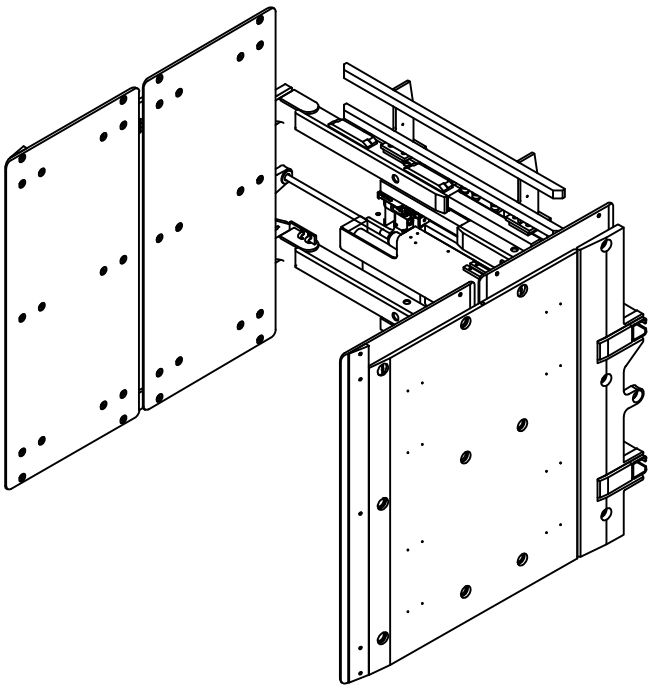
SERVICE MANUAL / PARTS LIST

APPLIANCE CLAMP SOFT TOUCH

MODEL #112736

PATENTS PENDING



CONTENTS:

425 Hazel St.
Kelso WA 98626
(800) 248-6079
Fax (360) 578-9934

LIFT TRUCK REQUIREMENTS

CAPACITY

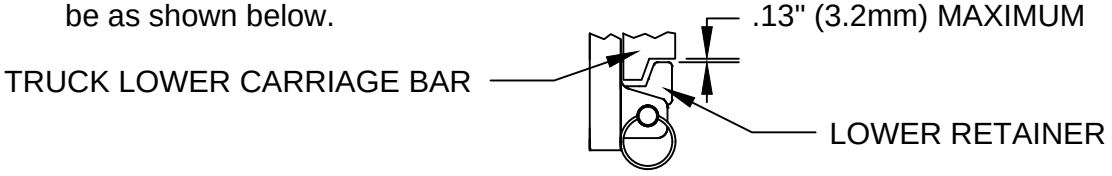
Capacity shown on the Clamp name plate is for the Clamp only. The combined truck and Clamp capacity is provided by the lift truck manufacturer.

CLAMP HYDRAULICS

Recommended Truck Pressure: 2300 to 2500 PSI (159 to 170 bar)
Hydraulic fluid: petroleum based hydraulic fluid only
Hydraulic supply group: includes hoses and take-up - one set for each function
Auxiliary valve:
2 Function (Side Shift & Clamp) = a double auxiliary valve
Oil Volume Settings:
Side Shift = 3 GPM
Clamp Open/Close = 7 GPM

GENERAL INSTALLATION PROCEDURES

1. Make sure that the attachment centering lug is completely seated in truck carriage center notch.
2. Clearance between the lower retainers that hold the attachment to the truck lower carriage bar should be as shown below.



3. Attach truck supply group (take-up) to clamp valve on attachment base.
4. Standing clear of the Clamp attachment cycle the attachment in and out several times. 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 leakages - repair or replace as required

2. Check bladder/water pressure. If out of operating range adjust as required using Loron Hand Pump #112909. Check clamp force and adjust. (See page 14.)
   Time Schedule: Check pressure and clamp forces every 3 weeks.
   Water pressure = 4-6 psi

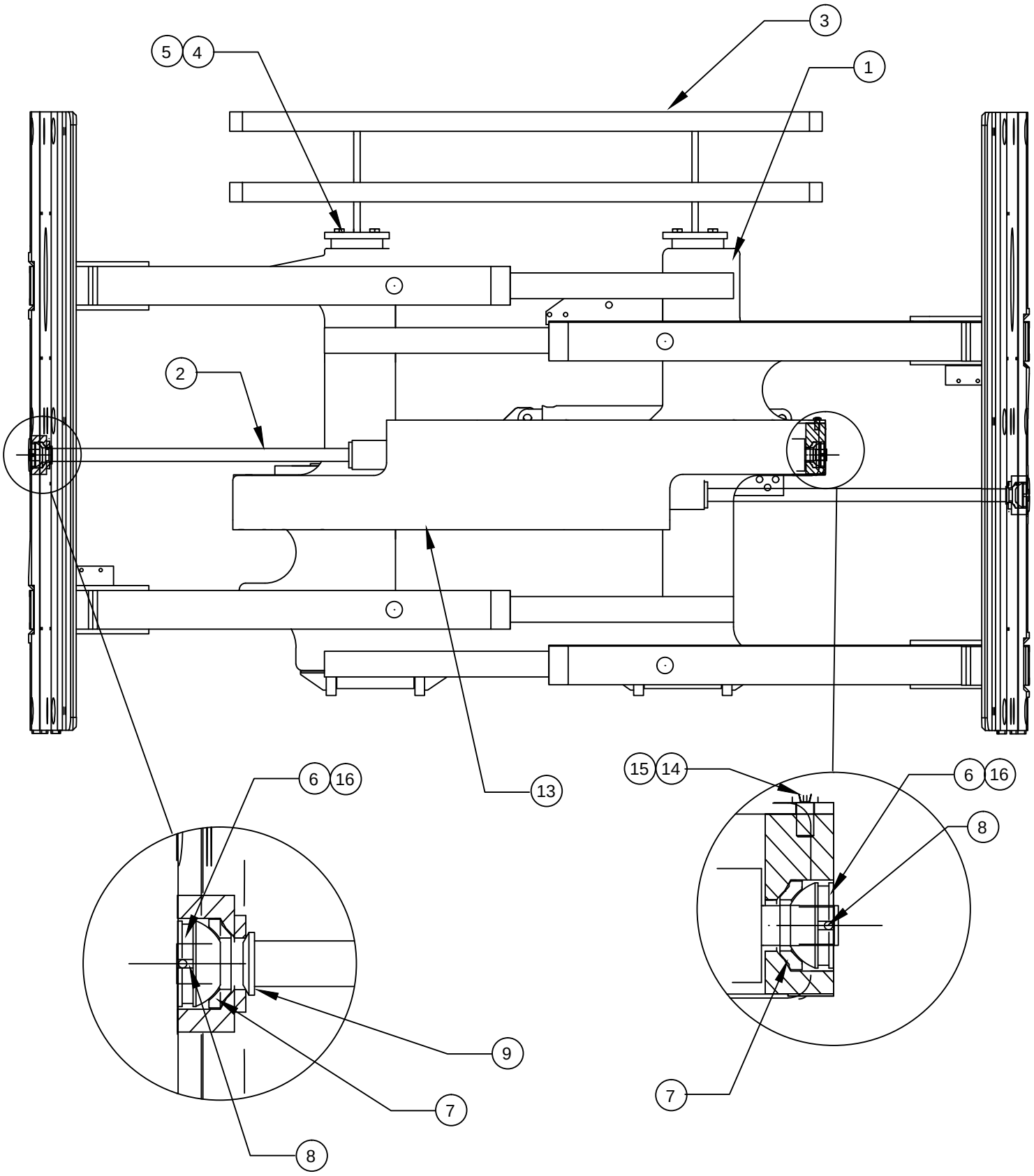
3. All bolts should be checked and tightened as required.

