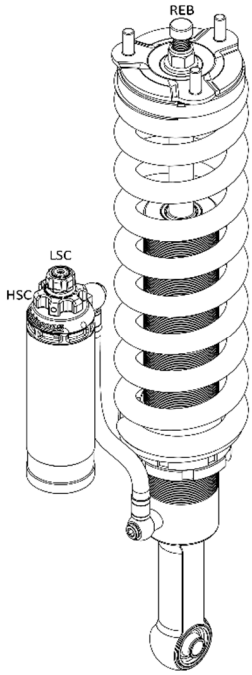
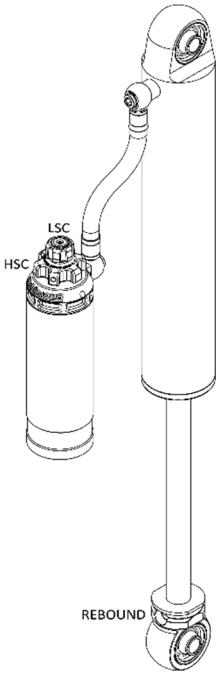
OWNERS MANUAL

MRR Adjustable Remote Reservoir Shock Absorbers





Please leave this manual with the customer

Thankyou for purchasing Dobinsons MRR 3-Way Adjustable Remote Reservoir Shock Absorbers.

Your shock absorbers are equipped with 3 adjustable dials to adjust the amount of low speed compression damping (small dial on the reservoir end), high speed compression damping (large dial on the reservoir end) and rebound damping (small grub screw/dial on the rod end).

Adjustment

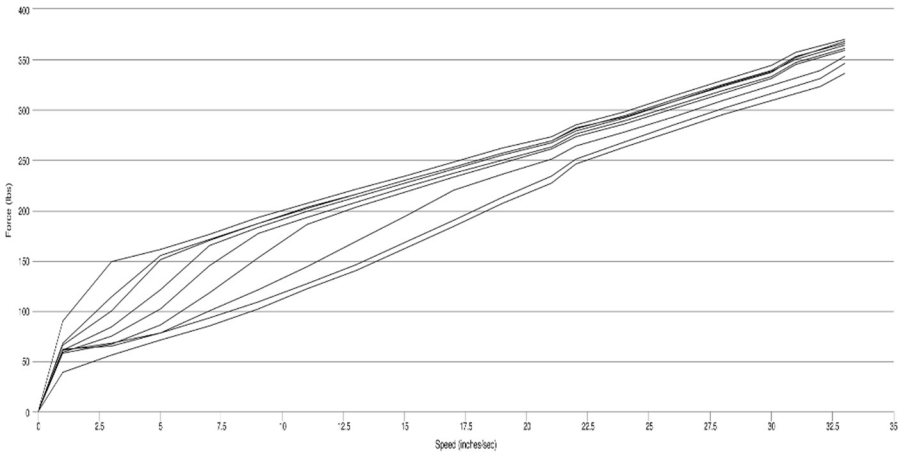
Important: When adjusting the dials do not over toque the dials. Each dial should be able to be moved by hand or with the small adjustment tool provided. Do not over-torque the dials at the end of the dial travel as this may cause permanent damage to the components.

Compression

The compression adjusters operate by allowing a low speed bleed path combined with a high speed digressive shim stack to allow adjustments in both the low speed shaft movements and high speed shaft movements (note - this is not vehicle speed). It is important to note that due to the nature of the low speed bleed path bypassing the high speed compression stack that each adjuster does have a small effect on the other i.e. the low speed will have a small effect on the high speed and vice versa. Also, the higher the adjuster is set to, the more affect the opposing adjuster will have with each click.

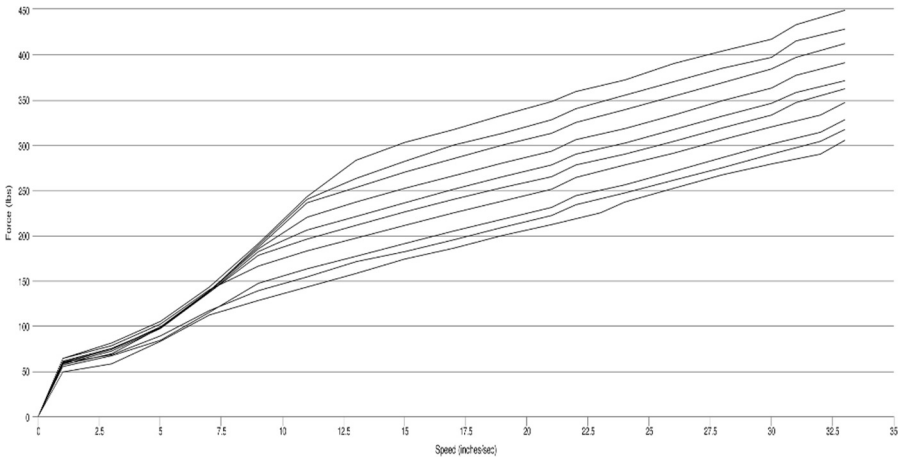
Low Speed Compression (LSC)

