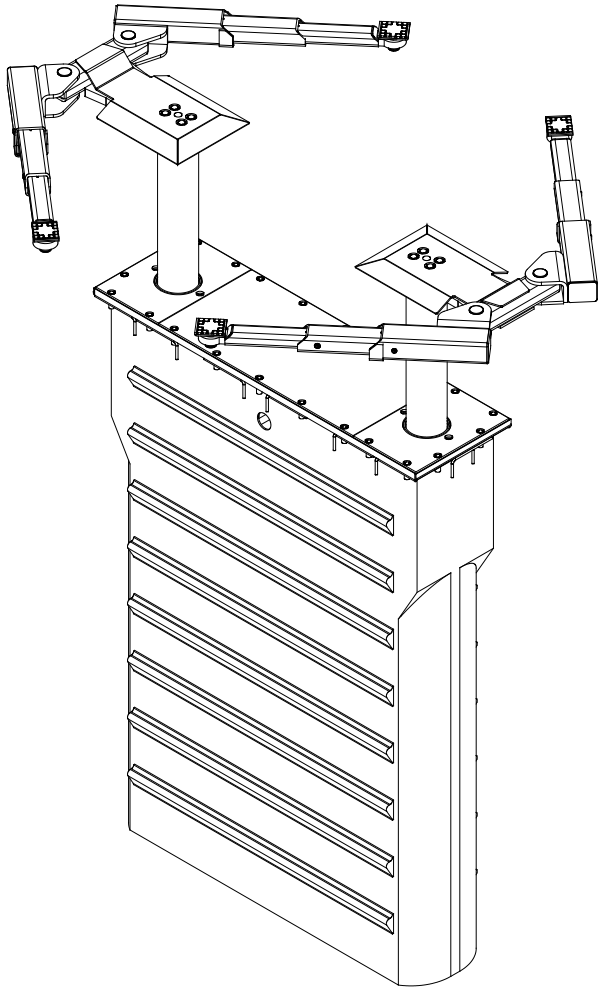
MODEL EV1020 (10,000 LB CAPACITY – 2500 LB PER ARM)
MODEL EV1220 (12,000 LB CAPACITY – 3000 LB PER ARM)
MODEL EV1520 (15,000 LB CAPACITY – 3750 LB PER ARM)

INSTALLATION, OPERATION & MAINTENANCE MANUAL
Two Post, Inground, Cassette EnviroLift™



200 Cabel Street, P.O. Box 3944 Louisville, Kentucky 40201-3944
Email:sales@challengerlifts.comWeb site:www.challengerlifts.com
Office 800-648-5438 / 502-625-0700 Fax 502-587-1933

IMPORTANT: **READ THIS MANUAL COMPLETELY BEFORE INSTALLING or OPERATING LIFT**

Rev. 6/5/12
EV-IOM-A.doc

General Specifications

Lifting Time*……(EV1020) Approximately 40 Seconds
(EV1220) Approximately 48 Seconds
(EV1520) Approximately 60 seconds
Lowering Time*.....Approximately 45 Seconds
Motor.....2HP, 230 Volt, Single Phase, 60 Hz
Optional-2HP, 240 Volt, 3 Phase, 60 Hz
Optional-2HP, 480 Volt, 3 Phase, 60 Hz

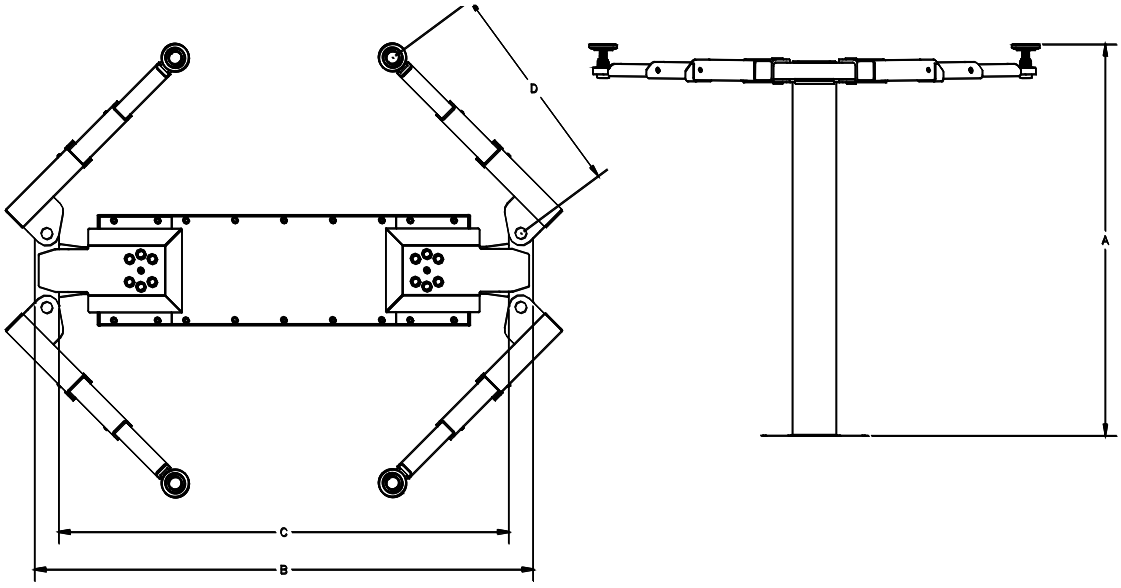
Dimensions

Adapter Height. ……(EV1020) 3 7/8" Minimum / 7 1/8"Maximum
(EV1220) 5"-7 ¼", 8"-10 ¼" (Med. Ext.), 11"- 13 ¼" (High Ext.)
(EV1520) 6 ½"- 8 ¾", 10 ½"- 12 ¾" (Med. Ext.), 14 ½"- 16 ¾" (High Ext.)

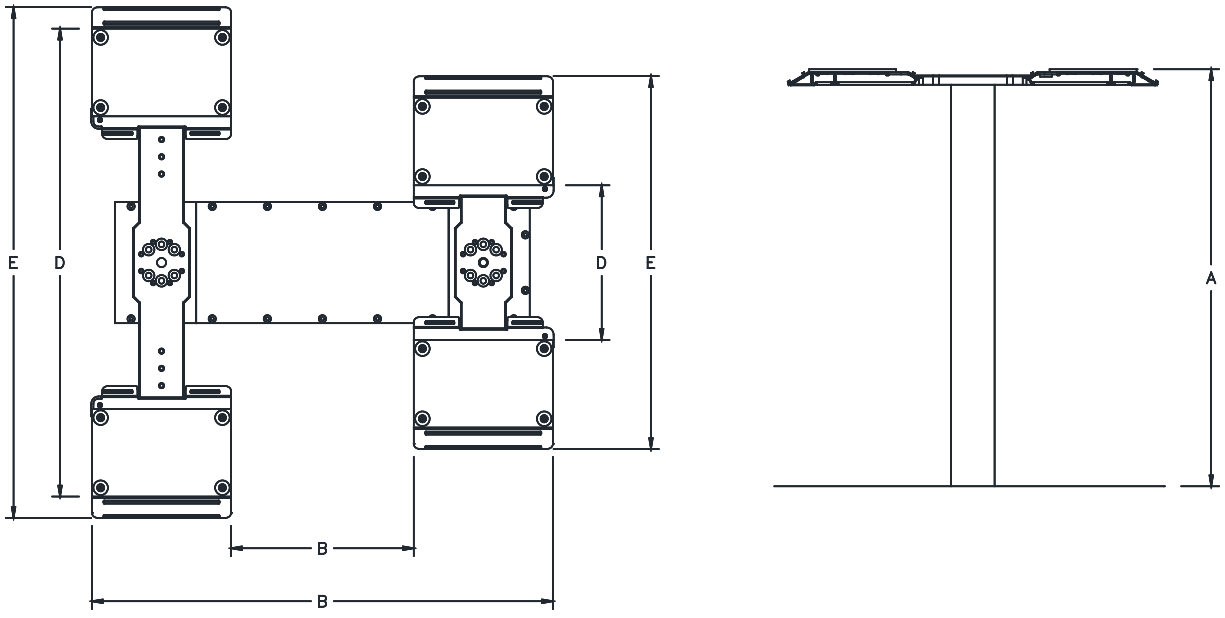
See Page 3	**EV1020**	**EV1020MP9**
A Rise Height (Screw Pads Highest Position)	74 1/8"	70 3/4"
B Overall Width	97"	31 1/2" Min./79 3/4" Max.
C Drive Thru	87"	NA
D Arm/Pad Reach (min/max)	19 5/8" Min / 42" Max	26 1/2" Min./ 80" Max
E Overall Length (min/max)	NA	63 7/8" Min./ 87 1/2" Max.
Lifting Capacity *	**10,000 lbs**	**9,000 lbs.**
Max Load Per Arm/Pad	**2,500 lbs**	**2,250 lbs**

See Page 3	**EV1220**	**EV1520**
A Rise Height (Screw Pads Highest Position)	81 1/4"	84 3/4"
B Overall Width	99"	71 ½"
C Drive Thru	87"	NA
D Arm Reach (min/max)	32" Min / 49 1/4" Max	26 1/4" Min./ 43" Max
Lifting Capacity *	**12,000 lbs**	**15,000 lbs.**
Max Load Per Arm/Pad	**3,000 lbs**	**3,750 lbs**

*Lifting and lowering speeds may vary depending on the type, viscosity and temperature of the oil as well as vehicle weight.



EV1020, EV1220, EV1520



EV1020MP9

VERTICAL CLEARANCE

Check the height of the area where the lift is to be installed. Clearance should be calculated based on the full raised height of the lift.

WARNING **Failure by purchaser to provide adequate clearance could result in unsatisfactory lift performance, property damage, or personal injury.**

LOCATION

This lift has been evaluated for indoor use only with an operating ambient temp. range of 5 – 40°C (41– 104°F)

ELECTRICAL REQUIREMENTS

For lift installation and operation for single phase units, it is necessary to have a dedicated circuit with a double pole 25 amp circuit breaker or time delay fuse

SAFETY NOTICES AND DECALS

For your safety, and the safety of others, read and understand all of the safety notices and decals included here.

