

# Manitowoc

## TRADITIONAL CRANE PARTS MANUAL

This manual has been prepared for and is considered part of

**4100W**

Model

**41650**

Serial Number

**GROUP A = Rotating Structure** (Includes rotating bed, operator's cab, cases, fuel tanks, transfer pump, counterweights, guards, platforms, catwalks, machinery enclosure, horn)

**GROUP B = Upperworks Machinery** (Includes front, rear, and auxiliary drums, boom hoist, swing and drive shafts, hand levers, foot pedals, control linkage, rotation indicators, upperworks hydraulic components, hydraulic piping, hydraulic oil reservoir, lubrication pump and piping, blowers)

**GROUP C = Air Components & Electrical** (Includes control console, air piping, electric wiring, auxiliary light plant and lighting, TV monitoring, compressor and air tank)

**GROUP D = Power Components - Upperworks** (Includes engine or motor, radiator, auxiliary power plant, take off converters and piping, controls, VICON power lowering, torque limiter, hydraulic pumps and piping, fuel piping, battery box)

**GROUP E = Lower Structure & Control** (Includes carbody, crawlers, travel shafts and control, steering travel locks, hydraulic travel, travel power outriggers, carrier, pedestal, lowerworks hydraulic piping, RINGER components, barge mounting and machinery, spud drums)

**GROUP F = Attachments** (Includes booms, jibs, masts, tower, wire rope guides, equalizer, gantry, fairlead, timber guards, boom angle indicator, block-up limit, tag line, hook block, weight ball, upper and lower boom point, wind speed indicator, crowd and retract dipper sticks, dippers, )

**O-NUMBER SECTION =** (Includes lacing drawings and purchased component parts drawings referenced in sections A through F)

*This manual is arranged in sections as listed above. Sections A through F are arranged by group numerical order with an index after each section tab. An alphabetical index for groups A Through F combined is located after the O-number Section. The O-number section is arranged in numerical order by O-number. Following this cover page are the Basic Specifications, Warranty Information, Tool List (if applicable) Outline Dimensions, Weights, and Dealer Listing.*

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## Corrosion and Abrasion

Refer to Figure 3.

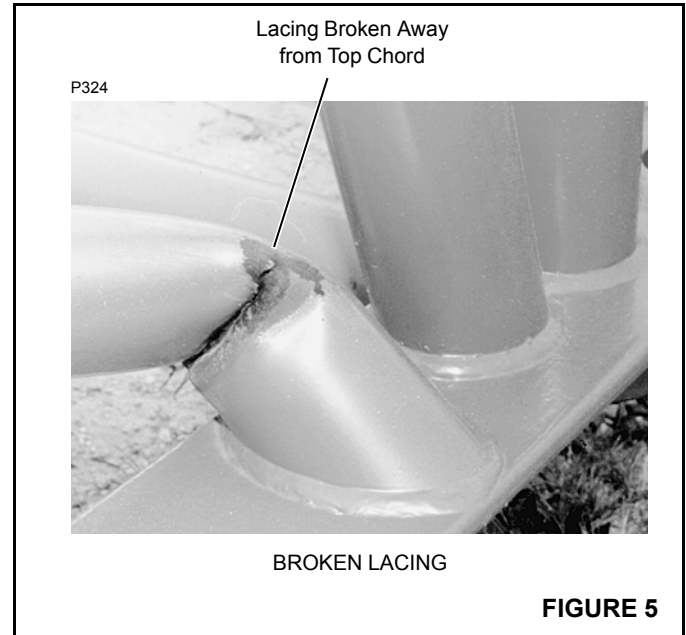
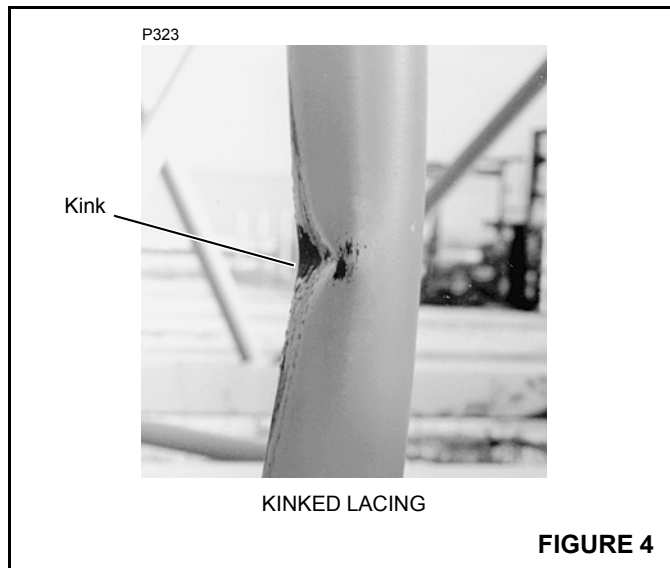
Corrosion and abrasion must not be deeper than 10 percent of the wall thickness, the angle thickness, or the plate thickness.

## Kinks

Refer to Figure 4.

Kinked lacings must be replaced; *do not bend kinked lacings back into alignment.*

If any chord or platework is kinked, contact Manitowoc Crane Care for approved repair instructions. *Do not bend kinked chords or platework back into alignment.*



## Cracks and Breaks

Refer to Figure 5.

Cracked and broken lacings must be replaced; *do not attempt to repair cracked or broken lacings.*

If any chord or platework is cracked or broken, contact Manitowoc Crane Care for approved repair instructions. *Do not attempt to repair cracked or broken chords or platework.*

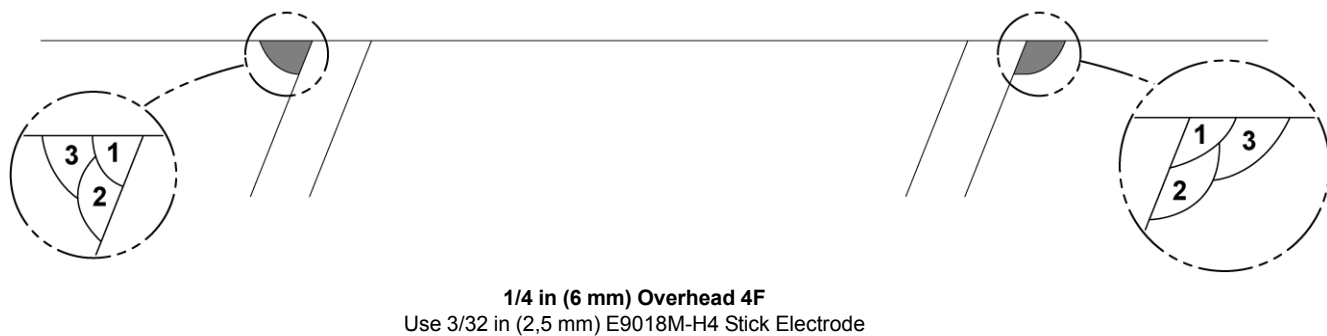
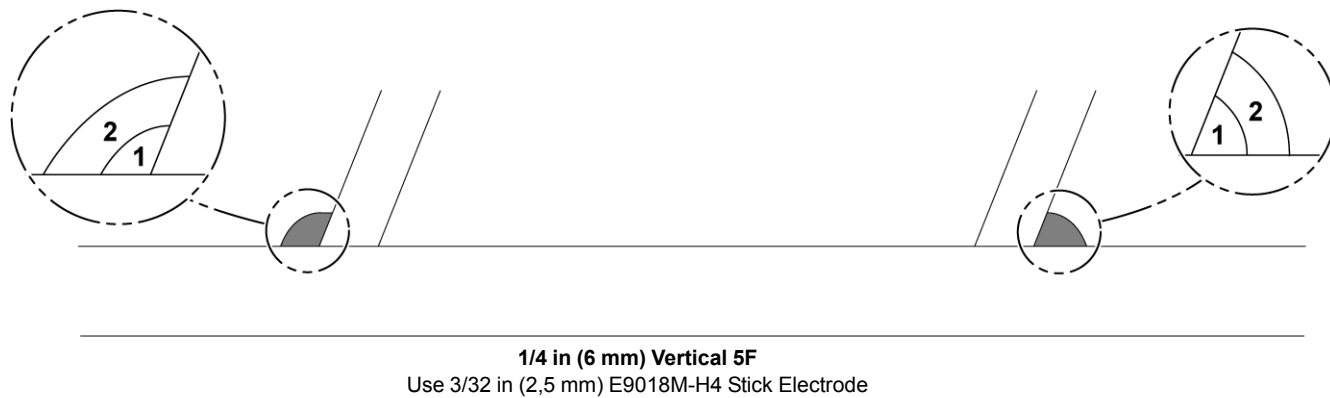
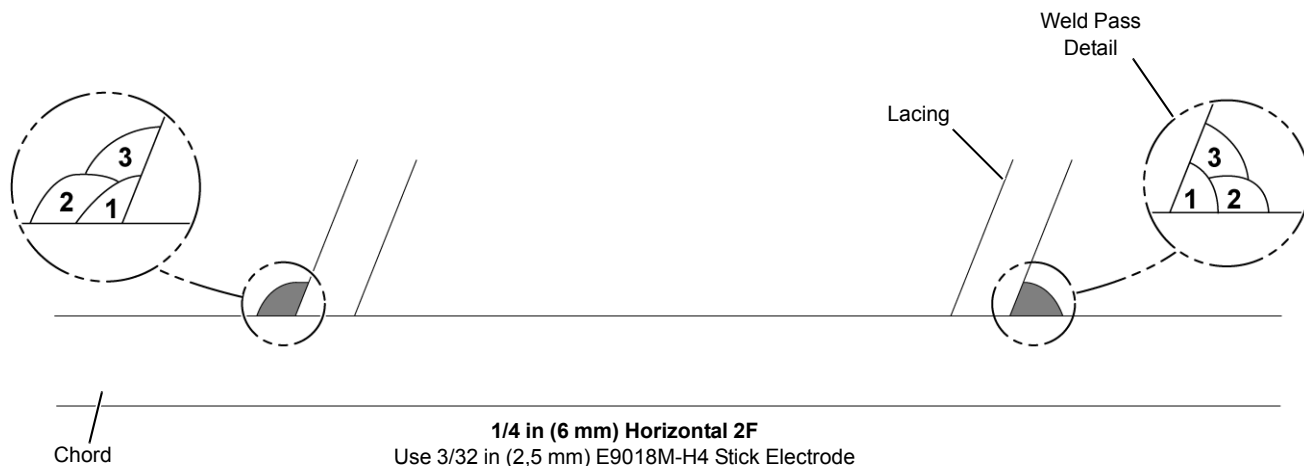
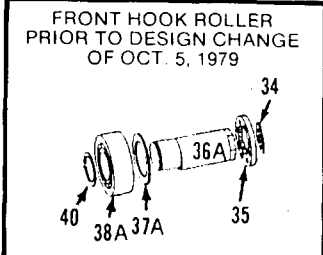
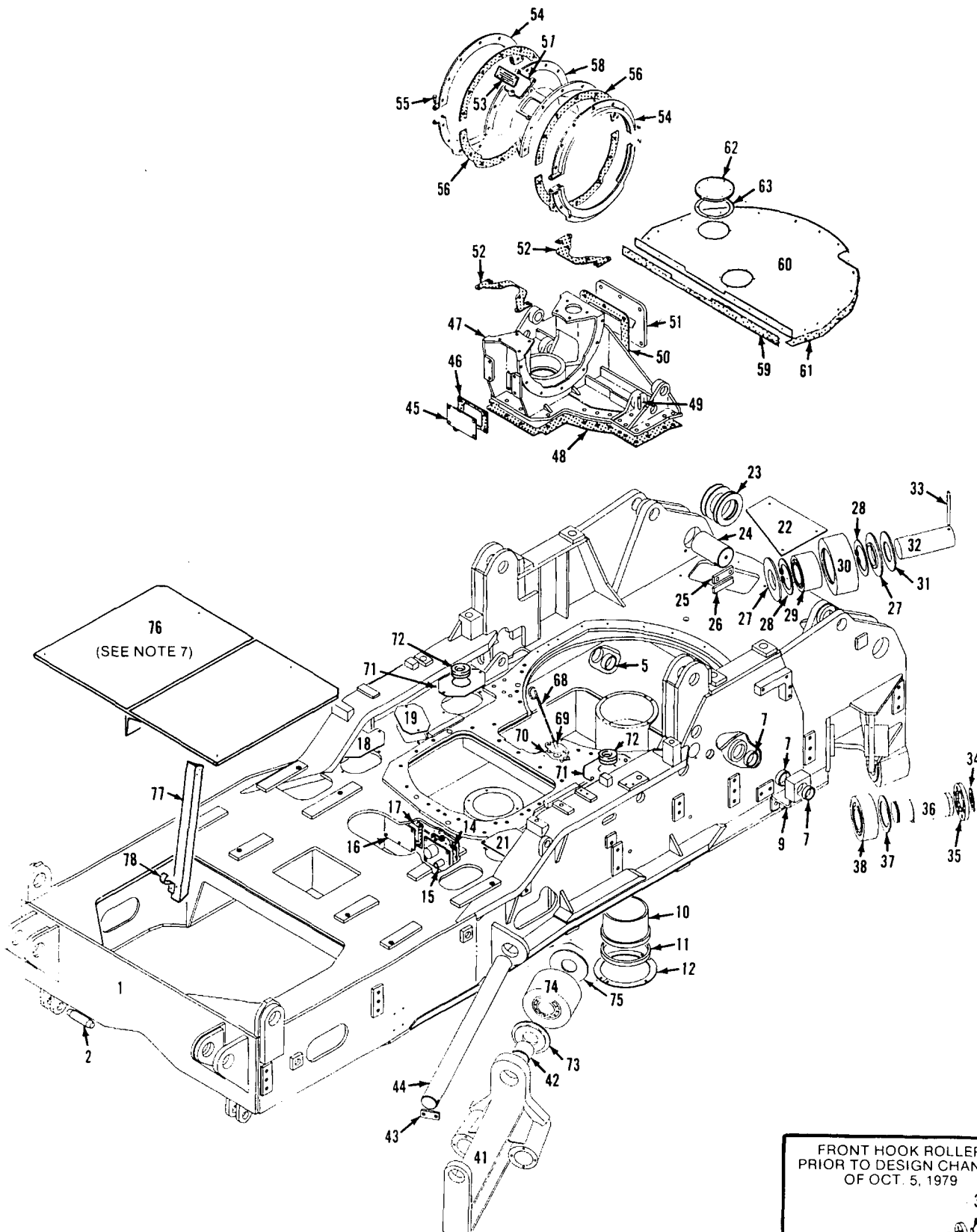


FIGURE 16



**WEIGHTS**  
4100W SERIES-1 and 2

DESCRIPTION	APPROXIMATE WEIGHT (POUNDS)
<b>Liftcrane</b> — with 70' No. 22C boom, crane counterweight, universal gantry with telescopic backhitch, 26'6" crawlers with 48" treads, full width tandem drums, independent swing, independent boom hoist, Cummins NTA-855-C360 engine, 27-5/8" diameter lagging for rear drum, boom hoist rope, equalizer, telescopic air cushioned boom stop, 200 ton hook block, 15 ton hook and weight ball, single sheave upper boom point, and upper wire rope guide .....	S-1 — 366,575 * S-2 — 450,575 *
<b>Upperworks</b> — with Cummins NTA-855-C360 engine, independent swing, independent boom hoist, and 27-5/8" diameter lagging for rear drum; <b>LESS</b> boom, gantry and backhitch, equalizer, hook block, weight ball, counterweight, telescopic air cushioned boom stop and catwalk.....	80,620 *
<b>Upperworks</b> — as above with gantry and backhitch, equalizer, boom hoist rope, and carbody; <b>LESS</b> crawlers .....	141,365 *
*Weights do not include hoist line, whip line or fuel. For Caterpillar D-343TA add 1,170 lbs.; for Caterpillar 3406 PCTA add 100 lbs.; for GM 12V-71N add 600 lbs.	
<b>Carbody</b> — with roller path, ring gear, and king pin; <b>LESS</b> crawlers .....	49,700
<b>Crawlers</b> — 26'6" with 48" treads .....	38,405 each
<b>Counterweight</b>	
Inner (Self-Removing) .....	41,900
Middle (Self-Removing) .....	41,500
Outer (Self-Removing) .....	39,000
Upper Side (2) (Series-2 only) .....	12,000 each
Carbody (2) (Series-2 only) .....	30,000 each
<b>No. 22C Open Throat Boom Top</b>	
Boom Top — 40' (with lower boom point assembly) .....	8,770
Basic Pendant — 40' 9-3/4" (4) .....	250 each
Upper Boom Point (single sheave) .....	1,260
(double sheave) .....	1,510
Jib Adapter .....	540
Offset Link (2) .....	60 each
<b>No. 22A Light Tapered Boom Top</b>	
Tapered Boom Top — 50' (with lower boom point assembly) .....	5,980
Tapered Boom Insert — 30' .....	3,610
Basic Pendant — 40' 9-3/4" (4) .....	250 each
Upper Boom Point .....	720
Wire Rope Anchor Joint .....	140
<b>No. 22A Hammerhead Boom Top</b>	
Boom Top — 10' (with boom point and wire rope guide assembly) .....	5,510
Tapered Boom Insert — 30' .....	3,610
Basic Pendant — 37'11" (4) .....	215 each
Upper Boom Point .....	275



MATERIAL LIST ON BACK

ROTATING BED

48443M1



49267-1 Cont.	REV. S	MODEL 4100W
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GENERAL GUARDS  
(16" WIDE BOOM HOIST DRUMS)

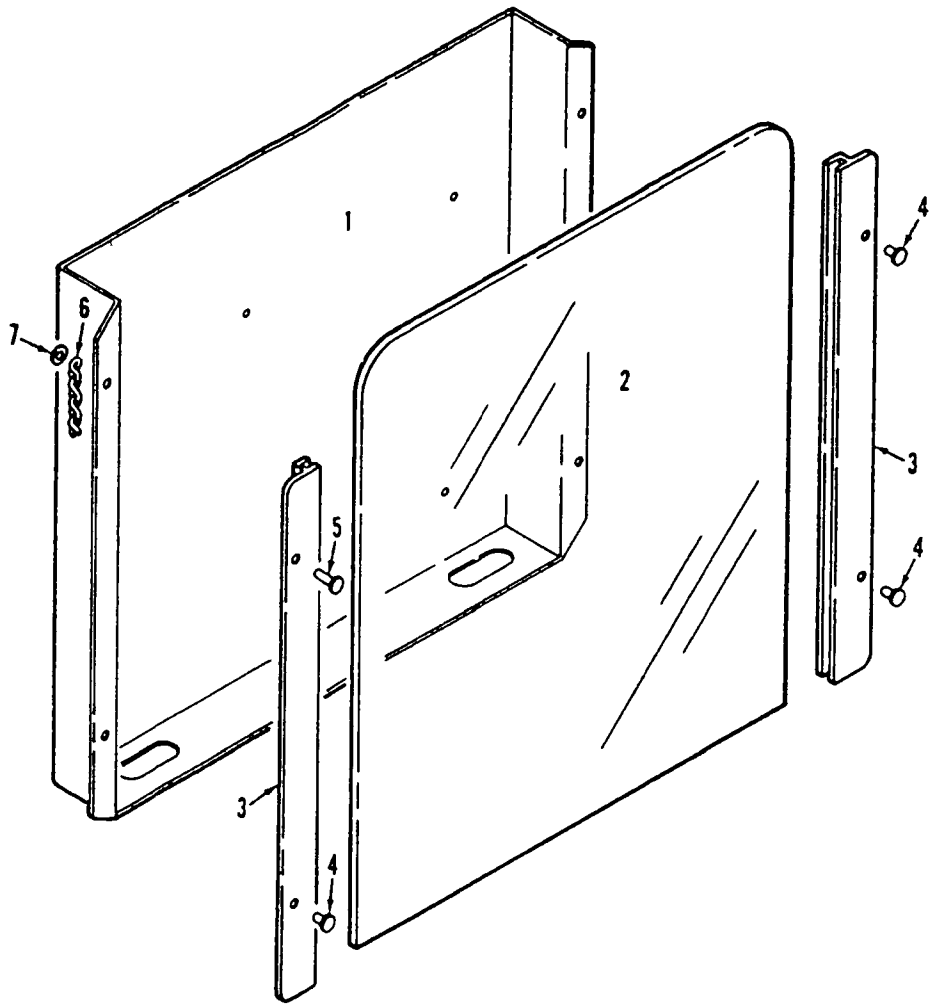
REF. NO.	PART NUMBER	QUANTITY REQUIRED	DESCRIPTION OF PART	VENDORS PART NO.
			NOTE 1: Machines w/bail limit switch on rear drum, delete Ref. Nos. 5 and 14. See "Bail Limit Switch" - Page B6.8 for replacement of these items.	
			NOTE 2: Machines before design change of 7-21-92 w/remote mounted operator's cab, delete guard 180692 and use guard 182661.  Machines after design change of 7-21-92 w/remote mounted operator's cab, delete guard 184695 and use guard 184697.	
			NOTE 3: Machines w/spur gear boom hoist delete Ref. Nos. 24, 25, 26 and add -	
24	163475	1	GUARD, Boom hoist w/capscrews, hex nuts and lockwashers	
25	163474	1	GUARD, Boom hoist w/capscrews, hex nuts and lockwashers	
			NOTE 4: Machines before design change of 7-21-92 w/air chamber actuator on drum brakes. Delete guards 92723 (Ref. 1), 180693 (Ref. 2), 92722 (Ref. 4), 180692 (Ref. 7) and Cover 146144 (Ref. 31) and add -  Machines after design change of 7-21-92 w/air chamber actuator on drum brakes. Delete guards 92723 (Ref. 1), 184696 (Ref. 2), 92722 (Ref. 4) 184695 (Ref. 7) and cover 146144 (Ref. 31) and add -	
1	166686	1	GUARD, Left brake w/capscrews, hex nuts and lockwashers	
2	166684	1	GUARD, Left brake w/capscrews, hex nuts, lockwashers and flat washers	
4	166685	1	GUARD, Right brake w/capscrews, hex nuts, and lockwashers	
7	166683	1	GUARD, Right brake w/capscrews, hex nuts, lockwashers and flat washers (See Note 5)	
31	166682	2	COVER, Drum brake guard w/fasteners and retaining washers	
32	167580	1	GUARD, Right brake w/capscrews and lockwashers	
33	167581	1	GUARD, Left brake w/capscrews and lockwashers	
34	164733	4	PAD, Mounting	
			NOTE 5: Machine w/remote operator's cab and air chamber actuated drum brakes use -	
35	166757	1	GUARD, Right brake w/capscrews, hex nuts, lockwashers and flat washers	
36	166758	1	COVER, Right brake guard w/fasteners and retaining washers	
37	166682	1	COVER, Drum brake guard w/fasteners and retaining washers	
38		1	ANGLE, Mounting (Ref. #7 drwg. 166757)	
39		1	BAR, Mounting (Ref. #5 drwg. 166757)	
40		1	BAR, Mounting (Ref. #6 drwg. 166757)	
				REV. S
				49267 - 1

