



IOWA MOLD TOOLING CO., INC.

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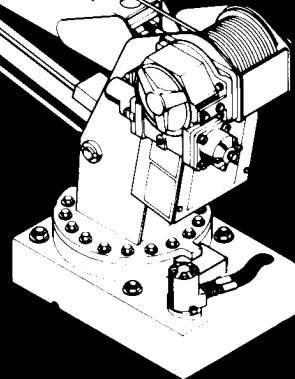
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PARTS & SPECIFICATIONS MODEL 315A/315A-20 CRANE

This manual is for an inactive product and is provided for our customer's convenience.

To navigate this document, use the index at left. There may also be hot spots (●) within the manual, which may be clicked on, to navigate to related information.



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.

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

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.

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 B30.5-1982
MOBILE AND LOCOMOTIVE 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.

SECTION 1. SPECIFICATIONS

1-1. GENERAL

	<u>315A</u>	<u>315A-20</u>
Crane Rating	(4.99 ton-meter) 36,000 ft.-lbs.	(4.99 ton-meter) 36,000 ft.-lbs.
Reach (from centerline of rotation)	(4.78 m) 15'-8"	(6.10 m) 20'-0"
Hydraulic Extension	(152.4 cm) 60"	(152.4 cm) 60"
Manual Extension	-----	(132.1 cm) 60"
Lifting Height (from base of crane)	(5.41 m) 17'-9"	(6.65 m) 21'-10"
Weight of Crane	(789 kg.) 1,740 lbs.	(812 kg.) 1,790 lbs.
Outrigger Span (required option)		
Crane side from centerline of truck	(228.6 cm) 90"	(228.6 cm) 90"
Opposite side from centerline of truck	(121.6 cm) 48"	(121.6 cm) 48"
Horizontal Center of Gravity (from centerline of rotation)	(50.8 cm) 20"	(50.8 cm) 20"
Vertical Center of Gravity (from base of crane)	(48.3 cm) 19"	((48.3 cm) 19"
Storage Height (crane only)	(111.2 cm) 44"	(111.2 cm) 44"
Mounting Space	(50.8 cm x 71.1 cm) 20" x 28"	(50.8 cm x 71.1 cm) 20" x 28"
Tie-Down Bolt Pattern	14-3/4" x 14-3/4" on centers	14-3/4" x 14-3/4" on centers
Optimum Pump Capacity	(18.9 liters/min.) 5 U.S. GPM	(18.9 liters/min.) 5 U.S. GPM
Design Factors (pins and hydraulics)	4/1	4/1

1-2. PERFORMANCE CHARACTERISTICS

Rotation - 370° (6.45 Rad.)	30 Seconds
Lower Boom Cylinder - -15° to +72° (-0.26 Rad. to +1.26 Rad.)	14 Seconds
Extension Cylinder - 60" (152.4 cm)	20 Seconds

1-3. CYLINDERS

	<u>Bore</u>	<u>Stroke</u>
Lower Boom Cylinder	(11.4 cm) 4-1/2"	(52.1 cm) 20-1/2"
315A Extension Boom Cylinder	(7.6 cm) 3"	(152.4 cm) 60"
315A-20 Extension Boom Cylinder	(6.4 cm) 2-1/2"	(152.4 cm) 60"

1-4. MINIMUM CHASSIS SPECIFICATIONS

	<u>Conventional Cab</u>	<u>Conventional Cab</u>
Body Style		
Wheel Base	(391 cm)	154"
Cab to Axle	(213 cm)	84"
Frame Section Modulus	(196.7 cc)	12" ³
R B M	(4,982 kg-m)	432,400 in. lbs.
Front Axle Rating	(2,268 kg.)	5,000 lbs.
Rear Axle Rating	(5,897 kg.)	13,000 lbs.
Transmission	4-speed	4-speed

In addition to these specifications, heavy-duty electrical and cooling systems and dual rear wheels are required. It is recommended that the vehicle be equipped with an electric engine tachometer, auxiliary brake lock and power steering.

1—5. HYDRAULIC SYSTEM

Open-centered, full-pressure system that requires 5 GPM (18.9 liters/min.) optimum oil flow at 2,350 PSI (165.2 kg/cm²). Four spool, electric, remote, stack-type control valve with a 25'-0" (7.62 m) control cable. System includes separate oil reservoir, suction line filter, control valve and return line filter.

1—6. POWER SOURCE

Integral-mounted hydraulic pump and PTO application. Other standard power sources may be used - minimum power required is 8 horsepower based on 5 GPM at 2,350 PSI (18.9 liters/min at 165.2 kg/cm²).

1—7. WINCH

The winch is powered by a hydraulic motor through a 27:1 worm gear arrangement with a mechanical brake. Line speed is 12 ft./min. (3.7 m/min.) at optimum oil flow of 5 GPM (18.9 liters/min.) and 1-part line - 6 ft./min. (1.8 m/min.) with a 2-part line. Maximum single-line lifting capacity of the winch is 3,750 lbs. (1,701 kg.). The winch is equipped with 80' (24.4 m) of 3/8" (0.95 cm) 6 x 25 FW PRF RRL IWRC XIP wire rope. A nylon sheave riding on a lubricated needle bearing is located at the tip of the extension boom. The ratio of winch drum and sheave pitch diameter to wire rope diameter is 21:1 for the winch drum, 18:1 for the snatch-block sheave and 27:1 for the boom-tip sheave.

1—8. ROTATION SYSTEM

Turntable bearing powered by a high-torque hydraulic motor through a ring-and-pinion type spur-gear train. Total gear reduction is 43:1.

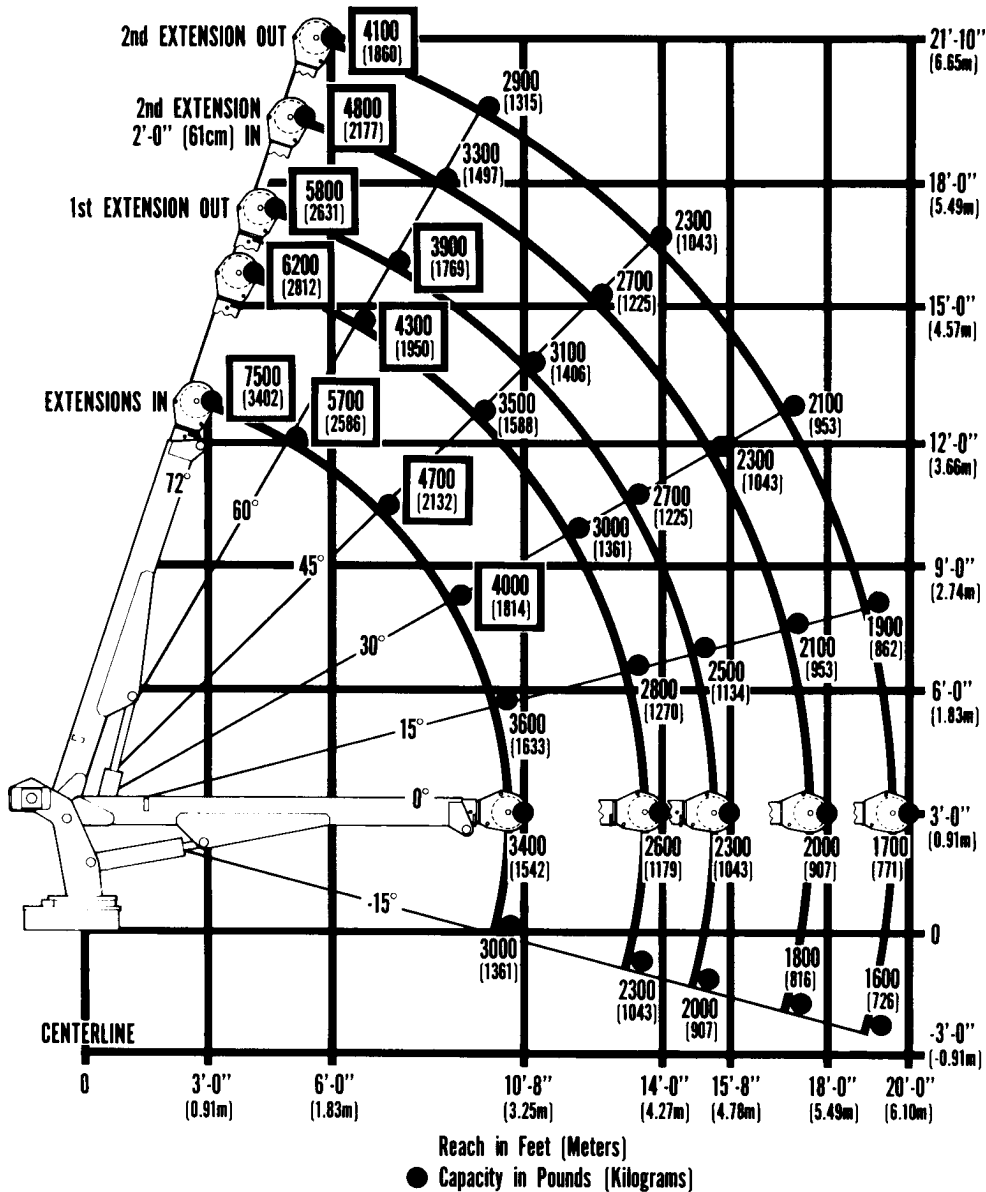
1—9. CYLINDER HOLDING VALVES

The base end of the extension cylinder is equipped with a pilot operated locking holding valve to prevent sudden cylinder collapse in the event of a hose or other hydraulic failure.

The extend side of the lower boom cylinder is equipped with a 10-GPM counter-balance valve. 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. CAPACITY ALERT SYSTEM

A pressure switch mounted on the extend side of the lower boom cylinder and connected electrically to the lift side of the winch and the extend side of the extension boom provides a capacity alert system. If the operator tries to pick up a load in excess of the crane capacity, the winch lift and extension out functions will not operate. To relieve the condition, the winch can be lowered or the extension boom retracted.

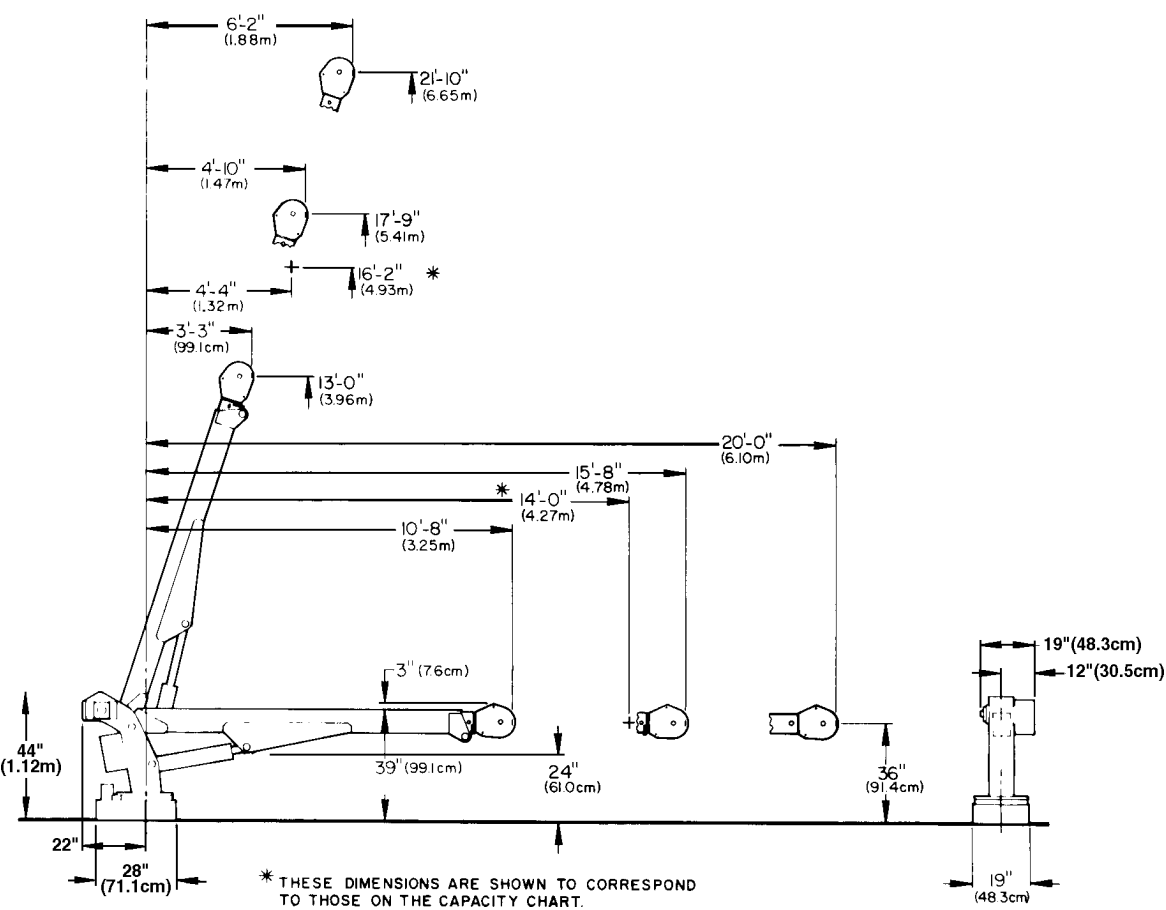
Figure A-1. 315A/315A—20 Capacity Chart

Maximum 1-part line capacity is
3750 lbs (1701 kgs).
For greater loads, use 2-part line.

315A

Weights of load handling devices
are part of the load lifted and must
be deducted from the capacity.

Figure A-2. Geometric Configuration



SECTION 2. CRANE DESCRIPTION

2-1. GENERAL

The 315A/315A-20 crane is designed primarily for use as a mechanic 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 370° (6.45 Rad.) rotation mechanism.

2-3. MAST

The mast provides the necessary elevation for crane operation as well as a hinge point for the lower boom. It houses the 27:1 ratio worm-gear driven winch mechanism.

2-4. LOWER BOOM

The lower boom will swing through a full 87° (1.52 Rad.) from -15° to +72° (-0.27 Rad. to +1.26 Rad.). It is raised and lowered through the use of a single, double-acting hydraulic cylinder.

2—5. EXTENSION BOOM

The single-stage extension boom of the 315A increases the operating range from 10'-8" (3.25m) to 15'-8" (4.78m).

The two-stage extension boom - 1 hydraulic stage and 1 manual stage - of the 315A-20 increases the operating range from 10'-8" (3.25m) to 20'-0" (6.10m)

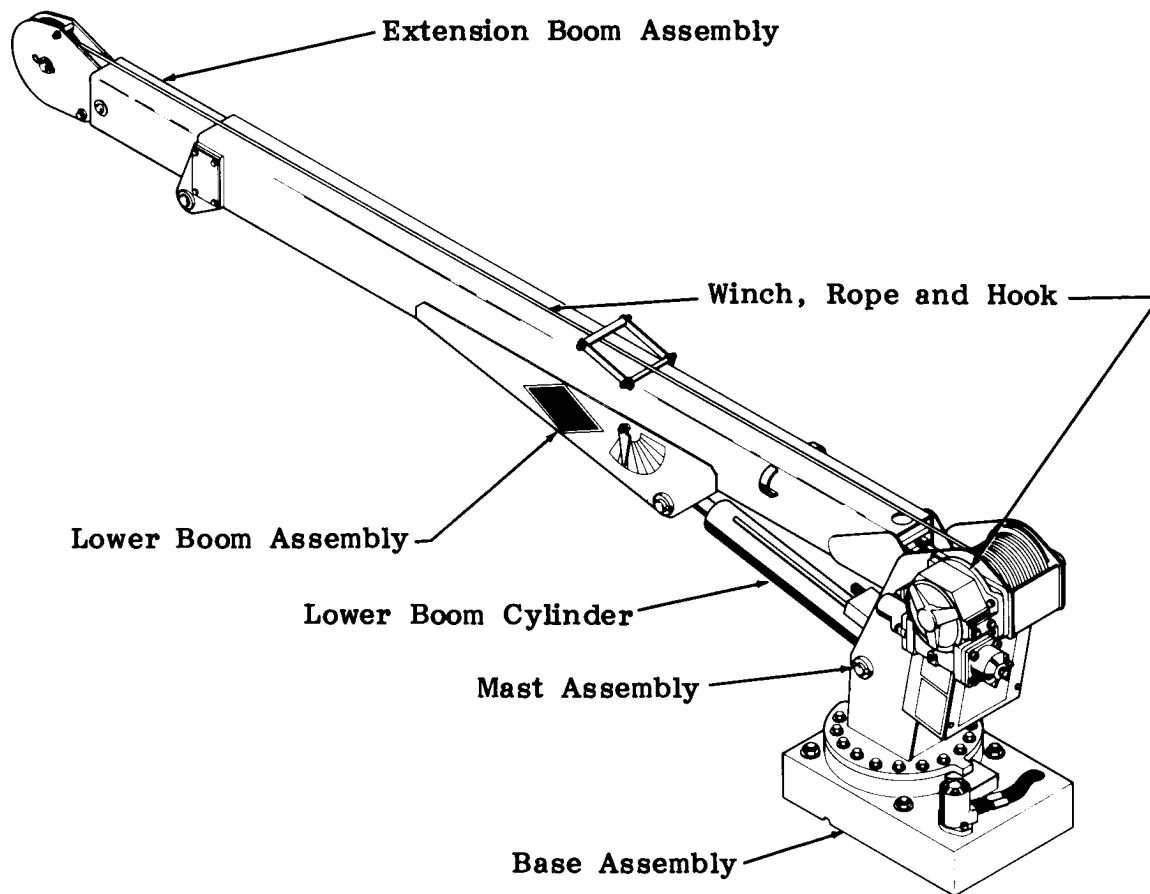
2—6. CONTROLS

The crane is operated remotely with a 4-function remote control unit on a 25-foot cable. In an overload condition, the winch up and extension out functions are inoperative. Those functions can be reversed to alleviate the overload condition.

