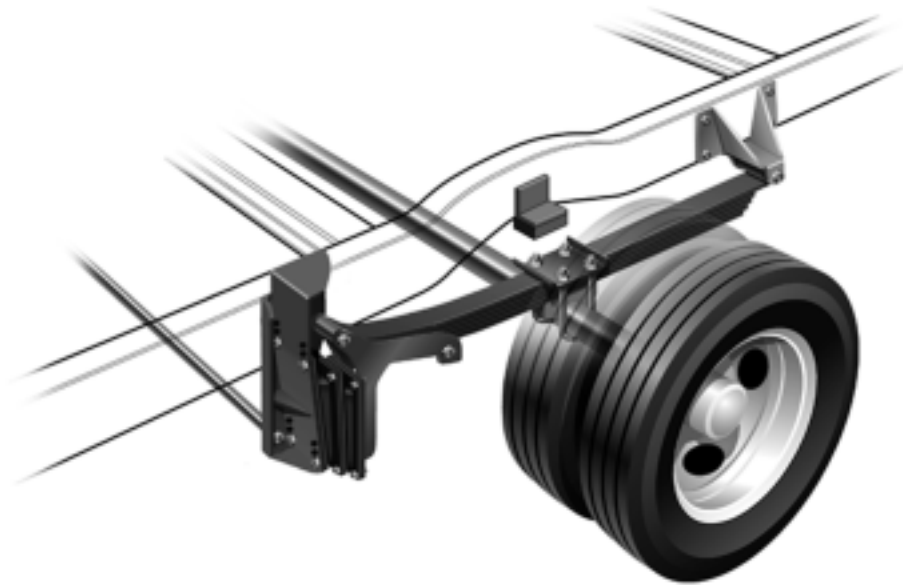




RL RUBBER LEAF SUSPENSION SYSTEM

OWNER'S MANUAL



RL153-002 REV.

DESCRIPTION

Congratulations on your purchase of the Mor/ryde “RL” Suspension System*. The system installed on your vehicle utilizes rubber shear springs that work in conjunction with the chassis drive axle steel leaf springs. These double-eye leaf springs may be either multi style, or taper style (Fig. 1). The RL system has replaced the leaf spring hanger and shackle with a Mor/ryde hanger, spring carrier and rubber shear springs. (Fig. 2) The rubber shear springs isolate and absorb road shock and increase the dynamic axle travel. This provides you with:

- A much smoother ride
- Improved handling and drivability
- Better protection of the vehicle from damaging road shock
- Less vibration

The Mor/ryde RL system is available for a wide variety of vehicle applications including:

Pickup trucks	Motorhomes
Medium duty buses	Paratransit Vehicles
Limo buses	Specialty vehicles

Each RL system is designed specifically for the chassis of the vehicle that it is installed on. Maintenance to the RL system is very limited. This manual will outline general inspection and troubleshooting guidelines. Service manuals and instructions are provided with replacement parts in the unlikely event that service is required.

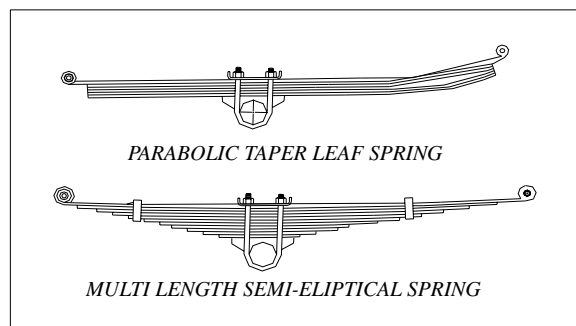


Fig. 1

* Made in the U.S.A. Patent Number 6,176,478

Replacement parts

Replacement parts are available direct from MOR/ryde. To help ensure the correct parts are sent, the following information is necessary:

Chassis VIN # _____ Make of Vehicle _____
 Model _____ Year _____ Builder _____

Is your vehicle equipped with wheelchair lift? _____

Spring Type: (See Fig. 1)

