



SM300/RFL25

(300 Series Lifts)

SM300 Capacity 30,000 lbs. (15,000 lbs. per axle)

SM300 = 235" Wheelbase

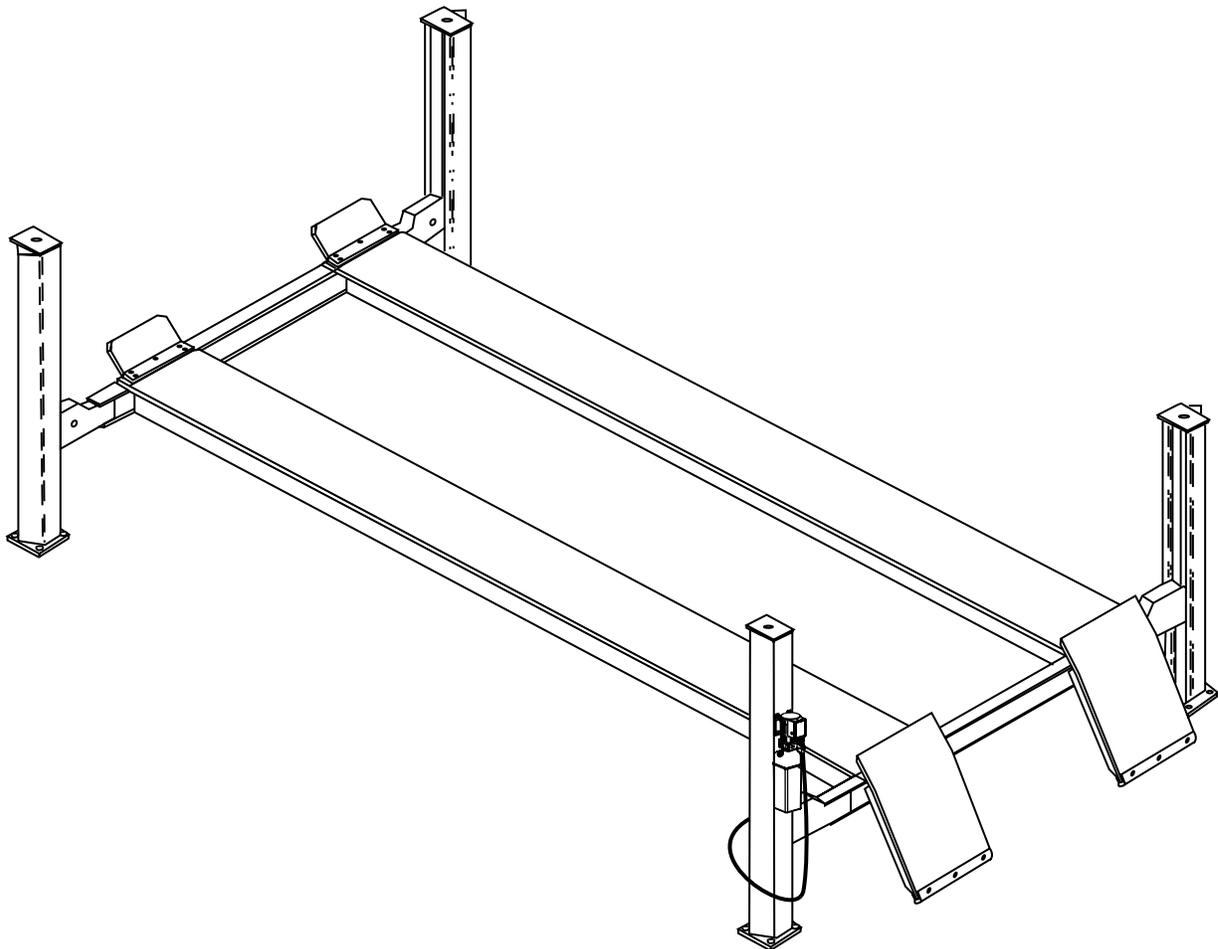
SM301 = 271" Wheelbase

SM302 = 308" Wheelbase

140" Minimum Wheelbase

RFL25 Capacity 25,000 lbs. (12,500 lbs. per axle)

RFL25 = 163" Wheelbase



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Required Clearances

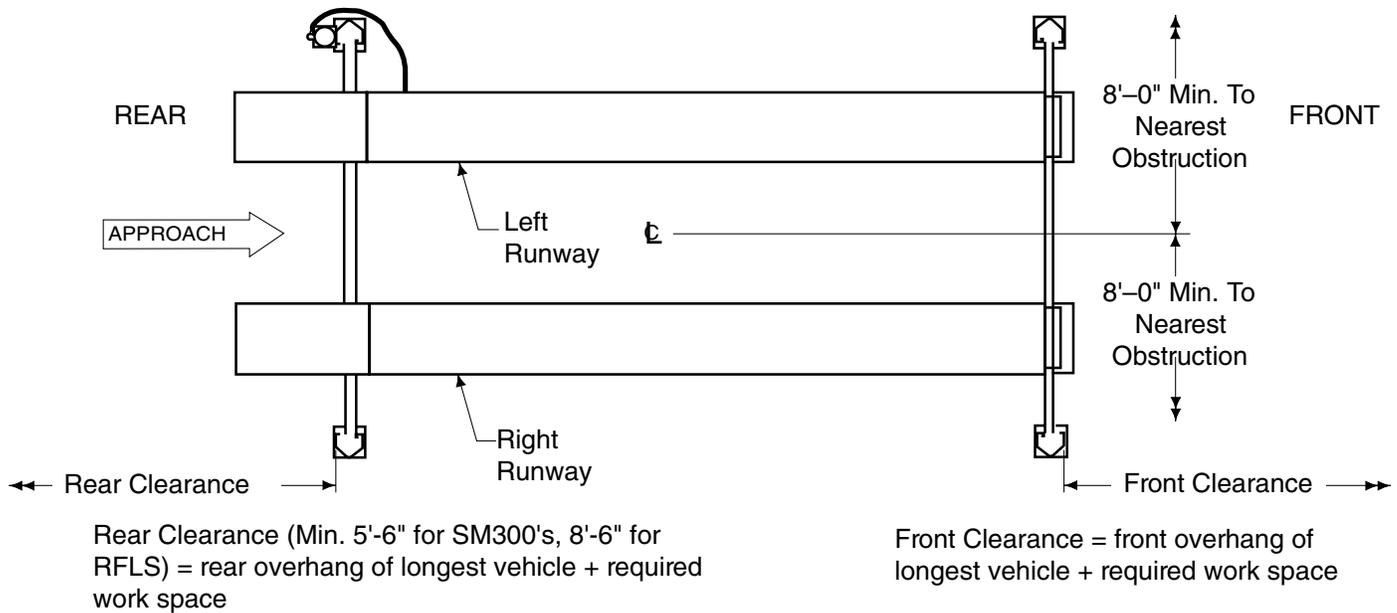


Fig. 1

Read and understand Installation Instructions completely before starting with lift installation.

1. Lift Location: Use architects plan when available to locate lift. Fig. 1 shows dimensions of a typical bay layout. For power unit at right front, rotate lift 180°, leaving ramp/chocks and wheel stops in original position. Lift floor area should be level.

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

Note: If runway extensions are used, an additional 3'-0" of clearance must be added to end with extensions.

2. Ceiling or overhead clearance must be 80" plus height of tallest vehicle.

3. Estimating Column Shim requirements:

In the following section, the terms "highest" and "lowest" refer to elevation of floor.

- Mark locations where lift columns will be positioned in bay.
- Place target at column positions and record readings, Fig. 2.
- Find the highest of the four (4) locations. Find the difference between the reading at each of the remaining three (3) columns and the highest reading.
- The difference is the estimated amount of shim thickness needed at each column.

