



Parts Service Installation

**Hydraulic Hose Reels
Electric Cable Reels**

Manual Number 667407

cascade[®]

Cascade is a Registered Trademark of Cascade Corporation

This manual is intended for Lift Truck applications. (Non Lift Truck applications will generally use the same instructions.) For technical assistance consult the Cascade Service Department.

INDEX	
	PAGE
INSTALLATION	11
SERVICE	12
HOSE LENGTH	15
TROUBLE SHOOTING GUIDE.	16
PARTS LISTS	1

INSTALLATION

Hose Reel

1. Locate the mounting pad on the mast channel or truck cowl- ing at a point where the Hose Reel flanges, after installation, will not interfere with:

- (a) The overhead truck guard when the mast is tilted all the way back (mast mounted).
- (b) The truck carriage as it moves past the reel (mast mounted).
- (c) The mast channel members when the mast is tilted all the way back (truck cowl- ing mounted).

When mounting the inboard spring reel on the mast, the pad should be located so that the spring can is positioned behind the mast, rather than along side it, and the inner reel flange is not more than 1/4" from the side of the outer channel member. The outboard spring reel must be positioned so the flange is along side the upright.

2. Weld the mounting pad in place.
3. Mount the Hose Reel on the mast.

(a) For outboard spring models insert two capscrews through the mounting angle on the reel shaft and tighten them in the welded pad.

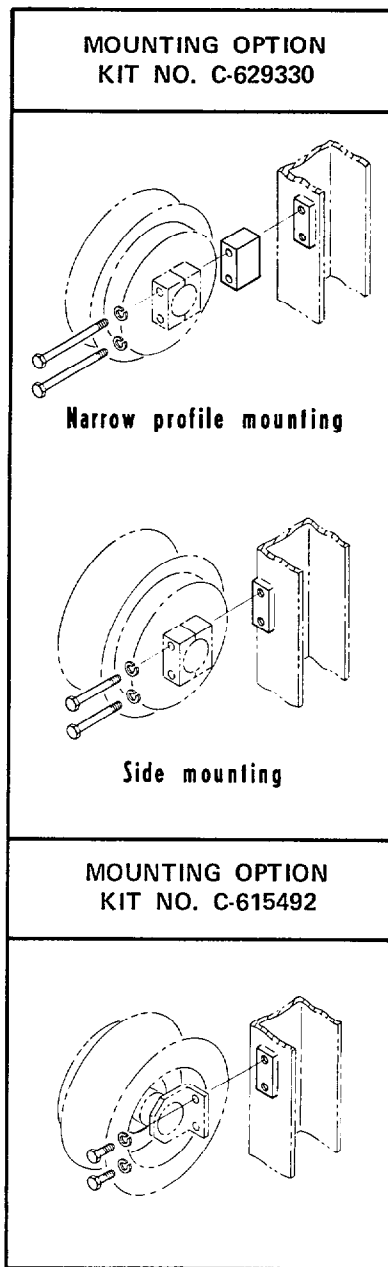
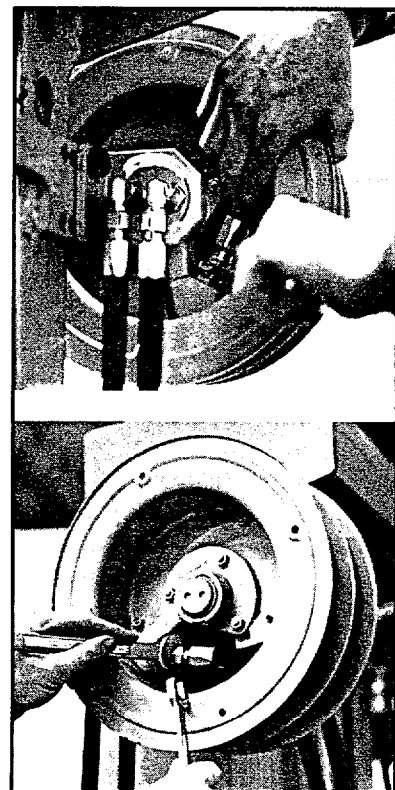


Fig. 1

- (b) For inboard spring models insert two capscrews through the split cap (over the reel shaft) and spacer block, then tighten them in the welded pad.
4. Install the junction block on the truck carriage so the shaft fittings are on the centerline of the hose reel flanges.
 5. Determine hose length required as shown on Page 15.
 6. Attach hoses to the reel fittings. Alignment of hoses is simplified by the use of O-ring fittings which are easily repositioned. See Figure 2.

7. To make the reel operational:

- (a) Wind the hoses around the reel in the correct direction as shown in figures (clock- wise on right hand reels, counterclockwise on left hand reels) until hoses are completely taken up. (NOTE: When using two hose reels both the pressure and return lines for one function must go through the same reel, junction block, and truck valve.)



- (b) Raise the truck carriage until the junction block is even with the hose reel. The distance between reel and junction block is closest at this position.

- (c) Before connecting hose to the junction block, prewind the reel spring by turning the reel three full turns (clockwise on right hand reels, counterclockwise on left hand reels) while keep- ing both hoses taut on the reel. (NOTE: If additional tension is required, the reel

may be prewound additional turns. The reel has a capacity of sixteen total turns including the prewind turns.)



Fig. 3

- (d) Connect the hoses to the junction block.
- (e) Connect the header hoses from the truck valve to the fittings on the reel shaft.
- (f) Raise and lower the truck carriage to insure that the hoses are tracking properly on the reel. It may be necessary to twist the hoses slightly for them to wind correctly. If difficulty persists, recheck step 4 of Installation Instructions.

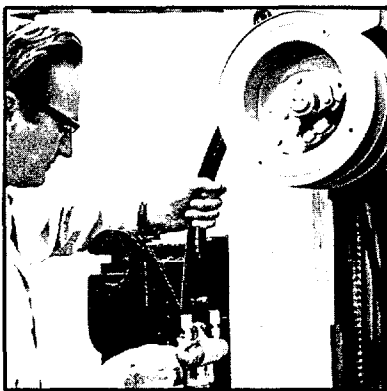


Fig. 4

Cable Reel

The installation steps for the Cable Reel are the same as indicated above for the Hose Reel. The Cable hookup should be as indicated under Service Instructions for the Cable Reel.

SERVICE

Hose Reel

1. Raise the truck carriage until the junction block is even with the hose reel. Disconnect the two hoses from the fittings on the junction block (plug the hoses), while firmly holding onto the hoses. (NOTE: Remember that the reel spring has been prewound three or more complete turns.) Hold onto the hose reel and allow it to turn slowly until the spring tension is completely relieved.
2. Return the truck carriage to the floor.
3. The junction block may be removed for servicing at this point. (Refer to the junction block servicing instructions.)
4. To replace the flanges on outboard spring models (it is not necessary to remove the reel from the truck) proceed as follows:
 - (a) Remove the enclosed spring assembly.
 - (b) Unbolt the flanges without removing the hub from the shaft.
5. If the hose reel is to be removed from the mast for servicing, simply disconnect the two hydraulic lines from the reel shaft. Remove the two mounting bolts.
6. To replace the seals in the reel, either on or off the truck, proceed as follows:

FOR OUTBOARD SPRING MODELS –

- (a) Unwind the hoses from the reel (optional).
- (b) Remove the enclosed spring assembly.
- (c) Remove the spiral snap ring and the spring retainer. Note the direction the retainer is facing for proper reassembly (see figure 5).
- (d) Remove the snap ring that is next to the hub.

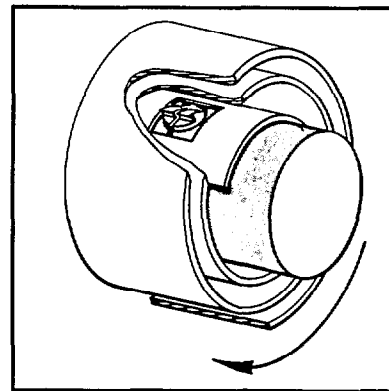


Fig. 5

- (e) Withdraw the shaft from the hub, exposing three O-ring seals and four backup rings. (NOTE: Due to O-ring friction it may be necessary to use a rubber mallet or hammer handle to gently tap the end of the shaft while pulling it out of the hub.

FOR INBOARD SPRING MODELS –

- (a) Unwind the hoses from the reel (optional).
- (b) Remove the snap ring located on the end of the center shaft.
- (c) Unbolt the enclosed spring assembly.
- (d) Withdraw the shaft and spring assembly from the hub exposing the three O-ring seals and four back-up rings. (NOTE: Due to the high frictional coefficient of the O-rings it may be necessary to use a rubber mallet or hammer handle to gently tap the end of the shaft while pulling it out of the hub.

