



Installation Instructions

70E Roll Clamp

CAUTION

Because of the 70E's unique operating system, the procedures in this instruction manual must be followed carefully for proper attachment installation. Failure to follow these instructions EXACTLY could result in the attachment not working properly or not working at all.

Since there is a significant difference between the 70E hydraulic system and a standard roll clamp hydraulic system, take care in plumbing the 70E to a lift truck which previously had a standard roll clamp attached.

Manual Number 664925

cascade[®]
corporation

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70E Installation Instructions

Contents

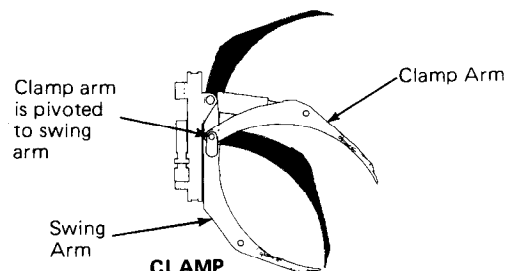
Introduction	2
Truck System Requirements	3
Hose Reel Installation	4
Junction Block Installation	4
Solenoid Valve Installation	5
Auxiliary Valve Control Knob Installation	6
Hydraulic Port Identification	7
Plumbing the Truck	10
Wiring	11
Flushing the Hoses	12
Attachment Installation	12
Attachment Stop Blocks	14
Testing Prior to Operation	14

4.0 Introduction

The Cascade Model 70E Roll Clamp is a three function attachment. The functions are:

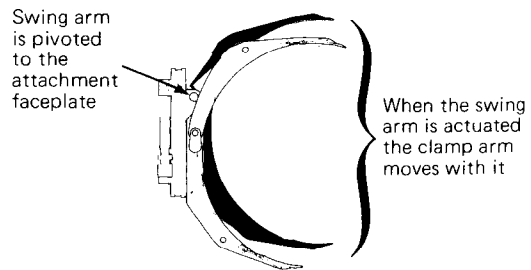
- **Clamp** (A Mill unit can clamp rolls between 30 and 60 inches in diameter. A Converter unit can clamp rolls of any diameter up to 60 inches.)
- **Swing** (A clamped load can be positioned side-to-side or up-and down, depending on how the attachment has been rotated, without affecting clamping force.)
- **Rotate** (360°, continuously.)

To perform all three functions, the 70E is equipped with a unique hydraulic system. The system makes it possible to operate **all three functions with only two truck auxiliary valves** in conjunction with a truck-mounted solenoid valve, supplied with your attachment.



CLAMP
Only the clamp arm moves

NOTE: Mill units can handle 30 to 60 inch rolls **only**



SWING
Both arms move simultaneously

Cascade Corporation reserves the right to alter or improve the specifications or design configuration of its products without notice.

70E Installation Instructions

4.0 Introduction (Cont.)

Caution

Because of the 70E's unique operating system, the procedures in this instruction manual must be followed carefully for proper attachment installation. Failure to follow these instructions EXACTLY could result in the attachment not working properly or not working at all.

Since there is a significant difference between the 70E hydraulic system and a standard roll clamp hydraulic system, take care in plumbing the 70E to a lift truck which previously had a standard roll clamp attached.

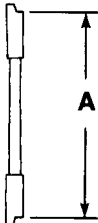
4.1 Truck System Requirements

- Minimum hose and fitting size: No. 8 (½ inch ID) with minimum fitting orifices of 1³/₃₂ inch.
- Minimum number and type of truck auxiliary valves: 2, closed-center valves (the valves may be operated either by individual control handles or by a single control handle).

IMPORTANT

If your truck is equipped with open-center valves, contact Cascade Customer Service (Dial Directline 800-547-5266, toll-free) prior to installing the attachment.

- Maximum truck pressure to the attachment: 2000 psi.
- Recommended minimum truck oil volume output to the attachment: 15 GPM.
- Truck carriage must conform to Industrial Truck Association (ITA) dimensional standards as shown below.



Mounting	Dimension A(in.)	
	Min.	Max.
Class III	18.68	18.74
Class IV	23.44	23.50



WARNING: Rated capacity of the truck/attachment combination is a responsibility of the original truck manufacturer and may be less than shown on the attachment nameplate. Consult the truck nameplate.

CAUTION

Use only #8 wire braided (single or double) hoses to plumb the 70E to the truck auxiliary valve. DO NOT USE THERMOPLASTIC HOSES UNDER ANY CIRCUMSTANCES.

70E Installation Instructions

4.2 Hose Reel Installation

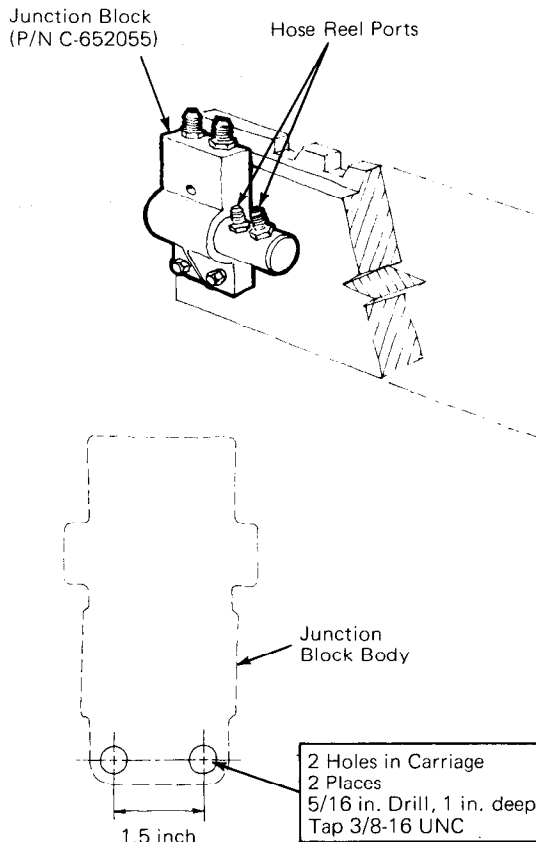
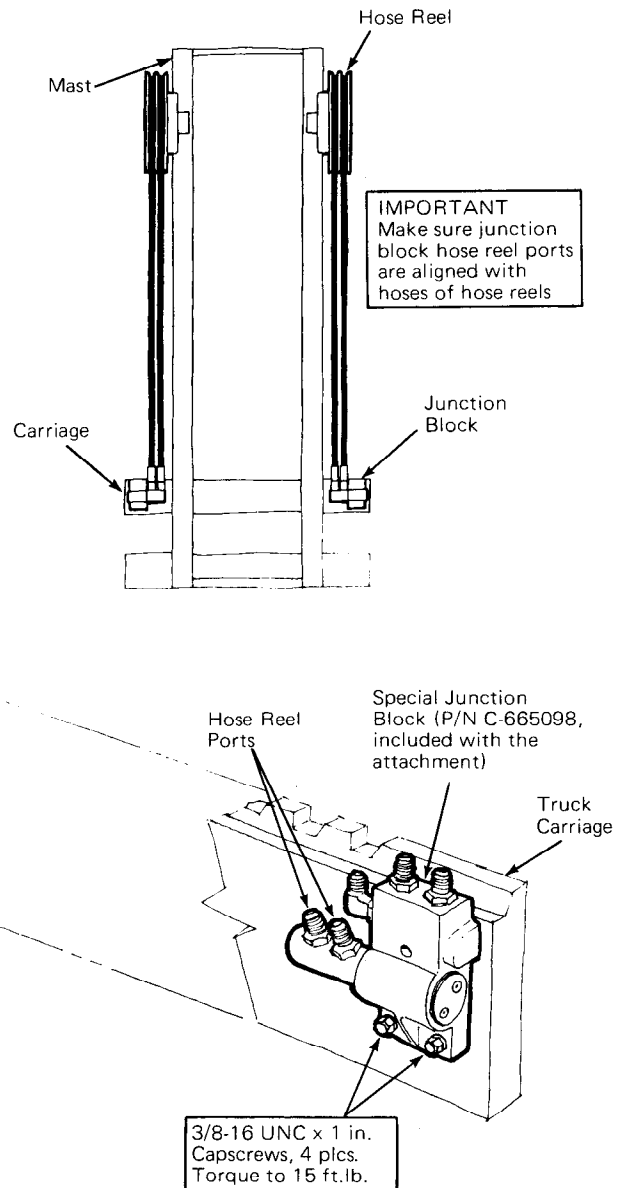
Your truck must be equipped with some method to route four No. 8 hoses between the truck-mounted control valves and the attachment. You may use two hose reels, mast internal hose sheaves, counter-weighted hose sheaves, etc.

