



# TRADITIONAL CRANE PARTS MANUAL

This manual has been prepared for and is considered part of

**4600**

Model

**46056**

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.*

**MANITOWOC CRANES, INC.**

2401 South 30th Street • PO Box 70

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## B. Ordering Lacings without Lacing Drawings

The parts order must contain the following information to ensure that Manitowoc provides you with the correct lacings:

1. Crane serial number (can be found on builders plate in operator's cab.)
2. Boom or jib identification number.
3. Quantity, lacing location, and lacing number.
4. Boom or jib component name (butt, insert, or top) and part number.

**NOTE:** To obtain the lacing location and number, view the boom or the jib from the butt end looking forward. Identify the side on which the damaged lacing is located: left side, top side, right side, or bottom side. Count each lacing up to and including the damaged lacing, starting with **first lacing nearest butt end** of the component as shown in Figure e3.

Do not count a diagonal lacing as the first lacing. Identify diagonal lacing separately; lower end diagonal lacing or upper end diagonal lacing.

## ASSISTANCE

If you are in doubt as to which lacings to order, DO NOT GUESS. Contact your nearest Manitowoc distributor for assistance; doing so may prevent the wrong parts from being shipped.

**EXAMPLE:** Assume you have a number 22 boom and the lacings with circled numbers in Figure 3 are damaged. Your parts order should be similar to the following example:

Crane Serial Number: **00000** (from builders plate).

Boom Identification Number: **#22 Boom**

Required:

- 1 each Top Side Lacing (1) for 30 ft Butt 48153-9
- 1 each Right Side Lacing (5) for 30 ft Butt 48153-9
- 1 each Bottom Side Lacing (3) for 20 ft Insert 33426-3
- 1 each Bottom Side Lacing (6) for 20 ft Insert 33426-3
- 1 each Top Side Lacing (2) for 40 ft Top 50453-2

Quantity	Lacing Location	Lacing Identification Number	Component Name and Part Number
1	Top Side	(1)	30 ft Butt 48153-9
1	Right Side	(5)	30 ft Butt 48153-9
1	Bottom Side	(3)	20 ft Insert 33426-3
1	Bottom Side	(6)	20 ft Insert 33426-3
1	Top Side	(2)	40 ft Top 50453-2

## WELDING INSTRUCTIONS

Each lacing order is shipped with welding instructions and a copy of Form 00SPFM006 which identifies the chord and lacing material.

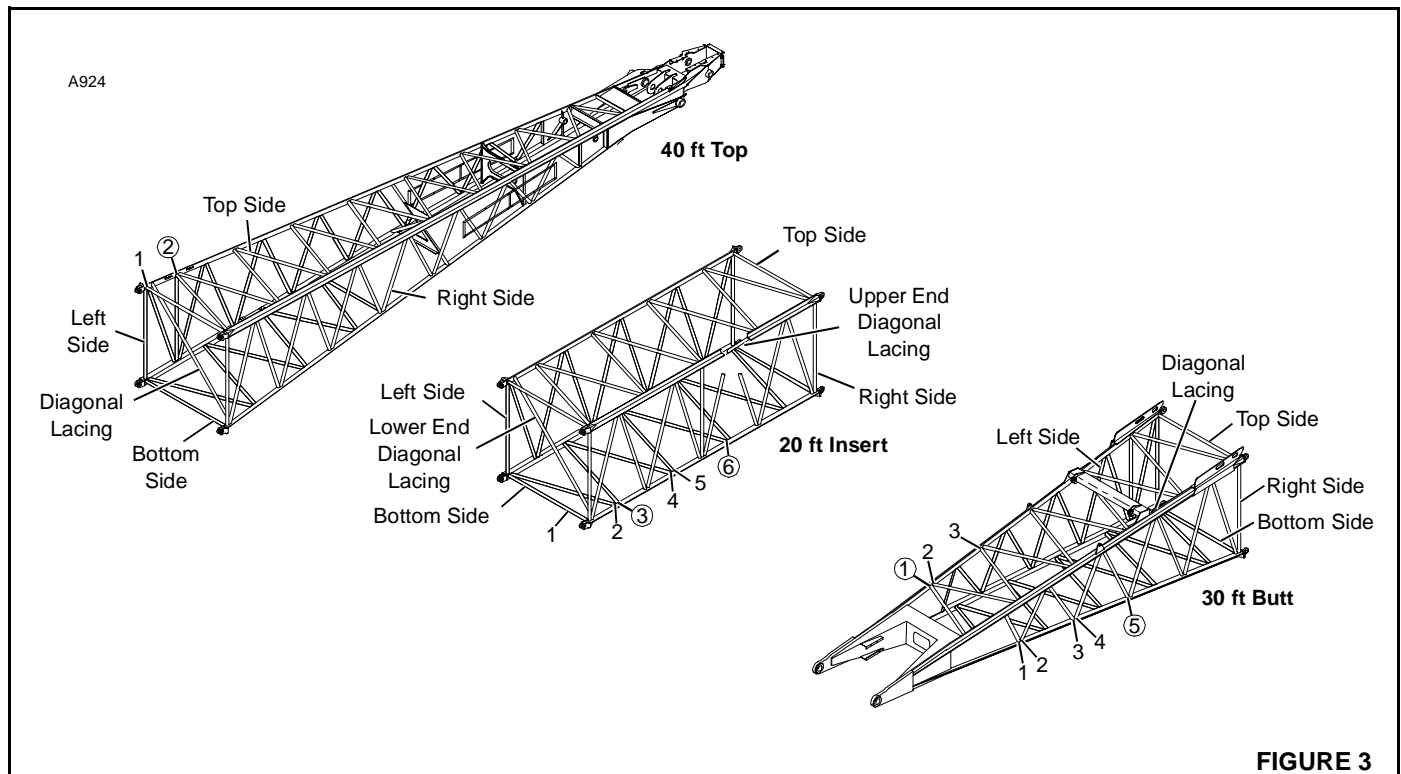
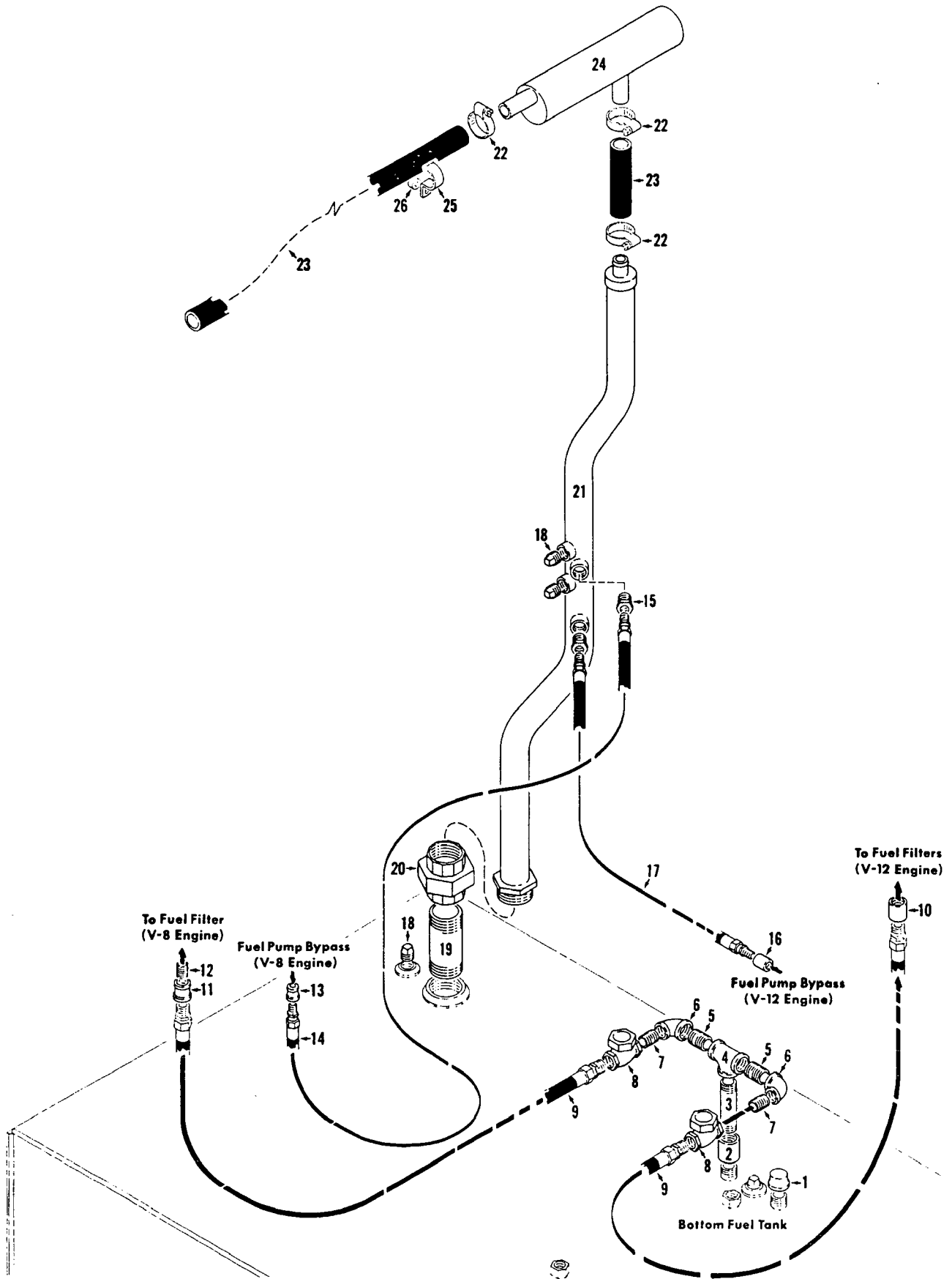


FIGURE 3

**PARTS MANUAL ALPHABETICAL INDEX  
GROUP A - Rotating Structure**

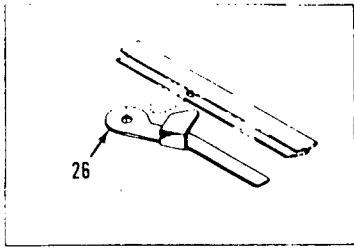
DESCRIPTION	PUBLICATION	REV	START DATE	END DATE	GROUP
"A" Frame	42789	I1	10/24/61	08/08/86	A0101
Cab	50274	B1	12/10/63		A0201
Chain & Gear Case	31226	B1	10/06/61		A0401
Chain & Gear Case	50287	G1	06/13/62	07/14/83	A0401
Counterweight & Cab Rear	42264	D1	02/08/61	01/14/64	A0301
Counterweight Handling	42297	B1	02/13/61	04/20/64	A0302
Drum Drive Chain Case or Interlock Case	40723	C1	03/10/47	10/22/76	A0402
Fuel Tank	32185	F1	06/10/79	01/31/78	A0601
Fuel Tank	32412	A1	07/05/61	06/10/76	A0601
Fuel Tank	32412	A2	07/05/61	06/10/76	A0601
Fuel Tank	32412	A3	07/05/61	06/10/76	A0601
Guards	40773	D1	10/25/48	02/25/71	A0501
Interlock Drive Oiler	32177	B1	01/20/60	04/07/69	A0403
Operator's Station/Pilothouse	42206	C1	04/07/58		A0202
Operator's Station/Pilothouse	42206	K1	06/06/61	04/21/75	A0202
Platform	42263	B1	06/14/60	07/23/71	A0701
Rotating Bed Lubrication Piping	41855	A1	02/01/56	06/28/74	A0104
Rotating Bed/Hoist Frame/Transporter Platform	50266	A1	10/07/60	06/30/66	A0102
Rotating Bed/Hoist Frame/Transporter Platform	50266	E2	10/10/63	06/30/66	A0102
Windshield Wiper/Defogger	42232	C1	12/31/59	10/20/71	A0210
Windshield Wiper/Defogger	42232	C2	12/31/59	10/20/71	A0210



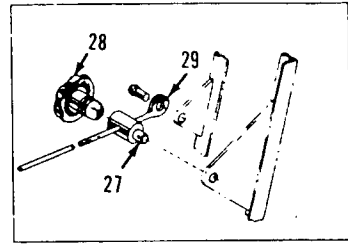
32412A2

MATERIAL LIST ON BACK

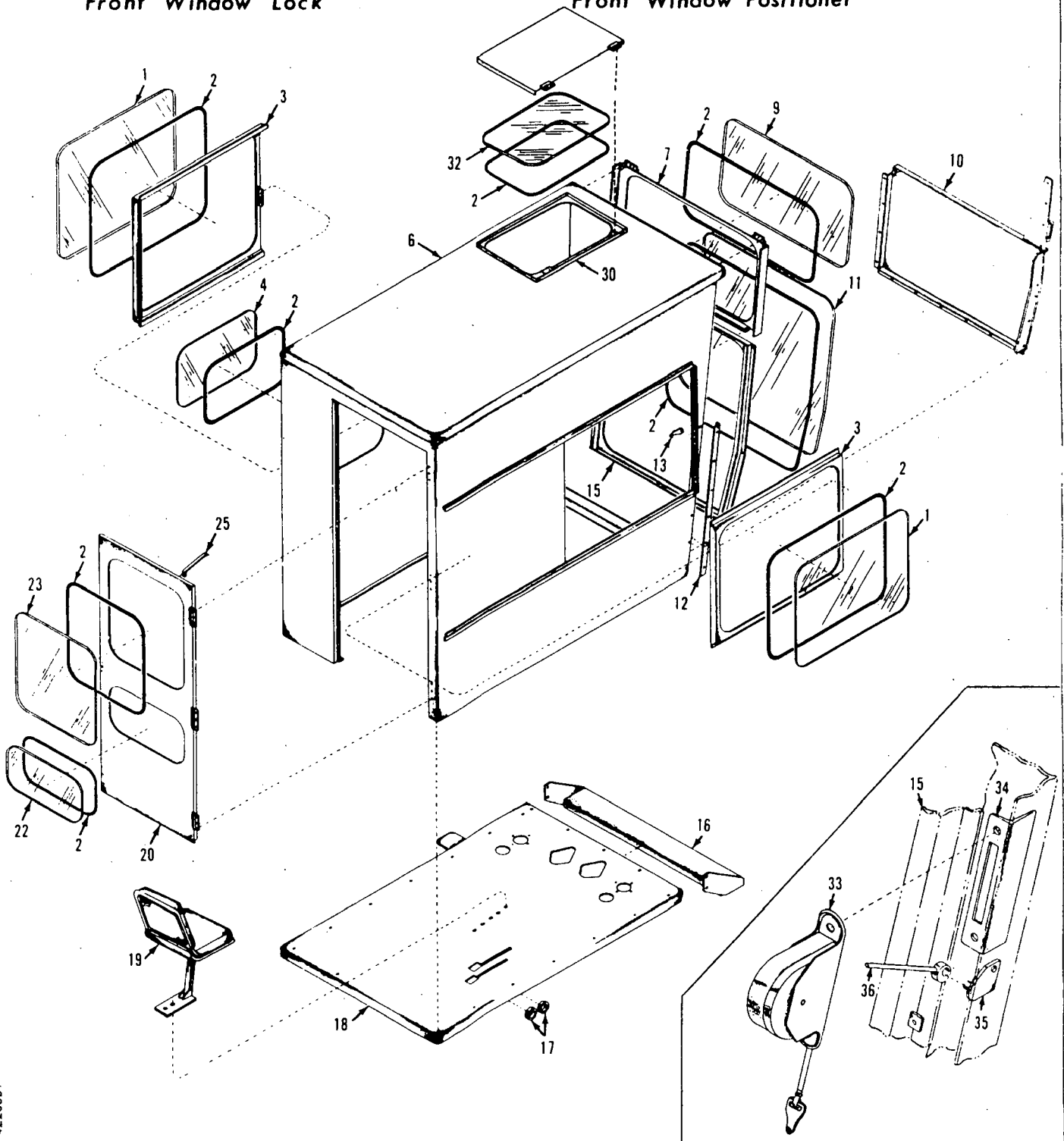
VENT PIPING



Front Window Lock



Front Window Positioner



MATERIAL LIST ON BACK

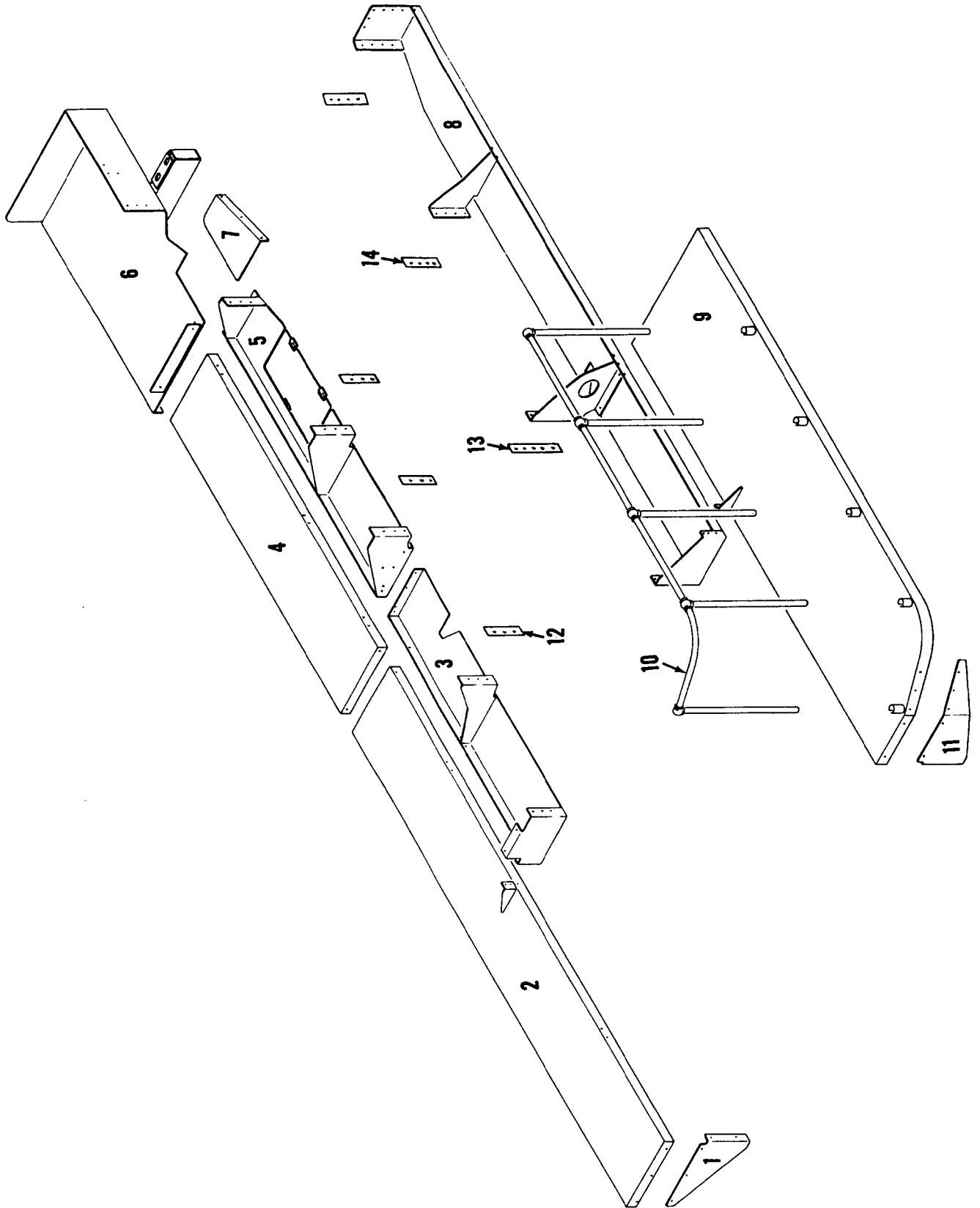
PILOT HOUSE  
LOT 17

4220681

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MASTER

PLATFORM

MATERIAL LIST ON BACK

42263-B-1

42263 B1

50266-1 Cont'd	REV. A	MODEL 4600
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ROTATING BED ASSEMBLY