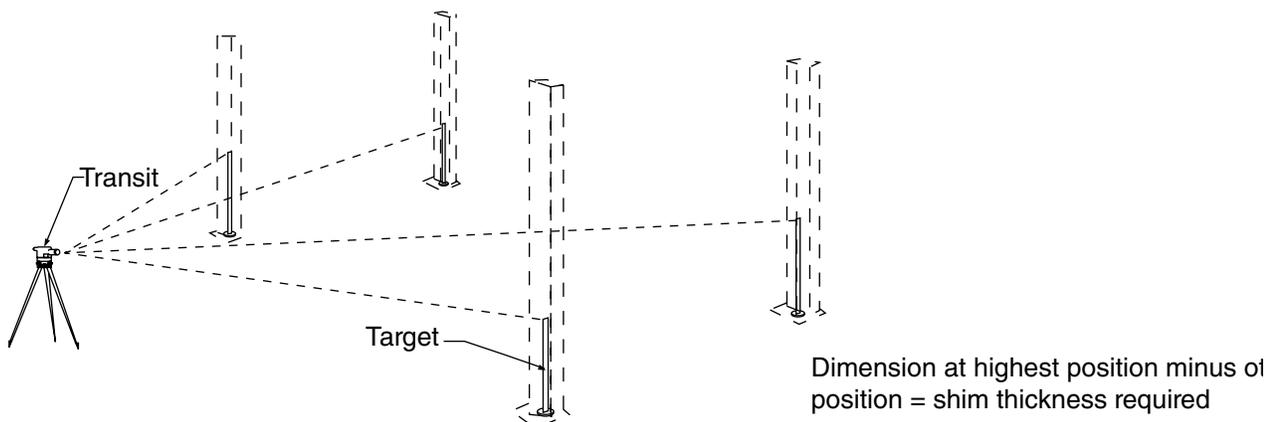
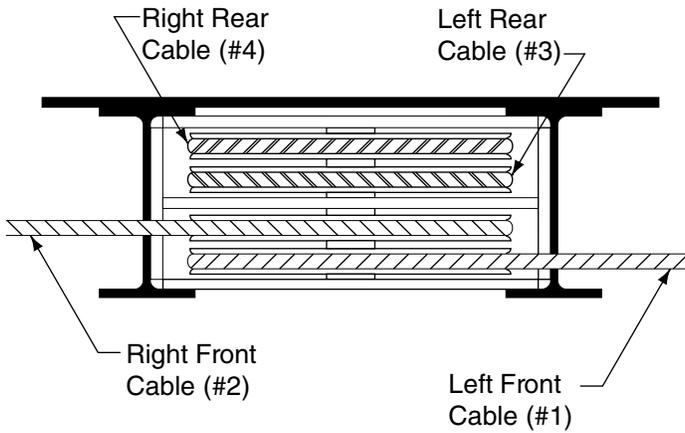


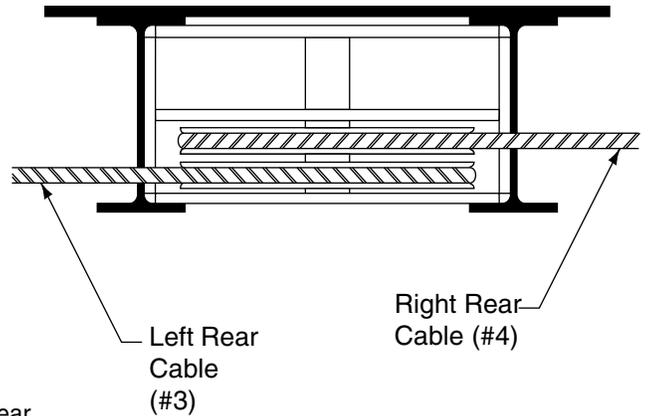
Fig. 2

Estimation Shim Requirements

Cable Seating in Sheave Grooves



Front
(Viewed from front)



Rear
(Viewed from rear)

Fig. 3

E. Maximum shim thickness of 2" is possible by using shims and anchors provided with lift. If more shimming is required, consult factory for different shim package including longer anchor bolts.

4. Runway and Yoke Assembly:

- Determine direction of approach in bay.
- Position left runway in bay with hydraulic cylinder hose connection to rear of bay. Cables and sheaves are pre-assembled in runway. Runway needs to be up off floor so shipping restraints can be removed from cable ends, air and hydraulic lines, and cylinder rod. Pull cables, air and fluid lines out for assembly. Make sure cables are in proper sheave grooves, Fig. 3.
- Position front and rear yokes at respective ends of runway, Fig. 1. Feed cable ends through yoke end, Fig. 4. Do not assemble sheaves in yoke ends at this time.

IMPORTANT Be sure cables are not crossed inside yoke.

Feed Cable Ends Through Yoke End

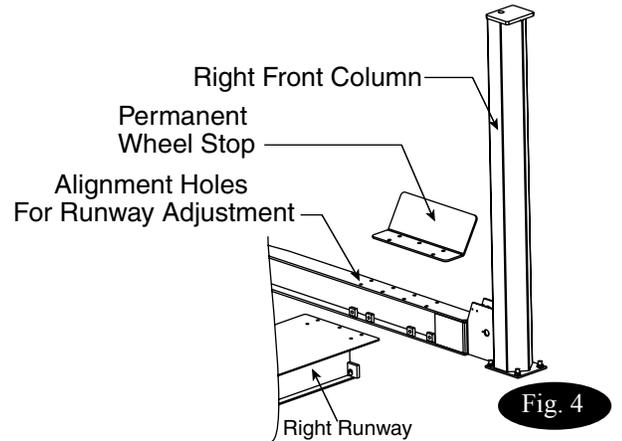


Fig. 4

- Lay right runway in place on yoke. Slide right runway toward outside of lift until holes in yoke and runway line up, Fig. 4. Hold runway in place and bolt on ramp/chock and wheel stops to runway using ten $\frac{5}{8}$ " x 2 $\frac{1}{2}$ " bolts and flange nuts. Square up yokes with runways using four $\frac{3}{4}$ "-10NC x 2" lg. bolts and shims. Ramp/chocks go on rear, Fig. 5. Fig. 6. Repeat for left runway.
- Insert each end of the left runway's $\frac{1}{4}$ " air line into the Tee's connecting the locking latch air cylinders in each yoke, Fig. 7.

