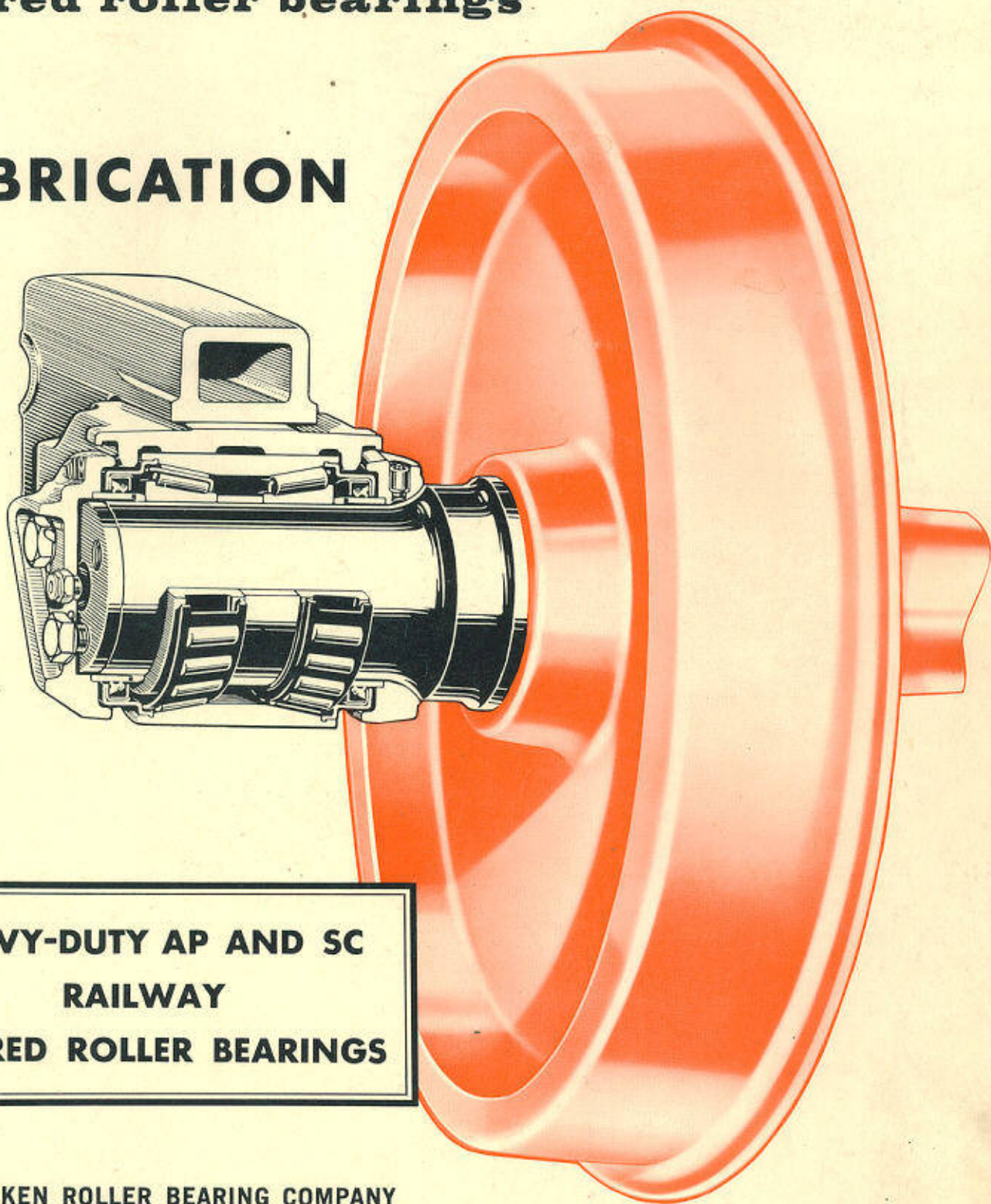


# **TIMKEN®**

REGISTERED TRADE-MARK

**tapered roller bearings**

## **LUBRICATION**



**HEAVY-DUTY AP AND SC  
RAILWAY  
TAPERED ROLLER BEARINGS**

**THE TIMKEN ROLLER BEARING COMPANY  
RAILROAD DIVISION  
CANTON, OHIO 44706**

**A-26863**

PRELIMINARY

August 16, 1965

## FOREWORD

This instruction book represents the recommendations of The Timken Roller Bearing Company. It is a guide to the proper care and procedure that should be followed for the lubrication of Timken roller bearings as applied to railway equipment.

A Timken tapered roller bearing correctly applied and properly lubricated will give reliable, trouble-free service.

The periodic attention recommended should be scheduled for convenience, with other phases of equipment maintenance.

## INITIAL LUBRICATION

Timken "AP" and "SC" roller bearings are prelubricated at the factory with the proper quantity of lubricant. No additional lubricant is to be added when the bearing is applied to the axle.

