



ELECTRO-MOTIVE

SUPPLEMENT TO TRACTION MOTOR ROLLER SUPPORT BEARING M.I. 3912

The intent of this supplement is to provide tooling detail not shown in M.I. 3912. In those cases where railroad customers wish to undertake "first time" Roller Support Bearing Teardown, Inspection & Assembly procedures, special tooling is required to perform this work correctly and safely.

Reference will be made to the Maintenance Instruction text and illustrations and where required, additional comments, photographs and drawing numbers will be provided in this supplement.

M.I. 3912, Page 1, Figure 1

The stands that are shown in this photograph supporting the axle assembly can be manufactured from Drawing File 944 - Support Frame for Axle Assembly. The important point of the support is that they are equipped with "soft" surfaces where they contact the axle, see Figure 1 of this supplement.

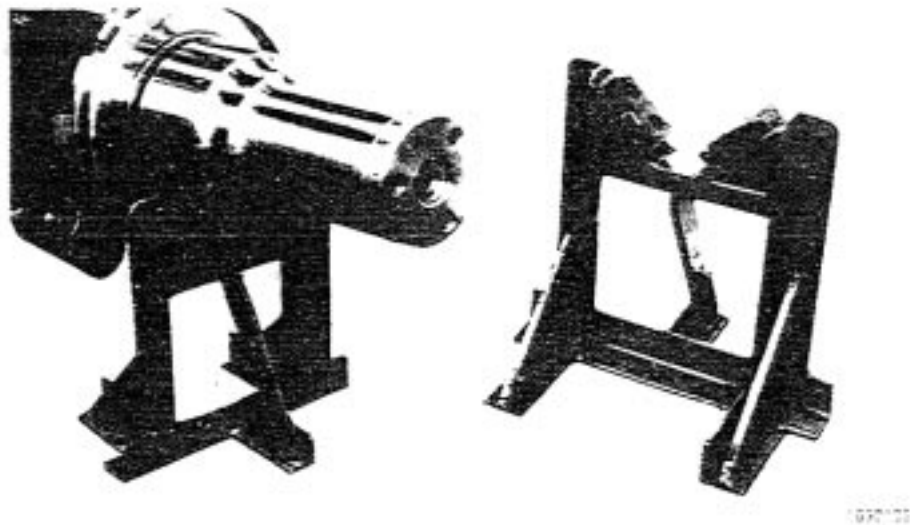


Figure 1 - Axle Assembly Support Frame with "Soft" Axle Contact Surfaces

M.I. 3912, Page 2 under: "Mount the axle gear on the axle as follows:"

Step 1 "Locate the centre of the axle in the same manner as described in M.I. 1518".

The tool used for this procedure is the Centre Line Gauge which can be made from Drawing File 957 and can be modified to suit any axle length.

Step 2 "...while locating the gear hub (19.031") from the centre of the axle".

Tooling for this procedure can be made from the following Drawings:

File 945 - Gear Hub to Axle Centre Line Locating Gauge (18.875" and 19.031")

File 945 - Details (same drawing #)

M.I. 3912, Page 3

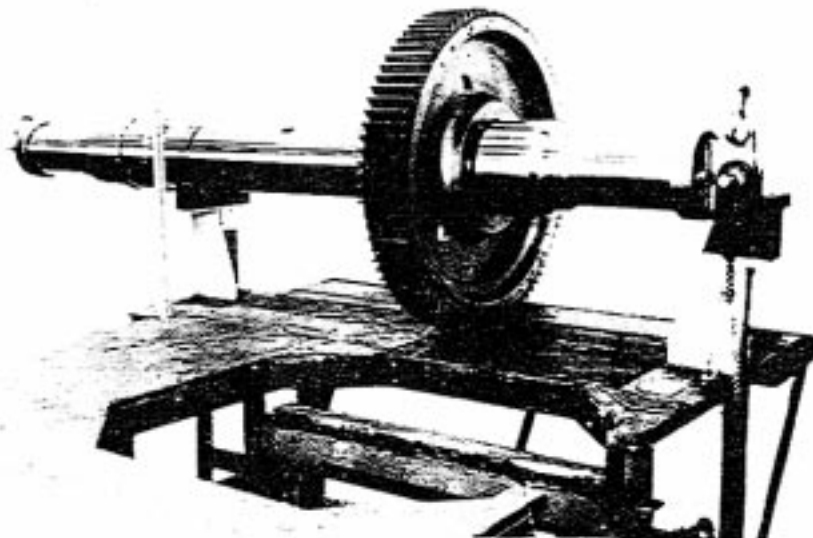
Reference is made to a platform in the second "NOTE" on Page 3 and is partially shown on Page 4, Figure 3 of M.I. 3912. This platform is shown with greater detail in Figures 2 and 3 of this supplement and can be built from the following Drawings:

