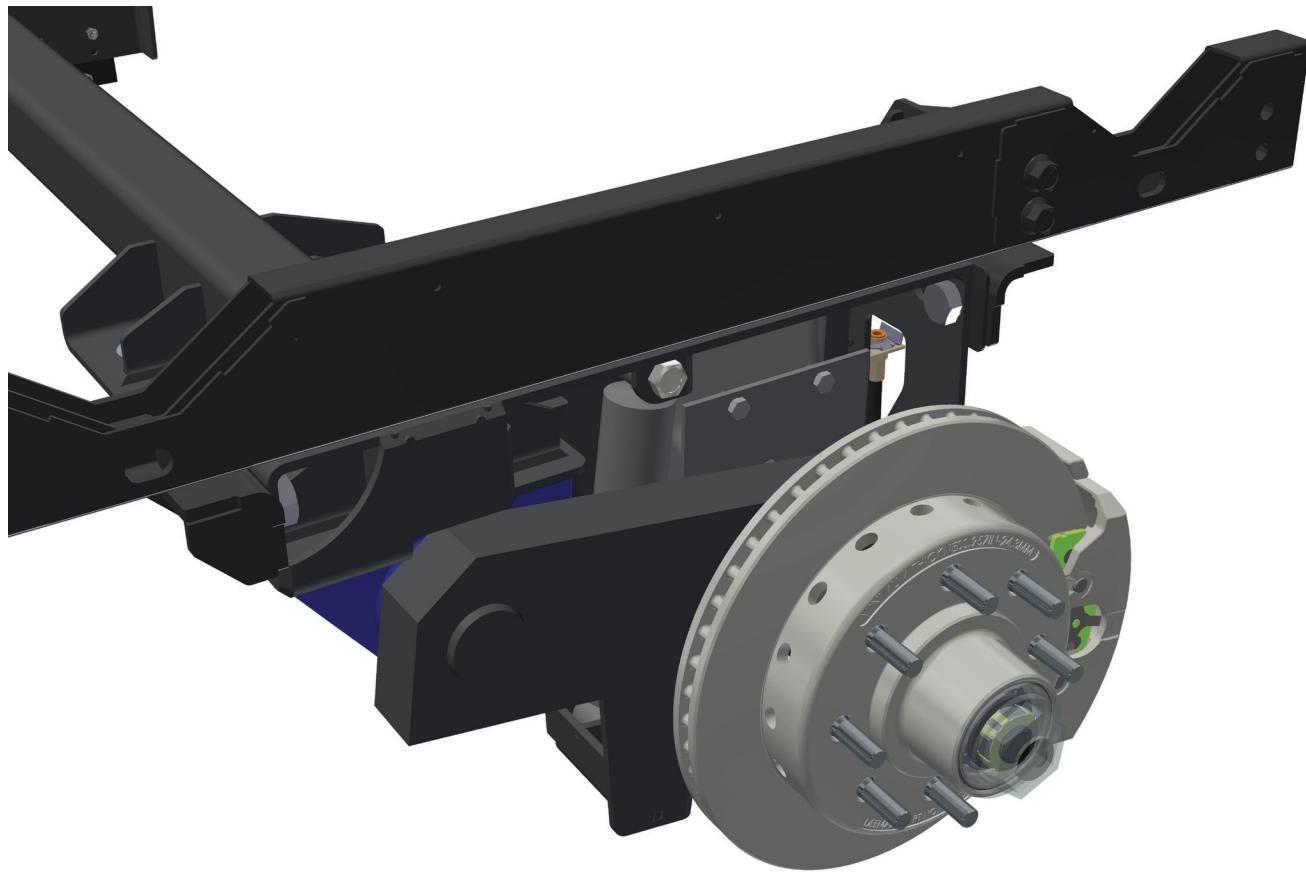




INDEPENDENT SUSPENSION 2.0

OWNER'S MANUAL



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INDEPENDENT SUSPENSION SYSTEM 2.0

OWNER'S MANUAL

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INDEPENDENT SUSPENSION SYSTEM 2.0

INTRODUCTION

The MORryde Independent Suspension 2.0 system uses 100% natural rubber springs to support the trailer weight and absorb road shock. By absorbing road shock, the rubber provides a much smoother towing experience than steel leaf springs. With the new MORryde I.S. system, there are no more broken leaf springs! The towing is virtually hassle-free with the smoothest towing available for 5th wheels and travel trailers.

