SECTION Q

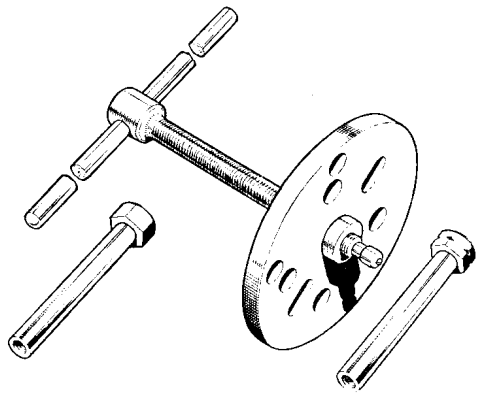
SPECIAL TOOLS

Every Dealer servicing M.G. cars is recommended to maintain the special tools detailed in this list, as by their use damage to parts will be obviated and repairs generally will be greatly facilitated.

Description	Part Numbers
Extractors	
Universal joint flanges	T.108
Ball housing male tie-rod	T.122
Crankshaft and camshaft sprockets	T.123
Front and rear hub, plate	AJA.5019
Front and rear hub, ½ in. B.S.F. bolts	AJA.5024
Front and rear hub, ½ in. U.N.F. bolts	AJA.5020
Axle shaft (B.S.F.)	68823
Axle shaft (U.N.F.)	301203
Steering wheel	68827
Front hub inner bearing and crankshaft gear	68895
Rear axle pinion inner race fitting and withdrawing tool	301224
Assembly tools	
Clutch plate aligning tool	T.124
Synchromesh units	T.109
Axle pre-load check tool	68839
Rear axle pinion positioning fixture (with mandrel)	68829
Clutch dummy gauge plate	68885

Description	Part Numbers
Spanners	
Steering tie-rod ball housing	T.113
Steering ball housing (female) "C" spanner	T.114
Lockheed bleeder screw wrench	46746
Cylinder head nut	68830
Gudgeon pin clamp screw	68832
Reamers	
Front camshaft bearing	T.111
Steering gearbox tail bearing	T.112
Oil pump bush	68828
Miscellaneous	
Front cross-member checking bars	T.125
Valve grinder (suction)	66893
Bench-type valve spring compressor	67456
Valve seat cutter set	301075

NOTES ON THE USE OF SPECIAL TOOLS



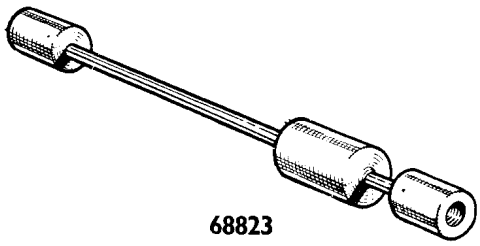
AJA.5019 and AJA.5024 or AJA.5020

Tool No. AJA.5019. Front and Rear Hub Extractor Plate

Tool No. AJA.5024. Set No. 1. ½ in. B.S.F. Bolts for above

Tool No. AJA.5020. Set No. 2. ½ in. U.N.F. Bolts for above

The plate, AJA.5019, in combination with the appropriate set of bolts, is designed to remove front and rear drums from Series "**TD**" and "**TF**" models except those fitted with wire wheels.

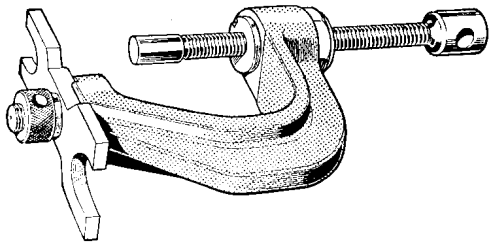


68823
301203

Tool No. 68823. Axle Shaft Extractor. B.S.F. Threads

Tool No. 301203. Axle Shaft Extractor. U.N.F. Threads

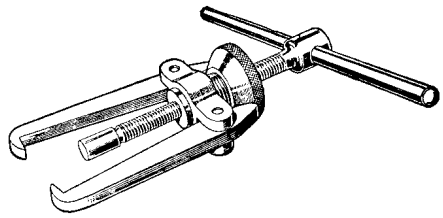
The use of this impact-type extractor is essential when withdrawing one of the rear axle shafts. It is attached to the threaded end of the axle shaft and withdraws the shaft complete with its bearing, oil seal and brake plate support.



