

# Manitowoc

## TRADITIONAL CRANE PARTS MANUAL

This manual has been prepared for and is considered part of

**4600**

Model

**46175**

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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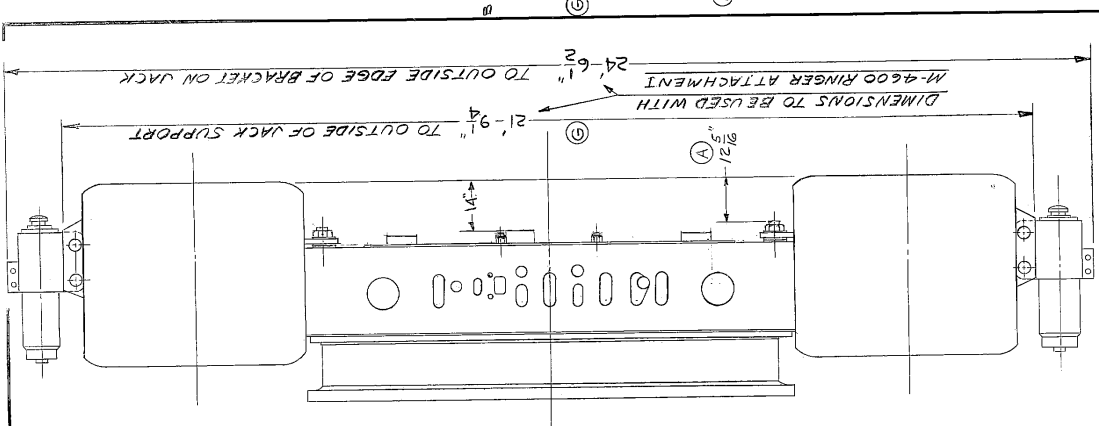
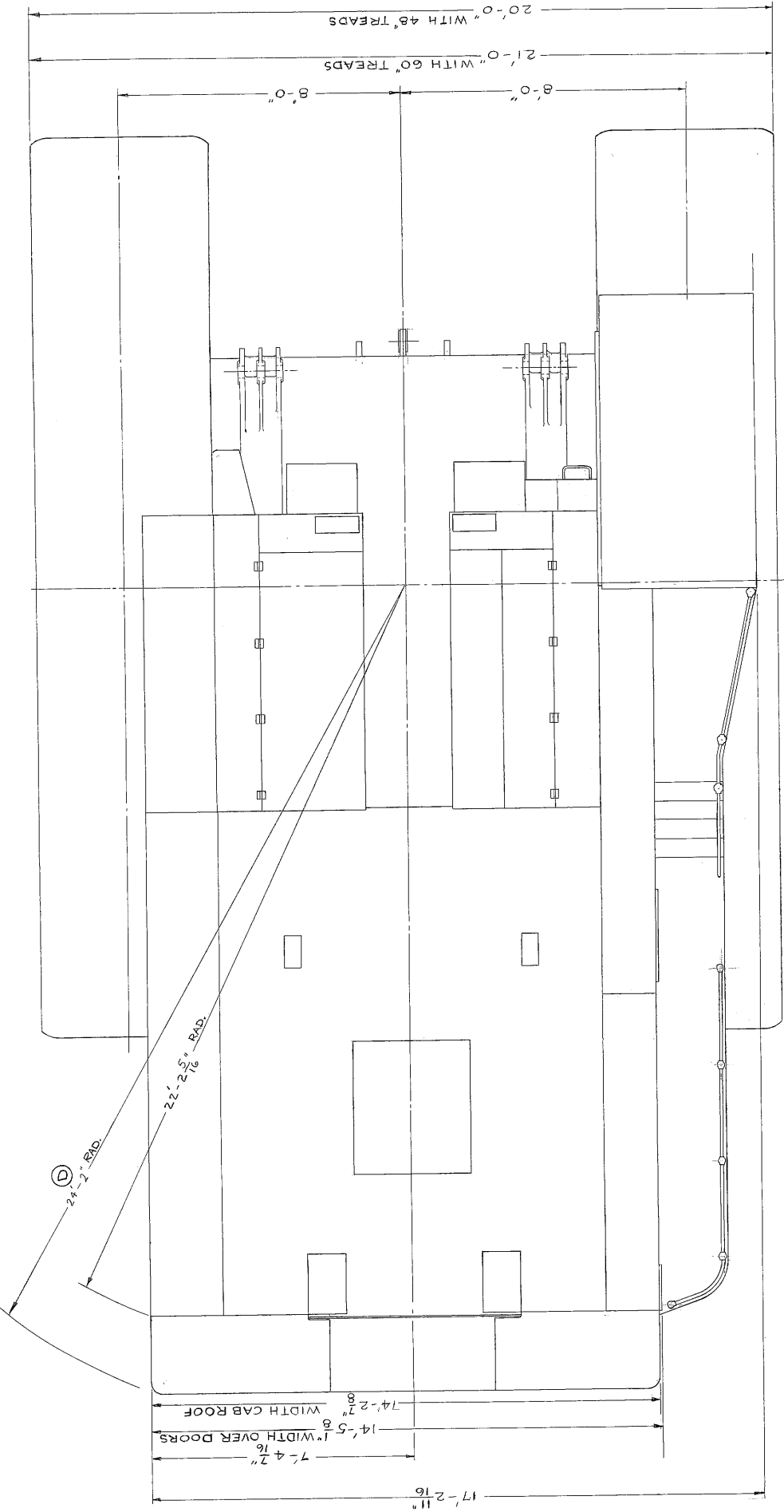
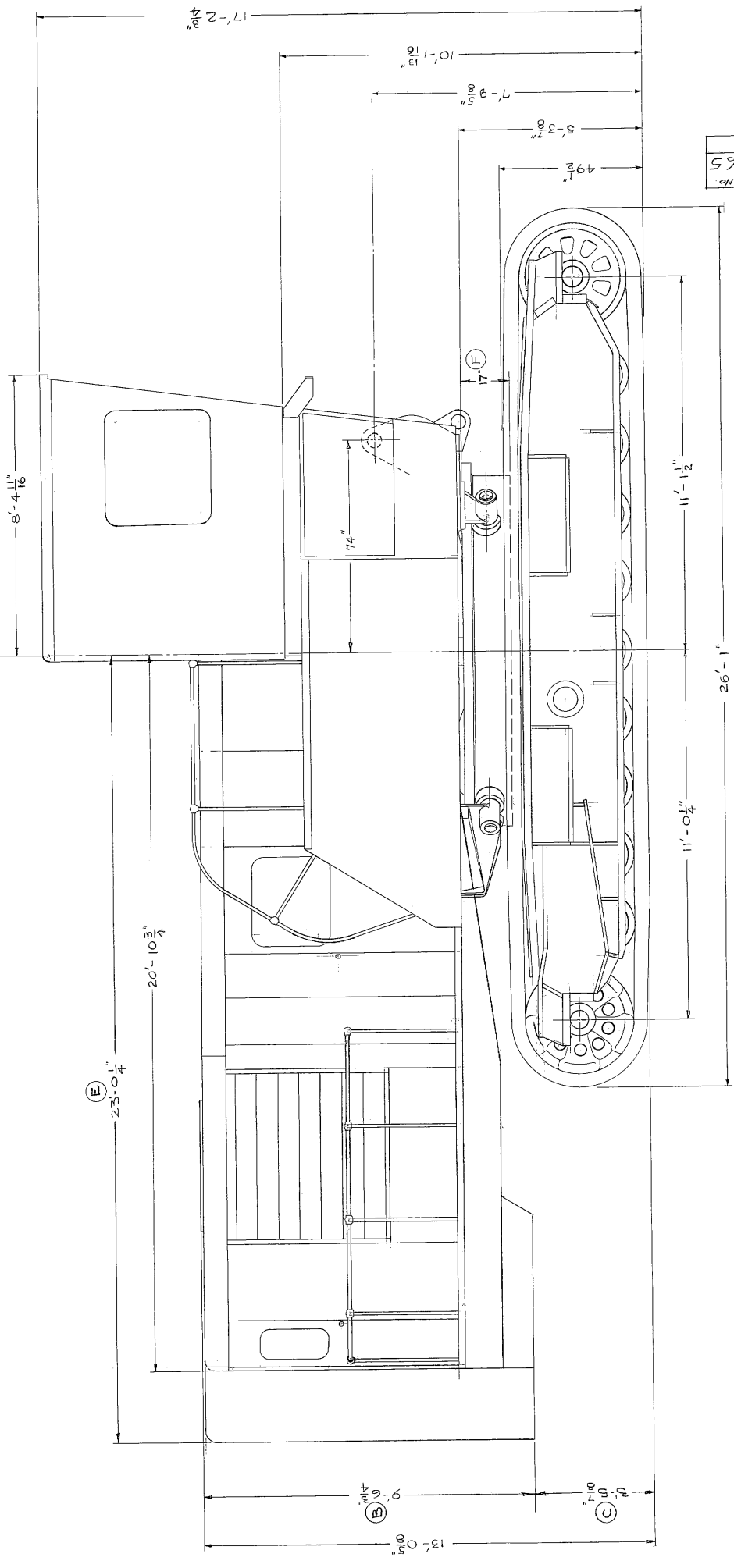
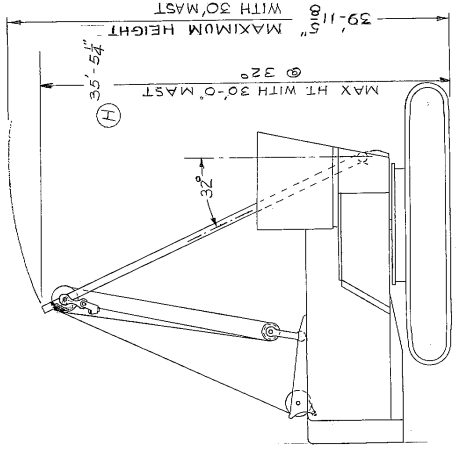
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MANITOWOC ENGINEERING CORP.		SPEEDRANE-MODEL 4-600	
REVISED DATE	5-1-64	APPROVED	(Signature)
OUTLINE DIMENSIONS			
DATE	3-30-61	PATTERN NO.	
DRAWN BY	D.A.B.	CHECKED BY	E.H.H.
MATERIAL	1/2" - 10"	CODE NO.	
QUANTITY	1	REV. NO.	42265
ISSUED BY		DATE	
BY			
DATE			

Draw. No. 42265



42265

(A)

(B)

(C)

(D)

(E)

(F)

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(H)

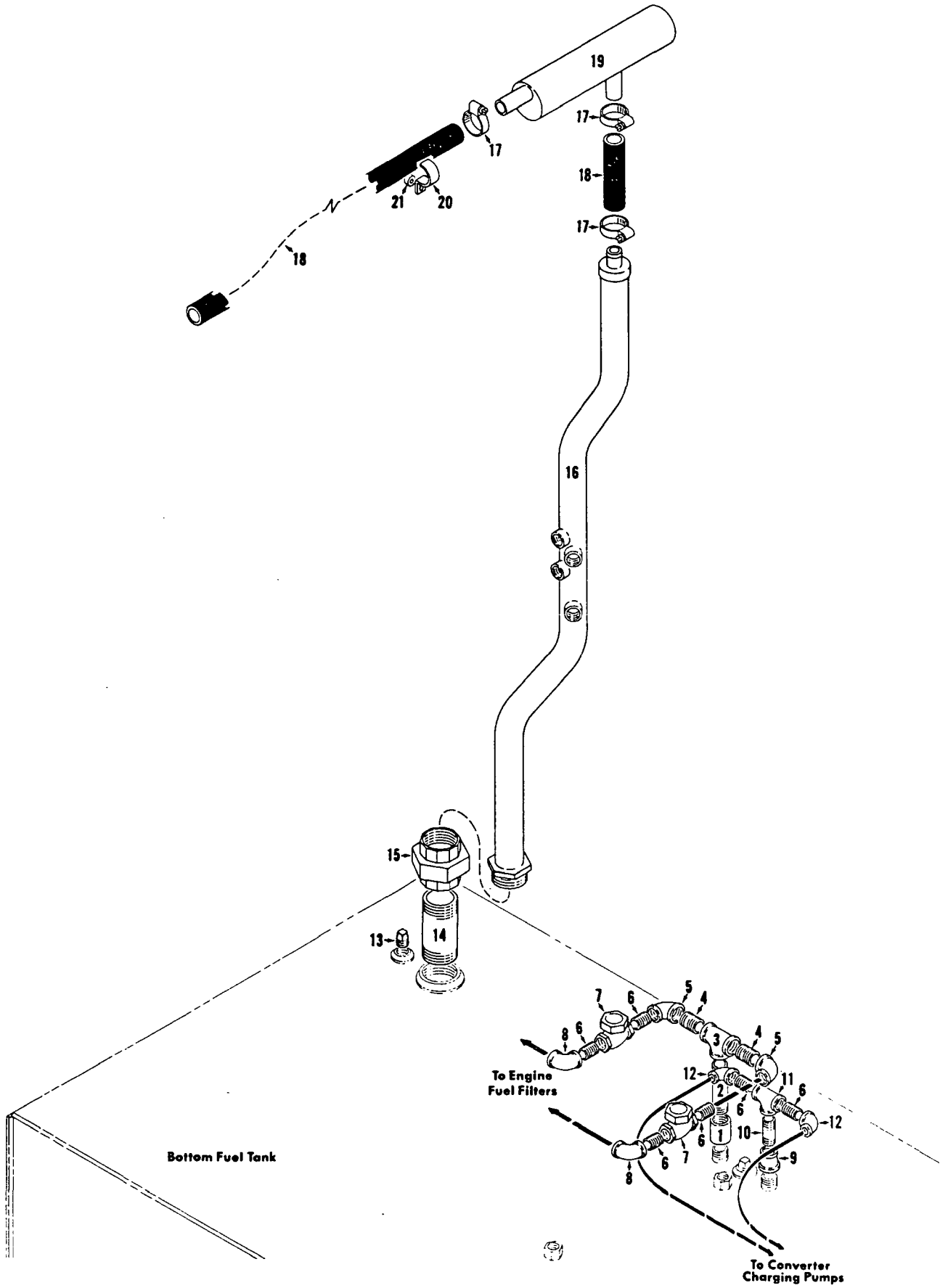
(I)

(J)



