CHALLENGER LIFTS, INC. 200 CABEL STREET LOUISVILLE, KY 40206 (502) 625-0700 VOICE (502) 587-1933 FAX

INSTALLATION & SPECIFICATIONS MANUAL FOR FRAME ENGAGING LIFTS

V-383 - Single-Post Semi-Hydraulic Swing Arm Lift V-184 - Single-Post Full-Hydraulic Swing Arm Lift

CAUTION

READ OPERATING INSTRUCTIONS COMPLETELY BEFORE OPERATING LIFT

INSTALLATION, OPERATION & MAINTENANCE MANUAL SINGLE POST FLAT FRAME LIFT

WARNING:

DO NOT permit personnel to operate lift who are not familiar with the information contained in these instructions.

Safety devices and control valves are provided for your protection. DO NOT alter any device to serve a special purpose. Never interfere with the safety features built into the controls or the lift lock. DO NOT block valves open.

This lift is equipped with a removable plunger. DO NOT operate lift without lift lock leg securely attached to the superstructure.

NOTICE

These automotive lifts comply with all requirements of the current American National Standard ANSI/ALI B153.1, as issued by the American National Standards Institute.

Installation Instructions

Study these instructions carefully to become familiar with the general installation procedure. Refer to charts, drawings, packing list and bills of lading to acquaint yourself with model type and options to be installed. This is mandatory to avoid improper installation. Inspect parts for any damage which might have occurred during shipment prior to beginning the installation.

Location - Excavation

Locate lift to allow plenty of working room on all sides. Allow room for work benches at front of bay aisles, lubrication equipment or other obstruction. Check overhead clearance, ordinarily 12 feet is ample for automobiles. Observe the recommended minimums in Figure 1.

Notes

It is recommended that when lifts are to be installed side by side, they should be placed on 12 ft. centers (under extreme conditions 10 ft. between centers can be used as a minimum).

If less space is available than indicated by any of the recommended minimums, contact your factory representative or the factory for detailed instructions before proceeding.

Requires a hole 24 inches in diameter by 101 NEW CONSTRUCTION: inches deep for plunger assembly, measured from (design) finished floor level.

Break out hole in floor 30 inches in OTHER THAN NEW BUILDING: diameter, and then excavate 101 inches deep. It will also be necessary in these cases to break out a trench 6 to 8 inches wide by 12 inches deep for running piping to the lift control. To locate reservoir for air-oil operated Full-Hydraulic Lifts, see

Figure 1A.

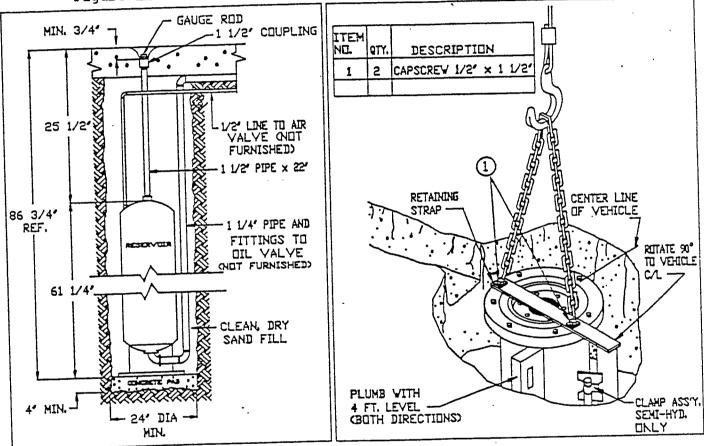


Fig. 1A Reservoir Installation

Fig. 2 Tube and Plunger Lowering

Installation

For best balance of tube and plunger while lowering into 1. excavation, it is recomended to remove the two 1/2" x 1 1/2" long capscrews (item 1 Fig. 2) attach a sling chain across top of strap and replace same two capscrews (longer capscrews washers may be required) thru chain and same two holes and strap. Assembly may be lowered by other methods, such in wrapping around strap or attaching to any of the other as

holes in top of assembly, but both capscrews (item 1 Fig. 2) must be attached as shown.

