

# Manitowoc

## TRADITIONAL CRANE

## PARTS MANUAL

This manual has been prepared for and is considered part of

Model

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.

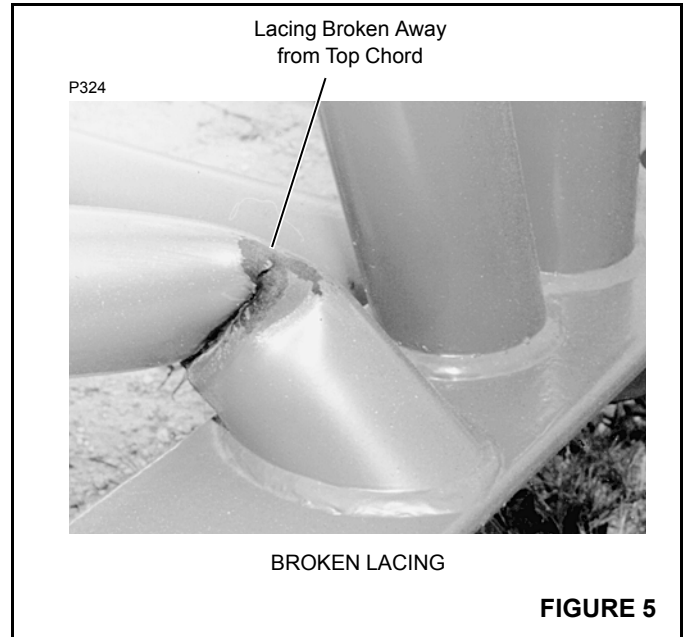
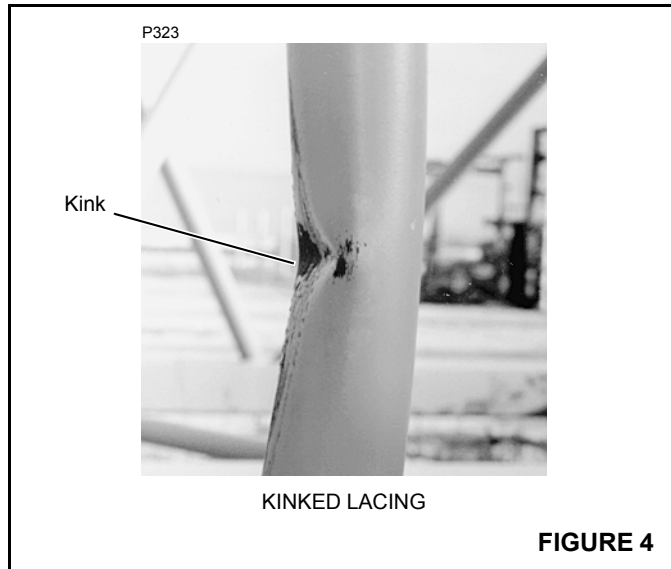
Corrosion and abrasion must not be deeper than 10 percent of the wall thickness, the angle thickness, or the plate thickness.

### 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.*

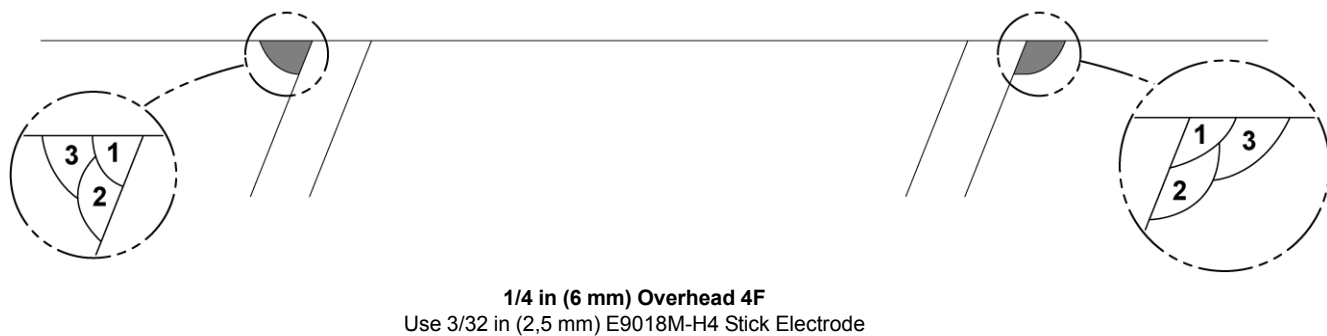
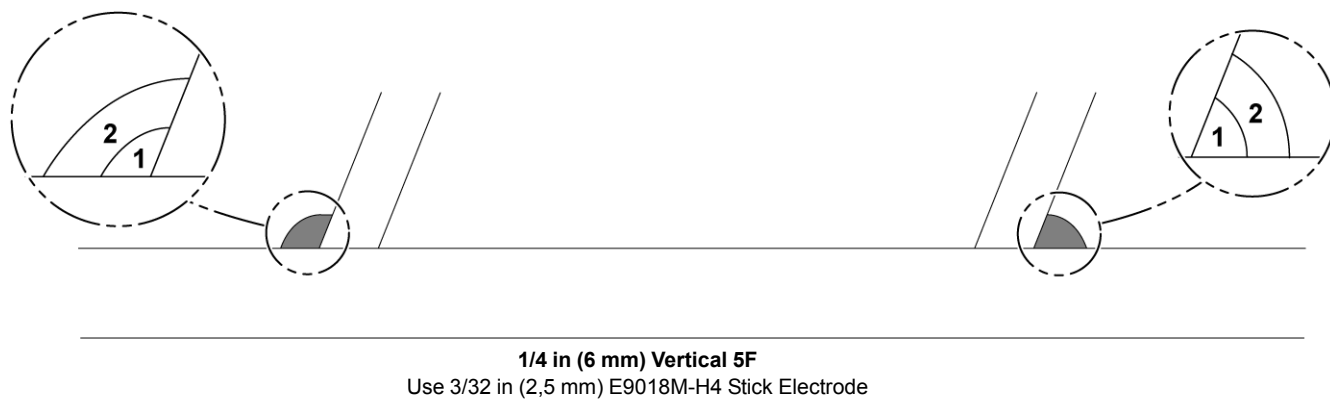
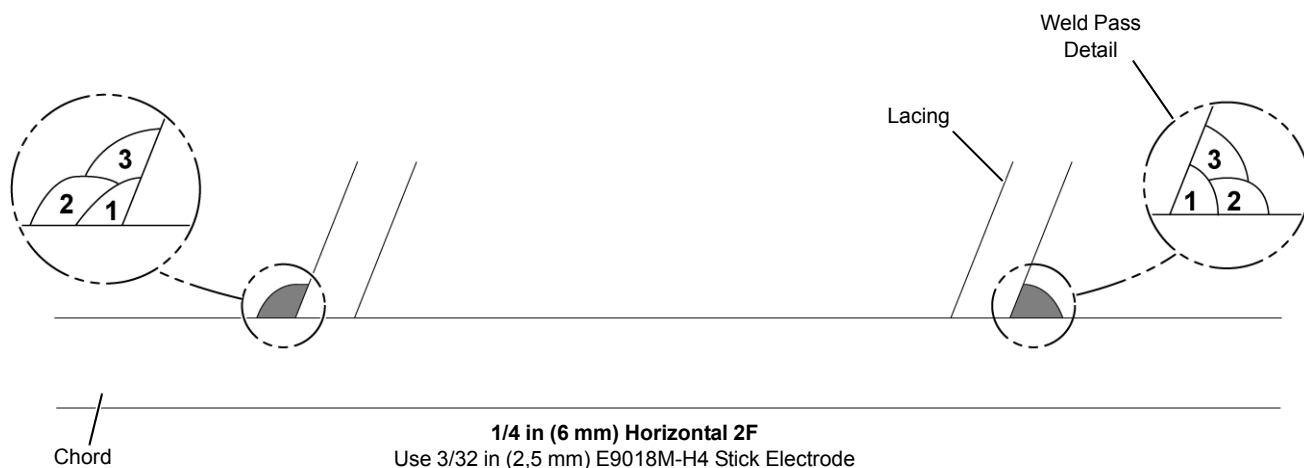


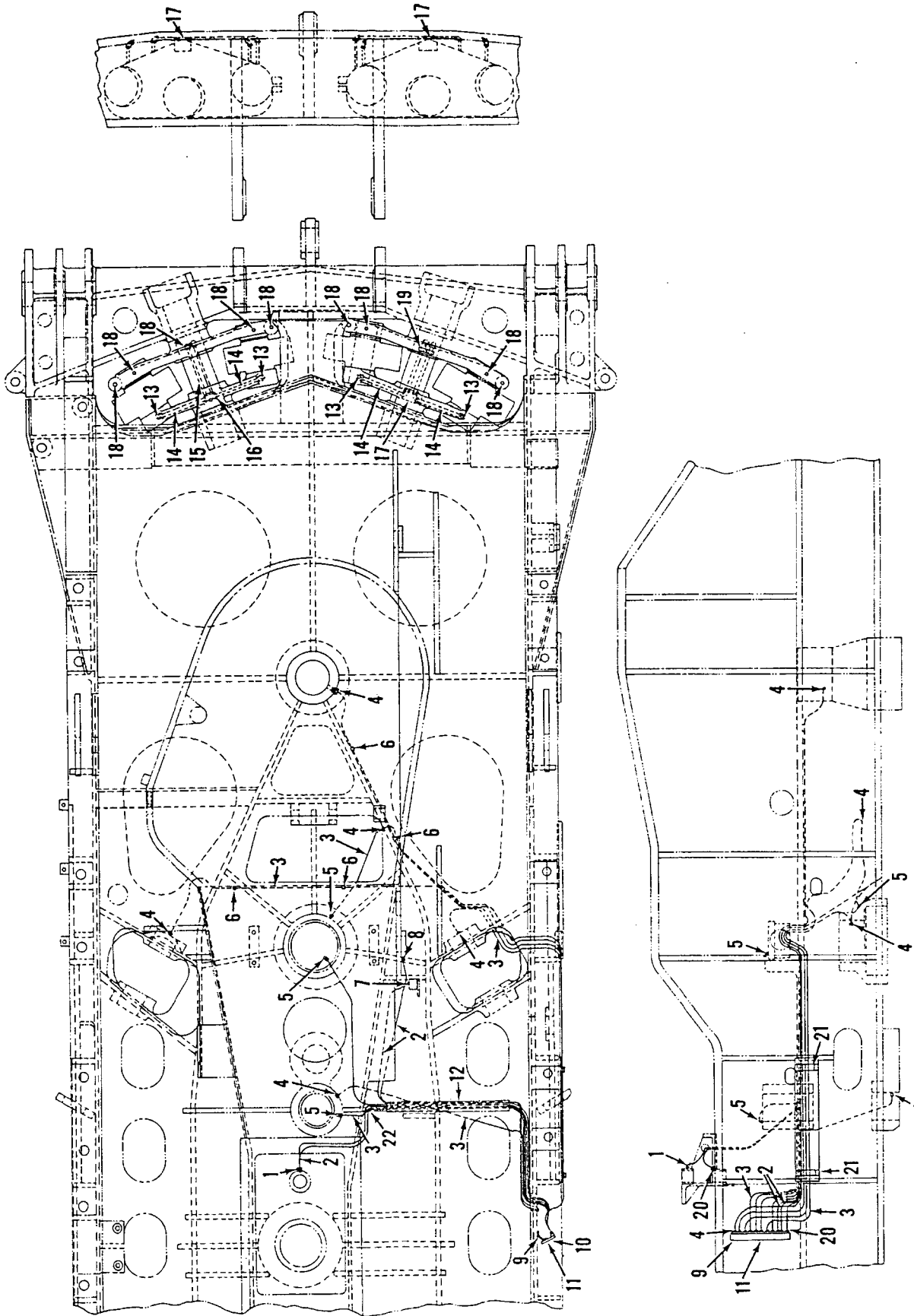
FIGURE 16



# MANITOWOC ENGINEERING CO.

A Division of The Manitowoc Company, Inc.

Manitowoc, Wisconsin



41855A1

MATERIAL LIST ON BACK

LUBE. PIPING - ROTATING BED

MASTER

41855A1

50318-1 Cont.	REV. 0	MODEL 4600
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CAB  
(DUAL ENGINES OR SINGLE ENGINES W/DUAL CONVERTERS)  
(MACH. W/99 TOOTH FRONT DRUM GEAR)

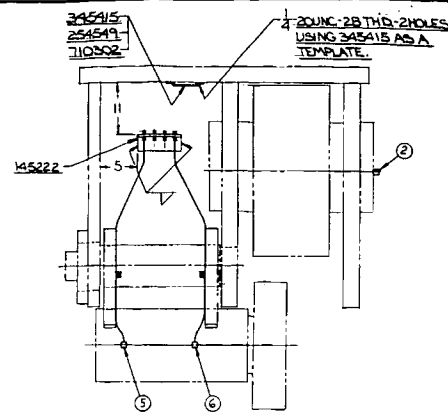
REF. NO.	PART NUMBER	QUANTITY REQUIRED	DESCRIPTION OF PART	VENDORS PART NO.
67	18972	1	GLASS, Window	
17	605301	1	CHANNEL, Rubber (specify 6'8" or 2.032 m)	
	21533-6	1	PANEL, Drum Cage Rear w/mach. screws, stove bolts, capscrews hex nuts and lockwashers	
68	632780	1	PANEL, Upper	
69	21533-2	1	PANEL, Lower	
	43038-6	1	SHEET, Right Drum Cage w/mach. screws, stove bolts, capscrews, hex nuts and lockwashers	
70	207273	1	ANGLE, Rear	
71	632830	1	SHEET, Upper Rear	
72	632786	1	SHEET, Lower Rear	
73	43038-2	1	SHEET, Upper Center	
74	633108	1	SHEET, Lower Center	
75	633107	1	SHEET, Upper Front	
76	633109	1	SHEET, Lower Front	
77	208233	1	ANGLE, Front	
	43039-6	1	SHEET, Left Drum Cage w/mach. screws, stove bolts, capscrews hex nuts and lockwashers	
78	207275	1	ANGLE, Rear	
79	633100	1	SHEET, Upper Rear	
80	633101	1	SHEET, Lower Rear	
81	43039-2	1	SHEET, Upper Outer	
82	633111	1	SHEET, Lower Center	
83	633110	1	SHEET, Upper Front	
84	633112	1	SHEET, Lower Front	
85	208234	1	ANGLE, Front	
87	21606	2	GUARD, Top Closure Drum Cage w/capscrews, hex nuts and lockwashers	
88	207245	8	BRACKET, Guard Support	
89	139561	1	BAR, Clamp w/capscrews and lockwashers	
90	605191	1	RUBBER, Sponge (specify length)	
91	334034	1	CHAIN (specify length)	
92	484352	1	HOOK	
	616428	1	CAPSCREW	
	546050	1	NUT, Hex	
	709402	1	WASHER, Flat	
93	71001	2	CATCH, Door w/mach. screws, elastic stop nuts and flatwashers	
94	14676	4	SPRING	
95	71022	1	LATCH, Door w/mach. screws, hex nuts and lockwashers	
96	71021	1	LATCH, Door w/mach. screws, hex nuts and lockwashers	
99	208486	1	ANGLE (1" x 1" x 1/8" x 69" long) stitch weld to top of fuel tank NOTE 1: Machs. w/left catwalk, replace rear panel #24302 with the following:	
10	24859	1	PANEL, Left Rear (See Note 21) w/stove bolts, nuts, lockwashers	
65	475273	1	HANDLE, Outside	
	650531	2	SCREW, Self Tap (#10-24 UNC-2A x 3/4" Lg. Flat hd.)	
	710747	2	WASHER, Shakeproof (3/16" CSK)	
	475001	1	HANDLE, Inside	
	510165	1	LOCK	
66	23713	1	DOOR, Left Rear w/stove bolts, hex nuts and lockwashers	
67	18972	1	GLASS, Window	

REV. 0	50318-1 Cont.
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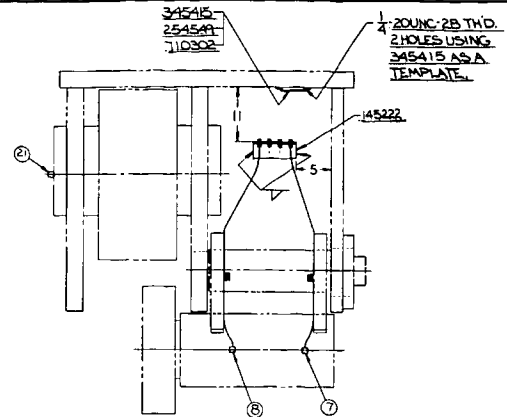
PLEASE GIVE MACHINE S/N W/ORDER

Run as a Front

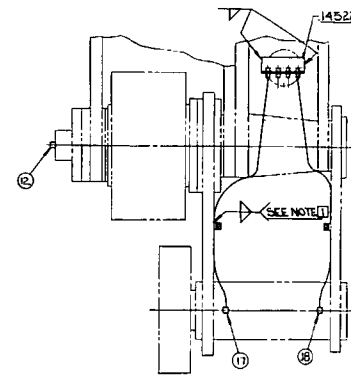
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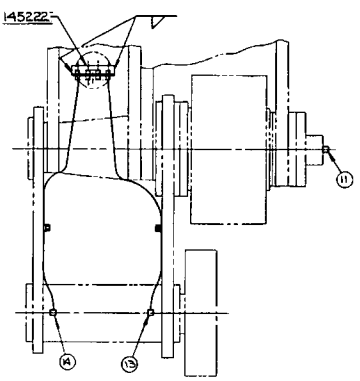
VIEW A-A



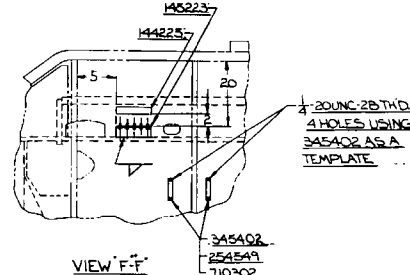
VIEW B-B



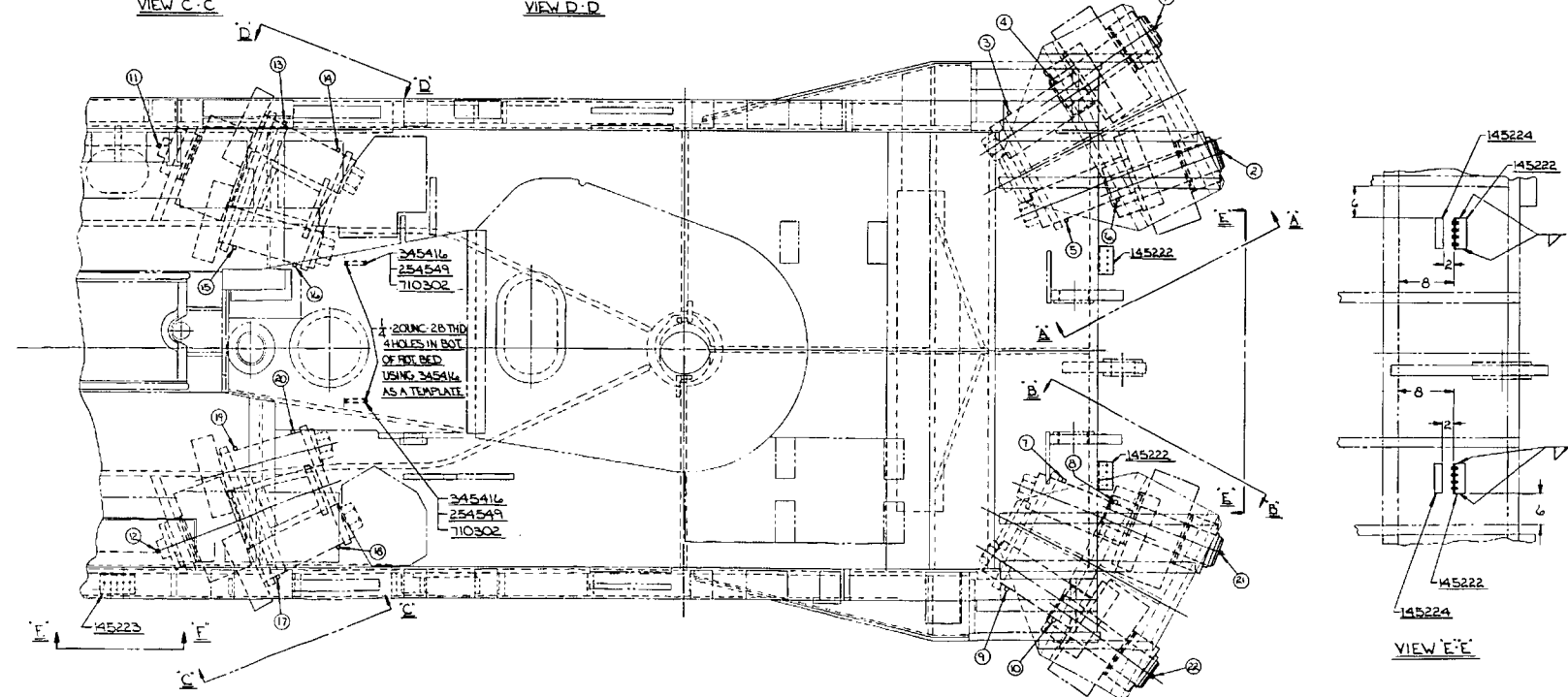
VIEW C-C



VIEW D-D



VIEW F-F



VIEW E-E

20. RIGHT REAR HOOK ROLLER		
1	1/4" x 1/2" EXTENSION NIPPLE	429020
1	1/4" x 45° GREASE FITTING	429052
1	1/4" x 1/2" ELBOW	429063
2	3/8" x 1/4" TUBE CONNECTOR	429367
1	FLEX HOSE	486202
1	MOUNTING PAD	554113
1	1/4" 20UNC-2A 1/2" LG CAPSCREW	612351
1	HOSE CLAMP	667206
1	3/8" COPPER TUBING	696216
1	1/4" LOCKWASHER	710302

21. FRONT HOUSE ROLLER		
1	1/4" PIPE COUPLING	377202
1	1/4" GREASE FITTING	429010
1	CLOSE NIPPLE	543402

NOTE 1  
LOCATE AND WELD MOUNTING PAD 554113 AS SHOWN IN VIEW A-A, B-B, C-C AND D-D

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USED DIRECTLY OR INDIRECTLY IN ANY WAY WHATSOEVER  
DETRIMENTAL TO OUR INTERESTS.

