



XA12

SURFACE, RECESS, AND FLUSH MOUNTED LIFT
(000 SERIES)

12000 lb. Capacity
(6000 lbs. per axle)



▲ IMPORTANT Reference ANSI/ALI ALIS,
Safety Requirements for
Installation and Service of Automotive Lifts
before installing lift.

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1) Determine lift location:

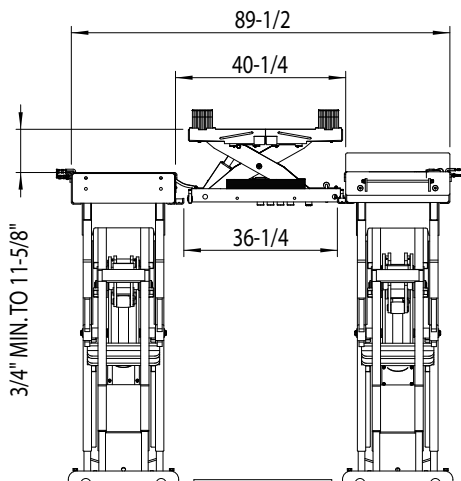
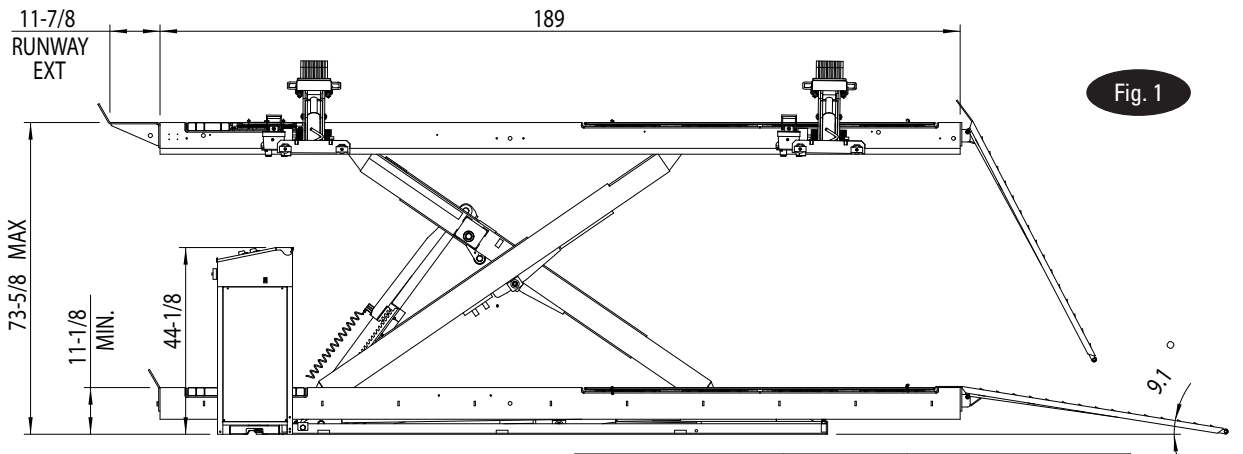
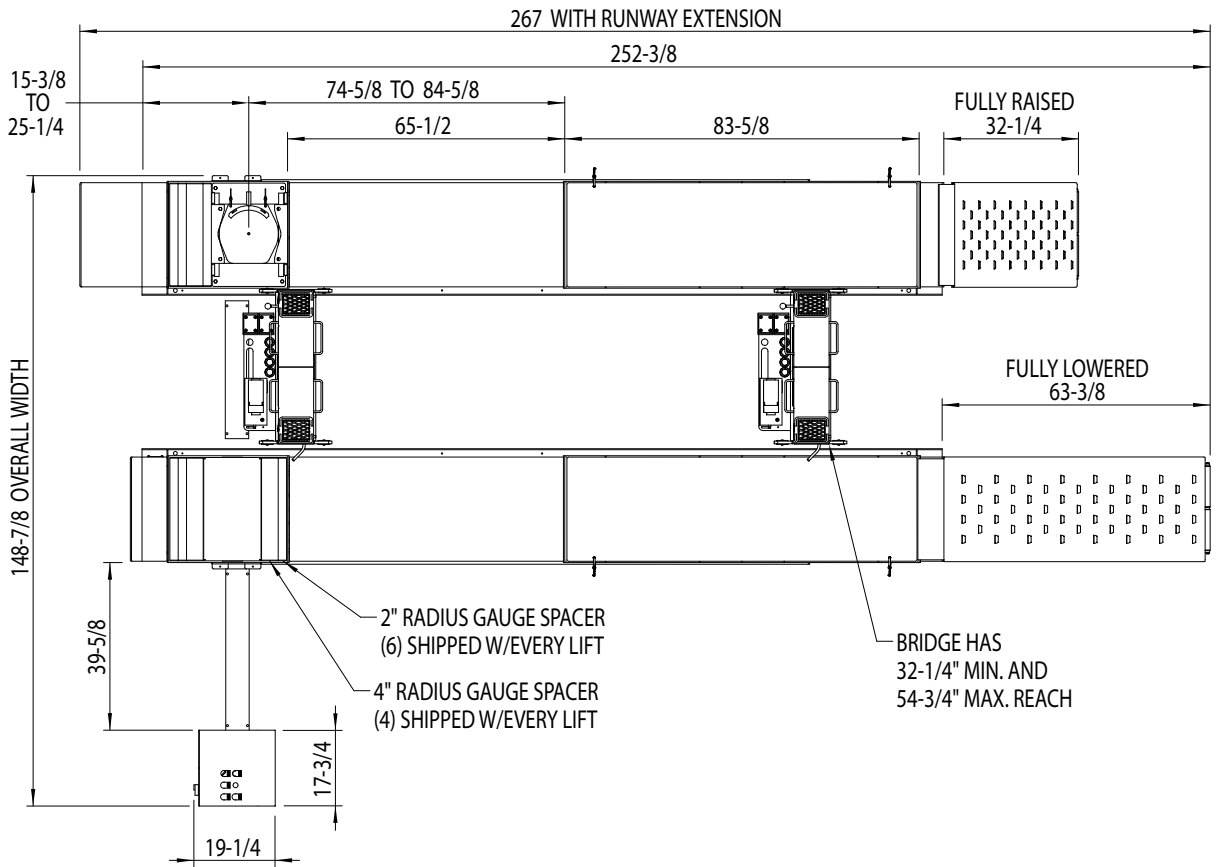
1. Confirm location of lift using architects plan, if available.
2. Review the lift specs, Fig. 1 through Fig. 3.

⚠ WARNING **DO NOT** install on asphalt or other unstable surfaces.

IMPORTANT A forklift will be needed for the installation of the lift. It should be rated to lift a minimum of 3,500 lbs. If you do not own a forklift or it is not rated to handle the specified weight you will need to rent one. This should be considered when estimating the cost of the installation.

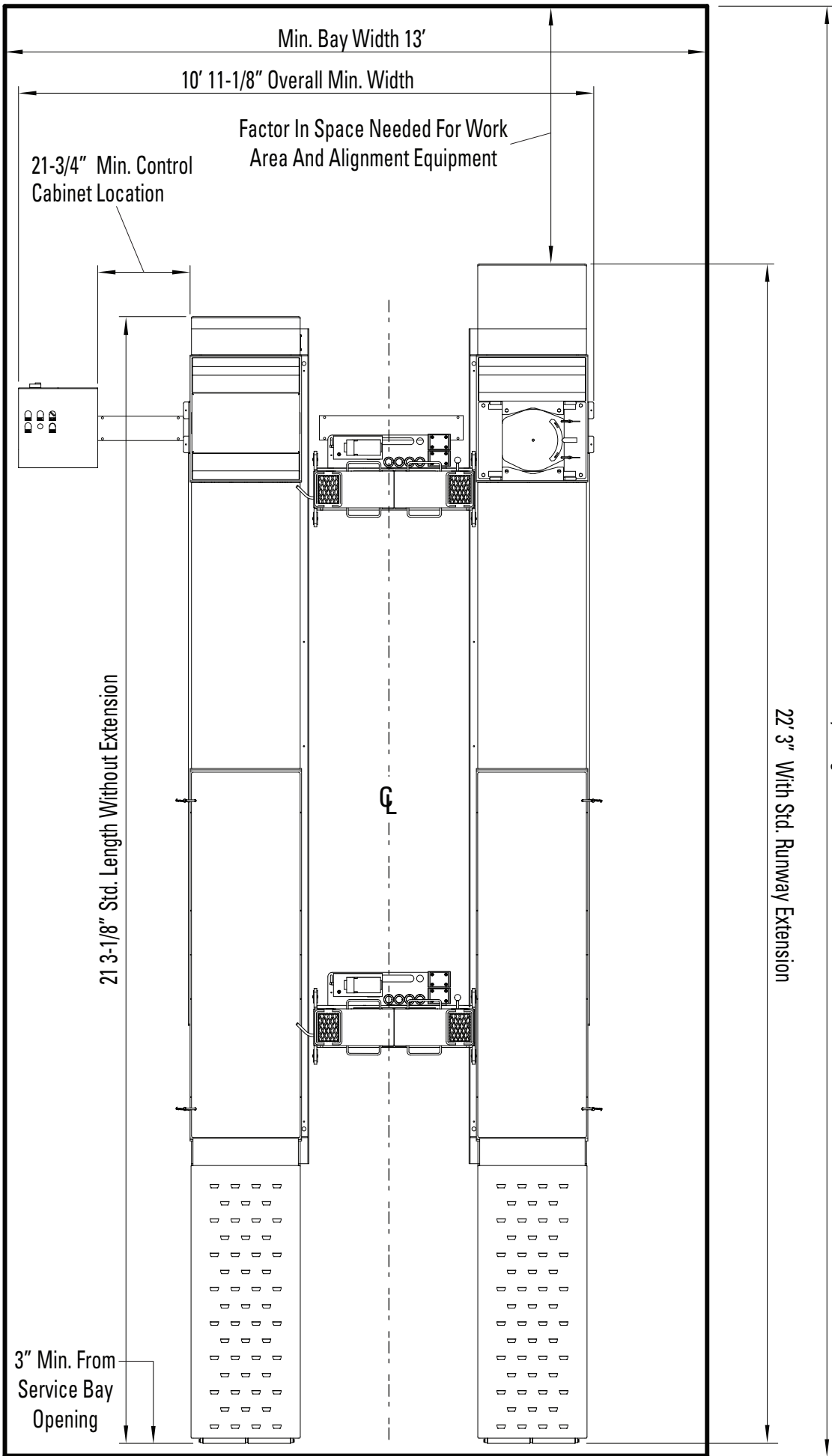
IMPORTANT **DO NOT** power lift with 120V power.

- Protect each circuit with a time delay fuse or circuit breaker per NEC and local codes.
- The ambient temperature must be between 14°F and 104°F (-10°C and +40°C).



SPECIFICATION	SURFACE MOUNT	FLUSH MOUNT
LOAD CAPACITY	12000LBS	
RISE TIME	61 SEC AT RATED CAPACITY	
LOWERING TIME	49 SEC AT RATED CAPACITY	
COLLAPSED HEIGHT	11-1/8"	-
RAISED HEIGHT	73-5/8"	62-1/2"
PLATFORM LENGTH	189"	189"
EXT PLATFORM LENGTH	200-3/4"	-
RAMP LENGTH	63-3/8"	-
OVERALL WIDTH	89-1/2"	
DISTANCE BETWEEN PLATFORMS	40-1/4"	
ALIGNMENT MIN/MAX	78" - 164"	
MOTOR RATING	4HP 1PH/208-230V/60HZ 30 AMP CIRCUIT 19 AMP DRAW	
CONTROL VOLTAGE	24V	
AIR SUPPLY	90-120 PSI	
WEIGHT, INCL PACKAGING	BASE UNIT 6100LBS	BASE UNIT 6000LBS
	CONTROL BOX 215LBS	
PACKAGE CUBE	BASE UNIT 193"x303"x47"	
	CONTROL BOX 45-3/4"x20-1/2"x25"	
MECHANICAL SAFETY LOCKS	AUTOMATIC, ALL POSITIONS	
MECHANICAL SAFETY RELEASE	AUTOMATIC, ALL POSITIONS	
HYDRAULIC SAFETY SYSTEM	AUTOMATIC, ALL POSITIONS	
CYLINDERS	ONE ON EACH SCISSOR	

Fig. 2



2) Layout Lift Base Locations in Service Bay:

1. Lay out lift base locations in service bay according to the steps in Fig. 3.

Use lift runway length and ramp option to determine locations of chalk lines, Fig. 2.

Fig. 3

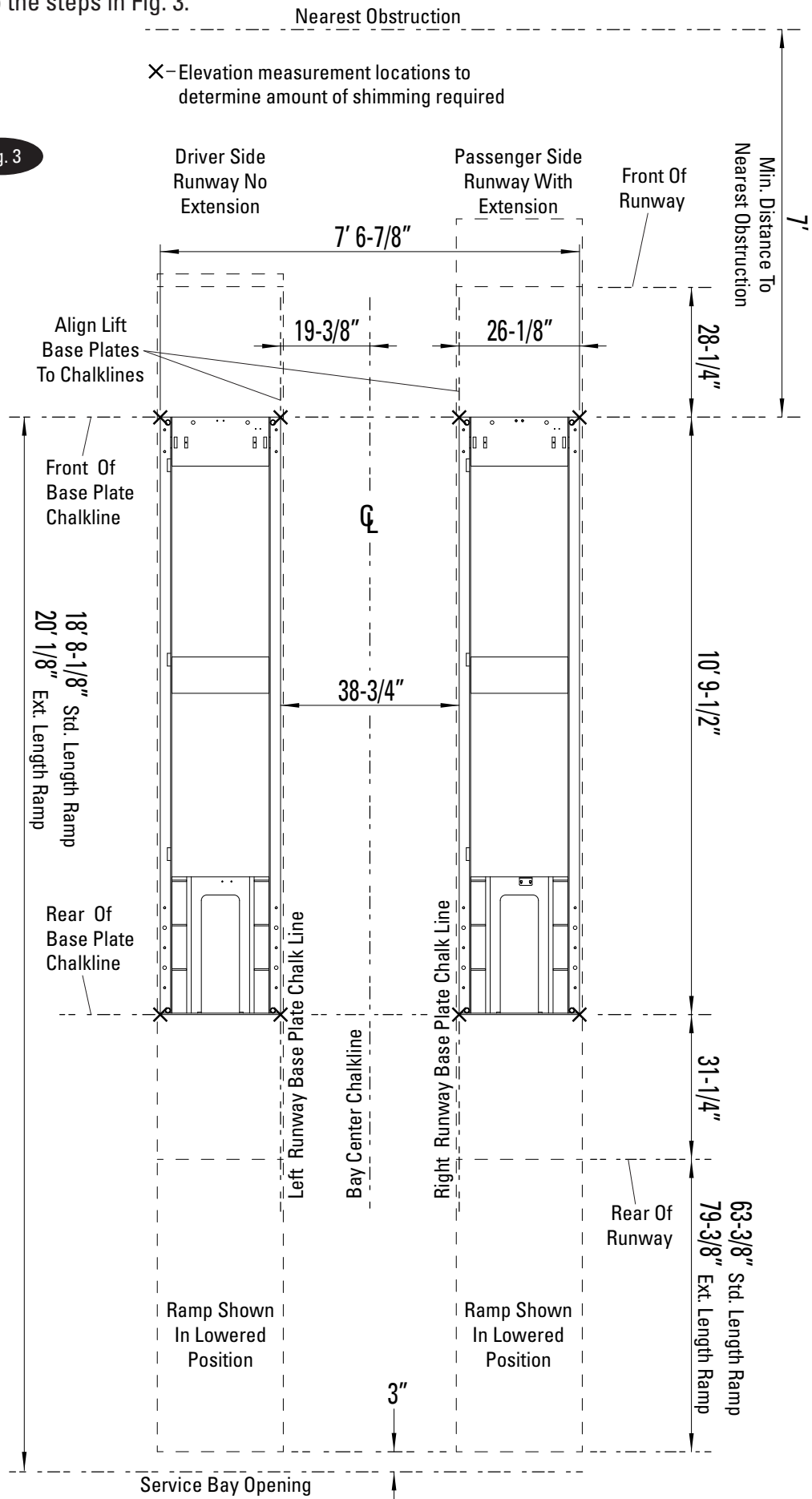
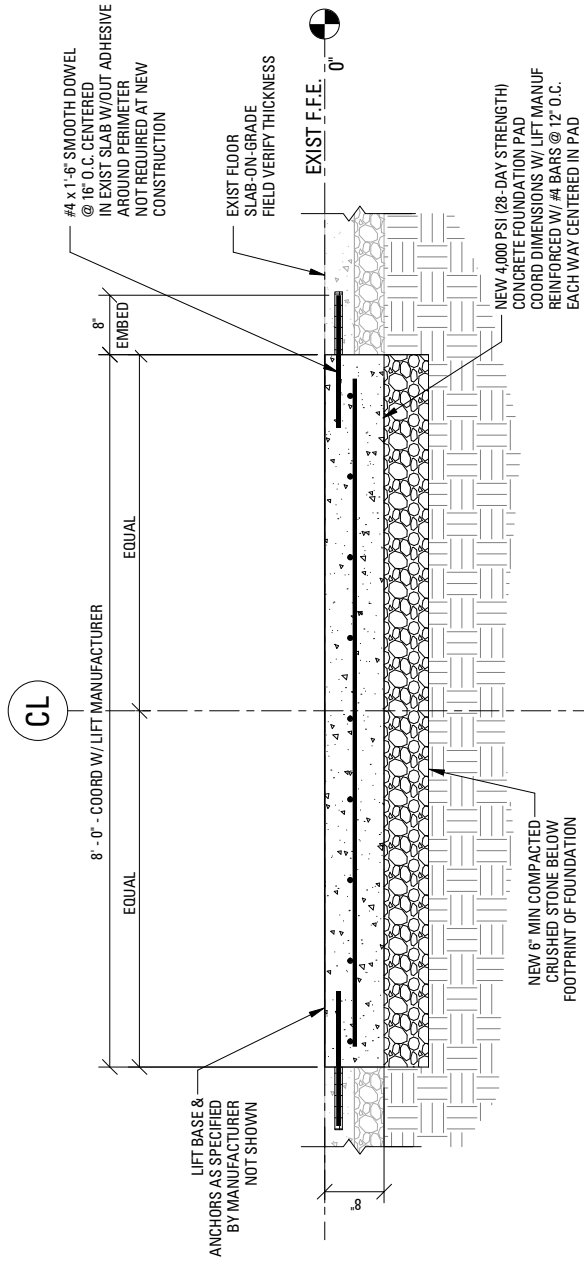


Fig. 4



2 SCISSOR LIFT (SURFACE MOUNTED) FOUNDATION SECTION

S-101 3/4" = 1'-0"

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 ALL NEW CONCRETE STRENGTH (PSI @ 28 DAYS) 4000 PSI NORMAL WEIGHT
2. REINFORCING STEEL - ASTM A615 GRADE #8
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.

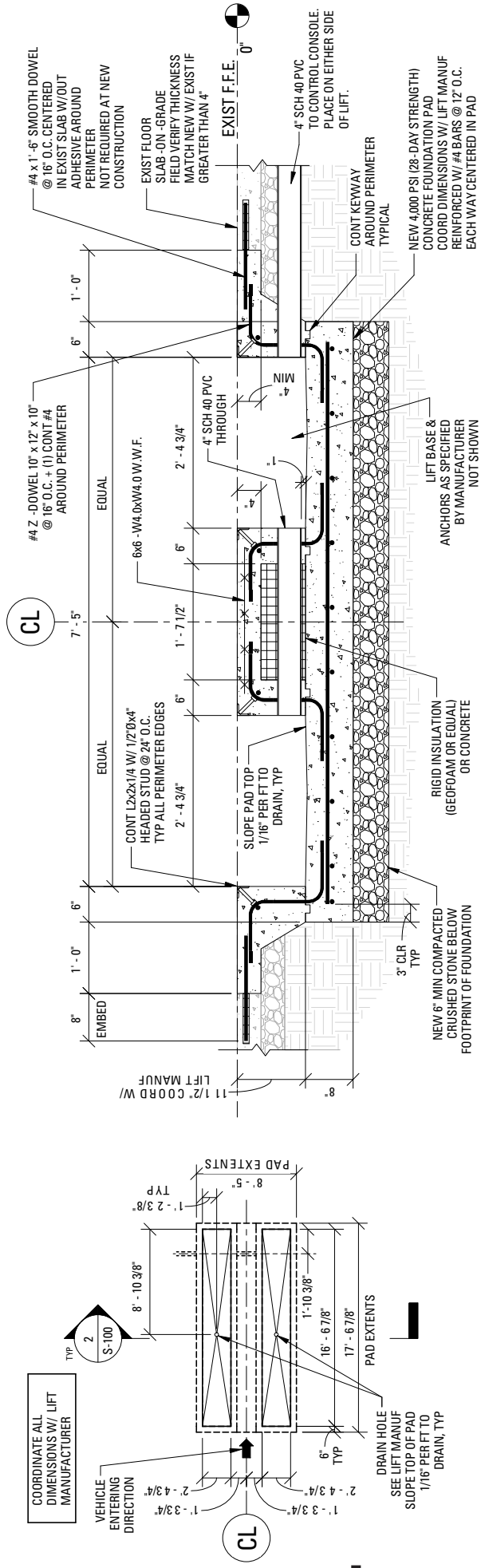
1 SCISSOR LIFT (SURFACE MOUNTED) FOUNDATION PLAN

S-101 1/8" = 1'-0"

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 SCISSOR 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.

