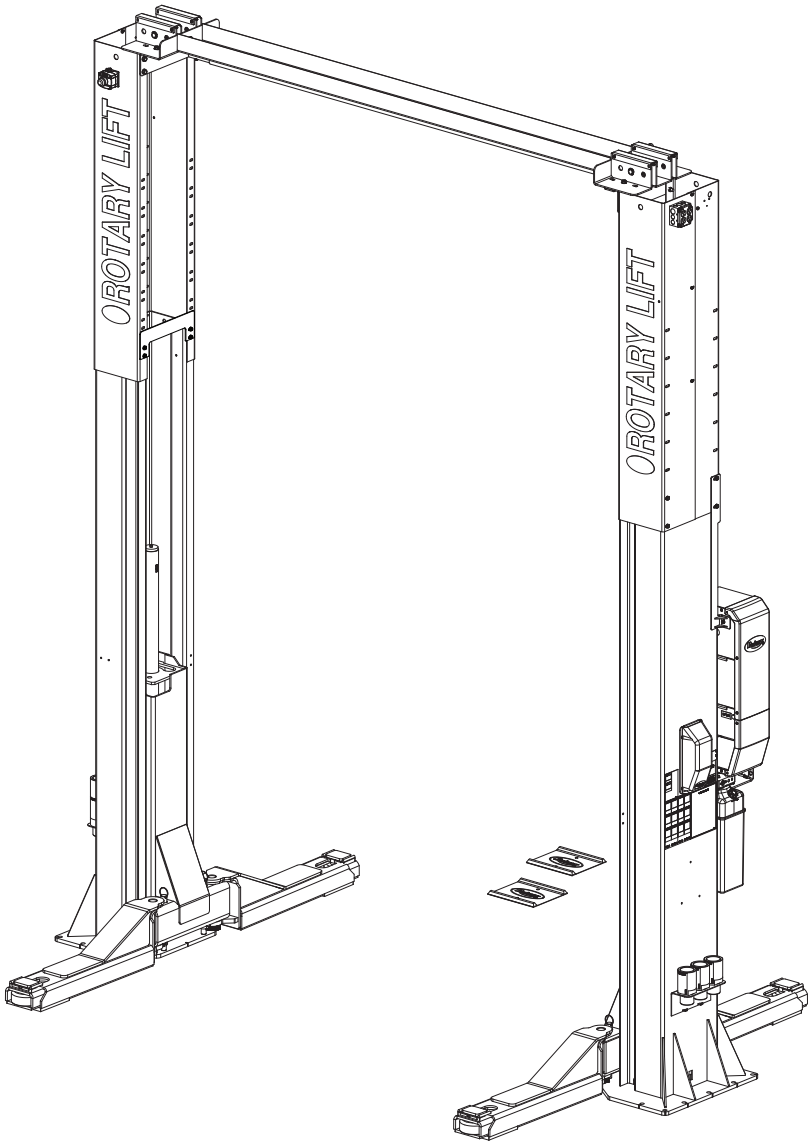
SPO16, SPO20

SPO16 Capacity 16,000 lbs. (7,258 kg.) / 4,000 lbs. (1,814 kg.) per Arm
SPO20 Capacity 20,000 lbs. (9,072 kg.) / 5,000 lbs. (2,268 kg.) per Arm



OPERATING CONDITIONS

Lift is not intended for outdoor use and has an operating ambient temperature range of 41°-104°F (5°-40°C)

INSTALLATION INSTRUCTIONS

CO12761.6

LPRM2P16-20K
Rev. E 2.18.25

1. Lift Location: Use architects plan when available to locate lift. Fig. 1 shows dimensions of a typical bay layout.

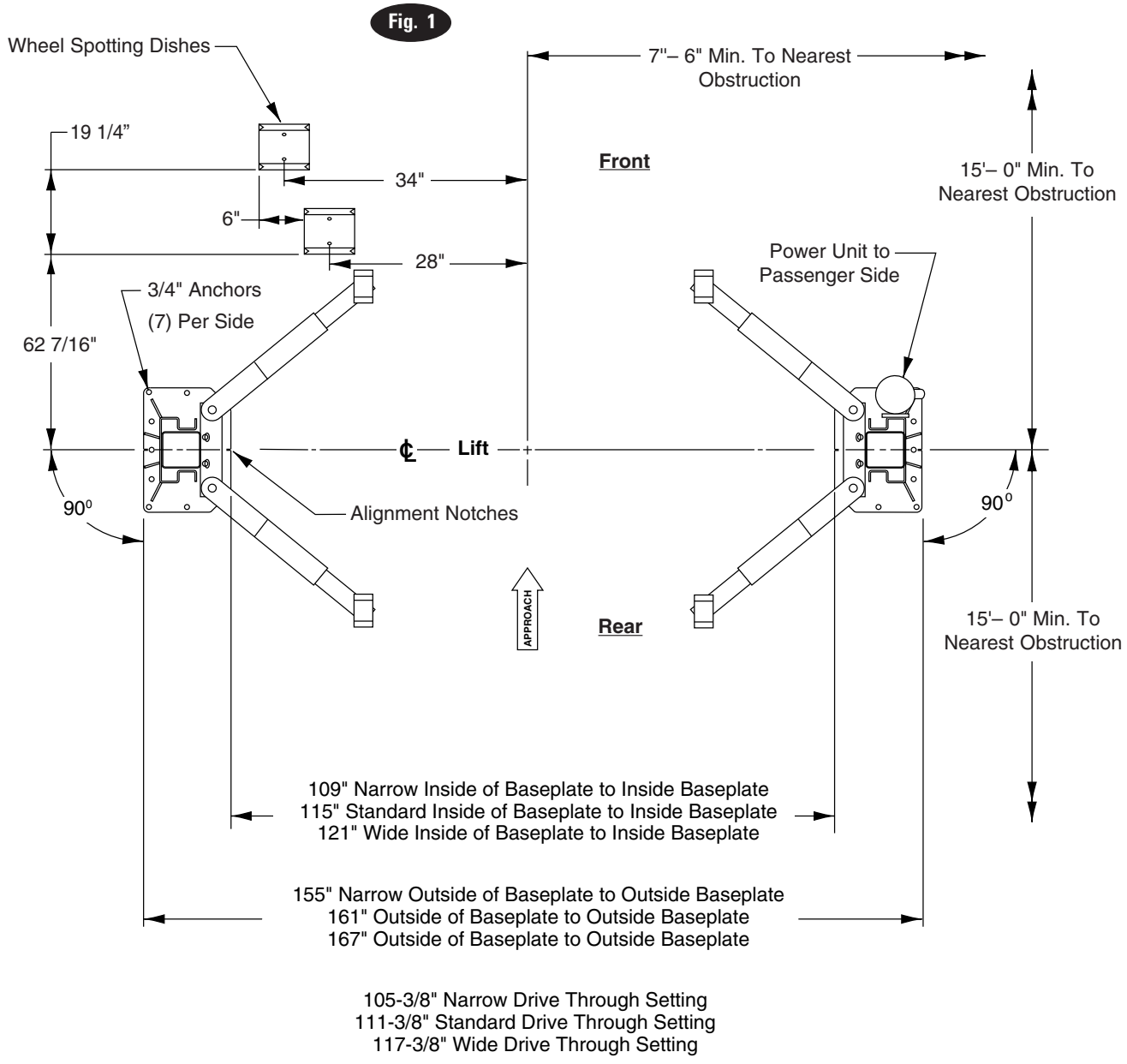
⚠ WARNING DO NOT install this lift in a pit or depression due to fire or explosion risks. A forklift is recommended to upright each column during installation.

Note: Installation tip - Upright each column after installing column extensions, column ties, and overhead brackets. Check to verify both columns are greased with Tuffoil Lightning Grease at slider block points of contact inside the columns (see greasing locations in Fig. 3). If columns are not greased with Tuffoil Lightning Grease, apply at greasing locations specified.

2. Lift Setting: Position columns in bay using dimensions shown in Fig.1. Place column with power unit mounting bracket on vehicle passenger side of lift. Both column base plate backs must be square on center line of lift. Notches are cut into each base plate to indicate center line of lift.

Use appropriate equipment to raise carriage to first latch position. Be sure locking latch is securely engaged.

Fig. 1



3. Lift Height: See Fig. 2 for overall lift height of each specific lift model. Add 1" min. to overall height to lowest obstruction.

4. Install Column Extensions to columns using (4) 3/8"-16NC x 1/2" Lg. Flanged HHCS and (3) 1/4"-20NC x 5/8" Lg. Flanged HHCS with (3) 1/4"-20NC Lock Nut, Fig. 3.

Install column ties using (4) 3/8"-16NC x 1" Flanged HHCS, Fig. 4 and (4) 3/8"-16NC Flanged Lock Nuts. Adjust column extensions square and tighten hardware.

Fig. 2

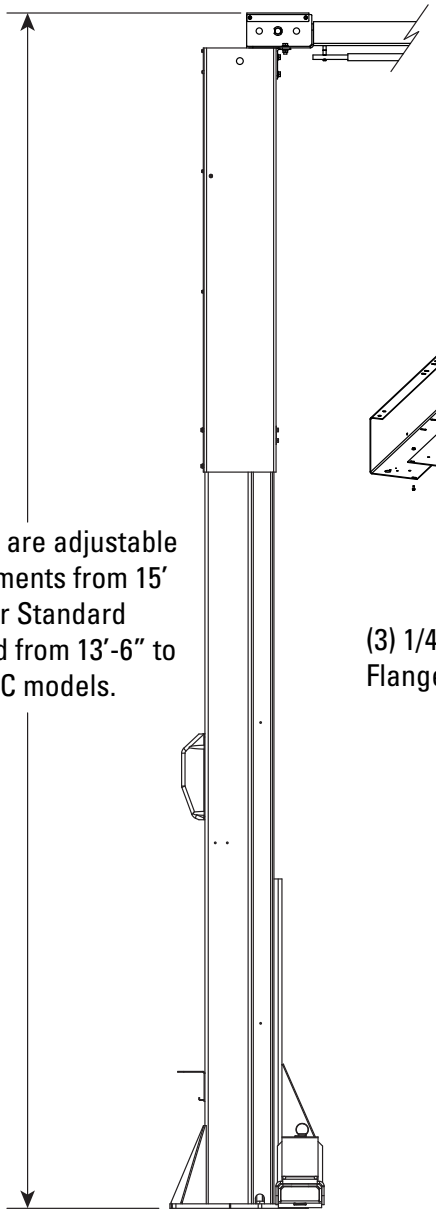


Fig. 3

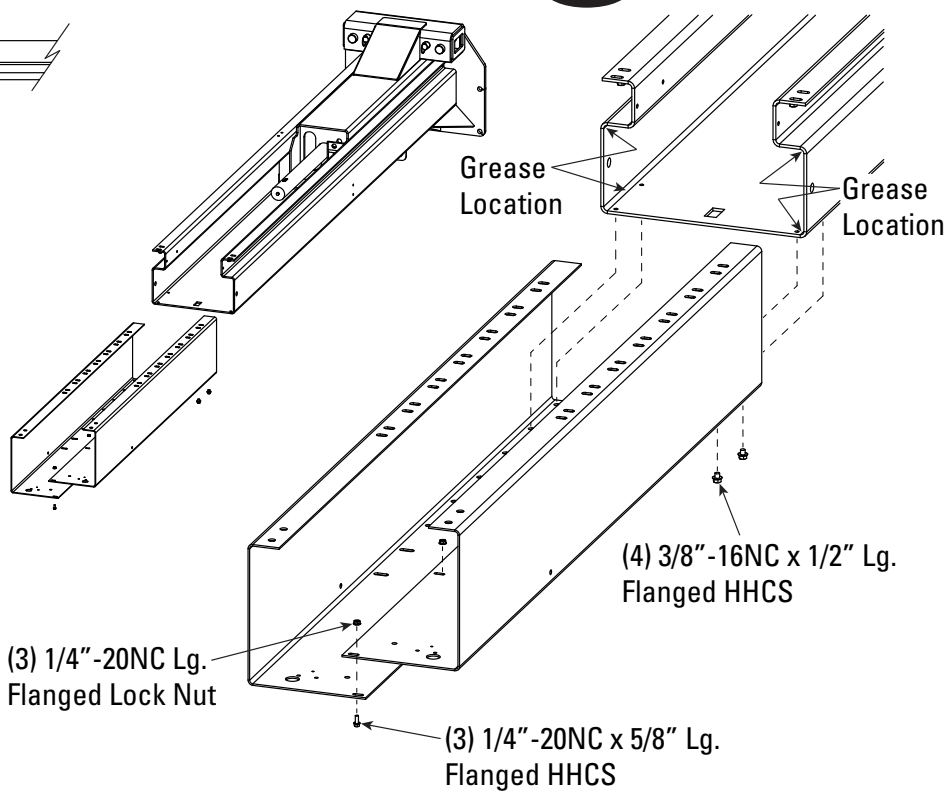
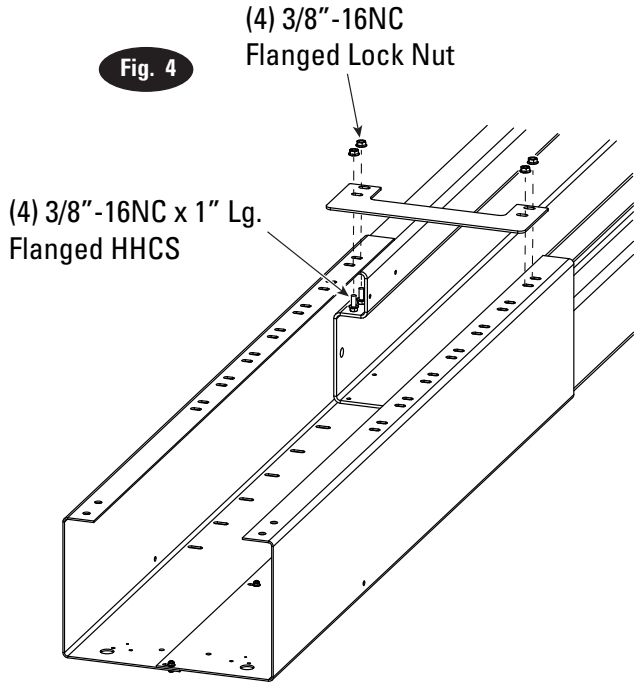
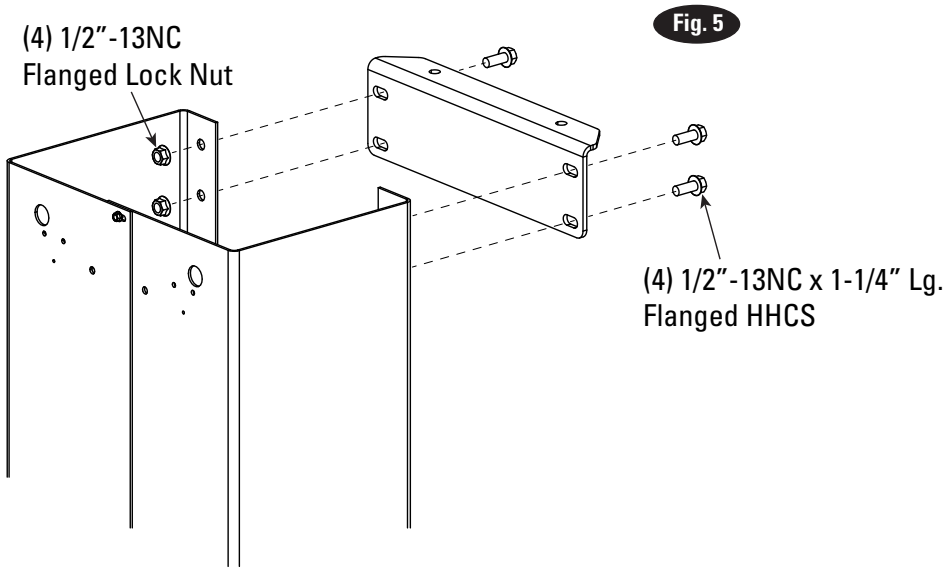


Fig. 4



5. Attach Overhead Bracket to column extensions using (4) 1/2"-13NC x 1-1/4" lg. Flanged HHCS and (4) 1/2"-13NC Flanged Locknut), Fig. 5.

Fig. 5

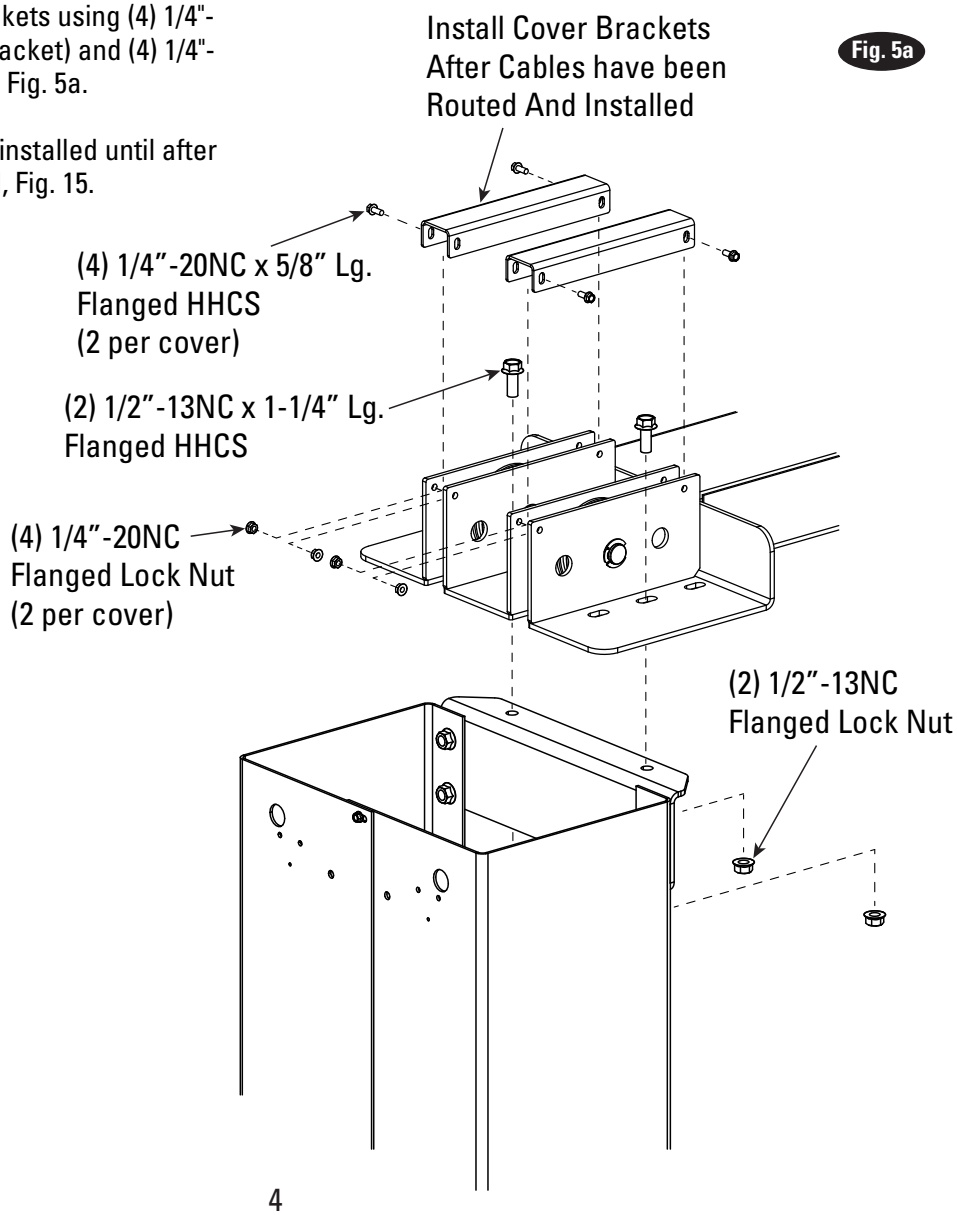


---

6. Attach overhead assembly to overhead bracket with (2) 1/2"-13NC x 1-1/4" lg. Flanged HHCS and (2) 1/2"-13NC Flanged Locknut. Install (2) cover brackets using (4) 1/4"-20NC x 5/8" lg. Flanged HHCS (2 per bracket) and (4) 1/4"-20NC Flanged Locknut (2 per bracket), Fig. 5a.

Notice, the cover brackets cannot be installed until after cables have been routed and installed, Fig. 15.

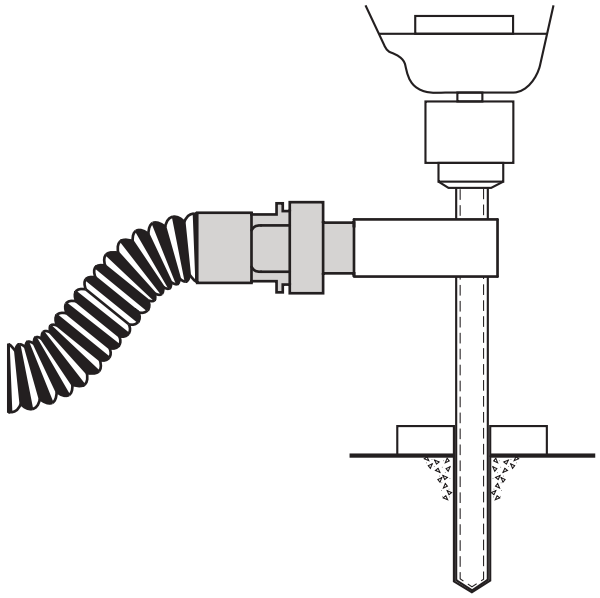
Fig. 5a



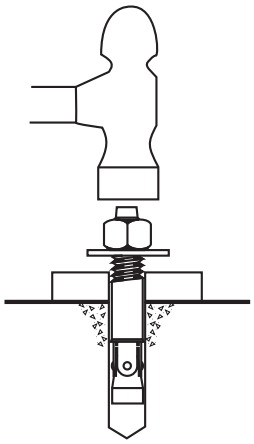
Concrete and Anchoring:

Drill (14) 3/4" dia. holes (7 per side) in concrete floor using holes in column base plate as a guide. See diagrams for hole depth, hole spacing, and edge distance requirements.

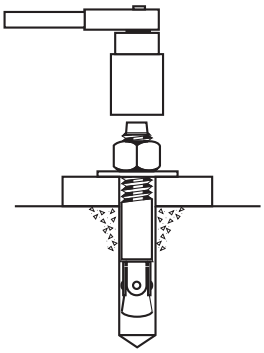
⚠ CAUTION DO NOT install on asphalt or other similar unstable surfaces. Columns are supported only by anchors in floor.



Drill holes using 3/4" carbide tipped masonry drill bit per ANSI B212.15. Construction dust collected per OSHA 29 CFR 1926.1153.



Run nut down just below impact section of bolt. Drive anchor into hole until nut and washer contact base.



Manually Hand Tighten nut with Torque wrench.

16-20K 2-Post Lift Anchor Installation Reference Guide

Anchor:	Min Concrete Thickness	Min Edge Distance	Min Anchor Embedment	Installation Anchor Torque (ft-lbs)	Min Concrete PSI Strength - For All Standards	Concrete pad Size If Concrete Does Not Meet Requirements	Maintenance Torque Values** (ft-lbs)	SEISMIC
Hilti Kwik Bolt I (3/4" x 5-1/2")	4-1/4" (108mm)	6-1/4" (159mm)	3-1/4" (83mm)	110 (149Nm)	3000 (20684 kPa)	6'x6'x8" (1829 x 1829 x 203mm)	65 (88Nm)	Varies by location consult with your structural engineer and manufacturer's representative.
DeWalt Power-Stud+SD1 (3/4" x 5-1/2")	4-1/4" (108mm)	6-1/4" (159mm)	3-1/4" (83mm)	110 (149Nm)	3000 (20684 kPa)	6'x6'x8" (1829 x 1829 x 203mm)	65 (88Nm)	
Hilti HY200 Epoxy (with HAS threaded rod) 3/4" Dia.	5" (127mm)	4-1/2" (114mm)	3-1/2" (89mm)	100 (135Nm) / less than 2-1/8" edge distance use Torque Value of 30 ft-lbs (41Nm)	3000 (20684 kPa)	6'x6'x8" (1829 x 1829 x 203mm)	N/A	

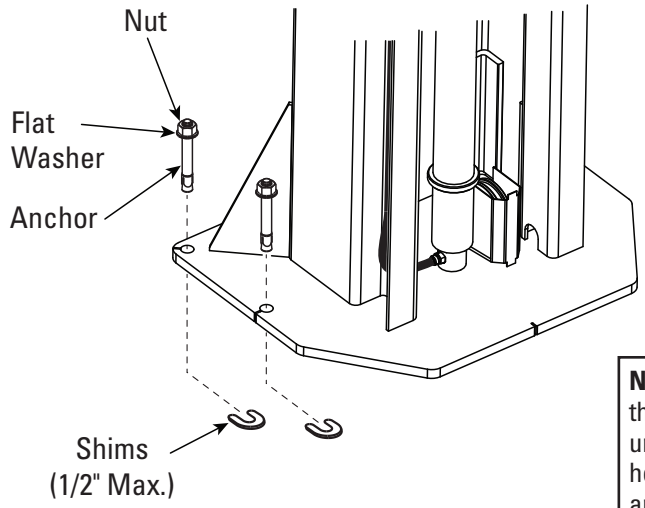
***The supplied concrete fasteners meet the criteria of the American National Standard "Automotive Lifts - Safety Requirements for Construction, Testing, and Validation" ANSI/ALI ALCTV: 2017, or latest edition, and the lift owner is responsible for all charges related to any additional anchoring requirements as specified by local codes.**
Contact customer service for further information at: 800.640.5438

7. **IMPORTANT** Using the horse shoe shims provided, shim each column base until each column is plumb. If one column has to be elevated to match the plane of the other column, full size base shim plates should be used (Reference Shim Kit N774-1Shim). Recheck columns for plumb. Tighten anchor bolts to an installation torque of 110 ft-lbs. Shim thickness MUST NOT exceed 1/2" when using the 5-1/2" long anchors provided with the lift, Fig. 6.

If anchors do not tighten to 110 ft-lbs (149 Nm) installation torque, replace concrete under each column base. See Figs. 6a and 6b.

NOTE: FIG. 6a and 6b were taken from drawing SPEC0476. If you would like the drawing in cad form or PDF please contact customer service.

Fig. 6



NOTE: If more than 2 horse shoe shims are used at any of the column anchor bolts, pack non-shrink grout under the unsupported area of the column base. Insure shims are held tightly between the baseplate and floor after torquing anchors.

FOUNDATION NOTES:

1. THE FOUNDATIONS HAVE BEEN DESIGNED BASED ON A PRESUMPTIVE LOAD-BEARING VALUE OF 1500 PSF PER IBC SECTION 1806. AN INSPECTOR OR SOILS ENGINEER SHALL VERIFY LOAD-BEARING VALUE CAPACITY.
2. FOUNDATIONS SHALL BEAR ON PROPERLY PREPARED AND COMPACTED SOILS CAPABLE OF SUPPORTING ROTARY LIFT LOADS.
3. PROTECT EXISTING UTILITIES AND STRUCTURES (OVERHEAD OR UNDERGROUND) WITHIN THE WORK AREA AS WELL AS ANY EXISTING FOUNDATION SYSTEM(S).
4. FOUNDATIONS WERE DESIGNED UTILIZING KBC SECTION 1605 ' ALTERNATIVE BASIC LOAD COMBINATIONS' WITHOUT THE 1/3 INCREASE IN THE ALLOWABLE BEARING PRESSURES DUE TO SHORT-TERM LOADING.
5. FOUNDATIONS SHALL BE PLACED ACCORDING TO THE DEPTHS SHOWN ON THE DRAWINGS. SHOULD SOIL ENCOUNTERED AT THESE DEPTHS NOT BE APPROVED BY THE INSPECTOR OR SOILS ENGINEER, FOUNDATION ELEVATIONS/DIMENSIONS MAY NEED TO BE MODIFIED BY THE ENGINEER. NOTIFY THE ENGINEER OF RECORD IF THIS IS THE CASE.

