Vehicle Engineering Series

MORRIS MINI DELUXE

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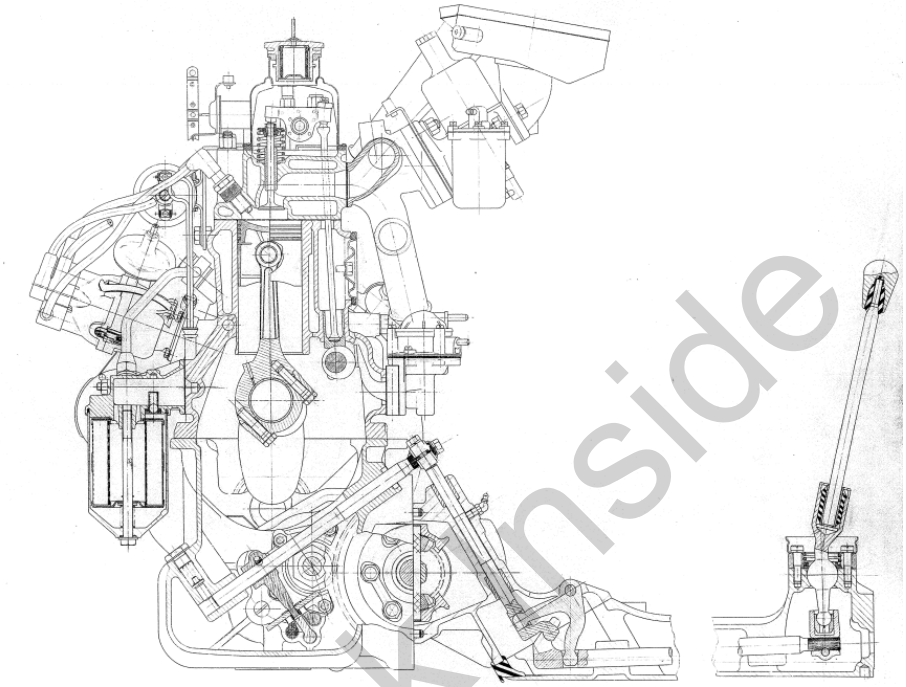
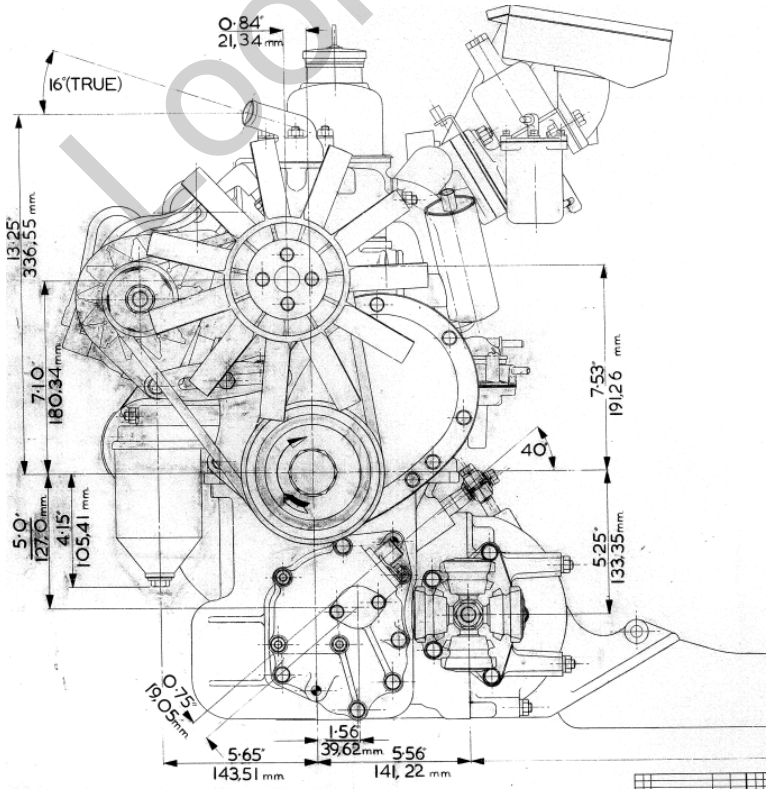
Contents

Chapter 2. Engine

2.1 Power Unit

The 998cc power unit differs substantially from the earlier 850cc unit, it being locally assembled from a mix of CKD and local supply components. The main external features are the mechanical fuel pump, remote control gearchange, and in later models, fitment of an alternator in place of a dynamo.





2.14 Water Pump

There are two water pumps specified for the Morris Mini Deluxe. Water pump AYG21 is of cast iron construction AYG22 with a replaceable double row bearing 2A777 and spring-loaded seal 13H772, along with vane AYG23, hub AYG25, locating wire 2A778, bypass connection AYG75, setscrew for lubrication point PMZ406, and fibre washer 2K4974.

