

CL Challenger Lifts

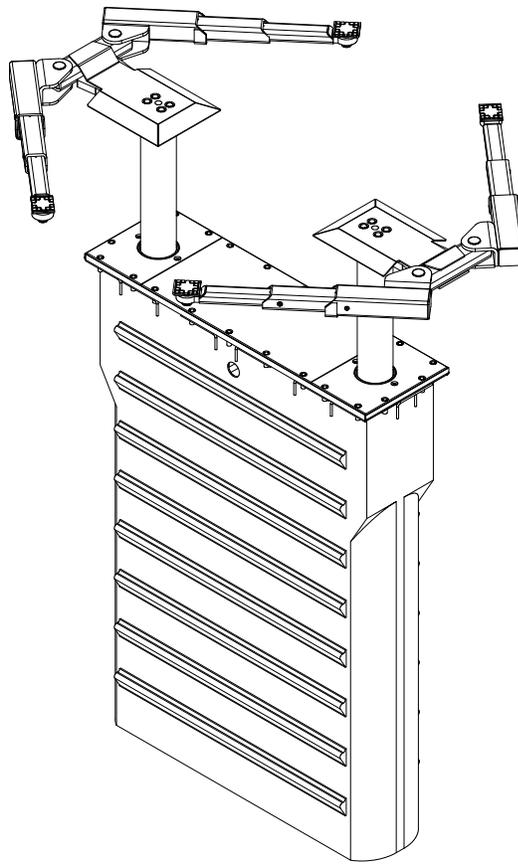
MODELS: EV1020 / EV1020-QC

(10,000 LB CAPACITY – 2500 LB PER ARM)

MODELS: EV1220 / EV1220-QC

(12,000 LB CAPACITY – 3000 LB PER ARM)

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



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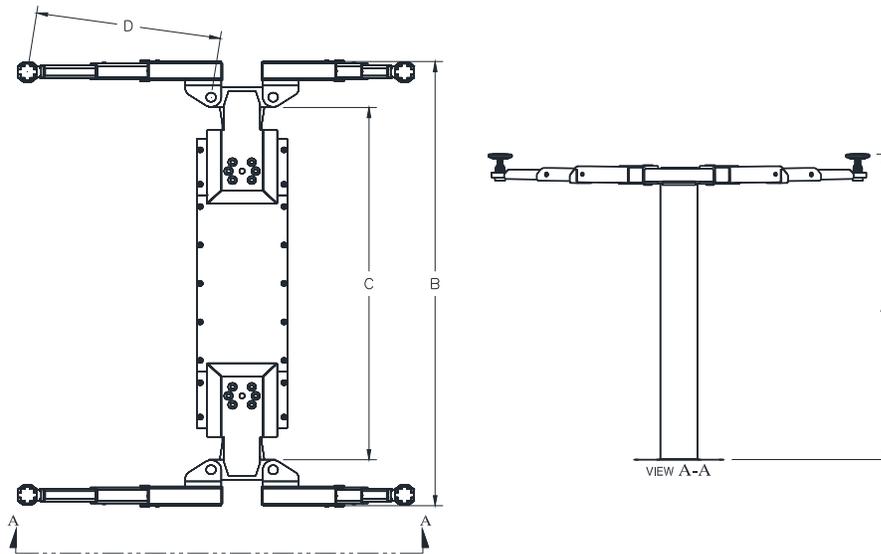
IMPORTANT: READ THIS MANUAL COMPLETELY BEFORE
INSTALLING or OPERATING LIFT

Models EV1020, EV1220
Installation, Operation and Maintenance
General Specifications

See Page 3	EV1020	EV1220
A Rise Height (Screw Pads Highest Position)	78"	78"
B Overall Width	110 1/4"	115"
C Drive Thru	83 1/2"	87"
D Arm Reach (min/max)	19 5/8" Min / 42 1/8" Max	19 5/8" Min / 48" Max
Screw Pad Height	4 1/8" Min. / 6 1/8" Max.	4-1/2" Min. - 6-1/4" Max. 7-1/2" – 9-1/4" (Med. Ext.) 10-1/2" – 12-1/4" (High Ext.)
*Lifting Capacity (Hydraulic Pressure at Cap.)	10,000 lbs. (2550 psi)	12,000 lbs. (2500 psi)
Max Load Per Arm/Pad	2,500 lbs.	3,000 lbs.
**Lifting Time (approx. Standard / QC)	41 / 25Sec.	63 / 38 Sec.
Motor Standard Quick Cycle Optional	2HP, 230 Volt, 1 Ph, 60 Hz 3 HP, 208/230 V, 1 Ph, 60 Hz 2HP, 208/230/460 V, 3PH, 50/60 Hz	

* Lift capacity ratings are based on loads equally distributed on all four arms.
 **Lifting and lowering speeds may vary depending on the type, viscosity and temperature of the oil as well as vehicle weight.

Motor Optional - 2HP, 240 Volt, 3 Phase, 60 Hz
 2HP, 480 Volt, 3 Phase, 60 Hz



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Installation, Operation and Maintenance

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). Outdoor Installation is Prohibited.

ELECTRICAL REQUIREMENTS

For lift installation and operation, it is necessary to have a dedicated circuit with circuit breaker or time delay fuse. Refer to wiring diagram for circuit sizing.

FLOORING

A qualified person should be consulted to address seismic loads and other local or state requirements.

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.

NOTICE

If attachments, accessories, or configuration modifying components used on this lift are located in the load path and affect operation of the lift, affect the lift electrical listing, or affect intended vehicle accommodation; and if they are not certified for use on this lift, then the certification of this lift shall become null and void. Contact the participant for information pertaining to certified attachments, accessories, or configuration modifying components.

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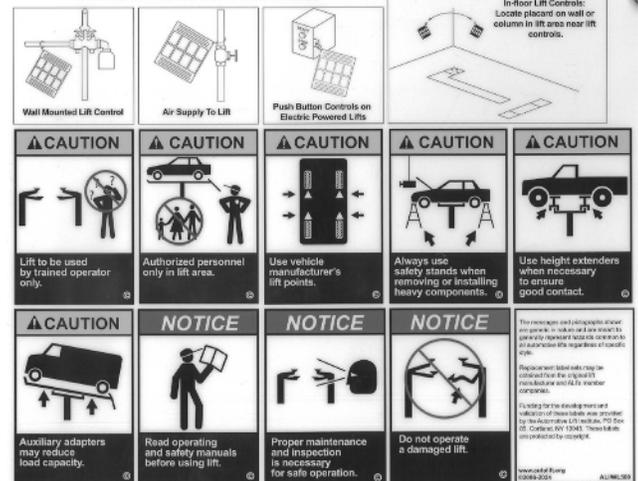
SAFETY WARNING LABELS FOR INGROUND LIFTS

Lift Owner/User Responsibilities:

- A. This Safety Warning placard **SHALL** be displayed in a conspicuous location in the lift area.
- B. Use one of the mounting arrangements illustrated on back of this placard.
- C. These Safety Warning labels supplement other documents supplied with the lift.
- D. Be certain all lift operators read and understand these labels, operating instructions and other safety related information supplied with the lift.



TYPICAL PLACARD LOCATIONS



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Installation, Operation and Maintenance

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 ensure 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:

TOOLS & SUPPLIES

(MINIMUM REQUIRED)

- 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
- 6" x 6" wood beam (length will vary based on soil conditions and pit width)
- Quantity 4 of each: 1/2-13 x 18" lg all thread rods, 1/2 Washers, and 1/2-13 nuts.
- 2" sch. 40 PVC for air / hyd. chase
- 12 Qtz 10wt Dexron III ATF
- Hydraulic Hose (4000 psi working/16000 psi min. Burst) SAE #6 9/16-18 37° Female Swivel Both Ends. Fittings must conform to the SAE J514 Guidelines. This hose will connect the power unit to a fitting in the center of the tub. The length of hose needed to run from the chase to the fitting is 50 inches.
- Five yards pea gravel as backfill.

Accepted Oils – Do not use oils with detergents, hydraulic fluid is not provided with the lift shipment.

- 10 wt. anti-foam, anti-rust hydraulic / biodegradable oil
- Dexron III ATF

Edition of Standards Referenced

Where any ANSI standard or ALI materials are referenced within this manual, the most recent edition shall apply.

Models EV1020, EV1220 Installation, Operation and Maintenance

Installation Procedure

SAFETY REQUIREMENTS FOR INSTALLATION AND SERVICE

Refer to ANSI/ALI ALIS (current edition)

IMPORTANT: Always wear safety glasses while installing lift

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**.