For most installations, Cascade recommends using two 14.5-inch diameter hose reels, Cascade Model H8L (P/N C-646042) on the left-hand side and Cascade Model H8R (P/N C-646043) on the right-hand side. If the attachment is to be installed on a high-lift mast, larger hose reels may be required. Consult the Cascade Hose Reel Selection Guide (form 4031) or contact Cascade Customer Service. Install the hose reels according to the instructions supplied with the reels.

4.3 Junction Block Installation (for use with hose reels)

Install two junction blocks on the back side of the truck carriage upper crossbar as shown below. Use the special junction block included with the attachment on the right-hand side of the carriage. Cascade recommends using a junction block **without checks** (P/N C-652055) on the left-hand side.

Locate the junction blocks so the hose reel ports of the blocks are aligned between the flanges of their respective hose reels.



70E Installation Instructions

4.4 Solenoid Valve Installation

Select some convenient location on the truck to install the solenoid valve assembly. Cascade recommends that, on most lift truck installations, somewhere on the front of the truck cowl is a good location. Make sure the location you select does not interfere with the operation of any other lift truck components (mast, hoses, tilt cylinders, etc.). It makes no difference if the solenoid valve assembly is positioned as shown below or upside-down, or oriented in any other way.

4.4-1 Racine Solenoid Valve

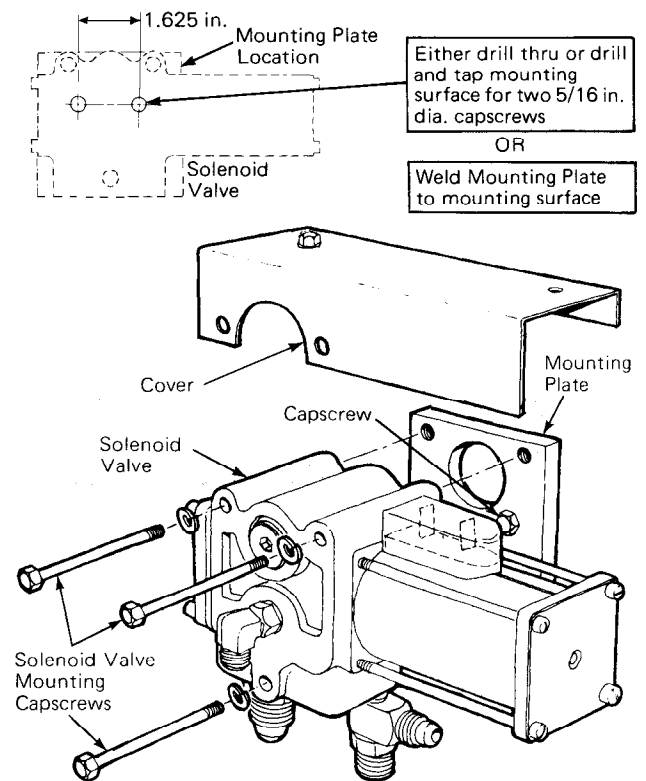
1. Remove the solenoid valve mounting plate and cover from the solenoid valve assembly by removing the three mounting capscrews.
2. Locate and secure the mounting plate to the mounting surface.

IMPORTANT

If you secure the mounting plate with capscrews, make sure the **heads** of the capscrews are on the side facing the solenoid valve.

3. Secure the solenoid valve to the mounting plate using the capscrews removed in Step 1.

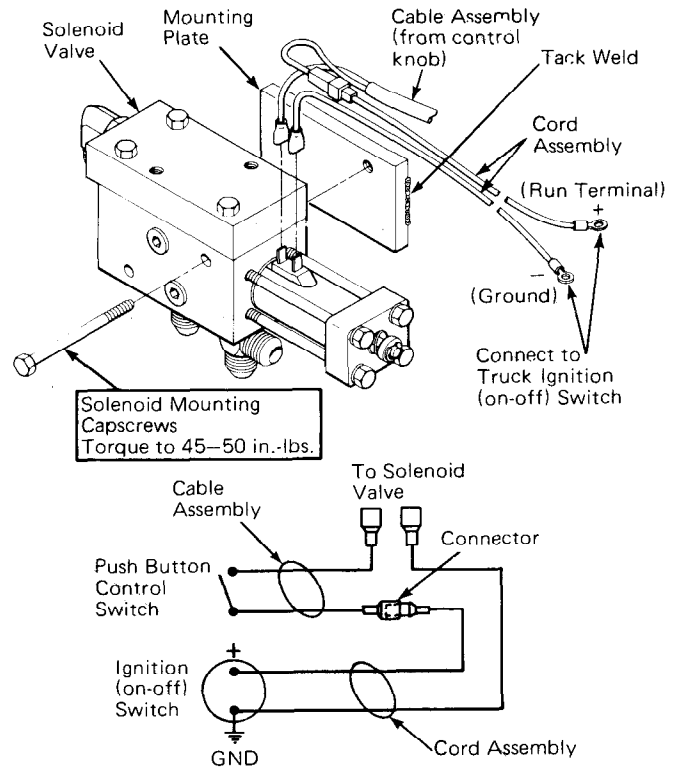
NOTE: Do not install the cover at this time. You will need the cover off to gain access to the solenoid valve electrical connections later.