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-2. 315A Crane Group



SECTION 3. CRANE INSTALLATION

3-1. GENERAL

This section is intended as a guide in the installation of the 315A/315A-20 cranes. Since each installation is considered unique, certain components, such as the hydraulic hoses from the pump to the valve bank, must be cut to the proper length. Prior to beginning installation, make certain the chassis is ready to receive the crane (refer to Section 5, Installation - Chassis Preparation in Volume 1).

3-2. CRANE INSTALLATION

In addition to meeting the Minimum Chassis Specifications in Section 1, there must be sufficient room for mounting the crane and the platform must be strong enough to support the crane and the maximum rated load.

The crane base requires an area of at least 20" x 28" (51 cm x 71 cm). The platform should be reinforced as shown in Figure C-1.

1. Locate and drill the four mounting holes and the center hole for the hoses and remote control cables (Figure C-2). Make certain that the holes are located to properly orient the front of the crane base toward the front of the truck.
2. Use a lifting device capable of lifting the weight of the crane - 1,790 lbs (812 kg.). Attach the lifting device to the lift brackets of the crane (located on both sides of the lower boom, approximately 18 inches from the

mast hinge). Lift the crane, apply a bead of waterproof caulking compound such as a silicon-based caulk to the bottom of the base. Move the chassis under the crane and lower the crane into the desired position.

3. Install the mounting tie rods, washers and nuts to secure the crane base to the truck body (Figure C-3). Torque to 200 ft. lbs. (28 kg-m).

CAUTION

Exceeding the stated torque of 200 ft. lbs. (28 kg-m) may damage either the crane base or the body.

4. Install the ENGINE SPEED and ENGINE STOP functions as outlined in Volume 1.

3—3. HYDRAULIC INSTALLATION

1. Install the pressure hose between the pump and the crane control valve (Figure C-4).
2. Install the return hose between the reservoir and the crane control valve outlet.
3. Fill the hydraulic reservoir with oil (refer to Volume 1 for hydraulic oil specifications).
4. Check the unit for leaks.
5. Start the vehicle engine and test operate the crane. Conduct a walk-around inspection to make certain there are no leaks and everything is functioning properly.
6. Check the oil level in the reservoir and top off if necessary.

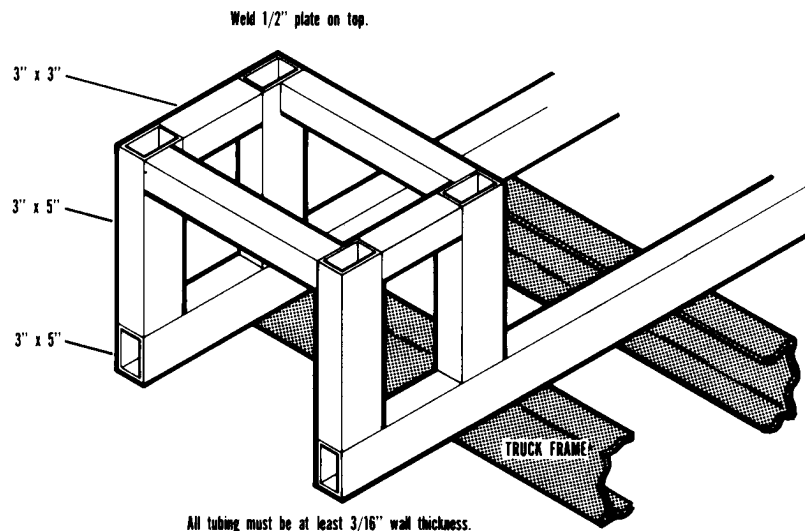


Figure C-1. Body Reinforcement

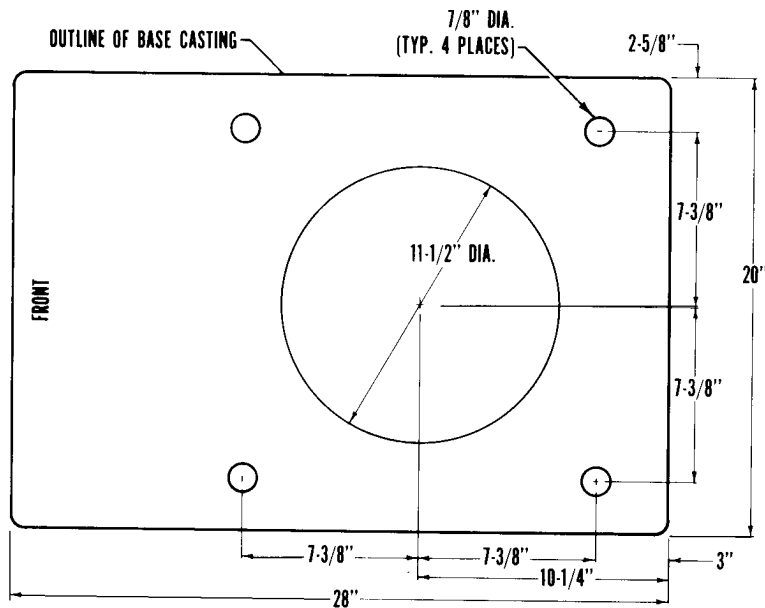


Figure C-2.
Mounting Hole Layout

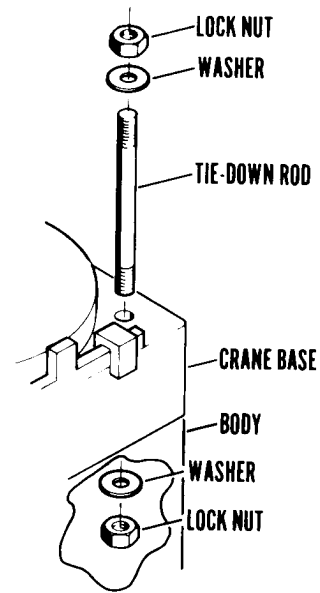


Figure C-3.
Tie Rod Installation

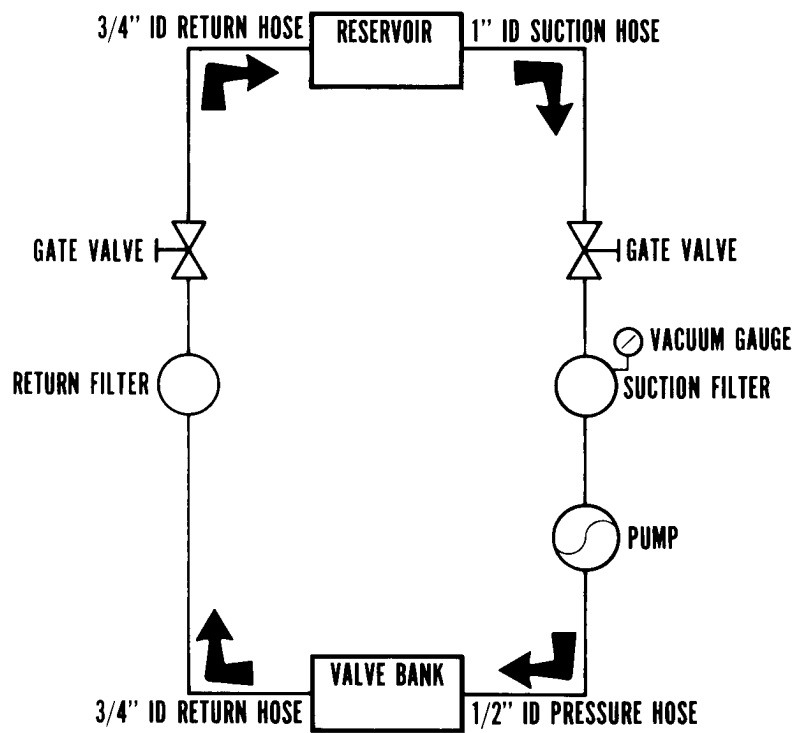


Figure C-4. Hydraulic Installation

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 or one of the booms 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

4—3. CYLINDER IDENTIFICATION

The crane has a cylinder identification placard (Figure D-2) attached to the mast. To ensure proper replacement parts are received, it is necessary to specify a complete number/letter sequence for any part request. Part numbers may be cross checked by comparing the stamped identification of the cylinder case (Figure D-3) against the information stamped on the placard. You must use the part number stamped on the cylinder case when ordering parts.

Figure D-2. Cylinder Identification

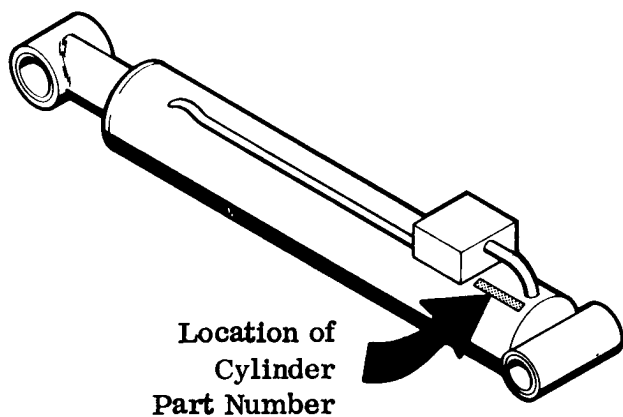


Figure D-3.
Cylinder Part Number Location

4-4. WELDMENT IDENTIFICATION

Each of the major weldments - base, mast, lower 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-4.

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.

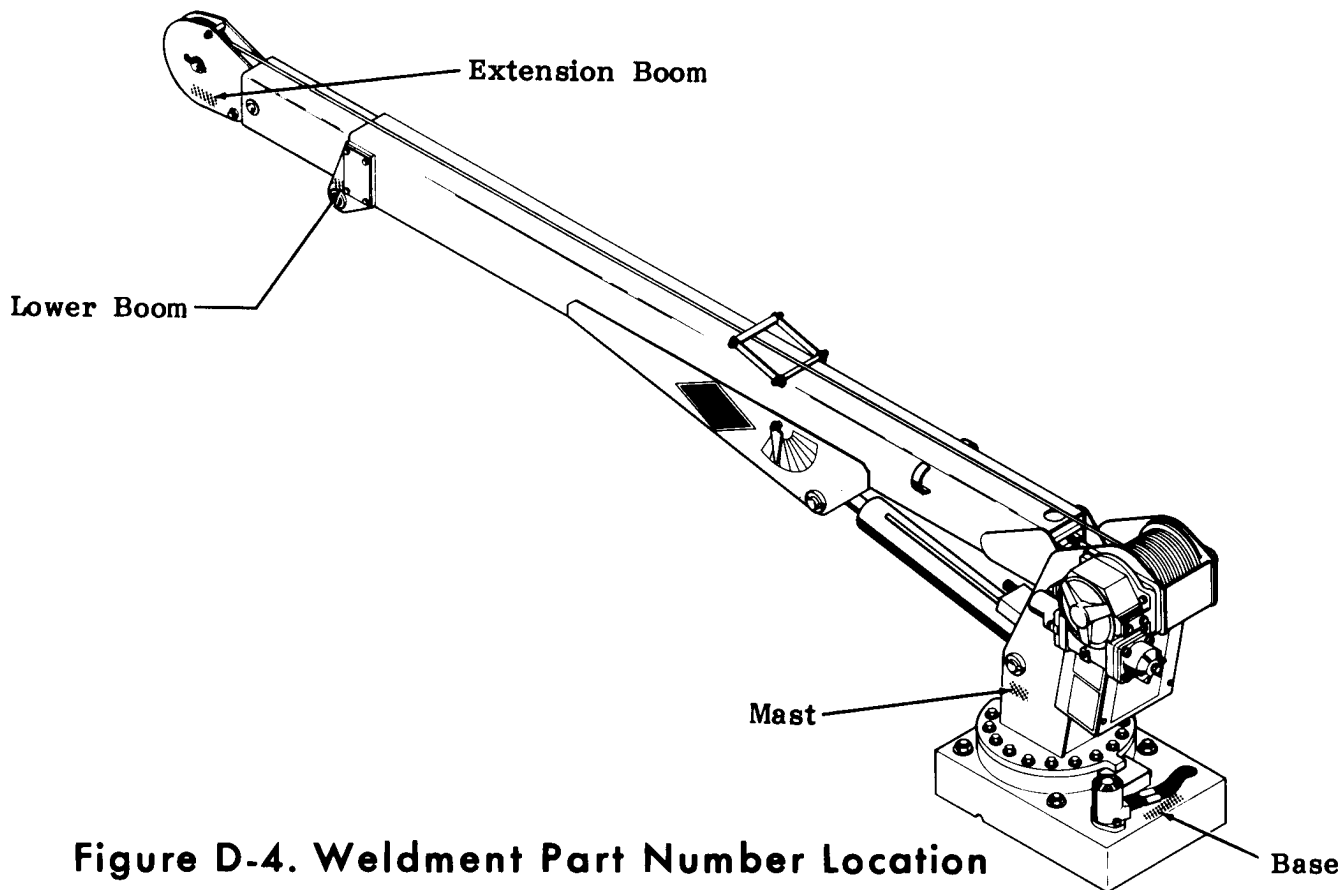


Figure D-4. Weldment Part Number Location

Figure D-5. Base (Part Number 41705222)

Item No.	Part No.	Description	Qty	Item No.	Part No.	Description	Qty
1.	52705126	BASE	1	19.	72060092	SCREW; 1/2-13 x 1-1/4" hex hd.	2
2.	60020114	BUSHING, top pinion gear	1	20.	72060151	SCREW; 5/8-11 x 2" gr. 8	24
3.	60020115	BUSHING, top drive gear	1	21.	60106032	STUD; 1/2-13 x 2"	2
4.	60020116	BUSHING, bottom drive gear	1	22.	72060833	SCREW; 5/16-18 x 3/4" hex hd.	2
5.	60020154	BUSHING, bottom drive gear	1	23.	72063002	WASHER, wrt.; 5/16"	2
6.	71056011	GEAR, drive	1	24.	72063005	WASHER, wrt.; 1/2"	2
7.	53000704	EXTENSION, grease; 34" lg.	1	25.	72063035	BUSHING, machy.; 1-1/4" x 10 ga.	1
8.	53000715	EXTENSION, grease; 18" lg.	1	26.	72063053	WASHER, lock; 1/2"	2
9.	60010235	COVER, pinion gear	1	27.	72063119	WASHER, flat; 5/8" gr. 8	24
10.	60010844	PLATE, grease, pinion gear	1	28.	72066084	RING, retaining; 1-1/4"	1
11.	60104694	SPACER, pinion gear	1	29.	73051378	MOTOR, rotation	1
12.	71056010	GEAR, pinion	1				
13.	71056012	GEAR, intermediate	1				
14.	71056062	GEAR-BEARING, turntable	1				
15.	72062080	NUT, lock; 1/2-13	2				
16.	72053589	ELBOW, street, 90°; 1/8" npt	1				
17.	72053301	COUPLING; 1/8" npt	2				
18.	72053508	ZERK; 1/8" npt	3				

WARNING

Anytime a gear-bearing bolt is removed, it 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.