MASTER

32412A1



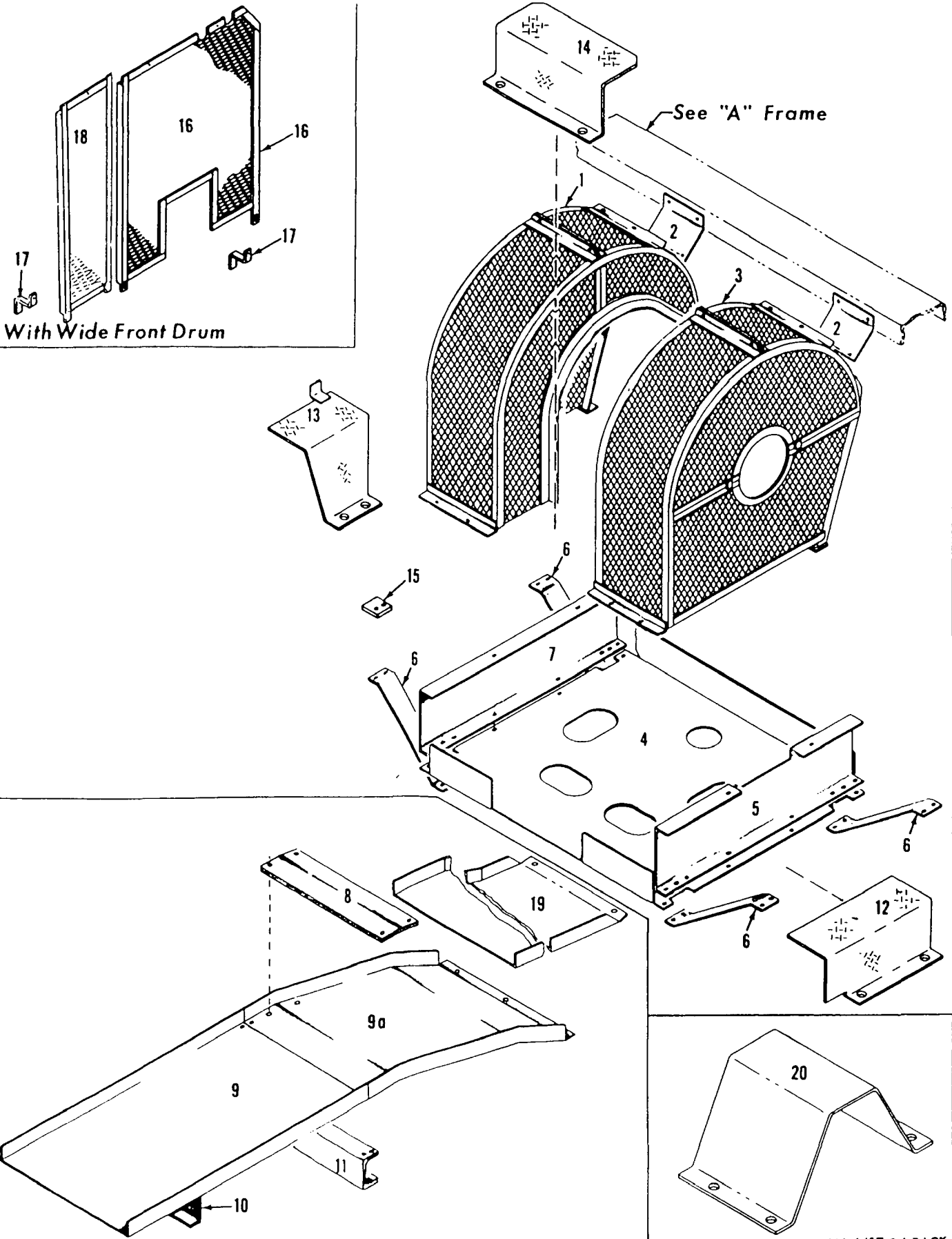
VENT PIPING

32412A1

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4077301

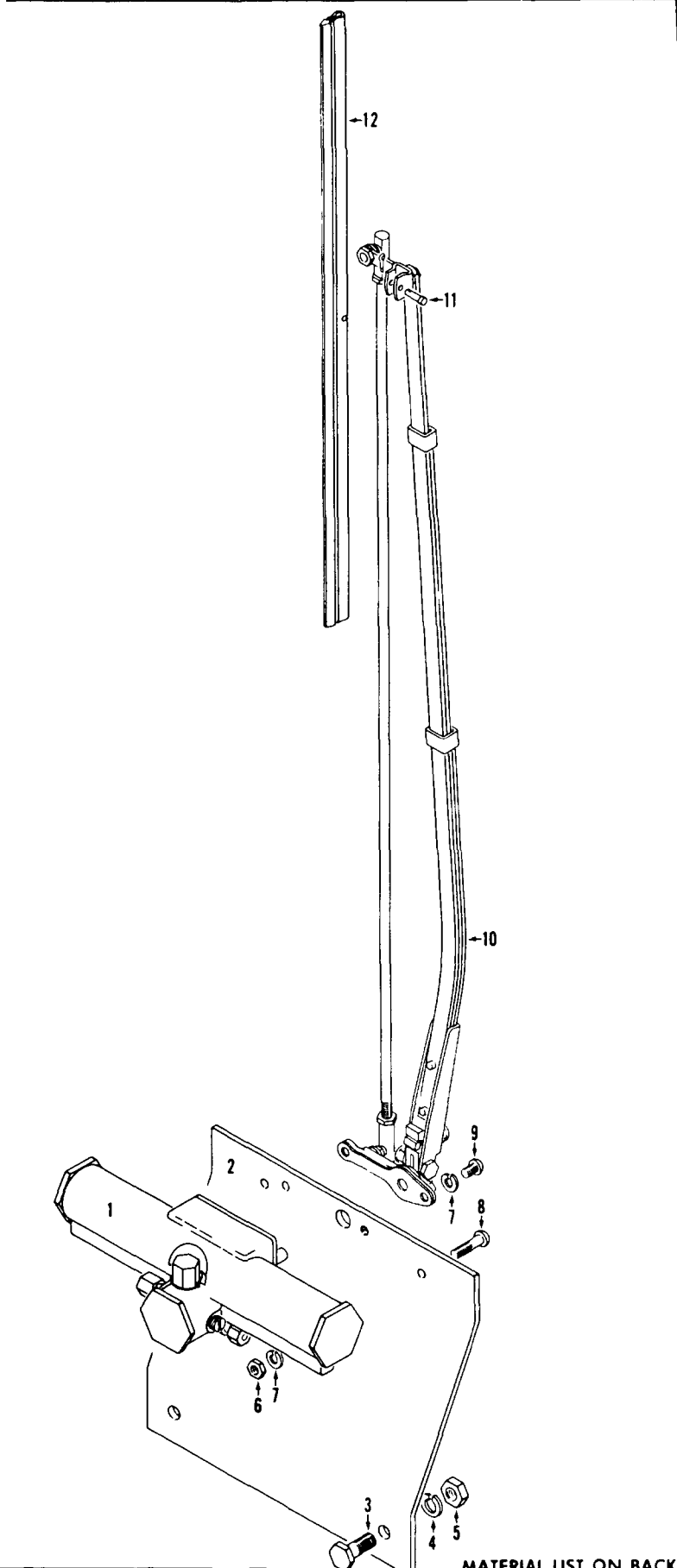
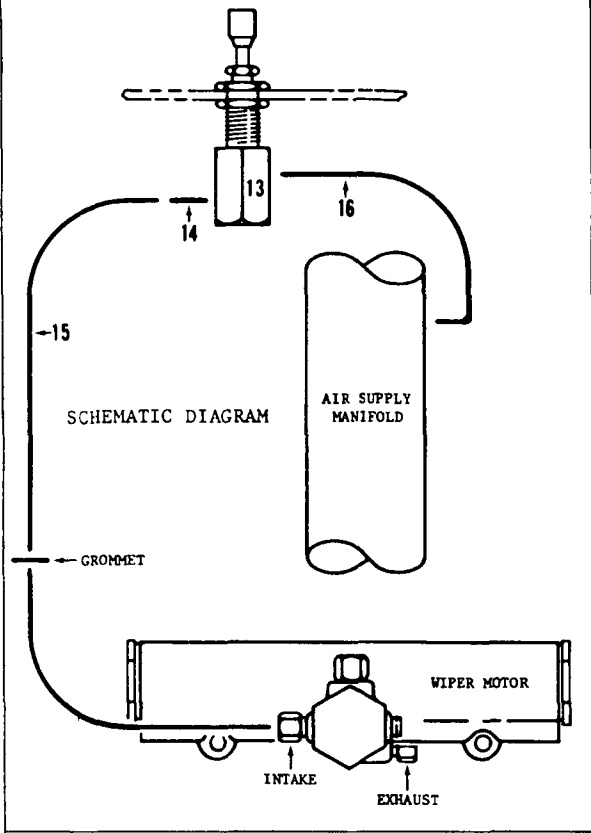
MATERIAL LIST ON BACK

GUARDS-GENERAL

MANITOWOC ENGINEERING CO

A D 1/16" Man it woc C mpa y Inc

Ma it woc W sco



42232B2

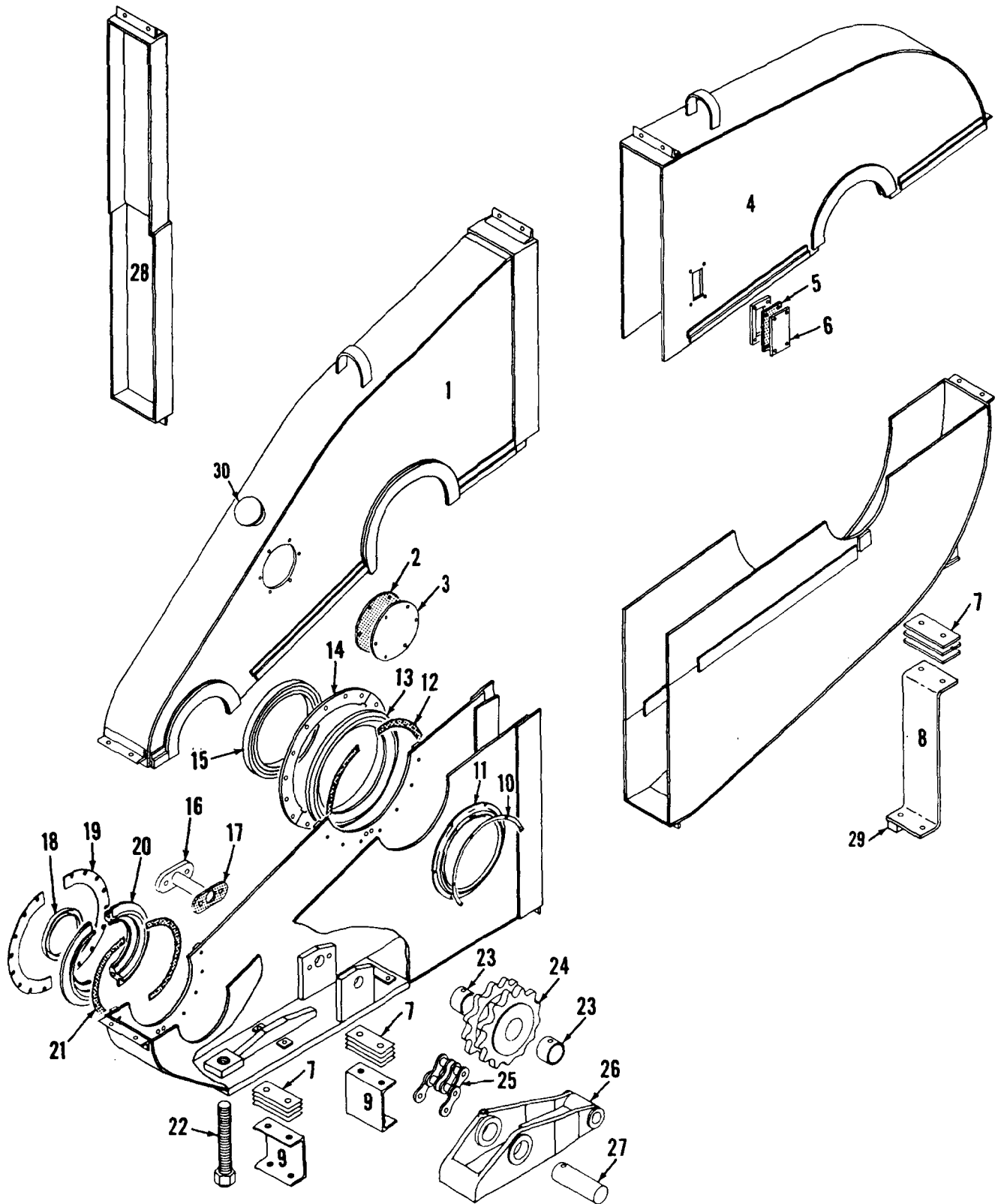
MATERIAL LIST ON BACK

WINDSHIELD WIPER

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43865C1

MATERIAL LIST ON BACK

Chain Case

50274-1 Cont.	REV. K	MODEL 4600
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CAB  
(DUAL ENGINES OR SINGLE ENGINE W/DUAL CONVERTERS)  
(66 TOOTH FRONT DRUM GEAR)

REF. NO.	PART NUMBER	QUANTITY REQUIRED	DESCRIPTION OF PART	VENDORS PART NO.
6	257221	4	BOLT, Coupling	
5	43804	1	SHEET, Roof W/capscrews, hex nuts, elastic stop nuts and lockwashers (All Machines W/single Caterpillar engine)	
6	257221	4	BOLT, Coupling	
	91242	1	COVER W/capscrews and lockwashers (W/Cat. Engine) (65" x 39")	
	77513	1	COVER W/capscrews and lockwashers (W/Cat. Engine) (33" x 19")	
			NOTE 6: Delete Panels #23720 and 24300 and use the following:	
8	90689	1	ROOF EXTENSION, Left Rear W/capscrews, hex nuts and lockwashers	
22	90688	1	ROOF EXTENSION, Left Front W/capscrews, hex nuts and lockwashers	
			NOTE 7: Delete Ref. Nos. 23-30 Incl. above and use the following:	
			<u>MACHS. W/SINGLE FRONT DRUM</u>	
	43463-6	1	ROOF, Right Front W/capscrews, hex nuts and lockwashers	
27	395125	1	DOOR, Roof	
28	43463-2	1	FRAME, Roof	
29	395115	1	DOOR, Roof	
30	633138	1	PANEL, Roof	
	43463-7	1	ROOF, Left Front W/capscrews, hex nuts and lockwashers	
23	633177	1	PANEL, Roof	
24	395125	1	DOOR, Roof	
25	395115	1	DOOR, Roof	
26	43463-3	1	FRAME, Roof	
	633178	1	PANEL, Rear Inner	
			<u>MACHINE W/SPLIT FRONT DRUM</u>	
	48173-6	1	ROOF, Right Front W/capscrews, hex nuts and lockwashers	
27		1	DOOR, Roof	
28	48173-2	1	FRAME, Roof	
29	395115	1	DOOR, Roof	
30	633138	1	PANEL, Roof	
	48173-7	1	ROOF, Left Front W/capscrews, hex nuts and lockwashers	
23	633177	1	PANEL, Roof	
24	395125	1	DOOR, Roof	
25	395115	1	DOOR, Roof	
26	48173-3	1	FRAME, Roof	
	633178	1	PANEL, Rear Inner	
			<u>MACH. W/ROOF MOUNTED CONVERTER DRIVEN IND. BOOM HOIST W/HYDRAULIC POWER REVERSING</u>	
			NOTE 8: Delete Panel #43071 and use the following:	
5	48802	1	SHEET, Roof W/capscrews, hex nuts, elastic stop nuts and lockwashers	
6	257221	4	BOLT, Coupling	
			NOTE 9: Delete Panels #23720 and 24300 and use the following:	
8	90689	1	ROOF EXTENSION, Left Rear W/capscrews, hex nuts and lockwashers	

REV. K	50274-1 Cont.
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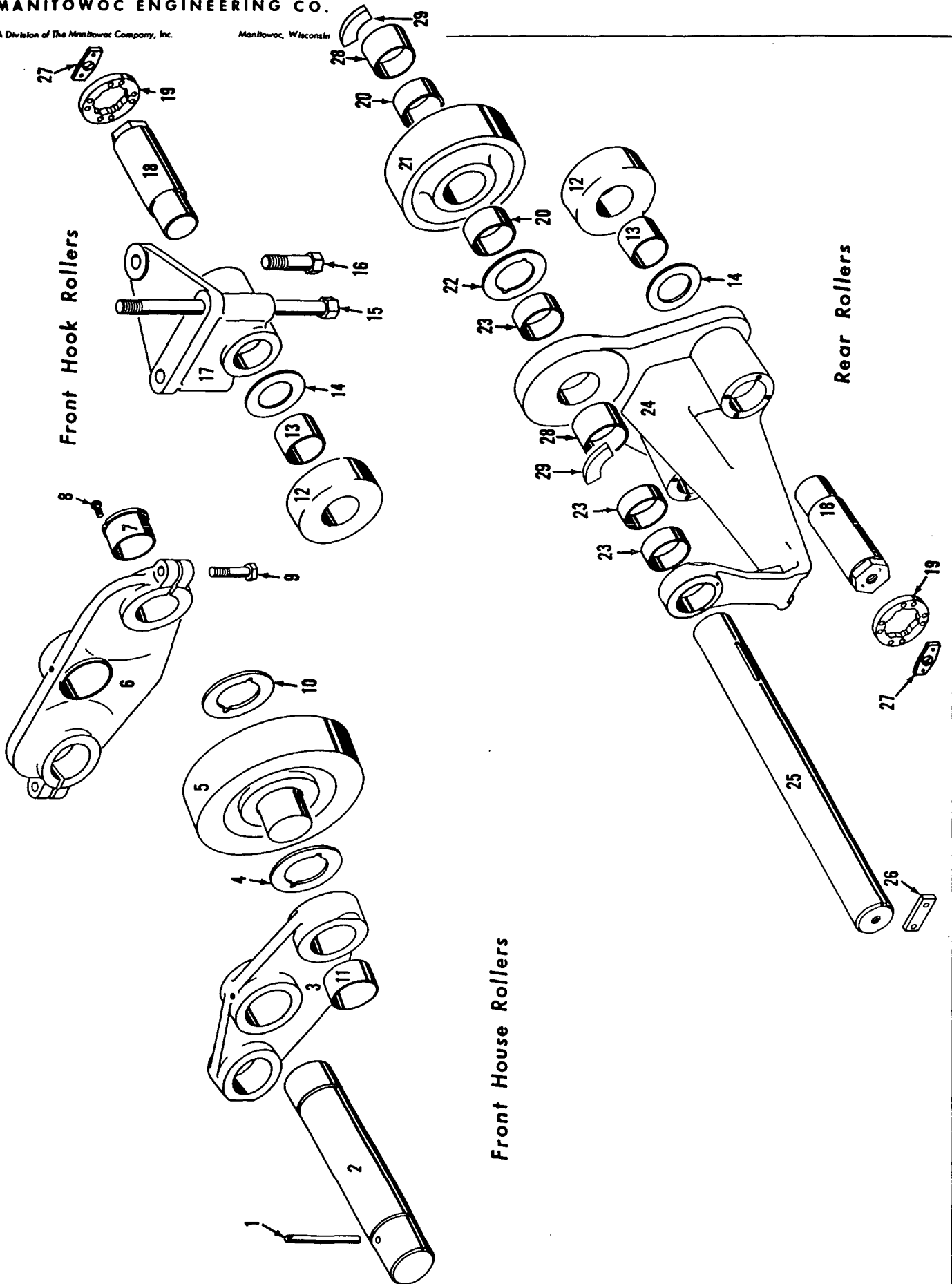
PLEASE GIVE MACHINE S/N W/ORDER

