



Installation Service and Parts Manual

H2R and H2L Cable Reel

Serial Numbers 678971 through 678972

Manual Number 679932

cascade[®]

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INTRODUCTION

This booklet contains the complete PARTS, INSTALLATION, and SERVICE information for the H2R and H2L Cable Reels. The manual also includes TROUBLESHOOTING GUIDES located on page 10 and 11. If you have additional questions, call the nearest Cascade Service Department listed on the back cover.

To order replacement parts contact the Cascade Central Parts Depot at:

Cascade Corporation
P.O. Box 360
Springfield, Ohio 45505
(513) 322-1199
TELEX: 279563
FAX: 1-513-325-9270

PRIOR TO INSTALLATION

To make the truck and attachment cables compatible with the reel cable connectors, attach the pin and socket connectors (included with the reel) to the truck and attachment cable ends according to the following procedures.

1. Crimp the pin connectors to the truck cable end with VACO Part No. 1900 or Waldom Part No. HT 1919, one of which is included in Tool Kit Part No. 676314 (six pin connectors are supplied with the reel). Use one pin connector per function plus one additional pin connector as a ground.

2. Install the pin connector housing.

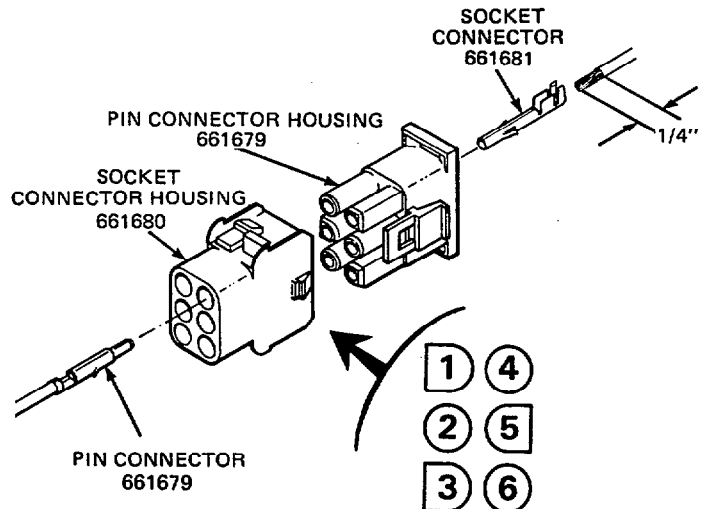
CAUTION: To maintain a uniform electrical circuit and to prevent electrical shocks, establish a connection pattern to be used at all connector locations.

3. Crimp the socket connectors to the attachment cable end with VACO Part No. 1900 or Waldom Part No. HT 1919, one of which is included in Tool Kit Part No. 676314 (six socket connectors are supplied with the reel). Use only one socket connector per function plus one additional socket connector as a ground.

4. Install the socket connector housing using the established connection pattern.

NOTE: The following information is supplied for your convenience in establishing a connection pattern. The wire harness installed in the cable reel is connected to the pins or sockets in the following pattern:

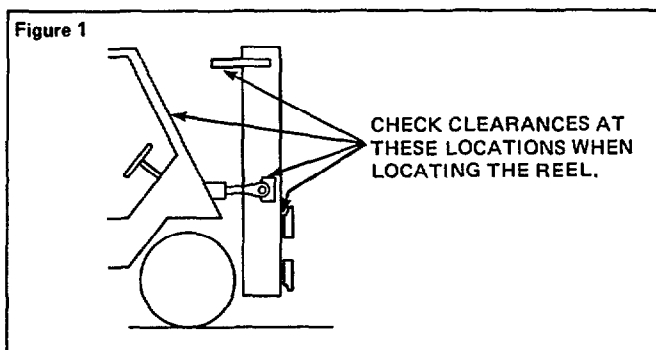
- | | |
|---------------------------|--------------------|
| Pin/Socket No. 1 – Purple | 4 – Yellow or Pink |
| 2 – Green | 5 – White |
| 3 – Black or Blue | 6 – Red |



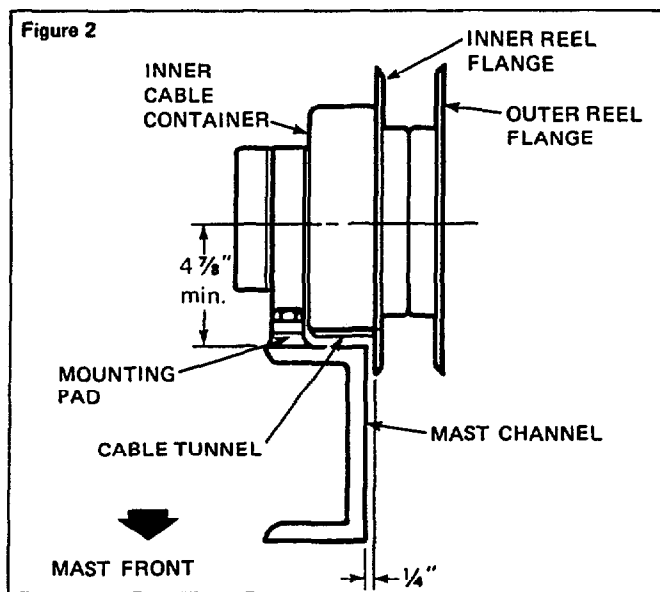
INSTALLATION

IMPORTANT: Do not allow the reel to rotate on its shaft at this time. Doing so will prewind the spring. The wire attaching the Caution Tag to the reel must stay in place until the reel is to be prewound and cable connected to the junction block.

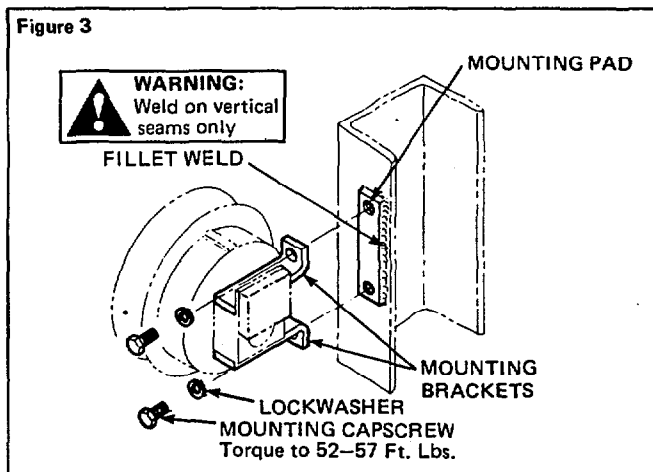
1. Determine a location for the mounting pad keeping in mind the following points:
 - a. **Locate the mounting pad** on the mast channel or truck cowling. See Figure 1. **The cable reel flanges must not interfere with:**
 - The truck overhead guard when the mast is tilted all the way back (if the reel is mounted on the mast).
 - The truck carriage as it moves past the reel (if the reel is mounted on the mast).
 - The mast channel members when the mast is tilted all the way back (if the reel is mounted on the truck cowling).



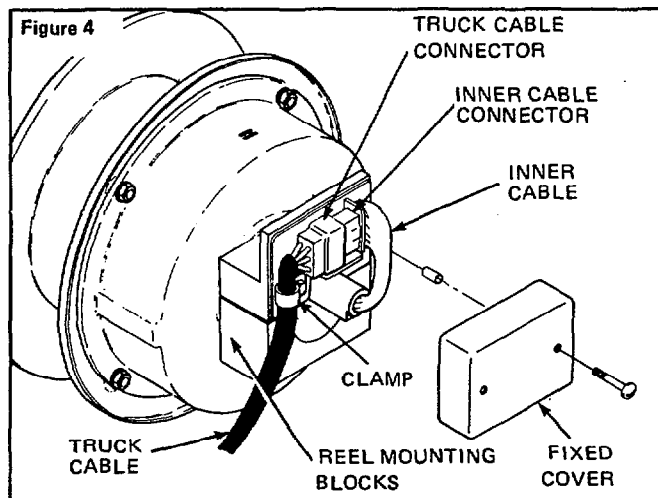
- b. The inner reel flange should be no more than 1/4 in. from the side of the mast and should be placed behind the mast channel rather than along side it. See Figure 2.
 - c. The reel should not extend beyond the widest part of the truck to prevent possible damage to the reel during truck operation.



- d. If you are not using the Cascade Mounting Pad, make sure that your pad has a thickness of at least 5/8 inch.
2. Weld the mounting pad in place using a 3/16 in. fillet weld (use E60XX rod with no preheat or postheat) along the vertical sides of the mounting pad only. See Figure 3. Cover the mast hoist chains to shield from weld splatter.
3. Attach the reel mounting brackets to the mounting pad using the mounting capscrows and lockwashers supplied with the cable reel. See Figure 3.



