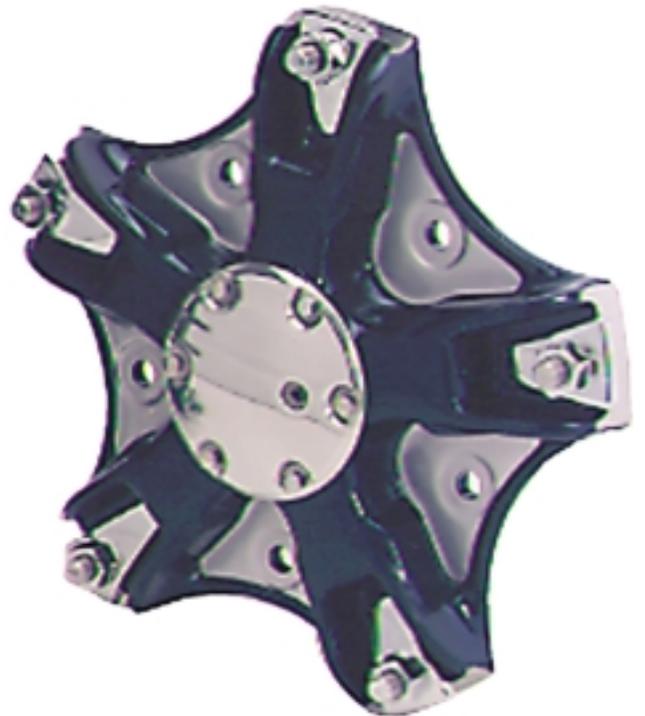


GUNITE SPOKE WHEELS



Maintenance & Installation Manual

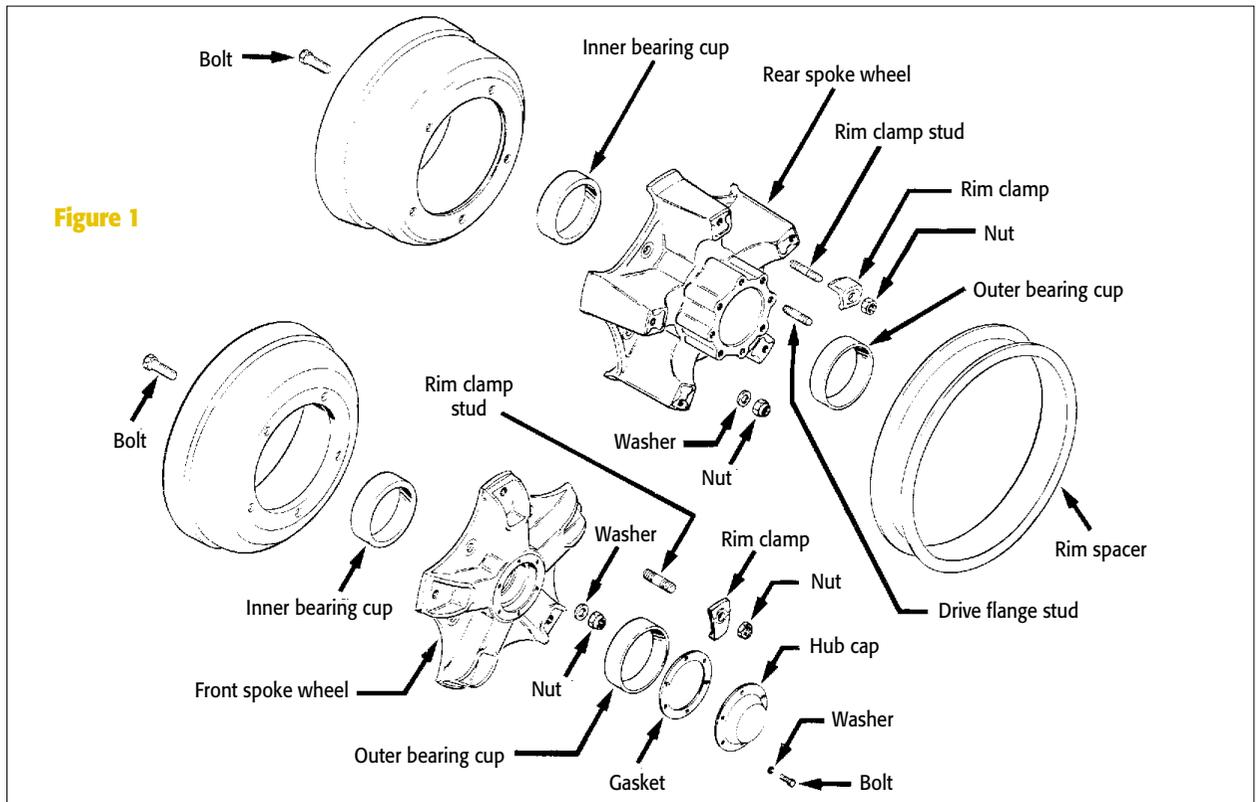


Gunite spoke wheels are designed and manufactured for maximum durability and true running characteristics. If properly installed, maintained and operated under normal conditions, these wheels will provide trouble-free service for the life of the vehicle.

TYPICAL GUNITE® WHEEL ASSEMBLY

Figure 1 illustrates typical front and rear wheel assemblies showing the components and their relationship to the total assembly. It is important that the proper components be used and that only Gunite parts or Gunite approved replacement parts be used when installing or servicing Gunite wheel end assemblies.

When ordering replacement parts, always indicate the part number cast into the wheel. This number will be found on the front surface of the wheel.



SEVERE SERVICE APPLICATIONS

When using tubeless, demountable tires in a severe service application, always specify severe service spoke wheels, tubeless rims and thick gauge spacer bands.

NEW VEHICLES

After the truck and/or trailer has been driven the first 50 to 100 miles, the tire and rim assemblies will have "seated in" to the spoke wheel. As a result, the rim clamp nuts will have lost some of their initial torque.

It is very important at this time that the rim clamp nuts again be brought up to the recommended torque. The

wheel and rim assemblies should then remain tight, barring stud/nut/clamp breakage or wheel damage.

Thereafter, the torque on the rim clamp nuts *MUST* be checked once a week regardless of the type of service.