70E Installation Instructions

4.4-2 Waterman Solenoid Valve

1. Disconnect the ground cable from the battery (internal combustion trucks) or disconnect the truck battery (electric trucks).
2. Tack weld the mounting plate to the mounting surface using a mild steel welding rod.
3. Place the solenoid on the mounting plate and torque the mounting capscrews to 45 – 50 in.-lbs.

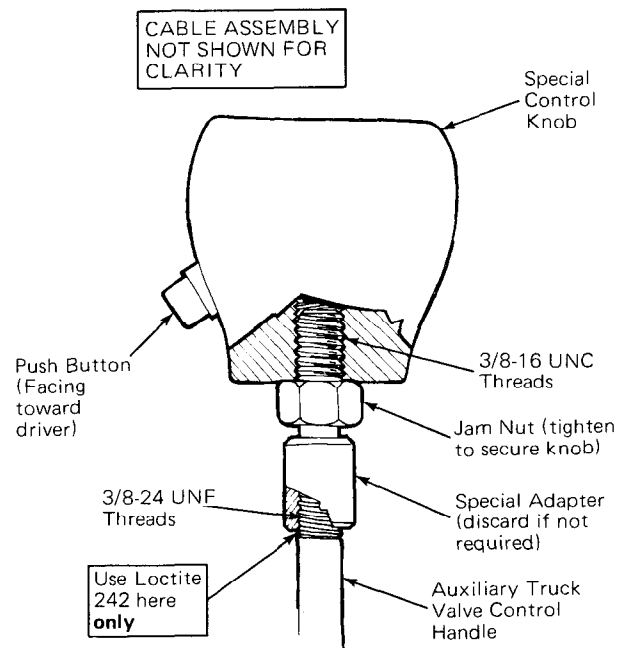


4.5 Auxiliary Valve Control Knob Installation

A special control knob, which includes an electrical switch and wiring to control the solenoid valve, is included with the attachment.

- If the auxiliary valves on your truck are controlled by individual handles, the knob should be installed on the handle closest to the operator when he is in the driver's seat.
- If the auxiliary valves on your truck are controlled by a single handle, install the knob on the single control handle.

Remove the existing knob from the appropriate auxiliary valve control handle and install the special knob as shown. If the control handle is not threaded, weld on the special adapter and install the knob as shown. It may be necessary to saw off a portion of the handle to achieve a comfortable length.



70E Installation Instructions

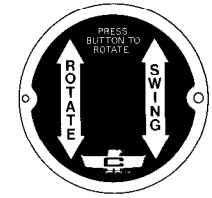
4.5-1 Control Knob Placard Installation

The control knob placard is a disc with printing on both sides that may be installed on top of the control knob with either side showing.

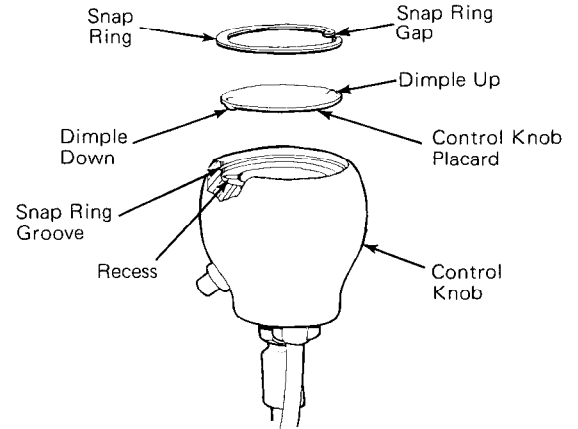
If your truck auxiliary valves are operated with a **single** control handle, the side marked "A" should be visible on the knob. If your truck auxiliary valves are operated with **individual** control handles, the side marked "B" should be visible.



A Visible on trucks with a **single** handle controlling auxiliary valves



B Visible on trucks with **individual** (two handles) controlling auxiliary valves

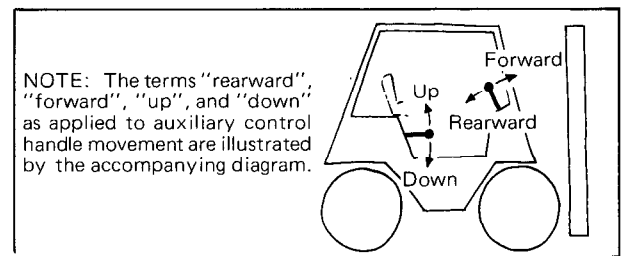


4.6 Hydraulic Port Identification

4.6-1 Truck Auxiliary Valves

The 70E hydraulic system is designed so that operation of the truck auxiliary valve control handle(s) conforms to industry standard practice as described by the following chart.

Function, listed in sequence of location to operator	Attachment movement	Motion of the operator's hand when actuating the truck auxiliary control handle while facing the load
Swing	Retract	Rearward or Up
	Extend	Forward or Down
Rotate	Clockwise	Rearward or Up
	Counterclockwise	Forward or Down
Clamp	Clamp	Rearward or Up
	Release	Forward or Down



On trucks with the auxiliary valves controlled by individual handles, both "SWING" and "ROTATE" are operated by the auxiliary handle **closest** to the driver, and "CLAMP" is controlled by the **second** auxiliary handle from the driver.

On trucks with the auxiliary valves controlled by a single handle, both "SWING" and "ROTATE" are operated when the auxiliary handle is shifted **toward** the driver, and "CLAMP" is operated when the handle is shifted **away** from the driver.

Thus, prior to connecting hoses to the truck, it is **vital** that you first determine which ports of the auxiliary valves supply high-pressure output when the handle(s) is shifted.

70E Installation Instructions

4.6-1 Truck Auxiliary Valves (Cont.)

Determine auxiliary valve output according to the following procedures:

1. Connect a jumper hose to each port of both auxiliary valves. Put the ends of the hoses into a suitable container to collect oil.
2. Start the truck and briefly shift the auxiliary control handle(s) while watching the flow from the jumper hoses.
3. Mark or tag each port as follows (stick a piece of masking tape next to each port for easy marking).

