



SPO12

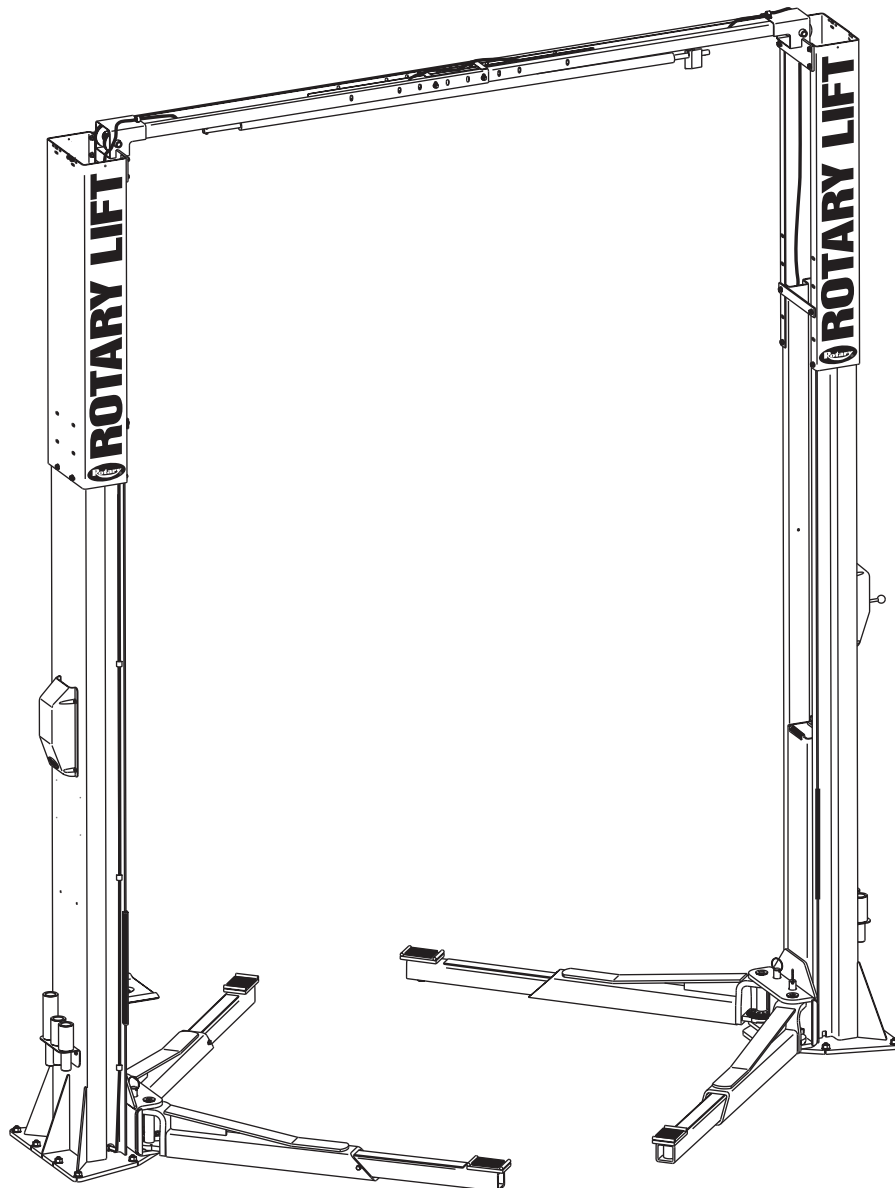
Standard/Hummer/Sprinter

Two Post Surface Mounted Swing Arm Frame Engaging Lift

Standard (500 Series) Capacity: 12,000 lbs.

Hummer (5W0 Series) Capacity: 12,000 lbs.

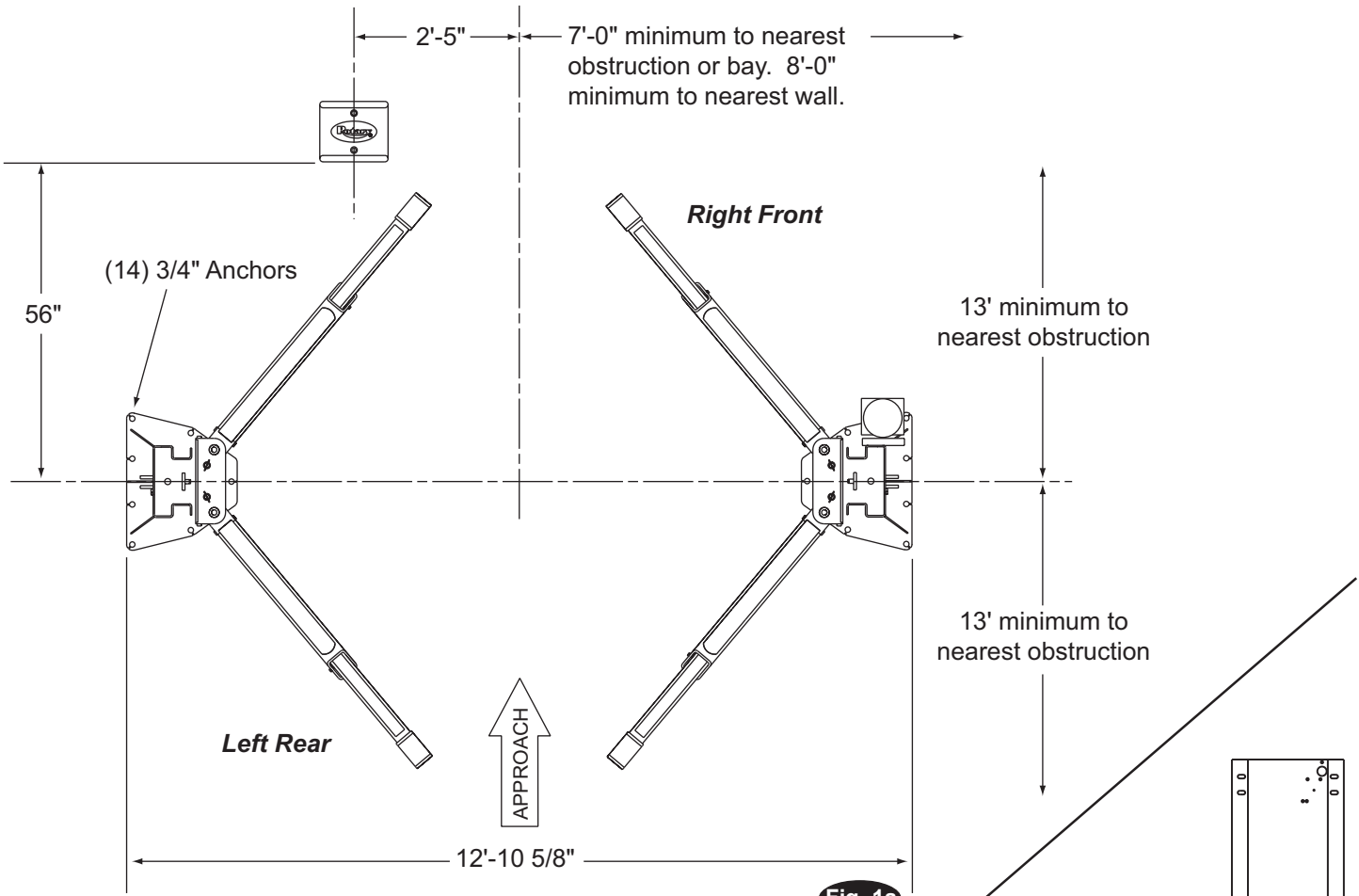
Sprinter (5A0 Series) Capacity: 9,000 lbs.



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SPO12 Hummer Supplement Instructions

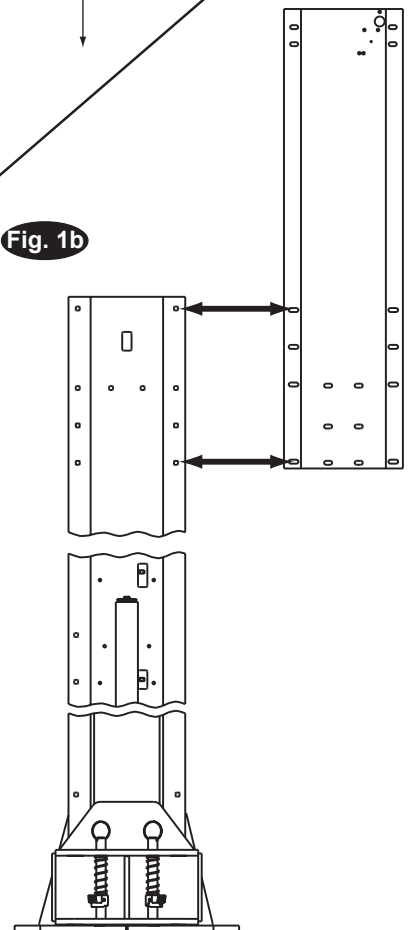
IMPORTANT If you have ordered a SPO12 Hummer Lift (5W0 Series) these figures **MUST** be used in place of the standard instruction figures on page 6.



SPO12 Hummer Lift (5W0 Series)

Fig. 1a

Fig. 1b



SPO12 Hummer Supplement Instructions

IMPORTANT If you have ordered a SPO12 Hummer Lift (5W0 Series) these figures **MUST** be used in place of the standard instruction figures on pages 7 & 8.