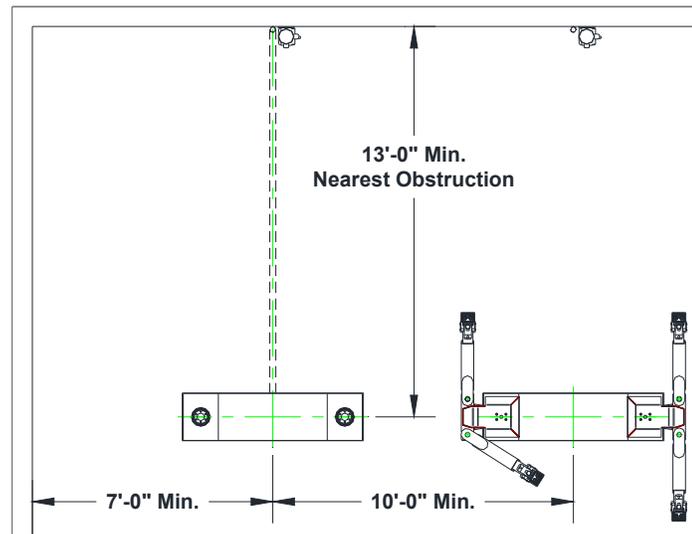


Fig. 1

New Construction Excavation

New construction requires an excavation as shown in **Fig. 2**. **NOTE:** Concrete must be finished to edge of concrete tie (3/16" below top of concrete ties, see **Fig. 2** below). All depths are measured from the finished floor level. Failure to comply will void the warranty. 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.

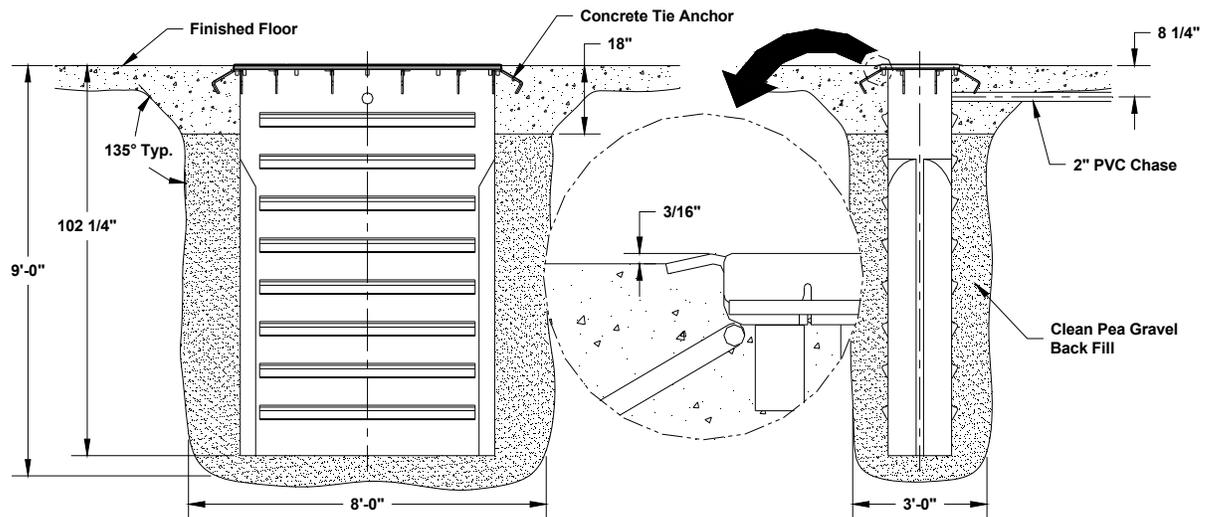


Fig. 2

Models EV1020, EV1220 Installation, Operation and Maintenance

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.

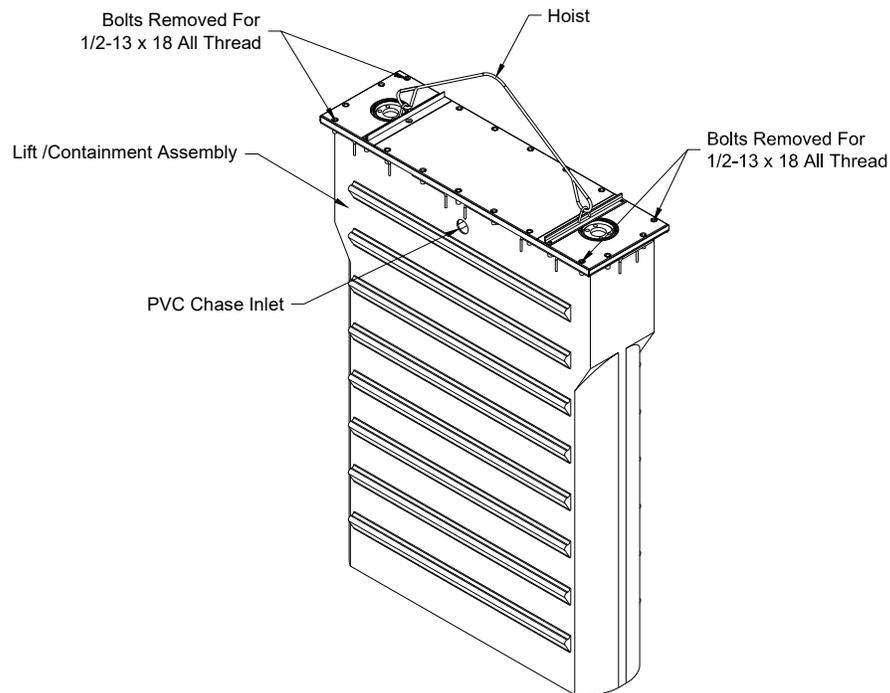


Fig. 3

2. Using a chain hoist and tripod, forklift, 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 1/2-13 x 18 threaded rods. Attach two 6 x 6 timbers using 1/2-13 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**.

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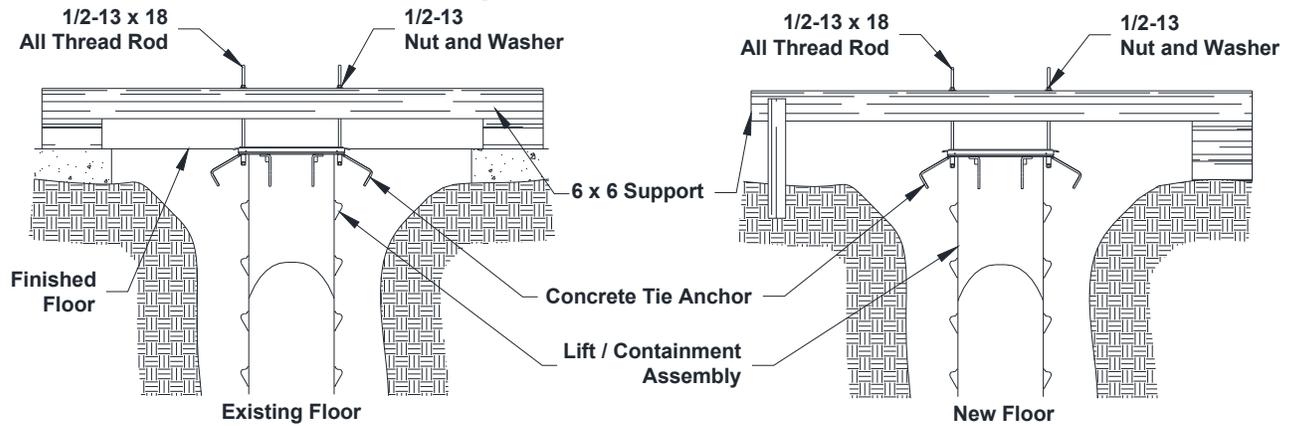
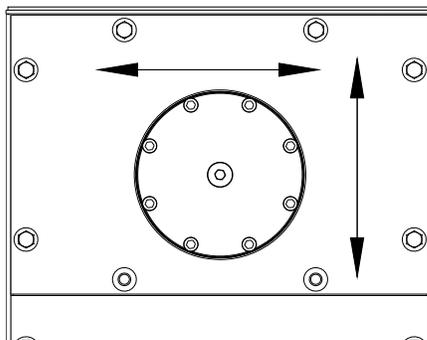


Fig. 4

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 **Fig. 5** to prevent contamination from entering the chase, while allowing the system to breathe.