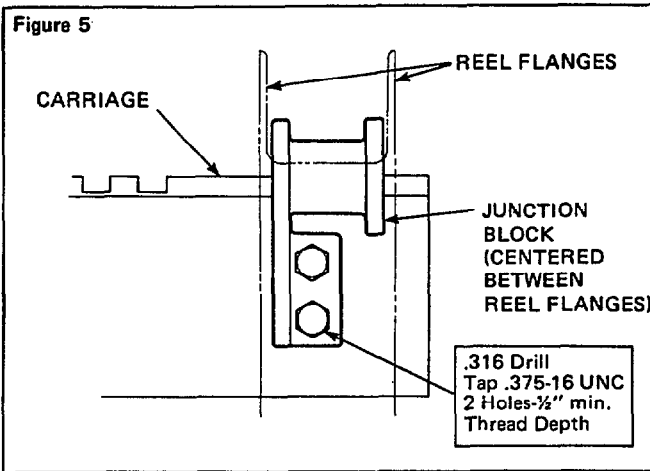
4. Remove the fixed cover from the mounting block on the backside of the reel. See Figure 4.
 5. Join the cable connector of the inner cable to the cable connector of the truck cable using the established connection pattern for all cable ends. See page 1.
 6. Remove the clamp from the mounting block and fit it around the truck cable. Reinstall the clamp on the reel mounting block. See Figure 4.



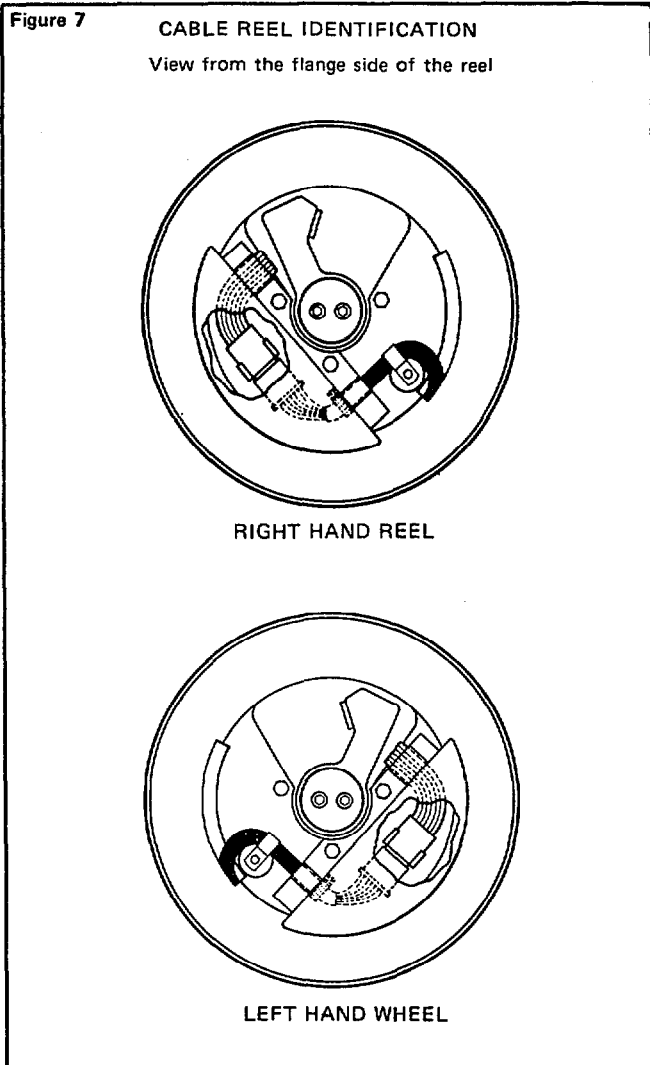
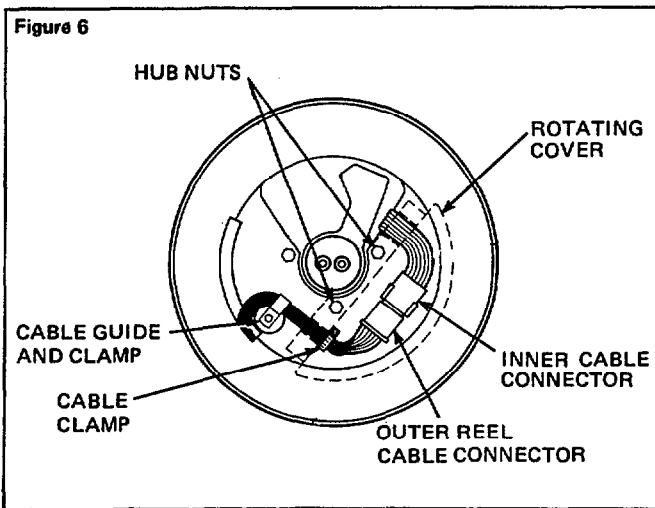
7. Install the fixed cover on the mounting block. Tighten the screws.

CAUTION: Overtightening the screws will damage the fixed cover.

8. Raise the carriage to a position approximately even with the top of the cable reel. The junction block should be positioned so that it is centered between the reel flanges. See Figure 5. Using the junction block as a guide, mark the location of the junction block mounting holes on the back side of the carriage. Make sure the junction block is positioned vertically.
9. Lower the truck carriage to the floor.
10. Drill and tap both holes at the location marked on the carriage. Figure 5 shows the diameter and drilling information for the two holes. The thread depth should be drilled a minimum of 1/2 inch.



11. Install the junction block on the carriage using the capscrews and lockwashers supplied with the junction block.
12. Determine the cable length required as shown in the Cable Length Calculations, see page 12.
NOTE: This step may be by-passed if you have been supplied with a pre-assembled cable of the correct length.
13. To install the outer cable on the reel, remove the two hub nuts securing the rotating cover to the outer flange. Remove the rotating cover. See Figure 6.
14. Join the outer cable connector to the inner cable connector using the established connection pattern. See Figure 6.
15. Fit the cable clamps to the outer cable and secure them as shown in Figure 6.



16. Install the rotating cover and hub nuts. The inner cable must be laying flat in the flange depression and not pinched. Tighten the hub nuts.
17. Wind the outer cable completely onto the reel in the direction indicated (viewed from the flange side):
Right Hand Reel: Wind cable clockwise.
Left Hand Reel: Wind cable counterclockwise.
A Right or Left hand reel is determined as viewed from the flange side of the reel. See Figure 7.
18. Remove the caution tag and wire.
19. Prewind the reel spring by grasping the end of the outer cable and turning the reel a minimum of 3 turns in the direction indicated (viewed from the flange side):
Right Hand Reel: Wind reel clockwise.
Left Hand Reel: Wind reel counterclockwise.

CAUTION: Rotation in a wrong direction will damage the inner cable and reel spring.

If more tension is required the reel can be prewound additional turns. The maximum turn capacity is 16 turns.

Total turns = Prewind turns + Working turns.

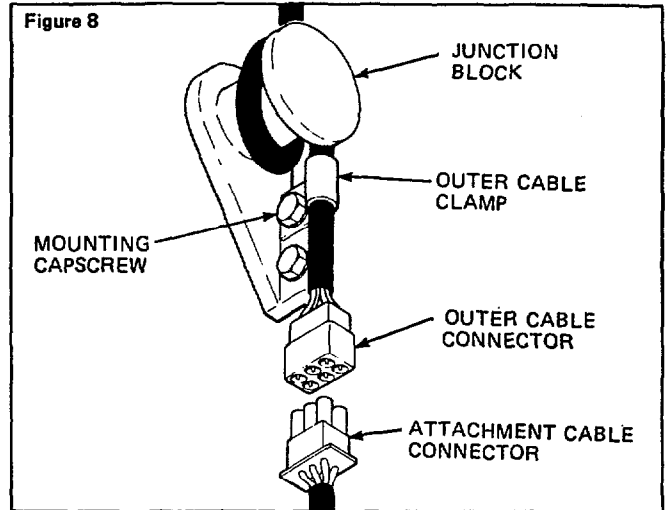
CAUTION: Exceeding turn capacity of the reel will damage the inner cable and reel spring.

20. With the reel prewound, pull the cable end down to the junction block. Loop once around the junction block and fasten securely with the outer cable clamp. See Figure 8.



WARNING: Do not let the reel unwind when connecting the cable to the junction block.

21. Connect the attachment cable connector to the cable connector at the junction block. See Figure 8.
22. Operate the carriage up and down a few times to make sure the cable tracks smoothly and no interference exists.



SEAL AND SPRING ASSEMBLY REPLACEMENT

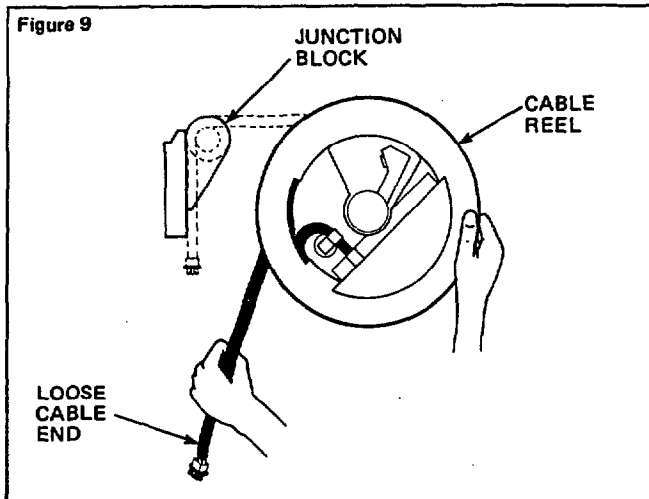
DISCONNECTING THE REEL

1. Disconnect the cable connectors at the junction block.



WARNING: Hold cable firmly while disconnecting cable from the junction block. **Allow the reel spring to unwind slowly while maintaining tension on the loose cable end.** See Figure 9.