MASTER

Run as front

50274 KI (Cont. Lg. 7)

MASTER



50447C2

MATERIAL LIST ON BACK

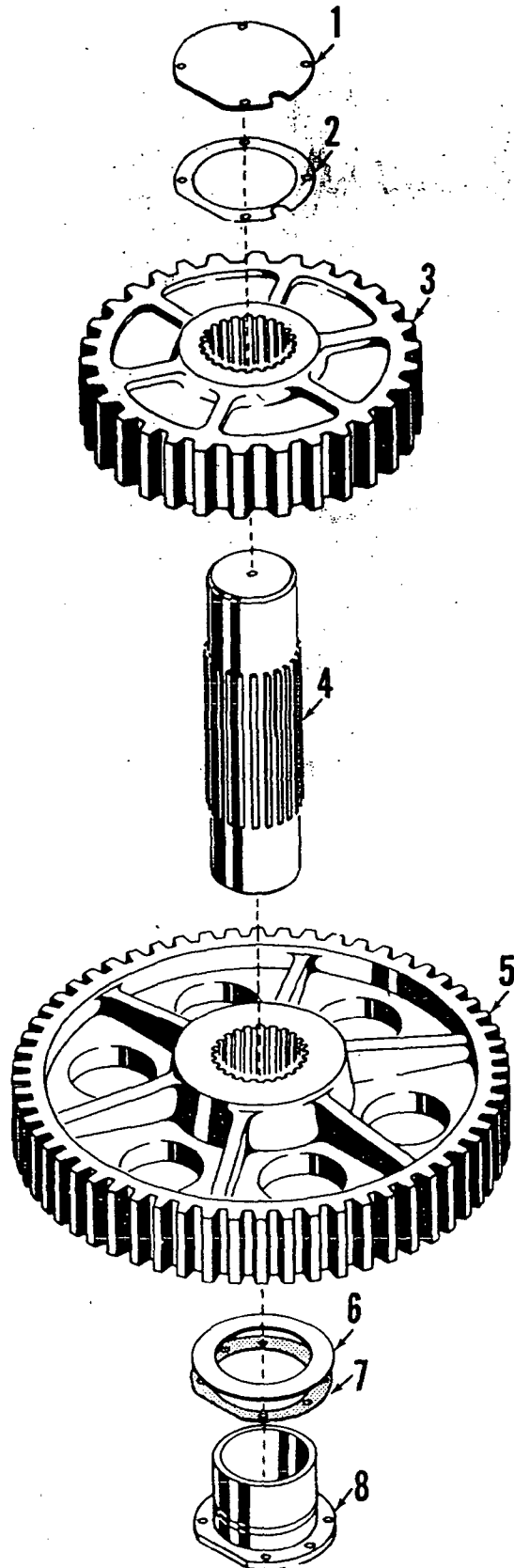
ROLLERS

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MASTER



ILLUST. No. 21629-B-1

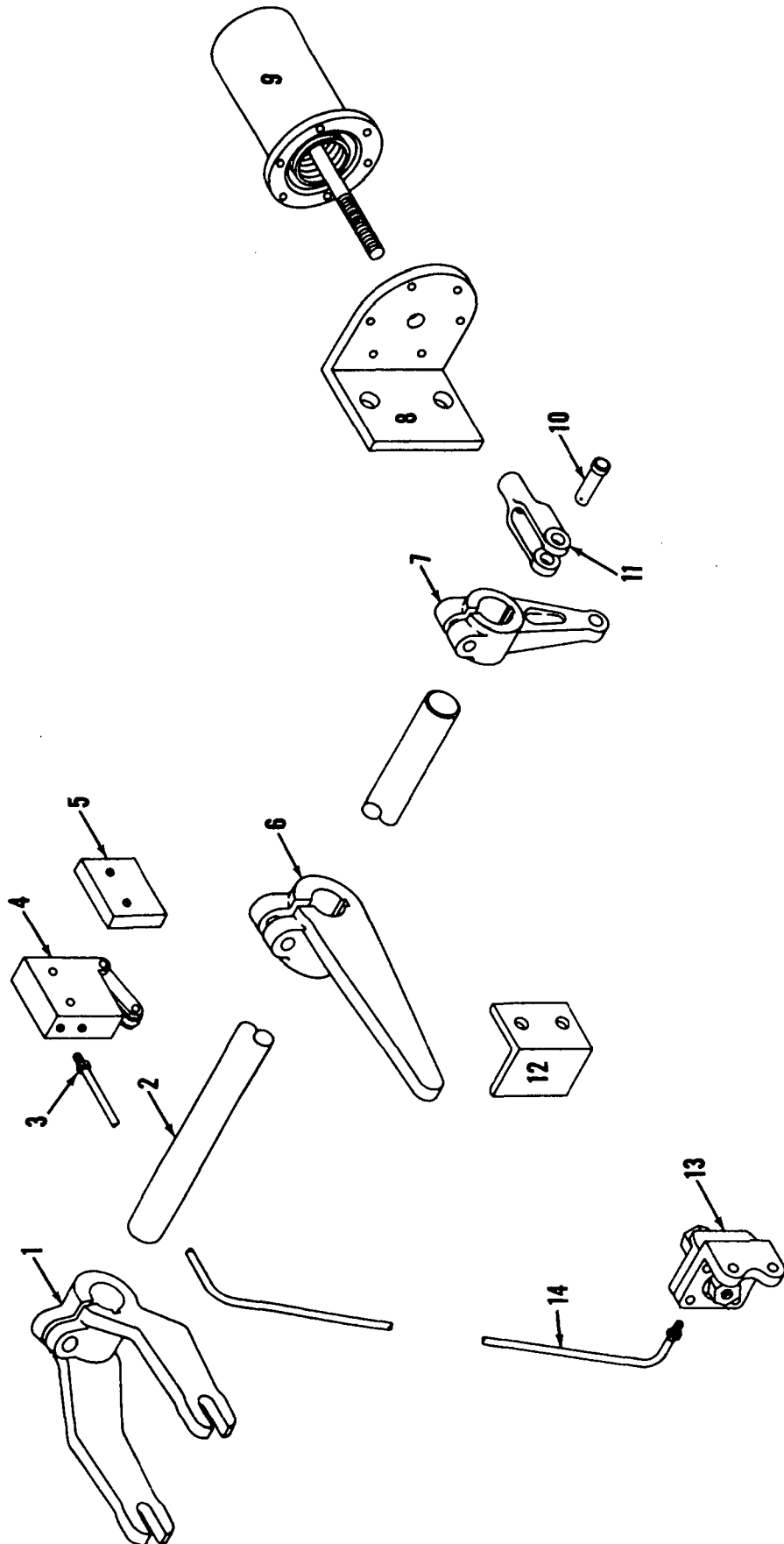
MATERIAL LIST ON BACK

SWING SHAFT ASSEMBLY - INTERMEDIATE

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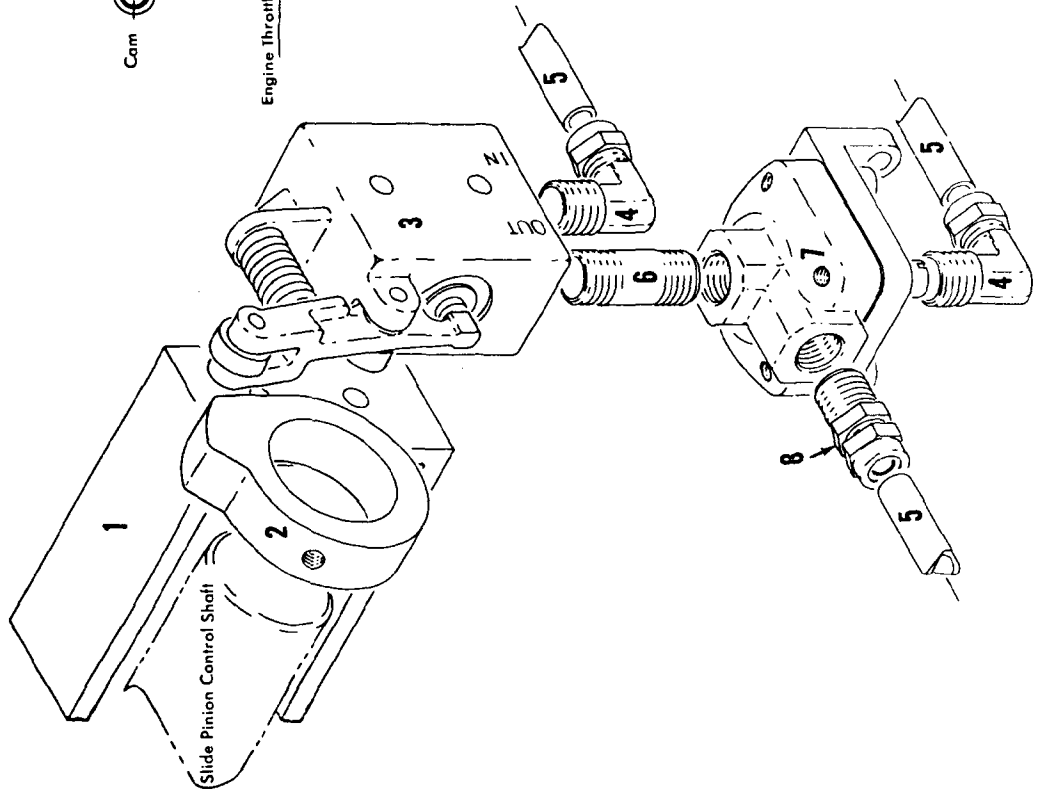
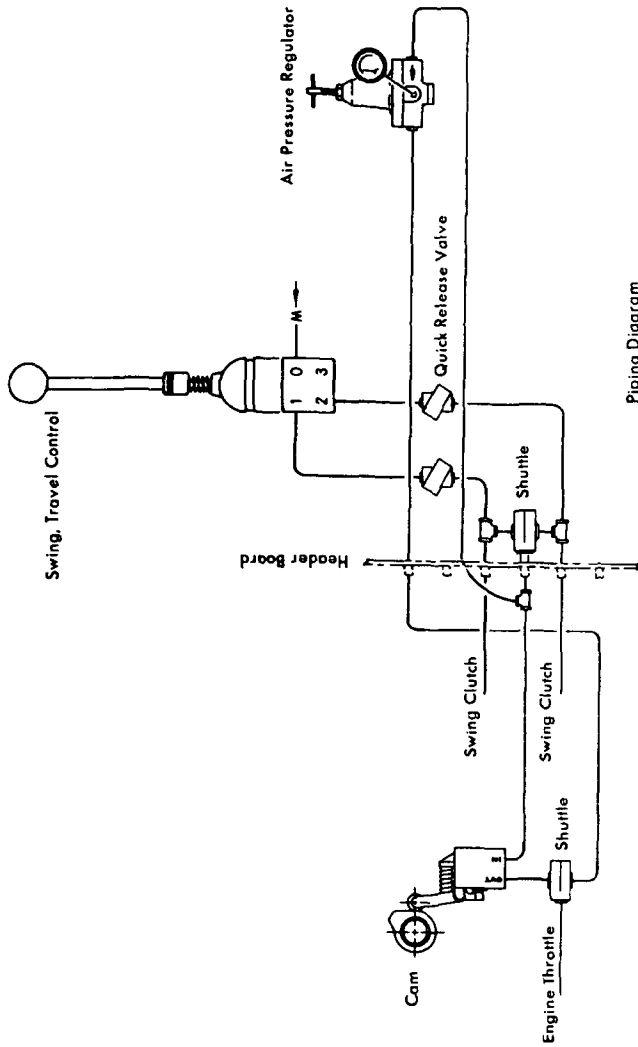
Manitowoc, Wisconsin



