

CHAPTER 8

MAINTENANCE OF LAUNCHER TRANSPORT MODIFICATION KIT

Section I. General

140. Scope

This chapter contains maintenance information covering the launcher transport modification kit that is within the scope of field maintenance personnel. The scope of field maintenance is determined by the listing of field maintenance parts in TM 9-1440-250-35P/1 and the listing of special tools for field maintenance personnel in Department of the Army Supply Manual 9-4-4935-J29-4.

141. References

Organizational maintenance of the launcher transport modification kit is covered in TM 9-1440-250-20. A complete set of schematic diagrams is furnished in TM 9-1440-251-20 and wiring diagrams are provided in TM 9-1440-250-35. General maintenance procedures are given in chapter 4. Individual references to chapter 4 are not made within this chapter. It is therefore especially important that personnel become familiar with the contents of chapter 4.

Section II. MAINTENANCE OF LAUNCHER TRANSPORT MODIFICATION KIT ELECTRICAL SYSTEM

142. General

This section covers maintenance of the electrical system of the launcher transport modification kit and includes the stop light-taillight, lamp assembly, two clearance lamps, cable connections, and the launcher-to-prime mover cable assembly.

143. Stop Light-Taillight and Lamp Assembly

The stop light-taillight and lamp assembly (fig. 245) are stowed in the cavity at the front of the running gear. These taillights are installed on the right and left rear corners of the launcher base assembly when it is being transported on the running gear. Typical removal, disassembly, assembly, and installation procedures are described in *a* through *f* below:

a. Removal from Running Gear. Remove stop light-taillight or lamp assembly from cavity at front of running gear.

b. Removal from Launcher Base Assembly. Remove stop light-taillight or lamp assembly from launcher base assembly.

c. Disassembly.

- (1) Remove door group (Q2 or R2 fig. 246).
- (2) Remove marker light group (Q3 or R3, fig. 246).
- (3) Disassemble stop light-taillight or lamp assembly as required.
- (4) Disassemble door group (fig. 247).
- (5) Disassemble marker light group.

d. Assembly.

- (1) Assemble marker light group.
- (2) Assemble door group.
- (3) Assemble stop light-taillight or lamp assembly (fig. 246) and make required cable connections (fig. 248).

e. Installation on Launcher Base Assembly (fig. 245). Install stop light-taillight or lamp assembly on launcher base assembly and connect each cable to receptacle connector on launcher base assembly.

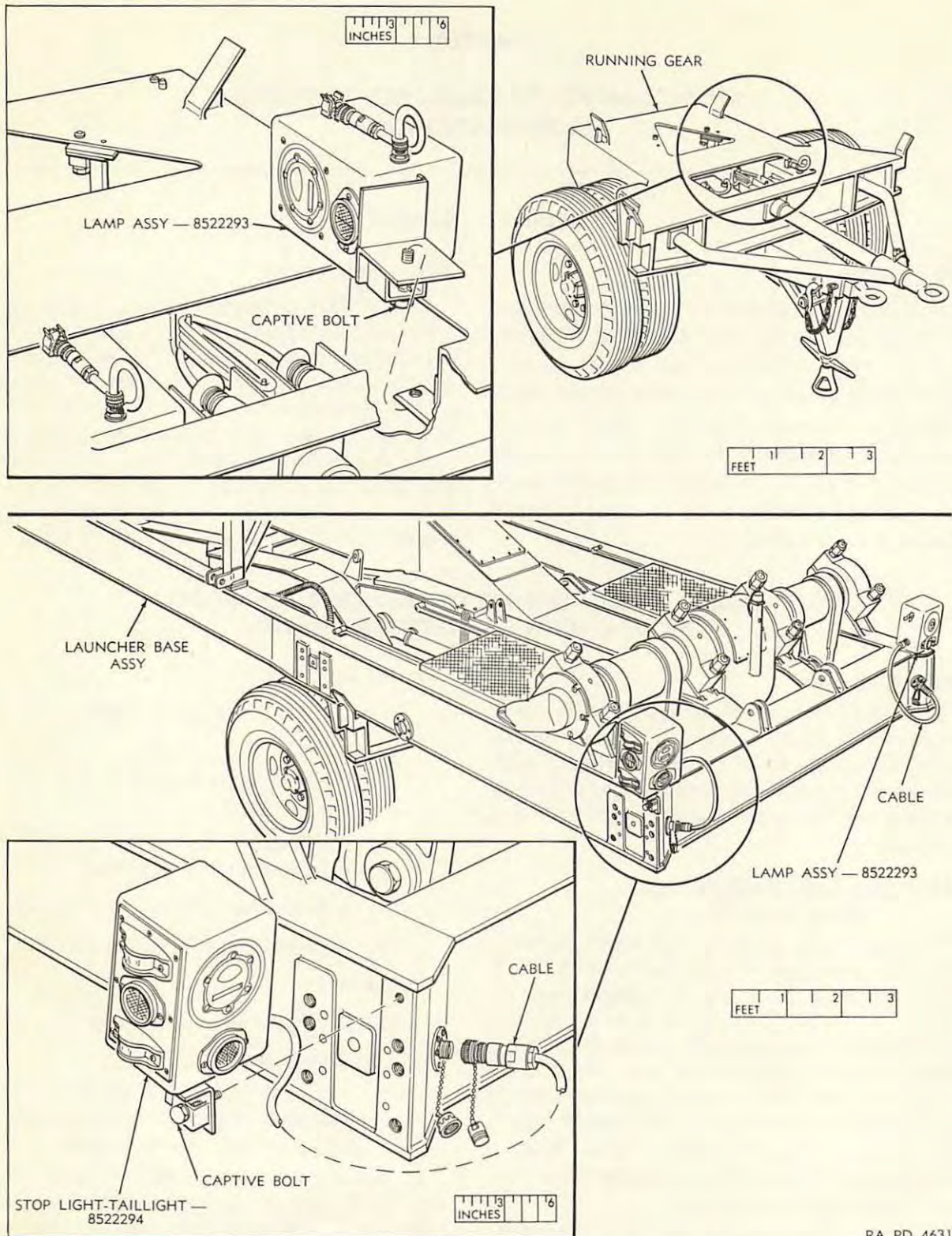
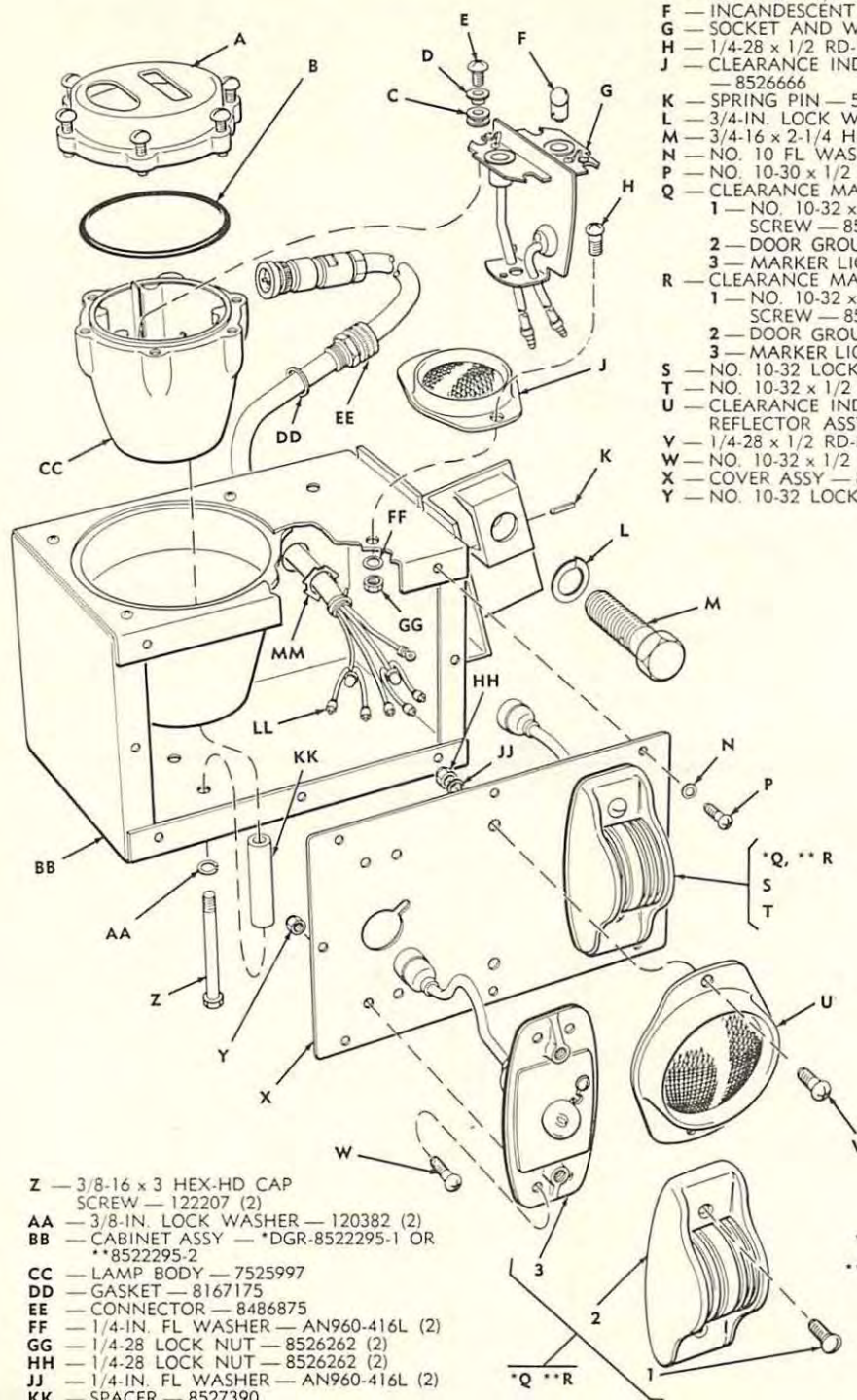
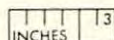


Figure 245. Stop light-tailight and lamp assembly – removal and installation.

RA PD 463170



- A — DOOR ASSY — 7526018
- B — PREFORMED PACKING — 7320658
- C — GROMMET — 7526006 (4)
- D — EYELET — 7978343 (4)
- E — NO. 8-32 x 3/8 RD-HD SCREW — 121832 (7)
- F — INCANDESCENT LAMP — ENG-6240-019-0877 (2)
- G — SOCKET AND WIRING ASSY — 7350595
- H — 1/4-28 x 1/2 RD-HD SCREW — AN520C-416R8 (2)
- J — CLEARANCE INDICATING REFLECTOR ASSY — 8526666
- K — SPRING PIN — 585938
- L — 3/4-IN. LOCK WASHER — MS35338-32
- M — 3/4-16 x 2-1/4 HEX-HD BOLT — 8530305
- N — NO. 10 FL WASHER — AN960-10L (8)
- P — NO. 10-30 x 1/2 RD-HD SCREW — AN520C-10R8 (8)
- Q — CLEARANCE MARKER LIGHT ASSY — 7954598
 - 1 — NO. 10-32 x 3/8 RD-HD SCREW — 8527023 (2)
 - 2 — DOOR GROUP
 - 3 — MARKER LIGHT GROUP
- R — CLEARANCE MARKER LIGHT ASSY — 7954597
 - 1 — NO. 10-32 x 3/8 RD-HD SCREW — 8527023 (2)
 - 2 — DOOR GROUP
 - 3 — MARKER LIGHT GROUP
- S — NO. 10-32 LOCK NUT — 8526043 (4)
- T — NO. 10-32 x 1/2 RD-HD SCREW — AN520C-10R8 (4)
- U — CLEARANCE INDICATING REFLECTOR ASSY — 8526666
- V — 1/4-28 x 1/2 RD-HD SCREW — AN520C-416R8 (2)
- W — NO. 10-32 x 1/2 RD-HD SCREW — AN520C-10R8 (2)
- X — COVER ASSY — 8167988
- Y — NO. 10-32 LOCK NUT — 8526043 (2)

