



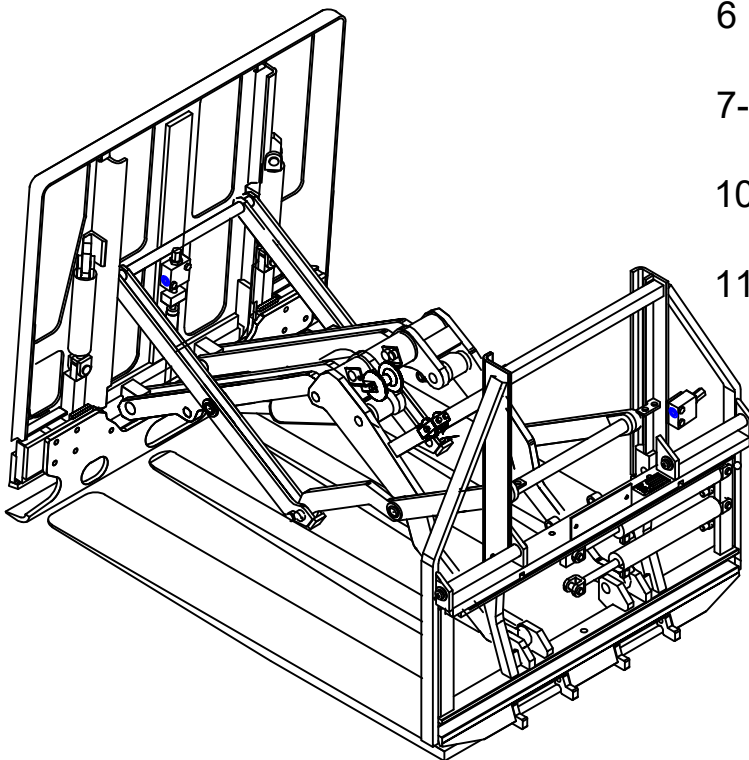
SERVICE MANUAL / PARTS LIST

MARK 55 PUSH PULL SOLENOID VALVE

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LIFT TRUCK REQUIREMENTS

CAPACITY

Capacity shown on the Push Pull's name plate is for the Push Pull only. The combined truck and Push Pull capacity is provided by the lift truck manufacturer.

PUSH PULL HYDRAULICS

Recommended Truck Pressure: 2000 to 2500 PSI (135 to 170 bar)

Oil volume: 7-10 GPM (26.5 to 38 l/min)

Hydraulic fluid: petroleum based hydraulic fluid only

Hydraulic supply group: includes hoses and take-up - one set for each function

Auxiliary valve:

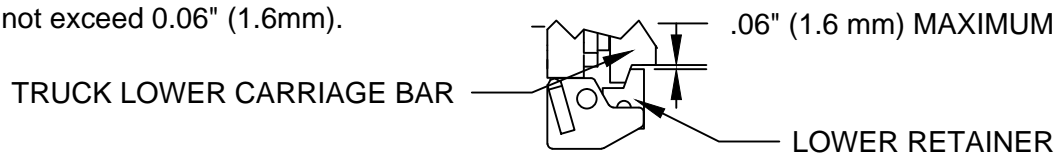
2 Function = a double auxiliary valve or single valve plus a single solenoid valve (solenoid voltage must match truck voltage) with

button and supply group

1 Function = a single auxiliary valve

GENERAL INSTALLATION PROCEDURES

1. Prior to mounting the attachment make sure the lower UHMW slide is securely in it's channel (See Base Group Parts, item #4).
2. Make sure that attachment centering lug, located across cylinder anchor weldment (See Base Assembly item #3), is completely seated in the truck carriage's center notch.
3. The lower retainers that hold the attachment to the truck are self-adjusting, however, during initial installation the clearance between the lower retainer and the truck's lower carriage bar profile should not exceed 0.06" (1.6mm).



4. Attach the truck's supply group (take-up) to hoses supplied on the attachment base.
5. Standing clear of the Push Pull attachment, cycle the attachment in and out several times to distribute the hydraulic oil. Use caution because partially filled hydraulic lines may cause erratic movement.

GENERAL INSPECTION AND MAINTENANCE

1. Check all hydraulic fittings, hoses, cylinders and valves for leakage. Repair or replace as required.
2. Check hoses for pinch points and signs of wear. Replace worn hoses with LORON hoses or Parker Tough Cover #471TC.
3. All bolts should be checked and tightened as required.
4. Check all weld joints for signs of cracking - paying close attention to the linkage group welds and all platen welds.

