



# PreSet® Hubs Service Manual

## Pre-Adjusted Bearings

### Steer, Drive, and Trailer Applications



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## IMPORTANT REMINDERS

Read this manual carefully, providing extra attention to its explanations and instructions. To ensure safe, continuous, trouble-free operation, understand your wheel hub system, and keep all components in proper operating condition. Pay particular attention to all **NOTES, CAUTIONS, WARNINGS, and DANGERS** to avoid the risk of personal injury or property damage, and realize these statements are not exhaustive. ConMet cannot possibly know or evaluate all conceivable methods in which service may be performed or the possibly hazardous consequences of each method. Accordingly, those who use a procedure not recommended by ConMet must first satisfy themselves that neither their safety nor the safety of the product will be jeopardized by the service method selected. Use only ConMet approved replacement parts. Do not attempt to use damaged parts. **DISC WHEEL INSTALLATION PROCEDURES** (ConMet part number 103282), **OIL DECALS** (ConMet part number 106873), and **SEMI-FLUID DECALS** (ConMet part number 107383) are available upon request.

### Notes

These activities include additional information that may assist the technician in service procedures (see figure 1).



FIGURE 1

### Cautions

These activities indicate that product damage may result from failing to heed the stated advisory (see figure 2).



FIGURE 2

### Warnings

Associated activities indicate that personal injury may result from failing to heed the advisory. Personal injury is not equated to career-ending injury but may result in possible change in quality of life (see figure 3).



FIGURE 3

### Dangers

Associated activities indicate that death or serious personal injury may result from failing to heed the stated advisory. Serious personal injury may be equated to career-ending injury (see figure 4).

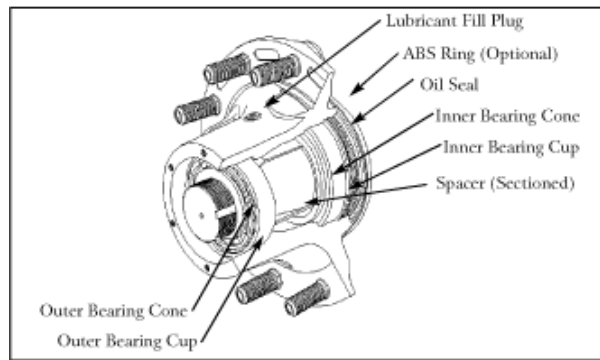


FIGURE 4

## INTRODUCTION

Consolidated Metco, Inc. is recognized as the leader in the design and manufacture of lightweight/low maintenance components for the heavy truck industry. ConMet PreSet Wheel Hub technology offers the best solution to prevent premature wheel hub failures.

When installed as OEM equipment, ConMet PreSet Hub Assemblies offer a three year/350,000 mile warranty on tractors and five years on trailers. With periodic inspections and proper lubricant level maintenance, actual service intervals can extend up to 500,000 miles. These assemblies include ConMet precision-machined hubs, premium oil bath seals, specially toleranced roller bearings, and unique precision-machined bearing spacers. This combination eliminates the need to manually adjust wheel end play. These components are delivered as a complete package, eliminating the potential for premature failures due to improper installation practices (see figure 5).



TN Trailer Hub  
FIGURE 5

For information on our standard lightweight aluminum or ductile iron hubs for manually adjusted bearings, refer to the corresponding service manual (see table 1). Contact ConMet at 1-800-547-9473 for other available technical or product information, or visit our web site at [www.conmet.com](http://www.conmet.com).

| Literature # | Description   |
|--------------|---|
| 10005642     | PreSet Hub Assembly Service Manual                    |
| 10005647     | ConMet Aluminum and Iron Component Hub Service Manual |

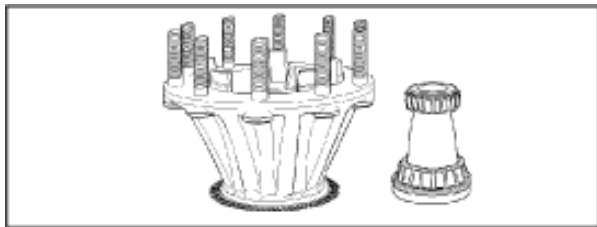
Corresponding Literature  
TABLE 1

# IDENTIFICATION

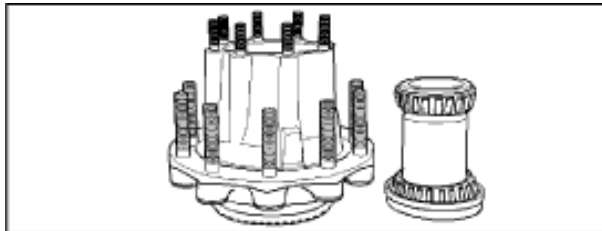
## PRESET WHEEL HUB ASSEMBLIES

ConMet offers a complete family PreSet Wheel Hub Assemblies for steer, drive, and trailer axles.

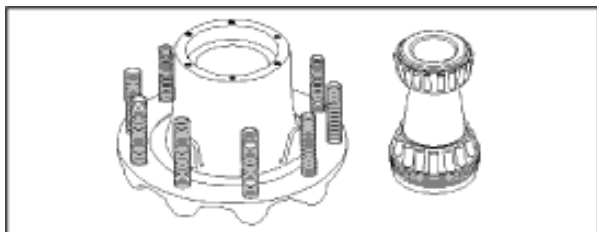
All ConMet PreSet Wheel Hubs come complete with pre-installed bearings, cups and cones, and oil seals. These hubs are unique in that a precision tubular spacer is utilized between the bearings, eliminating the need for manual bearing adjustment (see figures 6-9).



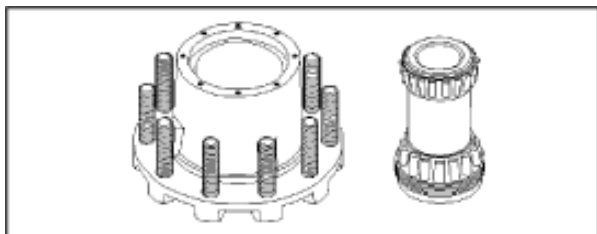
PreSet Steer Hub  
FIGURE 6



PreSet Drive Hub  
FIGURE 7



PreSet TN Trailer Hub  
FIGURE 8



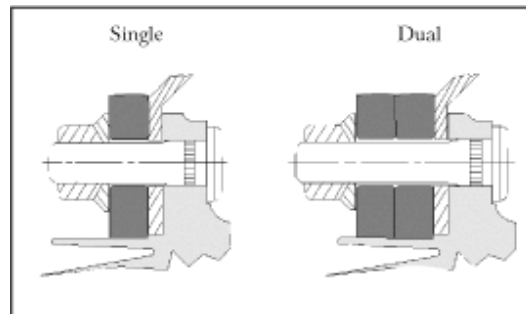
PreSet TP Trailer Hub  
FIGURE 9

## WHEEL MOUNTING SYSTEMS

ConMet PreSet Wheel Hubs are available in both hub pilot and ball seat nut configurations.

### Hub Pilot Wheel Mounting

The hub pilot wheel mounting system makes use of a single two-piece flange nut on each wheel stud for both single and dual wheel applications (see figure 10). The hub pilot wheel mounting system is also known as the Uni-Mount-10™ (10 stud), WHD-10™ (10 stud), WHD-8™ (8 stud), and ISO system.