4. Check lower retainer clearance - see item 2 in General Installation Procedures above.

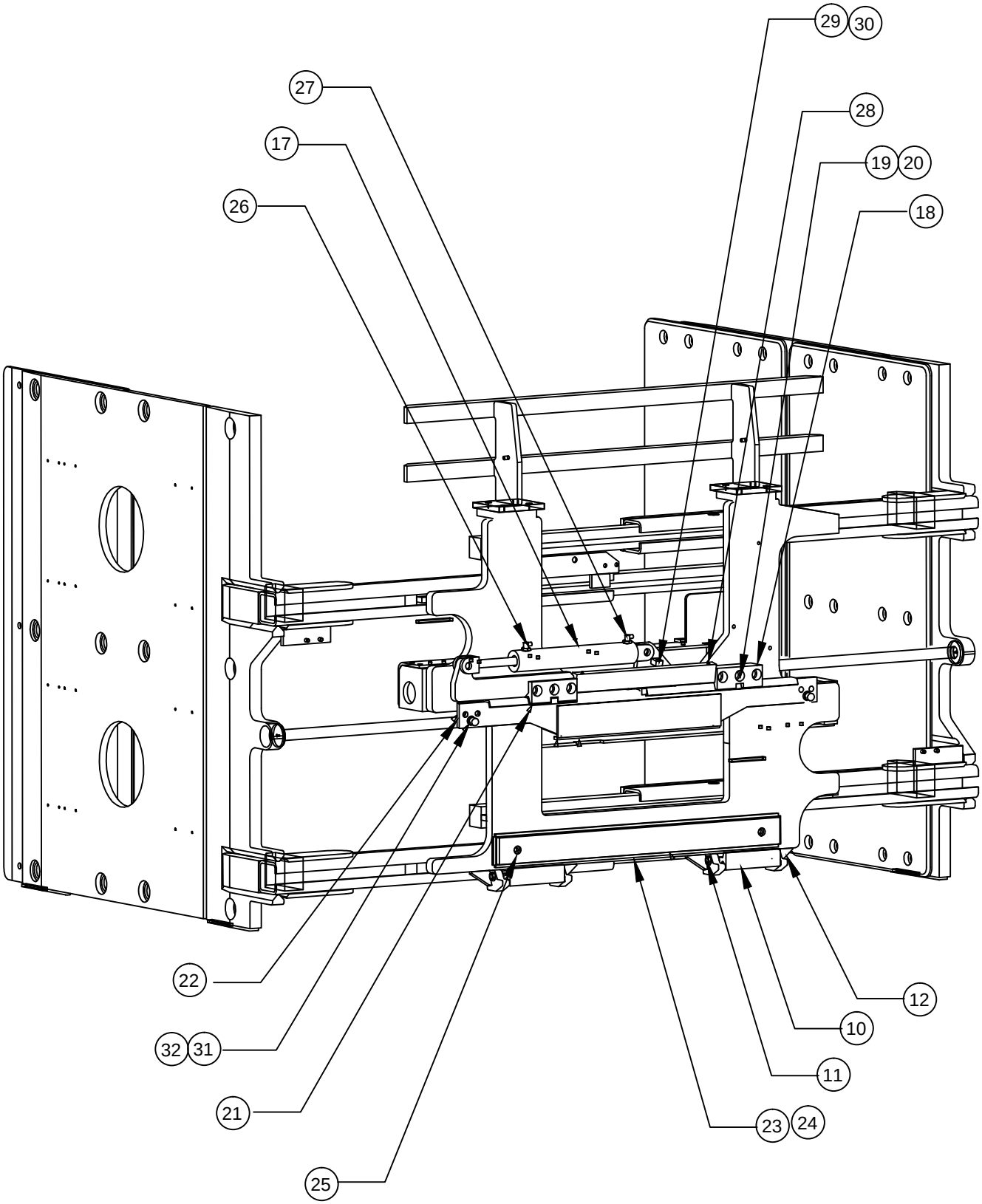
CLAMP ASSEMBLY - 1

#	QTY	PART NO.	DESCRIPTION
1	1	112878	FRAME
2	2	111372.3	CYLINDER ASSEMBLY
3	1	101448.27	LOAD BACKREST
4	8	25G.0832	BOLT LSP
5	8	4E.08	LOCKWASHER LSP
6	4	110731	BEARING SPHERICAL
7	4	110730	SPHERICAL SEAT
8	4	100574.86	COTTER PIN LSP
9	2	111380	CYLINDER ROD WASHER
10	2	107870	LOWER RETAINER
11	2	11G.08136	BOLT LSP
12	2	17D.08	NUT NYLOCK LSP
13	1	111059	CYLINDER GUARD
14	4	25G.0608	BOLT LSP
15	4	2F.06	WASHER LSP
16	4	100029.314	O-RING LSP
17	1	100106	CYLINDER ASSEMBLY
18	1	111589	HOOK WELDMENT
19	6	11G.1036	BOLT LSP
20	6	16E.10	LOCKWASHER LSP
21	2	108421	SLIDE II
22	1	111968	CYLINDER ANCHOR WELDMENT
23	1	112881	LOWER SLIDE
24	1	112882.1	SHIM (AS REQUIRED)
25	2	25G.0612	BOLT LSP
26	1	100095.05	FITTING LSP
27	1	100222.1	FITTING RESTRICTOR
28	2	100075.14	GREASE FITTING LSP
29	1	108272	BRASS SETSCREW
30	1	7D.06	JAM NUT LSP
31	2	11G.0808	BOLT SOCKET HEAD LSP
32	2	16E.08	LOCK WASHER LSP