68827

Tool No. 68827. Steering Wheel

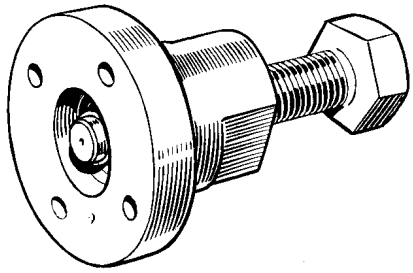
This extractor has been specially designed to remove the M.G. steering wheel without damage. Dealers who already possess Tool No. 55418 and the attachment (Part No. 56052) will find that this may also be used to withdraw the steering wheel. It can also be used to extract Wolseley and Morris steering wheels.



68895

Tool No. 68895. Front Hub Inner Bearing and Crankshaft Gear Extractor

Should the inner bearing remain on the stub axle after removing the front hub and brake-drum assembly from the new M.G. Midget Series "**TD**" and "**TF**" models, this specially designed extractor must be used to remove the bearing without damage to the oil seal behind it. The same tool may also be used to withdraw the crankshaft gear and hub sleeve.

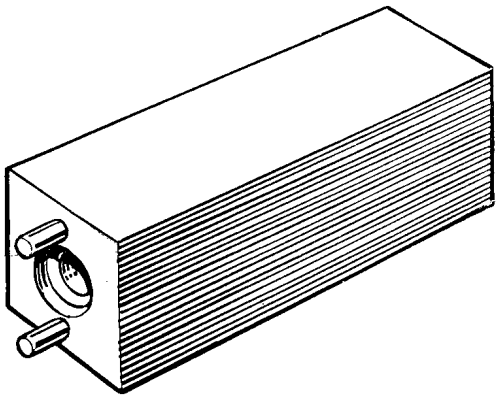


T.108

Tool No. T.108. Gearbox and Rear Axle Universal Joint Extractor

This tool is designed to remove the propeller shaft drive flanges from the gearbox and rear axle without damage.

In use the central flange attachment nut is removed and the tool bolted to the flange with four suitable bolts. The central extractor screw is then turned until the flange is withdrawn from the gearbox or rear axle.

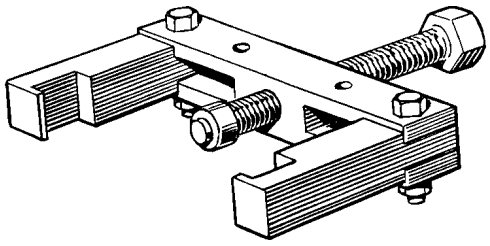


T.122

Tool No. T.122. Extractor for Ball Housing (Male) Tie-rod

This tool is designed for use in conjunction with the special spanner No. T.114, for dismantling the tie-rod ball housing without damage.

In use it is clamped securely in a vice and the two holes of the ball housing are engaged with the two pins of the extractor, pushing the ball housing into the tool as far as it will go. Using the special spanner T.114, engage the claws with the ball housing cap and unscrew it from the housing.



T.123

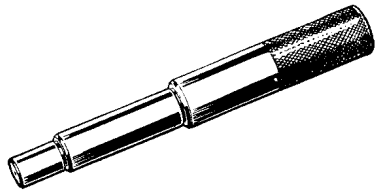
Tool No. T.123. Extractor for Camshaft and Crankshaft Sprockets

As the timing chain is of the endless type it is essential to withdraw both the camshaft and crankshaft sprockets together with the chain in position.

