



INSTALLATION MANUAL

#10007704MIC

LOCK-RIGHT BY POWERTRAX

AUTOMATIC POSITIVE-LOCKING DIFFERENTIAL

LOCK-RIGHT™ Performance Locker Installation Manual

Type 12 (Two-pinion differential; one-piece case; long opening)

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Introduction

Welcome to the growing family of **LOCK-RIGHT** owners! This manual gives you information on how to install the **LOCK-RIGHT** automatic 100% full-locking differential so that your vehicle will have much more traction than before. We trust that you will be pleased with its performance and thank you for your confidence in our products.

LOCK-RIGHT installation simply involves disassembling and re-assembling the differential case, replacing a few parts in the process. Everything can be handled by the average mechanic. These instructions are detailed to the point that a person who is reasonably familiar with automotive work can install a **LOCK-RIGHT** in about four hours; please read them carefully before you start to be sure that you thoroughly understand them. Do not attempt shortcuts unless you know exactly what you are doing. These instructions also assume

that you have the proper shop manual for reference to instructions about axle removal, torque values, settings, clearances, etc. that apply to your particular vehicle. This manual is a general guide to operations but does not contain specific torque values for each vehicle.

This manual primarily describes the assembly of the **LOCK-RIGHT** type 12 differential in the rear axle. This unit fits into a one-piece two-pinion case with side opening long enough to let our drivers be installed as a pair rather than individually. Some references also are made to the front axle or to 4x4 operation; if your vehicle is a 4x2, just ignore them.

We suggest that your **first installation be done in the rear axle**. The weight of the engine over the **front** axle is **reduced** by weight transfer to the rear as your vehicle climbs a hill, meaning that more and more weight is being applied to the **rear** axle, where the locker is located, as more **traction** is needed.

Remember: This instruction manual is provided for your convenience to assist you or your mechanic with the installation of your new **LOCK-RIGHT**. However, the ultimate responsibility for the success of your installation and the subsequent proper operation of your vehicle rest with you, the vehicle owner.

When your installation is complete, you will have a vehicle with significantly increased capabilities. For continued “fun in the sun,” operate it in a safe and responsible manner. *Be sure to read and understand the driving information in the **LOCK-RIGHT** Vehicle Owner’s Manual!*

Installation

Now it’s time to give your vehicle some claws! When the steps below are completed, it will have traction that will be hard to believe. We suggest that you allow about four hours for each axle. The second installation probably will go more

smoothly than the first one, but remember that the front axle is more complicated than the rear axle.

The **LOCK-RIGHT** is designed to fit into **standard open differential cases only**, not into limited-slip cases. If your vehicle contains a limited slip unit you will need to purchase a standard open differential case, thrust washers and pinion shaft (and axle shaft thrust block if needed) before proceeding.

NOTE: The parts shown in the various figures are typical and may not exactly depict your particular model.

Preliminary Operations

The differential case is the round housing inside the rear axle assembly to which the ring gear is bolted and which contains the differential gears. It is installed in the differential carrier. The carrier may be removable (a “drop-out” unit, or third member), or it may be integral (a part of the axle assembly).

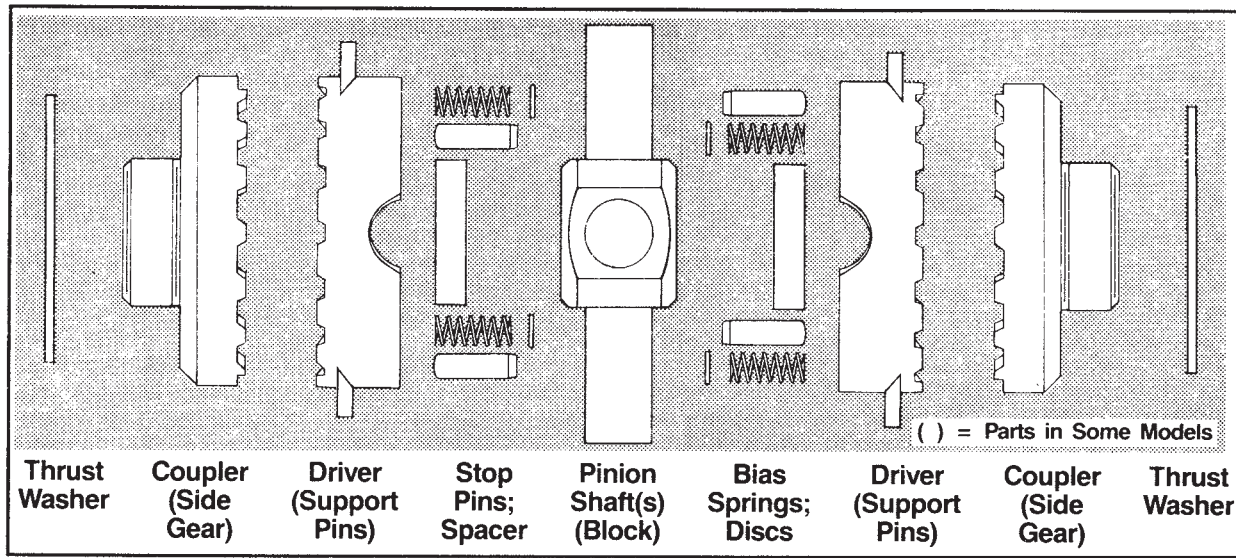


Figure 1. LOCK-RIGHT Exploded View

The following steps are only general suggestions for removing the differential case from your vehicle. For detailed information, refer to your shop manual. In general, the preliminary steps include:

- a) Blocking the vehicle
- b) Jacking up the axle
- c) Removing the tires
- d) Disconnecting the brake lines and emergency brake cables
- e) Unbolting the axle flanges and pulling out the axles about six inches
- f) Disconnecting the drive shaft
- g) Unbolting the carrier and removing the third member assembly (drop-out units),
- h) Or removing the cover and removing the differential case (integral units).