2. Remove the cable from the junction block.

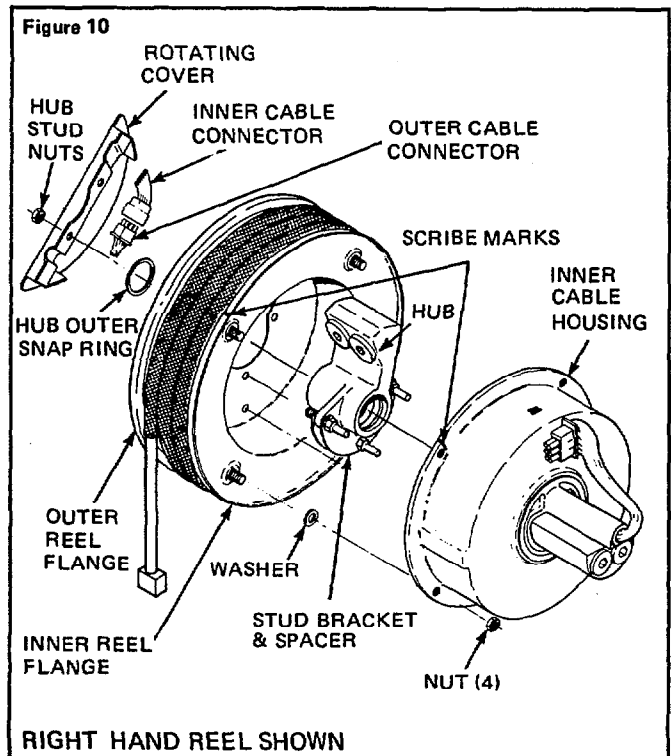


3. Remove fixed cover from the mounting block. Disconnect the inner cable connector from the truck cable connector. See Figure 4.
4. Remove the capscrews and lockwashers fastening the reel to the mounting pad. Remove the reel from the mast.

REEL DISASSEMBLY

1. Remove the nuts from the hub studs and lift off the rotating cover. See Figure 10.

2. Disconnect the reel outer cable connector from the inner cable connector. See Figure 10.
3. Remove the four nuts and washers attaching the inner cable housing to the inner reel flange. See Figure 10.
4. Scribe a mark on the inner cable housing and the inner reel flange to aid in alignment during reassembly. See Figure 10.



5. **RIGHT HAND REEL** (See Figure 7.)

- a. Pull both flanges (with outer cable) off the hub studs. Rotate the flanges slightly to free the inner cable connector. See Figure 10.
- b. Remove the hub outer snap ring. See Figure 10.
- c. Pull the hub off the shaft.
- d. Leave the stud bracket and spacer on the hub.

NOTE: Since the O-rings in the hub produce friction, it may be necessary to tap gently on the end of the shaft with a rubber mallet or hammer handle while pushing off the hub.

LEFT HAND REEL (See Figure 7.)

- a. Remove the hub outer snap ring. See Figure 10.
 - b. Pull the hub off the shaft.
 - c. Remove both flanges (with outer cable) and the stud bracket.
6. Remove the seals from the hub. Avoid scratching seal grooves. Clean the hub and shaft with solvent.

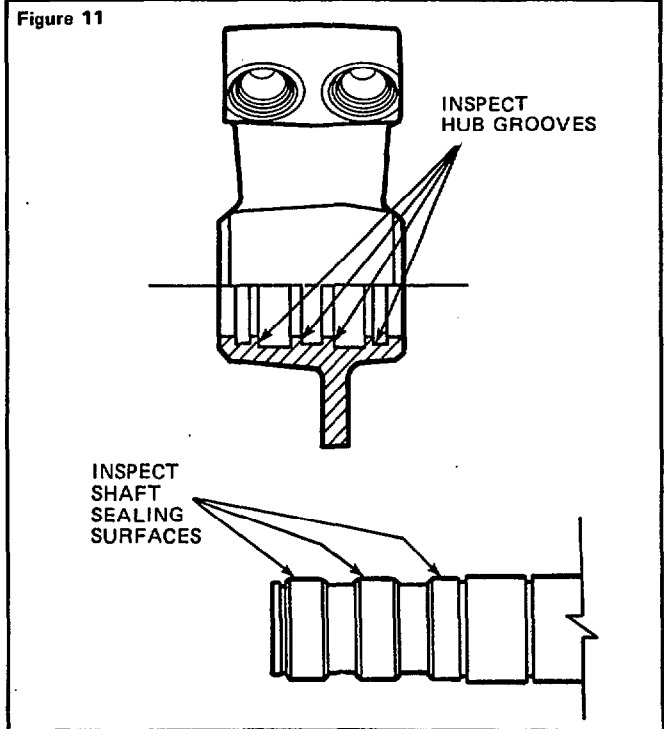
- The sealing surface on the shaft is nickel plated. If minor surface imperfections are noted, use emery cloth (320 Grit) to lightly smooth up. If sharp edges or grooves are found, shaft replacement is necessary. See Figure 11.

- Hub grooves must be free of sharp nicks or projections to prevent cutting of the outside diameter of the O-ring during installation. See Figure 11.

SPRING ASSEMBLY REPLACEMENT

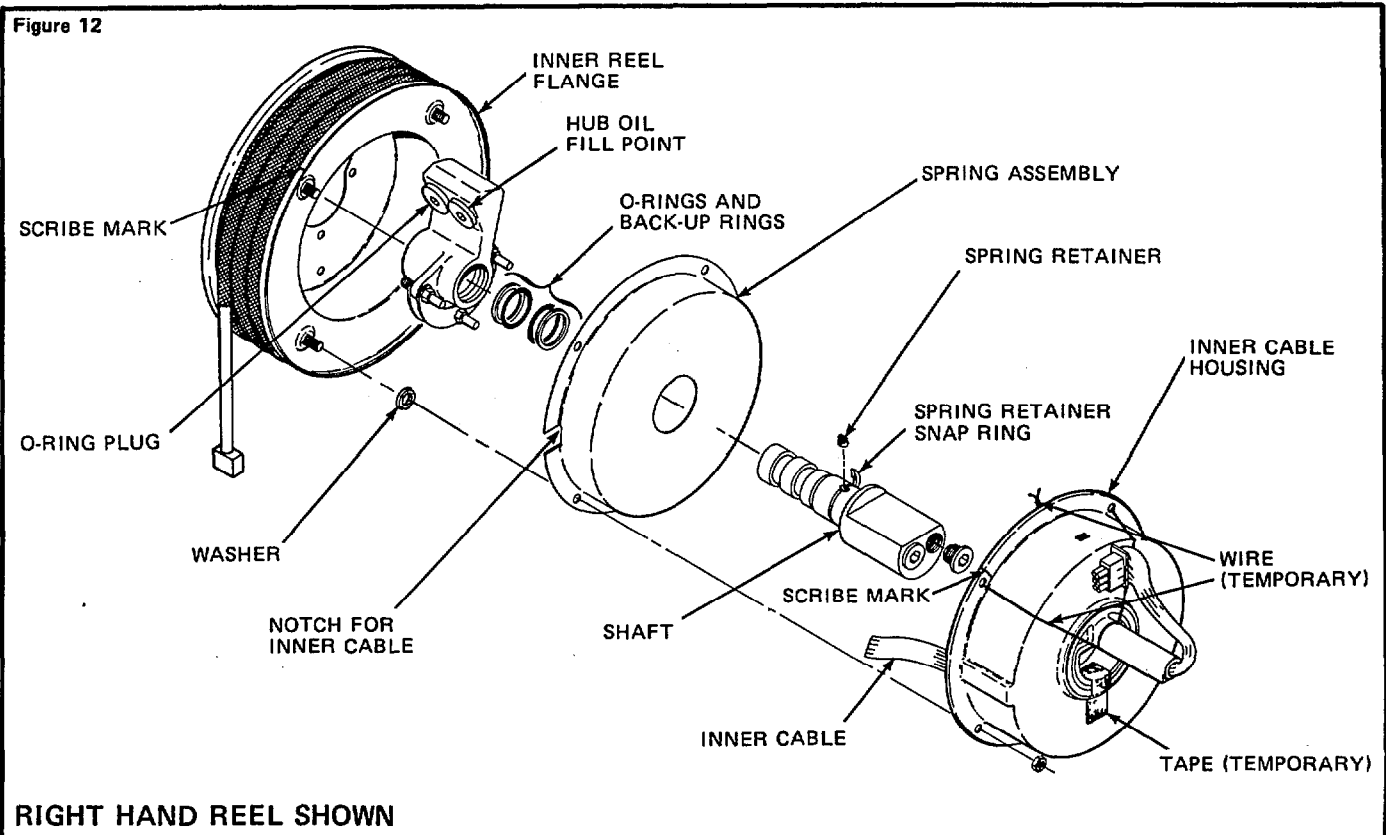
NOTE: If the spring assembly does not require replacement, delete this step and proceed to **Reel Assembly**.

1. Disengage the spring from the spring retainer on the shaft. See Figure 12.



CAUTION: Do not allow the inner cable housing to rotate independently of its hub. Damage to the inner cable will occur if they are rotated. Use tape or wire to hold both from rotating. See Figure 12. **If either has been rotated** refer to the **Inner Cable Housing Timing** instructions on page 8.