BASE ASSEMBLY - 1

Drawing reference 112896

#	QTY	PART #	DESCRIPTION
1	1	112897	Frame Weldment
2	2	100052	Upper Bronze
3	1	100450	Cyl. Anchor Weldment
4	1	100065.81	Lower UHMW Slide
5	6	100574.83	Cotter Pin LSP
6	2	100573.2	Lower Retainer Pin
7	4	104002	Socket Head Bolt
8	2	107343	Lower Retainer
9	2	2F.10	Plain Washer LSP
10	1	100106	SS Cylinder Assm (Reference)
11	2	100095.05	90° O-Ring Fitting LSP
12	2	100075.07	Lube Fitting LSP
13	1	100072	Name Tag
14	4	100066	Drive Screw
15	2	100477	Bent Bracket
16	2	25G.0512	Button Head Bolt LSP
17	2	4E.05	Lockwasher LSP
18	4	108126	Washer
19	4	16E.08	Lockwasher Hi-Collar LSP
20	4	25G.0816	Button Head Bolt LSP
21	2	107337	Round Bar
22	1	103990	Self Tapping Screw
23	1	104114	Rubber Insert
24	2	107004	Compression Spring
25	4	107003	Retainer Pin
26	2	108053	Hose Clamp
27	2	105671.1	Aluminum Bronze Slide
28	4	11G.0824	Socket Head Cap Screw LSP
29	1	107531	Pin
30	2	25G.0520	Button Head Bolt LSP
31	2	17D.05	Nut ESNA LSP
32	1	109087	Spacer Hose Clamp

WEEKLY SERVICE:

Check & tighten round bar mounting bolts (item #20).

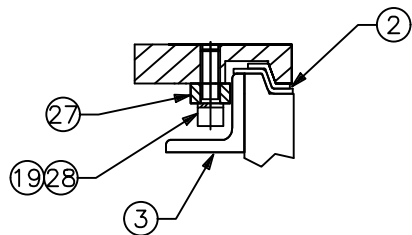
Check and tighten all bolts.

Grease upper bronze (item #2) weekly or as required.

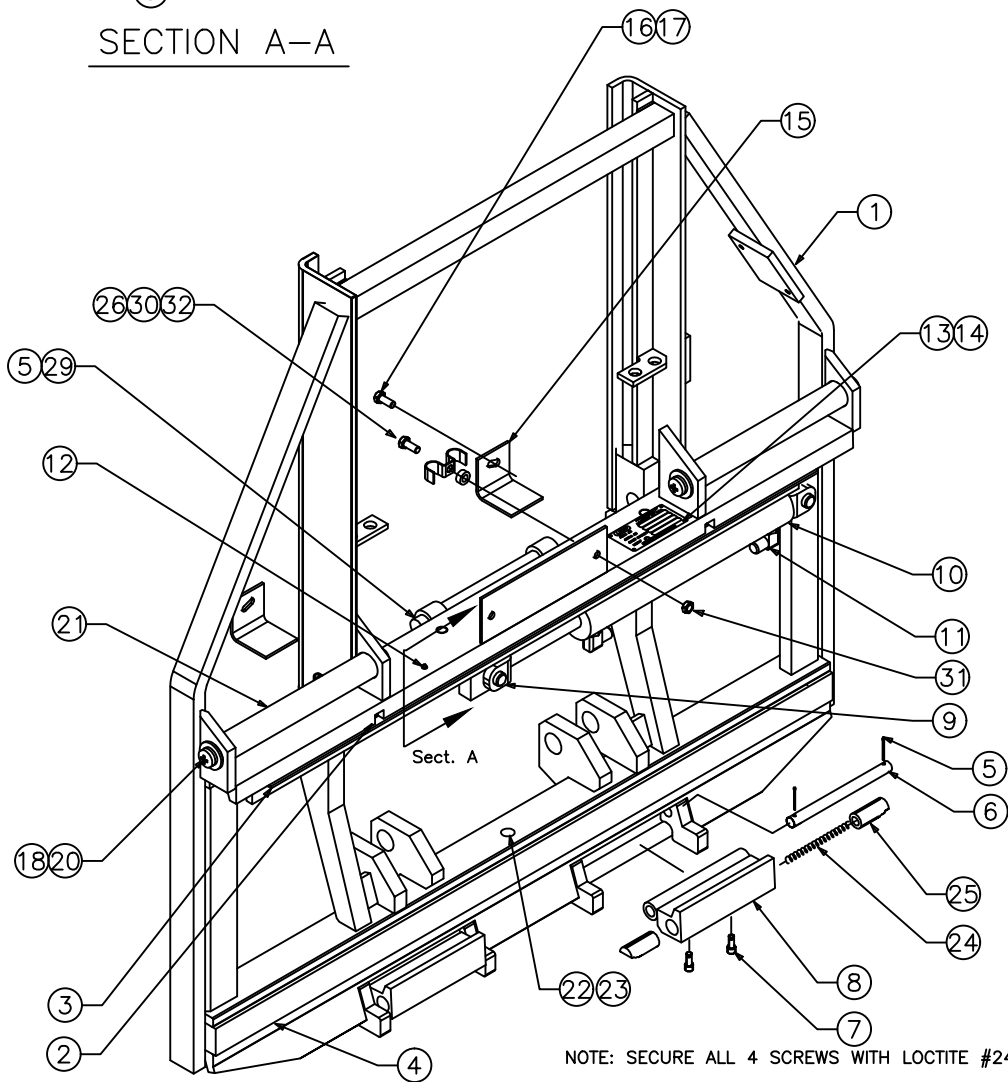
Lubricate platen mounting round bar (item #21) with light oil.