RIM CLAMPS

Two types of rim clamps are available. One is cast, the other is forged. Although these two types of clamps do not appear the same, they are used for the same purpose.

Rim clamps may be furnished in either of two configurations, a heel type or heel-less. Both are shown in Figure 6. Both cast and forged rim clamps are available in either heel or heel-less configurations.

Heel-Type Clamps

When installing an assembly using Heel-Type Clamps, a gap may be present between the clamp and the surface of the spoke (see Figure 6 - Heel-Type Clamp). This condition is permissible but not required. If the gap between the clamp and the surface of the spoke exceeds 1/4" or bottoms out before reaching 80% of the recommended torque, check to insure that the proper clamps and spacer band are being used.

CAUTION:

DO NOT OVER TORQUE THE RIM CLAMP. Rim clamps do not have to heel. Over torquing can deform the rim spacer band and damage the back flange.

Heel-Less Clamps

Heel-Less Clamps are designed NOT to heel against the wheel to be properly installed. When properly installed there will be a gap at the bottom of the clamp. The gap should not exceed 3/8" (see Figure 6 - Heel-Less Clamp). If it does, the clamp should be removed and checked to make sure that the proper rim clamp and spacer band are being used. Also check to make sure that the wheel is properly installed.

CAUTION:

DO NOT OVER TORQUE A HEEL-LESS RIM CLAMP IN AN ATTEMPT TO MAKE CLAMP CONTACT THE WHEEL. Attempting to make a clamp heel can severely damage the clamp and the rim stud.