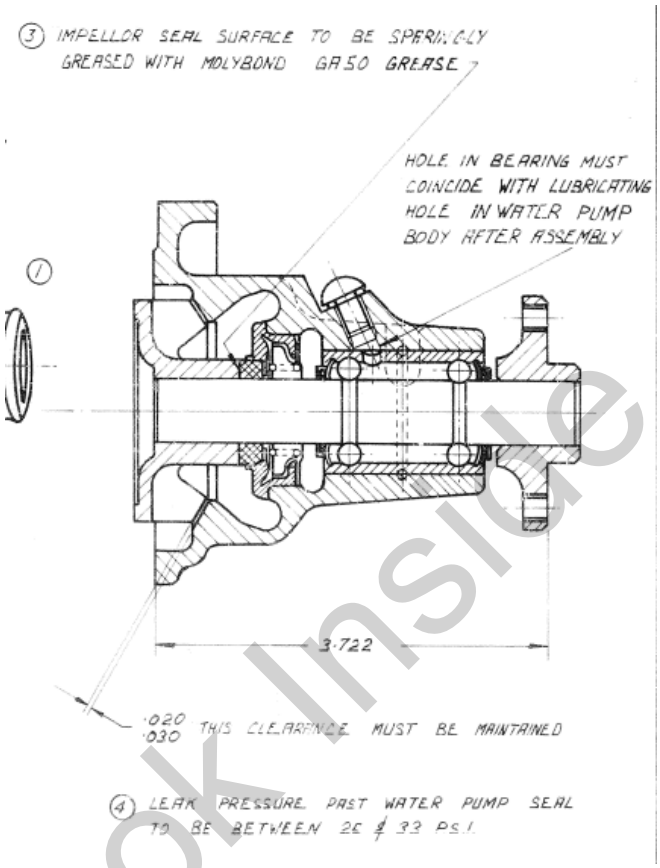


Fig. 2.14.1 *Water pump AYG21*

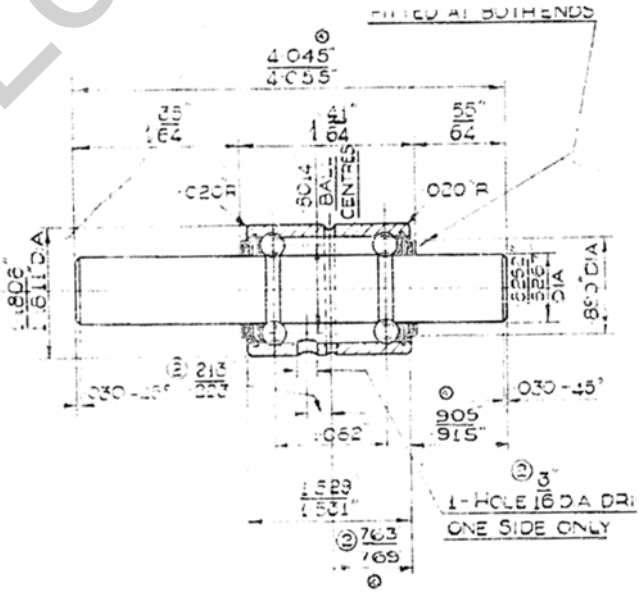


Fig. 2.14.2 *Water pump bearing 2A777.*

3.4 HT Cables

The coil high tension cable is secured by a screw fitment at the coil on early models and a push clip on later model Saloons and Vans.

For 25D4, high tension cables which feed the spark plugs are copper with 7mm diameter rubber insulation and neoprene outer casing feeding from a Lucas side-entry Bakelite distributor cap. The cables are staked using pointed screws inside the distributor cap.

For 29D4, high tension cables for No. 1 and No. 2 spark plugs are 17” long, MYH997 (MYH4315), and for No. 3 and No. 4 spark plugs, are 13” long, MYH1000.

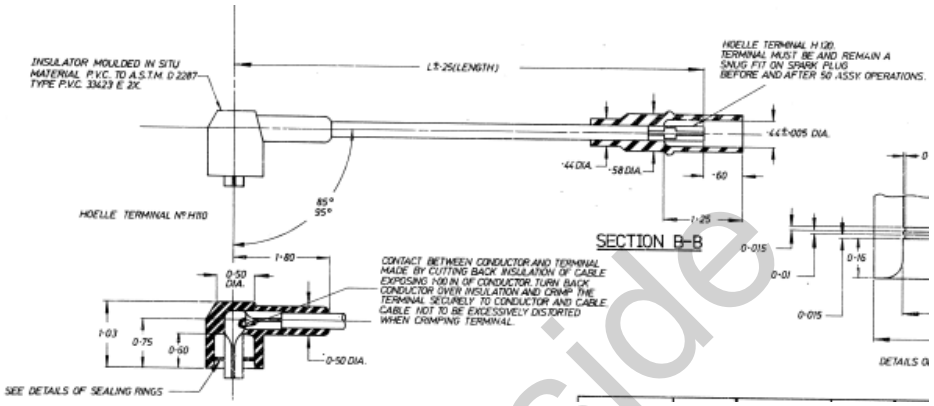


Fig. 3.4.1 *High tension cable to spark plugs MYH4315*.

The high tension cables are a push fit into the distributor cap and spark plug terminals.

The high tension cable AYH9681 (MYH4153) from the distributor cap to the coil is 14.25” long and incorporates a radio suppressor which is moulded in situ with the outer covering.

