



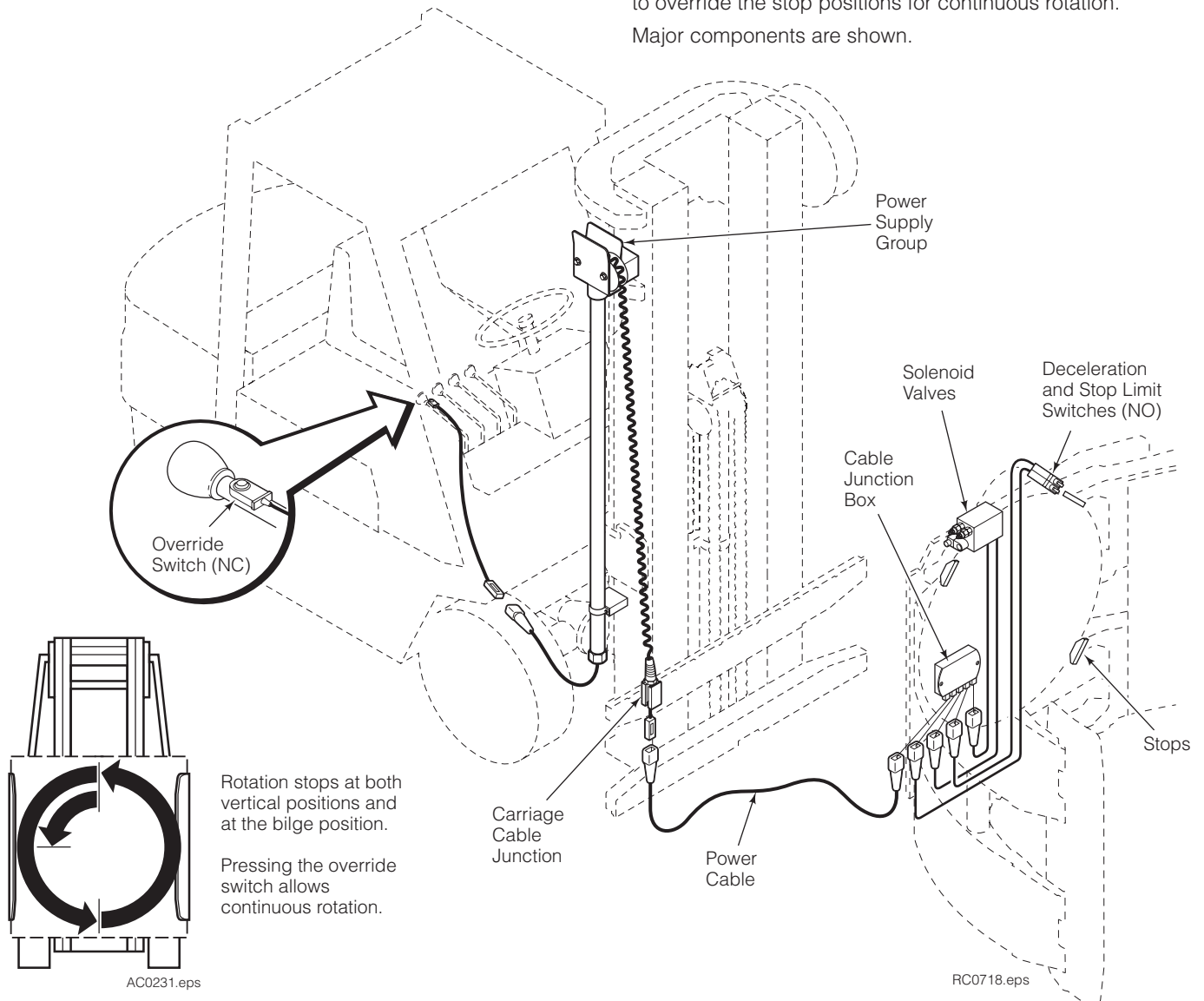
Installation Instructions

Electronic Rotational Control Group

This manual provides installation instructions for Cascade Electronic Rotational Control (ERC) Kits. Rotational Control provides accurate stops during rotation to position the attachment arms at true vertical or bilge position to reduce product damage of misclamped loads. An electrical supply

circuit using a cable reel (Cascade Power Supply recommended) is required to provide an electrical connection between the Electrical Rotational Control on the attachment and the truck electrical system. A normally closed pushbutton switch mounted on the truck ROTATE control lever is pressed to override the stop positions for continuous rotation.

Major components are shown.