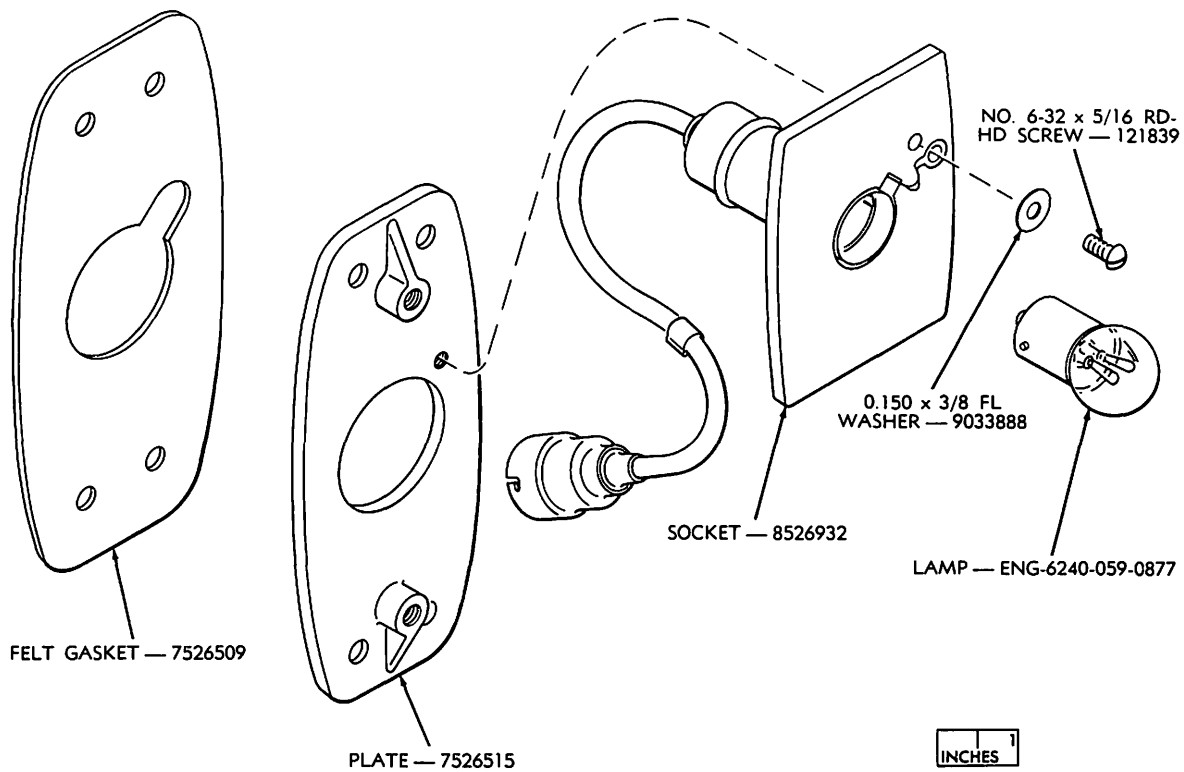
- Z — 3/8-16 x 3 HEX-HD CAP SCREW — 122207 (2)
- AA — 3/8-IN. LOCK WASHER — 120382 (2)
- BB — CABINET ASSY — *DGR-8522295-1 OR **8522295-2
- CC — LAMP BODY — 7525997
- DD — GASKET — 8167175
- EE — CONNECTOR — 8486875
- FF — 1/4-IN. FL WASHER — AN960-416L (2)
- GG — 1/4-28 LOCK NUT — 8526262 (2)
- HH — 1/4-28 LOCK NUT — 8526262 (2)
- JJ — 1/4-IN. FL WASHER — AN960-416L (2)
- KK — SPACER — 8527390
- LL — CABLE ASSY — *8167186 OR **8167184
- MM — ELEC CONDUIT LOCKNUT — 503056

*PART OF LAMP ASSY — 8522293

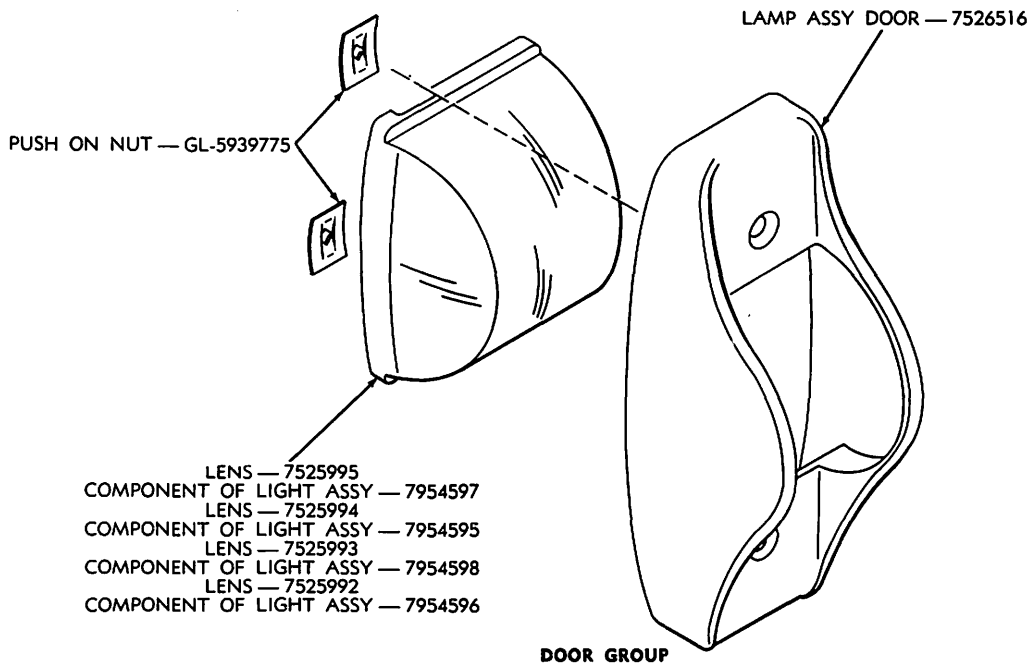
**PART OF STOP LIGHT-TAILLIGHT — 8522294

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Figure 246. Stop light-taillight and lamp assembly — disassembly and assembly.

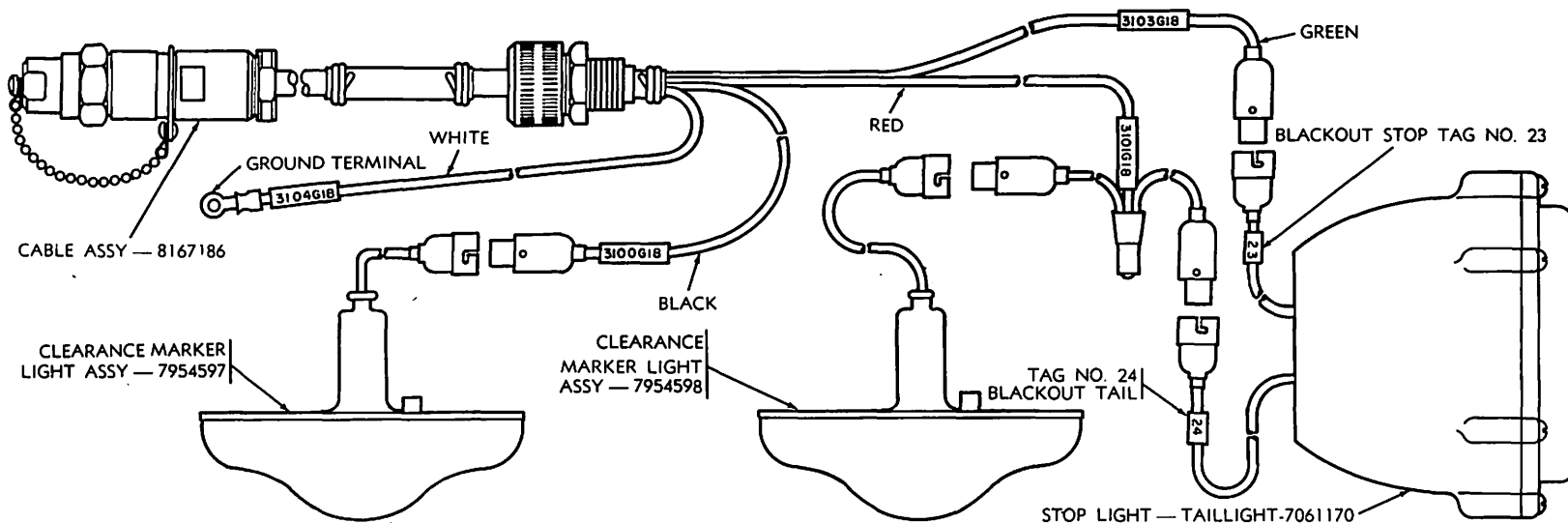


MARKER LIGHT GROUP

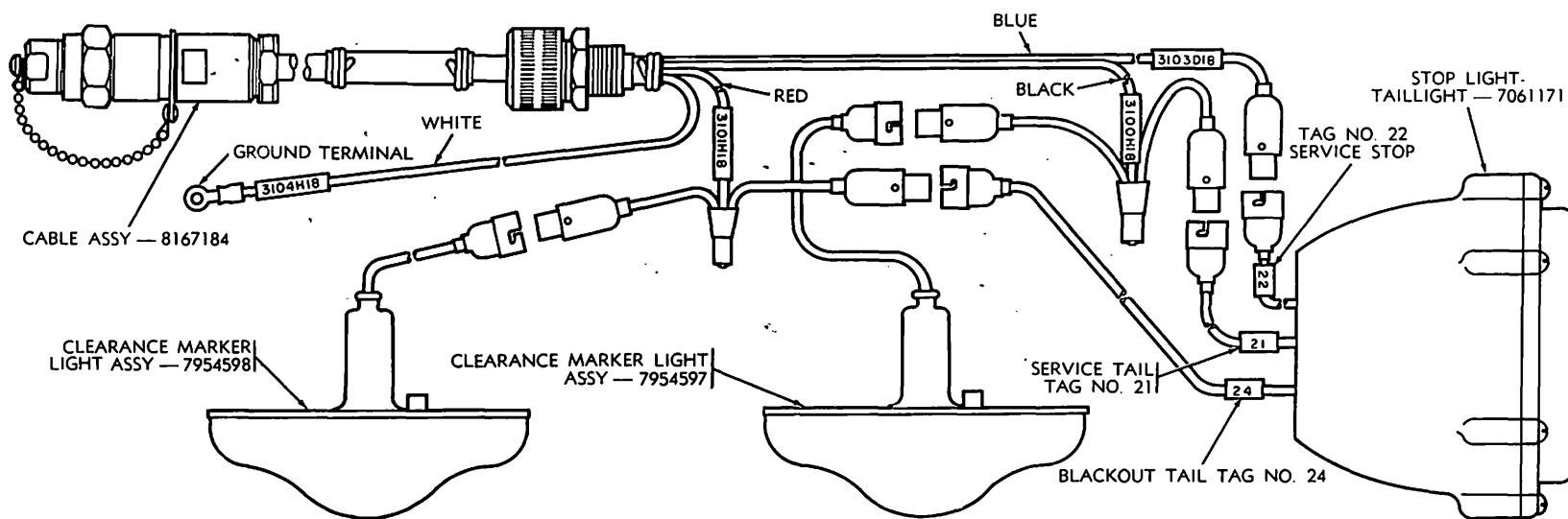


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Figure 247. Door group and marker light group — disassembly and assembly.



CABLE CONNECTIONS TO STOP LIGHT — TAILLIGHT



CABLE CONNECTIONS TO LAMP ASSEMBLY

RA PD 463186

Figure 248. Running gear tail lamp assemblies — cable connections.

f. Installation in Running Gear (fig. 245). Install stop light-taillight or lamp assembly in cavity at front of running gear.

144. Clearance Lamp Assemblies

Two clearance lamp assemblies (fig. 249) are stowed in the cavity at the rear of the running gear. They are installed on the right and left front corners of the launcher base assembly when it is being transported on the running gear. Typical removal, disassembly, assembly, and installation procedures are listed in *a* through *f* below.

a. Removal from Running Gear. Remove clearance lamp assemblies from cavity at the rear of the running gear.

b. Removal from Launcher Base Assembly. Remove clearance lamp assemblies from launcher base assembly.

c. Disassembly.

- (1) Remove door group (G2 or M2, fig. 250).
- (2) Remove marker light group (G3 or M3, fig. 250).
- (3) Disassemble clearance lamp assembly as required.
- (4) Disassemble door group (fig. 247).
- (5) Disassemble marker light group.

d. Assembly.