Ramp/Chock

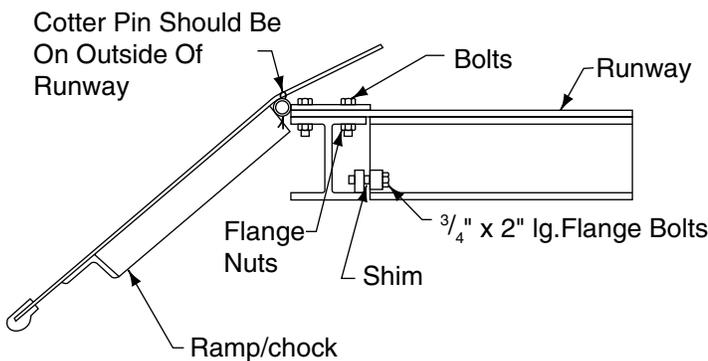


Fig. 5

Wheel Stop

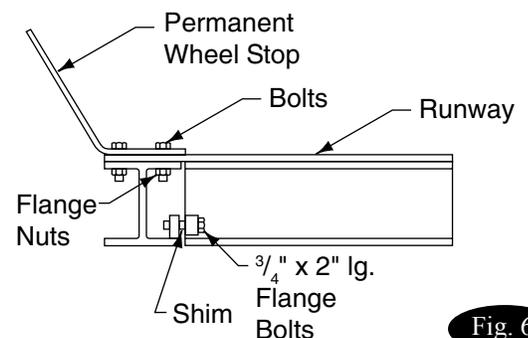


Fig. 6

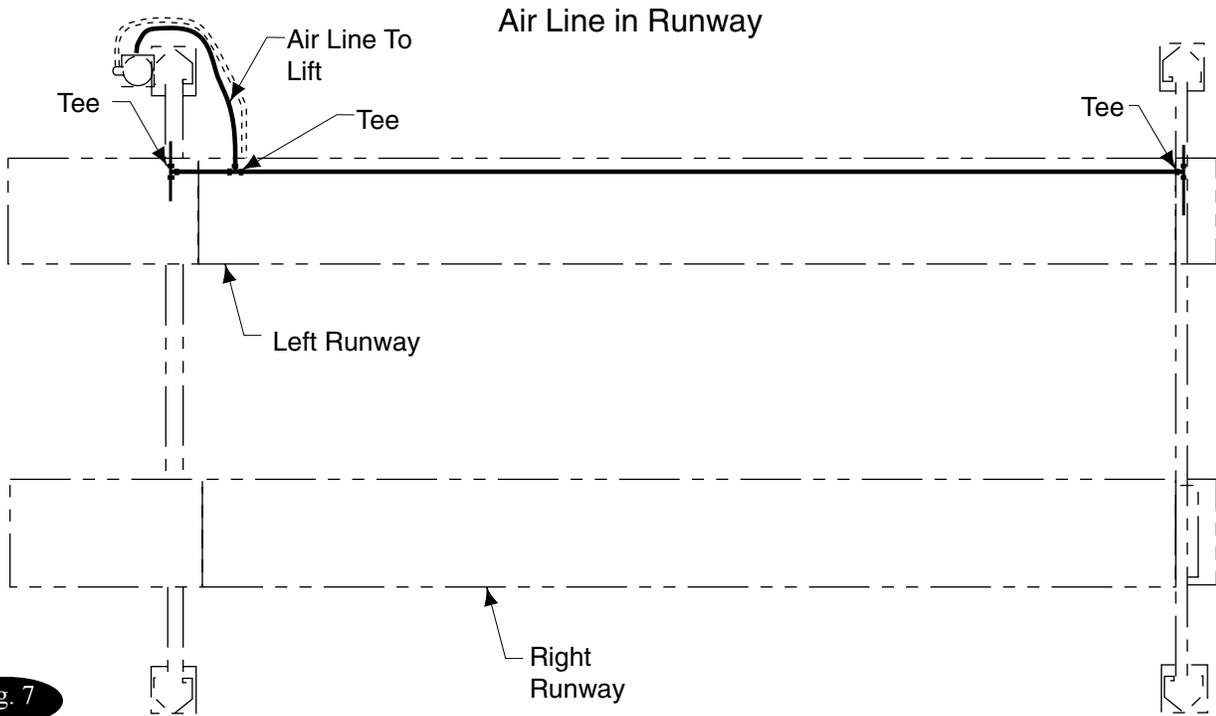


Fig. 7

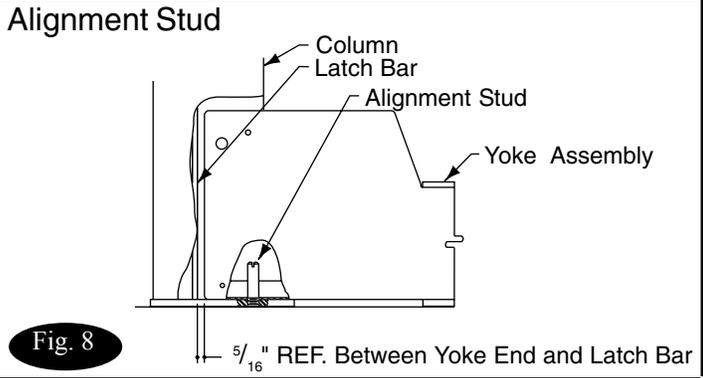
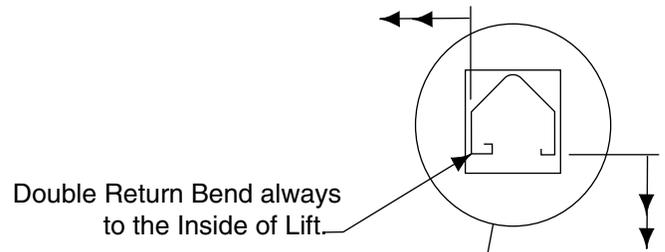


Fig. 8

Check Lift Dimensions



- RFL25 177 1/8" Ref.
- SM300 249 1/8" Ref.
- SM301 285 1/8" Ref.
- SM302 321 1/8" Ref.

Between Columns

Width and length measurements are made from column sides, NOT column base plate. Diagonals are measured from inside corner of column.

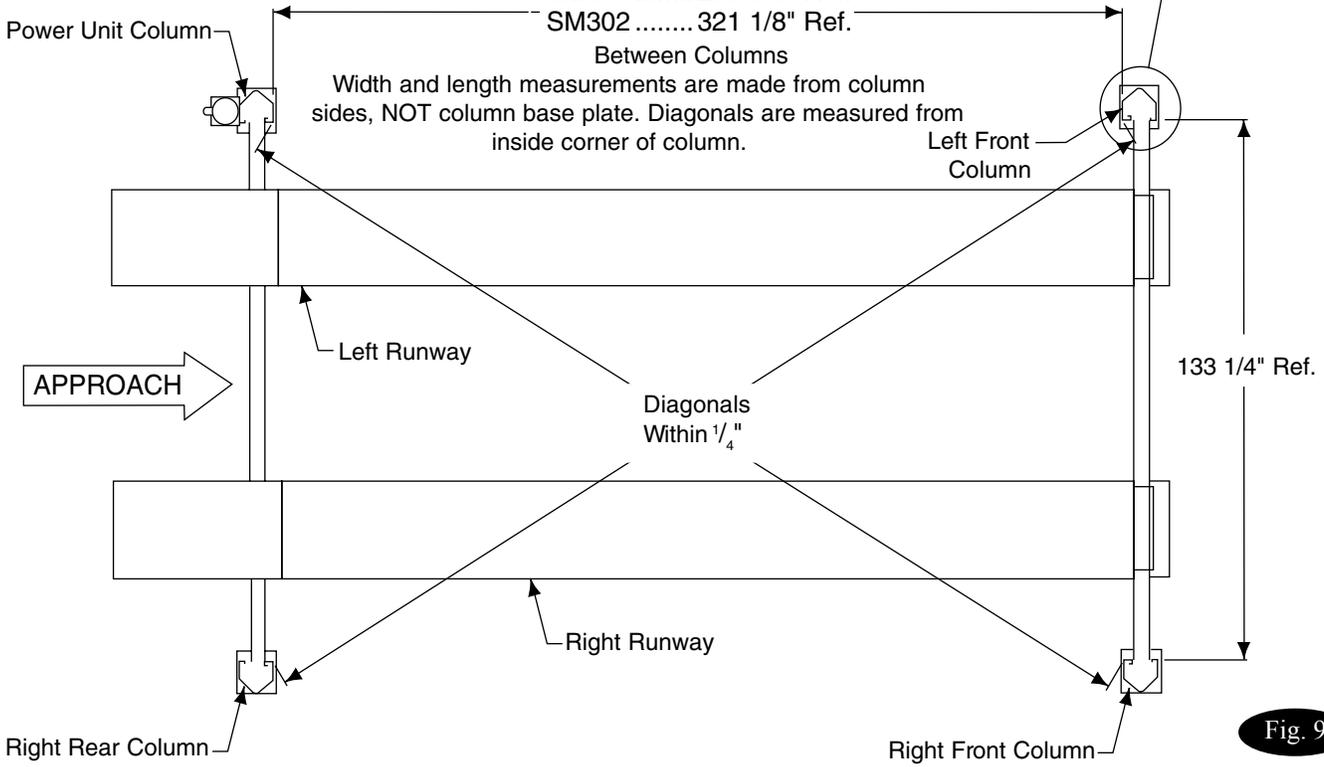


Fig. 9

5. Columns:

Note: Columns are not interchangeable. They must be set at their respective corner of the lift. Column double return bend is always to inside of lift, Fig. 9. Place the power unit column at the left rear corner of the lift. The point where the hydraulic hose passes through side of left runway should be visible from this corner. Insert alignment stud through hole in yoke end and thread into base plate of column, Fig. 8. Repeat for other columns.