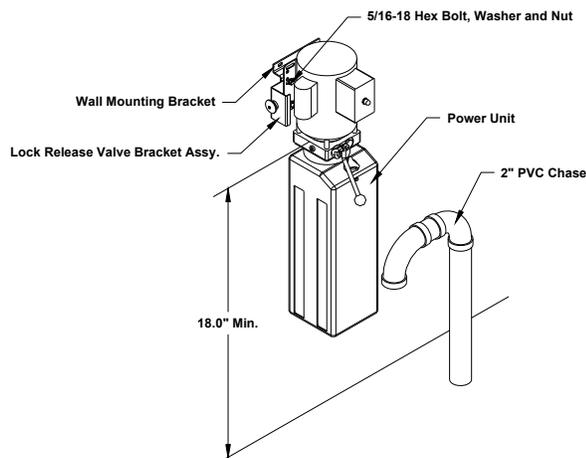


Fig. 5

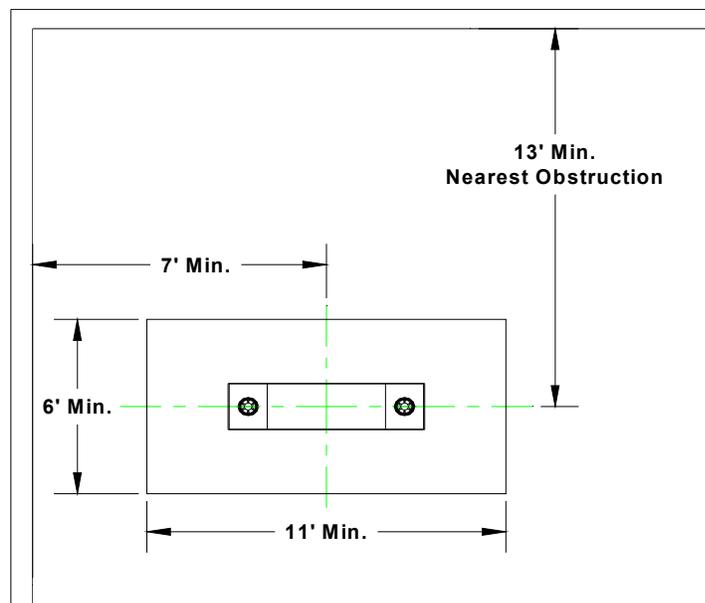
Note: Mount power unit high enough to avoid inadvertently depressing the lowering valve handle with a tool cart, oil pan, etc.

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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 / Block Out

8. If a Block Out is used or an Existing floor needs to be saw cut for excavation the Cut Out/Block Out should be a minimum of 6' x 11' as per the figure below.



9. Pour concrete floor taking care not to run concrete in or on top of the lift / containment assembly. **NOTE:** Concrete must be finished to edge of concrete tie (3/16" below top of concrete ties, see **Fig. 2**). 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 (minimum #6 rebar no larger than 24" O.C.).
10. After the concrete has set up remove the 6 x 6 supports, threaded rods, and shipping straps. Replace the cover bolts with the 1/2-13 x 2" HFHB. The shipping strap bolt replacements are supplied in the hardware box. Torque the bolts to 60 ft-lbs.
11. **DO NOT** use the lift until the concrete has fully cured to 3500 psi.

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New Floor

12. Pour 8" to 12" of concrete around the top of the lift / containment assembly and install rebar to tie in the finished floor as shown in **Fig. 6**.

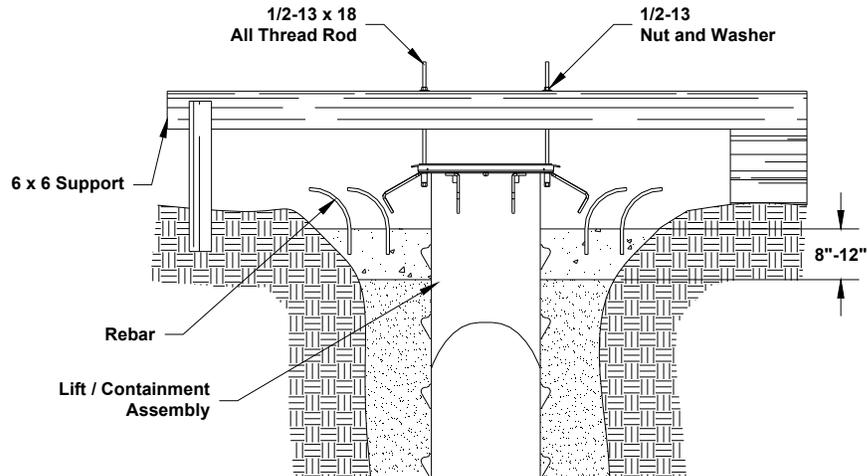


Fig. 6

13. After the concrete has set up remove the 6 x 6 supports, threaded rods, and shipping straps. Replace the cover bolts with the 1/2-13 x 2" HFHB. The shipping strap bolt replacements are supplied in the hardware box. Torque the bolts to 60 ft-lbs.
14. 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.
15. **DO NOT** use the lift until the concrete has fully cured to 3500 psi.
16. 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 **Fig. 5**.
17. Connect the power unit to an electrical source as shown in **Fig. 7**.

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Wiring Diagram

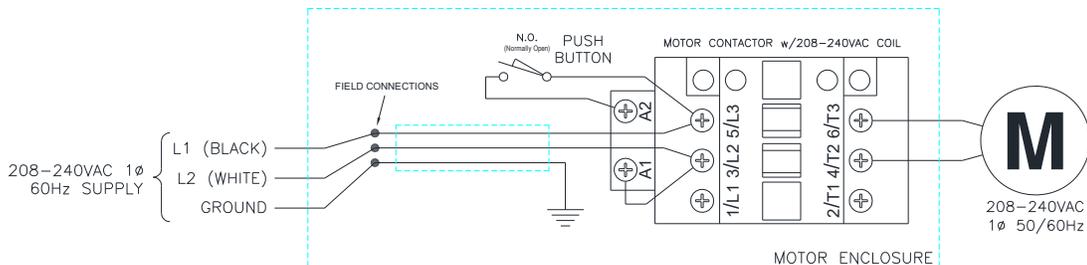
* EACH LIFT SHOULD HAVE A DEDICATED CIRCUIT WITH A DOUBLE POLE (THREE POLE FOR 3 PHASE) BREAKER OR TIME DELAY FUSE SIZED ACCORDING TO THE FOLLOWING CHART.

	1 ϕ 208-240V	3 ϕ 208V	3 ϕ 220-240V	3 ϕ 440-480V
3Hp	20amp	15amp	15amp	5amp

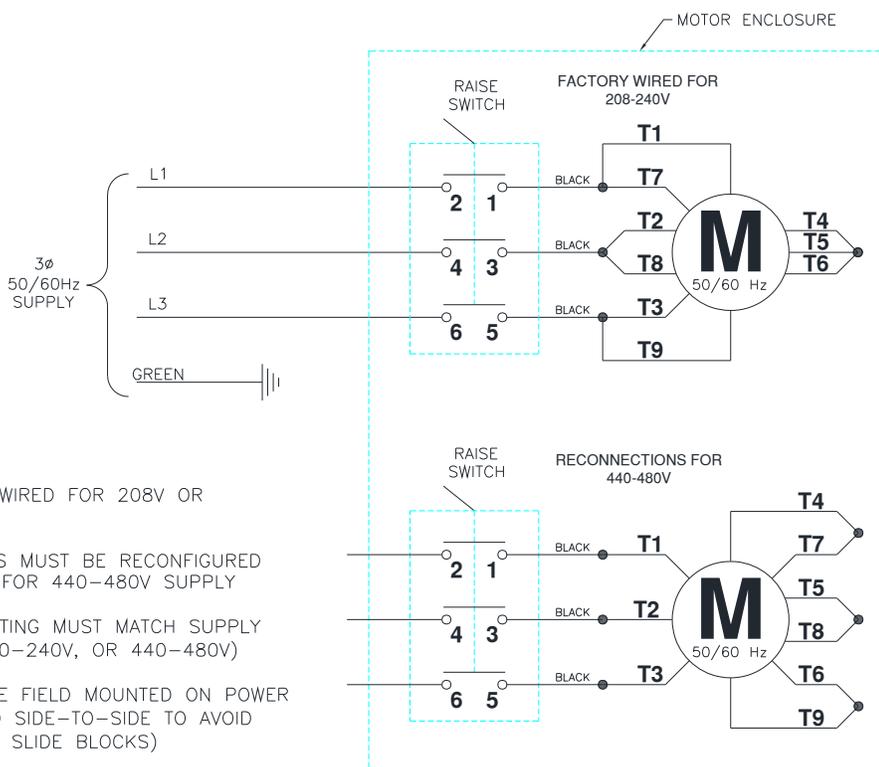
* WIRING MUST COMPLY WITH ALL LOCAL ELECTRICAL CODES.

* ELECTRICAL CODE REQUIRES A SERVICE DISCONNECT FOR THIS DEVICE. WE SUGGEST THIS SERVICE DISCONNECT BE LOCATED NEAR THE POINT OF OPERATION.

FOR SINGLE PHASE



FOR THREE PHASE



NOTES:

- 1) MOTOR IS FACTORY WIRED FOR 208V OR 220-240V SUPPLY
- 2) MOTOR CONNECTIONS MUST BE RECONFIGURED PER THIS DIAGRAM FOR 440-480V SUPPLY
- 3) CONTACTOR COIL RATING MUST MATCH SUPPLY VOLTAGE (208V, 220-240V, OR 440-480V)
- 4) CONTACTOR MUST BE FIELD MOUNTED ON POWER COLUMN (CENTERED SIDE-TO-SIDE TO AVOID INTERFERENCE WITH SLIDE BLOCKS)
- 5) MOTOR ROTATION IS COUNTER CLOCKWISE FROM TOP OF MOTOR

Fig. 7

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18. Fill the reservoir with 12 quarts of 10 weight hydraulic / biodegradable oil or Dexron III ATF.
19. 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.
20. **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 1/4" airline through the PVC chase beginning at the power unit. Connect the airline to the appropriate push lock fittings at each end. Refer to **Fig. 8**.
NOTE: DO NOT bypass factory supplied in-line filter.