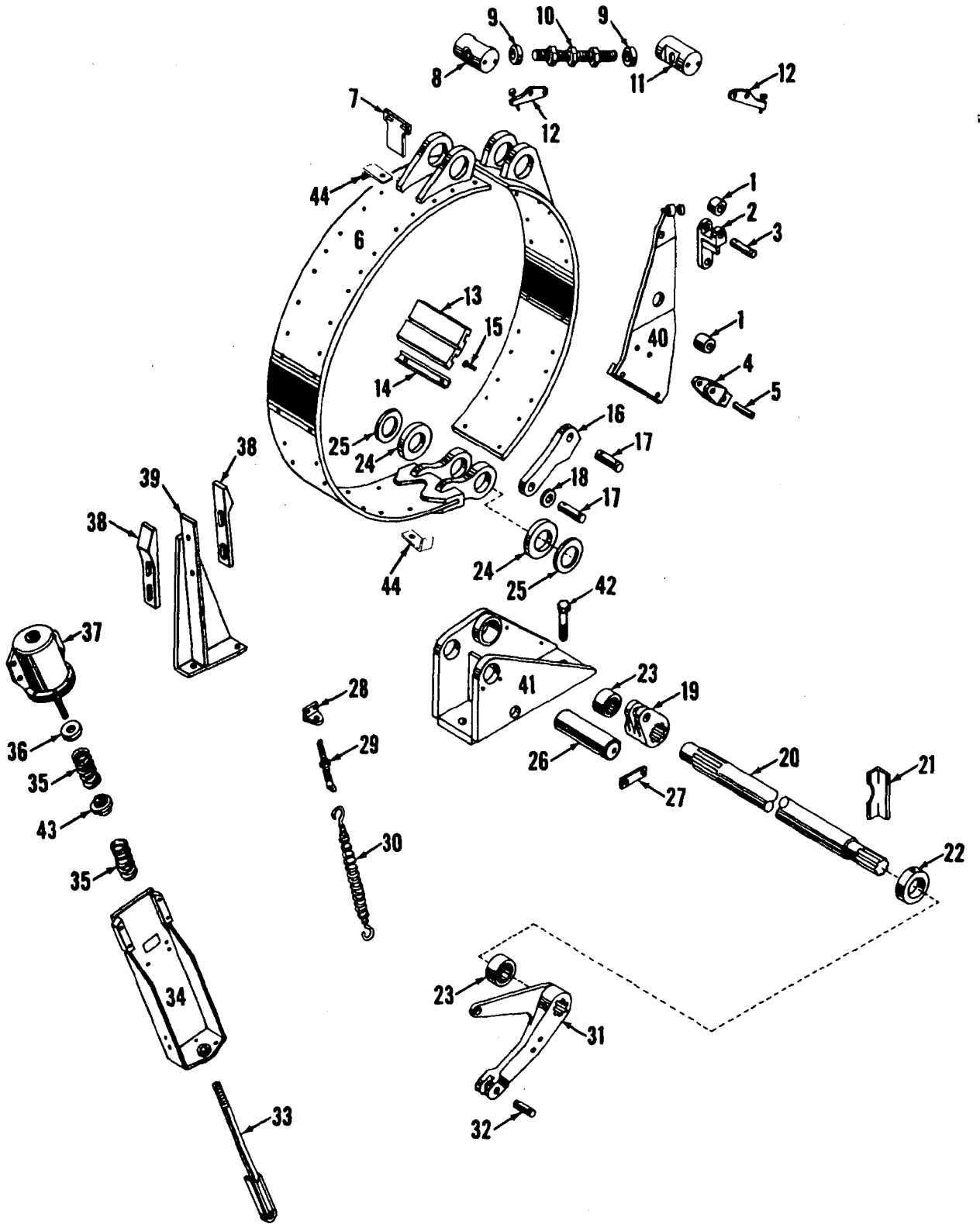
33071A1

MATERIAL LIST ON BACK

MAST HOIST SLIDE PINION CONTROL



MASTER



41802E1

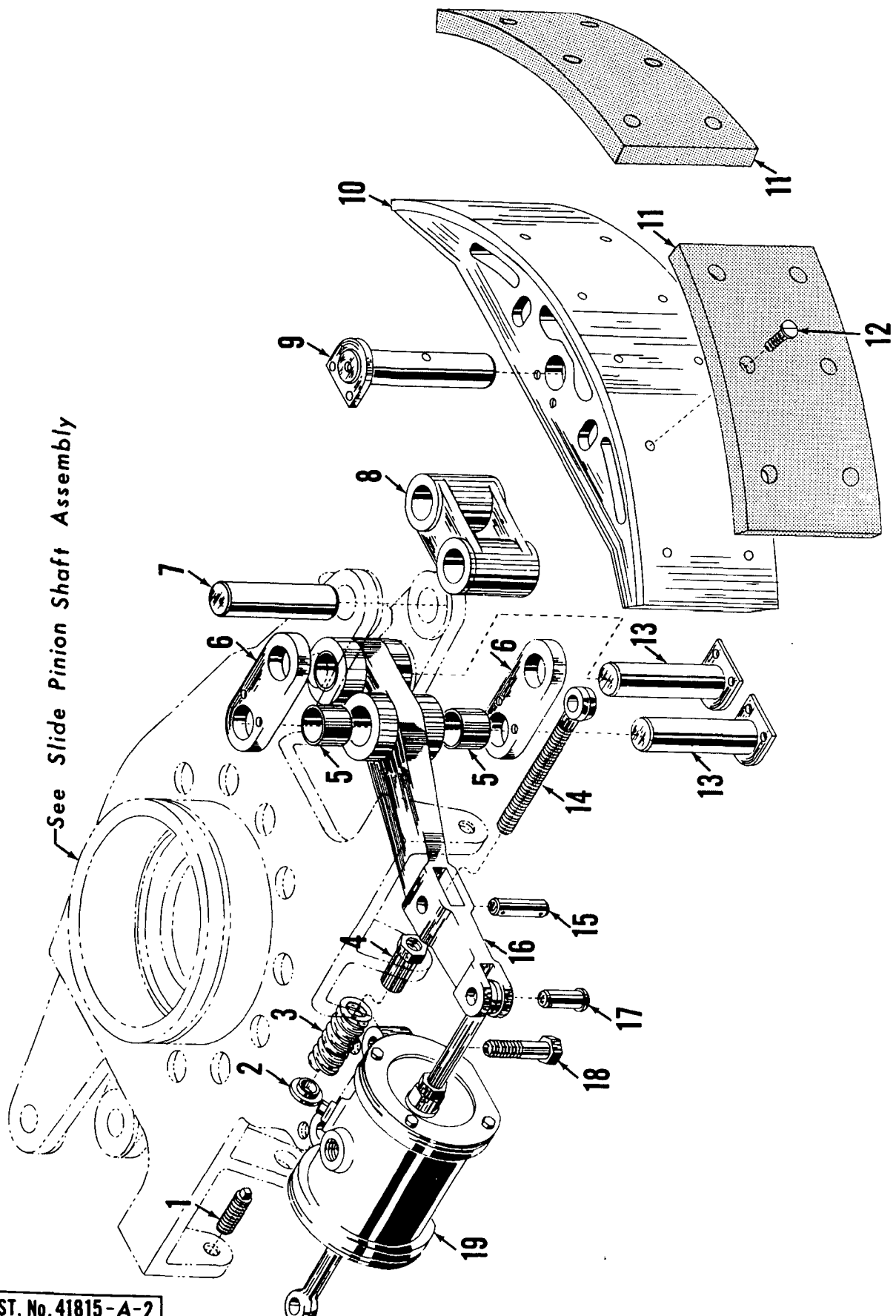
MATERIAL LIST ON BACK

FRONT DRUM BRAKE

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ILLUST. No. 41815-A-2

MATERIAL LIST ON BACK

SWING BRAKE ASSEMBLY

41861-1 Cont.	REV. I	MODEL 4500-4600
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LEFT FRONT DRUM BRAKE  
(MACH. W/66 TOOTH FRONT DRUM GEAR)

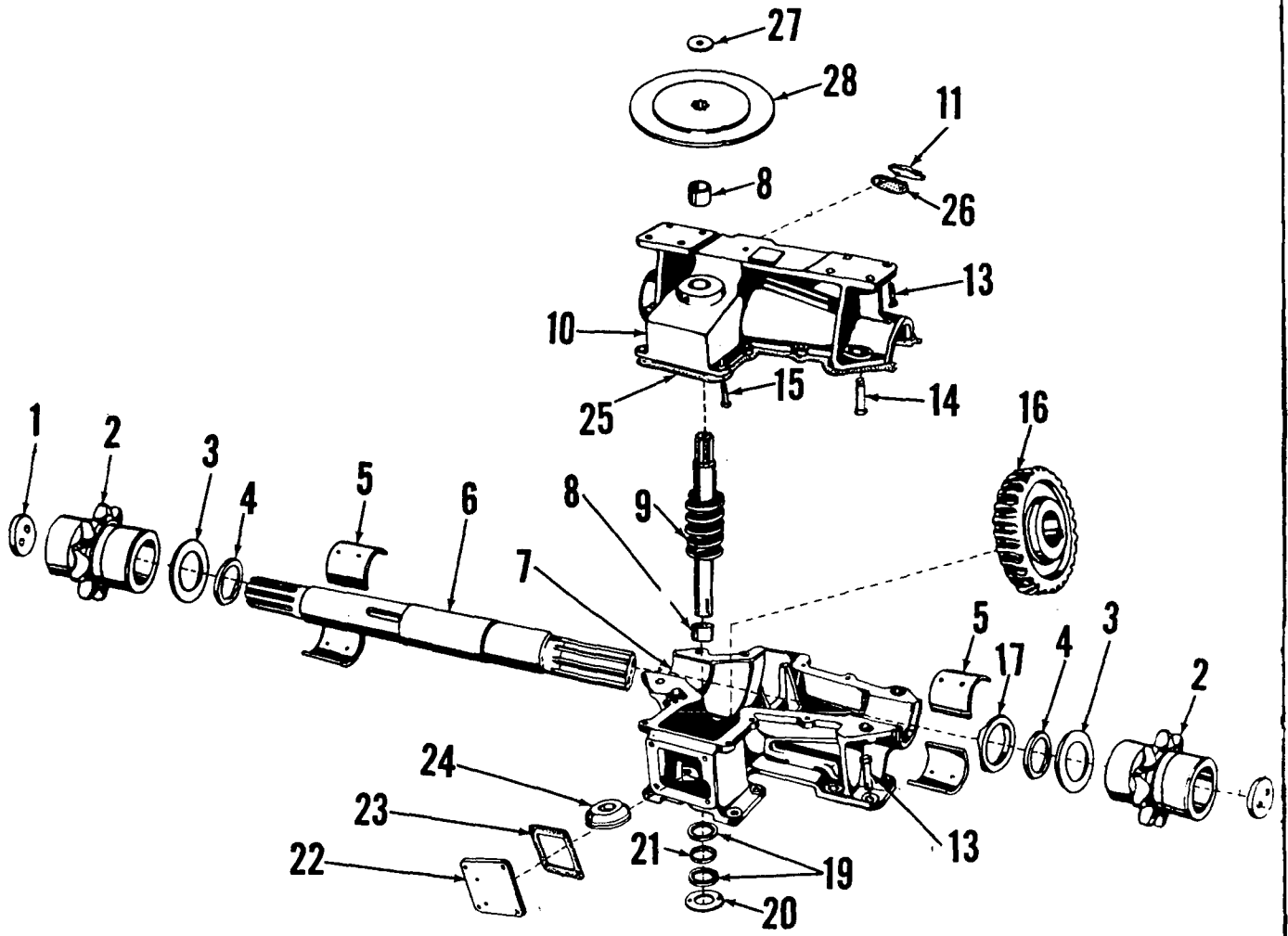
REF. NO.	PART NUMBER	QUANTITY REQUIRED	DESCRIPTION OF PART	VENDORS PART NO.
44	21364	1	SUPPORT, Air Cylinder	
46	2619	1	WASHER	
	24320	1	SUPPORT, Air Cylinder (Mach. W/1 Pc. Drum)	
38	71514	1	EXTENSION, Piston Rod	
41	19442	2	SPRING	
42	71963	1	WASHER, Spring Retaining	
43	21359	1	CYLINDER, Air W/rod 14456	
44	21364	1	SUPPORT, Air Cylinder	
46	2619	1	WASHER	
45	19983	1	BAR, Guide	
47	16849	1	SUPPORT, Guide	
<p>NOTE 1: For mach. W/air release on brake lock, see "Air Cylinder Support" following this sheet.</p> <p>NOTE 2: Machines shipped after November 6, 1970, or bands shipped after the same date, require washers, Ref. #27 to align connecting link, Ref. #25. Machines or bands shipped prior to this date do <u>not</u> use these washers.</p>				
			#0-71, 21359	
				REV. I
				41861 - 1

Run as a Front

MASTER

41861 II

PLEASE GIVE MACHINE S/N W/ORDER



MASTER

43143 A1

43143A1

BOOM HOIST

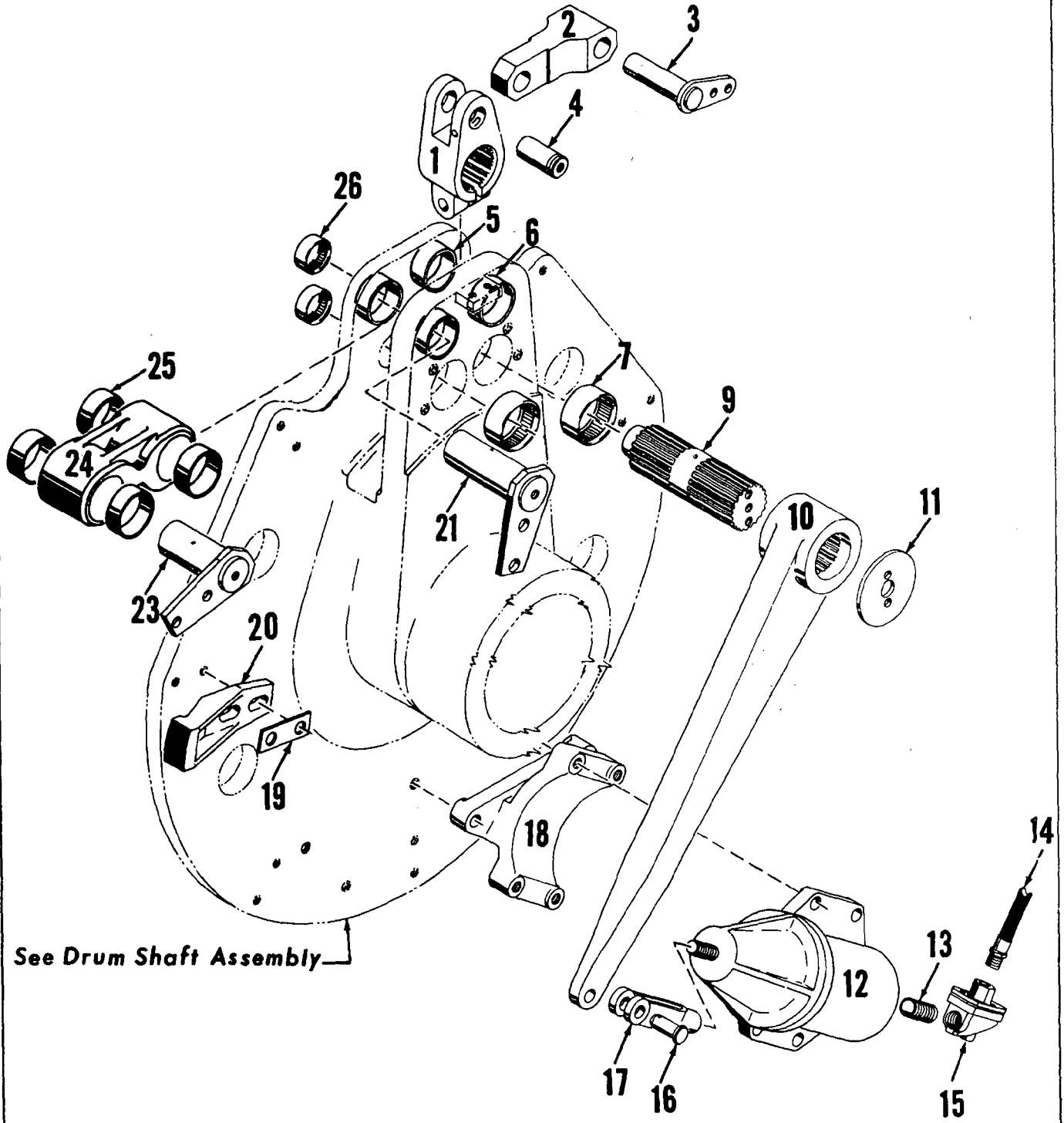
MATERIAL LIST ON BACK

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MASTER



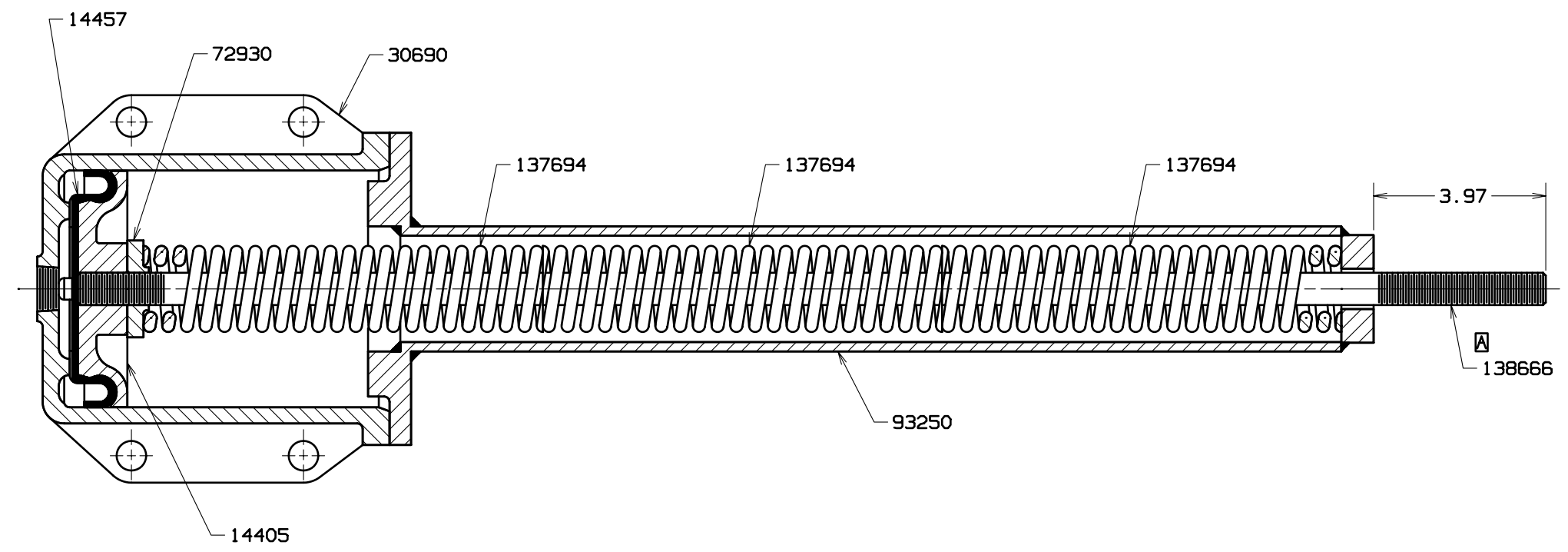
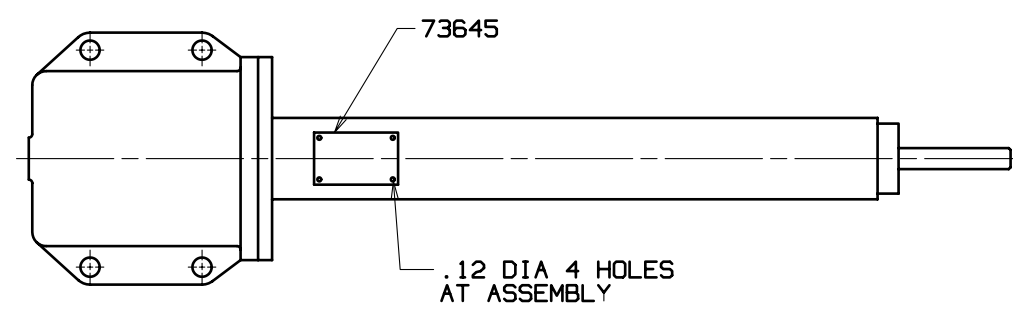
See Drum Shaft Assembly

RIGHT DRUM CLUTCH

50326A3

MATERIAL LIST ON BACK





BILL OF MATERIAL						ASSEMBLIES USED ON	
ITEM NO.	NO. REQD.	SEC. TION	DESCRIPTION	LENGTH IN.	MATERIAL		CODE NO. OR DWG. NO.
1			PISTON			14405	33749 42768 42769 43433 48860
1			PACKING CUP			14457	
1			AIR CYLINDER			30690	
1			NUT			72930	
1			NAME PLATE			73645	
1			SPRING RETAINER			93250	
3			SPRING			137694	
1			PISTON ROD			138666	REVISIONS

REVISIONS  
 3-10-70 HDG  
 A WAS 72929  
 3-19-70 HDG  
 B NO.  
 CORRECTED  
 3-4-82 RVP  
 REDRAW CADAM  
 CK FJZ  
 APP RJS

DWG. NO.  
 93251

FIRST ON S/N 46170			DATE 1-29-70
SCALE 6" = 1"	<b>Manitowoc Crane, Inc.</b>		PATTERN NO.
DR. HDG GMP	<b>Manitowoc, Wisconsin</b>	AIR CYLINDER ASSEMBLY	
CK. GMP	MODEL 4600	5.50 BORE X 5.50 STROKE	
APP			DWG. NO. 93251

