

MOR/ryde
INDEPENDENT
RUBBER
Suspension System
“IS” Service Manual



MOR/ryde International
1966 Moyer Avenue
Elkhart, IN. 46516
574-293-1581

www.morryde.com

IS153-003 REV.

“IS” INDEPENDENT RUBBER SUSPENSION SYSTEM

CONTENTS

<u>Section</u>	<u>Subject</u>	<u>Page</u>
I	Description	3
II	Maintenance	4
	A. Lubrication.....	4
	B. Shock Absorber Maintenance.....	4
III	Service	4-6
	A. Procedure for Jacking Up Unit	4
	B. Inspection/Replacement of Rubber Springs	4
	C. Replacement of Shock Absorber	5
	D. Replacement of Beam Assembly.....	5-6
	E. Suspension Alignment.....	6
IV	Trouble Shooting	7
	A. Trailer Low or Leaning to One Side	7
	B. Abnormal Tire Wear	7
	1. Inside or Outside Tread Wear	7
	2. Cupping Tread Wear	7
V.	Axle/Brake Information	7
VI	Specifications	7
	A. Customer Service Information	8

SECTION I

DESCRIPTION

The MOR/ryde "IS" Independent Rubber Suspension System uses 100% Natural Rubber Springs to support the trailer weight and absorb road shock. By absorbing the shock, the rubber provides a much smoother towing experience than steel leaf springs. With the new MOR/ryde "IS" Independent Rubber Suspension System, there are no more broken leaf springs! The towing is virtually hassle-free with the smoothest towing available for fifth wheels and travel trailers.

The Primary benefits that you can expect from the MOR/ryde "IS" suspension are:

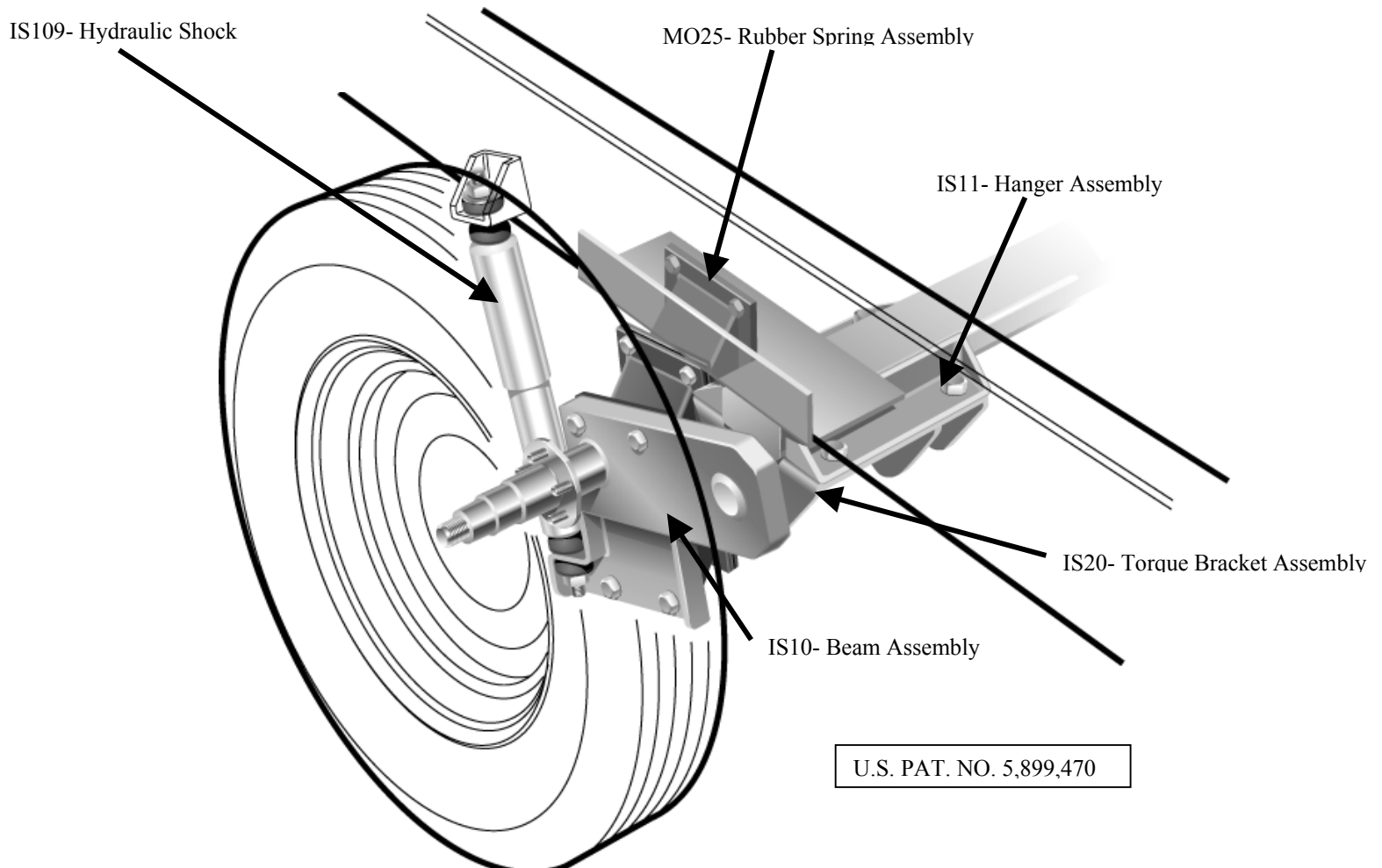
SMOOTHER TOWING - the MOR/ryde suspension has up to 2 1/2 times the suspension travel of leaf springs or rubber axles, allowing the MOR/ryde suspension to absorb road shock much better.