Hints: (1) good jack stands should be used to support the vehicle; (2) the flexible brake line from the chassis to the axle

housing can be pinched off with vise-grip pliers to prevent the loss of brake fluid; (3) some vehicles may not need to have the tires removed. Also note that some vehicles have oil baffles inside the axle housing; be sure not to dislodge them during axle shaft installation.

If your vehicle has a removable third member, proceed with the section below. If it has an integral carrier, see pages 8, 9, 21 and 22.

Removal of the Differential Case from the Carrier (drop-in unit)

1. Remove the third member from the vehicle as described in the shop manual. **Follow all safety precautions.**

2. Check to be sure that the third member is in good condition and that nothing is loose, worn or scored. **Rock the ring gear** back and forth to get a “feel” for the backlash, and check to see that it appears to be set up properly. If any out-of-

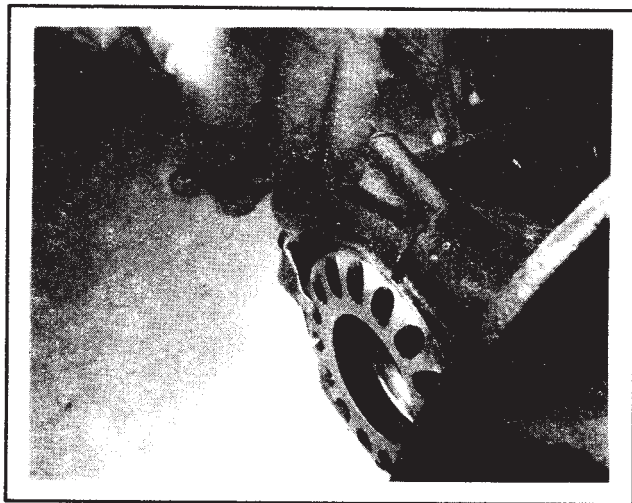


Figure 2

Mark carrier, caps, adjusters at lock hole

spec conditions exist, be sure to correct them before subsequent re-assembly.

NOTE: The third member itself can be disassembled and re-assembled without changing the ring and pinion settings if *you are careful*. Follow these steps in detail, especially step 3 about marking the parts.

3. Mark everything! Don't touch a bolt until you have done so. The easiest tool to use is a **center punch**. We suggest placing the whole assembly upright (the same position as when in the vehicle), looking at the ring gear end. Mark the carrier and bearing cap on the **ring gear side with one punch mark** and on the **other side with two marks (Figure 2)**. The caps are *not* interchangeable! Also mark each bearing adjuster directly under the lock with this same mark to note its side and rotational position. *This mark is very important to correct re-assembly!*

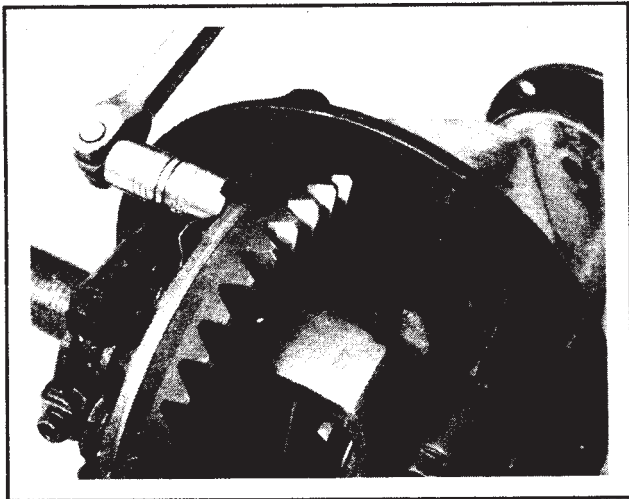


Figure 3
Loosen ring gear bolts if vise not available

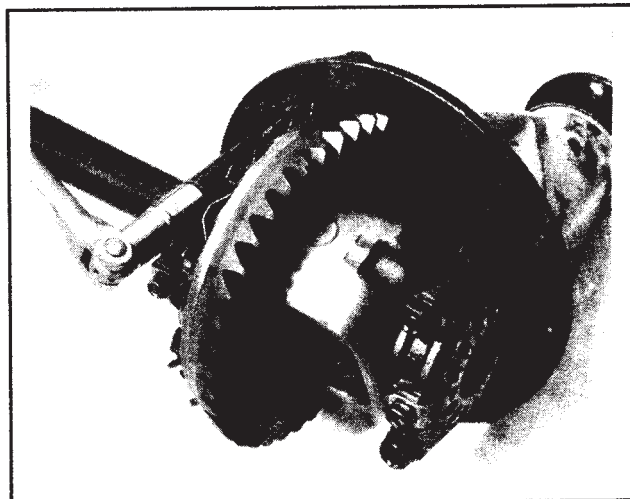


Figure 4
Remove the adjuster locks and bearing caps

4. If a large vise or air impact wrench is not available, **loosen the ring gear bolts** now if the ring gear will need to be removed to push out the pinion shaft. (See the first step 1 on page 9.) Bend down the retainers, if used, and place a socket on one of the bolts. Allow the ring gear to rotate until the socket is stopped by the carrier, and crack the bolts loose (Figure 3). Do not remove them now. An axle shaft or bar inserted in one of the axle shaft holes can help to hold the assembly.