The low speed adjustment is increased by turning the smaller adjustment dial on the reservoir clockwise and is decreased by turning it anti-clockwise and has approximately 20 clicks. Low speed compression primarily affects the compression damping during low speed shaft movements such as vehicle pitch, dive and roll, wheel traction and vehicle ride (harshness and plushness). Lower settings will provide a smoother more compliant ride but will sacrifice stability whilst higher settings will result in a firmer less compliant ride but provide better body control & stability. If unsure, choose a setting that you feel provides good vehicle body control and stability without excessiveness harshness. If you are unable to achieve a firm enough setting you can increase the high speed adjustment to suit and if you are unable to achieve a soft enough setting then you may reduce the high speed adjustment. See the graphs below for a sweep of the low speed compression adjustments – NOTE: Every 2nd click has been omitted for clarity. High speed compression set at midpoint.



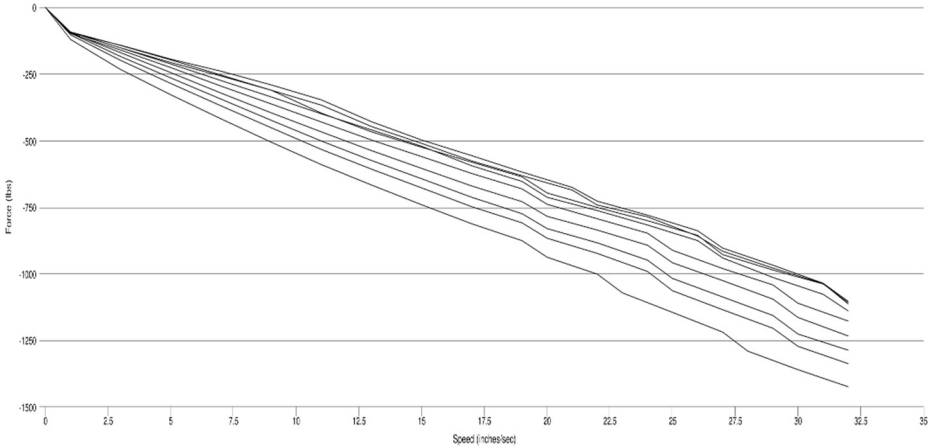
High Speed Compression (HSC)

The high speed adjustment is increased by turning the larger adjustment dial on the reservoir clockwise and is decreased by turning it anti-clockwise and has approximately 10 clicks. NOTE: Turning the dial clockwise will screw the adjustment assembly outward as it is a left-hand thread, this is normal. You can use the tool provided but do NOT apply a lot of pressure towards the end of the adjustment range as it may result in component damage. High speed primarily affects the compression damping during high speed shaft movements such as harsh or square edge bumps and harsh vehicle landings. Lower settings will provide a slightly smoother ride but will be more prone to bottoming out, whilst higher settings will result in a firmer less compliant ride but reduce bottoming. It is recommended to choose a setting that is as low as possible whilst minimizing bottoming. If you are unable to achieve a firm enough setting you can increase the low speed adjustment to suit and if you are unable to achieve a soft enough setting then you may reduce the low speed adjustment. See the graphs below for a sweep of the low speed compression adjustments. Low speed compression set at midpoint.



Rebound

The rebound adjustment is increased by turning the small grub screw/dial adjuster on the rod end clockwise and is decreased by turning it anti-clockwise. Struts have around 25 clicks and shocks around 12. You can use the tool provided to make adjustments on shocks (there is also a hexagonal hole cut out – this is used on some pin type shocks to rotate the shock rod clockwise only to allow access to the rebound adjustment screw). Rebound damping adjustment affects both high and low speed rebound valving. To little rebound damping can cause the vehicle to wallow, can cause the vehicle to kick up harshly after large bumps, dips or washouts and can cause frequent topping out. Too much rebound can cause a harsh ride and when driving over continued corrugations, bumps or whoops it can cause loss of traction, cause the vehicle to skip and steer erratically and can cause the suspension to pack down towards the bump stops.



