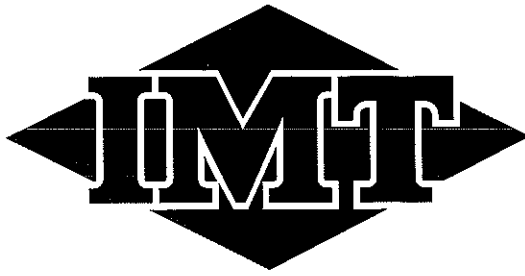


MANUAL CHANGE NOTICE

The following revisions have been made to the listed IMT product manuals.
Please revise your manuals to agree with these revisions.

PRODUCT	DATE	FIGURE	PAGE	CHANGE
1295	08-29-95	D-49	4-46	REVISED DISCONNECTS (ECO 7062)
1295	09-21-95	D-53	4-50	ADDED 15. 70394141 DECAL (2) AND DETAIL (ECO 7044)
		D-58	4-55	51704031(126") WAS 51704309(98"), 51703601(90") WAS 51704308(110")
1295	09-22-95	D-60	4-58	ADD CONTROL KIT-RADIO RMT HARDWARE 90713139 (ECO 7044)
		D-61	4-60	ADD CABLE ASM-JIC BOX RADIO RMT 51713047
		LOI		ADD D-60 & D-61
1295	10-03-95	D-23	4-23	ALL HOSES AND HOSE KITS CHANGED (ECO 7027)
1295	10-16-95	D-35	4-34	CHG ITEM 27 FROM: 60035819 HOSE 3/4X60 TO:89393634 HOSE 3/4 100R4 X72" (7093)
1295	12-14-95	LOI		CHG TO AGREE - VOAC CONTROLS CHGS (ECO 7092)
		D-58	4-55	CHG ALL HOSE PART NOS & CHG DWG
		D-59	4-56	CHG BOM-EXTENSIVE-CHG DWG
		D-59A	4-57	CHG DWG
		D-59B	4-58	ENTIRE PAGE CHGS (VB 73732995)
		D-60	4-59	ENTIRE PG CHGS (90713139)
		D-60A	4-60	ENTIRE PG CHGS (90713139)
		D-61	4-61	ENTIRE PG CHGS (51713047)
		D-62	4-62	NEW PAGE (VB 73733083)
		D-62A	4-63	NEW PAGE (VB 73733083)
		D-63	4-64	NEW PAGE (VB ASM 51713211)
		D-63A	4-65	NEW PAGE (VB ASM 51713211)
		D-64	4-66	NEW PAGE (CABLE ASM 51713200)
1295	01-11-96	D-60A	4-60	CHG ITEM 1 FROM: 51713047 TO:51713048 (ECO 7158)
				CHG ITEM 2 FROM: 51713048 TO:51713047
1295	02-06-96	D-4	4-3	CHG ITEM 54 FROM: 73054470 TO: 73054538 CBAL VALVE
		D-5	4-5	CHG ITEM 54 FROM: 73054470 TO: 73054538 CBAL VALVE
		D-5B	4-6A	CHG ITEM 55 FROM: 73054470 TO: 73054538 CBAL VALVE
		SPL	5-5	CHG 73054470 TO: 73054538
1295	04-22-96	D-8	4-9	DELETE ITEM 7 60106332 PIN RETAINER 4"
				CHG QTY 6 60106331 FROM: 3 TO: 7
1295	04-24-96	D-5	4-5	ADD: TTGB BACKLASH NOTE
		D-5B	4-6A	ADD: TTGB BACKLASH NOTE
1295	04-30-96	D-61	4-61	CHG BOM & DWG OF 51713047
1295	05-22-96	D-4	4-3	ADD 67-71, CTRL HANDLE GUARDS & HARDWARE
		D-4A	4-4	CHG DWG
		D-5	4-5	ADD 62-66, CTRL HANDLE GUARDS & HARDWARE
		D-5A	4-6	CHG DWG
		D-37	4-36	ADD 29. 70394190 DECAL (2), CHG DWG
		D-38	4-37	ADD 28. 70394190 DECAL (2)
1295	05-29-96	D-32	4-31	ADD ITEM 4. 72532675 CAP (2) & CHG DWG
1295	06-21-96	D-33A	4-32	ADD 14. 73054400 RELIEF 1 TO 51711324 VB ASM
1295	07-23-96			ADD PG 4-67, 68 & 69 (90713554, 51713429 & 51713568)
1295	07-31-96		4-40	CHG ITEM 5 FROM: 73054877 TO: 73054426 & ITEM 12 FROM: 72532360 TO: 72532358
1295	08-09-96	D-59	4-56	ADD VB DECAL KIT
1295	08-13-96		4-69	ADD ITEM 23. 77044667 PLUG-CAP (1)
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			4-69	51713568-CHG DWG & BOM
1295	10-14-96		4-6B	31712993-CHG BOM & DWG
			4-55	91712984-CHG BOM & DWG
			4-56	51712977-CHG BOM & DWG
			4-57	73732995-CHG DWG
			4-58	73732995-CHG DWG
			4-59	90713139-CHG DWG
			4-60	90713139-CHG DWG
			4-61	51713047-CHG BOM & DWG
			4-70	ADD: 51713048 CABLE ASM
			4-71	ADD: 51712882 CABLE ASM
1295	10-15-96		4-68	51713429-CHG CABLE FROM 30' TO 45'
1295	10-22-96	D-8	4-9	41712042-CHG INNER CYL FROM: 3B223850 TO 3B009960
		D-9	4-10	REPLACE 3B223850 WITH 3B009960
		D-10	4-11	41712065-CHG OUTER CYL FROM 3C224850 TO 3C010960
		D-11	4-12	REPLACE 3C224850 WITH 3C010960
		SPL	5-5	CHG TO AGREE
1295	10-23-96		4-68	51713429-CHG POT ASM PN



Volume 2
Parts and Specifications
Model 1295 Crane

IOWA MOLD TOOLING CO., INC.

BOX 189, GARNER, IA 50438-0189
515-923-3711

PRODUCT SUPPORT FAX: 515-923-2424

MANUAL PART NUMBER 99900707
LAST REVISED: 10-23-96

INTRODUCTION

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

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 B30.5A-1984
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 VERY 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.

Read and familiarize yourself with the IMT OPERATOR'S CRANE SAFETY MANUAL before operating or performing any maintenance on your crane.

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Section 1. MODEL 1295 SPECIFICATIONS

1-1. GENERAL	1295 - 1H	1295 - 2H	1295 - 2H1M 1295 - 3H	1295 - 3H1M
CRANE RATING	12.6 ton-meters	12.5 ton-meters	12.3 ton-meters	12.1 ton-meters
HORIZONTAL REACH from centerline of rotation	5.99m	7.80m	9.53m	11.15m
HYDRAULIC EXTENSION				
1-STAGE HYDRAULIC (1H)	163cm	None	None	None
2-STAGE HYDRAULIC (2H)	None	163cm x 2	163cm x 2	163cm x 2
3-STAGE HYDRAULIC (3H)	None	None	163cm x 3	163cm x 3
MANUAL EXTENSION				
2-STAGE HYDRAULIC (2H)	None	None	163cm	163cm x 2
3-STAGE HYDRAULIC (3H)	None	None	None	163cm
VERTICAL REACH from mounting surface	8.11m	9.79m	11.40m	12.97m
VERTICAL REACH from ground / 97cm frame ht.	9.08m	10.76m	12.37m	13.94m
**BASE CRANE WEIGHT	1565 kg	1695 kg	1755 kg (2H1M) 1815 kg (3H)	1845 kg (3H1M)
OUTRIGGER SPAN	3.73m	3.73m	3.73m	3.73m
OUTRIGGER PADS	30 x 30cm	30 x 30cm	30 x 30cm	30 x 30cm
CRANE STORAGE HEIGHT from mounting surface	2.44m	2.44m	2.44m	2.44m
CRANE STORAGE HEIGHT from ground / 97cm frame ht.	3.41m	3.41m	3.41m	3.41m
*MOUNTING SPACE REQUIRED	76cm	76cm	76cm	76cm
ROTATIONAL TORQUE	1750 kg-m	1750 kg-m	1750 kg-m	1750 kg-m
OPTIMUM PUMP CAPACITY	42 liters/min	42 liters/min	42 liters/min	42 liters/min
SYSTEM OPERATING PRESSURE	194 bar	194 bar	194 bar	194 bar
OIL RESERVOIR CAPACITY	76 liters	76 liters	76 liters	76 liters
***VERTICAL CENTER OF GRAVITY from mounting surface	69cm	70cm	70cm	71cm
***HORIZONTAL CENTER OF GRAVITY from centerline of rotation	1.9cm	1.3cm	0.9cm	0.6cm
HOOK APPROACH - HORIZONTAL from centerline of rotation	79cm	79cm	91cm	91cm
HOOK APPROACH - VERTICAL from mounting surface	2.24m	2.24m	2.13m	2.13m
DESIGN FACTOR - pins & hydraulics	4/1	4/1	4/1	4/1

* Allow an additional 13cm between the cab and crane base for swing clearance.

** Without outriggers, hydraulic oil reservoir and mounting accessories.

*** Crane in stowed position.

1-2. PERFORMANCE CHARACTERISTICS

ROTATION:	450°/7.85 rad	30 seconds
INNER BOOM ELEVATION:	-.91 to +1.31 rad	24 seconds
OUTER BOOM ARTICULATION:	2.43 rad	23 seconds
TELESCOPIC EXTENSIONS (3H):		
1st Stage	163cm	30 seconds
2nd Stage	163cm	15 seconds
3rd Stage	163cm	8 seconds
TELESCOPIC EXTENSIONS (2H):		
1st Stage	163cm	21 seconds
2nd Stage	163cm	9 seconds
SINGLE STAGE EXTENSION (1H):	163cm	12 seconds
VERTICAL OUTRIGGER STROKE:	61cm	8 seconds
POWER OUT OUTRIGGER (OPTION)	66cm	3 seconds

1-3. POWER SOURCE

Integral-mounted hydraulic pump and PTO application. Other standard power sources may be utilized - minimum power required is 19 horsepower.

1-4. CYLINDER HOLDING VALVES

The holding sides of all standard cylinders are equipped with integral-mounted holding or counter-balance valves to prevent sudden cylinder collapse in case of hose or other hydraulic failure. The outrigger cylinders have positive, pilot-operated holding valves that open only on command.

The inner, outer and extension cylinders have single pilot-operated 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.

1-5. ROTATION SYSTEM

Rotation of the crane is accomplished through a turntable bearing, powered by a high torque hydraulic motor through a ring and pinion type spur gear train. Total gear reduction is 50.7 to 1.

1-6. HYDRAULIC SYSTEM

The hydraulic system is an open centered, full pressure system, requiring 42 liters/min optimum oil flow, at 194 bar. Eight-spool, stack-type control valve, six of which are used for the standard crane and the remaining two are plugged, but easily adapted for additional optional features. Dual operational handles for six functions are located at both sides of crane for convenient operation. System includes hydraulic oil reservoir, suction-line strainer, pump, 8-section control valve, return-line filter and all hoses and fittings.

1-7. SELECTED WEIGHT OF ANCILLARY EQUIPMENT

OUTRIGGERS	206 kg
HYDRAULIC OIL RESERVOIR	27 kg

IMT reserves the right to change specifications and design without notice.

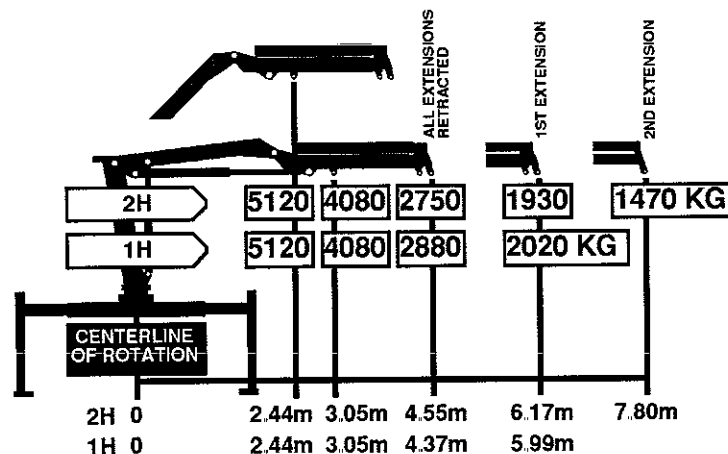
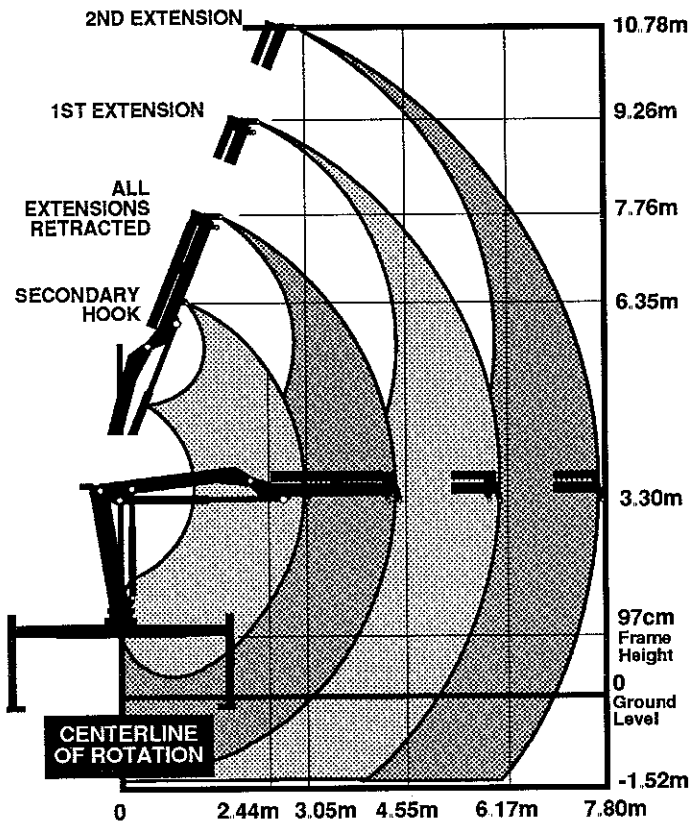
IOWA MOLD TOOLING CO., INC. • BOX 189 • GARNER • IA • 50438 • 515-923-3711

Capacities through geometric range are limited to those shown in horizontal position.



MODEL 1295 1H & 2H

- Loads shown are based on crane structural or hydraulic capability. Before lift is made, stability must be checked per SAE J765A.
- Working loads will be limited to those shown. Deduct the weight of load handling devices.
- Winch lifting capacity is limited to those shown - Maximum 1815 KG for 1-part line.



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Figure A-1. CAPACITY CHART - 1H & 2H

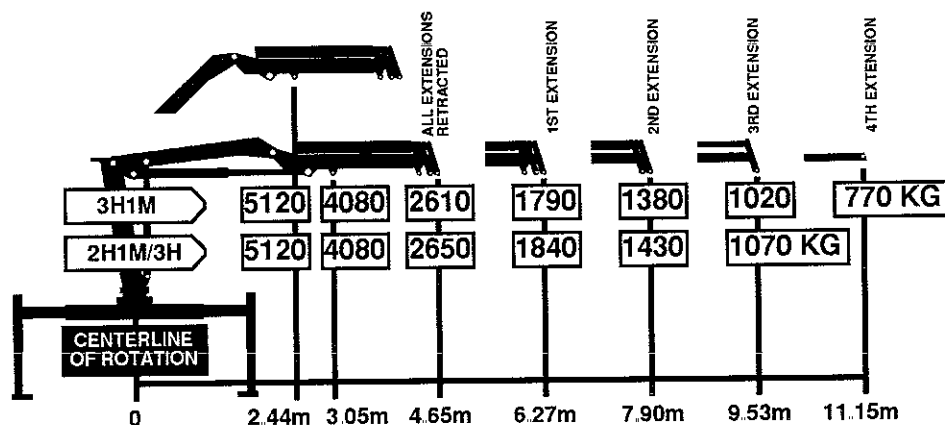
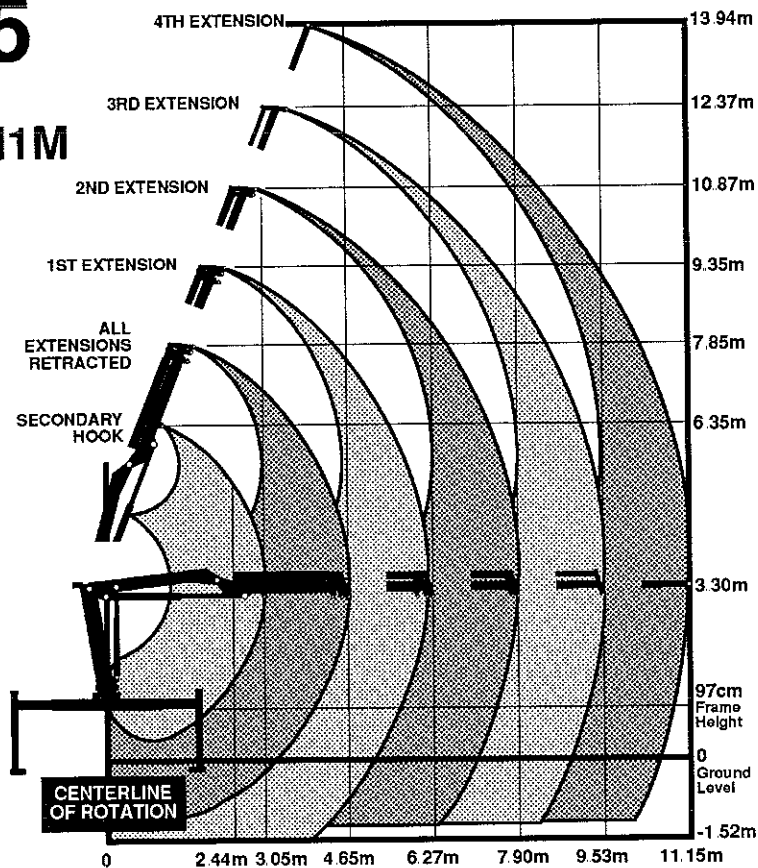
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Capacities through geometric range are limited to those shown in horizontal position.



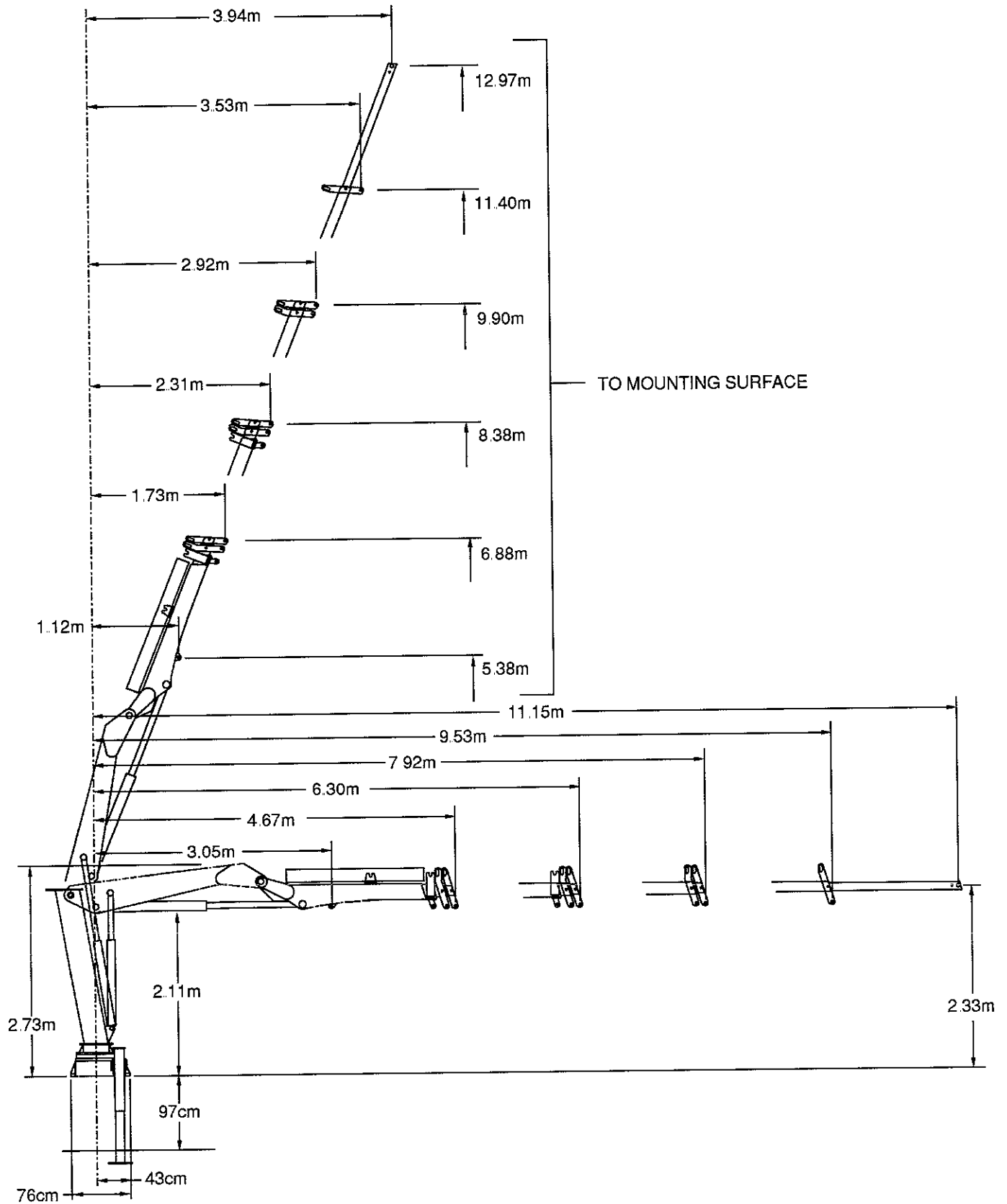
MODEL 1295 2H1M 3H & 3H1M

- Loads shown are based on crane structural or hydraulic capability. Before lift is made, stability must be checked per SAE J765A.
- Working loads will be limited to those shown. Deduct the weight of load handling devices.
- Winch lifting capacity is limited to those shown - Maximum 1815 KG for 1-part line.



71393757

Figure A-2. CAPACITY CHART - 2H1M & 3H - 3H1M

**Figure A-3. GEOMETRIC CONFIGURATION**

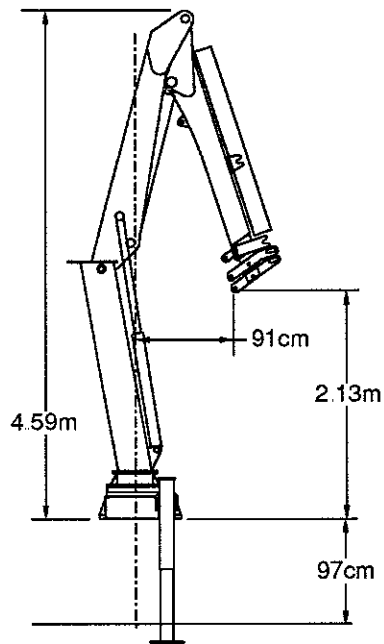


Figure A-4.
HOOK APPROACH

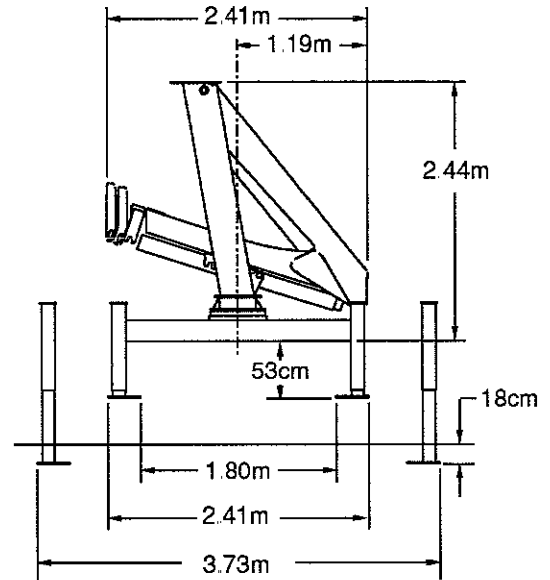


Figure A-5.
STOWED POSITION AND OUTRIGGER DIMENSIONS

Section 2. CRANE DESCRIPTION

2-1. GENERAL

This section describes the major assemblies that are available with this crane. Figure B-1 illustrates the locations of the assemblies.

There are four different models covered in this manual. They are the 1295-1H with one hydraulic extension, the 1295-2H with two hydraulic extensions, the 1295-2H1M/1295-3H with two hydraulic and one manual or three hydraulic extensions, and the 1295-3H1M with three hydraulic and one manual extension. The 1295-2H1M/1295-3H is considered to be the standard crane model with the other models offered as optional cranes. The differences are discussed in paragraph 2-6.

2-2. BASE

The base provides a platform for mounting the crane to a truck. It incorporates the 7.85 Rad. rotation mechanism and outriggers. The outriggers are powered through double acting hydraulic cylinders, and provide stabilization during crane operation.

2-3. MAST

The mast provides the necessary elevation for crane operation as well as a hinge point for the inner boom. The mast consists of two vertical tubes welded to the base to allow the crane to fold into the figure-4 configuration for travel.

2-4. INNER BOOM

The inner boom will swing through a full 2.22 Rad. from -0.91 to +1.31 Rad.. It is raised and lowered through the use of twin double-acting hydraulic cylinders.

2-5. OUTER BOOM

The outer boom will swing through a full 2.43 Rad. The boom is raised and lowered with a single double-acting hydraulic cylinder mounted under the inner and outer hinge point. It also provides storage for the extension booms in the retracted position.

2-6. EXTENSION BOOMS

The differences between the 1295-1H, 1295-2H, 1295-2H1M/1295-3H and 1295-2H2M/1295-3H1M cranes are in the extension booms. The 1295-1H crane uses a one-stage hydraulic extension for an additional 1.63m of reach. The 1295-2H uses a 2-stage hydraulic extension for an additional 1.63m of reach for each stage for a total of 3.25m. The 1295-2H1M uses a 2-stage telescoping hydraulic extension cylinder for an additional 3.25m of reach, plus a 1-stage manual extension for another 1.63m of reach while the 1295-3H uses a three-stage hydraulic extension cylinder providing 1.63m of addition reach for each stage, a total of 4.88m. The 1295-3H1M is identical to the 1295-3H, with the addition of a 1.63m manually operated extension boom.

2-7. CONTROLS

The eight section control valve may be operated from either side of the crane. The crane functions utilize six sections, leaving two sections plugged, but easily adaptable, for additional functions.

2-8. HYDRAULICS

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

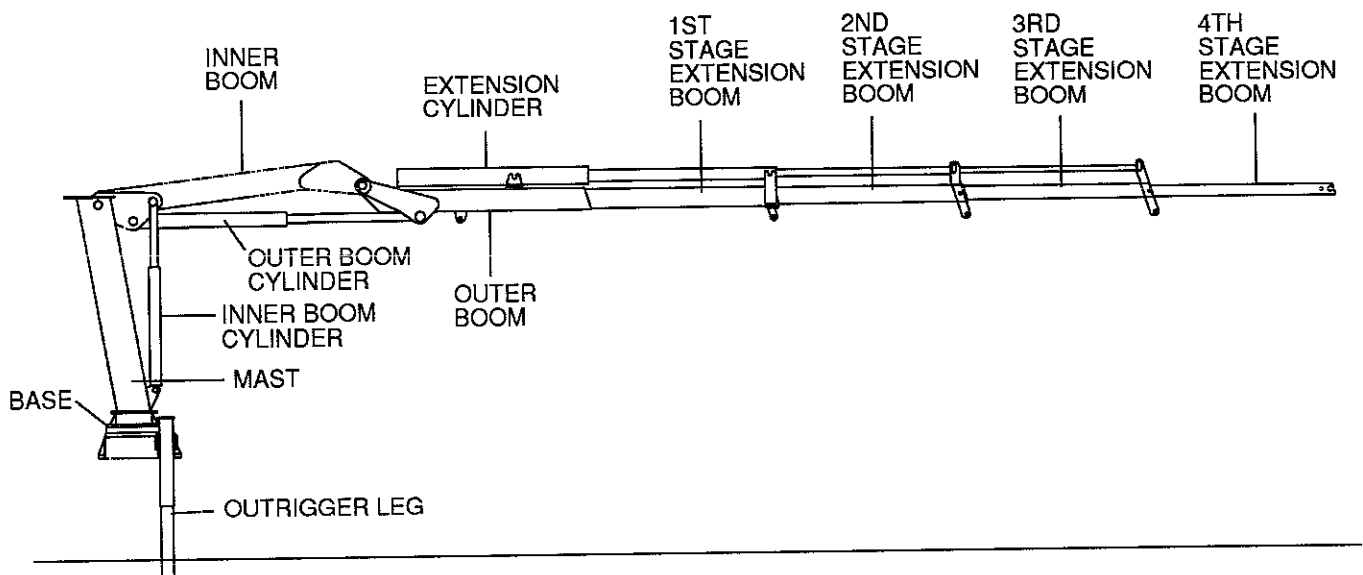


Figure B-1. 1295 CRANE GROUP

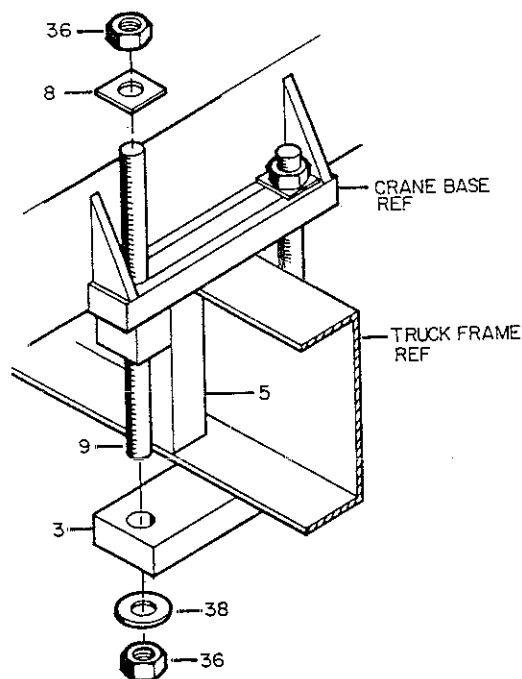
Section 3. INSTALLATION

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 VOLUME 1, Installation).

3-2. CRANE MOUNTING

1. See SPECIFICATIONS in Section 1 for crane weight. Using an overhead hoist and fabric slings of adequate capacity, lift the crane about a foot to see if the crane is adequately balanced. If not, lower hoist and adjust slings. Re-check balance and re-position crane until mounting surface is level.
2. Install the truck frame support so that the tie-down studs pass through the supports (Figure C-1). Cut the support to the inside dimensions of the truck frame. Allow about 1.6mm extra. Grind the end of the support to fit inside the frame channel. Use a hammer to drive it into position if necessary.



ITEM	DESCRIPTION	QTY
3.	CLAMP PLATE	4
5.	FRAME SUPPORT	4
8.	SQUARE WASHER	8
9.	TIE DOWN STUD	8
36.	LOCK NUT	16
38.	WASHER	8

3. Allow sufficient clearance between the cab and crane base, at least 127cm. Position the crane on the chassis per the applicable installation drawing, centering the mounting slots over the truck frame rails. While holding crane with hoist, start mounting hardware per Figure C-1. Note position of support weldments on truck frame. Hand tighten nuts. Observe underside of crane base. No clearance between base and frame is allowed.
4. Torque the 1"-8 UNC Grade 5 mounting hardware to 62 kg-m. When torquing the mounting hardware the following precautions must be followed:

A. Never use lock washers.

B. Hardened washers must be used, and under the turning element, whether the turning element is the nut or the head of the bolt.

C. Torque values specified are with residual oils or without special lubricants applied to the threads. If special lubricants are used, such as Never-Seize compound, graphite and oil, molybdenum disulphite, colloidal copper or white lead, reduce torque values 10%. Torque values for threaded fasteners are not affected with the use of Loctite.

D. Do not use rusty fasteners, the rust will alter torque values significantly.

E. Touch-up paint around mounting anchor plates.

CAUTION

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 62 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.

Figure C-1. CRANE INSTALLATION

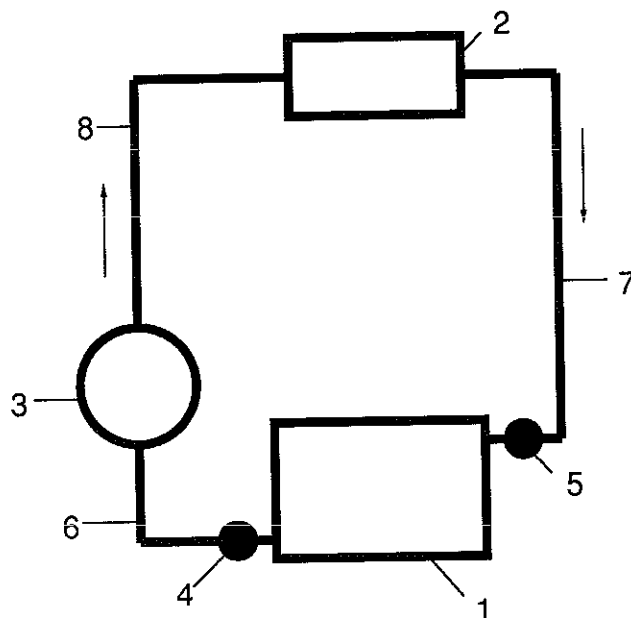
3-3. HYDRAULIC INSTALLATION

To install the hydraulic hoses, fittings, etc.:

1. Install the hydraulic reservoir on the crane base.
2. Plumb the suction-line filter as shown in Figure C-1.
3. Install the suction hose between the suction-line filter and the pump inlet. Tighten the hose clamps.
4. Install the pressure hoses between the pump outlet and the inlet port on the valve bank.
5. Install the return filter and gate valve on the reservoir. Install the hose between the valve bank and return filter.
6. Fill the hydraulic reservoir to the "FULL" mark.
7. Open the gate valve at the suction-line filter.
8. Open the return gate valve.
9. Start the vehicle's engine and engage the PTO. Allow the system to run for about five minutes and then check the vacuum gauge on the suction-line filter (it should read .28kgs/sq cm mercury or less). If the vacuum reading is too high, check to make certain that the gate valve is opened completely. If the valve is fully opened, check for a collapsed or restricted suction line.
10. Cycle all hydraulic functions. Check for leaks, and refill the reservoir if necessary.

CAUTION

FAILURE TO OPEN THE GATE VALVE WILL RESULT IN A DRY RUNNING PUMP WHICH MAY DAMAGE THE PUMP.



ITEM	DESCRIPTION
1.	OIL RESERVOIR
2.	VALVE BANK
3.	PUMP
4.	SUCTION FILTER
5.	RETURN FILTER
6.	SUCTION HOSE
7.	RETURN HOSE
8.	PRESSURE HOSE

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, INJURY OR DEATH.

4-2. CRANE IDENTIFICATION

Every crane has an identification placard (Figure D-1) attached to the mast. 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 addressed to:

Iowa Mold Tooling Company, Inc.
Box 189, Garner, IA 50438-0189
Telephone: 515-923-3711
Product Support Fax: 515-923-2424

or

IMT Cranes Canada, Ltd.
385 West Street South
Orillia, Ontario L3V 5H2 Canada
Telephone: 705-325-7458
Fax: 705-325-7624

MODEL MODELO MODELE	SERIAL NUMBER NUMERO DE SERIE NUMERO DE SERIE
DRAWING NUMBER NUMERO DE PLANO NUMERO DE PLAN	DATE FECHA DE FABRICACION DATE
	
Iowa Mold Tooling Co., Inc. Garner, Iowa U.S.A.	IMT Cranes Canada, Ltd. Orillia, Ontario, Canada

Figure D-1. SERIAL NUMBER PLACARD

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. Part numbers may be cross checked by comparing the stamped identification of the cylinder case (Figure D-2) against the information contained in this manual. You must use the part number stamped on the cylinder case 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.

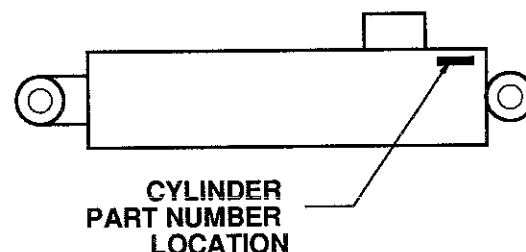


Figure D-2. CYLINDER PART NUMBER LOCATION

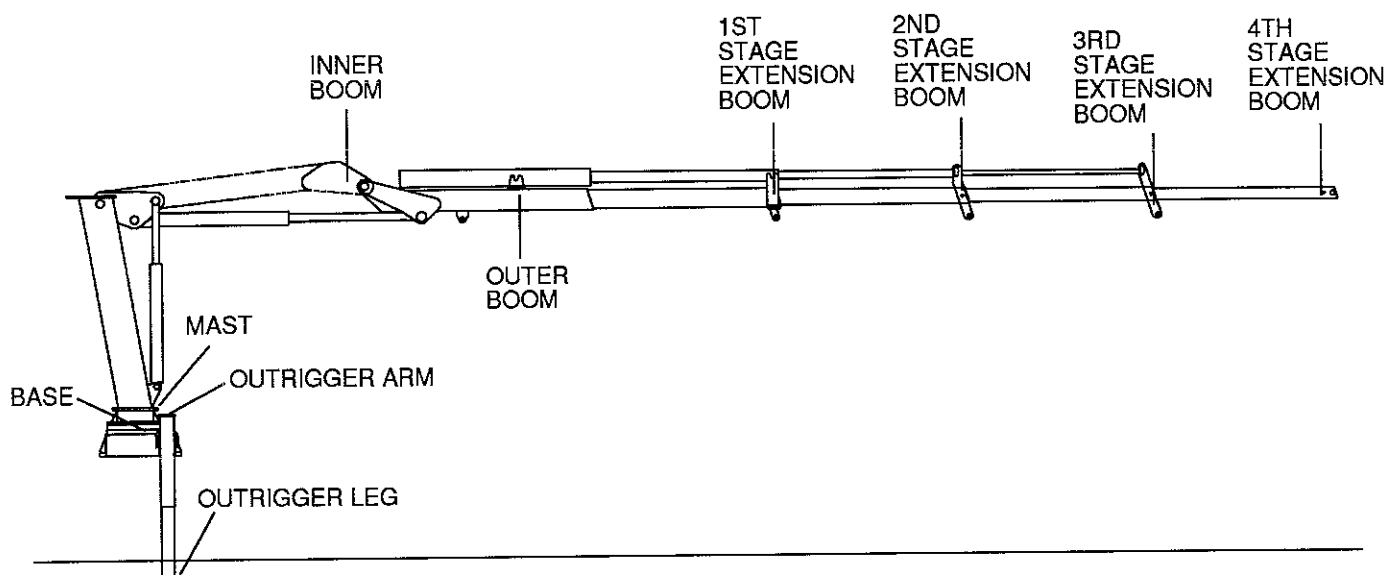


Figure D-3. WELDMENT PART NUMBER LOCATIONS

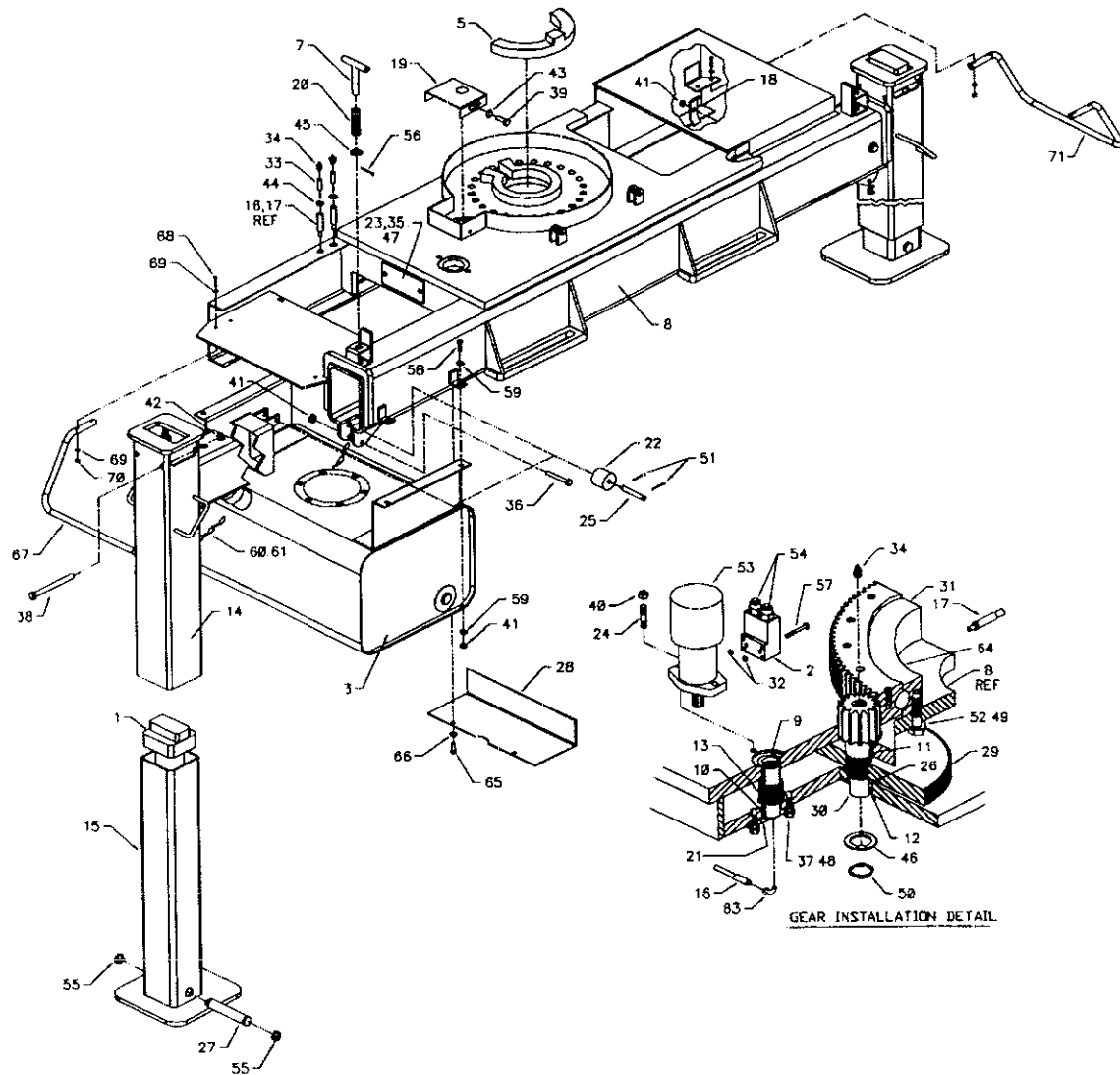
ITEM	PART NO.	DESCRIPTION	QTY
1.	3B221850	OUTRIGGER CYLINDER	2
2.	5V151830	MOTOR BLOCK	1
3.	70732578	RESERVOIR ASM	1
5.	71145016	STOP BLOCK-SLIDING	1
7.	52070138	"T"-PIN	2
8.	52712069	BASE (INCL:9-13)	1
9.	60020115	BUSHING (PART OF 8)	1REF
10.	60020116	BUSHING (PART OF 8)	1REF
11.	60020187	BUSHING (PART OF 8)	1REF
12.	60020188	BUSHING (PART OF 8)	1REF
13.	71056011	DRIVE GEAR (PART OF 8)	1REF
14.	52706167	OUTRIGGER ARM	2
15.	52705871	OUTRIGGER LEG	2
16.	53000703	GREASE EXTENSION 20"	1
17.	53000713	GREASE EXTENSION 38"	1
18.	60107648	HOSE CLAMP	2
19.	60010235	PINION COVER	1
20.	60010351	SPRING	2
21.	60010844	GREASE PLATE	1
22.	60030053	ROLLER	4
23.	60102767	ACCESS COVER	1
24.	60106032	STUD 1/2-13 X 2	2
25.	60106314	PIN	4
26.	60106886	PINION SPACER	1
27.	60106968	PIN	2
28.	60108888	INTERMEDIATE GEAR GUARD	1
29.	71056072	INTERMEDIATE GEAR	1
30.	71056265	PINION GEAR	1
31.	71056361	TURNTABLE BEARING	1
32.	7Q072112	O-RING	2
33.	72053301	COUPLING 1/8NPT	2
34.	72053508	ZERK 1/8NPT	3
35.	72060002	CAP SCR 1/4-20X3/4 HH GR5	2
36.	72060053	CAP SCR 3/8-16X2-3/4 HH GR5	2
37.	72060092	CAP SCR 1/2-13X1-1/4 HH GR5	2
38.	72060102	CAP SCR 1/2-13X5-1/2 HH GR5	4
39.	72060833	SCR 5/16-18X3/4 HH SLFTPG	2
40.	72062080	NUT 1/2-13 LOCK	2
41.	72062103	NUT 3/8-16 LOCK	8
42.	72062107	NUT 1/2-13 CTR LOCK	4
43.	72063002	WASHER 5/16 WRT	2
44.	72063003	WASHER 3/8 WRT	2
45.	72063027	MACH BUSHING 5/8X14GA	2
46.	72063039	MACH BUSHING 2 X 10GA NR	1
47.	72063049	WASHER 1/4 LOCK	2
48.	72063053	WASHER 1/2 LOCK	2
49.	72063116	WASHER 3/4 HARDENED	20
50.	72066095	RETAINING RING 2" EXT STD	1
51.	72066178	COTTER PIN 1/8 X 1	8
52.	72601295	CAP SCR 3/4-10X3-1/2 HH GR8	20
53.	73051004	MOTOR	1
54.	73054538	VALVE CARTRIDGE	2
55.	72066125	RETAINING RING 1" EXT HD	4
56.	72066185	COTTER PIN .16 X 1	2
57.	72060738	CAP SCR 5/16-18X2-1/2 SH	4
58.	72060046	CAP SCR 3/8-16X1 HH GR5	4
59.	72063003	WASHER 3/8 WRT	8
60.	60108883	CHAIN	2
61.	70058060	COLD-SHUT LINK	2
63.	72053281	STREET ELBOW 1/8NPT	1
64.	72531826	REDUCER BUSHING 1/4-1/8NPT	1
65.	72060023	CAP SCR 5/16-18X3/4 HH GR5	2
66.	72063050	WASHER 5/16 LOCK	2
67.	60119748	CTRL HANDLE GUARD	1
68.	72060005	CAP SCR 1/4-20X1-1/4 HHGR5	8
69.	72063001	WASHER 1/4 WRT	16
70.	72062104	NUT 1/4-20 LOCK	8
71.	60119747	CTRL HANDLE GUARD	1

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 FATIGUE, CAUSING SERIOUS INJURY OR DEATH.