IMPROVED TOWABILITY - the MOR/ryde suspension is designed to "block" body roll, improving the cornering and stability of the tow vehicle and trailer combination.

AUTOMOTIVE STYLE ALIGNMENT - a MOR/ryde first! You can manage your tire wear through toe and camber adjustments, a feature no other towable suspension offers!

HEIGHT ADJUSTABILITY - the MOR/ryde suspension can be adjusted easily to accommodate different tow heights and to compensate for side-to-side load variations.

PROVEN DURABILITY - the MOR/ryde suspension has undergone strenuous testing to prove it's durability. The result? No more broken leaf springs!



SECTION II

MAINTENANCE

Maintenance to the MOR/ryde "IS" suspension system is minimal. For service information regarding bearing options or braking systems on your trailer, please consult the appropriate brake/axle manufacturer.

II-A LUBRICATION

After November of 2001, the "IS" journal shaft will have a grease zerk on the under side of the "IS" torque bracket. It should be greased every 12 months or 6000 miles.

II-B SHOCK ABSORBER MAINTENANCE

The shock absorbers used on the MOR/ryde "IS" rubber suspension are sealed, hydraulic type and require no periodic maintenance. Shock absorbers of this type should be checked every 10,000 miles to make sure they are functioning satisfactorily, bushings are not worn, and the dust cover has not been damaged by flying stones or debris from the road. If a shock absorber is leaking, fails to operate, or develops an unusual noise, the shock absorber should be replaced. See section III-C for replacement procedure.

SECTION III

SERVICE

NOTE:

ALL SERVICE PROCEDURES MUST BE PERFORMED WITH THE VEHICLE SUPPORTED AT THE FRAME WITH APPROPRIATELY RATED SAFETY STANDS AND JACKS.

III-A PROCEDURES FOR JACKING UP UNIT

It is permissible to jack up a unit equipped with a MOR/ryde Independent Rubber Suspension System only on the Beam Assembly under the Rubber Springs or the frame of the trailer. The most efficient location to raise a trailer is at the frame. Jacks and safety stands should be positioned towards the front and rear portion of the trailer frame. To perform suspension work tires should be approximately 4" above the ground.

