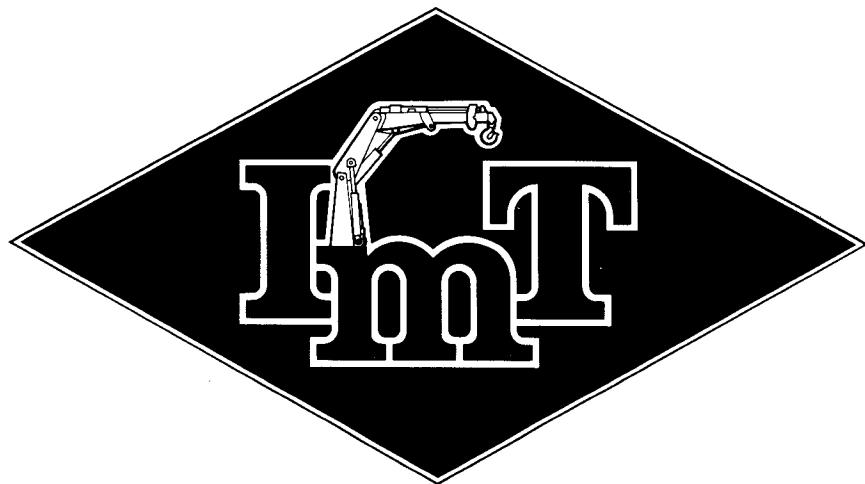


10020 CRANE



IOWA MOLD TOOLING CO., INC.
500 HWY 18 WEST, GARNER, IA 50438
515·923·3711

Introduction - Read Carefully!

This volume deals with information applicable to your particular crane. For operating, maintenance and repair instructions, refer to Volume 1, *OPERATION, MAINTENANCE AND REPAIR*. Volume 1 contains the following information:

- SECTION 1. OPERATION
- SECTION 2. MAINTENANCE
- SECTION 3. REPAIR
- SECTION 4. INSTALLATION -
CHASSIS PREPARATION
- SECTION 5. APPENDIX

We recommend that Volume 2, *PARTS AND SPECIFICATIONS* be kept in a safe place in the office.

This manual is provided to assist you with ordering parts for your IMT truck-mounted articulating crane. It also contains additional instructions regarding your particular installation.

Warranty of this unit will be void on any part of the unit subjected to misuse due to overloading, abuse, lack of maintenance and unauthorized modifications. No warranty - verbal, written or implied - other than the official, published IMT new machinery and equipment warranty will be valid with this unit.

It is the user's responsibility to maintain and operate this unit in a manner that will result in the safest working conditions possible.

In addition, it is also the user's responsibility to be aware of existing Federal, State and Local codes and regulations governing the safe use and maintenance of this unit. Listed below is a publication that the user should thoroughly read and understand.

ANSI/ASME B30.22
ARTICULATING BOOM CRANES
The American Society of Mechanical
Engineers
United Engineering Center
345 East 47th Street
New York, NY 10017

Three means are used throughout this manual to gain the attention of personnel. They are NOTE's, CAUTION's and WARNING's and are defined as follows:

NOTE

A NOTE is used to either convey additional information or to provide further emphasis for a previous point.

CAUTION

A CAUTION is used when there is the strong possibility of damage to the equipment or premature equipment failure.

WARNING

A WARNING is used when there is the potential for personal injury or death.

Treat this equipment with respect and service it regularly. These two things can add up to a safer working environment.

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Section 1. SPECIFICATIONS

1-1. GENERAL

Crane Rating	13.83 ton-meters	100,000 ft.-lbs.
Reach - from centerline of rotation	6.15 m	20'-2"
* Lifting Height	9.83 m	32'-3"
Crane Weight - less chair and platform	2,950 kg.	6,505 lbs.
Crane Weight - with chair and platform	3,155 kg.	6,955 lbs.
Outrigger Span	4.57 m	15'-0"
* Storage Height	3.94 m	12'-11"
* * Base Mounting Space Required	83.8 cm	33"
Optimum Pump Capacity - tandem pump (each section)	45.4 liters/min.	12 U.S. Gallons/minute
Oil Reservoir Capacity	98.4 liters	26 U.S. Gallons
* * * Vertical Center of Gravity - from bottom of crane	121.9 cm	48"
* * * Horizontal Center of Gravity - from centerline of rotation	139.7 cm	55"
Design Factors - pins and hydraulics	4/1	4/1

- * Based on 41" (104.1 cm) truck frame height.
- * * Allow an additional 3" (7.6 cm) between the truck cab and body for clearance between the cab, crane and body.
- * * * Based on crane with chair and platform in stored position, with fork and rotator installed - fork, rotator and link weigh approximately 770 lbs (350 kg.)

1-2. LIFTING CAPACITY (from centerline of rotation)

* 10'-0" (3.05 m)	4,536 kg.	10,000 lbs.
* 15'-0" (4.57 m)	3,039 kg.	6,700 lbs.
20'-2" (6.15 m)	2,268 kg.	5,000 lbs.

* Hook applications only - inner and outer boom will be "knuckled" to meet this lifting radii from centerline of rotation.

1-3. PERFORMANCE CHARACTERISTICS

Rotation - 450° (7.85 Rad.)	30 Seconds
Inner Boom Elevation - -5° to +80° (-0.09 Rad. to +1.40 Rad.)	20 Seconds
Outer Boom Articulation - 174° (2.96 Rad.)	25 Seconds
Outrigger Extension - 29-1/4" (74.3 cm)	36 Seconds

These times are based on optimum oil flow of 12 U.S. Gallons/minute (45.4 liters/minute) for each function.

1-4. CYLINDERS

	<u>Bore</u>	<u>Stroke</u>
Inner	(11.4 cm) 4-1/2"	(74.8 cm) 28-1/4"
Outer	(15.2 cm) 6"	(103.2 cm) 40-5/8"
Outrigger	(15.2 cm) 6"	(79.3 cm) 29-1/4"

1-5. POWER SOURCE

Integral-mounted tandem pump and PTO application. Other standard power sources may be utilized. Minimum power required is 42 horsepower.

1-6. ROTATION SYSTEM

Turntable bearing powered by a high-torque hydraulic motor through a ring-and-pinion type spur-gear train. A fail-safe, spring-loaded brake is supplied between the drive gear and the hydraulic motor providing rotational and parking brake action. Total gear reduction is 56.7 to 1.

1-7. CYLINDER HOLDING VALVES

The holding sides of all cylinders are equipped with integral-mounted counter-balance valves to prevent sudden cylinder collapse in case of hose or other hydraulic component failure. In addition, the outer, and outrigger cylinders feature double counter-balance valves. The counter-balance valve serves several functions. First, it is a holding valve. Secondly, it is so constructed that it will control the lowering function and allow that motion to be feathered while under load. Finally, if a hose breaks, the only oil loss will be that in the hose.

1-10. MINIMUM CHASSIS SPECIFICATIONS

Body Style	
Wheel Base	
Cab-to-Axle	
Frame Section Modulus	
R B M	
Front Axle Rating	
* Rear Axle Rating	

Conventional Cab	
584.2 cm	
436.9 cm	
426 cc	
17,973 kg-m	
5,443 kg.	
* 10,433 kg.	

Conventional Cab	
230"	
172"	
26 in. ³	
1,560,000 in-lbs.	
12,000 lbs.	
* 23,000 lbs.	

* If building supply materials are to be transported, it may be necessary to use a 34,000 lb. (15,442 kg.) tandem rear axle.

In addition to these specifications, heavy-duty electrical and cooling systems are required. It is recommended that the vehicle be equipped with an electric engine tachometer, auxiliary brake lock and power steering. If a diesel engine is utilized, a variable speed governor shall be required.

1-8. HYDRAULIC SYSTEM

Open-centered, full-pressure system with tandem pump requiring 12 U.S. GPM (45.4 l/min.) optimum oil flow at 2,500 PSI (175.7 kg/cm²). Control valve consists of two four-spool, stack-type valve banks. All crane (excluding outriggers) and wallboard functions are manipulated by either joy sticks or foot throttles via a pilot source of oil from the valve banks. Outrigger controls - located at the base of the crane - are of the push/pull-type, connected directly to the valve bank. System includes hydraulic oil reservoir, suction- and return-line filters and control valve banks.

1-9. CAPACITY ALERT SYSTEM

A pressure sensor mounted on the inner-boom cylinder and connected hydraulically to the down side of the inner boom and the lift side of the outer boom, provides a capacity alert system. If the operator tries to lift a load in excess of the crane capacity, the inner boom lift and lower and the outer boom lift functions will not operate. To relieve the condition, the outer boom can be lowered.

Iowa Mold Tooling Co., Inc. reserves the right to change specifications and design without notice. These specifications supersede all others dated prior to March 1, 1988.

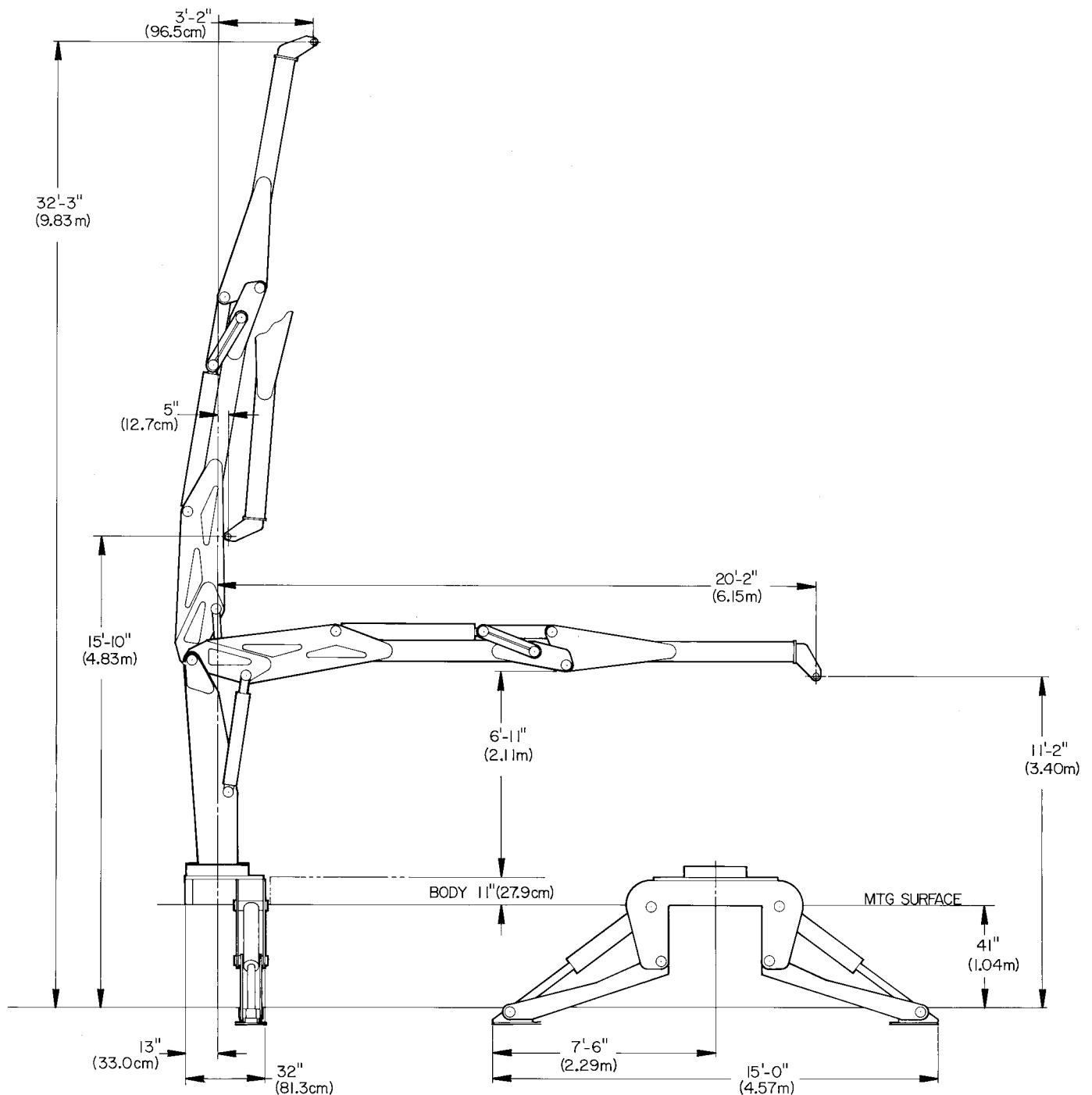


Figure A-1. Geometric Configuration

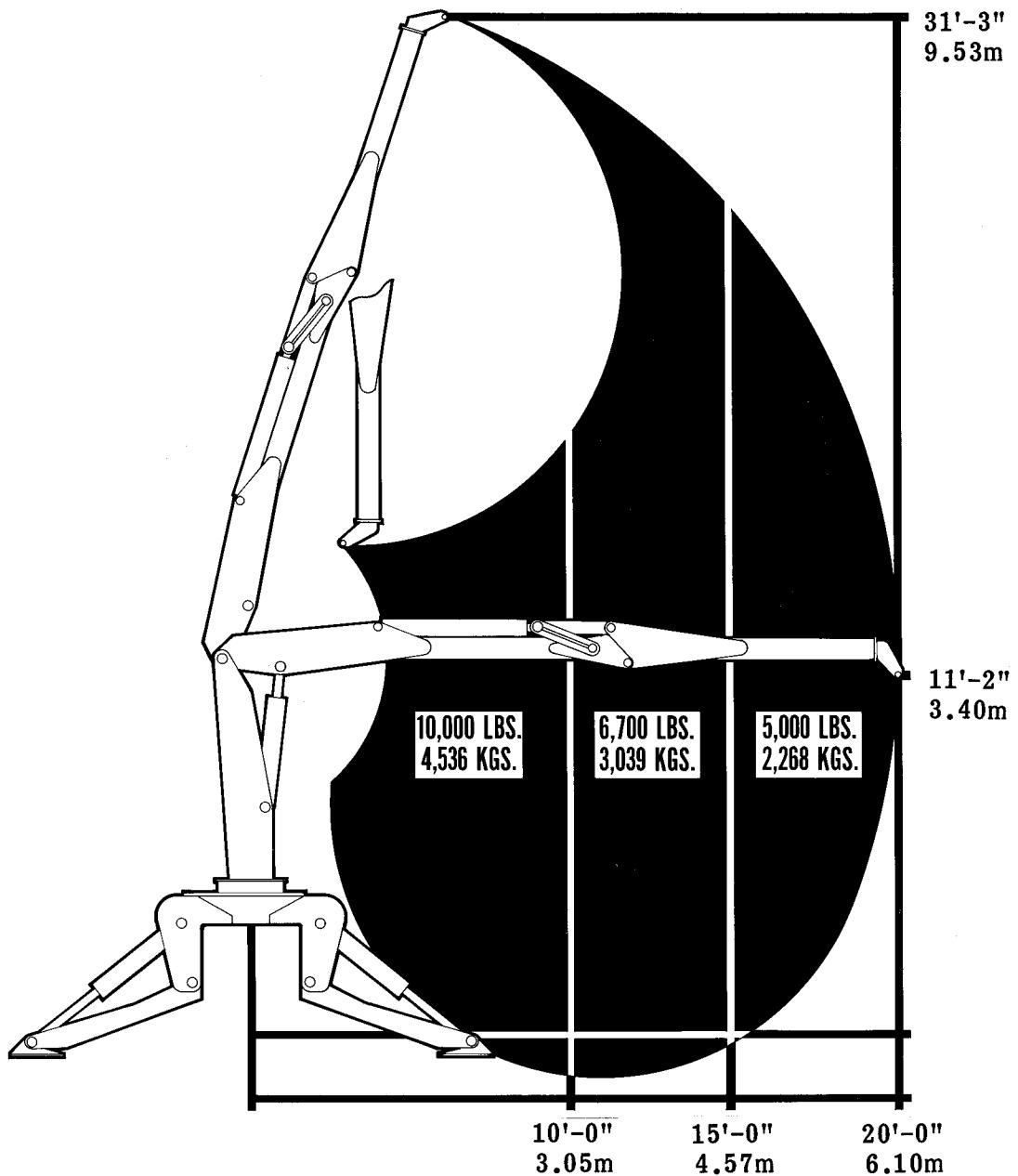


Figure A-2. Capacity Chart

Section 2. CRANE DESCRIPTION

2-1. GENERAL

The 10020 crane is designed primarily for use as a wallboard-handling crane. This section describes the major assemblies on this crane and Figure B-1 illustrates their location.

2-2. BASE

The base provides the means for mounting the crane on the truck chassis. It incorporates the 450° (7.85 Rad.) rotation mechanism and the outriggers. The outriggers are powered by double-acting hydraulic cylinders to provide stabilization during crane operation - maximum span is $15'-0"$ (4.57m). A platform with a ladder and an operator's chair, provides an operator's station near the mast to inner boom hinge which permits excellent visibility of the work area.

2-3. MAST

The mast provides the necessary elevation for crane operation as well as a hinge point for the inner boom.

2-4. INNER BOOM

The inner boom will swing through a full 85° (1.49 Rad.) from -5° to $+80^\circ$ (-0.09 Rad. to +1.40 Rad.). It is raised and lowered through the use of twin, double-acting hydraulic cylinders.

2-5. OUTER BOOM

The outer boom is articulated through 174° (2.96 Rad.). It is raised and lowered through the use of a double-acting hydraulic cylinder mounted above the inner and outer boom hinge point. The outer boom also provides storage for the extension boom in the retracted position.

2-6. CONTROLS

There are two "joy stick" control handles and a foot pedal control mounted at the operator's station. All crane functions (excluding outrigger) and wallboard fork functions are manipulated by either the joy stick or foot pedals via a pilot pressure source of oil from the main valve bank. Outrigger controls - located at the base of the crane - are of the push/pull type with the handles connected directly to the valve bank.