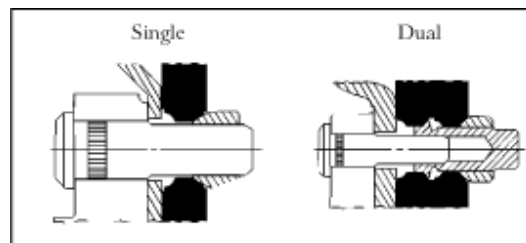


Hub Pilot Mounting Systems  
FIGURE 10

### Ball Seat Wheel Mounting System

The ball seat wheel mounting system makes use of the spherical contact area between the nut and wheel to both locate the wheel and hold the wheel tight against the brake drum (see figure 11).

The ball seat wheel mounting system is also known as the stud piloted, ball seat cap nut (BCN) and double cap nut (DCN) system.



Ball Seat Mounting Systems  
FIGURE 11

# PERIODIC INSPECTION AND PREVENTIVE MAINTENANCE

ConMet requires a visual inspection of the PreSet Hub Assembly every 12 months or 100,000 miles.

## NOTE

ConMet requires PreSet wheel hub service at 500,000 mile intervals or 5 years, whichever comes first.

## NOTE

In addition to the annual visual inspection, you should maintain current shop preventative maintenance and pre-trip inspection practices.

## VISUAL INSPECTION

### OIL LUBRICATED

Visually inspect for leakage and oil contamination.

#### *Leakage Indicators*

1. Check to be certain that no oil is present around the hubcap or on the wheel.



**CAUTION**

If oil is present, investigate the cause and take corrective action.

2. Check to be certain that no oil is present on the hub, brake hardware, or brake shoes.



**CAUTION**

If oil is present, the seal may be defective, improperly installed, or worn out. Replace the seal by following the instructions as outlined in this manual.



**CAUTION**

Do not mix oil types. If oil needs to be added, make sure you use the same type.

#### *Oil Contamination*

Allow any air in the oil to escape prior to inspection. Visually inspect the lubricant for discoloration. Under normal conditions, the oil will darken slightly. A white or milky appearance indicates water contamination. If the inspection indicates contamination, completely service the PreSet Wheel Hub by following the instructions as outlined in this manual.

### SEMI-FLUID GREASE LUBRICANT

Visually inspect for leakage and grease contamination.

#### *Leakage Indicators*

1. Remove ConMet PreSet semi-fluid grease hubcap (there is no sight window).

2. Inspect the outer bearing to make sure sufficient grease is present and that there is no sign of contamination.

3. If additional grease is required, use the fill hole in the barrel of the hub to add grease until it is clearly migrating through the outboard bearing.



**CAUTION**

DO NOT mix grease types. If grease is added make sure it is the same type installed by the OEM.

#### *Grease Contamination*

Visually inspect the grease for discoloration. Under normal conditions the grease may darken slightly. A white or milky appearance indicates water contamination. If the inspection indicates contamination, completely service the PreSet Hub by following the instructions in the manual.

# PERIODIC INSPECTION AND PREVENTIVE MAINTENANCE

## FUNCTIONAL CHECKS

In addition to the Annual Inspection, the following functional checks should be done in conjunction with brake or tire service.

### NOTE

Conduct the following inspections with the wheel(s) and drum removed.



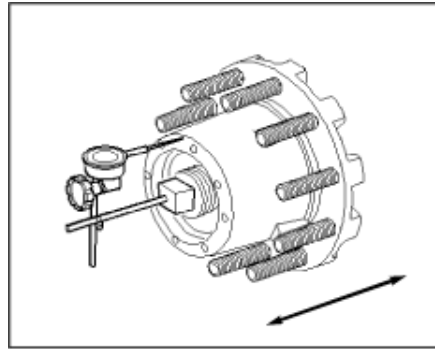
### WARNING

Never work under a vehicle supported by a jack without supporting the vehicle with stands and blocking the wheels.

Rotate the hub and check for free, smooth, and quiet rotation. If rotation is hampered, PreSet Hubs should be serviced immediately.

### *Measure End Play*

1. Remove the hubcap, and use a dial indicator with a magnetic base mounted on the spindle end, to read the travel at the hub cap mounting surface (see figure 12).



Checking for End Play  
FIGURE 12

2. Grasp two wheel studs across from each other and pull and push the hub while oscillating it.
3. Measure the end play by the difference between the minimum and maximum dial indicator readings.



### CAUTION

PreSet Hubs should be serviced if end play exceeds 0.006".

# HUB REMOVAL AND DISASSEMBLY

## ⚠ WARNING

Never work under a vehicle supported by a jack without supporting the vehicle with stands and blocking the wheels.

1. Prepare the axle for disassembly by using a jack to raise the axle until the wheels are off the ground, and the axle is properly supported.

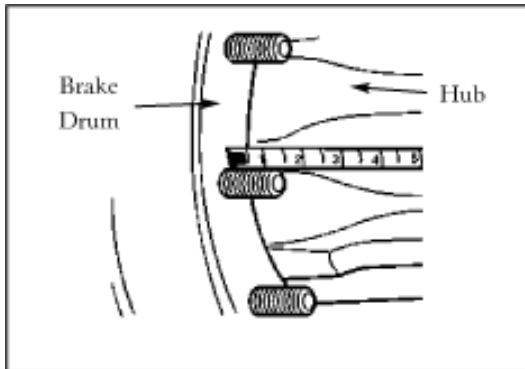
## ⚠ CAUTION

Care should be taken to avoid damaging the hub or other components.

## NOTE

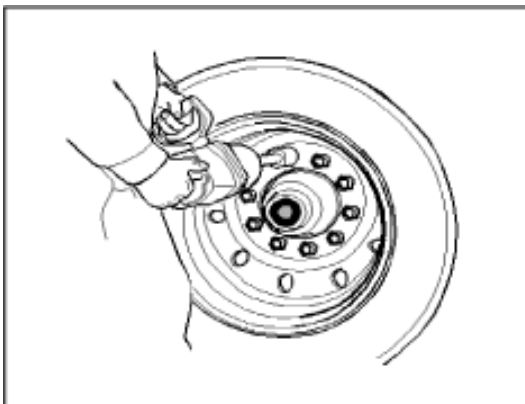
If you plan to replace the brake drum (i.e., cast in place of Centrifuse™ or wheels (i.e., aluminum in place of steel), measure stud standoff (see figure 13). In hub piloted mounting systems, the studs must be long enough for the threads to be exposed beyond the installed wheel nut. In the ball seat mounting system, the stud length beyond the brake drum should be from 1.31" - 1.44" as measured from the brake drum to the end of the stud. Call ConMet at 1-800-547-9473 for the correct stud part number for your application.

If you plan to replace the brake drum, verify the new drum has the same drum pilot diameter as the one that has been removed.



Measuring Stud Standout  
FIGURE 13

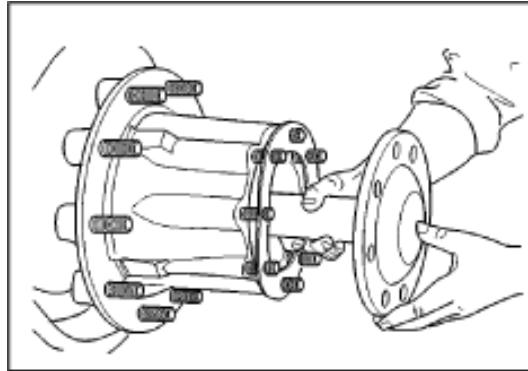
2. Remove the wheels and brake drum (see Figure 14).