SEE FOLLOWING PAGE FOR DRAWING

Figure D-4. BASE AND MANUAL OUTRIGGER ASSEMBLY (41712071)



SEE PREVIOUS FOR PARTS LIST

Figure D-4A. BASE AND MANUAL OUTRIGGER ASSEMBLY (41712071)

ITEM	PART NO.	DESCRIPTION	QTY
1.	3B221850	OUTRIGGER CYLINDER	2
2.	5V151830	MOTOR BLOCK	1
3.	70732578	RESERVOIR ASM	1
5.	71145016	STOP BLOCK-SLIDING	1
8.	52712068	BASE (INCL:9-13)	1
9.	60020115	BUSHING (PART OF 8)	1REF
10.	60020116	BUSHING (PART OF 8)	1REF
11.	60020187	BUSHING (PART OF 8)	1REF
12.	60020188	BUSHING (PART OF 8)	1REF
13.	71056011	DRIVE GEAR (PART OF 8)	1REF
14.	52706167	OUTRIGGER ARM	2
15.	52705871	OUTRIGGER LEG	2
16.	53000703	GREASE EXTENSION 20"	1
17.	53000713	GREASE EXTENSION 38"	1
18.	60107648	HOSE CLAMP	2
19.	60010235	PINION COVER	1
21.	60010844	GREASE PLATE	1
22.	60030053	ROLLER	4
23.	60102767	ACCESS COVER	1
24.	60106032	STUD 1/2-13 X 2	2
25.	60106314	PIN	4
26.	60106886	PINION SPACER	1
27.	60106968	PIN	2
28.	60108888	INTERMEDIATE GEAR GUARD	1
29.	71056072	INTERMEDIATE GEAR	1
30.	71056265	PINION GEAR	1
31.	71056361	TURNTABLE BEARING	1
32.	7Q072112	O-RING	2
33.	72053301	COUPLING 1/8NPT	2
34.	72053508	ZERK 1/8NPT	3
35.	72060002	CAP SCR 1/4-20X3/4 HH GR5	2
36.	72060053	CAP SCR 3/8-16X2-3/4 HH GR5	2
37.	72060092	CAP SCR 1/2-13X1-1/4 HH GR5	2
38.	72060102	CAP SCR 1/2-13X5-1/2 HH GR5	4
39.	72060833	SCR 5/16-18X3/4 HH SLFTPG	2
40.	72062080	NUT 1/2-13 LOCK	2
41.	72062103	NUT 3/8-16 LOCK	8
42.	72062107	NUT 1/2-13 CTR LOCK	4
43.	72063002	WASHER 5/16 WRT	2
44.	72063003	WASHER 3/8 WRT	2
45.	72053281	STREET ELBOW 1/8NPT	1
46.	72063039	MACH BUSHING 2 X 10GA NR	1
47.	72063049	WASHER 1/4 LOCK	2
48.	72063053	WASHER 1/2 LOCK	2
49.	72063116	WASHER 3/4 HARDENED	20
50.	72066095	RETAINING RING 2" EXT STD	1
51.	72066178	COTTER PIN 1/8 X 1	8
52.	72601295	CAP SCR 3/4-10X3-1/2 HH GR8	20
53.	73051004	MOTOR	1
54.	73054538	VALVE CARTRIDGE	2
55.	72066125	RETAINING RING 1" EXT HD	4
56.	72531826	REDUCER BUSHING 1/4-1/8NPT	1
57.	72060738	CAP SCR 5/16-18X2-1/2 SH	4
58.	72060046	CAP SCR 3/8-16X1 HH GR5	4
59.	72063003	WASHER 3/8 WRT	8
60.	72060023	CAP SCR 5/16-18X3/4 HH GR5	2
61.	72063050	WASHER 5/16 WRT	2
62.	60119748	CTRL HANDLE GUARD	1
63.	72060005	CAP SCR 1/4-20X1-1/4 HHGR5	8
64.	72063001	WASHER 1/4 WRT	16
65.	72062104	NUT 1/4-20 LOCK	8
66.	60119747	CTRL HANDLE GUARD	1

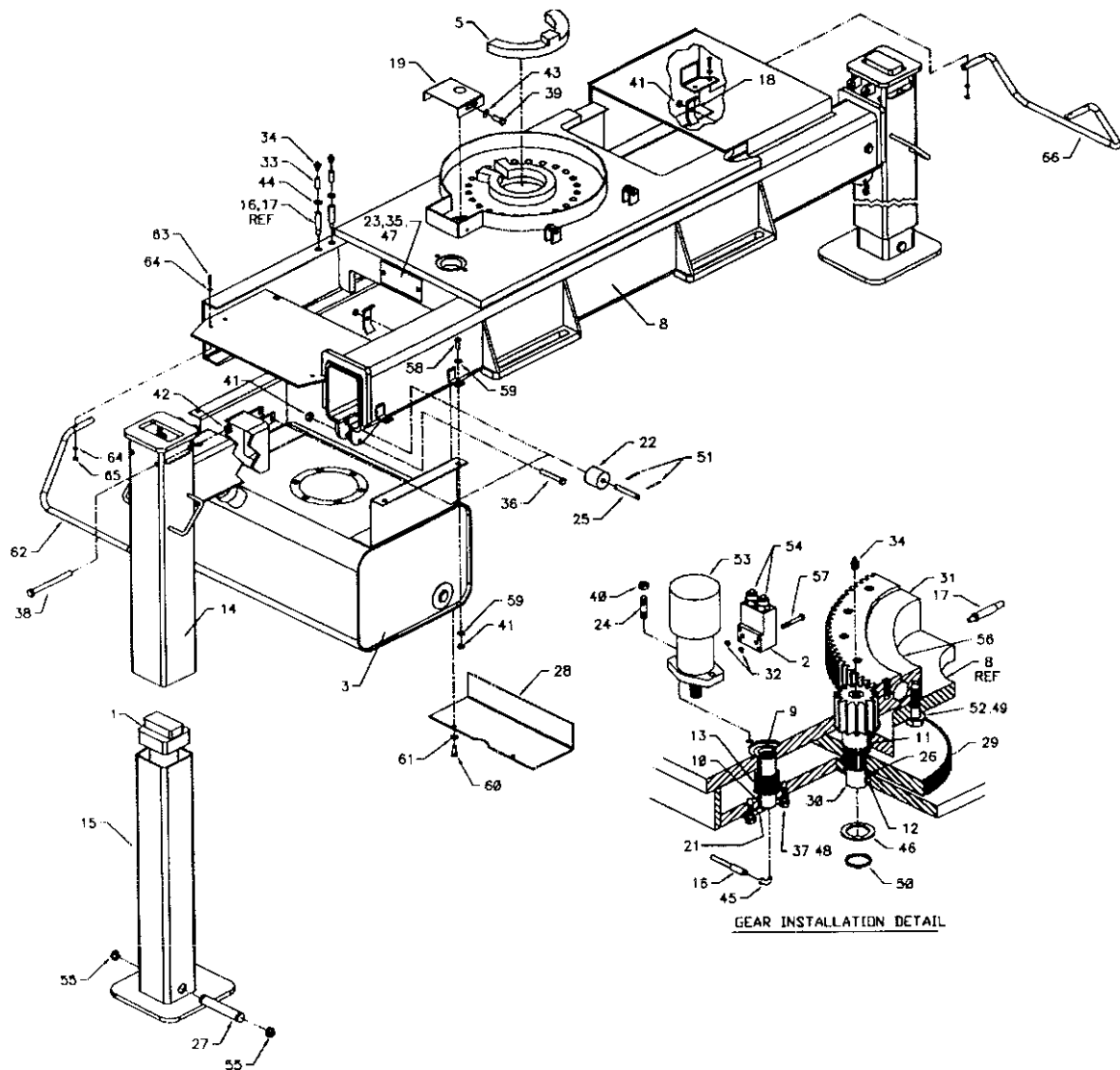
WARNING

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 FATIGUE, CAUSING SERIOUS INJURY OR DEATH.

SEE FOLLOWING PAGE FOR DRAWING

NOTE: TURNTABLE BEARING BACKLASH = .152- .254mm

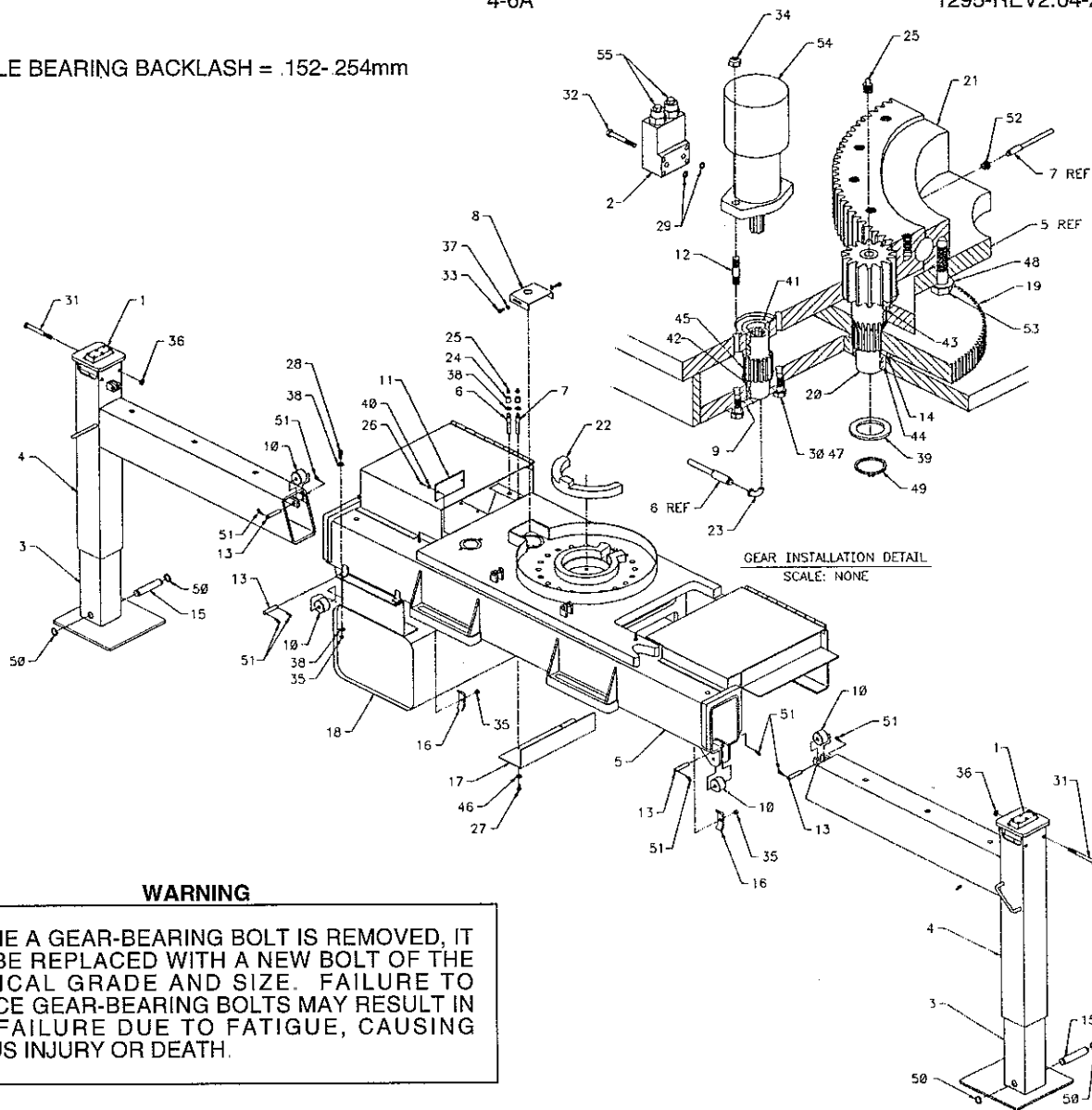
Figure D-5. BASE AND POWER OUTRIGGER ASSEMBLY (41712070)



SEE PREVIOUS PAGE FOR PARTS LIST

Figure D-5A. BASE AND POWER OUTRIGGER ASSEMBLY (41712070)

NOTE:
TURNABLE BEARING BACKLASH = .152- .254mm

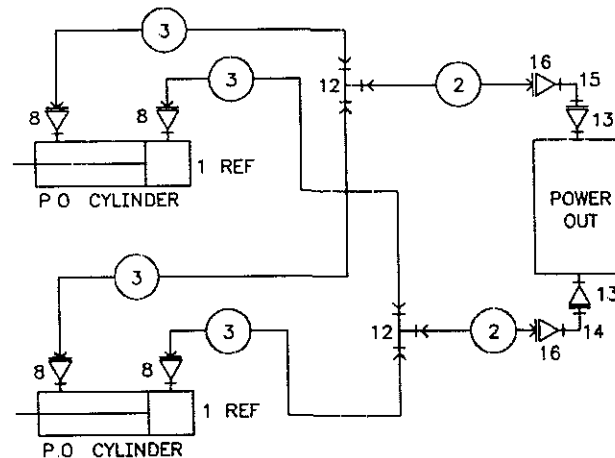
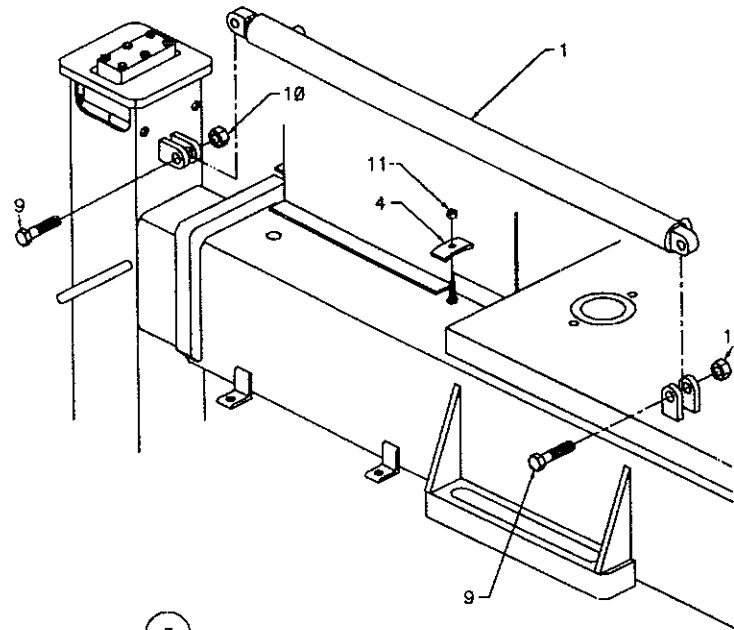


WARNING

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 FATIGUE, CAUSING SERIOUS INJURY OR DEATH.

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1.	3B221850	OUTRIGGER CYLINDER	2	29.	7Q072012	O-RING	2
2.	5V151830	MOTOR BLOCK	1	29.	72060092	CAP SCR 1/2-13X1-1/4 HHGR5	2
3.	52705871	OUTRIGGER LEG	2	30.	72060102	CAP SCR 1/2-13X5-1/2 HH GR5	4
4.	52706167	OUTRIGGER ARM	2	31.	72060738	CAP SCR 5/16-18X2-1/2 SH	4
5.	52712975	BASE (INCL:41-45)	1	33.	72060833	SCR 5/16-18X3/4 HH SLFTPG	2
6.	53000703	GREASE EXTENSION 20"	1	34.	72062080	NUT 1/2-13 LOCK	2
7.	53000713	GREASE EXTENSION 38"	1	35.	72062103	NUT 3/8-16 LOCK	6
8.	60010235	PINION COVER	1	36.	72062107	NUT 1/2-13 CTR LOCK	4
9.	60010844	GREASE PLATE	1	37.	72063002	WASHER 5/16 WRT	4
10.	60030053	ROLLER	4	38.	72063003	WASHER 3/8 WRT	10
11.	60102767	ACCESS COVER	1	39.	72063039	MACH BUSHING 2 X 10GA NR	1
12.	60106032	STUD 1/2-13 X 2	2	40.	72063049	WASHER 1/4 LOCK	2
13.	60106314	PIN	4	41.	60020115	BUSHING (PART OF 5)	1REF
14.	60106886	PINION SPACER	1	42.	60020116	BUSHING (PART OF 5)	1REF
15.	60106968	PIN	2	43.	60020187	BUSHING (PART OF 5)	1REF
16.	60107648	HOSE CLAMP	2	44.	60020188	BUSHING (PART OF 5)	1REF
17.	60108888	INTERMEDIATE GEAR GUARD	1	45.	71056011	DRIVE GEAR (PART OF 5)	1REF
18.	70732578	RESERVOIR ASM 20GAL	1	46.	72063050	WASHER 5/16 WRT	2
19.	71056072	INTERMEDIATE GEAR	1	47.	72063053	WASHER 1/2 LOCK	2
20.	71056265	PINION GEAR	1	48.	72063116	WASHER 3/4 HARDENED	20
21.	71056361	TURNABLE GEAR BEARING	1	49.	72066095	RETAINING RING 2" EXT STD	1
22.	71145016	SLIDE 450°	1	50.	72066125	RETAINING RING 1" EXT HD	4
23.	72053281	STREET ELBOW 1/8NPT	1	51.	72066178	COTTER PIN 1/8 X 1	8
24.	72053301	COUPLING 1/8NPT	2	52.	72531826	REDUCER BUSHING 1/4-1/8NPT	1
25.	72053508	ZERK 1/8NPT	3	53.	72601295	CAP SCR 3/4-10X3-1/2 HH GR8	20
26.	72060002	CAP SCR 1/4-20X3/4 HH GR5	2	54.	73051004	MOTOR	1
27.	72060023	CAP SCR 5/16-18X3/4 HH GR5	2	55.	73054538	VALVE CARTRIDGE	2

Figure D-5B. BASE AND POWER OUTRIGGER ASSEMBLY-VOAC (41712976)



ITEM	PART NO.	DESCRIPTION	QTY
1.	3B220850	POWER OUT CYLINDER	2
2.	51710569	HOSE ASM 1/4X36 FF	2
3.	51704280	HOSE ASM 1/4X40 FF	4
4.	60103278	HOSE CLAMP-TWIN	2
5.	70392864	DECAL-DANGER STAND CLEAR	2
6.	70392867	DECAL-DANGER OUTRG MOVING	2
7.	71392277	DECAL-PWR OUT CTRL	1
8.	72053758	ELBOW #4MSTR #4MJIC 90°	4
9.	72060928	CAP SCR 1/2-13 LOCK	4
10.	72062080	NUT 1/2-13 LOCK	4
11.	72062104	NUT 1/4-20 LOCK	2
12.	72532768	TEE #4MJIC	2
13.	72531206	ADAPTER #10MSTR #8FSTR	2REF
14.	72053763	ELBOW #8MSTR #8MJIC 90°	1REF
15.	72532666	ELBOW #8MSTR #8MJIC 90° XLG	1REF
16.	72532665	ADAPTER #4MJIC #8FJIC	2REF

DECAL PLACEMENT

ITEM NO.	LOCATION
5	ONE ON EACH OUTRIGGER
6	AT OR NEAR THE NORMAL OPERATING STATION
7	AT PWR OUT CONTROLS

POWER OUT OUTRIGGER KIT-VOAC (31712993)

NOTE

IT IS RECOMMENDED THAT ALL COMPONENTS OF THE SEAL KIT BE REPLACED WHENEVER THE CYLINDER IS DISASSEMBLED. THIS WILL REDUCE FUTURE DOWNTIME

APPLY "LUBRIPLATE #630-2" MEDIUM HEAVY, MULTI-PURPOSE LUBRICANT OR EQUIVALENT TO ALL PISTON AND HEAD GLANDS, LOCK RING AND ROD THREADS BEFORE ASSEMBLY.

USE "NEVER-SEEZ" OR EQUIVALENT BETWEEN THE HEAD AND THE CASE WHEN ASSEMBLING THE CYLINDER.

ITEM	PART NO	DESCRIPTION	QTY
1.	4B221850	CASE (INCL:6)	1
2.	2G221850	ROD	1
3.	6I025087	PISTON	1
4.	6H025015	HEAD	1
5.	73054004	LOCKING/ HOLDING VALVE	1
6.	7PNPXT02	PLUG 1/8NPT (PART OF 1)	3REF
7.	6C150015	STOP TUBE	1
8.	72060708	CAP SCR 1/4-20 X 1 1/4 SH	6
9.	9B101214	SEAL KIT (INCL:10-18)	1
10.	7Q072137	O-RING (PART OF 9)	1REF
11.	7T66P025	SEAL, PISTON (PART OF 9)	1REF
12.	7T61N087	LOCK RING SEAL (PART OF 9)	1REF
13.	7T2N8015	WEAR RING (PART OF 9)	1REF
14.	6A025015	WAFFER LOCK (PART OF 9)	1REF
15.	7Q072228	O-RING (PART OF 9)	1REF
16.	7Q10P228	BACK-UP RING (PART OF 9)	1REF
17.	7R546015	ROD SEAL (PART OF 9)	1REF
18.	7R14P015	ROD WIPER (PART OF 9)	1REF

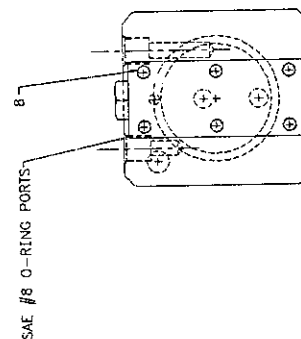
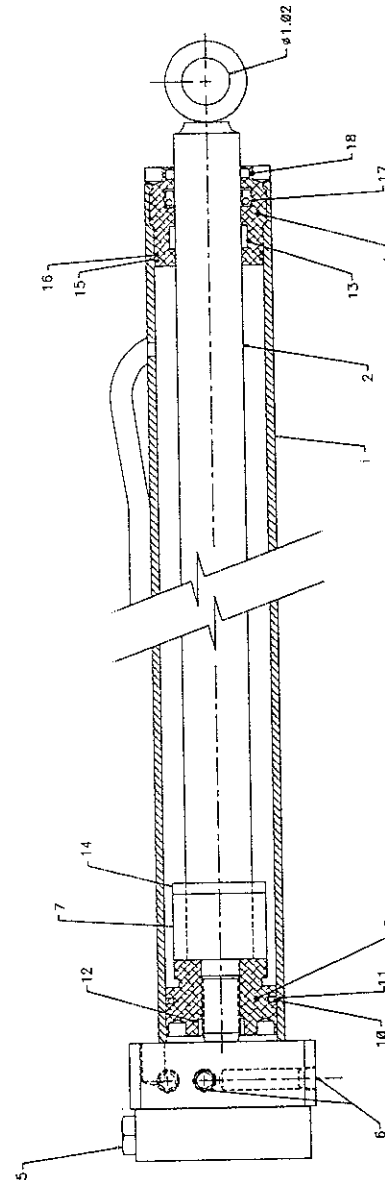
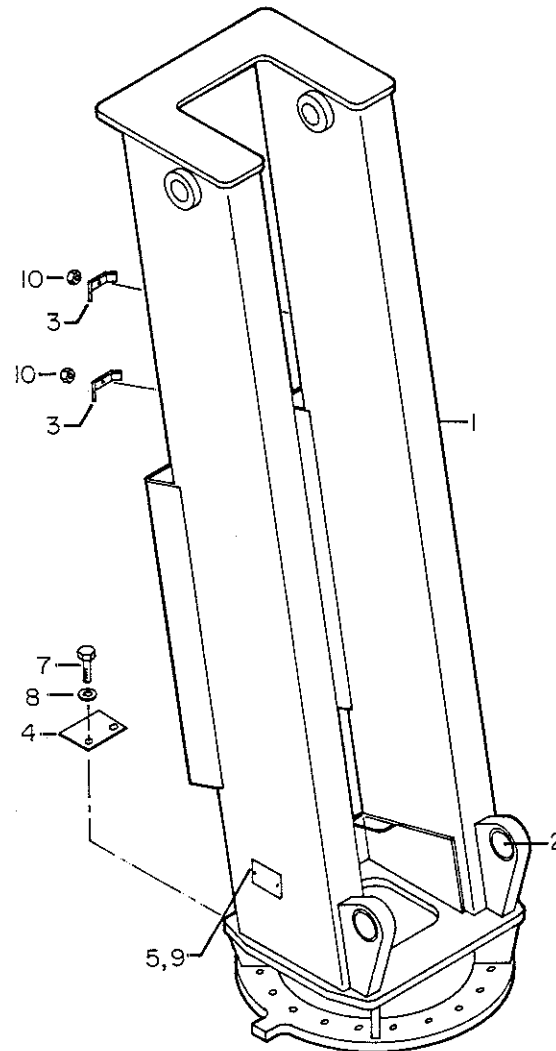


Figure D-6. POWER DOWN OUTRIGGER CYLINDER (3B221850)



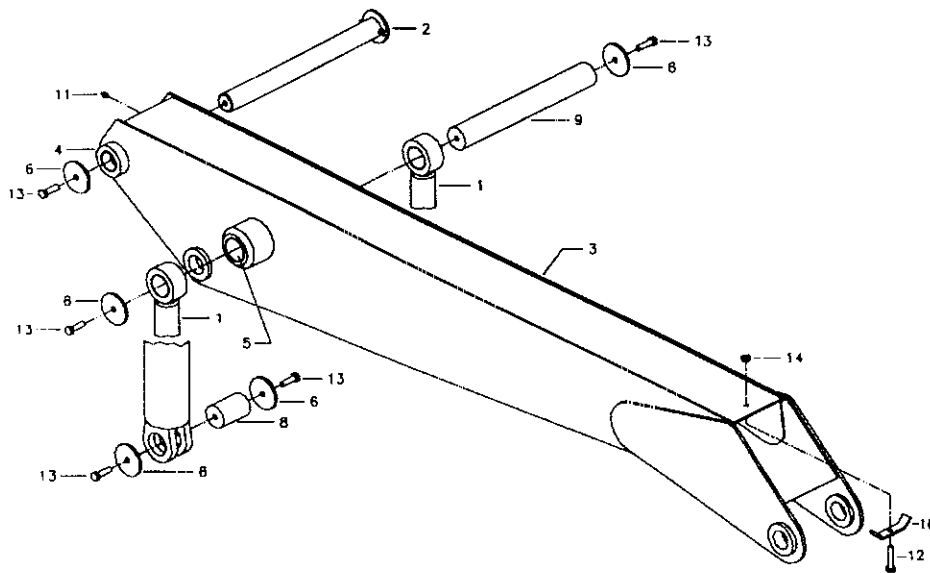
A. MAST ASSEMBLY
B. MAST ASSEMBLY WITH CHAIR (NOT SHOWN)

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.

ITEM	PART NO	DESCRIPTION	QTY	
			A	B
1.	52712066	MAST (INCL: 2)	1	
	52712067	MAST W/CHAIR (INCL:2)		1
2.	7BF81225	BUSHING (PART OF 1)	2REF	2REF
3.	60010118	HOSE CLAMP	2	
4.	60104539	PINION COVER	1	1
5.	70029119	SER. NO. PLACARD	1	1
7.	72060177	CAP SCR 5/8-11 X 3 HH GR9	20	20
8.	72063119	WASHER 5/8 FLAT HARDENED	20	20
9.	72066340	POP RIVET 1/8	2	6
10.	72062103	NUT 3/8-16 LOCK	2	2
11.	70731411	CHAIR		1
12.	72060025	CAP SCR 5/16-18 X 1 HH GR5		4
13.	72063050	WASHER 5/16 LOCK		4

Figure D-7. MAST ASSEMBLY (41712072) & MAST ASSEMBLY WITH CHAIR (41712080)

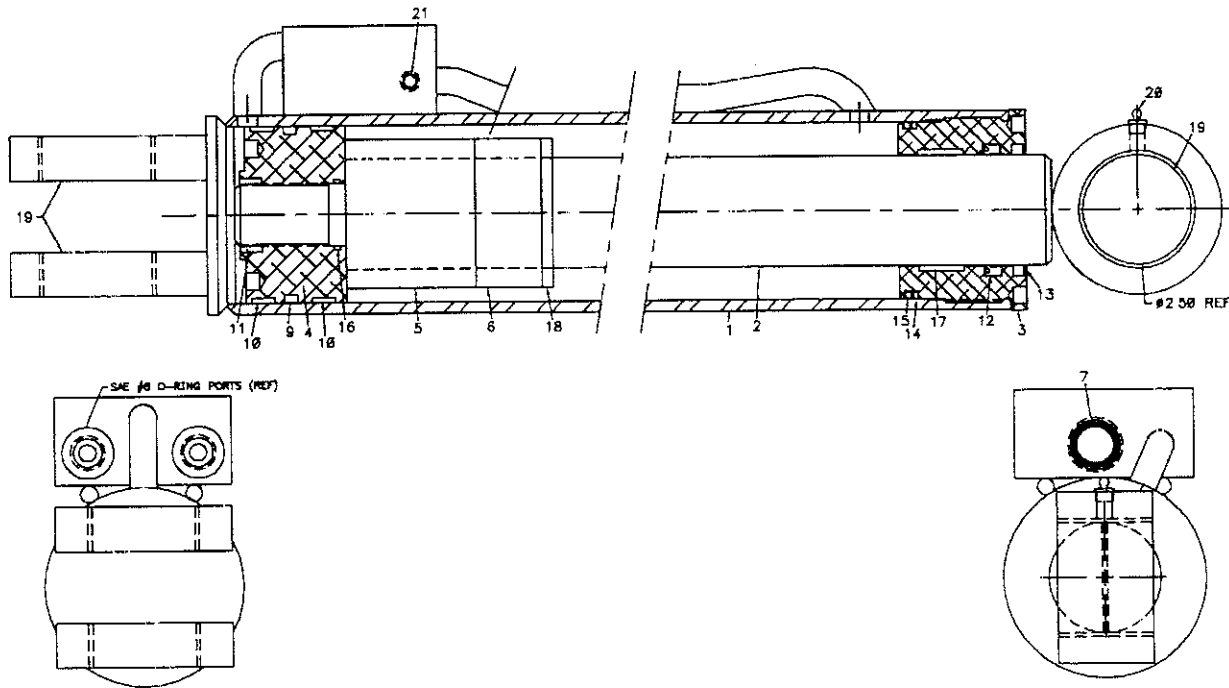


ITEM	PART NO.	DESCRIPTION	QTY
1.	3B009960	INNER CYLINDER	2
2.	52703709	PIN	1
3.	52712034	INNER BOOM (INCL: 4,5)	1
4.	7BF81220	BUSHING (PART OF 3)	6REF
5.	7BF81225	BUSHING (PART OF 3)	9REF
6.	60106331	PIN RETAINER PLATE 3-1/2"	7
8.	60106341	PIN	2
9.	60106353	PIN	1
10.	60010118	HOSE CLAMP	1
11.	72053508	GREASE ZERK 1/8NPT	1
12.	72060049	CAP SCR 3/8-16 X 1-3/4 HH GR5	1
13.	72060147	CAP SCR 5/8-11 X 1 HH GR5	7
14.	72062103	NUT 3/8-16 LOCK	1

NOTE

ANYTIME THE PIN RETAINER PLATE BOLTS HAVE BEEN REMOVED, APPLY LOCTITE 262 TO THE THREADS BEFORE REASSEMBLY.

Figure D-8. INNER BOOM (41712042)



ITEM	PART NO.	DESCRIPTION	QTY
1.	4B223850	CASE (INCL:1,20)	1
2.	4G223850	ROD (INCL:17)	1
3.	6H040025	HEAD	1
4.	6I402144	PISTON	1
5.	6C300025	STOP TUBE	1
6.	6C150025	STOP TUBE	1
7.	73054887	VALVE 25GPM VENTED	1
8.	9C160920	SEAL KIT (INCL:9-18)	1
9.	7T66P400	PISTON SEAL (PART OF 8)	1REF
10.	7T2N4040	WEAR RING (PART OF 8)	2REF
11.	7T61N143	LOCK RING SEAL (PART OF 8)	1REF
12.	7R546025	ROD SEAL (PART OF 8)	1REF
13.	7R14P025	ROD WIPER (PART OF 8)	1REF
14.	7Q10P342	BACK-UP RING (PART OF 8)	1REF
15.	7Q072342	O-RING (PART OF 8)	1REF
16.	7Q072127	O-RING (PART OF 8)	1REF
17.	7T2N8027	WEAR RING (PART OF 8)	1REF
18.	6A025025	WAFER LOCK (PART OF 8)	1REF
19.	7BF81025	BUSHING (PART OF 1&2)	4REF
20.	72053507	ZERK (PART OF 2)	1REF
21.	7PNPXT02	PIPE PLUG 1/8NPT (PART OF 1)	3REF

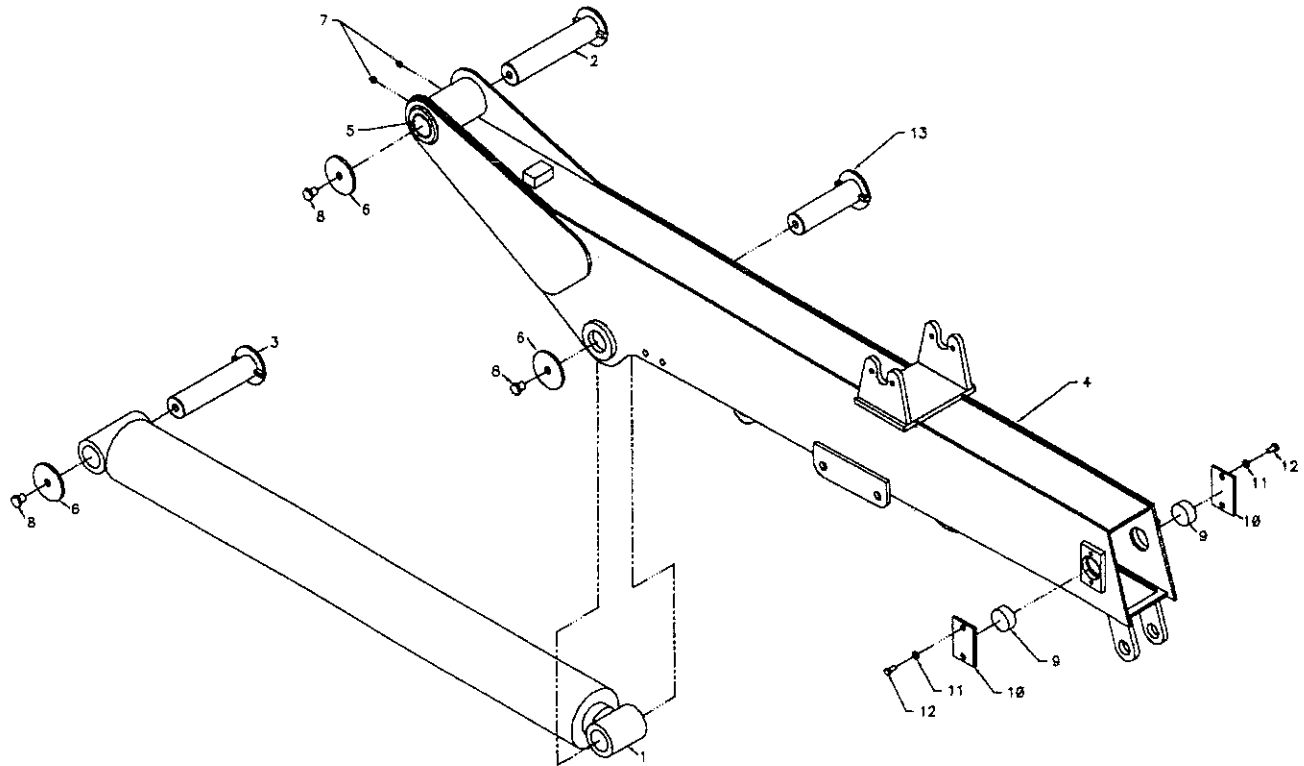
NOTE

IT IS RECOMMENDED THAT ALL COMPONENTS OF THE SEAL KIT BE REPLACED WHENEVER THE CYLINDER IS DISASSEMBLED. THIS WILL REDUCE FUTURE DOWNTIME.

APPLY "LUBRIPLATE #630-2" MEDIUM HEAVY, MULTI-PURPOSE LUBRICANT OR EQUIVALENT TO ALL PISTON AND HEAD GLANDS, LOCK RING AND ROD THREADS BEFORE ASSEMBLY.

USE "NEVER-SEEZ" OR EQUIVALENT BETWEEN THE HEAD AND THE CASE WHEN ASSEMBLING THE CYLINDER.

Figure D-9. INNER CYLINDER (3B009960)

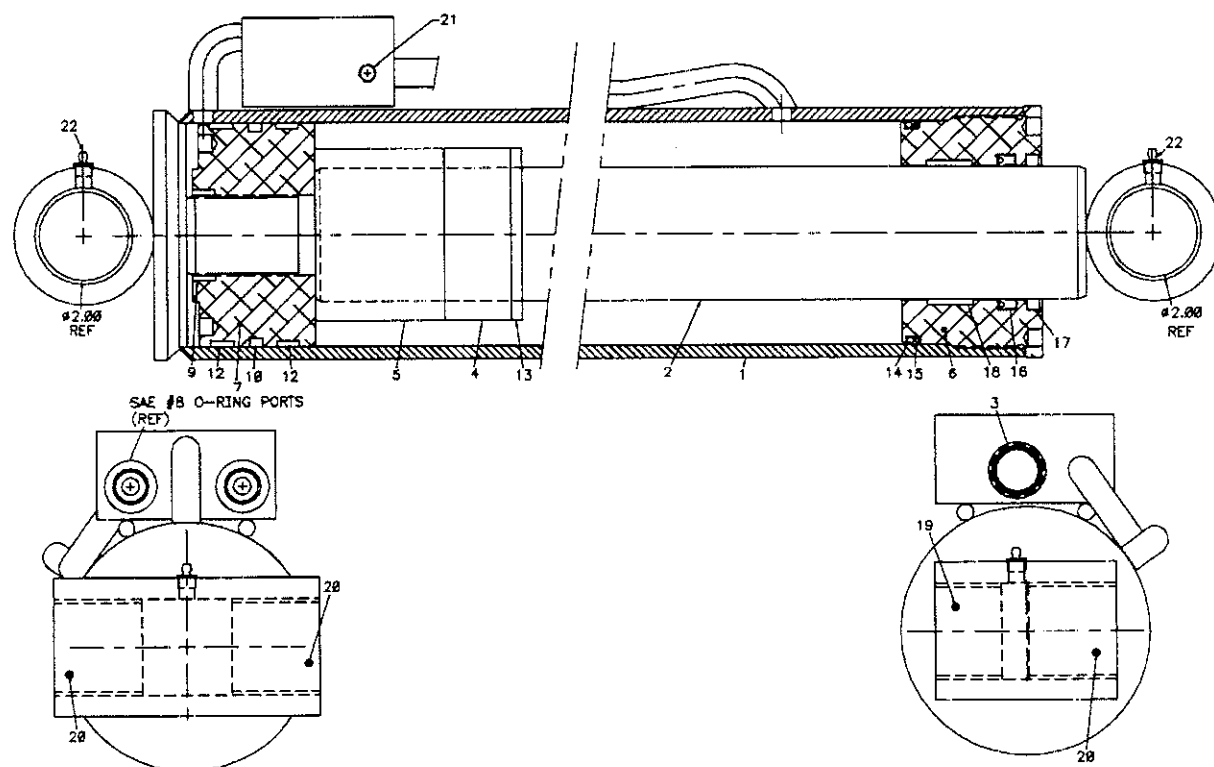


ITEM	PART NO.	DESCRIPTION	QTY
1.	3C010960	OUTER CYLINDER	1
2.	52703714	PIN	2
3.	52703767	PIN	1
4.	52712064	OUTER BOOM (INCL. 5)	1
5.	7BF81520	BUSHING (PART OF 4)	4REF
6.	60106331	PIN RETAINER PLATE 3-1/2"	3
7.	72053508	GREASE ZERK 1/8NPT	2
8.	72060147	CAP SCR 5/8-11 X 1 HH GR5	3
9.	60030060	WEAR PAD 2X7/8	2
10.	60107550	LOCK PLATE	2
11.	72063051	WASHER 3/8 LOCK	4
12.	72060044	CAP SCR 3/8-16X3/4 HHGR5	4
13.	52704431	PIN	1

NOTE

ANYTIME THE PIN RETAINER PLATE BOLTS HAVE BEEN REMOVED, APPLY LOCTITE 262 TO THE THREADS BEFORE RE-ASSEMBLY.

Figure D-10. OUTER BOOM (41712065)



ITEM	PART NO.	DESCRIPTION	QTY
1.	4C224850	CASE (INCL:20-22)	1
2.	4G224850	ROD (INCL:20,22)	1
3.	73054887	VALVE 25GPM VENTED	1
4.	6C150030	STOP TUBE	1
5.	6C300030	STOP TUBE	1
6.	6H050030	HEAD	1
7.	6I050181	PISTON	1
8.	9C010960	SEAL KIT (INCL:9-18)	1
9.	7T61N181	LOCK RING SEAL (PART OF 8)	1REF
10.	7T66P500	PISTON SEAL (PART OF 8)	1REF
12.	7T2N4050	WEAR RING (PART OF 8)	2REF
13.	6A025030	WAFFER LOCK (PART OF 8)	1REF
14.	7Q072350	O-RING (PART OF 8)	1REF
15.	7Q10P350	BACK-UP RING (PART OF 8)	1REF
16.	7R546030	ROD SEAL (PART OF 8)	1REF
17.	7R14P030	ROD WIPER (PART OF 8)	1REF
18.	7T2N8032	WEAR RING (PART OF 8)	1REF
19.	7BF81520	BUSHING (PART OF 2)	1REF
20.	7BF82020	BUSHING (PART OF 1&2)	3REF
21.	7PNPXT02	PIPE PLUG 1/8 (PART OF 1)	3REF
22.	72053507	ZERK 1/4-28 (PART OF 1&2)	2REF

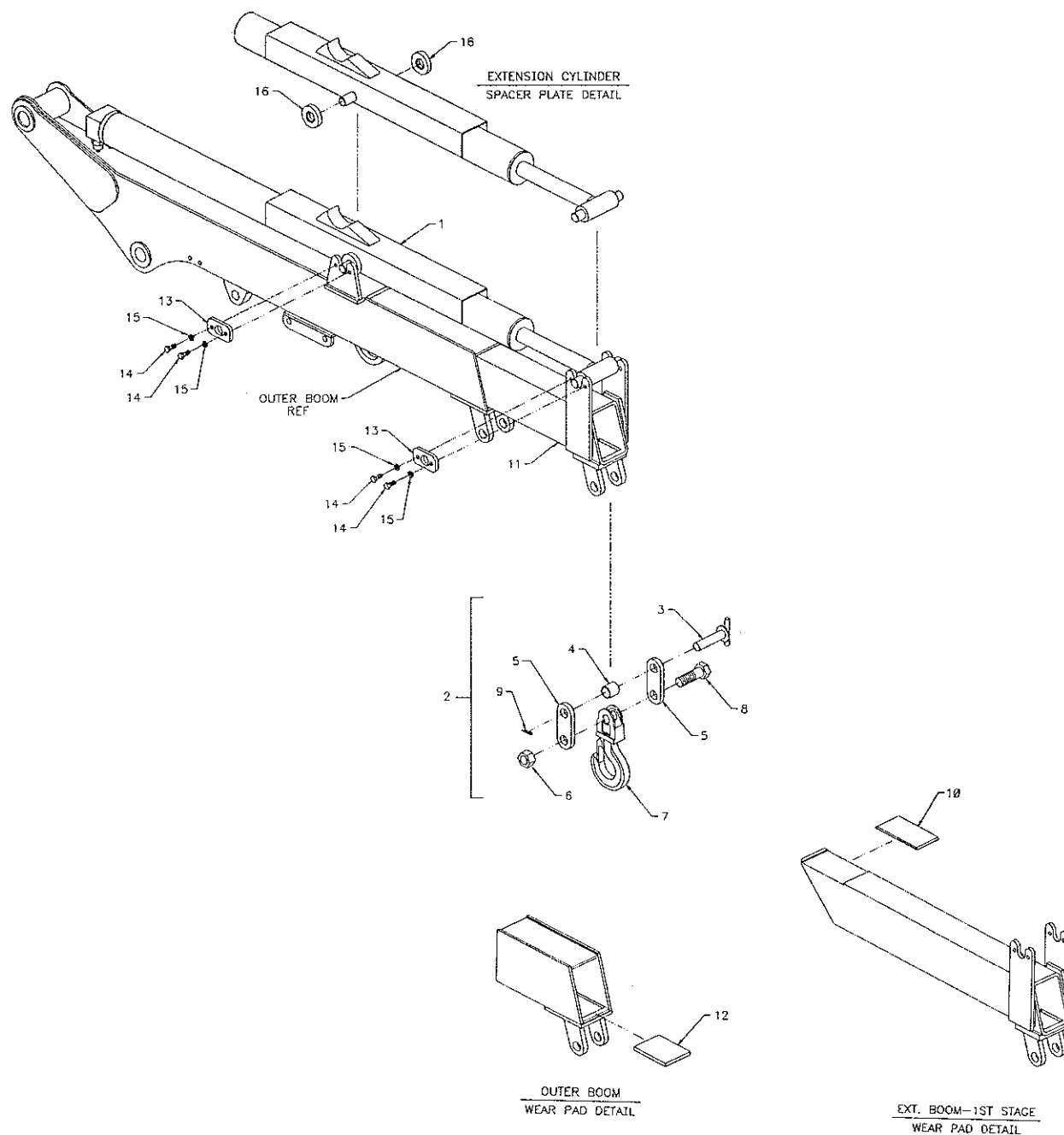
NOTE

IT IS RECOMMENDED THAT ALL COMPONENTS OF THE SEAL KIT BE REPLACED WHENEVER THE CYLINDER IS DISASSEMBLED. THIS WILL REDUCE FUTURE DOWNTIME.

APPLY "LUBRIPLATE #630-2" MEDIUM HEAVY, MULTI-PURPOSE LUBRICANT OR EQUIVALENT TO ALL PISTON AND HEAD GLANDS, LOCK RING AND ROD THREADS BEFORE ASSEMBLY.

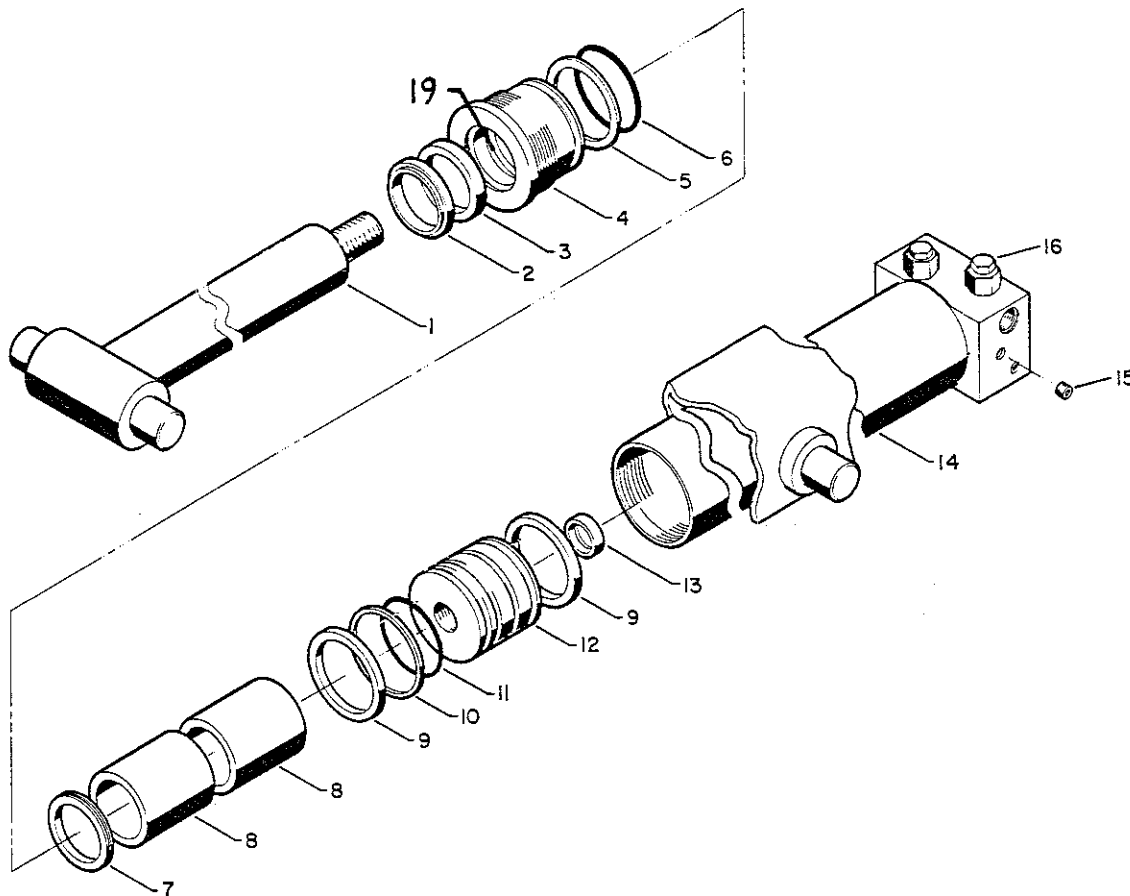
USE "NEVER-SEEZ" OR EQUIVALENT BETWEEN THE HEAD AND THE CASE WHEN ASSEMBLING THE CYLINDER.

Figure D-11. OUTER CYLINDER (3C010960)



ITEM	PART	DESCRIPTION	QTY
1.	3B099910	EXTENSION CYLINDER	1
2.	51706200	HOOK ASM 8-TON SWVL (INCL:3-9)	1
3.	52070151	PIN (PART OF 2)	1REF
4.	60108902	PIPE (PART OF 2)	1REF
5.	60107324	HOOK LINK (PART OF 2)	2REF
6.	72062073	NUT 1-1/4-7 LOCK (PART OF 2)	1REF
7.	60103575	HOOK 8-TON (PART OF 2)	1REF
8.	72601666	CAP SCR 1-1/4-7 X 4 HH GR5 (PART OF 2)	1REF
9.	72066145	HAIR PIN (PART OF 2)	1REF
10.	60030118	WEAR PAD	1
11.	52709681	EXTENSION BOOM - 1ST STG	1
12.	60030119	WEAR PAD	1
13.	60107152	CYL RETAINING PLATE	4
14.	72060092	CAP SCR 1/2-13X1-1/4 HH GR5	8
15.	72063053	WASHER 1/2 LOCK	8
16.	60113933	SPACER	2

Figure D-12. EXTENSION BOOM ASSEMBLY-1H (41709699)

**NOTE**

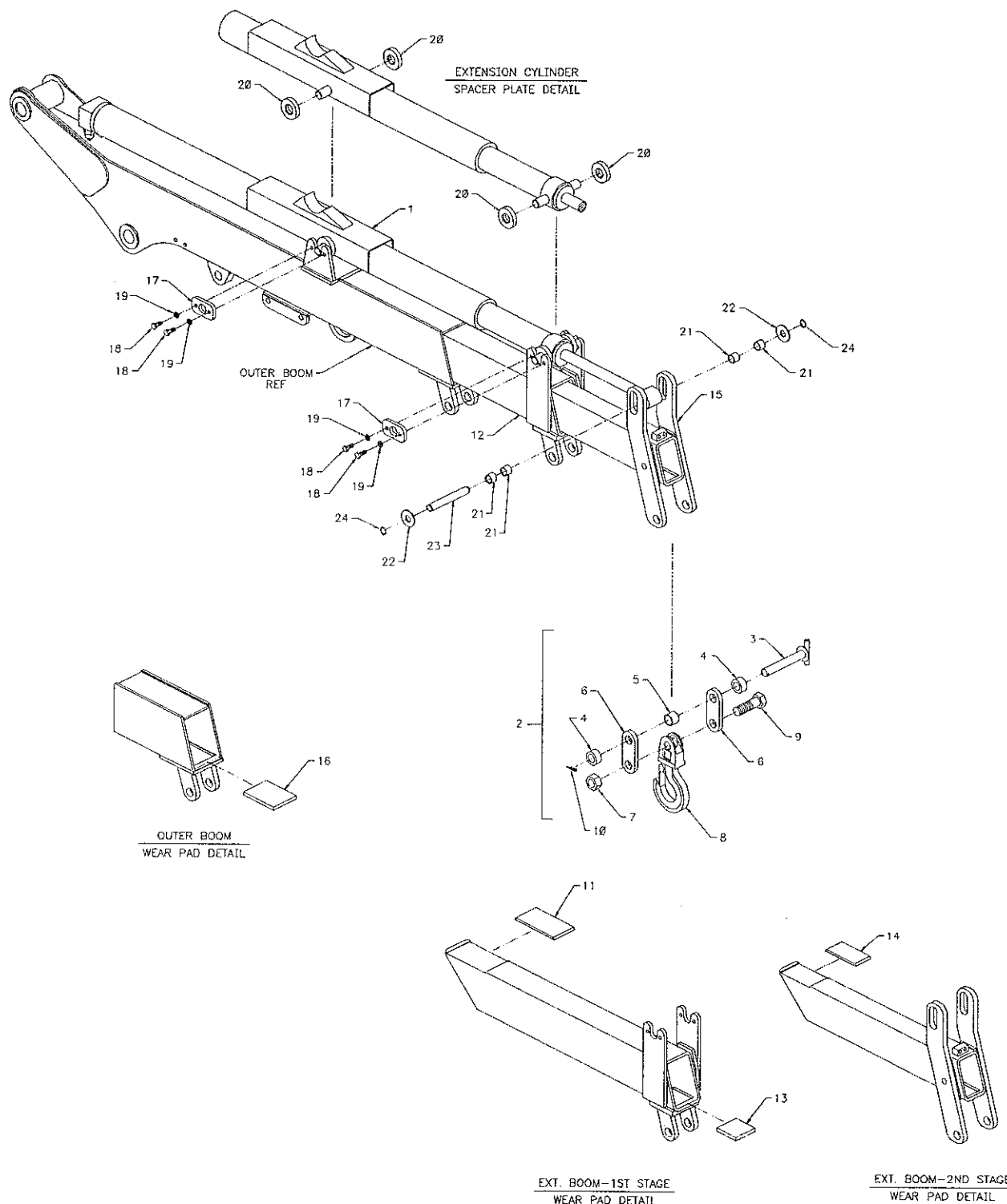
IT IS RECOMMENDED THAT ALL COMPONENTS OF THE SEAL KIT BE REPLACED WHENEVER THE CYLINDER IS DISASSEMBLED. THIS WILL REDUCE FUTURE DOWNTIME.