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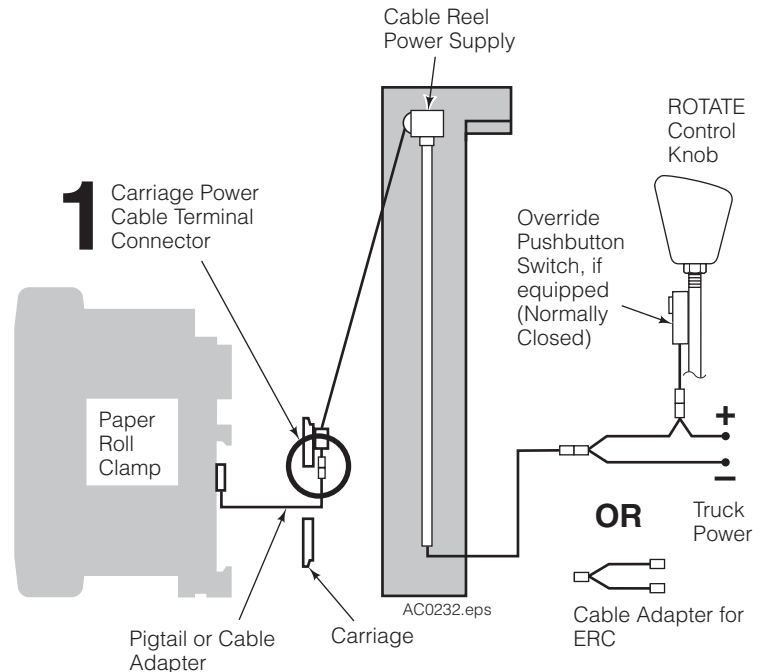
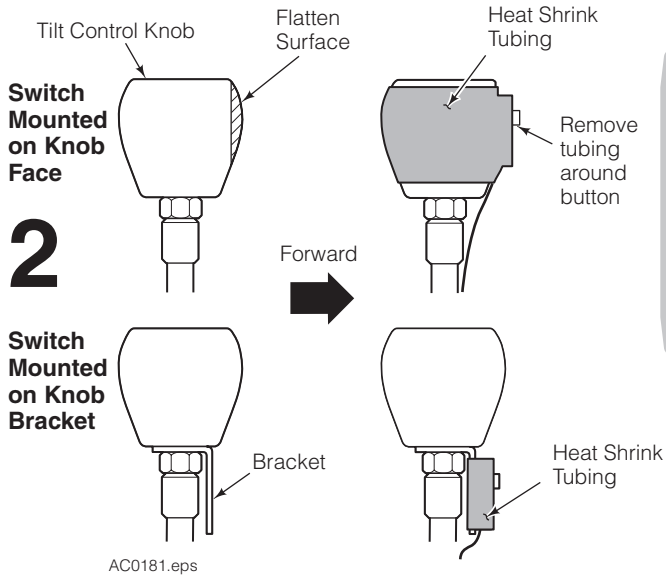
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Cable, Switch Installation

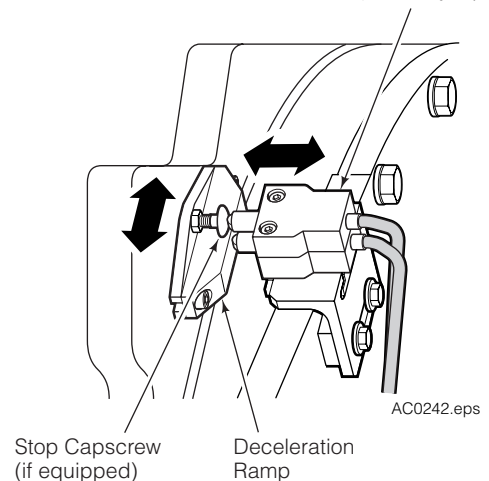
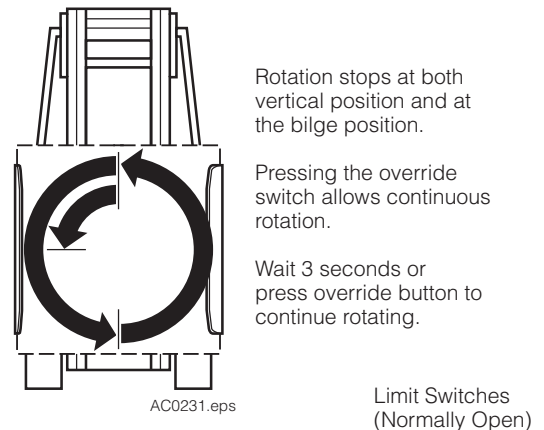
- 1 Connect the power cable from the electronic rotational control (ERC) enclosure on the back of the attachment to the power supply cable end at the truck carriage.
- 2 Install pushbutton switch on ROTATE control lever.

NOTE: The installation shows connection to Cascade Power Supply/Communication Kit 228719 or 6001137 which includes components for over-the-mast electrical supply from the power cable to the carriage cable connection. Refer to Installation Manual 228179.

