
15274081 - Fitting Quick Connect  
15274082 - Tube, Cooling System Sight  
15274083 - Tube, Cooling System Sight  
15274084 - Tube, Cooling System Sight  
15274148 - Wrench, Dial Type Torque  
15274144 - Wrench, Nylon Strap Filter  
15274145 - Gauge, Torque Angle  
15274147 - Wrench, Crows Foot 13 mm  
15274124 - Set, Torx Plus Driver  
15274137 - Bit, Screw Driver  
15274085 - Engine Parts Rack  
15274086 - Gauge, Belt Tension  
15274087 - Socket, Engine Position Sensor  
15274088 - Kit, Combustion Gas Leak Test  
15274132 - Test Fluid  
15274089 - Thermocouple Wire Kit  
15274090 - Engine Coolant Analyser  
15274091 - Gauge, Belt Tension  
15274092 - Wrench, CELECT Torque  
15274093 - Screwdriver, CELECT  
15274094 - Puller, Water Pump Pulley  
15274095 - Adjuster, STC Tappet  
15274096 - Super Chip Vacuum Kit  
15274097 - Gauge, Cyl. Head Capscrew Length

15274098 - Kit, Counterbore Ledge Cutter  
15274099 - Cutter Plate  
15274100 - Clamp On Current Probe  
15274101 - Injector Puller/driver  
15274102 - Kit, Hydraulic Actuator  
15274103 - Kit, Hydraulic Cylinder Support  
15274104 - Kit, Cam Bushing I/R  
15274105 - Kit, Rail Pressure Response  
15274106 - Kit, Pulley Installation Adaptor  
15274107 - Socket, Deep Flank Drive  
15274108 - Template, Cylinder Head Capscrew  
15274109 - Torque Angle Gauge  
15274110 - Small Bushing Driver Set  
15274111 - Kit, CNG Wastegate Test  
15274112 - Fixture, Cam Follower Assy R/I  
15274113 - Validator, Torque Wrench  
15274114 - Kit, Cylinder Head Leak Test  
15274115 - Kit, Charge Air Cooler Tester  
15274116 - Module, Vacuum Pressure  
15274117 - Meter, Automotive  
15274118 - Puller, STC Injector  
15274119 - Driver, Thermostat Seal  
15274120 - Sensor Break-out Kit  
15274121 - Counterbore Salvage Kit  
15274122 - Installer, Oil Capacitor  
15274123 - Kit, Wiring Repair, Basic  
15274133 - Cable, Throttle Breakout

### Transmission

The following tools are recommended for Transmission Maintenance Procedures. These tools should be used in conjunction with procedures outlined in the transmission manufacturers service manual.

15270087 - Straight Pin  
15270195 - Ring  
15270196 - Threaded Insert  
15270092 - Puller  
15270093 - Puller  
15270098 - Driver  
15270197 - Driver  
15270198 - Driver  
15270199 - Driver  
15270200 - Driver  
15270201 - Driver  
15270104 - Driver  
15270202 - Driver  
15270203 - Driver  
15270204 - Driver  
15270112 - Measuring Pin  
15270115 - Set of Eye Bolts  
15270205 - Back-off Screws - M10  
15270119 - Adjusting Screws - M10  
15270206 - Back-off Screws - M8  
15270116 - Adjusting Screws - M8

15270207 - Back-off Screws - M12  
15270208 - Adjusting Screws - M5  
15270209 - Adjusting Screws - M12  
15270210 - Adjusting Screws - M12 x 1.5  
15269899 - Hot Air Blower 220 V  
15269900 - Hot Air Blower 110 V  
15270211 - Backup Tool  
15270120 - Clamping Yoke  
15269942 - Handle  
15270212 - Hoist  
15270213 - Pulling Hook  
15270214 - Ring Nut  
15270215 - Hoist  
15270216 - Internal Puller  
15270217 - Backup Tool  
15270218 - Mounting Rail  
15270127 - Guide Plate  
15270131 - Pry Bar  
15270219 - Adjusting Spanner  
15270220 - Hook Spanner  
15270221 - Hook Spanner  
15270222 - Insert for Torque Spanner  
15270223 - Extension  
15270224 - Extension  
15270225 - Hook Spanner  
15270226 - Hook Spanner  
15270227 - Pressing Sleeve  
15270228 - Pressing Ring  
15270229 - Pressure Piece  
15270230 - Backup Ring  
15270231 - Test Cover  
15270139 - Striker  
15270233 - Internal Snap Ring Pliers  
15270145 - External Snap Ring Pliers  
15270234 - Two Leg Puller  
15270149 - Two Leg Puller  
15270150 - Three Leg Puller  
15270151 - PR-78A Tester  
15270311 - Harness  
15270153 - Foil  
15270725 - PR-68 Tester  
15269943 - Spanner  
15271103 - Hook Spanner  
15271105 - Hook Spanner  
15272559 - Ring Clamp  
15272560 - Bearing Puller  
15272561 - Bearing Remover  
15273664 - AEB Starter

## Axles and Differentials

15503031 - Grooved Socket Wrench  
15503032 - Lifting Device  
15503033 - Seal Punch  
15503034 - Seal Punch  
15503090 - Driver  
15503093 - Lifting Device  
15503094 - Bearing Tool  
15503095 - Bearing Tool  
15503096 - Lifting Device

For Fabricated tools refer to Section 140-0020 AXLE GROUP HUB.

## Front Suspension

The following tools are recommended for any front suspension maintenance procedures. These tools should be used in conjunction with the procedures outlined in Section 180-0020 SUSPENSION SYSTEM - FRONT SUSPENSION.

Those tools with an asterix\* can be fabricated if wished.

15503485 - Assembly rig\* (Fig. 7)  
15503486 - Assembly support\* (Fig. 8)  
15503487 - Assembly stand\* (Fig. 9)  
15503488 - Locknut tool  
15503489 - 3/8" x 17mm Crows Foot  
15503490 - 3/8" x 19mm Crows Foot  
15503491 - Puller Set  
15503492 - Puller set  
15503493 - 1/2 shaft Assy Removal Tool\* (Fig. 10)  
15503494 - 1/2 Shaft Seal Insertion Tool\* (Fig. 11)  
15503495 - 1/2 Shaft Seal Flinger Assy Tool\* (Fig. 12)  
15503496 - 1/2 Shaft Seal IBearing Assy Tool\* (Fig.13)  
15503497 - 1/2 Shaft Locknut Assy Tool\* (Fig. 14)  
15503498 - Damper Extension Tool\* (Fig. 15)  
15503499 - Pivot Block Seal Insertion Tool\* (Fig. 16)  
15503500 - Socket head tightening bolt\* (Fig. 17)  
15503501 - LWB Bush Insertion Tool 1\* (Fig. 18)  
15503502 - LWB Bush Insertion Tool 2\* (Fig. 19)  
15503503 - Knuckle dowel Removal Tool\* (Fig. 20)

## Miscellaneous - Service Tools

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### Hydraulic Control System

15500834 - IQAN Develop Change Interface  
Contact Local Dealer - Hydraulic ECU Electronic Diagnostic Software.