File 946 - Assembly Stand for Bearing Housing to Axle and Gear (03/08/83)

File 946 - Assembly Stand for Bearing Housing to Axle and Gear (02/08/91)

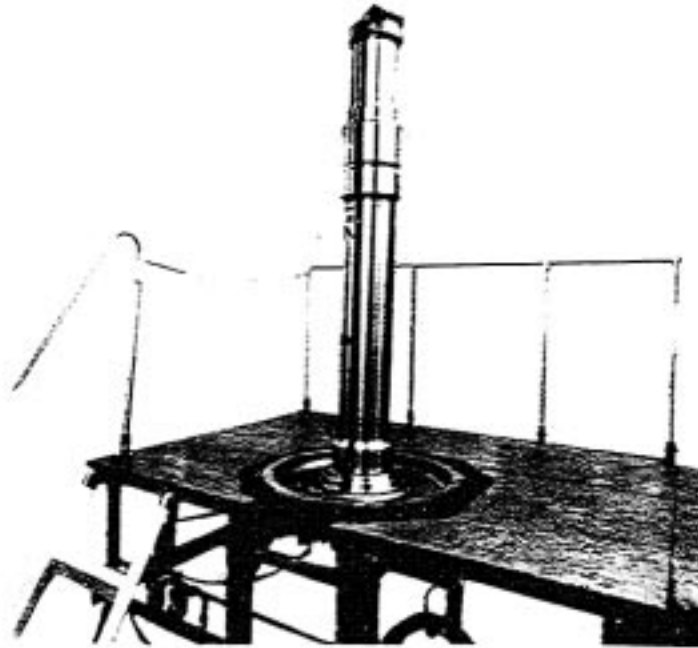
File 947 - Detail - PE and CE Lifting Lugs

File 948 - Bracket for Turning Bearing Housing



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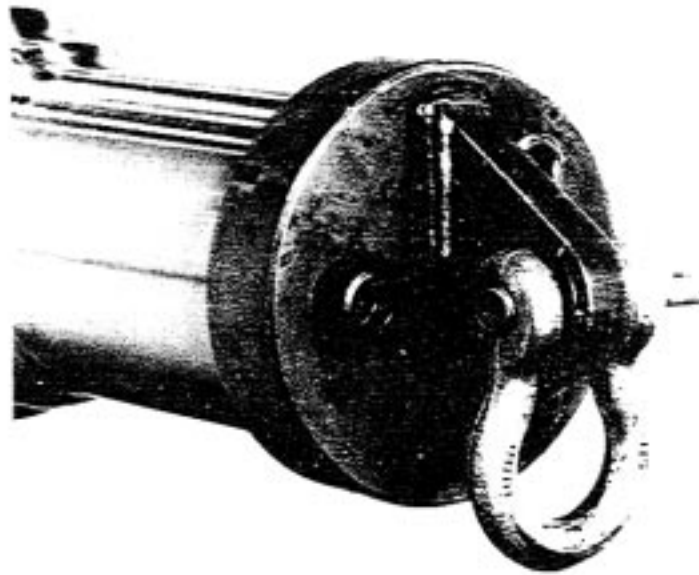
Figure 2 - Axle/Gear Assembly on Build-up Platform in Turning Device



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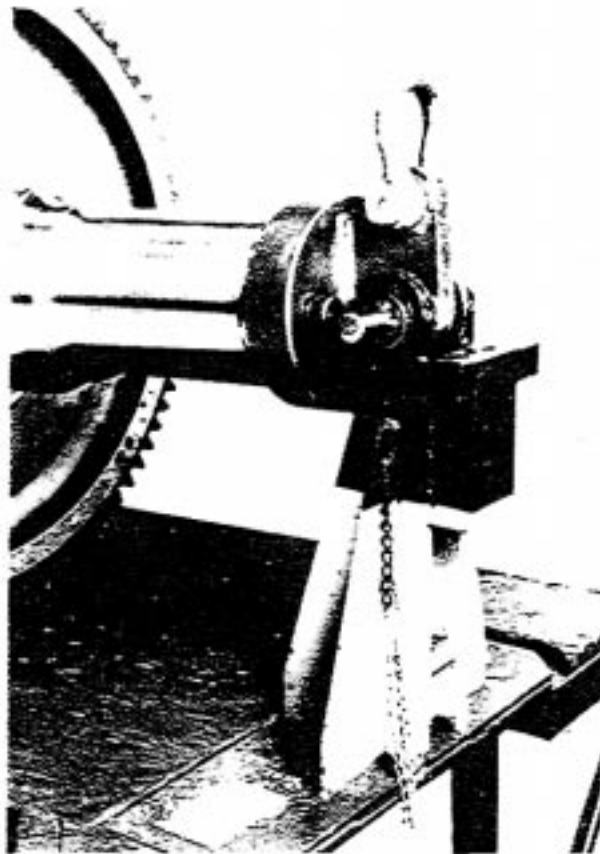
Figure 3 - Axle/Gear Assembly on Platform in Build-up (Vertical) Position