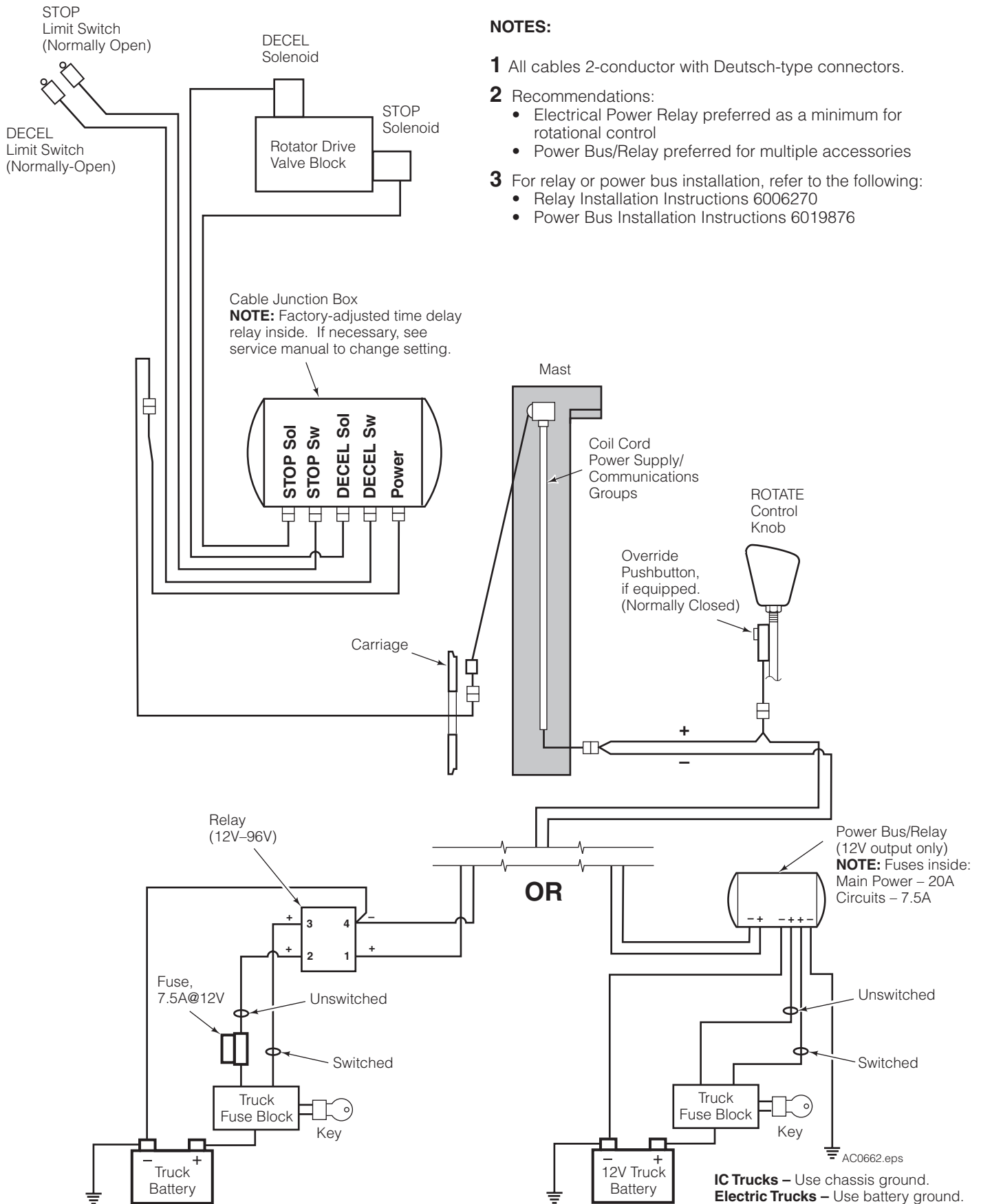


Operation and Adjustment

- 1 Test the installation before putting the truck in service. When rotating, attachment travel should stop at the vertical and bilge handling positions. Wait 3 seconds to rotate after stopping **OR** press the rotate override button to continue rotating.
 - If rotation **stops** at the vertical or bilge position, continue with step 2.
 - If rotation **stops momentarily and then continues** at the vertical or bilge positions:
 - A** Reduce the hydraulic input pressure for the rotate function.
 - OR**
 - B** Adjust both counterbalance cartridges CCW in 1/2 turn increments until rotation stop at the vertical and bilge position.
 - If rotation **does not stop** at the vertical or bilge positions:
 - A** Inspect the wiring installation. Look for loose connection or pinches cables.
 - B** The limit switch end rollers are not fully engaging the deceleration ramp and stop capscrew (if equipped) at the vertical or bilge position. Adjust the limit switch actuators to engage the ramp and stop capscrew (if equipped). The ramp and stop (if equipped) can also be adjusted for precision of the stop position. The stop capscrew height is also adjustable (if equipped).
- 2 To continue rotation, wait 3 seconds after stopping or the rotate override button must be pressed to continue rotation. To rotate without stopping, press the override button.