CAUTION:

If local soil conditions tend to hasten metal decay due to electrolysis or corrosion, we recommend the use of a suitable protective treatment for all buried components. If investigation indicates that a protective tape will be sufficient, plastic wrapping tape is available from your jobber under No. V-25. Sacrificial magnesium anodes are available under No. V-26 and a polyethylene corrosion inhibiting sleeve under No. V-27. The manufacturer will not be responsible for deterioration caused by electrolysis or corrosion

- 2. Using a chain hoist and tripod, fork lift, crane, etc. for lifting; lower plunger assembly into excavation until top surface of packing gland is even with finished floor and align with previously determined center lines. See Figure 1. Rotate the plunger assembly so that the NON-ROTATING/LIFT LOCK LEG LIES 90 DEGREES TO CENTER LINE. See Figures 1 and 2.
- 3. Plumb plunger assembly with 4 ft. level on side of casing, being careful to plumb in both directions. After making the necessary adjustments, carefully pour small amounts of concrete around sides of assembly base. See Figure 1. Work concrete under base of assembly and recheck for plumb and location. Continue to suspend plunger assembly by chain until concrete around base has set up.
- After concrete has set up, add 3 or 4 ft. of clean sand and recheck for plumb. Then remove chains and tripod or crane, etc. and complete back fill operations with clean sand. See Figure 1. When back fill is complete, assemble piping to cylinder, see semi-hydraulic in Figure 1, and complete under floor piping (para. 5). (When finishing floor, maintain the minimum fall away from lift required for drainage on that portion of the floor upon which lift superstructure rests.)

Note |

To prevent oil leakage, pipe and pipe fittings should be prepared with joint compound and tightened securely.

ALTERNATE METHOD: Refer to Figure 2, and remove the two 1/2" x 1 1/2" capscrews (item 1). Attach leveling support with 1/2" capscrews thru strap and into packing gland. Leveling support to be an angle iron, 2" x 4" etc. (procured locally). See Figure 3, and follow steps 2, 3 & 4.

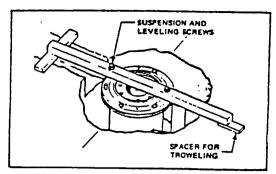


Fig. 3 Alternate Lowering and Leveling

Note

Concrete should also be poured at this time to provide a base for reservoir if so equipped. See Figure 1A. The dimensions for the depth of reservoir base are critical and should be strictly adhered to.

5. INSTALLATION OF LIFT CONTROLS AND PIPING:
5a. Semi-Hydraulic Lifts: Remove bolt and clamp holding air line to side of casing (Ref. Figure 2). Discard pipe cap from top of air line and attach swing joint (not furnished) onto line by pulling line out for clearance. Replace clamp and bolt and connect piping from lift and compressor to the three position air control valve. See Figure 4.

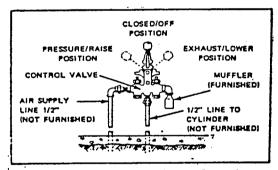


Fig. 4 Semi Hyd. Controls and Operation

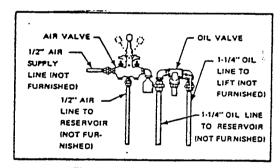


Fig 5 Air-Oil Wall Controls

5b. Air-oil Full Hydraulic: Install reservoir and pipe as shown in Figure 1 (Fill with oil as in para. 6b before inserting float assembly item 2 Figure 6). Install wall or floor controls and connect piping between plunger assembly, reservoir and control. See Figures 1 & 5. Connect 1/2" air supply line to air valve.

Note

Ballast: Ballast should be added to full-hydraulic lifts to increase lowering speed of lift when not weighted by vehicle. Add 400 lbs. of small steel punchings, or pour 5 gal. clean new oil in plunger, and add clean dry sand until absorbed; repeat oil and sand until plunger is filled.

- 6. Initial Oil Fill: Plunger should be in fully lowered position; use only oils that meet the specifications listed in table 1.
 - **6a.** Semi-Hydraulic Lifts: Exhaust air pressure thru control valve, remove pipe plug from top of plunger. Remove float assembly from inside plunger and set aside. Fill plunger with oil (a portion of the approx. 43 gal. required can't be added until completion of step 8). Insert float and hanger assembly back into plunger.
 - 6b. Air-Oil Hydraulic Lifts: Place air control in EXHAUST position. With gauge rod assembly (1) and float assembly (2) removed, refer to Fig. 6, fill reservoir (5) with oil (a portion of the approx. 45 gal. required cannot be added until the completion of step 8). Insert float assembly (2). Insert and tighten gauge rod assembly (1).