### Nitrogen Charging/Inflation

15269121 - Nitrogen Tyre Inflation Kit  
09359489 - Charging Assembly

### Cooling and Air Conditioning

15269814- DCA4 Test Kit - Metric Version  
15269815- DCA4 Test Kit - US Gallon Version  
15269816- Refractometer - °C Scale  
15269817- Refractometer - °F Scale  
15269844- Portable High Vacuum Charging Station - R-134a Gas  
15269845- Halogen Leak Tester

### Cab

15271016 - Glass Removal Tool  
15271017- Bonding Kit (Quick Dry)

### Adhesives and Sealants

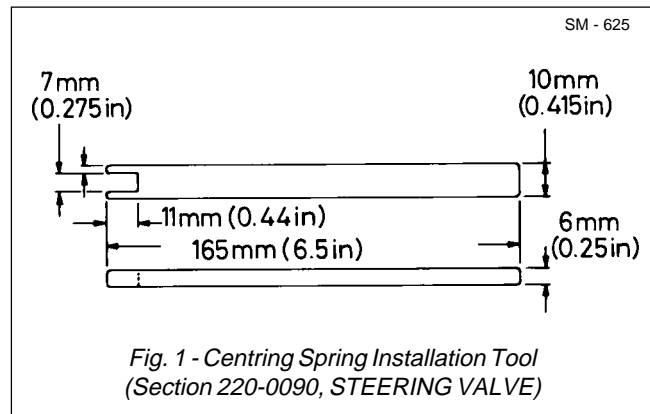
15500552 - Torque Seal  
15269103 - Loctite 221  
09362529 - Loctite 225  
09029849 - Loctite 243  
15500690 - Loctite 262  
09244598 - Loctite 270  
09985300 - Loctite 271  
15269104 - Loctite 275  
15269245 - Loctite 277  
15233715 - Loctite Prism 406

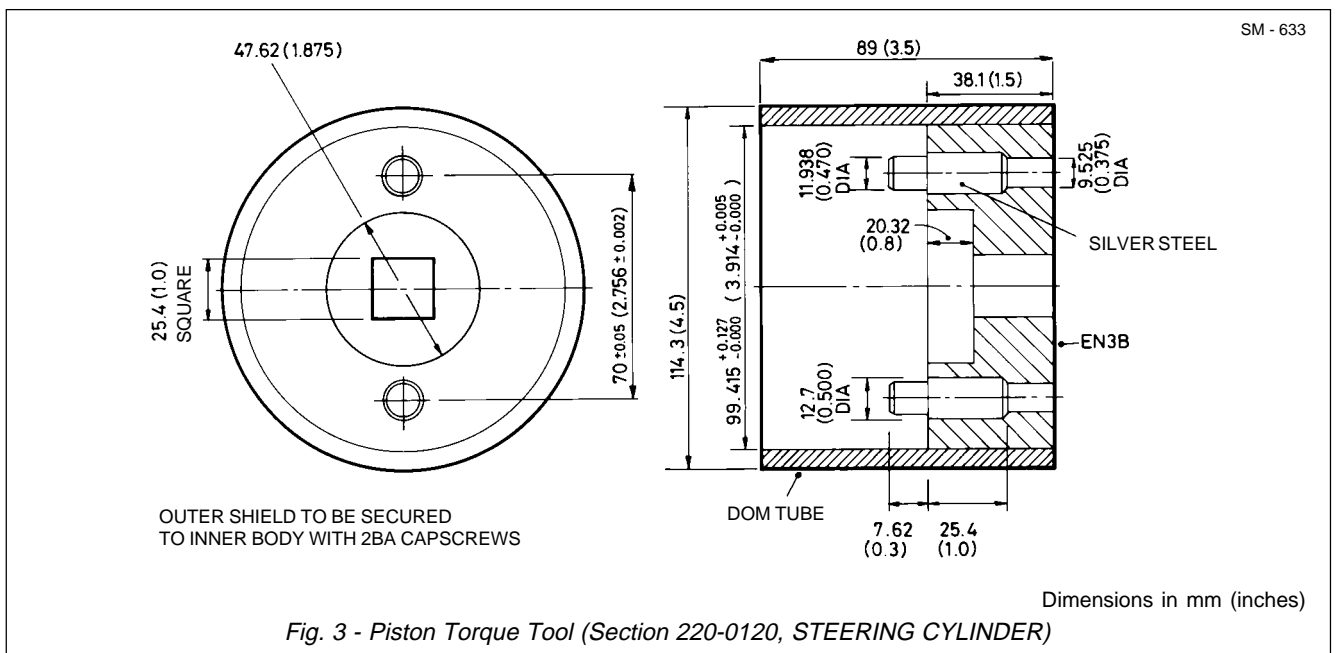
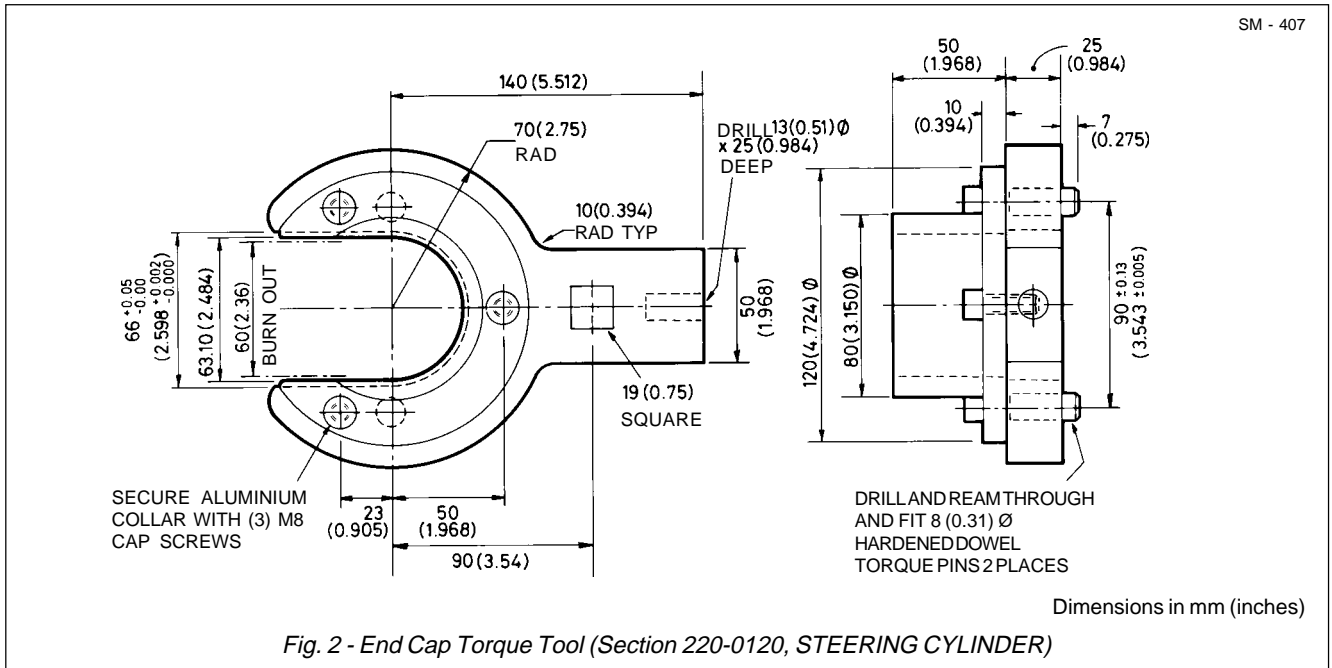
15269111 - Loctite Prism 410  
15269105 - Loctite 515  
09007209 - Loctite 574 (50 ml)  
09379518 - Loctite 574 (160 ml)  
15269106 - Loctite 577 (Superflex)  
15270244 - Loctite 592 - Pipe Sealer with Teflon

15023696 - Loctite 635  
09371048 - Loctite 638  
15269107 - Loctite 641  
15269108 - Loctite Superclean Safety Solvent 706  
15229541 - Loctite Activator 'N'  
09243825 - Loctite Activator 'T'  
09175039 - General Adhesive  
15269114 - Tectyl 280 Wax Based Rust Preventive  
09380475 - Hylosil RTV Silicone Compound