Rotational Control Electrical Hookup



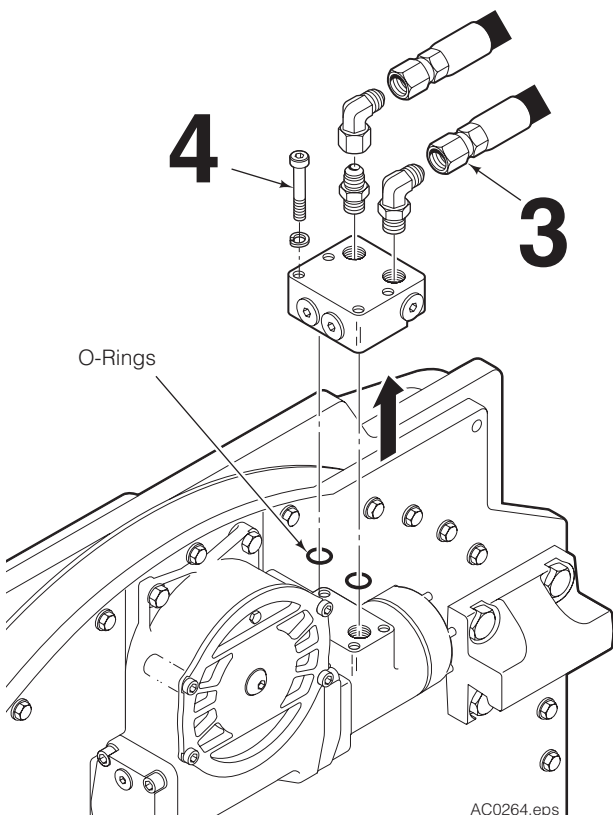
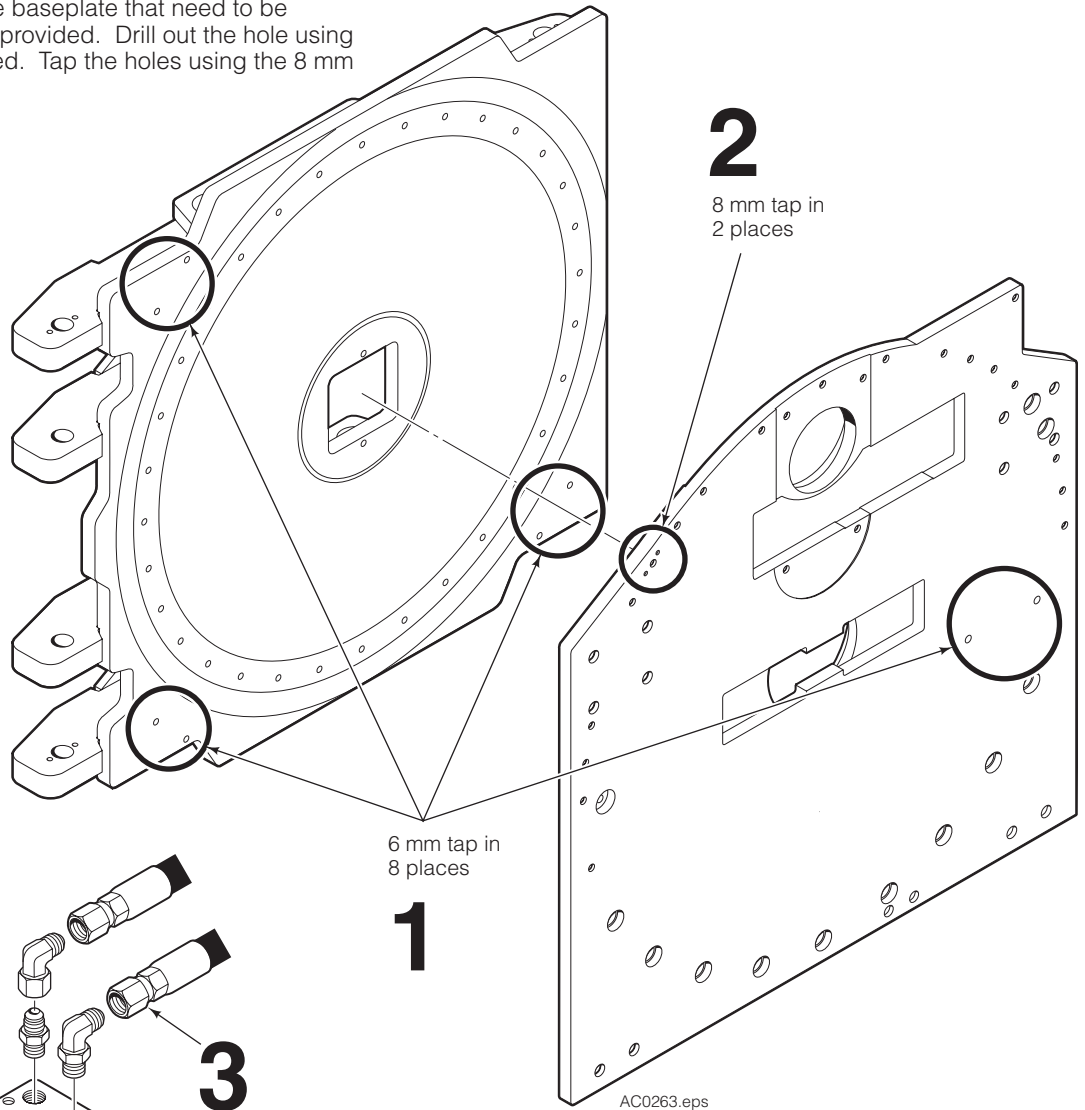
NOTES:

- 1 All cables 2-conductor with Deutsch-type connectors.
- 2 Recommendations:
 - Electrical Power Relay preferred as a minimum for rotational control
 - Power Bus/Relay preferred for multiple accessories
- 3 For relay or power bus installation, refer to the following:
 - Relay Installation Instructions 6006270
 - Power Bus Installation Instructions 6019876

Retrofit Installation

Rotational control is also available as a field installation kit for attachment that have predrilled faceplates and baseplate.

- 1** Locate the eight holes that need to be tapped with the 6 mm tap provided. Six holes are location in the faceplate and two hole are located in the baseplate. Drill out the holes using the 5.3 mm drill bit provided. Tap the holes using the 6 mm tap.
- 2** Locate the two holes in the baseplate that need to be tapped with the 8 mm tap provided. Drill out the hole using the 7.3 mm drill bit provided. Tap the holes using the 8 mm tap.