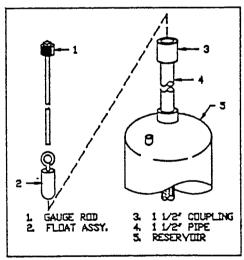


Fig. 6 Dil Reservoir Components

7. Refer to Figure 7. The two 1/2" x 1 1/2" long capscrews (item 1) which bolt into packing gland MUST BE REMOVED. Remove retaining strap. NEVER raise plunger until non-rotating/lift lock leg lies 90 degrees to center line. See Figures 1 and 2.

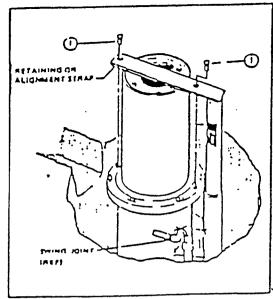


Fig. 7 Testing Arrangement

WARNING:

Under no circumstances should any lift be placed in service until it has been definitely established that it is filled with oil to the proper operating level.

- 8. Raise plunger one half stroke several times (see operation) to bleed trapped air from cylinder. (Note: it will be necessary to replenish oil to bring it to the full level).
- Raise plunger to full height, with valve open to leave pressure on, check all joints, plugs and valves for leaks.
- 10. Lower plunger and leave strap attached until superstructure is installed. Complete any backfill requirements that may be needed around casing and/or reservoir. Pour floor to designed level, when finishing, maintain the minimum fall away from lift required for drainage on that portion of floor on which the superstructure rests. Refer to Figures 1, 4 & 5.
- 11. Locate superstructure (item 2, Fig. 8) on plunger (3) and align with lift lock (4). Install eight capscrews (1) and torque to 100 ft. lbs.
- 12. Adjusting Superstructure Stop: With superstructure in fully lowered position, adjust stop screw (7) until arms swing freely. Then lock stop screw (7) with jam nut (6). See Figure 8.
- 13. Raise plunger slightly and connect Non-Rotating Device/Lift Lock (4) to the superstructure with capscrew (1) as in Figure 8. Lift may now be raised to full height (see operations).

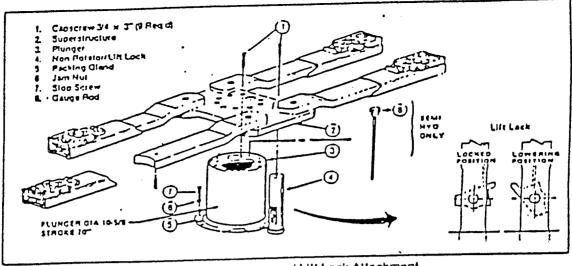


Fig. 8 Superstructure and LIII Lock Attachment

Operation

To raise, make sure superstructure with lock leg is properly attached. If superstructure is not yet installed, retaining strap must be in place as in Figure 7.

Semi-Hyd. Models, place air valve in pressure position and hold until height desired is reached. To lower, release lift lock, exhaust pressure until lift is completely resting on ground.

Full Hyd. Models, place air control on pressure, oil control on raise until lift reaches desired height, then place controls in off or closed position. To lower, release lift lock, place air in exhaust and oil on lower and hold until lift is completely resting on ground.

Lubrication

Use only grease in fittings that meet specifications as listed below. Use hand gun and grease packing gland and lift lock tube. Lubricate under adapter sleeve and adapters.

TABLE-1

Oil Specifications

NEW OIL containing a rust inhibitor and anti foaming additive meeting the following specifications:

OTIOMING PRECITIONS.	A
Gravity	25 to 32
Flash	,325 to 400
Fire	390 to 425
Viscosity (SUS @ 100 F).	125 to 150
	40 ±0 50
Alecosicy (pop 6 510 1)	-10 to -25 - a /-
Pour	Auti LST
IN WI HATILY	09m ANT, rest
10	