To do this effectively the use of two extractors is recommended and an even pull should be applied with each to prevent one or the other of the sprockets from sticking or straining the chain by bending.

For the camshaft sprocket the two extractor arms should be attached to the two outer holes of the extractor beam, and for the crankshaft to the two inner holes.

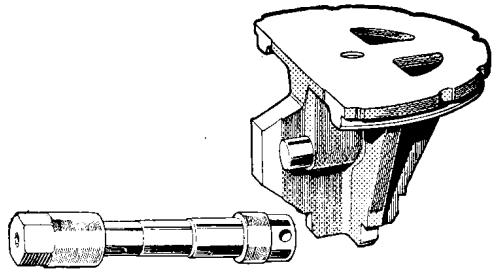
Engage the slots in the extractor arms with the outer rims of the sprocket so as to embrace them, and screw down the extractor screws evenly, a few turns at a time, until sprockets and chain are clear from the shafts.



T.124

Tool No. T.124. Clutch Plate Aligning Tool

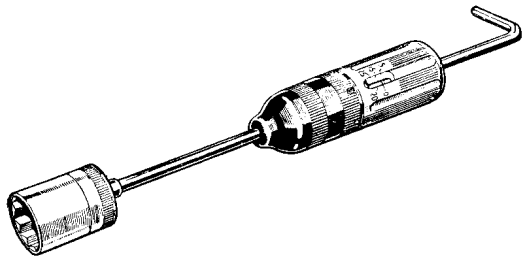
When reassembling the single-plate clutch it is essential to use this tool to ensure that the clutch plate is concentric with the spigot bearing in the flywheel centre, otherwise it is impossible to assemble the gearbox to the engine. This tool will also fit the Wolseley Four-Fifty and Morris Oxford and Morris Six models.



68829

Tool No. 68829. Rear Axle Pinion Positioning Fixture

This fixture is designed to enable the correct pinion spacing washer to be selected when fitting a rear axle pinion. Full instructions for its use are given in Section H.11 of this Manual.

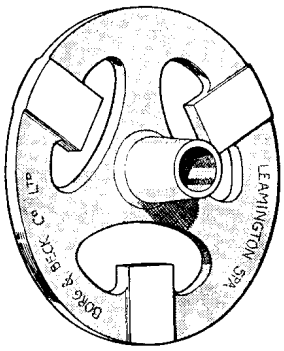


68839

Tool No. 68839. Axle Pre-load Check Tool

This torque spanner is almost essential for measuring the rear axle pinion bearing pre-load.

It has a clearly marked indicator which can be set to read accurately between 5 and 25 in./lb. (·058 to ·288 m./kg.) with the key provided. It will also operate with the new Wolseley and Morris cars.

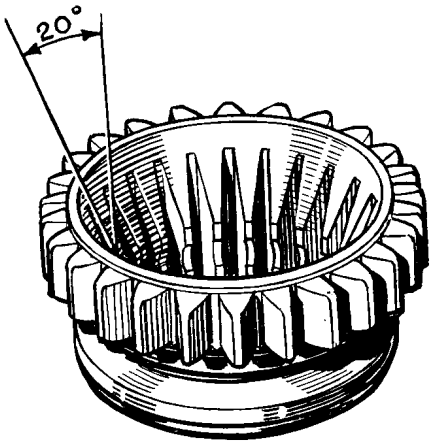


68885

Tool No. 68885. Clutch Dummy Gauge Plate

This tool is essential when adjusting the release levers of the Borg & Beck clutch.

In use the dummy gauge plate takes the place of the clutch driven plate when the cover-plate assembly is attached to the flywheel, and is positioned so that each release lever coincides with the ground surfaces of the plate lugs. The release lever adjusting nuts are then tightened or slackened until the end of each arm lies dead flush with the edge of a straight-edge placed across the ground end face of the gauge plate centre boss. This ensures an equal throw to each release lever and that the pressure plate is exactly parallel to the flywheel face.