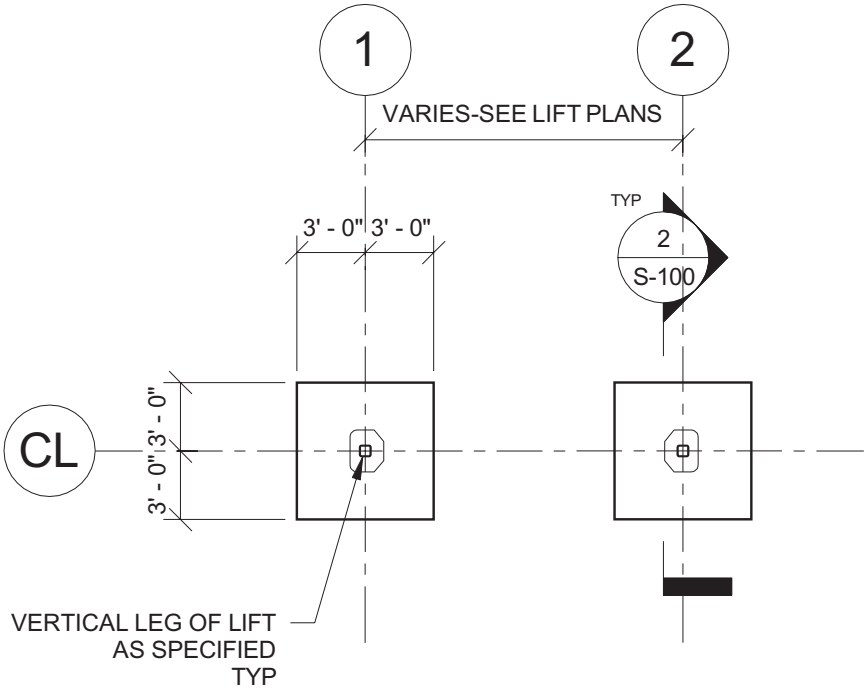
CONCRETE NOTES:

1. CONCRETE COMPRESSIVE STRENGTH - PROVIDE CONCRETE WITH THE FOLLOWING STRENGTHS AT THE LOCATIONS NOTED. MIX DESIGN, SLUMP, AIR ENTRAINMENT, AGGREGATE SIZE, ETC. SHALL BE IN CONFORMANCE WITH THE ACI 301, LATEST EDITION.

LOCATION	STRENGTH (PSI @ 28 DAYS)
SPREAD FOOTINGS.....	3000 PSI NORMAL WEIGHT

2. REINFORCING STEEL - ASTM A615 GRADE 60.
3. FABRICATE AND PLACE REINFORCEMENT IN ACCORDANCE WITH ACI PUBLICATION SP-66, ACI DETAILING MANUAL - LATEST EDITION.
4. PLACE CONCRETE IN COMPLIANCE WITH ACI 304. ALL CONCRETE SHALL BE MECHANICALLY VIBRATED.
5. REINFORCING SUPPORT - ALL REINFORCING SHALL BE ADEQUATELY CHAIRED/BOLSTERED. LIFTING OR HOOK IS NOT PERMITTED.

Fig. 6a


1
2
VARIES-SEE LIFT PLANS
TYP
2
S-100
3' - 0"
3' - 0"
CL
3' - 0"
3' - 0"
VERTICAL LEG OF LIFT
AS SPECIFIED
TYP

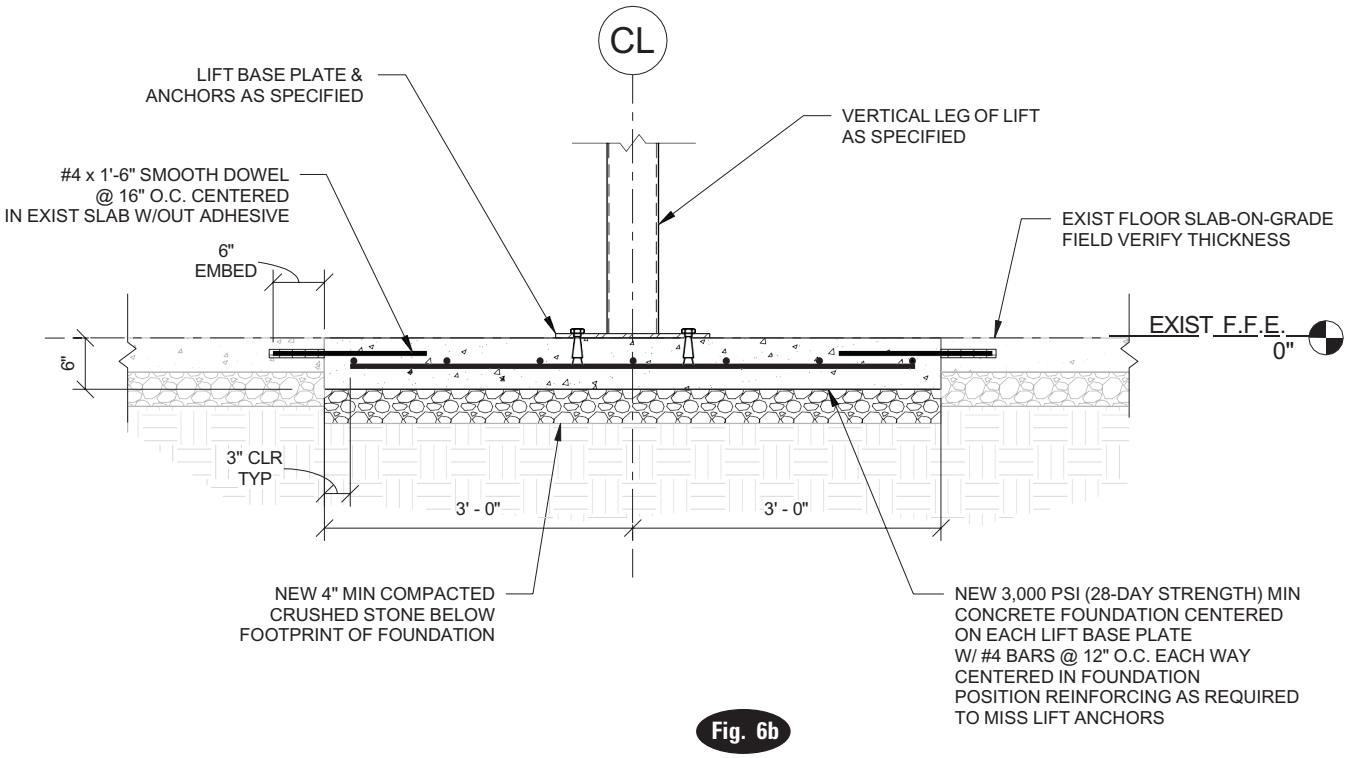

CL
LIFT BASE PLATE &
ANCHORS AS SPECIFIED
VERTICAL LEG OF LIFT
AS SPECIFIED
#4 x 1'-6" SMOOTH DOWEL
@ 16" O.C. CENTERED
IN EXIST SLAB W/OUT ADHESIVE
6"
EMBED
EXIST FLOOR SLAB-ON-GRADE
FIELD VERIFY THICKNESS
EXIST F.F.E.
0"
6"
3" CLR
TYP
3' - 0"
3' - 0"
NEW 4" MIN COMPACTED
CRUSHED STONE BELOW
FOOTPRINT OF FOUNDATION
NEW 3,000 PSI (28-DAY STRENGTH) MIN
CONCRETE FOUNDATION CENTERED
ON EACH LIFT BASE PLATE
W/ #4 BARS @ 12" O.C. EACH WAY
CENTERED IN FOUNDATION
POSITION REINFORCING AS REQUIRED
TO MISS LIFT ANCHORS

Fig. 6b

8. Mount Switch assembly towards power unit column as shown, Fig. 7, using (2) 1/4"-20NC x 3/4" lg. HHCS, nuts and Washers.

Insert 1/4"-20NC x 2-3/4" HHCS through pivot hole in end of switch bar. Insert opposite end of bar through slot in switch mounting bracket, Fig. 7a. Then secure HHCS and Switch Bar to overhead as shown, Fig. 7, using (2) 3/4" spacers and 1/4"-20NC Locknut. Tighten Hex bolt leaving 1/16" gap between the spacer and the overhead assembly.

Fig. 7

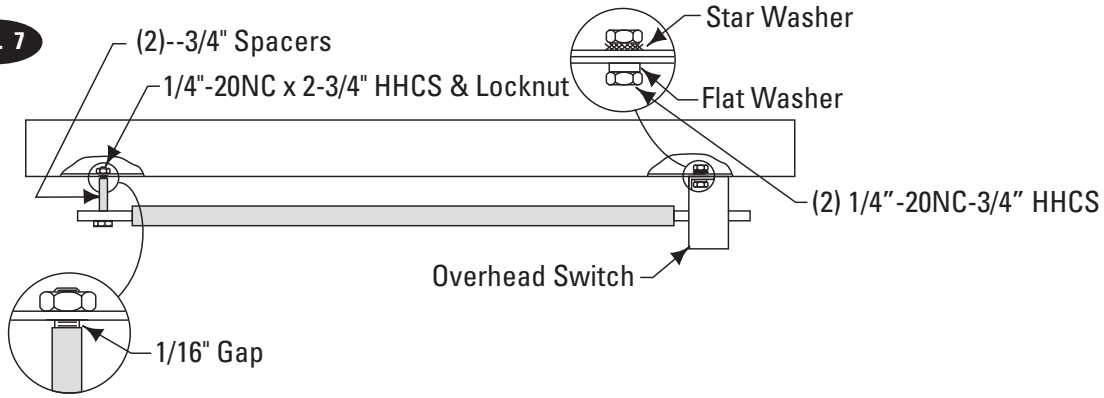
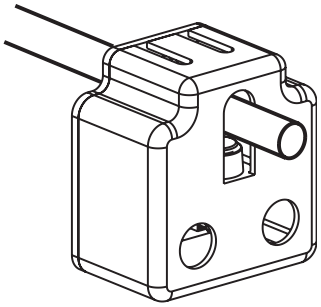


Fig. 7a



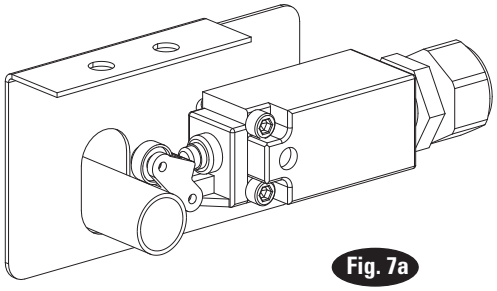
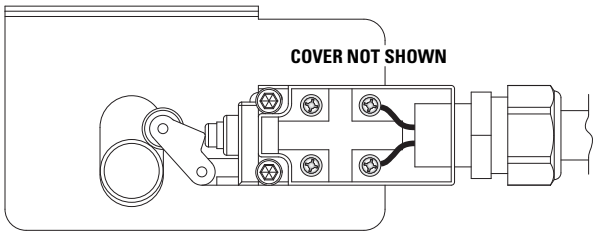
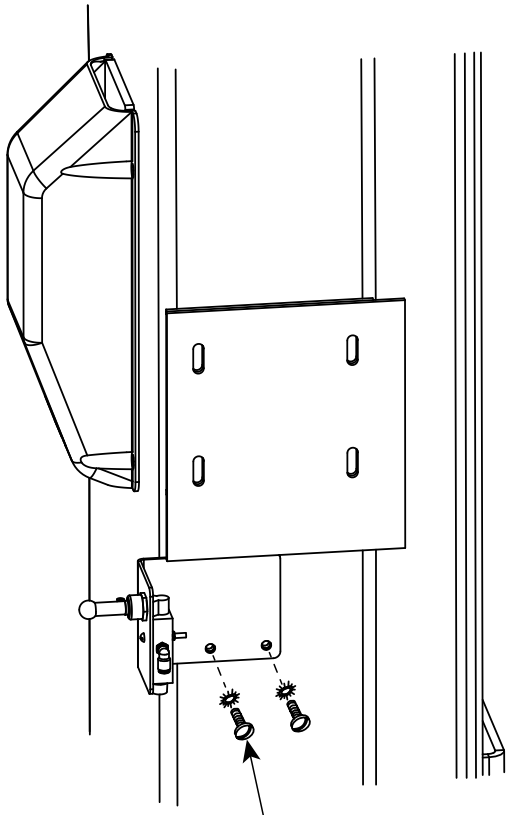


Fig. 7a



9. Mount latch release air valve and bracket to column using (2) 5/16"-18NC x 3/8" lg. PHMS with (2) 5/16" Ext. Tooth Lockwashers, Fig. 8.



(2) 5/16" x 3/8" Lg. Pan Head Screw
With (2) 5/16" Ext. Tooth Lockwashers

Fig. 8

Single Phase Power Unit
(For DC Version see pages 14-23)

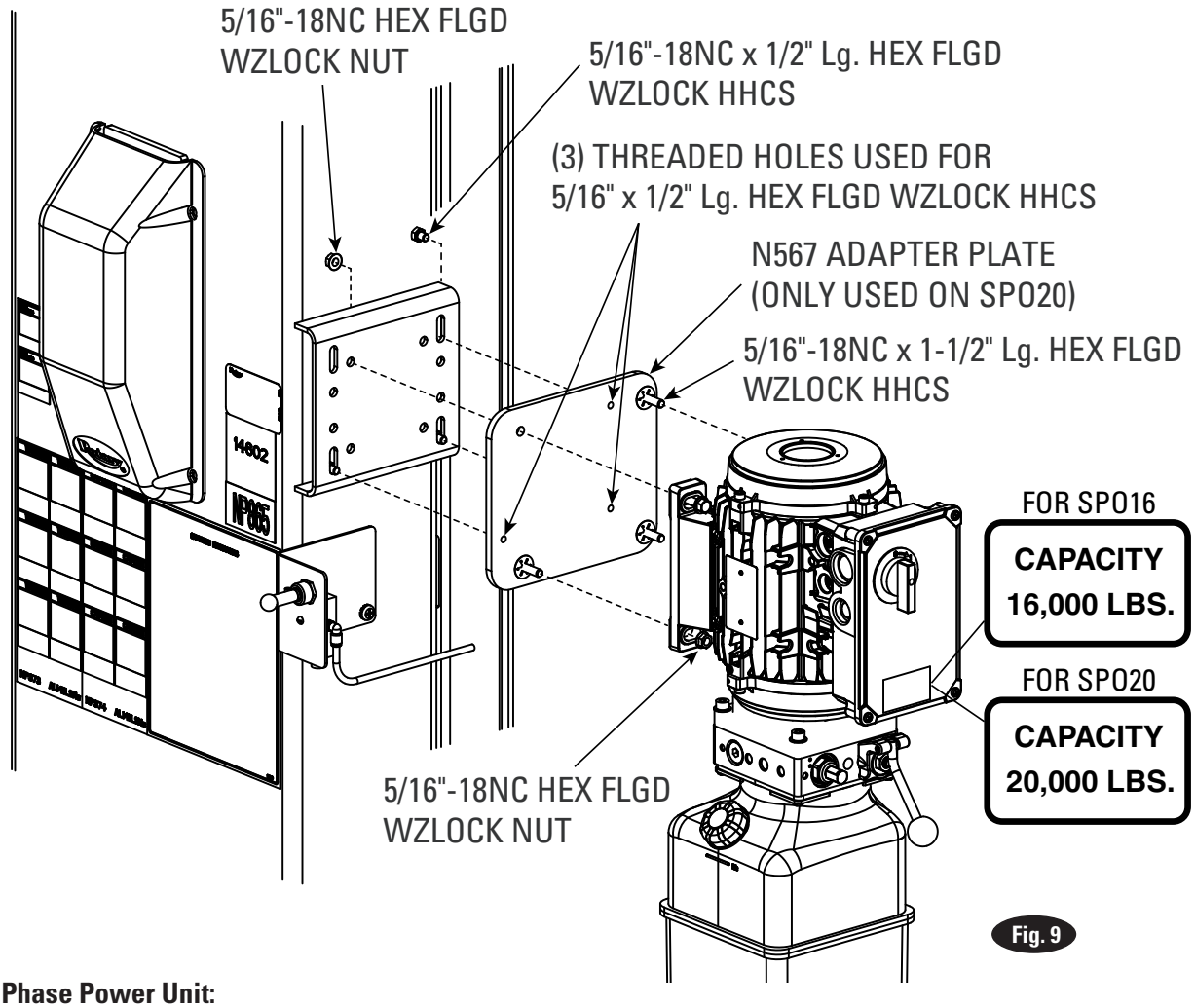


Fig. 9

10. Single Phase Power Unit:

A) Attach (3) 5/16"-18NC x 1 ½" lg. flange head cap screws to the adapter plate as shown with push nuts.

B) Attach the adapter plate to the column power unit bracket with (3) 5/16"-18NC x ½" lg. flange head cap screws as shown.

C) Attach the power unit to the adapter plate using the existing 1 ½" lg. hardware and 5/16"-18NC flange head nuts.

D) Add the last 5/16"-18NC x 1 ½" lg. flange head cap screw and nut (upper left as shown) to complete the power unit installation, Fig. 9.

E) Attach straight thread adapter, swivel elbow, flow control regulator, and o-ring face seal tee as shown, Fig. 10.

⚠ CAUTION Over tightening locknut may tear O-ring or distort threads in pump manifold outlet.

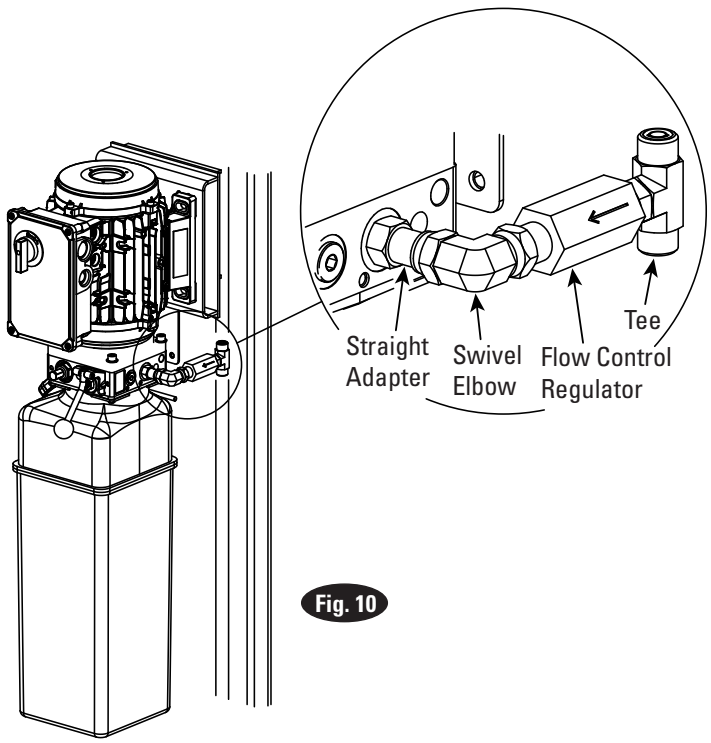


Fig. 10

11. Hoses: Clean adapters and hose. Inspect all threads for damage and hose ends to be sure they are crimped.

Adapter & Hose Installation

A) Install item (2) with hose clamps, on power unit column side connecting it to the cylinder (1) first.

B) Install item (3) with hose clamps starting at left column cylinder (5) and working toward the right column. All excess hose should be at bends & inside overhead assembly.

C) Connect item (2) & item (3) to Tee (4).

IMPORTANT: All O-ring face seal connections should be torqued to 18-20 ft. lbs.

NOTE: Route Power Unit hose inside columns using slots provided at column base, Fig. 11, Fig. 12, and Fig. 13. Route Overhead Hose in column channel on outside of column to inside of column extensions. Attach to column extensions with pipe clamp and route up and thru hole in each end of the overhead.

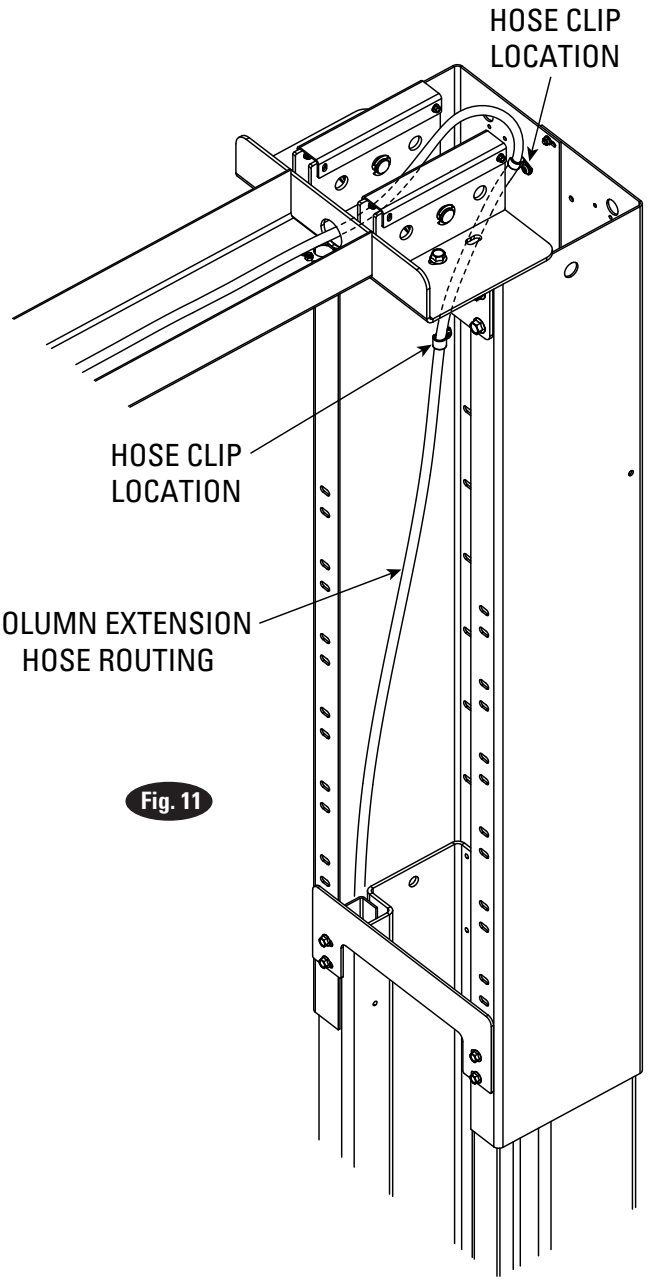
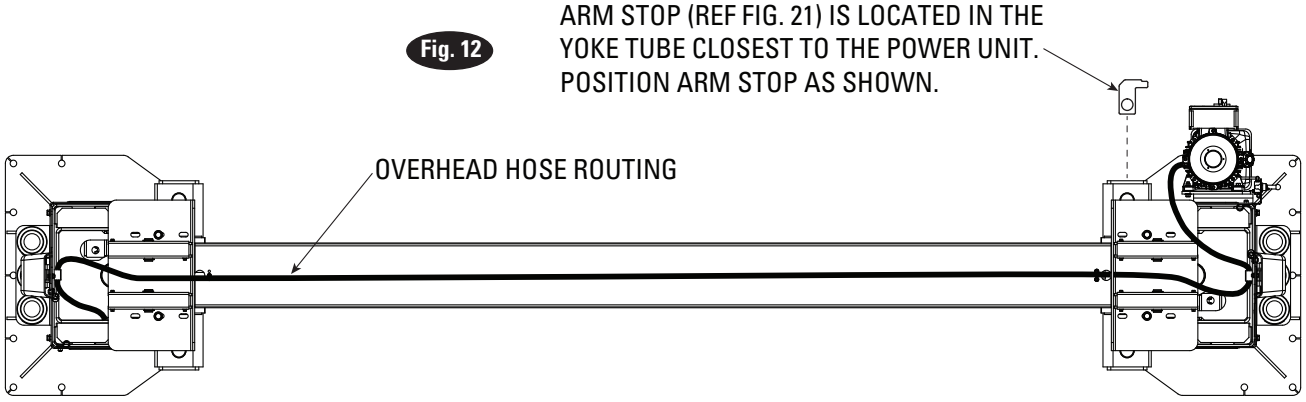
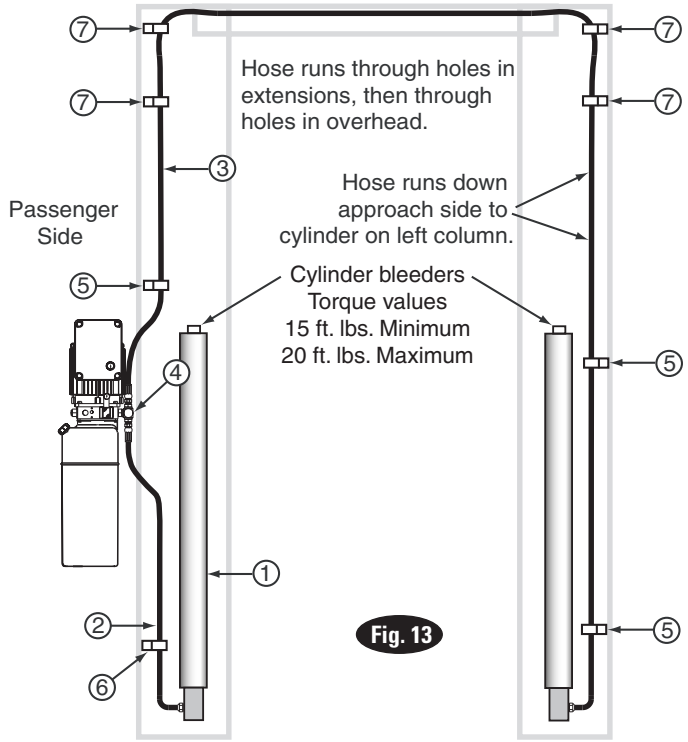


Fig. 11

Fig. 12





ITEM	QTY.	DESCRIPTION
1	2	Hydraulic Cylinder
2	1	Power Unit Hose
3	1	Overhead Hose
4	1	Branch Tee
5	3	Hose Clips(5/8")
5	3	5/16"-18NC x 3/8" lg. PHMS
6	1	Hose Clips(5/8")
6	1	5/16"-18NC x 3/8" lg. PHMS
7	4	Hose Clips(5/8")
7	4	5/16"-18NC x 5/8" lg. PHMS
7	4	5/16"-18NC Nut

12. Equalizer Cables: Fig. 15 describes general cable arrangements. It is easier to tie-off lower (short) cable studs first. **Notice**, long cable studs must be located on top, Fig. 14.

A) Run cable stud up through the lower tie-off plate, and/or bracket(s), and/or spacer(s) depending on the lift model, Fig. 15.

B) Push cable up until stud is above top of carriage Fig. 15.