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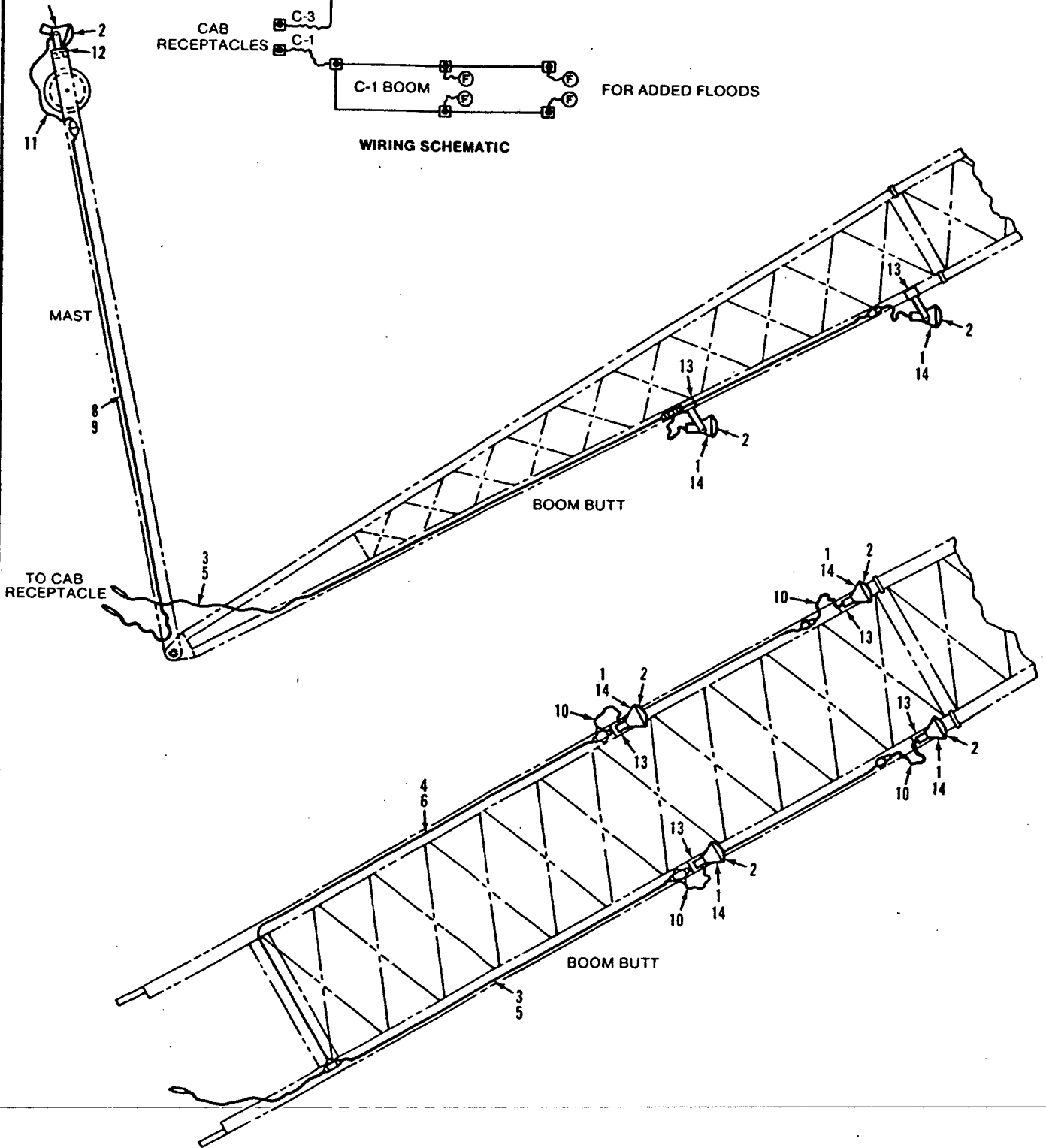
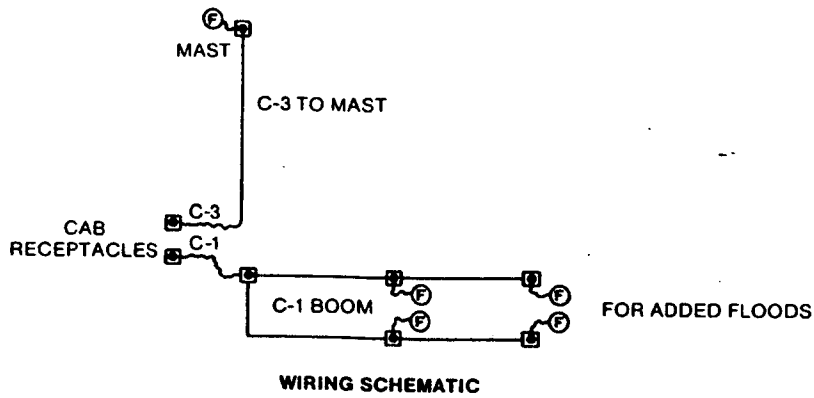
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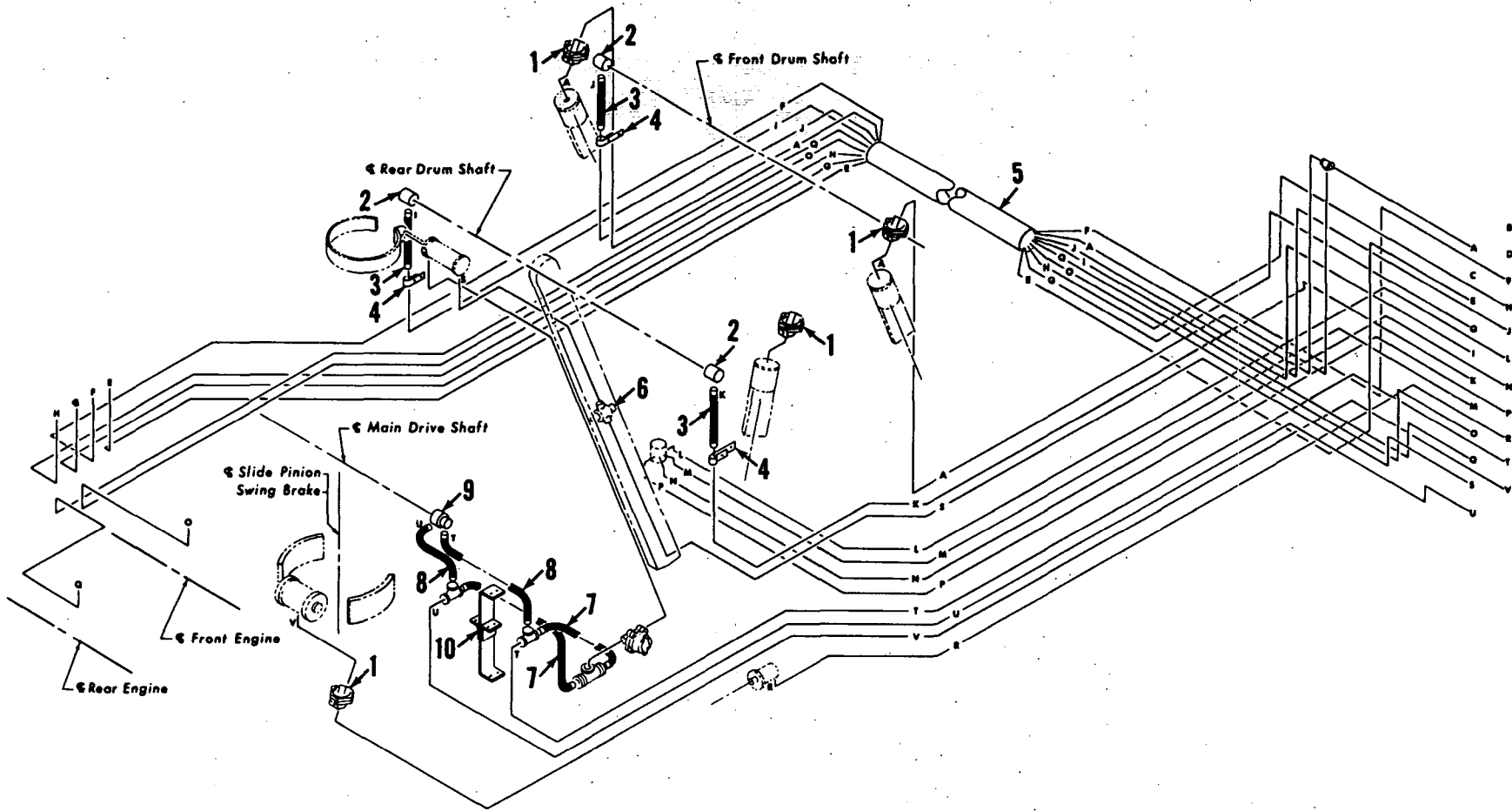
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MATERIAL LIST ON BACK

BOOM & MAST LIGHTS

**LEGEND**

A	Front Drum Brake Right and Left	(Fr. Dr. Br. R. & L.)	L	Steering Clutch Right	(St. Cl. R.)
B			M	Steering Clutch Left	(St. Cl. L.)
C			N	Travel Lock	(Tr. Lk.)
D			O	Engine Throttle Front	(En. Th. F.)
E	Engine Clutch Engage	(Front) (En. Cl. Eng. F.)	P	Travel Lock	(Tr. Lk.)
F	Engine Clutch Disengage	(Front) (En. Cl. Dis. F.)	Q	Engine Throttle Rear	(En. Th. R.)
G	Engine Clutch Engage	(Rear) (En. Cl. Eng. R.)	R	Boom Hoist Slide Pinion	(B. H. S. P.)
H	Engine Clutch Disengage	(Rear) (En. Cl. Dis. R.)	S	Boom Hoist Brake	(B. & B.)
I	Rear Drum Clutch Left	(R. Dr. Cl. L.)	T	Swing Clutch Left	(Sw. Cl. L.)
J	Front Drum Clutch	(Fr. Dr. Cl.)	U	Swing Clutch Right	(Sw. Cl. R.)
K	Rear Drum Clutch Right	(Rr. Dr. Cl. R.)	V	Swing Brake	(Sw. Br.)



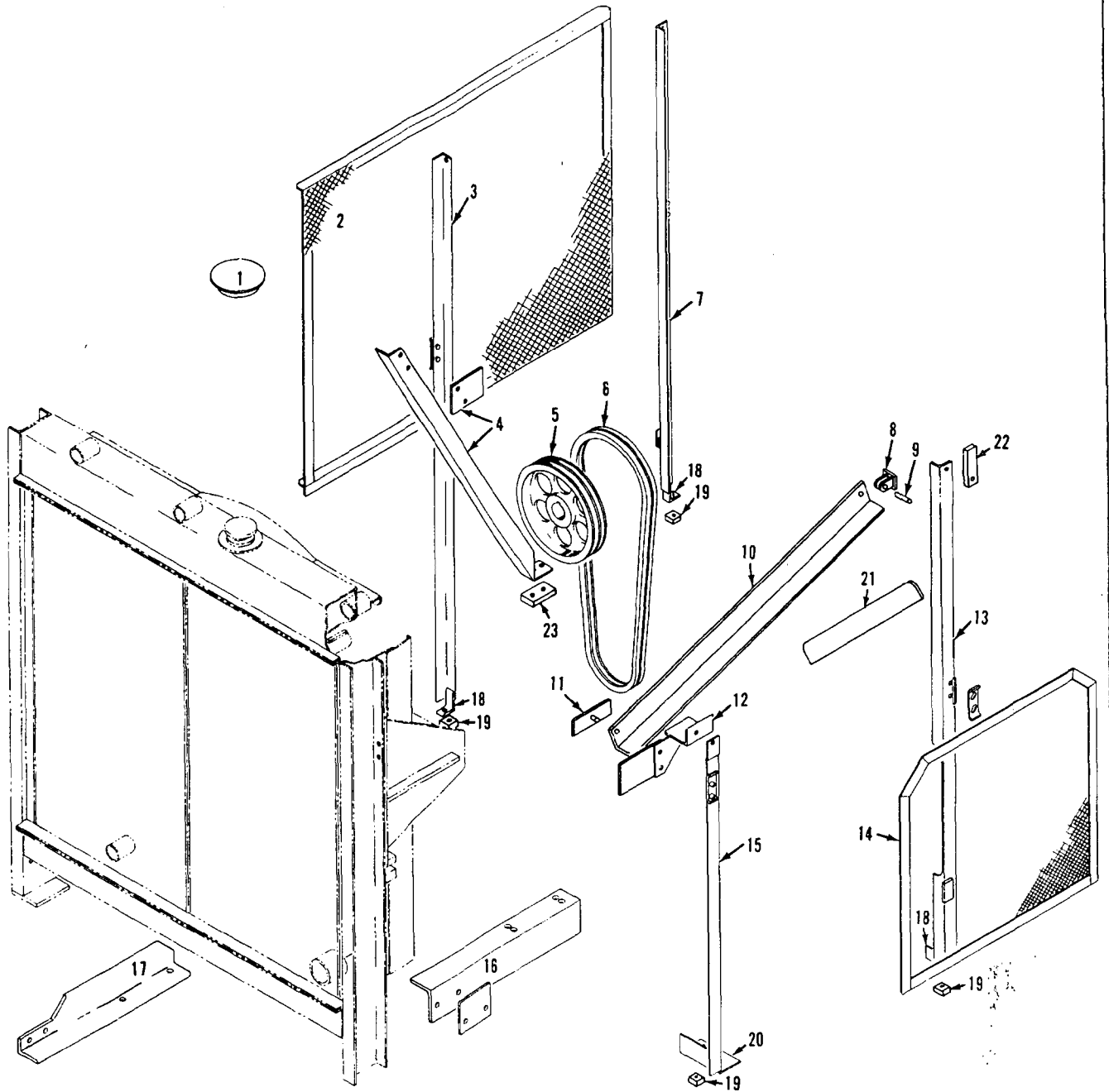
MATERIAL LIST ON BACK

50496-1 con't.	REV. D	MODEL 4600
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CAB WIRING