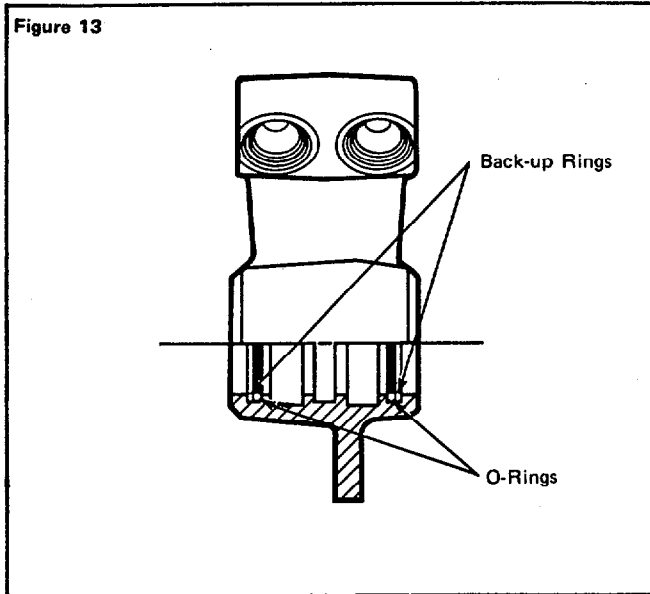
2. Hold the reel assembly by the outside of the inner cable housing over a work bench with the shaft downward. Tap the shaft end on the bench. Slide the spring assembly out of the inner cable housing and off the shaft.



3. If the spring retainer has been damaged, remove the spring retainer snap ring and install a new spring retainer. See Figure 12.
4. Slide the new spring assembly onto the shaft. Secure the spring end on the spring retainer by turning the spring on the shaft. Make sure the notch in the spring assembly is aligned with the inner cable. See Figure 12.

REEL REASSEMBLY

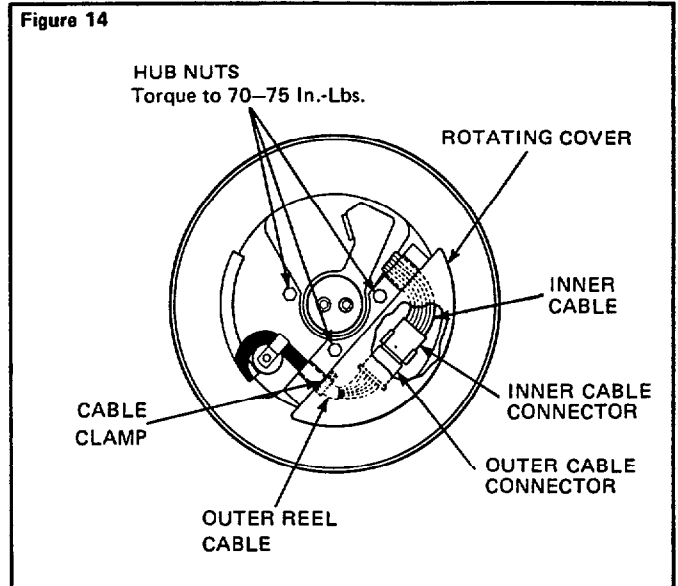
1. Lubricate the shaft, seals and bore of the hub with hydraulic oil.
2. Install the back-up rings into the outer hub grooves. Place a portion of ring in the groove, then bend as required to install. See Figure 13. Install the O-ring seals.



NOTE: When servicing the inner cable housing or installing a new shaft seal kit, the cable harness (inside the inner cable housing) should be lubricated with TRI-FLON spray lube, Cascade Part No. 669779. See inner cable replacement section, page 7, for assembly instructions.

3. **RIGHT HAND REEL** (See Figure 7.)
 - a. Rotate the hub slowly as you slide it onto the shaft.
 - b. Install the hub outer snap ring. See Figure 10.
 - c. Fill hub to within 1/4 in. of the O-ring plug with a 50/50 mixture of "STP" and hydraulic oil. See Figure 12.
 - d. Place the reel flanges onto the hub, aligning the scribe mark on the inner cable container to the scribe mark on the inner reel flange.
- LEFT HAND REEL** (See Figure 7.)
 - a. With the stud bracket and spacer on the inside of the reel flanges, slide the hub and reel flanges as one unit onto the shaft.
 - b. Align the scribe mark on the inner cable container to the scribe mark on the reel flanges.
 - c. Install the hub outer snap ring. See Figure 10.
 - d. Fill hub to within 1/4 in. of the O-ring plug with a 50/50 mixture of "STP" and hydraulic oil. See Figure 12.
4. Install the capscrews, lockwashers and nuts to fasten the inner reel flange to the inner cable housing. See Figure 12.
5. Reconnect inner and outer cable connectors. See Figure 14.

6. Install the rotating cover and hub nuts. The inner cable must be laying flat in the flange depression and not pinched. Tighten the nuts to a torque of 70–75 in.-lbs.



7. Remount the reel onto the truck.
 - a. Reconnect the inner cable connector to the truck cable at the mounting block. See Figure 4.
 - b. Attach the clamp to the truck cable and secure the clamp to the mounting block. See Figure 4.
 - c. Install the fixed cover.
8. Make sure cable is tightly wound on the reel in the direction indicated (viewed from the flange side):
 - Right Hand Reel:** Cable wound clockwise.
 - Left Hand Reel:** Cable wound counterclockwise.
9. Prewind the reel spring by grasping the end of the outer cable and turning the reel a minimum of 3 turns in the direction indicated (viewed from the flange side).

Right Hand Reel: Wind reel clockwise.
Left Hand Reel: Wind reel counterclockwise.

CAUTION: Rotation in a direction opposite than described will damage the inner cable and reel spring.

If more tension is required, the reel can be prewound additional turns. The maximum turn capacity is 16 turns.

Total turns = Prewind turns + Working turns.

CAUTION: Exceeding turn capacity of the reel will damage the inner cable and reel spring.

WARNING: Do not let the reel unwind when connecting the cable to the junction block.

10. With the reel prewound, pull the cable end down to the junction block, loop once around the junction block and fasten securely with the cable clamp. See Figure 8.
11. Connect the attachment cable connector to the connector at the junction block.
12. Operate the carriage up and down a few times to make sure the cable tracks smoothly and no interference exists.

INNER CABLE REPLACEMENT

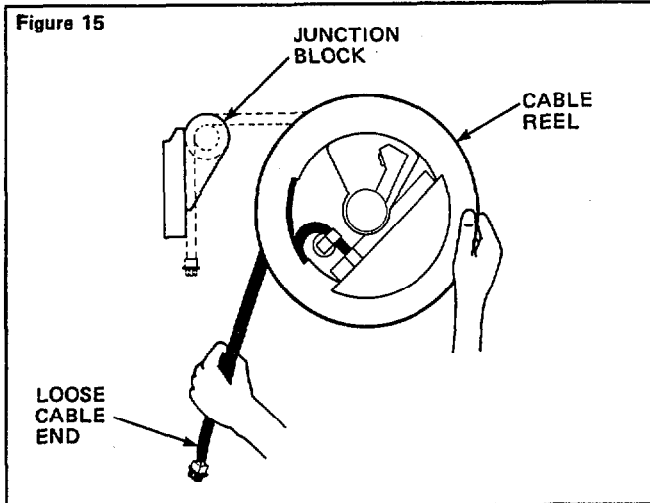
DISCONNECTING THE REEL

1. Disconnect the connectors at the junction block.
2. Remove the cable from the junction block.



WARNING: Hold cable firmly while disconnecting cable from the junction block. **Allow the reel spring to unwind slowly while maintaining tension on the loose cable end.** See Figure 15.