11. LEFT REAR HOUSE ROLLER		
1	GREASE LINE SUPPORT	706564
1	1/4" PIPE COUPLING	377202
1	1/4" x 45° GREASE FITTING	429052
2	3/8" x 1/4" TUBE CONNECTOR	429367
1	3/8" x 1/2" TUBE UNION	429372
1	3/8" x 1/2" 90° ELBOW	429375
1	1/4" x 2" NIPPLE	54243
1	3/8" COPPER TUBING	696216

22. FRONT HOUSE ROLLER		
1	1/4" PIPE COUPLING	377202
1	1/4" GREASE FITTING	429010
1	CLOSE NIPPLE	543402

13. LEFT REAR HOOK ROLLER		
1	1/4" x 1/2" NUT BUSHING	288700
1	1/4" x 45° GREASE FITTING	429052
1	1/4" x 1/2" ELBOW	429063
2	3/8" x 1/4" TUBE CONNECTOR	429367
1	3/8" x 1/2" 90° TUBE UNION	429372
1	FLEX HOSE	486202
1	MOUNTING PAD	554113
1	1/4" 20UNC-2A 1/2" LG CAPSCREW	612351
1	HOSE CLAMP	667206
1	3/8" COPPER TUBING	696216
1	1/4" LOCKWASHER	710302

14. LEFT REAR HOOK ROLLER		
1	1/4" x 1/2" NUT BUSHING	288700
1	1/4" x 45° GREASE FITTING	429052
1	1/4" x 1/2" 90° ELBOW	429063
2	3/8" x 1/4" TUBE CONNECTOR	429367
1	3/8" x 1/2" 90° TUBE UNION	429372
1	FLEX HOSE	486202
1	MOUNTING PAD	554113
1	1/4" 20UNC-2A 1/2" LG CAPSCREW	612351
1	HOSE CLAMP	667206
1	3/8" COPPER TUBING	696216
1	1/4" LOCKWASHER	710302

15. LEFT REAR HOOK ROLLER		
1	1/4" x 1/2" EXTENSION NIPPLE	429020
1	1/4" x 45° GREASE FITTING	429052
1	1/4" x 1/2" 90° ELBOW	429063
2	3/8" x 1/4" TUBE CONNECTOR	429367
1	3/8" x 1/2" 90° TUBE UNION	429372
1	FLEX HOSE	486202
1	MOUNTING PAD	554113
1	1/4" 20UNC-2A 1/2" LG CAPSCREW	612351
1	HOSE CLAMP	667206
1	3/8" COPPER TUBING	696216
1	1/4" LOCKWASHER	710302

16. LEFT REAR HOOK ROLLER		
1	1/4" x 1/2" EXTENSION NIPPLE	429020
1	1/4" x 45° GREASE FITTING	429052
1	1/4" x 1/2" 90° ELBOW	429063
2	3/8" x 1/4" TUBE CONNECTOR	429367
1	3/8" x 1/2" 90° TUBE UNION	429372
1	FLEX HOSE	486202
1	MOUNTING PAD	554113
1	1/4" 20UNC-2A 1/2" LG CAPSCREW	612351
1	HOSE CLAMP	667206
1	3/8" COPPER TUBING	696216
1	1/4" LOCKWASHER	710302

17. RIGHT REAR HOOK ROLLER		
1	1/4" x 1/2" NUT BUSHING	288700
1	1/4" x 45° GREASE FITTING	429052
1	1/4" x 1/2" 90° ELBOW	429063
2	3/8" x 1/4" TUBE CONNECTOR	429367
1	FLEX HOSE	486202
1	MOUNTING PAD	554113
1	1/4" 20UNC-2A 1/2" LG CAPSCREW	612351
1	HOSE CLAMP	667206
1	3/8" COPPER TUBING	696216
1	1/4" LOCKWASHER	710302

18. RIGHT REAR HOOK ROLLER		
1	1/4" x 1/2" NUT BUSHING	288700
1	1/4" x 45° GREASE FITTING	429052
1	1/4" x 1/2" 90° ELBOW	429063
2	3/8" x 1/4" TUBE CONNECTOR	429367
1	FLEX HOSE	486202
1	MOUNTING PAD	554113
1	1/4" 20UNC-2A 1/2" LG CAPSCREW	612351
1	HOSE CLAMP	667206
1	3/8" COPPER TUBING	696216
1	1/4" LOCKWASHER	710302

19. RIGHT REAR HOOK ROLLER		
1	1/4" x 1/2" EXTENSION NIPPLE	429020
1	1/4" x 45° GREASE FITTING	429052
1	1/4" x 1/2" 90° ELBOW	429063
2	3/8" x 1/4" TUBE CONNECTOR	429367
1	FLEX HOSE	486202
1	MOUNTING PAD	554113
1	1/4" 20UNC-2A 1/2" LG CAPSCREW	612351
1	HOSE CLAMP	667206
1	3/8" COPPER TUBING	696216
1	1/4" LOCKWASHER	710302

BILL OF MATERIAL			
ITEM NO.	QTY	DESCRIPTION	REMARKS
1	1	FRONT HOUSE ROLLER	
1	1	1/4" x 1/2" NUT BUSHING	288700
1	1	1/4" x 45° GREASE FITTING	429052
1	1	1/4" x 1/2" 90° ELBOW	429063
2	2	3/8" x 1/4" TUBE CONNECTOR	429367
1	1	FLEX HOSE	486203
1	1	MOUNTING PAD	554113
1	1	1/4" 20UNC-2A 1/2" LG CAPSCREW	612351
1	1	HOSE CLAMP	667206
1	1	3/8" COPPER TUBING	696216
1	1	1/4" LOCKWASHER	710302

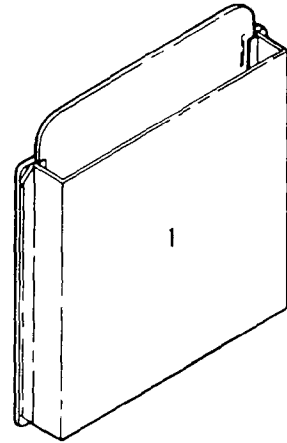
2	2	FRONT HOUSE ROLLER	
1	1	1/4" x 1/2" NUT BUSHING	288700
1	1	1/4" x 45° GREASE FITTING	429052
1	1	1/4" x 1/2" 90° ELBOW	429063
2	2	3/8" x 1/4" TUBE CONNECTOR	429367
1	1	FLEX HOSE	486203
1	1	MOUNTING PAD	554113
1	1	1/4" 20UNC-2A 1/2" LG CAPSCREW	612351
1	1	HOSE CLAMP	667206
1	1	3/8" COPPER TUBING	696216
1	1	1/4" LOCKWASHER	710302

3	3	FRONT HOOK ROLLER	
1	1	1/4" x 1/2" NUT BUSHING	288700
1	1	1/4" x 45° GREASE FITTING	429052
1	1	1/4" x 1/2" 90° ELBOW	429063
2	2	3/8" x 1/4" TUBE CONNECTOR	429367
1	1	FLEX HOSE	486203
1	1	MOUNTING PAD	554113
1	1	1/4" 20UNC-2A 1/2" LG CAPSCREW	612351
1	1	HOSE CLAMP	667206
1	1	3/8" COPPER TUBING	696216
1	1	1/4" LOCKWASHER	710302

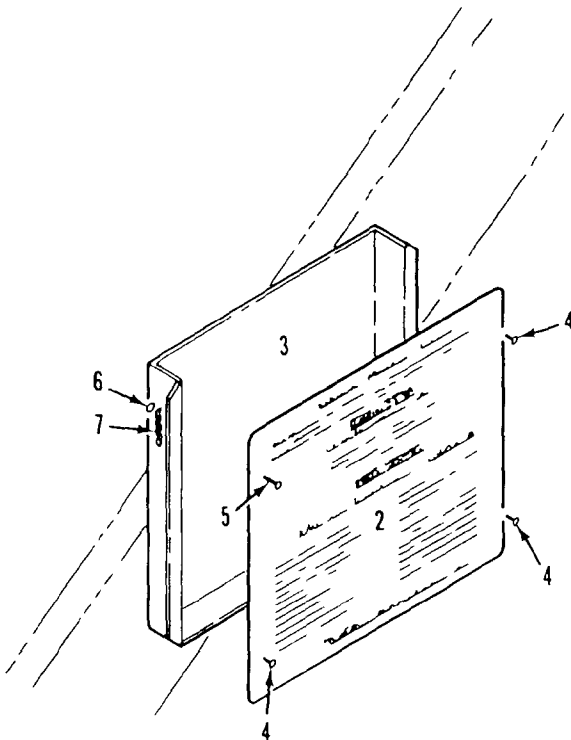
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1	1	1/4" x 1/2" NUT BUSHING	288700
1	1	1/4" x 45° GREASE FITTING	429052
1	1	1/4" x 1/2" 90° ELBOW	429063
2	2	3/8" x 1/4" TUBE CONNECTOR	429367
1	1	FLEX HOSE	486203
1	1	MOUNTING PAD	554113
1	1	1/4" 20UNC-2A 1/2" LG CAPSCREW	612351
1	1	HOSE CLAMP	667206
1	1	3/8" COPPER TUBING	696216
1	1	1/4" LOCKWASHER	710302

5	5	FRONT HOOK ROLLER	
1	1	1/4" x 1/2" NUT BUSHING	288700
1	1	1/4" x 45° GREASE FITTING	429052
1	1	1/4" x 1/2" 90° ELBOW	429063
2	2	3/8" x 1/4" TUBE CONNECTOR	429367
1	1	FLEX HOSE	486203
1	1	MOUNTING PAD	554113
1	1	1/4" 20UNC-2A 1/2" LG CAPSCREW	612351
1	1	HOSE CLAMP	667206
1	1	3/8" COPPER TUBING	696216
1	1	1/4" LOCKWASHER	710302

MANTOWOC ENGINEERING CO. LUBRICATION ASSEMBLY  
REMOTE GREASING OF  
HOOK & HOUSE ROLLERS  
FOR 16 FT DIA. ROLLER PATH



LOCATED IN PILOT HOUSE  
(ON RIGHT SIDE WALL)



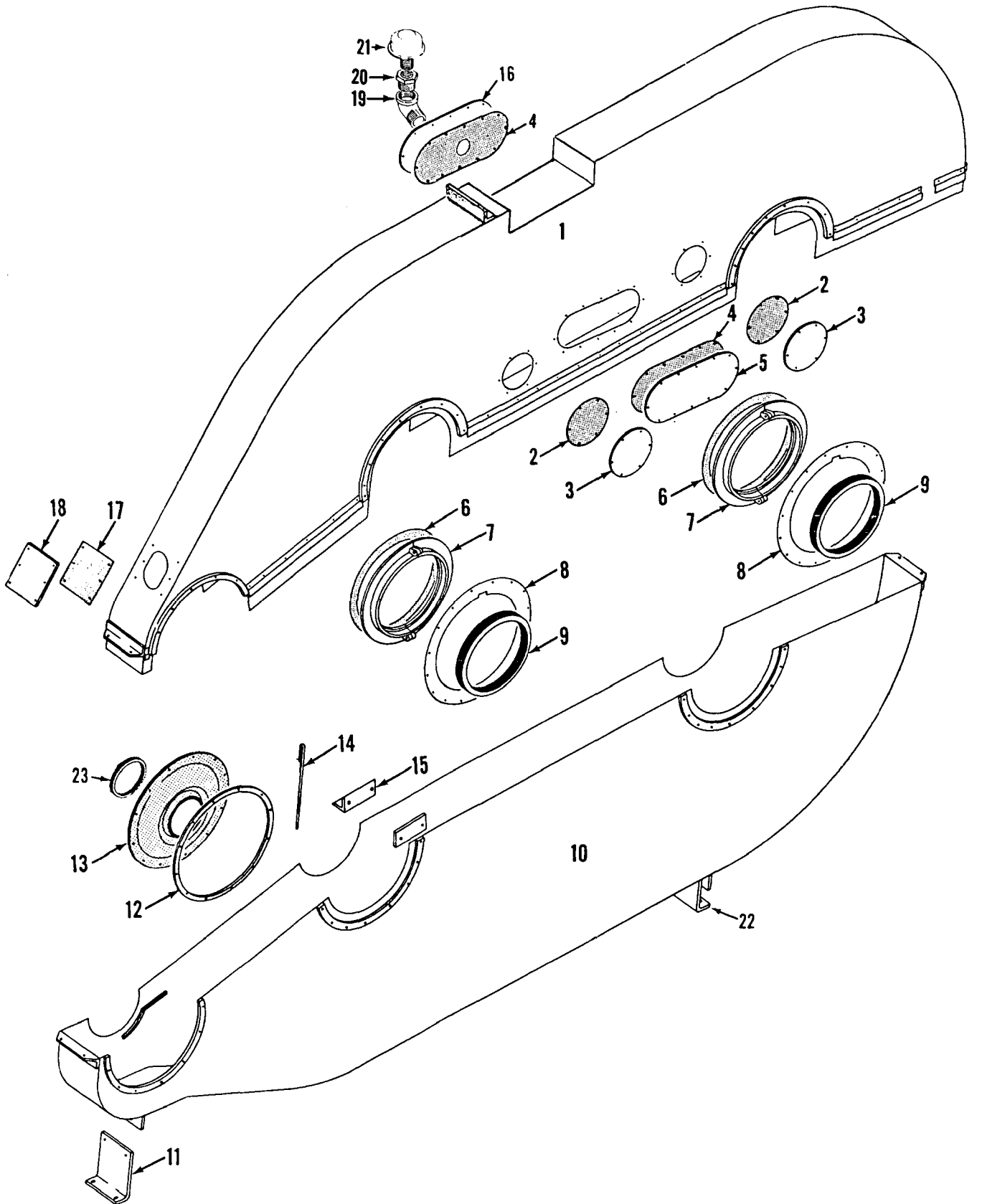
LOCATED IN MACHINERY CAB  
(ON A FRAME LEG)

94035A1

MATERIAL LIST ON BACK

CAPACITY CHART & MANUAL HOLDERS

MASTER



19004001

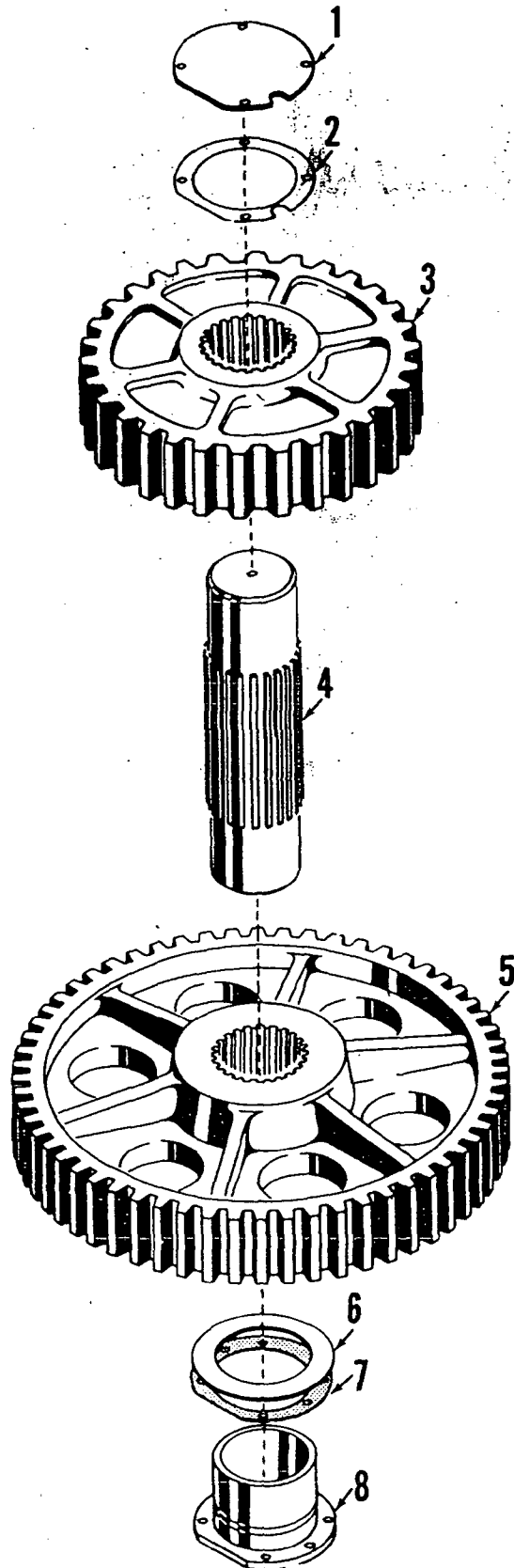


MANITOWOC ENGINEERING CO.

A Division of The Manitowoc Company, Inc

Manitowoc, Wisconsin

MASTER



ILLUST. No. 21629-B-1

MATERIAL LIST ON BACK

SWING SHAFT ASSEMBLY - INTERMEDIATE

NO.	REQ.	PART NO.	DESCRIPTION	CODE NO.
1		3329	ADJUSTING BOLT	
1		3331	SPRING	
1		19436	PIN	
1		140674	PIN	
1		19435	GUIDE ROLLER SUPPORT	
1		19983	GUIDE BAR	
1		15207	GUIDE	
2		15252	PIN	
1		15155	FORKED LEVER	
1		140336	PIN	
1		15345	KEEPER PLATE	
1		15357	SET COLLAR	
1		15377	SPRING CLIP	
1		16822	PIN	
2		17790	WASHER 1/8" THK.	
2		17796	WASHER 1/2" THK.	
1		18524	LIVE END CON. LINK	
1		18640	ROLLER GUIDE SUPPORT	
2		18641	GUIDE ROLLER	
1		19001	GUIDE	
1		19049	GUARD	
1		140336	6-38 STD. NIPPLE	343454
1		140336	6-38 STD. NIPPLE	401664
1		140336	6-38 STD. NIPPLE	421900

