World Leader in Lift Productivity

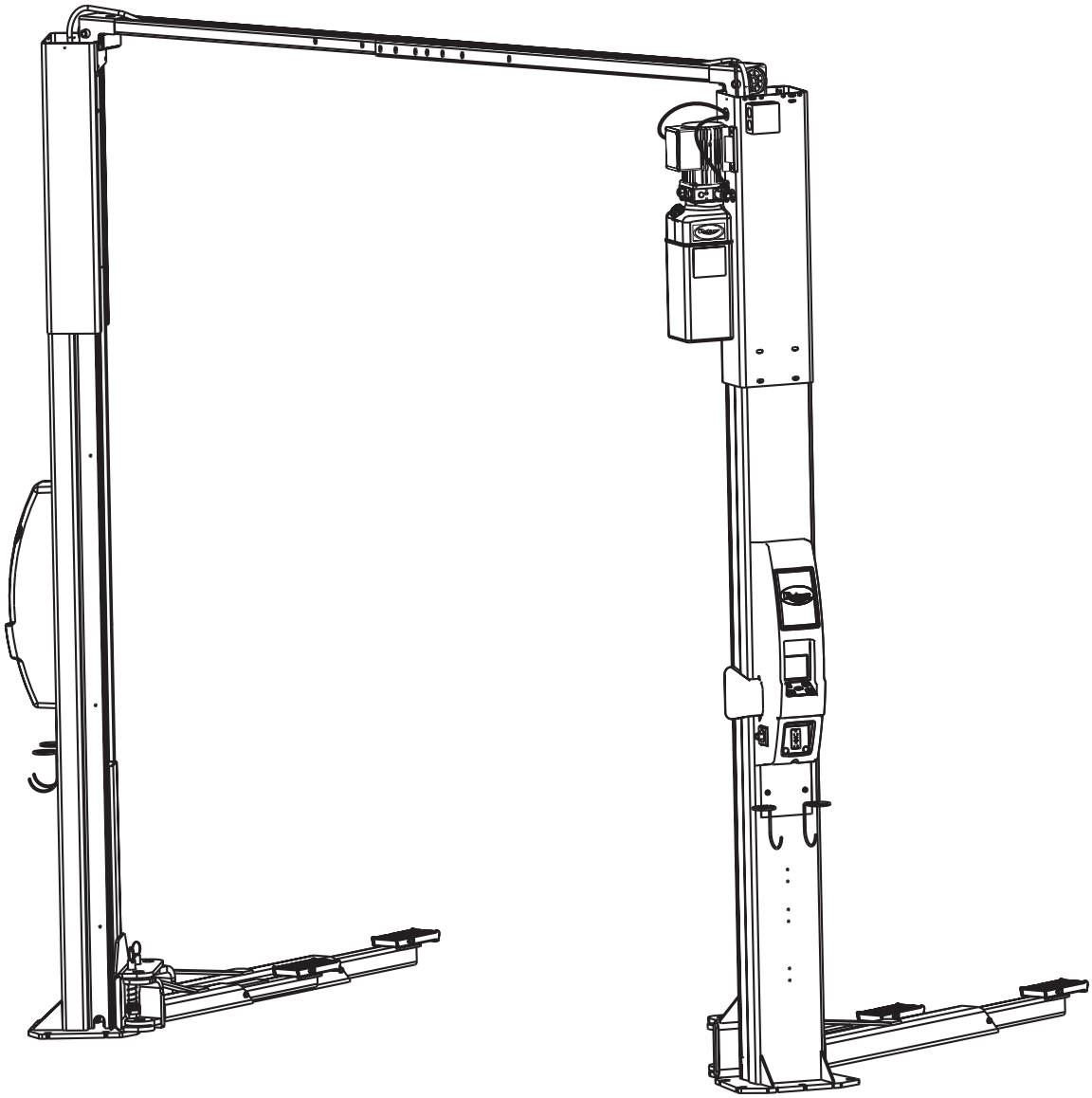
A7i, A9i, S9i

inbay technology

(400 Series)

Two Post Surface Mounted Lift

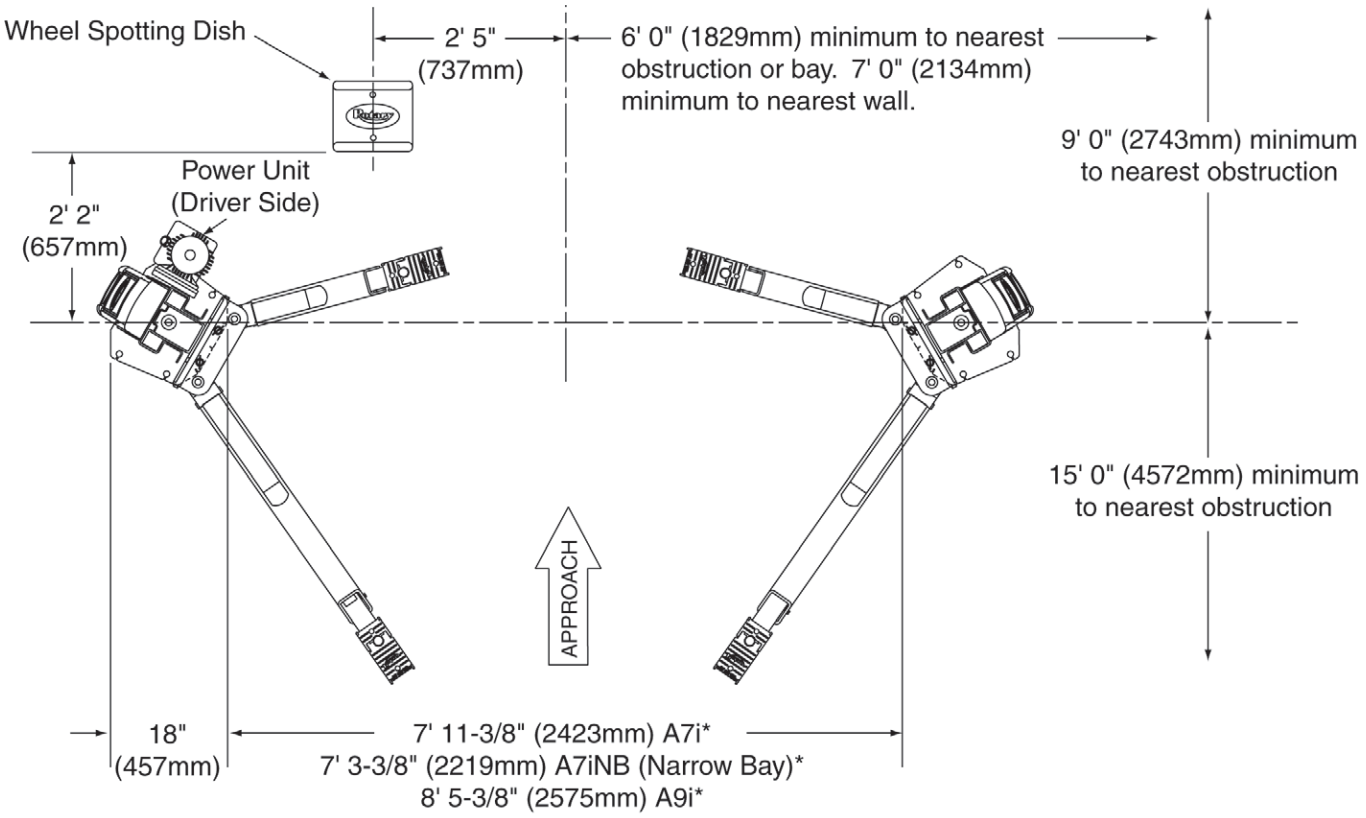
SPOA7 Capacity 7,000 lbs.
SPOA9 Capacity 9,000 lbs.
SPO9 Capacity 9,000 lbs.



INSTALLATION INSTRUCTIONS

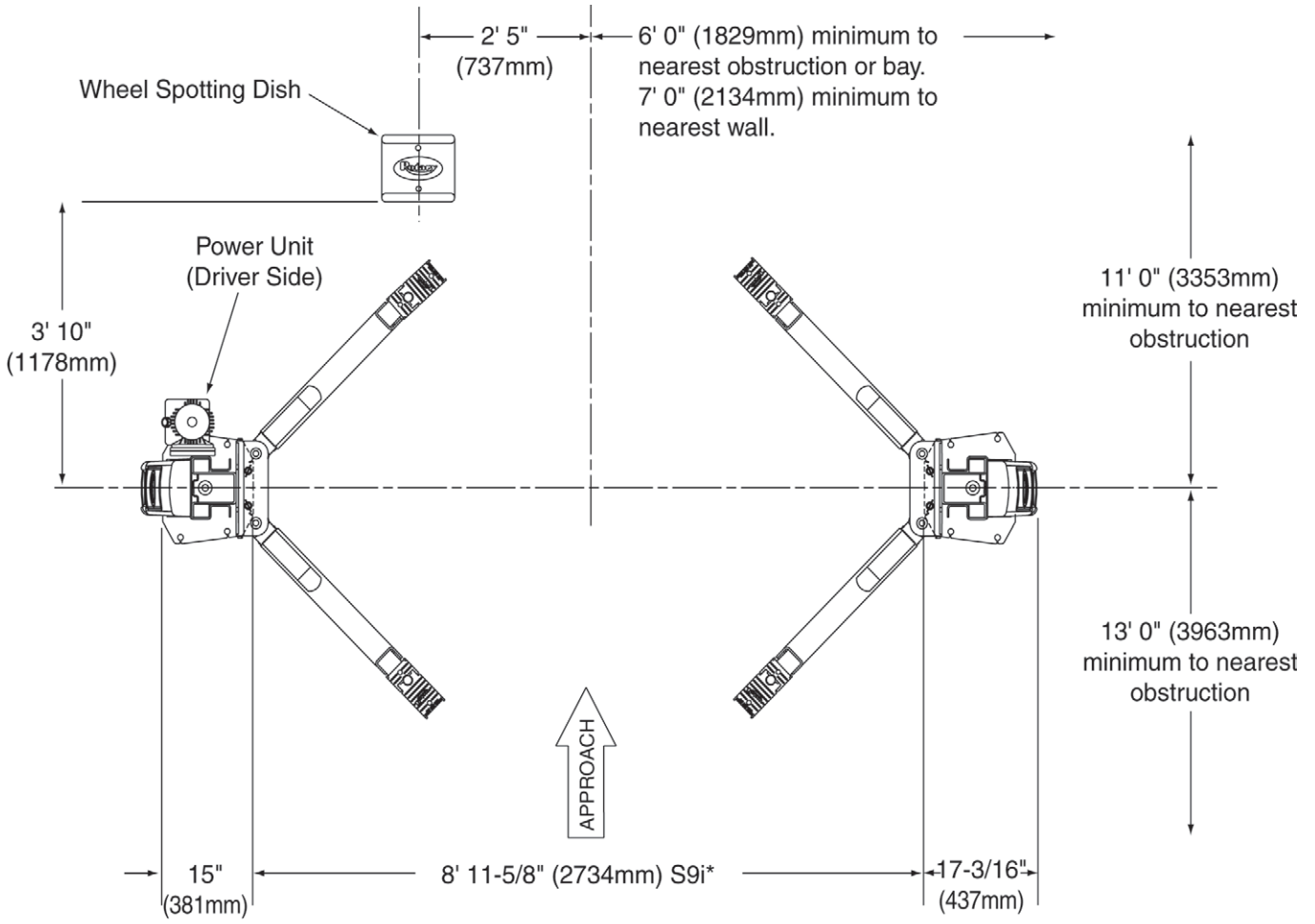
LP20066

IN20173
Rev. B 07/06/2003



*NOTE: Dimension is from Inside of Baseplate to Inside of Baseplate.

