

CHALLENGER LIFT INC.
200 CABLE STREET
LOUISVILLE, KY 40206
(502) 625-0700

INSTALLATION & SPECIFICATIONS MANUAL
FOR HEAVY DUTY TWO POST LIFTS

GENERAL INFORMATION

V105 - AIR-OIL OPERATED HYDRAULIC LIFT WITH LOW OIL AND LIFT
LOCKS - CAPACITY *24000

V106 - ELECTRIC-OIL OPERATED HYDRAULIC LIFT WITH LOW OIL AND
LIFT LOCKS - CAPACITY *36000

* @ 165 PSIG MAINTAINED AIR PRESSURE
** @ 250 PSIG MAINTAINED OIL PRESSURE

INSTALLATION & SPECIFICATIONS MANUAL

SPECIFICATIONS

The equipment shall be of the model designated on the cover and shall consist of components and conform to the configuration listed below and hence referenced to.

GENERAL DESCRIPTION _____ As described and/or
illustrated on page(s) _____ 1

CAPACITY & DIMENSIONS _____

- a. Capacity _____ As described and/or
illustrated on page(s) _____ 1
- b. Wheel Base Adjustment _____ As described and/or
illustrated on page(s) _____ 5, 6, 7 & 8
- c. Adapter Adjustment _____ As described and/or
illustrated on page(s) _____ 4
- d. Air-Oil Reservoir _____ As described and/or
illustrated on page(s) _____ 4 & 12
- e. Hydraulic Power Unit _____ As described and/or
illustrated on page(s) _____ 4
- f. Plunger Diameter & Stroke _____ As described and/or
illustrated on page(s) _____ 4

DESIGN REQUIREMENTS _____

- a. Front Lifting Unit _____
 - 1. Saddle & Adapters _____ As described and/or
illustrated on page(s) _____ 4
 - 2. Front Post (Tube & Plunger) _____ As described and/or
illustrated on page(s) _____ 4
 - 3. Front Post Carriage & Trench _____ As described and/or
illustrated on page(s) _____ 4 & 19
- b. Rear Lifting Unit _____
 - 1. Saddle & Adapters _____ As described and/or
illustrated on page(s) _____ 4
 - 2. Rear Post (Tube & Plunger) _____ As described and/or
illustrated on page(s) _____ 4
 - 3. Rear Frame Unit _____ As described and/or

INSTALLATION & SPECIFICATIONS MANUAL

illustrated on page(s) _____ 13

c. Controls _____

1. Lift Controls _____ As described and/or
illustrated on page(s) _____ 12

2. Wheel Base Adjustment _____ As described and/or
illustrated on page(s) _____ 19

d. Plumbing _____ As described and/or
illustrated on page(s) _____ 12

e. Lift Lock _____ As described and/or
illustrated on page(s) _____ 20

f. Miscellaneous _____

1. Installation Manual _____ Shipped with lift
P/N 09049

2. Parts, Service & Operation _____ Shipped with lift
P/N 09048

3. Repair Parts Price List _____ Supplied on request

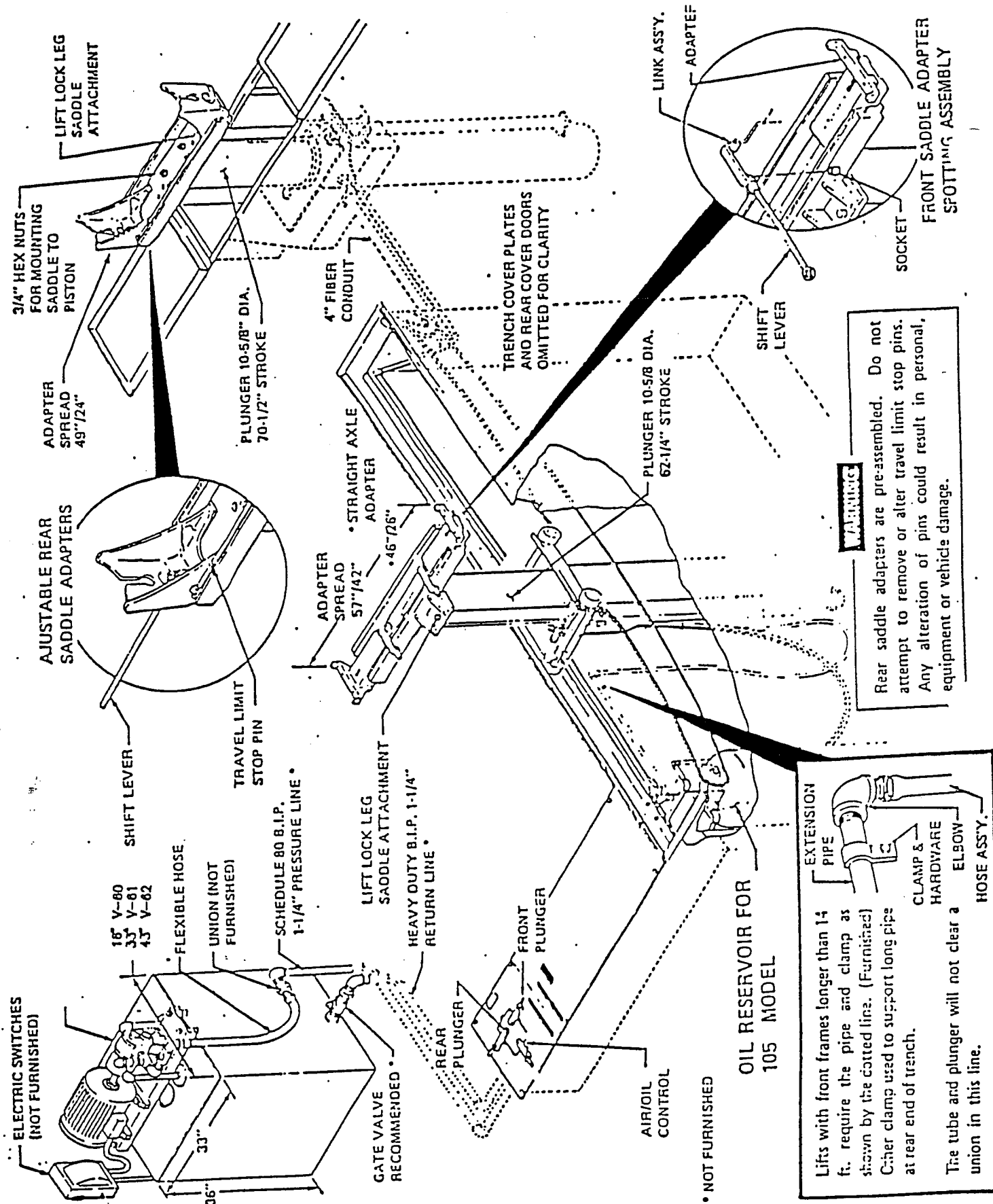


Fig. 1 General Arrangement

INSTALLATION & SPECIFICATIONS MANUAL

FOR WHEEL BASES _____ IN. TO _____ IN.
 DIMENSION A _____ B _____

TO DETERMINE "A" AND "B" DIMENSIONS

Enter minimum and maximum wheelbases in the space provided above. These may be found stenciled on the rear of the front frame, underside of cover plates, or on parts carton, for specification purposes, from the chart below.

Read down the column at extreme left to proper minimum wheelbase. Then directly across to maximum wheelbase. The corresponding "A" dimension will be found at the top of the column containing the maximum wheelbase and the "B" dimension to the extreme right.

IMPORTANT: Enter "A" and "B" dimensions in space provided above for reference during installation or specification.

EXAMPLE: If wheelbase of your lift is 102 in. to 202 in., then read down the left column to 102 in. and across to 202 in.. At the top of the column containing the figure 202 will be found the "A" dimension - 144" and to the extreme right of the 202 in. figure the "B" dimension - 88".

		"A" DIMENSION											
		144"	156"	168"	180"	192"	204"	216"	228"	240"	252"	264"	
MIN. WB		MAXIMUM WHEEL BASE											"B"
36	136	148	160	172	184	196	208	220	232	244	256	268	22"
42	142	154	166	178	190	202	214	226	238	250	262	274	28"
48	148	160	172	184	196	208	220	232	244	256	268	280	34"
54	154	166	178	190	202	214	226	238	250	262	274	286	40"
60	160	172	184	196	208	220	232	244	256	268	280	292	46"
66	166	178	190	202	214	226	238	250	262	274	286	298	52"
72	172	184	196	208	220	232	244	256	268	280	292	304	58"
78	178	190	202	214	226	238	250	262	274	286	298	310	64"
84	184	196	208	220	232	244	256	268	280	292	304	316	70"
90	190	202	214	226	238	250	262	274	286	298	310	322	76"
96	196	208	220	232	244	256	268	280	292	304	316	328	82"
102	202	214	226	238	250	262	274	286	298	310	322	334	88"
108	208	220	232	244	256	268	280	292	304	316	328	340	94"
114	214	226	238	250	262	274	286	298	310	322	334	346	100"
120	220	232	244	256	268	280	292	304	316	328	340	352	106"
126	226	238	250	262	274	286	298	310	322	334	346	358	112"
132	232	244	256	268	280	292	304	316	328	340	352	364	118"
138	238	250	262	274	286	298	310	322	334	346	358	370	124"
144	244	256	268	280	292	304	316	328	340	352	364	376	130"
150	250	262	274	286	298	310	322	334	346	358	370	382	136"
156	256	268	280	292	304	316	328	340	352	364	376	388	142"
162	262	274	286	298	310	322	334	346	358	370	382	394	148"
168	268	280	292	304	316	328	340	352	364	376	388	400	154"
174	274	286	298	310	322	334	346	358	370	382	394	406	160"
180	280	292	304	316	328	340	352	364	376	388	400	412	166"

INSTALLATION & SPECIFICATIONS MANUAL

LIFT LOCATION

It is IMPORTANT TO PROVIDE SUFFICIENT SPACE for the vehicle at the rear of the lift.

Due to the wide variation of rear overhangs (rear axle to end of vehicle) on vehicles lifted with intermediate and heavy duty twin post lifts a survey must be made before the lift is installed.

In order to determine the best distance between the rear frame and the nearest obstruction follow this procedure.

- A. Survey and record the rear overhang dimension of the present range of vehicles which will be serviced on the lift.
- B. Survey the anticipated future usage of the lift and obtain the overhang dimensions.
- C. Add a minimum of 6 in. to the greatest overhang to determine the minimum clearance dimension shown in Fig. 2, page 4. NOTE: The clearance dimension should never be less than 72 in..

Study this manual carefully to become familiar with the general installation procedure. Refer to chart on page 1, packing list and bill of lading to acquaint yourself with model type and options to be installed. This is a must to avoid improper installation. Parts should be inspected at this time for any damage which might have occurred during shipment. Check packing list with parts received for possible shortages.

LOCATION-EXCAVATION

1. Locate lift centerlines in desired area in accordance with the information provided in Figure 2.
2. Determine the type of front trench wall to be used and excavate to dimensions shown in Figure 3.

NOTES

It is recommended that when lifts are to be installed side by side they should be placed on 14 ft. centers, under extreme conditions 12 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.