CLAMP ASSEMBLY - 2



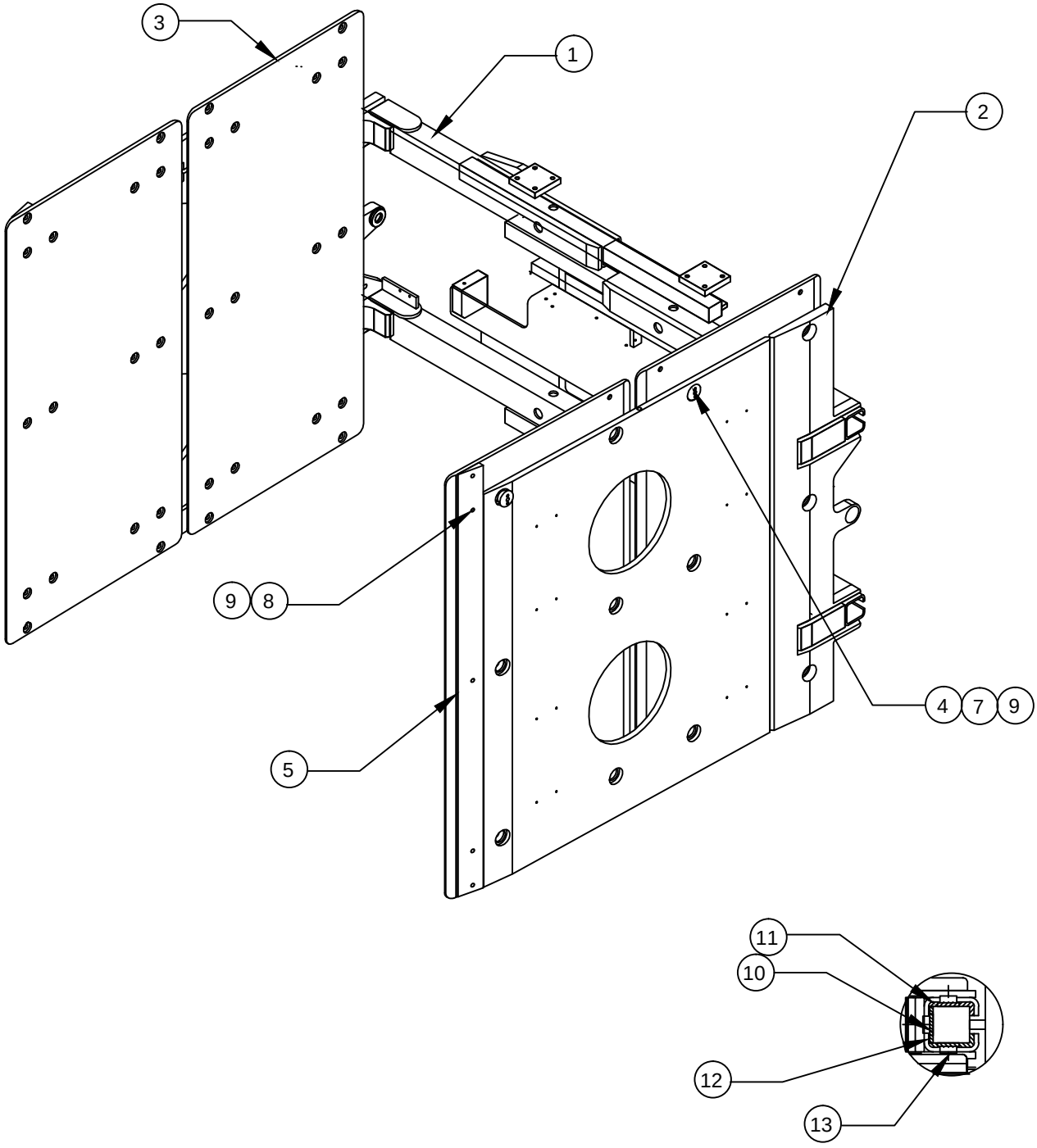
CLAMP ASSEMBLY - 3



ARM GROUP ASSEMBLY - 1

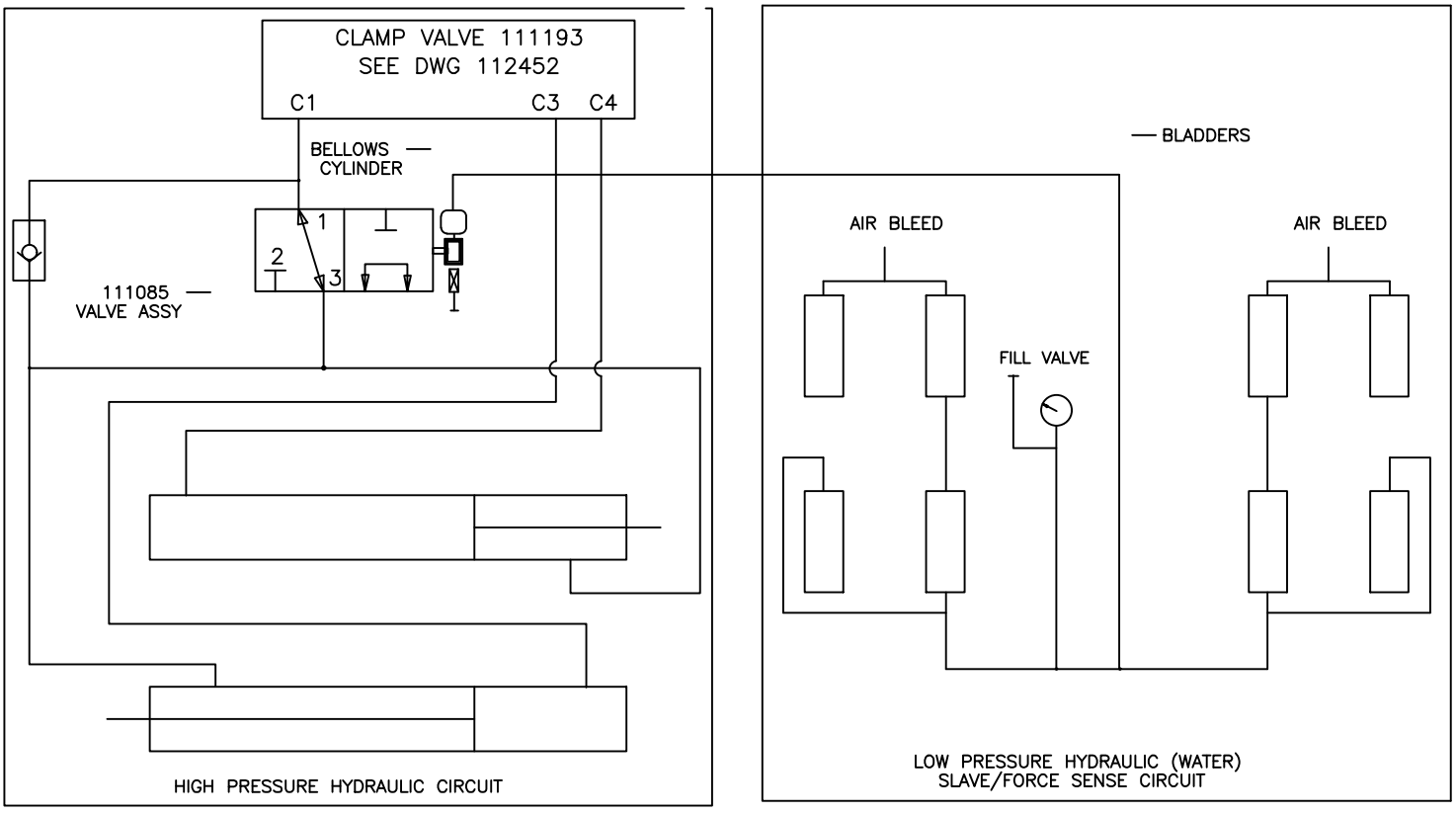
#	QTY	PART NO.	DESCRIPTION
1	1	112860	ARM WELDMENT RIGHT HAND
2	1	112861	ARM WELDMENT LEFT HAND
3	4	112862	CONTACT PAD
4	24	111031	RETAINING NUT
5	2	112871	TIP PLATE
6			
7	24	1C.0820	BOLT LSP
8	6	1C.0812	BOLT LSP
9	30	108088	SPRING WASHER
10	4	111622.1	FLAT SIDE
11	8	111621.1	ANGLE SIDE
12	AS REQUIRED	109212.4	SHIM
13	12	111619	SLIDE BUTTON