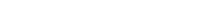
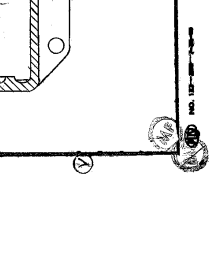
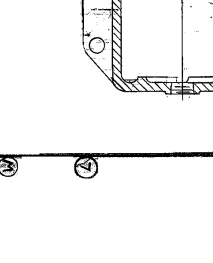
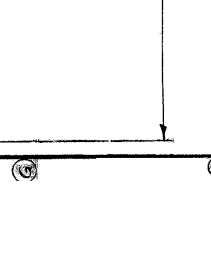
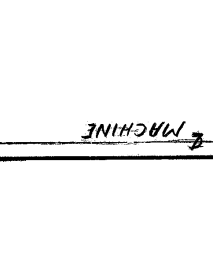
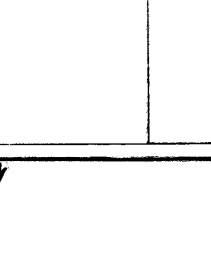
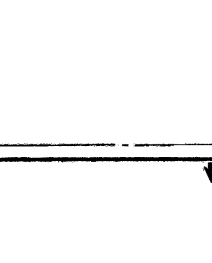
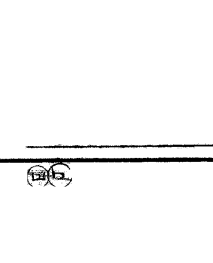
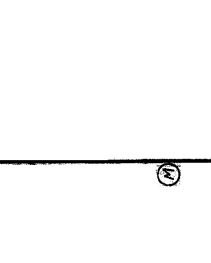
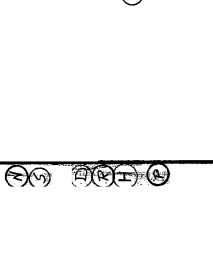
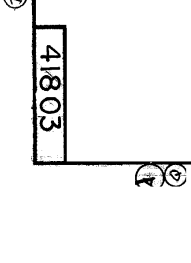
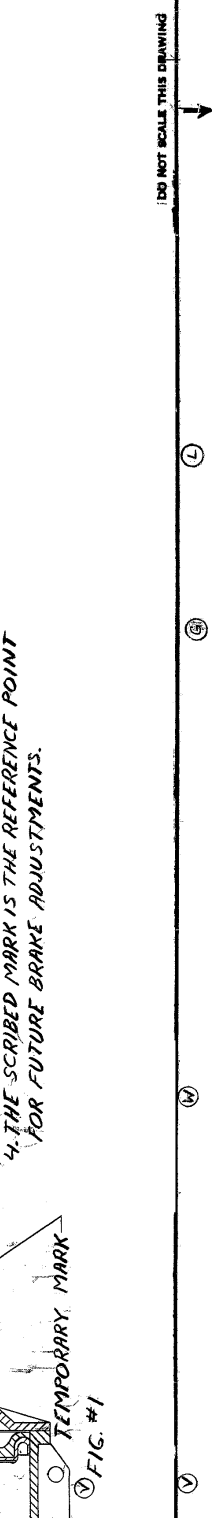
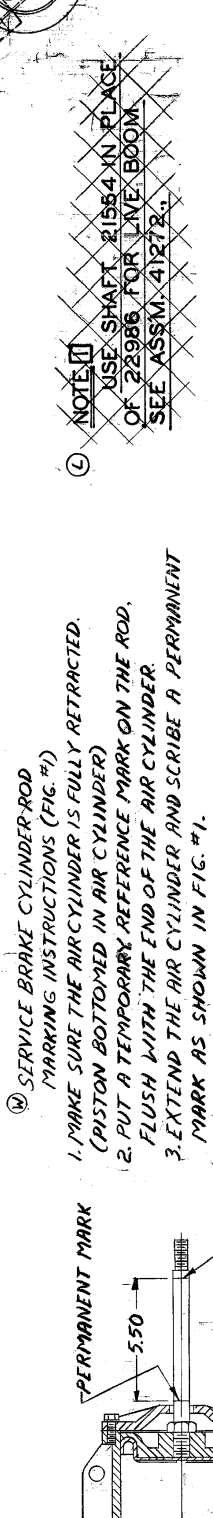
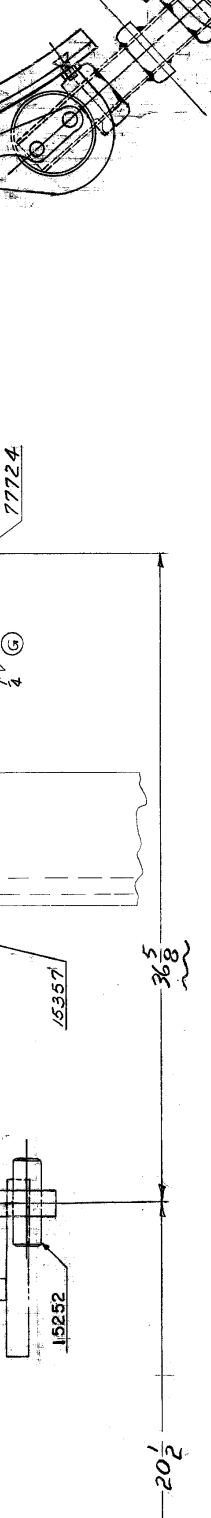
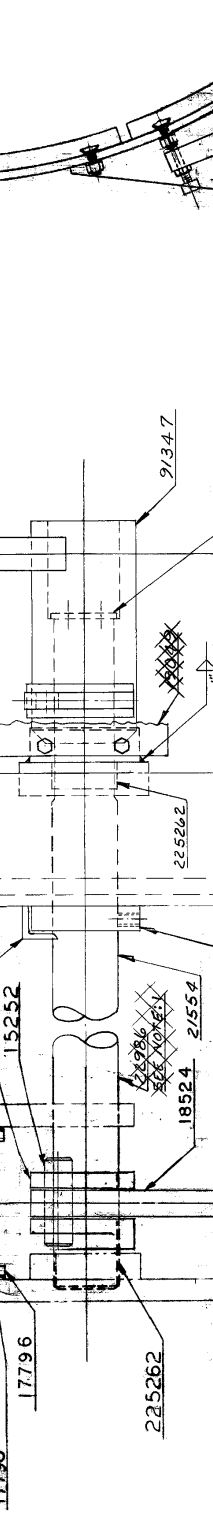
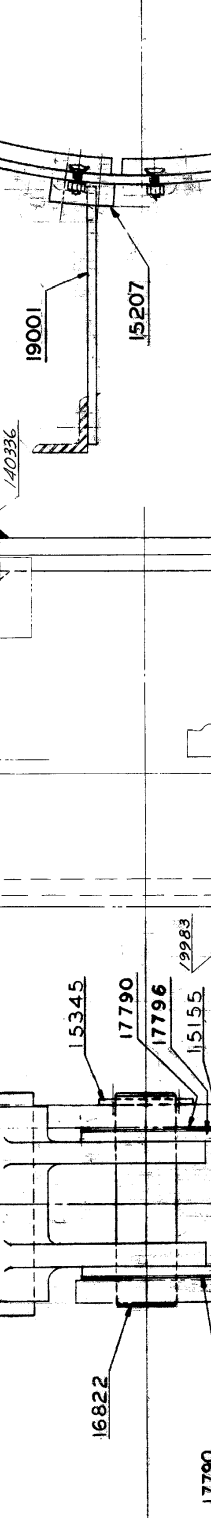
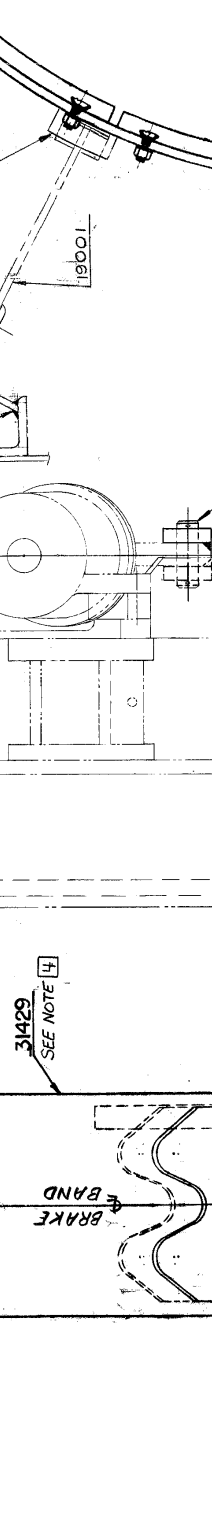
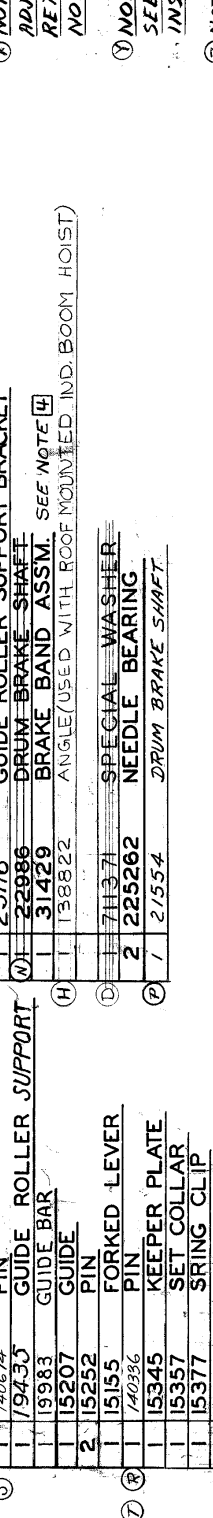
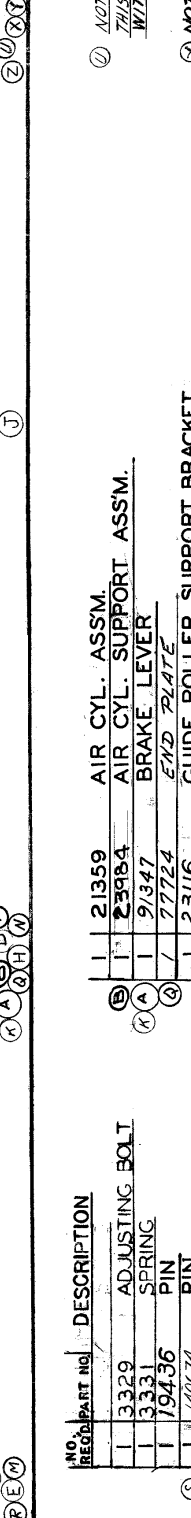
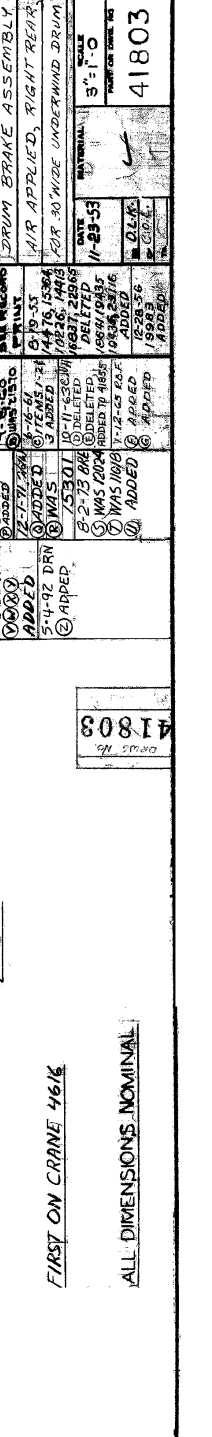
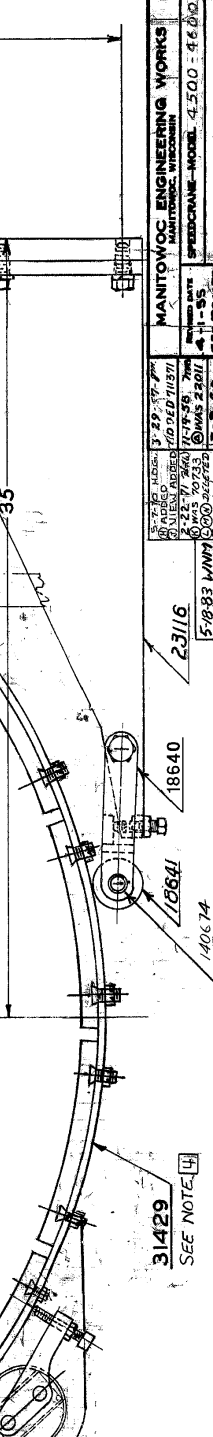
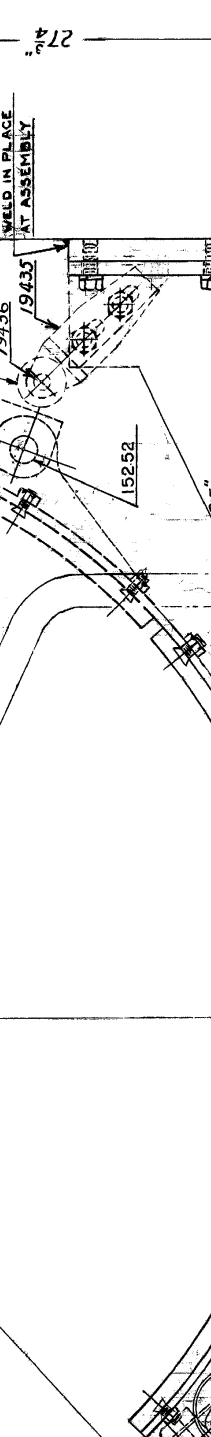
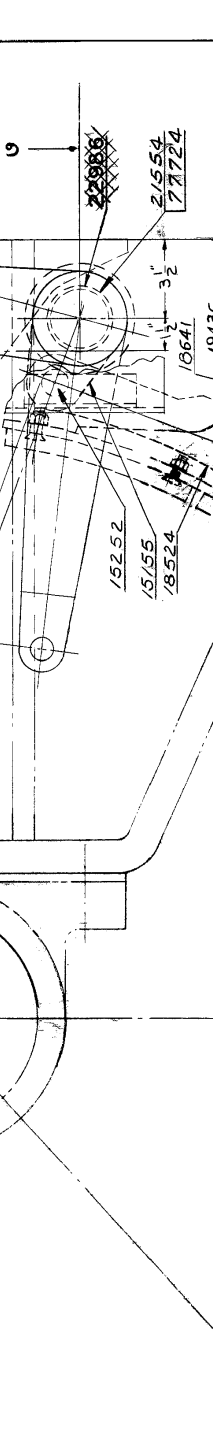
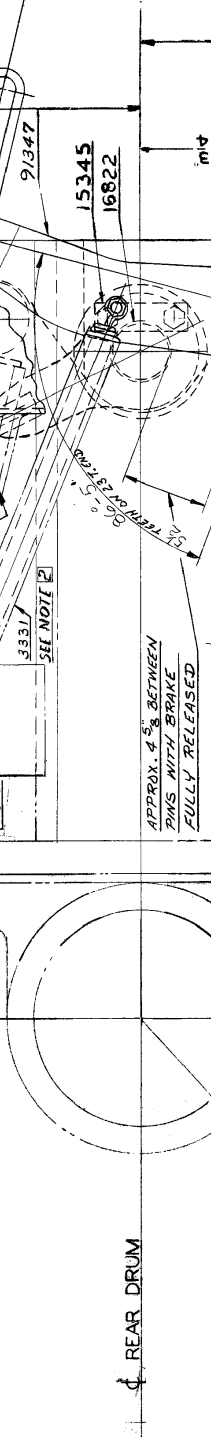
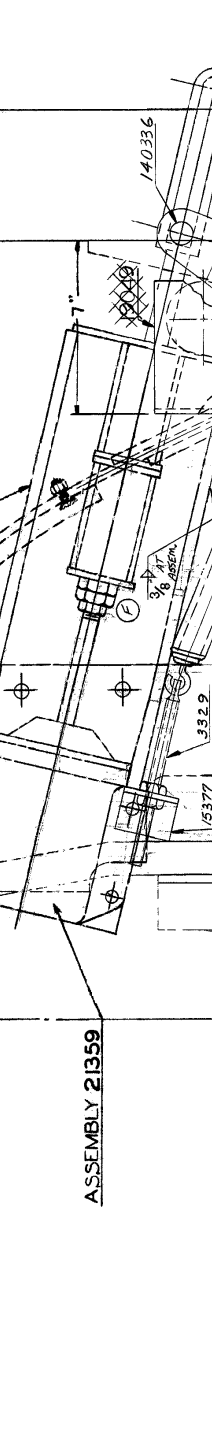
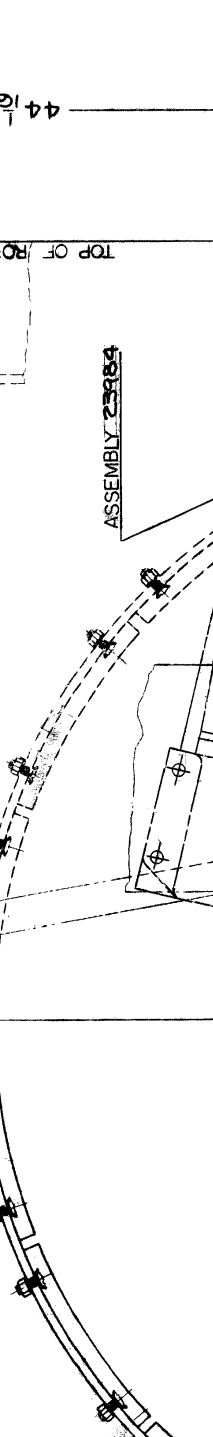
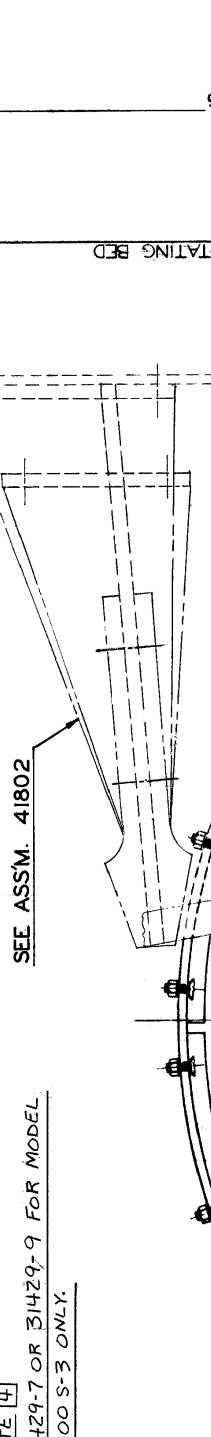
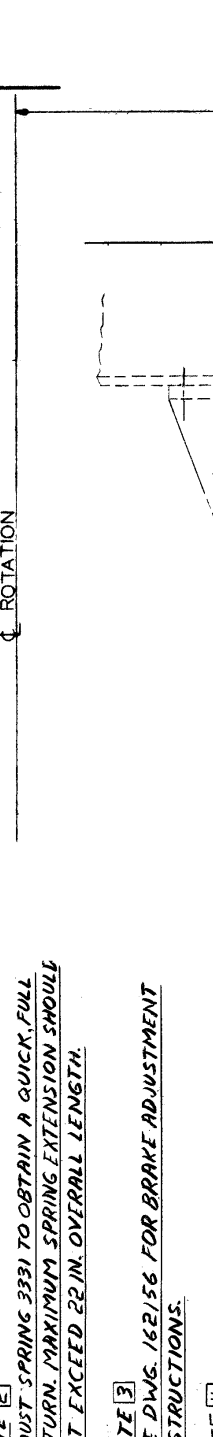
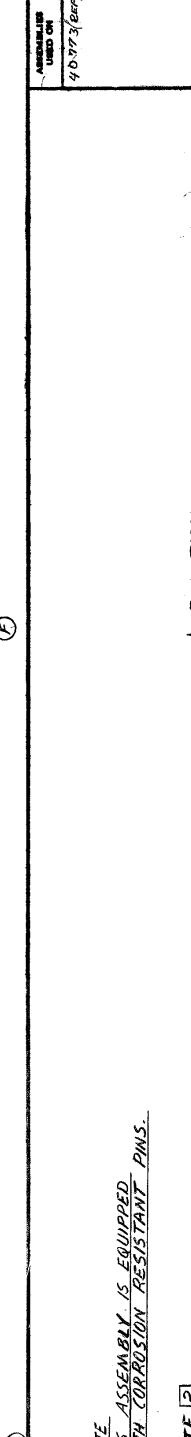
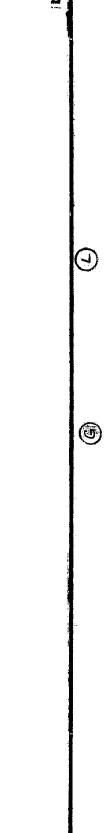
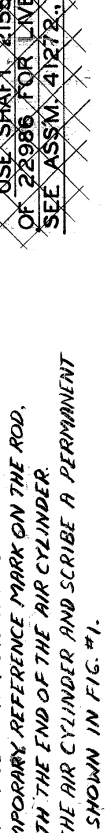
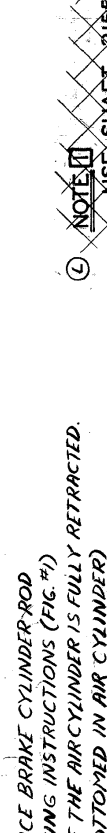
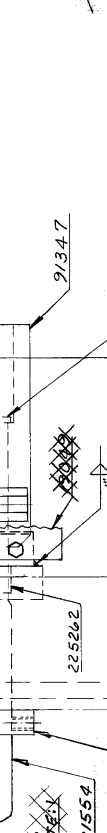
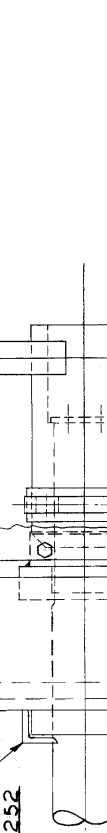
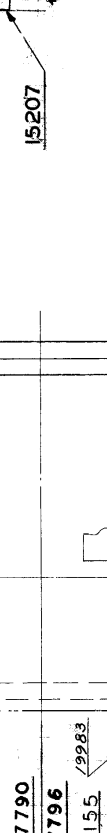
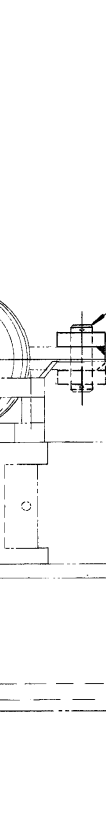
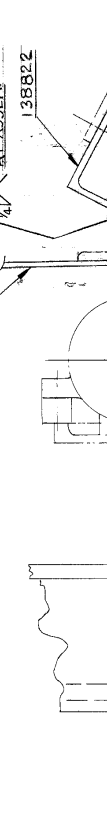
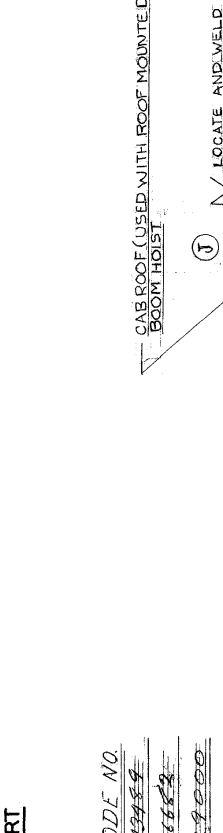
1	21359	AIR CYL. ASSM.
1	23984	AIR CYL. SUPPORT ASSM.
1	91347	BRAKE LEVER
1	77724	END PLATE
1	23116	GUIDE ROLLER SUPPORT BRACKET
1	22986	DRUM BRAKE SHAFT
1	31429	BRAKE BAND ASSM. SEE NOTE [4]
1	138822	ANGLE (USED WITH ROOF MOUNTED IND. BOOM HOIST)
1	7H371	SPECIAL WASHER
2	225262	NEEDLE BEARING
1	21554	DRUM BRAKE SHAFT

NOTE [2] THIS ASSEMBLY IS EQUIPPED WITH CORROSION RESISTANT PINS.

NOTE [3] ADJUST SPRING 3331 TO OBTAIN A QUICK, FULL RETURN. MAXIMUM SPRING EXTENSION SHOULD NOT EXCEED 22 IN. OVERALL LENGTH.

NOTE [4] SEE DWG. 162156 FOR BRAKE ADJUSTMENT INSTRUCTIONS.

NOTE [5] 31429-7 OR 31429-9 FOR MODEL 4400 S-3 ONLY.



43205-1 Cont.	REV. K	MODEL 4600
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LEFT FRONT DRUM BRAKE  
(MACH. W/99 TOOTH FRONT DRUM GEAR)

MASLER

REF. NO.	PART NUMBER	QUANTITY REQUIRED	DESCRIPTION OF PART	VENDORS PART NO.		
43 44 45 46	429365 70656 429000 146478	1 1 1 1	CONNECTOR (3/16" x 1/8") SUPPORT, Grease Line FITTING, Grease (1/8") PAD, Mounting (Use W/Part #97840 Only) (See Note 4)			
<p>NOTE 1: Part #90311 used prior to design change of 12-9-65. Part #91417 used after design change of 8-25-66. Between design changes of 12-9-65 and 8-25-66 the anchor bracket was an integral part of the rotating bed.</p>						
<p>NOTE 2: Machines or bands shipped after November 6, 1970 must use Ref. #38, washer #709960 to align connecting link, Ref. #14. Machines or bands shipped prior to this date do <u>not</u> use this washer.</p>						
<p>NOTE 3: Bracket #93134 used prior to design change of October 25, 1978.</p>						
<p>NOTE 4: Prior to design change of Aug. 8, 1979, the following were used -</p>						
31A 46A	90079 139540	1 1	BRACKET, Guide w/capscrews and lockwashers (Lift, Drag) PAD, Mounting			
<p>#0-71, 182455</p>						
				<table border="1"> <tr> <td data-bbox="1166 1963 1291 2030">REV. K</td> <td data-bbox="1291 1963 1534 2030">43205 - 1</td> </tr> </table>	REV. K	43205 - 1
REV. K	43205 - 1					

PLEASE GIVE MACHINE S/N W/ORDER

49295-1Cont.	REV. E	MODEL 4600
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LUBRICATION PIPING  
(DUAL G.M. ENGINES)

REF. NO.	PART NUMBER	QUANTITY REQUIRED	DESCRIPTION OF PART	VENDORS PART NO.		
41	16298	1	HOSE, Flex (1" I.D. 3'8" or 1.1176 m long) (See note)			
42	219977	1	BAR (½" x 1" x 6")			
43	667081	1	STRAP, Pipe (½")			
44	406688	1	ELBOW, 45° (1")(See note)			
45	17557	1	HOSE, Flex (1" I.D. 8'10" or 2.6924 m long)			
46	679305	1	TEE (1")			
47	543406	2	NIPPLE, Close (1")			
48	543408	1	NIPPLE, Close (1½")			
49	406959	2	ELBOW (1½")			
50	71911	2	ADAPTER, Hose (1½" NPT 1-3/4" I.D. hose)			
51	345338	2	CLAMP, Hose (#28 1-5/16" - 2½")			
52	485694	1	HOSE, Radiator (1-3/4" I.D. - specify length)			
53	543220	1	NIPPLE (1½" - 24-3/4")			
54	431331	1	FLANGE, Welding (1½") (Weld at Assembly)			
56	543442	1	NIPPLE (½" x 1½")			
57	571705	1	PLUG, Pipe (1")			
<u>MACHINE WITH FLOW INDICATOR</u>						
60	288757	1	BUSHING (1" x 3/4")			
61	543405	1	NIPPLE, Close (3/4")			
62	489442	1	INDICATOR, Flow			
63	288753	1	BUSHING (3/4" x 1/2")			
<p><u>NOTE 1:</u> Oil line parts from sump to pump are illustrated and itemized as passing through rotating bed on right side. When sump is turned 180° and line passes through left side of rotating bed, delete Ref. No. 41 (hose 16298) and replace with flex hose 17556 (1" I.D. 8'1" or 2.4638 m long) and delete Ref. No. 44 (elbow 406688) and replace with 1" coupling 377207. Add two 1½" pipe straps 667088 and two mounting pads 219151 for securing hoses.</p> <p><u>NOTE 2:</u> For machines after design change of 3/13/81, with mounting on left side of filter, add the following:</p>						
64	138107	1	PAD, Mounting (Weld in place at assembly)			
65	147692	1	PLATE, Mounting (Weld in place at assembly)			
66	139228	1	PLATE, Instruction W/drive screws			
<p>0-340 (1-19-71 and on)                      0-407 (9-19-70 and 11-9-70)                      0-340 or 0-407</p>						
				<table border="1" style="width: 100%;"> <tr> <td style="width: 50%;">REV. E</td> <td style="width: 50%;">49295 - 1</td> </tr> </table>	REV. E	49295 - 1
REV. E	49295 - 1					
PLEASE GIVE MACHINE S/N W/ORDER						

Run as Front

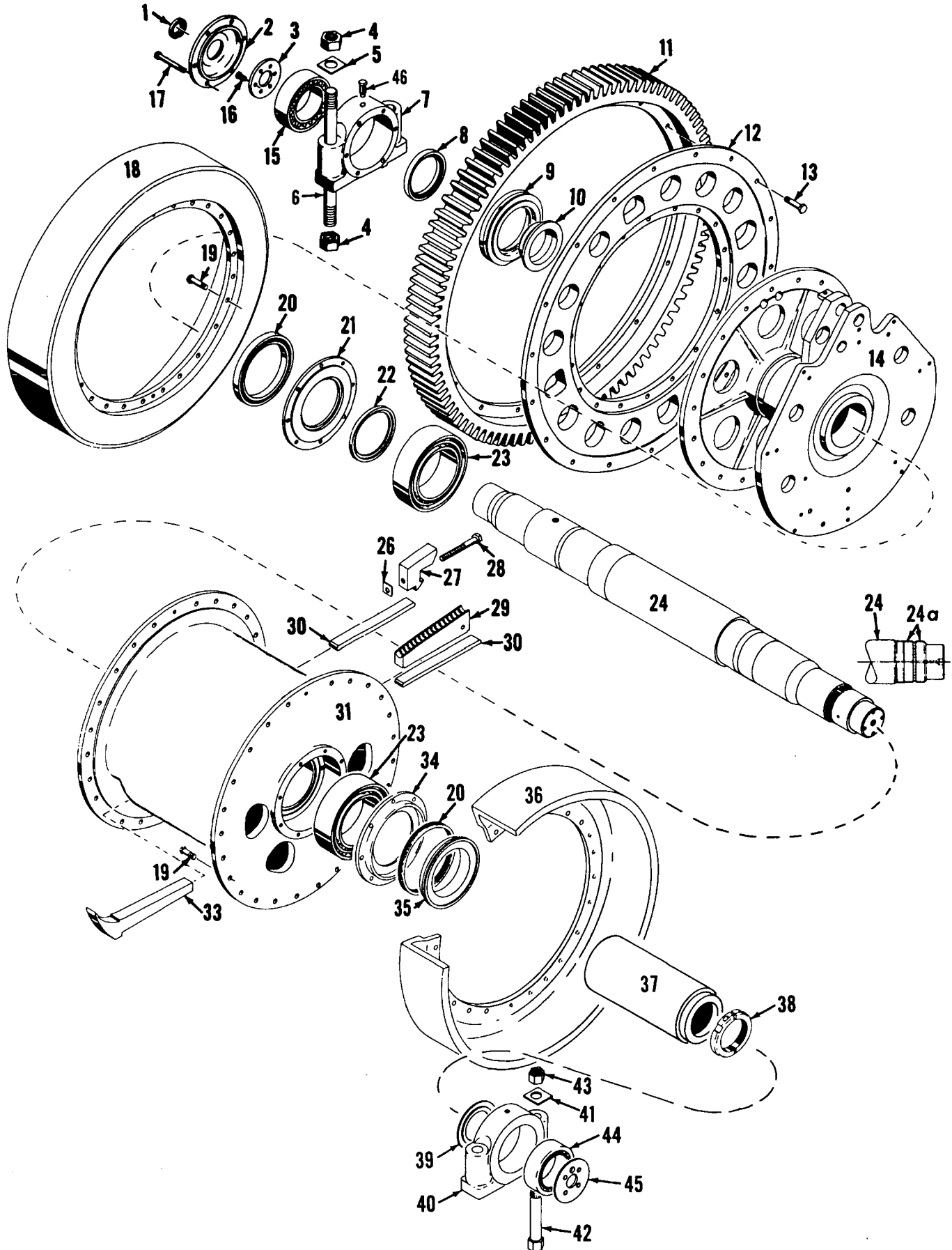
MASTER

49295-1 Cont'd.