Removing the Wheels  
FIGURE 14

## NOTE

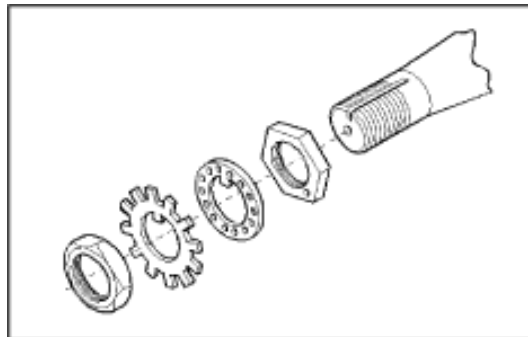
If the hub to be disassembled is a drive hub, remove the drive axle shaft, and capture the oil (see figure 15).



Removing the Drive Axle Shaft  
FIGURE 15

3. Examine the spindle nut to determine the locking system, and disengage the locking device.

4. Remove the spindle nut system (see figure 16).



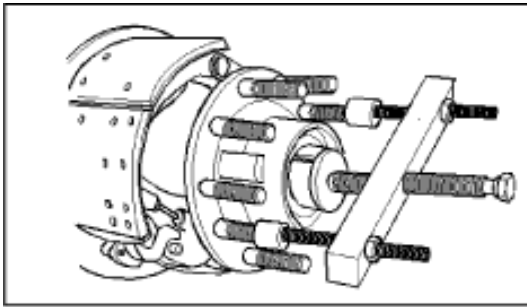
Typical Spindle Nut System  
FIGURE 16

5. Slide the hub off the spindle, being careful to protect the outer bearing cone from falling. Remove and save the outer bearing cone.

## ⚠ CAUTION

Occasionally, the seal can become stuck on the spindle, making the hub difficult to remove. If mechanical assistance is required to remove the hub, care should be used to avoid damage to hub components (see figure 17). In some cases, part of the seal will remain on the spindle. When removing this portion of the seal, care should be taken not to damage the spindle or seal journal.

## HUB REMOVAL AND DISASSEMBLY

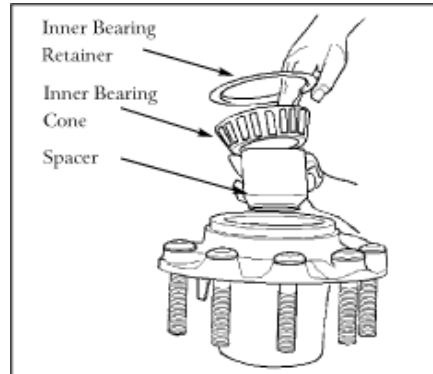


Mechanical Puller  
FIGURE 17

### NOTE

ConMet makes several tools to assist in the removal of hubs. These tools are available for purchase and are listed in the back of this manual (see tables 6 and 7).

6. Place the hub on its outboard end and remove and discard the seal (if it does not need to be retained for warranty reimbursement).
7. If present, remove and discard the inner bearing retainer. The stamped steel retainer secures the inner cone during shipment and has no purpose in service (see figure 18).



Hub Disassembly  
FIGURE 18

(Inner Bearing Retainer is not on Hubs equipped with CR Seals)

### NOTE

All components replaced under warranty must be returned for consideration of reimbursement. Contact the OEM manufacturer for their warranty return policy.



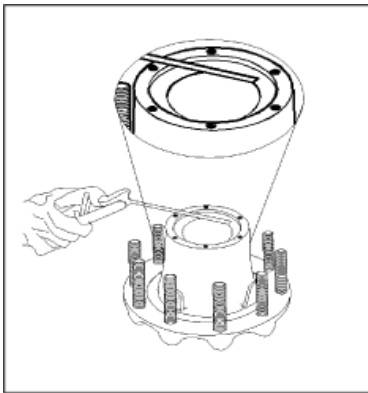
# INSPECTION, REPAIR AND REPLACEMENT

## BEARING CUPS AND CONES

### CAUTION

If a bearing cup or cone shows signs of deterioration, replace the suspect part along with the mating component. Use the appropriate replacement parts to ensure proper bearing adjustment (see table 5). When reinstalling cups, be certain they are pressed fully against their seats.

1. Thoroughly clean and degrease all components with a nonflammable solvent.
2. If required on an aluminum hub, remove the bearing cup by welding a large bead around the bearing surface of the steel cup, letting the assembly cool, and removing the bearing cup (see figure 19).



Welding Bead  
FIGURE 19

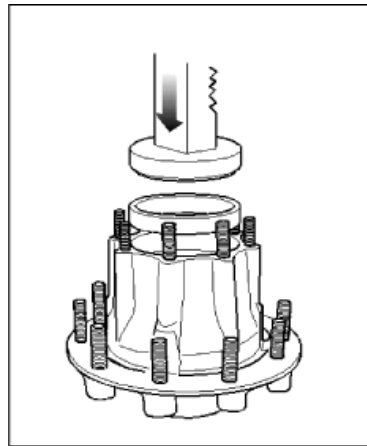
On an iron hub, remove the bearing cup using a large hammer and a heavy drift, along with the appropriate cup knockout tool, as listed in the back of this manual (see table 7). Take precaution to avoid damaging the bearing cup bore and shoulder.

3. Inspect the bearing cup bore for evidence of cup rotation (spun cups). If noted, replace the hub.
4. To install a new cup in an aluminum hub, it is recommended that the hub be heated evenly throughout in an oven or in boiling water to 175-215° F. Cooling the cup in a freezer will further ease the installation, if desired.

### CAUTION

Do not overheat the hub.

Remove the aluminum hub from the oven or water and carefully drop in the new bearing cup being certain it is fully seated. Variations within tolerances of materials and oven temperatures may require the bearing cup to be pressed in to the hub (see figure 20) using the appropriate assembly aids, as listed in the back of this manual (see table 6). If the cup is loose, allow a few seconds for it to heat up and secure itself before moving the hub.



Bearing Cup Pressed into Hub  
FIGURE 20

6. Iron hubs do not need to be heated for bearing cup installation. Press the bearing cup into the hub using the appropriate assembly aids.

## WHEEL STUDS

Replace all wheel studs that have damaged or distorted threads, are broken or bent, or are badly corroded. Also, replace both studs adjacent to the damaged stud. If two or more studs have damage, replace all the studs in the hub. Broken studs are usually an indication of excessive or inadequate wheel nut torque.

Inspect the drum pilots, wheel pilots, and mounting face on the hub for damage. A damaged drum pilot is usually caused by improper drum mounting. A damaged wheel pilot could be the result of inadequate wheel nut torque, allowing the wheels to slip in service. Also inspect the wheels and brake drum for damage.

## STUD REMOVAL

### WARNING

Observe all warnings and cautions for press operation provided by the press manufacturer to avoid serious personal injury and damage to components.

1. Place the clean hub in a shop press with the hub supported evenly around and adjacent to the stud being removed.

### WARNING

Failure to adequately support the hub can result in physical injury and/or damage to the hub.