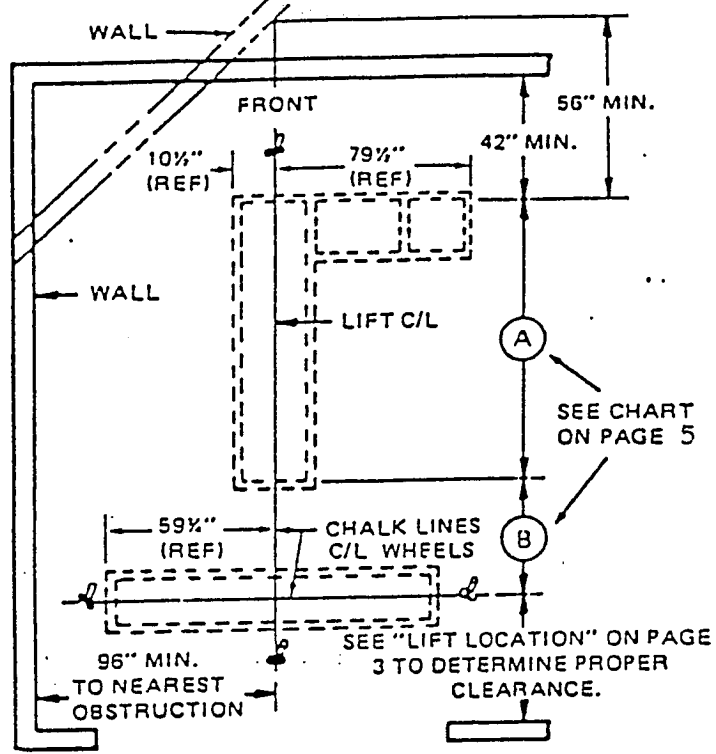
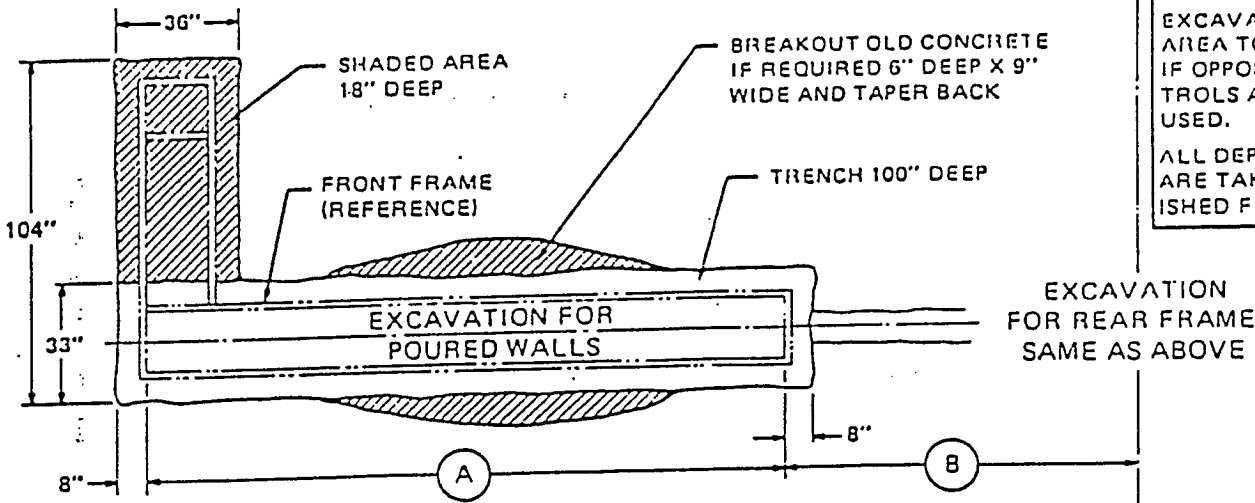
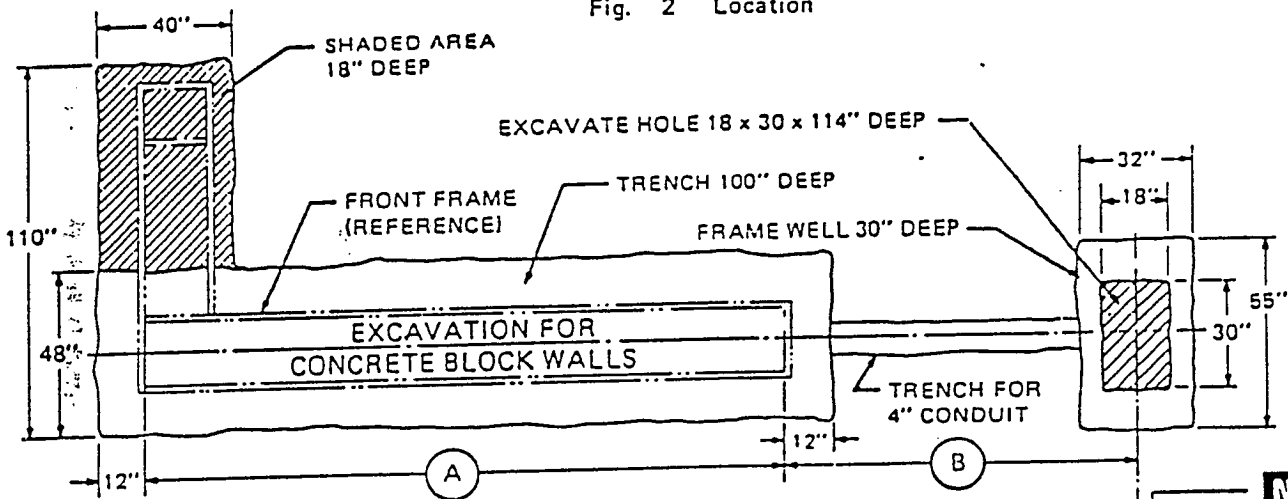


Fig. 2 Location



NOTES

EXCAVATE CONTROL BOX AREA TO OPPOSITE SIDE, IF OPPOSITE HAND CONTROLS ARE GOING TO BE USED.

ALL DEPTH DIMENSIONS ARE TAKEN FROM FINISHED FLOOR LEVEL.

Fig. 3 Excavation

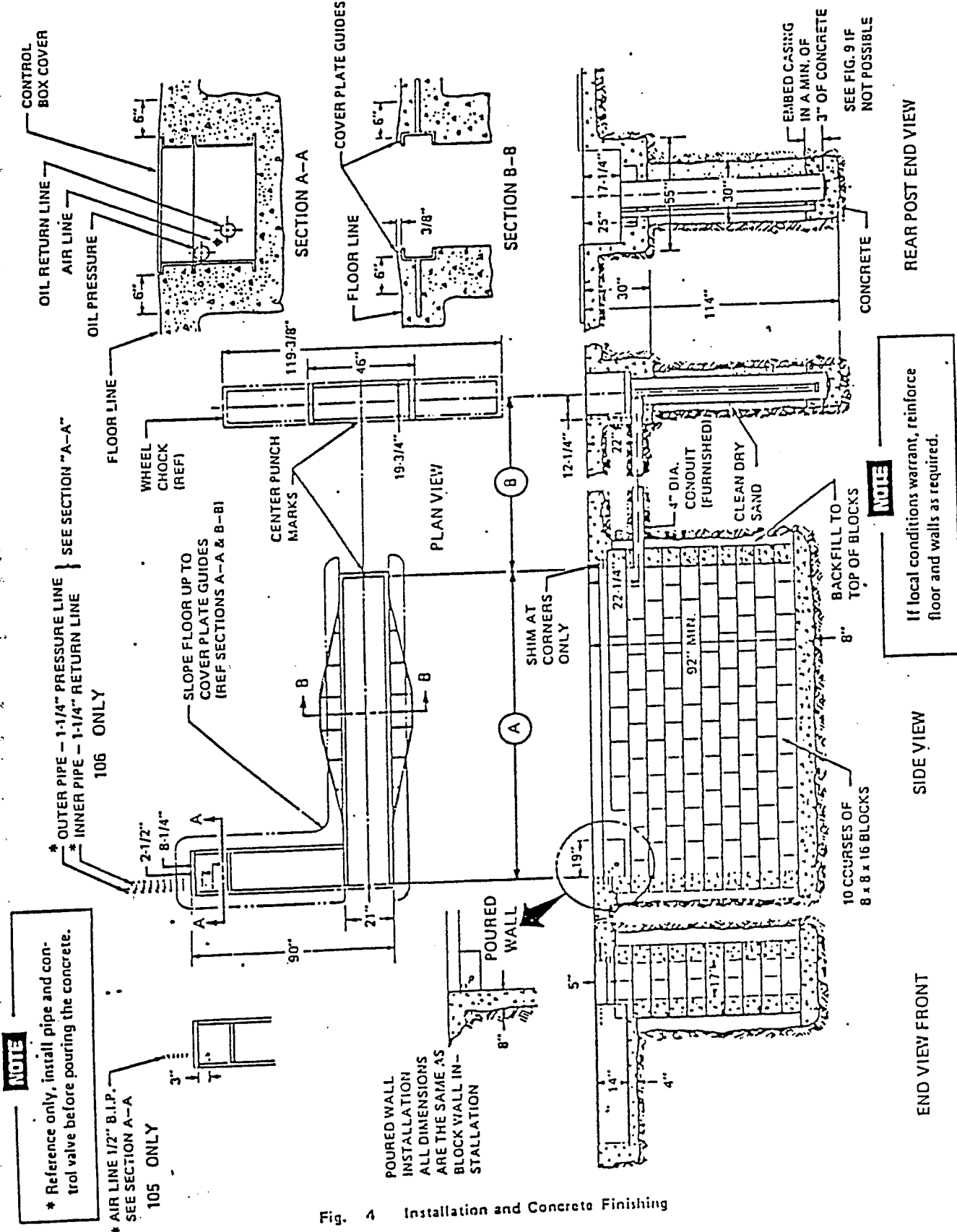


Fig. 4 Installation and Concrete Finishing

INSTALLATION & SPECIFICATIONS MANUAL

INSTALLATION

NOTE

Front trench walls may be poured or laid with concrete block. Follow steps listed below if block method is used or steps listed on page 8 if poured method is to be used.

FRONT FRAME INSTALLATION-BLOCKED METHOD

1. After excavation is completed, pour the floor in bottom of trench (maintain 92 in. Min. depth from finished floor as in Fig. 4) and allow sufficient set-up time.
2. Lay two timbers across trench; on these place front frame, properly centered, and correct distance from rear frame.
3. Use a plumb bob hung from inside corners of frame to mark inside corners of walls on trench floor.
4. Lay up 8 courses of block; maintain 17 in. wall to wall inside. Provide opening in 9th course for conduit to rear frame. Lay 9th and 10th courses, omitting blocks at control box. Back fill as required to this level (Fig. 4).
5. Refer to Fig. 5 and assemble sheet metal sides to control box frame with 1/4 in. machine screws and hex nuts. Attach control box to front frame with 3/8 capscrews and hex nuts furnished.
6. Position frame and control box over trench and shim at corners (Fig. 4) to bring top surface of channel and control box flush with designed finished floor level.

NOTE

Length of frame should be in same plane as floor if slope is not excessive, max. pitch 1/8 in. per foot. The width of frame must be level.

7. V-105 MODELS: Bring in 1/2 in. air line, 3 in. through small hole in control box end panel Fig. 4.

V-106 MODELS: Bring in 1-1/4 in. oil pressure and return lines through proper holes in control box end panel. See Fig. 4 for proper holes and dimensions. Connect lines to oil control valve with fittings furnished (Fig. 11). Mount valve to side wall with 1/2 in. x 1-1/4 in. capscrews and lockwashers furnished.
8. Form between the last course of block and the bottom surface of the channel and proceed with "Rear Frame Installation" page 11.

INSTALLATION & SPECIFICATIONS MANUAL

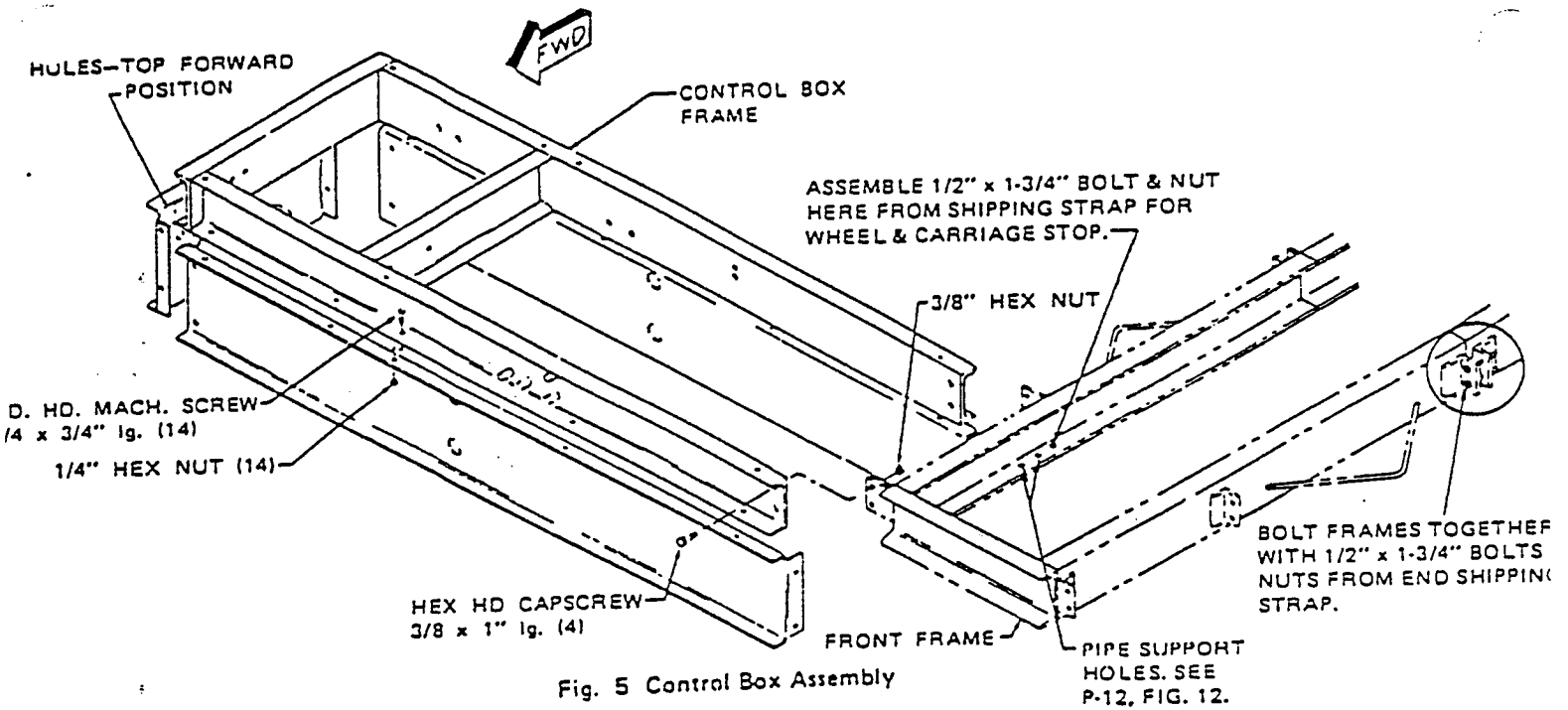


Fig. 5 Control Box Assembly

FRONT FRAME INSTALLATION-POURED METHOD

NOTE

Concrete for trench base may be poured in advance same as for block wall method, or may be poured with wall, forms must be constructed accordingly.

