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INSTALLATION, OPERATION & MAINTENANCE MANUAL

FOR

FRAME ENGAGING LIFTS

C-881 - Two-post Drive Through Swing Arm Lift
C-881LS - Two-post Alignment Rack Lift
C-885 - Two-post Drive Through Pad Lift

CAUTION

READ OPERATING INSTRUCTIONS COMPLETELY
BEFORE OPERATING LIFT

P/N 08342

August 13, 1996

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 safety. DO NOT alter any device to serve a special purpose. Never interfere with the safety features built into the controls or 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

Refer to figure 1. Locate lift to allow adequate working room on all sides. Provide 12 feet overhead clearance. If lifts are to be installed side by side, 12 feet between centers of lifts is recommended.

Excavation

Excavate as shown in Fig. 1. All depths are measured from finished floor level. Models equipped with floor controls will require an excavation 18 inches square by 15 inches deep. Refer to Fig. 1 for suggested location. Reservoir is installed 25-1/2 inches below floor level. Extension pipe at top of reservoir must be installed as shown.

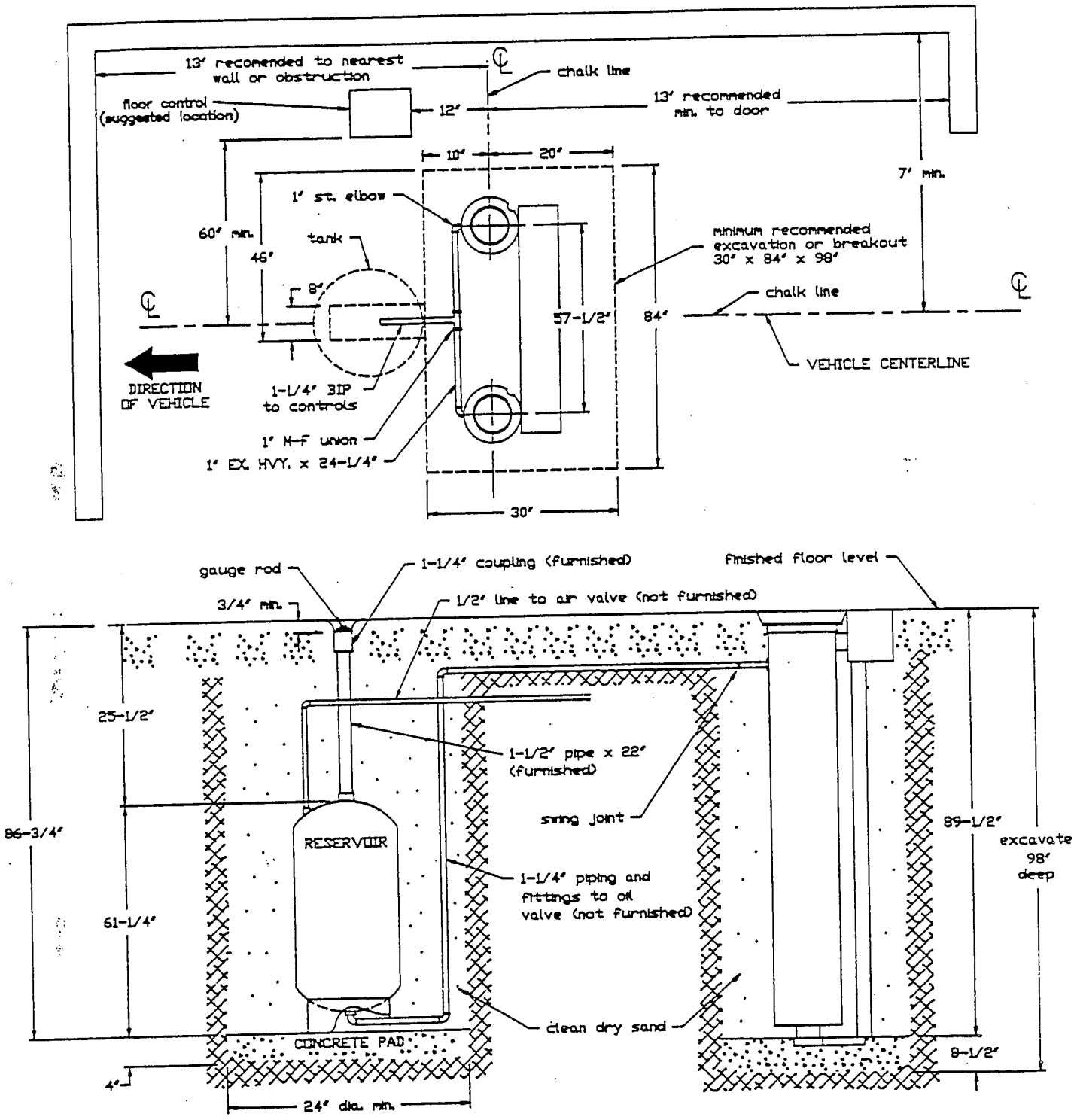

Fig. 1 Excavation and Installation

Installation

CAUTION:

If local soil conditions tend to hasten metal decay due to electrolysis or corrosion, provide suitable protective treatment for all buried components. Plastic wrapping tape is available from your jobber under No. V-25. Sacrificial magnesium anodes are available under No. V-26. The manufacturer will not be responsible for deterioration caused by electrolysis or corrosion.

1. Refer to Figure 2. Assemble channel (18), trench box (22), guide tubes (12) and gear assembly (43) to casings. Before tightening gear assembly bolts, install wood spacer 2 inches by 2 inches by 8 inches long (spacer is not supplied with lift) in guide tubes and insert gear racks. Tighten gear assembly with rack top or teeth in line and at equal distances from top of trench box.

2. Use a sling and spreader around trench box to lower assembly into excavation to avoid damage. DO NOT BEND BOX!

   CAUTION:

   Use bar joists, steel or timbers to support assembly in excavation.

3. Loosen bolts and ADJUST PISTON SPACING TO 57-1/2 inch CENTERS. Align bars welded to lower casing with channel. Check pistons for plumb in two directions using a 4 foot level. Shim assembly to finished floor level and correct location.

4. To reduce installation costs, we recommend tank be installed in lift excavation. 2 in. X 4 in. lumber may be used to form pad for oil tank over base channel. Notch lumber to fit over channel so top edge of form is 2-3/4 inches above channel. Pour concrete level with top of channel around casings and to top of forms in center.