REF. NO.	PART NUMBER	QUANTITY REQUIRED	DESCRIPTION OF PART	VENDORS PART NO.
50	14866	1	PLATE, Cover W/capscrews and lockwashers	
51	14868	1	GASKET	
52	73077	1	PLATE, Cover W/capscrews and copper washers (See Note)	
52	14865	1	PLATE, Cover W/capscrews and copper washers (See Note)	
53	73075	1	GASKET	
53	15068	1	GASKET	
54	73076	1	PLATE, Cover W/capscrews and copper washers	
54	15067	1	PLATE, Cover W/capscrews and copper washers	
54	73072	1	PLATE, Cover W/capscrews and copper washers	
55	50265	1	BED, Rotating	

NOTE: Cover #14865 has opening 6" x 18½" and takes cover #15067 and gasket #15068. Superseding cover #73077 has 6" x 25½" opening and takes cover #73076 and gasket #73075. For mach. with ind. swing, use cover #73072 in place of cover #73076.

Run as Front

MASTER

50266A1 Cont'd.

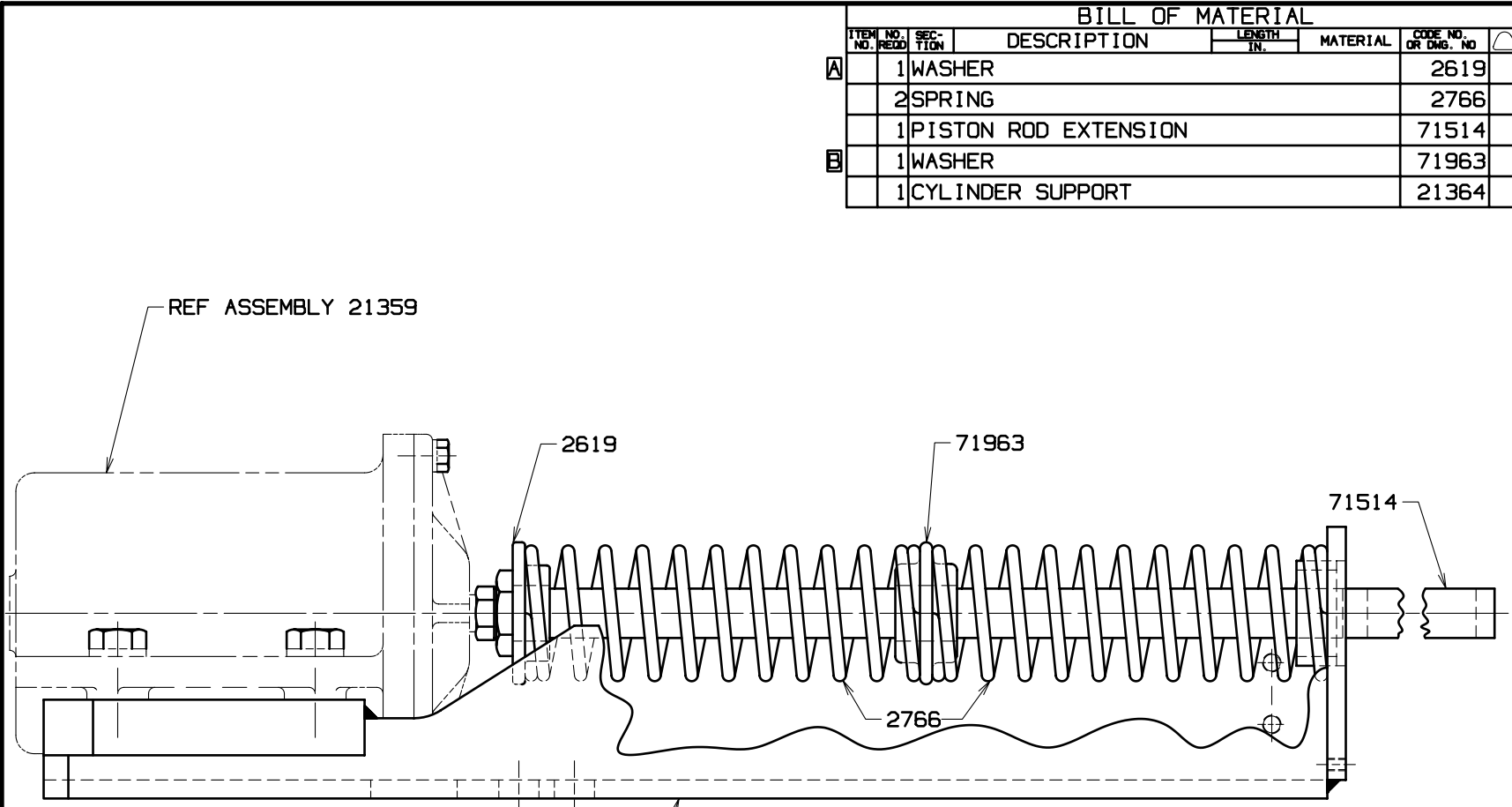
REV. A	50266 - 1
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PLEASE GIVE MACHINE S/N W/ORDER

GROUP B - Upperworks Machinery

C

C



BILL OF MATERIAL						
ITEM NO.	NO. REQ'D	SECTION	DESCRIPTION	LENGTH IN.	MATERIAL	CODE NO. OR DWG. NO.
A	1		WASHER			2619
	2		SPRING			2766
	1		PISTON ROD EXTENSION			71514
B	1		WASHER			71963
	1		CYLINDER SUPPORT			21364

ASSEMBLIES USED ON
41802
41803
41861
49308
49661
49784

REVISIONS

7-21-60 PD  
 A WAS 3 REQ'D  
 B ADDED  
 12-16-82 WNM  
 REDRAW CADAM  
 CK FJZ  
 APP RJS

DATE	9-15-59
PATTERN NO.	
DWG. NO.	23984

SCALE	1/2" = 1 FT
DR.	MFB
CK.	DCM
APP	
DWG. NO.	23984

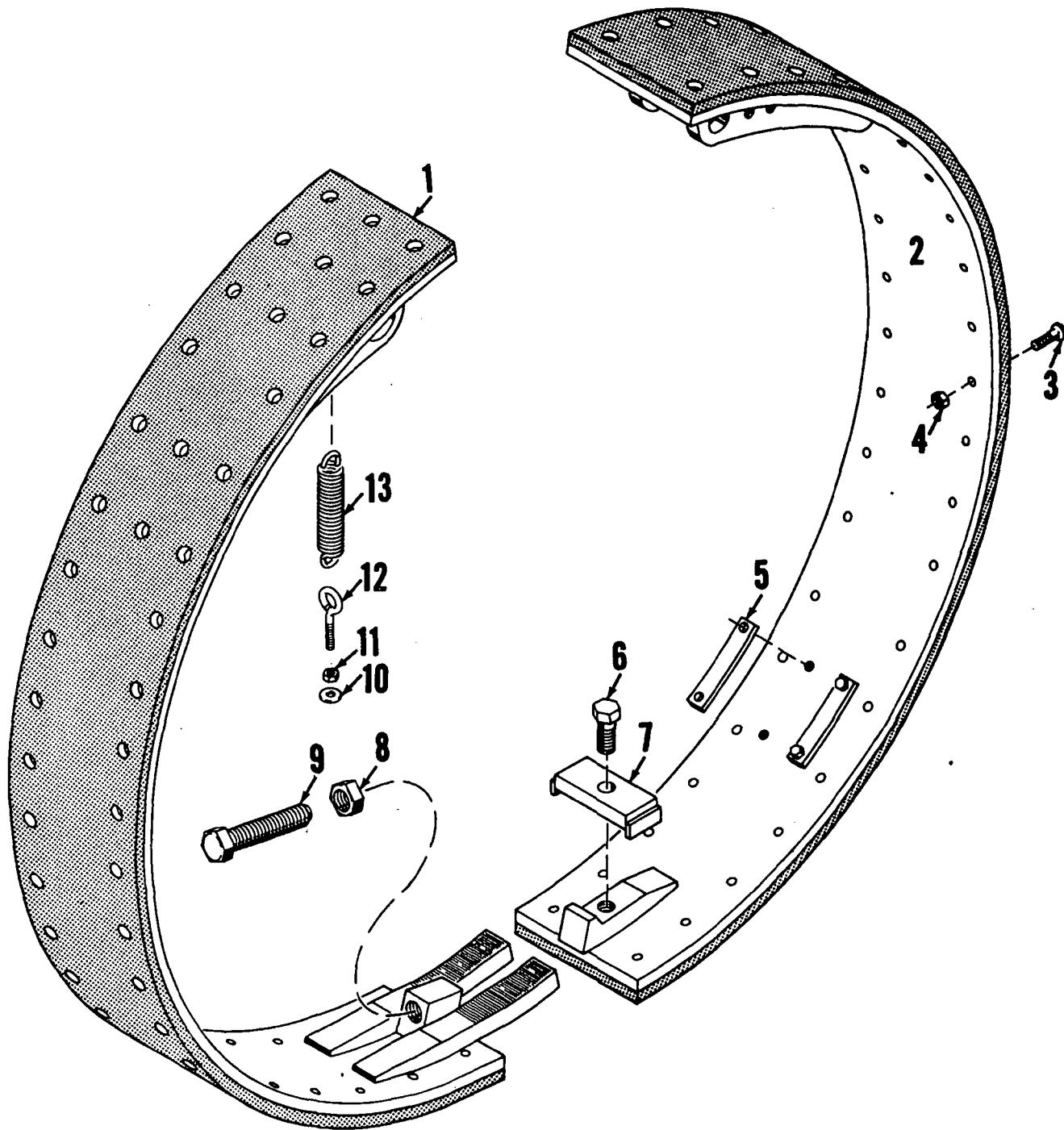
**Manitowoc Cranes, Inc.**  
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 MODEL 4500, 4600

AIR CYLINDER  
 SUPPORT ASSEMBLY

DO NOT SCALE THIS DRAWING

C

C



MASTER

CLUTCH BAND

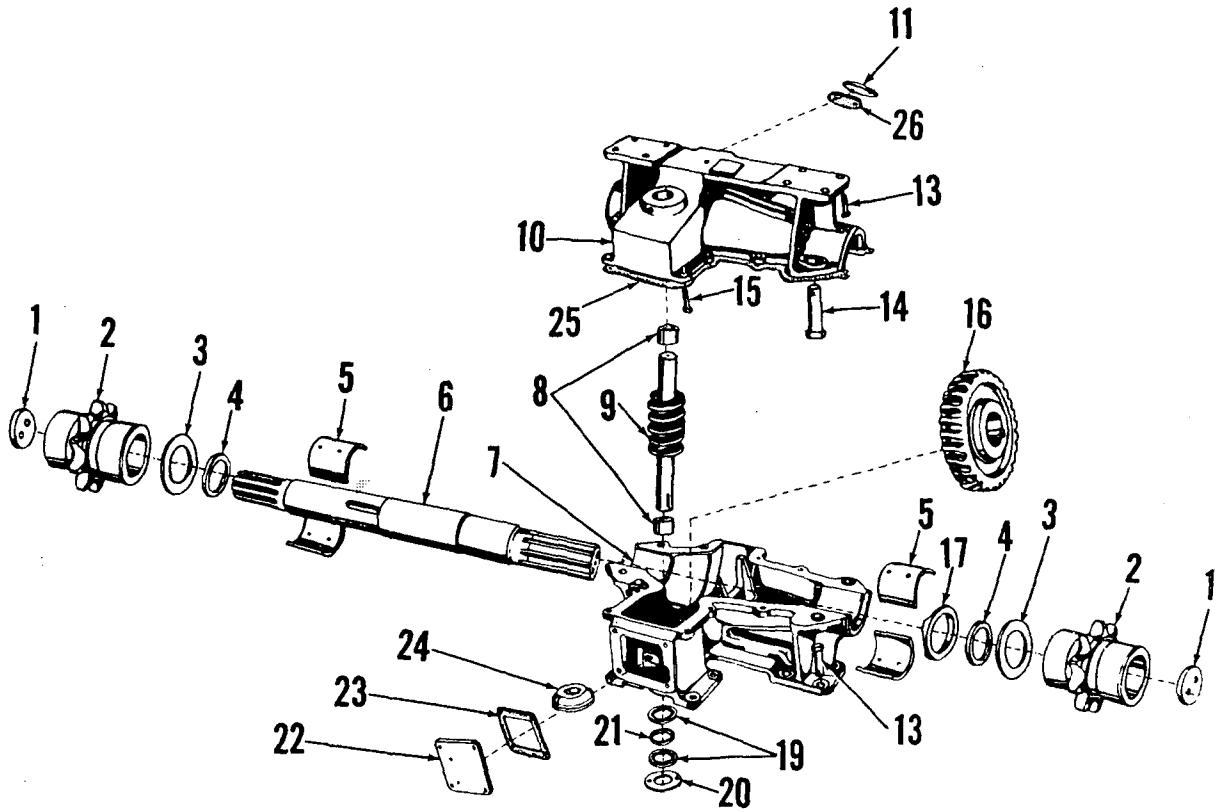
32162-B1

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MASTER



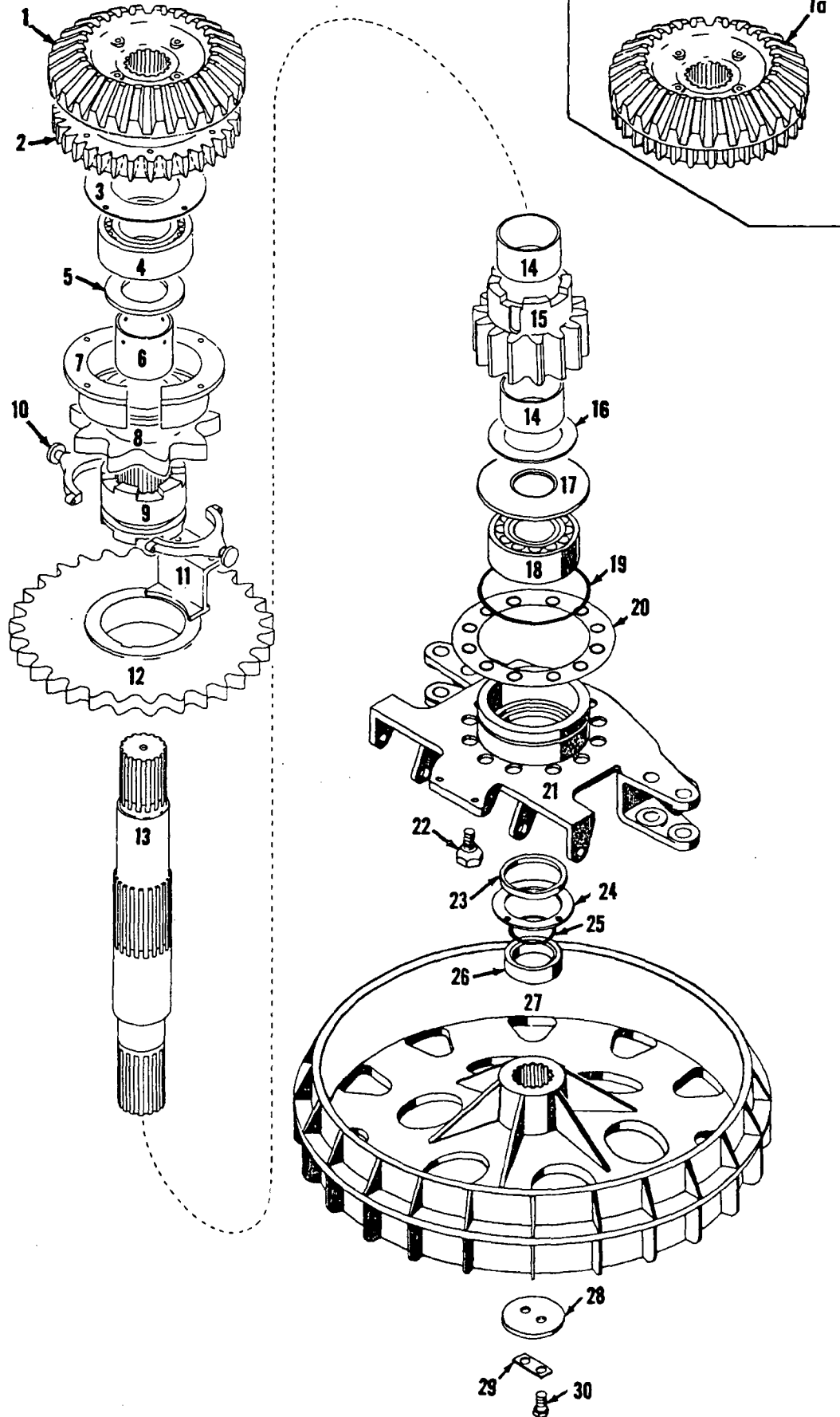
M.E.C.