The primary benefits that you can expect from the MORryde I.S. system are:

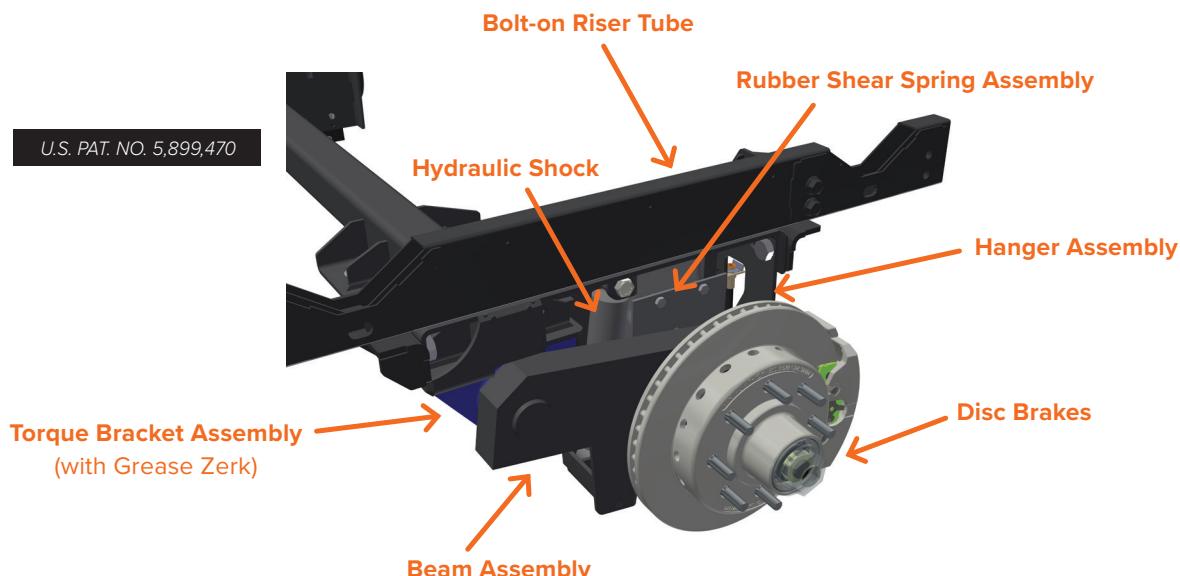
SMOOTHER TOWING - The MORryde suspension has up to 2 1/2 times the suspension travel of leaf springs or rubber axles, allowing it to better absorb road shock.

IMPROVED TOWABILITY - The MORryde suspension is designed to “block” body roll, improving the cornering and stability of the tow vehicle and trailer combination.

AUTOMOTIVE STYLE ALIGNMENT - You can manage your tire wear through toe and camber adjustments, a feature no other towable suspension offers.

HEIGHT ADJUSTABILITY - The MORryde suspension can be adjusted easily to accommodate different tow heights and compensate for side-to-side load variations.

PROVEN DURABILITY - The MORryde suspension has undergone strenuous testing to prove its durability. The result? No more broken leaf springs!



