

## Group 16 Transmission

**GENERAL:** This group contains information on the purchased transmission that is not covered in the other groups. It covers all transmission parts from the converter to the output shaft, and all installation parts.

**SPECIFICS:** As applicable

- ...Converter
- ...Drum-Parking Brake
- ...Gears
- ...Output Shaft
- ...Shift Mechanism
- ...Shift Valves
- ...Transmission Housing



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**MORSE CABLE LUBRICATOR**

for

**30, 40, & 60 SERIES "RED JACKET" CABLES**

The Morse Cable Lubricator is a three part assembly consisting of the following items:

1. Gun Assembly - D48468
2. Adapter Assembly
  - (a) 30 Series - D48614
  - (b) 40 Series - D48615
  - (c) 60 Series - D48616
3. Lubricant
  - (a) Type E - B48830
  - (b) Type U - B48831

Either type may be considered as a general purpose lubricant. Type E should be used if the cable is to be exposed to below freezing temperatures.

USE OF THE ADAPTER

Use of the adapter makes possible lubrication of both clamp and bulkhead type cables. To lubricate clamp type cables, remove seals and nut from cable as shown in figure 1. Insert cable through knurled nut and into adapter tube. Place retainer in groove in cable hub and hand tighten knurled nut on adapter. Assemble gun assembly to grease fitting on adapter. To lubricate bulkhead type cables, remove seals and nuts from cable and insert cable into adapter tube as shown in figure 2. Attach gun assembly to grease fitting on adapter.

**NOTE**

When disassembling adapter tube after use, care should be taken not to spill lubricant which is inside adapter tube.

The lubricator gun should be used in the position shown in figure 3 to assure proper flow of lubricant. If the tube cannot be held in the position shown, squeeze the tube to force lubricant into the gun. It is advantageous to operate the cable while lubricating. Be careful when pumping the gun, as too much pressure can "BLOW UP" the cable conduit.

**CAUTION**

If the cable to be lubricated is equipped with black plastic plugs in the grease fitting holes, they should be removed and replaced with metal grease fittings before lubricating cable.