2-7. HYDRAULICS

The crane hydraulics consist of double-braided pressure hoses, return hoses, filters, control valve bank and all necessary hydraulic fittings.

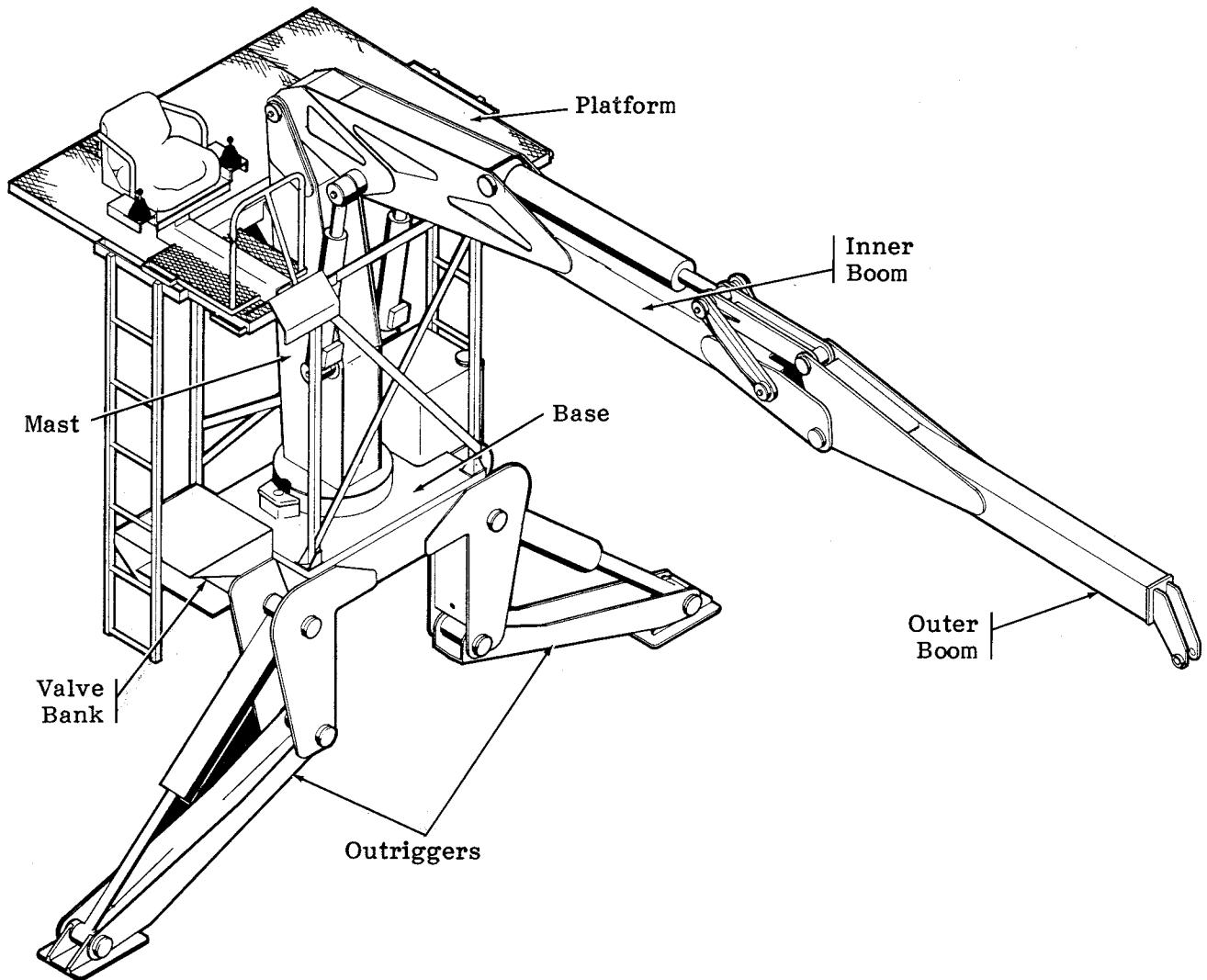


Figure B-1. 10020 Crane Group

Section 3. INSTALLATION

3-1. GENERAL

This section contains specific instructions for the installation of your crane. Prior to installing the crane and hydraulic components, make sure the chassis is ready to receive the crane (refer to Section 5, Installation - Chassis Preparation in Volume 1).

3-2. CRANE INSTALLATION

To install the crane on the chassis:

1. Use a lifting device capable of lifting the weight of the crane - 6,600 lbs. (2,994 kg) without platform and chair or 7,000 lbs. (3,175 kg.) with platform and chair. Attach the lifting device to the lift bracket welded to the top of the inner boom. Lift the crane, move the chassis into position under the crane and lower the crane into position on the chassis. Allow sufficient room between the crane and cab - at least 3" (7.6 cm). Check for front-to-rear alignment.
2. Install the truck frame support so that the tie-down bars pass through the support (Figure C-1). Cut the support to the inside dimension of the truck frame. Allow about 1/16" extra. Grind the end of the support to fit tight inside the frame channel. Use a hammer to drive it into position if necessary.

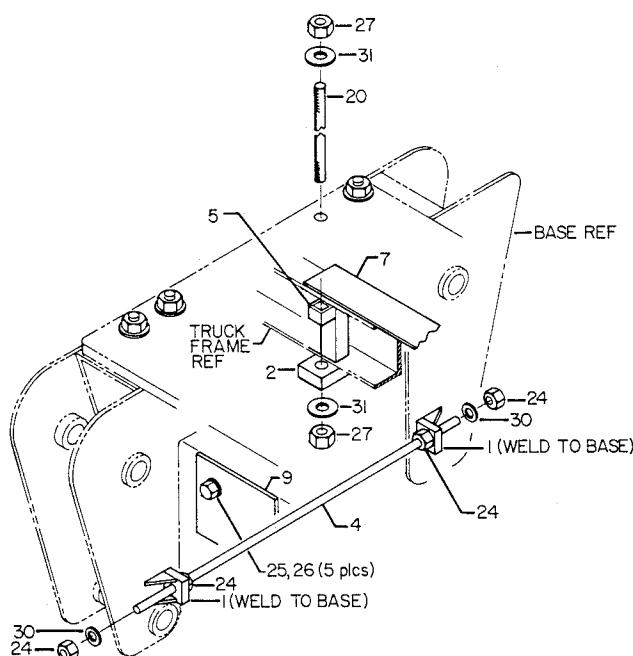
3. Install the tie rods, clamp plates, lock nuts and hardened washers to secure the crane base to the chassis (Figure C-1). Power wrench the nuts tight.

WARNING

Do not attempt to apply the same torque to the tie rod and self-locking nuts as shown in the Torque Data Chart. Do not exceed 200 ft. lbs. (28 kg-m). Exceeding this torque value could damage either the chassis or crane base.

Power wrenching is not recommended until the lead thread of the nut insert is engaged by hand turning.

4. Install the tie plate (Figure C-1) on the truck chassis. Drill four holes using the plate as a template and install the bolts and lock nuts. Torque the bolts to 200 ft. lbs. (28 kg-m). Weld the tie plate to the crane base with a 3/8" continuous fillet weld.
5. Weld the tension bar blocks to the crane base with a 3/8" continuous fillet weld. Install the tension bar (Figure C-1) with nuts and washers as shown. Tighten the outside nuts first to about 200 ft. lbs. (28 kg-m) to preload the tension bar. Then tighten the inner nuts to 466 ft. lbs. (65 kg-m).
6. Touch up paint on crane and chassis as necessary.



Item No.	Description
1.	Outrigger Tie-Bar Block
2.	Clamping Block
4.	Tension Bar
5.	Frame Flange Support
7.	Frame Flange Spacer
9.	Plate
20.	Tie Down Rod
24.	Nut
25.	Bolt
26.	nut
27.	Nut
30.	Washer
31.	Washer

Figure C-1. Crane Installation

3-3. HYDRAULIC INSTALLATION

To install the hydraulic hoses, fittings, etc.:

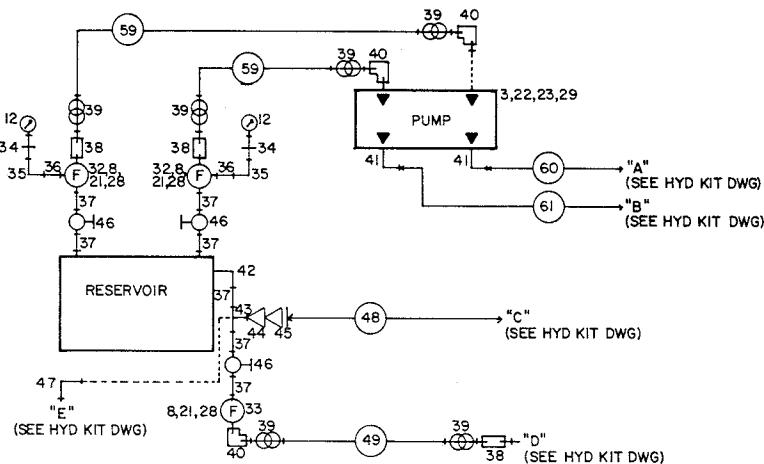
1. Plumb the suction-line filters as shown in Figure C-2.
2. Install the 1-1/4" ID suction hose between the suction-line filters and the pump inlets. Tighten the hose clamps.
3. Install the 3/4" pressure hose between the pump outlets and the inlet ports on the valve banks.
4. Install the return line between the reservoir return-line filters and valve bank (if applicable).
5. Fill the hydraulic oil reservoir.

6. Open the gate valves at the suction-line filter.

CAUTION

Failure to open the gate valve will result in a dry running pump which may damage the pump.

7. Open the return gate valve.
8. Start the vehicle engine and engage the PTO. Allow the system to run for about five minutes and then check the vacuum gauges on the suction-line filters (should read 8" or less of mercury). If the vacuum reading is too high, check to make certain that the gate valves are open. If the gate valves are open, check for a collapsed or restricted suction line.
9. Check for leaks and repair if necessary.



Item No.	Description	Item No.	Description
3.	Pump Support	34.	Coupling
8.	Oil Filter Bracket	35.	Elbow
12.	Vacuum Gauge	36.	Nipple
21.	5/16-18 x 1" hex hd. Screw	37.	Nipple
22.	3/8-16 x 1" hex hd. Screw	38.	Barbed Nipple
23.	3/8-16 Nut	39.	Hose Clamp
28.	5/16" Lock Washer	40.	90° Barbed Nipple
29.	3/8" Lock Washer	41.	Elbow
32.	Suction Filter	42.	Elbow
33.	Return Filter	43.	Tee
		44.	Reducer Bushing
		45.	Adapter
		46.	Ball Valve
		48.	3/4" ID Hose w/Fittings
		49.	1-1/4" ID Hose
		59.	1-1/4" ID Hose
		60.	3/4" ID Hose w/Fittings
		61.	3/4" ID Hose w/Fittings

Figure C-2. Hydraulic Installation

Section 4. PARTS LIST

4-1. GENERAL

This section contains the exploded parts drawings with the accompanying parts list for the assemblies used on this crane. These drawings are intended to be used in conjunction with the instructions found in the REPAIR section in Volume 1. For optional equipment such as winches and remote controls, refer to the appropriate service manual.

WARNING

Do not attempt to repair any component without reading the information contained in the REPAIR section in Volume 1. Pay particular attention to the WARNING's, CAUTION's and NOTE's contained in that section. Failure to comply with these instructions may result in damage to the equipment, an injury or even death.

4-2. CRANE IDENTIFICATION

Every crane has an identification placard (Figure D-1) attached to the mast in a prominent location. When ordering parts, communicating warranty information or referring to the unit in correspondence, always include the assigned serial and model numbers. All inquiries should be directed to Iowa Mold Tooling Co., Inc.; 500 Highway 18 West; Garner, Iowa 50438; telephone: (515) 923-3711 or TWX 910-523-6930. In Canada; IMT Cranes Canada, Ltd.; Orillia, Ontario; telephone: (705) 325-7458.

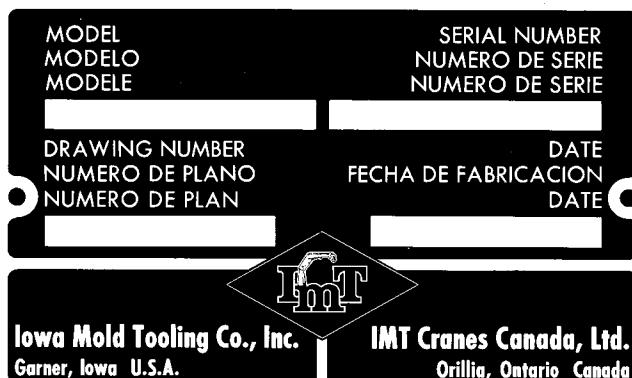


Figure D-1. Serial Number Placard

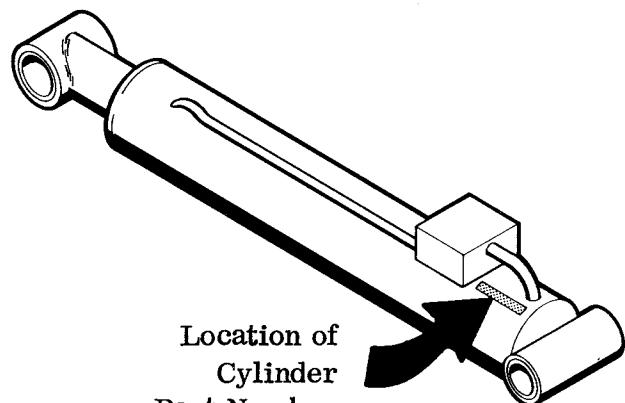


Figure D-2. Cylinder Part Number Location

4-3. CYLINDER IDENTIFICATION

To ensure proper replacement parts are received, it is necessary to specify a complete number/letter sequence for any part request. Cylinder part numbers must be checked by specifying the stamped identification of the cylinder case (Figure D-2) or on the cylinder's port block. You must use the part number stamped on the cylinder when ordering parts.

4-4. WELDMENT IDENTIFICATION

Each of the major weldments - base, mast, inner boom, outer boom, extension boom and outrigger weldments - bear a stamped part number. Any time a major weldment is replaced, you must specify the complete part number as stamped on the weldment. The locations of the part numbers are shown in Figure D-3.

4-5. ORDERING REPAIR PARTS

When ordering replacement parts:

1. Give the model number of the unit.
2. Give the serial number of the unit.
3. Specify the complete part number. When ordering cylinder parts or one of the main weldments, always give the stamped part number.
4. Give a complete description of the part.
5. Specify the quantity required.