PLEASE GIVE MACHINE S/N W/ORDER

65386-1 Cont.	REV. 0	MODEL 3900, 3950W, 3950WT, 4100W
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OPERATOR'S CAB  
(SEE NOTE 1)

REF. NO.	PART NUMBER	QUANTITY REQUIRED	DESCRIPTION OF PART	VENDORS PART NO.
	137847	1	MIRROR ASSEMBLY (mounted to right of operator)	
28	532712	1	HEAD	
29	137846	1	ARM w/capscrews, hex nuts and lockwashers	
30	140554	1	SUPPORT	
	93021	1	WINDOW ASSEMBLY, Sliding	
31	503423	1	LATCH w/self tap screw	
35	605302	1	CHANNEL, Rubber (Specify 15'0" - 4.570m)	
36	137805	1	HANDLE	
37	338347	1	CHANNEL, Felt Line (Specify 15'0" - 4.570m)	
38	137633	1	WINDOW, Sliding	
39	605161	1	SPACER, Rubber (Specify 6'8" - 2.032m)	
40	712900	1	WEATHERSTRIP (Specify 3'2" - .965m)	
41	137634	1	WINDOW, Stationary	
32	95238	1	GLASS, Window	
6	605301	1	CHANNEL, Rubber (Specify 17'6-3/4" - 5.353m)	
34	143136	1	GLASS, Window	
33	605312	1	CHANNEL, Rubber (Specify 11'5" - 3.480m)	
	95606	1	CLOSURE ASSEMBLY, Window (Std.) w/studs, springs and snap rings	
42	605311	1	CHANNEL, Rubber (Specify 9'4" - 2.845m)	
43	95604	1	CLOSURE, Window	
44	95605	1	COVER	
45	552508	1	GASKET, Neoprene (1/8" x 7/8" - Specify Length)	
43A	142532	1	GLASS, Window (Optional)	
6	605301	1	CHANNEL, Rubber (Specify 9'2-3/4" - 2.813m)	
46	95608	1	PANEL (Perforated 22 gauge)	
47	139976	1	PANEL (Perforated 22 gauge)	
48	98349	1	PANEL (Perforated 22 gauge)	
49	140001	1	PANEL (Perforated 22 gauge)	
50	141575	1	PANEL (Perforated 22 gauge)	
51	143157	1	PANEL (Perforated 22 gauge)	
52	95639	1	HOLDERS, Charts and Manual	
53	137823	1	PANEL (Perforated 22 gauge)	
54	143161	1	PANEL (Perforated 22 gauge)	
55	143160	1	PANEL (Perforated 22 gauge)	
56	143162	1	PANEL (Perforated 22 gauge)	
57	137827	1	PANEL (Perforated 22 gauge)	
	95652	1	MAT ASSEMBLY, Floor	
58	95702	1	MAT, Floor	
59	139954	2	BINDING, Mat	
60	143319	1	BINDING, Mat	
61	137208	1	GASKET	
62	137209	1	GASKET	
63	182517	1	LADDER w/capscrews, hex nuts and lockwashers (Remote mounted operator's cab only)	
66	147377	1	COVER w/mach. screws (w/air brakes or remote cab)	
67	147378	1	COVER w/mach. screws (w/pulsating drum rot. indicators)	
NOTE 1: Ref. Nos. 14, 15, 16, 17, 18, 26, 27, 61, 62 not used with remote mounted operator's cab.				
				REV. 0
				65386-1 Cont.



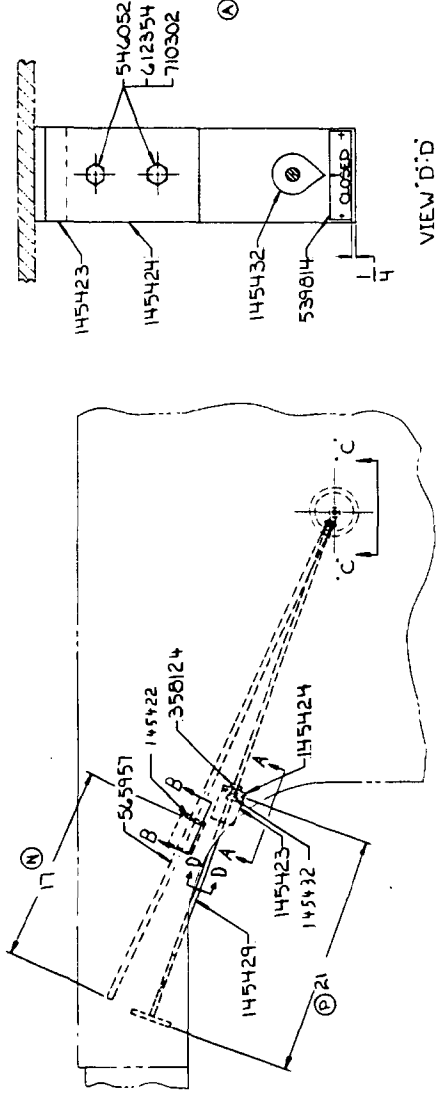
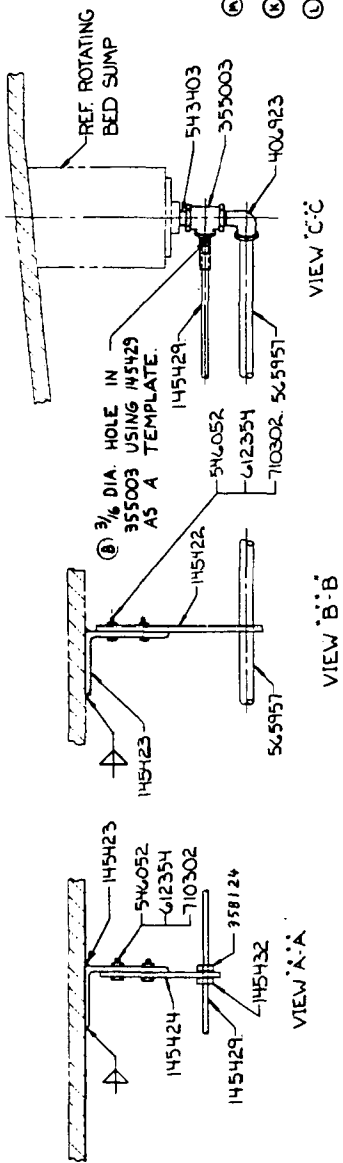
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MATERIAL LIST ON BACK

CHART HOLDER

ITEM NO.	QUANTITY	DESCRIPTION	MATERIAL	CODE NO. OR PART NO.	REMARKS
1		BRACKET		145422	
2		BRACKET		145423	
1		BRACKET		145424	
1		HANDLE		145429	
1		SET COLLAR		145432	
1		2 3/4 NUT BUSHING		288784	SEE NOTE 1
1		STEAM COCK		355003	
1		1/2 SET COLLAR		358124	
1		1/2 STREET ELBOW		406923	
1		NAME PLATE		539814	REF. 22543
1		3/8 CLOSE NIPPLE		543403	
4		1/4-20UNC-2B HEX NUT		546052	
1		3/8 PIPE THD ONE END		565951	
4		1/4-20UNC-2A 1/2 HEX HD CAPSCR		612354	
4		1/4 LOCKWASHERS		710302	

REVISIONS	DATE	BY	DESCRIPTION
1	5-15-78	MPR	CORRECTED PRIOR TO MANUFACTURE
2	6-28-78	GIP	ADDED
3	8-2-78	LJO	Q10 WAS 2
4	Q10 WAS 3		Q10 WAS 4
5	10-5-78	MPR	Q10 WAS 1 RECD.
6	Q10 WAS 2 RECD.		Q10 ADDED



NOTE: FOR FIELD CONVERSION OF MACHINES STARTING WITH S/N 41523 AND AFTER.

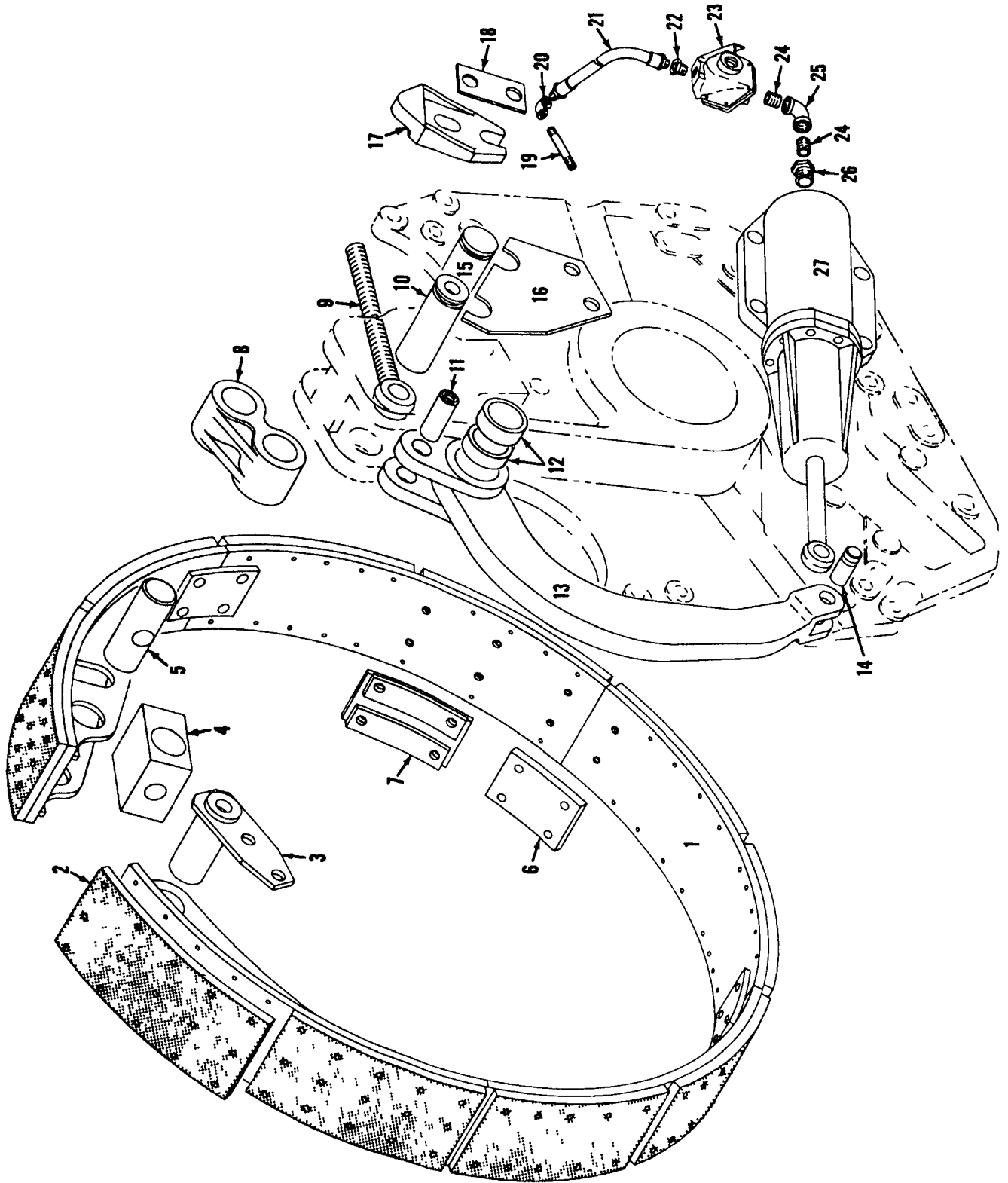
NOTICE  
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 MANITOWOC ENGINEERING CO  
 IS FOR INFORMATION ONLY. CONSULTING ENGINEER & CONTRACTOR  
 IS TO BE RESPONSIBLE FOR THE PROPER INSTALLATION AND  
 MAINTENANCE OF THE EQUIPMENT. THE MANUFACTURER  
 ASSUMES NO LIABILITY FOR THE PROPER INSTALLATION AND  
 MAINTENANCE OF THE EQUIPMENT.

SCALE	AS SHOWN
DATE	5-1-78
PROJECT NO.	183569
DRAWING NO.	183569
REV.	

**PARTS MANUAL ALPHABETICAL INDEX**  
**Group B - Upperworks Machinery**

DESCRIPTION	PUBLICATION	REV	START DATE	END DATE	GROUP
Boom Hoist Chain Case	190331	I1	12/09/77	11/01/84	B0212
Boom Hoist Control, Independent	93059	D1	08/11/69	06/13/80	B0204
Boom Hoist Control, Independent	93560	K1	12/27/70	08/07/85	B0204
Boom Hoist Control, Independent	190222	G1	11/03/75	03/02/84	B0204
Boom Hoist Hydraulic Motor	48640	L1	02/07/69	06/22/84	B0205
Boom Hoist Hydraulic Piping	65649	H1	11/29/78	03/05/82	B0209
Boom Hoist Hydraulic Pump Drive	48639	Q1	02/05/69	07/28/86	B0206
Boom Hoist Hydraulic Pump Drive	92745	A1	01/27/69	08/14/69	B0206
Boom Hoist, Independent	50919	-	05/07/76	03/27/09	B0202
Boom Hoist, Independent	97060	A1	03/24/78	03/07/84	B0202
Countershaft, Drum Drive	181195	K1	04/16/70	05/07/93	B0501
Drum Brake - Front	49428	E1	07/23/71	04/01/77	B0603
Drum Brake Booster/Parking Brake	181369	C1	02/04/71	05/01/91	B0604
Drum Rotation Indicator - Front and Rear	65588	G1	03/02/77	09/02/86	B0607
Drum Rotation Indicator - Front and Rear	95451	-	03/13/75	03/03/77	B0607
Drum Shaft - Front	22596	A	09/03/52	10/08/81	B0601
Drum Shaft - Front	48333	H1	05/17/68	09/04/85	B0601
Drum Shaft - Front	48333	D2	05/17/68	09/04/85	B0601
Foot Pedal Lock	182778	B1	03/23/76	10/16/80	B1203
Foot Pedal Lock	93831	A1	07/20/71		B1203
Foot Pedals	182707	G1	02/15/77	05/19/80	B1202
Independent Swing Control	190692	D1	01/27/78	04/20/84	B0403
Independent Swing Control	190692	C2	01/27/78	04/20/84	B0403
Independent Swing Outboard Bearing	91083	C1	09/17/65	10/30/69	B0406
Independent Swing Shaft, Horizontal	190062	I1	01/02/75	11/04/93	B0401
Independent Swing Shaft, Horizontal	190062	D2	01/02/75	11/04/93	B0401
Independent Swing Shaft, Vertical	180788	-	11/17/69	04/12/85	B0402
Independent Swing Shaft, Vertical	180788	D1	11/17/69	12/21/71	B0402
Lubrication Pump & Piping (Sump)	183132	H1	05/20/77	05/16/85	B1401
Lubrication Pump & Piping (Sump)	190463	J1	05/20/77	01/07/91	B1401
Main Drive Shaft	190628	D1	05/10/78	11/13/89	B1301
Main Drive Shaft Control	32340	D1	08/15/60	03/02/84	B1302
Rear or Rear Auxiliary Drum	48334	G1	05/17/68	09/04/85	B0801
Rear or Rear Auxiliary Drum	48334	E2	05/17/68	12/22/92	B0801
Rear or Rear Auxiliary Drum Brake	65447	C1	01/27/76	09/04/81	B0803
Rear or Rear Auxiliary Drum Parking Brake	181995	C1	04/24/73	09/08/83	B0804
Slide Pinion Shaft (Intermediate Travel or Swing Shaft)	92737	F1	01/23/69	03/02/84	B1601
Swing Brake Control	181484	D1	07/23/71	11/26/90	B1802
Swing Lock Control	180760	I1	09/28/70	10/29/90	B1701
Swing Shaft	182814	C1	04/28/76	02/18/85	B1901
Transmission Case	183359	FC	10/12/77	09/09/15	E2104
Travel Drive Transmission	94772	C	06/20/73	04/16/84	B2002

MASTER

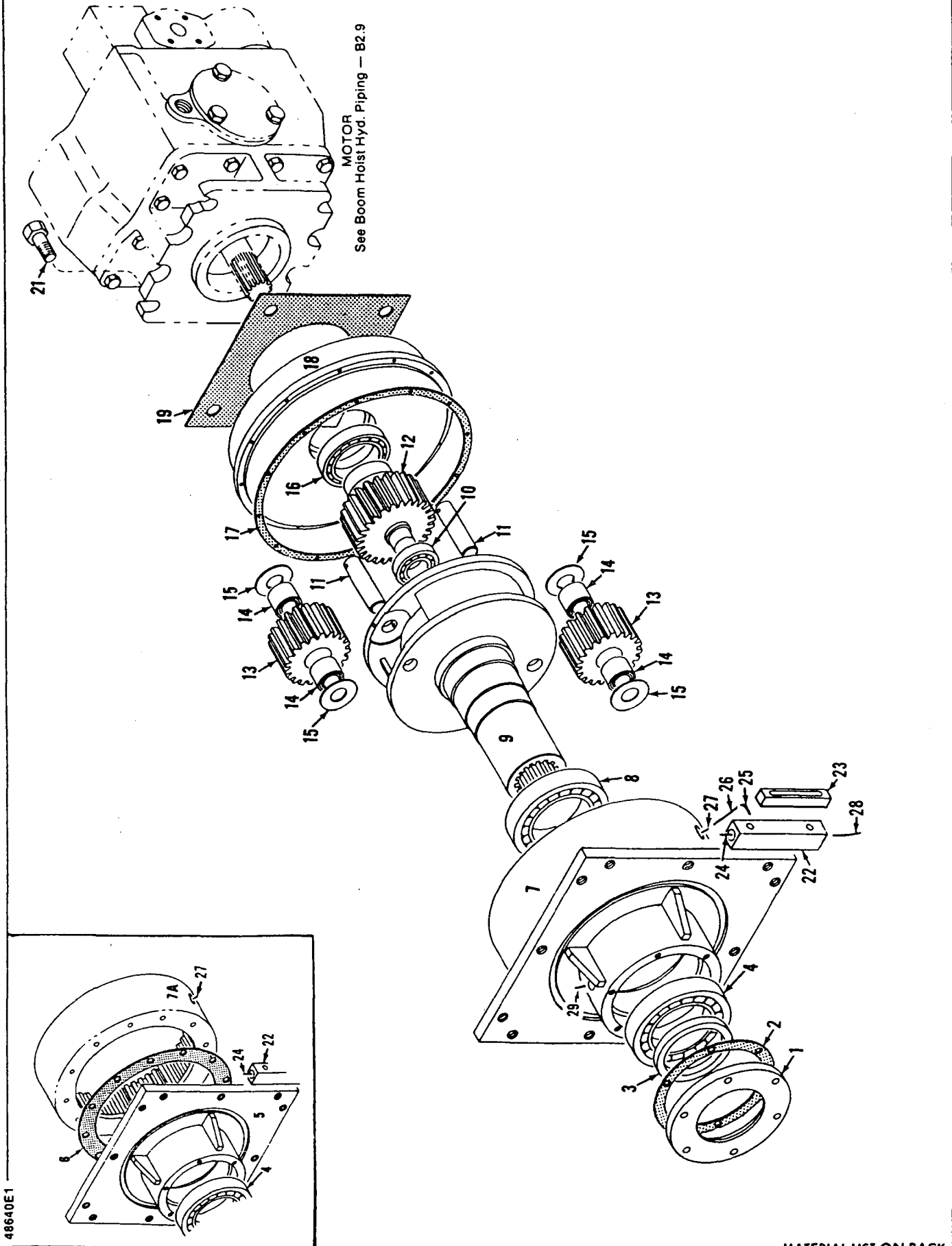


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MATERIAL LIST ON BACK

DRUM CLUTCH

483333-C2 Back



48640E1

MATERIAL LIST ON BACK

HYD. BOOM HOIST DRIVE

65447-1Cont.	REV. C	MODEL 4100W
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REAR DRUM BRAKE (MANUAL)  
(SINGLE DRUM - DOUBLE BRAKES)  
(QUANTITIES FOR BOTH BANDS)

REF. NO.	PART NUMBER	QUANTITY REQUIRED	DESCRIPTION OF PART	VENDORS PART NO.		
51	396459	2	PIN, Dowel (1/2" x 1 1/4")			
52	140990	1	PLATE, End W/capscrews, lockwashers and gr. fitting			
53	94390	1	BRACKET W/gr. fitting			
54	140992	2	LEVER W/capscrew, hex nut and lockwasher (See Note 1)			
55	138005	1	END, Rod			
56	358129	2	COLLAR, Set (See Note 1)			
57	72713	1	ROD, Reach W/jam nuts			
58	429071	1	ELBOW			
59	3412	1	HOSE, Flex (Grease Line)			
60	70656	2	SUPPORT, Grease Line			
61	429363	2	CONNECTOR (1/2" x 1/8")			
62	696210	1	TUBE, Copper (Specify Length)			
<p>NOTE 1: If this installation is used W/spring set, air release parking brake, delete Ref. Nos. 45, 46, 47, 54 and 56 and add:</p>						
45	143844	1	END, Rod			
46	143889	1	PIN W/cotter pin			
	709702	1	WASHER, Flat (1/2")			
<p>NOTE 2: Use washers #144434 and #144435 as required to center band on brake flange.</p>						
			0-147			
				<table border="1"> <tr> <td>REV. C</td> <td>65447 - 1</td> </tr> </table>	REV. C	65447 - 1
REV. C	65447 - 1					

Run as Front

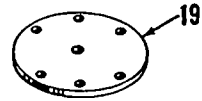
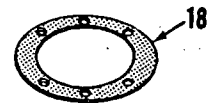
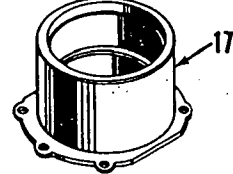
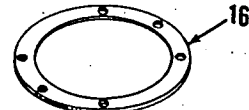
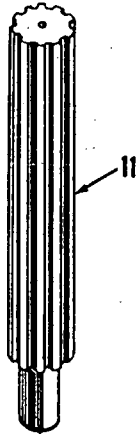
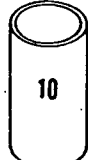
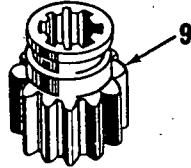
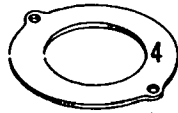
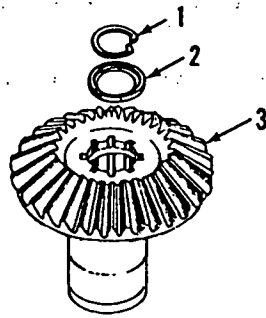
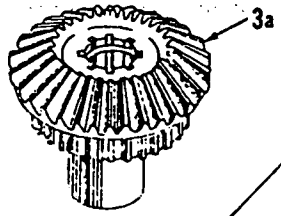
65447 C1 Cont'd.