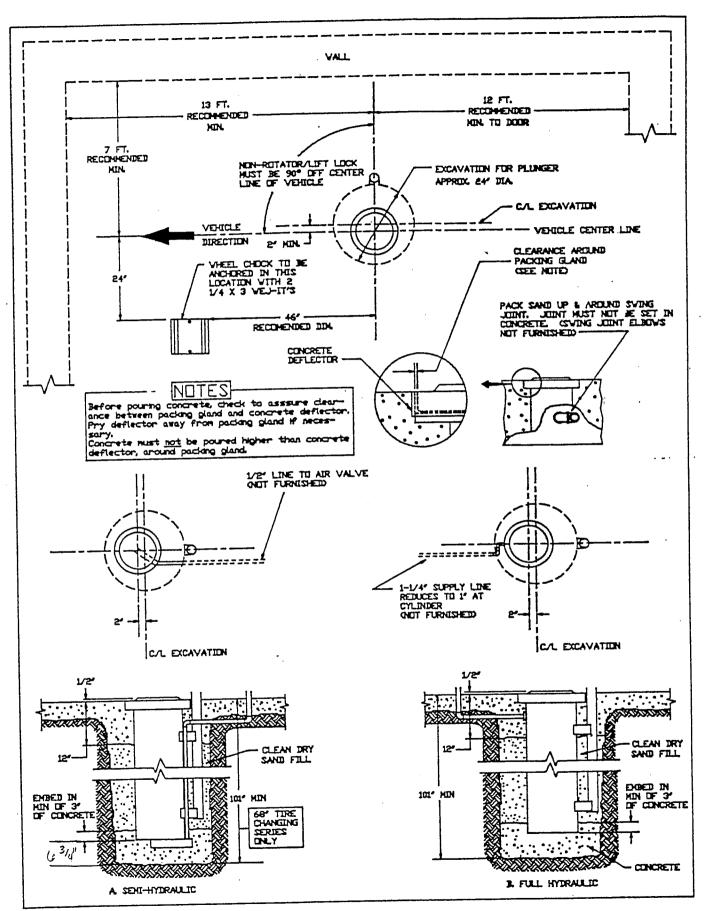


Fig. 1 Tube & Plunger Installation

Oil may be purchased from your oil supplier. Grease Specifications

Use a water repellent multipurpose grease (in all lube fittings) that meet the following specifications:

Worked Penetration	
60 Stroke310 to	340
Viscosity (SUS @ 100 F)750	MIN
Viscosity (SUS @ 210 F185	MAX
Dropping Point300 F	MIN
Percent Water1%	MAX
Acidity or Alkalinity3%	MAX
Norma Hoffman Pressure	
Drop (100 HRS @ 210 F)40 PSI	MAX
Corrosion	Vone

Note: Use hand gun only.

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PARTS/SERVICE/OPERATION MANUAL FOR FRAME ENGAGING LIFTS

V-383 - Single-Post Semi-Hydraulic Swing Arm Lift V-184 - Single-Post Full-Hydraulic Swing Arm Lift

DATE INSTALLED	INSTALLER
LIFT SERIAL NO	
MODEL NUMBER	
OTHER SPECIAL EQUIPMENT	

We reserve the right to make changes in design or add improvements without incurring the obligation to make such changes in lifts previously manufactured.

READ OPERATING INSTRUCTIONS COMPLETELY
BEFORE OPERATING LIFT

General Information

Model Description

- V-383 Semi Hydraulic Lift with an automatic lift lock and low oil lock. Designed use for lifting passenger cars with a lifting capacity of 8000 lbs. at a maintained air pressure of 150 psi.
- V-184 Air-Oil Full Hydraulic Lift with an automatic lift lock and low oil lock. Designed use for lifting passenger cars with a lifting capacity of 8000 lbs. at a maintained air pressure of 150 psi.

TABLE 1 OIL SPECIFICATIONS

NEW OIL containing a rust inhibitor and anti-foaming additive meeting the following specifications:

GRAVITY
FLASH325 to 400
FIRE390 to 425
VISCOSITY (SUS @ 100 F)125 to 150
VISCOSITY (SUS @ 210 F)
POUR10 to -25
Oil may be purchased from your oil supplier.

