

SECTION S

SERVICE TOOLS

This Section includes all Service tools for the Mini range of vehicles including the Mini-Cooper and Mini-Cooper 'S'. The tools which are applicable to the Cooper and Cooper 'S' only are shown in brackets after the 'Operation' description

<i>Operation</i>						<i>Tool No.</i>	<i>Page No.</i>
ENGINE							
Camshaft liner reaming						18G 123 A	S.7
						18G 123 AH	S.8
						18G 123 AJ	S.8
						18G 123 AN	S.8
Camshaft liner reaming (Cooper and Cooper 'S')						18G 123 A	S.7
						18G 123 B	S.8
						18G 123 AN	S.8
						18G 123 AP	S.8
						18G 123 AT	S.8
						18G 123 AQ	S.8
						18G 123 BA	S.8
						18G 123 BB	S.8
Camshaft liner removing and replacing						18G 124 A	S.8
						18G 124 K	S.9
Camshaft liner removing and replacing (Cooper and Cooper 'S')						18G 124 A	S.8
						18G 124 B	S.9
						18G 124 K	S.9
						18G 124 M	S.9
Circlip removing and refitting						18G 257	S.10
						18G 1004	S.17
Crankshaft and camshaft gear removing						18G 2	S.7
						18G 98	S.7
Crankshaft primary gear oil seal removing and replacing						18G 134	S.9
						18G 134 BC	S.9
						18G 1043	S.18
						18G 1068	S.18
Flywheel and clutch removal (coil spring clutch)						18G 304	S.11
						18G 304 M	S.11
						18G 587	S.15
Flywheel and clutch removal (diaphragm spring clutch)						18G 304	S.11
						18G 304 N	S.11
						18G 587	S.15
Flywheel housing bearing removing and replacing						18G 617 A	S.16

<i>Operation</i>	<i>Tool No.</i>	<i>Page No.</i>
Flywheel oil seal replacing	18G 134 18G 134 BH	S.9 S.9
Oil pump relief valve seat grinding	18G 69	S.7
Piston refitting	18G 55 A	S.7
Piston refitting (Cooper and Cooper 'S')	18G 55 A 18G 1002	S.7 S.17
Timing cover oil seal replacing	18G 134 18G 134 BD	S.9 S.9
Timing cover refitting	18G 138 18G 1044	S.9 S.18
Torque setting nuts and bolts	18G 372 18G 536 18G 537 18G 592	S.11 S.12 S.12 S.15
Valve removing and refitting	18G 45	S.7
Valve grinding-in	18G 29	S.7
Valve seat cutting	18G 27 18G 167 18G 167 A 18G 167 B 18G 167 C 18G 167 D	S.7 S.9 S.9 S.1 S.1 S.1

FUEL SYSTEM

Fuel tank gauge unit removing and refitting	18G 1001	S.17
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CLUTCH

Clutch dismantling and reassembling (coil spring clutch)	18G 304 M 18G 571	S.11 S.12
Clutch dismantling and reassembling (coil spring clutch—Cooper)	18G 304 M 18G 684	S.11 S.16
Clutch dismantling and reassembling (diaphragm spring clutch)	18G 304 N 18G 571	S.11 S.12
Clutch dismantling and reassembling (diaphragm spring clutch—Cooper and Cooper 'S')	18G 304 N 18G 684	S.11 S.16

<i>Operation</i>	<i>Tool No.</i>	<i>Page No.</i>
TRANSMISSION UNIT		
Change speed shaft oil seal replacement	18G 573	S.13
Circlip removing and refitting	{ 18G 257 18G 1004	S.10 S.18
Final drive gear removing and refitting	{ 18G 586 18G 587	S.15 S.15
First and third motion shaft bearing replacement	18G 579	S.14
First motion shaft and bearing removing	{ 18G 284 18G 284 B	S.11 S.11
First motion shaft bearing circlip—checking for correct thickness circlip	18G 569	S.12
First motion shaft needle-roller bearing removing and replacing	{ 18G 581 18G 581 B 18G 589	S.14 S.14 S.15
Idler gear bearing removing and replacing	{ 18G 581 18G 582	S.14 S.14
Laygear needle-roller bearing replacement	18G 194	S.10
Layshaft reassembly	18G 471	S.12
Synchromesh unit assembling	18G 572	S.13
Third motion shaft bearing removing (3-speed synchromesh)	18G 613	S.15
Third motion shaft bearing removing (4-speed synchromesh)	18G 1127	S.20
Torque setting nuts and bolts	{ 18G 372 18G 536 18G 537	S.11 S.12 S.12
DIFFERENTIAL UNIT		
Differential bearing removing and replacement	{ 18G 2 18G 578	S.7 S.4
Drive shaft coupling flange removing and refitting	18G 669	S.16
Torque setting nuts and bolts	{ 18G 372 18G 537	S.11 S.12
AUTOMATIC TRANSMISSION		
Auxiliary pump and governor assembly removing and refitting	{ 18G 1094 18G 1097 18G 1106	S.19 S.20 S.20
Converter housing oil seal replacing	{ 18G 1068 18G 1068 A 18G 1087	S.18 S.18 S.19

<i>Operation</i>	<i>Tool No.</i>	<i>Page No.</i>
Converter housing removing and refitting	{ 18G 1088 18G 1098	S.19 S.20
Converter removing and refitting	{ 18G 587 18G 1086	S.15 S.19
Differential drive shaft coupling removing	18G 1100	S.20
Forward clutch dismantling and reassembling	18G 1102	S.20
Forward clutch hub nut removing and refitting	{ 18G 1095 18G 1096	S.19 S.19
Gear carrier assembly dismantling and reassembling (early-type units)	18G 1093	S.19
Gear carrier assembly dismantling and reassembling (later-type units)	18G 1093 A	S.19
Idler and input gears—checking adjustment	{ 18G 1089 18G 1089 A	S.19 S.19
Pressure and stall checks	{ 18G 677 C 18G 677 Z	S.16 S.16
Converter output gear oil seal removing and replacing	{ 18G 134 18G 134 CN	S.9 S.9
Top and reverse clutch dismantling and reassembling	18G 1103	S.20
Top and reverse clutch hub removing and refitting	{ 18G 1095 18G 1096	S.19 S.19
Torque setting	{ 18G 372 18G 537 18G 592	S.11 S.12 S.15
DRIVE SHAFTS		
Constant velocity joint—checking ball cage and inner race	{ 18G 1012 18G 1099	S.18 S.20
Drive shaft removing and refitting	{ 18G 1063 18G 304 or 18G 304 Z 18G 304 F	S.18 S.11 S.11 S.11
Torque setting	18G 372	S.11
REAR SUSPENSION		
Displacer unit or strut removing and refitting	18G 703	S.17
Hub bearing outer race removing	{ 18G 260 18G 260 C	S.10 S.10
Hub removing	{ 18G 304 or 18G 304 Z 18G 304 F	S.11 S.11 S.11

<i>Operation</i>	<i>Tool No.</i>	<i>Page No.</i>
Hydrolastic suspension—checking pressure	[18G 685 18G 703	S.17 S.17
Hydrolastic suspension—depressurizing, evacuating, and pressurizing	18G 703	S.17
Radius arm bush reaming	[18G 588 18G 588 A	S.15 S.15
Radius arm bushes removing and replacing	[18G 583 18G 584	S.14 S.15
Radius arm needle bearing removing and replacing	[18G 583 18G 583 B 18G 620	S.14 S.15 S.16
Radius arms (Hydrolastic suspension) removing and refitting ..	18G 703	S.17
Sub-frame (Hydrolastic models) removing and refitting	18G 703	S.17