### Fabricated Tools

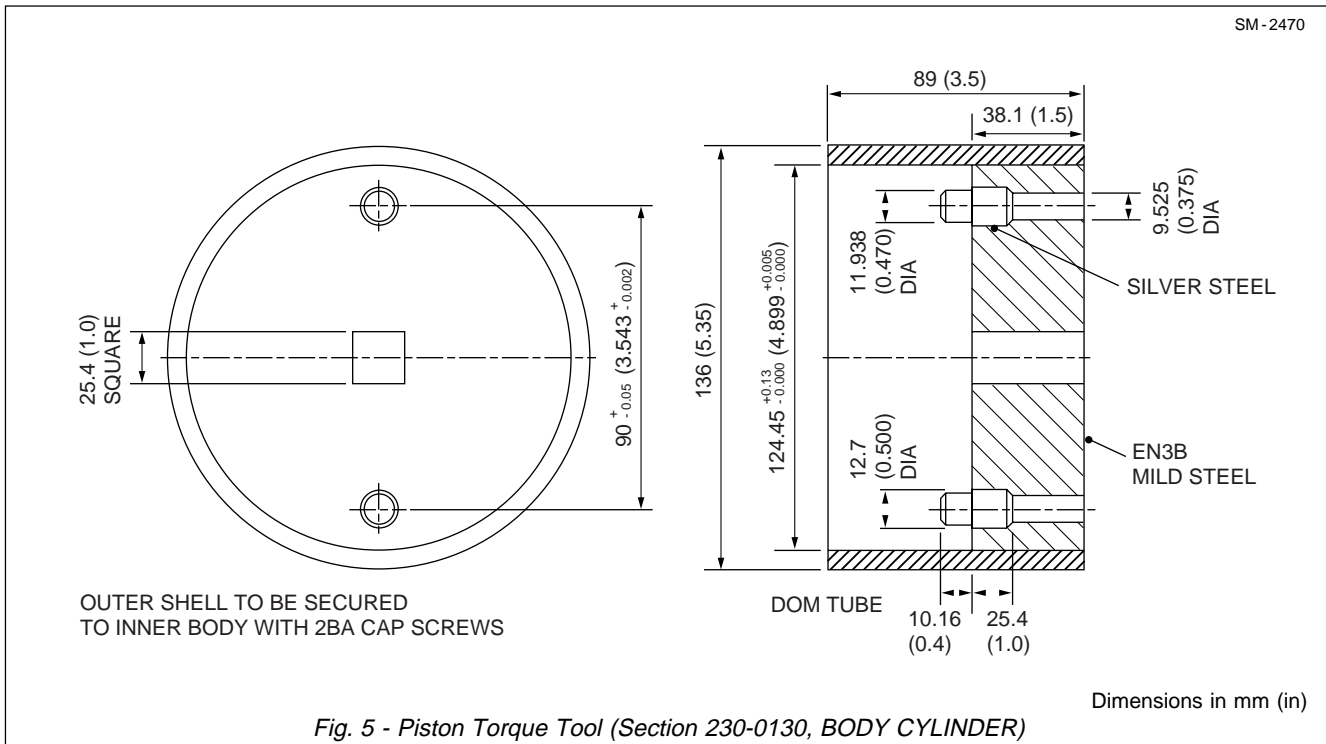
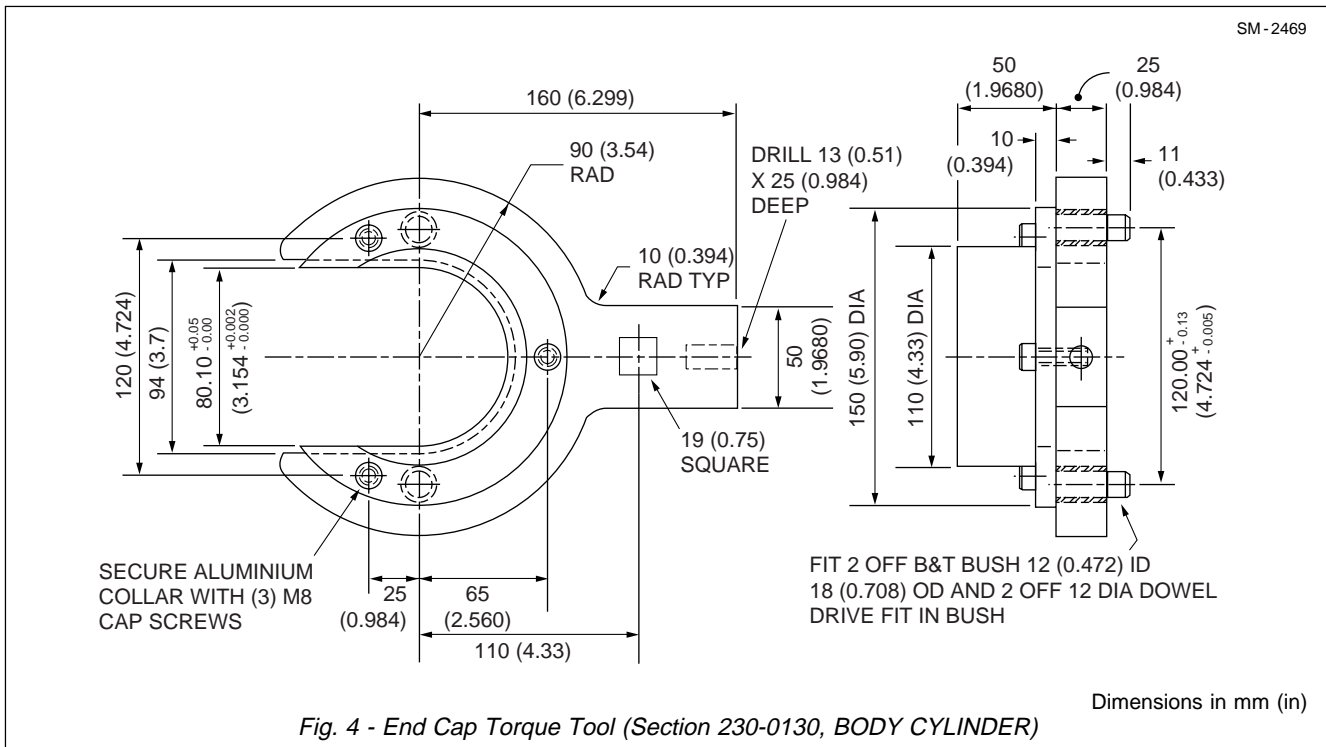
The service tools shown in Figs. 1 through 6 can be fabricated as shown.

