

Manitowoc

TRADITIONAL CRANE PARTS MANUAL

This manual has been prepared for and is considered part of

4600

Model

460086

Serial Number

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

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

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

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

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

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

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

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

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Corrosion and Abrasion

Refer to Figure 3.

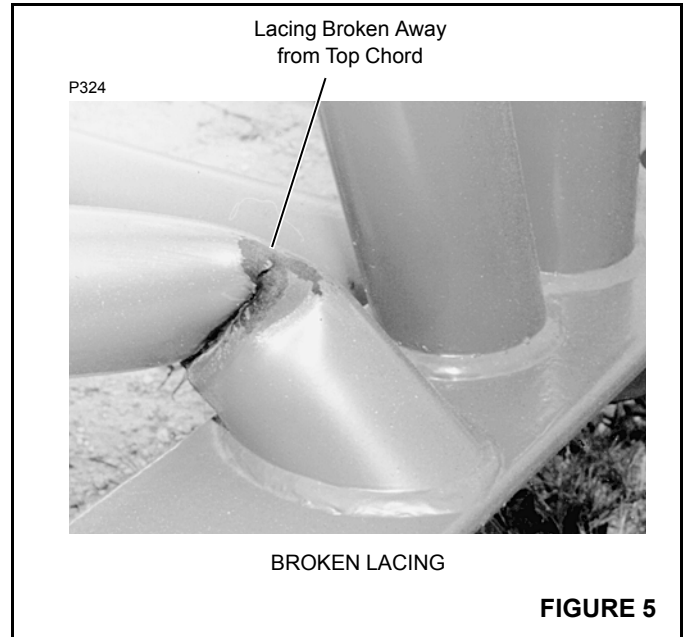
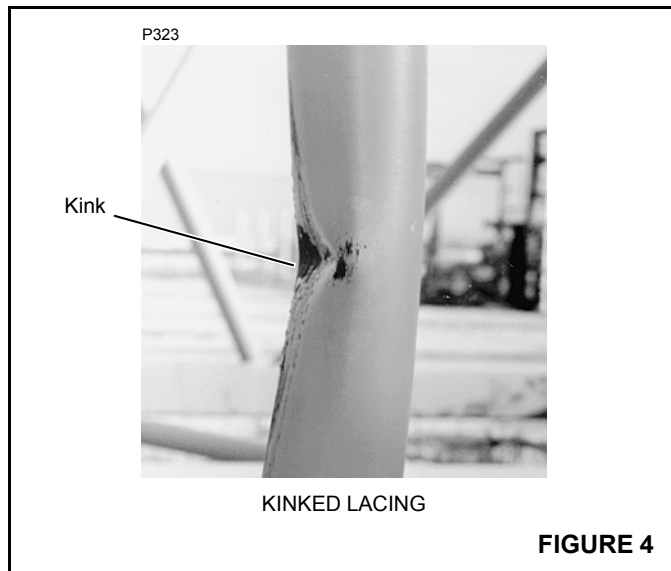
Corrosion and abrasion must not be deeper than 10 percent of the wall thickness, the angle thickness, or the plate thickness.

Kinks

Refer to Figure 4.

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

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



Cracks and Breaks

Refer to Figure 5.

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

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

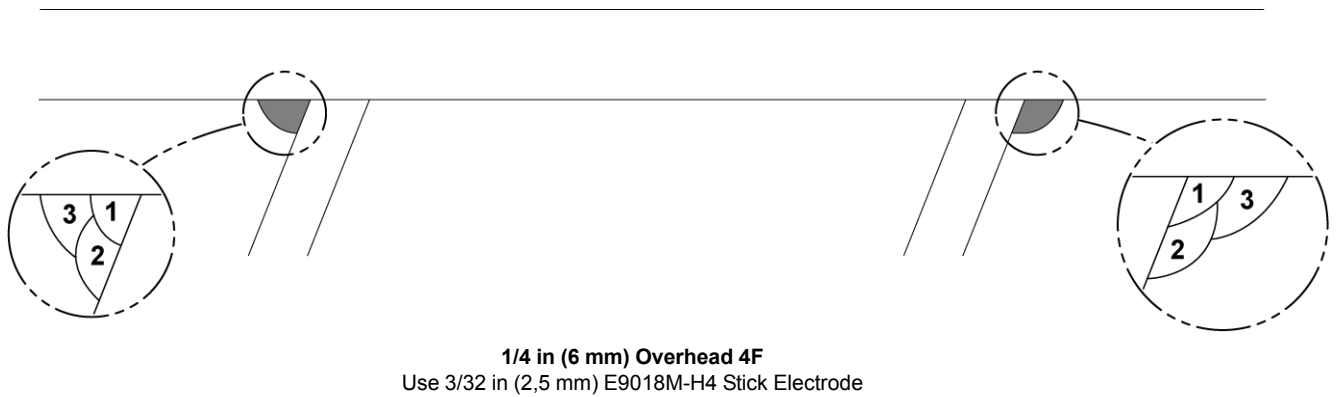
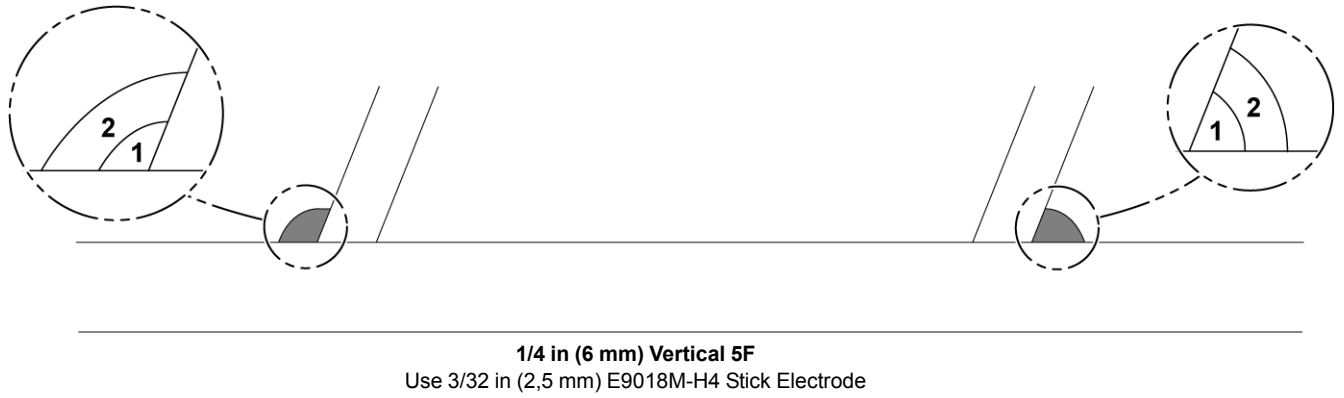
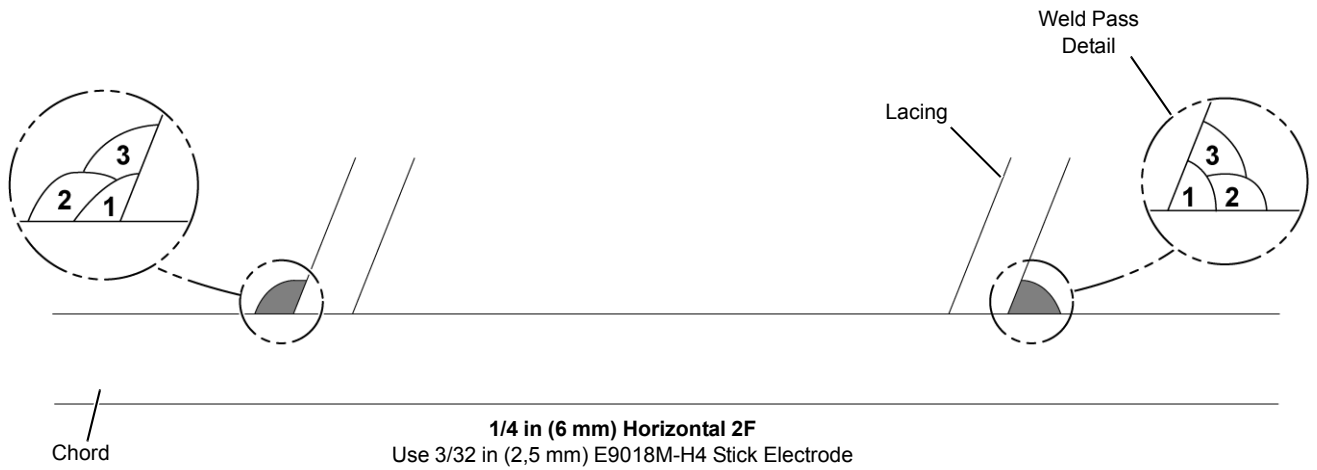


FIGURE 16



WEIGHTS
4600 Series-4 and Series-5
(S/N 460046 and Newer)

NOTE The weights may fluctuate $\pm 5\%$ due to manufacturing tolerances.

APPROX. WEIGHT
(pounds)

DESCRIPTION

Liftcrane With 80' No. 27B Boom, counterweight, gantry and backhitch with wire rope guide, 30'5" standard crawlers with 60" treads, tandem drums, independent swing, independent hydraulic boom hoist, VICON power load lowering, VICON® controlled Cummins VTA-1710-C700 engine, boom hoist rope, equalizer, telescopic air cushioned boom stop, 20 ton hook and weight ball, 350 ton hook block, upper wire rope guide, and single sheave removable upper boom point 590,845* (S-4)
742,245* (S-5)

Upperworks With VICON controlled Cummins VTA-1710-C700 engine, tandem drums, and independent swing; less boom, gantry lifting device, gantry and backhitch, equalizer, weight ball, hook block, counterweights, telescopic air cushioned boom stop, hydraulic boom hoist with gear case, pilot house, and catwalk 144,605*

*Weights do not include hoist line, whip line, or fuel. For optional Cat. engine, add 2,800 pounds.

Boom Hoist With gear case, 1,210' of 1-1/8" — 6 x 26 boom hoist rope, equalizer, and gantry with backhitch 53,200

Carbody With roller path, ring gear, and king pin; less crawlers 86,060

Crawlers 30'5" with 60" treads (standard) 66,710 each

Crawlers 30'5" with 60" treads (RINGER® attachment) 81,780 each

COUNTERWEIGHT

Lower 43,000

Right and Left Middle (each) 19,500

Right and Left Upper (each) 20,500

Right and Left Upper (each) (Series-5 only) 20,700

Front and Rear Carbody (each) (Series-5 only) 55,000

Total Counterweight (Series-4) 123,000

Total Counterweight (Series-5) 274,400

Boom No. 27B

Boom Butt — 40'6" (with rope guide roller assembly) 11,670

Boom Top — 39'6" (with lower boom point assembly) 11,060

Upper Boom Point (removable with single 36" diameter sheave) 1,140

Boom Insert — 10' (with wire rope roller guide) 2,080

Boom Insert — 20' (with wire rope roller guide) 3,670

Boom Insert — 40' (with wire rope roller guide and equalizer lugs) 6,100

Boom Insert — 40' (with wire rope roller guide and shear blocks) 5,935

Basic Pendant — 23'4" (In-line top — 4 required) 170 each

Basic Pendant — 28'6" (4-1/2° Offset top - 4 required) 195 each

Pendant — 10' (4 per insert) 105 each

Pendant — 20' (4 per insert) 150 each

Pendant — 40' (4 per insert) 235 each

Jib No. 125

Jib Butt — 15'0" 1,535

Jib Top — 25'0" (with jib point shaft assembly and wire rope roller guide) 1,690

Jib Insert — 10' (with wire rope roller guide) 521

Jib Insert — 20' (with wire rope roller guide) 940

Basic Pendant — 44'6" (2 required) 220 each

Pendant — 10' (2 per insert) 90 each

Pendant — 20' (2 per insert) 230 each

Jib Backstay Basic Pendant 235 each

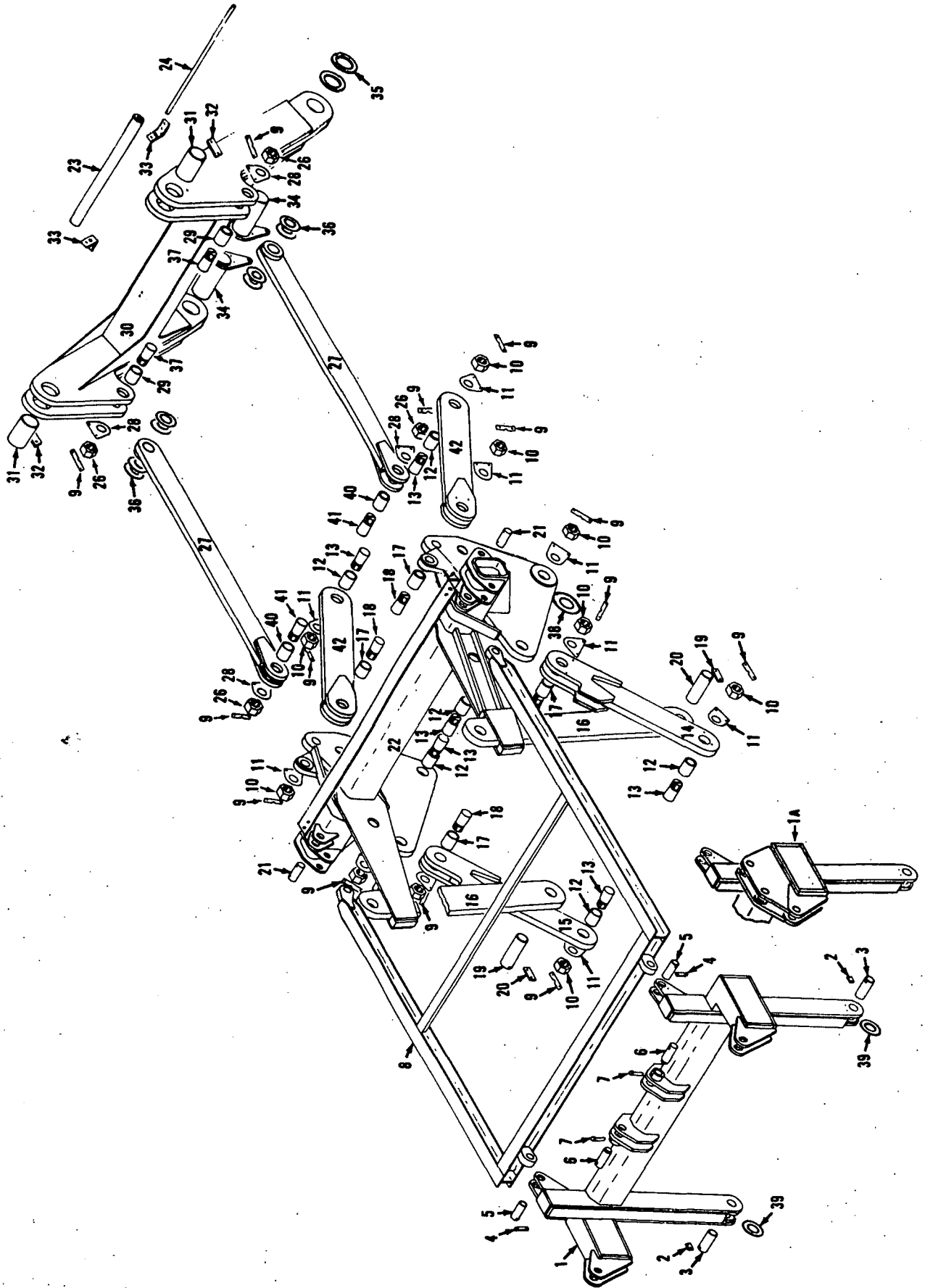
Jib Strut 1,045

Components

Hook Rollers (6) — with shafts 1,620

Catwalk — left and right sides 1,370

Boom Hoist Rope (1,210' at 2.34 lbs./Ft.) 1-1/8" — 6 x 26 2,830



49658F1

MATERIAL LIST ON BACK

"A" FRAME



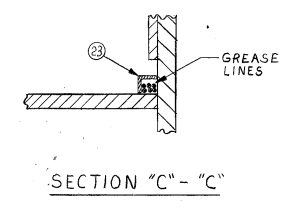
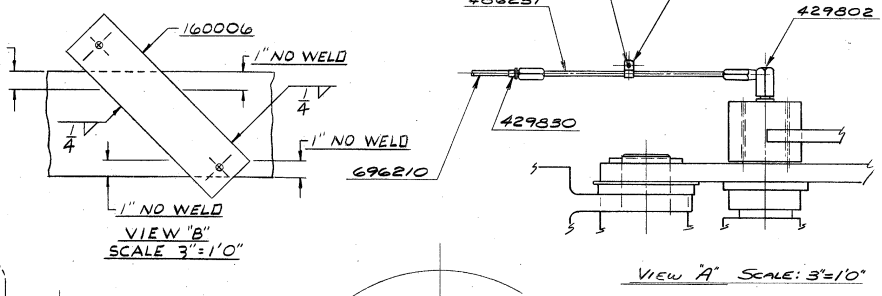
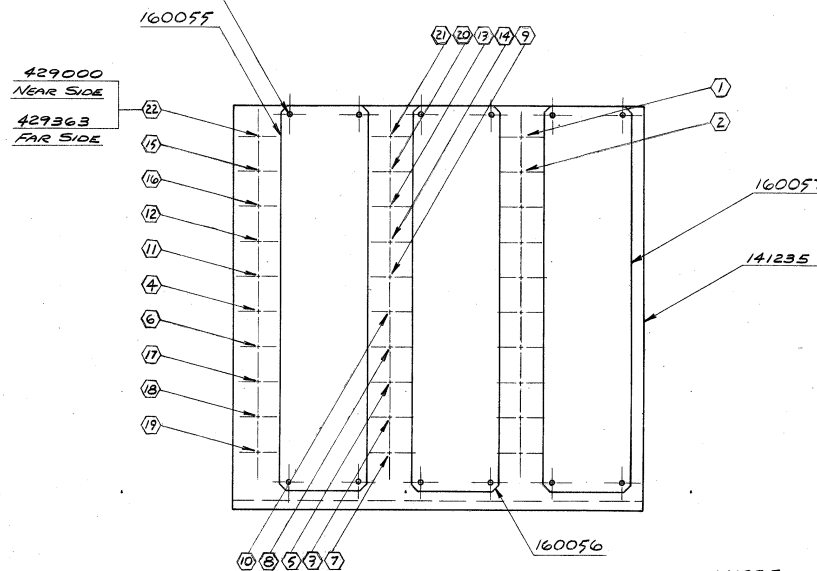
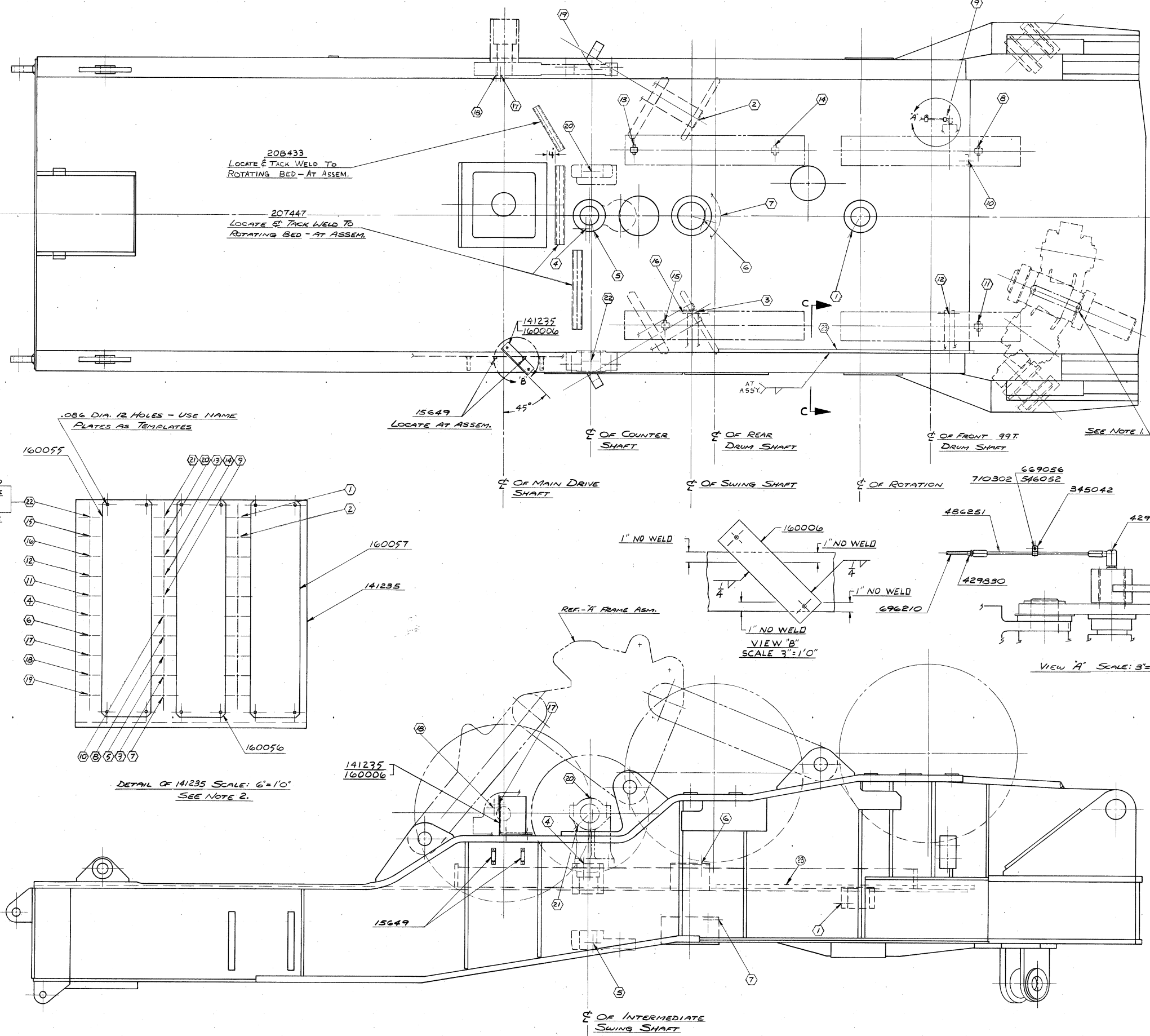
BILL OF MATERIAL		ASSEMBLIES USED ON	
QTY	DESCRIPTION	QTY	DESCRIPTION
15	GUIDE ROLLER - RIGHT REAR BRAKE	15	1/4 COPPER TUBING
1	1/4 x 1/8 x 90° ELBOW	429380	696210
1	1/4 x 1/8 TUBE CONNECTOR	429363	429000
1	VERTICAL TRAVEL SHAFT - UPPER		
1	1/4 x 1/8 x 90° ELBOW	429374	
1	1/4 x 1/8 TUBE CONNECTOR	429363	
16	BRAKE SHAFT - RIGHT REAR BRAKE		
1	1/4 x 1/8 TUBE CONNECTOR	429364	
1	1/4 x 1/8 TUBE CONNECTOR	429363	
17	M.D. SHAFT BAG - HOIST SPROCKET		
1	1/4 x 1/8 x 90° ELBOW	429374	
1	1/4 x 1/8 TUBE CONNECTOR	429363	
18	M.D. SHAFT BAG - SWING SPROCKET		
1	1/4 x 1/8 x 90° ELBOW	429374	
1	1/4 x 1/8 TUBE CONNECTOR	429363	
19	COUNTER SHAFT - LEFT JOURNAL BAG		
1	1/4 x 1/8 x 90° ELBOW	429374	
1	1/4 x 1/8 TUBE CONNECTOR	429363	
20	COUNTER SHAFT - CNTR. BUSHING - UPPER		
1	1/4 x 1/8 x 90° ELBOW	429374	
1	1/4 x 1/8 TUBE CONNECTOR	429363	
21	COUNTER SHAFT - CNTR. BUSHING - LOWER		
1	1/4 x 1/8 x 90° ELBOW	429374	
1	1/4 x 1/8 TUBE FITTING	429363	
22	COUNTER SHAFT - R. JOURNAL BUSH.		
1	1/4 x 1/8 x 90° ELBOW	429374	
1	1/4 x 1/8 TUBE CONNECTOR	429363	
1	MANIFOLD	141235	
1	NAME PLATE	160055	
1	NAME PLATE	160056	
1	NAME PLATE	160057	
2	CLIPS	15649	
2	ANGLE 2 1/2 x 2 1/2 x 1/4 x 23 LG.	207447	
2	ANGLE 1 1/2 x 1 1/2 x 1/4 x 15 3/4 LG.	208433	
23	1 ANG. 1" X 1" X 1/2" X 78" LG.		
9	BRAKE SHAFT LEFT - LEFT FRONT BRAKE		
1	SWIVEL - ANTI FRICTION	429802	
1	HOSE 1/2 I.D. x 12 3/8 LG.	486251	
1	PLASTIC HOSE CLAMP	345042	
1	1/4 x 1/4 TUBE CONN. I-E GGF	429830	
1	1/4 x 1/8 TUBE CONNECTOR	429363	
1	STUD 1/4-20 UNC x 5/8 LG.	669056	
1	1/4 LOCK WASHER	710302	
1	1/4-20 UNC HEX NUT	546052	
10	BRAKE SHAFT RIGHT - LEFT FRONT BRAKE		
2	1/4 x 1/8 TUBE CONNECTORS	429363	
11	GUIDE ROLLER - RIGHT FRONT BRAKE		
1	1/4 x 1/8 x 90° ELBOW	429380	
1	1/4 x 1/8 TUBE CONNECTOR	429363	
12	BRAKE SHAFT - RIGHT FRONT BRAKE		
1	1/4 x 1/8 x 90° ELBOW	429380	
1	1/4 x 1/8 TUBE CONNECTOR	429363	
13	GUIDE ROLLER - LEFT REAR BRAKE - REAR		
1	1/4 x 1/8 x 90° ELBOW	429380	
1	1/4 x 1/8 TUBE CONNECTOR	429363	
14	GUIDE ROLLER - LEFT REAR BRAKE - FRONT		
1	1/4 x 1/8 x 90° ELBOW	429380	
1	1/4 x 1/8 TUBE CONNECTOR	429363	