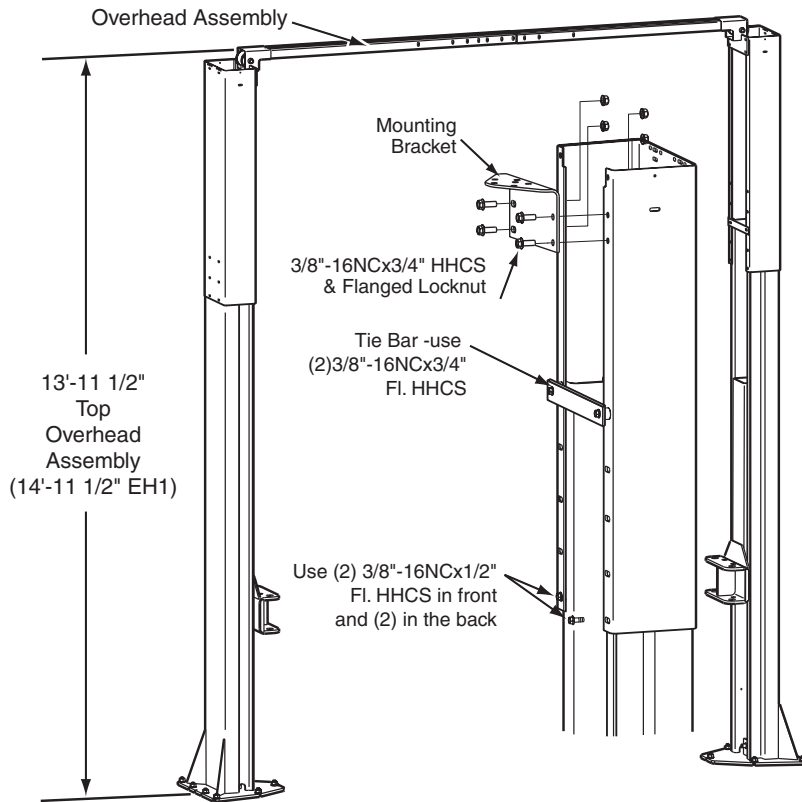


Fig. 4

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

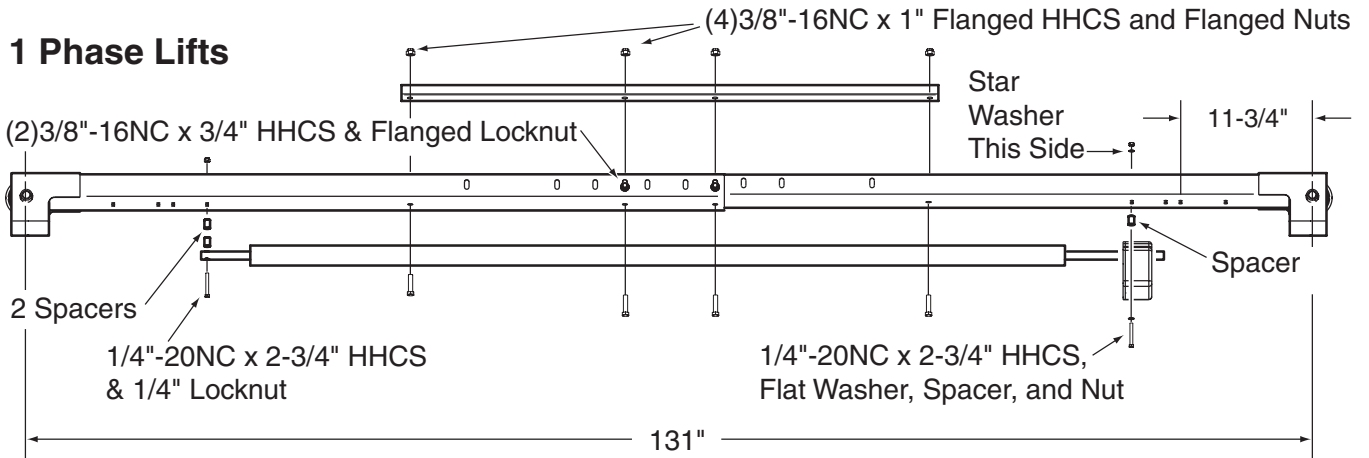


Fig. 6

SPO12 Sprinter Supplement Instructions

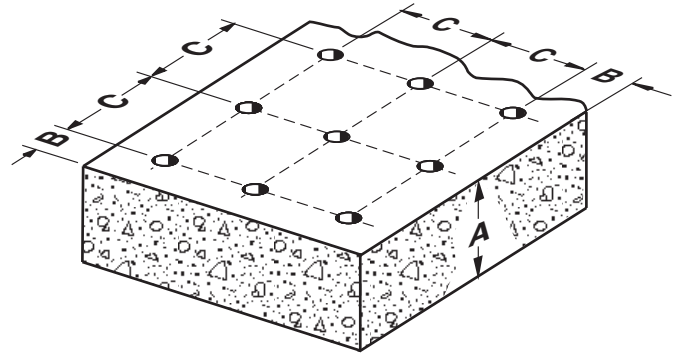
IMPORTANT If you have ordered a SPO12 Sprinter Lift (5A0 Series) these anchoring instructions **MUST** be used instead of the standard anchoring instructions on page 7.

FOR 3000 PSI CONCRETE

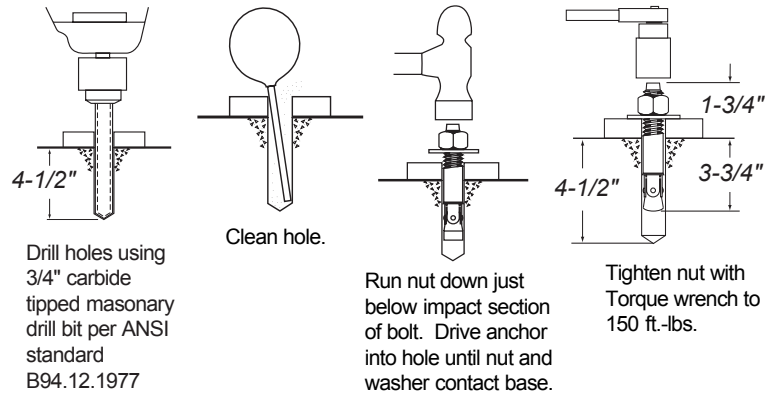
Concrete and Anchoring: Concrete shall have a compression strength of at least 3,000 PSI and a minimum thickness of 4-7/8" in order to achieve a minimum anchor embedment of 3-3/4".

Use longer anchor bolts if necessary to assure proper embedment. Shimming may dictate this.

If the top of the anchor exceeds 1-3/4" above floor grade, you do not have enough embedment.



- A) Concrete Thickness & Hole Depth 4-7/8" (124mm)
- B) Edge Distance 4-3/4" (121mm)
- C) Hole Spacing 6-1/2" (165mm)



Drill holes using 3/4" carbide tipped masonry 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 and washer contact base.

Tighten nut with Torque wrench to 150 ft.-lbs.

Installation torque of 150 ft.-lbs. is required for all anchor bolts.

SPO12 Sprinter Supplement Instructions

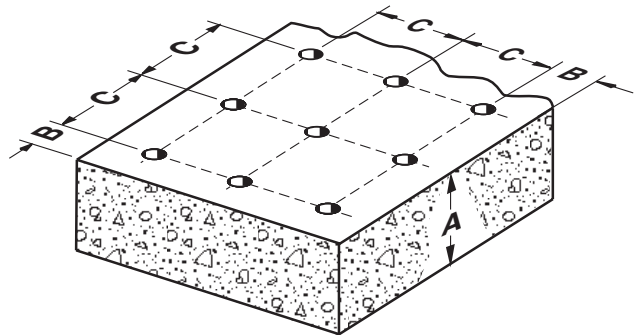
IMPORTANT If you have ordered a SPO12 Sprinter Lift (5A0 Series) these anchoring instructions **MUST** be used instead of the standard anchoring instructions on page 7.

FOR 4000 PSI CONCRETE

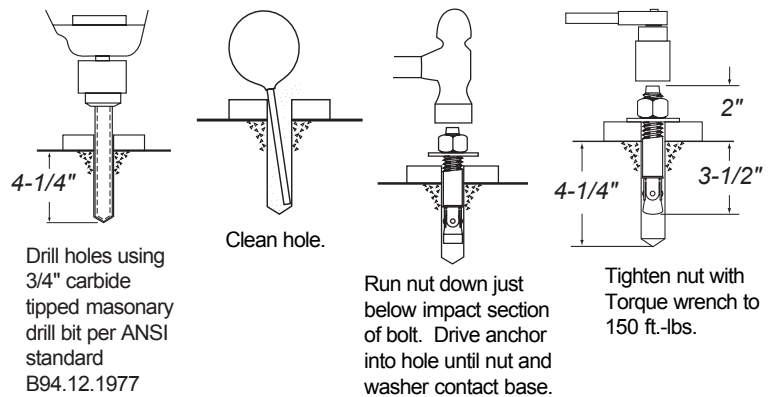
Concrete and Anchoring: Concrete shall have a compression strength of at least 4,000 PSI and a minimum thickness of 4-1/2" in order to achieve a minimum anchor embedment of 3-1/2".

Use longer anchor bolts if necessary to assure proper embedment. Shimming may dictate this.

If the top of the anchor exceeds 2" above floor grade, you do not have enough embedment.



- A) Concrete Thickness & Hole Depth 4-1/2" (114mm)
- B) Edge Distance 4-3/4" (121mm)
- C) Hole Spacing 6-1/2" (165mm)



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

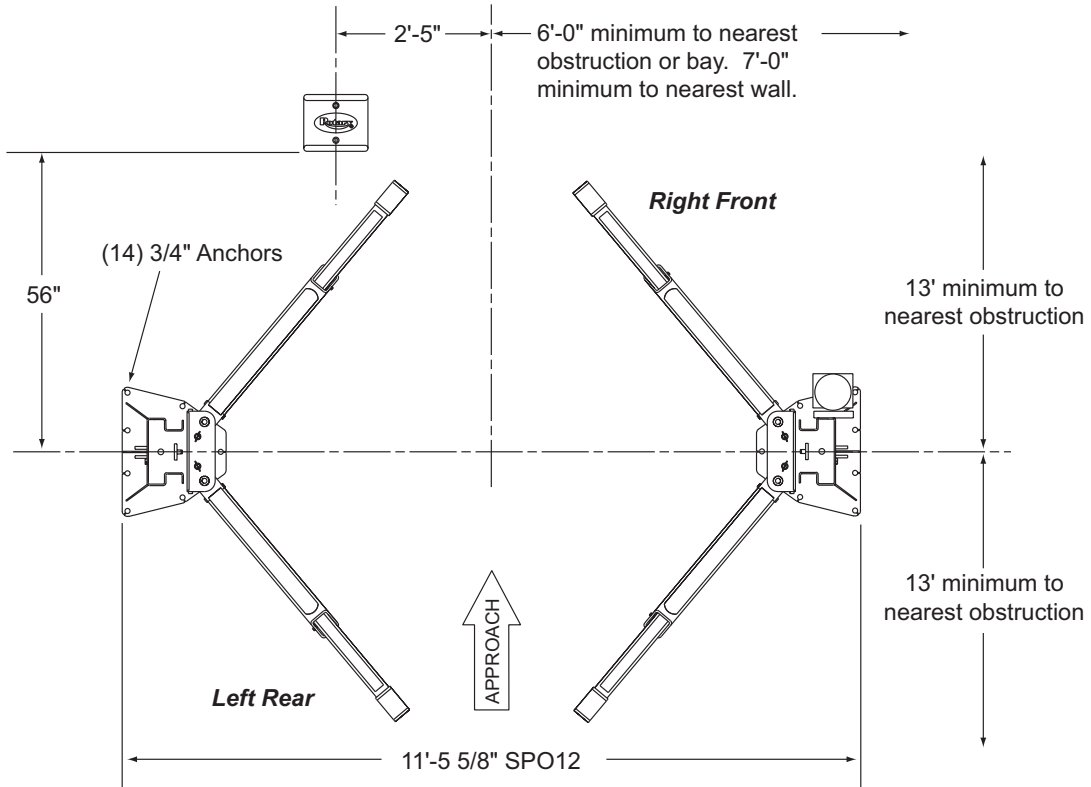
Clean hole.

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

Tighten nut with Torque wrench to 150 ft.-lbs.

Installation torque of 150 ft.-lbs. is required for all anchor bolts.

INSTALLATION INSTRUCTIONS



SPO12 Standard (500 Series) & SPO12 Sprinter (5A0 Series)

Fig. 1a

Note: See Pg. 2 for Hummer (5W0 Series) Lifts.