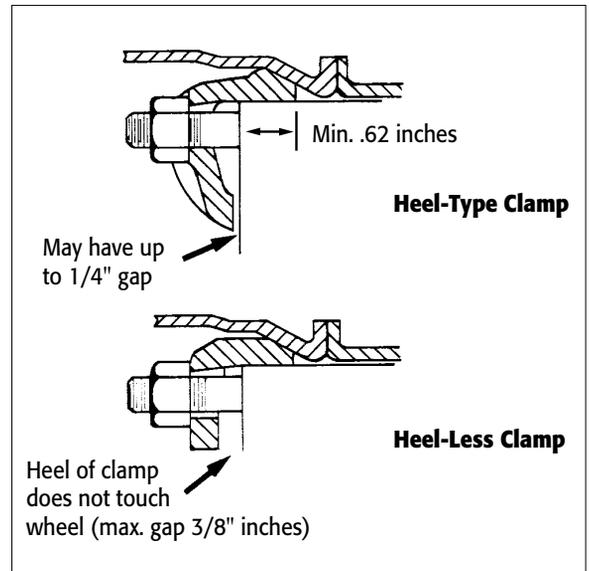


Figure 6 - Types of clamps

With a nominal stack up of the spoke wheel, rim clamp, rim and rim spacer, the dimensions can result in a clamp-to-spider (spoke) gap of .28 inches (6.11 millimeters). A maximum allowable gap of .38 inches (9.65 millimeters) between the clamp and wheel is possible and is not detrimental to satisfactory operation.

More importantly, the length of the clamp bearing surface extending on to the spoke at the minor spoke OD should be .62 inches (15.74 millimeters) as shown for both types of clamp configurations. (Figure 6)

ALIGNMENT

Once the rims and tires have been installed, you must check the assembly for proper alignment. Alignment of Gunite cast spoke wheels can be done easily by placing a block of wood on the ground next to the tire and revolving the tire and rim assembly. (Figure 7) Note any variations in the space between the block of wood and the tire. If the variation exceeds 1/16th inch (1.60 millimeters) for the front tires or 1/8th inch (3.20 millimeters) for the rear dual tires, the rim is not mounted properly on the spoke wheel.

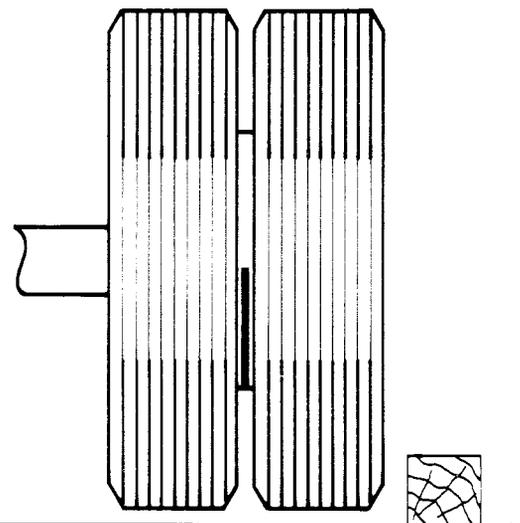


Figure 7 - Checking rim and tire alignment

DE-MOUNTING TIRE AND RIM ASSEMBLIES

CAUTION:

ALWAYS DEFLATE TIRES PRIOR TO DE-MOUNTING.

If there is any evidence of damage to the rim or lock ring, or if the lock ring appears to be unseated, the tire should be

completely deflated prior to the removal of the tire and rim assembly from the vehicle. After removal of the tire and rim assembly, clean and carefully inspect the wheel spokes for damage. Inspect the rim clamps and rim clamp nuts for any sign of cracking or distortion; any damaged parts should be replaced immediately.

INSTALLATION PROCEDURE

The correct installation and tightening of the tire and rim assembly on the spoke wheel is one of the most important operations in wheel maintenance. When tire/rim/spoke wheel problems occur, incorrect installation and tightening procedures are nearly always found to be the cause of the problems. The following procedures must be carefully followed to insure safe and dependable service.

1. Using a wire brush, clean the spoke wheel and rim mounting surfaces making sure that they are free from damage, dirt or rust. (Figure 2)

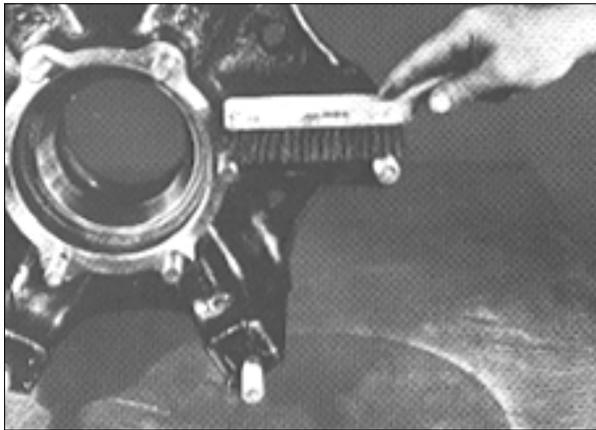


Figure 2 - Mounting surface of the wheel is the inboard 28 degree taper on the spokes.