BASE ASSEMBLY - 2

Drawing reference 112896



SECTION A-A



NOTE: SECURE ALL 4 SCREWS WITH LOCTITE #242 (BLUE)

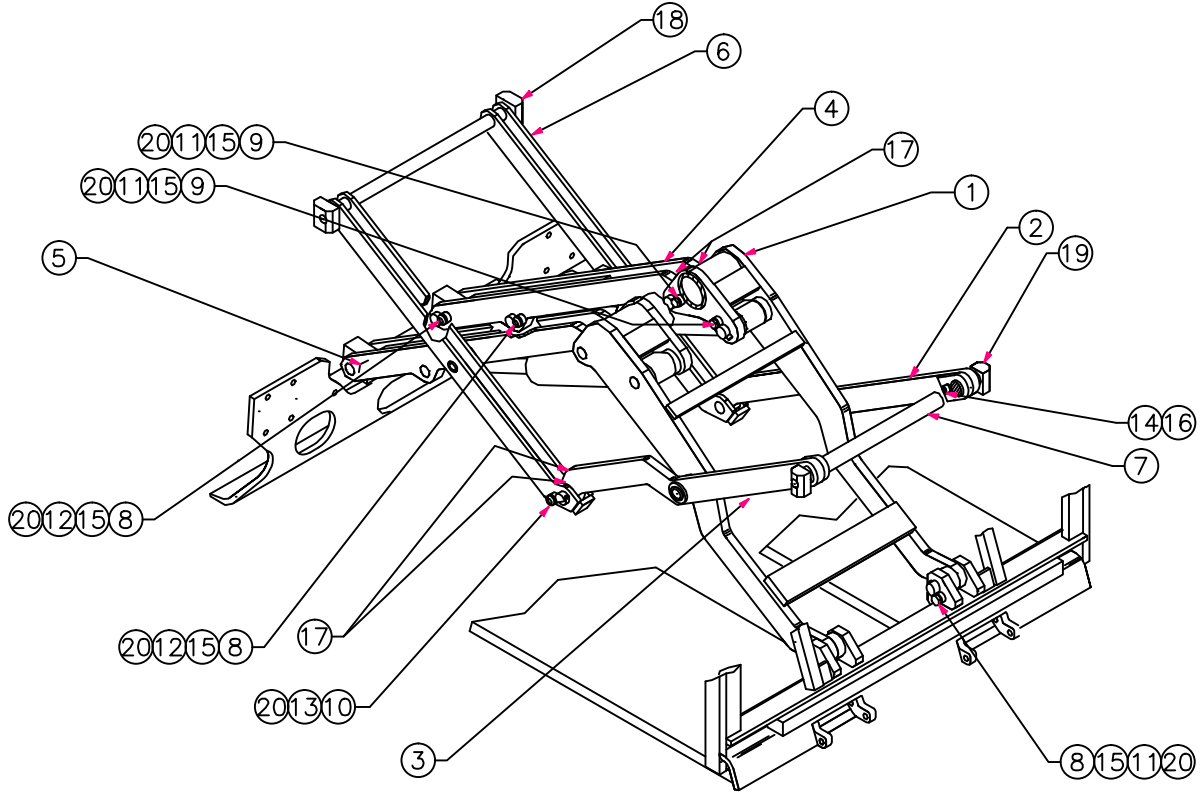
LINKAGE ASSEMBLY

Drawing reference 100743

#	QTY	PART #	DESCRIPTION
1	1	100209	Rear Push Arm
2	1	100637	Rear Regulator RH
3	1	100636	Rear Regulator LH
4	1	100208	Front Push Arm RH
5	1	100207	Front Push Arm LH
6	1	100662	Front Regulator
7	1	100267	Regulator Bracket
8	6	100663.2	Chrome Pin
9	4	100663.3	Chrome Pin
10	2	100727	Chrome Pin

11	6	1C.0616	Hex Head Bolt LSP
12	4	25G.0616	Button Head Bolt LSP
13	2	25G.0612	Button Head Bolt LSP
14	2	11G.0824	Socket Head Bolt LSP
15	10	4E.06	Lockwasher LSP
16	2	16E.08	Hi-Collar Lockwasher LSP
17	8	100665.38	Thrust Washer/Shim
18	2	100465	Slide Block (Push Rack)
19	2	100464	Slide Block (Base)
20	12	101294.5	Lock Pin LSP

WEEKLY SERVICE:
Grease slide block channels
(items 18 & 19) weekly or as
required.