1. Construct a form having outside dimensions identical with inside of front frame. Provide an opening in form for 4 in. conduit from rear frame. See Fig. 6 for suggested examples.

2. Using EXAMPLE "X" shown in Fig. 6, Section A-A. Bolt front frame to sides of form as shown (holes not provided in frame, must be drilled as required). Refer to Fig. 5, assemble control box parts and attach to front frame as shown. Complete steps 3, 4 & 5 and refer to page 15, step 2b of "Concrete Pouring and Finishing" for completion of Example "X".

Using Example "Y" shown in Fig. 6, Section A-A. Follow steps 3 & 5. Assemble control box parts and attach to front frame as shown in Fig. 5. Refer to page 15, step 2C of "Concrete Pouring and Finishing" for completion of Example "Y". Install piping referred to in step 4 after positioning frame.

3. Lower form into excavation; shift as required to bring form into its correct fore and aft location along center line. Plumb wall forms and adjust to assure squareness. If floor has not been poured, form may be driven into bottom of trench as

INSTALLATION & SPECIFICATIONS MANUAL

shown in Fig. 6 for stability and leveling of form. If frame is attached to form as in Example "X", top surface of frame and control box should be flush with designed finished floor level.

NOTE

When form construction is not sufficient to prevent the 17 in. (frame width) dimension from decreasing when concrete is poured, insert 2 in. x 4 in. spacers between form sides. Frame width should be held to within 1/16 in. along the full frame length. Length of the frame should be in the same plane as floor if slope is not excessive, max. pitch 1/8 in. per foot. The width of the frame must be level.

4. V105 MODELS: Bring in 1/2 in. air line, 3 in. through small hole in control box end panel Fig. 4.

V106 MODELS: Bring in 1-1/4 in. oil pressure and return lines through proper holes in control box end panel. See Fig. 4 for proper holes and dimensions. Connect lines to oil control valve with fittings furnished (Fig. 7). Mount valve to side wall with 1/2 in. x 1-1/4 in. capscrews and lockwashers furnished.

5. Install reinforcing rods, if required, according to architect's specification.

6. Proceed with REAR FRAME INSTALLATION.

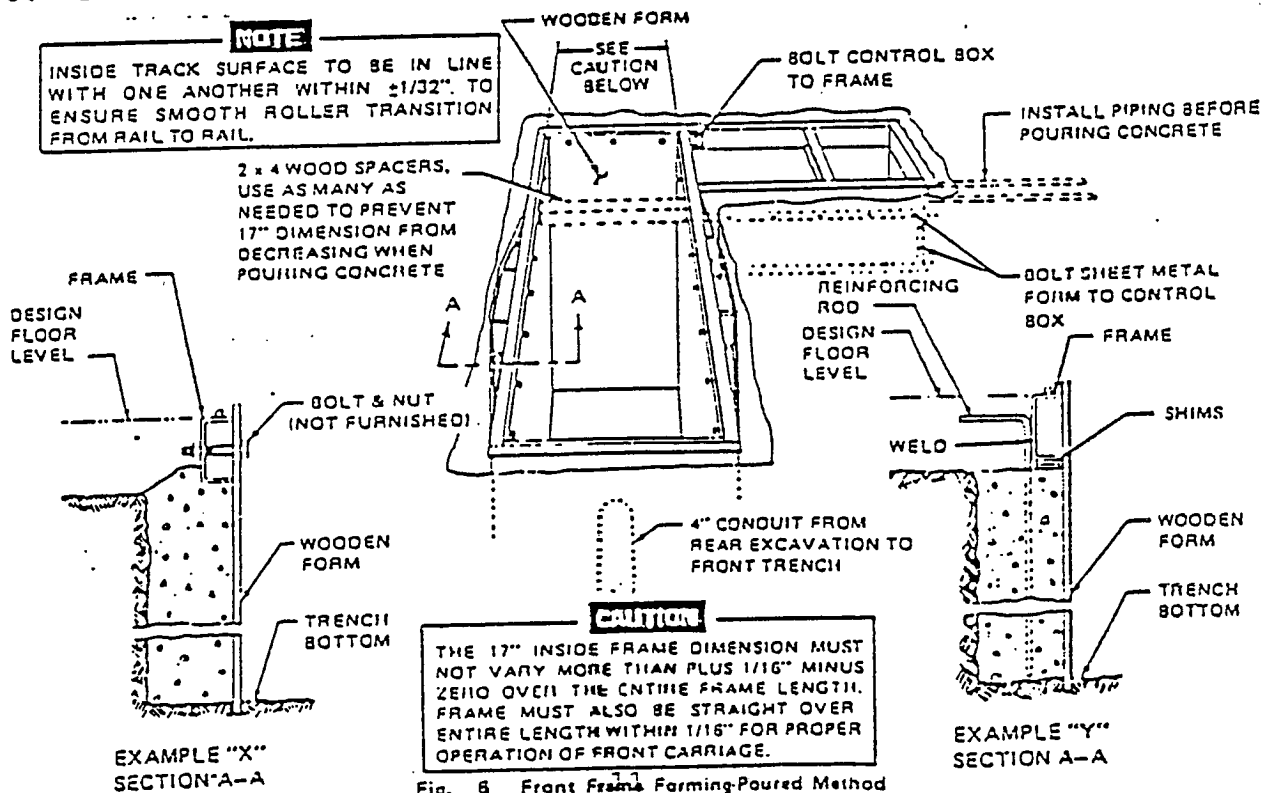


Fig. 6 Front Frame Farming-Poured Method

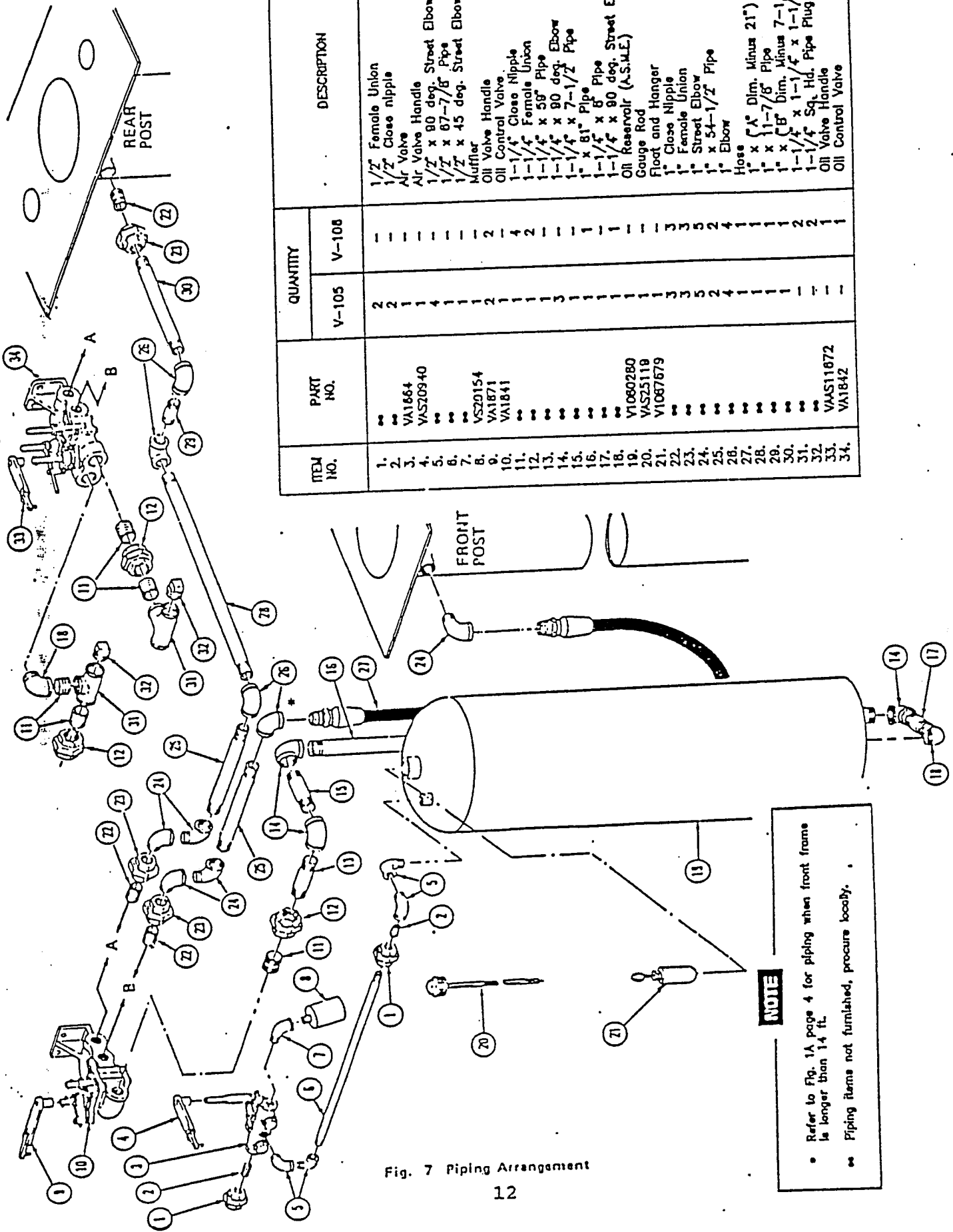


Fig. 7 Piping Arrangement
12

ITEM NO.	PART NO.	QUANTITY		DESCRIPTION
		V-105	V-108	
1.	VA1664	2	1	1/2" Female Union
2.	VA520940	2	1	1/2" Close nipple
3.	VA520940	1	1	Air Valve Handle
4.	VA520940	1	1	1/2" x 80 deg. Street Elbow
5.	VA520940	4	1	1/2" x 87-7/8" Pipe
6.	VA520940	1	1	1/2" x 45 deg. Street Elbow
7.	VA520940	1	1	Muffler
8.	VS20154	1	2	Oil Valve Handle
9.	VA1871	1	1	Oil Control Valve
10.	VA1841	1	4	1-1/4" Close Nipple
11.	VA520940	2	2	1-1/4" Female Union
12.	VA520940	1	1	1-1/4" x 58" Pipe
13.	VA520940	1	1	1-1/4" x 80 deg. Elbow
14.	VA520940	3	1	1-1/4" x 7-1/2" Pipe
15.	VA520940	1	1	1" x 81" Pipe
16.	VA520940	1	1	1-1/4" x 8" Pipe
17.	VA520940	1	1	1-1/4" x 90 deg. Street Elbow
18.	V1080280	1	1	Oil Reservoir (A.S.U.E.)
19.	VAS25118	1	1	Gauge Rod
20.	V1087879	1	1	Floot and Hanger
21.	V1087879	3	3	Close Nipple
22.	V1087879	3	3	Female Union
23.	V1087879	5	2	1" Street Elbow
24.	V1087879	5	2	1" x 54-1/2" Pipe
25.	V1087879	2	4	Elbow
26.	V1087879	4	1	Hose
27.	V1087879	1	1	1" x (A" Dim. Minus 21") Pipe
28.	V1087879	1	1	1" x (B" Dim. Minus 7-1/4") Pipe
29.	V1087879	1	1	1" x (C" Dim. Minus 1-1/4") Tee
30.	V1087879	1	1	1-1/4" Sq. Hd. Pipe Plug
31.	V1087879	1	1	Oil Valve Handle
32.	V1087879	1	1	Oil Control Valve
33.	V1087879	1	1	Oil Control Valve
34.	V1087879	1	1	Oil Control Valve

NOTE

- Refer to Fig. 1A page 4 for piping when front frame is longer than 14 ft.
- Piping items not furnished, procure locally.