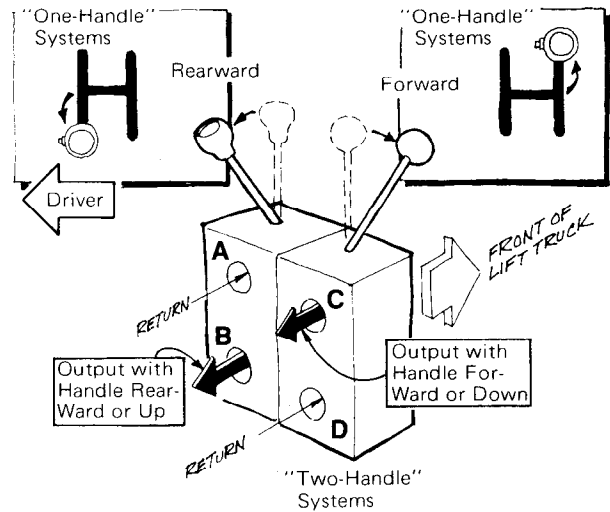
- For Trucks with Two Auxiliary Handles

- a. Shift the auxiliary handle **closest** to the driver (the one with the special knob) **forward** (or down). Mark the output port "A." Mark the opposite port "B."
- b. Shift the **second** auxiliary handle **forward** (or down). Mark the output port "C." Mark the opposite port "D."

- For Trucks with One Auxiliary Handle

- a. Shift the auxiliary handle **toward** the driver and **forward** (or down). Mark the output port "A." Mark the opposite port "B."
- b. Shift the auxiliary handle **away** from the driver and **forward** (or down). Mark the output port "C." Mark the opposite port "D."

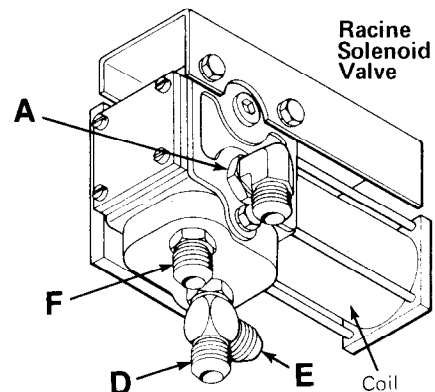
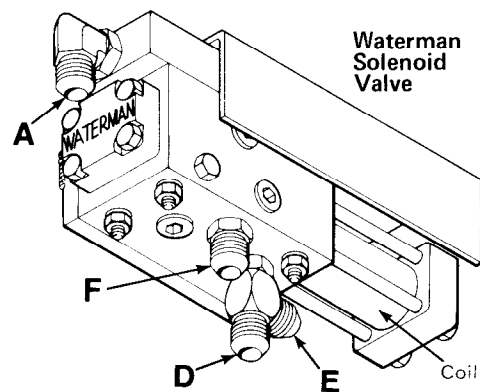
4. Remove the jumper hoses.



4.6-2 Solenoid Valve

Mark the ports of the solenoid valve as shown.

1. Mark the port on the front of the valve body "A."
2. Mark the port farthest from the coil "F."
3. Mark one port of the tee fitting installed in the port closest to the coil "D" and mark the other port of the tee fitting "E."

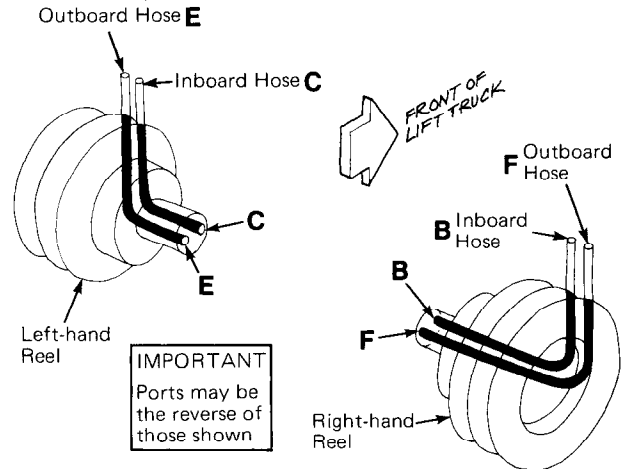


70E Installation Instructions

4.6-3 Hose Reels

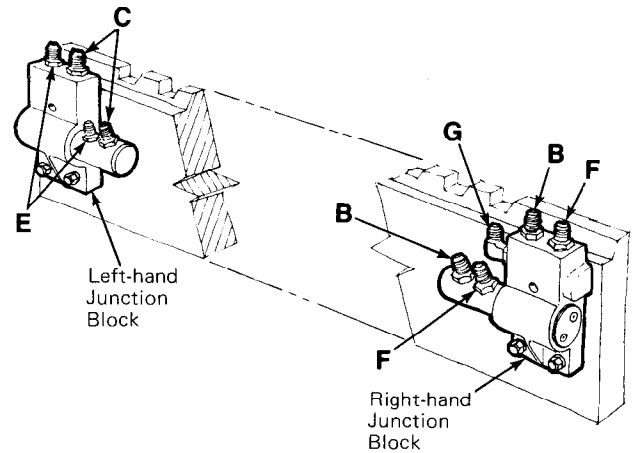
It is important to also determine the hose reel ports that correspond to the hoses of the reels. You can do this by blowing compressed air (35 psi maximum) through each hose reel port and feel which hose is in-line. Mark the hose reel ports as follows:

1. Left-hand Reel (as viewed from the driver's seat)—mark the port that is in-line with the inboard hose "C" and mark the opposite port "E."
2. Right-hand Reel (as viewed from the driver's seat)—mark the port that is in-line with the inboard hose "B" and mark the opposite port "F."



4.6-4 Junction Blocks

Mark the junction block ports as shown.