C) Run nylon insert locknut onto studs so that 1/2" extends out from locknut Fig. 15.

D) Pull cables back down through carriage Fig. 15.

E) Run cable overhead and tie-off top (long) cable studs and torque to about 100 in-lbs., see Fig. 14 & Fig. 15.

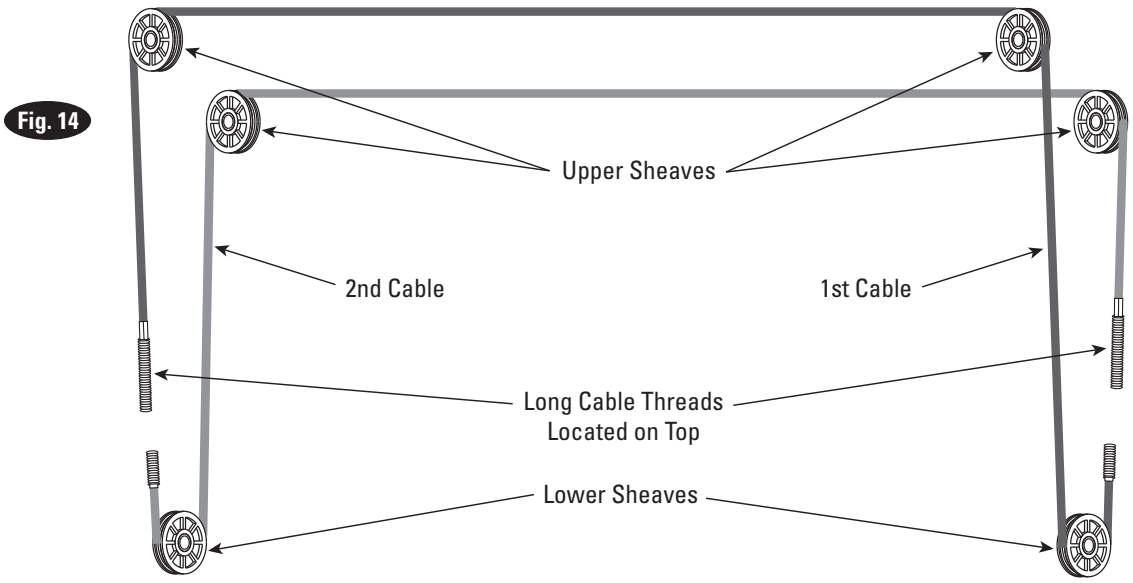
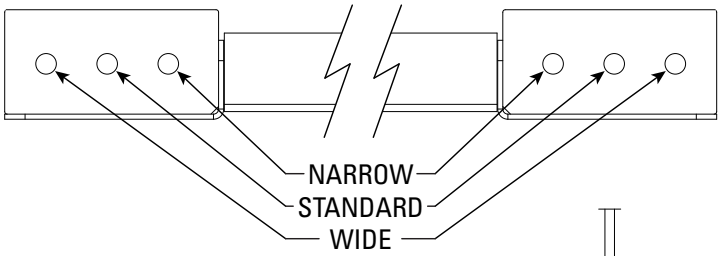


Fig. 14

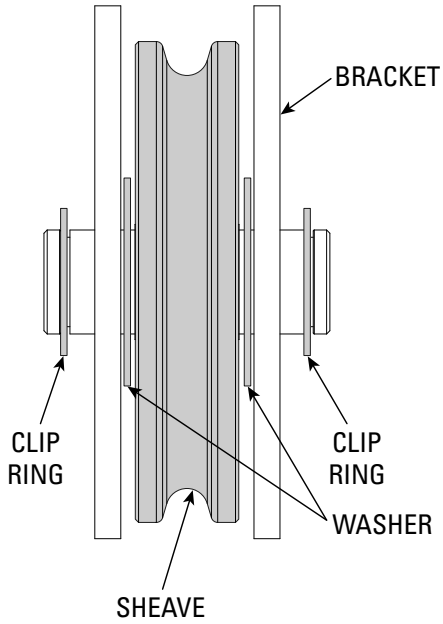
***Longer threaded side must always be tie - off at upper tie - off (1 and 1a)
***Overhead must have matching sheave placement on both sides to be installed correctly

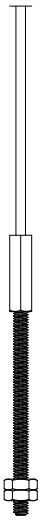
Cable	Height	Stance					
		Narrow		Standard		Wide	
484, standard ceiling	198″	Upper Tie-off 1	Lower Tie-off 3 + 12″spacer	Upper Tie-off 1a	Lower Tie-off 3	Upper Tie-off 1	Lower Tie-off 3
	192″	Upper Tie-off 1	Lower Tie-off 2	Upper Tie-off 1a	Lower Tie-off 3 + 12″spacer	Upper Tie-off 1	Lower Tie-off 3 + 12″spacer
	186″	Upper Tie-off 1	Lower Tie-off 2 + 12″spacer	Upper Tie-off 1a	Lower Tie-off 2	Upper Tie-off 1	Lower Tie-off 2
	180″	Upper Tie-off 1a	Lower Tie-off 2 + 18″ spacer	Upper Tie-off 1a	Lower Tie-off 2 + 12″spacer	Upper Tie-off 1	Lower Tie-off 2 + 12″spacer
436, low ceiling	174″	Upper Tie-off 1	Lower Tie-off 3 + 12″spacer	Upper Tie-off 1a	Lower Tie-off 3	Upper Tie-off 1	Lower Tie-off 3
	168″	Upper Tie-off 1	Lower Tie-off 2	Upper Tie-off 1a	Lower Tie-off 3 + 12″spacer	Upper Tie-off 1	Lower Tie-off 3 + 12″spacer
	162″	Upper Tie-off 1	Lower Tie-off 2 + 12″spacer	Upper Tie-off 1a	Lower Tie-off 2	Upper Tie-off 1	Lower Tie-off 2

OVERHEAD SHEAVE PLACEMENT

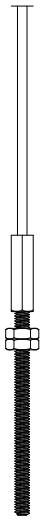


OVERHEAD SHEAVE INSTALL





NUT LOCATION FOR OPTION 1



NUT LOCATION FOR OPTION 1A

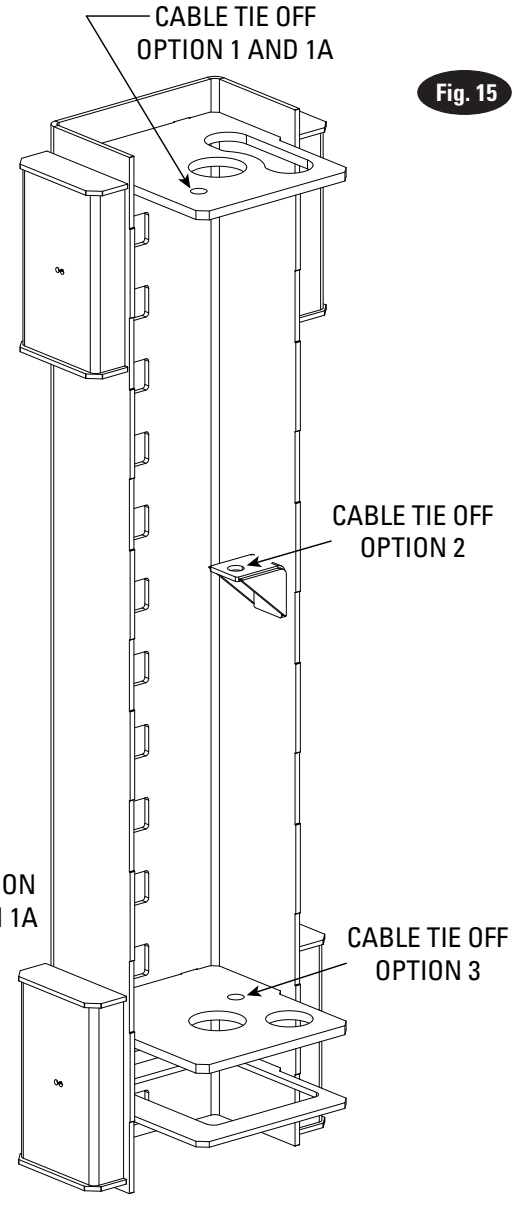


Fig. 15

13. Locking Latch & Air Cylinders:

A) To install cylinder, first slip dampening spacer over rod with rod in retracted position as shown below, Fig. 16.

B) Put locknut on threaded shaft and run it down to the dampening spacer.

C) Let rod extend and thread locknut down 1-1/2 more turns.

D) Screw Bracket Clevis onto shaft, position, and tighten locknut securely, Fig. 16.

E) Slide latch control plate into top cylinder Bracket Clevis.

F) Insert Pivot Pin through hole in bracket and Latch Plate. Install one clip ring on each side of Upper Pin.

G) Extend cylinder where column Pivot Bracket is to be mounted.

H) Slide one side of lower Pivot Pin (pre-installed & fixed in cylinder) into one half of the column Pivot Bracket. Install Pivot Bracket into column using (2) 1/4"-20NC x 3/8" lg. PHMS, Fig. 16.

I) Install other half of Pivot Bracket the same way.

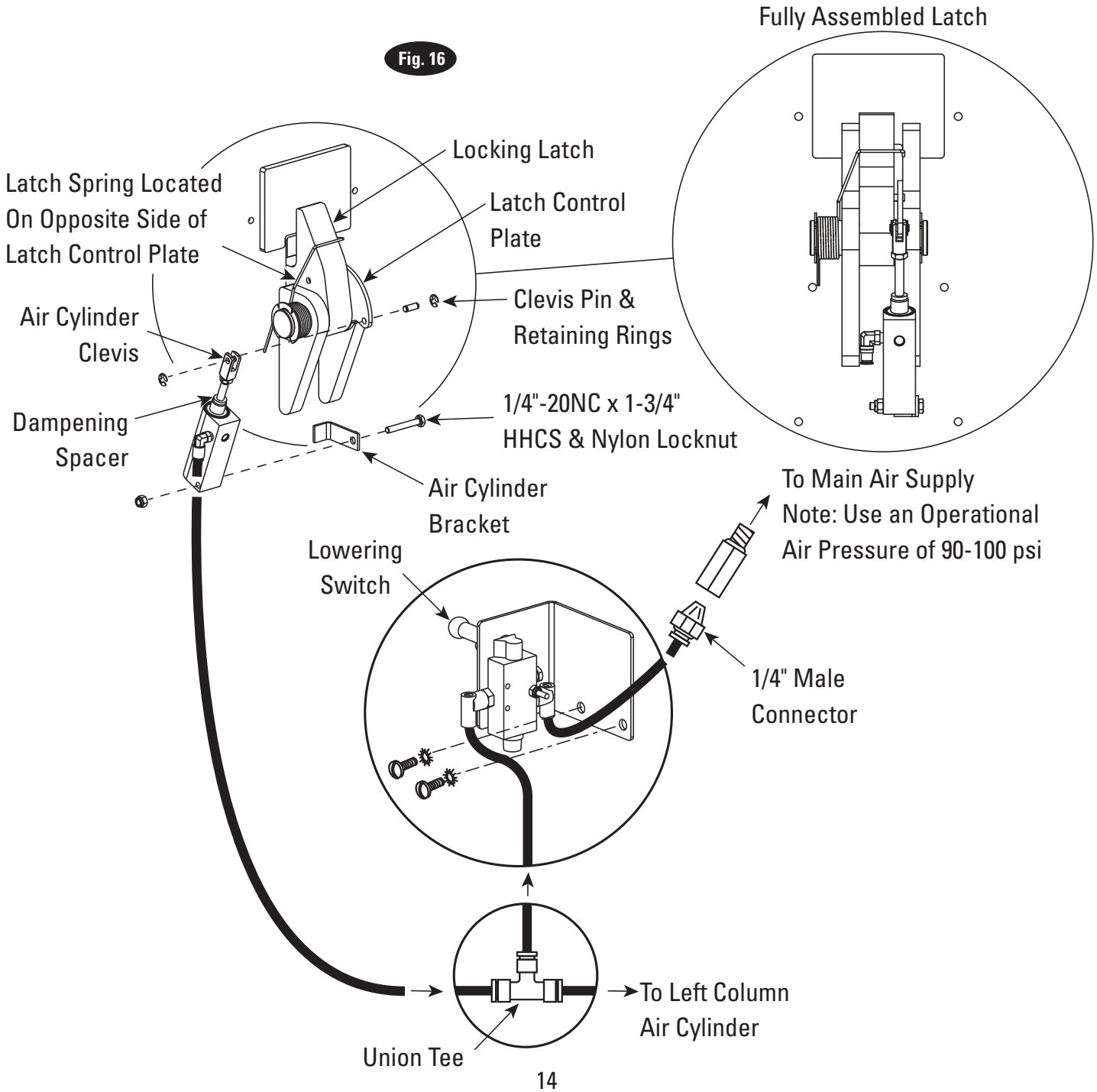
J) Install air lines from main air supply (with filter) to latch release air valve. Install air line from lathch release air valve to union tee then to the right column air cylinder.

K) Install air line from union tee to left column air cylinder, Fig. 18.

L) Route airlines along and wire tie to the hydraulic hoses.

Note: Absence of air filter/regulator/lubricator will void the warranty on all pneumatic components.

Fig. 16



Note: Cut provided tubing with sharp blade to length as required. Tubing must be cut square with no burrs. To assemble air line tubing into fitting, use firm, manual pressure to push tubing into fitting until it bottoms, see below. If removal of the air line tubing from the fitting is ever required, hold Push Sleeve in (against fitting) and at the same time, pull out on tubing.

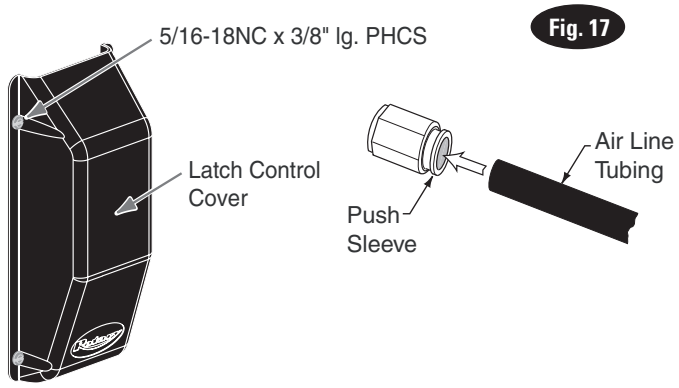


Fig. 17

Locking Latch Engagement Test:

A) Raise carriages past the first latch position and then lower onto latches.

B) Check that the latches have fully engaged when the release switch is not depressed.

C) Raise carriages fully off latches. Now depress release switch and check that the latches have fully disengaged.

D) Check for air leaks, make necessary adjustments or repairs if required.

E) Install latch covers with 5/16"-18NC x 3/8" lg. PHCS, Fig. 17.

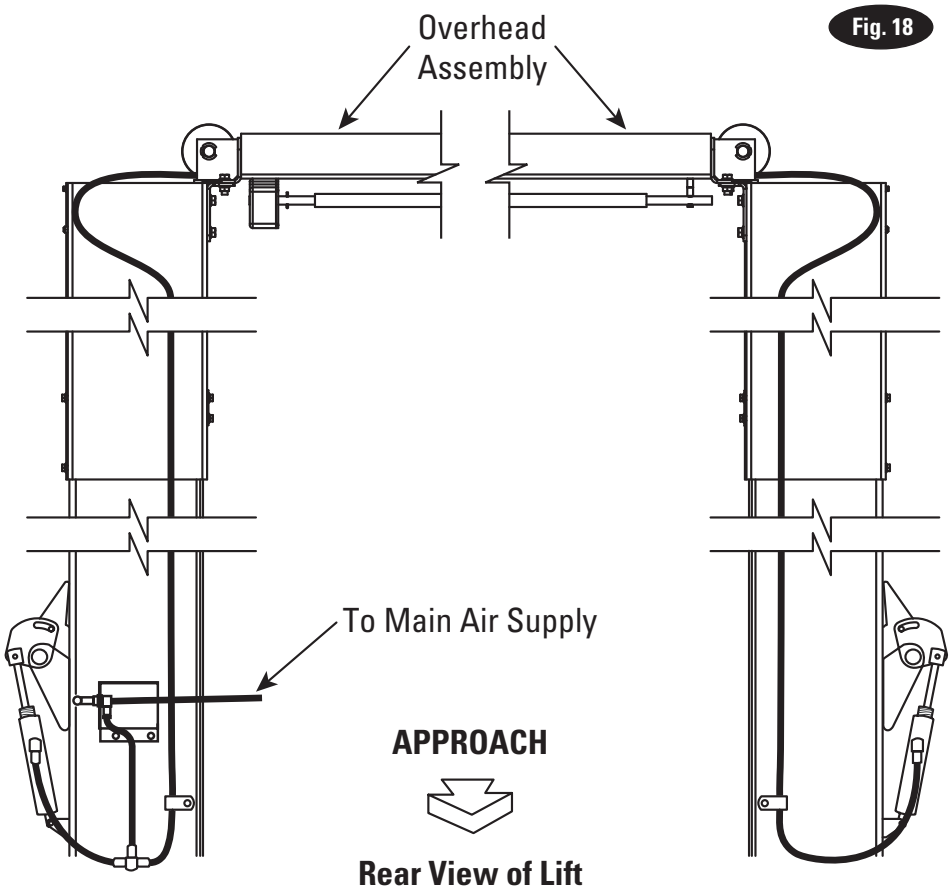


Fig. 18

14. Electrical: Have a certified electrician run appropriate power supply to motor, Figs. 19 and 20. Size wire for 20 amp circuit. See Motor Operating Data Table.

⚠ CAUTION Never operate the motor on line voltage less than 208V. Motor damage may occur.

IMPORTANT: Use separate circuit for each power unit. Protect each circuit with time delay fuse or circuit breaker. For single phase 208-230V, use 20 amp fuse. For wiring see Figs. 19 and 20. All wiring must comply with NEC and all local electrical codes.

Note: 60Hz. single phase motor **CAN NOT** be run on 50Hz. line without a physical change in the motor.

15. Overhead switch: Check overhead switch assembly to assure that switch bar is depressing switch plunger sufficiently to actuate the switch. The overhead switch is wired normally open, see Fig. 20. Lift will not operate until weight of switch bar is depressing switch plunger. Verify that Power Unit stops working when switch bar is raised, and re-starts when the bar is released.

⚠ CAUTION When bleeding, hold a shop cloth over bleeder screw to buffer the air and fluid while bleeder-valve is open.

16. Oil Filling & Bleeding: Use Dexron III ATF, or Hydraulic Fluid that meets ISO 32 specifications. Remove fill-breather cap, Fig. 20. Pour in (8) liters of fluid. Start unit, raise lift about 2 ft. Open cylinder bleeders approx. 2 turns, Fig. 13.

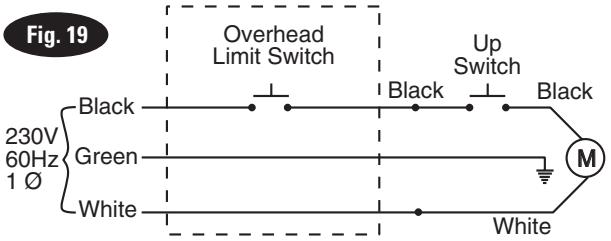
Close bleeders when fluid streams. Torque values for the bleeders are 15 ft. lb. minimum and 20 ft lb. maximum. Fully lower lift. Add more fluid until it reaches fill line on the tank. System capacity is (14) liters. Replace fill-breather cap.

⚠ CAUTION If fill-breather cap is lost or broken, order replacement. Reservoir must be vented.

Single Phase Power Unit

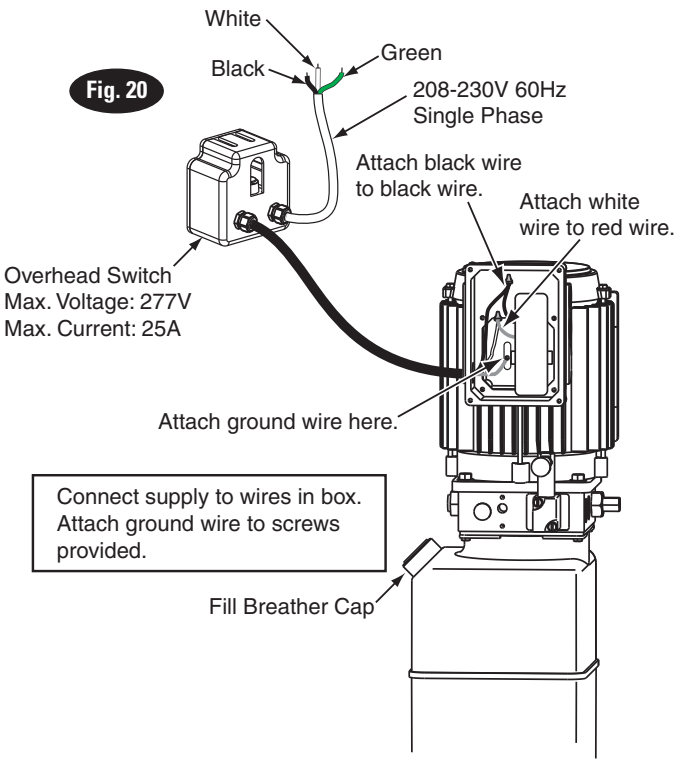
MOTOR OPERATING DATA TABLE - SINGLE PHASE	
LINE VOLTAGE	**RUNNING MOTOR VOLTAGE RANGE**
208-230V 50Hz.	197-253V
208-230V 60Hz.	197-253V

Fig. 19



Note: 60Hz. Single phase motor CAN NOT be run on 50Hz. line without a physical change in the motor.

Fig. 20



NOTE: Assure cord used for connection between the overhead switch and power unit is of the type specified in:

UL201, Sections 10.1.1.3 & 10.1.1.4

(Example: SO, G, STO) Size for 25 amp circuit. See UL 201, Section 15 for proper wiring requirements for this connection.

17. Arm Restraints & Superstructure:
Before installing arms, confirm arm pins and arm pin holes are greased with anti-sieze. Slide arm onto yoke and install the arm pins. (Recommended 2 people for install).

Note: Install Arm Stop only in the yoke tube closest to the Power Unit as shown in Fig. 21.
Install arm restraint gear over pin and into the slot in the arm pin ensuring the side of the gear marked TOP is facing upward. Fig. 22.

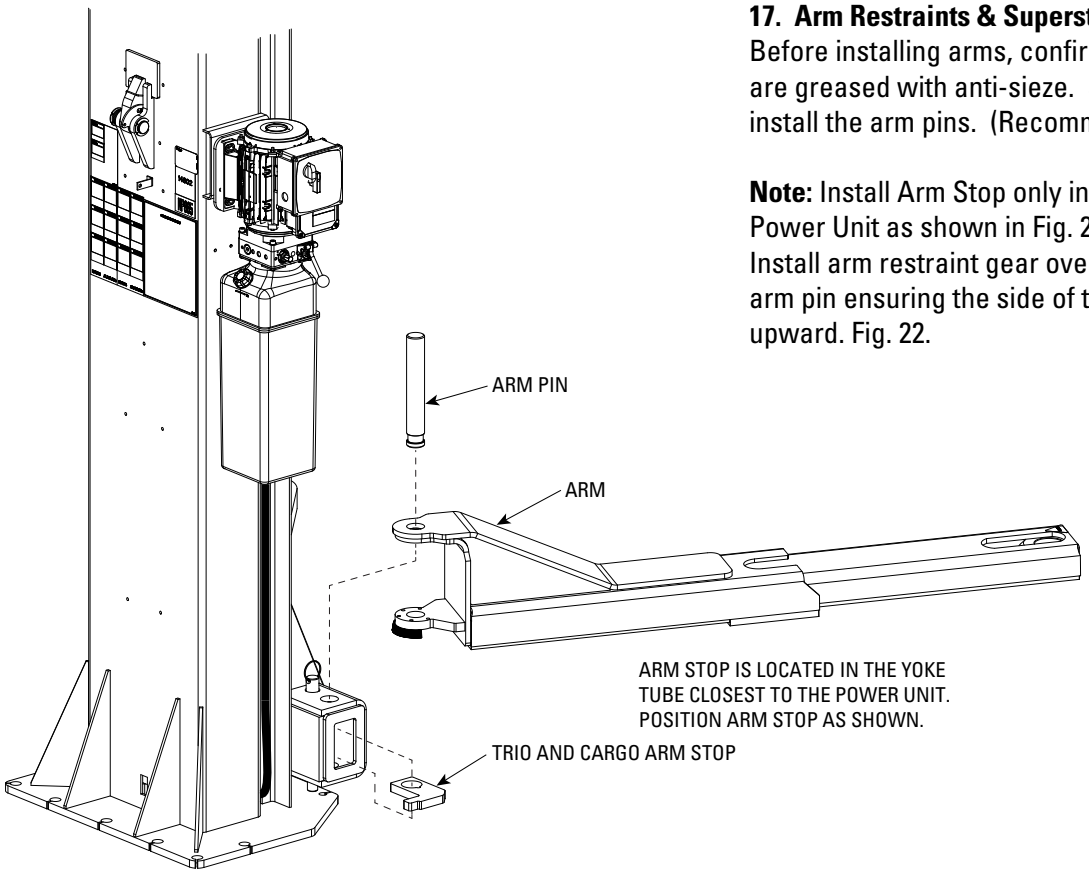


Fig. 21

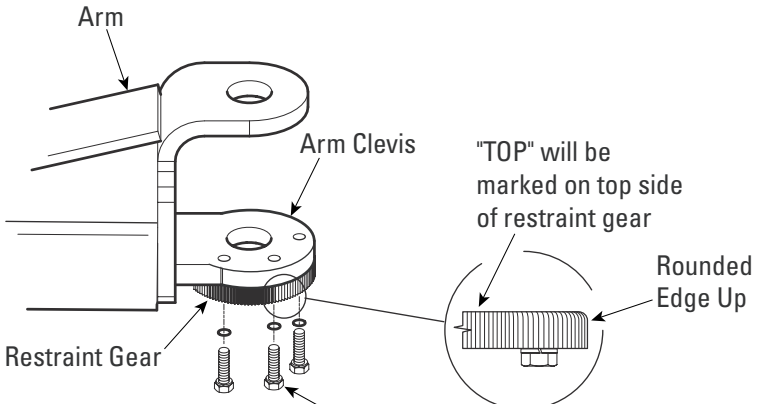
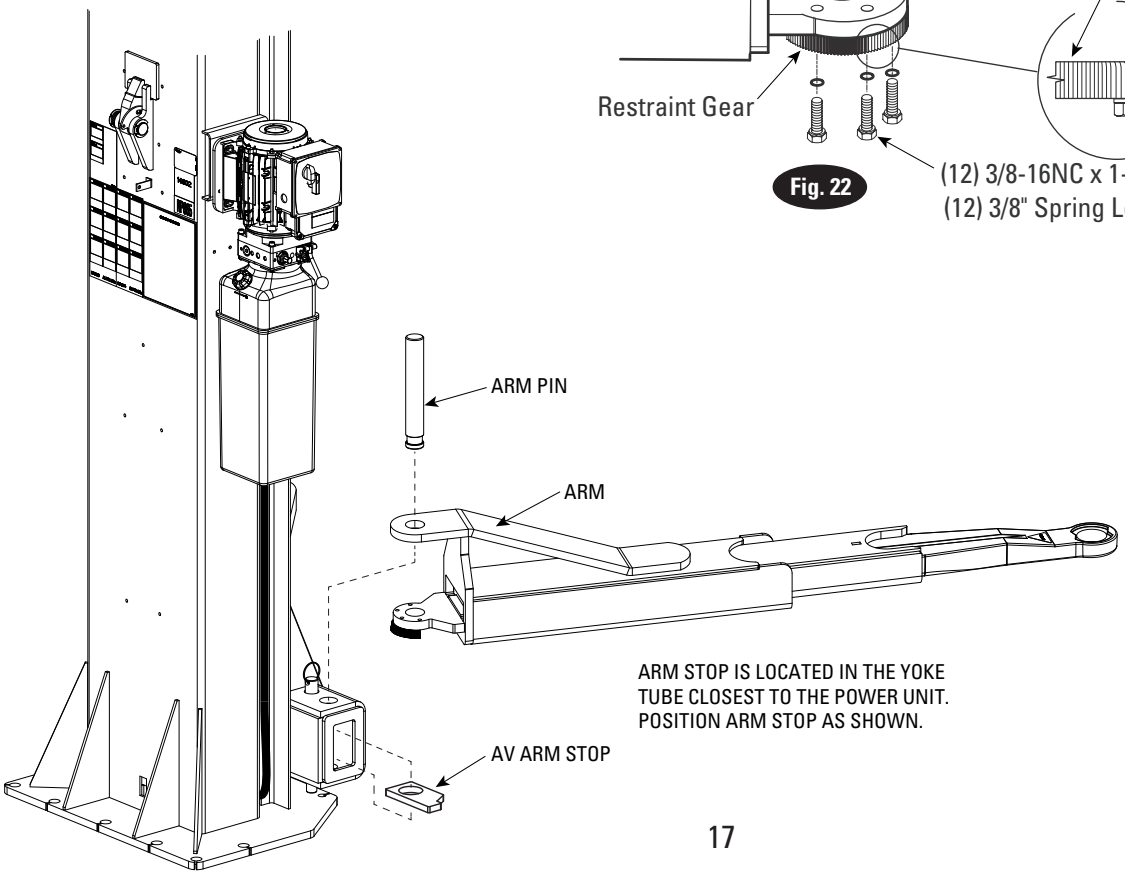


Fig. 22

OPTIONAL AV ARM
(AVAILABLE FOR SPO16 ONLY)



After installing arm pin, torque the three Restraint Gear bolts to 30-34 Ft-Lbs. Let the Gear Block down allowing the teeth of the Restraint Gear and Gear Block to mesh together, Fig. 24.