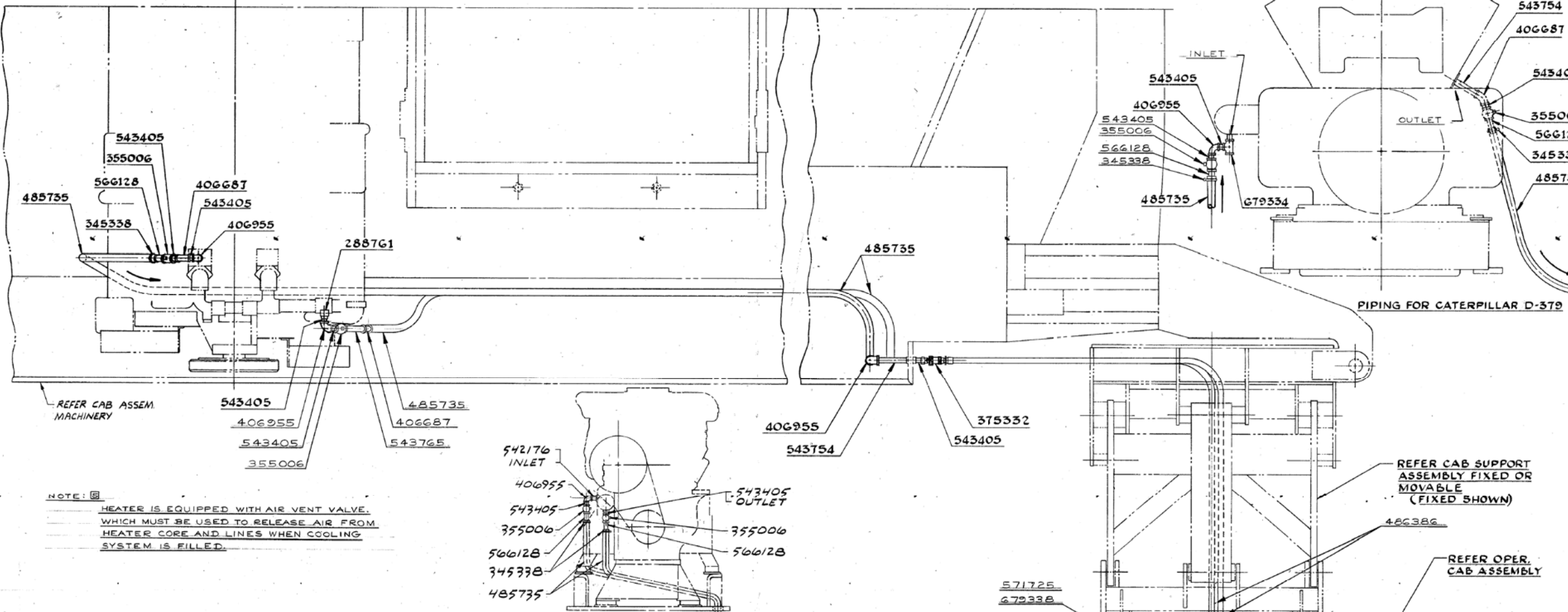
NOTE 1.
FOR UPPERWORKS GREASE POINTS NOT SHOWN, REFER TO SERVICE LUBRICATION INSTRUCTIONS.

NOTE 2.
INTERCONNECT DESIGNATED FITTINGS ON MANIFOLD AND CORRESPONDING GREASE POINTS AS SHOWN ON DRAWG. WITH COPPER TUBING & APPROPRIATE FITTINGS IN BILL OF MATERIAL. AVOID BENDING COPPER TUBING AROUND SHARP CORNERS.

SUPERSEDES 65140 OF 5-15-78

REVISED BY	MANITOWOC ENGINEERING CO.	LUBRICATION ASSEM.	DATE
13/10	MANITOWOC, WISCONSIN	REMOTE GREASING SYS.	10-2-81
DR. BLP		FOR UPPERWORKS	
OR RBK	MODEL 4600 SERIES 4	SEE NOTE 1.	
MR. RJS			

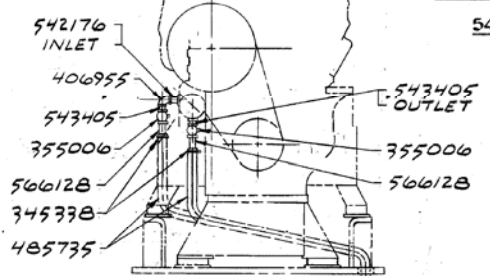




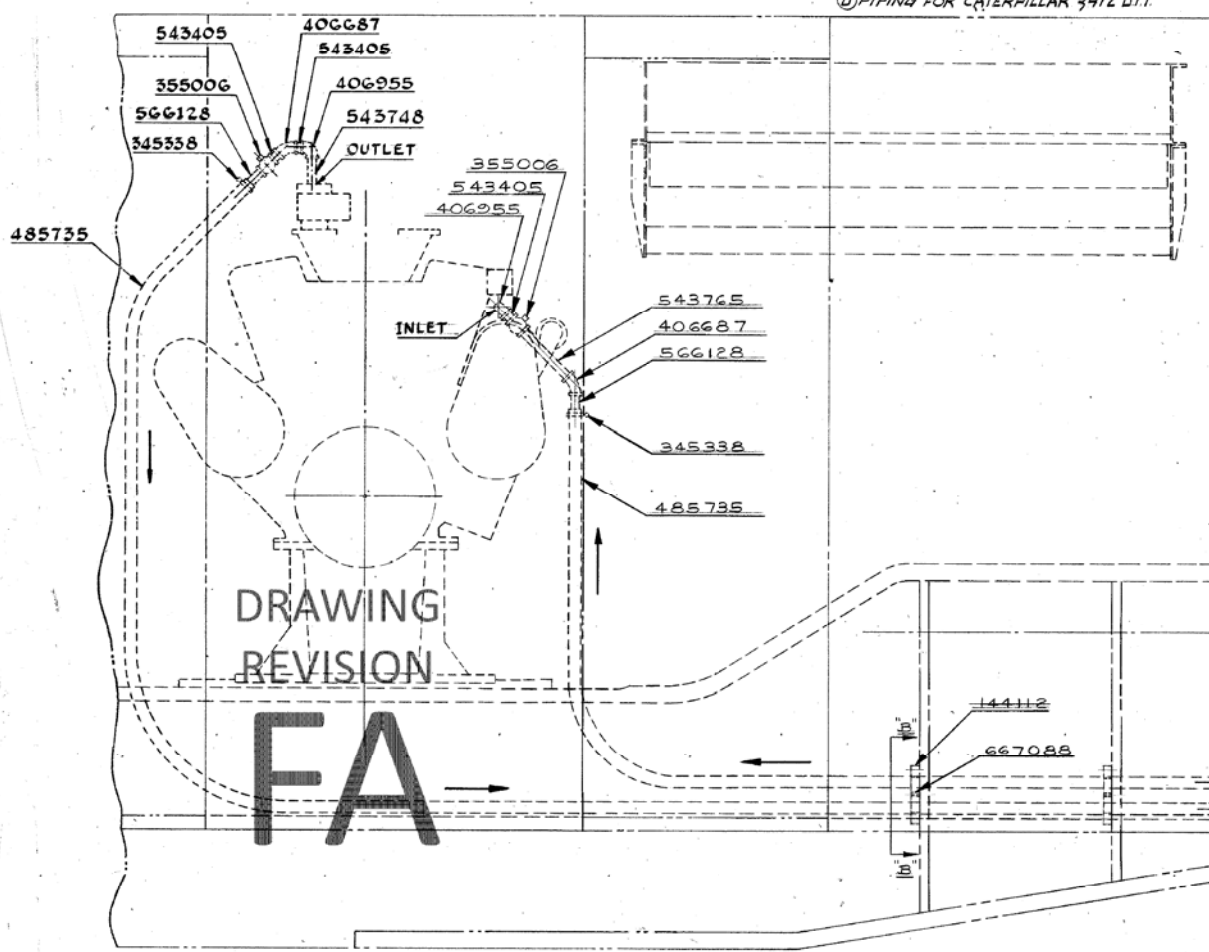
ITEM NO.	DESCRIPTION	QUANTITY	MATERIAL	REMARKS
BASIC ITEMS FOR ALL HEATER ASSEM.				
6	PIPE SUPPORT	144112		
4	HOSE CLAMP	545338		
2	3/4 STEAMCOCK	355006		
4	QUICK DISCONNECT COUPLER	375332		
7	3/4 X 3/8" ELBOW	406687		
5	3/4 X 90° ELBOW	406955		
		566128		
1	HUPP 203H 24V CAB HEATER	480200		
1	1 I.D. HEATER HOSE	485735		
2	3/4 I.D. HOSE 10 FT. LG.	485735		
9	3/4 X 3/8 CLOSE NIPPLE	543405		
1	3/4 X 3/2 NIPPLE	543748		
1	3/4 X 5 NIPPLE	543405		
1	3/4 X 1 1/2 NIPPLE	543405		
4	3/4 X 3 THD. ONE END	566128		
2	1/2 FLUSH HD. PIPE PLUG	571725		
4	1/4" 20UNC-2A X 3/4" HEX HD CAP SCR	612353		
12	PIPE CLAMP	667088		
2	3/4 X 3/4 X 1/2 TEE	679338		
4	1/4 LOCK WASHER	710302		
ITEMS FOR HEATER ASSEM. CUMMINS VTA-1710-C 700				
1	1 1/4 X 3/4 NUT BUSHING	288761		
1	3/4 X 90° ELBOW	406955		
2	3/4 X 1 1/2 CLOSE NIPPLE	543405		
1	3/4 X 3 1/2 NIPPLE	543748		
1	3/4 X 5 NIPPLE	543748		
2	3/4 X 4 1/2 ELBOW	406687		
ITEMS FOR HEATER ASSEM. CATERPILLAR D-379				
1	3/4 X 1 1/2 CLOSE NIPPLE	543405		
1	3/4 X 5 NIPPLE	543748		
1	1/2 X 1 1/2 X 3/4 TEE	679338		
1	3/4 X 4 1/2 ELBOW	406687		
ITEMS FOR HEATER ASSEM. CATERPILLAR 3412 D.I.T.				
1	3/4 X 2 1/2 NIPPLE	542176		

REVISIONS
 1-29-79 LRT
 A) WAS 10
 B) ADDED
 C) DELETED
 D) DELETED
 E) DELETED
 F) DELETED
 G) DELETED
 H) NO REDD WAS 1
 I-30-91 CFC
 J) ADDED

NOTE: [A] HEATER IS EQUIPPED WITH AIR VENT VALVE WHICH MUST BE USED TO RELEASE AIR FROM HEATER CORE AND LINES WHEN COOLING SYSTEM IS FILLED.

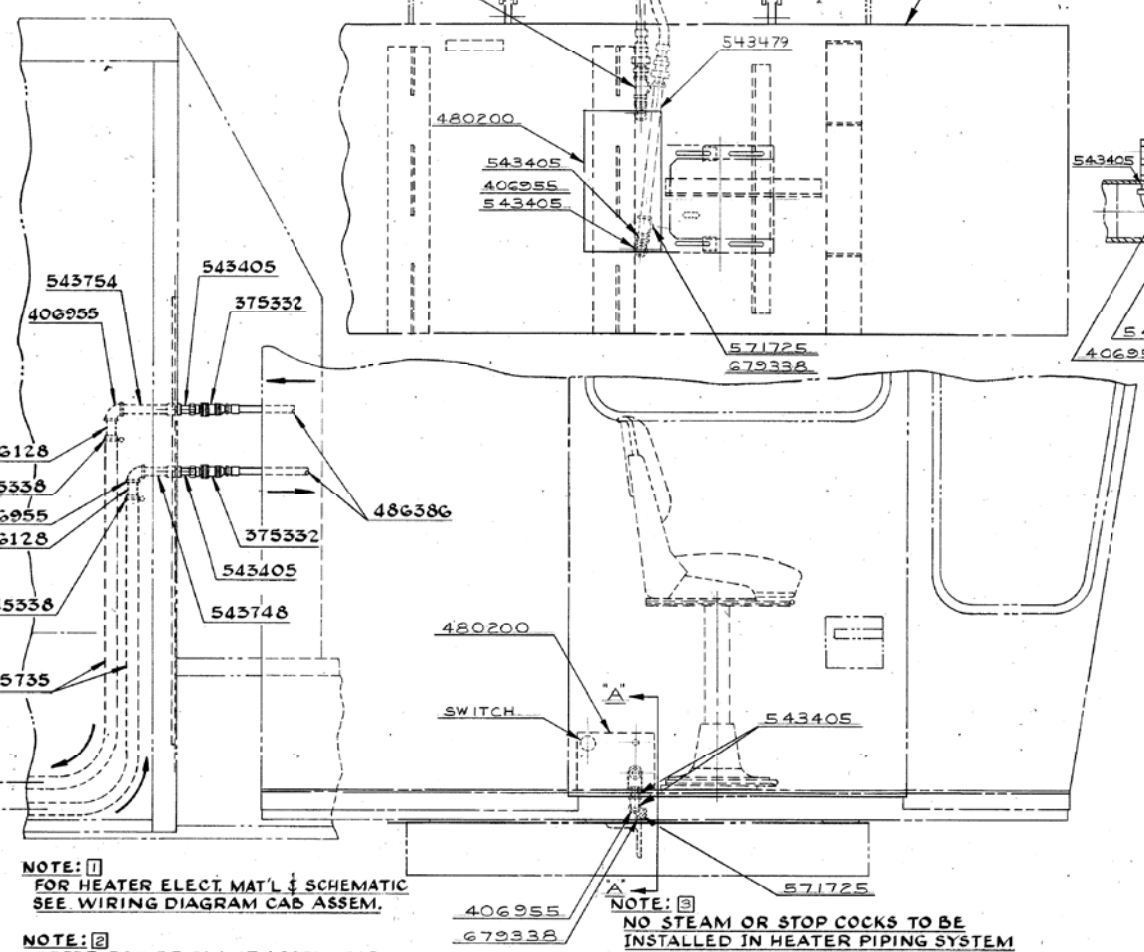


PIPING FOR CATERPILLAR 3412 D.I.T.



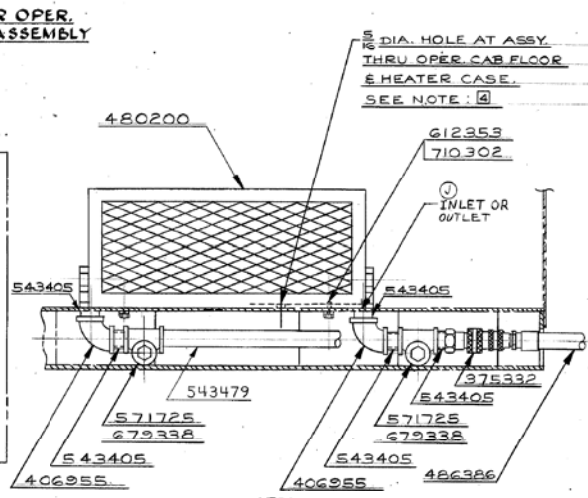
DRAWING REVISION
FA

PIPING FOR CUMMINS VTA-1710-C 700 SHOWN



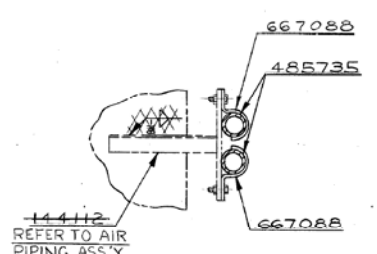
NOTE: [1] FOR HEATER ELECT. MAT'L & SCHEMATIC SEE WIRING DIAGRAM CAB ASSEM.
 NOTE: [2] REFER POWER PLANT ASSEM. FOR HEATER INLET & OUTLET LOCATION.

NOTE: [3] NO STEAM OR STOP COCKS TO BE INSTALLED IN HEATER PIPING SYSTEM OTHER THAN SHUT OFF COCK 355006



NOTE: FITTINGS MUST NOT EXTEND BELOW OPERATOR'S CAB BASE.

SECTION A-A



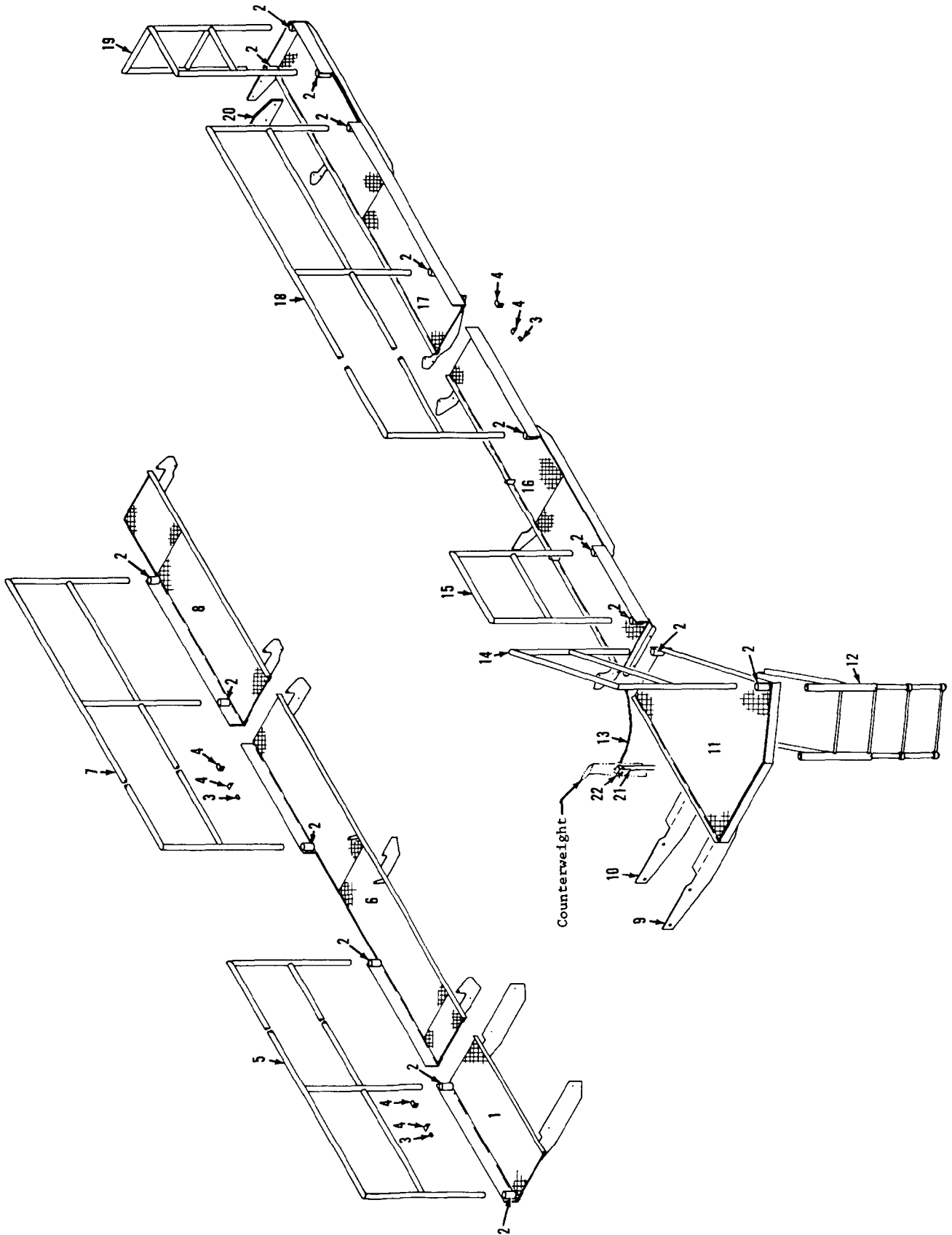
NOTE: [4] 14-1 WIRE HEATER POWER SOURCE TO COME UP THRU OPER. CAB FLOOR AND CONNECT TO HEATER INSIDE CASE.

SECTION B-B

FORMERLY WAS 65366	DATE	3-1-77
MANITOWOC ENGINEERING CO.	PATTERN NO.	
HEATER ASSEMBLY- OPERATORS CAB	CODE NO.	
MODEL 4600 SERIES 4	DWG. NO.	65567
6000 W		