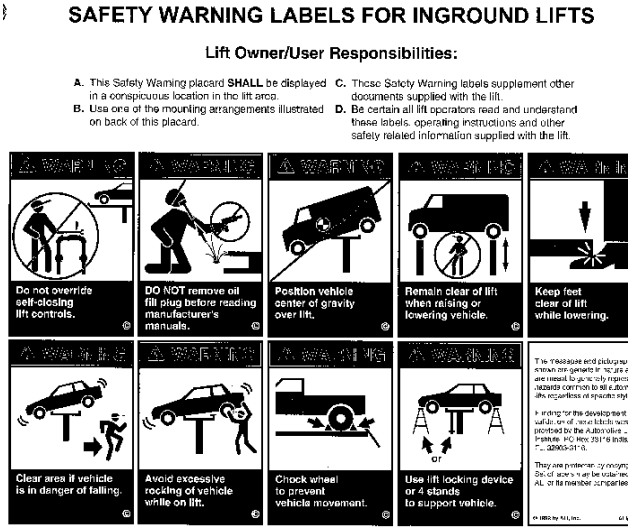
READ ENTIRE MANUAL BEFORE ASSEMBLING, INSTALLING, OPERATING, OR SERVICING THIS EQUIPMENT.

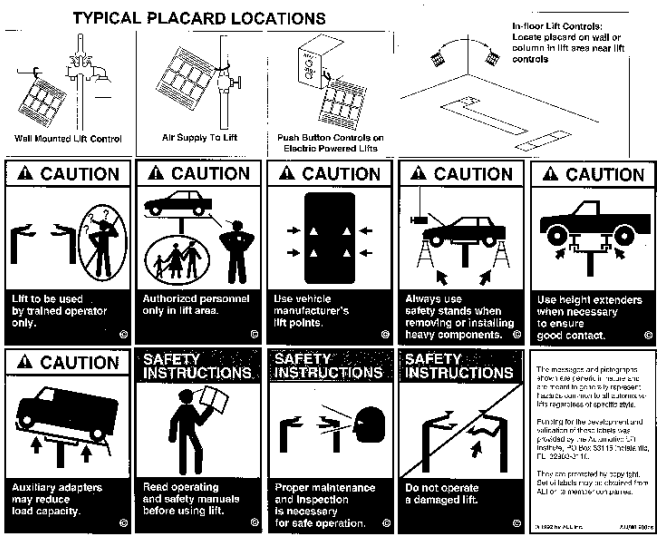
PROPER MAINTENANCE AND INSPECTION IS NECESSARY FOR SAFE OPERATION.

DO NOT OPERATE A DAMAGED LIFT.

Safety decals similar to those shown here are found on a properly installed lift. Be sure that all safety decals have been correctly installed on the Power Unit reservoir. Verify that all authorized operators know the location of these decals and fully understand their meaning. Replace worn, faded, or damaged decals promptly.

WARNING **Do not attempt to raise a vehicle on the lift until the lift has been correctly installed and adjusted as described in this manual.**





WARNING:

> **DO NOT** permit personnel to operate lifts who are not familiar with the information contained in these instructions.
>
> Safety devices and controls are provided for your protection. **DO NOT** alter any devices to serve a special purpose. Never interfere with safety features built into the controls or the lift lock. **DO NOT** block valves open.

Study these instructions carefully to become familiar with the general installation procedure. Before installing your Challenger EnviroLift™, inspect the lift to insure that it is complete and undamaged. If it is apparent that the lift has been mishandled in shipment, or if parts or assemblies are missing, note the damage or missing part(s) on the shipping papers and notify Challenger Lifts, Inc. immediately.

The Challenger 2-Post EnviroLift™ consists of two packages, the lift-containment assy. and an accessory package. This accessory package includes the superstructures, arms, power unit and hardware box.

In addition to the components furnished with the lift, certain tools, equipment, supplies and materials are required. The installer or purchaser of the lift must furnish these items:

Forklift, cherry picker, crane, winch truck, chain falls, winches, or hoist to unload and erect lift;
Machinist level, or four-foot carpenters level to check cylinder plumb;
Drywall Square, chalk line, or transit for bay layout;
Wiring, conduit, wiring devices for electrical power supply, Shop Air supply with filter lubricator;
Hand tools for lift assembly;
2" sch. 40 PVC for air / hyd. chase;
3/8", 4000 psi working/16000 psi min. Burst, hydraulic hose with #6 female 37 deg. flare ends;
Twelve quarts of hydraulic oil;
Five yards pea gravel as backfill.

Installation Procedure

Location

Locate lift to allow plenty of working room on all sides. Allow room for workbenches at front of bay, aisles, lubrication equipment or other obstructions. Check overhead clearances. Ordinarily 12 feet is ample for automobiles. Observe the recommended minimums in Fig 1.

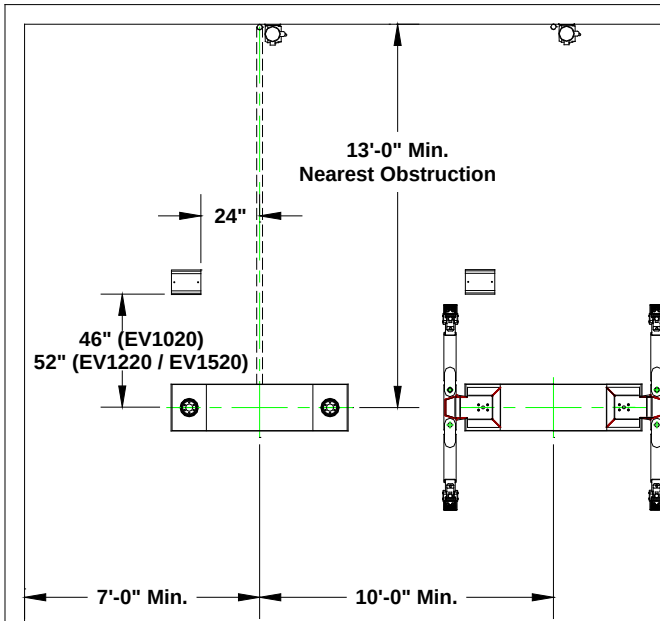


Fig. 1

New Construction Excavation

New construction requires an excavation as shown in Figure 2. All depths are measured from the finished floor level. The power unit may be installed on the nearest wall or floor pedestal. The power unit should be located out of the working area around the lift and vehicle, but close enough to allow good visibility while operating the lift. Hydraulic and air lines from the lift should be recessed under the slab in a 2" sch. 40 PVC chase. CLI will supply the proper coupling to join the PVC chase to the lift.

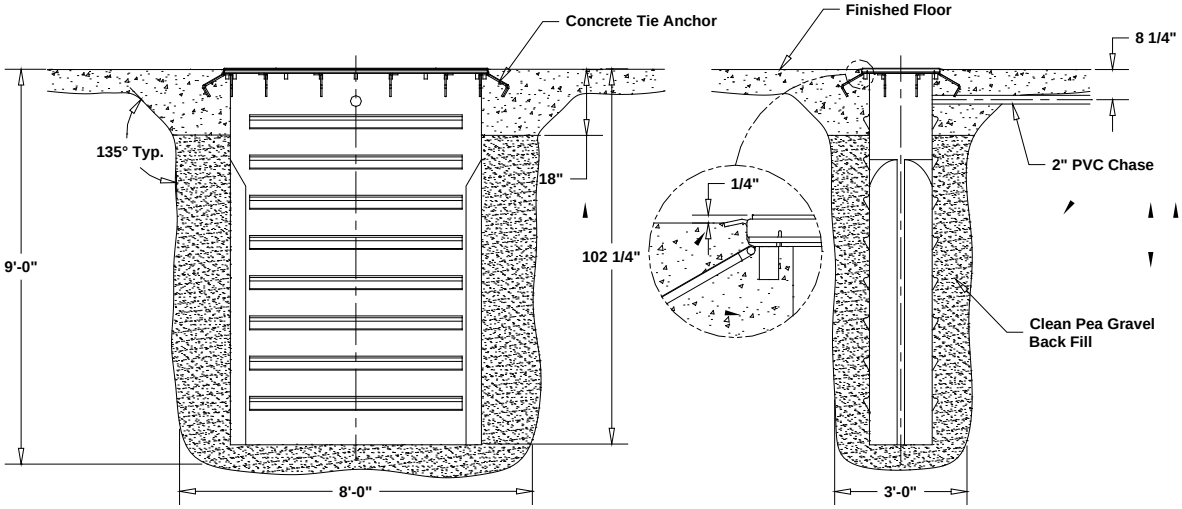


Fig. 2

Existing Facility Excavation

Excavation is the same as in new construction. However, it will be necessary to break out a trench 6"-8" wide by 12" deep to run the PVC chase.

Installation

1. For best balance of lift / containment assembly while lowering into excavation, sling using the shipping straps provided. See Figure 3. DO NOT remove or loosen any of the bearing assembly bolts at this time.

Note: The assembly weighs approximately 2300 lbs.

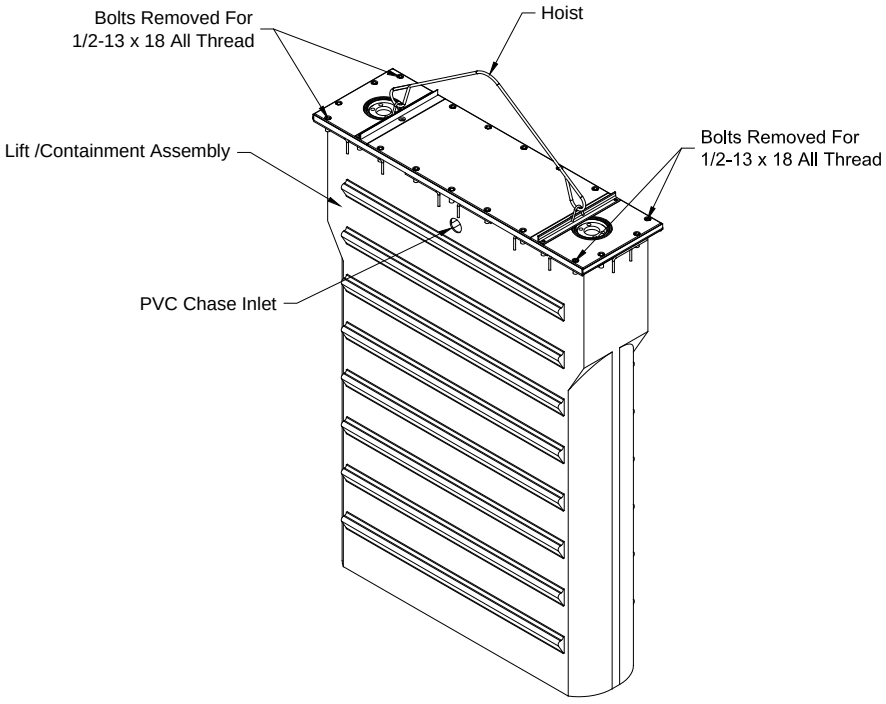


Fig. 3

2. Using a chain hoist and tripod, fork lift, crane, etc. for lifting; lower the lift / containment assembly in the excavation being sure the PVC inlet hole is toward the power unit, until the top of the assembly is 1/8" to 1/4" above finished floor level and aligned with the previously determined center lines. Refer to Figures 1 and 3.