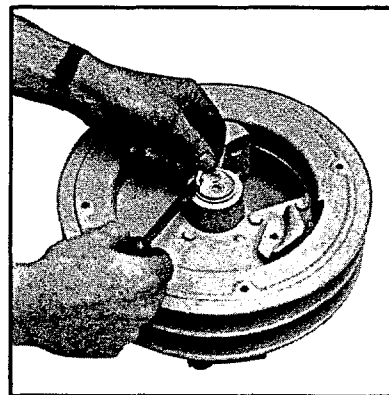


Fig. 6

7. Before removing the O-rings and backup rings, carefully note their positions in the grooves on the shaft.

8. Cascade recommends the installation of a complete set of new seals whenever one seal requires replacement. Use only Cascade approved parts.

9. Check the following areas when servicing your hose reel seals:

(a) The sealing surface where the O-ring is seated in the hub must be smooth. Rough areas cause premature wear and early leakage. Replace if necessary.

(b) Shaft grooves must be free of sharp nicks or projections to prevent cutting of the inside diameter of the O-ring during installation.

(c) Excessive stretching of the O-ring when installed can cause permanent distortion. An O-ring may be stretched no more than 25 percent of its diameter.

(d) Installation of backup rings in their proper locations is essential. Refer to the parts illustrations in this manual for reference.

(e) If the O-ring seal nearest the spring assembly was damaged and allowed hydraulic oil to leak into the spring can, drain the spring can before reassembly. If excessive oil is left in the spring assembly, it will seep out after reassembly and appear as though there is a serious oil leak.

(f) Clean all components with a non corrosive solvent before reassembly.

Apply a liberal amount of petroleum jelly or hydraulic oil (STP) to the seals, shaft, and the interior of the hub before reassembling. Rotate the hub slowly as you push it onto the shaft. This will prevent damage to the seals and make reassembly easier.

10. No further disassembly of out-board spring models is required.

11. For further disassembly of in-board spring models proceed as follows:

(a) Remove snap ring that is next to the enclosed spring assembly.

(b) Pull the spring can off the shaft, being careful not to damage the O-ring grooves. Nicks on the shaft grooves will cause excessive wear on the sealing parts.

(c) To replace felt seal on the shaft, remove the old one, clean the metal surface and apply contact cement to the shaft and the new seal. Position new seal on the shaft.

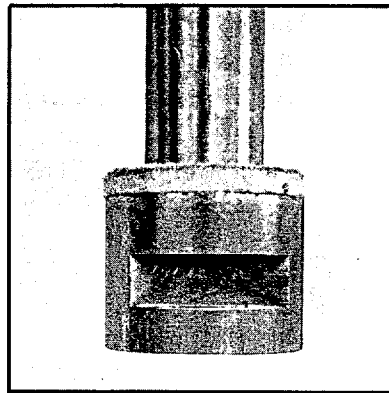


Fig. 7

12. As a general rule, the Enclosed Spring Assembly should be lubricated with Moly Lube or the equivalent once every six months.

13. To reassemble your Cascade hose reel reverse the above steps. Refer to parts illustrations in this manual for further assistance. (NOTE: Be sure spring retainer is facing in proper direction to engage spring, See Figure 8.)

Junction Block

1. Raise the truck carriage until the junction block is even with the hose reel. Disconnect the two hoses from the fittings on the junction block while firmly holding onto the hoses. (NOTE: Remember that the reel spring

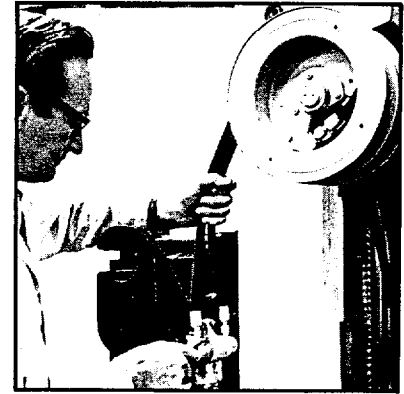


Fig. 8

has been prewound three complete turns.) Hold onto the hose reel and allow it to turn slowly until the spring tension is completely relieved.

2. Return the truck carriage to the floor.

3. Remove the junction block from the truck carriage by loosening the capscrew or capscrews which hold the block to the carriage.

4. Remove the snap ring retainer from the end of the shaft.

5. Pull the shaft out of the body of the junction block. This will expose the O-rings and backup rings.

6. Before removing the O-rings and backup rings, carefully note their position in the grooves on the shaft.

7. Replace the worn seals with Cascade approved components. All the O-rings and backup rings should be replaced at the same time.

8. Check the following areas when servicing junction block seals:

(a) The sealing surface where the O-ring is seated in the body must be smooth. Rough areas cause premature wear and early leakage.

(b) Shaft grooves must be free of sharp nicks or projections to prevent cutting of the inside diameter of the O-ring during installation.

(c) Excessive stretching of the O-ring when installed can cause permanent distortion.

An O-ring may be stretched no more than 25 percent of its diameter.

(d) Installation of backup rings in their proper location is essential. Refer to the parts illustrations in the manual for reference.

(e) If your junction block is equipped with integral check valves, inspect the balls and ball guides for excessive wear. Examine the interior surface of the body for smoothness.

(f) Clean all components with a non corrosive solvent before reassembly.

9. Apply a liberal amount of petroleum jelly or hydraulic oil (STP) to the seals, shaft, and junction block body before reassembly.
10. In reassembly, rotate the shaft slowly into the body of the block to prevent damage to the seals.
11. Replace the snap ring and return the unit to the truck carriage.

Cable Reel

NOTE: Cable reel must be removed from truck for servicing.

1. Raise truck carriage until junction block is even with reel. Unplug connection to solenoid valve and unbolt junction block from carriage. CAUTION: Hold onto reel and slowly allow reel to turn until all spring tension is removed.
2. Remove reel from truck.
3. Unwind cable from reel and remove wire from terminals. Be sure to note which color goes to each terminal. This will save you time later.
4. Unbolt and remove enclosed spring assembly.
5. Unbolt then remove hub and shaft assembly.
6. TO SERVICE BRUSHES AND

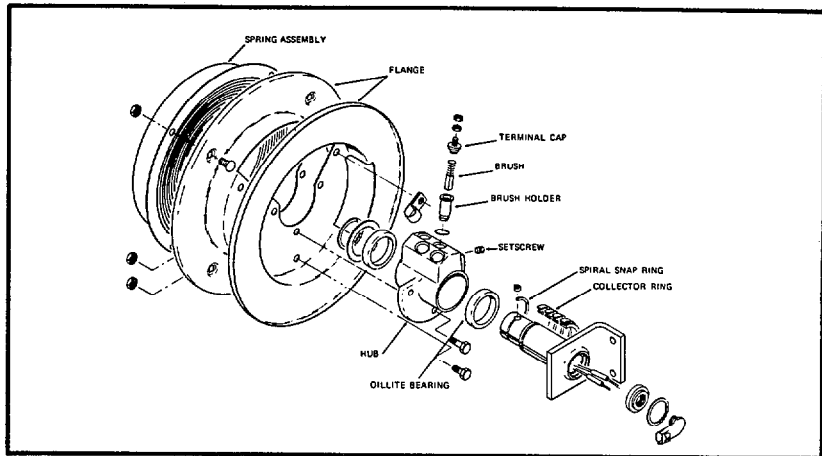


Fig. 9

BRUSH HOLDERS proceed as follows:

- (a) Loosen setscrews in the hub that secure the brush holders.
 - (b) Remove brush holders from hub.
 - (c) Remove brush from holder.
 - (d) Inspect brush for wear and replace when length of contact is down to 3/16" or 1/4".
 - (e) The collector rings may be serviced at this point. (Refer to the collector ring servicing instructions, step No. 8.)
7. To reinstall the brushes and brush holders it is necessary to have the hub and shaft assembled. Proceed as follows:
 - (a) Reinstall terminal cap on holder if previously removed.
 - (b) Reinsert brush in brush holder through bottom, spring end first.
 - (c) Make sure brush is in proper position in relation to collector ring then reinsert brush and holder into hub.
 - (d) While pressing the brush holder firmly in place tighten setscrew.

8. TO SERVICE COLLECTOR RINGS complete steps 1 through 6 first then proceed as follows: (NOTE: If the collector rings need replacement see step No. 10.)

(a) Remove spiral snap ring and spring retainer.

(b) Remove felt seal from slot.

(c) Remove snap ring and washer.

(d) Pull shaft from hub.

(e) Clean collector rings. (NOTE: Do not leave any residue on insulators between collector rings.) CAUTION: Do not use any abrasive on the two oilite bearings.

