



Parts Manual

Model Layer Picker Device

Serial Number 30A-LP-002

cascade[®]

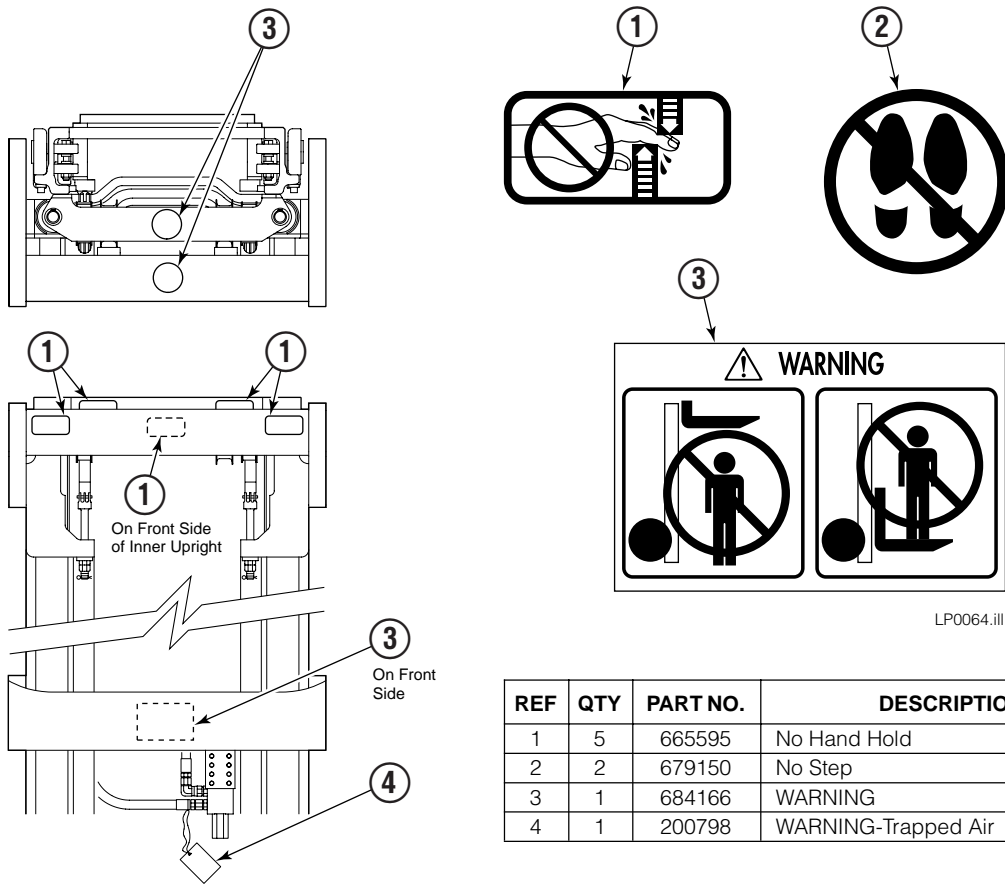
For Technical Assistance call: 800-227-2233, Fax: 888-329-8207

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OR

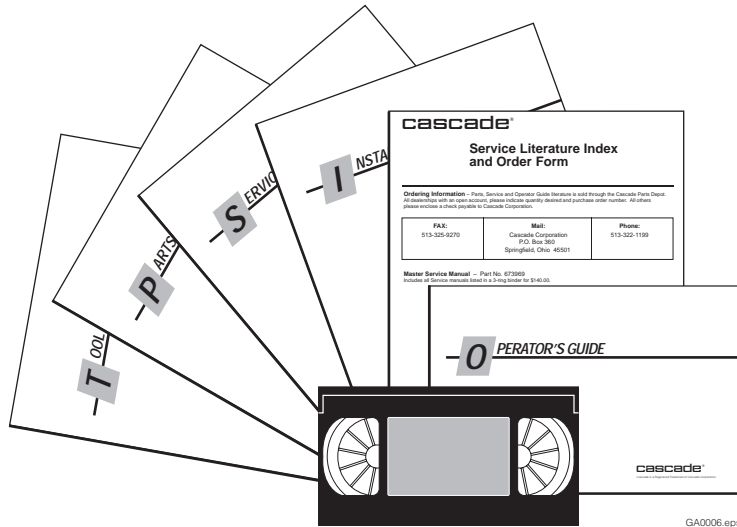
Write: Cascade Corporation, P.O. Box 20187, Portland, OR 97220

Safety Decals



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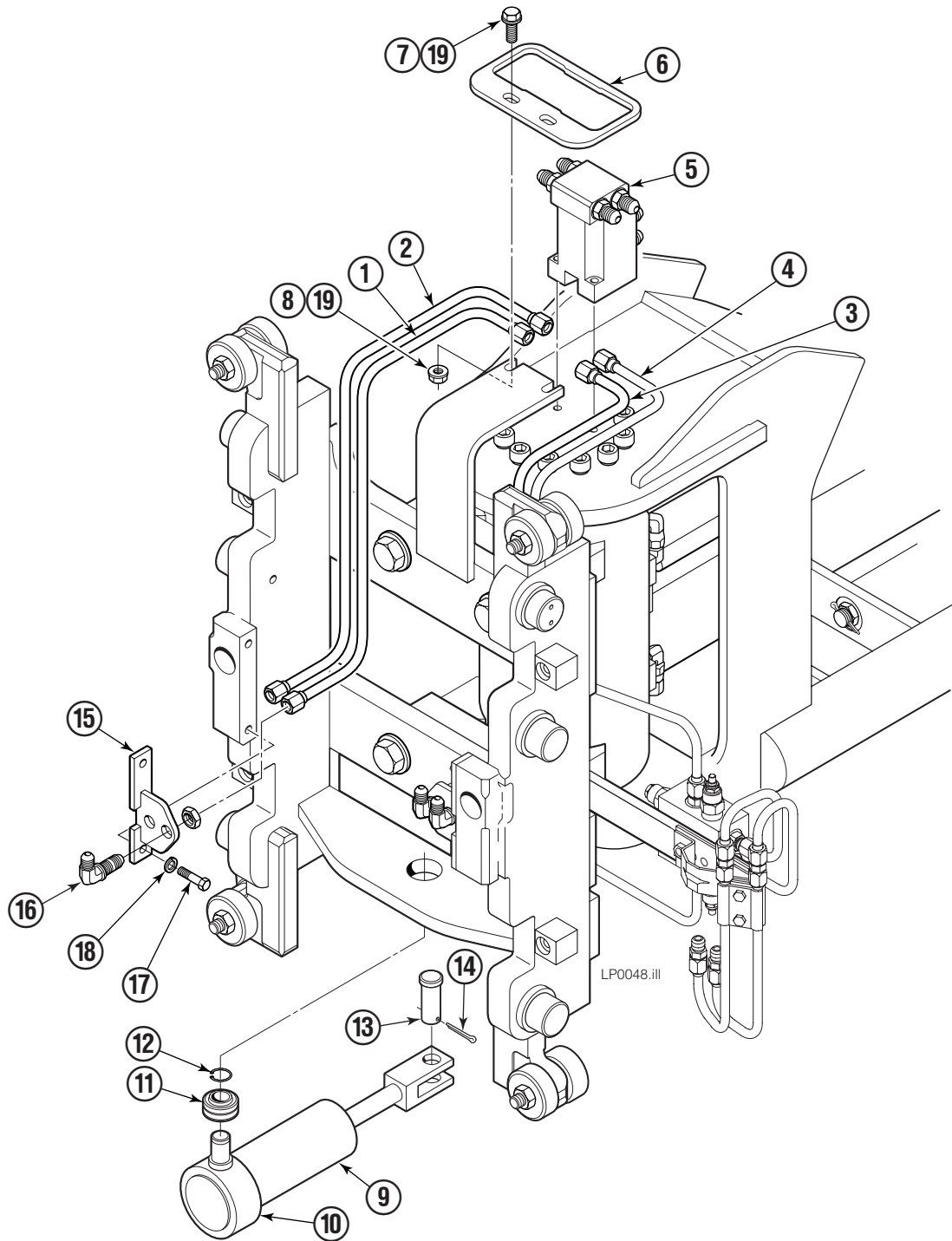
Publications



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PART NO.	DESCRIPTION
-	Parts Manual
-	Service Manual
222964	Installation Instructions
222225	Operators Guide
679929	Tool Catalog
673964	Literature Index Order Form

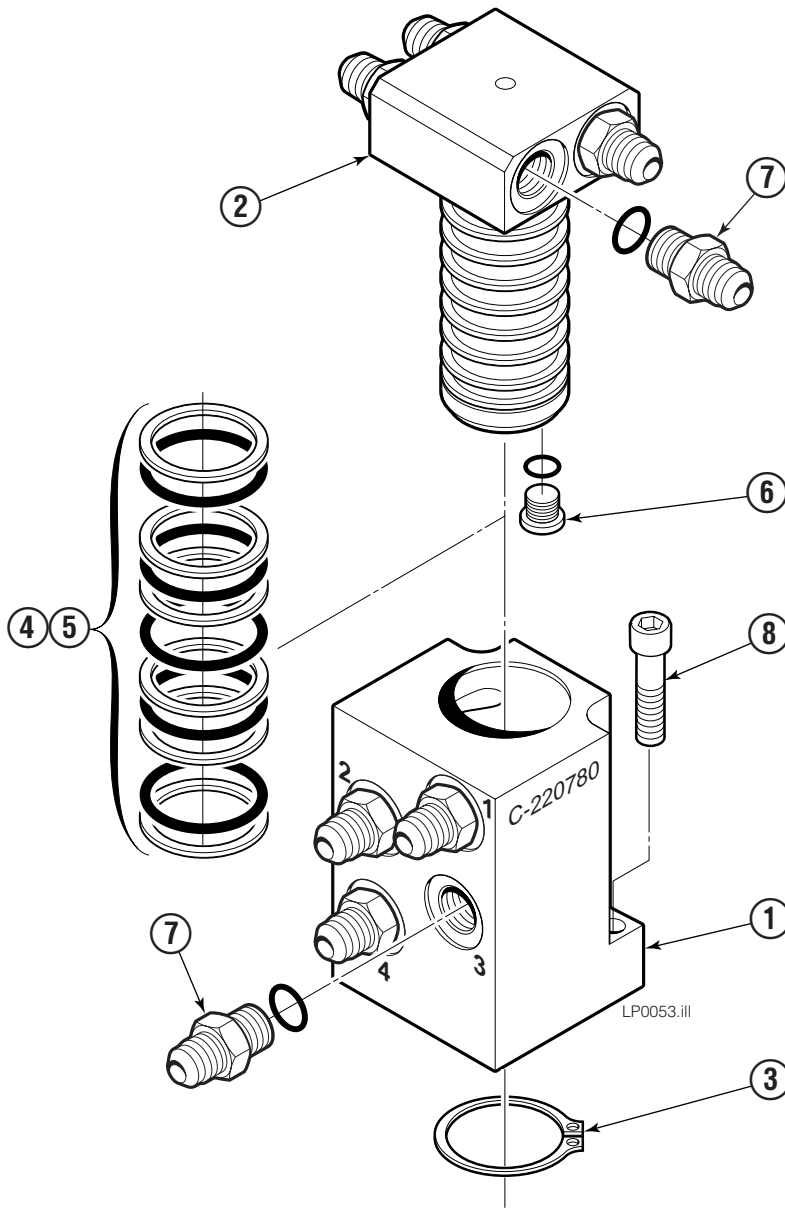
Layer Picker Assembly



REF	QTY	PART NO.	DESCRIPTION	REF	QTY	PART NO.	DESCRIPTION
		222080	Layer Picker Hydraulic Group	10	1	221975	Bracket
1	1	220782	Tube	11	1	221978	Bearing
2	1	220783	Tube	12	1	3124	Retaining Ring
3	2	220784	Tube	13	1	221979	Clevis Pin
4	4	220785	Tube	14	1	6525	Cotter Pin
5	1	220780	Revolving Connection ▲	15	2	206898	Bracket
6	1	221649	Bracket	16	4	2453	Fitting, 6-6
7	2	768538	Capscrew, M10x30	17	4	787372	Capscrew, M8x20
8	2	786882	Nut, M10	18	4	206315	Lockwasher, M8
9	1	221656	Shock Absorber	19	4	201570	Washer, M10