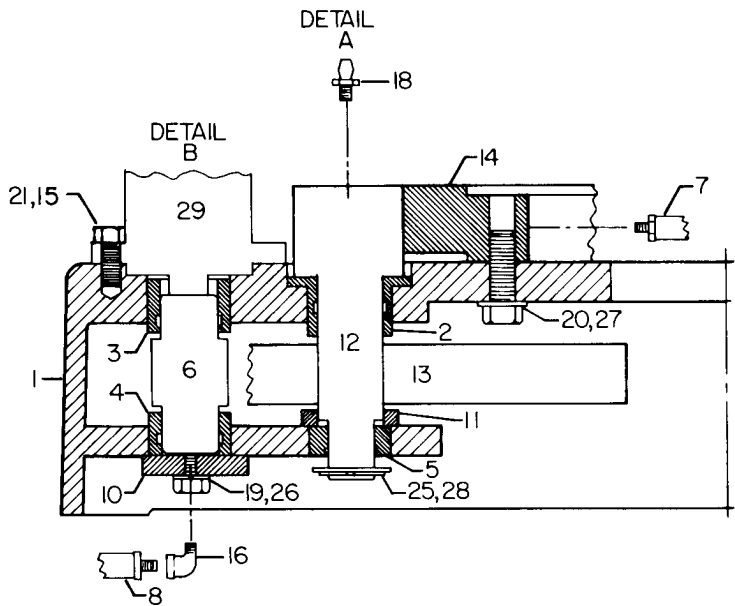
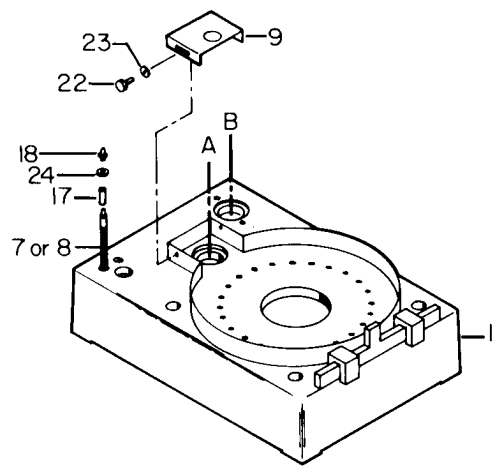


Figure D-6. Mast (Part Number 41703263)

Item No.	Part No.	Description	Qty
1.	52703269	MAST	1
2.	60104540	COVER, pinion	1
3.	60108120	COVER, valve bank (side)	2
4.	60108121	COVER, valve bank (back)	1
5.	70029119	PLACARD, serial number	1
6.	71029106	PLACARD, cylinder ID	1
7.	72060151	SCREW; 5/8-11 x 2" gr. 8	18
8.	72060833	SCREW; 5/16-18 x 3/4" hex hd.	8
9.	72063119	WASHER, hardened; 5/8"	18
10.	72066340	RIVET, pop; 1/8"	6

WARNING

Anytime a gear-bearing bolt is removed, it 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.

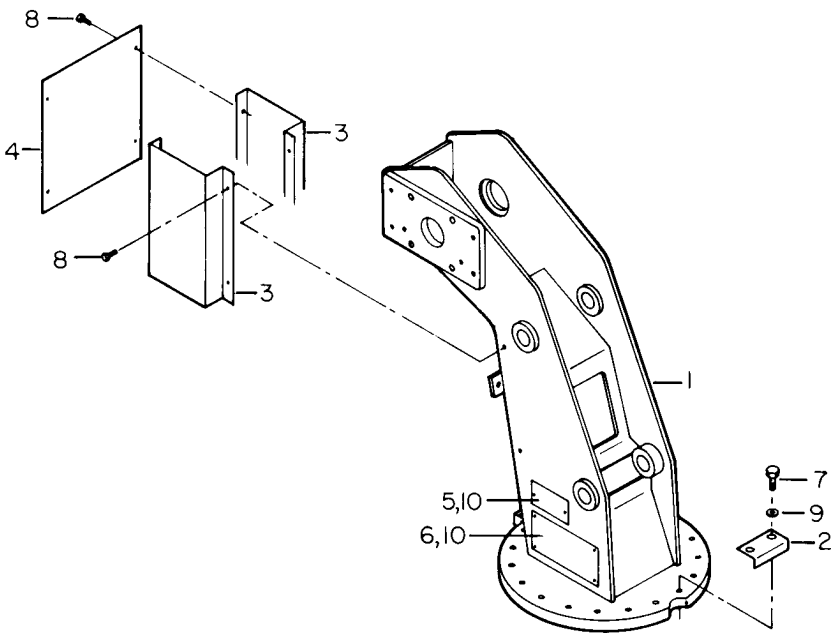


Figure D-7. Lower Boom (Part Number 41703264)

Item No.	Part No.	Description	Qty	Item No.	Part No.	Description	Qty
1.	3C290912	CYLINDER, lower boom	1	12.	72053508	ZERK; 1/8" npt	1
2.	52703312	BOOM, lower	1	13.	72060002	SCREW; 1/4-20 x 3/4" hex hd.	8
3.	7BF81215	BUSHING, mast/lower boom hinge	4	14.	72062103	NUT, lock; 3/8-16	2
4.	52705105	TRUNNION	1	15.	72063003	WASHER, wrt.; 3/8"	2
5.	60030015	PAD, wear	2	16.	72063005	WASHER, wrt.; 1/2"	4
6.	60030083	PAD, wear, dovetailed	1	17.	72063035	BUSHING, machy.; 1-1/4" x 10 ga.	1
7.	60102376	PIN	2	18.	72063037	BUSHING, machy.; 1-1/2" x 10 ga.	3
8.	60102388	PIN	1	19.	72063049	WASHER, lock; 1/4"	8
9.	60103463	PLATE, retainer	2	20.	72066129	RING, retaining; 1-1/4"	1
10.	60105495	PIN	1	21.	72066132	RING, retaining; 1-1/2"	3
11.	60105544	INDICATOR, boom angle	2	22.	72661157	PIN, groove; 1/2" x 2-1/2" lg.	4

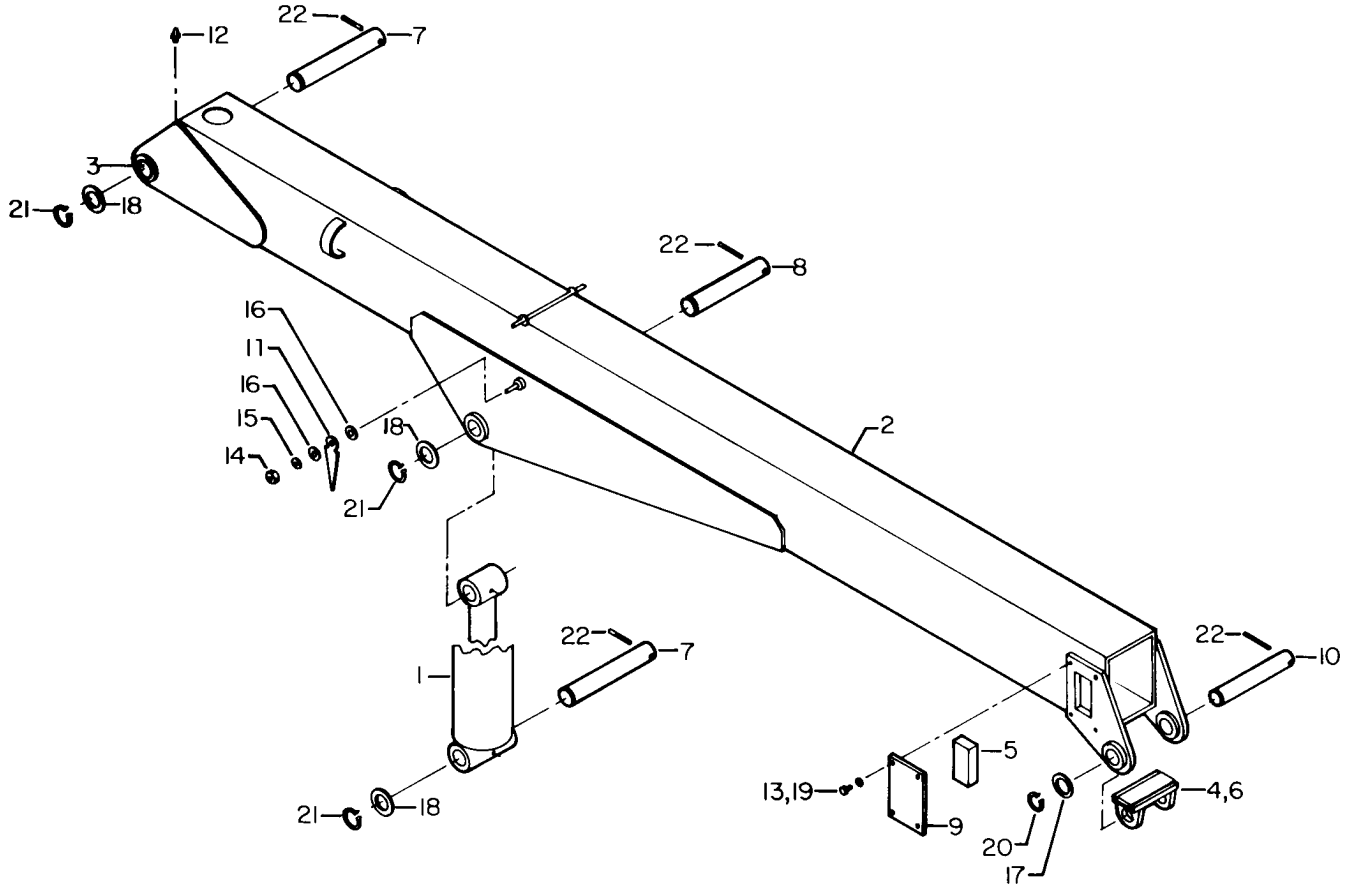


Figure D-8. Lower Cylinder (Part Number 3C290912)

Item No.	Part No.	Description	Qty	Item No.	Part No.	Description	Qty
1.	72053507	ZERK; 1/4-28	2	11.	7T66P045	* SEAL, piston	1
2.	7BF81215	BUSHING	2	12.	7Q072155	* O-RING	1
3.	4G290910	ROD	1	13.	6I045143	PISTON	1
4.	7R14P022	* WIPER, rod	1	14.	7T61N143	* SEAL, lock ring	1
5.	7R546022	* SEAL, rod	1	15.	4C290912	CASE, cylinder	1
6.	6H045022	HEAD	1	16.	7BF81015	BUSHING	4
7.	7Q10P346	* RING, back-up	1	17.	73054304	VALVE, counter-balance; 10-GPM	1
8.	7Q072345	* O-RING	1	18.	7PNPXT02	PLUG; 1/8" npt (not shown)	3
9.	6A025022	* RING, wafer lock	1				
10.	7T65I045	* RING, piston	2			* Part of seal kit (Part Number 9C181823)	

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	4-1/2"
Stroke	20-1/2"
C - C Closed	30"
Rod Diameter	2-1/4"
Pin Diameter	1-1/2"

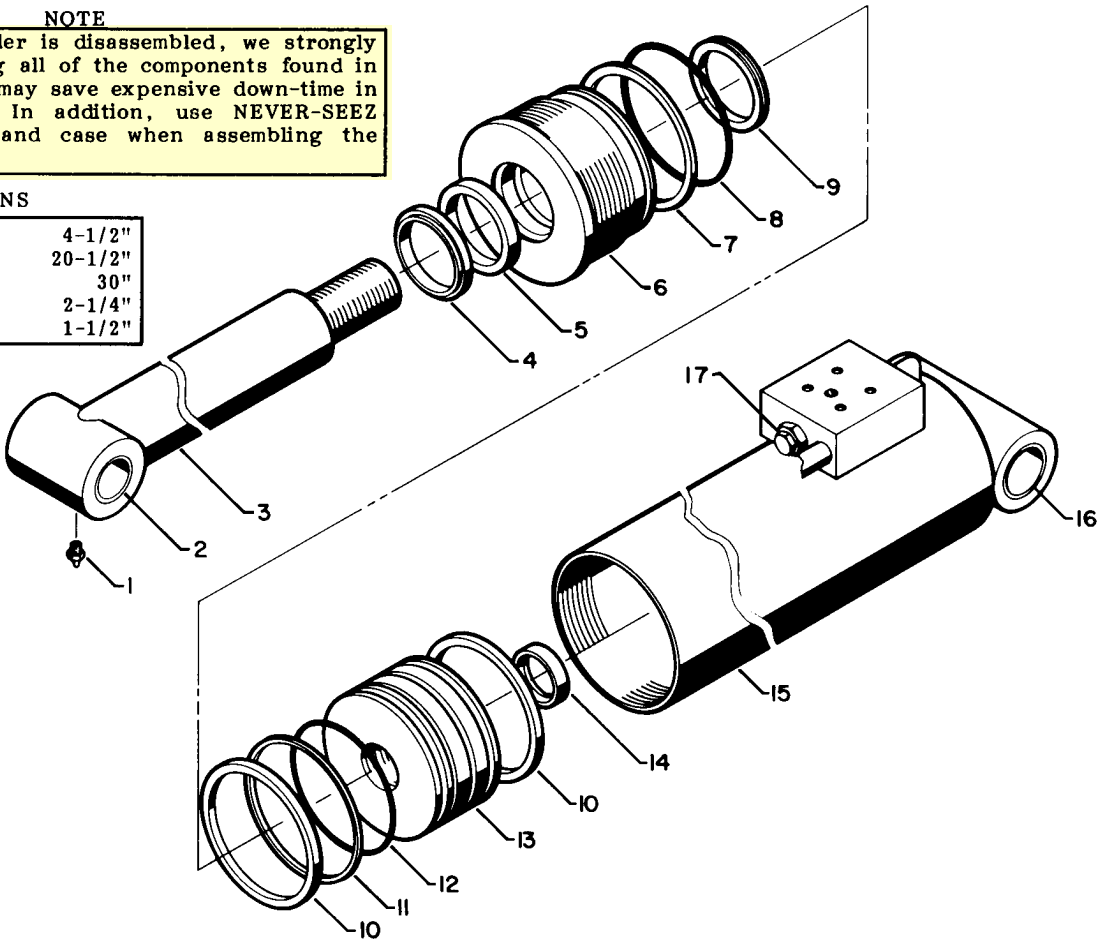


Figure D-9. Counter—Balance Valve (Part Number 73054304)

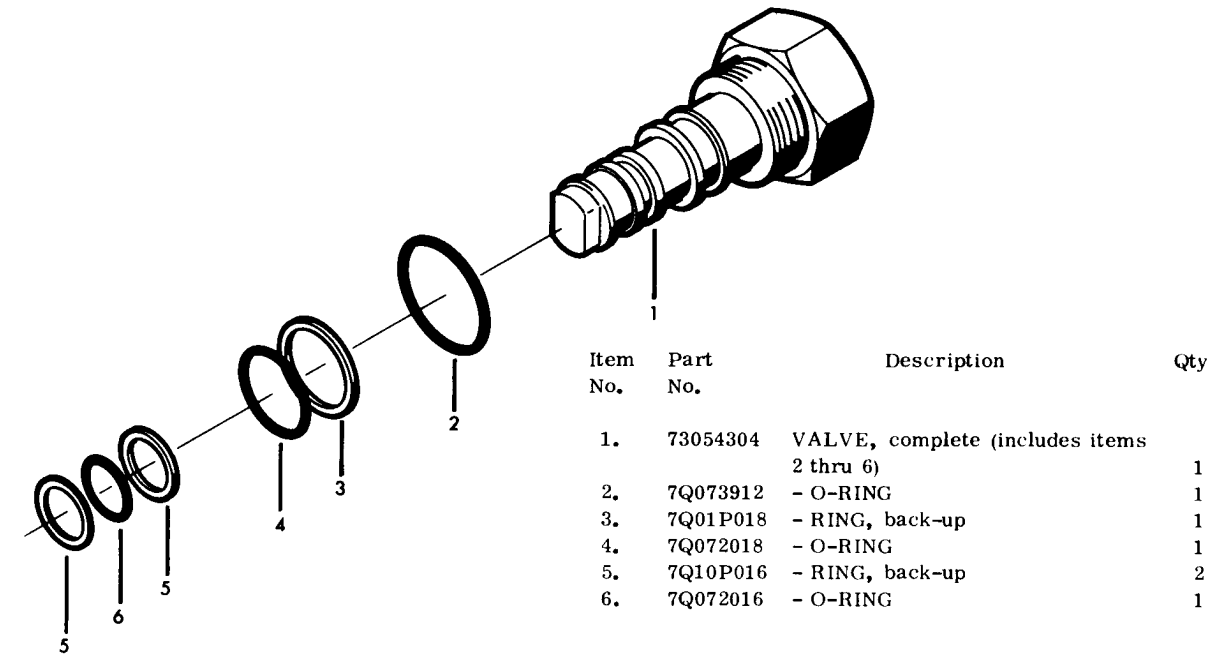


Figure D-10. Holding Valve (Part Number 73054004)