APPLY "LUBRIPLATE #630-2" MEDIUM HEAVY, MULTI-PURPOSE LUBRICANT OR EQUIVALENT TO ALL PISTON AND HEAD GLANDS, LOCK RING AND ROD THREADS BEFORE ASSEMBLY.

USE "NEVER-SEEZ" OR EQUIVALENT BETWEEN THE HEAD AND THE CASE WHEN ASSEMBLING THE CYLINDER.

ITEM	PART	DESCRIPTION	QTY
1.	4G099910	ROD	1
2.	7R14P020	ROD WIPER (PART OF 18)	1REF
3.	7R546020	ROD SEAL (PART OF 18)	1REF
4.	6H030020	HEAD	1
5.	7Q10P334	BACK-UP RING (PART OF 18)	1REF
6.	7Q072334	O-RING (PART OF 18)	1REF
7.	6A025020	WAFER LOCK (PART OF 18)	1REF
8.	6C300020	STOP TUBE	2
9.	7T65I030	PISTON RING (PART OF 18)	2REF
10.	7T66P030	PISTON SEAL (PART OF 18)	1REF
11.	7Q072145	O-RING (PART OF 18)	1REF
12.	6I030106	PISTON	1
13.	7T61N106	LOCK RING SEAL (PART OF 18)	1REF
14.	4B099910	CASE (INCL: 15)	1
15.	7PNPXT02	PLUG 1/8NPT (PART OF 14)	6REF
16.	73054304	COUNTER BALANCE VALVE	2
17.	5M126820	SADDLE (WELDED TO 14)	1
18.	9C121617	SEAL KIT (INCL: 2,3,5-7,9-11,13,15,19)	1
19.	7T2N4022	WEAR RING-ROD(PART OF 18)	1REF

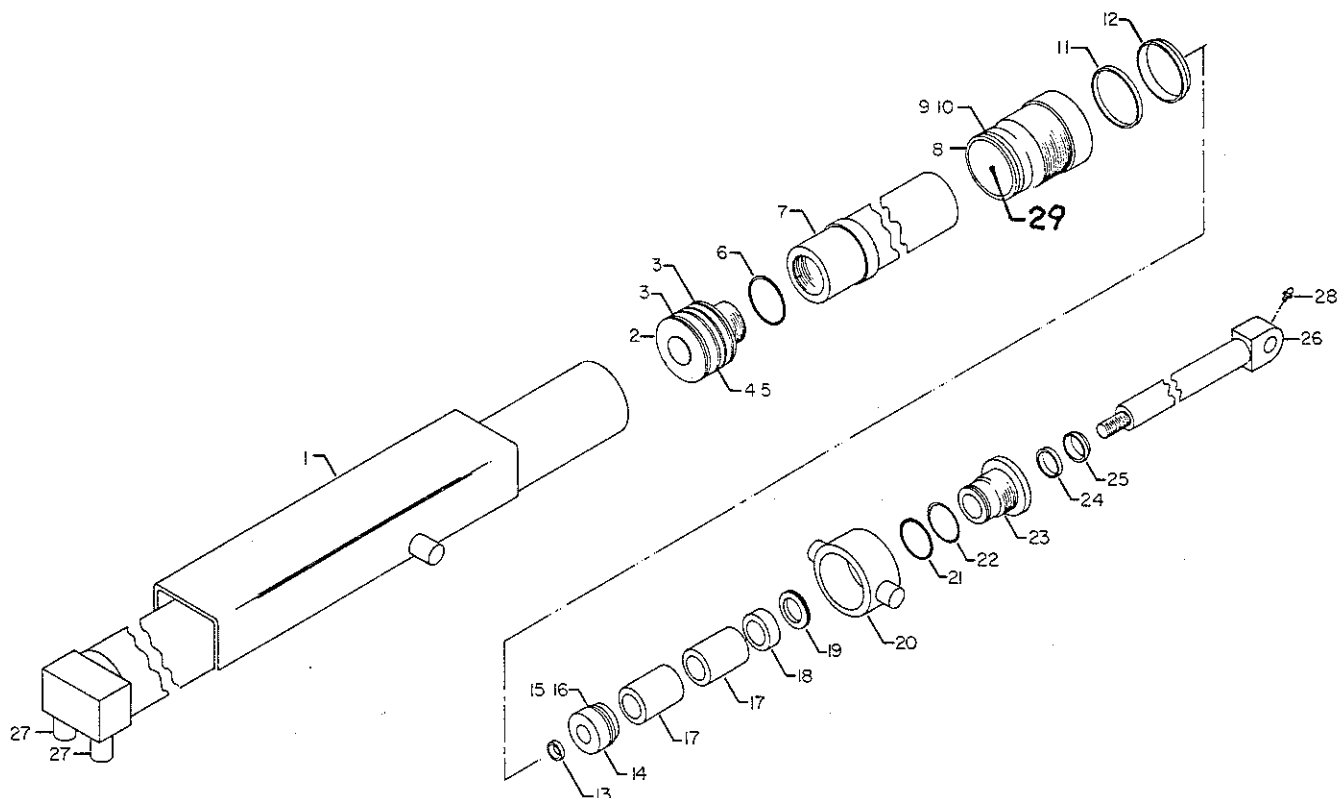
Figure D-13. 1-STAGE EXTENSION CYLINDER (3B099910)



ITEM	PART NO.	DESCRIPTION	QTY
1.	3K120850	EXTENSION CYLINDER	1
2.	51706266	HOOK ASM 8-TON (INCL:3-10)	1
3.	52705801	PIN (PART OF 2)	1REF
4.	60102466	SLEEVE (PART OF 2)	2REF
6.	60107324	HOOK LINK (PART OF 2)	2REF
5.	60108857	SLEEVE (PART OF 2)	1REF
7.	72062073	NUT 1-1/4-7 LOCK (PART OF 2)	1REF
8.	60103575	HOOK 8-TON (PART OF 2)	1REF
9.	72601666	CAP SCR 1-1/4-7X4 HHGR5 (PART OF 2)	1REF
10.	72066145	HAIR PIN (PART OF 2)	1REF
11.	60030118	WEAR PAD	1
12.	52709681	1ST STG EXT BOOM	1

ITEM	PART NO.	DESCRIPTION	QTY
13.	60030123	WEAR PAD	1
14.	60030122	WEAR PAD	1
15.	52709682	2ND STG EXT BOOM	1
16.	60030119	WEAR PAD	1
17.	60107152	PLATE	4
18.	72060092	CAP SCR 1/2-13X1-1/4 HH GR5	8
19.	72063053	WASHER 1/2 LOCK	8
20.	60113933	SPACER	4
21.	60020197	ROLLER	4
22.	72063010	WASHER 1 WRT	2
23.	60106833	PIN	1
24.	72066125	RETAINING RING 1" EXT HD	2

Figure D-14. EXTENSION BOOM ASSEMBLY-2H (41709700)

**NOTE**

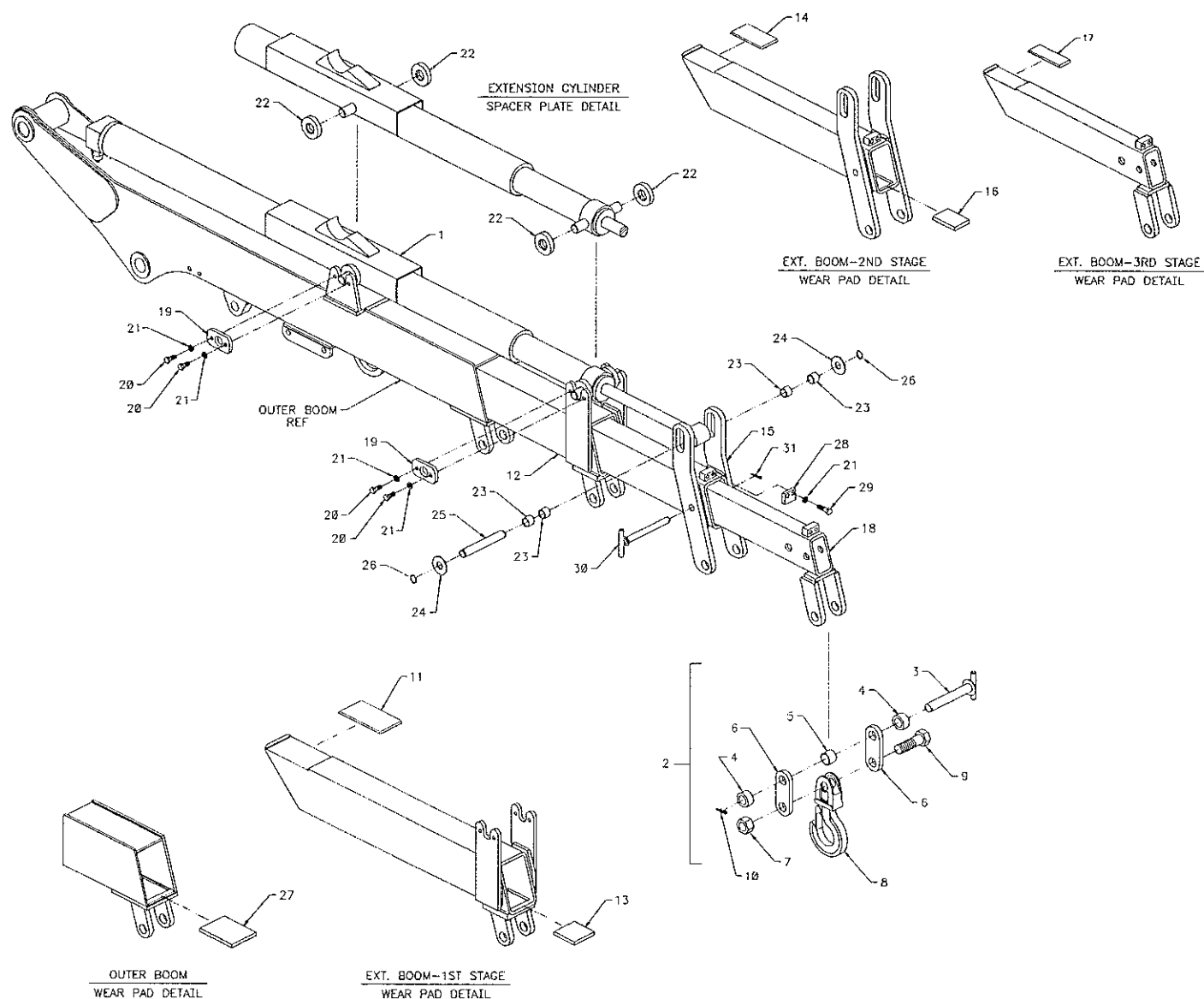
IT IS RECOMMENDED THAT ALL COMPONENTS OF THE SEAL KIT BE REPLACED WHENEVER THE CYLINDER IS DISASSEMBLED. THIS WILL REDUCE FUTURE DOWNTIME.

APPLY "LUBRIPLATE #630-2" MEDIUM HEAVY, MULTI-PURPOSE LUBRICANT OR EQUIVALENT TO ALL PISTON AND HEAD GLANDS, LOCK RING AND ROD THREADS BEFORE ASSEMBLY.

USE "NEVER-SEEZ" OR EQUIVALENT BETWEEN THE HEAD AND THE CASE WHEN ASSEMBLING THE CYLINDER.

ITEM	PART NO	DESCRIPTION	QTY	ITEM	PART NO	DESCRIPTION	QTY
1.	4K120850	CASE	1	17.	6C300015	STOP TUBE	2
2.	6I095850	PISTON	1	18.	6C075015	STOP TUBE	1
3.	7T65I040	PISTON RING (PART OF 31)	2REF	19.	6A025015	WAFFER LOCK (PART OF 31)	1REF
4.	7Q072153	O-RING (PART OF 31)	1REF	20.	4FG12085	MOUNTING RING	1
5.	7T66P040	PISTON SEAL (PART OF 31)	1REF	21.	7Q072228	O-RING (PART OF 31)	1REF
6.	7Q072151	O-RING (PART OF 31)	1REF	22.	7Q10P228	BACK-UP RING	1REF
7.	4H120850	INNER CASE	1	23.	6H271511	HEAD	1
8.	6H112820	HEAD	1	24.	7R546015	ROD SEAL (PART OF 31)	1REF
9.	7Q072342	O-RING (PART OF 31)	1REF	25.	7R14P015	ROD WIPER (PART OF 31)	1REF
10.	7Q10P342	BACK-UP RING (PART OF 31)	1REF	26.	5G120850	ROD (INCL:28)	1
11.	7R546035	ROD SEAL (PART OF 31)	1REF	27.	73054242	COUNTER BALANCE VALVE	2
12.	7R14P035	ROD WIPER (PART OF 31)	1REF	28.	72053507	ZERK 1/8NPT (PART OF 26)	1REF
13.	7T61N087	LOCK RING SEAL (PART OF 31)	1REF	29.	7T2N4037	WEAR RING (PART OF 31)	1REF
14.	6I025087	PISTON	1	30.	7PNPXT02	PLUG 1/8NPT (PART OF 1)	8REF
15.	7Q072137	O-RING (PART OF 31)	1REF	31.	9X095850	SEAL KIT	1
16.	7T66P025	PISTON SEAL (PART OF 31)	1REF		(INCL:3-6,9-13,15,16,19,21,22,24,25)		

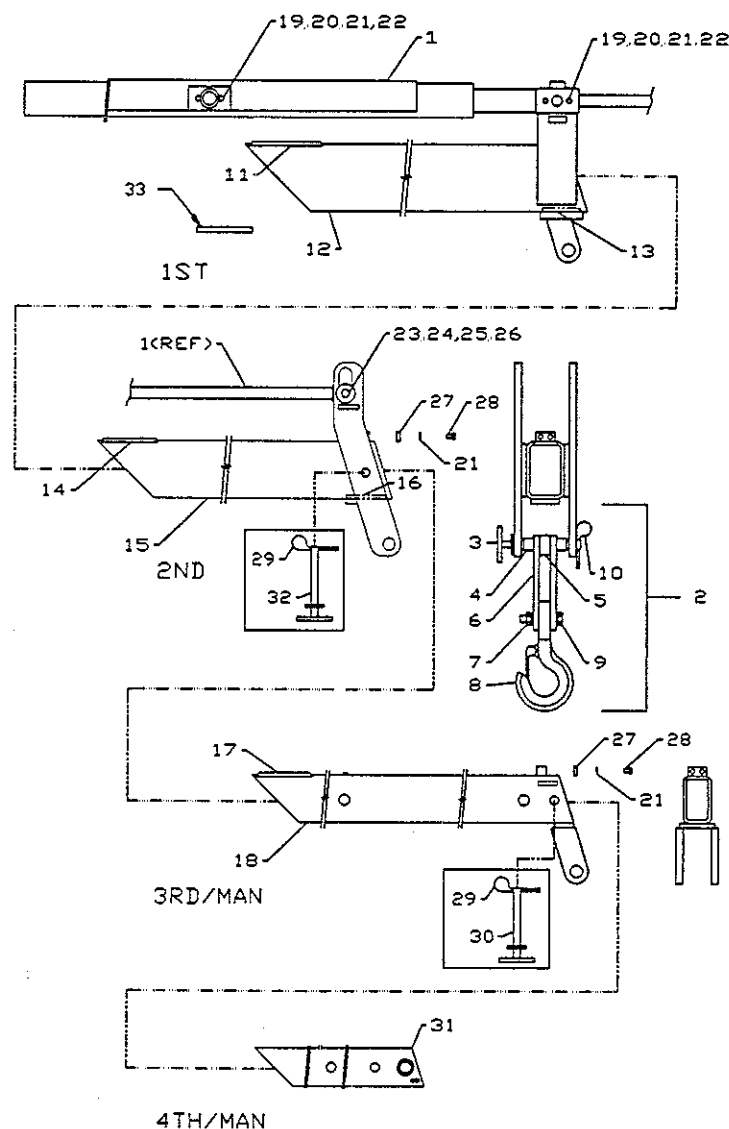
Figure D-15. 2-STAGE EXTENSION CYLINDER (3K120850)



ITEM	PART NO.	DESCRIPTION	QTY
1.	3K120850	EXTENSION CYLINDER	1
2.	51706266	HOOK ASM 8-TON (INCL:3-10)	1
3.	52705801	PIN (PART OF 2)	1REF
4.	60102466	SLEEVE (PART OF 2)	2REF
5.	60108857	SLEEVE (PART OF 2)	1REF
6.	60107324	LINK (PART OF 2)	2REF
7.	72062073	NUT 1 1/4-7 LOCK (PART OF 2)	1REF
8.	60103575	HOOK 8-TON (PART OF 2)	1REF
9.	72601666	CAP SCR 1 1/4-7X4 HH GR5 (PART OF 2)	1REF
10.	72066145	HAIR PIN (PART OF 2)	1REF
11.	60030118	WEAR PAD	1
12.	52709681	1ST STG EXT BOOM	1
13.	60030123	WEAR PAD	1
14.	60030122	WEAR PAD	1

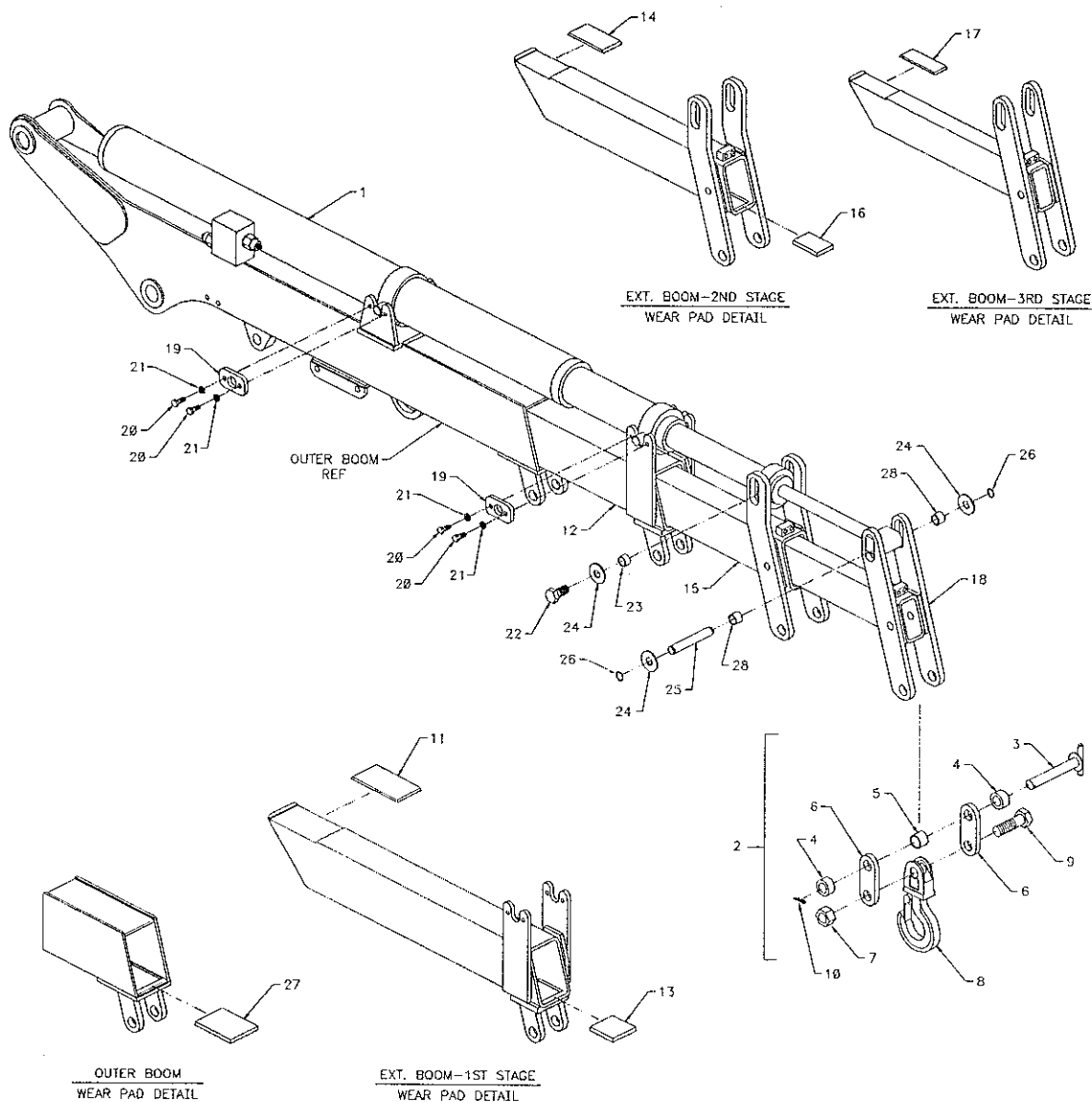
ITEM	PART NO.	DESCRIPTION	QTY
15.	52709682	2ND STG EXT BOOM	1
16.	60030202	WEAR PAD	1
17.	60030203	WEAR PAD	1
18.	52709683	3RD STG EXT BOOM - MANUAL	1
19.	60107152	PLATE	4
20.	72060092	CAP SCR 1/2-13X1-1/4 HH GR5	8
21.	72063053	WASHER 1/2 LOCK	10
22.	60113933	SPACER	4
23.	60020197	ROLLER	4
24.	72063010	WASHER 1 WRT	2
25.	60106833	PIN	1
26.	72066125	RETAINING RING 1" EXT HD	2
27.	60030119	WEAR PAD	1
28.	60107294	STROKE STOP	1
29.	72060094	CAP SCR 1/2-13X1-3/4 HH GR5	2
30.	52705802	PIN	1
31.	72066145	HAIR PIN 3/16	1

Figure D-16. EXTENSION BOOM ASSEMBLY-2H1M (41709701)



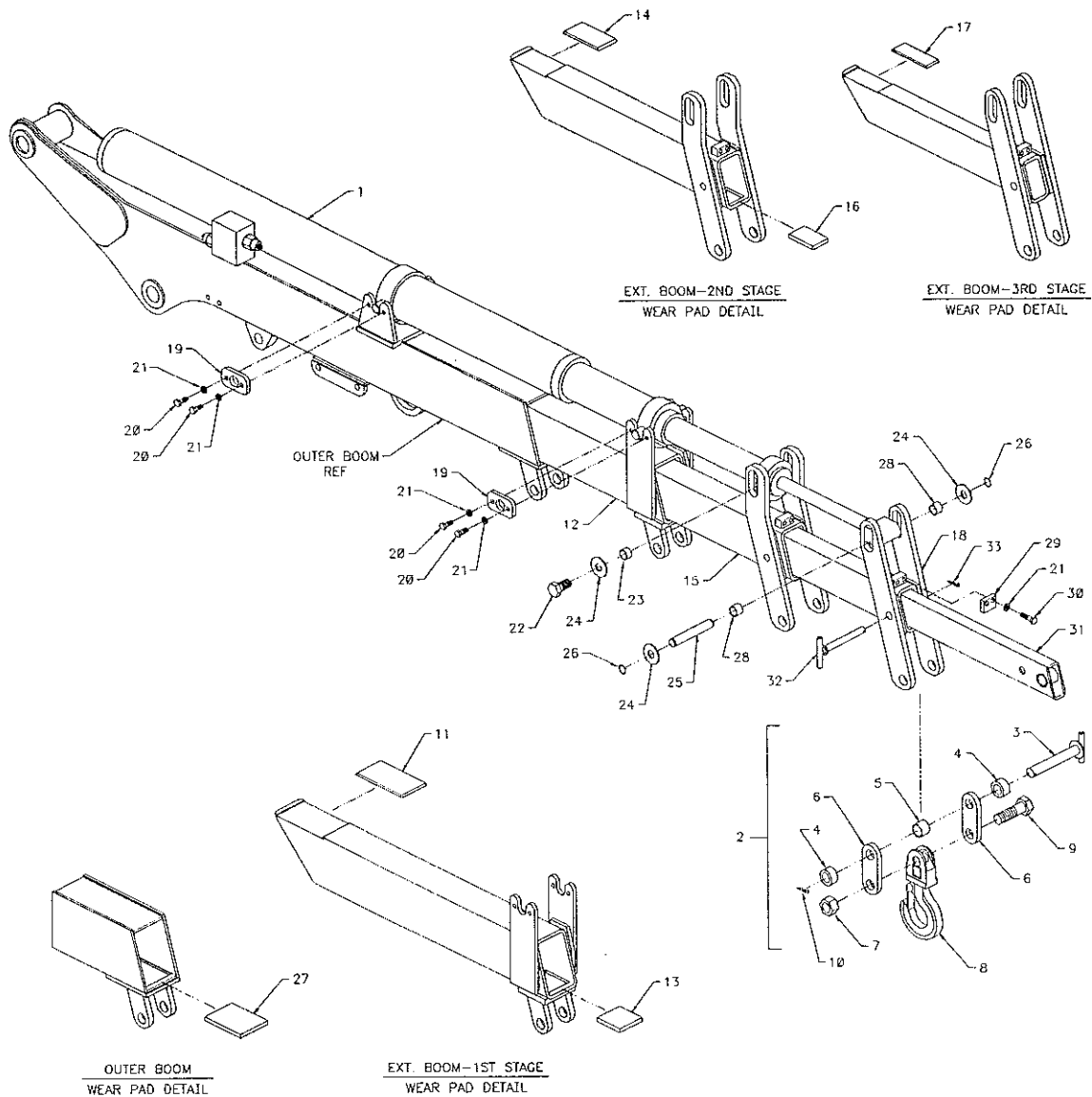
ITEM	PART NO	DESCRIPTION	QTY	ITEM	PART NO	DESCRIPTION	QTY
1.	3K120850	EXTENSION CYLINDER	1	16.	60030202	WEAR PAD	1
2.	51706266	HOOK ASM 8-TON (INCL:3-10)	1	17.	60030203	WEAR PAD	1
3.	52705801	PIN (PART OF 2)	1REF	18.	52709683	3RD STG EXT BOOM - MANUAL	1
4.	60102466	SLEEVE (PART OF 2)	2REF	19.	60107152	PLATE	4
5.	60108857	SLEEVE (PART OF 2)	1REF	20.	72060092	CAP SCR 1/2-13X1-1/4 HH GR5	8
6.	60107324	LINK (PART OF 2)	2REF	21.	72063053	WASHER 1/2 LOCK	12
7.	72062073	NUT 1 1/4-7 LOCK (PART OF 2)	1REF	22.	60113933	SPACER	4
8.	60103575	HOOK 8-TON (PART OF 2)	1REF	23.	60106833	PIN	1
9.	72601666	CAP SCR 1 1/4-7X4 HH GR5 (PART OF 2)	1REF	24.	60020197	ROLLER	4
10.	72066145	HAIR PIN (PART OF 2)	1REF	25.	72066125	RETAINING RING 1" EXT HD	2
11.	60030118	WEAR PAD	1	26.	72063010	WASHER 1 WRT	2
12.	52709681	1ST STG EXT BOOM	1	27.	60107294	STROKE STOP	2
13.	60030123	WEAR PAD	1	28.	72060094	CAP SCR 1/2-13X1-3/4 HH GR5	4
14.	60030122	WEAR PAD	1	29.	72066145	HAIR PIN 3/16	2
15.	52709682	2ND STG EXT BOOM	1	30.	52707478	PIN	1
				31.	52709502	4TH STG EXT BOOM - MANUAL	1
				32.	52705802	PIN	1
				33.	60030119	WEAR PAD	1

Figure D-17. EXTENSION BOOM ASSEMBLY-2H2M (41709702)



ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1.	3K150920	EXTENSION CYLINDER	1	15.	52709682	2ND STG EXT BOOM	1
2.	51706266	HOOK ASM 8-TON(INCL:3-10	1	16.	60030202	WEAR PAD	1
3.	52705801	PIN (PART OF 2)	1REF	17.	60030203	WEAR PAD	1
4.	60102466	SLEEVE (PART OF 2)	2REF	18.	52709684	3RD STG EXT BOOM	1
5.	60108857	SLEEVE (PART OF 2)	1REF	19.	60107152	CYL RETAINING PLATE	4
6.	60107324	HOOK LINK (PART OF 2)	2REF	20.	72060092	CAP SCR 1/2-13X1-1/4 HH GR5	8
7.	72062073	NUT 1-1/2-7 LOCK	1REF	21.	72063053	WASHER 1/2 LOCK	8
8.	60103575	HOOK 8-TON (PART OF 2)	1REF	22.	72601591	CAP SCR 1-14X2 HH GR5	2
9.	72601666	CAP SCR 1-1/4-7X4 HH GR5 (PART OF 2	1REF	23.	60020198	ROLLER	2
10.	72066145	HAIR PIN (PART OF 2)	1REF	24.	72063010	WASHER 1 WRT	4
11.	60030118	WEAR PAD	1	25.	60106065	PIN	1
12.	52709681	1ST STG EXT BOOM	1	26.	72066125	RETAINING RING 1"	2
13.	60030123	WEAR PAD	1	27.	60030119	WEAR PAD	1
14.	60030122	WEAR PAD	1	28.	60020197	ROLLER	2

Figure D-18. EXTENSION BOOM ASSEMBLY-3H (41709703)



ITEM	PART NO.	DESCRIPTION	QTY
1.	3K150920	EXTENSION CYLINDER	1
2.	51706266	HOOK ASM 8-TON (INCL:3-10)	1
3.	52705801	PIN (PART OF 2)	1REF
4.	60102466	SLEEVE (PART OF 2)	2REF
5.	60108857	SLEEVE (PART OF 2)	1REF
6.	60107324	LINK (PART OF 2)	1REF
7.	72062073	NUT 1 1/4-7 LOCK (PART OF 2)	1REF
8.	60103575	HOOK 8-TON (PART OF 2)	1REF
9.	72601666	CAP SCR 1 1/4-7X4 HH GR5 (PART OF 2)	1REF
10.	72066145	HAIR PIN (PART OF 2)	1REF
11.	60030118	WEAR PAD	1
12.	52709681	1ST STG EXT BOOM	1
13.	60030123	WEAR PAD	1
14.	60030122	WEAR PAD	1
15.	52709682	2ND STG EXT BOOM	1

ITEM	PART NO.	DESCRIPTION	QTY
16.	60030202	WEAR PAD	1
17.	60030203	WEAR PAD	1
18.	52709684	3RD STG EXT BOOM	1
19.	60107152	PLATE	4
20.	72060092	CAP SCR 1/2-13X1-1/4 HH GR5	8
21.	72063053	WASHER 1/2 LOCK	10
22.	72061591	CAP SCR 1-14 X 2 HH GR5	2
23.	60020198	ROLLER	2
24.	72063010	WASHER 1" WRT	4
25.	60106065	PIN	1
26.	7206125	RETAINING RING 1" EXT HD	2
27.	60030119	WEAR PAD	1
28.	60020197	ROLLER	2
29.	60107294	STOP	1
30.	72060094	CAP SCR 1/2-13X1-3/4 HH GR5	2
31.	52709502	4TH STG EXT BOOM	1
32.	52705883	PIN	1
33.	72066145	HAIR PIN	1

Figure D-19. EXTENSION BOOM ASSEMBLY-3H1M (41709704)

NOTE

IT IS RECOMMENDED THAT ALL COMPONENTS OF THE SEAL KIT BE REPLACED WHENEVER THE CYLINDER IS DISASSEMBLED. THIS WILL REDUCE FUTURE DOWNTIME.

APPLY "LUBRIPLATE #630-2" MEDIUM HEAVY, MULTI-PURPOSE LUBRICANT OR EQUIVALENT TO ALL PISTON AND HEAD GLANDS, LOCK RING AND ROD THREADS BEFORE ASSEMBLY.

USE "NEVER-SEEZ" OR EQUIVALENT BETWEEN THE HEAD AND THE CASE WHEN ASSEMBLING THE CYLINDER.

ITEM	PART NO.	DESCRIPTION	QTY
1.	4C150920	CASE ASM	1
2.	4J148920	ROD / CASE ASM 4-1/2 OD	1
3.	4K148920	ROD / CASE ASM 3 OD	1
4.	4H066900	ROD ASM	1
5.	4P066900	INTERNAL PORT ASM	1
6.	4FG06690	MTG RING 4-1/2 ID	1
7.	5FG66900	MTG RING 3 ID	1
8.	6I503369	PISTON 5"	1
9.	6I352269	PISTON 3-1/2"	1
10.	6I252144	PISTON 2-1/2"	1
11.	6H503450	HEAD 5"	1
12.	6H352300	HEAD 3-1/2"	1
13.	6H271511	HEAD 2-1/2"	1
14.	6C400150	STOP TUBE 1-1/2 X 4L	1
15.	73054817	COUNTERBALANCE VALVE	1
16.	73054902	COUNTERBALANCE VALVE	1
17.	9X355900	SEAL KIT (INCL:18-35,39-43)	1
18.	7Q10P228	BACK-UP RING (PART OF 17)	3REF
19.	7Q072228	O-RING (PART OF 17)	2REF
20.	7Q10P338	BACK-UP RING (PART OF 17)	1REF
21.	7Q072338	O-RING (PART OF 17)	1REF
22.	7Q10P350	BACK-UP RING (PART OF 17)	1REF
23.	7Q072350	O-RING (PART OF 17)	1REF
24.	7Q072240	O-RING (PART OF 17)	1REF
25.	7R546015	U-CUP SEAL (PART OF 17)	1REF
26.	7R546030	U-CUP SEAL (PART OF 17)	1REF
27.	7R488450	U-CUP SEAL (PART OF 17)	1REF
28.	7R100750	U-CUP SEAL (PART OF 17)	3REF
29.	7T66P250	PISTON SEAL (PART OF 17)	1REF
30.	7T66P350	PISTON SEAL (PART OF 17)	1REF
31.	7T66P500	PISTON SEAL (PART OF 17)	1REF
32.	7R14P015	ROD WIPER (PART OF 17)	1REF
33.	7R14P030	ROD WIPER (PART OF 17)	1REF
34.	7R14P045	ROD WIPER (PART OF 17)	1REF
35.	7T2N4050	WEAR RING (PART OF 17)	2REF
36.	7PNPXT02	PLUG 1/8NPT (PART OF 1)	4REF
37.	7Q092916	O-RING (PART OF 5)	1REF
38.	72053507	ZERK 1/4-28	1
39.	7T2N4025	WEAR RING (PART OF 17)	1REF
40.	7T2N4035	WEAR RING (PART OF 17)	1REF
41.	7T2N8047	ROD WEAR RING (PART OF 1)	1REF
42.	7T2N8032	ROD WEAR RING (PART OF 1)	1REF
43.	7T2N8015	ROD WEAR RING (PART OF 1)	1REF

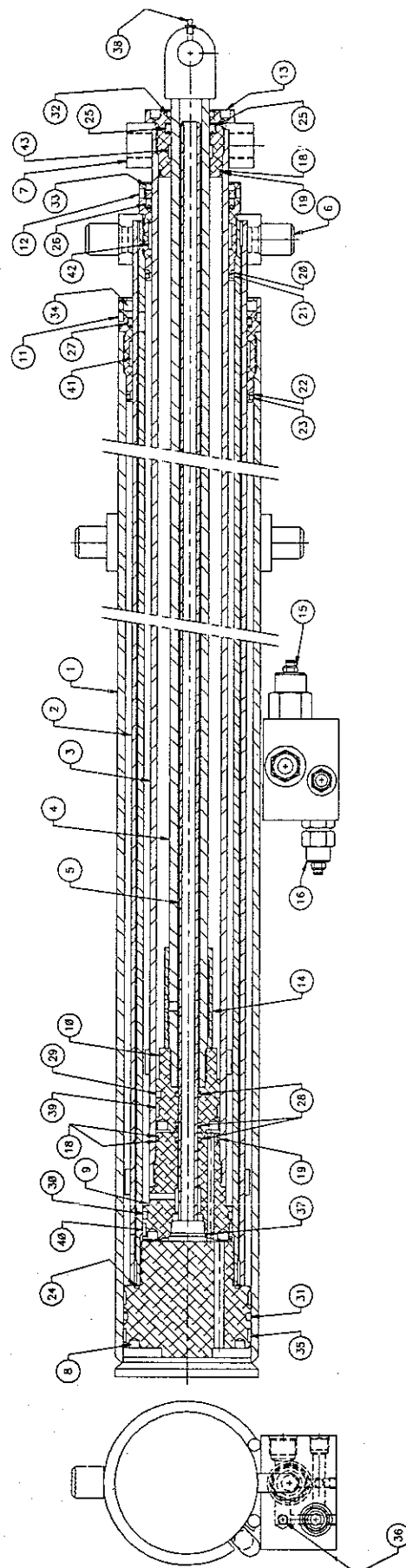


Figure D-20. 3-STAGE EXTENSION CYLINDER (3K150920)

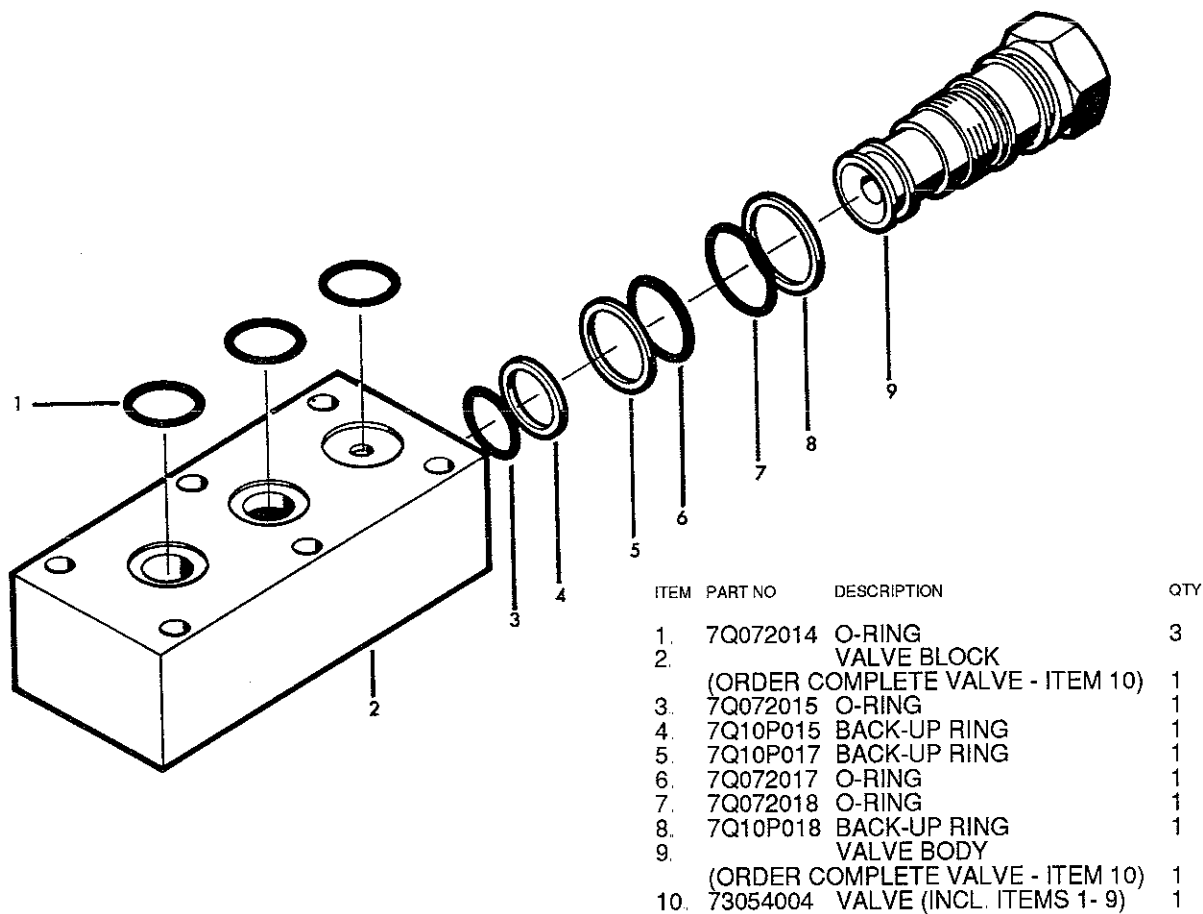


Figure D-21. LOCKING/HOLDING VALVE (73054004)

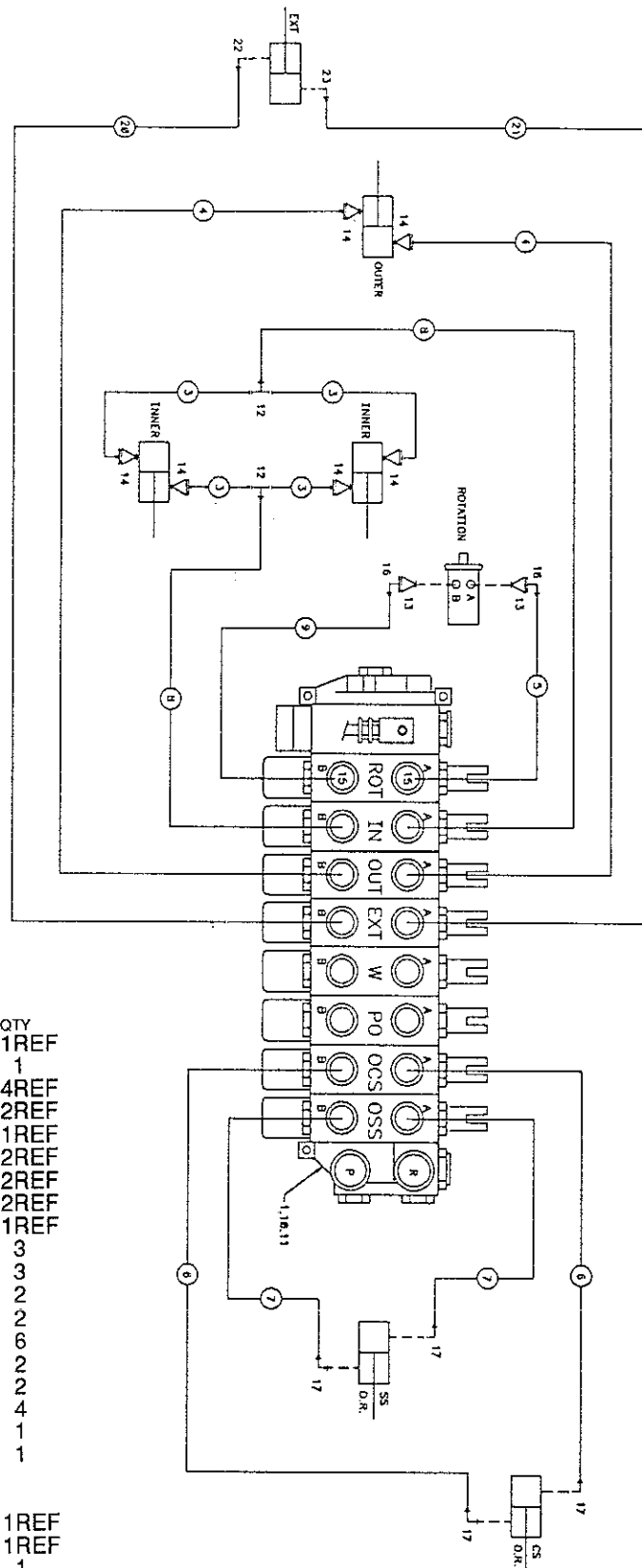
ITEM	PART NO	DESCRIPTION	QTY
1.		VALVEBANK ASM	1REF
2.	51713019	HOSE KIT (INCL:3-9)	1
3.	51394110	HOSE ASM 3/8X34 #8F #8F	4REF
4.	51394111	HOSE ASM 3/8X147 #8F #8F	2REF
5.	51393971	HOSE ASM 1/4X57 #4F #4F	1REF
6.	51394112	HOSE ASM 3/8X83 #8F #8F	2REF
7.	51394113	HOSE ASM 3/8X113 #8F #8F	2REF
8.	51394114	HOSE ASM 3/8X45 #8F #8F	2REF
9.	51394115	HOSE ASM 1/4X59 #4F #4F	1REF
10.	72060032	CAP SCR 5/16-18X2-3/4 HHGR5	3
11.	72062109	NUT 5/16-18 LOCK	3
12.	72531205	TEE 3/4MJIC 1/2TUBE	2
13.	72532351	ADAPTER #4MSTR #4MJIC	2
14.	72532358	ADAPTER #8MSTR #8MJIC	6
15.	72532665	ADAPTER #4MJIC #8FJIC	2
16.	72532690	ELBOW #4MJIC #4FJIC SW	2
17.	72532779	ELBOW #6MSTR #8MJIC XLG	4
18.	51713020	HOSE KIT:3 STG EXT (INCL:20-21)	1
19.	51713021	HOSE KIT:1-2 STG EXT (INCL:20-21)	1

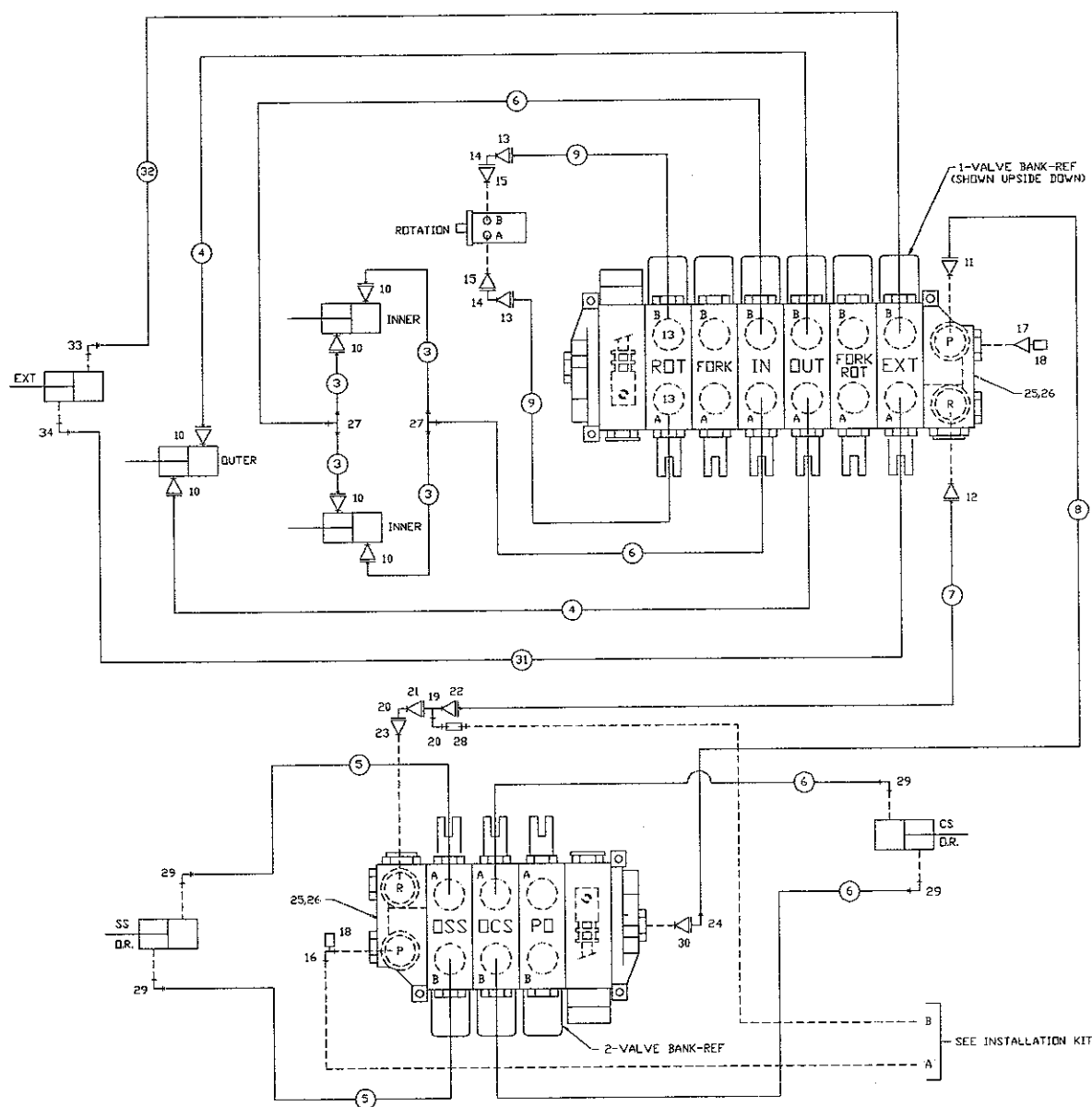
FOR CRANES WITH 1 OR 2 STG HYD EXT CYL

20.	51394116	HOSE ASM 1/2X243 #8F #8F-EXT	1REF
21.	51394118	HOSE ASM 1/2X243 #8F #8F-RET	1REF
22.	72532740	ELBOW #8MSTR #8MJIC SWVL 90°	1
23.	72532740	ELBOW #8MSTR #8MJIC SWVL 90°	1