It may be desirable to add additional lubricant to bearing assemblies operating in some types of industrial or specialized equipment. A Timken Company representative should be consulted for recommendations.

# PERIODIC LUBRICATION

## General

Equipment operating under the jurisdiction of the Association of American Railroads (AAR) should be lubricated in accordance with Interchange Rule 66-A or P.C. Rule 7.

Equipment operating under the jurisdiction of a governing organization, association, or committee should be lubricated in accordance with the rules of the governing organization, association, or committee of the country in which the equipment is operating.

Equipment not operating under the jurisdiction of a governing organization, association, or committee should be lubricated in accordance with Timken Company recommendations.

Hand pumps or power pumps are satisfactory for adding grease at the lubrication interval. High ratio power pumps which would result in damage to metering devices and high pressures within the bearing should not be used.

Displacement type metering devices should be used to insure that the quantity of grease dispensed is accurately metered.

The delivery nozzle or coupling must be kept clean to prevent the possibility of pumping foreign material into the bearing with the grease.

The recommended quantity of grease to be added to each bearing assembly should not be exceeded. Overlubrication will cause the bearing running temperature to increase. This increased running temperature along with the increased churning action will result in thinning and leakage of the grease. Also, the increased churning will aerate the grease which in turn promotes oxidation.

Equipment operating in the USA is stenciled with the date of lubrication (month, day, and year), the symbol "Lub", and the railroad reporting mark on the car body at diagonal corners in figures and letters 1" high in accordance with AAR Interchange Rules. Bearing lubrication should be recorded in a similar manner in accordance with the rules of the country in which the equipment is operating.

Bearing relubrication should coincide with some other equipment maintenance requirement.

When bearings are removed from the axle for applying new wheels the bearing should be disassembled, cleaned, inspected, and relubricated in accordance with instructions.



## PERIODIC LUBRICATION

### FREIGHT CAR APPLICATIONS

Cars in freight train service equipped with Timken AP roller bearings not operating under the jurisdiction of the AAR or similar governing association should be lubricated in accordance with the following Timken Company recommendations:

The bearings should be lubricated after 48 months (4 years) and when wheels are turned.

The amount of grease to be added to each bearing assembly is shown in Table 1.

### PASSENGER CAR APPLICATIONS

Cars in passenger train service not operating under the jurisdiction of the AAR or similar governing association should be lubricated in accordance with the following Timken Company recommendations:

Add the quantity of grease specified in Table 1 at one-year intervals and at wheel turning.

### INDUSTRIAL AND SPECIAL SERVICE EQUIPMENT

Grease should be added to bearing assemblies that were completely filled with grease at initial lubrication until grease exudes from the vent fitting in the backing ring.

The lubrication pump should be stopped immediately when grease appears at the vent fitting to prevent excessive pressure within the bearing.

The specific interval for adding grease to these bearing assemblies will vary according to type of service. A Timken Company service representative should be consulted.

## PERIODIC LUBRICATION

### Diesel and Electric Locomotives in Main Line and Light Road Service

The amount of grease specified in Table 1 should be added to each bearing assembly as near to each 125,000 miles of operation as practical.

The relubrication should be performed at some convenient shopping which occurs nearest to 125,000 miles of operation, such as wheel truing, annual or semiannual inspection.

Additional grease need not be applied to the bearings if the wheels are to be renewed prior to a 125,000 mile operation interval.

### Diesel and Electric Locomotives in Industrial and Other-Than-Main Line Service

The amount of grease specified in Table 1 should be added to each bearing assembly as near to each 20,000 hours or four years of operation as practical, whichever occurs first.

The relubrication should be performed at some convenient shopping such as at wheel truing, annual or semiannual inspection.

Additional grease need not be applied to the bearings if the wheels are to be renewed prior to the 20,000 hours of operation interval.

Bearing Class and Size	Ounces of Grease
B (4-1/4" x 8")	6
C (5" x 9")	6
D (5-1/2" x 10")	6
E (6" x 11")	8
F (6-1/2" x 12")	12
EE	16
G	16
GG	16

Table 1.

Actual service conditions and the type of grease used may require modification of the above recommendations.

## PERIODIC LUBRICATION

Bearings may be equipped with either lubricant fittings or countersunk pipe plugs in the axle end caps as original equipment.

The fitting or plug may be located other than in the center of the end cap for adding lubricant at the periodic intervals recommended.

It may be necessary to remove control device adapters for access to the fitting or plug to add grease to the roller bearings.

### Adding Lubricant

When adding lubricant to standard Timken roller bearings, the grease should be applied through the lubrication hole which is fitted with a lubricant fitting or countersunk pipe plug.

Wipe the lubricant fitting or area around the pipe plug clean to prevent dirt or moisture from entering the bearing with the lubricant.