5. Remove the adjuster locks. (see Figure 4). Be sure that each adjuster is marked at the lock with the correct number of punch marks for each side. The adjusters are not interchangeable after they are marked for position! (In general, the adjuster locks themselves are interchangeable.)

6. Remove the bearing caps (Figure 4).

7. Slide (tap) the adjuster up and out and remove the bearing race on the ring gear side first and put a very small grind mark on the outside of the race to mark it. Scraping it on a cement floor also works, or you can use a tag. Be sure that

you can identify it for proper re-assembly on the correct side!

8. Remove the differential case and ring gear assembly from the carrier along with the other adjuster and bearing race.

Removal of the Differential Case from the Carrier (integral unit)

Many differential designs use shims used to set the differential bearing pre-load and ring gear backlash, and others use adjusters and locks similar to the third member design. Refer to your shop manual for the proper steps on how to remove the differential case. The following steps are a general guide.

1. Mark the bearing caps (and adjusters if used)! Follow the procedure outlined in step 3 on page 6, and mark the parts as appropriate to your particular assembly.

2. Remove the bearing caps (and locks, if used; see Figure 4.)

3. Remove the differential case and shims (or adjusters if used) from the carrier as described in the shop manual (some vehicles may require the use of a carrier spreader).

4. Remove the bearing race on the side with one punch mark first and put a very small grind mark on the outside of it. Scraping it on a cement floor also works, or you can use a tag. Be sure that you can identify it for proper re-assembly on the correct side!

5. Remove the other bearing race.

Disassembly of the Differential Case (third member and integral carrier)

1. Remove the ring gear if it interferes with the removal of the pinion shaft. It may need to be tapped off with a brass mallet. Mark it so that it can be re-installed in the same rotational orientation as when removed.

2. Remove the pinion shaft retaining pin with a long punch or by unscrewing it as appropriate.

3. Remove the pinion shaft, spider gears, side gears, all washers, and axle shaft thrust block (if used in your assembly).

Inspection of the Parts

NOTE: These steps are important. The **LOCK-RIGHT** type 12 differential utilizes your case, side gear thrust washers, pinion shaft and axle shaft thrust block, (if used), and they must be in excellent condition. The spider gears and washers are not used. If the following inspection shows that anything is bad, buy new parts from your dealer!

1. Thoroughly wash the differential case and remaining parts with solvent, then dry them.

2. Inspect the pinion shaft for any galled areas or grooves. If it is not in excellent condition, obtain a new one.

3. Inspect the side gear thrust washers. They are important to the correct positioning of the **LOCK-RIGHT** parts. If they are excessively worn or are cracked, obtain new ones. Several thicknesses may be offered; try to obtain the same size as the old ones.

4. Inspect the thrust block (if used). Be sure that the ends are smooth and not galled.

5. Inspect the case for any chips, cracks or similar damage. Also inspect the bearings. If the case or bearings look bad, replace them. However, if you do, remember that the marked bearing adjuster positions no longer will be correct; the ring and pinion backlash and bearing pre-load will need to be reset with a dial indicator as described in the shop manual.

Preliminary Assembly Steps

1. Before beginning assembly, **slide both couplers onto each axle shaft** to be sure that they move freely over the whole spline length to assure easy installation. If any burrs or dents are present on the axle, file them off before continuing and then check again to be sure that the couplers slide freely. This step may be done in the vehicle by pushing the axle shafts back in to make the ends accessible.

2. Check the differential case internal width. This step is done because of possible manufacturing variations in the internal configuration of the various differential cases – check that the two spacers clear the pinion shaft and that the couplers rotate freely.

a) Place the thrust washers on the couplers. Note that the smoothest side of the washer is placed next to the coupler.

b) Support the case horizontally and place a coupler and washer in one end.

c) Place the other coupler and washer in the other end.

d) Hold a spacer on the center of each coupler, wide end down (if not symmetrical), and slide or tap the pinion shaft in through one of the holes. Guide it past the spacers – it should clear them by between zero and about .015-inch each (Figure 5).