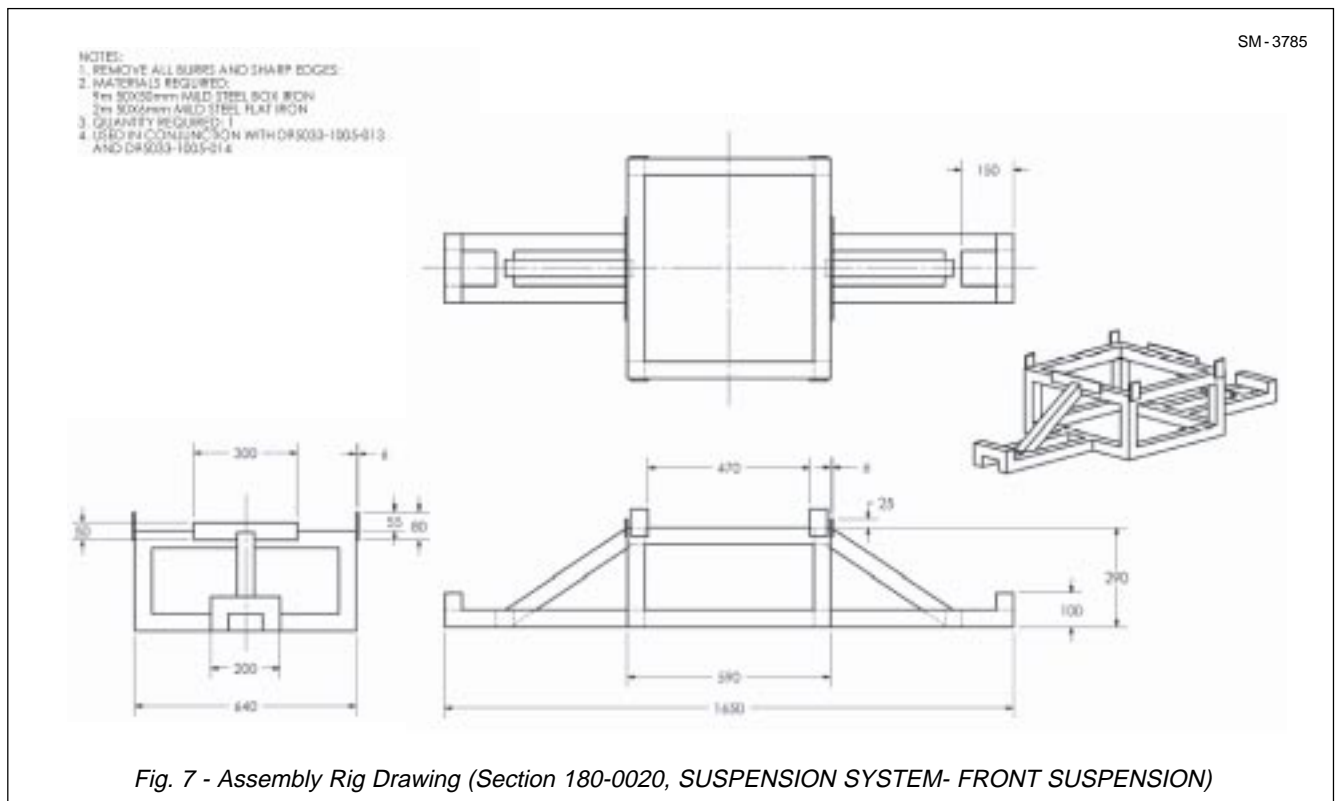
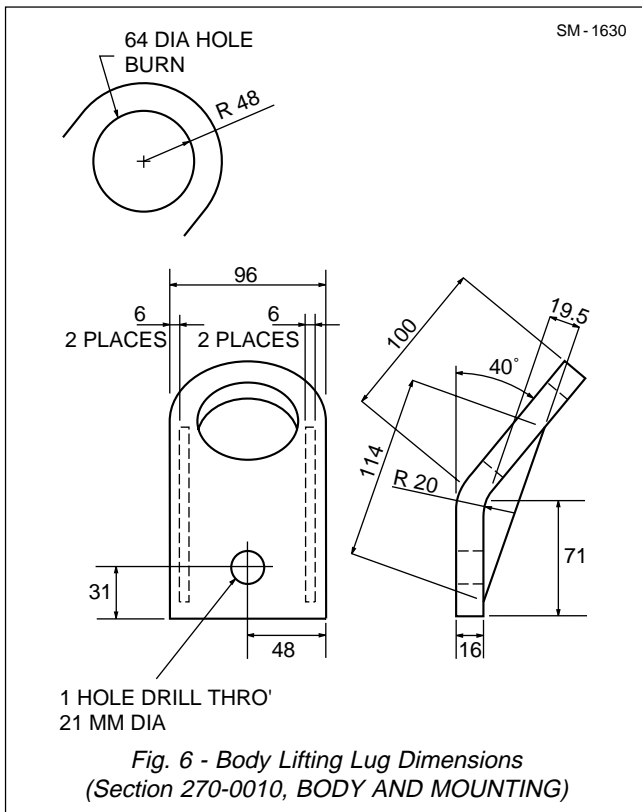




# Miscellaneous - Service Tools

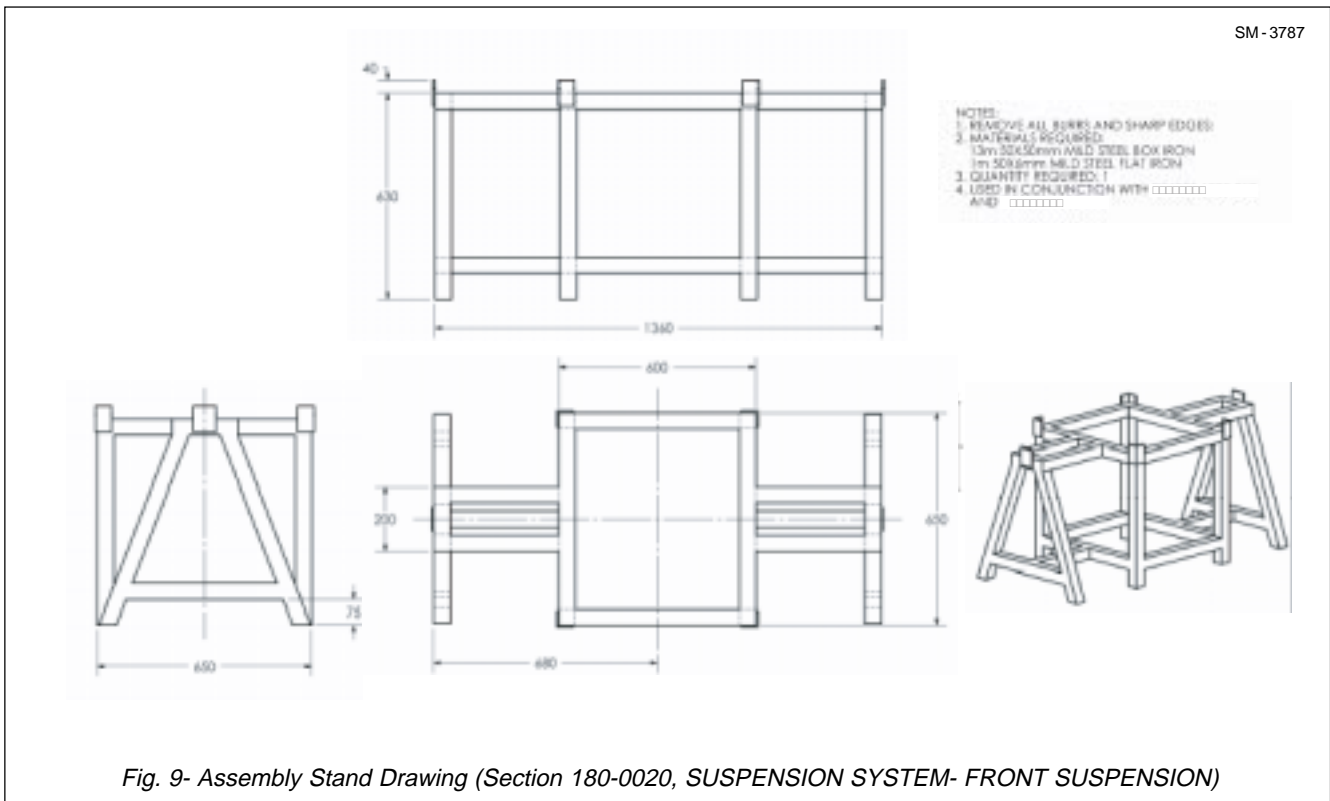
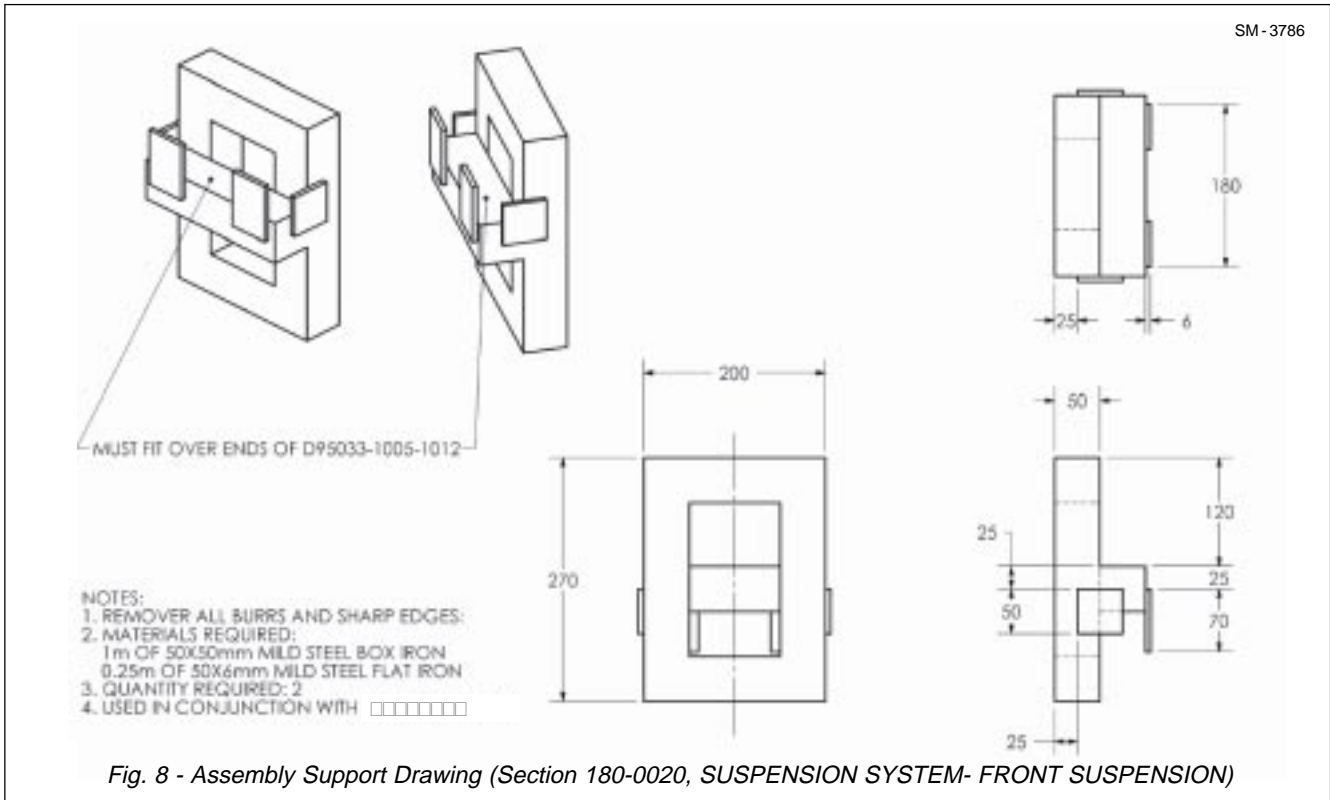
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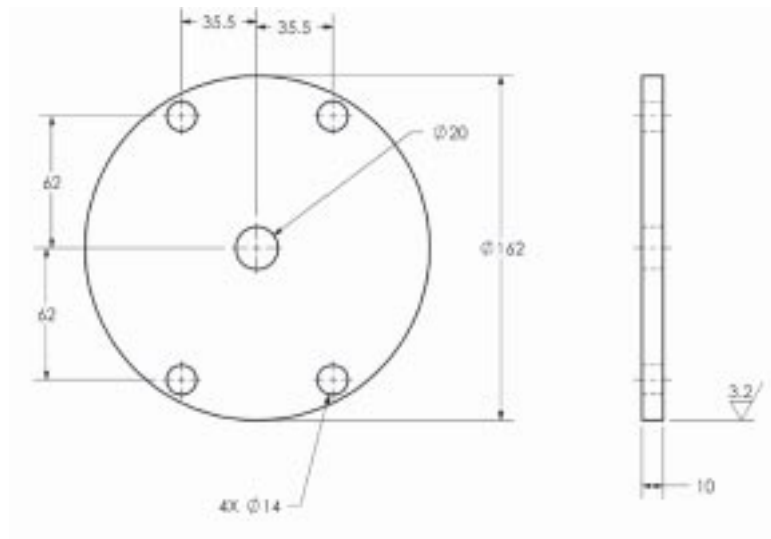
# Miscellaneous - Service Tools