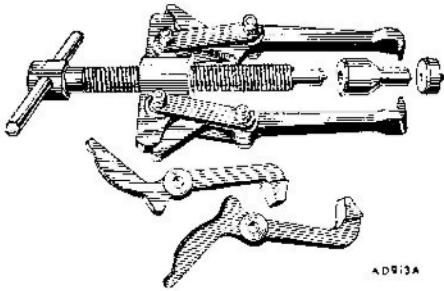
STEERING GEAR

Steering rack dismantling and reassembling	[18G 207 18G 207 A 18G 707	S.10 S.10 S.17
Steering rack tie-rod ball joint removal	18G 1063	S.18
Torque setting	[18G 372 18G 537	S.11 S.12

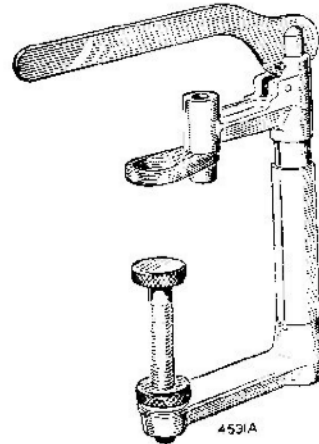
FRONT SUSPENSION

Displacer unit or strut removing and refitting	18G 703	S.17
Hydrolastic suspension—checking pressure	[18G 685 18G 703	S.17 S.17
Hydrolastic suspension—depressurizing, evacuating, and pressurizing	18G 703	S.17
Lower arm removal	18G 1063	S.18
Spring unit or strut (Rubber suspension models) removing and refitting	[18G 574 B 18G 1063	S.13 S.18
Swivel hub joint removing and replacing	[18G 587 18G 1063	S.15 S.18
Swivel hub dismantling, fitting bearings, and reassembling	[18G 304 or 18G 304 Z 18G 304 F 18G 575 18G 260 18G 260 H	S.11 S.11 S.11 S.14 S.10 S.10

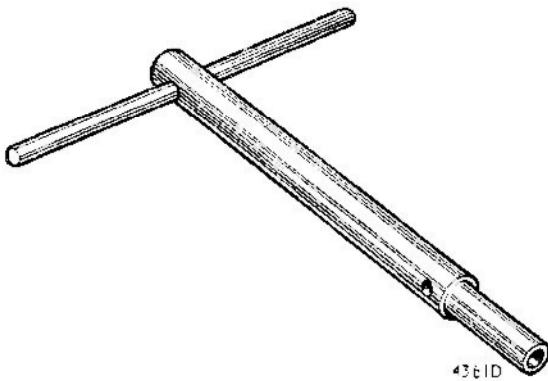
<i>Operation</i>	<i>Tool No.</i>	<i>Page No.</i>
Swivel hub driving flange removing (without dismantling the swivel hub)	18G 284 18G 304 or 18G 304 Z 18G 304 F 18G 304 P	S.11 S.11 S.11 S.11 S.11
Swivel hub outer oil seal replacing	18G 284 18G 304 or 18G 304 Z 18G 304 F 18G 304 P 18G 705 18G 705 B	S.11 S.11 S.11 S.11 S.11 S.17 S.17
Swivel hub removing and refitting	18G 1063	S.18
Torque setting nuts and bolts	18G 372 18G 537	S.11 S.12
Upper arm (Hydrolastic suspension models) removing, dismantling, and reassembling	18G 581 18G 582 18G 582 A 18G 703 18G 1063	S.14 S.14 S.14 S.17 S.18
Upper arm (rubber suspension models) removing, dismantling, and reassembling	18G 574 B 18G 581 18G 582 18G 582 A 18G 1063	S.13 S.14 S.14 S.14 S.18
BRAKING SYSTEM		
Brake adjusting	18G 619 A	S.16
Disc brake piston seal replacing (Cooper and Cooper 'S')	18G 672	S.16
BODY		
Body alignment checking	18G 560 18G 560 A 18G 560 E	S.13 S.13 S.13
Body alignment checking (not illustrated)	Churchill 7/700	
Windscreen and back-light glass refitting	18G 468 18G 468 A	S.12 S.12



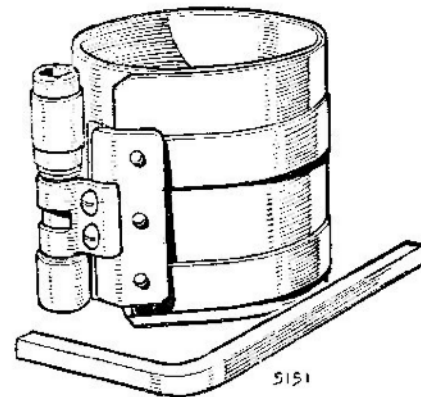
18G 2. Crankshaft Gear and Pulley Remover



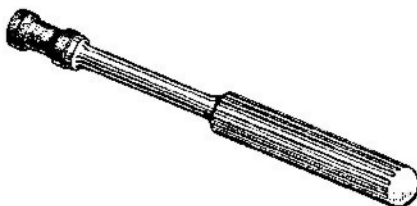
18G 45. Valve Spring Compressor



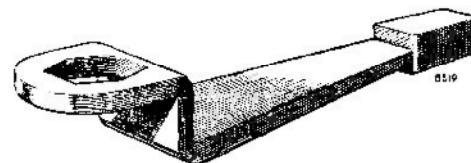
18G 27. Valve Seat Cutter Handle



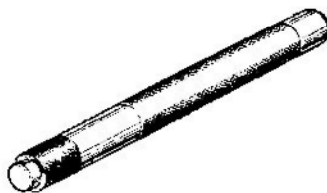
18G 55 A. Piston Ring Compressor



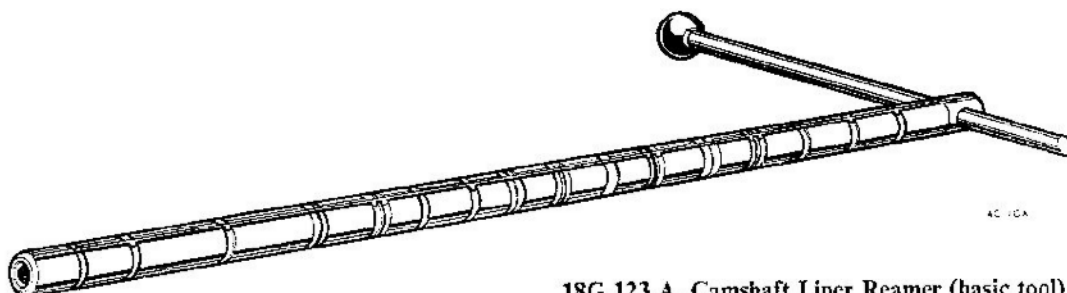
18G 29. Valve Suction Grinder



18G 98. Shock Spanner



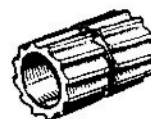
18G 69. Oil Pump Release Valve Grinding-in Tool



18G 123 A. Camshaft Liner Reamer (basic tool)



