



## MRR Adjustable Remote Reservoir Shock Absorbers



### Safety



Never heat, cut, weld or drill into shock absorbers as components are under high pressure.

These shock absorbers should only be installed by qualified and components persons.

Always use suitable and relevant safety equipment and always follow safe & relevant workshop practices.

If raising the vehicle off the ground, always ensure the vehicle is jacked safely and vehicle support stands are used before getting under the vehicle.

Never loosen or remove the strut top cap from an assembled coil over strut if the coil is not held in position with a spring compressor. The stored spring energy can be rapidly released and cause serious injury. Take extreme care when assembling coil over strut type struts. This should only be performed by qualified and component persons using.

## Installation of Dobinsons MRR Shock Absorbers

It is the installers responsibility to ensure correct fitment of the shock absorbers.

It is extremely important to take note of the original shock absorbers as they are removed. Some shock absorbers have offset bushings and it is important that the replacement shock absorbers are in the correct orientation. It is also important to take note of the parts as they are removed from the struts so that the new strut is assembled in the same way as the original.

In most cases Dobinsons Springs and Suspension will provide new mounting bushes and brackets for your new MRR shocks. These should be used where supplied. The MRR series shock absorber body will mount in the original vehicle mounts on the vehicle, with exception to the reservoir which is mounted to the vehicle in some cases.

Please ensure all parts received are correct and of acceptable condition before installation. If any product is suspected to be faulty or incorrect for your application, please contact your place of purchase.

Monotube shock absorbers can work in either up or down direction and in most cases will mount with the shock body to the top (excluding coil over strut types).

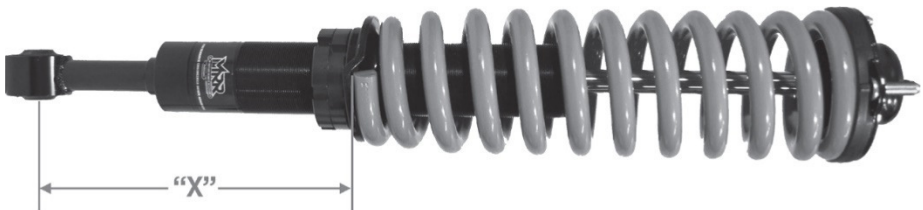
When assembling struts, the internal grub screw needs to be removed to allow an allen key to hole the shaft while the nut is tighten. Extremely carefully remove this ensuring you do not loose the small spring and ball bearing (there is a spare included in the bag). Re install once finished so the grub screw is flush with the top of the pin. Install the adjusting top nut ensuring the hex key aligns with the grub screw hex sections. Before tightening with a spanner check the operation of the adjustment and ensure the adjuster is screwed down a little so you do not tighten the nut on the top of it. Tighten the nut (it does not need to be super tight) and check the operation of the rebound adjuster.

### Pre Installation Checks

Dobinsons MRR shock absorbers are supplied with high-pressure nitrogen gas charged reservoirs. If you come across any worn or broken original components, ensure these are replaced. Do not attempt to re-use or repair as this may cause additional stress on other components. It is also important to check the mounting pins for rust which may cause premature bush wear.

### Installation Notes

Ensure When fitting coil over strut type shock absorbers it is important to first set the spring seat height. This measurement is taken from the centre of the lower bush to the lowest part of the top side of the spring seat as per the diagram below.



The measurement listed in the table below is the correct measurement to suit Dobinsons springs and the original springs to provide the correct lift height as per the listing in the Dobinsons Catalogue. This measurement **must not be exceeded** as this may cause the coil spring to bind and will cause serious damage to the shock absorber, the spring and also the vehicle. A minimum of 50mm of downward wheel travel must always be maintained. For Australian NCOP compliance a minimum of 2/3's of the original rebound travel must be maintained. Strut spacers must never be fitted in conjunction with the strut assemblies as this will cause damage and void warranty.