1

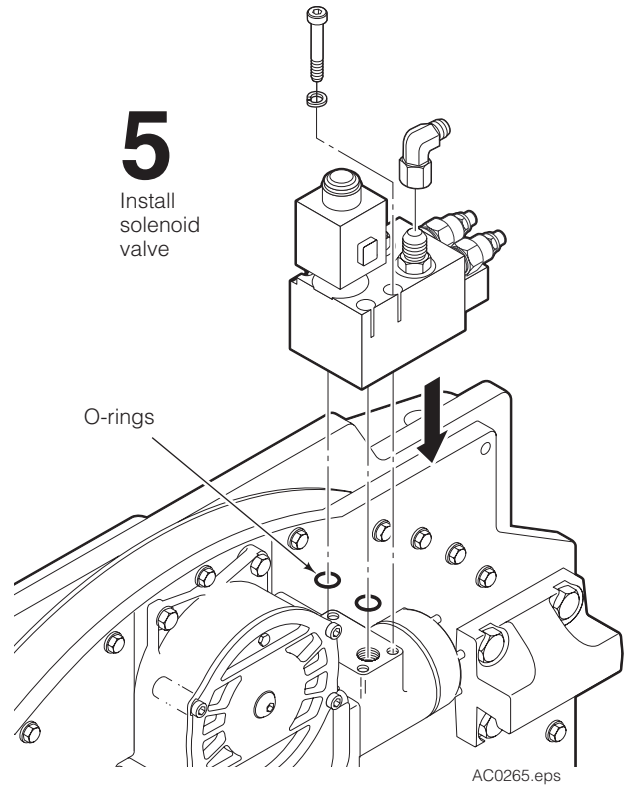
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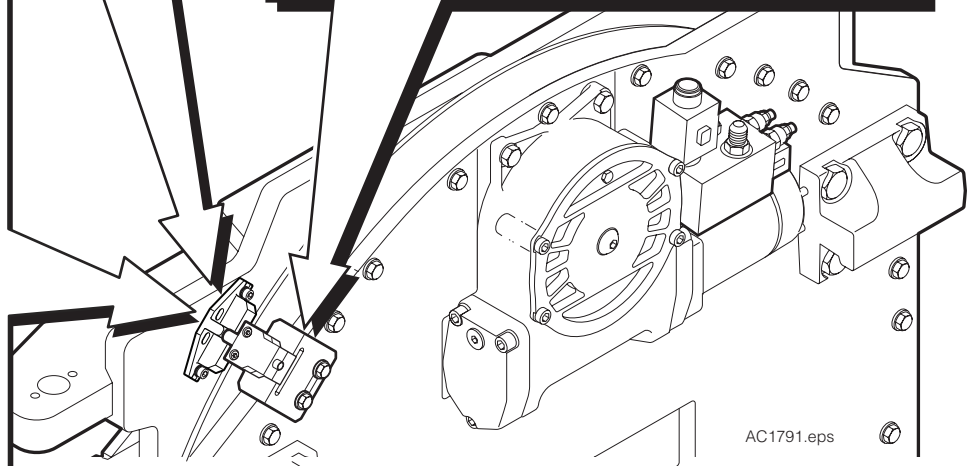
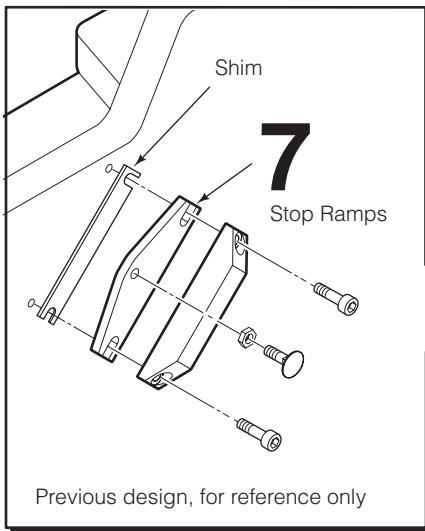
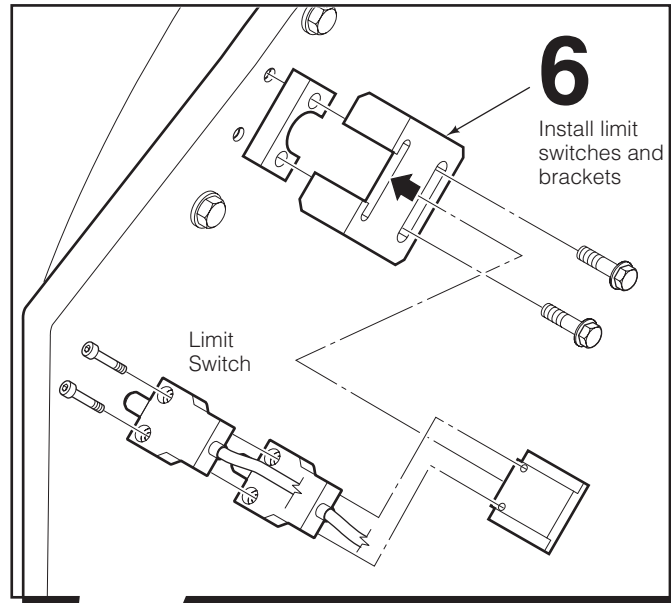
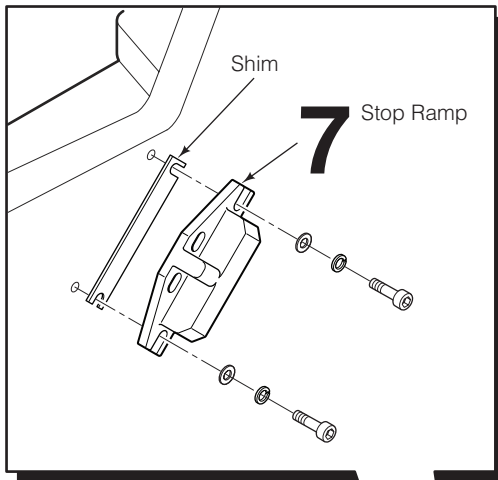
- 3** Disconnect hydraulic hoses to the drive group. Tag the hoses for reassembly.
- 4** Remove the four capscrews fastening the check valve to the drive group. Keep track of the two O-rings between the check valve and drive motor.

- 5** Install the new solenoid valve to the drive group. Place the two O-rings between the solenoid valve and drive motor. Install the four capscrews and tighten to 20 ft.-lbs.