A1039

18G 123 AH. Camshaft Liner Reamer Pilot—Centre

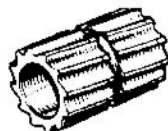
A4264

18G 123 B. Camshaft Liner Reamer Cutter

A1039

18G 123 AJ. Camshaft Liner Reamer Pilot—Rear

A4963

18G 123 BA. Camshaft Liner Reamer Pilot—Rear

A1039

18G 123 AN. Camshaft Liner Reamer Cutter—Front

A4963

18G 123 BB. Camshaft Liner Reamer Pilot—Rear

4946A

18G 123 AP. Camshaft Liner Reamer Cutter—Rear

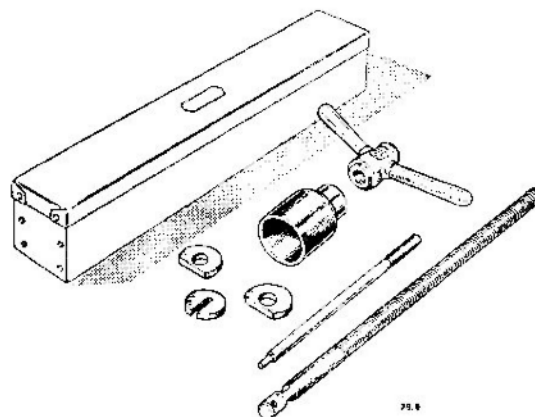
A4963

18G 123 BC. Camshaft Liner Reamer Pilot—Front

A4963

18G 123 AQ. Camshaft Liner Reamer Pilot—Front

A4963

18G 123 AT. Camshaft Liner Reamer Pilot—Centre

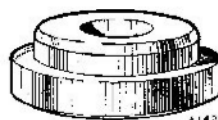
20.8

18G 124 A. Camshaft Liner Remover and Replacer (basic tool)



A4933

18G 124 B. Camshaft Liner Remover Adaptor



A14294

18G 134 BH. Flywheel and Front Hub Oil Seal Replacer Adaptor



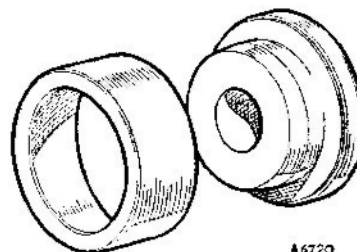
A4933

18G 124 K. Camshaft Liner Remover Adaptor



A4932

18G 124 M. Camshaft Liner Remover Adaptor



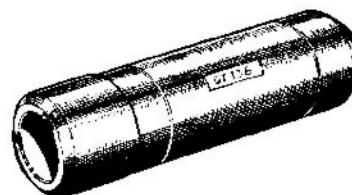
A6720

18G 134 CN. Replacer Oil Seal Stator Carrier



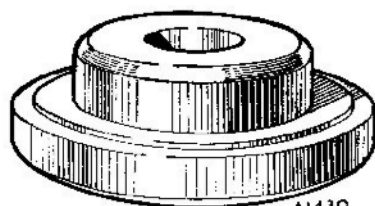
829XX

18G 134. Bearing and Oil Seal Replacer (basic tool)



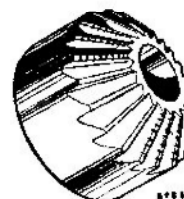
8138

18G 138. Crankshaft Gear and Pulley Replacer



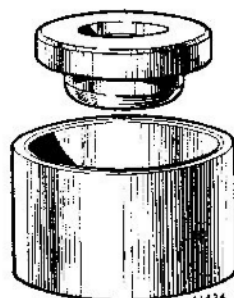
A1430

18G 134 BC. Crankshaft Primary Gear Oil Seal Replacer Adaptor



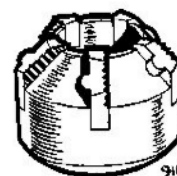
A783

18G 167. Valve Seat Finishing Cutter



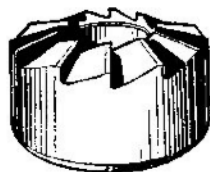
A1424

18G 134 BD. Timing Case Oil Seal Replacer Adaptor



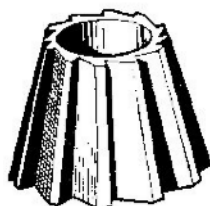
9165A

18G 167 A. Valve Seat Glaze Breaker



90218

18G 167 B. Valve Seat Narrowing Cutter—Top

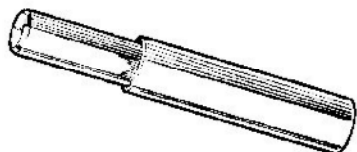


9021A

18G 167 C. Valve Seat Narrowing Cutter—Bottom

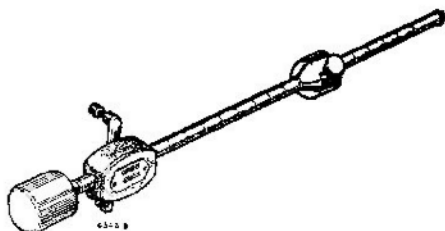


18G 167 D. Valve Seat Cutter Pilot



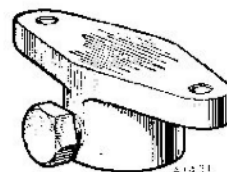
9172

18G 194. Laygear Needle-roller Bearing Replacer



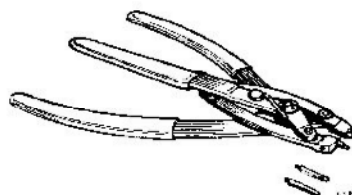
63119

18G 207. Bearing Preload Gauge



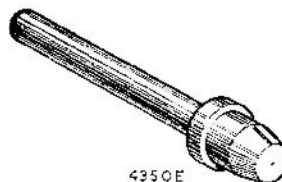
A1421

18G 207 A. Steering Rack Pinion Preload Adaptor



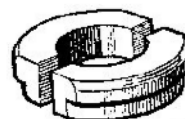
1255

18G 257. Circlip Pliers—Large



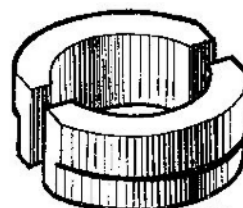
4350E

18G 260. Hub Bearing Outer Race Remover (basic tool)



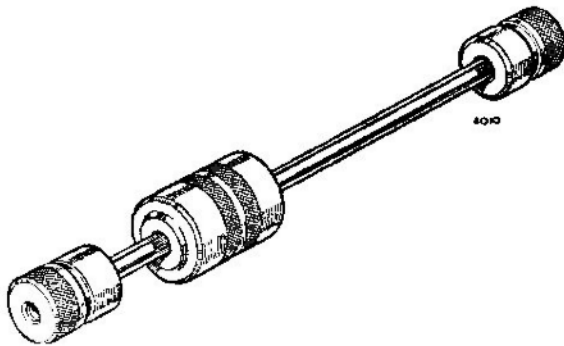
4349E

18G 260 C. Hub Bearing Outer Race Remover Adaptor

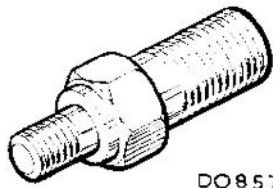


A1423

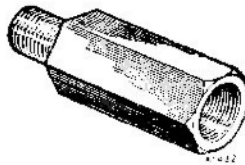
18G 260 H. Front Hub Drive Flange Bearing Outer Race Remover Adaptor



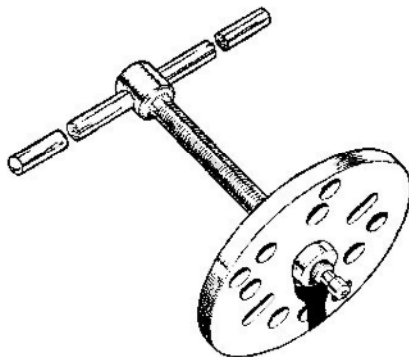
18G 284. Impulse Extractor (basic tool)



18G 284 AJ. Planetary Gear Spindles Remover Adaptor



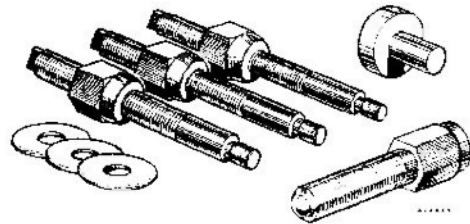
18G 284 B. First Motion Shaft Remover Adaptor