T.109

Tool No. T.109. Synchromesh Assembly Tool

This tool assists the speedy assembly of the synchromesh units and is extremely simple and effective. It consists of a standard striking dog, Part No. M.G. 900/189, which has its internal splines released at an angle of 20° at one end to guide the balls into their housings against the pressure of their springs.

In use, place the sliding hub to be assembled in the tool and hold it with the ball housings just above the relieved end of the tool. Insert the six springs and balls into their housings and press the sliding hub into the tool until it projects slightly at the other end.

Engage the projecting portion of the sliding hub with the striking dog and, keeping the special tool and dog in tight contact, push the sliding hub into position in the striking dog until the balls engage the internal groove.

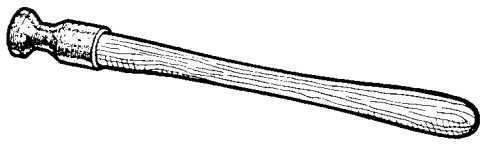
The special tool can then be removed and the synchromesh unit is now assembled.

67456

For illustration of this tool see Fig. A.22.

Tool No. 67456. Bench-type Valve Spring Compressor

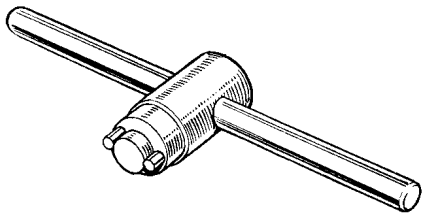
This tool is clamped to the bench and is used in conjunction with a wood base fitted with wood blocks to fit into the combustion spaces and hold the valves on their seatings while the springs are compressed. It greatly facilitates the quick removal and replacement of the springs and cotters.



66893

Tool No. 66893. Suction Valve Grinder

As the valves on the M.G. **"TD"** Midget are not provided with a screwdriver grinding slot, it is necessary to use this universal rubber suction tool when grinding in the valves. As it is exceptionally modestly priced, Dealers should purchase in quantities for resale to the Trade and Owners.

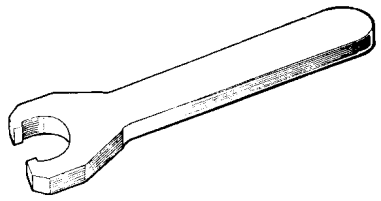


T.113

Tool No. T.113. Peg Spanner for Steering Rod Ball Housing (Male)

This peg spanner is for the purpose of removing or refitting the ball housing to the end of the steering rack.

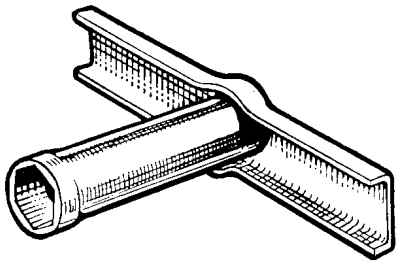
The two projecting pegs engage the two holes in the ball housing and ensure that the ball housing is firmly tightened.



T.114

Tool No. T.114. Spanner for Steering Rod Ball Housing Cap

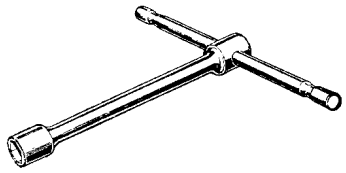
A tool with jaws designed to engage the shallow splines of the steering rack ball housing cap and remove it without damage.



46746

Tool No. 46746. Lockheed Bleeder Screw Wrench

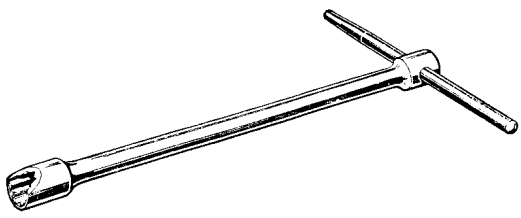
This specially designed tube spanner and integral tommy bar greatly assists the brake-bleeding operation. The bleed tube passes through the hollow centre of the spanner and the spanner remains square on the bleeder screw throughout the operation.