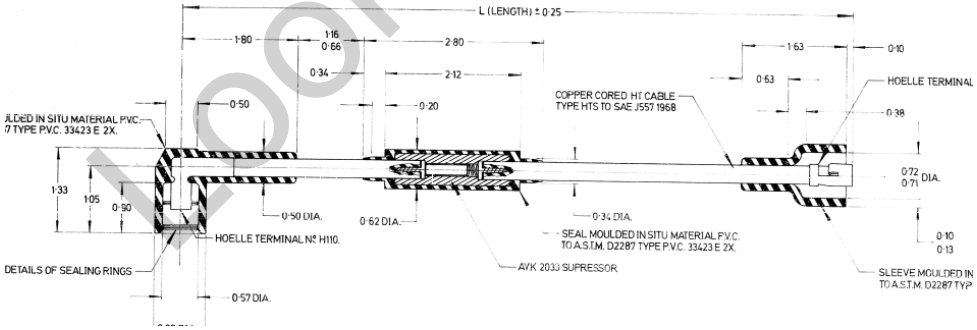


Fig. 3.4.2 *High tension cable distributor to coil AYH9681 (MYH4153)*.

5.4 Air Cleaner

The Coopers Mechanical Joints brand air cleaner/silencer is fitted with a dry treated pleated paper element AYA2127. The effective filtered area is 335 sq ins. The aluminium cast adaptor housing is a Coopers part and not supplied by SU.

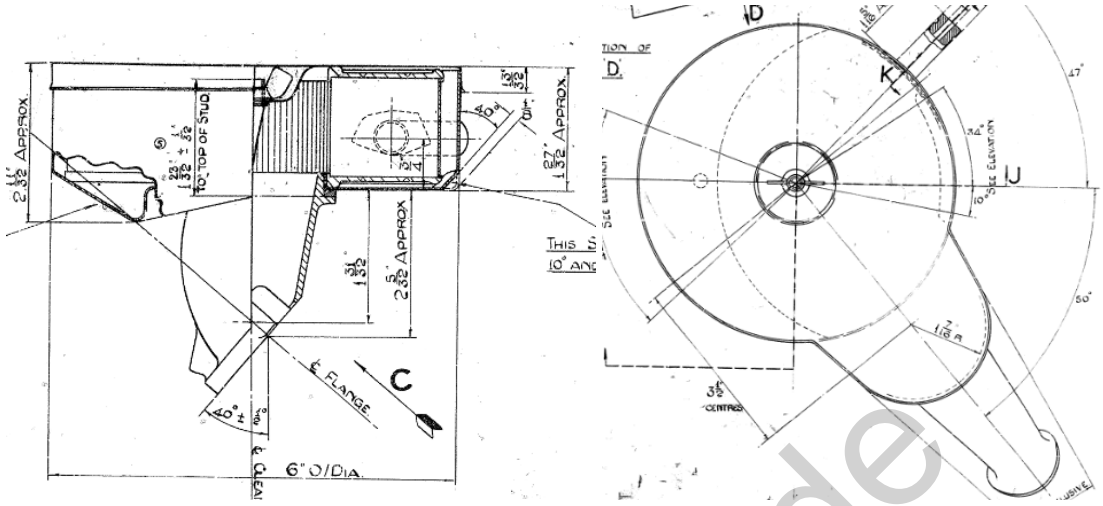


Fig. 5.4.1 *Air cleaner/Silencer 12A51.*

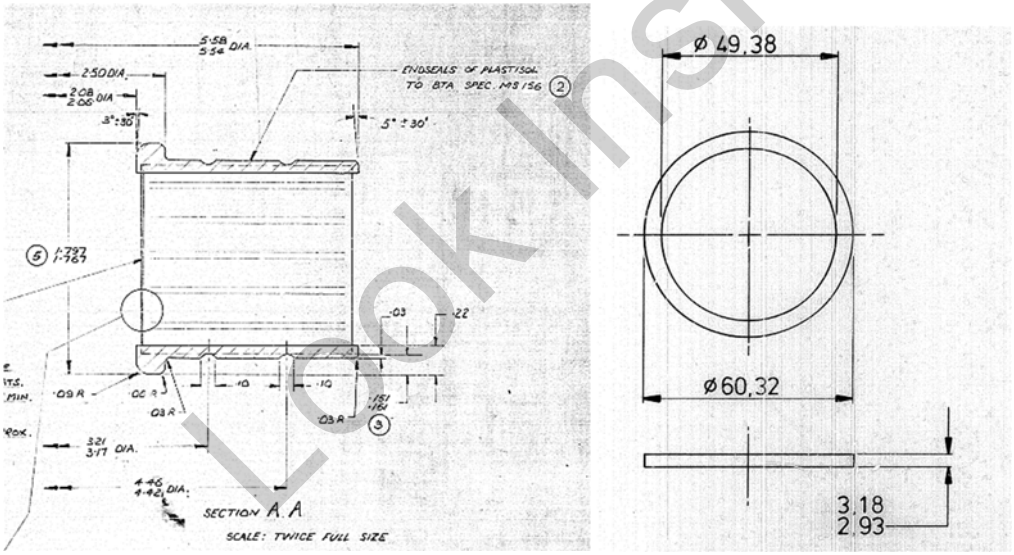


Fig. 5.4.2 *Air cleaner element AYA2127 and sealing ring 12A1433*.

Sealing washer 12A1433 fits below the air cleaner housing to the inlet flange.

The breather hose 12A52/12A1147(1E774) from the air cleaner to the valve rocker cover is of two-ply oil resistant rubber construction. It measures 5 ½" long, 7/16" inside diameter, and 0.66 – 0.72 outside diameter to BMC Standard BMR118.