**MASTIFF**

MANITOWOC ENGINEERING CO.

A Division of The Manitowoc Company, Inc.

Manitowoc, Wisconsin



9273781

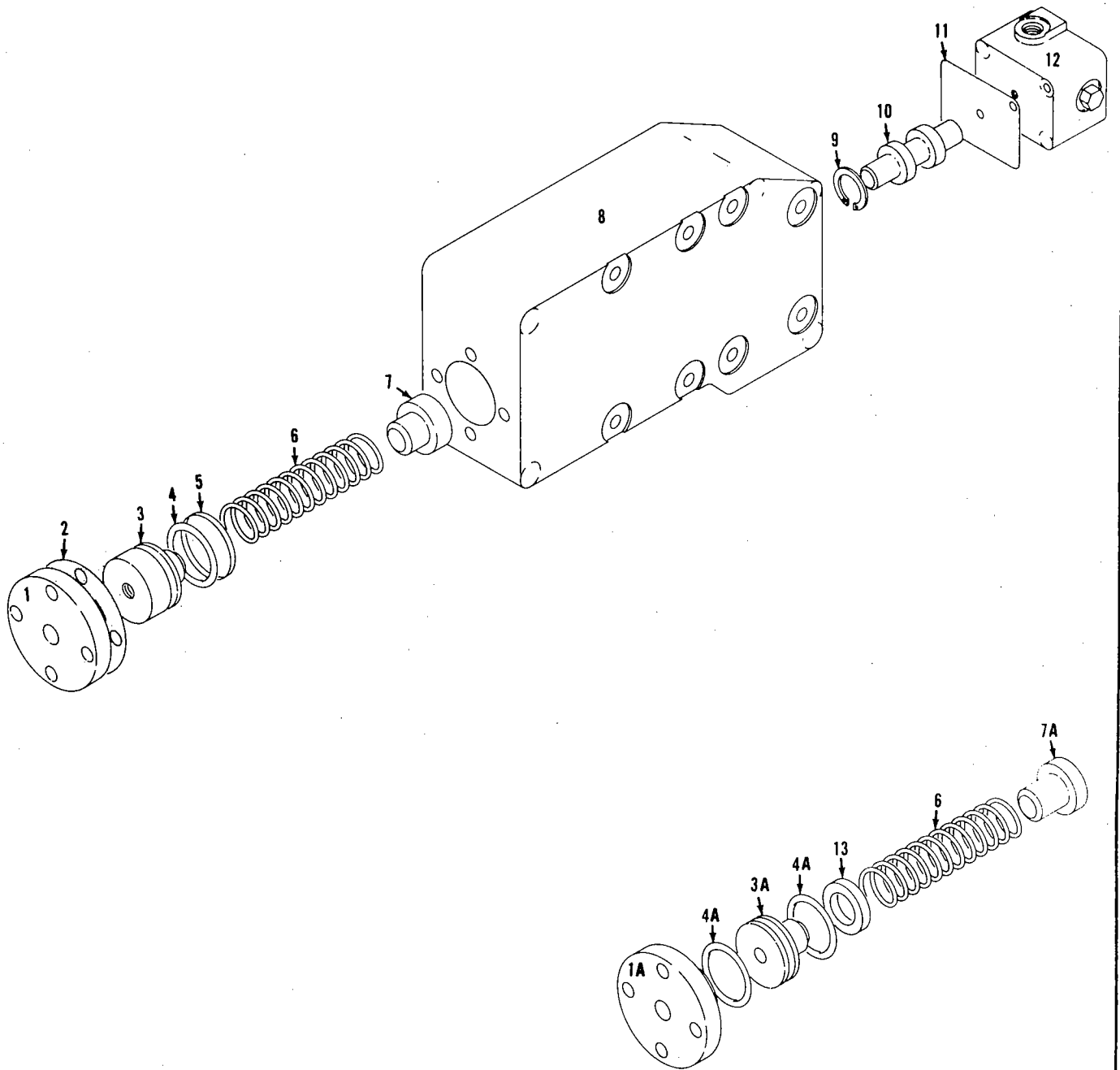
MATERIAL LIST ON BACK

INTERMEDIATE VERTICAL TRAVEL SHAFT

MANITOWOC ENGINEERING CO.

A Division of The Manitowoc Company, Inc.

Manitowoc, Wisconsin



9477281

MATERIAL LIST ON BACK

HYD. CONTROL VALVE

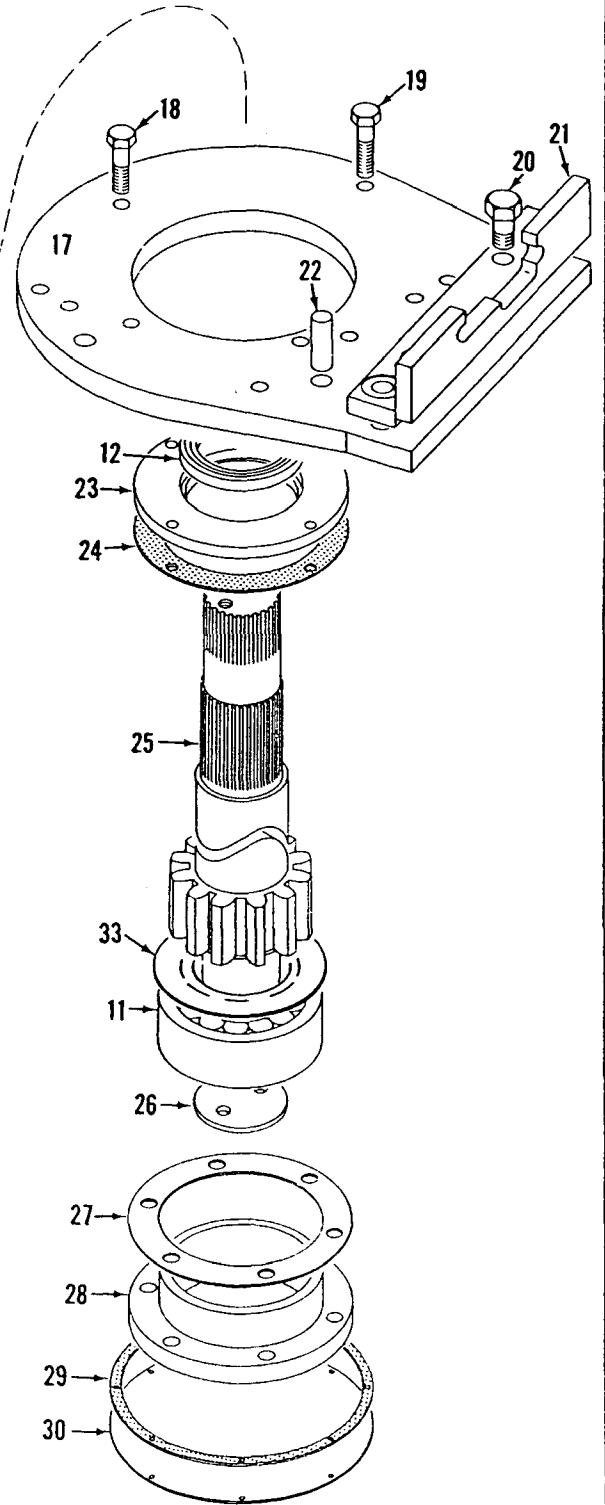
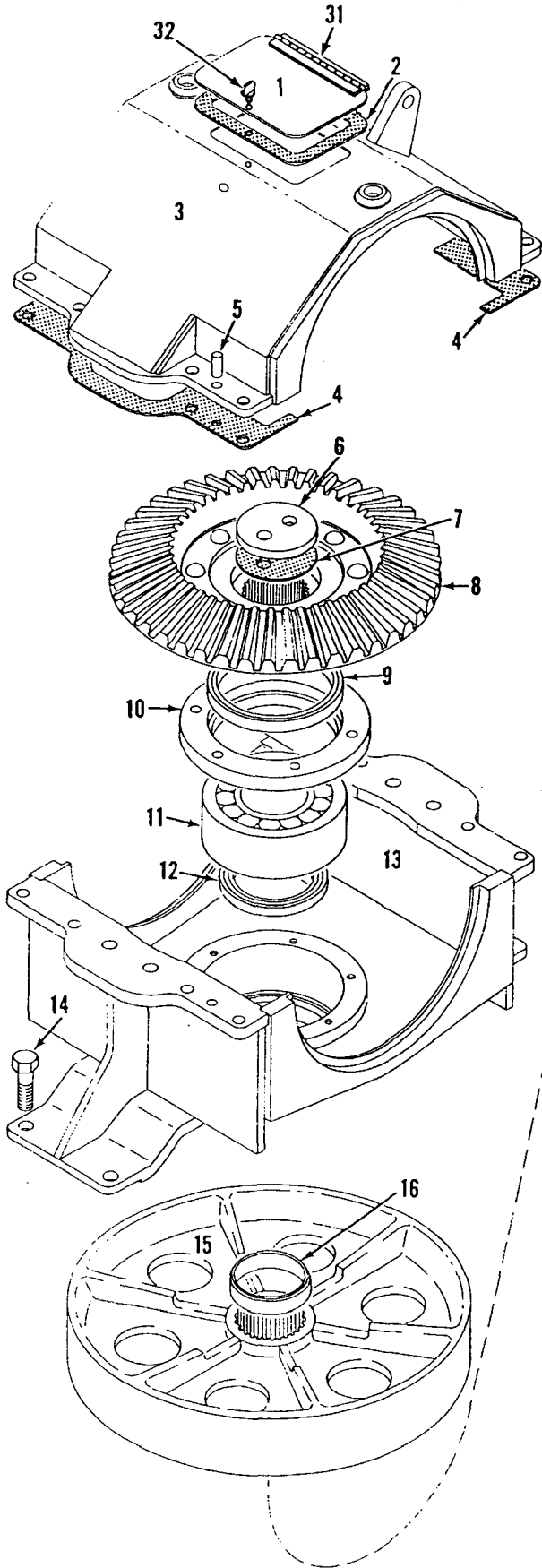
MANITOWOC ENGINEERING CO.

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Manitowoc, Wisconsin

MASTER

180788 C-1



180788C1

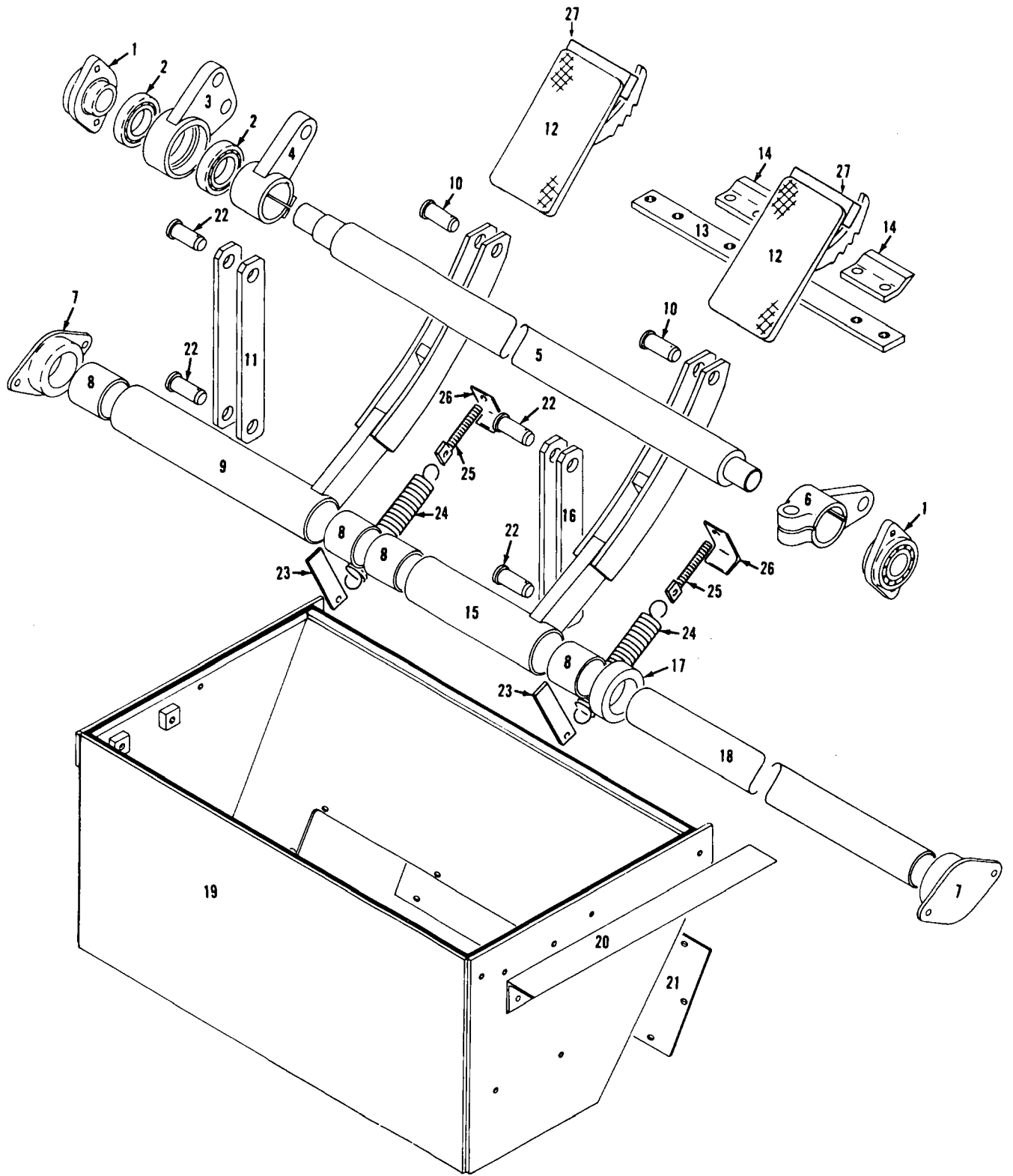
MATERIAL LIST ON BACK

SWING SHAFT

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MASTER

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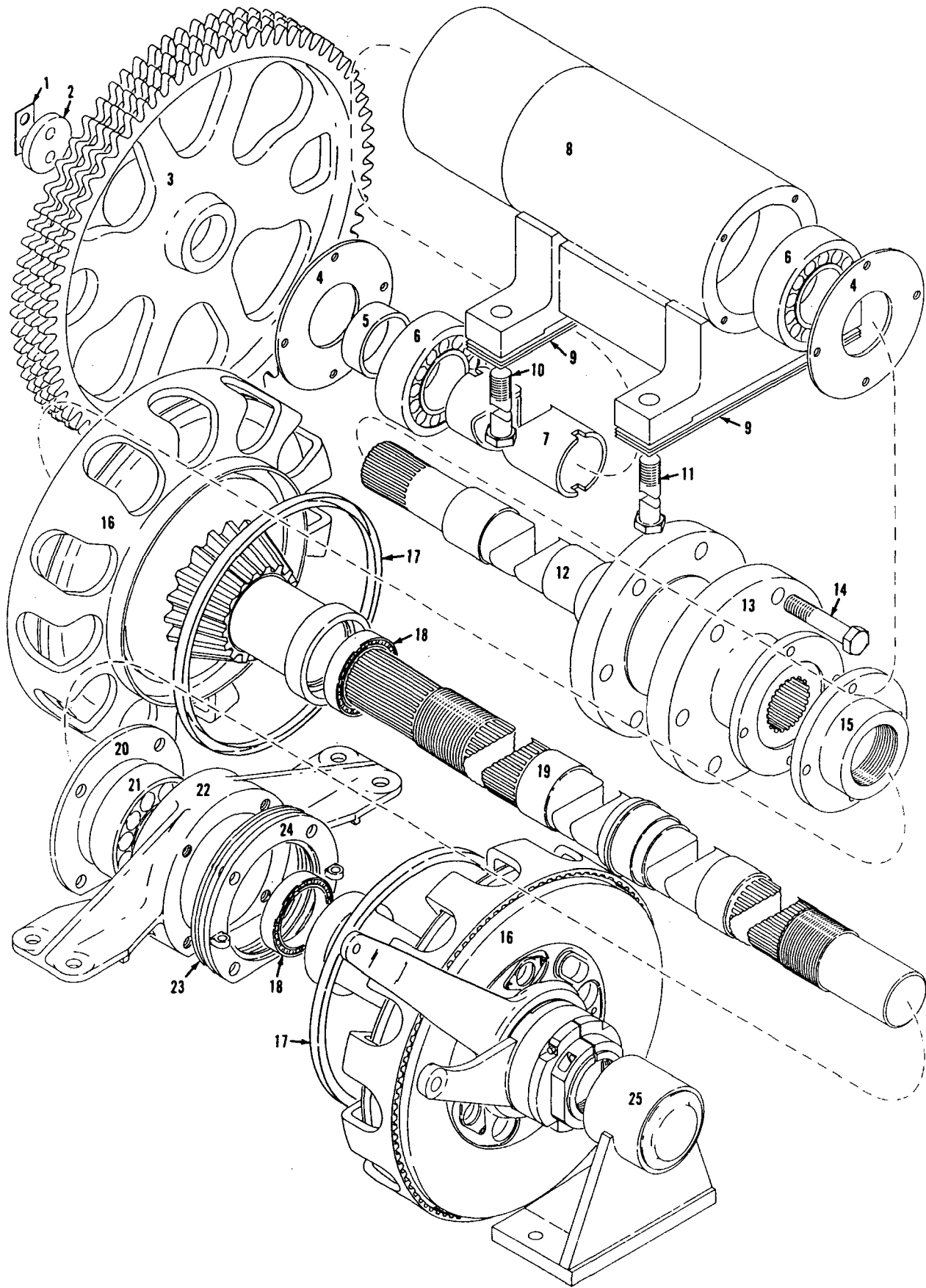
MATERIAL LIST ON BACK

DRUM BRAKE FOOT PEDALS

MANITOWOC ENGINEERING CO.

A Division of The Manitowoc Company, Inc.