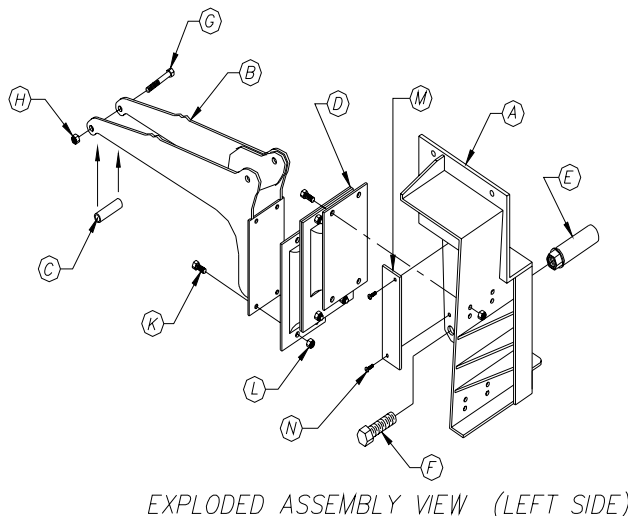
Multi _____ Taper _____

Part numbers are also etched on the steel components (e.g. RL24-001 etc) and the rubber springs have a number molded into the rubber. (e.g. 2, 3, 6, 10). If it is possible, provide us with these identifying numbers (See Fig. 2).

For ordering information, call us at 574-293-1581 and ask for the Parts Department.

Parts listing

Following is a breakdown of the components in a typical MOR/ryde RL Suspension System. individual systems may vary. Not all systems have the parts shown.



EXPLODED ASSEMBLY VIEW (LEFT SIDE)

TYPICAL SUSPENSION COMPONENTS			
ITEM	PART #	DESCRIPTION	QTY
A	RL11-	FRAME HANGER ASSEMBLY (LH)	1
	RL11-	FRAME HANGER ASSEMBLY (RH)	1
B	RL24-	SPRING CARRIER ASSEMBLY (LH)	1
	RL24-	SPRING CARRIER ASSEMBLY (RH)	1
C	RL131-011	3.625" SPACER SLEEVE	2
D	MQ25-	RUBBER SPRING ASSEMBLY	2
E	RL32-012	27.75" X-MEMBER TUBE ASSEMBLY	2
F	UD115-021	BOLT - .75-10 x 1.5 HHCB GR5	4
G	UD115-056	BOLT - .50-13 x 5.0 HHCB GR5	2
H	TD116-001	NUT - .50-13 HEX LK GR2	2
I	UD115-143	BOLT - .44-14 x 1.5 FLHCB GR8	4
J	UD116-039	NUT - .44-14 FL LK GR8	4
K	UD115-011	BOLT - .38-16 x 0.88 HHCB GR8	16
L	UD116-002	NUT - .38-16 HEX LK GR2	16
M	*RL131-039L/R	GLIDE PAD	2
N	*UD115-138	BOLT - .31-18 x 1.00 SHCS GR2	4
O	*GD116-004	NUT - .31-18 HEX LK GR2	4
P	**RL131-038	SCRUB PAD	2
Q	**UD115-138	BOLT - .31-18 x 1.00 SHCS GR2	4
R	**GD116-004	NUT - .31-18 HEX LK GR2	4

* - PARTS ARE INSTALLED ON FRAME HANGER ASSEMBLY
 ** - PARTS ARE INSTALLED ON SPRING CARRIER ASSEMBLY

Fig. 2

TROUBLE-SHOOTING/MAINTENANCE CHECKS

Rubber Shear Spring Inspection

The rubber springs (Fig. 3) should be periodically inspected for any tears or cracks. If a rubber spring exhibits a 3" long and $\frac{3}{4}$ " deep crack or tear, the rubber spring should be replaced. This can be checked by using a flat tool such as a putty knife. The putty knife can be used to probe the rubber spring in the affected area. If the knife can be inserted $\frac{3}{4}$ " deep, by at least 3" long, the spring rate of the spring is affected and should be replaced. *Note: It is normal to see rubber spring weather checking, which is small surface cracks in the rubber. Weather checking does not require a rubber spring to be replaced.*