Fig. 1



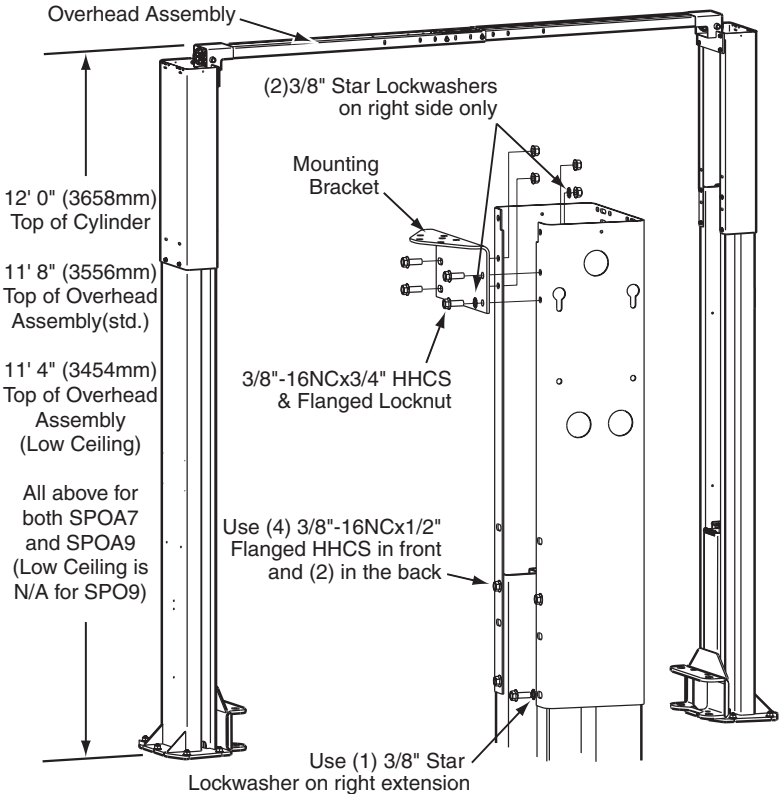
*NOTE: Dimension is from Inside of Baseplate to Inside of Baseplate.

Fig. 2

1. Lift Location: Use architects plan when available to locate lift. Fig. 1 & Fig. 2 shows dimensions of a typical bay layout.

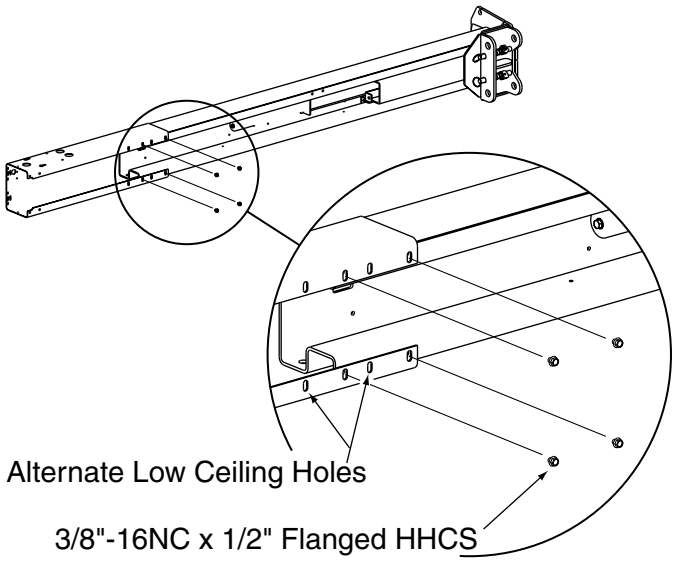
2. Lift Height: See illustration below for overall lift height of each specific lift model. Add 1" min. to overall height to lowest obstruction.

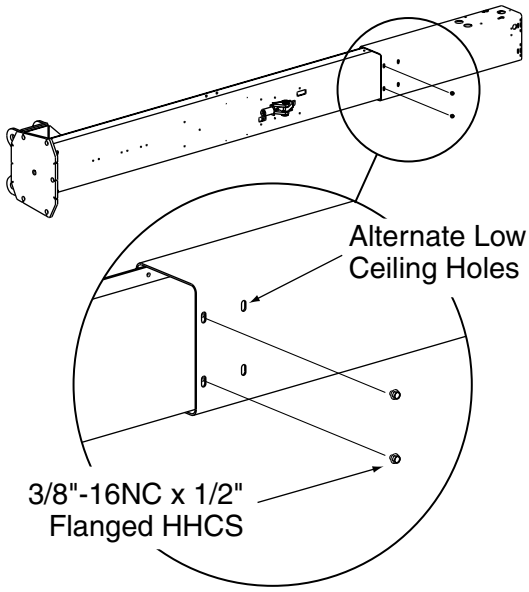
⚠WARNING DO NOT install this lift in a pit or depression due to fire or explosion risks.



3. Column Extensions: Before standing columns upright, install using (12) 3/8"-16NC x 1/2" Flanged HHCS. For low ceiling option, use alternate set of holes on extensions.

Overhead Mounting Bracket: Install Mounting Brackets to column extensions as shown above.





4. Lift Setting: Position columns in bay using dimensions shown in Fig. 1 & Fig. 2. 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.

5. Concrete and Anchoring: Concrete shall have a compression strength of at least 3,000 PSI and a minimum thickness of 4-1/4" in order to achieve a minimum anchor embedment of 3-1/4". When using the standard supplied 3/4" x 5-1/2" lg. anchors, if the top of the anchor exceeds 2-1/4" above the floor grade, you **DO NOT** have enough embedment.

Drill (10) 3/4" dia. holes in concrete floor using holes in column base plate as a guide. See Fig. 3 and Fig. 4 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.

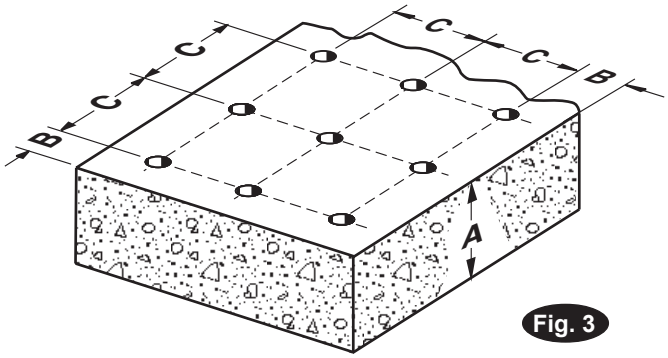
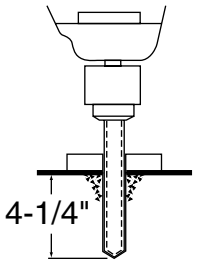
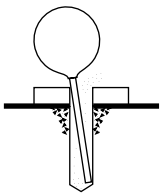


Fig. 3

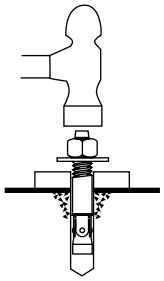
A) Concrete Thickness & Hole Depth 4-1/4" (108mm)
B) Edge Distance 4-3/4" (121mm)
C) Hole Spacing 6-1/2" (165mm)



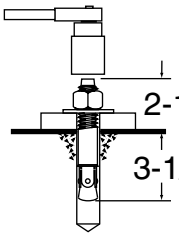
Drill hole using 3/4" carbide tipped masonary drill bit per ANSI standard B94.12.1977



Clean hole.

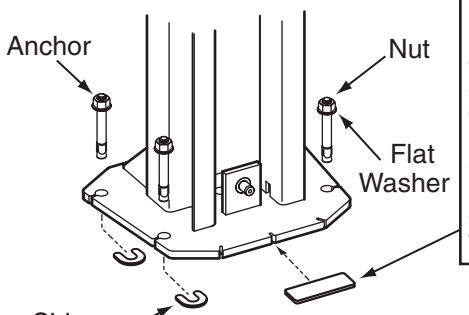


Run nut down just below impact section of bolt. Drive anchor into hole until nut & washer contact base.



Tighten nut with Torque Wrench to 150 ft-lbs. (203 N-m).

Fig. 4



NOTE: Use rectangular shims at inside edge of baseplate. Use construction adhesive or silicon cement to hold shim in place. **INSURE** shims are held tightly between base plate and floor after torquing anchors.

Fig. 5

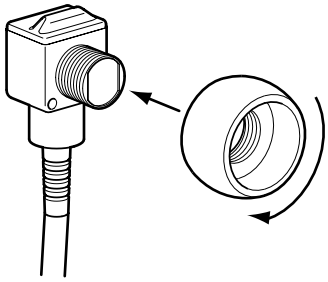
NOTE: If more than 2 horse shoe shims are used at any of the column anchor bolts, pack non-shrink grout under the unsupported area of the column base. Insure shims are held tightly between the baseplate and floor after torquing anchors.

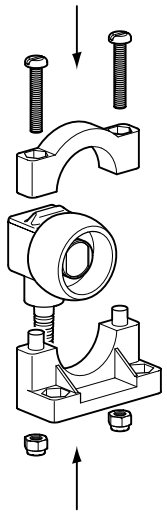
6. IMPORTANT: Using the horse shoe shims provided, shim each column base until each column is plumb. If one column has to be elevated to match the plane of the other column, full size base shim plates should be used (Reference FA5112 Shim Kit). Recheck columns for plumb. Tighten anchor bolts to an installation torque of 150 ft-lbs. Shim thickness MUST NOT exceed 1/2" when using the 5-1/2" long anchors provided with the lift, Fig. 5. Adjust the column extensions plumb.

If anchors do not tighten to 150 ft-lbs. installation torque, replace concrete under each column base with a 4' x 4' x 6" thick 3000 PSI minimum concrete pad keyed under and flush with the top of existing floor. Let concrete cure before installing lifts and anchors.

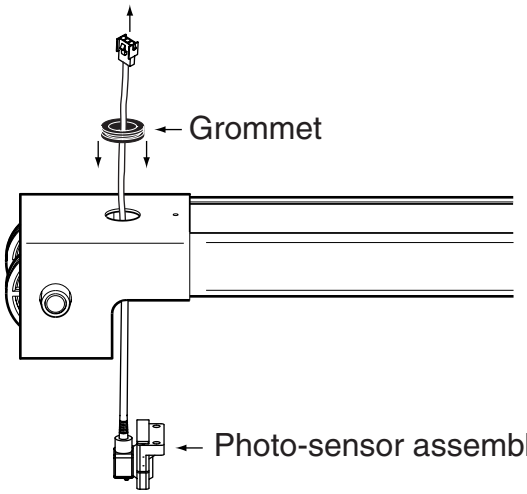
7. Overhead Assembly: Assemble overhead, Fig 6. Adjust to appropriate dimension. Install HHCS and Flanged lockuts. DO NOT TIGHTEN.

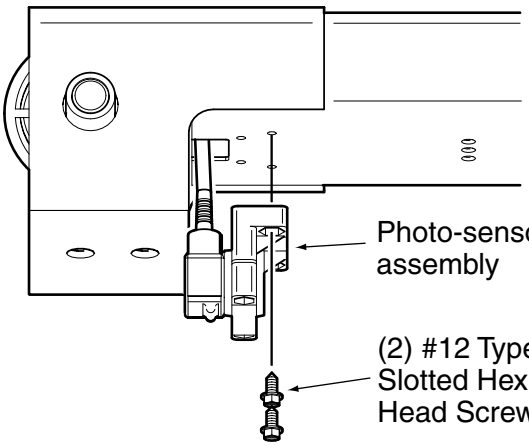
Assemble photo-sensor.