XA12 Foundation/Concrete Requirements for Existing Flush Installation



1 SCISSOR LIFT (FLUSH INSTALL ON EXIST) PLAN 2 SCISSOR LIFT (FLUSH INSTALL ON EXIST) FOUNDATION SECTION

FOUNDATION NOTES:

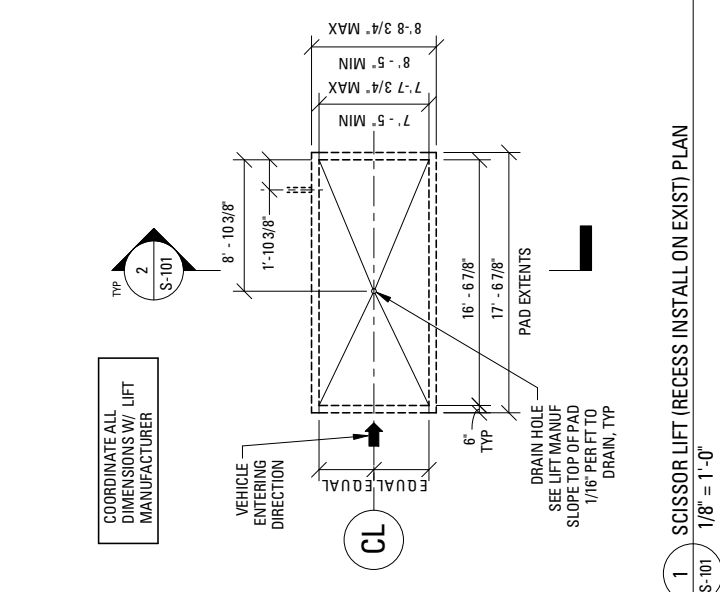
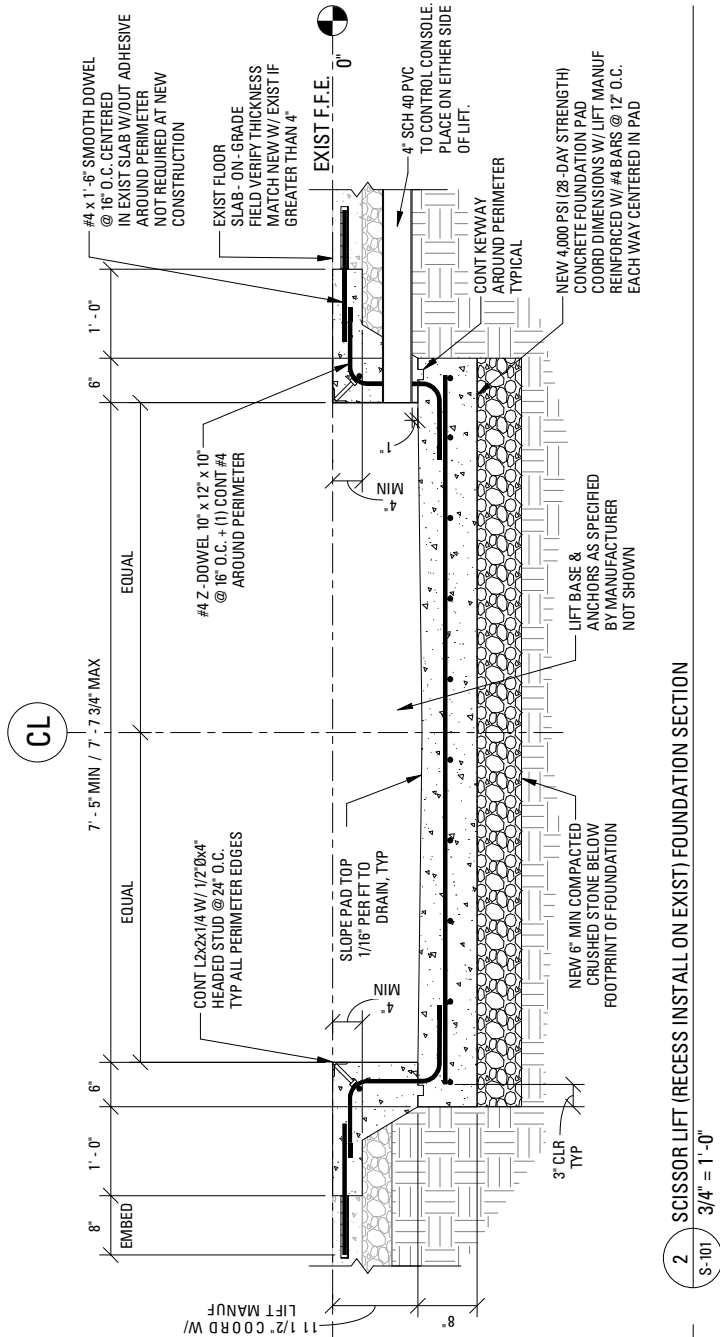
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3. PROTECT EXISTING UTILITIES AND STRUCTURES (OVERHEAD OR UNDERGROUND) WITHIN THE WORK AREA AS WELL AS ANY EXISTING FOUNDATION SYSTEM(S).
4. FOUNDATIONS WERE DESIGNED UTILIZING KBC SECTION 1605 - ALTERNATIVE BASIC LOAD COMBINATIONS* WITHOUT THE 1/3 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)
ALL NEW CONCRETE	4000 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.

XA12 Foundation/Concrete Requirements for Existing Recess Installation



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 ALL NEW CONCRETE..... STRENGTH (PSI @ 28 DAYS) 4000 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.

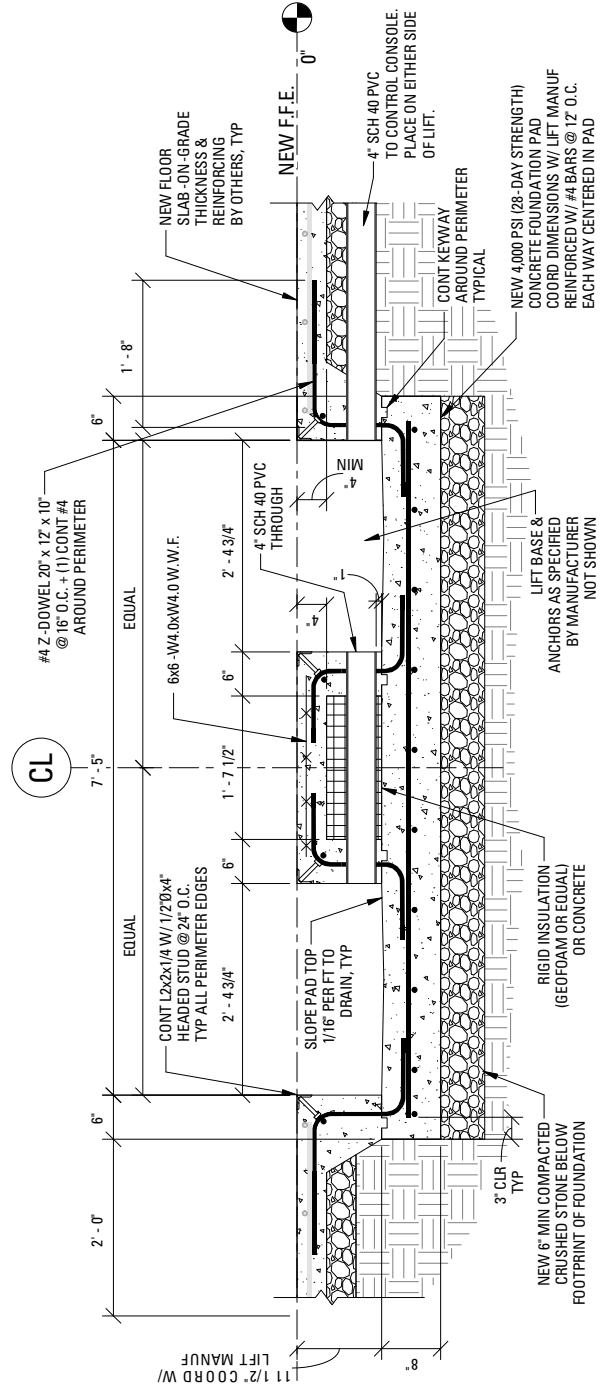
FOUNDATION NOTES:

1. THE FOUNDATIONS HAVE BEEN DESIGNED BASED ON A PRESUMPTIVE LOAD-BEARING VALUE OF 1600 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 SCISSOR 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.

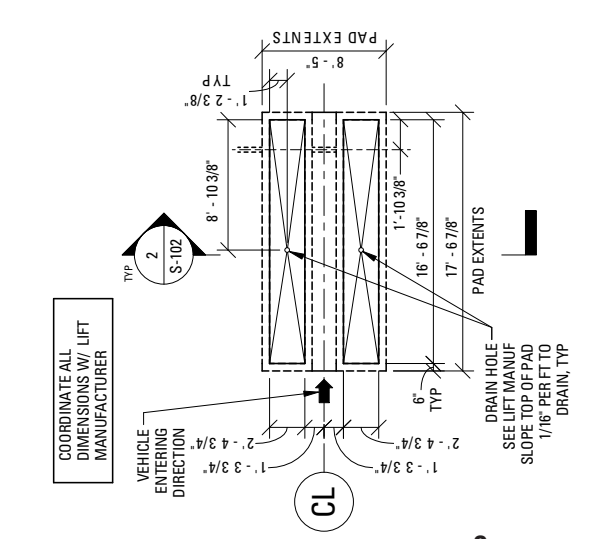
1 SCISSOR LIFT (RECESS INSTALL ON EXIST) FOUNDATION SECTION
 S-101 3/4" = 1'-0"

2 SCISSOR LIFT (RECESS INSTALL ON EXIST) PLAN
 S-101 1/8" = 1'-0"

XA12 Foundation/Concrete Requirements for New Flush Installation



1 SCISSOR LIFT (FLUSH NEW INSTALL) FOUNDATION SECTION
 S-102 1/8" = 1'-0"



2 SCISSOR LIFT (FLUSH NEW INSTALL) PLAN
 S-102 3/4" = 1'-0"

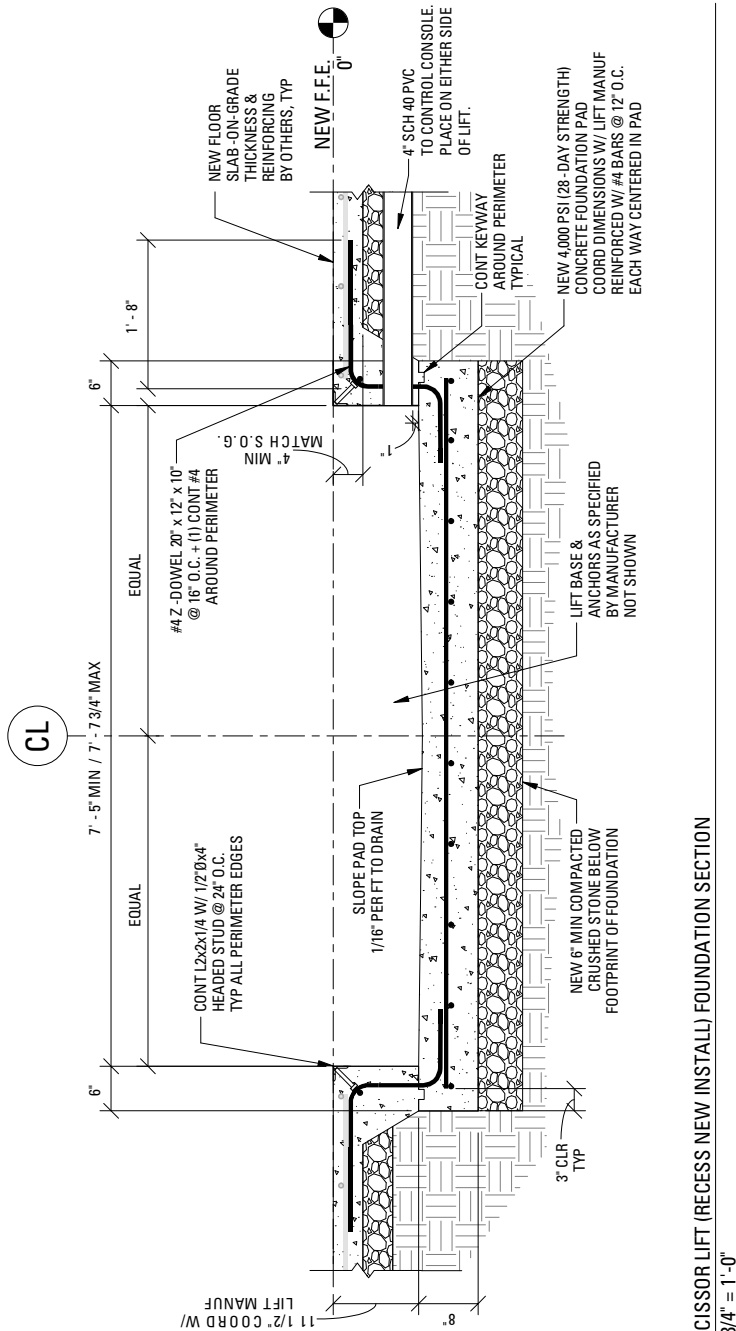
CONCRETE NOTES:

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 LOCATION STRENGTH (PSI @ 28 DAYS)
 ALL NEW CONCRETE..... 4000 PSI NORMAL WEIGHT
- REINFORCING STEEL - ASTM A615 GRADE 60
- FABRICATE AND PLACE REINFORCEMENT IN ACCORDANCE WITH ACI PUBLICATION SP-66, ACI DETAILING MANUAL - LATEST EDITION.
- PLACE CONCRETE IN COMPLIANCE WITH ACI 304. ALL CONCRETE SHALL BE MECHANICALLY VIBRATED.
- REINFORCING SUPPORT - ALL REINFORCING SHALL BE ADEQUATELY CHAIRED/BOLSTERED. LIFTING OR HOOK IS NOT PERMITTED.

FOUNDATION NOTES:

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- FOUNDATIONS SHALL BEAR ON PROPERLY PREPARED AND COMPACTED SOILS CAPABLE OF SUPPORTING SCISSOR LIFT LOADS.
- PROTECT EXISTING UTILITIES AND STRUCTURES (OVERHEAD OR UNDERGROUND) WITHIN THE WORK AREA AS WELL AS ANY EXISTING FOUNDATION SYSTEM(S).
- FOUNDATIONS WERE DESIGNED UTILIZING K8C SECTION 1605 - ALTERNATIVE BASIC LOAD COMBINATIONS WITHOUT THE 1/3 INCREASE IN THE ALLOWABLE BEARING PRESSURES DUE TO SHORT-TERM LOADING.
- 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.

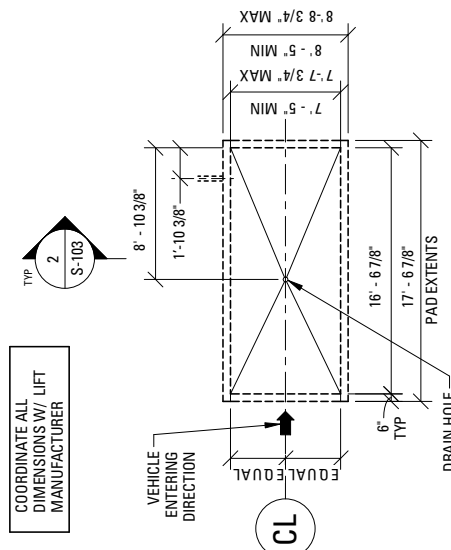
XA12 Foundation/Concrete Requirements for New Recess Installation



FOUNDATION NOTES:

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2 SCISSOR LIFT (RECESS NEW INSTALL) FOUNDATION SECTION
S-103 3/4" = 1'-0"



1 SCISSOR LIFT (RECESS NEW INSTALL) PLAN
S-103 1/8" = 1'-0"

CONCRETE NOTES:

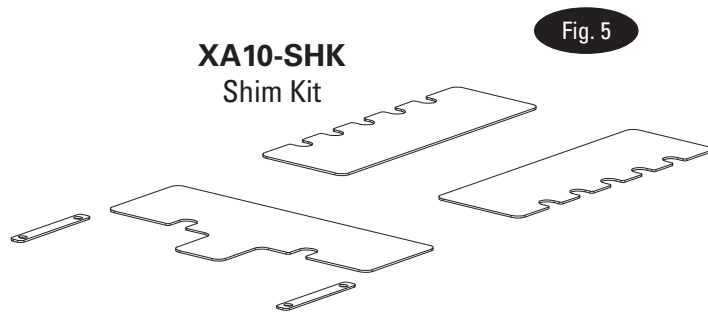
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3) Estimating Base Plate Shim requirements:

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

1. Mark locations where base will be positioned in bay, see Fig. 3 for reference.
2. Place targets on floor at base corners and record elevation.
3. Find the highest of the eight locations. Find the difference between the elevations at each of the remaining base corners.
4. The difference is the estimated amount of shim thickness needed at each end of the bases.

ATTENTION **Note:** Maximum shim thickness is 1/2" per base plate using shims and anchors provided with lift, Fig. 5. Contact your authorized Rotary Parts Distributor for ordering information.



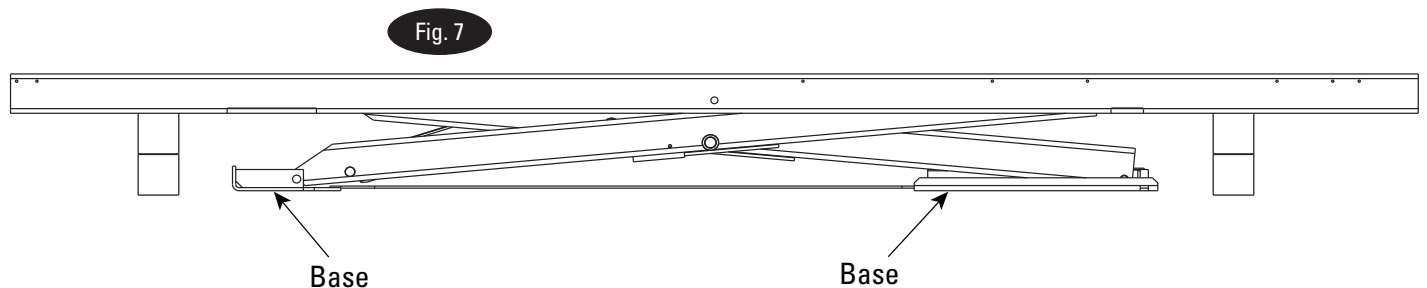
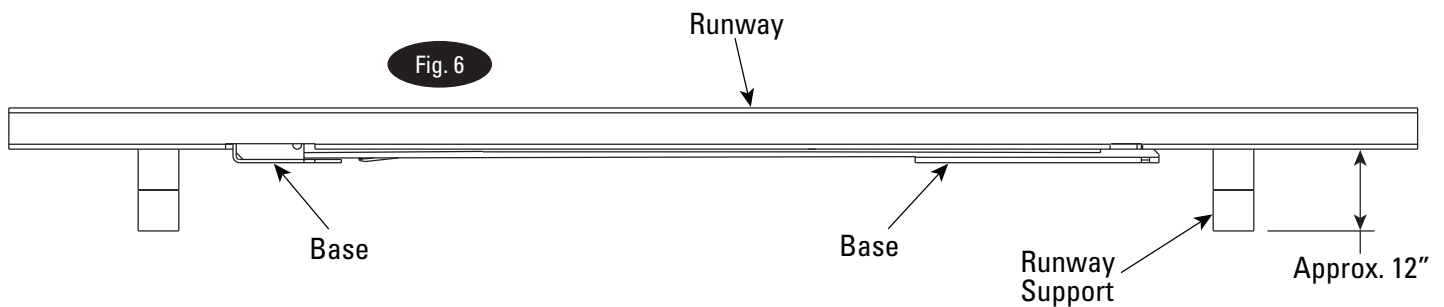
4) Place Runways in Service Bay at Approximate Location:

1. Determine left and right runways. Use a forklift to move runways into service bay. Place in their approximate location using the chalk lines as shown in Fig. 3.
 2. Allow access to lift base & runway. Place each runway on supports approximately 12" tall as shown in Fig. 6.
 3. Verify distance between runways accordingly. **RJ6100 40 1/4"**. (Can be adjusted again after unpackaging.)
 4. Carefully remove the packaging holding the base in place. Lower the base to the floor with the aid of a forklift or crane as shown in Fig. 7.
5. Adjust runway positions so base lines up with chalk lines, reference Fig. 3.

CAUTION Stay clear of legs when unpackaging and lowering.

CAUTION **DO NOT** pick up runways by placing the forks under the legs of the lift! **DO NOT** pick up runways from end.

CAUTION: **DO NOT** drop runways even from a short distance! Dropping runways may damage the components of the runway. They should be placed on the floor and pushed or pulled into position.