IMPORTANT The yoke/column alignment studs **MUST** be used for proper centering of columns to yokes, Fig. 8. A gap of $\frac{5}{16}$ " must be maintained between column and yoke. See step 6 B. **Note:** It may be necessary to remove Plastic Slider from Column Stop on yoke end, Fig. 10, before aligning yoke in column. After yoke is in column, reinstall Plastic Slider and secure with $\frac{5}{16}$ " button head screw.

6. Anchoring:

Keep columns square to center line of lift. Check lift location in the bay, Fig. 1. Check dimensions side-to-side, front-to-rear, and diagonally. Diagonals must be equal to within $\frac{1}{4}$ ", Fig. 9.

For each column:

- Minimum recommended concrete specifications is 3,000 PSI, 5" thick and should sustain 2,000 lb. anchor load.
- Start with power unit column. Use yoke spacer tool to ensure $\frac{5}{16}$ " gap between column and yoke. Place yoke spacer tool on yoke end, Fig. 8a, with ears facing away from column. Slide yoke spacer tool so that the end of the tool opposite the ears is against the side of the yoke end facing the column.
- Use shims provided to shim column base to plumb columns, first fore and aft then side to side. Use a 4' level to check plumb of columns. Recheck $\frac{5}{16}$ " gap between column and yoke with yoke spacer tool. Maximum shim thickness is 2", Fig. 12. If more shimming is required, consult factory for different shim package including longer anchor bolts. Drill four $\frac{5}{8}$ " diameter holes through concrete floor using base holes as guide, Fig. 11. Repeat for other columns.
- Insert base anchors, Fig. 11. Repeat for other columns. Tighten nuts. Recheck columns for plumb. Re-shim if necessary. Torque anchor bolts to 35-45 ft. lbs., Fig. 11. If anchor bolts do not hold when torqued to required amount, concrete must be replaced. Saw cut and remove 24" x 24" square area under each column base.

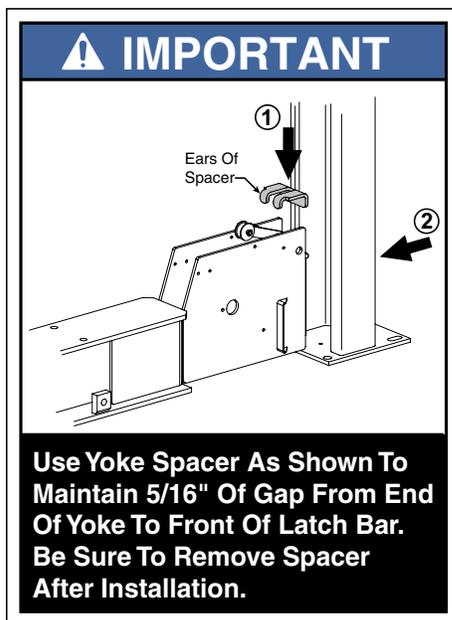


Fig. 8a

Repour with reinforced # 3000 minimum concrete to depth of 6", keying new concrete under existing floor.

7. Cable Connection:

Install yoke end sheaves, Fig. 13. Retain with sheave pin and $\frac{5}{16}$ " pan head machine screw, Locktite the screw threads. Attach each cable to column top plate with nut and jam nut. Install sheave covers on each yoke end, Fig. 13. Roping diagram shows a view of completed roping, Fig. 14.

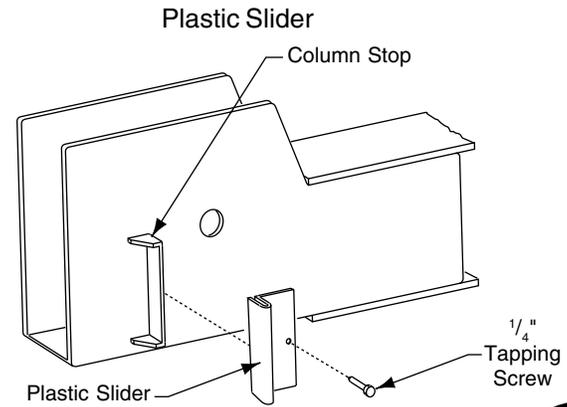


Fig. 10

Anchor Installation

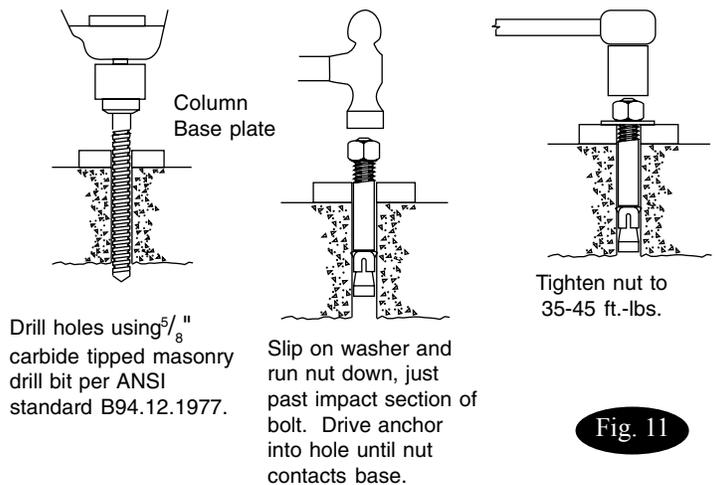


Fig. 11

Shimming Column

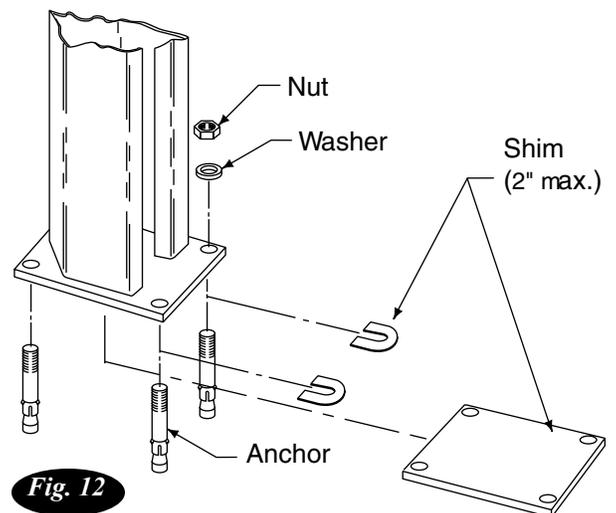


Fig. 12

8. Adjust Cable: Adjust all cables with lift fully lowered.

Loosen cable jam nut. Tighten adjusting nut on cable stud on top of column until yoke end is raised $\frac{1}{4}$ ". Back off adjusting nut one (1) turn. Tighten jam nut. Do this for all four (4) cables. See Fig. 13.