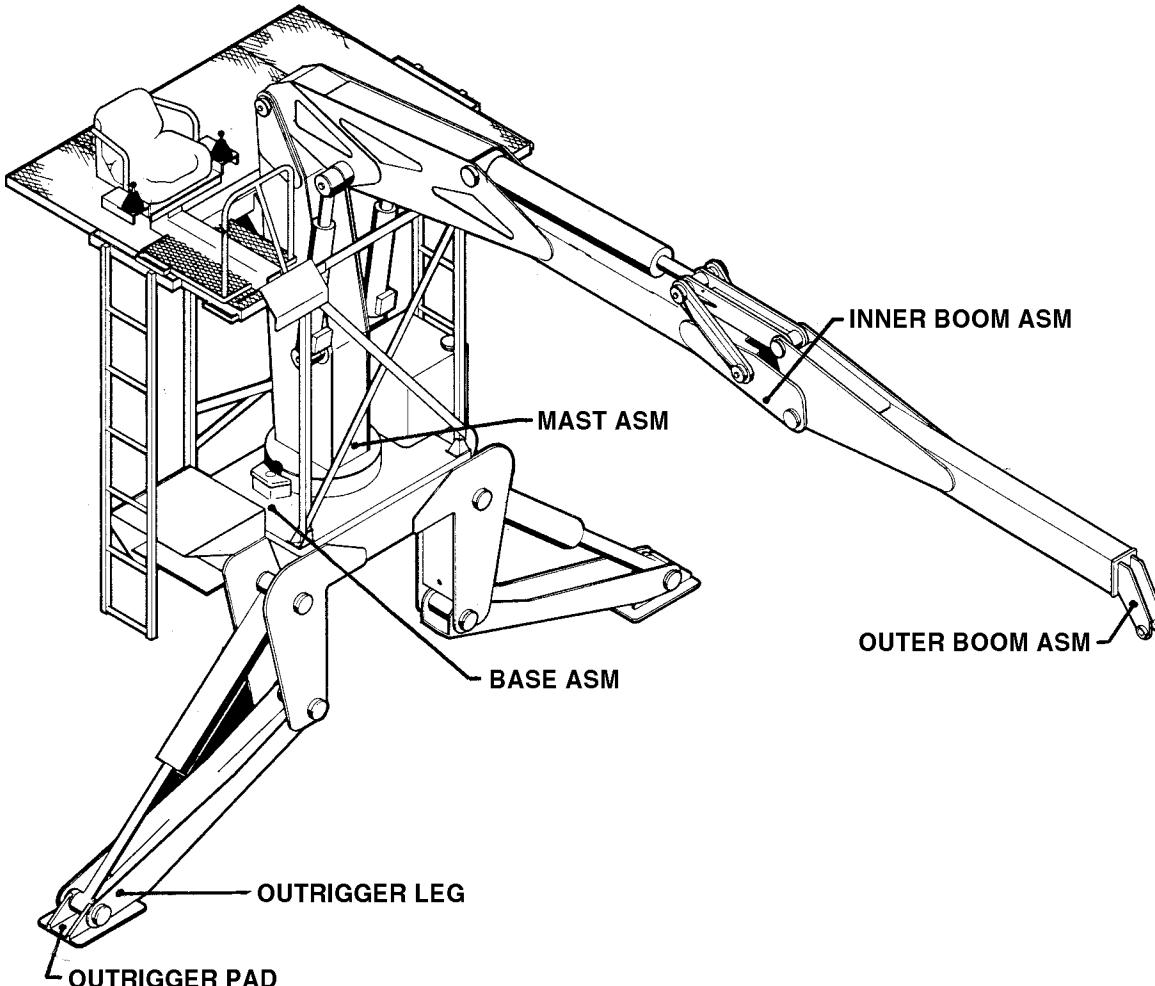


Figure D-3. Weldment Part Number Location

Item No.	Part No.	Description	Qty	Item No.	Part No.	Description	Qty
1.	3C283801	CYLINDER, outrigger	2	34.	70034295	BEARING (part of item 21)	1
2.	52701412	PAD, outrigger	2	35.	72053508	ZERK; 1/8" npt	6
3.	70731795	VALVE, counter-balance (includes items 61 & 62)	1	36.	72060004	SCREW, hex hd.; 1/4-20 x 1"	4
4.	52707194	SLIDE, rotation	1	37.	72060023	SCREW, hex hd.; 5/16-18 x 3/4"	6
5.	52703540	LEG, outrigger (includes item 6)	2	38.	72060857	SCREW, hex hd.; 5/16-18 x 5/8"	2
6.	7BF81225	BUSHING (part of item 5)	8	39.	72060092	SCREW, hex hd.; 1/2-13 x 1-1/4"	2
7.	52703541	RESERVOIR	1	40.	72060147	SCREW, hex hd.; 5/8-11 x 1"	6
8.	52703694	PIN	2	41.	72063050	WASHER, lock; 5/16"	6
9.	52703695	PIN	4	42.	72062080	NUT, lock; 1/2-13	2
10.	52707775	BASE (includes items 11 thru 15)	1	43.	72060836	SCREW, flat hd.; 1/4-20 x 3/4"	4
11.	60020120	BUSHING, top drive gear (part of item 10)	1	44.	72063003	WASHER, wrt.; 3/8"	2
12.	60020121	BUSHING, bottom drive gear (part of item 10)	1	45.	72063039	BUSHING, machy.; 2" x 10 ga.	1
13.	60020122	BUSHING, bottom pinion gear (part of item 10)	1	46.	72063049	WASHER, lock; 1/4"	4
14.	60020124	BUSHING, top pinion gear (part of item 10)	1	47.	72063053	WASHER, lock; 1/2"	2
15.	71056074	GEAR, drive (part of item 10)	1	48.	72063117	WASHER, flat; 9/16" gr. 8	6
16.	53000711	EXTENSION, grease; 23"	1	49.	72063115	WASHER, flat; 7/8" gr. 8	23
17.	53000713	EXTENSION, grease; 38"	1	50.	72066095	RING, retaining; 2"	1
18.	60010844	PLATE, grease	1	51.	72063051	WASHER, lock; 3/8"	4
19.	60020123	WASHER, thrust	1	52.	72060044	SCREW, hex hd.; 3/8-16 x 3/4"	4
20.	60103367	COVER	1	53.	72532261	GAUGE, sight; 3/4"	1
21.	60105964	PLATE, pinion support (includes item 34)	1	54.	72601037	SCREW, hex hd.; 9/16-12 x 4-1/2" gr. 8	2
22.	60106032	STUD; 1/2-13 x 2"	2	55.	72601144	SCREW, hex hd.; 9/16-12 x 2" gr. 8	4
23.	60106193	GUARD, gear	1	56.	72601148	SCREW, hex hd.; 7/8-9 x 3" gr. 8	23
24.	60106332	RETAINER, pin	6	57.	73014671	CAP, reservoir fill	1
25.	72060757	SCREW, soc. hd.; 3/8-16 x 2-1/2"	3	58.	73051478	MOTOR, hydraulic rotation	1
26.	60030176	PAD, wear	2	59.	73052001	PLUG; 3/4" npt	1
27.	52706739	GUARD, cylinder	2	60.	73141276	SCREEN, reservoir fill	1
28.	71056072	GEAR, intermediate	1	61.	7Q072017	O-RING (part of item 3)	2
29.	71056073	GEAR, pinion	1	62.	73054538	VALVE (part of item 3)	2
30.	71056374	BRAKE, hydraulic	1				
31.	71056273	GEAR-BEARING, turntable	1				
32.	72063002	WASHER, wrt.; 5/16"	6				
33.	72053301	COUPLING; 1/8" npt	2				

WARNING

Anytime the gear-bearing bolts have been removed, they must be replaced with a new bolt of the identical grade and size. Failure to replace gear-bearing bolts may result in bolt failure due to metal fatigue causing serious injury or death.

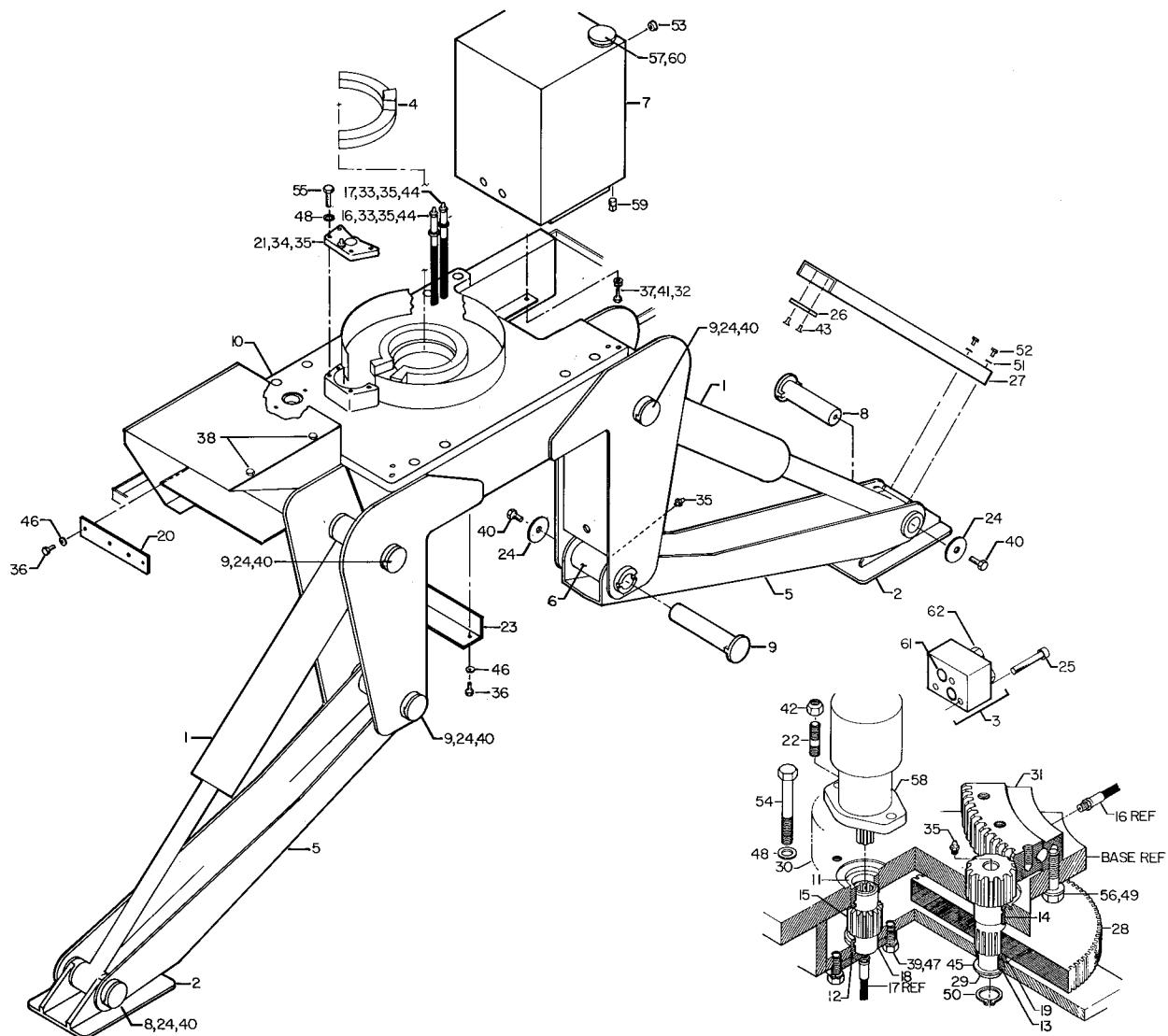


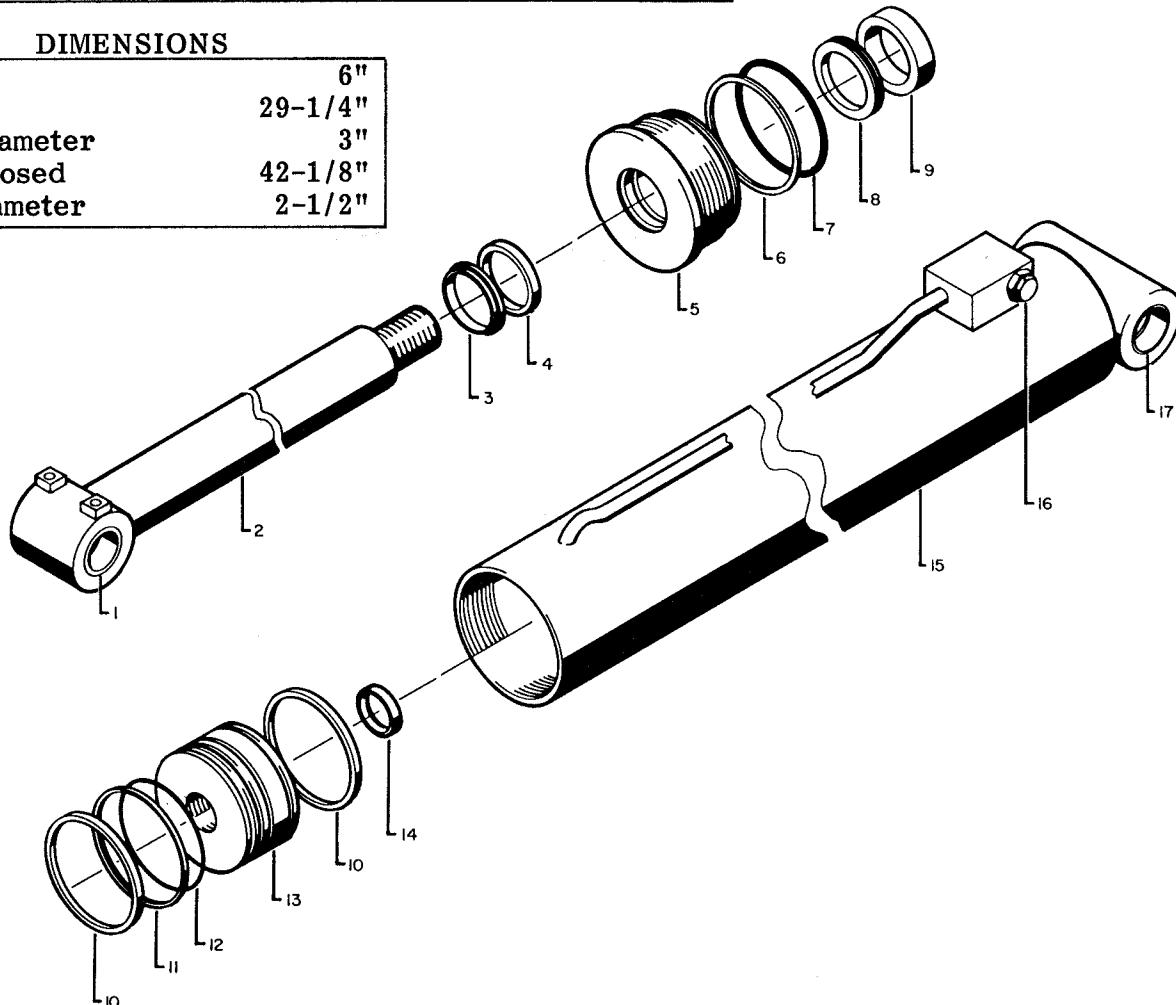
Figure D-4. Base and Outrigger (Part Number 41707777)

NOTE

Whenever the cylinder is disassembled, we strongly recommend replacing all of the components found in the seal kit. This may save expensive down-time in the near future. In addition, use NEVER-SEEZ between the head and case when assembling the cylinder.

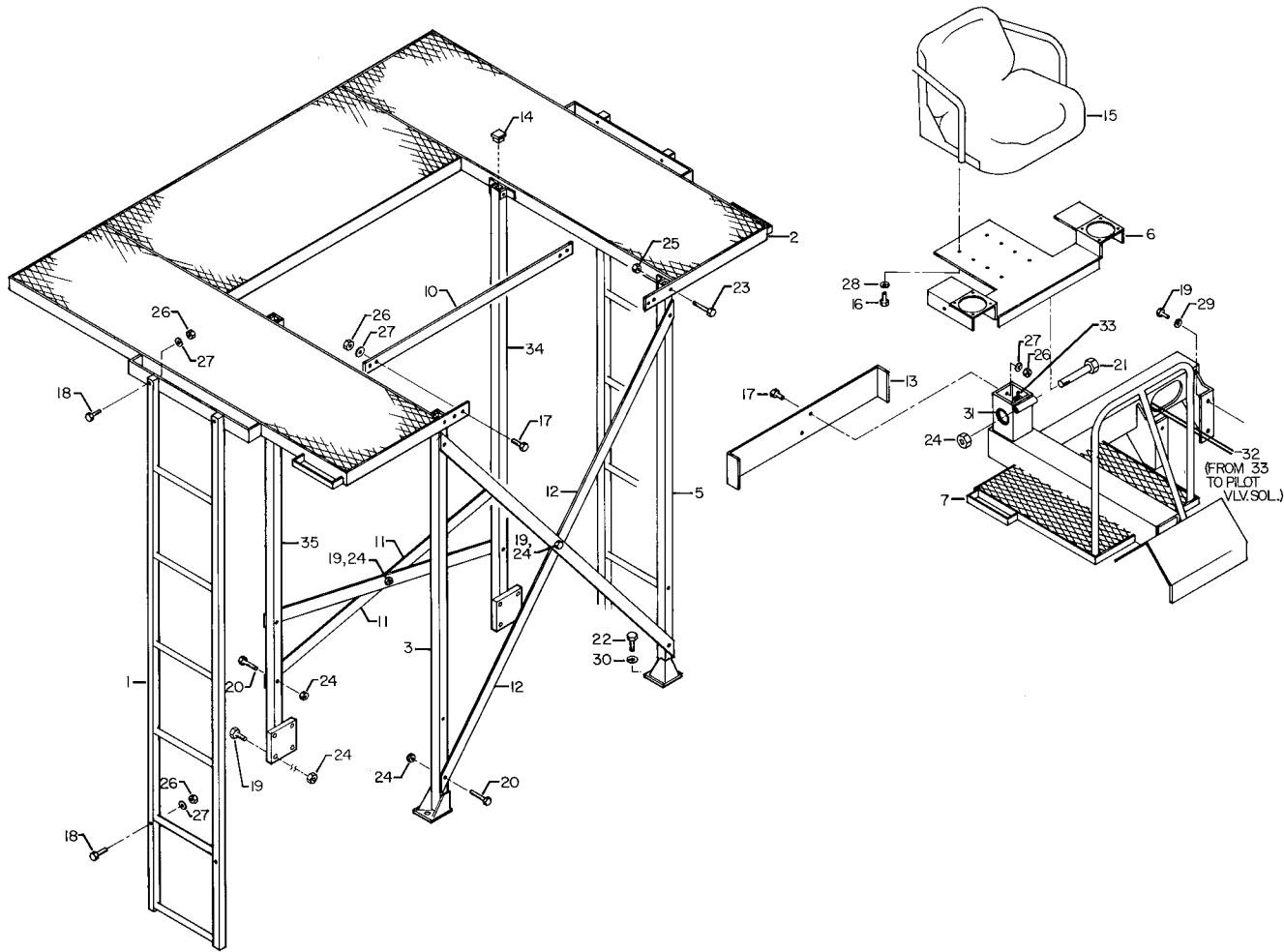
DIMENSIONS

Bore	6"
Stroke	29-1/4"
Rod Diameter	3"
C-C Closed	42-1/8"
Pin Diameter	2-1/2"