3. Remove the outer two bolts from each end of the center cover plate and replace with ½-13 x 18 threaded rods. Attach two 6 x 6 timbers using ½-13 nuts and washers, to support the lift / containment assembly on the existing floor or forms. Remove the shipping straps and replace the bolts. Torque the bolts to 60 ft-lbs. Bend concrete tie anchors out 90 degrees and down 45 degrees. Refer to Figures 3 and 4.

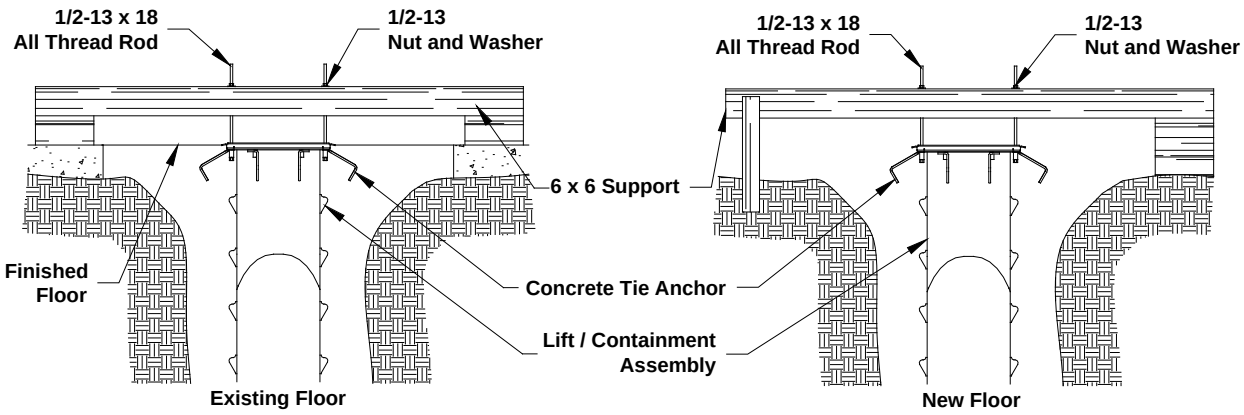
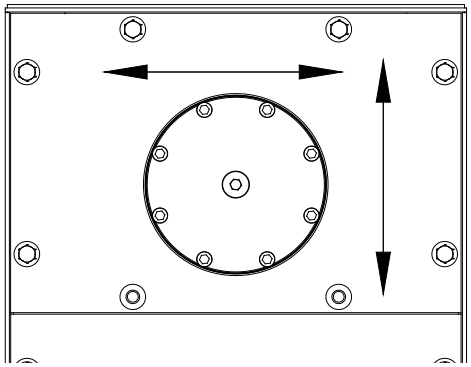


Fig. 4

4. Plumb and level using a machinist level on top of each bearing assembly. Level in several directions. **DO NOT** level off the lift frame.



5. Run the 2" PVC chase from the control area and join to the lift / containment assembly using the coupling provided. Use a soap water solution to ease assembly. All PVC joints must be leak proof. The power unit end of the chase should be finished as shown in Figure 5 to prevent contamination from entering the chase, while allowing the system to breathe.

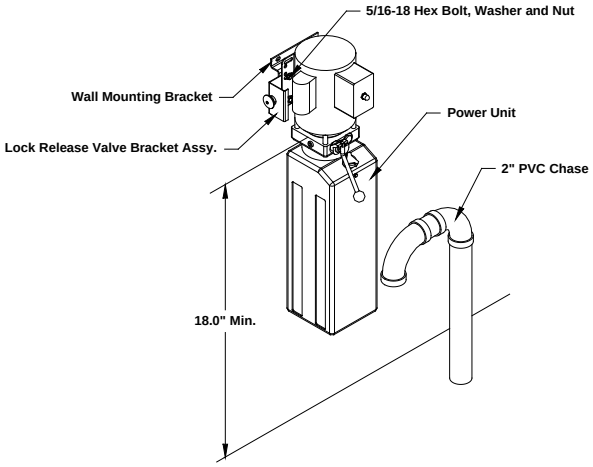


Fig. 5

Note: Mount power unit high enough to avoid inadvertently depressing the lowering valve handle with a tool cart, oil pan, etc.

6. Before beginning to back fill take care to protect the plunger tops, cover joints and hardware from debris. Duct tape should be used to cover these joints. Make sure all factory supplied thread protectors and caps are in place. Recheck plumb and back fill approximately 2 feet with pea gravel. Recheck plumb and continue back filling using pea gravel and rechecking plumb to within 18 inches of finished floor level. **DO NOT** use a mechanical tamper or saturate the fill to achieve compaction, **hand tamp only**.

7. Check plumb and elevation, adjust if necessary. **DO NOT** remove 6 x 6 supports at this time.

Existing Floor

8. Pour concrete floor taking care not to run concrete in or on top of the lift / containment assembly. The floor should slope away from the lift for drainage. The floor slope should not exceed 1/16" per foot. 3500 psi concrete, steel reinforced per local commercial practice is required. The new concrete must be mechanically joined to the existing floor with rebar.

9. After the concrete has set up, remove the 6 x 6 supports and threaded rods. Replace the cover bolts and torque to 60 ft-lbs.

10. **DO NOT** use the lift until the concrete has fully cured to 3500 psi.

New Floor

11. Pour 8" to 12" of concrete around the top of the lift / containment assembly and install rebar to tie in the finished floor. Refer to Figure 6.

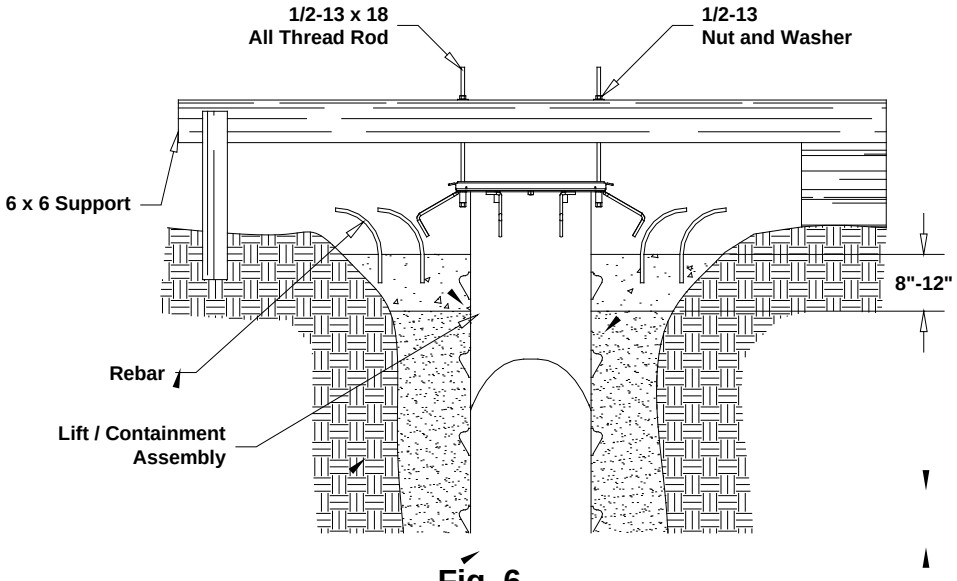


Fig. 6

12. After the concrete has set up remove the 6 x 6 supports and threaded rods. Replace the cover bolts and torque to 60 ft-lbs.

13. Pour concrete floor taking care not to run concrete in or on top of the lift / containment assembly. The floor should slope away from the lift for drainage. The floor slope should not accede 1/16" per foot.

14. **DO NOT** use the lift until the concrete has fully cured to 3500 psi.

15. Install the power unit mounting bracket or floor pedestal using the anchors provided. **IMPORTANT:** The electric motor must be mounted at least 18 inches above the finished floor level as per National Electric Code NFPA70. Assemble the power unit and lock release valve bracket to wall mounting bracket or pedestal with 5/16-18 cap screws and nuts provided. Refer to Figure 5.
16. Connect the power unit to a dedicated 25 Amp electrical branch circuit, using wiring methods prescribed by local codes. Refer to Figure 7.