9. Reassemble shaft in hub assembly. CAUTION: Make sure the felt seal is installed in its original folded position. This seals all electrical components from the spring assembly lubrication.

10. TO REPLACE COLLECTOR RINGS proceed as follows:

(a) Remove snap ring holding 90 degree electrical connector in end of shaft.

(b) Pull connector and retainer out the shaft.

(c) Disconnect wires by holding connector and separating coupling from interior wires.

(d) Remove outer oilite bearing and slide collector rings toward end of shaft while feeding wire up through slot in shaft from inside. CAUTION: Note the sequence of wire colors when removing rings so that they will be replaced in the same order.

(e) To reassemble reverse the above procedures. Care should be exercised when installing collector rings on shaft so that wires and positioning lugs are not damaged or dislodged from collector rings.

11. As a general rule, the Enclosed Spring Assembly should be lubricated with Moly-Lube or the equivalent once every six months.

NOTE: Cover brush cap terminals with sealant (Part No. C-650000) provided after cable is mounted on reel.

COLOR CODING OF WIRES

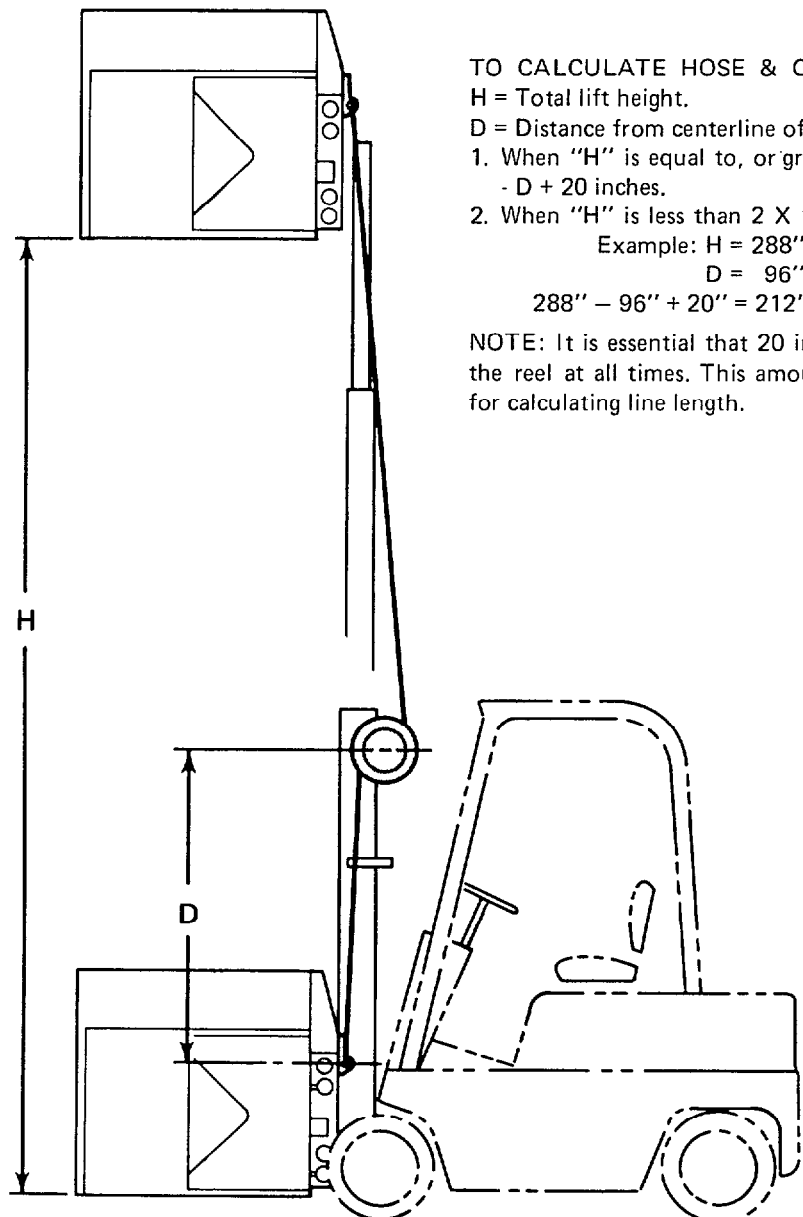
TWO FUNCTION APPLICATION

- Green—Ground
- White—Energize
- Black—Cut off (not used)

THREE FUNCTION APPLICATION

- Green—Ground
- White—Energize
- *Black—Energize
- *Black is always Sideshift or rotate function. White is other function.

Cable and Hose Lengths



TO CALCULATE HOSE & CABLE LENGTHS:

H = Total lift height.

D = Distance from centerline of reel to junction block.

1. When "H" is equal to, or greater than, 2 X "D" then line length = H - D + 20 inches.

2. When "H" is less than 2 X "D" then line length = "D" + 32 inches.

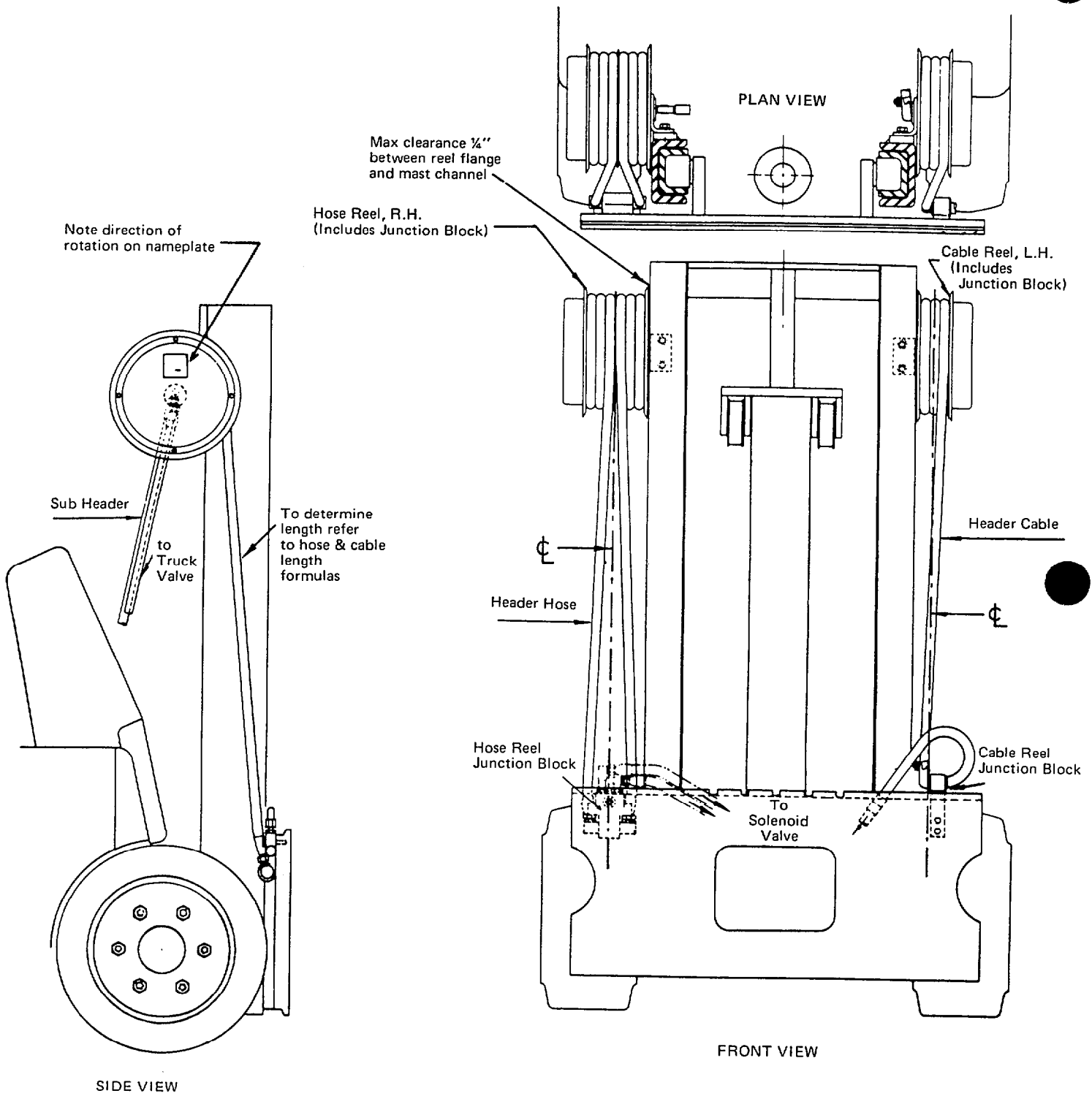
Example: H = 288"

D = 96"

$288'' - 96'' + 20'' = 212''$ reel hose or cable length.