ARM GROUP ASSEMBLY - 2

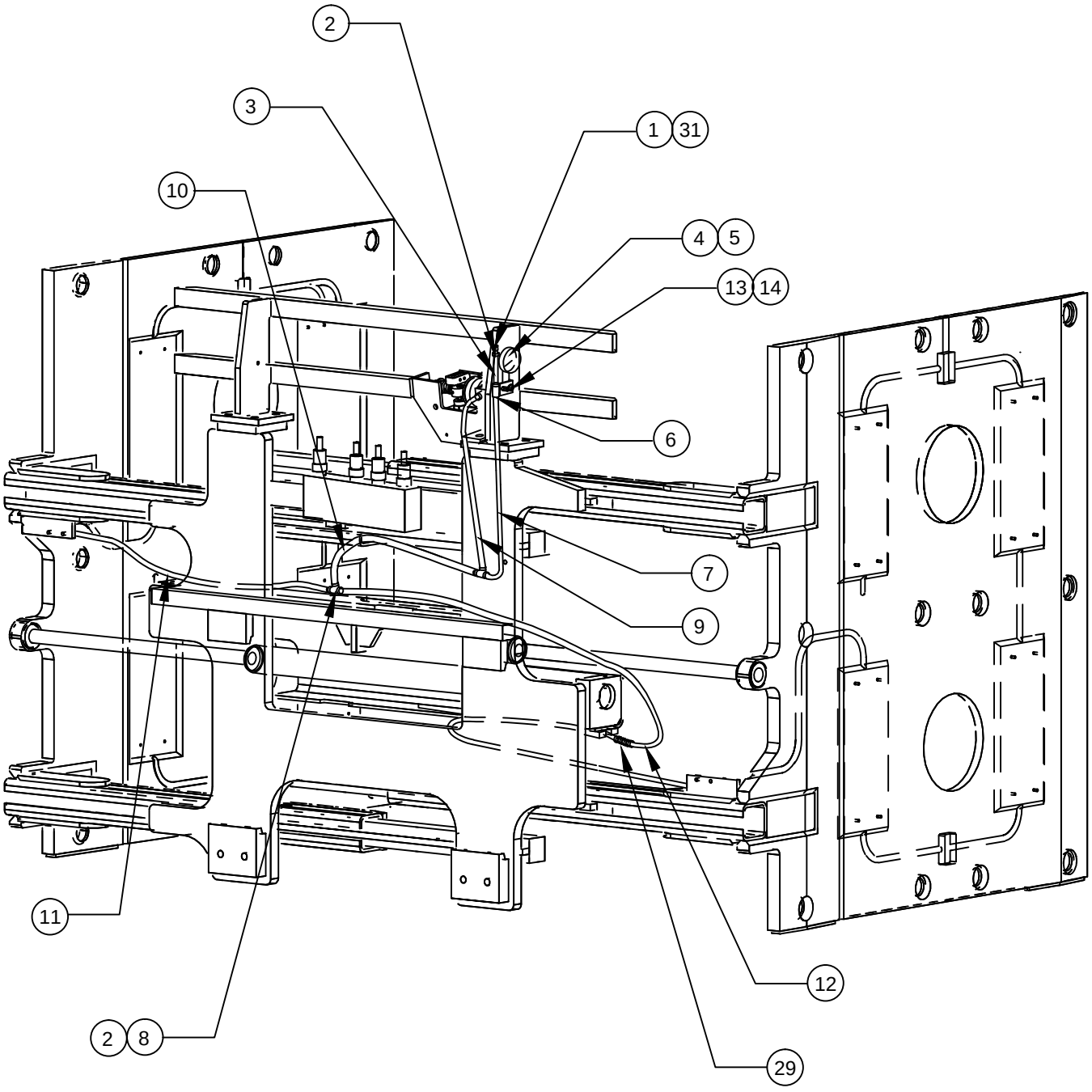


BLADDER HYDRAULIC ASSEMBLY - 1

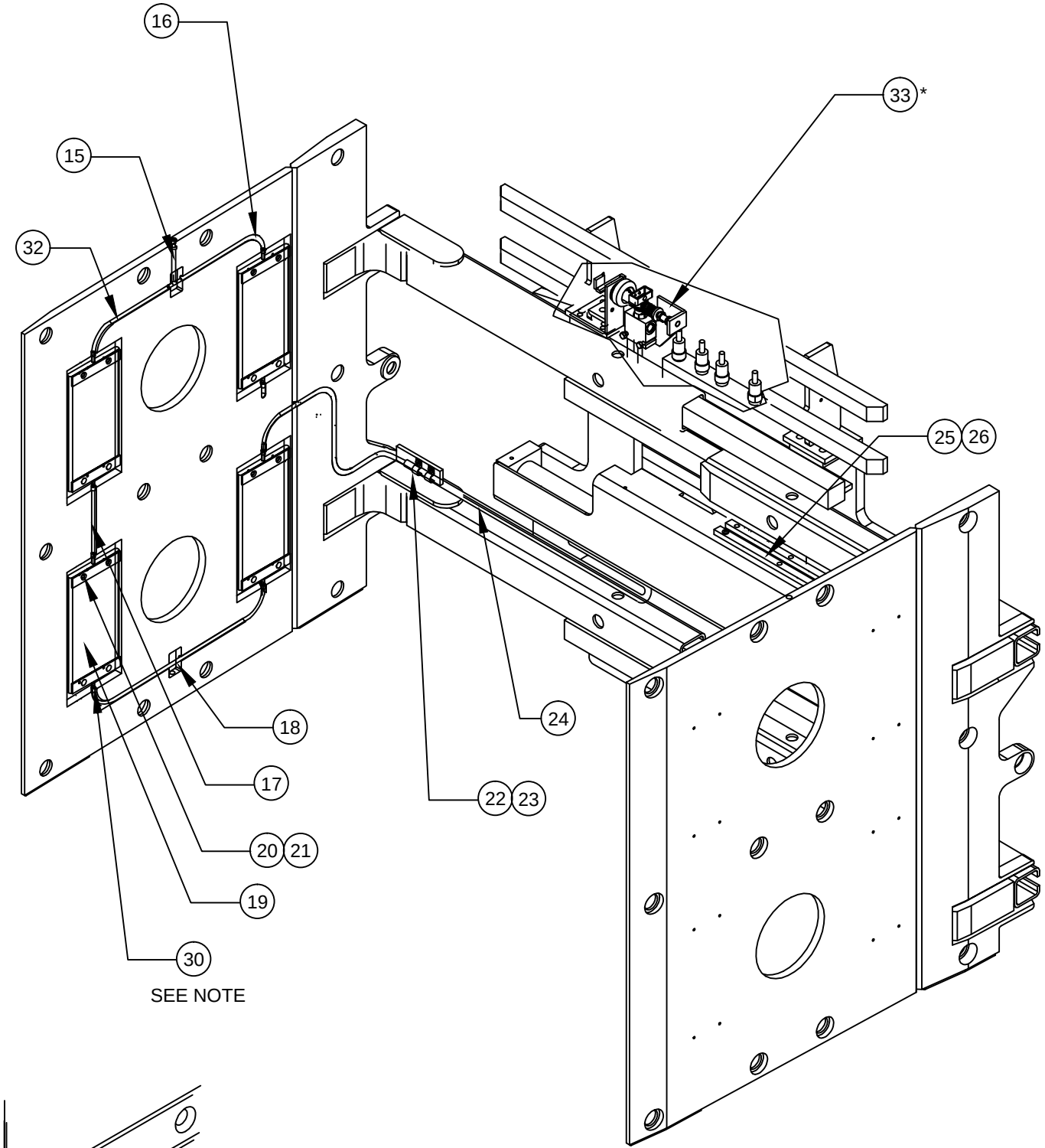
#	QTY	PART NO.	DESCRIPTION
1	3	111350	AIR TANK VALVE
2	12	111295	HOSE CLAMP
3	1	111290.0025	HOSE
4	1	111296	PRESSURE GAUGE
5	1	111543.01	FITTING 90° ELBOW
6	1	111292	BRANCH TEE
7	1	111290.0178	HOSE
8	4	111293	RUN TEE
9	1	111290.0155	HOSE
10	1	111290.0175	HOSE
11	1	111290.0805	HOSE
12	1	111290.0960	HOSE
13	1	111299	HOSE CLIP
14	1	25G.0516	BOLT LSP
15	2	111290.0030	HOSE
16	2	111290.0127	HOSE
17	2	111290.0085	HOSE
18	2	111290.0250	HOSE
19	8	111030	BLADDER
20	32	9G.0412	BOLT LSP
21	16	111471	CLAMP BAR
22	8	109256	HOSE CLAMP
23	8	25G.0508	BOLT LSP
24	2	113026.0360	COVER HOSE
25	4	111128	HOSE GUIDE
26	12	25G.0508	BOLT LSP
27	1	111289	PIPE ELBOW
28	2	111654	PLUG
29	2	111510	SPRING
30	16	111878	.19 GAUGE STAINLESS STEEL WIRE
31	3	111653	VALVE CAP
32	2	111290.0118	HOSE
33	1	111085	DIRECTIONAL; VALVE ASSEMBLE -REFERENCE-