NOTE: In the design process, we took into account the variations in case width that were likely to be encountered in the field. However differences in the year (“very early” vs “late”) or loose manufacturing tolerances may yield a case

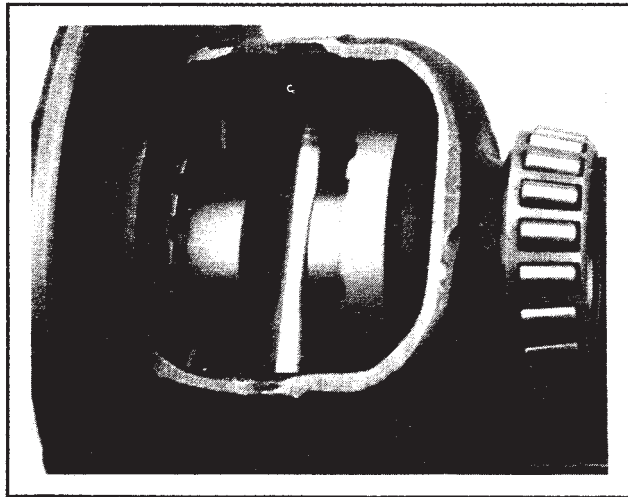


Figure 5
Check spacer/pinion shaft clearances

where something interferes. Try switching the thrust washers if either spacer does not clear the shaft, and check to see that everything is installed correctly. If interference still occurs, you will need to obtain the next size thinner thrust washers from your dealer (they usually are available in several thicknesses). If this is not feasible, the present thrust washers may be reduced in thickness on a surface grinder or very carefully, with a standard shop grinder. The removal of only a few thousandths of an inch should be all that is needed; place the un-ground (smooth) side toward the coupler.

e. Rotate the couplers to make sure that nothing interferes or binds. Check that no “flash” from the casting process or other projection interferes with the couplers; if so, add clearance with a hand grinder.

Preparing the Parts for Assembly

1. **Install the stop pins in the drivers, rounded end down**, if they have not already been installed by the factory.

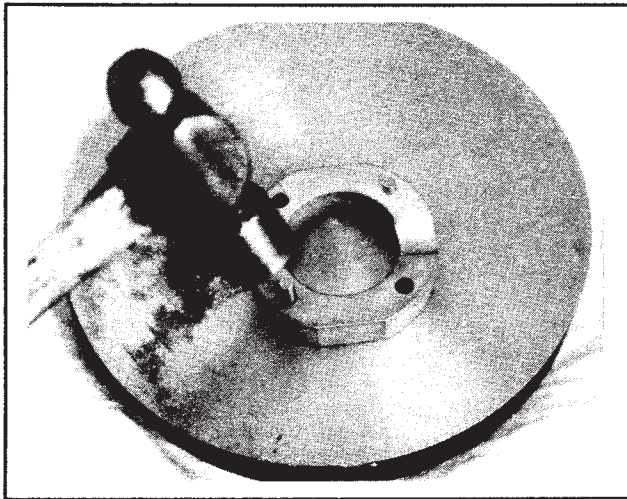


Figure 6
Install stop pins in each driver

They will either be a light press fit or they may be “glued” in the holes with grease to help hold them during assembly (similar to step 3 below). When installed properly, they will protrude by about 3/16-inch (Figure 6).

2. Coat the teeth of the couplers and drivers and both sides of the thrust washers with medium grease. The grease will help to hold things in place and assist with functioning until the gear oil circulates.

3. Place a small amount of grease in each bias spring hole and then **install a bias spring** (Figure 7). Place a little more grease on the top of each spring to act as “glue” for the next step.

4. Place a bias spring disc on top of each spring (Figure 7). The grease will “glue” it onto the spring during assembly. Wipe any grease off the top of the disc so that it will not touch anything and be pulled off.

5. Place a spacer into each driver, wide end toward the teeth if not symmetrical, for installation as described in the next section.



Figure 7
Install bias springs and discs in each driver

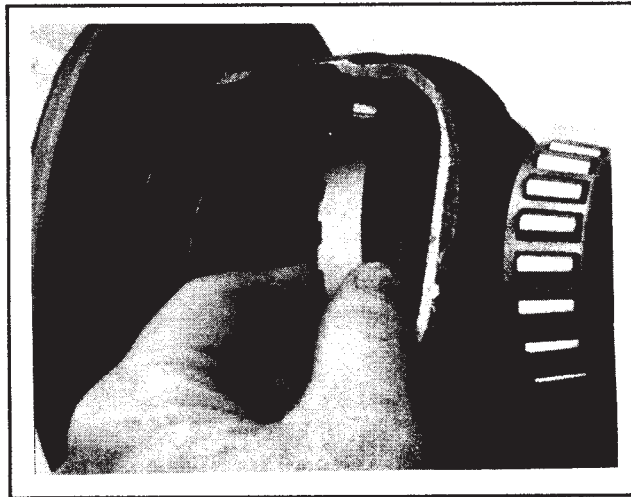


Figure 8
Install coupler/washer assemblies

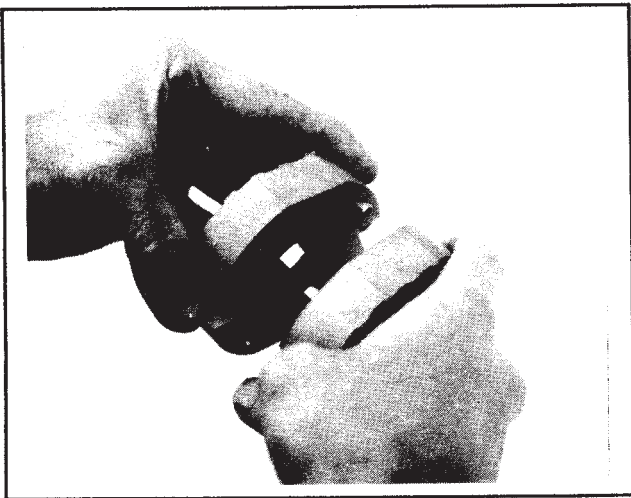


Figure 9

Place drivers-and-spacers facing each other

Assembly of the LOCK-RIGHT Parts into the Differential Case

1. Place a thrust washer onto one of the couplers, smoothest side toward the coupler, and place them into the ring gear end of the differential case. Note that the couplers in some models may have flats for clearance.