5) Hydraulic Hose Connections

1. The control console can be set up to the right or the left of the scissor lift platform.

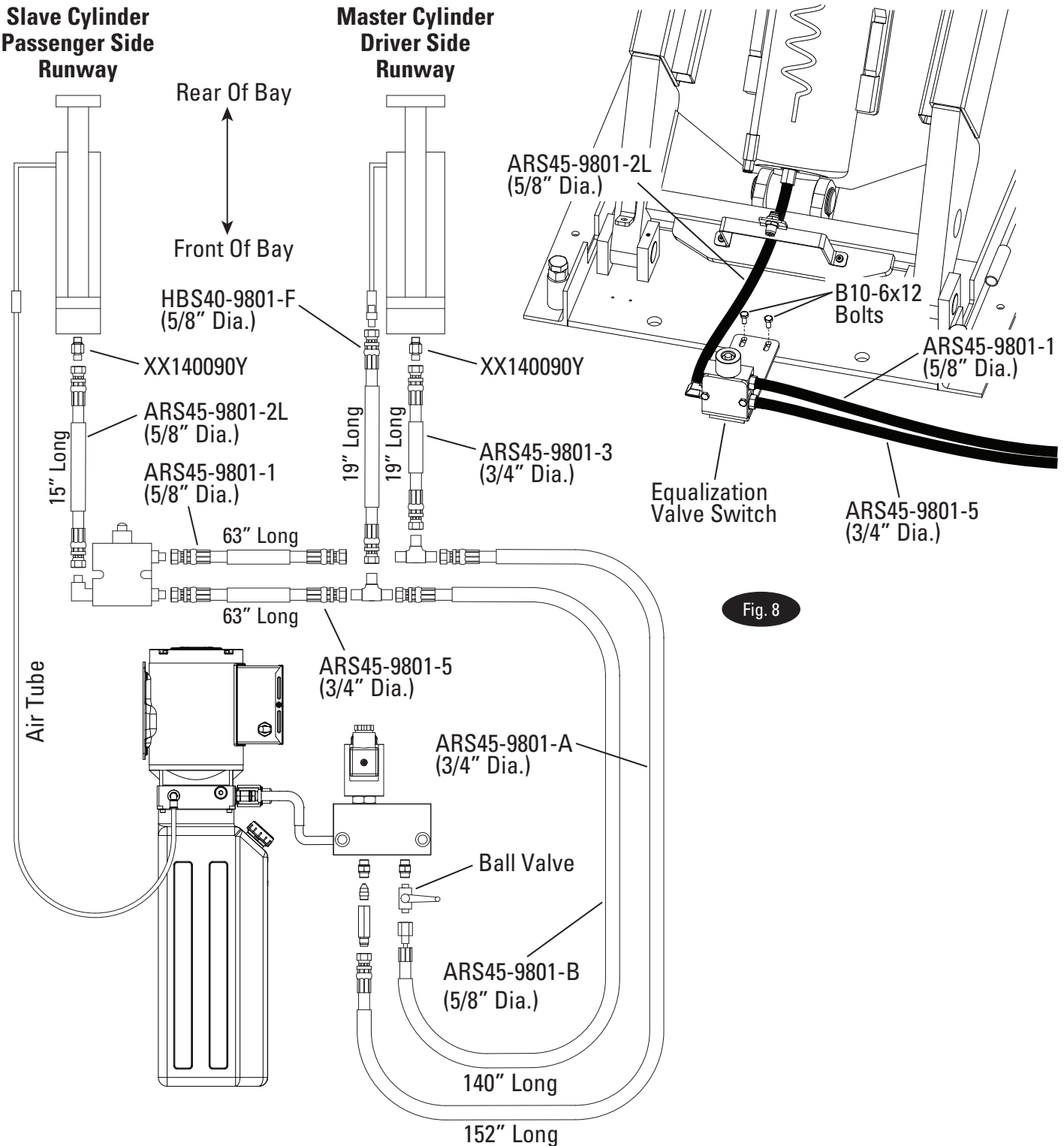
Note: Hoses were installed at the factory for a left hand installation. If you prefer a right hand installation, the hoses will need to be swapped.

2. Place the control console in position as shown in Fig 2.

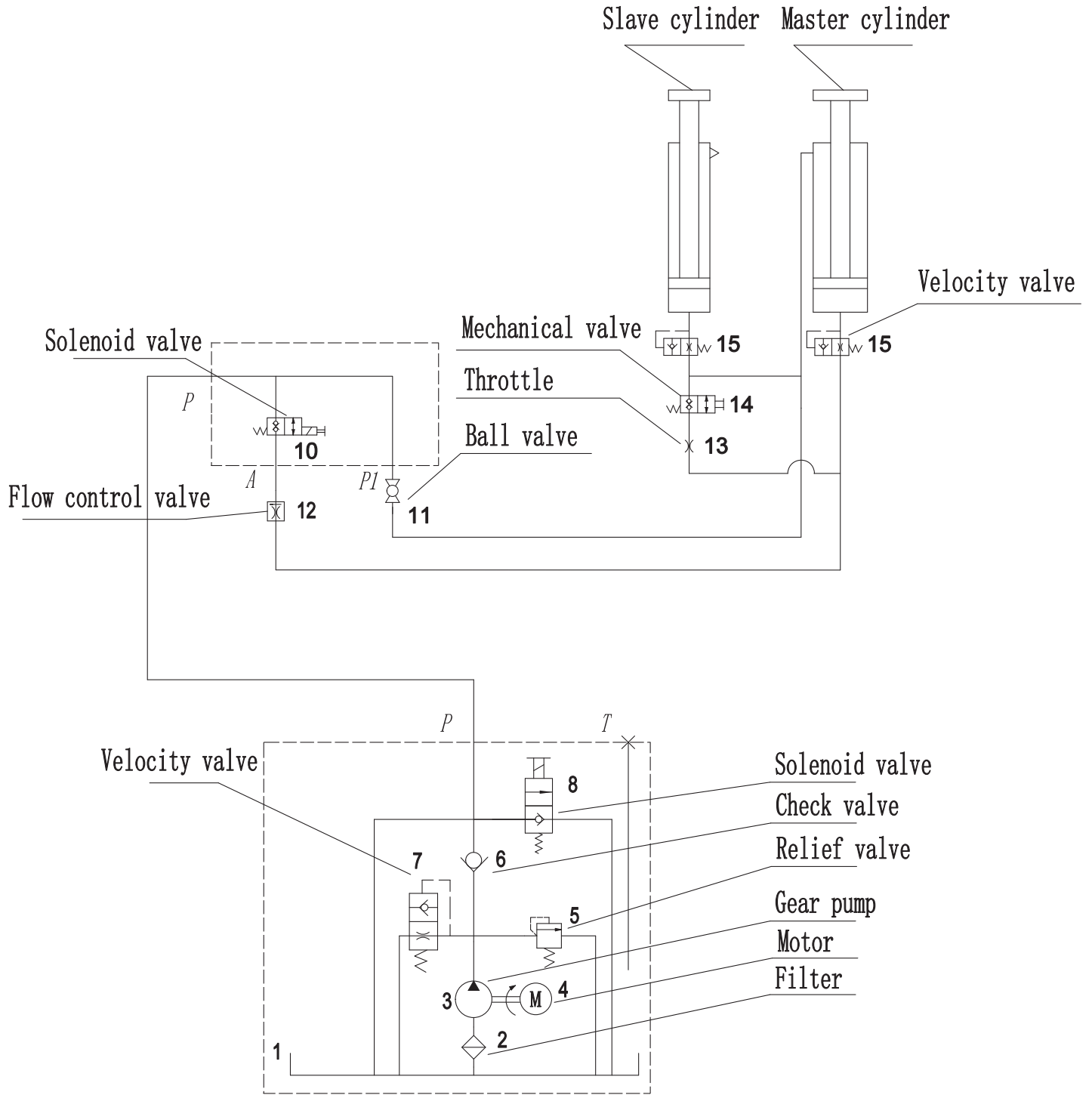
IMPORTANT DO NOT anchor the control cabinet to the floor at this time.

IMPORTANT Locate control cabinet so that the back cover can be accessed.

3. Mount equalization valve switch to slave side base, Fig. 8.
4. Attach hoses as shown below in Fig. 8.
5. Remove the fill cap and fill the hydraulic power unit reservoir to the upper line on the tank with Dexron III ATF or ISO 32 hydraulic oil per the specifications.



HYDRAULIC SCHEMATIC



6) Electrical Installation

1. A certified electrician should install the electrical service to the control cabinet, Fig. 9.

IMPORTANT A full electrical schematic is also provided in the parts breakdown manual. Use a separate circuit for each power supply. Consult NEC and local codes.

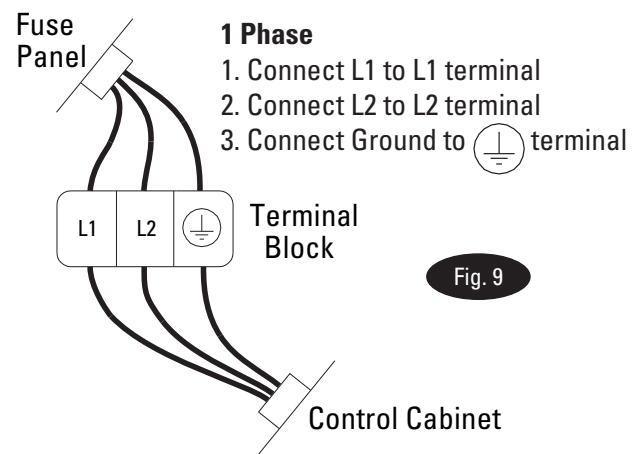


Fig. 9

7) Runway Wire Connections

1. Connect top limit switch wire connections 11/12, Fig. 10.

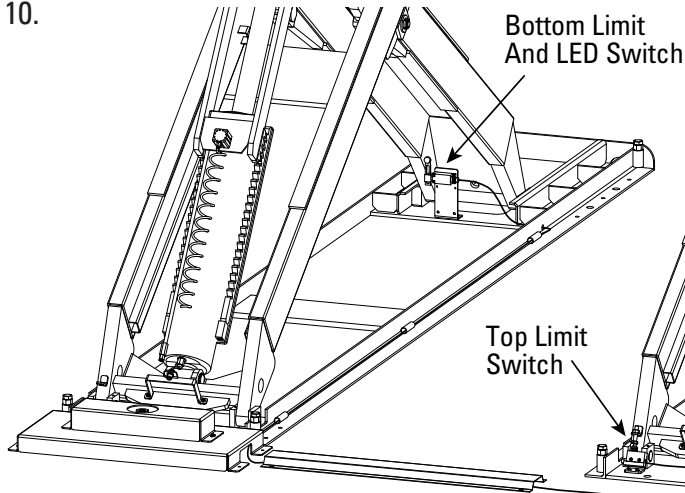


Fig. 10

2. Connect bottom limit switch and LED light wires 16/17, Fig. 11.

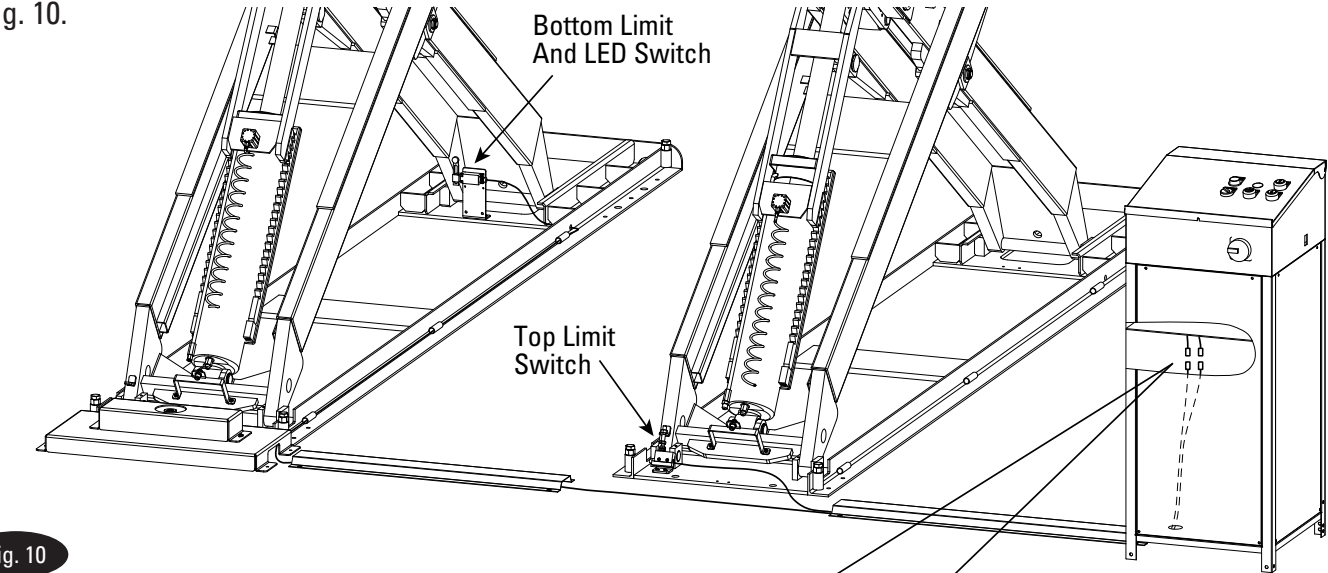
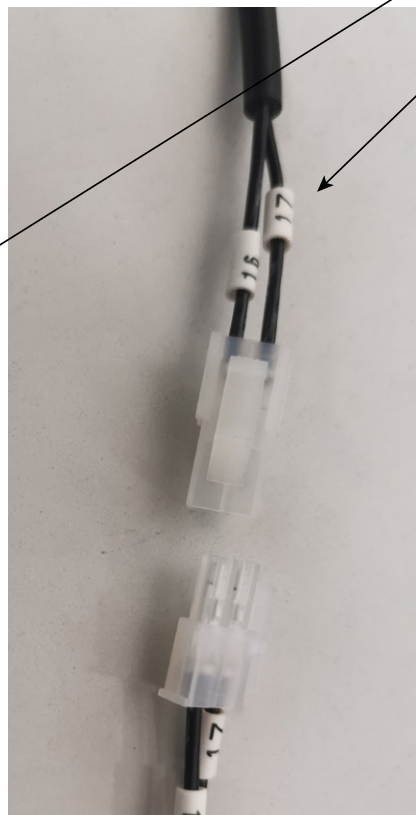
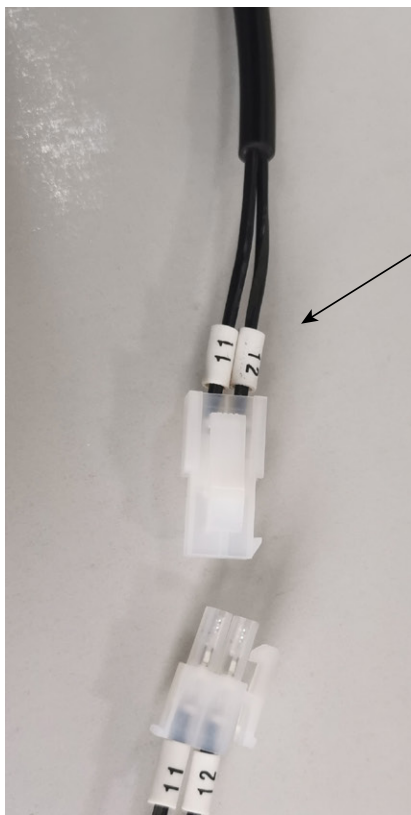
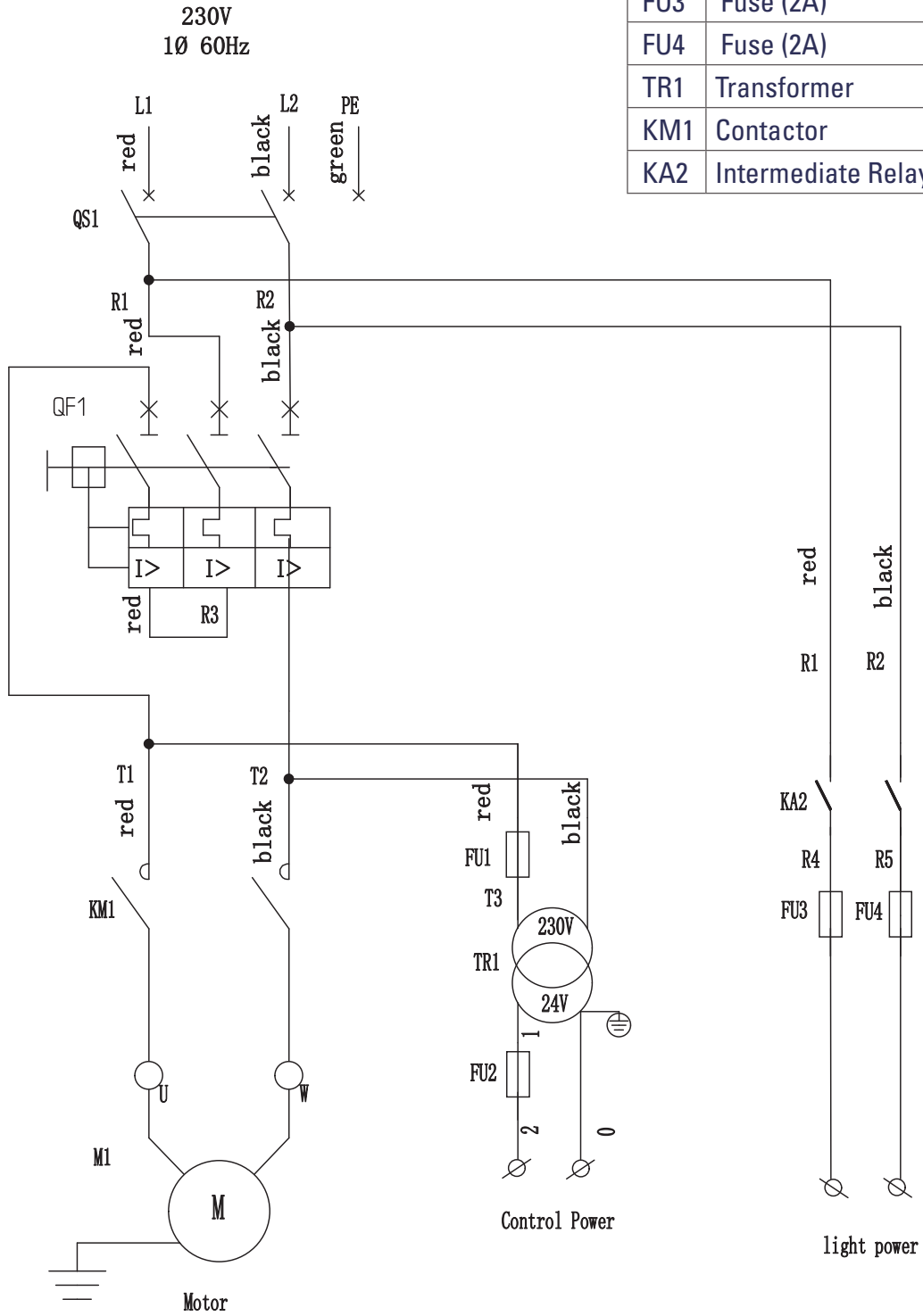


Fig. 11



ELECTRICAL SCHEMATIC

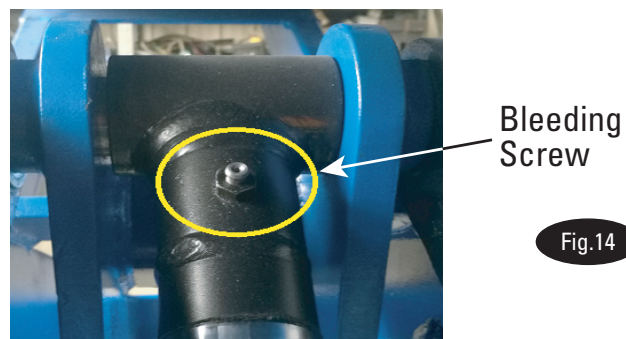
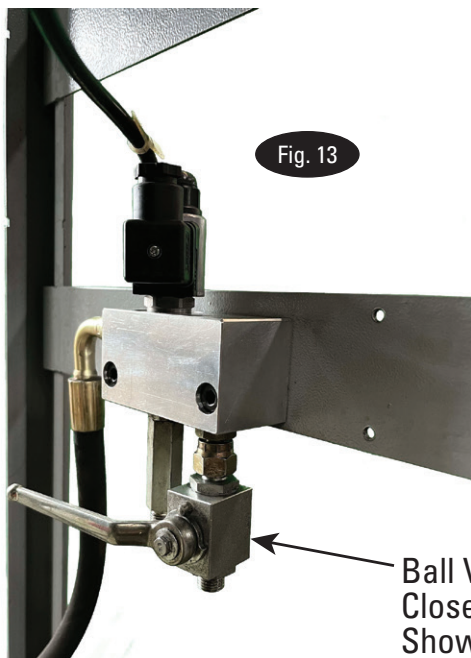
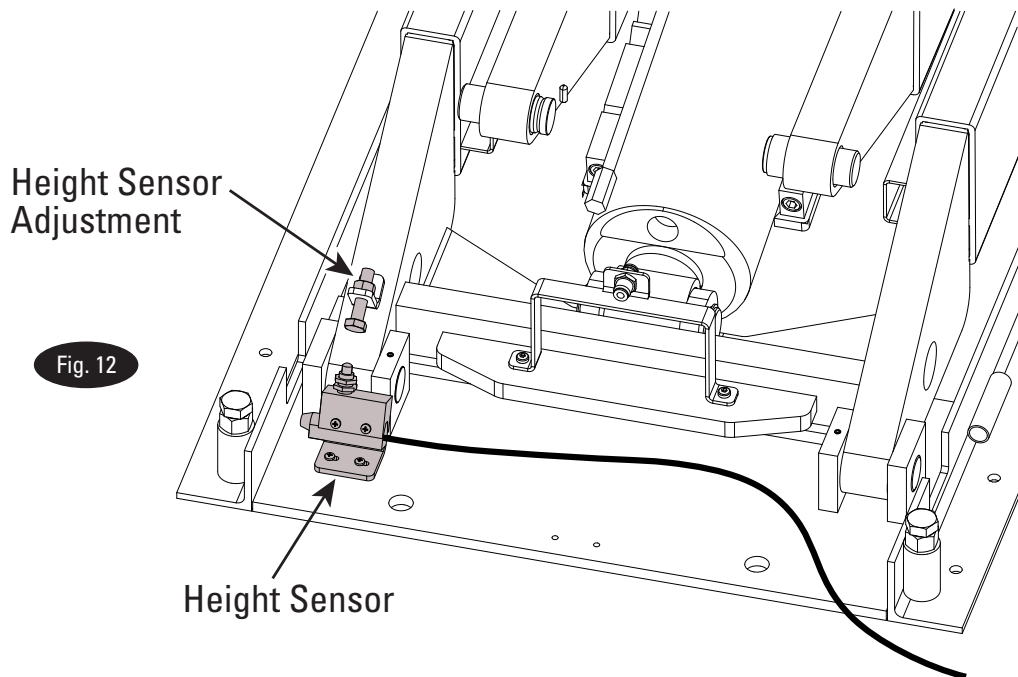
QS1	Power switch
QF1	Motor starter
FU1	Fuse (2A)
FU2	Fuse (5A)
FU3	Fuse (2A)
FU4	Fuse (2A)
TR1	Transformer
KM1	Contactor
KA2	Intermediate Relay



8) First Start and Bleeding

ATTENTION Ensure height sensor at the bottom of driver side base is adjusted so runway can raise to full rise, Fig. 12.