MANITOWOC ENGINEERING CO.

A Division of The Manitowoc Company, Inc.

Manitowoc, Wisconsin

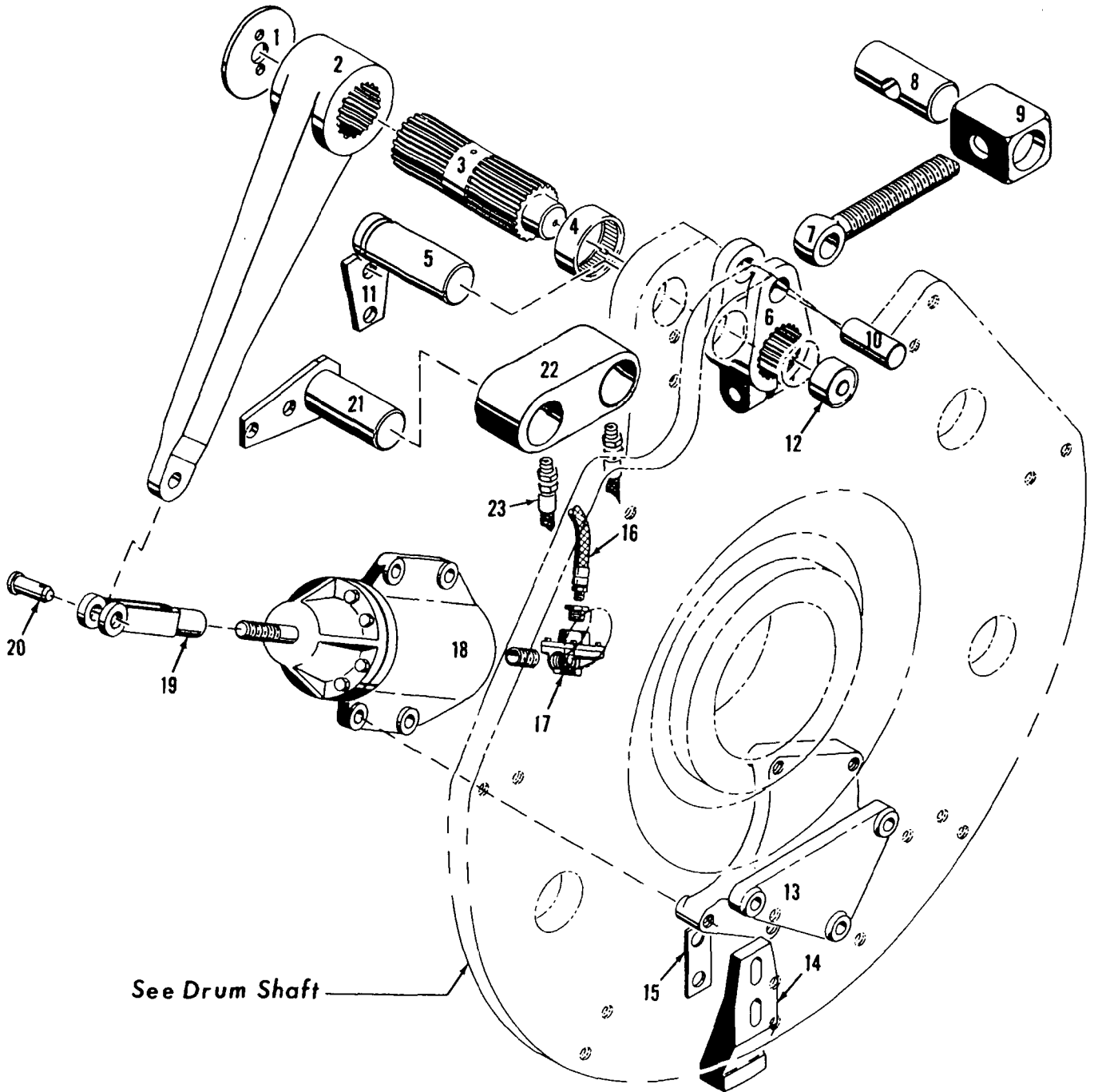


MASTER

50425C1

MATERIAL LIST ON BACK

DRUM SHAFT

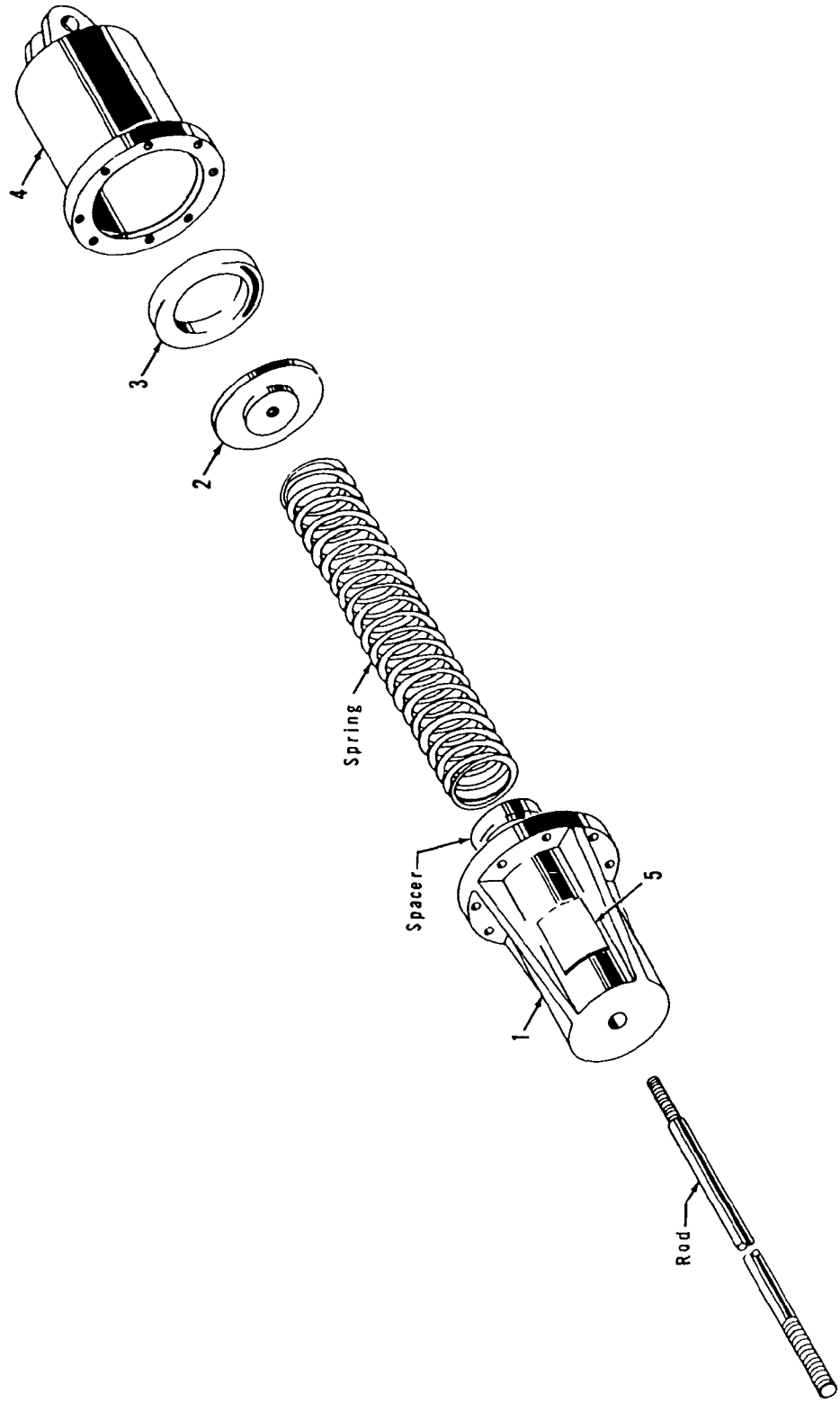


See Drum Shaft





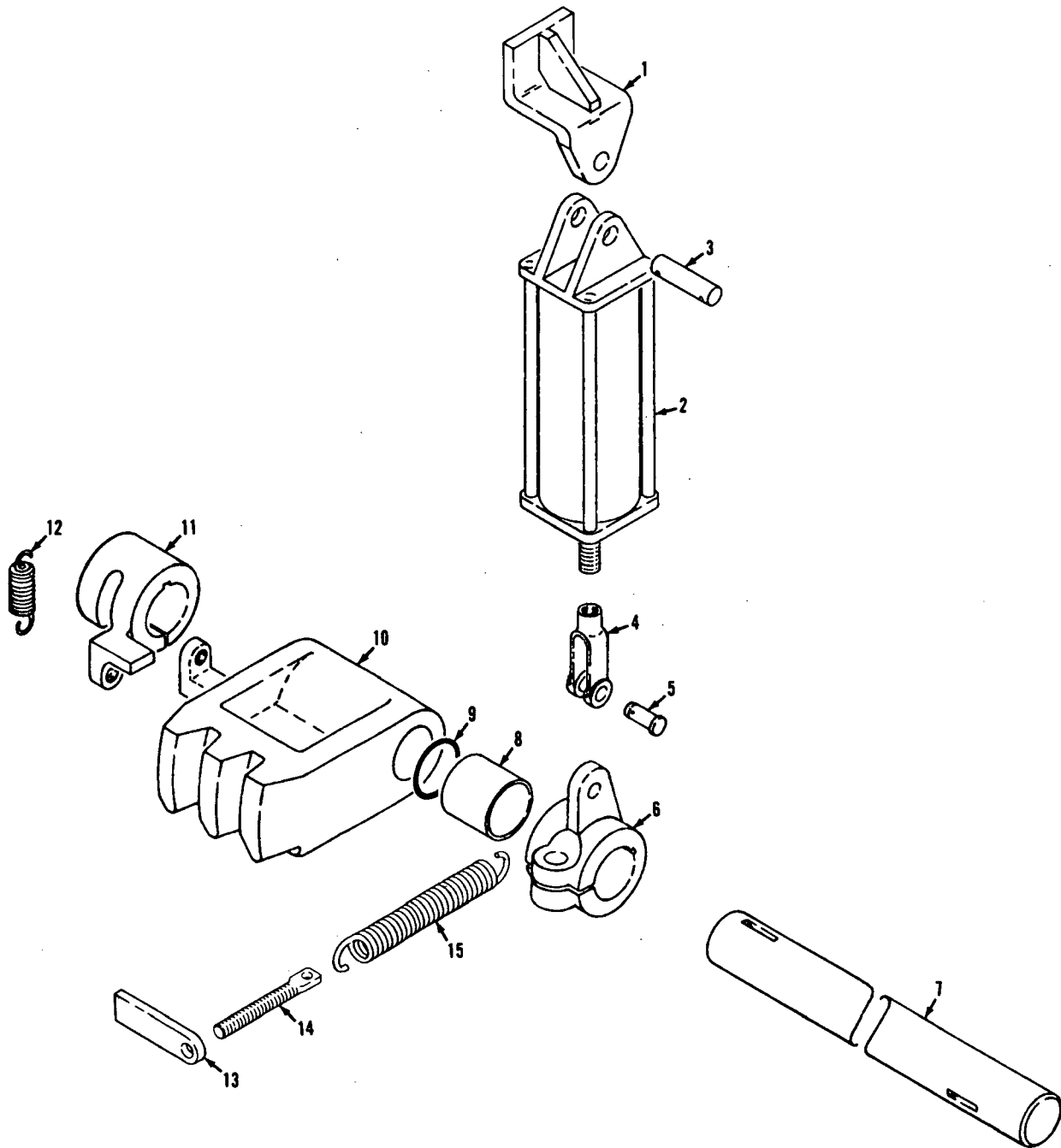
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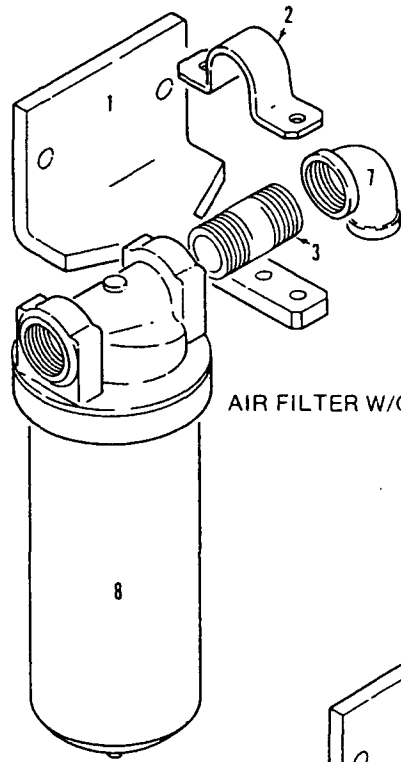
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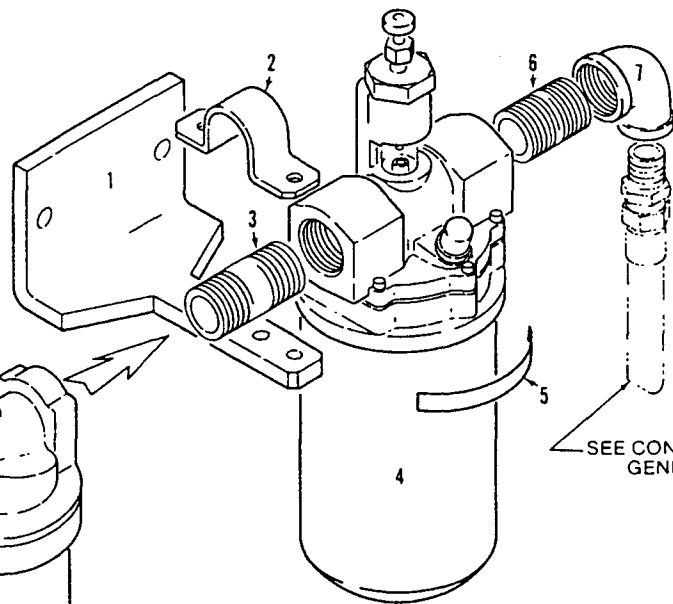


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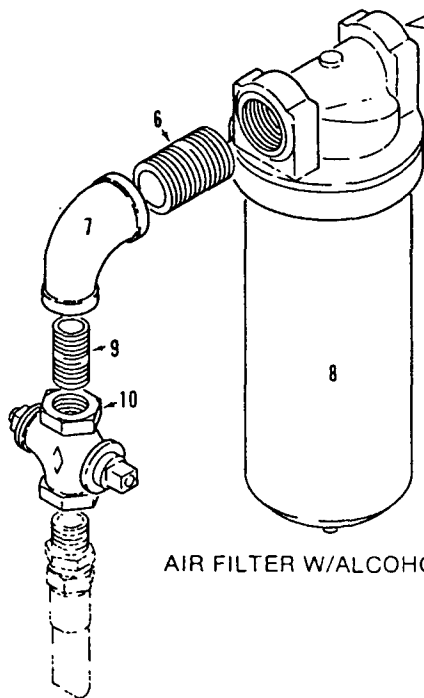
GROUP C - Air Components & Electrical



AIR FILTER W/O ALCOHOL INJECTOR

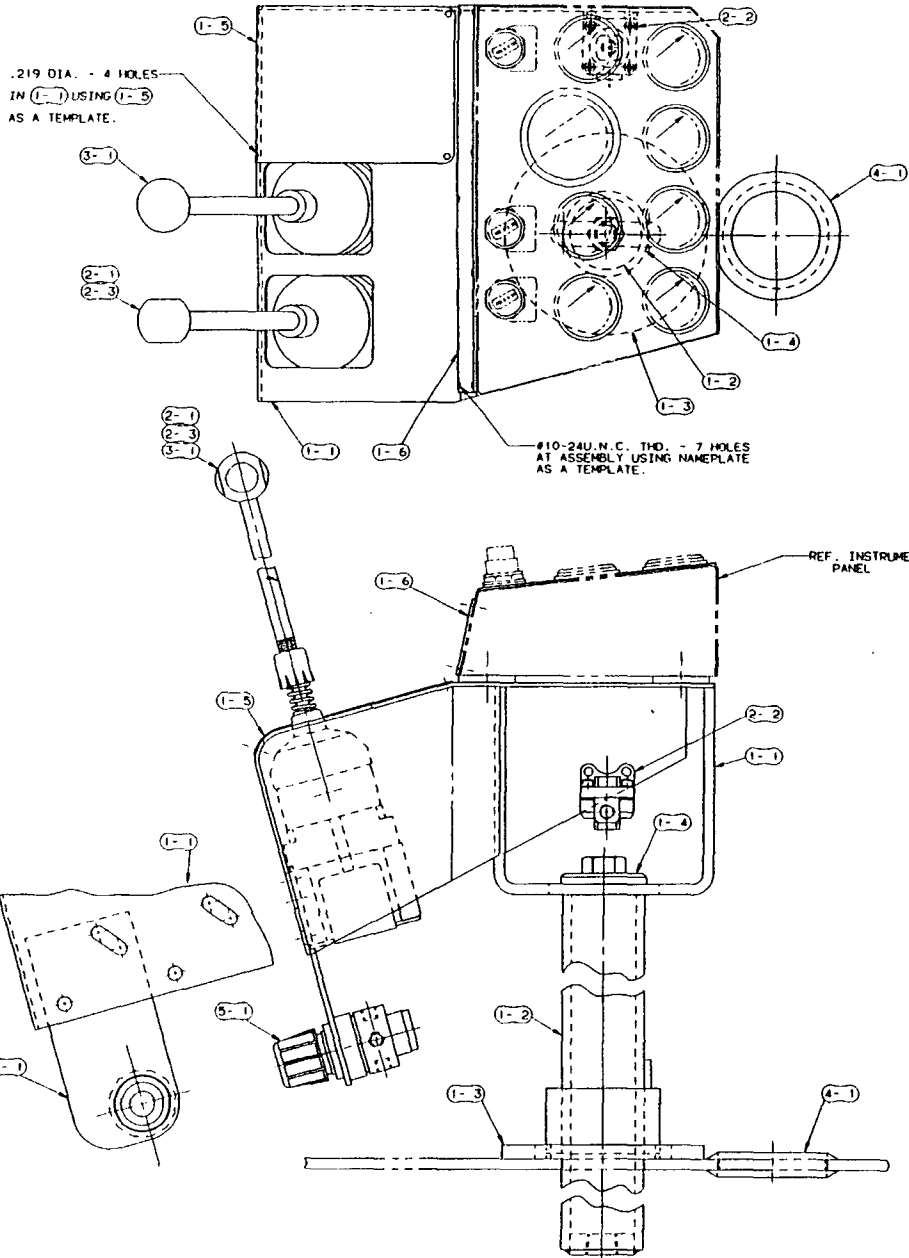


SEE CONTROL CONSOLE GENERAL ASSEM.



AIR FILTER W/ALCOHOL INJECTOR

SEE CONTROL CONSOLE GENERAL ASSEM.



BILL OF MATERIAL				QUANTITY
ITEM NO.	DESCRIPTION	MATERIAL	UNIT	170864

**1 BASIC BILL**

- (1-1) 1 183469 VALVE BOARD (L.H.)
- (1-2) 1 96982 MANIFOLD
- (1-3) 1 70800 STAND BASE
- (1-4) 1 70826 WASHER
- (1-5) 1 147398 COVER
- (1-6) 1 163048 NAMEPLATE

**2 SWING CONTROL**

- A (2-1) 1 715581 VALVE (FLEX-AIR)-FOR MACH. W/SWING BRAKE
- B (2-1) 1 715570 VALVE (FLEX-AIR)-FOR MACH. W/OUT SWING BRAKE
- (2-2) 1 714647 SHUTTLE VALVE
- (2-3) 1 145235 KNOB

**3 TRAVEL CONTROL**

- (3-1) 1 715570 VALVE (FLEX-AIR)
- (3-2)

**4 AIR SUPPLY**

- (4-1) 1 70817 GRIPMET
- (4-2) 2 486056 .375 PLASTIC TUBING
- (4-3) 2 306008 IDENTIFICATION TAPE-SEE NOTE 1

**5 SWING POWER CONTROL**

- (5-1) 1 183835 SWING POWER CONTROL.

**NOTE 1**

IDENTIFY ALL AIR LINES W/IDENTIFICATION TAPE AT VALVES & MANIFOLD. FOR AIR IDENTIFICATION NO.'S. SEE CHART NO. 6338 (MASTER NUMBERING INDEX).

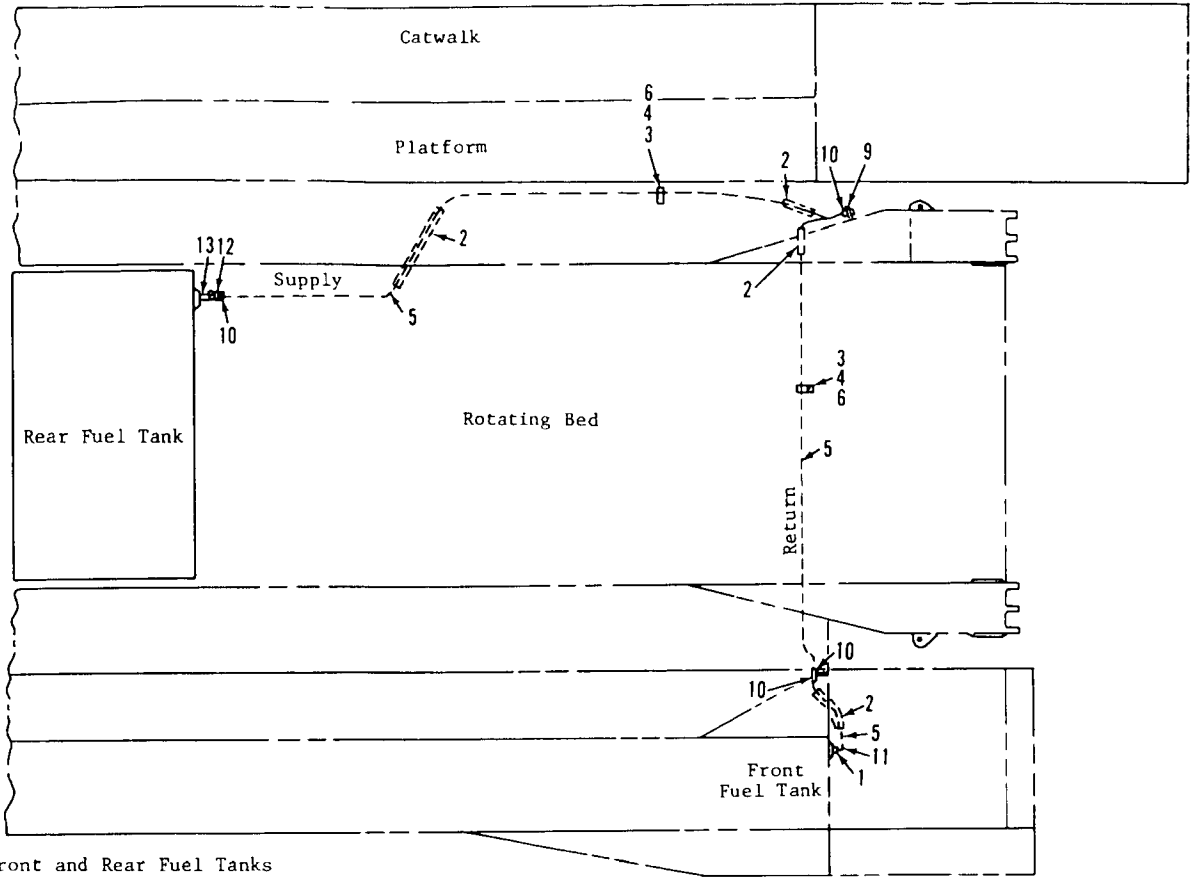
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**MANITOWOC ENGINEERING CO.**  
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FIRST ON S/O 4650, 4651 & 4656