Vehicle	Part Number	"X" mm	"X" Inches
Ford Ranger PX / Everest / Mazda BT50 10/11 - 06/18 ( <b>bump stop on chassis models</b> )	MRA19-A092	190	7.48
Ford Ranger PX. Everest / Mazda BT50 06/18 on ( <b>bump stop on shock models</b> )	MRA19-A094	167	6.55
Isuzu D-max / MUX/ Holden/Chev Colorado RG 2012 - mid 2019	MRA21-A470	190	7.48
Isuzu D-max mid 2019 on	MRA21-A472	195	7.67
Mitsubishi Pajero 2000 on NM, NP, NS, NT, NW	MRA43-A783	244	9.61
Mitsubishi Triton ML/MN/ MQ/MR 10/2006 on	MRA43-A800	215	8.44
Nissan Navara D40- NOT 550 V6 turbo diesel models	MRA45-A642	106	4.17
Nissan Navara NP300	MRA45-A642	106	4.17
Toyota Hilux Vigo/ Revo / Fortuner 2005 on & 2015 on / 4 Runner 4 <sup>th</sup> Gen	MRA59-A220 MRA59-A228	226	8.89
Toyota Landcruiser Prado 150 series / FJ Cruiser / 4 Runner 5 <sup>th</sup> Gen	MRA59-A700	213	8.38
Toyota Landcruiser Hilux Prado 150 series / FJ Cruiser / 4 Runner 5 <sup>th</sup> / Taco long travel	MRA59-A574	See Catalogue	
Toyota Landcruiser 200 series	MRA59-A688	222	8.74
Toyota Tundra 07/on	MRA59-A710	262	10.3

If the customer requires the spring seat to exceed the measurement above please contact your local Dobinsons dealer before proceeding. Adjusting the spring seat 1 complete turn will adjust the spring height 1.5mm (approx 1/16"), however as most of the vehicles above use independent style suspension the amount adjusted on the spring will in fact double at the wheel due to the suspension motion ratio i.e. one rotation on the spring seat will provide approximately 3mm (1/8") difference at the wheel.

It is extremely important to also orientate the step in the spring seat so that when it is re-fitted to the vehicle it is the same position as the original or what is specified here or in the 4x4 catalogue. This is especially important on Toyota vehicles due to swaybar clearance.

Ensure that when mounting the shock absorber and the external reservoir that there is sufficient clearance to all parts of the shock absorber, spring seat, the reservoir and the hose and fittings. There must be clearance through the complete range of suspension travel and through the complete range of tyre movement left to right at full lock. This may require fitting the shock absorber and reservoir to the vehicle without the springs, temporarily re-fitting the tyre and cycling the suspension and tyre through their full range of movement. Ensure the hose fittings are not vulnerable to damage where possible and cannot be pinched. Also ensure that there is sufficient hose length through full suspension travel where required. See over page for reservoir mounting guidelines

All bushes must be tightened at ride height (excluding upper strut bushes/nuts) as Dobinsons shock absorbers utilize a natural rubber bushing which operates as a torsional bush and therefore must be tightened at ride height to prevent immediate failure. Never grease rubber bushes. Fitting raised suspension to the vehicle can apply increased stress on some drive-line components such as CV joints and may cause accelerated wear.

### **Bump Stops**

All Dobinsons Monotube Remote Reservoir shock absorbers that are suited for standard up to 50mm (2") lift will not require extension of the bump stop. All Dobinsons Monotube Remote Reservoir shock absorbers that have been designed to suit a lift of 3" and above will require the installer to check if bump stop extensions are required as in most cases they will need to be extended. The compressed length of the shock absorber should be checked and then the suspension with the springs removed lowered into its bottomed position with the bump stops touching. The measurement between mounting points must be checked, and a further 20mm (3/4") taken from this measurement to allow for bump stop crush. This measurement must then be checked against the closed shock absorber length and the bump stops extended the suitable amount if required to ensure the shock absorber will not bottom which will immediately damage the shock absorber and void warranty.

Special Note: It is very common for the lower section of the bump stop to be broken off and missing from the front of Nissan Patrols/Safaris Y60/GQ and Y61/GU models.

### **Suspension & Driveline Alignment**

In addition to extending bump stops, for all lifts that exceed 50mm (2") the relevant suspension alignment parts must be used to ensure correct operation. This includes but is not limited to adjustable control arms, adjustable panhard rods, adjustable leading and trailing arms, adjustable sway bar links, drop boxes, castor and camber alignment bushes and products.

### **Damper Settings**

Turn the adjusters to the softest position – completely out in the anti-clockwise direction and count the clicks in. 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 130psi. Maximum pressure for all shocks 200psi.

Set the base settings on the shock absorber based on the following chart. From there the vehicle owner can adjust the settings to their requirements.