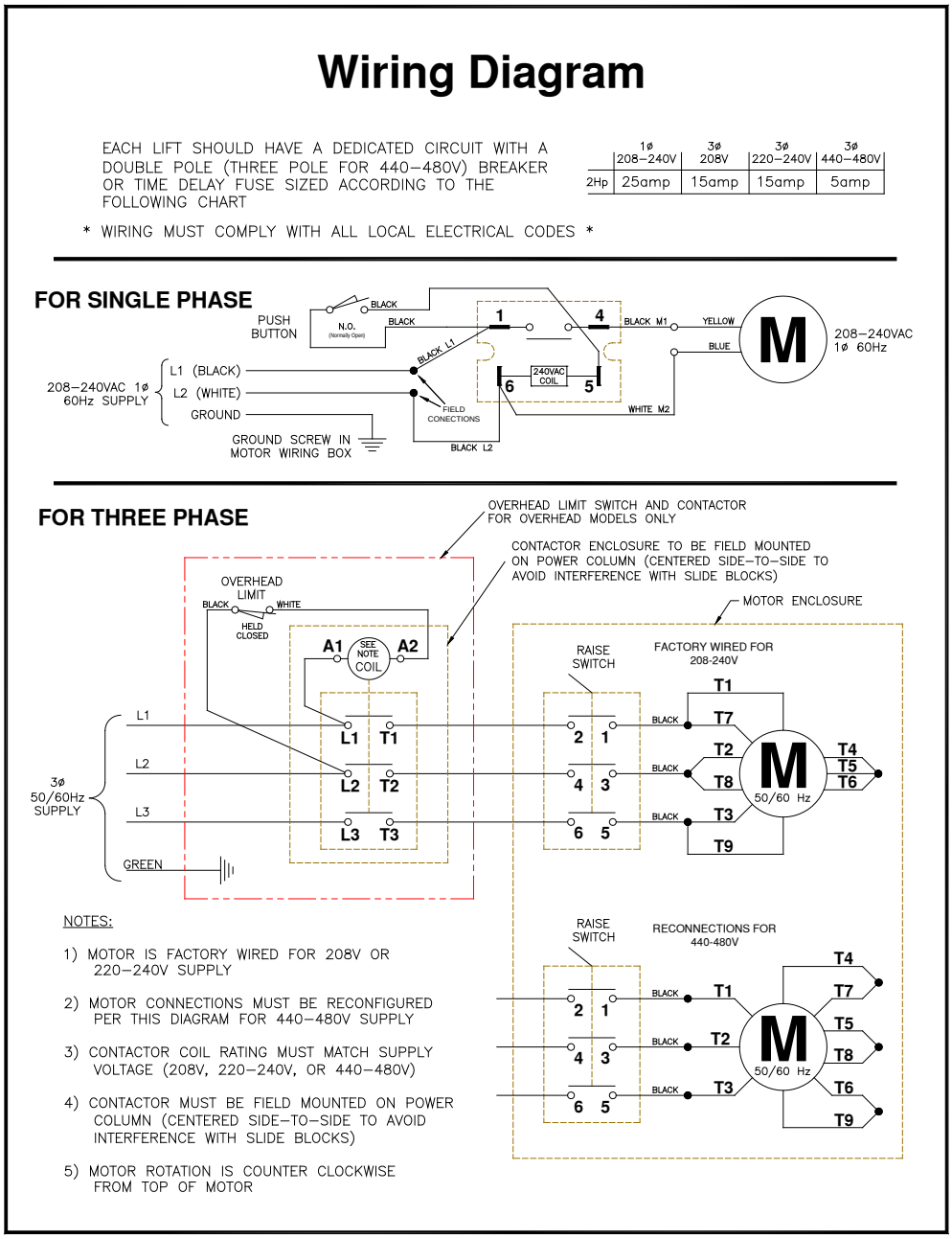


Fig. 7

17. Fill the reservoir with 12 quarts of 10 weight hydraulic oil, ATF, or biodegradable hydraulic oil.

18. Remove the center cover plate from the lift / containment assembly to expose the hydraulic connection. Attach the 37 deg. Union adapter (supplied) to the hard hydraulic line. Attach the 37 deg. Elbow adapter (supplied) to the power unit pressure port. Fish the hydraulic hose assembly through the PVC chase starting at the power unit end.

19. **The shop air supply must be clean, dry, lubricated, and regulated to 90-120 psi.** The air supply must run through a Filter/Regulator/Lubricator (FLR) within

30 feet of factory assembled air valve. **Failure to provide clean, dry lubricated and pressure regulated air will void warranty on pneumatic components.** Push ¼" airline through the PVC chase beginning at the power unit. Connect the airline to the appropriate push lock fittings at each end. Refer to figure 8.
NOTE: DO NOT bypass factory supplied in-line filter.

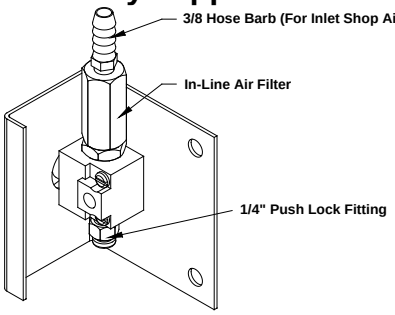


Fig. 8

20. Finish Energize the power unit to run the cylinder up about 3 feet. Loosen the bleed screw at the top of each cylinder, and allow the trapped air to escape. Bleed both cylinders until clear oil is seen. Refer to Figure 9. Raise the lift to full stroke and continue to run the power unit for another 10 seconds to check for hydraulic leaks.

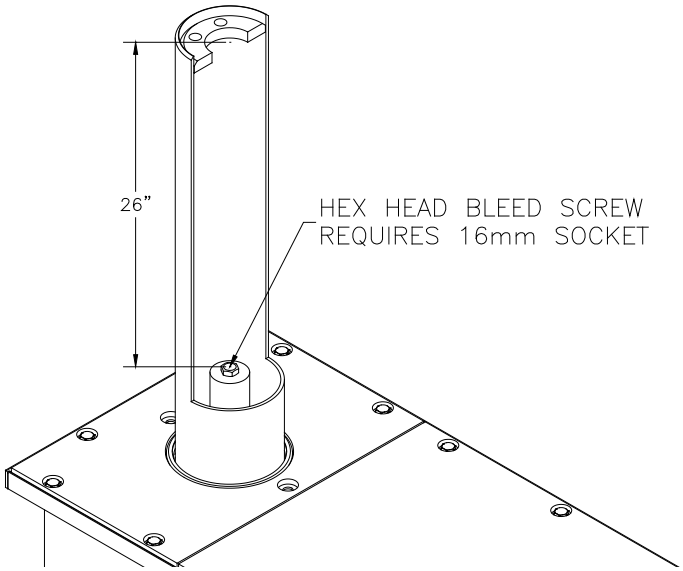


Fig. 9

21. While the lift is in up position actuate the air valve and check for proper operation of the locking mechanism.
22. Replace the center cover plate and torque bolts to 60 ft-lbs.
23. With the plungers raised slight (1"-2") to avoid damaging the wiper. Position the bolster over the pistons and attach using the 7/8-9x3 1/2 cap screws and lock washers provided and torque to 120 ft-lbs. Lightly grease each arm pin and hole with anti-seize and install the swing arms with pins and snap rings.
24. Extend the foot pad to both extents and apply "anti-seize" to the three retaining rings and where the double screw makes contact with the base of the foot pad.
25. With the lift lowered, arms extended fully and foot pad in the lowest position,

check clearance of the foot pad screw to ensure it does not make contact with the floor. Use the height adjustment bolt (see figure 10) to either raise or lower the bolster as necessary. If there is more then 3/8" of clearance on both screws with the bolt fully seated against the bottom of the bolster remove the bolt.

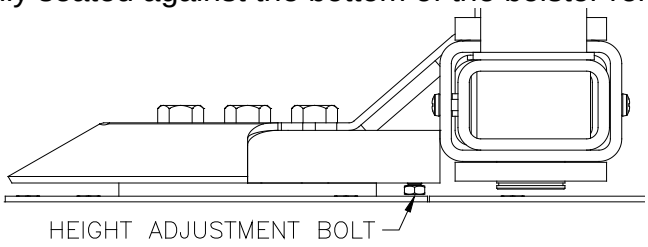


Fig. 10

26. Locate and install the wheel-spotting pan using the anchors provided. Refer to Figure 1. These are recommended dimensions only and may vary according to the fleet of vehicles being serviced.
26. Finish installation by cleaning around the top of the lift / containment unit and Thoroughly seal joints between the cover plate, bearing plates, and the perimeter with a premium silicone caulk.

FEMALE ARM SHIM INSTALL (3-STAGE ARMS ONLY)

27. Extend the arm fully and lift up on the male portion, Fig 11.
28. Using a hammer to set, place the shim on the mouth of the female arm. Use the provide self-locking set screw and 1/8" Allen head wrench to securely lock the shim in place.

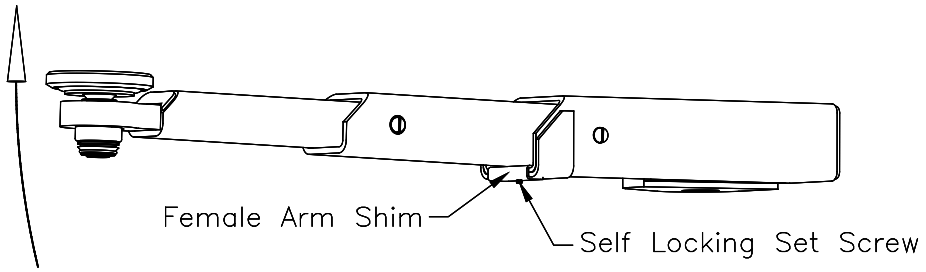


Fig 11 – Arm Shim, 3-Stage

Lifting a Vehicle

Be sure the adapters are in the lowered position and the arms are parked as seen in Figure 1 before attempting to drive on or off of the lift. Failure to do so may damage the adapters or vehicle.

Drive vehicle over the lift until the left front wheel is positioned in the spotting pan. This will approximately position the center of gravity of the vehicle over the center of the lift superstructure. This is an approximation and some adjustment may be necessary depending on wheelbase and weight distribution. Adjust the adapters laterally and fore and aft to contact points of maximum stability in accordance with the vehicle manufacturer's recommended lifting points.

Remember that positioning the adapters to yield the widest and longest distances between points of contact with the vehicle lifting points provides the maximum stability.

Adapters may be used in lowered, intermediate or raised height positions as necessary to clear mufflers, pipes, brake lines etc. To obtain maximum stability when adapters are used at maximum height position, front and rear adapters should be rotated to oppose each other.

When Lifting Framed vehicles it is suggested that you use the Frame Engaging Adapters ((10318) Optional on 10k, Provided on 12k & 15k). Failure to do so on slick (undercoated) and or pitched frame rails may result in personal or property damage.

To raise depress the run switch on the power unit and hold until the vehicles tires just clear the floor. **STOP** and check adapters for proper contact of vehicle manufacturers recommended lifting points and stability of the vehicle. Continue to raise the vehicle to a few inches above the desired working height. Lower the lift by depressing the lowering valve handle until the lock is engaged. **DO NOT** go under vehicle unless lock is engaged and all four adapters are securely contacting the vehicle manufacturers recommended lifting points.

Lowering a Vehicle

To lower, raise lift slightly and disengage lock by depressing lock release palm button. Continue to hold lock release palm button and depress the lowering valve handle until the lift is completely lowered. Return adapters to there lowest position and park the swing arms to provide unobstructed exit of the vehicle.

Trouble Shooting

If any problems are encountered please contact your local Challenger Representative.

OWNER/OPERATOR CHECKLIST

29. Demonstrate the operation of the lift to the owner/operator and review correct and safe lifting procedures using the **Lifting It Right** booklet as a guide.
30. Complete the Installation Checklist/Warranty Validation questionnaire with the owner. Review the terms of the warranty registration card, and return the card and a copy of the questionnaires to:

Challenger Lifts, Inc.