5. After concrete sets, position tank and install 1-1/2 inch pipe. Coupling and plug supplied. Install 1/2 inch pipe from tank to level where horizontal piping will run. Check plumb and spacing of cylinders and backfill 24 inch deep with clean sand.

6. Recheck the following items as backfill is placed:

   A. Gears operate smoothly
   B. Cylinders plumb
   C. 57 1/2" centering spacing

   Continue backfill to grade level.

7. Connect piping between pistons, valves and tank. Air supply line should include water drip trap. If copper tubing is used for airline connections, use black iron pipe above floor or in conjunction with floor controls to provide adequate support to air valve.

8. Pressure test all connections before covering lines with backfill material.

9. Proceed with concrete placement. Use wood spacers to reinforce trench box walls during pouring. Finish concrete to slope away from lift.

Final Installation

1. Remove and discard plunger retaining straps (fig.2). Add ballast to each plunger (thru opening in top) to increase lowering speed of lift when not weighted by a vehicle. Add 250 lbs. (min. each plunger) of small steel punchings; or pour 5 gals. clean new oil in plunger, add clean DRY sand until absorbed; continue adding oil and sand until plungers are full.

2. INITIAL OIL FILL: Plungers should be in fully lowered position; use only NEW oil that meets the specifications as listed in table 1. Place air control in the EXHAUST position. Refer to Fig. 4. With gauge rod (1) and float assembly (2) removed, refer to Fig. 3, fill reservoir with oil (a portion of the approx. 40 gallon required cannot be added until the completion of installation). Insert float assembly. Next, insert and tighten gauge rod assembly.

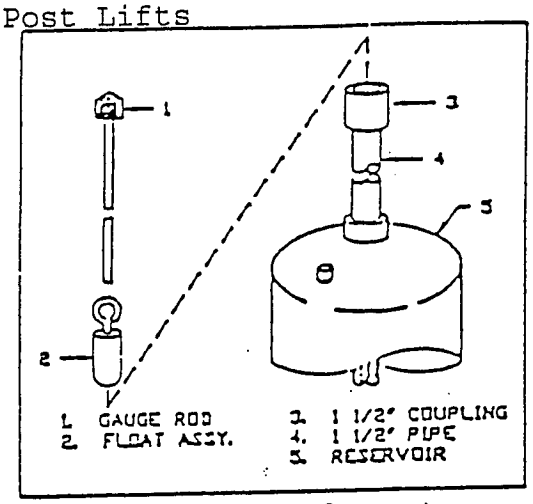

Fig. 3 CK Reservoir Components

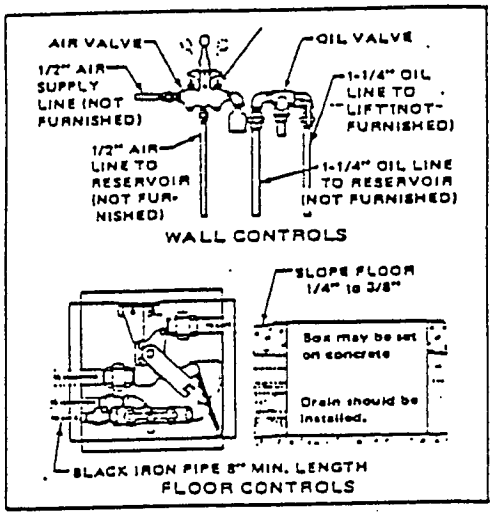

Fig. 4 Control Valve Piping

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).

WARNING:

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

CAUTION:

Before operating lift, pistons must be turned in the position shown below (i.e., blank space in bolt circle on horizontal centerline). If not, stops will be misaligned and extensive damage to packings and follower may result.

3. Raise both plungers until tops are just above tops of racks and install bolsters with capscrews and lockwashers. Torque capscrews to 150 foot-pounds. Ease plungers down and fasten racks to bolsters with capscrews and 1/2 inch lockwashers, see Figure 5. Install spacer and trip assembly. between top of racks and bolster as shown in Fig. 2.

C-881LS models: Refer to ALIGNMENT EQUIPMENT INSTALLATION instructions to complete installation.

4. Bolt lift lock to plate. On model V-881 lifts, install trip bolt and spring on bottom side of plate. Tighten locking nut until spring just does contact plate. An additional spring and washer may be added if floor slope keeps unit from working. When properly adjusted and lift lowered, release arm must fall forward.

   Do not place lift in service until properly adjusted. When tightening gear rack screws, be certain trip pin plate does not rotate. Tighten all bolts in trench box to 30 foot-pounds.

5. Install trench box cover door (26) with capscrew (25) as shown in Figure 2.

6. Slide sleeves (12) onto arms and install roll pins (13), see detail "A", Figure 5. Roll pins must protrude 1/2 inch from bottom of arms to prevent over extension of sleeve. Install roll pins (14) four required on each bolster and drive flush with surface bolster.