III-B INSPECTION/REPLACEMENT OF RUBBER SPRINGS

MOR/ryde rubber springs are made of a special formulation of natural rubber. The rubber springs are vulcanized (bonded) to steel plates. There are two unlikely problems that may occur with MOR/ryde rubber springs:

1. The first type is bond failure. This condition is apparent when the rubber separates from the metal plate.
2. The second type is a rubber failure. This condition is apparent when the rubber tears or delaminates and generally occurs in the middle of the rubber spring between the metal plates.

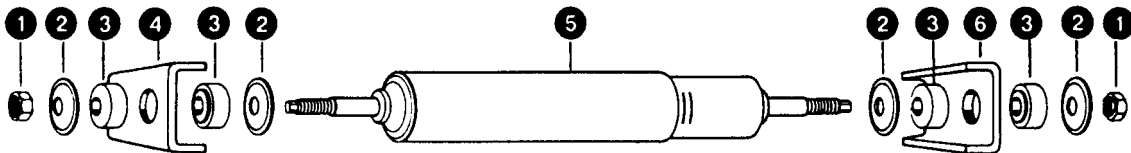
Either of the conditions described above would not always necessitate replacement of the rubber spring. If there is a question about the integrity of a marginal rubber spring, a 3" wide object (such as a 3" putty knife) can be used to probe the rubber spring in the affected area. (If the probe penetrates the crack or separation .75" or more, the spring should be replaced). Rubber Springs should be inspected when supporting the trailer.

To Replace a Rubber Spring Assembly:

1. Raise the unit until the tires are approximately 4" off the ground, the frame is supported with safety stands and the suspension is hanging unsupported.
2. Remove both tires on the side of the unit the Rubber Springs are to be replaced.
3. Loosen or cut loose brake wires to obtain slack.
4. Remove 3/8" bolts securing Rubber Springs to Hanger Assembly and Beam Assembly.
5. Pry rubber springs out from between the Beam Assembly and the Hanger Assembly.
6. Align and bolt the rubber spring assembly to the Hanger Assembly. Drift pins can be used to align the bolt holes on the Beam Assembly with the Rubber Spring bolt holes (a bottle or floor jack may be needed to raise the Beam Assembly and the bolt holes of the Rubber Spring).
6. Reinstall the shocks.
7. Use heat-shrink connectors to reconnect brake wires. Use tie straps to secure brake wires out of harms way of Beam Assembly, Rubber Springs and Shock Absorbers.
8. Reinstall tires, torque all bolts and remove jack stands.

III-C REPLACEMENT OF SHOCK ABSORBER

There are two (2) shock absorbers utilized on the MOR/ryde Independent Rubber Suspension System, per axle. These shock absorbers are made by Monroe. They have special valving and stroke length specifically designed for the MOR/ryde suspension. They are rarely available through Monroe after market dealers. Consult MOR/ryde direct for replacements. Refer to figure the below.



- | | |
|-------------------|---------------------------------|
| 1. Fastener Nut | 4. Clip welded to trailer frame |
| 2. Washer | 5. Shock Absorber |
| 3. Rubber Bushing | 6. Clip welded to Beam Assembly |

To replace a shock absorber:

1. Remove fasteners.
2. Remove shock absorber.
3. Install new bushings on new shock absorber per exploded illustration above.
4. Install new shock absorber.
5. Torque fasteners per Torque Chart in Specification section.

III-D REPLACEMENT OF BEAM ASSEMBLY

The Beam Assembly attaches the wheel and rubber suspension to the Hanger Assembly, which is welded to the frame of the coach. Should a beam and or spindle become damaged and need to be replaced follow the steps below.

1. Jack up the unit. (see section III-A)
2. Remove the tires.
3. Remove the wheel drum and backing plate, which contains the brakes.
4. Remove the springs from the Beam Assembly.
5. Remove the shock at the lower end.
6. Remove the nuts and washer at the end of the journal bar of the Beam Assembly (toward the inside of frame).
7. Pull out the Beam Assembly.
8. Slide in the new Beam Assembly. Be careful not to damage the bearings. Bearings should be replaced if damaged or worn.
9. Reinstall the nuts in the journal bar, then the shock, spring, and backing plate and wheel drum. Appropriately torque all nuts and bolts.
10. Reinstall the tires and wheels.