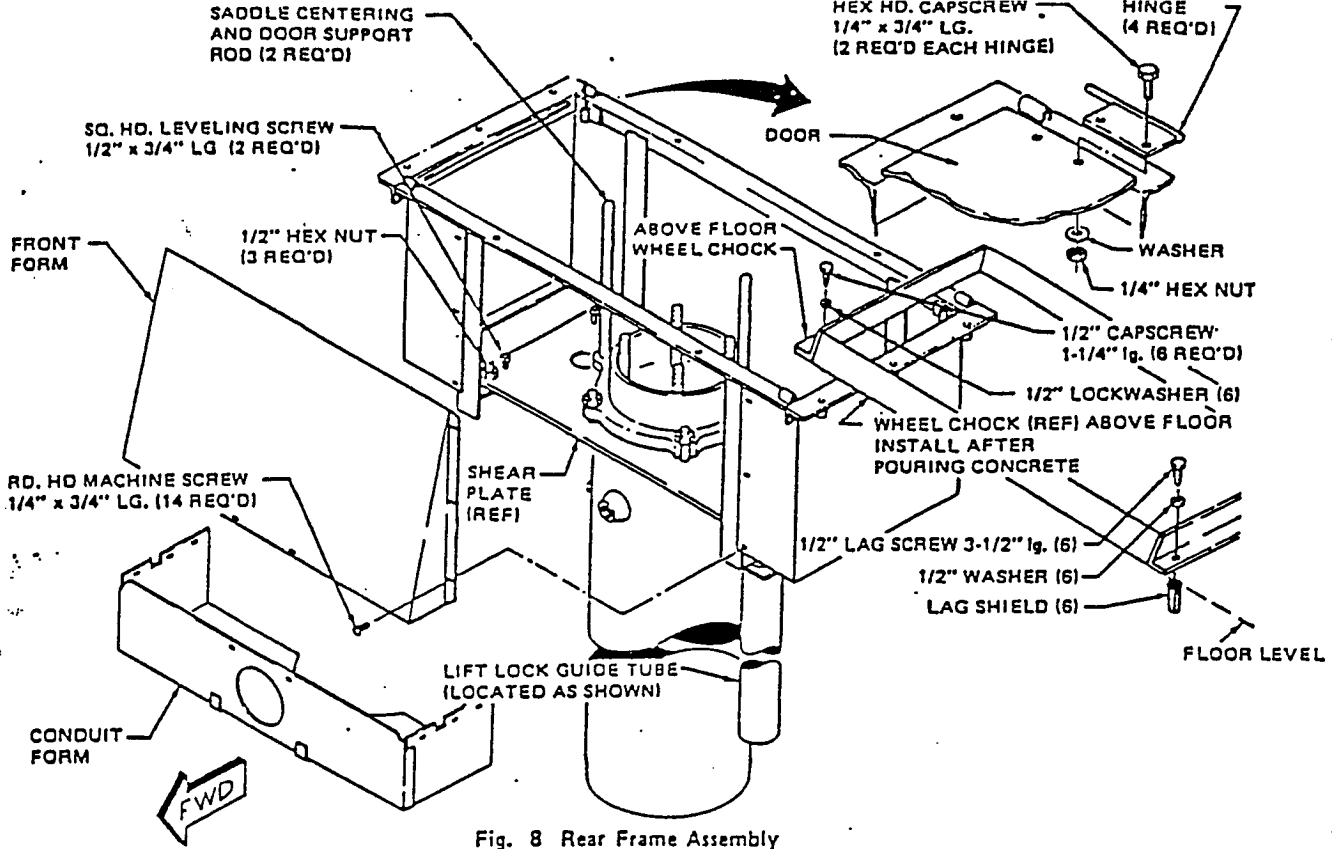
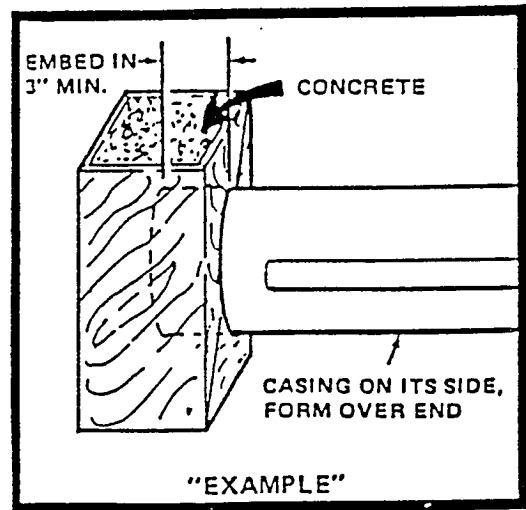
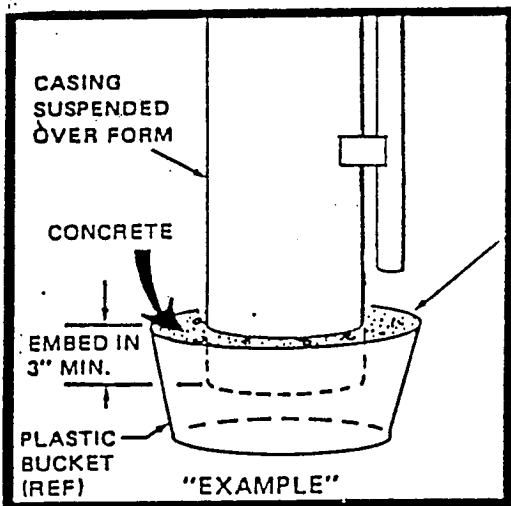


Fig. 8 Rear Frame Assembly

USE ONLY WHEN REAR CASING, TO BE INSTALLED BELOW GROUND, CAN NOT BE EMBEDDED IN 3 IN. MINIMUM OF CONCRETE.

In situations where rear casing, to be installed below ground, can not be embedded in 3 in. minimum of concrete as shown in Fig. 4 (recommended method), then form and pour concrete around bottom of casing (see examples in Fig. 9) before installing in excavation. Allow sufficient set up time and proceed with installation as outlined in step 3 page 14.



Construct a form which encloses bottom of casing with about 3 in. all around. Make certain design allows casing to be embedded in a minimum of 3 in. of concrete as shown in examples, Fig. 9.

Fig. 9 Rear Casing Preparation — Special Conditions

INSTALLATION & SPECIFICATIONS MANUAL

REAR FRAME INSTALLATION

1. Place shear plate of rear tube assembly over the three studs welded on rear frame, fasten with 1/2 in. hex nuts and tighten, Figure 8.
2. Attach sheet metal forms (Front & Conduit) to frame assembly with 1/4 in. machine screws, Figure 8.
3. Hookup a "sling" to the 3/8 in. holes in top of frame assembly or using the furnished studs, washers and hex nuts mount wood spacers to frame as shown in Fig. 10.

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 V-27. The manufacturer will not be responsible for deterioration caused by electrolysis or corrosion.

5. Lower tube and frame assembly into its excavation, with conduit form facing front trench. Check for proper spacing and align rear frame center punch marks with both chalk lines (Fig 10). Shim frame to finished floor height.

NOTE

Length of frame should be in same plane as floor if slope is not excessive, max. pitch 1/8 in. per foot. The width of frame must be level.

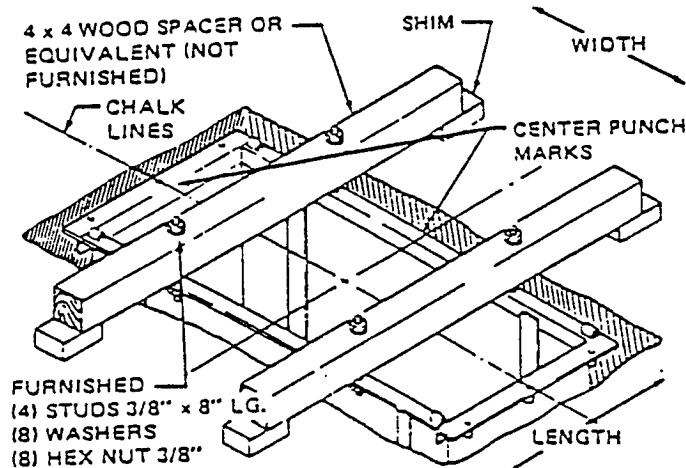


Fig. 10 Rear Frame Installation

INSTALLATION & SPECIFICATIONS MANUAL

6. Plumb rear assembly with 4ft. level on side of tube assembly, being careful to plumb in both directions. Use leveling screws (as a pair in either right, left, fore or aft holes) if required Fig. 8. Loosen and retighten shear plate to frame nut as required during tube assembly leveling operation. Carefully pour small amounts of concrete around sides of tube base. Work concrete under base of the tube and up the side, so casing is embedded in a minimum of 3 in. of concrete (see Fig. 4.). Recheck for plumb and location.
7. After concrete has set up add 3 or 4 ft. of clean dry sand and check for plumb. Complete back fill with clean, dry sand to within 4 in. of metal forms Fig 4.
8. Install conduit between sheet metal form on rear frame and opening in front of trench wall (block wall method) or to the wooden form on front trench (poured wall method) use dimensions shown in Fig 4.

CONCRETE POURING & FINISHING

1. Install control box covers and use as a guide when finishing floor as in Fig. 4 Section A-A.

2. FRONT TRENCH

A. BLOCK METHOD: With suitable form in place from last course of block to inside of frame, pour concrete around frame and control box and thoroughly work under the full length of channel sides for maximum support, finish as in step 3 below.

B. POURED METHOD (EXAMPLE X): With form in place and frame bolted to form, pour concrete around frame and control box and thoroughly work under the full length of channel sides for maximum support. Pour partially up frame and let set up. (Fig. 6, Example "X"). Remove bolts and form and pour trench floor if not previously poured, (maintain 92 in. depth as in Fig. 4). Finish as in step 3 below.

C. POURED METHOD (EXAMPLE Y): Pour concrete around form up to a point where frame and control box can be shimmed to floor level when concrete sets up. After leveling frame, weld frame to reinforcing rod as shown in Fig. 6, Example "Y". Bring in piping (Para. 4, page 8). Finish pouring as noted in step 3 below, thoroughly working concrete under the full length of channel sides for maximum support.

INSTALLATION & SPECIFICATIONS MANUAL

3. Finish walls and/or floor around front frame keeping concrete even with top edge of frame ends, BUT FEATHERED UP TO THE 3/8 IN. SQUARE COVER PLATES GUIDE STRIPS ALONG SIDES. (Sections A-A & B-B, Fig 4.)

REAR FRAME

4. Pour concrete making floor flush with top of rear frame, working concrete well around frame and under shear plate, Figure 4.
5. After concrete sets up, install lag shields and attach wheel chocks to rear frame as shown in Fig. 8.

PIPING AND FINAL INSTALLATION

NOTE

To prevent oil leakage, pipe and pipe fittings located above or below the floor should be prepared with joint compound and tightened securely.

1. Attach oil control valve in control box with 1/2 in. capscrews (Fig 11) and install oil reservoir (if required), piped from bottom as shown in Fig. 7, with 1/2 in. coupling towards front Figs. 1 & 7. Connect oil line from reservoir to control valve. Reduce to 1-1/4 in. at valve. Shim reservoir so that no strain is exerted on piping.
2. Connect air valve (if required) to air line leading from air compressor and run 1/2 in. piping to reservoir. Install muffler and 45 deg. street elbow to air valve. Figs. 4, 7 & 11.
3. Hook "Dead-Man" valve spring (Fig. 11A & 11B) from oil valve to bracket in control box. Attach rear sprocket hanger to the studs welded on rear end of front frame Fig. 12.
4. Place ratchets and sprockets shaft assembly in position through control box and attach sprocket hanger to studs on front frame. Attach ratchet hangers to side of control box channel with capscrews, washers, spacers and hex nuts as shown in Fig. 12.
5. Run piping from control valve to rear cylinder Figs. 7 & 11.
6. Lower front tube and plunger into trench (hose connection forward). While suspended in position between channels, place axles in trench with grease fittings up and attach

INSTALLATION & SPECIFICATIONS MANUAL

axles to carriage with U-bolts, lockwashers and hex nuts. See Fig. 12 Lower to rest on rack.

7. Run piping and hose from control valve to front cylinder Fig. 7.
8. Install pipe support angle to frame with two capscrews and hex nuts Fig 12.
9. Install chain over sprockets (hooks away from sprockets) and fasten to carriage as shown in Fig. 12. Adjust chain as required.
10. Weight pistons; for ballast, use 400 lbs. (min. each piston) of steel punchings or other small pieces of steel scrap that will compact well. Alternate Method: Pour 5 gal. of clean new oil in each piston; add clean dry sand until oil is absorbed; repeat alternate additions of oil and sand until pistons are filled.
11. Drive the two saddle centering-door support pins into holes in rear cylinder packing gland Figure 8.
12. Fasten front and rear saddles to piston studs (torque to 100 ft. lbs.), install adapters in front saddle and connect shift lever linkage to saddle and adapters. Figs. 1 & 12.
13. INITIAL OIL FILL: Pistons should be in fully lowered position; use only oils that meet specification as listed in Table 1.

A. AIR-OIL LIFTS: Place air control in exhaust position. Refer to Fig. 7. With gauge rod assembly (20) and hanger assembly (21) removed, fill reservoir (19) with oil (a portion of the approx. 85 gal. can't be added until completion of step 17). Insert hanger assembly (21), insert and tighten gauge rod assembly (20).

B. ELECTRIC-OIL LIFTS: Connect pressure and return oil lines to pump and reservoir Fig. 1. Fill reservoir through opening (when only one lift is to be operated by a power unit, 90 gal. is sufficient) and replace cover plate.

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.