40715A1

ILLUST. No. 40715-A-1

MATERIAL LIST ON BACK

BOOM HOIST



MASTER

49354A1

MATERIAL LIST ON BACK

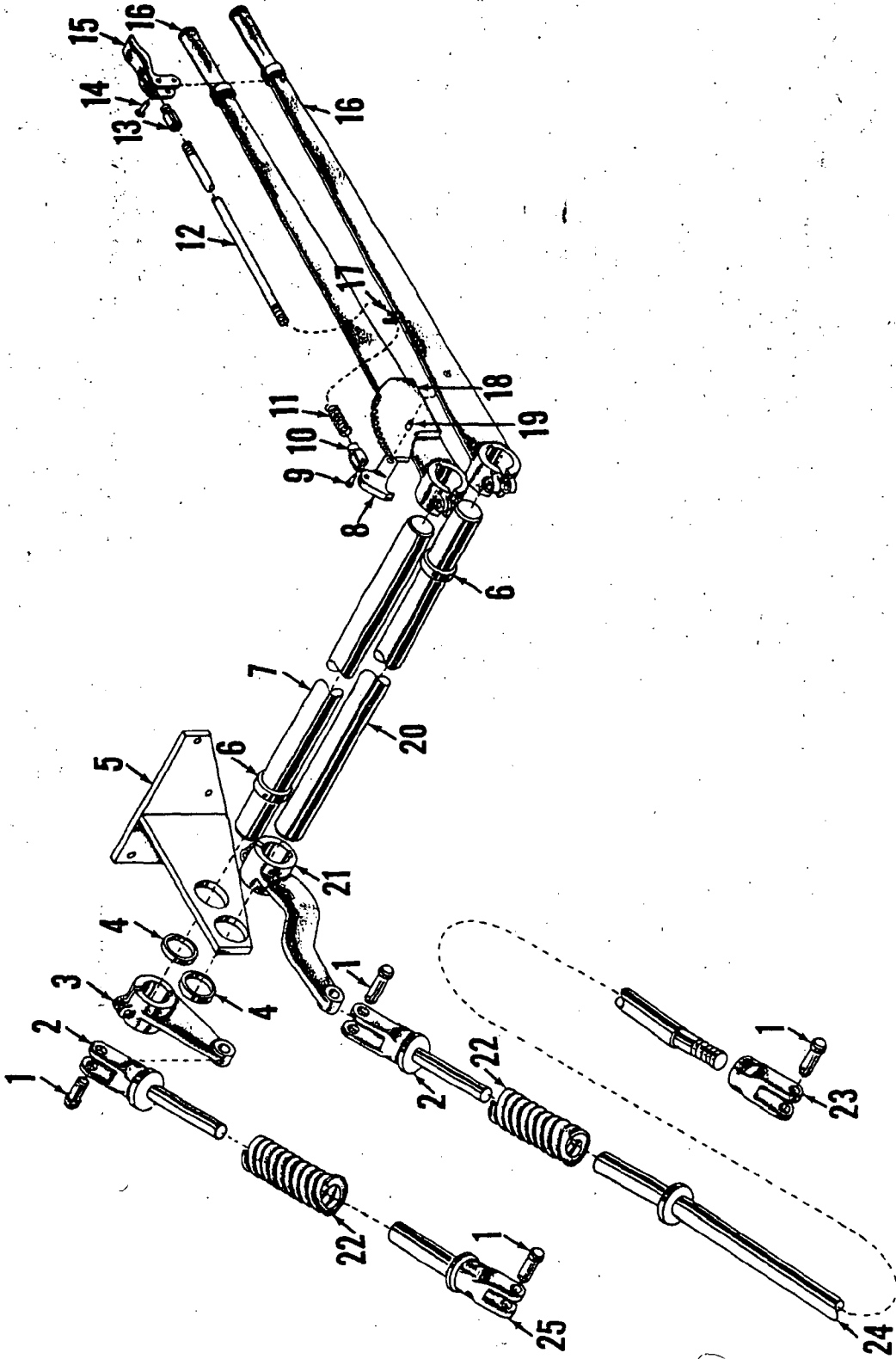
SLIDE PINION SHAFT

MASTER

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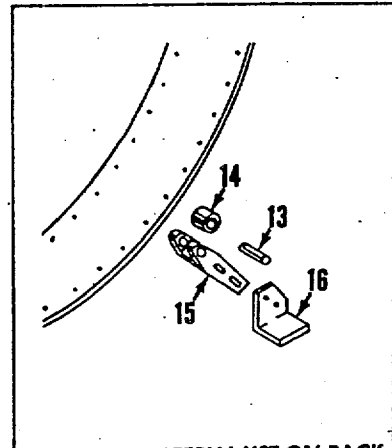
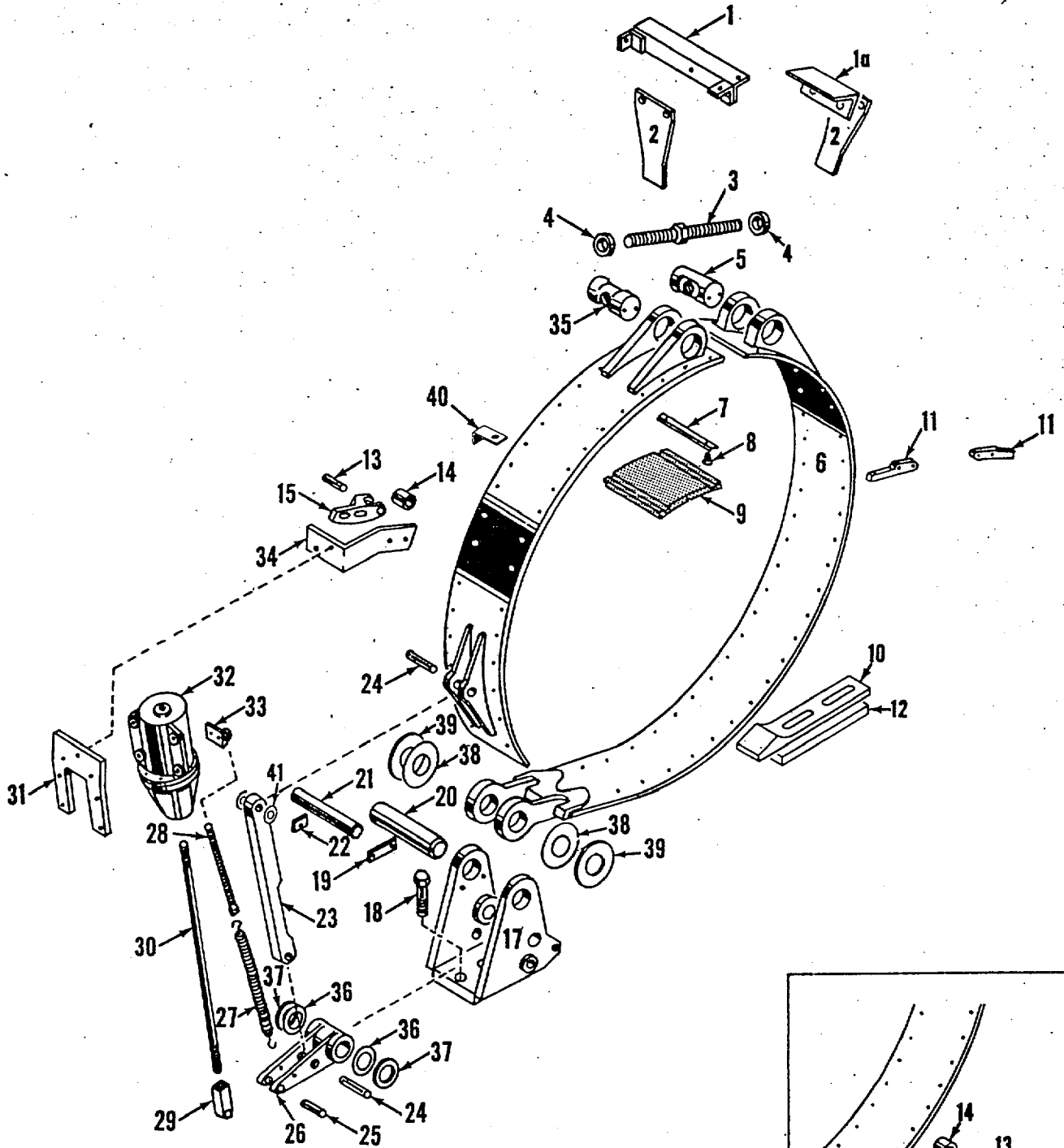
Manitowoc, Wisconsin



ILLUST. No. 42212-B-1

MATERIAL LIST ON BACK

HAND BRAKE ASSEMBLY



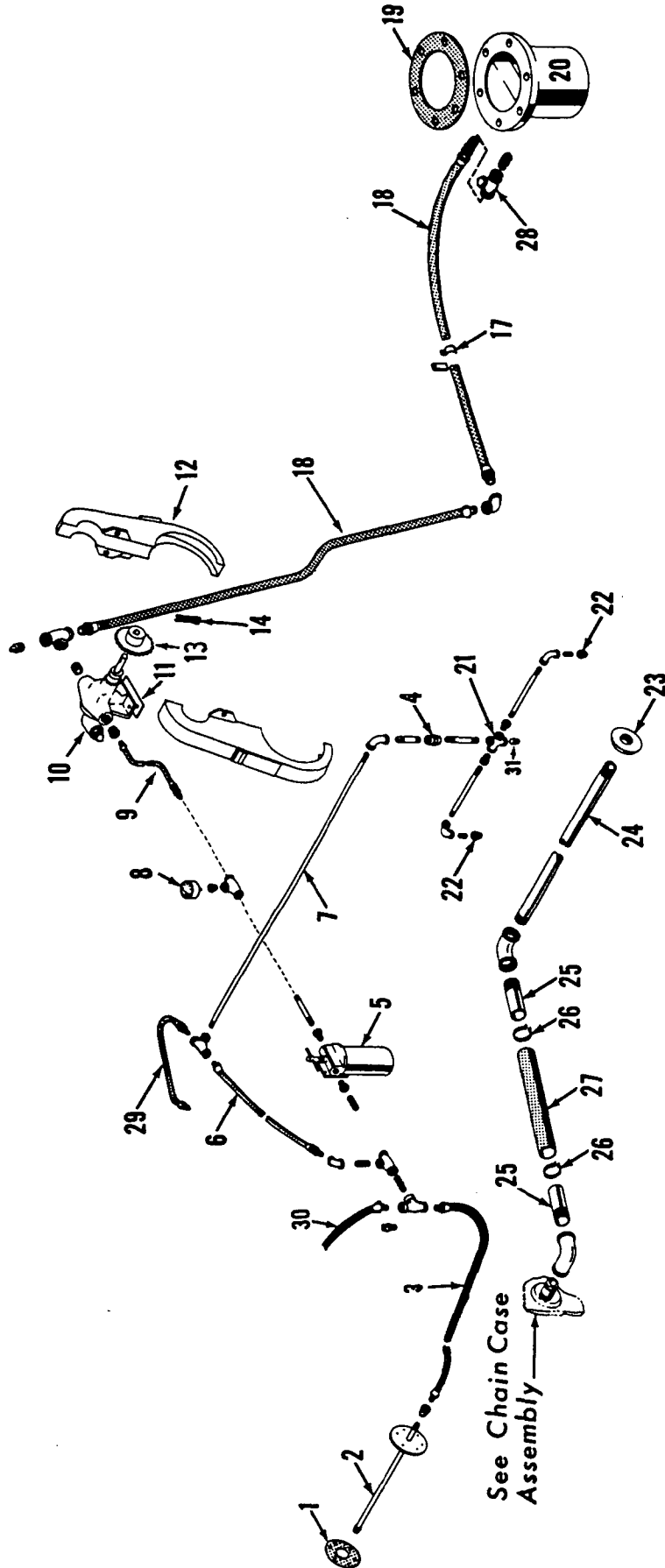
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LEFT REAR DRUM BRAKE