Figures 4 and 5 of this supplement show the lifting lugs for the CE and PE that are required to rotate the axle from horizontal to the vertical assembly position on the platform.



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Figure 4 - Commutator End Lifting Lug



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Figure 5 - Pinion End Lifting Lug and Turning Device shown with Hinge Pin in Place

M.I. 3912, Page 7

Step 6 "...Use a grease gun with a small tip..."

Figure 6, of this supplement, shows a plastic disposable tip installed on the grease gun fitting. A suitable locally available substitute can be used, the emphasis being on depositing clean grease between the rollers without metal contact with the grease gun.



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Figure 6 - Grease Gun Fitting with Plastic Tip Attached

M.I. 3912, Page 8

Step 8 "...seated firmly against the gear hub by driving it with a mild steel drift ..."

Figure 7, of this supplement, shows a drift that can be manufactured with Drawing File 949 - Drift to Seat Bearing.



1690111B

Figure 7 - Mild Steel Seating Drift

Step 12 Excess grease should be flushed and evenly displaced in the PE cavity utilizing the PE Grease Form Gauge that can be made from Drawing File 950 - Grease Form Gauges. See Figure 8 of this supplement.

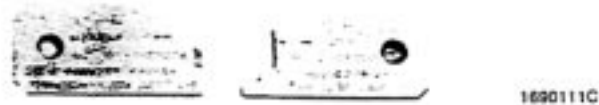


Figure 8 - Grease Form Gauges, Pinion End & Commutator End

Step 13 "Turn over bearing housing ..."
For those customers that have large numbers of axle assemblies to service, a turnover device can be built, samples of such devices are shown in Figures 9 and 10, of this supplement, and can be made from the following Drawings:

File 951 - Roll-Over Fixture for Axle Bearing Housing Assembly
File 951 - Adapter Plate.

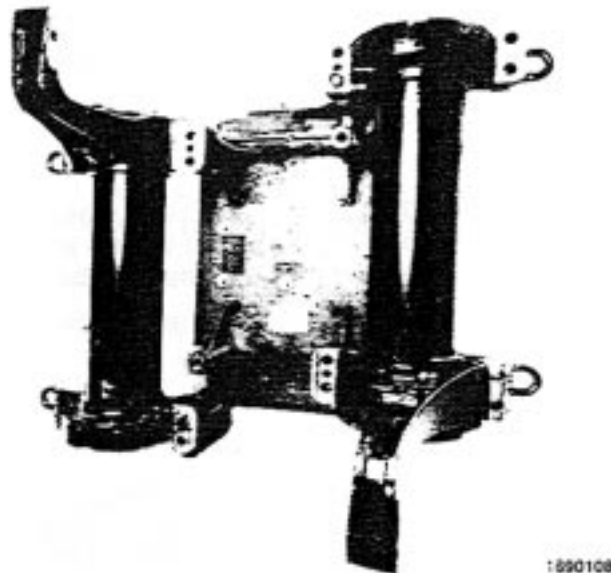


Figure 9 - Housing Turnover Device - Shown are Two (2) Housings Mounted on the Face Plate

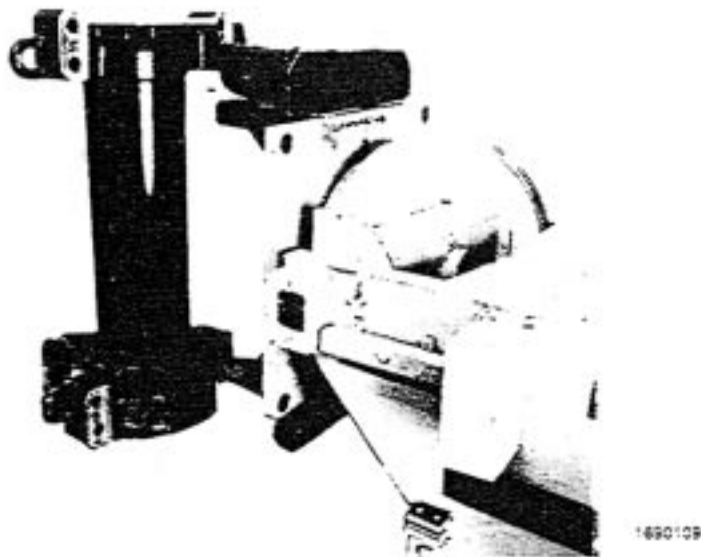


Figure 10 - Housing Turnover Device is Capable of Rotating the Housing Through Both the Vertical and the Horizontal Positions.