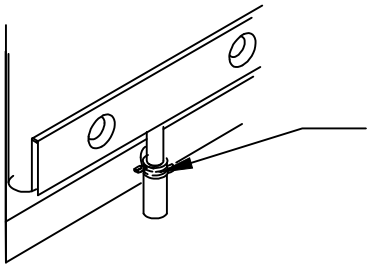


BLADDER HYDRAULIC ASSEMBLY - 2



BLADDER HYDRAULIC ASSEMBLY - 3

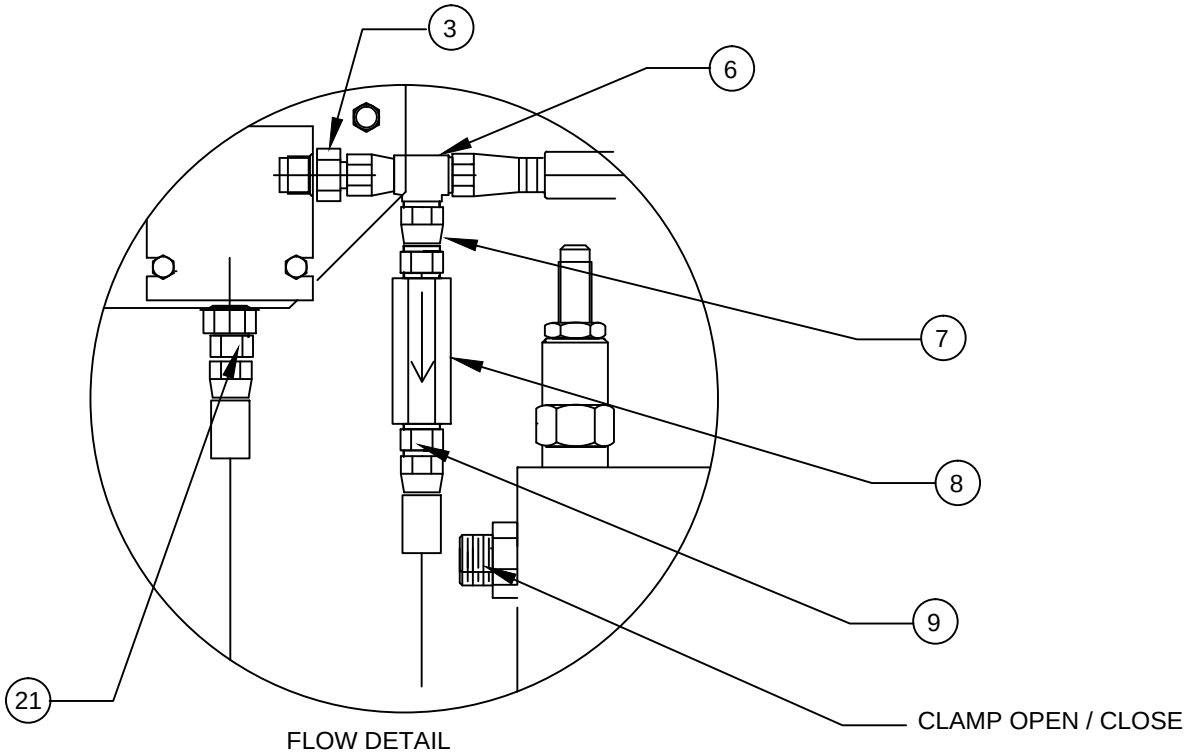




NOTE:
USE TWO 19 GAUGE STAINLESS STEEL WIRE TIRES (111878) AT EACH BLADDER CONNECTION - TWIST TO TIGHTEN AND CLIP TO REDUCE ENDS

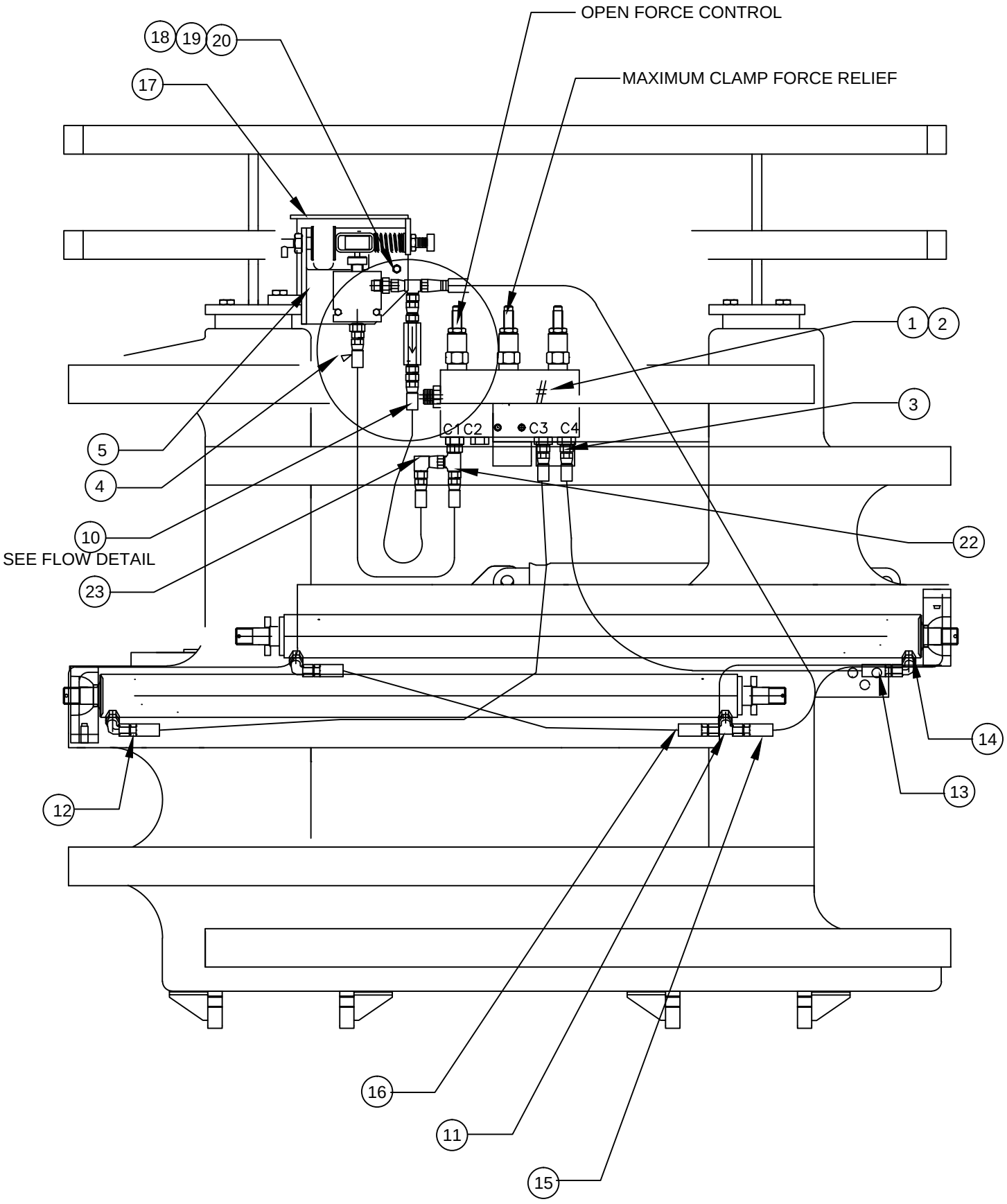
HYDRAULIC ASSEMBLY - 1

#	QTY	PART NO.	DESCRIPTION
1	2	111591	CLAMP VALVE
2	4	25G.0524	BUTTON HEAD BOLT LSP
3	1	100676.05	STRAIGHT THREAD ADAPTER - O-RING #6-6
4	1	100674.0170	HOSE ASSEMBLY 06-06-06
5	1	111085.1	DIRECTIONAL VALVE ASSEMBLY
6	1	100232.05	SWIVEL RUN TEE FITTING #6 LSP
7	1	111073.05	STRAIGHT THREAD ADAPTER PIPE TO SWIVEL LSP
8	1	111123	INLINE CHECK VALVE
9	1	100432.05	MALE ADAPTER JIC 06 / MALE PIPE 1/4-18 LSP
10	1	100674.0300	HOSE ASSEMBLY 06-06-06 LSP
11	1	100678.05	O-RING TEE BRANCH FITTING #6 LSP
12	1	100674.0320	HOSE ASSEMBLY 06-06-06 LSP
13	1	100674.0250	HOSE ASSEMBLY 06-06-06 LSP
14	3	100095.05	90° FITTING # 6 O-RIN ELBOW
15	1	100674.0400	HOSE ASSEMBLY 06-06-06 LSP
16	1	100674.0205	HOSE ASSEMBLY 06-06-06 LSP
17	2	1C.0616	HEX HEAD BOLT LSP
18	2	4E.06	LOCK WASHER LSP
19	1	100222	O-RING TEE RESTRICTOR FITTING
20	1	102512.05	O-RING TEE FITTING
21	1	100440.05	SWIVEL ELBOW FITTING