On the 1098cc engine, a longer breather pipe AYG121 is used in conjunction with carburetter air horn adaptor AYG120.

There is a segment cut out from the gasket between the flywheel housing and the cylinder block to allow measurement of the gap with a feeler gauge. This gap controls the running clearance of the idler gear from 0.002” to 0.007”.

The straight-cut reverse gear 22G202 is engaged via motion of a fork 2A3490, which is operated by a lever 2A3489 which in turn is engaged by the selector fork 22A169.

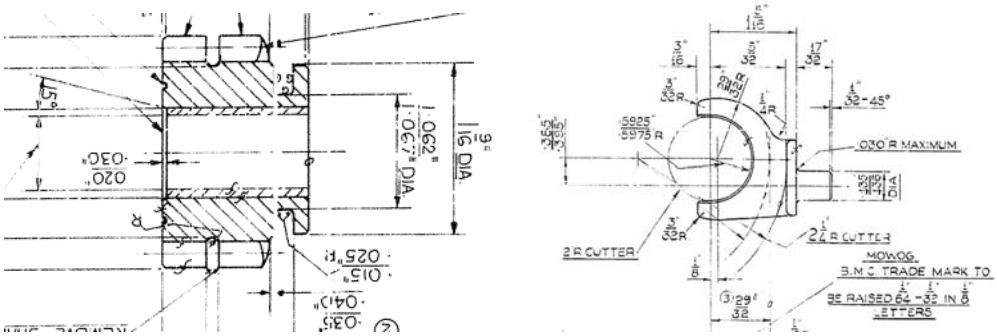


Fig. 7.1.8 *Reverse idler gear 22G202*.

The 3rd motion shaft ball bearing for the early cone type synchromesh transmission in 850cc ADO15 is a Ransome and Marles 1/MDJT/25G having a 1” width, nominal 62.5 mm OD and 25mm ID. For the baulk ring synchromesh transmission (YDO4/YDO5), the 3rd motion shaft bearing is 11/MJDT/1G and then later as 3/MDJT/1N which has a nominal 65mm OD and 25.4mm ID.[5]

The gears and hubs are carried on the 3rd motion shaft 22G392 of nominal 1” diameter which is case-hardened all over except for the speedometer drive end.

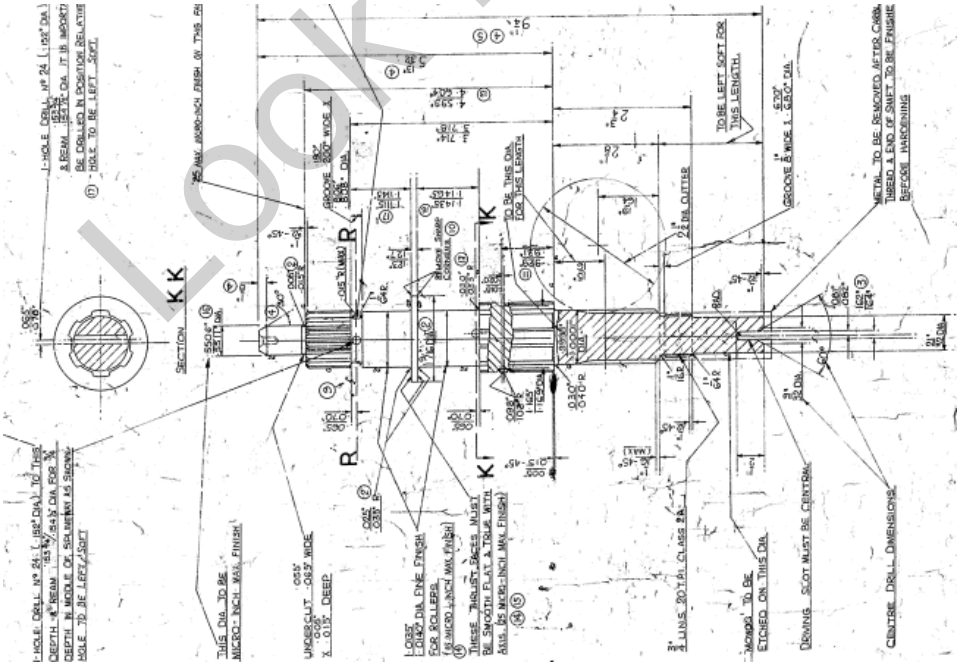


Fig. 7.1.9 *3rd motion shaft 22G392 (22G193)*.

[5] Factory documentation that suggests Part No. 22A575 is the smaller diameter 3rd motion shaft bearing is incorrect. 22A575 is a special bearing having 65mm OD and 25mm ID. 1/MDJT/25G is not the same as 1/MDJT/25 4N, the latter having 65mm OD and 25.4mm ID.

Alternately, where there is a steering lock fitted, the steering column outer tube 21A992 is supported by a single black-painted clamp 21A1033 (slightly narrower than 21A29) and chrome plated bracket 21A1000 (with weld nut), chrome through-bolt 21A924 (5/8” long) and shear bolt 21A923 (2 1/8” long).