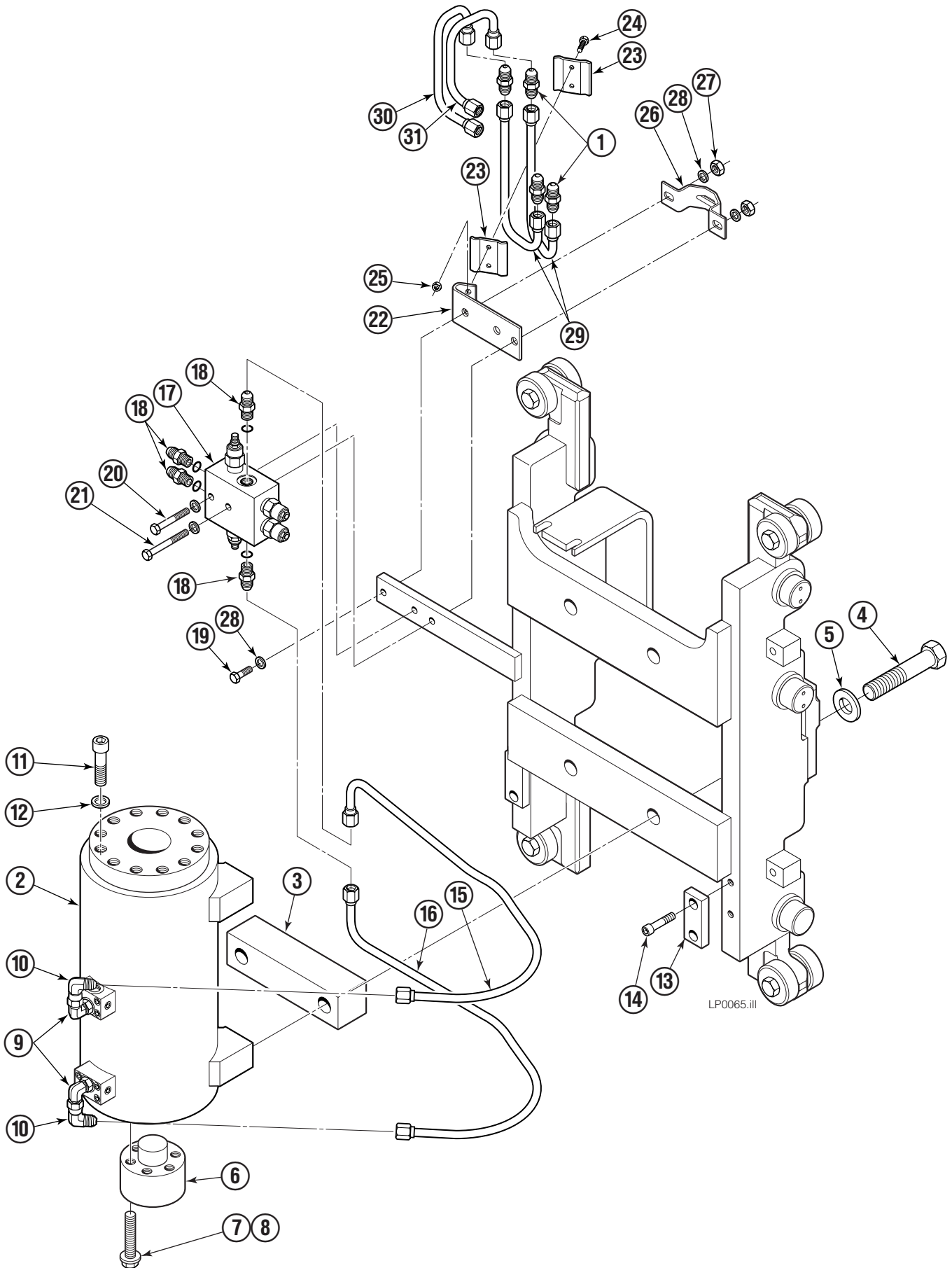
▲ See Revolving Connection page for parts breakdown.

Revolving Connection



REF	QTY	PART NO.	DESCRIPTION
		220780	Revolving Connection
1	1	220781	Body
2	1	322714	Shaft
3	1	3139	Retaining Ring
4	8	615122	Back-Up Ring
5	5	655949	O-Ring
6	4	663694	Fitting, 3
7	8	604511	Fitting, 8-8
8	2	768796	Capscrew, M8x35

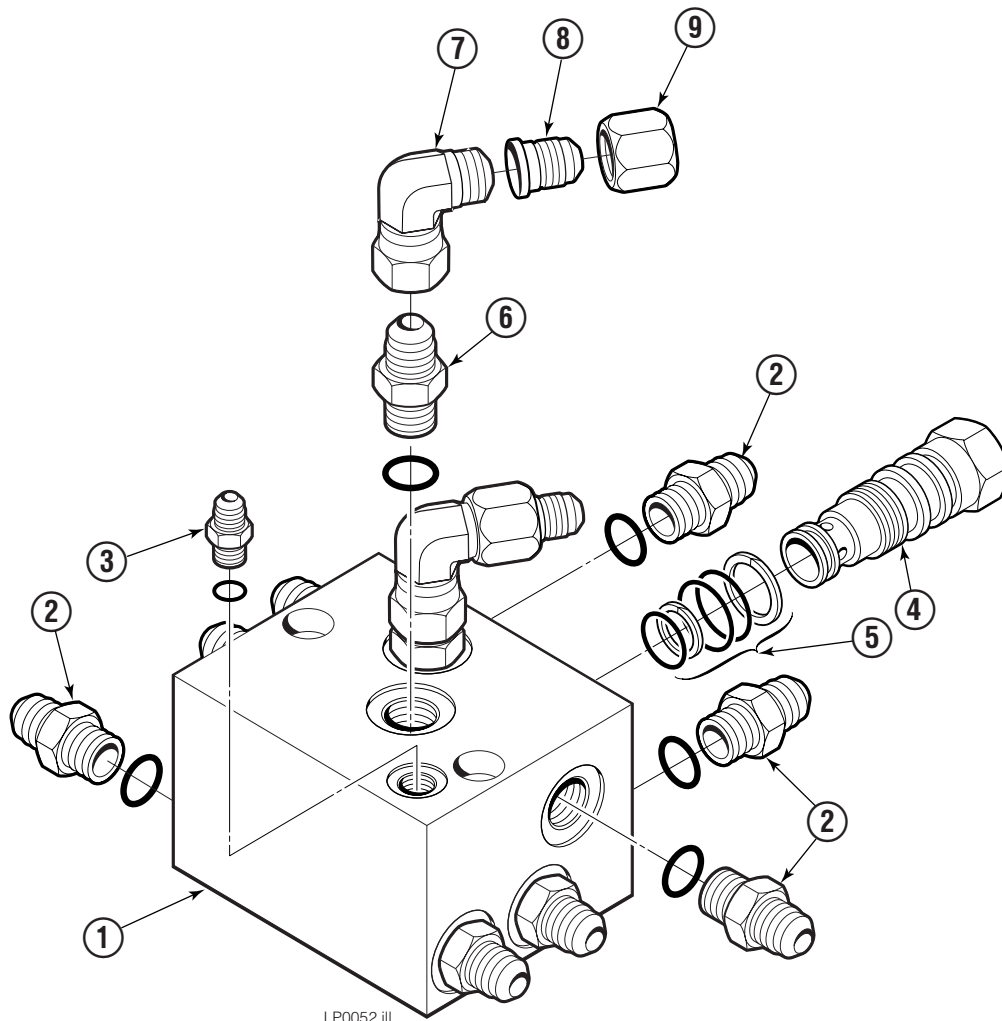
Layer Picker Assembly



Layer Picker Assembly

REF	QTY	PART NO.	DESCRIPTION
		222080	Layer Picker Assembly
1	4	2347	Fitting, 6-6
2	1	220760	Actuator
3	2	220774	Spacer
4	4	221203	Capscrew, 7/8NCx2.75 in.
5	4	221204	Washer
6	1	220769	Shaft
7	6	4511	Capscrew, 1/2NCx2.75 in.
8	6	667910	Washer
9	2	601676	Fitting, 6-6
10	2	6280	Fitting, 6-6
11	12	607087	Capscrew, 5/8NCx2.00 in.
12	12	667225	Washer
13	2	221980	Bumper
14	4	753159	Capscrew, M6x10
15	1	223021	Tube
16	1	223022	Tube
17	1	221642	Valve
18	4	604511	Fitting, 6-6
19	1	629516	Capscrew, 3/8NCx1.00 in.
20	1	674910	Capscrew
21	1	3611	Capscrew, 3/8NCx3.00 in.
22	1	674373	Bracket
23	2	674374	Clamp
24	2	3555	Capscrew, 1/4NCx1.00 in.
25	2	645986	Nut
26	1	673428	Clamp
27	2	6099	Nut
28	5	674376	Washer
29	2	674371	Tube
30	1	223019	Tube
30	1	223020	Tube