Figure 15



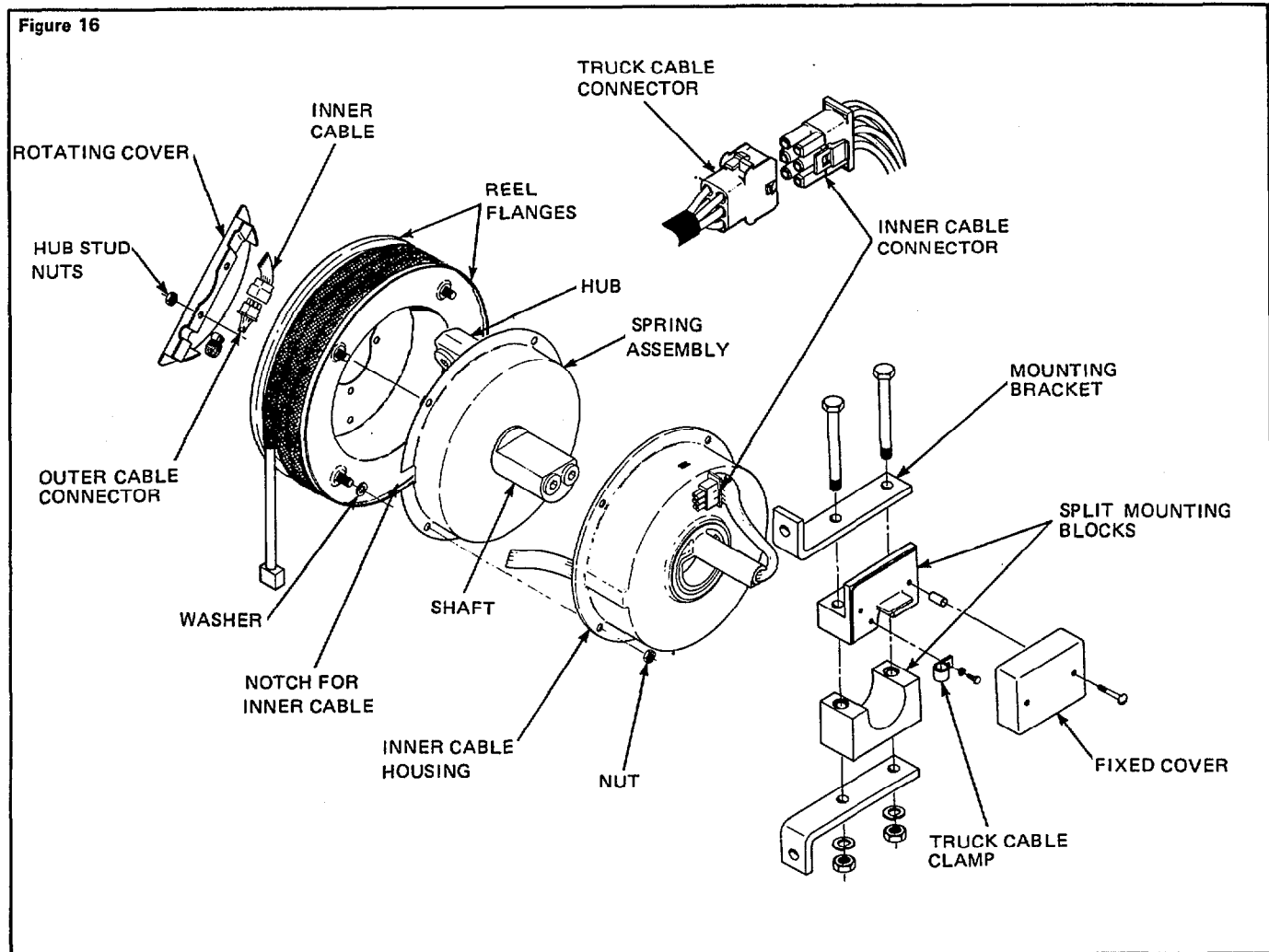
3. Remove the fixed cover from the mounting block and disconnect the cable connector. See Figure 4.
4. Remove the capscrews and lockwashers fastening the reel to the mounting pad. Remove the reel from the mast.

REEL DISASSEMBLY

1. Remove the nuts from the hub studs and lift off the rotating cover. See Figure 16.
2. Disconnect the reel outer cable connector from inner cable connector. See Figure 16.
3. Remove the four nuts and washers attaching the inner cable housing to the inner reel flange. See Figure 16.
4. Pull the reel flanges off the hub studs. Rotate the flanges slightly to free the inner cable connector.
5. Remove the mounting brackets and split the mounting blocks from the shaft. See Figure 16.
6. Separate the spring assembly from the inner cable housing. Slide the inner cable housing off the shaft. See Figure 16.

CAUTION: Do not allow the inner cable housing to rotate independently of its hub. Damage to the inner cable will occur if they are rotated. Use tape or wire to hold both from rotating. **If either has been rotated** refer to the **Inner Cable Housing Timing** instruction on page 8.

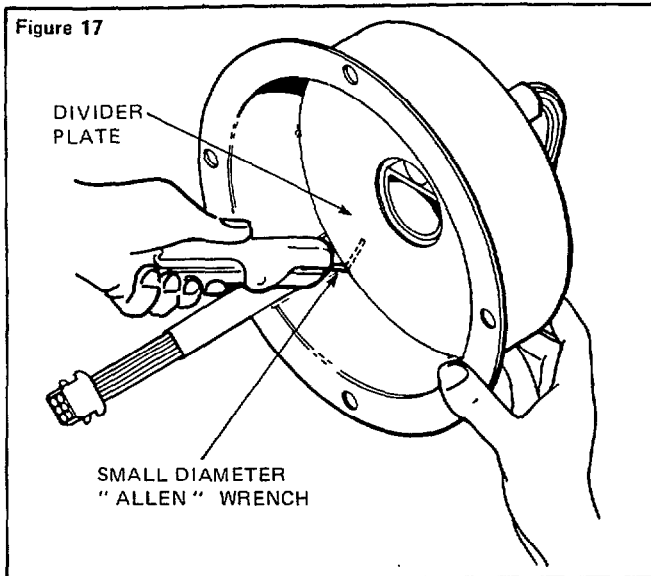
Figure 16



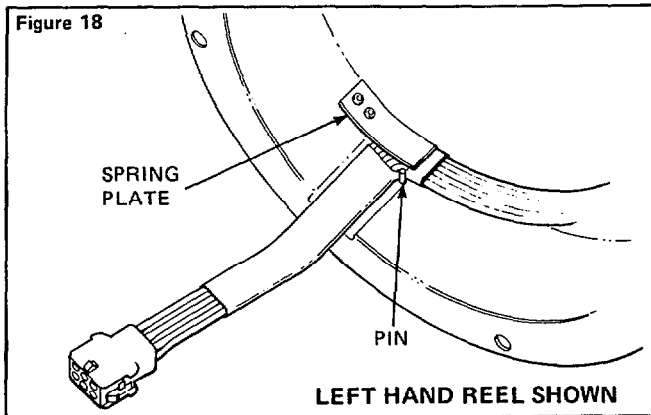
INNER CABLE REPLACEMENT

NOTE: If a new Inner Cable Housing is being installed, delete this step and proceed to **Reel Reassembly**.

1. Insert a small diameter allen wrench under the lip of the divider plate. Grip the allen wrench with a pair of vise grips. Pull outward to remove the divider plate. See Figure 17.

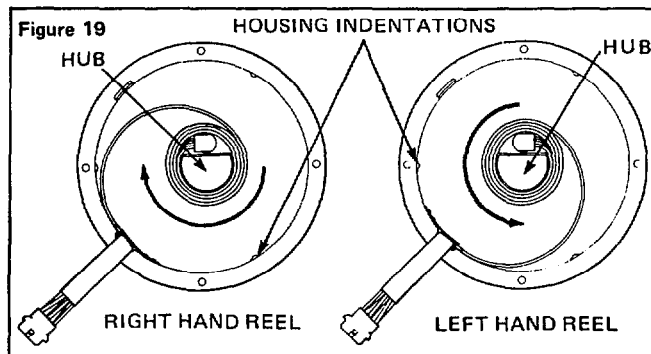


2. Remove the cable harness.
3. Place the new cable harness in the housing. Fit the cable (at its 90° bend) under the spring plate and around the pin. See Figure 18.



4. Wind the cable around the hub in the direction shown in Figure 19.

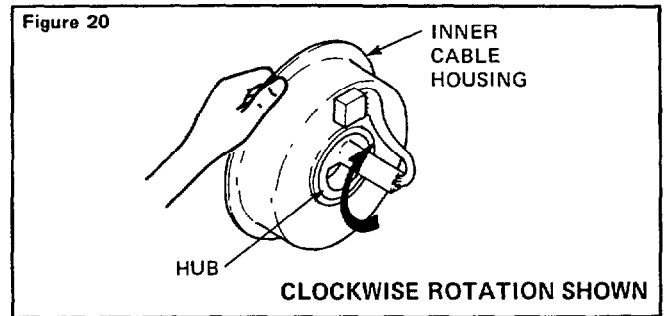
A Right or Left hand reel is determined as viewed from the flange side of the reel. See Figure 7.



5. Place the divider plate inside the housing. Push the plate edge past the three housing indentations.

INNER CABLE HOUSING TIMING

1. Determine if the reel is a right hand or left hand model as viewed from the flange side of the reel. See Figure 7.
2. Position the cable container with the hub cable harness toward you. See Figure 20.
3. Hold the housing from rotating. Wind the hub until tight:
Right Hand Reel: Wind hub counterclockwise.
Left Hand Reel: Wind hub clockwise.
4. Rotate the hub back 1 revolution. This provides one safety turn in the wiring to prevent internal damage.
5. Use tape or wire to secure the hub to the housing. This will prevent either from rotating. The Inner Cable Housing is ready for further reel assembly.



REEL REASSEMBLY

1. Fit the new inner cable housing over the shaft (do not rotate) and over the spring assembly. Be sure to fit the inner cable into the notch in the spring assembly. See Figure 16.
CAUTION: Do not allow the inner cable housing to rotate independently of its hub. Damage to the inner cable will occur if they are rotated. Use tape or wire to hold both from rotating. **If either has been rotated** refer to the **Inner Cable Housing Timing** instructions in the preceding section.
IMPORTANT: The spring assembly must be in its neutral position when fitted into the inner cable housing.
2. Install the split mounting blocks and mounting brackets. See Figure 16.
3. Fit the reel flanges onto the hub studs. Install the capscrews, washers, and nuts to fasten the reel flanges to the inner cable housing.
4. Connect inner and outer cable connectors.
5. Install the rotating cover and hub nuts. The inner cable must be laying flat in the flange depression and not pinched. Tighten the nuts.
6. Remount the reel on the truck.
7. Reconnect the inner cable connector to the truck cable at the mounting block. See Figure 4.
8. Attach the clamp to the truck cable and secure the clamp to the mounting block.