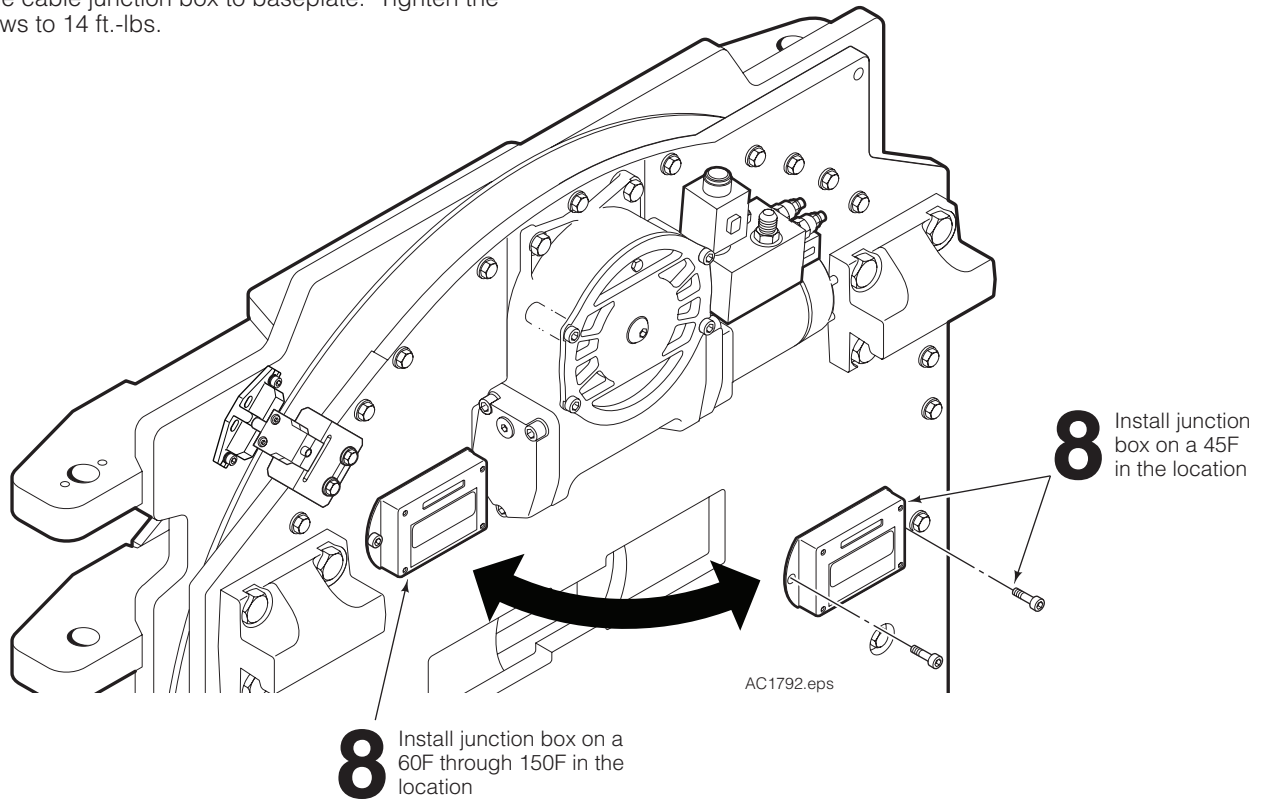


- 6** Install the limit switches and brackets to the baseplate. Tighten the baseplate bracket capscrews to 14 ft.-lbs.

- 7** Install the stop ramps to the faceplate. Tighten the stop capscrews to 3 ft.-lbs. Shim as required.

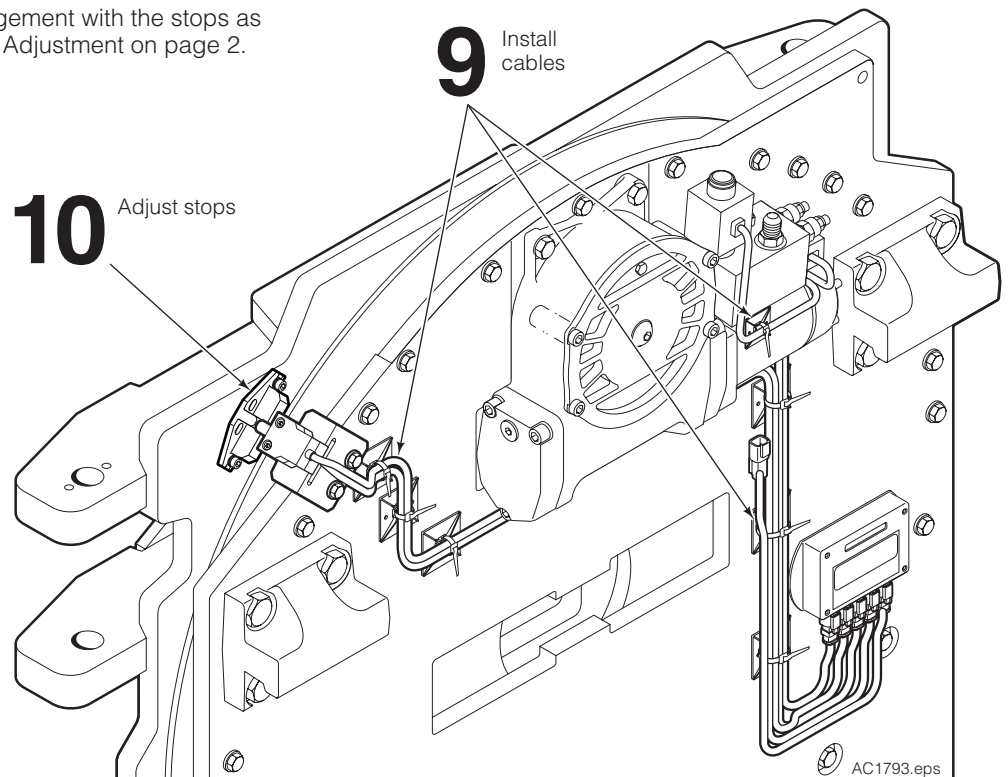


- 8** Install the cable junction box to baseplate. Tighten the capscrews to 14 ft.-lbs.