MAER

42274D1

42274D1

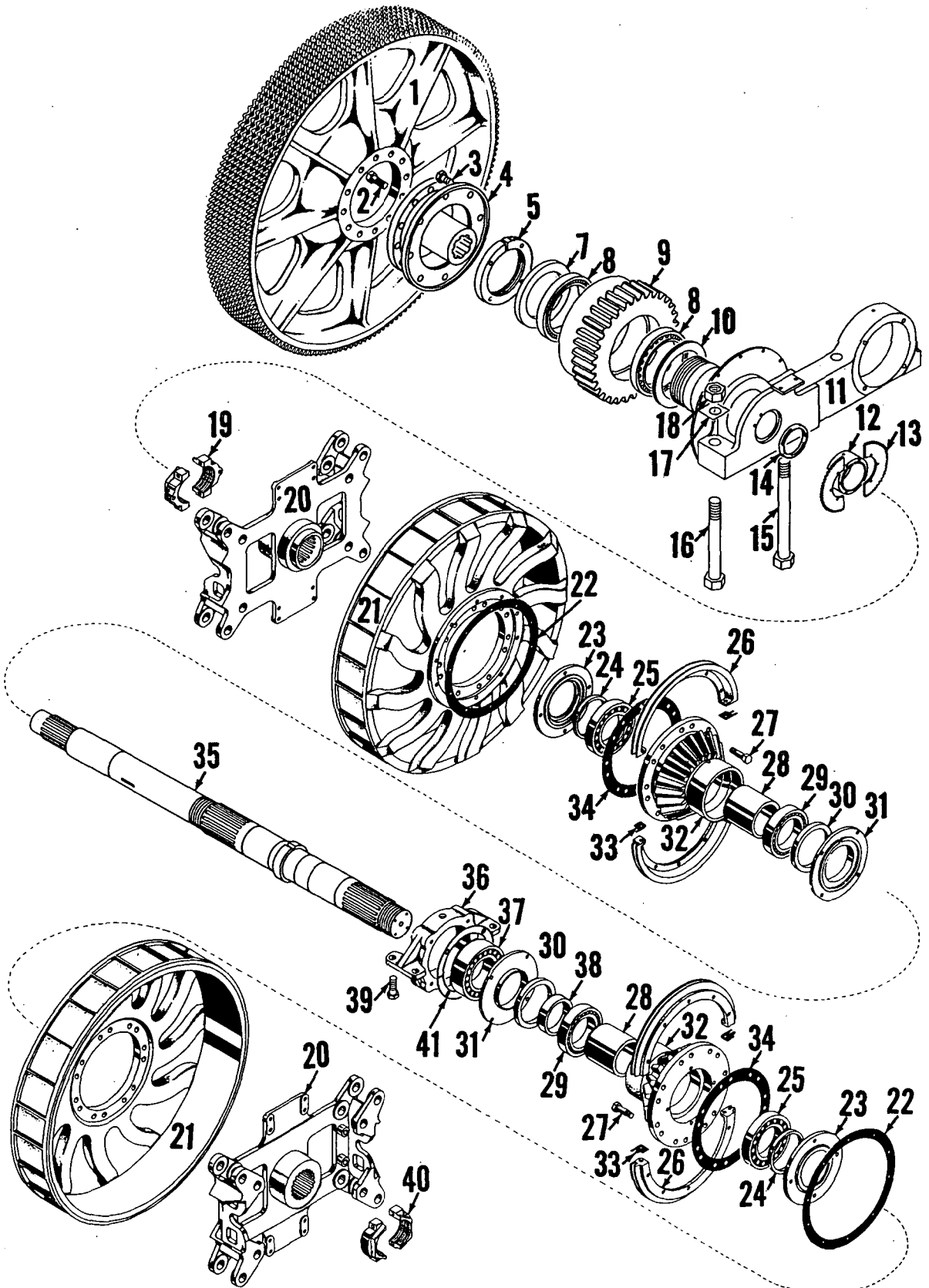




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1-4-62  
1-21-66

50276C2

50276C2

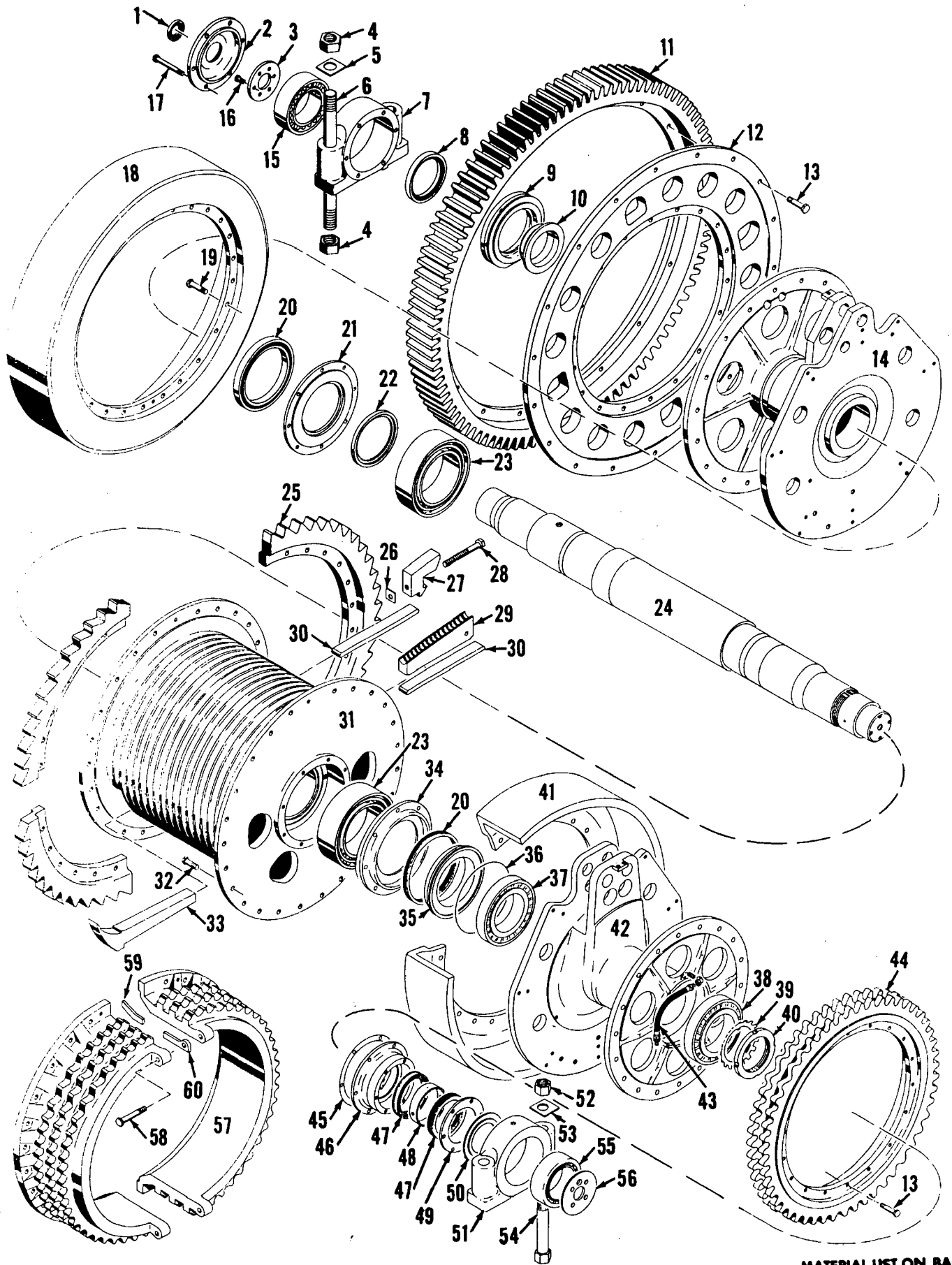
MATERIAL LIST FOR THIS ASSEMBLY WILL BE FOUND ON BACK OF THIS PAGE

MAIN DRIVE SHAFT ASSEMBLY

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42822A1

MATERIAL LIST ON BACK

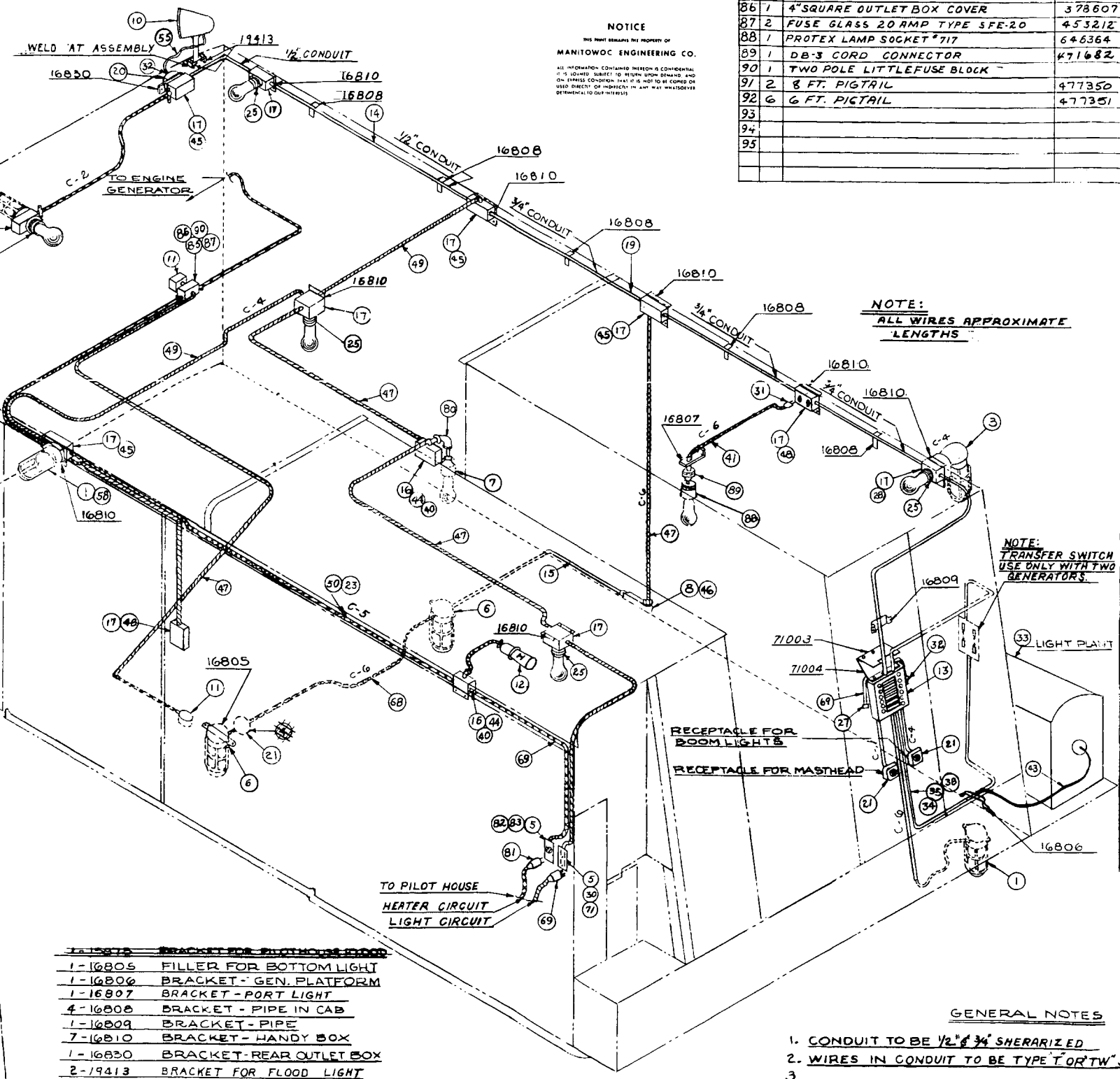
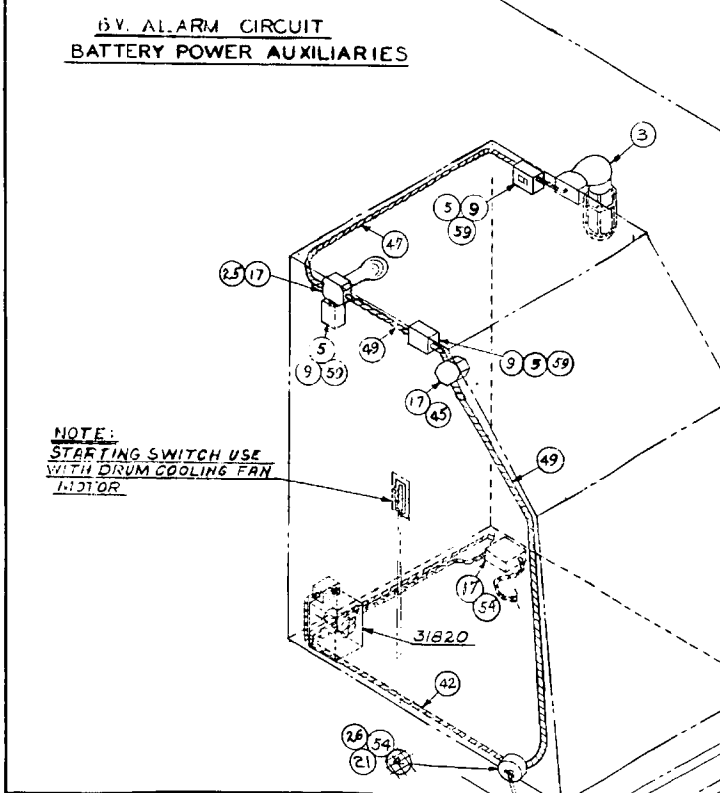
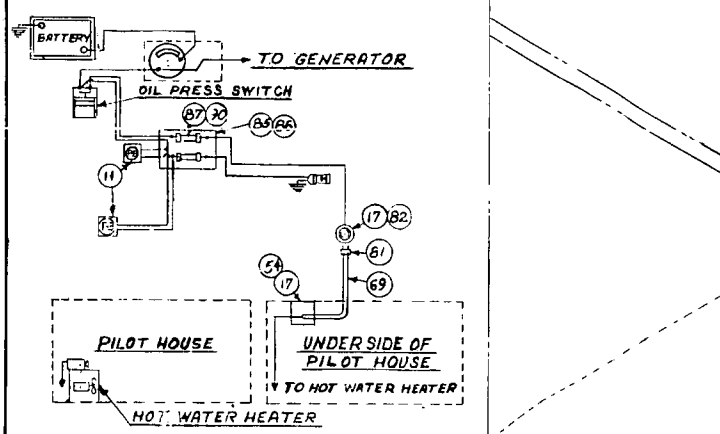
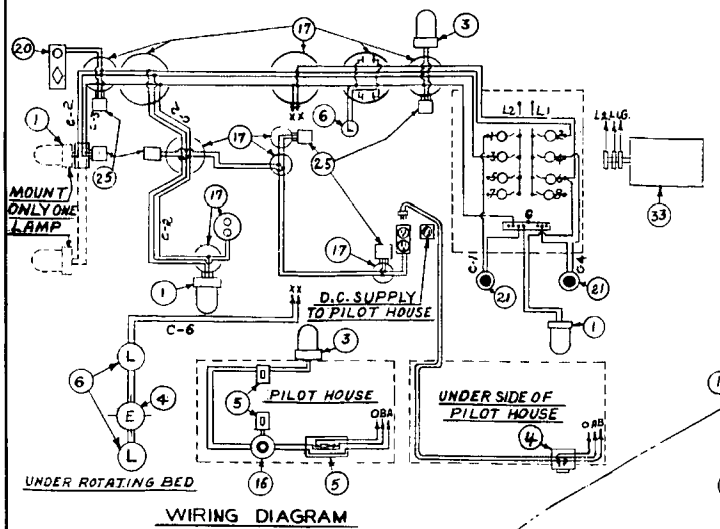
DRUM SHAFT

- OPTIONAL**
- FUEL OIL TRANSFER PUMP SWITCH & RECEPTACLE SEE DWG. 70305
  - WATER TEMP & OIL PRESS. SEE DWG. 70304
  - WINCO GENERATOR VOLTAGE REGULATION ASSEMBLY SEE DWG. 31810
  - GENERAL ELECTRIC TYPE ASB 5 KVA ALTERNATOR ASSEM. SEE DWG. 31811
  - GENERAL ELECTRIC 2 KVA 1.3 KVA ALTERNATOR ASSEMBLY SEE DWG. 42951
  - HEATER HOUSING ASSEMBLY SEE DWG. 31820

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DETERIMENTAL TO OUR INTERESTS.

ITEM NO.		QUANTITY	DESCRIPTION	CODE NO.	BY	REV.	DATE	DESCRIPTION	CODE NO.
78	75	3/16" HEX NUT	546855						
79	1	GRIPPER CORD	471715						
80	1	1/2" 90° ELL.	407044						
81	1	CAP HUBBELL #7507	304509						
82	1	RECEPT TWISLOCK #7535	589774						
83	1	PLATE SING RECEPT #423	570105						
84									
85	2	BOX OUTLET SQUARE 4 GALV.	268336						
86	1	4" SQUARE OUTLET BOX COVER	378607						
87	2	FUSE GLASS 20 AMP TYPE SFE-20	453212						
88	1	PROTEX LAMP SOCKET #717	646364						
89	1	DB-3 CORD CONNECTOR	471682						
90	1	TWO POLE LITTLE FUSE BLOCK							
91	2	8 FT. PIGTAIL	477350						
92	6	6 FT. PIGTAIL	477351						
93									
94									
95									

ITEM NO.	QUANTITY	DESCRIPTION	CODE NO.
20	1	RECEPT. WT. WITH SW. R.S. #478	589775
21	4	RECEPT.-230-FR-19 (JOY)	589619
22			
23	20	3/8" LOOM	510703
24	6	CONNECTOR - THIN WALL 3/4"	364182
25	7	JOY VIBRATION RESISTANT LAMP SOCKETS #S-2171	
26	1	1/4" LOOM	510704
27	1	BODY CORD CONNECTOR HUBBELL	364015
28	50	BUSHING-FIBRE-ANTI-SHORTS	296750
29	10	BLESHING-CONDUIT 1/2"	288263
30	1	DUPLEX RECEPTACLE PLATE	370111
31	1	CAP ATTACHMENT-PLUG HUBBELL #3754	304542
32	3	RF-3 PLUS #432	472263
33	1	LIGHT PLANT-HOBART 115' SW. SINGLE BRK. 300' MANUAL CONTROL 5M 115'	746126
34	4	CLAMP-PIPE-1 HOLE 1 1/4"	667065
35	9FT	CONDUIT-FLEX-GREENFIELD 1/4"	363307
36	25	CONNECTOR-BY 3/8" STRAIGHT	364155
37	18	CONNECTOR BX 3/8" ANGLE 90°	364163
38	2	CONNECTOR-GREENFIELD 1 1/4" STRAIGHT	364177
39	6	CONNECTOR-THIN-WALL 1/2"	364181
40	2	CONNECTOR-DUPLEX 3/8"	364151
41			
42	25	CORD-TIREX #14-2 TYPE S	371892
43	13	CORD-TIREX #6-2 TYPE S	371821
44	1	COVER-OUTLET BOX 3/4"	371633
45	1	COVER-OUTLET BOX 4"	372631
46	1	COVER-CONDUIT 1/2"	378614
47	90	FT BX #12-2 CABLE	296757
48	2	COVER-4" DUPLEX RECEPT.	378622
49	1	FT BX #12-3 CABLE	296755
50	20	"10 AUTO IGNITION CABLE GREEN	
51	20	"10 AUTO IGNITION CABLE BROWN	
52	6	FUSE-PLUG 20AMP-125V.	453155
53			
54	12	GRIPS-CORD DB-9 PYLE NATL.	471715
55	1	1/2" RED TIREX	372622
56	15	LAMP-50W-120V ROUGH SERVICE	284036
57	2	LUGS-COPR SOLD 70 AMP.	511604
58	1	RF-3 HALF SHADE #666	624809
59	3	PLATE-HANDY BOX SWITCH #427	470107
60	1	SOCKET-ALUMINUM 1/2" #4200	646364
61	100	STRAPS-CABLE CAT #44545 3/8"	667206
62	5	STRAPS-CABLE-DUPLEX #4754 3/8"	667206
63	70	TERMINALS-WIRE #3075 5 AMP	660590
64	25	WIRE #12 ST. TYPE TW WHITE	296700
65	25	WIRE #12 ST. TYPE TW BLACK	296716
66	15	WIRE #12 ST. TYPE TW GREEN	296718
67	30	WIRE #12 ST. TYPE TW RED	296509
68	1	CABLE OHFA-3	296207
69	1	CAP PLUG	304568
70	10	1/2" QUAD STRAP #1701	667495
71	1	RECEPT. HUBB. BROWN POLARIZED #5262	589796
72	75	3/16" X 1" MACH. SCREW	617789
73	75	3/16" LOCKWASHER	710301
74	225	1/4" LOCKWASHER	710322
75	125	1/4" X 3/4" R.H. MACH. SCREW	617829
76	100	1/4" X 1/2" R.H. MACH. SCREW	617827
77	7	1/4" X 1" R.H. MACH. SCREW	617830



- BRACKET FOR PILOT HOUSE BOOM**
- 1-16805 FILLER FOR BOTTOM LIGHT
  - 1-16806 BRACKET-GEN. PLATFORM
  - 1-16807 BRACKET-PORT LIGHT
  - 4-16808 BRACKET-PIPE IN CAB
  - 1-16809 BRACKET-PIPE
  - 7-16810 BRACKET-HANDY BOX
- 1-16830 BRACKET-REAR OUTLET BOX
- 2-19413 BRACKET FOR FLOOD LIGHT
- 1-70326 EXTENDED ROOF STAIR LIGHT BR'KT. FOR EXTENDED CAB ONLY
- 1-70327 EXTENDED ROOF GENERATOR BR'KT.
- 1-71003 VOLT METER SHIELD
- 1-71004 VOLT METER SUPPORT FOR S.K.W. THYRISTE GENERATOR ONLY
- 1-73252 BRACKET
- 1-73253 BRACKET
- 1-73254 BRACKET
- 73255 BRACKET
- 73256 BRACKET

- GENERAL NOTES**
- CONDUIT TO BE 1/2" & 3/4" SHERARIZED
  - WIRES IN CONDUIT TO BE TYPE T OR TW STRANDED SUPERSEDED BY 42184 & 50936
  - 
  - NO. 14-2 TYPE-S-TIREX TO BE USE BETWEEN CAB & PILOT HOUSE.
  - ITEM #55-1/2" RED TIREX TO BE USE BETWEEN CAB & PILOT HOUSE WHEN 2KVA 1.3KVA ALTERNATOR ASSEMBLY 42951 IS USED. ADD ITEM 18, ADD 4 TO QUANTITY OF ITEMS 74-76. REWIRE WITH 2 KVA ALTERNATOR FOR CAB LIGHTS AND 3 KVA ALTERNATOR FOR BOOM & MASTHEAD LIGHTS.