**Start With Adjusters in softest position (fully out/anti clockwise) and count clicks in**

<b>Vehicle/Shock</b>	<b>Comfort option or No accessories / light accessories /light constant load</b>	<b>Accessories fitted / constant load</b>
Ford Ranger & Everest , Mazda BT50,Isuzu Dmax & MU-X, Holden Colorado & Trailblazer & Col 7, Toyota Hilux & Fortuner & Tacoma, Mitsubishi Triton & Challenger <b>Front</b>	LSC – 1 HSC- 3 Reb- 10 (1.5 turns)	LSC – 6 HSC- 6 Reb- 15 (2 turns)
Ford Ranger, Mazda BT50, Isuzu Dmax, Holden Colorado, Toyota Hilux & Tacoma, Mitsubishi Triton <b>Rear</b>	LSC – 1 HSC- 1 Reb- 1	LSC –1 HSC- 5 Reb- 8
Ford Everest, Isuzu MU-X, Holden Col. 7 & Trailblazer, Mitsubishi Challenger <b>Rear</b>	LSC – 1 HSC- 3 Reb- 7	LSC –3 HSC- 6 Reb- 10
Nissan Navara NP300 D23 <b>Front</b>	LSC – 2 HSC- 5 Reb- 10 (1.5 turns)	LSC – 7 HSC- 8 Reb- 18 (3 turns)
Nissan Navara NP300 D23 <b>Rear</b>	LSC – 1 HSC- 1 Reb- 7	LSC – 5 HSC- 8 Reb- 10
Nissan Patrol GQ/GU/Y60/Y61, Toyota Landcruiser 80 and 105 series <b>Front</b>	LSC – 1 HSC- 4 Reb- 4	LSC – 4 HSC- 7 Reb- 8
Nissan Patrol GQ/GU/Y60/Y61, Toyota Landcruiser 80 and 105 series <b>Rear</b>	LSC – 1 HSC- 1 Reb- 3	LSC – 3 HSC- 7 Reb- 8
Toyota Landcruiser 70 series <b>Front</b>	LSC – 1 HSC- 4 Reb- 8	LSC – 3 HSC- 5 Reb- 10
Toyota Landcruiser 70 series <b>Rear</b>	LSC – 1 HSC- 1 Reb- 8	LSC – 3 HSC- 5 Reb- 10

Toyota Landcruiser 200 series/Tundra <b>Front</b>	LSC – 5 HSC- 3 Reb- 10 (1.5 turns)	LSC – 10 HSC- 7 Reb- 15 (2.5 turns)
Toyota Landcruiser 200 series <b>Rear</b>	LSC – 1 HSC- 3 Reb- 6	LSC – 6 HSC- 8 Reb- 10
Toyota Prado 150 & FJ Cruiser & 4 Runner <b>Front</b>	LSC – 3 HSC- 5 Reb- 10 (1.5 turns)	LSC – 8 HSC- 7 Reb- 18 (3 turns)
Toyota Prado 150 & FJ Cruiser Rear & 4 Runner Nissan Navara NP300 D23 <b>Rear</b>	LSC – 1 HSC- 1 Reb- 7	LSC – 5 HSC- 5 Reb- 9

\*\*\*Struts have 6 clicks per rotation, so one full rotation equals 6 clicks

## Reservoir Fitment

Your MRR shock absorbers are supplied with either a piggy-back style reservoir mount that mounts the reservoir directly to the shock body, a vehicle specific chassis bracket or a chassis style clamp bracket where piggy-back mounts are not possible.

**IMPORTANT-** For Piggy Back style brackets take care to ensure it is aligned correctly – For 56mm body shocks one side of the piggy back bracket is just slightly smaller to suit the 56mm body, and the larger side suits the 60mm res – Double check both halves of the bracket are aligned correctly. Tighten the bracket, wriggle the reservoir to seat the bracket and retighten the clamping bolt, repeat once more.

For Vehicle specific fitting brackets follow the additional instructions supplied in the box.

The universal chassis clamp bracket has been designed to allow different methods of fitment using the hardware supplied. Some of these include through chassis fitment by using the large washers and long 8mm bolts to bolt the bracket completely through the chassis through both sides, coil tower fitment (e.g nissan patrol front) by using existing threaded mounting holes on the tops of coil towers or cover plates, chassis fitment using existing threaded chassis holes, body fitment by drilling through body and using hardware supplied and many other methods. Left and right side brackets are supplied. Ensure the reservoir and hose are positioned to clear tires and suspension components through full travel and full steering angle. Some methods are shown below (not all vehicles shown). If using universal MRA reservoir mount the clamping bolt that clamps the reservoir itself should not be overly tight as it can clamp the floating piston and result in a rough ride. Once the bolt is done up to the point where the clamp is tightening around the reservoir and the bolt is starting to just get firm you only need to go a little more. doing up to a "medium" pressure with a very short spanner is sufficient.

**NOTE: The hose banjo fitting at the reservoir end is a 2-way swivel to allow the hose to rotate and also twist. For piggyback type shock absorbers the reservoir adjustment knobs usually go to the bottom. ALWAYS align the shock absorber rod end so the rebound adjustment screw is accessible.**



Nissan Patrol GQ/GU  
Y60/Y61 Front



NM Pajero Rear

*See user manual and website for warranty terms and conditions.*



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