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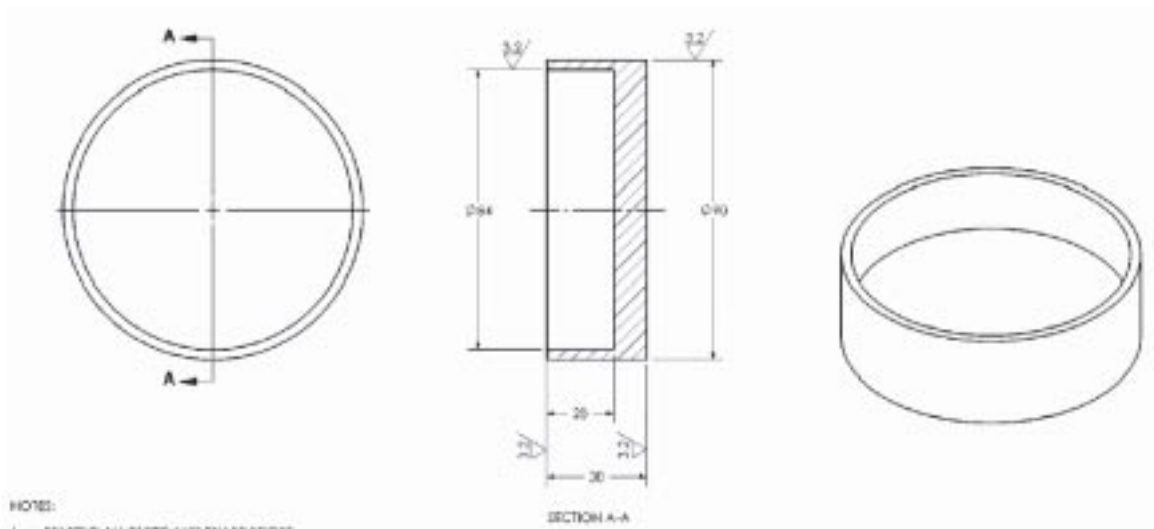


NOTES:

1. REMOVE ALL BURRS AND SHARP EDGES.
2. MATERIAL SPECIFICATION: STEEL EN 10083-1 C40E 1.1186 OR EQUIVALENT.

Fig. 10- 1/2 Shaft Assy Removal Tool (Section 180-0020, SUSPENSION SYSTEM- FRONT SUSPENSION)

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NOTE:

1. REMOVE ALL BURRS AND SHARP EDGES.
2. MATERIAL SPECIFICATION: STEEL EN 10083-1 C40E 1.1186 OR EQUIVALENT.

Fig. 11- 1/2 Shaft Seal Insertion Tool (Section 180-0020, SUSPENSION SYSTEM- FRONT SUSPENSION)