- (1) Assemble marker light group.
- (2) Assemble door group.
- (3) Assemble clearance lamp assembly (fig. 250) and make required cable connections (fig. 251).

e. Installation on Launcher Base Assembly (fig. 249). Install clearance lamp assemblies on launcher base assembly and connect each cable to receptacle on launcher base assembly.

f. Installation in Running Gear (fig. 249). Install clearance lamp assemblies in cavity at the rear of running gear.

145. Launcher-to-Prime Mover Cable Assembly

a. Removal. Disconnect launcher-to-prime mover cable assembly (fig. 252) between Hercules monorail launcher assembly and prime mover, or remove from running gear as required.

Note. Refer to TM 9-1440-251-10 for launcher assembly emplacement or mode of transportation using prime mover.

b. Installation. Connect cable assembly between launcher and prime mover or stow in cavity at front of running gear as required.

Section III. MAINTENANCE OF RUNNING GEAR

146. General

This section covers maintenance of the retractable support, pintle assembly, quick-release pin, bracket and brace, cap screws, and the mechanical and pneumatic components of the brake system.

147. Retractable Support Assembly

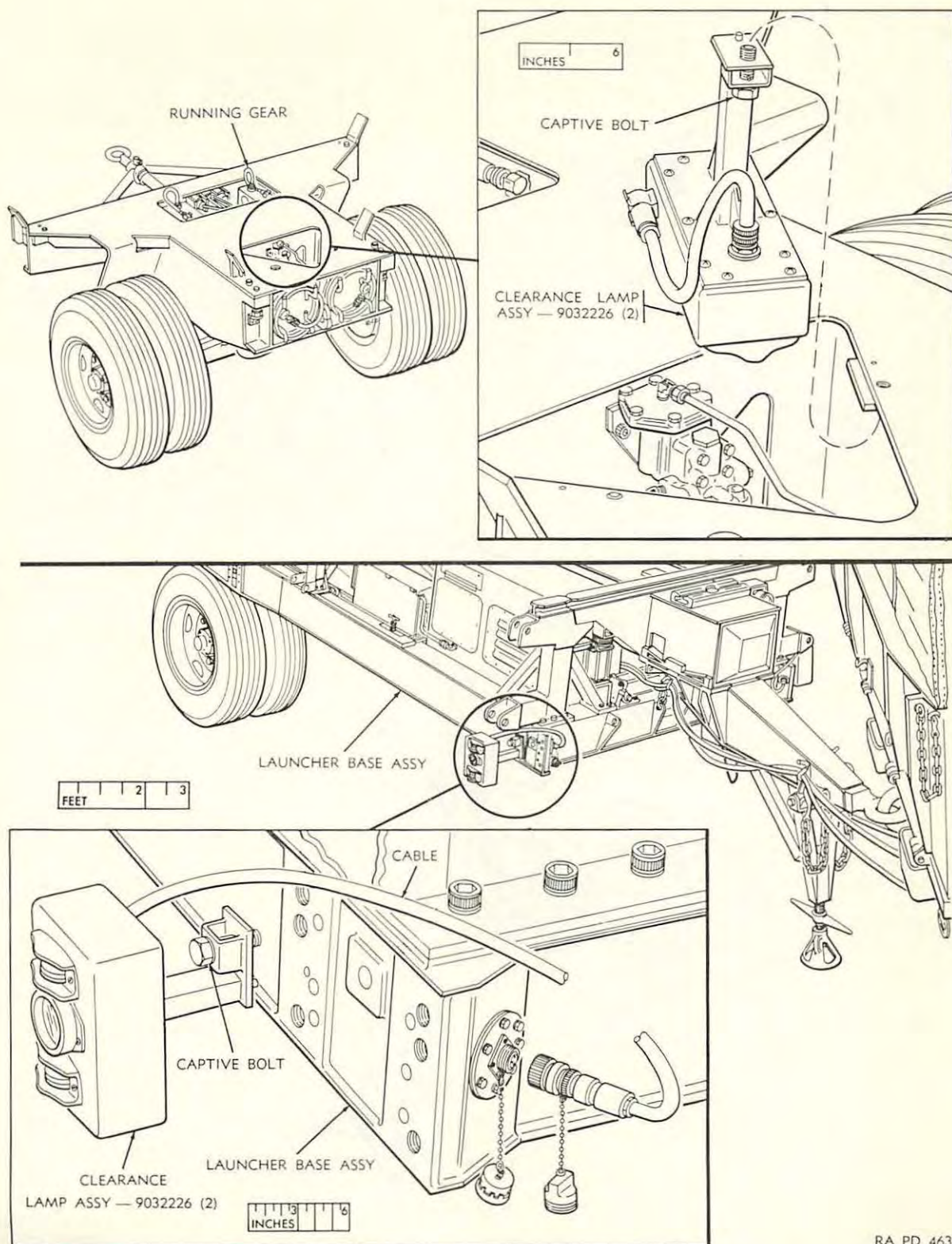
The retractable support assembly (fig. 252) connects the Hercules monorail launcher assembly to a prime mover when the launcher assembly is being transported on the running gear. It is stowed underneath the front end of the running gear. While in this position, the adjusting jack link may be extended to support the running gear at its front end. Removal, disassem-

bly, assembly, and installation procedures are described in *a* through *f* below.

Warning: Support of the retractable support (weight 276 pounds) with wire ropes during removal and installation of the support is necessary to prevent injury or death to personnel.

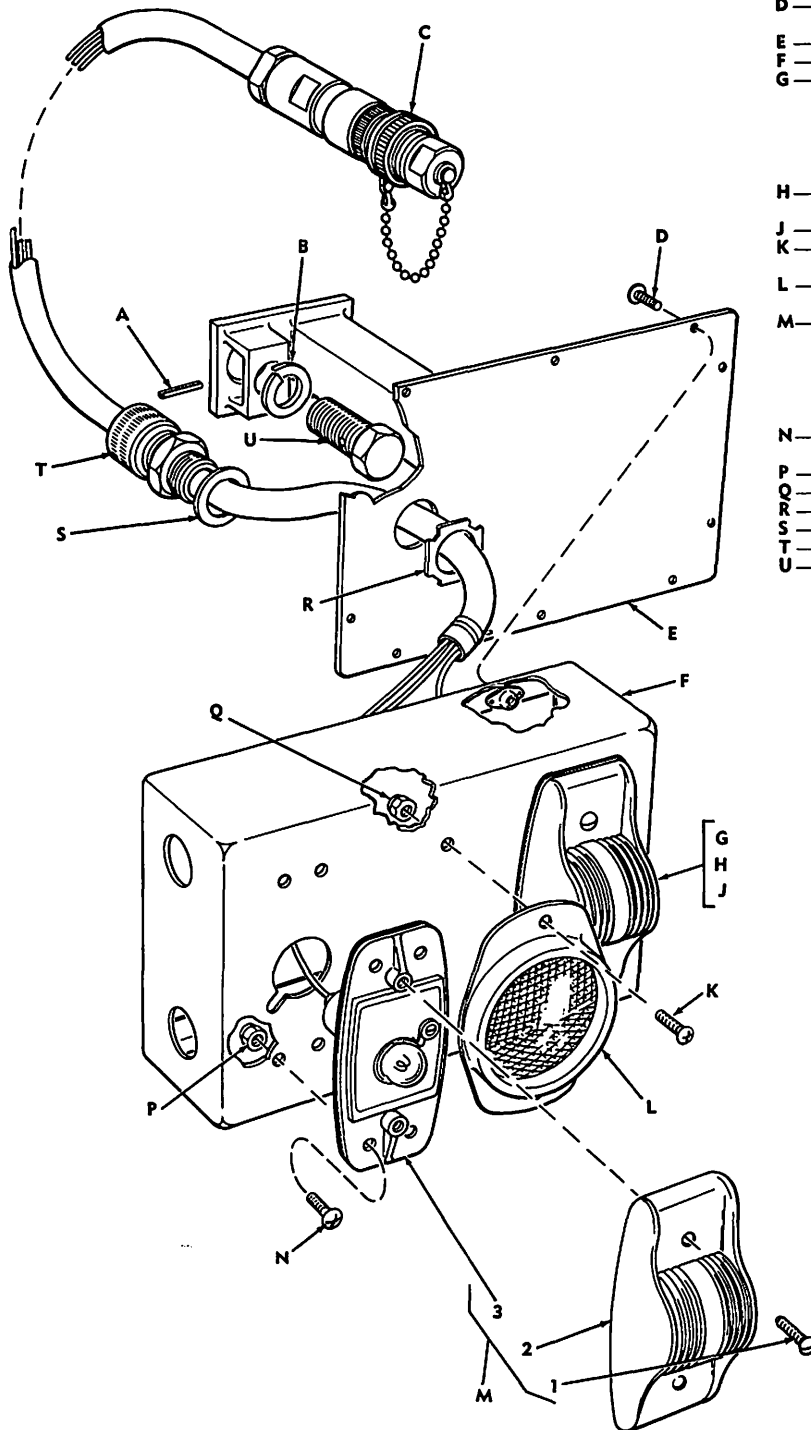
a. Removal from Running Gear.

- (1) Place wire ropes under retractable support and attach to hoist hook of hoisting device capable of supporting a minimum of 500 pounds.
- (2) Support drawbar yoke by attaching it to prime mover or by other means.
- (3) Take slack out of wire ropes.



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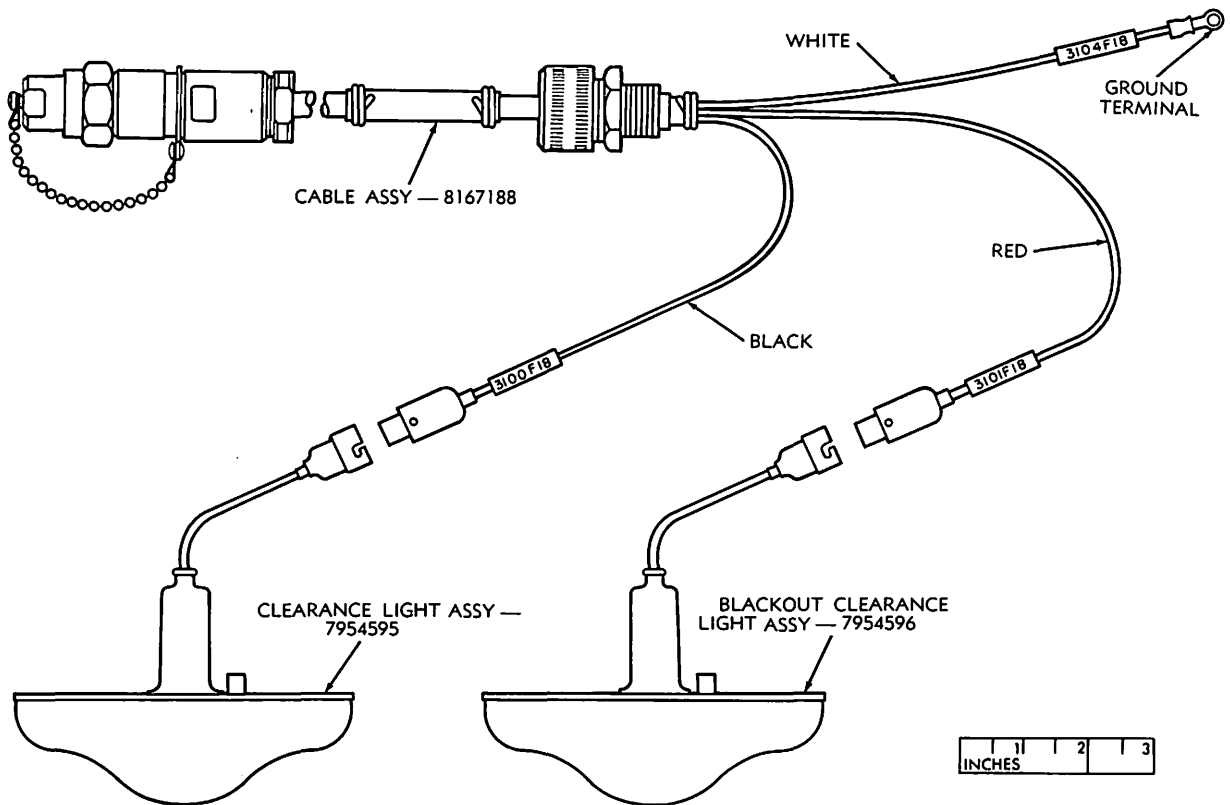
Figure 249. Clearance lamp assembly — removal and installation — typical.