DWG. NO. 65567

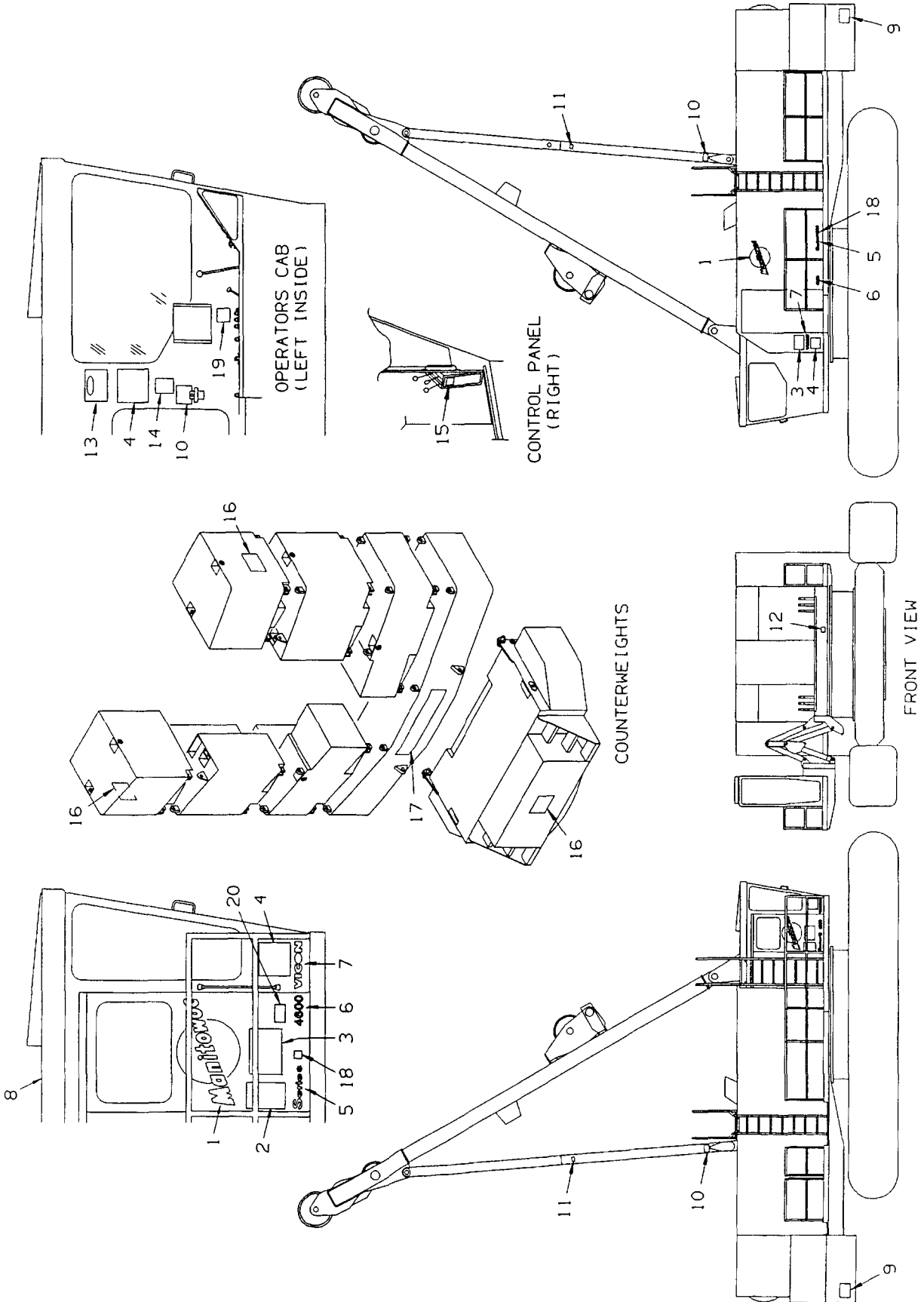
MASTER



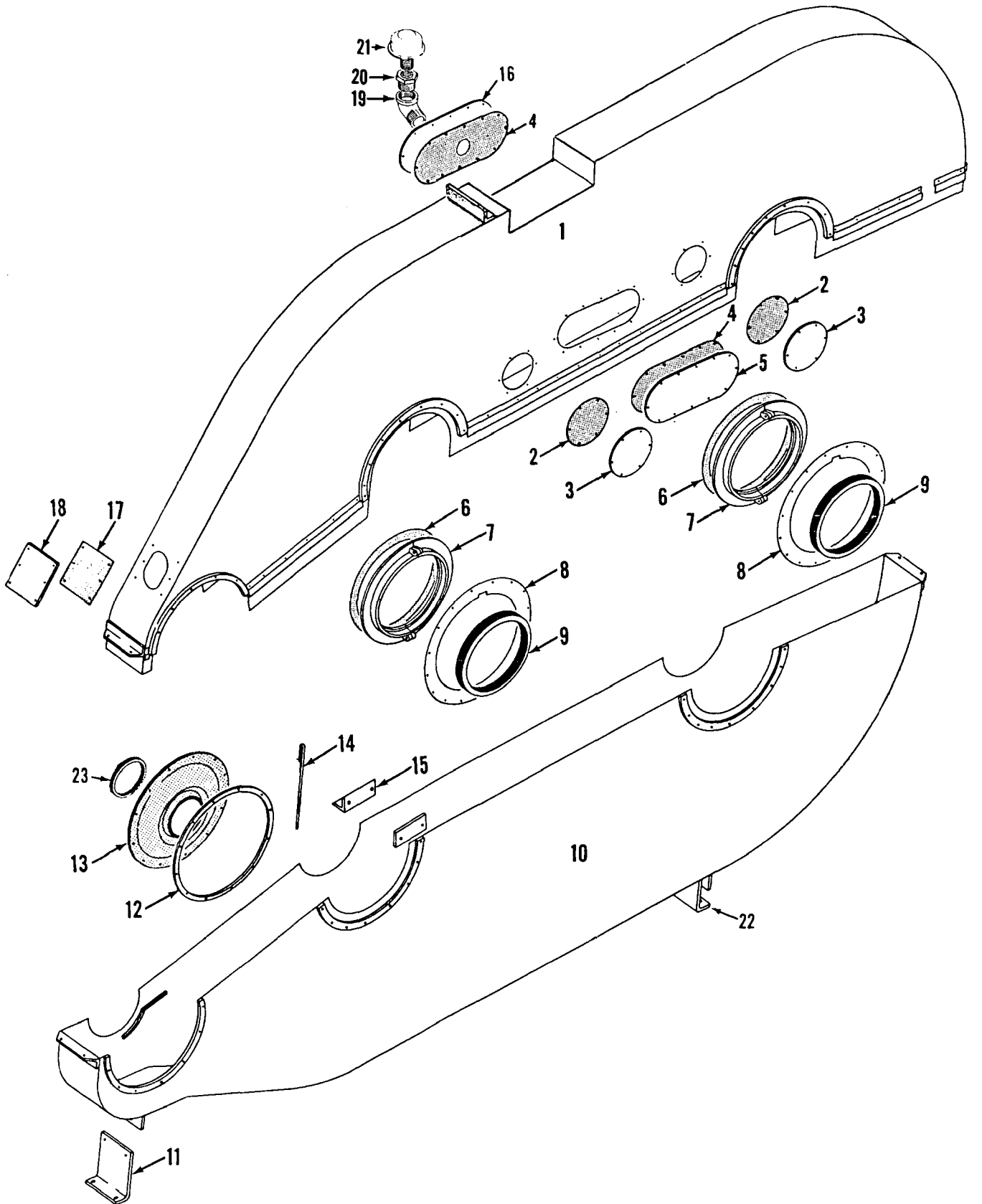
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MATERIAL LIST ON BACK

CATWALK



MASTER



19004001

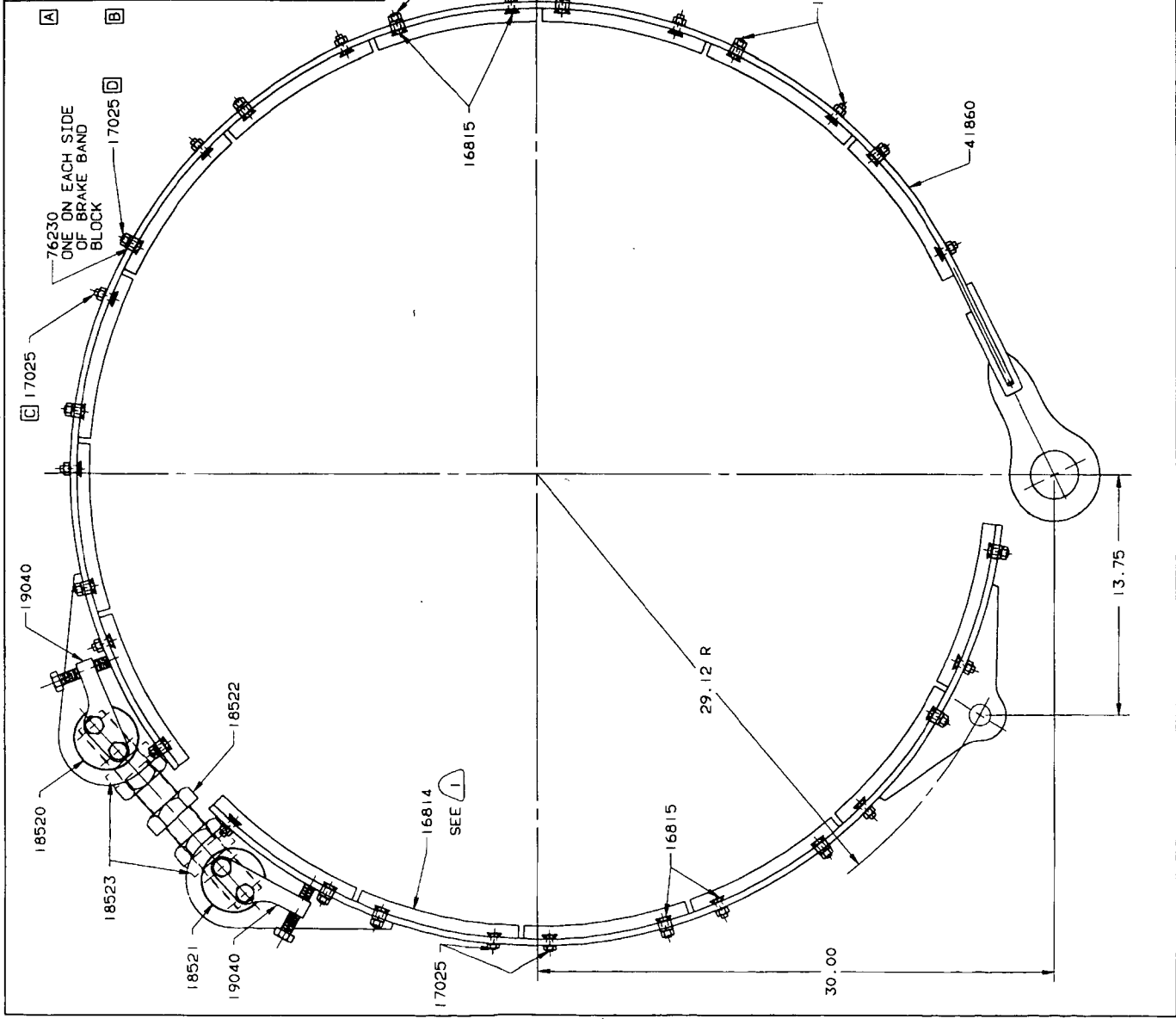
PARTS MANUAL ALPHABETICAL INDEX
Group B - Upperworks Machinery

DESCRIPTION	PUBLICATION	REV	START DATE	END DATE	GROUP
Boom Hoist Chain Case	182767	C1	02/02/76	01/14/81	B0212
Boom Hoist Chain Case	190184	D1	12/09/77	01/04/79	B0212
Boom Hoist Chain Case	95823	A1	02/11/76		B0212
Boom Hoist Control, Independent	163669	A	04/16/84	04/16/84	B0204
Boom Hoist Control, Independent	190815	D1	06/28/78	06/03/87	B0204
Boom Hoist Control, Independent	93059	F1	07/30/81	04/19/84	B0204
Boom Hoist Control, Independent	93560	K1	12/27/70	08/07/85	B0204
Boom Hoist Hydraulic Motor	182591	D1	08/20/75	01/14/85	B0205
Boom Hoist Hydraulic Motor	94879	-	08/14/73		B0205
Boom Hoist Hydraulic Piping	163135	-	12/19/83	02/20/92	B0209
Boom Hoist Hydraulic Piping	163136	-	12/19/83	01/31/92	B0209
Boom Hoist Hydraulic Piping	183358	-	10/12/77	08/22/78	B0209
Boom Hoist Hydraulic Piping	191438	A1	06/30/81	12/19/83	B0209
Boom Hoist Pawl	182481	B1	03/26/75	01/06/84	B0211
Boom Hoist, Independent	65087	Q1	07/24/72	03/24/92	B0202
Countershaft, Drum Drive	33892	E1	12/07/67	02/27/85	B0501
Drum Brake - Front	21359	-	02/07/47	11/06/81	B0603
Drum Brake - Front	22635	C1	11/04/52	06/02/83	B0603
Drum Brake - Front	23984	-	09/15/59	12/16/82	B0603
Drum Brake - Front	31497	-	11/11/82	05/04/92	B0603
Drum Brake - Front	49661	G1	10/02/74	05/04/92	B0603
Drum Brake - Front	49737	E1	01/23/73	05/18/83	B0603
Drum Brake Booster/Parking Brake	42768	E1	02/22/71	05/18/83	B0604
Drum Brake Booster/Parking Brake	93251	-	01/29/70	03/04/82	B0604
Drum Clutch Control/Band	182343	A	07/25/74	05/12/95	B0602
Drum Pawl - Front	182761	A1	03/10/76	07/10/78	B0606
Drum Pawl - Front	182763	-	03/10/76		B0606
Drum Rotation Indicator - Front and Rear	182768	D1	02/05/76	01/08/79	B0607
Drum Rotation Indicator - Front and Rear	182769	D1	03/10/76	01/08/79	B0607
Drum Rotation Indicator - Front and Rear	95822	B1	02/11/76	02/14/86	B0607
Drum Shaft - Front	65213	K1	08/22/73	01/16/87	B0601
Drum Shaft - Front	65213	B2	08/22/73	01/16/87	B0601
Foot Pedals	182297	F1	05/21/74	02/08/82	B1202
Independent Swing Auxiliary Brake	184004	B1	05/01/79	09/30/81	B0404
Independent Swing Control	182813	C1	04/26/76	09/12/80	B0403
Lubrication Pump & Piping (Sump)	66189	-	07/24/86	04/15/91	B1401
Main Drive Shaft	49645	D1	07/28/72	04/08/76	B1301
Main Drive Shaft	94866	-	08/09/73		B1301
Rear or Rear Auxiliary Drum	50927	-	10/29/87	11/18/04	B0801
Rear or Rear Auxiliary Drum Brake	160277	A1	12/27/81	05/18/83	B0803
Rear or Rear Auxiliary Drum Brake	49308	G1	02/22/71	05/04/92	B0803
Rear or Rear Auxiliary Drum Control/Band	182345	-	07/25/74	05/12/95	B0802
Rear or Rear Auxiliary Drum Control/Band	182455	-	02/18/75	06/26/85	B0802
Rear or Rear Auxiliary Drum Parking Brake	33749	G1	02/22/71	06/02/80	B0804
Rear or Rear Auxiliary Drum Pawl	182828	E1	05/04/76	03/03/82	B0805
Slide Pinion Shaft (Intermediate Travel or Swing Shaft)	181754	A1	07/17/72	05/16/75	B1601
Swing Lock Control	182394	E1	08/29/74	06/29/82	B1701
Swing Shaft	91301	-	06/19/81	03/18/95	B1901
Swing Shaft	91301	E1	03/07/66	04/09/86	B1901
Swing Shaft - Intermediate	21629	C1	03/22/48	12/12/72	B1902
Travel Drive	65095	-	09/11/72	11/29/79	B2001
Travel Drive Control/Brake	184084	C1	09/06/79	09/24/84	B2003
Travel Drive Piping	163134	-	12/19/83	01/08/92	B2004
Travel Drive Piping	49770	G1	06/29/76	12/10/79	B2004
Travel Drive Transmission	182880	B1	06/30/76	04/24/84	B2002
Travel Drive Transmission	49630	J1	06/23/81	08/20/82	B2002
Travel Drive Transmission	49630	A2	07/18/72	08/20/82	B2002
Travel Drive Transmission	65094	G1	09/08/72	07/28/82	B2002

REV	DATE	DESCRIPTION	BY	CHKD	ASSEMBLIES USED ON
1					41861 49783
2					42274 49784
3					43095 60277
4					43205
5					48830
6					49308
7					49309
8					49661
9					49736
10					49737

REV	DATE	DESCRIPTION	BY	CHKD	MATERIAL	QTY	UNIT
1		50KEEPER BOLT (KEY LOCK)			14463		
2		15BRAKE LINING BLOCK (KEY LOCK)			16814		
3		30KEEPER			16815		
4		10KEEPER BOLT (KEY LOCK)			17025		
5		1PIN-R.H. THREAD			18520		
6		1PIN-L.H. THREAD			18521		
7		1ADJUSTING BOLT			18522		
8		2ADJUSTING BOLT SPACER			18523		
9		2BRAKE BAND SUPPORT			19040		
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REV	DATE	DESCRIPTION	BY	CHKD	ASSEMBLIES USED ON
1					41861 49783
2					42274 49784
3					43095 60277
4					43205
5					48830
6					49308
7					49309
8					49661
9					49736
10					49737



DO NOT SCALE THIS DRAWING

SUPERSEDES 31497 OF 2-15-65

REV	DATE	DESCRIPTION	BY	CHKD	ASSEMBLIES USED ON
1					41861 49783
2					42274 49784
3					43095 60277
4					43205
5					48830
6					49308
7					49309
8					49661
9					49736
10					49737

REV	DATE	DESCRIPTION	BY	CHKD	ASSEMBLIES USED ON
1					41861 49783
2					42274 49784
3					43095 60277
4					43205
5					48830
6					49308
7					49309
8					49661
9					49736
10					49737

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 MANITOWOC ENGINEERING CO.
 1000 W. WISCONSIN ST., MILWAUKEE, WIS. 53233
 U.S. GOVERNMENT PRINTING OFFICE: 1967 O 31497

DWG NO
 31497

REV	DATE	DESCRIPTION	BY	CHKD	ASSEMBLIES USED ON
1					41861 49783
2					42274 49784
3					43095 60277
4					43205
5					48830
6					49308
7					49309
8					49661
9					49736
10					49737

49308-1 Cont.	REV. G	MODEL 4600-4600 S4
---------------	-----------	-----------------------

RIGHT REAR DRUM BRAKE
(9" BRAKE BAND)

REF. NO.	PART NUMBER	QUANTITY REQUIRED	DESCRIPTION OF PART	VENDORS PART NO.
45	257162	4	BOLT, Coupling	
46	709960	as req	WASHER, Flat	
48	139315	1	PAD, Mounting	
49	14962	1	GASKET	
50	143738	1	COVER W/mach. screws and lockwashers	
51	141365	1	CLIP (M4600 S4 Only)	
			0-71, 21359	

REV. G	49308-1
-----------	---------

PLEASE GIVE MACHINE S/N W/ORDER

MASTER

Run as Front

49308-01 Cont'd.

49661-1 Cont.	REV. G	MODEL 4600 S4 - 4600 S3
---------------	-----------	----------------------------

RIGHT FRONT DRUM BRAKE
(43" WIDE DRUM - 99 T GEAR - 9" BAND)

Run as Front

MASTER

49661 F1 Cont'd.

REF. NO.	PART NUMBER	QUANTITY REQUIRED	DESCRIPTION OF PART	VENDORS PART NO.
47	709960	As Req.	WASHER, Flat (1½")	
48	14962	1	GASKET	
49	143738	1	COVER W/mach. screws and lockwashers	
50	138822	1	SUPPORT, Angle (Weld to Roof Beam) (M4600 S3 - For 4600 S4 See Note 1)	
NOTE 1: For Model 4600 S4, delete Ref. Nos. 7 and 50 and use the following:				
51	15207	1	BLOCK, Guide W/capscrews and lockwashers	
52	141264	1	GUIDE, Band W/capscrews, hex nuts, flat washers and lockwashers	
53	95294	1	SUPPORT W/capscrews, hex nuts and lockwashers	
54	141365	1	CLIP	
0-71, 21359			REV. G	49661 - 1

PLEASE GIVE MACHINE S/N W/ORDER

65087-1 Cont.	REV. Q	MODEL 4600 S4, 6000W, 6000 S2, 60' PLATFORM RINGER
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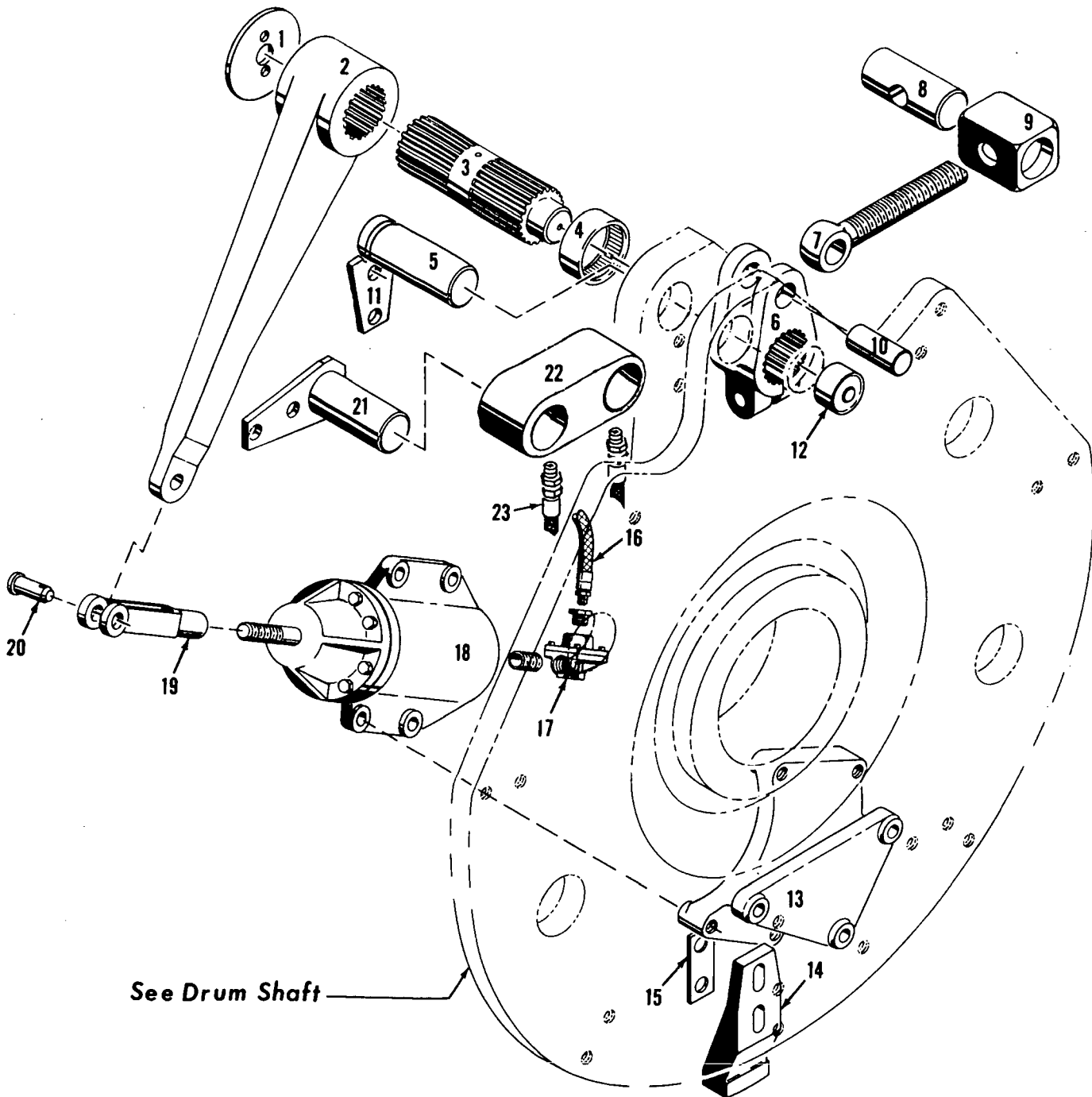
BOOM HOIST

REF. NO.	PART NUMBER	QUANTITY REQUIRED	DESCRIPTION OF PART	VENDORS PART NO.			
45	140797	1	GASKET				
46	140682	1	COVER, Bearing w/capscrews and lockwashers				
47	78870	1	PLATE, End				
	612661	2	CAPSCREW, Hex (5/8" - 11 UNC - 2A x 1-1/2" Lg.)				
	710307	2	LOCKWASHER (5/8")				
48	97220	1	DRUM, Brake (See Note 4)				
49	97221	1	DRUM, Brake (See Note 4)				
50	79001	1	SPACER				
51	597020	1	RING, "O"				
52	136025	1	RETAINER, Bearing w/capscrews and lockwashers				
53	136027	1	GASKET				
54	622606	2	SEAL, Oil				
55	225454	1	BEARING, Roller				
56	136026	1	FLANGE, Grease seal				
57	166286	1	SHAFT, Worm				
58	76868	1	FLANGE, Grease seal				
59	225364	1	BEARING, Roller				
60	597002	1	RING, "O"				
61	622645	2	SEAL, Oil				
62	76939	1 set	SHIM (.080" set)				
63	76881	1	RETAINER, Bearing w/capscrews and lockwashers				
64	140804	1	COUPLING (Delete when reduction is used - See B2.7)				
65	182591	1	MOTOR, Hydraulic (See Note 2)				
66	429644	4	COUPLER, Quick (for air lines)				
67	146443	1	COVER (Added Aug., 1979)(See Note 5) (See Note 6)				
	612553	4	CAPSCREW, Hex (1/2" - 13 UNC - 2A x 1" lg.)				
	709150	4	LOCKWASHER (1/2")				
68	146444	1	GASKET (Added Aug., 1979)				
69	596200	1	RING, Retaining (machines after 2-6-84 revision)				
			<p><u>NOTE 1:</u> Ref. Nos. 2, 3, 4, 5, changed per design change of Jan. 12, 1976, to enlarge access hole to inspect worm gear. Access hole is now 16" x 7-3/4". Previous access hole was 16" x 5-1/4" and used the following parts:</p>				
2	94296	1	GASKET				
3	181773	1	COVER w/capscrews and lockwashers				
4	140803	1	GASKET				
5	140802	1	COVER w/capscrews and lockwashers				
			<p>Cover #182688 has different hole spacings on each end than cover #181773.</p>				
			<p><u>NOTE 2:</u> Prior to design change of June 29, 1976, the following was used on Model 4600 S4.</p>				
65	536262	1	MOTOR, Hydraulic				
				<table border="1"> <tr> <td>REV.</td> <td>Q</td> <td>65087-1 Cont.</td> </tr> </table>	REV.	Q	65087-1 Cont.
REV.	Q	65087-1 Cont.					