200 Cabel Street

Louisville, KY. 40206

OPERATION PROCEDURE

SAFETY NOTICES AND DECALS

This product is furnished with graphic safety warning labels, which are reproduced on page 3 of these instructions. Do not remove or deface these warning labels, or allow them to be removed or defaced. For your safety, and the safety of others, read and understand all of the safety notices and decals included.

OWNER/EMPLOYER RESPONSIBILITIES

This lift has been designed and constructed according to ANSI/ALI ALCTV-2006 standard. The standard applies to lift manufactures, as well as to owners and employers. The owner/employer's responsibilities as prescribed by ANSI/ALI ALOIM-2000, are summarized below. For exact wording refer to the actual standard provided with this manual in the literature pack.

The Owner/Employer shall insure that lift operators are qualified and that they are trained in the safe use and operation of the lift using the manufacturer's operating instructions; ALI/SM 93 - 1, ALI Lifting it Right safety manual; ALI/ST-90 ALI Safety Tips card; ANSI/ALI ALOIM-2000, American National Standard for Automotive Lifts-Safety Requirements for Operation, Inspection and Maintenance; ALI/WL Series, ALI Uniform Warning Label Decals/Placards; and in case of frame engaging lifts, ALI/LP-GUIDE, Vehicle Lifting Points/Quick Reference Guide for Frame Engaging Lifts.

The Owner/Employer shall establish procedures to periodically inspect the lift in accordance with the lift manufacturer's instructions or ANSI/ALI ALOIM-2000, American National Standard for Automotive Lifts-Safety Requirements for Operation, Inspection and Maintenance; and the employer shall insure that the lift inspectors are qualified and that they are adequately trained in the inspection of the lift.

The Owner/Employer shall establish procedures to periodically maintain the lift in accordance with the lift manufacturer's instructions or ANSI/ALIOIM-2000, American National Standard for Automotive Lifts-Safety Requirements for Operation, Inspection and Maintenance; and the employer shall insure that the lift maintenance personnel are qualified and that they are adequately trained in the maintenance of the lift.

The Owner/Employer shall maintain the periodic inspection and maintenance records recommended by the manufacturer or ANSI/ALI ALOIM-2000, American National Standard for Automotive Lifts-Safety Requirements for Operation, Inspection and Maintenance.

The Owner/Employer shall display the lift manufacturer's operating instructions; ALI/SM 93 - 1, ALI Lifting it Right safety manual; ALI/ST-90 ALI Safety Tips card; ANSI/ALI ALOIM-2000, American National Standard for Automotive Lifts-Safety Requirements for Operation, Inspection and Maintenance; and in the case of frame engaging lift, ALI/LP-GUIDE, Vehicle Lifting Points/Quick Reference Guide for Frame Engaging Lifts; in a conspicuous location in the lift area convenient to the operator.

IMPORTANT SAFETY INSTRUCTIONS

When using your garage equipment, basic safety precautions should always be followed, including the following:

1. Read all instructions.
2. Care must be taken as burns can occur from touching hot parts.
3. To reduce the risk of fire, do not operate equipment in the vicinity of open containers of flammable liquids (gasoline).
4. Keep hair, loose clothing, fingers, and all parts of body away from moving parts.
5. Use only as described in this manual. Use only manufacturer's recommended attachments.
6. ALWAYS WEAR SAFETY GLASSES. Everyday eyeglasses only have impact resistant lenses, they are not safety glasses.

SAVE THESE INSTRUCTIONS

Maintenance

To avoid personal injury, permit only qualified personnel to perform maintenance on this equipment. Maintenance personnel should follow lockout/tagout instructions per ANSI Z244.1.

The following maintenance points are suggested as the basis of a routine maintenance program. The actual maintenance program should be tailored to the installation. See ANSI/ALI ALOIM booklet for periodic inspection checklist and maintenance log sheet.

- If lift stops short of full rise or chatters, check fluid level and bleed both cylinders per Installation Instructions.
- Replace all Safety, Warning or Caution Labels if missing or damaged (***See Installation instructions page 3***.)

Daily

Drain water from air supply to avoid contamination of lock release components.

Check lock operation. The lock operation should be heard as lift is raised.

Inspect lifting adapters for damage.

Keep area around lift / containment assembly clean and free of dirt, sand, water, etc. to prevent scoring of the plunger.

Remove excess grease and debris from plunger by wiping them down with a clean cloth.

Monthly

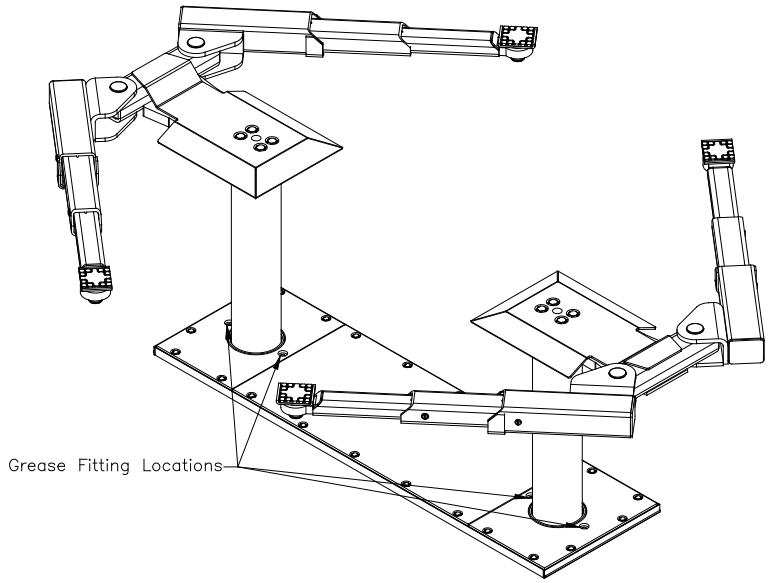
Check fluid level in the power unit.

Check for proper torque on all superstructure bolts (120 ft-lbs.).

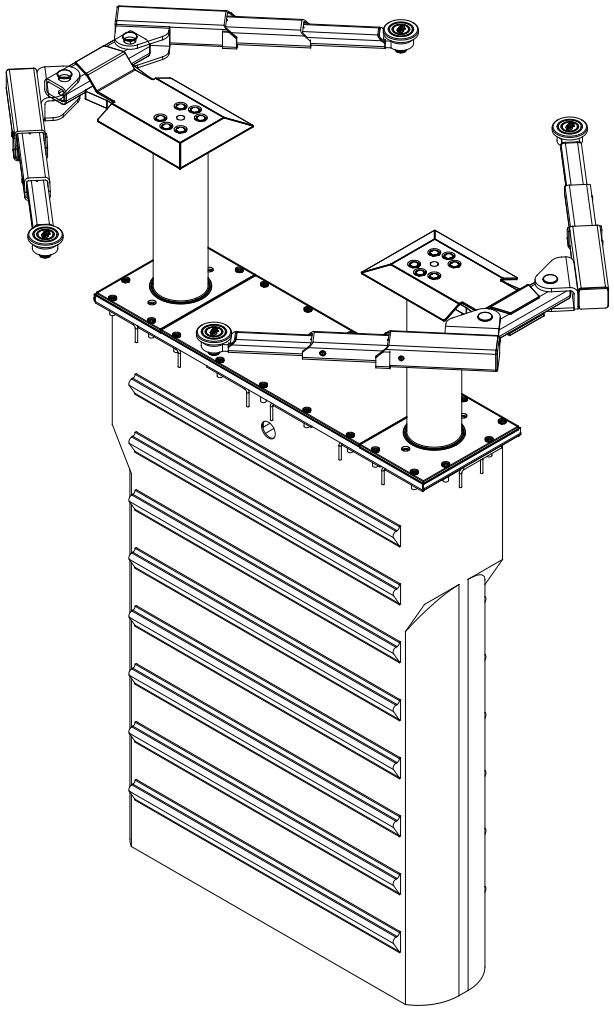
Clean and lubricate lifting arm pins and pads.

Quarterly

Grease Lift Guide bearings using Mobil 1, SHC1500 synthetic grease. Each guide bearing is supplied with two grease zerk and should take 10-12 pumps (hand pump only) while raising and lowering the lift empty.