- A — 0.125 x 1-1/4 STGHT PIN — 585940
- B — 1-IN. LOCK WASHER — MS35337-34
- C — CABLE ASSY — 8167188
- D — NO. 10-32 x 1/2 RD-HD SCREW — AN520C-10R8 (10)
- E — LAMP ASSY SUPPORT — DGR-8167131-501
- F — LAMP ASSY HOUSING — DGR-8167607-3
- G — CLEARANCE MARKER LIGHT ASSY — 7954595
- 1 — NO. 10-24 3/8 OVAL-HD SCREW — 8527023
- 2 — DOOR GROUP
- 3 — MARKER LIGHT GROUP
- H — NO. 10-32 x 1/2 RD-HD SCREW — AN520C-10R8 (2)
- J — NO. 10-32 LOCK NUT — 8170388 (2)
- K — 1/4-28 x 1/2 RD-HD SCREW — AN520C-416R8 (2)
- L — CLEARANCE INDICATING REFLECTOR ASSY — 8526666
- M — CLEARANCE MARKER LIGHT ASSY — 7954596
- 1 — NO. 10-24 x 3/8 OVAL-HD SCREW — 8527023
- 2 — DOOR GROUP
- 3 — MARKER LIGHT GROUP
- N — NO. 10-32 x 1/2 RD-HD SCREW — AN520C-10R8 (2)
- P — NO. 10-32 LOCK NUT — 8170388 (2)
- Q — 1/4-28 LOCK NUT — 8170387 (2)
- R — ELEC CONDUIT LOCKNUT — 503056
- S — GASKET — 8167175
- T — CONNECTOR ASSY — 8486875
- U — 1-14 x 2-1/4 HEX-HD BOLT — 9032130

RA PD 463226

Figure 250. Clearance lamp assembly — disassembly and assembly — typical.



RA PD 463123

Figure 251. Clearance lamp assemblies — cable connections — typical.

- (4) Unscrew four socket cap screws and lower retractable support to ground.

b. Removal from Launcher Erecting Beam Assembly.

- (1) Place wire ropes under retractable support and attach to hoist hook of hoisting device capable of supporting a minimum of 500 pounds.
- (2) Take slack out of wire ropes.
- (3) Disconnect safety chains.
- (4) Unscrew four socket cap screws and lower support to ground.

c. Disassembly (fig. 253). Disassemble retractable support assembly.

d. Assembly. Assemble retractable support assembly.

e. Installation on Running Gear (fig. 252).

- (1) Place wire ropes under retractable support assembly and attach to hoist

hook of hoisting device capable of supporting 500 pounds.

- (2) Position the support assembly on the running gear and attach with four socket cap screws.

f. Installation on Launcher Erecting Beam Assembly (fig. 252).

- (1) Place wire ropes under retractable support assembly and attach to hoist hook.
- (2) Position the support assembly on the erecting beam assembly and attach with four socket cap screws.
- (3) Connect safety chains.

148. Pintle Assembly (fig. 254)

a. Removal. Remove pintle assembly from running gear.

b. Installation. Install pintle assembly on running gear.

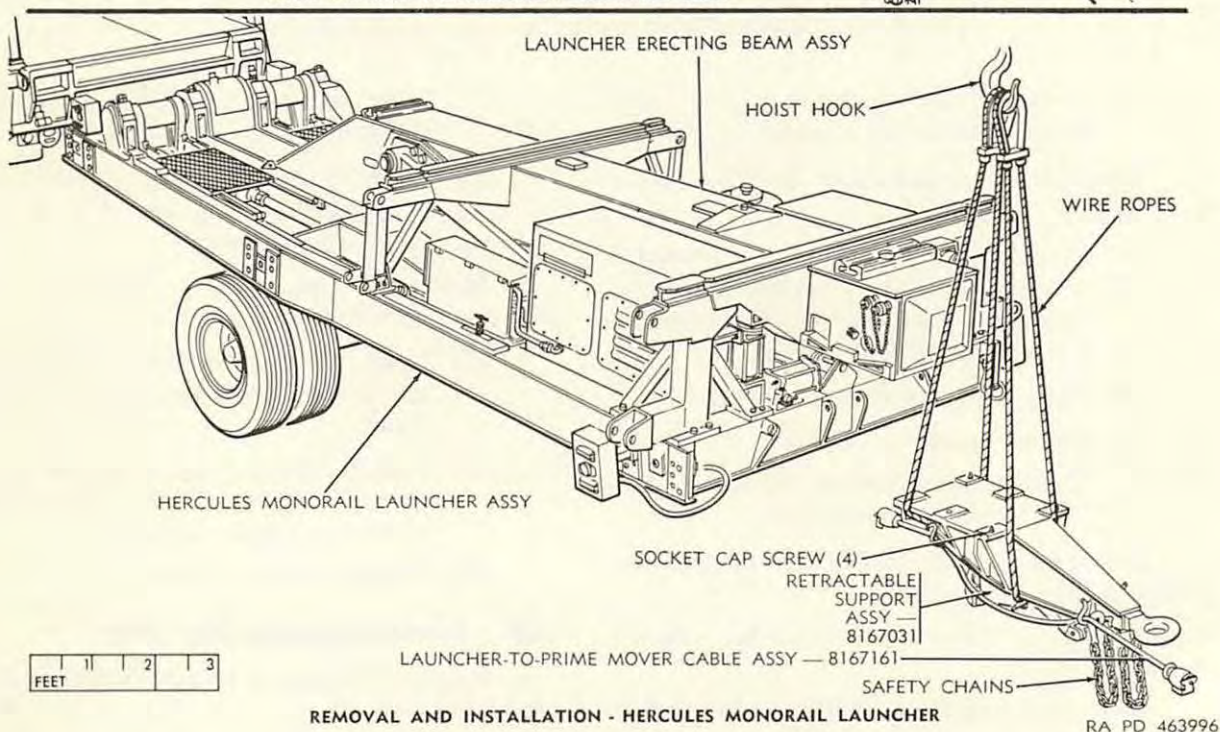
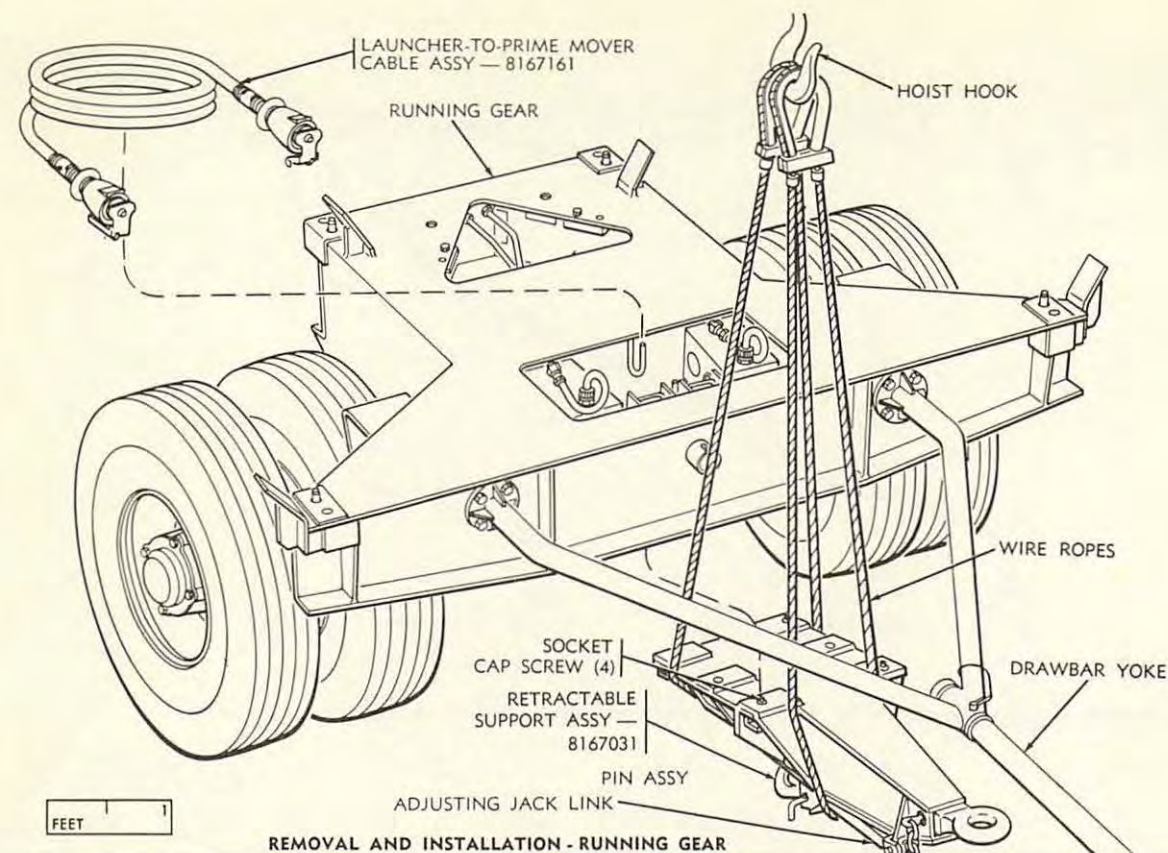
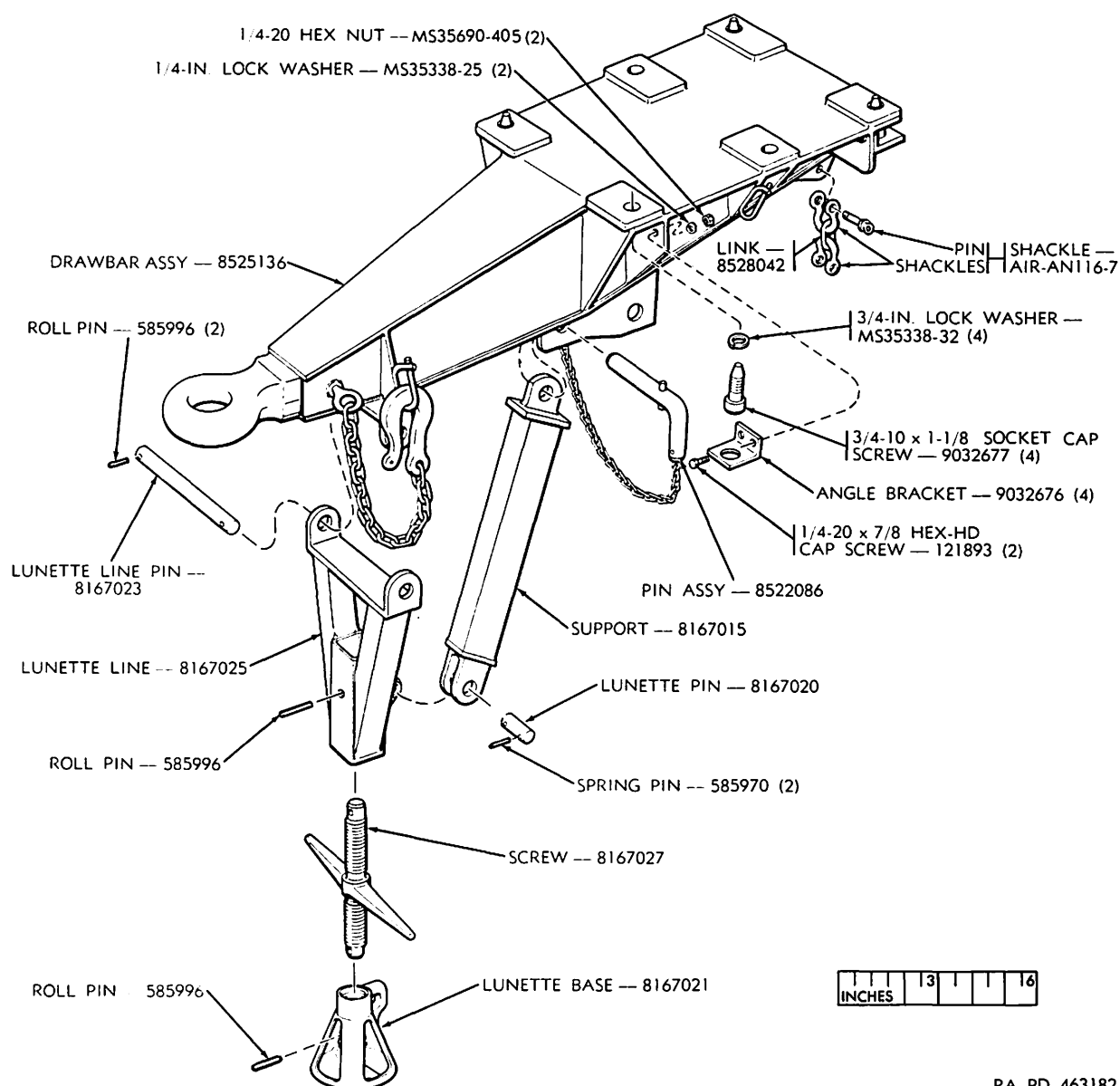


Figure 252. Retractable support and launcher-to-prime mover cable assembly — removal and installation.