68830

Tool No. 68830. Cylinder Head Nut Spanner

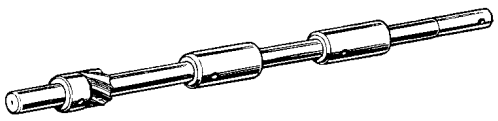
A strong socket spanner with a tommy bar designed to give the recommended maximum torque to the cylinder head stud nuts with normal hand pressure.



68832

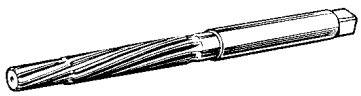
Tool No. 68832. Gudgeon Pin Clamp Screw Spanner

Owing to the restricted space inside the pistons of most engines, an ordinary box spanner is unsuitable for removing or replacing the gudgeon pin clamp screw. This spanner is specially shaped to suit most models of the new Wolseley and Morris ranges, and is long enough to clear the connecting rod big-end.



T.111

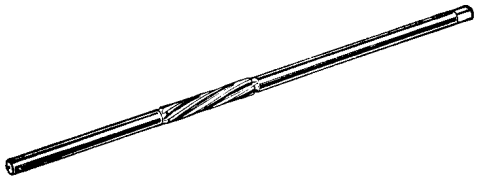
Tool No. T.111. Front Camshaft Bearing Reamer



T.112

Tool No. T.112. Steering Gearbox Pinion Tail Bearing Reamer

This reamer is essential to ensure the correct alignment of steering pinion bearings as explained in Section J.