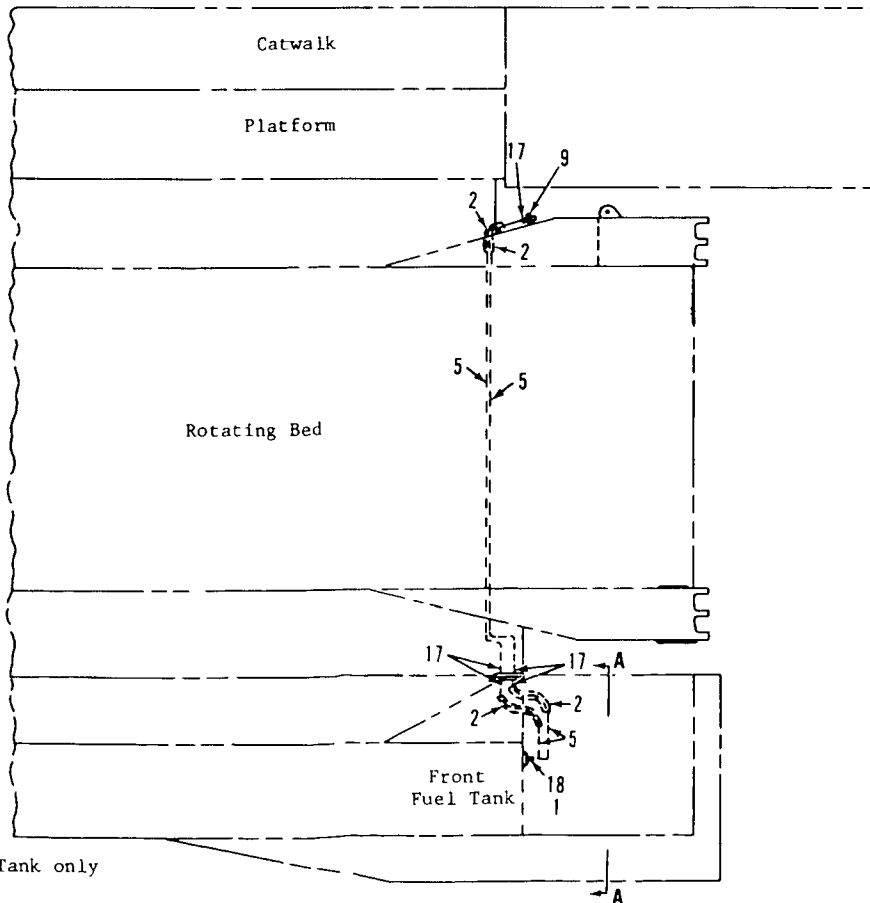
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2				L.H. PEDESTAL MOUNTED
3				VALVE BOARD FOR
4				HYD. DRIVEN GANTRY
5				

0-63,0-147,0-441

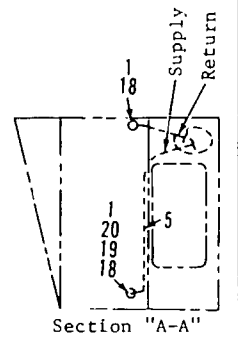
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Front and Rear Fuel Tanks



Front Fuel Tank only



Section "A-A"

182507A1

MATERIAL LIST ON BACK

Light Plant Fuel Lines

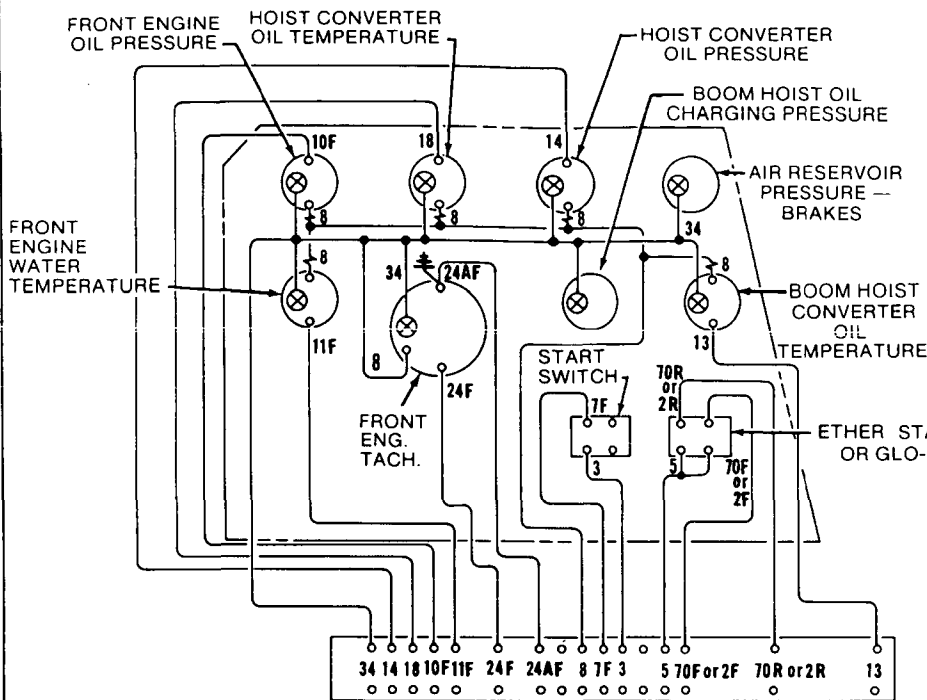
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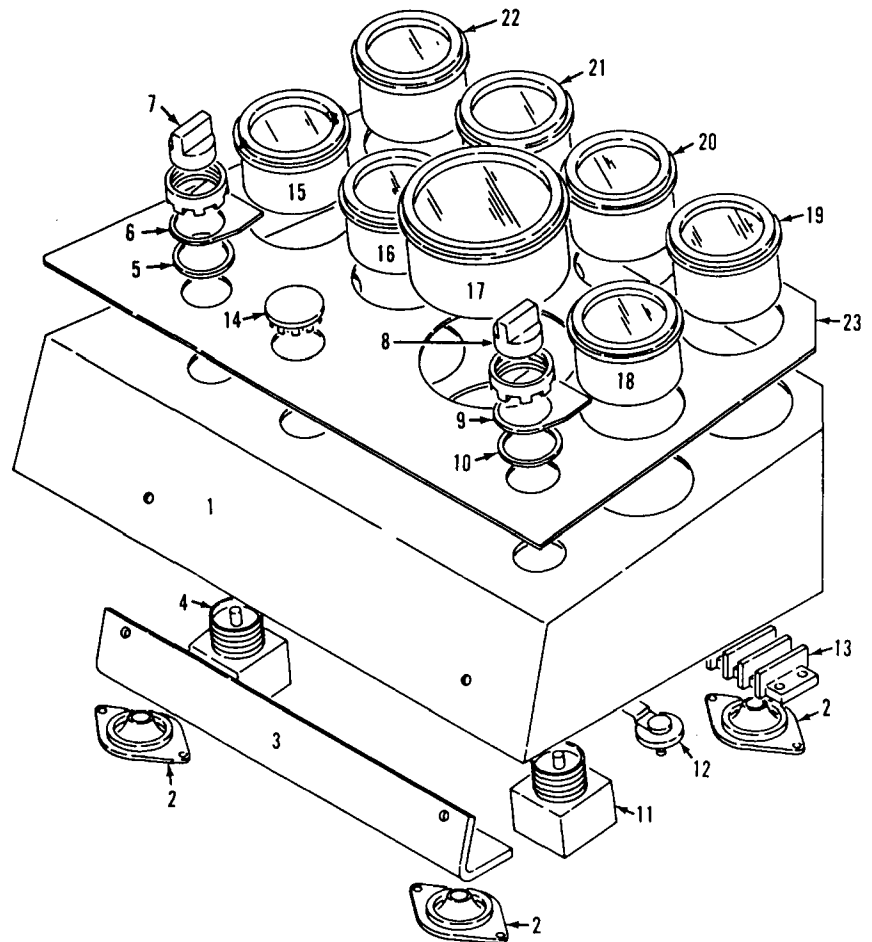
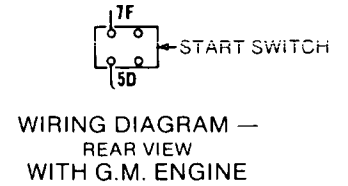
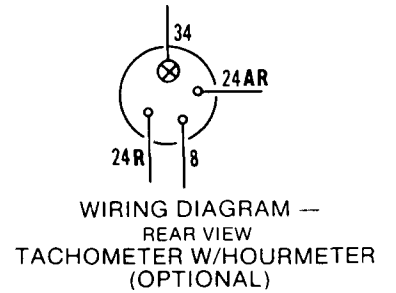


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WIRING DIAGRAM — REAR VIEW WITH TANDEM CUMMINS POWER PLANT



190879-1 Cont.	REV. J	MODEL 4600 S1, S3
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RIGHT CONTROL CONSOLE

REF. NO.	PART NUMBER	QUANTITY REQUIRED	DESCRIPTION OF PART	VENDORS PART NO.
	539734	1	NAMEPLATE (Ether start w/single engine)	
	673382	1	OPERATOR, Switch (W/single engine)	
	673378	1	OPERATOR, Switch (W/two engines)	
	673380	1	BLOCK, Contact	
			FOR 4600-S1	
			<u>TANDEM CUMMINS OR GENERAL MOTORS POWER</u> (See Note 1)	
24	500817	1	KNOB	
	539729	1	NAMEPLATE	
	673382	1	OPERATOR, Switch	
	673380	1	BLOCK, Contact	
			<u>NOTE 1:</u> Ref. Nos. 23 and 24 used only w/out instrument panel. If not used plug board w/350317 plug button.	
			<u>NOTE 2:</u> Mach. w/drum rotation indicators, delete Ref. Nos. 5, 6, 7. See "Drum rotation indicator" page B6.7. Mach. w/Vicon power load lowering (Series 3 only) delete Ref. Nos. 5, 6, 7 and add:	
	136328	2	KNOB, Handle	
	140406	2	HANDLE, Valve	
	293122	2	SWITCH	
			<u>NOTE 3:</u> Series 3 Mach. w/converter driven independent boom hoist, add:	
	702608	1	VALVE, Solenoid (N.C.) (Located in boom down air line)	
			0-147 0-441, 0-63 Ref. 182873, 183210 or 190025	
				REV. J 190879-1

Run as Front

190879 J1 Cont.

PLEASE GIVE MACHINE S/N W/ORDER

**PARTS MANUAL ALPHABETICAL INDEX**  
**Group D - Power Components**

DESCRIPTION	PUBLICATION	REV	START DATE	END DATE	GROUP
Converter Control	33220	H1	03/10/75	10/20/77	D0601
Converter Piping	184626	C1	08/04/81	09/24/84	D0701
Converter Piping	184627	-	08/04/81	11/12/81	D0701
Converter Piping	191326	-	12/14/83	02/01/84	D0701
Engine Wiring	163130	-	01/18/84		D0106
Engine Wiring	182231	A1	05/31/77	05/10/79	D0106
Engine Wiring	182511	-	01/02/75	05/10/79	D0106
Exhaust Stack	145476	-	05/15/78	09/15/97	D0102
Instrument Panel/Engine	96802	-	10/21/77		D0301
Power Plant	145172	-	12/13/77		D0101
Power Plant	162861	-	10/25/83	12/14/83	D0101
Power Plant	43898	-	12/01/67	01/30/97	D0101
Power Plant	43898	A4	12/05/74	02/24/81	D0101
Power Plant	50874	K1	12/13/83	09/25/84	D0101
Power Plant	96065	-	06/29/76	05/25/79	D0101
Power Take Off - Transmission Case	181198	-	04/16/70	11/05/70	D0401
Power Take Off - Transmission Case	181198	B1	04/16/70	10/27/70	D0401
Power Take Off - Transmission Case	50368	F1	02/08/65	12/22/83	D0401

50368-1 Cont.	REV. F	MODEL 4600
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POWER TAKE-OFF  
(WITH AUX. DRIVE, CONTROLLED CONVERTERS, DUAL ENGINE)

REF. NO.	PART NUMBER	QUANTITY REQUIRED	DESCRIPTION OF PART	VENDORS PART NO.
35	74903	1	GASKET	
36	74874	1	RETAINER, Oil Seal W/capscrews and lockwashers	
37	622394	1	SEAL, Oil	
38	90276	1	SPIDER, Drive	
39	352838	1	RING, Drive	
40	225126	1	LOCKWASHER	
41	225104	1	LOCKNUT	
			<u>MACH. W/OUT IND. BOOM HOIST</u>	
			(Delete Ref. Nos. 1, 2, 3, 4, 8, 9, 10)	
8a	138367	1	PLATE, Cover W/capscrews and lockwashers	
42	181067	1	SHAFT	
43	138370	1	GASKET	
44	181068	1	SUPPORT, Bearing W/capscrews, hex nuts and lockwashers	
45	224109	1	BEARING, Roller	
46	225122	1	LOCKWASHER, Bearing	
47	225133	1	NUT, Bearing	
48	79209	1	CAP, Bearing W/capscrews and lockwashers	
			<u>MACH. W/POWER LOAD LOWERING</u>	
			(Delete Ref. Nos. 23, 25, 28, 30)	
23a	140654	1	RETAINER, Bearing W/capscrews and lockwashers	
25a	93161	1	SHAFT	
28a	140655	1	SPACER	
30a	93019	1	ADAPTER, Pump W/capscrews, hex nuts and lockwashers	
49	224612	3	SHIM	
	224613	3	SHIM	
	224614	1	SHIM	
50	138158	1	GASKET	
51	583142	1	PUMP, Hydraulic	
			NOTE 1: Converters #50692 and 50691 replace converters #43826 and 43165 respectively. Converters #50692 and 50691 have external lub. line to impeller shaft bearing. Converters #43826 and 43165 do not.	
			NOTE 2: Controlled converters may be replaced only as a unit; individual repair parts are not available separately. Consult dealer or factory for exchange units.	
			0-425 (W/Load Lowering)	
				REV. F
				50368 - 1

PLEASE GIVE MACHINE S/N W/ORDER

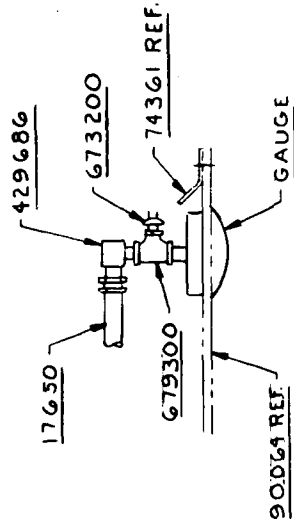
MASTER

Run as Front

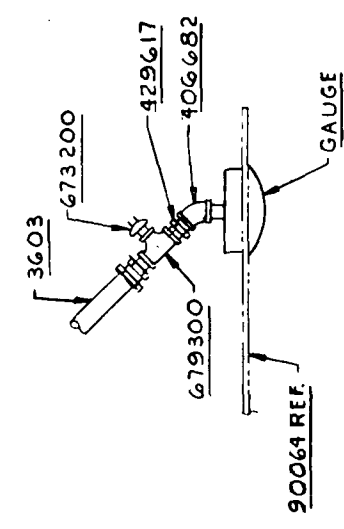
50368 FI Cont'd.

BILL OF MATERIAL				REMARKS
ITEM NO.	QTY.	DESCRIPTION	LENGTH FT. (IN.)	MATERIAL
1	1	5/16 I.D. X 42 LG. HOSE		3603
1	1	3/8 I.D. X 8 FT. LG. HOSE		17650
1	1	1/8 X 45° ELBOW		406682
1	1	1/8 HEX. NIPPLE		429617
1	1	1/8 X 90° STREET ELBOW		429686
2	2	PRESS. SWITCH		673200
2	2	1/8 TEE		679300

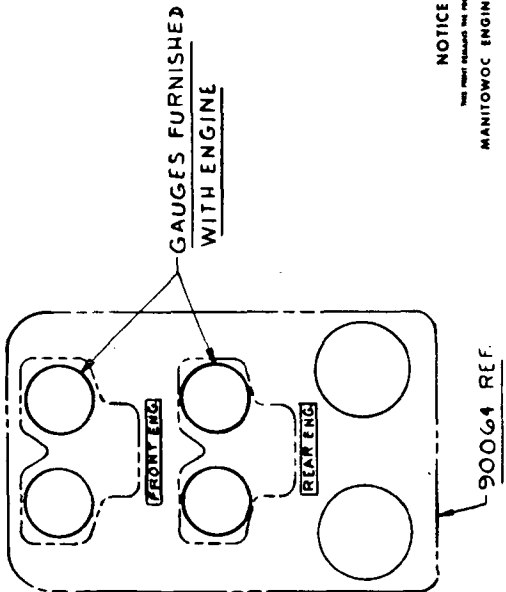
ASSEMBLIES USED ON	50874
REVISIONS	



FRONT ENGINE



REAR ENGINE



NOTICE  
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 IT IS TO BE KEPT SECRET TO WHOMsoever DEMANDS AND  
 NO PARTS OR COMPONENTS ARE TO BE SUPPLIED TO ANY OTHER  
 PARTY WITHOUT THE WRITTEN AUTHORIZATION OF MANITOWOC ENGINEERING CO.

SCALE	NONE
DR. R.L.K.	
CHK. 2/8/72	
DWG NO.	20896
MODEL	4600 SERIES 3
MANUFACTURER	MANITOWOC, WISCONSIN
POWER PLANT SUB-ASSY	PIPING
(INSTRUMENT PANEL)	
DETROIT DIESEL 12V-71(8V-71)	

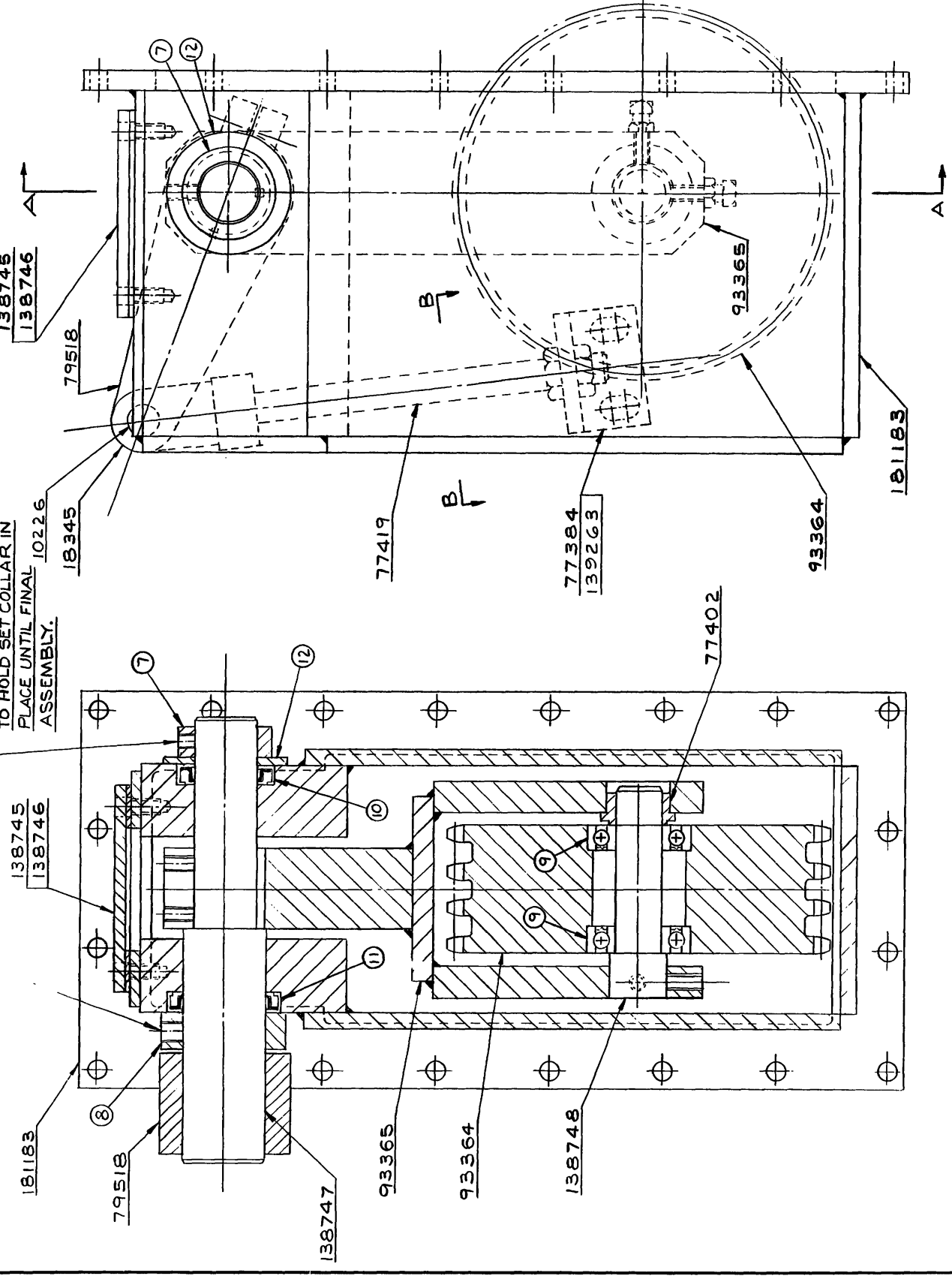
DATE	10-21-77
PATTERN NO.	
CODE NO.	
96802	

**NOTE 1**  
**FOR FIELD INSTALLATION:**  
 1. RELOCATE EXISTING OIL SPREADER  
 AND ADD (1) EXTRA SPREADER PER  
 DWG. 50377 POWER TAKE OFF CASE  
 OF 4-17-70.  
 2. SEE NOTE 2 ON ASSEM. 50368 OR  
 NOTE 3 ON ASSEM. 50851 AS  
 APPLICABLE.

DO NOT TIGHTEN SET SCREW  
 UNTIL FINAL ASSEMBLY.

LIGHTLY TIGHTEN SET  
 SCREW IN SET COLLAR  
 TO HOLD SET COLLAR IN  
 PLACE UNTIL FINAL  
 ASSEMBLY.

AT ASSEM. 1/8"



ITEM NO.	QTY.	DESCRIPTION	SIZE	LENGTH FT. IN.	MATERIAL	CODE NO. OR DWG. NO.	REMARKS
1							
2							
3							
4							
5							
6							
7	1	SET COLLAR 1 1/2"				358129	
8	1	SET COLLAR 2"				358128	
9	2	BEARING				224368	
10	1	OIL SEAL				622690	
11	1	OIL SEAL				622699	
12	1	1 1/2" SAE FLAT WASHER				707768	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							

NO. REQD.	DWG. NO.	DESCRIPTION
1	10226	PIN
1	18345	ROD END
1	77384	BRACKET
1	139263	MOUNTING PAD
1	77402	SPACER
1	77419	REACH ROD
1	79518	LEVER
1	93364	SPROCKET
1	93365	BRACKET
1	138745	COVER
1	138746	GASKET
1	138747	SHAFT
1	138748	SHAFT
1	181183	HOUSING

ASSEMBLER USED ON  
 50368  
 50851

DWG. NO. 181198

REVISION DATE  
 4-16-70

PATTERN NO.  
 CODE NO.  
 DWG. NO. 181198

SCALE 6" = 1'-0"  
 DR. JDW  
 CR. L. M.P.  
 APP.