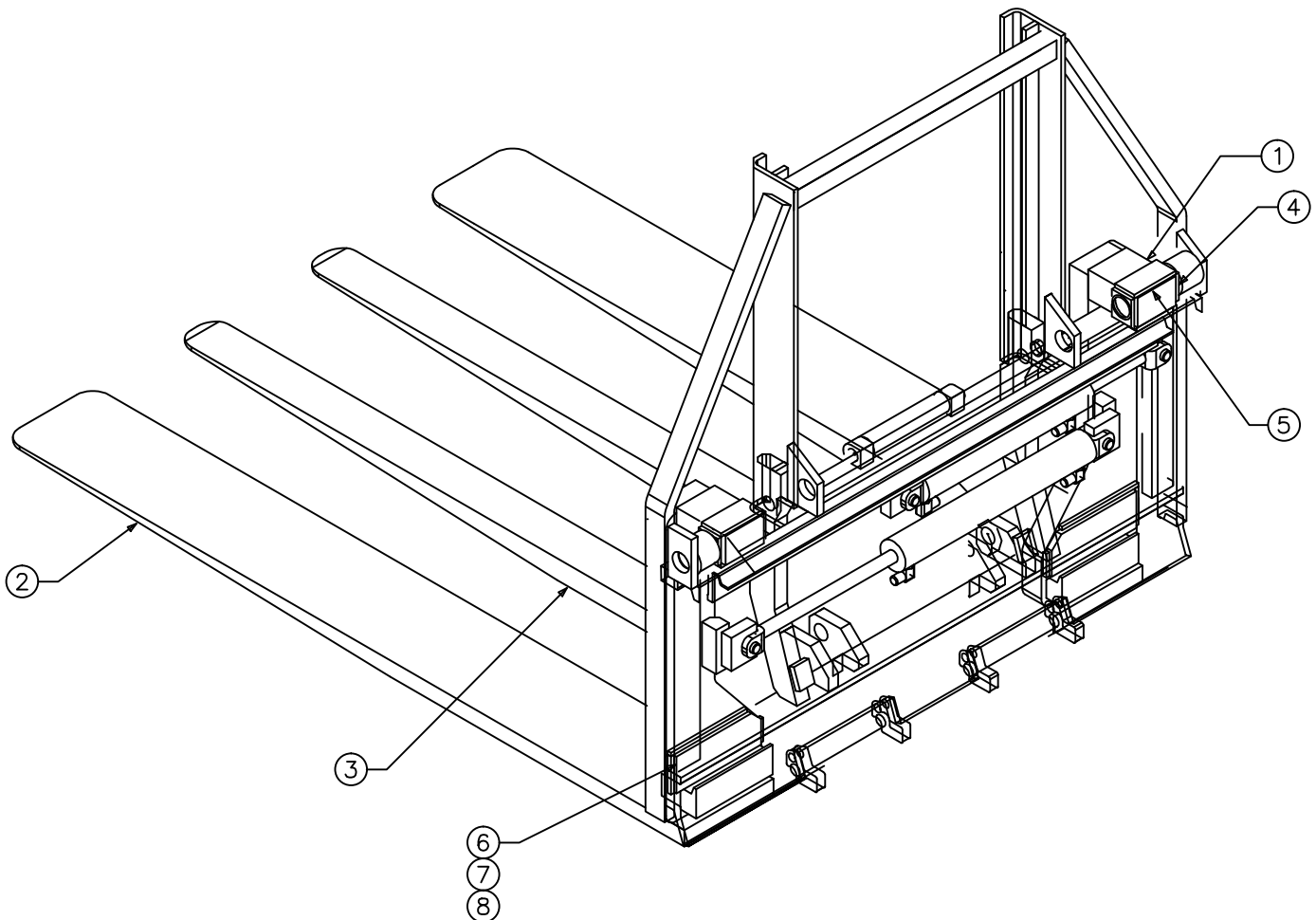
PLATEN ASSEMBLY

Drawing reference 110875.1

#	QTY	PART #	DESCRIPTION
1	1	**	Platen Weldment RH
2	1	**	Platen Weldment LH
3	1	**	Center Platen Weldment
4	4	100785.16	Bushing (Reference)
5	2	110697	Retainer Weldment
6	2	107530.1	Lower Slide
7	AR	110764.1	Shim 16 GA
8	AR	110764.2	Shim 12 GA

NOTE:
Platen useable length is measured from the face of the push rack to the tip of the platens with the push rack fully retracted.