Clamp Valve



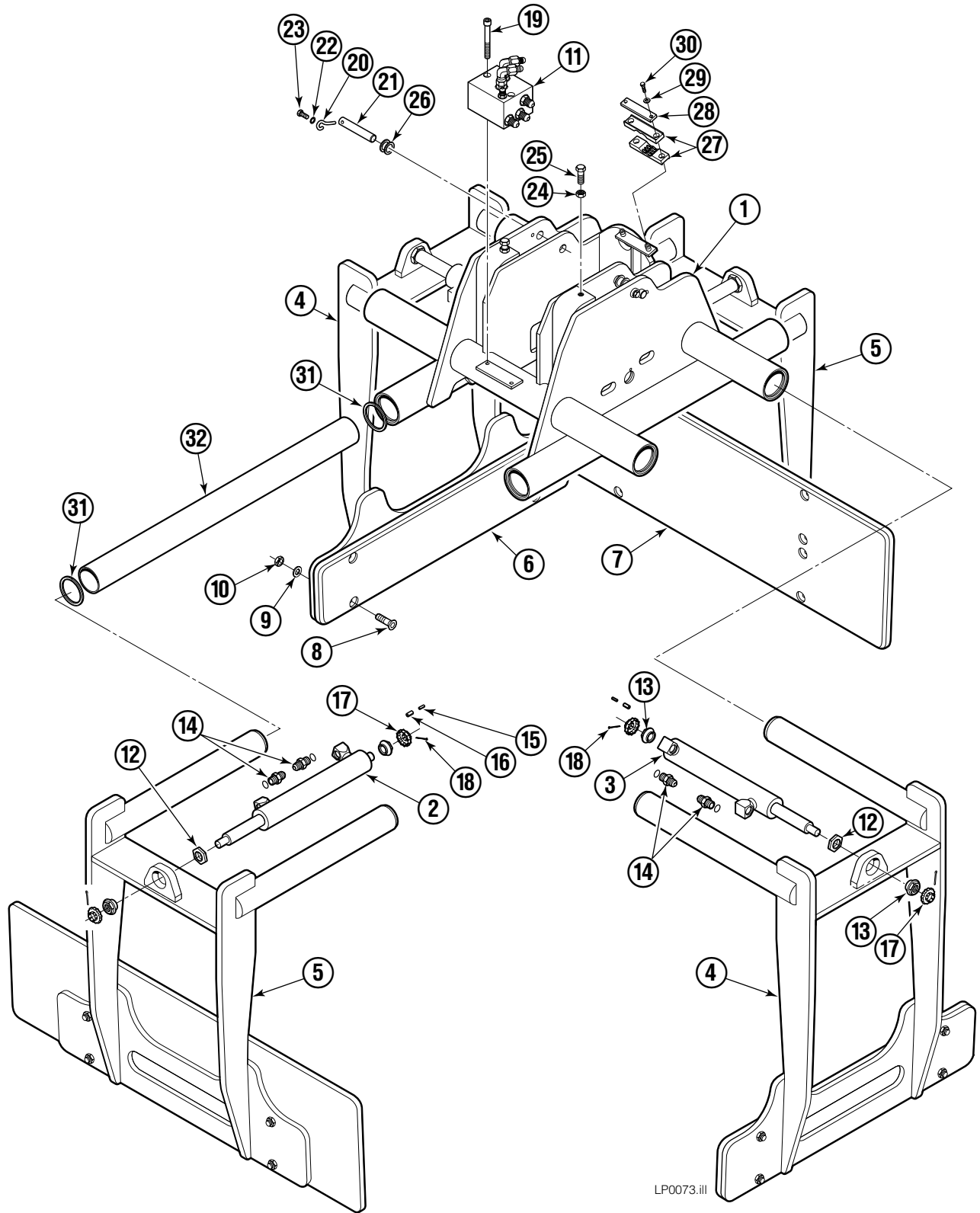
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REF	QTY	PART NO.	DESCRIPTION
		219694	Valve Assembly
1	1	219693	Body
2	8	611288	Fitting, 6-8
3	1	617915	Fitting, 4-4
4	1	659058	Check Valve - PO
5	1	667516	Service Kit
6	2	601377	Fitting, 8-8
7	2	605761	Fitting, 8-8 ▲
8	2	2671	Fitting, 8 ▲
9	2	2618	Nut, 8 ▲

▲ Not included in Valve Assembly.

Reference: Hydraulic Group 222080.

Clamp Assembly



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Clamp Assembly

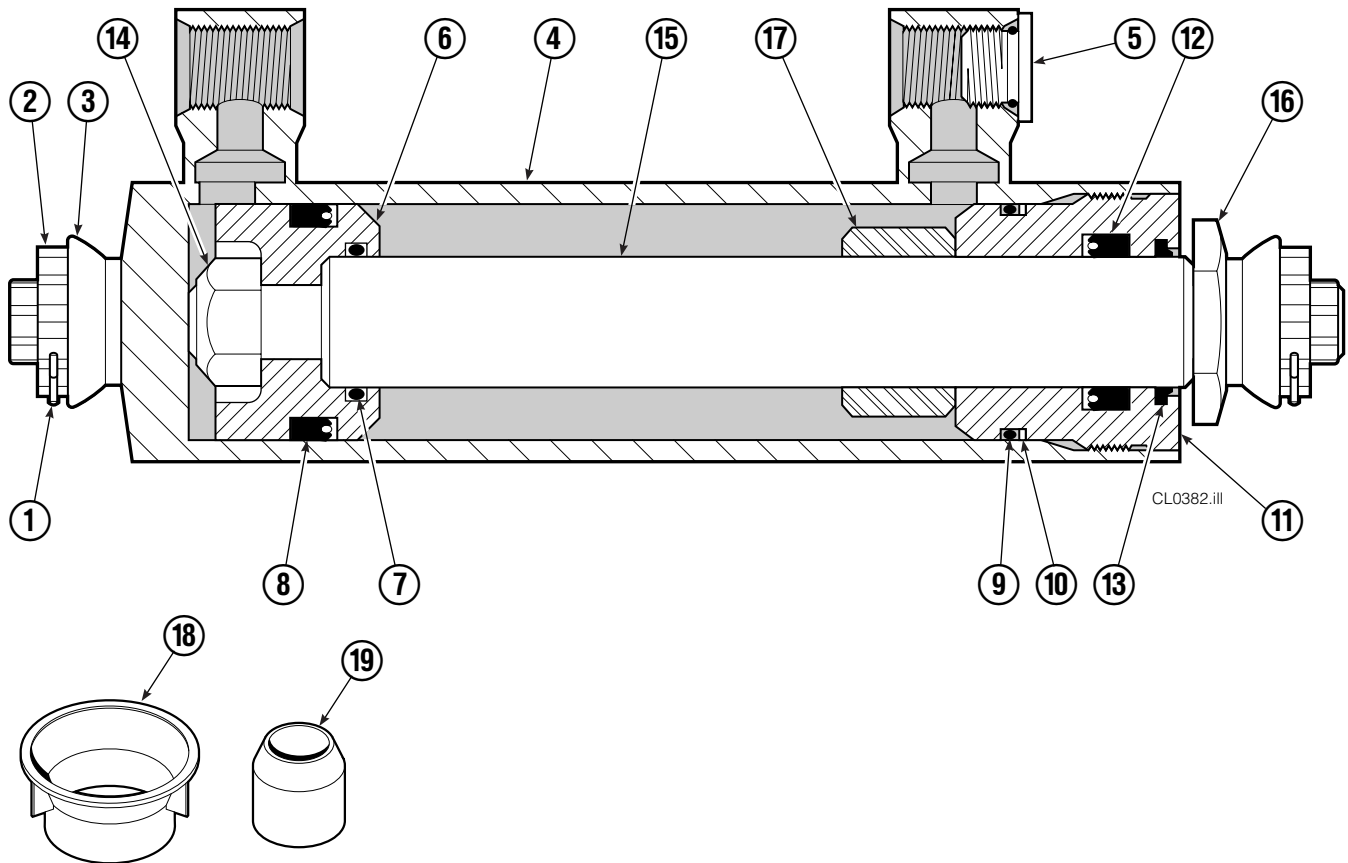
REF	QTY	PART NO.	DESCRIPTION
		223414	Clamp Assembly
1	1	222081	Frame
2	2	3009274	Cylinder – Short Arm ▲
3	2	3009272	Cylinder – Long Arm ▲
4	2	221886	Arm – Long Arm
5	2	221887	Arm – Short Arm
6	2	223025	Contact Pad, 6x33
7	2	223024	Contact Pad, 12x48
8	16	755028	Capscrew, M12x50
9	16	200456	Washer, M12
10	16	205979	Nut, M12
11	1	219694	Valve ●
12	4	667626	Washer
13	8	667625	Nut
14	8	611288	Fitting, 6-6
15	4	7861	Roll Pin – Inner
16	4	7962	Roll Pin – Outer
17	8	667624	Retainer
18	8	6510	Cotter Pin
19	2	768802	Capscrew, M8x70
20	2	689954	Eye Pin
21	2	218169	Pin
22	2	787398	Washer, M8
23	2	787372	Capscrew, M8x20
24	2	688387	Jam Nut, M12
25	2	768555	Capscrew, M12x40
26	8	399469	Shim
27	2	208731	Molded Insert
28	1	203407	Bar
29	2	206323	Lockwasher, M6
30	2	763169	Capscrew, M6x20
31	8	222901	Retaining Ring
32	4	–	Bushing

▲ See Cylinder page for parts breakdown.

● See Valve page for parts breakdown.

Reference: Common Parts Group 223708, Arm Group 223026,
Contact Pad Group 223709.