# Miscellaneous - Service Tools

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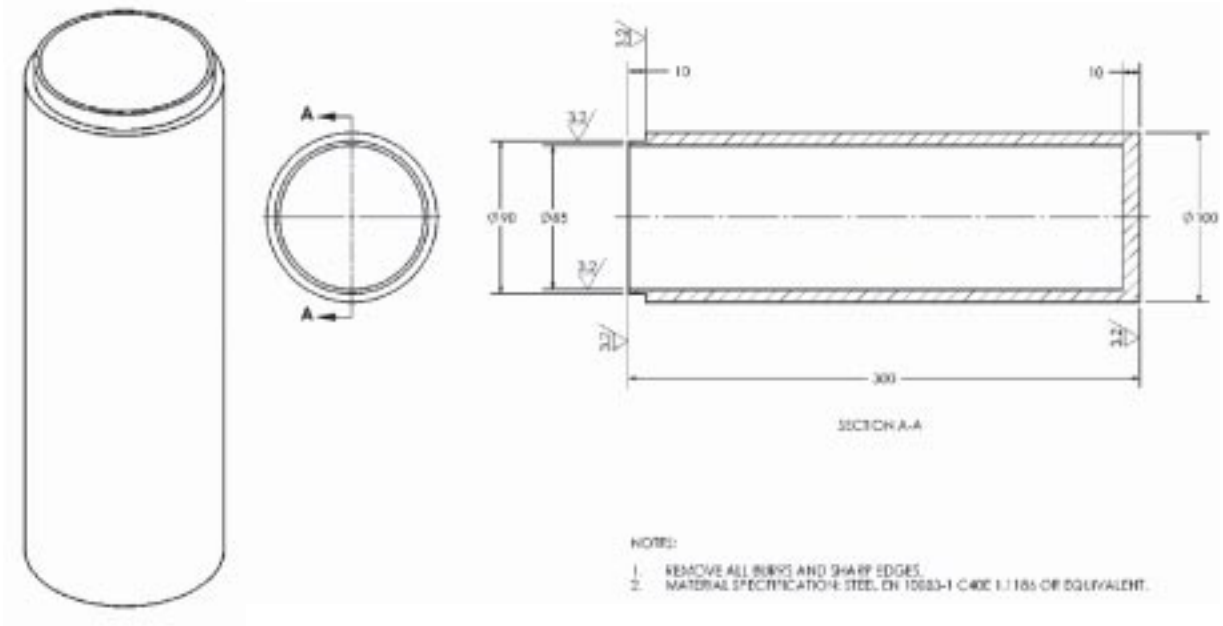


Fig. 12- 1/2 Shaft Seal Insertion Tool (Section 180-0020, SUSPENSION SYSTEM- FRONT SUSPENSION)

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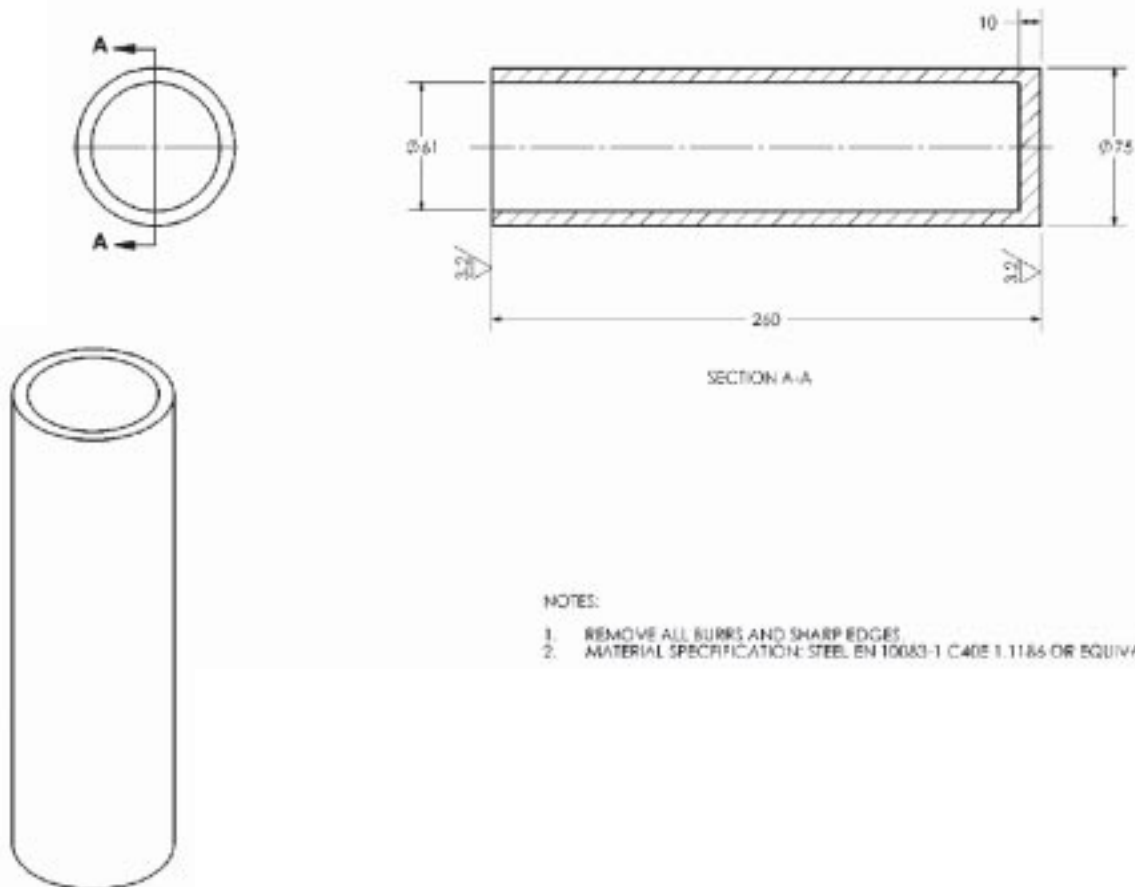
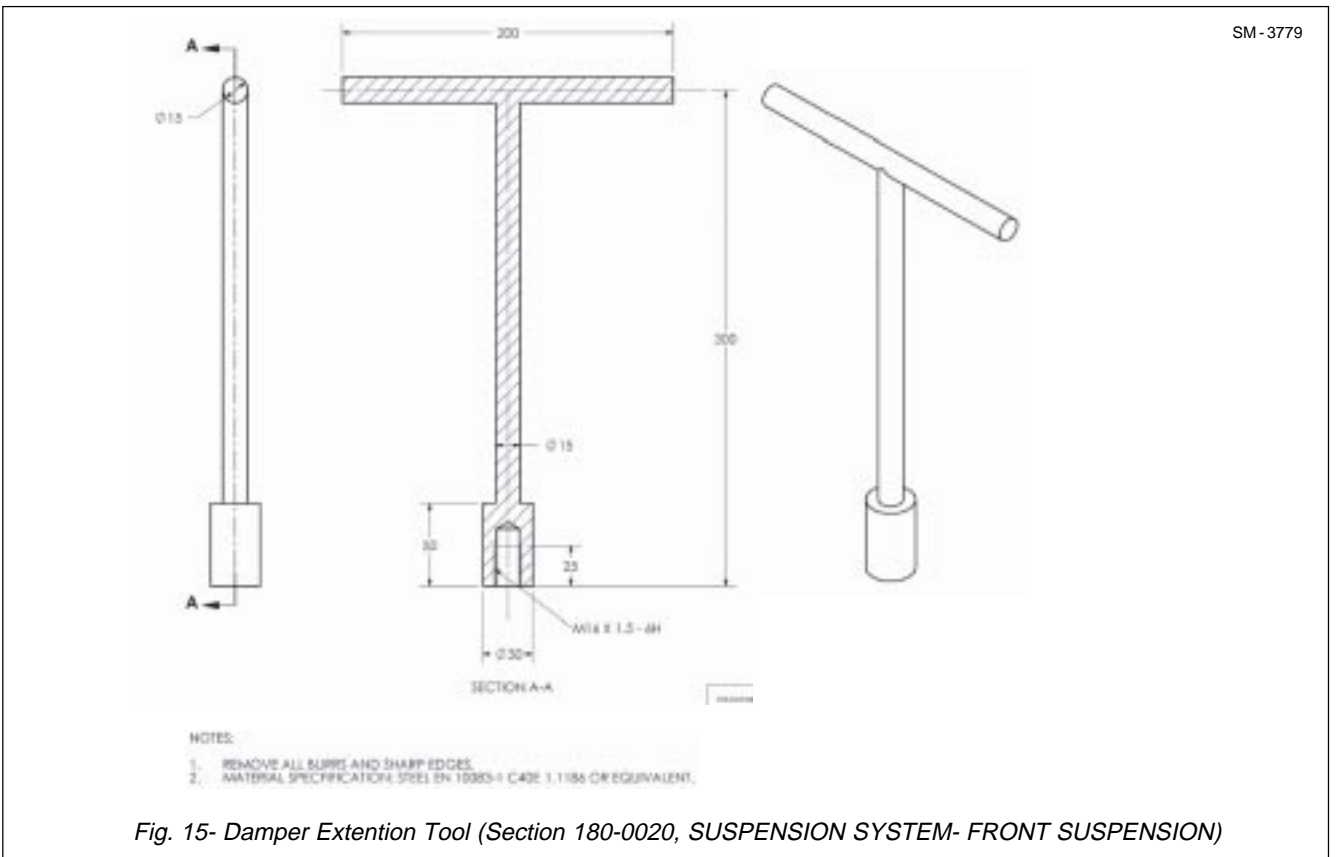
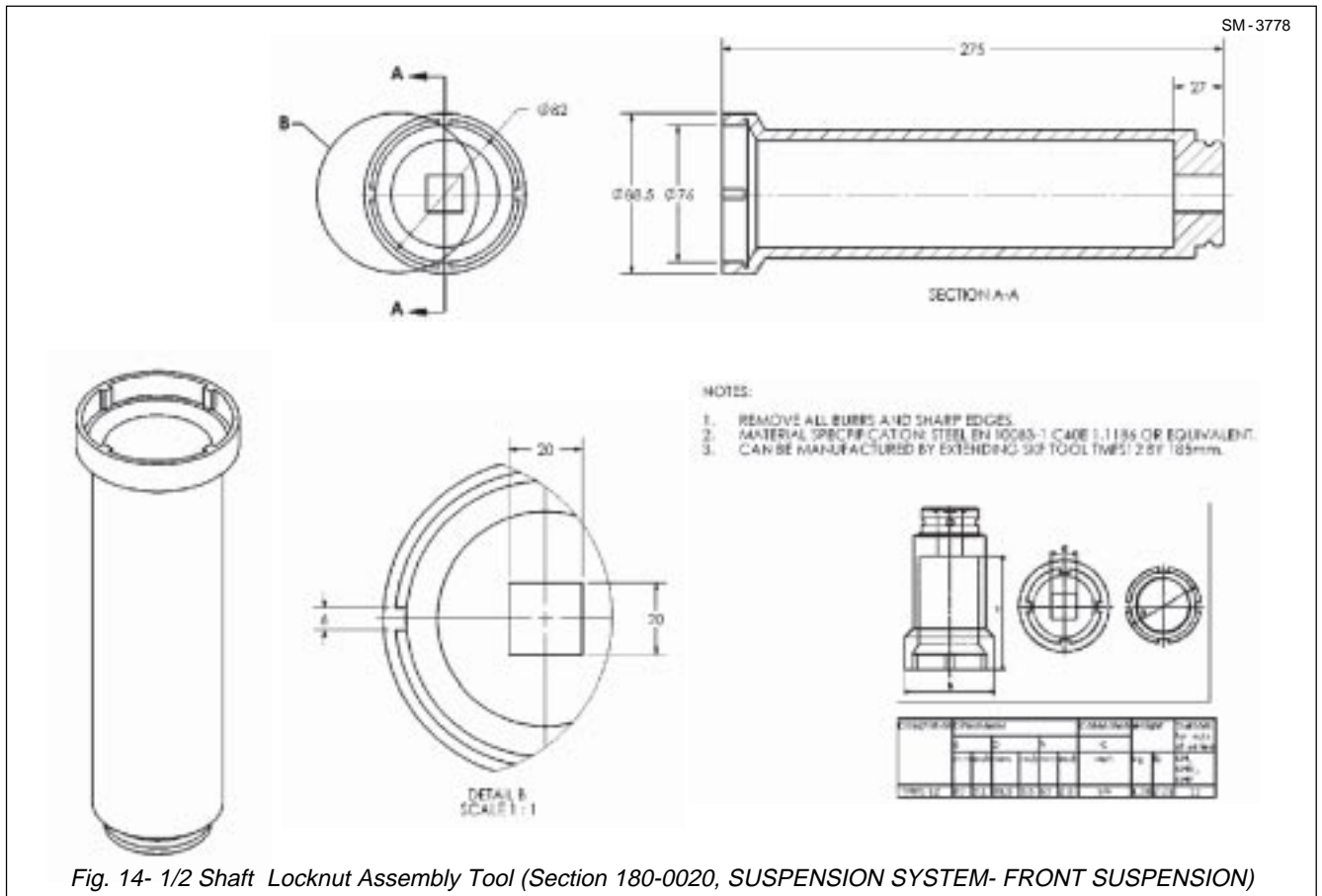