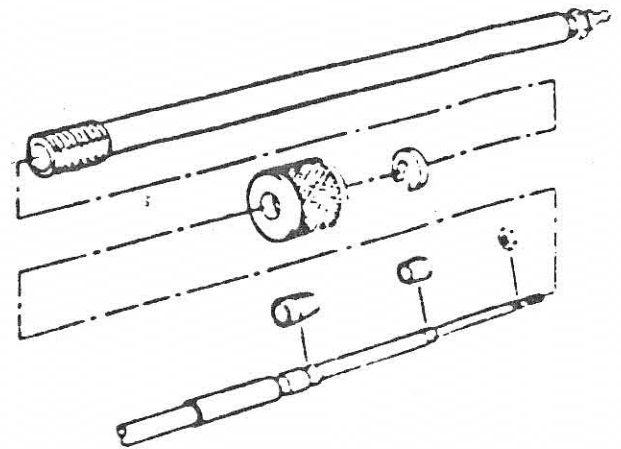


FIGURE 1

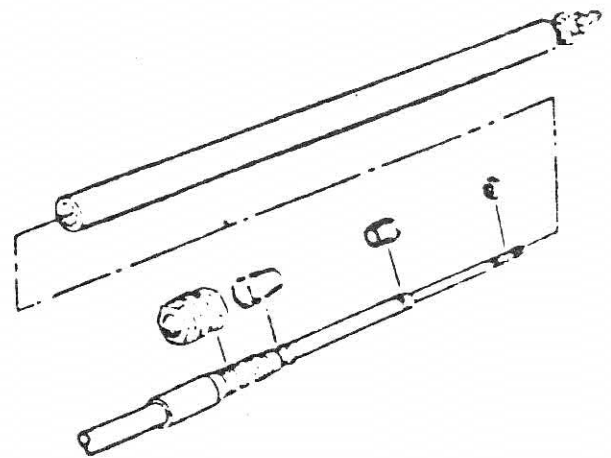


FIGURE 2

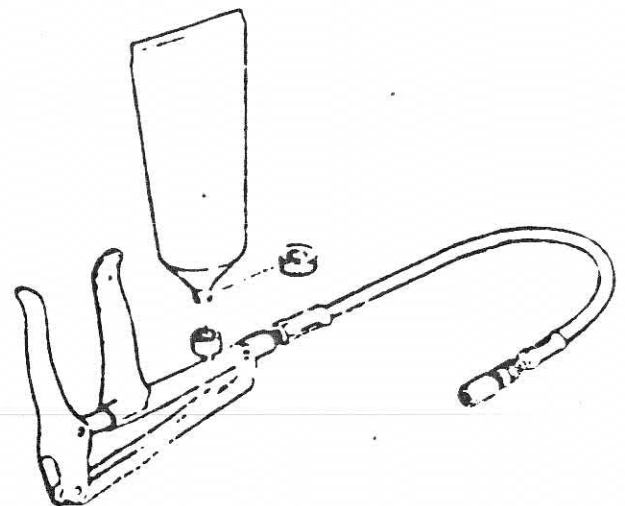


FIGURE 3

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<p>ATTENTION: SERVICE MANAGER</p>	<p>GROUP</p>																		
<p><u>DESCRIPTION</u></p> <p>This Service Bulletin contains procedures for lubrication of the transmission control cable which could freeze in cold weather if water has entered the encompassing jacket, especially at the transmission end. The cable inside the jacket is initially factory lubricated and the ends sealed. However, after lengthy operation in wet and freezing weather the rod and sleeve seals may deteriorate and some of the lubricant may dissipate, allowing moisture to enter which can result in cable freeze-up. This bulletin contains instructions for relubrication of cable assembly and replacement of seals.</p>	<p>16</p> <p>SUBJECT</p> <p>TRANSMISSION GEAR-SHIFT, PUSH PULL CONTROL CABLE LUBRICATION</p>																		
<p><u>COMPLIANCE</u></p> <p>Coaches being operated in cold environments should undergo immediate relubrication per this bulletin then semi-annually thereafter. Coaches operating in all other climates should have this bulletin accomplished on a semi-annual basis.</p>	<p>MODEL (S) AFFECTED</p> <p>ALL COACHES</p>																		
<p><u>MATERIAL REQUIREMENTS</u></p> <p>A three part Morse Cable Lubricator and replacement seals, consisting of the following are available from Morse Controls Div., Rockwell International, Hudson, Ohio, stocking industrial distributors included on the attached list.</p> <table border="1"> <thead> <tr> <th><u>PART DESCRIPTION</u></th> <th><u>MORSE P/N</u></th> <th><u>QUANTITY PER COACH</u></th> </tr> </thead> <tbody> <tr> <td>Gun (Lubricator)</td> <td>D48468</td> <td>1</td> </tr> <tr> <td>Adaptor (Extension Tube)</td> <td>D48615</td> <td>1</td> </tr> <tr> <td>Rod Seal</td> <td>A035333</td> <td>1</td> </tr> <tr> <td>Sleeve Seal</td> <td>B035334</td> <td>1</td> </tr> <tr> <td>Lubricant (Universal Tube-Type)</td> <td>B300156</td> <td>AR</td> </tr> </tbody> </table> <p style="text-align: center;"><u>NOTE</u></p> <p>The Universal type lube possess anti-freeze properties and should be used if the cable is exposed to wet, freezing conditions. This lubricant is serviceable from -40° F (-40°C) to +210° F (+99° C).</p>	<u>PART DESCRIPTION</u>	<u>MORSE P/N</u>	<u>QUANTITY PER COACH</u>	Gun (Lubricator)	D48468	1	Adaptor (Extension Tube)	D48615	1	Rod Seal	A035333	1	Sleeve Seal	B035334	1	Lubricant (Universal Tube-Type)	B300156	AR	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">             FULLY QUALIFIED              PERSONNEL ONLY              NO COPIES TO BE MADE              OF THIS BULLETIN         </p>
<u>PART DESCRIPTION</u>	<u>MORSE P/N</u>	<u>QUANTITY PER COACH</u>																	
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ATTENTION: SERVICE MANAGER	GROUP
<u>ACCOMPLISHMENT INSTRUCTION (CONT)</u>	16
<p style="text-align: center;"><u>NOTE</u></p> <p>Read instructions printed on lubricant tube and follow carefully. If tube cannot be held upright during lubrication, squeeze tube to force lubricant into gun. Use low, easy pumping action (too much pressure can damage cable) and cycle the cable with shift lever occasionally while lubricating to aid the flow of lubricant into the cable. Leave shift lever at "N" position when completed.</p>	<p>SUBJECT</p> <p>TRANSMISSION GEAR-SHIFT, POS: PULL CONTROL CABLE LUBRICATION</p>
<p>7. Observe the following WARNING and remove lubricator gun and extension tube from cable end.</p>	<p>MODEL(S) AFFECTED</p>
<p style="text-align: center;"><u>WARNING</u></p> <p>WHEN REMOVING THE EXTENSION TUBE AFTER USE, CARE SHOULD BE TAKEN NOT TO SPILL LUBRICANT REMAINING INSIDE TUBE. THE UNIVERSAL LUBE CONTAINS ETHYLENE GLYCOL. FOR MAXIMUM SAFETY AND PROTECTION FOLLOW INSTRUCTIONS PRINTED ON SIDE OF TUBE. DISPOSE OF ANY SPILLED LUBRICANT SOLUTION IMMEDIATELY AS IT IS HARMFUL IF SWALLOWED. IF ACCIDENTALLY SWALLOWED, INDUCE VOMITING IMMEDIATELY AND SEE A PHYSICIAN AS SOON AS POSSIBLE.</p>	<p>ALL COACHES</p>
<p>8. Install new sleeve and rod seals on cable and screw jam nut all the forward on threads of cable end.</p>	
<p>9. With gear-shift lever at "N" position, install trunnion terminal by turning it on threads of the aft end of cable until the trunnion terminal shaft aligns with the hole in the transmission shift arm.</p>	
<p>10. Insert trunnion terminal shaft into hole in transmission shift arm and secure with cotter pin; tighten jam nut against trunnion terminal.</p>	