Clamp Cylinder



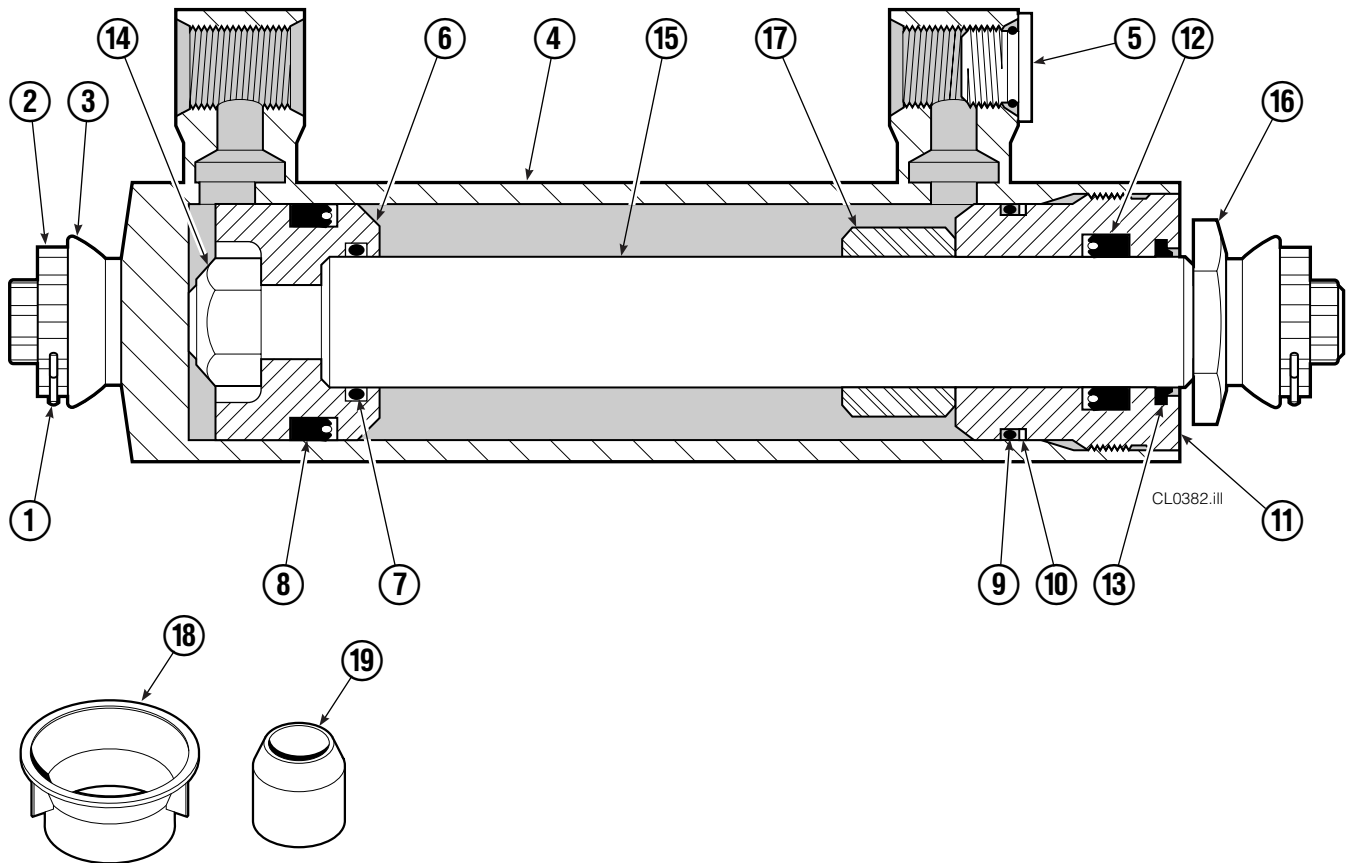
REF	QTY	PART NO.	DESCRIPTION
		3009272	Cylinder Assembly
1	2	6510	Cotter Pin ■
2	2	667624	Nut Retainer ■
3	2	667625	Nut ■
4	1	398810	Shell
5	1	602580	Fitting
6	1	559702	Piston
7	1	2716	O-Ring ▲
8	1	662450	Seal ▲
9	1	2722	O-Ring ▲
10	1	615126	Back-Up Ring ▲
11	1	413799	Retainer
12	1	662448	Seal ▲
13	1	636853	Wiper ▲
14	1	667623	Nut
15	1	3009273	Rod
16	1	667626	Washer
17	1	-	Spacer
18	1	671047	Seal Loader, Piston ▲
19	1	671051	Seal Loader, Retainer ▲
		560729	Service Kit

▲ Included in Service Kit 560729.

■ Included in Nut Service Kit 668926.

Reference: ST-0283, ST-0284.

Clamp Cylinder



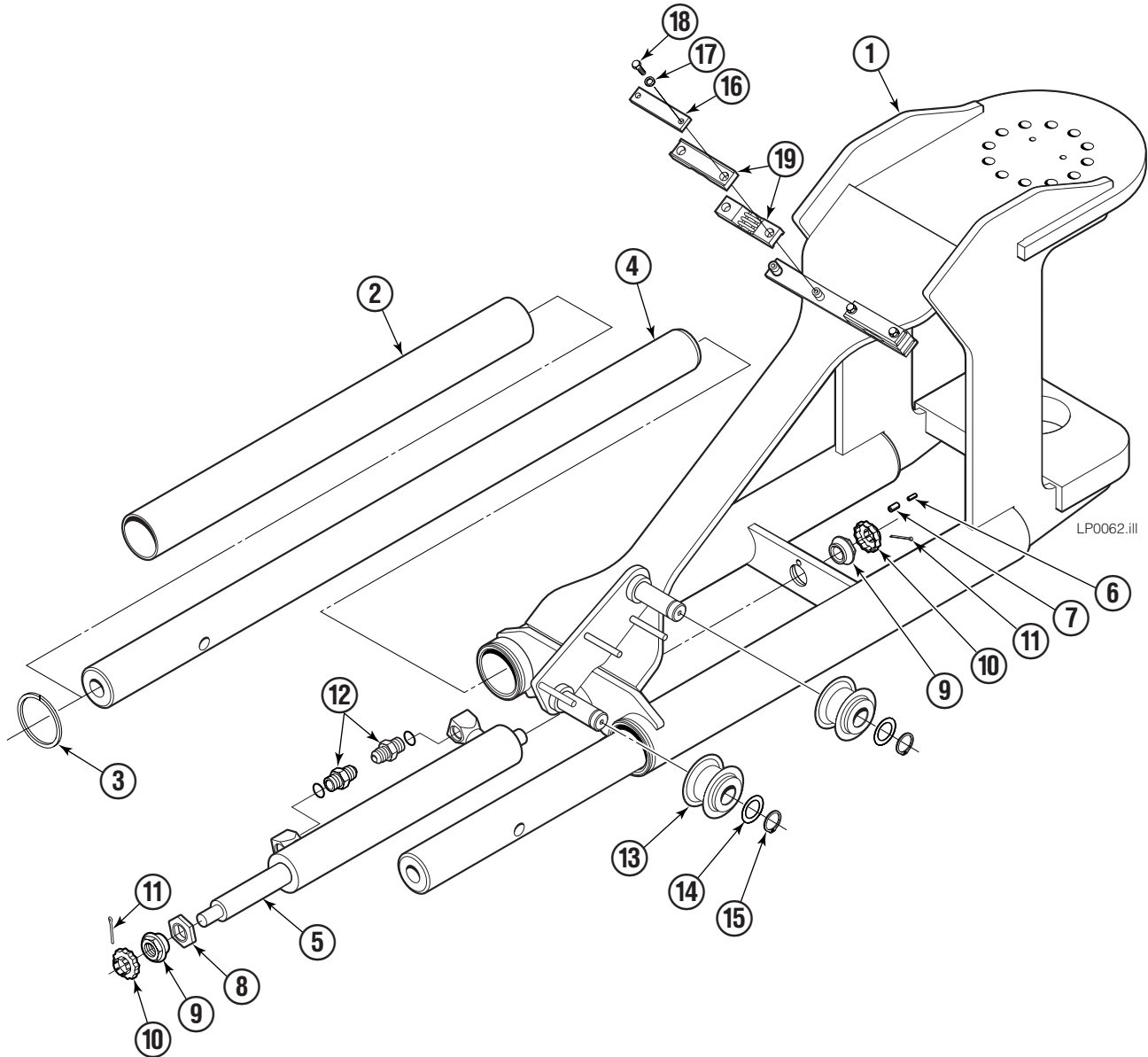
REF	QTY	PART NO.	DESCRIPTION
		3009274	Cylinder Assembly
1	2	6510	Cotter Pin ■
2	2	667624	Nut Retainer ■
3	2	667625	Nut ■
4	1	398810	Shell
5	1	602580	Fitting
6	1	559702	Piston
7	1	2716	O-Ring ▲
8	1	662450	Seal ▲
9	1	2722	O-Ring ▲
10	1	615126	Back-Up Ring ▲
11	1	413799	Retainer
12	1	662448	Seal ▲
13	1	636853	Wiper ▲
14	1	667623	Nut
15	1	3009275	Rod
16	1	667626	Washer
17	1	-	Spacer
18	1	671047	Seal Loader, Piston ▲
19	1	671051	Seal Loader, Retainer ▲
		560729	Service Kit

▲ Included in Service Kit 560729.

■ Included in Nut Service Kit 668926.

Reference: ST-0283, ST-0284.

Boom Arm Assembly

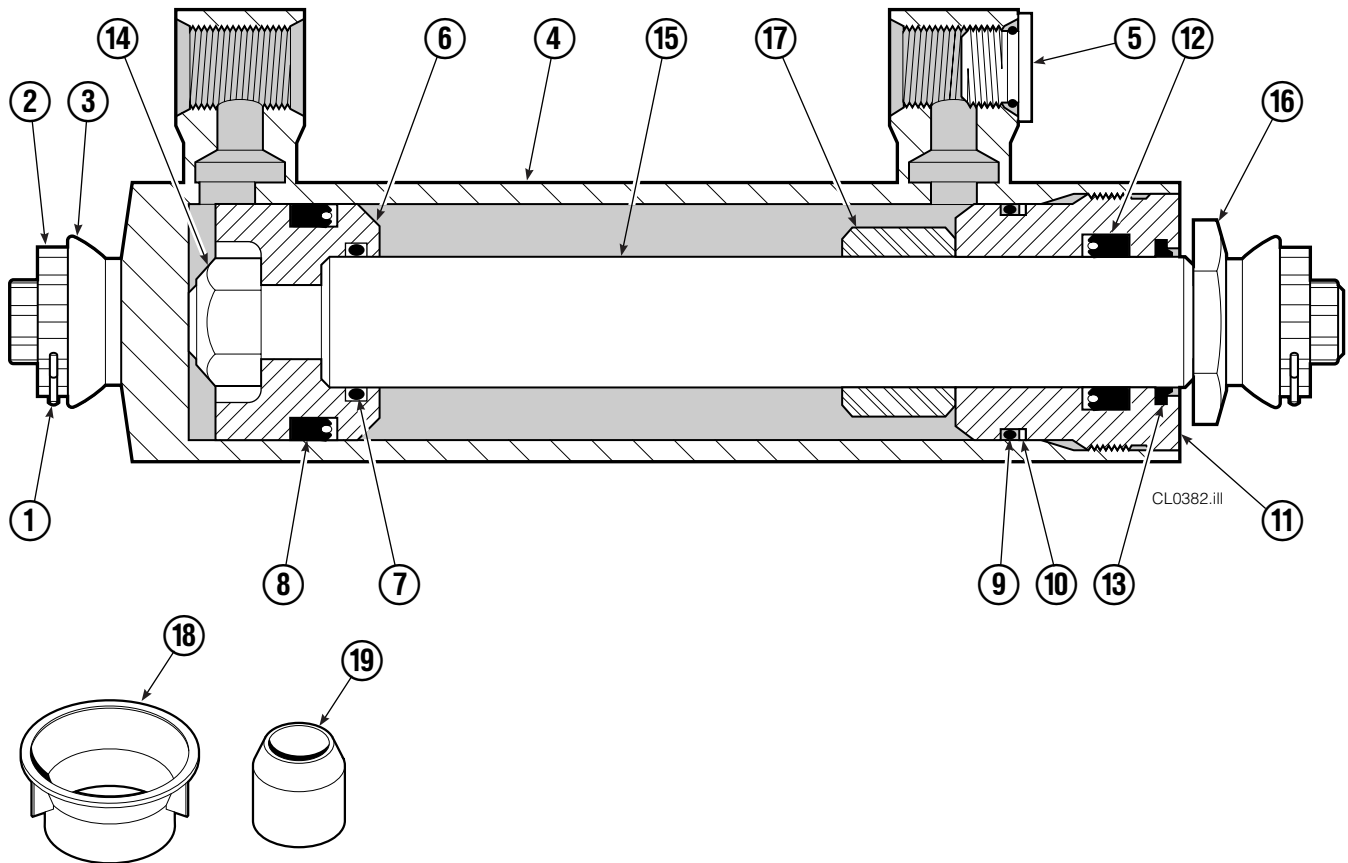


REF	QTY	PART NO.	DESCRIPTION	REF	QTY	PART NO.	DESCRIPTION
		222079	Boom Arm Assembly	10	2	667624	Retainer
1	1	223321	Frame	11	2	6510	Cotter Pin
2	2	220778	Bushing	12	2	611288	Fitting, 6-6
3	2	222901	Retaining Rng	13	2	210667	Sheave
4	2	223322	Bar	14	2	205086	Washer
5	1	3006095	Cylinder ▲	15	2	688935	Snap Ring
6	1	7861	Roll Pin – Inner	16	2	203407	Bar
7	1	7962	Roll Pin – Outer	17	4	206323	Lockwasher, M6
8	1	667626	Washer	18	4	763169	Capscrew, M6x20
9	2	667625	Nut	19	4	208731	Molded Insert

▲ See Cylinder page for parts breakdown.