FINISH NOTES	UNLESS OTHERWISE NOTED
f INDICATES SURFACES TO BE FINISHED ONLY.	FRACTIONAL DIMENSIONS & .015"
v WITH TYPE NUMBER INDICATES TYPE OF FINISH REQUIRED.	DECIMAL DIMENSIONS & .005"
	ANGLES & 1/2"
	FILLET'S 1/8" RADIUS
	BREAK ALL SHARP CORNERS 1/2" R.

**NOTE**

FOR WIRING DIAGRAM OF CRANE BOOM & MASTHEAD LIGHTS SEE DRAWING 41086. FOR WIRING DIAGRAM OF SHOVEL BOOM & MASTHEAD LIGHTS SEE DRAWING 31087

**MANITOWOC ENGINEERING WORKS**  
MANITOWOC, WISCONSIN

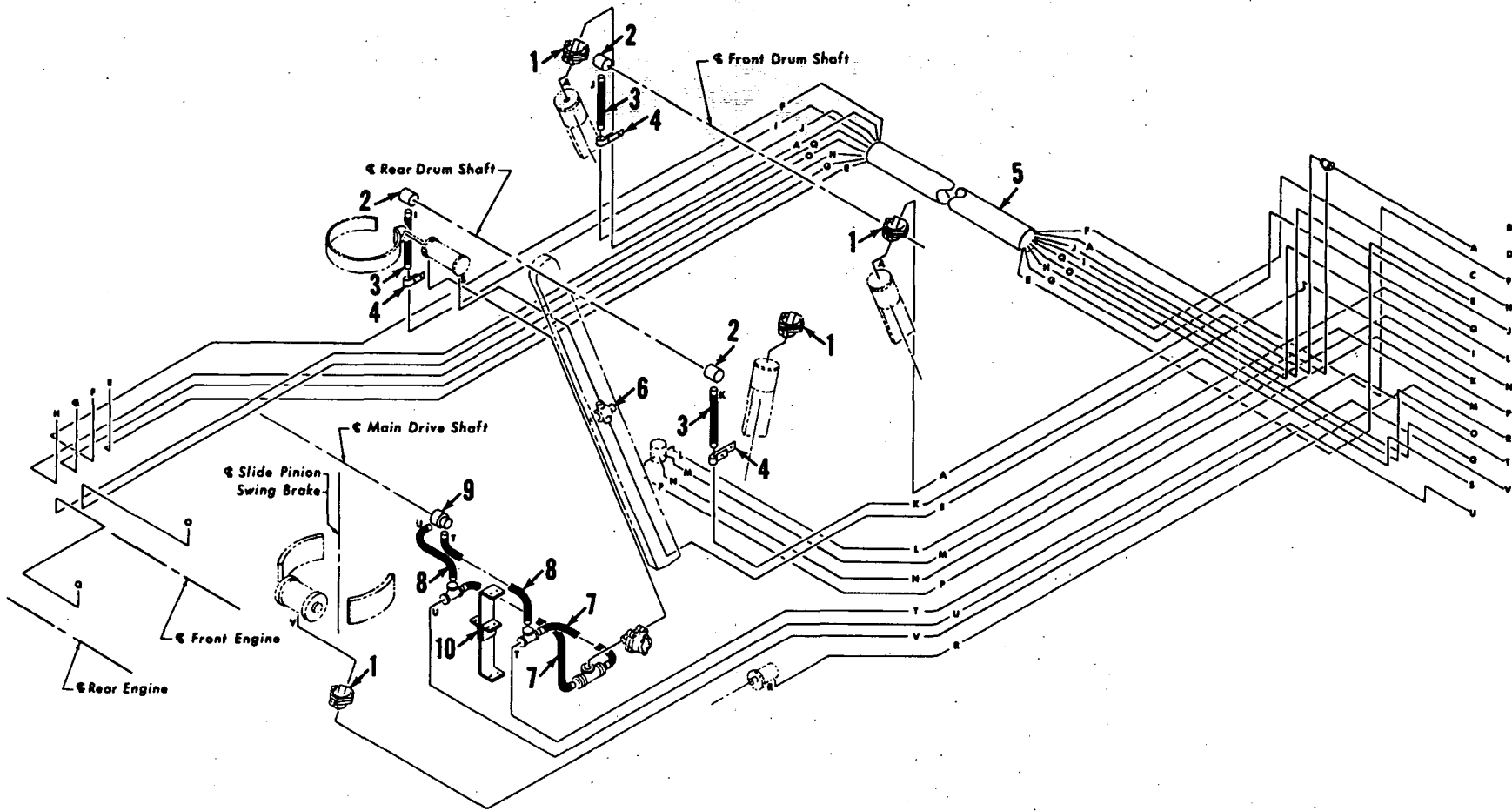
REVISION DATE: 5-5-55  
19413-ADD-2  
7-76-37  
SEE RECORD PRINT  
12-3-57 J.M. (C) ADDED  
12-0-50 J.M. (C) ADDED  
12-7-52 J.M. (C) ADDED  
12-7-52 J.M. (C) ADDED  
12-7-52 J.M. (C) ADDED

**WIRING DIAGRAM FOR CAB & PILOT HOUSE LIGHTS-SEE NOTE G**

DATE: 10-30-50  
SCALE: 3/8" = 1'-0"  
PART OR QUOTE NO.: 41085

**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

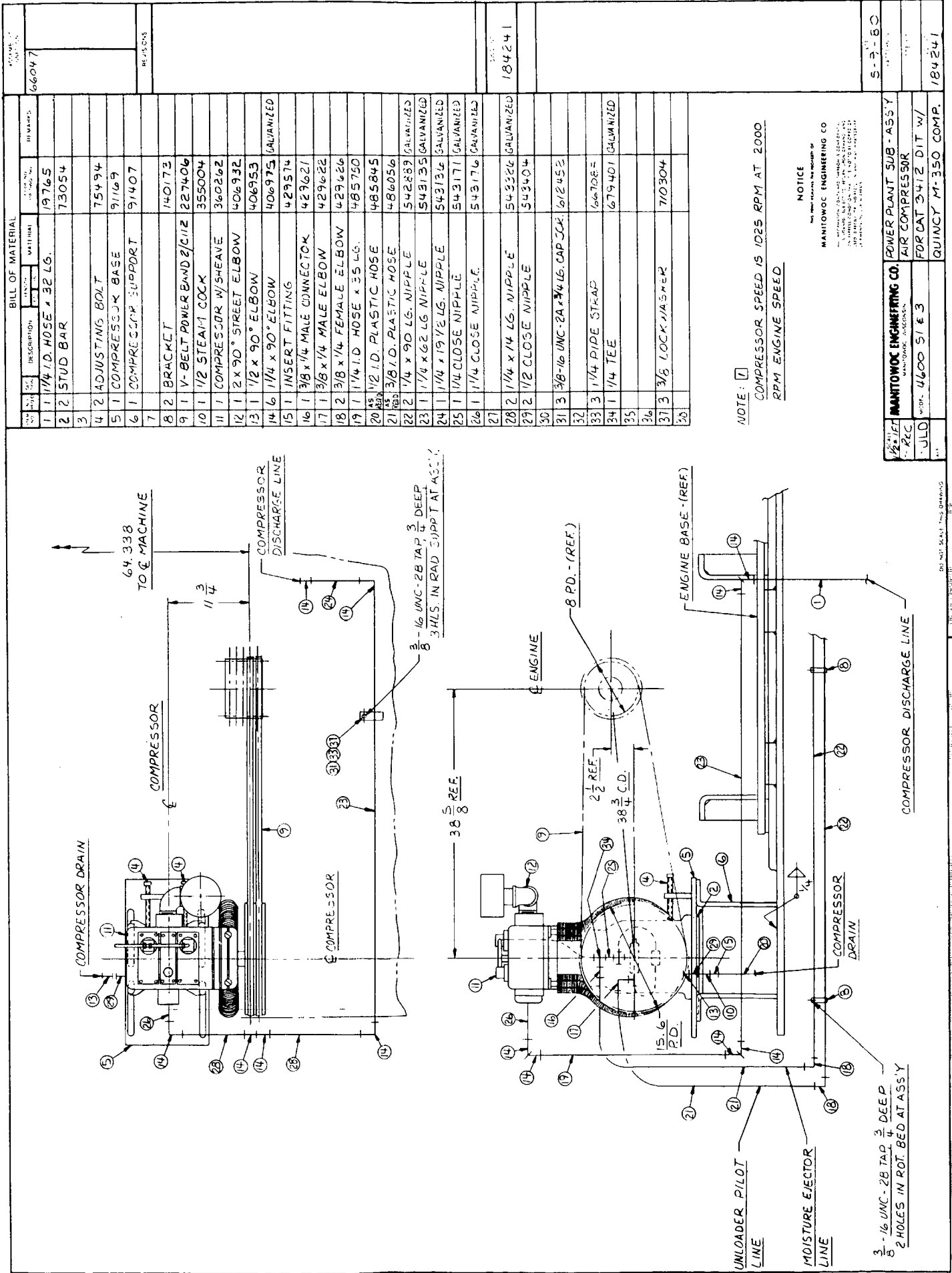
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QTY	DESCRIPTION	UNIT	INITIAL	REMARKS
1	1/4 I.D. HOSE x 32 LG.		19765	
2	STUD BAR		73054	
3	ADJUSTING BOLT		75494	
4	COMPRESSOR BASE		91169	
6	COMPRESSOR SUPPORT		91407	
7	BRACKET		140173	
8	V-BELT POWER BAND 2/C112		227406	
10	STEAM COCK		355004	
11	COMPRESSOR W/SHEAVE		360262	
12	2 x 90° STREET ELBOW		406932	
13	1/2 x 90° ELBOW		406953	
14	1/4 x 90° ELBOW		406975	GALVANIZED
15	INSERT FITTING		429574	
16	3/8 x 1/4 MALE CONNECTOR		429621	
17	3/8 x 1/4 MALE ELBOW		429622	
18	3/8 x 1/4 FEMALE ELBOW		429626	
19	1/4 I.D. HOSE x 35 LG.		485750	
20	1/2 I.D. PLASTIC HOSE		485845	
21	3/8 I.D. PLASTIC HOSE		486056	
22	1/4 x 90 LG. NIPPLE		542889	GALVANIZED
23	1/4 x 2 LG. NIPPLE		543135	GALVANIZED
24	1/4 x 1 1/2 LG. NIPPLE		543136	GALVANIZED
25	1/4 CLOSE NIPPLE		543171	GALVANIZED
26	1/4 x 14 LG. NIPPLE		543176	GALVANIZED
27	1/2 CLOSE NIPPLE		543326	GALVANIZED
28	3/8-16 UNC-24 x 1/4 LG. CAP JACK		612452	
29	1/4 PIPE STRAP		667085	
30	1/4 TEE		679401	GALVANIZED
31	LOCK WASHER		710304	
32	3/8 LOCK WASHER			

NOTE: [ ]  
 COMPRESSOR SPEED IS 1025 RPM AT 2000 RPM ENGINE SPEED.

NOTICE  
 PREPARED BY THE OFFICE OF  
 MANTOWOC ENGINEERING CO.  
 1000 W. 10TH ST., MANTOWOC, WIS.  
 53150

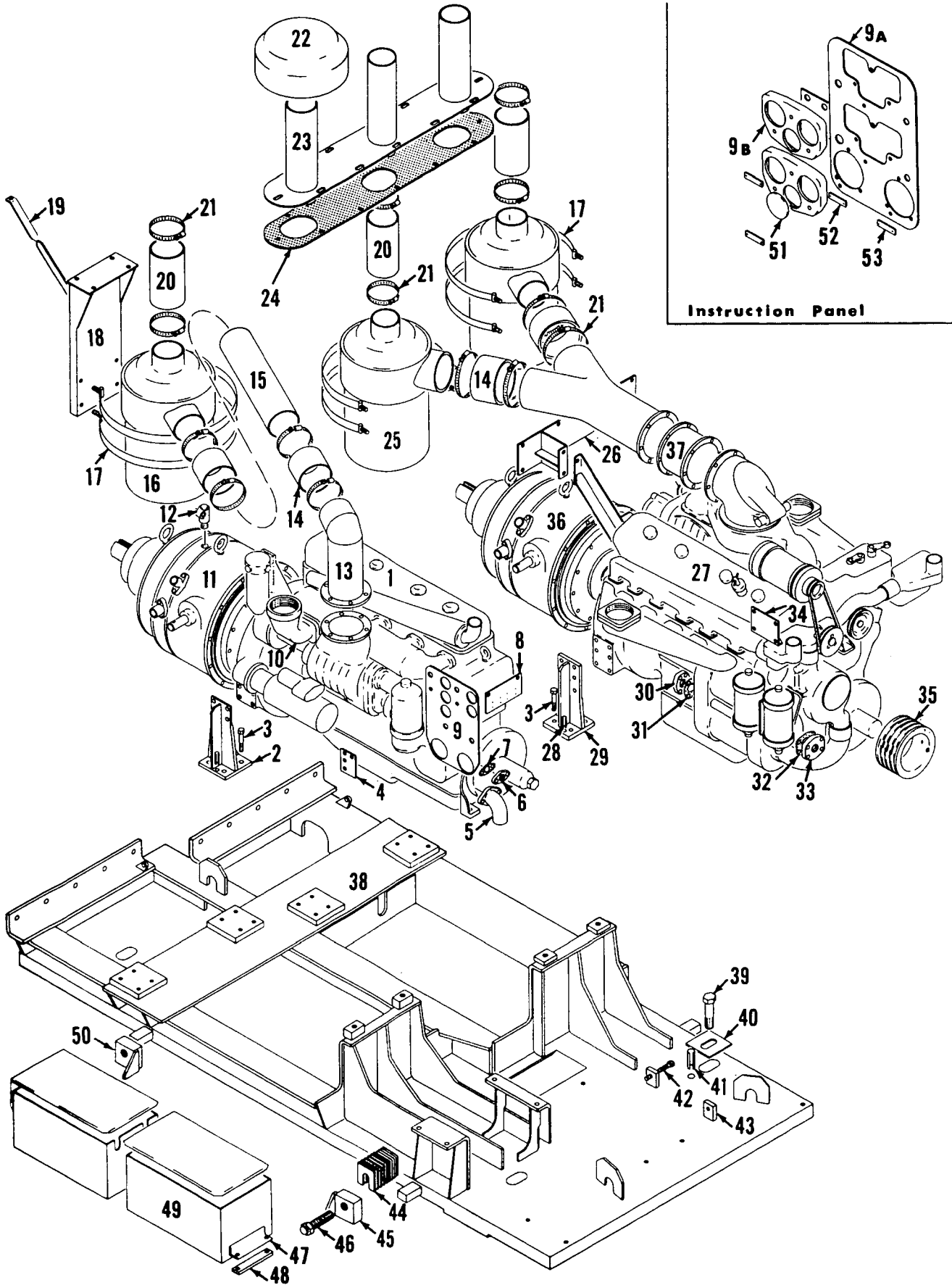
DATE	BY	DESCRIPTION	REVISION
JUL 22 1960	W.C.	MANITOWOC ENGINEERING CO. POWER PLANT SUB-ASSY	1
JUL 22 1960	W.C.	AIR COMPRESSOR FOR CAT 3412 DIT W/	2
JUL 22 1960	W.C.	QUINCY M-350 COMP.	3

UNLOADER PILOT LINE  
 MOISTURE EJECTOR LINE  
 COMPRESSOR DRAIN  
 ENGINE BASE (REF.)  
 COMPRESSOR DISCHARGE LINE  
 3/8-16 UNC-28 TAP 3/4 DEEP  
 2 HOLES IN ROT. BED AT ASS'Y  
 64.338 TO C.MACHINE  
 38 5/8 REF.  
 15.6 P.D.  
 2 1/2 REF.  
 38 3/4 C.D.  
 8 P.D. (REF.)  
 3/8-16 UNC-24 x 1/4 LG. CAP JACK  
 1/4 PIPE STRAP  
 1/4 TEE  
 LOCK WASHER  
 3/8 LOCK WASHER  
 1/4 x 14 LG. NIPPLE  
 1/2 CLOSE NIPPLE  
 3/8 I.D. PLASTIC HOSE  
 1/4 I.D. HOSE x 35 LG.  
 3/8 x 1/4 FEMALE ELBOW  
 3/8 x 1/4 MALE ELBOW  
 3/8 x 1/4 MALE CONNECTOR  
 INSERT FITTING  
 1/4 x 90° ELBOW  
 1/2 x 90° ELBOW  
 2 x 90° STREET ELBOW  
 COMPRESSOR W/SHEAVE  
 STEAM COCK  
 V-BELT POWER BAND 2/C112  
 BRACKET  
 COMPRESSOR SUPPORT  
 COMPRESSOR BASE  
 ADJUSTING BOLT  
 STUD BAR  
 1/4 I.D. HOSE x 32 LG.