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I.S. REPLACEMENT PARTS LIST

Qty	Part Number	Description
2	UO138-157	MOUNTING BRACKET - 5 BOLT
10	UO115-853	5 BOLT MOUNTING BRACKET BOLT
10	UO116-383	5 BOLT MOUNTING BRACKET NUT
2	UO138-116	MOUNTING BRACKET - 4 BOLT
8	UO115-1125	4 BOLT MOUNTING BRACKET BOLT
8	UO116-381	4 BOLT MOUNTING BRACKET NUT
2	UO138-159	ROTOR / HUB 1/2" STUD - 6K
2	UO138-114	ROTOR / HUB 9/16" STUD - FOR SCREW-IN CAP - 8K
2	UO138-137	ROTOR / HUB 5/8" STUD - 8K
2	UO138-106	INNER RACE 25520 - 8K
2	UO138-105	OUTER RACE 8K / INNER RACE 6K 02420
2	UO138-033	2.25" SEAL (010-036-00 / GS-2250DLR)
2	UO138-030	OUTER BEARING 15123 - 6K
2	UO138-034	INNER BEARING 25580 - 8K
2	UO138-029	OUTER BEARING 02475 - 8K
2	UO138-158	CALIPER - 6K
2	UO138-115	CALIPER - 8K
4	UO138-136	CALIPER BOLT
1	UO138-190	BRAKE PADS - 6K
1	UO138-139	BRAKE PADS - 8K
2	UO138-101	SPINDLE WASHER
2	UO138-434	SPINDLE JAM NUT
2	UO138-084	SPINDLE NUT RETAINER CLIP
2	UO109-037	SHOCK ABSORBER (MONROE GPNMON555002)
2	UO138-171	GREASE CAP - 6K
2	UO138-064	SCREW-IN GREASE CAP - 8K
2	UO138-229	PRESS-IN GREASE CAP - 8K
2	UO138-228	ROTOR / HUB 9/16" STUD FOR PRESS-IN CAP - 8K
2	UO138-234	OUTER RACE 15245 - 6K

INDEPENDENT SUSPENSION SYSTEM 2.0

SERVICE PROCEDURES

NOTE: All service procedures must be performed while the vehicle is supported at the frame with appropriately rated safety stands and jacks.

Maintenance on the I.S. system is minimal. For service information regarding braking systems or bearing options on your trailer, please consult the owner's manual provided by the brake manufacturer.

BEARING & TORQUE BRACKET SERVICE

How often should I re-pack my bearings?

Every 12,000 miles or 1 time a year; whichever comes first.

How often should I grease my torque brackets?

Every 12,000 miles or 1-2 times a year.

What kind of grease do you use for the bearings and the torque brackets?

MORryde recommends using a high-quality, multipurpose, extreme pressure (EP) lithium complex grease for automotive wheel bearing use. It should be NLGI GC-LB certified and NLGI Grade 2.

JACKING UP A UNIT

The unit should always be jacked up at the frame of the trailer. Place safety stands near the front and rear of the trailer frame. To perform suspension work, the unit should be raised so that the tires are approximately 1" off the ground. In an emergency, it is permissible to place a jack under the I.S. beam assembly under the rubber springs to change a tire.

1 - Bottleneck jack placement

2 - Floor jack placement



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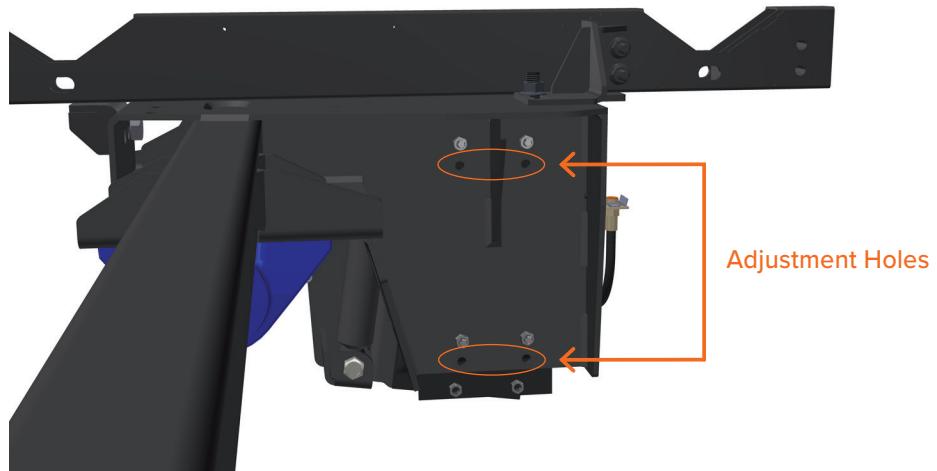
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SERVICE PROCEDURES

HEIGHT ADJUSTMENT

The I.S. system provides trailer height adjustment. There is an extra set of holes in the hanger assembly that can be used to adjust the height of the trailer. The trailer can also be adjusted from side to side to compensate for uneven loads. The adjustment holes are located where the rubber springs bolt to the frame. Installing the rubber springs into the lower set of holes will raise the trailer by 1".