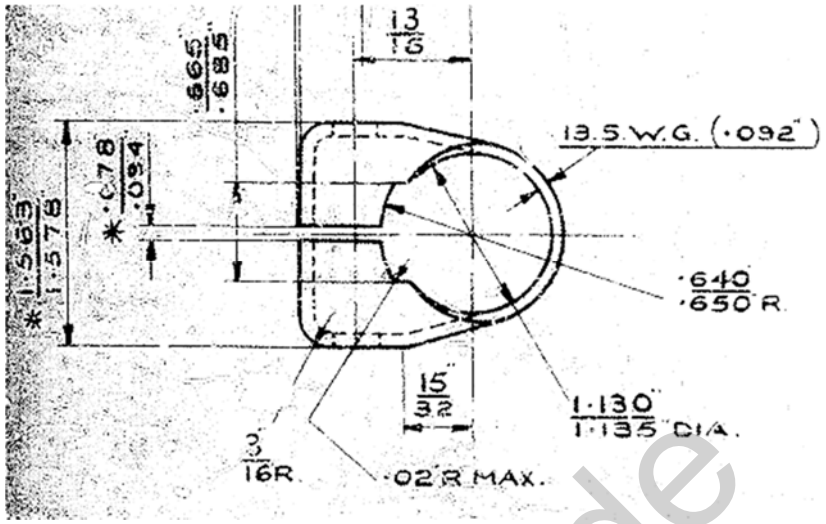


Fig. 9.14 *Clamp 21A1033*.

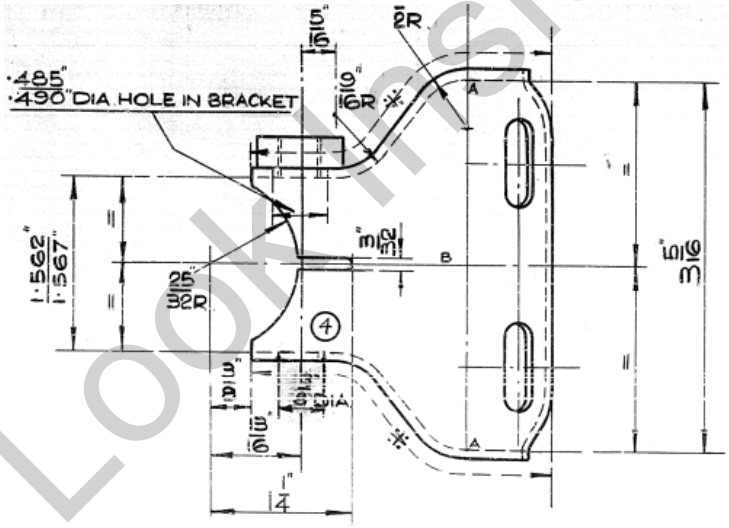


Fig. 9.15 *Bracket 21A921*.

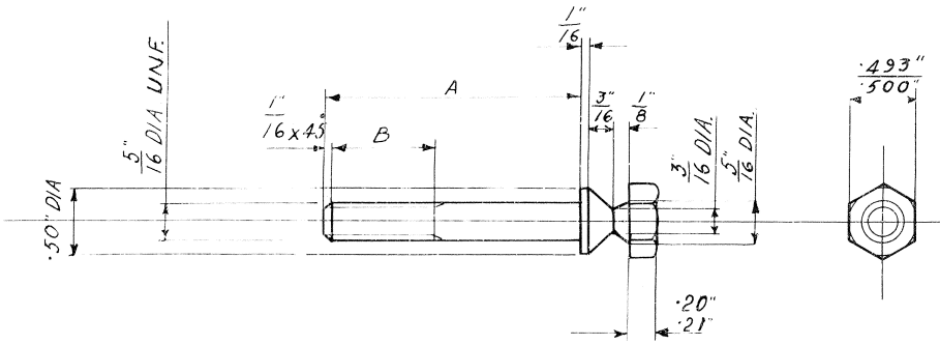


Fig. 9.16 *Shear bolt 21A924 (21A923).*

The pushrod has a 0.317” diameter hole for the clevis pin. The clevis pin is secured by a split pin, not a spring clip.

The filler neck on the master cylinder, for both brake and clutch, may be fitted with optional extenders BHA4661 which improve visibility of the fluid level and facilitate filling.

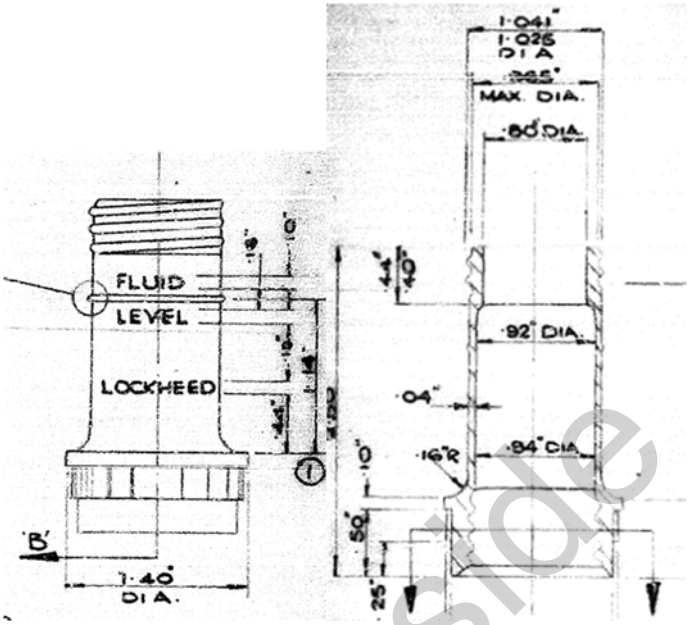


Fig. 11.3.3 *Filler tube extension BHA4661*

The tube extensions screw on to the master cylinder neck and are sealed with O rings BHA4662 of section diameter 0.09 to 0.10” thickness and 0.710” nominal internal diameter.