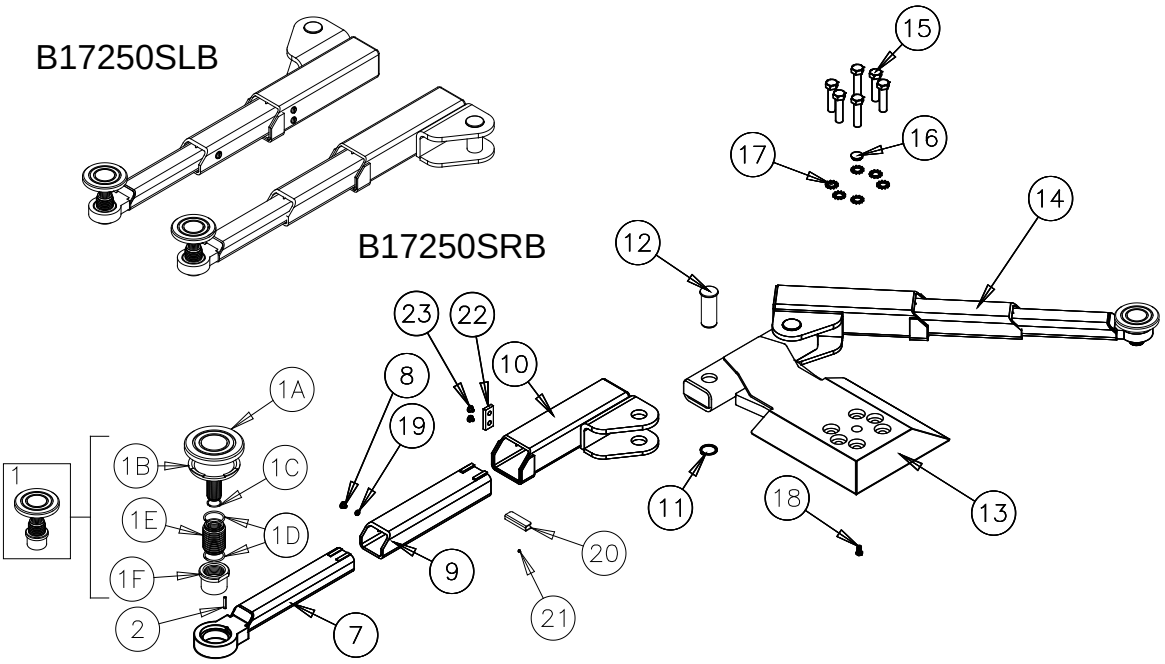


Parts Break Down
Model EV1020, EV1220, EV1520



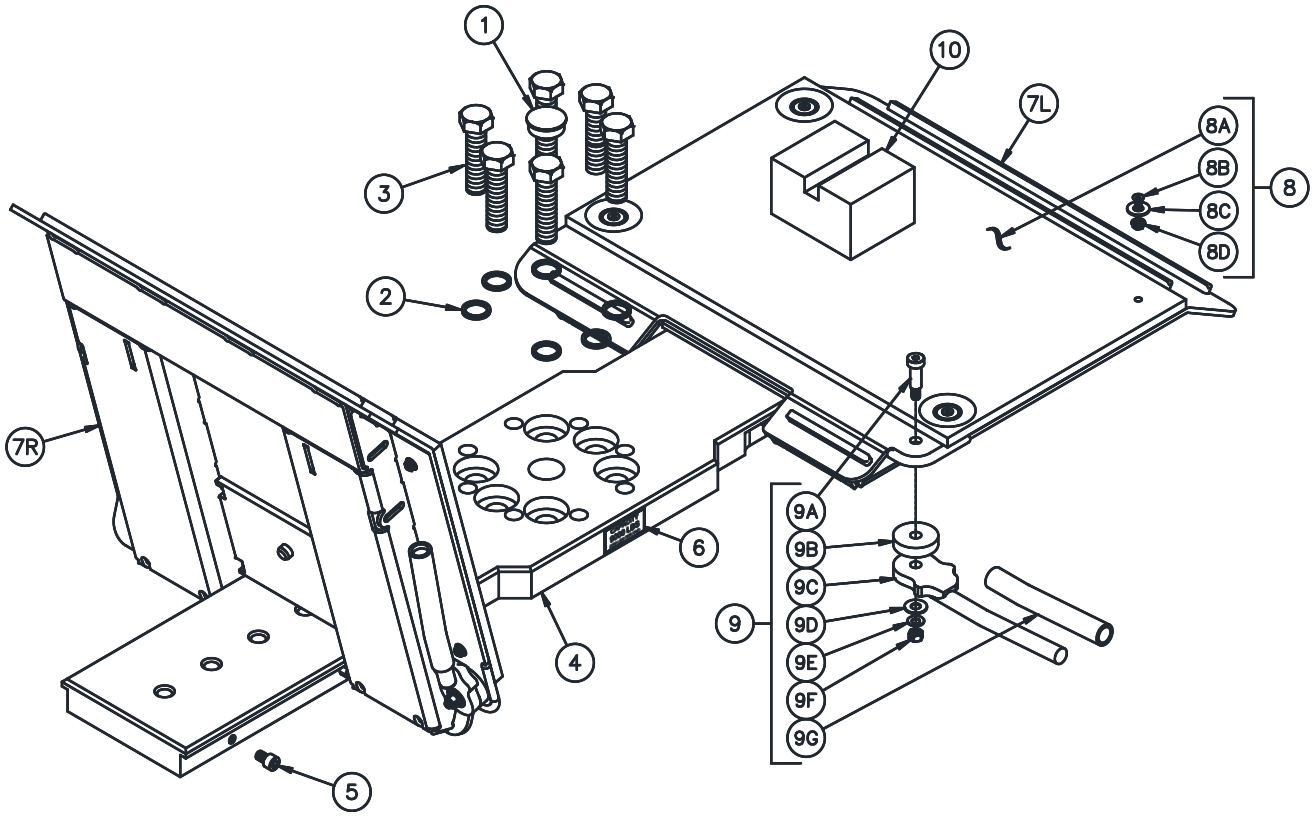
IMPORTANT

Replace all worn or broken parts with **genuine Challenger Lifts, Inc. parts**. Contact your local Challenger Lifts parts distributor for pricing and availability. Call Challenger Lifts, Inc. at **(502) 625-0700** for the distributor in your area.



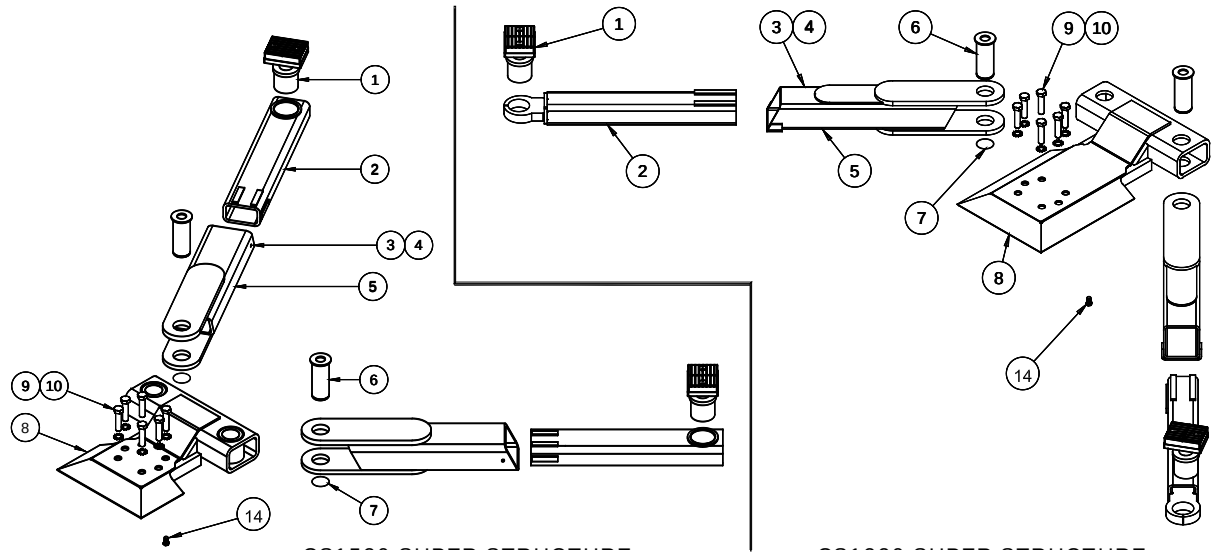
EV1020 Super Structure

Item	Part	Qty. / Lift	Description
1	B2260	4	Foot Pad Assembly (items 1A-1F)
1A	B2208	4	Rubber Insert
1B	B2262	4	Foot Pad Weld
1C	B17256	4	2 x 30mm Retaining Ring
1D	B17257	8	3 x 45mm Retaining Ring
1E	B2261	4	Threaded Sleeve
1F	B17276-1	4	Threaded insert
2	B2211	4	Roll Pin, 6mm DIA x 30mm Lg.
7	CS1020-01-03-00	2	Male Arm Weld Left
	B2218		Male Arm Weld Right
8	CS1020-01-05B	4	M12 Stop Screw
9	CS1020010200B	2	Intermediate Arm Weld Left
	CS1020020200B		Intermediate Arm Weld Right
10	CS1020010100B	2/2	Female Arm Weld Left
	CS1020020100B		Female Arm Weld Right
11	16125	4	1-7/8 Snap Ring
12	B17259	4	Arm Pin
13	B17001EV	2	Bolster
14	B17250SLB	2	3-Stage Arm Assembly Left
	B17250SRB		3-Stage Arm Assembly Right
15	16473	8	7/8-9 x 3 ½ Hex Head Capscrew
16	16160	2	1-¼" Finishing Plug
17	16154	8	7/8" External Tooth Lock Washer
18	17314	2	M12x1.75 x 20mm, HHCS, Gr. 8.8, ZINC PLT'D
19	CS1020-01-09A	AS	12mm FLAT WASHER, 1mm THICK
20	17425	4	Female Arm Shim, 3-Stage
21	17426	4	¼-20 x ¼" Lg. Self Lock Set Screw
22	CS1020-04	4	Stop Block
23	17350	8	8mm x 10mm Lg. Flat Head Bolt



EV1020MP9 Super Structure

Item	Part	Qty./Lift	Description
1	16160	2	CENTER HOLE CAP
2	16154	12	7/8" EXT. TOOTH LOCK WASHER
3	16154	12	7/8"-9 x 3 1/2" HEX HEAD CAP SCREW
4	P049-68EV	2	PAD BOLSTER
5	CAL044	8	M10 x 15mm SOCKET HEAD CAP SCREW
6	10341-28	2	CAPACITY LABEL, 9000 LBS (2250/PAD)
7L	10341-05L	2	PAD ADAPTER WELD (LEFT)
7R	10341-05R	2	PAD ADAPTER WELD (RIGHT)
8	**10341-04**	**4**	**RUBBER PAD KIT (1 PAD w/HARDWARE)**
8A	10341-25	4	RUBBER PAD
8B	10341-26	16	1/4-20NC x 1 FLAT HEAD SOCKET CAP SCREW, ZINC PLATED
8C	31036	16	3/8 FLAT WASHER, ZINC PLATED
8D	40085	16	1/4-20NC HEX SERRATED FLANGE NUT, ZINC PLATED
9	**10341-02**	**4**	**TIRE HANGER KIT (OPTIONAL)**
9A	10341-23	4	1/2 x 1 1/4 SHOULDER BOLT, 18-8 STAINLESS STEEL
9B	10341-14	4	TIRE HANGER BEARING
9C	10341-06	4	TIRE HANGER WELD
9D	31036	4	3/8 FLAT WASHER, ZINC PLATED
9E	10341-29	4	BELLEVILLE DISC SPRING WASHER, STAINLESS STEEL
9F	10341-24	4	3/8-16NC STEEL LOCKNUT, ZINC PLATED
9G	10341-27	4	WHEEL PROTECTOR HOSE
10	63101	4	NOTCHED SPOTTING BLOCK (3" Tall)