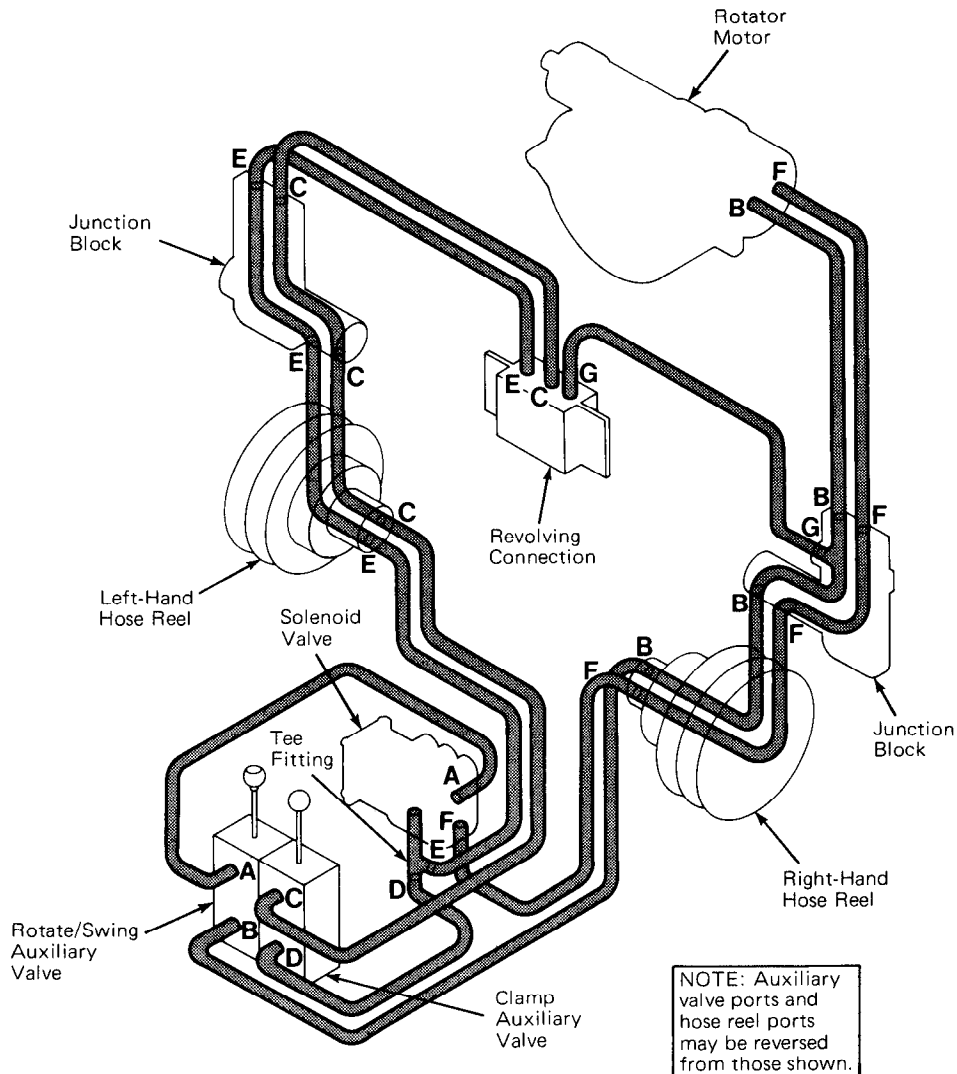
70E Installation Instructions

4.7 Plumbing the Truck

Connect the truck hydraulic system hoses (only as far as the junction block ports E, C, B and F), as shown below, connecting the same lettered ports together. When installing the hoses:

- Be careful not to twist, pinch, or otherwise damage the hoses.
- Use No. 8 hose (1/2 inch ID) with minimum fitting orifices of 1 3/32 inch.
- Use as few fittings as possible.
- Use 45° elbows instead of 90° elbows wherever possible.
- Do not route the hoses through tilt cylinder cutouts or anywhere else they may be damaged by moving components.
- As much as possible, route groups of hoses together.

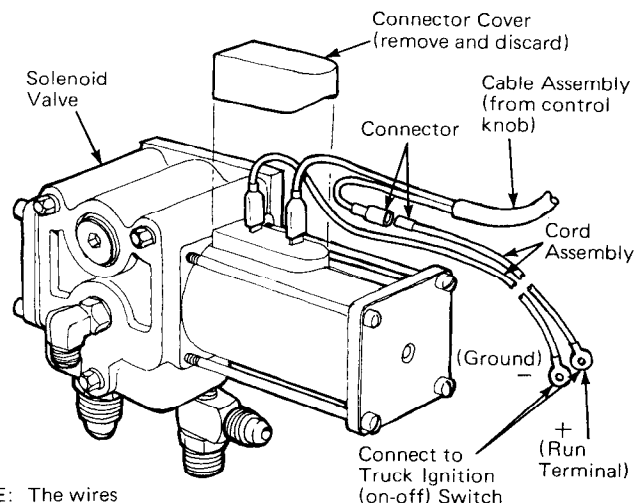
IMPORTANT: Plumbing diagram with auxiliary relief is shown on page 15.



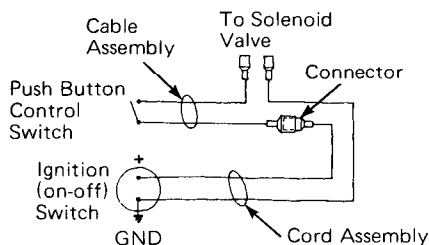
70E Installation Instructions

4.8 Wiring

1. To prevent inadvertent contact with "hot" wires or connections, disconnect the ground cable from the battery (internal combustion trucks) or disconnect the truck battery (electric trucks).
2. Route the cable assembly extending from the control knob under the floor board, cowl, etc., to the solenoid valve assembly. Make sure there is sufficient clearance around moving components. Secure the cable to the control handle near its base with the tie supplied.
3. Remove and discard the connector cover from the solenoid valve assembly.
4. Connect the cable assembly and the cord assembly, supplied with the attachment, to the solenoid valve and the truck ignition (on-off) switch as shown.

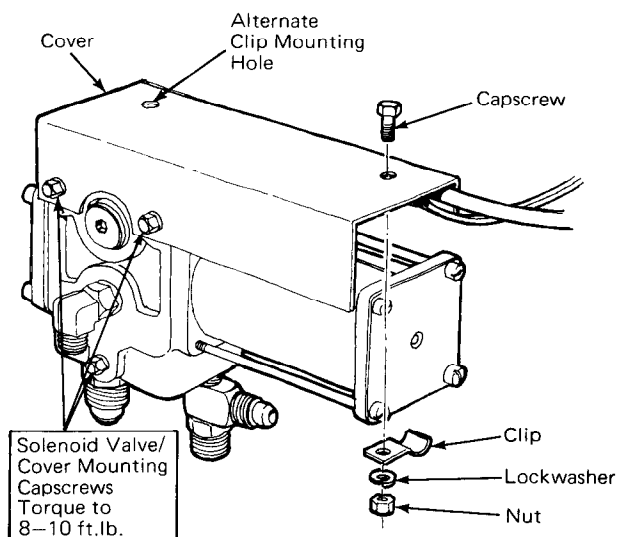


NOTE: The wires may be routed to the Solenoid Valve as shown or they may be routed to the opposite side of the valve.