CAUTION:

DO NOT WELD ANY GUNITE SPOKE WHEEL. Welding on any portion of a spoke wheel will result in substantial structural damage.

2. Slide the inside tire and rim assembly over the cast spoke wheel and push back into position. Make certain that the valve stem points out and is centered between two of the spokes.

3. Check the rim spacer for concentricity and assure yourself that it has not been distorted or bent, **NEVER INSTALL A BENT OR DISTORTED RIM SPACER.**

Push the rim spacer over the spoke wheel with a consistent pressure on both sides. Guard against "cocking" the rim spacer on the spoke wheel. The rim spacer should fit snugly on the spokes and against the inside rim gutter edge. (Figure 3)

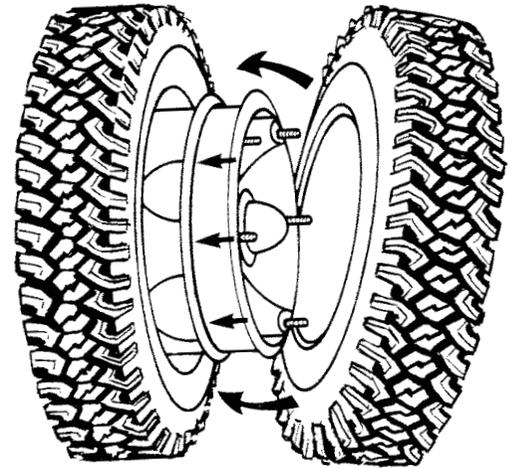


Figure 3

4. Slide outside tire and rim assembly over the spoke wheel and push back into position. Make certain that the valve stem points in and is located at the opposite spoke to which the inner valve stem is placed. By placing the valve stems in this manner, both the inner and outer valve stems are accessible for tire inflation.
5. Install all rim clamps and nuts. Run the rim clamp nuts down until the end of the stud is flush with the face of the nut, then revolve the wheel and tire one-half turn to allow the parts to seat naturally.

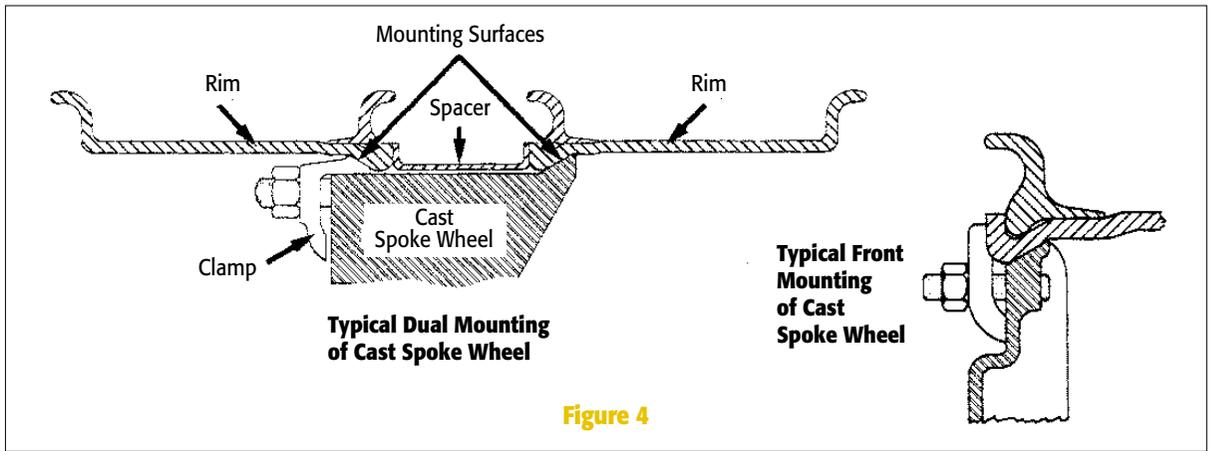


Figure 4

6. Tighten the rim clamp nuts down until they are snug, using the crisscross method as shown for both 5 and 6 spoke wheels. (Figure 5) Always rotate the nut to be tightened to the top position as shown (Figure 5) to insure even application of the clamp forces against the rim for proper alignment.