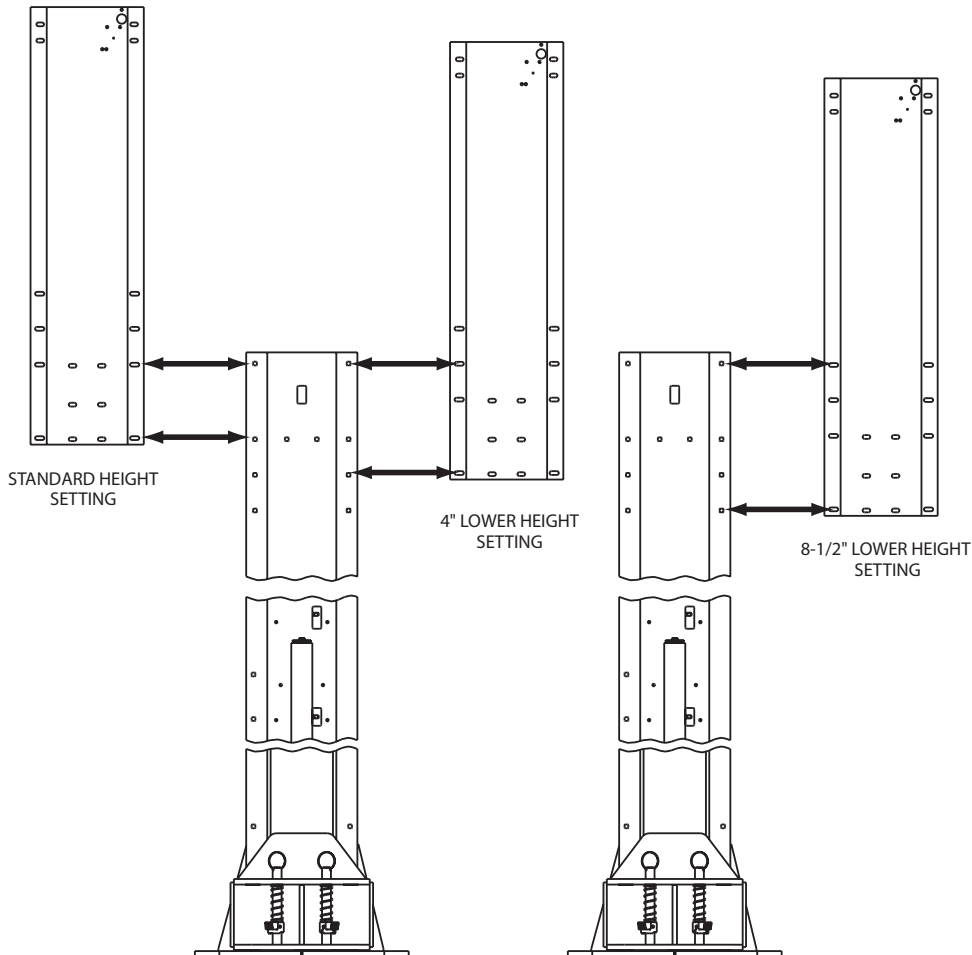


Fig. 1b

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

Lift Height: See Fig. 4 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.

2. Latch Cable Guides: Install the latch cable conduit guide brackets to column extensions with (1) 1/4"-20NC x 1" HHCS and 1/4"-20NC Flanged Locknuts, Fig. 5. HHCS should go through hole nearest the edge as shown, Fig. 5.

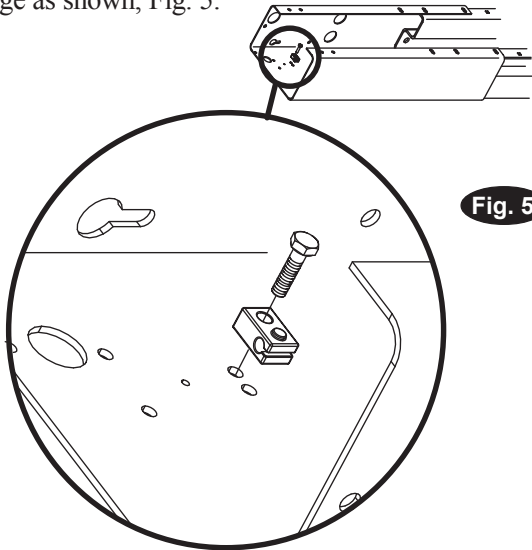


Fig. 5

Overhead Mounting Bracket: Install Mounting Brackets to column extensions as shown, Fig. 5

3. Column Extensions: While column is on the ground, install column extensions using (4) 3/8"-16NC x 1" lg. Carriage Bolt and Flanged Locknut, Fig. 4 & Fig. 1b. Use (2) 3/8"-16NC x 2-1/2" lg. Carriage Bolt and Flanged Locknut to attach the tie bar and the column extension together at the column's uppermost holes, Fig. 4. The tie bar is positioned on the outside of the column extension. Adjust the column extensions plumb.

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

IMPORTANT: All star washers are to be mounted on the right side column to ensure grounding of overhead limit switch. Star washers are not needed when mounting to left side column. Notice the column extension mounting, Fig. 4 and overhead limit switch mounting as well in Fig. 4 & Fig. 6.

Note: See Pg. 4 & 5 for Sprinter (5A0 Series) Lifts.

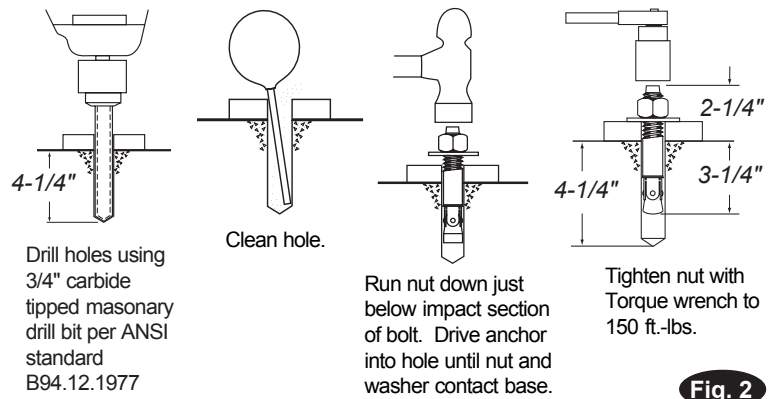


Fig. 2

Installation torque of 150 ft.-lbs. is required for all anchor bolts.

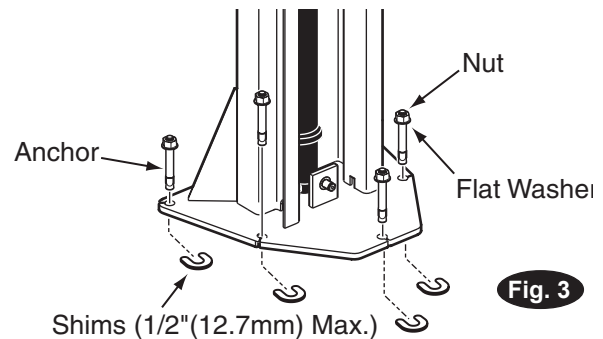


Fig. 3

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.

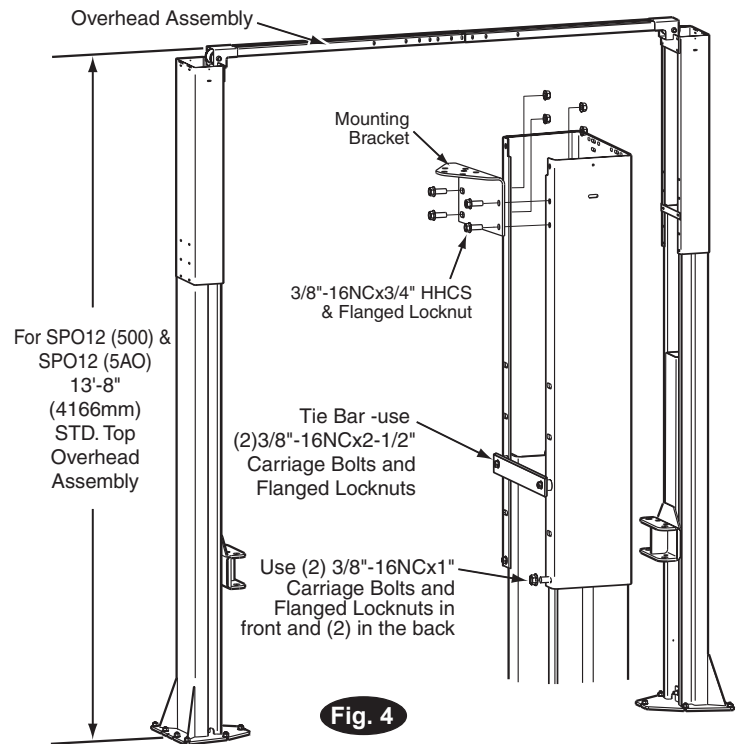


Fig. 4

Note: See Pg. 3 for Hummer (5W0 Series) Lifts.

Note: See Pg. 4 & 5 for Sprinter (5A0 Series) Lifts.

5. Concrete and Anchoring:

IMPORTANT Reference IN20294 if Sprinter long arms are going to be used for this installation or if the lift will possibly be retro-fit with them in the future. Different concrete and anchoring requirements are required.

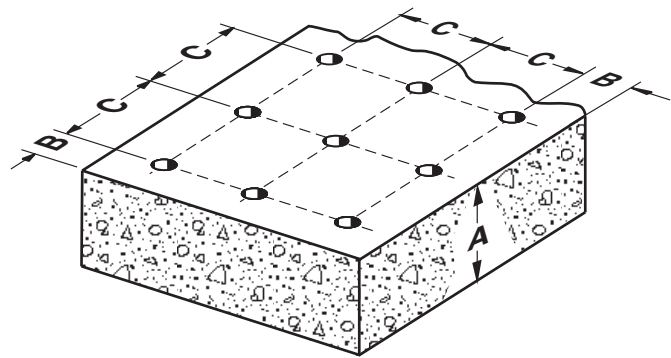
Concrete shall have a compression strength of at least 3,000 PSI and a minimum thickness of 4-1/4" in order to achieve a minimum anchor embedment of 3-1/4".

Drill (14) 3/4" dia. holes 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.

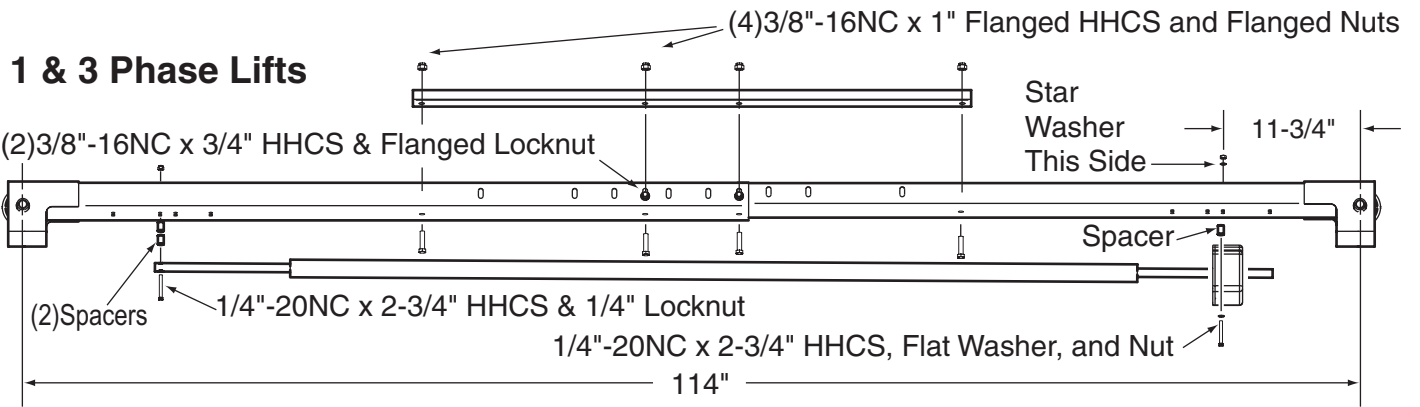
IMPORTANT: Using the horse shoe shims provided, shim each column base until each column is plumb. If one column has to be elevated to match the plane of the other column, full size base shim plates should be used (Reference Shim Kit). Recheck columns for plumb. Tighten anchor bolts to an installation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

If anchors do not tighten to 150 ft-lbs. installation torque, replace concrete under each column base with a 5' x 5' 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 anchor.



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

Note: See Pg. 3 for Hummer (5W0 Series) Lifts.