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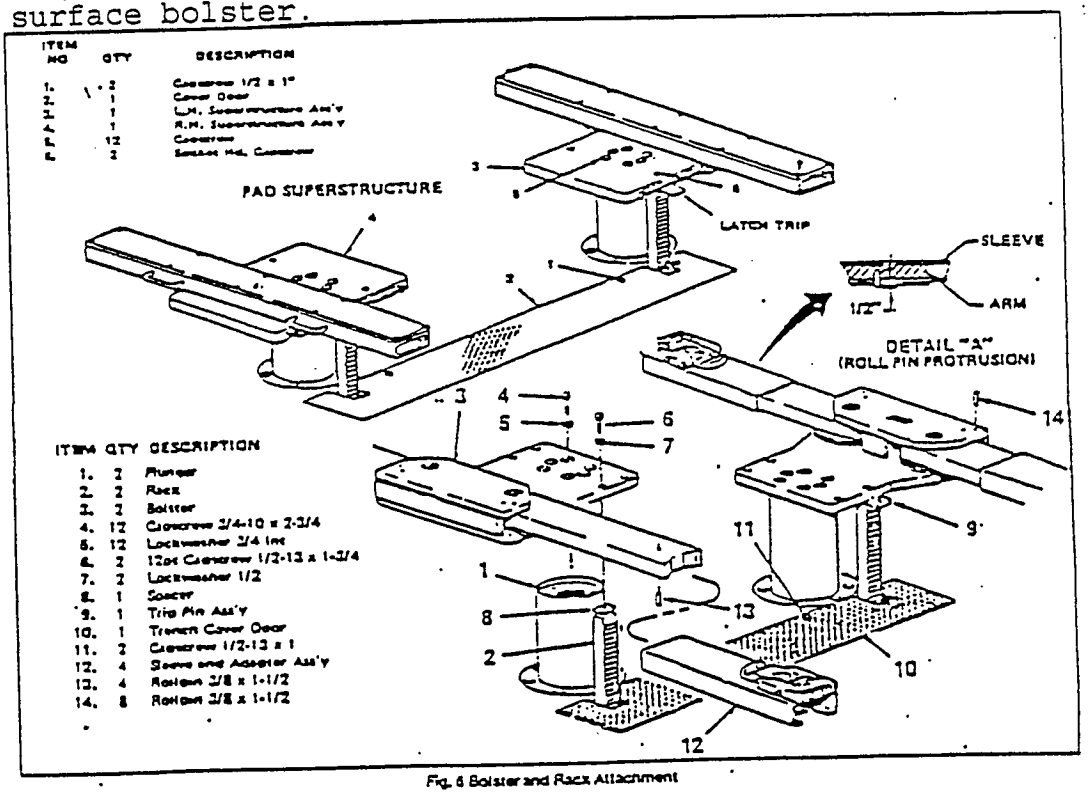


Fig. 6 Bolster and Rack Attachment

TABLE 1
Oil Specification

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

Gravity	25 to 32
Flash	325 to 400
Fire	390 to 425

Viscosity--125 to 150 SUS @ 100 degrees Fahrenheit
Viscosity--40 to 50 SUS @ 210 degrees Fahrenheit
Pour -10 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 Stroke	310-340
Viscosity--SUS @ 100 deg. F	750 MIN.
Viscosity--SUS @ 210 deg. F	185 MAX.
Dropping Point	300 Deg. F. MIN.
Percent Water	1% MAX.
Acidity or Alkalinity	3% MAX.
Norma Hoffman Pressure Drop (100 HRS @ 210 deg. F)	40 PSI. MAX.
Corrosion	None

Note: Use hand gun only.

Initial Operational Test

TO RAISE, place air control on "pressure," oil control on "RAISE" until lift reaches desired height, then place controls in "OFF" or "CLOSED" position. TO LOWER, trip lock release (if so equipped), place air pressure on "EXHAUST" and oil control on "LOWER" position and hold until lift is fully resting on floor.

Initial Lubrication

Thoroughly oil racks, bearing surfaces, under adapters and sleeves. Use hand gun and grease both packing glands and both fittings on gear shaft in trench box (use only grease that meets specifications).

Operation

Locating vehicle and positioning adapters: Drive vehicle over lift and position center of gravity over center of lift superstructure. Adjust adapters laterally and fore and aft to contact points of maximum stability in accordance with vehicle manufacturer's recommended lifting points.

CAUTION:

Lift may chatter if vehicle is positioned incorrectly.

Position adapters to obtain maximum width and length between points of contact with vehicle lifting points to maximize stability. Consult vehicle manufacturer's service manual to obtain correct lifting points and procedures.

Adapters may be used in lowered, intermediate or raised height position as necessary to clear mufflers, pipes, brake lines, and other components. To obtain maximum stability when adapters are used at maximum height position, they should be oriented in opposing directions and whenever possible, turned approximately 45 degrees from the center line of the vehicle.

WARNING:

Raise lift almost to point of contact with vehicle, then recheck adapter location and height, and for interference with underbody components.

Insure that adapters are in the lowered position and swing arms are retracted before attempting to drive on or off the lift. Failure to do so may damage the adapters or the vehicle.

Pad Lifts: Slide pads under vehicle and position to contact approved lifting points only. Consult vehicle manufacturer's service manual to obtain correct lifting points and procedures.

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, 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 place oil control valve in "Closed" position. Air control may now be placed in "Exhaust" position.

To lower lift, release lift 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.

CAUTION:

Do not allow handle to snap closed.

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

SERVICE

Tighten All Fasteners Monthly:

Two Post Lifts--Torque superstructure bolts 150 foot-pounds.

Two Post Lifts--Torque pillow block bolts in trench box 35 foot-pounds.

Maintain Proper Oil Level

Check oil level 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 and check oil level. Fill as required.

Full hydraulic models - With lift completely lowered and all air exhausted from system, remove gauge rod from reservoir and check. Fill as required.

Lubrication and Cleaning

Grease all fittings once a month and use only grease meeting specifications listed in table 2.

Grease packing gland fitting - Use hand gun and only enough grease to fill gland. Over lubrication may damage packing follower resulting in a scored plunger.

Clean and lubricate lifting arms, adapters and lift lock. Clean and lubricate air valve. Inspect and clean muffler.

Keep area around plunger and gland free of dirt, sand, water, and other foreign material, to prevent scoring, rust or other damage to plunger. Protect any exposed portion of piping from welding or cutting spatter (slag) when performing any such operation near lift area; these particles will damage both plunger finish and packings.

If reservoir is not buried it should be inspected periodically by competent personnel who are familiar with prevailing codes pertaining to pressure vessels.

Wipe down piston with clean cloth WEEKLY. Remove rust and polish small nicks with fine emery paper.

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 Lift Packing Kits. Order one kit per plunger to be repacked.

INSTALLATION OF LIFT LOCK

This lift lock is designed and supplied for your protection. It is IMPORTANT that it be installed correctly and maintained in good working order. Read through the following installation procedure and familiarize yourself with each step and the parts to be installed before you start the installation.

1. The pinion gears must be centered on each rack and fully engaged.

2. Loosen the mounting bolts, item 35 on the lock assembly. Fully engage the locking pawl with the rack and gear. You must lower the lift slightly to obtain full engagement. The pawl must be centered on the rack and flush against the rack.

3. With the pawl fully engaged, tighten the mounting capscrews.

4. Raise the lift and disengage the lock by pulling up on the handle until the pawl is held clear of the rack and gear. This will require a movement of about 1 inch.

5. If the lock does not remain in the released position during the lowering process check and be sure that the extension

spring is hooked up properly and or is not damaged.