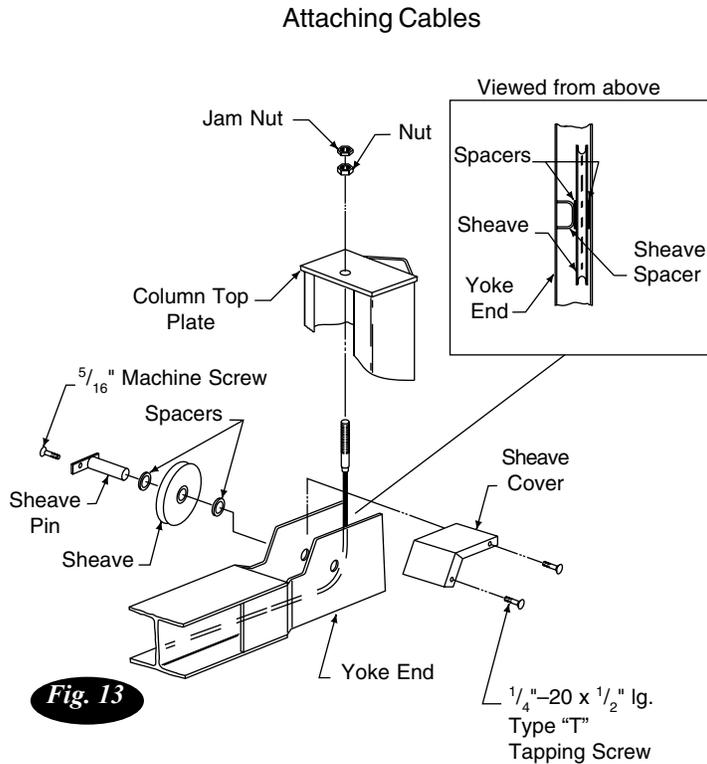


Fig. 13

IMPORTANT Cables must fit in slack cable arm rollers, Fig. 15

9. Power Unit:

- A. Align Air Valve Bracket with holes in right side of column bracket, Fig. 16.
- B. Put four $\frac{5}{16}$ " x $1\frac{1}{2}$ " lg. hex. bolts through holes in column bracket, using push-nuts to hold in place.
- C. Mount power unit, with motor up, to the column bracket and install four $\frac{5}{16}$ " lock washers and nuts.
- D. Run hydraulic hose from runway through slot in side of runway to power unit output port, Fig. 17. **DO NOT** use Teflon tape on hydraulic hose connections. Install and hand tighten elbow to pump until O-ring is seated and elbow should be oriented downward at approximately 45° , Fig. 17. Tighten locknut to 35-40 ft. lbs.
- E. Install enclosed capacity label on power unit, Fig. 17.

10. Electrical: Have a certified electrician run 230 volt single phase 60 Hz. power supply to motor, Fig. 18 and 19. Size wire for 25 amp. circuit. See Motor Operating Data table.