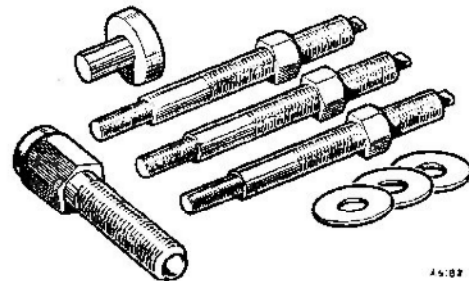
18G 304. Front and Rear Hub Remover (basic tool)



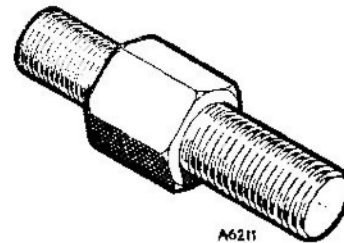
18G 304 F. Front and Rear Hub Remover Bolt Adaptor
MINI. Issue 2. 16495



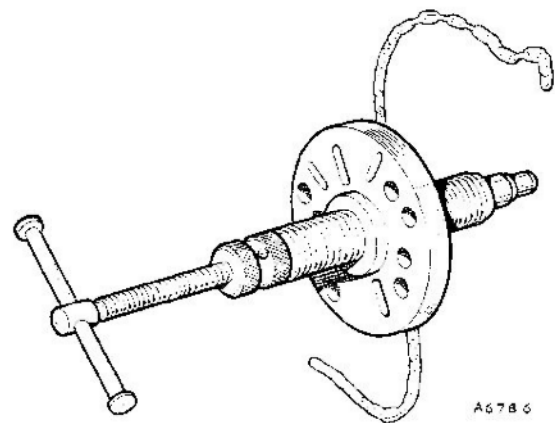
18G 304 M. Flywheel and Clutch Remover Adaptor



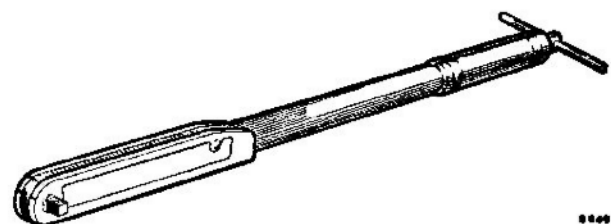
18G 304 N. Flywheel and Clutch Remover Adaptors



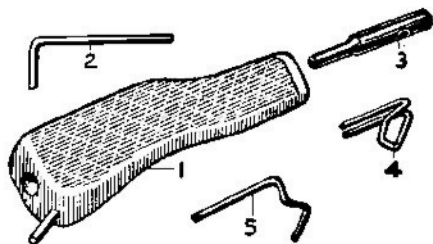
18G 304 P. Drive Flange Remover Adaptor



18G 304 Z. Hub Remover—Hydraulic (basic tool)



18G 372. Torque Wrench—30 to 140 lb. ft. (4 to 20 kg.m.)

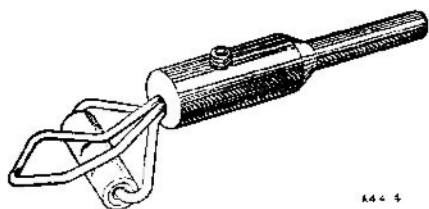


AD994

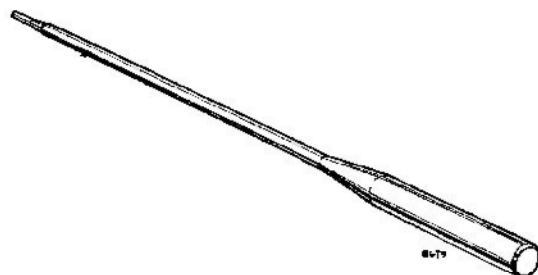
18G 468. Rubber Moulding Glazing Tool

The tool comprises:

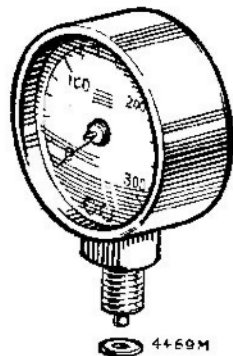
- | | | |
|------------|----------|----------|
| 1. Handle. | 3. Post. | 5. Hook. |
| 2. Key. | 4. Eye. | |



A444

18G 468 A. Rubber Moulding Glazing Tool Adaptor

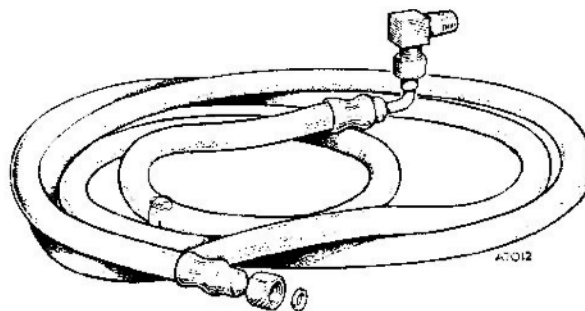
8679

18G 471. Dummy Layshaft

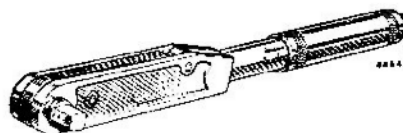
4469M

18G 502 A. Hydraulic Pressure Gauge

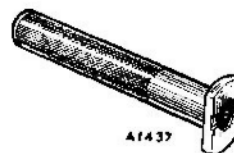
S.12



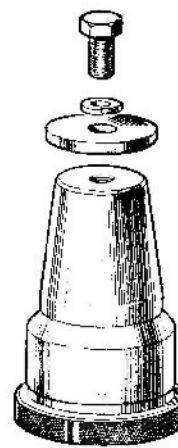
A7012

18G 502 K. Pressure Hose (8 ft.) with Adaptor

88848

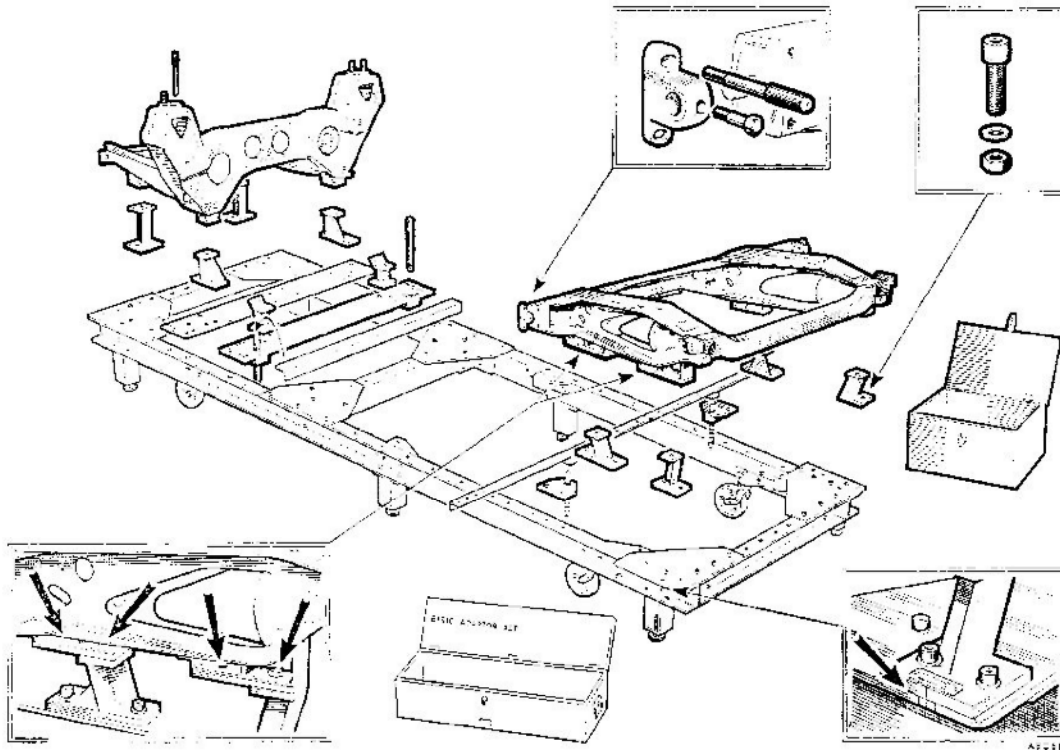
**18G 536. Torque Wrench—20 to 100 lb. in. (2 to 8 lb. ft.)
(300 to 1200 gm.m.)****18G 537. Torque Wrench—10 to 50 lb. ft. (2 to 7 kg. m.)**