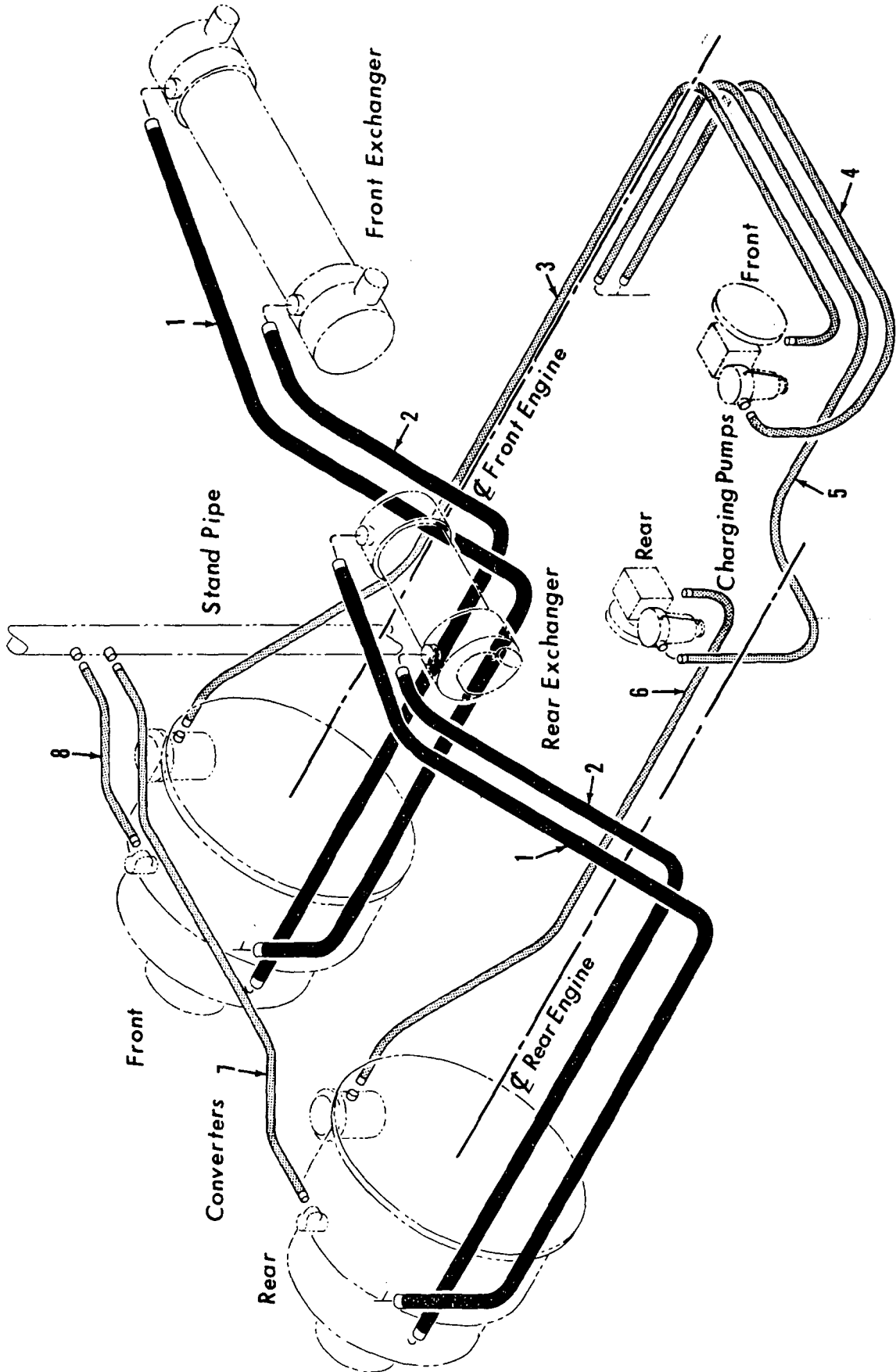
REF. NO.	PART NUMBER	QUANTITY REQUIRED	DESCRIPTION OF PART	VENDORS PART NO.
65	296416		WIRE, (#12 Strd. Type TW Black - 45' or 13.714 m.)	
66	296498		WIRE, (#12 Strd. Type TW Green - 15' or 4.570 m.)	
67	296509		WIRE (#12 Strd. Type TW Red - 30' or 9.144 m.)	
68	144769	1	COVER	
69	304568	1	CAP, Plug	
70	667495	10	STRAP, Quad (#1701)	
71	589786	1	RECEPTACLE (Hubbell Brown #5262 Pol.)	
72	617789	75	SCREW, Mach. (3/16" x 1")	
73	710301	75	LOCKWASHER (3/16")	
74	710302	225	LOCKWASHER (1/4")	
75	617829	125	SCREW, Mach. (1/4" x 3/4")	
76	617827	100	SCREW, Mach. (1/4" x 1/2")	
77	617830	7	SCREW, Mach. (1/4" x 1")	
78	546055	75	NUT, Hex (3/16")	
81	304509	1	CAP (Hubbell #7535)	
82	589774	1	RECEPTACLE (Twistlock #7535)	
83	570105	1	PLATE, Single Receptacle (#423)	
85	268536	2	BOX, Galv. square outlet (4")	
86	378607	1	COVER, Square outlet box (4")	
87	453212	1	FUSE, (Glass 20 Amp. Type SFE-20)	
88	696364	1	SOCKET, Lamp (Protex #717)	
89	471682		CONNECTOR, Cord (Pyle Nat'l. #DB-3)	
90			BLOCK, Fuse (1 Pole)	
91	296560		CABLE (Drib-4)	
92	371819		CORD (Tirex #14-4/c. Type "S")	
93	378956	as req.	PLATE, Cover (When Ref. #95 & #99 Not Used)	
94	456753	as req.	GASKET (W/Cover Plate #378956)	
95	589620	as req.	RECEPTACLE	
96	617830	8	SCREW, Mach. (1/4" - 20 x 1")	
97	546052	8	NUT, Hex (1/4" - 20)	
98	710302	8	LOCKWASHER (1/4")	
99	455548	as req.	GASKET	
100	594850	1	RESISTOR (30 V. System Only)	
101	371819	as req.	CORD, Portable (14-3 W/G) (Specify Length)	
102	542979	1	NIPPLE, Galv. (1/2" x 1 1/2")	
			<u>FUEL OIL TRANSFER PUMP (OPTIONAL)</u>	
2		1	STARTER, Manual (GE CR 1061 H2 A1)	
4		1	RELAY, Heater (8A)	
5	268508	1	BOX, Galv. Handy (Appleton 4SSL1/2)	
7		1	RECEPTACLE	
9		1	PLUG	
20			MOTOR (1/2 H.P. 110 V. A.C. or D.C.)	
42	371802		CORD (#14-2-C Tirex Type "S") (Specify 6')	
65	296416		WIRE (#12 Strd. Type TW Black - 45')	
			<u>MAST STOP CONTROL</u>	
5	268508	1	BOX, Handy (Appleton 4SSL1/2)	
26	673204	1	LIMIT SWITCH (A.B. #802 TH.W1 - Normally Closed)	
26	673204	1	LIMIT SWITCH (A.B. #802 TH.W1 - Normally Open)	

REV. D	50496-1
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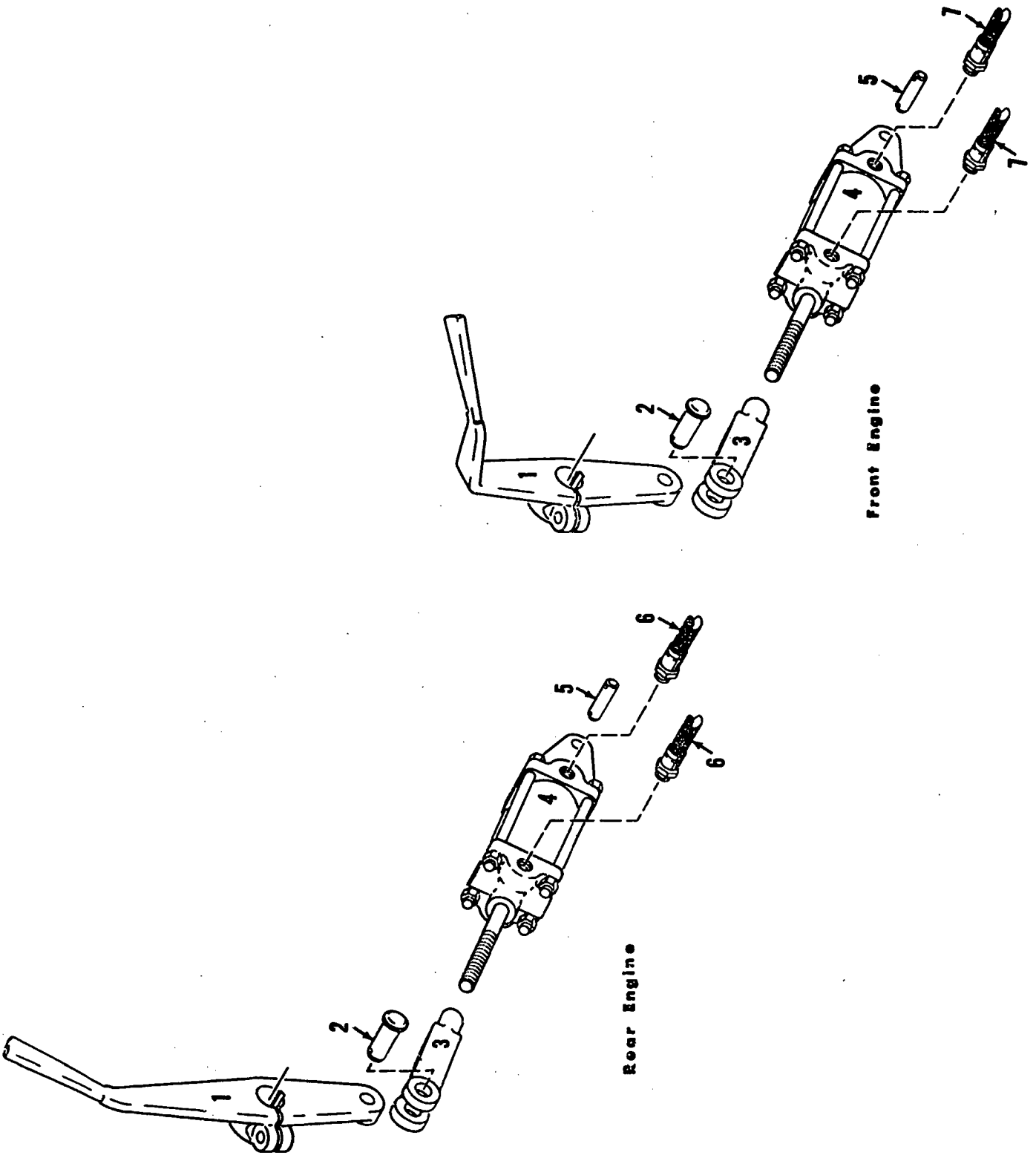