FOR CRANES WITH 3 STG HYD EXT CYL

20.	51394117	HOSE ASM 3/4X267 #12F #12F-EXT	1REF
21.	51394118	HOSE ASM 1/2X267 #8F #8F-RET	1REF
22.	72053767	ELBOW #12MSTR #12MJIC 90°	1
23.	72532666	ELBOW #8MSTR #8MJIC XLG	1

**Figure D-23. HYDRAULIC KIT - 6 SECTION (91706401)**



ITEM	PART NO	DESCRIPTION	QTY
1.		VALVEBANK ASM	REF
2.		VALVEBANK ASM	REF
3.	51703586	HOSE ASM 3/8X31 FF	4
4.	51703601	HOSE ASM 3/8X90 FF	2
5.	51704298	HOSE ASM 3/8X80 FF	2
6.	51704308	HOSE ASM 3/8X110 FF	4
7.	51704570	HOSE ASM 3/4X150 FF	1
8.	51705639	HOSE ASM 1/2X150 FF	1
9.	51706046	HOSE ASM 1/4X152 FF	2
10.	72532358	ADAPTER #8MSTR #8MJIC	6
11.	72532360	ADAPTER #12MSTR #8MJIC	1
12.	72532366	ADAPTER #12MSTR #12MJIC	1
13.	72532665	ADAPTER #4MJIC #8FJIC	4
14.	72532690	ELBOW #4MJIC #4FJIC SWVL	2
15.	72532351	ADAPTER #4MSTR #4MJIC	2
16.	60106322	ELBOW-PR GAUGE MOD	1
17.	60107746	MACH PLUG	1
18.	72053412	PIPE PLUG 1/4NPT SQHD	2
19.	72053555	TEE 3/4NPT	1
20.	72053556	STREET ELBOW 3/4NPT 90°	2

ITEM	PART NO.	DESCRIPTION	QTY
21.	72053558	ADAPTER 3/4MPT 3/4MPT	1
22.	72053676	ADAPTER 3/4MPT #12MJIC	1
23.	72053747	ADAPTER #12MSTR 3/4FPT	1
24.	72053763	ELBOW #8MSTR #8MJIC 90°	1
25.	72060032	CAP SCR 5/16-18X2-3/4 HHGR5	6
26.	72062109	NUT 5/16-18 LOCK	6
27.	72531205	TEE 3/4MJIC 1/2TUBE	2
28.	72531548	BARB NIPPLE 3/4MPT 3/4HOSE	1
29.	72532779	ELBOW #6MSTR #8MJIC XLG	4
30.	73731242	ADAPTER-PWR BEYOND	REF
FOR CRANES WITH 1 OR 2 STG HYD EXT CYL			
31.		SHORTEN EXISTING EXTEND HOSE TO 180"	
32.		SHORTEN EXISTING RETRACT HOSE TO 180"	
33.	720532740	ELBOW #8MSTR #8MJIC 90° SW	
34.	72532740	ELBOW #8MSTR #8MJIC 90° SW	
FOR CRANES WITH 3 STG HYD EXT CYL			
31.		SHORTEN EXISTING EXTEND HOSE TO 240"	
32.		SHORTEN EXISTING RETRACT HOSE TO 240"	
33.	72053767	ELBOW #12MSTR #12MJIC 90°	
34.	72532666	ELBOW #8MSTR #8MJIC XLG	

Figure D-24. HYDRAULIC KIT 6-SECTION CHAIR W/O MID INLET (91711315)

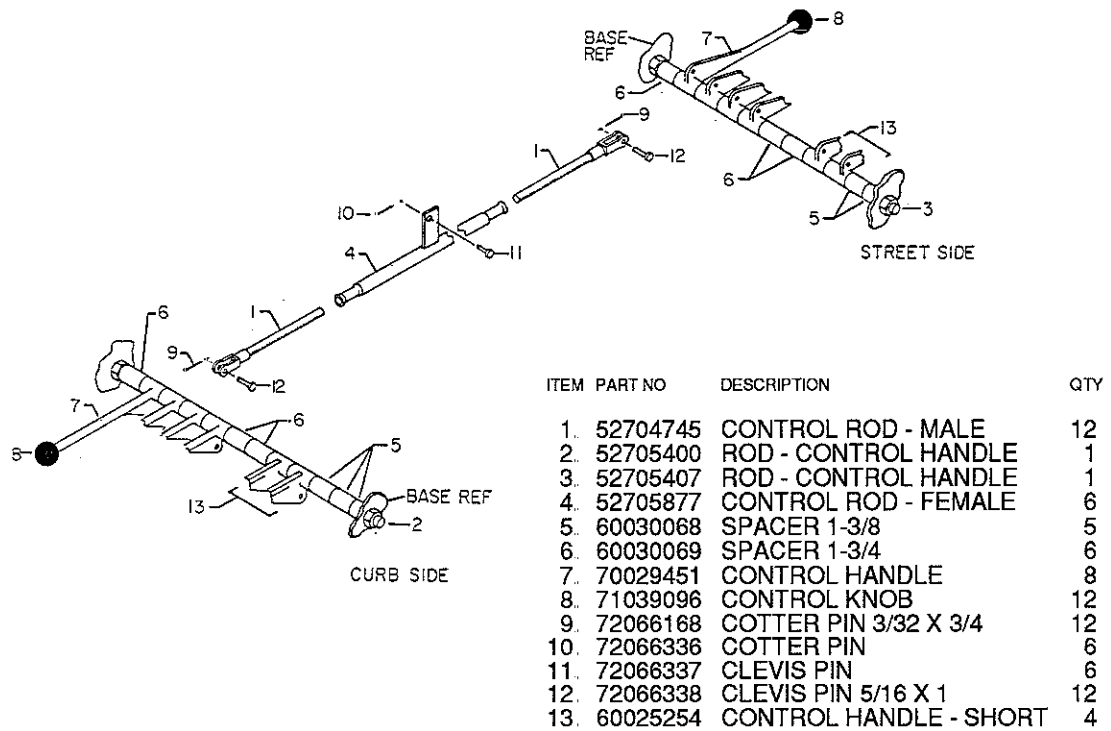


Figure D-25. CONTROL KIT - MANUAL 6- FUNTION(90705854)

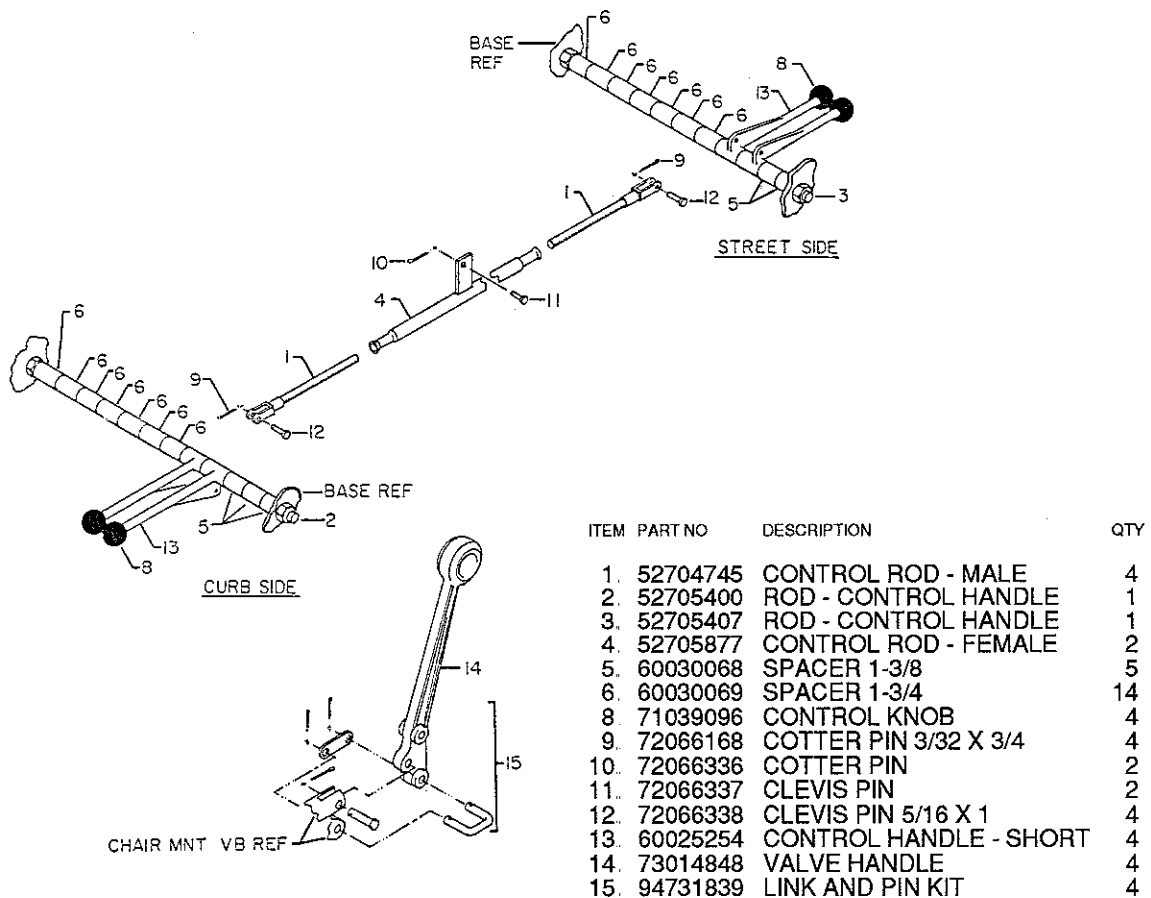


Figure D-26. CONTROL KIT - CHAIR MOUNT (90706137)

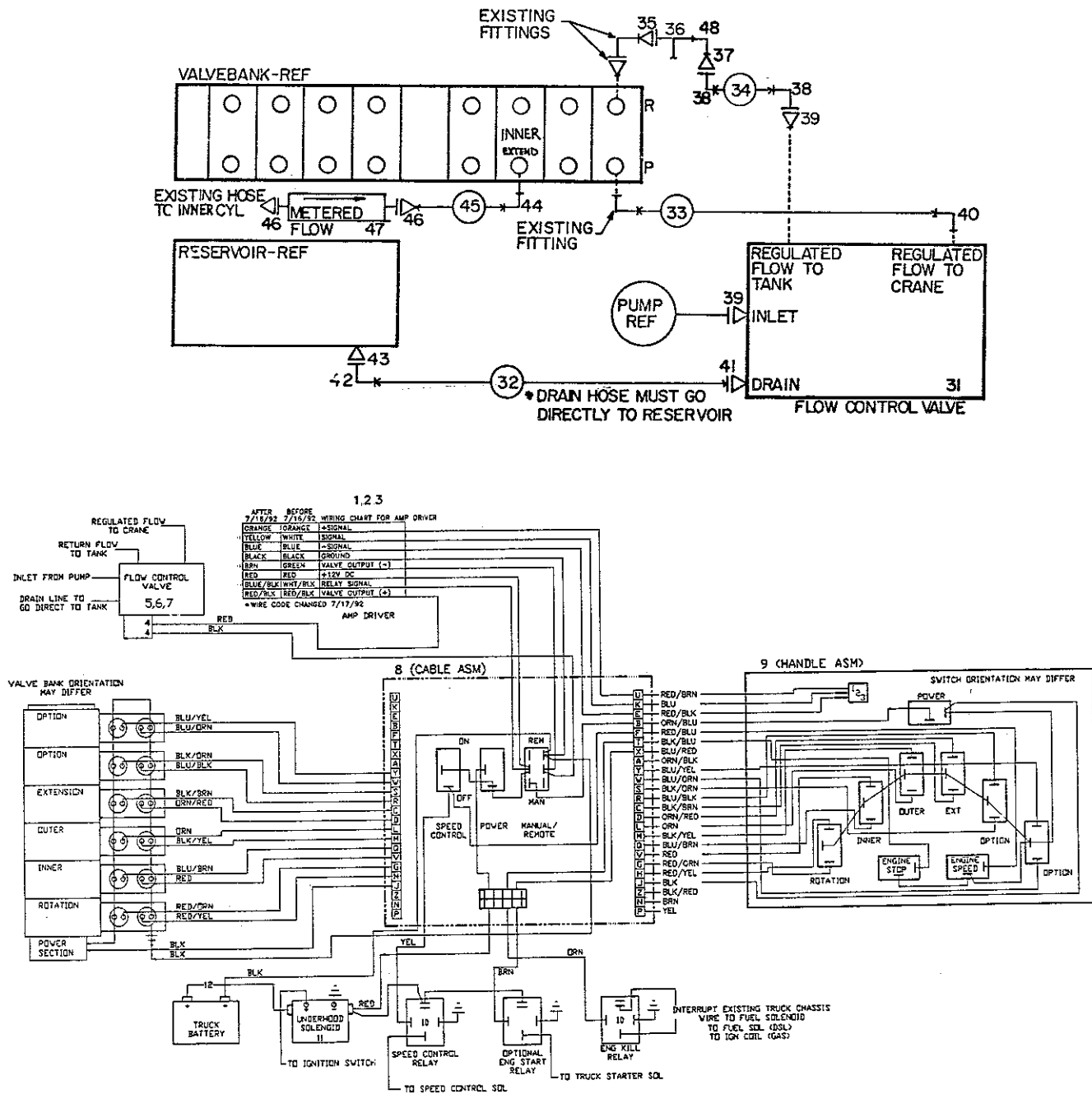
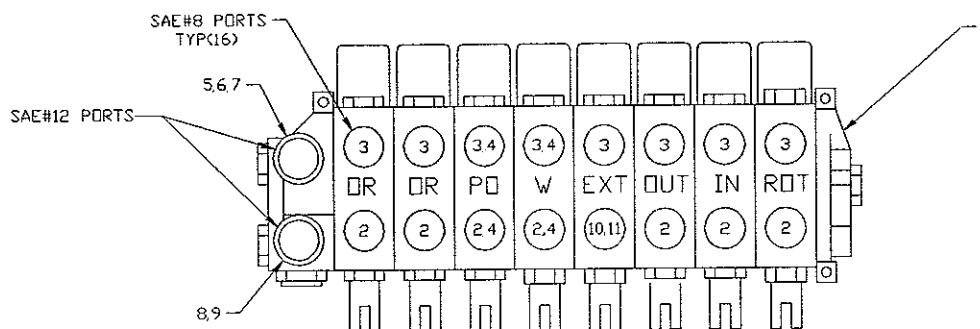


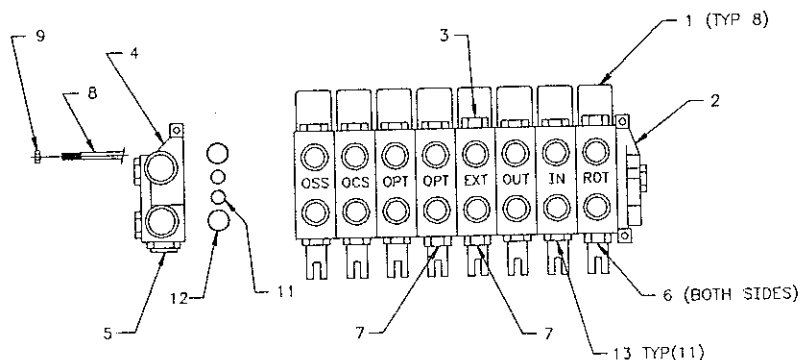
Figure D-27. REMOTE CONTROL KIT 6R/2M (90710017)



ITEM	PART NO.	DESCRIPTION	QTY
1.	73731768	VALVEBANK 8-SECT	1
2.	72053763	ELBOW #8MSTR #8MJIC 90°	7
3.	72532666	ELBOW #8MSTR #8MJIC 90° XLG	8
4.	72532675	CAP 3/4JIC STL	4
5.	60106322	ELBOW-PR GAUGE MOD	1
6.	72532669	ADAPTER #8MJIC #10FJIC	1
7.	72053241	PIPE PLUG 1/4NPT HOL HEX	1
8.	72053747	ADAPTER #12MSTR 3/4FPT	1
9.	72053556	STREET ELBOW 3/4NPT 90°	1
10.	72532364	ADAPTER #8MSTR #12MJIC	1
11.	72532696	ELBOW #12MJIC #12FJIC SWVL	1

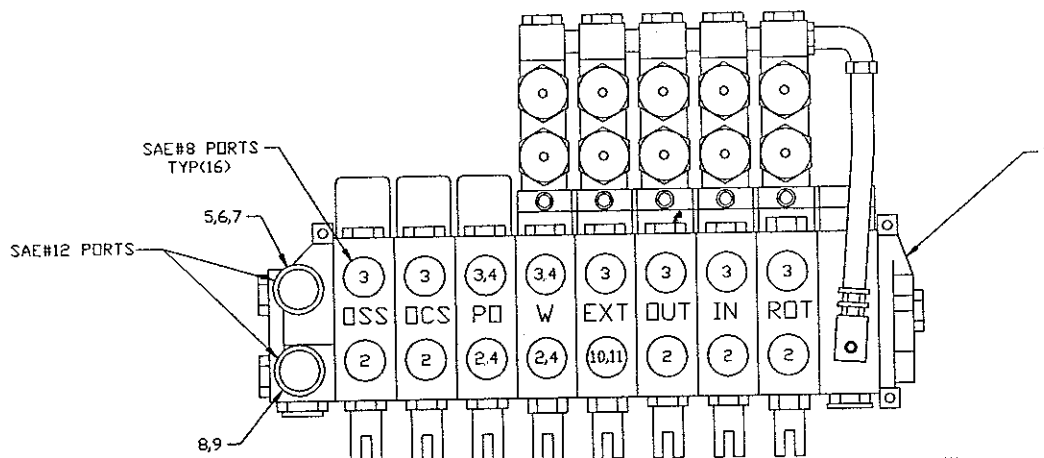
NOTE:
SET SYSTEM PRESSURE AT 2500PSI.

Figure D-28. VALVEBANK ASSEMBLY-8 SECTION MANUAL (51705853)



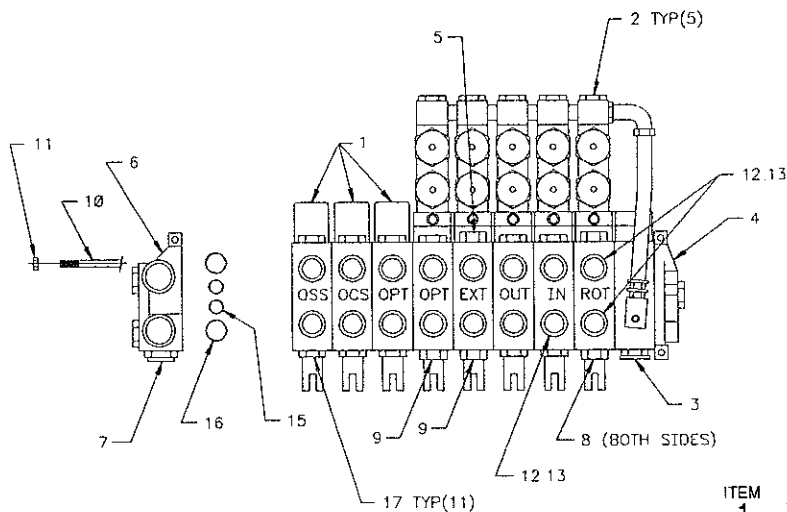
ITEM	PART NO.	DESCRIPTION	QTY
1.	73054432	VALVE SECT V20 4WAY SAE8	8
2.	73731241	END COVER RH W/CONV PLUG	1
3.	73054400	RELIEF 2300PSI NON-ADJ	1
4.	73731424	END COVER LH (INCL:5)	1
5.	73054637	RELIEF VALVE (PART OF 4)	1 REF
6.	73054516	RELIEF 1300PSI NON-ADJ	2
7.	73054007	RELIEF 1800PSI NON-ADJ	2
8.	73014668	STUD 3/8X17	3
9.	72062037	NUT 3/8-24 HEX	6
10.	51393494	O-RING KIT	REF
11.	7Q072117	O-RING	18
12.	7Q072119	O-RING	18
13.	73054010	LOAD CHECK PLUG ASM	11

Figure 28A. VALVEBANK (73731768)



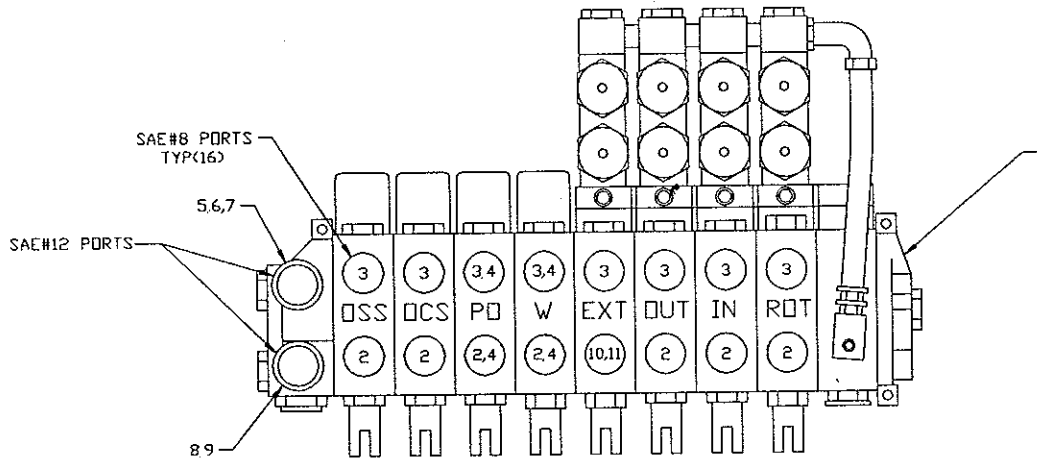
ITEM	PART NO.	DESCRIPTION	QTY
1.	51705934	VALVEBANK 5R/3M	1
2.	72053763	ELBOW #8MSTR #8MJIC 90°	7
3.	72532666	ELBOW #8MSTR #8MJIC 90° XLG	8
4.	72532675	CAP 3/4JIC STL	4
5.	60106322	ELBOW-PR GAUGE MOD	1
6.	72532669	ADAPTER #8MJIC #10FJIC	1
7.	72053241	PIPE PLUG 1/4 HOLHEX	1
8.	72053747	ADAPTER #12MSTR 3/4FPT	1
9.	72053556	STREET ELBOW 3/4NPT 90°	1
10.	72532364	ADAPTER #8MSTR #12MJIC	1
11.	72532696	ELBOW #12MJIC #12FJIC SW	1

Figure D-29. VALVEBANK ASSEMBLY-5R/3M (51705935)



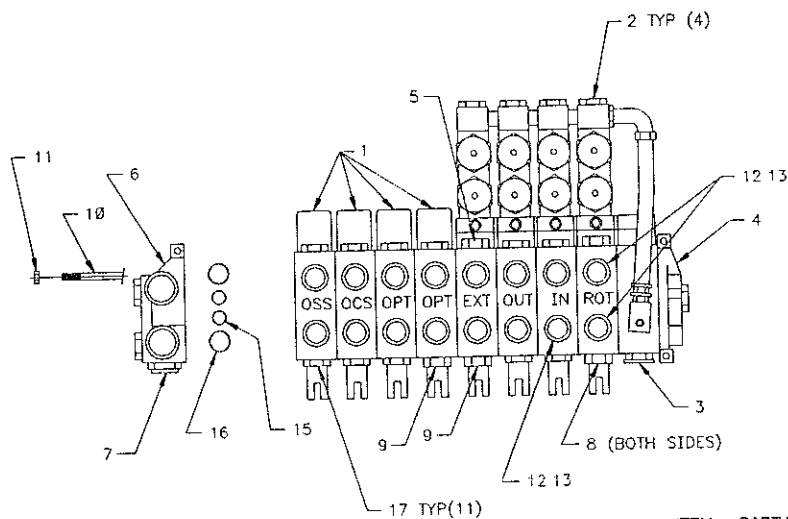
ITEM	PART NO.	DESCRIPTION	QTY
1.	73054432	VALVE SECT V20 4WAY SAE8	3
2.	73054468	VALVE SECT V20R 4WAY SAE8	5
3.	73054502	VALVE SECT V20R UTILITY	1
4.	73731241	END COVER RH W/CONV PLUG	1
5.	73054400	RELIEF 2300PSI NON-ADJ	1
6.	73731424	END COVER LH (INCL:7)	1
7.	73054673	RELIEF VALVE (PART OF 6)	1 REF
8.	73054516	RELIEF 1300PSI NON-ADJ	2
9.	73054007	RELIEF 1800PSI NON-ADJ	2
10.	73014672	STUD 3/8X18-3/4	3
11.	72062037	NUT 3/8-24 HEX	6
12.	70142402	ORIFICE PLATE	3
13.	70142403	SPRING	3
14.	51393494	O-RING KIT	REF
15.	7Q072117	O-RING	20
16.	7Q072119	O-RING	20
17.	73054010	LOAD CHECK PLUG ASM	11

Figure 29A. VALVEBANK (51705934)



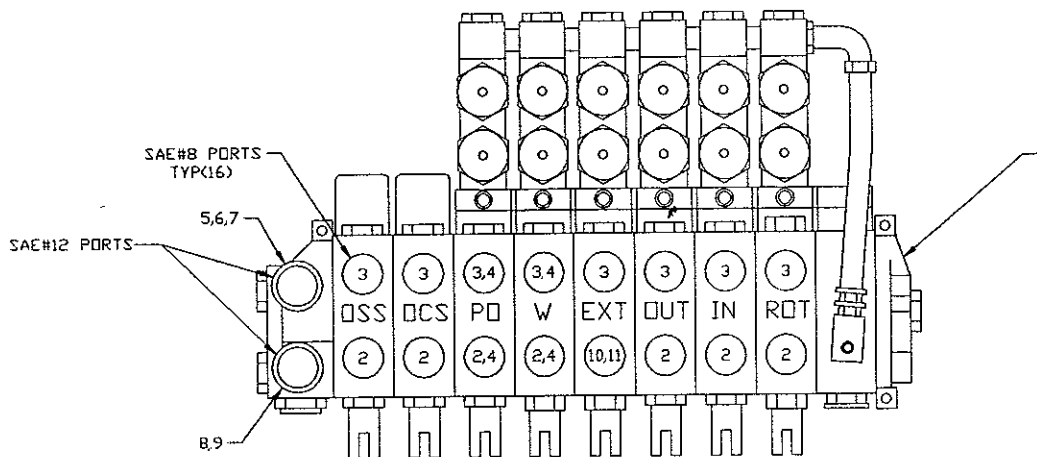
ITEM	PART NO.	DESCRIPTION	QTY
1.	51706376	VALVEBANK 8-SECT 4R/4M	1
2.	72053763	ELBOW #8MSTR #8MJIC 90°	8
3.	72532666	ELBOW #8MSTR #8MJIC 90° XLG	8
4.	72532675	CAP 3/4JIC STL	4
5.	60106322	ELBOW-PR GAUGE MOD	1
6.	72532669	ADAPTER #8MJIC #10FJIC	1
7.	72053241	PIPE PLUG 1/4NPT HOLHEX	1
8.	72053747	ADAPTER #12MSTR 3/4FPT	1
9.	72053556	STREET ELBOW 3/4NPT 90°	1
10.	72532364	ADAPTER #8MSTR #12MJIC	1
11.	72532696	ELBOW #12MJIC #12FJIC SW	1

Figure D-30. VALVEBANK - 4R/4M (51706377)



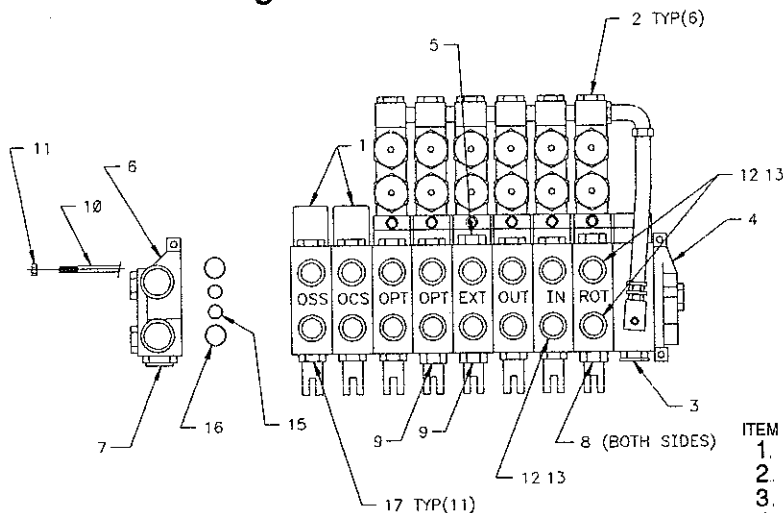
ITEM	PART NO.	DESCRIPTION	QTY
1.	73054432	VALVE SECT V20 4WAY SAE8	4
2.	73054468	VALVE SECT V20R 4WAY SAE8	4
3.	73054502	VALVE SECT V20R UTILITY	1
4.	73731241	END COVER RH W/CONV PLUG	1
5.	73054400	RELIEF 2300PSI NON-ADJ	1
6.	73731424	END COVER LH (INCL:7)	1
7.	73054537	RELIEF VALVE (PART OF 6)	1 REF
8.	73054516	RELIEF 1300PSI NON-ADJ	2
9.	73054007	RELIEF 1800PSI NON-ADJ	2
10.	73014672	STUD 3/8X18-3/4	3
11.	72062037	NUT 3/8-24 HEX	6
12.	70142402	ORIFICE PLATE	3
13.	70142403	SPRING	3
14.	51393494	O-RING KIT	REF
15.	7Q072117	O-RING	20
16.	7Q072119	O-RING	20
17.	73054010	LOAD CHECK PLUG ASM	11

Figure D-30A. VALVEBANK (51706376)



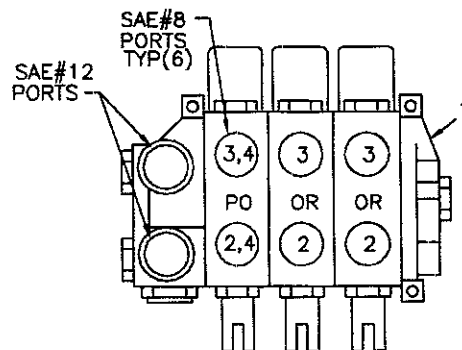
ITEM	PART NO.	DESCRIPTION	QTY
1.	51706378	VALVEBANK 6R/2M	1
2.	72053763	ELBOW #8MSTR #8MJIC 90°	8
3.	72532666	ELBOW #8MSTR #8MJIC XLG90°	8
4.	72532675	CAP 3/4JIC STL	4
5.	60106322	ELBOW-PR GAUGE MOD	1
6.	72532669	ADAPTER #8MJIC #10FJIC	1
7.	72053241	PIPE PLUG 1/4NPT HOLHEX	1
8.	72053747	ADAPTER #12MSTR 3/4FPT	1
9.	72053556	STREET ELBOW 3/4NPT 90°	1
10.	72532364	ADAPTER #8MSTR #12MJIC	1
11.	72532696	ELBOW #12MJIC #12FJIC SW	1

Figure D-31. VALVEBANK - 6 REMOTE/2 MANUAL (51706389)



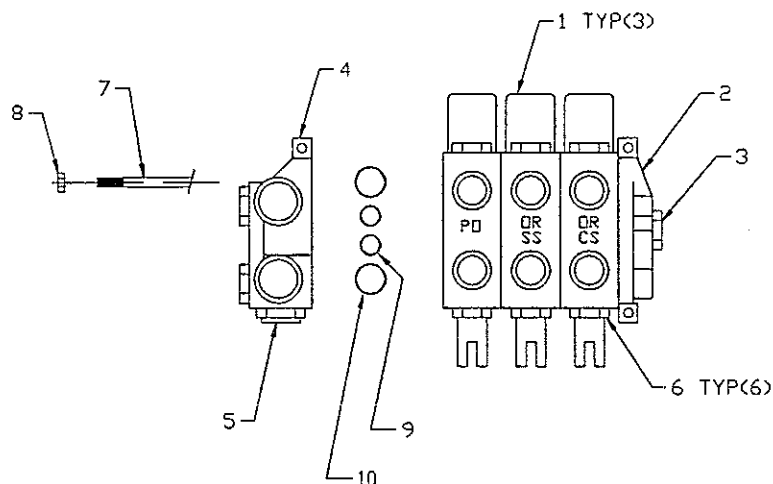
ITEM	PART NO.	DESCRIPTION	QTY
1.	73054432	VALVE SECT V20 4WAY SAE8	2
2.	73054468	VALVE SECT V20R 4WAY SAE8	6
3.	73054502	VALVE SECT V20R UTILITY	1
4.	73731241	END COVER RH W/CONV PLUG	1
5.	73054400	RELIEF 2300PSI NON-ADJ	1
6.	73731424	END COVER LH (INCL:7)	1
7.	73054673	RELIEF VALVE (PART OF 6)	1 REF
8.	73054516	RELIEF 1300PSI NON-ADJ	2
9.	73054007	RELIEF 1800PSI NON-ADJ	2
10.	73014672	STUD 3/8X18-3/4	3
11.	72062037	NUT 3/8-24 HEX	6
12.	70142402	ORIFICE PLAE	3
13.	70142403	SPRING	3
14.	51393494	O-RING KIT	REF
15.	7Q072117	O-RING	20
16.	7Q072119	O-RING	20
17.	73054010	LOAD CHECK PLUG ASM	11

Figure D-31A. VALVEBANK (51706378)



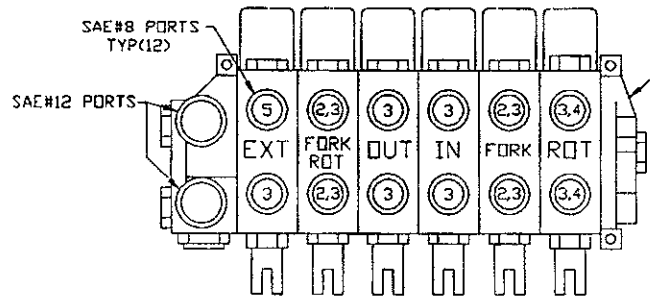
ITEM	PART NO.	DESCRIPTION	QTY
1.	51705973	VALVEBANK 3 SECT W/PB	1
2.	72053763	ELBOW #8MSTR #8MJIC 90°	3
3.	72532666	ELBOW #8MSTR #8MJIC XLG	3
4.	72532675	CAP #8JIC	2

Figure D-32. VALVEBANK ASSEMBLY - 3 SECTION W/POWER BEYOND (51706751)



ITEM	PART NO.	DESCRIPTION	QTY
1.	73054432	VALVE SECT 4-WAY SAE#8	3
2.	73054442	END COVER RH	1
3.	73731242	POWER BEYOND ADAPTER SAE#8	1
4.	73731424	END COVER LH	1
5.	73054643	RELIEF VALVE 2300PSI	1
6.	73054010	LOAD CHECK PLUG ASM	6
7.	73014594	STUD 3/8-24X8-1/4	3
8.	72062037	NUT 3/8-24 HEX	6
9.	7Q072117	O-RING .81X1X.09	8
10.	7Q072119	O-RING .94X1.12X.09	8
11.	51393494	O-RING KIT (SERVICE PART)	REF

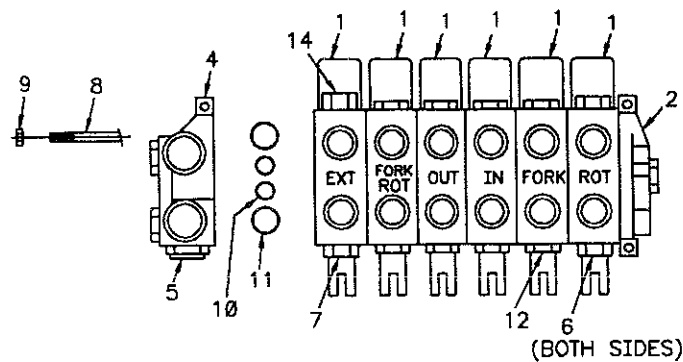
Figure D-32A. VALVEBANK (51705973)



ITEM	PART NO.	DESCRIPTION	QTY
1.	51711324	VALVEBANK ASM 6-SECT	1
2.	72532675	CAP 3/4JIC STL	4
3.	72532358	ADAPTER 3/4MSTR 3/4MJIC	11
4.	72532665	ADAPTER 3/4FJIC 7/16MJIC	2
5.	72532364	ADAPTER #8MSTR #12MJIC	1

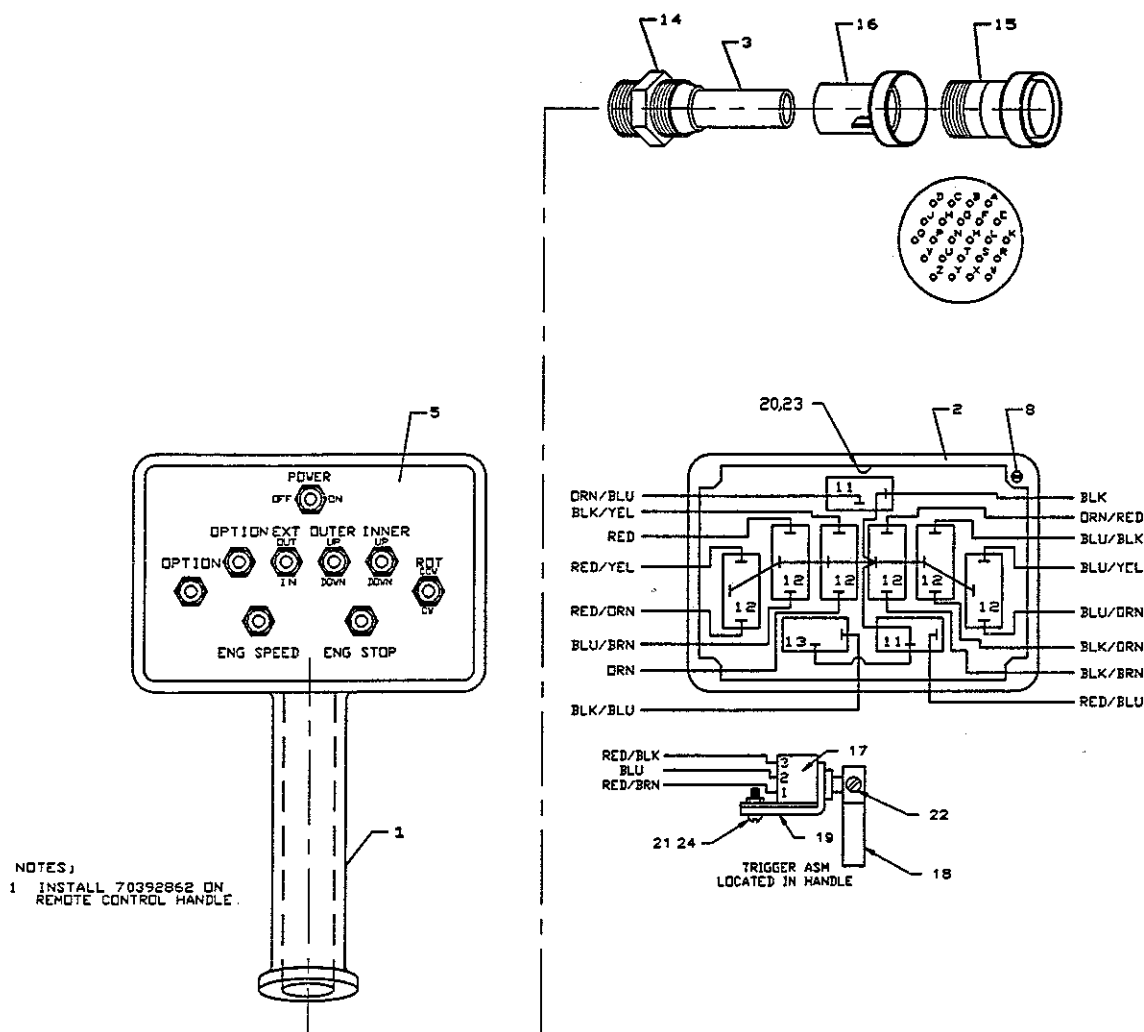
NOTE:
SET SYSTEM PRESSURE AT 2500PSI.

Figure D-33. VALVEBANK ASSEMBLY 6-SECTION CHAIR MOUNT (51711543)



ITEM	PART NO.	DESCRIPTION	QTY
1	73054432	VALVE SECT V20 4WAY SAE#8	6
2.	73731241	END COVER RH W/CONV PLUG	1
4.	73731424	END COVER LH (INCL:5)	1
5.	73054673	RELIEF VALVE (PART OF 4)	1REF
6.	73054516	RELIEF 1300PSI NON ADJ	2
7.	73054007	RELIEF 1800PSI NON ADJ	1
8.	73014595	STUD 3/8X13-1/2	3
9.	72062037	NUT 3/8-24 HEX	6
10.	7Q072117	O-RING	14
11.	7Q072119	O-RING	14
12.	73054010	LOAD CHECK PLUG ASM	9
13.	51393494	O-RING KIT-SERVICE PART	REF
14.	73054400	RELIEF-RC NON-ADJ 2300PSI	1

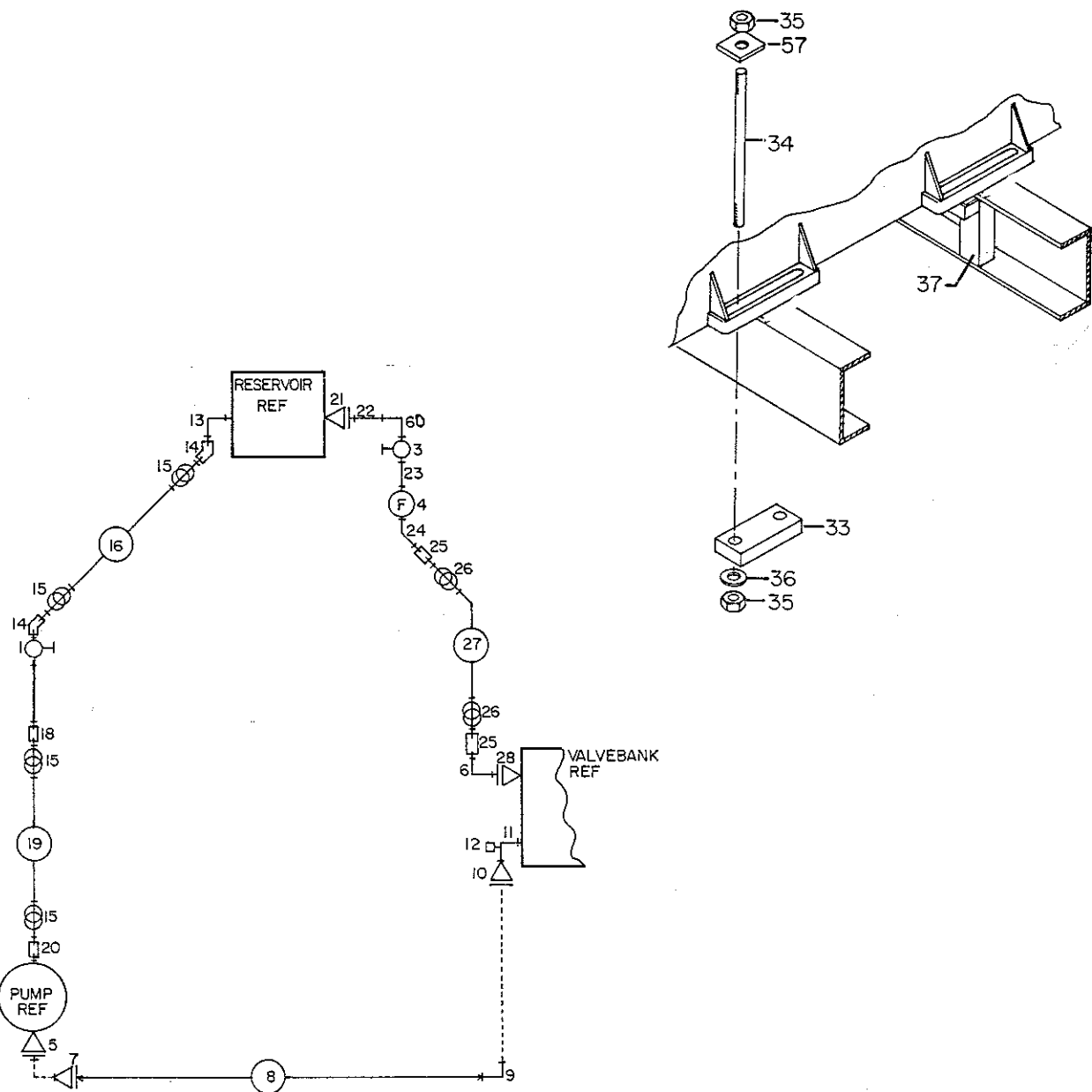
Figure D-33A. VALVEBANK (51711324)



ITEM	PART NO.	DESCRIPTION	QTY
1.	60111140	HANDLE	1
2.	70034306	BACK	1
3.	89044100	CABLE 18GA/24WIRE	45 FT
4.	89044214	WIRE 18GA GRN	28"
5.	70392703	DECAL - REMOTE CONTROL	1
6.	70392862	DECAL - DANGER ELECTROCUTION	1
7.	70029119	PLACARD - SERIAL NUMBER	1
8.	72061009	SHT MTL SCREW #6 X 3/4 PH	4
9.	72066340	POP RIVET 1/8	2
10.	77040186	TERMINAL 1/4 FSLPON 16-14GA	24
11.	77041345	TOGGLE SWITCH - SGL THRW	2
12.	77041346	TOGGLE SWITCH - DBL THRW	6
13.	77041347	TOGGLE SWITCH - MOMENTARY	1
14.	77044196	STRAIN RELIEF 3/4	1
15.	77044146	CONNECTOR 24-PIN	1
16.	77044147	CABLE CLAMP	1
17.	51708800	POTENTIOMETER ASM	1
18.	60111141	TRIGGER	1
19.	60111142	POTENTIOMETER MTG BRACKET	1
20.	70143223	SPRING	1
21.	72060636	MACH SCR #10-24X3/4	2
22.	72060669	CAP SCR #10-32X5/8	1
23.	72061000	SHT MTL SCR #6X1/2	1
24.	72062106	NUT #10-24 HEX	2

A	ORN/BLK
B	ORN/BLU
C	BLK/BRN
D	GRN/RED
E	RED/BLK
F	RED/BLU
G	RED/ORN
H	RED/YEL
J	BLK
K	BLU
L	ORN
M	BLK/YEL
N	BRN
P	YEL
Q	BLU/BRN
R	BLU/BLK
S	BLK/ORN
T	BLK/BLU
U	RED/BRN
V	RED
W	BLU/ORN
X	BLU/RED
Y	BLU/YEL
Z	BLK/RED

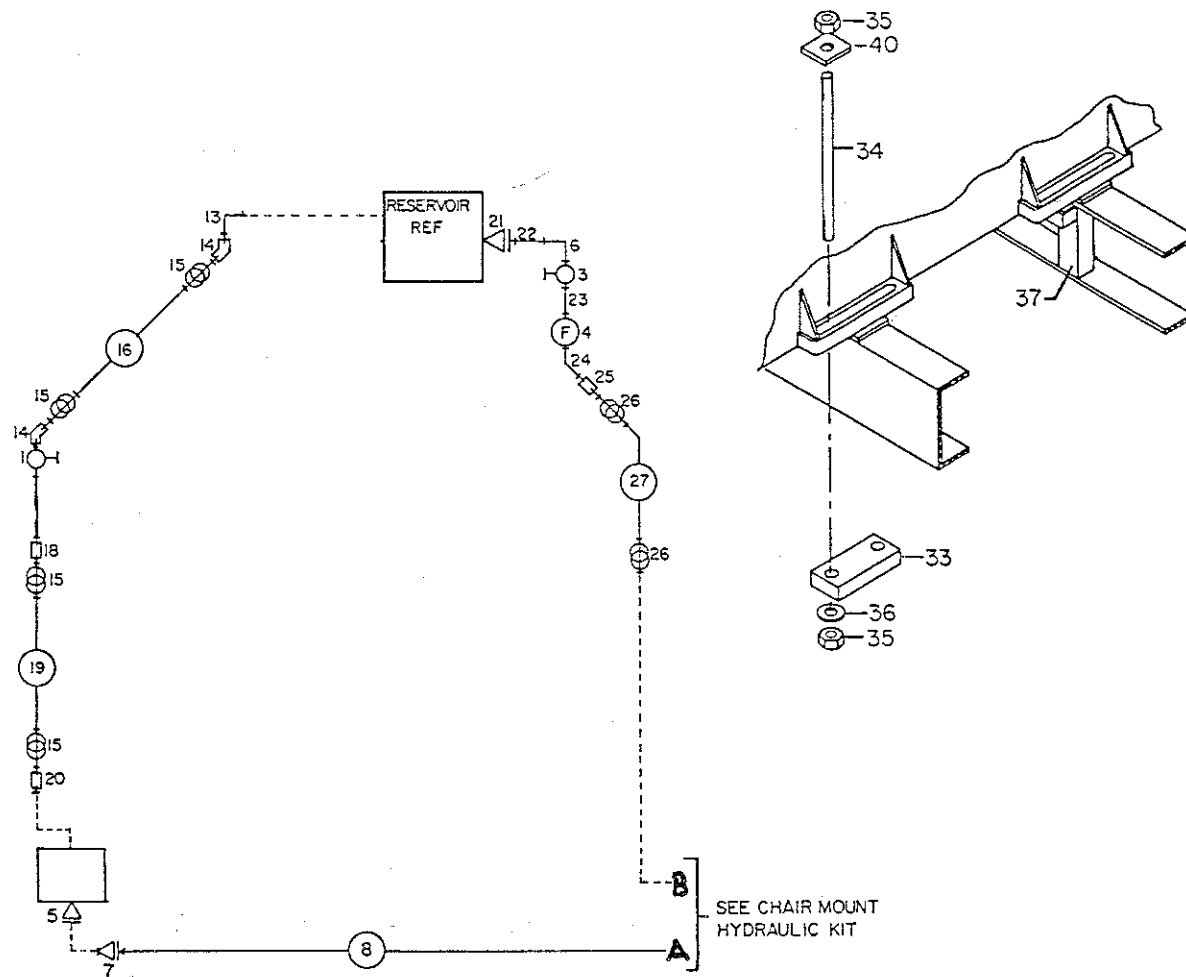
Figure D-34. REMOTE CONTROL HANDLE ASSEMBLY (51710014)