2. Place the second thrust washer onto the other coupler and place the assembly into the other end of the differential case (Figure 8).

Important! Do not forget to have the spacers placed in the drivers before doing the following steps (step 5 in the previous section)!

3. Hold the driver-and-spacer assemblies facing each other so that the stop pins rest on the discs (Figure 9).

4. Compress the drivers together and insert them between the couplers (Figure 10). **Be sure that all springs and discs are in their proper places!** Note that sides of the drivers may have flats for clearance.

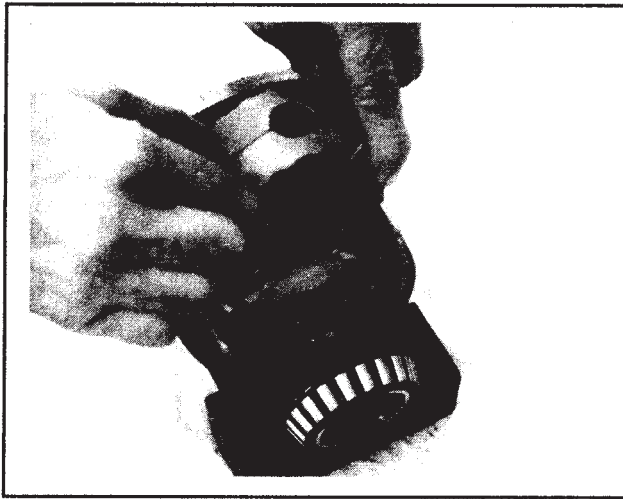


Figure 10
Compress assembly and insert into case



Figure 11
Push spacers outward with fingers

5. Position them in the center of the differential case and rotate the couplers until the teeth snap in and mesh.

Differential Case Assembly Completion

1. Rotate the drivers so that the large recesses line up with the pinion shaft holes.

2. Reach in through the holes with your fingers and push each spacer outward onto each coupler (Figure 11).

3. Push the axle shaft thrust block, if used in your assembly, into one end of the differential case and into the center of the spacers (Figure 12). Orient it so that the hole in the center is in line with the pinion shaft holes in the case.

4. Carefully insert the pinion shaft into the first hole and guide it through the drivers, past the spacers, and through the thrust block (if used). It should insert easily by hand. If not, tap it in, being very careful not to get the inner end caught on one of the spacers or the thrust block! Be sure to orient it so that its retaining pin hole will line up with the hole in the differential

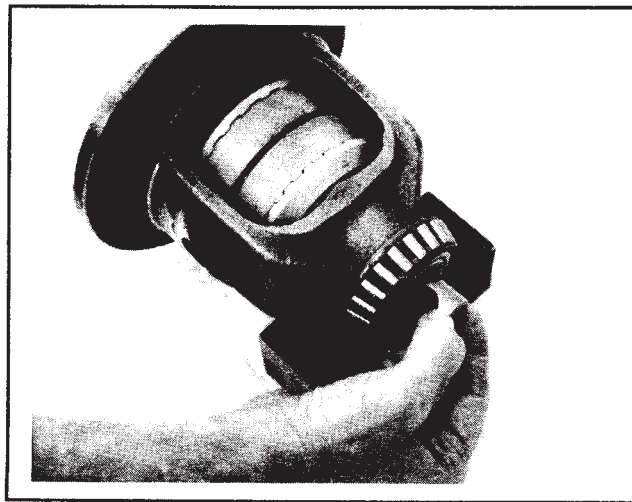


Figure 12
Push thrust block (if used) into center of spacers

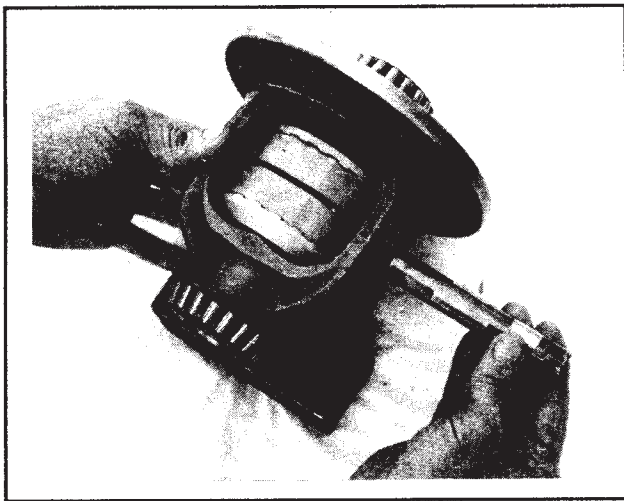


Figure 13

Install pinion shaft (through thrust block if used)

case as it goes in (Figure 13). The block should be held by the pinion shaft.