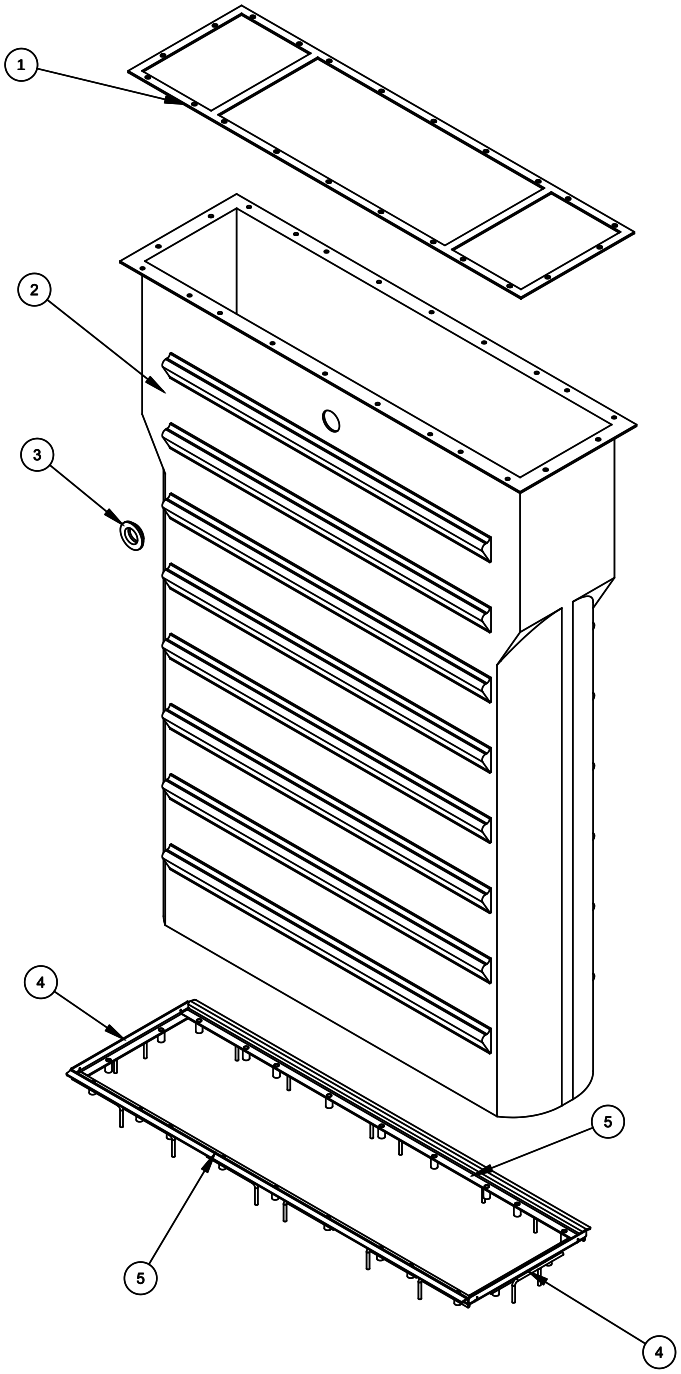
EV1520 Super Structure

Item	Part	Qty / Lift	Description
1	B12062	4	Screw Pad Assembly
2	16458	4	15K Male Arm Weld
3	31305	4	3/8 Self Tapping Bolt
4	31037	4	3/8 Split Lock Washer
5	16461	4	15K Female Arm Weld
6	16464	4	2 ¼" dia Arm Pin
7	16489	4	2 ¼" External Snap Ring
8	16440	2	15K Bolster (Machined)
9	16473	12	7/8-9 x 3 ½" lg Hex Head Cap Screw
10	16154	12	7/8 External Tooth Lockwasher
11	12068	4	8" Stack Adapter *(Not Shown)*
12	12069	4	4" Stack Adapter *(Not Shown)*
13	12071	1	Adapter Rack *(Not Shown)*
14	17314	2	M12x1.75 x 20mm, HHCS, Gr. 8.8, ZINC PLT'D

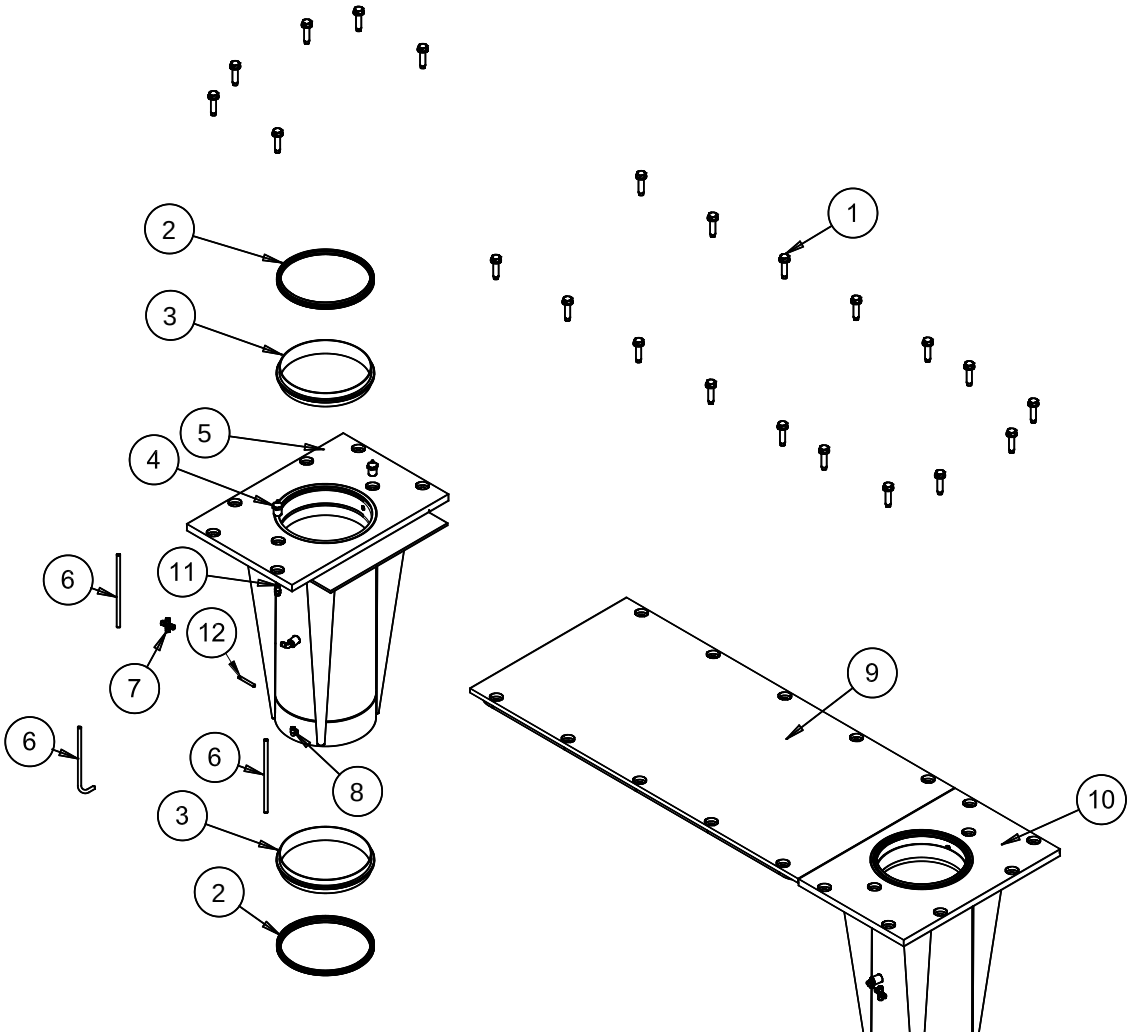
EV1220 Super Structure

Item	Part	Qty / Lift	Description
1	B12062-12	4	Screw Pad Assembly
2	B16455	4	12K Male Arm Weld
3	B31305	4	M10 x 14 Phillips Pan head Screw
4	B31037	4	10mm Split Lock Washer
5	B16452	4	12K Female Arm Weld
6	B16464	4	57.15mm Dia. Arm Pin
7	B16489	4	58mm External Snap Ring
8	B16448	2	12K Bolster (Machined)
9	16473	12	7/8-9 x 3 ½" lg Hex Head Cap Screw
10	16154	12	7/8 External Tooth Lockwasher
11	B2206-6	4	6" Stack Adapter *(Not Shown)*
12	B2206-3	4	3" Stack Adapter *(Not Shown)*
13	B2209	1	Adapter Rack *(Not Shown)*
14	17314	2	M12x1.75 x 20mm, HHCS, Gr. 8.8, ZINC PLT'D

Containment

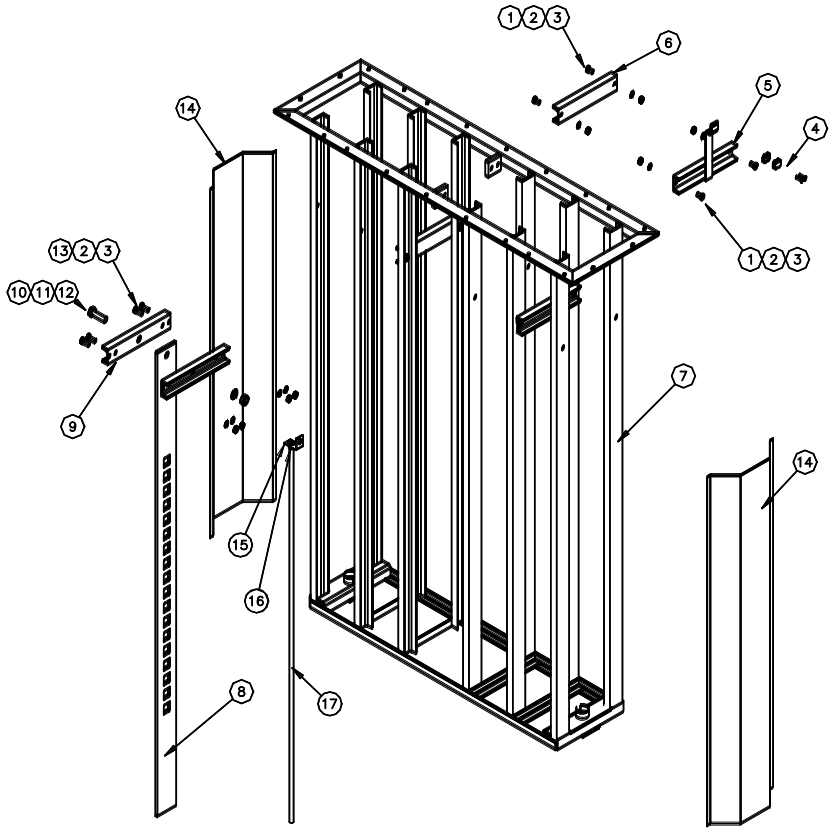


Item	Part	Qty./Lift	Description
1	17200	1	Single Piece Rubber Gasket
2	16380	1	Containment Tub (Not Serviceable after Installation)
3	15009	1	2" PVC Grommet (Not Serviceable after Installation)
4	17321	2	Concrete Tie Weld-Short (Not Serviceable after Installation)
5	17320	2	Concrete Tie Weld-Long (Not Serviceable after Installation)