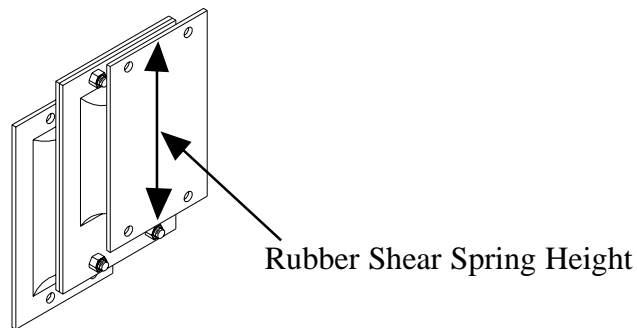


Fig. 3

Height Adjustments

The MOR/ryde RL suspension system offers vehicle height adjustment. A series of holes is offered on the frame hanger assembly (Fig. 4). Depending upon your system, there may be 2, 3, or 4 sets of mounting holes positioned at one inch increments. As the rubber springs are re-indexed to a lower set of mounting holes, the rear of the vehicle will be raised. This feature may be useful to level a vehicle as it is permissible to have the rubber springs positioned in different holes from side to side.

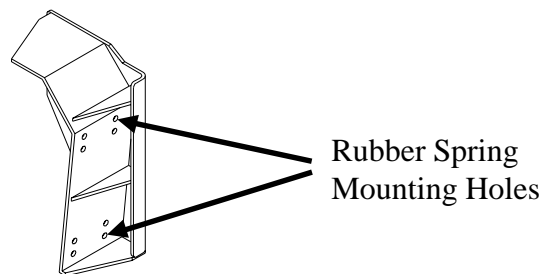


Fig. 4

Measuring Rubber Spring Deflection

Park the vehicle on level ground. Measure Dimension A, ground to bottom edge of the rubber spring at the hanger (Fig. 5). Measure Dimension B, ground to bottom edge the rubber spring at the spring carrier. Use the following formula to determine rubber spring deflection:

Step 1: $\text{Dim. A} - \text{Dim. B} = \text{C}$

Step 2: a) Rubber Spring Deflection = $5 - \text{C}$

b) Rubber Spring Deflection = $4 - \text{C}$

Note: For step 2 use equation (a) if the rubber shear spring is 10 inches tall. Use (b) if the rubber shear spring is 8 inches tall. (see Fig. 3)

*Nominal rubber spring deflection should be 2-3 inches.

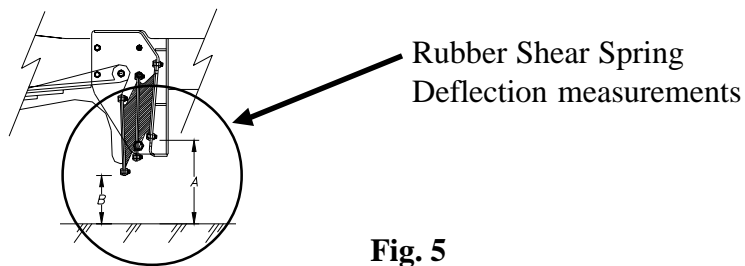


Fig. 5

Measuring Spring Carrier Travel

The spring carrier travel is defined as the vertical travel the spring carrier can move before the carrier strikes the top (limiter) of the hanger assembly at the rear spring eye. (See Fig. 6 Spring Carrier Travel- SCT). Under normal or maximum axle loading, a minimum of 2.5 inches should be observed for adequate suspension performance.