Fig. 24

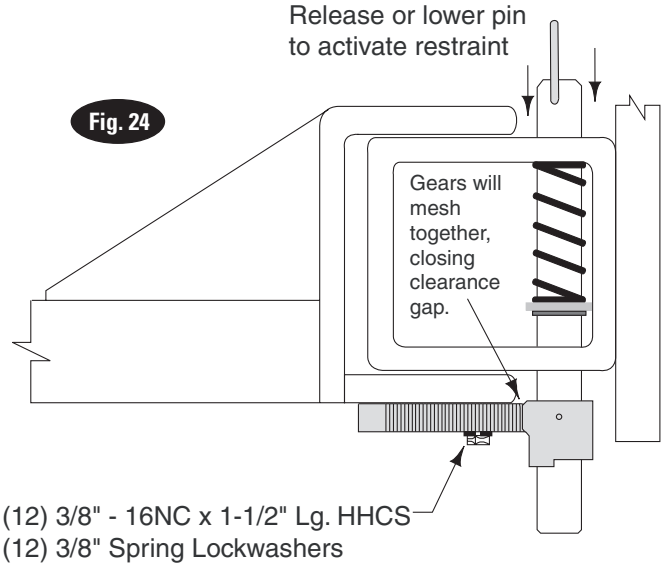
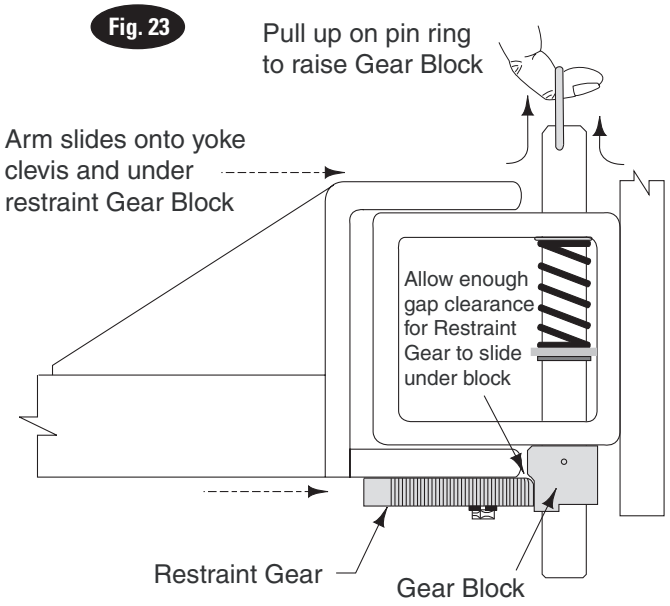


Fig. 23



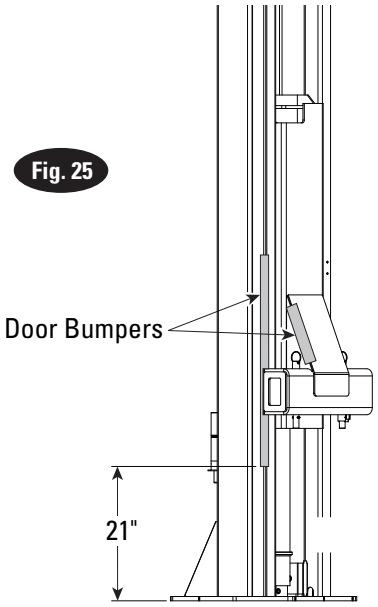
Note: Pin, Ring, Spring and Gear Block are pre-assembled at factory. No set up required.

Note: To check operation of arm restraints, raise carriage 1" min. from full down position. Pull up on pin-ring and adjust arms to desired position. To engage restraint, let pin-ring down allowing gear teeth to mesh together. It may be necessary to rotate arm slightly to engage gear teeth.

18. Wheel Spotting Dishes: Position wheel spotting dishes as described in Fig. 1. Drill (4) 3/8" holes 2 1/2" deep in concrete floor using holes in wheel spotting dishes as guide. Drive all anchors, provided, into concrete to secure dish.

19. Door Bumper Installation:
1) Press bumpers on column edge and carriage, Fig. 25.
Note: Door Bumpers may need to be installed in different areas depending upon type(s) of vehicles used. The above installation is the most recommended.

Fig. 25

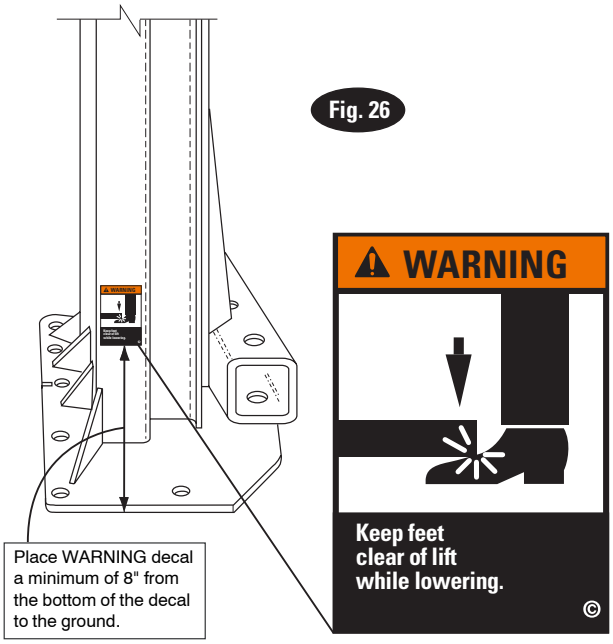


20. Pressure Test: Run lift to full rise and keep motor running for 5 seconds. Stop and check all hose connections. Tighten or reseal if required. Repeat air bleeding of cylinders.

21. Final Adjustments: Raise lift to check equalizer cable tension. Below carriage, grasp adjacent cables between thumb and forefinger, with about 15 lbs. effort you should just pull the cables together. Adjust at upper tie-offs, Fig. 15.

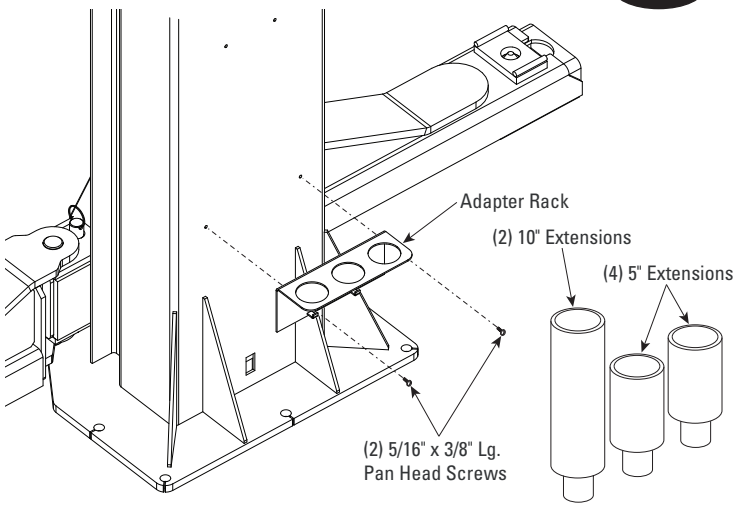
22. Decal Location: Install enclosed pinch point decals. Place (1) decal on each column, Fig. 26.

Fig. 26



23. Adapter Rack: Install adapter rack, Fig. 27. Place extension in racks.

Fig. 27



WARNING (2) qty. 10" adapter extensions and (4) qty. 5" adapter extensions are supplied with each lift. These extensions should not be stacked more than 15" high.

24. Upon completion of the assembly of the lift, the lift is to be operated to assure proper function. Observe for locks operating in all locking positions, each side lifts equally, hydraulics do not leak, all electrical controls function as labeled, all pneumatics are functional and leak free, ramps rotate freely (if applicable), and proper clearances with all items in bay have been maintained.

Operate the lift with a typical vehicle and observe to assure the same items for proper functioning.

SPO16 - SPO20 2-Post DC Installation

Recommended Battery Specifications		
	Normal Operation and Life	High Use (15 minutes or less between lift cyles) or increase in life under normal use
Battery Type	Standard Lead Acid	Absorbed Glass Mat (AGM) Technology
Voltage	12V	12V
Size	Group 24	Group 24
Cold Cranking Amps	525	710
Terminal Location	Top	Top
Note: If a single battery fails during use the system should be evaluated to determine if the second battery should be replaced at the same time to avoid down time at a later date due to issues with the battery.		

25. Power Unit:

A) First, install (1) star washer onto one of the (4) 5/16"-18NC x 1" long HHCS. This is very important for grounding.

B) Put the (4) 5/16"-18NC x 1" HHCS thru holes in the power unit bracket and splash shield using push-nuts to hold in place, Fig. 28.

C) Mount power unit with motor up to the column bracket and install (2) 5/16" star washers and (4) 5/16" nuts.

26. DC Control Cabinet:

A) First, remove front plastic covers and lower cover, Fig. 29, and set aside to be reinstalled later.

Fig. 28

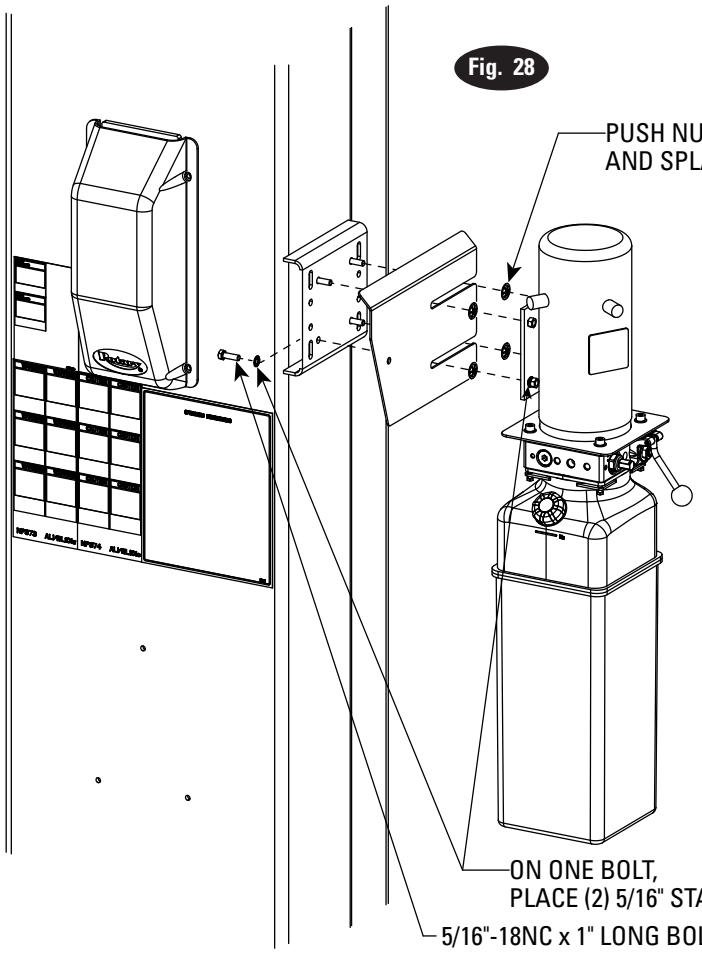
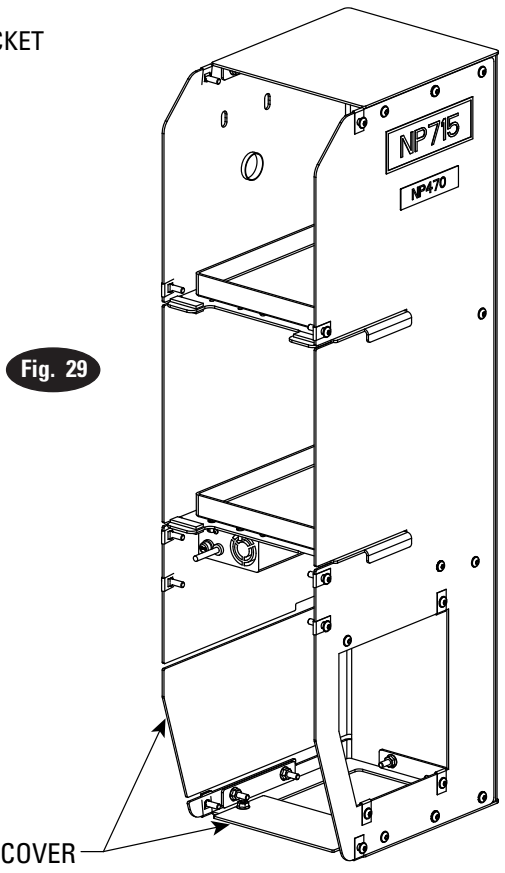
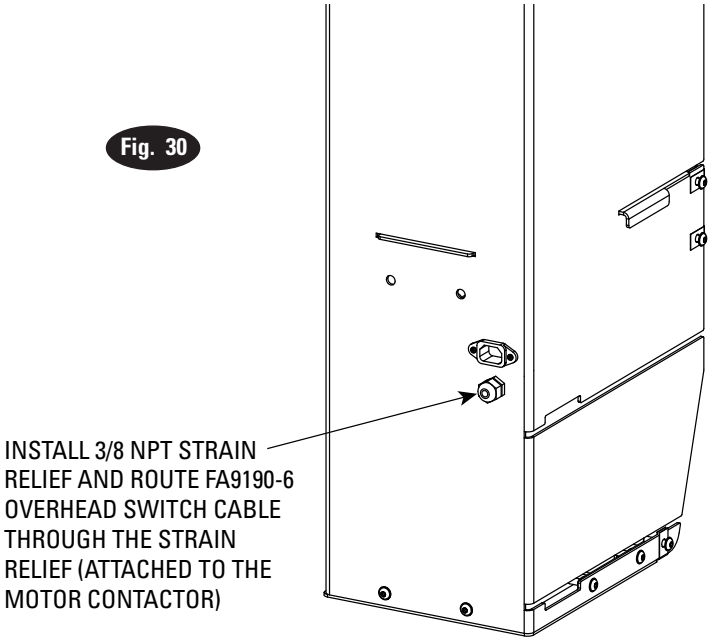


Fig. 29



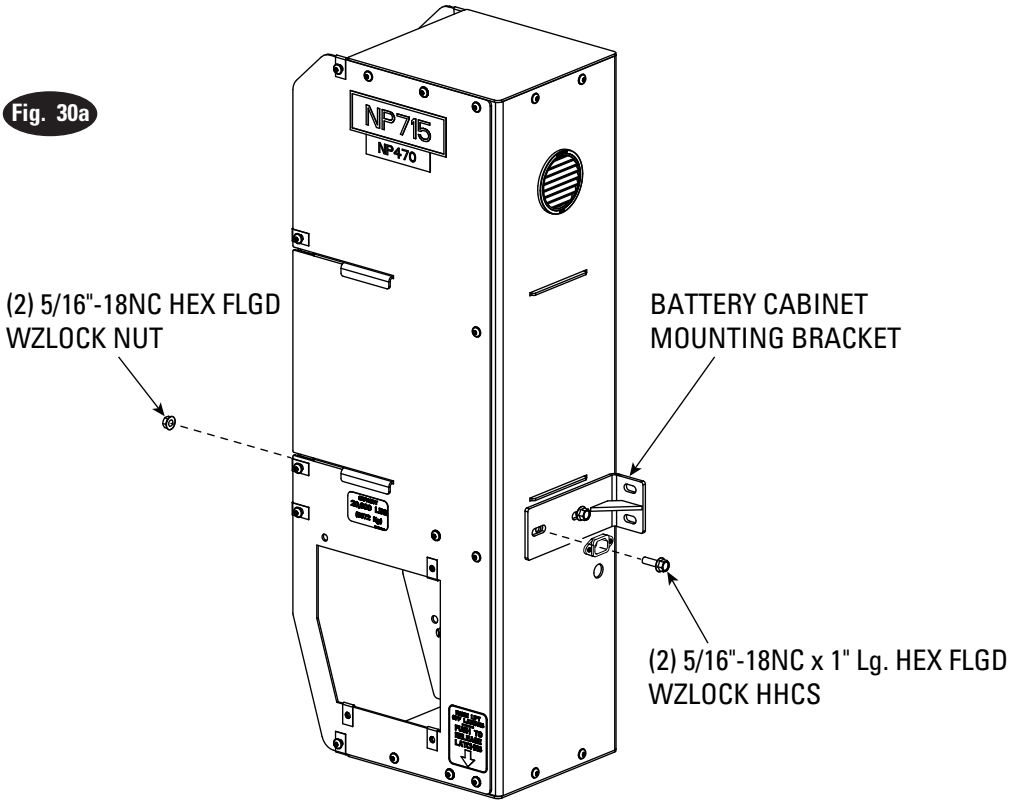
B) Install included 3/8 NPT strain relief and nut to the back of the cabinet and route the FA9190-6 over head switch cable through the strain relief, Figure 30. The FA9190-6 overhead switch cable is shipped attached to the grounding bolt inside the DC control cabinet.

Fig. 30



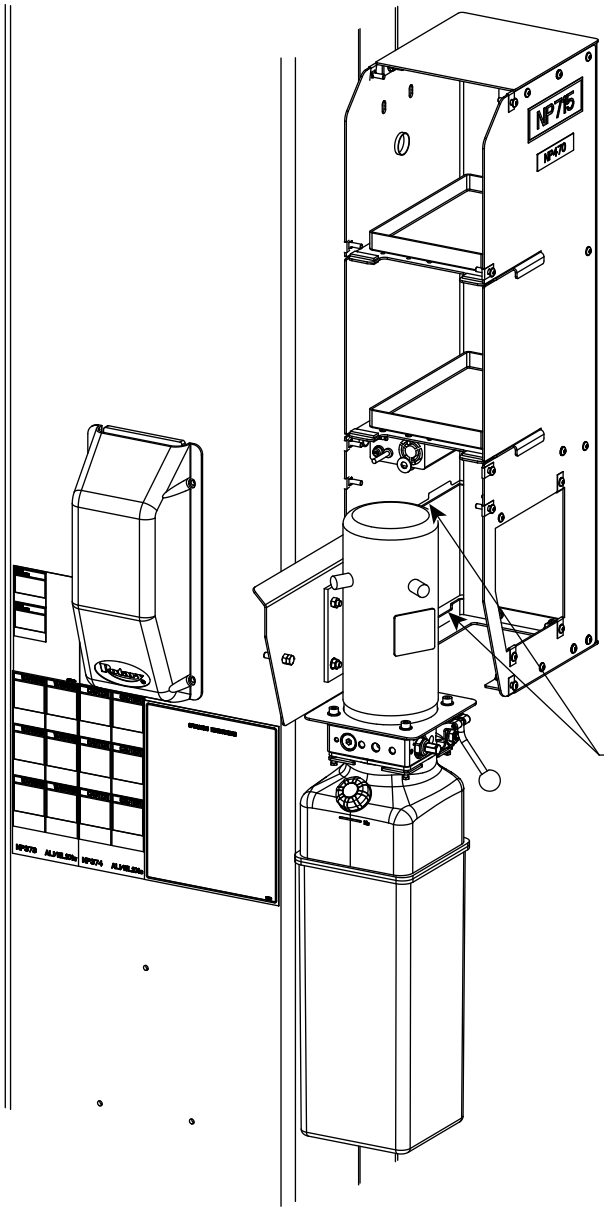
C) Attach battery cabinet mounting bracket to the cabinet with (2) 5/16"-18NC x 1" lg. flange head cap screws and nuts as shown, Figure 30a.

Fig. 30a



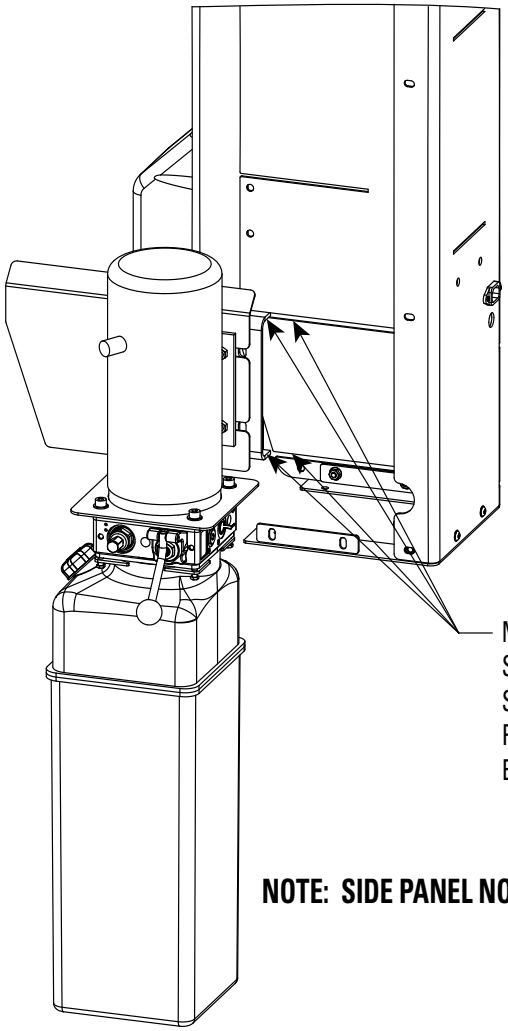
D) Mount DC control cabinet by sliding slots around the power unit bracket flanges, Figure 31 and 32.

Fig. 31



MOUNT CABINET SO THAT SLOTS SLIDE AROUND POWER UNIT BRACKET FLANGES

Fig. 32



MOUNT CABINET SO THAT SLOTS SLIDE AROUND POWER UNIT BRACKET FLANGES

NOTE: SIDE PANEL NOT SHOWN

27. DC Control Cabinet Top Bracket:

A) Secure top of DC control cabinet by mounting bracket to the top of the column as shown in fig. 33.

B) Fasten the bracket to the column, to the extension, using the included hardware as shown in fig. 33.

C) Mount the bracket to the side of the cabinet using the included hardware as shown in fig. 33.

D) The DC control cabinet should rest against the side of the column.

E) Fasten the included 5/16"-18NC x 1-1/2" full thread bolt and (2) 5/16"-18NC hex nuts to the splash shield as shown in figures 34 & 35.

ATTENTION Do not overtighten the bolt and push the enclosure outward.