8. Attach photo-sensor and grommet on **power unit side of overhead.**





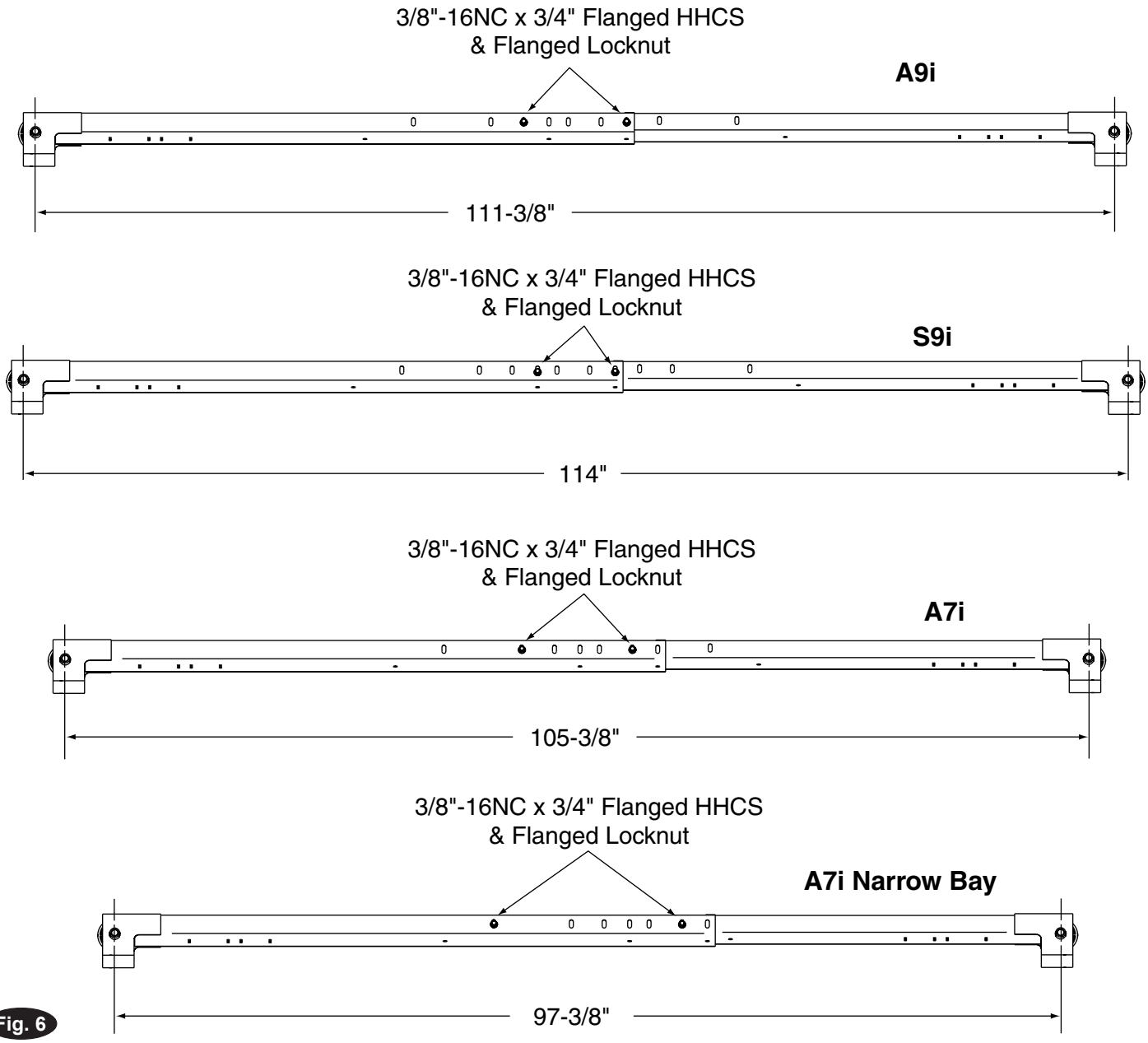
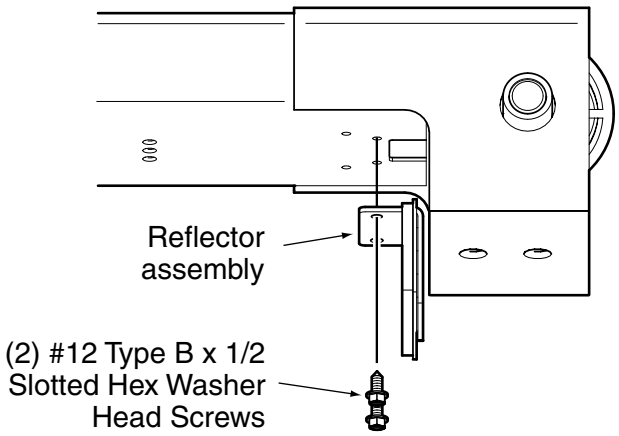
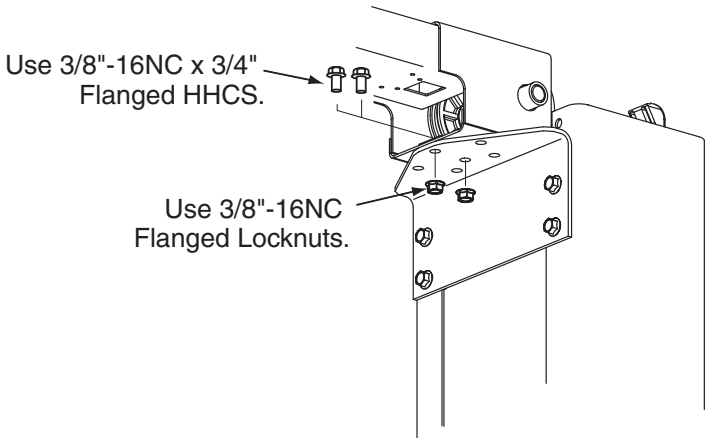


Fig. 6

9. Attach reflector to overhead on opposite side of power unit. **DO NOT** remove label from reflector.



10. Overhead Installation: Install overhead assembly. Tighten bolts at center of overhead assembly.



11. Power Unit: Put (2) 5/16"-18NC x 1-1/2" HHCS thru top holes in power unit bracket using Vibration Pad to hold in place, Fig. 7. Install 5/16"-18NC Flanged Nuts until bolt end is flush with end of nut. Install power unit onto column extension, Fig. 8. Slide bolt/nut combination into top set of holes and down to bottom of slot. Install HHCS, Vibration Pad, and Flanged HHCS in bottom power unit holes and tighten. (Be sure to place vibration pad between power unit and column extension). Tighten top HHCS and Nut.

Install and tighten Male Extension to pump until O-ring is seated, Fig. 9. Install Female Swivel Tee to Male Extension using Flared Fittings Tightening Procedure. DO NOT allow Extension to rotate, Fig. 9.

NOTE: Over tightening Extension may tear O-ring.

Flared Fittings Tightening Procedure

1. Screw the fittings together finger tight. Then, using the proper size wrench, rotate the fitting 2-1/2 hex flats.

IMPORTANT Flare seat MUST NOT rotate when tightening. Only the nut should turn.

2. Back the fitting off one full turn.
3. Again tighten the fittings finger tight; then using a wrench, rotate the fitting 2-1/2 hex flats. This will complete the tightening procedure and develop a pressure tight seal.

⚠CAUTION Overtightening will damage fitting resulting in fluid leakage.

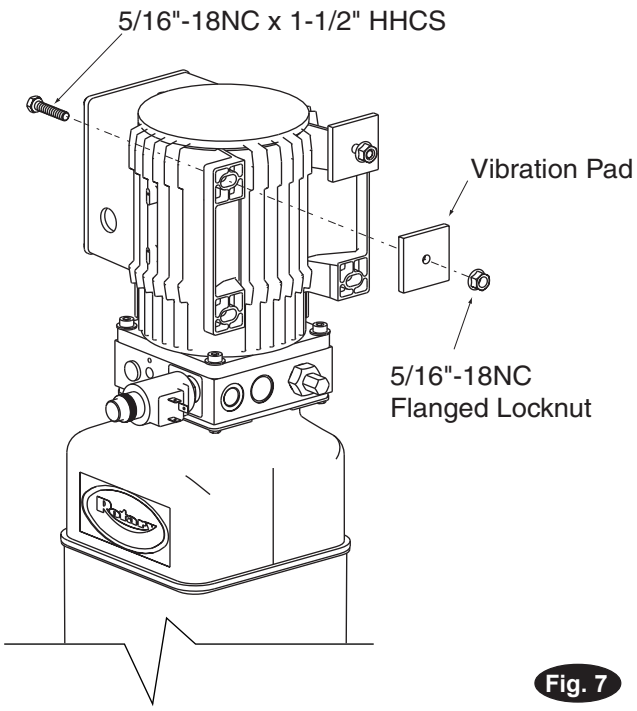


Fig. 7

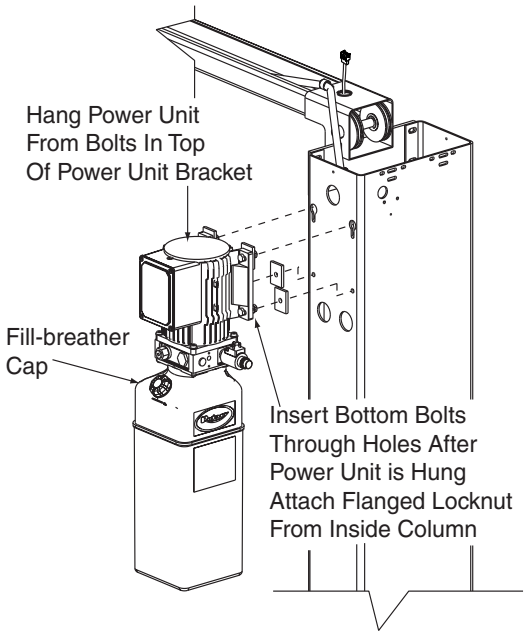


Fig. 8

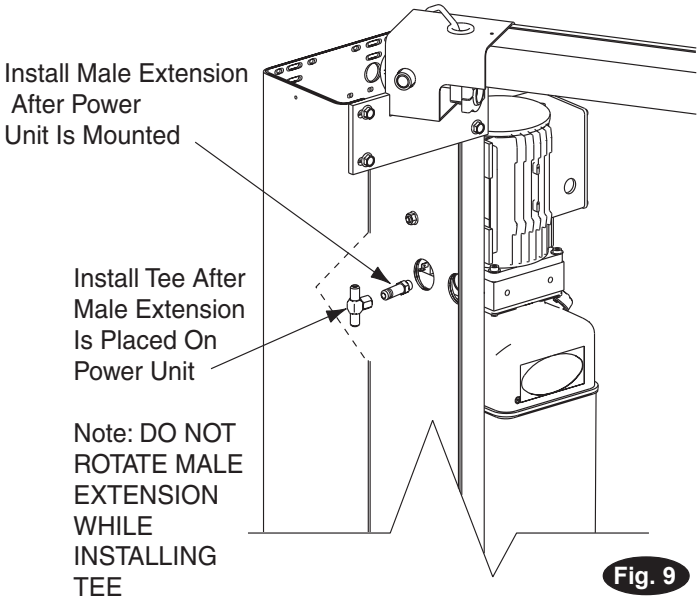


Fig. 9

12. Hoses: Clean adapters and hose. Inspect all threads for damage and hose ends to be sure they are crimped. Install hoses to Swivel Tee. Install hose using Flared Fittings Tightening Procedure. Install hose clamps.

Adapter & Hose Installation (see Fig. 10 &11)

1. Install Pc. (2) with hose clamps, on power unit column side connecting it to the cylinder (1) first.
2. Install Pc. (3) with hose clamps starting at opposite cylinder (5) and working toward the power unit. All excess hose should be at bends & inside overhead assembly.
3. Install Pc. (7) into power unit.
4. Install (4) onto (7).
5. Connect Pc. (2) & Pc. (3) to Tee (4).

NOTE: Route Power Unit hose inside columns using slots provided at column base, Fig. 12. Route Overhead Hose in column channel on outside of column, Fig. 12. Overhead hose goes over top end of overhead assembly, Fig. 13.

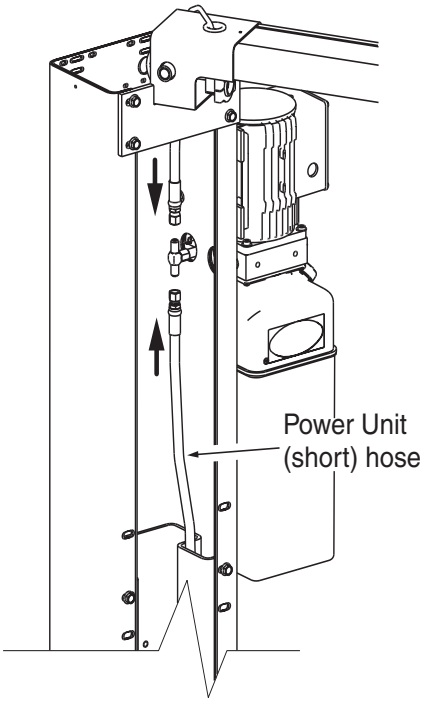


Fig. 10

13. Oil Filling: Remove fill-breather cap on power unit, Fig. 8. Fill with (8) quarts of Dexron III ATF, or hydraulic fluid that meets ISO 32 specifications. Replace fill-breather cap.