A1437

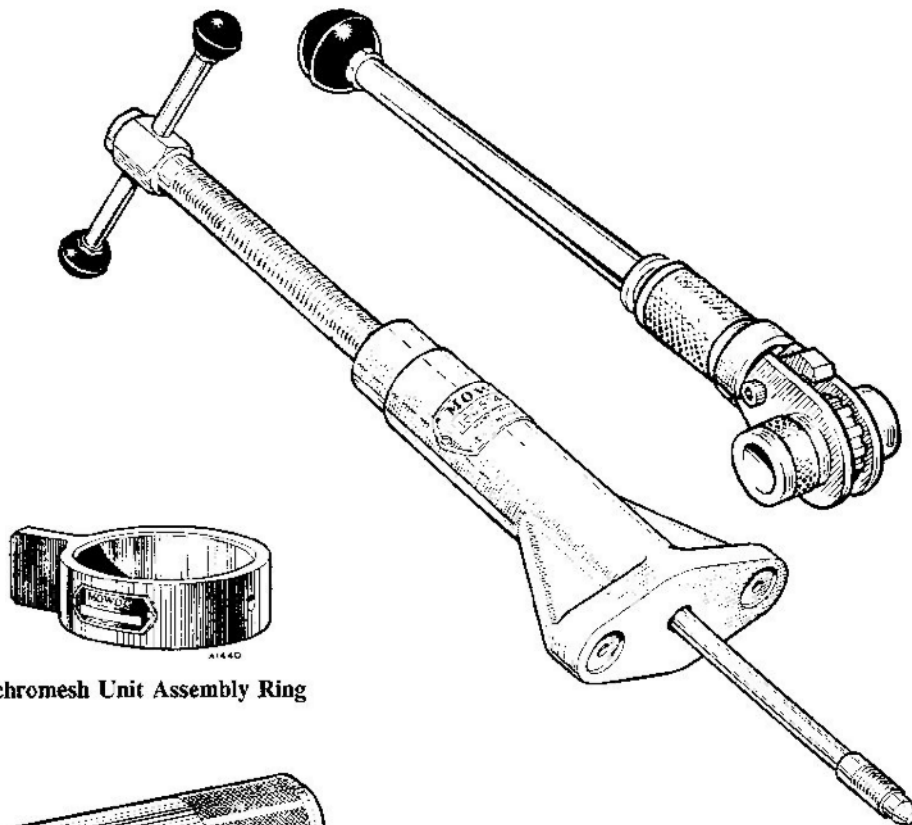
18G 569. First Motion Shaft Bearing Circlip Gauge

A1443

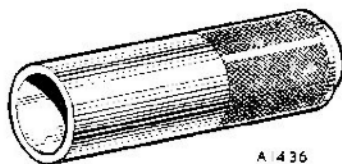
18G 571. Clutch Centralizer



18G 560 E. Body Checking Jig Adaptor Set

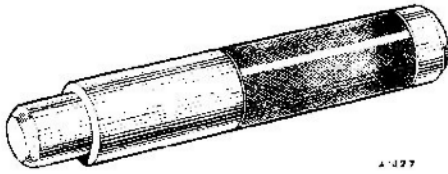


18G 572. Synchromesh Unit Assembly Ring

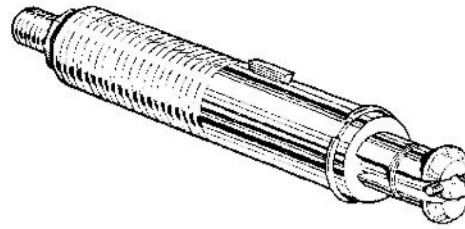


18G 573. Change Speed Shaft Oil Seal Replacer

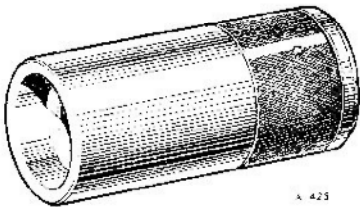
18G 574 B. Suspension Rubber Spring Compressor



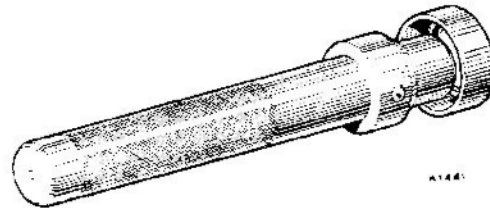
A 427

18G 575. Front Hub Drive Flange Remover

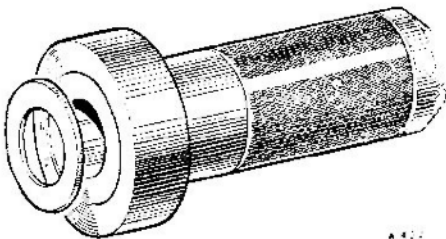
A 4464

18G 581 B. First Motion Shaft Spigot Bearing Remover Adaptor

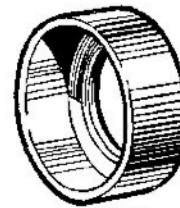
A 423

18G 578. Differential Bearing Replacer

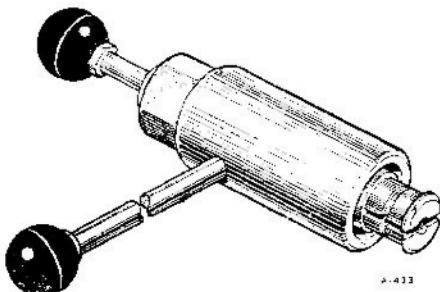
A 1441

18G 582. Front Suspension and Idler Gear Bearing Replacer

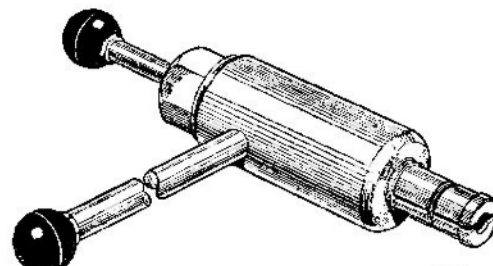
A 422

18G 579. First and Third Motion Shaft Bearing Replacer

A 1439

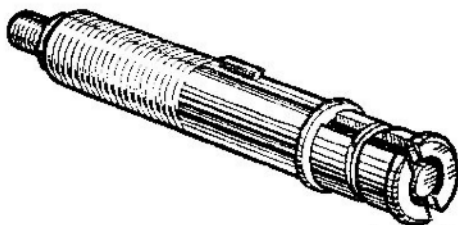
18G 582 A. Front Suspension and Idler Gear Needle Bearing Replacer Adaptor