1. Turn disconnect switch to the **ON** position.
2. Hold the **UP** button for 2-3 seconds.
3. Rotate the ball valve lever to the open position, Fig. 13.
4. Press the **UP** button until both primary platforms rise to the highest position.
5. Use bleeding screw located on slave cylinder, Fig. 14, to remove air from the cylinder and system.
6. After bleeding, press the **UP** button to return the platforms to the highest position.
7. Rotate the ball valve to the closed position, Fig. 13.
8. Press the **DOWN** button to lower the platforms to the ground.
9. Repeat the process to ensure all air has been removed from the system.
10. Raise lift up and down several times to verify the top of the runways stay level.

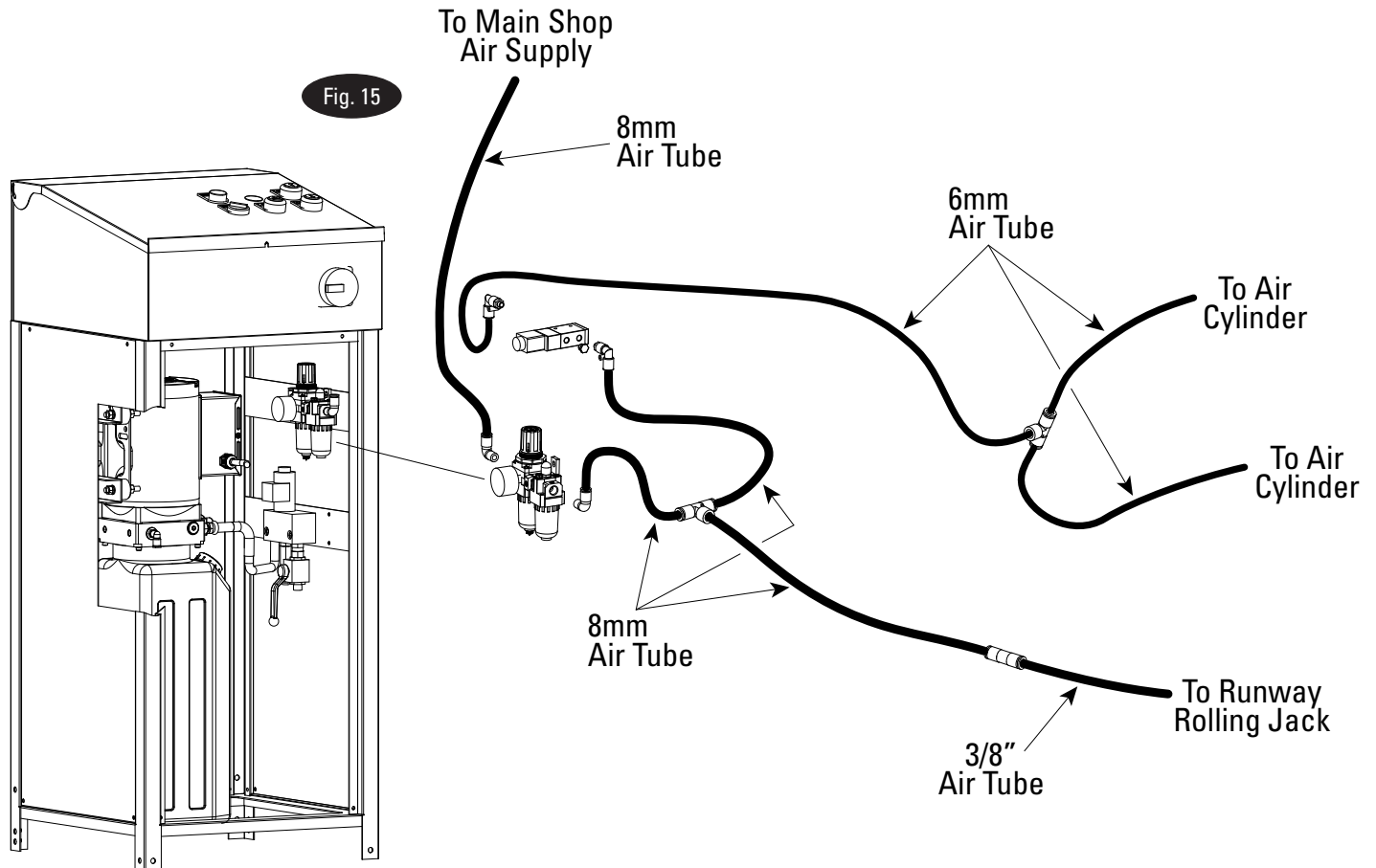


9) Airline Connections

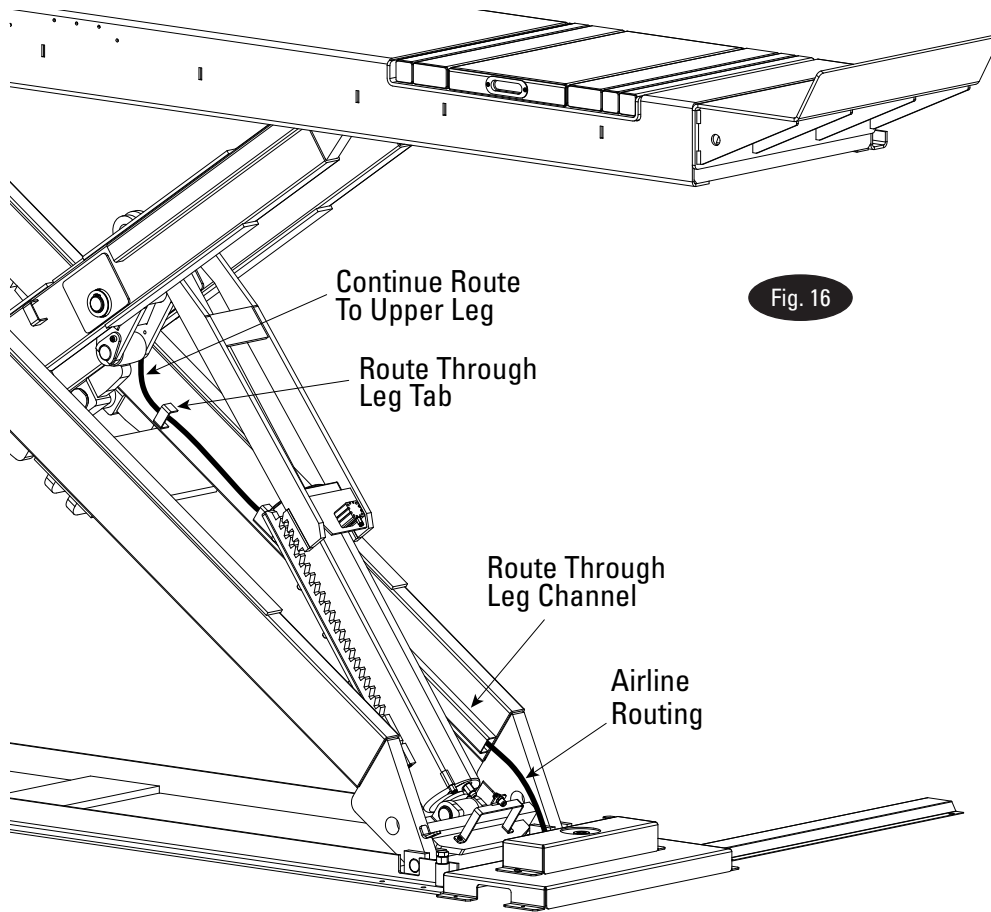
IMPORTANT The air supplied to the lift must be properly filtered, lubricated and regulated to ensure the longevity and reliability of the lift. If shop air doesn't have a common filter, regulator, and lubricator unit, they can be supplied by the manufacturer on request. Air supply must be 90-120 psi.

CAUTION Connect lift to shop air system only when platforms have been raised to top position to prevent mechanical locks from disengaging unintentionally.

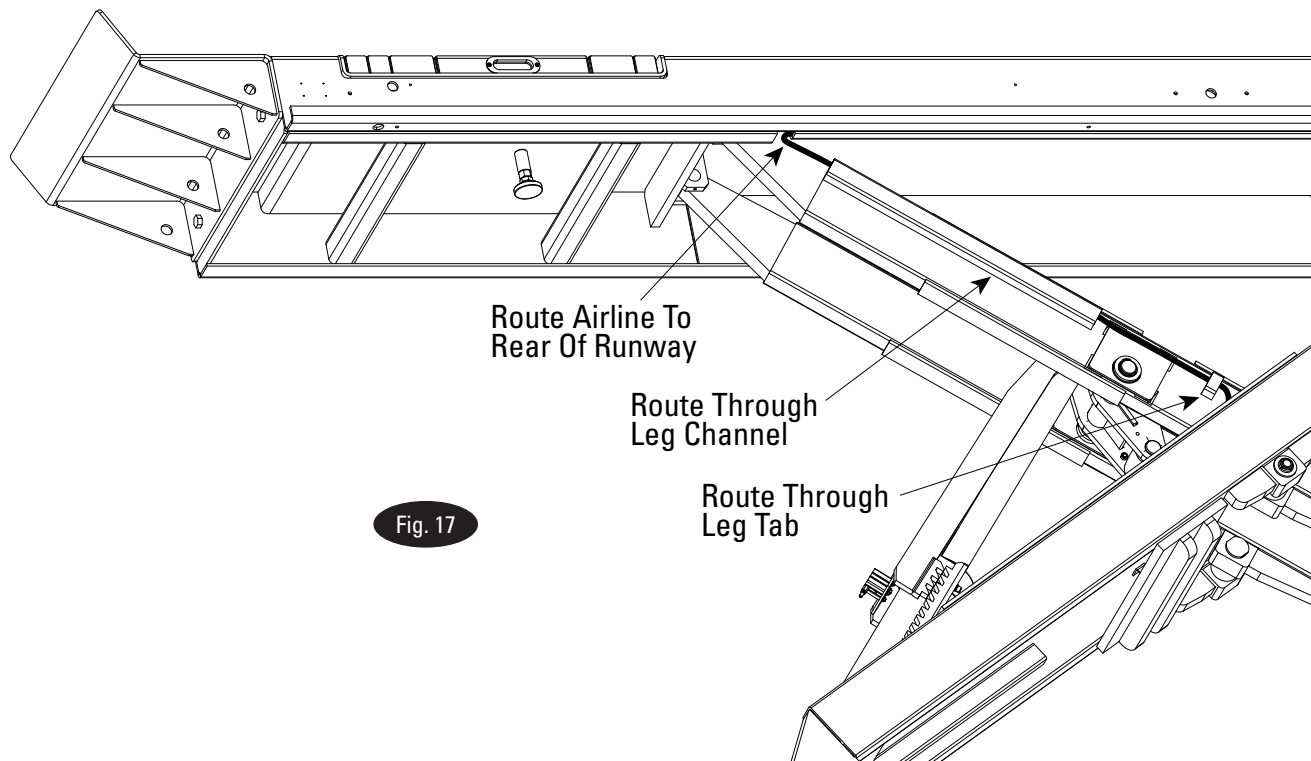
1. Fully raise lift.
2. Connect the pneumatic lines to the FRL located in the control console as shown, Fig. 15.



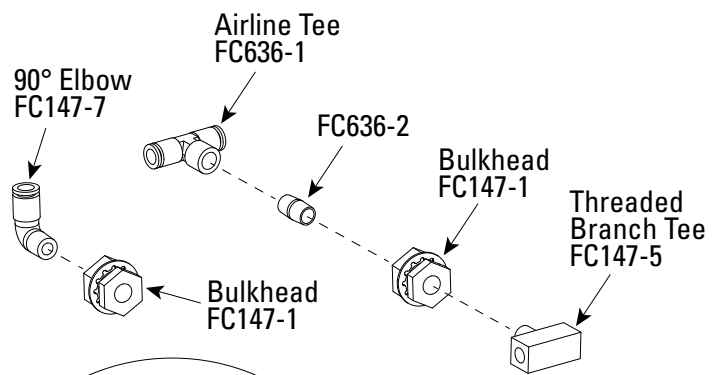
3. Route airlines through lower leg channel as shown, Fig. 16.



4. Route airlines through upper leg channel as shown, Fig. 17.



5. Route airlines through runway channel as shown, Fig. 18.
6. Route airline to "T" fitting and continue routing to 90° elbow located at rear of lift as shown, Fig. 18.
7. Verify all air controls are operational.



Route Airline To 90° Elbow

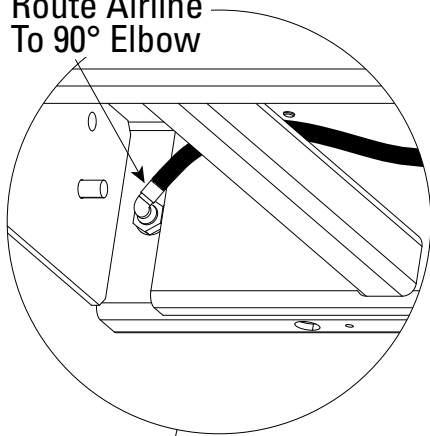
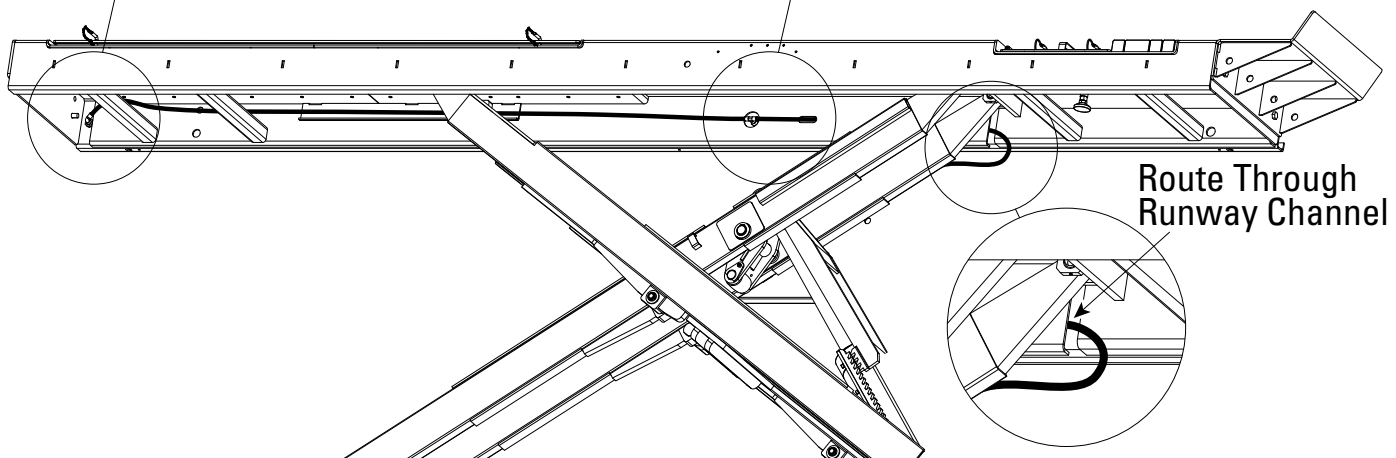
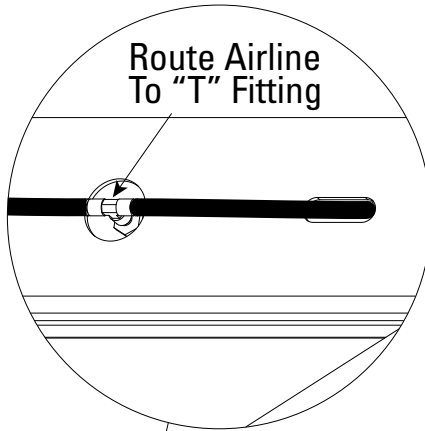


Fig. 18

Route Airline To "T" Fitting



Route Through Runway Channel

10) Final Position of Lift to Chalk Lines

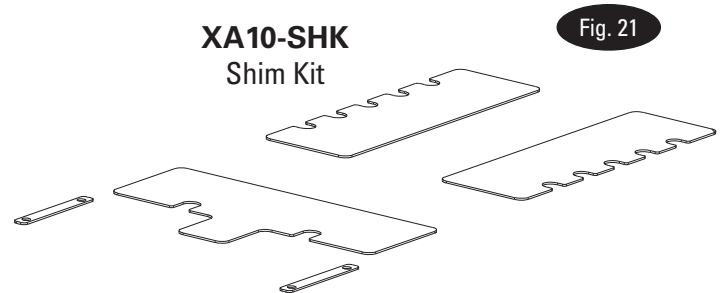
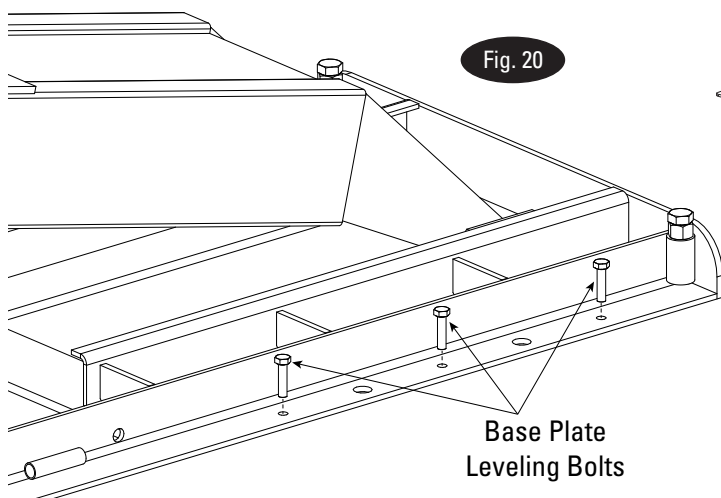
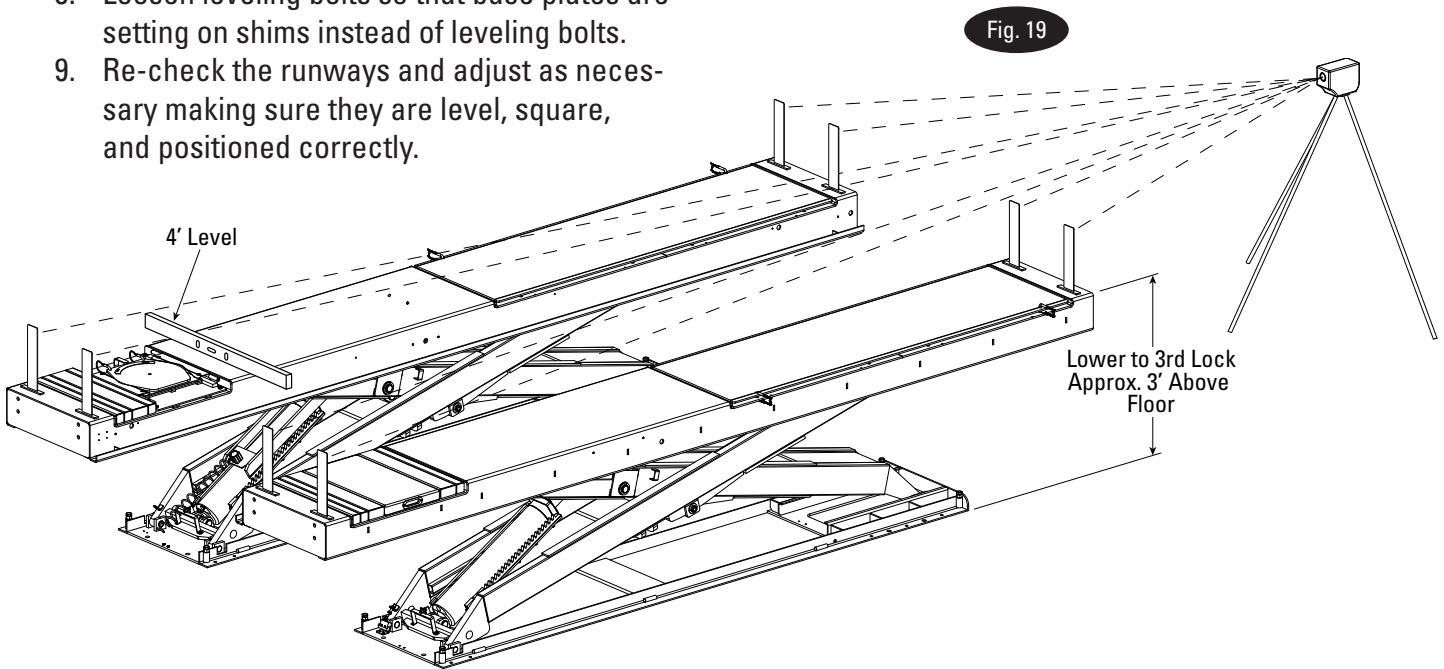
1. Adjust runways so baseplate edges line up with floor chalk lines, Fig. 3.
2. Verify distance between runways are correct and square. Runway spacing distance of 40 1/4" when using rolling jack **RJ6100**.