RUBBER SHEAR INSPECTION, DEFLECTION & REPLACEMENT

INSPECTION

MORryde rubber springs are made of a special formulation of natural rubber and are bonded to steel plates. There are two unlikely problems that may occur with MORryde rubber springs:

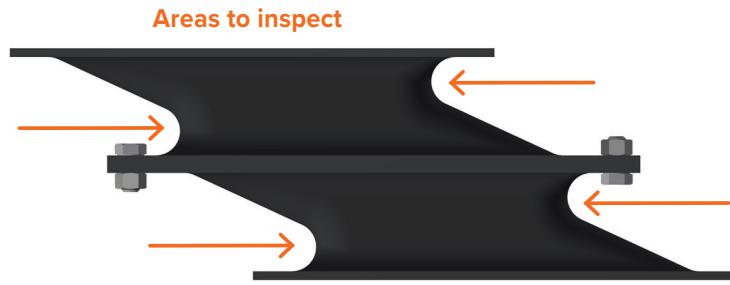
1. **Bond failure:** This condition is apparent when the rubber separates or delaminates from the metal plate.
2. **Rubber failure:** This condition is apparent when the rubber tears or rips apart in the middle of the rubber spring, but not against the plates.

The rubber springs on your I.S. system should be periodically inspected for any tears or cracks. If a rubber spring has a 3" wide **AND** 3/4" deep crack or tear, it should be replaced. A flat tool such as a putty knife can be used as a probe to check this. If the knife can be inserted into the rubber to a depth of 3/4" or more **AND** at a width of 3" or more, the rubber should be replaced.

INDEPENDENT SUSPENSION SYSTEM 2.0

RUBBER SHEAR SPRING PROCEDURES

NOTE: It is normal to see small surface cracks in the rubber. Small surface cracks **do not** require a rubber spring replacement.



DEFLECTION

If you're experiencing issues with ride quality, you can determine the rubber shear spring deflection by following the steps below.

1. Park the vehicle on level ground.
2. Measure Dimension A: From the ground to the bottom edge of the rubber spring at the hanger.
3. Measure Dimension B: From the ground to the center mold line of the outer rubber spring plate at the beam assembly.
4. Use the formula below to determine inches of rubber spring deflection.

DEFLECTION FORMULA

1. Dimension A - Dimension B = C
2. 5 - C = Deflection

NOTE: The measurements above should only be taken while hooked up to your tow vehicle for accuracy.



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RUBBER SHEAR SPRING PROCEDURES

REPLACEMENT

VIDEO: MORryde INDEPENDENT SUSPENSION SPRING CHANGE PROCEDURE



1. Jack the trailer on the frame until the wheel is completely off the ground.
2. Place jack stands under the frame.
3. Remove the wheel and the brake caliper.
4. Use a floor jack to support the beam arm.
5. Remove the bottom loop shock bolt.
6. Remove four spring bolts from the beam arm.
7. Lower the beam assembly using the floor jack.
Note: You may need to pry the beam down.
8. Remove the four bolts on the hanger assembly.
9. Replace with new spring or adjust the old one to desired settings.
10. Raise the floor jack under the drum/rotor until you line up the upper forward-most bolt behind the brake flange.
11. Using the floor jack and alignment pin, replace remaining spring bolts and finger-tighten the nuts.
12. Remove floor jack.
13. Tighten all the nuts, torque to 40 ft-lbs. Reinstall the shock mount bolt and tighten the shock mount nut until it touches the shock mount plate.
14. Go to next wheel and repeat steps 3-13.
15. Reinstall the wheel and lugs.
16. Jack up the frame and remove the jack stands.
17. Torque the lug nuts to the manufacturer specifications.