PLEASE GIVE MACHINE S/N W/ORDER

Run as Front

65087 Q1 Cont. (1)

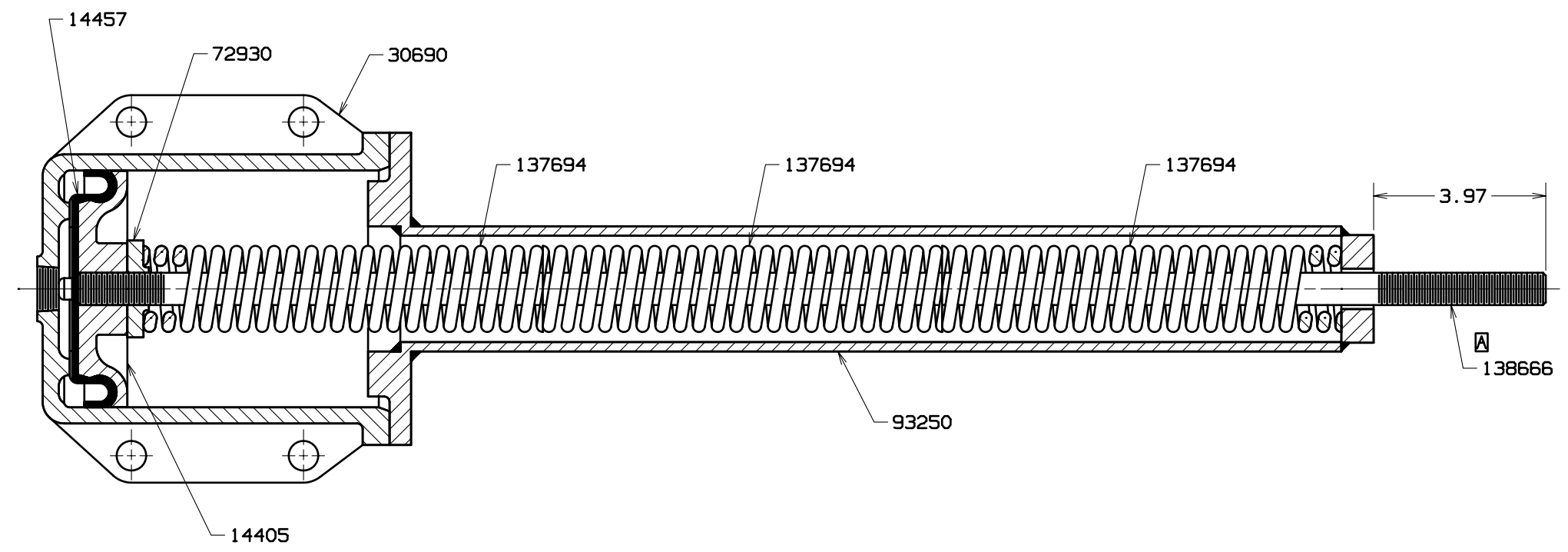
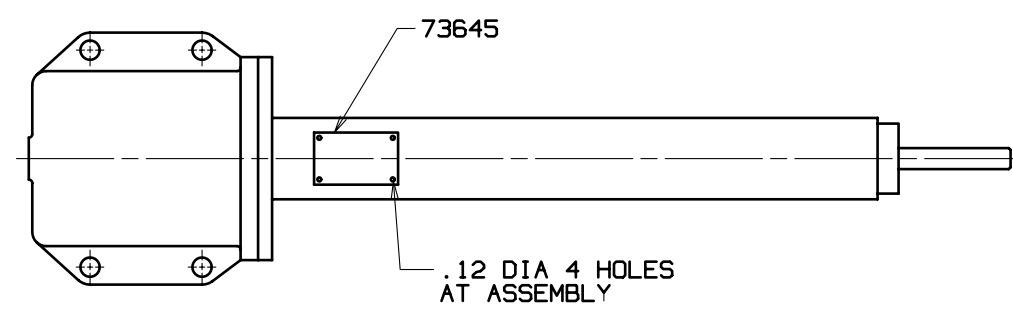


MASTER

See Drum Shaft

LEFT DRUM CLUTCH

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
1			PACKING CUP			14457	42768
1			AIR CYLINDER			30690	42769
1			NUT			72930	43433
1			NAME PLATE			73645	48860
1			SPRING RETAINER			93250	
3			SPRING			137694	
1			PISTON ROD			138666	

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

SCALE	6" = 1"	DR. HDG	Manitowoc Cranes, Inc.	Manitowoc, Wisconsin	AIR CYLINDER ASSEMBLY
CK. GMP	MODEL 4600	APP			5.50 BORE X 5.50 STROKE

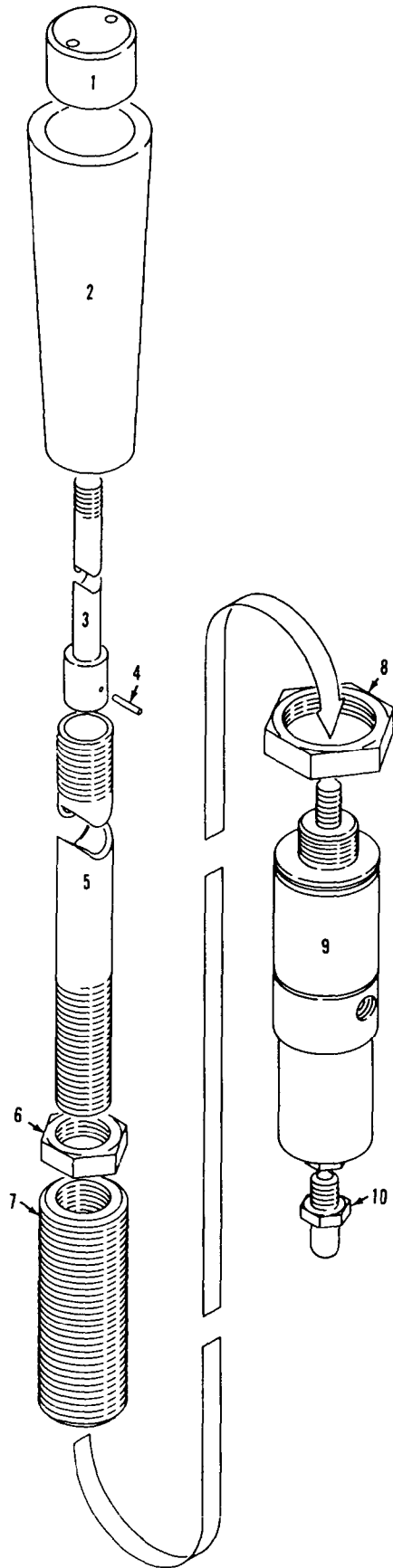
DATE
 1-29-70

PATTERN NO.

DWG. NO.
 93251

DO NOT SCALE THIS DRAWING

MASTER



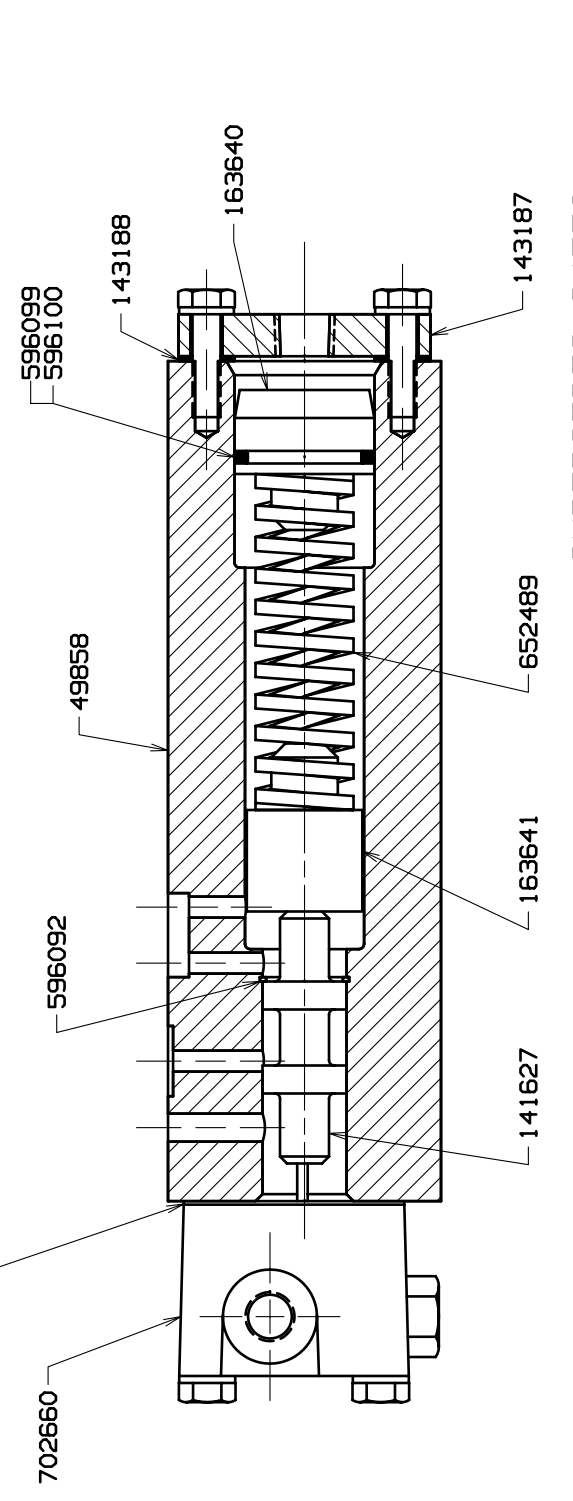
95823A1

MATERIAL LIST ON BACK

Boom Hoist Rotation Indicator Hand Lever

BILL OF MATERIAL			ASSEMBLIES USED ON		
ITEM NO.	SEC. NO.	DESCRIPTION	LENGTH IN.	MATERIAL	CODE NO. OR DWG. NO.
1		VALVE BODY			49858
1		SPOOL			141627
1		RETAINER			143187
1		GASKET			143188
1		PISTON			163640
1		SPRING GUIDE			163641
REVISIONS					
1		RETAINING RING			596092
1		GLYD RING			596099
1		"O" RING			596100
1		SPRING			652489
1		SHUTTLE VALVE ASSEMBLY			702660

ITEM NO. SEC. NO.		DESCRIPTION	LENGTH IN.	MATERIAL	CODE NO. OR DWG. NO.
1		VALVE BODY			49858
1		SPOOL			141627
1		RETAINER			143187
1		GASKET			143188
1		PISTON			163640
1		SPRING GUIDE			163641
REVISIONS					
1		RETAINING RING			596092
1		GLYD RING			596099
1		"O" RING			596100
1		SPRING			652489
1		SHUTTLE VALVE ASSEMBLY			702660



1 TO CHECK AIR PISTON 163640 FOR SEAL LEAKAGE, APPLY SHOP AIR TO PISTON END OF CONTROL. IF SEAL IS BAD, ONE WILL BE ABLE TO HEAR AIR LEAKING OUT OF SPOOL VALVE PORTS.

SCALE 1 2=1 FT
DR: JJJ
CK: DP
APP: TLP

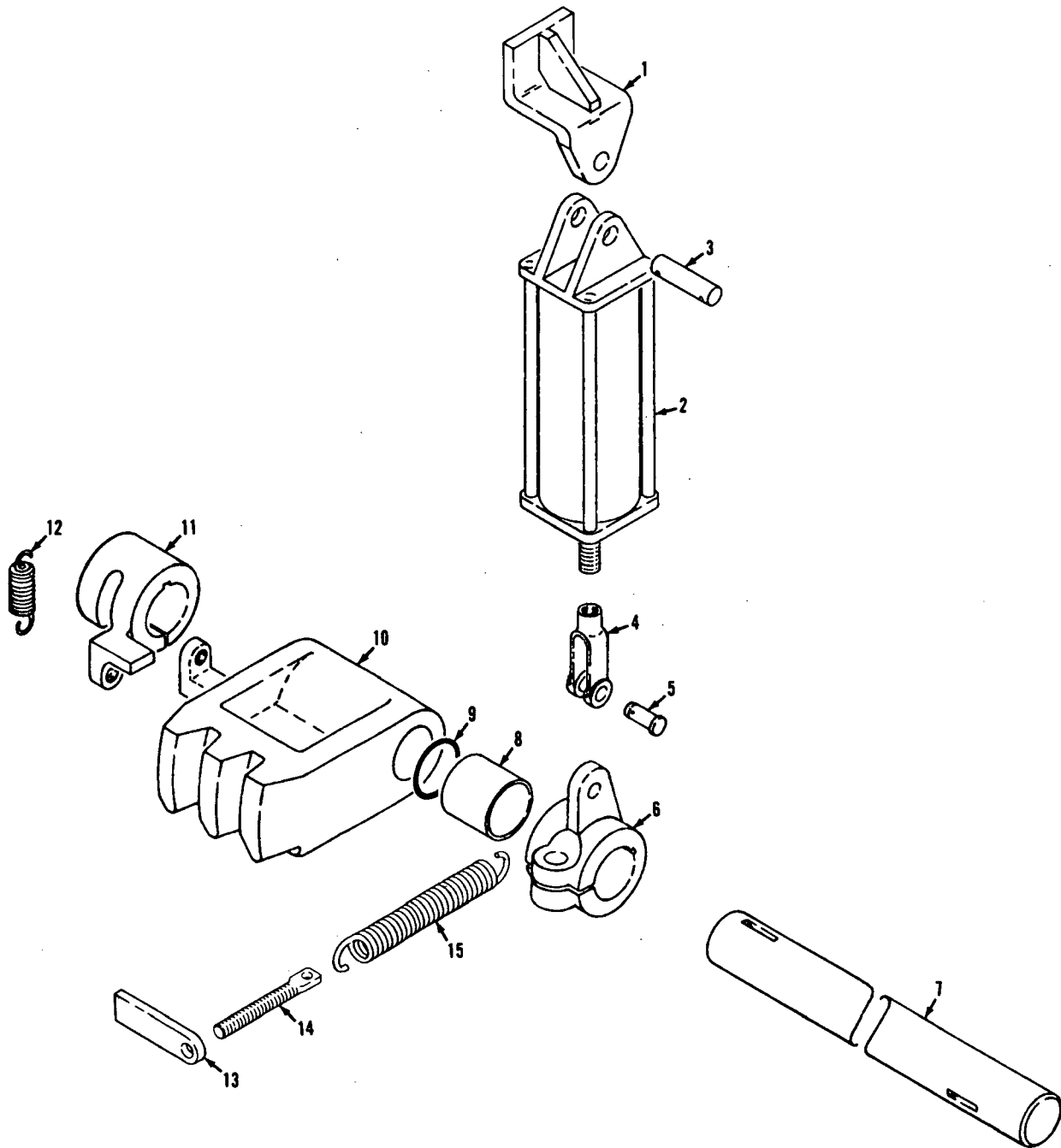
MANITOWOC CRANES, Inc.
Manitowoc, Wisconsin
MODEL 3900M, 4100M, 4600 S4,
6000M, 36 FT. P.R.

SUPERSEDES 94772

CONTROL VALVE ASSEMBLY FOR SUNDSTRAND MOTORS

DATE 4-16-84
PATTERN NO.
DWG. NO. 163669

DO NOT SCALE THIS DRAWING



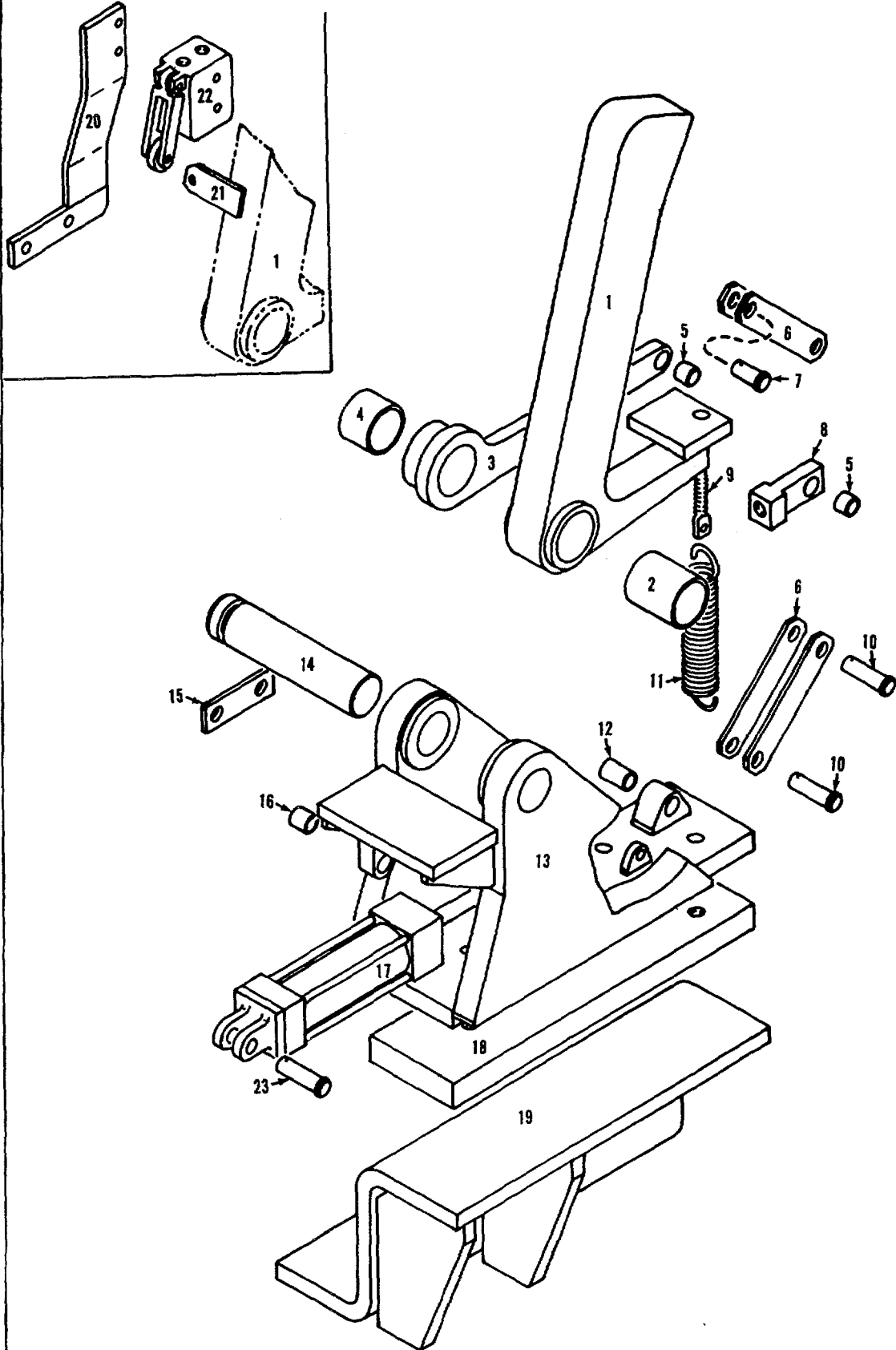
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MANITOWOC ENGINEERING CO.

A Division of The Manitowoc Company, Inc.

Manitowoc, Wisconsin

MASTER

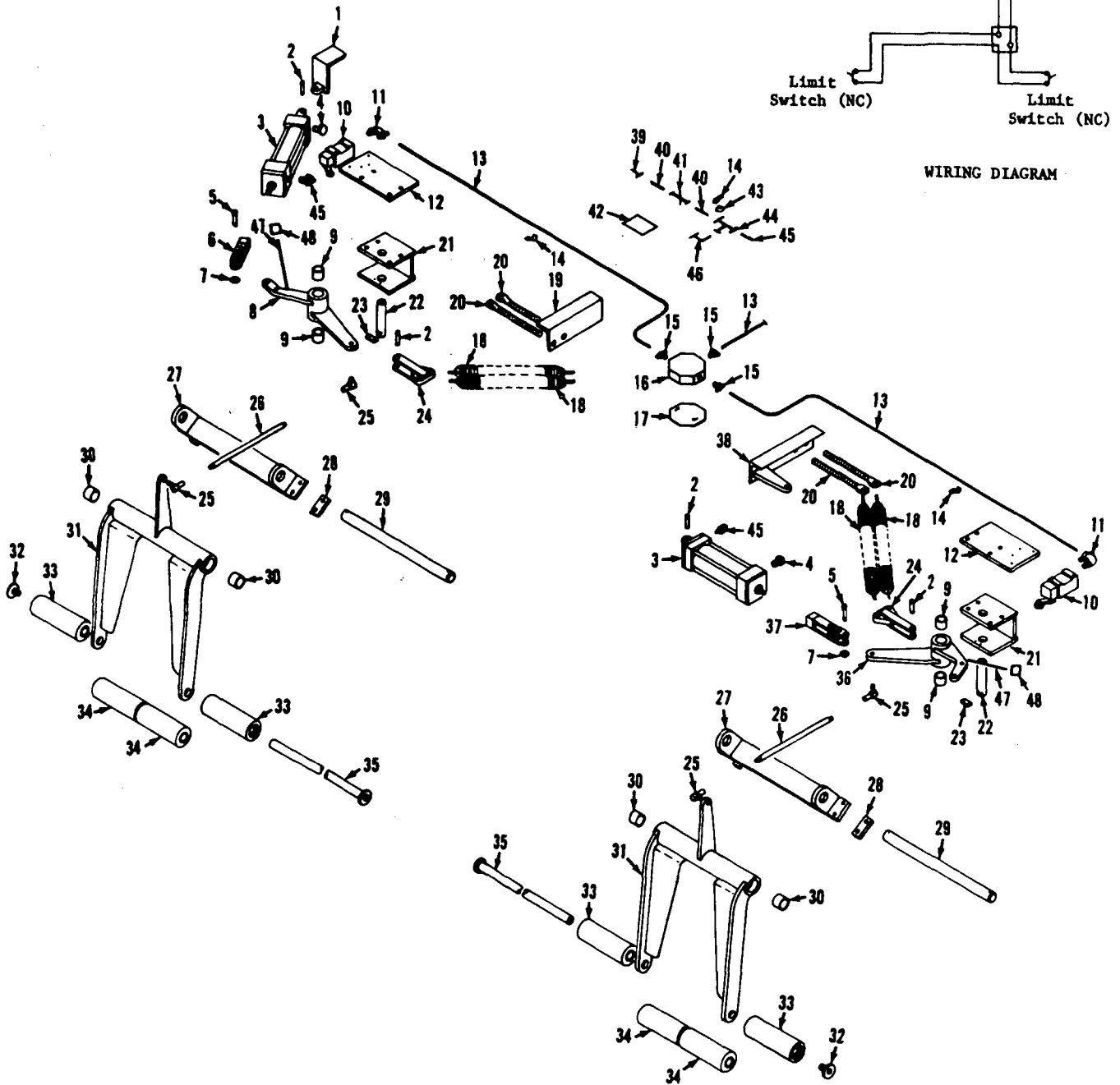


182828C1

MATERIAL LIST ON BACK

Rear Drum Pawl

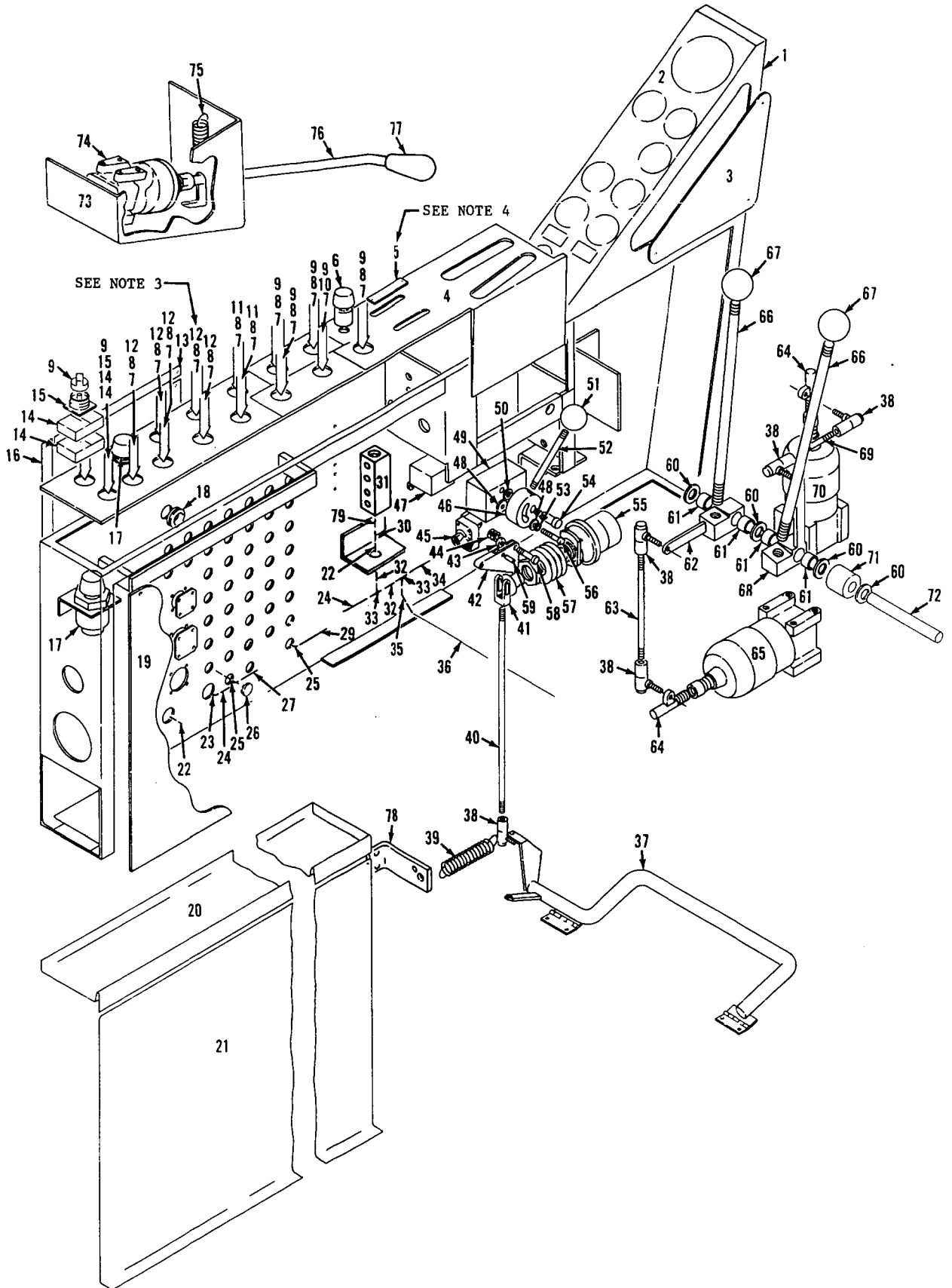
MASTER



WIRING DIAGRAM

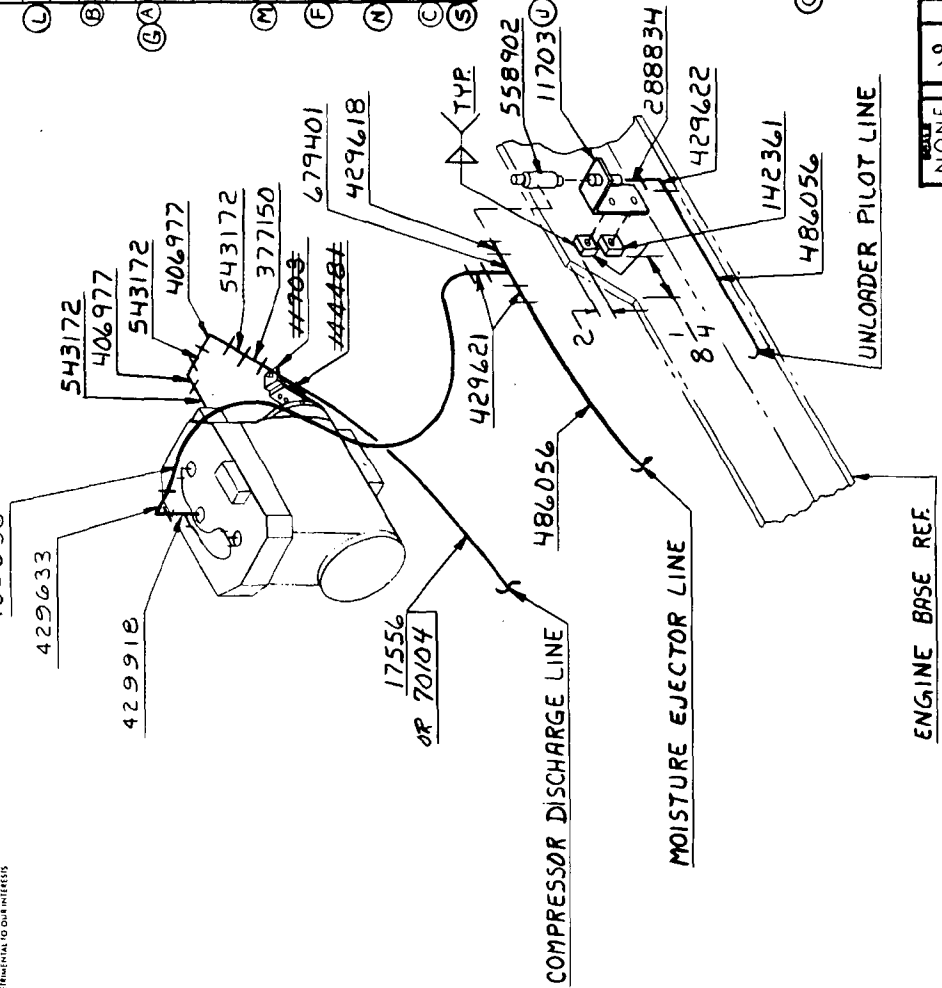
PARTS MANUAL ALPHABETICAL INDEX
Group C - Air Components & Electrical