11) Level Base and Runways

1. Level runways at third lock, about 3' from the ground, as shown in Fig. 19.
2. Insert the provided bolts into the base plates to be used as leveling bolts, Fig. 20.
3. Level the runways by adjusting the leveling bolts, keeping the top of base plates level.
4. First, level back of each runway using a 4' level. Level high side first.
5. Second, level front of each runway using a 4' level, Fig. 19.
6. Finally, level locations shown in Fig. 19 using a laser or transit system with targets.
7. Once the runways are level, fill the gap under the base plates with shims, Fig. 21.
8. Loosen leveling bolts so that base plates are setting on shims instead of leveling bolts.
9. Re-check the runways and adjust as necessary making sure they are level, square, and positioned correctly.

IMPORTANT If the lift needs to be shimmed greater than $\frac{1}{2}$ " , either optional full base plate shims or grout must be used instead of the supplied shims. A 6,000 psi or greater compressive strength grout must be used. Base Plate Shim Kit XA10-SHK (Fig. 21) is available through Rotary lift. Contact your authorized Rotary Parts Distributor for ordering information.

ATTENTION DO NOT exceed 2" of shims or grout. Pour new concrete pads if shim height exceeds 2" , see Fig. 4.



12) Anchoring

1. Drill holes using base plates as a template and install anchors as shown in Fig. 22.

IMPORTANT The anchor bolt nuts must be tightened to 110 ft-lbs (149 Nm).

IMPORTANT Maintain a 4-3/4" anchor embedment. If shimming or grouting more than 1/2" is required, you must use longer anchors to maintain the 4-3/4" anchor embedment.

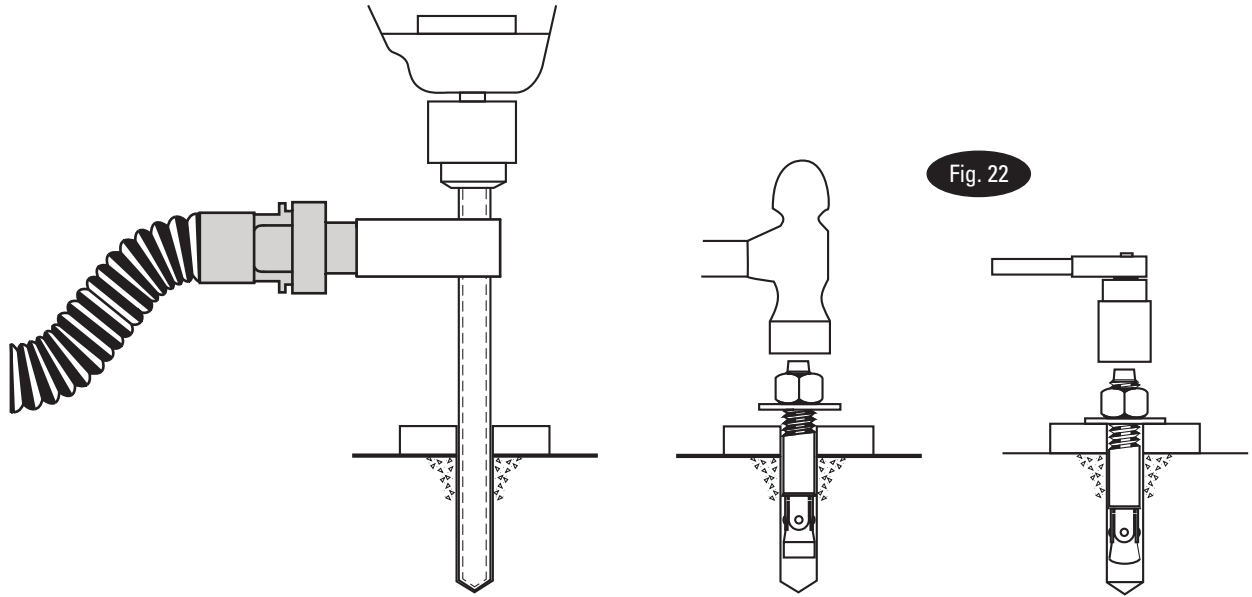


Fig. 22

Drill holes using 5/8" carbide tipped masonry drill bit per ANSI B212.15-1994 (R2000). Contruction 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 to 110 ft.-lbs. (149 Nm).

Note: KB1 and KB3 Anchors are NOT interchangeable.

12K Scissor 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 (5/8" x 4-3/4")	4-3/4" (108mm)	6-1/4" (159mm)	3-1/4" (83mm)	110 (149Nm)	3000 (20684 kPa)	9'x12'x6" (2743 x 3658 x 152mm)	65 (88Nm)	Varies by location consult with your structural engineer and manufacturer's representative.
Hilti Kwik Bolt III (5/8" x 4-3/4")	4-3/4" (108mm)	3-3/8" (86mm)	3-1/4" (83mm)	110 (149Nm)	3000 (20684 kPa)	9'x12'x6" (2743 x 3658 x 152mm)	65 (88Nm)	
Hilti HY200 Epoxy (with HAS threaded rod) 5/8" Dia.	5" (127mm)	2 1/4" (57mm)	3-1/8" (80mm)	110 (149Nm) / less than 2" (51mm) edge distance use Torque Value of 18 ft-lbs (24Nm)	3000 (20684 kPa)	9'x12'x6" (2743 x 3658 x 152mm)	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-2011, 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

13) Hose and Airline Covers

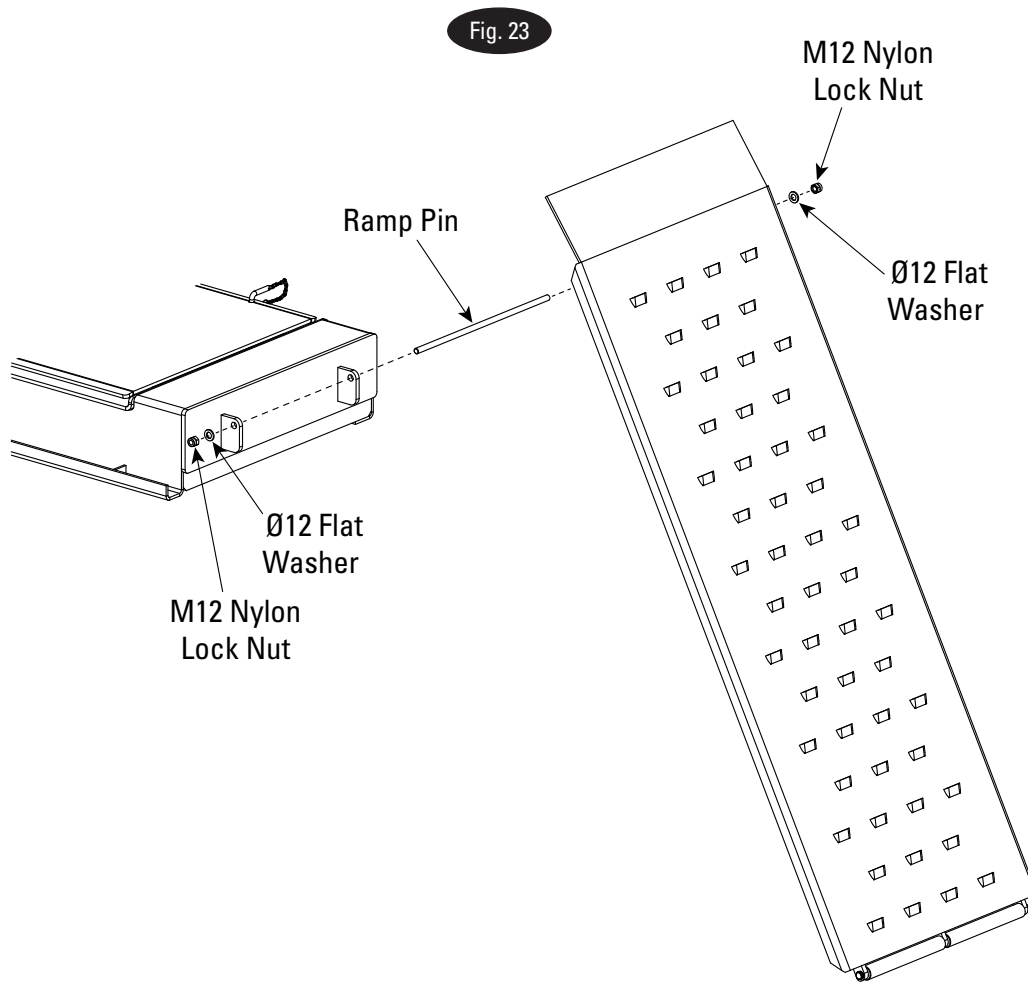
1. Raise the lift to provide access to the front base.
2. Place the hydraulic hoses and airlines so covers can be placed over hoses.
3. Trim the airlines so that they fit underneath the hose covers.

14) Rolling Jacks (If Equipped)

1. Raise the lift to a comfortable height.
2. Roll the rolling jacks into the tracks.
3. Recommended operating pressure is 90-120 psi.

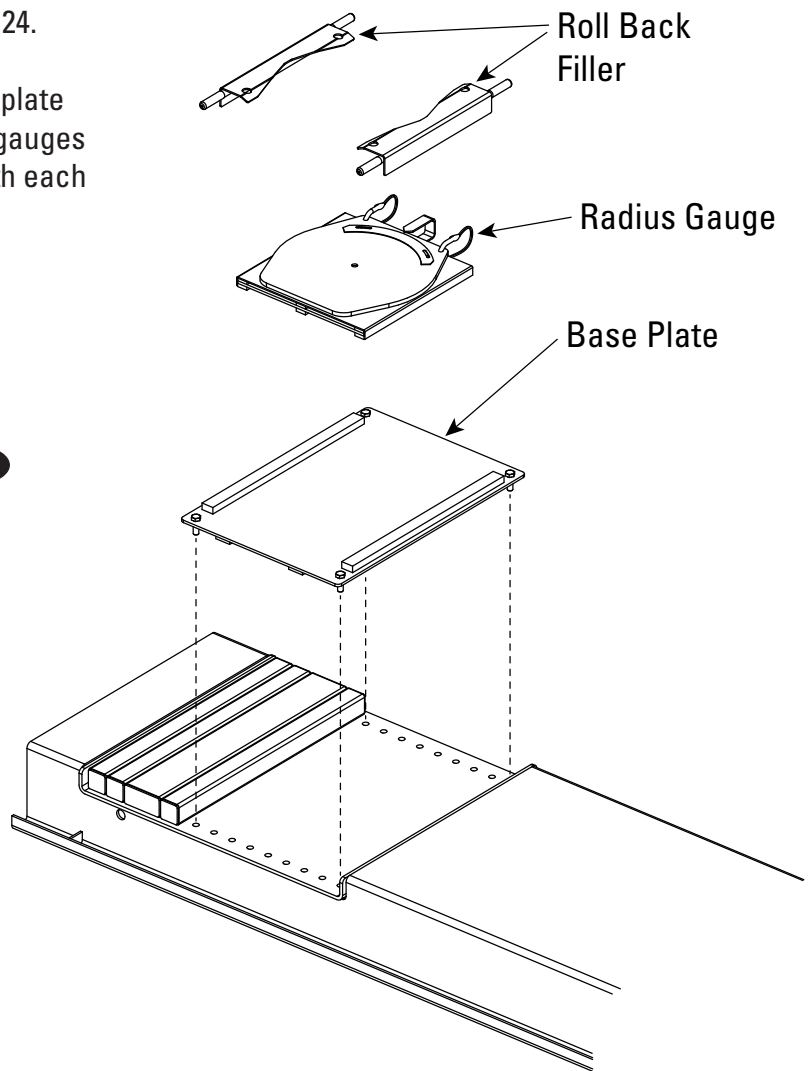
15) Ramps

1. Line up ramp hinge to runway hinge.
2. Slide the ramp pin through runway and ramp hinges.
3. Install $\text{\O}12$ flat washer and M12 nylon lock nut to each end of ramp pin to hold ramp in place, Fig 23.



16) Installing Radius Gauges

1. Install base plate using four pegs located on the bottom, Fig. 24.
2. Place radius gauge on base plate, Fig. 24.
3. Place roll back filler as shown, Fig. 24.
4. Repeat on other runway. Tighten base plate mounting bolts securely. Verify radius gauges are square and in proper alignment with each other.



17) Final Inspection of Airlines and Hoses

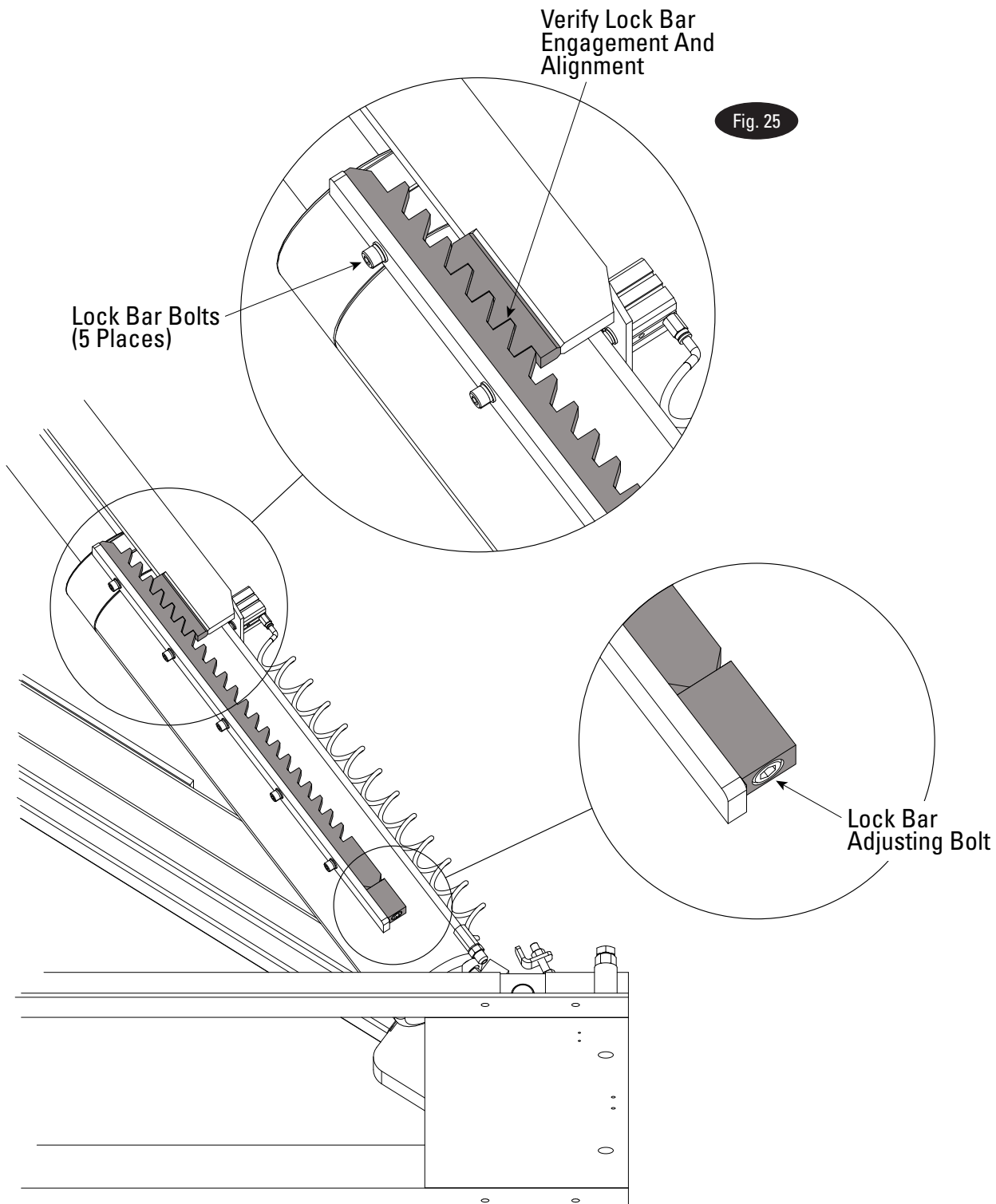
1. Raise lift to full rise.
2. Inspect all hydraulic hoses and airlines for kinks, interferences, or other signs of improper routing. Adjust if necessary.
3. Lower lift to floor.

18) Check Hydraulic Oil Level

1. Lower the lift fully to floor.
2. Remove the breather cap on hydraulic tank and verify hydraulic fluid level reaches full capacity.
3. Add Dexron III ATF or ISO 32 hydraulic oil if necessary.

19) Lock Bar Engagement

1. Lower lift to locks. Verify lock bar is fully engaged and aligned, Fig. 25.
2. If lock bar requires adjustment, raise lift and support with safety stands.
3. Loosen lock bar bolts, Fig. 25.
4. Adjust lock bar using the lock bar adjusting bolt located at the bottom of lock bar, Fig. 25.
5. Tighten lock bar bolts. Torque to 19-21 ft.-lbs. (25-28 Nm).
6. Raise lift and lower to locks. Conduct a final inspection to verify lock bar engagement and alignment is correct.



20) Equalization Valve Pin Engagement

IMPORTANT The equalization valve must be properly adjusted for the lift to function correctly. Lack of proper adjustment may cause platforms to become unsynchronized.

1. Lower the lift to the floor and visually check that the pusher is depressing the valve pin but is not propping up the runway, Fig. 26 and 27. If adjustment is needed use the following steps.
2. Adjust the equalization valve pusher, Fig. 27.
 1. Thread the pusher all the way up into the bottom of the runway.
 2. Lower the lift to the floor.
 3. Thread the pusher down so that the valve pin is depressed and the pusher is just barely contacting the collar around the pin, Fig. 26. The pusher should not be pushing the runway up.
 4. Tighten the nut so that the pusher is fixed in place.