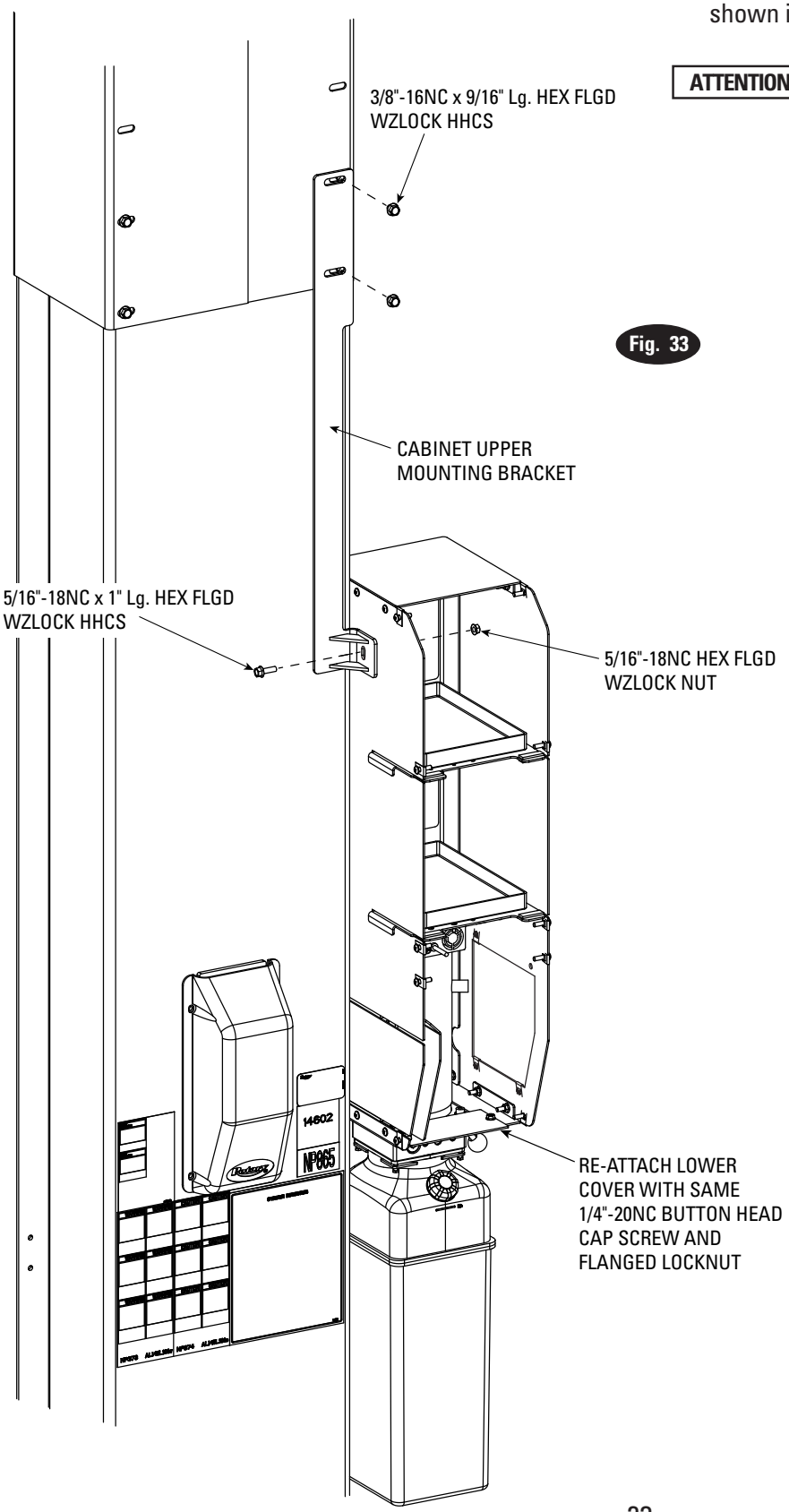


Fig. 33

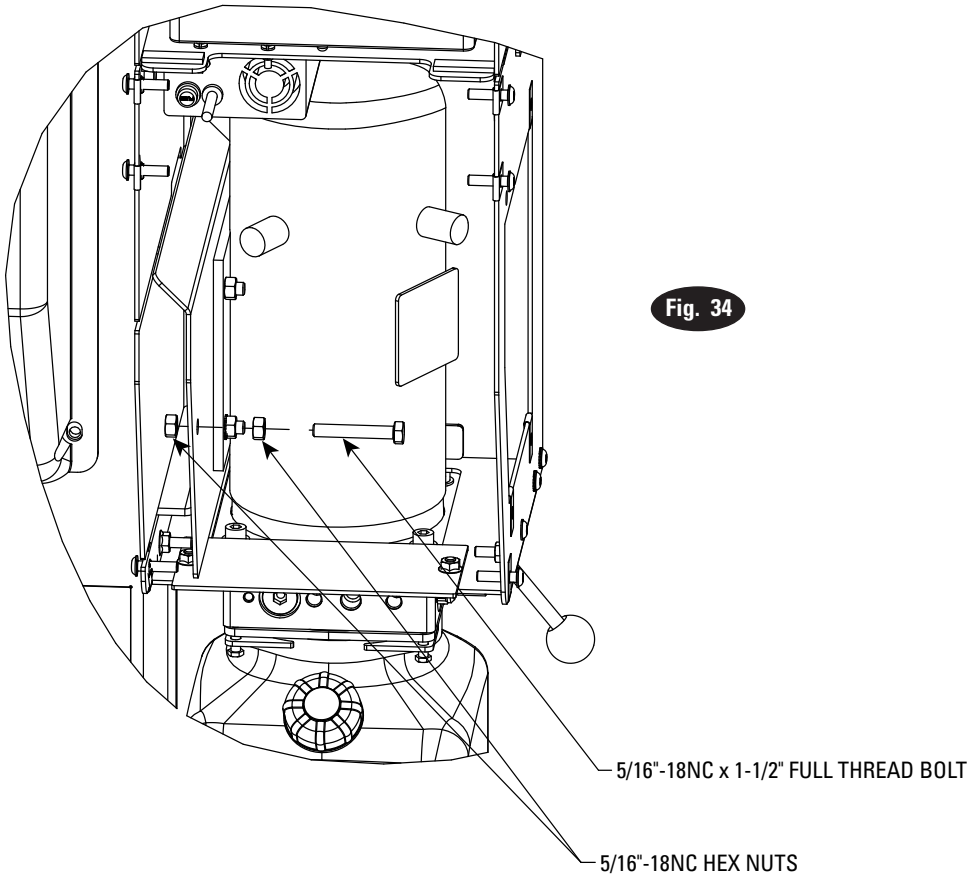

5/16"-18NC x 1-1/2" FULL THREAD BOLT
5/16"-18NC HEX NUTS

Fig. 34

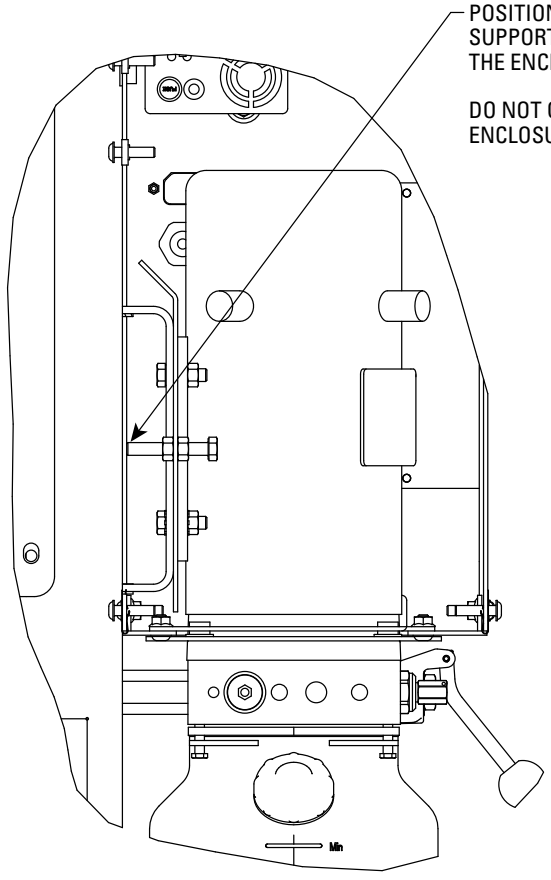

POSITION BOLT SO THAT IT SUPPORTS THE SIDE WALL OF THE ENCLOSURE
DO NOT OVERTIGHTEN AND PUSH ENCLOSURE SIDE OUTWARD

Fig. 35

28. DC Control Cabinet Bottom Bracket:

A) Secure bottom of DC control cabinet by mounting it to the side of the column using the included brackets. Fasten the back side of the cabinet to the column using the (2) angle brackets.

B) Fasten the two brackets to the column and DC control as shown below, Figure 36.

C) Re-attach the lower cover with the same 1/4"-20NC button head cap screws and flanged locknuts shown in fig. 33.

D) Attach the side panel using parts from the box labeled "FA9190" following the included instructions.

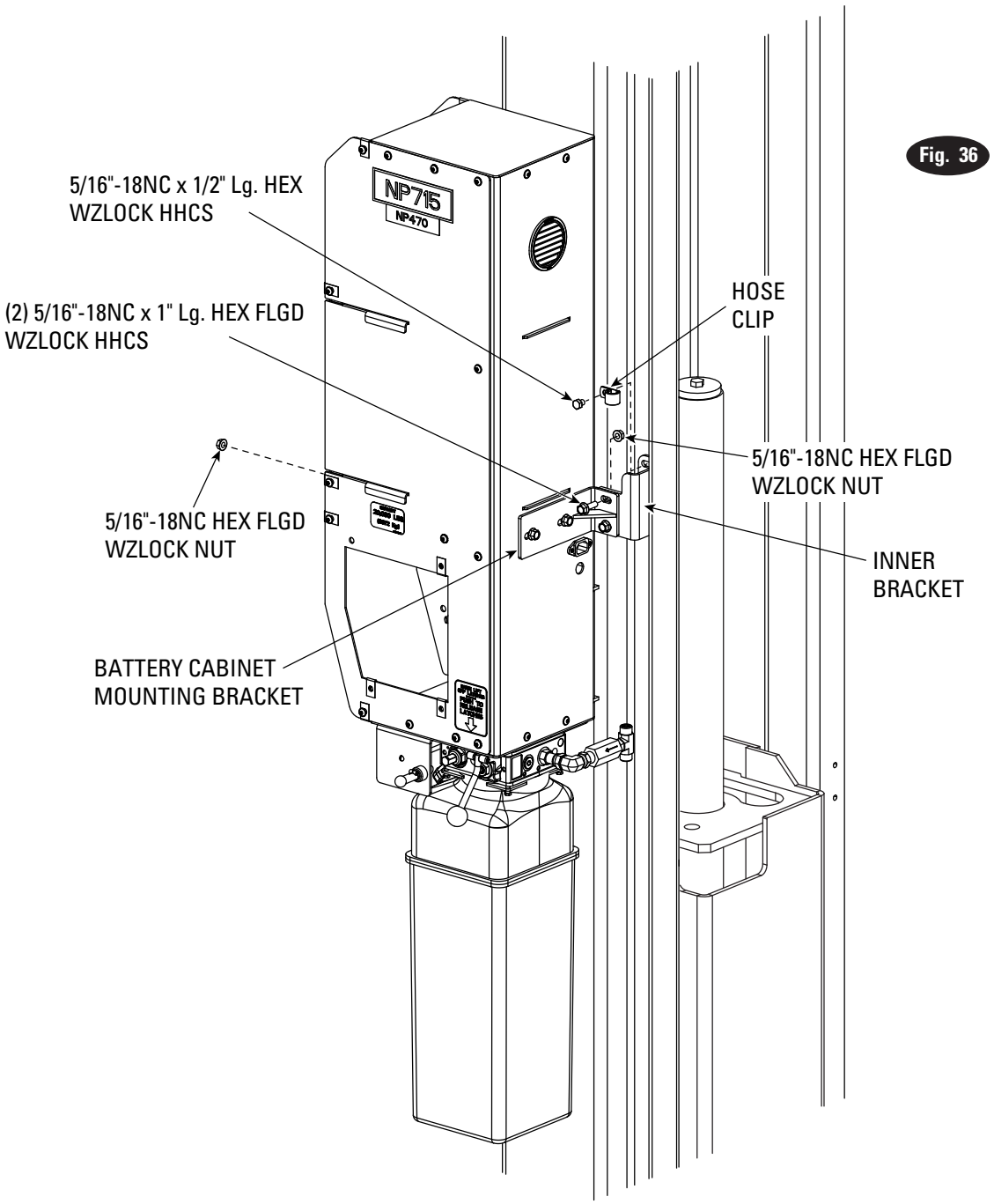


Fig. 36

29. Lowering Valve Bracket:

A) First, attach brass filter and swivel elbows to the air valve, Figure 36a.

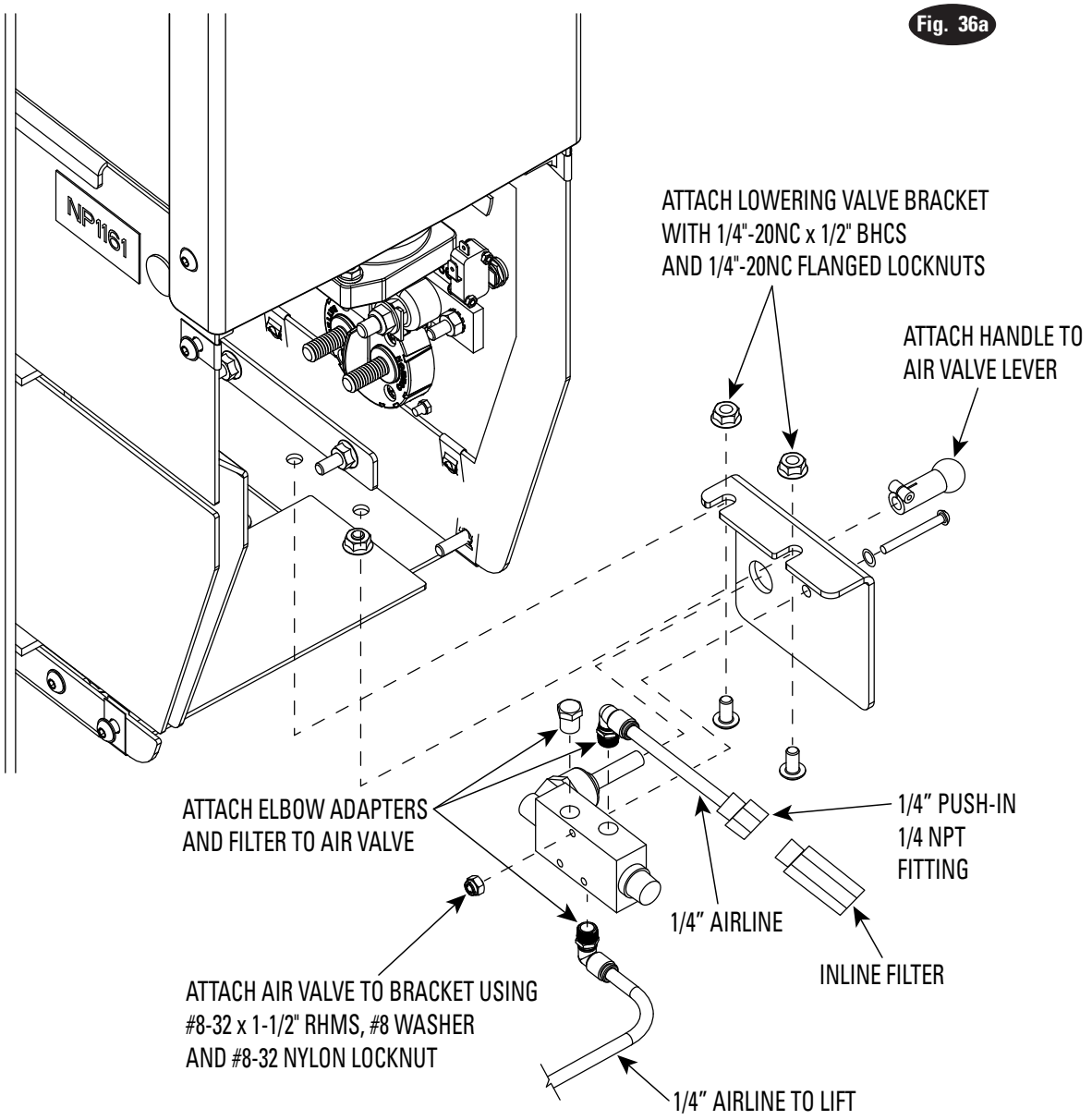
B) Mount the air valve to the lowering valve bracket using the included #8-32NC x 1-1/2" screw, washer and nut. Attach the handle to the air valve lever.

C) Next, attach the lowering valve bracket to the underside of the control cabinet, see Figure 36a. Fasten the bracket using the included (2) 1/4"-20NC x 1/2" long button head cap screws and (2) 1/4"-20NC flanged locknuts, Figure 36a.

D) Finally, fasten the NP280 label to the front of the bracket and connect the shop air supply with included in-line filter to latch release air valve brass elbow fitting, Figure 36a.

E) Run air line from elbow shown in Figure 36a to the lift using ¼" polypropylene tubing with 300 psi working pressure. Run the air line through the 2"PVC pipe chase and connect to air-line attached to the vertical hose using push union.

Fig. 36a



30. DC Control Cables:

⚠ CAUTION Before making electrical connections, verify the red disconnect switch on the side panel is in the **OFF** position.

A) Fasten the "A" labeled terminal end of the FA9190-8 cable to the positive terminal of the motor, Fig. 37 and Fig. 37a. Fasten the other end of FA9190-8 cable to the empty motor contact terminal, Fig. 37b.

B) Fasten the "B" labeled terminal end of the FA9190-12 red cable to the "Battery" side of the disconnect switch. (Note: FA9190-12 black cable wired to ground from charger), Fig. 37b.

C) Fasten the "C" labeled terminal end of the FA9190-6 red cable to the small right terminal contactor, Fig. 37b. (Note: FA9190-6 black cable wired to ground.)

D) Attach battery post connectors to the positive and negative posts on both the top and bottom batteries, Fig. 37.

E) Fasten the "D" labeled terminal end of the FA9190-9 cable to the positive post of the top battery, Fig. 37. The FA9190-9 cable is shipped connected to disconnect.

F) Fasten the "E" labeled terminal end of the FA9190-7 cable to the negative post of the top battery, Fig 37.

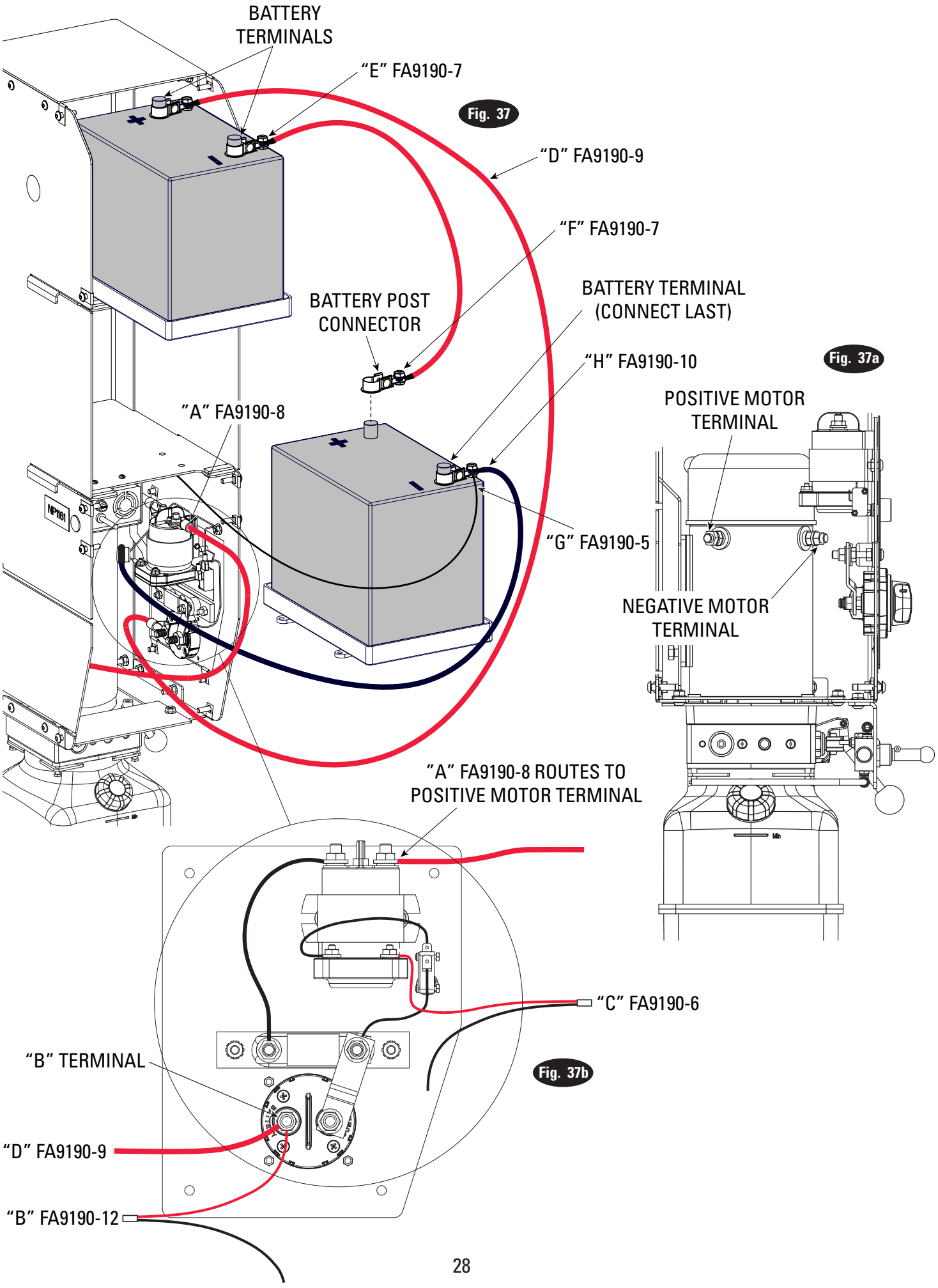
G) Fasten the "F" labeled terminal end of the FA9190-7 cable to the positive post of the bottom battery, Fig 37.

H) Fasten the FA9190-5 black cable to the negative post of the bottom battery, terminal "G", Fig. 37. The opposite end is shipped connected to ground.

I) Fasten the "H" labeled terminal end of the FA9190-10 cable to the negative post of the bottom battery, terminal "H", Fig. 37. Fasten the other end of the FA9190-10 cable to the negative motor terminal, Fig. 37a. **⚠ CAUTION** **This step must be completed last.**

⚠ CAUTION **When removing batteries always disconnect black FA9190-10 ground cable first.**

J) Re-attach top and bottom cover, Fig. 38.


BATTERY TERMINALS
"E" FA9190-7
Fig. 37
"D" FA9190-9
"F" FA9190-7
BATTERY POST CONNECTOR
BATTERY TERMINAL (CONNECT LAST)
"H" FA9190-10
Fig. 37a
"A" FA9190-8
POSITIVE MOTOR TERMINAL
"G" FA9190-5
NEGATIVE MOTOR TERMINAL
"A" FA9190-8 ROUTES TO POSITIVE MOTOR TERMINAL
"C" FA9190-6
"B" TERMINAL
Fig. 37b
"D" FA9190-9
"B" FA9190-12

31. Hydraulic Fittings and Flow Control:

A) Attach the hydraulic fittings and flow control as shown in the single phase power unit installation, Fig. 10.

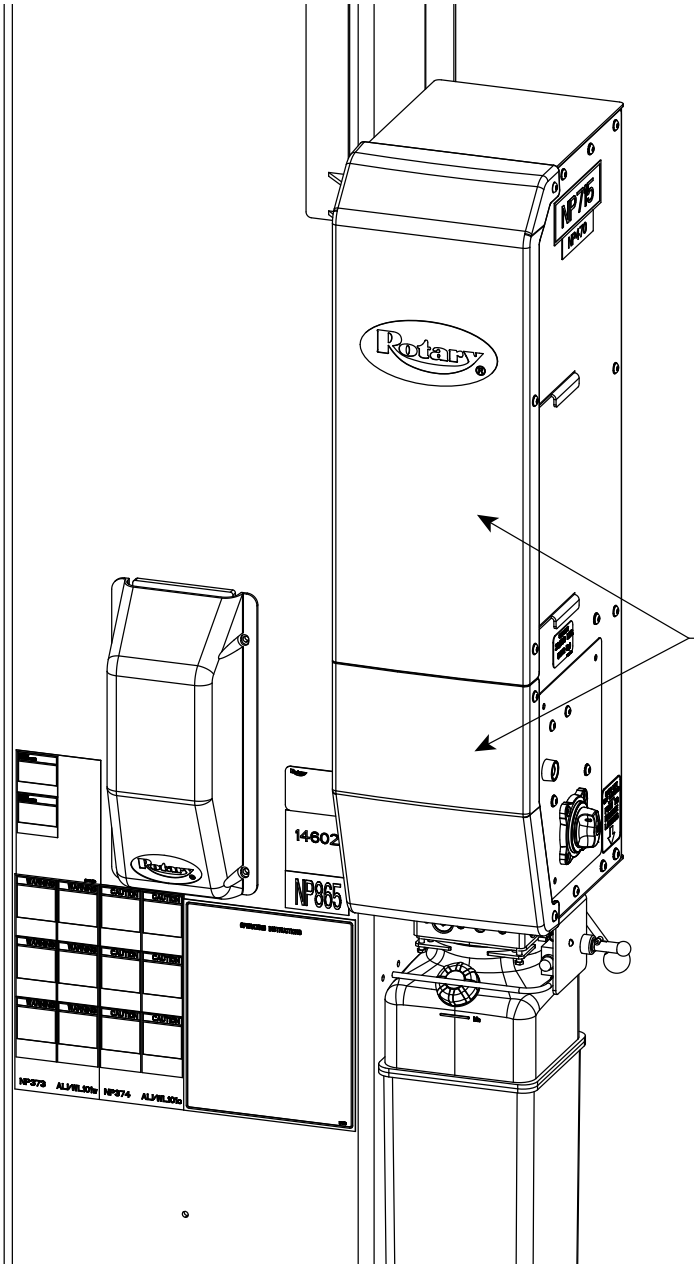


Fig. 38

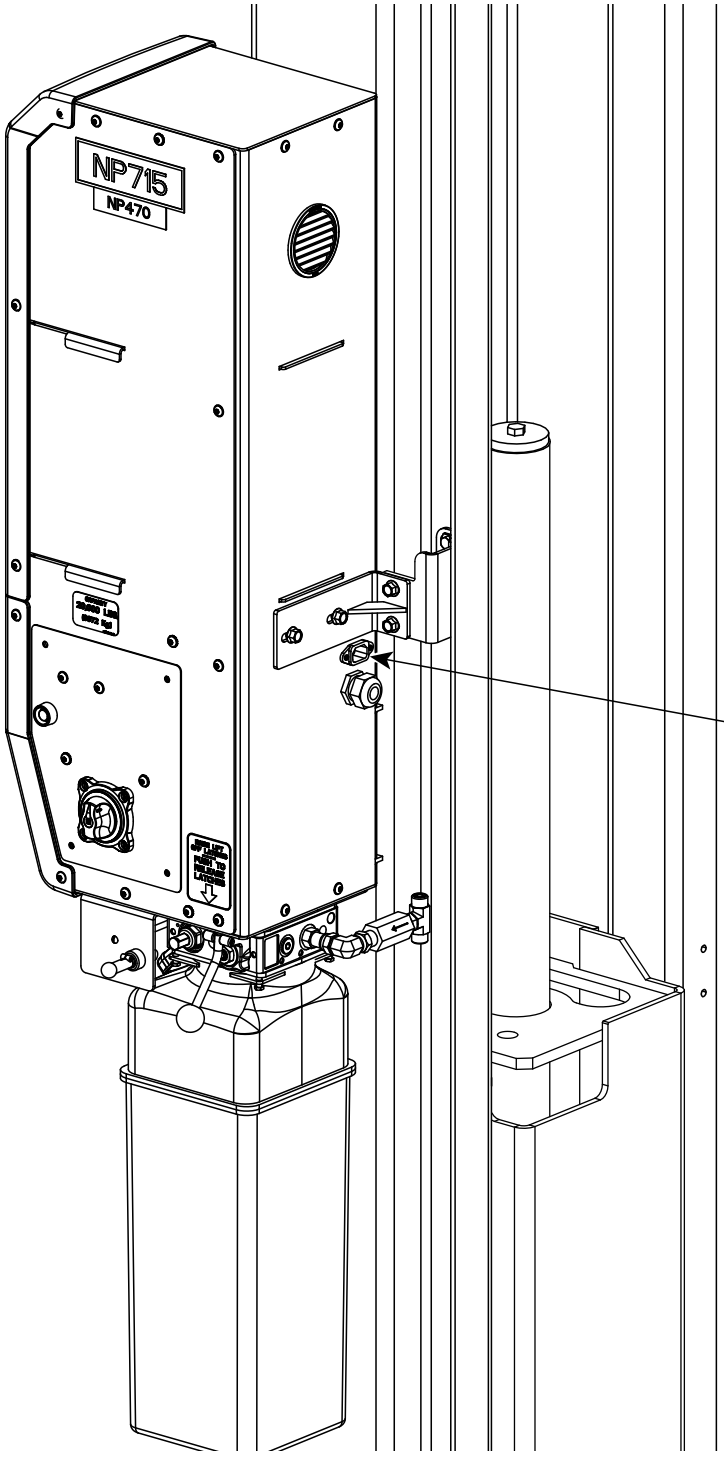


Fig. 39

PLUG CHARGER CABLE INTO RECEPTACLE
AND ROUTE CHARGER CABLE AND OVERHEAD
SWITCH CABLE TO THE TOP OF THE EXTENSION
WITH OVERHEAD HOSE USING WIRE TIES

32. Charger Cable & Overhead Switch Cable:

A) Plug the male end of the 10 foot charger cable into the receptacle on the back of the DC control cabinet.

B) Route the charger and overhead switch cable to the top of the power unit column extensions by wire tying them to the overhead hose.