TABLE 2 GREASE SPECIFICATIONS

Use a water repellent multipurpose grease (in all lube fittings) that meet the following specifications:

WORKED PENETRATION 60 STROKE310 to 340
VISCOSITY (SUS @ 100 F)
VISCOSITY (SUS @ 210 F)
DROPPING POINT300 F MIN.
PERCENT WATER1% MAX.
ACIDITY OR ALKALINITY
NORMA HOFFMAN PRESSURE DROP (100 HRS @ 210 F)40 PSI MAX.
CORROSIONNONE
NOTE: USE HAND GUN ONLY

SPECIFICATIONS

MODEL SERIES	CAPACITY (LBS.)	PLUNGER TRAVEL (IN.)	PLUNGER DIAMETER (IN.)	LIFTING AREA (SQ. IN.)	OIL DISPLACED (GAL.)	INITIAL OIL FILL (GAL.)
V-383	*8000	70	10-5/8	88.5	27	43
V-184	*8000	70	10-5/8	88.5	27	43
Service			*@ 150	psig MAI	NTAINED AIR	PRESSURE

- * Periodically torque superstructure capscrews (item 12, page 6) to 100 ft. lbs.
- * MAINTAIN PROPER OIL LEVEL Check monthly and use only NEW oil meeting specifications listed in TABLE 1.
 - * SEMI hydraulic models- With lift completely lowered and all air EXHAUSTED from system, remove gauge rod (item 26, page 7) and check oil level, fill as required.
 - * FULL hydraulic models- With lift completely lowered and all air EXHAUSTED from system, remove gauge rod (item 10, page 8) from reservoir and check, fill as required.
- * LUBRICATION AND CLEANING Grease all fittings once a month and use only grease meeting the specifications listed in TABLE 2.
 - * Grease packing gland fitting (item 7, page 7). HAND GUN and ONLY ENOUGH GREASE TO FILL GLAND. lubrication may damage packing follower resulting in a scored plunger.
 - * Clean and lubricate lifting arms, adapters and lift lock leg. Clean and lubricate air valve. Inspect and clean muffler.
 - * Keep area around plunger and gland clean and free of dirt, sand, water, etc. to prevent scoring, rust or other damage to plunger. Protect any exposed portion of plunger from welding or cutting spatter (slag) when performing any such operation near lift area, these particles will damage both plunger finish and chevron packings. Remove rust and polish small nicks with fine emery paper.
 - * If reservoir (item 7, page 8) is not buried, it should be inspected periodically by competent personnel who are familiar with prevailing codes pertaining to

pressure vessels.

- * If at any time lift operation is halted due to operation of the low oil lock, lift should be removed from service until cause of oil leak is repaired and tank or plunger is refilled.
- * Continual presence of oil around top of cylinder after considerable use generally indicates the need for new packings. Parts and instructions required are included in V-159 (items 4, 5, 9 & 10, page 7). Order one kit per plunger to be repacked.
- * Drain condensation from compressor and air lines to increase life of all equipment.

Operation

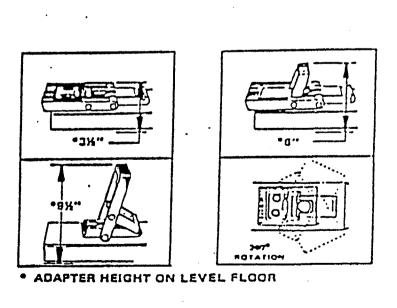
- * Be sure that adapters are in the lowered position before attempting to drive on or off the lift. Failure to do so may damage the adapters or vehicle.
- Locating vehicle and positioning adapters: Drive vehicle over lift until left front wheel is positioned in the wheel chock space. This will approximately position center of gravity over center of lift superstructure. Adjust adapter laterally and fore and aft to contact points of maximum stability in accordance with vehicle manufacturer's recommended lifting points.

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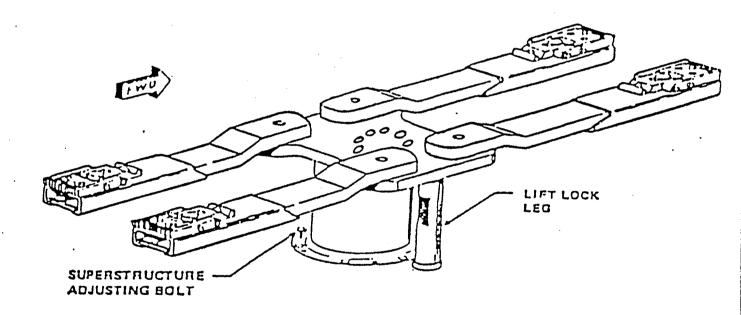
SEMI-HYD