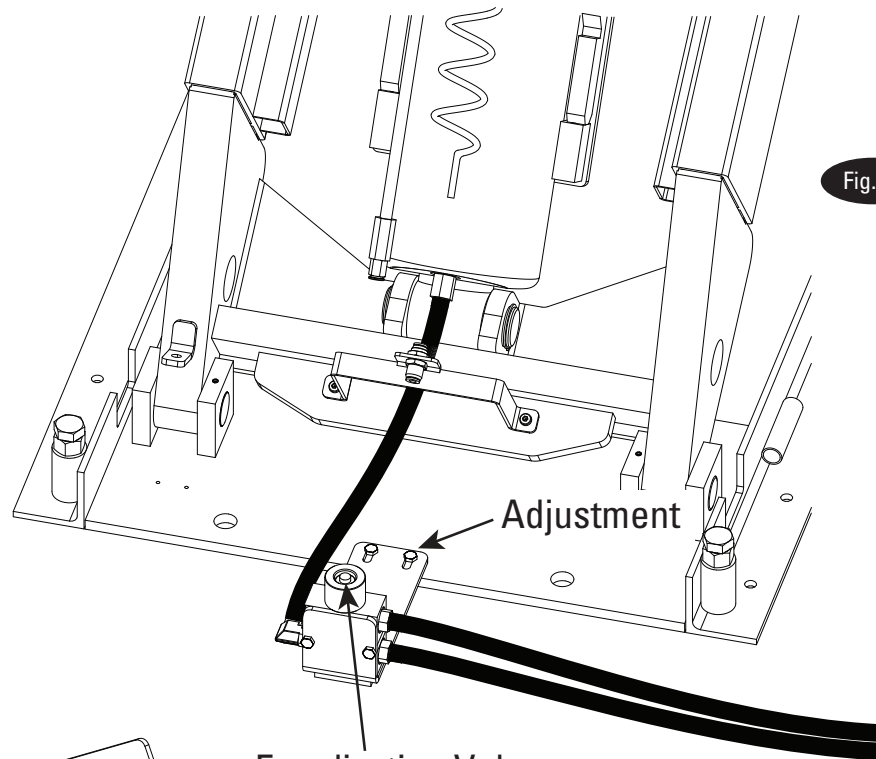


Fig. 26

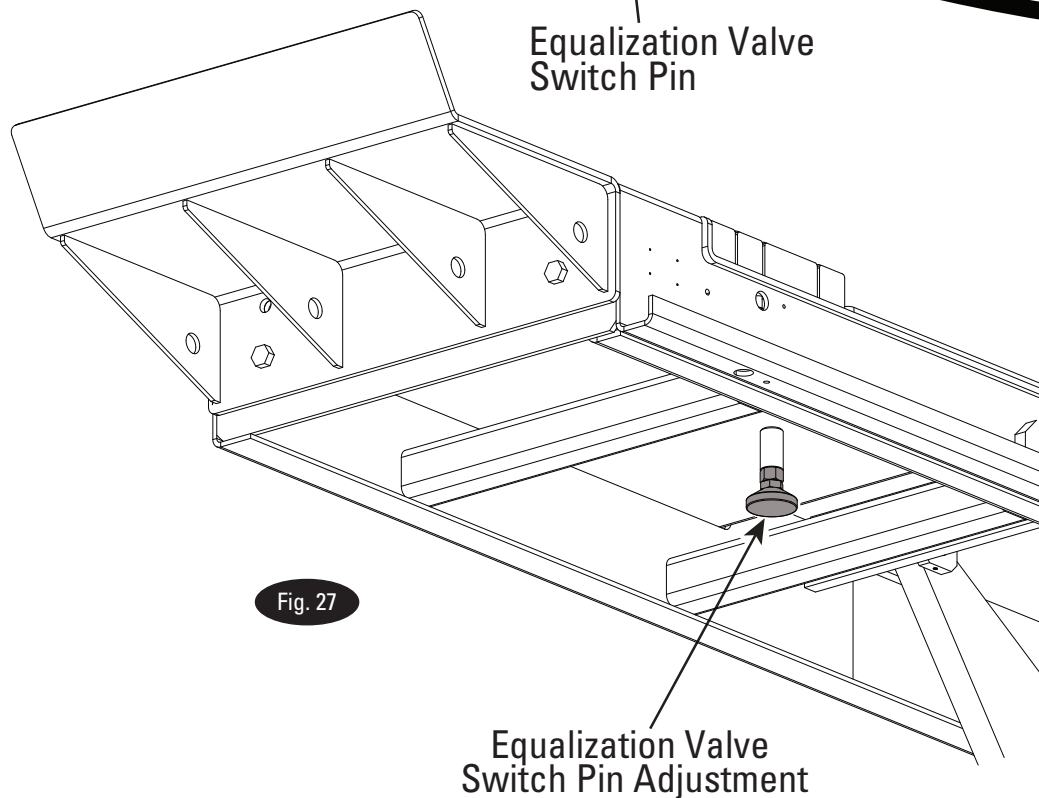
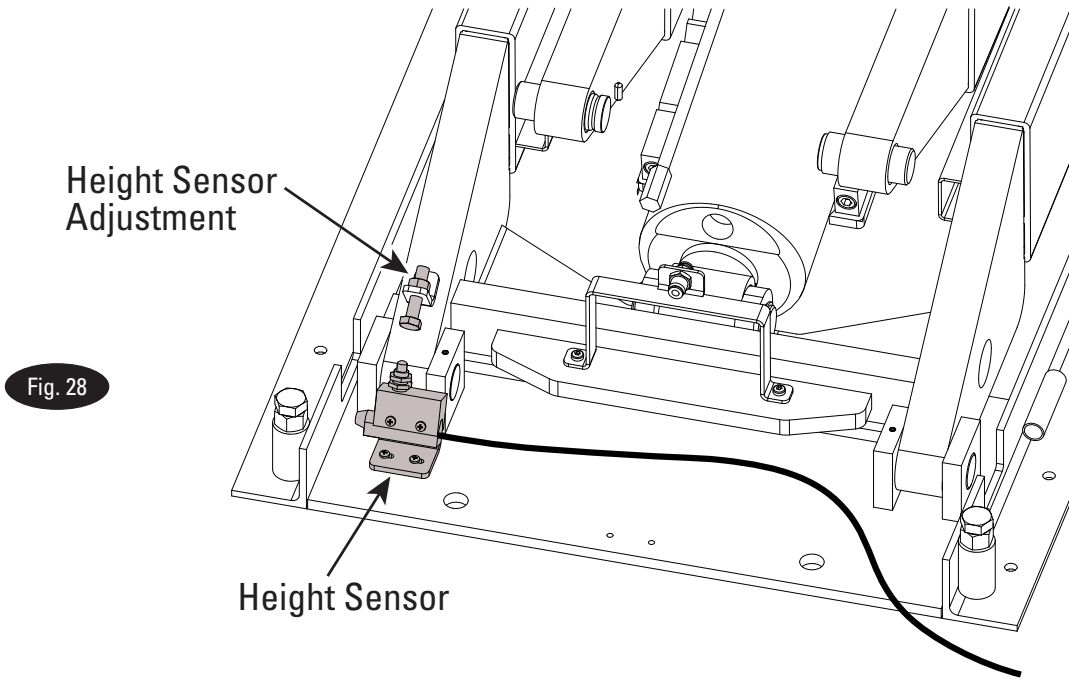


Fig. 27

Equalization Valve
Switch Pin Adjustment

21) Height Limit Switch

1. Adjust height limit switch, bottom of driver side runway, so runway stops within 1/2" of full rise, Fig. 28.



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XA12

SURFACE, RECESS, AND FLUSH MOUNTED LIFT
(000 SERIES)
12000 lb. Capacity
(6000 lbs. per axle)



P
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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 # _____

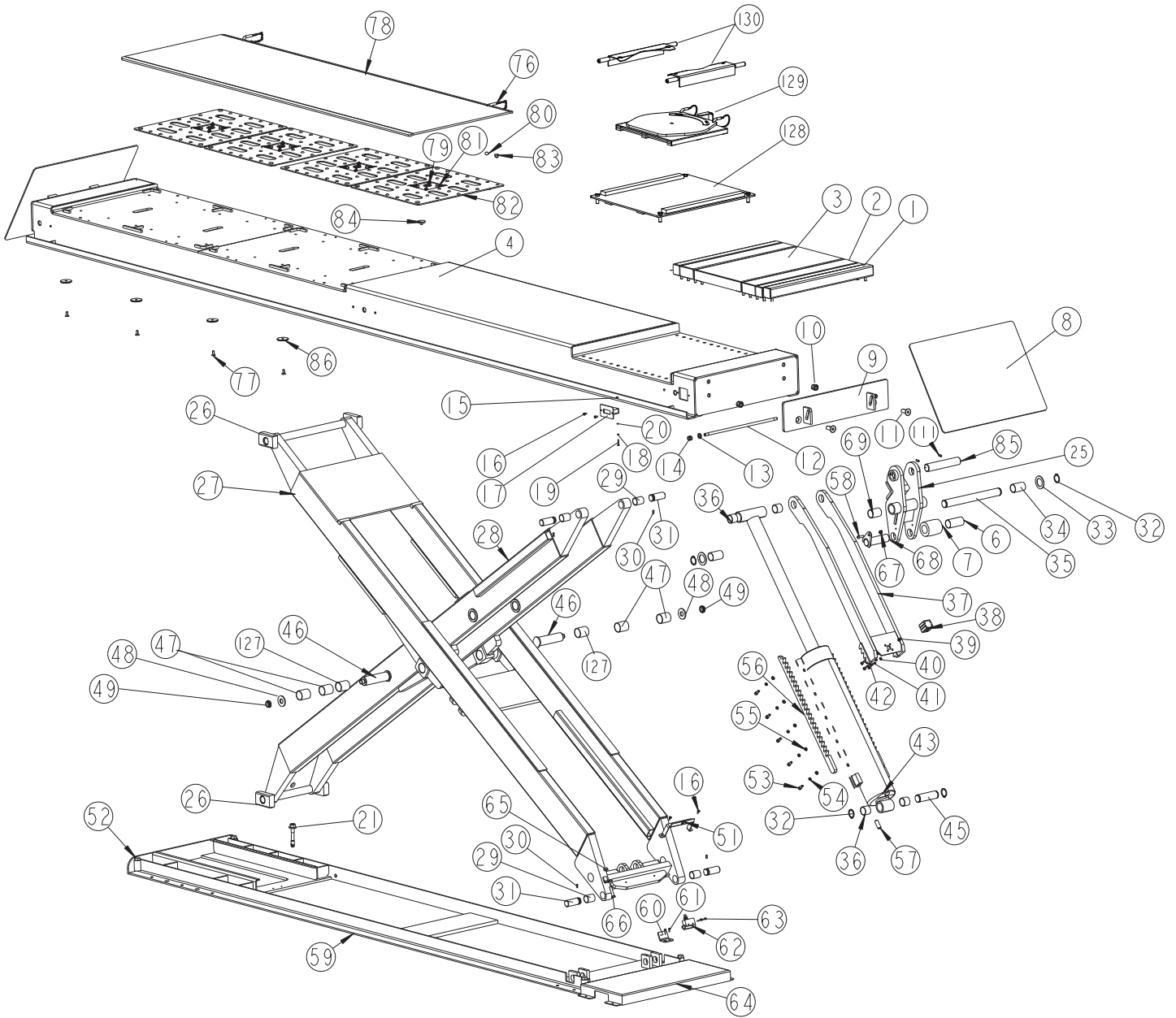
Power Unit Model # _____

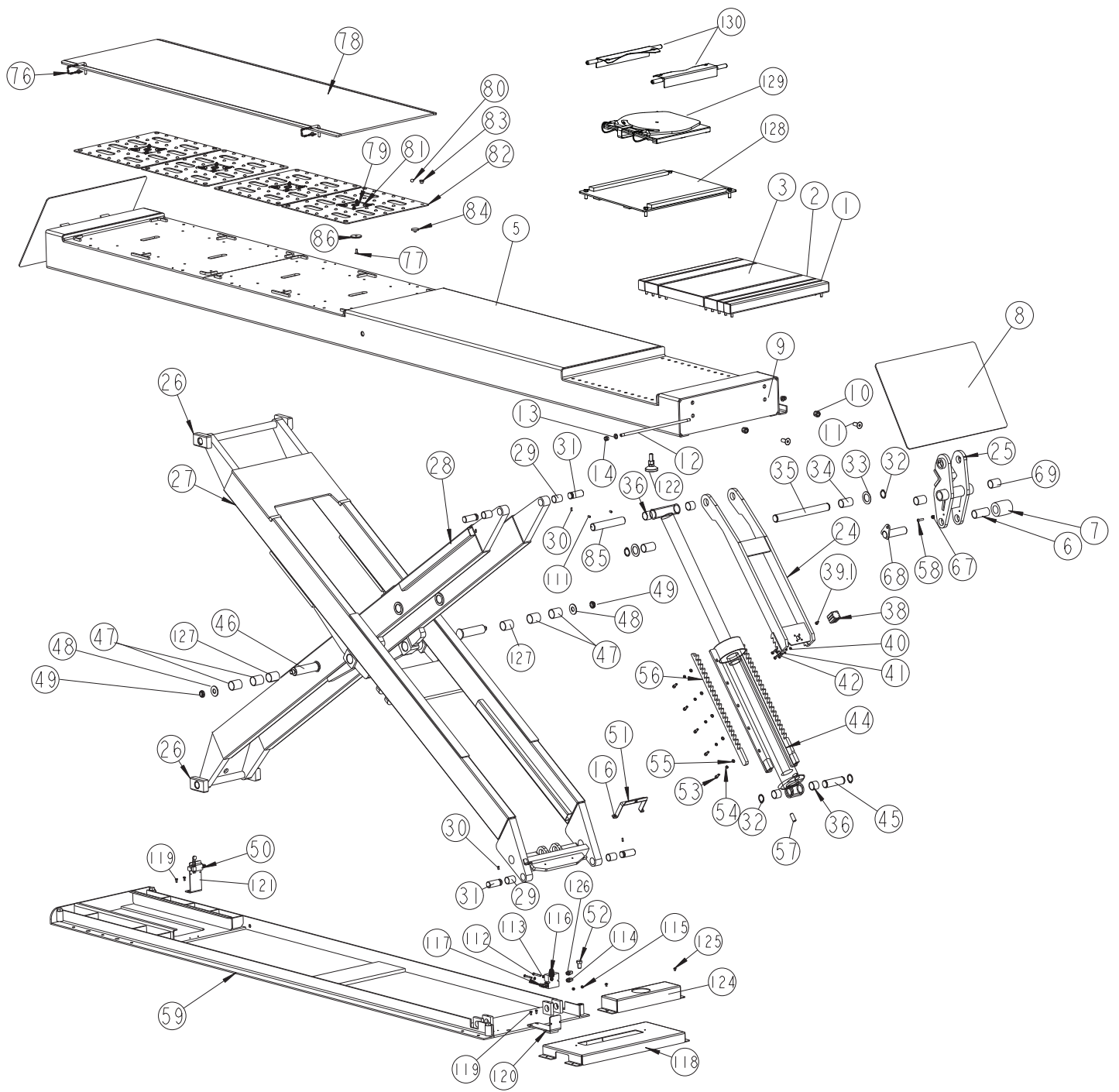
Lift Serial # _____

Lift Model # _____

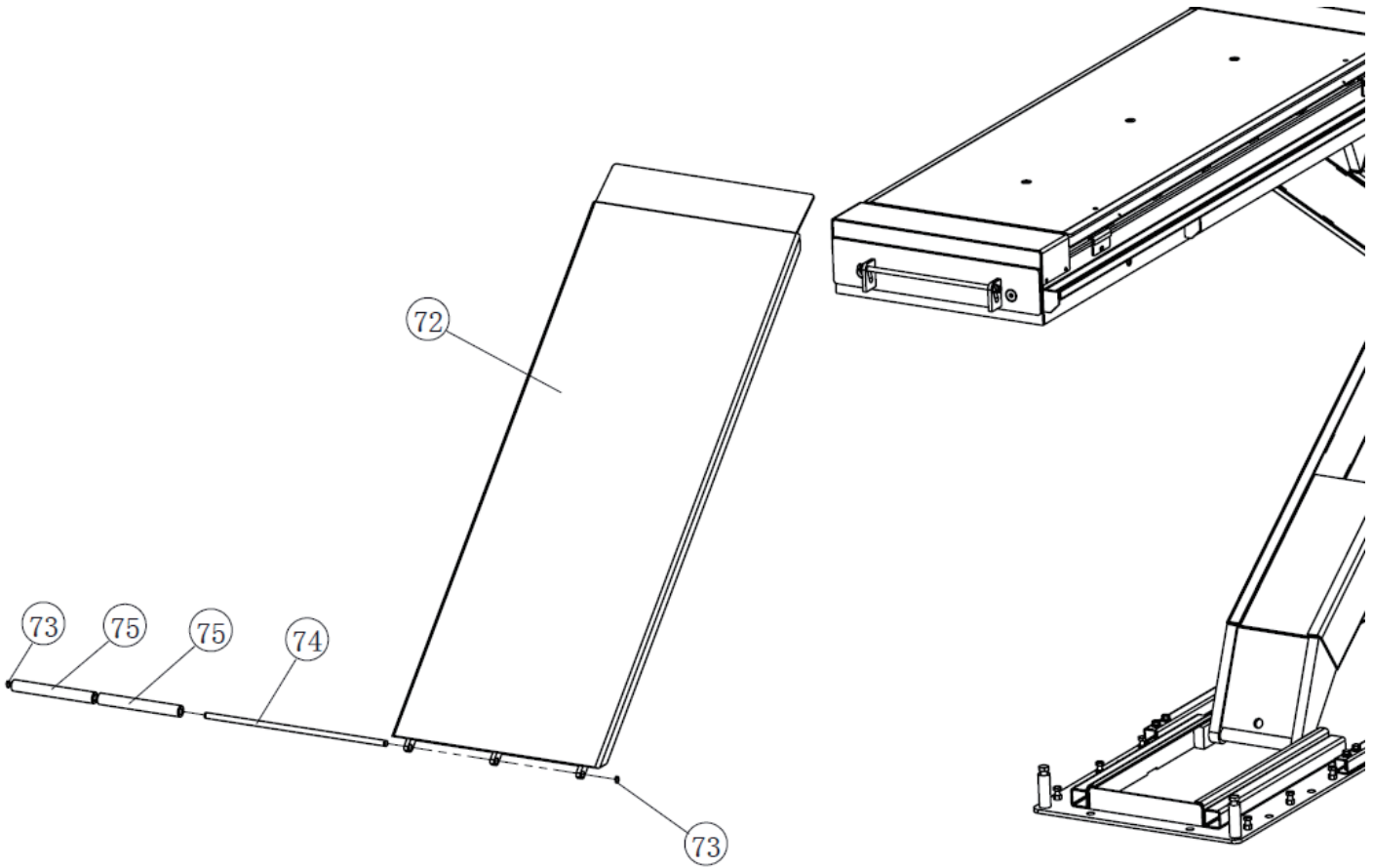
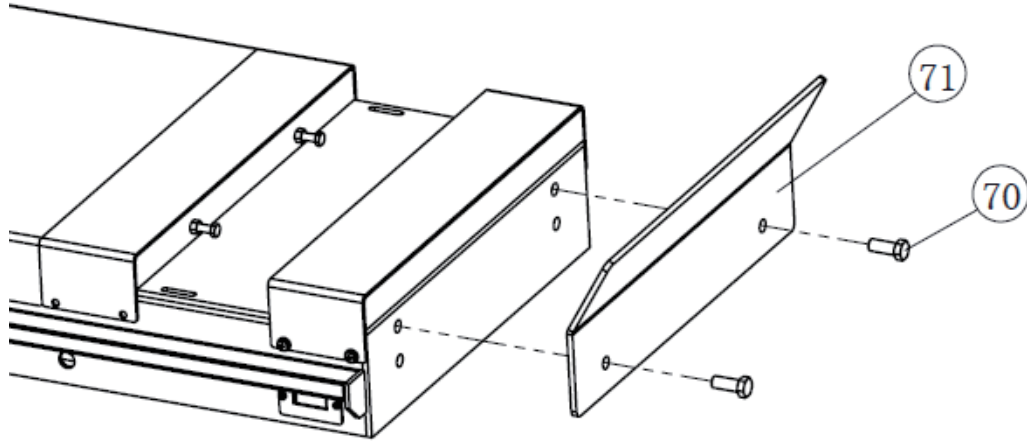
NOTE: For replacement parts -See your nearest Rotary Parts Distributor.

11 Appendix A Mechanical Components





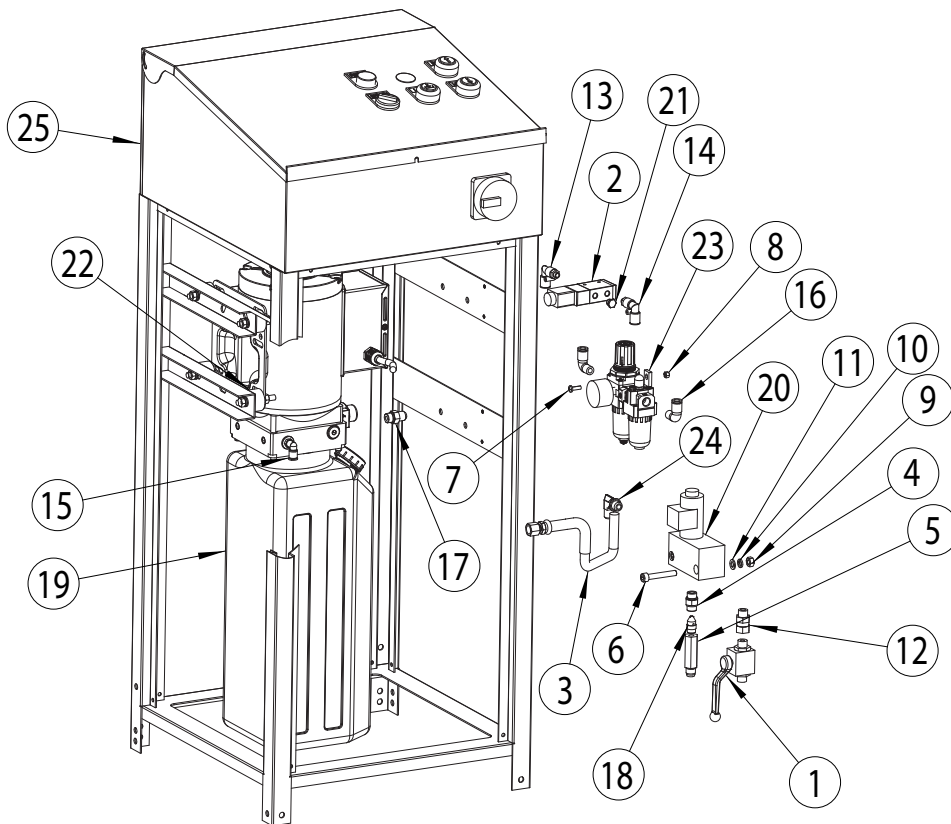
Mechanical Components



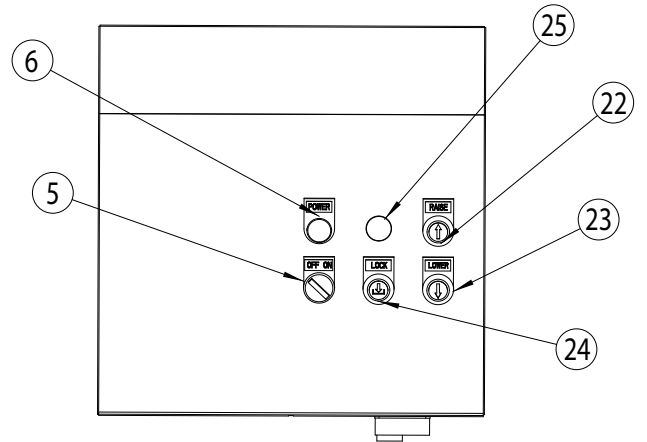
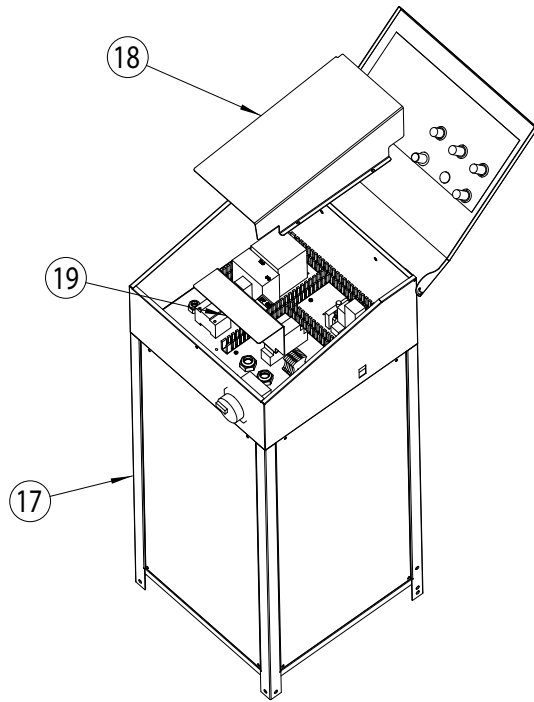
ITEM	DRAWING	DESCRIPTION	QTY
1	ARS45-1510	Filler plate	6
2	ARS45-1520	Filler plate	4
3	ARS45-1530	Filler plate	2
4	ARS45-1200B	Runway weldment	1
5	ARS45-1100B	Runway weldment	1
6	ML50-1801	Bearing	2
7	ML50-1802	Roller	2
8	ARS45-1310	Ramp weldment	4
9	HBS40-1320G	Ramp connecting plate weldment	4
10	B33-16	Lock Nut M16	8
11	B26-16x40	Screws M16x40	8
12	HBS40-1301	Shaft	4
13	B41-12	Washer Ø12	24
14	B33-12	Lock Nut M12	8
15	B30-4	Nut M4	2
16	B25-5x12	Screws M5x12	6
17	HBS40-1620	Support plate of Sensor Switch	1
18	B40-4	Spring Washer Ø4	2
19	B23-4x25	Screws M4x25	2
20	B41-4	Washer Ø4	2
21	FJ7386	5/8" x 4-3/4" KWIK Bolt 1 Anchor	12
22	NA		
23	NA		
24	ARS45-3300S	Lock Weldment (Slave Cylinder)	1
25	XA12-1700	Kicker Weldment	2
26	HBS40-3001	Slider Block	8
27	XA12-3100	Outer leg weldment	2
28	XA12-3200	Inner leg weldment	2
29	SF-1 3040	SF-1 Bearing	8
30	B22-6x15	Stopper screw M6x15	8
31	HBS40-3005G	Shaft	8
32	B60-35	Shaft circlip Ø35	8
33	HBS40-3009	Washer	4
34	SF-1 3575	SF-1 Bearing	4
35	HBS40-3003G	Shaft	2
36	SF-1 3530	SF-1 Bearing	8
37	ARS45-3300M	Lock Weldment (Master Cylinder)	1
38	CQ2A25-25	Air Cylinder	1
39	HBS40-3008	Cylinder grinding head	1
39.1	XA10-3008	Cylinder grinding head, slave side	1
40	B41-6	Flat Washer Ø6	8
41	B40-6	Spring Washer Ø6	8
42	B25-6x20	Bolt M6 x20	8