14. Raise both pistons about 3/4 max. height three or four times (see operation section) to bleed air from system.

INSTALLATION & SPECIFICATIONS MANUAL

- Lower and add oil to bring to full level. Refer to Para. 13 for procedure. Raise pistons to full height, with pressure on, check pipes and fittings for leaks.
15. With pistons raised, insert lock legs into guide tubes and attach to saddles with 3/4 in. capscrews and lockwashers. See Figure 13.
 16. Fasten cover plates to carriage as shown in Fig. 12 Longest (hinged) toward front. Install extension cover and control valve cover with capscrews. Install valve handles and shift levers. Attach rear plunger doors as shown in Figure 8.

OPERATION

CAUTION

Never operate lift with either saddle turned other than the normal position (Fig 1) which is perpendicular to the centerline of the lift. Other than the normal position allows piston to by-pass stops and could result in damage to follower, packing, etc.

To raise V105 Models, turn air control to pressure and open both plunger controls, close when desired height is reached. To lower, release lift locks, exhaust air pressure and open both controls until both plungers are completely lowered.

To raise V106 Models, with power unit running, place master oil control on raise, open both plunger controls until desired height is reached. To lower, release lift locks, place master oil control on lower and open both plunger controls until front and rear plungers are completely lowered.

LUBRICATION

Grease axles and both packing glands, use only enough grease to fill gland. See grease specifications in Table 2. Clean front channel of any debris and lightly oil. Lubricate lift lock legs and all working components.

FINAL CHECK

With the assurance that this lift is now ready for operation, stamp date of installation on name plate.

The "Parts/Service/Operation Manual" package, is to be given or left for the owner or user. The information it contains is very important to his basic knowledge and service of his lift.

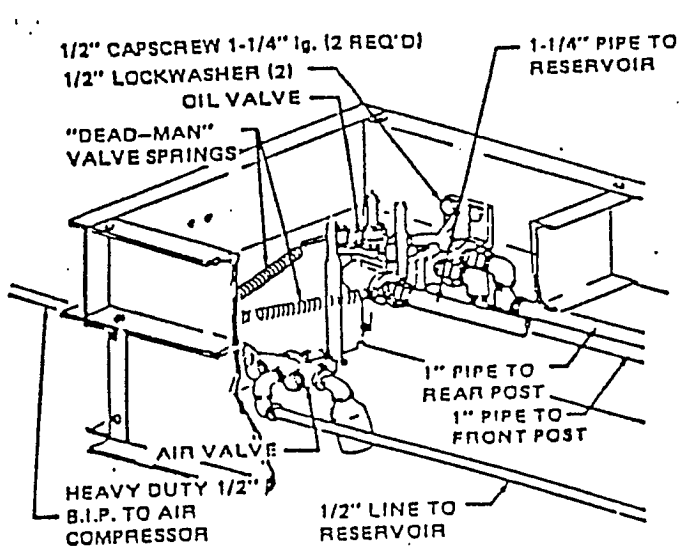


Fig. 11A Valve Arrangement for 105

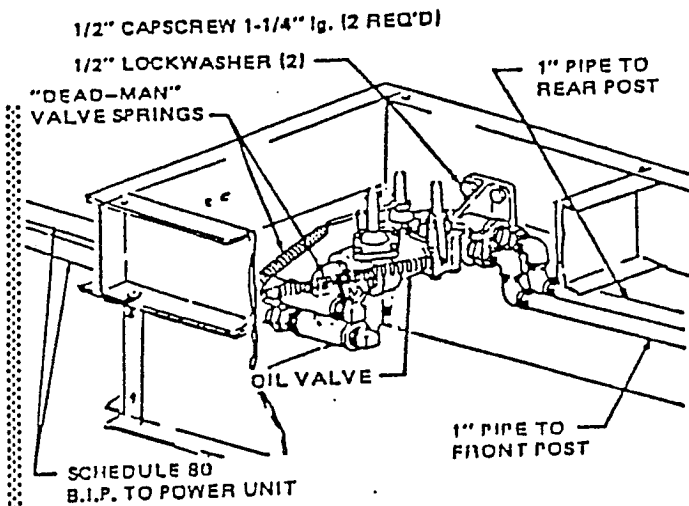


Fig. 11B Valve Arrangement for 106

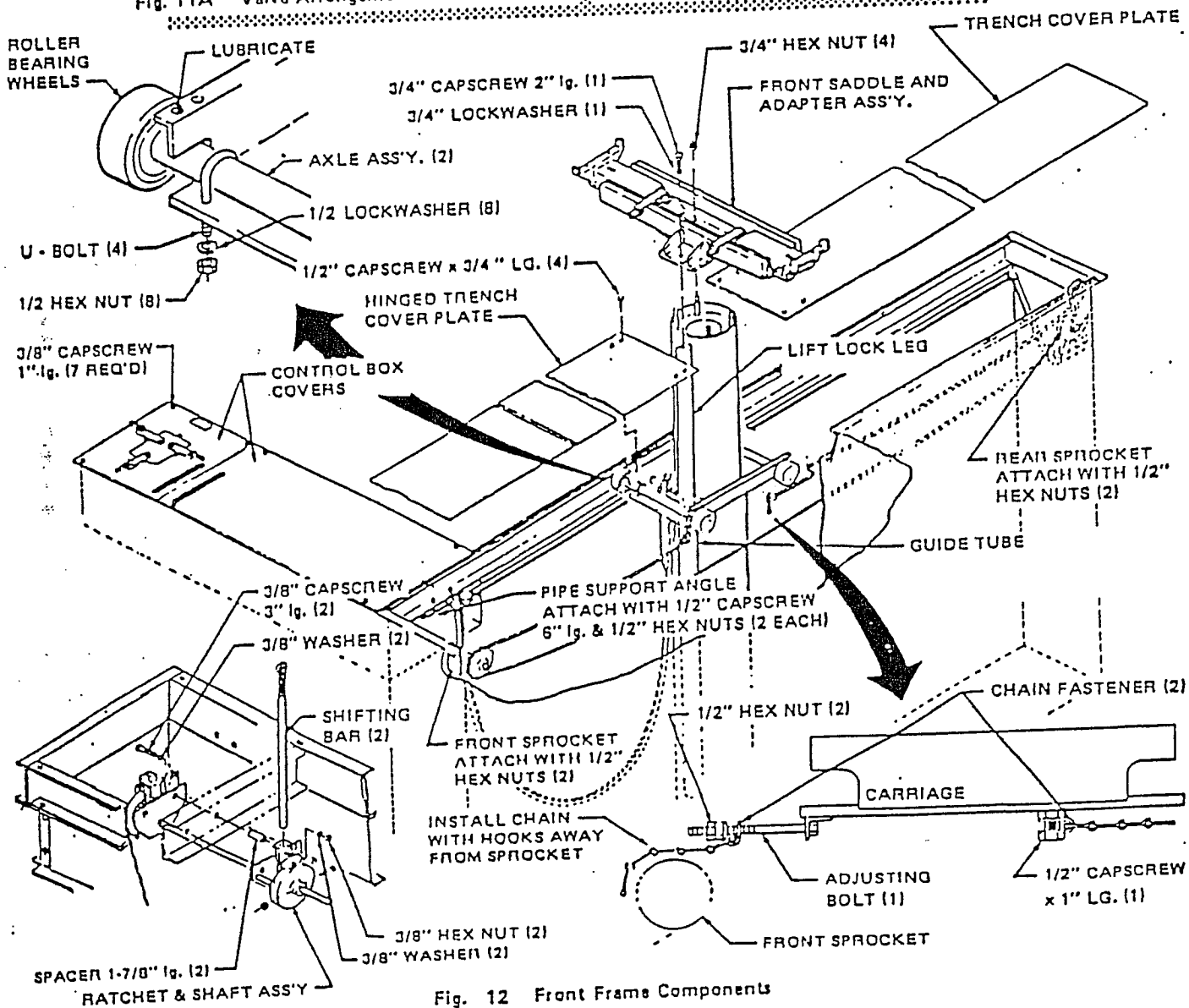


Fig. 12 Front Frame Components

INSTALLATION & SPECIFICATIONS MANUAL

TABLE 1
OIL SPECIFICATIONS

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 - SUS @ 100 deg. F.....	125 to 150
Viscosity - SUS @ 210 deg. F.....	40 to 50
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 to 340
Viscosity - SUS @ 100 deg. F.....	750 MIN
Viscosity - SUS @ 210 deg. F.....	185 MAX
Dropping Point.....	300 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

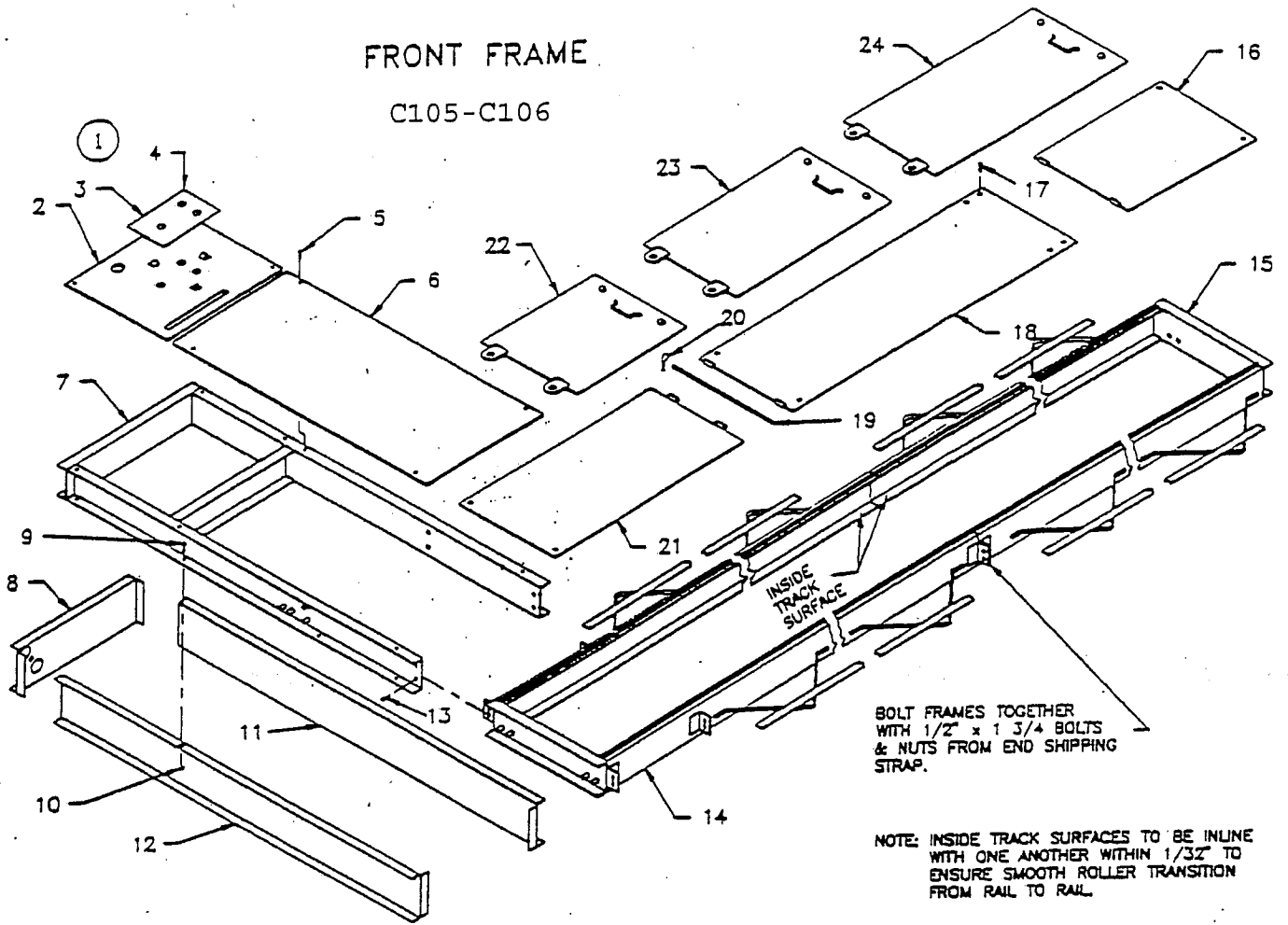
NOTE: USE HAND GUN ONLY

Challenger Lifts, Inc.