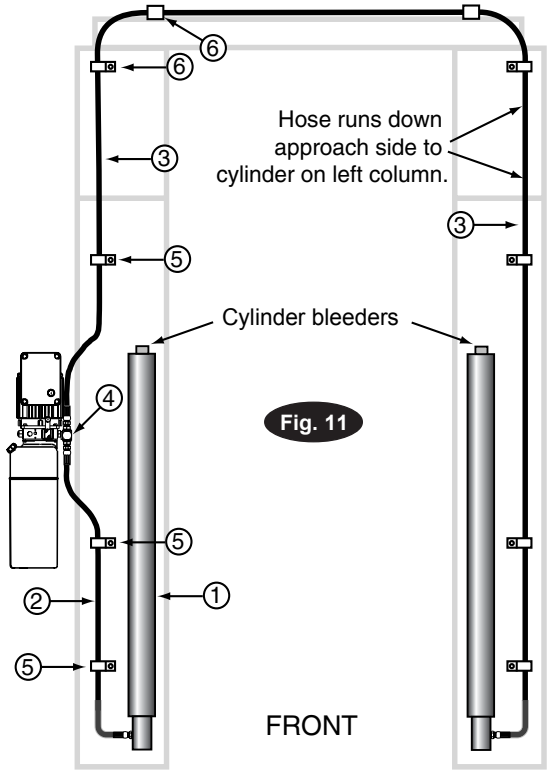


Fig. 11

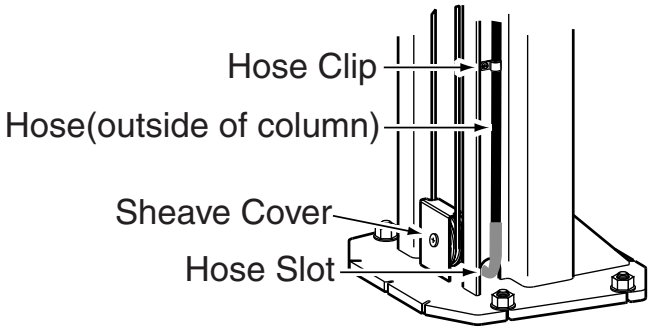


Fig. 12

ITEM	QTY.	DESCRIPTION
1	2	Hydraulic Cylinder
2	1	Power Unit Hose
3	1	Overhead Hose
4	1	Female Swivel Tee
5	6	Hose Clips
5	6	5/16-18NC x 3/8" lg. PHMS
6	4	Hose Clips
6	4	#12 Type B x 1/2" lg. Hex Washer Head Screw
7	1	Male Extension To Power Unit

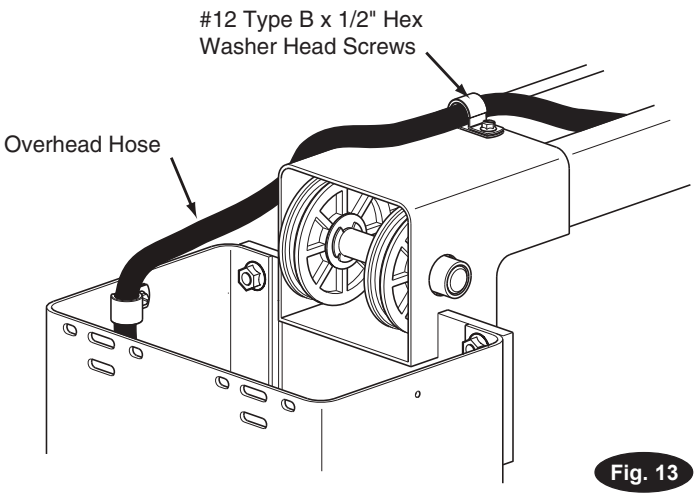


Fig. 13

14. Equalizing Cables

A) Remove sheave cover.

B) Refer to Fig.14 for the general cable arrangement. First, run a cable end up through the small hole in the lower tie-off plate. Fig.15.

C) Push the cable up until the stud is out of the carriage top opening.

D) Run a nylon insert locknut onto the cable stud so 1/2" (13mm) of the stud extends out of the locknut.

E) Pull the cable back down, Fig. 15.

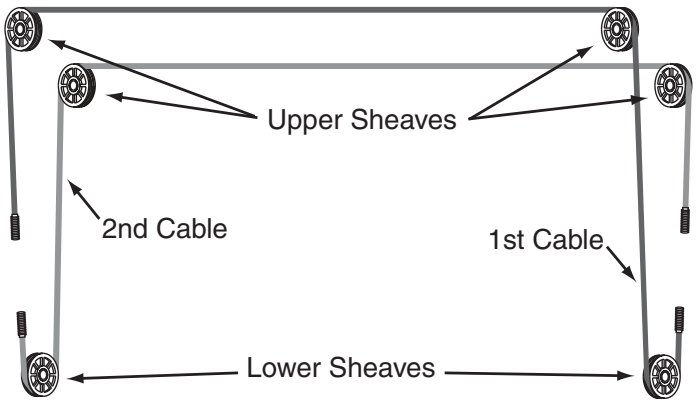
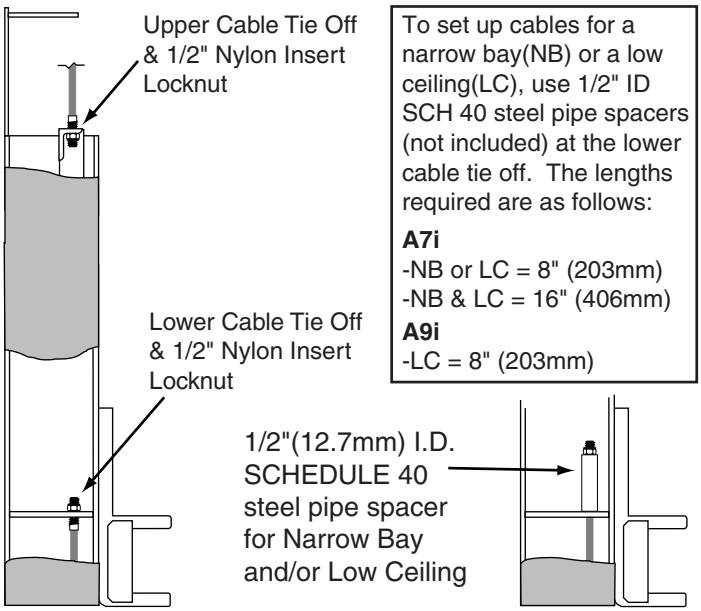


Fig. 14



To set up cables for a narrow bay(NB) or a low ceiling(LC), use 1/2" ID SCH 40 steel pipe spacers (not included) at the lower cable tie off. The lengths required are as follows:

A7i
-NB or LC = 8" (203mm)
-NB & LC = 16" (406mm)
A9i
-LC = 8" (203mm)

Fig. 15

F) Run cable around the lower sheave, then up and around overhead sheave and across and down to the opposite carriage, Fig. 14. Install sheave cover, Fig. 12.

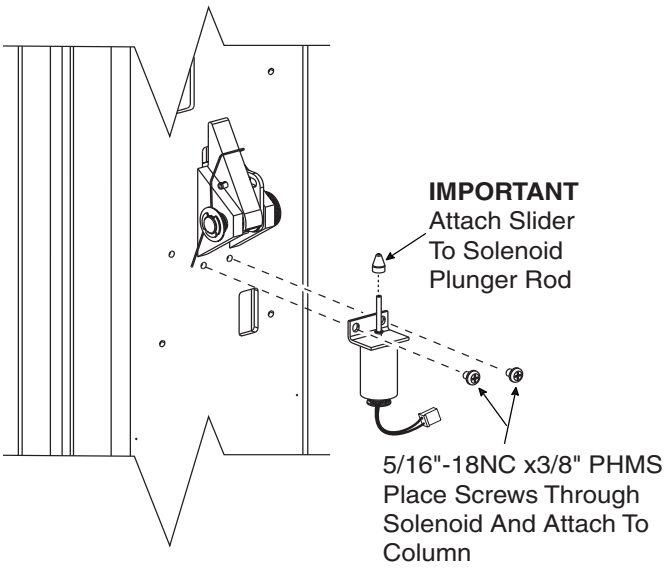
G) Fasten the cable end to the carriage upper tie-off bracket, Fig. 15. Tighten the locknut enough to apply light tension to the cable.

H) Repeat procedure for the second cable. Adjust the tension of both cables during the final adjustments in section 27.

15. Installing inbay components

A) **Attaching junction box:** Attach junction box onto power unit column with two #12-24NC x 3/4" Lg. PHMS,washers, and nuts , Fig. 19. Install grounding block into junction box with screw provided as well as placing the G (grounding) sticker above the block, Fig. 19.

B) Attach solenoids under locking latches of both columns. Place sliders onto solenoid plunger rods. Place solenoids onto columns and tighten just enough to hold them in place. Push solenoids up as far as they will go and tighten screws to hold solenoids up against the latches.



C) **Installing Master Control Panel & Tool Holder:** Remove access panel from the master control panel (master control panel is the one with LCD screen), Fig. 16. Install two 5/16"-18NC x 3/8" PHMS screws in holes on each side of the locking latch (power unit side) leaving approximately 1/8" exposed to hold the panel. Hang the master control panel over locking latch to column on the 5/16"-18NC x 3/8" PHMS screws and pull the locking latch solenoid wire through the panel, Fig. 16. Plug locking latch solenoid into master control panel. Install one 5/16"-18NC x 3/8" PHMS in bottom of master control panel. Tighten the upper two screws in top of panel and replace access panel. Install one of the air tool holders under the master control panel with two 5/16"-18NC x 3/8" PHMS, see Fig. 16.

D) **Installing Slave Control Panel & Tool Holder:** Remove access panel from the slave control panel, Fig. 17. Place two 5/16"-18NC x 3/8" PHMS screws in holes on each side of the locking latch leaving approximately 1/8" exposed to hold the panel. Hang the slave control panel over locking latch to column on the 5/16"-18NC x 3/8" PHMS screws and pull the locking latch solenoid wire through the panel, Fig. 17. Install one 5/16"-18NC x 3/8" PHMS in bottom of slave control panel. Tighten the upper two screws in top of panel. Install one of the air tool holders under the slave control panel with two 5/16"-18NC x 3/8" PHMS, see Fig. 17.

E) Return to Master control panel and route all cords up through column along the hose routing, Fig. 18.

F) Route input cable multiconductor (5 wire) cord through straight strain relief, provided, and junction box see Fig. 19.

G) Photosensor cord comes up through top of column and plugs into female connection of photosensor, see Fig 19.