FILL HOLE

0

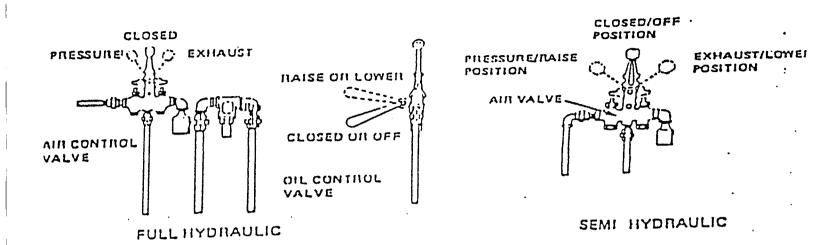


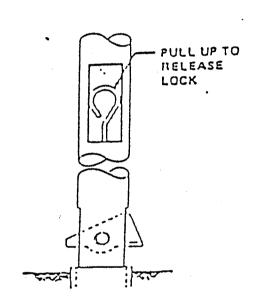
- * Remember that positioning adapters to yield the widest and longest distance between points of contact with vehicle lifting points provides the maximum stability.
- * Adapters may be used in lowered, intermediate or raised height position as necessary to clear mufflers, pipes, brake lines, etc. To obtain maximum stability when adapters are used at maximum height position, they should be placed in opposite directions and, whenever possible, turned approx. 45 degrees from the center line of the vehicle, as shown on the previous page. (Lift should be raised almost to point of contact with vehicle, then location and height rechecked).
- * To raise SEMI hydraulic models Place "Dead-Man" air control valve in "Pressure" position. When lift reaches desired working height, return to "Closed" position. To lower, release lift lock by pulling up on loop located in leg to set lock, place valve in "Exhaust" position and hold until lift is resting on floor. Lift lock will automatically reset when lift is raised.



* To raise FULL hydraulic models - place air control on "Pressure" and oil control valve on "Raise" until lift reaches desired working height, then in "Closed" position. Air control may now be placed in "Exhaust" position. To lower, release lift lock by pulling up on loop located in leg to set lock, with air control in "Exhaust" position, place oil control in "Lower" position and hold until lift is fully resting on floor. Lift lock will automatically reset when lift is raised.

* If lift has settled too low to release lock, raise to provide adequate clearance.





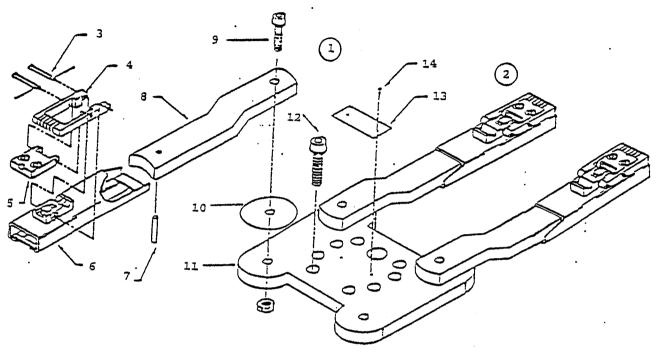
WARNING

Never permit personnel to operate lift who are not familiar with the information contained in these instructions.