DESCRIPTION	PUBLICATION	REV	START DATE	END DATE	GROUP
Air Joint	65912	E1	02/22/79	03/07/84	C0501
Air Piping	141626	-	06/20/73	08/20/93	C0301
Air Piping to Elevated Operator's Station	141781	-	08/23/73	07/12/83	C0302
Air Piping to Elevated Operator's Station	66038	-	06/05/85		C0302
Air Piping to Elevated Operator's Station	96197	E1	10/21/76	05/16/91	C0302
Compressor & Piping	181831	-	09/29/72	07/16/08	C0101
Compressor & Piping	96516	-	12/15/80	01/11/84	C0101
Control Console	183210	F1	09/27/77	04/25/91	C0201
Control Console	65517	D1	08/13/76	03/16/92	C0201
Control Console	65518	M1	08/13/76	04/25/91	C0201
Electrical Controls	145282	-	02/21/78		C0303
Electrical Controls	169689	-	06/18/91	12/08/93	C0303
Electrical Controls	181934	-	01/31/73	10/25/78	C0303
Electrical Controls	183183	-	06/15/77	06/24/77	C0303
Electrical Controls	184000	-	07/17/91	03/19/96	C0303
Electrical Controls	65190	FA	02/21/78	06/09/94	C0303
Electrical Controls	65460	-	02/27/76	05/01/86	C0303
Instrument Panel/Switch	190215	F1	12/01/83		C0202
Instrument Panel/Switch	190215	-	01/26/84	09/15/11	C0202
Instrument Panel/Switch	190217	G1	12/01/83	11/01/93	C0202
Instrument Panel/Switch	190217	-	01/31/84	09/17/01	C0202



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NOTE 1
 OPERATING PRESSURE TO BE SET AT 120⁺¹² P.S.I.
 FOR SERIES 4 ONLY

NOTE 2
 FOR ADDITIONAL PIPING SEE AIR TANK
 AND PIPING ASSY.

NOTE 3
 OPERATING PRESSURE TO BE SET AT 105⁺¹² P.S.I.
 FOR SERIES 1 & 3 ONLY

ITEM NO.	QTY	DESCRIPTION	BILL OF MATERIAL		REMARKS	ASSEMBLED USED ON
			LIBRITY PT. INCL.	MATERIAL		
1		BRACKET		11703		65595
1		SUPPORT		14448		65229
1		1 I.D. X 8 FT. I.L.G. HOSE		17556	SERIES 4 ONLY	65967
2		MOUNTING PAD		142361		65970
1		1/2 X 1/4 NUT BUSHING		288834		61868
1		PIPE COUPLING 1 x 3/4		377150		
2		3/4 X 90° ELBOW		406977		
1		3/8 X 1/4 CONNECTOR		429618		
1		1/4 HEX. NIPPLE		429622		
2		3/8 X 1/4 MALE CONNECTOR		429633	I.E. 268 P	
1		3/8 X 1/8 MALE CONNECTOR		429633	I.E. 269 P	
1		1/4 TUBE X 1/8 PIPE TEE		429918	I.E. 53 F	
AS FROM		3/8 PLASTIC TUBE		486056		
1		3/8 X 1/4 MALE ELBOW		429622		
1		3/4 X 3 LG. NIPPLE		542993		
1		3/4 X 5 LG. NIPPLE		542997		
1		PILOT UNLOADER		558902		
3		NIPPLE 3/4 X 1/8		543172		
1		1/4 TEE		679401		
AS FROM		3/8 COPPER TUBE		696216		
1		1 I.D. X 78 LG. HOSE		70104	SERIES 1 & 3	

DATE	6-1-77
PATTERN NO.	
CODE NO.	
DRAW. NO.	96516

POWER PLANT SUB-ASSY
COMPRESSOR - ENG. MTD
30 CFM FOR CUMMINS
VTA-1710-C700 ENGINE

SCALE	NONE
DR. R.L.K.	9
CHK. J.D.W.	15
APP. G.M.P.	19

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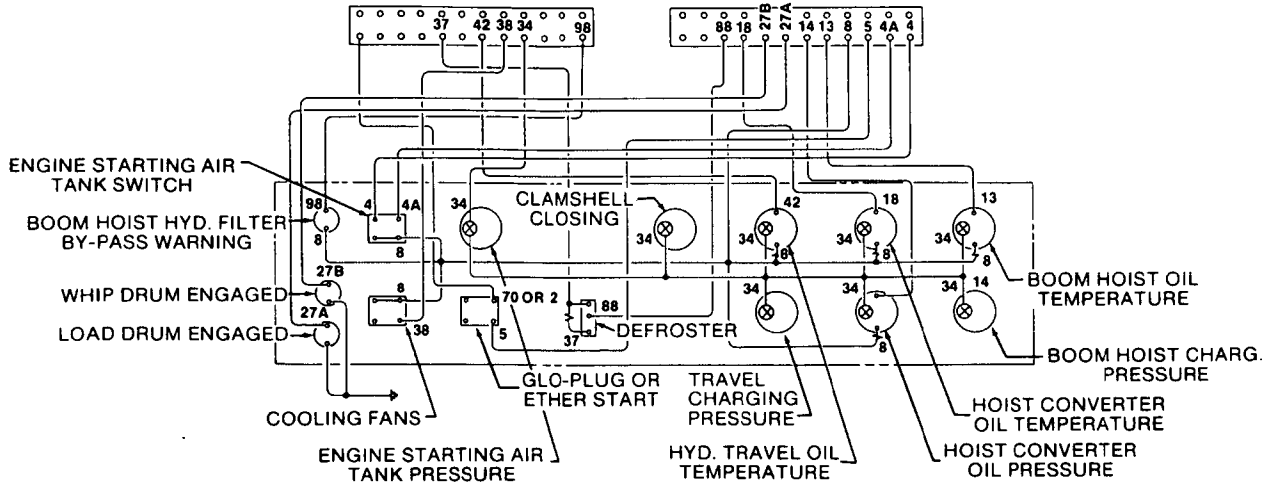
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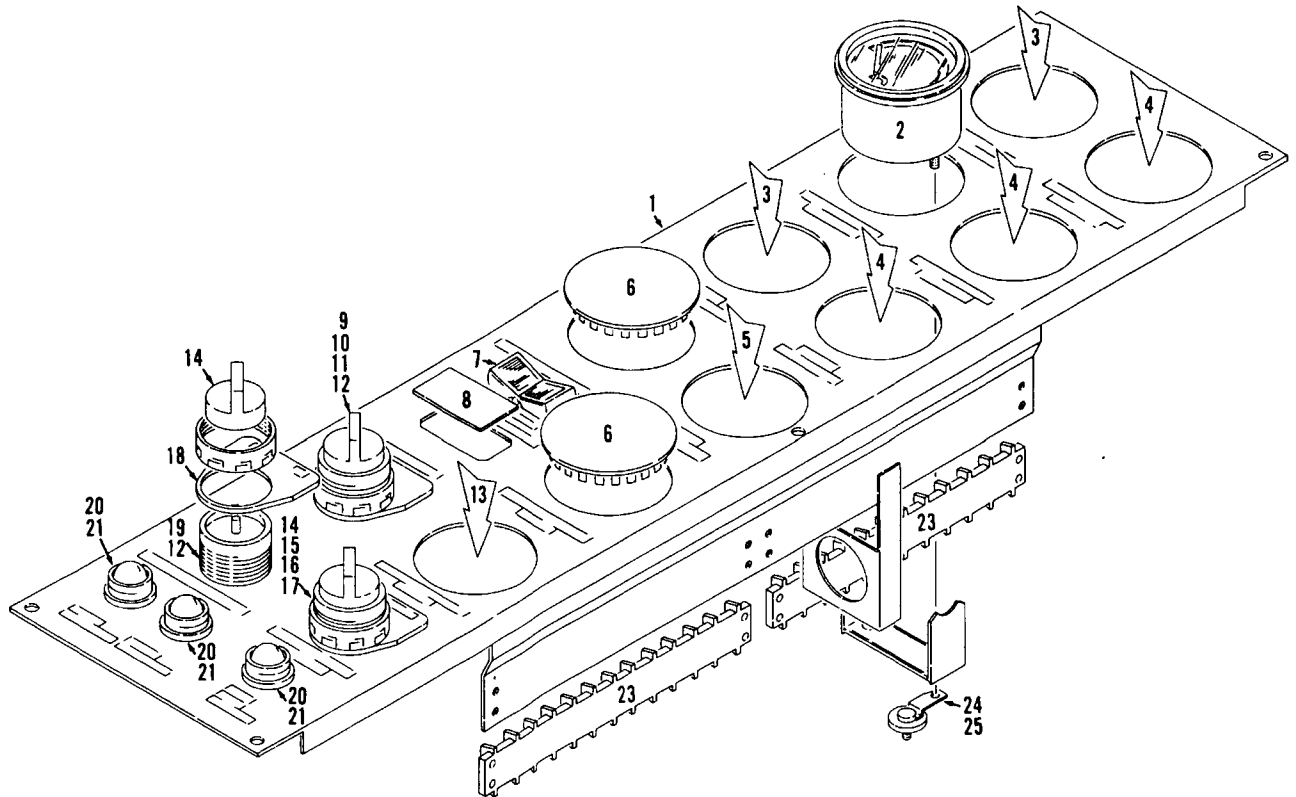


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WIRING DIAGRAM (REAR VIEW)



190215D1

MATERIAL LIST ON BACK

INSTRUMENT PANEL

PARTS MANUAL ALPHABETICAL INDEX
Group D - Power Components

DESCRIPTION	PUBLICATION	REV	START DATE	END DATE	GROUP
Battery Boxes	49935	-	06/08/93		D0104
Converter Control	181830	B1	09/28/72		D0601
Converter Piping	163133	-	12/13/83		D0701
Converter Piping	191298	-	09/11/80		D0701
Converter Piping	191455	-	08/04/81		D0701
Converter Piping	49756	L1	05/07/80		D0701
Converter Piping	94627	-	02/27/73		D0701
Engine & Clutch Control	95236	-	07/25/74		D0501
Engine Start	183301	-	09/08/77		D0105
Engine Wiring	182153	-	04/25/88		D0106
Engine Wiring	182305	-	05/01/75		D0106
Exhaust Stack	183032	A1	11/22/76		D0102
Hydraulic Pump/Engine Mounted	49739	G1	01/03/73		D0103
Instrument Panel/Engine	95183	G1	05/23/74		D0301
Power Lowering Control	32986	D1	01/14/64		D0803
Power Lowering Piping	49907	F1	07/17/78		D0802
Power Lowering Piping	65225	G1	01/09/74		D0802
Power Plant	181883	-	12/06/72		D0101
Power Plant	183025	-	11/18/76		D0101
Power Plant	183102	C1	01/12/77		D0101
Power Plant	183828	-	02/21/83		D0101
Power Plant	49728	G1	05/04/74		D0101
Power Plant	65115	F1	10/18/73		D0101
Power Plant	65115	A2	11/14/72		D0101
Power Plant	65115	-	10/18/73		D0101
Power Plant	65970	-	08/09/79		D0101
Power Take Off - Transmission Case	65106	I1	07/01/80		D0401
Power Take Off - Transmission Case	65106	G2	09/25/72		D0401
Power Take Off - Transmission Case	65106	D3	09/25/72		D0401

49756-1 Cont.	REV. L	MODEL 4600 S4
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CONVERTER AND TRANSMISSION CASE LUB. PIPING

REF. NO.	PART NUMBER	QUANTITY REQUIRED	DESCRIPTION OF PART	VENDORS PART NO.
56	544015	1	NIPPLE (3/4" x 30")	
57	566128	1	PIPE (3/4" x 3" - Thd. one end)	
58	571701	7	PLUG, Sq. Hd. Pipe (1/4")	
59	571704	1	PLUG, Sq. Hd. Pipe (3/4")	
60	543403	2	NIPPLE, Close (3/8")	
61	679304	3	TEE (3/4")	
62	679338	1	TEE (3/4" x 3/4" x 1/2")	
63	679342	1	TEE (3/4" x 1/2" x 1/2")	
64	679359	1	TEE (1" x 3/4" x 3/4")	
67	667086	1	STRAP, Pipe (3/4")	
68	543805	2	NIPPLE, (1" x 3")	
69	406784	1	ELBOW, 90° Street (1" x 3/4")	

Run as Front
MASTER

49756 K1 Cont.

REV. L	49756 - 1
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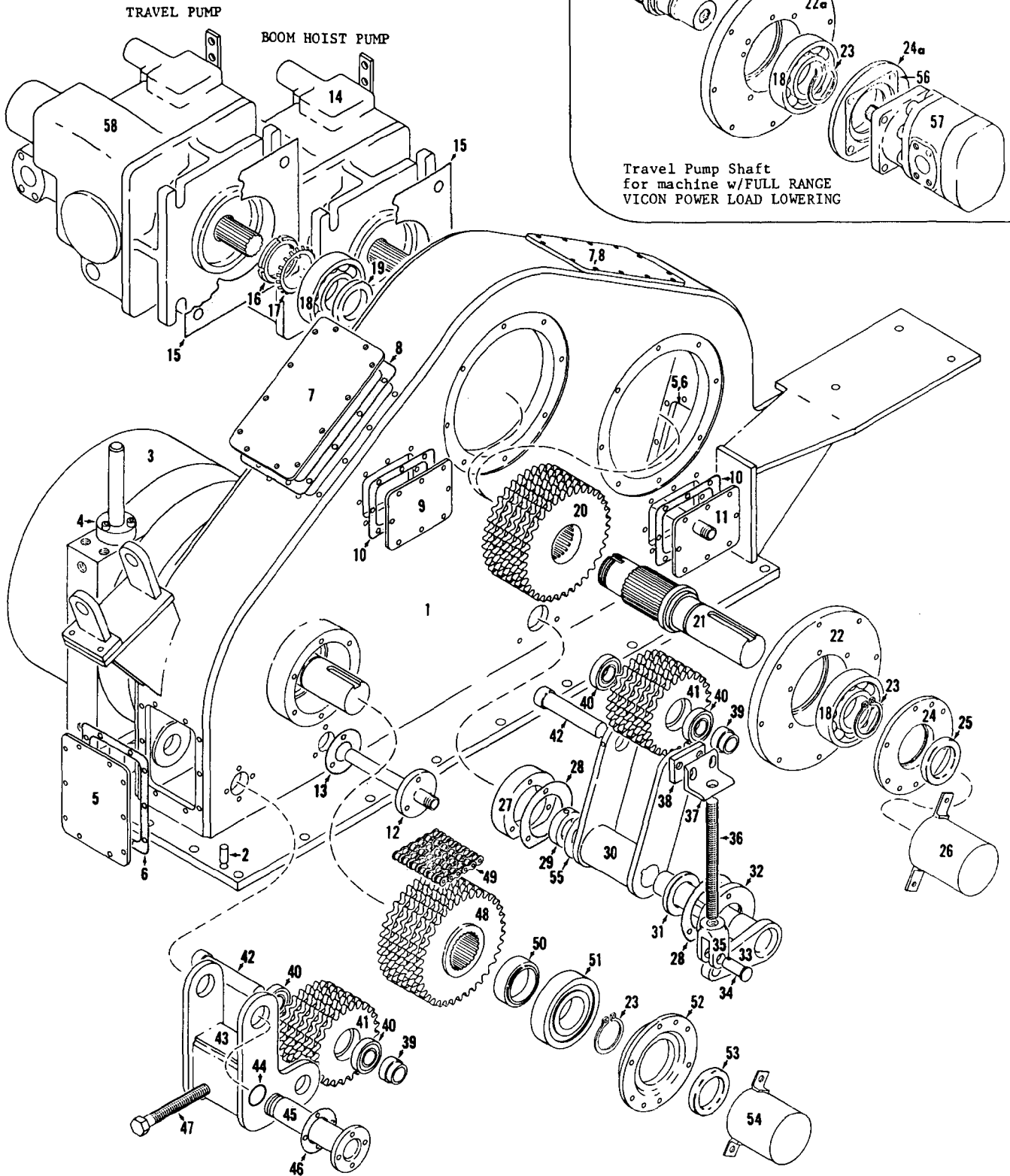
PLEASE GIVE MACHINE S/N W/ORDER

MANITOWOC ENGINEERING CO.

A Division of The Manitowoc Company, Inc.

Manitowoc, Wisconsin

MASTER

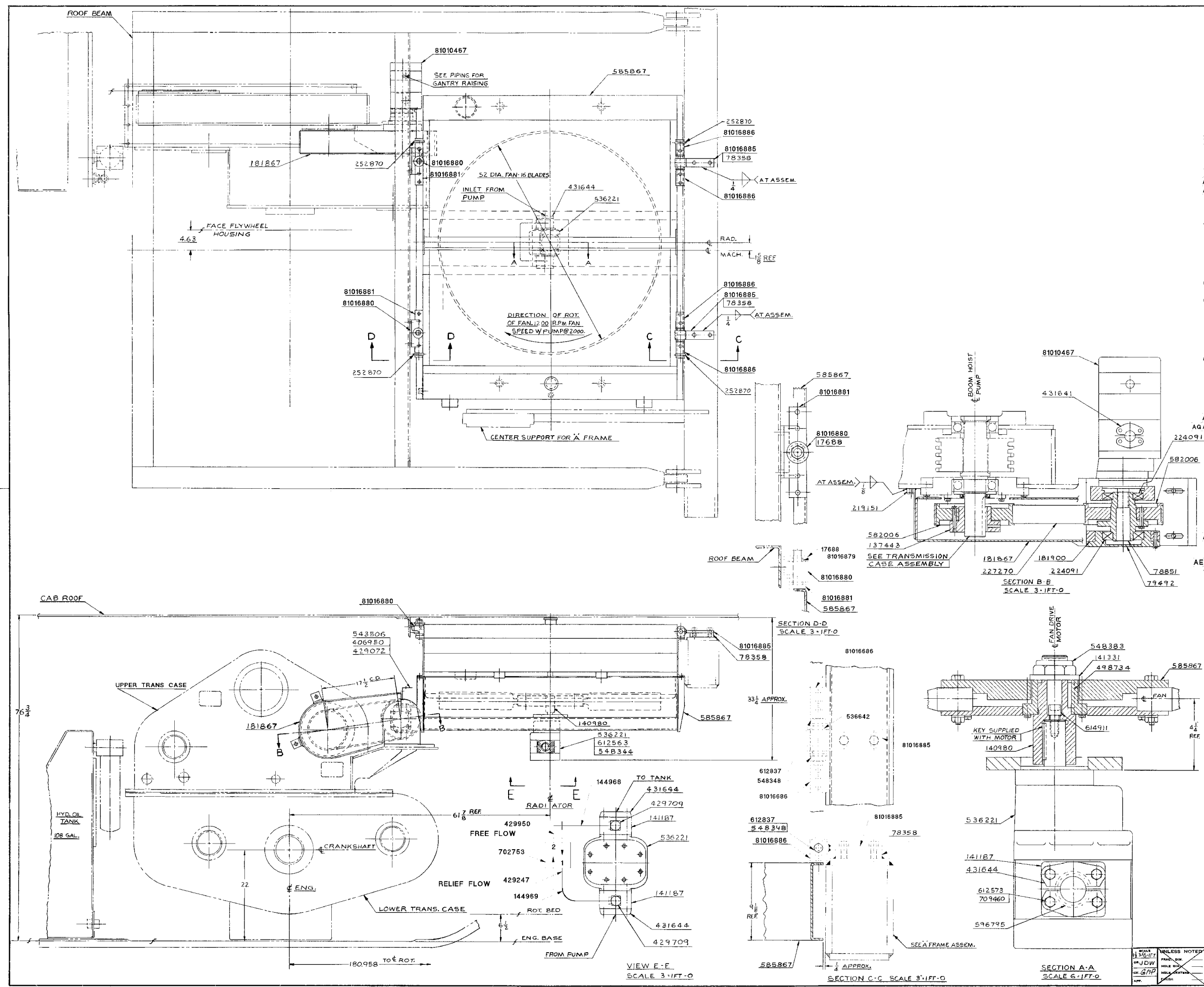


Travel Pump Shaft
for machine w/FULL RANGE
VICON POWER LOAD LOWERING

65106DZ

MATERIAL LIST ON BACK

UPPER TRANSMISSION CASE



BILL OF MATERIAL							ASSEMBLER
ITEM NO.	QTY.	DESCRIPTION	SIZE	MATERIAL	CODE NO.	REMARKS	USED ON
1							
2							
3							
4							
5							
2		WASHER			17688		
2		MOUNTING PAD			78358	2-28-74 JDW	
1		SHAFT			78851	2-28-74 JDW	
1		BEARING CAP			79492	2-28-74 JDW	
2		RADIATOR SUPPORT			81016881	2-28-74 JDW	
1		SHEAVE ADAPTOR			137443	2-28-74 JDW	
2		RADIATOR SUPPORT			81016885	2-28-74 JDW	
4		BRACKET			81016886	2-28-74 JDW	
2		RADIATOR SUPPORT			81016880	2-28-74 JDW	
1		COUPLING			140980	2-28-74 JDW	
2		ADAPTOR			141187	2-28-74 JDW	
2		TUBE			141188	2-28-74 JDW	
1		WASHER			141331	2-28-74 JDW	
1		TUBE			144968	2-28-74 JDW	
1		TUBE			144969	2-28-74 JDW	
1		GUARD			181867	2-28-74 JDW	
1		SUPPORT			181900	2-28-74 JDW	
1		RAD. SUB-ASSY-WATER LINE PIPING			182141	2-28-74 JDW	
1		RAD. SUB-ASSY-WATER LINE PIPING			183102	2-28-74 JDW	
2		MOUNTING PAD			219151	2-28-74 JDW	
1		RAD. SUB-ASSY-WATER LINE PIPING			184298	2-28-74 JDW	
2		BEARING			224091	2-28-74 JDW	
1		TIMING BELT MAUREY			227270	2-28-74 JDW	
4		1/2-13 UNC X 1 1/2 EYE BOLT			252870	2-28-74 JDW	
1		1/2 X 90° ELL			406950	2-28-74 JDW	
1		GREASE FITTING 1/2 X 90°			429072	2-28-74 JDW	
2		FITTING 90° ELL 12 X 12			429709	2-28-74 JDW	
2		FITTING 90° ELL 12 X 12			429812	2-28-74 JDW	
2		FLANGE ASSY 1 1/2			431644	2-28-74 JDW	
2		FLANGE ASSY 1 1/2			431644	2-28-74 JDW	
1		KEY 1/2 X 1/2 X 1 1/2 LG			498734	2-28-74 JDW	
1		FITTING 90° ELL			429950	2-28-74 JDW	
1		FITTING STR			429247	2-28-74 JDW	
1		HYDRAULIC MOTOR			536221	2-28-74 JDW	
2		RUBBER MOUNT-LORD			536642	2-28-74 JDW	
4		RUBBER MOUNT-LORD			81016879	2-28-74 JDW	
1		1/2 X 3 LG NIPPLE			543506	2-28-74 JDW	
4		1/2-13 UNC ELAS. STOP NUT			548344	2-28-74 JDW	
2		1-8 ELAS. STOP NUT			548348	2-28-74 JDW	
1		1/2-12 UNF-38 ELAS. STOP NUT			548383	2-28-74 JDW	
2		SHEAVE MAUREY			582006	2-28-74 JDW	
1		PUMP HYDR GEAR GANTRY			81010467	2-28-74 JDW	
1		RADIATOR-YOUNG D262027			585867	2-28-74 JDW	
2		O RING			596795	2-28-74 JDW	
2		HMCS 1-8 UNC X 5.00 GR 5			612837	2-28-74 JDW	
4		1/2-13 UNC-2A X 2 1/2 CAPSCREW			612563	2-28-74 JDW	
8		1/2-13 UNC-2A X 3 1/2 CAPSCREW			612573	2-28-74 JDW	
2		1-8 UNC-2A X 4 1/2 CAPSCREW			612835	2-28-74 JDW	
1		1/2-13 UNC-2A X 1 ALLEN HD. CAPSCREW			614911	2-28-74 JDW	
1		RELIEF VALVE			702753	2-28-74 JDW	
2		1/2 LOCKWASHER			709460	2-28-74 JDW	

NOTE 1
RADIATOR ASSEMBLY INCLUDES FAN, SHROUD GUARD AND HYDRAULIC MOTOR SUPPORT.