6. When the lift is almost fully lowered, the trip reset plate should contact the handle of the locking pawl and reset the lock.

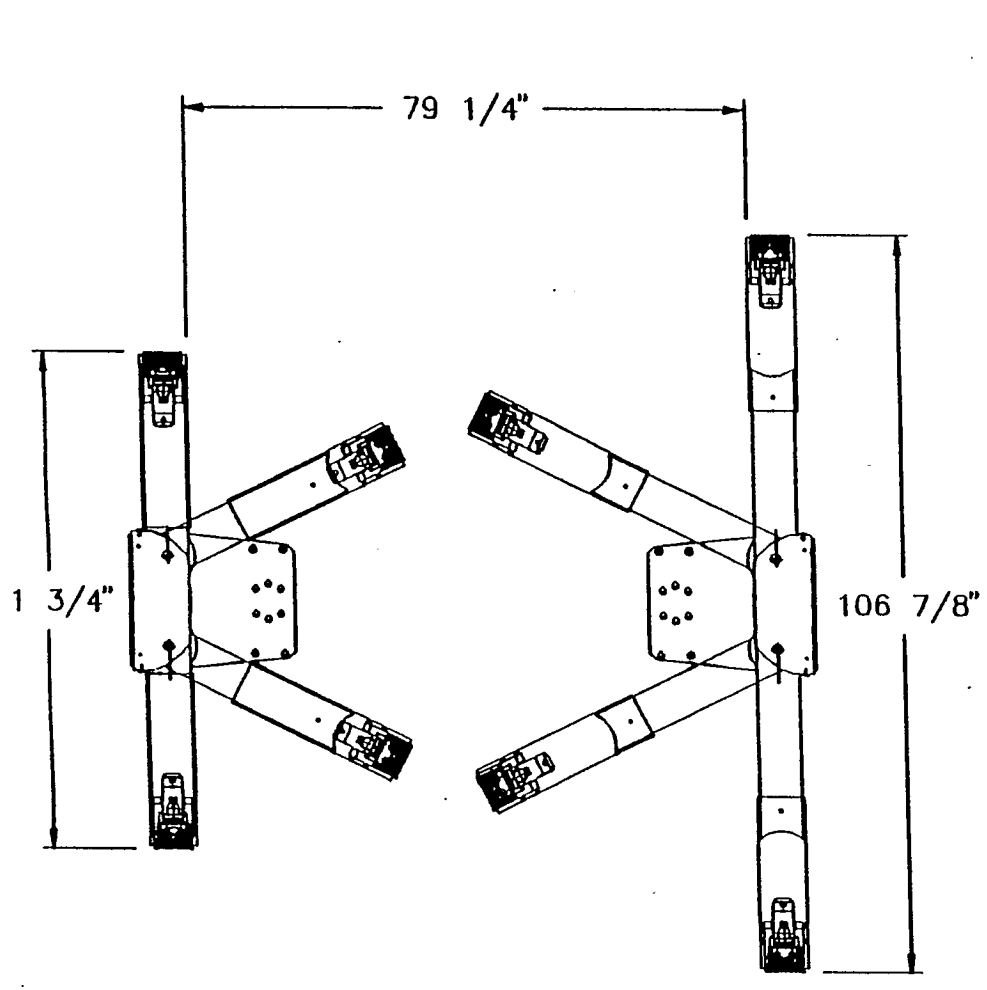
7. When lift is fully lowered there should be a small gap between the reset plate and the lock pawl handle. If adjustment of the reset plate is necessary, it can be easily adjusted by bending. Once reset, the lock must ratchet without binding as the lift is raised.

Challenger Lifts, Inc.

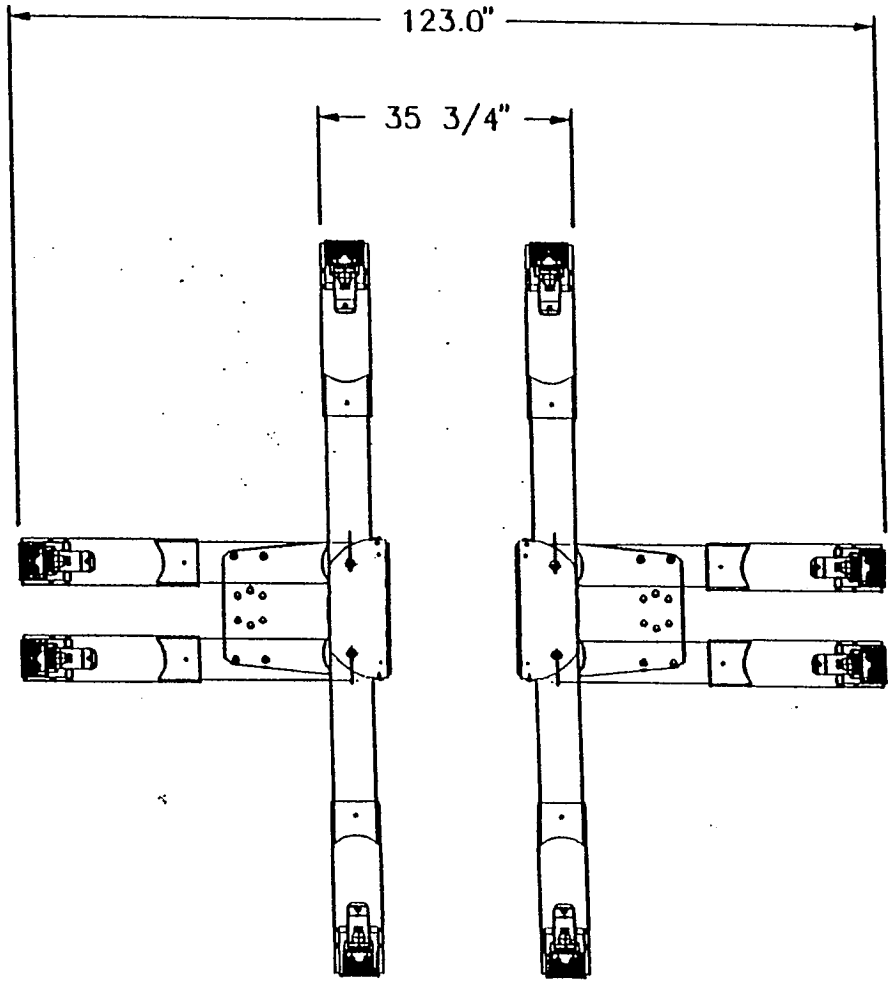
Parts List
C 881 - C 881LS - C 885
Effective July 1, 1994