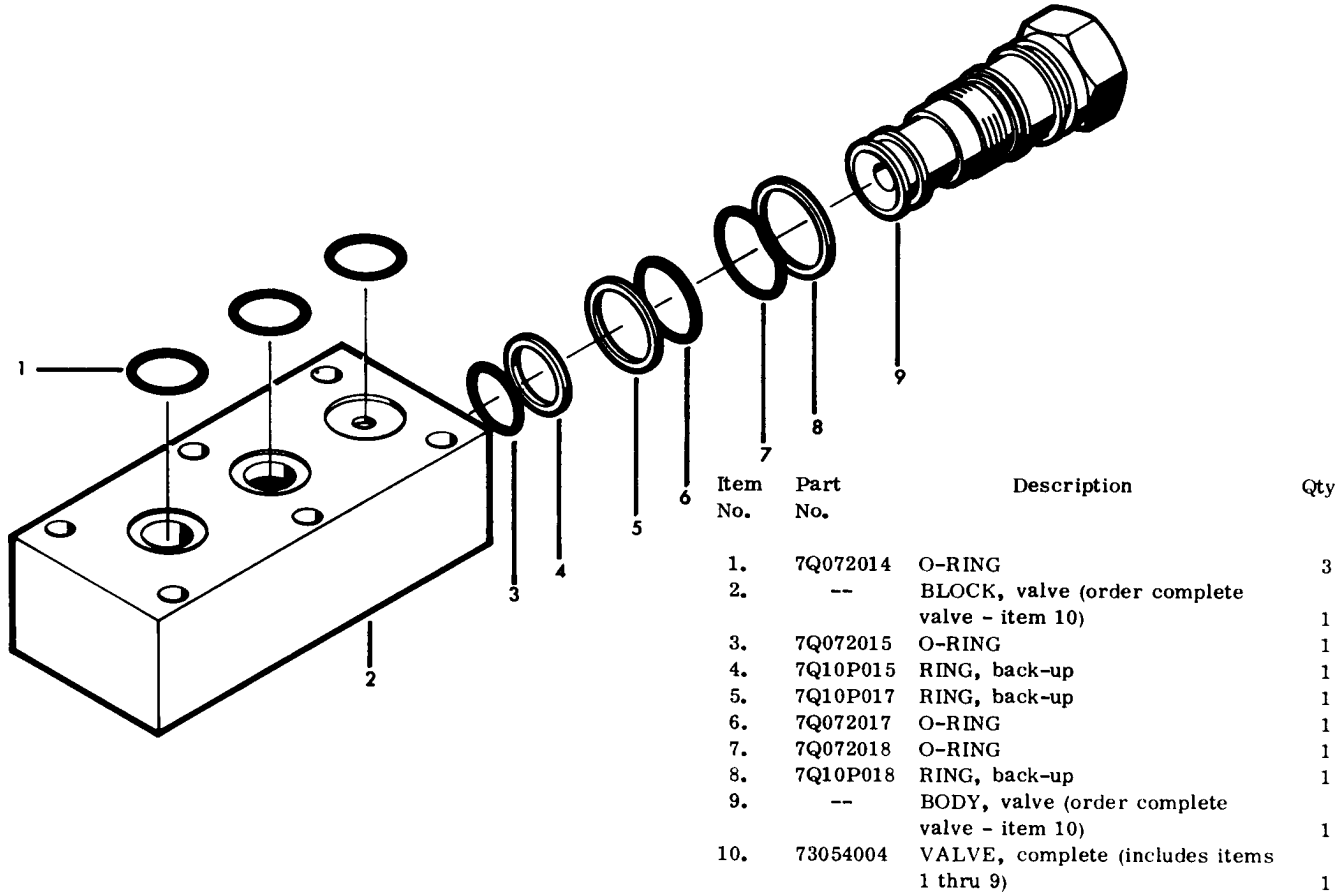


Figure D-11. 315A Extension Boom (Part Number 41703265)

Item No.	Part No.	Description	Qty	Item No.	Part No.	Description	Qty
1.	3B250317	CYLINDER, extension	1	12.	72060054	SCREW; 3/8-16 x 3" hex hd.	1
2.	52070705	PIN	1	13.	72060187	SCREW; 3/4-10 x 3" hex hd.	1
3.	52703313	BOOM, extension	1	14.	72060836	SCREW; 1/4-20 x 3/4" flat hd. soc.	4
4.	60030016	PAD, wear	1	15.	72062103	NUT, lock; 3/8-16	1
5.	60101842	SPACER	1	16.	72062114	NUT, lock; 3/4-10	1
6.	60101905	PIN	1	17.	72063034	BUSHING, machy.; 1" x 10 ga.	3
7.	60102099	PIN	1	18.	--	NOT USED	-
8.	70034204	SHEAVE; 10-1/4"	1	19.	72066125	RING, retaining; 1"	3
9.	70055024	BEARING, roller	1	20.	72066145	PIN, hair; 3/16"	1
10.	70055025	RACE, inner	1	21.	72066194	PIN, cotter; 3/16" x 1-1/2"	1
11.	72053508	ZERK; 1/8" npt	1				

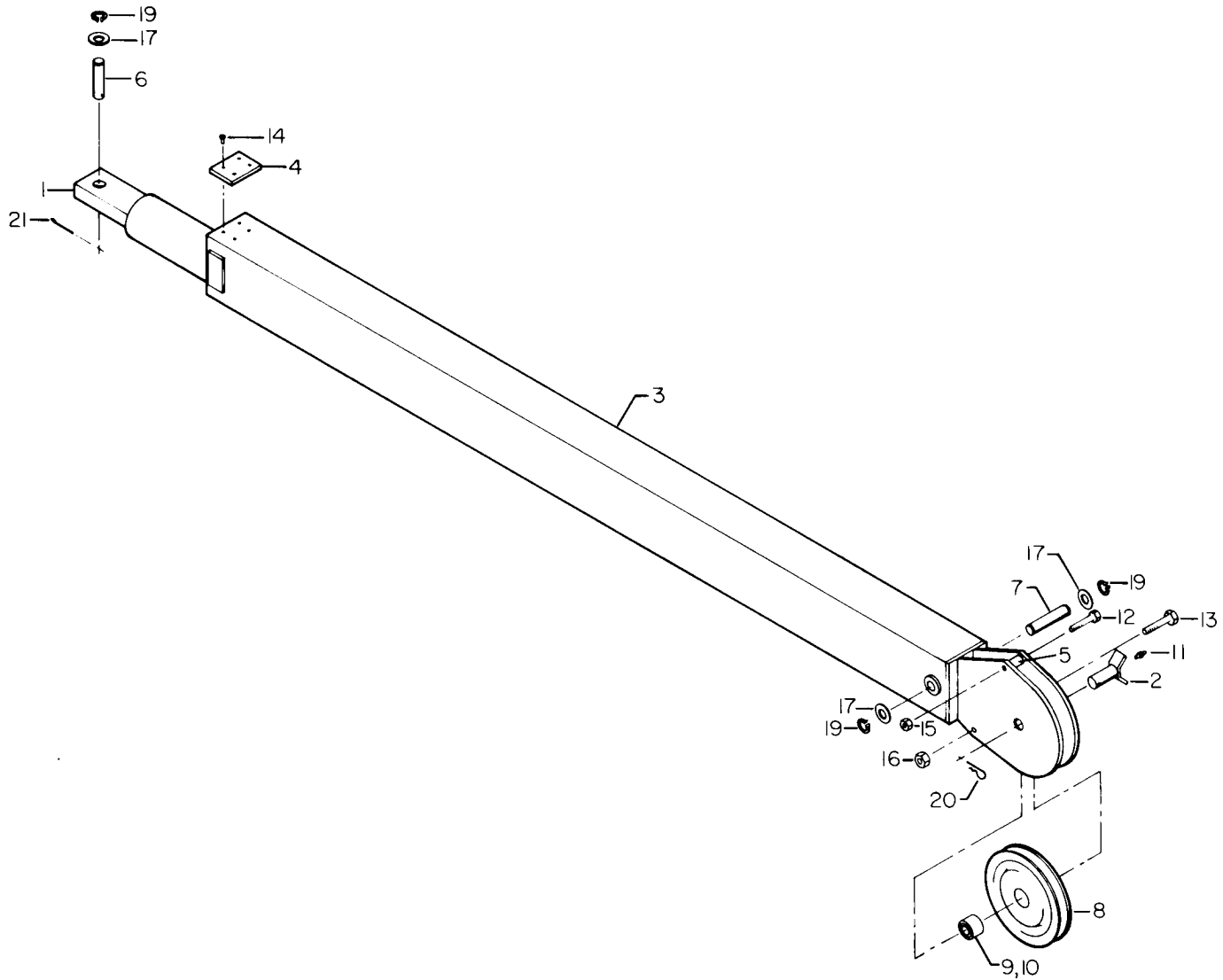


Figure D-12. 315A Extension Cylinder (Part Number 3B250317)

Item No.	Part No.	Description	Qty	Item No.	Part No.	Description	Qty
1.	4G250316	ROD	1	11.	7Q072145	* O-RING	1
2.	7R14P020	* WIPER, rod	1	12.	6I030106	PISTON	1
3.	7R546020	* SEAL, rod	1	13.	7T61N106	* SEAL, lock ring	1
4.	6H030020	HEAD	1	14.	4B250316	CASE	1
5.	7Q10P334	* RING, back-up	1	15.	73054004	VALVE, locking holding	1
6.	7Q072334	* O-RING	1	16.	72060708	SCREW; 1/4-20 x 1-1/4" soc. hd.	6
7.	6A025020	* RING, wafer lock	1	17.	7PNPXT02	PLUG; 1/8" npt (not shown)	2
8.	6C300020	TUBE, stop	8				
9.	7T65I030	* RING, piston	2				
10.	7T66P030	* RING, piston seal	1				

* Part of seal kit (Part Number 9C121617)

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	3"
Stroke	60"
C - C Closed	112-1/2"
Rod Diameter	2"
Pin Diameter	1"

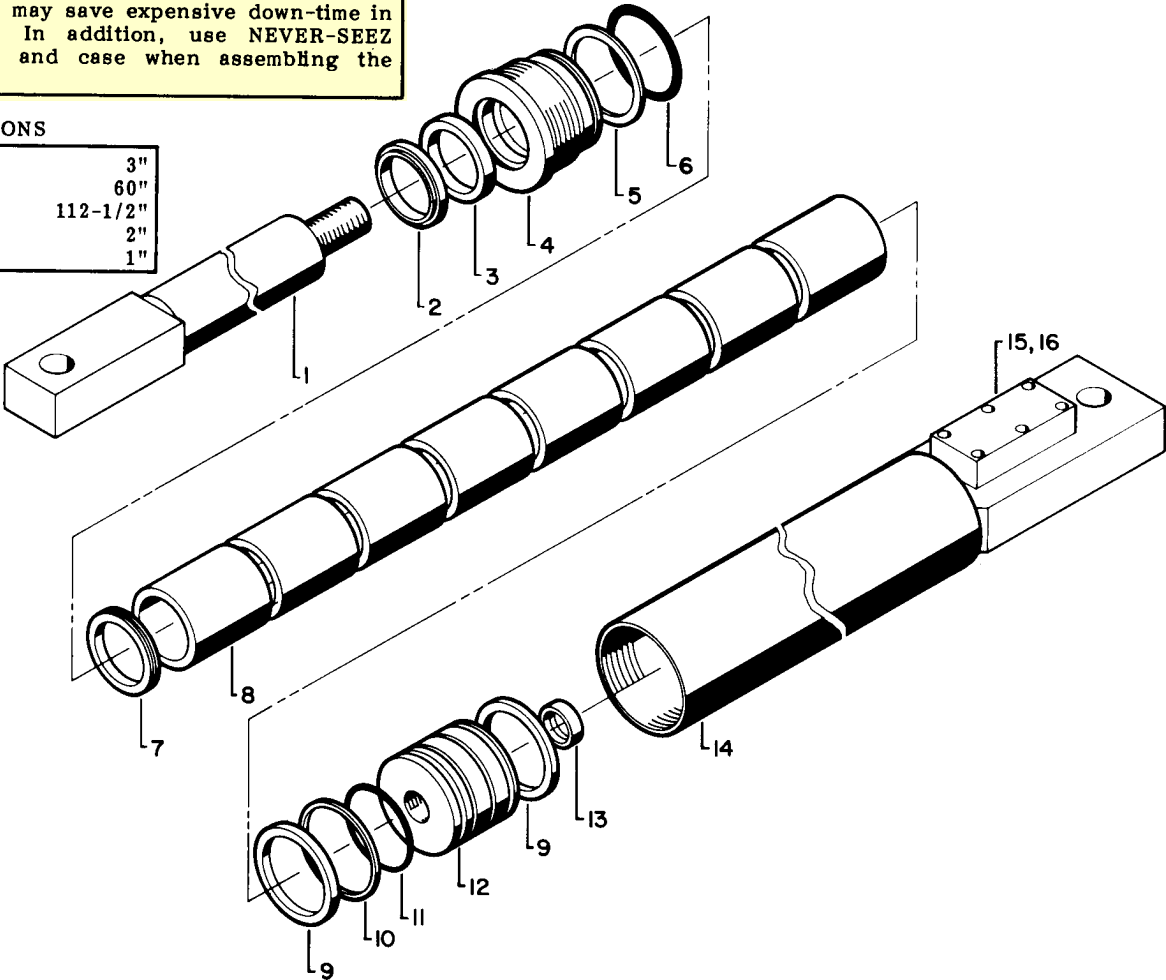


Figure D-13. 315A—20 Extension Boom (Part Number 41705044)

Item No.	Part No.	Description	Qty	Item No.	Part No.	Description	Qty
1.	3B309820	CYLINDER, extension	1	14.	72060089	SCREW; 1/2-13 x 3/4" hex hd.	2
2.	52070152	PIN	1	15.	72060092	SCREW; 1/2-13 x 1-1/4" hex hd.	4
3.	52070705	PIN	1	16.	72060187	SCREW; 3/4-10 x 3" hex hd.	1
4.	52705042	BOOM, extension, 2nd stage	1	17.	72060836	SCREW; 1/4-20 x 3/4" flat hd.	4
5.	52705043	BOOM, extension, 1st stage	1	18.	72062103	NUT, lock; 3/8-16	1
6.	60030016	PAD, wear	1	19.	72062114	NUT, lock; 3/4-10	1
7.	60101842	SPACER	1	20.	72063034	BUSHING, machy.; 1" x 10 ga.	1
8.	60101905	PIN	1	21.	72063053	WASHER, lock; 1/2"	6
9.	60107723	STOP, stroke	1	22.	72066125	RING, retaining; 1"	1
10.	70034204	SHEAVE; 10-1/4" dia.	1	23.	72066145	PIN, hair; 3/16"	2
11.	70055024	BEARING, roller	1	24.	72066194	PIN, cotter; 3/16" x 1-1/2"	1
12.	70055025	RACE, inner	1	25.	72060054	SCREW; 3/8-16 x 3" hex hd.	1
13.	72053508	ZERK; 1/8" npt	1				