Remove the pipe plug if used and apply a giant button-head lubricant fitting as shown in Figure 2.

Couple the lubricant hose to the lubricant fitting and apply the specified quantity of grease (Figure 3).

A tapered or serrated synthetic rubber nozzle may be used for applying grease through the pipe plug hole, as shown in Figure 4, at the periodic lubrication interval, instead of a lubricant fitting.

After the specified quantity of grease has been added, reapply and tighten the pipe plug to the torque shown in Table 2.

Size	Torque in Foot-Pounds
Pipe Plugs and Lubricant Fittings	
1/8" - 27 NPT	10-15
1/4" - 18 NPT	20-30
3/8" - 18 NPT	30-40
1/2" - 14 NPT	40-50
Plugs	
1-1/2" - 18 NEF	110-135
1-3/4" - 16 NEF	125-150
2-7/8" - 16 N	250-375

Table 2. Pipe Plug Tightening Torque

## PERIODIC LUBRICATION

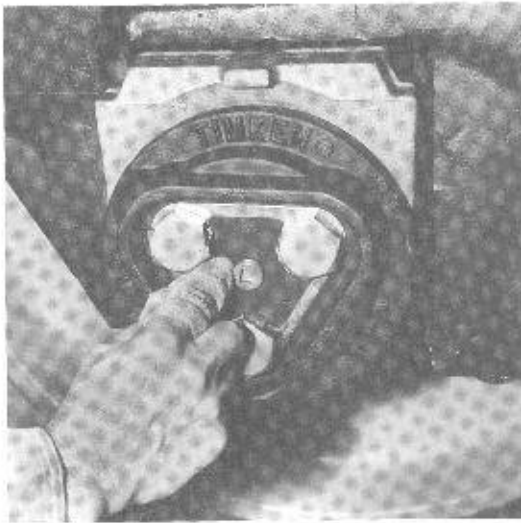


Figure 1

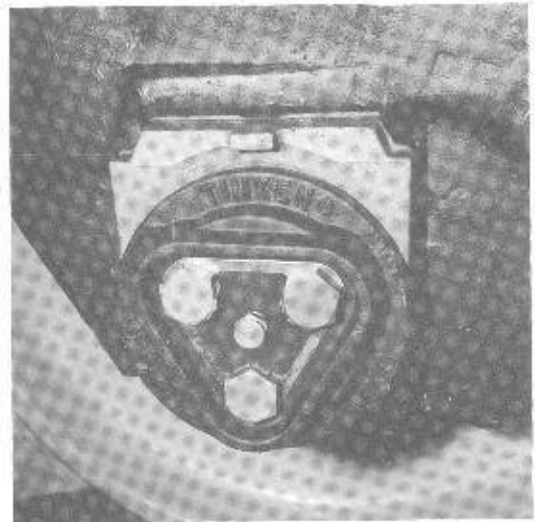


Figure 2

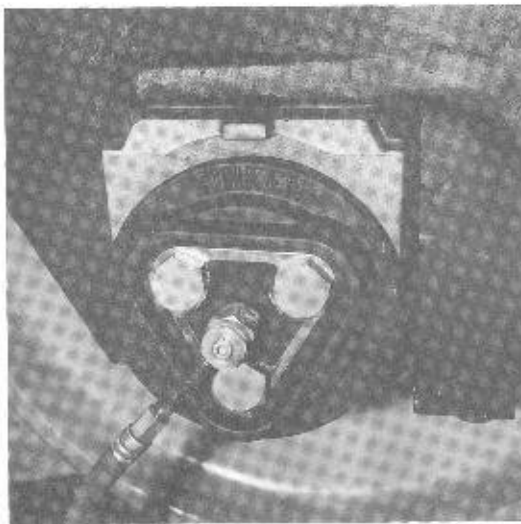


Figure 3



Figure 4



# BEARING REASSEMBLY

## Lubrication

Roller bearing assemblies that have been disassembled and cleaned must be lubricated before being reassembled.

When applying grease to roller bearings, every possible precaution must be taken to prevent contaminants from getting into the lubricant.

The grease should be kept covered and in the containers in which it is shipped. Pumping devices equipped with adapter covers to fit the containers in which the grease is shipped should be used for roller bearing lubrication to prevent contamination with dirt or moisture.

The grease containers must be stored away from heat and the grease must not be heated to facilitate application. If the grease is heated, separation of the oil from the soap in the grease will result.

Each of the two cone assemblies must be lubricated with the amount of grease shown in Table 3.

A greasing fixture, similar to that shown in Figure 5, should be used to pack the cone and roller assembly with grease.

A cone assembly properly packed with grease is shown in Figure 6.

The amount of grease shown in column two of Table 3 should be spread evenly around the cone spacer before the second cone assembly is placed in the bearing cup (Figure 7).