### CAUTION

Some hubs are configured so it is impractical to have supports to prevent the hub from tipping when force is applied to the stud. In this case, support the hub on wood blocks on the floor and use a heavy hammer to drive the studs out with several sharp blows. Be careful to avoid damaging the hub and components, particularly the seal bore and the ABS tone ring.

2. Press the stud out of the hub.

# INSPECTION, REPAIR AND REPLACEMENT

## STUD REPLACEMENT

### ⚠ CAUTION

On the ball seat wheel mounting system, always use left-handed threaded studs on left-handed hubs, and use right-handed threaded studs on right-handed hubs.

The ConMet part number is located on the head of the stud. The same part number must be used for replacement unless changing the drum or wheel type.

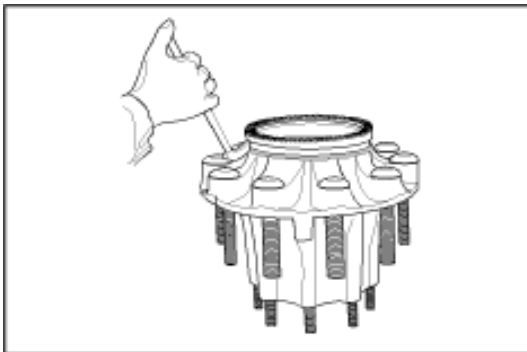
1. To install a new stud, support the hub evenly around and adjacent to the stud being installed.
2. Press the new stud all the way into the hub. Be sure the stud is fully seated and that the stud head is not embedded into the hub.

### ⚠ WARNING

If the stud head is embedded into the hub, the hub should be replaced.

## ABS TONE RING (AS APPLICABLE)

1. Inspect the ABS Tone Ring for any damage caused during hub removal or hub servicing.
2. If replacement is necessary, use a small pry bar (see figure 21) or hammer to gently remove the ring, using a circular pattern around the ring to prevent cocking.



Using Pry Bar to Remove ABS Ring  
FIGURE 21

3. Thoroughly clean and degrease the ABS ring seat on the hub with a nonflammable solvent.

### ⚠ CAUTION

Replace the hub if the ABS ring seat is damaged.

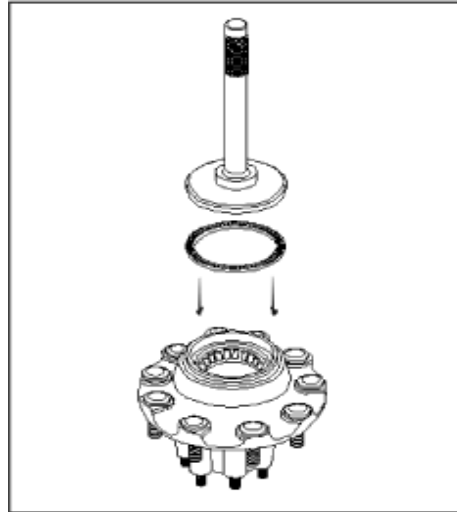
The ABS ring must be fully seated with a maximum of 0.008" axial runout to ensure the ABS system functions properly.

### NOTE

For steer hubs, be certain the inside diameter flange is facing up.

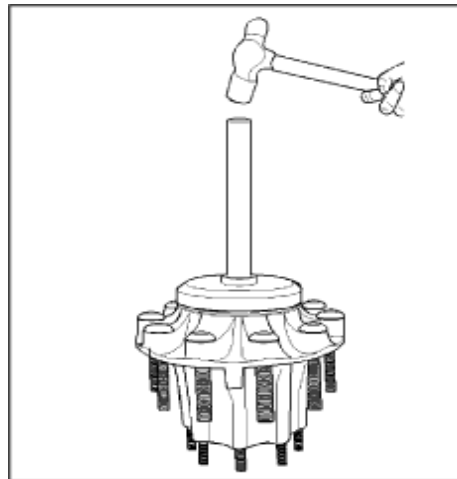
4. Place the hub in a press and place the ABS ring on the hub ring seat.

5. Using ConMet ring installation tool part number 107119, center the tool over the ABS ring. Each type of ring fits a corresponding diameter on the tool (see figure 22).



Installing the ABS Tone Ring  
FIGURE 22

6. Press the ring on the hub. If a press is not available, drive the ring on with a hammer or mallet until the ring seats on the hub (see figures 22-23).



Using a Hammer to Install the Ring  
FIGURE 23

7. Inspect the ring to ensure proper seating. If the ring is not completely seated, continue to drive the ring with the ring installation tool until the ring is completely seated.

A dial indicator can be used once the hub is reinstalled on the spindle to check axial runout.

# REASSEMBLY

## PRESET WHEEL HUBS

### CAUTION

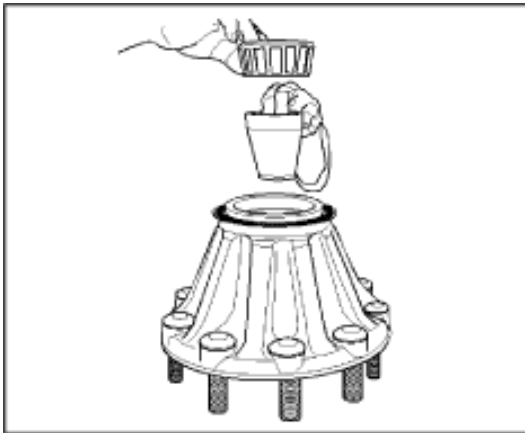
When using an oil bath system, do not pack the bearing with grease. Grease will prevent the proper circulation of axle lubricant and can cause premature wheel seal and bearing failure.

1. Place the hub seal end up on a clean work bench surface.

### NOTE

If you are working on a drive or trailer hub, go to step 3. If you are working on a steer hub, proceed as follows.

2. For steer hubs, install the tubular bearing spacer with the tapered end down (see figure 24).



Bearing Cone Assembly for Steer Hub  
FIGURE 24

3. Lubricate the inner bearing cone with the proper wheel end lubricant and install it into the inner bearing cup (see figure 25).

### NOTE

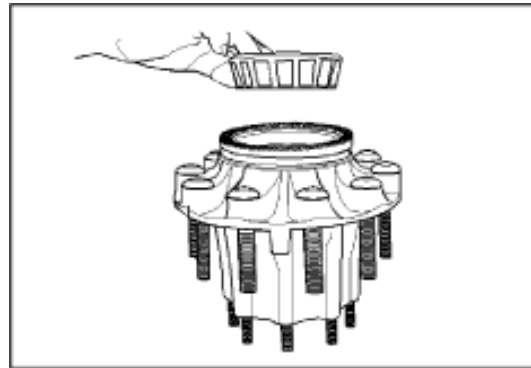
The seal must be replaced every time the hub is removed from the spindle.

Do not apply any gasket sealant to the seal outer or inner diameter.

Always use the seal installation tool specified by the seal manufacturer. Using an improper tool can distort or damage the seal and cause premature seal failure.

If using the Dana Outrunner Wheel Seal, place the seal with the "air side" facing the adapter plate of the installation tool.

If using the Chicago Rawhide ScotSeal Plus XL Wheel Seal, no special installation tools are required.