From YMA2S5865 (Mini-Matic), YMG2S13200 (Mini-K) and YJBAV4R1730 (Van), a master cylinder with a plastic reservoir AB15074 is fitted.

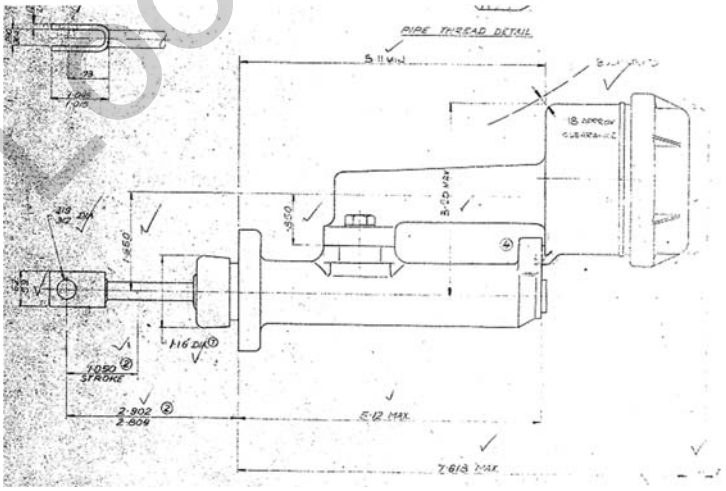


Fig. 11.3.4 *Master cylinder AB15074*.

This master cylinder has a bore of 0.70”. The mounting flange on this master cylinder is thicker than the previous design and require a different pedal bracket AYA5076 with longer weld studs.