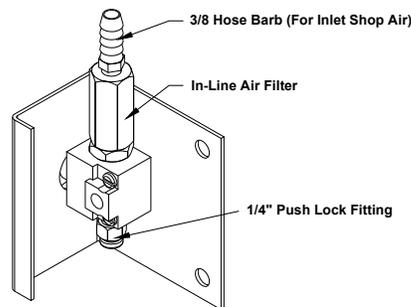


Fig. 8

21. 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 **Fig. 9**. Raise the lift to full stroke and continue to run the power unit for another 10 seconds to check for hydraulic leaks.

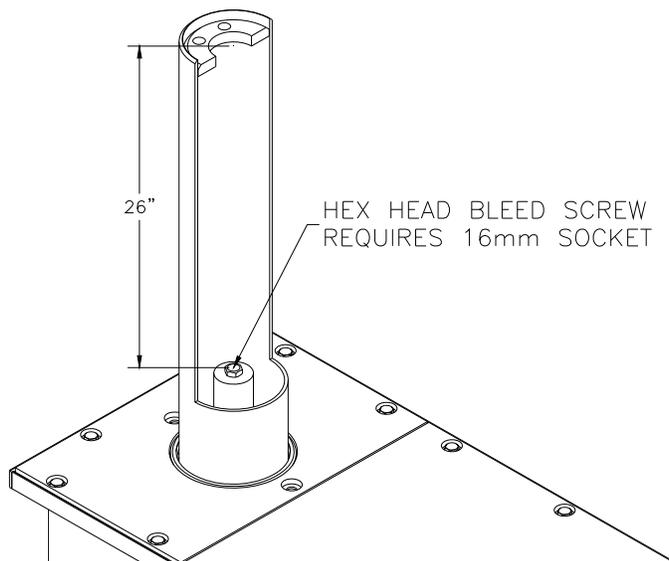


Fig. 9

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22. While the lift is in up position actuate the air valve and check for proper operation of the locking mechanism.
23. Replace the center cover plate and torque bolts to 60 ft-lbs.
24. 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.
NOTE: 15,000 lb bolsters are installed in a Drive Over configuration, not a Drive Through.
25. 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.
26. 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 shown in **Fig. 10** to either raise or lower the bolster as necessary. If there is more than 3/8" of clearance on both screws with the bolt fully seated against the bottom of the bolster remove the bolt.

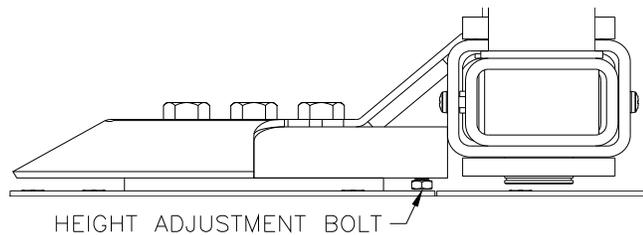


Fig. 10

27. 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)

28. Extend the arm fully and lift up on the male portion, **Fig. 11**.
29. 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.

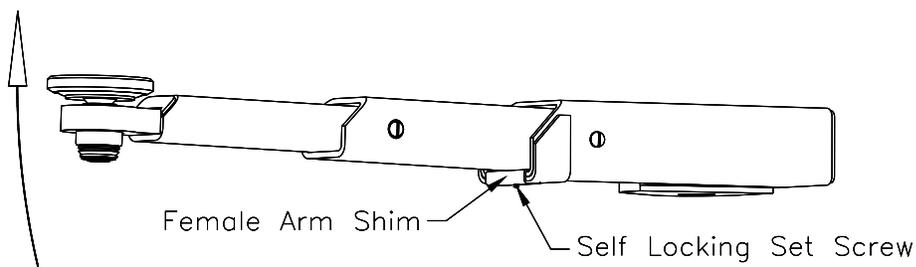


Fig 11 – Arm Shim, 3-Stage

Models EV1020, EV1220

Installation, Operation and Maintenance

Lifting a Vehicle

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

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.

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 their lowest position and park the swing arms to provide unobstructed exit of the vehicle.

Loss of Power

If for any reason the lift will not raise off the locks or the locks will not retract, consult factory authorized personnel.

DO NOT OVERRIDE ANY SAFETY FEATURE IN AN ATTEMPT TO LOWER THE LIFT.

Trouble Shooting

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

OWNER/OPERATOR CHECKLIST

30. 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.
31. Return all provided literature (including this manual) to the literature pack envelope and deliver the envelope to the owner/operator/employer
32. Complete the online warranty registration (refer to the included warranty statement).

Models EV1020, EV1220

Installation, Operation and Maintenance

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 standard. The standard applies to lift manufacturers, as well as to owners and employers. The owner/employer's responsibilities as prescribed by ANSI/ALI ALOIM, are summarized below. For exact wording refer to the actual standard provided with this manual in the literature pack.

The Owner/Employer shall ensure 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, *ALI Lifting it Right safety manual*; ALI/ST, *ALI Safety Tips card*; ANSI/ALI ALOIM, *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, *American National Standard for Automotive Lifts-Safety Requirements for Operation, Inspection and Maintenance*; and the employer shall ensure 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/ALI ALOIM, *American National Standard for Automotive Lifts-Safety Requirements for Operation, Inspection and Maintenance*; and the employer shall ensure 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, *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, *ALI Lifting it Right safety manual*; ALI/ST, *ALI Safety Tips card*; ANSI/ALI ALOIM, *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

Models EV1020, EV1220

Installation, Operation and Maintenance

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 usage of the lift. 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

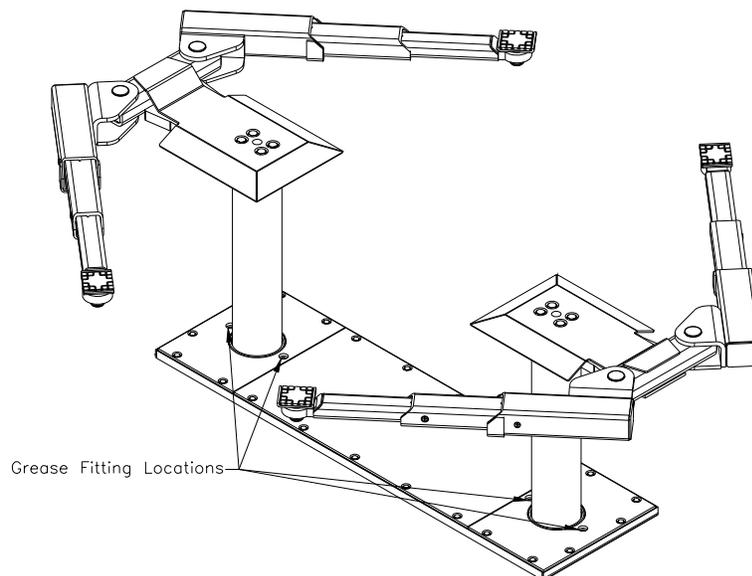
Check fluid level in the power unit.

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

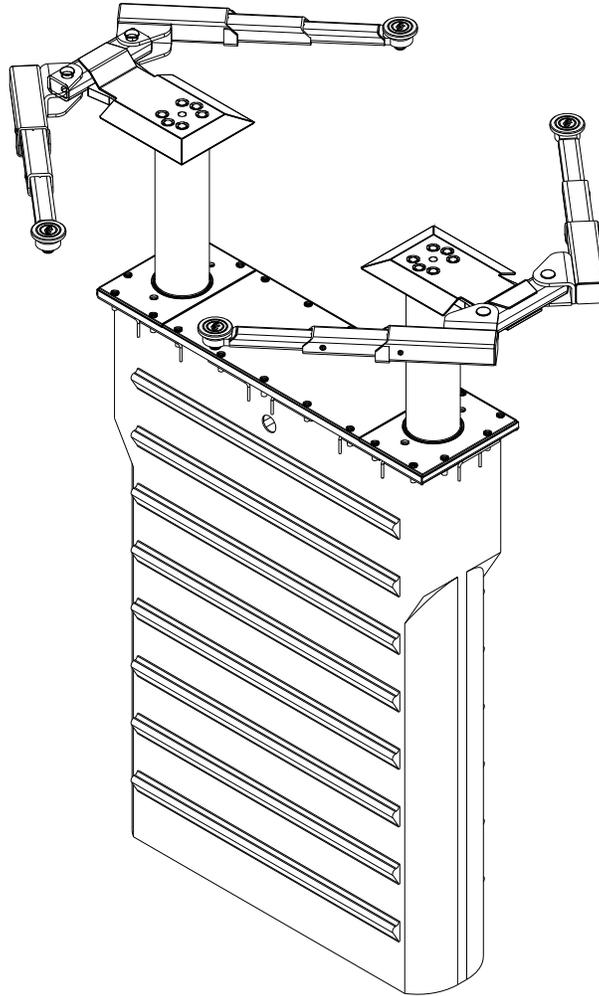
Clean and lubricate lifting arm pins and pads.