RA PD 463182

Figure 253. Retractable support assembly -- disassembly and assembly.

149. Quick-Release Pin (fig. 254)

a. Removal.

- (1) Remove wire rope securing pin to drawbar yoke.
- (2) Remove pin from yoke.

b. Installation.

- (1) Install pin in drawbar yoke.
- (2) Attach wire rope to pin and to yoke with swaging sleeves.

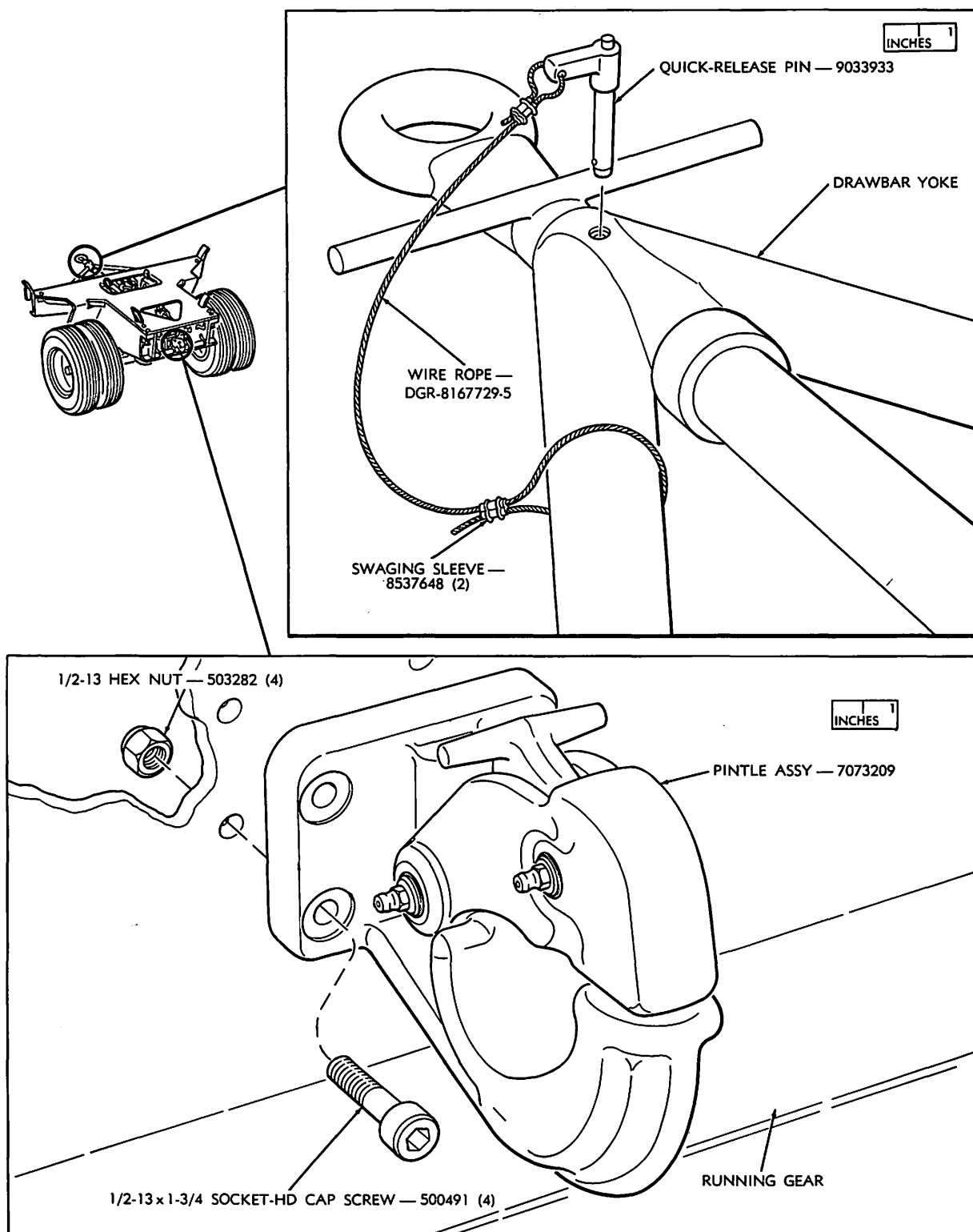
150. Bracket and Brace (fig. 255)

a. Removal.

- (1) Remove brace from bracket.
- (2) Remove bracket.

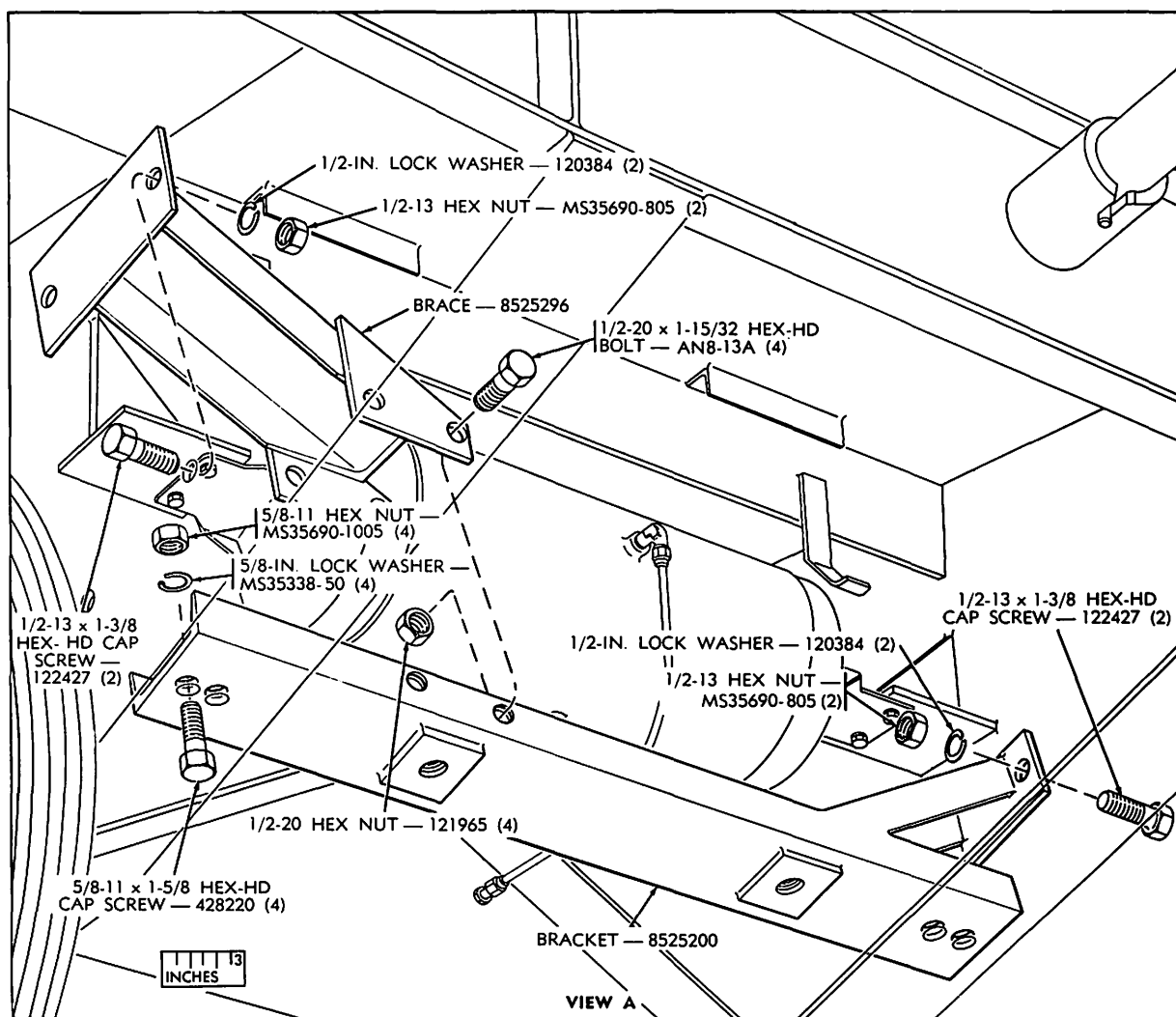
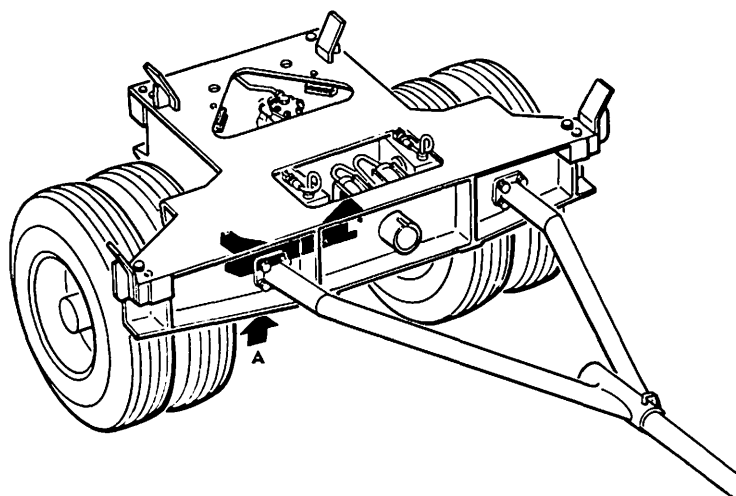
b. Installation.

- (1) Install bracket.
- (2) Install brace on bracket.



RA PD 463130

Figure 254. Pintle assembly and quick-release pin — removal and installation.



RA PD 463918

Figure 255. Bracket and brace — removal and installation.

151. Cap Screws (K, fig. 256)

a. Removal.

- (1) Remove cap screw retainer (V, fig. 256).
- (2) Remove cap screw (K, fig. 256) and lockwasher (J, fig. 256).

b. Installation.

- (1) Install 1-8 x 4½ cap screw (K, fig. 256) and 1-inch lockwasher (J, fig. 256).
- (2) Install cap screw retainer (V, fig. 256).

152. Screw Shaft (D, fig. 256)

a. Removal.

- (1) Remove retaining ring (C, fig. 256).
- (2) Remove screw shaft (D, fig. 256).

b. Installation.

- (1) Install screw shaft (D, fig. 256).
- (2) Install retaining ring (C, fig. 256).

153. Dummy Coupling (M, fig. 256)

a. Removal.

- (1) Disconnect hose assembly (R, fig. 256) from dummy coupling (M, fig. 256).
- (2) Remove dummy coupling (M, fig. 256).

b. Installation.

- (1) Install dummy coupling (M, fig. 256).
- (2) Connect hose assembly (R, fig. 256) to dummy coupling (M, fig. 256).

154. Anchor Coupling Assembly (F, fig. 256)

Note. The key letters shown in parentheses in *a* and *b* below refer to figure 256.

a. Removal.

- (1) Depressurize air tank assembly (fig. 258) by opening the plug cock assembly.
- (2) Remove tube assembly (B).
- (3) Remove adapter (E) from anchor coupling assembly (F).

- (4) Remove hose assembly (R) and fitting (S) from coupling assembly (F).
- (5) Remove anchor coupling assembly (F).

b. Installation.