881 SWING ARM SUPERSTRUCTURE

C881-C881LS-C885



DRIVE THRU



DRIVE OVER

MINIMUM DRIVE OVER CLEARANCE FOR BOTH APPLICATIONS IS 4 1/2"

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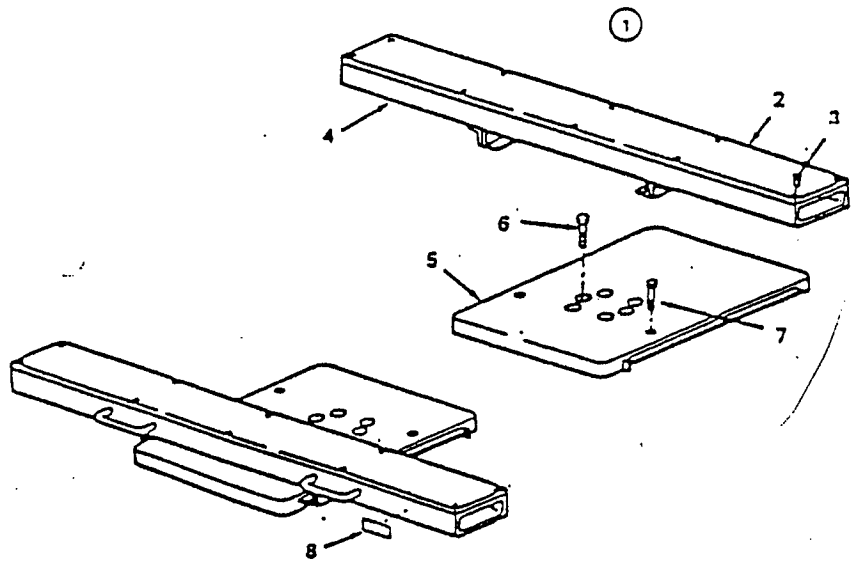
PAD SUPERSTRUCTURE



PAD
SUPERSTRUCTURE

ITEM NO.	PART NO.	QTY.	DESCRIPTION
1.	1086386	2	SUPPORT PAD ASS'Y
2.	1086382	1	-CUSHION
3.	VS4515	12	-DRIVE RIVOT
4.	1086386	1	-SUPPORT TUBE ASS'Y
5.	1086379	2	BOLSTER
6.	VS25259	12	HEX HD. CAPSCREW 3/4-10 X 3
7.	VS2407	2	SOC. HD. CAPSCREW 1/2-13 X 2
8.	08159	1	NAME PLATE

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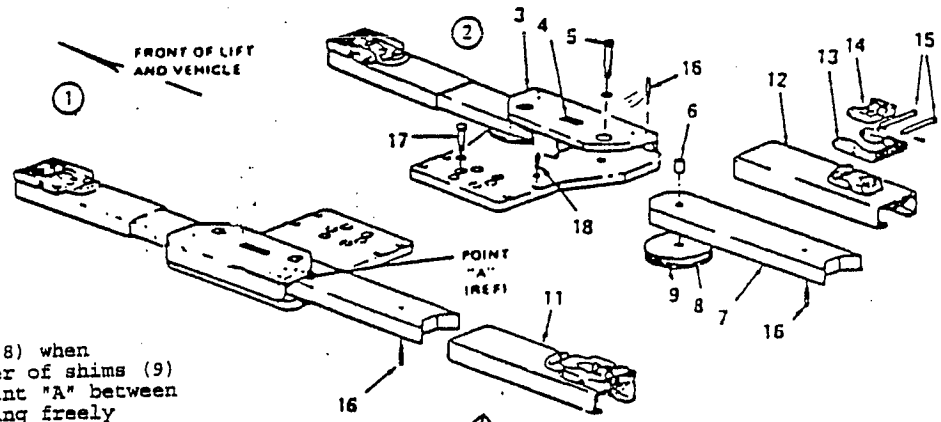
SWING ARM SUPERSTRUCTURE



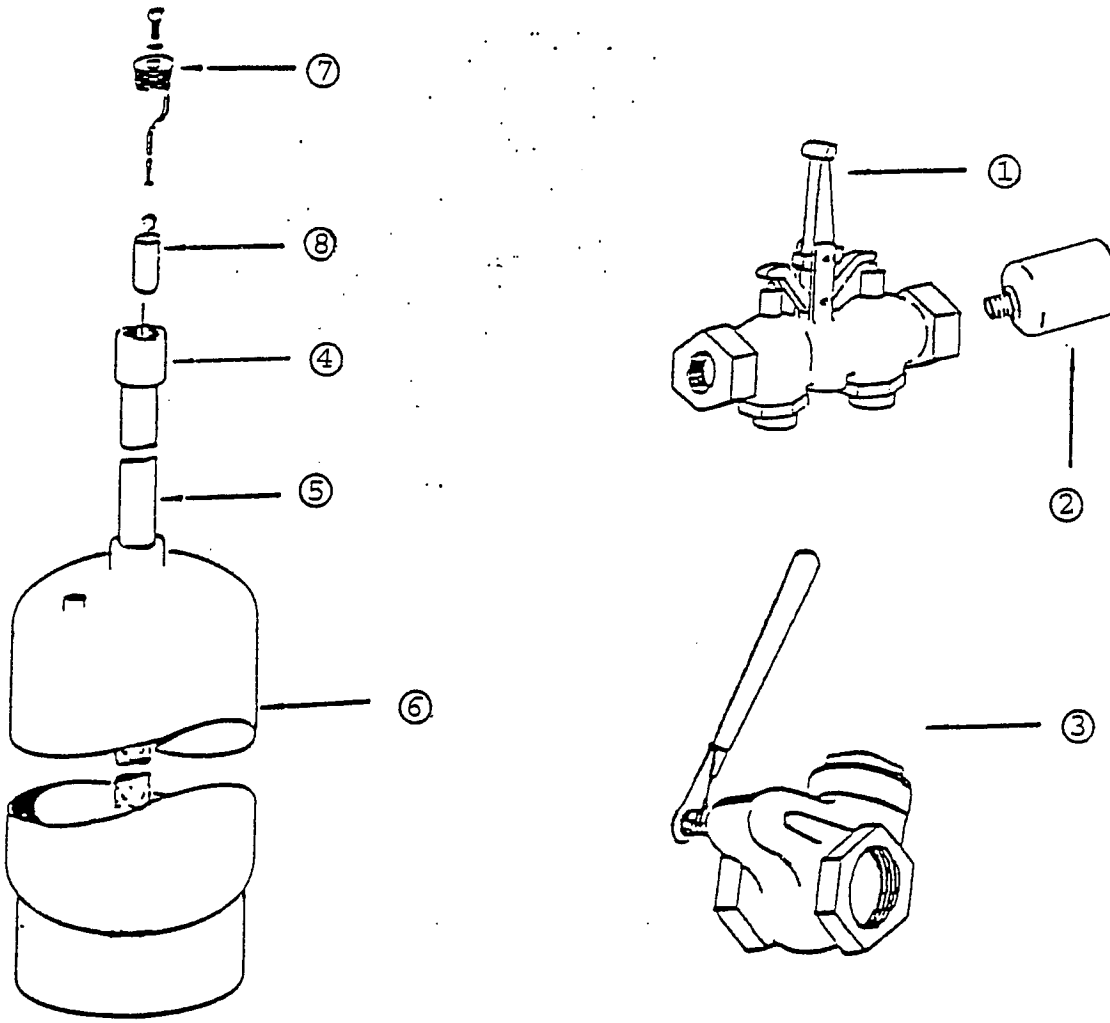
Grease bottom side of bearing washers (8) when replacing arm (7). Add sufficient number of shims (9) to obtain .010 to .020 clearance at point "A" between arm and top bolster plate. Arm must swing freely when capscrew (5) is torqued to 150 ft. lbs. mimimum.