Reference: Common Parts Group 223933.

Boom Cylinder



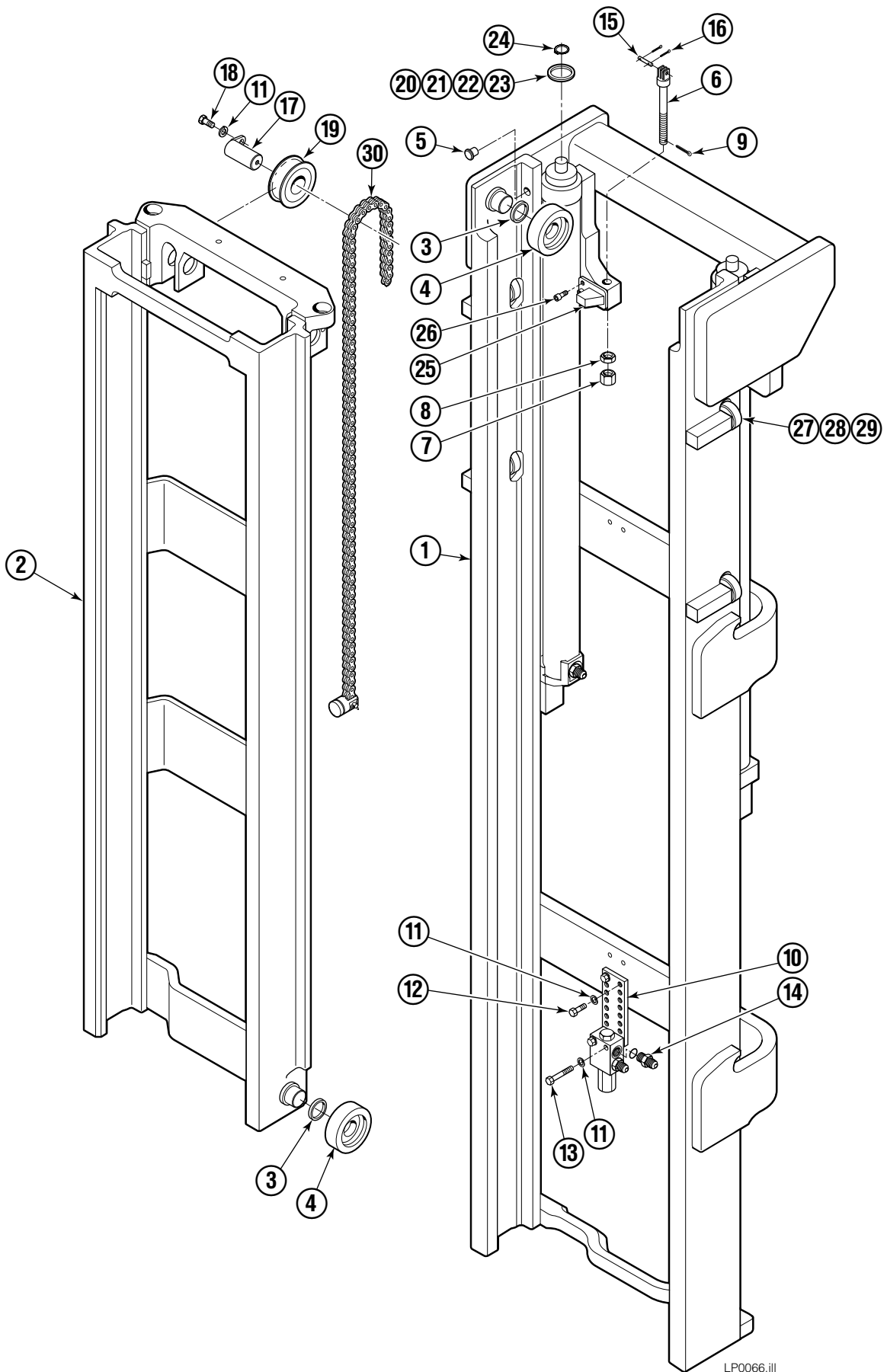
REF	QTY	PART NO.	DESCRIPTION
		3013068	Cylinder Assembly
1	2	6510	Cotter Pin ■
2	2	667624	Nut Retainer ■
3	2	667625	Nut ■
4	1	3006096	Shell
5	1	602580	Fitting
6	1	559702	Piston
7	1	2716	O-Ring ▲
8	1	662450	Seal ▲
9	1	2722	O-Ring ▲
10	1	615126	Back-Up Ring ▲
11	1	413799	Retainer
12	1	662448	Seal ▲
13	1	636853	Wiper ▲
14	1	667623	Nut
15	1	3006067	Rod
16	1	667626	Washer
17	1	3013066	Spacer
18	1	671047	Seal Loader, Piston ▲
19	1	671051	Seal Loader, Retainer ▲
		560729	Service Kit

▲ Included in Service Kit 560729.

■ Included in Nut Service Kit 668926.

Reference: ST-0283, ST-0284.

Mast Assembly



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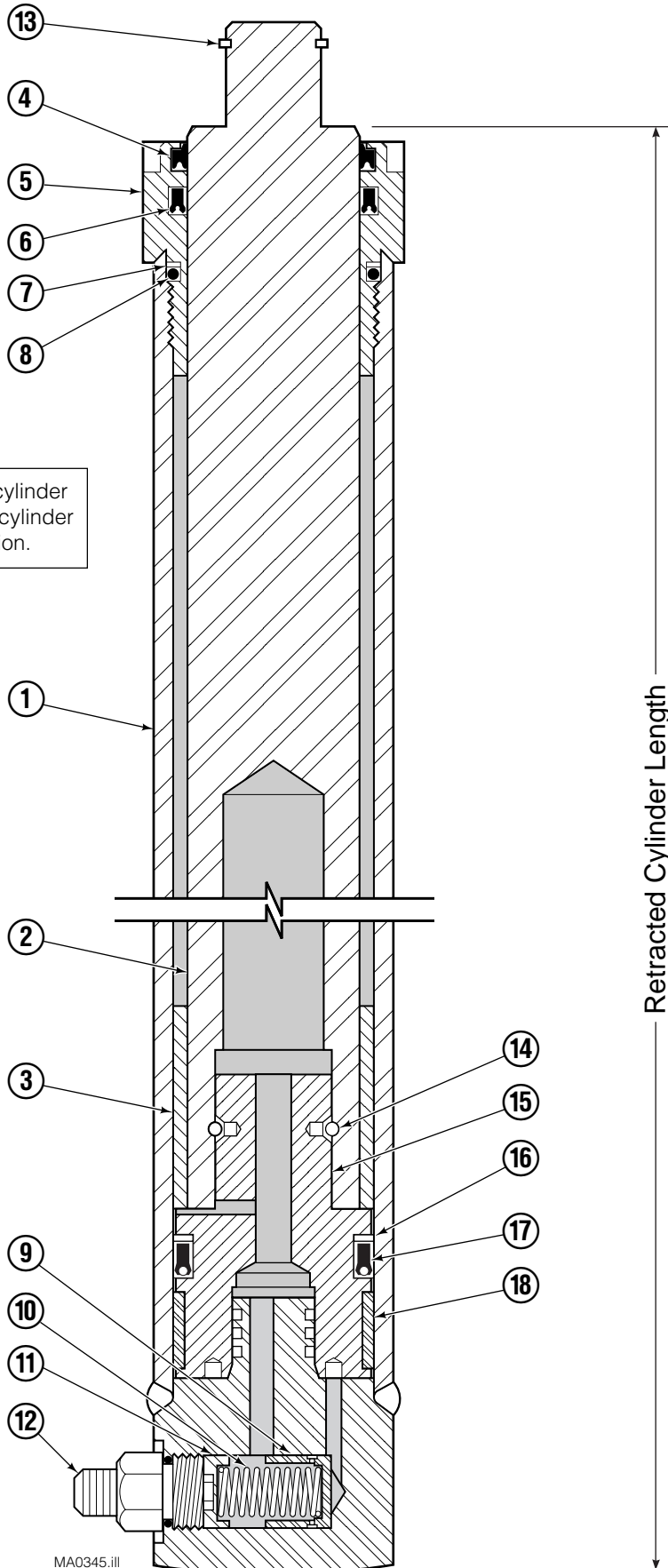
Mast Assembly


REF	QTY	PART NO.	DESCRIPTION
1	1	218921	Outer Upright
2	1	220484	Inner Upright
3	●	631881	Shim, .03 in. (0,7 mm)
4	4	662145	Roller
5	2	212587	Wear Plug Service Kit
6	2	210435	Chain Anchor
7	2	200006	Nut, .625 NF GR8
8	2	200007	Jam Nut, .625 NF GR8
9	2	6518	Cotter Pin
10	1	683831	Bar
11	6	681238	Lockwasher, M10
12	2	684649	Capscrew, M10x25
13	2	683823	Capscrew, M10x50
14	2	601377	Fitting, 8-8
15	2	684305	Pin
16	4	6508	Cotter Pin
17	2	683802	Pin
18	2	683820	Capscrew, M10x16
19	2	660051	Sheave
20	2	200524	Shim, .06 in. (1,5 mm)
21	2	200525	Shim, .09 in. (2,3 mm)
22	2	205085	Shim, .01 in. (0,3 mm)
23	2	205086	Shim, .03 in. (0,7 mm)
24	2	688935	Snap Ring
25	2	220481	Plate
26	4	219596	Capscrew
27	4	683819	Thrust Roller
28	4	753221	Capscrew
29	4	684660	Lockwasher
30	2	678770	Chain

● Quantity as Required.

Reference: Common Parts Group 696564, S-3799,
Mast Assembly 3013270.