NOTE 2
FOR FAN PIPING SEE - HYDRAULIC PIPING ASSEMBLY FOR GANTRY LIFT DEVICE AND RADIATOR FAN.

SUPERSEDES 65115 OF 8-20-73.

MANITOWOC ENGINEERING CO. RADIATOR ASSEM-HORIZONTAL
HYD. FAN DRIVE (INCLUDES PUMP FOR GANTRY RAISING)
4600 SERIES 4

DATE: 10-18-73

65115

NOTE 3 SHORTEN LEVER TO 5.00 LENGTH BY CUTTING OFF 1.00 AT SMALL END AT ASSEMBLY.

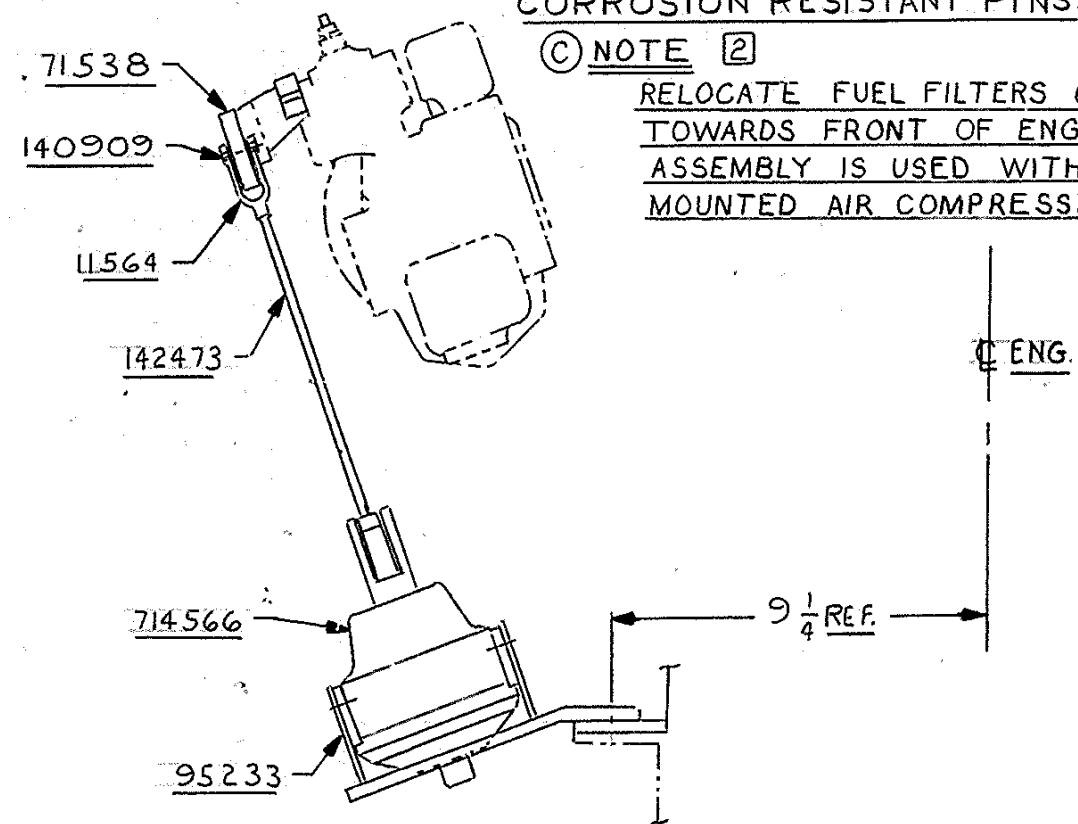
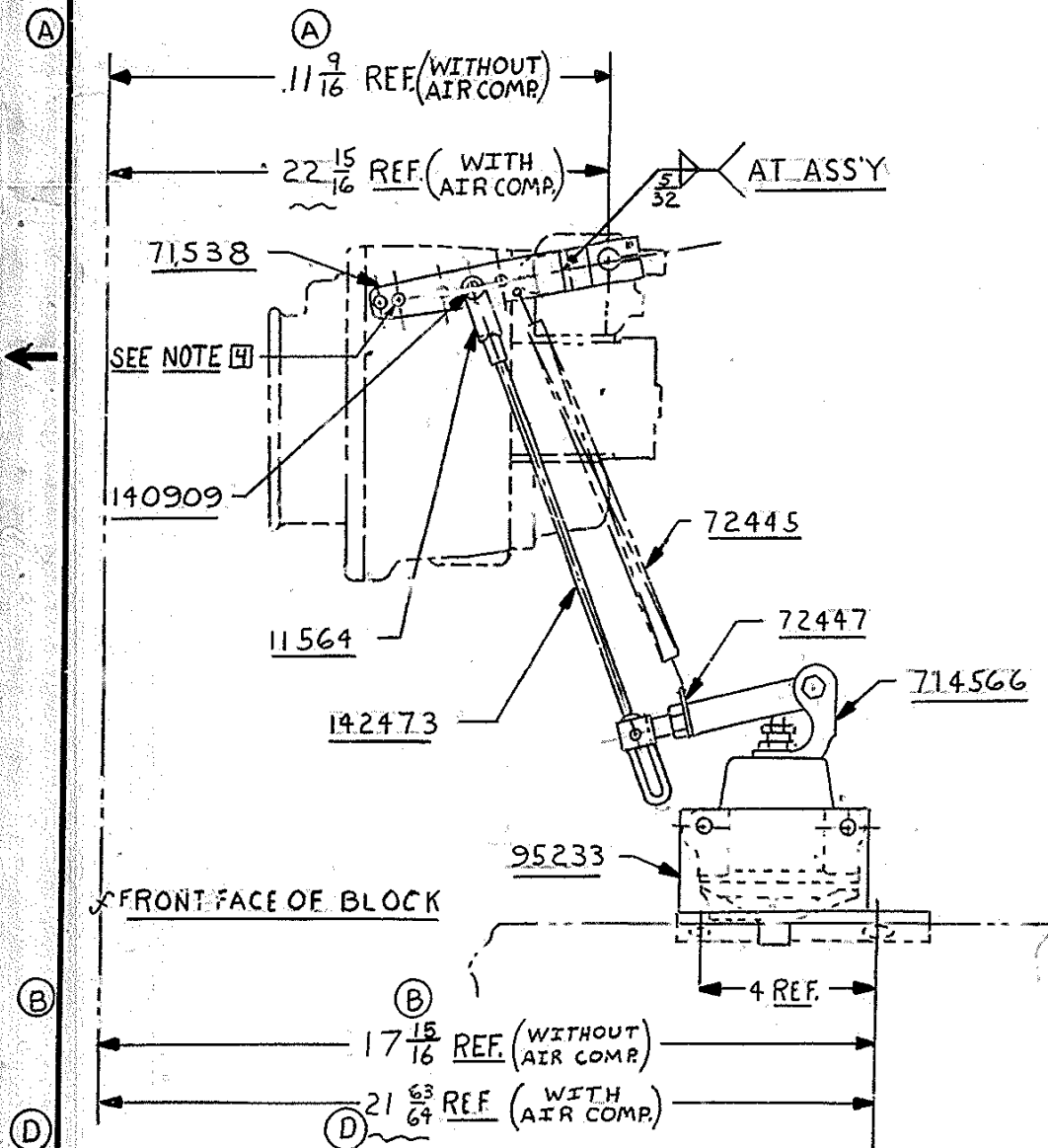
NOTE 4 PIN ROD END IN THIS HOLE FOR ENGINE WITH AIR COMPRESSOR. PIN AS SHOWN FOR ENGINE WITHOUT AIR COMPRESSOR.

BILL OF MATERIAL							REMARKS	ASSEMBLIES USED ON
ITEM NO.	NO. REQ'D	SECTION	DESCRIPTION	LENGTH FT. IN.		MATERIAL		
	1		ROD END				11564	
	1		LEVER				71538	SEE NOTE 3
	1		SPRING				72445	
	1		SPRING CLIP				72447	
	1		SUPPORT				95233	
	1		PIN				140909	
	1		ACTUATOR ROD				142473	
	1		W.H. ACTUATOR				714566	

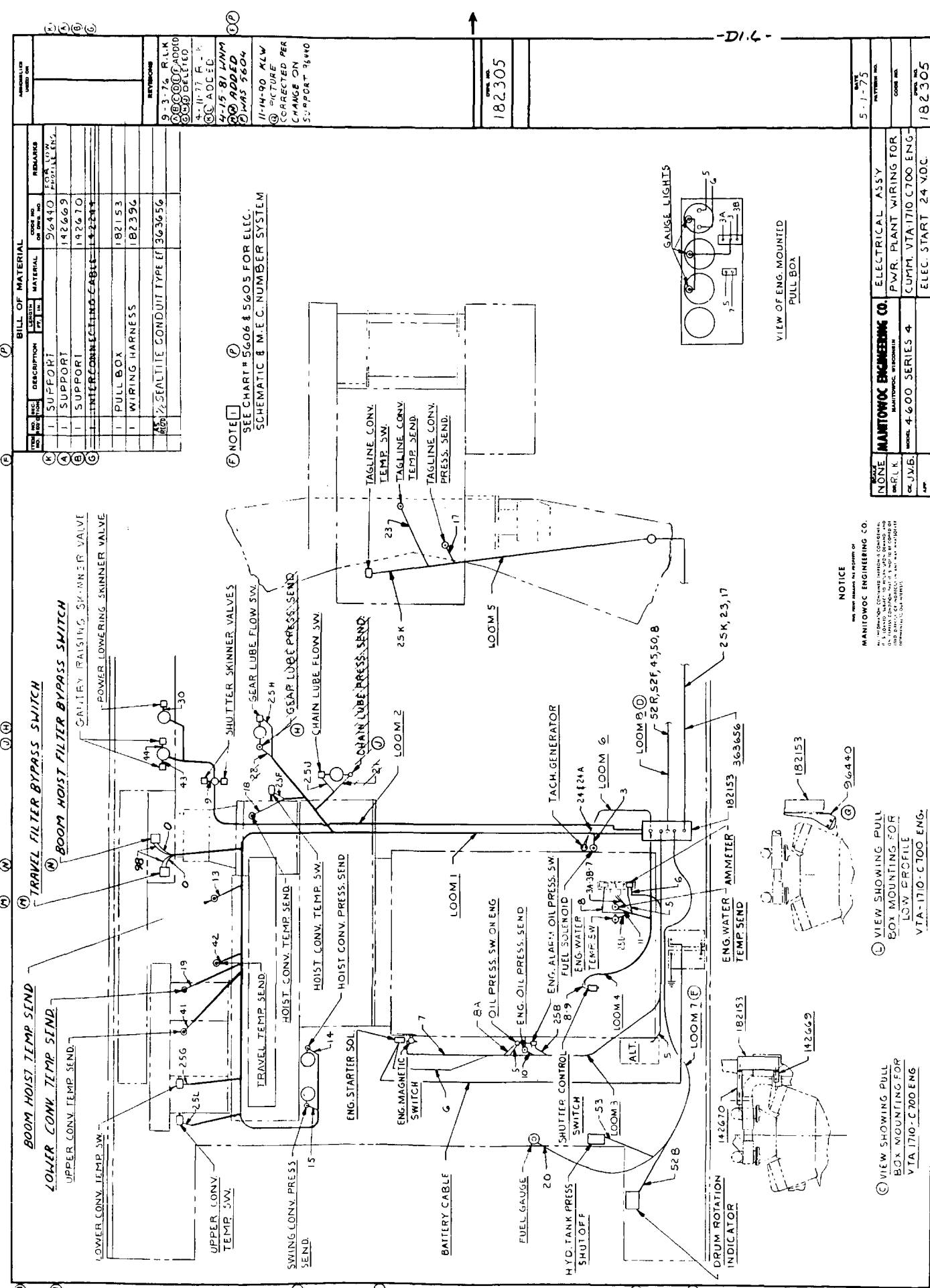
REVISIONS
 7-10-91 KB
 (A)(B)(C) ADDED
 10-29-91 KB
 NOTE 3, 4 ADDED
 (D) WAS 29 63/64

NOTE 1 THIS ASSEMBLY IS EQUIPPED WITH CORROSION RESISTANT PINS.

NOTE 2 RELOCATE FUEL FILTERS ONE SET OF HOLES TOWARDS FRONT OF ENGINE WHEN THIS ASSEMBLY IS USED WITHOUT ENGINE MOUNTED AIR COMPRESSOR.



SCALE 3=1 FT	DWG. NO. 95236	MANITOWOC ENGINEERING CO. MANITOWOC, WISCONSIN	ENGINE CONTROL ASSEMBLY FOR GOVERNOR - AIR - CUMM. VTA-28-C800	DATE 7-25-74
DR. R.L.K.	CK. J.V.B.	MODEL 4600 SERIES 1,3 & 4		PATTERN NO.
APP. GMP				CODE NO.
				DWG. NO. 95236



BILL OF MATERIAL

NO.	DESCRIPTION	QTY.	UNIT	MATERIAL	REMARKS
K	1 SUPPORT	96440	LOC. 1077	96440	FOR LUMEN. CHASSIS LENS.
A	1 SUPPORT	142669		142669	
B	1 SUPPORT	142670		142670	
C	1 INTERCONNECTING CABLE	142284		142284	
	1 PULL BOX	182153		182153	
	1 WIRING HARNESS	182396		182396	
	ASSEMBLY SEALTIE CONDUIT TYPE ET	363656		363656	

NOTE 1
SEE CHART # 5606 & 5605 FOR ELEC. SCHEMATIC & M.E.C. NUMBER SYSTEM

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MANITOWOC ENGINEERING CO.

DATE: NONE
 DRAWN BY: R.L.K.
 CHECKED BY: J.V.B.
 TITLE: ELECTRICAL ASSY
 PROJECT: PWR. PLANT WIRING FOR
 DRAWING NO.: CUMM. VTA-1710-C700-ENG.
 SERIES: 4-600 SERIES 4
 SCALE: ELEC. START 24-VDC.

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 IS STRICTLY PROHIBITED.

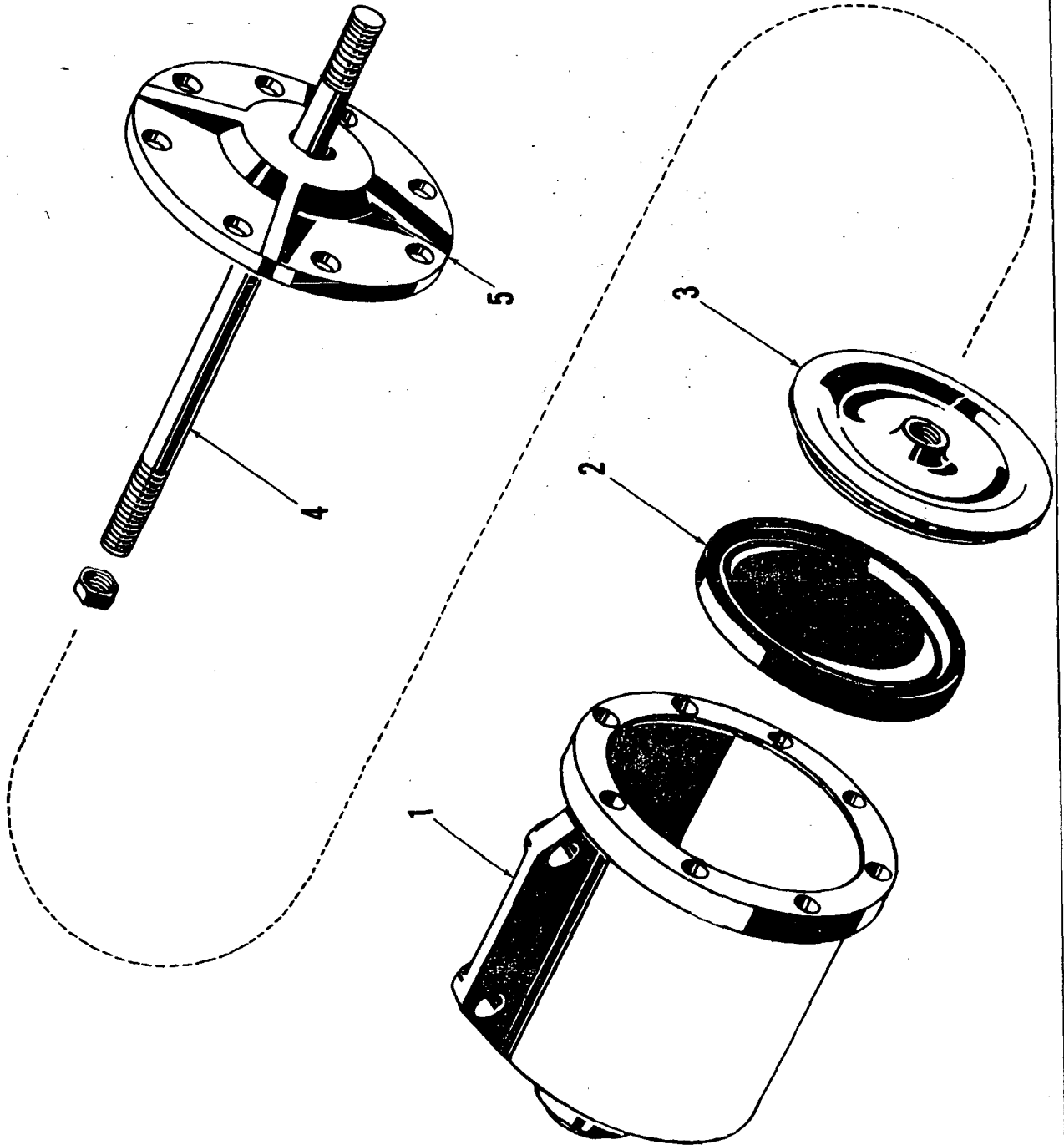
(A) VIEW SHOWING PULL BOX MOUNTING FOR LOW PROFILE VTA-1710-C700-ENG.

(B) VIEW SHOWING PULL BOX MOUNTING FOR VTA-1710-C700-ENG.

MANITOWOC ENGINEERING CO.

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Manitowoc, Wisconsin



ILLUST. No. 20729 -A-1

MATERIAL LIST ON BACK

AIR CYLINDER

207291.

MADE

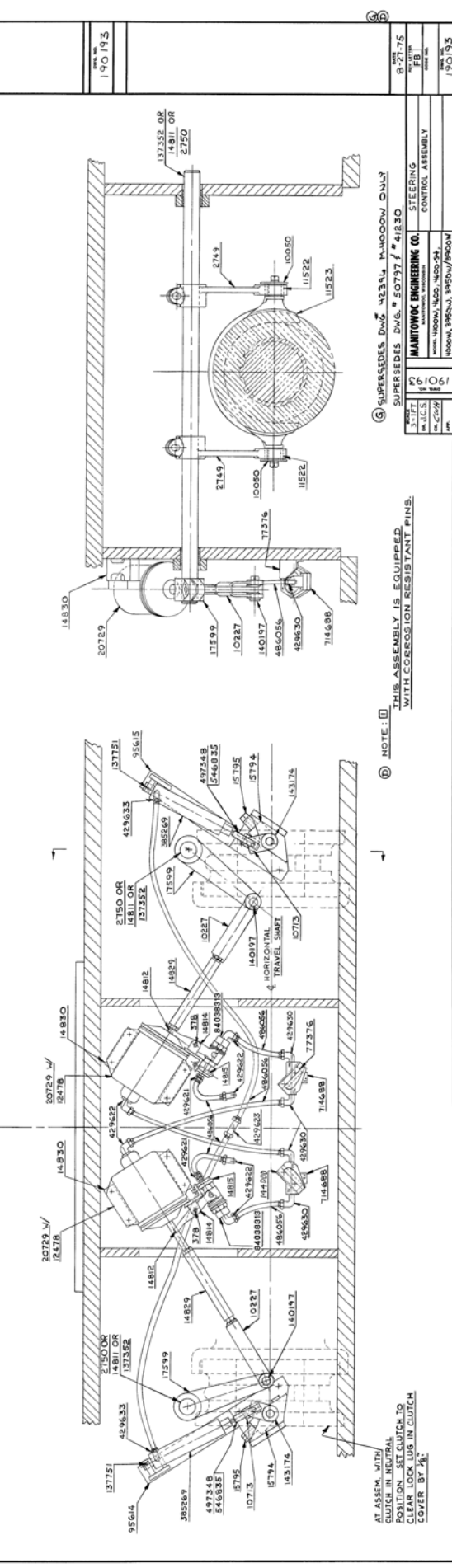
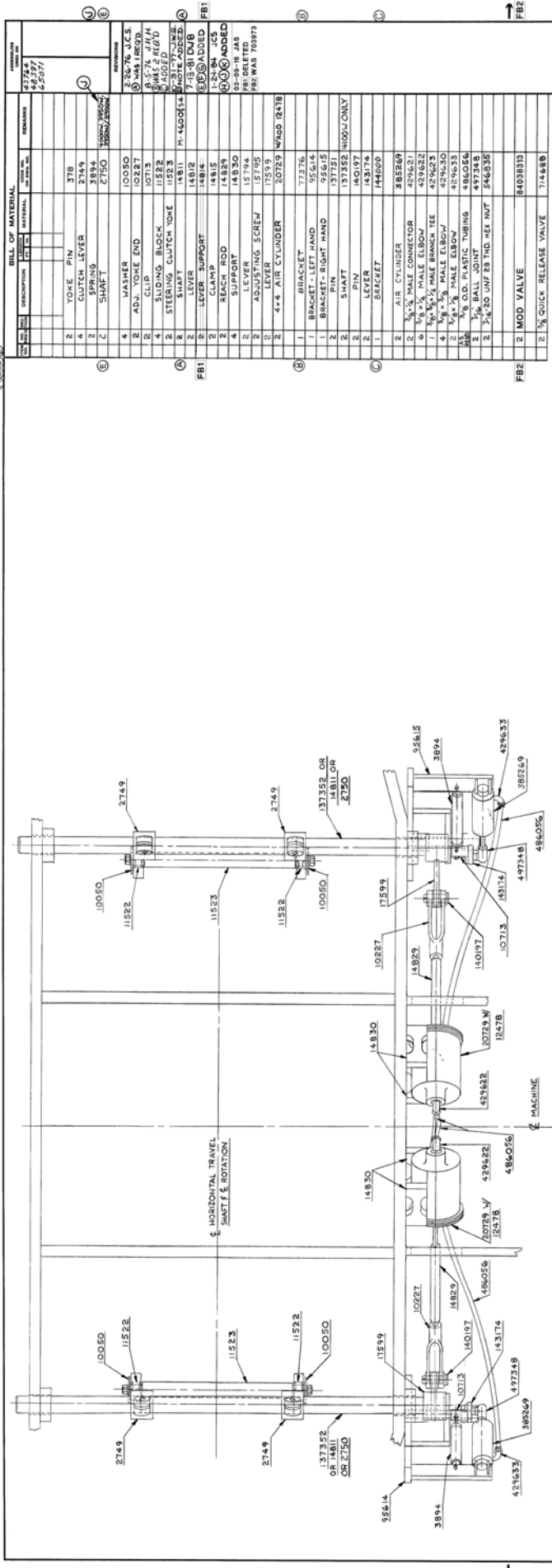
65064	REV. J	MODEL 4600 SERIES 4-5
-------	--------	-----------------------