FLOW DETAIL

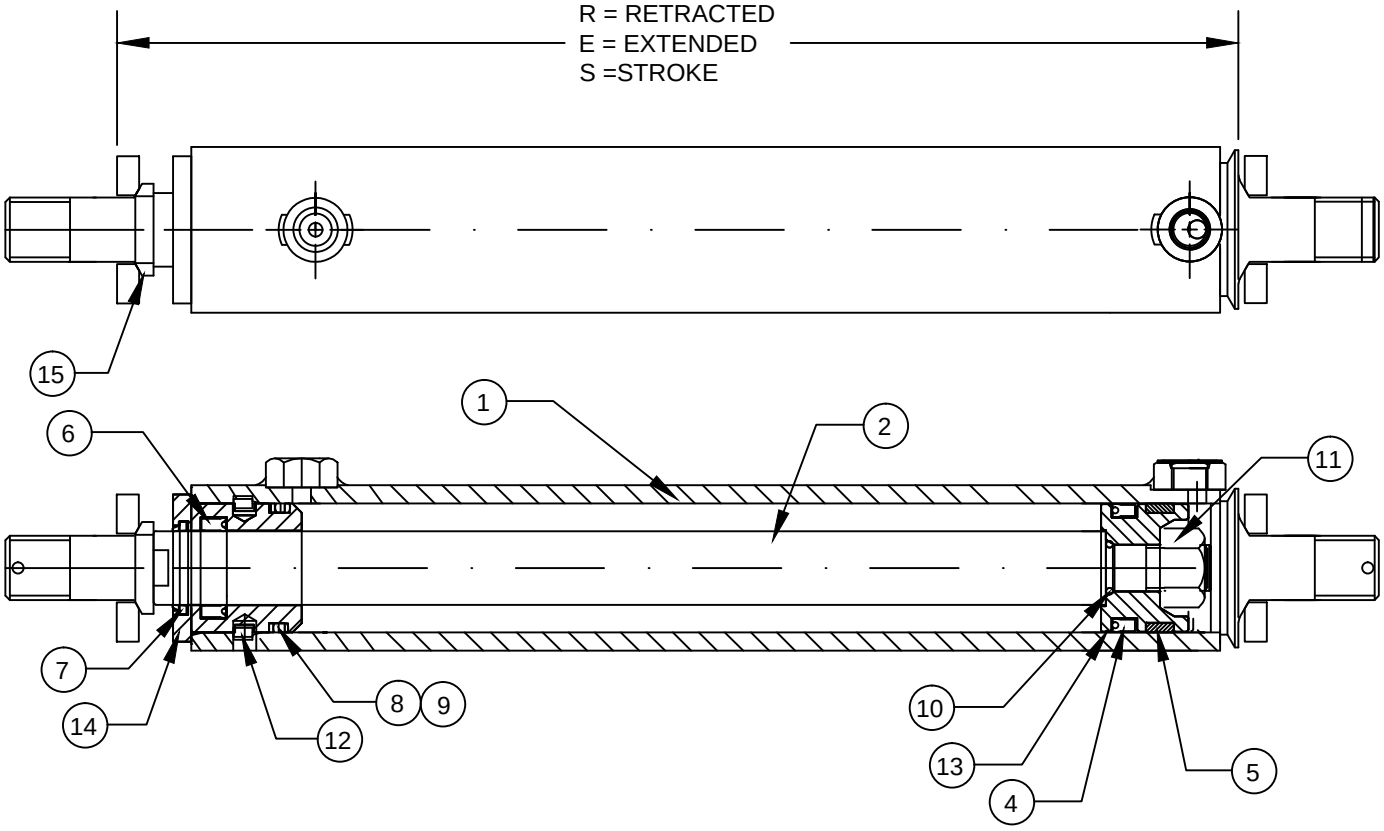
HYDRAULIC ASSEMBLY - 2



CLAMP CYLINDER ASSEMBLY

PART #	R	E	S	NET STROKE
111372.3	34.00	64.00	30.00	30.00

#	QTY	PART #	DESCRIPTION
1	1	111375.3	TUBE WELDMENT
2	1	111379.6	ROD
3	1	111482	SEAL KITS (items 4-10)
4	1	100032.6	POLY-PAK
5	1	102099	WEAR RING
6	1	112905	POLY-PAK
7	1	102098.5	ROD WIPER
8	1	100029.2	"O" RING
9	1	100028.2	BACK-UP RING
10	1	100029.21	"O" RING
11	1	27D.10	NUT SELF LOCKING
12	1	100027.7	LOCKWIRE
13	1	111374	PISTON
14	1	111373	GLAND
REF: 15	1	111380	CYLINDER WASHER



CYLINDER SERVICE

- Prior to assembly lubricate seals, cylinder bore and rod with STP.
- Inspect all parts for scratches, nicks and gouges- -replace all damaged components.
- Inspect cylinder bore and rod for scoring- -replace if scored
- Avoid damage to seal grooves- -use a dull screwdriver for seal removal
- Torque piston nut to 110 FT/LBS. (15.3 kg-m)

CLAMP ADJUSTMENTS

CLAMP FORCE CHECK/ADJUSTMENT

1) Check water pressure. If out of operating range fill with Loron hand pump # 112909.
Note: when operating in below freezing temperatures us RV antifreeze in place of water.

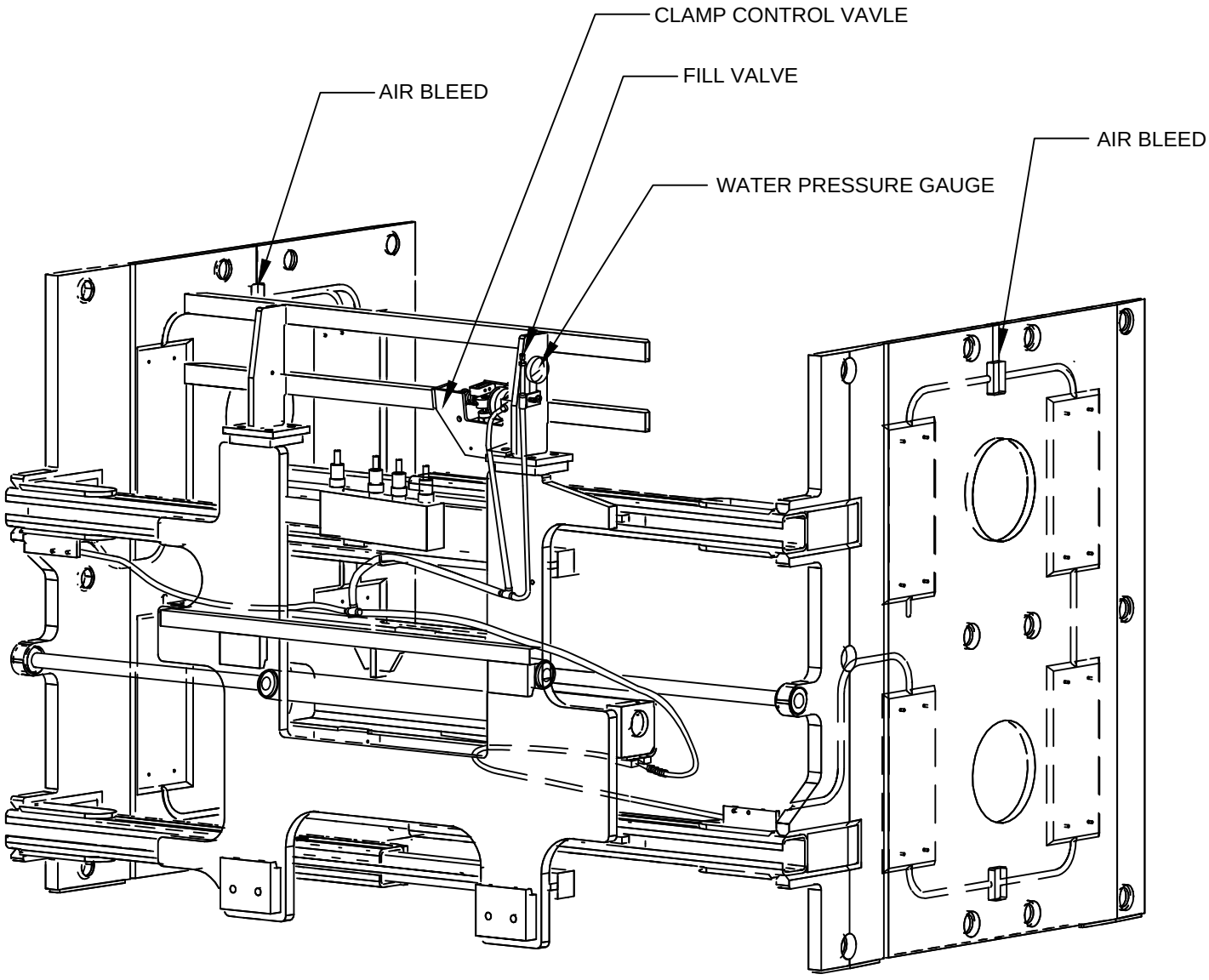
2) Check the clamp force.