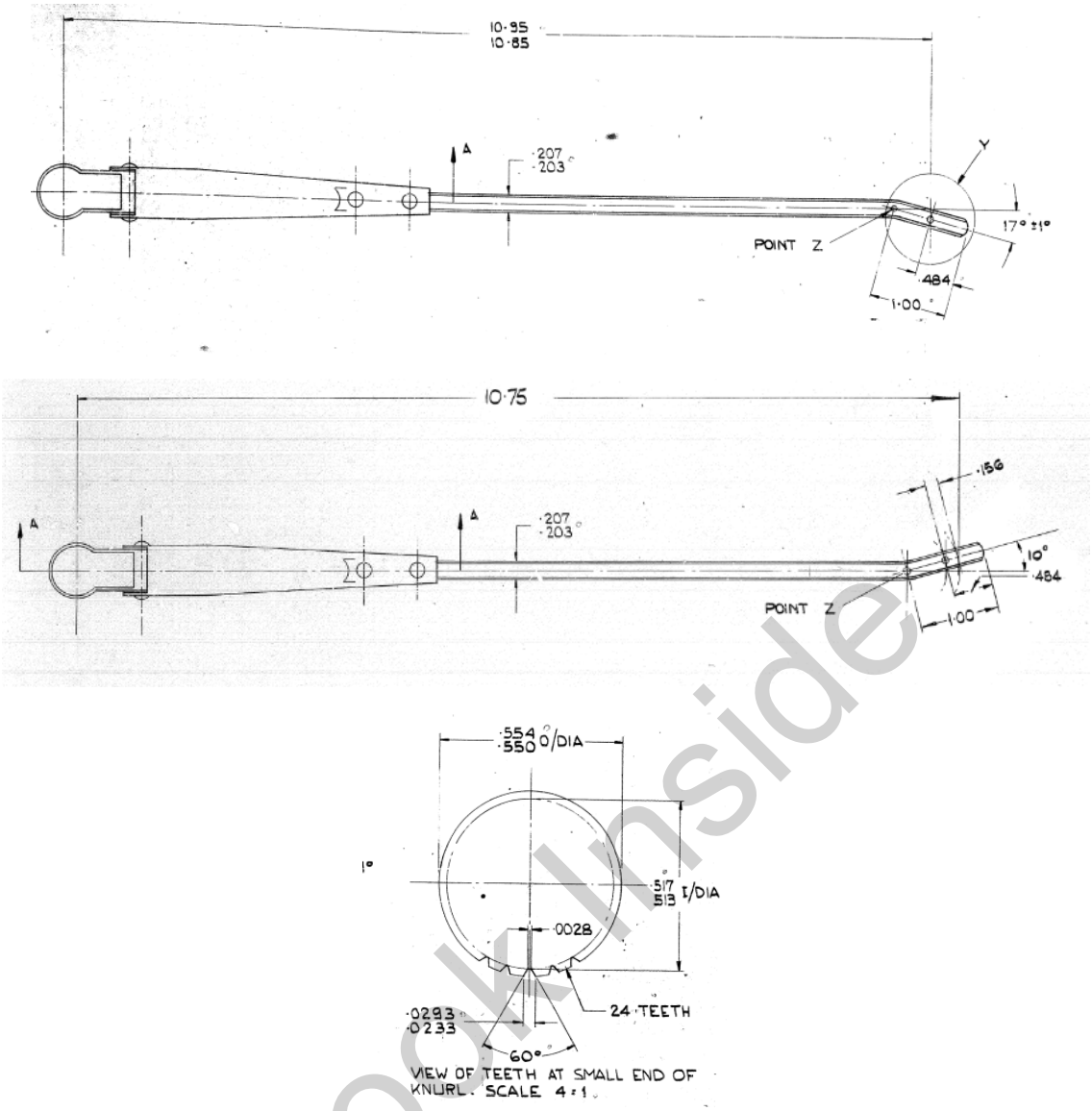


Fig. 12.10.9 *Wiper arm AYA9159, AYA9131 1967.*

The wheelbox gears are lubricated with Ragosine molybdenum listate grease.

12.11 Wiring Loom

The wiring loom is wrapped PCV tape with wires being terminated in bullet, blade, ring connectors, and bulb holders. Continuous or spot taping at 6” intervals may be applied where indicated on the drawing. Adhesive tape is used to terminate the wrapping.

Most wires for panel lamps and other low current systems are specified as either 9/0.012 (5A capacity) or 14/0.012 (7A capacity) with rubber and fabric insulation. Heavy duty cables such as those for headlights are 28/0.012 (14A capacity) while the main battery feed from the starter switch and generator output is 44/0.012 (22A). The first number in these specifications being the number of strands and the second, the strand diameter in inches. 0.012” diameter cable is equivalent to 30 SWG. Heavy copper stranded cable 37/20 SWG is used for the battery connection and starter motor. In general, but dependent on conditions, the current carrying capacity of the wires in the loom are:

The washer pump is mounted in a bracket 14A7274 on the lower edge of the parcel shelf and is secured by a washer LWZ410 and steel nut 37H9689 from behind, and a nylon nut and face plate at the front. The thread is 5/8" 26 TPI BSF.

The washer jets 14A7379 are black polythene with an adjustable brass ball with a 0.022" bore. Each jet is attached to the scuttle panel with a ¼" Whitworth nut and Grover shake proof washer, and a rubber washer on the outside surface under the head.

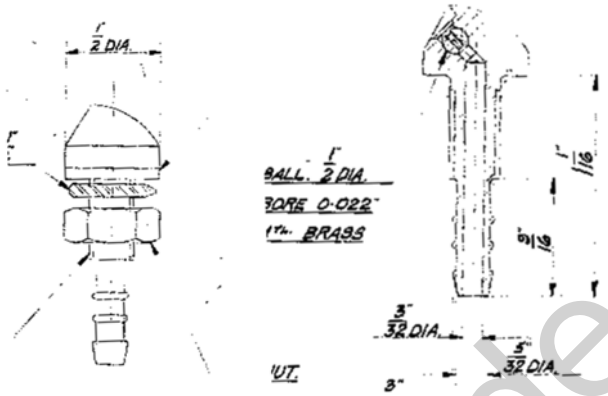


Fig. 16.6.2.7 *Washer jet detail 14A7379*

The Windscreen washer tubing is of PVC construction Chelplas type 7609 or CF31, green in colour, 0.190" ID, 0.159" OD.

16.6.3 Mirrors

The interior mirror HYA2570 is tinted glass mounted in a 0.020" enamelled painted steel case which incorporates a socket for the ball end of the bracket HYA2569.

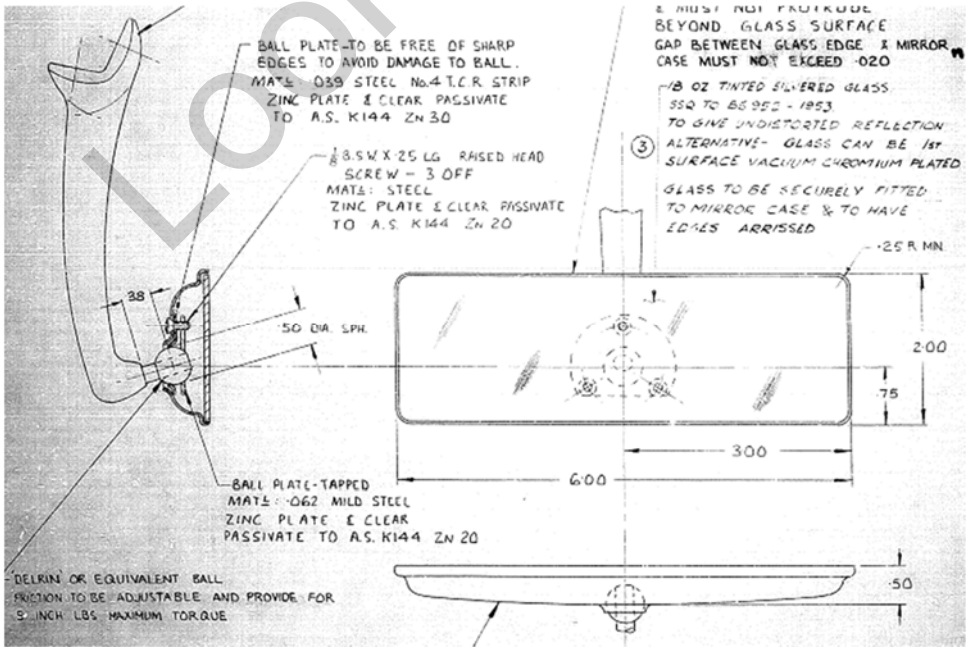


Fig. 16.6.3.1 *Interior mirror assembly HYA2570.*

An external mirror MYH418 is also available which mounts on to a bracket screwed to the outer door panel.