Quarterly

Grease Lift Guide bearings using Mobil, Mobilith SHC 1500 synthetic grease. Each guide bearing is supplied with two grease zerks and should take 10-12 pumps (hand pump only) while raising and lowering the lift empty.



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Installation, Operation and Maintenance
Parts Break Down
Model EV1020, EV1220

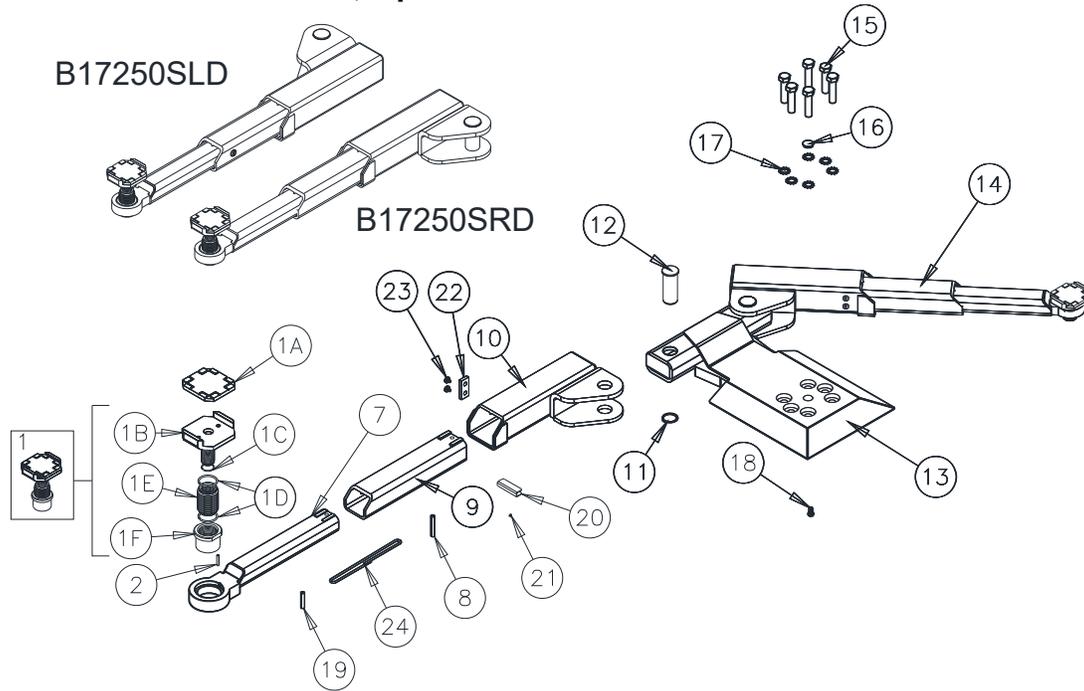


IMPORTANT

Replace all worn, damaged, or broken parts with parts approved by **Challenger Lifts Inc.**
or with parts meeting **Challenger Lifts Inc.** specifications.

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**Models EV1020, EV1220
Installation, Operation and Maintenance**

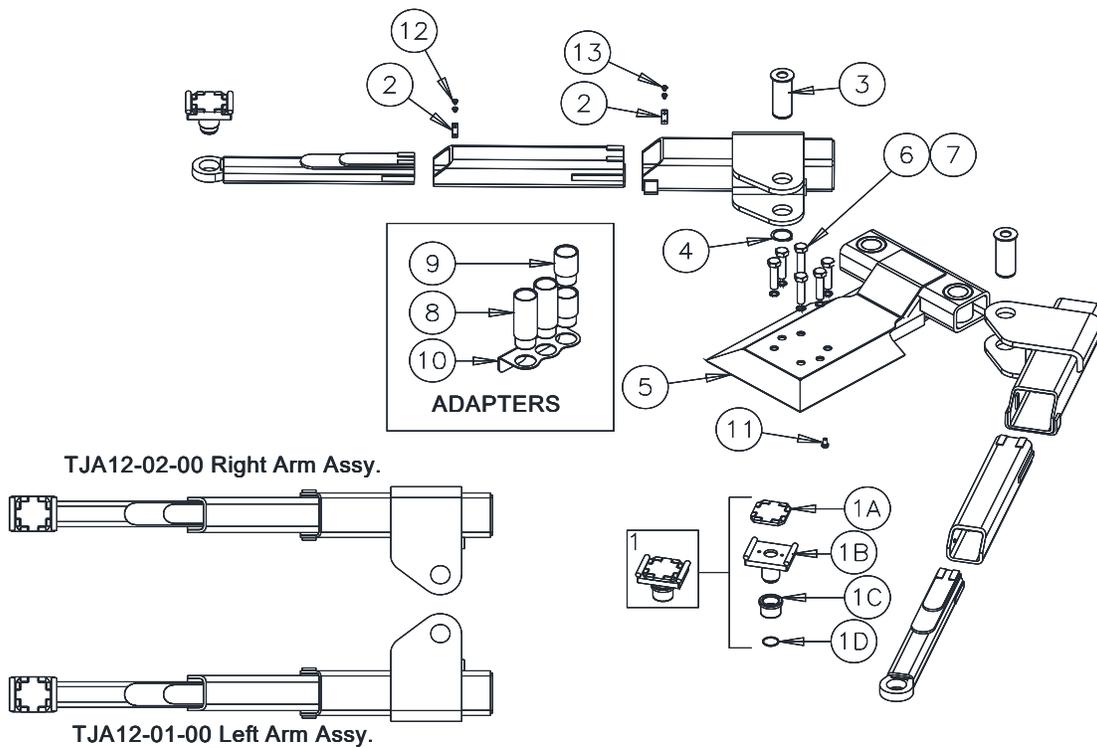


EV1020 Super Structure

Item	Part	Qty. / Lift	Description
1	B2270	4	Foot Pad Assembly (items 1A-1F)
1A	A1104-H	4	Rubber Insert
1B	A1101-1H	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	B2218C	4	Male Arm Weld
8	B2202-02	4	Roll Pin, Ø12mm x 80mm Lg.
9	CS1020010200C	4	Intermediate Arm Weld
10	CS1020010100B	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	B17250SLD	2	3-Stage Arm Assembly Left
	B17250SRD		3-Stage Arm Assembly Right
15	16473	12	7/8-9 x 3-1/2" Hex Head Cap Screw
16	16160	2	Finishing Plug
17	16154	12	7/8 External Tooth Lock Washer
18	17314	2	M12 x1.75 x 20mm Lg. Hex Head Cap Screw, Gr. 8.8 Zinc Plated
19	B2202-01	4	Roll Pin, 12mm Dia x 60mm Lg.
20	17425	4	Female Arm Shim, 3-Stage
21	17426	4	1/4-20 x 1/4" Lg. Self Lock Set Screw
22	CS1020-04	4	Stop Block
23	17350	8	8mm x 10mm Lg. Flat Head Bolt
24	CS1020-05	4	Stop Loop

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Models EV1020, EV1220 Installation, Operation and Maintenance