III-E SUSPENSION ALIGNMENT.

The MOR/ryde independent suspension system allows for automotive style toe and camber wheel alignment. This allows you to manage your RV's tire wear as effectively as you manage your tow vehicle. There are four bolts per wheel, which allow for these adjustments. Always adjust the CAMBER first, followed by the TOE.

ADJUSTING THE CAMBER

1. Connect the alignment machine and level the unit on the alignment turntables.
2. If camber is negative, add a shim to the outside of the Torque Bracket.
3. If camber is positive, add a shim to the inside of the Torque Bracket.
4. Shims are available in three sizes; .25", .125" and .0625".
5. A 1/4" shim will change the camber approximately 1 degree.
6. To decrease camber, loosen the four Torque Bracket bolts and remove the 3/4" bolts one at a time to install shims.
7. Unit will need to be raised to add camber.
8. Appropriately torque all bolts.

ADJUSTING THE TOE

1. Connect the alignment machine and level the unit on the alignment turn tables.
2. Loosen the four bolts holding the Torque Bracket to the Hanger Assembly.
3. Move the Torque Bracket Assembly to obtain the correct toe readings on the alignment machine.
4. Tighten the Torque Bracket bolts.
5. Raising the coach is not required to adjust the toe.
6. Toe adjustment can be accomplished with a "port-a-power" or large alignment bar.
7. Appropriately torque all bolts.

SECTION IV

TROUBLE SHOOTING

The following list covers the most frequent cause for concern, which may arise with the MOR/ryde Independent Suspension System. If a problem occurs that is not addressed here, please contact MOR/ryde International direct for further service information at 574-293-1581.

Problem / symptom	Cause	Correction
Excessive tire wear	<p>Tires not aligned.</p> <p>Worn torque bracket bearings.</p> <p>Shock absorbers are worn.</p> <p>Improper tire pressure.</p>	<p>Have tires re-aligned</p> <p>Have the bearings replaced.</p> <p>Replace shock absorbers.</p> <p>Adjust air pressure.</p>
Rough ride	<p>Improper rubber spring deflection.</p> <p>Worn shock absorbers.</p> <p>Tires rubbing on wheel well or suspension system is bottoming out.</p>	<p>Call MOR/ryde service department to select a different rubber spring.</p> <p>Replace shock absorbers.</p> <p>Distance from the bottom of wheel well to top of tire is not adequate. If spring rubber spring deflection is correct and height adjustment is not sufficient, a spacer tube needs to be welded between the frame and the "IS" system.</p>
Excessive sway	<p>Improper tire pressure.</p> <p>Torn rubber spring.</p> <p>Improper hitch weight.</p>	<p>Adjust air pressure.</p> <p>Replace rubber spring.</p> <p>Travel Trailers should have 10%-12% hitch weight. 5th wheel trailers should have 20%-25% hitch weight.</p>

SECTION V

AXLE BRAKE INFORMATION

The MOR/ryde independent Rubber Suspension System can utilize several different sizes of brakes. Systems that are factory installed may have different brake components than those systems that are installed after market. In an after market installation, it is possible to upgrade braking systems to use a larger brake such as a 12 1/4" x 2 1/2" or a 12 1/4" x 3-3/8" brakes or to disc brakes. If after market customers are not upgrading their braking system at the time of installation, the existing braking system on the trailer or fifth wheel will be used.

For more brake information, consult your owner's manual of your trailer or contact MOR/ryde for a more detailed discussion on brake options.

SECTION VI

Specifications

Torque values must be verified with a torque wrench. A calibrated pneumatic impact wrench is not acceptable substitute.

Torque Chart Torque Ft. Lbs.
Bolt Size Grade 5 Grade 8

1/4-20	7	10
5/16-18	14	20
3/8-16	25	35
7/16-14	40	55
1/2-13	60	90
5/8-11	115	170
5/8-18	125	185
3/4-10	190	280