# MANITOWOC ENGINEERING CO.

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Manitowoc, Wisconsin



50 300A1

MATERIAL LIST ON BACK

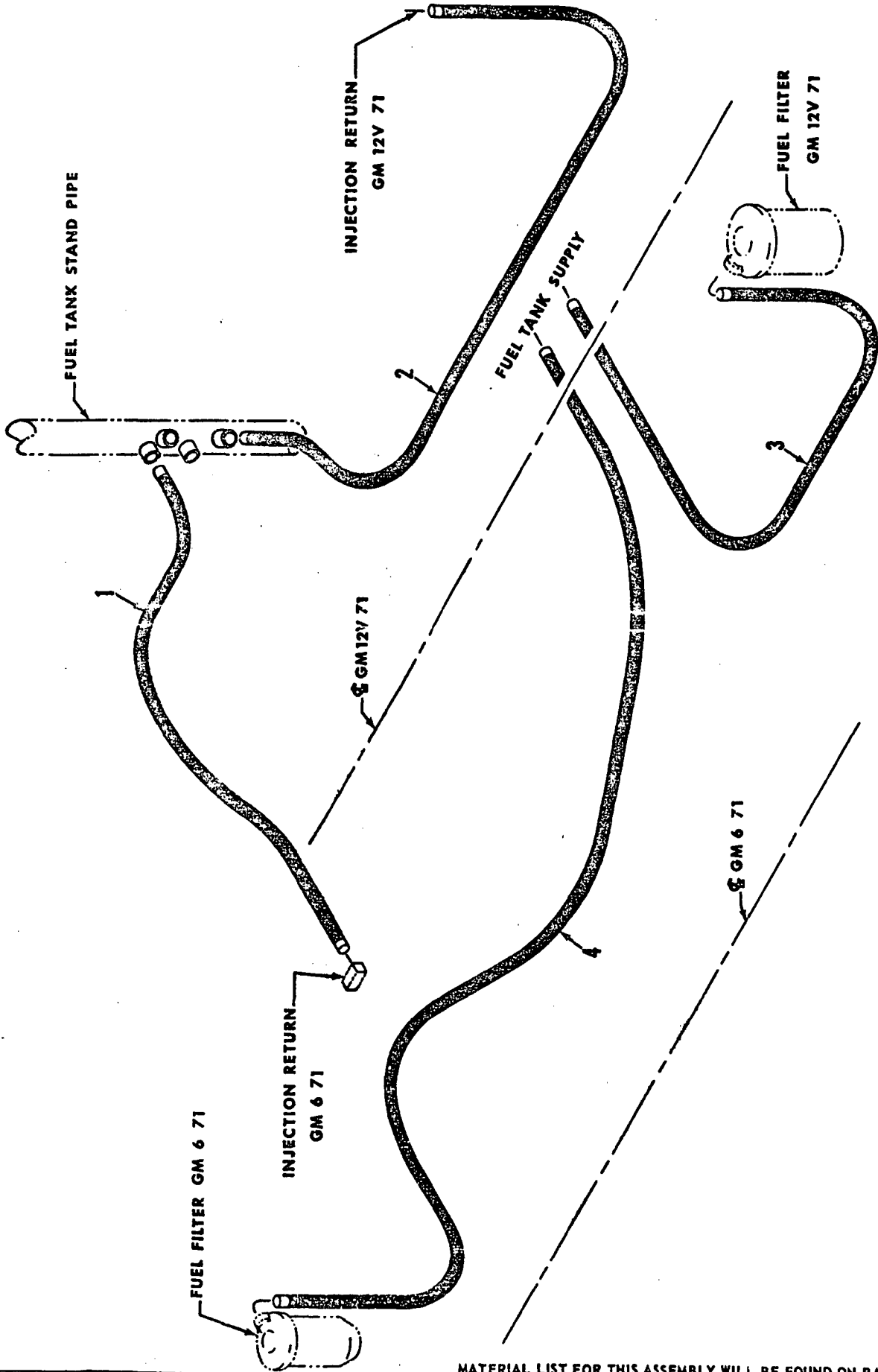
POWER PLANT



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50267AA

MATERIAL LIST FOR THIS ASSEMBLY WILL BE FOUND ON BACK OF THIS PAGE

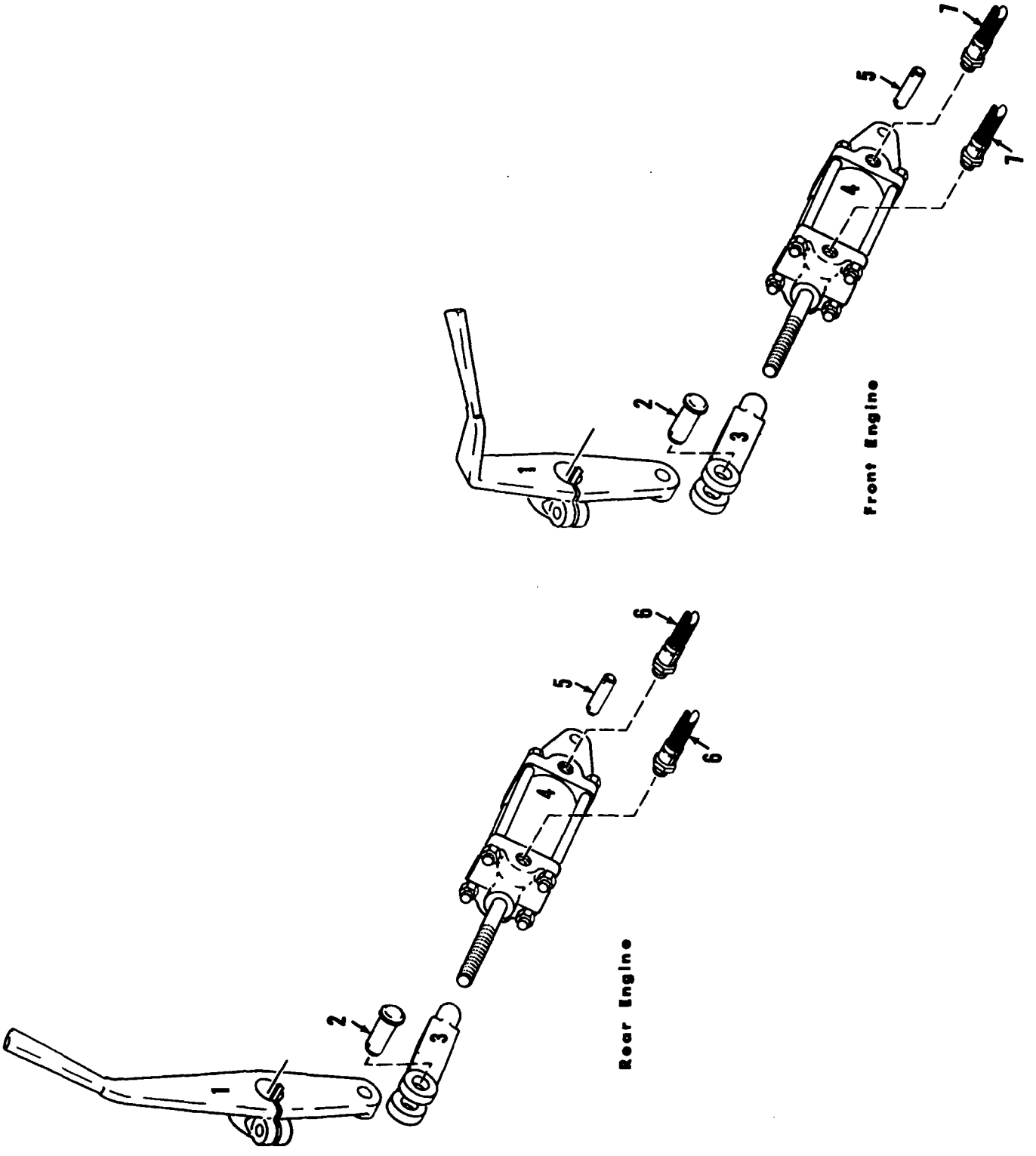
FUEL INJECTION SYSTEM

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Manitowoc, Wisconsin

MASTER



Front Engine

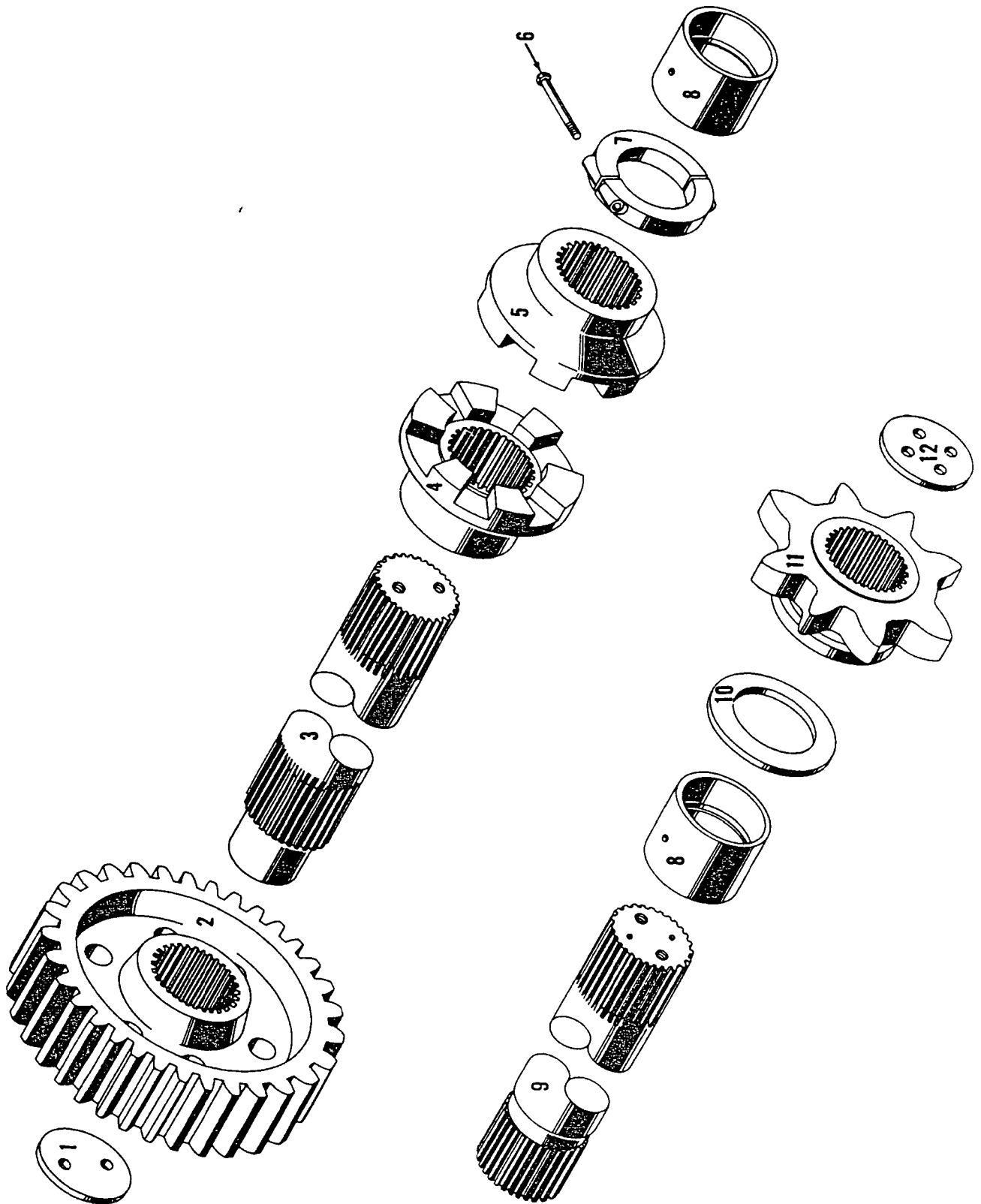
Rear Engine

ENGINE CLUTCH CONTROL

MATERIAL LIST ON BACK

50237 B9

50237B9



24363-A-1

MATERIAL LIST ON BACK

TRAVEL SPROCKET SHAFT

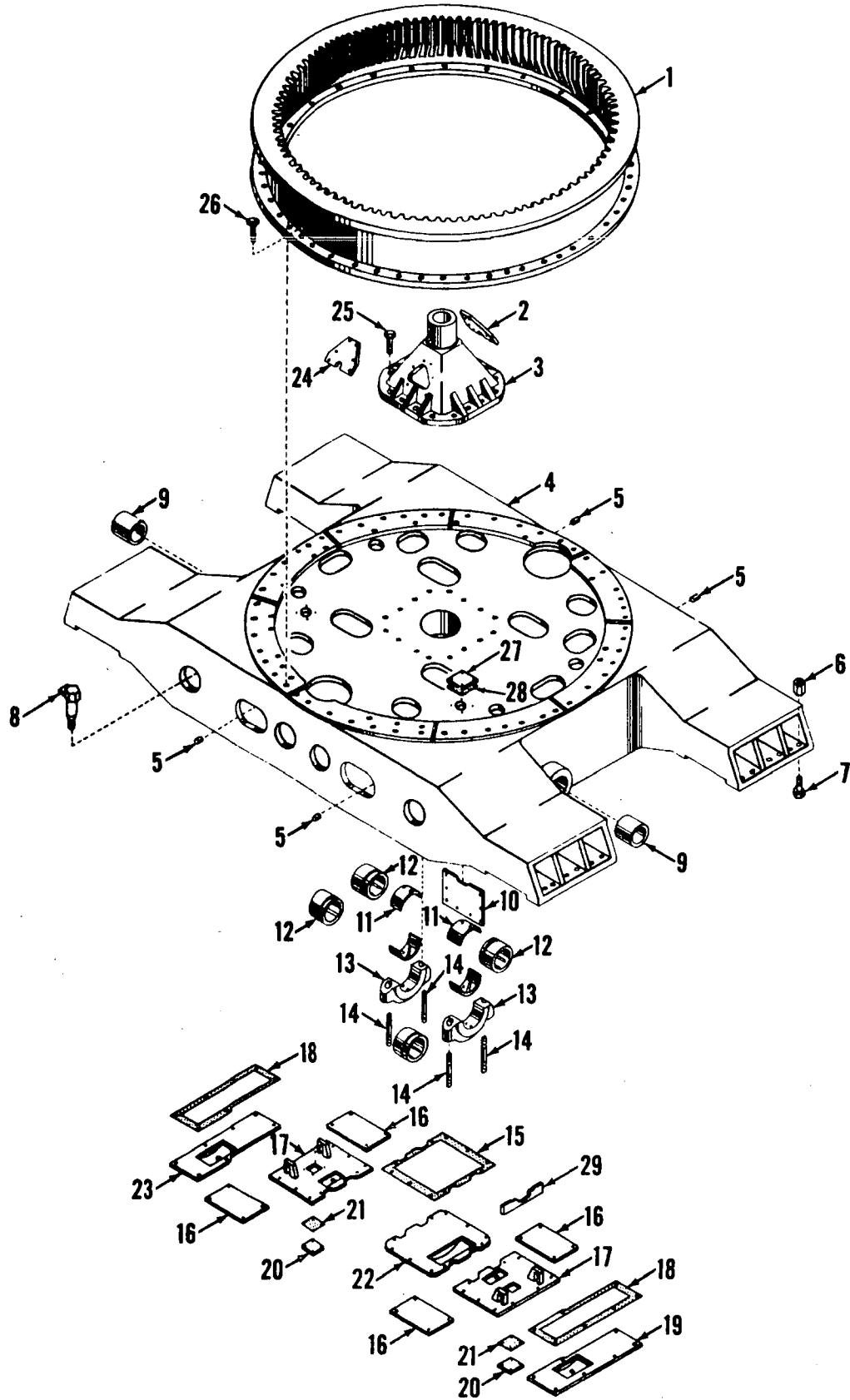


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MASTER



42765C1

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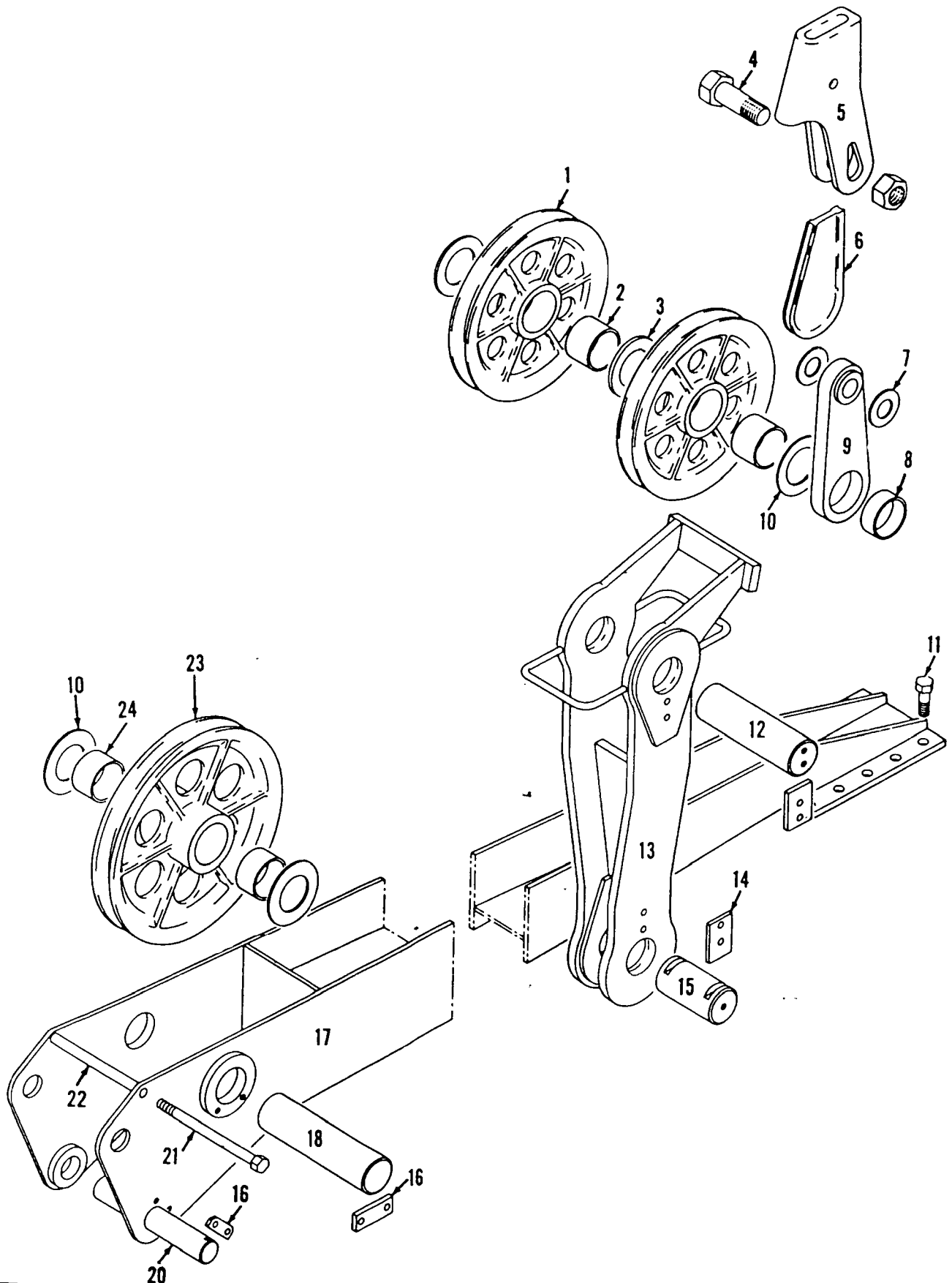
CARBONYL

MANITOWOC ENGINEERING CO.