**See customer packet for part number



JAW / PUSH RACK ASSEMBLY

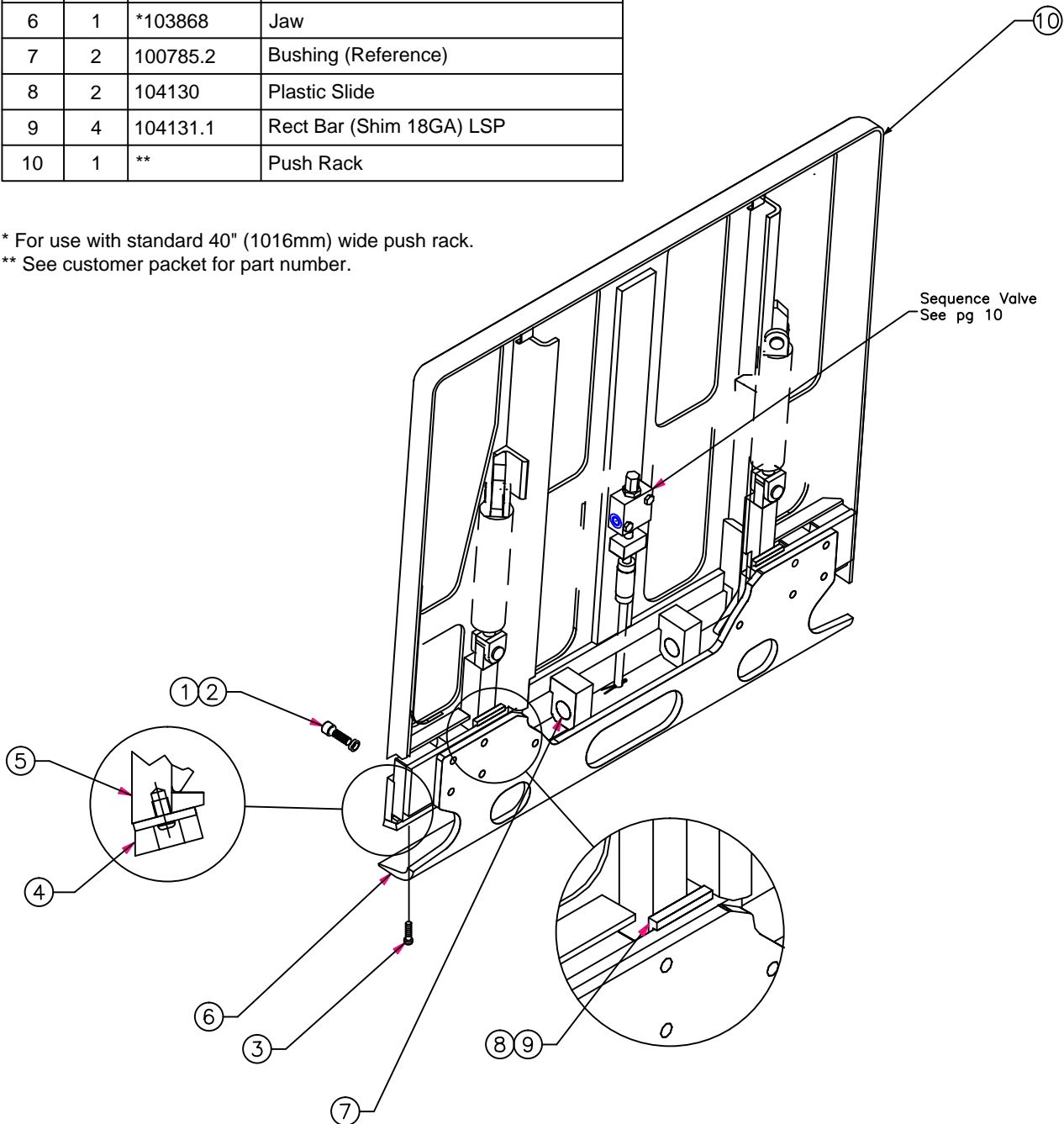
Drawing reference 113363, 108132

#	QTY	PART #	DESCRIPTION
1	10	11G.0820	Socket Head Bolt LSP
2	10	16E.08	Hi-Collar Lockwasher LSP
3	7	25GN.0508	Button Head Nylock Bolt LSP
4	1	*103873	Gripper Shoe
5	1	*103530	Gripper Bar
6	1	*103868	Jaw
7	2	100785.2	Bushing (Reference)
8	2	104130	Plastic Slide
9	4	104131.1	Rect Bar (Shim 18GA) LSP
10	1	**	Push Rack

WEEKLY SERVICE:
Check and tighten jaw and gripper shoe mounting bolts (item #3).

Check gripper shoe (item #4) for wear and replace if badly worn.

* For use with standard 40" (1016mm) wide push rack.
** See customer packet for part number.



HYDRAULIC ASSEMBLY - 1

Drawing reference 113363

#	QTY	PART #	DESCRIPTION
1	1	100679	Sequence Valve
2	1	100106.2200	Platen Cylinder Assm
3	1	100106	SS Cylinder Assm
4	1	108192	Gripper Cylinder Assm LH
5	1	108191	Gripper Cylinder Assm RH
6	2	**	Cylinder Assm
7	1	103824.1	Actuator Rod Assem
8	2	104550	Clamp
9	1	103788	UHMW-PE Tape
10	1	101000	Hose Roller
11	1	100999	Roll Bracket
12	2	25G.0412	Button Head Bolt LSP
13	4	17D.04	ESNA Nut LSP
14	1	100841	Solenoid Valve
15	2	100029.13	O-Ring LSP
16	1	100986	Bracket
17	1	100987	Bracket
18	3	1C.0448	Hex Bolt LSP
19	1	101001	Hose Roller
20	1	101002	Plastic Guide
21	1	1C.0440	Hex Bolt LSP
22	2	4E.04	Lockwasher LSP
23	1	112898	Voltage Reducer Converter
24	2	21G.1006	Socket Head Bolt LSP
25	1	109674.0190	Hose Assm 6-6 LSP
26	1	102702.0485	Hose Assm 6-4-4 LSP
27	20	100095.05	90° Elbow LSP
28	1	102702.0475	Hose Assm 6-4-4 LSP
29	2	100678.05	Branch Tee LSP
30	2	100676.05	STR THD Adapter LSP
31	2	109674.0090	Hose Assm 6-6 LSP