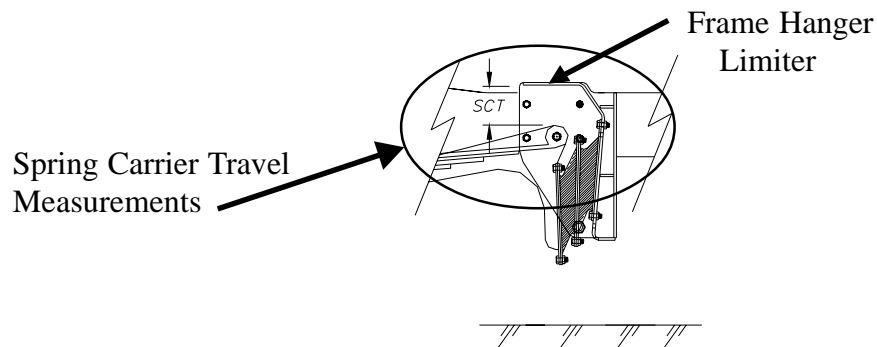
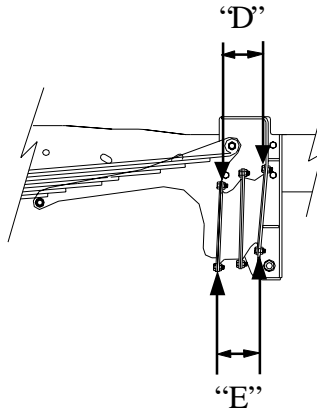


Fig. 6

Checking Rubber Shear Spring Stability

Measure the distance “D” and “E” (fig. 7). The Rubber Shear Spring Assembly measures 4.75 inches under no load (i.e. not installed on the vehicle) Under load dimensions “D” and “E” should be between 4.5” and 5.25”



Basic Trouble-shooting

Problem/Sympton	Cause	Correction
<i>Spring Carrier/Spring Eye Bottoming on Frame Hanger Limiter (see fig. 6)</i>	<ul style="list-style-type: none"> a. Torn <i>rubber shear spring</i> b. <i>Rubber shear spring</i> over deflected (fig. 5) c. Not enough <i>spring carrier</i> travel (fig. 6) 	<ul style="list-style-type: none"> a. Replace <i>rubber shear spring</i> b. Replace <i>rubber shear spring</i> c. Re-index <i>rubber shear spring</i> to a lower hole setting in the <i>frame hanger</i>
Vehicle Leaning to One Side <i>Note: Your MOR/ryde RL Suspension has built-in leveling adjustments to compensate for uneven loading. It is not always possible for the built-in adjustment to level the vehicle. Occasionally additional steel leaf springs are required, or a spacer block must be added to the axle. (See Correction Step d)</i>	<ul style="list-style-type: none"> a. Torn <i>rubber shear spring</i> b. <i>Rubber shear spring</i> over deflected (fig. 5) c. Uneven loading 	<ul style="list-style-type: none"> a. Replace rubber shear spring b. Replace rubber shear spring w/ stiffer durometer spring c. Re-index rubber shear spring to a different hole setting in the frame hanger d. Add a spacer block or additional steel leaf spring.
Vehicle has excessive noise.	a. The white plastic lateral control is worn down to the bolts or frame.	a. Replace lateral control parts.

**MOR/ryde RL Suspension System
LIMITED WARRANTY
Suspensions Used for Commercial Application**

Summary of Warranty

We, MOR/ryde, Inc., 1966 Moyer Avenue, P.O. Box 579, Elkhart, Indiana 46515 (“MOR/ryde”), warrant to you, the original first purchaser of new MOR/ryde rubber suspension system (“Product”), for a period of three (3) years from the date of original first purchase, or use or operation for a distance of seventy thousand (70,000) 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 will be covered for 12 months from the date of the original purchase.

Please direct all correspondence to:

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Elkhart, IN 46516
Phone (574) 293-1581
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www.morryde.com
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