- (1) Install anchor coupling assembly (F) with ¾-inch lockwasher (G).
- (2) Install hose assembly (R), fitting (S), and adapter (E) in anchor coupling assembly (F).
- (3) Install tube assembly (B) and torque coupling nuts to 500 pound-inches.
- (4) Connect an external source of dry air or nitrogen to plug cock assembly (fig. 258).
- (5) Open plug cock assembly and pressurize tank assembly to 125 psi.
- (6) Close plug cock assembly and disconnect external pressure source.

155. Handbrake Handle (fig. 257)

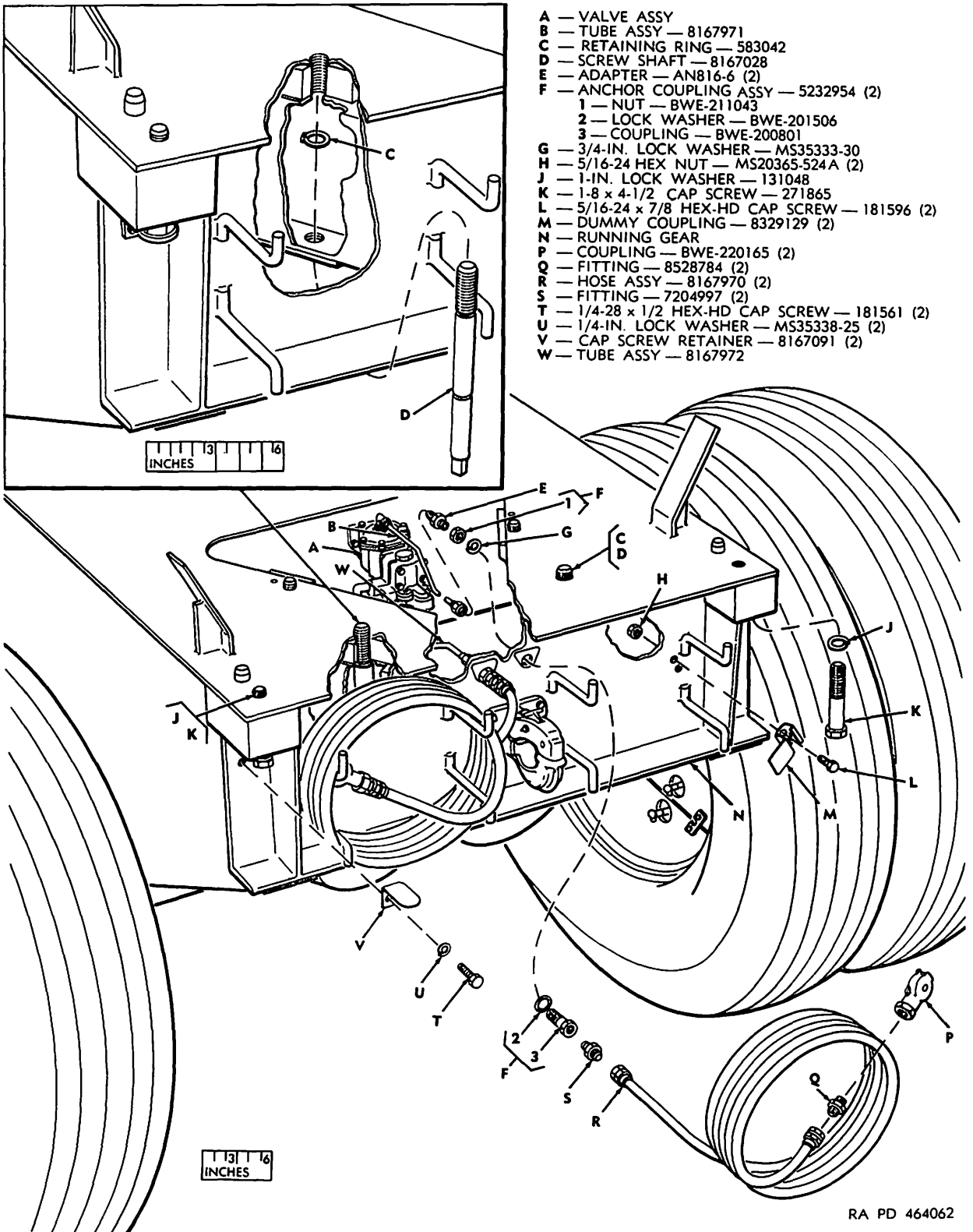
Warning: To avoid possible injury resulting from running gear rolling after handbrake handle is released, make certain running gear is on a level surface.

a. Removal.

- (1) Move handbrake handle to UNLOCK position.
- (2) Turn knurled end of handbrake handle counter-clockwise until cable assembly is slack.
- (3) Remove pin and disconnect cable assembly from handbrake handle.
- (4) Remove handbrake handle.

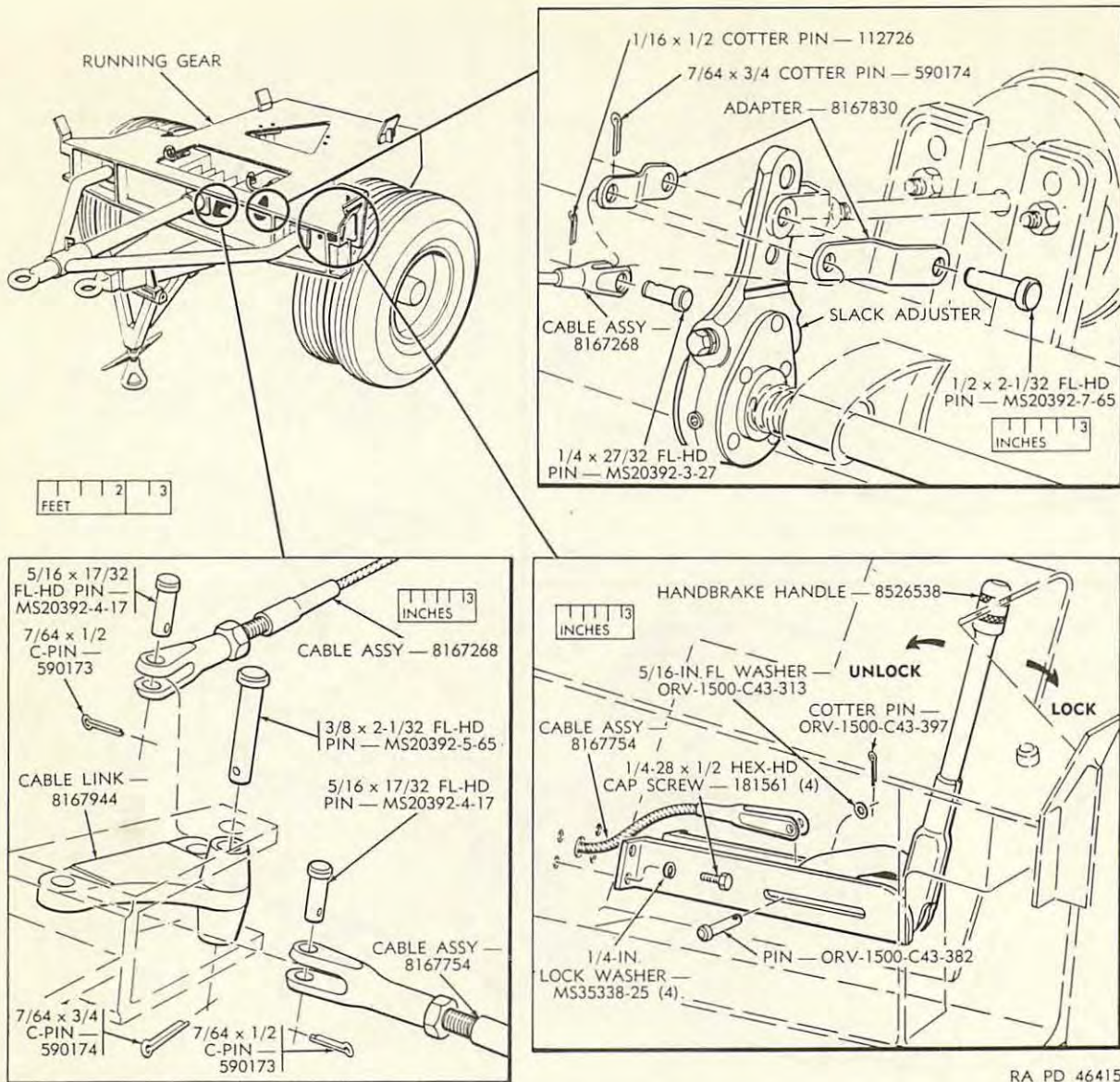
b. Installation.

- (1) Install handbrake handle.
- (2) Connect cable assembly to handbrake handle.
- (3) Turn knurled end of handbrake handle clockwise until cable assembly is tight.
- (4) Move handbrake handle to LOCK position.



RA PD 464062

Figure 256. Anchor coupling, dummy coupling, cap screw, and screw shaft — removal and installation — typical.



RA PD 464159

Figure 257. Handbrake handle, adapter, and cable assemblies - removal and installation - typical.

156. Cable Assemblies (fig. 257)

Warning: To avoid possible injury resulting from running gear rolling after handbrake handle is released, make certain running gear is on a level surface.

a. Removal.

- (1) Move handbrake handle to UNLOCK position.

- (2) Turn knurled end of handbrake handle counter-clockwise until cable assembly is slack.

- (3) Remove pins and remove cable assembly as required.

b. Installation.

- (1) Position and install cable assemblies with pins as required.

- (2) Turn knurled end of handbrake handle clockwise until cable assembly is tight.
- (3) Move handbrake handle to LOCK position.

157. Cable Link (fig. 257)

Warning: To avoid possible injury resulting from running gear rolling after handbrake handle is released, make certain running gear is on a level surface.

a. Removal.

- (1) Move handbrake handle to UNLOCK position.
- (2) Turn knurled end of handbrake counter-clockwise until cable assembly is slack.
- (3) Disconnect the two cable assemblies from cable link.
- (4) Remove cable link.

b. Installation.

- (1) Install cable link.
- (2) Connect the two cable assemblies to link.
- (3) Turn knurled end of handbrake handle clockwise until cable assembly is tight.
- (4) Move handbrake handle to LOCK position.

158. Adapter (fig. 257)

Warning: To avoid possible injury resulting from running gear rolling after handbrake handle is released, make certain running gear is on a level surface.

a. Removal.

- (1) Move handbrake handle to UNLOCK position.
- (2) Turn knurled end of handbrake handle counter-clockwise until cable assembly is slack.
- (3) Disconnect cable assembly from adapter.
- (4) Remove adapter from slack adjuster.

b. Installation.

- (1) Install adapter on slack adjuster.
- (2) Connect cable assembly to adapter.
- (3) Turn knurled end of handbrake handle clockwise until cable assembly is tight.
- (4) Move handbrake handle to LOCK position.