A 423

18G 581. Front Suspension and Idler Gear Needle-bearing Remover

A 458

18G 583. Rear Radius Arm Bush Remover



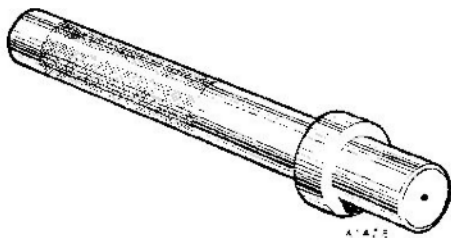
A4464A

18G 583 B. Rear Radius Arm Needle Bearing Remover Adaptor



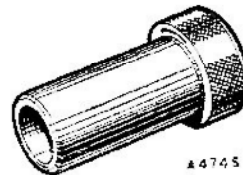
A474

18G 588. Rear Radius Arm Bush Reamer



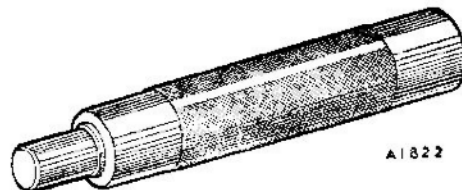
A1428

18G 584. Rear Radius Arm Bush Replacer



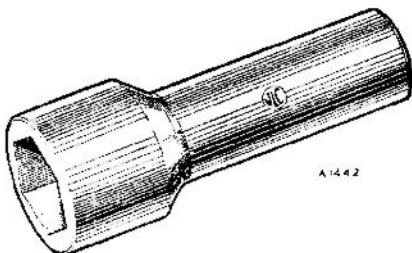
A4745

18G 588 A. Reamer Guide Bush



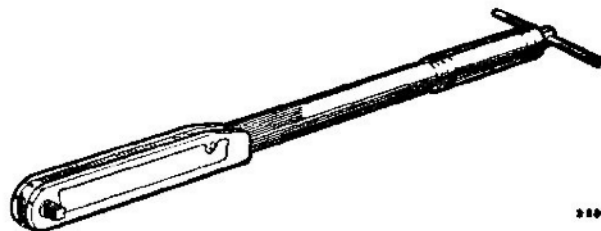
A1822

18G 589. First Motion Shaft Spigot Bearing Replacer



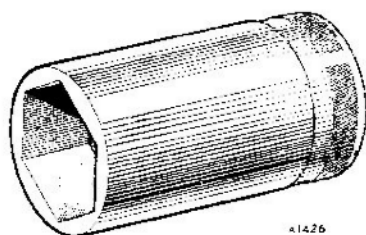
A1442

18G 586. Final Drive Gear Nut Spanner



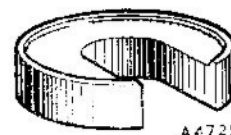
2100

18G 592. Torque Wrench—50 to 225 lb. ft. (5 to 30 kg. m.)



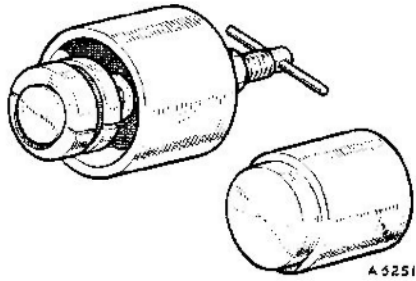
A1426

18G 587. Swivel Hub Ball Pin Nut Spanner
MINI. Issue 2. 16495

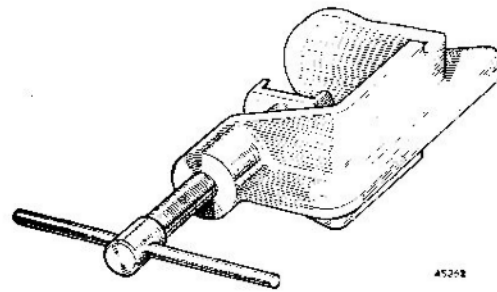


A4725

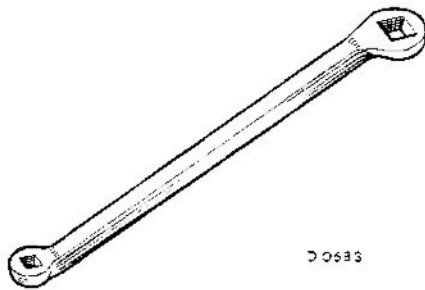
18G 613. Third Motion Shaft Bearing Remover



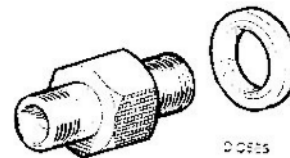
18G 617 A. Flywheel Housing Bearing (First Motion Shaft) Outer Race Remover/Replacer



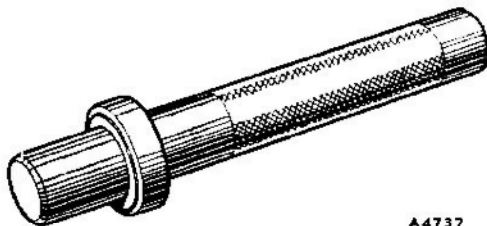
18G 672. Disc Brake Piston Seal Replacer



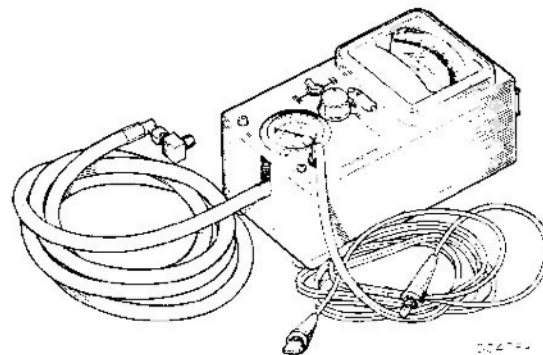
18G 619 A. Brake Adjusting Spanner



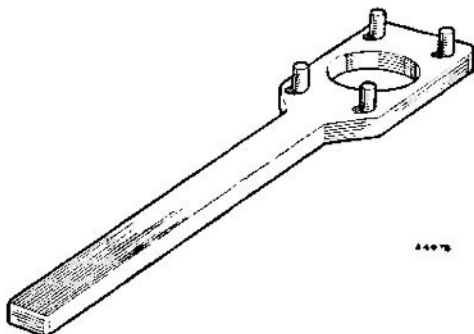
18G 677 C. Pressure Test Equipment Adaptor



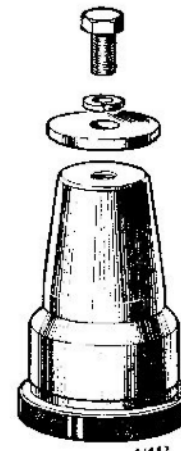
18G 620. Rear Radius Arm Needle Bearing Replacer



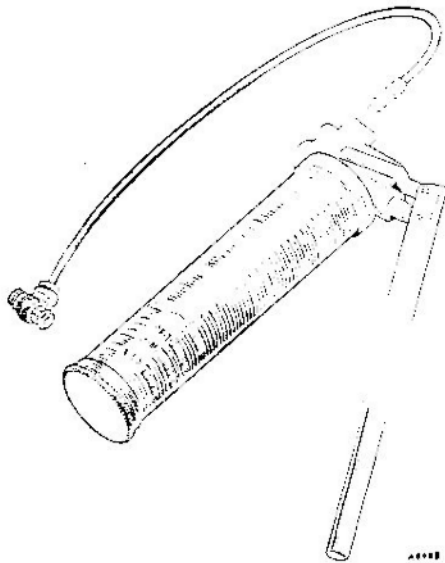
18G 677 Z. Pressure Test and Tachometer Equipment