43	ARS45-9100M	Master Cylinder	1
44	ARS45-9100S	Slave Cylinder	1
45	HBS40-3004	Shaft	2
46	HBS40-3002G	Shaft	4
47	SF-1 4050	SF-1 Bearing	8
48	HBS40-3006	Washer	4
49	XG130007	Lock nut M20×1.0	4
50	TZ-8108	Lower limit switch	1
51	ARS45-3007	Connecting plate	2
52	B10-16×60	Bolt M16 ×60	8
53	B20-8×25	Bolt M 8×25	20
54	B40-8	Spring Washer	20
55	B41-8	Falt Washer	20
56	ARS45-3402G	Lock Bar	20
57	B21-16×40	Bolt M 16×40	4
58	B20-8×30	Bolt M8×30	2
59	ARS45-2000	Base weldment	2
60	HBS40-2302	Connecting plate	1
61	B23-4×14	Screws M4×14	2
62	TZ-7310	Top limit switch	1
63	B23-4×30	Screws M4×30	2
64	ARS45-2401DC	Cover	1
65	B30-10	Nut M10	1
66	B12-10×45	Bolt M10 ×45	1
67	B33-8	Nut M8	2
68	ARS45-1900	Pin	2
69	ML50LT-52-3023	Bearing	4
70	GB/T2672-1986	Hexagon pan head screws M16×50	8
71	HBS40-1330G	Wheel stop	2
72	RBS40-1810	Louvered Ramps	2
73	GB/T894.2-1986	Shaft circlip Ø15	4
74	PV4-1602	Shaft	6
75	PV4-1601	Nylon pipe	8
76	H4P-7500	Pin	4
77	B26- M8×16	Bolt M8×16	6
78	ARS45-1430	Slip plate	2
79	SM60-1522	Plate	8
80	SM60-1315	Plastic ball	272
81	SM60-1316	Spring	32
82	ARS45-1420	Plate	8
83	SM60-1521-1	Plastic washer	32
84	SM60-1521	Big plastic washer	32
85	ARS45-3005	Pin	2

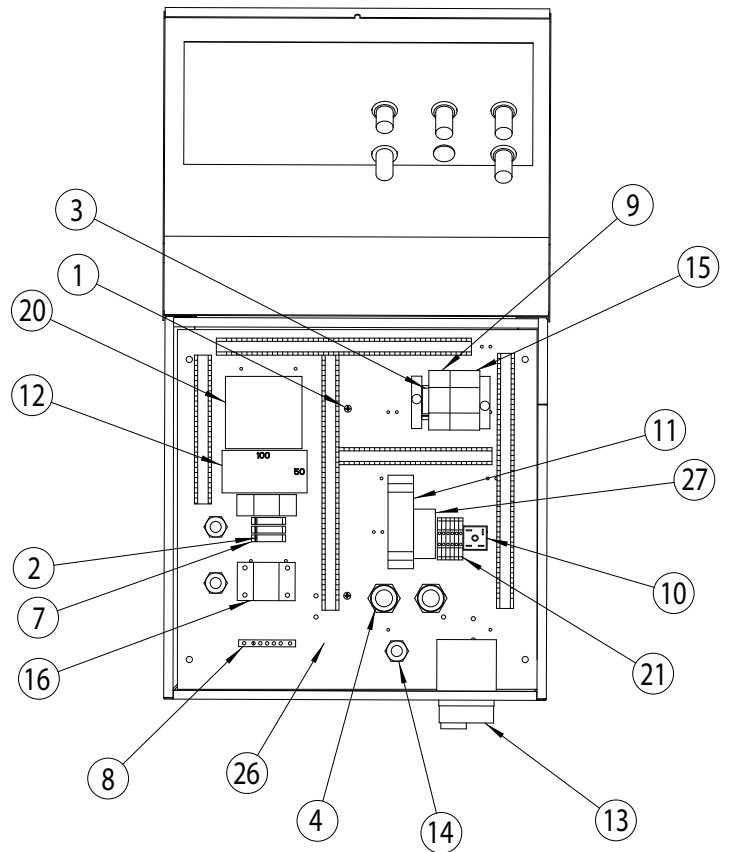
86	SM65-2003	Fix nut	8
87	NA		
88	NA		
89	NA		
90	NA		
91	NA		
92	NA		
93	NA		
94	NA		
95	NA		
96	NA		
97	NA		
98	NA		
99	NA		
100	NA		
101	NA		
102	NA		
103	SPL6-01	Fitting	2
104	NA		
105	NA		
106	NA		
107	NA		
108	NA		
109	NA		
110	NA		
111	B21-8*10	Set screw M8x10	4
112	B10-6*40	Bolt M6x40	2
113	B41-6	Washer Ø6	2
114	FJ7352-3	Fitting	1
115	B33-6	Nut M6	2
116	HBS40-9300	Valve	1
117	SW-002	Fitting	1
118	ARS45-2401	Cover	1
119	B10-6*12	Bolt M6x12	4
120	HBS40-2402	Support plate weldment	1
121	ARS45-2501	Support plate weldment	1
122	ARS45-2406ZP	Pin	1
123	NA		
124	ARS45-2502	Cover	1
125	B23-6*8	Bolt M6x8	2
126	IM-9802-1	Fitting	1
127	SF-1 4030	Bearing	4
128	ARS45-3411	Radius gauge base plate	2
129	FA5153	Radius gauge, Stainless steel	2
130	ARS45-3500	Roll back filler	4



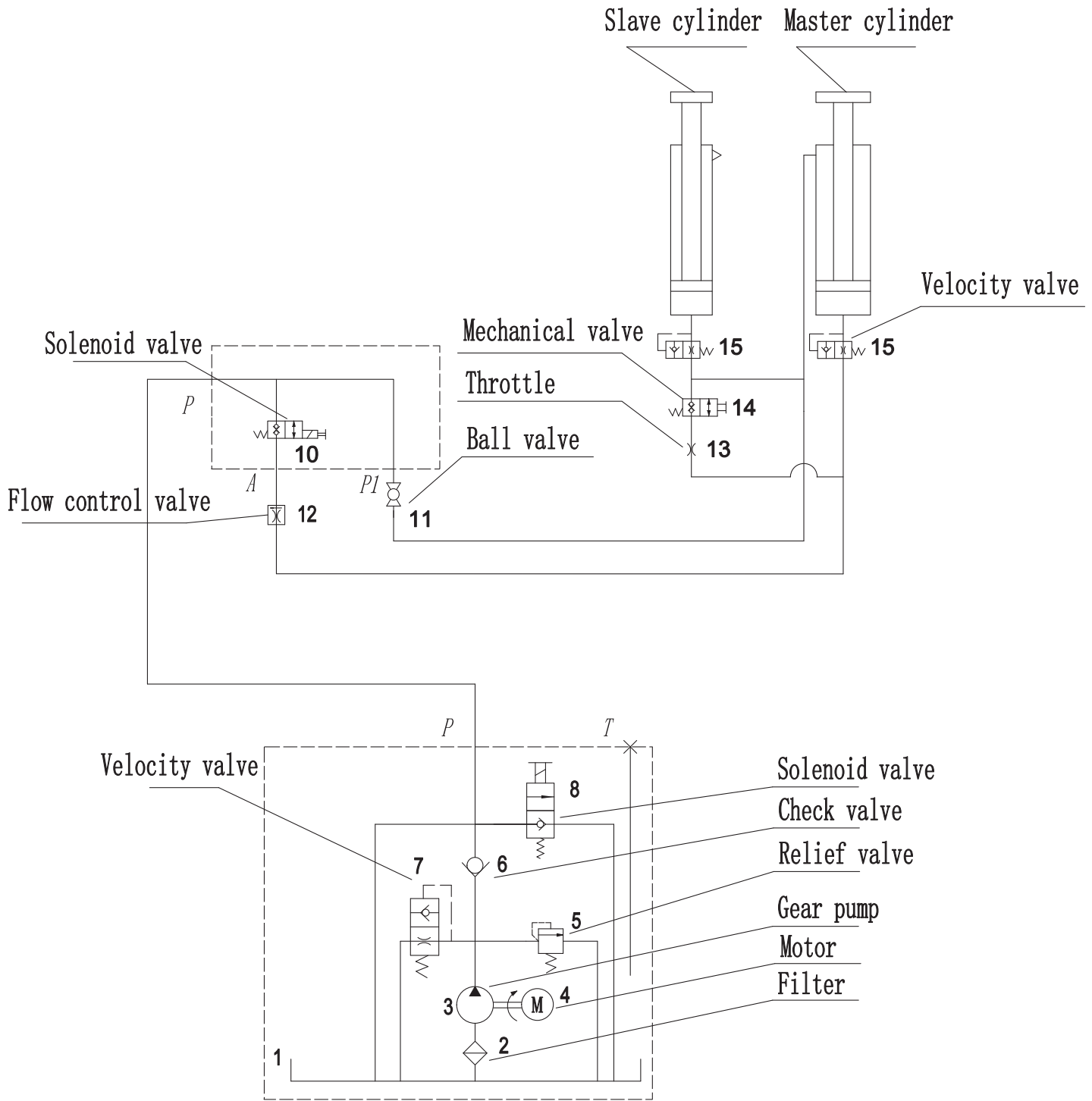
ITEM	QTY	PART NO.	DESCRIPTION
1	1	3288813	BALL VALVE
2	1	3V210-06DC24	AIR VALVE
3	1	ARS45-9801-4	HYDRAULIC HOSE
4	1	ARS45-9802-1	STRAIGHT ADAPTER 9/16-18 JIC X 9/16-18 O-RING
5	1	ARS45-9802-2	FITTING
6	2	B202-8X50	HEX SOCKET HEAD SCREW M8X50
7	2	B23-5X16	CROSS RECESSED PAN HEAD M5X16
8	2	B30-5	HEX NUT M5
9	10	B30-8	WELD NUT M8
10	10	B40-8	LOCK WASHER Ø8
11	10	B41-8	FLAT WASHER Ø8
12	1	DSS35-9802-1	FITTING
13	1	EPL6-01	MALE ELBOW
14	1	EPL8-01	MALE ELBOW
15	1	EPL8-03	FITTING R3/8" - 8mm TUBE
16	2	EPL8-N02	MALE ELBOW
17	1	FJ7352-3	STRAIGHT ADAPTER 9/16-18 JIC X 9/16-18 O-RING
18	1	IFC-6T-8	FLOW CONTROL VALVE
19	1	P3668	POWER UNIT
20	1	PDL0009	MANIFOLD
21	1	PSV-01	BRASS FILTER
22	4	PV-2005	CONNECT BOLT, POWER UNIT
23	1	S130405	FILTER REGULATOR LUBRICATOR (FRL)
24	1	SW-002	FITTING, ELBOW
25	1	XA12-5100ZP	CABINET ELECTRIC PARTS ASSEMBLY



ITEM	QTY	PART NO.	DESCRIPTION
1	2	41720	#8 X 1/2" Lg. PAN HD PHL THD FRM, SS
2	3	50CF-020F	FUSE
3	1	50CF-050F	FUSE
4	2	AG25-B	STRAIN RELIEF
5	1	C2SS2-10B-11	ON/OFF SWITCH
6	1	CL-502W	POWER LIGHT
7	4	DK4-TF-KIT	FUSE HOLDER
8	1	DQ-QJ-00046	GROUNDING BAR
9	2	DRM270024L	INTERMEDIATE RELAY
10	1	KBPC2510	BRIDGE RECTIFIER
11	1	KFD2-SR2-EX2W	SAFETY BARRIER
12	1	MS116-25	MOTOR STARTER
13	1	P1-25-EA-SVB	DISCONNECT SWITCH
14	3	PG135	STRAIN RELIEF
15	1	REXL2TMB7	TIME RELAY
16	1	SA-2P-40A-24V	CONTACTOR
17	1	XA12-5100	OPEN TYPE CABINET
18	1	XA12-5113	ELECTRIC PARTS COVER
19	1	XA12-5114	POWER SWITCH COVER
20	1	XA12-BYQ	TRANSFORMER
21	1	XA12-DQ-DZP	TERMINAL STRIP
22	1	XA12-DQ-ZP1	PUSH BUTTON, RISE
23	1	XA12-DQ-ZP2	PUSH BUTTON, LOWER
24	1	XA12-DQ-ZP3	LOWER TO LOCK
25	1	PGM-34	BLACK STOPPLE
26	1	XA12-5120	ELECTRICAL BASE PLATE
27	1	DDR-15G-24	DC-DC CONVERTER

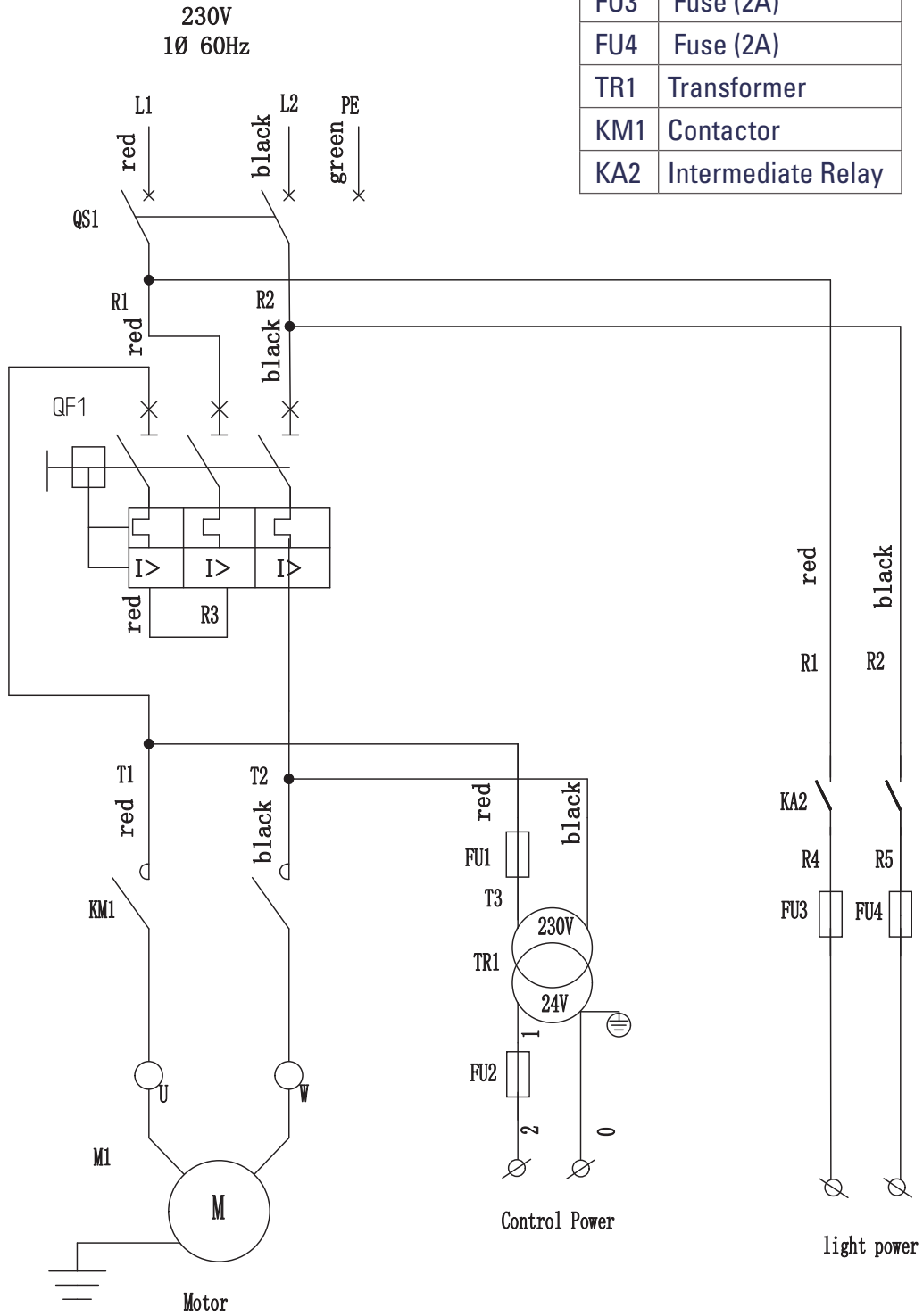


HYDRAULIC SCHEMATIC

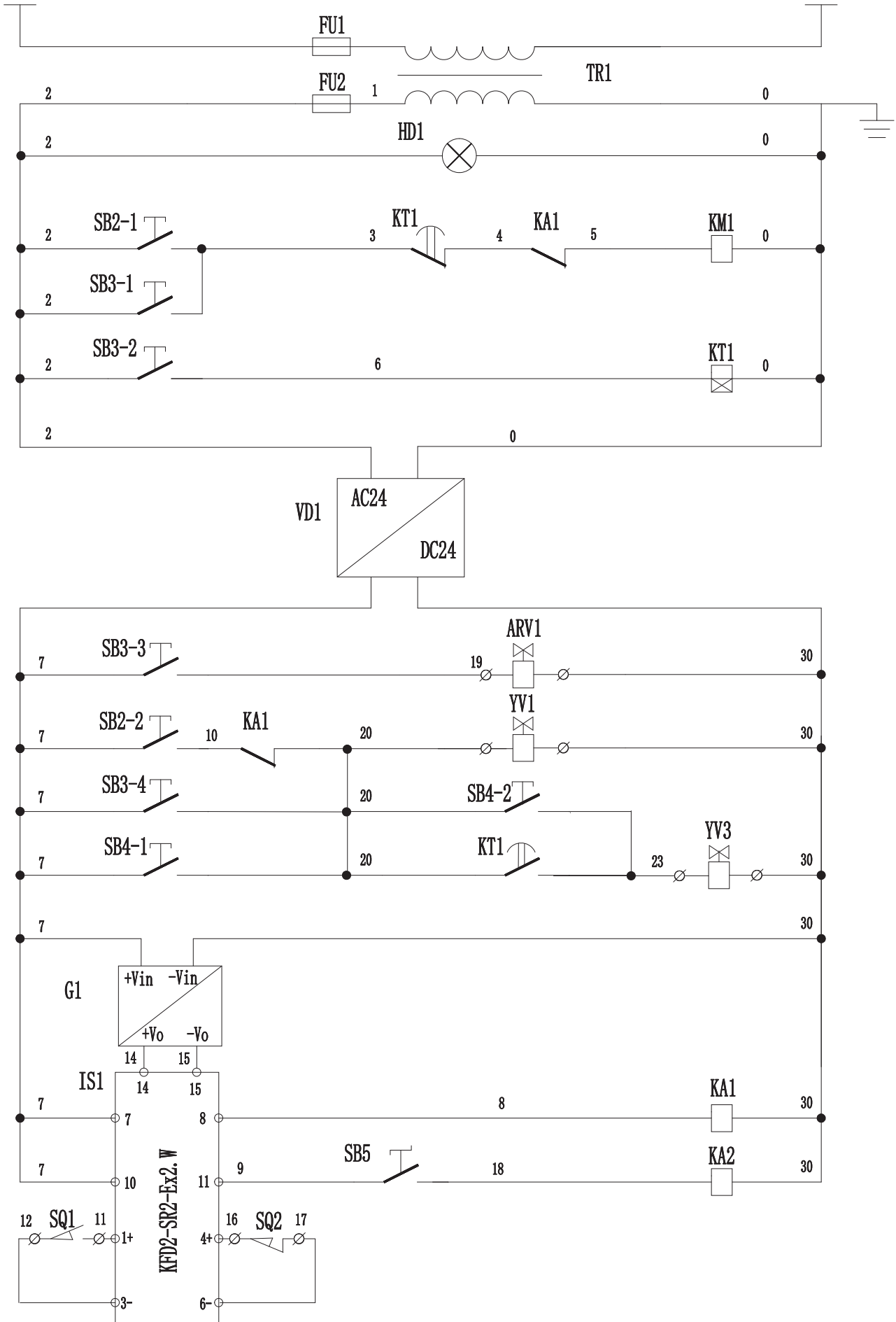


ELECTRICAL SCHEMATIC

QS1	Power switch
QF1	Motor starter
FU1	Fuse (2A)
FU2	Fuse (5A)
FU3	Fuse (2A)
FU4	Fuse (2A)
TR1	Transformer
KM1	Contactor
KA2	Intermediate Relay



CONTROL POWER



1	KM1	Contactora
2	SB2	Raise Button
3	SB3	Lower button
4	SB4	Lock button
5	KT1	Time relay
6	HD1	Power light
7	VD1	Bridge rectifier
8	ARV1	Air Valve
9	YV3	Solenoid valve
10	YV1	Solenoid valve
11	KA1	Intermediate relay
12	KA2	Intermediate relay
13	SQ1	Top limit switch
14	SQ2	Light ON/OFF position switch
15	SB5	Light ON/OFF switch
16	IS1	Intrinsically safe isolator
17	G1	DC-DC Converter

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SURFACE, RECESS, AND FLUSH MOUNTED LIFT

(000 SERIES)

12000 lb. Capacity

(6000 lbs. per axle)



OPERATION MANUAL

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Owner/Employer Responsibilities	40
Safety Instructions	41
Operating Instructions	42
Maintenance Instructions	44
Trouble Shooting	45
Lift Lockout/Tagout Procedure	50

The Owner/Employer:

- **The Owner/Employer shall** ensure that lift operators are qualified and that they are trained in the safe use and operation of the lift using the manufacturer's operating instructions; ALI/SM 93-1, ALI Lifting it Right safety manual; ALI/ST-90 ALI Safety Tips card; ANSI/ALI ALOIM-2008, 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.
- **The Owner/Employer shall** establish procedures to periodically inspect the lift in accordance with the lift manufacturer's instructions or ANSI/ALI ALOIM-2008, 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.
- **The Owner/Employer shall** establish procedures to periodically maintain the lift in accordance with the lift manufacturer's instructions or ANSI/ALI ALOIM-2008, 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.
- **The Owner/Employer shall** maintain the periodic inspection and maintenance records recommended by the manufacturer or ANSI/ALI ALOIM-2008, American National Standard for Automotive Lifts-Safety Requirements for Operation, Inspection and Maintenance.
- **The Owner/Employer shall** display the lift manufacturer's operating instructions; ALI/SM 93-1, ALI Lifting it Right safety manual; ALI/ST-90 ALI Safety Tips card; ANSI/ALI ALOIM-2008, 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.
- **The Owner/Employer shall** provide necessary lockout/tagout means for energy sources per ANSI Z244.1-1982 (R1993), Safety Requirements for the Lockout/Tagout of Energy Sources, before beginning any lift repairs.
- **The Owner/Employer shall** not modify the lift in any manner without the prior written consent of the manufacturer.