32	1	100669	Junction Block
33	1	109674.0545	Hose Assm 6-6 LSP
34	1	109674.0820	Hose Assm 6-6 LSP
35	2	100677.1	Union Tee LSP
36	1	109674.0130	Hose Assm 6-6 LSP
37	1	109674.0270	Hose Assm 6-6 LSP
38	1	102702.0525	Hose Assm 6-4-4 LSP
39	1	109674.0450	Hose Assm 6-6 LSP
40	1	102702.0435	Hose Assm 6-4-4 LSP
41	1	108058.0330	Hose Assm 4-3-4 LSP
42	1	108058.0235	Hose Assm 4-3-4 LSP
43	1	100676.032	STR THD Adapter 6-4 LSP
44	6	100095.031	90° Elbow Adapter 6-4 LSP
45	2	100238.03	Swivel Elbow 45° 4-4 LSP
46	2	102937.05	Reducer Union 6-4 LSP
47	2	100744.05	Bulkhead Union LSP
48	1	113090	Delphi Connector
49	1	108058.0480	Hose Assm 4-3-4 LSP
50	1	108058.0460	Hose Assm 4-3-4 LSP

** See customer packet for part number.

WEEKLY SERVICE:

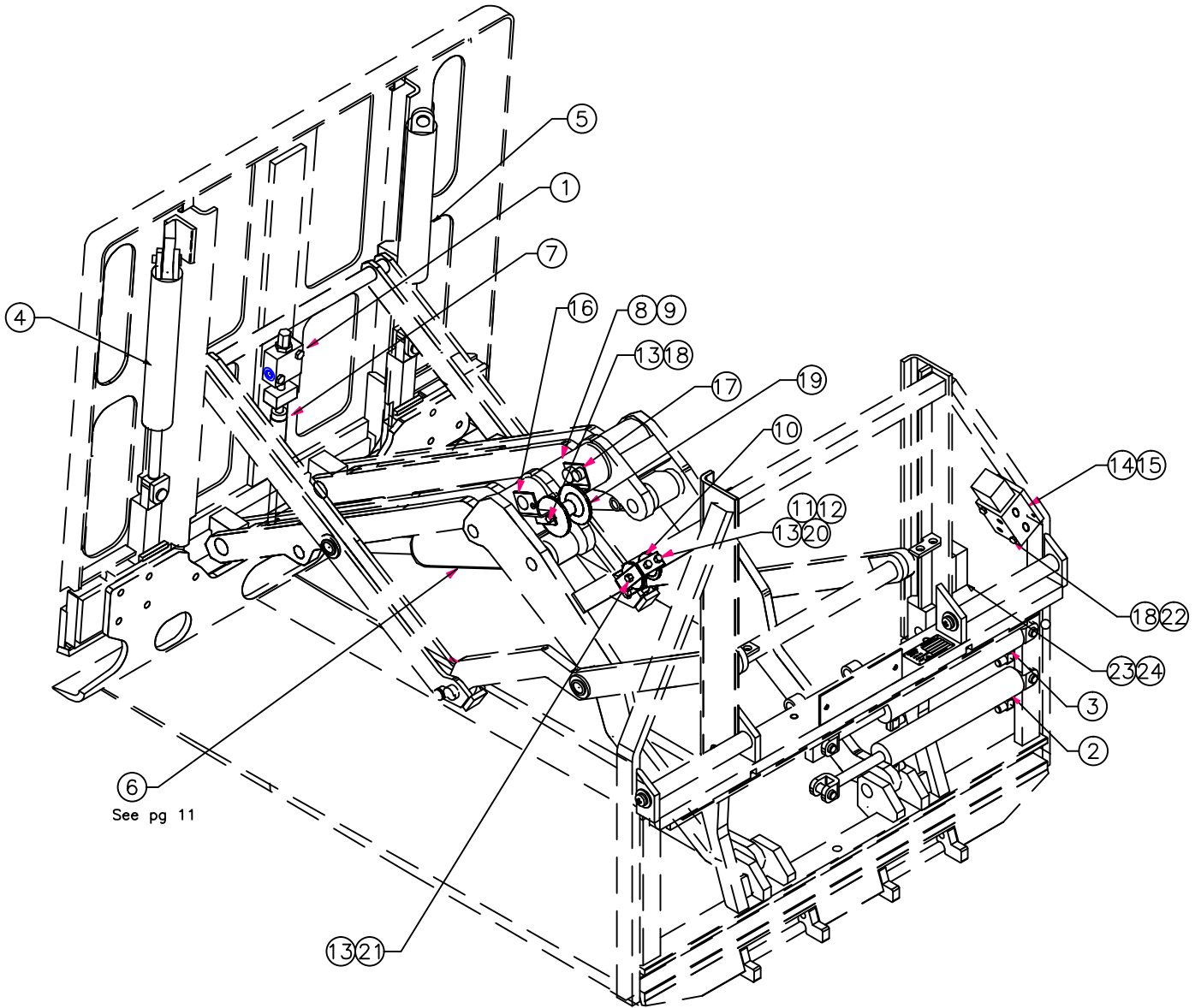
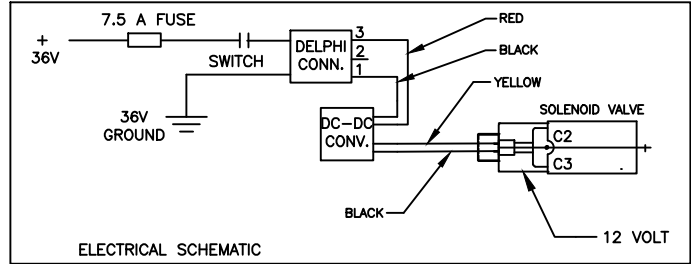
Check hoses for fraying, cuts, bulges and badly worn areas.