Cable in Slack Cable Arm Rollers

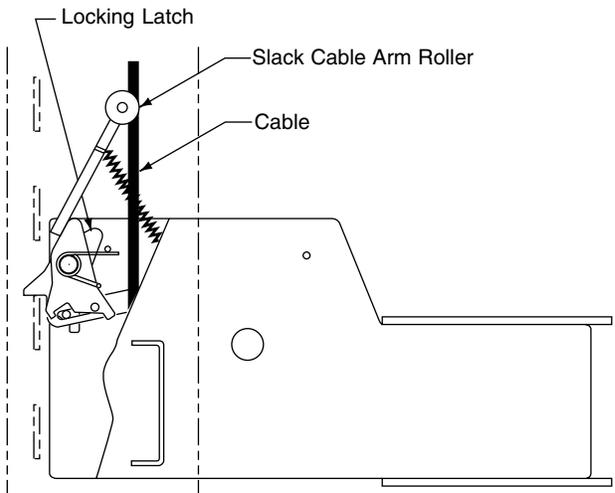


Fig. 15

Roping Diagram

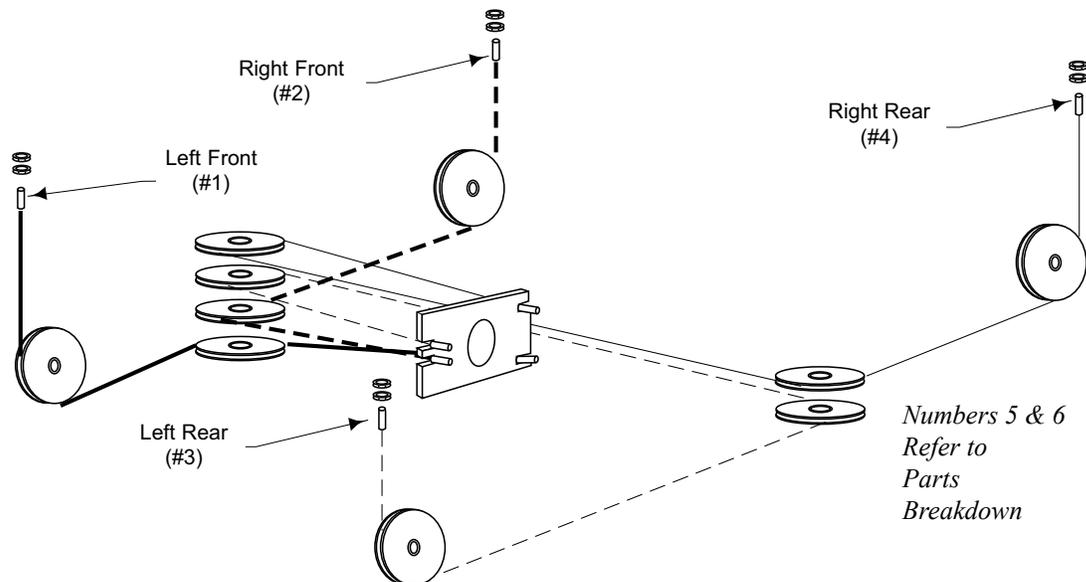


Fig. 14

Mount Power Unit

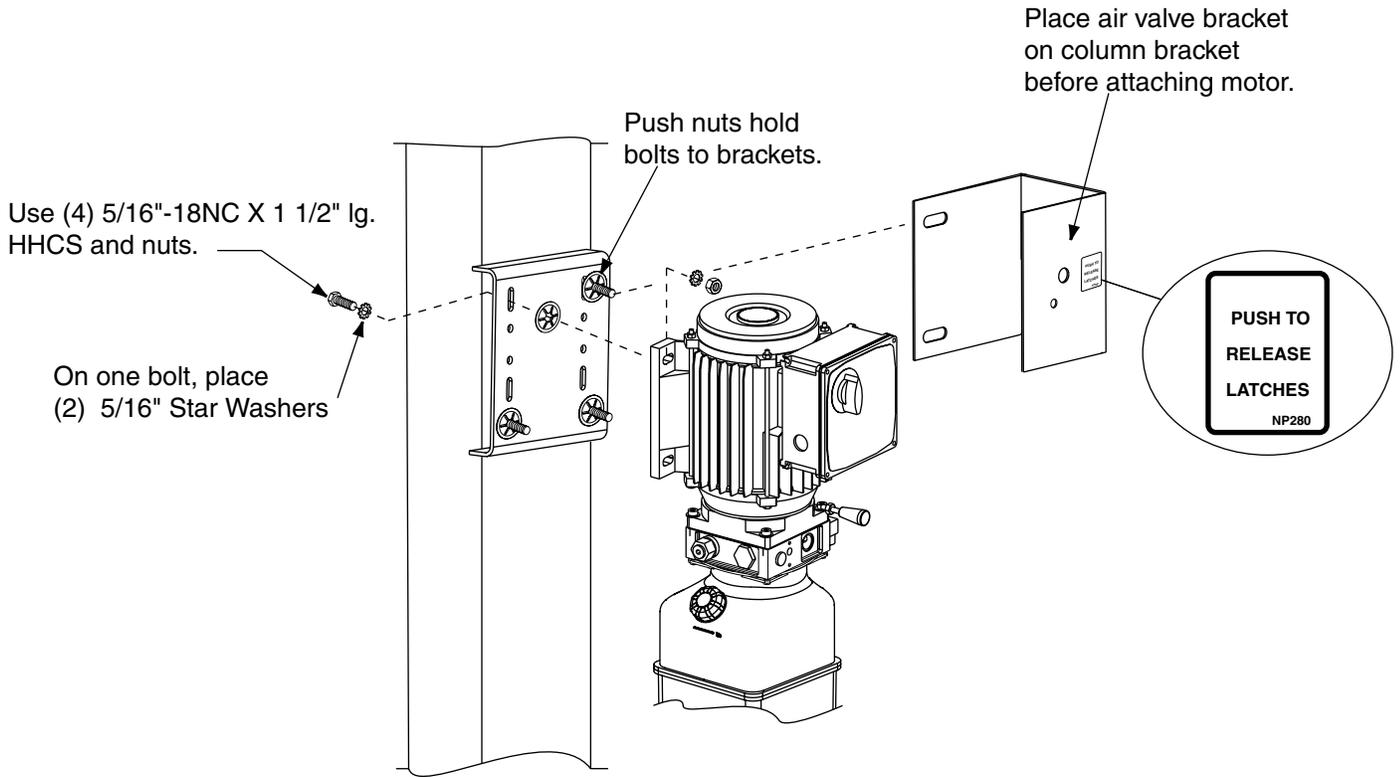


Fig. 16

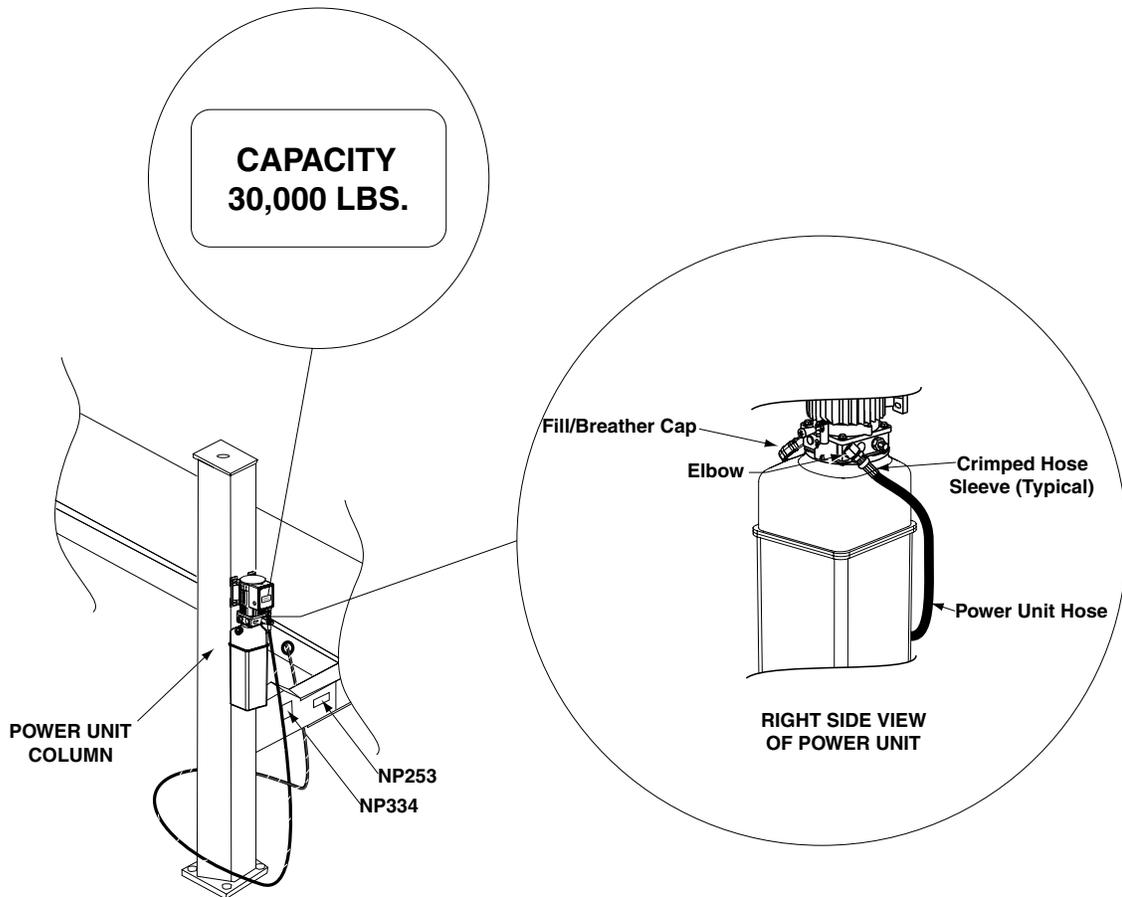


Fig. 17

Note: Motors utilizing 3 phase current available. Refer to wiring drawing in 3 phase power unit carton.

IMPORTANT Use separate circuit for each power unit. Protect each circuit with time delay fuse or circuit breaker: single phase -30 amp.; 3 phase (230v) -15 amp.; 3 phase (460v) -8.75 amp. Wiring must comply with local electrical codes.

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

WARNING Risk of explosion. This equipment has internal arcing or sparking parts which should not be exposed to flammable vapors. It should not be located in a recessed area or below floor level.

Wiring Diagram

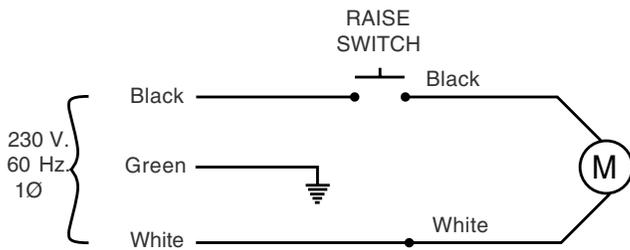


Fig. 18

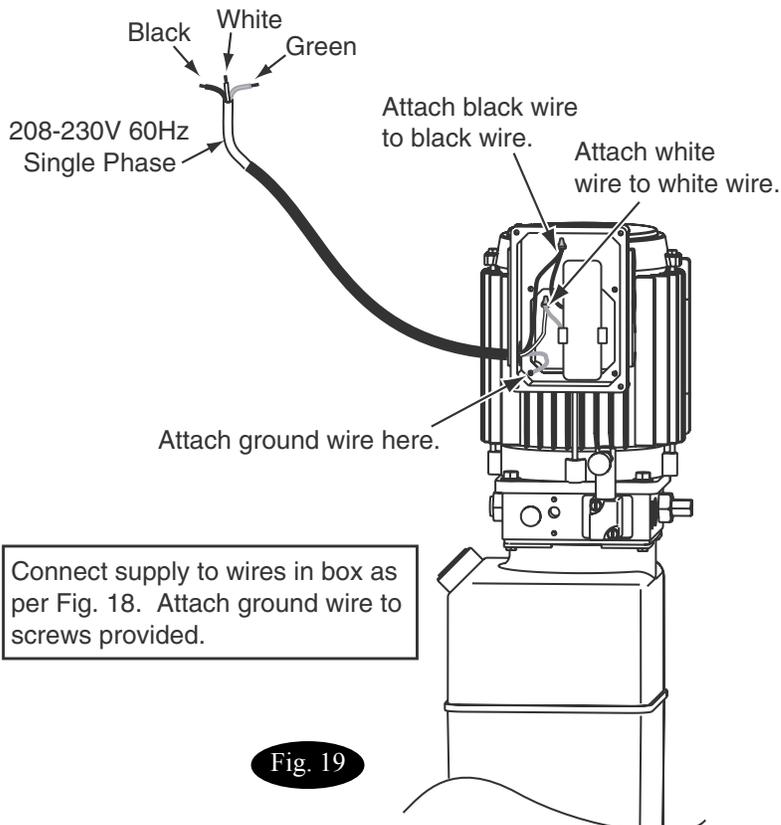


Fig. 19

**NEED ASSISTANCE?
CALL:
1-800-445-5438
OUR CUSTOMER SERVICE DEPARTMENT WILL BE GLAD TO HELP.**

Motor Operating Data Table

MOTOR OPERATING DATA - SINGLE PHASE		
LINE VOLTAGE OF POWER CO.	RUNNING MOTOR VOLTAGE RANGE	
208V - 230V	60 HZ	197V - 253V

FOR 3 PHASE POWER UNITS ONLY:

Attach Control Plate to Motor using (4) 5mm-.80 x 8mm lg. Flat Head Machine Screws