ITEM	PART NO	DESCRIPTION	QTY
1.	73054130	GATE VALVE 1-1/4	1
3.	73054129	GATE VALVE 3/4	1
4.	72052000	RETURN FILTER	1
5.	72532948	ADAPTER 1-5/16MSTR 1-1/16FSTR	1
6.	72053556	ELBOW 3/4NPT 90°	REF
7.	72532360	ADAPTER 1-1/16MSTR X 3/4MJIC	1
8.	51705643	HOSE ASM, 1/2ID X 62	1
9.	72532658	ELBOW 3/4MJIC 3/4FJIC 90° SWVL	1
10.	72532669	ADAPTER 3/4MJIC X 7/8FJIC	REF
11.	60106322	ELBOW - MODIFIED	REF
12.	72053241	PIPE PLUG 1/4NPT	REF
13.	72531135	ELBOW 1-1/4NPT 90°	1
14.	72531196	BARB NIPPLE 1-1/4 45°	2
15.	72066516	HOSE CLAMP 1-1/4	4
16.	60035837	HOSE 1-1/4ID X 23	1
18.	72532346	BARB NIPPLE 1-1/4 90°	1

ITEM	PART	DESCRIPTION	QTY
19.	60035829	HOSE 1-1/4 X 48	1
20.	72532708	BARB NIPPLE 1-5/16 X 1-1/4 90°	1
21.	72531836	RED. BUSHING 1-1/4 X 3/4NPT	1
22.	72053558	NIPPLE 3/4NPT	1
23.	72053141	NIPPLE 3/4NPT X CLOSE	1
24.	72053535	ELBOW 3/4NPT 45°	1
25.	72531548	BARB NIPPLE 3/4	2
26.	72066000	HOSE CLAMP 3/4	2
27.	89393634	HOSE 3/4 100R4	72"
28.	72053747	ADAPTER 1-1/16MSTR X 3/4FPT	REF
33.	60010354	TIE-DOWN BLOCK	4
34.	60107829	TIE-DOWN STUD 1 X 18	8
35.	72062141	NUT 1-7 LOCK	16
36.	72063066	WASHER 1" HI-STRGTH	8
37.	52706660	SUPPORT	4
57.	60107478	WASHER 2" SQUARE	8
60.	72053556	STREET ELBOW 3/4NPT 90°	1

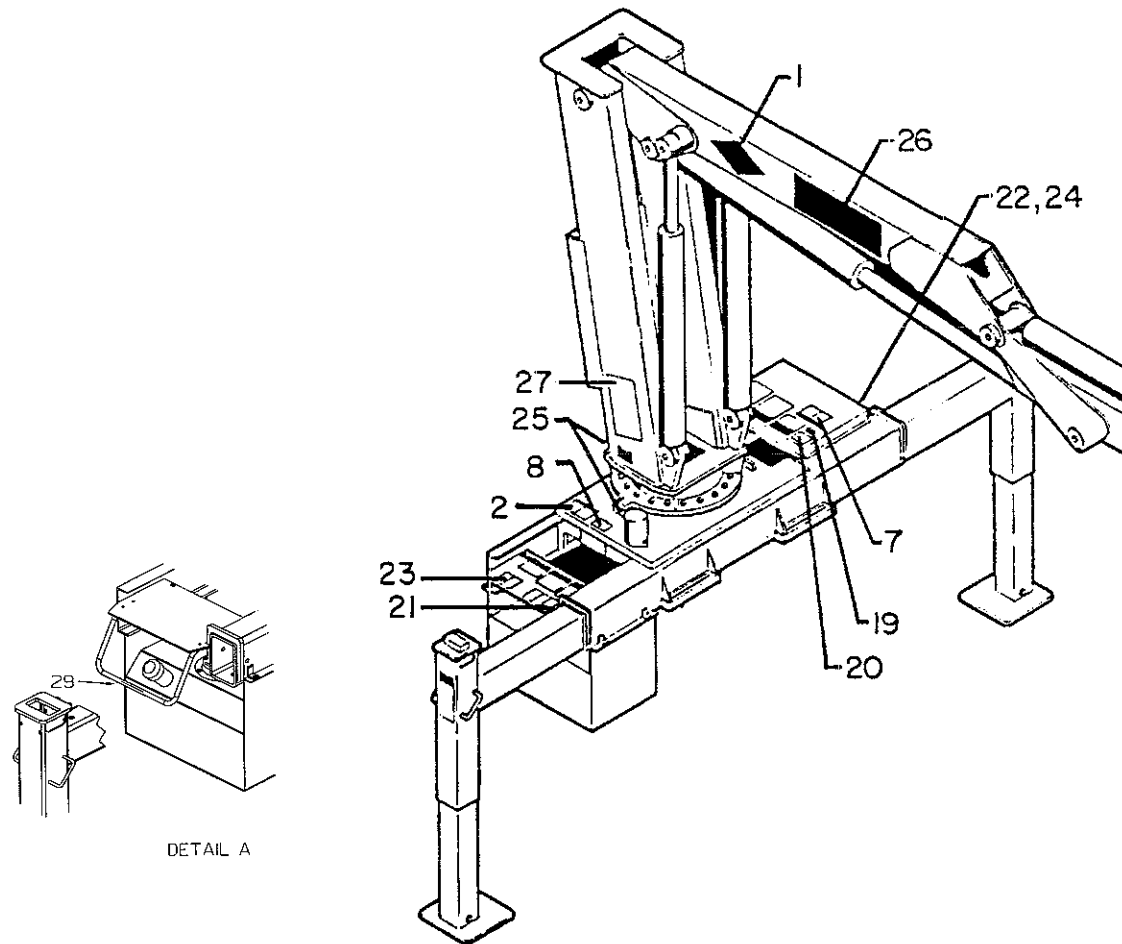
Figure D-35. INSTALLATION KIT - MANUAL CONTROLS (93709977)



ITEM	PART	DESCRIPTION	QTY
1.	73054130	GATE VALVE 1-1/4	1
3.	73054129	GATE VALVE 3/4	1
4.	72052000	RETURN FILTER	1
5.	72532948	ADAPTER 1-5/16MSTR 1-1/16FSTR	1
6.	72053556	ELBOW 3/4NPT 90°	1
7.	72532360	ADAPTER 1-1/16MSTR 3/4MJIC	1
8.	51705643	HOSE ASM 1/2 X 62	1
13.	72531135	ELBOW 1-1/4NPT 90°	1
14.	72531196	BARB NIPPLE 1-1/4 45°	2
15.	72066516	HOSE CLAMP 1-1/4	4
16.	60035837	HOSE 1-1/4 100R4 X 23	1
18.	72532346	BARB NIPPLE 1-1/4 90°	1
19.	60035829	HOSE 1-1/4 100R4 X 48	1
20.	72532708	BARB NIPPLE 1-5/16 1-1/4 90°	1

ITEM	PART	DESCRIPTION	QTY
21.	72531836	RED. BUSHING 1-1/4 3/4NPT	1
22.	72053558	NIPPLE 3/4NPT	1
23.	72053141	NIPPLE 3/4NPT X CLOSE	1
24.	72053535	ELBOW 3/4NPT 45°	1
25.	72531548	BARB NIPPLE 3/4NPT	1
26.	72066000	HOSE CLAMP 3/4	2
27.	60035819	HOSE 3/4 100R4 X 60	1
33.	60010354	TIE-DOWN BLOCK	4
34.	60107829	TIE-DOWN STUD 1 X 18	8
35.	72062141	NUT 1-7 LOCK	16
36.	72063066	WASHER 1" HI-STRGTH	8
37.	52706660	SUPPORT	4
40.	60107478	WASHER 2" SQUARE	8

Figure D-36. INSTALLATION KIT - CHAIR MOUNTW/O MID INLET (93711317)



ITEM	PART NO.	DESCRIPTION	QTY
1.	70029251	PLACARD - IMT DIAMOND	2
2.	70391583	DECAL-SETUP/STOW INST.	2
3.	70391612	DECAL-GREASE WEEKLY LEFT	3
4.	70391613	DECAL-GREASE WEEKLY RIGHT	7
5.	70392108	DECAL-SUCTION LINE	1
6.	70392109	DECAL-RETURN LINE	1
7.	70392213	DECAL-CAUTION WASH/WAX	1
8.	70392524	DECAL-ROTATE CRANE/GREASE	1
9.	70392813	DECAL-DANGER ELECTROC'N	2
10.	70392814	DECAL-DANGER OPERATOR	2
11.	70392815	DECAL-DANGER OPERATION	2
12.	70392864	DECAL-DANGER OUTFR STD CLR	2
13.	70392865	DECAL-DANGER ELECTROC'N	4
14.	70392866	DECAL-DANGER OPER COND	2
15.	70392867	DECAL-DANGER OUTFR MOVING	2
16.	70392888	DECAL-DANGER OPER RESTRICT	2
17.	70392890	DECAL-DANGER STOW/UNFOLD	2
18.	70392891	DECAL-DANGER DRIVELINE	2
19.	70392982	DECAL-CONTACT IMT	1
20.	71039134	DECAL-CAUTION OIL LEVEL	1
21.	71392255	DECAL-CONTROL STRT SIDE	1
22.	71392256	DECAL-CONTROL CURB SIDE	1
23.	71392257	DECAL-OUTR PWR DN STRT SIDE	1
24.	71392258	DECAL-OUTR PWR DN CURB SIDE	1
25.	71392365	DECAL-ALIGNMENT CRANE ROT	1
26.	71393793	DECAL-1295 IDENTIFICATION	2
27.	71393779	CAPACITY PLACARD-1H & 2H	2
	71393757	CAPACITY PLACARD-2H1M-3H1M	2
28.	70392889	DECAL-RC ELECTROCUTION	2
29.	70394190	DECAL-CAUTION NOT A STEP	2

DECAL PLACEMENT	
ITEM NO.	LOCATION
2,9,10,11,14,16,17,18,28	AT OR NEAR THE NORMAL OPERATING STATIONS.
12,15	ONE ON EACH OUTFRIGGER
13	ONE ON EACH SIDE OF CARRIER VEHICLE
8	AT THE TURNTABLE GREASE ZERK
3,4	AT ALL GREASE ZERKS
6	ON THE RESERVOIR, AT THE RETURN LINE
5	ON THE RESERVOIR, AT THE SUCTION LINE

Figure D-37. DECAL KIT - 1H & 2H (95712013) & 2H1M-3H1M (95711908)

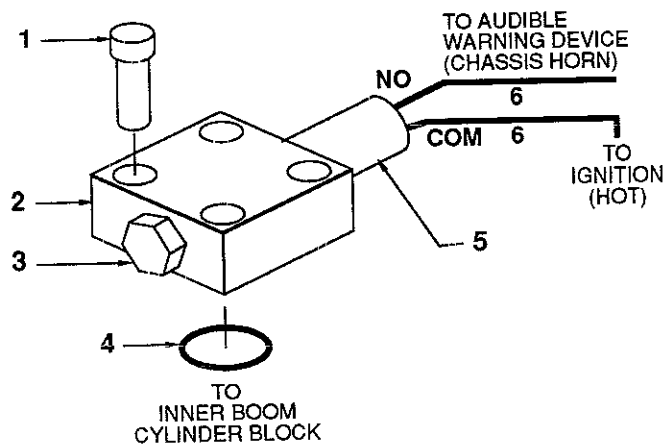
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DECAL PLACEMENT	
ITEM NO.	LOCATION
2,9,10,11,14 16,17,18	AT OR NEAR THE NORMAL OPERATING STATIONS
12,15	ONE ON EACH OUTRIGGER
13	ONE ON EACH SIDE OF CARRIER VEHICLE
8	AT THE TURNTABLE GREASE ZERK
3,4	AT ALL GREASE ZERKS
6	ON THE RESERVOIR, AT THE RETURN LINE
5	ON THE RESERVOIR, AT THE SUCTION LINE

ITEM	PART NO.	DESCRIPTION	QTY
1.	70029251	PLACARD - IMT DIAMOND	2
2.	70391583	DECAL-SETUP/STOW INST.	2
3.	70391612	DECAL-GREASE WEEKLY LEFT	3
4.	70391613	DECAL-GREASE WEEKLY RIGHT	7
5.	70392108	DECAL-SUCTION LINE	1
6.	70392109	DECAL-RETURN LINE	1
7.	70392213	DECAL-CAUTION WASH/WAX	1
8.	70392524	DECAL-ROTATE CRANE/GREASE	1
9.	70392813	DECAL-DANGER ELECTROC'N	2
10.	70392814	DECAL-DANGER OPERATOR	2
11.	70392815	DECAL-DANGER OPERATION	2
12.	70392864	DECAL-DANGER OUTR STD CLR	2
13.	70392865	DECAL-DANGER ELECTROC'N	4

ITEM	PART NO.	DESCRIPTION	QTY
14.	70392866	DECAL-DANGER OPER COND	2
15.	70392867	DECAL-DANGER OUTR MOVING	2
16.	70392888	DECAL-DANGER OPER RESTRICT	2
17.	70392890	DECAL-DANGER STOW/UNFOLD	2
18.	70392891	DECAL-DANGER DRIVELINE	2
19.	70392982	DECAL-CONTACT IMT	1
20.	71039134	DECAL-CAUTION OIL LEVEL	1
22.	70039298	DECAL-CONTROL CHAIR MOUNT	1
23.	71392257	DECAL-OUTR PWR DN STRT SIDE	1
24.	71392258	DECAL-OUTR PWR DN CURB SIDE	1
25.	71392365	DECAL-ALIGNMENT CRANE ROT	1
26.	71393793	DECAL-1295 IDENTIFICATION	2
27.	71393757	CAPACITY PLACARD	2
28.	70394190	DECAL-CAUTION NOT A STEP	2

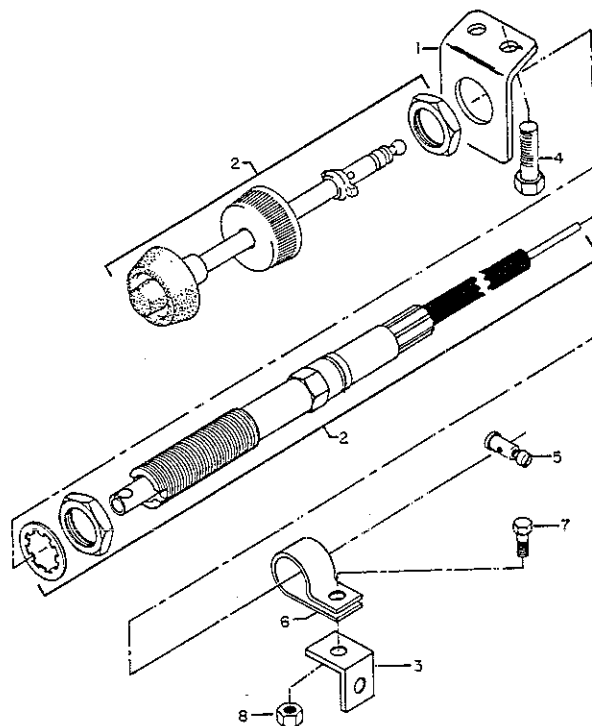
Figure D-38. DECAL KIT - CHAIRMOUNT (95711909)

**NOTE**

This capacity alert system consists of a pressure switch mounted on the lift side of the inner boom lift cylinder which senses hydraulic pressure. It is to be connected electrically (by the customer) to an audible warning device such as the truck chassis horn, using 14-gauge wire.

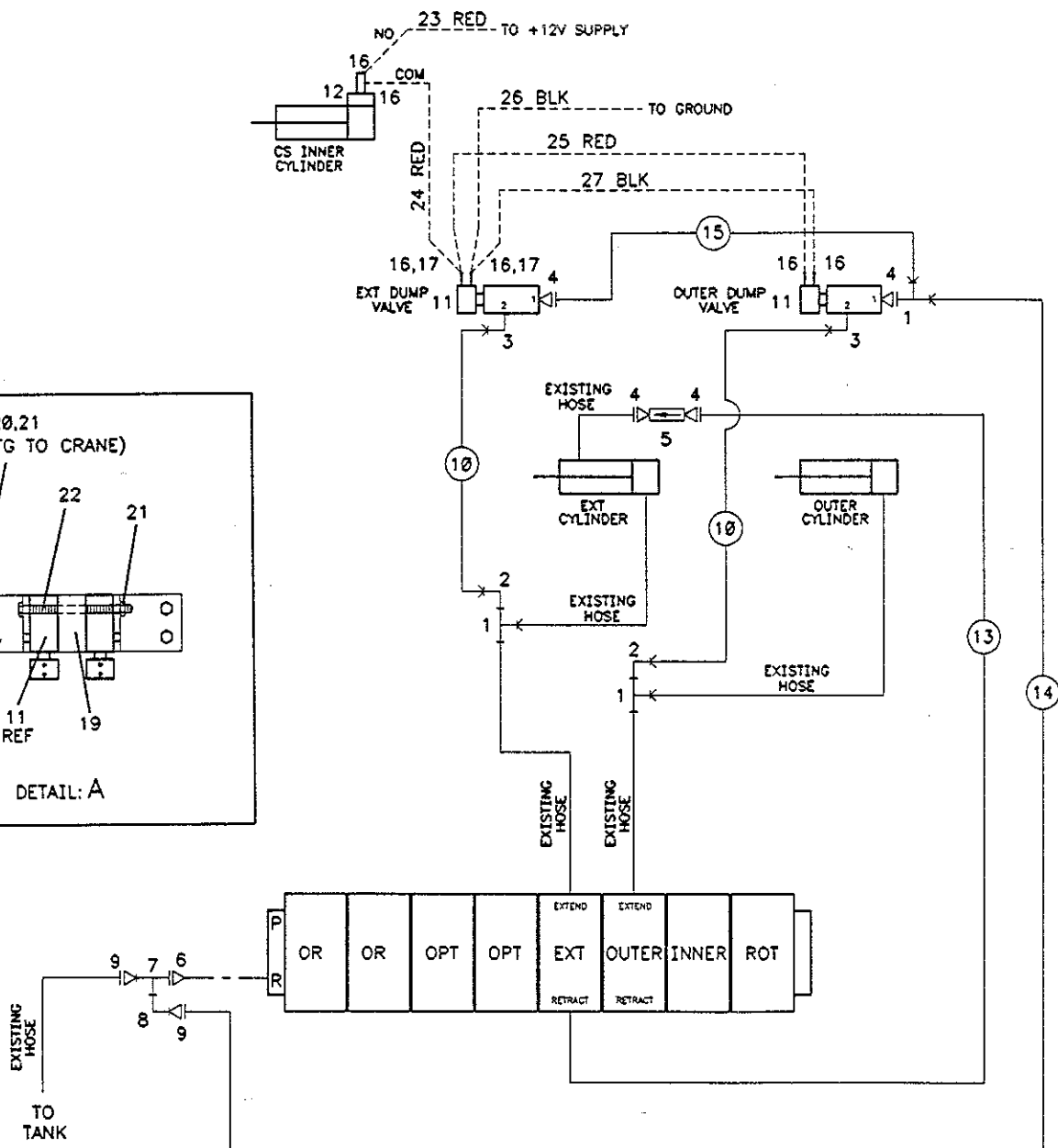
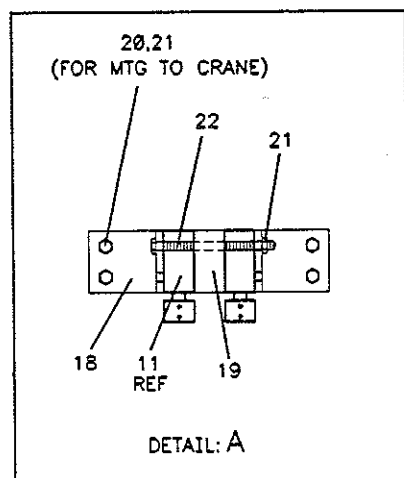
ITEM	PART NO.	DESCRIPTION	QTY
1.	72060731	CAP SCR 5/16-18X3/4 SH	4
2.	60025221	MANIFOLD	1
3.	72532140	PLUG 9/16-18 STR THD HH	1
4.	7Q072015	O-RING	1
5.	77041283	PRESSURE SWITCH	1
6.	89044188	WIRE-14GA (Customer Supplied)	REF
7.	99900118	INSTALLATION DWG	1

Figure D-39. CAPACITY ALERT KIT - AUDIBLE (31705698)



ITEM	PART NO.	DESCRIPTION	QTY
1.	60105400	MOUNTING BRACKET	1
2.	70058067	THROTTLE CONTROL 18'	1
3.	60118524	LINKAGE BRACKET	1
4.	72060962	SCR 5/16-18X1 HH SLFTPG	2
5.	72066377	CABLE STOP	1
6.	72066523	CLAMP	1
7.	72060636	MACH SCR #10-24X3/4 RDHD	2
8.	72062106	NUT #10-24 LOCK	2

Figure D-40. OPTION - MANUAL THROTTLE CONTROL KIT (31702746)



ITEM	PART NO.	DESCRIPTION	QTY
1.	72532657	TEE 3/4JIC SWVL NUT RUN	3
2.	72532658	ELBOW #8MJIC #8FJIC	2
3.	72053763	ELBOW #8MSTR #8MJIC 90°	2
4.	72532358	ADAPTER #8MSTR #8MJIC	4
5.	73054426	RELIEF VALVE - ADJ	1
6.	72053676	ADAPTER 3/4MPT #12MJIC	1
7.	72532950	TEE 1-1/16JIC SWVL NUT RUN	1
8.	72532696	ELBOW #12MJIC #12FJIC SWVL	1
9.	72532972	ADAPTER #8MJIC #12FJIC	2
10.	51703863	HOSE ASM 3/8X14 FF	2
11.	73054576	SOLENOID VALVE	2
12.	31705698	KIT-CAPACITY ALERT (ELECT)	1
13.	51706239	HOSE ASM 1/2X5 FF	1
14.	51704914	HOSE ASM 3/8X60 FF	1
15.	51703701	HOSE ASM 3/8X10 FF	1
16.	77040186	TERM-FSLPON 1/4TAB 16-14GA	6
17.	77040282	TERM-PIGBAC 1/4TAB 16-14GA	2
18.	60250259	MTG ANGLE-DUMP VALVE	2
19.	60250260	MTG SPACER-DUMP VALVE	1
20.	72060004	CAP SCR 1/4-20X1 HH GR5	4
21.	72062104	NUT 1/4-20 LOCK	6
22.	72060017	CAP SCR 1/4-20X4-1/2 HH GR5	2
23.	89044232	WIRE 14GA RED X 180	1
24.	89044232	WIRE 14GA RED X 120	1
25.	89044232	WIRE 14GA RED X 6	1
26.	89044274	WIRE 14GA BLK X 60	1
27.	89044274	WIRE 14GA BLK X 6	1

NOTES:

1. FUNCTION OF SYSTEM IS SUCH THAT WHEN THE INNER CYLINDERS ARE OVERLOADED, THE PRESSURE SWITCH WILL ACTIVATE THE SOLENOID DUMP VALVE(S); THUS DUMPING OIL TO "TANK" INSTEAD OF THE OUTER CYLINDER "EXTEND", EXTENSION CYLINDER "EXTEND", OR WINCH "UP" FUNCTIONS WHICH WILL NOT ALLOW PRESSURE TO BUILD FOR THESE FUNCTIONS. THIS SYSTEM IS BASED ON THE FACT THAT THE OIL WILL TAKE THE PATH OF LEAST RESISTANCE.

2. THE FUNCTIONS THAT ARE SHUT DOWN IF OVERLOADED, ARE THE FOLLOWING:

- A OUTER BOOM "EXTEND"
- B EXTENSION CYLINDER "EXTEND"

3. INSTALL A RELIEF (PART NO. 73054426, 700PSI) IN LINE OF THE RETRACT SIDE OF THE EXTENSION CYLINDER TO CREATE BACK PRESSURE SO EXTENSION CYLINDER WILL NOT EXTEND WHEN THE DUMP SYSTEM IS ACTIVATED.

4. ITEMS 11, 18, 19, 20, 21 AND 22 SHOULD BE BOLTED TOGETHER BEFORE THEY ARE MOUNTED TO THE CRANE (SEE DETAIL A)

Figure D-41. OPTION-HYDRAULIC OVERLOAD KIT 2-FUNCTION (51710922)

07-31-96

1295 4-40

1495 4-42

2595 4-25

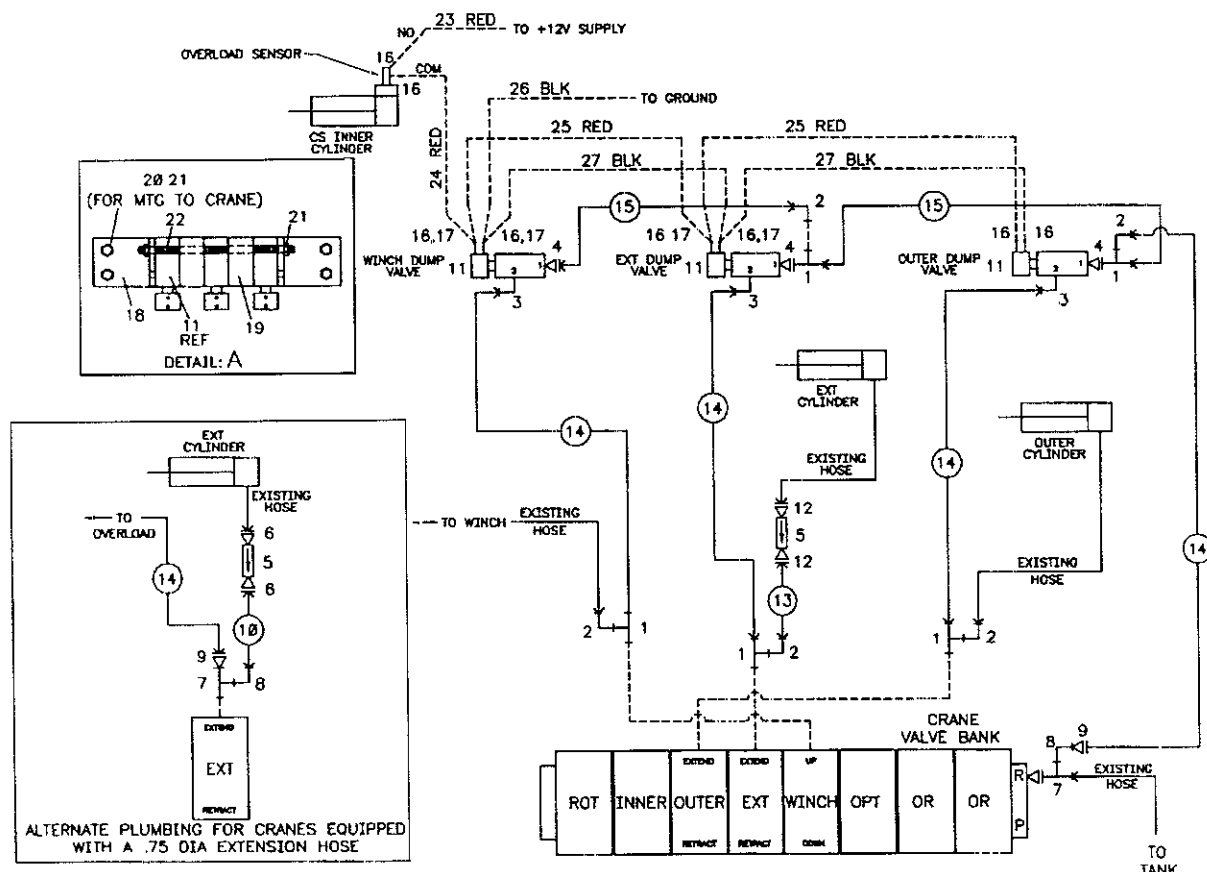
9000 4-40

9800 4-58

12916 4-22

18000 4-41

20017 4-26



ITEM	PART NO.	DESCRIPTION	QTY
1.	72532657	TEE #8JIC SWVL NUT RUN	5
2.	72532658	ELBOW #8MJIC #8FJIC	5
3.	72053763	ELBOW #8MSTR #8MJIC 90°	3
4.	72532358	ADAPTER #8MSTR #8MJIC	3
5.	73054426	RELIEF VALVE	1
6.	72532366	ADAPTER #12MSTR #12MJIC	2
7.	72532950	TEE #12JIC SWVL NUT RUN	2
8.	72532696	ELBOW #12MJIC #12FJIC SWVL	2
9.	72532972	ADAPTER #8MJIC #12FJIC	2
10.	51706238	HOSE ASM 3/4X6 FF	1
11.	73054576	SOLENOID VALVE	3
12.	72532358	ADAPTER #8MSTR #8MJIC	2
13.	51706239	HOSE ASM 1/2X5 FF	1
14.	51704914	HOSE ASM 3/8X60 FF	4
15.	51703701	HOSE ASM 3/8X10 FF	2
16.	77040186	TERM-FSLPON 1/4TAB 16-14GA	8
17.	77040282	TERM-PIGBAC 1/4TAB 16-14GA	4
18.	60250259	MTG ANGLE-DUMP VALVE	2
19.	60250260	MTG SPACER-DUMP VALVE	2
20.	72060004	CAP SCR 1/4-20X1 HH GR5	4
21.	72062104	NUT 1/4-20 LOCK	6
22.	60117338	THREADED ROD 1/4-20X6-1/2	2
23.	89044232	WIRE 14GA RED X 180	1
24.	89044232	WIRE 14GA RED X 120	1
25.	89044232	WIRE 14GA RED X 6	2
26.	89044274	WIRE 14GA BLK X 60	1
27.	89044274	WIRE 14GA BLK X 6	2

NOTES:

1. FUNCTION OF SYSTEM IS SUCH THAT WHEN THE INNER CYLINDERS ARE OVERLOADED, THE PRESSURE SWITCH, MOUNTED ON THE INNER CYLINDER, WILL ACTIVATE THE SOLENOID DUMP VALVE(S); THUS DUMPING OIL TO "TANK" INSTEAD OF THE OUTER CYLINDER "EXTEND", EXTENSION CYLINDER "EXTEND", OR WINCH "UP" FUNCTIONS WHICH WILL NOT ALLOW PRESSURE TO BUILD FOR THESE FUNCTIONS. THIS SYSTEM IS BASED ON THE FACT THAT THE OIL WILL TAKE THE PATH OF LEAST RESISTANCE.

2. THE FUNCTIONS THAT ARE SHUT DOWN, IF OVERLOADED, ARE THE FOLLOWING:

- A. OUTER BOOM "EXTEND"
- B. EXTENSION CYLINDER "EXTEND"
- C. WINCH "UP"

3. INSTALL A RELIEF VALVE IN THE EXTEND LINE OF THE EXTENSION CYLINDER SO CYLINDER WILL NOT EXTEND WHEN DUMP SYSTEM IS ACTIVATED.

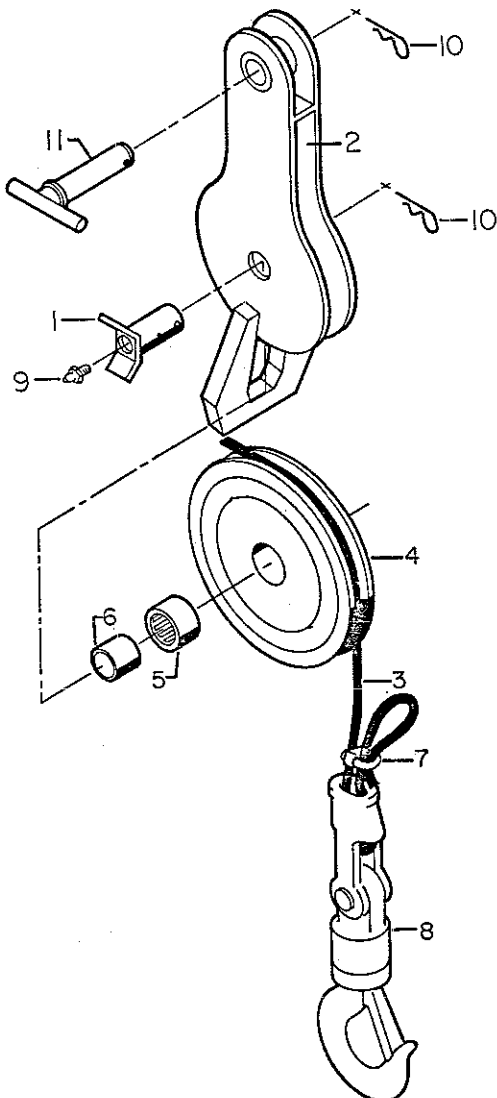
4. ITEMS 11, 18, 19, 20, 21 AND 22 SHOULD BE BOLTED TOGETHER BEFORE THEY ARE MOUNTED TO THE CRANE (SEE DETAIL A).

OPTION-HYDRAULIC OVERLOAD KIT 3-FUNCTION (51710923)

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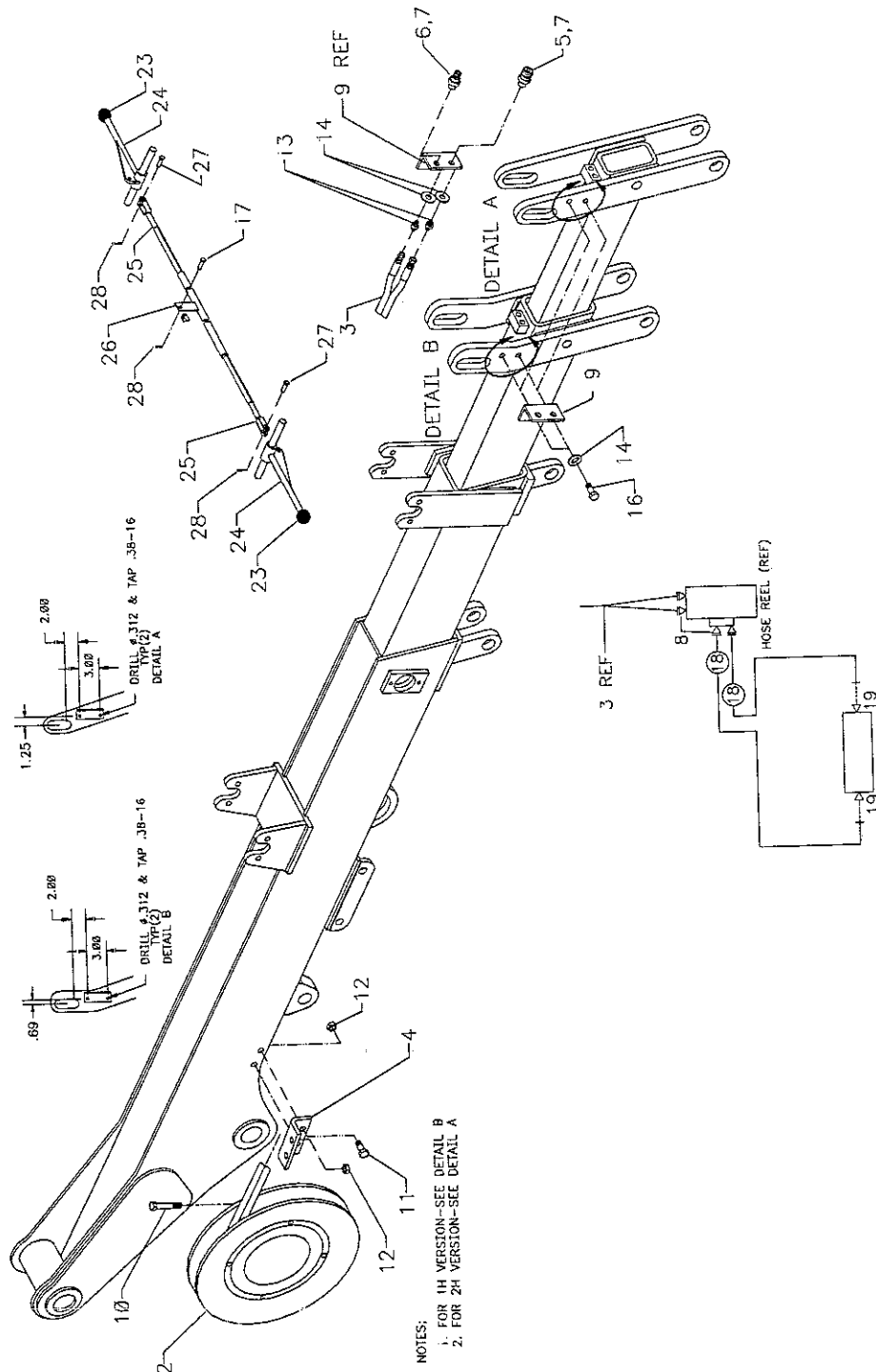
ITEM	PART NO.	DESCRIPTION	QTY
1.	60030048	LOOM 33X240	1
2.	60030049	SPIRAL WRAP CLEAR X 10	2
3.	60045054	WIRE 14GA X 240 YEL	1
4.	60045055	WIRE 14GA X 60 YEL	2
5.	60045056	WIRE 14GA X 36 BLK	1
6.	60103535	SWITCH BRACKET 1-HOLE	1
7.	60107762	LIGHT GUARD	1
8.	72060000	CAP SCR 1/4-20X1/2 HHGR5	2
9.	72060046	CAP SCR 3/8-16X1 HHGR5	2
10.	72062000	NUT 1/4-20 HEX	2
11.	72063049	WASHER 1/4 LOCK	2
12.	72063051	WASHER 3/8 LOCK	2
13.	77040000	TERMINAL #10 STUD 16-14GA	2
14.	77040048	BUTT CONNECTOR 16-14GA	2
15.	77040280	FLOODLIGHT MTG KIT	2
16.	77040281	FLOODLIGHT 12V CHROME	2
17.	77041014	SWITCH PUSH/PULL W/FUSE	1
18.	99900125	BOOM MOD DWG	1

Figure D-43. LIGHT KIT (31705932)



ITEM	PART NO.	DESCRIPTION	QTY
1.	52070705	PIN	1
2.	52711425	YOKE	1
3.	60108886	CABLE 3/8 IWRC-XIP X 100'	1
4.	70034204	SHEAVE 10-1/4	1
5.	70055024	BEARING	1
6.	70055025	RACE	1
7.	70058033	CABLE CLAMP 3/8	1
8.	70731716	SWIVEL HOOK W/WEDGE SOCKET	1
9.	72053508	ZERK 1/8NPT	1
10.	72066145	HAIR PIN	2
11.	52070151	PIN	1

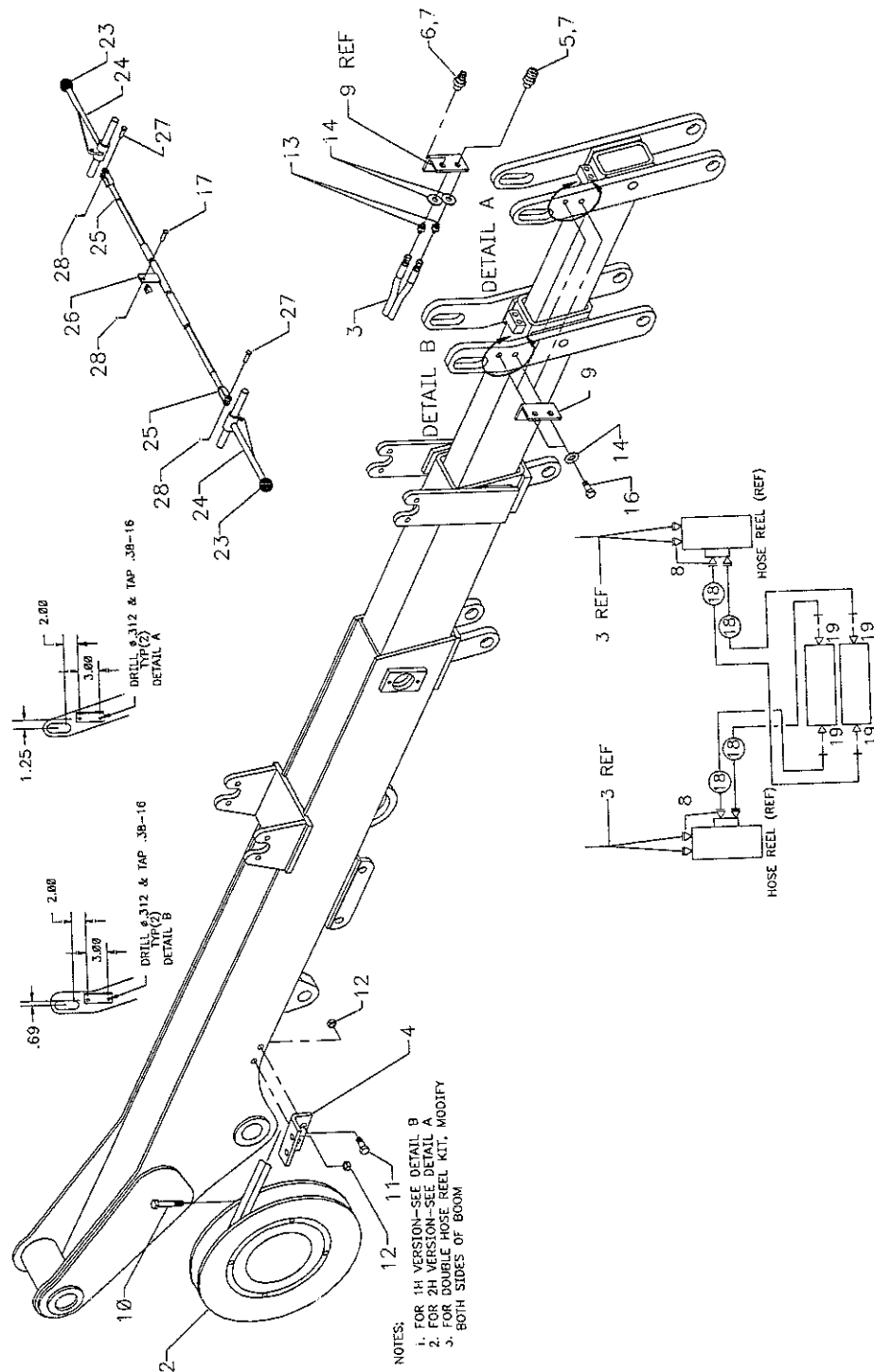
Figure D-44. CABLE AND HOOK KIT (31705852)



ITEM	PART NO.	DESCRIPTION	QTY
2.	70732864	HOSE REEL-RH	1
3.	51393812	HOSE ASM 1/4X300 TWIN-LINE	1
4.	60117715	BRACKET	1
5.	72533380	DISCONNECT COUPLER 1/4NPT	1
6.	72533382	DISCONNECT NIPPLE 1/4NPT	1
7.	72533381	DUST CAP	2
8.	72532353	ADAPTER #6MSTR #4MJIC	4
9.	60115137	ANGLE	1
10.	72060097	CAP SCR 1/2-13X3 HHGR5	2
11.	72060093	CAP SCR 1/2-13X1-1/2 HHGR5	2
12.	72062080	NUT 1/2-13 LOCK	4
13.	72053499	ADAPTER 1/4MPT #4MJIC	2

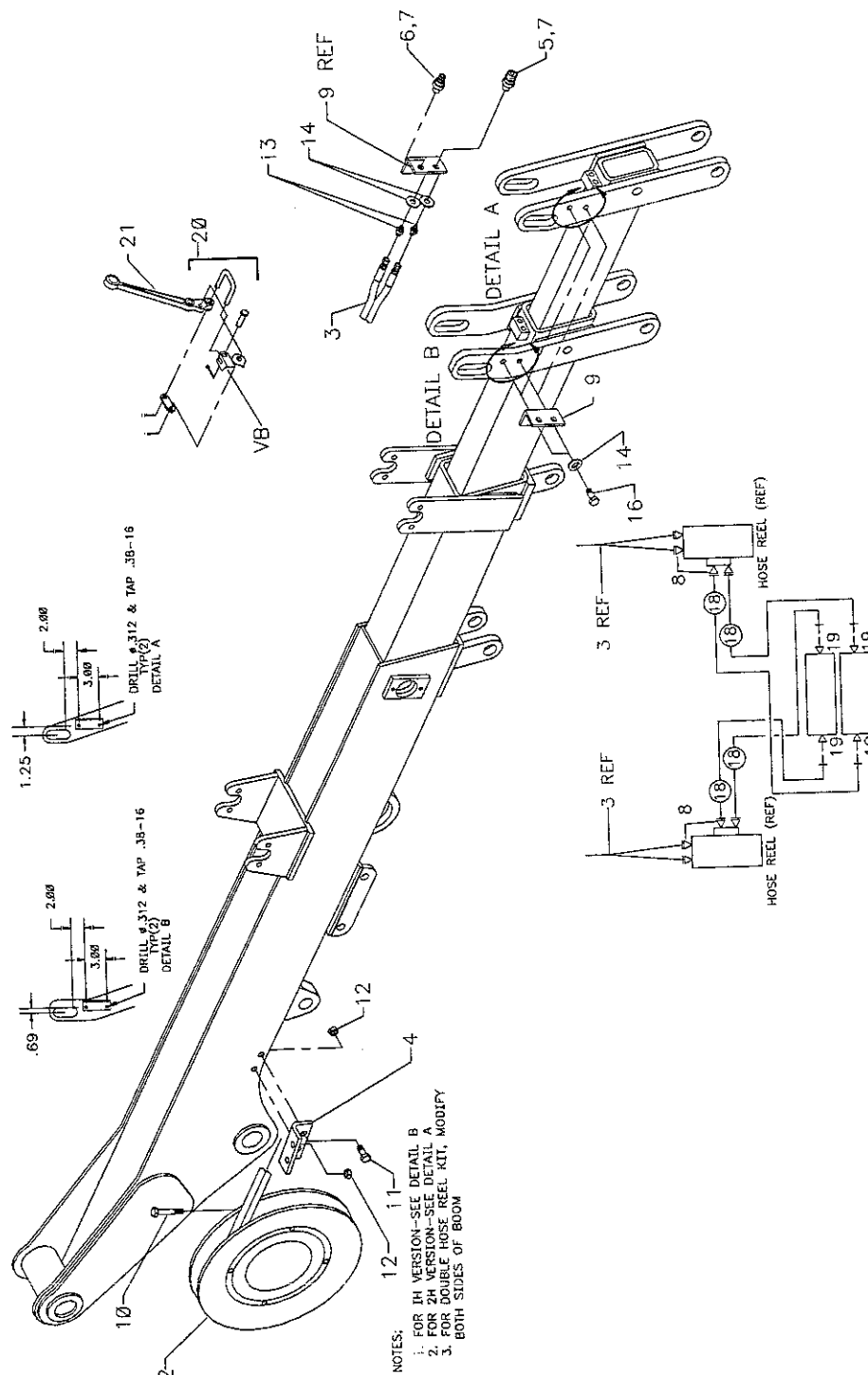
ITEM	PART NO.	DESCRIPTION	QTY
14.	72063003	WASHER 3/8 WRT	4
16.	72060044	CAP SCR 3/8-16X3/4	2
17.	72066337	PIN-SPECIAL	2
18.	51708888	HOSE ASM 1/4X323 FF	2
19.	72532665	ADAPTER #4MJIC #8FJIC	2
23.	71039096	KNOB	2
24.	70029451	CONTROL HANDLE	2
25.	52704745	CONTROL ROD-M	2
26.	52705877	CONTROL ROD-F	1
27.	72066338	CLEVIS PIN 5/16X1	2
28.	72066168	COTTER PIN .09X.75	3

Figure D-45. SINGLE HOSE REEL KIT-V20 (31712010)