Main Lift Cylinder-2600 PSI



 **WARNING:** Replacing the cylinder with a different part number cylinder may cause mast to malfunction.

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Main Lift Cylinder-2600 PSI

REF	QTY	PART NO.	DESCRIPTION
	1	580705	Cylinder Assembly
1	1	5432-1237	Shell
2	1	5444-1205	Plunger
3	—	—	Spacer
4	1	562663	Plunger Wiper ▲
5	1	562630	Retainer
6	1	562569	Plunger Seal ▲
7	1	559859	Back-Up Ring ▲
8	1	559858	O-Ring ▲
9	1	563782	Piston-Lowering Fuse
10	1	562847	Spring
11	1	562848	Spring Guide
12	1	611289	Fitting, 8-10 ■
13	1	3129	Snap Ring ▲
14	1	559906	Pull-In Wire ▲
15	1	560462	Piston
16	1	560066	Back-Up Ring ▲
17	1	563631	Piston Seal ▲
18	1	559864	Wear Ring ▲

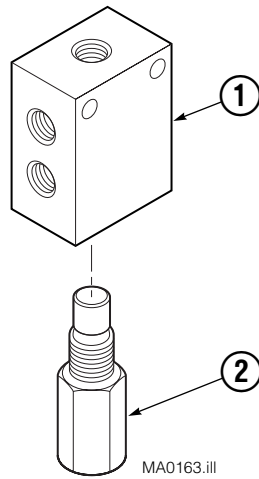
▲ Included in Service Kit 562591.

■ Not included in Cylinder Assembly.

Reference: S-6079, S-6080.

Lowering Control Valve

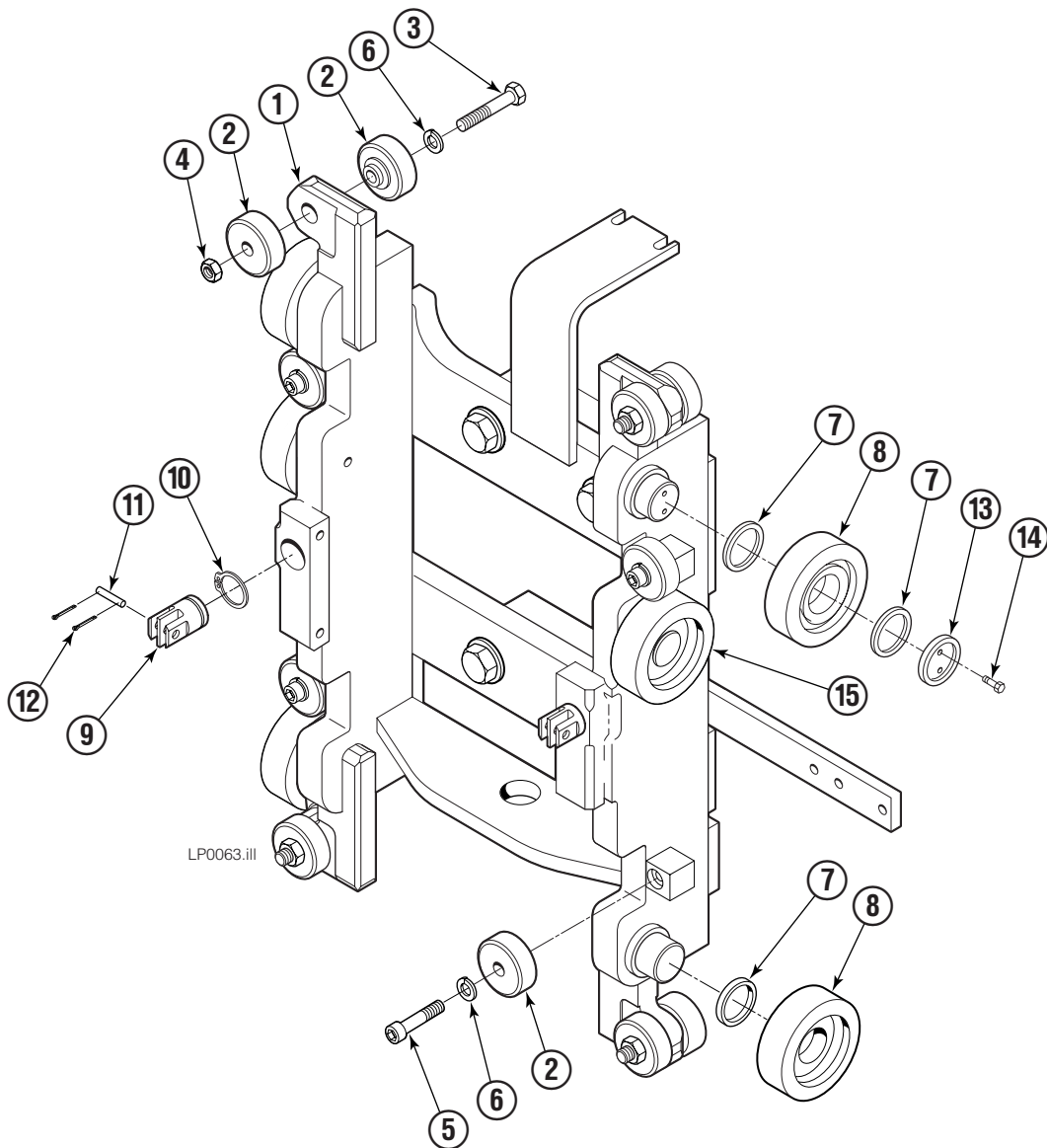
2600 PSI System Pressure



REF	QTY	PART NO.	DESCRIPTION
		684810	Lowering Control Valve
1	1	684152	Valve Body
2	1	684210	Valve Cartridge ▲

▲ This part must not be substituted. Check part number on side of cartridge when replacing.

Carriage—Heavy Duty

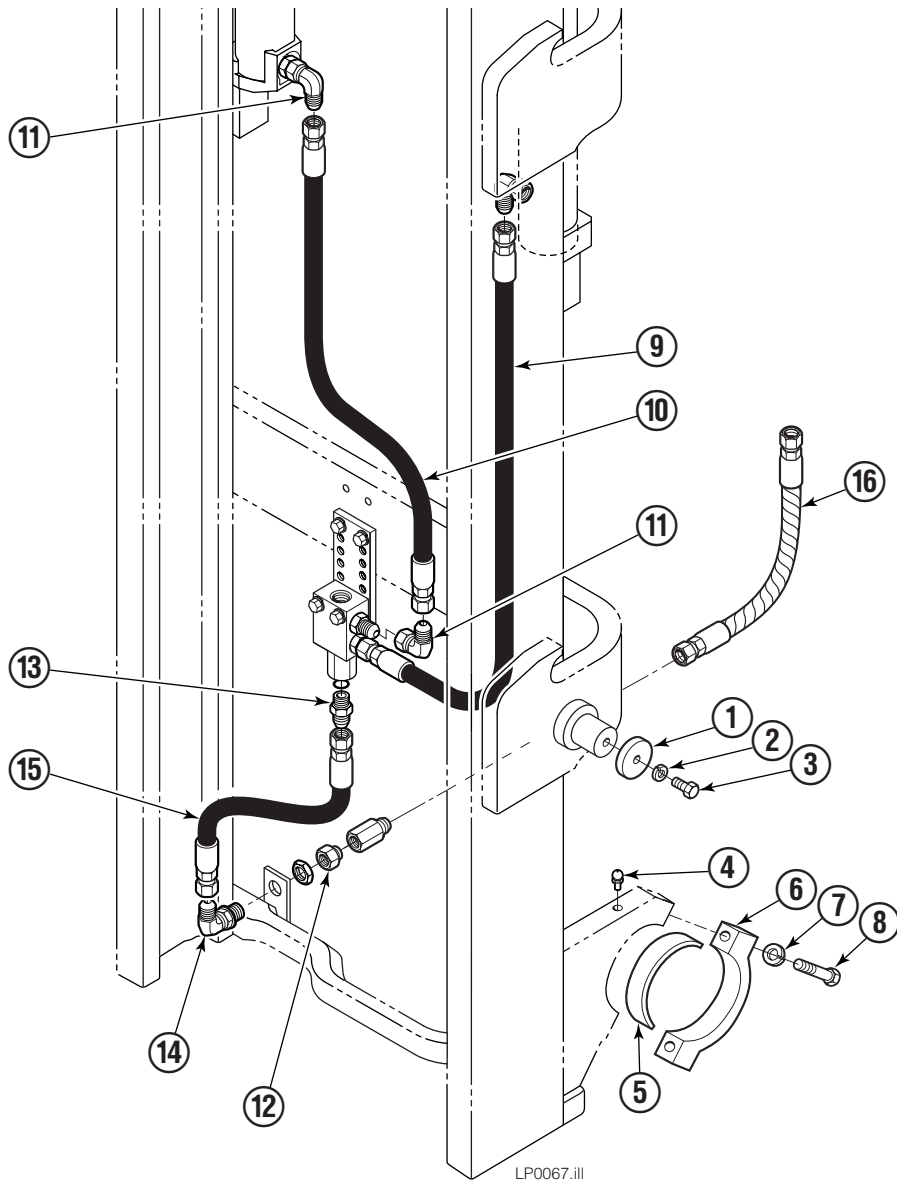


REF	QTY	PART NO.	DESCRIPTION
1	1	220761	Carriage
2	12	683819	Roller
3	4	209780	Capscrew, M12x80
4	4	204979	Nut, M12
5	4	753221	Capscrew, M12x50
6	8	684660	Lockwasher, M12
7	■	631881	Shim, .03 in. (0,7 mm)
8	4	662145	Roller
9	2	680243	Chain Anchor
10	2	3135	Snap Ring
11	2	684305	Chain Pin
12	4	6508	Cotter Pin
13	2	658378	Retainer ▲
14	4	680218	Capscrew, M3x12 ▲
15	2	660050	Roller ▲

■ Quantity as required.

▲ Included in Roller Kit 688378.