WARNING:

Use only LORON hoses or Parker Tough Cover #471TC wire reinforced hose for replacement hoses.

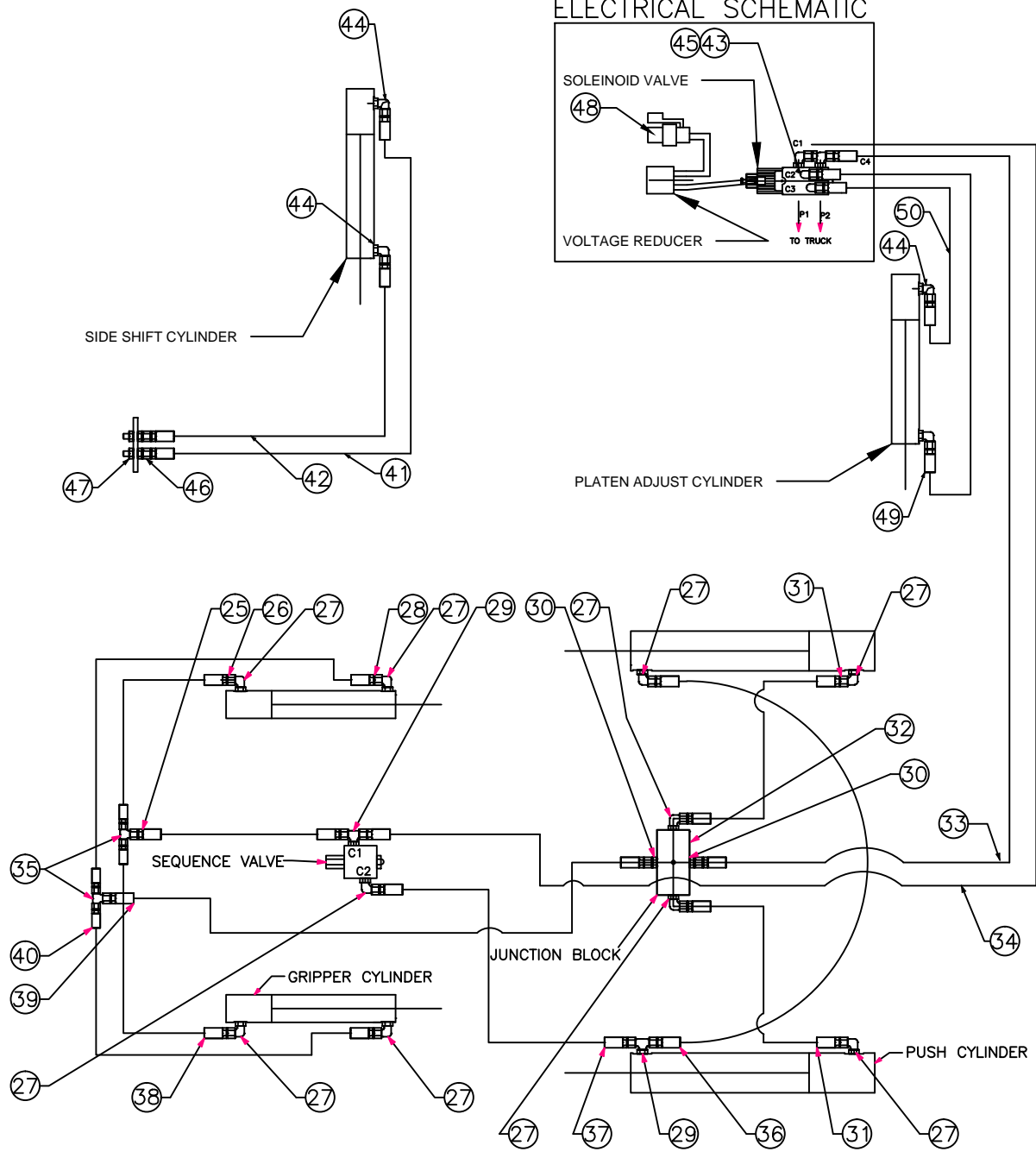
HYDRAULIC ASSEMBLY - 2

Drawing reference 113363



HYDRAULIC ASSEMBLY - 3

Drawing reference 113363



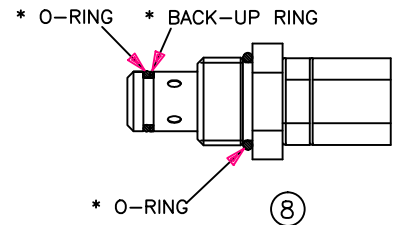
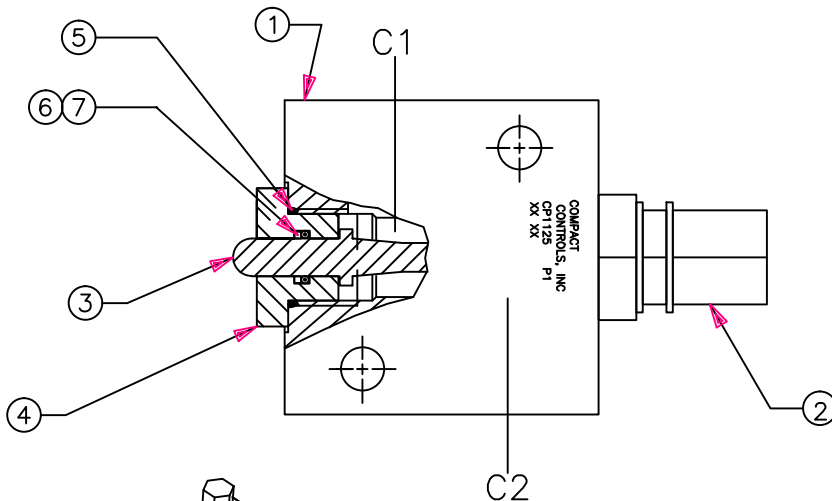
SEQUENCE VALVE

Drawing reference 100679

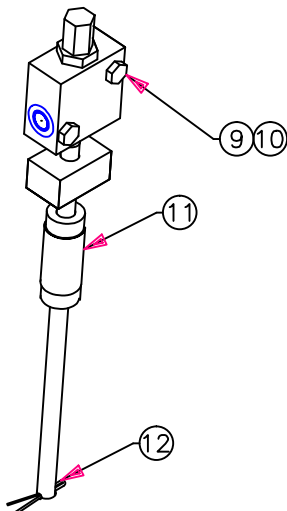
#	QTY	PART #	DESCRIPTION
1	1	103220	Valve Body
2	1	103219	Relief Cartridge
3	1	103222	Push Rod
4	1	103223	Plug
5	1	*100030.4	O-Ring
6	1	*100029.107	O-Ring
7	1	*100028.107	Back-up Ring
8	1	*103221	Cartridge Seal Kit
9	2	4E.05	Lockwasher LSP
10	2	25G.0524	Button Head Bolt LSP
11	1	103824.1	Actuator Rod
12	1	100574.82	Cotter Pin LSP

SERVICE NOTE:
Lubricate parts prior to assembly with STP

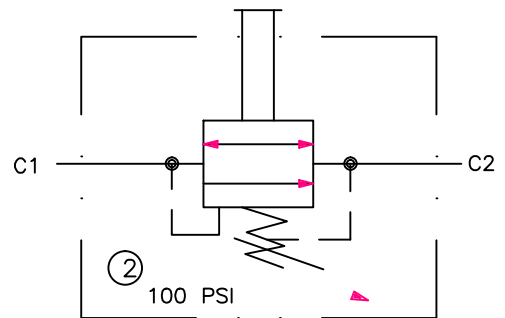
* Sequence valve seal kit 103218



* O-RING
* BACK-UP RING
* O-RING
* CARTRIDGE SEAL KIT=A103221



PUSH RACK SEQUENCE VALVE SCHEMATIC



PUSH CYLINDER ASSEMBLY

Drawing reference 103922 (4500#) & 104042 (3500#)

#	QTY	3500# Push Cyl PART #	4500# Push Cyl PART #	DESCRIPTION
1	1	102241	102241	Rod Weldment