WASTE

RADIATOR MOUNTING



MASTER

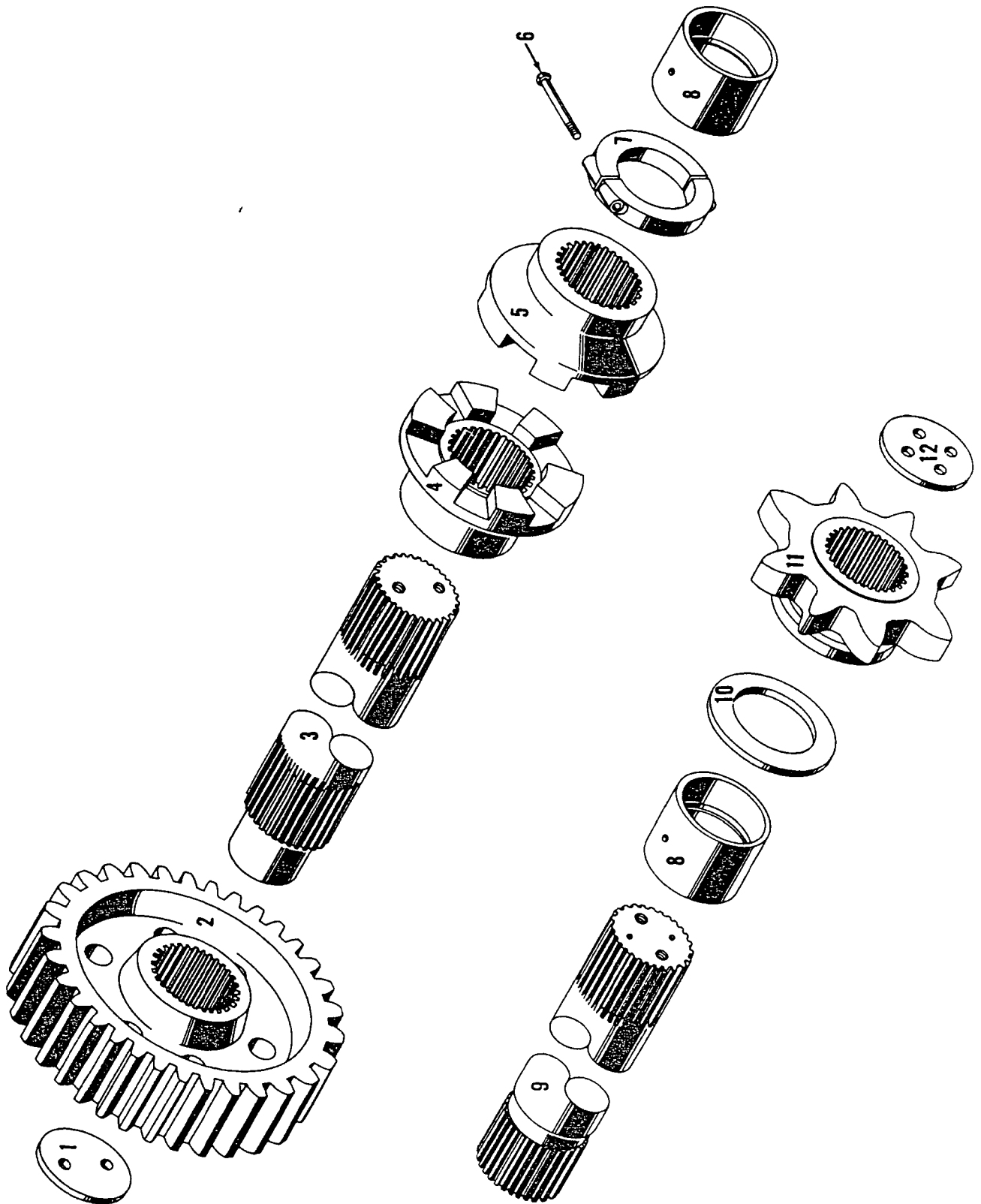


Front Engine

Rear Engine

ENGINE CLUTCH CONTROL

50237B9



24363-A-1

MATERIAL LIST ON BACK

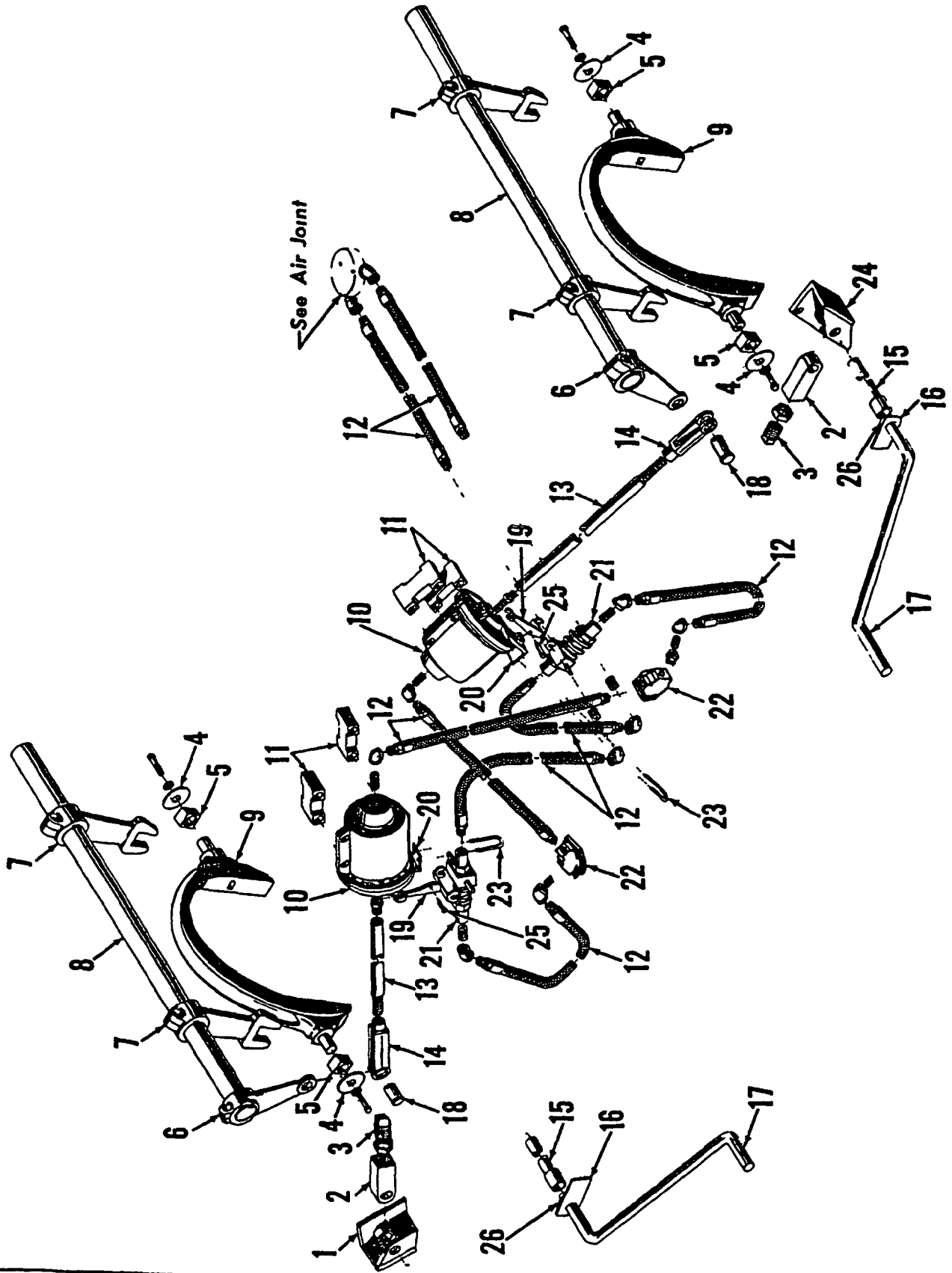
TRAVEL SPROCKET SHAFT

MASTER

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Manitowoc, Wisconsin



ILLUST No 41230-C-1

MATERIAL LIST ON BACK

STEERING CONTROL

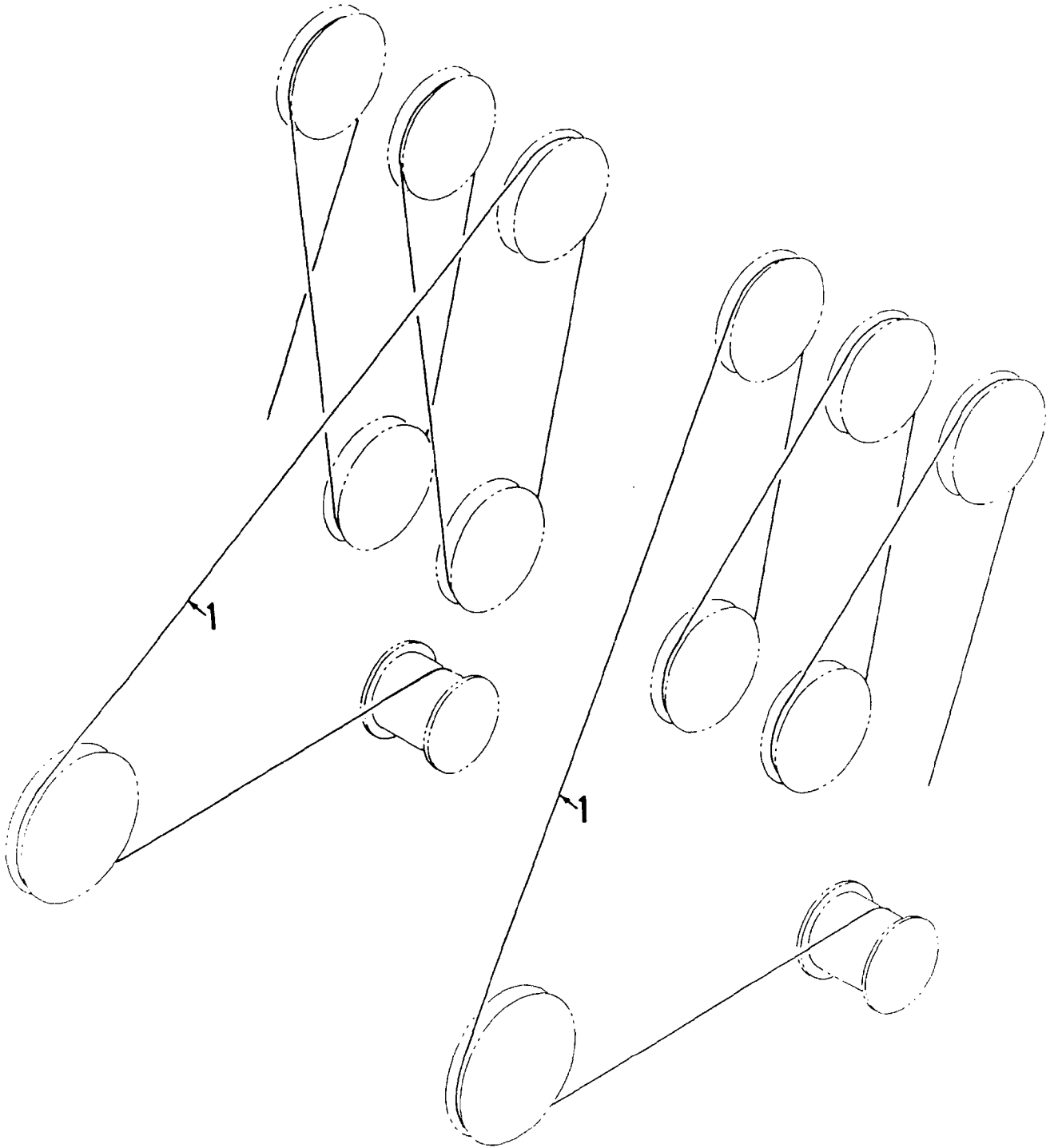
GROUP F - Attachments

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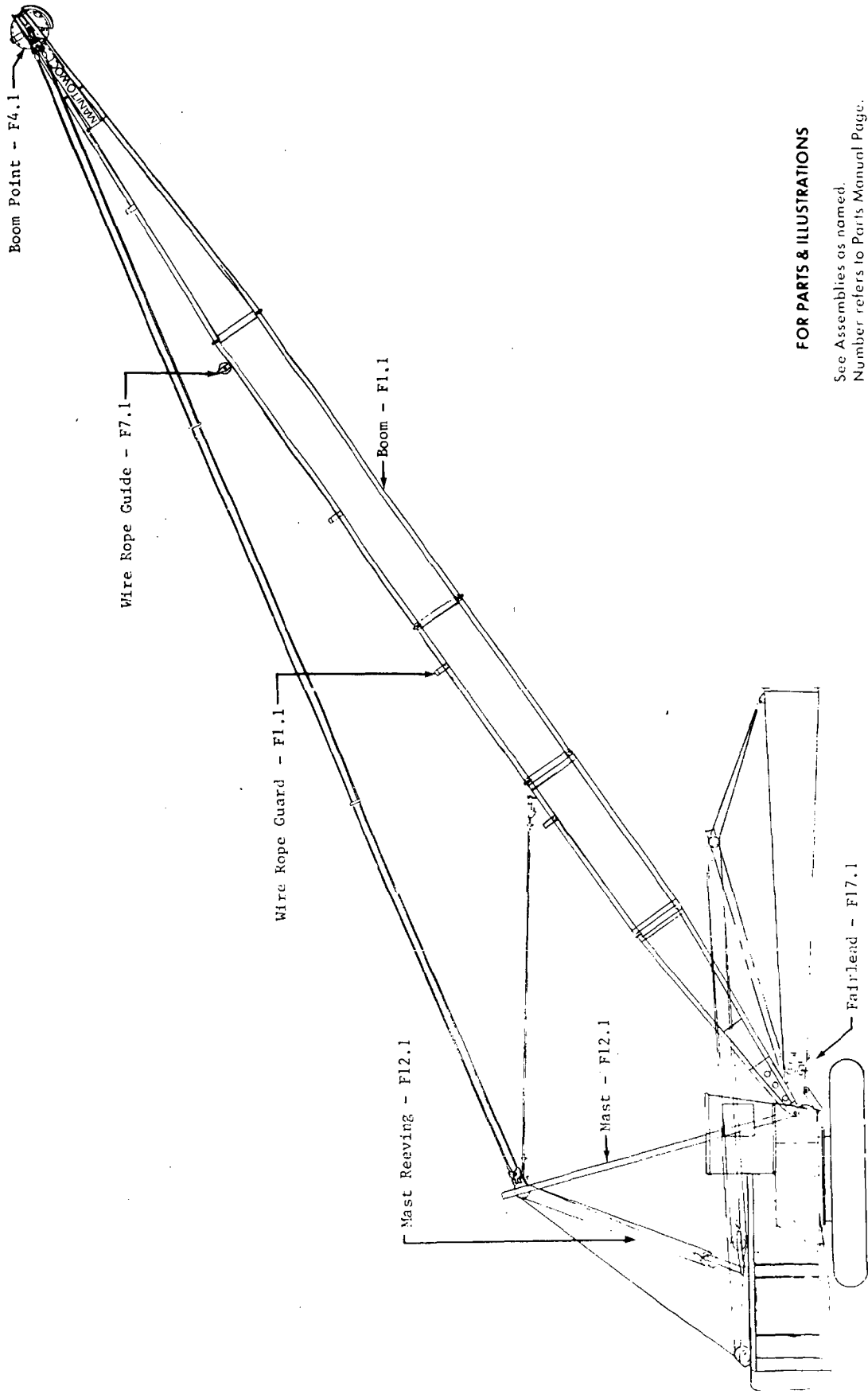
MASTER



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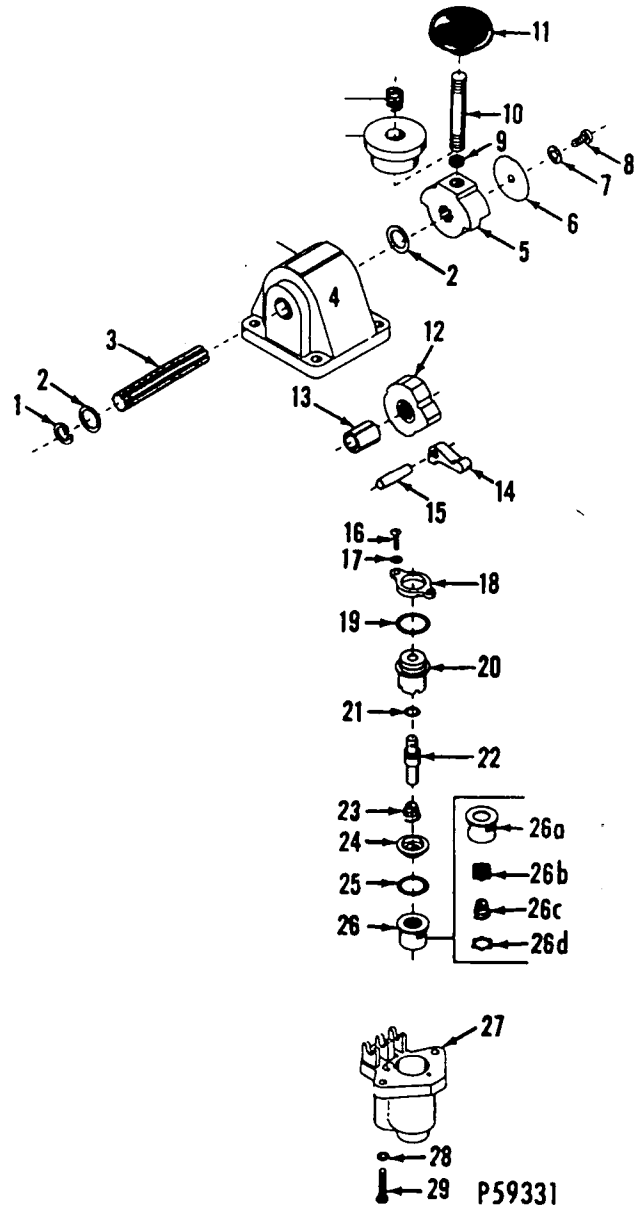
MAST REEVING



FOR PARTS & ILLUSTRATIONS

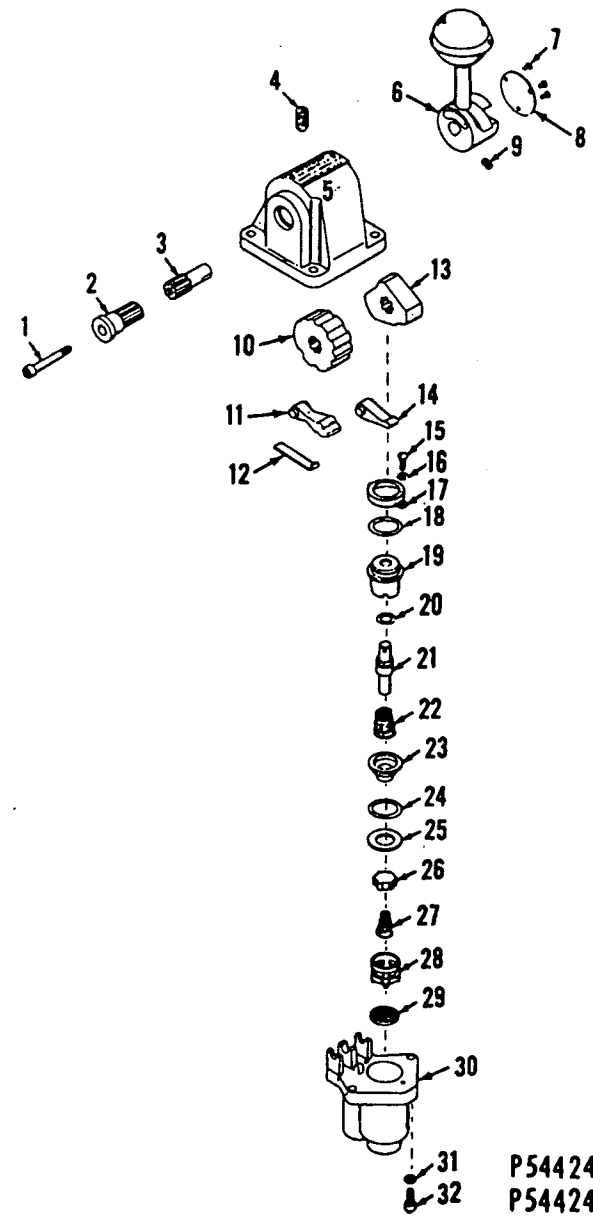
See Assemblies as named.  
Number refers to Parts Manual Page.

0-69



- 26a
- 26b
- 26c
- 26d

P59331  
P59333



P54424-0101  
P54424-0301

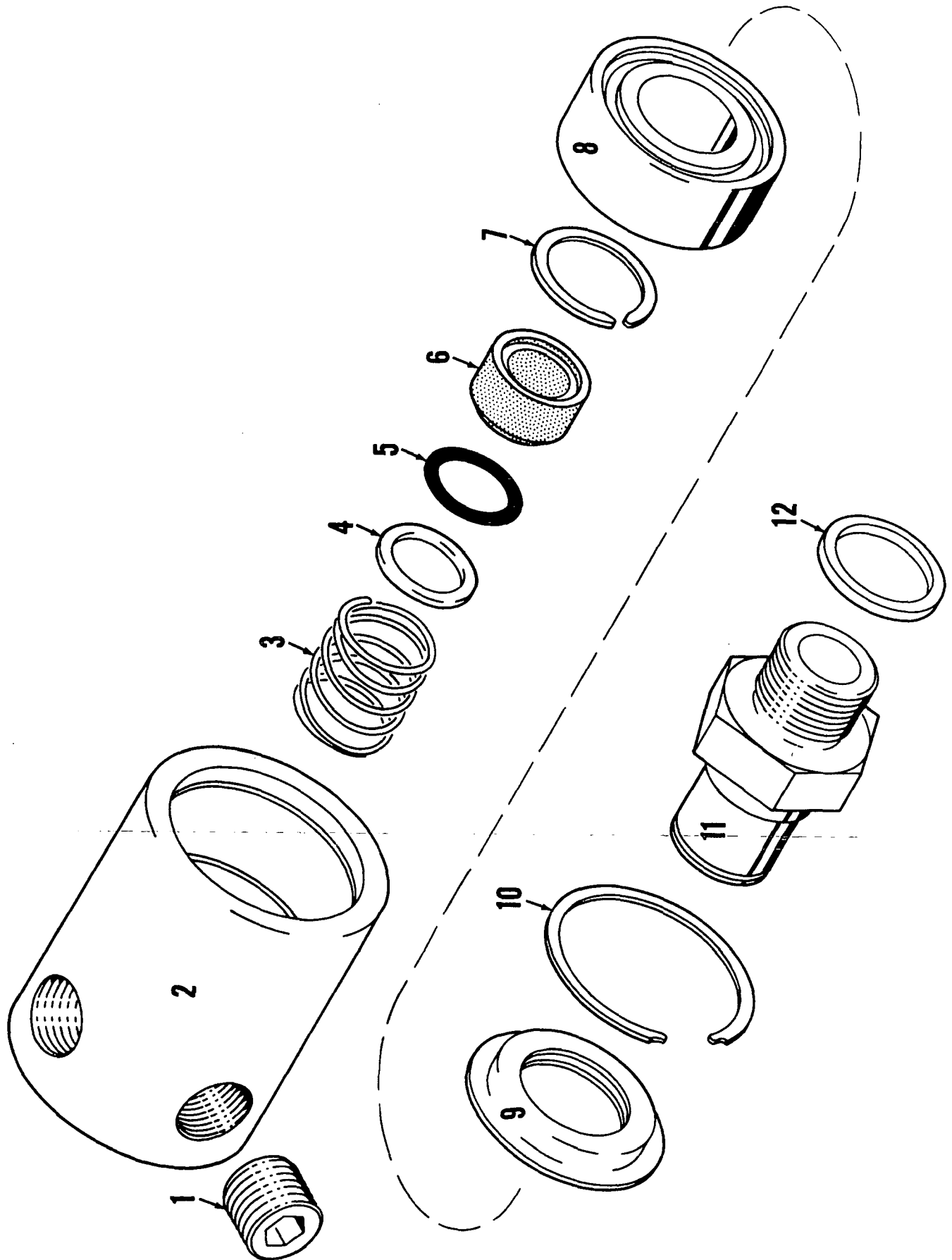
MATERIAL LIST ON BACK

CONTROL VALVE

MASTER

0-112 A

Q-112A1



MATERIAL LIST ON BACK

SWIVEL UNION

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Division of The Manitowoc Company, Inc.