NOTE: It is essential that 20 inches of cable or hose be prewrapped on the reel at all times. This amount is included when using this formula for calculating line length.

Typical Hose and Cable Reel Installation



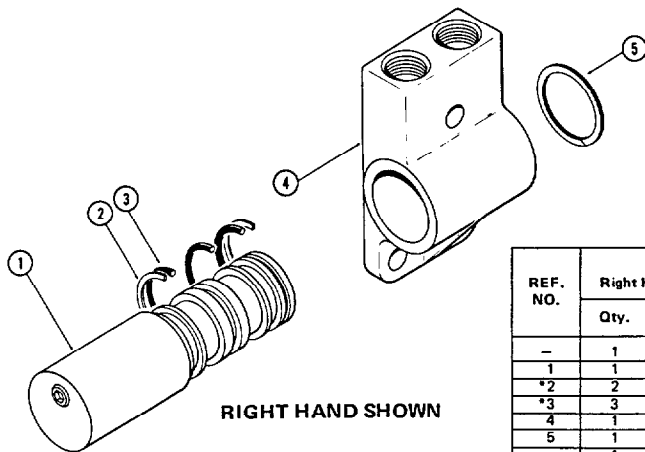
Trouble Shooting Guide

PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
Hose Reel leaks at hub.	1. Worn or cut O-ring seals in the center rotating hub.	1. Replace all seals. When a hose reel requires immediate replacement of any one of the O-rings or backup rings, it is important that all the seals be replaced. If all the O-rings and backup rings are not replaced at the same time, the reel will only have to be disassembled again in a short period of time to replace the older seals. The seal kit offered by Cascade includes all of the O-rings and backup rings necessary to re-build one hose reel. Order appropriate Seal Kit.
	2. Loose or damaged fittings.	2. Tighten or replace damaged fittings.
Excessive wear on hoses.	1. Hose Reel on the mast and junction block on the truck carriage are not in proper alignment.	1. Align the junction block and hose reel properly. They must be on the same center line and mounted square to each other. (Refer to the installation instructions.)
	2. Hose Reel flanges damaged.	2. Repair or replace damaged parts.
Hose jumping off of reel in reeling action.	1. Hose reel not in line with junction block.	1. Align junction block with hose reel. (Refer to the installation instructions.)
	2. Incorrect prewind of spring.	2. Spring should be prewound three turns at the nearest point at which the junction block passes the hose reel in its upward movement. (Refer to the installation instructions).
Binding of hose reel winding action.	1. Hose reel spring broken.	1. Replace the spring.
	2. Back-up ring in hub shaft seal working in between shaft and hub.	2. Replace the back-up rings.
	3. Scored shaft or hub.	3. Replace the damaged component.
Junction block leak.	1. Cut or damaged O-ring seal.	1. Replace the seal.

① Refer to the proper isometric drawing in this manual for assistance in assembly.

Alterations may impair performance or capability and could result in loss of warranty. Consult Cascade for technical assistance and approval for any required modification.

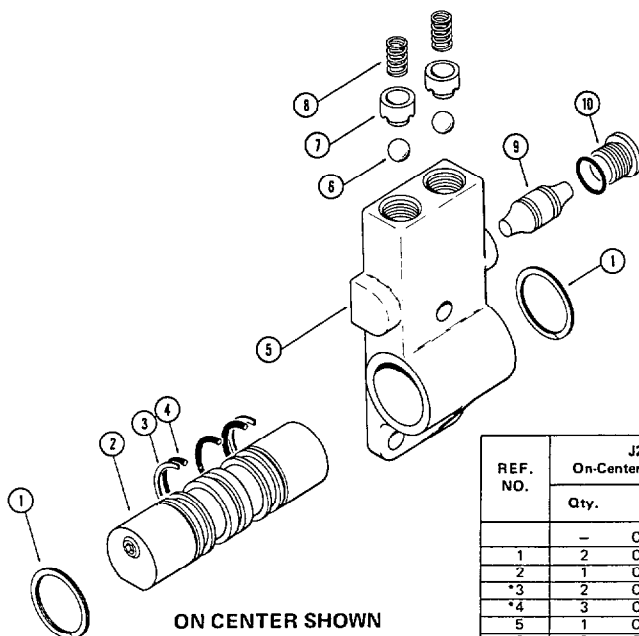
Junction Blocks



STANDARD SIZE WITHOUT CHECK VALVES (Less Fittings)

REF. NO.	J3R Right Hand Mounting		J3L Left Hand Mounting		J3C On-Center Mounting		DESCRIPTION
	Qty.	Part No.	Qty.	Part No.	Qty.	Part No.	
—	1	C-646057	1	C-646058	1	C-646059	Complete Junction Block
1	1	C-646032	1	C-646032	1	C-646033	Shaft
*2	2	C-648569	2	C-648569	2	C-648569	Back-up Ring
*3	3	C-654926	3	C-654926	3	C-654926	O-Ring
4	1	C-646036	1	C-646036	1	C-646036	Body
5	1	C-7194	1	C-7194	2	C-7194	Snap Ring
	1	C-646340	1	C-646340	1	C-646340	Service Kit

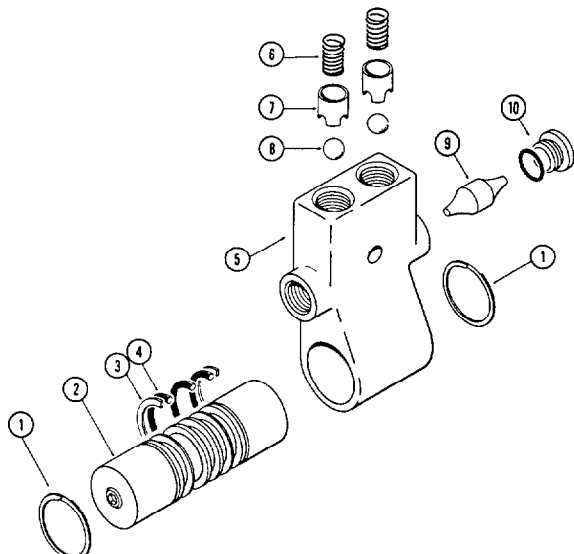
*Included in Service Kit



STANDARD SIZE WITH CHECK VALVES (Less Fittings)

REF. NO.	J2C On-Center Mounting		J2L Left Hand Mounting		J2R Right Hand Mounting		DESCRIPTION
	Qty.	Part No.	Qty.	Part No.	Qty.	Part No.	
—	1	C-646056	1	C-646055	1	C-646054	Complete Junction Block
1	2	C-7194	1	C-7194	1	C-7194	Snap Ring
2	1	C-646033	1	C-646032	1	C-646032	Shaft
*3	2	C-648569	2	C-648569	2	C-648569	Back-up Ring
*4	3	C-654926	3	C-654926	3	C-654926	O-Ring
5	1	C-646034	1	C-646034	1	C-646034	Body
6	2	C-7017	2	C-7017	2	C-7017	Ball
7	2	C-647277	2	C-647277	2	C-647277	Ball Spacer
8	2	C-631808	2	C-631808	2	C-631808	Spring
9	1	C-646035	1	C-646035	1	C-646035	Plunger
10	1	C-602580	1	C-602580	1	C-602580	Plug
	1	C-646340	1	C-646340	1	C-646340	Service Kit

*Included in Service Kit

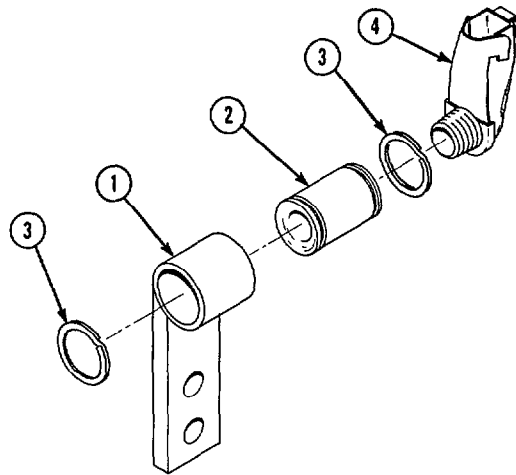


COMPACT SIZE WITH CHECK VALVES (Less Fittings)