Not part of S/S, in hdw. box

ITEM NO.	PART NO.	QTY.	DESCRIPTION
1.	VAS-24910	1	L.H. SUPERSTRUCTURE
2.	VAS-24906	1	R.H. SUPERSTRUCTURE
3.	V1083056	2	--- BOLSTER
4.	08159	1	--- NAME PLATE (on item 2 only)
	VS-4515	4	--- DRIVE SCREW NO. 2 X 3/16
5.	VS-24295	2	--- CAPSCREW 7/8-9 X 3-3/4
	VS-24296	2	--- LOCKWASHER 7/8
6.	VS-24155	2	--- TUBE
7.	VS-24182	2	--- ARM
8.	VS-24159	4	--- BEARING WASHER
9.			--- BEARING SHIM

ITEM NO.	PART NO.	QTY.	DESCRIPTION
11.	VAS-23377	4	--- ADAPTER & SLEEVE
12.	VAS-23375	1	--- SLEEVE ASS'Y
13.	VM-2139	1	--- ADAPTER HIGH PAD
14.	VM-2138	1	--- ADAPTER LOW PAD
15.	VS-19977	2	--- CLEVIS PIN
	VS-19326	2	--- ROLL PIN 1/8 X 5/8
16.	VS-22952	12	ROLL PIN 3/8 X 1-1/2
17.	VS-2882	12	CAPSCREW 3/4-10 X 2-3/4
	VS-3010	12	LOCKWASHER 3/4
18.	V1087666	2	5/8-11 X 2-1/4 SCHS
	VS23405	2	LOCKWASHER 5/8

WALL CONTROLS & OIL RESERVOIR
881 - 881LS LIFTS



ITEM	PART NO.	QTY.	DESCRIPTION
1.	V1087392	1	AIR VALVE
2.	VS-20154	1	MUFFLER
3.	VAS-14765	1	OIL VALVE
4.	VS-25393	1	1-1/2" COUPLING
5.	VS-25104	1	1-1/2" PIPE
6.	VAS-28258	1	RESERVOIR
7.	VAS-25118	1	GAUGE ROD
8.	V1087679	1	FLOAT & HANGER

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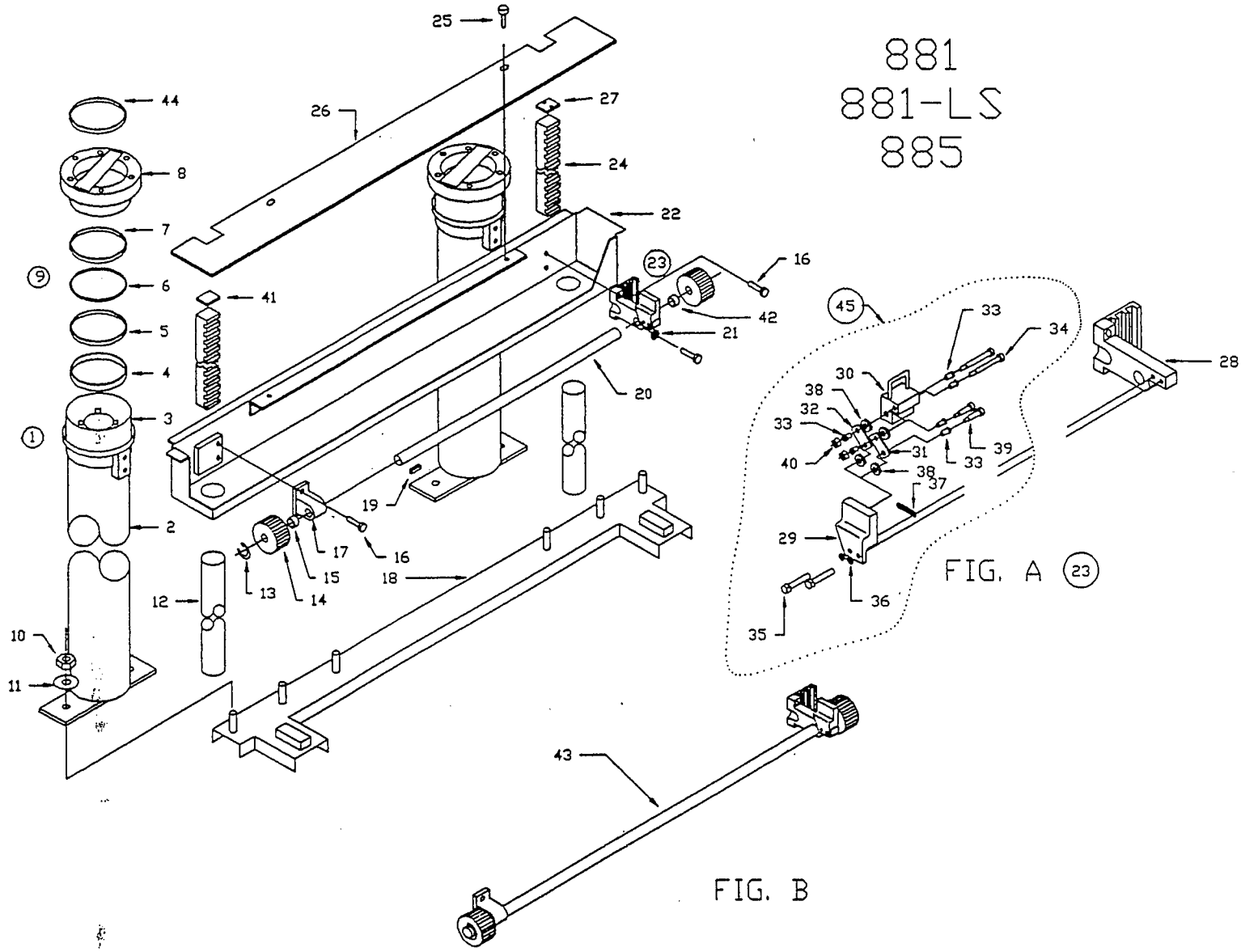