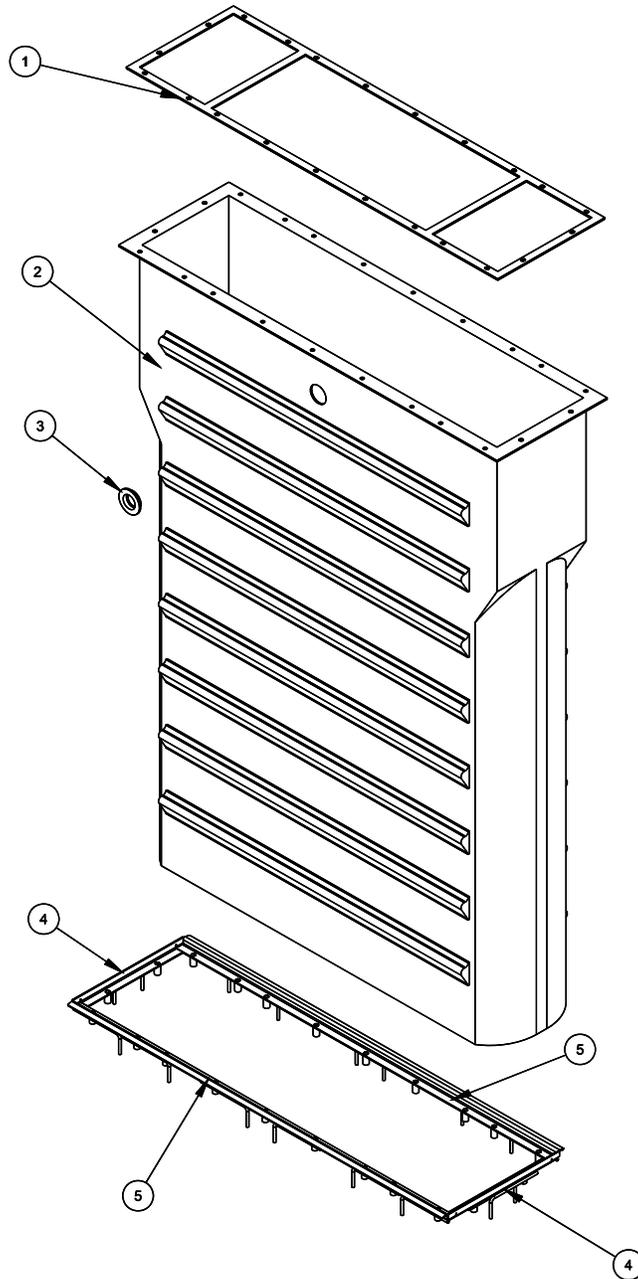


EV1220 Super Structure

Item	Part	Qty / Lift	Description
1	B12162S-12	4	Screw Pad Assembly
1A	A1104-H	4	Rubber Pad
1B	B12163S	4	Foot Pad Weld
1C	B12067-1	4	Threaded Insert
1D	B17257	4	3 x 45mm Round Wire Retaining Ring
2	CS1020-04	8	Stop Block
3	B16464	4	57.15mm Dia. Arm Pin
4	B16489	4	58mm External Snap Ring
5	B16448	2	12K Bolster (Machined)
6	16473	12	7/8-9 x 3 1/2" lg Hex Head Cap Screw
7	16154	12	7/8 External Tooth Lockwasher
8	B2206-6	2	6" Stack Adapter
9	B2206-3	4	3" Stack Adapter
10	B2209	1	Adapter Rack
11	17314	2	M12x1.75 x 20mm, HHCS, Gr. 8.8, ZINC PLT'D
12	TJA12-03	8	M8 x 16 Flathead Socket Cap Screw, Gr. 10.9
13	3W-10-10	8	M8 x 14 Flathead Socket Cap Screw, Gr. 10.9
	TJA12-01-00	2	Left Arm Assy. (includes Arm Pin and Footpad)
	TJA12-02-00	2	Right Arm Assy. (includes Arm Pin and Footpad)

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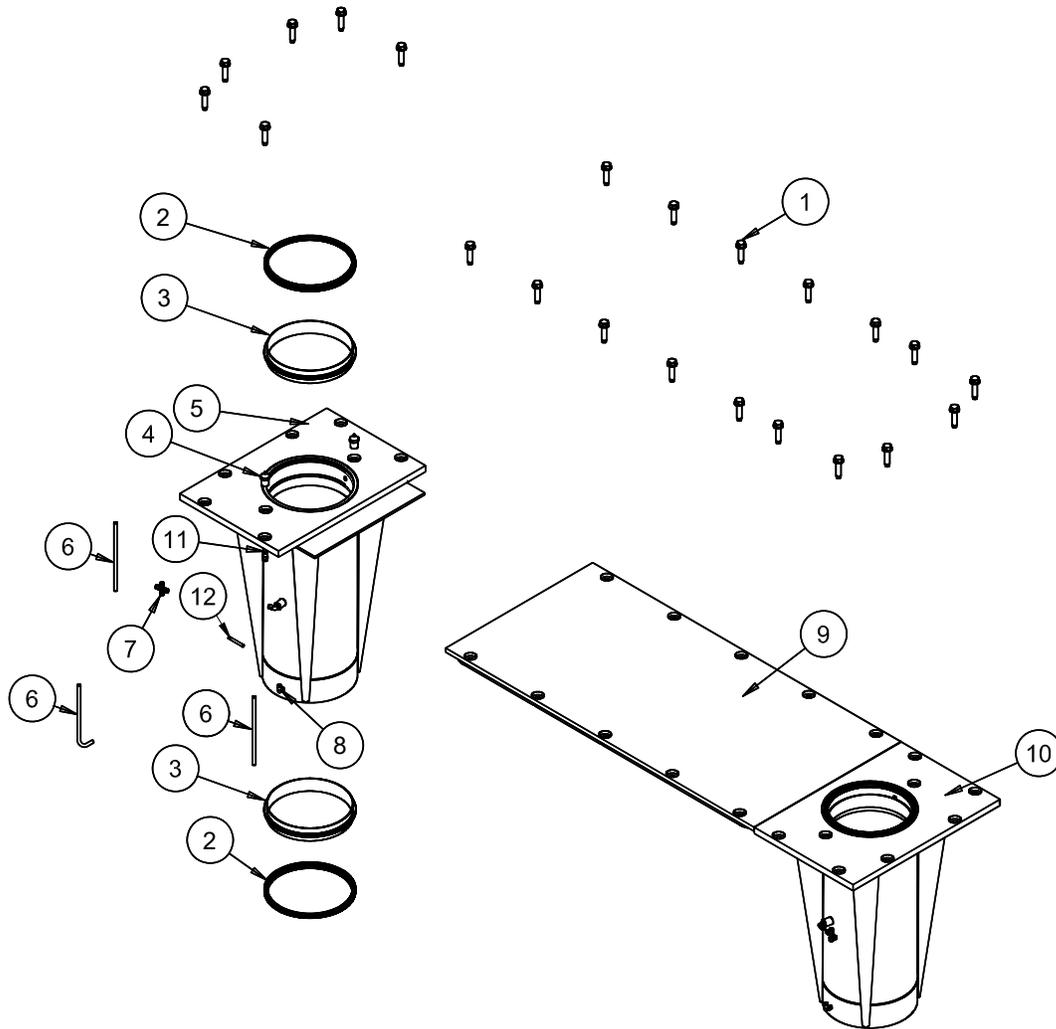
**Models EV1020, EV1220
Installation, Operation and Maintenance
Containment**



Item	Part	Qty./Lift	Description
1	17200	1	Single Piece Rubber Gasket
2	CL17380	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)

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**Models EV1020, EV1220
Installation, Operation and Maintenance**

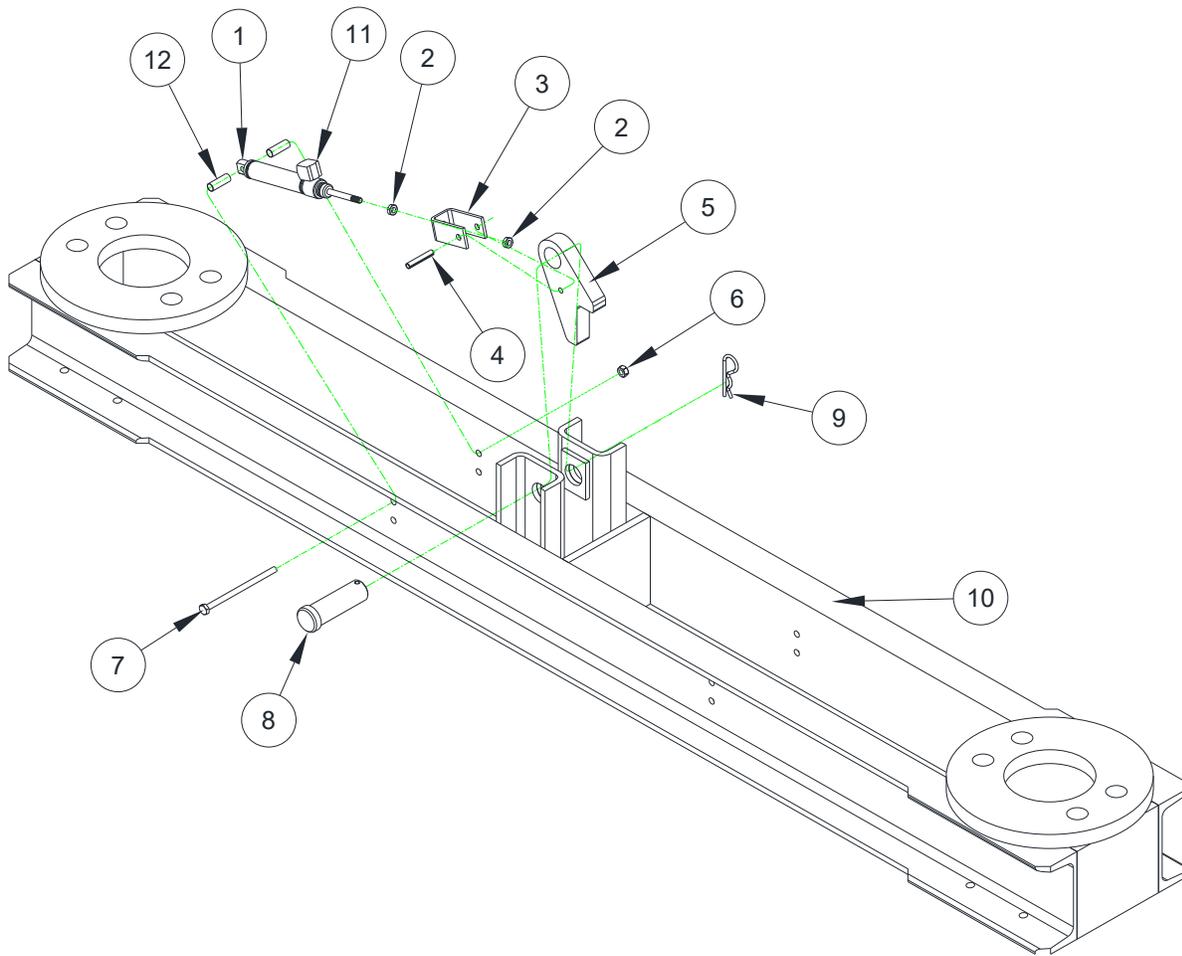


Bearings

Item	Part	Qty / Lift	Description
1	17152	22	1/2-13 x 2" lg Hex Flange Head Bolt
2	16485EV	4	Wiper
3	16486EV	4	Bearing
4	VS5096	2	1/8 NPT Grease Fitting
5	B17507	2	Bearing Weld
6	16132	12	1/4" x 12" lg Grease Line
7	17410	4	1/4" Push Lock Cross
8	16129	12	1/8 NPT x 1/4" Push Lock Elbow
9	16429	1	Cover Plate
10	17506	2	Bearing Assembly
11	16163	4	Male Connector 1/4 Tube x 1/8 NPT
12	17411	4	1/4" x 2" Grease Line