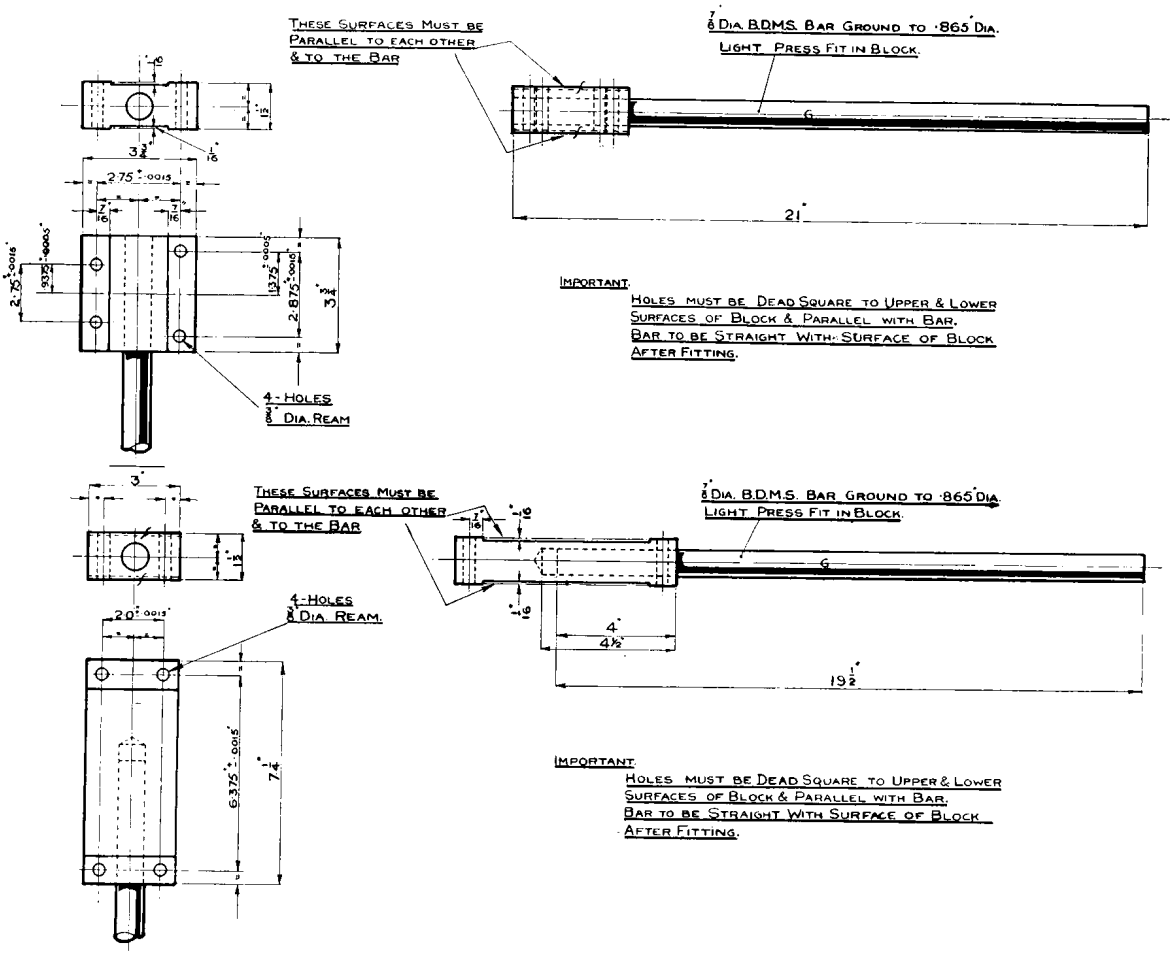


68828

Tool No. 68828. Oil Pump Bush Reamer

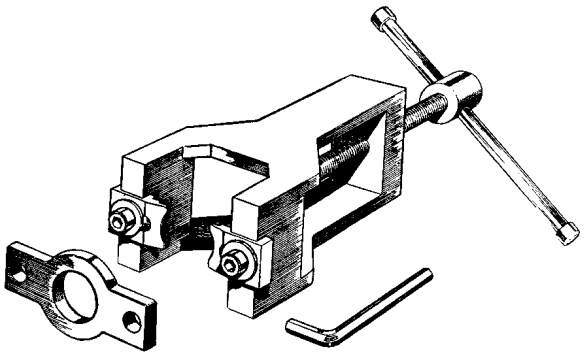
This reamer has been designed to ream the oil pump bushes of the M.G. Midget Series **"TD"** in line. Its use is straightforward.

Tool No. T.125. Bars for Checking Front Cross-member Alignment



The top bars are fitted to the four location holes for the front dampers and the bottom bars to the four location holes for the bottom wishbone pivots, using suitable $\frac{3}{8}$ in. dia. bolts to ensure that there is a plain portion of the bolts locating the blocks and frame together.

Full details of the use of these bars for checking are given in Section S.

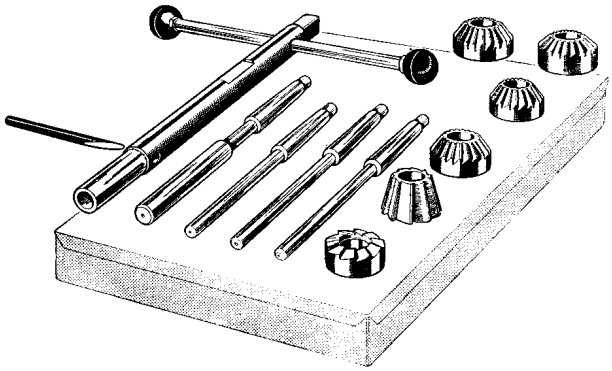


301224

Tool No. 301224. Rear Axle Pinion Inner Race Fitting and Withdrawing Tool

This tool is necessary for withdrawing the inner bearing race from the pinion shaft. It can also be used to replace the race on the shaft without damage.

This is a universal tool for use with all hypoid-type axles.



301075

Tool No. 301075. Valve Seat Cutter Set

This is a universal tool for dealing with the recutting of valve seats on the M.G. Midget Series **"TD"** and all other models of the Nuffield range. The set is supplied complete in a metal retaining box.