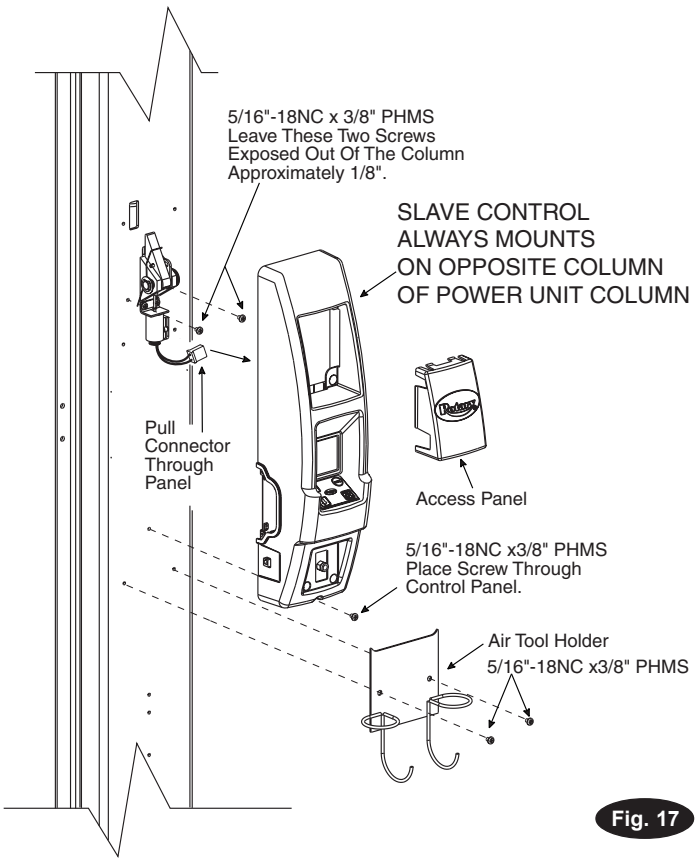


Fig. 17

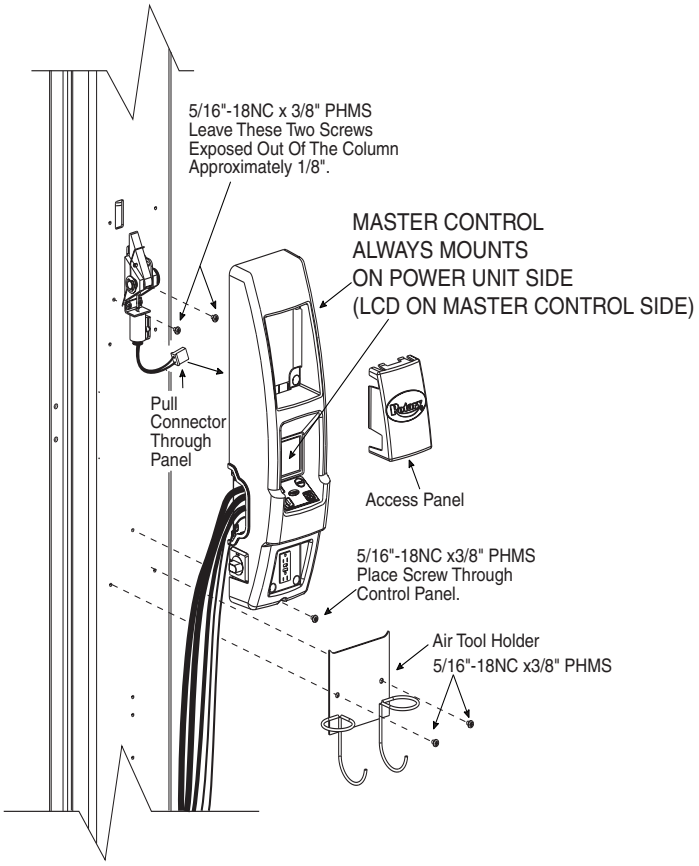


Fig. 16

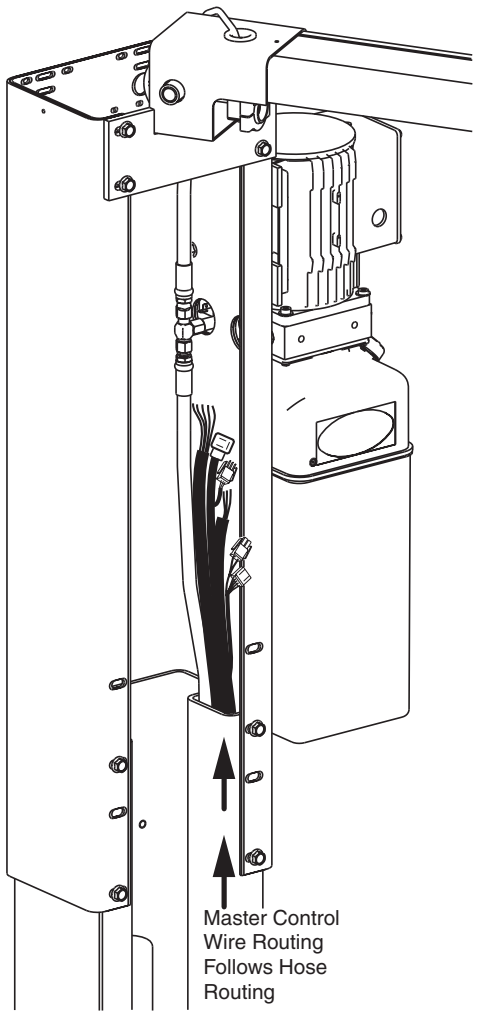


Fig. 18

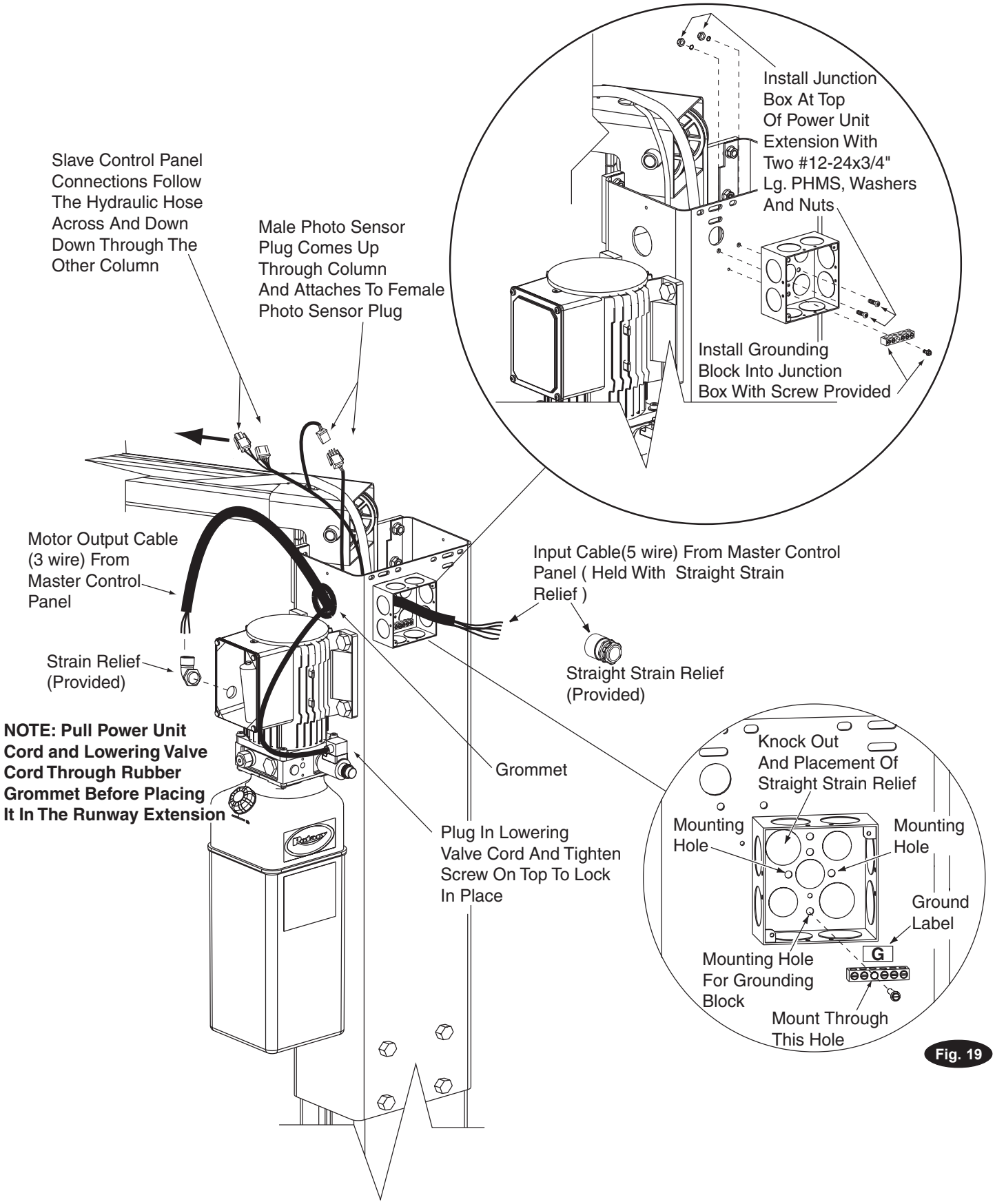

Slave Control Panel Connections Follow The Hydraulic Hose Across And Down Down Through The Other Column
Male Photo Sensor Plug Comes Up Through Column And Attaches To Female Photo Sensor Plug
Install Junction Box At Top Of Power Unit Extension With Two #12-24x3/4" Lg. PHMS, Washers And Nuts
Install Grounding Block Into Junction Box With Screw Provided
Motor Output Cable (3 wire) From Master Control Panel
Input Cable(5 wire) From Master Control Panel (Held With Straight Strain Relief)
Strain Relief (Provided)
Straight Strain Relief (Provided)
NOTE: Pull Power Unit Cord and Lowering Valve Cord Through Rubber Grommet Before Placing It In The Runway Extension
Grommet
Plug In Lowering Valve Cord And Tighten Screw On Top To Lock In Place
Knock Out And Placement Of Straight Strain Relief
Mounting Hole
Mounting Hole
Ground Label
G
Mounting Hole For Grounding Block
Mount Through This Hole

Fig. 19

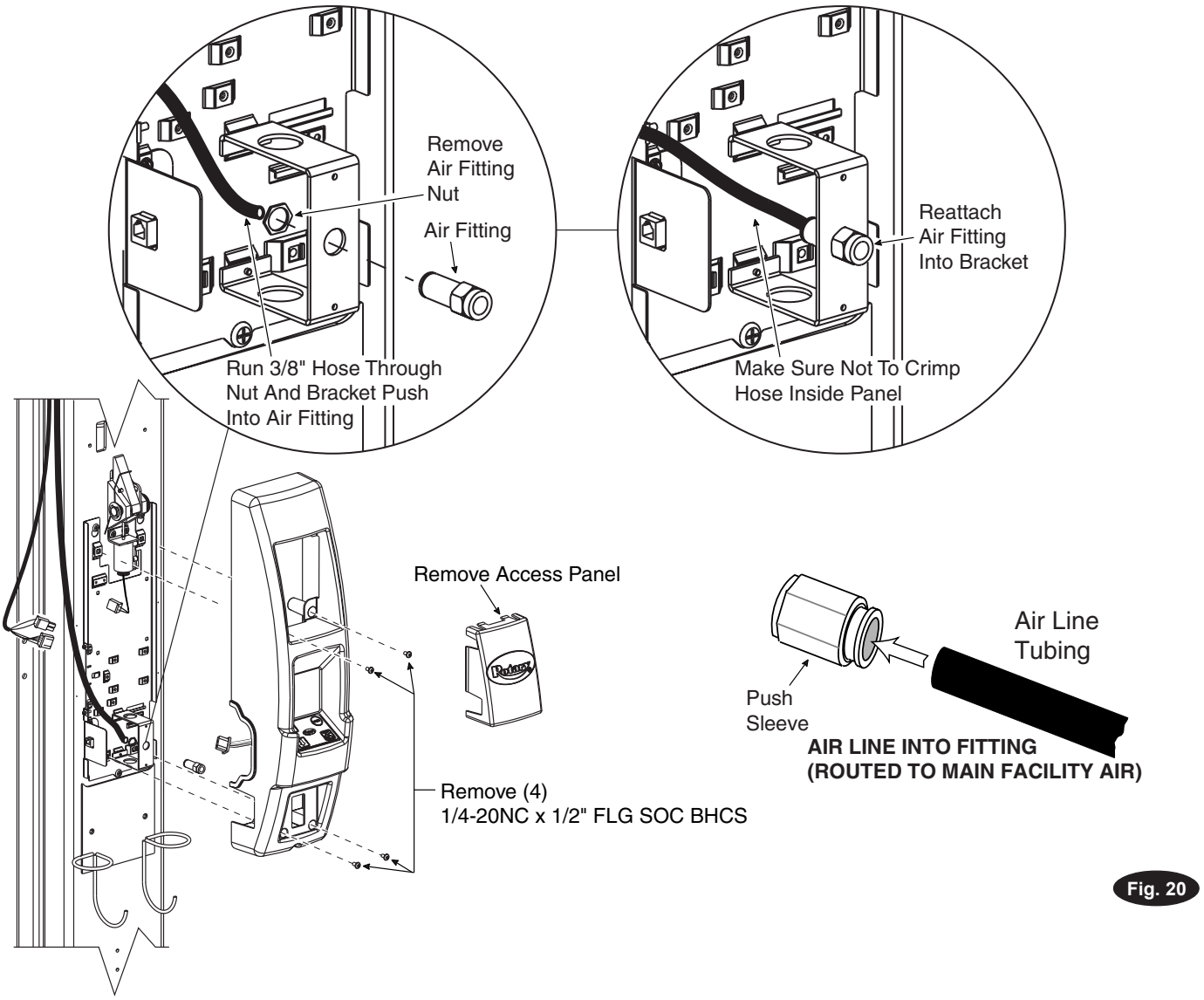


Fig. 20

H) Route slave control panel wires along hose and down to the slave control panel, Fig 19.

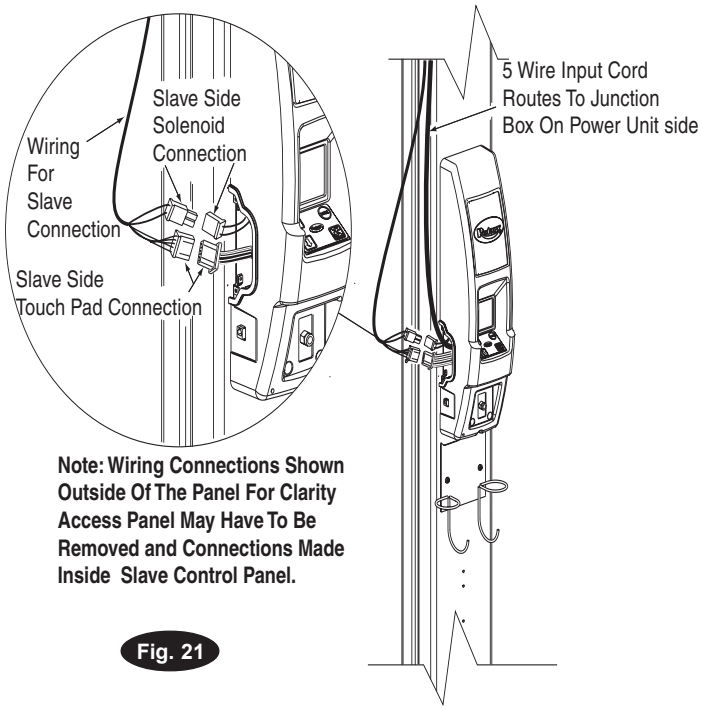
I) Remove access panel and hood from slave control side, Fig. 20. Loosen nut from air fitting and remove from bracket. Take one end of the 3/8" hose (40' provided) and place through the nut and bracket. Push air line into the air fitting. Air line should be clean and have a straight edge. Attach air fitting back into bracket making sure air line is not crimped before placing the slave hood and access panel back on it's bracket. The air line should be routed out of the slave control panel and back up through the column and to the facilities main air supply. Air fitting (provided) to make connection to main air supply, Fig 20.