***Parts List
C 105 - C 106
Effective July 1, 1994***

FRONT FRAME

C105-C106

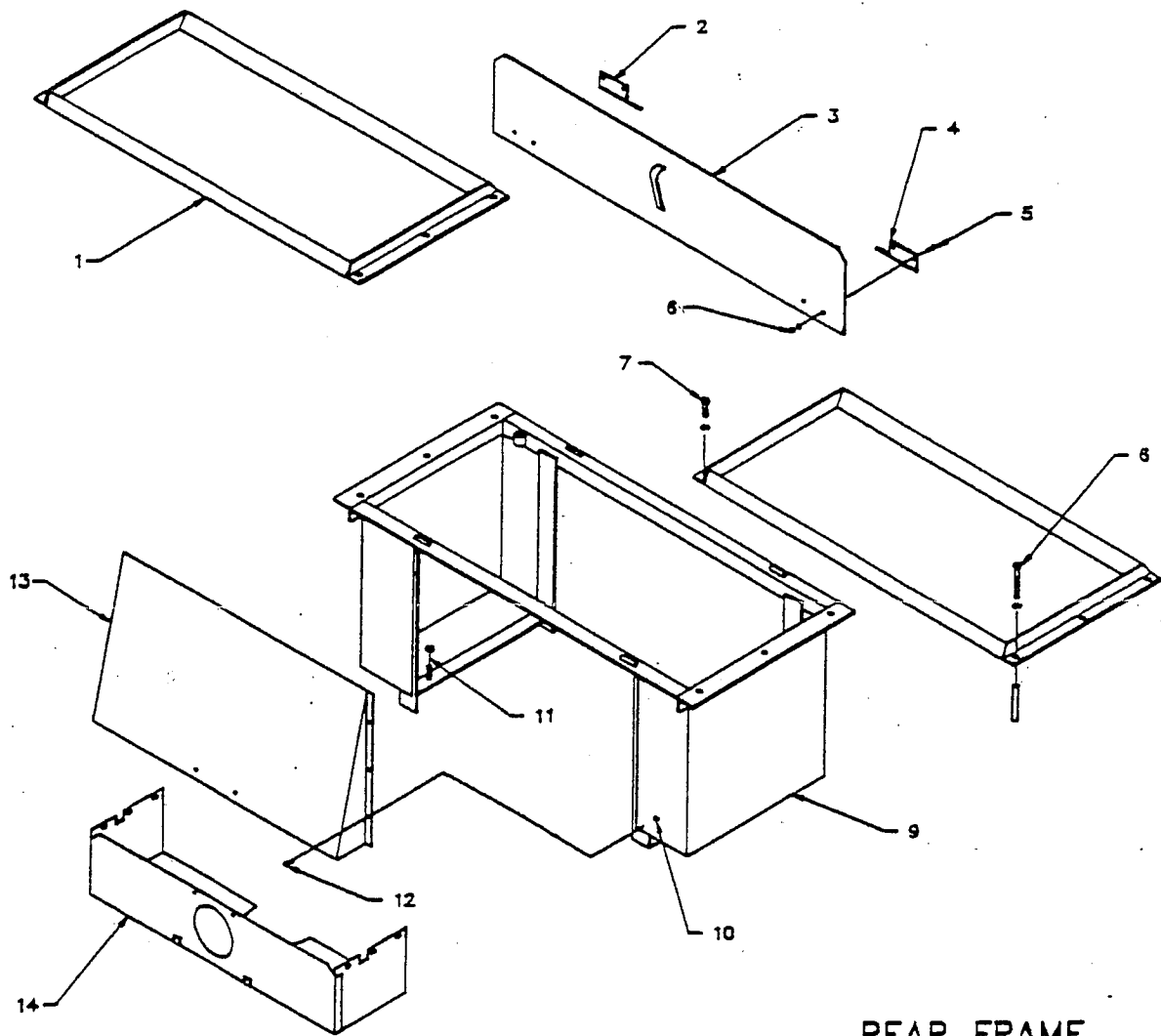


BOLT FRAMES TOGETHER WITH 1/2" x 1 3/4" BOLTS & NUTS FROM END SHIPPING STRAP.

NOTE: INSIDE TRACK SURFACES TO BE INLINE WITH ONE ANOTHER WITHIN 1/32" TO ENSURE SMOOTH ROLLER TRANSITION FROM RAIL TO RAIL.

ITEM NO.	PART NO.	QTY	DESCRIPTION	ITEM NO.	PART NO.	QTY	DESCRIPTION
1.	VAS-26393	1	COVER ASSY.-V105	15.	V-1081403	1	8' EXTENSION
	VAS-23832		COVER ASSY.-V106		V-1081402		7' EXTENSION
2.	VS-26392	1	COVER-V105		V-1085054		6' EXTENSION
	VS-23829		COVER-V106		V-1085288		5' EXTENSION
3.	09047	1	NAME PLATE-V105	16.	VAS-27706	1	24" SLIDING PLATE
	09101		NAME PLATE-V106	17.	VS-722	4	CAPSCREW 1/2-13
4.	VS-4515	4	DRIVE SCREW	18.	V-1080848	2	54" COVER PLATE
5.	VS-11324	7	CAPSCREW 3/8-24	19.	VS-9707	2	HINGE PIN
6.	V-1083192	1	EXTENSION COVER	20.	VS-1042	4	COTTER PIN
	VAS-28330		EXTENSION COVER-RATCHET	21.	VAS-27704	1	36" SLIDING PLATE
7.	VAS-28320	1	CONTROL BOX FRAME	22.	VAS-27707	V	21" CARRY AROUND PLATE
8.	VS-27697	1	END PANEL	23.	VAS-26215	V	30" CARRY AROUND PLATE
9.	VS-6656	14	CAPSCREW 1/4-20	24.	VAS-20881	V	36" CARRY AROUND PLATE
10.	VS-21268	14	HEX NUT 1/4-20				
11.	VS-28317	1	REAR PANEL				
12.	VS-28316	1	FRONT PANEL				
13.	VS-105	4	CAPSCREW 3/8-16				
	VS-595	4	HEX NUT 3/8-16				
14.	V-1085047	1	14' CLOSED FRAME				
	V-1085046		12' CLOSED FRAME				
	V-1085848		14' OPEN FRAME				
	V-1085049		12' OPEN FRAME				
	V-1085050		8' OPEN FRAME				

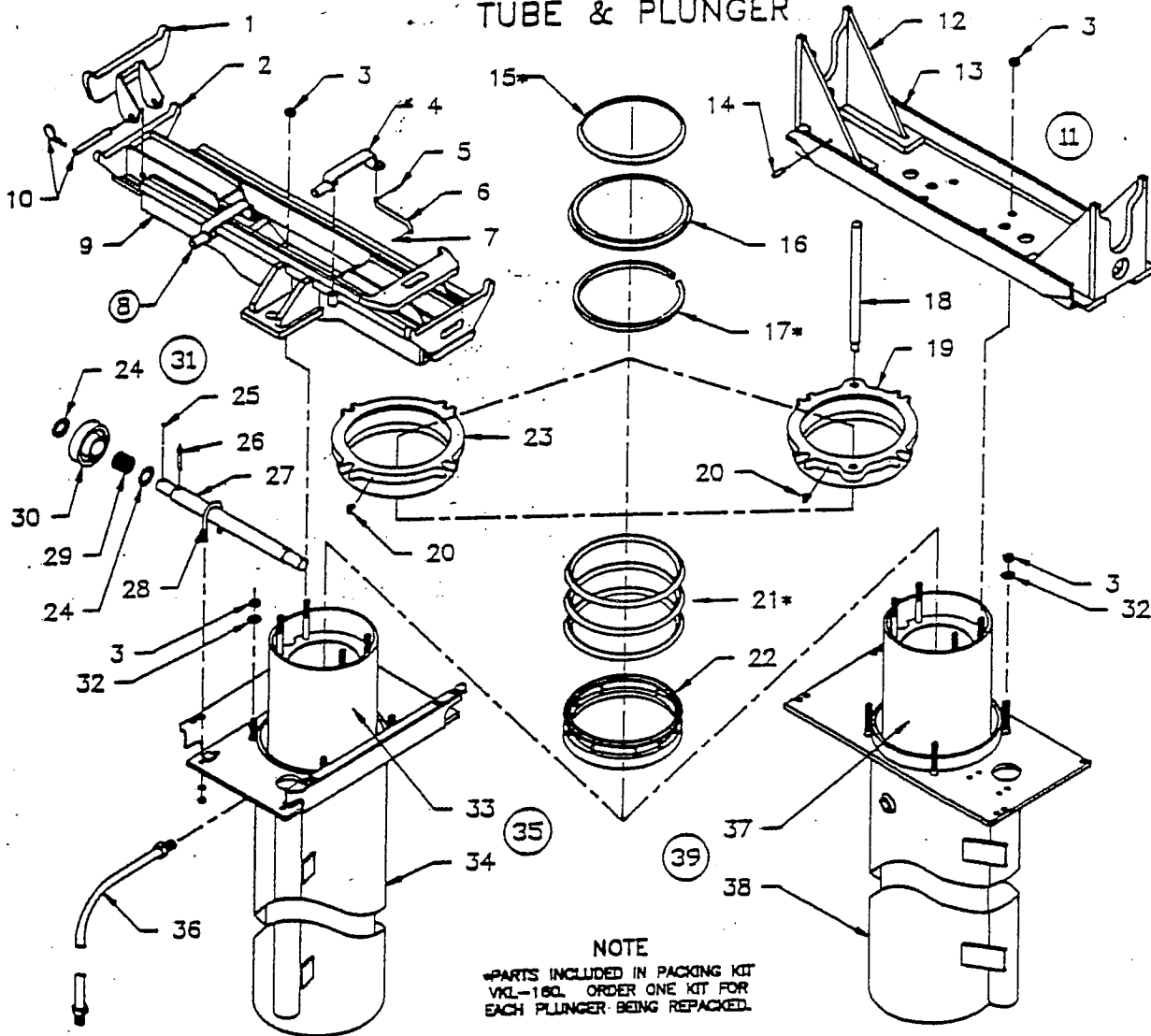
KEY: V-VARIES WITH FRAME LENGTH



REAR FRAME

ITEM NO.	PART NO.	QTY	DESCRIPTION
1.	VAS-27713	2	WHEEL CHOCK
2.	VAS-23748	2	RIGHT HINGE
3.	V-1080865	2	PLUNGER DOOR 43 1/2"
4.	VAS-23749	2	LEFT HINGE
5.	VS-21321	8	CAPSCREW 1/4-20 X 3/4
	VS-21318	8	FLAT WASHER 9/32 I.D.
6.	VS-21268	8	HEX NUT 1/4-20
7.	VS-7403	6	CAPSCREW 1/2-13 X 1 1/4
	VS-512	6	LOCKWASHER 1/2
8.	VS-27464	6	LAG BOLT 1/2 X 3 1/2
	VS-18432	6	WASHER
	VS-27463	6	LAG SHIELD
9.	V-1080862	1	REAR FRAME
10.	VS-21268	14	HEX NUT 1/4-20
11.	VS-508	3	HEX NUT 1/2-13
12.	VS-6656	14	CAPSCREW 1/4-20 X 3/4
13.	VS-26626	1	FRONT FORM
14.	VAS-26624	1	CONDUIT FORM