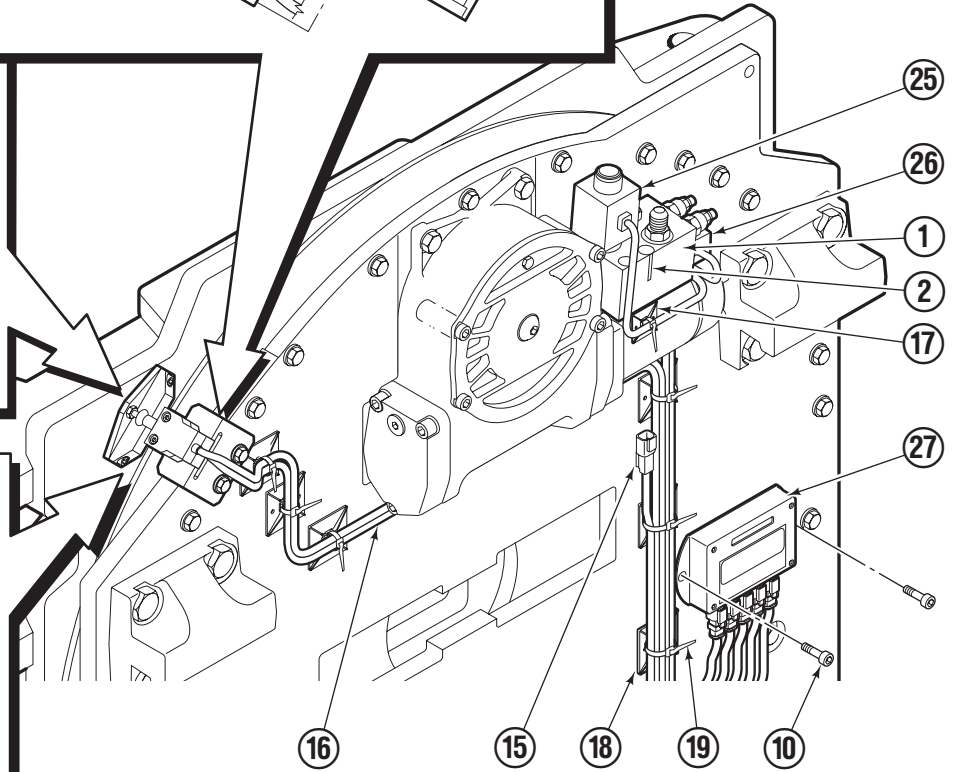
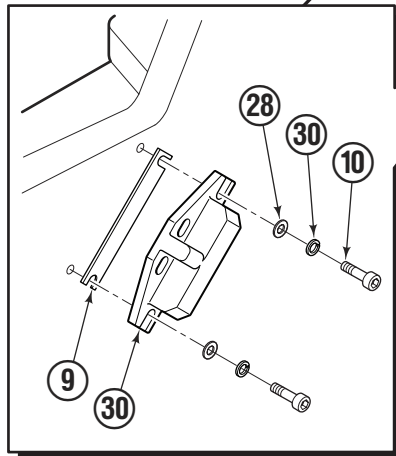
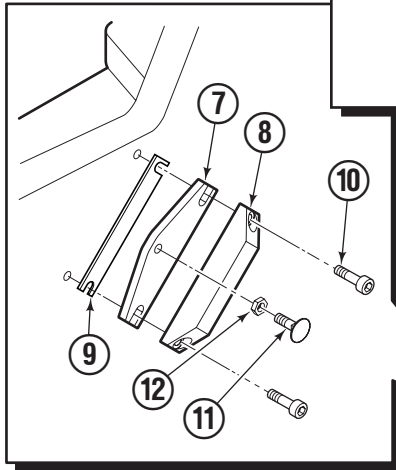
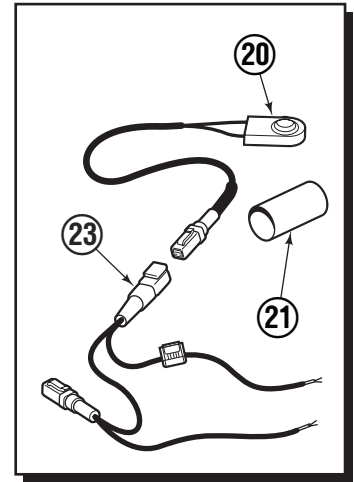
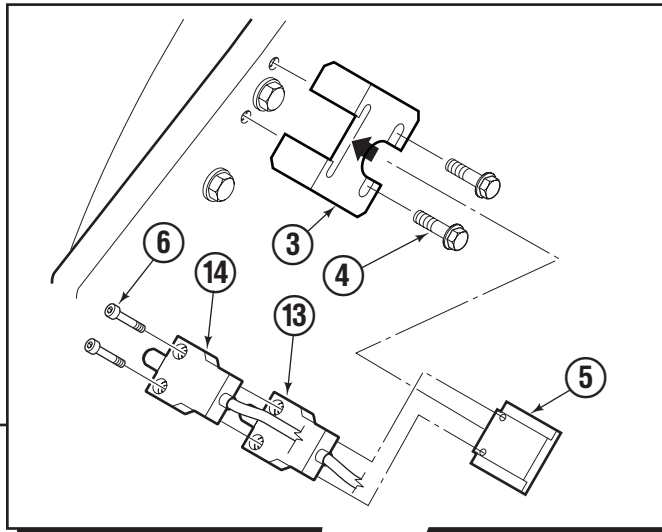
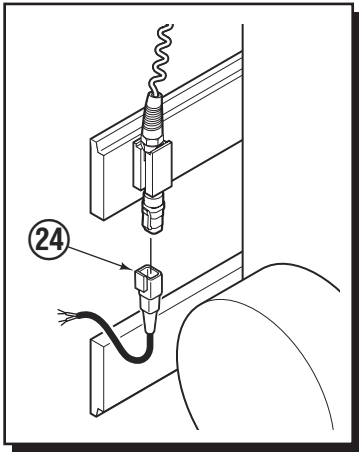


- 9** Install the cables. Use the adhesive blocks and wire ties to secure the wiring.

- 10** Adjust the limit switch engagement with the stops as described in Operation and Adjustment on page 2.