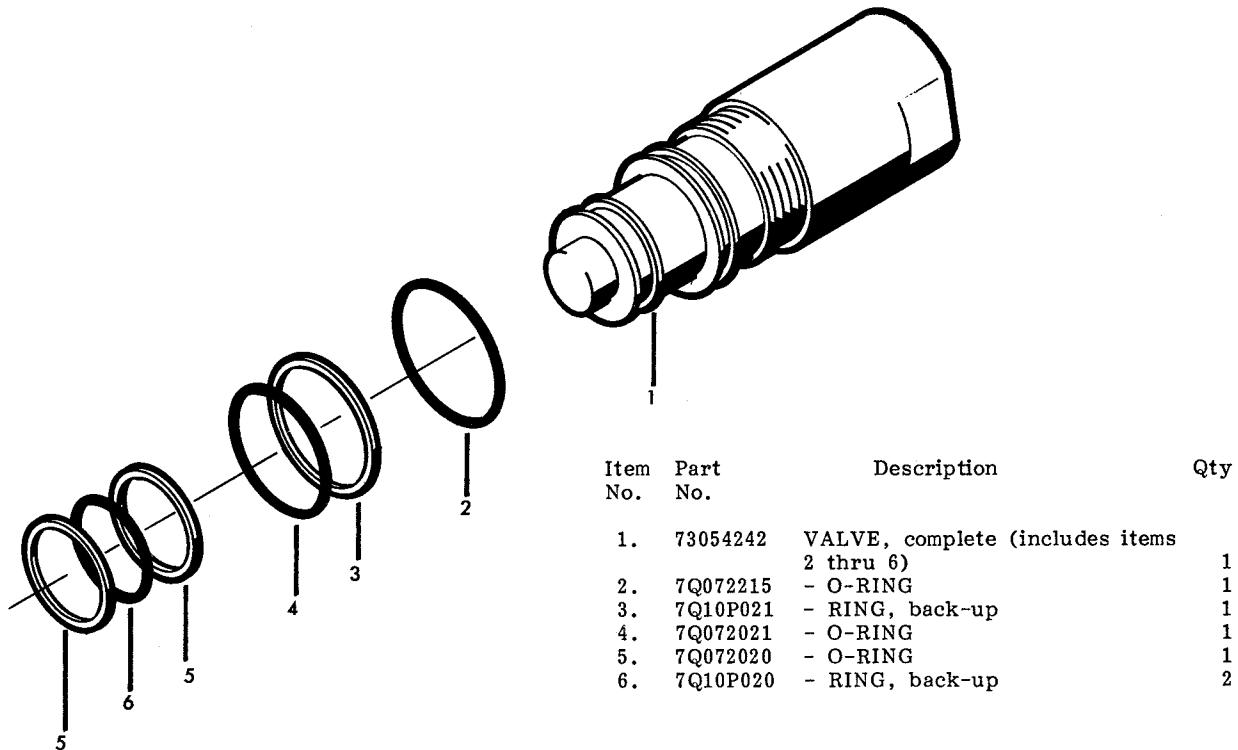
Item No.	Part No.	Description	Qty	Item No.	Part No.	Description	Qty
1.	7BF81225	BUSHING	3	12.	7Q072253	* O-RING	1
2.	4G283800	ROD	1	13.	6I060200	PISTON	1
3.	7R14P030	* WIPER, rod	1	14.	7T61N200	* SEAL, lock ring	1
4.	7R546030	* SEAL, rod	1	15.	4C283801	CASE, cylinder	1
5.	6H060030	HEAD	1	16.	73054304	VALVE, counter-balance	2
6.	7Q10P358	* RING, back-up	1	17.	7BF81225	BUSHING	4
7.	7Q072358	* O-RING	1	18.	72053507	ZERK; 1/4" str. thd. (not shown)	4
8.	6A025030	* RING, wafer lock	1	19.	7PNPXT02	PLUG, pipe; 1/8" npt (not shown)	4
9.	6C075030	TUBE, stop	1			* Part of seal kit (Part Number 9C242432)	
10.	7T65I060	* RING, piston	2				
11.	7T66P060	* SEAL, piston	1				

Figure D-5. Outrigger Cylinder (Part Number 3C283801)

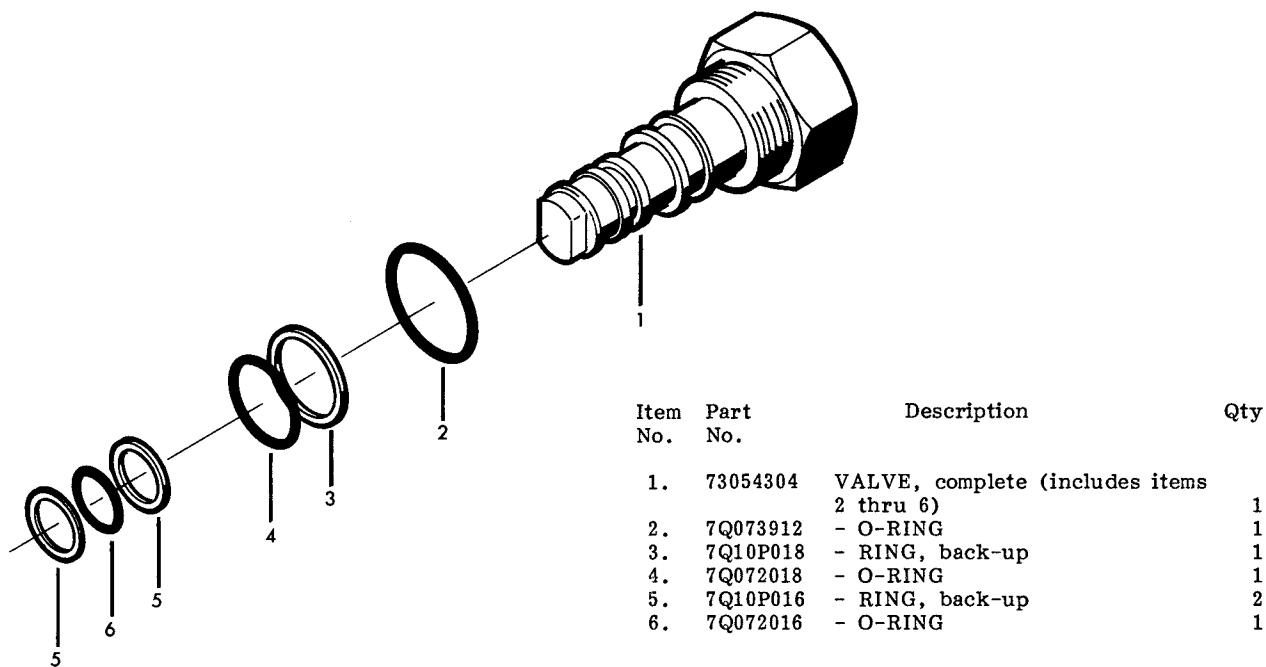


Item No.	Part No.	Description	Qty	Item No.	Part No.	Description	Qty
1. 52706597	LADDER		2	19. 72060092	SCREW, hex hd.; 1/2-13 x 1-1/4"	14	
2. 52706598	PLATFORM		1	20. 72060096	SCREW, hex hd.; 1/2-13 x 2-1/2"	8	
3. 52706599	LEG		1	21. 72061297	SCREW, hex hd.; 1/2-13 x 5-3/4"	1	
5. 52706601	LEG		1	22. 72060148	SCREW, hex hd.; 5/8-11 x 1-1/4"	4	
6. 52706602	PIVOT, chair platform		1	23. 72060154	SCREW, hex hd.; 5/8-11 x 3"	4	
7. 52706603	PLATFORM, chair		1	24. 72062080	NUT, lock; 1/2-13	19	
8. --	NOT USED		-	25. 72062091	NUT, lock; 5/8-11	4	
9. --	NOT USED		-	26. 72062103	NUT, lock; 3/8-16	14	
10. 60109936	BAR, access		1	27. 72063003	WASHER, wrt.; 3/8"	14	
11. 60109940	BRACE, cross		2	28. 72063050	WASHER, lock; 5/16	4	
12. 60109941	BRACE, cross		2	29. 72063053	WASHER, lock; 1/2"	4	
13. 60109964	GUARD, hose		1	30. 72063055	WASHER; 5/8" lock	4	
14. 70392310	PLUG		4	31. 60035938	LINER, edge	2	
15. 70731411	CHAIR		1	32. 89044188	WIRE	2	
16. 72060025	SCREW, hex hd.; 5/16-18 x 1"		4	33. 77041023	SWITCH, SPST	1	
17. 72060046	SCREW, hex hd.; 3/8-16 x 1"		6	34. 52707768	LEG, platform; curb side	1	
18. 72060050	SCREW, hex hd.; 3/8-16 x 2"		8	35. 51707769	LEG, platform, street side	1	

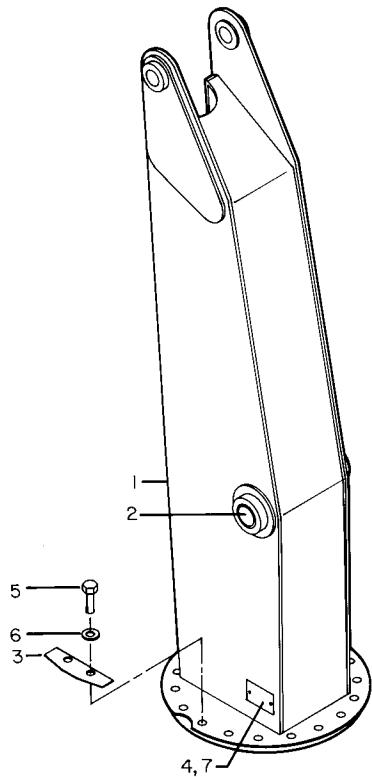
Figure D-6. Chair and Platform (Part Number 41707779)



**Figure D-7. 25-GPM Counter-Balance Valve
(Part Number 73054242)**



**Figure D-8. 10-GPM Counter-Balance Valve
(Part Number 73054304)**

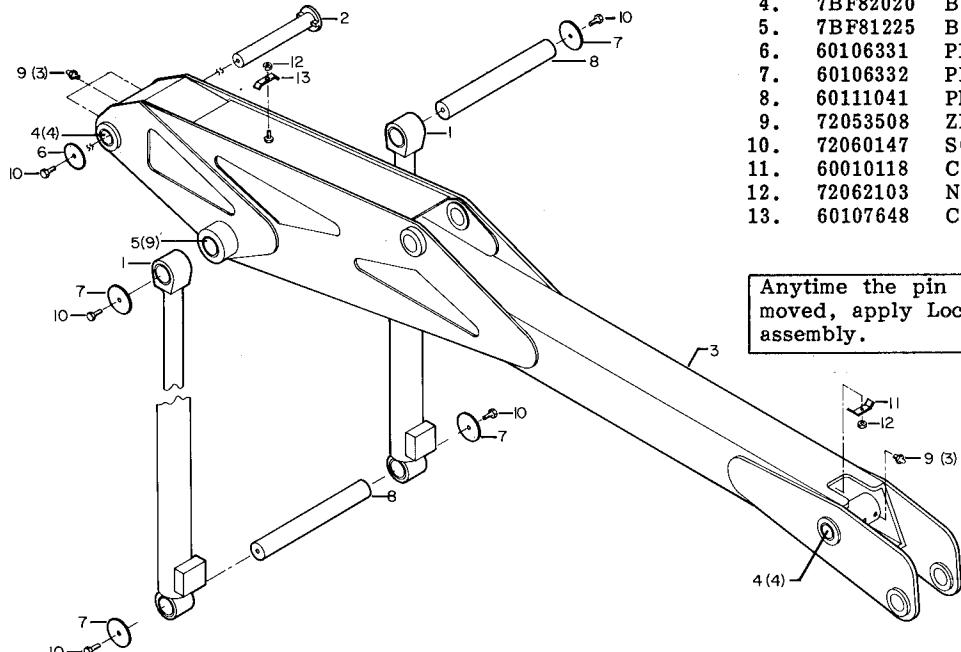


Item No.	Part No.	Description	Qty
1.	52707767	MAST (includes item 2)	1
2.	7BF81225	BUSHING (part of item 1)	9
3.	60104247	COVER, pinion gear	1
4.	70029119	PLACARD, serial number	1
5.	72060209	SCREW, hex hd.; 3/4-10 x 2-3/4" gr. 8	18
6.	72063116	WASHER, flat; 3/4" hardened	18
7.	72066340	RIVET, pop; 1/8"	2

WARNING

Anytime the gear-bearing bolts have been removed, they must be replaced with a new bolt of the identical grade and size. Failure to replace gear-bearing bolts may result in bolt failure due to metal fatigue causing serious injury or death.

Figure D-9. Mast (Part Number 41707778)



Item No.	Part No.	Description	Qty
1.	3C357870	CYLINDER, inner	2
2.	53703715	PIN	1
3.	52707402	BOOM, inner (includes items 4 & 5)	1
4.	7BF82020	BUSHING (part of item 3)	8
5.	7BF81225	BUSHING (part of item 3)	9
6.	60106331	PLATE, pin retainer	1
7.	60106332	PLATE, pin retainer	4
8.	60111041	PIN	2
9.	72053508	ZERK; 1/8" npt	6
10.	72060147	SCREW, hex hd.; 5/8-11 x 1"	5
11.	60010118	CLAMP, hose	1
12.	72062103	NUT, lock; 3/8-16	2
13.	60107648	CLAMP, hose	1

NOTE

Anytime the pin retainer plate bolts have been removed, apply Loctite 262 to the threads before reassembly.

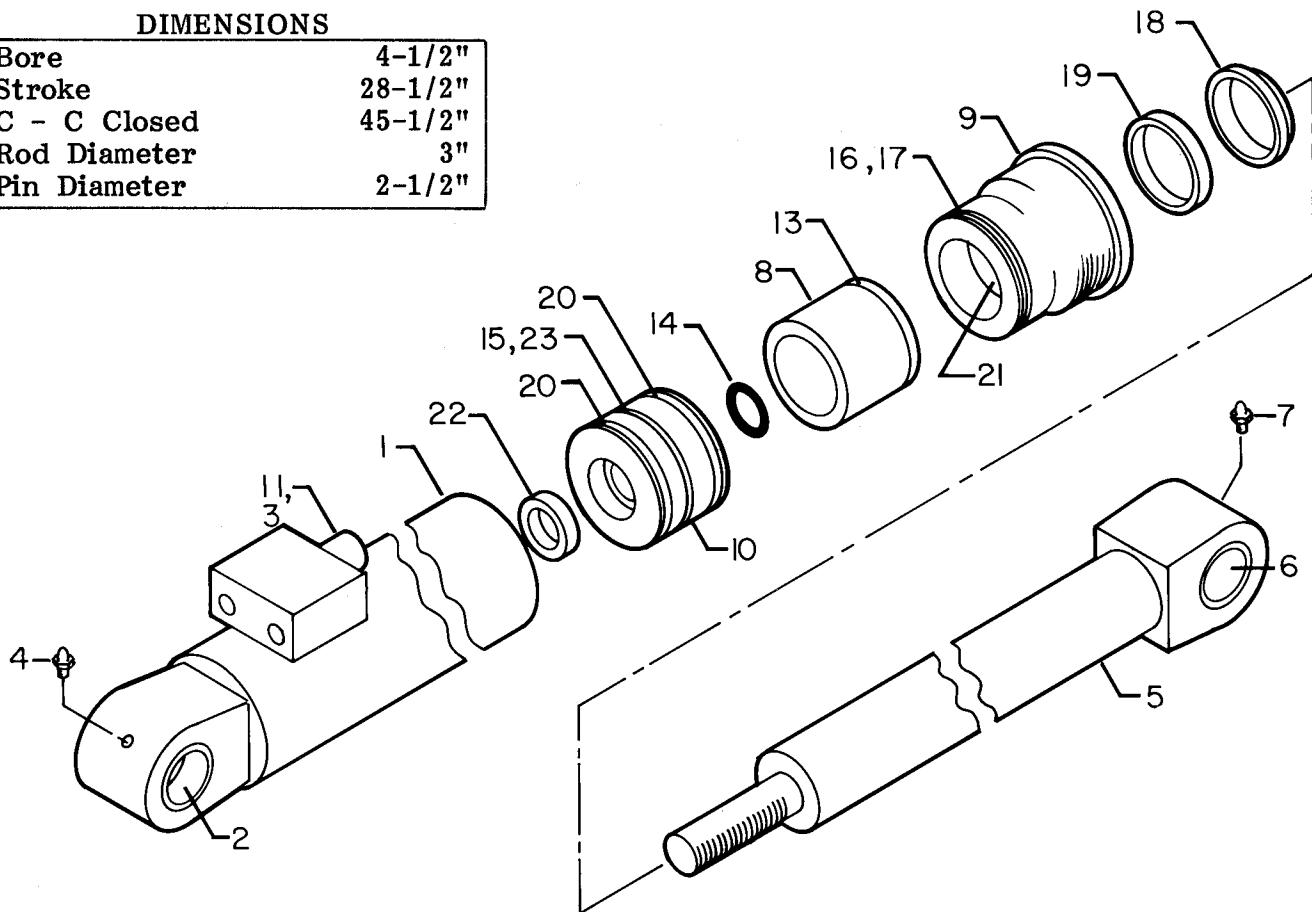
Figure D-10. Inner Boom (Part Number 41707780)

NOTE

Whenever the cylinder is disassembled, we strongly recommend replacing all of the components in the seal kit. This may save expensive down-time in the near future. In addition, use NEVER-SEEZ between the head and case when assembling the cylinder.