2	1	103201	102242	Gland Nut
3	1	104043	103994	Tube Weldment
4	1	***	***	Piston
5	1	*100031.5	**100031.5	Polypak BS LSP
6	1	*101421.3	**101421.4	PSP Seal LSP
7	1	*18D.12	**101035	Locknut Modified
8	1	*103208.4	**103208.4	Wiper Ring LSP
9	1	*100029.12	**100029.10	O-Ring LSP
10	1	100785.3	100785.3	Bushing
11	1	100785.2	100785.2	Bushing

* Seal Kit = 102182 (Items 5 thru 9)
 ** Seal Kit = 102183 (Items 5 thru 9)
 *** See customer packet for part number

CYLINDER SERVICE

- Prior to assembly lubricate seals, cylinder bore, & rod with STP.
- Inspect all parts for scratches, nicks, and gouges - replace damaged components.
- Inspect cylinder bore & rod for scoring - replace if scored.
- Avoid damage to seal grooves - use a dull screwdriver for seal removal.
- Torque piston nut to 200 ft-lbs. (27.7 kg-m)
- Gland nut tightening procedure:
 Turn gland nut until tight and then strike the end of the spanner wrench with a hammer to further tighten.

Using spanner wrench number:
 103225.2 for 2.25" (57mm) bore cylinder
 103225.1 for 2.50" (63.5mm) bore cylinder