REF. NO.	J1C On-Center Mounting		DESCRIPTION
	Qty.	Part No.	
—	1	C-610838	Complete Junction Block
1	2	C-7335	Snap Ring
2	1	C-604832	Shaft
*3	2	C-633874	Back-up Ring
*4	3	C-655799	O-Ring
5	1	C-604831	Body
6	2	C-7014	Ball
7	2	C-612519	Ball Guide
8	2	C-612518	Spring
9	1	C-604834	Plunger
10	2	C-604510	Plug
	1	C-615840	Service Kit

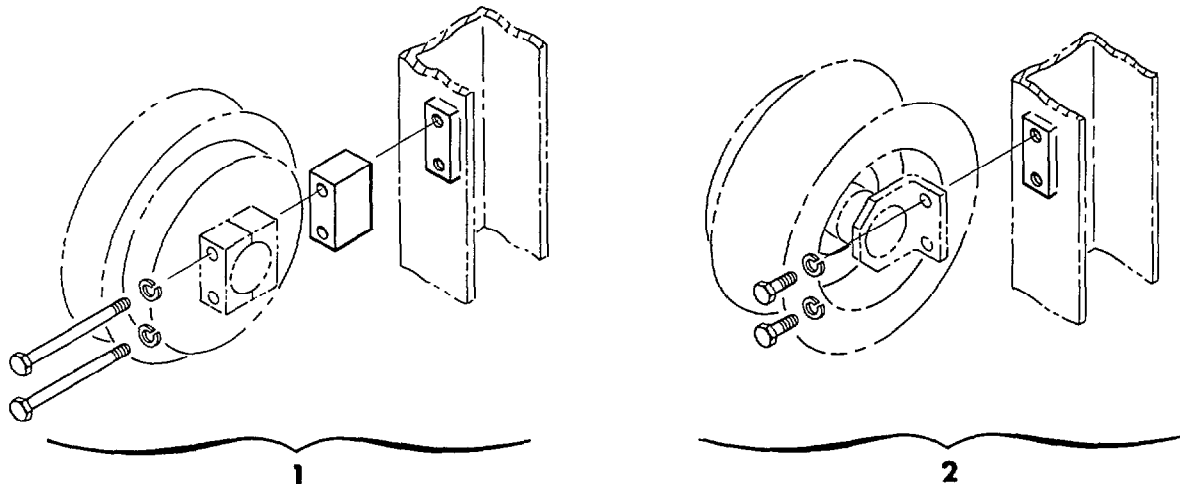
*Included in Service Kit

Electric Cable Reel Junction Block



REF. NO.	QTY.	PART NO.	DESCRIPTION
	1	C-614036	Complete Junction Block
1	1	C-614035	Body
2	1	C-614040	Shaft
3	2	C-7187	Snap Ring
4	1	C-613613	90° Elbow Connector

Reel Mounting Groups



REF. NO.	CATALOG ORDER NO.	FOR USE ON REEL MODELS
1	C-629330	H1, H2, H4, H6, H8
2	C-615492	H3, H5

Fitting Groups

HOSE REEL FITTING GROUPS

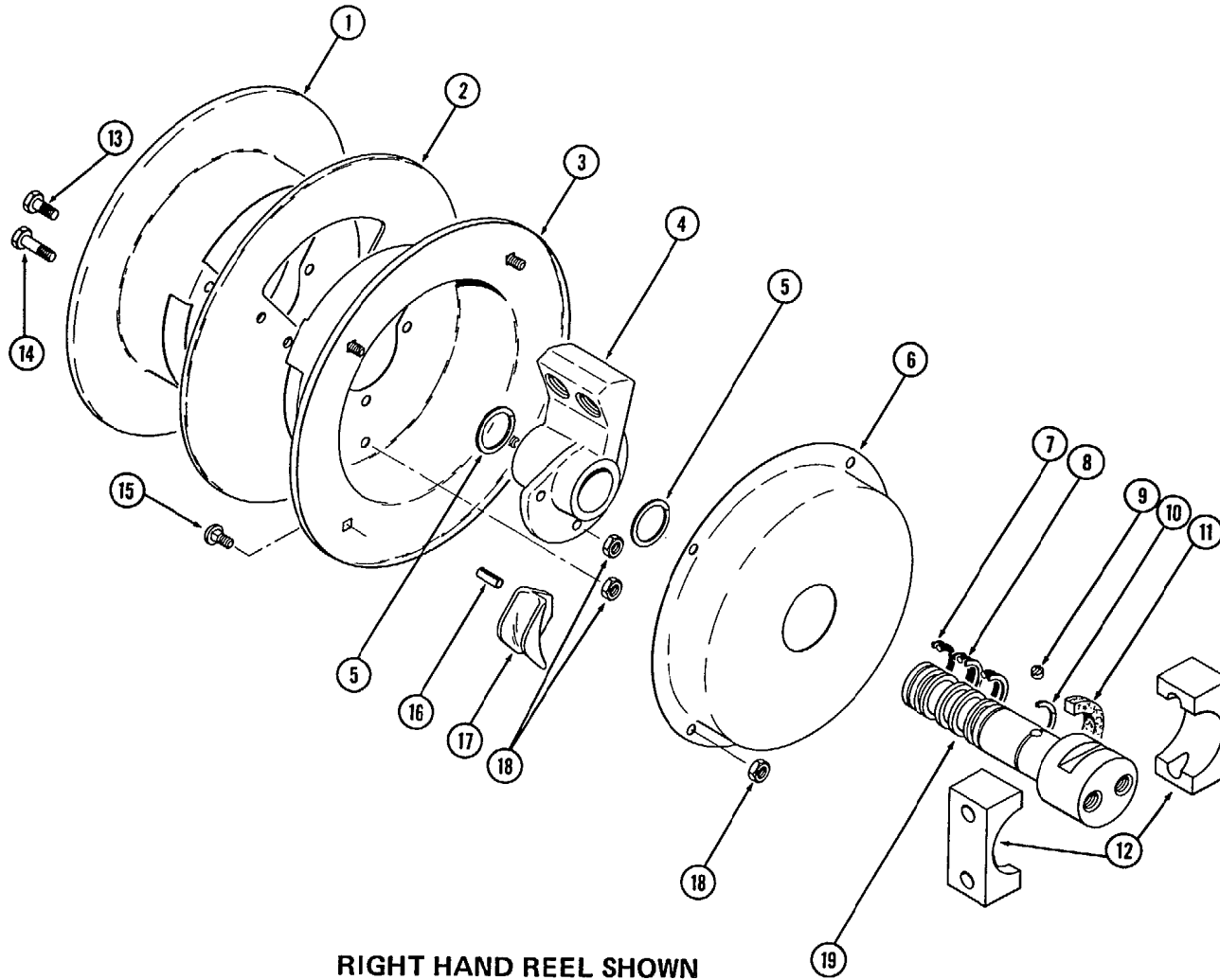
H1, H2, H4, H6, H8 INBOARD SPRING MODELS	
CATALOG ORDER NO.	HOSE SIZE
C-646063 C-646062 C-646061	No. 5 No. 6 No. 8
Each group includes four straight O-Ring connectors and two Swivel 90° Elbows. This permits hose connections into and out of the Hose Reel.	

H3, H5 OUTBOARD SPRING MODELS	
CATALOG ORDER NO.	HOSE SIZE
C-646308 C-646307 C-646306	No. 5 No. 6 No. 8
Each group includes three straight O-Ring connectors, one 90° O-Ring Elbow and one 90° Swivel Elbow. This permits hose connections into and out of the Hose Reel.	

JUNCTION BLOCK FITTING GROUPS

J1C JUNCTION BLOCK	
CATALOG ORDER NO.	HOSE SIZE
C-646375 C-646374 C-646376	No. 5 No. 6 No. 8
J2 AND J3 JUNCTION BLOCKS	
C-646319 C-646318 C-646317	No. 5 No. 6 No. 8
Four straight connectors are furnished. This permits hose connections into and out of the Junction Block.	