Hardware Detail For Overhead Assembly

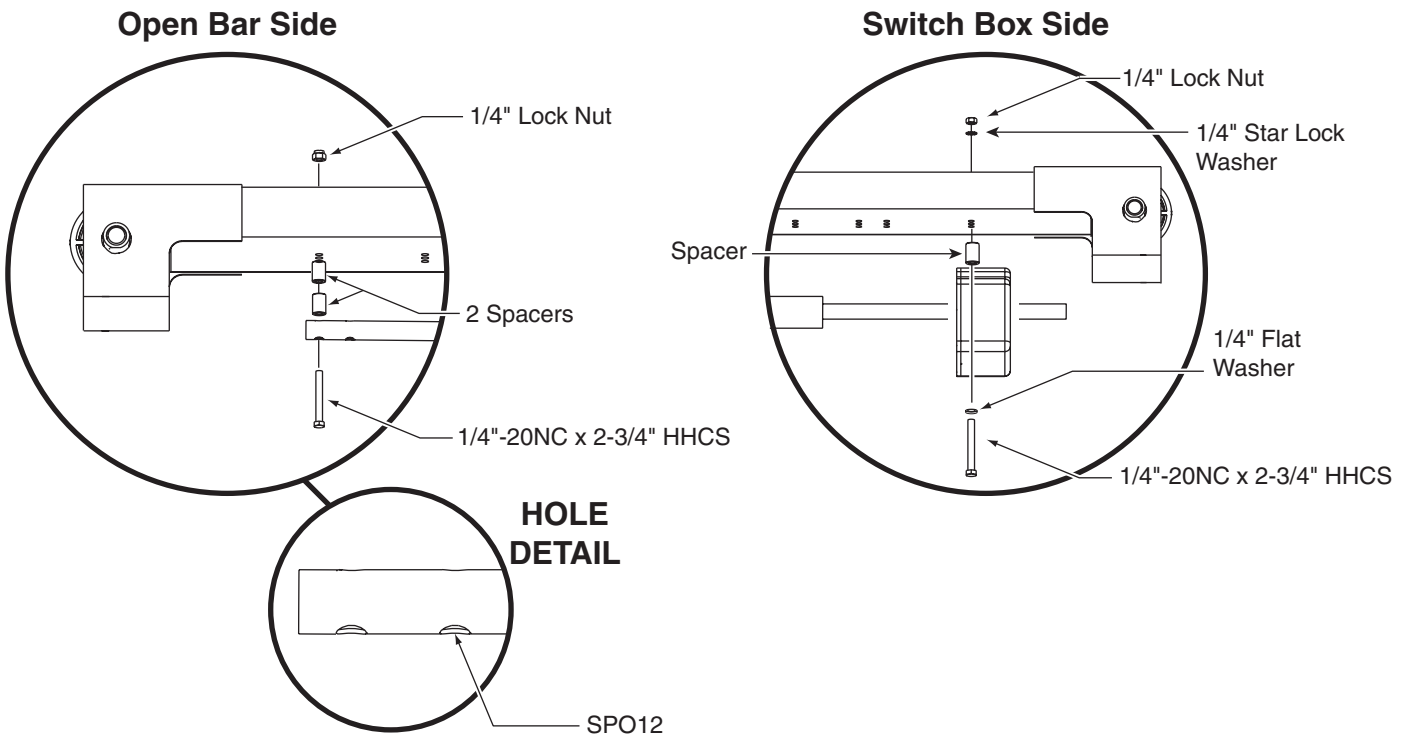


Fig. 6

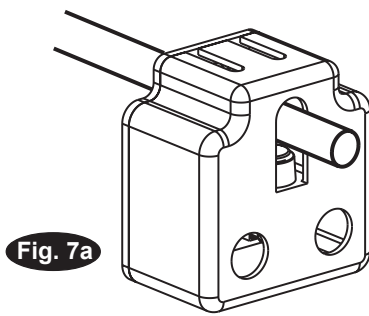


Fig. 7a

6. Overhead Assembly: Adjust overhead to 114" between centerline of sheave pins, Fig. 6. Install (4) 3/8"-16NC x 2-3/4" Flanged HHCS & Flanged Locknuts, do not tighten. Install overhead stiffener angle inside center of overhead using (4) 3/8"-16NC x 1" Flanged HHCS and Flanged Locknuts, see Fig. 6. Slide switch box over switch bar ensuring lockout holes face the power unit column. Use (2) 1/4"-20NC x 2-3/4" lg. HHCS, (2) flat washers, (2) 3/4" spacers, and (2) 1/4" star washers and nuts to mount switch box to overhead, Fig. 7a.

7a. For single phase lifts: Insert (2) 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. Then add spacers between the limit switch box and the overhead, Fig. 6, using (2) spacers and 1/4"-20NC Locknut. Tighten Hex bolt leaving 1/16" gap between the spacer and the overhead assembly.

7b. For three phase lifts: Remove Limit Switch cover, Fig. 7b. Insert Actuator end of Switch Bar into slot located inside Limit Switch, Fig. 7c. A small amount of silicone sealant on the lower part of the actuator will help hold it in place. Insert 1/4"-20NC x 2-3/4" HHCS through pivot hole in end of Switch Bar. NOTE which hole to use, Fig. 6. Then secure HHCS and Switch Bar to overhead as shown, 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. 6. Replace limit switch cover.

8. Overhead: Install overhead assembly to Mounting Bracket with (2) 3/8"-16NC x 3/4" Flanged HHCS, (2) 3/8"-16NC flanged locknut, Fig. 7d. Ensure limit switch box is mounted on power unit side. Tighten bolts at center of overhead assembly.

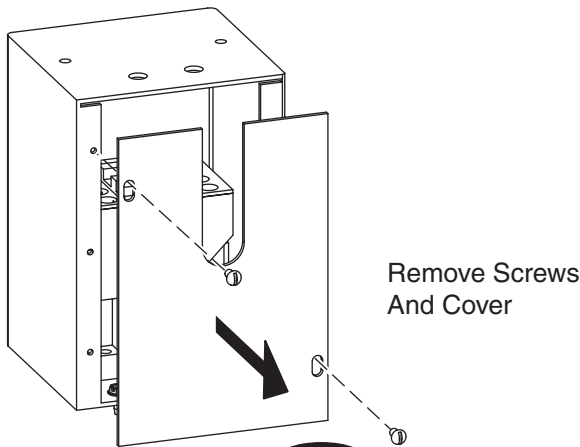


Fig. 7b

Place Actuator Here.
A Small Amount Of Silicone Sealant
On The Lower Part Of The Actuator
Will Help Hold It In Place.

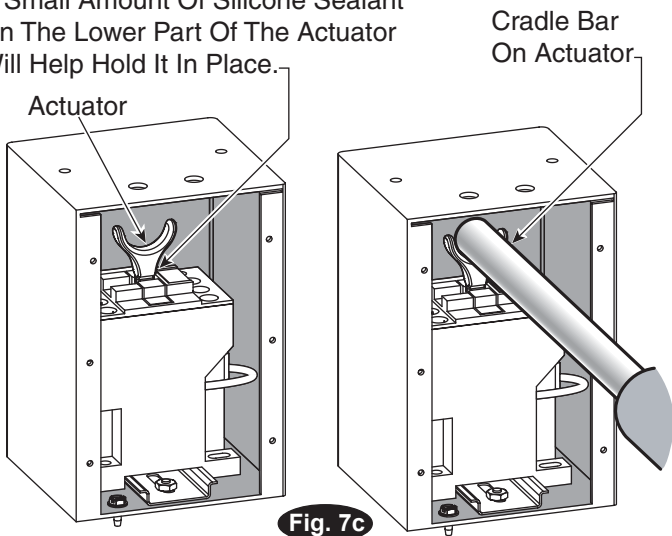
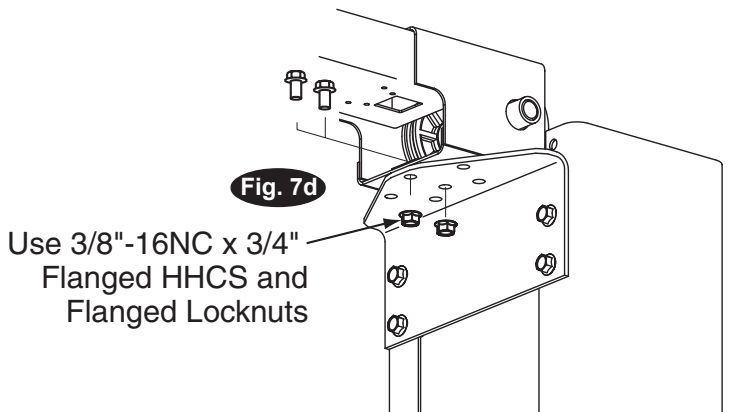


Fig. 7c



Use 3/8"-16NC x 3/4" Flanged HHCS and Flanged Locknuts

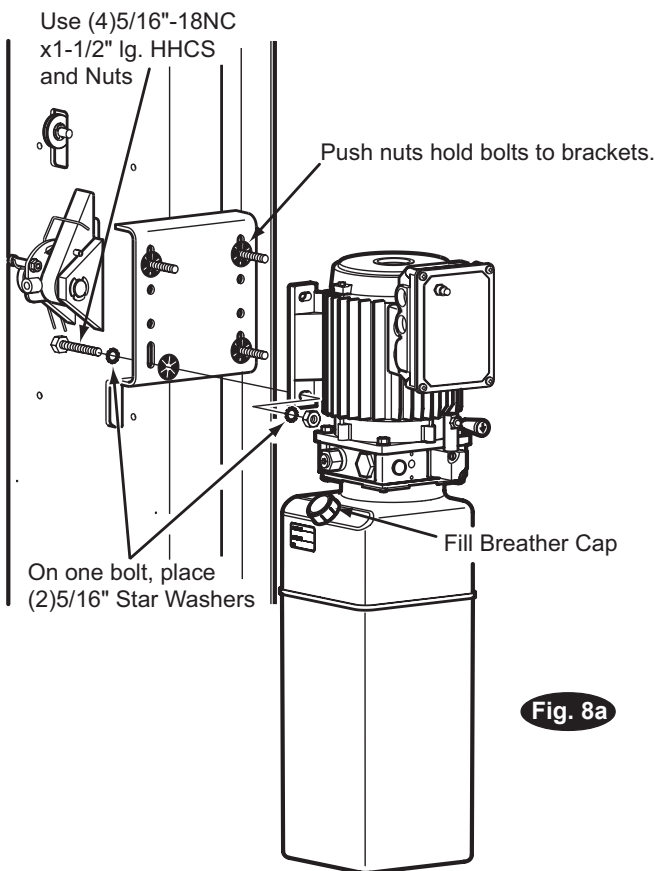


Fig. 8a

9. Power Unit: First install (1) star washer onto one of the (4) 5/16"-18NC x 1-1/2" HHCS. *This is very important for grounding.* Put the (4) 5/16"-18NC x 1-1/2" HHCS thru holes in power unit bracket using Push-Nuts to hold in place, Fig. 8a. Mount unit with motor up to column bracket and install (4) 5/16" star washers and 5/16" Nuts. Install and hand tighten Branch Tee to pump until O-ring is seated. Continue to tighten the locknut to 10-15 ft-lbs., or until the nut and washer bottom out against the pump manifold. **NOTE:** You may still be able to rotate the Branch Tee. This is acceptable unless there is seepage at the O-ring. If so, slightly tighten the locknut.

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

10. Hoses: Clean adapters and hose. Inspect all threads for damage and hose ends to be sure they are crimped, Fig. 8b. Install hose and hose clamps, Fig. 9a & Fig. 9d.