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**Models EV1020, EV1220
Installation, Operation and Maintenance**

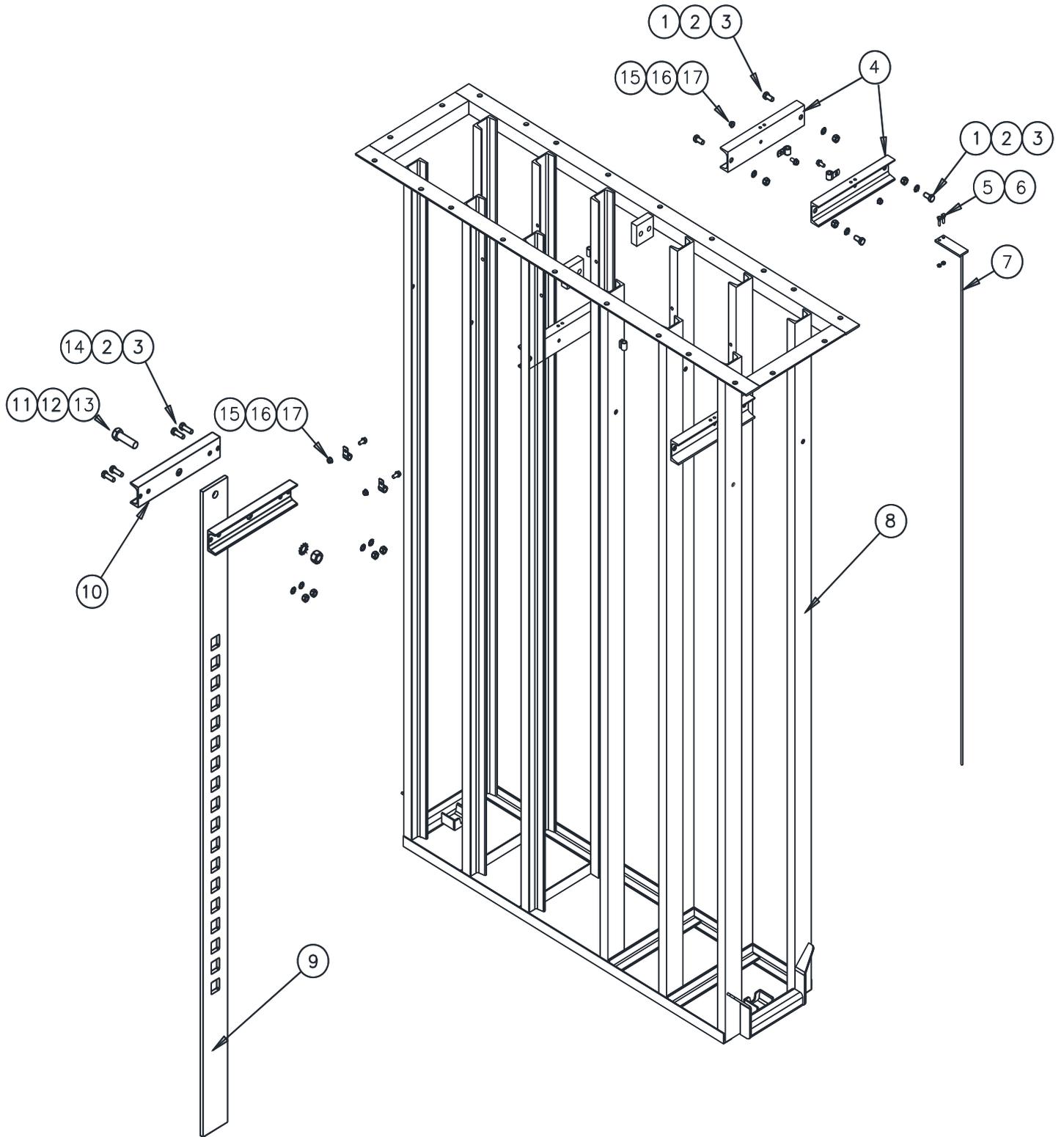


Synchronizing Rail

Item #	Part #	Qty./Lift	Description
1	CL40142	1	3/4 x 1 1/2 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 1/2 Roll Pin
5	16213	1	Locking Pawl
6	36059	1	1/4-20 Nylon Locknut
7	CL16468	1	1/4-20 x 6 Hex Head Cap screw
8	17416	1	1 x 3 Clevis Pin
9	40735	1	Hairpin Cotter
10	B16414	1	Synchronizing Rail Weld
11	16165	1	1/8 Male NPT x 1/4 Female NPT, Brass Street Elbow
12	16469	2	1/4" ID x 2 1/4 Spacer

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Models EV1020, EV1220
Installation, Operation and Maintenance
Frame

