



THE FAYETTE MANUFACTURING COMPANY

Fayette, Ohio 43521 A Division of The Dayton Steel Foundry Company

ENGINEERING LETTER

RECOMMENDED PRACTICES FOR LUBRICATING AND ADJUSTING WHEEL BEARINGS

1. LUBRICATION - WHY?

Proper lubrication is essential to all types of bearing applications. The kind of lubricant used is governed by the design and operating conditions. The function of lubricants act mainly to:

- a. Reduce friction between moving parts
- b. Carry away heat
- c. Protect bearing surfaces from corrosion
- d. Aid the seal in keeping lubricant in its place and keeping foreign matter out of the bearings.

Bearings will run the coolest and with the least friction when a minimum amount of the lightest-bodied lubricant that will keep bearing surfaces apart is used. Heat in bearings is due to a number of causes such as (a) too much lubricant, (b) too heavy lubricant, (c) too tight adjustment.

We probably will always have with us the man who says, "If a little is good, a lot is better." This is as great a fallacy in bearing lubrication as it is in medicine or anything else. If too much or too heavy a lubricant is used there is bound to be an increase in temperature when the wheel starts to rotate, usually followed by leakage. An attempt to stop this by tightening the adjusting nut will increase the friction, thus still aggravating the condition until in extreme cases the bearing fails.

We know that our bearings have to function under high temperatures due to the electric brake heat, so we have chosen lubricants of such a character that they will return to their original consistency when the bearing cools, with practically no oil separation. We use and recommend the following grease or its equivalent:

SHELL DARINA EP2 or SUNOCO PRESTIGE 742 EP

2. LUBRICATION - WHEN?

Fayette Manufacturing Company recommends that wheel bearings be inspected and repacked every 20,000 miles or at the start of every vacation season. A trailer sitting idle for a few months will collect some moisture in the hubs due to the atmospheric conditions and this is the reason for inspecting and repacking bearings at this time.

3. LUBRICATION - HOW?

The relubrication of wheel bearings is possibly the most important service performed to the running gear. The two most important phases of this operation is cleanliness and proper adjustment.

Before dis-assembly of the hub, check wheel play and freedom of rotation. Extreme or excess wheel play indicates too loose adjustment or a defective bearing. Too much drag in rotation of the hub could indicate tightness in bearing adjustment or a brake being adjusted too tight.

To begin dis-assembly, remove the dust cap. Next remove the cotter pin, spindle nut, and washer. Jiggle the hub slightly

to loosen the outer bearing. Usually the outer bearing will loosen up enough to be removed by hand. Pull the entire hub which contains the inner bearing and grease seal. Remove the inner bearing and grease seal by placing a brass drift or piece of wood through the small end of the hub and tapping gently until the bearing and seal is loose. Wipe all dirt and grease from the inside of the hub and the spindle.

Used bearings must be cleaned prior to relubrication. Various solvents are effective for degreasing; successful processes employ kerosene, distillates, and chlorinated hydrocarbons. The solvent action of kerosene is limited but it has the advantage of leaving a rust-inhibitive film on the bearing. After cleaning, bearings should be allowed to drain free of solvent which might dilute lubricants. Do not immerse the grease seal in any solvents, but wipe clean with a cloth.

Inspect carefully cups (races) and cones (bearings) for pitting, scratches, excessive wear, or other damage. If either cup or cone are worn, replace the entire assembly, in other words, do not replace a bearing unless you also replace its mating cup.

If at all possible use a bearing packer to repack the cones. If this is not available the bearings can be lubricated by hand if the grease is pressed into and around each and every roller. Additional grease within the hub is not required. Install the inner bearing in the hub and replace grease seal by tapping gently with a wooden block making sure the seal is installed as it was before dis-assembly. Replace hub on spindle taking care not to damage threads or grease seal. Replace outer bearing, washer, and spindle nut. Slowly rotate the hub in one direction or the other while tightening the spindle nut (max. 50 ft. lbs. torque) or until there is a slight bind to be sure that all bearing surfaces are in contact. At this point the adjusting nut is backed off 1/6 to 1/4 turn, or to the nearest locking hole or castellation. This will allow the wheel to rotate freely without excessive end play. The total amount of internal running clearance between the roller and the raceways of the bearings should be within $\frac{1}{16}$ to $\frac{1}{8}$ thousandths the recommended limits. This can only be measured accurately with the use of special instruments, but by simply pushing inward and pulling outward on the hub several times a person should feel a very slight end play. If the bearings are too tight or too loose they will fail prematurely. Install cotter pin, bend to locked position and drive on grease cap.