33. Overhead Switch: Connect the overhead switch cable to the overhead switch using the included wire nuts.

34. Receptacle:

A) Mount the receptacle box to the extension directly above the DC control cabinet with the included #12-24NC x ¾" long pan head machine screws and nuts, Figure 40. Be sure to mount #12 star washers to one mounting screw as shown in Figure 40. This is very important for grounding.

B) Remove the hole punch covering the hole in the receptacle box than lines up with the hole in the extension. Mount the included 1/2" cord grip thru the hole in the extension and receptacle box.

C) Mount the included ground wire hook terminal using the included green self-tapping ground screw through the grounding hole in the receptacle box.

D) Fasten the receptacle to the receptacle box cover with the included fastener and the cover to the box with the included fasteners. The ears on the top and bottom of the receptacle may need to be removed to allow it to fit inside the cover properly. Fasten the tinned end inside the ground terminal of the receptacle.

35. Electrical: Have a certified electrician run appropriate power supply to the 120 volt receptacles mounted at the top of the lift.

LIFT ELECTRICAL INPUT: 110-120 Volt, 60 Hz, 3.15 Amps

Note: A separate circuit is not required for each Shock-Wave DC powerunit.

CAUTION: Never operate the motor on line voltage. Motor damage may occur.

36. Laser Spotter: Mount the laser using the instructions included with the laser spotting kit.

37. Plug-in Laser and Charger:

A) Plug the laser into the bottom receptacle and wire tie it to the receptacle box, Figure 40.

B) Plug the charger cable into the top receptacle. Check to make sure the charger lights are on. If charger lights are not on, flip switch on back of charger.

38. Close DC Control Cabinet: Re-attach the front plastic covers to the DC control cabinet using the same button head cap screws, Figure 38.

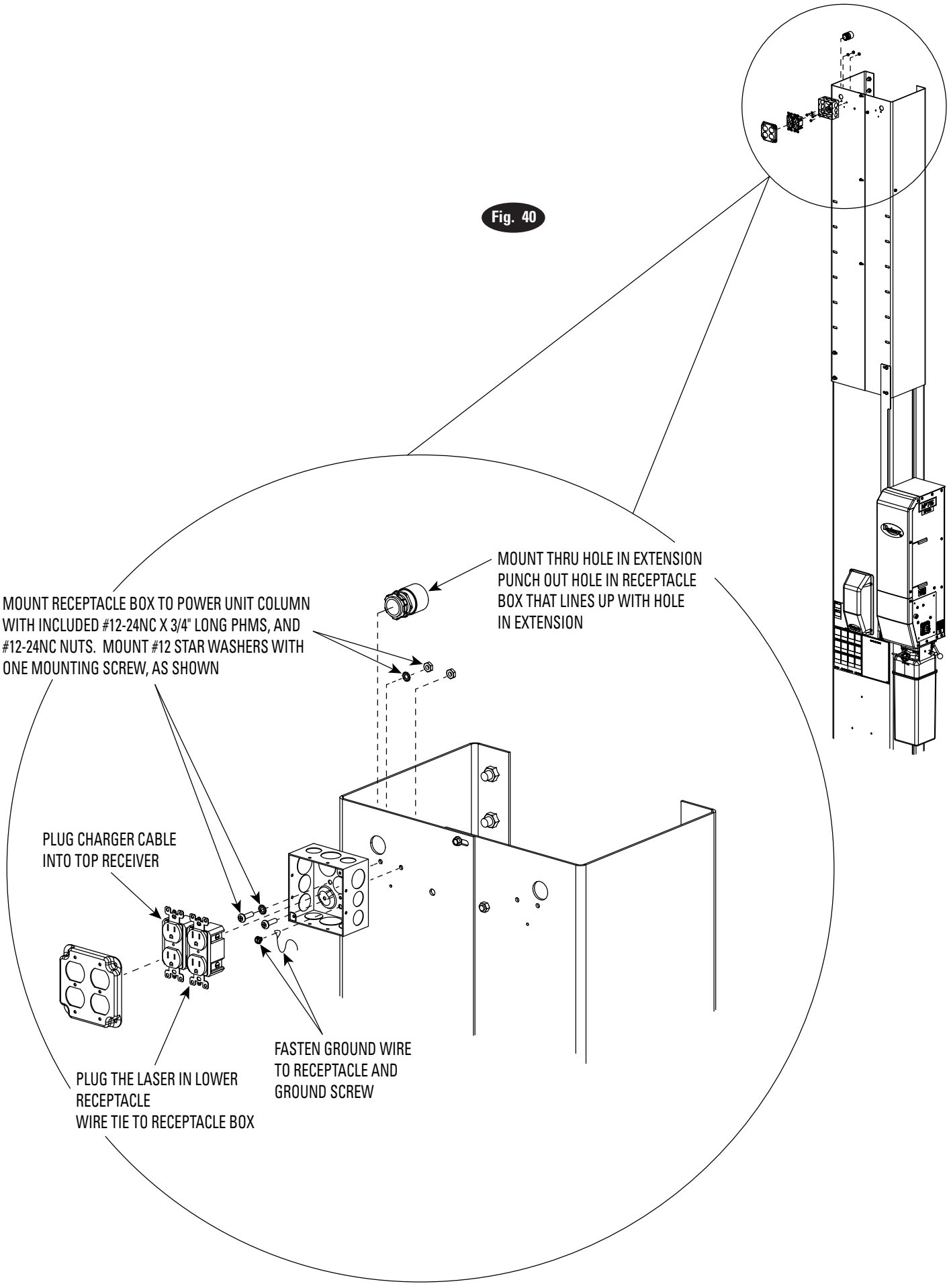

MOUNT THRU HOLE IN EXTENSION
PUNCH OUT HOLE IN RECEPTACLE
BOX THAT LINES UP WITH HOLE
IN EXTENSION
MOUNT RECEPTACLE BOX TO POWER UNIT COLUMN
WITH INCLUDED #12-24NC X 3/4" LONG PHMS, AND
#12-24NC NUTS. MOUNT #12 STAR WASHERS WITH
ONE MOUNTING SCREW, AS SHOWN
PLUG CHARGER CABLE
INTO TOP RECEIVER
FASTEN GROUND WIRE
TO RECEPTACLE AND
GROUND SCREW
PLUG THE LASER IN LOWER
RECEPTACLE
WIRE TIE TO RECEPTACLE BOX

Fig. 40

Installer: Please return this booklet to literature package, and give to lift owner/operator.

Thank You

Trained Operators and Regular Maintenance Ensures Satisfactory Performance of Your Rotary Lift.

Contact Your Nearest Authorized Rotary Parts Distributor for Genuine Rotary Replacement Parts. See Literature Package for Parts Breakdown.

Rotary World Headquarters
3005 Highland Parkway, Suite 200
Downers Grove, Illinois 60515, USA
www.vsgdover.com
800.640.5438

North / South America Contact Information

Sales:
1.812.273.1622 / 800.445.5438
insidesales@vsgdover.com

Tech. Support:
800.445.5438
technicalsupport@rotarylift.com

Government Sales:
800.445.5438 X5655
rotarylift.com/Government-Purchasing-Assistance/

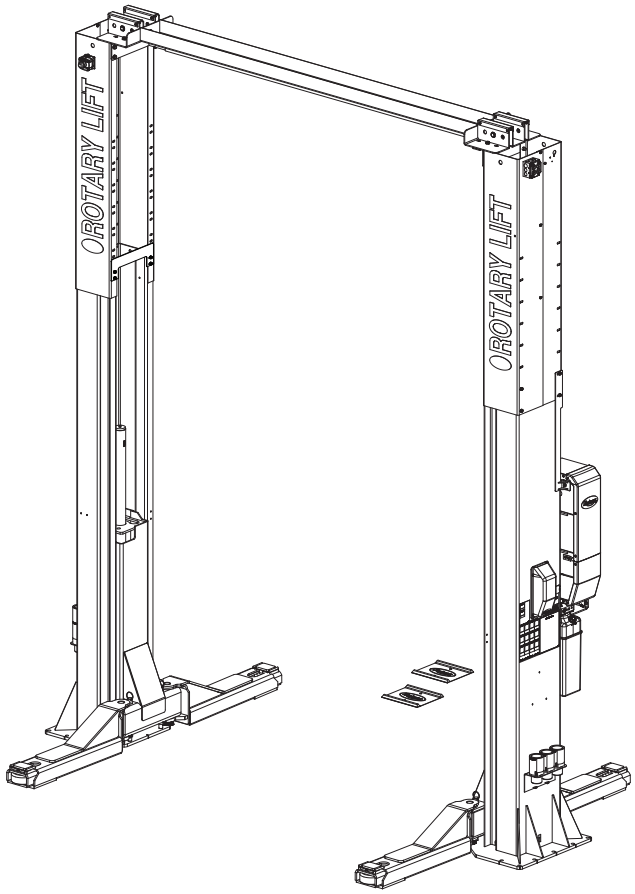
Additional information at rotarylift.com

Global Contact Information
Australasia: +60.3.5192.5910
Brazil: +55.11.4534.1995
Canada: 1.905.812.9920
European Headquarters/Germany: +49.771.9233.0
Latin America/Caribbean: 1.812.273.1622
Middle East/Northern Africa: +49.771.9233.0
Southern Africa: 1.812.273.1622
United Kingdom: +44.178.747.7711

SPO16, SPO20

SPO16 Capacity 16,000 lbs. (7,258 kg.) / 4,000 lbs. (1,814 kg.) per Arm
SPO20 Capacity 20,000 lbs. (9,072 kg.) / 5,000 lbs. (2,268 kg.) per Arm

PARTS BREAKDOWN



IMPORTANT: When ordering parts or requesting service always give exact model and power unit serial number. Model number is shown on nameplate attached to power unit column. Power unit serial number is located on side of power unit.

OWNERS RECORD
Complete information at right and keep in a safe place.

Date Installed _____

Installed in Bay # _____

Power Unit Serial # _____

Power Unit Model # _____

Lift Serial # _____

Lift Model # _____

NOTE: For replacement parts - See your nearest Rotary Parts Distributor.

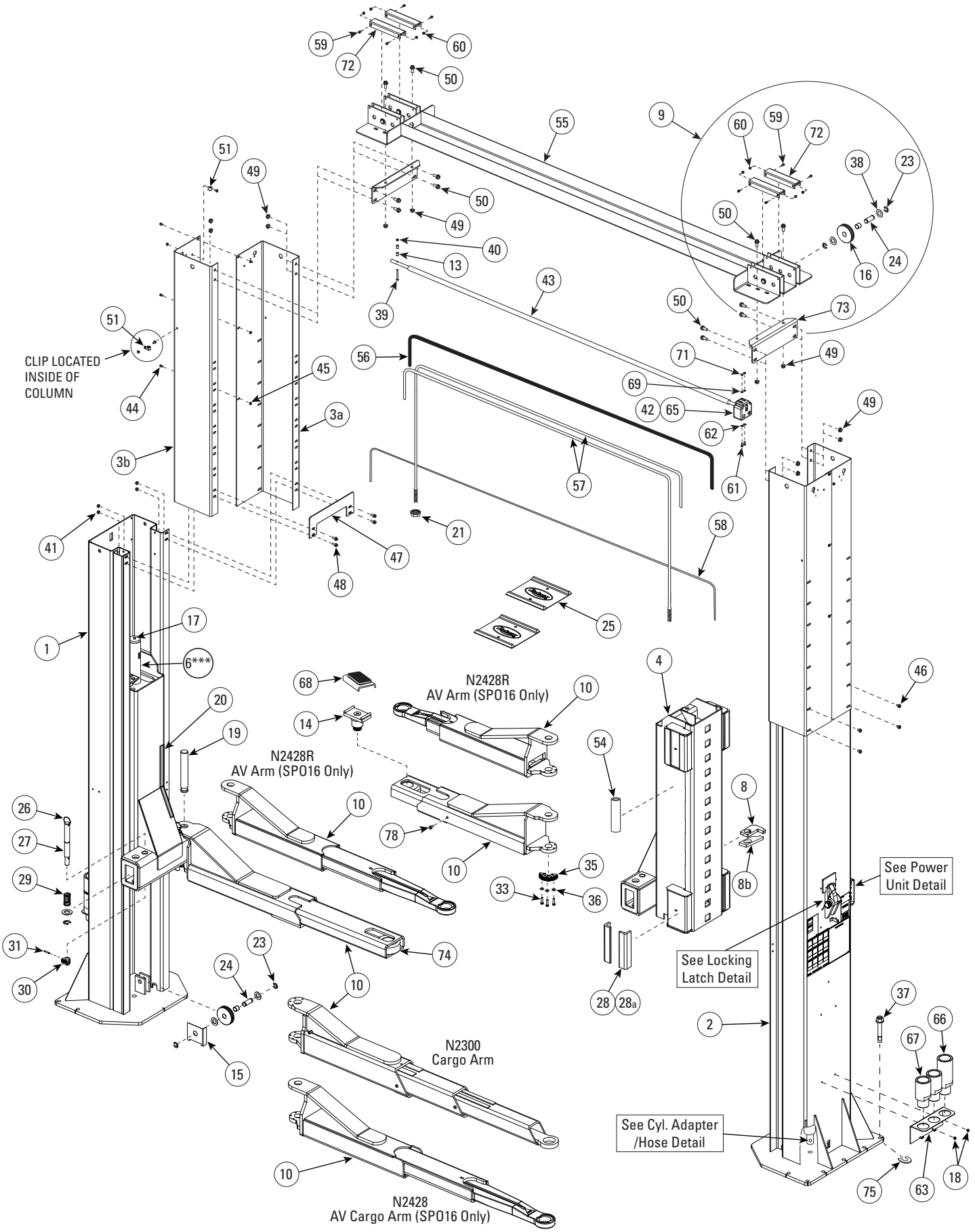
C012761.6

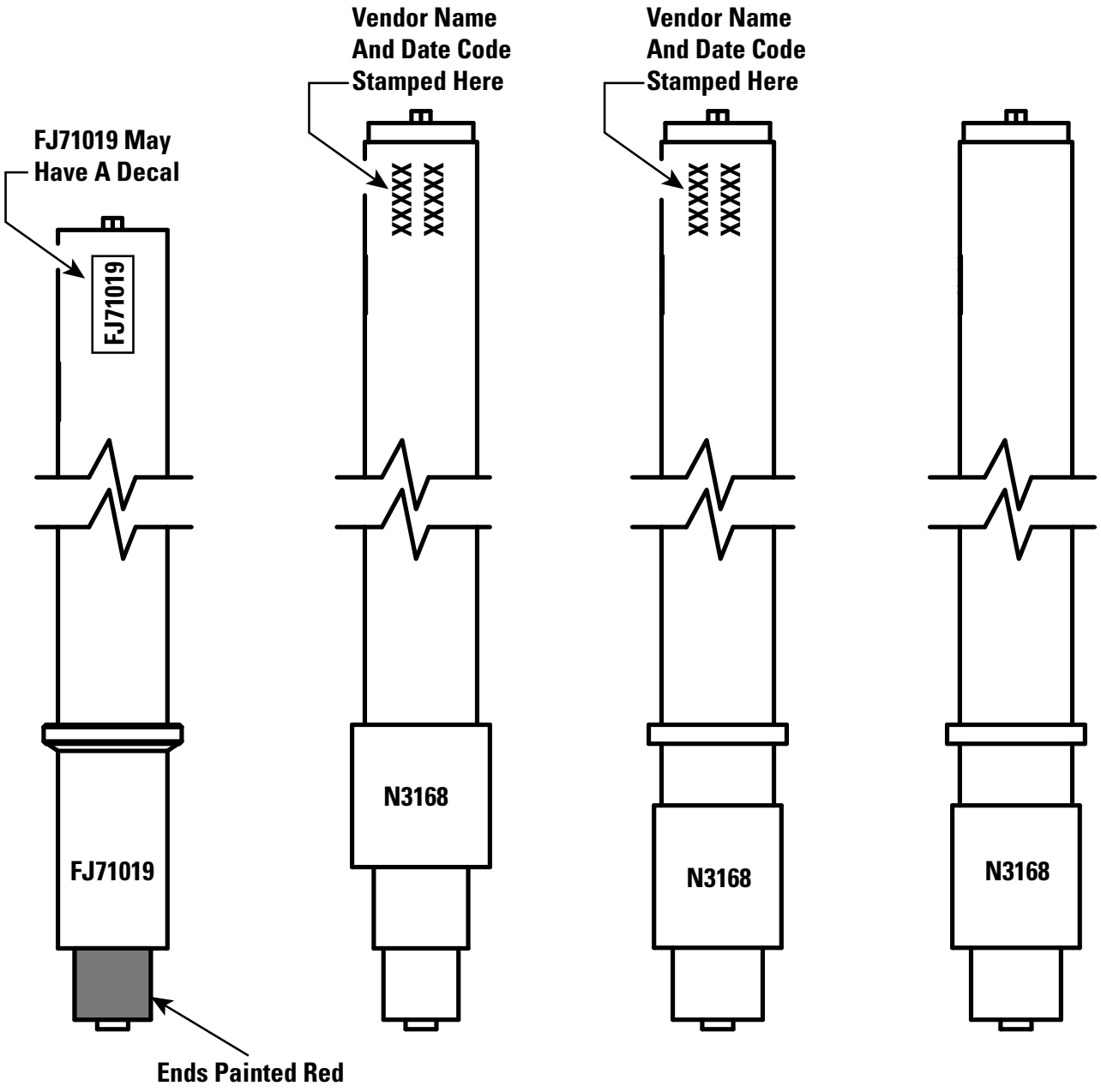
LPRM2P16-20K
Rev. E 2.18.25

SPO16 & SPO20 PARTS LIST

1	L.H. Column Weldment	N774
2	R.H. Column Weldment	N775
3	Column Extension	
	3a Left Side	N4119-5
	3b Right Side	N4119-4
4	Carriage Yoke Weldment	
	SPO16	N841
	SPO20	N841
5	NA	NA
6	Hydraulic Cylinder***	N3168M
	Hydraulic Cylinder***	FJ71019
7	Power Unit	
	SPO16 Single Phase 60Hz	P3093
	SPO16 DC	P3688
	SPO20 Single Phase	P3685
	SPO20 DC	P3686
8	SPO16-SPO20 Arm Stop	N2419M
8b	AV arm stop	N2419-1
9	Overhead Sheave Assembly Kit	N4120-KIT
10	Arm Options	
	SPO16 Trio Arm	N2417
	SPO16 AV Arm	N2428R
	SPO20 Trio Arm	N2418
	SPO16 AV Cargo Arm	N2428
	Cargo Arm	N2300
11	3/8"-16NC x 1" Lg. Cup Point Set Screw	40141
12	3/8" Internal Tooth Washer	40843
13	3/4" Switch Bar Mounting Spacer	FJ7871
14	Adjustable Adapter	FJ6290
15	Lower Sheave Guard	FJ7813-15
16	Sheave Assembly	FJ7823-3
17	Bleeder Screw (Specify Manufacturer)	N/A
18	5/16-18NC x 3/8" Lg. PHMS	40227
19	Arm Pin	N2414
20	Approach Bumper (Door 18" Lg. 4 Req'd)	FJ7391-3
21	3/4"-10NC Nylon Insert Lock Nut	40790
22	3/16" x 2-1/2" Lg. Cotter Pin	N/A
23	Truarc #5304-100 Klipring For 1" shaft	41412
24	Lower Sheave Shaft	FJ7813-3
25	Wheel Spotting Dish	FF729-1
26	Actuator Pin Handle	FJ7985-1
27	Actuator Pin	N1272
28	Slider	FJ7813-1
28a	Slider Wide Shim	FJ7821-12
29	Actuator Pin Spring	N1132-3
30	Arm Rest. Pawl	N2121
31	Spring Pin 1/4" x 1-1/2" Lg. Stainless	14427
32	3/8"-16NC x 3/4" Lg. HHCS Plated	40130
33	3/8"-16NC x 1-1/2" HHCS Grade 5	40201
34	5/16" USS Flat Washer -Black Oxide	40855
35	Restraint Gear	N2122
36	3/8" Helical Spring Lockwasher	40818
37	3/4" Concrete Anchor	FJ7385

38	UHMWPE Washer	FJ7823-4
39	1/4"-20NC x 2-3/4" HHCS	45070
40	1/4"-20NC Insert Locknut	40642
41	3/8"-16NC Flanged Lock Nut	40664
42	Overhead Switch Assembly	
	1Ø	N413
43	Switch Bar Assembly	N435
44	1/4"-20NC x 5/8" Lg. Flanged HHCS	42000
45	1/4"-20NC Flanged Lock Nut	40643
46	3/8"-16NC x 1/2" Lg. Flanged HHCS, GR 8, Zinc Plated	41742
47	Tie Bar	FJ7824-1
48	3/8"-16NC x 1" Lg. Flanged HHCS	40144
49	1/2"-13NC Flanged Lock Nut	40704
50	1/2"-13NC x 1-1/4" Lg. flanged HHCS	40279
51	Pipe Clip (5/8" Clamping Diameter)	FJ7499
	5/16"-18NC x 5/8" Lg. PHMS	40276
	5/16"-18NC Hex Nut	40670
52	Pipe Clip (5/8" Clamping Diameter)	FJ7499
	5/16"-18NC x 3/8" Lg. PHMS	40227
53	Pipe Clip (1/2" Clamping Diameter)	FJ7499
	5/16"-18NC x 3/8" Lg. PHMS	40227
54	12" Equalizer Cable Spacer	FJ7833
	18" Equalizer Cable Spacer	FJ7833-1
55	Overhead Weldment	N4120-1
56	Overhead Hose	FJ878
57	Equalizer Cable	
	SPO16/SPO20	N3166
	SPO16LC/SPO20LC	N3167
58	Locking Latch Air Line 1/4" O.D.	FA2230-2
59	1/4"-20NC x 5/8" Lg. Flanged HHCS	42000
60	1/4"-20NC Flanged Lock Nut	40643
61	1/4"-20NF x 3/4" Lg. HHCS, Grade 5 Plated	40119
62	1/4" SAE Flat Washer	40783
63	Adapter Rack (1 Qty. Each Column Standard Arm)	FJ7822-3
64	3/8" External Tooth Lockwasher	40845
65	Limit Switch Assembly	
	1Ø	N413-1
66	10" Height Adapters (2 Qty. Per Lift Standard Arms)	FJ71040
67	5" Height Adapters (4 Qty. Per Lift Standard Arms)	FJ71039
68	Rubber Pad Adapters (4 Qty. Per Lift)	FJ7822-2
69	1/4" External Tooth Lockwasher	40779
70	1-1/4" SAE flat washer	41101
71	1/4"-20NC Hex Nut	40625
72	Sheave Bracket Cover	FJ71017-1
73	Overhead Attachment Bracket	N4120-41
74	Round Adapter Sled	
	SPO16 (Trio)	FJ71015
	SPO20	FJ71016
75	Horse Shoe Shim	FJ716-6
76	1/4" Flat Washer	40795
77	Base Plate Shim (Not Shown)	N774-1Shim
78	3-6kip Arms Stop Bolt	N2430-17
*** See Cylinder Details Page 4		

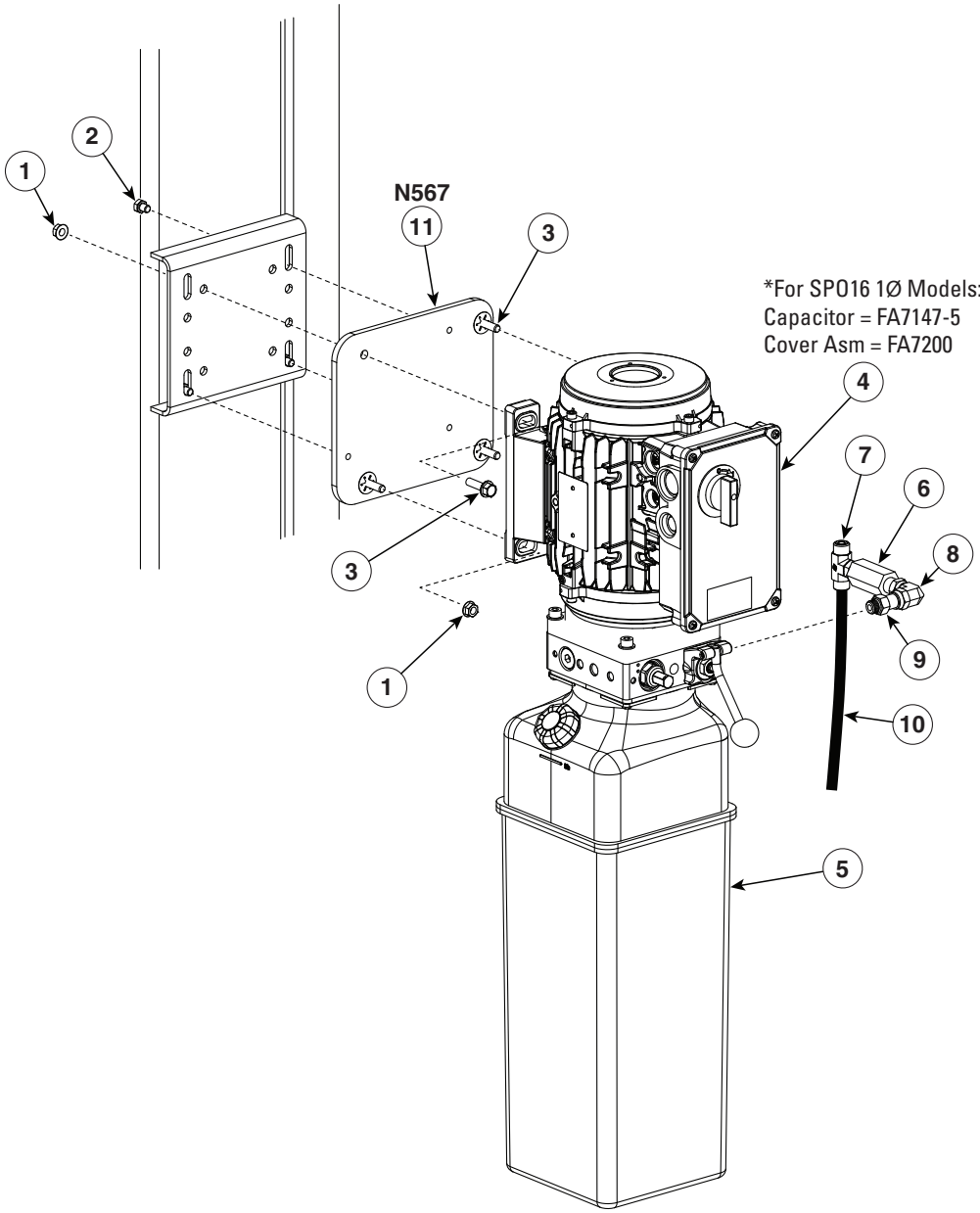

CLIP LOCATED INSIDE OF COLUMN
N2428R AV Arm (SPO16 Only)
N2428R AV Arm (SPO16 Only)
N2300 Cargo Arm
N2428 AV Cargo Arm (SPO16 Only)
See Power Unit Detail
See Locking Latch Detail
See Cyl. Adapter /Hose Detail