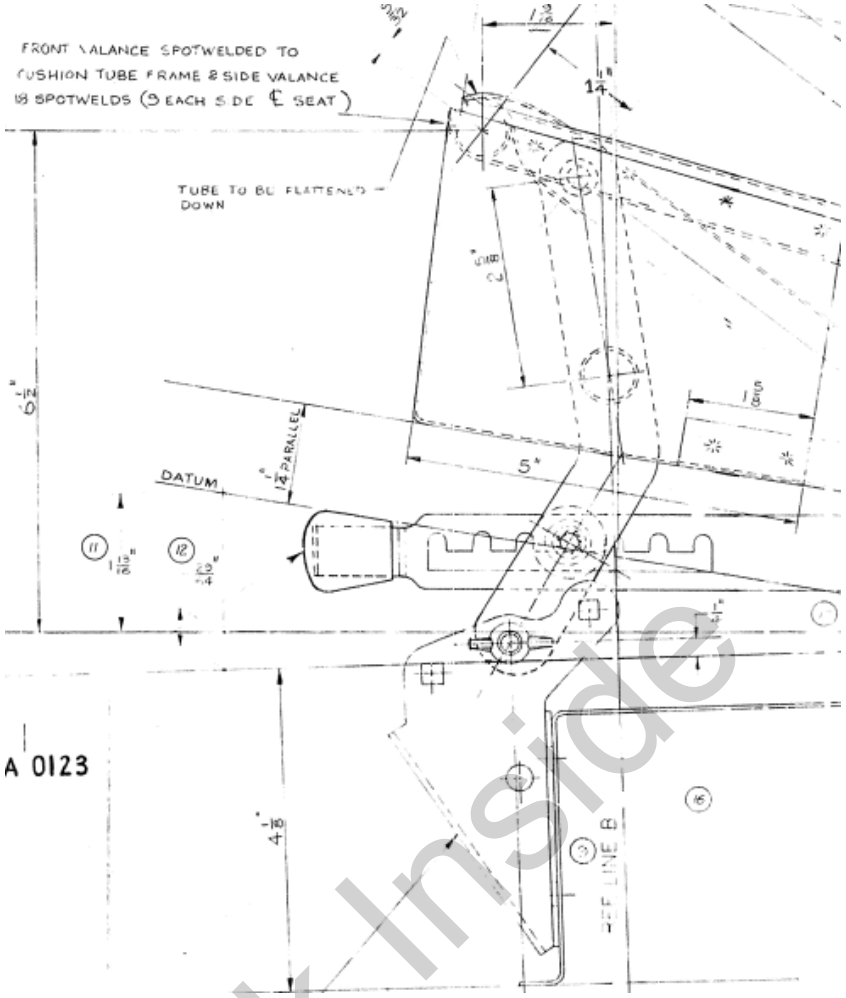


Fig. 16.11.1 *Seat mechanism HYA3190*.

Although HYA3190 shows a wing nut at the seat pivot, a rivet stud was actually used.

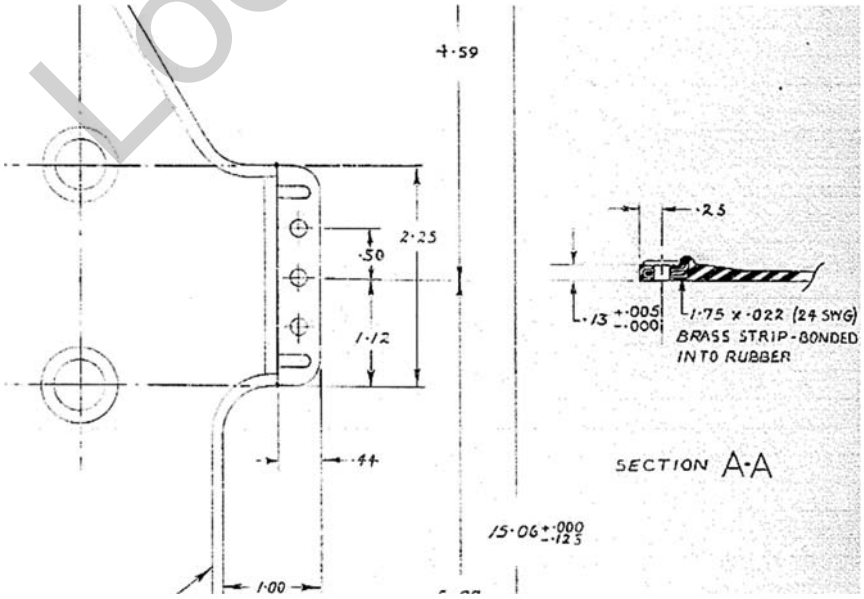


Fig. 16.11.2 *Vitafoam rubber seat platform HYA3871*.

Later models use a wire spring Flexolator HYB2591.