J) Plug in slave control panel connections, Fig. 21. Connections only plug in one way.

K) Route motor cable (3 wire) and lowering valve cord through top hole above power unit.

L) Place rubber grommet over motor cord and lowering valve cord then place it in the hole above the power unit, see note Fig 19.

M) Attach lowering valve cord and tighten screw on top.



Note: Wiring Connections Shown Outside Of The Panel For Clarity Access Panel May Have To Be Removed and Connections Made Inside Slave Control Panel.

Fig. 21

NOTE: Once arm is installed in yoke, pull up actuator pin and swing arm fully around, being sure that the Restraint Gear and Gear Block always stay aligned. If they do not stay aligned, remove restraint gear and install in the opposite position.

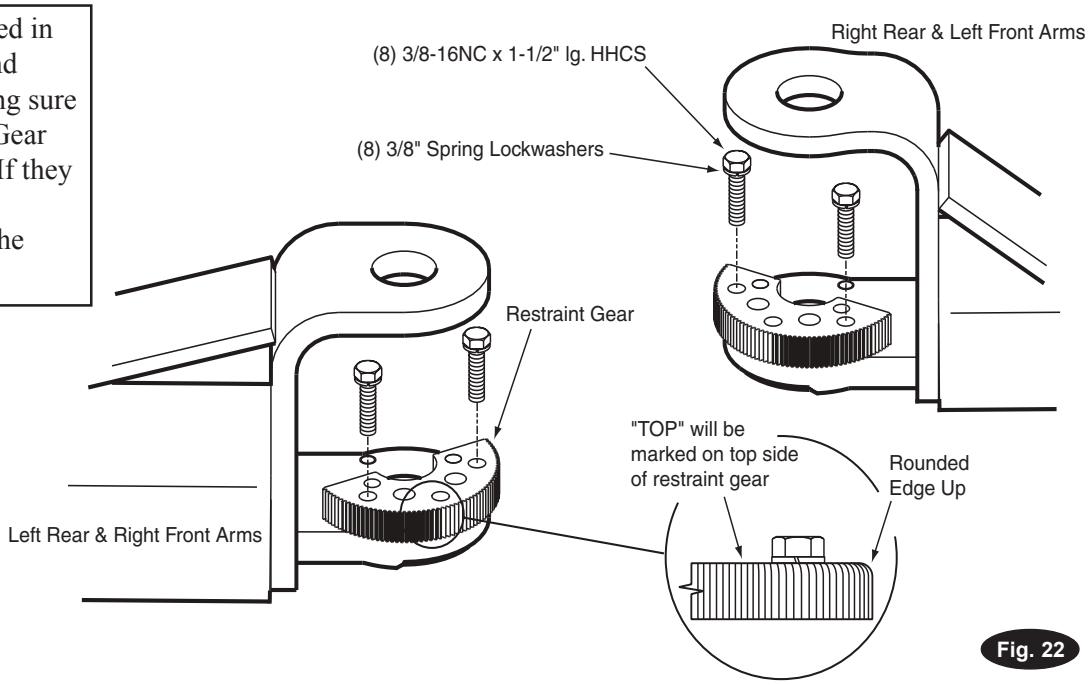
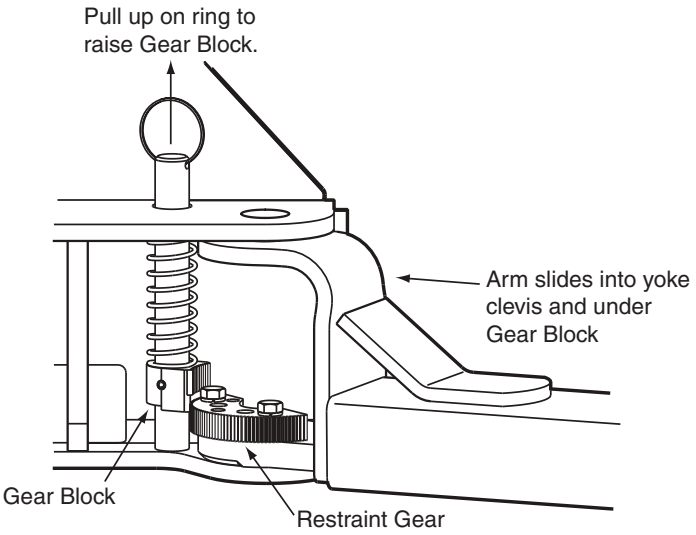


Fig. 22



16. Arm Restraints & Superstructure: Before installing arms, install arm Restraint Gears as follows: Install Restraint Gear into arm clevis, as shown in Fig. 22, so that the rounded edge (top side) of the gear teeth is facing upward. Then, install the (2) 3/8"-16NC x 1-1/2" HHCS (8 total for all 4 arms) and 3/8" Spring Lockwashers into the gear and arm as illustrated Fig. 22, but do not tighten.

After installing Restraint Gears, raise carriages to a convenient height. Grease swivel arm pins and holes with Lithium grease. Raise Gear Block by pulling upward on pin-ring to allow enough clearance for the Restraint Gear and arm to slide into the yoke clevis and under the teeth of the Gear Block, Fig. 23. Install 1-1/2" diameter arm pin(s), Fig. 24 and 3/16" x 2" cotter pin(s), Fig. 23. After installing arm pin, torque the two 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. 23.

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.

NOTE: Pin & Ring, Spring, & Gear Block are all preassembled.

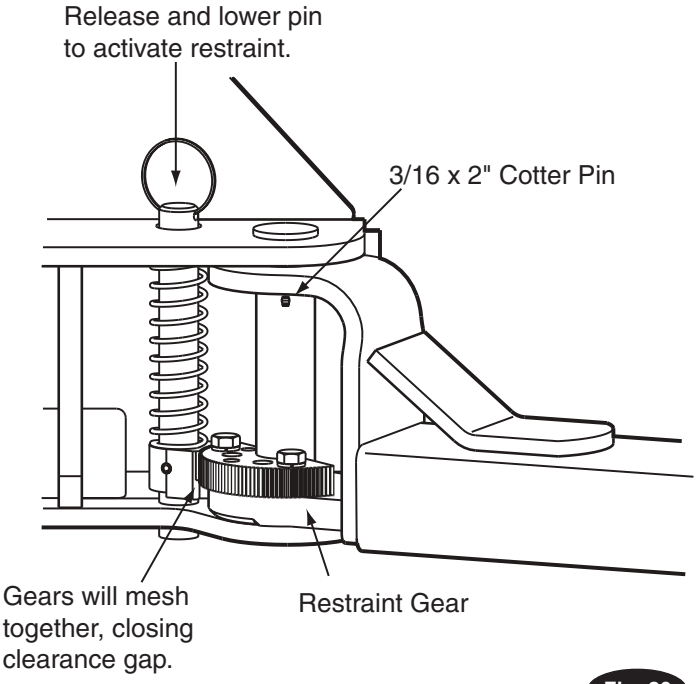


Fig. 23

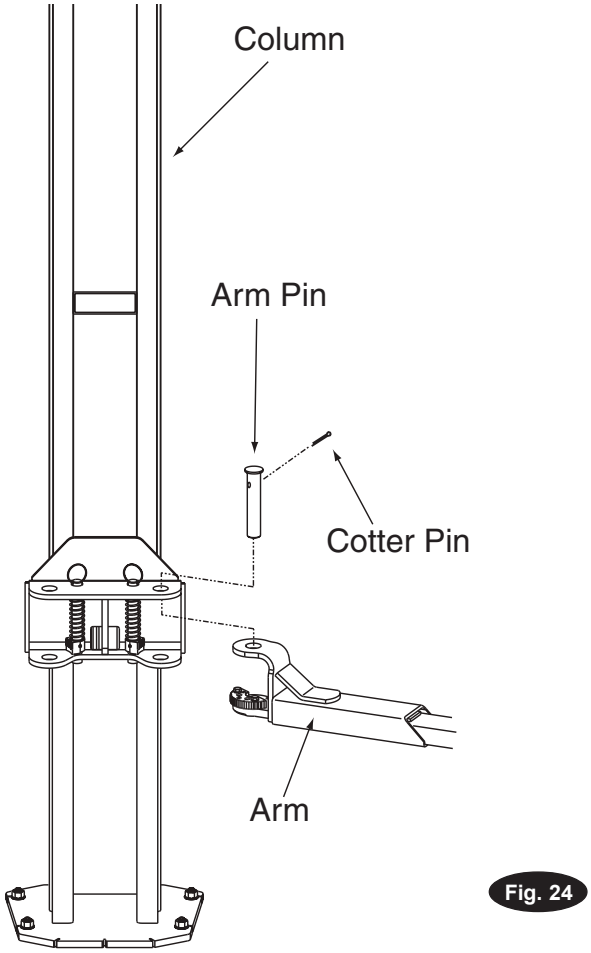


Fig. 24

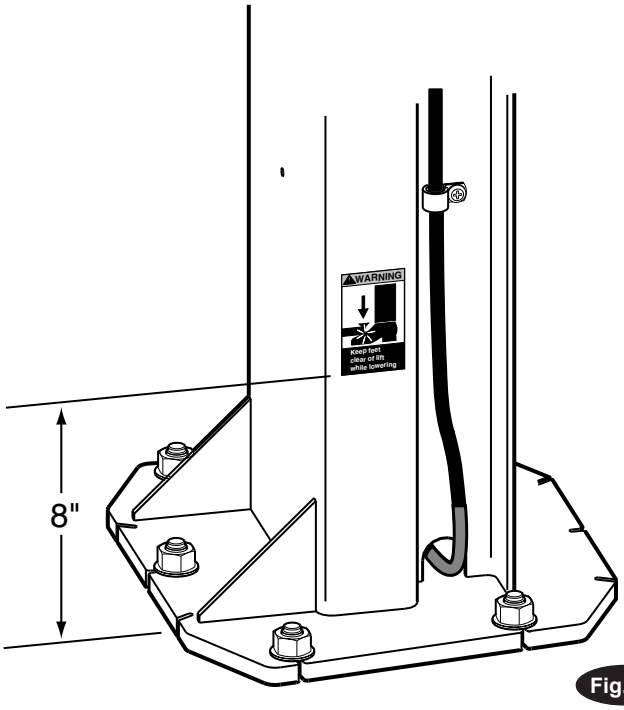


Fig. 25

17. Wheel Spotting Dish: Position wheel spotting dish, for appropriate lift model, as illustrated in Fig. 1 or 2. Drill (2) 3/8" holes 2-1/2" deep in concrete floor using holes in wheel spotting dish as guide. Drive both anchors, provided, into concrete to secure dish.

18. Pinch Point Decal Location: Install enclosed pinch point decals. Place (1) decal on each column, Fig. 25. Decals should be a minimum of 8" from the bottom of decal to the ground.

19. Rotary Decal Location: Clean area where decals are to be placed. Remove backing from decals. Position and apply on approach sides of each column extension as indicated, Fig. 26, and press flat.