We wish to stress the point, that the bearings used in the hubs of the TRAVEL TRAILERS of today, are subjected to higher speeds and heavier loads than a few years ago. And for that reason they must be Lubricated And Adjusted more accurately than before. We feel certain that maximum bearing life and performance will be consistently obtained, if the methods of lubrication and adjustment we have described are followed.

FAYETTE MANUFACTURING COMPANY

A. D. FOSTER, Chief Engineer

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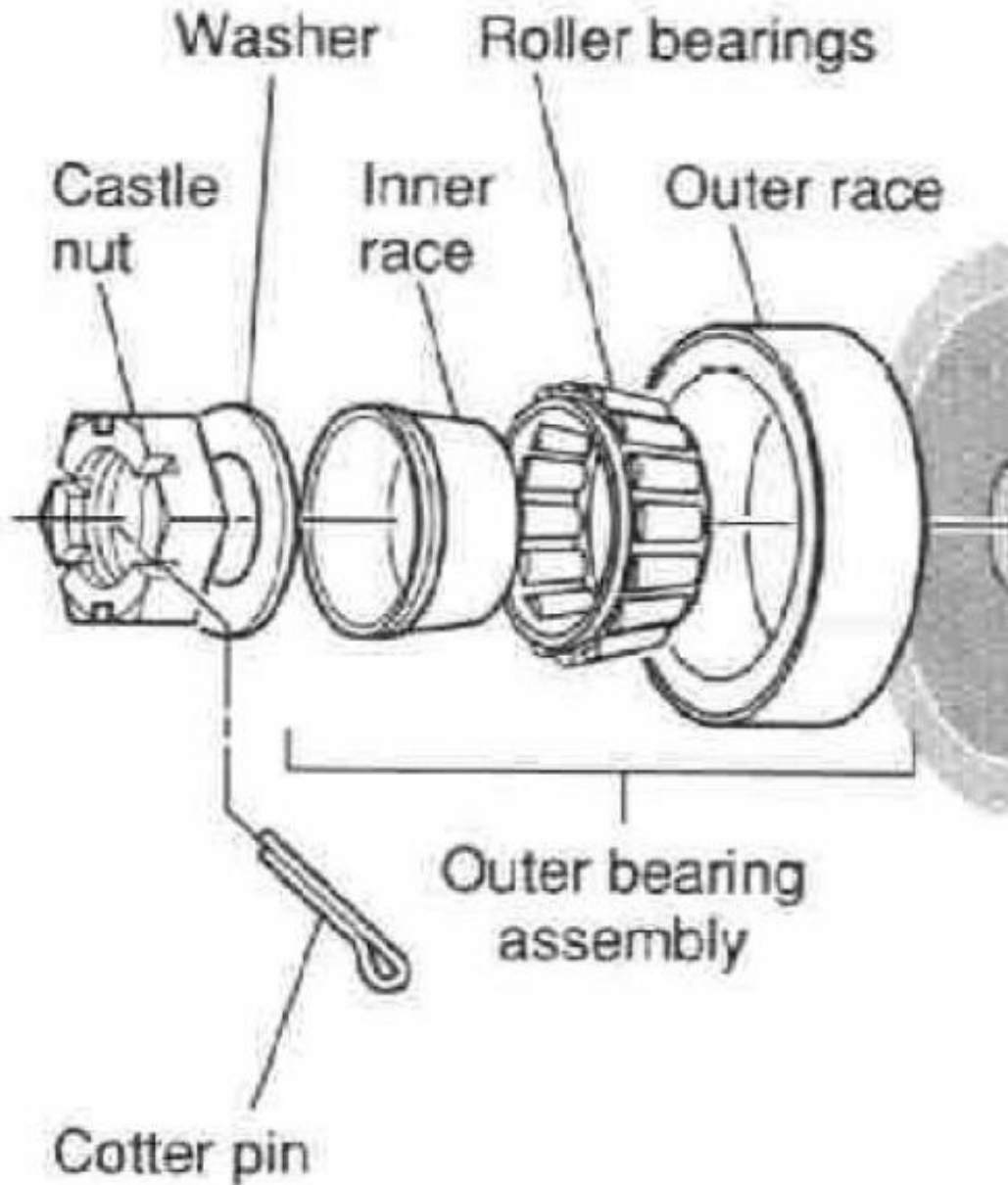
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Bearing Service

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Servicing Wheel Bearings



Step by step instructions

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Safe jacking

1. Park the trailer on firm and level ground.
2. Block the trailer tires on the opposite side securely so that no forward or rearward movement is possible.
3. Jack up the trailer following the manufacturers instructions.
4. Secure the trailer on jack stands of adequate capacity front and rear.

