



FAQs about Loss of MR Fluid or Gas Pressure in MagneShocks.

From time to time you may question if you have enough MR Fluid (EX: some got out for some reason) OR, if some AIR has entered the shock (EX: a bleeder screw or a remote reservoir line came loose).

Following are some ways to determine if things are functioning properly:

It is not good to stroke a "monotube" shock with NO gas pressure.

At least a small amount of Gas Pressure is required (15 psi MIN – 30 psi MAX) to ensure that the floating piston moves back when you extend the shock and low pressure makes it easy to move the shock by hand to determine its condition.

To test: Compress & extend the shock slowly by hand while "feeling" as follows:

Monotube WITHOUT a remote reservoir:

Not enough fluid:

While extending the shock, you MAY feel it "run out of fluid" (a dead spot).

You may feel a "dead spot" while compressing the shock or when it transitions from moving in one direction to the other. This will also happen if there is a lot of air/gas in the fluid (there may be several smaller "dead spots").

Or; it may not want to extend all the way without "drawing a vacuum".

When you release the rod it may go back into the shock a ways.

If the floating piston comes up and touches the piston BEFORE the shock fully extends the gas pressure won't be able to extend it any further (there is no place for anything to go) so extending it further will feel like it is "drawing a vacuum".

Further extension moves the oil above the piston down through the piston but the fluid displaced will have to push the floating piston back down against the gas pressure.

This will feel like it is "drawing a vacuum".

While compressing the shock, the piston will contact the floating-piston before the shock is fully compressed.

When this happens the force required to push it (which should be pretty small up to this point) will go up significantly before the rod goes all the way in (90-100 lb or more - the piston area is 2.79 sq inches x 30 psi = 83.7 lb and the gas pressure actually increases above this as you compress the shock).

Further compression will require that you draw a vacuum above the piston & push the floating piston down about 10 times faster (it will have to move the same amount as the piston moves) and 10 times harder than normal, against the full force of the gas pressure.

Releasing this extra pressure will push the rod back out.

Too much fluid:

While compressing the shock, the floating piston will bottom out (in the Shock Body) and STOP any further compression of the shock.

The rod won't go all the way in and reach its full stroke as the fluid cannot be compressed.

While extending it is difficult to tell unless it has a lot of air/gas in the fluid (you fell dead spots).

If the bleed screw on the body comes loose:

MR Fluid will NOT leak out as the screw only accesses the GAS.

If fluid leaks out, that means you ran it a while with NO GAS PRESSURE, which leads to "dumping".

This often leads to MR Fluid going past the floating piston and getting into the gas chamber.

If you see MR Fluid - WE have to fix it.

If there is no MR Fluid present: Tighten it up and do the above checks.- It may be OK (but this is unlikely, as a non-remote shock has very little extra fluid in it).

If it fails the tests, send it back to the factory.

DON'T TRY TO FIX IT! - YOU CAN'T.

We'll fix it for a nominal charge.



Monotube WITH remote

reservoir:

Not enough fluid :

While extending the shock, you will feel it "run out of fluid" (a dead spot).

You may also feel the "dead spot" while compressing the shock or when it transitions from moving in one direction to the other.

This will also happen if there is a lot of air/gas in the fluid (there may be several smaller "dead spots").

If the floating piston "tops out" in the Remote Reservoir the gas pressure won't be able to extend the rod any further.

There is no place for anything to go so the rod may not fully extend.

So, extending it (pulling on it) further will feel like it is "drawing a vacuum" - when you release the rod it may go back into the shock a ways.

Further extension moves the oil above the piston down through the piston but the fluid displaced will have to push the floating piston back down against the gas pressure - this will feel like it is "drawing a vacuum".

While compressing the shock, you may not that feel anything unusual, unless there is a lot of air/gas in the oil & then you will feel the usual dead spots.

Too much fluid:

While compressing the shock, the floating piston will bottom out (in the Remote Reservoir) and STOP further compression of the shock.

The rod won't go all the way in and reach its full stroke as the fluid cannot be compressed.

While extending it is difficult to tell unless it has a lot of air/gas in the fluid (you feel dead spots).

If the bleed screw on the body comes loose:

MR Fluid will leak out. We always put more fluid in "Remote reservoir" shocks than the minimum required.

So, it may be OK.

Tighten it up and do the above checks.

If it fails the tests, send it back to the factory.

DON'T TRY TO FIX IT! - YOU CAN'T.

We'll fix it for a nominal charge.

Dead Spots:

You can't always feel dead spots with MR Fluid as they usually form small bubbles, especially after being run a bit. Air/gas in the oil doesn't kill the shock (if there are no dead spots felt) but it does increase hysteresis considerably.

Hysteresis is a "delay" in the damping force being properly developed - it comes on slower (as the piston speed accelerates) and it goes away slower (as the piston speed decelerates).

It can do some "crazy" things - like "pulling" while the shock is compressing & "pushing" while the shock is extending!

You won't see or feel this "irregular" action - but the car will! And, a proper DYNO TEST can show it to you.

Obviously, hysteresis will deteriorate performance. BUT, it is debatable how much "ill effects" it has.

On the other hand, if you CAN FEEL the dead spots it will ALWAYS seriously deteriorate performance.

YOU CAN'T FIX IT EASILY! We can.