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.

Adapter & Hose Installation (see Fig. 9a)

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 left column cylinder (5) and working toward the right column. All excess hose should be at bends & inside overhead assembly.
3. Install Pc. (4) into power unit.
4. Connect Pc. (2) & Pc. (3) to Tee (4).

NOTE: Route Power Unit hose inside columns using slots provided at column base, Fig. 9b. Route Overhead Hose in column channel on outside of column, Fig. 9b. Overhead hose goes over top end of overhead assembly, Fig. 11a.

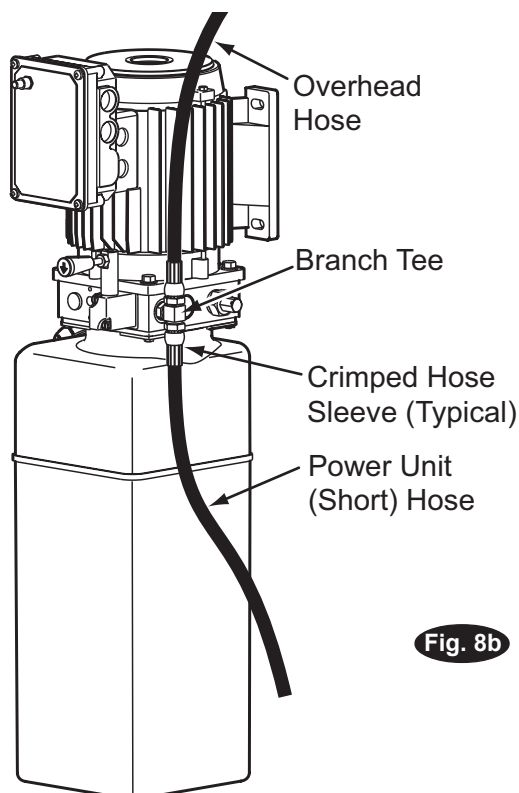
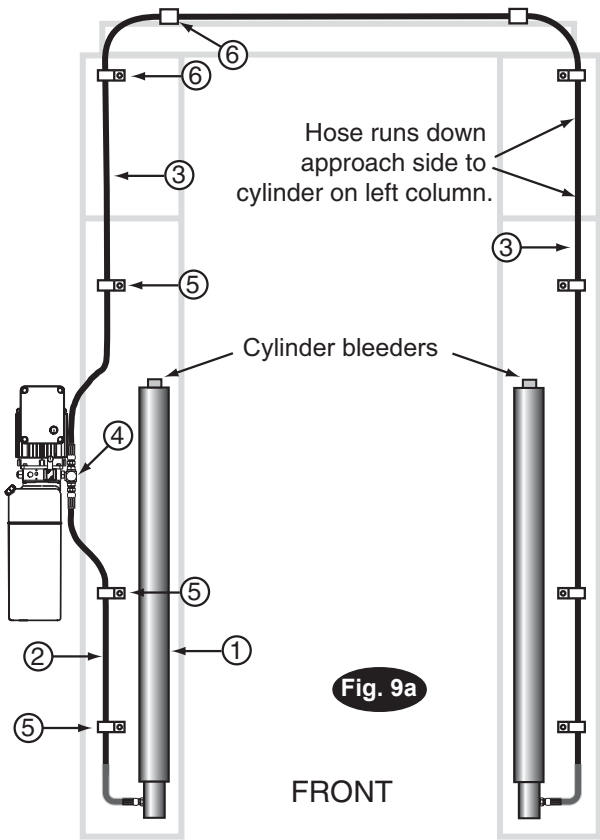
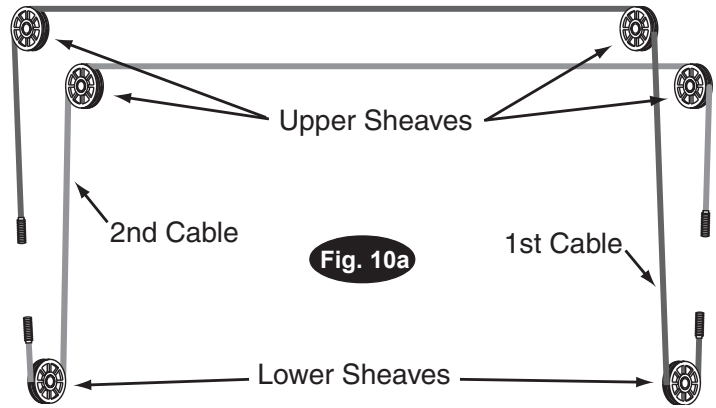
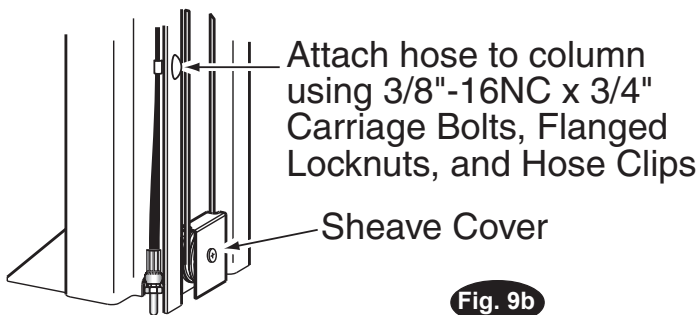


Fig. 8b

NOTE: Overhead hose crosses and runs down approach side of left column to cylinder.

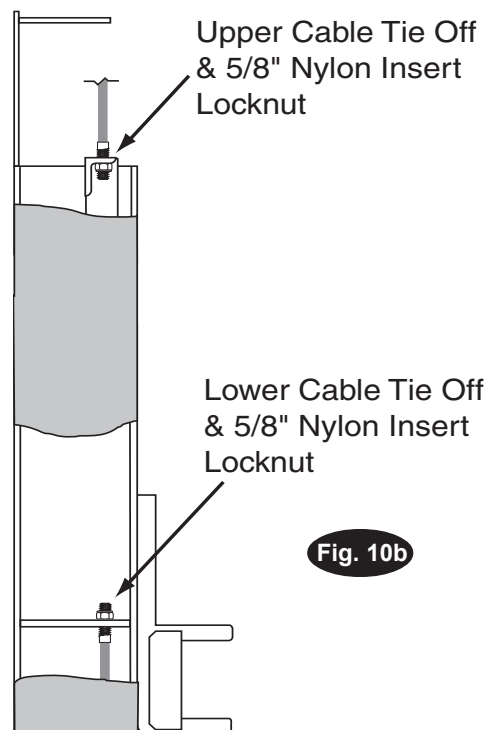


ITEM	QTY.	DESCRIPTION
1	2	Hydraulic Cylinder
2	1	Power Unit Hose
3	1	Overhead Hose
4	1	Branch Tee
5	6	Hose Clips
6	6	3/8"-16NC x 3/4" Ig. Carriage Bolts
6	6	3/8"-16NC Flanged Locknuts
6	4	Hose Clips
6	4	3/8"-16NC x 3/4" Ig. Flanged HHCS
6	4	3/8"-16NC Flanged Locknuts



11. Equalizing Cables

- Refer to Fig. 10a for the general cable arrangement. First, run a cable end up through the small hole in the lower tie-off plate. Fig. 10b.
- Push the cable up until the stud is out of the carriage top opening.
- Run a nylon insert locknut onto the cable stud so 1/2" (13mm) of the stud extends out of the locknut.
- Pull the cable back down. Fig. 10b
- Run cable around the lower sheave, then up and around overhead sheave and across and down to the opposite carriage. Fig. 10a.
- Fasten the cable end to the carriage upper tie-off bracket. Tighten the locknut enough to apply light tension to the cable.
- Repeat procedure for the second cable. Complete lift assembly. Adjust the tension of both cables during the final adjustments.



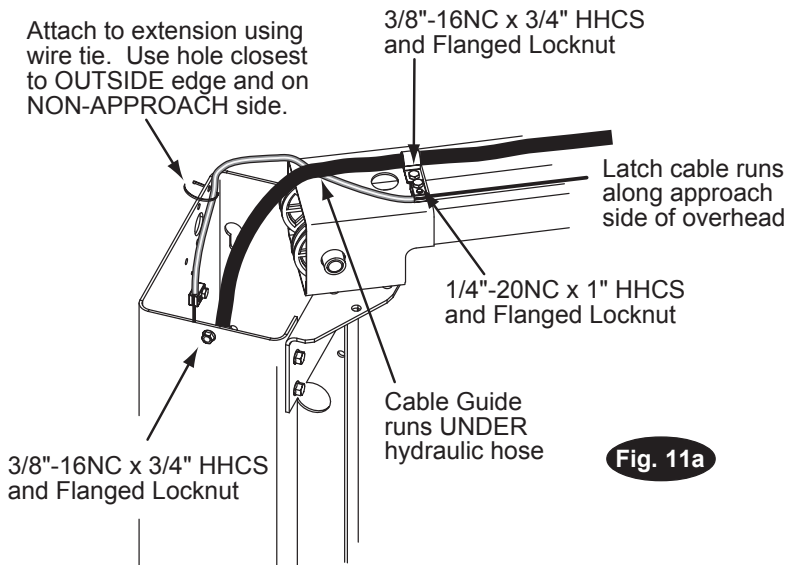


Fig. 11a

12. Locking Latch Cable

- A) Install latch cable sheave and retaining rings in upper slot of power unit column as shown, Fig. 11c.
- B) Slip loop end of cable over end of shoulder screw on right side latch control plate, Fig. 11c.
- C) Feed the other end of the cable through the latch cable sheave slot making sure that the cable is running under the bottom side of the latch cable sheave and inside the right column, Fig. 11c.
- D) Attach latch cable conduit guide brackets to overhead as shown, Fig. 11a & Fig. 11b. Always use the holes on the approach side of the lift. HHCS should be in hole nearest the center of the overhead, Fig. 11b.
- E) Route cable up inside column and through the latch cable guide, Fig. 11a & Fig. 12.

IMPORTANT Using wire ties provided, tie off cable guide to column extension as shown, Fig. 11a. Guide must be attached in hole closest to the outside edge of the column on the NON-APPROACH side.

- F) Continue routing cable to the left column latch cable guide, Fig. 11a & Fig. 12, routing the cable through the left column latch cable guide, Fig. 11a.

IMPORTANT Using wire ties provided, tie off cable guide to column extension as shown, Fig. 11a. Guide must be attached in hole closest to the outside edge of the column on the NON-APPROACH side.

- G) Bring the cable down inside the left column and feed the end of the cable through the lower latch cable sheave slot so that the cable is now back outside the column, Fig. 13.
- H) Install latch cable sheave and retaining rings in lower slot of non-power unit column as shown, Fig. 13.
- I) Route cable under the bottom side of the latch cable sheave, Fig. 13.