Removing the wheel and hub

1. Undo the wheel nuts and remove the wheel
2. Pry off the dust cap using a flat bladed screwdriver
3. Straighten out the cotter pin that holds the bearing nut and remove it
4. Remove the bearing nut and washer
5. Gently pull the brake drum forward while cupping the hub opening with your hand to keep the front bearing from falling to the ground. The outer race stays in the drum, while the inner race and roller bearings come out as an assembled unit.
6. Place the front bearing, bearing nut and the bearing washer in a clean container

Removing the grease seal and rear bearing

1. Place the brake drum face down so that the back of the drum is accessible
2. Pry out the grease seal. This will be replaced in a further step.
3. Lift out the rear bearing and place it in the container with the rest of the parts
4. Don't mix up the bearings if you are doing more than one wheel at a time - each bearing must mate with its original race (no prejudice intended). The bearings wear in by a certain amount and need to be matched with their respective counterparts.

Inspection

1. Thoroughly clean the bearings and other parts in a solvent (not gasoline!) until all the old grease is removed. Set the aside to dry completely or blow dry with compressed air. Don't use the air pressure to spin the bearing, as damage could result to the bearing or to your person!
2. Clean the hub and spindle.
3. Inspect the bearing races for heat discoloration, pitting, scoring and any unevenness.
4. Inspect the bearing for damage as above. Any out of round rollers, cracked roller cages and rough running will indicate replacement is required.
5. The bearing and both inner and outer races must be replaced as a set.
6. Inspect the brake drum for pitting and excessive wear especially if the brake shoes were allowed to wear down to bare metal.

7. Inspect the brake magnet surface for excessive or uneven wear.
8. If the brake drum and magnet have been saturated with grease from a failed seal, replace the shoes and magnet, and have the drum turned or machined to renew the surfaces.

Hand packing the bearings

1. Place a walnut sized gob of wheel bearing grease in one palm.
2. Grasp the bearing with the other hand so that the wider end is facing the grease.
3. What you want to do is force the grease into the gap between the inner race and the outer cage so that it squeezes up through the rollers and out the top.
4. Press the bearing down into the grease in a rocking motion and continue until the grease oozes up.
5. Rotate the bearing 1/4 turn, at a time, and continue until the bearing is completely filled with grease.

Reassembly

1. Put some grease into the interior of the hub with your fingers. A walnut sized amount is sufficient. Spread it around the circumference of the hub.
2. Place the inner packed bearing into it's place in the hub.
3. Place a new seal on the hub and tap it into place with a hammer until it seats fully.
4. Be sure to wipe off any grease that finds it's way onto the outer flat surface of seal.
5. Replace the drum onto the axle spindle, insert the outer bearing, thrust washer and axle nut.

Preloading the bearings

1. Tighten the axle nut by hand until it is tight. Tighten another 1/4 turn with pliers or wrench.
2. Spin the drum several times to distribute the grease evenly in the bearings.
3. Back off the nut with the pliers or wrench, until loose and then retighten finger tight.
4. Insert a new cotter pin to lock the nut in place and bend it over the spindle.
5. Re-install the dust cap, wheel and tire, and hubcap.
6. Now is a very good time to adjust the brakes. See the [brake adjusting](#) page for more info.
7. Wash hands vigorously for 15 minutes!

Replacing the bearings

The bearing must be replaced with a complete new bearing with the inner and outer races.

1. The inner races are pressed into place in the hub and must be driven out.
2. Use a brass punch to catch the edge of the race by passing it through the inverted hub. A few good whacks with a hammer should drive out the old race.
3. Place the new race into position and tap it in with the hammer and punch. Take care not to mar the surface of the race.
4. [Pack](#), [reassemble](#), and [preload](#) the bearings.