Manitowoc, Wisconsin



190062A1

MATERIAL LIST ON BACK

Independent Swing Horiz. Drive Shaft

190463-1 Cont	REV. J	MODEL 4100W
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LUBRICATION OIL PIPING  
(SEE NOTES 1, 4 AND 6)

REF. NO.	PART NUMBER	QUANTITY REQUIRED	DESCRIPTION OF PART	VENDORS PART NO.		
46	486065	2	HOSE (2-1/4" I.D. - specify 6" long) (See Note 6)			
47	698494	1	TUBING (2-1/4" O.D. x 3'7-1/2" long) (See Note 6)			
48	71911	4	CONNECTION			
49	345338	4	CLAMP, Hose (No. 28, 1-5/16" - 2-1/4")			
50	486067	2	HOSE, Curved 90° (1-1/4" I.D.)			
51	377209	1	COUPLING (1-1/2")			
52	543423	1	NIPPLE (1-1/2" x 4-1/2")			
53	406959	2	ELBOW (1-1/2")			
54	543436	1	NIPPLE (1-1/2" x 1'1-1/8")			
55	543541	1	NIPPLE (1-1/2" x 3")			
56	543444	1	NIPPLE (1/2" x 1-1/2")			
57	543498	1	NIPPLE (1/2" x 7") (See Note 8)			
58	543405	1	NIPPLE, Close (3/4")			
59	70188	1	HOSE, Flex (1/2" I.D. 9'4" or 2.8448m long) (See Note 6)			
60	667090	2	STRAP, Pipe (for 2" pipe) (See Note 6)			
61	543223	1	NIPPLE (2" x 9") (See Note 6)			
62	543908	1	NIPPLE (2" x 3-1/2") (See Notes 2 and 6)			
63	377216	1	COUPLING (2") (See Note 6)			
64	489442	1	INDICATOR, Flow			
65	288750	1	BUSHING (1/2" x 1/8") (See Note 8)			
66	460113	1	GAUGE, Pressure (See Note 8)			
	147694	1	SUPPORT, Gauge w/hex nuts, capscrews & lockwashers (not shown)			
			<p><u>NOTE 1:</u> For machines w/hydro-mechanical driven roof mounted third drum, see separate sheet for location of filter. (This first on S/N 41560, 41561, 41562 and 41563.)</p> <p><u>NOTE 2:</u> Standpipe in boom hoist housing lengthened 1/2" per design change of Jan. 4, 1979. Prior to this change Ref. 62 was 543909 (2" x 4").</p> <p><u>NOTE 3:</u> Installation prior to change of Oct. 11, 1979. Delete 2 of Ref. 45.</p>			
37A	429652	2	UNION, Swivel Adapter (2")			
38A	486293	1	HOSE, Flex (2" x 4'5" - 1.346m)			
			<p><u>NOTE 4:</u> For machine w/boom hoist mounted in counterweight, delete Ref. Nos. 42, 43, 44, 47, 61, and 63, rear Ref. No. 46 w/2 of Ref. 45. Install Ref. 62 in remaining Ref. 46 w/Ref. 45 and plug w/pipe cap 304230 (2"). Disconnect Ref. 9 from Ref. 3 at boom hoist and plug Ref. 9 w/pipe plug 571703 (1/2").</p> <p><u>NOTE 5:</u> Filter bracket on machines after 6/11/81 revision delete Ref. No. 7 and add the following:</p>			
67	147694	1	BRACKET, Filter w/capscrews, hex nuts and lockwashers			
68	139228	1	PLATE, Instruction w/drive screws			
			0-147			
				<table border="1"> <tr> <td>REV. J</td> <td>190463-1 Cont.</td> </tr> </table>	REV. J	190463-1 Cont.
REV. J	190463-1 Cont.					

PLEASE GIVE MACHINE S/N W/ORDER

CPT

Run as a Front

130700 JI 0011. 1

GROUP C - Air Components & Electrical

65515-1 Cont.	REV. I	MODEL 4100W
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RIGHT CONSOLE CONTROL

REF. NO.	PART NUMBER	QUANTITY REQUIRED	DESCRIPTION OF PART	VENDORS PART NO.
50	143747	1	COVER W/fasteners and snap rings	
51	182297-2	1	VALVE, Treadle (Rear or Right Rear Drum Brake) (Air Brakes Only)	
52	182297-3	1	VALVE, Treadle (Front Drum Brake) (Air Brakes Only)	
53	95675	1	MOUNTING PLATE, Treadle Valve (Air Brakes Only)	
54	95677	1	ENCLOSURE (Air Brakes Only) W/capscrews, hex nuts and lock-washers	
55	139709	1	ANGLE, Mounting (Air Brakes Only) W/capscrews and lockwashers	
56	542964	2	NIPPLE (3/8" x 3")	
57	406871	1	ELBOW, 90° Reducing (1/2" x 3/8")	
58	485833	1	HOSE, Flex (1/2" x 1'8" - .508 m)	
59	679105	1	TEE (1/2" x 1/2" x 3/8")	
60	485833	1	HOSE, Flex (1/2" x 1'8" - .508 m)	
61	142539	1	NAMEPLATE (Hyd. Winch)	
62	95259	1	BRACKET, Valve	
63	714478	1	VALVE, Hyd. Winch Control (Optional)	
64	182372	1	CONTROL ASSEMBLY, Hyd. Tagline (See Separate Sheet-Optional)	
65	288835	1	BUSHING, Reducing (1/2" x 3/8")	
66	429937	1	ADAPTER, Bulkhead	
67	181964	1	CONTROL ASSEMBLY, Container Handling (Optional-Not Shown)	
68	191095	1	CONTROL, Single Gearmatic Winch (Optional - Not Shown)	
68	191059	1	CONTROL, Dual Gearmatic Winch (Optional - Not Shown)	
69	146550	1	NAMEPLATE	
			NOTE 1: Mach. W/Vicon Power Load Lowering delete knobs #714440 and add the following:	
1	136328	2	KNOB, Handle (W/out Drum Rotation Indicator)	
	139690	2	BUSHING	
	293122	2	SWITCH	
			NOTE 2: Mach.W/Magnet Control, delete right hand knob #714440 and add the following:	
1	136328	1	KNOB, Handle	
	139690	1	BUSHING	
	293122	1	SWITCH	
			NOTE 3: See chart #6338 for "Air Line Identification"	
			NOTE 4: Mach. W/Drum Rotation Indicator, see "Drum Rotation Indicator."	
			NOTE 5: All air lines 3/8" O.D. plastic tube except as noted.	
			NOTE 6: Prior to design change of Dec. 28, 1976, delete Ref. Nos. 44, 65, 66 and add:	
44	138648	1	MANIFOLD, Air (CYLINDRICAL) 0-63, 0-147, 0-247, 0-441 (Ref. 182297, 182873, 182372, 181964, 183210, 191059 or 191095)	

Run as Front

MASTER

65515-1 Cont.

REV. I	65515 - 1
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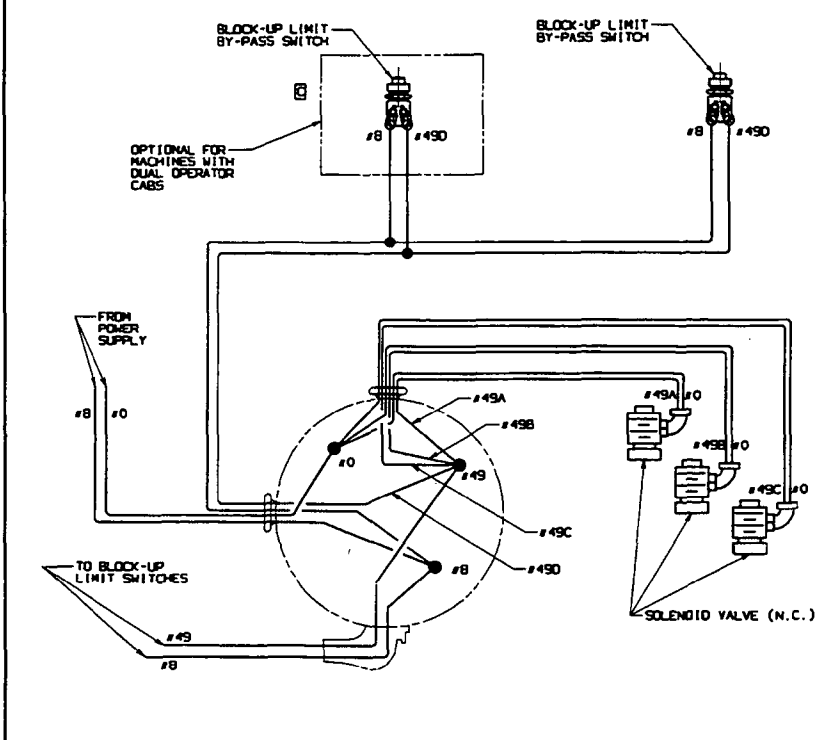
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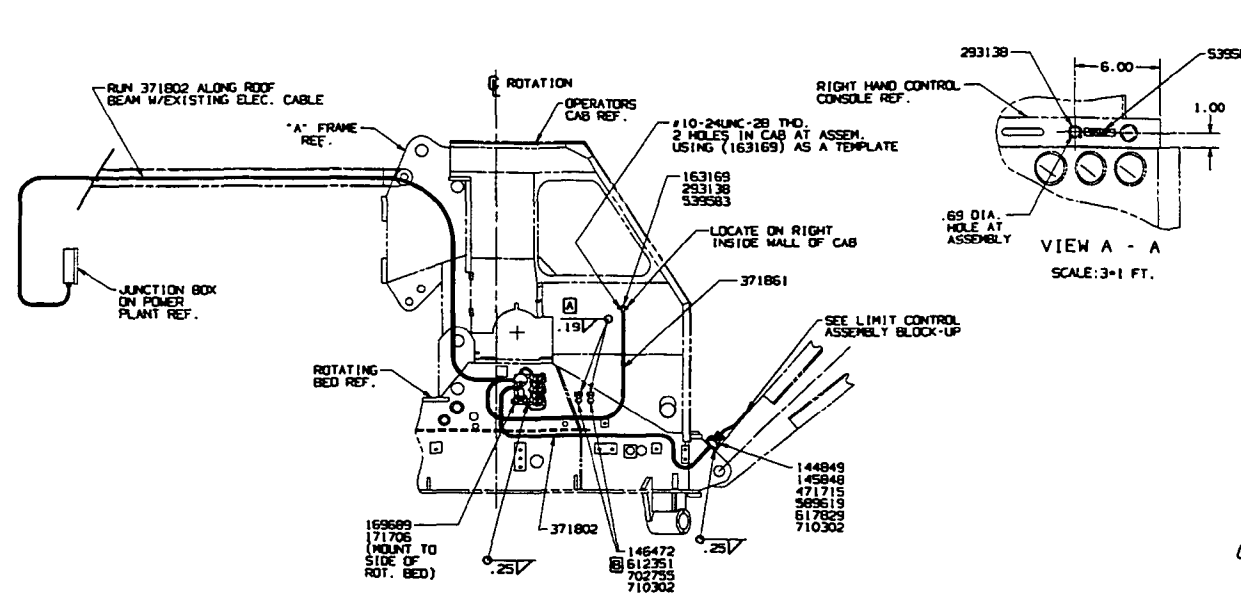
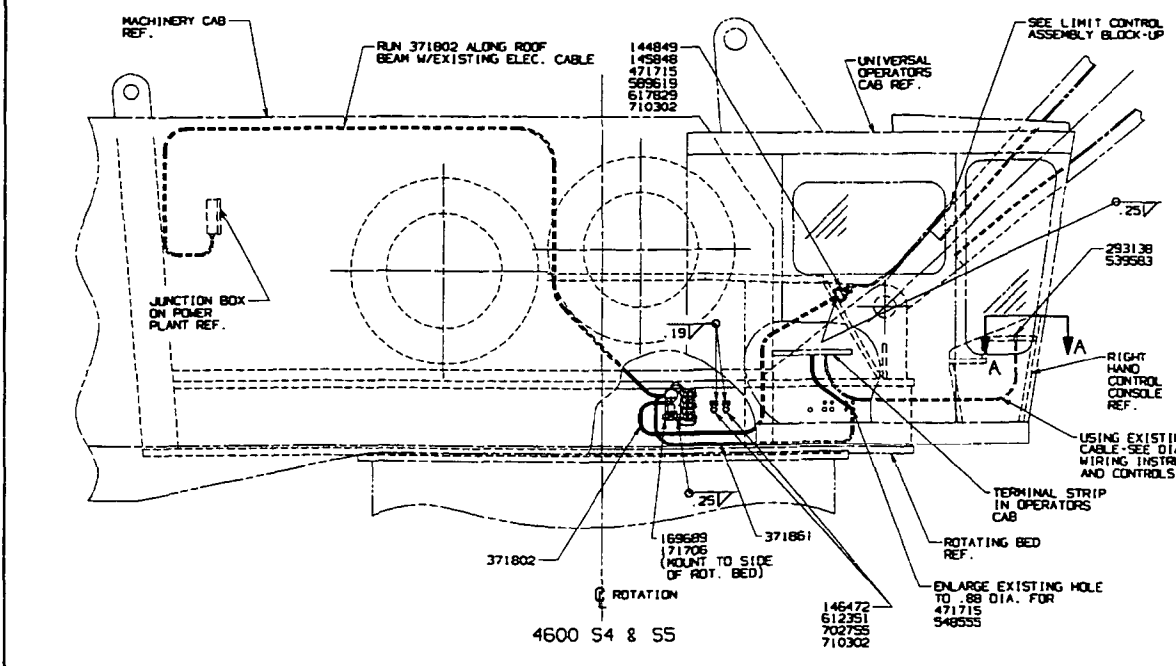


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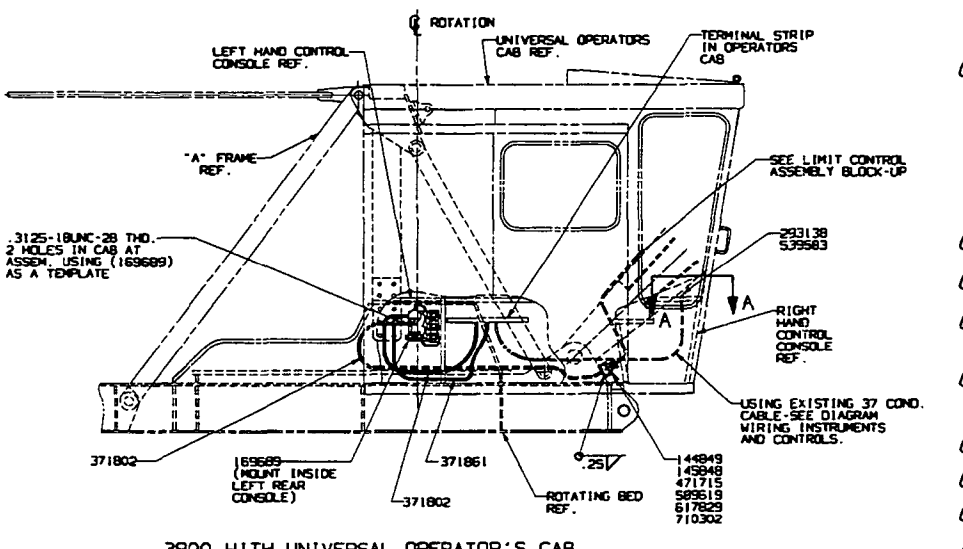
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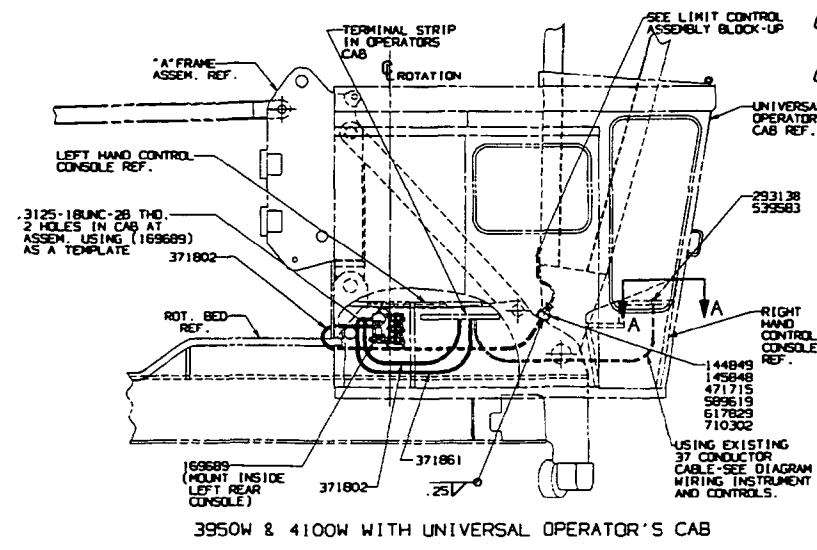
- SCHEMATICS**
- 6312 SHT 80 - LOAD & WHIP LINE BLOCK-UP LIMIT N-3900, 3900T, 3900W & 4000W FOR MACHINES W/OPERS. CAB PART OF MACHINERY HOUSE, VICON M/MANUAL CONV. CONTROL OR NON-VICONS.
  - 6312 SHT 81 - LOAD & WHIP LINE BLOCK-UP LIMIT N-3900, 4100W, 4600S/3.
  - 6312 SHT 89 - LOAD & WHIP LINE BLOCK-UP LIMIT 4600 S4 & S5, 7000 ELEVATED CABS 27 FT.
  - 6312 SHT 94 - WHIP LINE BLOCK-UP LIMIT ON RIGHT REAR DRUM ONLY N-4100W.



3900, 3900W, 3900T & 4000W WITH OPERATOR'S CAB PART OF MACHINERY HOUSE



3900 WITH UNIVERSAL OPERATOR'S CAB



3950W & 4100W WITH UNIVERSAL OPERATOR'S CAB

QTY	DESCRIPTION	REF.	UNIVERSAL	OPERATOR'S CAB	4600 S4	4600 S5
1	MOUNTING PAD		144849			
1	SHORTING PLUG		145848			
2	MOUNTING PAD		146472			
1	BRACKET		163169			
1	VALVE ASSEMBLY		169689			
1	MOUNTING PAD		171706			
1	SWITCH		293138			
1	CORD - PORTABLE 14-2-5		371802			
1	CORD TYPE 50 VUTRON 16/2		371861			
1	CORD GRIP		471715			
1	EXTENSION - 16 FT.		477369			
1	EXTENSION - 26 FT.		477368			
1	NAMEPLATE - (LOAD LIMIT BY-PASS)		539583			
1	LOOKOUT CONDUIT		548555			
1	LOCK RECEPTACLE		589619			
4	.25-20UNC-2A X .50 LG. CAPSCREW		612351			
2	.25-20UNC-2A X .75 LG. RD HD CAPSCREW		617829			
6	WIRE TERMINAL		680572			
2	RELAY VALVE		702755			
2	.25 LOCKWASHER		710302			
4	.25 LOCKWASHER		710302			

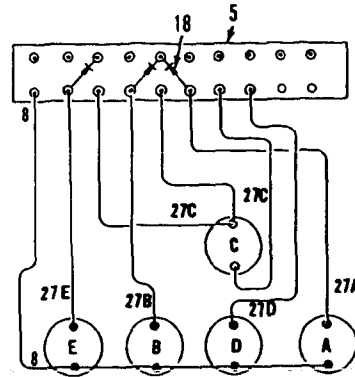
- 1 CABLE LENGTH - 15 FT. - 3900, 3950W & 4100W WITH UNIV. OPER. CAB, 4600 S3  
25 FT. - 3900, 3900W, 3900T & 4000W WITH OPER. CAB PART OF MACH. HOUSE 3900, 3900W, 3950W ELEV. CAB - SIDE MOUNT 4600 S4 & S5  
35 FT. - 4100W WITH ELEVATED UNIV. OPER. CAB
  - 2 CABLE LENGTH - 4 FT. - 3900, 3950W & 4100W WITH UNIV. OPER. CAB  
10 FT. - 3900, 3900W, 3900T & 4000W WITH OPER. CAB PART OF MACH. HOUSE 3900, 3900W, 3950W ELEV. CAB - SIDE MOUNT, 4600 S3  
30 FT. - 4100W WITH ELEVATED UNIV. OPER. CAB 4600 S4 & S5
  - 3 DELETE ON MACHINES W/UNIVERSAL OPERATOR'S CAB
  - 4 DELETE ON MACHINES WITH VALVE ASSEMBLY (169689) MOUNTED IN UNIV. OPERATOR'S CAB.
  - 5 REQUIRED ON MODELS 4100W WITH ELEVATED UNIVERSAL OPERATOR'S CAB & 4600 S4, S5, 3900T, 4000W, AND 3900W WITH FULLY ELEVATED CAB.
  - 6 ADD (1) RELAY VALVE (702755), (1) MOUNTING PAD (146472), (2) CAPSCREWS (612351) & (2) LOCKWASHERS (710302) FOR THREE DRUM MACHINES (FULL FRONT, SPLIT REAR) MODEL 4100W WITH ELEV. UNIV. OPER. CAB
  - 7 FOR 36 FT. RINGER MACHINE
  - 8 FOR 60 FT. RINGER MACHINE
  - 9 NOT USED IN CONJUNCTION WITH DEADMAN, AUTOTROL OR BAIL LIMIT
  - 10 MUST BE USED IN CONJUNCTION WITH SPRING SET PARKING BRAKES.
  - 11 FOR MODELS 4600 S4 & S5 ADD (1) CORD GRIP (471715) AND LOOKOUT (548555).
  - 12 CAP ON SWITCH (293138) MUST BE SCREWED ON ALL THE WAY TO PREVENT BUTTON FROM CATCHING ON LIP OF CAP PRIOR TO TIGHTENING LOCK NUT.
  - 13 FOR MACHINES WITH DUAL OPERATOR CABS ADD:  
(1) BRACKET - 163169  
(1) SWITCH - 293138  
(1) NAMEPLATE - 539583  
(1) CORD (40 FT LG.) - 371861
- BY-PASS SWITCH TO BE MOUNTED IN UPPER AND LOWER CABS.