5. Install the pinion shaft retaining pin. Slightly deform the metal on the side of the hole to help hold it in place or tighten it as appropriate (see the shop manual).

6. Install the ring gear if it has been removed; orient it in its previously-marked rotational position and torque the bolts. If a vise is not available, they may be torqued down later after the case has been installed in the carrier (the reverse of Figure 3).

7. Inspect your work. Look for anything that is not correct. Be sure that the drivers rotate back and forth smoothly, stopping at the pinion shaft, and that they can move up and down. Use a light to see that the spacers (and thrust block if used) are in place and that the bias springs and discs are working properly.

Because of the spacers, the side gears cannot be pushed in to test the springs; however, the drivers may be pushed with a screwdriver for checking. Proper movement of all the parts at this point is *very* important!

(Subsequent Disassembly)

If something is not correct now or if you need to disassemble your **LOCK-RIGHT** in the future, we will briefly describe the procedure here. These steps are assuming that the differential case is out of the carrier and on the bench and that the ring gear has been removed if needed.

1. Remove the pinion shaft retaining pin and then the pinion shaft.

2. Position the case horizontally; reach in through the ends and push the spacers into the centers of the drivers and remove the thrust block (if used).

3. Rotate the drivers so that the flats, if present, will clear the sides of the case.

4. Insert two screwdrivers between one of the couplers and its driver, on opposite sides of the assembly, to separate the teeth.

5. Hold the drivers and rotate the coupler until its teeth

are on top of the driver teeth. The screwdrivers should fall out.

6. Insert the two screwdrivers between the other coupler and driver as described in step 4.

7. Hold the drivers and rotate the other coupler until its teeth are on top of the driver teeth. The screwdrivers should fall out.

8. The drivers should now be free. Push them down and out the side of the case. Compress them as they emerge to hold in the springs and discs.

9. Remove the couplers and washers.

NOTE: Because of the many vehicles into which the **LOCK-RIGHT** can be installed, we cannot give exact torque values for the various bolts. Different thread sizes and materials mean that the values for each vehicle will probably be different from the others. However, as a general guide, we will give some TYPICAL values here. Also note that some manufacturers recommend the use of thread-locking adhesive where appropriate.

General Torque Values (lbs-ft)

- | | |
|---------------------|----------|
| 1. Ring gear | .58 - 80 |
| 2. Case cap | .27 - 49 |
| 3. Bearing caps | .51 - 95 |
| 4. Adjuster locks | .7 - 25 |
| 5. Carrier mounting | .14 - 40 |
| 6. Housing cover | .15 - 25 |
| 7. Oil filler plug | .25 - 50 |
| 8. Oil drain pug | .29 - 55 |

Member Final Assembly

1. Position the carrier vertically, with the drive shaft flange pointing down. It can be held in a vise or even stood on its nose in a coffee can if a vise is not available.

2. Hold the bearing races on the differential case bearings. Be sure to place the marked one on the proper end.

3. Set the differential case (and bearing races) into the carrier. Install it with ring gear pushed all the way into the drive pinion— that is, with *no* backlash, and with the bearing races pushed *all the way* onto the bearings.

4. Check the punch marks on the adjusters and determine which one goes on the side nearest the ring gear. Hold it so that the mark is at its final position (where the lock will be installed, pointing away from the carrier). Push the adjuster against the race and slide it down into the threads in the carrier. They should mesh easily, with no space between the parts.

5. Install the correctly-marked cap. Use the bolts as guides by turning them in two threads or so and then sliding the cap down to meet the case. Be sure that the cap threads fit into those in the adjuster. Do not force anything. The cap should slide down very close to the carrier surface. Tighten the bolts until they are snug.

6. Hold the other adjuster so that the mark is in the same relative position as the other one (with the mark away from the carrier) and slide it down the bearing race into the threads. As it meshes, it should shift outward a little and be positioned slightly away from the race

7. Install the other cap. Again, use the bolts as guides by turning them in two threads or so and then sliding the cap down to meet the case. Turn the bolts until they are barely snug. Be sure that the cap threads fit into those in the adjuster. Do not force anything.

8. Use a spanner wrench or a blunt punch and a hammer to turn the second adjuster (the one away from the ring gear) one turn inward (clockwise) until the marked hole reaches its final position (in the middle of the cap just below the lock). The last portion of the turn should be difficult because pre-load is being applied to the bearings by spreading the caps apart as the adjuster is being turned in.

9. Insert an axle shaft or bar into one of the axle shaft

holes in the differential case to help with holding the assembly or place it in a large vise, and torque the cap bolts to their correct value (see the shop manual).

10. Install the adjuster locks and torque the bolts. Be sure that they are located in the marked holes.

11. If the ring gear bolts have not yet been torqued, they may be tightened now by rotating the case so that the socket meets the carrier and then tightening them (as shown in Figure 3).

Third Member Assembly Inspection

When the above installation steps are completed, all the parts should be in exactly the same positions as they were when the installation began. The backlash and pre-load settings should therefore be unchanged and no further adjustments will be needed. To be certain, **rock the ring gear** back and forth to see if the backlash appears to be the same as it was prior to the installation. If not, it will need to be reset with

a dial indicator as described in the shop manual. Rotate the ring gear one revolution to be sure that nothing is binding.