Bearing Cone Assembly for Drive Hub  
FIGURE 25

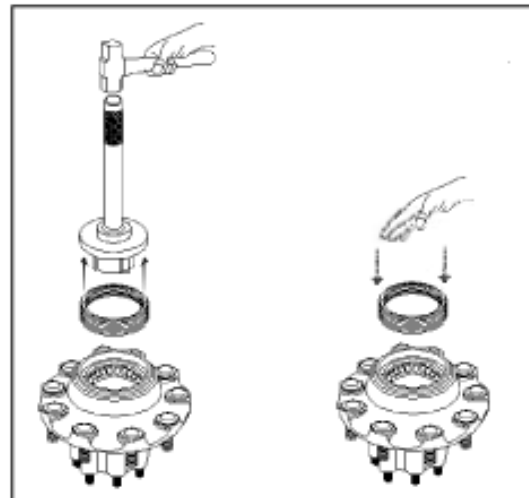
4. Lubricate the seal outer diameter and the hub seal bore with wheel end lubricant.

5. Position the seal in the hub bore.

6. When installing the Dana wheel seal, tap the adapter plate around the outer edge to position the seal.

7a. Drive the Dana seal into place (see figure 26). Once the tool bottoms out, the seal is installed correctly.

7b. Press the Chicago Rawhide Scotseal Plus XL wheel seal evenly into the bore. If additional force is needed, use a flat plate and a small mallet to install the seal.



Eaton Seal

CR Scotseal Plus XL  
FIGURE 26

8. Check to be certain the seal is not cocked and that the seal inner diameter and the inner bearing turn freely.

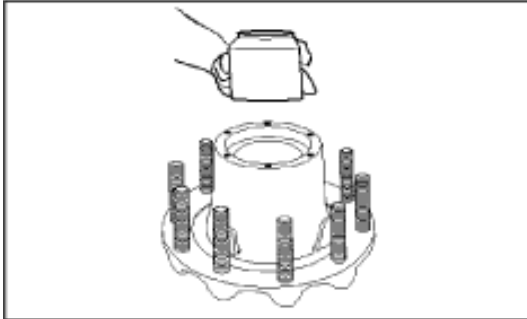
### CAUTION

Failure to lubricate the inner diameter of the seal, and the seal journal, may result in premature seal failure.

9. Lubricate the inner diameter of the seal with a light film of clean wheel end lubricant.

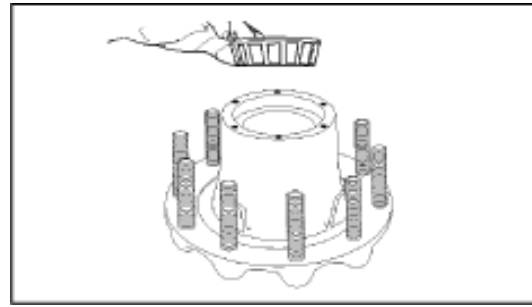
## REASSEMBLY

10. Turn the hub over, and place it seal end down. For all drive and trailer hubs, install the spacer. If the spacer has a tapered end, it should face towards the outboard end of the hub. (see figure 27).



Installing the Spacer  
FIGURE 27

11. Lubricate the outer bearing cone with the proper wheel hub lubricant and install it into the hub assembly (see figure 28).



Installing the Outer Bearing Cone  
FIGURE 28

12. Light corrosion fretting that forms on spindles is normal and should be removed with a fine abrasive. When the residue is cleaned away, the bare spindle is again subject to corrosion and must be covered with a film of grease for corrosion protection, making sure both the bearing journals and the seal journal are well coated. Standard Grade 2 greases work well in normal environments. In severe environments, a Moly-grease may provide added protection.

### CAUTION

Failure to apply grease to the bearing journals will result in fretting corrosion, which may result in difficulty removing the bearing.

# REINSTALLATION

## INSTALLING THE PRESET WHEEL HUB

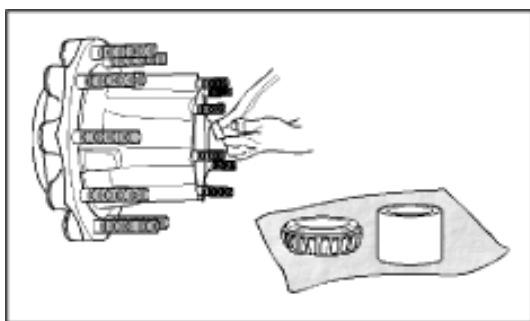
### ⚠ CAUTION

Never support the hub on the spindle with just the inner bearing and seal. This can damage the seal and cause premature failure, i.e., by cocking the seal in the bore.

### NOTE

If you are working on a steer or trailer hub, go to step 2. If you are working on a drive hub, proceed as follows.

1. For drive hub installation, place the hub horizontal, and remove the outer cone and spacer. Fill the cavity, through the end of the hub with the axle flange studs, with as much oil as possible. If a lubricant fill hole is available, lubricant can be installed after assembly. Reinstall the spacer and outer cone in the hub (see figure 29).

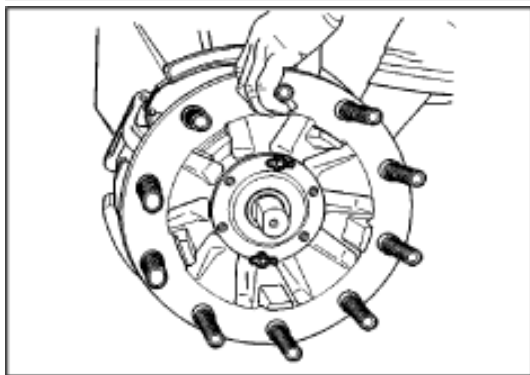


Prelubricating the Drive Hub  
FIGURE 29

2. Mount the hub assembly onto the axle spindle with a smooth, firm motion while holding the outer bearing in place. Use care to maintain alignment between the bearing cones, spacer, and spindle and to avoid seal damage (see figure 30).

### ⚠ CAUTION

Once the hub is on the spindle, do not remove the outer bearing. Removing the outer bearing may cause the seal to become misaligned, resulting in premature seal failure.

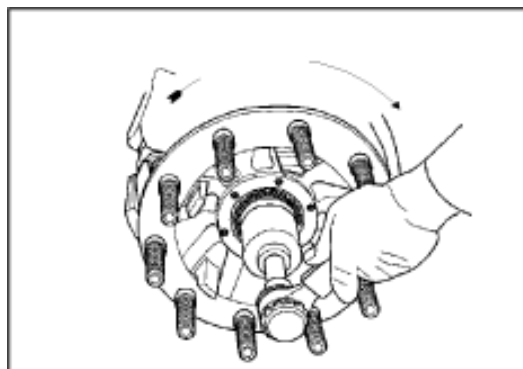


Mounting the Assembly  
FIGURE 30

3. Install the inner spindle nut and torque to 300 Ft. Lbs. (see figure 31).

### NOTE

Do not back off the spindle nut.



Reinstalling the Spindle Nut  
FIGURE 31

4. Engage any locking device that is part of the spindle nut system. If the locking system cannot be engaged when the nut is at 300 Ft.•Lbs., advance the nut until engagement takes place and the nut is locked. If a double nut or jam nut system is being used, bend the lock tab or install the set screw after the outer nut is torqued to 200 Ft.•Lbs.

## INSTALLING THE HUBCAP

### NOTE

The hubcap bolt holes must be free of debris, such as silicon gasket sealer to ensure the bolts will tighten properly to avoid leaks. The vent should also be clean and free of debris. Remove any burrs or sharp edges. Always use new gaskets.

1. Install the hubcap. A ConMet PreSet hubcap is available for trailer hubs to aid in identification of the assembly in the field.