SUPERSEDES 184000 OF 10-8-84 AND 184320

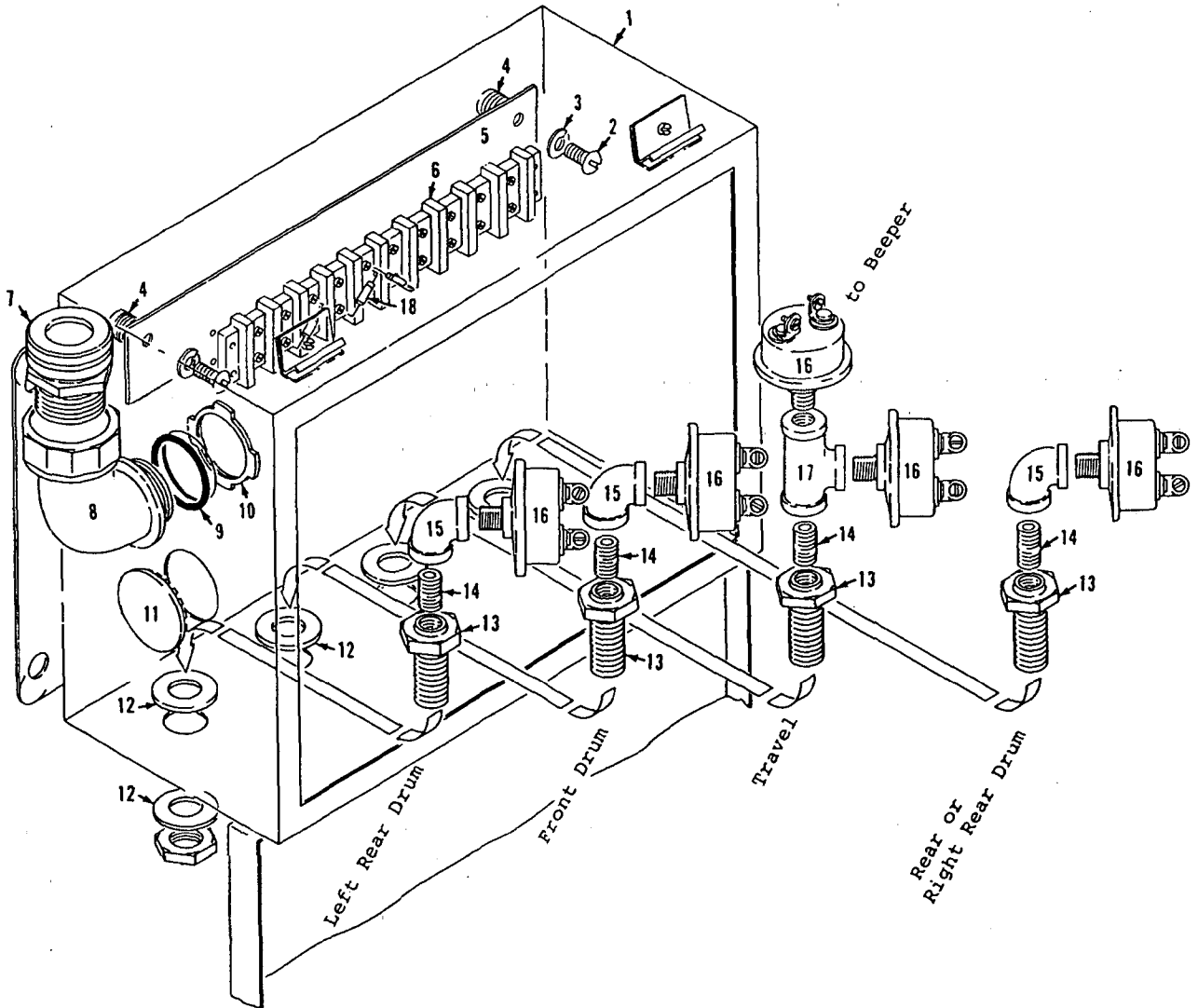
REV.	DESCRIPTION	DATE
1	INITIAL RELEASE	7-17-91
2	WIRING FROM OPER. CAB TO OUTLET ON FRONT OF ROT. BED - SEE 710	
3	36 FT. 1.60 FT. RINGER	

WIRE IDENTIFICATION NUMBER

- 8 Supply from Eng. Oil Pressure Switch
- 27A Rear or Right Rear Drum Ind. Light
- 27B Front Drum Ind. Light
- 27C Beeper
- 27D Travel Ind. Light
- 27E Left Rear Drum Ind. Light



Wiring Diagram



190256A1

MATERIAL LIST ON BACK

Operating Indicators Sensor

MODEL

3000W-3600-3900-3900W-3950W-3950D-4000W-4100W

**TRANSMISSION CASE**  
(VICON MACHINE)

ITEM	PART #	QTY.	DESCRIPTION OF PART			
26	352022	1	<p><u>Note 3</u> For machines with electric drive, delete Ref. #26-27 above and add:</p> <p>SPIDER, Drive</p>			
27	352021	1	RING, Drive			
	352715	26	BLOCK, Rubber (not shown)			
			<p><u>Note 4</u> Clean splines of shafts and sprockets thoroughly with Loctite Safety Solvent (MEC 622296). Apply Loctite Retaining Compound #620 (MEC 622285) to engine shaft and converter input shafts. Allow to cure 24 hours.</p>			
			<p align="center"><b>PLEASE GIVE MACHINE SERIAL NUMBER WITH ORDER</b></p> <table border="1" data-bbox="1218 1974 1570 2041"> <tr> <td data-bbox="1218 1974 1380 2041">ASSEMBLY 42749</td> <td data-bbox="1380 1974 1485 2041">PAGE 3 of 3</td> <td data-bbox="1485 1974 1570 2041">REV. P-1</td> </tr> </table>	ASSEMBLY 42749	PAGE 3 of 3	REV. P-1
ASSEMBLY 42749	PAGE 3 of 3	REV. P-1				

48738-2 Cont.	REV. E	MODEL 3900W - 4100W
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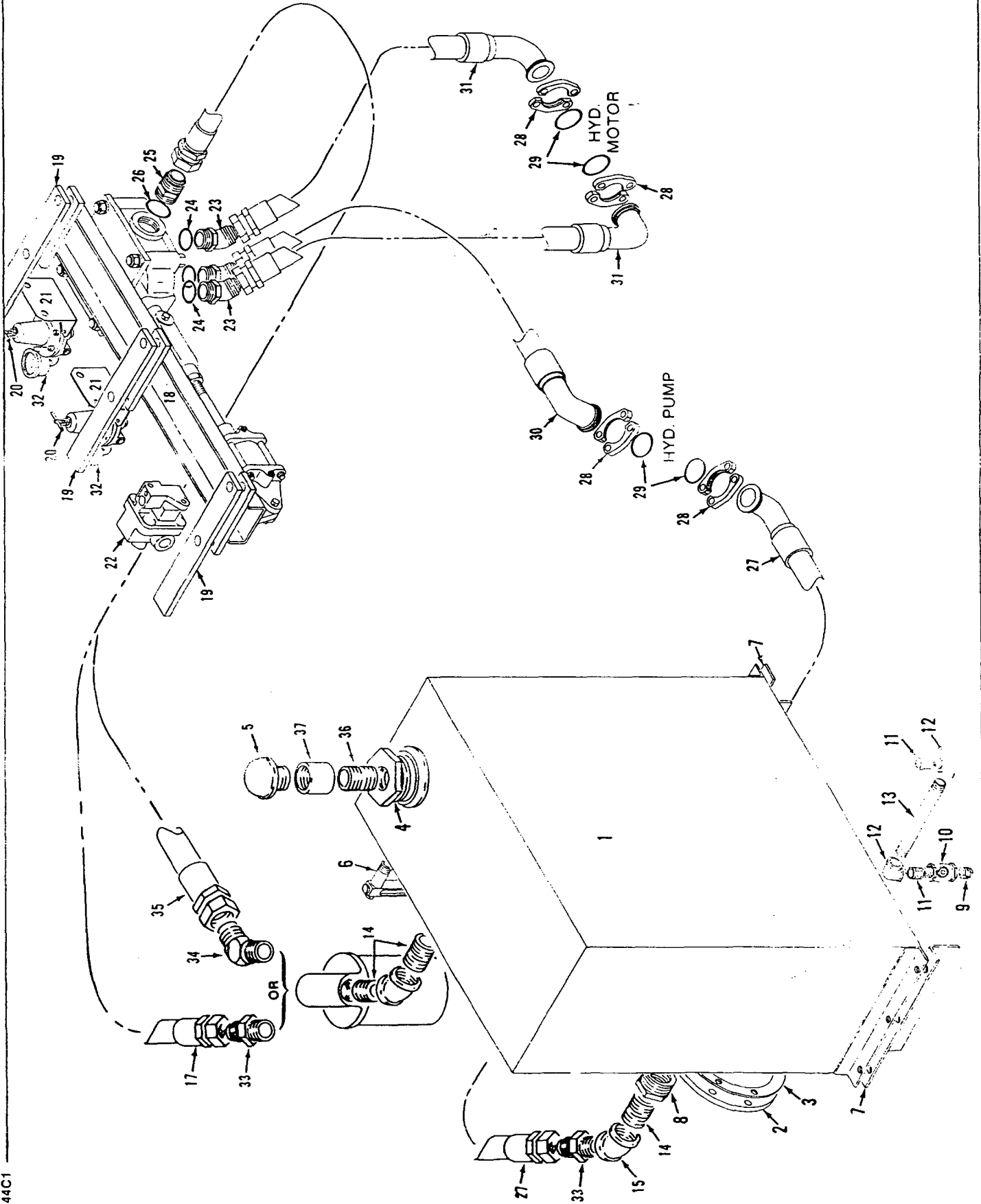
LUBRICATING PIPING

REF. NO.	PART NUMBER	QUANTITY REQUIRED	DESCRIPTION OF PART	VENDORS PART NO.
			NOTE: For Machine S.N. 41023 and after, with oil trap, delete Ref. Nos. 36 and add the following:	
41	543406	2	NIPPLE, Close (1")	
40	406956	3	ELBOW (1")	
48	543809	1	NIPPLE (1" x 4")	
			* For Machine S.N. 41026 and after, with electrical pressure sending unit, delete items 9,22,26,27 and a quantity of 2 from item 19 and add the following:	
50	288766	1	BUSHING, Reducing (3/4" x 1/8")	
51	701017	1	UNIT, Pressure Sending	
			** For Machine S.N. 41035 and after, with filter with 1" NPT ports, delete items 23 and 28 and add the following:	
52	288757	2	BUSHING, Reducing (1" x 3/4")	
53	427053	1	FILTER, Oil (1" NPT ports)	
54	138740	1	BRACKET W/capscrews and lockwashers	
			*** For Machine S.N. 41042 and after, with 1/4" hydraulic pump drive case lubricator (Ref. Asm. 48639), delete a quantity of 1 from item 8 and add the following:	
19	406952	1	ELBOW (1/4")	
			****For Machine S.N. 41060 and after, with horizontally mounted pump, delete items 34 and 36 and add the following:	
24	543405	1	NIPPLE, Close (3/4")	
40	406956	1	ELBOW (1")	
41	543406	1	NIPPLE, Close (1")	
55	543805	1	NIPPLE (1" x 3")	
56	406909	1	ELBOW (1" x 3/4")	
57	406687	1	ELBOW, 45° (3/4")	
			<u>MACHINE W/FULL RANGE VICON LOAD LOWERING</u>	
24	543405	1	NIPPLE, Close (3/4")	
11	406955	1	ELBOW (3/4")	
49	429542	1	FITTING, 45° (1") (This item is only used when pump is mounted vertically with oil trap)	
			0-147	
			PLEASE GIVE MACHINE S/N W/ORDER	
			REV. E	48738 - 2

RUN AS FRONT

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48738 E2 Cont.



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MATERIAL LIST ON BACK

FULL RANGE VICON® POWER LOAD LOWERING

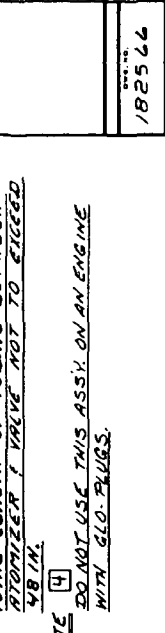
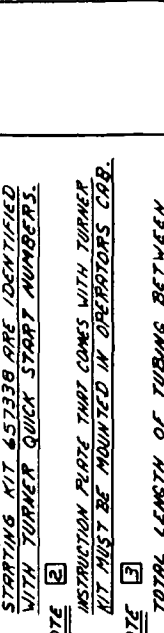
BILL OF MATERIAL		QTY	DESCRIPTION	UNIT	MATERIAL	REMARKS
1	SUPPORT	95498				
1	SUPPORT	143106				
1	1/2x 3/8 FARE BUSHING	288613	REMAINING TRBS			
1	ETHER STARTING AID	457338	TURBOCHARGER			
1	TERM CUS 3/8 STUD-WIRE	480542	BUCKLE STRAP			
1	NYLON TUBING, 1/8 IN. LG	496025	SEE NOTE 3			

NOTE 1  
ITEMS THAT ARE PART OF ETHER STARTING KIT 457338 ARE IDENTIFIED WITH TURNER QUICK START NUMBERS.

NOTE 2  
INSTRUCTION PLATE THAT COMES WITH TURNER KIT MUST BE MOUNTED IN OPERATORS CAB.

NOTE 3  
TOTAL LENGTH OF TUBING BETWEEN ATOMIZER & VALVE NOT TO EXCEED 48 IN.

NOTE 4  
DO NOT USE THIS ASSY. ON AN ENGINE WITH GLO. PLUGS.



NOTE  
THESE PARTS ARE PART OF ETHER STARTING KIT 457338 ARE IDENTIFIED WITH TURNER QUICK START NUMBERS.

NOTE  
INSTRUCTION PLATE THAT COMES WITH TURNER KIT MUST BE MOUNTED IN OPERATORS CAB.

NOTE  
TOTAL LENGTH OF TUBING BETWEEN ATOMIZER & VALVE NOT TO EXCEED 48 IN.

NOTE  
DO NOT USE THIS ASSY. ON AN ENGINE WITH GLO. PLUGS.

NOTE  
THIS DRAWING IS SUPERSEDED BY 182566 OF 7-19-79

MAINTOWOC ENGINEERING CO.  
3900N. 3900T, WOODWAY WOOD, MISSOURI 64153

POWER PLANT SUB-ASSY  
ETHER STARTING AID  
FOR GUMMINS 855 P/N

12-19-79  
182566

NOTICE  
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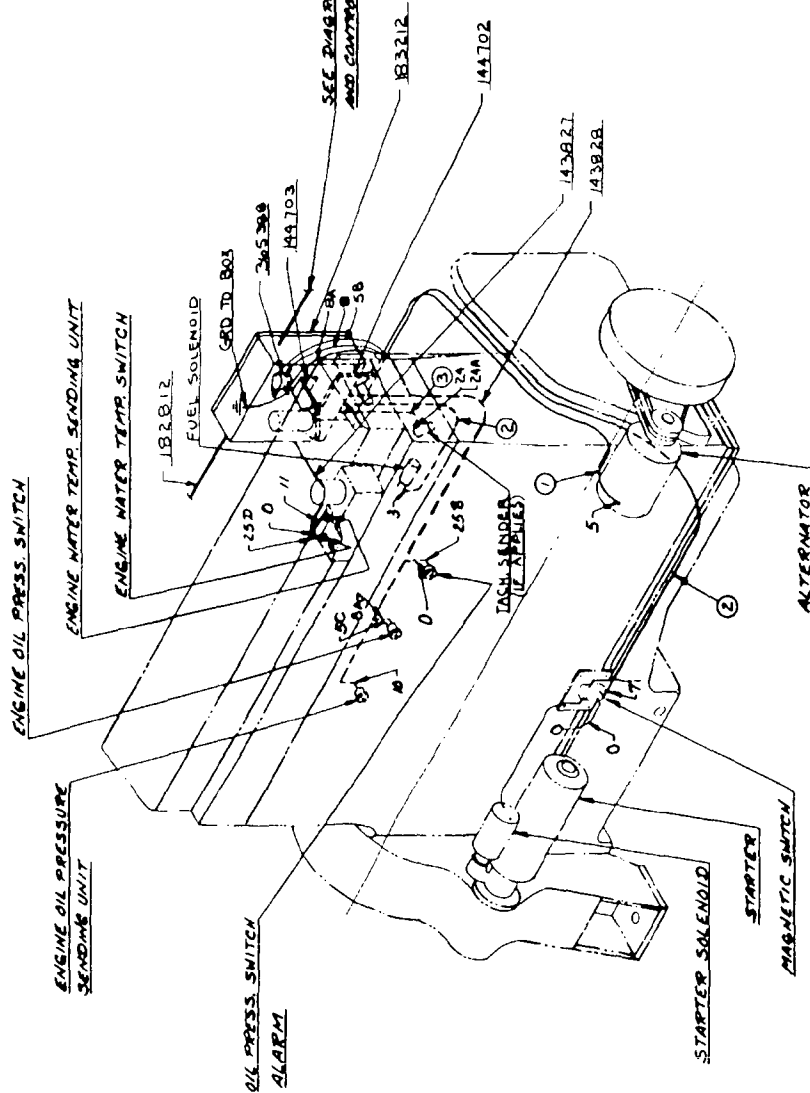
MAINTOWOC ENGINEERING CO.  
3900N. 3900T, WOODWAY WOOD, MISSOURI 64153

POWER PLANT SUB-ASSY  
ETHER STARTING AID  
FOR GUMMINS 855 P/N

# MASTER

-D1.6-

BILL OF MATERIAL		QUANTITY	DESCRIPTION	UNIT
1	WIRE	2	1/8 WIRE TYPE T.M.W.	2 96908 STRANDED
2	WIRE	2	1/8 WIRE TYPE M.T.W.	2 96669 STRANDED
3	CORD	1	2 COND. CORD TYPE SJ	5 71800
4	CLIP	1	ANGLE CLIP	1 49703
5	SUPPORT	1	SUPPORT	1 44702
6	HARNESS	1	WIRING HARNESS	1 43827
7	HARNESS	1	WIRING HARNESS	1 43826
8	ASSY.	1	ELECTRICAL SUB. ASSY.	1 183212
9	ASSY.	1	ELECTRICAL SUB. ASSY.	1 182812
10	RELAY	1	RELAY	3 65388



NOTE: 1  
SEE CHART NO. 5605 FOR M.E.C. NUMBER SYSTEM.

NOTE: 2  
SEE CHART NO. 5608 FOR ELEC. SCHEMATIC.

SUPERSEDES 182836 FOR 4100W ONLY  
REDESIGNED AS 183113

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DATE	7-19-77
BY	
CHKD BY	
APP'D BY	
DESCRIPTION	ELECTRICAL ASSY.
QUANTITY	1
REVISION	POWER PLANT WIRING
DATE	
BY	
CHKD BY	
APP'D BY	
DESCRIPTION	24 V. D.C. SYSTEM
QUANTITY	1
REVISION	
DATE	
BY	
CHKD BY	
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DESCRIPTION	
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48384-1 Cont.	REV. Q	MODEL 4100W
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CRAWLERS (26'6")  
(QUANTITIES FOR BOTH CRAWLERS)

REF. NO.	PART NUMBER	QUANTITY REQUIRED	DESCRIPTION OF PART	VENDORS PART NO.
44	74867	4	PLATE, Cover	
45	74864	4	BUMPER	
46	74862	4	CYLINDER, Bumper	
47	74865	4	SPACER	
48	74866	64	SHIM (Use as required)	
			NOTE 1: Prior to design change of Aug. 17, 1976 the following guides were used:	
27	138052-2	1	CHAIN GUIDE, Right w/capscrews and lockwashers	
27	138052-3	1	CHAIN GUIDE, Left w/capscrews and lockwashers	
			Parts 138052-2 and 138052-3 are 4-1/2" deep at bolt holes. Parts 143969 and 143970 are 4" deep at bolt holes.	
			NOTE 2: Oversize pin 147302 (1-13/16" dia.) is available to replace pin 11978 (1-3/4" dia.)	
			0-471	
			REV. Q	
			48384 - 1	

PLEASE GIVE MACHINE S/N W/ORDER

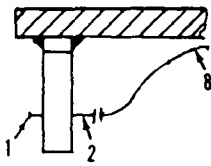
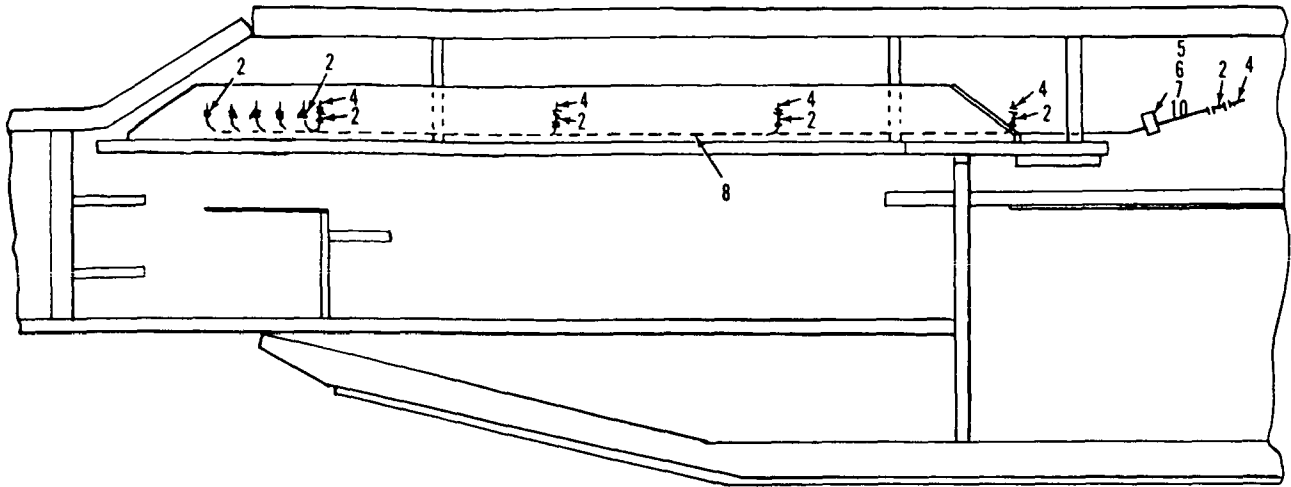
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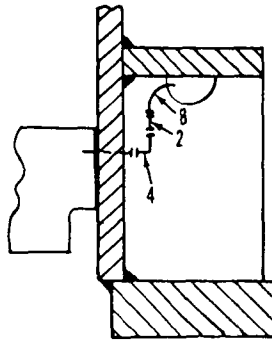
MANITOWOC ENGINEERING CO.

A Division of The Manitowoc Company, Inc.