DIMENSIONS

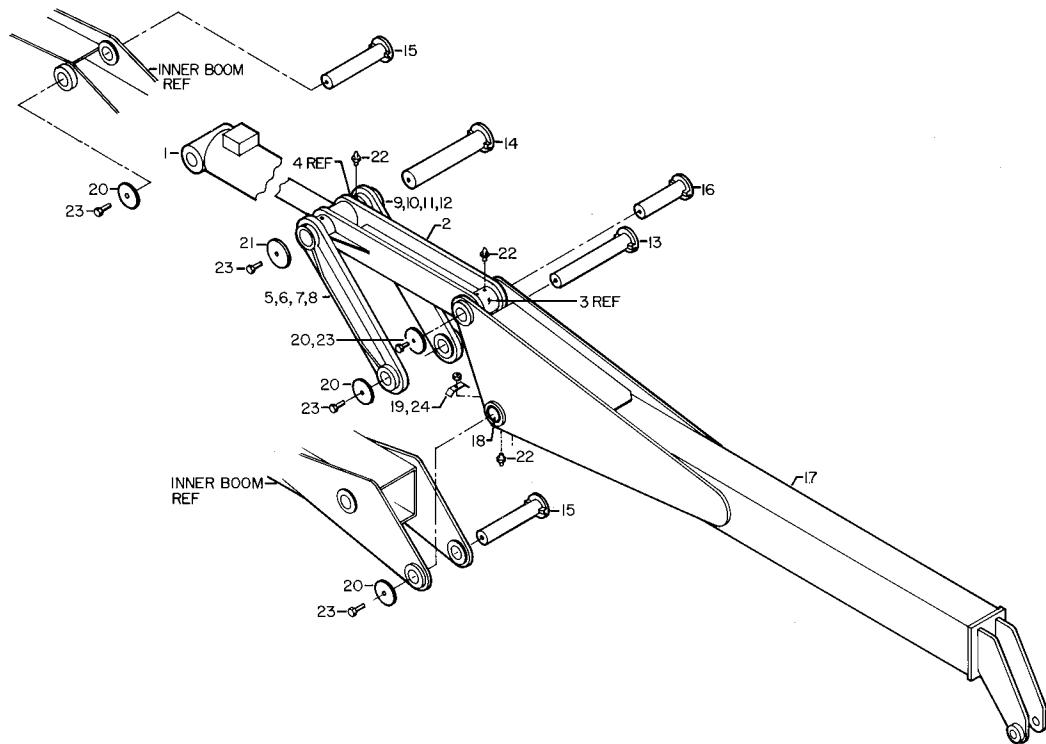
Bore	4-1/2"
Stroke	28-1/2"
C - C Closed	45-1/2"
Rod Diameter	3"
Pin Diameter	2-1/2"



Item No.	Part No.	Description	Qty	Item No.	Part No.	Description	Qty
1.	4B357870	CASE (includes items 2 thru 4)	1	14.	7Q072127	* O-RING	1
2.	7BF81225	BUSHING (part of item 1)	2	15.	7Q072155	* O-RING	1
3.	7PNPXT02	PLUG; 1/8" npt (part of item 1)	3	16.	7Q072345	* O-RING	1
4.	72053507	ZERK; 1/4-28 (part of item 1)	1	17.	7Q10P345	* O-RING	1
5.	4G357870	ROD (includes items 6 & 7)	1	18.	7R14P030	* WIPER, rod	1
6.	7BF81225	BUSHING (part of item 5)	2	19.	7R546030	* SEAL, "U" cup	1
7.	72053507	ZERK; 1/4-28 (part of item 5)	1	20.	7T2N4045	* RING, wear, piston	2
8.	6C300030	TUBE, stop	1	21.	7T2N8032	* RING, wear, rod	1
9.	6HX45300	HEAD	1	22.	7T61N143	* SEAL, lock ring	1
10.	6I045144	PISTON	1	23.	7T66P045	* SEAL, piston	1
11.	73054242	VALVE, counter-balance; 25-gpm	1				
12.	--	NOT USED	-				
13.	6A025030	* RING, wafer lock	1				

* Part of seal kit (Part Number 9B182423)

Figure D-11. Inner Cylinder (Part Number 3C357870)



Item No.	Part No.	Description	Qty	Item No.	Part No.	Description	Qty
1.	3C364870	CYLINDER, outer	1	14.	52703745	PIN	1
2.	52702756	LINK, inner (includes items 3 & 4)	1	15.	52703747	PIN	2
3.	7BF81020	BUSHING (part of item 2)	4	16.	52703748	PIN	1
4.	7BF81025	BUSHING (part of item 2)	4	17.	52708146	BOOM (includes item 18)	1
5.	52702757	LINK, right (includes items 6 thru 8)	1	18.	7BF81520	BUSHING (part of item 17)	4
6.	7BF81025	BUSHING (part of item 5)	1	19.	60010118	CLAMP, hose	1
7.	7BF81225	BUSHING (part of item 5)	1	20.	60106331	PLATE, pin retainer	4
8.	7BF81520	BUSHING (part of item 5)	1	21.	60106332	PLATE, pin retainer	1
9.	52702758	LINK, left (includes items 10 thru 12)	1	22.	72053508	ZERK; 1/8" npt	6
10.	7BF81025	BUSHING (part of item 9)	1	23.	72060147	SCREW, hex hd.; 5/8-11 x 1"	5
11.	7BF81225	BUSHING (part of item 9)	1	24.	72062103	NUT, lock; 3/8-16	1
12.	7BF81520	BUSHING (part of item 9)	1				
13.	52703744	PIN	1				

NOTE

Anytime the pin retainer plate bolts have been removed, apply Loctite 262 to the threads before reassembly.

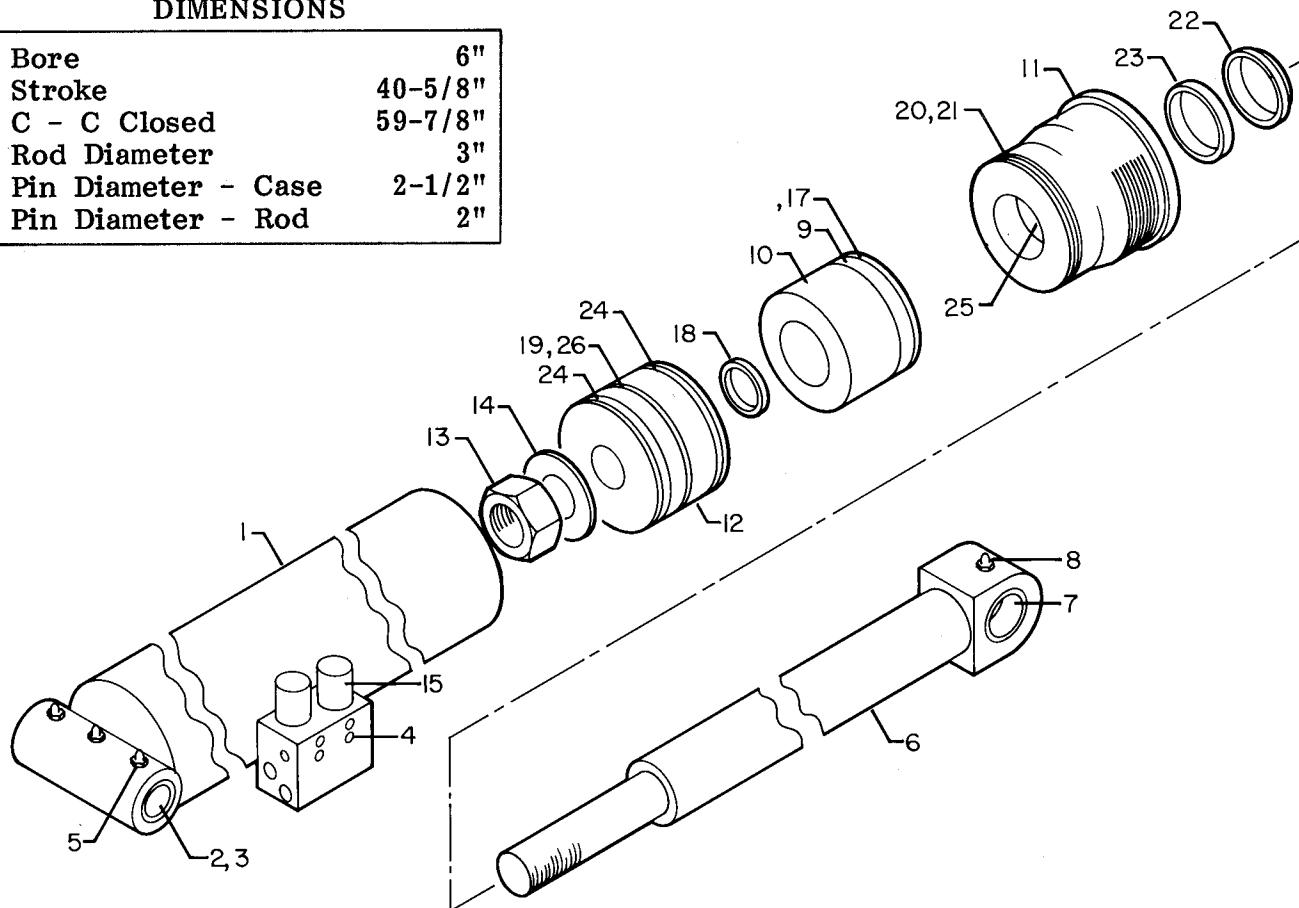
Figure D-12. Outer Boom (Part Number 41708147)

NOTE

Whenever the cylinder is disassembled, we strongly recommend replacing all of the components in the seal kit. This may save expensive down-time in the near future. In addition, use NEVER-SEEZ between the head and case when assembling the cylinder.

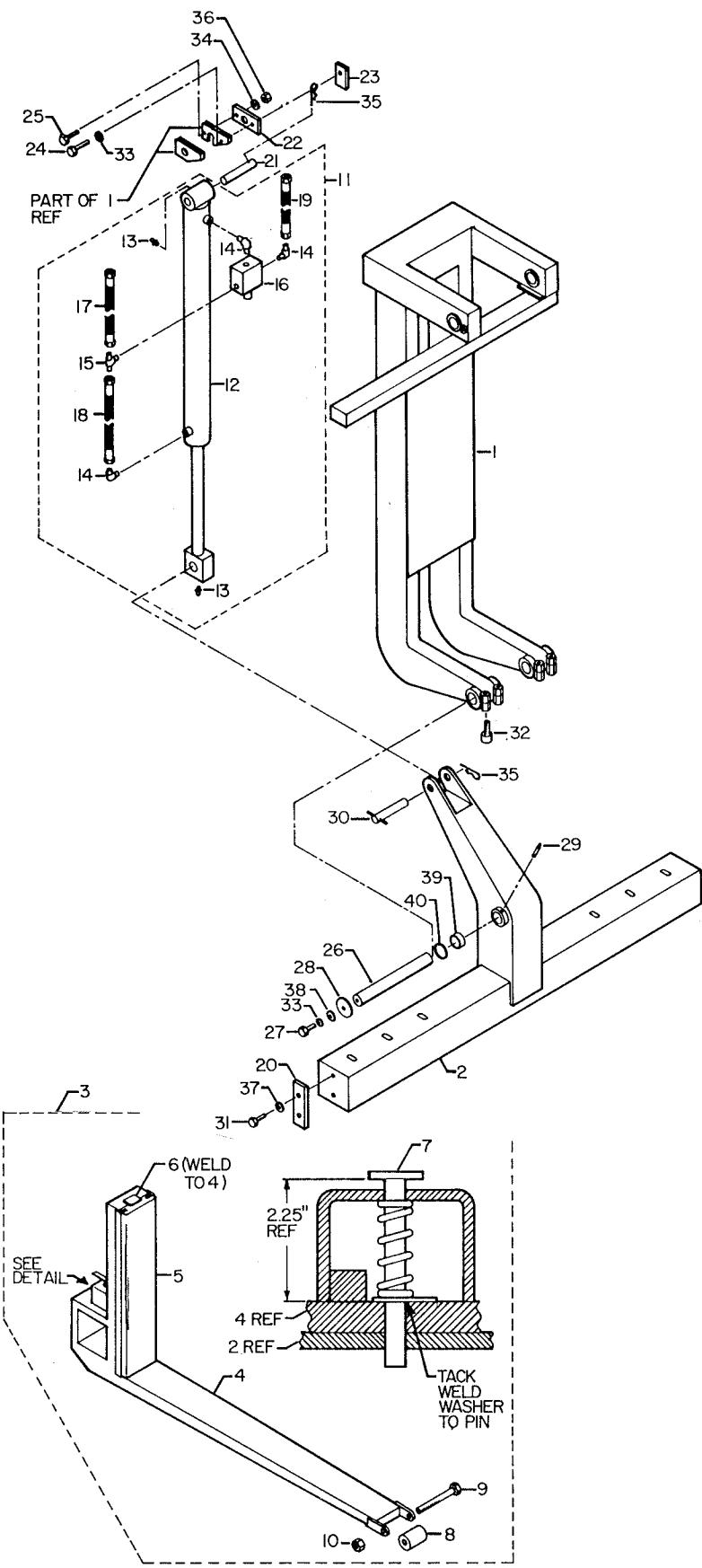
DIMENSIONS

Bore	6"
Stroke	40-5/8"
C - C Closed	59-7/8"
Rod Diameter	3"
Pin Diameter - Case	2-1/2"
Pin Diameter - Rod	2"



Item No.	Part No.	Description	Qty	Item No.	Part No.	Description	Qty
1.	4C364870	CASE (includes items 2 thru 5)	1	15.	73054242	VALVE, counter-balance; 25 gpm	2
2.	7BF81220	BUSHING (part of item 1)	2	16.	--	NOT USED	-
3.	7BF82020	BUSHING (part of item 1)	2	17.	6A025030	* RING, wafer lock	1
4.	7PNPXT02	PLUG; 1/8" npt (part of item 1)	8	18.	7Q072227	* O-RING	1
5.	72053507	ZERK; 1/4-28 (part of item 1)	3	19.	7Q072253	* O-RING	1
6.	4G364870	ROD (includes items 7 and 8)	1	20.	7Q072358	* O-RING	1
7.	7BF81225	BUSHING (part of item 6)	2	21.	7Q10P358	* RING, back-up	1
8.	72053507	ZERK; 1/4-28 (part of item 6)	1	22.	7R14P030	* WIPER, rod	1
9.	6C075030	TUBE, stop	1	23.	7R546030	* SEAL, "U" cup	1
10.	6C300030	TUBE, stop	1	24.	7T2N4060	* RING, wear	2
11.	6HX60030	HEAD	1	25.	7T2N8032	* RING, wear	1
12.	6IX60020	PISTON	1	26.	7T66P060	* SEAL, piston	1
13.	72062144	NUT; 2-12	1			* Part of seal kit - order part number 9B242432	
14.	72063016	WASHER, wrt.; 2"	1				

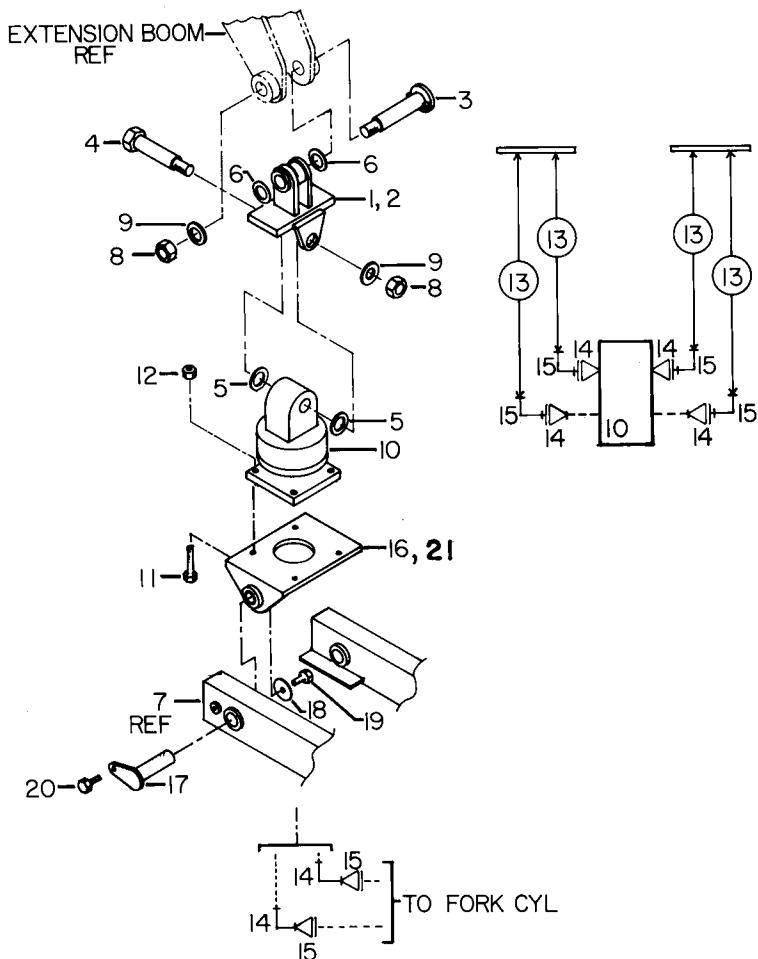
Figure D-13. Outer Cylinder (Part Number 3C364870)



Item No.	Part No.	Description	Qty
1.	70143189	LEG	1
2.	70143187	BAR; 60"	1
3.	70731879	FORK (includes items 4 thru 10)	1
4.	70143186	TINE, fork (part of item 3)	2
5.	60030135	PAD, wear (part of item 3)	2
6.	60111549	PLATE, pad locking (part of item 3)	2
7.	70731978	PIN, stop (part of item 3)	2
8.	60030012	ROLLER (part of item 3)	2
9.	72060193	SCREW, hex hd.; 3/4-10 x 6" (part of item 3)	2
10.	72062114	NUT, lock; 3/4-10 (part of item 3)	2
11.	73050120	CYLINDER (includes items 12 thru 19)	1
12.	73050118	CYLINDER (part of item 11)	1
13.	72053508	ZERK; 1/8" npt (part of item 11)	2
14.	72531412	ELBOW, 90°; 1/4" npt(m) x 7/16-20 JIC(m) (part of item 11)	3
15.	72533005	TEE; 7/16-20 JIC(m) x 1/4" npt(m) branch (part of item 11)	1
16.	70731859	VALVE, counter-balance (part of item 11)	1
17.	51392676	HOSE; 1/4" ID x 16" lg. (part of item 11)	1
18.	51392675	HOSE; 1/4" ID x 24" lg (part of item 11)	1
19.	51392674	HOSE; 1/4" ID x 15" lg. (part of item 11)	1
20.	70143179	FORK, stop PIN	2
21.	70143185	PLATE, cylinder lock	1
22.	70143184	NUT, pin retaining	1
23.	72062208	SCREW, hex hd.; 3/8-16 x 1-3/4"	1
24.	72060049	SCREW, hex hd.; 5/16-18 x 1-1/4"	1
25.	72060026	PIN	1
26.	70143366	SCREW, hex hd.; 3/8-16 x 1-1/4"	2
27.	72060047	PLATE, pin retainer	2
28.	70142265	FITTING, grease	2
29.	72533016	PIN, "T"	1
30.	70143180	SCREW, hex hd.; 1/2-13 x 1-1/4"	4
31.	72060092	SCREW, hex hd.; 1/2-13 x 1-3/4"	4
32.	72601486	WASHER, lock; 3/8"	3
33.	72063051	WASHER, lock; 5/16"	1
34.	72063050	PIN, hair	2
35.	72661255	NUT, lock; 5/16-18	1
36.	72062001	WASHER, lock; 1/2"	4
37.	72063053	WASHER, wrt.; 3/8"	2
38.	72063003	BUSHING; 2" ID O-RING	2
39.	70143364	NOT USED	-
40.	76392849	NOT USED	-
41.	--	NOT USED	-
42.	--	NOT USED	-
43.	--	NOT USED	-
44.	--	NOT USED	-
45.	94392698	KIT, cylinder overhaul Reference	

NOTE: Item number 2, 70143187 is 60". Assembly number 71731909 is the same as above, but item number 2, 70143188 is 84".