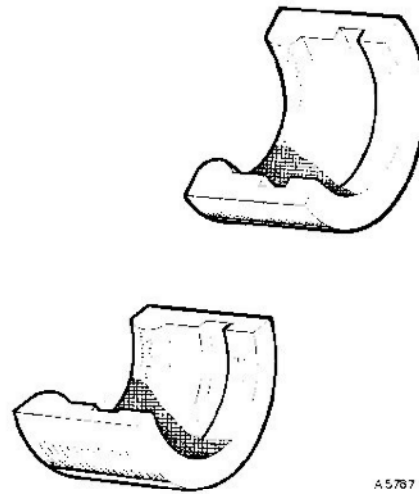
18G 669. Drive Shaft Coupling Flange Wrench
S.16



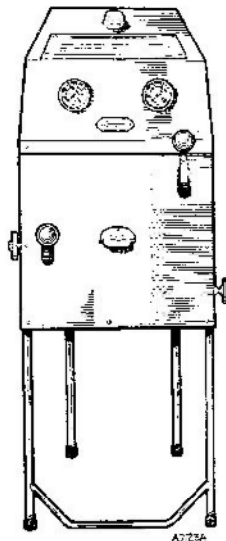
18G 684. Clutch Centralizer



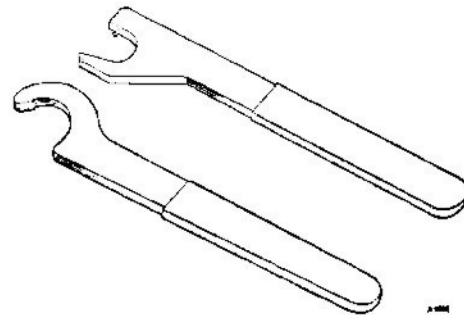
18G 685. The Hydrolastic Hand Pump



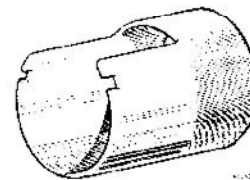
18G 705 B. Bearing Centre Race Remover Adaptor



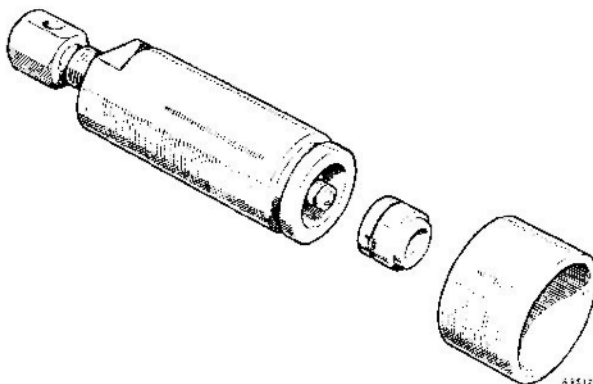
18G 703. The Hydrolastic Suspension Service Unit



18G 707. Steering Rack Ball Joint Spanners

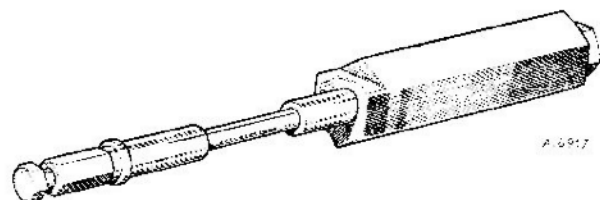


18G 1001. Gauge Locking Ring

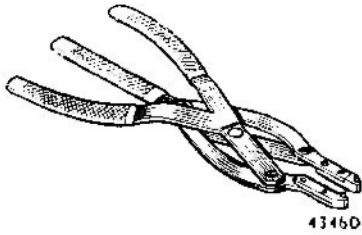


18G 705. Bearing Centre Race Remover (basic tool)

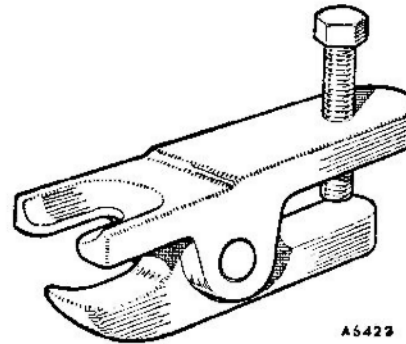
MINI. Issue 1. 4908



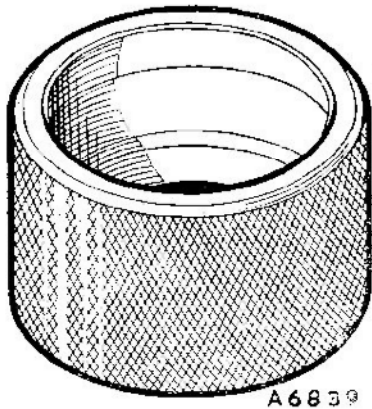
18G 1002. Gudgeon pin removing and replacing tool



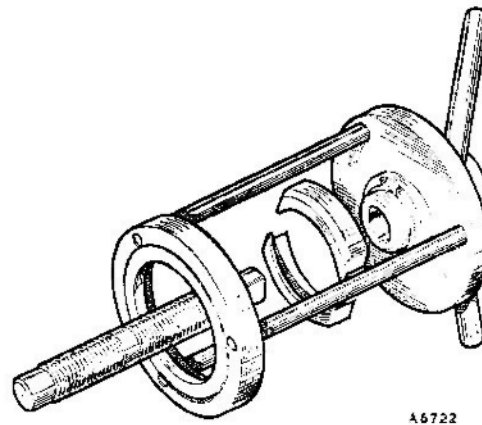
18G 1004. Circlip Pliers



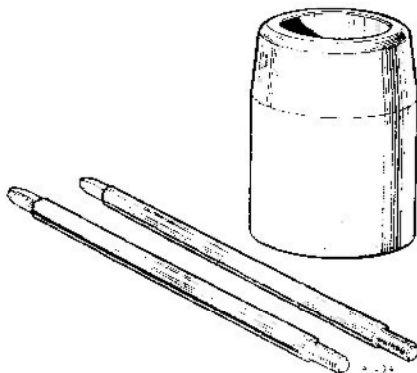
18G 1063. Steering Arm and Swivel Hub Ball Pin Remover



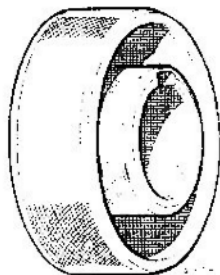
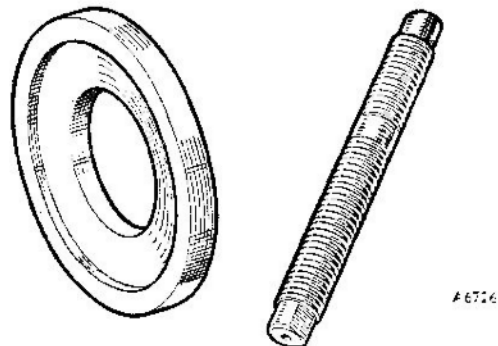
18G 1012. Selection Gauge—Constant Velocity Joint

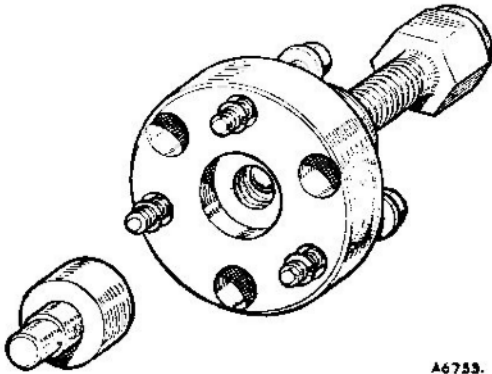


18G 1068. Remover and Replacer (basic tool)



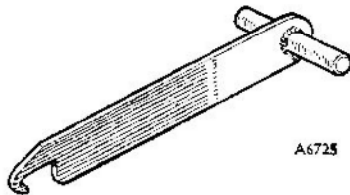
18G 1043. Crankshaft Primary Gear Oil Seal Protector Sleeve

18G 1044. Engine Front Cover Centralizer
S.1818G 1068 A. Adapter Set—Replacer Converter Housing
Oil Seal. Use with 18G 1068



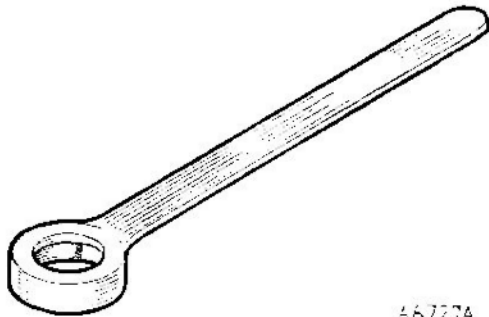
18G 1086. Converter Remover

A6753.