### NOTE

Use SAE Grade 5 bolts or stronger. Do not use star washers or split lock washers as they will allow contaminants to corrode the threads. Use only flat washers with no locking features.

2. Torque the hubcap bolts to 12-18 Ft.•Lbs., using a star pattern.

### ⚠ CAUTION

If you are using semi-fluid grease, special procedures must be followed as outlined in the "Semi-Fluid Grease Lubricant" section.

# REINSTALLATION

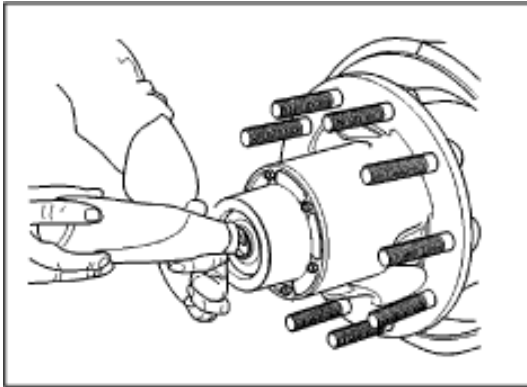
## OIL LUBRICANT

### NOTE

Use any oil approved for use with manually adjusted bearings (refer to trailer or tractor OEM for oil recommendations).

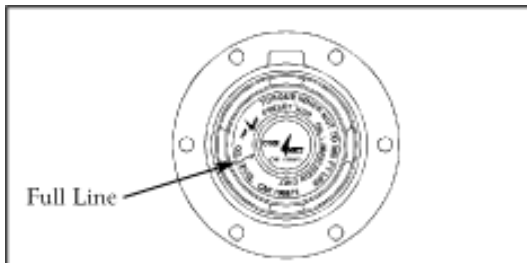
Some hubs are provided with a fill hole, located in the barrel and between the bearings for adding lubricant.

1. Fill the hub through the hubcap or the fill hole with oil. It may be necessary to add lubricant more than once to adequately fill the hub (see figure 32).



Filling the Hub with Oil  
FIGURE 32

2. Be certain the hub cap is properly filled to the "oil level" mark on the face of the cap (see figure 33).



Fill to "Oil Level Line"  
FIGURE 33

## SEMI-FLUID GREASE LUBRICANT



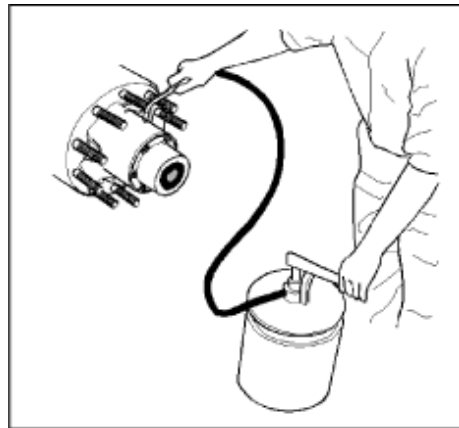
### WARNING

Failure to fill and maintain the hub with the correct amount of semi-fluid grease may cause premature failure of the wheel hub system, bearing failure and possible loss of the wheel and will void your warranty.

### NOTE

Please refer to TMC RP 631A for the recommended fill and maintenance procedures.

1. If the hub is equipped with a fill hole, remove the fill hole plug.
2. Fill the hub with the OEM recommended amount of room temperature (60° F minimum) semi-fluid grease through the fill hole in the hub. (Figure 25)



Filling Hub with Semi-Fluid Grease  
FIGURE 25

3. Reinstall and tighten the fill plug to 20-25 Ft.•Lbs.

# REINSTALLATION

## BRAKE DRUMS AND WHEELS

### Hub Pilot Wheel Mounting System

#### CAUTION

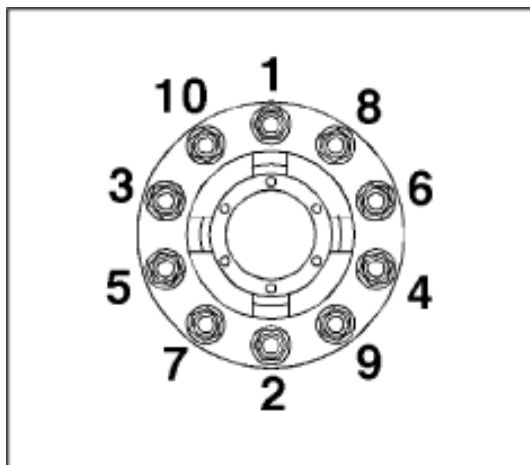
The brake drum must be fully seated on the drum pilot and against the hub face during and after installation of the wheel(s).

#### NOTE

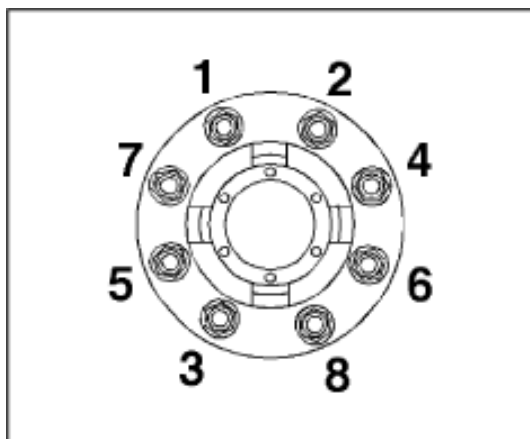
If your shop practice requires the use of lubricant or anti-corrosion material to the threads and/or the drum pilot area, avoid getting lubricant on the flat mating surfaces of the hub, drum, and wheels.

#### WARNING

Always tighten the top nut first to fully seat the brake drum on the drum pilot and against the hub face. See the adjacent diagram for bolt tightening sequence, and tighten in order from 1 through 8 or 10, depending on the bolt pattern (see figures 35-36).



10 Stud Tightening Sequence  
FIGURE 35



8 Stud Tightening Sequence  
FIGURE 36

1. Remove all foreign material to ensure the drum fits the drum pilot properly and can fully seat against the hub mounting face.

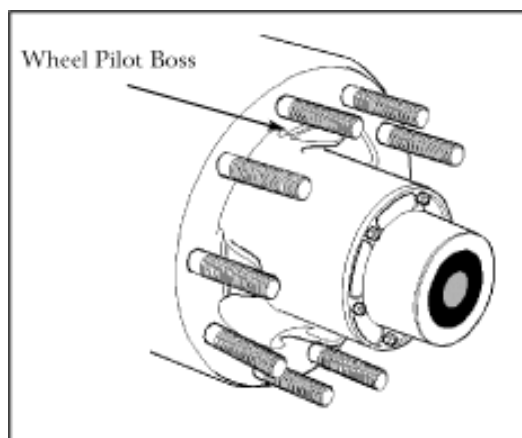
2. In environments where a corrosion inhibitor is beneficial, ConMet recommends the use of Corrosion Block, a product of Lear Chemical Research, (905) 564-0018. In severely corrosive environments, a light coat of Corrosion Block on the drum and wheel pilots has proven beneficial.

3. In addition to the above preparation, apply two drops of oil to a point between the nuts and nut flange washer and two drops to the last two or three threads at the end of each stud. Also, lightly lubricate the pilots on the hub to ease wheel installation and removal.