9. Install the fixed cover.

CAUTION: Overtightening the capscrews will damage the fixed cover.

10. Make sure the cable is tightly wound on the reel in the direction indicated (viewed from the flange side):

Right Hand Reel: Cable wound clockwise.

Left Hand Reel: Cable wound counterclockwise.

A Right or Left hand reel is determined as viewed from the flange side of the reel. See Figure 7.

11. Prewind the reel spring by grasping the end of the outer cable and turning the reel a minimum of 3 turns in the direction indicated (viewed from the flange side):

Right Hand Reel: Wind reel clockwise.

Left Hand Reel: Wind reel counterclockwise.

CAUTION: Rotation in a direction opposite than described will damage the inner cable and reel spring.

If more tension is required the reel can be prewound additional turns. The maximum turn capacity is 16.

Total turns = Prewind turns + Working turns.

CAUTION: Exceeding turn capacity of the reel will damage the inner cable and reel spring.

12. With the reel prewound, pull the cable end down to the junction block. Loop once around the junction block and fasten securely with the cable clamp. See Figure 8.

WARNING: Do not let the reel unwind when connecting the cable to the junction block.

13. Operate the carriage up and down a few times to make sure the cable tracks smoothly and no interference exists.

OUTER CABLE REPLACEMENT

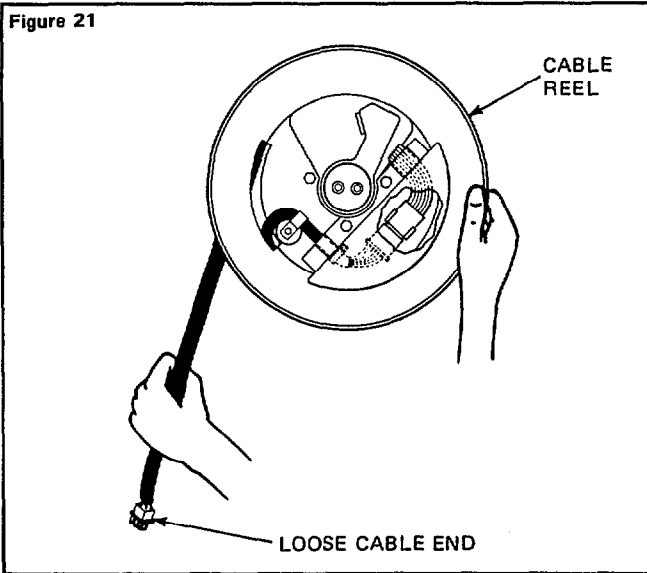
1. Disconnect the old outer cable from the attachment cable at the junction block.



WARNING: Hold cable firmly while disconnecting cable from the junction block. **Allow the reel spring to unwind slowly while maintaining tension on the loose cable end.** See Figure 21.

2. Disconnect the old cable from the junction block.

Figure 21



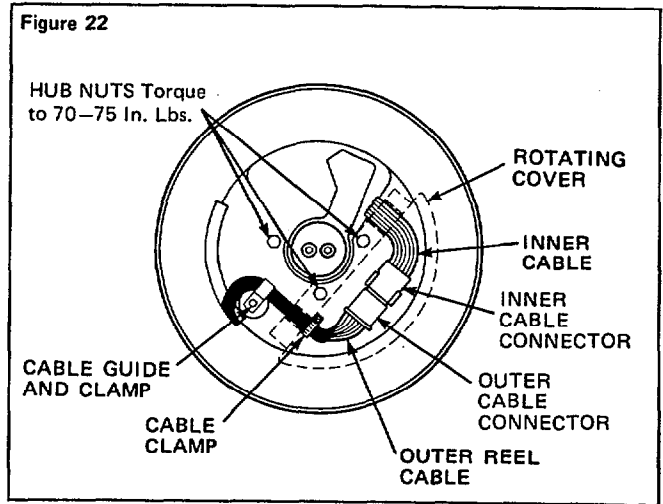
3. Remove the two hub nuts securing the rotating cover to outer flange. Remove the rotating cover. See Figure 22.

4. Remove the cable guide clamp and cable clamp. Discard the old outer reel cable. See Figure 22.

5. Join new outer reel cable connector to the inner cable connector using the established connection pattern. See page 1.

6. Fit the cable clamps to the outer cable and secure them on each side of the rotating cover. See Figure 22.

7. Install rotating cover and hub nuts. The inner cable must be laying flat in the flange depression and not pinched. Tighten nuts to a torque of 70-75 in.-lbs. See Figure 22.



8. Wind the new cable completely onto reel in direction indicated (viewed from the flange side).

Right Hand Reel: Wind cable clockwise.

Left Hand Reel: Wind cable counterclockwise.

9. Prewind reel spring by grasping the end of the outer cable and turning the reel a minimum of 3 turns in direction indicated (viewed from the flange side).

Right Hand Reel: Wind reel clockwise.

Left Hand Reel: Wind reel counterclockwise.

CAUTION: Rotation in a direction opposite than described will damage the inner cable and reel spring.

If more tension is required the reel can be prewound additional turns. The maximum turn capacity is 16 turns.

Total Turns = Prewind turns + Working turns

CAUTION: Exceeding turn capacity of the reel will damage the inner cable and reel spring.

WARNING: Do not let the reel unwind when connecting the cable to the junction block.

10. With the reel prewound, pull the cable down to the junction block. Loop once around the junction block and fasten securely with the cable clamp. See Figure 8.

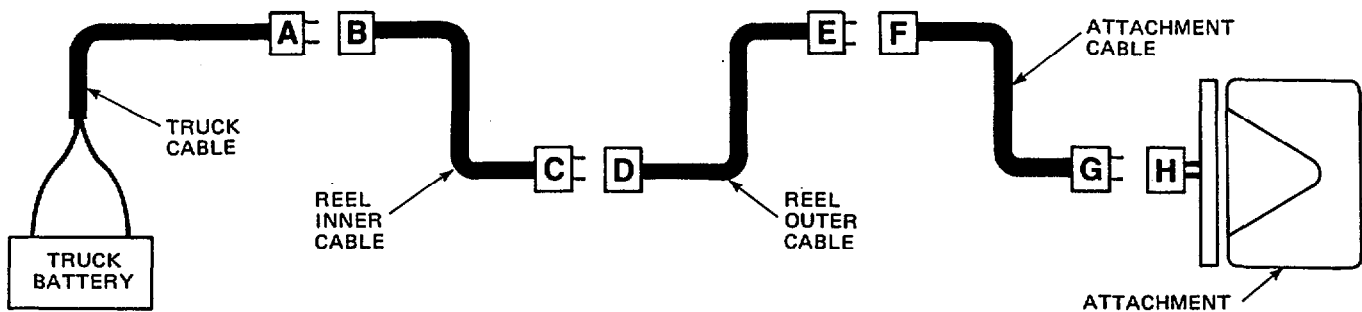
11. Operate the carriage up and down a few times to make sure the cable tracks smoothly and no interference exists.

TROUBLESHOOTING GUIDE

| PROBLEM | PROBLEM CAUSE | SOLUTION |
|---|--|--|
| Excessive wear on cable. | Cable reel and junction block are not in proper alignment. | Align the junction block and cable reel properly. They must be on the same center line and mounted squarely to each other. See Figure 5. |
| | Cable reel flanges damaged. | Repair or replace damaged parts. |
| Cable jumps off reel during operation. | Incorrect prewind of spring. | Prewind spring, see page 3, steps 19 through 21. |
| | Cable not aligned with junction block. | Align junction block with cable reel. See Figure 5. |
| Cable binds during operation. | Cable reel spring is broken. | Replace the spring. |
| | Back-up ring in hub working between shaft and hub. | Replace the back-up rings. |
| | Scored seal areas. | Replace the damaged shaft and/or use emery cloth to remove the nicks from the shaft. |
| Electrical malfunction. | The same pattern for cable connections has not been used at all locations. | Make sure pin and cable connectors use the same pattern at all locations. |
| | Electrical short in the reel cable, truck or attachment cable. | See Electrical Troubleshooting Guide. |
| Inner Cable Housing wire breaks inside housing. | Excessive mast height. | Cable reel cannot be used in this application. The maximum turn capacity is being exceeded. |
| | Cable reel wound backwards. | Replace Inner Cable Housing. Wind reel in direction indicated in Inner Cable Housing Replacement Instructions. |
| | Service life of wire has been exceeded. | Replace Inner Cable Housing. |

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ELECTRICAL TROUBLESHOOTING GUIDE



Using the accompanying electrical diagram and the following instructions, locate an electrical short. When using an ohmmeter to check for continuity, follow the instructions with your meter. Make sure that electrical power is disconnected when checking continuity.

1. Connect cable connector A to cable connector F (to isolate the entire cable reel). Operate the attachment.

NOTE: Do not operate the mast.

- a. If none of the attachment functions operate:
 - Disconnect cable connector A from cable connector F.
 - Use an ohmmeter to check the continuity of the attachment cable (between connectors F and G). If the cable checks OK, the truck cable is faulty and should be replaced. Refer to your truck Service Manual.
- b. If some attachment functions respond and others do not, the pins and/or sockets in the connectors are at fault and should be replaced. Recheck attachment operation after repair.
- c. If all attachment functions operate correctly, reconnect the cables as shown in the diagram and proceed to Step 2.