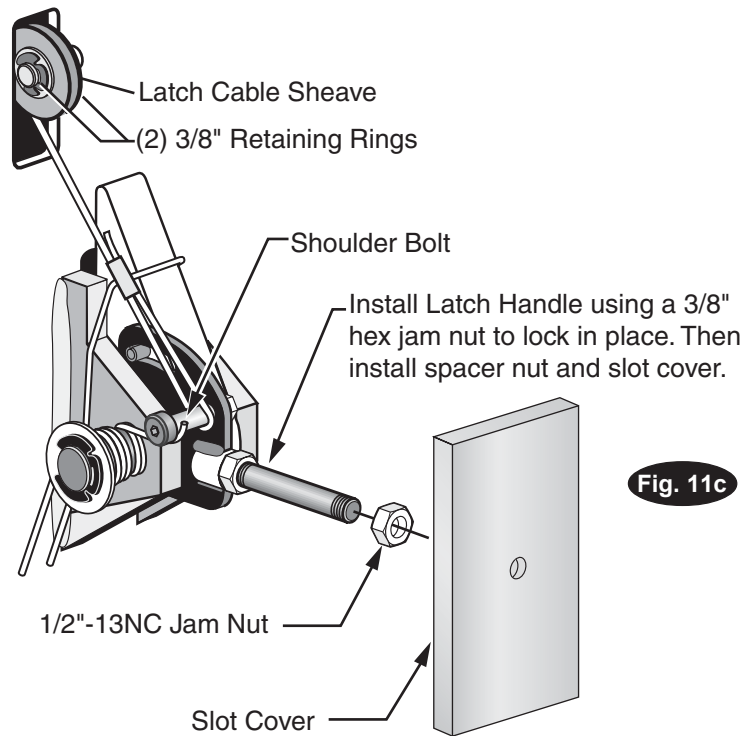


Fig. 11c

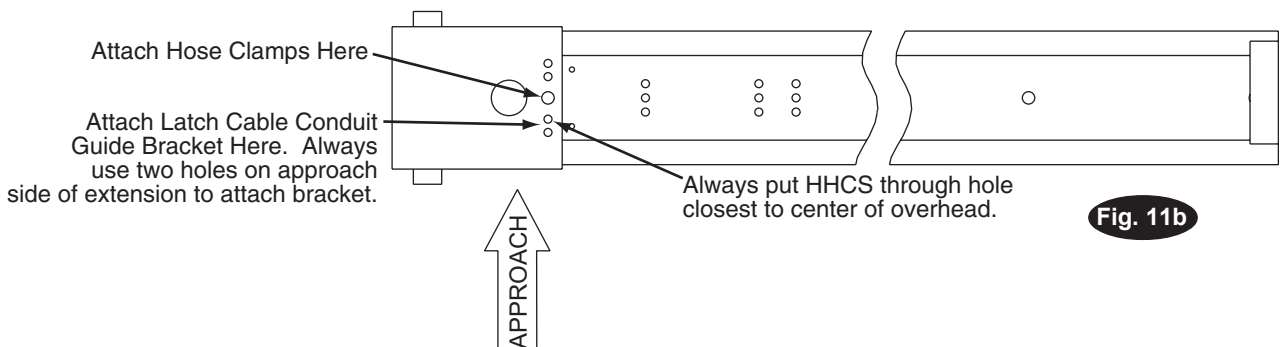
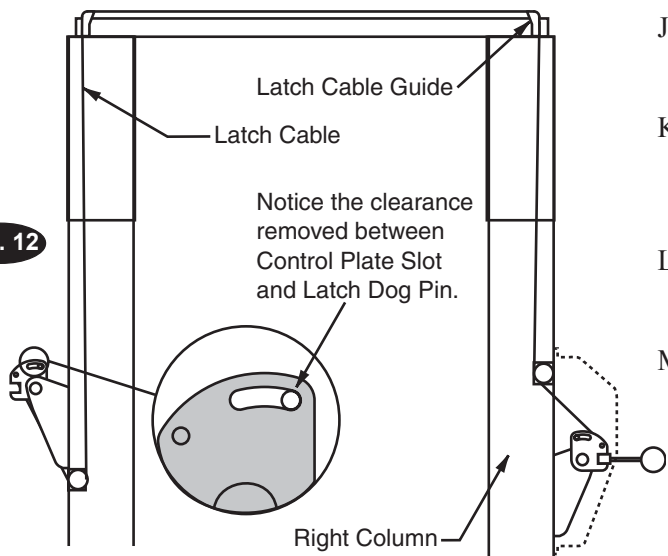


Fig. 11b

Fig. 12



- J) At this point you **MUST** install the latch handle, jam nut, and right column latch cover Fig. 11c & Fig. 14. Install latch handle ball, Fig. 14.
- K) Insert cable in cable clamp along one side, loop around shoulder screw and back down, inserting cable along other side of cable clamp, Fig. 13. Place top back on clamp, barely tightening.
- L) Next, pull the control plate down, Fig. 12 & Fig. 13, to eliminate any clearance between the control plate slot and the latch dog pin, Fig. 12.
- M) Using Pliers, pull cable tight and secure the clamp close to the shoulder screw. Tighten clamp.

Fig. 13

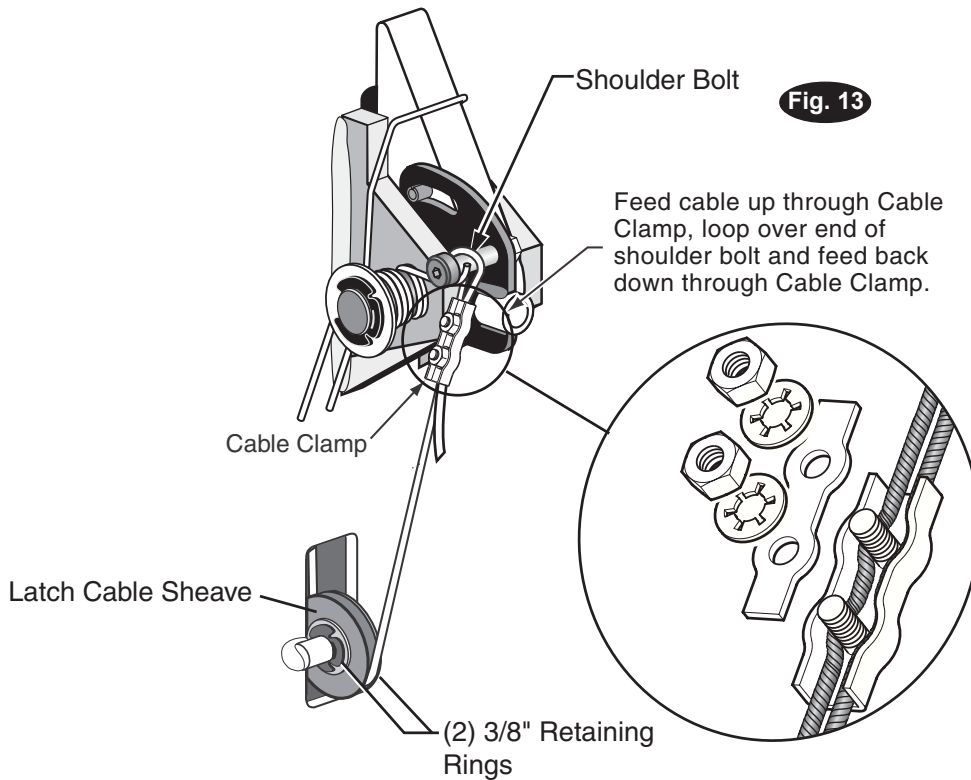
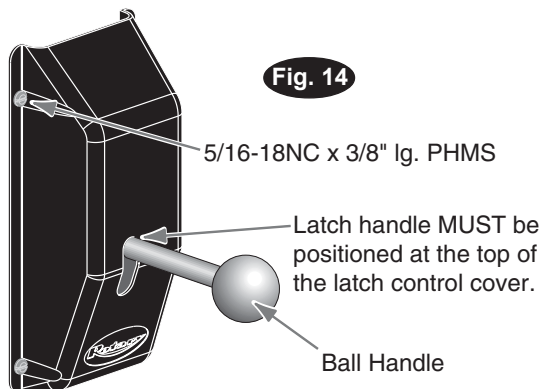


Fig. 14



13. Electrical: Have a certified electrician run appropriate power supply to motor, Fig. 15 & 16. Size wire for 20 amp circuit. See Motor Operating Data Table.

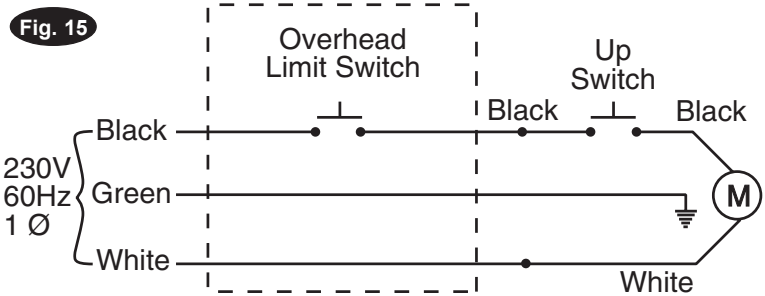
CAUTION Never operate the motor on line voltage less than 208V. Motor damage may occur.

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. Three phase 208-240V, use 20 amp fuse. For three phase 400V and above, use 10 amp fuse. For wiring see Fig. 15 & Fig. 16. 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.

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

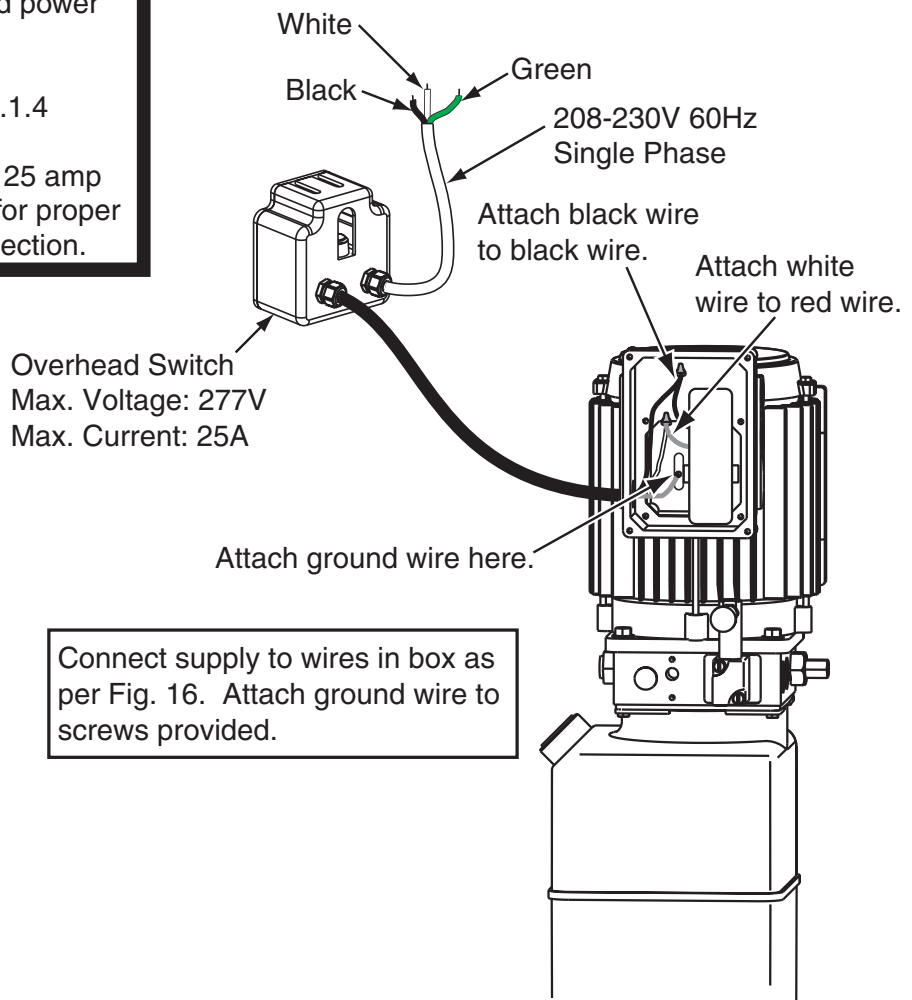


Note: 60Hz. Single phase motor **CAN NOT** be run on 50Hz. line without a physical change in the motor.