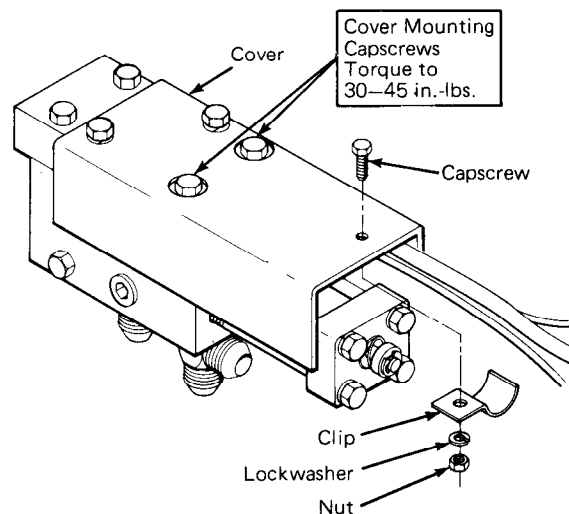
4.8-1 Install the Racine Cover as follows:

1. Install the solenoid valve cover using the two mounting capscrews as shown.
2. Secure the cable assembly to the cover. Notice that the cover has two holes for the clip installation, depending on from which side the wires lead to the solenoid valve.
3. Reconnect the truck battery.



4.8-2 Install the Waterman Cover as follows:

1. Secure the cable assembly with the clip as shown.
2. Place the cover on the solenoid, and torque the cover capscrews to 30 - 45 in.-lbs.
3. Reconnect the truck battery.

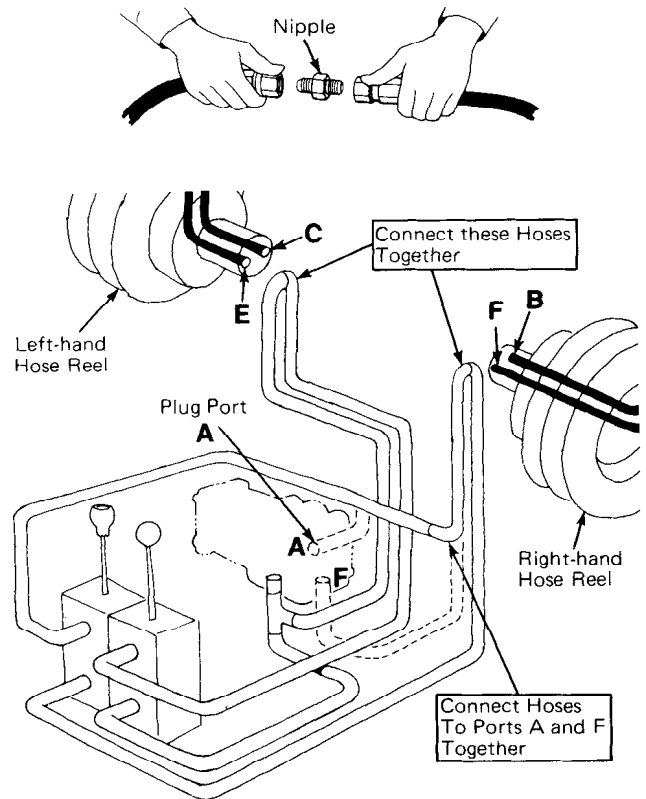


70E Installation Instructions

4.9 Flushing the Hoses

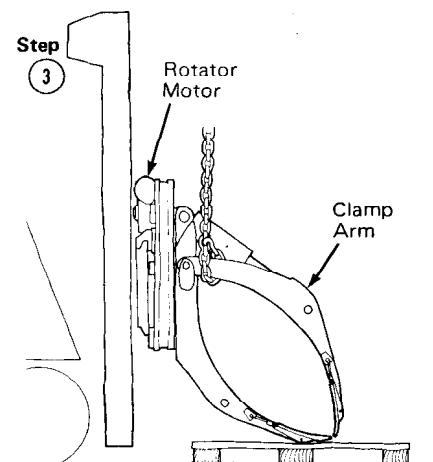
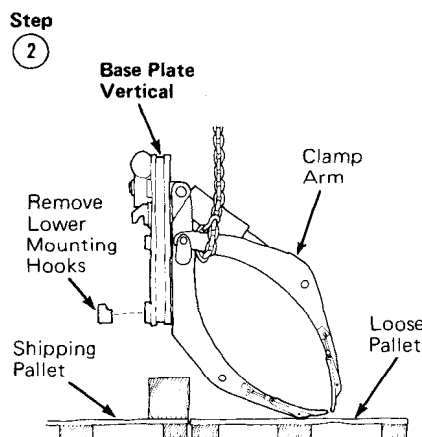
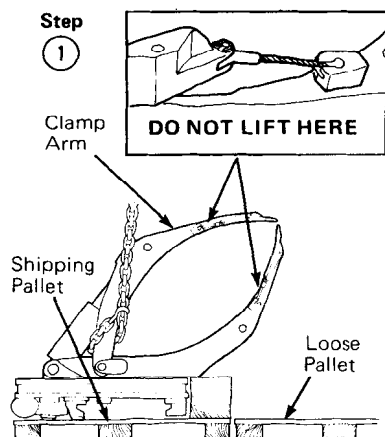
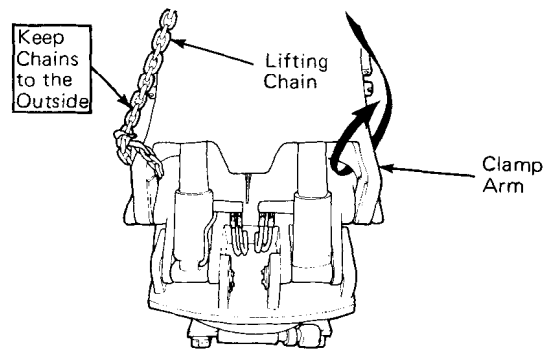
Prior to connecting the truck system to the attachment, the hoses should be flushed. Flushing will remove contaminants that might damage the valves and cylinders.

1. Connect hoses together using a nipple as shown.
2. Start the truck and actuate both auxiliary valves for about 30 seconds in both directions. This causes oil to carry any debris left in the hoses to the truck hydraulic tank and filter. Stop the truck.
3. Reconnect the hoses as shown on page 10.