2. Connect cable connector A to cable connector D (to isolate the reel inner cable). Operate the attachment.

NOTE: Do not operate the mast.

- a. If none of the attachment functions operate, the reel outer cable is faulty and should be replaced. For replacement instructions, refer to page 9.
 - b. If some attachment functions respond and others do not, the pins and/or sockets in the connectors are at fault and should be replaced. Recheck attachment operation after repair.
 - c. If all attachment functions operate correctly, reconnect the cables as shown in the diagram and proceed to Step 3.
3. Connect cable connector C to cable connector F (to isolate the reel outer cable). Operate the attachment.

NOTE: Do not operate the mast.

- a. If none of the attachment functions operate, the reel inner cable is faulty and should be replaced. For replacement instructions, refer to page 8.
- b. If some attachment functions respond and others do not, the pins and/or sockets in the connectors are at fault and should be replaced. Recheck attachment operation after repair.

CABLE LENGTH CALCULATIONS

H = Total lift height

D = Distance from centerline of reel to junction block.

1. When **H** is equal to, or greater than $2 \times \mathbf{D}$, the correct cable length is: $\mathbf{H} - \mathbf{D} + 28$ inches
2. When **H** is less than $2 \times \mathbf{D}$, the correct cable length is: $\mathbf{D} + 28$ inches

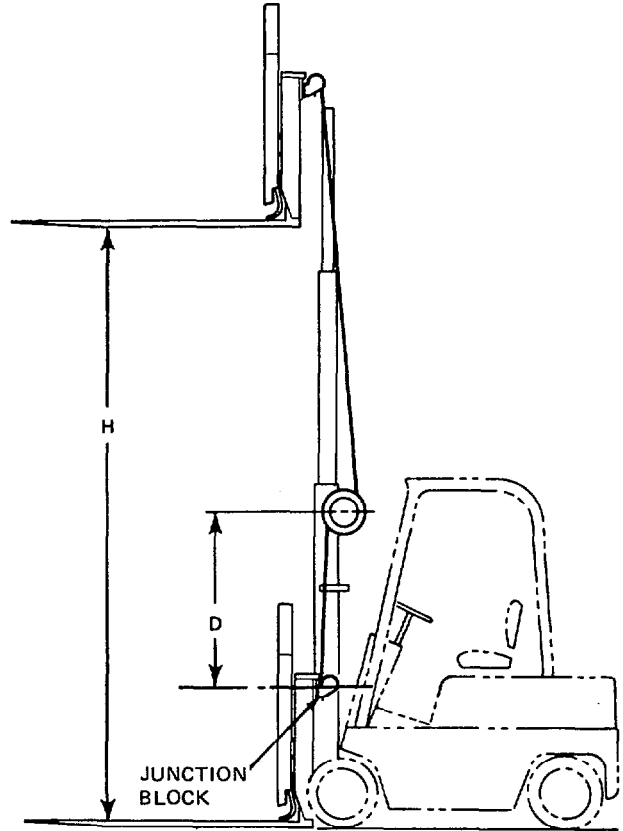
Example

H = 286"

D = 96"

$286" - 96" = 190" + 28" = 218"$

Correct cable length



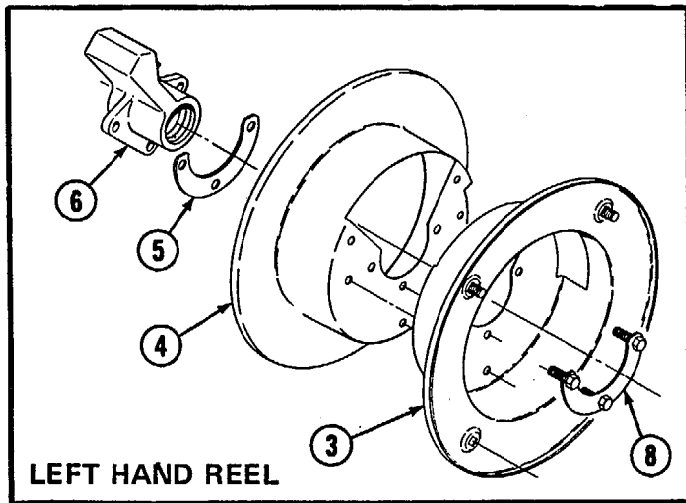
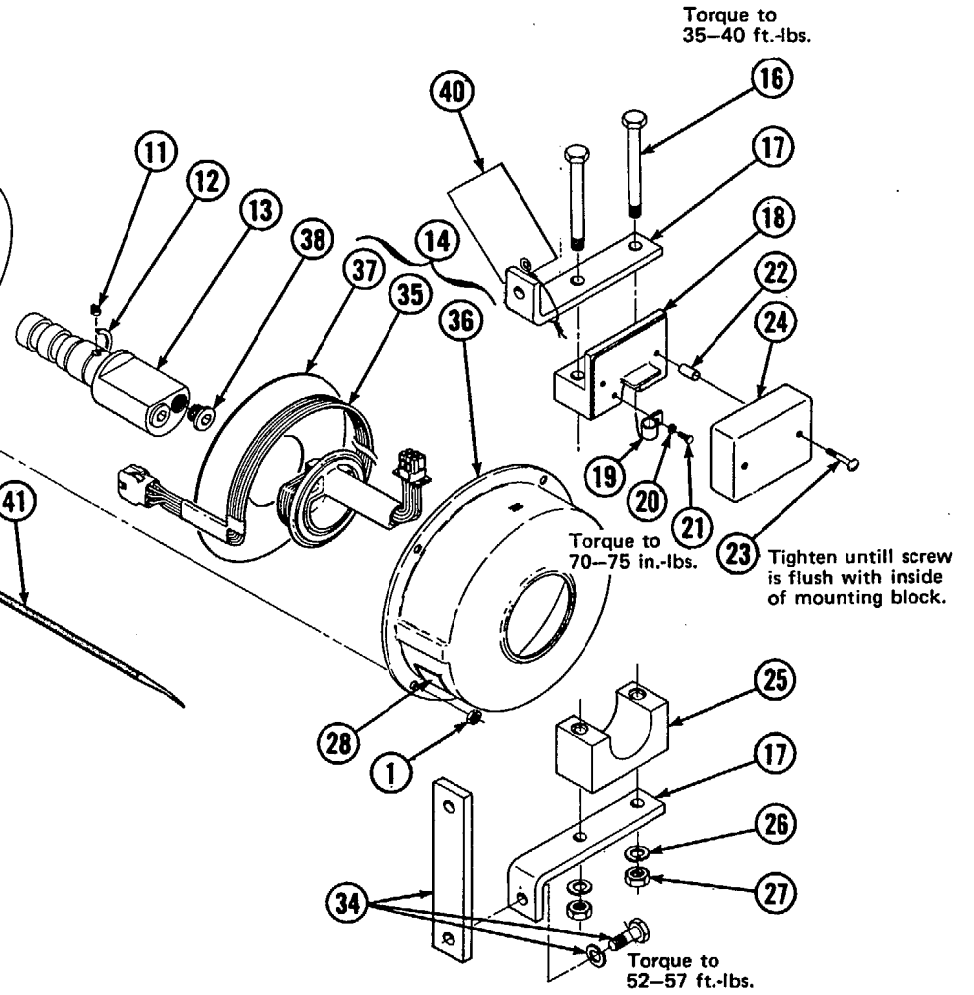
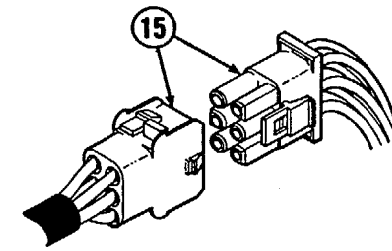
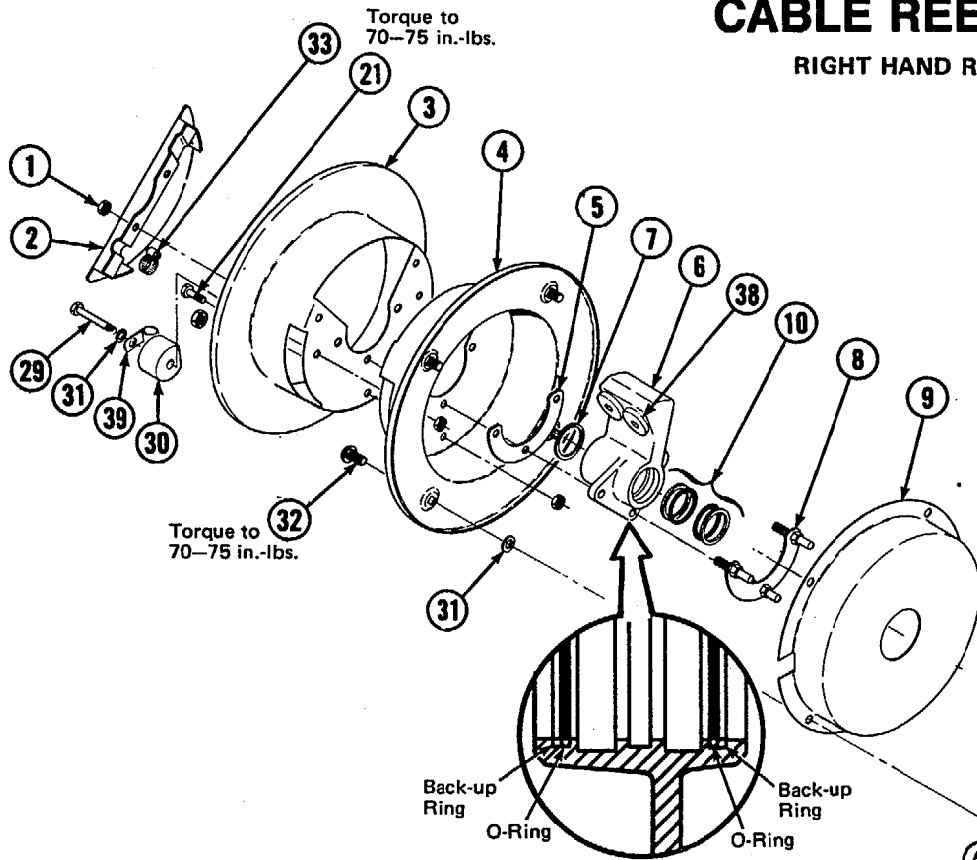
WORKSHEET