FIG. A (23)

FIG. B

ITEM	PART NO.	QTY.	DESCRIPTION
1	V1080671	2	TUBE & PLUNGER ASSY.
2	V1080670	2	TUBE W.A.
3	VKL-176	2	PLUNGER ASSY. INCLUDES ITEM 8
4	VA-1325	2	PACKING FOLLOWER
5	VS-5857	4	PACKING
6	VS-5858	2	GASKET
7	VS-18868	2	FLAX WIPER
8	VM-2100	2	GLAND
9	VKL-162	2	PACKING KIT
10	VS-508	4	HEX NUT 1/2
11	VS-20147	4	WASHER 1/2
12	V1084914	2	GUIDE TUBE
13	VS-18912	2	RETAINING RING
14	VS-24522	2	GEAR
15	V1085956	1	SPACER
16	V1086909	4	HHCS 1/2-13
17	V1085364	1	PILLOW BLOCK W.A.
18	V1085384	1	CHANNEL W.A.
19	VS-18911	2	KEY 1/4
20	VS-24187	1	SHAFT
21	VS-512	4	LOCKWASHER
22	V1085378	1	TRENCH BOX W.A.

ITEM	PART NO.	QTY.	DESCRIPTION
23	VKL-345	1	BEARING BLOCK ASSEMBLY
24	V1080236	2	RACK
25	VS-722	2	CAPSCREW 1/2 x 1
26	V1085383	1	TRENCH COVER DOOR
27	V1085393	1	ARM TRIP PIN
28	V1088218	1	PILLOW BLOCK
29	08140	1	MOUNTING BLOCK
30	V1088216	1	LOCKING PAWL
31	V1088215	1	TOP PIVOT
32	V1088213	1	BOTTOM PIVOT
33	V1087426	6	FLANGED BEARING
34	V1086890	2	SHOULDER BOLT
35	VS-7428	2	CAPSCREW
36	VS-1882	2	LOCKWASHER
37	V1083893	1	EXTENSION SPRING
38	V1088055	4	THRUST BEARING
39	V1088054	2	SHOULDER BOLT
40	VG273924	2	LOCKNUT
41	V1086898	1	SPACER BLOCK
42	VS-23515	1	SPACER
43	08151	1	GEAR ASSY. (SEE FIG.B)
44	VS-18867	2	RUBBER WIPER
45	VKL-346	1	LIFT LOCK ASSEMBLY

Fig. 2 Tube and Plunger Assembly

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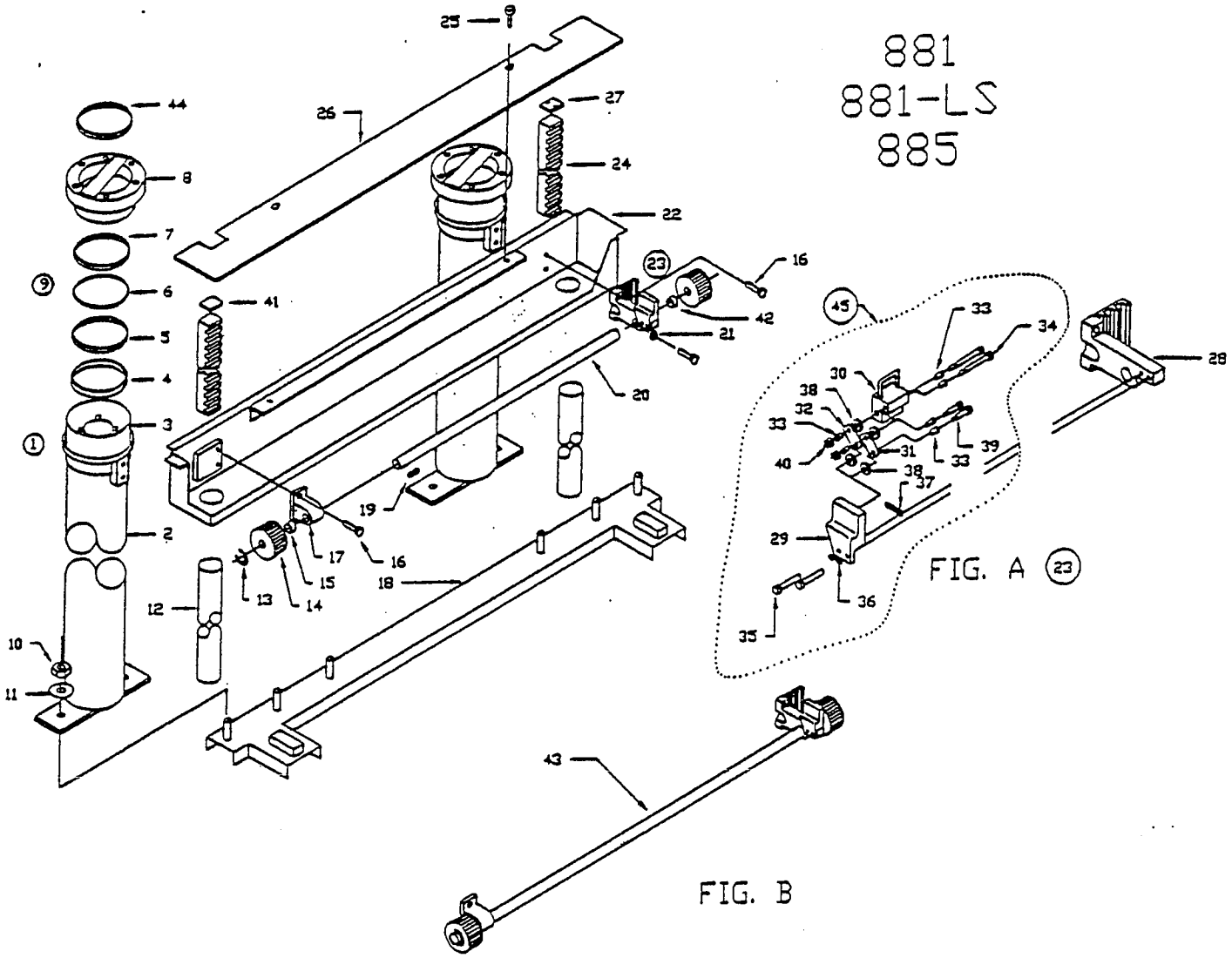