4.10 Attachment Installation

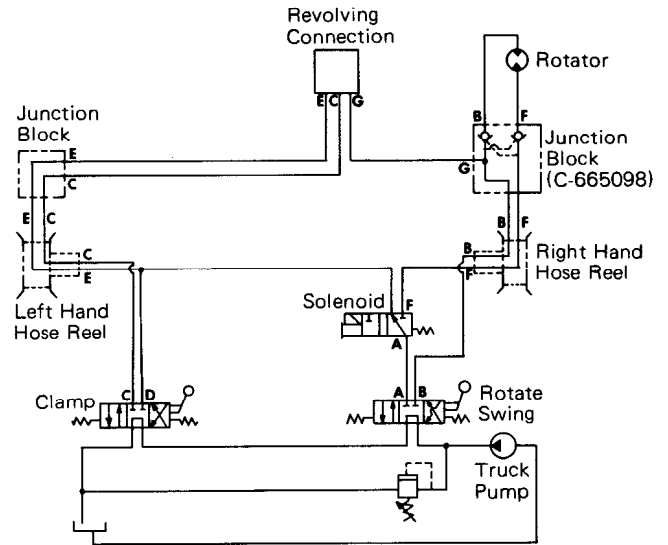
1. Wrap two chains around the clamp arm near its pivots as shown.
2. Put a loose pallet next to the shipping pallet as shown in Step 1.
3. Using a suitable hoist, slowly raise the attachment. Let the swing arm pivot on the support block and rest on the loose pallet. Continue raising until the attachment baseplate is vertical. Remove the lower mounting hooks. See Step 2.
4. Drive the truck in position and raise the carriage to engage the attachment upper mounting hooks. Make sure the attachment is centered on the carriage and make sure the stop block on the upper left-hand mounting hook is engaged in a notch on the truck upper carriage crossbar. See Step 3.



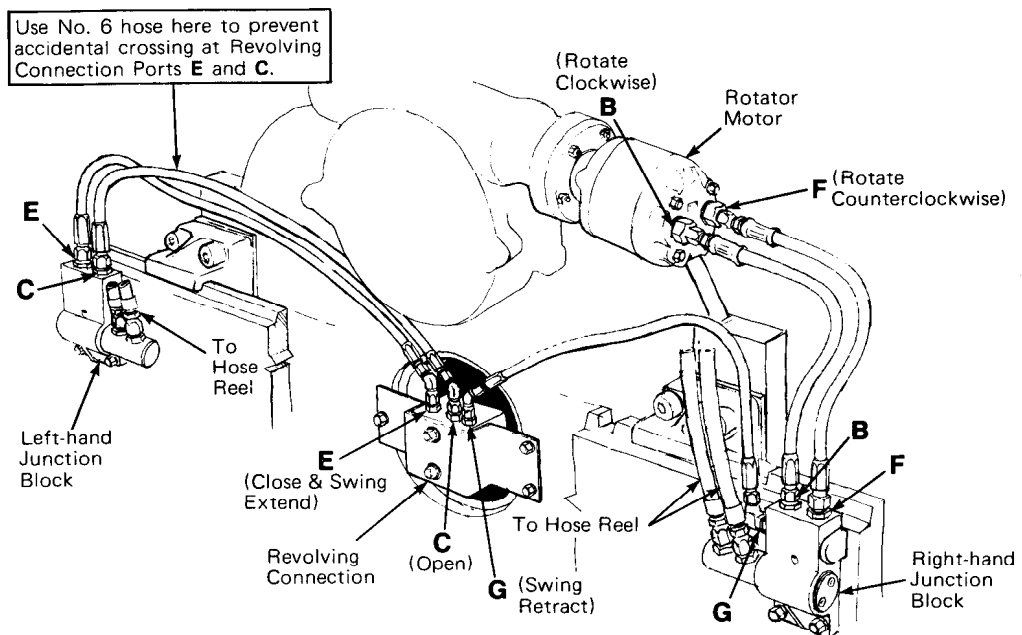
70E Installation Instructions

4.10 Attachment Installation (Cont.)

5. Measure the hose lengths required to plumb the attachment. Assemble the hoses and fittings, or, use Cascade Attachment Installation Kit C-665339, which contains the required hoses and fittings.
6. Flush each hose with hydraulic oil to remove any debris that might contaminate the attachment. Cap both ends of the hoses.
7. Lower the truck carriage and back the truck clear away from the attachment.
8. Install one end of each hose assembled in Step 5 to the attachment revolving connection and rotator motor as shown below.
9. Install the attachment onto the truck carriage as described in Step 4. Do not pinch the hoses.
10. Install the lower mounting hooks and torque the capscrews to 85 – 90 ft.-lb.
11. Remove the lifting chains.
12. Connect the attachment hoses to the truck junction blocks. The Plumbing Diagram on page 10 illustrates the entire truck/attachment hydraulic system correctly plumbed.



IMPORTANT: Schematic with auxiliary relief is shown on page 15.



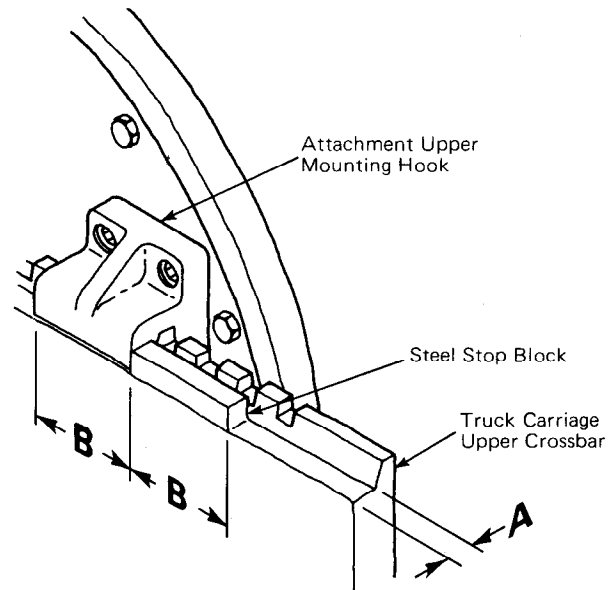
70E Installation Instructions

4.11 Attachment Stop Blocks

Cascade recommends that a steel stop block be permanently welded on each side of the truck carriage upper crossbar adjacent to each attachment upper mounting hook as shown.

To perform the installation:

1. Select square steel stock with a width about equal to the flat of the carriage upper crossbar (dimension A).
2. Cut two blocks from the stock, each about as long as the width of the attachment upper mounting hook (dimension B).
3. Position the blocks adjacent to the upper mounting hooks. The blocks should not extend behind the flat of the carriage upper crossbar (dimension A).
4. Weld the blocks in place. Make sure you protect adjacent hoses and hydraulic components from weld splatter.



4.12 Testing Prior to Operation

Check the level of the truck hydraulic tank and top-off if necessary. Then start the truck and test the attachment as follows to make sure it operates correctly.