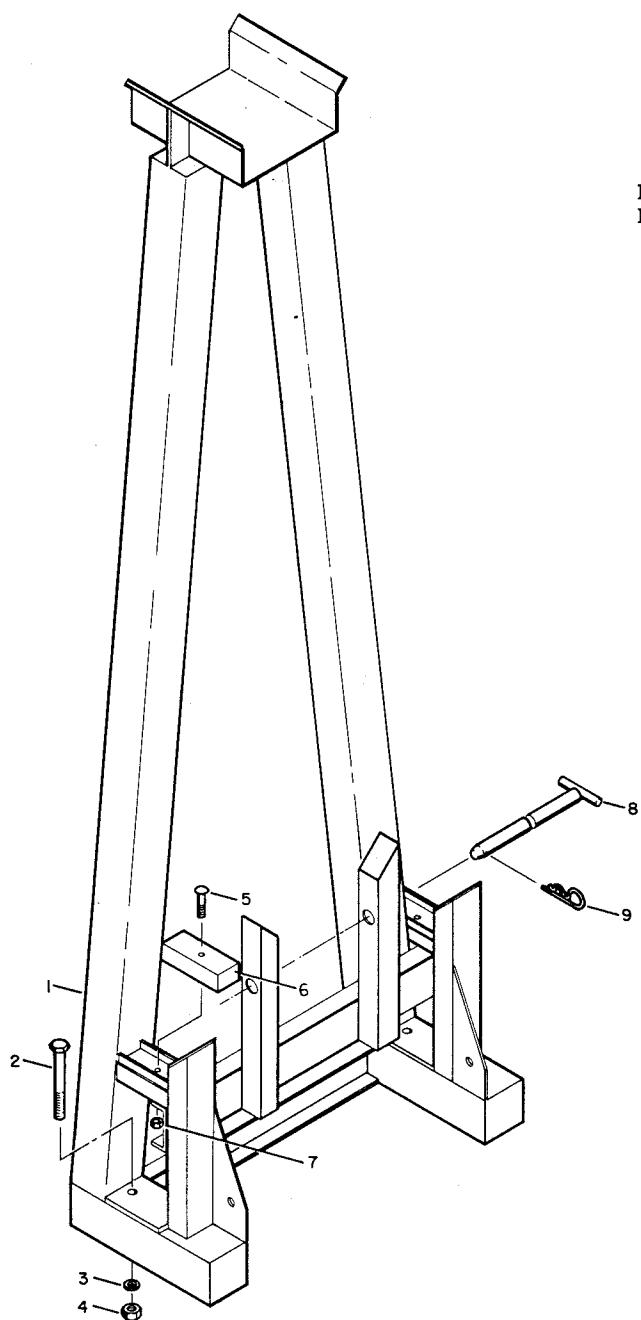
Figure D-14. Wallboard Fork (Part Number 71731908)



Item No.	Part No.	Description	Qty	Item No.	Part No.	Description	Qty
1.	51706612	LINK, swivel (includes item 2)	1	15.	72532690	ELBOW, 90°; 7/16-20 JIC(m x f)	6
2.	70055168	BUSHING (part of item 1)	2	16.	51706711	PLATE, swivel mounting (includes item 21)	1
3.	52706610	PIN	1	17.	52706713	PIN	2
4.	52706611	PIN	1	18.	60105874	PLATE, pin retainer	2
5.	70143128	WASHER, thrust; 1-1/8"	2	19.	72060147	SCREW, hex hd.; 5/8-11 x 1"	2
6.	70143129	WASHER, thrust; 1-1/4"	2	20.	72060043	SCREW, hex hd.; 3/8-16 x 5/8"	2
7.	--	FORK Reference		21.	70055168	BUSHING (part of item 16)	2
8.	72062141	NUT; 1-8	2				
9.	72063066	WASHER, hi-strength; 1"	2				
10.	70731554	ROTATOR	1				
11.	72060175	SCREW, hex hd.; 5/8-11 x 2-3/4"	4				
12.	72062091	NUT, lock; 5/8-11	4				
13.	51703772	HOSE; 1/4" ID x 26" lg.	4				
14.	72533011	ADAPTER; 7/16-20 JIC(m) x M18 x 1.5 mm	6				

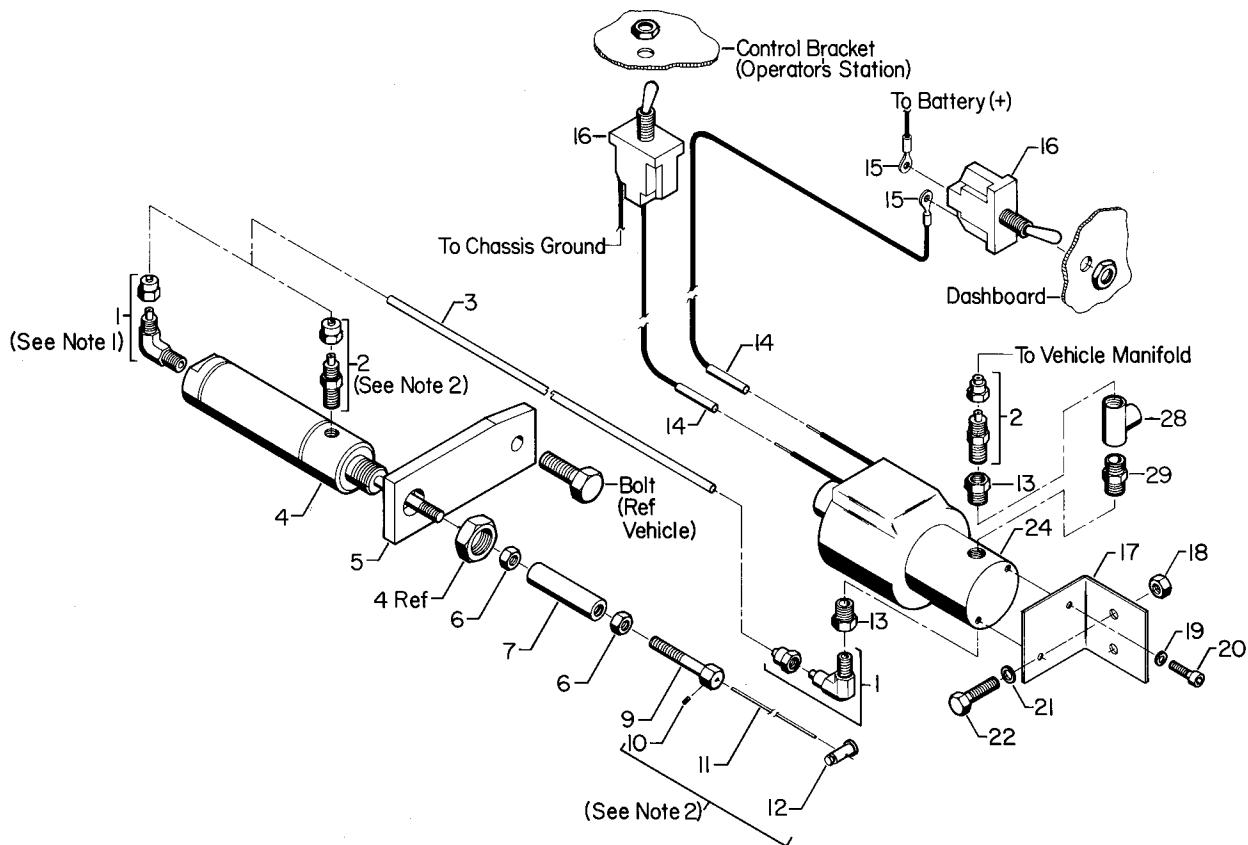
NOTE
Anytime the pin retainer plate bolts have been removed, apply Loctite 262 to the threads before re-assembly.

Figure D-15. Fork Mounting Kit (Part Number 51706613)



Item No.	Part No.	Description	Qty
1.	52706454	SUPPORT, boom	1
2.	72060194	SCREW, hex hd.; 3/4-10 x 6-1/2"	4
3.	72063008	WASHER, wrt.; 3/4"	4
4.	72062114	NUT, lock; 3/4-10	4
5.	72060959	BOLT, carriage; 3/8-16 x 2-1/2"	2
6.	60035889	PAD, rubber	2
7.	72062103	NUT, lock; 3/8-16	2
8.	52707817	PIN	1
9.	72066144	PIN, hair	1

Figure D-16. Boom Support (Part Number 51706455)



1. Item 1 is used to push the carburetor linkage.
2. Items 2, 10, 11 and 12 are used to pull the carburetor linkage.

Item No.	Part No.	Description	Qty	Item No.	Part No.	Description	Qty
1.	72531746	ELBOW, 90°; 1/8" npt(m) x 1/4" tube	2	14.	77040048	CONNECTOR, butt splice	2
2.	72531731	ADAPTER; 1/8" npt(m) x 1/4" tube	2	15.	77040000	RING, terminal	2
3.	60030051	TUBE; 1/4" ID x 36"	1	16.	77041004	SWITCH, toggle, SPST	2
4.	73054250	CYLINDER, air	1	17.	60105567	BRACKET, solenoid mounting	1
5.	60105568	BRACKET, air cylinder	1	18.	72062000	NUT; 1/4-20	2
6.	72062056	NUT; 5/16-24	2	19.	72063047	WASHER, lock; #10	2
7.	60104269	BAR, adjustment	1	20.	72060669	SCREW, soc. hd.; #10-32 x 5/8"	2
8.	--	NOT USED	1	21.	72063049	WASHER, lock; 1/4"	2
9.	60104268	BOLT, adjustment	1	22.	72060004	SCREW, hex hd.; 1/4-20 x 1"	2
10.	72060539	SCREW, set; #8-32 x 1/4"	1	23.	60045058	WIRE, red; 18 ga. x 240"	1
11.	60105952	CABLE; 1/16" x 24"	1	24.	77041178	VALVE, solenoid; 12 VDC	1
12.	72066377	STOP, cable	1	25.	--	NOT USED	-
13.	72531826	BUSHING, reducer; 1/4" npt(m) x 1/8" npt(f)	2	26.	77041056	FUSE; 20-amp	1
				27.	60030048	LOOM; 5/16" ID x 20'	1
				28.	73054505	VALVE, pressure protection	1
				29.	72053517	NIPPLE; 1/4" npt	1

Figure D-17. Throttle Control (Part Number 31702944)

Item No.	Part No.	Description	Qty	Item No.	Part No.	Description	Qty
1.	51706528	HOSE; 1/2" ID x 80" lg.	4	33.	72532366	ADAPTER; 1-1/16" str. thd.(m) x 1-1/16" JIC(m)	1
2.	51706519	HOSE; 3/8" ID x 24" lg.	1	34.	60107995	ELBOW, pressure gauge	1
3.	51707970	HOSE; 3/8" ID x 22" lg.	1	35.	--	NOT USED	-
4.	51707973	HOSE; 1/2" ID x 157" lg.	1	36.	72532699	ELBOW, 90°; 9/16-18 str. thd.(m) x 7/16-20 JIC(m)	1
5.	51707974	HOSE; 1/2" ID x 161" lg.	1	37.	72053763	ELBOW, 90°; 3/4-16 str. thd.(m) x 3/4-16 JIC(m)	9
6.	51706892	HOSE; 1/2" ID x 66" lg.	2	38.	72532666	ELBOW, extra-long 90°; 3/4-16 str. thd.(m) x 3/4-16 JIC(m)	1
7.	51706525	HOSE; 1/2" ID x 26" lg.	1	39.	--	NOT USED	-
8.	51706533	HOSE; 3/4" ID x 17" lg.	1	40.	--	NOT USED	-
9.	51706535	HOSE; 3/4" ID x 33" lg.	1	41.	72053758	ELBOW, 90°; 7/16-20 str. thd.(m) x 7/16-20 JIC(m)	3
10.	--	NOT USED	-	42.	72532973	ADAPTER; 1-1/16" JIC(f)	2
11.	--	NOT USED	-	43.	72532980	ADAPTER; 3/4-16 JIC(f)	2
12.	51706891	HOSE; 1/2" ID x 24" lg.	5	44.	72532855	ADAPTER; 1-1/16" JIC(m)	2
13.	--	NOT USED	-	45.	--	NOT USED	-
14.	--	NOT USED	-	46.	72053676	ADAPTER; 3/4" npt(m) x 1-1/16" JIC(m)	2
15.	--	NOT USED	-	47.	72531836	BUSHING, reducer; 1-1/4" npt(m) x 3/4" npt(f)	2
16.	51707806	HOSE; 3/8" ID x 305" lg.	4	48.	72053615	TEE; 1-1/4"	1
17.	--	NOT USED	-	49.	51706463	HOSE; 1/2" ID x 18" lg.	1
18.	51705733	HOSE; 1/4" ID x 24" lg.	1	50.	73054425	VALVE	1
19.	51703659	HOSE; 1/4" ID x 22" lg.	1	51.	72060734	SCREW, soc. hd.; 5/16-18 x 1-1/2"	4
20.	51706624	HOSE; 3/4" ID x 28" lg.	1	52.	72532657	TEE, swivel nut run; 3/4" JIC	1
21.	51706537	HOSE; 3/4" ID x 45" lg.	1	53.	73054424	VALVE, overstress	1
22.	51705641	HOSE; 1/4" ID x 6" lg.	1	54.	72060049	SCREW, hex hd.; 3/8-16 x 1-3/4"	2
23.	51706628	HOSE; 1/4" ID x 132" lg.	2	55.	72062103	NUT, lock; 3/8-16	2
24.	51704588	HOSE; 1/4" ID x 174" lg.	2	56.	72532658	ELBOW, swivel; 3/4-16 JIC(m x f)	4
25.	--	NOT USED	-	57.	72531205	TEE; 3/4-16 JIC(m)	2
26.	51706627	HOSE; 1/4" ID x 120" lg.	3	58.	72532358	ADAPTER; 3/4-16 str. thd.(m) x 3/4-16 JIC(m)	6
27.	51706626	HOSE; 1/4" ID x 108" lg.	2	59.	--	NOT USED	-
28.	51706896	HOSE; 1/4" ID x 162" lg.	2				
29.	51705320	HOSE; 1/4" ID x 52" lg.	2				
30.	51705893	HOSE; 1/4" ID x 46" lg.	4				
31.	51706632	HOSE; 3/4" ID x 47" lg.	1				
32.	72053767	ELBOW, 90°; 1-1/16" str. thd.(m) x 1-1/16" JIC(m)	2				

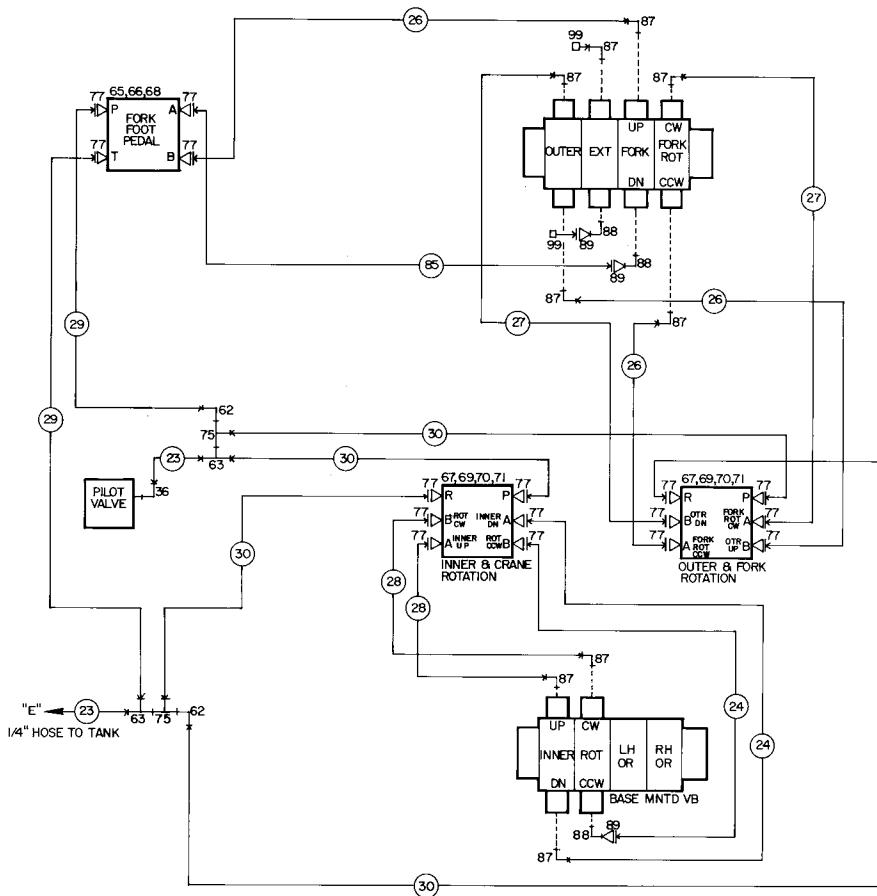


Figure D-18. Hydraulic Kit (Part Number 91708149)