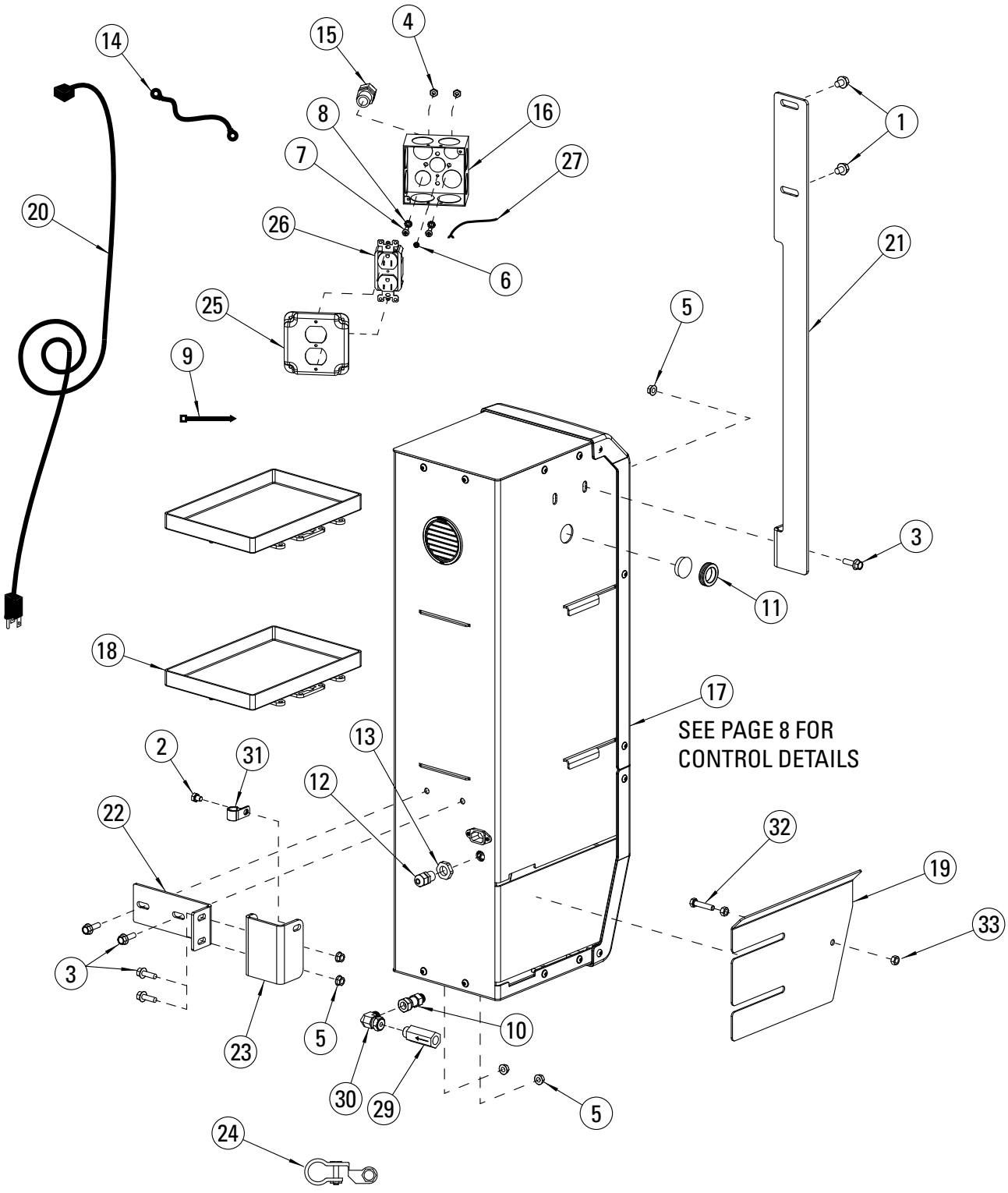
*** Note: Cylinders Must Be A Direct Replacement For Models Prior To April 2019**

POWER UNIT DETAIL

ITEM#	DESCRIPTION	PART#
1	5/16"-18NC Hex Flanged Lock Nut	40678
2	5/16"-18NC x 1/2" Lg. HHCS	40294
3	5/16"-18NC x 1-1/2" Flanged HHCS	40509
4	Drum Switch Asm.	FA7158-2
	Capacitor Box Asm	FA7158-3
5	Power Unit	
	SPO16 Single Phase 60Hz	P3093
	SPO16 DC	P3688
	SPO20 Single Phase	P3685
	SPO20 DC	P3686
6	Flow Control	FJ71012
7	Branch Tee	FJ879
8	Swivel Nut Elbow	FJ71007
9	Straight Thread Swivel Adapter	EFX60010319
10	Power Unit Hose	FJ877
11	4HP Motor Adapter Plate	N567
***Note:** N567 only used for SPO20		

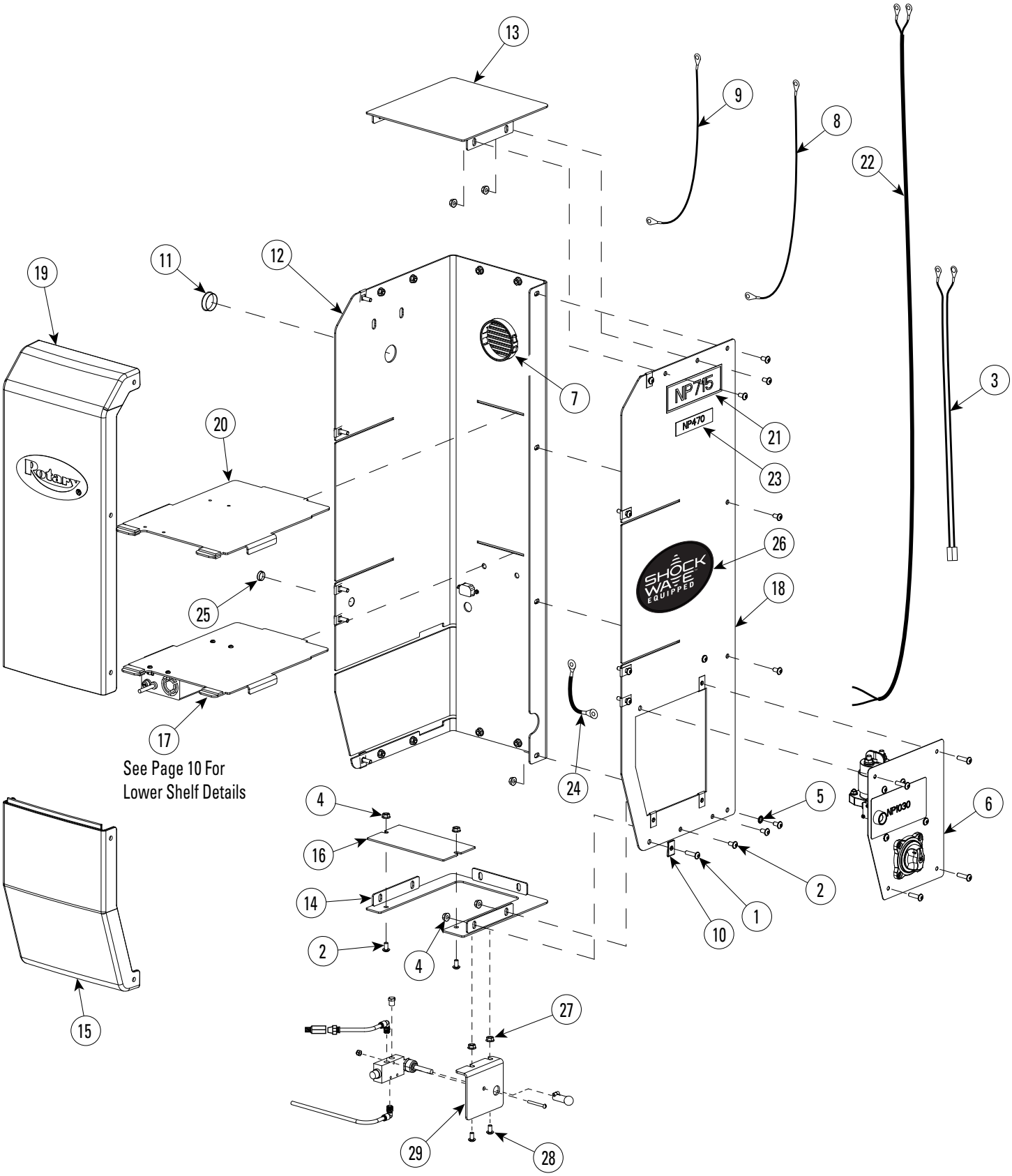


DC CONTROL MOUNTING DETAIL



ITEM	PART NO.	DESCRIPTION
1	40129	3/8"-16NCx 1/2" Lg. FLGD WZLOCK, PLTD
2	40294	5/16"-18NC x 1/2" Lg. FLGD WZLOCK, PLTD
3	40400	5/16"-18NC x 1" Lg. FLGD WZLOCK, PLTD
4	40650	#12-24NC HEX NUT, PLTD
5	40678	5/16"-18NC HEX FLGD WZLOCK NUT, PLTD
6	FA997-1	#10-32 x 1/4" Lg. HEX WHSFTS, PLTD, COLORED GREEN
7	41526	#12-24NC x 3/4" Lg. PHIL. PHMS, PLTD
8	41527	#12 EXT TOOTH LW, PLTD
9	629888	TY-RAP CABLE TIE, NYLON, BLACK, 111
10	EFX60010319	ADAPTER, STRAIGHT THREAD/ SWIVEL (ORB/ORFS 6X6)
11	FA7180-31	WIRE GROMMET
12	FA7189-14	3/8" NPT STRAIN RELIEF
13	FA7189-15	3/8" NPT LOCKNUT
14	FA7616	BATTERY-BATTERY CABLE
15	FA7958-28	CORD GRIP
16	FA997	JUNCTION BOX
17	FA9204	DC CONTROL ASSEMBLY
18	FA966-16	BATTERY TRAY
19	FA966-47	BATTERY CABINET 2-POST SPLASH SHIELD
20	FA966-65	13FT UNIVERSAL POWER CORD
21	FA9204-20	BATTERY CABINET UPPER MOUNTING BRKT WELD
22	FA966-56	BATTERY CABINET MOUNTING BRKT WELD
23	FA9204-25	BATTERY CABINET MOUNTING COLUMN BRKT WELD
24	FA9218	BATTERY TERMINAL END
25	FA980-4	DUPLEX RECEPTACLE COVER 4" SQUARE BOX
26	FA980-2	DUPLEX FEMALE RECEPTACLE
27	FA980-3	GROUND WIRE
28	NA	NA
29	FJ71012	FLOW REGULATOR
30	FJ71007	MALE ORFS x FEMALE ORFS SWIVEL ELBOW
31	FJ7499	COLUMN HOSE CLIP
32	40271	5/16”-18NC x 1-1/2" HHCS FULL THREAD
33	40670	5/16”-18NC HEX NUT

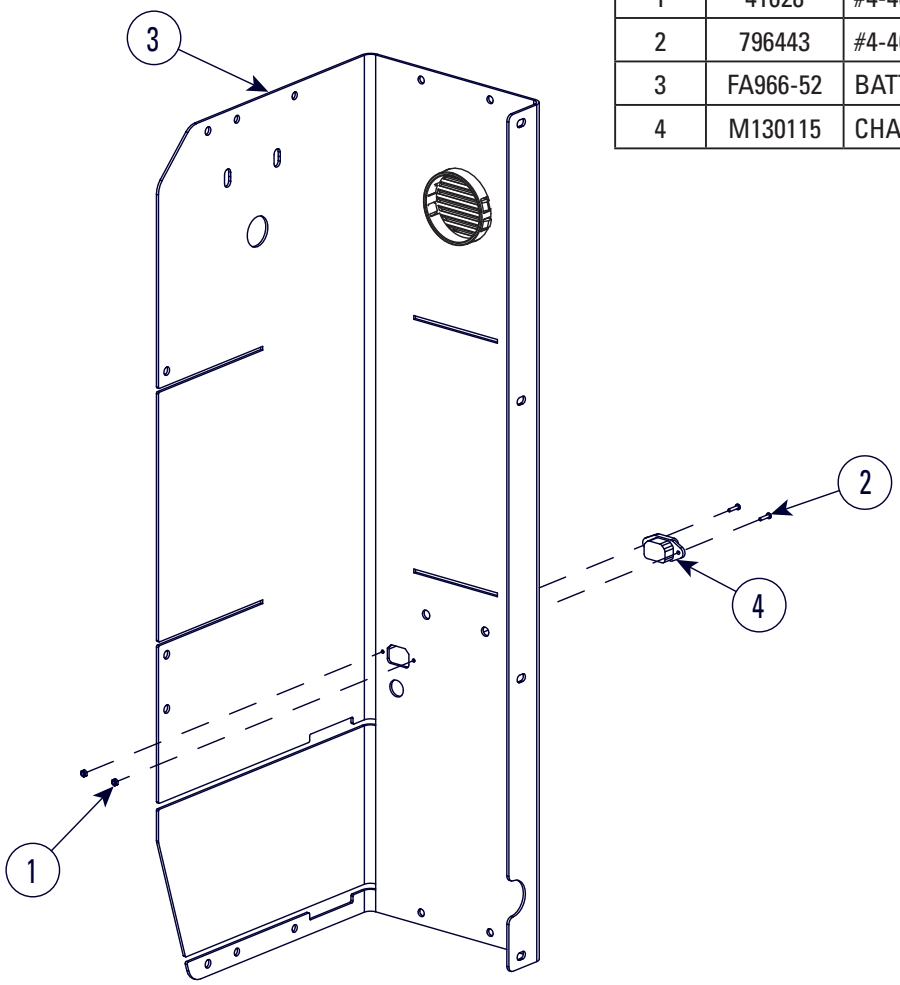
DC CONTROL DETAIL

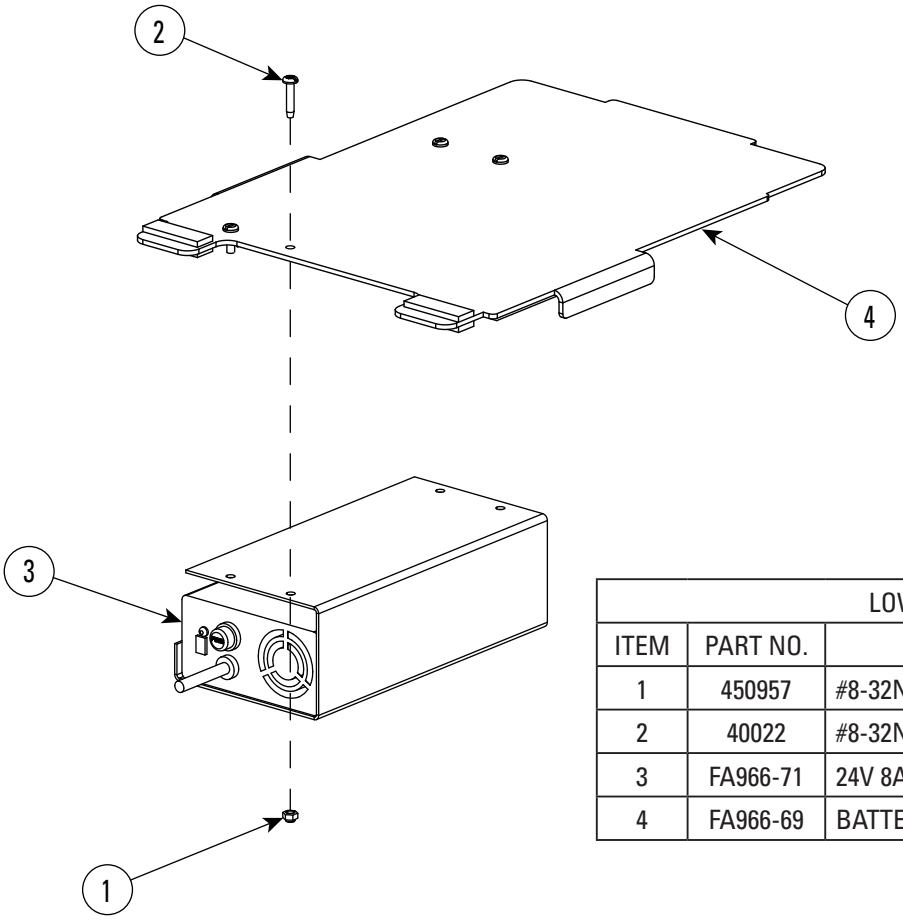


See Page 10 For Lower Shelf Details

DC CONTROL DETAIL		
ITEM	PART NO.	DESCRIPTION
1	40077	1/4"-20NC x 1" Lg FLGD HEX SOC BHCS, GRD2
2	40094	1/4"-20NC x 1/2" Lg FLGD HEX SOC BHCS
3	FA9190-12	CHARGER WIRE HARNESS
4	40641	1/4"-20NC HEX FLGD WZLOCK NUT, PLTD
5	40779	1/4" EXT TOOTH LW
6	FA9190	SHOCKWAVE ELECTRICAL ASSEMBLY
7	FA5309	LOUVERED HOLD PLUG
8	FA9190-9	BATTERY TO DISCONNECT SWITCH CABLE
9	FA9190-10	BATTERY TO MOTOR CABLE
10	FA966-22	CLIP-ON NUT
11	FA966-34	1-1/4" HOLE PLUG
12	FA966-37	BATTERY CABINET LH FRAME ASSEMBLY
13	FA966-39	BATTERY CABINET TOP COVER WELDMENT
14	FA9204-10	BATTERY CABINET BOTTOM COVER WELDMENT
15	FA966-45	BATTERY CABINET FRONT BOTTOM COVER
16	FA966-46	BATTERY CABINET SMALL BOTTOM COVER
17	FA966-68	BATTERY CABINET LOWER SHELF ASSEMBLY
18	FA9190-14	BATTERY CABINET RH FRAME ASSEMBLY
19	FA966-50	BATTERY CABINET FRONT TOP COVER ASSY
20	FA966-69	BATTERY CABINET SHELF WELD
21	NP715	NAMEPLATE
22	FA9190-6	OVERHEAD SWITCH HARNESS
23	NP470	NAMEPLATE
24	FA9190-5	BATTERY GROUNDING CABLE
25	FA966-60	TRANSPARENT HOLE PLUG
26	NP1067	NAMEPLATE
27	40641	1/4”-20NC HEX FLGD WZLOCK NUT, PLT
28	40094	1/4”-20NC x 1/2” LG. HEX SOC BHCS
29	N631	DC AIR VALVE BRACKET

LEFT HAND FRAME ASSEMBLY		
ITEM	PART NO.	DESCRIPTION
1	41628	#4-40 NYLON INSERT LOCKNUT MMC #90633A005
2	796443	#4-40 x 1/2 Lg. PHMS, PLTD
3	FA966-52	BATTERY CABINET LH FRAME FORMING
4	M130115	CHARGER INTERNAL POWER CORD

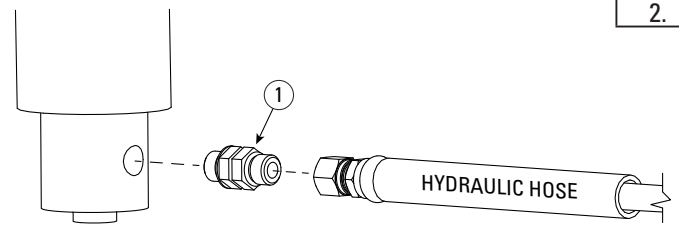


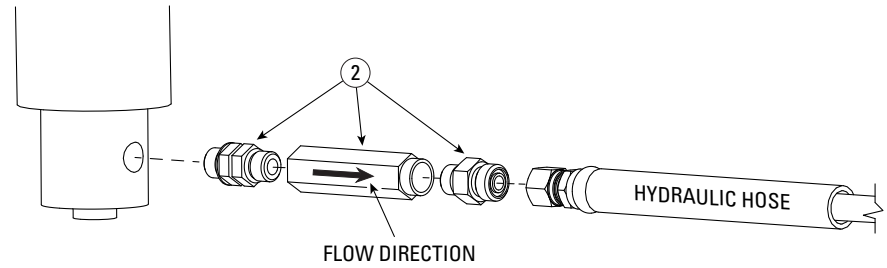


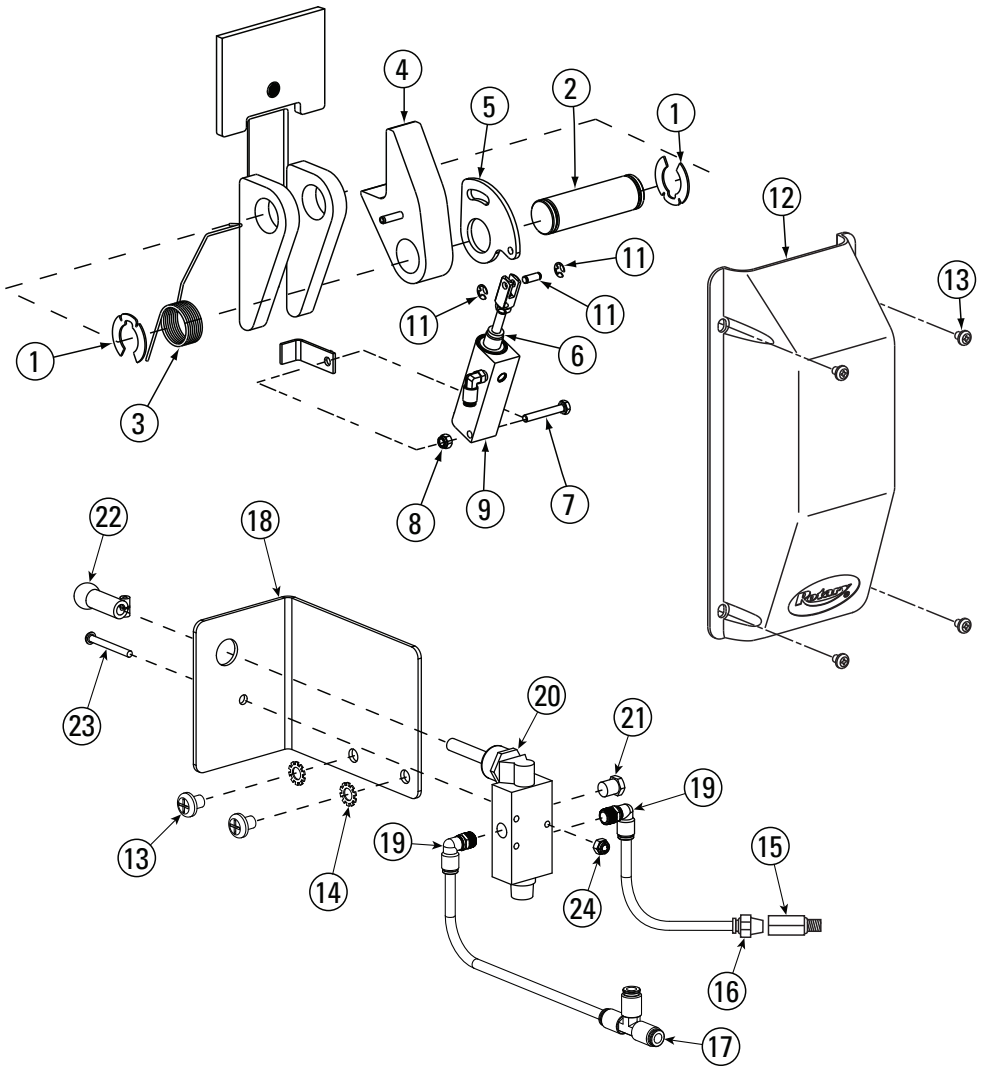
LOWER SHELF ASSEMBLY		
ITEM	PART NO.	DESCRIPTION
1	450957	#8-32NC NYLON LOCK NUT
2	40022	#8-32NC x 1/2" Lg. PHMS
3	FA966-71	24V 8A CHARGER ASSEMBLY
4	FA966-69	BATTERY CABINET SHELF WELD

CYLINDER ADAPTER/HOSE DETAIL

ITEM#	DESCRIPTION	PART#
1.	Straight Adapter	FJ876
	Fittings Kit	(used for N3168M)
2.	FJ71019-Kit	(used for FJ71019)







LOCKING LATCH DETAIL		
ITEM#	**DESCRIPTION**	**PART#**
1	Truarc Klipring #5304-125 for 1 1/4" Shaft	41417
2	Latch Shaft	FJ7813-7
3	Latch Spring	FJ7813-5
4	Locking Latch Dog Assy.	FJ7813-14
5	Latch Control Plate	FJ7813-6
6	Dampening Spacer	FJ7813-13
7	1/4"-20NC x 1-1/4" HHCS	40101
8	1/4"-20 Nylon Insert Nut	40642
9	Air Cylinder	N614
10	Swivel elbow 1/4"O.D. tube to 1/8" NPT	FA3134-6
11	Bimba Piston Rod Clevis #D-166-1 (set)	11263
12	Latch Cover	FJ7451
13	5/16"-18NC x 3/8" PHMS	40227
14	5/16" External Lockwasher	40854
15	Filter	FA3134-12
16	1/4" Male Connector	FC5191-6
17	Union Tee	FC5225-46
18	Air Valve Bracket	N631-1
19	1/4" x 1/8" Elbow	T140074-1
20	Air Lock Valve	T140073
21	Brass Filter	T140075
22	Air Lock Valve Handle	T140119
23	#8-32NC x 1-1/2" Slotted RHMS	40007
24	#8-32NC Hex Nylon Insert Locknut	40649

Rotary World Headquarters
3005 Highland Parkway, Suite 200
Downers Grove, Illinois 60515, USA
www.vsgdover.com
800.640.5438

North / South America Contact Information

Sales:
1.812.273.1622 / 800.445.5438
insidesales@vsgdover.com

Tech. Support:
800.445.5438
technicalsupport@rotarylift.com

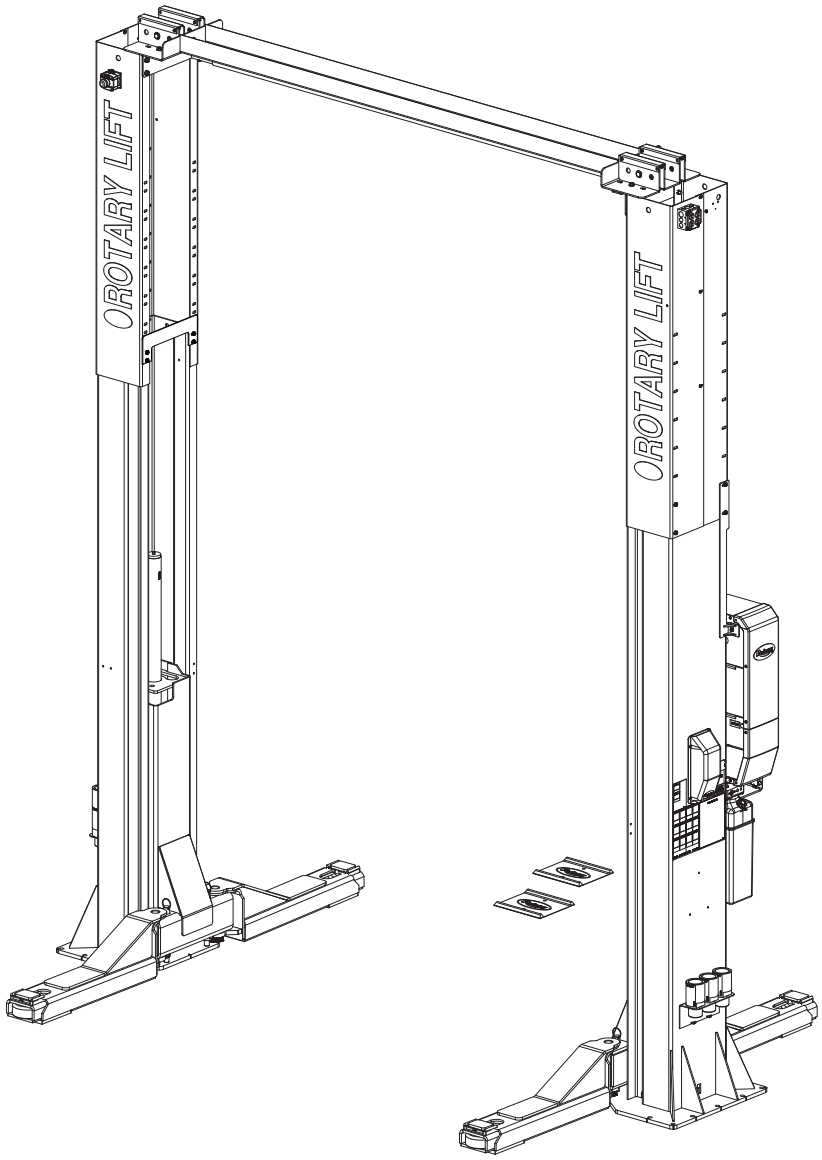
Government Sales:
800.445.5438 X5655
rotarylift.com/Government-Purchasing-Assistance/