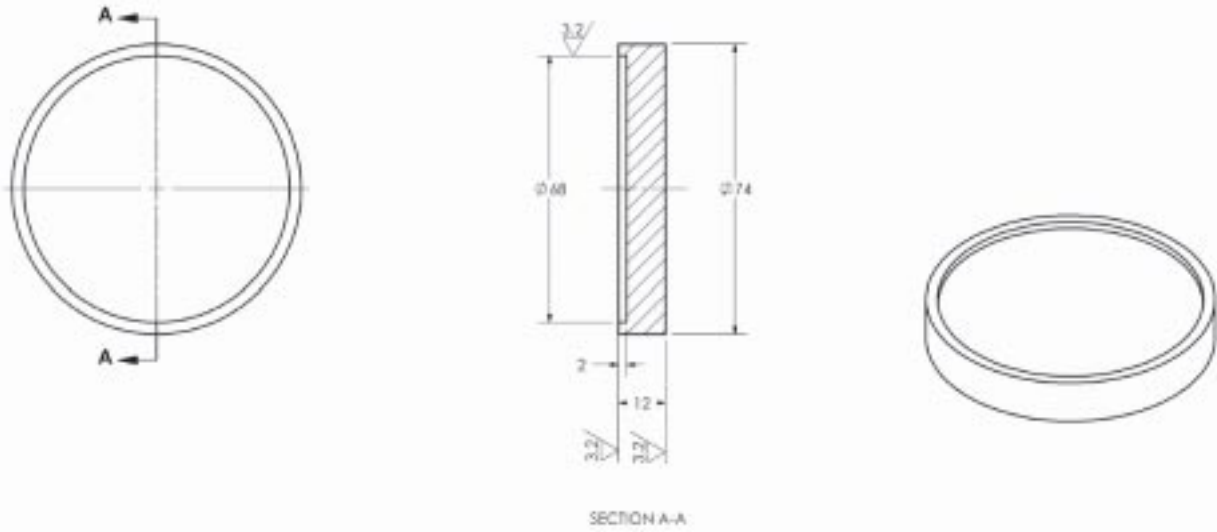
Fig. 13- 1/2 Shaft Seal Flinger Tool (Section 180-0020, SUSPENSION SYSTEM- FRONT SUSPENSION)



# Miscellaneous - Service Tools

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NOTES:

1. REMOVE ALL BURRS AND SHARP EDGES.
2. MATERIAL SPECIFICATION: STEEL EN 10083-1 C40E 1.1184 OR EQUIVALENT.

Fig. 16-Pivot Block Seal Insertion Tool (Section 180-0020, SUSPENSION SYSTEM- FRONT SUSPENSION)