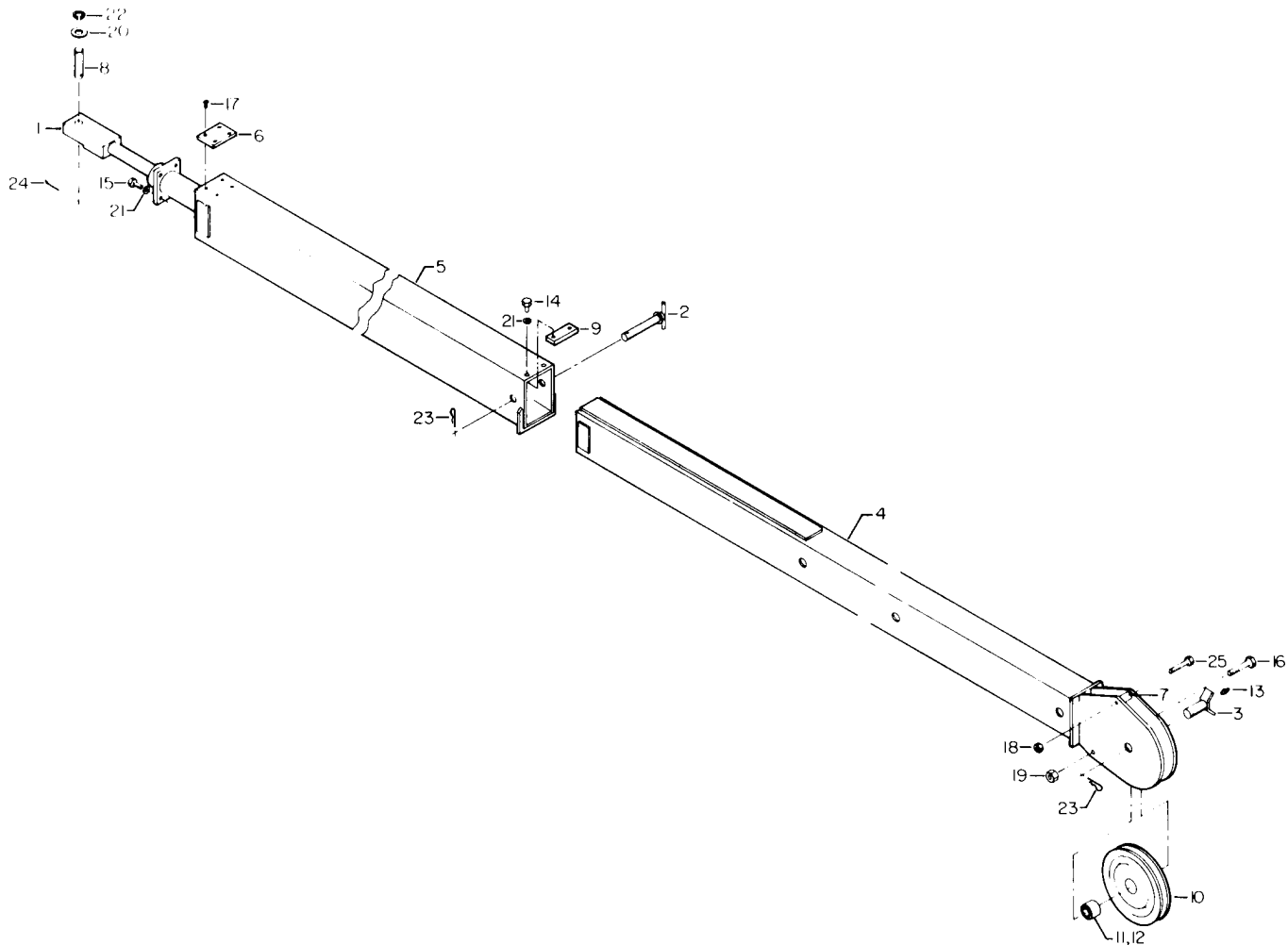


Figure D-14. 315A—20 Extension Cylinder (Part Number 3B309820)

Item No.	Part No.	Description	Qty	Item No.	Part No.	Description	Qty
1.	73054004	VALVE, locking holding	1	11.	6C300015	TUBE, stop	1
2.	72060708	SCREW; 1/4-20 x 1-1/4" shcs	6	12.	7T66P025	* SEAL, piston	1
3.	4H309820	ROD	1	13.	7Q072137	* O-RING	1
4.	7R14P015	* WIPER, rod	1	14.	6IX02512	PISTON	1
5.	7R546015	* SEAL, rod	1	15.	7T61N125	* SEAL, lock ring	1
6.	6H025015	HEAD	1	16.	4B309820	CASE, cylinder	1
7.	7Q10P228	* RING, back-up	1	17.	7PNPXT02	PLUG; 1/8" npt (not shown)	3
8.	7Q072228	* O-RING	1				
9.	6A025015	* RING, wafer-lock	1				
10.	6C309820	TUBE, stop	1				

* Part of seal kit (Part Number 9B101220)

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	2-1/2"
Stroke	60"
C - C Closed	77-1/4"
Rod Diameter	1-1/2"
Pin Diameter	1"

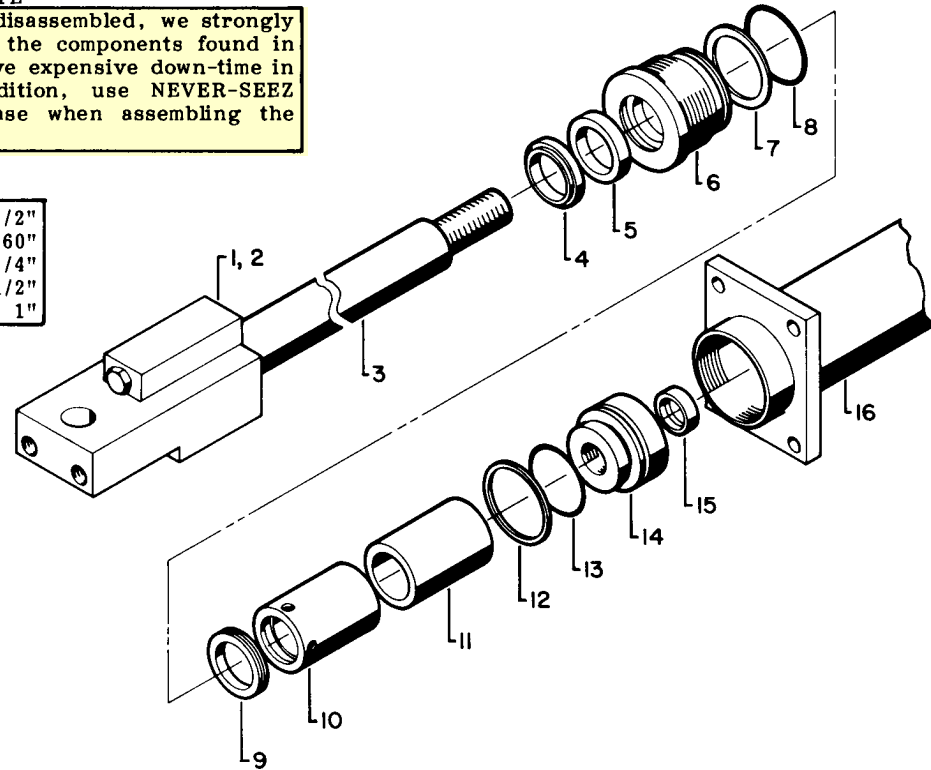
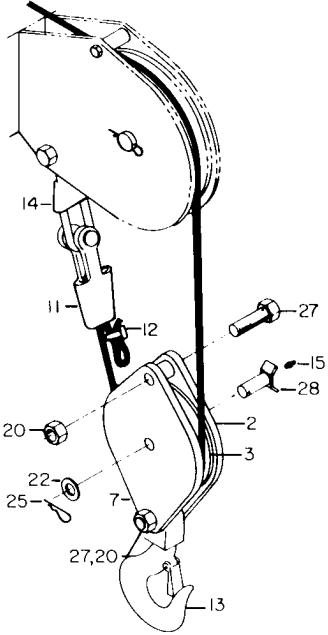
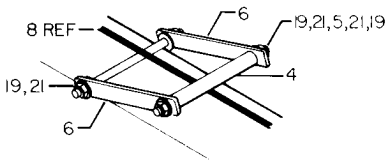
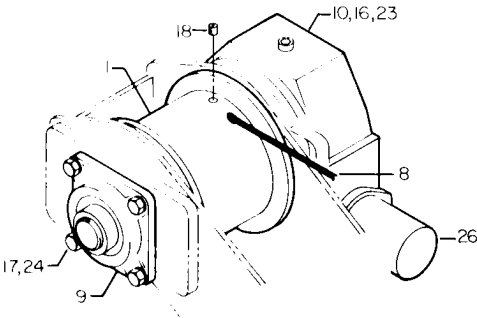


Figure D-15. Winch, Rope and Hook Kit (Part Number 90702491)

Item No.	Part No.	Description	Qty	Item No.	Part No.	Description	Qty
1.	52702499	DRUM, winch	1	15.	72053508	ZERK; 1/8" npt	1
2.	52704550	BLOCK, snatch	1	16.	72060093	SCREW; 1/2-13 x 1-1/2" hex hd.	4
3.	60030082	SHEAVE	1	17.	72060148	SCREW; 5/8-11 x 1-1/4" hex hd.	4
4.	60030108	ROLLER, cable guide	1	18.	72060596	SCREW, set; 1/2-13 x 3/4" shcs	1
5.	60105538	STUD, cable guide	1	19.	72062107	NUT, lock; 1/2-13	4
6.	60105540	SIDE BAR, cable guide	2	20.	72062114	NUT, lock; 3/4-10	2
7.	60107549	SIDE PLATE, snatch block	1	21.	72063005	WASHER, wrt.; 1/2"	4
8.	60108116	CABLE	1	22.	72063030	BUSHING, machy.; 3/4" x 10 ga.	1
9.	70055117	BEARING, flange block	1	23.	72063053	WASHER, lock; 1/2"	4
10.	70057028	WINCH	1	24.	72063055	WASHER, lock; 5/8"	4
11.	70058015	SOCKET, wedge	1	25.	72066145	PIN, hair	1
12.	70058033	CLAMP	1	26.	73051201	MOTOR, winch	1
13.	71073035	HOOK	1	27.	72060187	SCREW; 3/4-10 x 3" hex hd.	2
14.	71073920	HOOK	1	28.	52704828	PIN	1



HYDRAULIC KIT-PARTS (91705224)

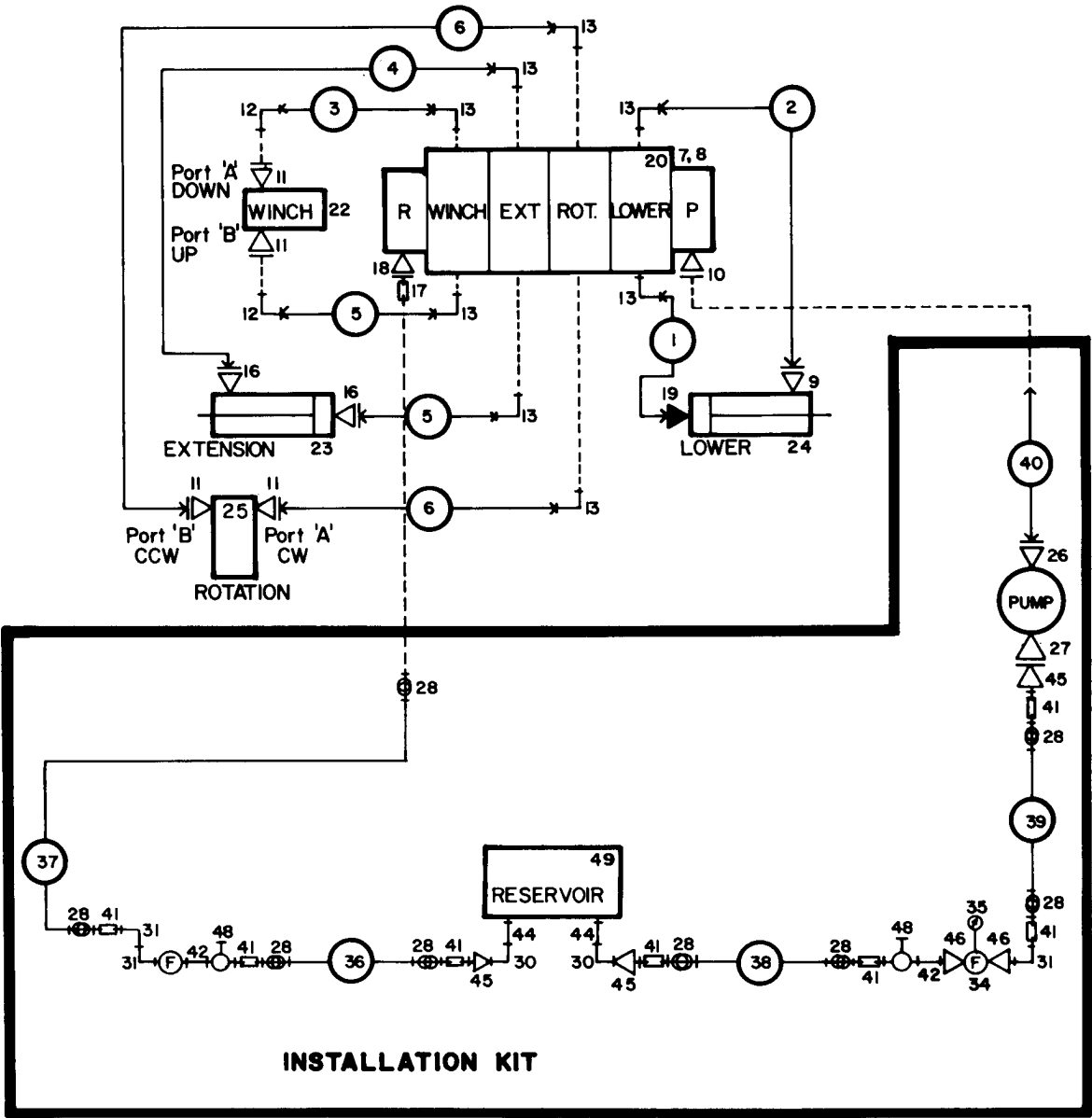
Item No.	Part No.	Description	Qty
1.	51704620	HOSE; 1/4" ID x 20" lg.	1
2.	51704621	HOSE; 1/4" ID x 22" lg.	1
3.	51705116	HOSE; 1/4" ID x 14" lg.	1
4.	51705117	HOSE; 1/4" ID x 15" lg.	1
5.	51705118	HOSE; 1/4" ID x 16" lg.	2
6.	51705119	HOSE; 1/4" ID x 61" lg.	2
7.	72060046	SCREW; 3/8-16 x 1" hex hd.	2
8.	72062103	NUT, lock; 3/8-16	2
9.	72532351	ADAPTER; 7/16-20 str. thd.(m) x 7/16-20 JIC(m)	1
10.	72532357	ADAPTER; 9/16-18 str. thd.(m) x 3/4-16 JIC(m)	1
11.	72532685	ADAPTER; 7/8-14 str. thd.(m) x 7/16-20 JIC(m)	4
12.	72532690	ELBOW, 90° swivel; 7/16-20 JIC(m) x 7/16-20 JIC(f)	2
13.	72532699	ELBOW, 90°; 9/16-18 str. thd.(m) x 7/16-20 JIC(m)	8
14.	--	NOT USED	-
15.	--	NOT USED	-
16.	72532792	ADAPTER; 3/4-16 str. thd.(m) x 7/16-20 JIC(m)	2
17.	72532794	NIPPLE, barbed	1
18.	72532795	ADAPTER; 9/16-18 str. thd.(m) x 3/8" npt	1
19.	73054487	RESTRICTOR, flow	1
20.	73073772	VALVE BANK	1
21.	--	NOT USED	-
22.	73051201	MOTOR, winch	*
23.	3B309820	CYLINDER, extension, 315A-20	*
	3B250317	CYLINDER, extension, 315A	*
24.	3C290912	CYLINDER, lower	*

Item No.	Part No.	Description	Qty
25.	73051378	MOTOR, rotation	*
26.	72053746	ADAPTER; 1-1/16" str. thd.(m) x 1/2" npt(f)	*
27.	72053751	ADAPTER; 1-5/16" str. thd.(m) x 1" npt(f)	*
28.	72066000	CLAMP, hose; #12	*
29.	--	NOT USED	-
30.	72053326	ELBOW, 90°; 1" npt	*
31.	72053285	ELBOW, street, 90°; 3/4" npt	*
32.	--	NOT USED	-
33.	73052000	FILTER, return	*
34.	73052102	FILTER, suction	*
35.	70048031	GAUGE, vacuum	*
36.	60035819	HOSE; 3/4" ID x 60" lg.	*
37.	60035817	HOSE; 3/4" ID x 240" lg.	*
38.	60035823	HOSE; 3/4" ID x 52" lg.	*
39.	60035818	HOSE; 3/4" ID x 72" lg.	*
40.	51703614	HOSE; 1/2" ID x 240" lg.	*
41.	72053458	NIPPLE, barbed; 3/4"	*
42.	72053141	NIPPLE, close; 3/4" npt	*
43.	--	NOT USED	-
44.	72053185	NIPPLE, close; 1" npt	*
45.	72053376	BUSHING, reducer; 1" npt(m) x 3/4" npt(f)	*
46.	72053180	BUSHING, reducer; 1-1/4" npt(m) x 3/4" npt(f)	*
47.	--	NOT USED	-
48.	73054129	VALVE, gate; 3/4"	*
49.	51705060	RESERVOIR	*

* Not a part of the hydraulic kit - shown for reference only.