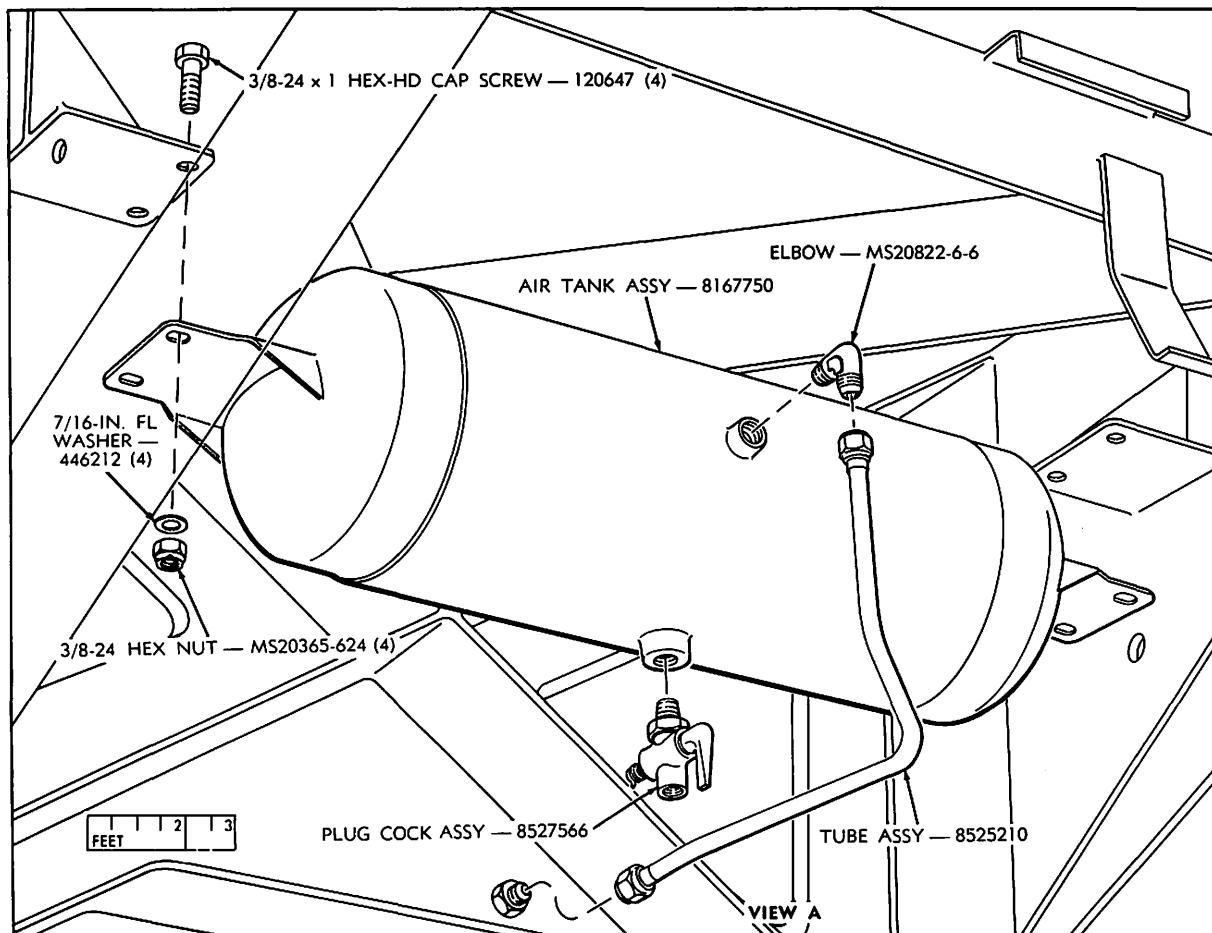
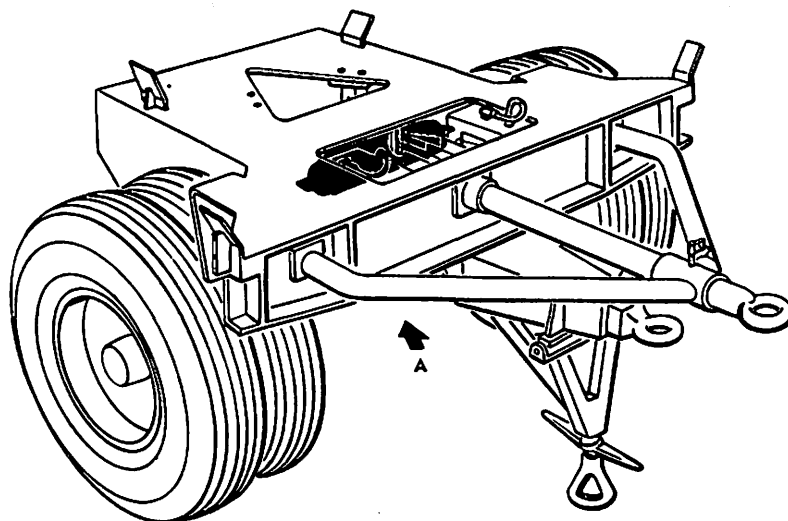
159. Air Tank Assembly

a. Removal.

- (1) Remove the stop light-taillight (fig. 245) and lamp assembly from cavity at front of the running gear.
- (2) Remove the launcher-to-prime mover cable assembly (fig. 252).
- (3) Remove the retractable support assembly from running gear as described in paragraph 147a.
- (4) Remove bracket (fig. 255) and brace.
- (5) Depressurize air tank assembly (fig. 258) by opening plug cock assembly.
- (6) Remove tube assembly and elbow.
- (7) Remove plug cock assembly.
- (8) Remove air tank assembly.

b. Installation.

- (1) Install tank assembly and plug cock assembly.
- (2) Install elbow and tube assembly. Torque coupling nuts to 300 pound-inches.
- (3) Connect an external source of dry air or nitrogen to plug cock assembly.
- (4) Open plug cock assembly and pressurize tank assembly to 125 psi.
- (5) Close plug cock assembly and disconnect external pressure source.
- (6) Install bracket (fig. 255) and brace.
- (7) Install retractable support assembly (fig. 252) on running gear as described in paragraph 147e.



RA PD 464074

Figure 258. Air tank assembly — removal and installation.

- (8) Stow the launcher-to-prime mover cable assembly (fig. 252) in running gear.
- (9) Stow stop light-taillight (fig. 245) and lamp assembly in cavity at front of running gear.

160. Plug Cock Assembly

a. Removal (fig. 258).

- (1) Depressurize air tank assembly by opening plug cock assembly.
- (2) Remove plug cock assembly.

b. Installation.

- (1) Install plug cock assembly.
- (2) Connect an external source of dry air or nitrogen to plug cock assembly.
- (3) Open plug cock assembly and pressurize tank assembly to 125 psi.
- (4) Close plug cock assembly and disconnect external pressure source.

161. Valve Group

a. Removal.

- (1) Depressurize air tank assembly (fig. 258) by opening plug cock assembly.
- (2) Disconnect tube assemblies (fig. 259) and reducer assemblies.
- (3) Remove valve group.

b. Disassembly. Disassemble valve group.

c. Assembly. Assemble valve group.

d. Installation.

- (1) Install valve group.
- (2) Connect reducer assemblies and tube assemblies; torque coupling nuts to 300 pound-inches.
- (3) Connect an external source of dry air or nitrogen to plug cock assembly (fig. 258).
- (4) Open plug cock assembly and pressurize tank assembly to 125 psi.
- (5) Close plug cock assembly and disconnect external pressure source.

162. Wheel Group

a. Removal.

- (1) Place handbrake handle (fig. 257) to LOCK.
- (2) Position automotive jack (fig. 260) and raise running gear until tires of wheel group are off ground.
- (3) Remove wheel groups as required.

b. Disassembly.

- (1) Deflate tire.
- (2) Disassemble wheel group.

c. Assembly.

- (1) Assemble wheel group.
- (2) Lay wheel group flat on ground with side ring next to ground.

Warning: Make certain wheel group is in this position before inflating tire. The ground will protect personnel from possible serious injury if the ring springs loose when the tire is inflated in the following step.

- (3) Inflate tire to 80 psi.

d. Installation.

- (1) Install both wheel groups.
- (2) Lower running gear and remove automotive jack.

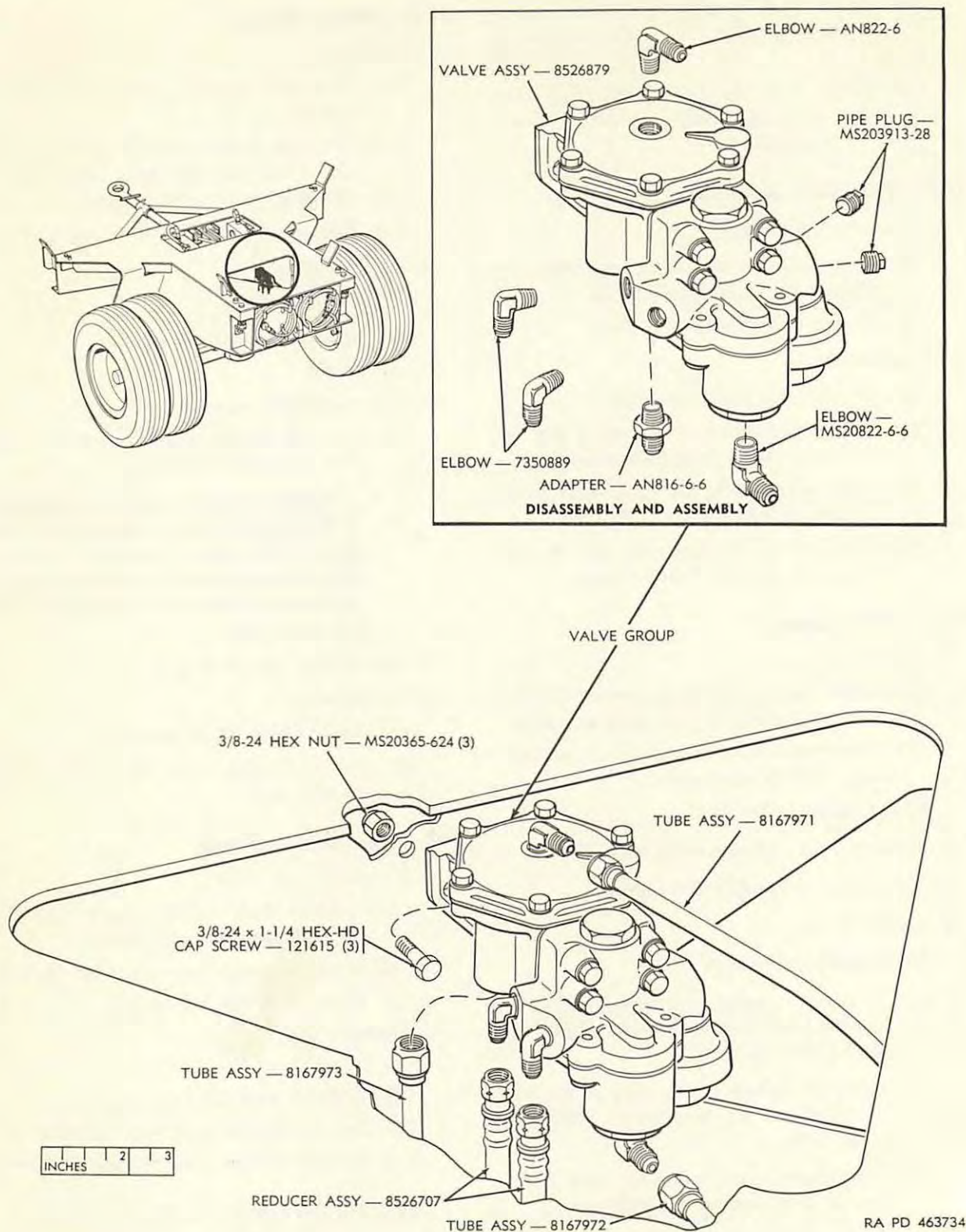
163. Wheel Hub Group

a. Removal (fig. 261).

- (1) Remove two wheel groups as described in paragraph 162a.
- (2) Remove grease cap and fiber gasket.
- (3) Remove wheel hub group.