| | |
|---|--|
| <p>1. H = (enter mast's lift height here) _____</p> <p>2. D = (enter distance between junction block and center of reel with carriage completely lowered) _____</p> <p>3. Multiply D by 2 _____</p> <p>4. If line 1. is less than line 3., the cable length should be:</p> <p style="padding-left: 40px;">D (line 2.) _____</p> <p style="padding-left: 40px;">+ 28 inches _____</p> <p style="padding-left: 40px;">Cable Length = <u>28"</u></p> | <p>If line 1. is equal to or larger than line 3., the cable length should be</p> <p style="text-align: right;">H (line 1.) _____</p> <p style="text-align: right;">+ D (line 2.) _____</p> <p style="text-align: right;">= _____</p> <p style="text-align: right;">+ 28 inches <u>28"</u></p> <p style="text-align: right;">Cable Length = _____</p> |
|---|--|

See page 15 for standard cable lengths.

CABLE REEL PARTS

RIGHT HAND REEL SHOWN

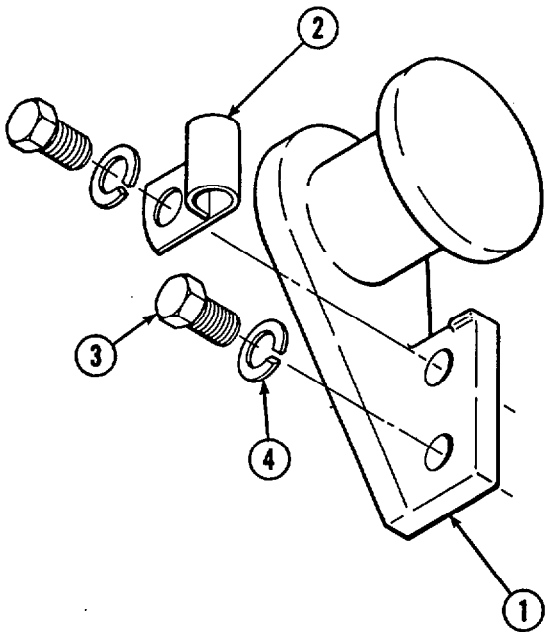


CABLE REEL PARTS

| REF | QTY | PART NO. | DESCRIPTION | REF | QTY. | PART NO. | DESCRIPTION |
|------|-----|----------|----------------------------------|------|------|----------|-------------------------------------|
| | | 678971 | Cable Reel Assembly - Right Hand | 21 | 4 | 3551 | Capscrew, 1/4 NC x .50 |
| | | 678972 | Cable Reel Assembly - Left Hand | 22 | 2 | 663886 | Tube |
| 1 | 11 | 645986 | Locking Nut, 1/4 NC | 23 | 2 | 659887 | Machine Screw, 1/4 NC X 1.50 |
| 2 | 1 | 659898 | Rotating Cover - Left Hand | 24 | 1 | 659886 | Fixed Cover |
| | 1 | 659876 | Rotating Cover - Right Hand | 25 | 1 | 659884 | Lower Mounting Block |
| 3 | 1 | 645979 | Flange | 26 | 2 | 6290 | Lockwasher, 1/2 ID |
| 4 | 1 | 645990 | Flange | 27 | 2 | 5904 | Nut, 1/2 NC |
| 5 | 1 | 659880 | Spacer | 28 | 1 | 679922 | Nameplate - Right Hand Cable Reel |
| 6 | 1 | 677860 | Hub | | 1 | 679930 | Nameplate - Left Hand Cable Reel |
| 7 | 1 | 3135 | Snap Ring | 29 | 1 | 3557 | Capscrew, 1/4 NC x 1.50 |
| 8 | 1 | 659881 | Bracket | 30 | 1 | 662381 | Cable Guide |
| 9 | 1 | 664886 | Spring Assembly - Right Hand | ■ 31 | 5 | 6228 | Washer, 1/4 ID |
| | 1 | 664885 | Spring Assembly - Left Hand | 32 | 4 | 659889 | Capscrew |
| 10 | 1 | 679063 | Shaft Seal Kit | 33 | 1 | 659875 | Clamp |
| 11 | 1 | 659917 | Spring Retainer | 34 | 1 | 661031 | Mounting Kit |
| 12 | 1 | 675610 | Snap Ring | ■ 35 | 1 | 669654 | Cable Harness |
| 13 | 1 | 677858 | Shaft | ■ 36 | 1 | 669647 | Cable Housing Assembly - Right Hand |
| 14 | 1 | 669651 | Cable Service Kit - Right Hand | | 1 | 669648 | Cable Housing Assembly - Left Hand |
| | 1 | 669652 | Cable Service Kit - Left Hand | ■ 37 | 1 | 659882 | Divider Plate |
| ● 15 | 1 | 660414 | Connector Kit | 38 | 4 | 602580 | Plug |
| 16 | 2 | 3667 | Capscrew, 1/2 NC x .50 | 39 | 1 | 655071 | Olip |
| 17 | 2 | 659888 | Mounting Bracket | 40 | 1 | 667898 | Caution Tag |
| 18 | 1 | 659885 | Upper Mounting Block | 41 | 1 | 674424 | O-Ring Extractor Tool |
| 19 | 1 | 659890 | Clip | ★ | | 676314 | Service Tool kit |
| 20 | 1 | 6286 | Lockwasher, 1/4 ID | | | | |

2614a-79/2

- Connector Kit includes 1 Socket Connector Housing (661680) and 6 Socket Connectors (661681); 1 Pin Connector Housing (661678) and 6 Pin Connectors (661679).
- Included in Cable Service Kit (Ref. No. 14).
- ★ Includes (1) crimping tool and (1) pin extractor tool.



JUNCTION BLOCK GROUP

| REF | QTY | PART NO. | DESCRIPTION |
|-----|-----|----------|----------------------|
| | | 662377 | Junction Block Group |
| 1 | 1 | 662378 | Junction Block |
| 2 | 1 | 655071 | Clip |
| 3 | 2 | 3603 | Cap screw |
| 4 | 2 | 6288 | Lockwasher |

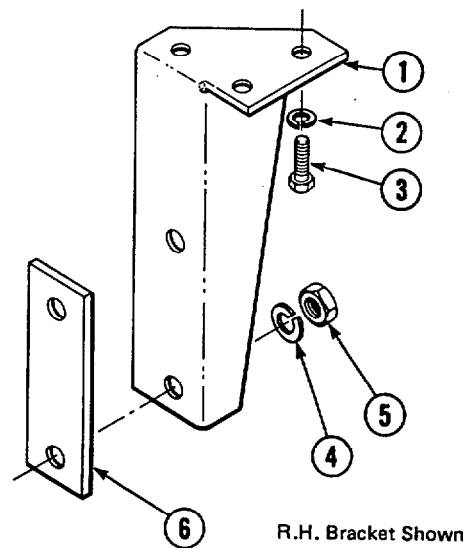
2168k

MOUNTING GROUP

| REF | QTY | RIGHT HAND PART NO. | LEFT HAND PART NO. | DESCRIPTION |
|-----|-----|---------------------|--------------------|------------------|
| | | 665330 | 665331 | Mounting Group |
| 1 | 1 | 664084 | 664085 | Mounting Bracket |
| 2 | 3 | 6288 | 6288 | Lockwasher |
| 3 | 3 | 3601 | 3601 | Cap screw |
| 4 | 2 | 6290 | 6290 | Lockwasher |
| 5 | 2 | 5904 | 5904 | Nut |
| 6 | 1 | 662293 | 662293 | Bar |

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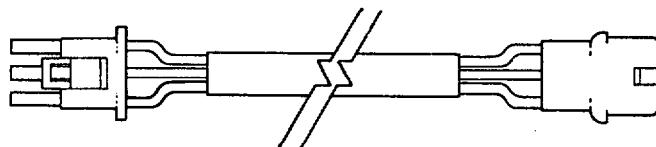
These mounting groups designed for Cascade Roller dual and triple lift masts.
For Cascade Quad masts and masts other than Cascade, use Mounting Group 661031.
See page 14, item 34.



CABLES

| CATALOG ORDER NO. | CABLE LENGTH |
|-------------------|--------------|
| 662383 | 195" |
| 663011 | 276" |

2168k



Do you have questions you need answered right now? Call your nearest Cascade Parts Department.

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