Bearings

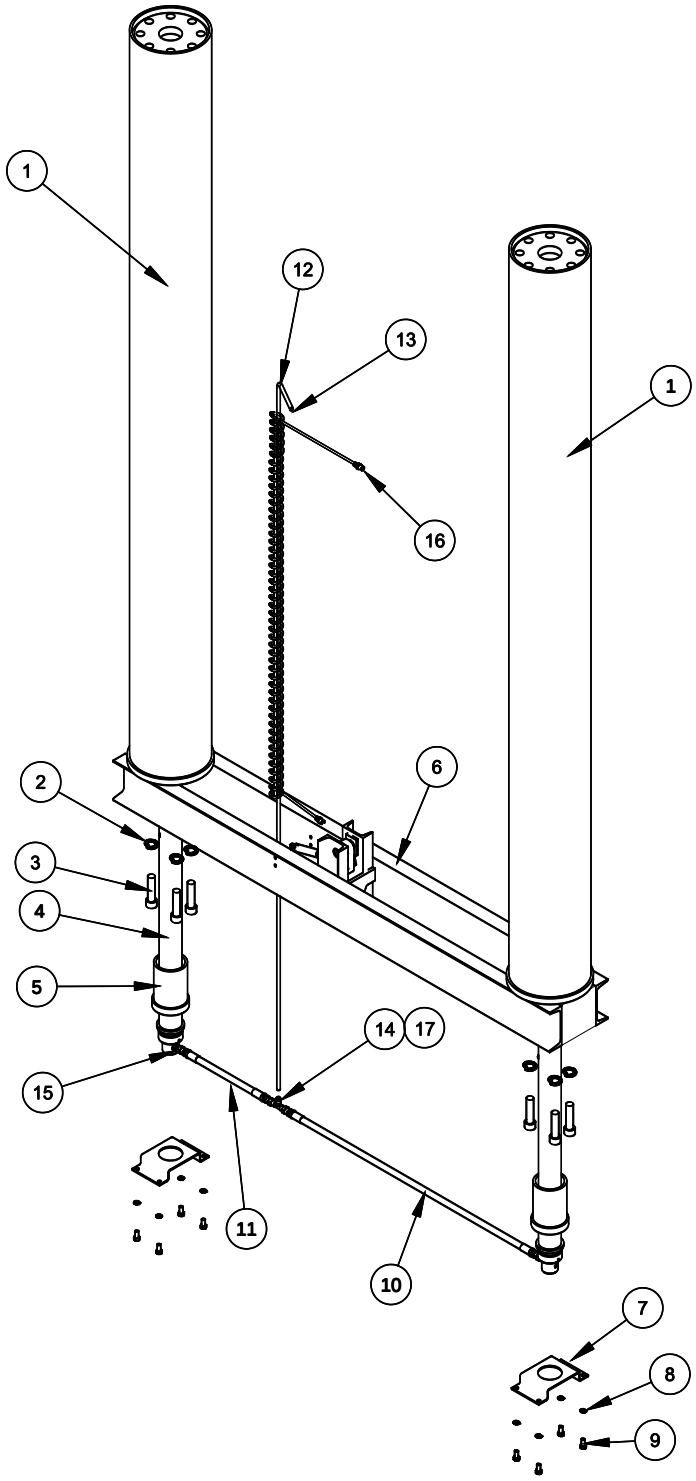
Item	Part	Qty / Lift	Description
1	16116L	22	½-13 x 2”lg Hex Flange Head Bolt
2	16485EV	4	Wiper
3	16486EV	4	Bearing
4	VS5096	2	1/8 NPT Grease Fitting
5	B17212	2	Bearing Weld
6	16132	12	¼” x 12” lg Grease Line
7	17410	4	¼” Push Lock Cross
8	16129	12	1/8 NPT x ¼” Push Lock Elbow
9	16429	1	Cover Plate
10	17205	2	Bearing Assembly
11	16163	4	Male Connector 1/4 Tube x 1/8 NPT
12	17411	4	¼” x 2” Grease Line



Frame

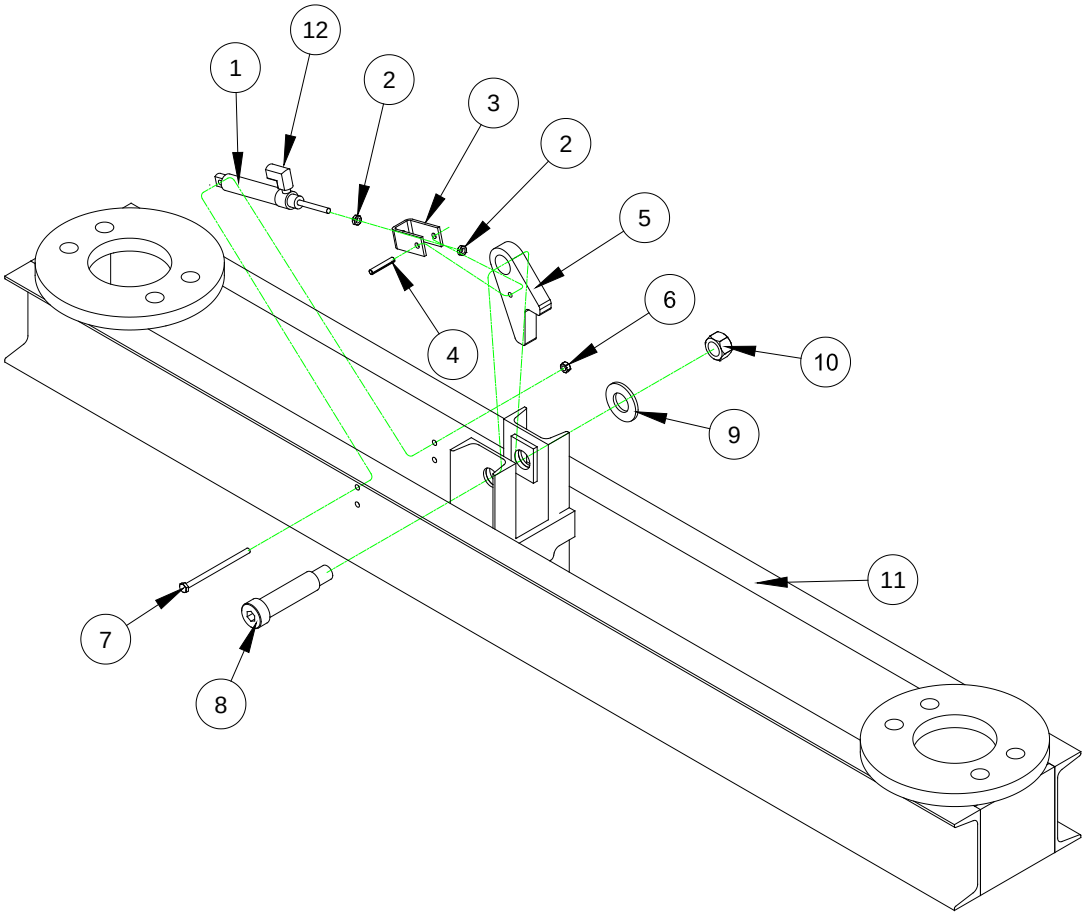
Item	Part	Qty./Lift	Description
1	16157	8	½-13 x 1 Frame Support Bolt
2	16158	12	½" External Tooth Lock washer
3	16159	12	½-13 Hex Nut
4	15010	1	Hydraulic Line Clamp
5	16411	1	Frame Support Weld
6	16410	3	Frame Support
7	16400	1	Frame Weld (Not Serviceable after Installation)
8	16413	1	Lock Ladder
9	16412	2	Ladder Rail
10	16153	1	7/8-9 x 3 Lock Ladder Bolt
11	16154	1	7/8" External Tooth Lock washer
12	16155	1	7/8-9 Hex Nut
13	16470	4	½-13 x 1 ¾ Ladder Rail Bolt
14	16373	2	End Shield
15	16517	1	Hanger Bracket
16	16528	1	½” EMT Connector
17	17206	1	Chase, Evac Tube

Plunger/Rail Assembly



Plunger/Rail Assembly

Item	Part	Qty./Lift	Description
1	16480C	2	Chrome Plunger
2	16154	8	7/8" Split Lock Washer
3	16475	8	7/8-9 x 3 1/2 Socket Head Cap Screw
4	16138R	2	2 x 68 Hydraulic RAM Cylinder (EV1020/EV1220)
	15075	2	2.5 x 68 Hydraulic Cylinder (EV1520)
5	16139	2	Cylinder Sleeve (EV1020/EV1220)
6	16483	1	Synch. Rail Assembly
7	16428EV	2	Cylinder Capture Plate (EV1020/EV1220)
	16422	2	Cylinder Capture Plate (EV1520)
8	16142	8	3/8" External Tooth Lock washer
9	16143	8	3/8-16 x 3/4 Hex Head Capscrew
10	16397H	1	Cylinder Hose – 38”
11	16398H	1	Cylinder Hose – 14”
12	16146	1	Hydraulic Feed Line
13	15011	1	Union / Adapter
14	17209	1	Male Branch Tee (#6 JIC Male x ¼” NPT)
15	17207	2	Straight Thread Connector (9/16-18)
16	40239	1	Coiled Air Line
17	17208	1	Female Connector (1/4” FNPT x 3/8 Metal Tube)
18	17201	1	Cassette Hose & Fitting Kit (Includes items 10,11,14,15,17)



Synchronizing Rail

Item #	Part #	Qty./Lift	Description
1	40142	1	3/4 x 1 ½ Reverse Single Acting Air Cylinder
2	40144	2	1/4-28 Hex Jam Nut
3	16214	1	Air Cylinder Clevis
4	16215	1	1/4 x 1 ½ Roll Pin
5	16213	1	Locking Pawl
6	36059	1	1/4-20 Nylon Locknut
7	16468	1	1/4-20 x 6 Hex Head Cap screw
8	16467	1	1 x 2 ½ Shoulder Bolt
9	31183	1	1" Flat Washer
10	31068	1	3/4-10 Nylon Locknut
11	B16414	1	Synchronizing Rail Weld
12	16165	1	1/8 Male NPT x ¼ Female NPT, Brass Street Elbow