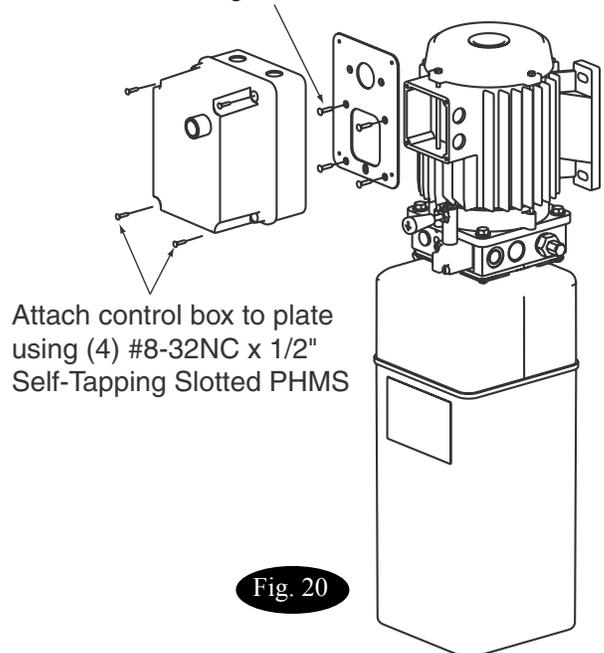
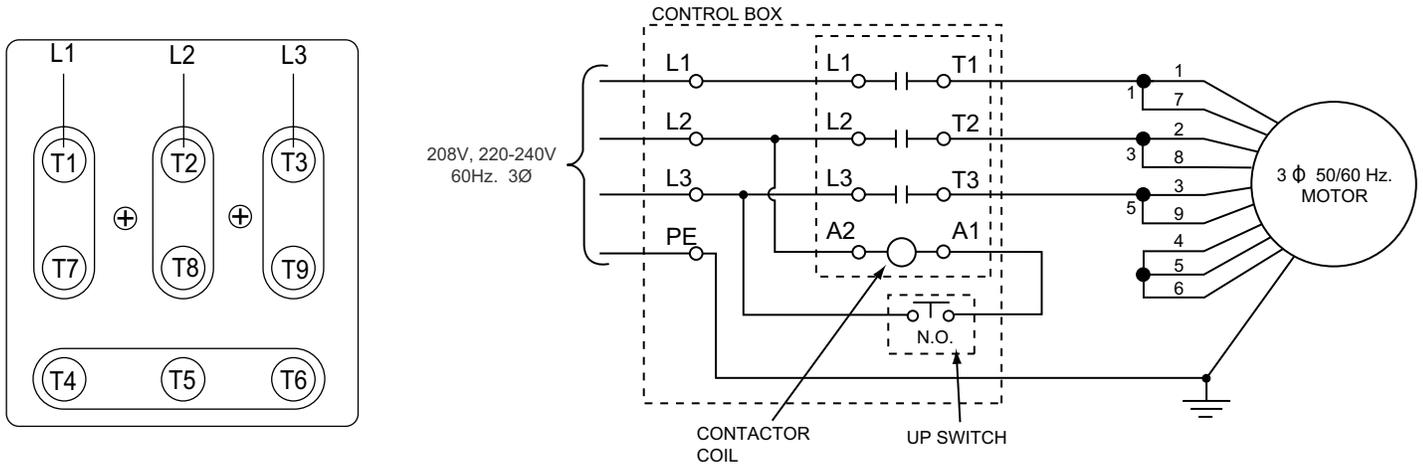


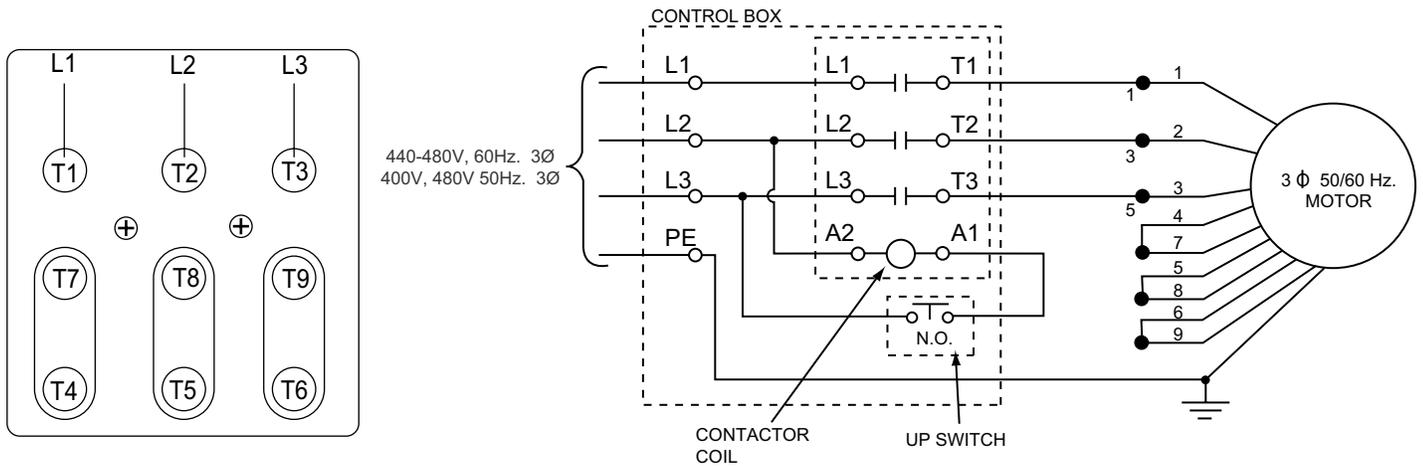
Fig. 20

MOTOR OPERATING DATA - THREE PHASE	
LINE VOLTAGE	RUNNING MOTOR
VOLTAGE RANGE	
208-230 VOLTS 60HZ	197 - 253 VOLTS
460 VOLTS 60HZ	414 - 506 VOLTS

LOW VOLTAGE CONNECTION



HIGH VOLTAGE CONNECTION



LEGEND	T1	RED	T6	BLACK "T"
	T2	BLUE	T7	BROWN
	T3	WHITE	T8	YELLOW
	T4	BLACK "R"	T9	GREEN
	T5	BLACK "S"		

LEGEND	T1	WHITE	T6	BLACK
	T2	RED	T7	WHITE
	T3	BROWN	T8	RED
	T4	WHITE	T9	BLUE
	T5	RED		

Two different wiring colors were used. Determine appropriate LEGEND.

11. Fluid Filling:

CAUTION If fill/breather cap, Fig. 17, is lost or broken, order replacement. **DO NOT** substitute with a solid plug.

- A. System capacity is twenty-two (14) quarts. Use Dexron III ATF. Remove fill/breather cap and fill vent screw, Fig. 17.
- B. Add fluid until it reaches the fill line.
- C. Replace fill/breather cap.
- D. Start motor and raise lift to full rise. Lower the lift onto the locking latches.
- E. **REMOVE ALIGNMENT STUDS** from all four (4) column bases, Fig. 8.

IMPORTANT Lift must be fully lowered before changing or adding hydraulic fluid.

12. Connecting Air Supply:

Note: Locking latches require 100 p.s.i. min to 120 p.s.i. max. air pressure

IMPORTANT A filter/regulator/lubricator must be installed on air supply at lift. Failure to do so will void the warranty.

- A. Connect air valve to Reducing Tee, Fig. 24. Cut provided $\frac{1}{4}$ " air line tubing with sharp blade to length as required. Tubing must be cut square with no burrs.

Note: To assemble air line tubing into fitting, use firm, manual pressure to push tubing into fitting until it bottoms, Fig. 23. 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.

IMPORTANT Tubing must bottom out in valve or fitting (approx. $\frac{3}{4}$ ") or it will leak.

- B. Use Housing Collar to secure the Air Valve to the Air Valve Bracket, Fig. 24.