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MASTER



43201C2

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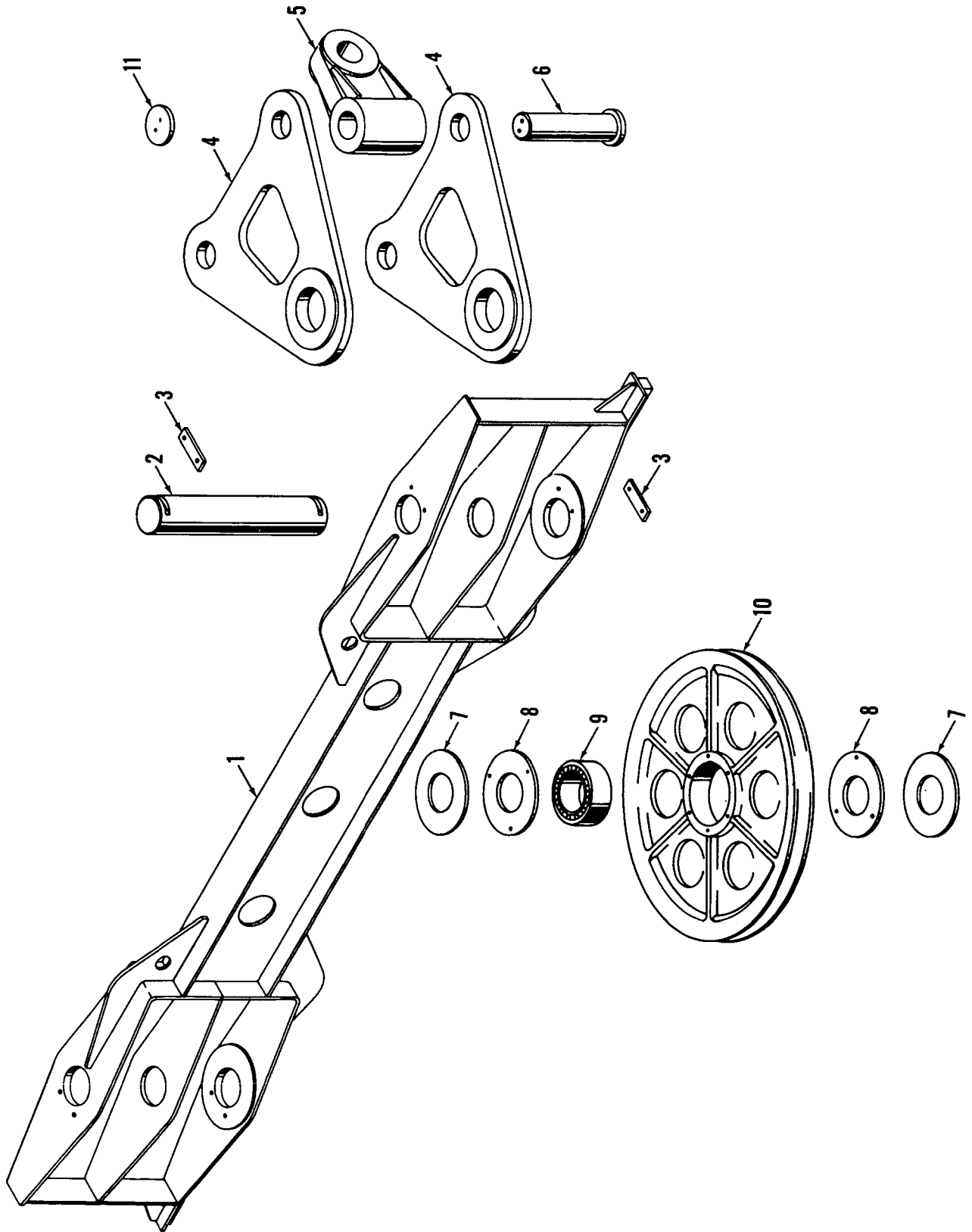
BACK HITCH

4320

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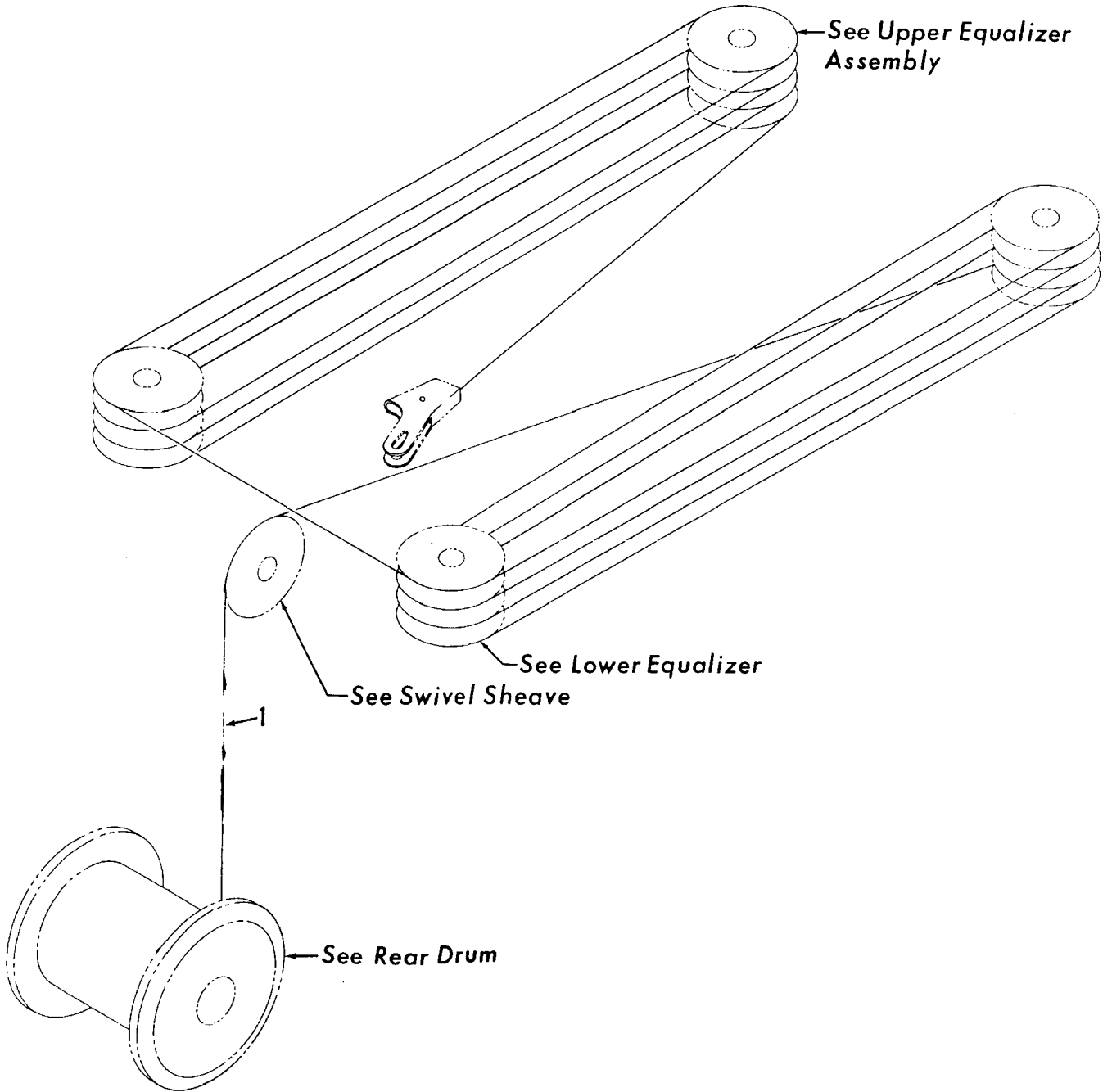
Manitowoc, Wisconsin



50278 - A - 3

MATERIAL LIST ON BACK

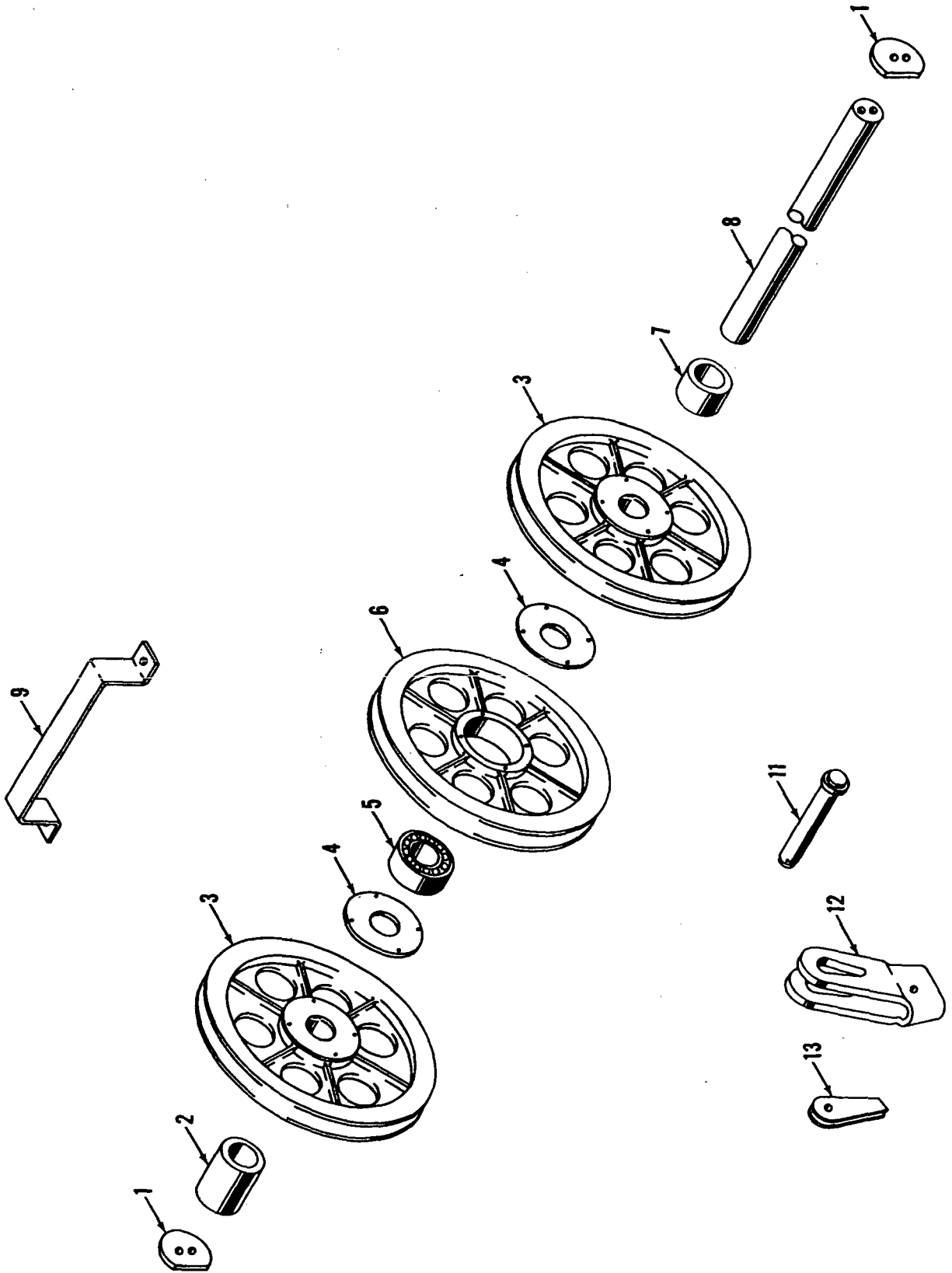
UPPER EQUALIZER



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90107A1

MATERIAL LIST ON BACK

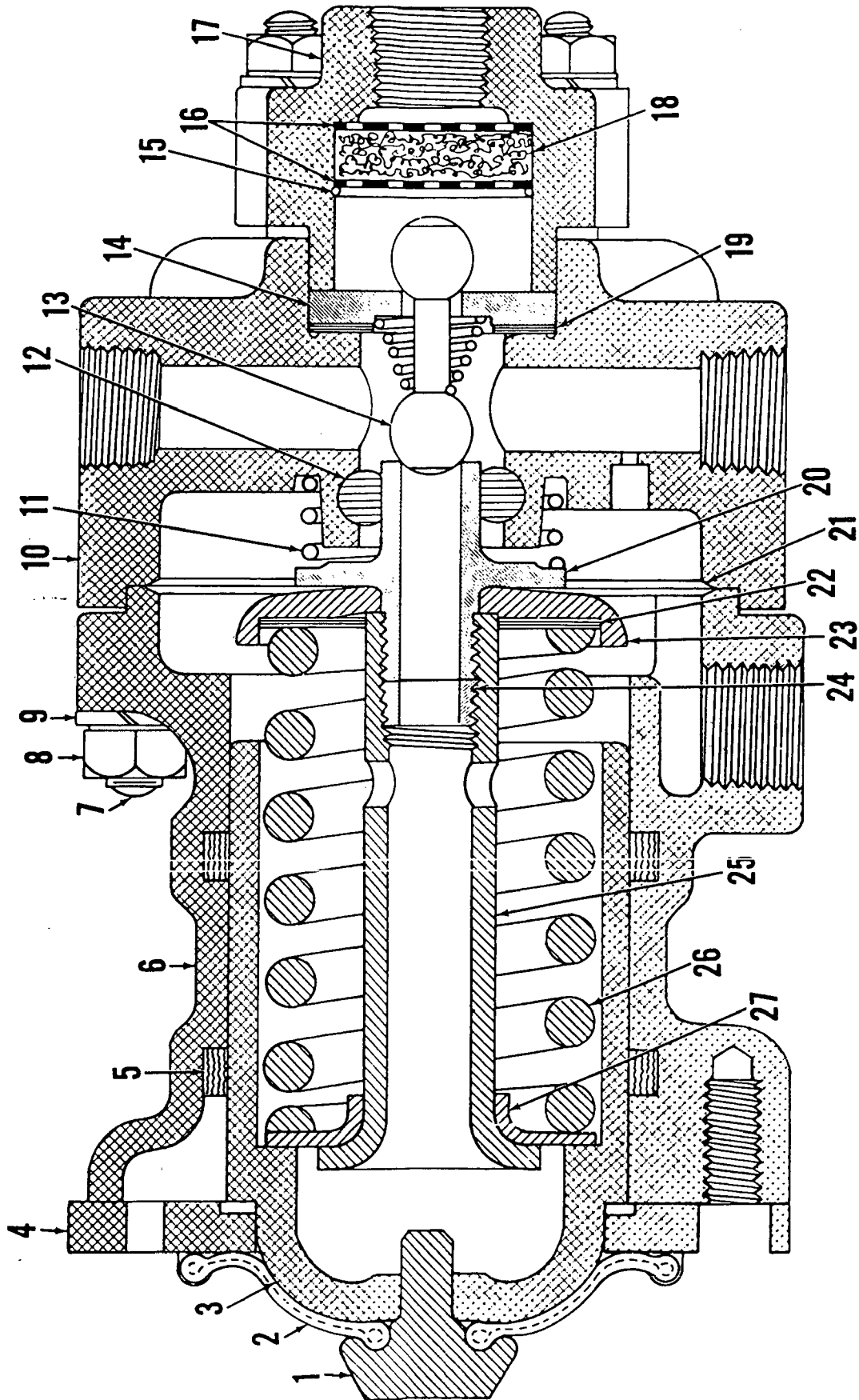
LOWER BOOM POINT SHAFT ASSEMBLY

## O-NUMBER NUMERICAL INDEX

PUBLICATION	REV
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0-116	A
0-116	A1
0-119	A
0-121	-
0-123	A1
0-123	A2
0-147	D2
0-148	-
0-176	-
0-246	C1
0-275	A
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0-510	-
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0-63	B1
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0-71	-
0-92	A1