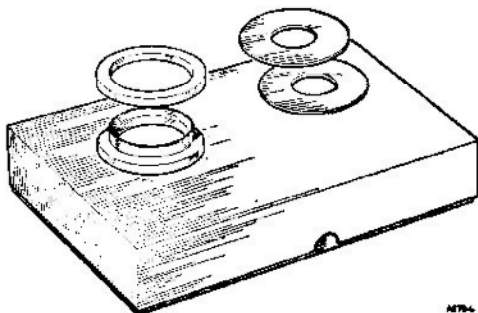
18G 1087. Converter Housing Oil Seal Remover

A6725



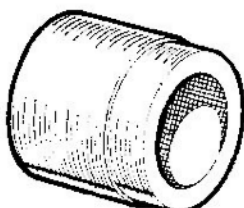
18G 1088. Converter Output Gear Holding Tool

A6727A



18G 1089. Idler and Input Gear Gauge Kit

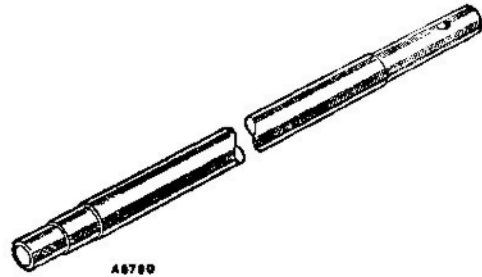
A794



D 0309

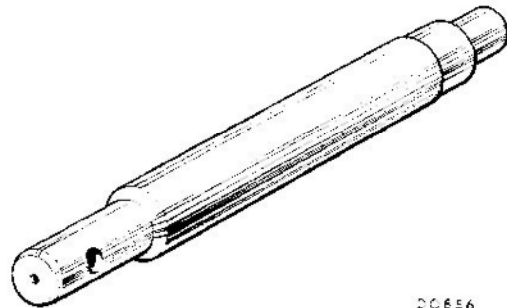
18G 1089 A. Input Gear Gauge Kit Adaptor

MINI. Issue 2. 16495



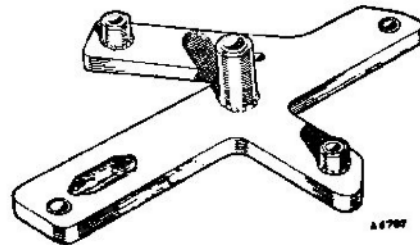
A6780

18G 1093. Dummy Shaft—Forward Gear Carrier Assembly



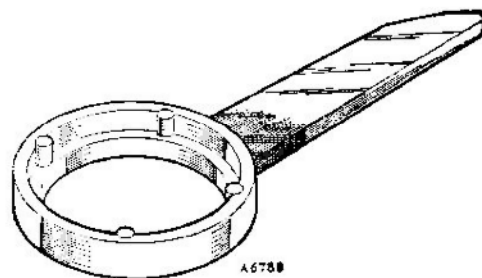
DC656

18G 1093 A. Dummy Shaft—Forward Gear Carrier



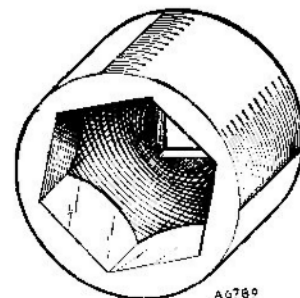
A6707

18G 1094. Positioning Fixture—Oil Pump Pipes



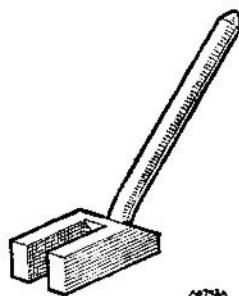
A6788

18G 1095. Holder—Top and Reverse Clutch Hub

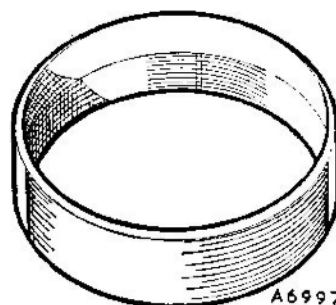


A6789

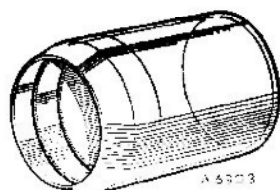
18G 1096. Socket Spanner—Forward Clutch Hub Nut



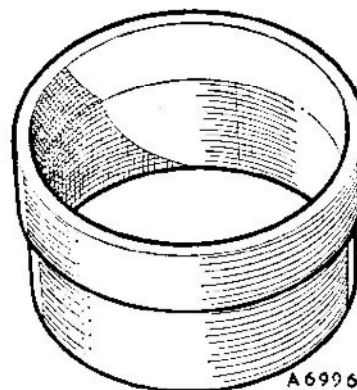
18G 1097. Retainer—Forward Clutch



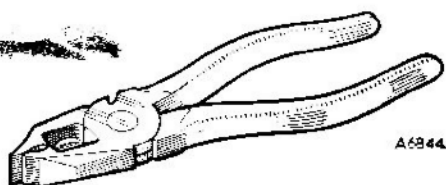
18G 1102. Replacer—Forward Clutch Piston Seal



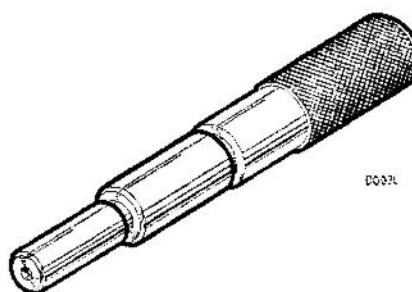
18G 1098. Protector Sleeve—Converter Output Gear Oil Seal



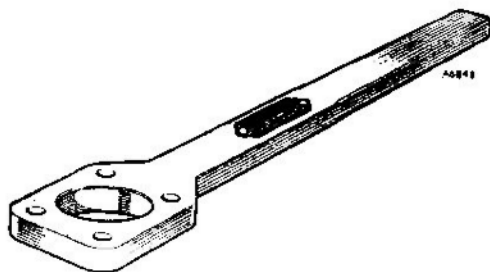
18G 1103. Replacer—Reverse Clutch Piston Seal



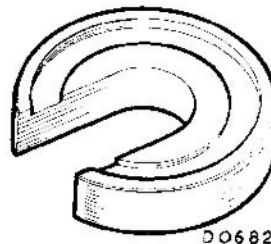
18G 1099. Pliers—Retaining Clip—Drive Shaft Boots



18G 1106. Centralizer—Governor Housing



18G 1100. Wrench—Drive Shaft Coupling Flange



18G 1127. Third Motion Shaft Bearing Remover
(Use on four-speed synchromesh transmission.)