UNLESS NOTED  
 FRACTIONAL DIM.  
 HOLE DIA.  
 HOLE CENTER  
 FINISH

MANITOWOC ENGINEERING CO.  
 MANITOWOC, WISCONSIN

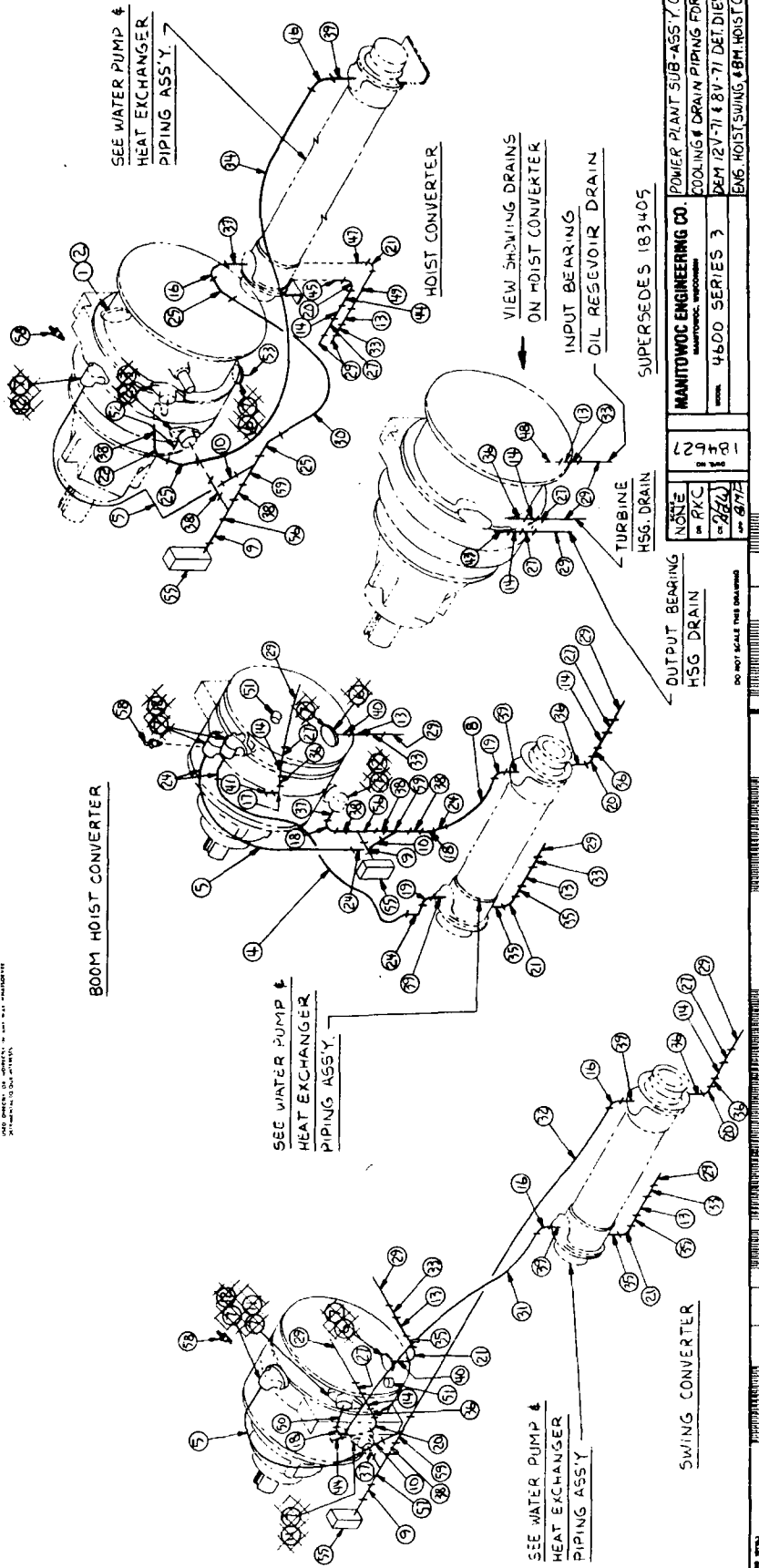
CHAIN TIGHTENER  
 SUB - ASSEMBLY  
 SEE NOTE 1  
 MODEL 4600 CONT. CONV. VICON 181198

QTY	DESCRIPTION	UNIT	MATERIAL	REF. NO.	REMARKS
1	COVER PLATE				
2	TOAST				
3	1/4" STRAIGHT FLANGE				
4	1 I.D. x 8 FT. 1 LG HOSE				
5	3 I.D. x 33 LG HOSE				
6	3 COVER PLATE				
7	10 CONCRETE				
8	1 I.D. x 8 FT. 10 LG HOSE				
9	3 1/4 x 1/2 NUT BUSHING				
10	3 1/4 x 1 NUT BUSHING				
11	2 STRAIGHT FLANGE				
12	2 90° FLANGE				
13	6 3/8 STEAM COCK				
14	7 1/2 STEAM COCK				
15					
16	4 2 x 1/4 x 90° ELBOW				
17	1 1/2 x 45° ELBOW				
18	3 1/4 x 1 x 90° ELBOW				
19	2 2 x 1 x 90° ELBOW				
20	4 1/2 x 90° ELBOW				

21	4 3/8 x 90° ELBOW				
22	1 1/4 x 90° ELBOW				
23					
24	5 1 x 45° SWIVEL ADAPTER				
25	3 1/4 x 45° SWIVEL ADAPTER				
26					
27	7 INSERT 1/2 NPT TO 1/2 I.D. HO.				
28					
29	1 1/2 I.D. PLASTIC TUBE				
30	1 1/4 I.D. x 50 LG HOSE				
31	1 1/4 I.D. x 68 LG HOSE				
32	1 1/4 I.D. x 7 FT. 2 LG HOSE				
33	6 INSERT 3/8 NPT TO 1/2 HOSE				
34	1 1/4 I.D. x 6 FT. 6 LG HOSE				
35	5 3/8 x 1 LG. NIPPLE				
36	7 1/2 x 1 1/8 LG. NIPPLE				
37	2 1 x 1/2 LG. NIPPLE				
38	7 1/4 x 1 1/8 LG. NIPPLE				
39	6 2 x 2 LG. NIPPLE				
40	2 3/8 x 1/2 LG. NIPPLE				
41	1 1/2 x 1 1/2 LG. NIPPLE				
42					

43	1 1/2 x 3 LG. NIPPLE				
44	2 1/2 x 2 LG. NIPPLE				
45	1 1/2 x 2 1/2 LG. NIPPLE				
46					
47	1 3/8 x 4 LG. NIPPLE				
48	1 3/8 x 7 LG. NIPPLE				
49	1 3/8 x 6 1/2 LG. NIPPLE				
50	1 1 x 3 LG. NIPPLE				
51	2 1/2 PIPE PLUG				
52	1 1/4 PIPE PLUG				
53	1 3/8 PIPE PLUG				
54					
55	3 CONV. TEMP. SWITCH				
56	2 1/4 TEE				
57	1 1/4 x 1 1/4 x 1 TEE				
58	3 CONV. TEMP. SEND. UNIT				
59	3 1/4 " BEND				
60					

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NO.	DESCRIPTION	UNIT	MATERIAL	REF. NO.	REMARKS
1	COVER PLATE				
2	TOAST				
3	1/4" STRAIGHT FLANGE				
4	1 I.D. x 8 FT. 1 LG HOSE				
5	3 I.D. x 33 LG HOSE				
6	3 COVER PLATE				
7	10 CONCRETE				
8	1 I.D. x 8 FT. 10 LG HOSE				
9	3 1/4 x 1/2 NUT BUSHING				
10	3 1/4 x 1 NUT BUSHING				
11	2 STRAIGHT FLANGE				
12	2 90° FLANGE				
13	6 3/8 STEAM COCK				
14	7 1/2 STEAM COCK				
15					
16	4 2 x 1/4 x 90° ELBOW				
17	1 1/2 x 45° ELBOW				
18	3 1/4 x 1 x 90° ELBOW				
19	2 2 x 1 x 90° ELBOW				
20	4 1/2 x 90° ELBOW				

NO.	DESCRIPTION	UNIT	MATERIAL	REF. NO.	REMARKS
21	4 3/8 x 90° ELBOW				
22	1 1/4 x 90° ELBOW				
23					
24	5 1 x 45° SWIVEL ADAPTER				
25	3 1/4 x 45° SWIVEL ADAPTER				
26					
27	7 INSERT 1/2 NPT TO 1/2 I.D. HO.				
28					
29	1 1/2 I.D. PLASTIC TUBE				
30	1 1/4 I.D. x 50 LG HOSE				
31	1 1/4 I.D. x 68 LG HOSE				
32	1 1/4 I.D. x 7 FT. 2 LG HOSE				
33	6 INSERT 3/8 NPT TO 1/2 HOSE				
34	1 1/4 I.D. x 6 FT. 6 LG HOSE				
35	5 3/8 x 1 LG. NIPPLE				
36	7 1/2 x 1 1/8 LG. NIPPLE				
37	2 1 x 1/2 LG. NIPPLE				
38	7 1/4 x 1 1/8 LG. NIPPLE				
39	6 2 x 2 LG. NIPPLE				
40	2 3/8 x 1/2 LG. NIPPLE				
41	1 1/2 x 1 1/2 LG. NIPPLE				
42					

NO.	DESCRIPTION	UNIT	MATERIAL	REF. NO.	REMARKS
43	1 1/2 x 3 LG. NIPPLE				
44	2 1/2 x 2 LG. NIPPLE				
45	1 1/2 x 2 1/2 LG. NIPPLE				
46					
47	1 3/8 x 4 LG. NIPPLE				
48	1 3/8 x 7 LG. NIPPLE				
49	1 3/8 x 6 1/2 LG. NIPPLE				
50	1 1 x 3 LG. NIPPLE				
51	2 1/2 PIPE PLUG				
52	1 1/4 PIPE PLUG				
53	1 3/8 PIPE PLUG				
54					
55	3 CONV. TEMP. SWITCH				
56	2 1/4 TEE				
57	1 1/4 x 1 1/4 x 1 TEE				
58	3 CONV. TEMP. SEND. UNIT				
59	3 1/4 " BEND				
60					

NO.	DESCRIPTION	UNIT	MATERIAL	REF. NO.	REMARKS
11-12-81 D.T.					
ITEMS 1, 2, 3					
DELETED					

NO.	DESCRIPTION	UNIT	MATERIAL	REF. NO.	REMARKS
184627					

NO.	DESCRIPTION	UNIT	MATERIAL	REF. NO.	REMARKS
8-4-81					

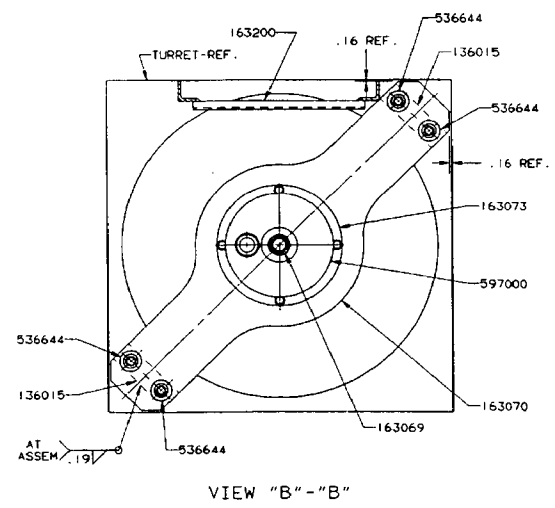
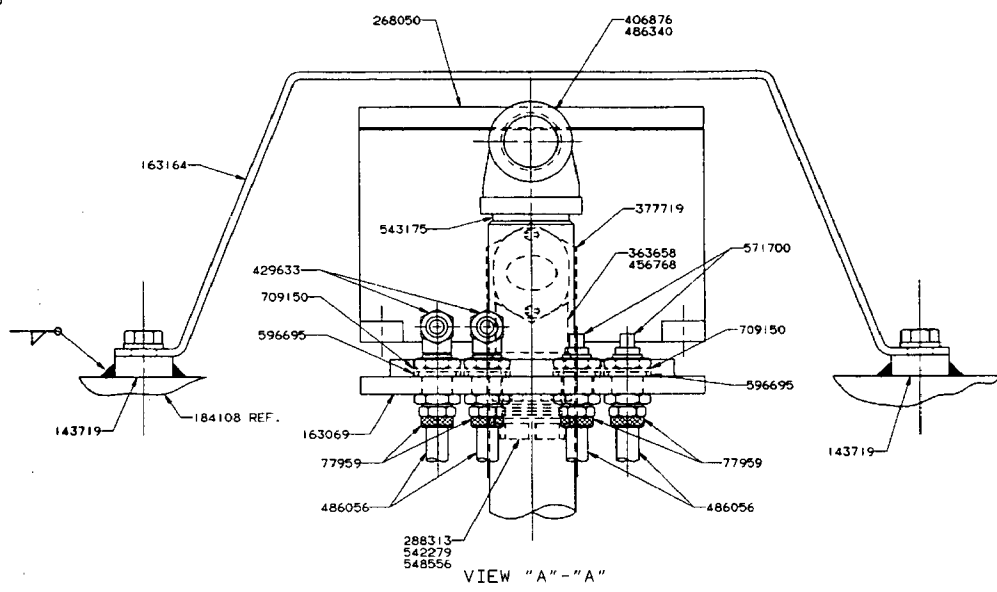
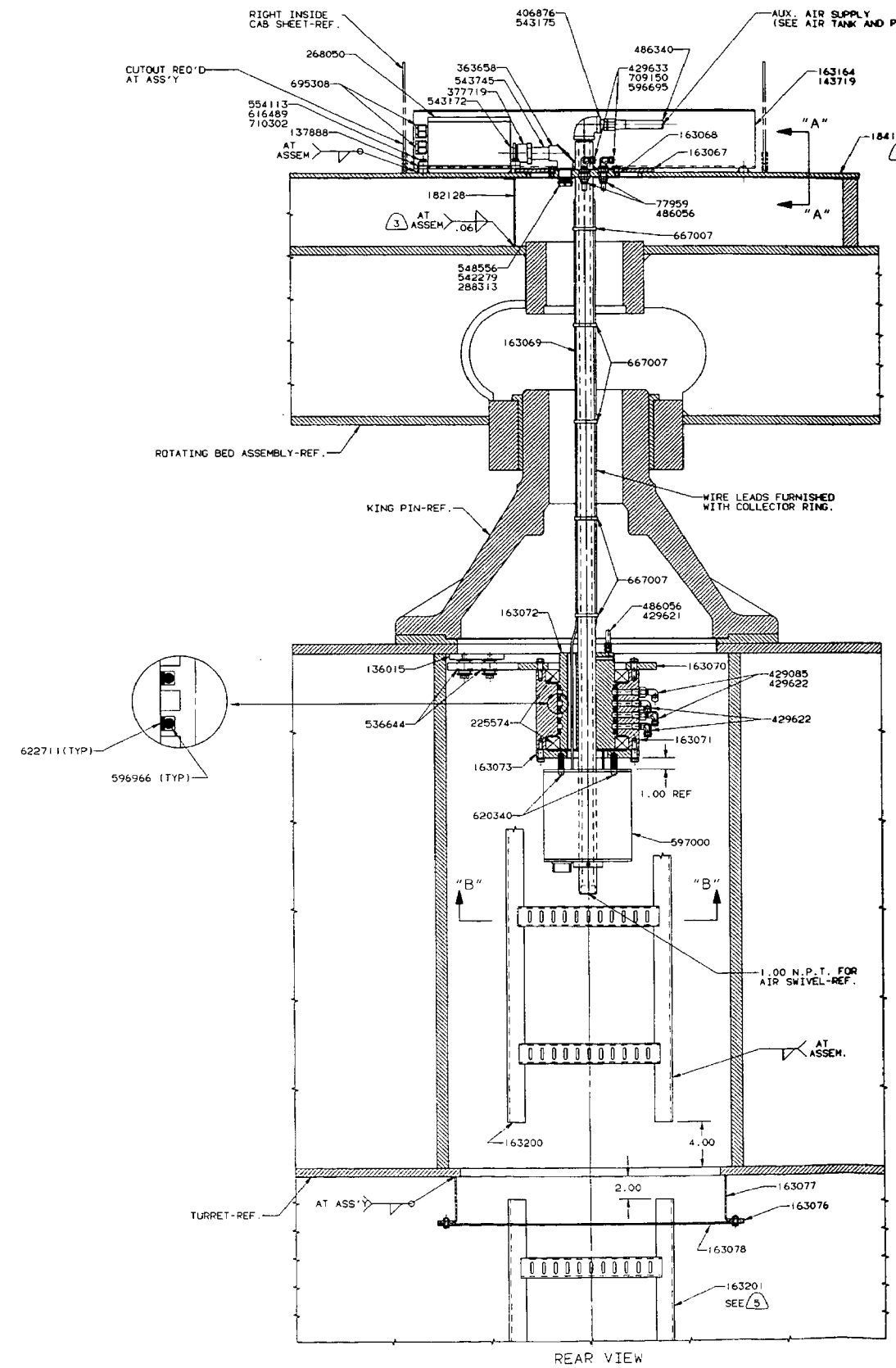
NO.	DESCRIPTION	UNIT	MATERIAL	REF. NO.	REMARKS
184627					

NO.	DESCRIPTION	UNIT	MATERIAL	REF. NO.	REMARKS
184627					

NO.	DESCRIPTION	UNIT	MATERIAL	REF. NO.	REMARKS
184627					

NO.	DESCRIPTION	UNIT	MATERIAL	REF. NO.	REMARKS
184627					

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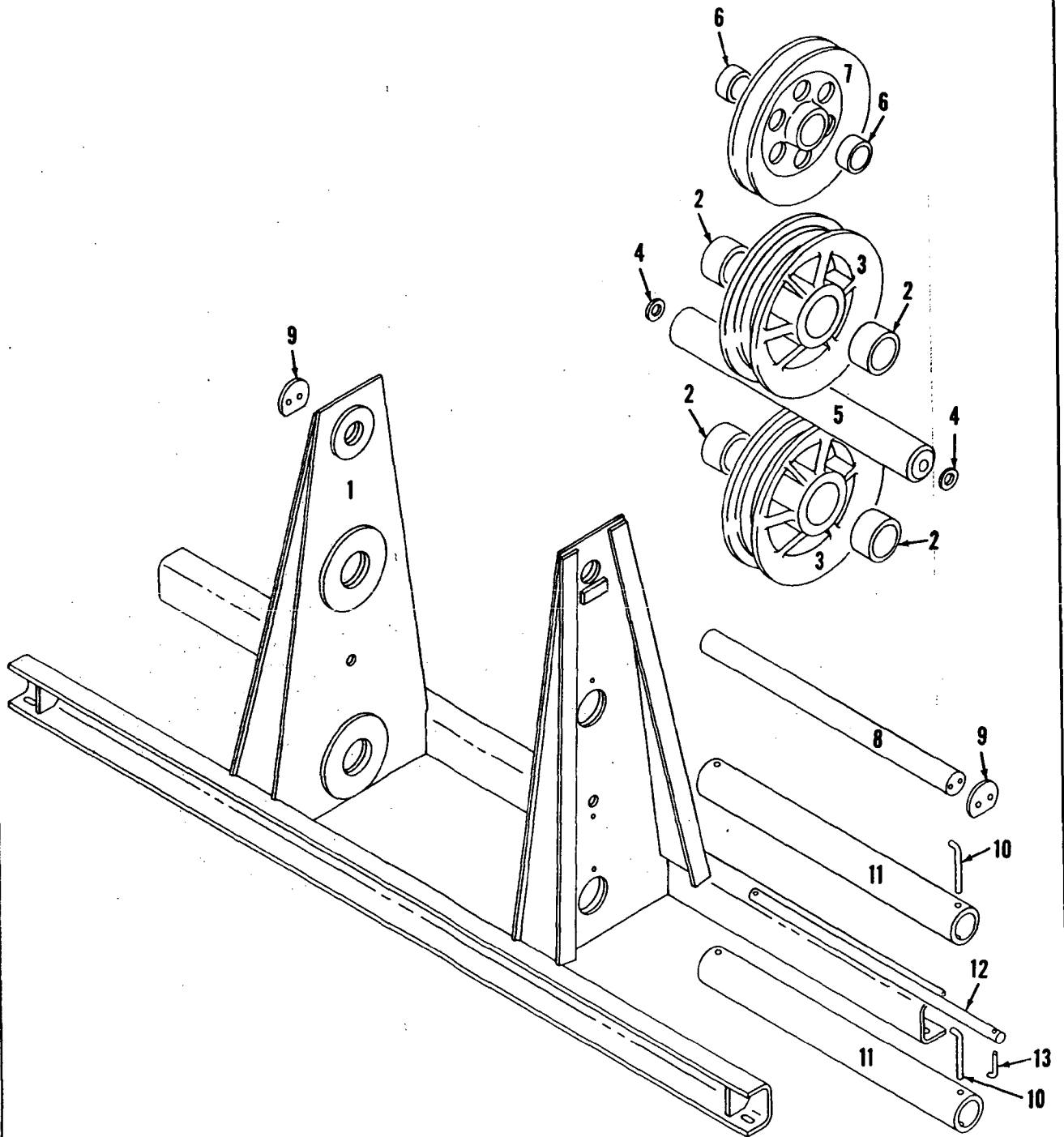
BILL OF MATERIAL				QUANTITY	UNIT	REVISION
ITEM NO.	DESCRIPTION	MATERIAL	QTY	UNIT	REV.	DATE
4	BULKHEAD UNION		77959			
4	SPACER		137888			
2	MOUNTING PAD		136015			
4	MOUNTING PAD		143719			
1	COVER PLATE		163067			
1	GASKET		163068			
1	AIR TUBE		163069			
1	SUPPORT		163070			
1	AIR SWIVEL ADAPTOR		163071			
1	AIR SWIVEL		163072			
1	BEARING RETAINER		163073			
1	GASKET		163076			
1	ENCLOSURE		163077			
1	COVER PLATE		163078			
1	AIR JOINT GUARD		163164			
1	WIREWAY		163200			
1	COMPARTMENT WALL		182128			
2	BALL BEARING		225574			
1	BOX CONNECTION		268050			
1	.75 BUSHING		288313			
1	.75 ELBOW-90"		363658			
1	.75 COUPLING-UNION		377719			
1	1.00 X .75 90" RED. ELBOW		406876			
2	.25 X .25 FITTING EXTENSION		429085			
4	.37 X .25 MALE CONNECTOR		429621			
4	.37 X .25 MALE ELBOW		429622			
2	.37 X .12 MALE ELBOW		429633			
1	.75 GASKET ASSEMBLY		456768			
4	.37 O.D. PLASTIC TUBING 50 LG.		486056			
1	.75 I.D. HOSE 176 LG.		486340			
1	.75 CLOSE GALV. NIPPLE		543172			
4	MOUNT VIBRATION		536644			
1	.75 X 2.75 NIPPLE		543745			
1	1.00 X 1.50 CLOSE NIPPLE		543175			
1	.75 GALV. NIPPLE X 2.00 LONG		542279			
1	.75 LOCKNUT		548556			
4	PAD-.37 X .75 DIA.		554113			
2	.12 PIPE PLUG SQUARE HEAD		571700			
4	"O" RING		596695			
5	"O" RING		596966			
1	COLLECTOR RING		597000			
4	.250-20UNC-2A X 1.00 LG. BR. SCREW		616489			
2	.500-13 UNC-2A X 1.75 LG. SET SCREW		620340			
1	LOCTITE SEALER #277		622299			
5	SEAL		622711			
5	CABLE TIE-PLASTIC		667007			
3	TERMINAL TUBE-MALE-#1		695308			
4	.87 X .53 X .06 SOFT COPPER WASHER		709150			
4	.25 LOCKWASHER		710302			

- ① AS REQUIRED
- ② DELETE CHAIN CASE COVER 184067 FROM ROTATING BED ASSEMBLY AND USE COVER 184108.
- ③ WELD MUST BE OIL TIGHT.
- ④ CLEAN THREADS AND APPLY LOCTITE #277 (M.E.C. 622299) TO SET SCREWS. SET SCREWS MUST BE THREADED UP TIGHT WHEN INSTALLING. SET SCREWS MUST NOT PROTRUDE MORE THAN .37 INCH INTO COLLECTOR RING.
- ⑤ USE 163201 ON MACHINES WITH 108.56 HIGH TURRET ONLY.

# MANITOWOC ENGINEERING CO.

A Division of The Manitowoc Company, Inc.