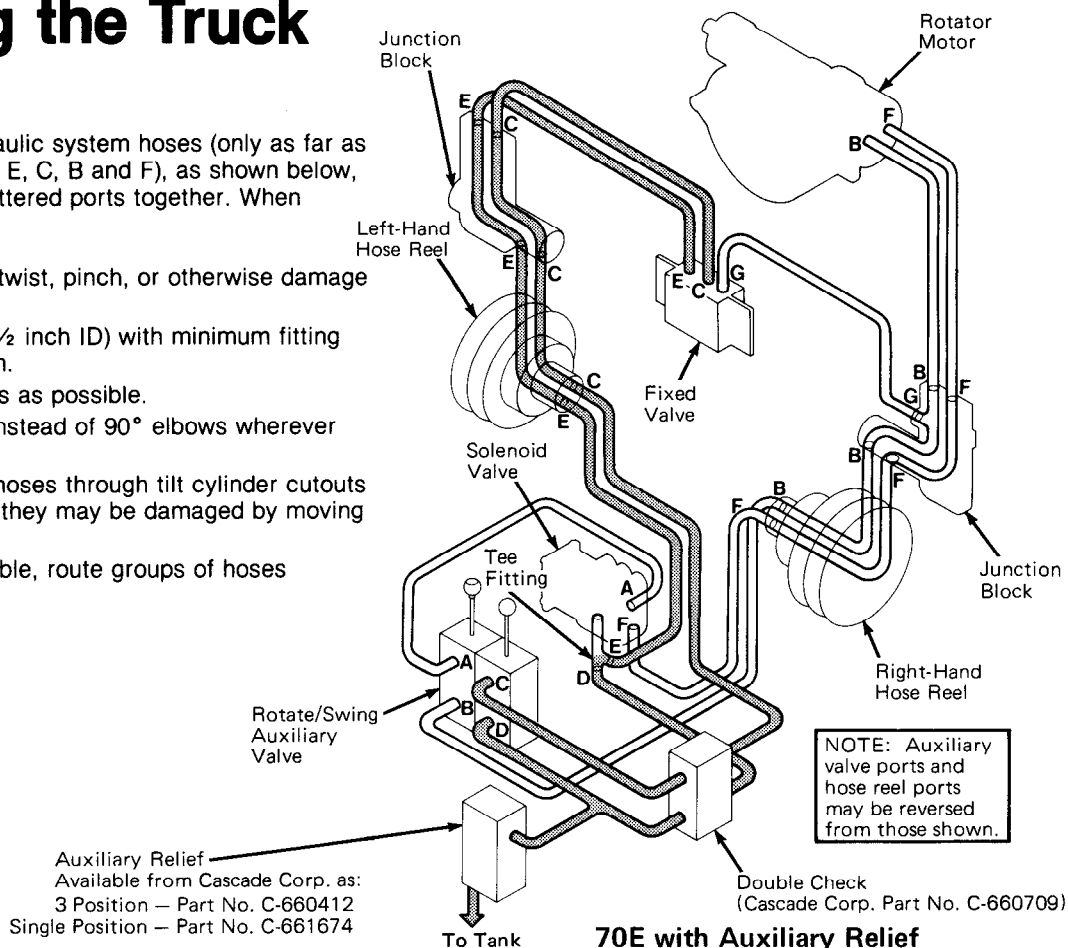
1. Move the rotate/swing handle forward (or down). Do not press the button on the control knob. The attachment swing arm should extend, as viewed from the driver's seat.
2. Move the rotate/swing handle rearward (or up). Do not press the button on the control knob. The attachment swing arm should retract.
3. Press the button on the control knob. Move the rotate/swing handle forward (or down). The attachment should rotate counterclockwise. Return the handle to neutral and release the button.
4. Press the button on the control knob. Move the rotate/swing handle rearward (or up). The attachment should rotate clockwise. Return the handle to neutral and release the button.
5. Move the clamp handle forward (or down). The clamp arm should open.
6. Move the clamp handle rearward (or up). The clamp arm should close.
7. Check the entire hydraulic system for leaks.
8. Operate the attachment through several cycles to purge air from the system.

70E Installation Instructions

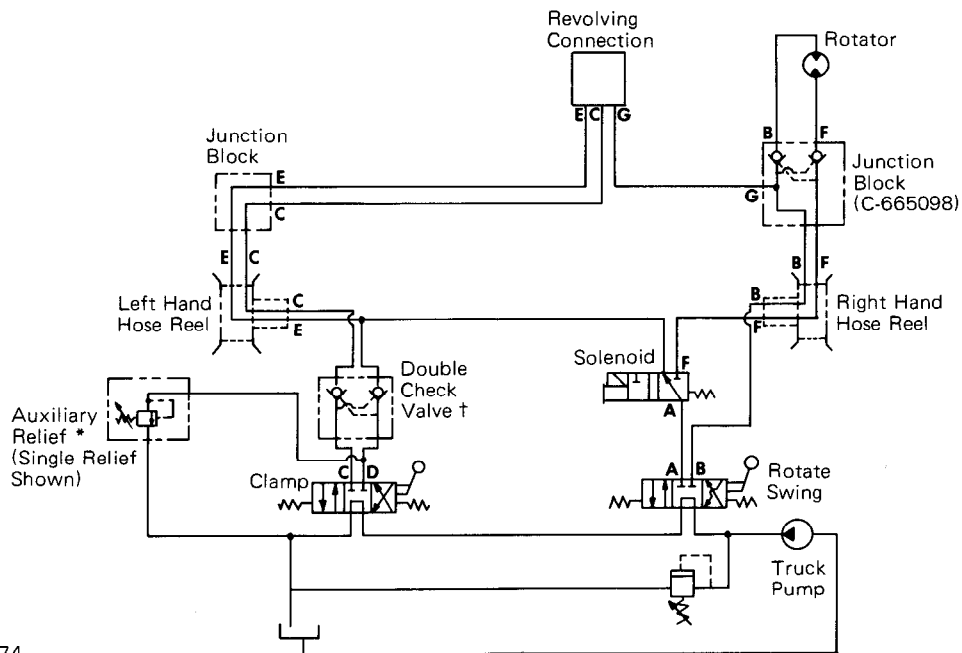
4.7 Plumbing the Truck (Cont.)

Connect the truck hydraulic system hoses (only as far as the junction block ports E, C, B and F), as shown below, connecting the same lettered ports together. When installing the hoses:

- Be careful not to twist, pinch, or otherwise damage the hoses.
- Use No. 8 hose (½ inch ID) with minimum fitting orifices of 1³/₃₂ inch.
- Use as few fittings as possible.
- Use 45° elbows instead of 90° elbows wherever possible.
- Do not route the hoses through tilt cylinder cutouts or anywhere else they may be damaged by moving components.
- As much as possible, route groups of hoses together.



4.10 Attachment Installation (Cont.)



* Available from Cascade Corp. as:
3 Position – Part No. C-660412
Single Position – Part No. C-661674

† Cascade Corp. Part No. C-660709



**Do you have questions
you need answered
right now?**

Dial Directline
800-547-5266
(toll free)