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Figure D-16. Hydraulic Kit (Part Number 91705224)



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INSTALLATION KIT-PARTS (93703439)

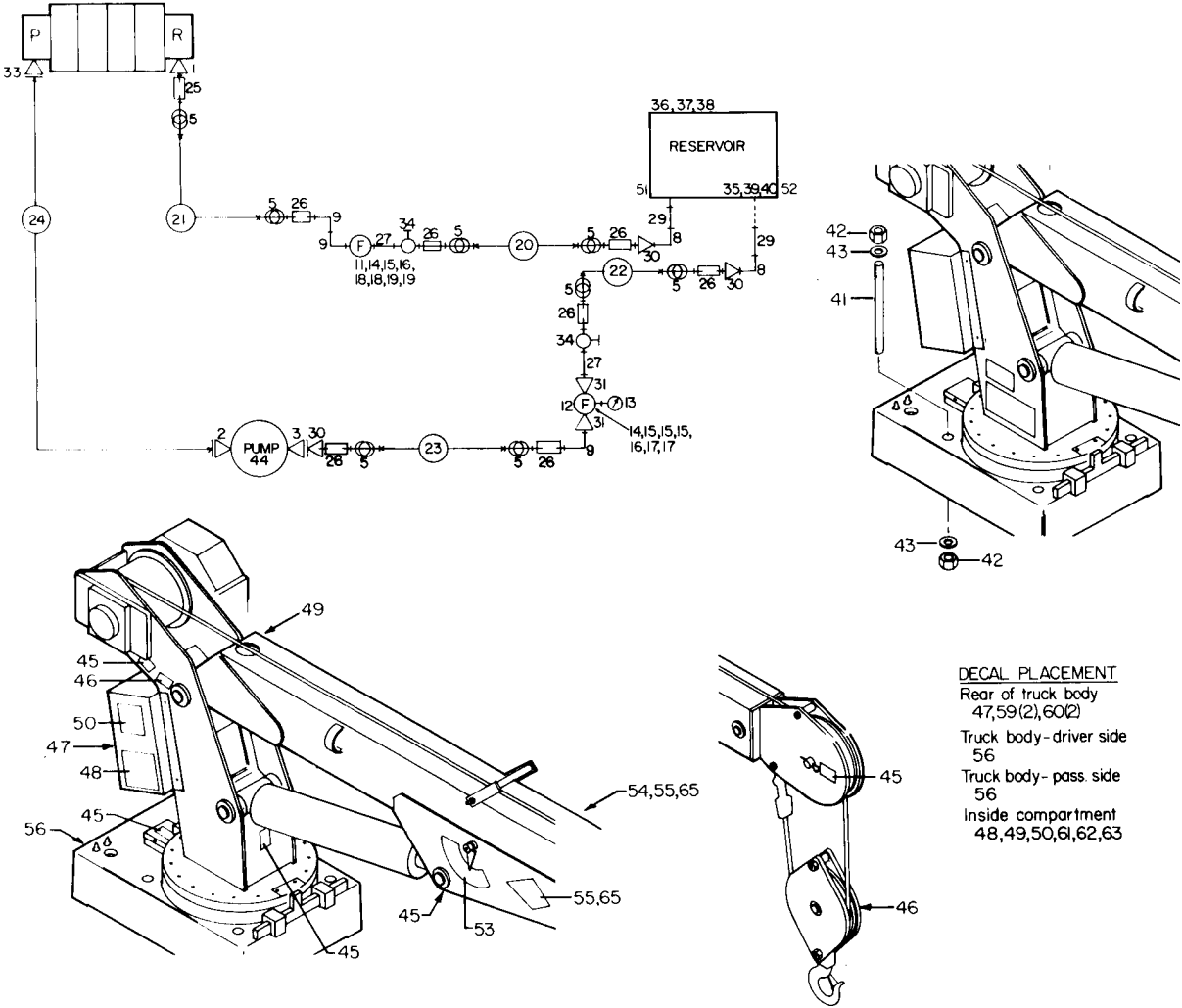
Item No.	Part No.	Description	Qty	Item No.	Part No.	Description	Qty
1.	72532795	ADAPTER; 9/16-18 str. thd.(m) x 3/8" npt(f)	1	34.	73054129	VALVE, gate; 3/4"	1
2.	72532360	ADAPTER; 1-1/16" str. thd.(m) x 3/4-16 JIC(m)	1	35.	51705060	RESERVOIR, boom support (includes items 36 thru 38)	1
3.	72053751	ADAPTER; 1-5/16" str. thd.(m) x 1" npt(f)	1	36.	73014671	CAP, reservoir fill	1
4.	----	NOT USED	-	37.	73052001	PLUG, magnetic; 3/4" npt	1
5.	72066000	CLAMP, hose; #12	8	38.	73141276	SCREEN, fill	1
6.	----	NOT USED	-	39.	72060046	SCREW; 3/8-16 x 1" hex hd.	4
7.	----	NOT USED	-	40.	72062103	NUT, lock; 3/8-16	4
8.	72053326	ELBOW, 90°; 1" npt	2	41.	60106481	STUD, tie down; 1" x 12-1/2"	4
9.	72053285	ELBOW, street, 90°; 3/4" npt	3	42.	72062141	NUT, lock; 1-8	8
10.	----	NOT USED	-	43.	72063066	WASHER, 1"	8
11.	73052000	FILTER, return	1	44.	--	PUMP	* 1
12.	73052012	FILTER, suction	1	45.	70391612	DECAL, grease weekly	5
13.	70048031	GAUGE, vacuum	1	46.	70391613	DECAL, grease weekly	2
14.	60103870	BRACKET, filter mounting	2	47.	71029227	PLACARD, capacity	2
15.	72060025	SCREW; 5/16-18 x 1" hex hd.	4	48.	70391390	DECAL, operation caution	2
16.	72062109	NUT; 5/16-18	2	49.	70391391	DECAL, electrocution hazard * *	2
17.	72063050	WASHER, lock; 5/16"	2	50.	70391392	DECAL, operation caution	2
18.	72063049	WASHER, lock; 1/4"	2	51.	70392109	DECAL, return	1
19.	72060002	SCREW; 1/4-20 x 3/4" hex hd.	2	52.	70392108	DECAL, suction	1
20.	60035819	HOSE; 3/4" ID x 60" lg.	1	53.	71391522	DECAL, angle indicator; right	1
21.	60035817	HOSE; 3/4" ID x 240" lg.	1	54.	71391523	DECAL, angle indicator, left * *	1
22.	60035823	HOSE; 3/4" ID x 52" lg.	1	55.	70029251	PLACARD, IMT diamond	2
23.	60035818	HOSE; 3/4" ID x 72" lg.	1	56.	70392273	DECAL, electrocution hazard	3
24.	51703614	HOSE; 1/2" ID x 240" lg.	1	57.	--	NOT USED	-
25.	72532794	NIPPLE, barbed	1	58.	--	NOT USED	-
26.	72053458	NIPPLE, barbed; 3/4"	7	59.	70391598	DECAL, 315A outrigger warning * *	2
27.	72053141	NIPPLE, close; 3/4"	2	60.	71039129	DECAL, stabilizer warning * *	2
28.	----	NOT USED	-	61.	71392095	DECAL, amphenol connector * *	1
29.	72053185	NIPPLE, close; 1"	2	62.	71039134	DECAL, oil level caution * *	1
30.	72053376	BUSHING, reducer; 1" npt(m) x 3/4" npt(f)	3	63.	70392213	DECAL, don't wash caution * *	1
31.	72053180	BUSHING, reducer; 1-1/4" npt(m) x 3/4" npt(f)	2	64.	70392527	DECAL, 315A Identification * *	2
32.	----	NOT USED	-	65.	72066340	RIVET, pop; 1/8"	14
33.	72532357	ADAPTER; 9/16-18 str. thd.(m) x 3/4-16 JIC(m)	1				

* Determined by truck chassis

* * Not Shown

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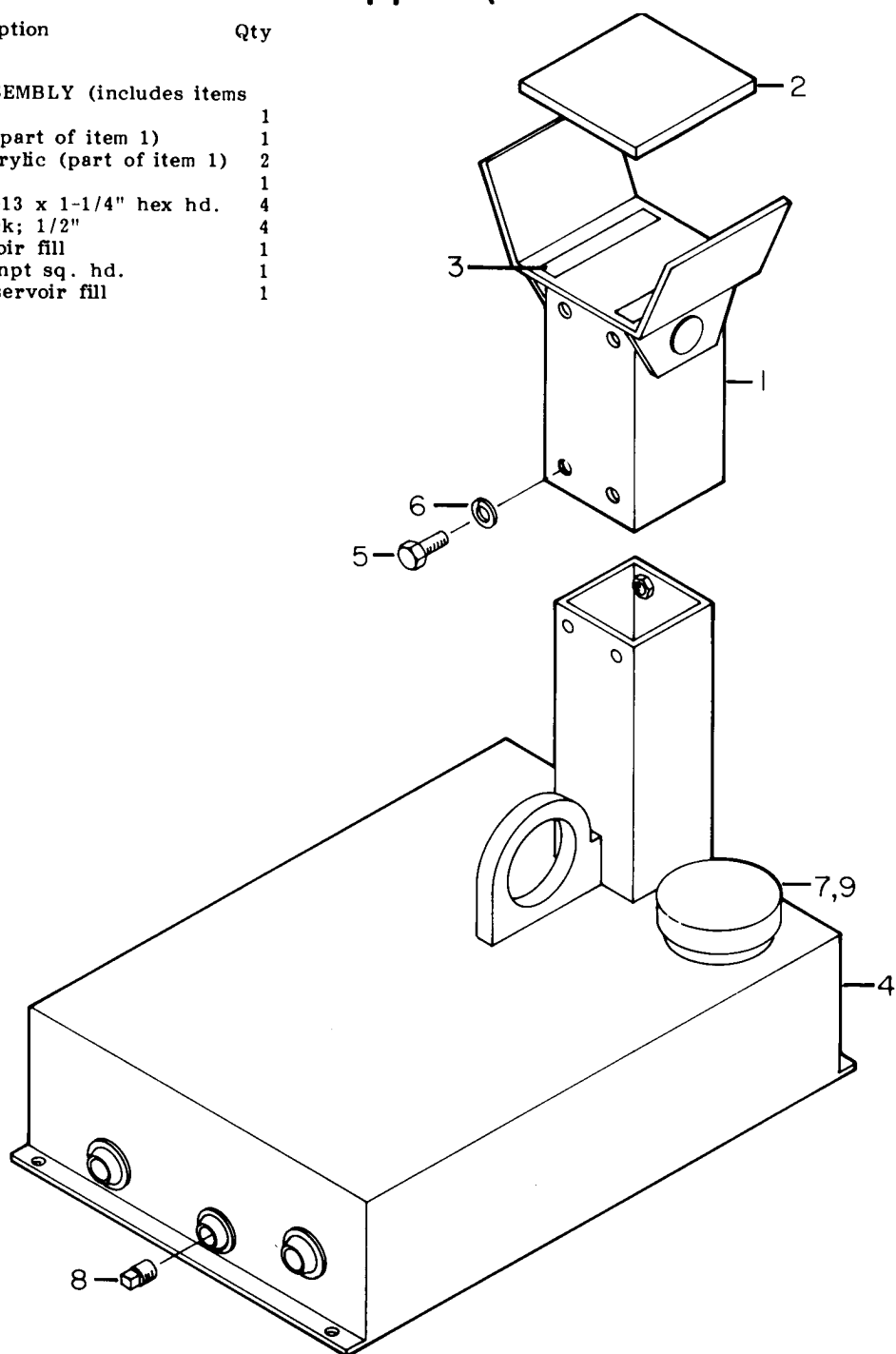
Figure D-17. Installation Kit (Part Number 93703439)



[CLICK HERE TO SEE PARTS LIST](#)

Figure D-18. Reservoir and Boom Support (Part Number 51705060)

Item No.	Part No.	Description	Qty
1.	51706150	SADDLE ASSEMBLY (includes items 2 and 3)	1
2.	60030162	PAD, wear (part of item 1)	1
3.	70086054	TAPE; 1" acrylic (part of item 1)	2
4.	52704207	RESERVOIR	1
5.	72060092	SCREW; 1/2-13 x 1-1/4" hex hd.	4
6.	72063053	WASHER, lock; 1/2"	4
7.	73014671	CAP, reservoir fill	1
8.	73052001	PLUG, 3/4" npt sq. hd.	1
9.	73141276	SCREEN, reservoir fill	1



**Figure D-19. Throttle Control: 18—foot (Part Number 31702746)
and 30—foot (Part Number 31702747)**

Item No.	Part No.	Description	Qty
1.	60105400	BRACKET, mounting	1
2.	70058067	THROTTLE CONTROL; 18-foot	1
	70058068	THROTTLE CONTROL; 30-foot	1
3.	70058889	KIT, hub	1
4.	72060962	SCREW, self-tap; 5/16-18 x 1"	2
5.	72066377	STOP, cable	1

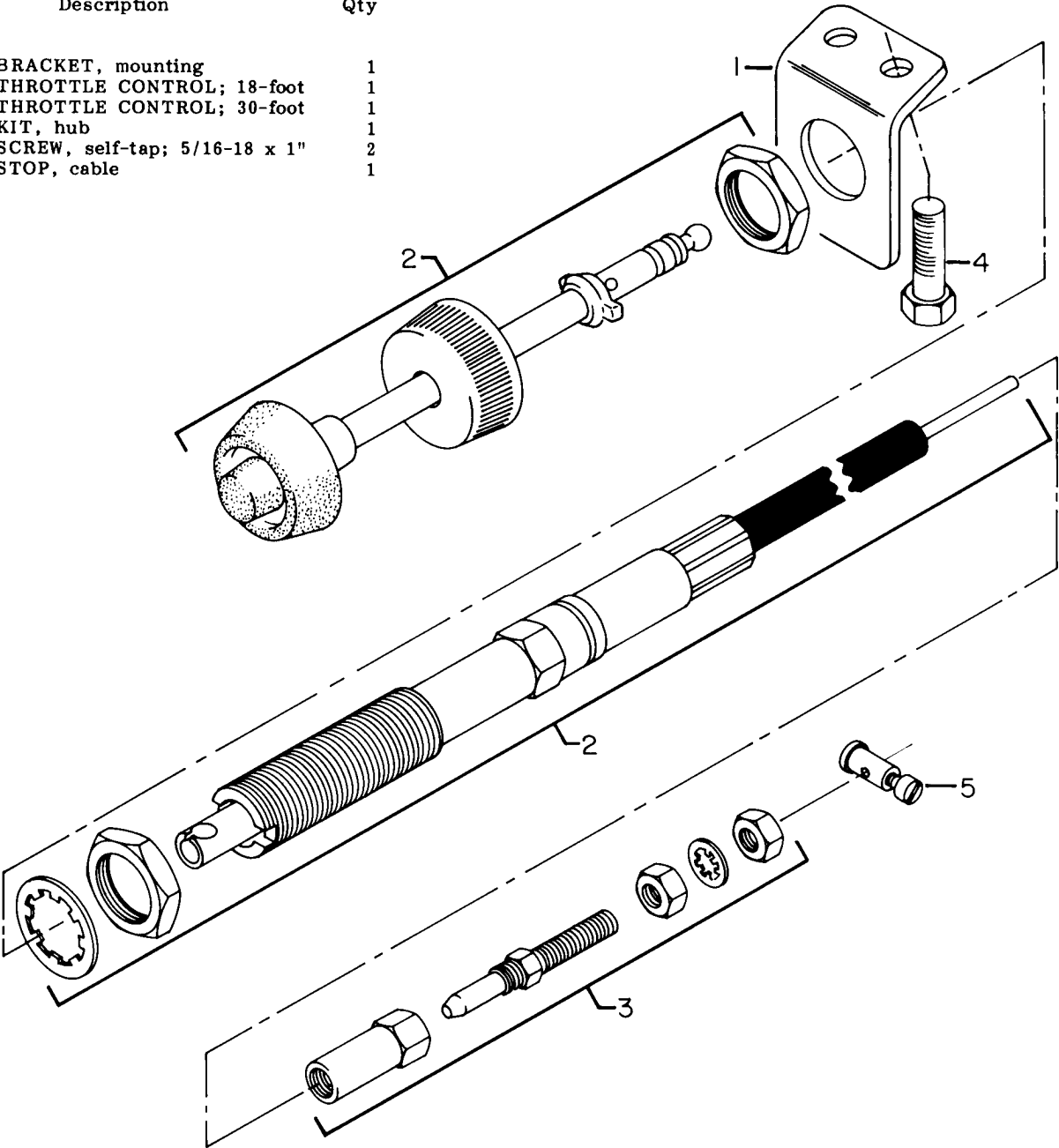


Figure D-20. Manual Outriggers (Part Number 31703350)