Manitowoc, Wisconsin



33404A1

MATERIAL LIST ON BACK

CABLE GUIDE

43472-4Cont.	REV. A	Model	4600
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POWER TAGLINE PIPING  
(G.M. ENGINES W/50368 OR 50851 POWER TAKE OFF CASE AND INDEPENDENT BOOM HOIST)

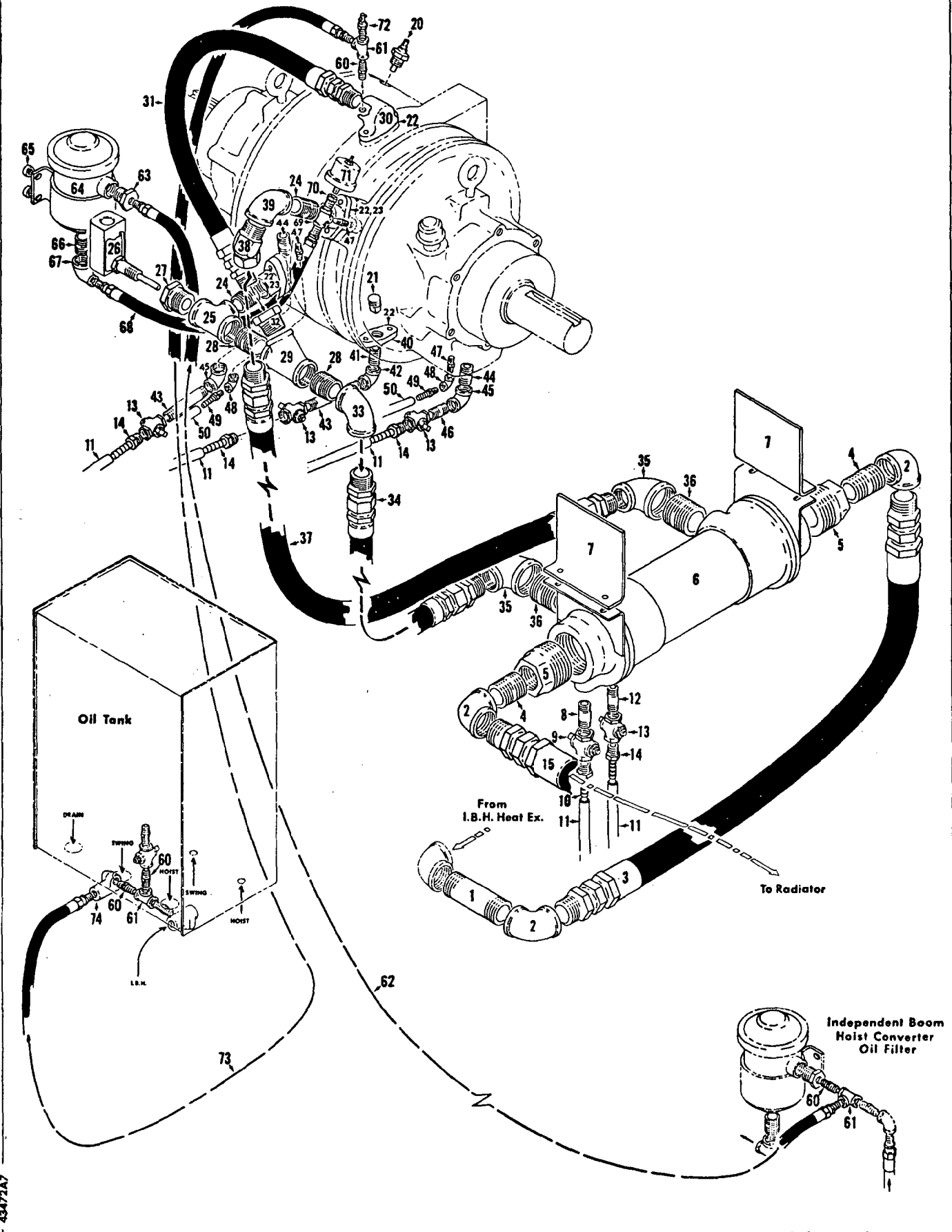
MASTER

REF. NO.	PART NUMBER	DESCRIPTION OF PART	QUANTITY REQUIRED
		<u>CONVERTER CHARGING SYSTEM AND OIL TANK DRAIN</u>	
60	427102	SCREEN, Filter	1
61	73341	ADAPTER, Filter	1
62	429618	NIPPLE, Close (3/4")	8
63	355008	COCK (3/4")	1
64	377274	COUPLING, Reducing (1/2" x 3/4")	1
65		HOSE, Flex (1/2" I.D. 11' long)	1
66	406895	ELBOW (1/2" x 3/4")	1
67	352731	PUMP, Charging (60 lbs. - L.H. Rotation)	1
68	73970	SUPPORT W/capscrews, hex nuts, lockwashers and flatwashers	1
69	79705	BRACKET W/capscrews, carriage bolts, hex nuts and lockwashers	1
70	631425	SHEAVE	1
71	227269	BELT	1
72	406952	ELBOW (3/4")	1
73	15916	HOSE, Flex (3/8" I.D. 13'6" long)	1
74	288751	BUSHING (3/4" x 3/4")	1
75	427107	FILTER, Oil	1
76	554113	PAD	4
77	543405	NIPPLE, Close (3/4")	1
78	406645	ELBOW (3/4" x 3/4")	1
79	17845	HOSE, Flex (5/16" I.D. 2'3" long)	1
80	679714	TEE (3/4" x 3/4" x 1/8")	1
47	429617	NIPPLE, Close (1/8")	1
81	288790	BUSHING (3/4" x 1/8")	1
82	701017	UNIT, Pressure Sending	1
83	679301	TEE (3/4")	1
84		VALVE, Bleed T.D. M1277	1
85	15917	HOSE, Flex (3/8" I.D. 10'9 1/2" long)	1
86	352709	ORIFICE	1
87	380977	CROSS (3/4")	1
88	288794	BUSHING (3/4" x 3/8")	1
13	355003	COCK (3/8")	1
14	491051	INSERT (3/8" NPT 1/2" I.D. Hose)	1
11	485845	TUBE, Plastic (1/2" I.D. - specify length)	1

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43472A7

MATERIAL LIST ON BACK

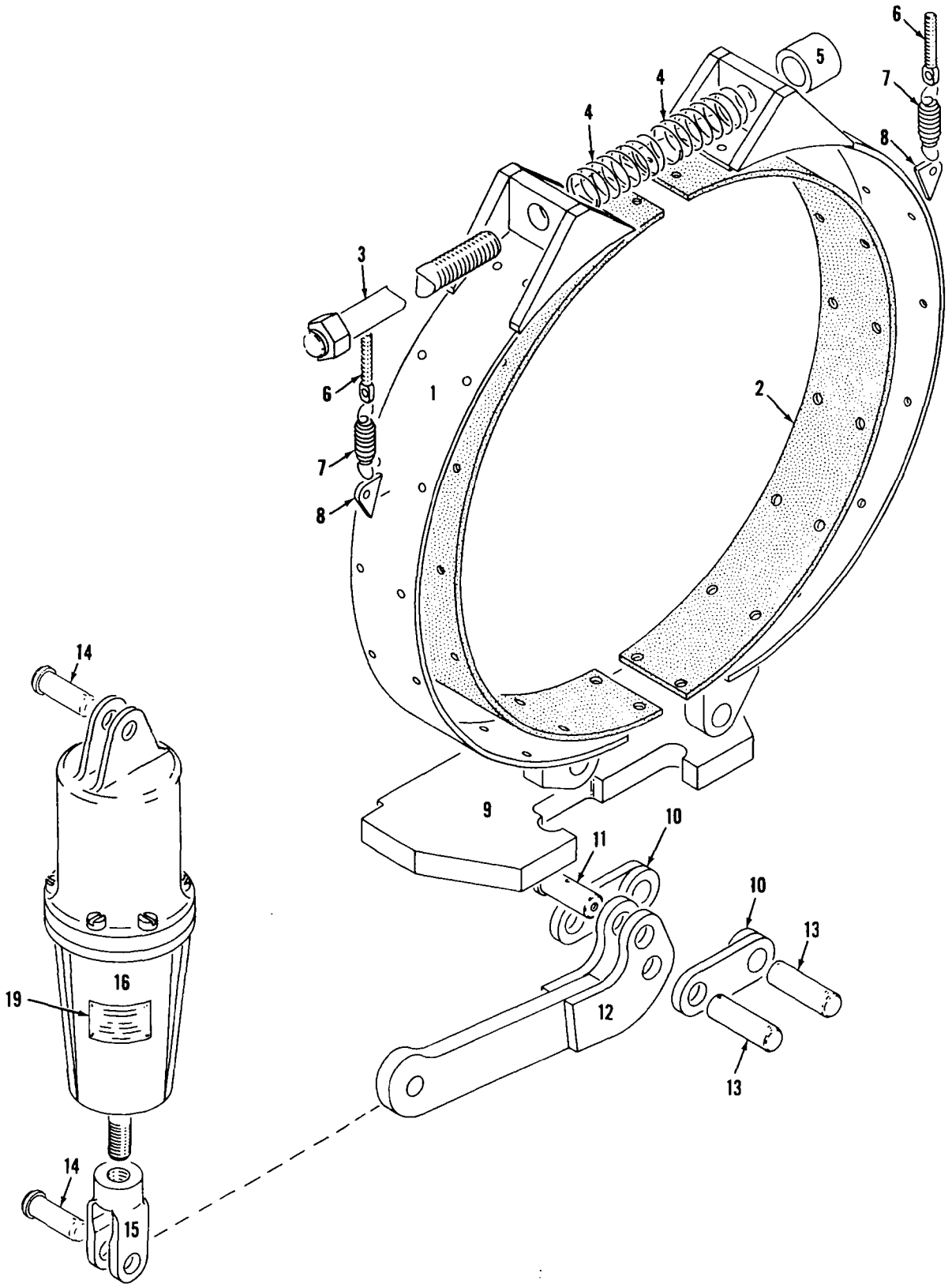
POWER TAGLINE PIPING

MANITOWOC ENGINEERING CO.

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Manitowoc, Wisconsin

MASTER



43880D2

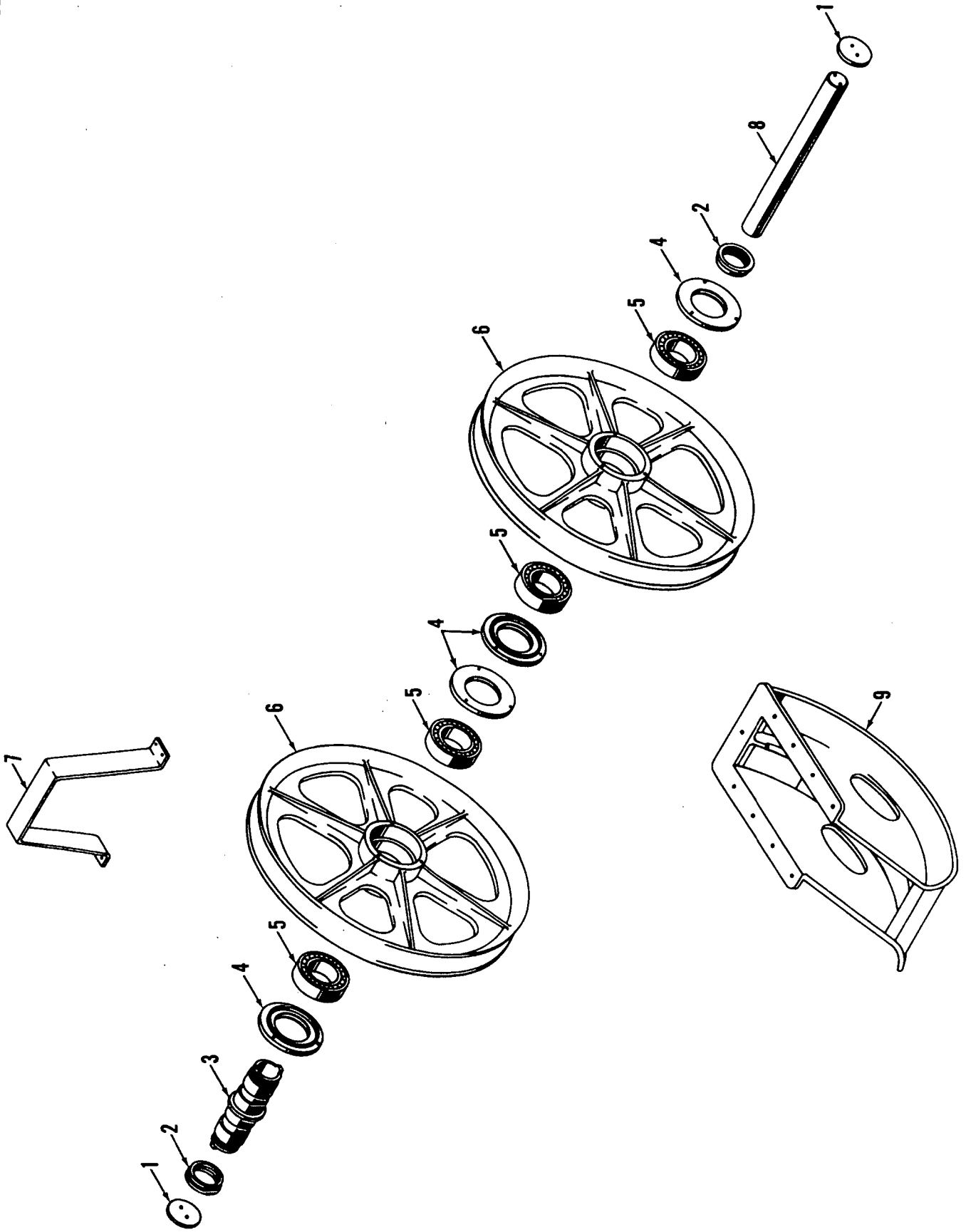
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TAGLINE DRUM BRAKE

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418634 A 1

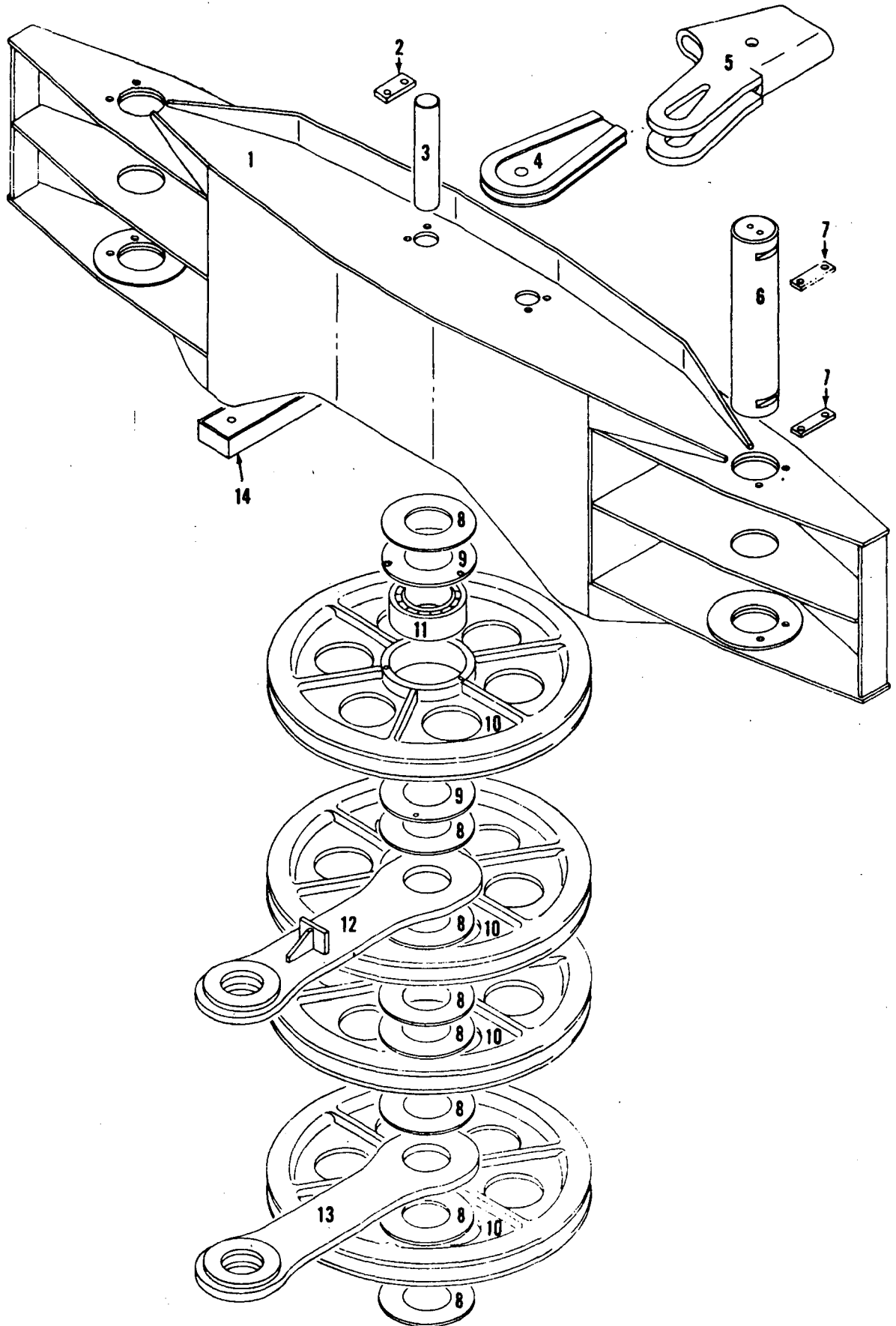
MATERIAL LIST ON BACK

BOOM POINT SHAFT ASSEMBLY

MANITOWOC ENGINEERING CO.

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MANITOWOC

180249A1

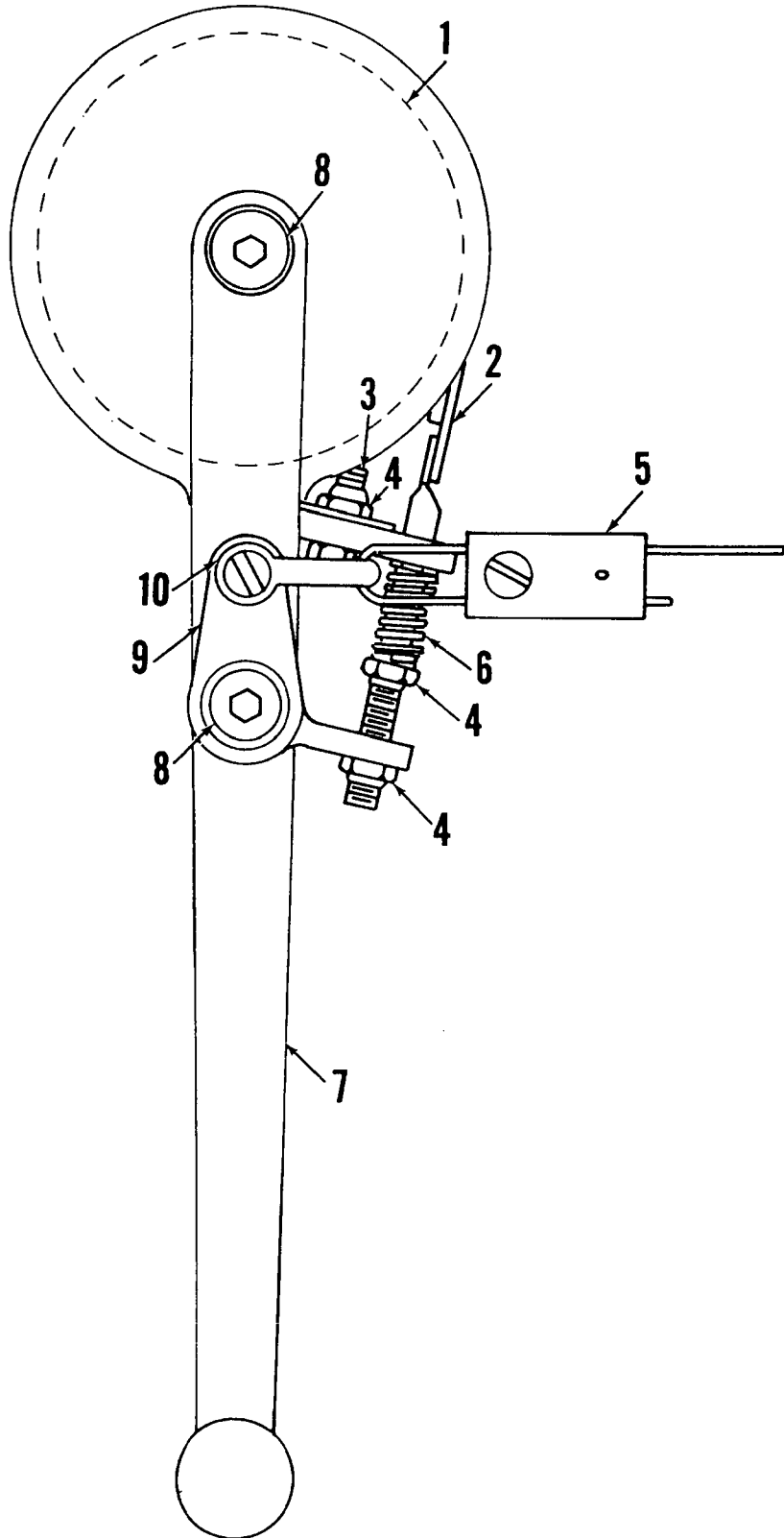
MATERIAL LIST ON BACK

LOWER EQUALIZER



## O-NUMBER NUMERICAL INDEX

PUBLICATION	REV
0-110	A1
0-147	D2
0-148	-
0-157	C
0-173	A
0-246	C1
0-247	B
0-247	B1
0-284	B
0-294	A
0-294	E
0-302	A
0-308	B
0-308	B1
0-339	C1
0-340	G
0-407	B
0-407	B1
0-414	B
0-415	B1
0-425	A
0-437	-
0-440	A
0-440	B
0-440	C
0-440	D
0-440	E
0-440	F
0-440	G
0-440	H
0-440	I
0-440	J
0-440	K
0-440	L
0-441	A4
0-441	C2
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0-464	E
0-469	E1
0-500	R
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0-63	C
0-71	-
0-92	A1



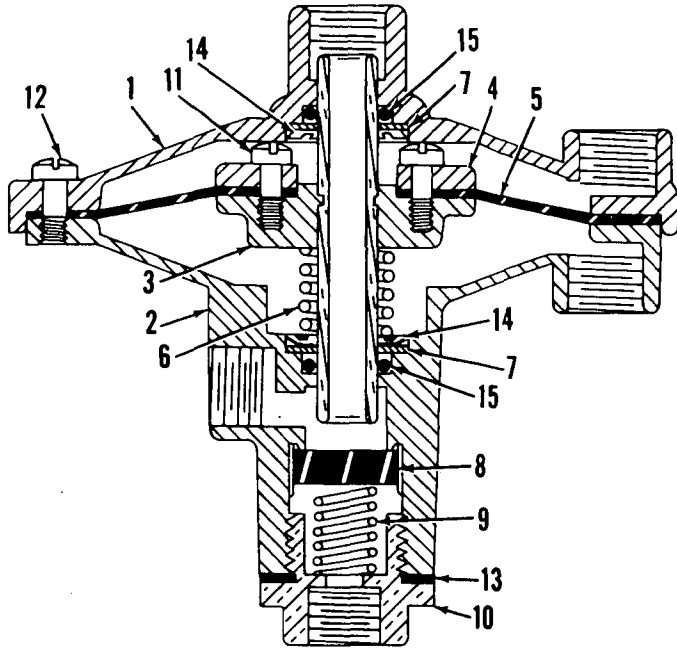
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THROTTLE CONTROL ASSEMBLY