Damper settings for different terrain

If you are spending extended periods of time on different terrains then you may wish to alter your damper settings to suit the particular terrain, they can be recorded on page 6. Some tips are below

- Road and highway settings can be set to you desired ride quality and vehicle stability compromise
- Hard pack corrugated dirt roads / Rough rocky terrains generally will require the vehicle to be more compliant and therefore both LSC and rebound may be on the lower side
- Sandy conditions will generally require firmer settings to prevent bottom and with the tyre pressures typically reduced, comfort will be less of an issue.
- For high speed repetitive corrugations/whoops/large bumps generally the rebound will need to be down quite low to maintain chassis stability and to prevent packing and the LSC on the lower side to allow suspension compliance
- If you are towing or have heavy loads in the rear than the rear compression and rebound valving can be increased.

Trouble shooting

The table below serves only as a guide for users to achieve the optimal compromise suited to their desired outcome. Results & Symptoms are subjective and different users may desire different outcomes. Symptoms may require a combination of remedies to improve the issue. Adjustments made independently between front and rear may be required to rectify symptoms. Incorrect spring rates may also contribute to symptoms.

Symptom	Possible Cause	Remedy
Harsh Ride	Too much LSC Damping	Decrease LSC damping. IF LSC is at minimum reduce HSC damping
	Too much Rebound damping	Decrease rebound damping
Suspension never bottoms out, not using all available travel	Too much Compression Damping	Decrease HSC damping. IF HSC is at minimum reduce LSC damping
Suspension Bottoms Out Frequently	Too little HSC Damping	Increase HSC Damping. If HSC is at max slowly increase LSC
Excessive Body Movements Pitch/Dive/Roll/Wallow/Continues to bounce after larger bumps	Too little LSC Damping	Increase LSC Damping. If LSC is at max slowly increase HSC
	Too little Rebound Damping	Increase Rebound damping
Suspension Frequently Tops Out	Too little Rebound Damping	Increase Rebound damping
Suspension Packs Down in repetitive bumps/corrugations	Too much Rebound damping	Decrease rebound damping
Steering Skittish and Unstable, loss of traction on corners/corrugation	Too much Rebound damping	Decrease rebound damping. If still unstable reduce LSC damping
Rear end bucking/kicking up on large bumps / mounds excessively *NOTE: In most regular 4wd and production vehicles it may not be possible to fully rectify due to the factory vehicle weight distribution and suspension geometry*	*This may also be a combination of the below*	
	Too little Rear Rebound Damping	Increase Rear Rebound damping
	Too Much Front Rebound Damping	Decrease Front Rebound damping
	Too Much Rear Compression Damping	Decrease HSC damping. IF HSC is at minimum reduce LSC damping
	Bouncing off Bump Stops	Increase HSC damping

Damper Settings

Turn the adjusters to the softest position – completely out in the anti-clockwise direction and count the clicks in and record your setting below. These shock absorbers are a high-performance shock absorber designed and engineered to run warm and therefore you may experience a slightly firmer ride when cold. Gas pressures can be adjusted also if required – Minimum gas pressure for 18mm shaft – 140psi and for 22mm shaft – 120psi (Checked at full extension). Maximum pressure for all shocks 200psi.

Record your preferred settings below for later reference

Regular Setting

Front		Rear	
Dial	**Setting**	**Dial**	**Setting**
High Speed Compression		High Speed Compression	
Low Speed Compression		Low Speed Compression	
Rebound		Rebound	

Towing / Loaded Setting

Front		Rear	
Dial	**Setting**	**Dial**	**Setting**
High Speed Compression		High Speed Compression	
Low Speed Compression		Low Speed Compression	
Rebound		Rebound	

Alternative Setting 1

Front		Rear	
Dial	**Setting**	**Dial**	**Setting**
High Speed Compression		High Speed Compression	
Low Speed Compression		Low Speed Compression	
Rebound		Rebound	

Alternative Setting 2

Front		Rear	
Dial	**Setting**	**Dial**	**Setting**
High Speed Compression		High Speed Compression	
Low Speed Compression		Low Speed Compression	
Rebound		Rebound	

Product Care, Maintenance & Rebuild

The shock absorbers are designed as an OEM replacement shock absorber and do not require any specific maintenance however the shock absorbers should be kept clean, especially around the shaft seal and periodically inspected for any signs of issues including: Visible oil leaks, damage to the shock rod, hose damage or wear and any other obvious damage.