Third Member Installation

1. Clean the mating surface of the axle housing and the mounting surface of the differential carrier.

2. Clean the inside of the axle housing to remove all foreign material. This step is very important because metal chips can interfere with the operation of your new **LOCK-RIGHT**.

3. Remove metal chips from the drain plug if it is magnetic.

4. Install a gasket and/or sealant as appropriate.

5. Lift the third member into the axle housing and shove it into the studs.

6. Install and torque the hardware.

Integral Carrier Final Assembly

1. Torque the ring gear bolts if this step has not yet been done.

2. Clean the axle housing interior, cover, mounting surface and drain plug as described in steps 1 - 3 in the previous section.

3. Install the differential case in the vehicle as described in the shop manual. Generally, this will involve placing the differential case and correctly-located bearing races with one shim into the carrier and then tapping in the shim on the other side. In some designs a spreader for the housing may be required, Replace the bearing caps in their marked positions and torque the bolts to their correct value. If adjusters and locks are used, the method is similar to steps 2 through 8 on pages 19 and 20. Consult the shop manual for the exact procedure.

Integral Carrier Assembly Inspection

When the above installation steps are completed, all the parts should be in exactly the same positions as they were when the installation began. The backlash and pre-load

settings should be unchanged from before and no further adjustments will be needed. To be certain, **rock the ring gear** back and forth to see if the backlash appears to be the same as it was prior to the installation. If not, it will need to be reset with a dial indicator as described in the shop manual. Rotate the ring gear one revolution to be sure that nothing is binding. When everything is correct, **install the cover** using a gasket and/or sealant as appropriate and torque the bolts.

Vehicle Final Assembly

1. Add gear oil. If the axle shafts can be removed, **as a shortcut** the oil can be poured into one of the axle housing ends. Install the opposite axle shaft and then slightly jack up one end of the housing so that the oil runs downhill and use a curved piece of cardboard as a funnel. Also note that we suggest using **medium-weight oils** as recommended by the manufacturer unless the vehicle will be used in very cold

weather. Thicker oil reduces the “clicking” noise sometimes heard during tight turns and provides adequate lubrication when the assembly becomes hot. **Also see** the section in the **Vehicle Operator’s Manual** regarding temperature.

2. Finish the assembly of the remaining parts by reversing the order of disassembly – in general, the axles/backing plates, brake lines, emergency brake cables, drive shaft, tires and gear oil. If your vehicle uses an axle shaft thrust block, be sure that the correct axle shims are in place. Note that in some designs the last 1/8-inch or so of the backing plate installation is a light press fit and the axle shaft may appear to be hitting something. Tap the outside end of the axle shaft and it should go in. Don’t forget to remove the vise-grip pliers from the brake line (if used). If baffles are used inside the axle housing, check to be sure that they are in their correct positions. Refer to the shop manual for specific instructions.

Tire Diameters

To help assure a long life for your new **LOCK-RIGHT**, tire diameters should be as nearly equal as possible. Contrary to instructions that you may have read elsewhere, **DO NOT** change the inflation pressure to vary the rolling radius of the tire! This can be dangerous if one of the tires is under-inflated, producing excess heat, more difficult vehicle control. The best way to equalize the rotation is to measure the circumference of all the tires, including the spare. Choose ones that are within about 3/8-inch or less of each other (do not change from side-to-side if they are radials). If one tire is much more worn than the other one, they both should be replaced for safety reasons.

Testing the Complete Installation

Be sure that the vehicle remains adequately blocked. Put the transmission in neutral; the parking brake should

already be off. If working on the front end, be sure that the transfer case is in the 2WD position and that the front hubs or axle disconnect are locked.) **Lower one tire to the ground** to hold it, leaving the other one free. **Rotate the driveshaft** in either direction by hand until it stops, and hold it there tightly. **Rotate the free tire**; if it tends to turn the driveshaft, rotate it in the opposite direction. The tire should rotate and the **LOCK-RIGHT** should “click” as the wheel turns. Rotate the driveshaft in the other direction until it stops and again check the rotation of the tire in the opposite direction. To check the other side, lower the free tire, jack up the other one, and repeat the test. If everything works, your vehicle is ready to drive. (Note that the “clicking” sound is much louder now than you will experience on the road.)

NOTE: Sometimes we have noticed that initially the parts may not unlock easily because they need to become “broken in.” If this occurs, jack up both tires and rotate them a few times to circulate the gear oil. Lower one tire back down to

hold it and rock the other one back and forth without holding the driveshaft; the free tire should soon unlock. If it still does not do so, your installation may need to be rechecked. Talk with your dealer or contact the factory for more information.

Driving Your Vehicle

*Carefully read and understand the driving information contained in the **LOCK-RIGHT** Vehicle Owner's Manual!* Safe and effective use of your new **LOCK-RIGHT**-equipped vehicle depends on knowledgeable operation, and this can only be done by understanding its characteristics before you start. Be careful, and have fun!