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URGENT

ROUTINE

MANDATORY

INFORMATIONAL

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ATTENTION: SERVICE MANAGER	GROUP
<u>ACCOMPLISHMENT INSTRUCTIONS</u>	16
<p style="text-align: center;"><u>NOTE</u></p> <p>These procedures cover the lubrication of the transmission gear-shift push-pull control cable; however, by using appropriate size adapters the accelerator cable ends may also be lubricated. Check with Morse Distributors if these adapters are needed.</p>	SUBJECT
<ol style="list-style-type: none"> <li>1. Position transmission gear-shift control lever to the neutral "N" position.</li> <li>2. Gain access to transmission end of push-pull control cable where it connects to the transmission shift arm.</li> <li>3. Remove cotter pin and remove shaft of the trunnion terminal (located at aft end of push-pull control cable) from hole in shift arm (on RH side of transmission). Detach and position cable end to clear transmission shift arm.</li> </ol>	TRANSMISSION GEAR-SHIFT, PUSH PULL CONTROL CABLE LUBRICATION
<p style="text-align: center;"><u>CAUTION</u></p> <p>Do not disturb the position of the transmission shift arm during these procedures.</p>	MODEL(S) AFFECTED
<ol style="list-style-type: none"> <li>4. Remove the trunnion terminal, jam nut and the rod and sleeve seals from the end of the cable assembly; retain trunnion terminal and jam nut.</li> <li>5. Slide extension tube of the lubricator tool over end of cable and thread onto cable hub. Tighten tube using light hand pressure only, 1/4 to 1/2 turn is sufficient after cable hub has bottomed against O-ring seal in extension tube.</li> <li>6. Connect lubricant tube to fitting on gun and the gun hose lube fitting to lube fitting on end of tube extension.</li> </ol>	ALL COACHES



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