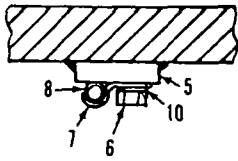
Manitowoc, Wisconsin



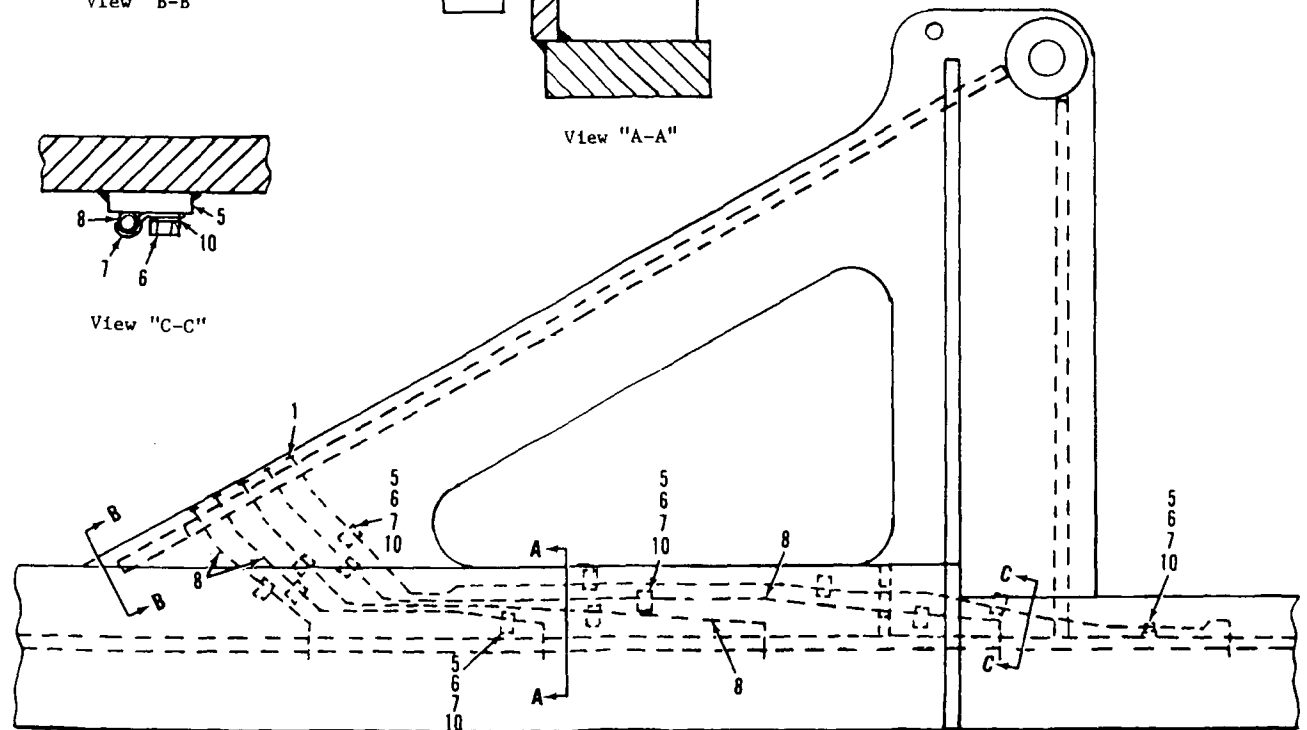
View "B-B"



View "A-A"



View "C-C"



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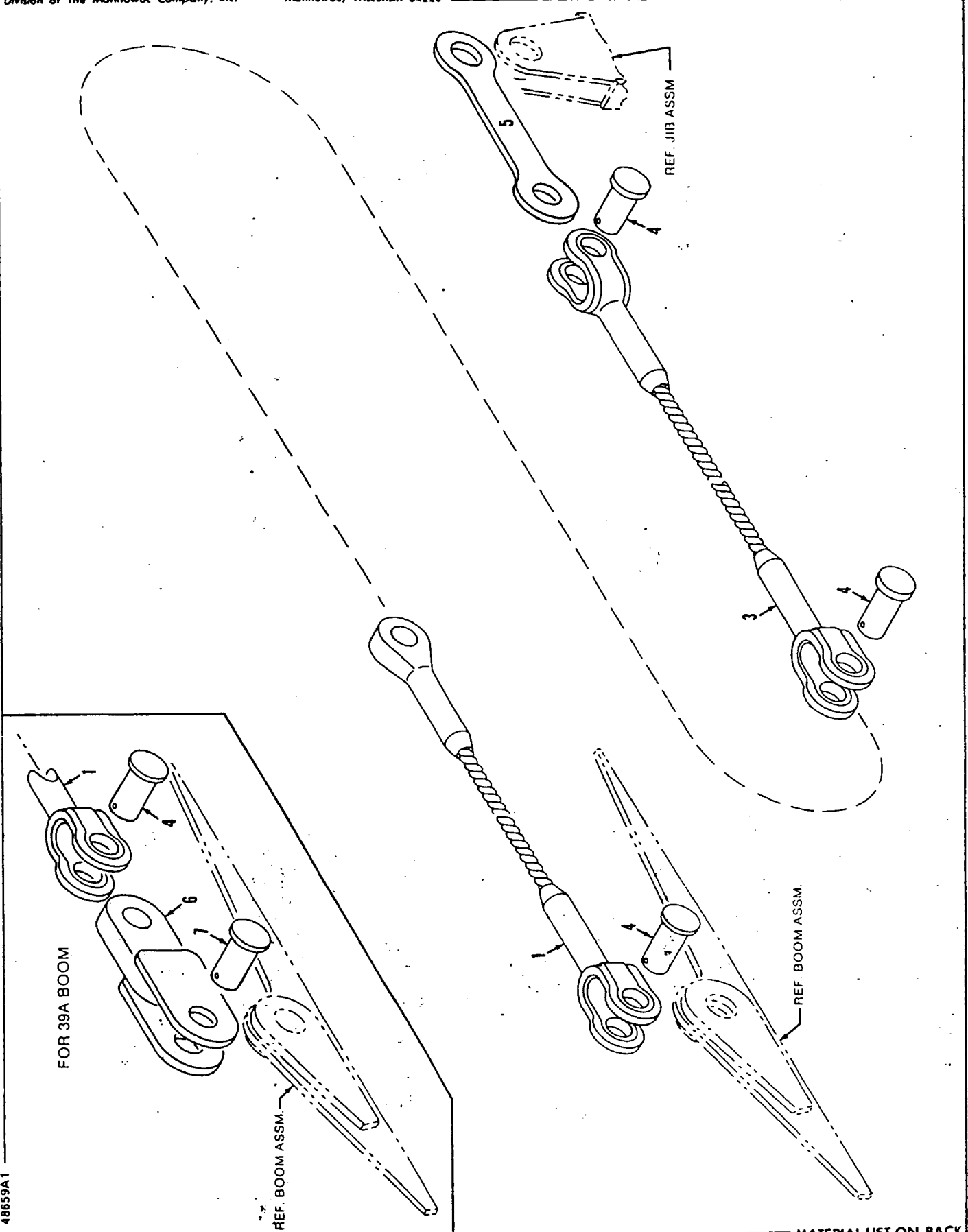
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MATERIAL LIST ON BACK

CRAWLER LUB.

**PARTS MANUAL ALPHABETICAL INDEX**  
**Group F - Attachments**

DESCRIPTION	PUBLICATION	REV	START DATE	END DATE	GROUP
Backhitch & Gantry	49278	K1	05/05/75	09/16/91	F1001
Block Travel Limiter	163614	-	06/17/88	11/11/98	F1602
Block Travel Limiter	168090	-	09/23/88	09/27/95	F1602
Block Travel Limiter	168090	-	09/23/88	05/09/96	F1602
Boom	190693	-	03/01/78	05/11/11	F0101
Boom Angle Indicator	22334	B1	01/07/52	09/20/85	F1101
Boom Point	91132	-	11/05/65	08/09/06	F0401
Boom Point	91132	D	11/05/65	03/15/00	F0401
Boom Point	92174	E1	04/24/68	06/04/86	F0401
Boom Stop, Clutch Throw-Out	190192	-	08/27/75	08/16/79	F0201
Boom Stop, Mechanical	48555	-	11/26/68	10/10/95	F0202
Boom Stop, Mechanical	48555	E1	11/26/68	11/12/85	F0202
Equalizer/Pull-Out	181055	-	12/12/69	12/27/10	F0601
Gantry Lifting Device	180590	-	11/01/77	01/30/95	F1002
Gantry Lifting Device	180590	K1	04/23/69	01/18/91	F1002
Jib	78169	C1	12/30/66	08/02/84	F1301
Jib	43730	-	06/30/71	11/06/12	F1301
Jib Backstay	48659	D1	04/22/69	09/18/84	F1302
Lower Block	183822	C1	11/06/78	08/12/89	F1501
Upper Block - Anchor Joint	93702	B1	03/12/71	03/10/76	F1601
Wire Rope Guide	92671	G1	01/20/69	09/11/80	F0701
Wire Rope Guide	93972	E1	10/25/71	07/15/82	F0701
Wire Rope Roller Guide	77090	-	09/15/65	01/21/98	F0801
Wire Rope Roller Guide	77090	C1	09/13/65	01/21/98	F0801

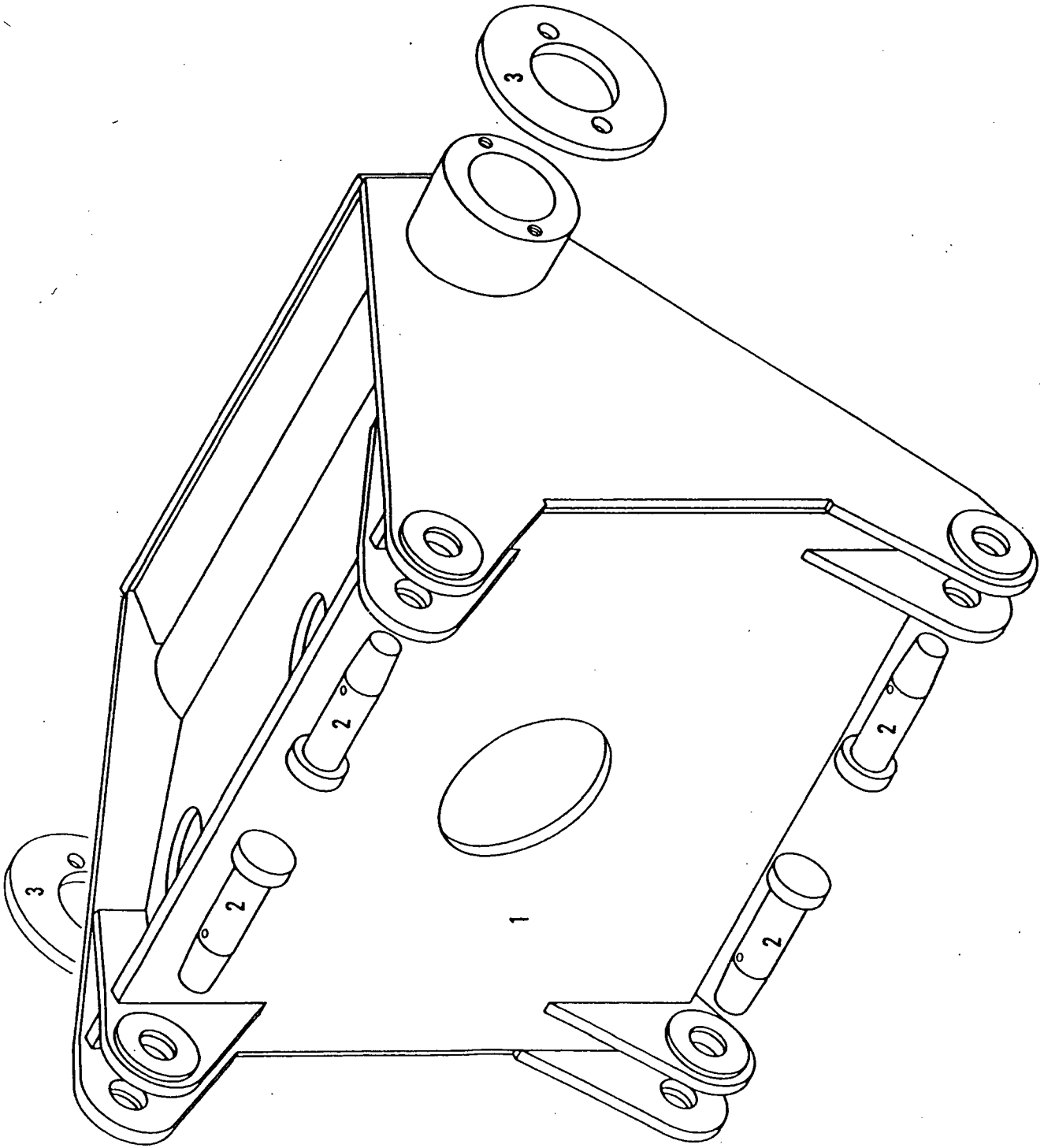


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MATERIAL LIST ON BACK

JIB BACKSTAY

MASIEK



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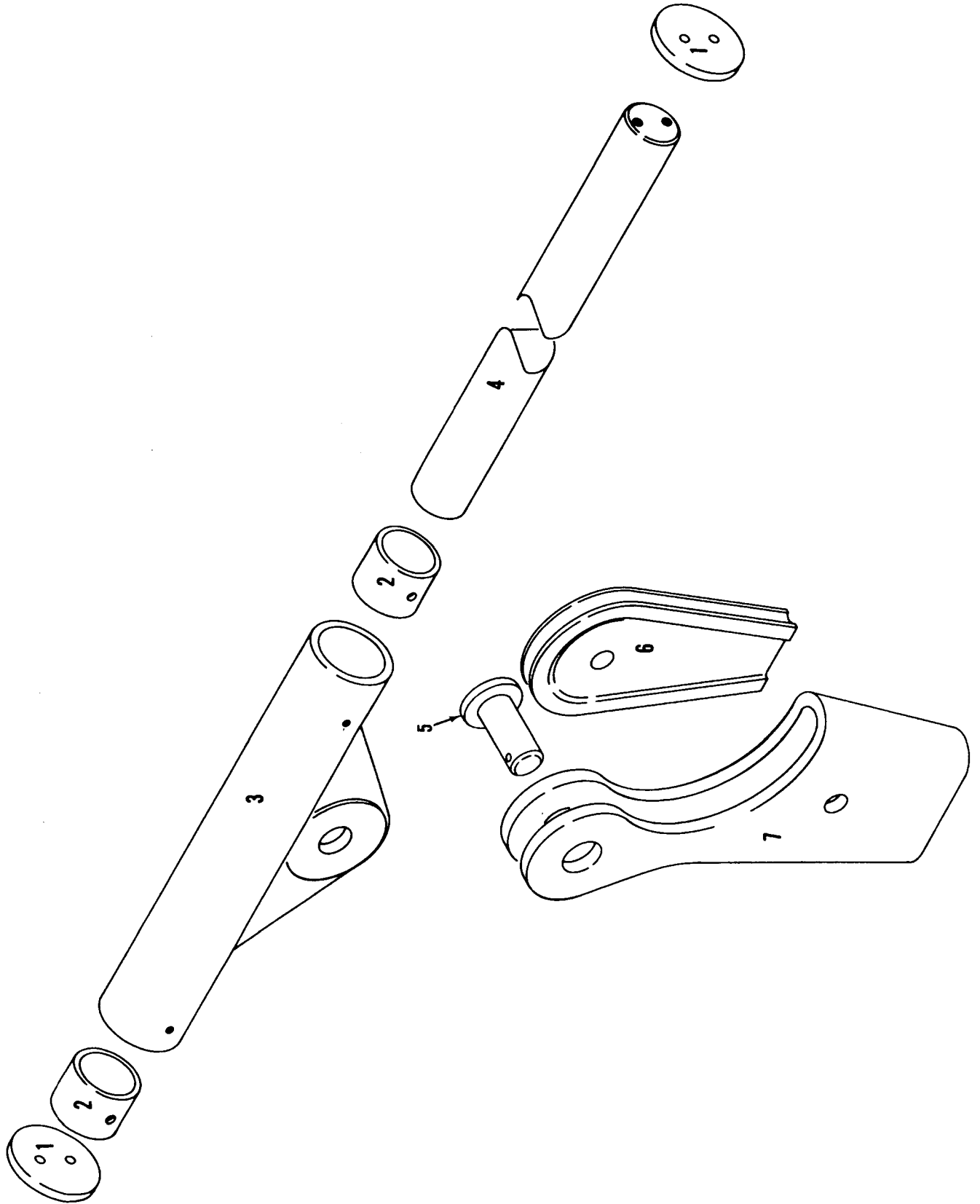
MATERIAL LIST ON BACK

JIB ADAPTER ASSEMBLY

MANITOWOC ENGINEERING CO.

A Division of The Manitowoc Company, Inc.

Manitowoc, Wisconsin



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MATERIAL LIST ON BACK

ANCHOR JOINT ASSEMBLY



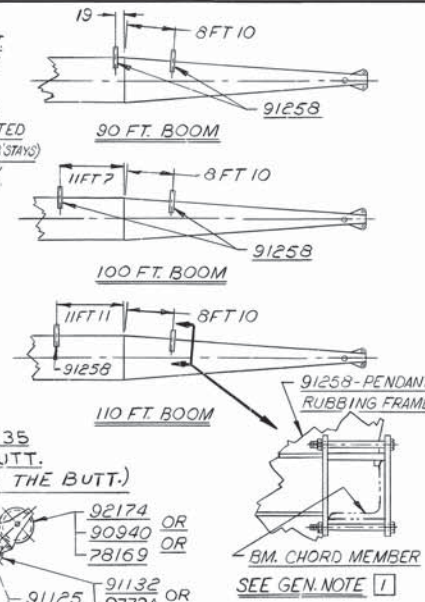
RECOMMENDED FOR VARIOUS BOOM LENGTHS											
DWG NO.	33407-3	623526	623532	623526	276861	276862	276863	77090	93972	180213-4	78307
BOOM LENGTH	10 FT	20 FT	40 FT	40 FT W/IB BACKSTAY	PENDANT 10 FT.	PENDANT 20 FT.	PENDANT 40 FT.	WIRE ROPE ROLLER GUIDE ASSY.	WIRE ROPE GUIDE ASSY.	SPREADER 1/2 BM TOP IN LINE	PENDANT TIE BAR
80 FT.	10 FT. OF INSERTS	10 FT. OF INSERTS	10 FT. OF INSERTS	10 FT. OF INSERTS	10 FT. OF PEND. SETS	10 FT. OF PEND. SETS	10 FT. OF PEND. SETS	0	0	0	2
90 FT.	20 FT. OF INSERTS	20 FT. OF INSERTS	20 FT. OF INSERTS	20 FT. OF INSERTS	20 FT. OF PEND. SETS	20 FT. OF PEND. SETS	20 FT. OF PEND. SETS	0	1	0	2
100 FT.	30 FT. OF INSERTS	30 FT. OF INSERTS	30 FT. OF INSERTS	30 FT. OF INSERTS	30 FT. OF PEND. SETS	30 FT. OF PEND. SETS	30 FT. OF PEND. SETS	0	1	0	4
110 FT.	40 FT. OF INSERTS	40 FT. OF INSERTS	40 FT. OF INSERTS	40 FT. OF INSERTS	40 FT. OF PEND. SETS	40 FT. OF PEND. SETS	40 FT. OF PEND. SETS	1	1	0	4
120 FT.	50 FT. OF INSERTS	50 FT. OF INSERTS	50 FT. OF INSERTS	50 FT. OF INSERTS	50 FT. OF PEND. SETS	50 FT. OF PEND. SETS	50 FT. OF PEND. SETS	1	1	0	6
130 FT.	60 FT. OF INSERTS	60 FT. OF INSERTS	60 FT. OF INSERTS	60 FT. OF INSERTS	60 FT. OF PEND. SETS	60 FT. OF PEND. SETS	60 FT. OF PEND. SETS	2	1	1	2
140 FT.	70 FT. OF INSERTS	70 FT. OF INSERTS	70 FT. OF INSERTS	70 FT. OF INSERTS	70 FT. OF PEND. SETS	70 FT. OF PEND. SETS	70 FT. OF PEND. SETS	2	1	1	4
150 FT.	80 FT. OF INSERTS	80 FT. OF INSERTS	80 FT. OF INSERTS	80 FT. OF INSERTS	80 FT. OF PEND. SETS	80 FT. OF PEND. SETS	80 FT. OF PEND. SETS	3	1	1	4
FOR 160 FT. AND OVER GANTRY MUST BE FULLY RAISED											
160 FT.	90 FT. OF INSERTS	90 FT. OF INSERTS	90 FT. OF INSERTS	90 FT. OF INSERTS	90 FT. OF PEND. SETS	90 FT. OF PEND. SETS	90 FT. OF PEND. SETS	3	1	1	4
170 FT.	100 FT. OF INSERTS	100 FT. OF INSERTS	100 FT. OF INSERTS	100 FT. OF INSERTS	100 FT. OF PEND. SETS	100 FT. OF PEND. SETS	100 FT. OF PEND. SETS	4	1	1	2
180 FT.	110 FT. OF INSERTS	110 FT. OF INSERTS	110 FT. OF INSERTS	110 FT. OF INSERTS	110 FT. OF PEND. SETS	110 FT. OF PEND. SETS	110 FT. OF PEND. SETS	4	1	1	4
190 FT.	120 FT. OF INSERTS	120 FT. OF INSERTS	120 FT. OF INSERTS	120 FT. OF INSERTS	120 FT. OF PEND. SETS	120 FT. OF PEND. SETS	120 FT. OF PEND. SETS	5	1	1	4
200 FT.	130 FT. OF INSERTS	130 FT. OF INSERTS	130 FT. OF INSERTS	130 FT. OF INSERTS	130 FT. OF PEND. SETS	130 FT. OF PEND. SETS	130 FT. OF PEND. SETS	5	1	1	6
210 FT.	140 FT. OF INSERTS	140 FT. OF INSERTS	140 FT. OF INSERTS	140 FT. OF INSERTS	140 FT. OF PEND. SETS	140 FT. OF PEND. SETS	140 FT. OF PEND. SETS	6	1	1	4
220 FT.	150 FT. OF INSERTS	150 FT. OF INSERTS	150 FT. OF INSERTS	150 FT. OF INSERTS	150 FT. OF PEND. SETS	150 FT. OF PEND. SETS	150 FT. OF PEND. SETS	6	1	1	6
230 FT.	160 FT. OF INSERTS	160 FT. OF INSERTS	160 FT. OF INSERTS	160 FT. OF INSERTS	160 FT. OF PEND. SETS	160 FT. OF PEND. SETS	160 FT. OF PEND. SETS	7	1	1	6
240 FT.	170 FT. OF INSERTS	170 FT. OF INSERTS	170 FT. OF INSERTS	170 FT. OF INSERTS	170 FT. OF PEND. SETS	170 FT. OF PEND. SETS	170 FT. OF PEND. SETS	7	1	1	8
250 FT.	180 FT. OF INSERTS	180 FT. OF INSERTS	180 FT. OF INSERTS	180 FT. OF INSERTS	180 FT. OF PEND. SETS	180 FT. OF PEND. SETS	180 FT. OF PEND. SETS	8	1	1	6
260 FT.	190 FT. OF INSERTS	190 FT. OF INSERTS	190 FT. OF INSERTS	190 FT. OF INSERTS	190 FT. OF PEND. SETS	190 FT. OF PEND. SETS	190 FT. OF PEND. SETS	8	1	1	8