MANITOWOC

2116 A1



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**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



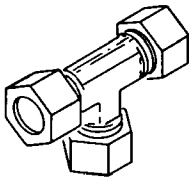
**NUT**

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



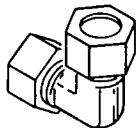
**FEMALE CONNECTOR**

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



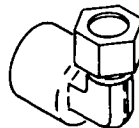
**MALE CONNECTOR**

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



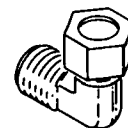
**UNION ELBOW**

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



**FEMALE ELBOW**

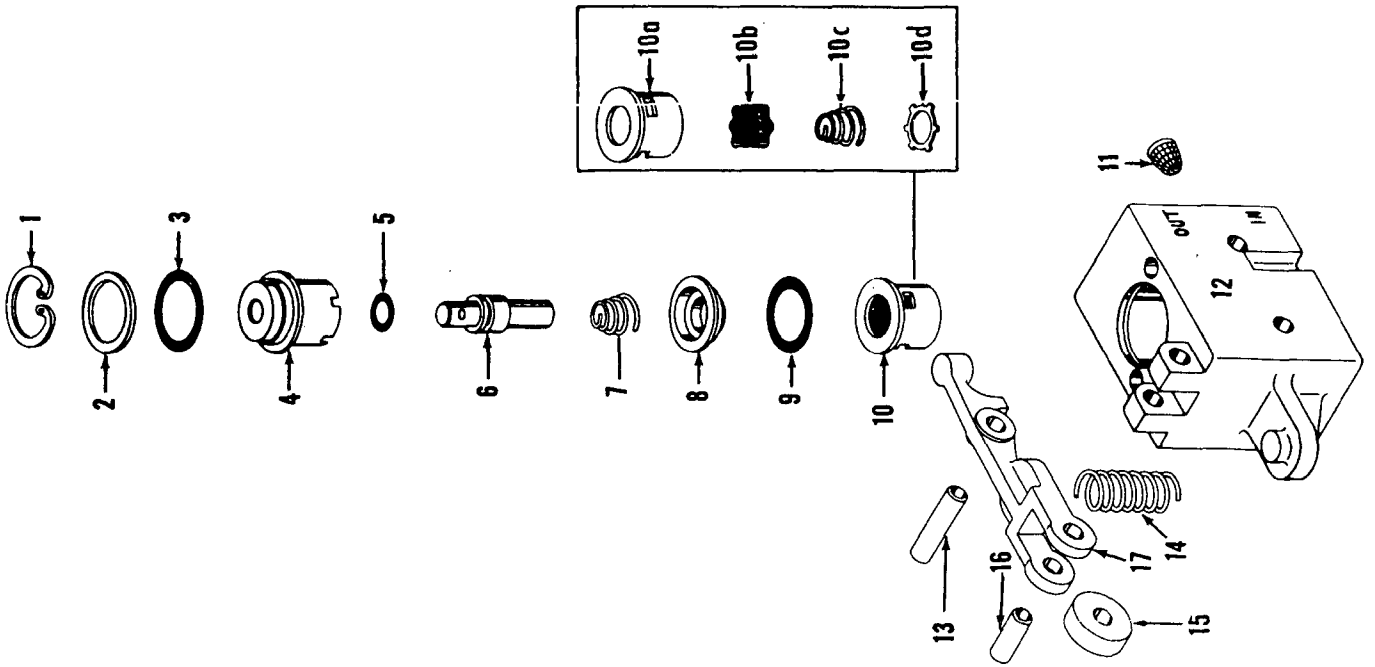
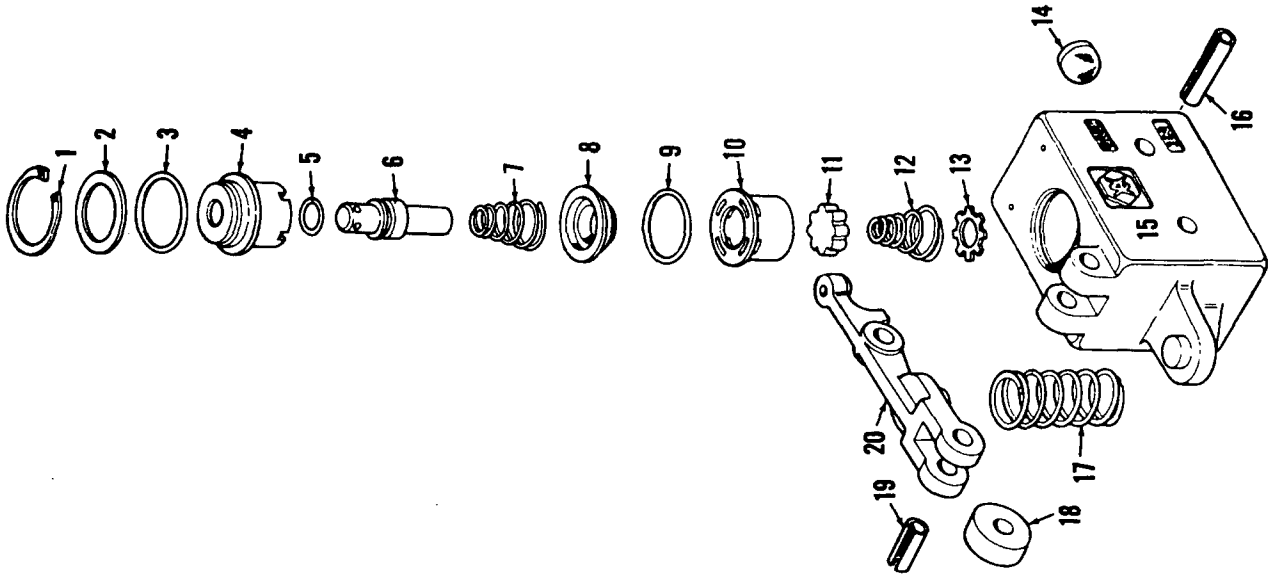
Code No.	Tube O.D.	Pipe Thread
429066	1/4	1/8
429825	1/4	1/4



**MALE ELBOW**

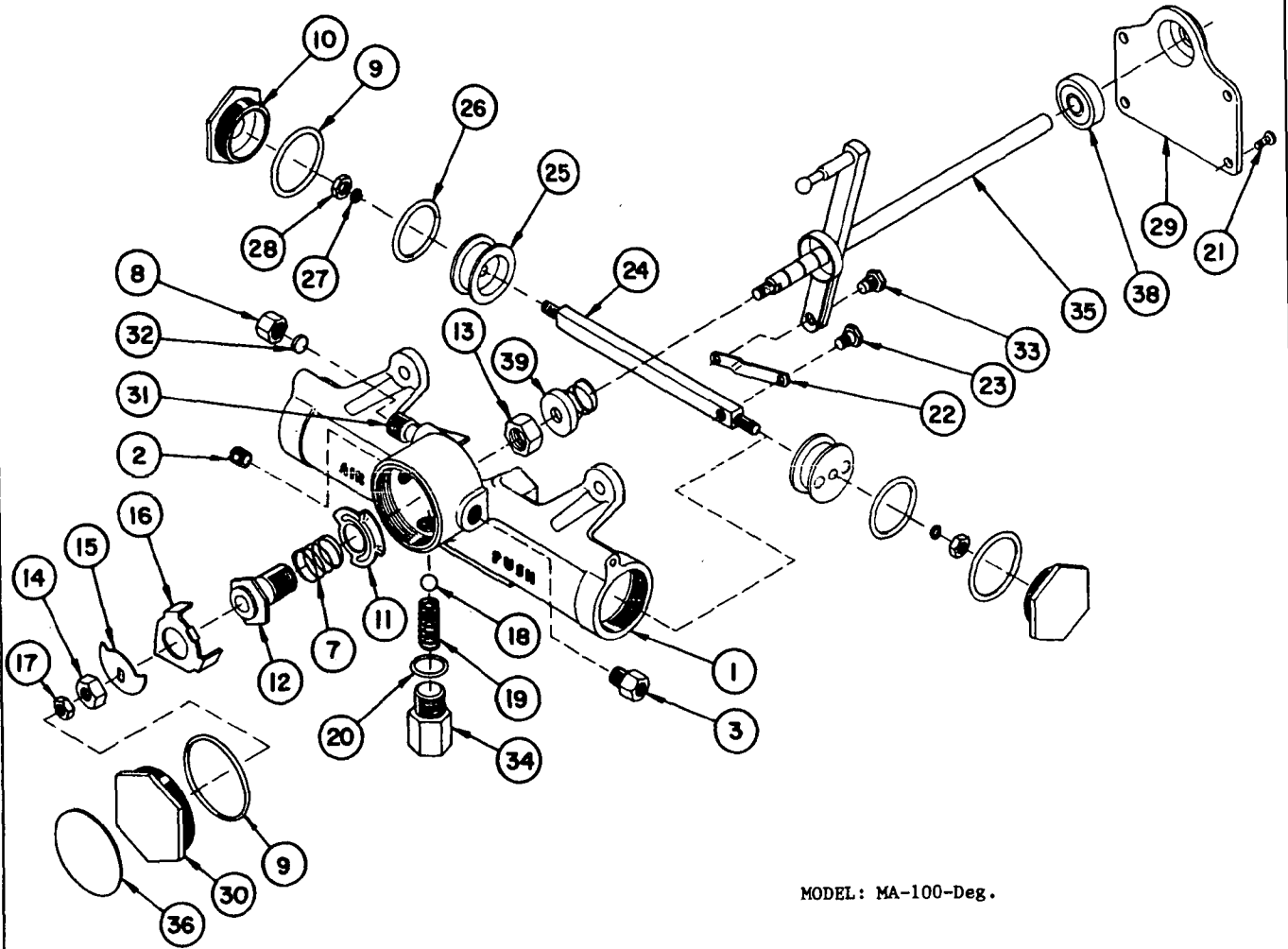
Code No.	Tube O.D.	Pipe Thread
429371	1/2	1/2
429373	3/8	1/8
429374	1/4	1/4
429375	3/8	1/4
429376	1/2	3/8
429380	1/4	1/8
429384	3/8	1/2
429385	5/16	1/8
429386	3/16	1/8
429401	1/2	3/4
429422	3/8	3/8
429453	3/4	3/4

MASTER





MASTER

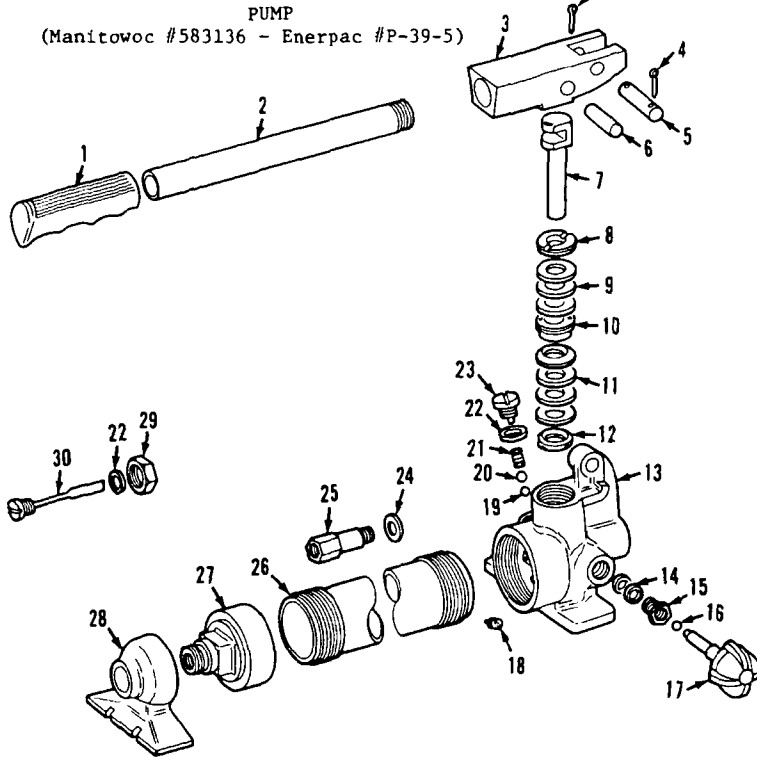


MODEL: MA-100-Deg.

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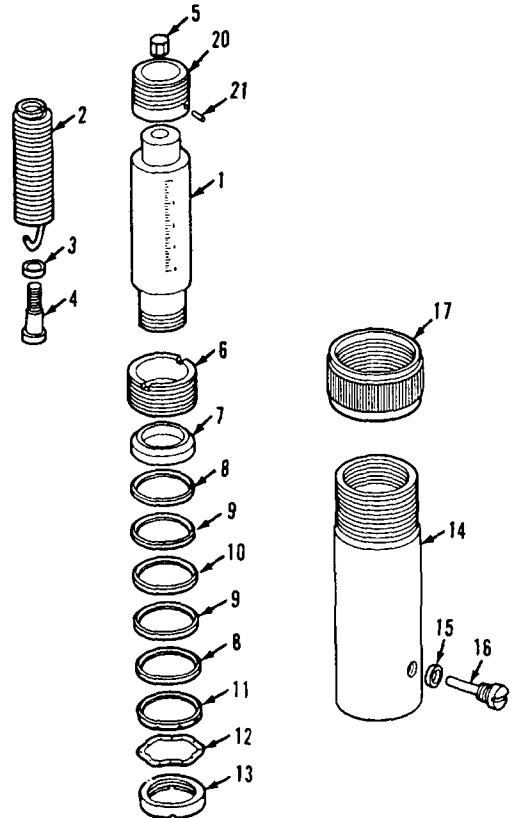


Ref. No.	No. Req.	Description	Part No.
1	1	Grip	C7.550
2	1	Handle	C7.900
3	1	Beam	B113.060-1
4	2	Pin, Cotter	S1.59
5	1	Pin, Beam	P76.63
6	1	Pin, Cross	P75.57
7	1	Plunger, Pump	P16.51
8	1	Nut, Retaining	P16.54
9	3	Packing, Pump	*
10	1	Nut, Cup Ret.	P16.55
11	4	Cup, Pump	*
12	1	Spreader	P1.52-2
13	1	Base	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

0-69 - 1 Cont.	REV. C.	MODEL 2300-4600 Incl.
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AIR CONTROL VALVE  
(MANITOWOC #714493 - WESTINGHOUSE #P59331 NEW : P54424-0101 OLD) (2-HA-1)  
(MANITOWOC #714418 - WESTINGHOUSE #P59333 NEW : P54424-0301 OLD) (2-HA-LR)

REF. NO.	PART NUMBER	QUANTITY REQUIRED	DESCRIPTION OF PART	VENDORS PART NO.
13		1	CAM	P54192
14		1	FOLLOWER, Cam	P54197
15		2	SCREW, Truss Head	P49861-3
16		2	LOCKWASHER	506608
17		1	FLANGE, Valve Retaining	P54463
18	714504	1	RING, "0" (15/16" O.D.)*	P49708-16
19		1	GUIDE, Plunger	P54147
20	714506	1	RING, "0" (7/16" O.D.)*	P49708-11
21		1	PLUNGER, Valve	P54146
22	714525	1	SPRING, Exhaust Valve*	P54144
23		1	SEAT, Inlet Valve*	P54145
24	714441	1	RING, "0" (7/8" O.D.)*	P49708-115
25		1	WASHER	P53455-3
26	714442	1	VALVE, Inlet*	P5125
27	714526	1	SPRING, Inlet Valve	539115
28		1	SPACER, Valve	P54794
29		1	SCREEN	P54194
30		1	BODY	P54305
31		2	WASHER	506607
32		2	SCREW, Fillet Head	P49835

\*Recommended to be stocked at all times.

NOTE: Part numbers at right are Westinghouse. Please so specify if ordering.  
Valve changed approx. July 1969. Check nameplate for identification of valve.

REV. C	0 - 69 -1
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PLEASE GIVE MACHINE S/N W/ORDER

Run as front

MASTER

0-69 Cont.

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