#### CAUTION

Do not get lubricant on the mounting face of the drum or wheel. Failure to clean lubricant from these surfaces may result in decreased clamping load.

4. Before installation of brake drums and wheels that utilize the hub piloted system, rotate the hub so one of the wheel pilot bosses is at the top (12 o'clock position) (see figure 37).



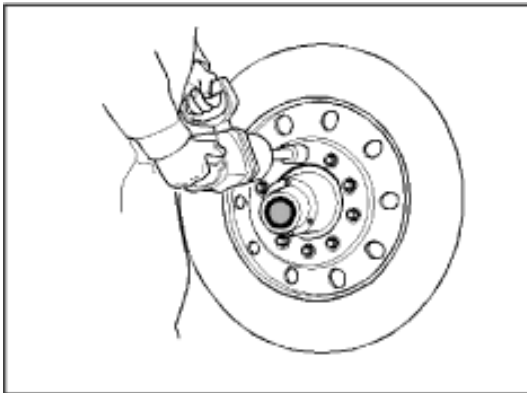
Rotating the Hub  
FIGURE 37

5. Position the brake drum over the hub, so it seats on the drum pilot and against the hub face.

6. Place the wheel(s) into position. One or more nuts can be started in order to hold wheel(s) and drum into position.

7. Tighten the top nut first. Apply 50 Ft•Lbs. torque to draw the brake drum up fully against the hub (see figure 38).

# REINSTALLATION



Reinstalling the Wheel  
FIGURE 38

8. Install the remaining wheel nuts and using the sequence as shown, torque all the nuts to 50 Ft.•Lbs, then retorque to 450-500 Ft.•Lbs. (see figures 35-36). The last nut rotation must be with a calibrated torquing device.

9. Inspect the brake and wheel installation by checking the seating of the wheel(s) and drum at the pilots, and by turning the wheel(s) and checking for any irregularity.

## ⚠ DANGER

Excessive or inadequate wheel nut torque can result in a failure of the wheel mounting system. After the first 50-100 miles, retorque all the nuts to 450-500 Ft.•Lbs.

### Ball Seat Wheel Mounting System

Clean all mating surfaces on the hub, drum, wheels and nuts. Remove loose paint, scale, and any material building around the pilots of the drum, hub, and wheels. Be sure paint is fully cured on recently refurbished wheels.

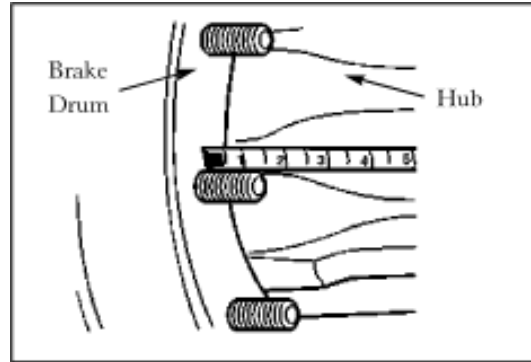
## NOTE

When dual wheels are mounted, the stud length beyond the brake drum (standout) should be from 1.31-1.44" as measured from the brake drum to the end of the stud (see figure 39).

When mounting dual aluminum wheels, use ALCOA inner cap nuts 5978R and 5978L or the equivalent. These nuts can also be used with longer studs up to 1.88" standout.

For special single aluminum wheel applications on drive and trailer hubs, use ALCOA single cap nuts 5995R and 5995L or 5554R and 5554L or the equivalent, depending on the stud thread length (see table 3).

For single steel wheel applications, use BATCO 13-3013R and 13-3013L or the equivalent (see table 4).



Stud Standout  
FIGURE 39

| Aluminum Wheels        | ALCOA Cap Nut Number  |
|------------------------|---|
| 3/4-16" Threaded Studs | 5995 R and 5995 L or 5554 R and 5554L, depending on stud length |

Single Aluminum Wheel Applications  
TABLE 3

| Steel Wheels           | BATCO Cap Nut Number    |
|------------------------|-------------------------|
| 3/4-16" Threaded Studs | 13-3013 R and 13-3013 L |

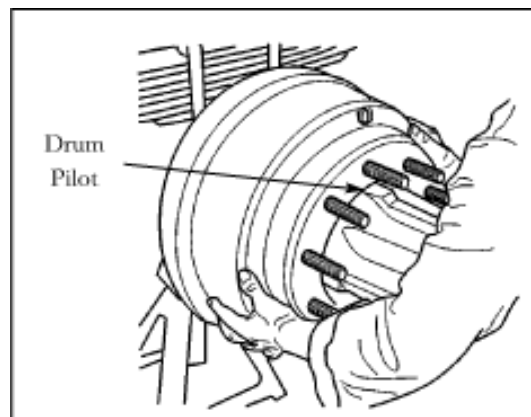
Single Steel Wheel Applications  
TABLE 4

1 . When installing the inner dual, verify the inner nuts being used are suitable for the application: aluminum wheels, steel wheels, brake drum thickness.

## ⚠ CAUTION

Inner cap nuts must be deep enough to ensure the stud will not bottom inside the nut and must be of a configuration approved by wheel manufacturer.

2 . Rotate the hub to bring a drum pilot to the top (12 o'clock) position (see figure 40). Position the inner wheel and tire assembly over the studs against the drum



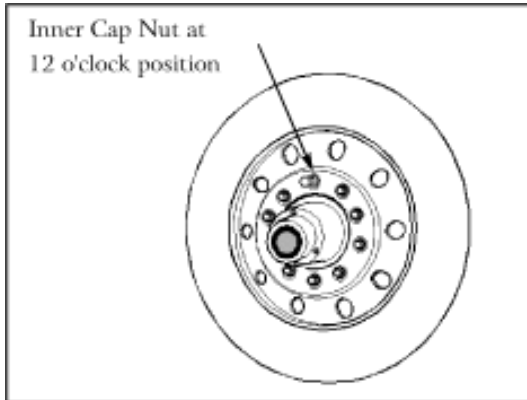
Rotating the Wheel Pilot to 12 O'Clock  
FIGURE 40



## REINSTALLATION

3 . Beginning in the 12 o'clock position, install the inner cap nuts by hand to ensure they are not cross-threaded. Do not tighten any nuts at this time.

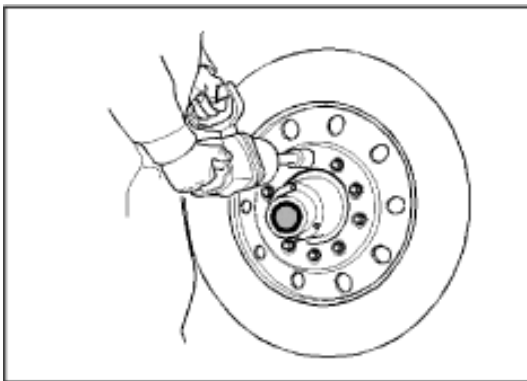
4 . Apply sufficient torque (about 50 Ft.•Lbs.) to the inner top cap nut to draw the brake drum up on the drum pilot and against the hub and seat the ball seat of the nut into the ball socket of the wheel (see figure 41).



Tightening the Inner Cap Nuts  
FIGURE 41

5 . To properly center the wheel, lightly tighten the remaining wheel nuts. Verify the drum is in place over the drum pilots.

6 . Starting with the top nut first and using a staggered pattern, torque the inner wheel nuts in stages to 450-500 Ft•Lbs. (see figure 42). The last nut rotation must be with a calibrated torque device.