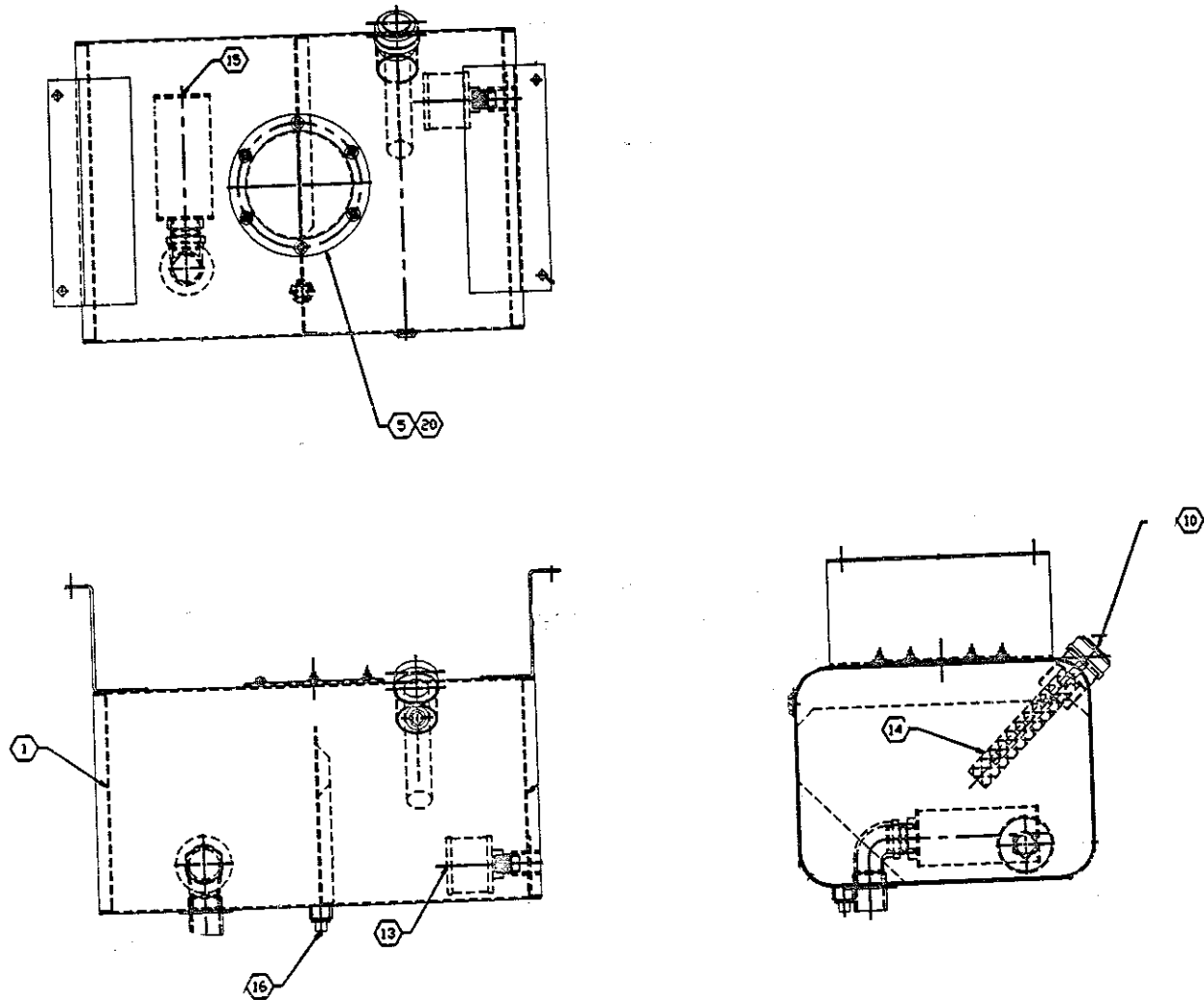
ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1.	70732863	HOSE REEL-LH	1	13.	72053499	ADAPTER 1/4MPT #4MJIC	4
2.	70732864	HOSE REEL-RH	1	14.	72063003	WASHER 3/8 WRT	8
3.	51393812	HOSE ASM 1/4X300 TWIN-LINE	2	16.	72060044	CAP SCR 3/8-16X3/4	4
4.	60117715	BRACKET	2	17.	72066337	PIN-SPECIAL	2
5.	72533380	DISCONNECT COUPLER 1/4NPT	2	18.	51708888	HOSE ASM 1/4X323 FF	4
6.	72533382	DISCONNECT NIPPLE 1/4NPT	2	19.	72532665	ADAPTER #4MJIC #8FJIC	4
7.	72533381	DUST CAP	4	23.	71039096	KNOB	4
8.	72532353	ADAPTER #6MSTR #4MJIC	8	24.	70029451	CONTROL HANDLE	4
9.	60115137	ANGLE	2	25.	52704745	CONTROL ROD-M	4
10.	72060097	CAP SCR 1/2-13X3 HHGR5	4	26.	52705877	CONTROL ROD-F	2
11.	72060093	CAP SCR 1/2-13X1-1/2 HHGR5	4	27.	72066338	CLEVIS PIN 5/16X1	4
12.	72062080	NUT 1/2-13 LOCK	8	28.	72066168	COTTER PIN .09X.75	6

Figure D-46. DOUBLE HOSE REEL KIT-V20 (31712011)



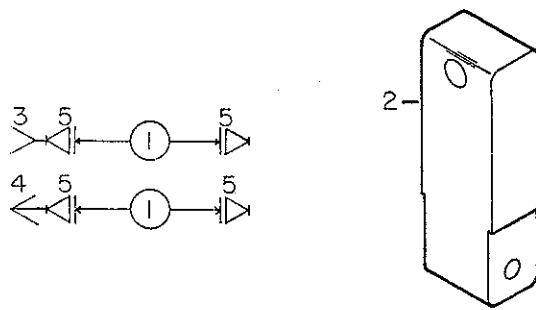
ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1.	70732863	HOSE REEL-LH	1	11.	72060093	CAP SCR 1/2-13X1-1/2 HHGR5	4
2.	70732864	HOSE REEL-RH	1	12.	72062080	NUT 1/2-13 LOCK	8
3.	51393812	HOSE ASM 1/4X300 TWIN-LINE	2	13.	72053499	ADAPTER 1/4MPT #4MJIC	4
4.	60117715	BRACKET	2	14.	72063003	WASHER 3/8 WRT	8
5.	72533380	DISCONNECT COUPLER 1/4NPT	2	16.	72060044	CAP SCR 3/8-16X3/4	4
6.	72533382	DISCONNECT NIPPLE 1/4NPT	2	18.	51704295	HOSE ASM 1/4X186 FF	4
7.	72533381	DUST CAP	4	19.	72532665	ADAPTER #4MJIC #8FJIC	4
8.	72532353	ADAPTER #6MSTR #4MJIC	8	20.	94731839	LINK & PIN KIT	2
9.	60115137	ANGLE	2	21.	73014848	HANDLE	2
10.	72060097	CAP SCR 1/2-13X3 HHGR5	4				

Figure D-47. DOUBLE HOSE REEL KIT - V20 CHAIRMOUNT (31712012)



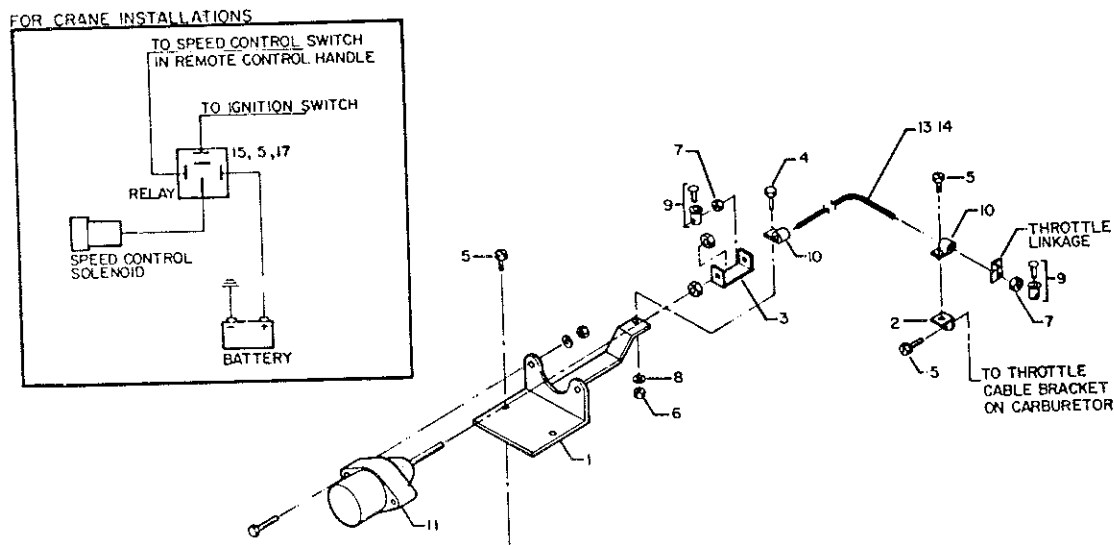
ITEM	PART NO.	DESCRIPTION	QTY
5.	70144163	COVER	1
10.	70732789	DIPSTICK ASM	1
13.	70034410	DIFFUSER 3/4NPT 33GPM	1
14.	70732791	SCREEN 100MESH	1
15.	70144166	STRAINER 100MESH 20GPM	1
16.	73052001	PLUG 3/4FPT SQHD MAGNETIC	1
20.	76393565	O-RING 6" ID 6.5" OD	1

Figure D-48. RESERVOIR ASSEMBLY 20-GALLON (70732578)



ITEM	PART NO.	DESCRIPTION	QTY
1	51705062	HOSE ASM 1/2X48 FF	2
2	60108961	SWIVEL LINK	1
3	72533101	COUPLER 3/8FPT DISCONNECT	1
4	72533102	NIPPLE 3/8FPT DISCONNECT	1
5	72053670	ADAPTER 3/8MPT 3/4MJIC	4

Figure D-49. AUGER MOUNTING KIT (51707059)

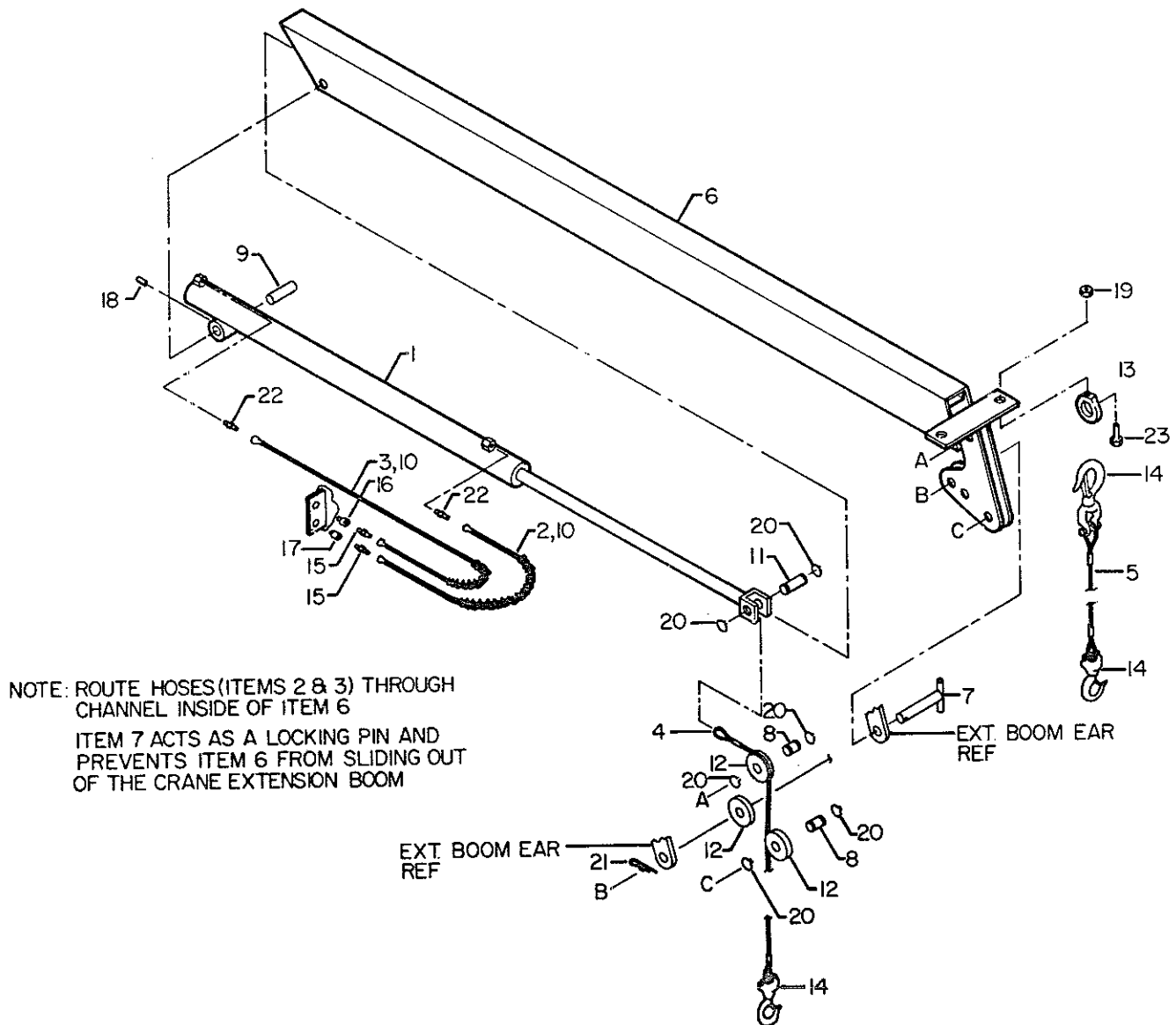


NOTE

REPLACED BY 31712707,
EFFECTIVE 12-5-94.

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1.	52705080	BRACKET	1	10.	72066523	CLAMP	2
2.	60106760	LINKAGE BRACKET	1	11.	73054654	SOLENOID VALVE 12V 1"STROKE	1
3.	60108086	PLUNGER BRACKET	1	13.	89058892	CASING	3.5'
4.	72060002	CAP SCR 1/4-20X3/4 HHGR5	5	14.	89058934	CABLE	4'
5.	72061004	SHT MTL SCR #14X3/4 SLT HEXWH	5	15.	77041251	RELAY	1
6.	72062000	NUT 1/4-20 HEX	5	16.	89044233	WIRE14GA BRN	20'
7.	72062093	NUT #8-32 HEX	2	17.	77040186	TERMINAL 1/4 FSLPON 16-14GA	4
8.	72063049	WASHER 1/4 LOCK	5	18.	60103535	SWITCH BRACKET (NOT SHOWN)	2
9.	72066377	CABLE STOP	2	19.	77041345	TOGGLE SWITCH ST (NOT SHOWN)	2

Figure D-50. THROTTLE CONTROL-SYNCHRO START (31705270)



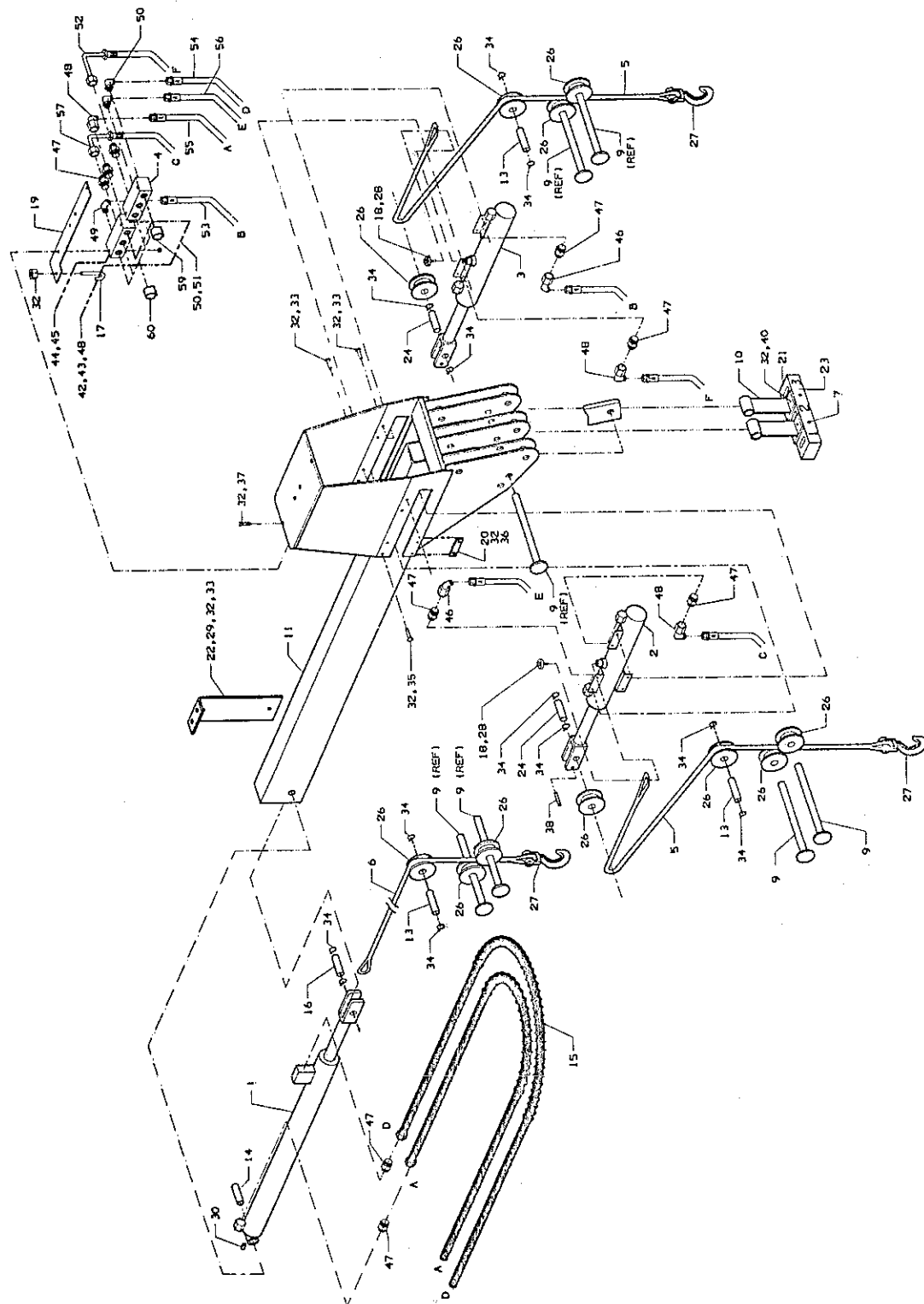
ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1.	3B289890	CYLINDER-IGLOO CABLE	1	13.	70143644	NUT #4 EYE STD	1
2.	51704024	HOSE ASM 1/4X54 FF	1	14.	70580020	HOOK 1/2 TON	3
3.	51705191	HOSE ASM 1/4X96 FF	1	15.	72053499	ADAPTER 1/4MPT 7/16MJIC	2
4.	51709391	LIFT CABLE 1/4X63-3/4	1	16.	72053539	COUPLER 1/4FPT DISCONNECT	1
5.	51709392	LIFT CABLE 1/4X33-1/4	1	17.	72053541	NIPPLE 1/4FPT DISCONNECT	1
6.	52709372	BOOM	1	18.	72060578	SET SCR 3/8-16X3/8 SH	1
7.	52705802	PIN	1	19.	72062102	NUT 5/8-11 LOCK	1
8.	60113559	PIN	2	20.	72066123	RETAINING RING 3/4 HD EXT	6
9.	60113561	PIN	1	21.	72066145	HAIR PIN 19	1
10.	60113567	SPRING GUARD	2	22.	72532351	ADAPTER 7/16MSTR 7/16MJIC	2
11.	60113568	PIN	1	23.	72601258	CAP SCR 5/8-11X1-1/2 HHGR8	1
12.	70056426	SHEAVE	3				

Figure D-51. IGLOO HANDLING KIT (51709224)

SEE FOLLOWING PAGE FOR DRAWING

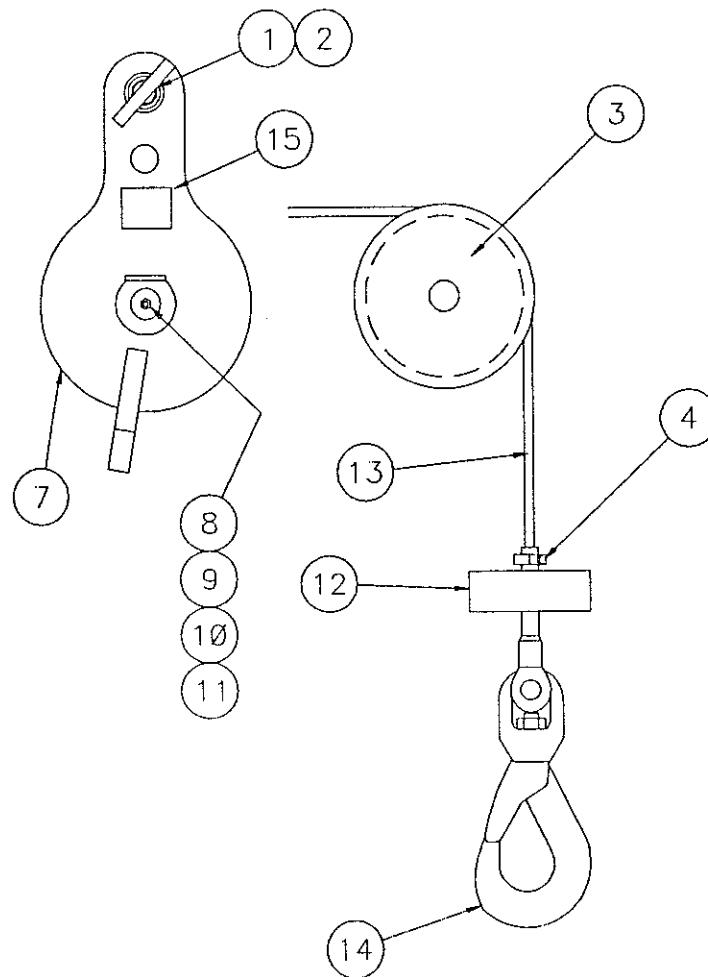
ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1.	3B044900	CYLINDER	1	44.	72053539	COUPLER 1/4FPT DISCONNECT	1
2.	3B045900	CYLINDER	1	45.	72533013	ADAPTER 1/4MSTR 7/16MPT	1
3.	3B046900	CYLINDER	1	46.	72532770	ELBOW 7/16MJIC 7/16FJIC 45°	2
4.	5V051900	VALVE BLOCK	2	47.	72532351	ADAPTER 7/16MSTR 7/16MJIC	9
5.	51709554	LIFT CABLE 1/4X98-3/4	2	48.	72532690	ELBOW 7/16MJIC 7/16FJIC SWVL	4
6.	51709391	LIFT CABLE 1/4X63-3/4	1	49.	72533020	ELBOW 7/16MSTR 7/16MJIC 45°	1
7.	72061100	SCR #10X1/2 HH SLOT SLFTPG	4	50.	72533758	ELBOW 7/16MSTR 7/16MJIC 90°	3
9.	52709555	PIN	2	51.	51709592	HOSE ASM 1/4X5 FJ	1
10.	52709556	CABLE GUIDE	2	52.	51709800	HOSE ASM 1/4X13 FJ	1
11.	52709594	EXT BOOM	1	53.	51703593	HOSE ASM 1/4X11 FF	1
12.	60107237	BLOCK	2	54.	51703733	HOSE ASM 1/4X45 FF	1
13.	60113559	PIN	3	55.	51709580	HOSE ASM 1/4X68 FF	1
14.	60113561	PIN	1	56.	51704023	HOSE ASM 1/4X19 FF	1
15.	60113567	SPRING GUARD	2	57.	51709741	HOSE ASM 1/4X24 FJ	1
16.	60113568	PIN	1	58.	99900374	ELECTRICAL SCHEMATIC	1
17.	60113786	HOOK-HOSE MTG	1	59.	73054638	VALVE-NORMALLY OPEN	2
18.	60113788	CABLE END CAP	2	60.	73054705	VALVE-NORMALLY CLOSED	4
19.	60113789	SOLENOID MTG PLATE	1	61.	77044491	CONNECTOR-3 WAY	1
20.	60113790	SPACER BAR	2	62.	70732291	CABLE REEL	1
21.	60113791	CABLE GUIDE	1	63.	72060023	CAP SCR 5/16-18X3/4	2
22.	60113815	CORD REEL MTG BRACKET	2	64.	72062109	NUT 5/16-18 LOCK	2
23.	60113851	CABLE ID PLATE	2	65.	72063002	WASHER 5/16 WRT	2
24.	60113957	PIN	2	66.	77041346	TOGGLE SWITCH DT	2
25.	70034381	SUPPORT	2	67.	77041251	RELAY	2
26.	70056426	SHEAVE	11	68.	77041147	DIODE	2
27.	70580020	HOOK-1/2 TON	3	69.	89044039	CABLE 14GA/3 WIRE	18'
28.	72060002	CAP SCR 1/4-20X3/4 HHGR5	2	70.	89044398	WIRE 16GA BLK	2.5'
29.	72060090	CAP SCR 1/2-13X7/8 HHGR5	2	71.	89044395	WIRE 16GA GRN	2.5'
30.	72060578	SET SCR 3/8-16X3/8 SH	1	72.	89044235	WIRE 14GA WHT	1.25'
31.	72062080	NUT 1/2-13 LOCK	2	73.	89044232	WIRE 14GA RED	.5'
32.	72062109	NUT 5/16-18 LOCK	21	74.	89044034	CABLE 14GA/4 WIRE	10'
33.	72063005	WASHER 1/2 WRT	2	75.	89044188	WIRE 14GA/DUPLEX	1'
34.	72066074	RETAINING RING 3/4 EXT STD	12	76.	60113847	JIC BOX-MACHINED	1
35.	72601597	CAP SCR 5/16-18X1 FLH SOC	8	77.	52709633	JIC BOX-WELDMENT	1
36.	72601598	CAP SCR 5/16-18X1-1/2 FLH SOC	4	78.	72060004	CAP SCR 1/4-20X1 HHGR5	4
37.	72601599	CAP SCR 5/16-18X2-1/2 FLH SOC	4	79.	77040048	BUTT CONNECTOR	6
38.	72661386	ROLL PIN	2	80.	77044238	TERMINAL-BULLET	2
39.	99900373	HYDRAULIC SCHEMATIC	1	81.	77040282	TERMINAL-PIGGYBACK	17
40.	72060030	CAP SCR 5/16-18X2-1/4 HHGR5	4	82.	77040186	TERMINAL-FSLPON	30
42.	72053541	NIPPLE 1/4FPT DISCONNECT	1	83.	77040047	TERMINAL-MSLPON	1
43.	72531412	ELBOW 1/4MPT 7/16MJIC 90°	1	84.	72062104	NUT 1/4-20 LOCK	4

Figure D-52. RECYCLING CONTAINER KIT-3 HOLE (31709622)



SEE PREVIOUS PAGE FOR PARTS LIST

Figure D-52A. RECYCLING CONTAINER KIT-3 HOLE (31709622)



ITEM	PART NO.	DESCRIPTION	QTY
1.	52070151	PIN	1
2.	72066145	HAIR PIN .19	1
3.	60030255	SHEAVE 9" NYLON	1
4.	70145121	COLLAR	1
7.	52712573	YOKE	1
8.	52707730	PIN	1
9.	72053508	ZERK 1/8NPT	1
10.	60109337	PIN RETAINER PLATE 3"	1
11.	72060147	CAP SCR 5/8-11X1 HHGR5	1
12.	60118434	DOWN HAUL WEIGHT	1
13.	70580089	WIRE ROPE ASM	1
14.	70732882	SWIVEL HOOK 5.9 TON	1
15.	70394141	DECAL-PIN STORAGE	2

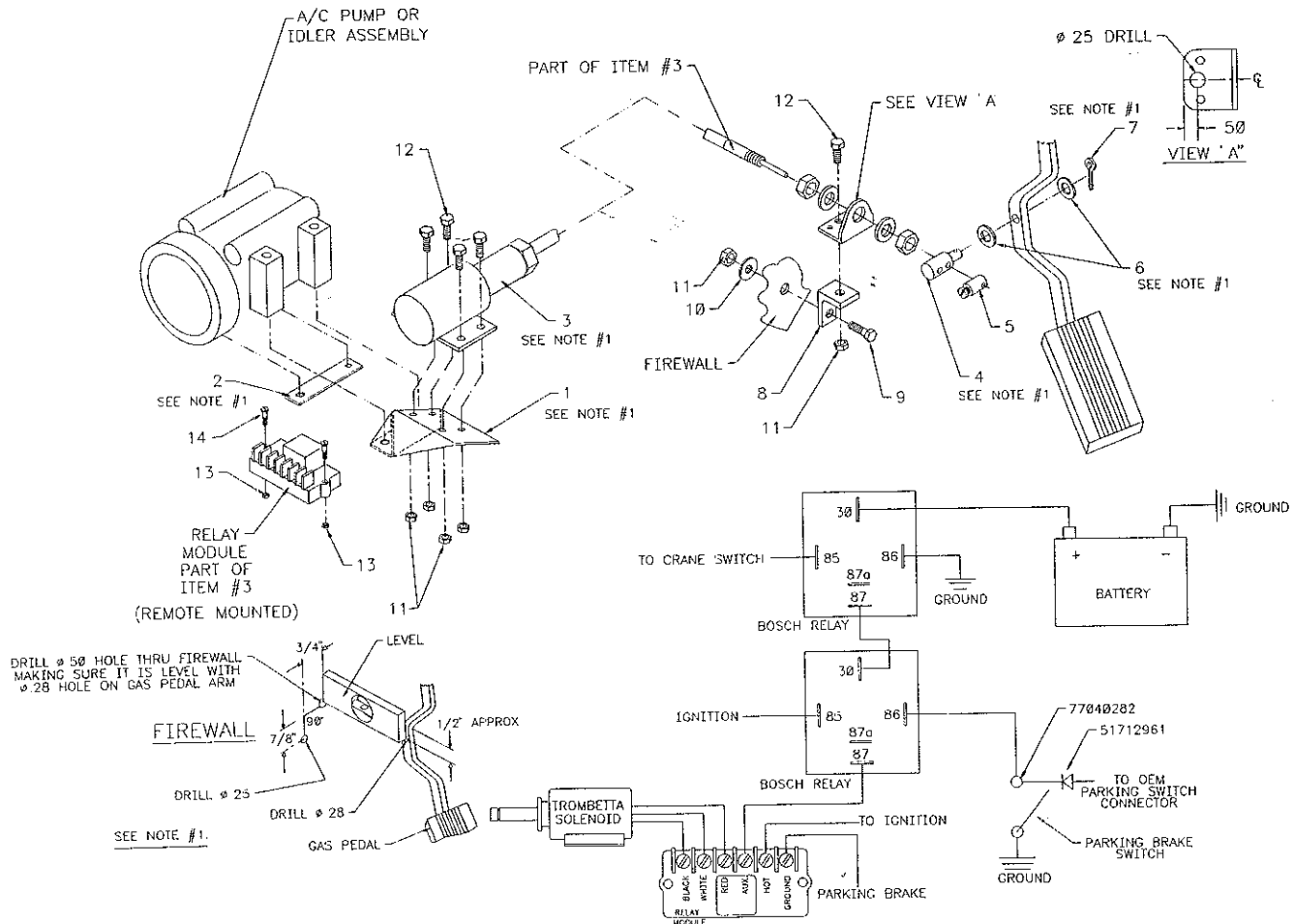
SAFETY INSTRUCTION

**This hole to be
used for sheave
storage pin.**

70394141

**DETAIL
ITEM 15**

Figure D-53. CABLE & HOOK KIT-5000 LB DP WINCH (31712572)



ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1.	52712864	*SPD CTRL BRACKET	1	17.	77040052	TERMINAL 3/8 RING 12-10GA	1
2.	60118144	*SHIM-AC OR IDLER	1	18.	89044371	CABLE 14GA 3WIRE	40"
3.	77041479	*SOLENOID W/CABLE	1	19.	77040048	BUTT CONNECTOR 16-14GA	3
4.	60113812	*CONNECTOR	1	20.	77040186	TERMINAL 1/4 FSLPON 16-14GA	4
5.	72066377	CABLE STOP	1	21.	89044371	CABLE 14GA 3WIRE	20'
6.	72063000	*WASHER 3/16 WRT	2	22.	89044232	WIRE 14GA RED	6'
7.	72066168	*COTTER PIN 3/32X3/4	1	23.	89044235	WIRE 14GA WHT	4'
8.	60118524	LINKAGE BRACKET	1	24.	70394092	DECAL-BRK/CMPSR (DASH)	1
9.	72060004	CAP SCR 1/4-20X1 HHGR5	1	25.	77041251	RELAY	2
10.	72063001	WASHER 1/4 WRT	1	26.	51712961	DIODE-BRK/CMPSR	1
11.	72062104	NUT 1/4-20 LOCK	6	27.	77040282	TERMINAL PIGBAC 16-14GA 1/4	1
12.	72060002	CAP SCR 1/4-20X3/4 HHGR5	5	28.	99900817	INSTALLATION DRAWING	1
13.	72062106	NUT #10-24 LOCK	2				
14.	72060638	MACH SCR #10-24X1 RDHD	2				
15.	77040051	TERMINAL #8 SPRSPD 16-14GA	8				
16.	77040053	TERMINAL 1/4 RING 12-10GA	1				

* NOTE 1. USED ONLY ON FORD 7.3L TURBO-DIESEL (DIRECT INJECTION) INSTALLATIONS.

THIS KIT REPLACES 31705270, EFFECTIVE 12-05-94

Figure D-54. OPTION-THROTTLE CONTROL-TROMBETTA (31712707)

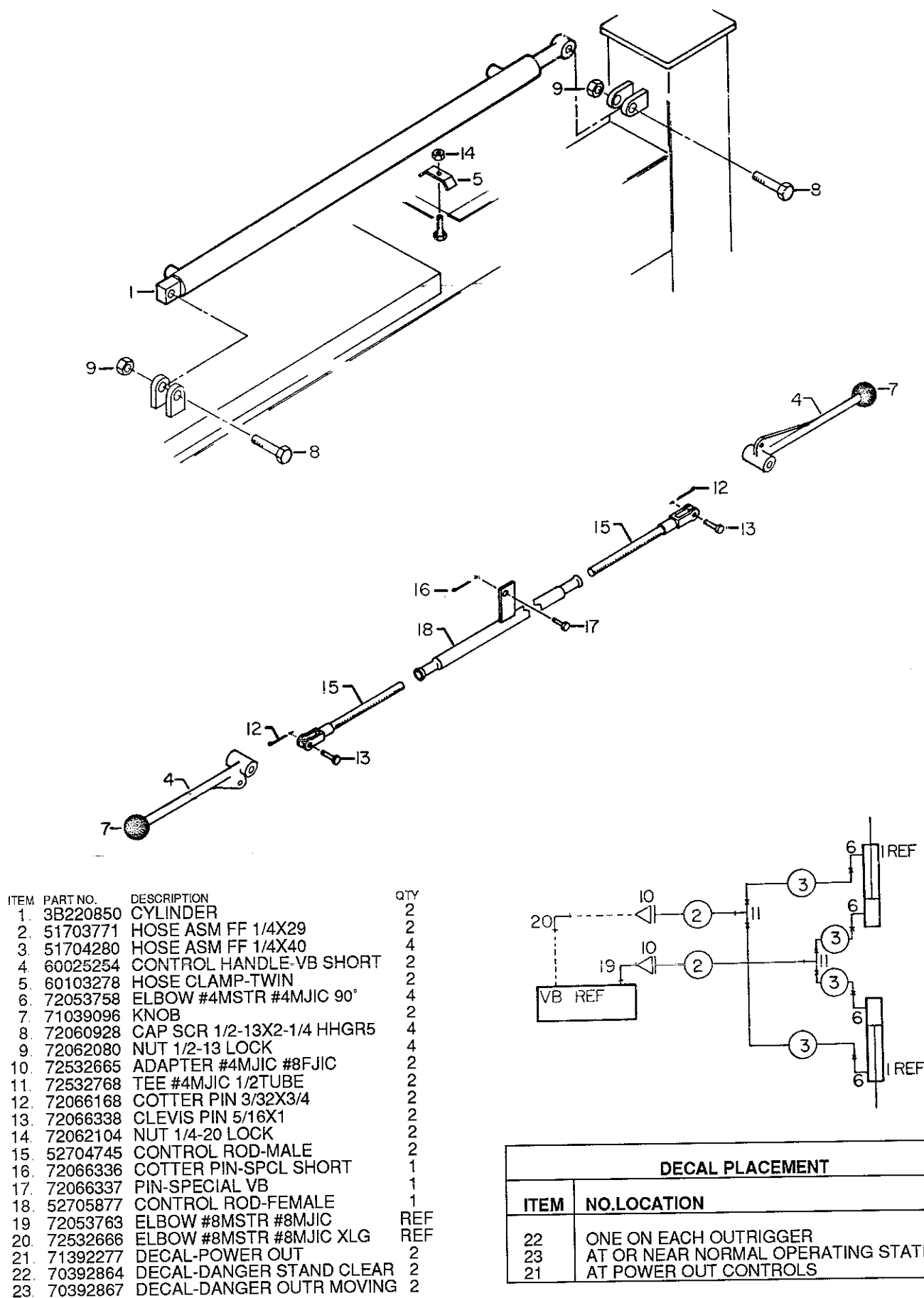


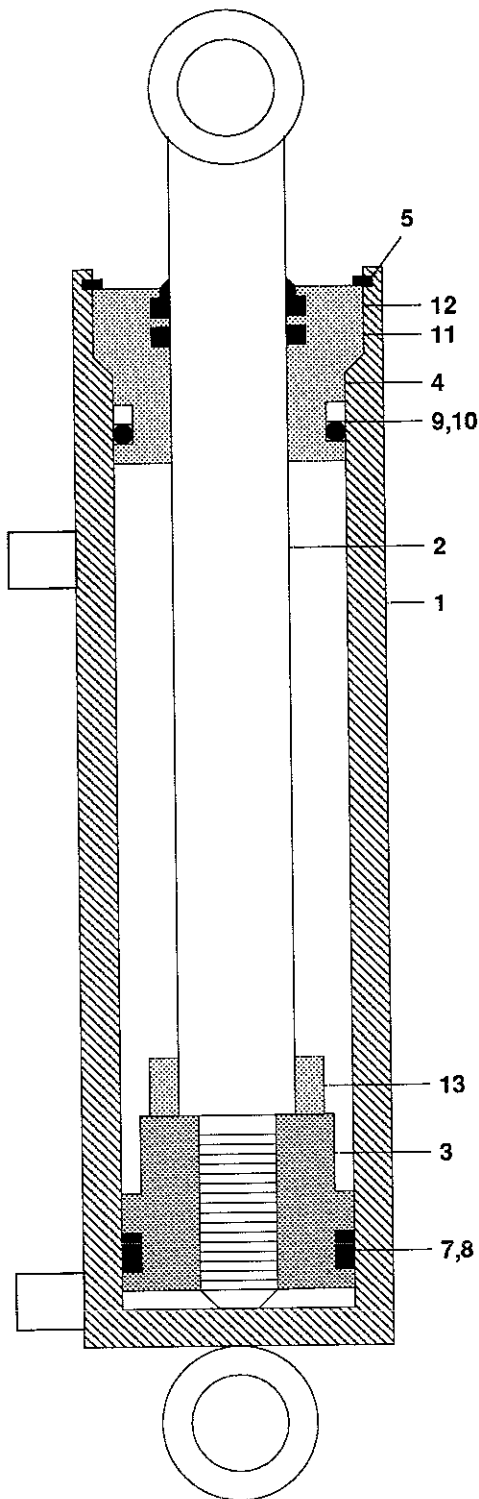
Figure D-55. KIT-POWER OUT OUTRIGGERS (31705851)

NOTE

IT IS RECOMMENDED THAT ALL COMPONENTS OF THE SEAL KIT BE REPLACED WHENEVER THE CYLINDER IS DISASSEMBLED. THIS WILL REDUCE FUTURE DOWNTIME.

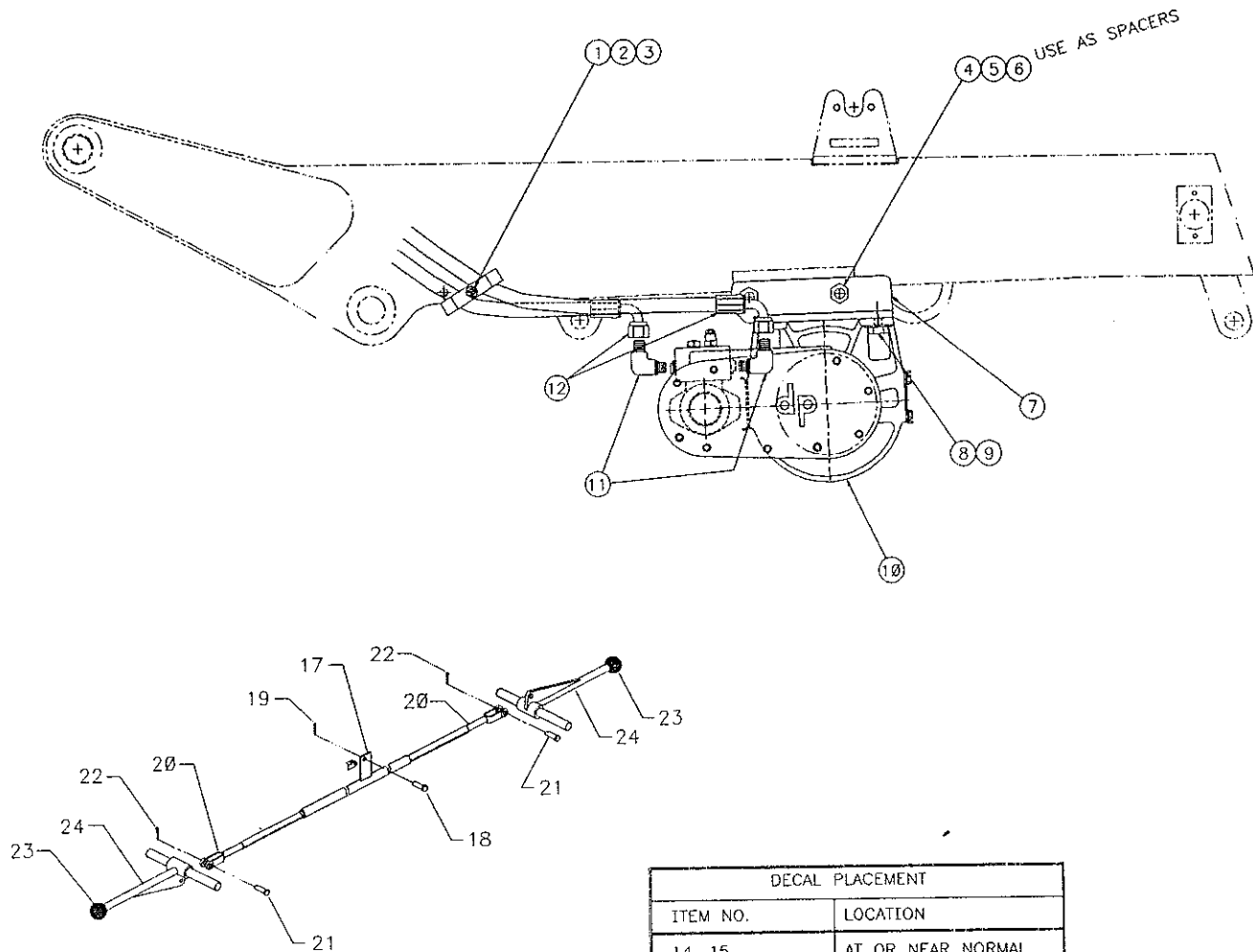
APPLY "LUBRIPLATE #630-2" MEDIUM HEAVY, MULTI-PURPOSE LUBRICANT OR EQUIVALENT TO ALL PISTON, HEAD GLAND, AND HOLDING VALVE SEALS, NYLON LOCK RING, CAST IRON PISTON RINGS, AND ROD STINGER THREADS.

APPLY "NEVER-SEEZ" REGULAR GRADE ANTI-SEIZE AND LUBRICATING COMPOUND TO CYLINDER HEAD AND CASE THREADS.



ITEM	PART NO.	DESCRIPTION	QTY
1.	4B220850	CASE ASM	1
2.	4G220850	ROD ASM	1
3.	6I012050	PISTON	1
4.	6H012007	HEAD	1
5.	72066029	RETAINING RING	1
6.	9B050608	SEAL KIT (INCL:7-12)	1
7.	7T66P012	PISTON SEAL (PART OF 6)	1REF
8.	7Q072021	O-RING (PART OF 6)	1REF
9.	7Q072214	O-RING (PART OF 6)	1REF
10.	7Q10P214	BACK-UP RING (PART OF 6)	1REF
11.	7R100750	U-CUP SEAL (PART OF 6)	1REF
12.	7R13P007	ROD WIPER (PART OF 6)	1REF
13.	6C125007	STOP TUBE 1-1/4	1

Figure D-56. POWER OUT CYLINDER (3B220850)

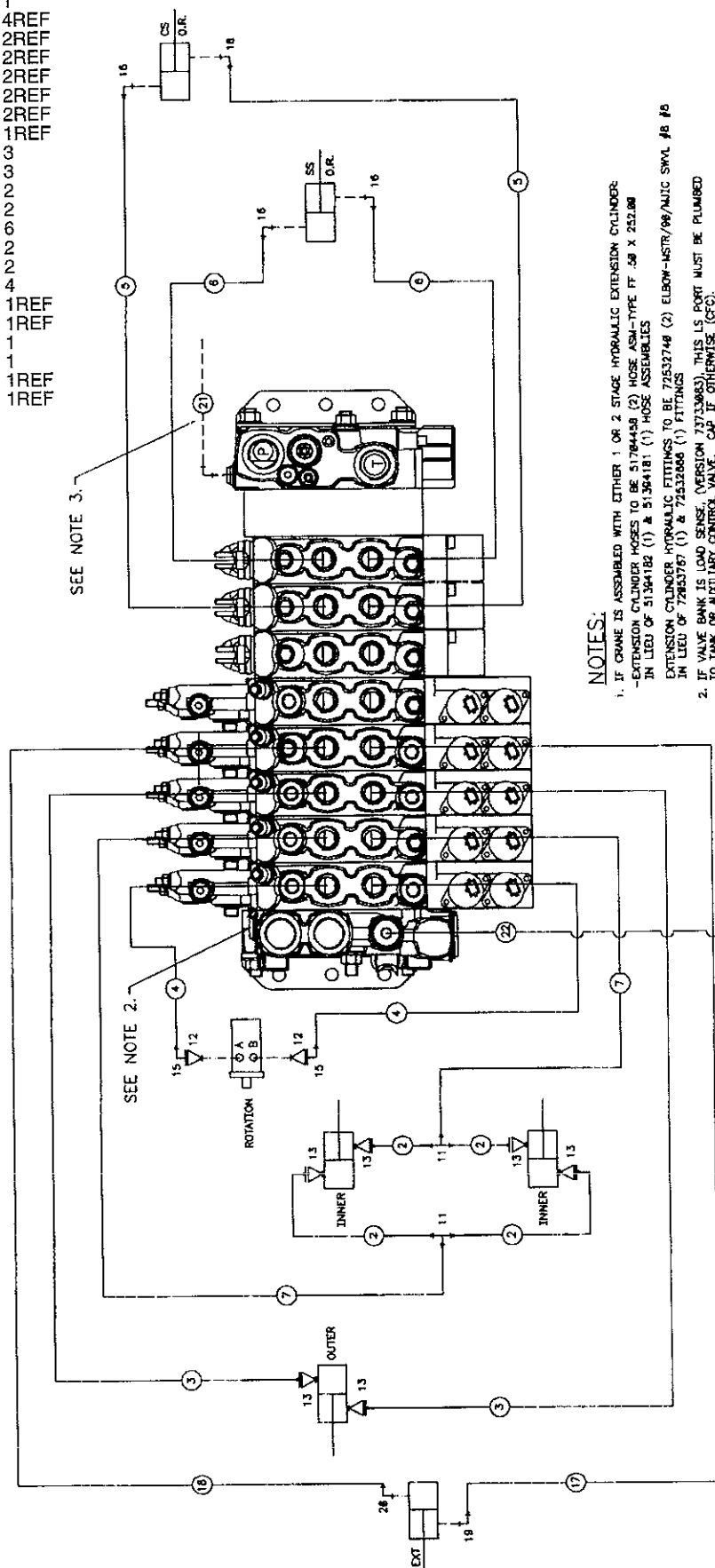


DECAL PLACEMENT	
ITEM NO.	LOCATION
14, 15	AT OR NEAR NORMAL OPERATING STATIONS
16	ONE ON EACH SIDE OF CARRIER VEHICLE

ITEM	PART NO.	DESCRIPTION	QTY
1.	72062103	NUT 3/8-16 LOCK	1
2.	60010118	HOSE CLAMP	1
3.	72060048	CAP SCR 3/8-16X1-1/2 HHGR5	1
4.	72062114	NUT 3/4-10 LOCK	2
5.	72060199	CAP SCR 3/4-10X9 HHGR5	2
6.	72063028	MACH BUSHING 3/4X14GA	4
7.	52712475	MTG BRACKET	1
8.	72601272	CAP SCR 1/2-13X1-1/4 HHGR8	4
9.	72063053	WASHER 1/2 LOCK	4
10.	71570217	WINCH-5000#	1
11.	72053763	ELBOW #8MSTR #8MJIC 90°	2
12.	51712981	HOSE ASM 3/8X312 FJ #8#8	2
14.	70392861	DECAL-DANGER 2-BLOCKING	2
15.	70392863	DECAL-DANGER HOIST PERS	2
16.	70392868	DECAL-DANGER CRANE LOAD	4
17.	52705877	CONTROL ROD-F	1
18.	72066337	PIN-SPCL VB	1
19.	72066336	COTTER PIN-SPCL SHORT	1
20.	52704745	CONTROL ROD-M	2
21.	72066338	CLEVIS PIN 5/16X1	2
22.	72066168	COTTER PIN 3/32X3/4	2
23.	71039096	CONTROL KNOB 1-1/2	2
24.	70029451	CONTROL HANDLE VB	2

Figure D-57. WINCH KIT-DP 5000# BOLT-ON (31905000)

ITEM	PART NO.	DESCRIPTION	QTY
1.	51713216	HOSE KIT (INCL:2-7)	1
2.	51394110	HOSE ASM 3/8X34 #8F #8F	4REF
3.	51394174	HOSE ASM 3/8X160 #8F #8F	2REF
4.	51394025	HOSE ASM 1/4X15 #4F #4F	2REF
5.	51394175	HOSE ASM 3/8X130 #8F #8F	2REF
6.	51394176	HOSE ASM 3/8X94 #8F #8F	2REF
7.	51394004	HOSE ASM 3/8X58 #8F #8F	2REF
8.		VB ASM	1REF
9.	72060032	CAP SCR 5/16-18X2-3/4 HHGR5	3
10.	72062109	NUT 5/16-18 LOCK	3
11.	72531205	TEE #8MJIC 1/2TUBE	2
12.	72532351	ADAPTER #4MSTR #4MJIC	2
13.	72532358	ADAPTER #8MSTR #8MJIC	6
14.	72532665	ADAPTER #4MJIC #8FJIC	2
15.	72532690	ELBOW #4MJIC #4FJIC SWVL	2
16.	72532779	ELBOW #6MSTR #8MJIC XLG	4
17.	51394182	HOSE ASM 1/2X282 #12F#12F	1REF
18.	51394181	HOSE ASM 3/4X282 #8F#8F	1REF
19.	72532666	ELBOW #8MSTR #8MJIC XLG	1
20.	72053767	ELBOW #12MSTR #12MJIC 90°	1
21.	51394177	HOSE ASM 3/8X148 #6(LS ONLY)	1REF
22.	51394178	HOSE ASM 1/2X76 #8	1REF

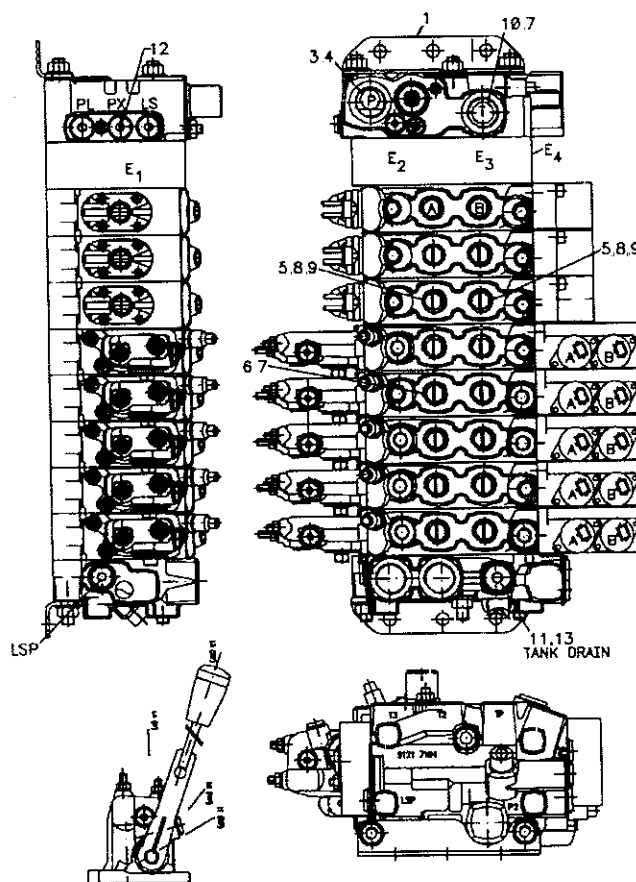


NOTES:

- IF CRANE IS ASSEMBLED WITH EITHER 1 OR 2 STAGE HYDRAULIC EXTENSION CYLINDER - EXTENSION CYLINDER HOSES TO BE 51784438 (2) HOSE ASM-TYPE FF .58 X 252.00 IN LIEU OF 51394182 (1) & 51394181 (1) HOSE ASSEMBLIES
EXTENSION CYLINDER HYDRAULIC FITTINGS TO BE 72532748 (2) ELBOW-MSTR/99/MJIC SWVL #6 IN LIEU OF 72532767 (1) & 72532666 (1) FITTINGS
- IF VALVE BANK IS LOAD SENSE, (VERSION 73733683), THIS LS PORT MUST BE PLUMBED TO TANK OR AUXILIARY CONTROL VALVE. CAP IF OTHERWISE (CFC).
- IF VALVE BANK IS LOAD SENSE, (VERSION 73733683), THIS LS PORT MUST BE PLUMBED TO PUMP USING ITEM #21 51394177. CAP IF OTHERWISE (CFC).