ALIGNMENT PROCEDURES

The design of the I.S. system allows for automotive style toe and camber wheel alignment. This allows you to effectively manage tire wear under normal towing conditions. Wheel alignment should be done with equipment that is designed for multiple axle trailers. The I.S. system is adjustable for both toe and camber. Any alignment shop capable of aligning full-size trailers should be able to handle the job. MORryde uses laser alignment equipment. There are four bolts and one torque bracket per wheel that allow for these adjustments. Refer to the following directions for proper tow and camber alignment procedures.

VIDEO: INDEPENDENT SUSPENSION ALIGNMENT PROCEDURE



NOTE: Always adjust the camber first followed by the toe.

INDEPENDENT SUSPENSION SYSTEM 2.0

ALIGNMENT PROCEDURES

ADJUSTING CAMBER

1. Connect the alignment machine and level the unit on the alignment turntables.
2. Loosen the arrow-indicated nuts, as illustrated in **figure 1** on next page.
3. If the camber is negative, add a shim(s) to the outside of the torque bracket.
4. If the camber is positive, add a shim(s) to the inside of the torque bracket.
5. A 1/4" shim will change the camber approximately 1°. Shim stack up should not exceed 1/2".
6. Refer to the **Torque Chart** section of this document to tighten bolts to the correct torque values.

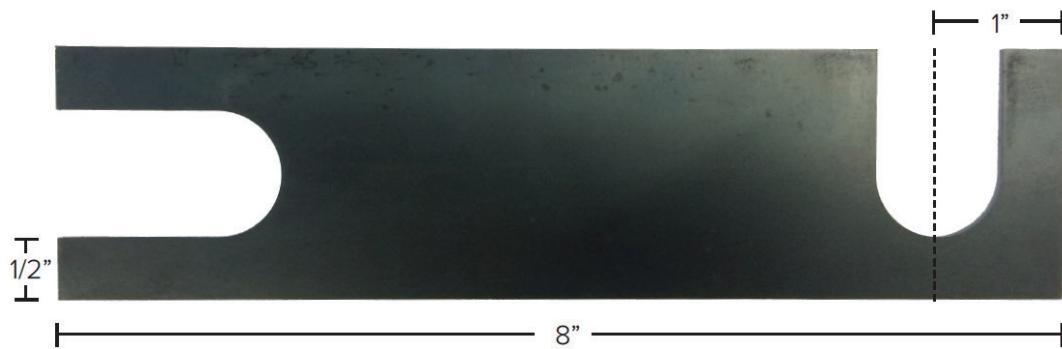
NOTE: The unit will need to be raised to add camber.

ALIGNMENT SPECIFICATIONS

Camber (+.20° to +.50° loaded) or
(+.30° to +.60° unloaded)
Toe (+/- .07°)

CAMBER SHIM SPECIFICATIONS

Shims are available in three sizes:
1/4", 1/8", and 1/16"



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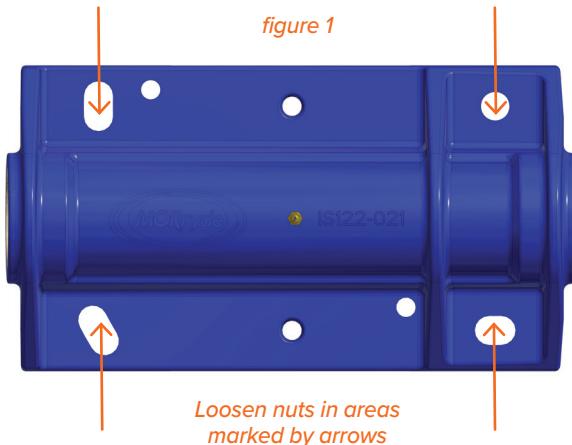
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ALIGNMENT PROCEDURES

ADJUSTING TOE

1. Connect the alignment machine and level the unit on the alignment turntables.
2. Loosen the arrow-indicated nuts.
3. Adjust the torque bracket assembly to obtain the correct toe readings on the alignment machine.
4. Refer to the **Torque Chart** section of this document to tighten the bolts to the correct torque values.

NOTE: Toe adjustments can be eased by the use of a “port-a-power” or large adjustment bar.