OPEN FORCE CHECK/ADJUSTMENT

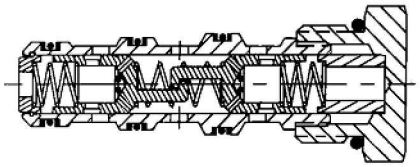
Open the arms against a force fixture and adjust for desired maximum force.

SIDE SHIFT FORCE ADJUSTMENT

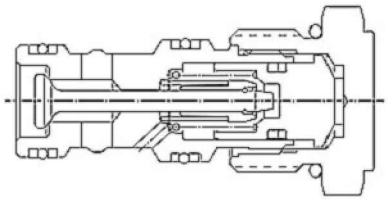
1) Clamp on the heaviest load that will be handled
2) Adjust the side shift force down until the arms stop
3) Turn the adjusting screw one turn in.



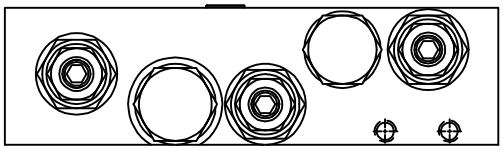
CONTROL VALVE

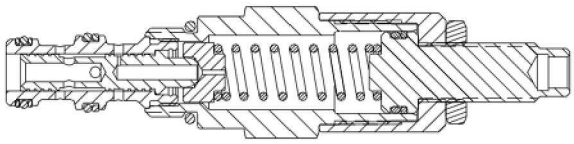


112887 FLOW DIVIDER TORQUE
10-12 FT/LBS 104711 SEAL KIT

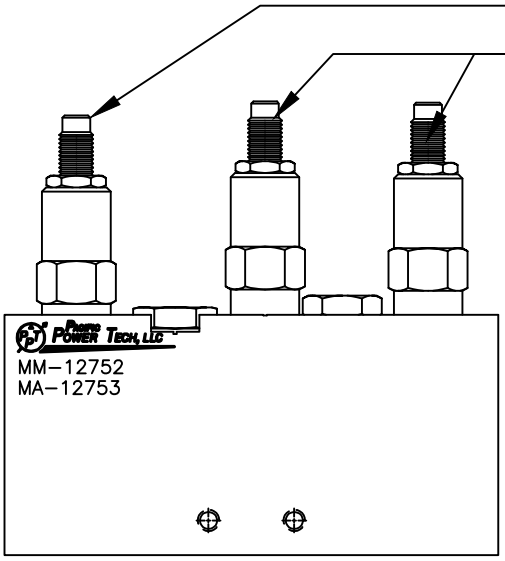


111244 CHECK VALVE TORQUE
30-35 FT/LBS SEAL KIT 112059

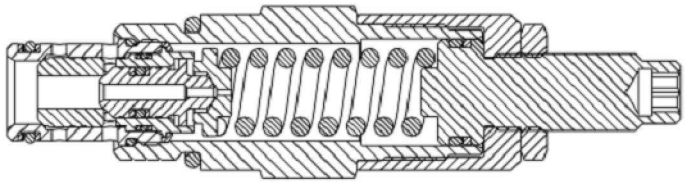




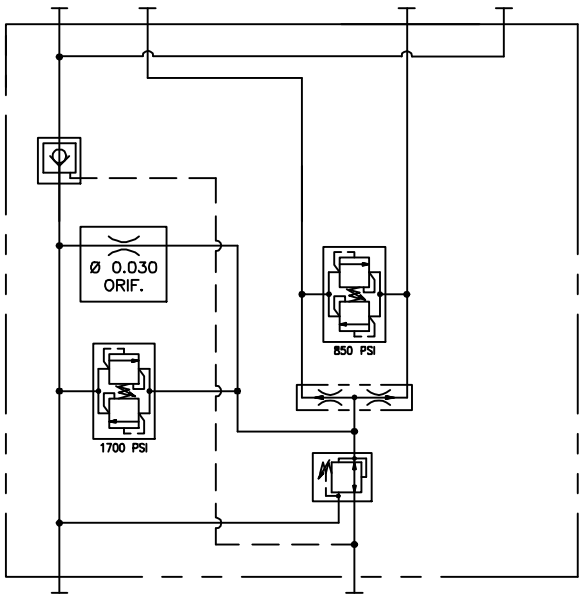
111627 REDUCE/REL. VALVE TORQUE 15-20 FT/LBS
SEAL KIT 112065



112406.1 & **112406.2** RELIEF TORQUE 20-25
FT/LBS SEAL KIT 112064



HYDRAULIC SCHEMATIC



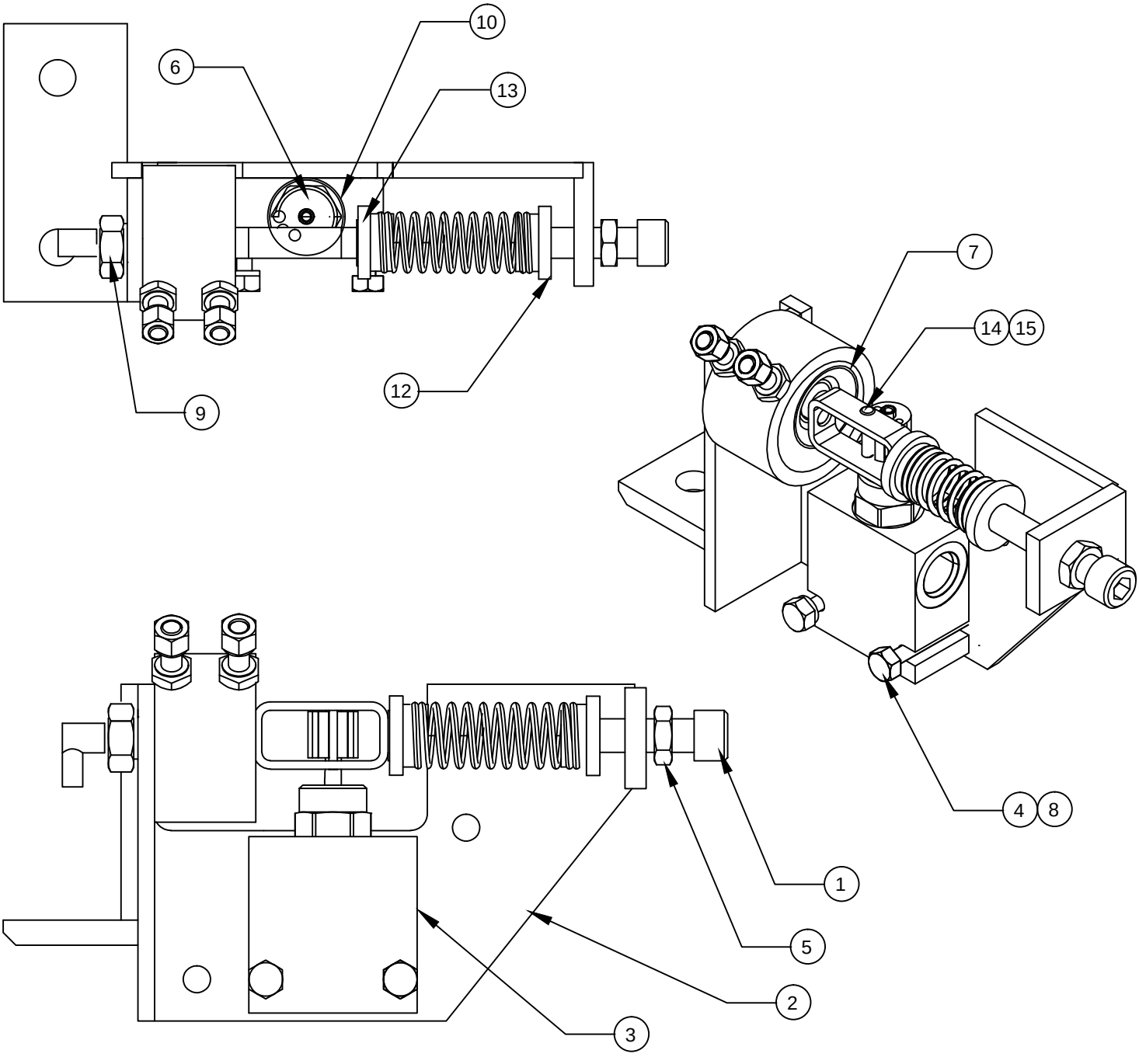
NOTE:
1. Lubricate threads & seals prior to assembly.