20. Capacity Sticker: Place capacity sticker above master control panel as shown in Fig. 26.

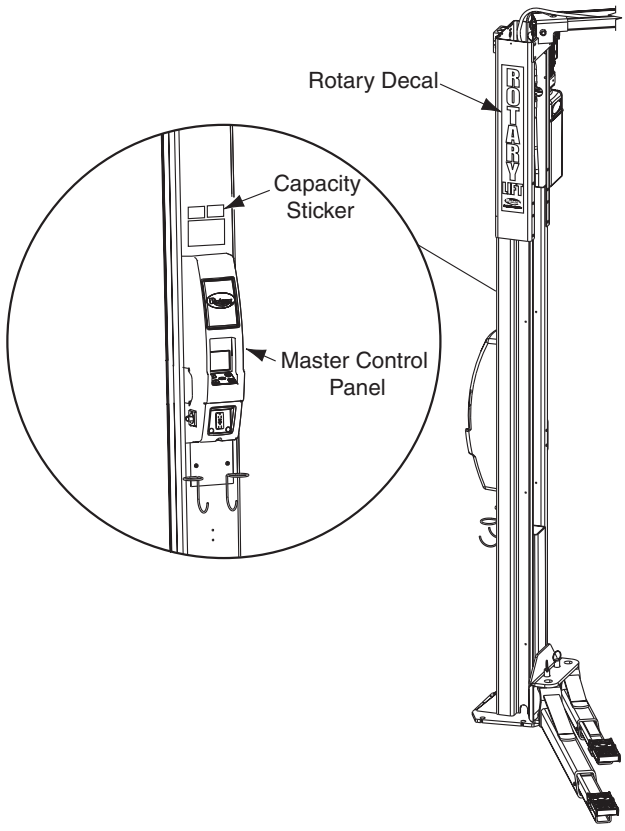


Fig. 26

21. Electrical: Have a certified electrician run appropriate motor voltage to junction box, Fig.19. Size wire for 25 amp circuit. See Motor Operating Data Table.

The certified electrican should also run a seperate 110 volt 60 Hz. to the junction box. Wire size for 15 amp circuit.

IMPORTANT **Do Not** drop on leg from the motor supply it may cause damage to the controls.

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

IMPORTANT Use separate circuit for each power supply. Protect each circuit with time delay fuse or circuit breaker. For single phase 208-230V, use 25 amp fuse, and three phase use 20 amp fuse. For three phase 460V, use 10 amp fuse. For 110v, use 15 amp fuse All wiring must comply with NEC and all local electrical codes.

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

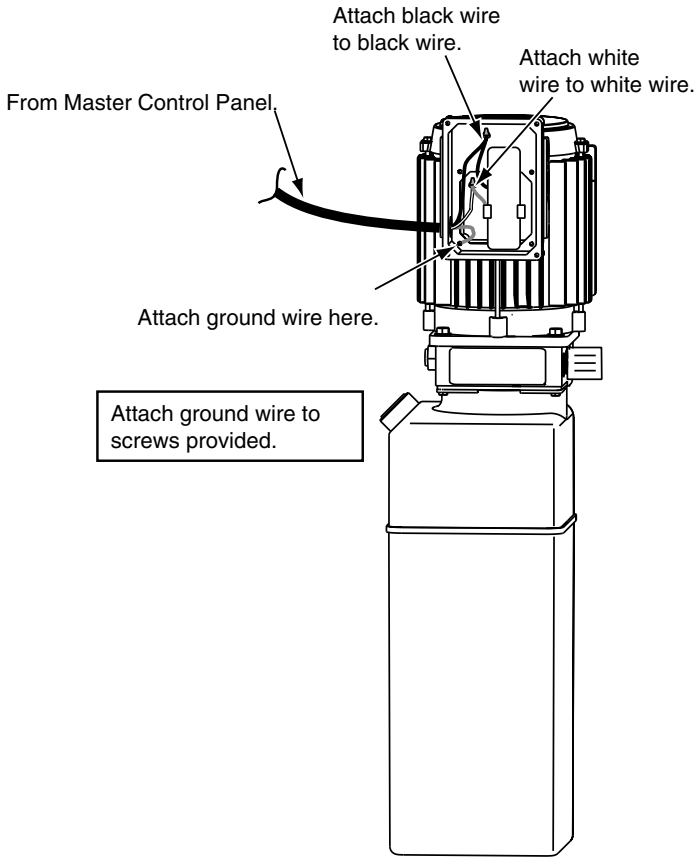
Wire motor according to wiring diagrams provided on pages 14 and 15.

IMPORTANT As with all electronic equipment, the Inbay control modules can be affected by voltage irregularities. It is the lift owner's responsibility to ensure that adequately protected power sources are available for connecting this equipment.

Single Phase Rotary Power Unit

MOTOR OPERATING DATA - SINGLE PHASE	
LINE VOLTAGE 208 - 230 Volts 60 HZ	RUNNING MOTOR VOLTAGE RANGE 197 - 253 Volts

MOTOR OPERATING DATA - SINGLE PHASE	
LINE VOLTAGE 115 Volts 60 HZ	RUNNING MOTOR VOLTAGE RANGE 105 - 120 Volts



Three Phase Rotary Power Unit

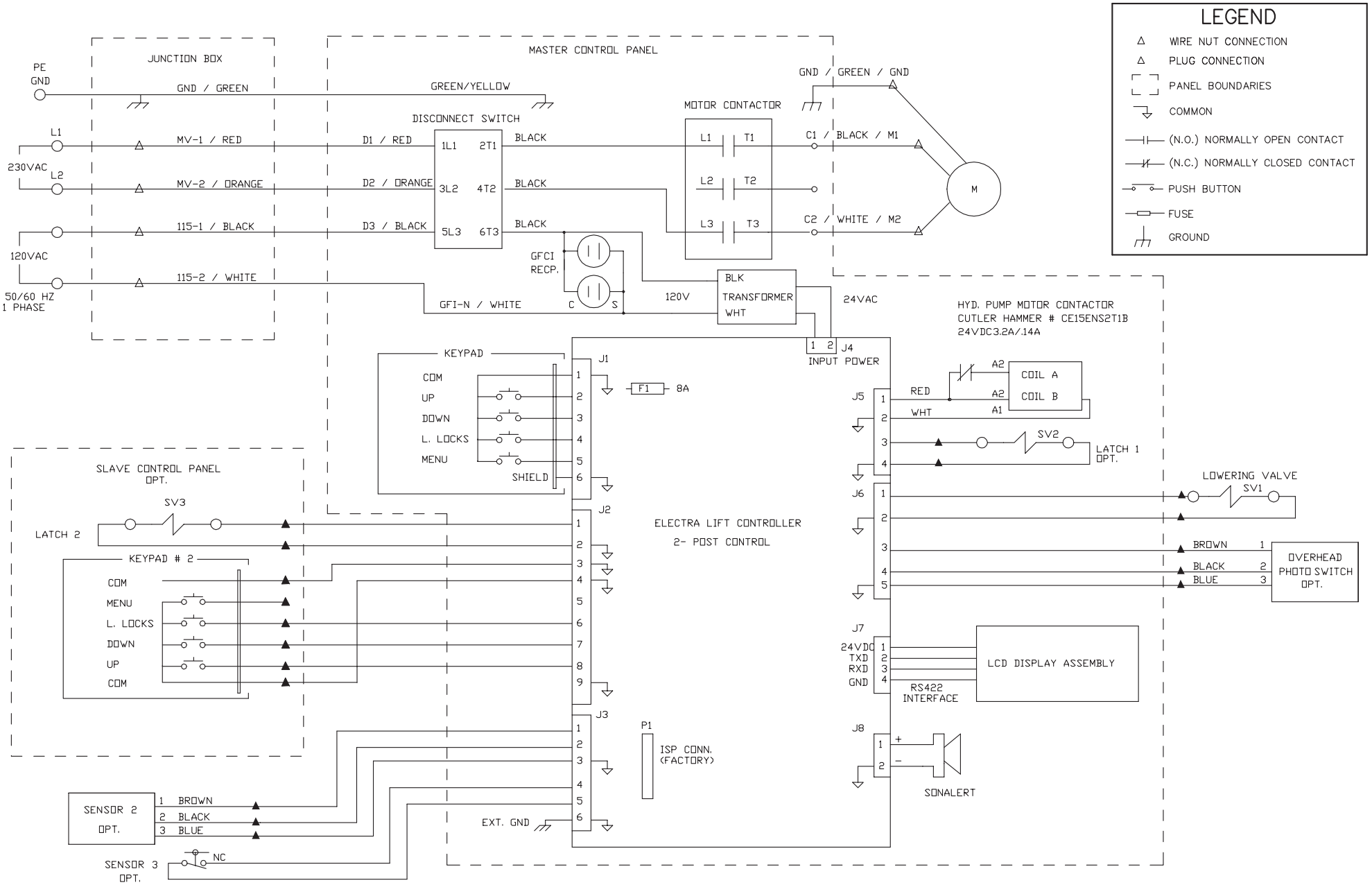
MOTOR OPERATING DATA - THREE PHASE	
LINE VOLTAGE	RUNNING MOTOR VOLTAGE RANGE
208 - 230 Volts 60 HZ	197 - 253 Volts
460 Volts 60 HZ	414 - 506 Volts

MOTOR OPERATING DATA - SINGLE PHASE	
LINE VOLTAGE 115 Volts 60 HZ	RUNNING MOTOR VOLTAGE RANGE 105 - 120 Volts

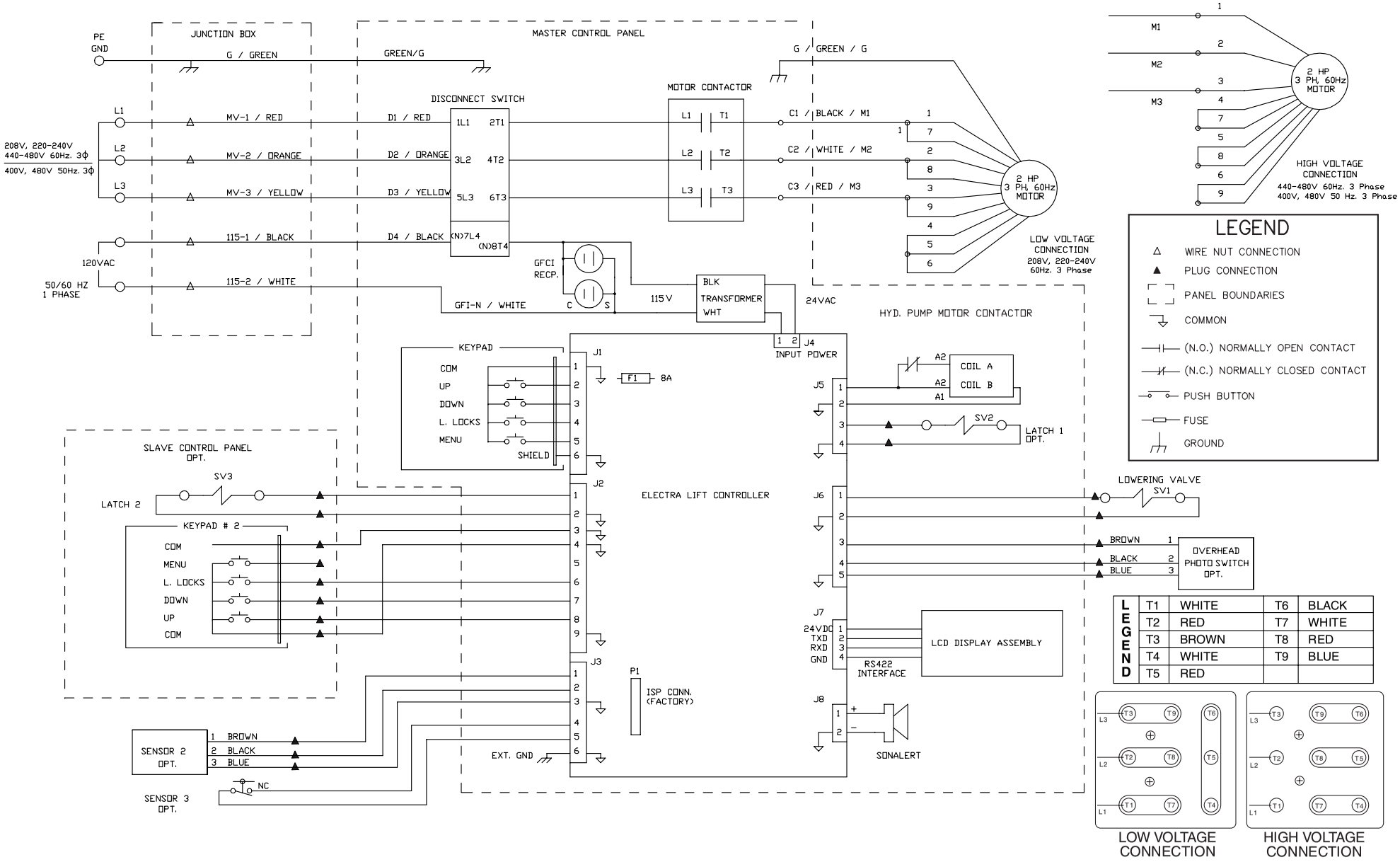
NOTES:

1. Unit not suitable for use in unusual conditions. Contact Rotary for moisture and dust environment duty unit.
2. Verify Coil Rating Matches Supply Voltage
3. Motor rotation is counter clockwise from top of motor.