Rotational Control Assembly



AC1794.eps

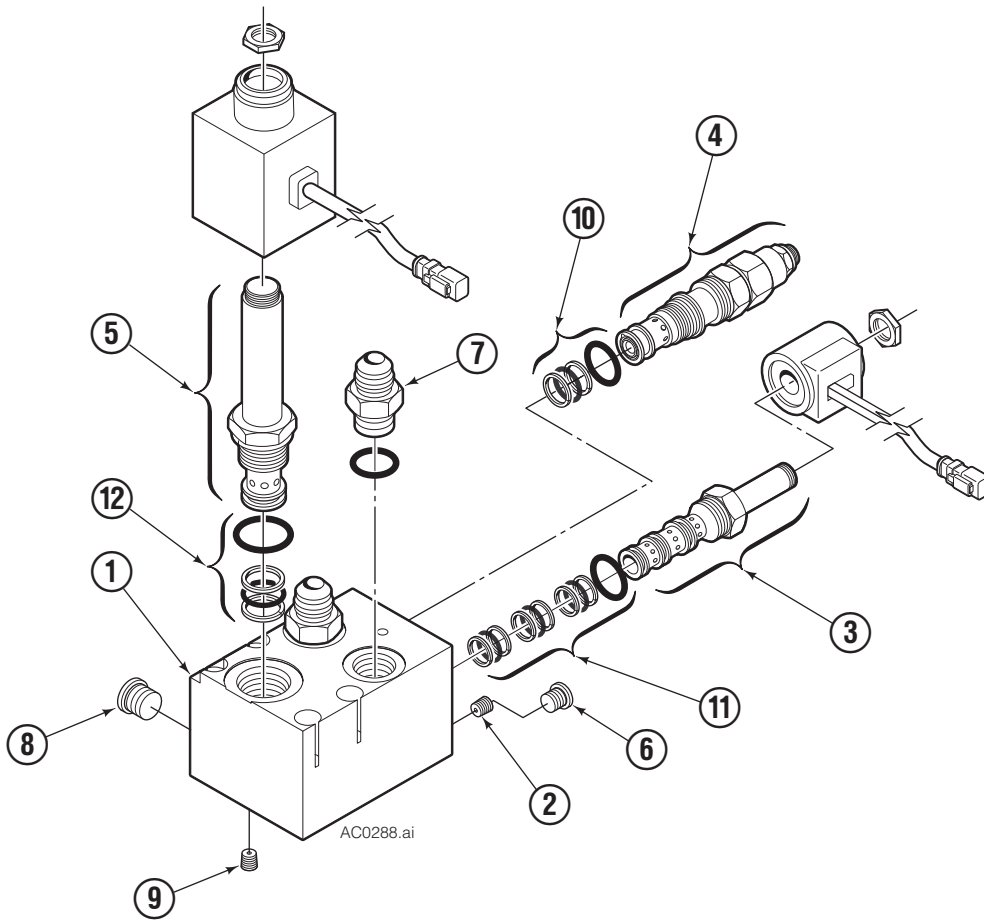
Rotational Control Assembly

REF	QTY	PART NO.	DESCRIPTION
		228705	Rotational Control – 12V
		228706	Rotational Control – 24V
		228707	Rotational Control – 36V
		228708	Rotational Control – 48V
1	1	6001035	Valve Assembly without Coils
2	4	607060	Capscrew, 5/16 NC x 2.00 GR8
3	1	222021	Switch Mounting Bracket
4	2	6002668	Capscrew, M8 x 20
5	1	222020	Switch Mounting Plate
6	2	768784	Capscrew, M5 x 35
7	3	◆	Plate, Stop
8	3	◆	Block, Deceleration
9	3	6009228	Shim, .030 in.
10	8	761170	Capscrew, M6 x 20
11	3	◆	Capscrew, M6 x 20
12	3	◆	Nut, M6
13	1	6048221	Switch/ Cable Assembly
14	1	6048219	Switch/ Cable Assembly
15	1	222023	Power Cable
16	2	228720	Extension Cable Assembly
17	2	6002501	Cable Tie Anchor
18	7	6002451	Cable Tie Anchor
19	9	6002479	Cable Tie
20	1	6048222	Switch Assembly
21	1	6001641	Shrink Tubing, 25 mm dia.
22	1	221728	Shrink Tubing, 50 mm dia.
23	1	6001647	Wire Harness
24	1	224459	Pigtail
25	1	6003161	Solenoid/Cable Assembly – 12V
	1	6003162	Solenoid/Cable Assembly – 24V
	1	6003163	Solenoid/Cable Assembly – 36V
	1	6003164	Solenoid/Cable Assembly – 48V
26	1	6003169	Solenoid/Cable Assembly – 12V
	1	6003170	Solenoid/Cable Assembly – 24V
	1	6003171	Solenoid/Cable Assembly – 36V
	1	6003172	Solenoid/Cable Assembly – 48V
27	1	227888	Relay Enclosure Assembly – 12V
	1	227894	Relay Enclosure Assembly – 24V
	1	227892	Relay Enclosure Assembly – 36V
	1	227890	Relay Enclosure Assembly – 48V
28	1	202346	Washer
29	1	206323	Lockwasher
30	1	6047884	Casting, ERC Ramp
		6014987	Adhesive Tape (not shown)
		6009181	Thread Cutting Tap, M6 (not shown)
		6009182	Thread Cutting Tap, M8 (not shown)
		6009185	Twist Drill, 5.3 mm (not shown)
		6009186	Twist Drill, 7.3 mm (not shown)

◆ For reference only.

Reference: Common Parts Groups 6001010, 6001012.

Solenoid Valve



REF	QTY	PART NO.	DESCRIPTION
		6001035	Valve Assembly without Coils
1	1	220565	Valve Body
2	4	220641	Orifice
3	1	220627	Solenoid Valve
4	2	6003173	Valve
5	1	221722	Solenoid Valve
6	2	663694	Fitting, 3
7	3	601377	Fitting, 8
8	3	604510	Fitting, 6
9	3	228698	Orifice
10	2	667516	Service Kit
11	1	221049	Service Kit
12	1	6031791	Service Kit