QTY	PART #	DESCRIPTION
1	111627	PRESSURE REDUCE / RELIEF VALVE
1	103813	FLOW DIVIDER
3	112060	BI-DIRECTIONAL RELIEF VALVE
3	111244	P.O. CHECK CARTRIDGES

CLAMP FORCE CONTROL VALVE

Drawing Reference 111085

#	QTY	PART #	DESCRIPTION
1	1	11G.0844	BOLT
2	1	111573	MOUNTING PLATE
3	1	111094	DIRECTIONAL VALVE
4	2	4E.04	LOCKWASHER
5	1	7D.08	JAM NUT
6	1	110906	WHEEL
7	1	111091	AIR SPRING
8	2	1C.0424	BOLT
9	1	1D.10	HEX NUT
10	1	111328	WHEEL HOUSING
11	1	111097	SPRING
12	1	111098	SPRING TENSION CAP
13	1	111572	SPRING CAP
14	1	111655	CLEVIS PIN
15	1	100574.28	COTTER PIN



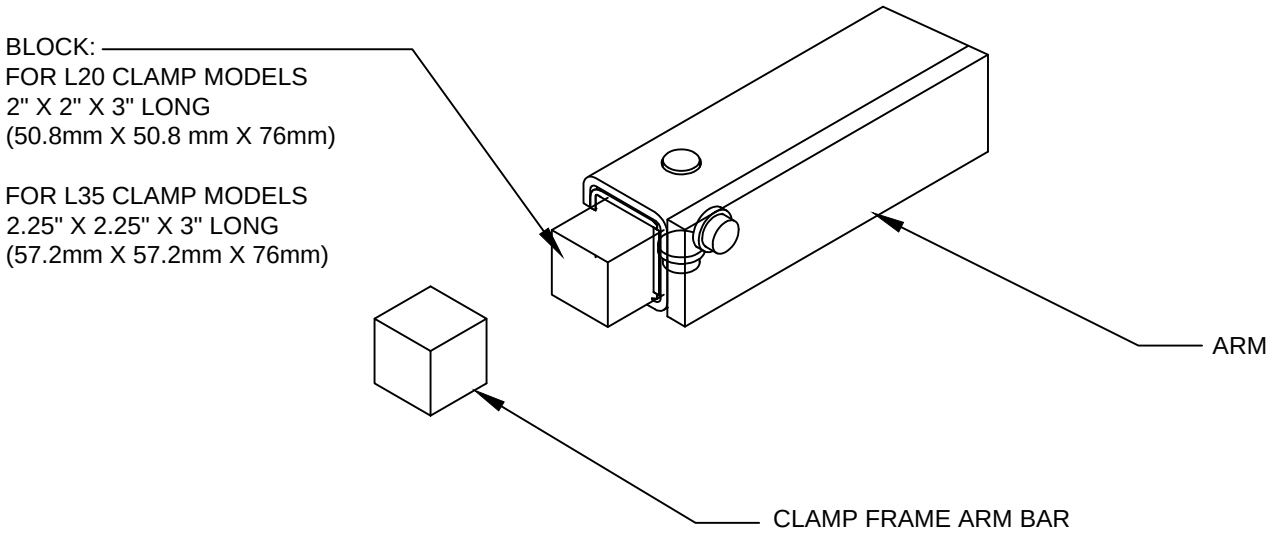
ARM SLIDE & SHIM REPLACEMENT

1. To replace the slides extend the arms to the fully open position. Release system pressure prior to removing the arms by turning the truck off and working the side shift and clamp function controls several times.

2. Support the arm with an overhead crane or lift truck. Be sure to secure the chain or sling in a manner that prevents the arm from falling out of the chain or sling when hanging free of the clamp frame.

3. Remove the cotter pin, slotted nut and spherical bearing from the end of the clamp cylinder rod. Keeping hands and feet clear, carefully slide the clamp arm off of the clamp frame.

4. Install the arm on the clamp frame ensuring that the arm moves freely without excessive binding. If the arm is too loose or too tight add or remove shims as required. Once the clearance is satisfactory insert the cylinder rod into the cylinder anchor on the arm. Install the spherical bearing, nut and cotter pin onto the cylinder rod end. Be sure to leave .03" - .06" (.7mm to 1.5mm) clearance to allow the cylinder to "float" on it's mountings. Remove the cotter pin, slotted nut and spherical bearing from the end of the clamp cylinder rod. Keeping hands and feet clear, carefully slide the clamp arm off of the clamp frame.



5. Inspect slides and slide buttons for wear. Slides may be rotated end-for-end and re-used if excessively worn on the outer end only. Extra shims may be used to tighten operating clearance on slightly worn slides. Replace any slides worn to less than .06" (1.5mm) thick or any slide that is deeply scored or broken.

6. To aid in replacing the slides a block may be fashioned of wood or another convenient material to the dimensions shown above. The block is inserted in the end of the arm to hold the slides, shims and buttons in position while the arm is inserted over the arm bars on the clamp frame. The block is expelled out the opposite end of the arm as the arm is pushed onto the frame.

7. Prior to installing the arm the block may be used to determine the number of shims to place under the slides. Adjust the clearance between the slides and the block to provide approximately .06" (1.5mm) running clearance between the slides and arm when installed.

TROUBLE SHOOTING GUIDE

LOADS SLIPPING OR DROPPING

POSSIBLE CAUSES	SOLUTIONS
1. Clamp force set too low	1. Adjust clamp force page 13
2. Internal leakage in cylinder.	2. Replace cylinder seals. If tube, piston or rod is scored replace with new parts.
3. Load too heavy for the clamp capacity	3. Consult factory.
4. Load my not by stacked correctly or may need to be unitized	4. Restack or unitize load (shrink wrap)
5. Bent arms or contact pads	5. Consult factory.
6. Damaged / leaking hydraulic hose	6. Replace damaged hose

CRUSHING LOADS

POSSIBLE CAUSES	SOLUTIONS
1. Clamp force set too high	1. Adjusting clamp force, page 13
2. Bent arms or contact pads	2. Consult factory
3. Leak in bladder system	3. Check for leaks and repair.

ARM CHATTERING OR ERRATIC MOVEMENT

POSSIBLE CAUSES	SOLUTIONS
1. Bent clamp arms	1. Consult factory
2. Nylon slides sticking Note: Sticking slides can cause inconsistent clamp force measurements	2. Clean slides if necessary, the slides are self lubricating.
3. Nylon slides worn, broken or missing.	3. Replace damaged slides, shims and retaining buttons.