FIG. A (23)

FIG. B

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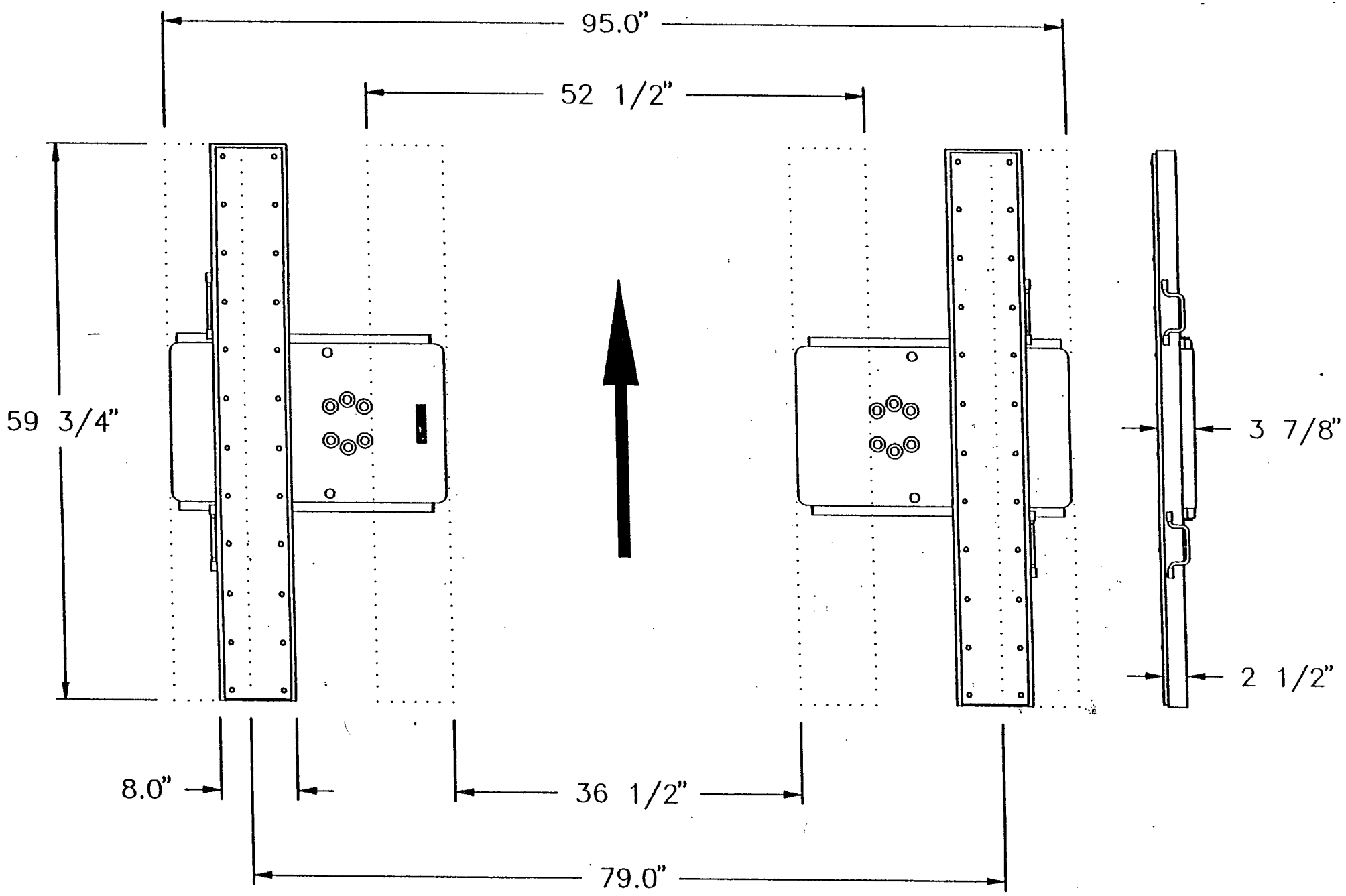
28	V1088218	1	PILLOW BLOCK
29	08140	1	MOUNTING BLOCK
30	V1088216	1	LOCKING PAWL
31	V1088215	1	TOP PIVOT
32	V1088213	1	BOTTOM PIVOT
33	V1087426	6	FLANGED BEARING
34	V1086890	2	SHOULDER BOLT
35	VS-7428	2	CAPSCREW
36	VS-1882	2	LOCKWASHER
37	V1083893	1	EXTENSION SPRING
38	V1088055	4	THRUST BEARING
39	V1088054	2	SHOULDER BOLT
40	VG273924	2	LOCKNUT
41	V1086898	1	SPACER BLOCK
42	VS-23515	1	SPACER
43	08151	1	GEAR ASSY. (SEE FIG.B)
44	VS-18867	2	RUBBER WIPER
45	VKL-346	1	LIFT LOCK ASSEMBLY

Fig. 2 Tube and Plunger Assembly



C881-C881LS-C885

C885 PAD SUPERSTRUCTURE