11.50, 14.50, 16.50 DIAMETER NARROW WIDTH INBOARD SPRING STYLE HOSE REELS

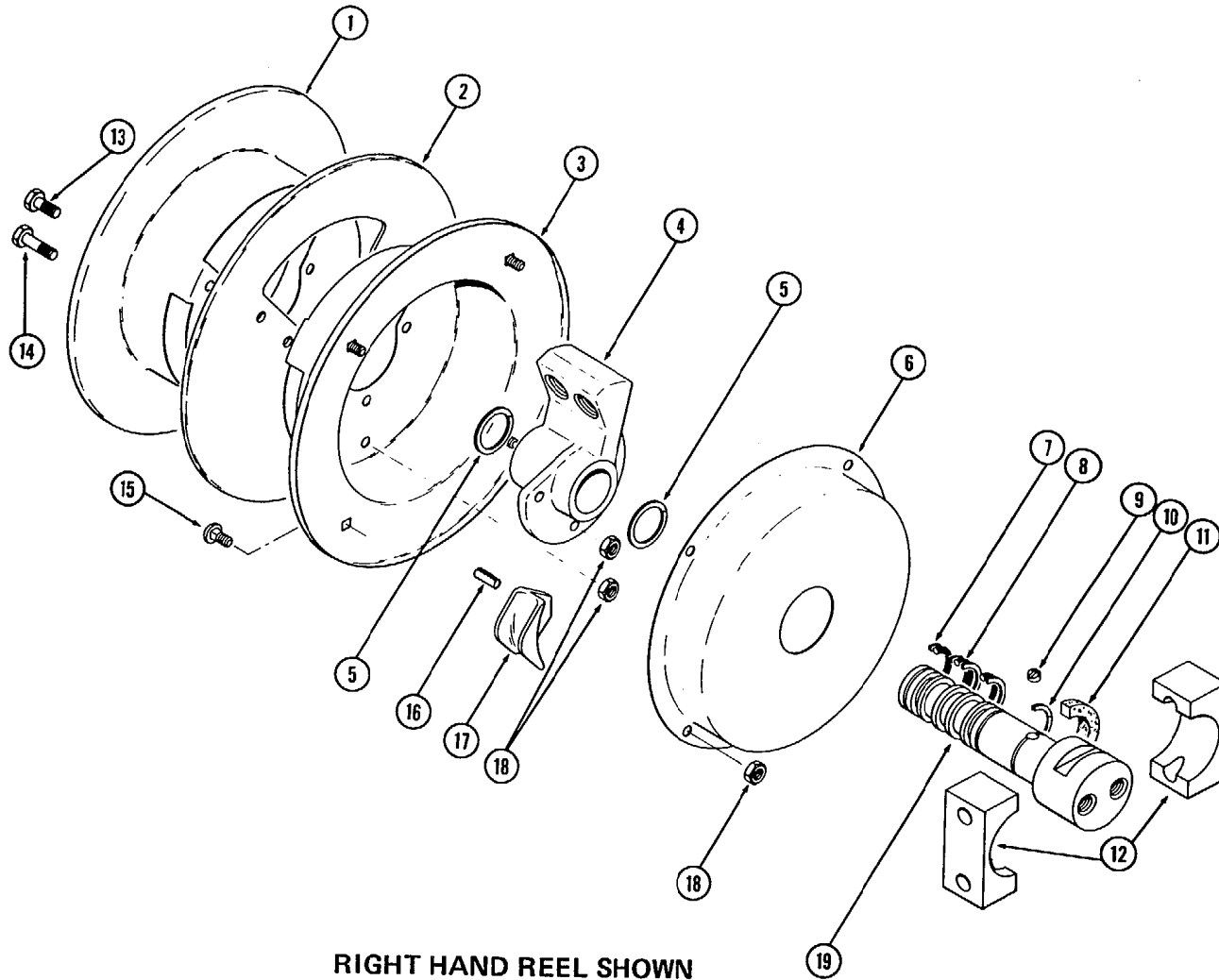


**11.50, 14.50, 16.50 DIAMETER
NARROW WIDTH
INBOARD SPRING STYLE HOSE REELS**

REF. NO.	H2L 11.50 Diameter Left Hand Reel		H2R 11.50 Diameter Right Hand Reel		H8L 14.50 Diameter Left Hand Reel		H8R 14.50 Diameter Right Hand Reel		H6L 16.50 Diameter Left Hand Reel		H6R 16.50 Diameter Right Hand Reel		DESCRIPTION
	Qty.	Part No.	Qty.	Part No.	Qty.	Part No.	Qty.	Part No.	Qty.	Part No.	Qty.	Part No.	
	—	C-646041	—	C-646040	—	C-646043	—	C-646042	—	C-646045	—	C-646044	Complete Reel Assembly
1	1	C-645990	1	C-645979	1	C-646067	1	C-645988	1	C-646071	1	C-646070	Flange, Outboard
2	1	C-645977	1	C-645977	1	C-646607	1	C-646607	1	C-646608	1	C-646608	Divider
3	1	C-645979	1	C-645990	1	C-645988	1	C-646067	1	C-646070	1	C-646071	Flange, Inboard
4	1	C-646064	1	C-646064	1	C-646064	1	C-646064	1	C-646064	1	C-646064	Hub
5	2	C-7194	2	C-7194	2	C-7194	2	C-7194	2	C-7194	2	C-7194	Snap Ring
6	1	C-646249	1	C-646250	1	C-646249	1	C-646250	1	C-646249	1	C-646250	Spring Assembly
7	* 1	C-646339	* 1	C-646339	* 1	C-646339	* 1	C-646339	* 1	C-646339	* 1	C-646339	Seal Kit
8													
9	1	C-645982	1	C-645982	1	C-645982	1	C-645982	1	C-645982	1	C-645982	Spring Retainer
10	1	C-653314	1	C-653314	1	C-653314	1	C-653314	1	C-653314	1	C-653314	Snap Ring
11	1	C-649055	1	C-649055	1	C-649055	1	C-649055	1	C-649055	1	C-649055	Felt Seal
12	2	C-646246	2	C-646246	2	C-646246	2	C-646246	2	C-646246	2	C-646246	Mounting Block
13	3	C-3552	3	C-3552	3	C-3552	3	C-3552	3	C-3552	3	C-3552	Capscrew
14	3	C-3555	3	C-3555	3	C-3555	3	C-3555	3	C-3555	3	C-3555	Capscrew
15	4	C-649106	4	C-649106	4	C-649106	4	C-649106	4	C-649106	4	C-649106	Capscrew
16	1	C-7912	1	C-7912	1	C-7912	1	C-7912	1	C-7912	1	C-7912	Roll Pin
17	2	C-646075	2	C-646075	2	C-646075	2	C-646075	2	C-646075	2	C-646075	Hose Guide
18	10	C-645986	10	C-645986	10	C-645986	10	C-645986	10	C-645986	10	C-645986	Nut
19	1	C-646077	1	C-646077	1	C-646077	1	C-646077	1	C-646077	1	C-646077	Shaft Assembly
	1	C-647338	1	C-647346	1	C-647341	1	C-647349	1	C-647342	1	C-647345	Nameplate

*Seal kit includes 4 back-up rings and 3 O-rings.