SHOCK ABSORBER MAINTENANCE & REPLACEMENT

Monroe hydraulic shocks are standard equipment on all I.S Systems. Shock absorbers of this type should be checked every 12,000 miles to make sure they are functioning properly, bushings are not worn, and the dust cover has not been damaged by debris from the road. The shocks should be periodically inspected for oil leaks. If a shock absorber is leaking, fails to operate, or develops an unusual noise, the shock absorber should be replaced. Consult with MORryde directly for replacements by calling the Parts Department at **574-293-1581** or emailing parts@morryde.com.

REPLACEMENT

To replace a shock absorber, refer to the figure and instructions below:

1. Remove the fasteners.
2. Remove the shock absorber.
3. Fully install shock mount bolts, then tighten the shock mount nuts until they touch the shock mount plates.

NOTE: Do not over-tighten nuts as this can limit the shock's ability to pivot.



INDEPENDENT SUSPENSION SYSTEM 2.0

REPLACEMENT OF BEAM ASSEMBLY

The beam assembly attaches the wheel and rubber suspension to the hanger assembly, which is attached to the frame of the unit. Should a beam and/or spindle become damaged and need replacement, follow the steps below.

1. Jack up the unit. (See the **Procedures for Jacking Up a Unit** subsection under the **Service** section of this document.)
2. Remove the wheel.
3. Remove the drum or disc brake components.
4. Disconnect the shock from the lower shock mount on the beam assembly.
5. Remove the rubber shear spring from the beam assembly.
6. Remove the bolt, washer, lock washer, and roll pin at the end of the journal bar (toward the inside of the frame).
7. Pull out the beam assembly.
8. Slide in the new beam assembly. (Torque bracket bushings should be replaced if they are damaged or worn).
9. Replace the roll pin, lock washer, washer and bolt - leave bolt loose.
10. Reinstall the rubber shear spring assembly, reconnect the shock, then align the hole in the washer at the end of the journal bar with the roll pin and torque the bolt to 460 ft-lbs.
11. Reinstall the wheel.
12. Torque lugs according to the OEM specifications.

TORQUE CHART

BOLT SIZE	GRADE 5* (FT-LBS)	GRADE 8* (FT-LBS)
3/8-16	X	40
3/8-24	X	50
1/2-20	X	90
5/8-11	X	170
3/4-10	250	X
1-8	460	X

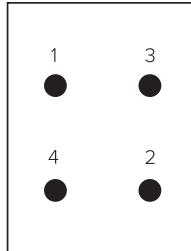
See manufacturer's specifications when torquing lug nuts. If manufacturer specifications cannot be found, use the following guidelines:

1/2": 100 FT-LBS

9/16": 140 FT-LBS

5/8": 150 FT-LBS

U-Bolt Torque Pattern Visual Aid



U-Bolts must be tightened and torqued using a cross-pattern sequence.

Tighten #1 and #2 to partial torque, then #3 and #4 to partial torque (100 ft-lbs).

Using the same sequence, fully torque the U-Bolt Nuts to 200 ft-lbs for ZINC-PLATED U-Bolts and 245 ft-lbs for RAW U-Bolts.

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

> Re-torque lug nuts at 100 miles and 200 miles



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BRAKE CONTROL SETUP

After our install, the first time you are connected to your trailer, set the power to 6 with no boost. Find a dry and level paved surface and get up to 25mph and fully apply the manual knob. If your brakes LOCK UP, turn down the power. If your braking wasn't sufficient, turn up the power. Repeat this process until you get to a comfortable point with the power, or just before the brakes lock up. The main idea is comfort of the driver with the trailer and that the trailer should NOT stop your truck.

WARRANTY INQUIRIES

For further information or for questions regarding our product Warranties, please contact MORryde directly for service at **574-293-1581** or by emailing parts@morryde.com.

LIMITED WARRANTY

We, MORryde, Inc., 1966 Sterling Avenue, P.O. Box 579, Elkhart, IN 46516 ("MORryde"), warrant to you, the original first purchaser of new MORryde rubber suspension system ("Product"), for a period of five (5) years from the date of original first purchase, or use or operation for a distance of fifty thousand (50,000) miles, whichever occurs first ("Warranty Period"), that the Product is free of defects in material or workmanship under normal use and service and will meet or exceed all of our advertised written specifications, excepting items and uses excluded from this Warranty. Labor charges are covered for 12 months from the original date of purchase.