Additional information at rotarylift.com

Global Contact Information
Australasia: +60.3.5192.5910
Brazil: +55.11.4534.1995
Canada: 1.905.812.9920
European Headquarters/Germany: +49.771.9233.0
Latin America/Caribbean: 1.812.273.1622
Middle East/Northern Africa: +49.771.9233.0
Southern Africa: 1.812.273.1622
United Kingdom: +44.178.747.7711

SPO16, SPO20

Standard SPO16 Capacity 16,000 lbs. (7,258 kg.) / 4000 lbs. (1,814 kg.) per Arm
Standard SPO20 Capacity 20,000 lbs. (9,072 kg.) / 5000 lbs. (2,268 kg.) per Arm



OPERATION & MAINTENANCE MANUAL

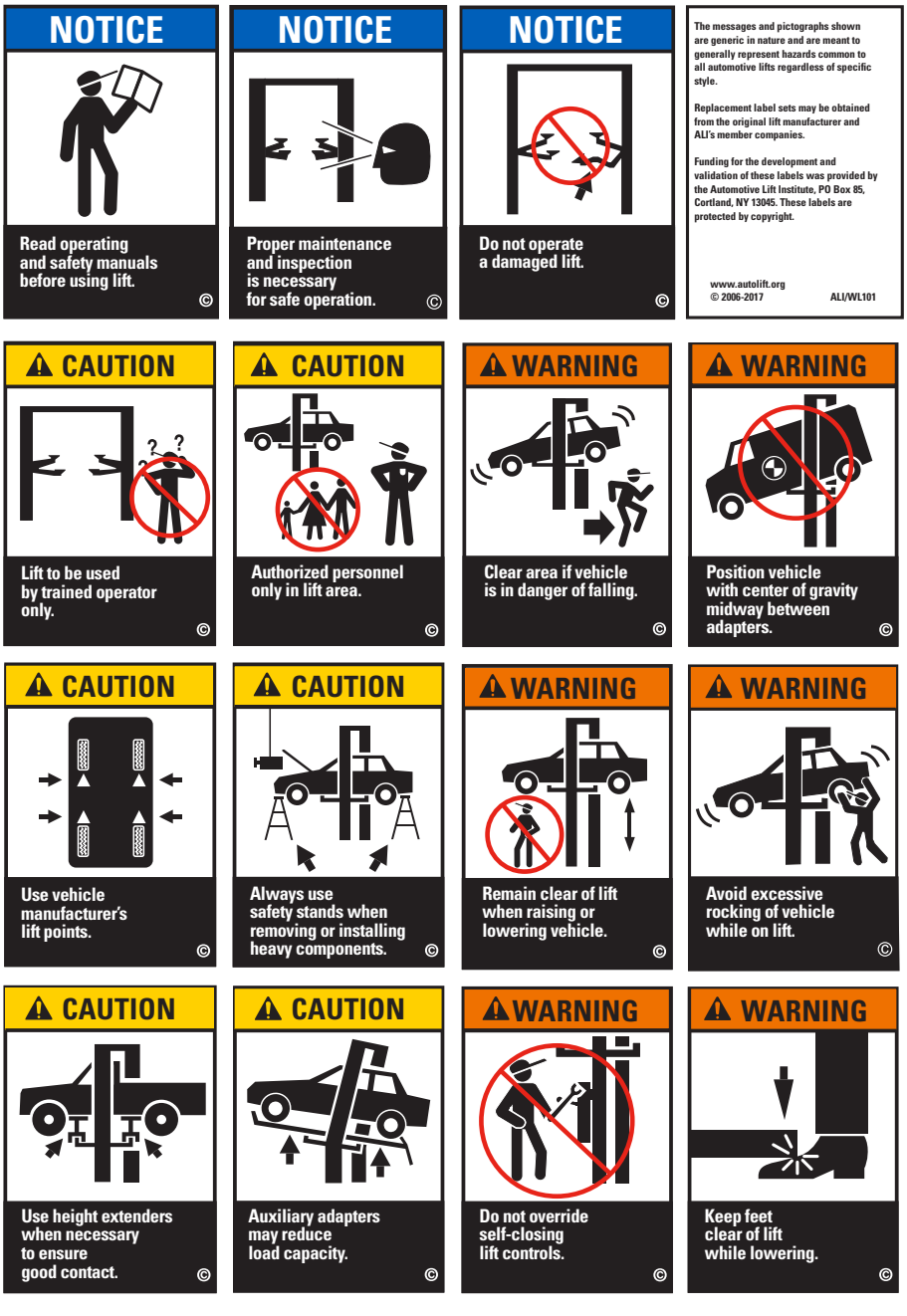
INSTALLER: Please return this booklet to literature package and give to lift owner/operator.

CO12761.6

LPRM2P16-20K
Rev. E 2.18.25

SAFETY INSTRUCTIONS

- **Daily** inspect your lift. Never operate if it malfunctions or if it has broken or damaged parts. Use **only** qualified lift service personnel and genuine Rotary parts to make repairs.
- **Thoroughly** train all employees in use and care of lift, using manufacturer's instructions and "Lifting It Right" and "Safety Tips" supplied with the lift.
- **Never** allow unauthorized or untrained persons to position vehicle or operate lift.
- **Prohibit** unauthorized persons from being in shop area while lift is in use.
- **Do Not** permit anyone on lift or inside vehicle when it is either being raised or lowered.
- **Always** keep area around lift free of tools, debris, grease, and oil.
- **Never** overload lift. Capacity of lift is shown on nameplate affixed to the lift.
- **Do Not** stand in front of the lift or vehicle while it is being positioned in lift bay.
- **Do Not** hit or run over lift arms or adapters. This could damage lift or vehicle. Before driving vehicle into lift bay, position arms and adapters to provide unobstructed entrance onto lift.



- **Load** vehicle on lift carefully. Position lift adapters to contact at the vehicle manufacturer's recommended lift points. Raise lift until adapters contact vehicle. Check adapters for secure contact with vehicle. Raise lift to desired working height.

CAUTION **DO NOT** go under vehicle if locking latches are not engaged.

- **Do Not** block open or override self-closing lift controls; they are designed to return to the "Off" or Neutral position when released.
- **Do Not** remove or disable arm restraints.
- **Remain** clear of lift when raising or lowering vehicle.
- **Always** use safety stands when removing or installing heavy components.
- **Avoid** excessive rocking of vehicle while on lift.
- **Clear** area if vehicle is in danger of falling.
- **Remove** tool trays, stands, etc. before lowering lift.
- **Release** locking latches before attempting to lower lift.
- **Position** lift arms and adapters to provide an unobstructed exit before removing vehicle from lift area.

OWNER/EMPLOYER RESPONSIBILITIES

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/SM01-1, ALI Lifting it Right safety manual; ALI/ST ALI Safety Tips card; ANSI/ALI ALOIM: 2020, or latest edition, American National Standard for Automotive Lifts-Safety Requirements for Operation, Inspection and Maintenance; ALI/WL Series, ALI Uniform Warning Label Decals/Placards; and in the case of frame engaging lifts, ALI/LP-GUIDE, Vehicle Lifting Points/Quick Reference Guide for Frame Engaging Lifts.

- Shall establish procedures to periodically inspect the lift in accordance with the lift manufacturer's instructions or ANSI/ALI ALOIM: 2020, or latest edition, American National Standard for Automotive Lifts-Safety Requirements for Operation, Inspection and Maintenance; and The Employer Shall ensure that lift inspectors are qualified and that they are adequately trained in the inspection of the lift.

- Shall establish procedures to periodically maintain the lift in accordance with the lift manufacturer's instructions or ANSI/ALI ALOIM: 2020, or latest edition, American National Standard for Automotive Lifts-Safety Requirements for Operation, Inspection and Maintenance; and The Employer Shall ensure that lift maintenance personnel are qualified and that they are adequately trained in the maintenance of the lift.

- Shall maintain the periodic inspection and maintenance records recommended by the manufacturer or ANSI/ALI ALOIM: 2020, or latest edition, American National Standard for Automotive Lifts-Safety Requirements for Operation, Inspection and Maintenance.

- 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: 2020, or latest edition, American National Standard for Automotive Lifts-Safety Requirements for Operation, Inspection and Maintenance; and in the case of frame engaging lifts, 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.

- Shall provide necessary lockout/tagout means for energy sources per ANSI Z244.1, Safety Requirements for the Lockout/Tagout of Energy Sources, before beginning any lift repairs.

- Shall not modify the lift in any manner without the prior written consent of the manufacturer.

For the latest manuals mentioned please contact Rotary or Autolift.org.

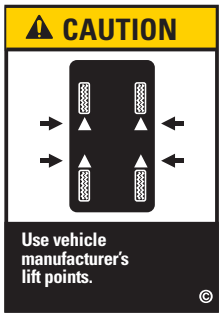
Autolift.org

OPERATING INSTRUCTIONS

Surface Mounted Frame Engaging Lifts

⚠ WARNING **To avoid personal injury and/or property damage, permit only trained personnel to operate lift. After reviewing these instructions, get familiar with lift controls by running the lift through a few cycles before loading vehicle on lift.**

IMPORTANT Always lift the vehicle using all four adapters. **NEVER** raise just one end, one corner, or one side of vehicle.



Observe and heed SAFETY, CAUTION, and WARNING labels on the lift.

1. Lift must be fully lowered and service bay clear of all personnel before the vehicle is brought on lift. Swing arms out to full drive-thru position.

2. Spot vehicle over lift with left front wheel in proper spotting dish position, see "positioning vehicle Fig 1.

3. **Loading:** Swing arms under vehicle and position adapters at vehicle manufacturer's recommended lift points, Fig. 2. Use optional adapter extensions for under body clearance when required.

Note: Allow 2 seconds between motor starts. Failure to comply may cause motor burnout.

4. To Raise Lift:

A. Push RAISE switch on power unit, Fig. 3.
B. Stop before making contact with vehicle. Check arm restraint pins for engagement. If required, slightly move arm to allow restraint gear and pawl to mesh. DO NOT hammer pin down as this will damage the restraint gear teeth.
C. Raise vehicle until tires clear the floor.
D. Stop and check adapters for secure contact at vehicle manufacturer's recommended lift points.
E. Continue to raise to desired height only if vehicle is secure on lift.
F. DO NOT go under vehicle if all four adapters are not in secure contact at vehicle manufacturer's recommended lift points.
G. Repeat complete spotting, loading and raising procedures if required.
H. Lower lift onto locking latches.

⚠ CAUTION **DO NOT** go under vehicle if locking latches are not engaged.

⚠ WARNING Before attempting to lift pickup trucks or other truck frame vehicles, be sure that:

A. Vehicle frame is strong enough to support it's weight and has not been weakened by modification or corrosion.

B. Vehicle individual axle weight does not exceed one-half lift capacity.

C. Adapters are in secure contact with frame at vehicle manufacturers recommended lift points.

D. Vehicle is stable on lift and neither front nor "tail" heavy.

E. The overhead switch bar will contact the highest point on the vehicle.

• Adapter extensions are furnished in 5" & 10" increments. The stack-up height should not exceed 15". Use adapter extension combination to keep vehicle as level as possible while it is being supported by the lift.

*Maximum operation pressure is:
2538 psi for SPO15 Sprinter (31A0 Series)
2103 psi for SPO15 Sprinter (3A0 Series)
2500 psi for SPO16 Standard
2650 psi for SPO20 Standard

5. While Using Lift:

A. Avoid excessive rocking of vehicle while on lift.

B. Always use safety stands as needed or when removing or installing heavy components.

6. To Lower Lift:

A. Remove all tools or other objects from lift area.

B. Raise lift off locking latches.

C. Push AIR LATCH release handle fully and hold.

D. Push LOWERING valve handle to lower.

Note: The AIR LATCH release toggle and LOWERING valve handle are dead-man-type design. Each must be held down to lower lift. Do Not override self-closing lift controls.

7. Remain clear of lift when lowering vehicle. Observe pinch point warning decals.

8. Remove adapters from under vehicle and swing arms to full drive-thru position before moving vehicle.

9. If lift is not operating properly, **Do Not** use until adjustment or repairs are made by qualified lift service personnel.

Positioning the vehicle

For longer wheel base vehicles, position the vehicle on the forward spotting dish. For shorter wheel bases, position the vehicle on the rear spotting dish. Due to varying centers of gravity within different vehicle classes, use the dishes as quides only and locate the arms beneath the vehicle pickup points. Always position vehicle with its center of gravity in line with the lift columns. Slightly raise the vehicle and check for stability. Do this by pushing up and down on the front and rear bumpers. The vehicle should sit firmly on all pickup points. If necessary, relocate arms and/or vehicle to attain a stable condition. Also refer to the ALI Safety Manual included with the lift.

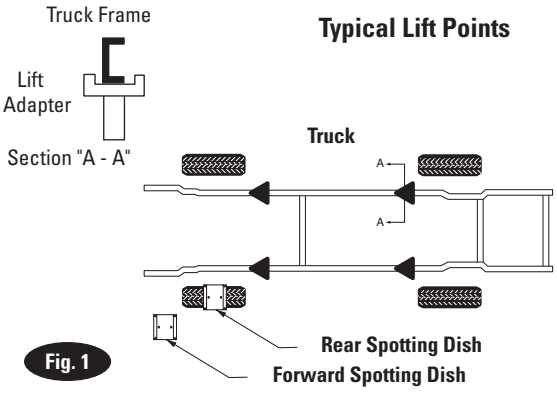


Fig. 1

SINGLE PHASE

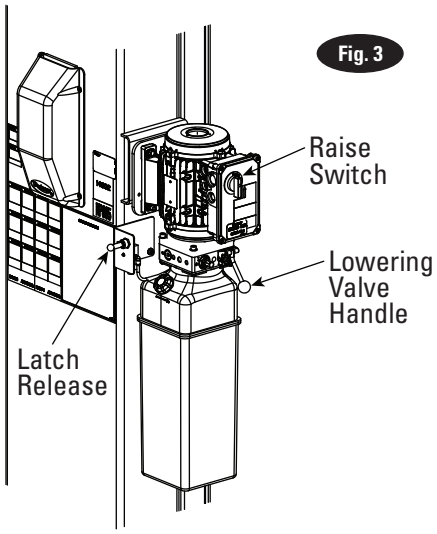
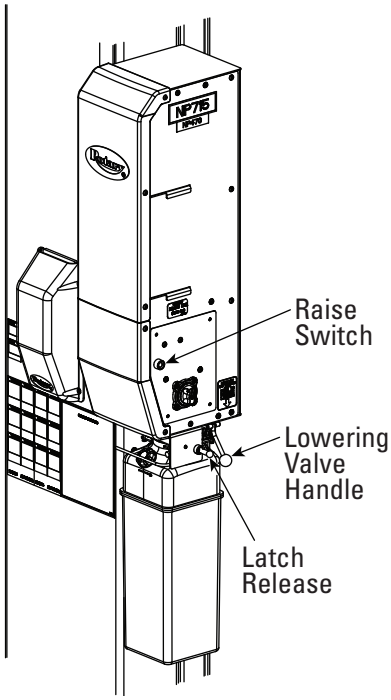


Fig. 3

SHOCKWAVE



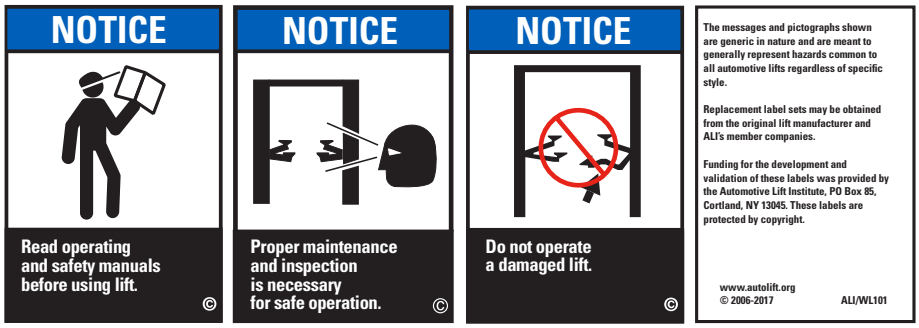
MAINTENANCE INSTRUCTIONS

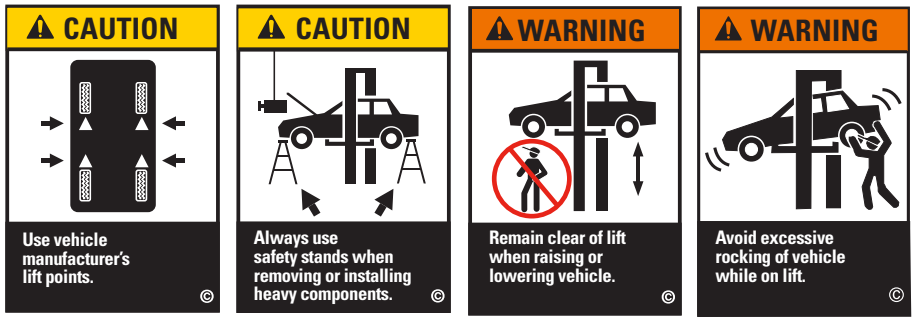
INSPECTION and MAINTENANCE

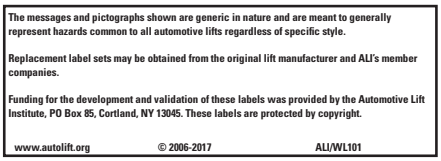
See ANSI/ALI ALOIM booklet for periodic inspection checklist and maintenance log sheet.

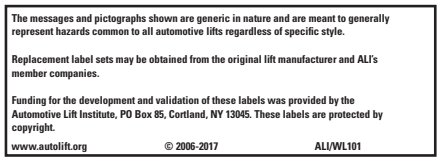
If you are not completely familiar with automotive lift maintenance procedures;
STOP: Contact factory for instructions. To avoid personal injury, permit only qualified personnel to perform maintenance on this equipment.

- **Always** keep bolts tight. Check periodically.
- **Always** keep lift components clean.
- **Always** if oil leakage is observed, call local service representative.
- **Always** if electrical problems develop, call local service representative.









- **Daily:** Check cables and sheaves for wear. Observe for frayed cable strands. Wipe cables with a rag to detect hard to see small broken cable strands. Replace cables showing any broken strands. Replace worn parts as required with genuine Rotary parts.
- **Daily:** Inspect adapters for damage or excessive wear. Replace as required with genuine Rotary parts.
- **Monthly:** Check equalizer cable tension. Adjust per lift installation instructions. If there are no more threads available for adjustment, replace the cable. Do not use washers to stand off the nut to use previously used threads.
- **Monthly:** Lubricate locking latch shafts. Push air latch toggle several times for oil to penetrate joints.
- **Every 3 Months:** Check anchor bolts for tightness. Anchors should be torqued to 90 ft/lbs.
- **Semi-Annually:** Lubricate arm pins with lubricating oil unless lubricating with grease.
- **Semi-Annually:** Check fluid level of lift power unit and refill if required per lift installation instructions. Lubricate slider tracks with TUFOIL™ if difficulties are noticed while picking up heavier vehicles. Lubricate arm pins (recommended motor oil wt. 32).
- **If Lift** stops short of full rise or chatters, check fluid level and bleed both cylinders per lift installation instructions.
- **Replace** all caution, warning or safety related decals on the lift if unable to read or missing. Reorder labels from Rotary Lift.

TROUBLE SHOOTING

Trouble	Cause	Remedy
Motor does not run.	**1.** Blown fuse or circuit breaker. **2.** Incorrect voltage to motor. **3.** Bad wiring connections. **4.** Motor up switch burned out. **5.** Overhead limit switch burned out. **6.** Motor windings burned out.	**1.** Replace blown fuse or reset circuit breaker. **2.** Supply correct voltage to motor. **3.** Repair and insulate all connections. **4.** Replace switch. **5.** Replace switch. **6.** Replace motor.
Motor runs but will not raise lift.	**1.** Open lowering valve. **2.** Pump sucking air. **3.** Suction stub off pump. **4.** Low oil level.	**1.** Repair or replace lowering valve. **2.** Tighten all suction line fittings. **3.** Replace suction stub. **4.** Fill tank with Dexron III ATF.
Motor runs—raises unloaded lift but will not raise vehicle.	**1.** Motor running on low voltage. **2.** Debris in lowering valve. **3.** Improper relief valve adjustment. **4.** Overloading lift.	**1.** Supply correct voltage to motor. **2.** Clean lowering valve. **3.** Replace relief valve cartridge. **4.** Check vehicle weight and/or balance vehicle weight on lift.
Lift slowly settles down.	**1.** Debris in check valve seat. **2.** Debris in lowering valve seat. **3.** External oil leaks.	**1.** Clean check valve. **2.** Clean lowering valve. **3.** Repair external leaks.
Slow lifting speed or oil blowing out filler breather cap.	**1.** Air mixed with oil. **2.** Air mixed with oil suction. **3.** Oil return tube loose. **4.** Slider blocks need lubricating.	**1.** Change oil to Dexron III ATF. **2.** Tighten all suction line fittings. **3.** Reinstall oil return tube. **4.** Lubricate with light lithium grease.
Lift going up unlevel.	**1.** Equalizer cables out of adjustment. **2.** Lift installed on unlevel floor.	**1.** Adjust equalizer cables to correct tension. **2.** Shim lift to level columns (Not to exceed $^1/_2$"). If over $^1/_2$" break out floor and level per lift installation instructions.
Anchors will not stay tight.	**1.** Holes drilled oversize. **2.** Concrete floor thickness or holding strength not sufficient.	**1.** Relocate lift using a new bit to drill holes. **2.** Break out old concrete and repour new pads for lift per lift installation instruction.
Locking latches do not engage.	**1.** Latch shafts rusted. (Usually occurs on outside installations or in high humidity areas such as vehicle wash bays.) **2.** Latch spring broken. **3.** Air valve stuck open.	**1.** Remove covers, oil latch mechanism. Depress latch release handle several times to allow oil to coat shaft. **2.** Replace broken spring. **3.** Cycle toggle, replace valve if necessary.
Locking latches do not disengage.	**1.** No air supply. **2.** Air valve stuck closed. **3.** Air leak.	**1.** Check tubing and compressor. **2.** Cycle toggle, replace valve if necessary. **3.** Check tubing.
Lift will not raise off of latches.	**1**. Motor, pump, or cylinder failure.	**1**. Contact lift manufacturer's Customer Service.

LIFT LOCKOUT/TAGOUT PROCEDURE

Purpose

This procedure establishes the minimum requirements for the lockout of energy that could cause injury to personnel by the operation of lifts in need of repair or being serviced. All employees shall comply with this procedure.

Responsibility

The responsibility for assuring that this procedure is followed is binding upon all employees and service personnel from outside service companies (i.e., Authorized Rotary Installers, contactors, etc.). All employees shall be instructed in the safety significance of the lockout procedure by the facility owner/manager. Each new or transferred employee along with visiting outside service personnel shall be instructed by the owner/manager (or assigned designee) in the purpose and use of the lockout procedure.

Preparation

Employees authorized to perform lockout shall ensure that the appropriate energy isolating device (i.e., circuit breaker, fuse, disconnect, etc.) is identified for the lift being locked out. Other such devices for other equipment may be located in close proximity of the appropriate energy isolating device. If the identity of the device is in question, see the shop supervisor for resolution. Assure that proper authorization is received prior to performing the lockout procedure.

Sequence of Lockout Procedure

1) Notify all affected employees that a lockout is being performed and the reason for it.
2) Unload the subject lift. Shut it down and assure the disconnect switch is "OFF" if one is provided on the lift.
3) The authorized lockout person operates the main energy isolation device removing power to the subject lift.
    - If this is a lockable device, the authorized lockout person places the assigned padlock on the device to prevent its unintentional reactivation. An appropriate tag is applied stating the person's name, at least 3" x 6" in size, an easily noticeably color, and states not to operate device or remove tag.
    - If this device is a non-lockable circuit breaker or fuse, replace with a "dummy" device and tag it appropriately as mentioned above.
4) Attempt to operate lift to assure the lockout is working. Be sure to return any switches to the "OFF" position.
5) The equipment is now locked out and ready for the required maintenance or service.

Restoring Equipment to Service

1) Assure the work on the lift is complete and the area is clear of tools, vehicles, and personnel.
2) At this point, the authorized person can remove the lock (or dummy circuit breaker or fuse) & tag and activate the energy isolating device so that the lift may again be placed into operation.

Rules for Using Lockout Procedure

Use the Lockout Procedure whenever the lift is being repaired or serviced, waiting for repair when current operation could cause possible injury to personnel, or for any other situation when unintentional operation could injure personnel. No attempt shall be made to operate the lift when the energy isolating device is locked out.

OPERATING CONDITIONS

Lift is not intended for outdoor use and has an operating ambient temperature range of 41º-104ºF (5º-40ºC).

APPROVED ACCESSORIES		
Item	Capacity	Part Number
Air/Electric Utility Box		FA5911
Air/Electric Utility Box Without FRL		FA5910
Filter/Regulator/Lubricator (FRL)		FA5166

NOTES

NOTES

Trained Operators and Regular Maintenance Ensures Satisfactory Performance of Your Rotary Lift.

Replacement Parts: See installers package for parts breakdown sheet. Order Genuine Rotary replacement parts from your nearest Authorized Parts Distributor.

Maintenance Assistance: Contact your local Rotary distributor.

Should further assistance be required, contact Rotary Lift, at one of the phone numbers listed below.

Rotary World Headquarters
3005 Highland Parkway, Suite 200
Downers Grove, Illinois 60515, USA
www.vsgdover.com
800.640.5438

North / South America Contact Information

Sales:
1.812.273.1622 / 800.445.5438
insidesales@vsgdover.com

Tech. Support:
800.445.5438
technicalsupport@rotarylift.com

Government Sales:
800.445.5438 X5655
rotarylift.com/Government-Purchasing-Assistance/

Additional information at rotarylift.com

Global Contact Information
Australasia: +60.3.5192.5910
Brazil: +55.11.4534.1995
Canada: 1.905.812.9920
European Headquarters/Germany: +49.771.9233.0
Latin America/Caribbean: 1.812.273.1622
Middle East/Northern Africa: +49.771.9233.0
Southern Africa: 1.812.273.1622
United Kingdom: +44.178.747.7711