PORT "T" (VB DRAIN) MUST BE PORTED TO TANK "BEFORE" OPERATION OF VALVE BANK. MAY RESULT IN DAMAGED LEVER HOUSING, VENDOR P/N 353686K319.

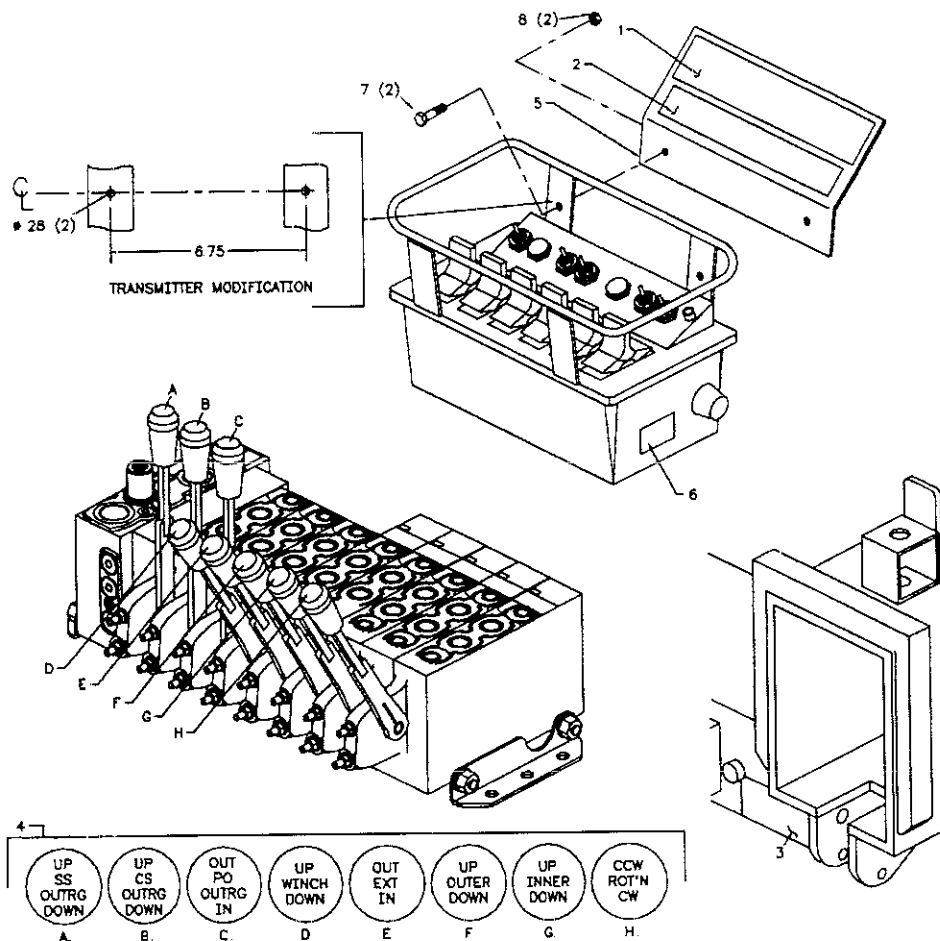
HYDRAULIC KIT-8 SECTION VOAC (91712984)



ITEM	PART NO.	DESCRIPTION	QTY
1.	73732995	VALVEBANK 8-SECT CFC	1
3.	72532951	ADAPTER #12MSTR #8FSTR	1
4.	72532666	ELBOW #8MSTR #8MJIC 90° XLG	1
5.	72531206	ADAPTER #10MSTR #8FSTR	15
6.	72532365	ADAPTER #10MSTR #12MJIC	1
7.	72533032	ELBOW #12MJIC #12FJIC 45°	2
8.	72532665	ADAPTER #4MJIC #8FJIC	2
9.	72053777	ELBOW #8MSTR #8MJIC 45°	15
10.	72053767	ELBOW #12MSTR #12MJIC 90°	1
11.	72053763	ELBOW #8MSTR #8MJIC 90°	1
12.	72533451	NIPPLE-DIAG W/CAP 9/16-18	1
13.	70393231	PLASTIC CAP 3/4-16 1/2 TUBE	1

DECALS

1.	70394143	DECAL-HARDWIRE BUTTONS	1
2.	70394144	DECAL-HARDWIRE PADDLES	1
3.	70394146	DECAL-EMERG OVERRIDE	1
4.	70394145	DECAL-CTRL CIRCLES	1
5.	60119079	MTG PLATE-DECALS	1
6.	70394096	DECAL-EMERGENCY STOP	1
7.	72060002	CAP SCR 1/4-20X3/4 HHGR5	2
8.	72062104	NUT 1/4-20 LOCK	2



VALVEBANK ASM-8 SECTION VOAC HARDWIRE REMOTE CFC (51712977)

TP	END SECTION	SAE # 8 (.75-16)
PX, LS, PL	INLET SECTION	SAE # 6 (.56-18)
A, B	SPOOL SECTION	SAE #10 (.88-14)
T2, T3	END SECTION	SAE #12 (1.06-12)
T1	INLET SECTION	SAE #12 (1.06-12)
P1	INLET SECTION	SAE #12 (1.06-12)
CONNECTIONS		
THREAD SIZE		

PRESSURE SETTINGS BAR (PSI)	1,2,3	4	5	6	7	8
A PORT	SYSM. PRESS.	SYSM. PRESS.	160 (2300)	SYSM. PRESS.	SYSM. PRESS.	125 (1800)
B PORT	SYSM. PRESS.	SYSM. PRESS.	160 (2300)	SYSM. PRESS.	SYSM. PRESS.	125 (1800)
SPOOL SEC. TYPE	DOT	TOT	TOT	TOT	TOT	TOT

FLOW DEMAND L/MIN (GPM)	A PORT	B PORT	75 (19.81)	45 (11.89)	45 (11.89)	45 (11.89)	45 (11.89)	20 (5.28)
A PORT	75 (19.81)	45 (11.89)	45 (11.89)	45 (11.89)	45 (11.89)	45 (11.89)	45 (11.89)	20 (5.28)
B PORT	75 (19.81)	45 (11.89)	45 (11.89)	45 (11.89)	45 (11.89)	45 (11.89)	45 (11.89)	20 (5.28)

INLET SECTION TYPE : CFC

RELIEF VALVE SETTING : 210 BAR / 3045 PSI

PUMP BLOCKAGE FUNCTION : BEN (ELECTRICALLY CONTROLLED EMERGENCY STOP FUNCTION, WHEN THE CURRENT TO THE ELECTROMAGNET IS BROKEN, THE PUMP IS BLOCKED AND THE LOAD SIGNAL DRAINED TO TANK.)

SYSTEM : PUMP CAPACITY = 75 l/min (19.81 GPM)

PUMP PRESSURE = 190 BAR (2756 PSI)

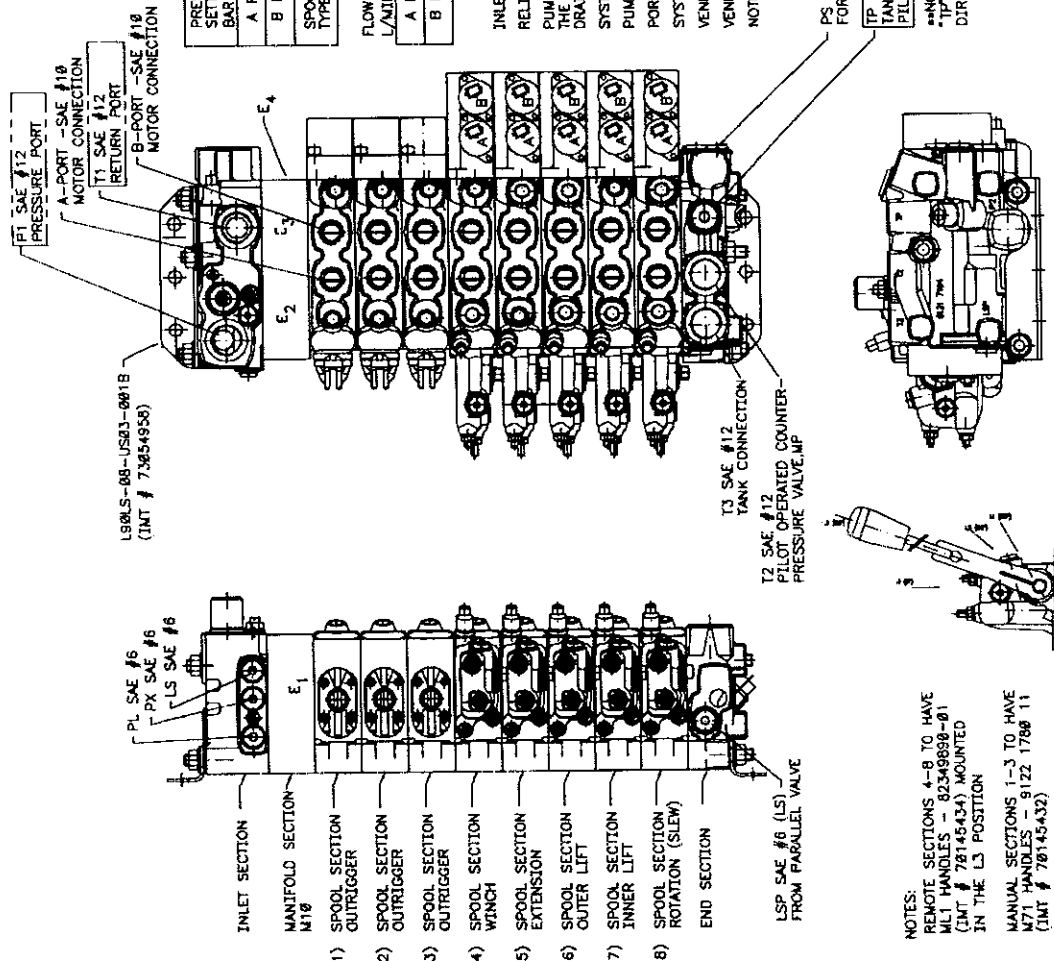
PORT THREADS = UNF

SYSTEM VOLTAGE = 12 VOLT

VENDOR : VOAC HYDRAULICS

VENDOR P/N : K00093

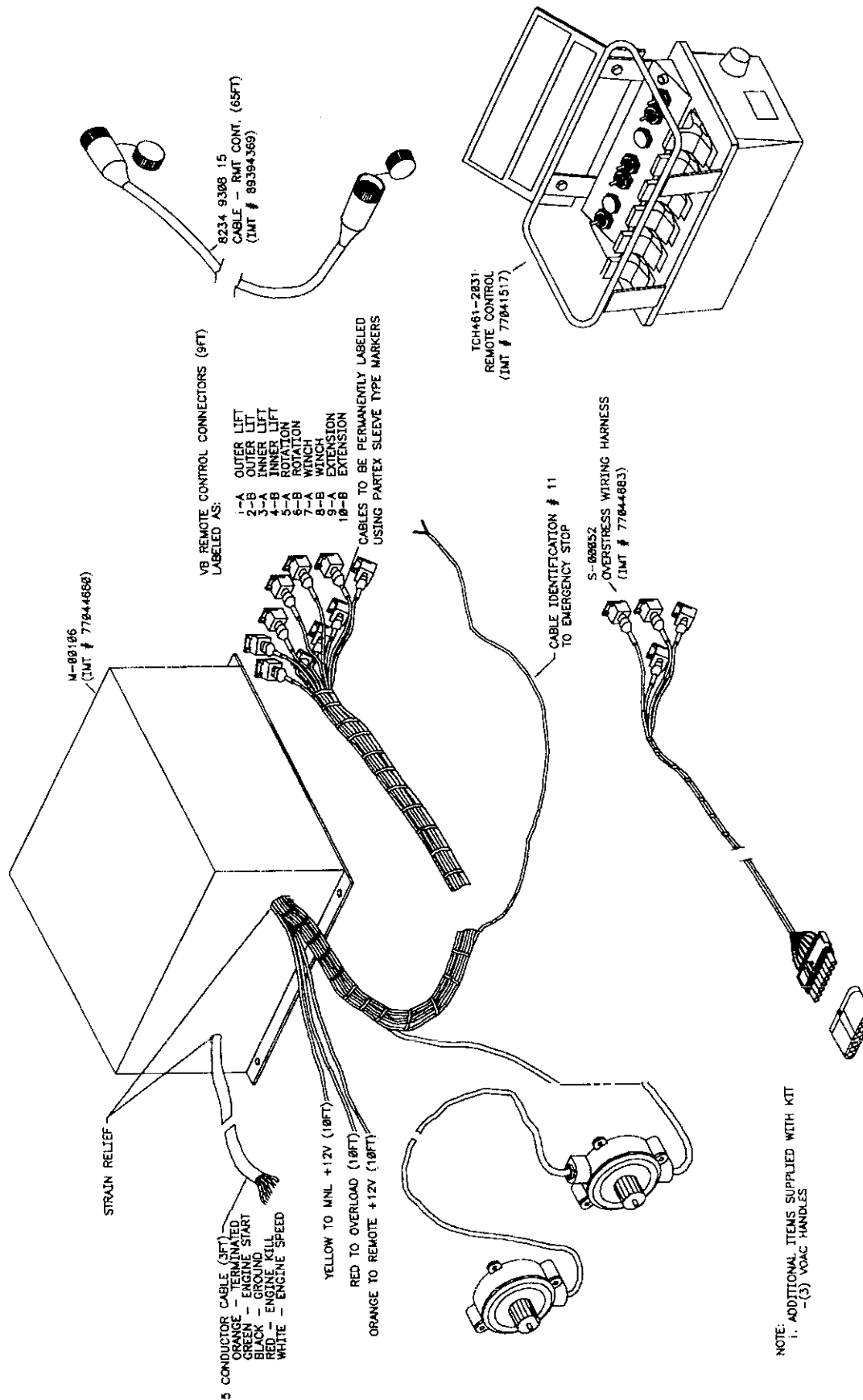
NOTES:

PS - PILOT PRESSURE SUPPLY
FOR EXTERNAL USETP SAE #8
TANK CONNECTION FOR
PILOT SYSTEM**NOTE:
"TP" PORT MUST BE PORTED
DIRECTLY BACK TO TANK.

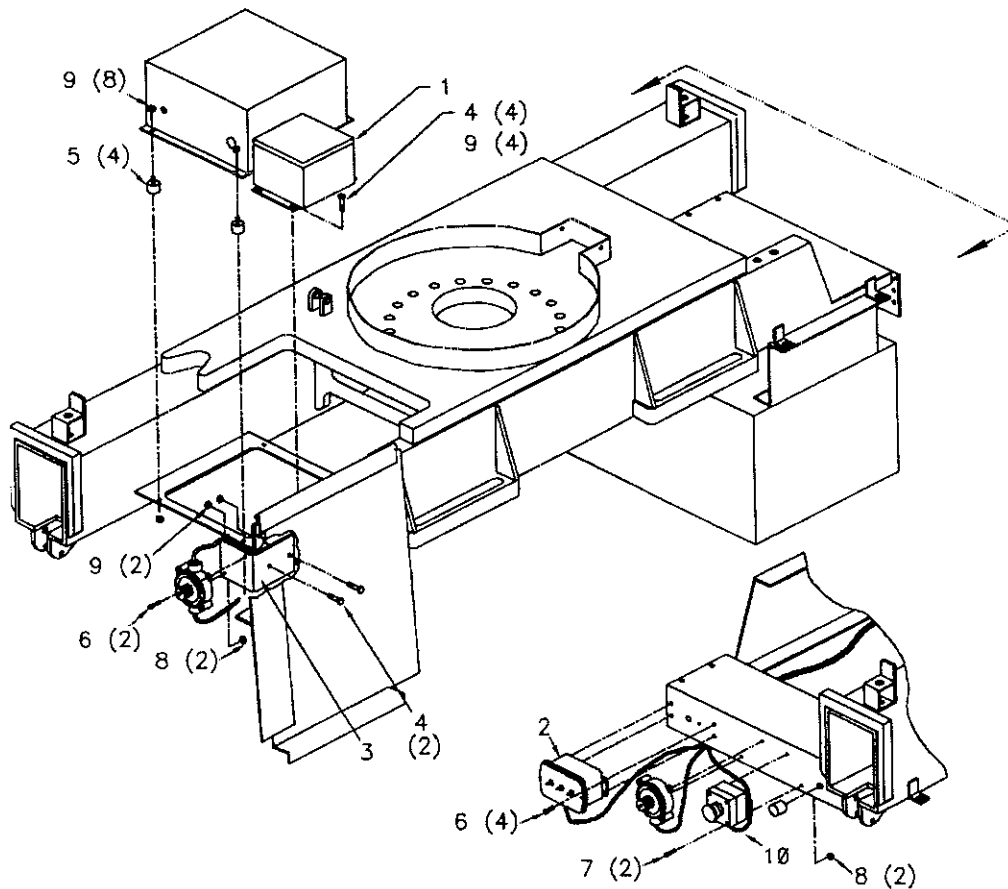
NOTES:

REMOTE SECTIONS 4-8 TO HAVE
M1.1 HANDLES - 82349898-01
(INT # 78145434) MOUNTED
IN THE L3 POSITIONMANUAL SECTIONS 1-3 TO HAVE
M7.1 HANDLES - 9122 1780 11
(INT # 78145432)

VALVEBANK-8 SECTION HARDWARE 5R/3M CFC (73732995-1)

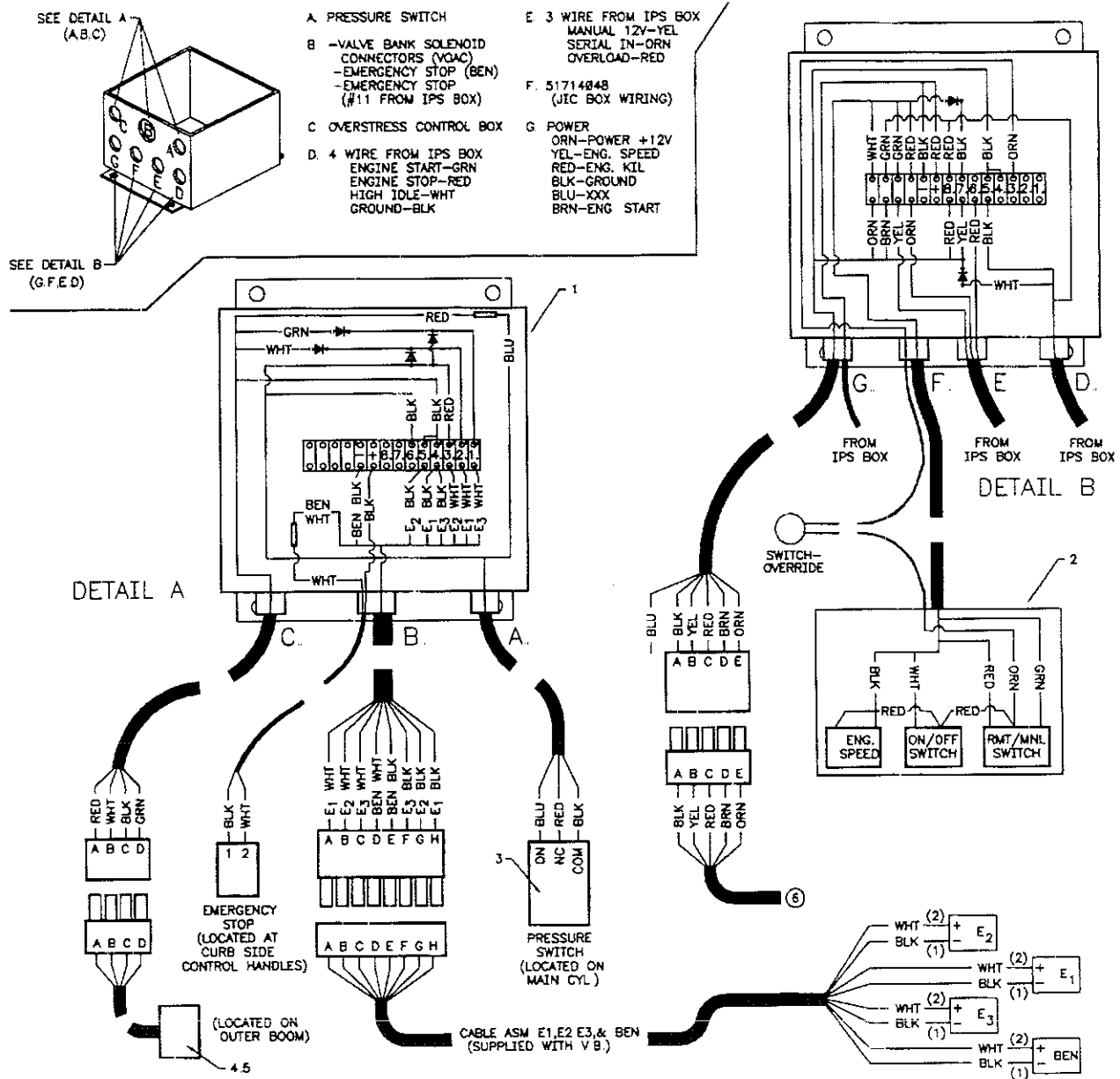


VALVEBANK-8 SECTION HARDWARE 5R/3M CFC (73732995-2)



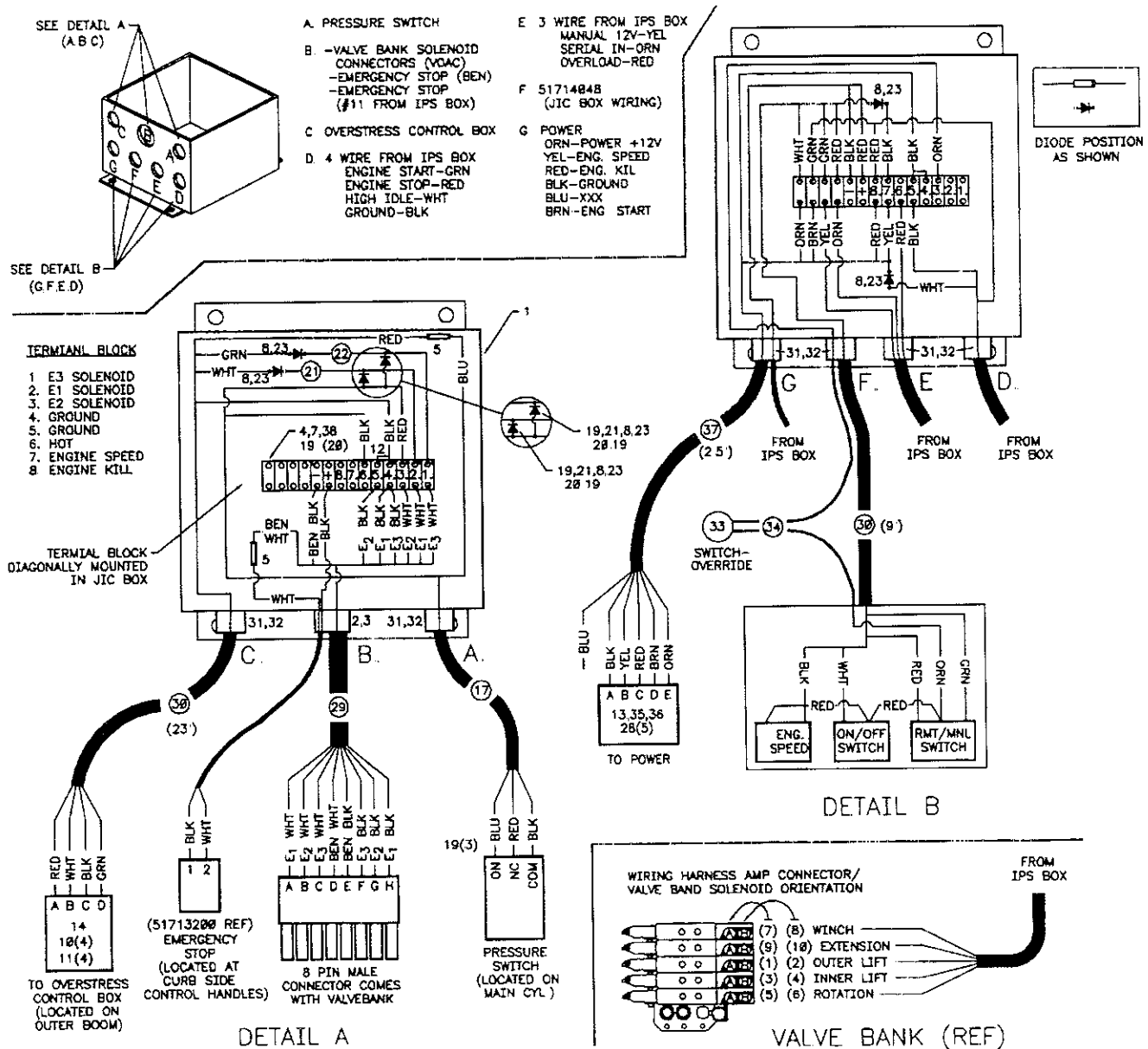
ITEM	PART NO.	DESCRIPTION	QTY
1.	51713047	CABLE ASM-JIC BOX	1
2.	51713048	CABLE ASM-JIC BOX	1
3.	60119096	MOUNTING BRACKET	1
4.	72060004	CAP SCR 1/4-20X1 HHGR5	6
5.	70393259	SHOCK MOUNT	4
6.	72060636	SCREW #10-24X3/4	8
7.	72060683	SCREW #10-24X7/8	2
8.	72062106	NUT #10-24 LOCK	6
9.	72062104	NUT 1/4-20 LOCK	14
10.	51713200	CABLE ASM-EMER STOP SWITCH	1

CONTROL KIT-HARDWIRE REMOTE (90713139-1)



ITEM	PART NO.	DESCRIPTION	QTY
1.	51713048	CABLE ASM-JIC BOX	REF
2.	51713047	CABLE ASM-JIC BOX	REF
3.	77041476	PRESSURE SWITCH	1
4.	77041457	CONTROL BOX-OVERLOAD SYS	1
5.	72060000	CAP SCR 1/4-20X1/2 HHGR5	2
6.	51712882	CABLE ASM-POWER	1
7.	89034048	SPIRAL WRAP	40FT

CONTROL KIT-HARDWIRE REMOTE (90713139-2)



ITEM	PART NO.	DESCRIPTION	QTY
1	60119076	JIC BOX	1
2	77044196	STRAIN RELIEF 3/4	1
3	77044202	NUT 3/4 LOCK ELEC	1
4	77044309	TERMINAL BLOCK 14-CONTACT	1
5	77040048	BUTT CONNECTOR 16-14GA	2
7	72060668	CAP SCR #10-32X1/2 SH	4
8	77044556	DIODE 2-2AMP 274V	6
10	70394069	SEAL-CONNECTOR	7
11	77044550	TERMINAL PIN-MALE	7
12	77040130	JUMPER BAR	1
13	77044596	CONNECTOR 5WAY F	1
14	77044549	CONNECTOR 4-WAY	1
17	89044371	CABLE 14GA 3W RED/BLU/BLK	8FT
19	77040051	SPRINGSPADE #8 16-14GA	28
20	89044395	WIRE 16GA GRN 1"	2

ITEM	PART NO.	DESCRIPTION	QTY
21	89044400	WIRE 16GA RED 1"	2
22	89044397	WIRE 16GA WHT 1"	2
23	83034392	HEAT SHRINK-PVC 1/8EXP 3"	6
28	70394119	SEAL-CABLE CONNECTOR	5
29	89044566	CABLE 18GA 2WIRE 7.5FT	8
30	89044034	CABLE 16GA 4WIRE	32FT
31	77044018	STRAIN RELIEF 1/2	6
32	77044201	NUT 1/2 ELEC LOCK	1
33	77041013	MAIN SWITCH	1
34	89044393	WIRE 16GA ORN	10FT
35	77044597	PIN	5
36	77041505	CONN-SECONDARY LOCK	1
37	89044354	CABLE 14GA 6WIRE	2.5FT
38	70086054	TAPE 1" ACRYLIC	25FT

CABLE ASM-JIC BOX HARDWIRE REMOTE (51713047)



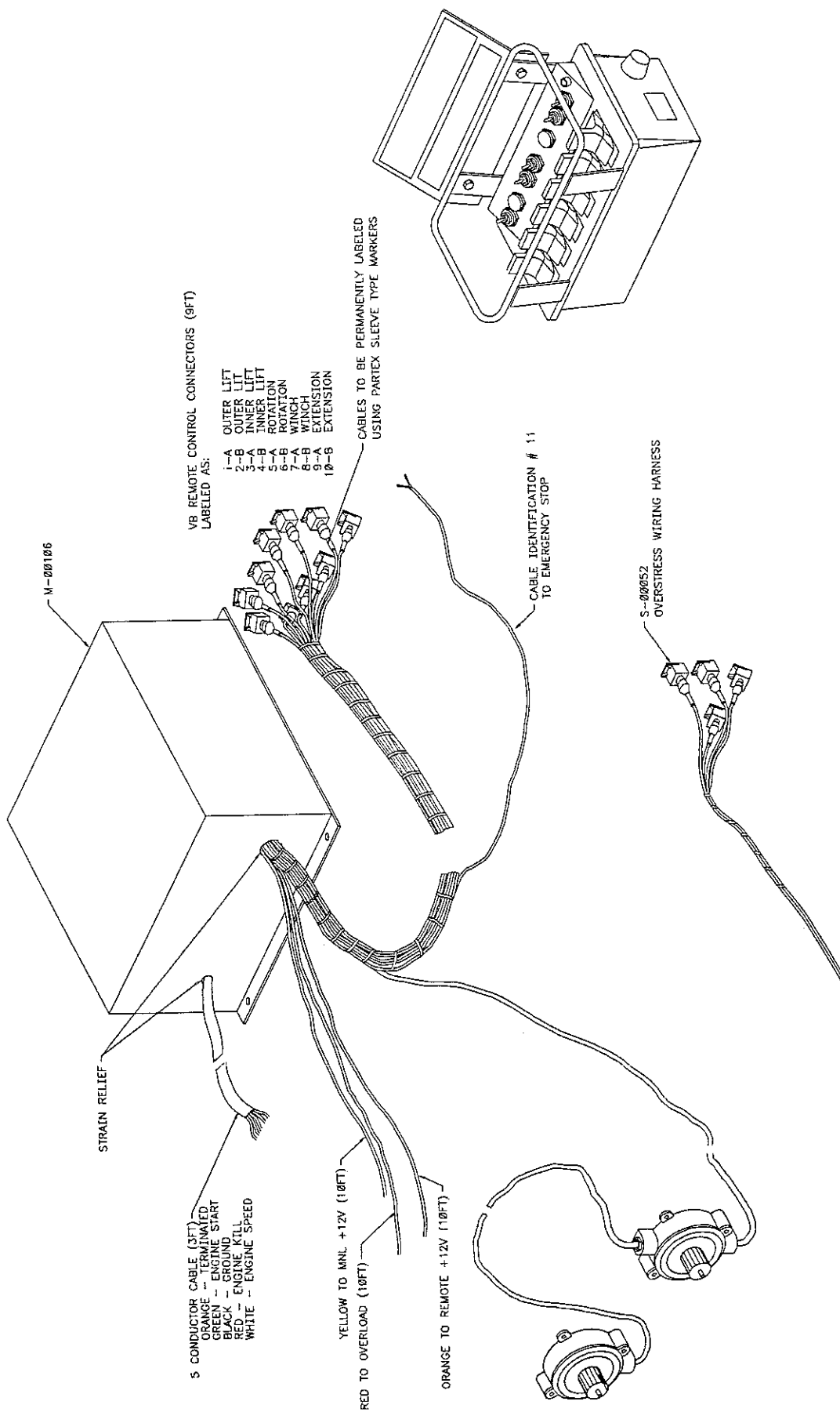
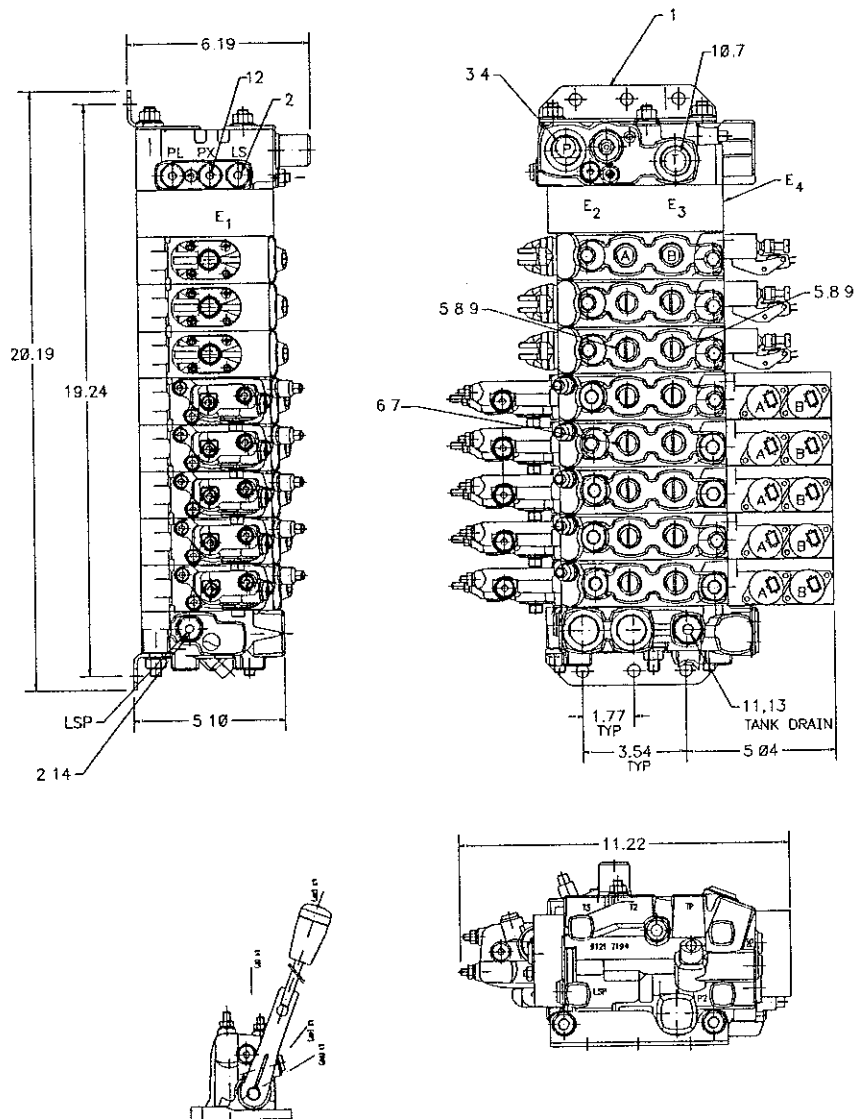
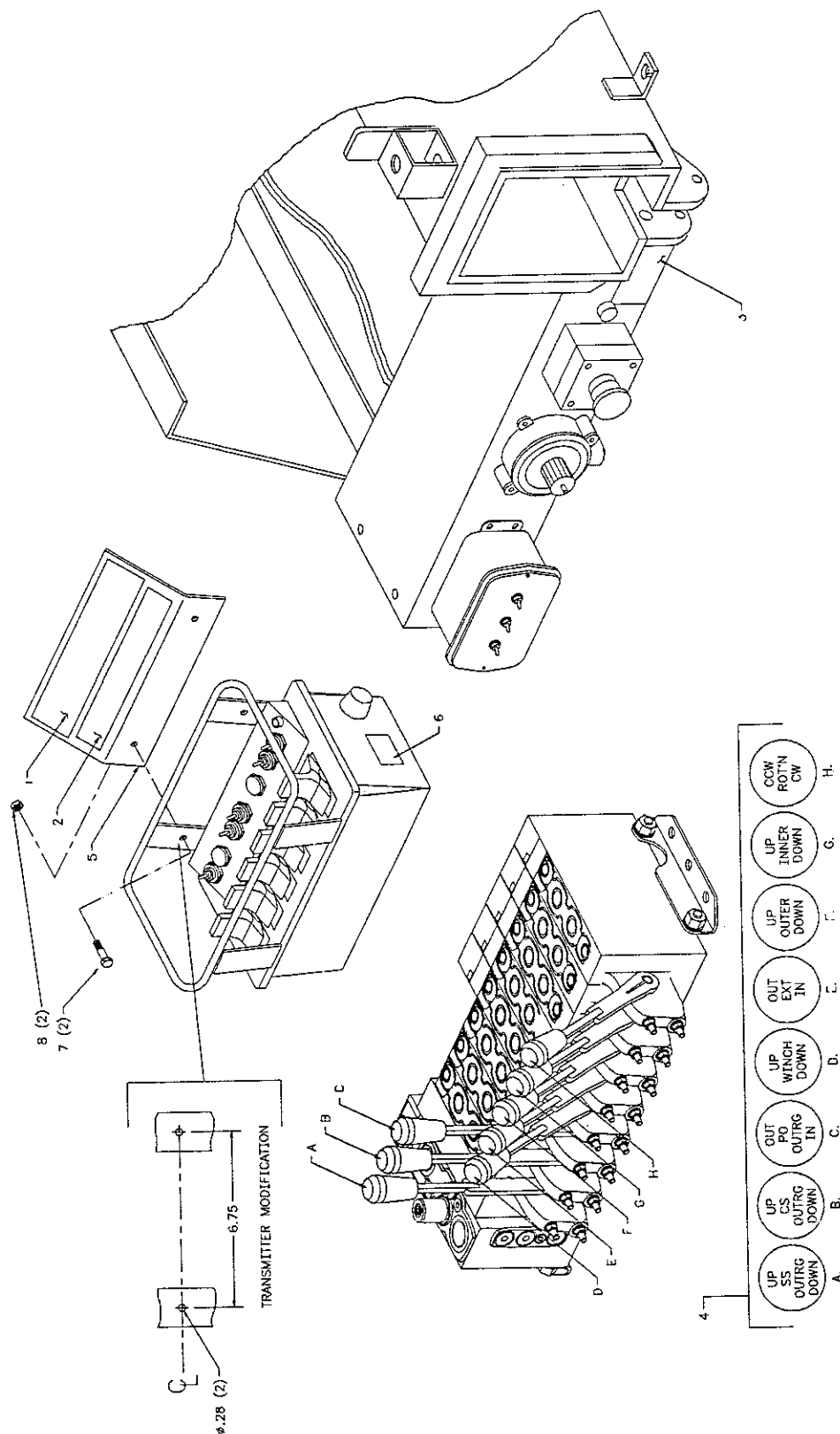


Figure D-62A. VALVEBANK 8-SECTION HARDWIRE 5R/3M LS1 (73733083)



ITEM	PART NO.	DESCRIPTION	QTY
1	73733083	VB-VOAC 80SECT HARDWARE	1
2	72053760	ELBOW #6MSTR #6MJIC 90°	2
3	72532951	ADAPTER #12MSTR #8FSTR	1
4	72532666	ELBOW #8MSTR #8MJIC 90° XLG	1
5	72531206	ADAPTER #10MSTR #8FSTR	15
6	72532365	ADAPTER #10MSTR #12MJIC	1
7	72533032	ELBOW #12MJIC #12FJIC 45°	2
8	72532665	ADAPTER #4MJIC #8FJIC	2
9	72053777	ELBOW #8MSTR #8MJIC 45°	15
10	72053767	ELBOW #12MSTR #12MJIC 90°	1
11	72053763	ELBOW #8MSTR #8MJIC 90°	1
12	72533451	NIPPLE-DIAG W/CAP 9/16-18	1
13	70393231	CAP-PLASTIC 3/4-16 1/2TUBE	1
14	70393230	CAP-PLASTIC 9/16-18 3/8TUBE	1

Figure D-63. VALVEBANK 8-SECTION VOAC HARDWARE REMOTE LS1 (51713211)



ITEM	PART NO.	DESCRIPTION	QTY
1	70394143	DECAL-VOAC RC BUTTONS	1
2	70394144	DECAL-VOAC RC PADDLES	1
3	70394146	DECAL-EMERGENCY OVERRIDE	1
4	70394145	DECAL-CTRL CIRCLES	1
5	60119079	MTG PLATE-DECAL	1
6	70394096	DECAL-EMERGENCY STOP	1
7	72060002	CAP SCR 1/4-20X3/4 HHGR5	2
8	72062104	NUT 1/4-20 LOCK	2

Figure D-63A. VALVEBANK 8-SECTION VOAC DECAL KIT (51713211)

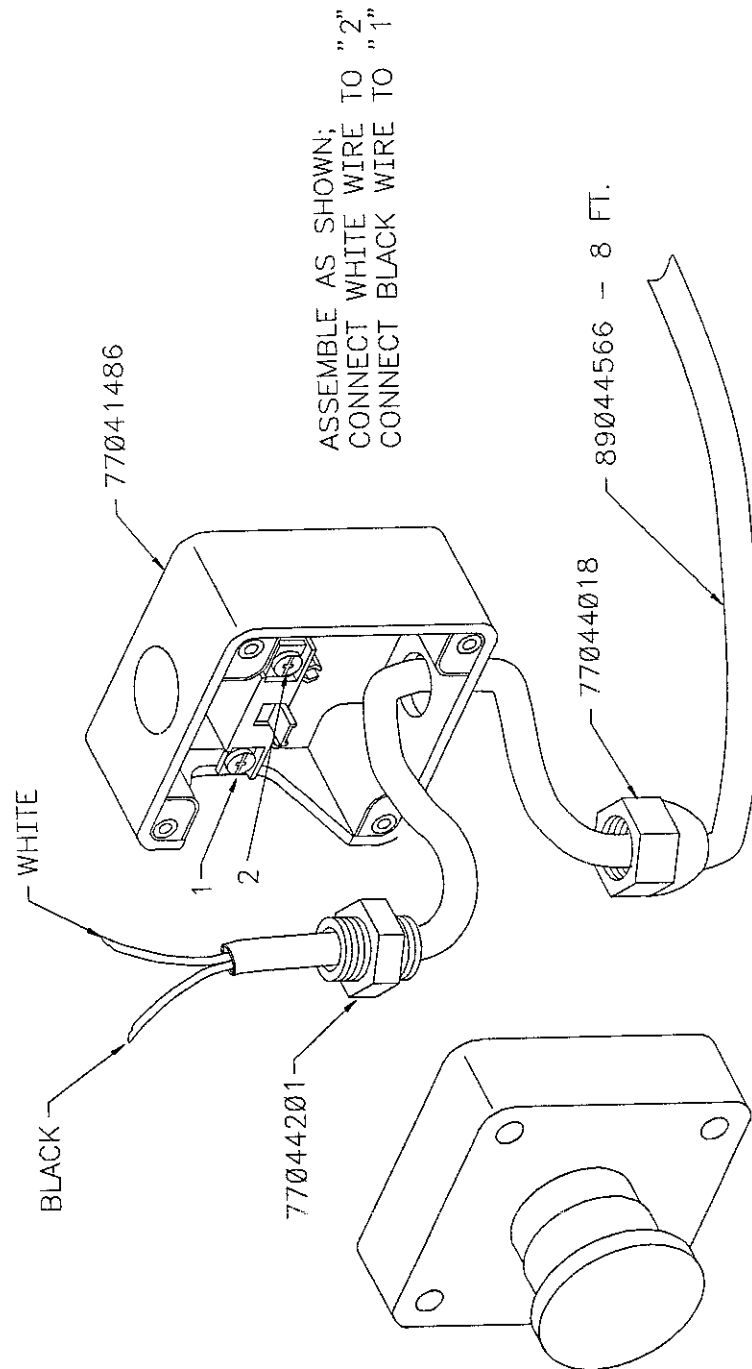
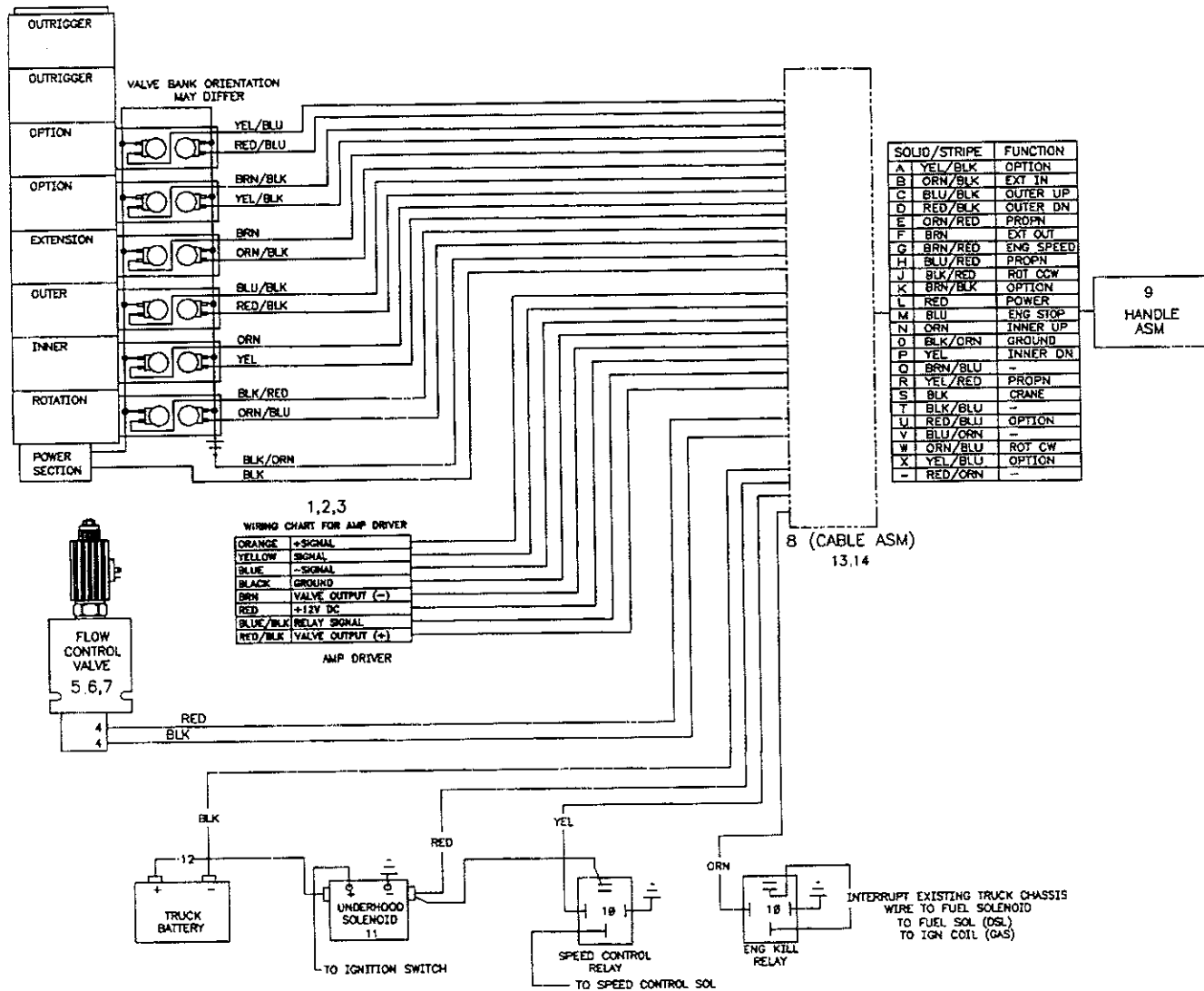
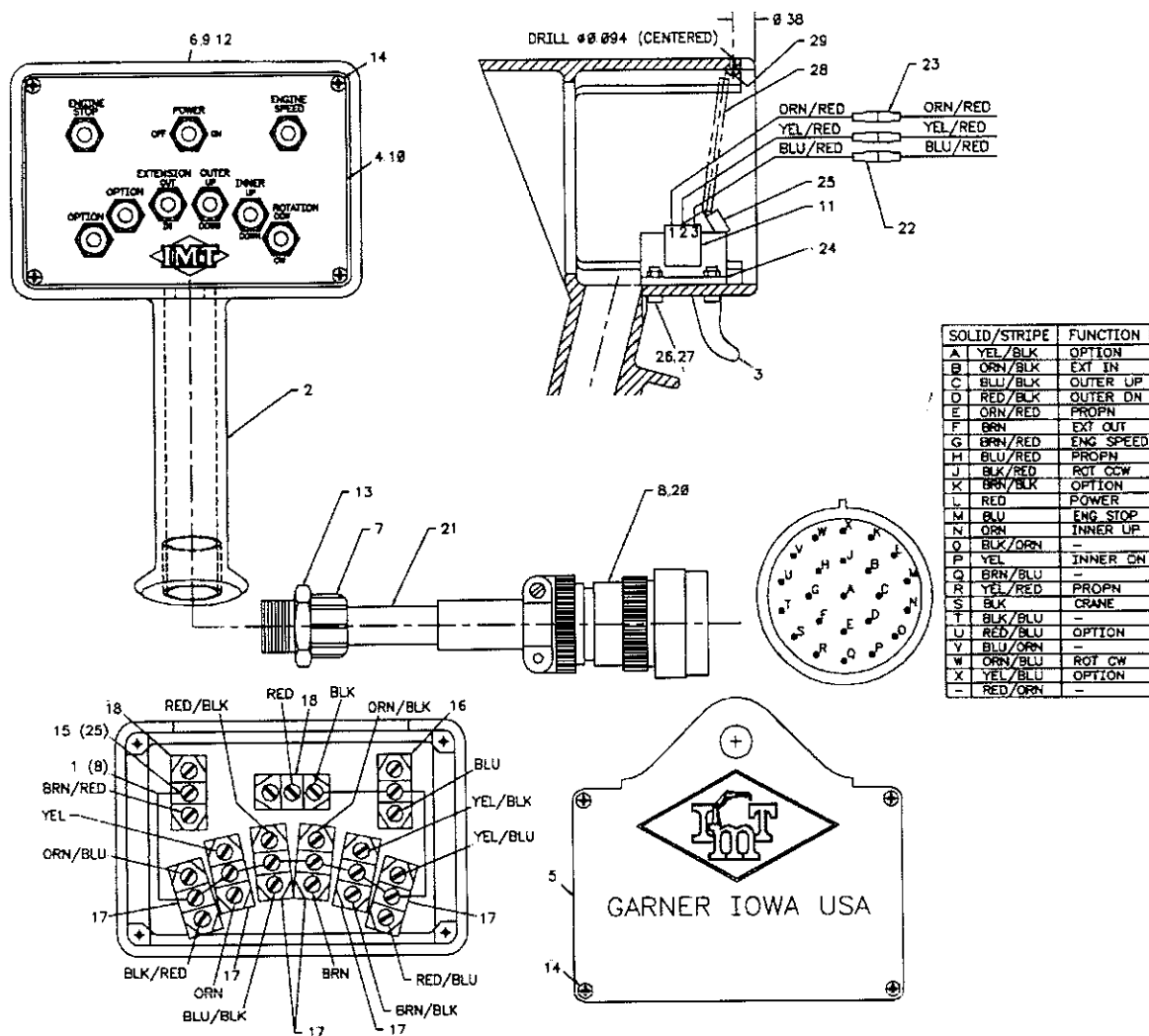