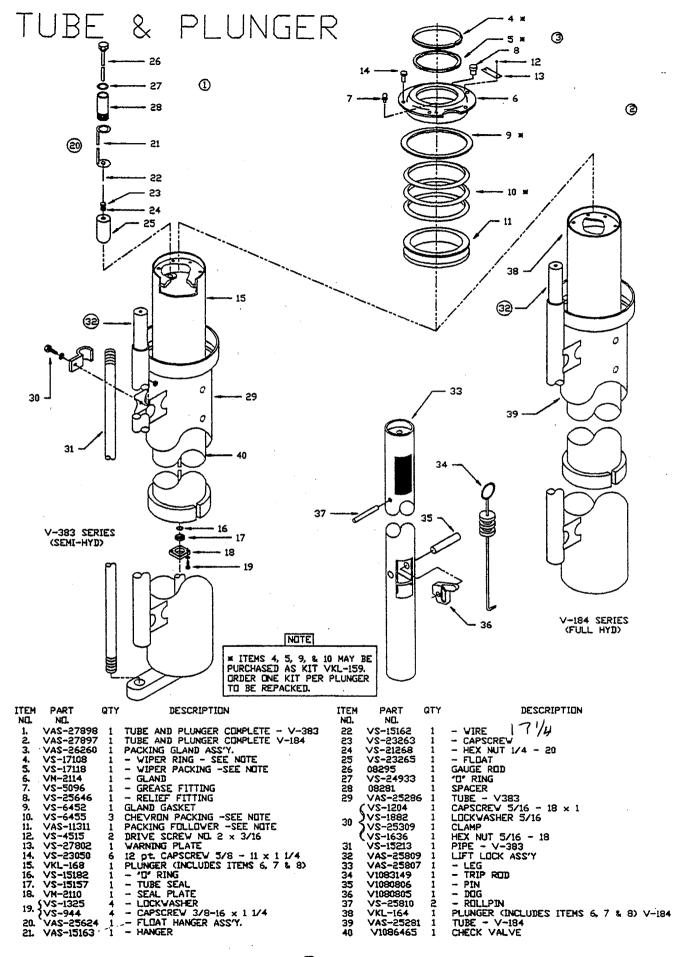
Safety devices and control valves are provided for YOUR PROTECTION. Do not alter any device to serve a special purpose. NEVER interfere with the safety features built into the controls or lift lock.

This lift is equipped with a removable plunger. Never operate lift without lift lock leg securely attached to the superstructure as shown on the previous page.

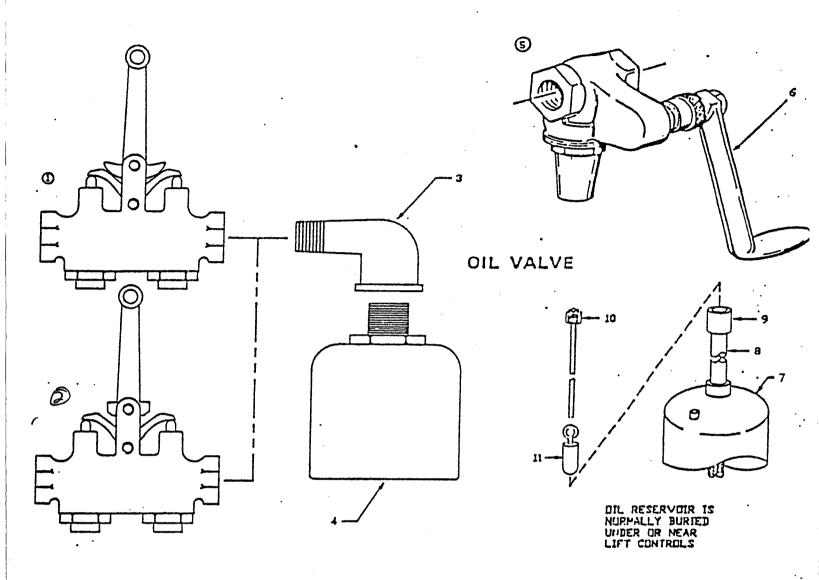
SUPERSTRUCTURE



ITEM NO.	PART NO.	QTY.	DESCRIPTION
1.	VAS-25000	1	SUPERSTRUCTURE COMPLETE - ITEMS 1 - 16
2.	VAS-24020	4	ADAPTER AND SLEEVE ASSY.
3.	VS-1997 ⁻ VS-19326	2 2	- CLEVIS PIN - ROLL PIN 1/8 X 5/8
4.	VM-2139	ı	- ADAPTER HIGH PAD
5.	VM-2138	1	- ADAPTER LOW PAD
6.	VAS-24019	1	- BASE AND SLEEVE
7.	VS-22952	4	ROLL PIN 3/8 X 1-1/2
8.	V1086-405	4	ARM
9.	V1086394 V1006395	4 4	1' - 8 X 3 HHCS HEX JAM NUT 1' - 0
10.	VS-24159	4	BEARING WASHER
11.	VS-25018	1	BOLSTER
12.	VS-25239	9	12 PT. CAPSCREW 3/4 - 10 X 3
13.	08159	1	NAMEPLATE
14.	VS-4515	2	12 X 3/16 DRIVE SCREW