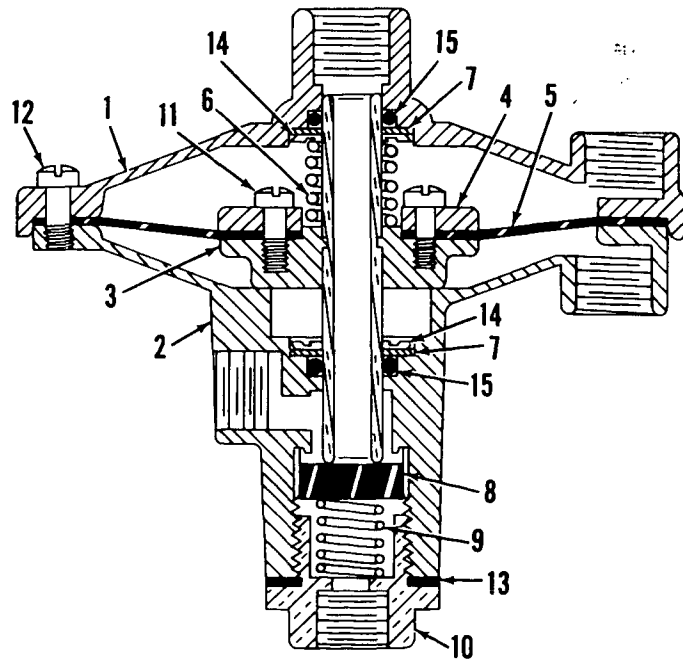
O-173

MATERIAL LIST ON BACK

O-173



Normally Closed



Normally Open

MASTER

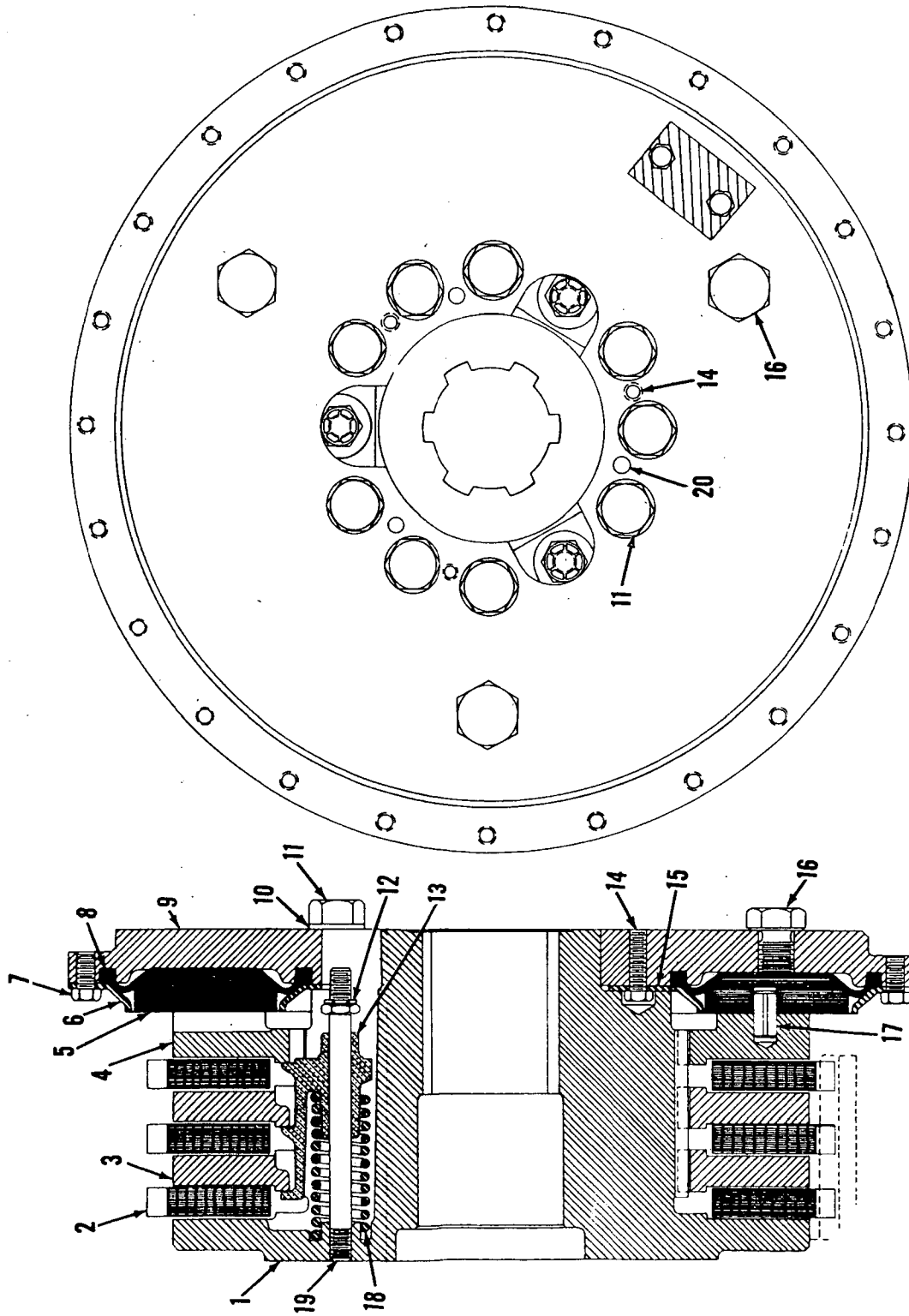
RELAY VALVES

# MANITOWOC ENGINEERING CO.

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MASTER

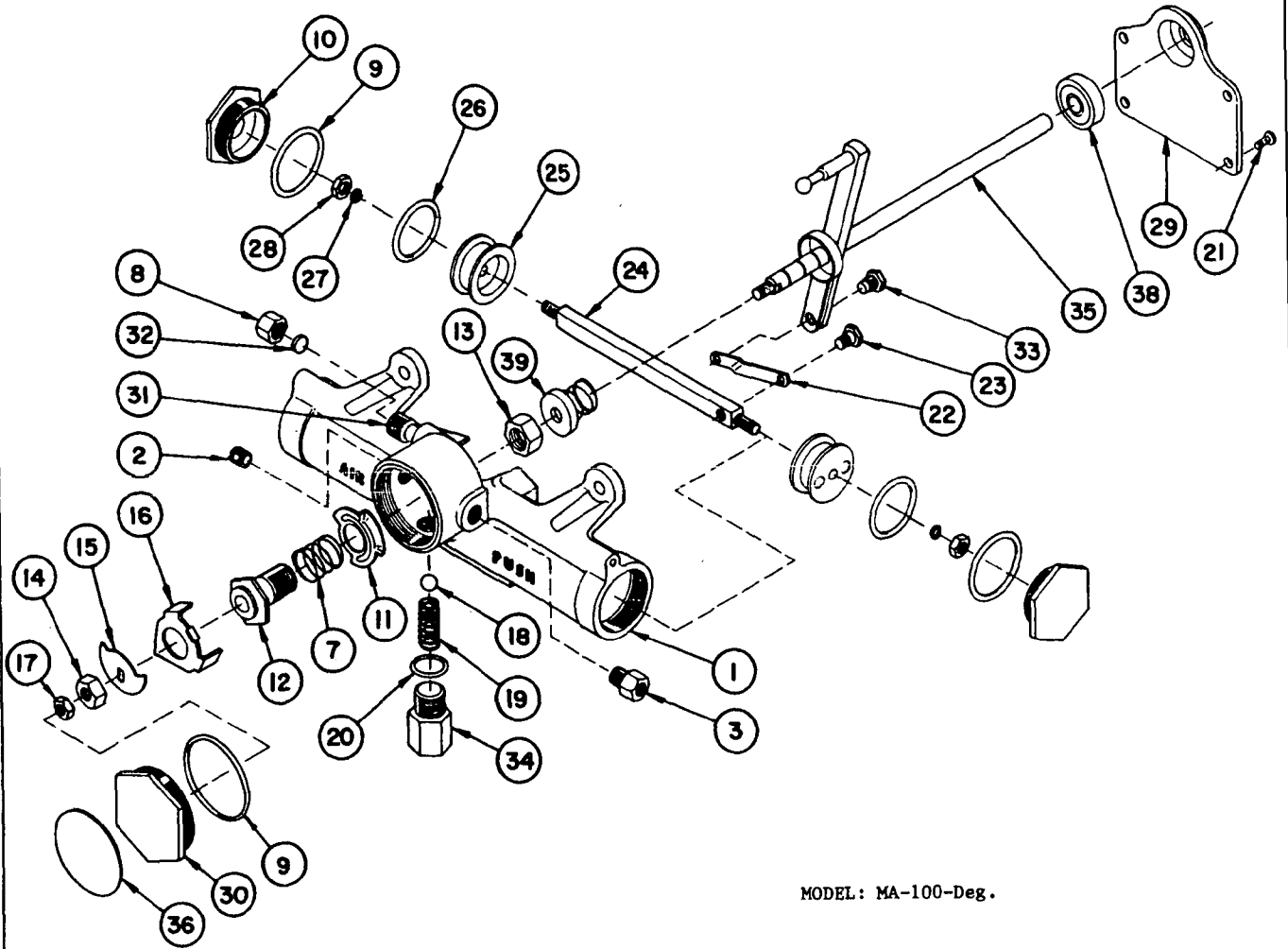


4301344

MATERIAL USE ONLY PAGE

CLUTCH

MASTER

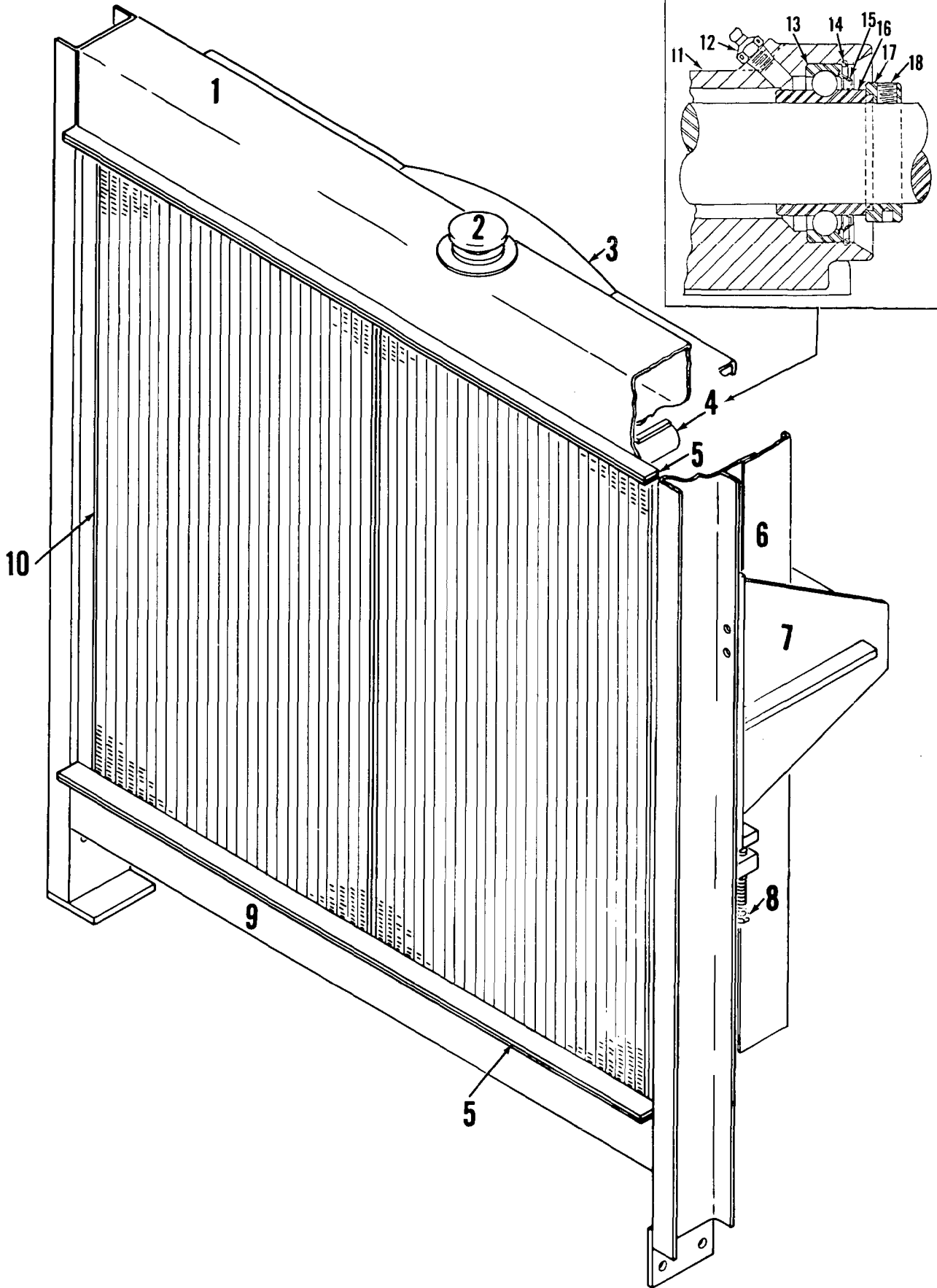


MODEL: MA-100-Deg.

MANITOWOC ENGINEERING CO.

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Manitowoc, Wisconsin



42295A1

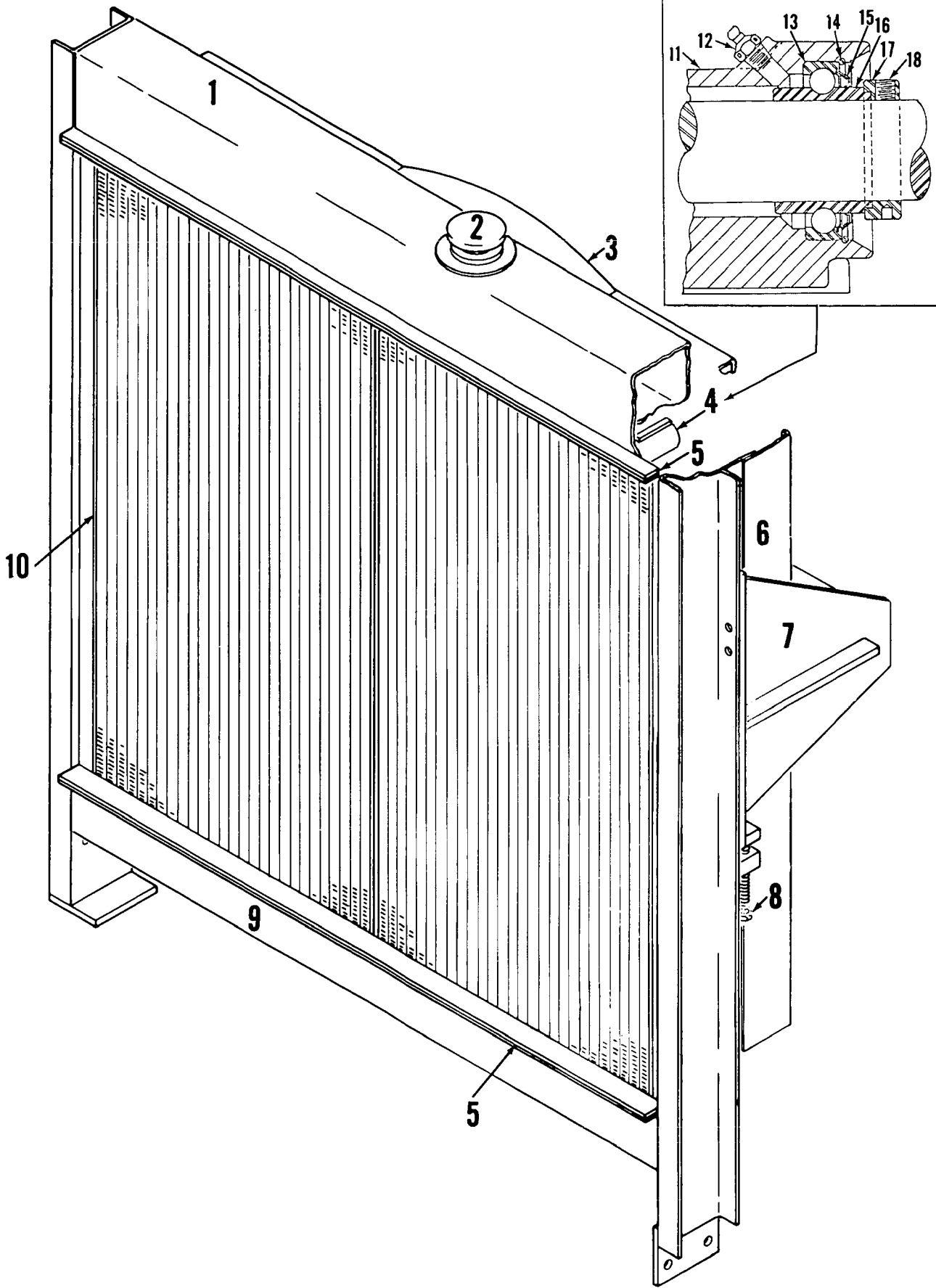
MATERIAL LIST ON BACK

RADIATOR

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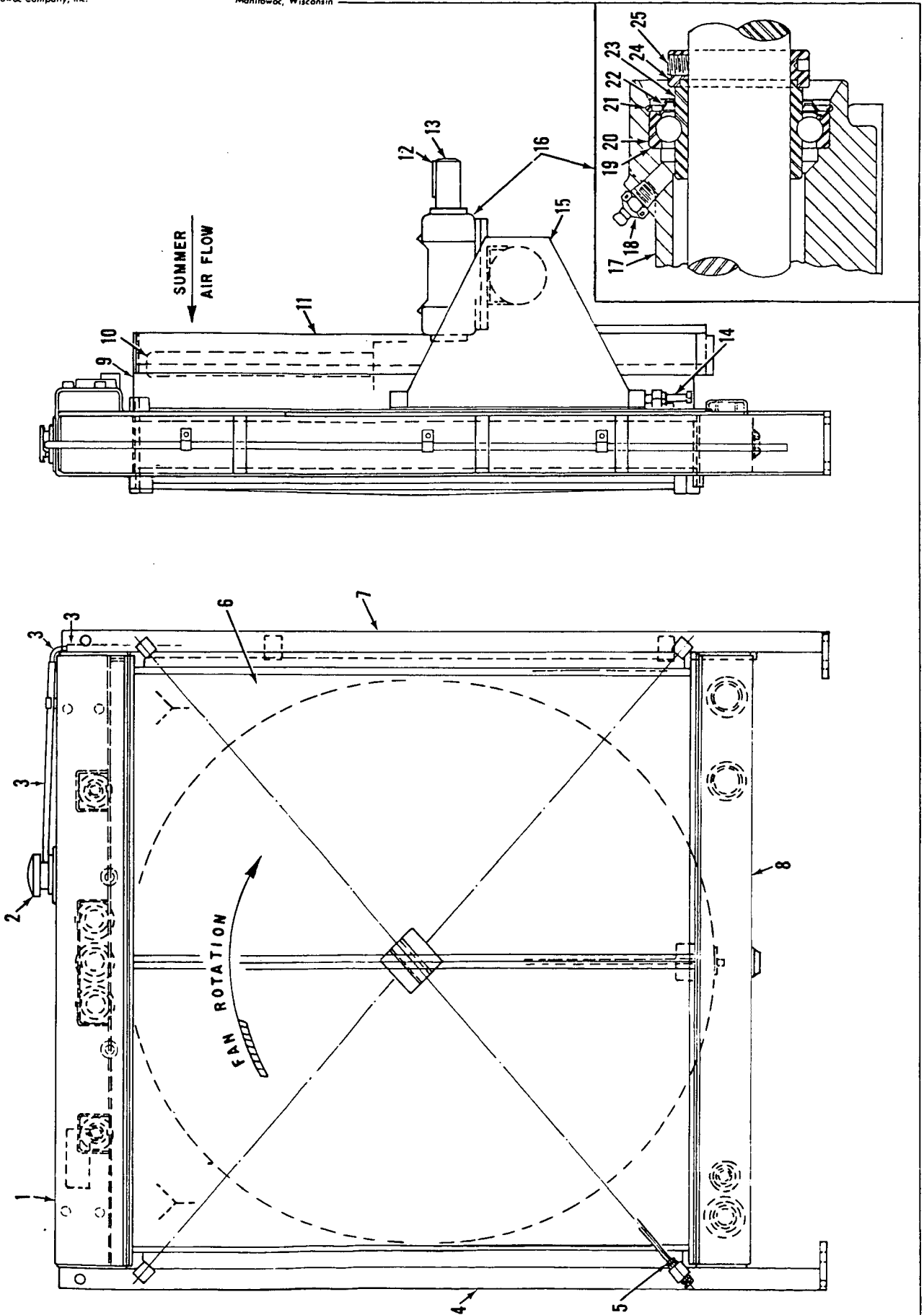


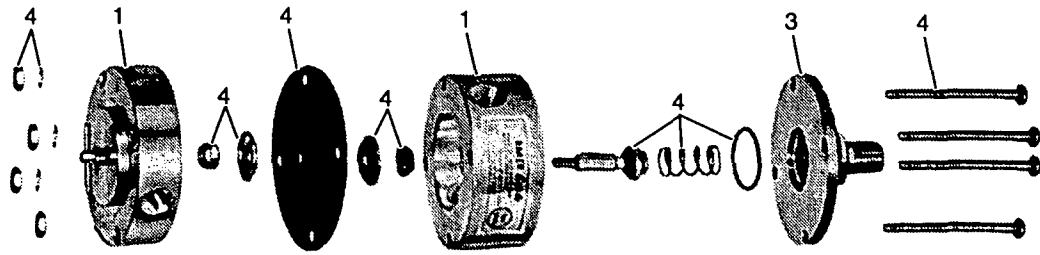
42295A1

MATERIAL LIST ON BACK

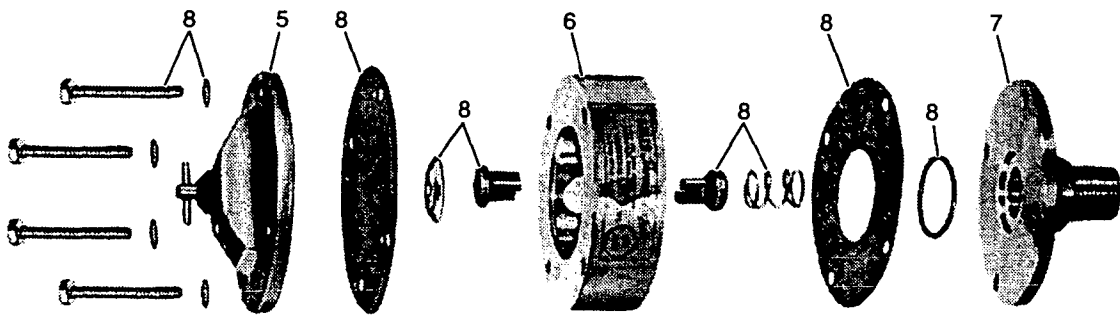
RADIATOR

MASTER

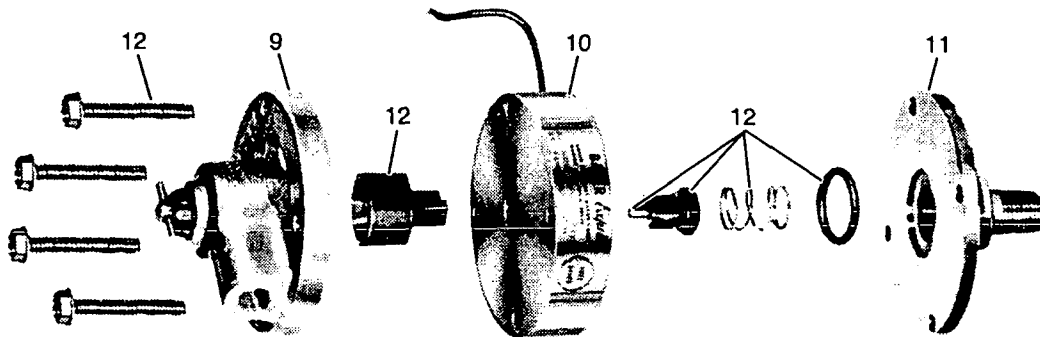




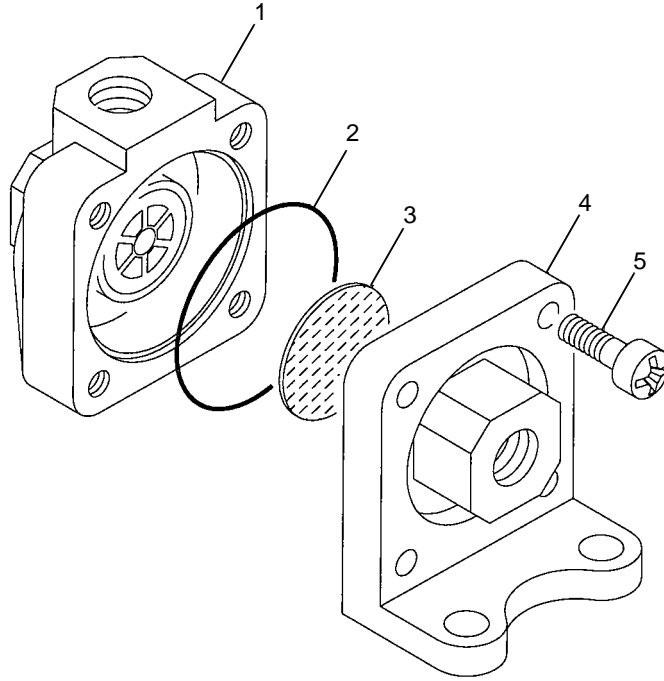
Models # 17332  
(Discontinued)



Models # 16240  
(Discontinued)



Models # 15120 & 15243.1



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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