30'5" CRAWLERS
(QUANTITIES FOR BOTH CRAWLERS)

REF. NO.	PART NUMBER	QUANTITY REQUIRED	DESCRIPTION OF PART	VENDORS PART NO.
			<p><u>NOTE 1:</u> Oversize pin #147301 (2-1/16" dia.) is available to replace pin #15378 (2" dia.)</p> <p><u>NOTE 2:</u> Bushings #14308, 14309 or 146255 to have grease groove open end facing centerline of crawler frame.</p> <p><u>NOTE 3:</u> Chain used prior to change of April 20, 1981. (Check Specification Sheet for Chain Used)</p>	
22	335357	2	CHAIN, Drive Roller (60 P. - 6.0" pitch)	
	509079	120	LINK, Chain	
22	335358	2	CHAIN, Drive Roller (60 P. - 6.0" pitch)	
	509086	120	LINK, Chain	
			<p><u>NOTE 4:</u> Chain used prior to design change of Jan. 12, 1983</p>	
22	335351	2	CHAIN, Drive Roller (60 P. - 6'0" pitch)	
			<p><u>NOTE 5:</u> Chain 335375 to be installed W/open end toward driving sprocket 31477</p> <p><u>Note 6:</u> For crawler chain (#335375) use replacement crawler chain link and pin (#509116) and additional pin (#563540)</p>	
			<p align="right">0-471</p>	
			REV. J	65064

PLEASE GIVE MACHINE S/N W/ORDER

1600E



QTY	DESCRIPTION	UNIT	REMARKS
2	YOKE PIN	378	
4	CLUTCH LEVER	2749	
2	SPRING	3894	
2	SHAFT	2750	
4	WASHER	10050	
2	ADJ. YOKE END	10227	
2	CLIP	10713	
4	SLIDING BLOCK	11522	
2	STEERING CLUTCH YOKE	11523	
2	SHAFT	14811	
2	WASHER	14812	
2	LEVER SUPPORT	14815	
2	CLAMP	14815	
2	REACH ROD	14825	
4	SUPPORT	14830	
2	LEVER	15794	
2	ADJUSTING SCREW	15794	
2	LEVER	15794	
2	4.4 AIR CYLINDER	20729	W/OD (4.78)
1	BRACKET	77376	
1	BRACKET - LEFT HAND	05614	
1	BRACKET - RIGHT HAND	13735	
2	SHAFT	137352	NOOD ONLY
2	PIN	140197	
2	LEVER	143174	
1	BRACKET	144609	
2	AIR CYLINDER	385269	
2	3/8" MALE CONNECTOR	429621	
6	3/8" MALE ELBOW	429622	
1	3/8" MALE BRANCH TEE	429623	
2	3/8" MALE ELBOW	429630	
2	3/8" MALE ELBOW	429631	
1	3/8" O.D. PLASTIC TUBING	486056	
2	BALL JOINT	497348	
2	1/4" 30 UNF 28 THD. MET. NUT	546335	
2	MOD. VALVE	84038310	
2	1/2" QUICK RELEASE VALVE	714688	

DATE: 8-27-75
 DRAWN BY: FB
 CHECKED BY: FB
 190193

NOTE: THIS ASSEMBLY IS EQUIPPED WITH CORROSION RESISTANT PINS.

AT ASSEM. WITH CLUTCH IN NEUTRAL POSITION SET CLUTCH TO COVER CLUTCH IN CLUTCH COVER BY 1/2".

DO NOT SCALE THIS DRAWING

MANITOWOC ENGINEERING CO.
 1000 W. 100TH AVE., WISCONSIN, U.S.A.
 190193

PARTS MANUAL ALPHABETICAL INDEX
Group F - Attachments

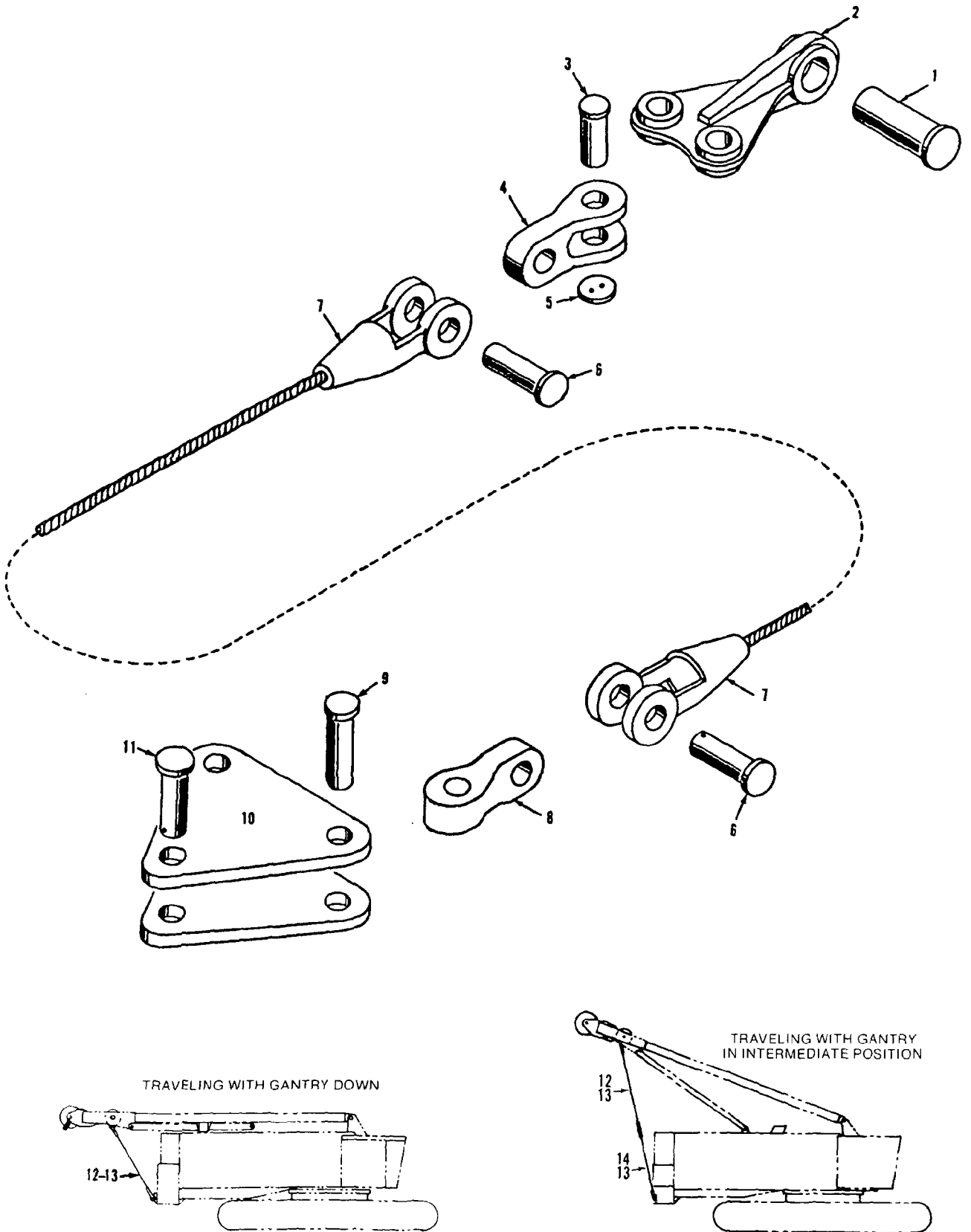
DESCRIPTION	PUBLICATION	REV	START DATE	END DATE	GROUP
Backhitch & Gantry	66115	B1	12/15/80	05/16/91	F1001
Block Travel Limiter	163614	-	06/17/88	11/11/98	F1602
Block Travel Limiter	164674	A1	12/20/84	04/05/94	F1602
Block Travel Limiter	164674	FA	12/20/84	11/11/98	F1602
Block Travel Limiter	168090	-	09/23/88	09/27/95	F1602
Block Travel Limiter	168090	-	09/23/88	05/09/96	F1602
Boom	65234	C1	12/04/73	04/18/86	F0101
Boom	65234	B2	12/04/73	04/18/86	F0101
Boom	65234	E3	12/04/73	04/18/86	F0101
Boom	65234	J4	12/04/73	04/18/86	F0101
Boom	65234	-	12/04/73	10/06/09	F0101
Boom Angle Indicator	22334	B1	01/07/52	09/20/85	F1101
Boom Point	94395	A1	10/06/72	11/09/72	F0401
Boom Stop, Clutch Throw-Out	191212	-	08/08/80	11/13/80	F0201
Boom Stop, Mechanical	171601	-	05/21/91		F0202
Equalizer/Pull-Out	181787	B1	08/16/72	10/27/80	F0601
Gantry Lifting Device	190030	-	07/26/74	05/21/91	F1002
Gantry Lifting Device	65197	C1	07/19/73	06/29/84	F1002
Hook & Weight Ball	97302	C1	09/08/78	01/09/81	F1401
Jib	181869	G1	11/15/72	02/07/85	F1301
Jib Backstay	182020	B1	06/06/73	02/07/85	F1302
Jib Backstay	95062	A1	03/05/74		F1302
Jib Rope Guide/Roller	75251	-	02/07/64	06/01/67	F1303
Wire Rope Guide	181794	D1	09/20/72	05/09/80	F0701
Wire Rope Guide	181858	A1	02/03/73	04/13/73	F0701
Wire Rope Roller Guide	73385	D1	05/10/62	09/13/79	F0801
Wire Rope Roller Guide	73907	D1	12/06/62	09/13/79	F0801

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Division of The Manitowoc Company, Inc.

Manitowoc, Wisconsin 54220

F1.1



65234B3

MATERIAL LIST ON BACK

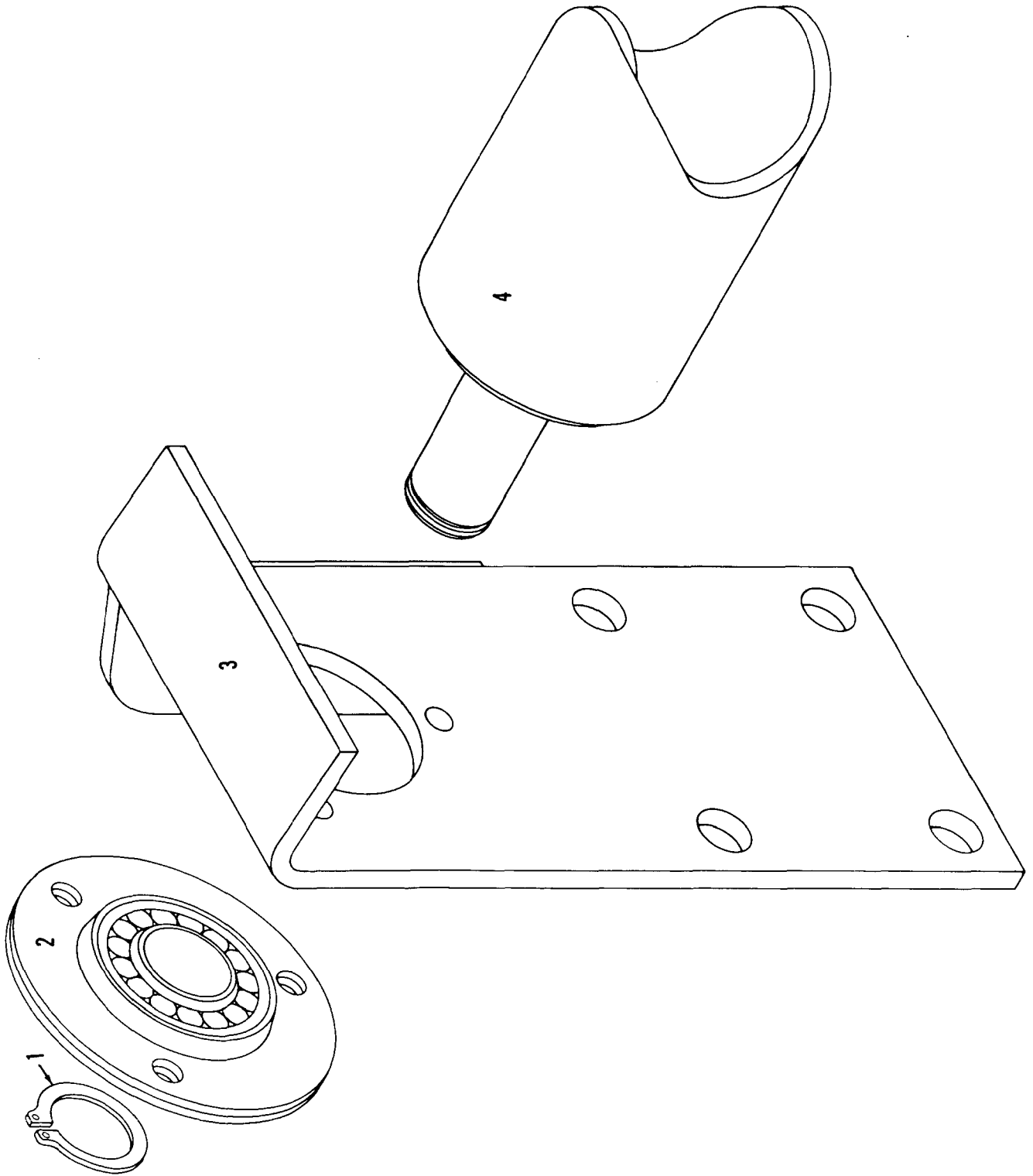
PENDANTS and CONNECTIONS

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MASTER



77728A1

MATERIAL LIST ON BACK

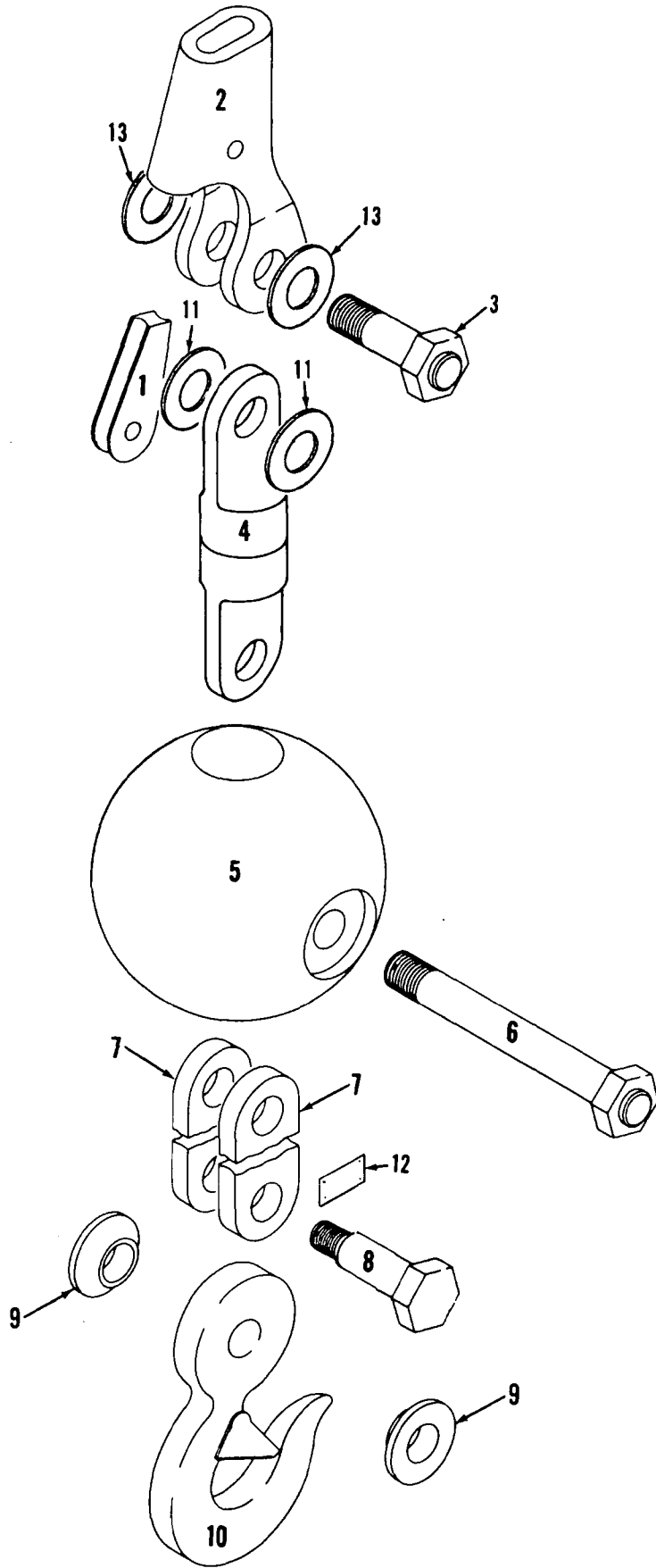
CABLE ROLLER GUIDE ASSEMBLY

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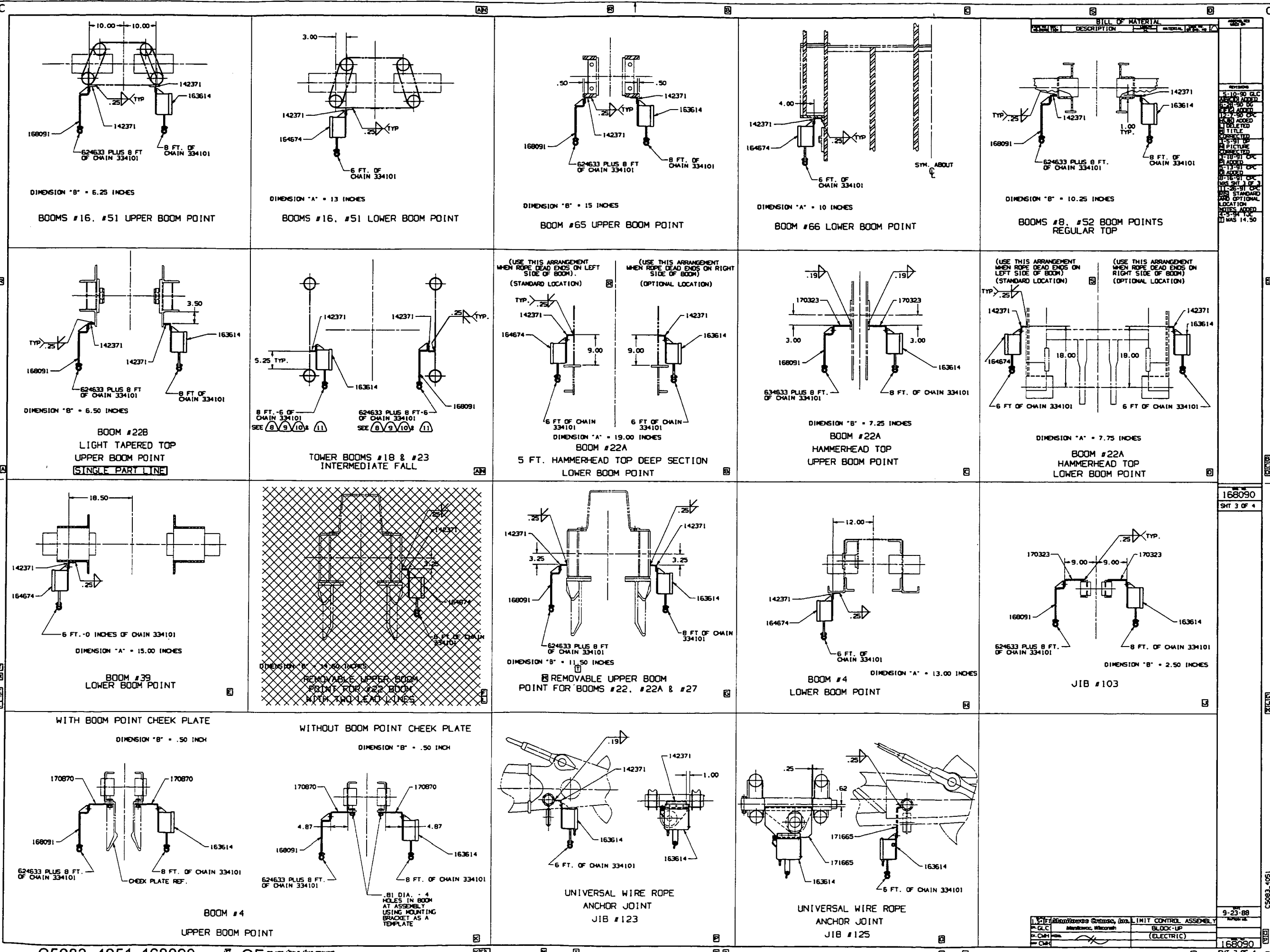
MASTER



97302A1

MATERIAL LIST ON BACK

HOOK AND WEIGHT BALL



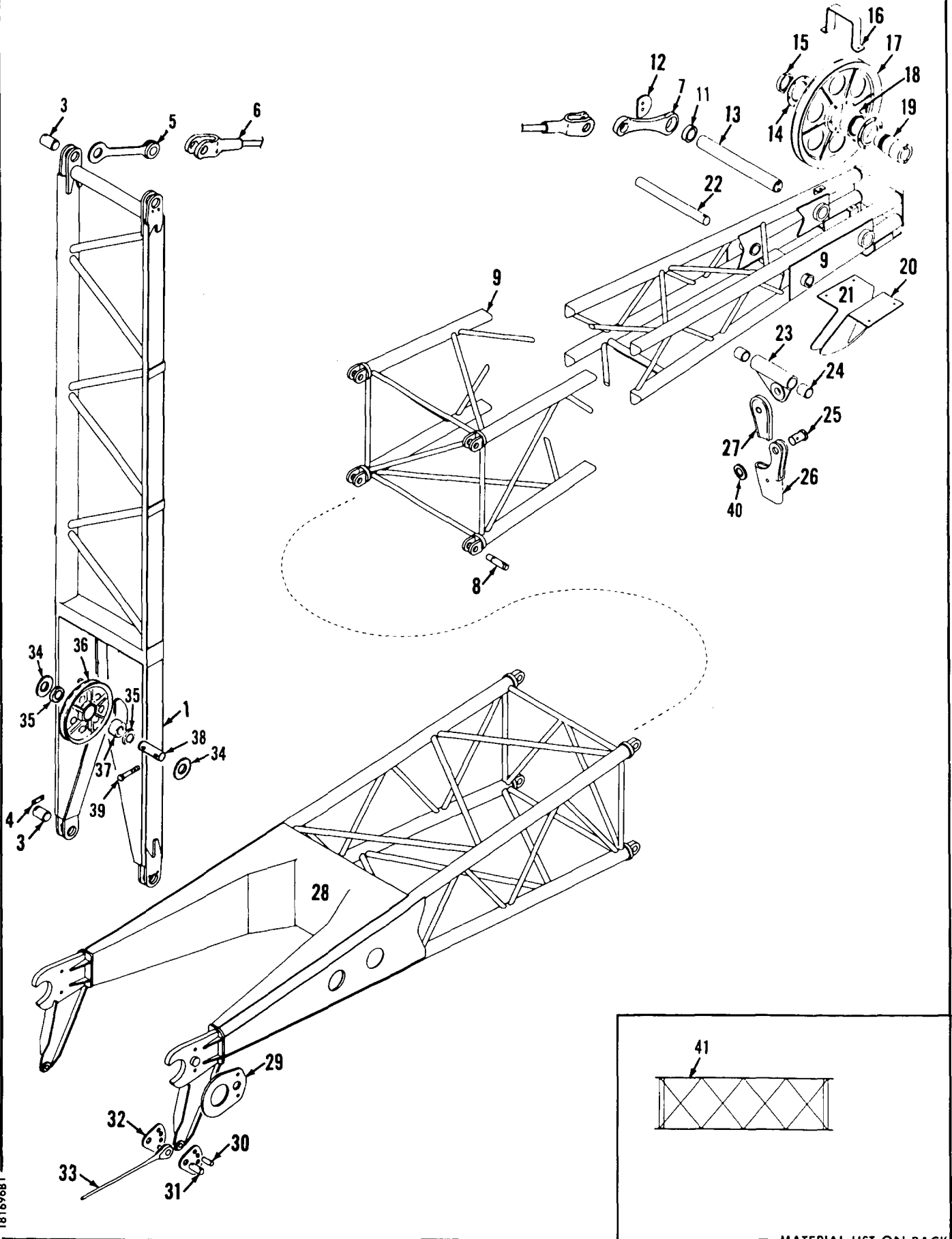
REV.	DESCRIPTION	MATERIAL	DATE
1	5-10-80 G.L.C. BLOCK-UP ADDED		
2	6-2-80 G.L.C. BLOCK-UP ADDED		
3	11-2-80 G.L.C. BLOCK-UP ADDED		
4	11-2-80 G.L.C. BLOCK-UP ADDED		
5	11-2-80 G.L.C. BLOCK-UP ADDED		
6	11-2-80 G.L.C. BLOCK-UP ADDED		
7	11-2-80 G.L.C. BLOCK-UP ADDED		
8	11-2-80 G.L.C. BLOCK-UP ADDED		
9	11-2-80 G.L.C. BLOCK-UP ADDED		
10	11-2-80 G.L.C. BLOCK-UP ADDED		
11	11-2-80 G.L.C. BLOCK-UP ADDED		
12	11-2-80 G.L.C. BLOCK-UP ADDED		
13	11-2-80 G.L.C. BLOCK-UP ADDED		
14	11-2-80 G.L.C. BLOCK-UP ADDED		
15	11-2-80 G.L.C. BLOCK-UP ADDED		
16	11-2-80 G.L.C. BLOCK-UP ADDED		
17	11-2-80 G.L.C. BLOCK-UP ADDED		
18	11-2-80 G.L.C. BLOCK-UP ADDED		
19	11-2-80 G.L.C. BLOCK-UP ADDED		
20	11-2-80 G.L.C. BLOCK-UP ADDED		