Seating Air Line Tubing

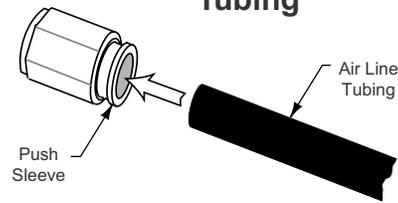


Fig. 23

- C. Attach enclosed NP280 decal ("PUSH TO RELEASE LATCHES") below button on air valve bracket, Fig. 16.
- D. Run $\frac{1}{4}$ " air line from air valve to the slot in the fixed runway. Cut airline to length required and attach to Tee in runway, Fig. 22.
- E. Connect Reducing Tee to female connector, Fig. 24, using $\frac{3}{8}$ " air line tubing. Attach filter to female connector and connect into existing facility air supply. Make sure plastic plug is in bottom opening of Reducing Tee.
- F. Check for air leaks by depressing air valve. Repair as required.
- G. Use provided cable ties to tie air line to hydraulic hose between power unit and lift.
- H. Actuate air valve and check latch operation on all four (4) corners. When releasing locks, the locking latch should pull back flush with yoke end to clear the latch bar located in all four (4) columns, Fig. 25. Adjust, if required, by removing cotter pin and washer holding Slotted Bracket on locking latch and screwing Slotted Bracket in to move it toward the air cylinder. After adjustment, replace washer and secure Slotted Bracket with a new cotter pin. Tighten jam nut. Apply Loctite® to jam nut to hold in place.
- I. Use cable ties provided to tie $\frac{3}{8}$ " air supply to electrical supply conduit at approximately 2'-0" intervals.

Air Line in Lift

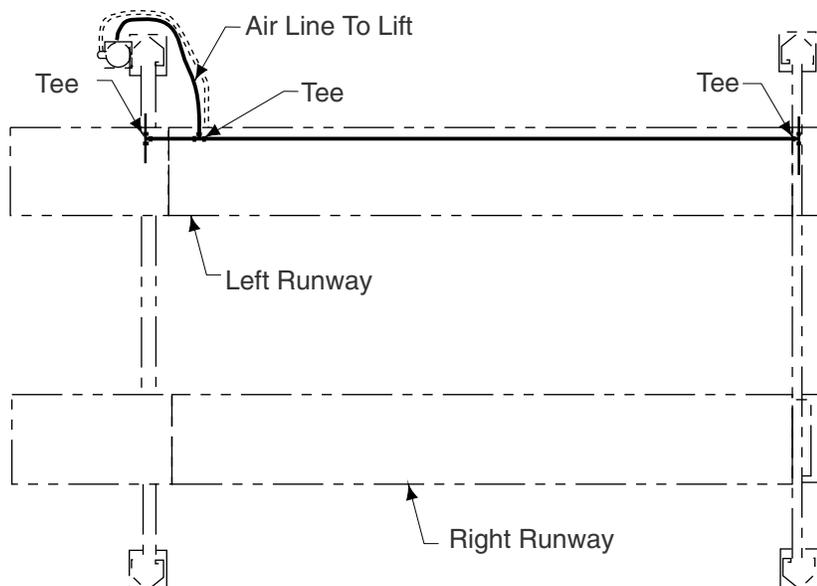


Fig. 22

Connect Air Supply to Air Valve

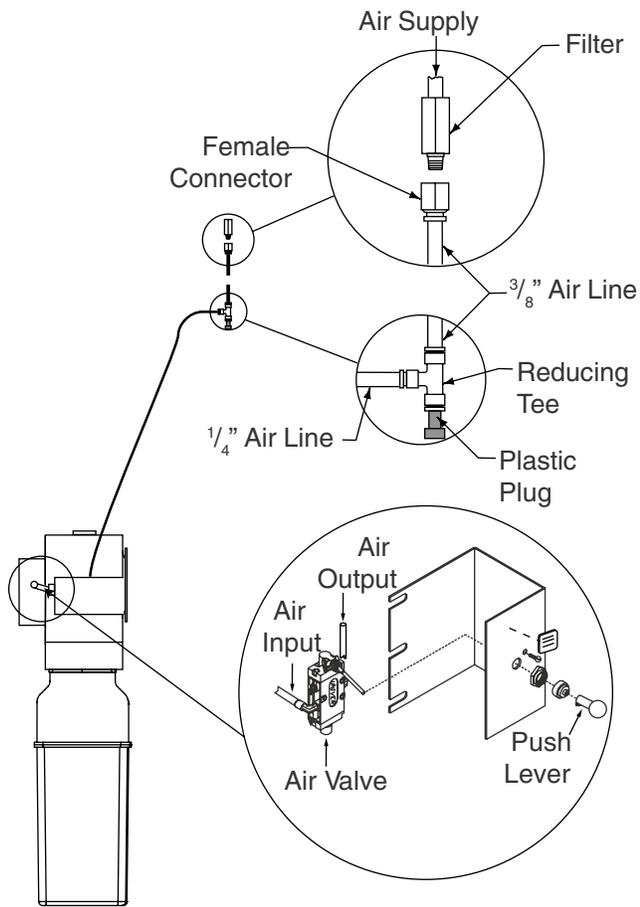


Fig. 24

13. Bleeding: Raise and lower lift (6) times. The cylinder is self-bleeding. After bleeding system, replace fill vent screw.

Note: Some fluid may be exhausted from the cylinder breather vent during bleeding of the system.

14. Pressure Test: To pressure test, run lift to full rise and run motor for approximately five (5) seconds. Stop and check all hose connections. Tighten or reseal if required. Lower lift. Check fluid level in reservoir. Fill as required per instructions in Step 11.

15. Final Adjustment:

- Load vehicle, such as a 3/4 ton pickup or van onto lift.
- Raise lift as high as it will travel (full height). As the lift is raised, note in which rear column locking latch clicks into slot at same time as the first column.
- Adjust cable in other rear column so that its locking latch clicks into slot at same time as the first column.

CAUTION There must be a minimum of two (2) threads above the nut after adjustment.

- Raise lift again. This time listening for the first front latch to click into place. Adjust this simultaneously with the rear columns.
- Do the same for the remaining front column.
- Tighten jam nuts and lower lift.

Note: Latches may not click in at the same time when vehicle is being raised. They should be closed. Be sure all four (4) corners have passed the locking latch bar slot before lowering lift on locking latches.

Note: Replace any missing hardware with Grade 5 or higher.

IMPORTANT Cotter pins are usually good for one time use only. Replace any cotter pin, if removed, with new cotter pin.

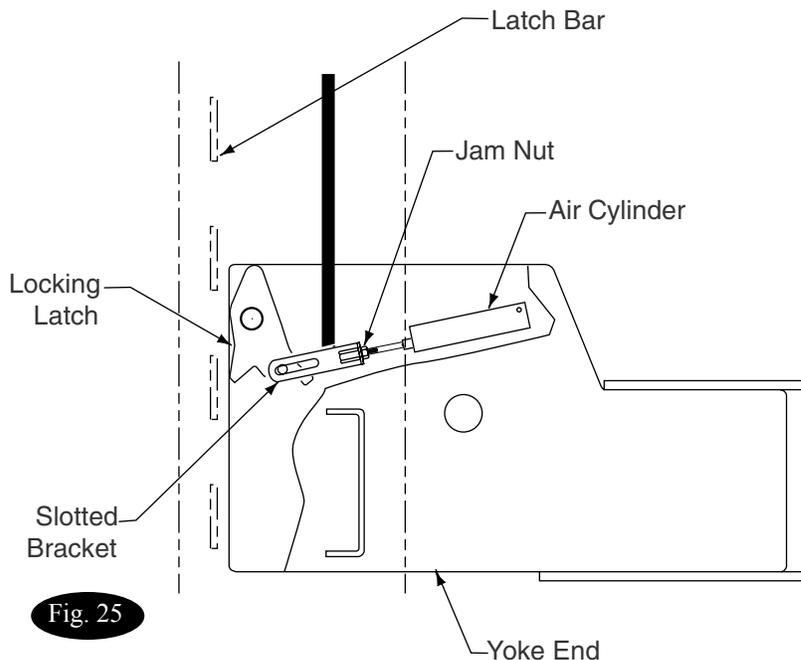


Fig. 25

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.

DATE	REV.	CHANGE MADE
1.20.05	-	Issue new literature.
11.29.05	A	Updated powerunit graphics to show new square tank.

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