**GENERAL NOTES:**

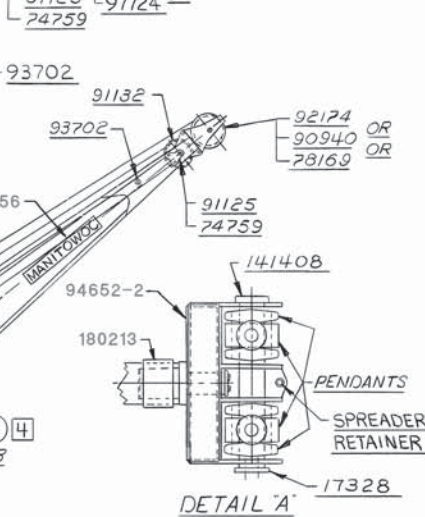
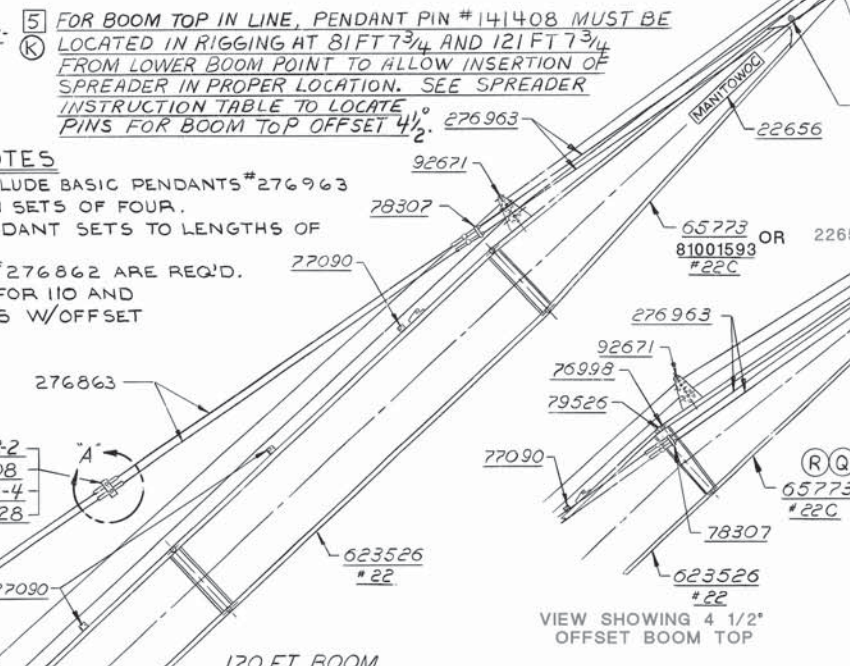
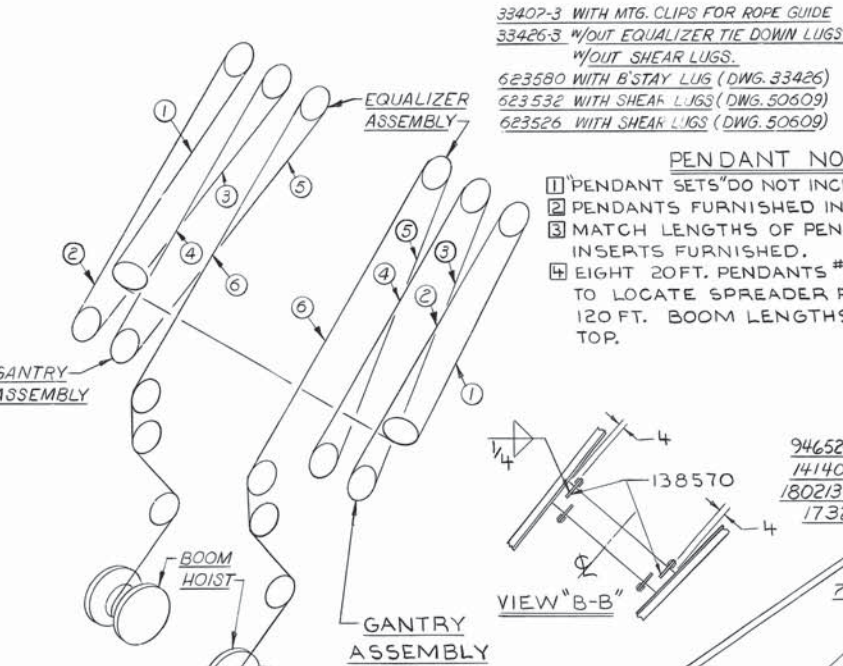
- PENDANT RUBBING FRAME-REQ'D FOR 90 FT THRU 110 FT OF BM. WHEN TRAVELING WITH BM. & GANTRY DOWN. REMOVE FRAME FOR LENGTHS OVER 110 FT. (IN LINE TOP ONLY)
- JIB BACKSTAY LUGS ON THE BM. BUTT ARE OPTIONAL AND USED ONLY WITH 70 & 80 FT. OF BM. JIB BACKSTAYS MUST BE DISCONNECTED BEFORE LOWERING EQUALIZER. (CANNOT BE USED WITH PENDANT TYPE B STAYS)
- SEE GANTRY ASSY FOR INSTRUCTIONS ON PINNING GANTRY IN THE INTERMEDIATE POSITION.

**INSERT NOTES:**

- MAXIMUM NUMBER OF 10 FT INSERTS = 2
- MAXIMUM NUMBER OF 20 FT INSERTS = 2
- COMBINATION OF 10 FT & 20 FT INSERTS CANNOT EXCEED 2-10 FT + 1-20 FT OR 1-10 FT + 2-20 FT.
- RECOMMENDED: - BOOMS OVER 80 FT SHOULD HAVE A MINIMUM OF (1) 20 FT INSERT TO PROPERLY LOCATE LOWER WIRE ROPE GUIDE.
- OPTIONAL: - 40 FT. INSERT CODE NO. 623535 OR 623579 MAY BE USED NEXT TO THE BUTT. (ROPE GUIDE WILL BE APPROX. 17 FT FROM THE BUTT.)
- INSERTS SHALL BE INSTALLED IN ORDER OF ASCENDING LENGTH.



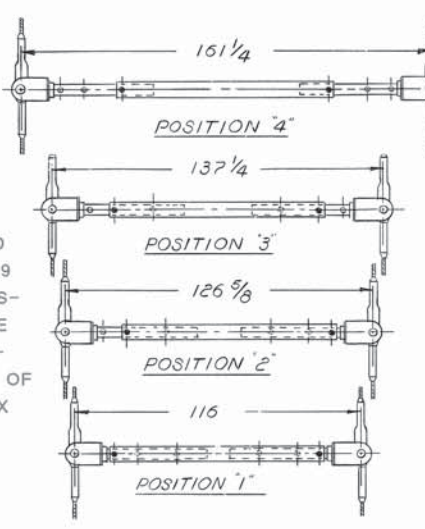
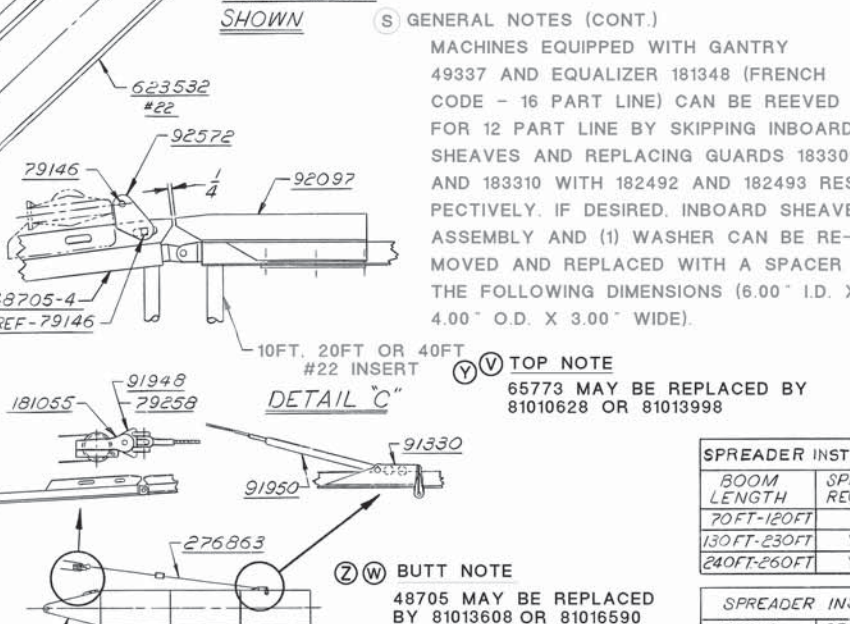
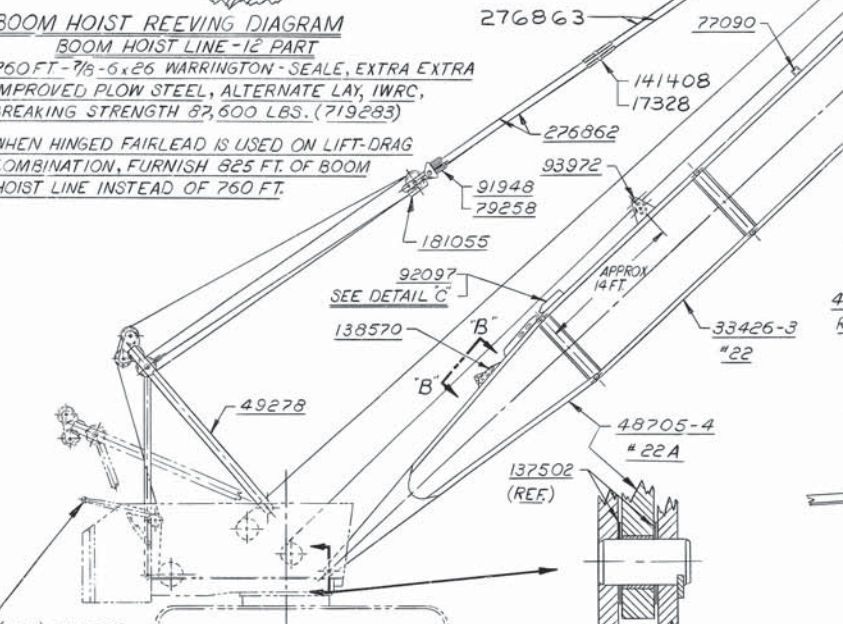
BILL OF MATERIAL				ASSEMBLIES USED ON	
ITEM NO.	DESCRIPTION	LENGTH FT. IN.	MATERIAL	CODE NO. OR DWG. NO.	REMARKS
70 FT. BASIC BOOM					
1	22656	BOOM SIGN			
1	48705-4	BOOM BUTT - 30 FT. - #22A			
1	49278	GANTRY ASSEMBLY			SEE GEN NOTE 3 & 4
1	65773	BOOM TOP - 40 FT. - #22C			SEE TOP NOTE
2	74759	BUSHING			
2	79146	PIN			
2	79258	PIN			
2	91125	PENDANT LINK			
1	91132	LOWER BOOM POINT SHAFT ASSY.	(E)	6-30 D. SHEAVES	
2	91948	PENDANT LINK			
2	92097	REMOVABLE EQUALIZER RAIL			
2	92572	BOOM HANDLING LINK			
1	92671	WIRE ROPE GUIDE			
1	181055	EQUALIZER ASSY.			SEE GEN. NOTE 4
4	276963	BASIC PENDANT (40 FT 3/4 LG)			DWG. 139353



OPTIONAL PARTS			
1	78169	JIB ADAPTOR ASSY.	REQ'D FOR JIB ATTACHMENT
2	94652-2	SPREADER BRACKET	USE WITH SPREADER #180213
4	141408	PIN	
4	17328	END PLATE	
1	90940	UPPER BOOM PT. SHAFT ASSY. (2-SHEAVE)	JIB CANNOT BE USED WITH THIS ASSY.
1	92174	UPPER BOOM PT. SHAFT ASSY. (1-SHEAVE)	WITH THIS ASSY. DELETED AND NOTE REVISED
4	91258	PENDANT RUBBING FRAME (IN LINE TOP ONLY)	FOR BM HANDLING
2	91330	PENDANT ATTACHMENT LUG ASSY.	
2	91950	PENDANT CONNECTING LINK	FOR BM HANDLING
1	93110	PLATFORM FOR BOOM BUTT	NOT SHOWN
1	93702	UNIVERSAL WIRE ROPE ANCHOR JOINT ASSY.	REQ'D FOR 2-PART LINE
1	97724	BOOM PT. SHAFT ASSY. CONTAINER HANDLING	2 SHEAVE
2	138570	JIB BACKSTAY ANCHOR (IN LINE TOP ONLY)	SEE GEN NOTE 2
1	81001593	TOP 40 FT MOD REPAIR #22C OTT 65773	

OPTIONAL PARTS FOR 4 1/2" OFFSET TOP			
2	76998	BOOM JOINT PIN	
2	79526	LINK	

BOOM HANDLING INSTRUCTIONS				
ATTACHMENT ARRANGEMENT	GANTRY POSITION	MAX. LS. OF BM. HANDLED	BOOM LENGTH	BM CONDITIONS OR LIMITATIONS
EQUALIZER PINNED TO RAIL W/ BOOM HANDLING LINK	DOWN	30 FT.	BUTT ONLY	
EQUALIZER PINNED TO RAIL W/ BOOM HANDLING LINK	UP	70 FT.	BUTT AND 40 FT. INSERT	
PENDANTS PINNED TO ATTACHMENT LUGS (91330) ON INSERTS	DOWN	110 FT.	BUTT AND 2-40 FT. INSERTS	POINT OF ATTACHMENT MUST NOT EXCEED 80 FT FROM HINGE PIN
PENDANTS PINNED TO ATTACHMENT LUGS (91330) ON INSERTS	UP	150 FT.	BUTT AND INSERTS	ONE 40 FT. INSERT IS THE MAX LG. TO BE CANTILEVERED FOR ANY LENGTH OF BOOM PROVIDES NECESSARY PENDANT SLACK FOR ASSEMBLING AND DISASSEMBLING
EQUALIZER PINNED TO RAIL (REAR HOLE ON EQUALIZER AT UPPER HOLE ON RAIL)				EQUALIZER WILL NORMALLY LAND AT THIS POSITION WHEN LOWERED ONTO THE BUTT.
PENDANT ATTACHED TO BOOM POINT (IN LINE TOP)	DOWN INTER. POS.	110 FT. 150 FT. 130 FT.	110 FT. BM-NO JIB 150 FT. BM-NO JIB 130 FT. BM-40 #23 JIB	BM CARRIED IN HOR. POSITION BOOM CARRIED IN HOR. POSITION. UPPER BACKHITCH STRAP ONLY EXTENDED & PINNED.
PENDANT ATTACHED TO BOOM POINT (TOP OFFSET 4 1/2")	INTER. POS.	120 FT. 90-110 FT. 120 NONE-SPREADER INTERFER. 130-150 FT.	120 BM-60 #23 JIB 90-110 FT. BOOM-NO JIB 120 NONE-SPREADER INTERFER. 130-150 FT. BOOM-NO JIB	BOOM CARRIED IN APROX. HOR. POSITION. UPPER BACKHITCH STRAP ONLY EXTENDED & PINNED.



**BOOM HOIST REEVEING DIAGRAM**  
BOOM HOIST LINE - 1/2 PART  
260 FT - 7/8 - 6 x 26 WARRINGTON - SEALE, EXTRA EXTRA IMPROVED FLOW STEEL, ALTERNATE LAY, IWRC, BREAKING STRENGTH 87,500 LBS. (719283)  
WHEN HINGED FAIRLEAD IS USED ON LIFT-DRAW COMBINATION, FURNISH 825 FT. OF BOOM HOIST LINE INSTEAD OF 260 FT.

**SPREADER INSTRUCTIONS FOR BOOM TOP IN LINE - SEE NOTES**

BOOM LENGTH	SPREADER REQUIRED	SPREADER POSITION	LOCATION FROM LOWER BOOM POINT
70 FT - 120 FT	NO		
130 FT - 230 FT	YES	"2"	81 FT 7 3/4
240 FT - 260 FT	YES	"4"	121 FT 7 3/4

**SPREADER INSTRUCTIONS FOR BOOM TOP OFFSET 4 1/2"**

BOOM LENGTH	SPREADER REQUIRED	SPREADER POSITION	LOCATION FROM LOWER BOOM POINT
70 FT - 90 FT	NO		
100 FT - 120 FT	YES	"1"	61 FT 7 3/4
150 FT - 170 FT	YES	"3"	81 FT 7 3/4
180 FT - 260 FT	YES	"4"	121 FT 7 3/4

SCALE		DATE	
1/8" = 1 FT 0	DR. CRP	190693	190693
1/4" = 1 FT 0	CK. DWL		
3/8" = 1 FT 0	APP. [Signature]		

**MANITOWOC ENGINEERING CO.**

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Manitowoc, Wisconsin 54220



**TUBING** (soft copper)

Code No.	Tube O.D.
696205	3/16
696210	1/4
696214	5/16
696216	3/8
696218	1/2
696219	5/8
696220	3/4



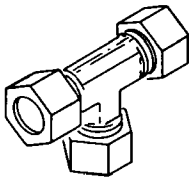
**NUT**

Code No.	Tube O.D.
424603	3/8
424604	1/2
424605	3/4
424633	5/16
424634	1/4
424635	3/16



**FERRULE**

Code No.	Tube O.D.
424600	1/4
424601	3/4
424602	3/8
424616	5/16
424617	1/2
424618	1/8
424619	3/16



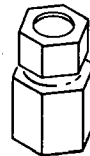
**UNION TEE**

Code No.	Tube O.D.
429315	1/4
429316	3/8
429317	5/16



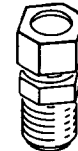
**UNION**

Code No.	Tube O.D.
429349	3/8
429361	1/4
429362	1/2
429397	5/16



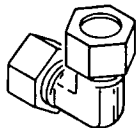
**FEMALE CONNECTOR**

Code No.	Tube O.D.	Pipe Thread
429312	3/16	1/8
429407	1/4	1/8
429830	1/4	1/4



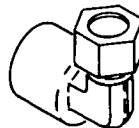
**MALE CONNECTOR**

Code No.	Tube O.D.	Pipe Thread
429324	3/4	3/4
429328	3/8	1/2
429351	5/16	1/8
429358	1/2	3/4
429359	1/2	3/8
429363	1/4	1/8
429364	1/4	1/4
429365	3/16	1/8
429366	3/8	1/8
429367	3/8	1/4
429368	3/8	3/8