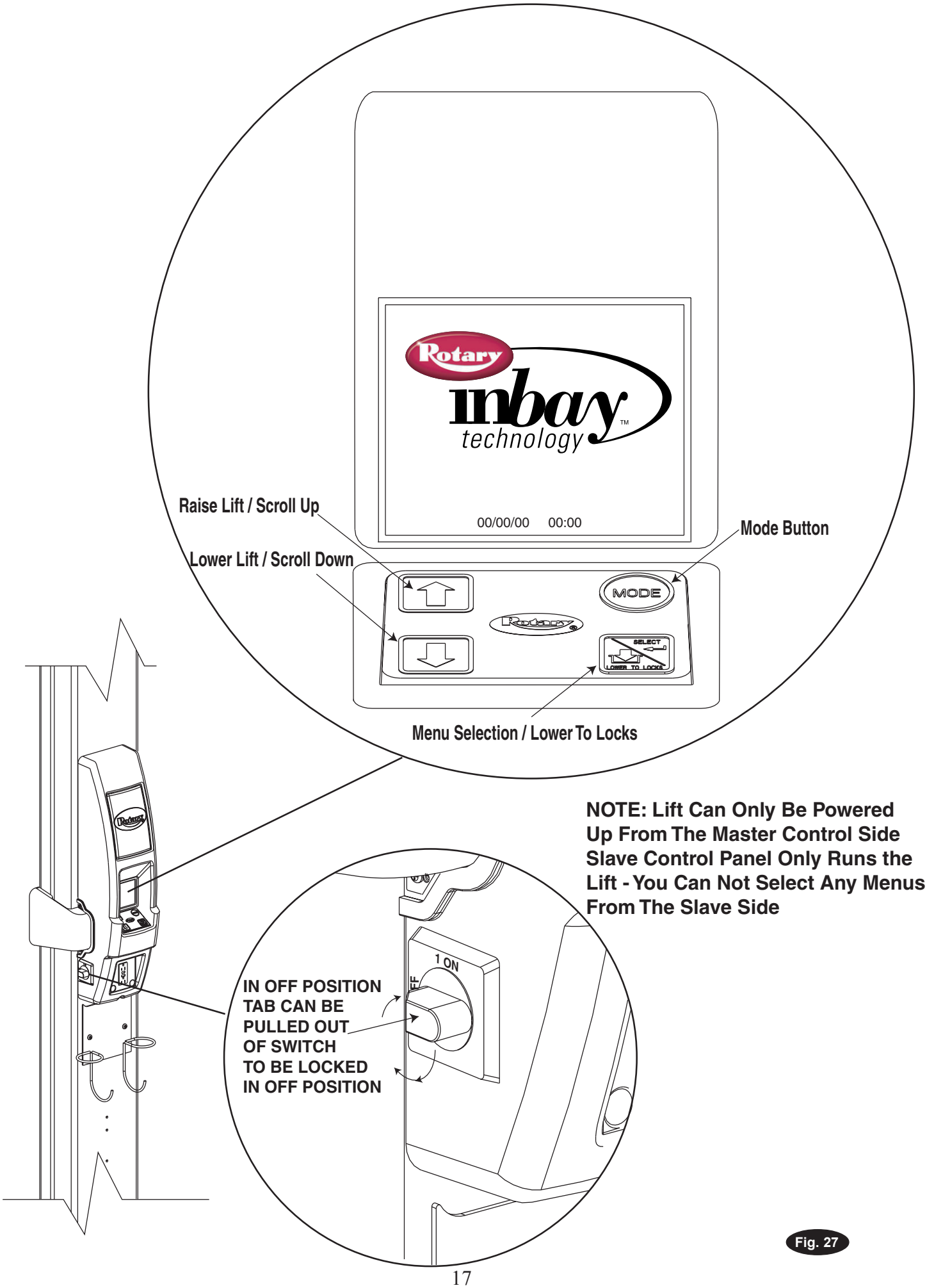
Single Phase Wiring Schematic



Three Phase Wiring Schematic



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



NOTE: Lift Can Only Be Powered Up From The Master Control Side Slave Control Panel Only Runs the Lift - You Can Not Select Any Menus From The Slave Side

Fig. 27

22. Power Up: Turn disconnect to **ON** position from the master control panel, Fig. 27.

23. Photo Sensor: Adjust photo sensor until orange indicator light comes on. Tighten clamping bolts making sure the indicator light remains on. Once the photo sensor is secure and in adjustment remove the alignment film from the reflector, Fig 28.

24. Setup Screen:
A.) Use up, down, and select buttons to select language, Fig. 27.
B.) Use up, down, and select buttons to select lift type.
C.) Use up, down, and select buttons to set day and time.

25. Oil Bleeding: Press ⇧ on touch pad and raise lift about 2 ft. Open cylinder bleeders approx. 2 turns, Fig. 11. Close bleeders when fluid streams. Press ⇩ on the touch pad to fully lower lift. Fill tank until it reaches the MIN_____ mark on the tank. System capacity is (13) quarts. Replace fill-breather cap.

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

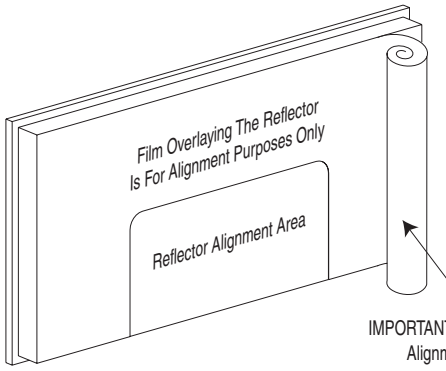


Fig. 28

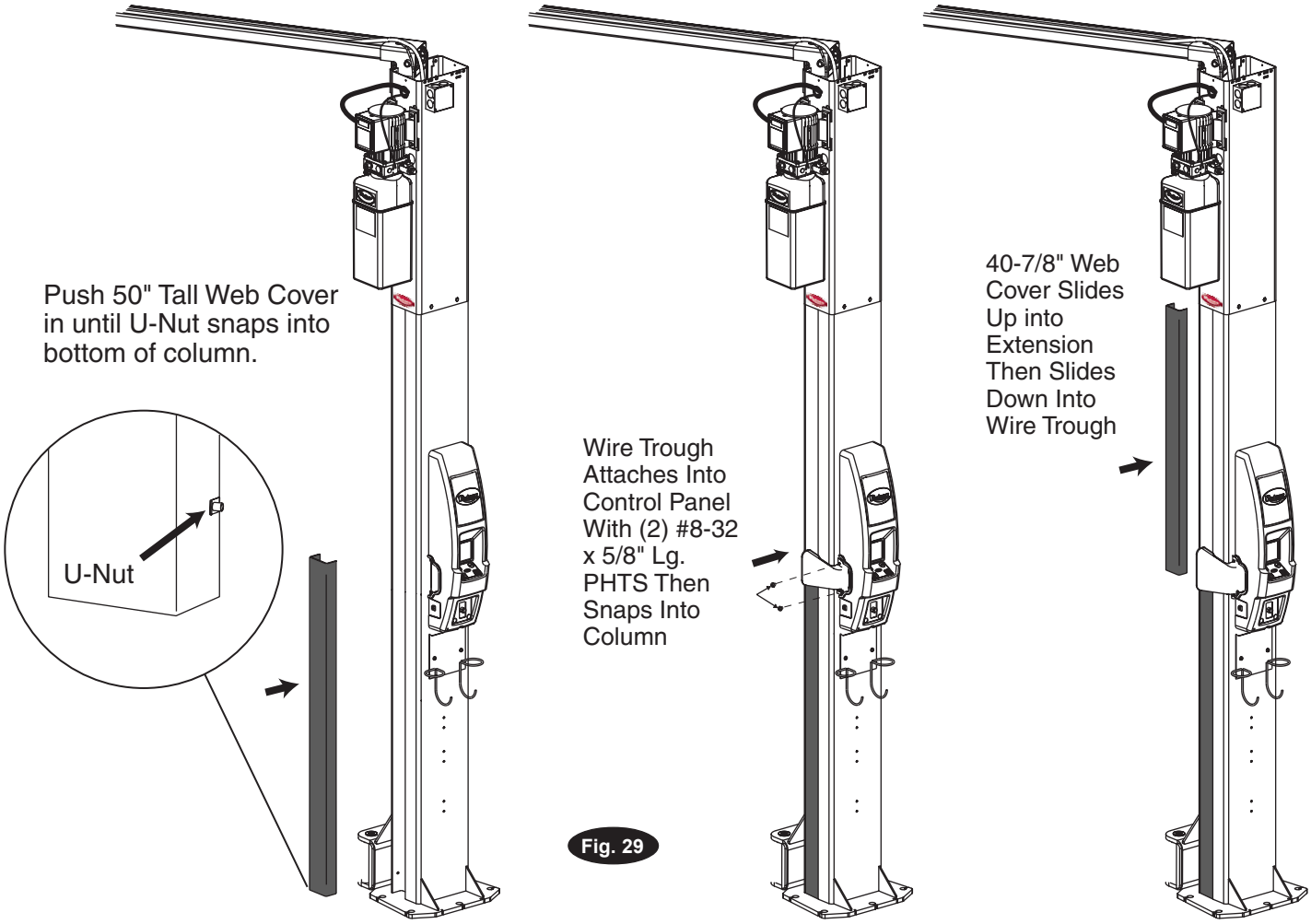


Fig. 29

26. Pressure Test: Press ⇧ on touch pad and raise 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.

27. Equalizer Cable Adjustment: Press ⇧ on touch pad and 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.

28. Photo Sensor testing: Check photo sensor by running the lift up and having someone break the beam on the photo sensor. Verify that Power Unit stops working when photo sensor beam is broken.

29. Web covering and wire trough placement Fig. 29: Start by wire tying all the wires and hoses neatly and out of the way of the cables. Take one of the wire troughs and attach it to one of the control panels with two #8-32NC x 5/8" Lg. PHTS. Snap the front of the wire trough into the column. Next slide the short web cover up into the column extension and then down into the wire trough. Then install one of the long web covers up into the bottom of the wire trough and snap the U-nut into the hole in the bottom of the column. Repeat for other column. Adjust covers accordingly to make sure hoses and wires are covered.

30. Door Bumper Installation:

A) Press long bumper on column edge, Fig. 30.

B) Press short bumper on top edge of carriage tube, Fig. 30.

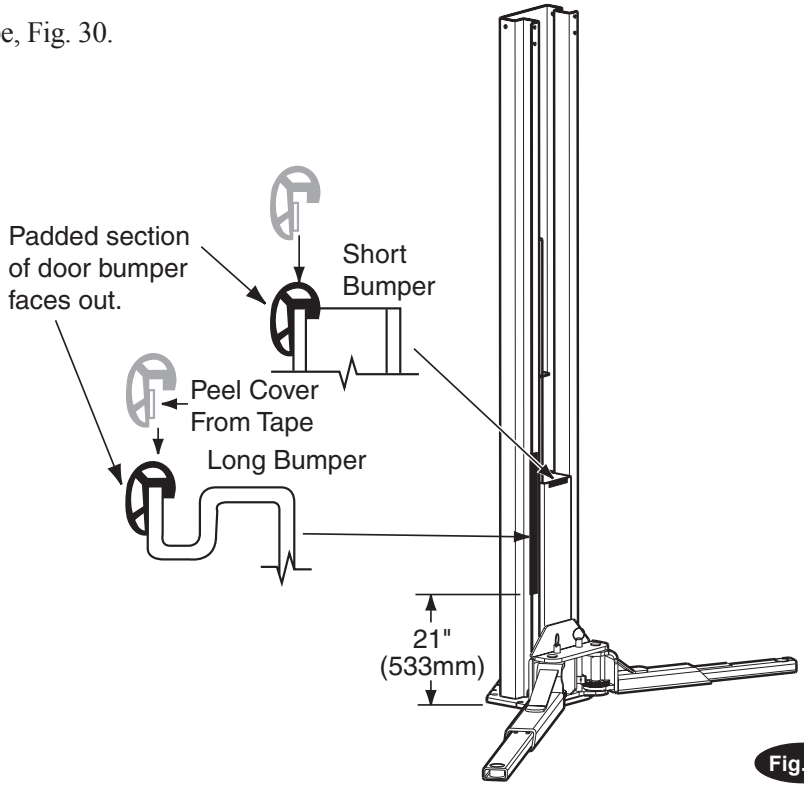


Fig. 30

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
02/06/02	-	New (400 Series) instructions. New Universal Overhead.
07/24/02	A	Single phase motor wires changed colors. Was red and white, now black and white.
07/06/03	B	New overhead attachment hardware and new overhead mounting bracket attaching hardware.

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