

# **Hydragas for Dummies**

or

## **Hydragas explained for markets that received Hydrolastic but not Hydragas vehicles**

This paper is not a 'how-to' guide on rebuilding your car. It merely represents a simplified explanation for the user or repairer of Hydragas suspension.

This is specifically intended for;

- people who already possess a competent understanding of Hydrolastic,
- markets (such as Australia) that received vehicles with Moulton Hydrolastic suspension but little or no Hydragas.

If you are unsure about any mechanical repairs, consult the relevant workshop manual, other material as referenced and/or a qualified and competent technician. This paper is NOT a standalone guide to repairs.

Applications include:

- Metro (all models)
- Rover 100
- MG-F
- Maxi II
- Allegro II
- Princess (Wedge)

### **Introduction:**

If you understand Hydrolastic, you will have little trouble with the transition to Hydragas. Variation does occur with different vehicles, particularly in regards to how or whether displacers are interconnected. For the boffin, Hydragas is a redesign of Hydrolastic which moves closer to Citroen's Hydro-pneumatic arrangement.

### **General operation and construction:**

As with Hydrolastic we deal with individual displacers and where found the interconnection system. This may be front-rear, left-right or not at all (stand alone).

Displacers are similar in design with one chamber containing the traditional suspension fluid and valve system. Transferring applied force to and from the suspension, we have a cast aluminium foot, spacers washers (where required), knuckle joint and in some rear applications, an extension tube. An additional steel coil (expanding) spring may also be utilized.

In place of the rubber spring vulcanized into the top of a Hydrolastic bag, we now find what appears to be a domed, sealed, steel casing. This is no longer the attachment point for a high pressure flex hose. Inside the steel dome, in place of rubber, there is a sealed diaphragm charged with Nitrogen. This now represents the primary spring medium and is non repairable.

Fluid connection is by a steel fitting on the side of the displacer. Depending on application, this may contain a Schrader valve.

Examples;

- In the case of MG-F, this connects to a flex line and then to the front-rear body pipe.
- Metro fronts have a Schrader valve and the displacer works as a standalone unit.
- Metro rears have no valve and interconnect left-right with a steel pipe.

## **Service and Repair**

Procedures are similar and safety is paramount. Operating pressures are similar and fluid should be to the latest specification. This is available from your MG-Rover agent as either a DIY additive (clear) to distilled water, or as a ready to use alcohol mix (green), in a 4 litre tin. As a personal choice I only use the alcohol based fluid. Due to the neglect systems typically undergo, adding water is only adding problems. Mystery brand fluids should be avoided. As with Hydrolastic, contaminated systems can be flushed clean with clear methylated spirits.

Knuckle joints have the same old issues and mechanical failure is still relevant. Just pressurizing (height correction) instead of properly inspecting all the suspension, is as irrelevant as it is with Hydrolastic. In most cases, major trim adjustment is specified by use of steel shim washers (genuine parts). This procedure appears in Service Bulletins for Hydrolastic but is rarely mentioned in workshop manuals. Scragging should also be employed, even though it doesn't appear in all manuals for Hydragas.

Supposed 'specialists' who state that any pressure can be applied to achieve any ride height, need to be avoided. As an owner once related; 'if the repairer can't explain Scragging, then walk away'. Any genuine Hydrolastic suspension pump can be used for Hydragas. In the odd instance an adaptor (extension piece) may be required. A simple inspection of the vehicle and shop manual will demonstrate what needs to be found to fabricate such a tool.

Pumps typically contain rancid fluid from the last forty year old BMC 1800 it was connected to. Even with four inline filters, my pump still incurs blockages. Over ten litres of methylated spirits can be required to flush a pump. As a result, I now have two pumps; one for dogs-body Hydrolastic cars and another for Hydragas and all of my own fleet. If you think this unreasonable, then try explaining to your client why you are replacing their bright translucent green with brown sludge and floaty bits!

Ride height is similar and will allow any car to clear most speed bumps and other anti-tank obstacles your local authority use for traffic calming. As with the earlier system, refer to the manual and not the fantasy settings owners imagine where every ant is in danger of decapitation. As usual, a thorough test drive encompassing hard acceleration and severe braking is required.

## **Commonality and common sense**

With fluid suspension and just about anything else, rely on product knowledge and not fantasy or hearsay.

As an example; for many years obtaining the correct displacer for a given Mini has been extremely difficult if not impossible. Displacer choice is used, used or used. Front or rear and colour (valve) choice is a distant memory if not a dream. Therefore the use of any bag, after a reasonable external examination, is a gamble in order to get the car operational. So to, any suspension arm is considered suspect until proven otherwise.

Clients must have the "it may not work or last" concept flogged into them and the hearsay they insist on parroting, flogged out. Lest they come back pointing the finger of accusation. Neither of these points is ideal but it is the reality.

Therefore the informed know which unwanted vehicles to target to keep their Maxi or Mini alive and which parts to acquire and secure for later use. Hydragas is no different but slightly more limited. MG-F represents the best example. Most owners live in MG Fantasy Land and totally ignore that their car is entirely Metro based. Thus a modified Metro front suspension is used in the F, both front and rear. A bigger Metro K Series power unit pushes F from behind. Although F is presently well catered for (despite Rover's closure), the future is obvious. Outside of the UK choice and availability of parts is already limited. Therefore a Trophy displacer (for instance) may not always be available when needed but a standard F unit may be.

Many if not most Hydragas components are still available new. They just aren't growing on trees and both client and repairer need to be aware of this. Owner complacency (if not fantasy) that any part will be magically available (off the shelf) as and when required is still prevalent. In this day and age such complacency is on the increase and will have to be endured instead of curtailed.

Like all suspension systems Hydragas has a few quirks. However, if maintained correctly it is extremely durable and reliable.

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