Mast Installation

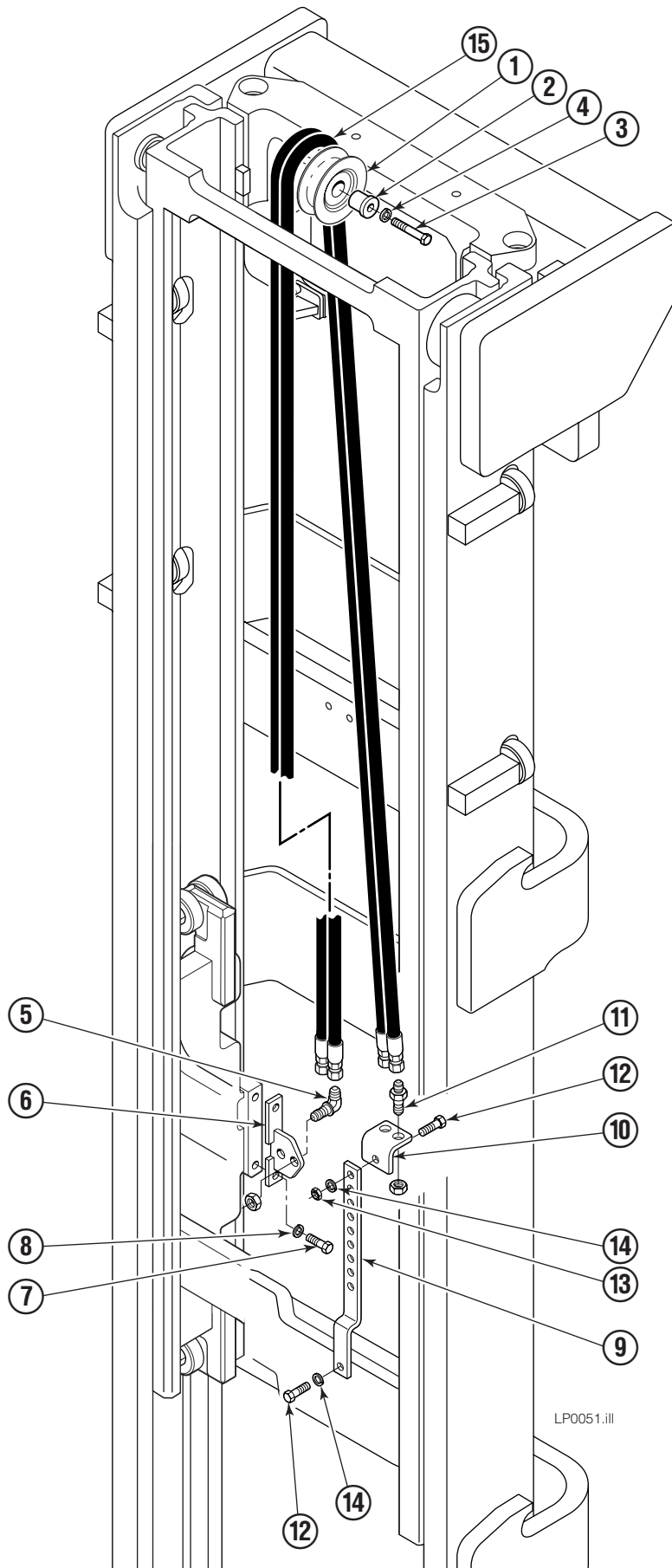


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REF	QTY	PART NO.	DESCRIPTION
1	2	683934	Washer
2	2	687415	Capscrew, M10x25
3	2	681238	Lockwasher, M10
4	2	7418	Grease Fitting
5	2	687411	Bushing
6	2	693059	Cap
7	4	681473	Lockwasher, M12
8	4	688885	Capscrew, M12x70
9	1	220234	Hose, 44.50 in.
10	1	214751	Hose, 34.00 in.
11	3	605761	Fitting, 8-8
12	1	687361	Fitting
13	1	601377	Fitting, 8-8
14	1	2453	Fitting, 8-8
15	1	684300	Hose, 28 in.
16	1	687364	Hose

Reference: Mounting Control Doc: S-3402.
 Mounting Group: 218933.
 Installation Kit: 684115.
 Hydraulic Group: 696562.

Internal Hose Reeving



Internal Hose Reeving

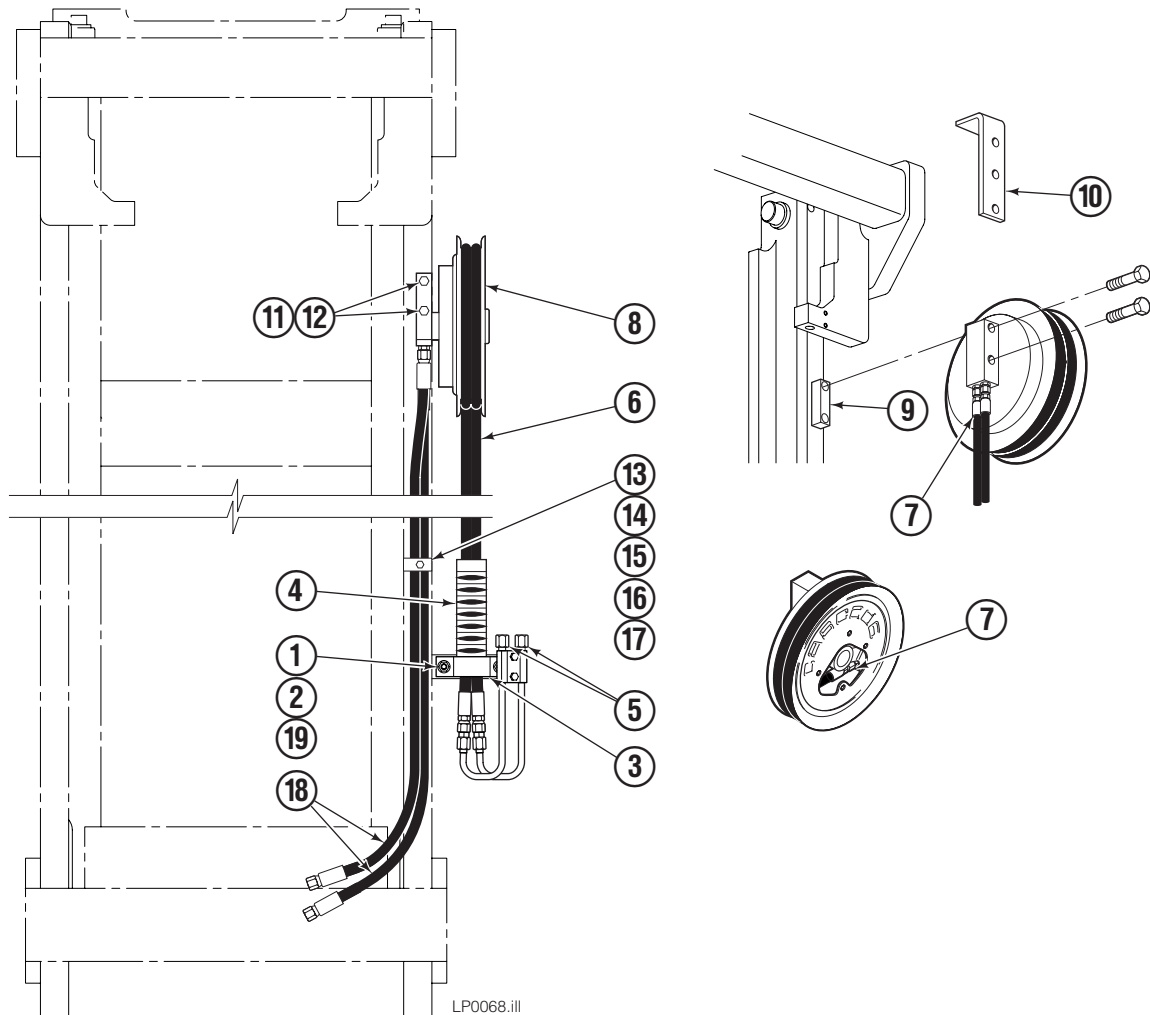
REF	QTY	PART NO.	DESCRIPTION
		696565	Internal Hose Reeving ▲
1	2	209623	Sheave
2	2	684657	Shaft
3	2	205206	Capscrew, M12x55
4	2	683822	Lockwasher, M12
5	4	2453	Fitting, 8-8
6	2	206898	Bracket
7	4	787372	Capscrew, M8x20
8	4	206315	Lockwasher, M8
9	2	684658	Bracket
10	2	683919	Bracket
11	4	2375	Fitting, 8-8
12	4	684649	Capscrew, M10x25
13	2	763023	Nut, M10
14	4	681238	Lockwasher, M10
15	4	●	Hose

▲ Quantity as Required.

● Determined.

Reference: Common Parts Group 684819, S-3548.

Hydraulic Supply Group

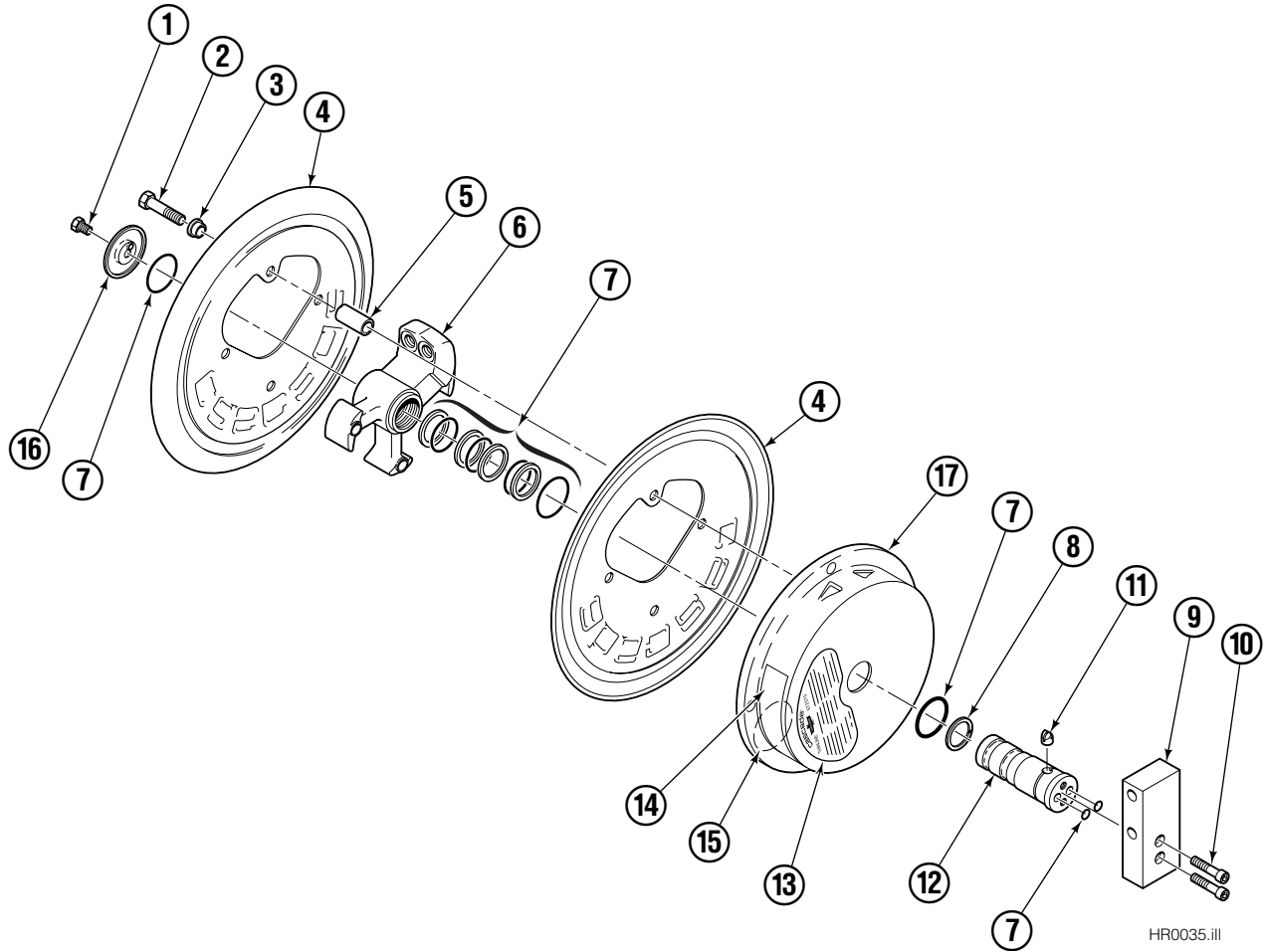


REF	QTY	PART NO.	DESCRIPTION
		673594	Hydraulic Supply Group
1	2	3599	Capscrew, 3/8NCx.50 in.
2	1	673520	Carriage Block
3	1	673428	Clamp
4	1	673510	Hose Restraint Assembly
5	1	674288	Hose Up Connection Assembly ▲
6	1	673394	Twinline Hose Assembly
7	4	604511	Fitting, 6-6
8	1	672572	THINLINE Hose Reel, RH ●
9	1	673526	Mounting Block
10	1	685487	Mounting Bracket
11	2	3661	Capscrew, 1/2NCx2.75 in.
12	2	6290	Lockwasher, 1/2
13	1	3578	Capscrew, 5/16NCx1.25 in.
14	1	6287	Lockwasher, 5/16
15	1	744535	Clamp
16	1	677536	Spacer
17	1	744662	Bar
18	2	2178	Header Hose
19	2	674376	Washer

▲ See Hose Up Connection Assembly page for parts breakdown.