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.



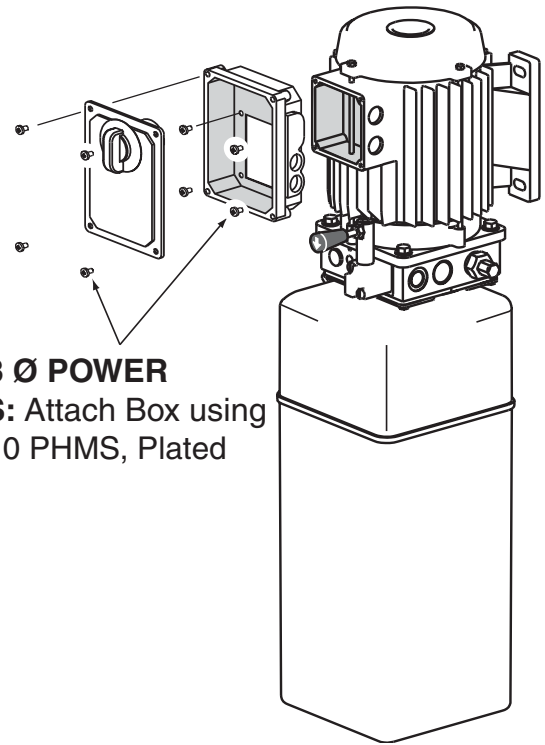
Connect supply to wires in box as per Fig. 16. Attach ground wire to screws provided.

Three Phase Power Unit

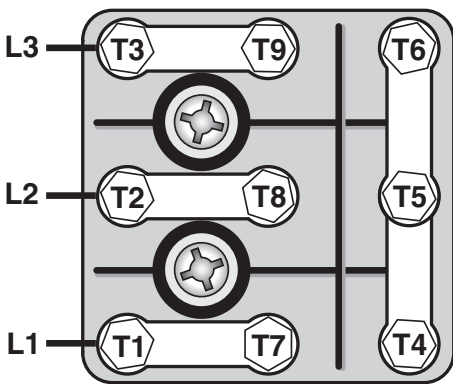
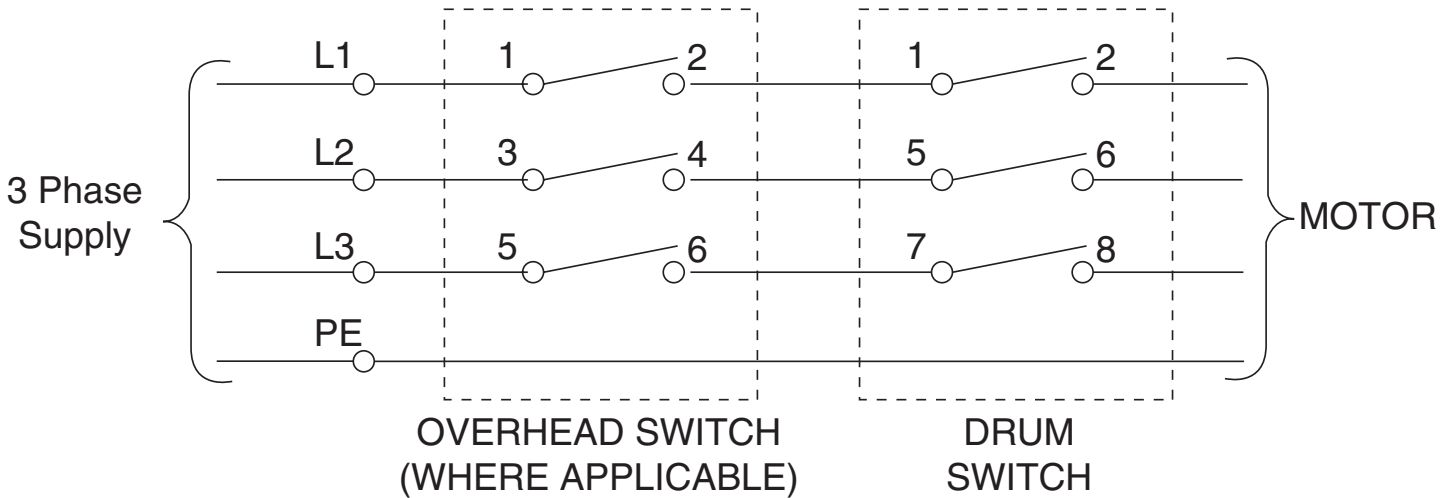
MOTOR OPERATING DATA TABLE - THREE PHASE		
LINE VOLTAGE	RUNNING MOTOR VOLTAGE RANGE	
208-240V 50/60Hz.	197-253V	
400V 50Hz.	360-440V	
440-480V 50/60Hz.	396V-528V	
575V 60Hz.	518V-632V	

NOTES:

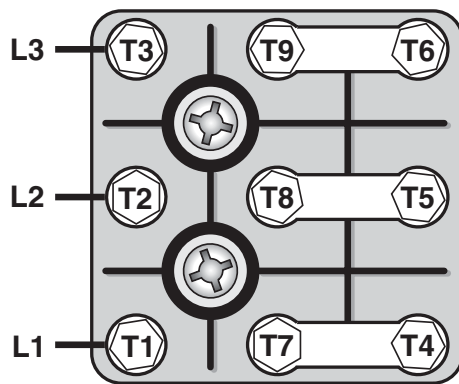
1. Unit not suitable for use in unusual conditions. Contact Rotary for moisture and dust environment duty unit.
2. Control Box must be field mounted to power unit.
3. Motor rotation is counter clockwise from top of motor.



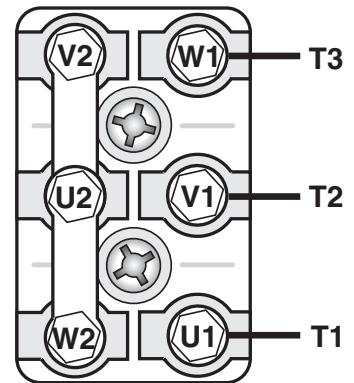
FOR 3 Ø POWER UNITS: Attach Box using M5 x 10 PHMS, Plated



208-240V
50/60Hz. 3Ø



440-480V 50/60 Hz. 3Ø
400V 50 Hz. 3Ø



575V 60 Hz. 3Ø

Fig. 16

14. Oil Filling & Bleeding: Use Dexron III ATF, or Hydraulic Fluid that meets ISO 32 specifications. Remove fill-breather cap, Fig. 8a. Pour in (8) quarts of fluid. Start unit, raise lift about 2 ft. Open cylinder bleeders approximately 2 turns, Fig. 9a.

Close bleeders when fluid streams. Fully lower lift. Add more fluid until it reaches the MIN _____ mark on the tank. Replace fill-breather cap.

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

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. 15 & Fig. 16. 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 restarts when the bar is released.

16. Arms & Restraints: Before installing arms, raise carriages to a convenient height. Grease swivel arm pins and holes with Lithium grease. Slide arm into yoke, Fig. 17a. Install 1-3/4" diameter arm pin(s), Fig. 17a.

After installing arms and pins, install arm Restraint Gears as follows: Install Restraint Gear onto arm clevis, as shown, Fig. 17b. Ensure side of gear marked **TOP** is facing upward, Fig. 17b.

NOTE: TOP is stamped on top side of gear. You may need to pull up on the pin-ring to allow enough room to install Restraint Gear.

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, but do not tighten. Reference Fig. 17c, Fig. 18, and Fig. 19.

Torque the Restraint Gear bolts to 30-34 ft.-lbs.

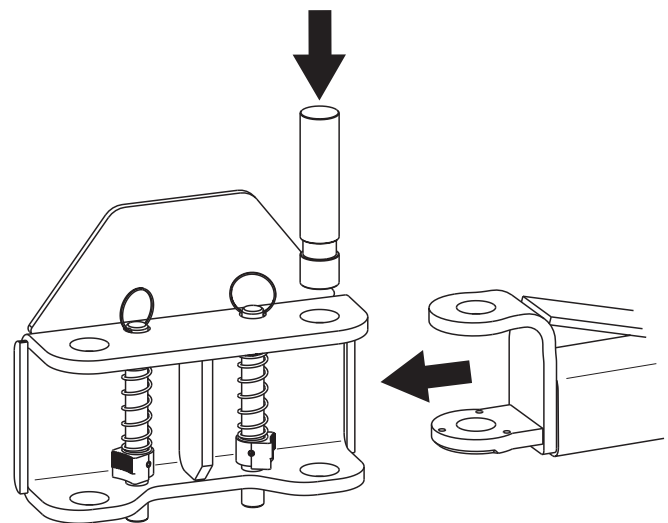
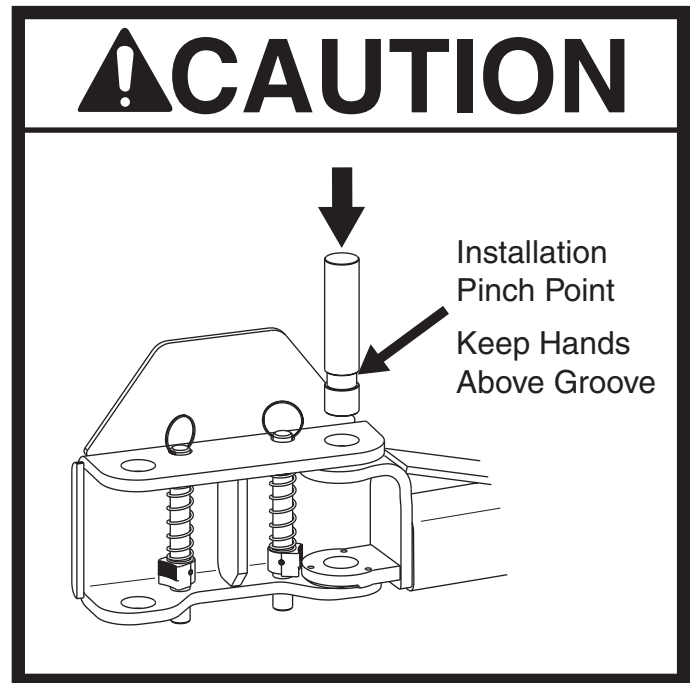