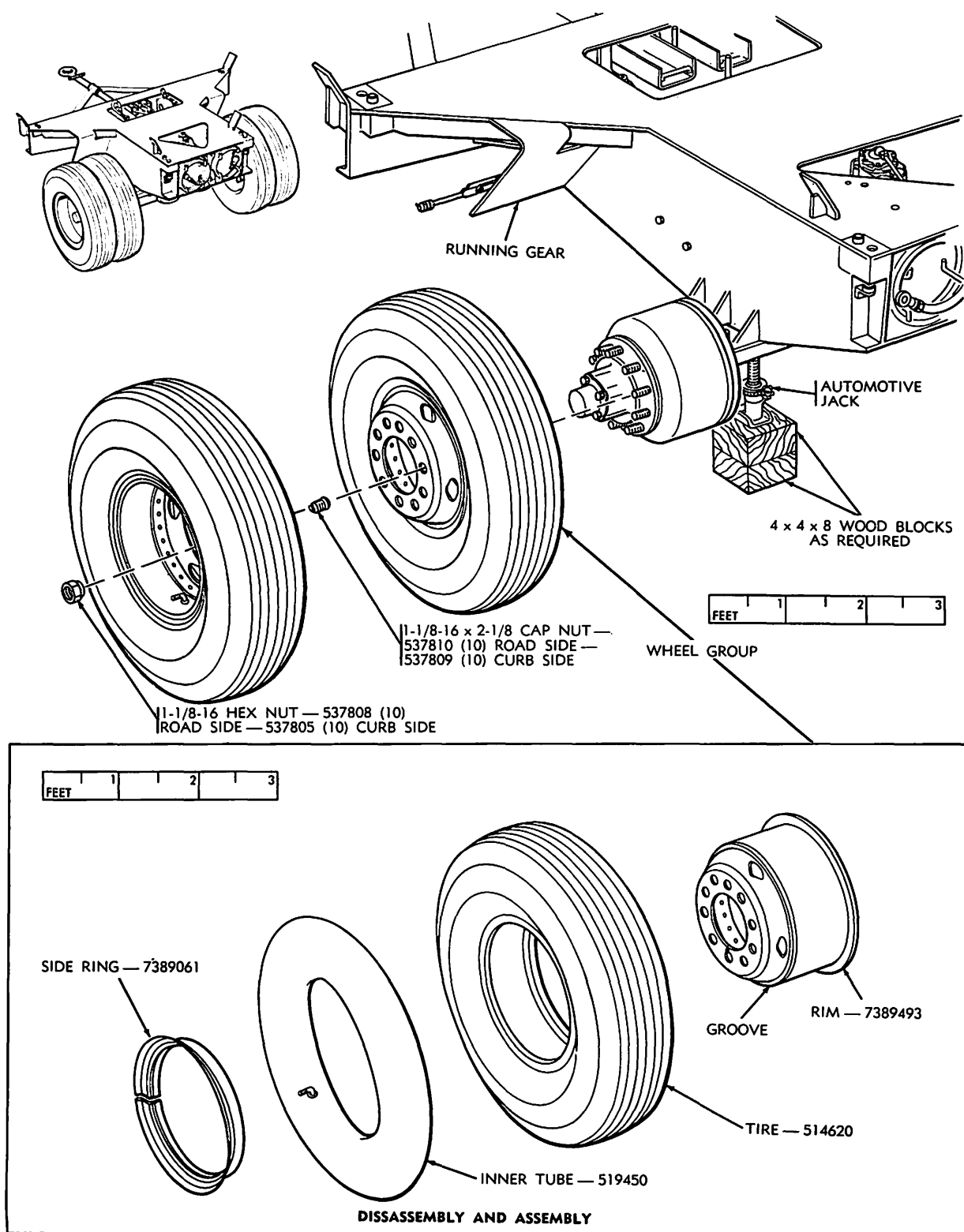
b. Disassembly.

- (1) Remove grease ring.
- (2) Remove packing retainer.
- (3) Remove inside cone and rollers.
- (4) Remove inside tapered roller bearing cup.
- (5) Remove outside cone and rollers.
- (6) Remove outside tapered roller bearing cup.



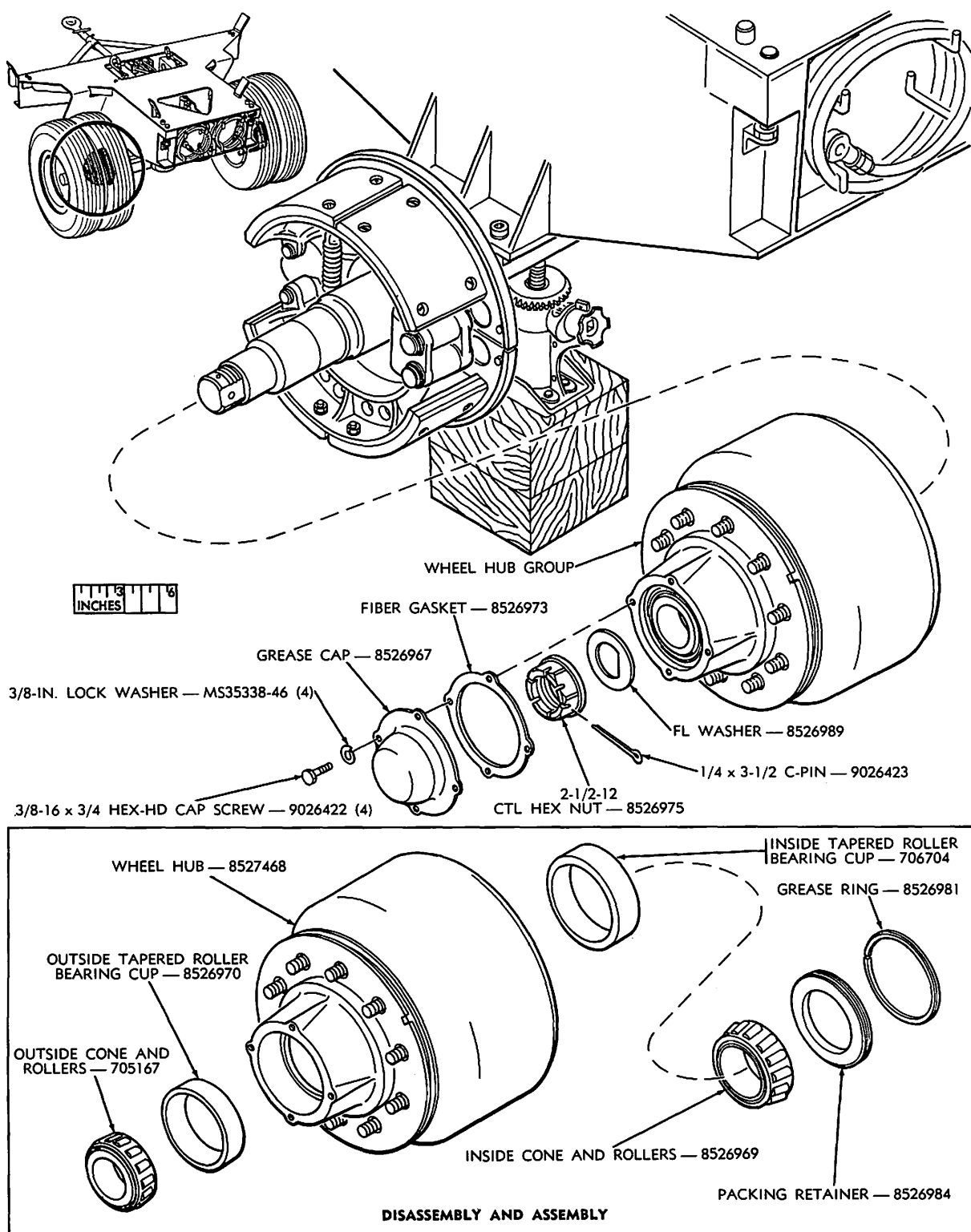
RA PD 463734

Figure 259. Valve group — removal and installation.



RA PD 463914

Figure 260. Wheel group — removal and installation — typical.



RA PD 463173

Figure 261. Wheel hub group — removal and installation — typical.

c. Assembly.

- (1) Install outside tapered roller bearing cup.
- (2) Install outside cone and rollers.
- (3) Install inside tapered roller bearing cup.
- (4) Install inside cone and rollers.
- (5) Lubricate as described in TM 9-1440-250-20.
- (6) Install packing retainer.
- (7) Install grease ring.

d. Installation.

- (1) Install wheel hub group.
- (2) Install grease cap and fiber gasket.
- (3) Install two wheel groups (fig. 260) as described in paragraph 162d.

164. Sleeve Bearings and Sleeve Bearing Pins (fig. 262)*a. Removal.*

- (1) Remove two wheel groups as described in paragraph 162a.
- (2) Remove wheel hub group as described in paragraph 163a.
- (3) Remove brakeshoe spring (fig. 262).
- (4) Remove dust shields.
- (5) Remove sleeve bearings and sleeve bearing pins.

b. Installation.

- (1) Install sleeve bearings and sleeve bearing pins.
- (2) Install brakeshoe spring and dust shields.
- (3) Install wheel hub group as described in paragraph 163d.
- (4) Install wheel groups as described in paragraph 162e.

165. Camshaft Bushings (fig. 262)*a. Removal.*

- (1) Remove two wheel groups as described in paragraph 162a.
- (2) Remove wheel hub group as described in paragraph 163a.
- (3) Remove brakeshoe spring and dust shields.
- (4) Remove slack adjuster and compression spring.
- (5) Remove camshaft.
- (6) Remove camshaft bushing.

b. Installation.

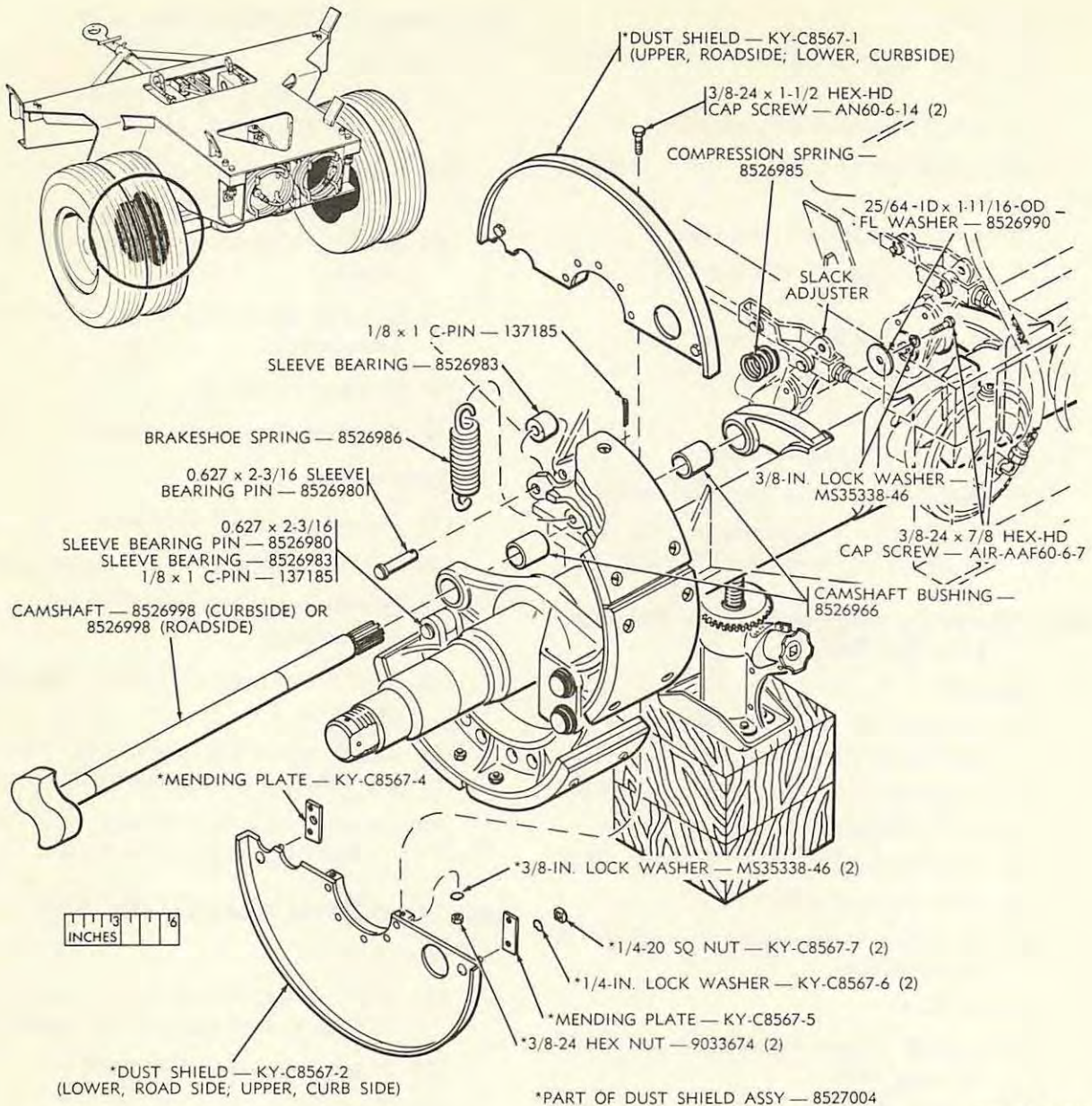
- (1) Install camshaft bushings.
- (2) Install camshaft.
- (3) Install slack adjuster and compression spring.
- (4) Install brakeshoe spring and dust shields.
- (5) Install wheel hub group (fig. 261) as described in paragraph 163d.
- (6) Install two wheel groups (fig. 260) as described in paragraph 162d.

166. Dust Shield Assembly (fig. 262)*a. Removal.*

- (1) Disconnect dust shield assembly by removing two hexagon-head cap screws.
- (2) Remove two mending plates.
- (3) Remove two dust shields.

b. Installation.

- (1) Place two dust shields on axle and install mending plates.
- (2) Install dust shield assembly.



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Figure 262. Brakeshoe camshaft bushings, sleeve bearings, and dust shield assembly — removal and installation — typical.