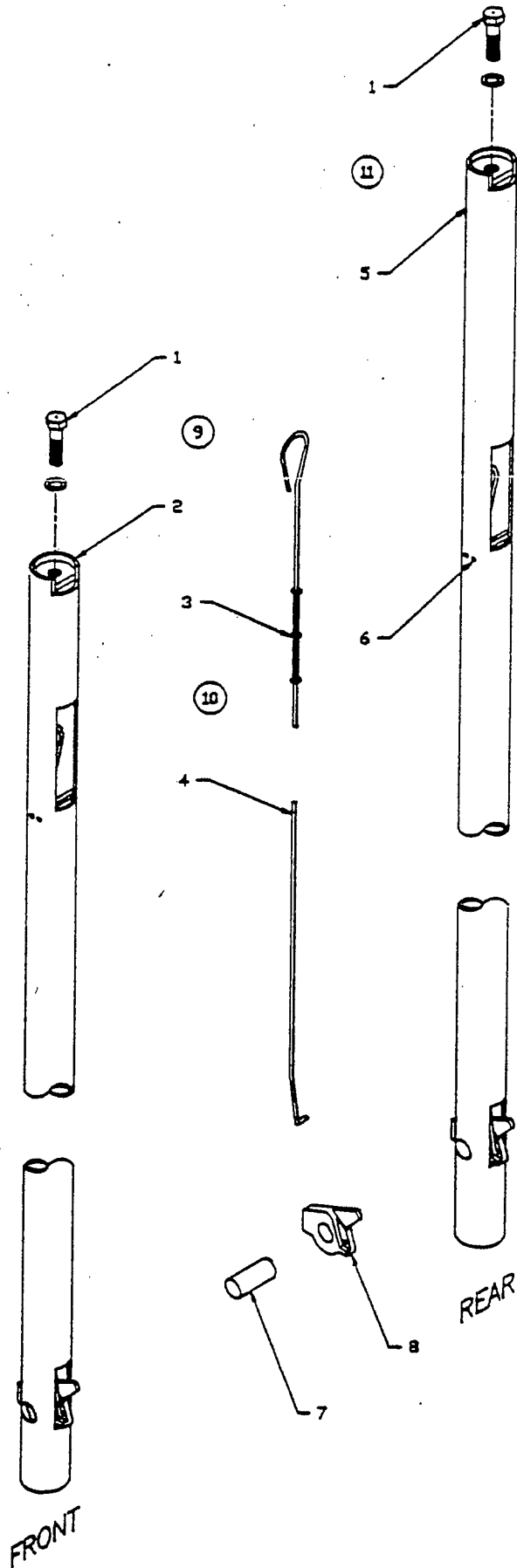
TUBE & PLUNGER



ITEM NO.	PART NO.	QTY F/R	DESCRIPTION	ITEM NO.	PART NO.	QTY F/R	DESCRIPTION
1	V1084758	2	ADAPTER EXTENSION	22	VAS11311	1/1	PACKING FOLLOWER
2	V1084777	2	STANDARD ADAPTER	23	VM1402	1	FRONT GLAND
3	VS2350	8/8	HEX NUT 3/4-10	24	VSI933	4	WASHER 19/32 I.D.
4	VAS17814	1	LEVER	25	VS3234	2	COTTER PIN 3/16 X 2
5	VSI4089	1	ROLL PIN 1/8 X 7/8	26	VSI9705	2	GREASE FITTING
6	VSI8894	1	LINK	27	VS6386	1	AXLE
7	VS275	1	COTTER PIN 1/8 X 3/4	28	VSI1320	4	U-BOLT
8	VAS18625	2	LEVER LINK ASSY.	29	VS8522	8	HEX NUT 1/2-20
9	9052	1	FRONT SADDLE	30	VS512	8	LOCKWASHER 1/2
10	V1084781	2	PIN	31	VSI8425	2	BEARING
11	V1080627	1	REAR SADDLE ASSY.	32	VM1401	2	WHEEL
12	VAC218	2	ADAPTER	33	VAS8386	2	AXLE ASSY.
13	V1080628	1	REAR SADDLE	34	VSI8037	4/4	WASHER 53/64 I.D.
14	VSI8833	2	ROLL PIN 3/8 X 1 1/2	35	VKL181	1	FRONT PLUNGER, INC. ITEM 23
15	VSI3145	1/1	WIPER RING	36	V1086918	1	FRONT TUBE W.A.
16	VS6453	1/1	WIPER RING RETAINER	37	V1086919	1	FRONT TUBE & PLUNGER
17	VS6456	1/1	JUTE PACKING	38	VAS26342	1	(INC. ITEMS 3,15-17,20-23,32-34)
18	VS28665	2	SUPPORT ROD	39	VSI3878	1	HOSE
19	VM1386	1	REAR GLAND		VKL182	1	REAR PLUNGER, INC. ITEM 19
20	VSI3121	1/1	GREASE FITTING		VAS26342	1	REAR TUBE W.A.
21	VS6455	3/3	PACKING		VAS26345	1	REAR TUBE & PLUNGER
							(INC. ITEMS 3,15-22,32,37-38)

LIFT LOCK

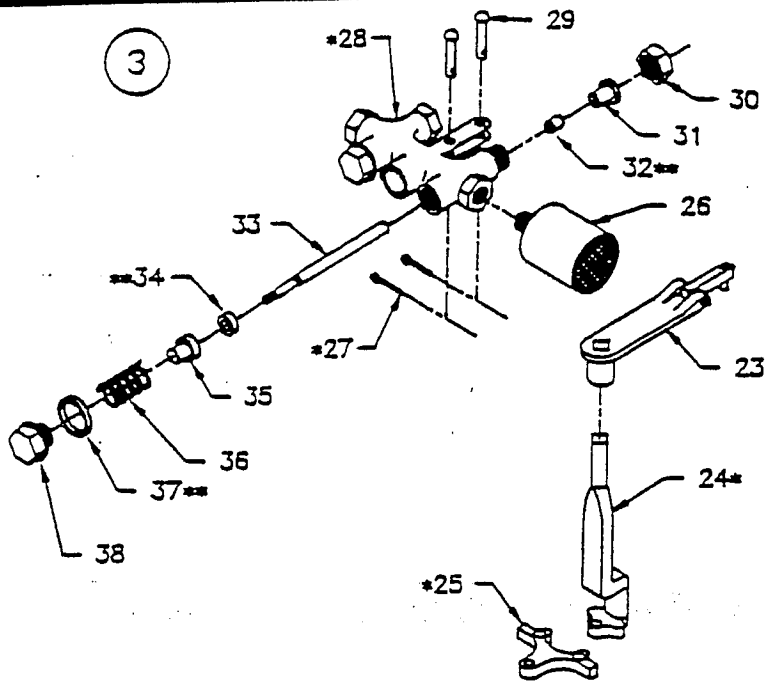
ITEM NO.	PART NO.	QTY.	DESCRIPTION
1.	VS3535	2	3/4-10 X 2 CAPSCREW
	09129	2	3/4 SPLIT LOCKWASHER
2.	08840	1	FRONT LEG
3.	VS25831	2	WASHER
	VS25832	2	COMPRESSION SPRING
4.	08238	1	TRIP ROD
5.	08843	1	REAR LEG
6.	VS25810	4	3/16 X 2 1/4 ROLL PIN
7.	V1080806	1	DOG PIN
8.	V1080805	1	DOG
9.	V1088341	1	FRONT LIFT LOCK ASSY.
10.	V1083149	2	TRIP ROD ASSY.
11.	V1088344	1	REAR LIFT LOCK ASSY.



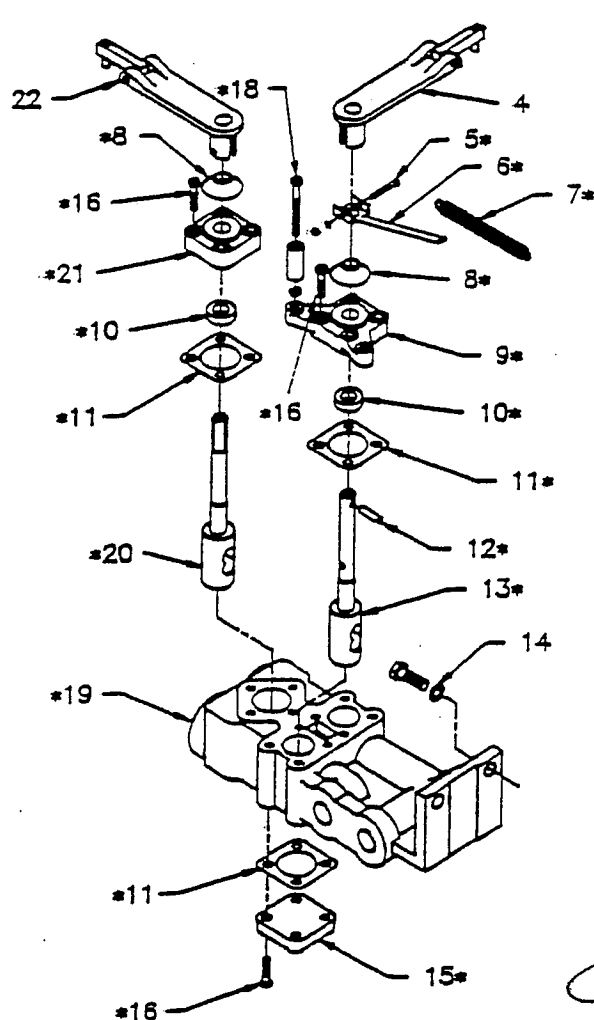
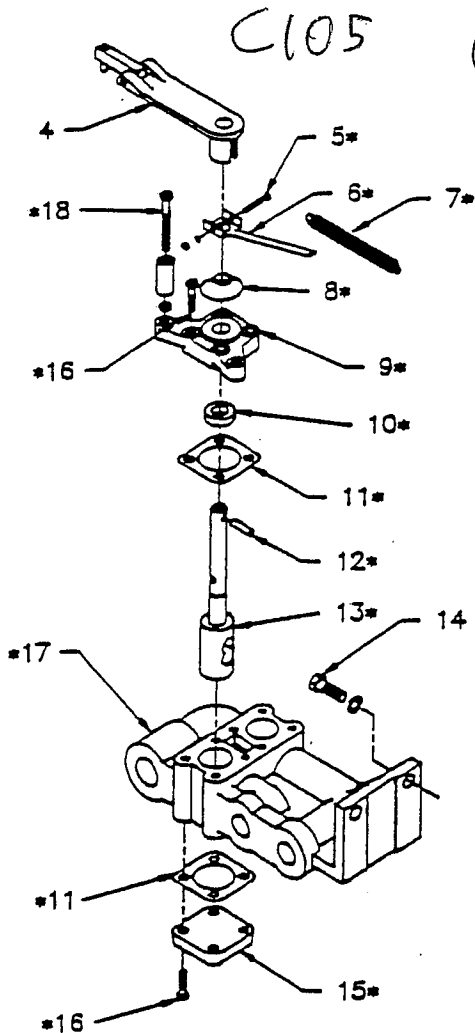
C105

CONTROL VALVES

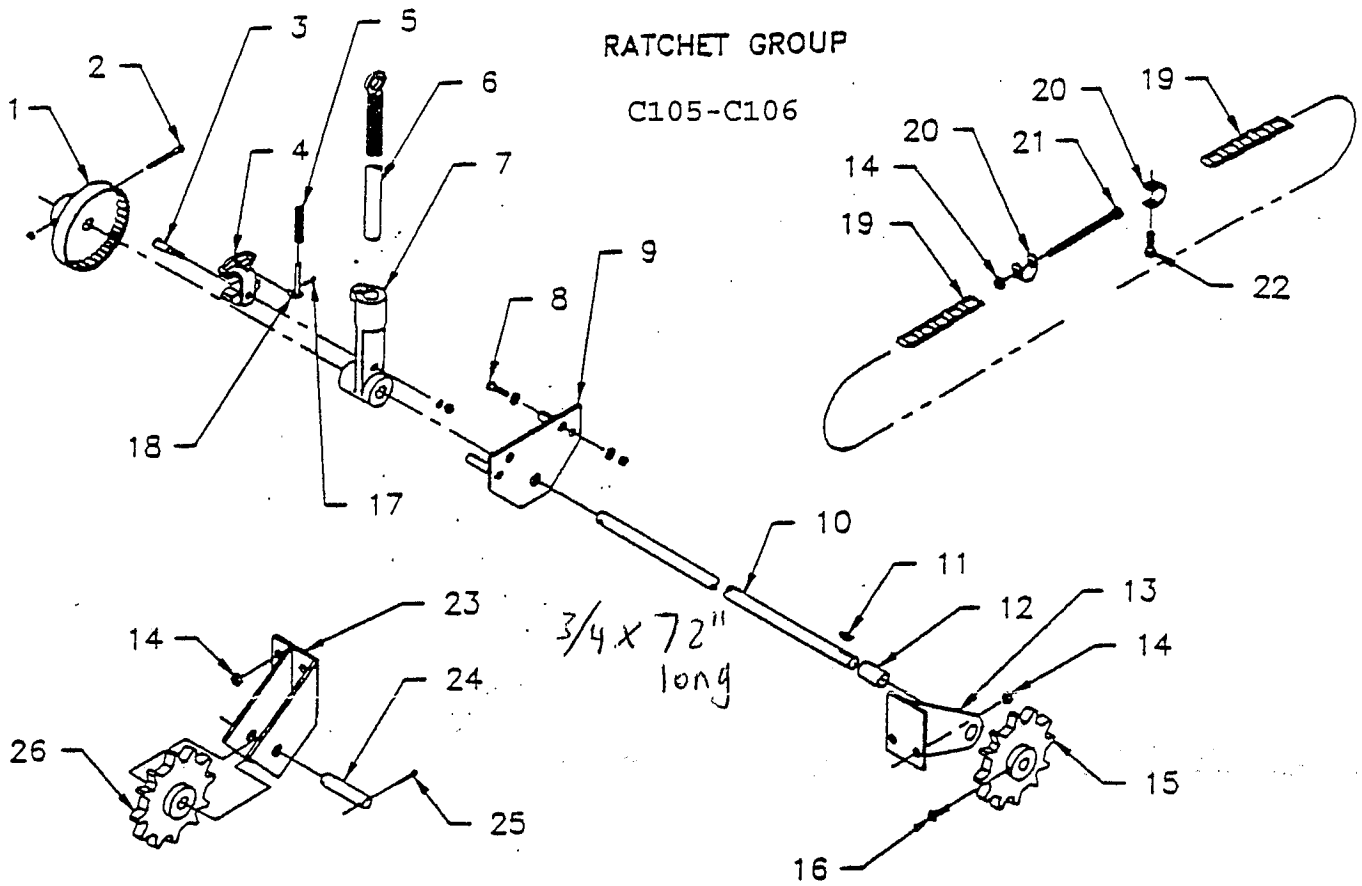
ITEM NO.	PART NO.	QTY. A/E	DESCRIPTION
1.	VA-1841	1	OIL VALVE - - ITEMS
2.	VA-1842	1	OIL VALVE - - ITEMS
3.	VA-1884	1	AIR VALVE - - ITEMS
4.	VA-1871	2/2	VALVE HANDLE
5.	VS-11671	2/2	MACH. SCREW 10-32 X 1 1/4
6.	VS-7074	2/2	3/16" SPLIT LOCKWASHER
7.	VS-7483	2/2	HEX NUT 10-32
8.	VS-12206	2/2	SPRING LEVER
9.	VS-11143	2/2	EXTENSION SPRING
10.	VS-18398	2/3	PROTECTOR CAP
11.	VA-2072	2/2	FLANGE
12.	VS-10867	2/3	SEAL
13.	VS-11298	2/3	GASKET
14.	VS-15867	2/3	ROLL PIN 1/4 X 1
15.	VS-11114	2/2	CONTROL CORE
16.	VS-7403	2/2	CAPSCREW 1/2-13 X 1 1/4
17.	VS-812	2/2	1/2" SPLIT LOCKWASHER
18.	VA-1846	2/2	VALVE CAP
19.	VS-1204	16/24	CAPSCREW 5/16-18 X 1
20.	VA-1841	1	VALVE BODY
21.	VS-12141	2/2	CAPSCREW 5/16-24 X 2 1/4
22.	VS-11144	2/2	STOP HOSE
23.	VS-7927	2/2	HEX NUT 3/16-24
24.	VA-1842	1	VALVE BODY
25.	VA-1833	1	INTAKE CONTROL CORE
26.	VA-2074	1	FLANGE
27.	VA-11672	1	FEED VALVE HANDLE
28.	VA-20940	1	VALVE HANDLE
29.	VA-2200	1	CRANK
30.	VA-2182	1	ROCKER ARM
31.	VS-20154	1	MUFFLER
32.	VS-6829	2	COTTER 3/32 X 3/4
33.	VS-7176	1	VALVE
34.	VS-8456	2	CLEVIS PIN
35.	Y-1856	2	PACKING NUT
36.	VS-8453	2	GLAND
37.	VS-8454	2	STEM PACKING
38.	VS-8472	2	STEM
39.	VS-8461	2	RUBBER SEAT
40.	VS-8462	2	SEAT BASE
41.	VS-8463	2	SPRING
42.	VS-25867	2	GASKET
43.	Y-1856	2	CAP