11.50 DIAMETER MEDIUM AND WIDE OUTBOARD SPRING STYLE HOSE REELS

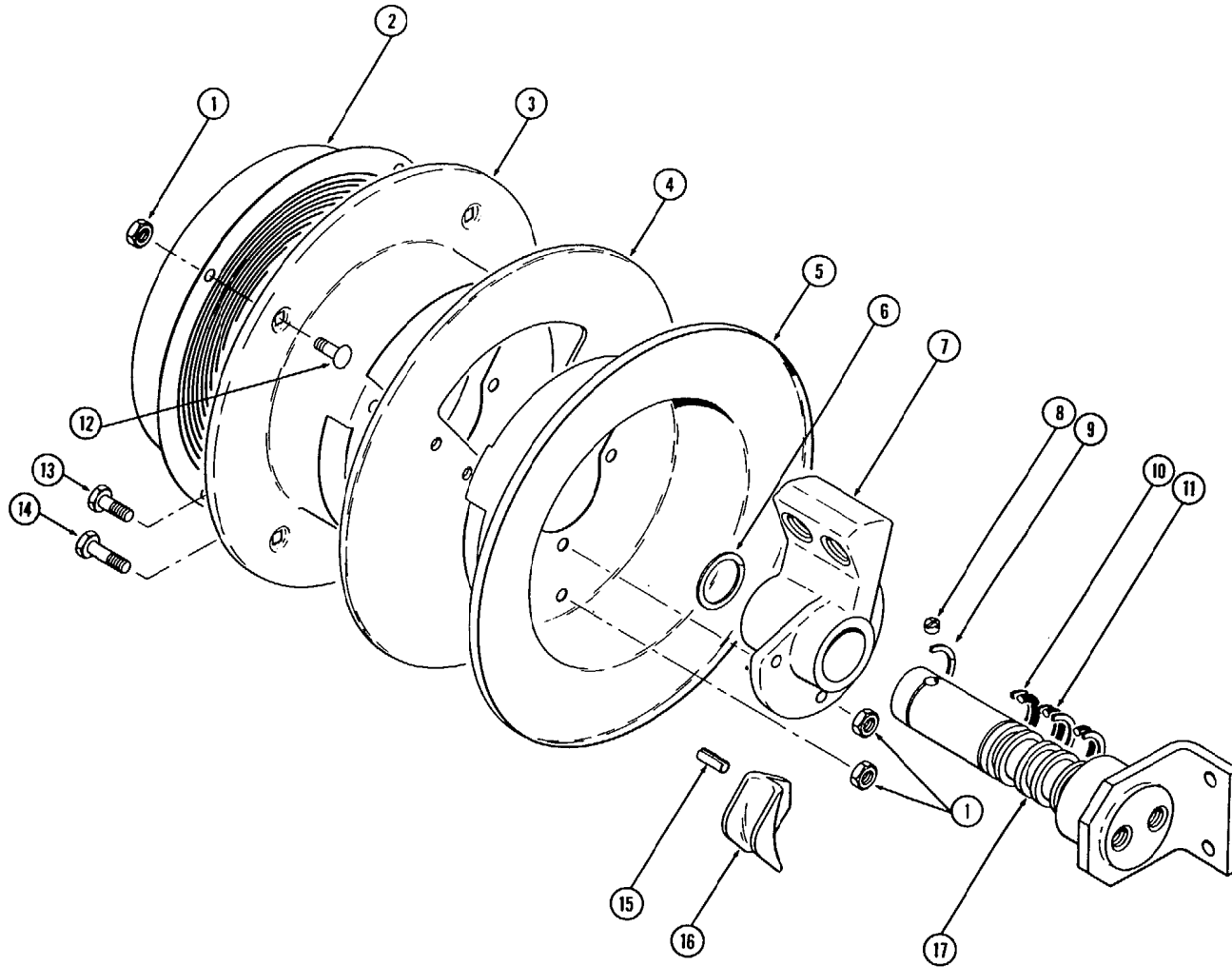


**11.50 DIAMETER
MEDIUM AND WIDE
INBOARD SPRING STYLE HOSE REELS**

REF. NO.	H4L Medium Left Hand Reel		H4R Medium Right Hand Reel		H1L Wide Left Hand Reel		H1R Wide Right Hand Reel		DESCRIPTION
	Qty.	Part No.	Qty.	Part No.	Qty.	Part No.	Qty.	Part No.	
—	—	C-646049	—	C-646048	—	C-646051	—	C-646050	Complete Reel Assembly
1	1	C-645989	1	C-645978	1	C-646069	1	C-646068	Flange, Outboard
2	1	C-645977	1	C-645977	1	C-645977	1	C-645977	Divider
3	1	C-645978	1	C-645989	1	C-646068	1	C-646069	Flange, Inboard
4	1	C-646064	1	C-646064	1	C-646064	1	C-646064	Hub
5	2	C-7194	2	C-7194	2	C-7194	2	C-7194	Snap Ring
6	1	C-646249	1	C-646250	1	C-646249	1	C-646250	Spring Assembly
7	* 1	C-646339	* 1	C-646339	* 1	C-646339	* 1	C-646339	Seal Kit
8									
9	1	C-645982	1	C-645982	1	C-645982	1	C-645982	Spring Retainer
10	1	C-653314	1	C-653314	1	C-653314	1	C-653314	Snap Ring
11	1	C-649055	1	C-649055	1	C-649055	1	C-649055	Felt Seal
12	2	C-646246	2	C-646246	2	C-646246	2	C-646246	Mounting Block
13	3	C-3552	3	C-3552	3	C-3552	3	C-3552	Capscrew
14	3	C-3555	3	C-3555	3	C-3555	3	C-3555	Capscrew
15	4	C-649106	4	C-649106	4	C-649106	4	C-649106	Capscrew
16	1	C-7912	1	C-7912	1	C-7912	1	C-7912	Roll Pin
17	2	C-646075	2	C-646075	2	C-646075	2	C-646075	Hose Guide
18	10	C-645986	10	C-645986	10	C-645986	10	C-645986	Nut
19	1	C-646079	1	C-646079	1	C-646081	1	C-646081	Shaft Assembly
	1	C-647336	1	C-647344	1	C-647348	1	C-647347	Nameplate

*Seal kit includes 4 back-up rings and 3 O-rings.