M.I. 3912, Page 10

Step 17 Excess grease should be flushed and evenly displaced in the CE cavity utilizing the CE Grease Form Gauge that can be made from Drawing File 950 - Grease Form Gauges. See also Figure 8 of this supplement.

Step 18 "Lift up the bearing housing..."

The lifting devices shown in M.I. 3912, Page 11, Step 18 picture, and also shown on Page 38, Figure 12, are the obsolete devices considered unsafe to use. Use two new lifting brackets shown in Figure 11, of this supplement, that can be made from Drawing File 952 - Axle Housing Lifting Device.

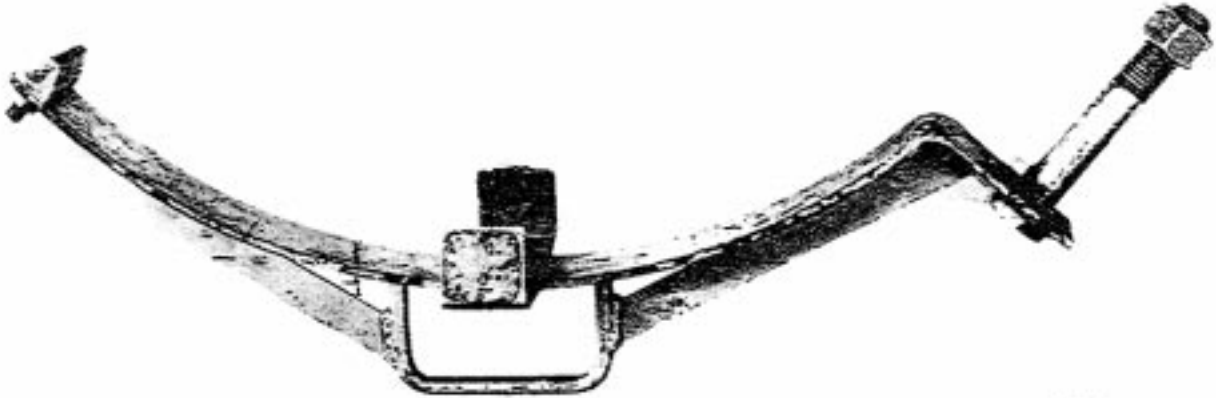


Figure 11 - Housing in Vertical Position with Lifting Brackets Attached (Two Brackets Required)

Step 3 "Engage the housing assembly with the motor...."

Alignment of the housing to motor, can be made easier by using two (2) Alignment Pins which can be made from Drawing File 953 - Alignment Pin.

During the assembly (or disassembly) of the wheel, axle and gear assembly to the traction motor frame, unintentional rotation of the bearing housing on the axle may occur because of the imbalance caused by the gear case support assembly, a Turning Restraint can be made from Drawing File 954 - Stop Device for Axle Bearing Housing Assembly shown in Figure 12 of this supplement.



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Figure 12 - Turning Restraint

This device bolts to the traction motor support arm while the opposite end engages between two (2) teeth of the axle gear, preventing the axle housing from rotating around the axle.

M.I. 3912, Page 20 under: "Procedure for disassembly..."

Step 3 "Attach two jacking pads..."

The Jacking Pads (two required) referenced with WS 45394 and shown on Page 21, Figure 7 can also be made from Drawing File 955 - Bearing Removal Tool-BTR Assembly.

Steps 11
and 12

Removal of PE and CE outer races from the axle housing.
An ultimate method for pulling these pieces than what is suggested in M.I. 3912 is to use the pullers designed specifically for this purpose which are shown in Figure 13 of this supplement and can be built from the following Drawings:

- File 956 - Puller for Bearing Outer Race Removal from axle bearing housing (sheet 2 of 2)
- File 956 - Fixture-Bearing Outer Race Removal (sheet 1 of 2)
- File 956 - Detail-Puller Plate for Bearing Removal (PE)



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Figure 13 - PE and CE Bearing Outer Race Puller