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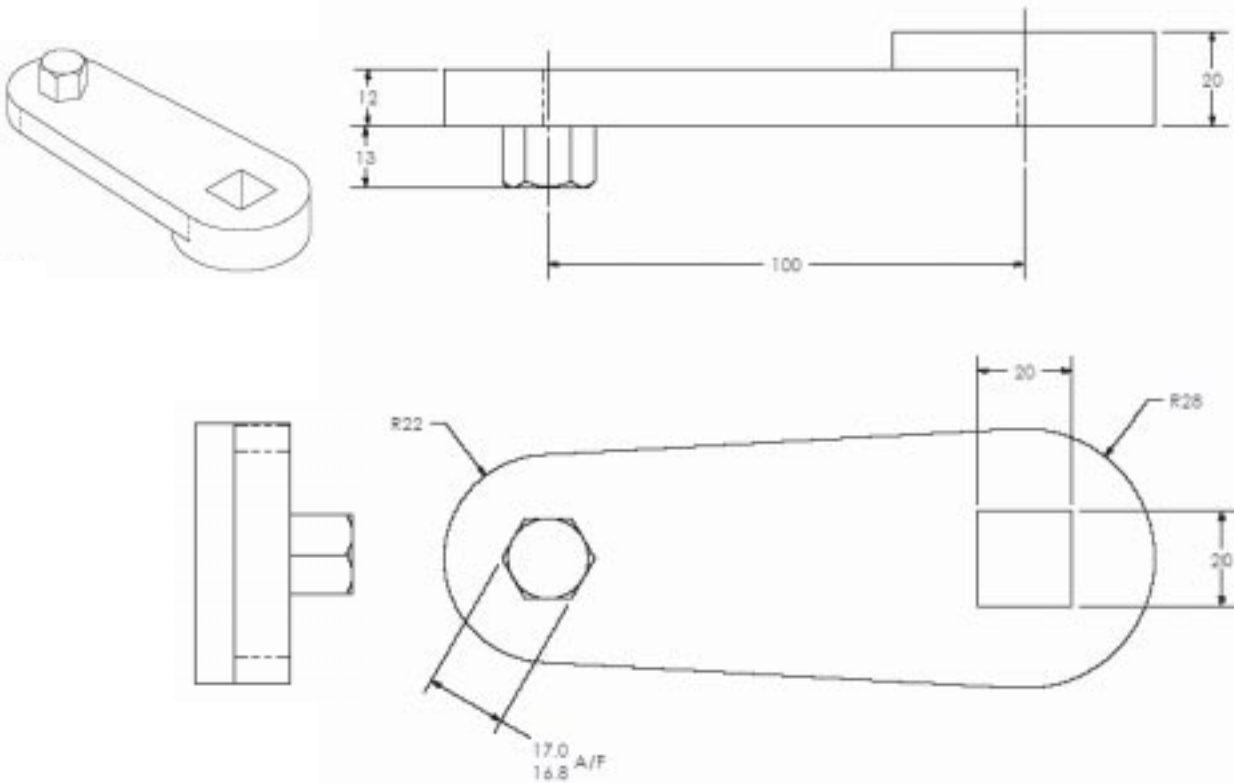


Fig. 17- Socket Head Bolt Tightening Tool (Section 180-0020, SUSPENSION SYSTEM- FRONT SUSPENSION)

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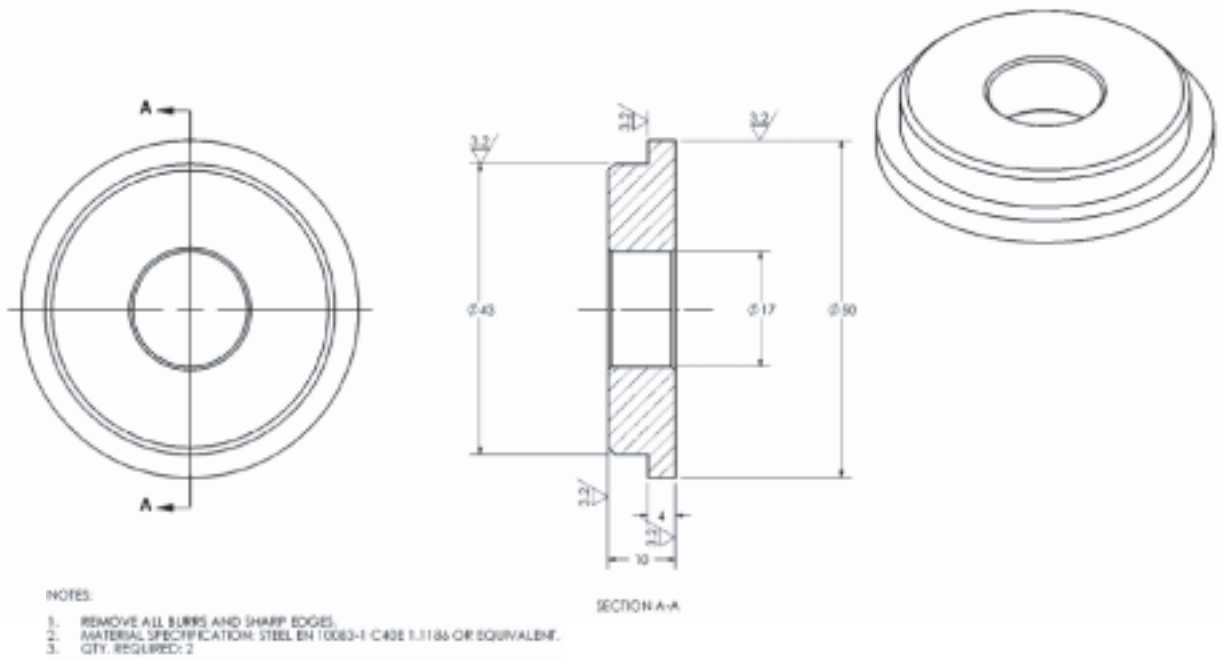


Fig. 18- LWB Bush Insertion Tool 1(Section 180-0020, SUSPENSION SYSTEM- FRONT SUSPENSION)

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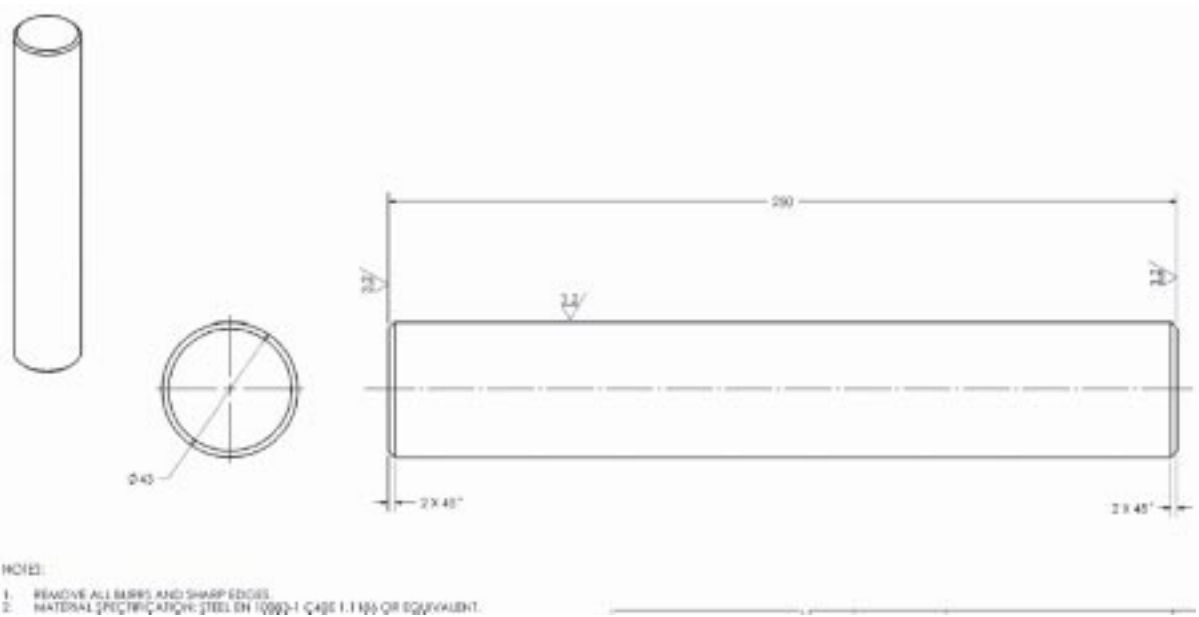


Fig. 19- LWB Bush Insertion tool 2(Section 180-0020, SUSPENSION SYSTEM- FRONT SUSPENSION)

# Miscellaneous - Service Tools

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