11.50 DIAMETER MEDIUM AND WIDE OUTBOARD SPRING STYLE HOSE REELS



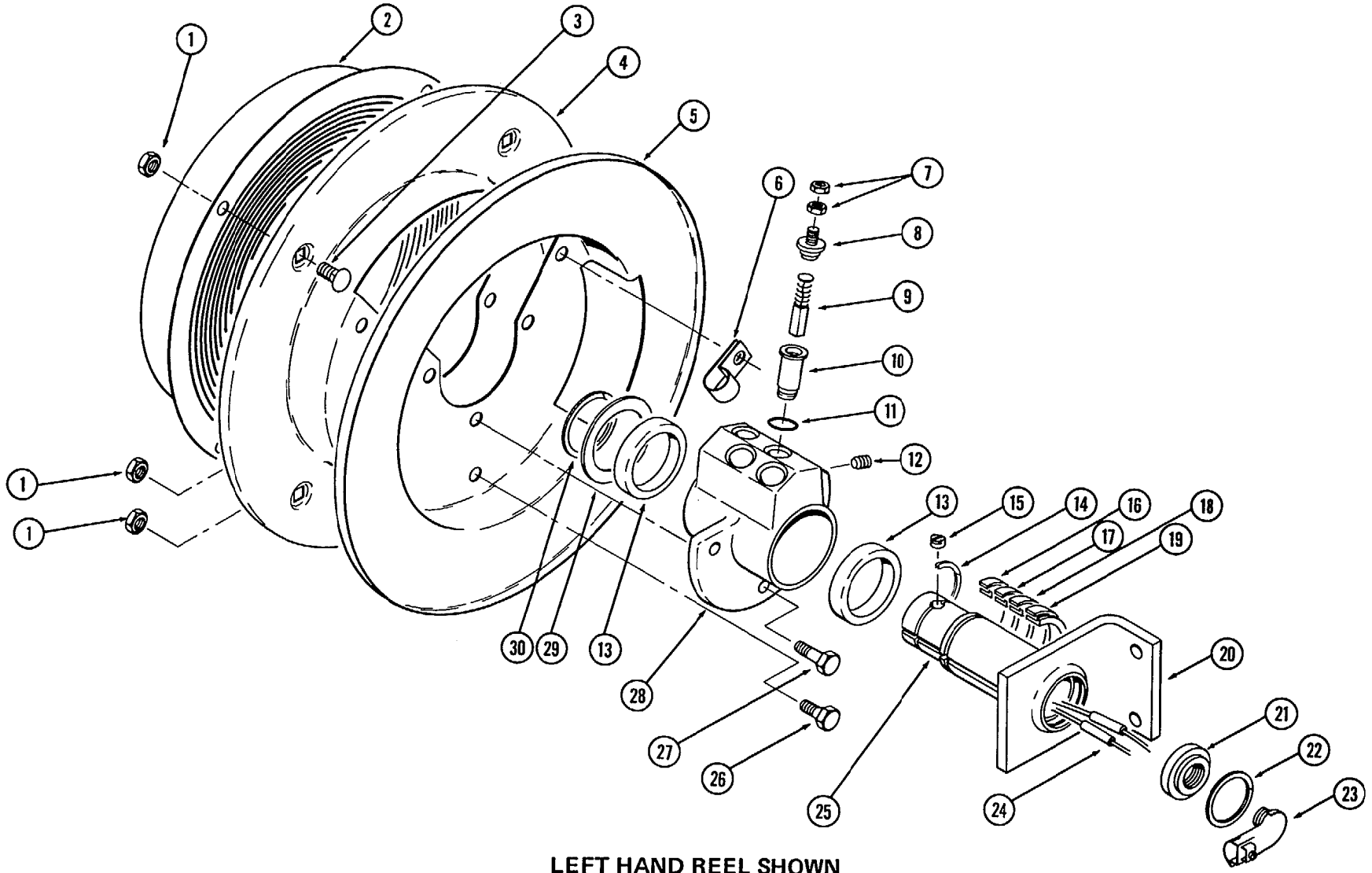
RIGHT HAND REEL SHOWN

**11.50 DIAMETER
MEDIUM AND WIDE
OUTBOARD SPRING STYLE HOSE REELS**

REF. NO.	H3L Medium Left Hand Reel		H3R Medium Right Hand Reel		H5L Wide Left Hand Reel		H5R Wide Right Hand Reel		DESCRIPTION
	Qty.	Part No.	Qty.	Part No.	Qty.	Part No.	Qty.	Part No.	
-	-	C-646047	-	C-646046	-	C-646053	-	C-646052	Complete Reel Assembly
1	10	C-645986	10	C-645986	10	C-645986	10	C-645986	Nut
2	1	C-646250	1	C-646249	1	C-646250	1	C-646249	Spring Assembly
3	1	C-645989	1	C-645978	1	C-646069	1	C-646068	Flange, Outboard
4	1	C-645977	1	C-645977	1	C-645977	1	C-645977	Divider
5	1	C-645978	1	C-645989	1	C-646068	1	C-646069	Flange, Inboard
6	1	C-7194	1	C-7194	1	C-7194	1	C-7194	Snap Ring
7	1	C-646064	1	C-646064	1	C-646064	1	C-646064	Hub
8	1	C-645982	1	C-645982	1	C-645982	1	C-645982	Retainer-Spring
9	1	C-653314	1	C-653314	1	C-653314	1	C-653314	Snap Ring
*10	4	C-648569	4	C-648569	4	C-648569	4	C-648569	Back-up Ring
*11	3	C-654926	3	C-654926	3	C-654926	3	C-654926	O-Ring
12	4	C-649106	4	C-649106	4	C-649106	4	C-649106	Capscrew
13	3	C-3552	3	C-3552	3	C-3552	3	C-3552	Capscrew
14	3	C-3555	3	C-3555	3	C-3555	3	C-3555	Capscrew
15	1	C-7912	1	C-7912	1	C-7912	1	C-7912	Roll Pin
16	2	C-646075	2	C-646075	2	C-646075	2	C-646075	Guide, Hose
17	1	C-646086	1	C-646086	1	C-646084	1	C-646084	Shaft Assembly
	1	C-647343	1	C-647337	1	C-647340	1	C-647339	Nameplate
	1	C-646339	1	C-646339	1	C-646339	1	C-646339	Service Kit

*Included in Service Kit

CABLE REELS



LEFT HAND REEL SHOWN

CABLE REELS

REF. NO.	3 Conductor Left Hand Reels		3 Conductor Right Hand Reels		4 Conductor Left Hand Reels		4 Conductor Right Hand Reels		DESCRIPTION
	Qty.	Part No.	Qty.	Part No.	Qty.	Part No.	Qty.	Part No.	
	—	C-650045	—	C-650044	—	C-650047	—	C-650046	Complete Reel Assembly
1	10	C-645986	10	C-645986	10	C-645986	10	C-645986	Nut
2	1	C-646250	1	C-646249	1	C-646250	1	C-646249	Spring Assembly
3	4	C-649106	4	C-649106	4	C-649106	4	C-649106	Capscrew
4	1	C-645990	1	C-648091	1	C-645990	1	C-648091	Flange, Outboard
5	1	C-648091	1	C-645990	1	C-648091	1	C-645990	Flange, Inboard
6	1	C-619842	1	C-619842	1	C-619842	1	C-619842	Clamp, Pigtail
7	6	C-5764	6	C-5764	8	C-5764	8	C-5764	Nut
8	3	C-613918	3	C-613918	4	C-613918	4	C-613918	Cap, Brush Holder
9	3	C-613916	3	C-613916	4	C-613916	4	C-613916	Brush
10	3	C-613917	3	C-613917	4	C-613917	4	C-613917	Brush Holder
11	3	C-2840	3	C-2840	4	C-2840	4	C-2840	O-Ring
12	4	C-4951	4	C-4951	4	C-4951	4	C-4951	Setscrew
13	2	C-648107	2	C-648107	2	C-648107	2	C-648107	Bearing
14	1	C-7337	1	C-7337	1	C-7337	1	C-7337	Snap Ring
15	1	C-645982	1	C-645982	1	C-645982	1	C-645982	Retainer, Spring
16	1	C-619743	1	C-619743	1	C-619743	1	C-619743	Conductor Ring (Red)
17	—		—		1	C-619740	1	C-619740	Conductor Ring (Black)
18	1	C-619741	1	C-619741	1	C-619741	1	C-619741	Conductor Ring (White)
19	1	C-619742	1	C-619742	1	C-619742	1	C-619742	Conductor Ring (Green)
20	1	C-648096	1	C-648096	1	C-648096	1	C-648096	Shaft Assembly
21	1	C-613931	1	C-613931	1	C-613931	1	C-613931	Connector Retainer
22	1	C-3024	1	C-3024	1	C-3024	1	C-3024	Snap Ring
23	1	C-613613	1	C-613613	1	C-613613	1	C-613613	90° Elbow Connector
24	3	C-613930	3	C-613930	4	C-613930	4	C-613930	Coupling
25	1	C-613927	1	C-613927	1	C-613927	1	C-613927	Felt Plug
26	3	C-3551	3	C-3551	3	C-3551	3	C-3551	Capscrew
27	3	C-3553	3	C-3553	3	C-3553	3	C-3553	Capscrew
28	1	C-648090	1	C-648090	1	C-648090	1	C-648090	Hub
29	1	C-613926	1	C-613926	1	C-613926	1	C-613926	Washer
30	1	C-7197	1	C-7197	1	C-7197	1	C-7197	Snap Ring
	1	C-619930	1	C-619930	—	—	—	—	Plug (in place of Brush Holder)
	1	C-619745	1	C-619745	—	—	—	—	Insulator (in place of Conductor Ring)
	1	C-648139	1	C-648094	1	C-648141	1	C-648140	Nameplate
	1	C-650000	1	C-650000	1	C-650000	1	C-650000	Sealant
	1	C-650001	1	C-650001	1	C-650001	1	C-650001	Application Instructions

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

Cascade Corporation
2201 NE 201st
Troutdale, OR 97060
Tel: 1-800-CAS-CADE
503-669-6300
FAX: 503-669-6338

Cascade Canada Inc.
5570 Timberlea Blvd.
Mississauga, Ontario
Canada L4W-4M6
Tel: 905-629-7777
FAX: 905-629-7785

Cascade GmbH
D-41199 Monchengladbach
Klosterhofweg 52
Germany
Tel: 21-66-602091
FAX: 21-66-680947

Cascade N.V.
Kirkkokatu 1
48100 Kotka
Finland
Tel: 52-184393
FAX: 52-184833

**Cascade N.V.
European Headquarters**
P.O. Box 50086
1305 AB Almere-Haven
Achterwerf 240
1357 CB Almere-Haven
The Netherlands
Tel: 31-36-5392911
FAX: 31-36-5314223

**Cascade N.V.
Benelux Sales and Service**
P.O. Box 50086
1305 AB Almere-Haven
Achterwerf 240
1357 CB Almere-Haven
The Netherlands
Tel: 31-3653-92980
FAX: 31-3653-13907

Cascade (UK) Ltd.
15, Orgreave Crescent
Dore House Industrial Estate
Handsworth
Sheffield S13 9NQ
England
Tel: 742-697524
FAX: 742-695121

**Cascade Scandinavia
Hydraulik A.B.**
Muskötgatan 19, E8-9
S25466 Helsingborg
Sweden
Tel: 42-151135
FAX: 42-152997

Cascade France S.A.R.L.
11, Rue Jean Charcot
Zone Industrielle Sud or
B.P. 22
91421 Morangis Cedex
France
Tel: 1-64547500
FAX: 1-64547501

Cascade Hispania S.A.
Avenida De La Fabregada, 7
Hospitalet De Llobregat
Barcelona
Spain
Tel: 3-335-5158
FAX: 3-335-4756

Cascade Japan Ltd.
5-5-41,
Torikai Kami
Settsu, Osaka
Japan, 566
Tel: 81-726-53-3490
FAX: 81-726-53-3497

**Equipamentos Para
Movimentacao de
Materials LTDA**
Rua Lopes Chaves, 380
Sao Paulo, 01154, S.P., Brazil
Tel: 118-250099
FAX: 11-66-0340

HYCO-Cascade Pty. Ltd.
87 Antimony Street
Carole Park,
Brisbane 4300
Australia
Tel: 7-271-1966
FAX: 7-271-3830

HYCO-Cascade (NZ) Ltd.
23 Haseler Crescent
P.O. Box 38-440
Howick, Auckland
New Zealand
Tel: 9-273-9136
FAX: 9-273-9137

Cascade (Africa) Pty. Ltd.
P.O. Box 625, Isando 1600
60A Steel Road
Sparton, Kempton Park
South Africa
Tel: 975-9240
FAX: 394-1147

Cascade Korea
Room 508, Pum Yang Bldg.
750-14, Bang Bac-Dong
Se-Cho Ku, Seoul
Korea
Tel: 2599-7131 ext. 512
FAX: 2533-8089

**Sunstream Industries
PTE Ltd.**
No. 3 Tuas Link 1
Singapore 2263
Tel: 863-3488
FAX: 863-1368

Xiamen-Cascade Corp. Ltd.
883 Xiahe Road
Xiamen, Fujian, PRC
Tel: 592-556548
FAX: 592-5056348