Item No.	Part No.	Description	Qty
1.	52070138	PIN, "T"	1
2.	52703334	TUBE	1
3.	52703351	ARM	1
4.	52703352	HOUSING, stationary	1
5.	52703353	LEG, outrigger	2
6.	60010351	SPRING	1
7.	71731361	PIN, quick-release	2
8.	72060105	SCREW; 1/2-13 x 7" hex hd.	1
9.	72062080	NUT, lock; 1/2-13	1
10.	72063007	WASHER, wrt.; 5/8"	1
11.	72066185	PIN, cotter; 1/16" x 1"	1

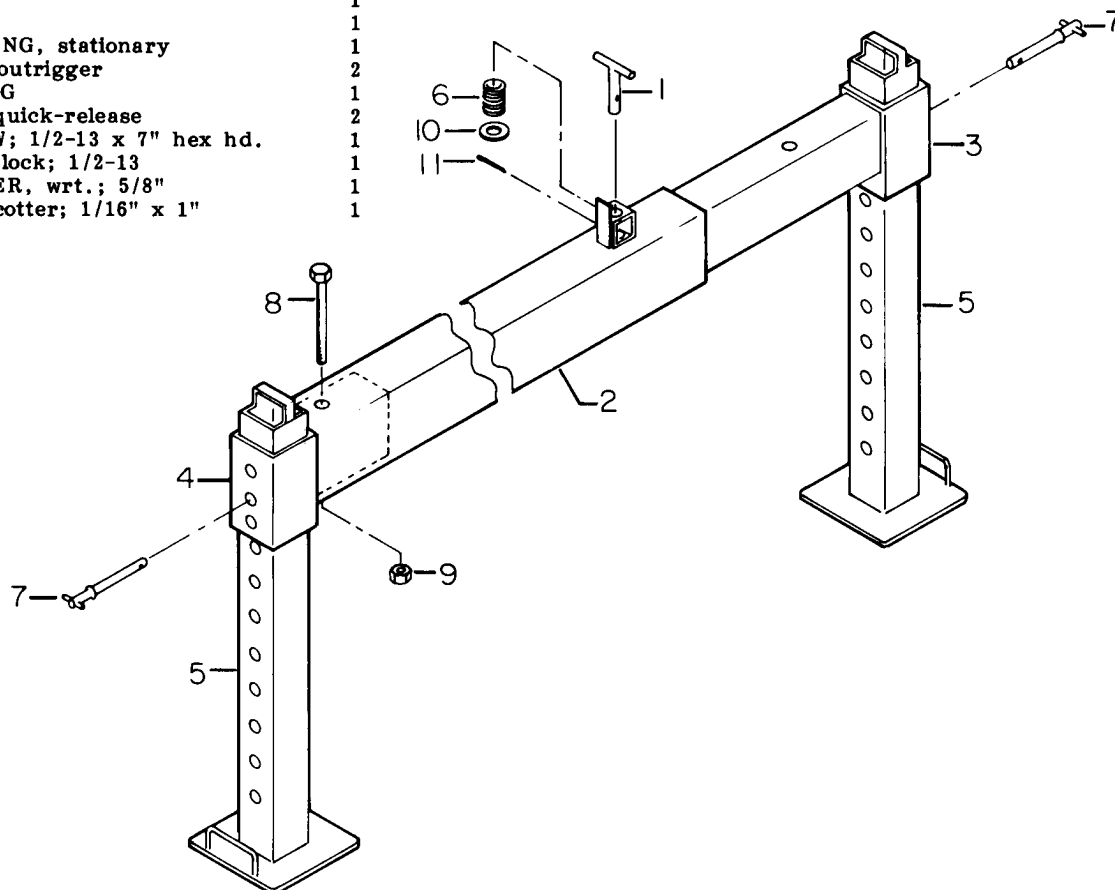


Figure D-21. Power-Down Outriggers (Part Number 31705724)

Item No.	Part No.	Description	Qty	Item No.	Part No.	Description	Qty
1.	3B061850	CYLINDER, power-down	2	17.	72060155	SCREW; 5/8-11 x 3-1/2" hex hd.	6
2.	51703596	HOSE; 1/4" ID x 120" lg.	2	18.	72062080	NUT, lock; 1/2-13	1
3.	51705191	HOSE; 1/4" ID x 96" lg.	2	19.	72062102	NUT, lock; 5/8-11	6
4.	51705377	HOSE; 3/8" ID x 48" lg.	1	20.	72062109	NUT, lock; 5/16-18	1
5.	51705739	VALVE BANK; 2-section	1	21.	72063002	WASHER, wrt.; 5/16"	1
6.	52070138	PIN, "T"	1	22.	72063007	WASHER, wrt.; 5/8"	1
7.	52705725	ARM, adjustable	1	23.	72066185	PIN, cotter	1
8.	52705726	ARM, stationary	1	24.	72066336	PIN, cotter	2
9.	52705738	HOUSING	1	25.	72066337	PIN	2
10.	60010351	SPRING	1	26.	72532357	ADAPTER; 9/16-18 str. thd.(m) x 3/4-16 JIC(m)	1
11.	60106322	ELBOW, pressure gauge	1	27.	72532366	ADAPTER; 1-1/16" str. thd.(m) x 1-1/16" JIC(m)	1
12.	71058003	LINK, connecting	2	28.	72532666	ELBOW, extra-long 90°; 3/4-16 str. thd.(m) x 3/4-16 JIC(m)	2
13.	72053758	ELBOW, 90°; 7/16-20 str. thd.(m) x 7/16-20 JIC(m)	4	29.	72532665	ADAPTER; 7/16-20 JIC(m) x 3/4-16 JIC(f)	4
14.	72053763	ELBOW, 90°; 3/4-16 str. thd.(m) x 3/4-16 JIC(m)	3	30.	73014848	HANDLE, control valve	2
15.	72060026	SCREW; 5/16-18 x 1-1/4" hex hd.	1				
16.	72060105	SCREW; 1/2-13 x 7" hex hd.	1				

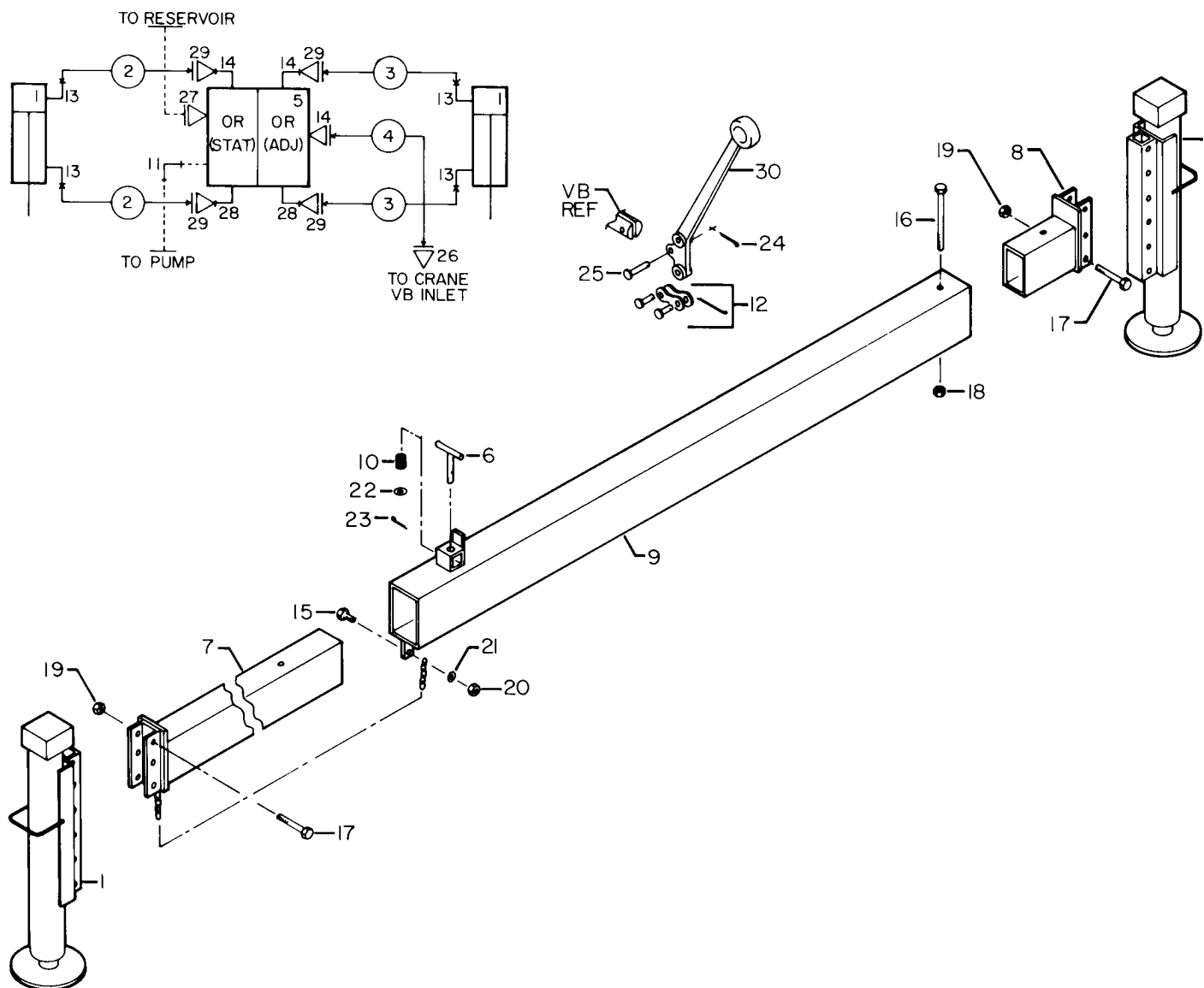
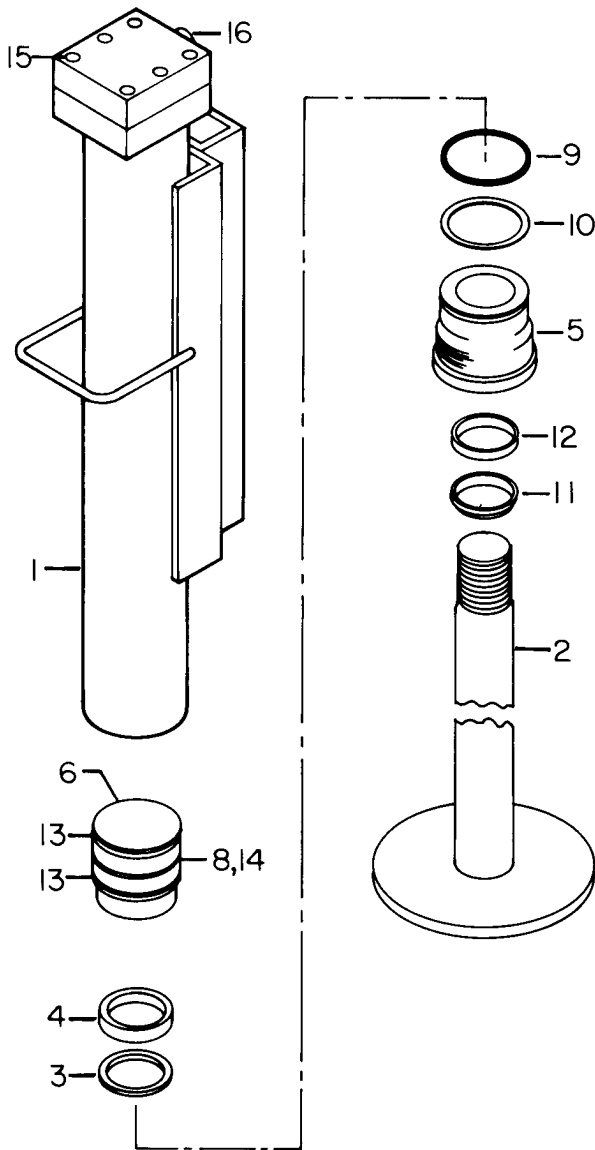


Figure D-22. Power-Down Outrigger Cylinder (Part Number 3B061850)



Item No.	Part No.	Description	Qty
1.	4B061850	CASE, cylinder	1
2.	4H061850	ROD, cylinder	1
3.	6A025020	* RING, wafer-lock	1
4.	6C075020	TUBE, stop	1
5.	6H030020	HEAD	1
6.	6IX06185	PISTON	1
7.	7PNPXT02	PLUG; 1/8" npt (not shown)	4
8.	7Q072145	* O-RING	1
9.	7Q072334	* O-RING	1
10.	7Q10P334	* RING, back-up	1
11.	7R14P020	* WIPER, rod	1
12.	7R546020	* SEAL, rod	1
13.	7T65I030	* RING, piston	2
14.	7T66P030	* SEAL, piston	1
15.	72060708	SCREW; 1/4-20 x 1-1/4" shcs	6
16.	73054004	VALVE, locking holding	1

* Part of seal kit (Part Number 9X061850)

NOTE

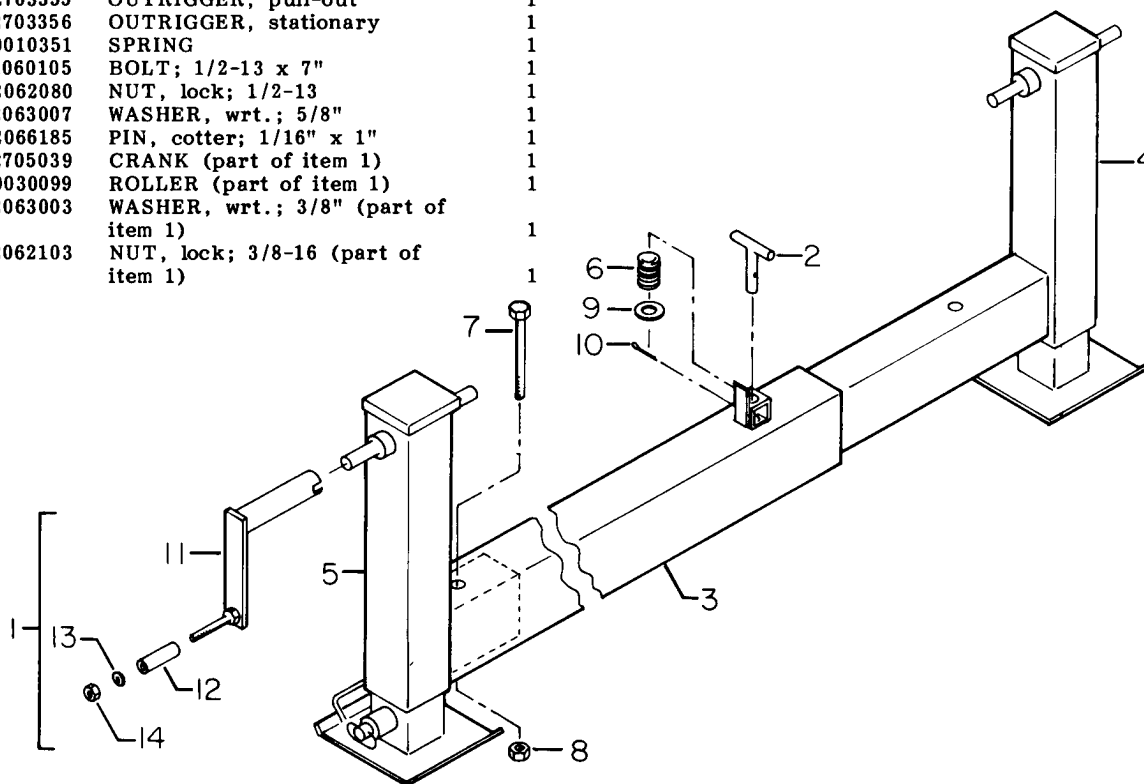
Whenever the cylinder is disassembled, we strongly recommend replacing all of the components found in the seal kit. This may save expensive down-time in the near future. In addition, use NEVER-SEEZ between the head and case when assembling the cylinder.