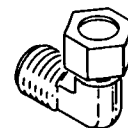
**UNION ELBOW**

Code No.	Tube O.D.
429372	3/8
429378	1/2
429381	1/4



**FEMALE ELBOW**

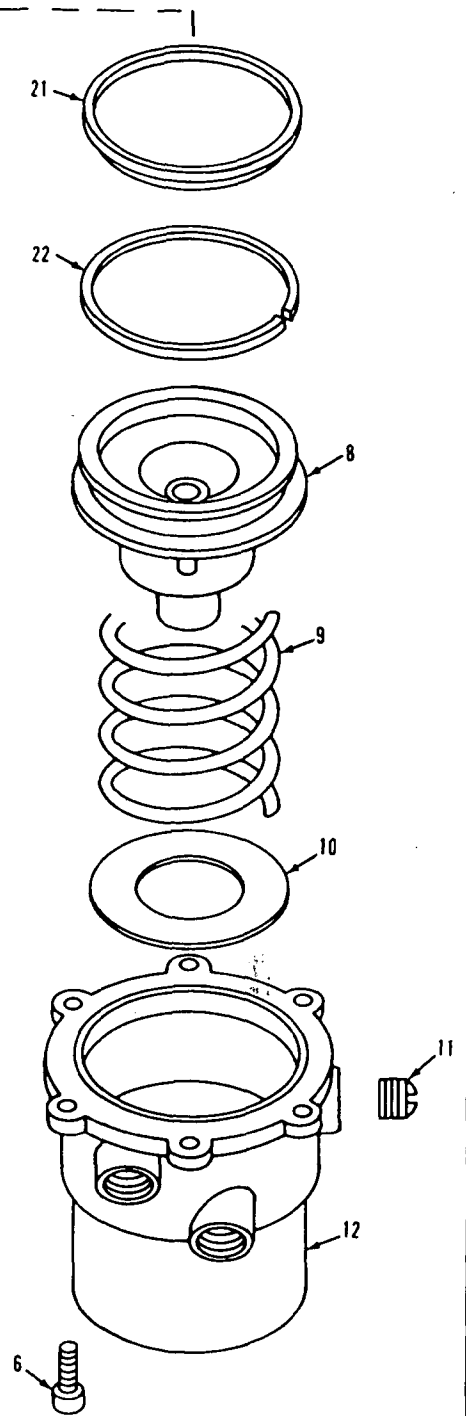
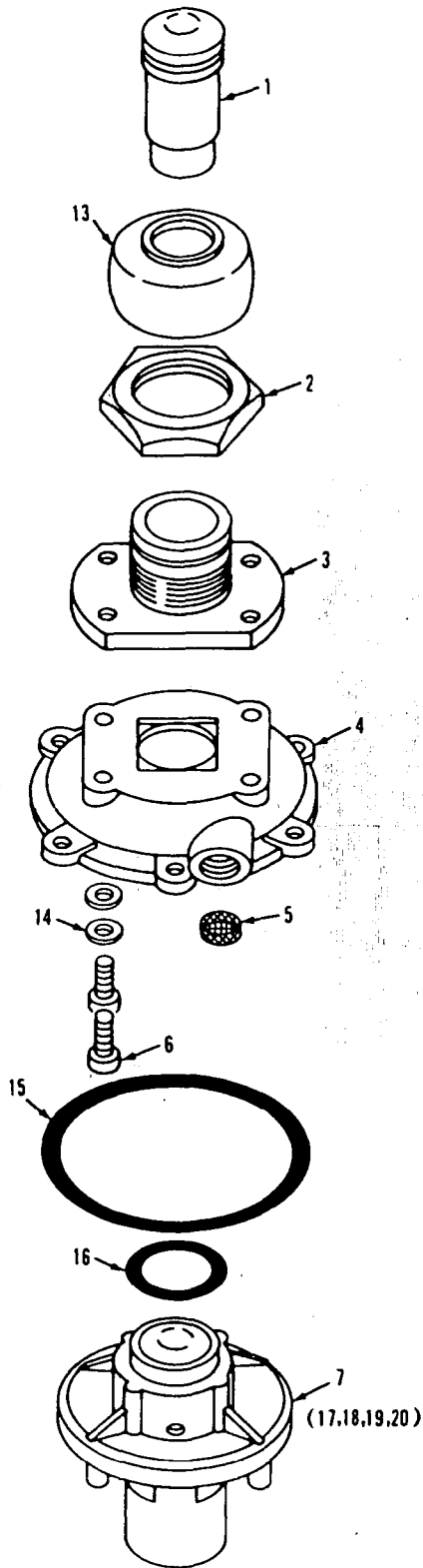
Code No.	Tube O.D.	Pipe Thread
429066	1/4	1/8
429825	1/4	1/4



**MALE ELBOW**

Code No.	Tube O.D.	Pipe Thread
429371	1/2	1/2
429373	3/8	1/8
429374	1/4	1/4
429375	3/8	1/4
429376	1/2	3/8
429380	1/4	1/8
429384	3/8	1/2
429385	5/16	1/8
429386	3/16	1/8
429401	1/2	3/4
429422	3/8	3/8
429453	3/4	3/4

MASTER

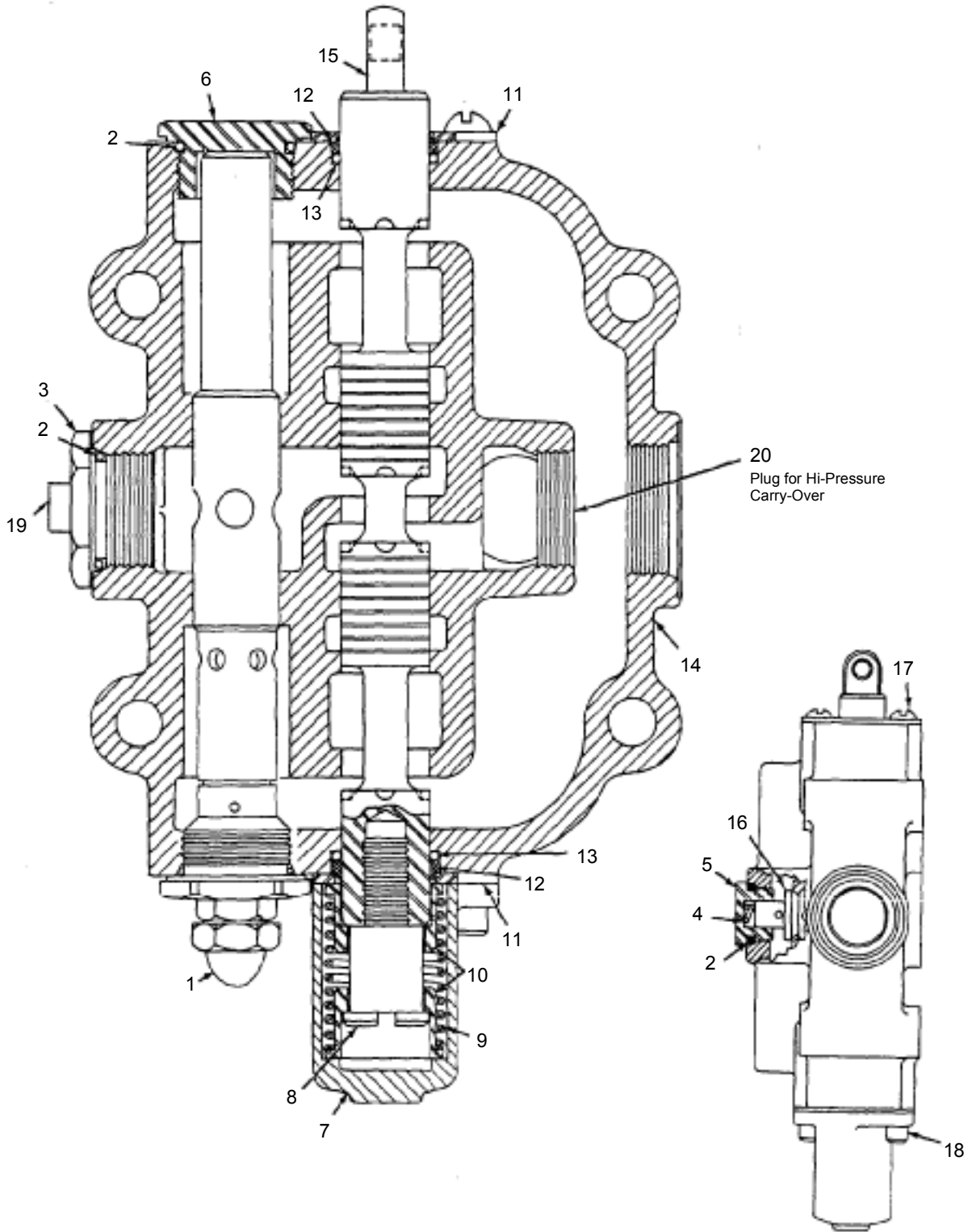


0-301 Cont.	REV. B	MODEL 3000-4600 Incl.
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ENGINE CONTROL ACTUATOR  
(Manitowoc #714566 - Westinghouse #P-57086-11)

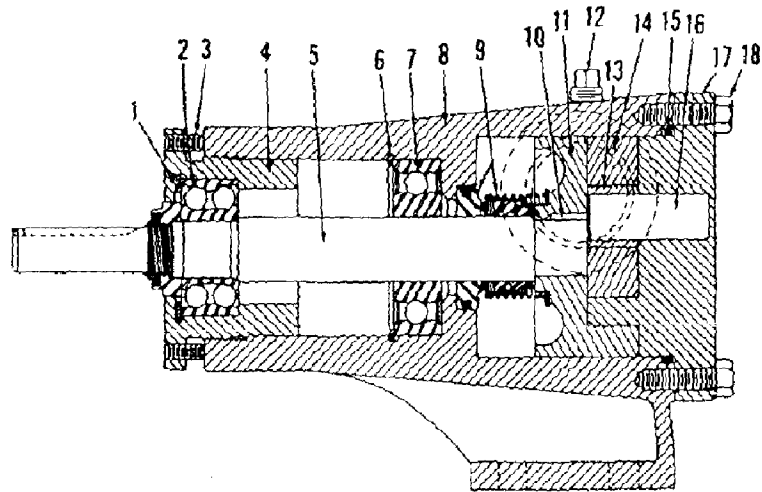
REF. NO.	PART NUMBER	QUANTITY REQUIRED	DESCRIPTION OF PART	VENDORS PART NO.
15		1	NUT, Pivot Bolt ( $\frac{3}{8}$ "	519787
18		1	NUT, Adjusting	521701
NOTE: Actuator #P-54128 can be converted to P-57086-11 by adding kit #P-61277 (MCC A03274).				
				REV. B
				0-301

PLEASE GIVE MACHINE S/N W/ORDER

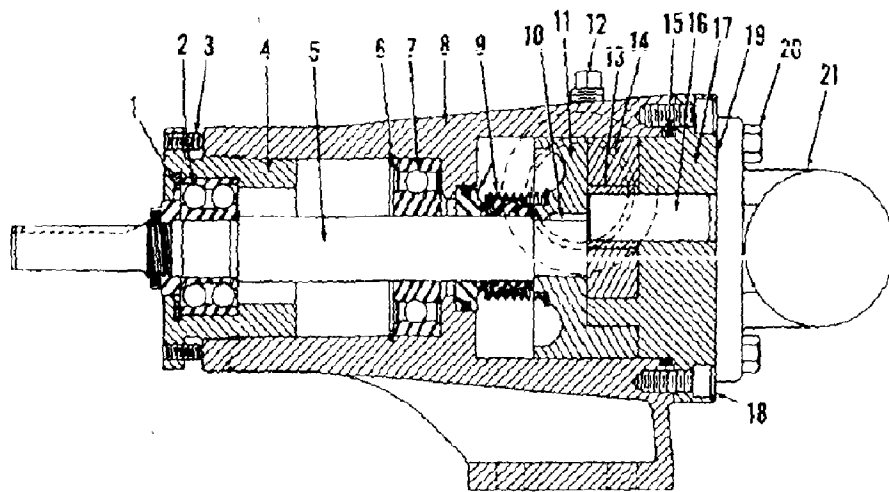


ASSEMBLY	REVISION
<b>O-311</b>	<b>D</b>

HYDRAULIC CONTROL VALVE



Pump No. 33252

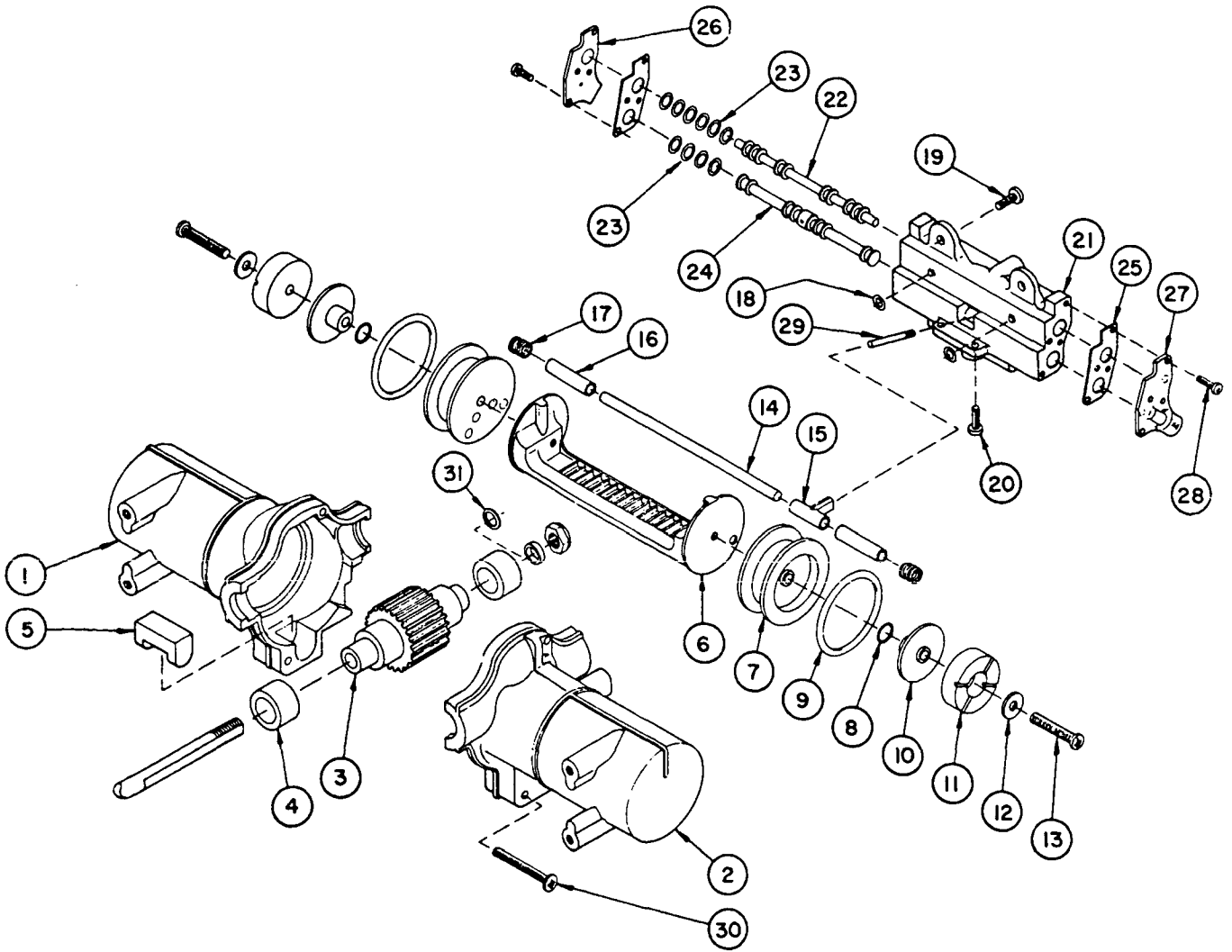


Pump No. 33019

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MODEL: M-550-1-Deg.

MATERIAL LIST ON BACK

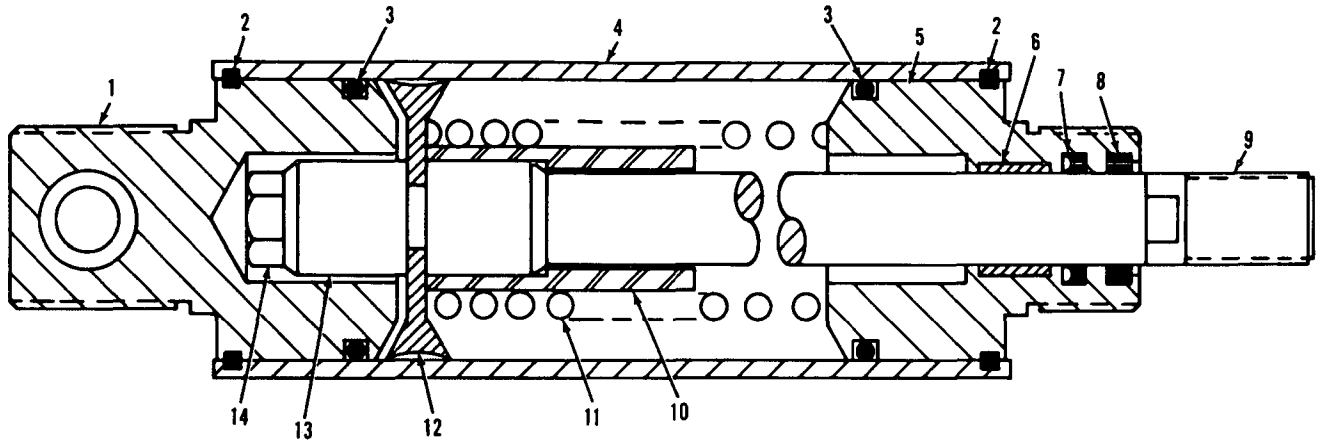
WINDSHIELD WIPER MOTOR

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Manitowoc, Wisconsin

MASTER



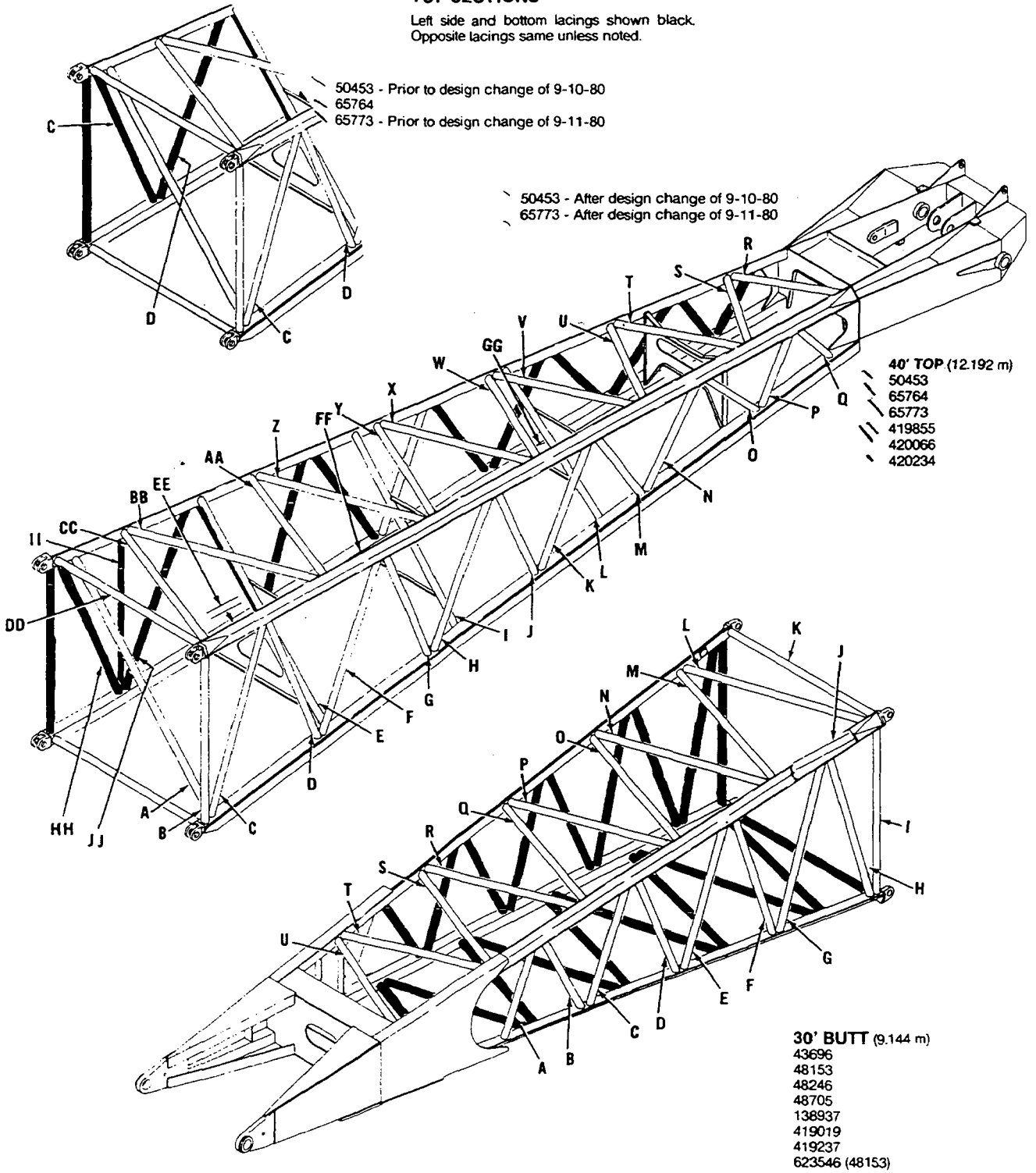
O-466

MATERIAL LIST ON BACK

AIR CYLINDER

**BOOMS #22, #22A, #22C-BUTT & TOP SECTIONS**

Left side and bottom lacings shown black.  
Opposite lacings same unless noted.

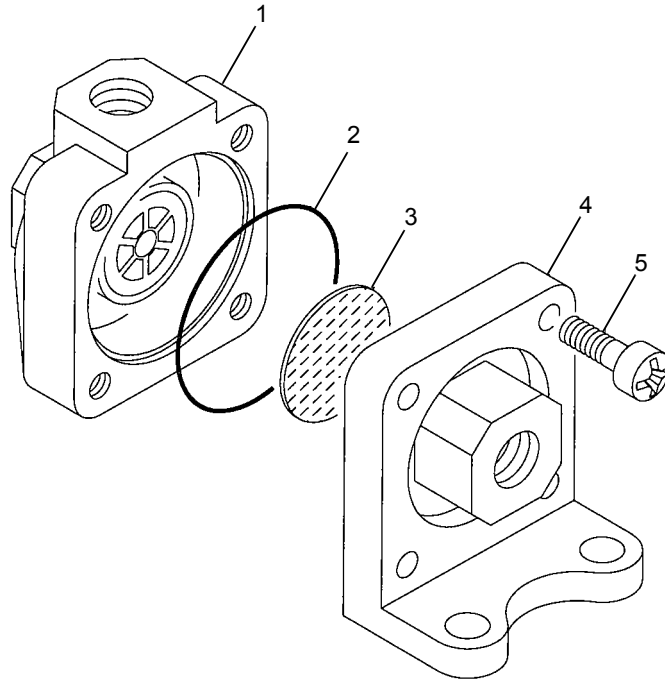


O-503 C1

To order lacings see Folio #823

2-13-92  
9-91

LACINGS



MODEL-  
1, 2, 3, M-50W, M-65W, M-80W, M-85W, M-250, M-250T

**SHUTTLE VALVE**  
7146470

ITEM	PART #	QTY.	DESCRIPTION OF PART
1		1	BODY
2	7146960	1	GASKET
3	7146970	1	DIAPHRAGM
4		1	COVER
5		4	SCREW

**PLEASE GIVE MACHINE SERIAL NUMBER WITH ORDER**

ASSEMBLY	REVISION
<b>O-63</b>	<b>C</b>

**SHUTTLE VALVE**

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