Figure D-64. CABLE ASM-EMERGENCY STOP SWITCH (51713200)



ITEM	PART NO.	DESCRIPTION	QTY
1.	77041390	AMP DRIVER	1
2.	72060703	CAP SCR 1/4-20X1/2 SH	2
3.	72063049	WASHER 1/4 LOCK	2
4.	77040186	TERMINAL 1/4 FSLPON 16-14GA	2
5.	73054876	FLOW VALVE	1
6.	72060051	CAP SCR 3/8-16X2-1/4 HHGR5	2
7.	72062103	NUT 3/8-16 LOCK	2
8.	51713568	CABLE ASM	1
9.	51713429	HANDLE ASM	1
10.	77041251	RELAY	2
11.	77041237	SOLENOID 12V	1
12.	51704784	CABLE ASM #1WIRE X 6	1
13.	72060004	CAP SCR 1/4-20X1 HHGR5	4
14.	72062104	NUT 1/4-20 LOCK	4

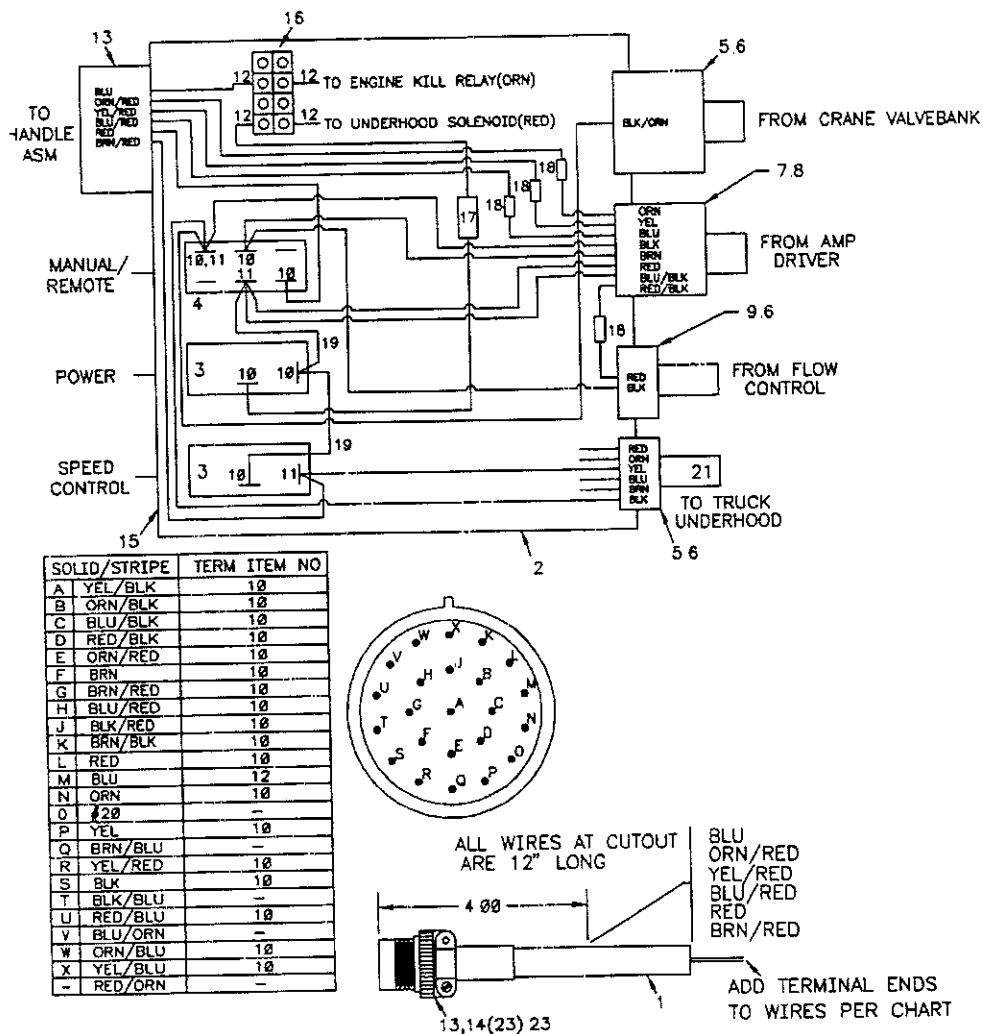
PROPORTIONAL REMOTE CONTROL KIT (90713554)



ITEM	PART NO.	DESCRIPTION	QTY
1.	60045031	WIRE 18GA X 4 GRN	8
2.	60119335	CONTROL HANDLE BACK	1
3.	60111141	TRIGGER	1
4.	60119277	COVER	1
5.	70034306	BACK COVER	1
6.	70029119	SERIAL NUMBER PLACARD	1
7.	77044096	CORD GRIP	1
8.	77044621	PIN	23
9.	70392862	DECAL-DGR RC ELECTRO	1
10.	71394282	DECAL-RC HANDLE	1
11.	51707507	POTENTIOMETER ASM (INCL:22)	1
12.	72066340	POP RIVET	2
13.	72531833	REDUCER BUSHING 3/4-1/2NPT	1
14.	72061009	SHT MTL SCR #6X3/4 PH	8

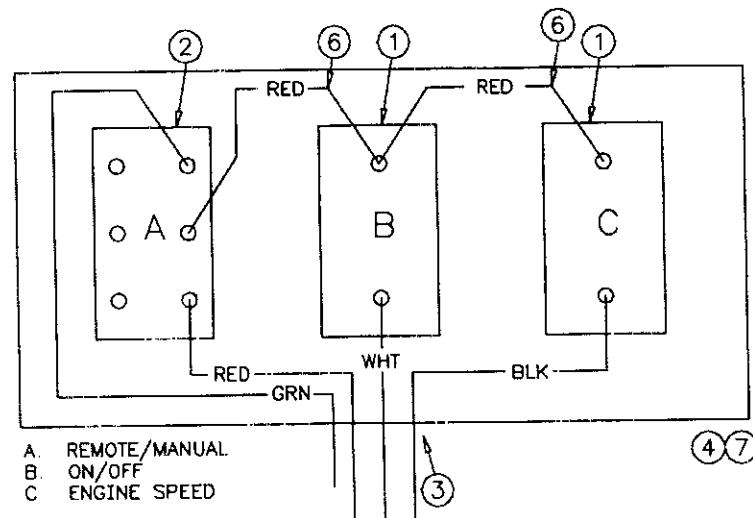
ITEM	PART NO.	DESCRIPTION	QTY
15.	77040051	TERMINAL #8 SPRSPD 16-14GA	25
16.	77040371	TOGGLE SWITCH SPST	1
17.	77040372	TOGGLE SWITCH SPDT	6
18.	77040373	TOGGLE SWITCH SPST	2
20.	77044579	CONNECTOR	1
21.	89044100	CABLE 18GA/24WIRE X 45FT	1
22.	77040047	TERMINAL MSLPON(PART OF 11)	3REF
23.	77040186	TERMINAL 1/4 FSLPON 16-14GA	3
24.	60111142	MTG BRACKET	1
25.	72060669	CAP SCR #10-32X5/8 SH	1
26.	72060636	CAP SCR #10-24X3/4 SH	2
27.	72062106	NUT #10-24 LOCK	2
28.	70143223	SPRING	1
29.	72061000	SHT MTL SCR #6X1/2 PH	1

PROPORTIONAL REMOTE HANDLE ASSEMBLY (51713429)



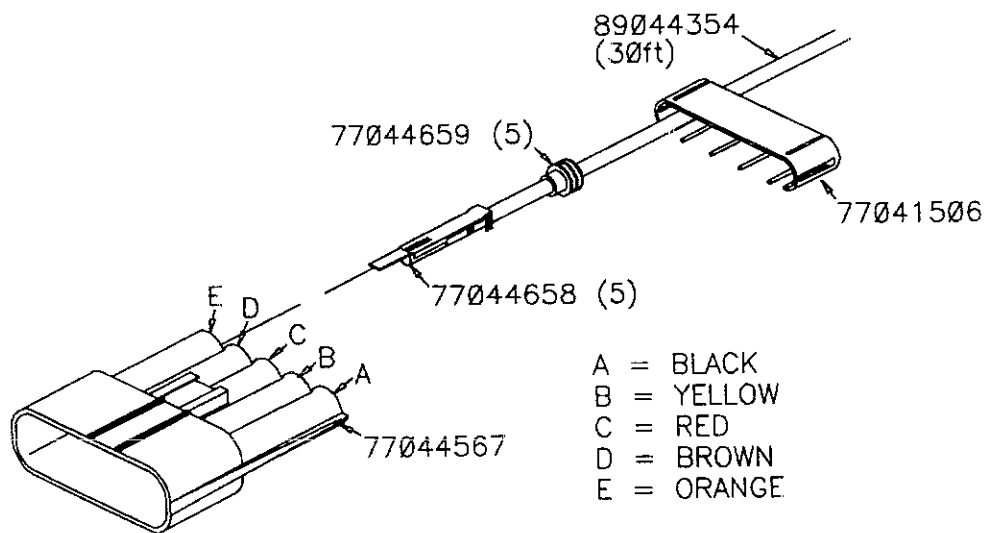
ITEM	PART NO.	DESCRIPTION	QTY
1.	89044100	CABLE 18GA/24WIRE X 94	1
2.	90713575	JIC BOX	1
3.	77041345	TOGGLE SWITCH ST	2
4.	77041354	TOGGLE SWITCH DT	1
5.	77044018	STRAIN RELIEF 1/2	2
6.	77044201	NUT 1/2 ELEC LOCK	3
7.	77044196	STRAIN RELIEF 3/4	1
8.	77044202	NUT 3/4 ELEC LOCK	1
9.	77044468	STRAIN RELIEF 1/2	1
10.	77040186	TERMINAL 1/4 FSLPON 16-14GA	25
11.	77040282	TERMINAL 1/4 PIGBAC 16-14GA	3
12.	77040051	TERMINAL #8 SPRSPD 16-14GA	4
13.	77044620	CONNECTOR	1
14.	77044580	SOCKET	23
15.	70393257	DECAL-JIC BOX	1
16.	77044341	TERMINAL BLOCK-4	1
17.	77041056	FUSE 20A IN-LINE	1
18.	77040048	BUTT CONNECTOR 16-14GA	4
19.	89044232	WIRE 14GA RED X 3	2
20.	77044668	PLUG-SEAL	1
21.	89044354	CABLE 14GA/6WIR	84"
23.	77044667	PLUG-CAP	1

CABLE ASM-JIC BOX 94" (51713568)

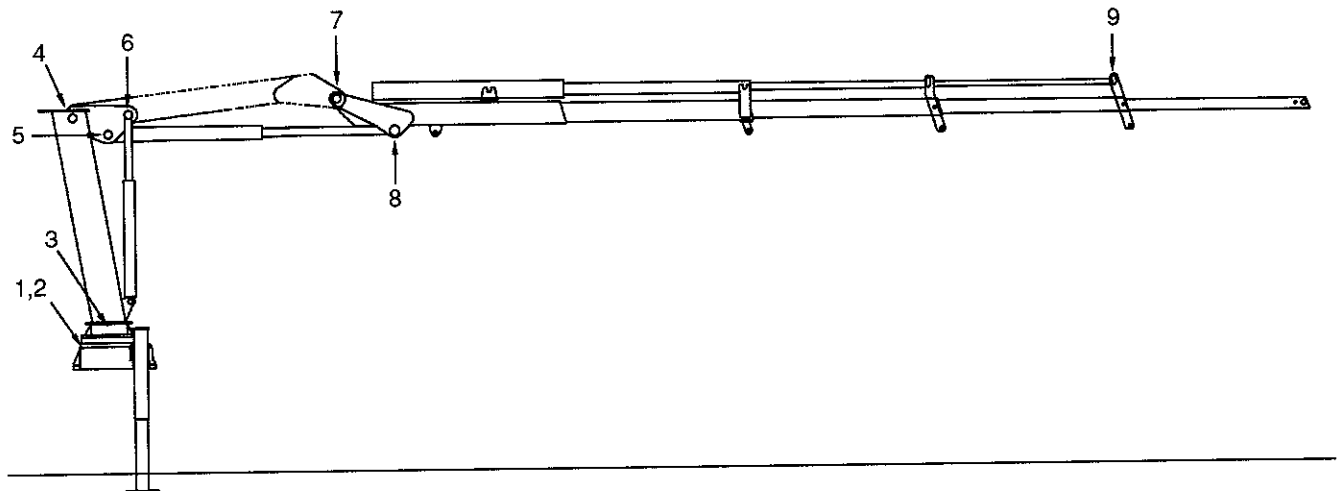


ITEM	PART NO.	DESCRIPTION	QTY
1.	77041345	TOGGLE SWITCH ST	2
2.	77041354	TOGGLE SWITCH DT	1
3.	77044018	STRAIN RELIEF	1
4.	60119077	JIC BOX (A-403C)	1
5.	77040186	TERMINAL 1/4 FSLPON 16-14GA	7
6.	89044400	WIRE 16GA RED X 5	2
7.	70393257	DECAL-JIC BOX	1

CABLE ASM-JIC BOX (1-403C) (51713048)



Section 5. REFERENCE



ITEM	LOCATION DESCRIPTION	LUBRICANT	FREQUENCY
1.	DRIVE GEAR GREASE EXTENSION	SHELL ALVANIA 2EP OR SHELL RETINAX "A"	WEEKLY
2.	TURNTABLE/BEARING GREASE EXTENSION		
	*ROTATE CRANE WHILE GREASING		
3.	PINION GEAR		
4.	MAST/INNER BOOM HINGE PIN		
5.	OUTER CYLINDER BASE		
6.	INNER CYLINDER ROD		
7.	INNER BOOM/OUTER BOOM HINGE PIN		
8.	OUTER CYLINDER ROD		
9.	2-STAGE EXTENSION CYLINDER ROD		

NOTE: All application points must be greased weekly under normal work loads and moderate weather conditions. Under severe operating conditions, lubrication should be performed more frequently. See Volume 1; Operation, Maintenance and Repair for additional lubrication requirements.

Figure E-1. GREASE ZERK LOCATIONS AND LUBRICANT REQUIREMENTS

TORQUE DATA CHART

FINE THREAD BOLTS

SIZE (DIA-TPI)	BOLT DIA (INCHES)	TIGHTENING TORQUE			
					
		SAE J429 GRADE 5		SAE J429 GRADE 8	
		PLAIN (KG-M)	PLATED (KG-M)	PLAIN (KG-M)	PLATED (KG-M)
5/16-24	0.3125	3	2	4	3
3/8-24	0.3750	5	4	7	5
7/16-20	0.4375	8	6	11	8
1/2-20	0.5000	12	9	17	12
9/16-18	0.5625	17	12	24	18
5/8-18	0.6250	24	18	33	25
3/4-16	0.7500	41	31	58	44
7/8-11	0.8750	62	45	93	69
1-12	1.0000	89	67	138	103
1 1/8-12	1.1250	123	93	200	150
1 1/4-12	1.2500	171	129	278	209
1-3/8-12	1.3750	232	174	375	281
1 1/2-12	1.5000	304	228	492	369

COARSE THREAD BOLTS

SIZE (DIA-TPI)	BOLT DIA (INCHES)	TIGHTENING TORQUE			
					
		SAE J429 GRADE 5		SAE J429 GRADE 8	
		PLAIN (KG-M)	PLATED (KG-M)	PLAIN (KG-M)	PLATED (KG-M)
5/16-18	0.3125	2	2	3	2
3/8-16	0.3750	4	3	6	5
7/16-14	0.4375	7	5	10	7
1/2-13	0.5000	10	8	15	11
9/16-12	0.5625	15	11	21	16
5/8-11	0.6250	21	16	30	22
3/4-10	0.7500	37	28	52	39
7/8-9	0.8750	55	41	84	63
1-8	1.0000	82	62	126	94
1 1/8-7	1.1250	110	82	178	133
1 1/4-7	1.2500	155	116	251	188
1-3/8-6	1.3750	203	152	329	246
1 1/2-6	1.5000	270	210	438	328

When using the torque data in the charts above, the following rules should be observed.

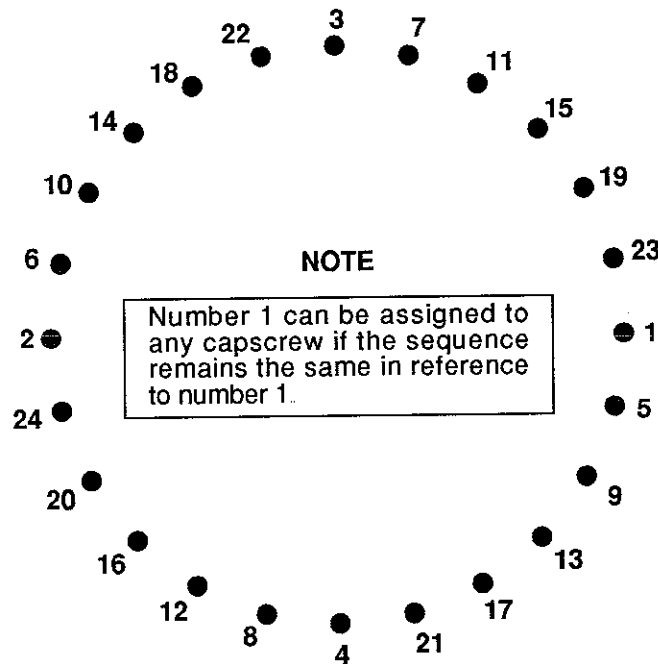
1. Bolt manufacturer's particular specifications should be consulted when provided.
2. Flat washers of equal strength must be used.
3. All torque measurements are given in kilogram-meters.
4. Torque values specified are for bolts with residual oils or no special lubricants applied. If special lubricants of high stress ability, such as Never-Seez compound graphite and oil, molybdenum disulphite, colloidal copper or white lead are applied, multiply the torque values in the charts by the factor .90. The use of Loctite does not affect the torque values listed above.
5. Torque values for socket-head capscrews are the same as for Grade 8 capscrews.

WARNING

Anytime a gear-bearing bolt is removed, it must be replaced with a new bolt of the identical grade and size. Once a bolt has been torqued to 75% of its proof load and then removed, the torque coefficient may no longer be the same as when the bolt was new thus giving indeterminate clamp loads after torquing. Failure to replace gear-bearing bolts may result in bolt failure due to metal fatigue causing serious injury or DEATH

Figure E-2. TORQUE DATA CHARTS

Refer to the diagram below for proper tightening/torquing sequence of the turntable bearing to the crane base and crane mast. The total quantity of cap screws varies dependent on crane model.



TIGHTENING PROCEDURE:

1. Refer to the Torque Data Chart to determine the proper torque value to apply to the size of cap screw used.
2. Follow the tightening sequence shown in the diagram. Note that the quantity of cap screws may differ from the diagram, but the sequence must follow the criss-cross pattern as shown in the diagram.
3. Torque all cap screws to approximately 40% of the specified torque value, by following the sequence. (EXAMPLE: $40 \times 37 \text{ kg-m} = 15 \text{ kg-m}$)
4. Repeat Step 3, but torquing all cap screws to 75% of the specified torque value. Continue to follow the tightening sequence. (EXAMPLE: $75 \times 37 \text{ kg-m} = 28 \text{ kg-m}$)
5. Using the proper sequence, torque all cap screws to the listed torque value as determined from the Torque Data Chart.

Figure E-3. TURNTABLE BEARING FASTENER TIGHTENING SEQUENCE

Before a bearing is removed from a crane for inspection, one of the following conditions should be evident:

1. Metal particles present in the bearing lubricant.
2. Increased drive power required to rotate the crane.
3. Noise emitting from the bearing during crane rotation.
4. Rough crane rotation.
5. Uneven or excessive wear between the pinion gear and turntable gear.

If none of the above conditions exists, the bearing is functioning properly and need not be replaced. But, if one or more of the above conditions exists, inspection may be required. Limits are measured in "TILT" which is dependent on the internal clearances of the bearing. TILT is the most practical determination of a bearing's internal clearance once mounted on a crane.

Periodic readings indicating a steady increase in TILT may be an indicator of bearing wear. Note that a bearing found to have no raceway cracks or other structural irregularities should be reassembled and returned to service.

TEST PROCEDURE

STEP 1.

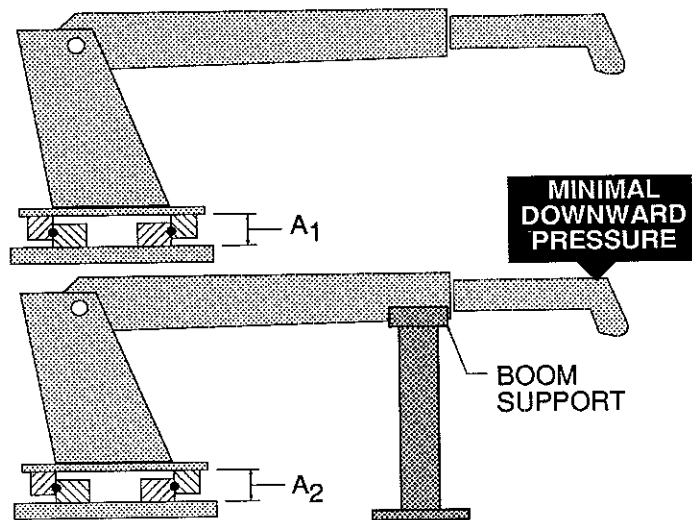
With the crane horizontal and fully extended, measure between the top and bottom mounting surfaces of the turntable bearing (A_1), using a dial indicator for accuracy.

STEP 2.

Reverse the load by applying minimal downward pressure on the boom while the boom is in the boom support or on a solid surface. Again measure A_2 .

STEP 3.

Subtract A_1 from A_2 to determine tilt and compare the result with the accompanying chart.



COMPARISON CHART - MODEL TO MEASURED TILT DIMENSION

NOTE	IMT CRANE OR TIREHAND MODEL	814 1007 1014 2010 215 2015 2109 2815 3016 315A 320H 3515 3617 3625 421 425 5016 TH7 BODY ROT N TH1449A BODY ROT N TH15A CLAMP TH1836A CLAMP TH2551 CLAMP TH2557 CLAMP TH2557A CLAMP	4817 4825/780 516 525 5826/880 6014 6425 725 7020 7025 8025 8031/1295 TH10 BODY ROT N TH12 BODY ROT N	32018 32030 H1150 H1150TL H4961	9616 9825 9831 10020 10025 1216 1325 1331 13031 13034 13426 14018 14048 14126 15033 1725 18026 20017 HAWK-H1200 TH1836 BODY ROT N TH1836A BODY ROT N TH2551 BODY ROT N TH2557 BODY ROT N TH2557A BODY ROT N
	BALL DIA. (REF)	22mm	25mm	30 - 32mm	44mm
	TILT DIM. ($A_1 - A_2$)	1.524mm	1.778mm	1.905mm	2.286mm

Figure E-4. TURNTABLE BEARING INSPECTION FOR REPLACEMENT

SPARE PARTS LIST

(Standard Assemblies Only)

1-Year Supply

This spare parts list does not necessarily indicate that the items can be expected to fail in the course of a year. It is intended to provide the user with a stock of parts sufficient to keep the unit operating with minimal down-time waiting for parts. Obviously, there may be part failures not covered by this list. The item numbers shown on this list correspond to the item numbers on the figure listed.

FIGURE	ITEM	PART NO.	DESCRIPTION	QTY
D-4. BASE AND MANUAL OUTRIGGER ASSEMBLY (41705842)				
	9	60020115	BUSHING	1
	10	60020116	BUSHING	1
	11	60020187	BUSHING	1
	12	60020188	BUSHING	1
	13	71056011	DRIVE GEAR	1
	22	60030053	ROLLER	4
	29	71056072	INTERMEDIATE GEAR	1
	30	71056265	PINION GEAR	1
	31	71056361	TURNABLE BEARING	1
	32	7Q072112	O-RING	2
	49	72063116	WASHER 3/4 FLAT HARDENED	20
	52	72601295	CAP SCR 3/4-10 X 3-1/2 HH GR8	20
	53	73051004	HYDRAULIC MOTOR	1
	54	73054538	VALVE	2
D-5. BASE AND POWER OUTRIGGER ASSEMBLY (41706165)				
SAME AS BASE AND MANUAL OUTRIGGER ASSEMBLY (41705842)				
D-6. POWER DOWN OUTRIGGER CYLINDER (3B221850)				
	5	73054005	VALVE	2
	9	9B101214	SEAL KIT	2
D-7. MAST ASSEMBLIES (41705843 & 41706135)				
	2	7BF81225	BUSHING	2
	7	72060177	CAP SCR 5/8-11 X 3 HH GR8	20
	8	72063119	WASHER 5/8 FLAT HARDENED	20
D-8. INNER BOOM (41705844)				
	4	7BF81220	BUSHING	6
	5	7BF81225	BUSHING	9
D-9. INNER CYLINDER (3B009960)				
	7	73054887	VALVE 25GPM VENTED	2
	8	9C160920	SEAL KIT	2
	19	7BF81025	BUSHING	8
D-10. OUTER BOOM (41709698)				
	5	7BF81520	BUSHING	4
D-11. OUTER CYLINDER (3C010960)				
	3	73054887	VALVE 25GPM VENTED	1
	8	9C010960	SEAL KIT	1
	19	7BF81520	BUSHING	1
	20	7BF82020	BUSHING	3
D-12. EXTENSION BOOM ASSEMBLY-1H (41709699)				
	7	60103575	HOOK 8-TON	1
	10	60030118	WEAR PAD	1
	12	60030119	WEAR PAD	1
D-13. 1-STAGE EXTENSION CYLINDER (3B099910)				
	16	73054304	COUNTERBALANCE VALVE	2
	18	9C121617	SEAL KIT	1
D-14. EXTENSION BOOM ASSEMBLY-2H (41709700)				
	8	60103575	HOOK 8-TON	1
	11	60030118	WEAR PAD	1
	13	60030123	WEAR PAD	1
	14	60030122	WEAR PAD	1
	16	60030119	WEAR PAD	2
D-15. 2-STAGE EXTENSION CYLINDER (3K120850)				
	27	73054242	COUNTERBALANCE VALVE	2
	31	9X095850	SEAL KIT	1

SPARE PARTS LIST (cont)

FIGURE	ITEM	PART NO	DESCRIPTION	QTY
D-16. EXTENSION BOOM ASSEMBLY-2H1M (41709701)				
	8	60103575	HOOK 8-TON	1
	11	60030118	WEAR PAD	1
	13	60030123	WEAR PAD	1
	14	60030122	WEAR PAD	1
	16	60030202	WEAR PAD	1
	17	60030203	WEAR PAD	1
	27	60030119	WEAR PAD	1
D-17. EXTENSION BOOM ASSEMBLY-2H2M (41709702)				
	8	60103575	HOOK 8-TON	1
	11	60030118	WEAR PAD	1
	13	60030123	WEAR PAD	1
	14	60030122	WEAR PAD	1
	16	60030202	WEAR PAD	1
	17	60030203	WEAR PAD	1
	33	60030119	WEAR PAD	1
D-18. EXTENSION BOOM ASSEMBLY-3H (41709703)				
	8	60103575	HOOK 8-TON	1
	11	60030118	WEAR PAD	1
	13	60030123	WEAR PAD	1
	14	60030122	WEAR PAD	1
	16	60030202	WEAR PAD	1
	17	60030203	WEAR PAD	1
	27	60030119	WEAR PAD	1
D-19. EXTENSION BOOM ASSEMBLY-3H1M (41709704)				
	8	60103575	HOOK 8-TON	1
	11	60030118	WEAR PAD	1
	13	60030123	WEAR PAD	1
	14	60030122	WEAR PAD	1
	16	60030202	WEAR PAD	1
	17	60030203	WEAR PAD	1
	27	60030119	WEAR PAD	1
D-20. 3-STAGE EXTENSION CYLINDER (3K150920)				
	15	73054817	COUNTERBALANCE VALVE	1
	16	73054902	COUNTERBALANCE VALVE	1
	17	9X355900	SEAL KIT	1
D-28. REMOTE CONTROL KITS				
	5	73054584	PROPORTIONAL VALVE 10GPM	1
	10	77041251	RELAY	2
	11	77041237	SOLENOID 12V	1
D-36. REMOTE CONTROL HANDLE ASSEMBLY (517110014)				
	11	77041345	TOGGLE SWITCH-SGL THROW	2
	12	77041346	TOGGLE SWITCH-DBL THROW	6
	13	77041347	TOGGLE SWITCH-MOMENTARY	1
		72052000	RETURN FILTER	6



Section 6.

Crane Inspection Requirements

IMT recommends that employers perform daily and monthly inspections and maintain the results of inspections for each hoisting machine and piece of equipment. It also recommends a thorough annual inspection of hoisting machinery. This inspection is to be made by a competent person, or by a government or private agency authorized to do so. Records of the dates and results of inspections for each hoisting machine and piece of equipment should also be maintained by the employer. The following inspections are to be performed on Iowa Mold Tooling Co., Inc. truck-mounted hydraulic cranes in order to provide the safest work environment possible.

TO BE FILLED IN BY OWNER OF CRANE
CRANE SERIAL NO:
DATE LAST INSPECTED:
NEXT INSPECTION DUE:
INSPECTED BY:

TO BE FILLED IN BY A COMPETENT PERSON, OR BY A GOVERNMENT OR PRIVATE AGENCY AUTHORIZED TO INSPECT THIS EQUIPMENT
DATE INSPECTED:
IS THE UNIT OPERATIONAL? YES ☐ NO ☐
SIGNATURE

INSTRUCTIONS

All inspections listed below should be performed as the schedule indicates. It is not necessary to record daily inspections but they must be verified and recorded monthly. The inspections listed on this form do not eliminate or replace any other prescribed maintenance or inspections which may be referenced in other manuals pertaining to your equipment. A copy of this completed form should remain with the applicable unit at all times.

INSPECTIONS TO BE PERFORMED BY EMPLOYER

ITEM	DESCRIPTION	FREQUENCY			INSP. RESULT		REPAIRED?		DATE INSPECTED
		DAILY	WEEKLY	MONTHLY	ACCEPT	REJECT	YES(Y) NO(N)	DATE	
HYDRAULIC SYSTEM LEAKS	Visually inspect hoses, hyd tubes and fittings for hydraulic leaks.								
LOOSE PARTS	Check for the presence of loose parts missing fasteners and safety guards								
STRUCTURAL DAMAGE	Visually examine crane for broken welds, cracks, deficiencies, bends and dents.								
ROTATION SYSTEM LEAKS	Visually check rotation system motor brake, and connections for leaks.								
WIRE ROPE	Check for conditions outlined in "Wire Rope Inspection"								
ELECTRICAL- REMOTE CONTROL OPTION	Operate remote control to check for proper operation								
ELECTRIC- LIGHTS AND OPTIONS	Operate lights and other electrical devices to check for proper operation								
HYDRAULIC FLUID LEVEL	Visually check hydraulic fluid level of reservoir								
CONTROL VALVES- LEAKS / CRACKS	Visually examine control valves for leaks, cracks or other deficiencies.								
CONTROL VALVES- OPERATION	Operate control valves to check for smooth operation of each function and possible excessive wear of valves.								
ANTI-TWO BLOCKING DEVICE	Test the Anti-Two Blocking Device as described in "Anti-Two Blocking Device Inspection"								

CONTINUED ON FOLLOWING PAGE

INSPECTIONS TO BE PERFORMED BY EMPLOYER (continued)

ITEM	DESCRIPTION	FREQUENCY			INSP. RESULT		REPAIRED?		DATE INSPECTED
		DAILY	WEEKLY	MONTHLY	ACCEPT	REJECT	YES(Y) NO(N)	DATE	
CRANE HOOK	Visually examine hook for enlarged throat opening, twist and presence of safety latch. Also check for conditions outlined in "Hook Inspection"								
ELECTRICAL SYSTEM WEAR	Check for deterioration of parts, the presence of dirt or moisture near contacts and worn or frayed wiring								
HYDRAULIC HOSE WEAR	Visually examine all hydraulic hoses and fittings for possible blistering, abrasions, cuts, cracking or deterioration.								
HOLDING VALVES-LOAD TEST	Perform a load holding test with loaded boom See "Holding Valve Inspection"								
POWER TAKE-OFF	Check transmission for proper lubrication, signs of leakage, alignment and PTO mounting bolt torque								
ROTATION SYSTEM	Check torque of both upper and lower rotation gear bearing mounting bolts								
ALL FASTENERS	Visually examine all fasteners (screws, nuts & retaining rings) for looseness, deformation and corrosion								
STRUCTURAL DAMAGE	Visually examine crane for any broken welds, cracks, structural deficiencies, bends or dents								
CONTROLS	Check all controls for excessive wear, cleanliness and proper functioning								
ROTATION SYSTEM MOUNTING BOLTS	Check torque of both upper and lower rotation gear bearing mounting bolts								
HYDRAULIC FLUID	Check quality of hydraulic fluid and for the presence of water								
PUMP & MOTOR	Check for loose fasteners, unusual noise, vibration, reduced operating speed and excessive heating								
HYDRAULIC CYLINDERS	Visually examine all cylinders for leaks; scored, nicked or dented rods; dented case, deformed pin boss, and corrosion								
WINCH, SHEAVES & DRUM	Check for cracks and worn or damaged sheaves Visually examine winch drum for irregularities								
DECALS	Visually examine the crane for the presence of all warning decals, instructional decals and capacity charts Inspect all decals for legibility								

WIRE ROPE INSPECTION

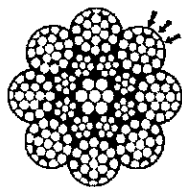
Wire rope with any of the deficiencies shown below shall be removed and replaced immediately

- A. Corrosion can be cause for replacement. Any development of corrosion must be noted and monitored closely.

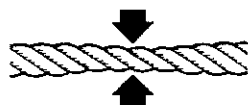
- B. When there are either 3 broken wires in one strand or a total of six broken wires in all strands in any one rope lay



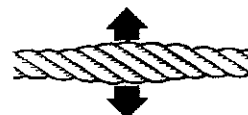
- C. When flat spots on the outer wires appear and those outside wires are less than 2/3 the thickness of the unworn outer wire.



- D. When there is a decrease of diameter indicating a core failure.



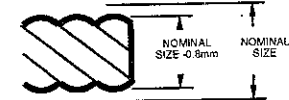
- E. When kinking, crushing, birdcaging or other distortion occurs.



- F. When there is noticeable heat damage (discoloration) of the rope by any means.



- G. When the diameter is reduced from nominal size by 0.8mm or more.



- H. If a broken wire protrudes or loops out from the core of the rope.



HOOK INSPECTION

Hooks having any of the listed deficiencies shall be removed from service unless a qualified person approves their continued use and initiates corrective action. Hooks approved for continued use shall be subjected to periodic inspection.

A. DISTORTION

Bending / Twisting

A bend or twist exceeding 10° from the plane of the unbent hook

Increased Throat Opening

HOOK WITHOUT LATCH: An increase in throat opening exceeding 15% (Or as recommended by the manufacturer)

HOOK WITH LATCH: An increase of the dimension between a fully-opened latch and the tip section of the hook exceeding 8% (Or as recommended by the manufacturer)

B. WEAR

If wear exceeds 10% of the original sectional dimension. (Or as recommended by the manufacturer)

C. CRACKS, NICKS, GOUGES

Repair of cracks, nicks, and gouges shall be carried out by a designated person by grinding longitudinally, following the contour of the hook, provided that no dimension is reduced more than 10% of its original value. (Or as recommended by the manufacturer) (A qualified person may authorize continued use if the reduced area is not critical)

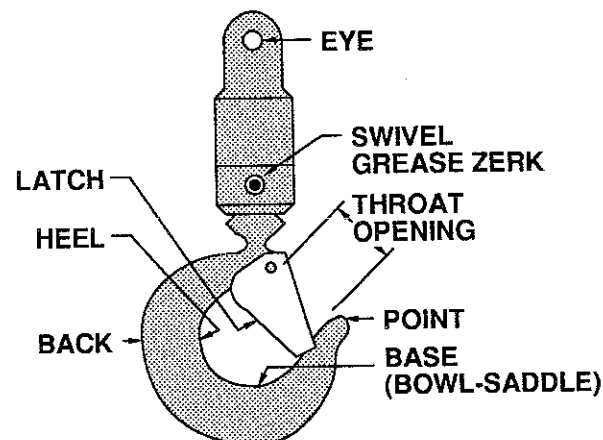
D. LATCH

Engagement, Damage & Malfunction

If a latch becomes inoperative because of wear or deformation, and is required for the service involved, it shall be replaced or repaired before the hook is put back into service. If the latch fails to fully close the throat opening, the hook shall be removed from service or "moused" until repairs are made.

E. HOOK ATTACHMENTS & SECURING MEANS

If any indication of distortion, wear, cracks, nicks or gouges are present, unless a qualified person authorizes their use. (Or as recommended by the manufacturer)



HOLDING VALVE INSPECTION

The cylinders are equipped with holding valves that prevent sudden movement of the cylinder rods in the event of a hydraulic hose or other hydraulic component failure. The valve is checked in the following manner:

- 1 With a full rated load, extend the cylinder in question and kill the engine.
- 2 Operate the control valve to retract the cylinder. If the cylinder "creeps", replace the holding valve. If the cylinder does not "creep", the valve is serviceable.

ANTI-TWO BLOCKING DEVICE INSPECTION

(See Vol. 1, Operation, Maintenance and Repair for a complete description)

The anti two block system should be checked daily as follows:

- 1 Examine flexible rod and weight to insure free unrestricted mechanical operation
- 2 Examine cord for damage, cuts or breaks. Grasp cord and pull to check operation of cord reel. The cord should retract on reel when released.
- 3 Start vehicle, engage PTO and slowly winch loadline up until anti-two block weight comes in contact with the hook end of the loadline cable. At the moment the weight is fully supported, a marked difference in winch operation should be noted. At this point, the winch up function should become very sluggish or non-functioning and have very little pull capability. Slowly increase truck engine speed while simultaneously actuating the winch up function. The winch characteristics should remain sluggish with little or no tensioning of the cable. If operation other than as described occurs, stop immediately and investigate. Failure to do so will risk damage to the cable or the crane.

If all is well at this point, actuate the boom extend function slowly, and gradually increase to full actuation. Once again the function should be sluggish or non-existent with no tightening of the winch cable. If operation other than described occurs, stop immediately and reverse the function.

The final check involves actuating both the winch up and extend functions together and checking for proper operation of the anti two blocking circuit. Once again, start slowly and stop if it appears the cable is being tensioned

If the anti two block function appears to be functioning normally, winch the cable down until the sensing weight swings free

TORQUE DATA CHART

COARSE THREAD BOLTS

SIZE (DIA-TPI)	BOLT DIA (INCHES)	TIGHTENING TORQUE			
		SAE J429 GRADE 5		SAE J429 GRADE 8	
		PLAIN (KG-M)	PLATED (KG-M)	PLAIN (KG-M)	PLATED (KG-M)
5/16-18	0.3125	2	2	3	2
3/8-16	0.3750	4	3	6	5
7/16-14	0.4375	7	5	10	7
1/2-13	0.5000	10	8	15	11
9/16-12	0.5625	15	11	21	16
5/8-11	0.6250	21	16	30	22
3/4-10	0.7500	37	28	52	39
7/8-9	0.8750	55	41	84	63
1-8	1.0000	82	62	126	94
1 1/8-7	1.1250	110	82	178	133
1 1/4-7	1.2500	155	116	251	188
1-3/8-6	1.3750	203	152	329	246
1 1/2-6	1.5000	270	210	438	328

When using the torque data in the charts above, the following rules should be observed:

- 1 Bolt manufacturer's particular specifications should be consulted when provided.
- 2 Flat washers of equal strength must be used.
- 3 All torque measurements are given in kilogram-meters.
- 4 Torque values specified are for bolts with residual oils or no special lubricants applied. If special lubricants of high stress ability, such as Never-Seez compound graphite and oil, molybdenum disulphite, colloidal copper or white lead are applied, multiply the torque values in the charts by the factor .90. The use of Loctite does not affect the torque values listed above.
- 5 Torque values for socket-head capscrews are the same as for Grade 8 capscrews.

WARNING

Anytime a gear-bearing bolt is removed, it must be replaced with a new bolt of the identical grade and size. Once a bolt has been torqued to 75% of its proof load and then removed, the torque coefficient may no longer be the same as when the bolt was new thus giving indeterminate clamp loads after torquing. Failure to replace gear-bearing bolts may result in bolt failure due to metal fatigue causing serious injury or DEATH.

The information within this manual has been compiled and checked but errors do occur. To provide our customers with a method of communicating those errors we have provided the Manual Change Request form below. In addition to error reporting, you are encouraged to suggest changes or additions to the manual which would be of benefit to you. We cannot guarantee that these additions will be made but we do promise to consider them. When completing the form, please write or print clearly. Submit a copy of the completed form to the address listed below.

MANUAL CHANGE REQUEST

DATE	PRODUCT MANUAL	1295 Crane	MANUAL PART NO.	99900707-11/93
SUBMITTED BY				
COMPANY				
ADDRESS				
CITY, STATE, ZIP				
TELEPHONE				

☐ ERROR FOUND

LOCATION OF ERROR (page no): _____

DESCRIPTION OF ERROR: _____

☐ REQUEST FOR ADDITION TO MANUAL

DESCRIPTION OF ADDITION: _____

REASON FOR ADDITION: _____

MAIL TO: IOWA MOLD TOOLING Co., Inc.
Box 189,
Garner IA 50438
ATTN: Technical Publications

LIMITED WARRANTY

WARRANTY COVERAGE - Products manufactured by Iowa Mold Tooling Co., Inc. (IMT) are warranted to be free from defects in material and workmanship, under proper use, application and maintenance in accordance with IMT's written recommendations, instructions and specifications as follows:

1. Ninety (90) days; labor on IMT workmanship from the date of shipment to the end user
2. One (1) year; original IMT parts from the date of shipment to the end user.

IMT's obligation under this warranty is limited to, and the sole remedy for any such defect shall be the repair or replacement (at IMT's option) of unaltered parts returned to IMT, freight prepaid, and proven to have such defect, provided such defect occurs within the above stated warranty period and is reported within fourteen (14) days of its occurrence

IMPLIED WARRANTY EXCLUDED - This is the only authorized IMT warranty and is in lieu of all other express or implied warranties or representations, including any implied warranties of merchantability or fitness for any particular purpose or of any other obligations on the part of IMT.

ITEMS EXCLUDED - The manufacturer gives no warranty on any components purchased by the manufacturer, and such components as are covered only by the warranties of their respective manufacturers.

WARRANTY CLAIMS - Warranty claims must be submitted and shall be processed in accordance with IMT's established warranty claim procedure.

WARRANTY SERVICE - Warranty service will be performed by any IMT distributor authorized to sell new IMT products of the type involved or by any IMT Service Center authorized to service the type of product involved or by IMT in the event of direct sales made by IMT. At the time of requesting warranty service, the purchaser must present evidence of the date of delivery of the product. The purchaser shall pay any premium for overtime labor requested by the purchaser, any charge for making service calls and for transporting the equipment to the place where warranty work is performed.

WARRANTY VOIDED - All obligations of IMT under this warranty shall be terminated: (1) if service other than normal maintenance or normal replacement of service items is performed by someone other than an authorized IMT dealer, (2) if product is modified or altered in ways not approved by IMT.

PURCHASER'S RESPONSIBILITY - This warranty covers only defective material and workmanship. It does not cover depreciation or damage caused by normal wear, accident, improper protection in storage, or improper use. The purchaser has the obligation of performing the care and maintenance duties discussed in IMT's written recommendations, instructions and specifications. Any damage which results because of purchaser's failure to perform such duties shall not be covered by this warranty. The cost of normal maintenance and normal replacement of service items such as filters, belts, etc. shall be paid by the purchaser.

CONSEQUENTIAL DAMAGES - The only remedies the purchaser has in connection with the breach or performance of any warranty on IMT products are those set forth above. In no event will the dealer, IMT or any company affiliated with IMT, be liable for business interruptions, loss of sales and/or profits, rental or substitute equipment, costs of delay or for any other special, indirect, incidental or consequential losses, costs or damages.

REPRESENTATIONS EXCLUDED - IMT products are subject to no expressed, implied or statutory warranty other than herein set forth, and no agent, representative or distributor of the manufacturer has any authority to alter the terms of this warranty in any way whatsoever or to make any representations or promises, express or implied, as to the quality or performance of IMT products other than those set forth above.

CHANGE IN DESIGN - IMT reserves the right to make changes in design or improvements upon its products without imposing any obligation upon itself to install the same upon its products theretofore manufactured.

Effective January, 1985

This parts manual is provided to the user to assist in servicing the equipment. It is the property of Iowa Mold Tooling Co., Inc. and, as such, may not be reproduced either whole or in part, whether by chemical, electrostatic, mechanical or photographic means without the expressed written permission of an officer of Iowa Mold Tooling Co., Inc. One manual is provided with each piece of new equipment and additional manuals may be obtained at a nominal price.



IOWA MOLD TOOLING CO., INC.

BOX 189, GARNER, IA 50438-0189

TEL: 515-923-3711

PRODUCT SUPPORT FAX: 515-923-2424