SAFETY INSTRUCTIONS

- **Daily** inspect your lift. Never operate if it malfunctions or if it has been broken or damaged parts. Use only qualified lift service personnel and genuine Rotary parts to make repairs.
 - **Thoroughly** train all employees in the use and care of lift and wheels free device, using manufacturer's instructions and "Lifting It Right" and "Safety Instructions" supplied with the lift.
 - **DO NOT** permit employees or customers on lift when it is either being raised or lowered.
 - **Never** allow unauthorized or untrained persons to operate lift or wheels free device.
 - **Prohibit** customers or non-authorized persons from being in shop area while lift is in use.
 - **DO NOT** stand in front or behind lift while vehicle is being driven onto or backed off the lift.
 - **Load** vehicle on lift carefully, align vehicle with runways before driving on.
 - **DO NOT** allow rear tires or portion of vehicle to interfere with ramp/chocks.
 - **Never** allow front wheels to strike the front wheel stops.
 - **Never** raise or lower the lift while the vehicle is supported by the wheels free device. Only raise or lower the lift when all 4 tires of the vehicle are supported by the runway.
 - **Always** stand clear of lift when raising or lowering and observe "Pinch Points" Warning.
 - **Never** overload lift: capacity of lift is 12,000 lbs. (6,000 lbs. per axle.) CAPACITY SHOULD NOT BE EXCEEDED.
 - **Always** engage parking brake and use the rear wheel chocks to keep the vehicle from rolling freely on the runways.
 - **Always** lower lift on locks before working on vehicle.
- CAUTION** If you are working under vehicle, lift should be raised high enough for locking latches to engage.

SAFETY INSTRUCTIONS

- **Always** keep area around lift clean of tools, debris, grease, and oil.
- **Always** keep runway clean.
- **Replace** all caution, warning, or safety related decals on the lift when unable to read or missing.
- **For Wheels Free Device Safety Instructions** see Wheels Free Device Installation, Operation and Maintenance Instructions in the wheels free device box.
- **Never** use work step while lift is in a raised position.
- **DO NOT** perform any maintenance on the power unit, control valves, air or fluid lines, hydraulic cylinders, or check fluid level until lift has been fully lowered and all pressure has been released from system. Follow OSHA Lockout/Tagout procedures as they apply, reference ANSI Z244.1.
- **DO NOT** block open or override self-closing lift controls, they are designed to return to the off or neutral position when released.
- **Clean** area if vehicle is in danger of falling.
- **Remove** tools, and other equipment from on or below lift before lowering lift.

CAUTION Lowering lift legs onto an obstruction may cause damage to lift.



OPERATING INSTRUCTIONS

⚠ WARNING To avoid personal injury and/or property damage, permit only trained personnel to operate lift.

IMPORTANT Always lift vehicle using all four tires. Never raise just one end, corner or one side of vehicle.

After reviewing these instructions, get familiar with lift controls by running the lift through a few cycles before loading vehicle on lift.

⚠ WARNING If lift is not operating properly, **DO NOT** use until adjustments or repairs are made by a qualified lift service technician.

Observe and heed SAFETY and WARNING labels on the lift.

Note: Alignment wheelbase range 78" to 164" at the rated 12,000 lb. Maximum wheelbase range 183-1/2" for general service.

1. Loading:

- A. Lift must be fully lowered and service bay clear of all personnel before the vehicle is brought on lift. Do not stand in front of a moving vehicle.
- B. If lift is equipped with wheels free device, it must be fully lowered and the rear wheels free device pushed toward center of lift to provide under car clearance.
- C. Stop vehicle when it contacts the front wheel stops. At all times, be sure rear wheels are forward of the ramp/chocks and the ramp/chocks will clear tires when the lift is raised, Fig. 1. Driver and passengers must exit before raising.
- D. Place triangular wheel chocks on each side of one of the rear tires, Fig. 1.

2. To Raise Lift:

- A. Push the "**RAISE**" button on the control panel. Release button at desired height, Fig. 2.
- B. Lower lift to locking latches by pushing the "**LOWER**" button until lift rests on the locks, Fig. 2.

IMPORTANT Always lower lift on locking latches before alignment readings are measured.

- C. For Wheels Free Device Operating Instructions see Wheels Free Device Installation, Operation and Maintenance Instructions in the wheels free device shipping carton.

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

⚠ WARNING Never raise lift while vehicle is supported above the runway by the wheels free device.

3. Before Lowering Lift:

- A. Be sure no one is in the lift area and that all tools, tool trays, etc. have been removed from under the lift and vehicle.

⚠ WARNING Observe pinch point warning decals.

- B. If lift is equipped with wheels free device, it must be fully lowered and the rear wheels free device pushed toward center of lift to provide under car clearance.

4. To Lower Lift:

- A. Raise lift off locking latches by pushing the "**RAISE**" button, Fig. 2.
- B. Push the "**LOWER**" button to lower lift, Fig. 2.
- C. Observe lift and vehicle to be sure lift is level while being lowered. If not, **STOP** and raise the lift by pressing the "**RAISE**" button until runways are level and repeat the lowering process.
- D. Fully lower lift, remove the triangular wheel chocks and check to be sure area is clear before removing vehicle from lift, Fig. 1.

OPERATING INSTRUCTIONS

⚠ WARNING Keep hands clear of linkages while the lift is being raised or lowered.

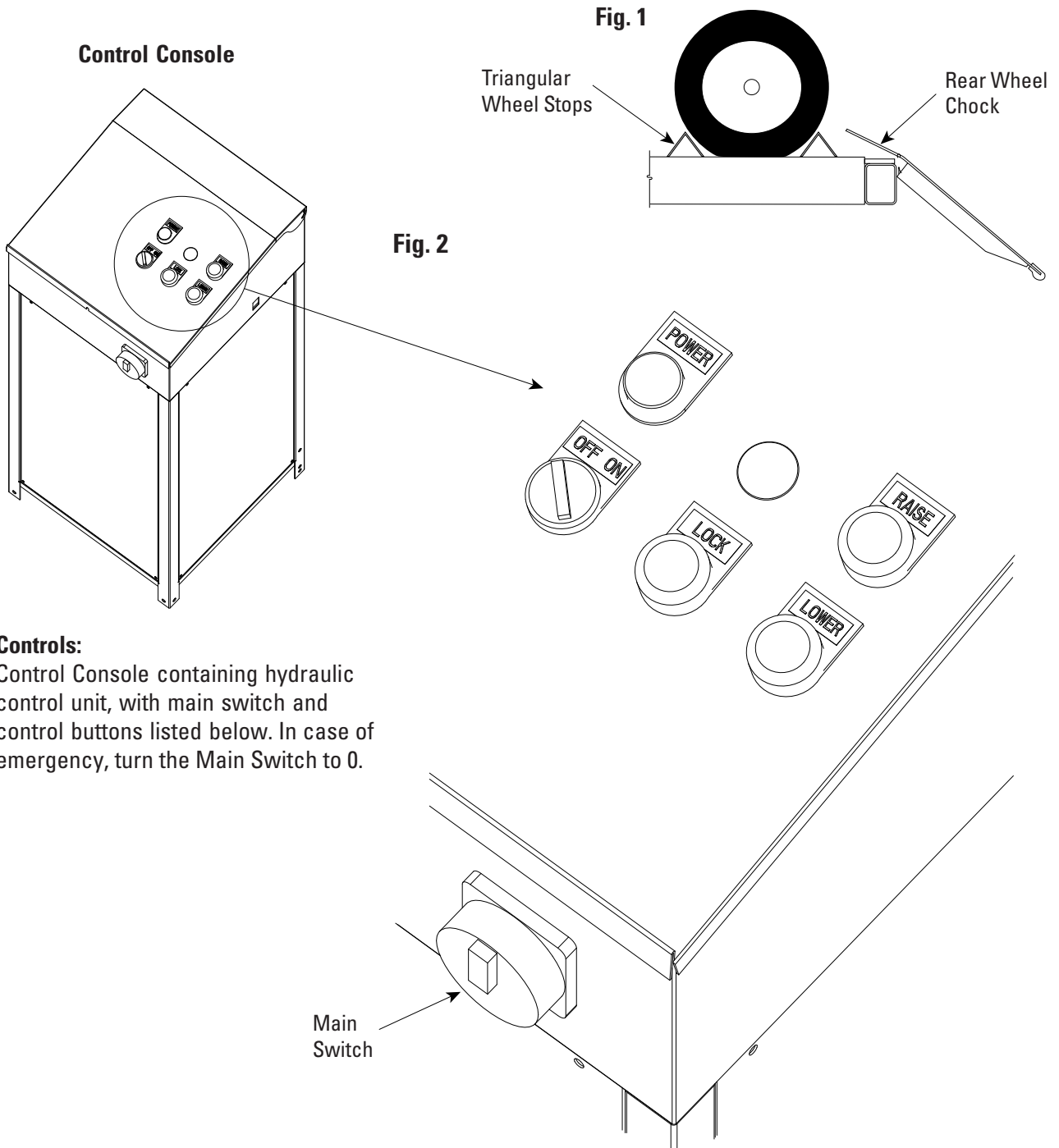
⚠ WARNING Never lower lift while vehicle is supported above the runway by the wheels free device.

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

- A. Vehicle individual axle weight does not exceed one-half lift capacity.
- B. Adequate overhead clearance is provided to raise vehicles to desired height.

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

*Maximum operation pressure is:
3294 psi for X12/XA12



Controls:
Control Console containing hydraulic control unit, with main switch and control buttons listed below. In case of emergency, turn the Main Switch to 0.

MAINTENANCE INSTRUCTIONS



WARNING If you are not completely familiar with automotive lift maintenance procedures, **STOP**. Contact factory for instructions.

To Avoid Personal Injury, permit only qualified lift service personnel to perform maintenance on this equipment.

- **Always:** Keep attaching bolts tight.
- **Always:** Keep locking latches free and oiled.
- **Always:** Raise lift when cleaning floor area with solvents and/or cleaning compounds.
- **Always:** Always keep runways and linkages clean. In salt belt or other corrosive environments, the lift must be washed down weekly.
- **Daily:** Inspect front wheel stops and ramp/chocks for damage or excessive wear. Replace as required with genuine Rotary Lift parts.
- **Daily:** Check locking latch operation and reset. Adjust per instructions or repair if required with genuine Rotary parts.
- **Weekly:** Clean foreign debris from rear wheel slip plates and turning radius gauges by blowing out with shop air. **DO NOT GREASE BALL BEARINGS.**
- **Monthly:** Check anchor bolts to ensure they are torqued to 65 ft-lbs (88Nm).
- **Monthly:** Check level of runway. Adjust per instructions.
- **Monthly:** Lubricate Guide on each turning radius with a dry film lubricant. Clean and lubricate more often as conditions warrant.
- **Semi-Annually:** Check fluid level of lift power unit and refill if required. If fluid is required, inspect all fittings, hoses and seals. Repair as required.
- **Semi-Annually:** Lubricate ramp/ chock hinge pins.
- **For Wheels Free Device** Maintenance Instructions see Wheels Free Device Installation, Operation and Maintenance Instructions in the wheels free device box.
- **Replace** all caution, warning, or safety related decals on the lift if unable to read or missing. Reorder labels from Rotary Lift - See parts breakdown.
- **Replace** hydraulic fluid after every 4 months of use.

TROUBLE SHOOTING

Troubleshooting Description	Possible Cause	Remedy
Lift Stops Short Of Full Rise	Low Oil Level	1. Refill reservoir per the install instructions and with the recommended oil grade.
Lift Chatters	Low Oil Level	1. Check for leaks. 2. Refill reservoir per the installation instructions and with the recommended oil grade.
Cylinder Groaning	1. Air in hydraulic system. 2. Dry hydraulic cylinder rod	1. Cycle lift to full stroke. 2. Spray with silicon lubricant.
Anchors Will Not Stay Tight	1. Holes Drilled Oversize 2. Concrete Floor Not Thick Enough 3. Concrete Floor Not Strong Enough	1. Relocate lift using a new bit to drill holes. Reference installation instructions for proper anchoring method and minimum spacing requirements. 2. Break out old concrete and re-pour per lift installation instructions. 3. Break out old concrete and re-pour per lift installation instructions.
Lift Going Up Unlevel	1. Lock obstructed 2. Lift Installed On Unlevel Floor	1. Check obstructions/locks- the lift must be raised manually to move the lift to within operating limits. Refer to Manually raising and lowering runways. 2. Shim lift to level per installation instructions. If over 1/2" (13mm) use grout to shim bases per installation instructions.
Lift will not raise off of latches.	1. Motor, pump, or cylinder failure.	1. Contact lift manufacturer's Customer Service.

TROUBLE SHOOTING

Troubleshooting Description	Possible Cause	Remedy
Slow Lifting Speed	<ol style="list-style-type: none"> 1. Air Mixed With Oil 2. Air Mixed With Oil Suction 3. Low Oil Level 	<ol style="list-style-type: none"> 1. Make sure oil is of recommended grade. 2. Tighten all suction line fittings. 3. Refill reservoir per the maintenance instructions and with the recommended oil grade.
Oil Blowing Out Fill-Breather Cap	<ol style="list-style-type: none"> 1. Oil Leak/Pump Failure 2. Incoming Motor Voltage Incorrect 3. Vehicle Weight And Balance Not Within Lift Capacity. 	<ol style="list-style-type: none"> 1. External oil leak- locate and repair leak. Internal oil leak- have hydraulic system serviced by an authorized service representative. 2. Incoming motor voltage incorrect- contact your local service authority. 3. Use lift only to rated capacity.
Lift Slowly Settles Down	<ol style="list-style-type: none"> 1. Air Mixed With Oil 2. Air Mixed With Oil Suction 3. Oil Return Tube Loose 	<ol style="list-style-type: none"> 1. Change oil using ISOVG32 Hydraulic Oil or Dexron III ATF. Hydraulic tank overfilled. 2. Tighten all suction line fittings. 3. Reinstall oil return tube.
Lift Fails To Raise/Lower	<ol style="list-style-type: none"> 1. Debris In Check Valve Seat 2. Oil Leak 	<ol style="list-style-type: none"> 1. Clean check valve. 2. External oil leak- locate and repair leak. Internal oil leak- have hydraulic system serviced by an authorized service representative.

TROUBLE SHOOTING

Troubleshooting Description	Possible Cause	Remedy
Lift Fails To Raise When Pushing UP Button	<ol style="list-style-type: none"> 1. UP Button Defective 2. Vehicle Weight And Balance Not Within Lift capacity 3. Motor Rotation Incorrect 4. Incoming motor voltage Incorrect Or Insufficient 5. Loose Or Damaged Wiring 6. Blown Fuse 	<ol style="list-style-type: none"> 1. Replace UP button. 2. Use lift only at rated load. 3. Re-wire motor according to motor diagram for counter-clockwise rotation. 4. Contact your local RAI 5. Inspect and repair loose or damaged wiring. 6. Check for blown fuse.
Lift Fails To Lower When Pushing DOWN Button	<ol style="list-style-type: none"> 1. DOWN Button Defective 2. Hydraulic Valves Malfunctioning 	<ol style="list-style-type: none"> 1. Replace DOWN button. 2. Check electrical connections or replace hydraulic valve(s).
Lift Fails To Lower While Pushing PARK Button.	<ol style="list-style-type: none"> 1. PARK Button Defective 2. Hydraulic Valves Malfunctioning 3. Loose Or Damaged Wiring 4. Blown Fuse 	<ol style="list-style-type: none"> 1. Replace PARK button. 2. Check electrical connections or replace hydraulic valve(s). 3. Pressurize lift hydraulically then use manual override valves to release hydraulic pressure. Lower height limit not set. 4. Check for blown fuse.

TROUBLE SHOOTING

Troubleshooting Description	Possible Cause	Remedy
RJ Pump Will Not Start	<ol style="list-style-type: none"> 1. Insufficient air supply at pump 2. Leak in air supply line 3. Plugged air filter 4. Bad air motor 	<ol style="list-style-type: none"> 1. Pump requires 100-120psi at 20cfm. 2. Locate and correct leakage. 3. Remove and install a new filter. 4. Repair or replace air motor.
RJ Pump Starts But Stalls Under Load	<ol style="list-style-type: none"> 1. Insufficient air supply at pump 2. Leak in air supply line 3. Plugged air filter 4. Bad air motor 	<ol style="list-style-type: none"> 1. Pump requires 100-120psi at 20cfm. 2. Locate and correct leakage. 3. Remove and install a new filter. 4. Repair or replace air motor.
RJ Pump Runs But Will Not Lift Load	<ol style="list-style-type: none"> 1. Lift loaded beyond capacity 2. External Oil Leaks 3. Internal leakage. 4. Release mechanism damaged or parts missing. 5. Wrong pump installed on lift. 6. Pump low on fluid 7. Fluid blowing out rear cover of air motor 8. Pump malfunctioning 	<ol style="list-style-type: none"> 1. Use lift only to rated capacity. 2. Repair leak, refill reservoir. CAUTION Do Not overfill reservoir. Lift must be completely lowered. 3. Have pump serviced by an authorized service center. 4. Replace damaged or missing parts. 5. Verify pressure rating of pumps meets pressure requirements of lift. 6. Lower lift and check fluid complying with MIL-H-5606. Locate and correct leak. CAUTION: DO NOT OVERFILL RESERVOIR. Lift must be completely lowered. 7. Pump piston seal leaking, have pump serviced by an authorized service center. 8. Have pump serviced by an authorized service center.
RJ Pump Runs But Not To Full Rise	<ol style="list-style-type: none"> 1. Pump malfunctioning 	<ol style="list-style-type: none"> 1. Have pump serviced by an authorized service center.
RJ Drifts Down - Will Not Hold	<ol style="list-style-type: none"> 1. Release mechanism damaged or parts missing. 2. External leakage 	<ol style="list-style-type: none"> 1. Replace damaged or missing parts. 2. Locate leak and repair. Refill reservoir. CAUTION: DO NOT OVERFILL RESERVOIR. Lift MUST be completely lowered.

TROUBLE SHOOTING

Troubleshooting Description	Possible Cause	Remedy
RJ Drifts Down - Will Not Hold -Continued	1. Internal leakage 2. Lift locking latch not released 3. Release mechanism damaged or parts missing 4. Return flow of fluid restricted or blocked	1. Have pump serviced by an authorized service center. 2. Release locking latch. 3. Replace damaged or missing parts. 4. Eliminate blockage. WARNING If wheels free device is the raised position, be sure to engage the mechanical locking device prior to attempting to service the unit. Failure to do so may cause lift to lower.
<hr/> RJ Lowers Slow Or Not At All	1. Internal return flow restrictor is plugged	1. Replace damaged or missing parts.

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 noticeable 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.

NOTES

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