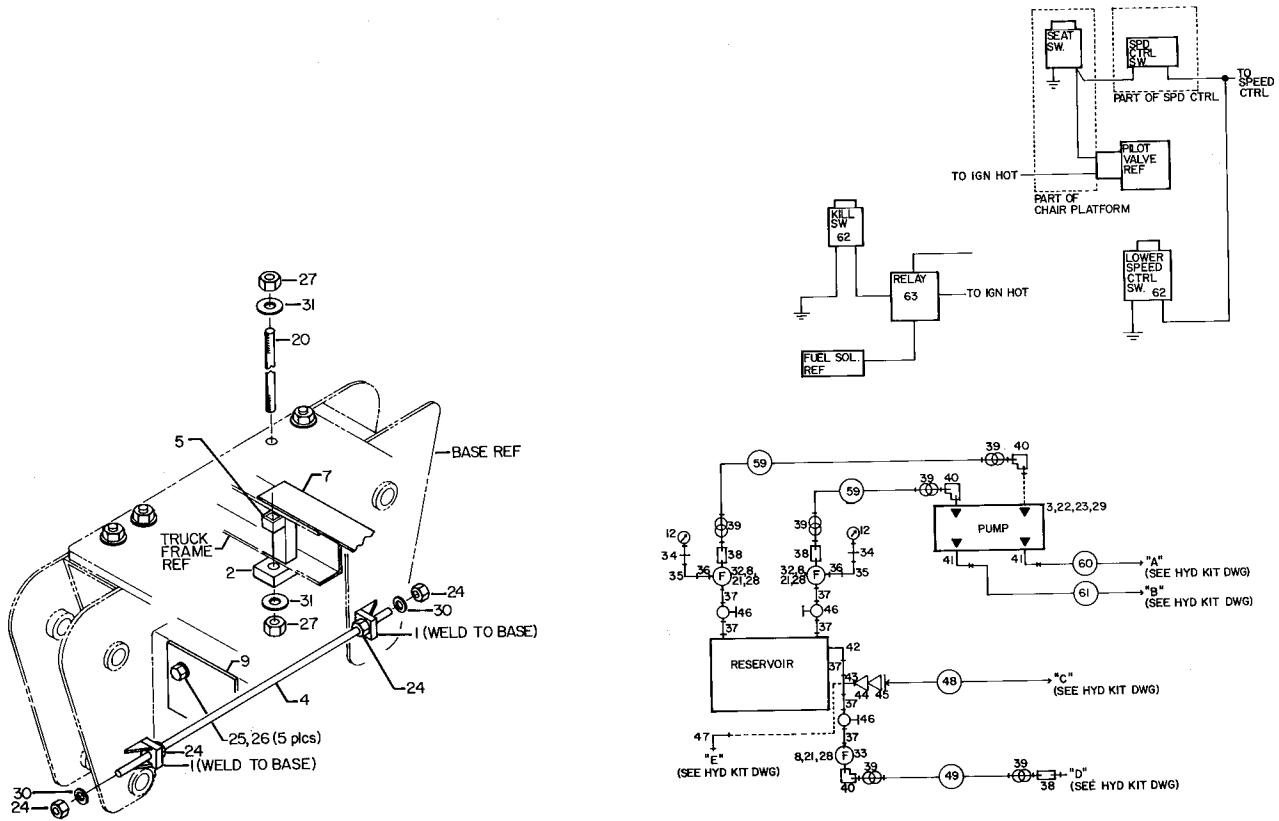
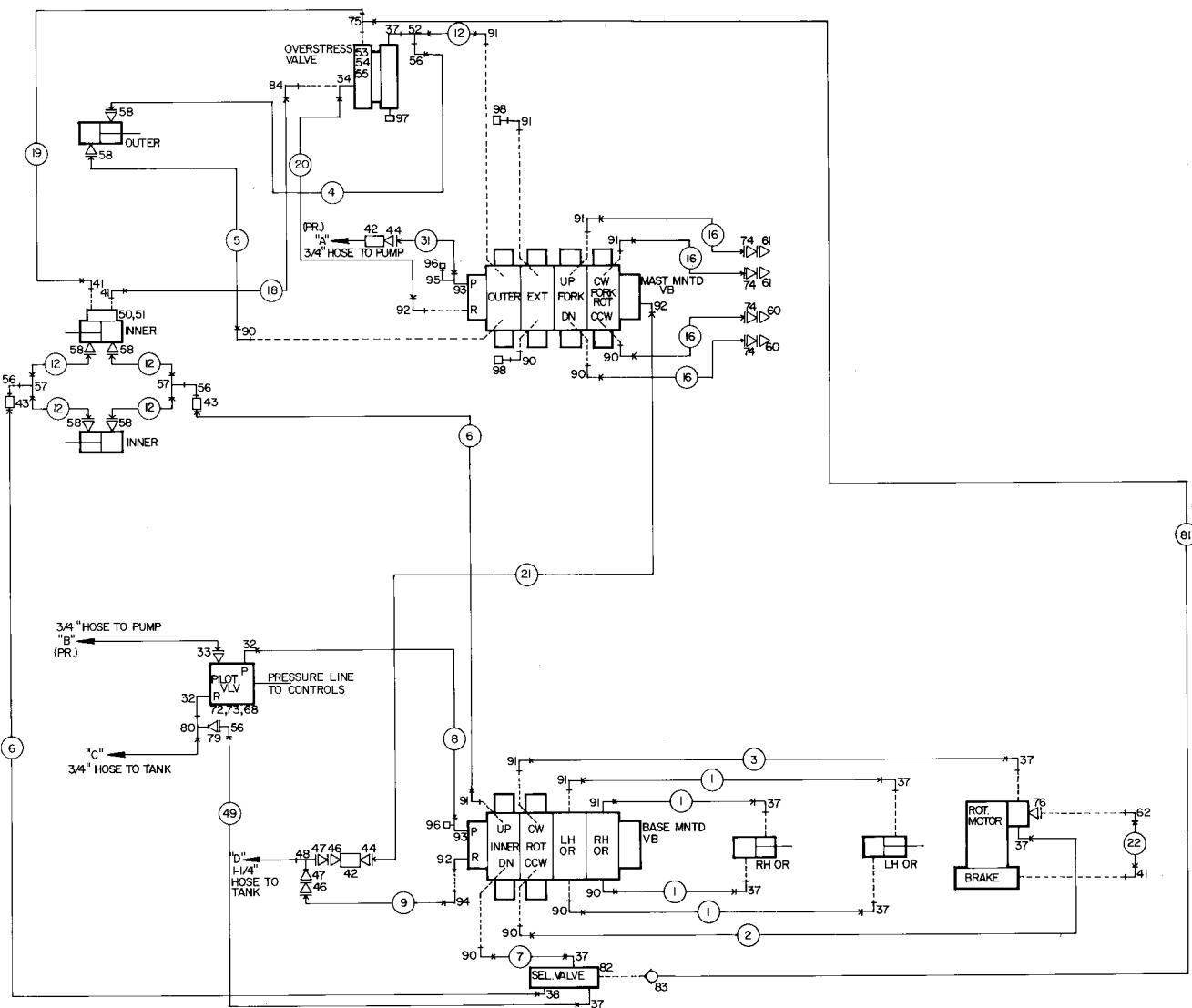


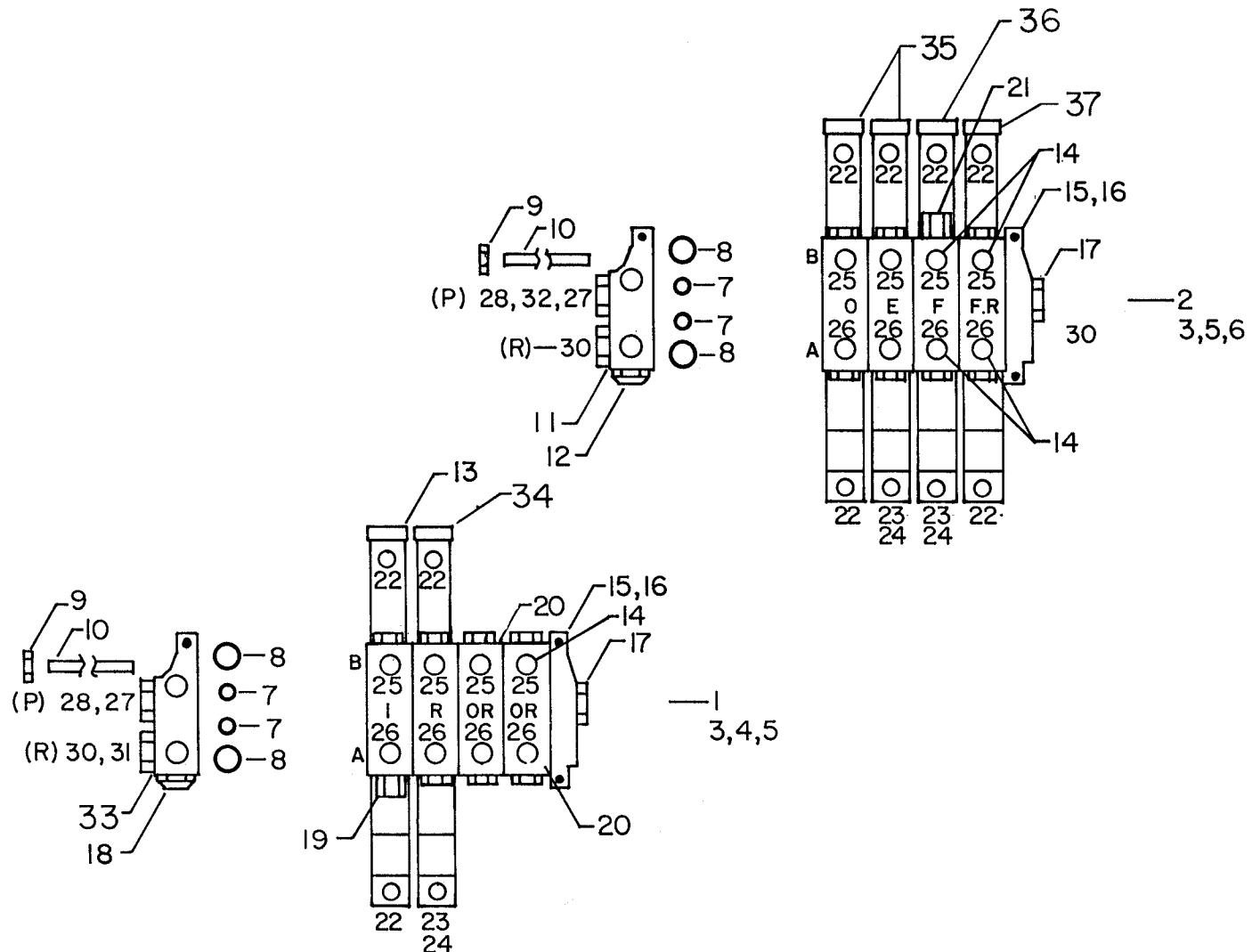
Figure D-19. Installation Kit (Part Number 93708148)

Item No.	Part No.	Description	Qty	Item No.	Part No.	Description	Qty
1.	52702539	BLOCK, outrigger tie bar	2	35.	72053281	ELBOW, street, 90°; 1/8"	2
2.	60010665	PLATE, clamp	4	36.	72053002	NIPPLE; 1/2" npt x 2" lg.	2
3.	60103041	SUPPORT, pump	1	37.	72053211	NIPPLE; 1-1/4" npt	7
4.	60103204	BAR, tension	1	38.	72531550	NIPPLE, barbed; 1-1/4"	3
5.	52706660	SUPPORT	4	39.	72066516	CLAMP, hose; 1-1/4"	6
6.	--	NOT USED	-	40.	72532346	NIPPLE, barbed, 90°; 1-1/4"	3
7.	60103563	BAR	2	41.	72053767	ELBOW, 90°; 1-1/16" str. thd.(m) x 1-1/16" JIC(m)	2
8.	60103870	BRACKET, oil filter	3	42.	72053287	ELBOW, street, 90°; 1-1/4" npt	1
9.	60105107	PLATE	2	43.	60107571	TEE, modified	1
10.	--	NOT USED	-	44.	72531836	BUSHING, reducer; 1-1/4" npt(m) x 3/4" npt(f)	1
11.	--	NOT USED	-	45.	72053676	ADAPTER; 3/4" npt(m) x 1-1/16" JIC(m)	1
12.	70048031	GAUGE, vacuum	2	46.	73054130	VALVE, gate; 1-1/4"	3
13.	--	NOT USED	-	47.	72531412	ELBOW, 90°; 1/4" npt(m) x 7/16-20 JIC(m)	1
14.	--	NOT USED	-	48.	51706552	HOSE; 3/4" ID x 80" lg.	1
15.	95708774	KIT, decal	1	49.	60035936	HOSE; 1-1/4" ID x 42" lg.	1
16.	--	NOT USED	-	50.	--	NOT USED	-
17.	--	NOT USED	-	51.	--	NOT USED	-
18.	--	NOT USED	-	52.	--	NOT USED	-
19.	--	NOT USED	-	53.	--	NOT USED	-
20.	71014847	STUD, tied down	8	54.	--	NOT USED	-
21.	72060025	SCREW, hex hd.; 5/16-18 x 1"	6	55.	--	NOT USED	-
22.	72060046	SCREW, hex hd.; 3/8-16 x 1"	2	56.	--	NOT USED	-
23.	72062002	NUT; 3/8-16	2	57.	--	NOT USED	-
24.	72062009	NUT; 1-8	4	58.	--	NOT USED	-
25.	72060183	SCREW, hex hd.; 3/4-10 x 1-1/2"	10	59.	60035950	HOSE; 1-1/4" ID x 60" lg.	2
26.	72062114	NUT, lock; 3/4-10	10	60.	51706629	HOSE; 3/4" ID x 63" lg.	1
27.	72062142	NUT, lock ; 1-1/4" - 7	16	61.	51706630	HOSE; 3/4" ID x 138" lg.	1
28.	72063050	WASHER, lock; 5/16"	6	62.	77041013	SWITCH, SPST	2
29.	72063051	WASHER, lock; 3/8"	2	63.	77041251	RELAY; 12 VDC	1
30.	72063058	WASHER, lock; 1"	2				
31.	72063067	WASHER, hi-strength; 1-1/4"	16				
32.	73052012	FILTER, suction	2				
33.	73052040	FILTER, return	1				
34.	72053468	COUPLING; 1/8"	2				

Item No.	Part No.	Description	Qty	Item No.	Part No.	Description	Qty
60.	72053542	NIPPLE, disconnect; 3/8" npt(f)	2	83.	73054549	VALVE, check	1
61.	72053540	COUPLER, disconnect; 3/8" npt	2	84.	72531412	ELBOW, 90°; 1/4" npt(m) x 7/16-20 JIC(m)	1
62.	72532690	ELBOW, swivel; 7/16-20 JIC(m x f)	3	85.	51706895	HOSE; 1/4" ID x 136" lg.	1
63.	72532768	TEE; 7/16-20 JIC(m)	2	86.	--	NOT USED	-
64.	--	NOT USED	-	87.	72532699	ELBOW, 90°; 9/16-18 str. thd.(m) x 7/16-20 JIC(m)	* 9
65.	70731800	VALVE, foot pedal	1	88.	72532700	ELBOW, extra-long 90°; 9/16-18 str. thd.(m) x 9/16-18 JIC(m)	* 3
66.	72060025	SCREW, hex hd.; 5/16-18 x 1"	4	89.	72532707	ADAPTER; 7/16-20 JIC(m) x 9/16-18 JIC(f)	* 3
67.	70731801	VALVE, control, joystick	2	90.	72532666	ELBOW, extra-long 90°; 3/4-16 str. thd.(m) x 3/4-16 JIC(m)	* 8
68.	72062109	NUT, lock; 5/16-18	6	91.	72053763	ELBOW, 90°; 3/4-16 str. thd.(m) x 3/4-16 JIC(m)	* 8
69.	72060004	SCREW, hex hd.; 1/4-20 x 1"	8	92.	72053767	ELBOW, 90°; 1-1/16" str. thd.(m) x 1-1/16" JIC(m)	* 2
70.	72063001	WASHER, wrt.; 1/4"	8	93.	60107995	ELBOW, pressure gauge	* 2
71.	72063049	WASHER, lock; 1/4"	8	94.	72532696	ELBOW, 90°; 1-1/16" JIC(m x 1)	* 1
72.	73054542	VALVE, pilot	1	95.	72531131	ELBOW, street, 90°; 1/4" npt(m)	* 1
73.	72060029	SCREW, hex hd.; 5/16-18 x 2"	2	96.	72532987	NIPPLE, disconnect; 1/4"	* 2
74.	72053670	ADAPTER; 3/8" npt(m) x 3/4-16 JIC(m)	4	97.	72532141	PLUG; 3/4-16 str. thd.	1
75.	72532981	TEE, swivel nut run; 7/16-20 JIC	3	98.	72532675	CAP; 3/4-16 JIC	2
76.	72532351	ADAPTER; 7/16-20 str. thd.(m) x 7/16-20 JIC(m)	1	99.	72532674	CAP; 7/16-20 JIC	2
77.	72532985	ELBOW, 45°; 9/16-18 str. thd.(m) x 7/16-20 JIC(m)	16				
78.	--	NOT USED	-				
79.	72532972	ADAPTER; 3/4-16 JIC(m) x 1-1/16" JIC(f)	1				
80.	72532950	TEE, swivel nut run; 1-1/16"	1				
81.	51706893	HOSE; 1/4" ID x 90" lg.	1				
82.	73054462	VALVE, selector, pilot-operated	1				

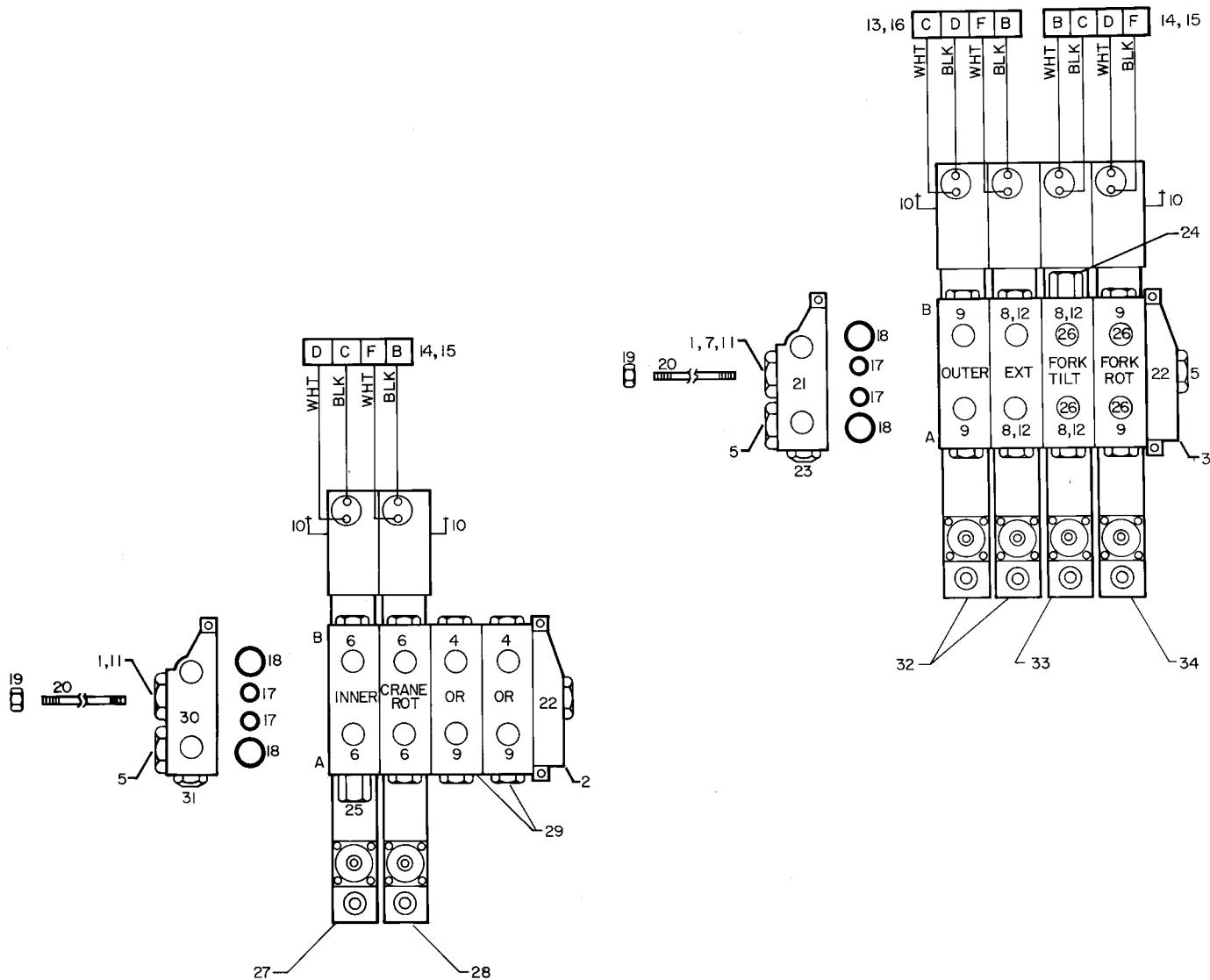
* Not a part of this assembly. Shown for reference.