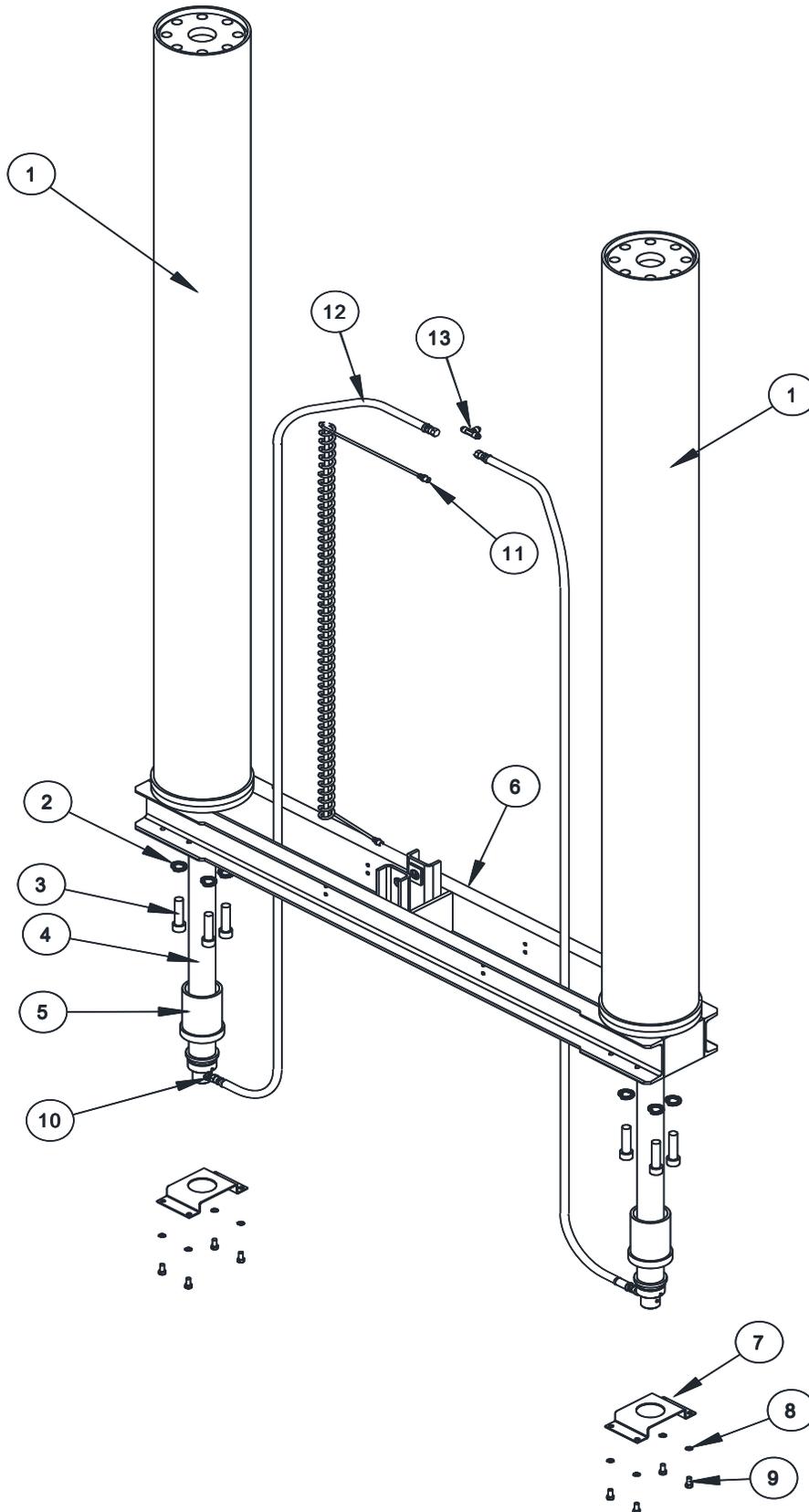


Models EV1020, EV1220
Installation, Operation and Maintenance
Frame

Item	Part	Qty./Lift	Description
1	16157	8	1/2-13 x 1 Frame Support Bolt
2	16158	12	1/2" External Tooth Lock washer
3	16159	12	1/2-13 Hex Nut
4	16410	4	Frame Support
5	A2125	2	1/4"-20 x 3/4 Flange Bolt
6	40085	2	1/4"-20 Flange Nut
7	17414	1	Air Hose Guide
8	17517	1	Frame Weld (Not Serviceable after Installation)
9	16413	1	Lock Ladder
10	16412	2	Ladder Rail
11	16153	1	7/8-9 x 3 Lock Ladder Bolt
12	16154	1	7/8" External Tooth Lock washer
13	40147	1	7/8-9 Hex Nut
14	16470	4	1/2-13 x 1 3/4 Ladder Rail Bolt
15	12568	4	3/8"-16 Flange Bolt
16	A1154	4	3/8" Flange Hex Nut
17	A1122-12	4	Hose Clamp

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Models EV1020, EV1220
Installation, Operation and Maintenance
Plunger/Rail Assembly

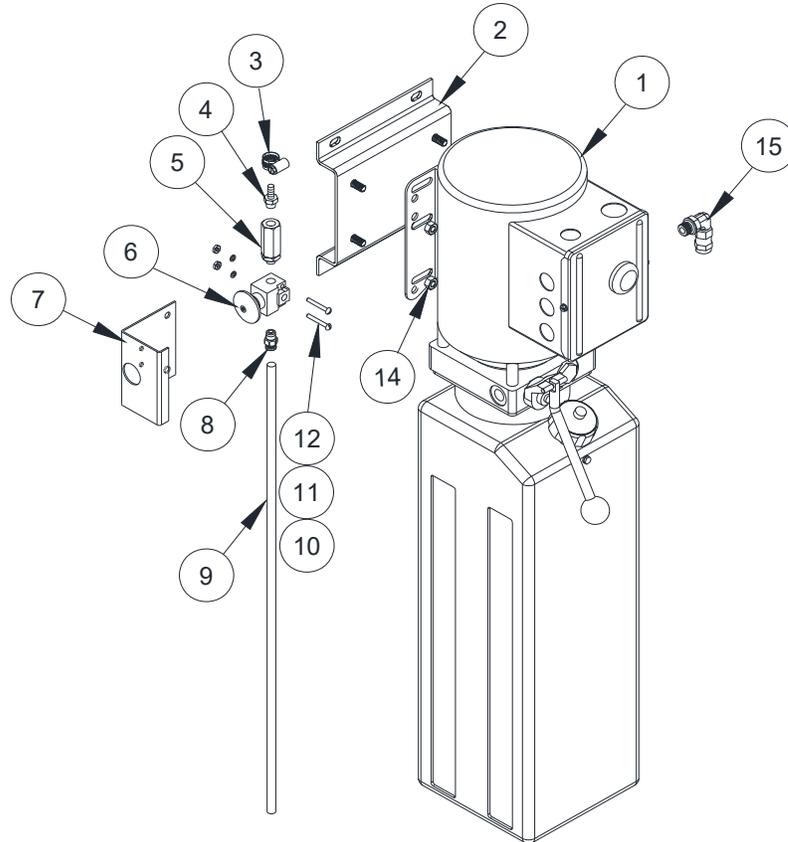


Models EV1020, EV1220
Installation, Operation and Maintenance
Plunger/Rail Assembly

Item	Part	Qty./Lift	Description
1	17504C	2	Chrome Plunger (93 3/4" Lg.)
2	16154	8	7/8" Split Lock Washer
3	16475	8	7/8-9 x 3 1/2 Socket Head Cap Screw
4	39097R-QC	2	2 x 72 Hydraulic RAM Cylinder (EV1020/EV1220)
5	16425	2	Cylinder Sleeve (EV1020/EV1220)
6	16483	1	Synch. Rail Assembly
7	16428	2	Cylinder Capture Plate (EV1020/EV1220)
8	16142	8	3/8" External Tooth Lock washer
9	16143	8	3/8-16 x 3/4 Hex Head Capscrew
10	A1121	2	Straight Thread Connector #6 JIC
11	40239	1	Coiled Air Line
12	CL17406	2	Hose Assembly (114" Lg.)
13	39103	1	#6 JIC Union Tee

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Models EV1020, EV1220
Installation, Operation and Maintenance
Power Unit / Lock Release Assembly



Item #	Part #	Qty./Lift	Description
1	AB-9367-DLH	1	Power Unit, 1Ph, 220V (EV1020)
	AB-9858-DLH		Power Unit, 1Ph, 220V (EV1220)
	AD-9858-2		Power Unit, 3Ph, 230V (EV1220)
	AD-9367		Power Unit, 3Ph, 230V (EW1220)
	AB-10396		Power Unit, 1Ph, 220V (EV1020QC)
	AB-11530		Power Unit, 1Ph, 220V (EV1220QC)
2	15036	1	Power Unit Mounting Bracket
3	37033	1	#6 Worm Gear Clamp
4	37021	1	3/8 Hose Barb
5	40091	1	In-Line Air Filter
6	37016	1	Lock Release Valve
7	37015	1	Button Valve Bracket
8	16163	1	1/4 Push Lock Fitting
9	16166	1	1/4 Air Line, 25"
10	37022	2	#8-32 x 1 1/4 Pan Head Screw
11	37023	2	#8-32 Lock Washer
12	CL37024	2	#8-32 Hex Nut
13	31188	4	5/16-18 x 3/4 Hex Cap Screw
14	4100237	4	5/16-18 Lock Nut
15	16167	1	9/16-18 "O" Ring x 37 Deg. Elbow

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Models EV1020, EV1220
Installation, Operation and Maintenance
NOTES

**Models EV1020, EV1220
Installation, Operation and Maintenance**

REVISIONS

- 2019/06/12 – UPDATED OUT OF DATE PART NUMBER 16380 TO 17380 CONTAINER TUB IN PARTS BREAK DOWN. EV1020 DRIVE THRU DISTANCE AND OVERALL WIDTH WAS CORRECTED TO 83 1/2" AND 110 1/4"
- 2019/10/25 – CHANGED COVER BOLT PART NUMBER 16116L TO 17152.
- 2020/01/02 – UPDATED GENERAL SPECIFICATION PAGE TO CORRECT OUT OF DATE INFORMATION.
- 2020/08/25 – CHANGED LOCK PAWL SHOULDER BOLT & LOCK NUT TO CLEVIS PIN AND HAIRPIN COTTER, WAS 16467, 31068 NOW 17416, 40735
- 2020/12/16 – REMOVED MP9 FROM MANUAL
- 2021/08/05 – UPDATED OUTDOOR IS PROHIBITED, UPDATED SPEC FOR 3-STAGE EV12 ARMS
- 2023/09/18 – CHANGED PART NUMBER CS1020-02-02-00C TO CS1020-01-02-00C, COMBINED PART QUANTITY PER LIFT TO 4. UPDATED B17250SRD AND B17250SLD DRAWINGS TO REFLECT REVISION A.
- 2023/11/21 – UPDATED ANSI/ALI REFERENCE MATERIAL.
- 2024/04/02 – ADDED ANSI STANDARDS REFERENCE STATEMENT SECTION. PG. 5.
- 2024/10/04 – UPDATED ANSI/ALI STATEMENT, UPDATED COVER SHEET.
- 2024/10/24 – UPDATED WIRING DIAGRAM TO INCLUDE NEW RELAY.
- 2024/12/17 – DELETED EV1520 FROM MANUAL.
- 2025/01/03 – ADDED NOTE ABOUT REBAR ATTACHED THE COLLAR TO THE EXISTING FLOOR. PG. 8.
- 2025/03/03 – UPDATED PARTS BREAKDOWN WITH NEW P/N TO INCLUDE: CYLINDERS, PLUNGERS, BEARING WELD/ASSY, FRAME.
- 2025/09/12 – UPDATED PARTS BREAKDOWN.
- 2025/10/26 – UPDATED WIRING DIAGRAM.
- 2026/02/16 – UPDATED PARTS BREAKDOWN.