Fig. 17a

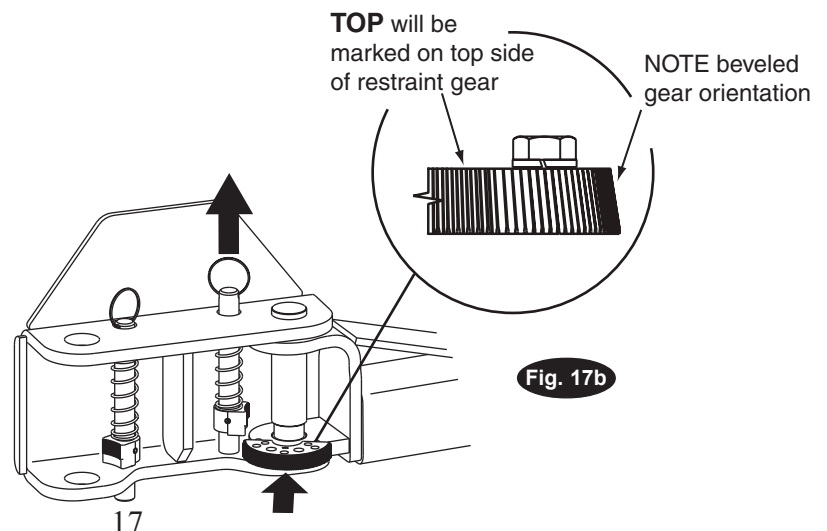


Fig. 17b

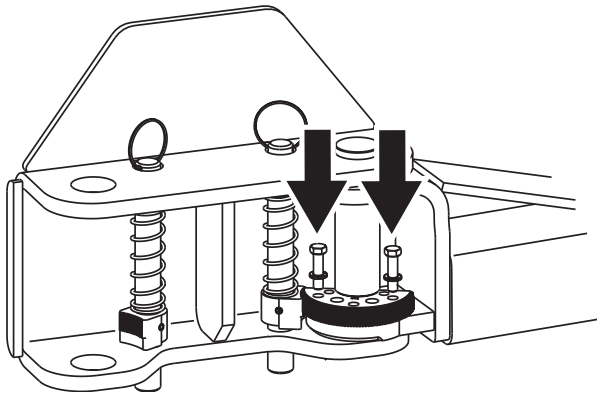


Fig. 17c

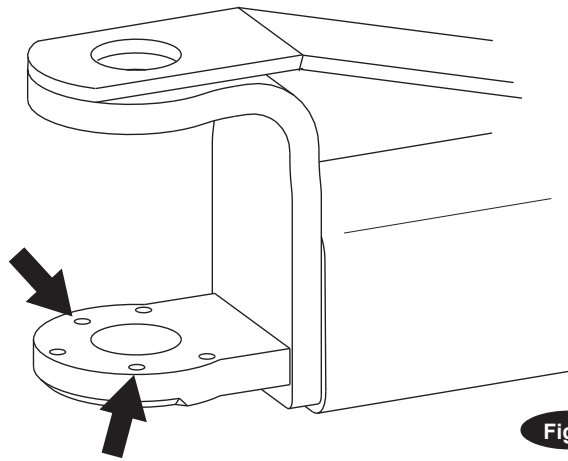


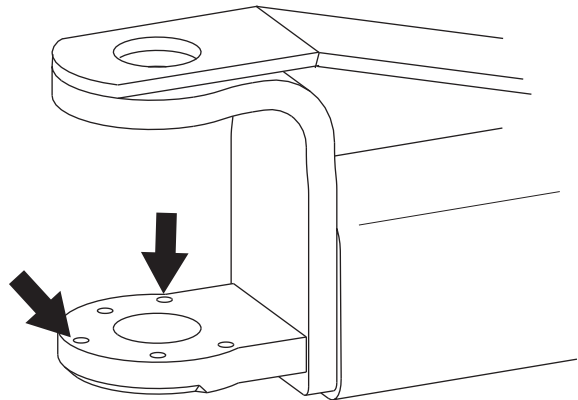
Fig. 18

DO NOT use holes marked with arrows.

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.

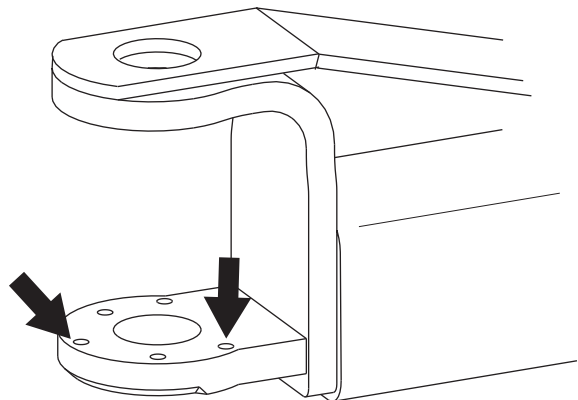
NOTE: Pin & Ring, Spring, & Gear Block are all preassembled.

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.



Use holes marked with arrow for Right Front and Left Rear.

Fig. 19



Use holes marked with arrow for Left Front and Right Rear.

18. Installation of Rack for Adapter Extensions:

Install racks as shown, Fig. 20, using 5/16"-18NC x 3/8" PHMS.

19. Door Bumper Installation:

- 1) Press long bumper on column edge, Fig. 21a.
- 2) Press short bumper on top edge of carriage tube, Fig. 21a.

20. Latch Cable Adjustment:

- A) Check to make sure the latch will properly engage and disengage. **Slowly** release the latch handle. A 1/8" gap between the top of the latch dog and the column is allowable.
- B) When raising, listen to latches to be sure that both latch dogs fall into latch slots. If they do not, loosen clamp and adjust tension as necessary.
- C) Install left latch cover using 5/16-18NC x 3/8" lg PHMS.

21. **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.

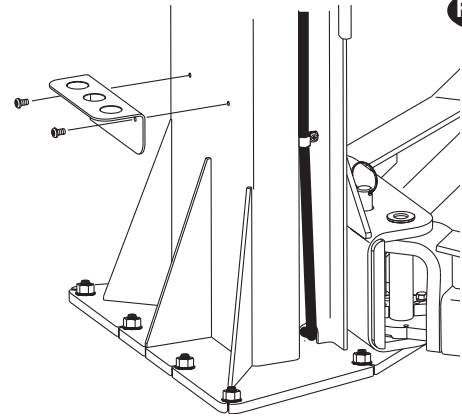


Fig. 20

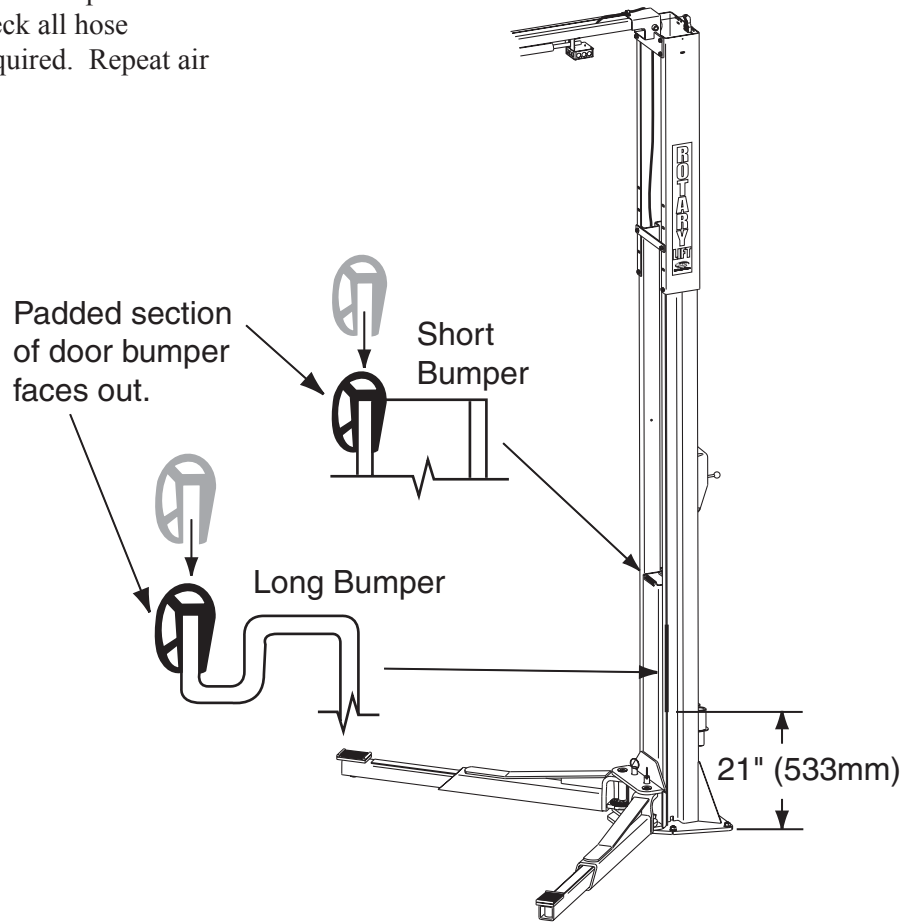


Fig. 21a

22. Equalizer Cable 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. 21b.

23. Latch Release Decal: Install latch release decal on cover above latch release handle, Fig. 22.

24. Pinch Point Decal Location: Install enclosed pinch point decals. Place (1) decal on each column, Fig. 23.

25. Wheel Spotting Dish: Position wheel spotting dish as illustrated in Fig. 1. 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

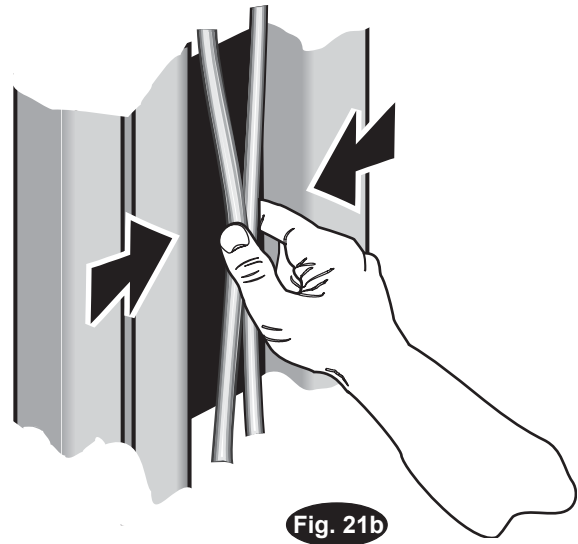


Fig. 21b

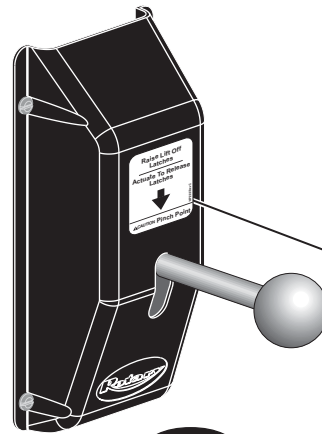
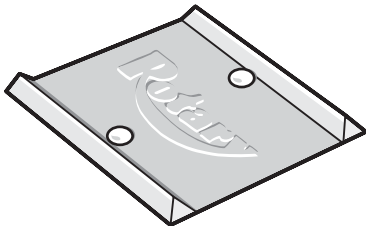
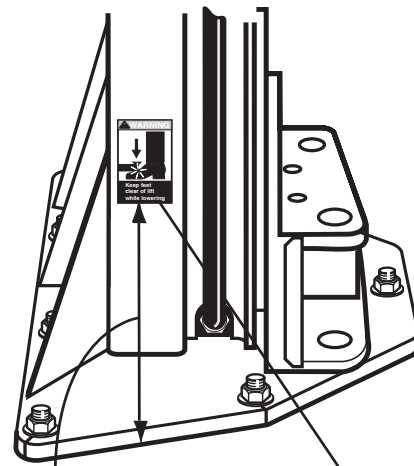
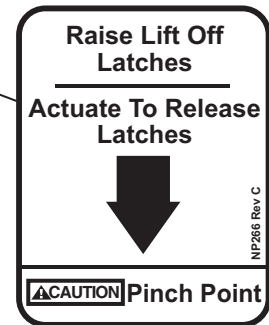


Fig. 22



Place WARNING decal a minimum of 8" from the bottom of the decal to the ground.

Fig. 23



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
11/04/03	-	New (500 Series) instructions. New Locking Latch Cable Routing, new arm pin, new restraint gears, new hose clamp attachment hardware.
04/07/04	A	Added Hummer and Sprinter lift models to this standard instruction.
05/05/04	B/C	Revisions not used.
05/05/04	D	Removed steel elbow from figures.
06/17/04	E	Made plan views/graphics easier to identify.
08/02/04	F	Updated 500 and 5W0 series tie bar graphics.
11/08/04	G	Added new actuator graphics and UL Verbiage.
1/13/05	H	Updated graphic on page 3 - Fig. 4 & 6.

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