WALL CONTROLS & DIL RESERVOIR



NG.	PART NO.	QTY	DESCRIPTION
1.	V1087391	1	AIR VALVE ASSY 383 SERIES
2	V1087390	1	AIR VALVE ASSY 184 SERIES
3.	VS-5865	1	STREET ELL 1/2" NPT (NOT FURNISHED)
4.	FE109-2V	ī	HUFFLER
3.	VAS-14765	1	DIL VALVE ASS'Y, (SEE NOTE)
6,	EC015-2V	1	HANDLE
7.	82282-2AV	1	RESERVOIR
8,	VS-25104	1	1 1/2° PIPE
9.	V2-52333	1	1 1/2" COUPLING
10.	81125-2AV	ī	GAUGE ROD
11	V1087679	ī	FLOAT ASSEMBLY

NOTE

DIL VALVE ITEM 5 IS SERVICED AS A COMPLETE UNIT DALY.

Oil Loss Trouble Shooting Guide Conventional Inground

Loss of oil through muffler

Check oil level and correct it.

Check Oil Appearance.

If milky or foamy determine cause.

Milky: Usually water is present. A separator / dryer on supply can remedy this situation.

Foamy: Air has been infused into system or oil is of poor quality due to water contamination. An anti foaming additive can be used if low quality oil is used but this is only a band-aid.

Float.

Check for proper operation. Replace if missing or malfunctioning.

Check Valve.

Located on bottom side of the piston. This can be removed with a 7/16"deep-well socket after removal of the superstructure and gland. Raise piston to the stop. Rotate piston 90 degrees and raise past the stop. Check valve is located on side just above the undercut on piston. Biodegradable oil, if water contaminated, will gum up the lift. This oil coagulates with the addition of water and is VERY intolerant to condensation.

If the oil has gummed up the check valve remove the old oil, flush with Dexron III ATF and fill with a QUALITY 20 weight hydraulic oil that has anti-foam AND anti-rust properties.

Center Tube Seal:

A visual inspection will be required to determine if this is in good shape or not.

Control Valve:

Check to insure that there is no "bleed through" or siphon effect present to infuse unnecessary air into system. This can be checked by shutting off the air supply to the valve while it is foaming from the muffler. Oil will stop flowing through the muffler if it is being siphoned by airflow through the valve.

Never "block" the lever to walk away and let the lift lower on its' own as this will create the above-mentioned phenomena.

Oil Around Top of Piston

Seal Kit:

Soft or standard:

Soft is better at low pressure but has a shorter life span.

Standard has a longer life span but is not as good at low pressure.

CLI's typical seal kit consists of three chevron shaped seals. There is a soft seal sandwiched in between two hard or standard seals.

Oil Loss not Readily Visible

Casing damage:

Drain and visually examine casing for damage.

Check the plug in the side of the casing. Check to see if it is loose from the inside first before breaking concrete. An externally expandable tool placedinside the plug will give a good clue as to the tightness of this plug. If plug is loose the cure is to tighten.

Pressure loss:

Using a cap sent from factory (return required) cap of the air line. Pressurize system and check pressure with gauge (Service company provided) and note pressure. Let stand for one hour and check pressure again and compare to original reading.

Note

A leak in the system directly from the factory is VERY unlikely as each one was pressure tested in a fixture before leaving the facility. Possible damage during transport or installation can cause a breach in the system.

INGROUND MAINTENANCE SCHEDULE

		V881	V383	V184	V105	V106
WEEKLY MAINT.		V292				
		V885				
Piston Surface	Clean & Inspect	X	X	X	X	X
Compressed Air	Drain Condensation	X		X	X	
WEEKLY	MAINT.					
Hydraulic Oil Level		X	X	X	X	X
Tighten Fasteners	Superstructure/ Saddle	X	X	X	X	X
	Pillow Blocks	X				
Clean & Lubricate	Packing Gland	X	X	X	X	· X
	Lifting Arms	X	X	X		
•	Flip—up Adapters	X	X	X	X	X
	Lift Lock	X	X	X	X	X
	Front Carriage Axles		·		X	X
	Front Frame Channel				X	X
Inspect & Clean	Muffler	X	X	X	X	
•	Air Valve	X	X	X	X	
PERIODIO (90 d	C MAINT. days)			,		·
Reservoir Inspection	<u>n</u> .	X		X	X	X
Foot Valve Screen						X