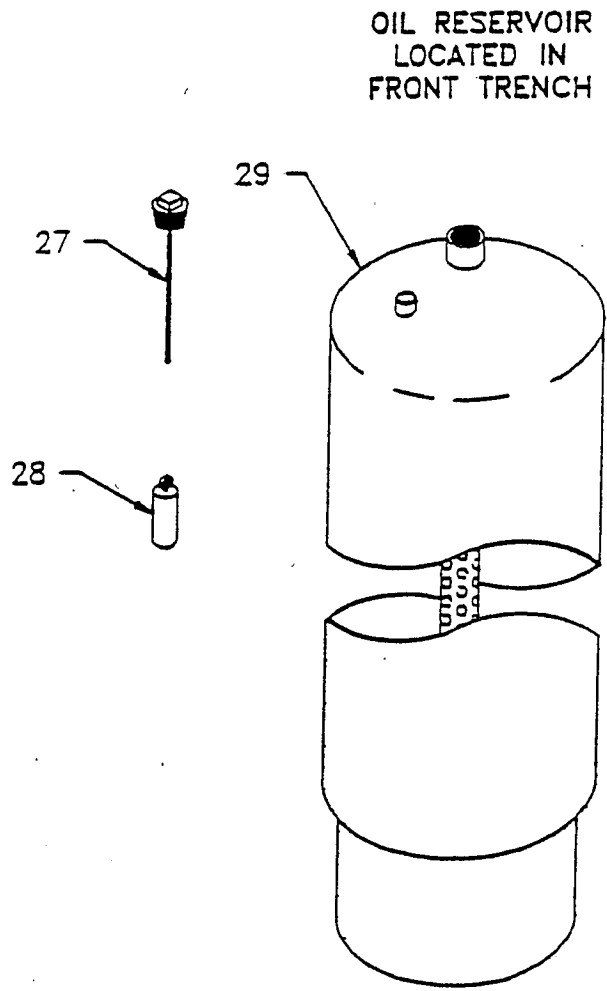
* VALVE SEAT & PACKING PARTS (TWO EACH)



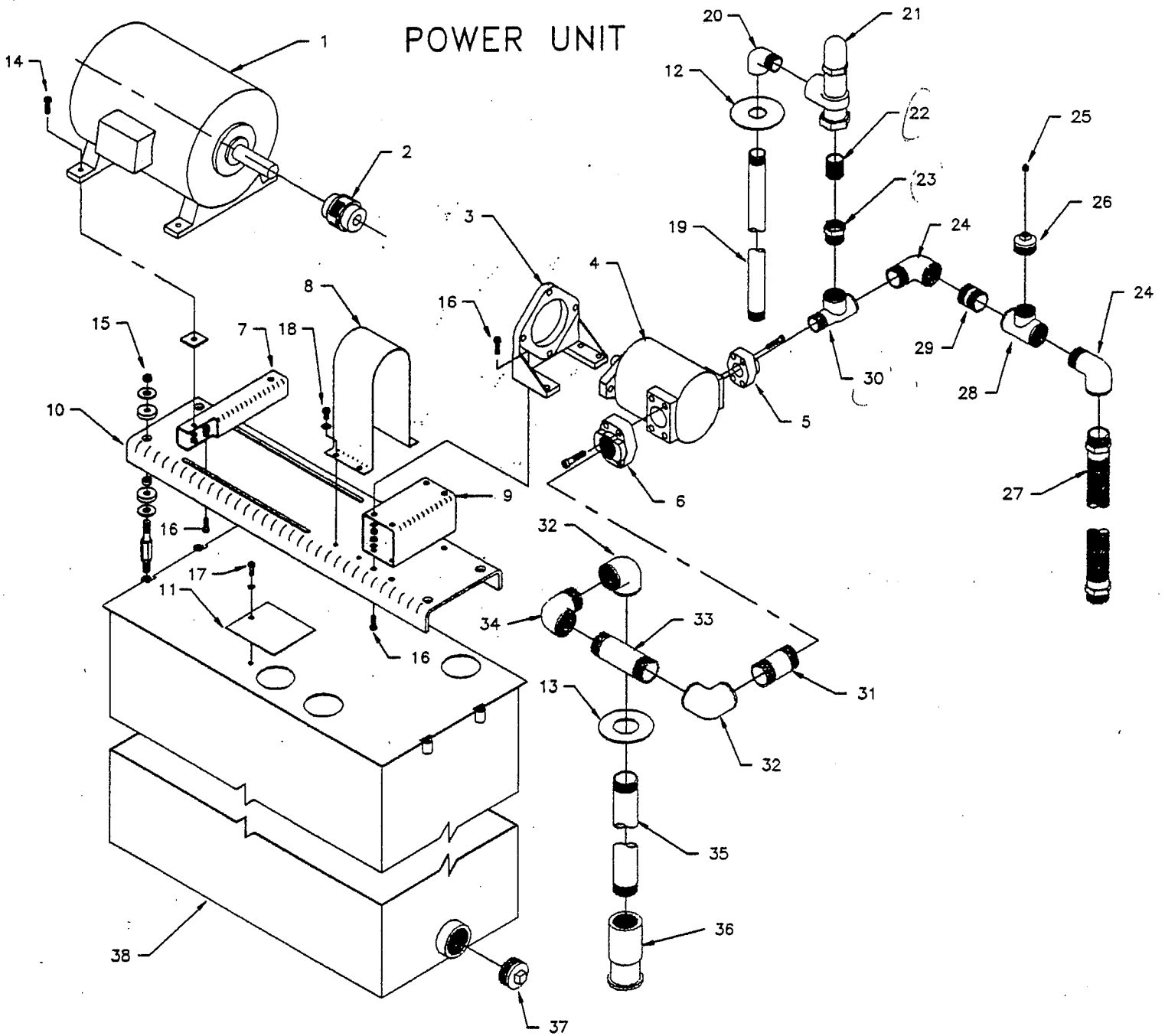
C106



ITEM NO.	PART NO.	QTY.	DESCRIPTION
1.	VM2313	1	WHEEL
2.	VS27200	1	5/16-24 X 2 1/2 CAPSCREW
	VS7927	1	5/16-24 HEX NUT
3.	VS7382	1	PIN
	VS1325	1	3/8 SPLIT LOCKWASHER
	VS595	1	3/8 HEX NUT
4.	VM2199	1	DOG
5.	V1083879	1	COMPRESSION SPRING
6.	VAS16486	1	SHIFT LEVER
7.	VM2314	1	DOG LEVER
8.	VS944	2	3/8-16 X 1 1/4 CAPSCREW
	VS19909	4	13/32 I.D. WASHER
	VS595	2	3/8-16 HEX NUT
9.	VAS7392	1	HANGER PLATE
10.	V1085833	1	SHAFT 09095
11.	VS8506	1	WOODRUFF KEY
12.	VS6034	1	OILITE BEARING
13.	VAS26408	1	FRONT HANGER ASSY.
14.	VS508	5	1/2-13 HEX NUT
15.	VM1574	1	FRONT SPROCKET
16.	VS7221	1	3/8-16 X 1 SET SCREW
17.	VS380	1	3/32 X 1/2 COTTER
18.	V1082809	1	GUIDE PIN
19.	VS7381	1	CHAIN
20.	VS7391	2	CHAIN FASTENER
21.	VAS20636	1	ADJUSTING BOLT
22.	VS7403	1	1/2-13 X 1 1/4 CAPSCREW
23.	VM1561	1	REAR HANGER
24.	VS7386	1	PIN
25.	VS107	2	1/8 X 1 COTTER
26.	VM1573	1	REAR SPROCKET
27.	VAS25119	1	GLUGE ROD
28.	V1087679	1	FLOAT ASSY.
29.	V1080280	1	RESERVOIR



POWER UNIT



ITEM NO.	PART NO.	QTY.	DESCRIPTION	ITEM NO.	PART NO.	QTY.	DESCRIPTION
1.	09128	1	7 1/2 hp, 1800 RPM ELECTRIC MOTOR WITH A 213T OR 215T FRAME (PRICES ON REQUEST)	17.	VS175	1	3/8-16 X 3/4 HEX HEAD CAPSCREW
2.	09127	1	FLEXIBLE COUPLING		VS3277	1	3/8 INTERNAL LOCKWASHER
3.	09113	1	FOOT BRACKET (HARDWARE INC.)	18.	VS14098	4	3/8-16 X 1/2 HEX HEAD CAPSCREW
4.	09112	1	PUMP		VS3277	4	3/8 INTERNAL LOCKWASHER
5.	09114	1	1" FLANGE (HARDWARE INC.)	19.	VS19695	1	1" X 45" PIPE
6.	09115	1	1 1/2" FLANGE (HARDWARE INC.)	20.	VS5942	1	1" X 90 DEG. STREET ELBOW
7.	09122	2	ADAPTER TUBE	21.	VAS22533	1	RELIEF VALVE
8.	09117	1	COUPLING COVER	22.	VS19742	1	1" CLOSE NIPPLE
9.	09108	1	PUMP ADAPTER	23.	09125	1	1 1/4" X 1" HEX BUSHING
10.	09116	1	MOUNTING CHANNEL	24.	VS5944	2	1 1/4" X 90 DEG. STREET ELBOW
11.	VS11318	1	PORT COVER	25.	VS1836	1	1/4" PIPE PLUG
12.	09123	1	1" PIPE COLLAR	26.	VS15461	1	GUAGE OUTLET PLUG
13.	09124	1	1 1/2" PIPE COLLAR	27.	VS13801	1	HOSE
14.	VS105	4	3/8-16 X 1 HEX HEAD CAPSCREW	28.	VS17222	1	1 1/4" X 1 1/4" X 1" REDUCING TEE
	09111	4	SHIM	29.	VS19672	1	1 1/4" CLOSE NIPPLE
	VS3012	4	3/8 SPLIT LOCKWASHER	30.	09118	1	1" X 1 1/4" X 1 1/4" STREET TEE
	VS595	4	3/8-16 HEX NUT	31.	09119	1	1 1/2" X 3 1/2" NIPPLE
15.	VS12540	4	1/2-13 HEX NUT	32.	VS20955	2	1 1/2" X 90 DEG. ELBOW
	VS1565	8	1/2" USS FLAT WASHER	33.	09120	1	1 1/2" X 5 1/2" NIPPLE
	VS18999	8	SPACER	34.	09121	1	1 1/2" X 90 DEG. STREET ELBOW
	VS15655	4	DAMPER	35.	VS20966	1	1 1/2" X 37 5/8" PIPE
	VS19674	4	MOUNTING STUD	36.	VAS20957	1	FOOT VALVE
16.	VS105	12	3/8-16 X 1 HEX HEAD CAPSCREW	37.	VS7359	1	2" PIPE PLUG
	VS3012	12	3/8 SPLIT LOCKWASHER	38.	VAS19676	1	60 GAL RESERVOIR
	VS595	12	3/8-16 HEX NUT		VAS19685		120 GAL RESERVOIR
					VAS19690		170 GAL RESERVOIR