Examples of Items and Uses Excluded from Warranty

We are not responsible for, and this Warranty does not apply to, (a) any part of the Product that is defective or damaged due to abuse; misuse; neglect; accident; unauthorized replacement, repair, parts, or modification; (b) Products with no proof of mileage, or date of purchase; (c) duplication of repair due to faulty diagnosis or workmanship of others; (d) incorrect installation of any part of the Product, including but not limited to, incorrect torque on bolts; (e) loading the Product or any part of it beyond our rated load capacity; (f) towing expenses, freight charges, transportation expenses, telephone, telegraph or other communication expense, overtime or holiday labor, downtime or owner's layover expenses such as meals and lodging; (g) re-springing suspension for ride adjustment; (h) failure of another component which results in our Product's failure; (i) YOU ARE NOT ENTITLED TO RECOVER FROM US ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES RESULTING FROM ANY DEFECT IN OUR PRODUCT. THIS INCLUDES ANY DAMAGE TO ANOTHER PRODUCT OR PRODUCTS RESULTING FROM SUCH A DEFECT. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU. EXCEPT AS OTHERWISE SPECIFICALLY DESCRIBED IN THIS WARRANTY, WE MAKE NO OTHER WARRANTY, EXPRESS OR IMPLIED, IN CONNECTION WITH OUR PRODUCT, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

INDEPENDENT SUSPENSION SYSTEM 2.0

LIMITED WARRANTY

What We Will Do

We will remedy any defect in materials or workmanship by authorized repair or replacement. Warranty work can only be performed at our factory or authorized service centers. We will remedy the defect within a reasonable time after receipt of the defective product at the factory or authorized service center. All our expenses in remedying the defect will be borne by us, including labor and material.

How to Obtain Warranty Service

You must notify us of your need for warranty service not later than thirty (30) days after expiration of the Warranty Period. We will notify you of the nearest authorized service center to which you should deliver the Product. Corrective action will be taken within a reasonable time of the date of receipt of the defective Product by us at the factory, or at one of our authorized service centers. For further information about our factory or authorized service centers, write or call at the address or telephone number listed below.

Alteration of this Warranty

NO PERSON HAS THE AUTHORITY TO ENLARGE, AMEND OR MODIFY THIS WARRANTY. THE WARRANTY IS NOT EXTENDED BY THE LENGTH OF TIME WHICH YOU ARE DE-PRIVED OF THE USE OF THE PRODUCT. REPAIRS AND REPLACEMENT PARTS PROVIDED UNDER THE TERMS OF THIS WARRANTY SHALL CARRY ONLY THE UNEXPIRED PORTION OF THIS WARRANTY.

Other Legal Rights

This warranty gives you the specific legal rights, and you may also have other rights which vary from state to state. No action to enforce this Warranty shall be commenced later than ninety (90) days after expiration of the Warranty Period.

Changes in Our Products

We reserve the right to change the design of any part of the Product, make additions or improvements to it from time to time, without notice and with no obligation to make corresponding changes or improvements to Products previously manufactured.

For more information on MORryde suspension system warranties, visit our website at www.morryde.com/warranty.



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PLEASE DIRECT ALL CORRESPONDENCE TO:

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P.O. Box 579
Elkhart, IN 46516
Phone: (574) 293-1581
Fax: (574) 294-4936
Email: parts@morryde.com
www.morryde.com

INDEPENDENT SUSPENSION SYSTEM 2.0

At MORryde, we have a passion for solving problems. Whether we're fabricating custom solutions, modifying a commercial chassis, or creating our innovative products, we answer to a wide range of markets and deliver on a variety of needs. At MORryde, it's simply about doing MORE for our customers, and it doesn't stop at the sale. We stand behind our products, believing in quality first, service always. No matter the issue, we'll be the first to respond and the last to be satisfied. In short, we build better — together.



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