1. LIMIT CONTROL ASSEMBLY	9-23-88
2. BLOCK-UP	
3. (ELECTRIC)	

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Manitowoc, Wisconsin



18169681

MATERIAL LIST ON BACK

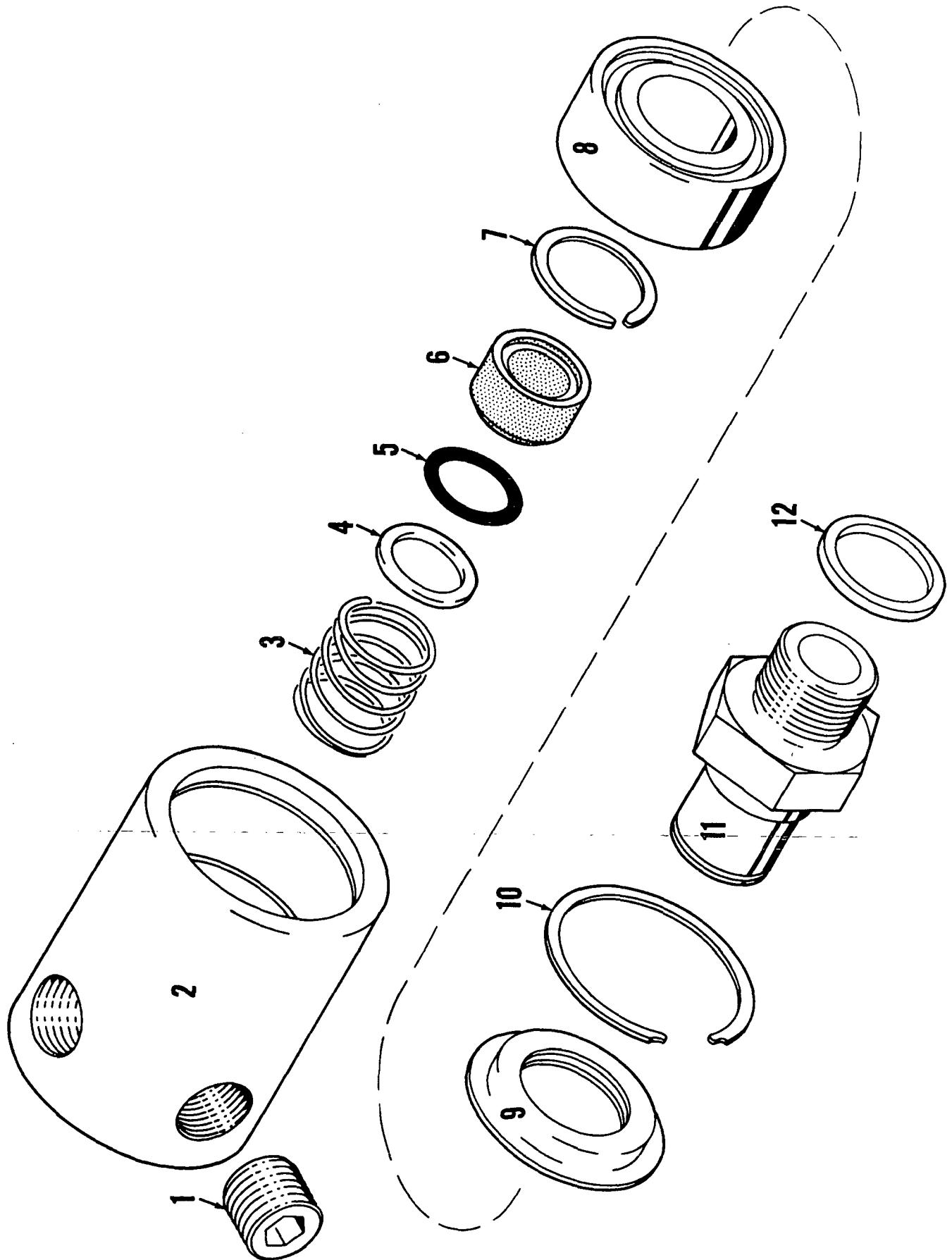
J1B

O-Number

MASTER

0-112 A

Q-112A1



MATERIAL LIST ON BACK

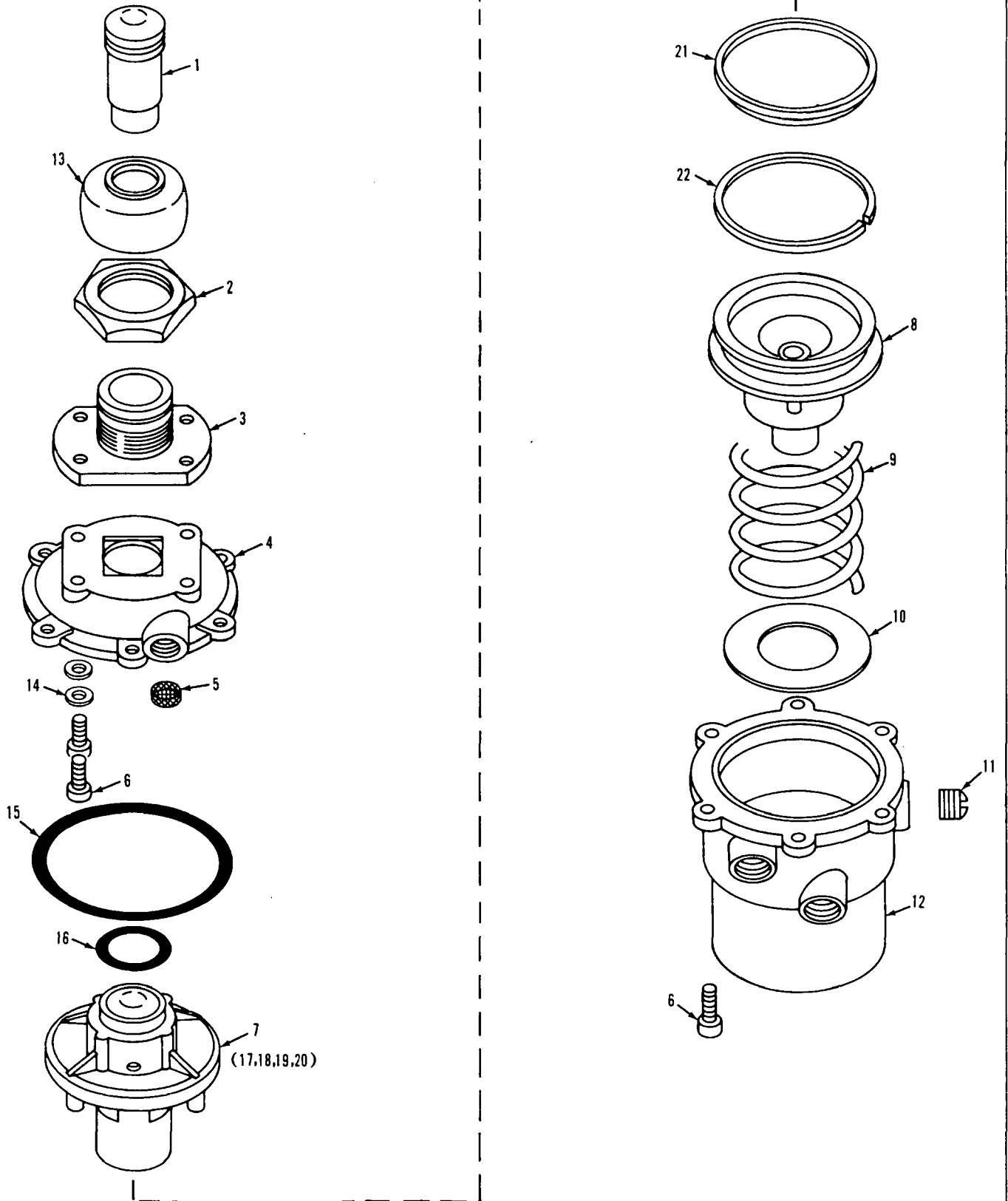
SWIVEL UNION

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MASTER

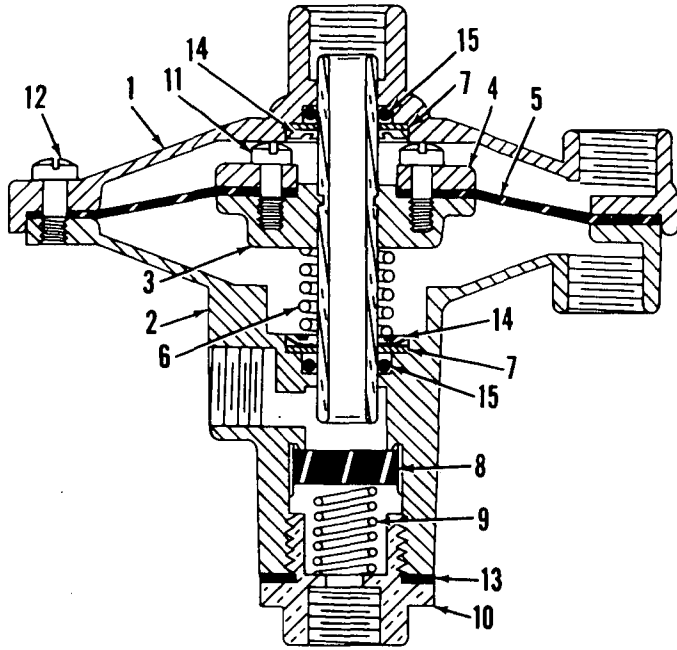


0-247-18

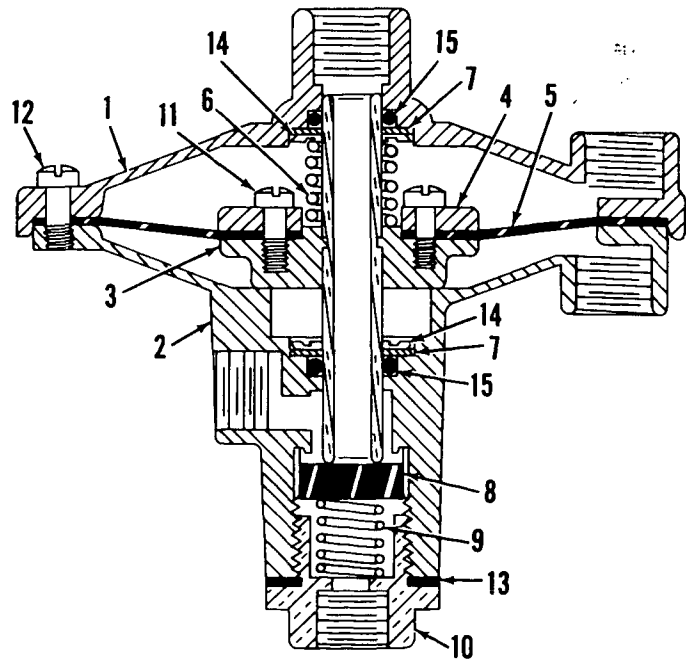
MATERIAL LIST ON BACK

Control Valve

MASTER

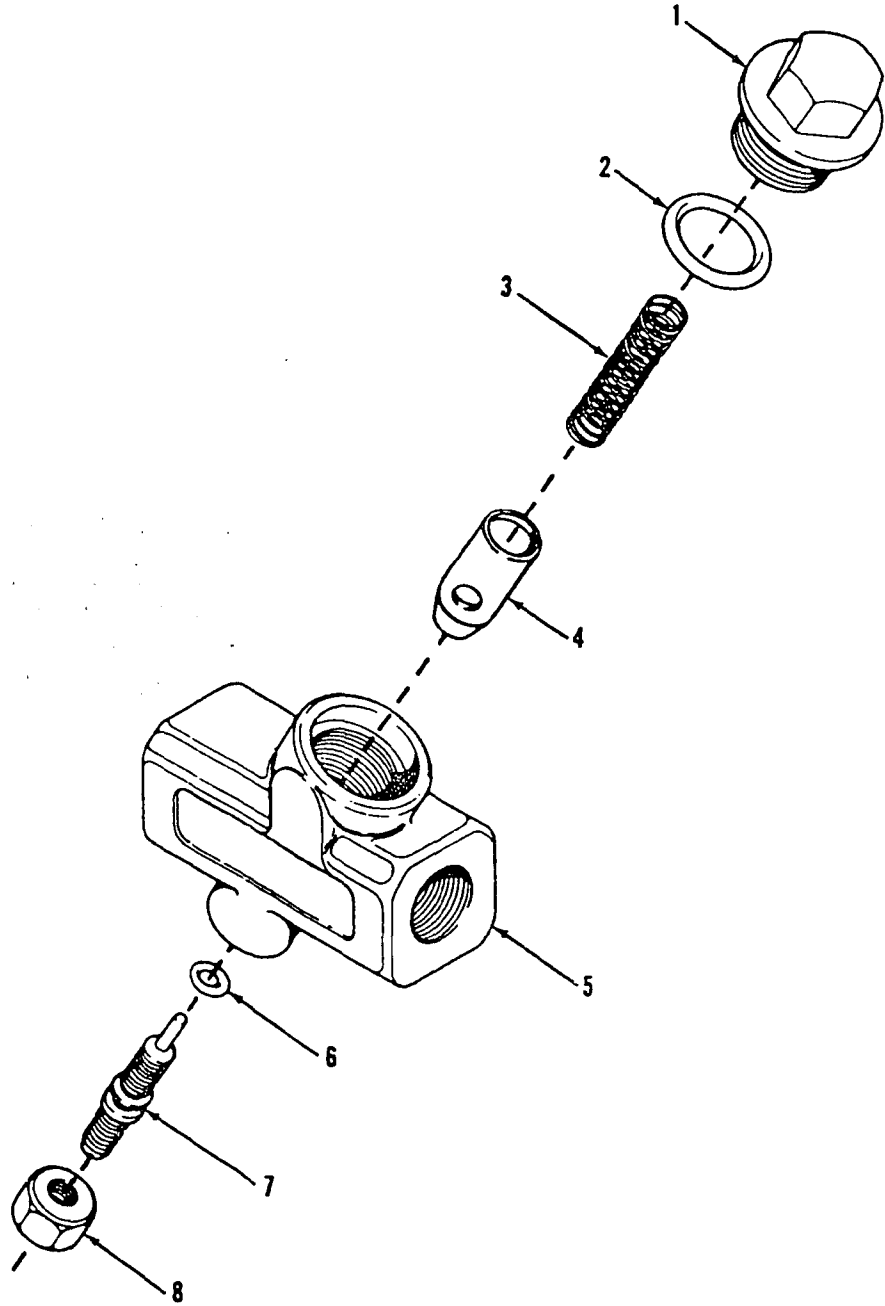


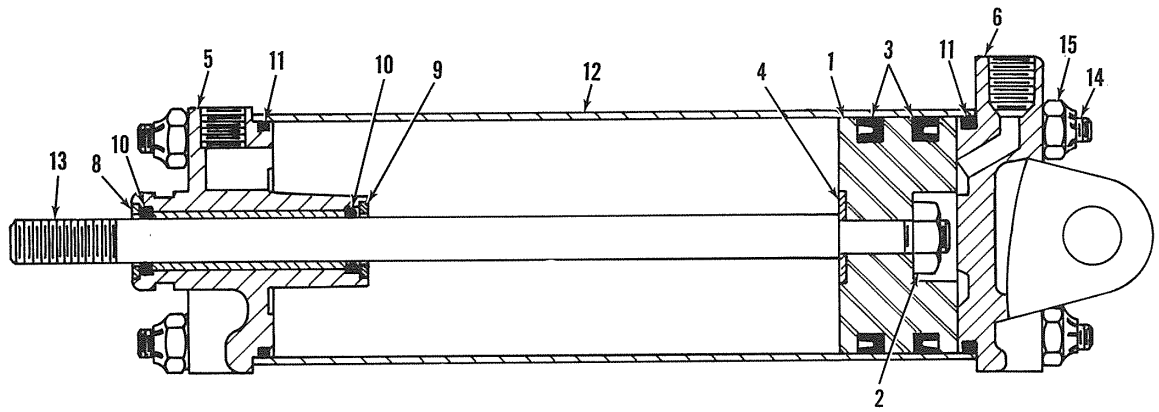
Normally Closed



Normally Open

WASIEK



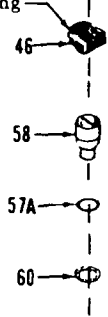


ASSEMBLY	REVISION
O-414	B

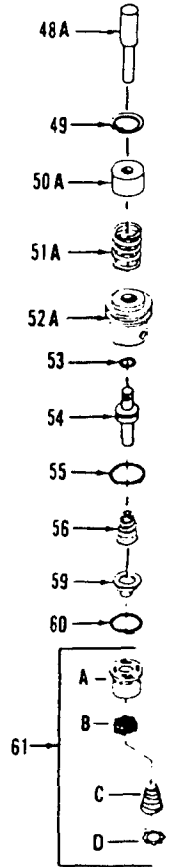
AIR CYLINDER

Cavity Plugged

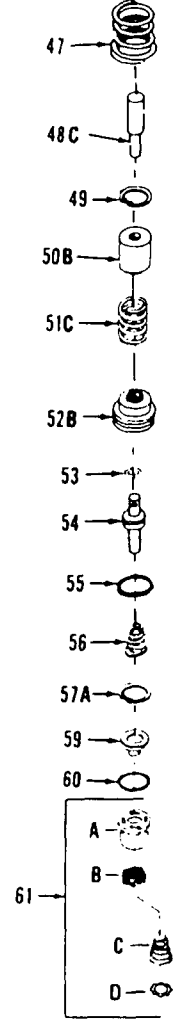
Fasten to Housing
Ref. #32



3 Way Valve



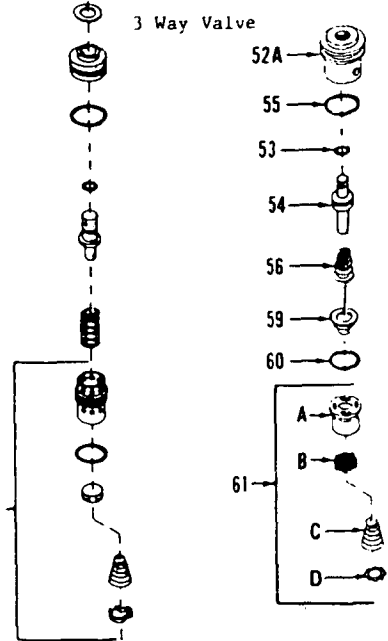
Modulating Valve



REPAIR AND CONVERSION KITS

Obsolete

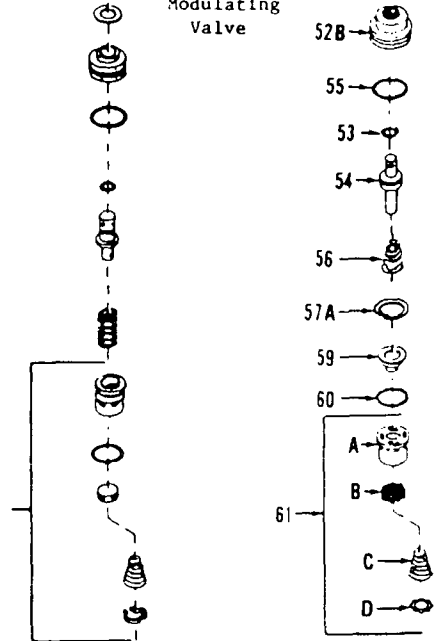
Replace With



Obsolete

Modulating Valve

Replace With

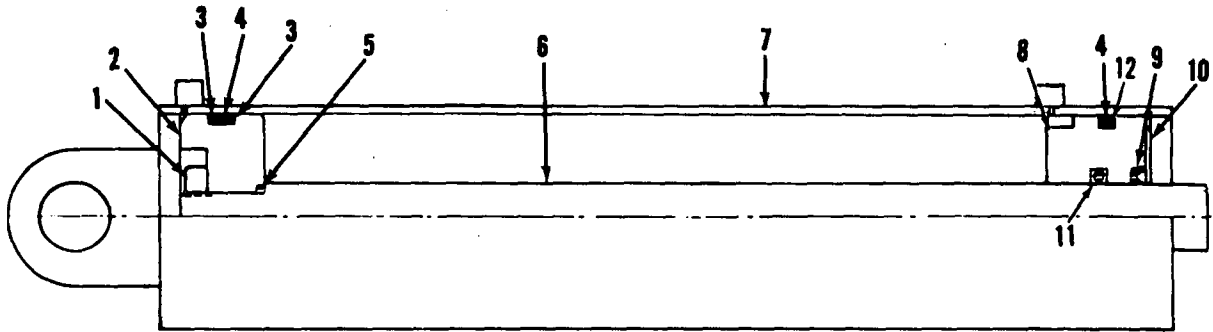


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MASTER

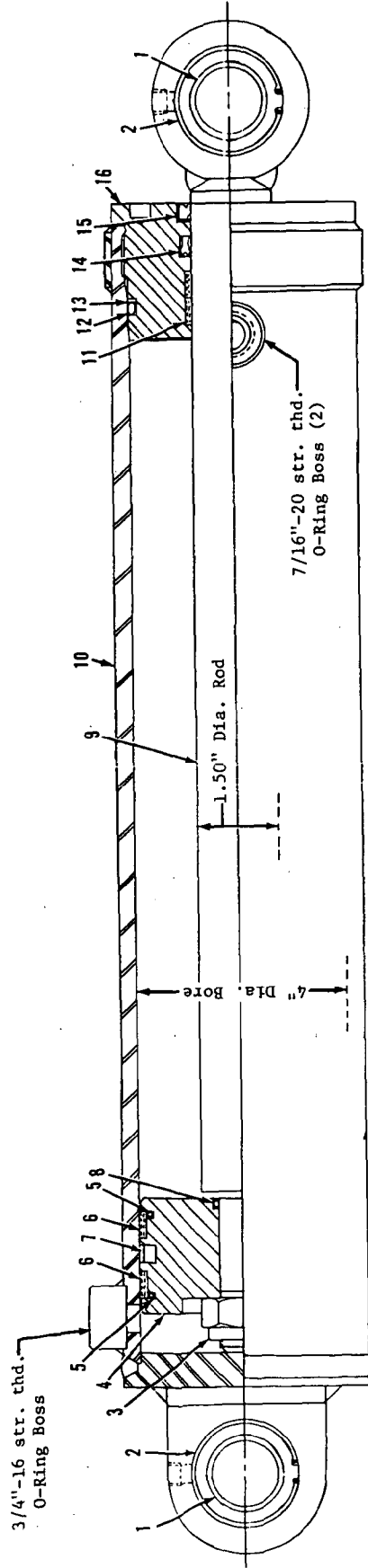


O-462A1

MATERIAL LIST ON BACK

AIR CYLINDER

MASTER



0-475-1A

MATERIAL LIST ON BACK

Hyd. Cylinder

HYDRAULIC VALVES

Replacement Valve Parts For Manitowoc Lattice Boom Cranes.

ASSEMBLY	REVISION
O-750	P

PARTS DRAWINGS REFERENCE

20729
21359
22635
33019
33522
93059
93251
93560
94879
95822
95823
163669
182297
182343
182345
182455
182873
182880
183210
190217

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