7. Following the same sequence as used in step 6, tighten the rim clamp nuts to the recommended torque values shown in the proper section of table 1.

PRE FMVSS "121" TORQUE SPECIFICATIONS

Stud Size and Thread/Inch	Recommended Torque *
	Foot - Pounds
5/8" X 11	160 to 185
3/4" X 10	215 to 225

FMVSS "121" TORQUE SPECIFICATIONS

"121" Wheel/Axle Capacity	Stud Size and Threads/Inch	Recommended Torque *
		Foot - Pounds
Front/14,000 # and Less	3/4" X 10	215 to 245
Front/Over 14,000 #	3/4" X 10	240 to 265
Rear/All	3/4" X 10	215 to 245

* Stud threads must be clean and dry.

Table 1

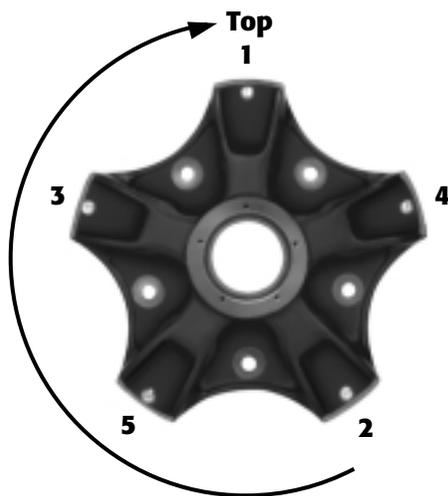
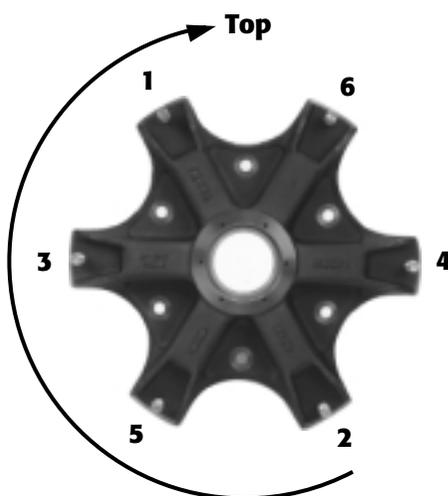


Figure 5 - Tightening procedure for spoke wheels.



CAUTION:

Insufficient mounting torque can cause rim slippage resulting in broken valve stems, worn parts and damaged tires/wheels. Excessive mounting torque can cause damage by bending and/or stripping studs, collapsing rim spacers or forcing rims into and out-of-round condition.

Double ended socket wrenches are adequate to remove and install the tire and rim assemblies. As an example, when used with a 3 foot bar, a 150 pound man, exerting his entire weight 2.5 feet out on the bar, can apply 375 foot pounds of torque to a wrench.

Air wrenches are sometimes used to save time and labor. The torque they deliver depends on the air line pressure from which they operate. Periodic checks, using a manual torque wrench, should be made to insure the accuracy of these air wrenches. An air wrench calibrated to exert 500 foot-pounds will bend the studs and distort the rim spacers during initial installation.

CORRECTING RIM AND TIRE ALIGNMENT

Misalignment can be corrected by loosening the nuts on the side where the variation is greatest, and tightening the nuts on the opposite side. When the tire and rim runs true,

tighten all nuts but, do not exceed the recommended torque specifications.

CHECKING RIM CLAMP NUT TORQUE

After the vehicle has run a short distance, 50 to 100 miles (80 to 161 kilometers), the parts will *seat* and the torque will usually drop. Therefore, it is very important to check the rim clamp nuts for proper torque using the crisscross method. A second tightening will insure a good, tight, well aligned wheel assembly.

During the normal operation of the vehicle all rim clamp nuts *MUST* be checked once a week for proper torque.

WARRANTY

Gunite Corporation warrants to the original purchaser that its spoke wheels, hubs, brake drums and brake rotors are free from defects in material and workmanship. Gunite Corporation agrees to repair or replace, without charge, any and all of its products which fail in normal use and service because of defects in material and/or workmanship.

Gunite Corporation shall not be liable for any incidental or consequential damages for any breach of warranty, its liability and the purchaser's exclusive remedy being expressly limited to repair or replacement of the product as herein provided. There are no other warranties, expressed or implied except such as is set forth herein.



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