For race vehicles the nitrogen gas pressure should be checked before all races and the shock absorber rebuilt with new seals, shaft guides, wear bands, oil and a complete clean every 2000klms.

These shock absorbers are 100% rebuildable and should only be rebuilt by a qualified suspension technician. NEVER open the shock absorbers without releasing the gas pressure. as they are under high pressure.

Warranty

Dobinsons Spring & Suspension™ at its sole discretion will repair or replace any products supplied by them that are found to be defective in either materials or workmanship providing that Dobinsons Spring & Suspension™ are actually notified in writing from the Client of the alleged defect within two years (2 years) from date of invoice for Shock Absorbers. Any claim not made within this period shall conclusively be deemed waived by the Client. Repair or replacement is pre-conditioned on the examination of the goods which on instructions from Dobinsons Spring & Suspension™ on, should be returned for further inspection to Dobinsons Spring & Suspension™ or to an Approved Importer. Shock Absorbers have a 2 year warranty providing the vehicle does not have a modified exhaust system the produces additional heat on the shock absorbers and does not cover damage caused by rocks or accidental damage.

Dobinsons Spring & Suspension™ products are designed for normal use and are in no way, covered under warranty should the vehicle be used in any form of extreme sports, competition racing or produce lift of 50mm or more. It is the responsibility of the fitter, to ensure that the customer or the owner of the vehicle is aware of the warranty conditions under which the products have been sold. It is highly recommended that the words “Suspension Components Fitted are for Normal Use Only. Warranty Void if used in extreme conditions” is written on their receipt to avoid any confusion.

Dobinsons Spring & Suspension™ will not pay for costs incurred in forwarding or returning goods. This warranty does not cover and Dobinsons Spring & Suspension™ makes no warranty with respect to; (1) any merchandise that is abused, misused, misapplied, neglected or altered; or that is improperly or incorrectly installed or maintained or used; or that is subjected to abnormal conditions of use, temperature, moisture, dirt or corrosive matter; (2) Goods bought for industrial, mining or agricultural use; (3) Goods no longer required by Client; (4) Goods incorrectly chosen by Client; (5) Goods modified or altered by client; and (6) any merchandise, materials, parts or other components supplied by someone other than Dobinsons Spring & Suspension™.

Dobinsons Spring & Suspension™ shall not be liable for any expenses incurred by Client in order to remedy any defect in its product. Dobinsons Spring & Suspension™ shall not be liable for any freight, labour, consequential, special, indirect or contingent damage or expense arising Directly or Indirectly from any defect in its products or from use of any products.

Client agrees to indemnify and hold Dobinsons Spring & Suspension™ harmless from and against any loss, injury or damage, to person or property, that extends beyond the warranties set forth above, whether the claims against Dobinsons Spring & Suspension™ or the damages are incidental or consequential.

Installation of after-market items to your vehicle may adversely affect, void or violate the Manufacturers terms of warranty on your vehicle. Review the terms of your vehicle warranty prior to purchase and/or installation of any after-market part or accessory. Dobinsons Spring & Suspension™ does not make any representations or warranties of any kind as to suitability or fitness for a particular vehicle or purpose. Dobinsons Spring & Suspension™ shall not be responsible or liable for direct or indirect damages as a result of the purchase and/or installation of these after-market products.

Terms & Conditions

The only terms of the Contract are those agreed to in writing by Dobinsons Spring & Suspension™, these Terms (to the extent they are not inconsistent with terms agreed to in writing by Dobinsons Spring & Suspension™) and those which are implied or imposed by law (including the Trade Practices Act 1974) to the extent that it is not lawful or possible to exclude them. All other terms, conditions and warranties are expressly excluded. If a conflict arises between the terms of any order made by Client and these Terms, these Terms will prevail. An agreement to deliver the Goods in installments is taken to be separate Contract for each installment. The laws of Queensland govern these Terms and Conditions and any Contract that includes them and Dobinsons Spring & Suspension™ and Client submit to the jurisdiction of the courts of the State. If a term is held to be unenforceable, the remaining terms will apply.

Dobinsons Spring & Suspension™ will not be liable to the Client in the event that delivery of goods is delayed irrespective of the cause.

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