DIMENSIONS

Bore	3"
Stroke	18"
C - C Closed	26-3/8"
Rod Diameter	2"

Figure D-23. Crank-Down Outriggers (Part Number 31703354)

Item No.	Part No.	Description	Qty
1.	51705040	CRANK ASSEMBLY (includes items 11 thru 14)	1
2.	52070138	PIN, "T"	1
3.	52703334	TUBE	1
4.	52703355	OUTRIGGER, pull-out	1
5.	52703356	OUTRIGGER, stationary	1
6.	60010351	SPRING	1
7.	72060105	BOLT; 1/2-13 x 7"	1
8.	72062080	NUT, lock; 1/2-13	1
9.	72063007	WASHER, wrt.; 5/8"	1
10.	72066185	PIN, cotter; 1/16" x 1"	1
11.	52705039	CRANK (part of item 1)	1
12.	60030099	ROLLER (part of item 1)	1
13.	72063003	WASHER, wrt.; 3/8" (part of item 1)	1
14.	72062103	NUT, lock; 3/8-16 (part of item 1)	1



VALVEBANK (73073772)

ITEM	PART NO.	DESCRIPTION	QTY
1.	73054077	VALVE SECTION (INCL:2-14)	4
2.	73014950	NUT	1REF
3.	77041016	COIL 12VDC (WAS 77040028)	2REF
4.	73014958	TUBE	2REF
5.	7Q072113	O-RING	2REF
6.	7Q072008	O-RING	2REF
7.	73014957	BUTTON	2REF
8.	73014956	PLUNGER	2REF
9.	73014954	PIN	2REF
10.	73014955	PLUG	2REF
REF	94014962	OUTER TUBE ASM (INCL 4-10)	REF
11.	73014953	SPRING	2REF
12.	73014952	SPRING RETAINER	2REF
13.	PART OF 73054077	SPOOL & BODY (MATCHED SET)	1REF
14.	7Q072012	O-RING	5REF
15.	73014948	INLET W/RELIEF (INCL:16-22)	1
16.		RELIEF VALVE ADJ CAP	1REF
17.		O-RING	1REF
18.		JAM NUT	1REF
19.		O-RING	1REF
20.		ADJ ROD	1REF
21.		SPRING	1REF
22.		NEEDLE	1REF
23.	73014960	TIE ROD	3
24.	72063002	WASHER 5/16	6
25.	72062001	NUT 5/16-18	6
26.	73014959	MTG BRACKET	2

NOTE

ITEMS 2-12 INDICATE QTY PER VALVE SECTION.
ITEMS 16-22 ARE NOT AVAILABLE SEPARATELY.

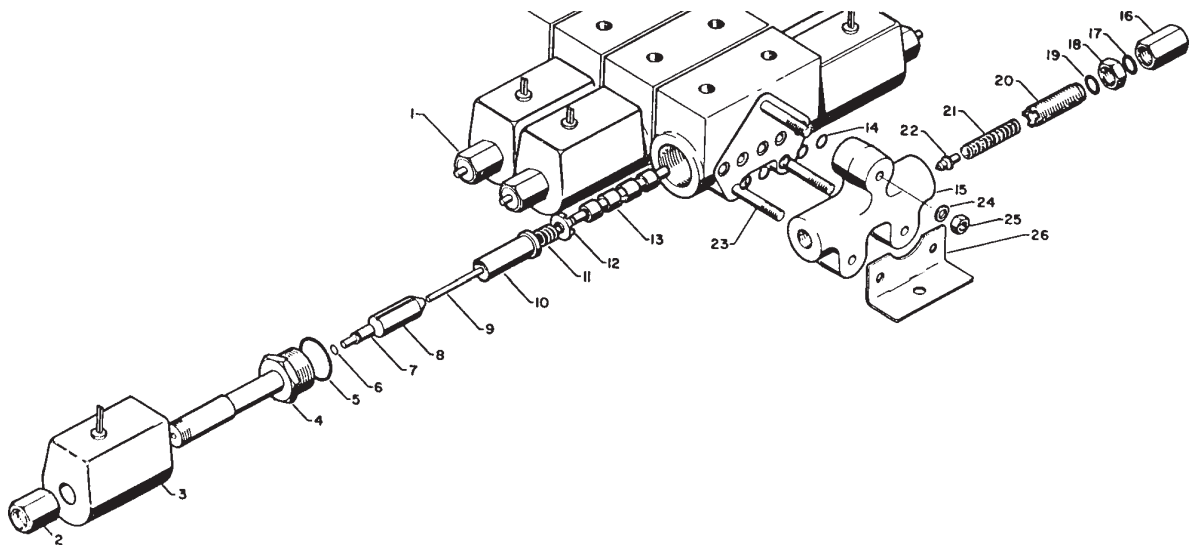


Figure D-25. Control Kit (Part Number 90705265)

Item No.	Part No.	Description	Qty	Item No.	Part No.	Description	Qty
1.	51704539	CABLE; 18 ga./12 wire x 36"	1	17.	77040130	BAR, jumper	1
2.	51704784	CABLE; #1 wire x 6" lg.	1	18.	77041003	SOLENOID, 12 VDC/4-pole	1
3.	51704795	HANDLE, control	1	19.	77041258	SWITCH, pressure	1
4.	51705244	CABLE; 14 ga./2 wire x 36"	1	20.	77041251	RELAY	2
5.	60025221	MANIFOLD, capacity alert	1	21.	--	EXISTING WIRE ON TRUCK	Ref.
6.	60045019	CABLE; 16 ga./4 wire x 300"	1	22.	7Q072015	O-RING	1
7.	--	NOT USED	--	23.	--	NOT USED	--
8.	77044309	TERMINAL STRIP; 13-contact	1	24.	70392352	DECAL, electrocution hazard (not shown)	1
9.	60105825	BRACKET, terminal strip	1	25.	--	SWITCH, toggle, SPDT	Ref.
10.	70034060	TIE, plastic	4	26.	--	SWITCH, toggle, SPDT	Ref.
11.	72060002	SCREW; 1/4-20 x 3/4" hex hd.	2	27.	--	SWITCH, push-button	Ref.
12.	72060731	SCREW; 5/16-18 x 3/4" shcs	4	28.	--	PLUG, 6-contact	Ref.
13.	72061009	SCREW; #6 x 3/4" sheet metal	2	29.	--	CONTACT, socket	Ref.
14.	72066525	CLAMP, hose; 3/4"	1	30.	--	RECEPTICAL, 6-contact	Ref.
15.	72532140	PLUG, 9/16-18 str. thd.	1	31.	--	CONTACT, pin	Ref.
16.	77040051	TERMINAL, spade	1				

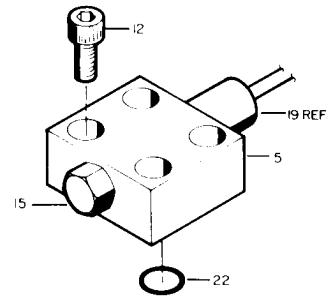
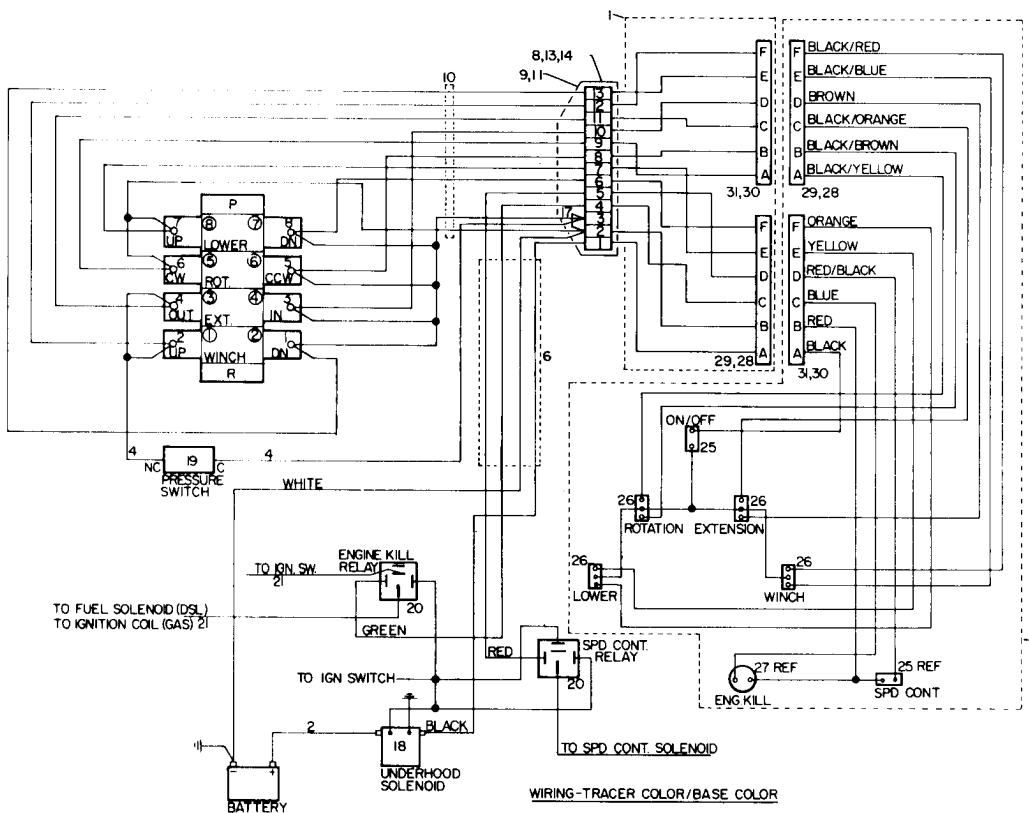


Figure D-26. Control Handle (Part Number 51704795)

Item No.	Part No.	Description	Qty	Item No.	Part No.	Description	Qty
1.	60025137	HANDLE, remote control	1	11.	77040051	TERMINAL	19
2.	60025238	PLATE, remote control handle	1	12.	77041004	SWITCH, toggle, SPST	2
3.	60045046	CABLE; 18 ga./12 wire x 25 ft.	1	13.	77041006	SWITCH, toggle, SPDT	4
4.	89044214	WIRE; 18 ga. x 19-1/2"	1	14.	77041023	SWITCH, push-button	1
5.	70029474	DECAL, control	1	15.	77044096	CABLE, grip	1
6.	70392351	DECAL, small electrocution (not shown)	1	16.	77044204	PLUG; 6-wire	1
7.	--	NOT USED	-	17.	77044205	RECEPTACLE; 6-wire	1
8.	72061000	SCREW; #6 x 1/2" sheet metal	6	18.	77044206	PIN	6
9.	72066340	RIVET; 1/8" (not shown)	2	19.	77044207	SOCKET	6
10.	72532833	BUSHING, reducer; 3/4" npt(m) x 1/2" npt(f)	1	20.	70029119	PLACARD, identification (not shown)	1

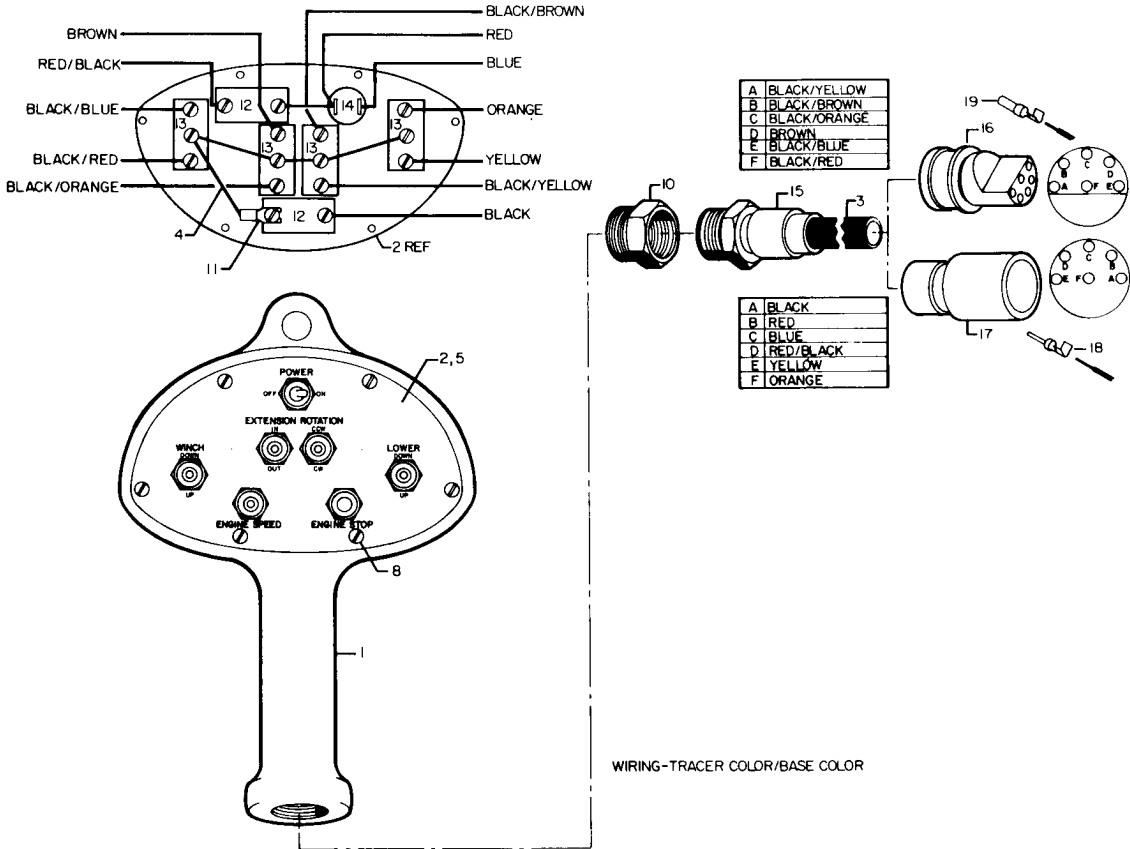


Figure D-27. Winch (Part Number 70057028)

Item No.	Part No.	Description	Qty	Item No.	Part No.	Description	Qty
1.	70142224	HOUSING	1	35.	70142235	DRIVER (part of item 34)	1
2.	70056257	GEAR, worm	1	36.	70142236	RACE (part of item 34)	1
3.	70143071	BRACKET (part of item 14)	2	37.	70142237	SPRING (part of item 34)	4
4.	71014644	RING, thrust	2	38.	70142238	PLUNGER (part of item 34)	4
5.	76039191	GASKET, bearing container	*	39.	70142239	RING, retainer (part of item 34)	2
6.	76039192	GASKET, bearing container	*	40.	70142240	ROLLER (part of item 34)	4
7.	76391592	GASKET, safety brake	1	41.	72066796	RING, snap (part of item 34)	2
8.	76039189	GASKET, cover	2	45.	70055017	CONE, bearing	2
9.	76039190	GASKET, cover	1	46.	70055020	CUP, bearing	2
10.	76039295	GASKET	1	49.	70024233	BUSHING	1
12.	70142225	HOUSING, safety brake	1	50.	70024234	BUSHING	1
13.	70056258	WORM	1	53.	70142241	SEAL	1
14.	70142226	COVER	1	56.	7Q072022	O-RING	1
15.	70142227	RETAINER, bearing	1	57.	7Q072266	O-RING	1
16.	70142228	SPACER	1	60.	72661124	PLUG, expansion	1
17.	70142229	CONTAINER, bearing	1	61.	70142242	VENT; 1/8" npt	1
18.	70142230	SHAFT, cable drum	1	62.	72053244	PLUG; 1/8" npt	1
19.	72601134	SCREW; 7/16-14 x 1-1/2"	4	63.	72053393	PLUG; 3/8" npt	2
23.	71014833	PLATE, pressure	1	64.	72053394	PLUG; 1/2" npt	1
24.	71014836	NUT, worm brake adjustment	1	68.	72066283	KEY	1
25.	76039293	GASKET	1	69.	71014645	KEY	6
26.	76039296	DISC, friction	2	72.	72060062	SCREW; 7/16-14 x 1" hex hd.	4
27.	71014835	SPRING (includes items 28 thru 33)	1	75.	72601133	SCREW; 7/16-14 x 1"	6
28.	70142231	SPRING, main (part of item 27)	1	79.	72601133	SCREW; 7/16-14 x 1"	4
29.	70142232	SPRING, sec. (part of item 27)	1	86.	72063052	WASHER, lock; 7/16"	4
30.	70142233	STUD (part of item 27)	1	88.	72053113	WASHER, lock, shakeproof; 7/16"	8
31.	70142234	CLIP (part of item 27)	2				
32.	72062039	NUT, jam; 1/2-20 (part of item 27)	1				
33.	72063112	WASHER, lock (part of item 27)	1				
34.	71014837	ROTOR (includes items 35 thru 41)	1				

* Use quantities as necessary to permit free rotation without excessive play.