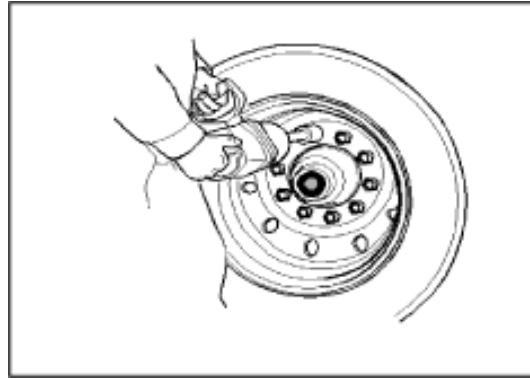


Torquing the Inner Wheel Nuts  
FIGURE 42

### NOTE

Use the appropriate nuts with the above technique to install the front and outer dual wheels. Follow your shop practice to locate the valve stems.

7 . Install the outer wheel and nuts and tighten to 450-500 Ft.•Lbs. (see figure 43). The last nut rotation must be with a calibrated torque device.



Torquing the Outer Wheel Nuts  
FIGURE 43

8 . Inspect the brake and wheel installation by checking the seating of the wheel(s) and drum at the pilots and by turning the wheel(s) and check for any irregularity.

### DANGER

Excessive or inadequate wheel nut torque can result in a failure of the wheel mounting system. After the first 50-100 miles, retorque all the nuts to 450-500 Ft. • Lbs. Always remove the load from the wheels by jacking the truck or trailer up when retorquing. Loosen the outer nuts to retorque the inner nuts.

# SPECIFICATIONS

Service Parts List  
TABLE 5

**NOTE: BEARING CUPS & CONES MUST BE REPLACED AS A SET !!!**

| FF Front Steer Axle |   |
|---------------------|---|
| ConMet PART NUMBER  | DESCRIPTION                               |
| 107500 Bearing Set  | NP026773 Inner Cup<br>NP899357 Inner Cone |
| 107501 Bearing Set  | NP435398 Outer Cup<br>NP874005 Outer Cone |
| 103592              | PreSet Spacer                             |
| 10005430            | PreSet Oil Seal / CR 35058                |
| 10005434            | PreSet Rebuild Kit (CR Seal)*             |
| 107551              | PreSet Oil Seal / Outrunner 847           |
| 107545              | PreSet Rebuild Kit (Outrunner Seal)*      |

| TN Trailer Axle    |   |
|--------------------|---|
| ConMet PART NUMBER | DESCRIPTION                               |
| 107504 Bearing Set | NP503727 Inner Cup<br>NP965350 Inner Cone |
| 107500 Bearing Set | NP026773 Outer Cup<br>NP899357 Outer Cone |
| 104144             | PreSet Spacer                             |
| 10005432           | PreSet Oil Seal / CR 46300                |
| 10005436           | PreSet Rebuild Kit (CR Seal)*             |
| 107553             | PreSet Oil Seal / Outrunner 859           |
| 107548             | PreSet Rebuild Kit (Outrunner Seal)*      |

| R - Series Drive Axle |   |
|-----------------------|---|
| ConMet PART NUMBER    | DESCRIPTION                               |
| 107502 Bearing Set    | NP363298 Inner Cup<br>NP034946 Inner Cone |
| 107503 Bearing Set    | NP053874 Outer Cup<br>NP840302 Outer Cone |
| 103593                | PreSet Spacer                             |
| 10005431              | PreSet Oil Seal / CR 47692                |
| 10005435              | PreSet Rebuild Kit (CR Seal)*             |
| 107552                | PreSet Oil Seal / Outrunner 861           |
| 107546                | PreSet Rebuild Kit (Outrunner Seal)*      |

| TP Trailer Axle    |   |
|--------------------|---|
| ConMet PART NUMBER | DESCRIPTION                               |
| 107506 Bearing Set | NP593561 Inner Cup<br>NP174964 Inner Cone |
| 107506 Bearing Set | NP593561 Outer Cup<br>NP174964 Outer Cone |
| 104412             | PreSet Spacer                             |
| 10005433           | PreSet Oil Seal / CR 42627                |
| 10005437           | PreSet Rebuild Kit (CR Seal)*             |
| 107554             | PreSet Oil Seal / Outrunner 851           |
| 107550             | PreSet Rebuild Kit (Outrunner Seal)*      |

**\*Note: PreSet rebuild kits include all bearing cups & cones, spacer and oil seal.**

## Assembly Aids Kit (Part No. 107508)

TABLE 6

| Part No. | Description                                       | Qty. |
|----------|---|------|
| 107526   | Cup Pusher Trailer TN Inner NP503727              | 1    |
| 107527   | Cup Pusher Trailer TN Outer Steer Inner, NP026773 | 1    |
| 107528   | Cup Pusher Steer Outer, NP435398                  | 1    |

| Part No. | Description                                   | Qty. |
|----------|---|------|
| 107529   | Cup Pusher Trailer TP Inner or Outer NP593561 | 1    |
| 107530   | Cup Pusher Drive Inner, NP363298              | 1    |
| 107531   | Cup Pusher Drive Outer, NP053874              | 1    |

## Disassembly Aids Kit (Part No. 107532)

TABLE 7

| Part No. | Description                            | Qty. |
|----------|--|------|
| 107533   | Cup Knockout Trailer TN Inner NP503727 | 1    |
| 107534   | Cup Knockout Trailer TN Outer NP026773 | 1    |
| 107535   | Cup Knockout Steer Outer NP435398      | 1    |
| 107536   | Cup Knockout Steer Inner NP026773      | 1    |

| Part No. | Description  | Qty. |
|----------|--|------|
| 107537   | Cup Knockout Drive Inner NP363298                  | 1    |
| 107538   | Cup Knockout Drive Outer NP053874                  | 1    |
| 107539   | Cup Knockout Trailer TP (Inner or Outer), NP593561 | 1    |

# SPECIFICATIONS

Wheel End Torque Specifications  
TABLE 8

| Item  | Measurement                     | Torque                  | Notes  |
|---|---------------------------------|-------------------------|--|
| Ball Seat<br>Wheel Nut                          | 3/4-16                          | 450-500                 | Always tighten the top nut first. If lubricant is used, apply sparingly on threads only. Do not lubricate the faces of the hub, drum, wheel, or on the ball seats of the wheel nuts                                |
| Hub Pilot<br>Wheel Nut                          | 22mm x 1.5 mm                   | 450-500                 | Always tighten the top nut first. Apply two drops of oil between the nut and nut flange, and two or three drops to the outermost 2 or 3 threads of the wheel studs. Lightly lubricate the wheel pilots on the hub. |
| Drive Studs<br>Drive Studs<br>Drive Studs       | 3/4-16<br>5/8-18                | 40-60<br>40-60          | Consult manufacturer's instructions for drive axle shaft installation for all drive studs  |
| Hub Cap   | 5/16-18                         | 12-18                   | Minimum SAE Grade 5 fasteners, flat washers only   |
| Oil Fill Plug<br>Oil Fill Plug<br>Oil Fill Plug | 1/4 NPT<br>3/8 NPT<br>9/16 - 18 | 20-25<br>20-25<br>20-25 | -<br>-<br>O-Ring Style.  |
| Disc Brake Rotor                                |                                 |                         | See brake manufacturer.  |



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