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



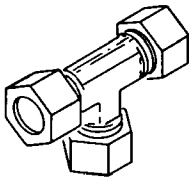
**NUT**

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



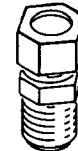
**UNION**

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



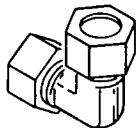
**FEMALE CONNECTOR**

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



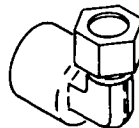
**MALE CONNECTOR**

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



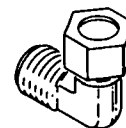
**UNION ELBOW**

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



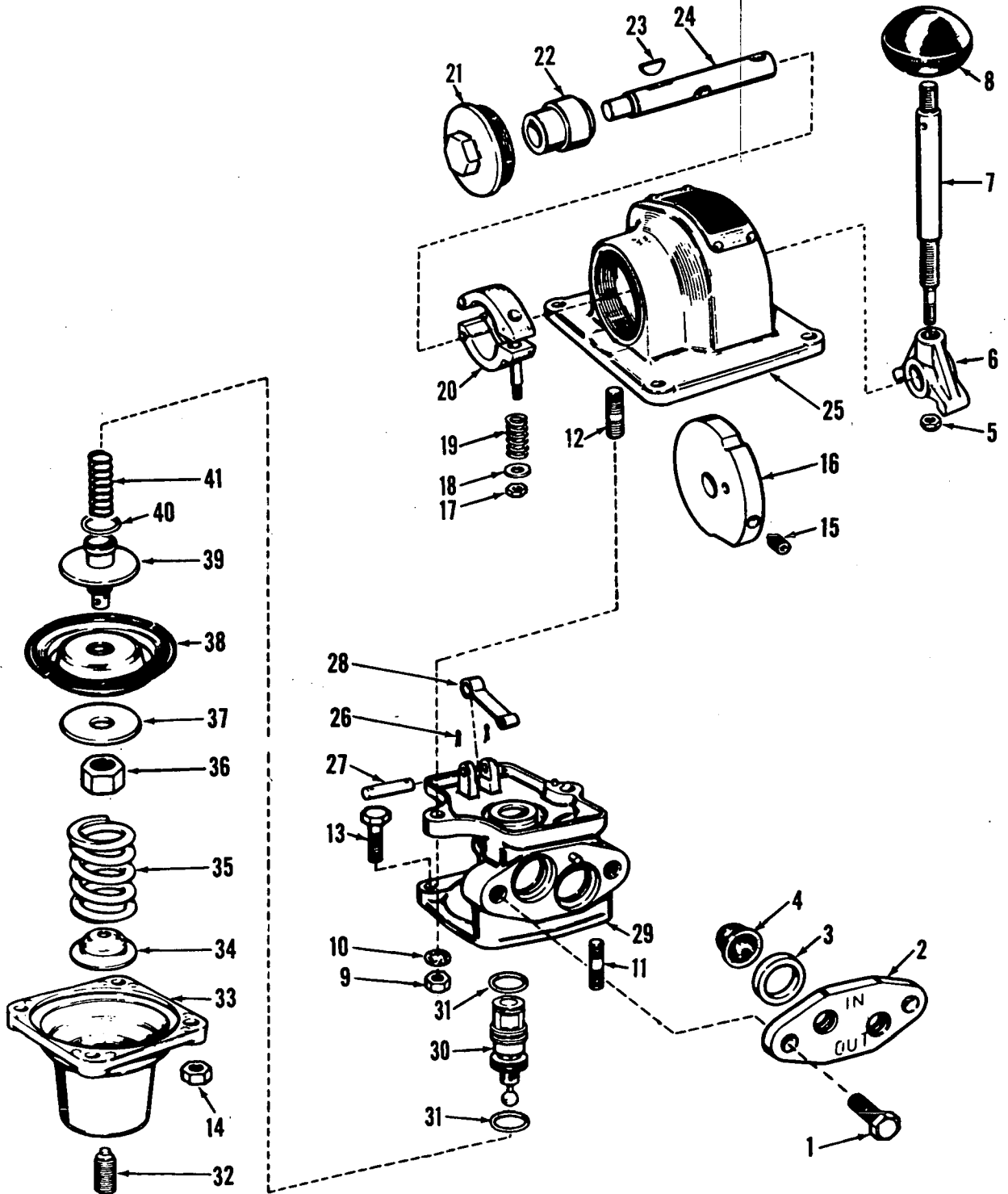
**MALE ELBOW**

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

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O-275

MATERIAL LIST ON BACK

MASTER

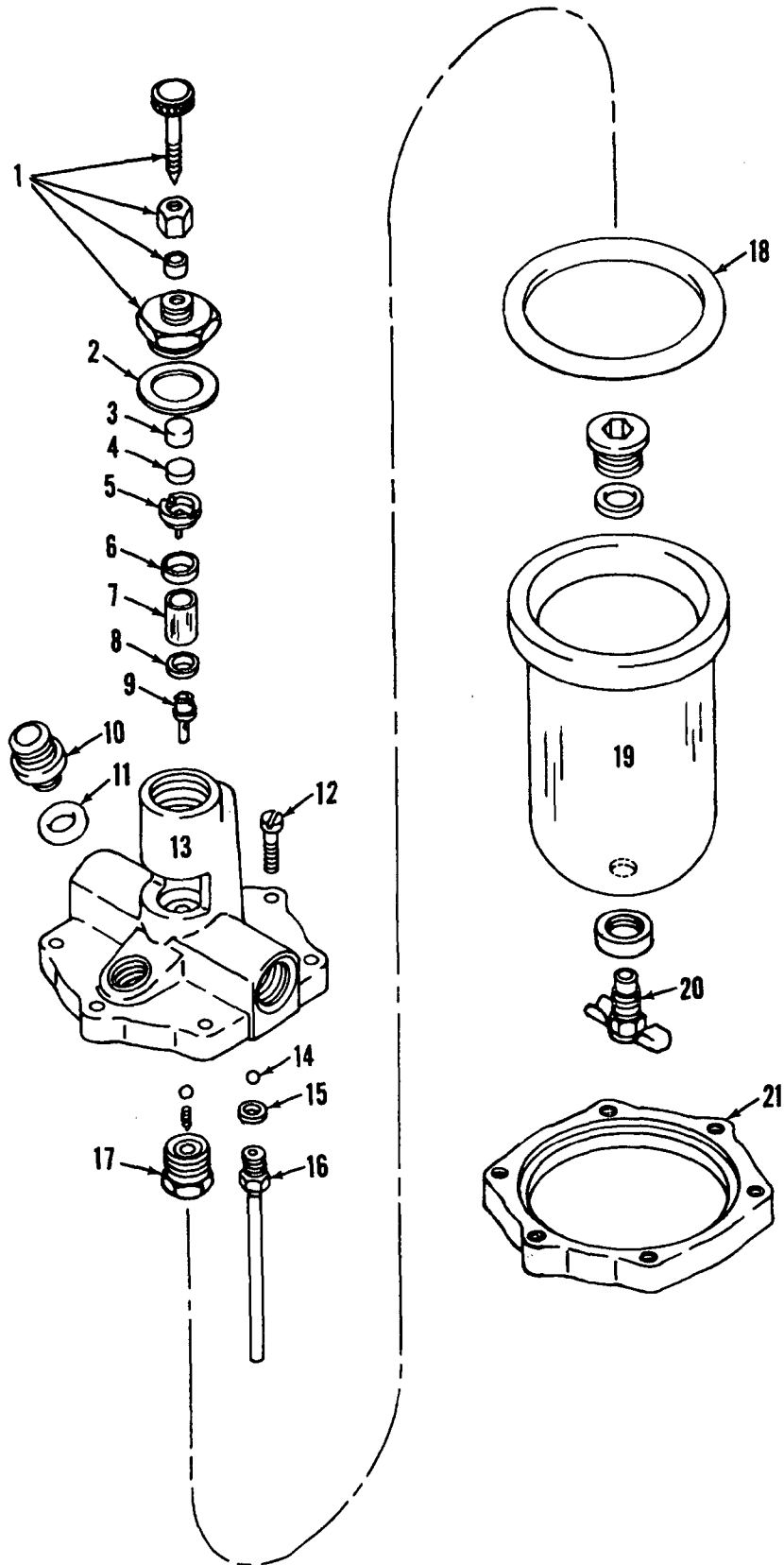
0-373

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Manitowoc, Wisconsin

MASTER



0-291

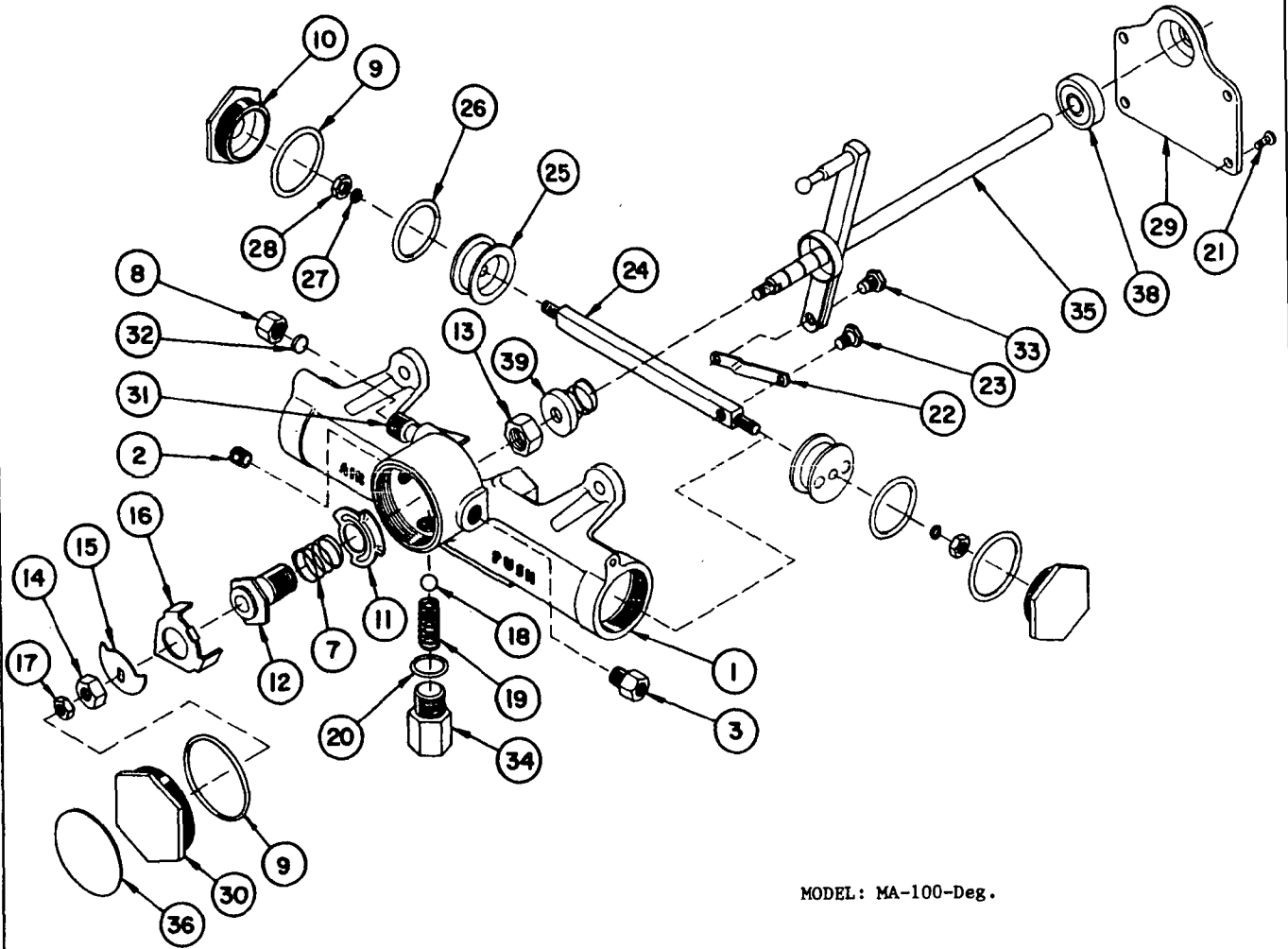
MATERIAL LIST ON BACK

LUBRICATOR

162.0



MASTER



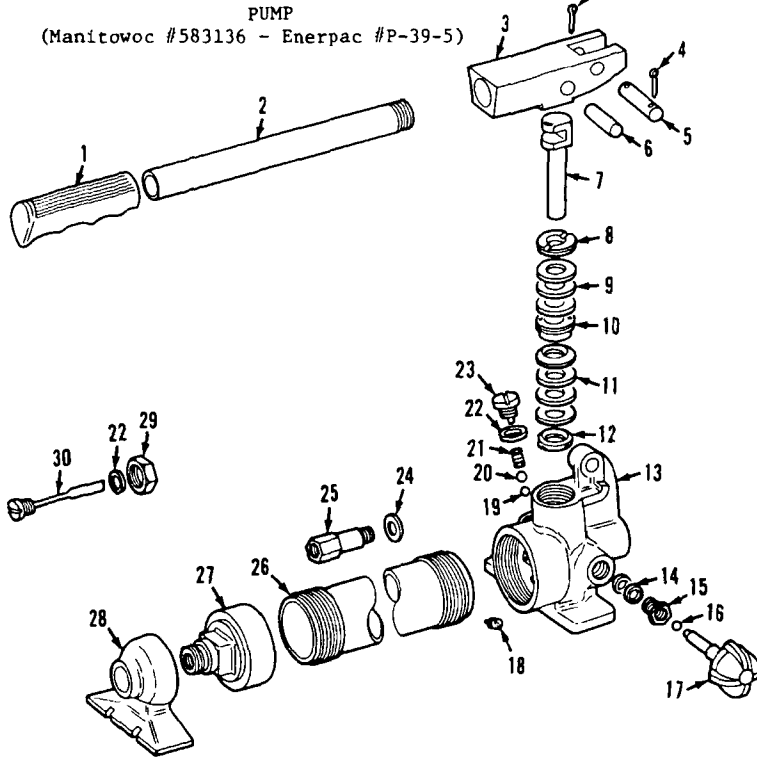
MODEL: MA-100-Deg.

WINDSHIELD WIPER MOTOR

**MANITOWOC ENGINEERING CO.**

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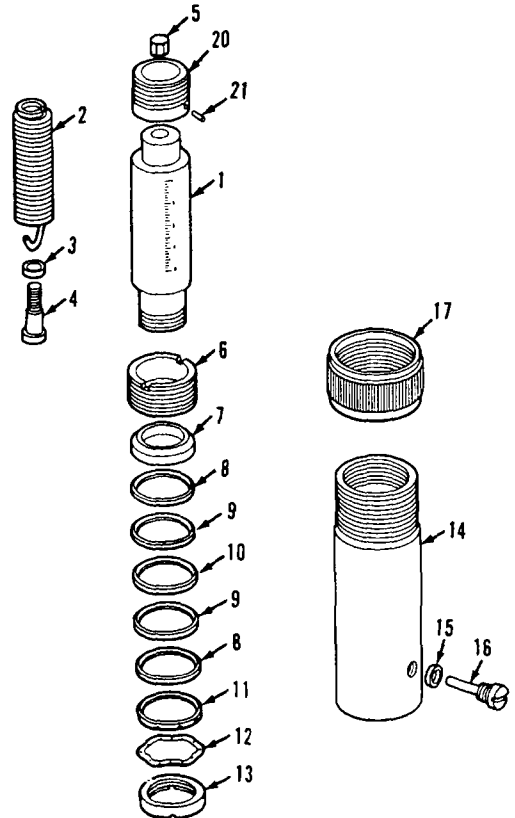


Ref. No.	No. Req.	Description	Part No.
1	1	Grip	C7.550
2	1	Handle	C7.900
3	1	Beam	B113.060-1
4	2	Pin, Cotter	S1.59
5	1	Pin, Beam	P76.63
6	1	Pin, Cross	P75.57
7	1	Plunger, Pump	P16.51
8	1	Nut, Retaining	P16.54
9	3	Packing, Pump	*
10	1	Nut, Cup Ret.	P16.55
11	4	Cup, Pump	*
12	1	Spreader	P1.52-2
13	1	Base	B121.005-1
14	2	Packing	*
15	1	Nut, Packing	MJ11-1
16	1	Ball	*
17	1	Spindle	J435.900
18	1	Screen, Oil	P807.18
19	2	Ball	*
20	1	Ball	*
21	1	Spring	S1.183
22	3	Gasket	*
23	1	Plug, Valve	CB9.185
24	1	Gasket	B159.167
25	1	Valve, By-pass	P182.190-2
26	1	Reservoir	P16.25
27	1	Cap, Reservoir	P75.266-1
28	1	Rest., Pump	P76.267-1
29	1	Nut	P75.181
30	1	Plug, Filler	B110.900
*		Kit	P39K-1

**JACK**  
(Manitowoc #385177 - Enerpac #RSP-251)

Part numbers are the Venders, Enerpac, Butler, Wis. 54220. Please so Specify if ordering from Manitowoc Engineering Co. When ordering parts, please give Model number and Serial number. See Nameplate for this information.

Ref. No.	No. Req.	Description	Part No.
1	1	Plunger Assembly	R251.900
20	1	Saddle	R251.45
21	1	Pin	R251.61
2	1	Spring	R225.184
3	1	Bearing Thrust	R225.155-1
4	1	Screw, Adjusting	R225.143-1
5	1	Nut	R225.55
6	1	Ring, Stop	R77.44-1
7	1	Disc	R225.71
8	2	Chevron	*
9	2	Separator, Cup	*
10	1	Chevron	*
11	1	Spreader	R77.43-1
12	1	Washer, Spring	*
13	1	Nut, Retaining	R77.35
14	1	Base	R225.05
15	1	Gasket	*
16	1	Screw, Retaining	R225.302
17	1	Protector, Thread	R158.271
	1	Coupler, Half	AR400
	1	Cap, Dust	Z410-1
	1	Decal	*
		Kit, Cylinder Packing	RC251K
		Kit, Coupler Packing	A604K



Crawler Adjusting Jack and Pump

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