● See Hose Reel page for parts breakdown.

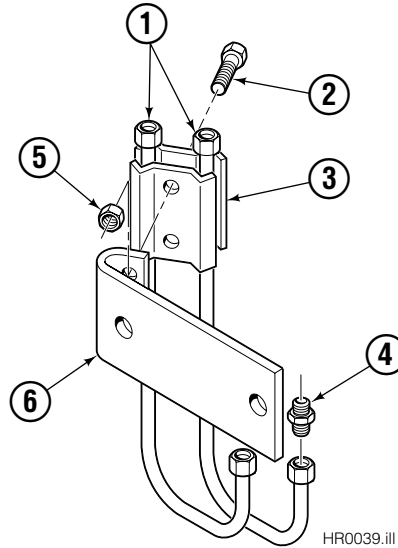
Hose Reel Assembly



REF	QTY	PART NO.	DESCRIPTION
		672572	Hose Reel, No. 6-13, RH
1	1	672542	Capscrew, M8x10
2	4	768525	Capscrew, M8x40
3	4	672540	Sleeve
4	2	672567	Flange, 13 in. (330mm) dia.
5	1	672552	Hose Guide
6	1	672547	Hub
7	1	672563	Seal Service Kit
8	1	675610	Snap Ring
9	1	672551	Mounting Block
10	2	672550	Capscrew, M10
11	1	645982	Spring Retainer
12	1	672543	Shaft
13	1	673423	Nameplate, RH
14	1	655271	Patent Plate
15	1	673392	Warning Decal
16	1	672544	Cap
17	1	672579	Spring Assembly, RH

Hydraulic Accessories

Hose Terminal Up



REF	QTY	PART NO.	DESCRIPTION
		674288	Up Connection Kit
1	2	674371	Tube
2	2	3555	Capscrew, 1/4NCx1.00
3	2	674374	Clamp
4	2	2347	Fitting, 4-4
5	2	645986	Nut, 1/4
6	1	674373	Bracket



Installation Instructions

Four-Position Pressure Relief Valve 660412

Install four-position pressure relief valve 660412 when it is necessary to limit the clamping force of the attachment arms or to vary the clamping force from load to load. Each cartridge can be adjusted to relieve pressure between 500 and 2300 psi. The valve maximum flow rate is 15 GPM.

- 1 Determine a convenient location to mount the valve on the truck cowl, mast or in the driver's compartment. The valve should be mounted as close as possible to the truck valve. See the mounting hole spacing shown below in figure 2. Install 1/4 in. capscrews to fasten the valve in position. See Figure 1.

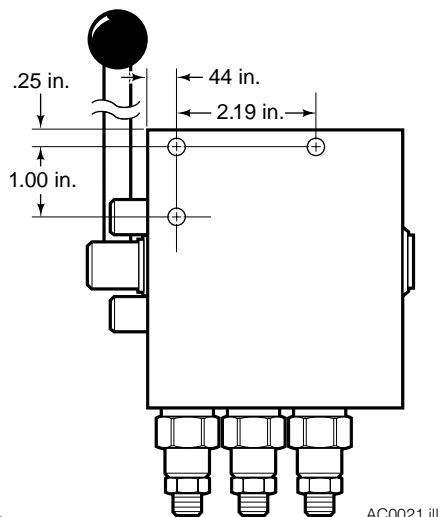


Figure 2

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- 2 Attach hoses and fittings (No. 8 with 13/32 in. ID min.) between the Pressure Relief Valve, Truck Auxiliary Valve, Truck Tank and Attachment Valve. See Figure 3.



WARNING: A dedicated hydraulic line is required from the relief valve "T" port to the truck tank for the valve to function properly.

CAUTION: The valve handle shaft cannot be removed without permanently damaging the body and shaft. Attempting to remove the shaft will void the warranty.

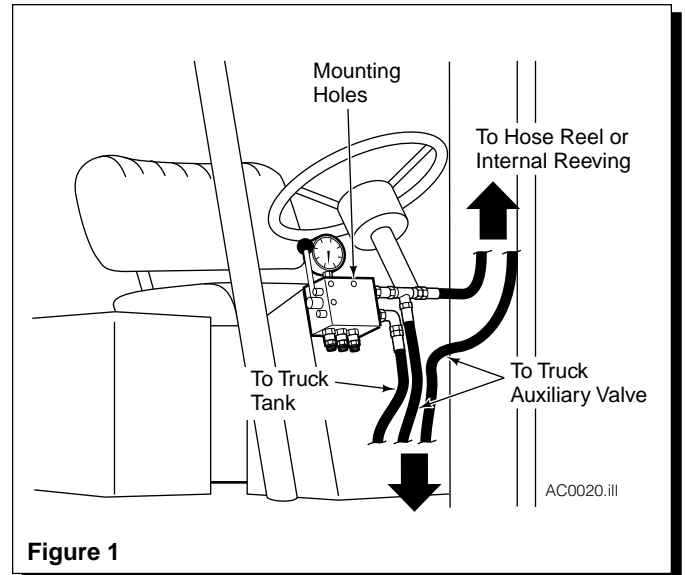


Figure 1

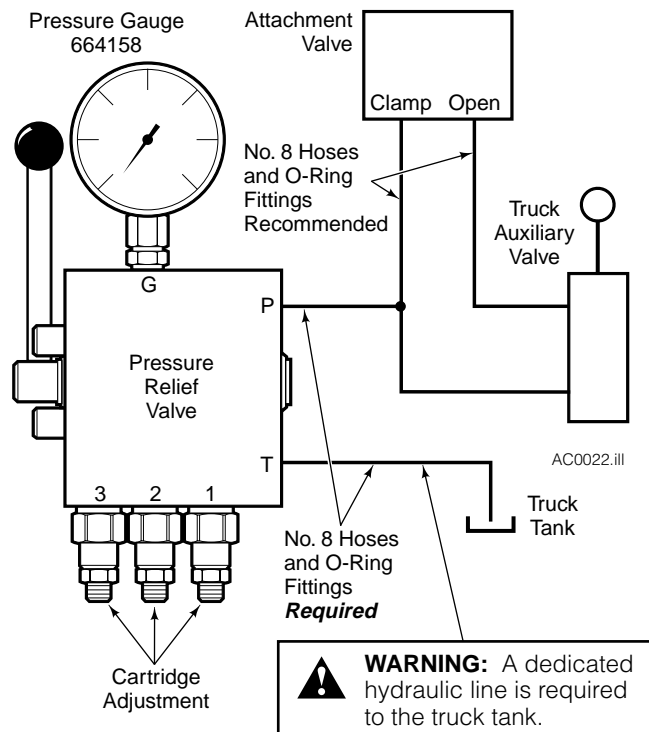


Figure 3



WARNING: A dedicated hydraulic line is required to the truck tank.

Part No. 664827-R3

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For Technical Assistance . . .

Call: 1-800-227-2233 or 503-669-6300

OR

Write: Cascade Corporation, P.O. Box 20187, Portland, OR 97220

To Order Parts . . .

Call: 888-227-2233

OR

Write: Cascade Corporation, P.O. Box 360, Springfield, OH 45505

- Position the handle stops as shown in Figure 4 to provide the most convenient movement of the valve handle for the installation.

WARNING: Relieve truck pressure prior to installing the pressure gauge.

- To preset the valve relief cartridges, install a 3000 psi pressure gauge (Part No. 664158) in the valve gauge port. See Figure 3.
- Shift the valve handle pointer to position "1" stamped on the valve body. See Figure 4.
- Loosen the jam nut on the No. 1 relief cartridge. Adjust the relief cartridge (3/16" allen hex wrench) inward to raise pressure or outward to lower the pressure.
- Actuate the truck hydraulic system to fully close the attachment arms. Check the pressure adjustment and readjust as required. Tighten the jam nut.
- Shift the valve handle pointer to position "2" stamped on the valve body. Repeat step 6 and 7 for No. 2 relief cartridge.
- Shift the valve handle pointer to position "3" stamped on the valve body. Repeat step 6 and 7 for No. 3 relief cartridge.
- When the handle pointer is in the "X" position, the pressure relief valve has no effect. The pressure to the attachment is determined by truck system pressure.

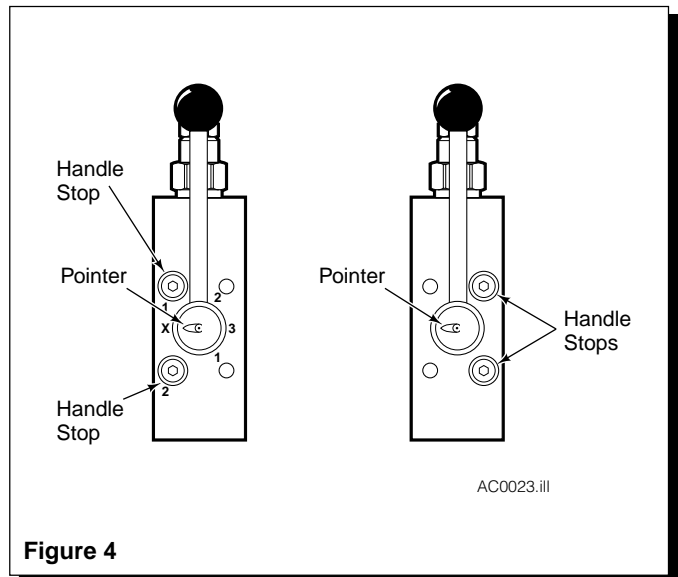
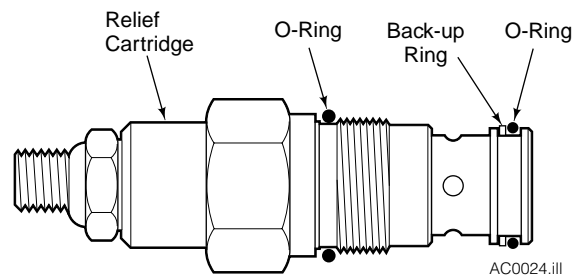


Figure 4

Replacement Parts

Qty	Description	Part No.
3	Relief Cartridge with Seals	661676
3	Seal Service Kit	669597



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

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