Your new **LOCK-RIGHT** is designed to operate hold it and rock the other one back and forth without holding the drive-shaft; the free tire should soon unlock. If it still does quietly

and without jerking when driven properly. If your vehicle does not operate smoothly, there may be a problem with the installation or with subsequent re-assembly of the vehicle. Consult your **LOCK-RIGHT** Vehicles Owner's Manual for more information about how your new **LOCK-RIGHT**-equipped vehicle should perform and re-check the shop manual for correct vehicle assembly.

Warranty Information

The Warranty is contained in the Vehicle Owner's Manual that is supplied with your new **LOCK-RIGHT**. Consult this manual for complete warranty information.

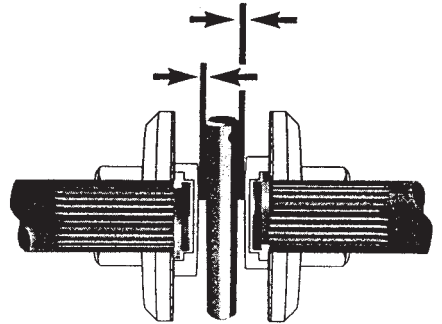
Important

If your differential case or thrust washers are excessively worn, your new Lock-Right Locker may not be able to operate as it was designed. Therefore, two easy measurements must be made before final assembly to assure that your new locker will function properly. To make these measurements, proceed as follows:

1. Remove the existing spider gears, side gears and thrust washers from the differential case, and thoroughly clean it.
2. Install the Lock-Right couplers with the existing thrust washers in each end of the case.
3. Place the spacers onto the centers of the couplers (wide side toward the axle splines if not symmetrical), and hold them there.
4. Install the pinion shaft; carefully guide it past the spacers as it is being inserted through the holes in the case.
5. Measure the gap between each spacer and the pinion shaft with a feeler gauge. This gap should be between .005-inch and .020-inch, with not more than a .008-inch difference between the two.

If your numbers are within the limits specified, remove the parts and begin your installation. If your numbers are not within these limits, check the thrust washers and the differential case. If they are excessively worn or are damaged, they may need to be replaced before installing your new Lock-Right Locker.

If you have any questions, call RICHMOND GEAR TechLine at 1-864-843-9275 for further assistance.





IMPORTANT INFORMATION

Please Read Carefully



The following  and  information is supplied to you for your protection and to provide you with many years of trouble free and safe operation of your Richmond Gear product.

Read **ALL** instructions prior to operating transmission and/or ring and pinion. Injury to personnel, transmission or ring and pinion failure may be caused by improper installation, maintenance or operation.

 **DANGER** • **It is dangerous to get under a jacked-up vehicle.** The vehicle could slip off the jack and fall on you. You could be crushed. Never place any part of your body under a vehicle that is on a jack. Never start or run the engine while the vehicle is on a jack. **If you need to get under a raised vehicle, take it to a service center where it can be raised on a lift.**

 **WARNING** • Hot oil can cause severe burns. Use extreme care when removing lubrication plugs and when working close to a unit that has been in operation.

- Check lube level between scheduled lube changes to insure that proper lube level is maintained. Inspect vent plug to insure it is clean and operating. Inspect the tightness of mounting bolts, misalignment of connecting shafts, lube leakage, excessive heating, or any unusual noise or vibration.
- Serious personal injury may occur as a result of improperly performed maintenance, adjustments or repairs.
- Do not attempt any of the maintenance, checks or repairs described on the following pages if you are not fully familiar with these or other procedures with respect to the transmission, or are uncertain as to how to proceed. Have the necessary work done by a properly equipped and qualified workshop.
- Always be extremely careful when working on the transmission. Always follow commonly accepted safety practices and general common sense. Never risk personal injury.

(continued on next page)



- Do not operate the transmission or ring and pinion without proper lube and correct amount.
- For safe operation and to maintain the unit warranty, when changing a factory installed fastener for any reason, it becomes the responsibility of the person making the change to properly account for fastener grade, thread engagement, load, tightening torque and the means of torque retention.
- Mounting bolts should be periodically checked to ensure that the unit is firmly anchored for proper operation.
- These instructions are not intended to cover all details or variations in equipment, nor provide for every possible contingency to be met in connection with selection, installation, operation, and maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the Buyer's purpose, the matter should be referred to Richmond Gear.

In the event of the resale of any of the goods, in whatever form, Resellers/Buyers will include the following language in a conspicuous place and in a conspicuous manner in a written agreement covering such sale:

The manufacturer makes no warranties or representations, express or implied, by operation of law or otherwise, as to the merchantability or fitness for a particular purpose of the goods sold hereunder. Buyer acknowledges that it alone has determined that the goods purchased hereunder will suitably meet the requirements of their intended use. In no event will the manufacturer be liable for consequential, incidental or other damages. Even if the repair or replacement remedy shall be deemed to have failed of its essential purpose under Section 2-719 of the Uniform Commercial Code, the manufacturer shall have no liability to Buyer for consequential damages.

Resellers/Buyers agree to also include this entire document including the danger, warnings and cautions above in a conspicuous place and in a conspicuous manner in writing to instruct users on the safe usage of the product.

This information should be read together with all other printed information supplied by Richmond Gear.



CHICAGO, IL

Tech Support (864)843-9275

POWERTRAX.COM