A suggested arrangement of typical equipment necessary for proper bearing lubrication is shown in Figure 8.

The roller bearing assemblies CANNOT BE LUBRICATED PROPERLY by applying the initial charge of grease through the lubrication hole in the axle end cap after the bearing has been applied to the axle. This lubrication hole is to be used only when grease is to be added to the roller bearing assembly as follows:

1. At the lubrication intervals specified in the "Periodic Lubrication Instructions".
2. On special applications where an additional quantity of grease is specified for completely filling the bearing assembly at initial lubrication.

# BEARING REASSEMBLY

Bearing Class and Size	Ounces of Grease			Total Quantity
	1st Cone Assembly	Around Cone Spacer	2nd Cone Assembly	
B (4-1/4" x 8")	2	4	2	8
C (5" x 9")	3	6	3	12
D (5-1/2" x 10")	4	8	4	16
E (6" x 11")	4-1/2	9	4-1/2	18
F (6-1/2" x 12")	8	8	8	24
EE	9	9	9	27
G	9	9	9	27
GG	12	12	12	36

Table 3. Amount of Grease to be Applied to Each Roller Bearing at Assembly

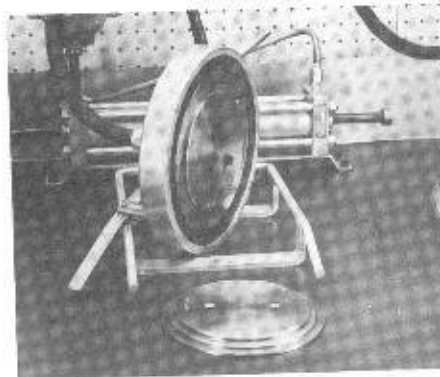


Figure 5

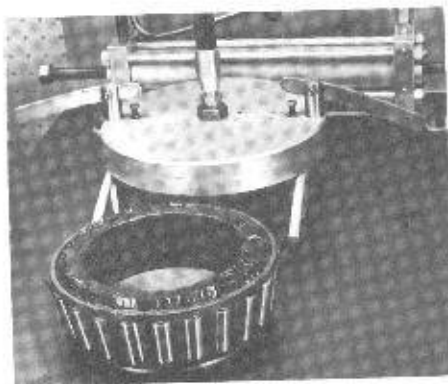


Figure 6



Figure 7

## BEARING REASSEMBLY

### LUBRICATING EQUIPMENT

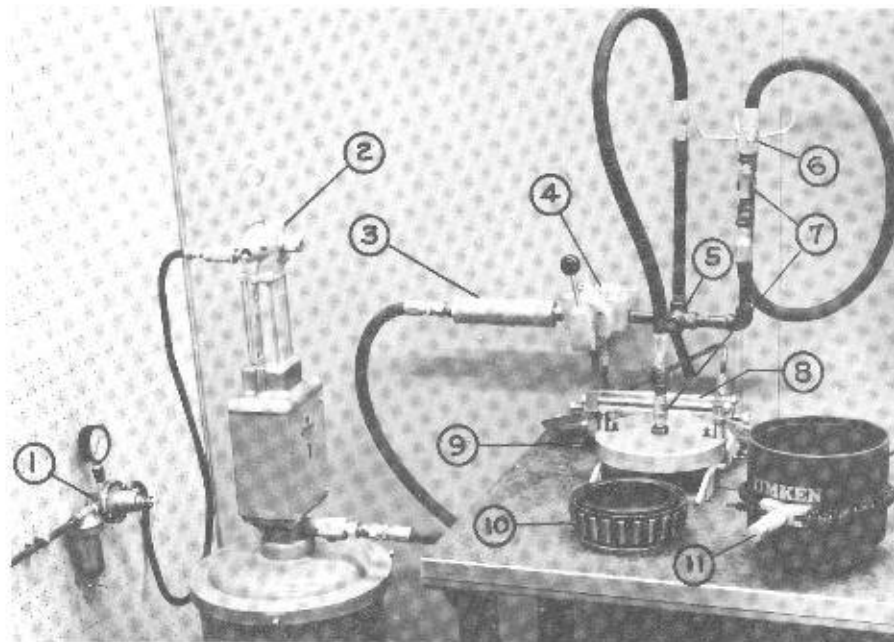


Figure 8. Greasing Equipment Arrangement

1. Air Filter and Regulator
2. Grease Pump - Air Operated - For 120-Pound Drum
3. Grease Filter
4. 4-Way Valve
5. 3-Way Cock Valve
6. Spider Lubricator
7. Ball Check and Swivel
8. Displacement Measuring Cylinder
9. Cone Assembly Greasing Fixture on Greasing Fixture Stand
10. Cone Step Plate with Cone Assembly in Position for Applying Grease.
11. Bearing Handling Device