Item No.	Part No.	Description	Qty	Item No.	Part No.	Description	Qty
1.	70731810	VALVE BANK (base mounted)	1	22.	72532699	ELBOW, 90°; 9/16-18 str. thd.(m) x 7/16-20 JIC(m)	9
2.	70731811	VALVE BANK (mast mounted)	1	23.	72532700	ELBOW, extra-long 90°; 9/16-18 str. thd.(m) x 9/16-18 JIC(m)	3
3.	72060032	SCREW, hex hd.; 5/16-18 x 2-3/4"	6	24.	72532707	ADAPTER; 7/16-20 JIC(m) x 9/16-18 JIC(f)	3
4.	72062109	NUT, lock; 5/16-18	3	25.	72053763	ELBOW, 90°; 3/4-16 str. thd.(m) x 3/4-16 JIC(m)	8
5.	72063002	WASHER; 5/16"	6	26.	72532666	ELBOW, extra-long 90°; 3/4-16 str. thd.(m) x 3/4-16 JIC(m)	8
6.	72063050	WASHER, lock; 3/8"	3	27.	60107995	ELBOW, 90°; 1-1/16" str. thd.(m) x 1-1/16" JIC(m)	1
7.	7Q072019	O-RING; small	20	28.	72532987	ELBOW, street, 90°; 1/4" npt	1
8.	7Q072021	O-RING; large	20	29.	---	CAP, left hand w/relief	1
9.	72062037	NUT; 3/8-24	12	30.	72053767	SECTION, valve	1
10.	73014630	STUD	6	31.	72532696	SECTION, valve	2
11.	73054594	CAP, left hand	1	32.	72531131	SECTION, valve	1
12.	73054591	RELIEF, main; 2600 PSI	1	33.	73054593	RELIEF; 1800 PSI	1
13.	73054595	SECTION, valve	1	34.	73054596	RELIEF; 2100 PSI	1
14.	70141585	RESTRICTOR; .062"	4	35.	73054598	RELIEF; 1000 PSI	1
15.	73731241	CAP, right hand (includes items 16 and 17)	1	36.	73054599	SECTION, valve	1
16.	73054442	CAP, right hand (part of item 15)	2	37.	73054600	SECTION, valve	1
17.	73073022	PLUG, conversion (part of item 15)	2				
18.	73054590	RELIEF, main; 2100 PSI	1				
19.	73054592	RELIEF, port; 1000 PSI	1				
20.	73054597	SECTION, valve	2				
21.	73054356	RELIEF; 1800 PSI	1				

Figure D-21. Valve Bank (Part Number 51706605)

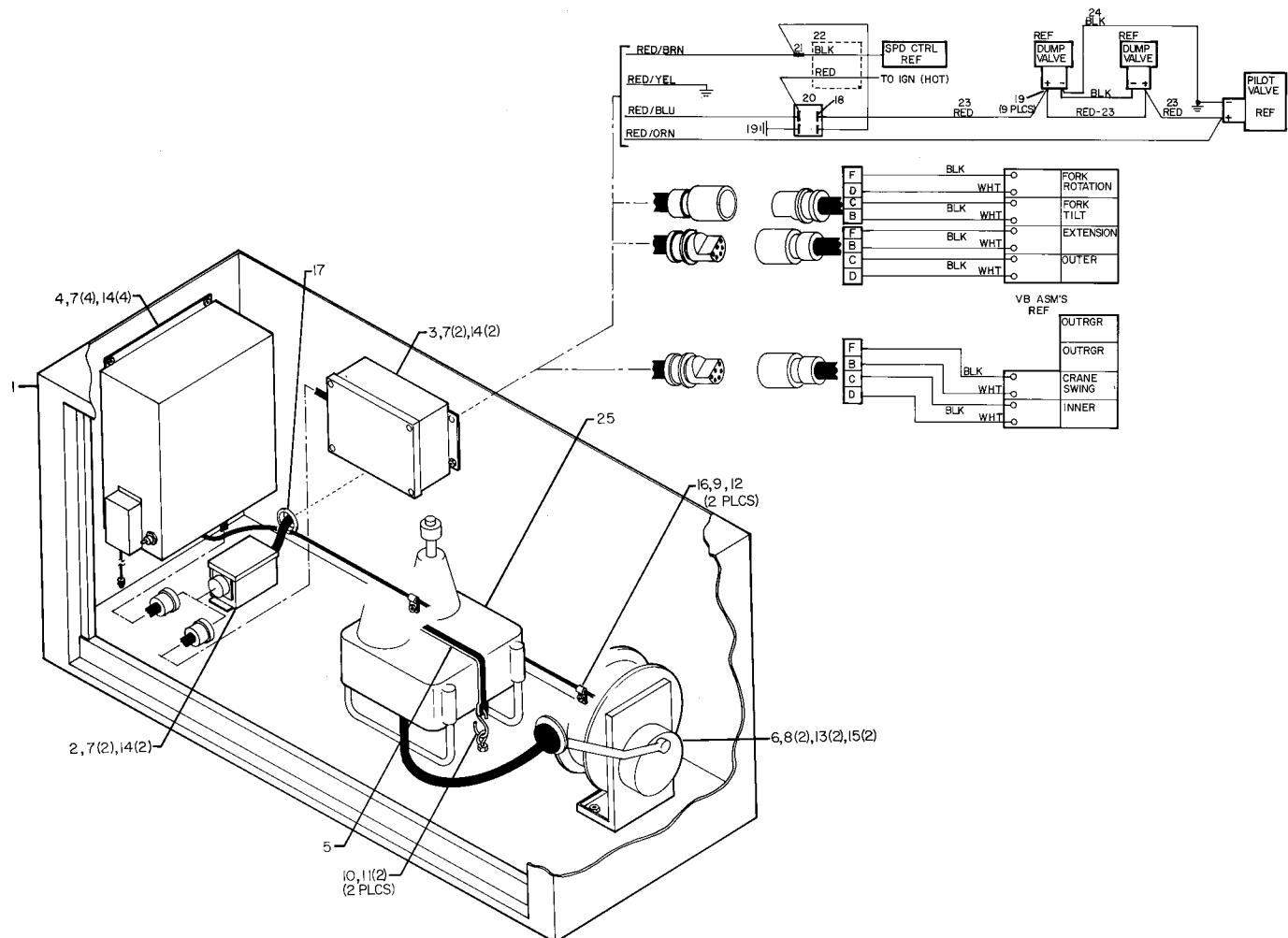


Item No.	Part No.	Description	Qty	Item No.	Part No.	Description	Qty
1.	60107995	ELBOW, pressure gauge	2	15.	77044206	PIN, receptacle	8
2.	70731820	VALVE BANK	1	16.	77044207	SOCKET, plug	4
3.	70731821	VALVE BANK	1	17.	7Q072019	O-RING	20
4.	72053763	ELBOW, 90°; 3/4-16 str. thd.(m) x 3/4-16 JIC(m)	2	18.	7Q072021	O-RING	20
5.	72053767	ELBOW, 90°; 1-1/16" str. thd.(m) x 1-1/16" JIC(m)	3	19.	72062037	NUT; 3/8-24	12
6.	72053777	ELBOW, 45°; 3/4-16 str. thd.(m) x 3/4-16 JIC(m)	4	20.	73014630	STUD, valve bank	6
7.	72531131	ELBOW, street, 90°; 1/4" npt	1	21.	73054594	COVER w/relief	1
8.	72532658	ELBOW, 90° swivel; 3/4-16 JIC	4	22.	73731241	COVER, right end	2
9.	72532666	ELBOW, extra-long 90°; 3/4-16 str. thd.(m) x 3/4-16 JIC(m)	6	23.	73054591	RELIEF, main; 2600 PSI	2
10.	72532699	ELBOW, 90°; 9/16-18 str. thd.(m) x 7/16-20 JIC(m)	4	24.	73054356	RELIEF; 1800 PSI	1
11.	72532987	NIPPLE, disconnect; 1/4"	2	25.	73054592	RELIEF; 1000 PSI	1
12.	72533003	ADAPTER, extra-long; 3/4-16 str. thd.(m) x 3/4-16 JIC(m)	4	26.	70141585	RESTRICTOR; .062	4
13.	77044204	PLUG, connector, 6-socket	1	27.	73054604	SECTION, valve	1
14.	77044205	RECEPTACLE, connector, 6-pin	2	28.	73054605	SECTION, valve	1
				29.	73054597	SECTION, valve	2
				30.	73054593	COVER, left end w/2100 PSI relief	1
				31.	73054590	RELIEF, main; 2100 PSI	1
				32.	73054601	SECTION, valve	2
				33.	73054602	SECTION, valve	1
				34.	73054603	SECTION, valve	1

Figure D-22. Valve Bank (Part Number 51706977)

(For Fiber Optic Control)

Fiber Optic Controls

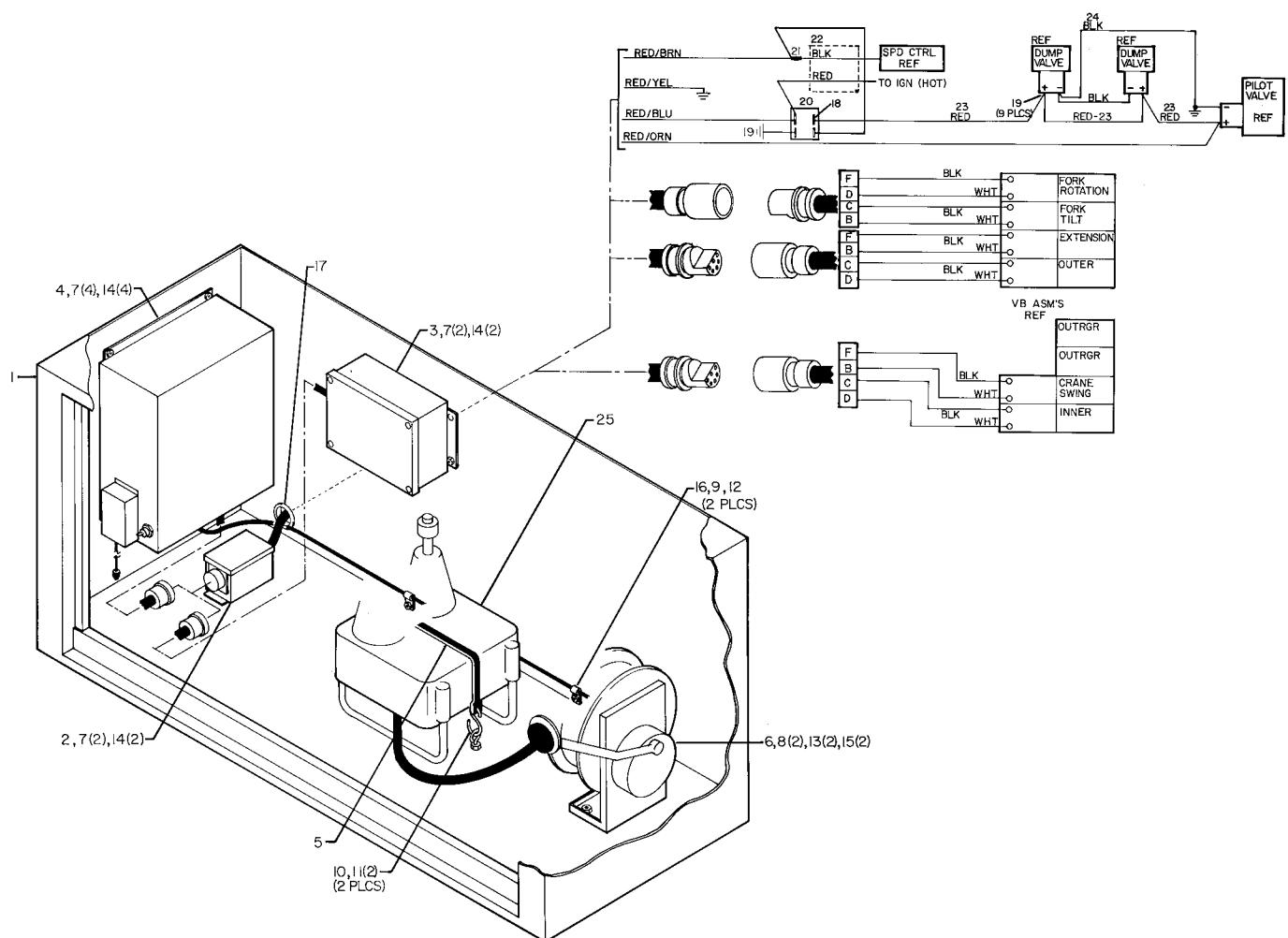


Item No.	Part No.	Description	Qty	Item No.	Part No.	Description	Qty
1.	51706935	TOOLBOX	1	14.	72062104	NUT, lock; 1/4-20	8
2.	51706932	CABLE	1	15.	72063003	WASHER, wrt; 3/8"	2
3.	51706933	CONTROL, emergency	1	16.	72066533	CLAMP, hose, vinyl covered	2
4.	51706934	RECEIVER	1	17.	76391172	GROMMET, rubber; 1-1/2"	1
5.	70391361	STRAP, rubber	1	18.	77040051	TERMINAL, spade	3
6.	70731823	REEL, cable	1	19.	77040186	TERMINAL	10
7.	72060002	SCREW; 1/4-20 x 3/4" hex hd.	8	20.	77041353	SWITCH, push button	1
8.	72060046	SCREW; 3/8-16 x 1" hex hd.	2	21.	77044054	SPLICER, Scotchlok	1
9.	72060636	SCREW; #10-24 x 3/4" round hd.	2	22.	89044188	CABLE; 14 ga. 2-wire	240"
10.	72060966	BOLT, eye; 5/16-18 x 3"	2	23.	89044232	WIRE; 14 ga. red	36"
11.	72062001	NUT; 5/16-18	4	24.	89044274	WIRE; 14 ga. black	36"
12.	72062053	NUT; #10-24	2	25.	77044358	TRANSMITTER	1
13.	72062103	NUT, lock; 3/8-16	2				

Figure D-23. Control Kit (Part Number 90706937)

Steel Control Compartment

Fiber Optic Controls



Item No.	Part No.	Description	Qty	Item No.	Part No.	Description	Qty
1.	51706930	TOOLBOX	1	14.	72062104	NUT, lock; 1/4-20	8
2.	51706932	CABLE	1	15.	72063003	WASHER, wrt; 3/8"	2
3.	51706933	CONTROL, emergency	1	16.	72066533	CLAMP, hose, vinyl covered	2
4.	51706934	RECEIVER	1	17.	76391172	GROMMET, rubber; 1-1/2"	1
5.	70391361	STRAP, rubber	1	18.	77040051	TERMINAL, spade	3
6.	70731823	REEL, cable	1	19.	77040186	TERMINAL	10
7.	72060002	SCREW; 1/4-20 x 3/4" hex hd.	8	20.	77041353	SWITCH, push button	1
8.	72060046	SCREW; 3/8-16 x 1" hex hd.	2	21.	77044054	SPLICE, Scotchlok	1
9.	72060636	SCREW; #10-24 x 3/4" round hd.	2	22.	89044188	CABLE; 14 ga. 2-wire	240"
10.	72060966	BOLT, eye; 5/16-18 x 3"	2	23.	89044232	WIRE; 14 ga. red	36"
11.	72062001	NUT; 5/16-18	4	24.	89044274	WIRE; 14 ga. black	36"
12.	72062053	NUT; #10-24	2	25.	77044358	TRANSMITTER	1
13.	72062103	NUT, lock; 3/8-16	2				

Figure D-24. Control Kit (Part Number 90706931)

Aluminum Control Compartment