

APPENDIX B

EIMCO CLARIFIER INSTALL ERECTION INFORMATION

WARNING

ANY WORK PERFORMED ON THIS MACHINE MUST BE DONE IN STRICT COMPLIANCE WITH THE LOCAL OCCUPATIONAL HEALTH AND SAFETY ACT. IT IS THE RESPONSIBILITY OF THE SUPERVISOR TO SEE THAT ALL ASPECTS OF THIS ACT ARE FOLLOWED.

DO NOT USE UNAUTHORIZED REPLACEMENT PARTS OF LESSER QUALITY OR ALTER DESIGN OF EQUIPMENT SUPPLIED, DORR-OLIVER EIMCO WILL NOT BE RESPONSIBLE FOR ANY ALTERATIONS OR CHANGES UNLESS WRITTEN APPROVAL HAS BEEN GRANTED BY THE COMPANY.

WARNING

REGULAR MAINTENANCE AND REPAIR ARE NECESSARY FOR SAFE AND RELIABLE OPERATION OF THIS EQUIPMENT. FAILURE TO PERFORM SUCH SERVICE CAN RESULT IN POSSIBLE HAZARDS TO PERSONNEL AND EQUIPMENT.

FOR YOUR PERSONAL SAFETY AND THE SAFETY OF OTHERS:

READ CAREFULLY ALL INSTRUCTIONS BEFORE ATTEMPTING TO ASSEMBLE, INSTALL, MAINTAIN, OPERATE OR REPAIR THIS EQUIPMENT.

FOR YOUR PERSONAL SAFETY AND THE SAFETY OF OTHERS:

1. **DO NOT ENTER, CLIMB ON OR OFF MOVING MACHINES.**
2. **DO NOT CHANGE LUBRICANT OR LUBRICATE GREASE FITTINGS ON MOVING PARTS UNTIL MACHINE HAS STOPPED.**
3. **DO NOT OPERATE THIS MACHINE WITHOUT PROPER ELECTRICAL GROUNDING OF THE MOTORS AND STRUCTURAL FRAME. ALL ELECTRICAL WORK MUST COMPLY WITH LOCAL CODES. FAILURE TO DO THIS WILL RESULT IN A HAZARDOUS ELECTRICAL SYSTEM THAT COULD CAUSE FATAL HUMAN INJURY OR DAMAGE TO THE MOTOR.**

4. **DO NOT RUN MACHINE WITHOUT REQUIRED GUARDS IN PLACE.** (BELT, CHAIN, COUPLING OR OTHER). INSURE THAT MOTOR CANNOT BE STARTED WITH GUARDS REMOVED FOR DRIVE SERVICE.

FOR YOUR PERSONAL SAFETY AND THE SAFETY OF OTHERS:

5. **DO NOT MAKE ADJUSTMENTS OR REPAIRS ON THE MACHINE UNTIL THE POWER SUPPLY HAS BEEN DISCONNECTED AND LOCKED TO PREVENT MECHANISM MOVEMENT OR ELECTRICAL SHOCK.**
6. **DO NOT ENTER OR CLIMB UPON OPEN AREAS OF TANK TOPS, TANKS, BOXES OR MECHANISM WITHOUT APPROPRIATE PLATFORMS AND SAFETY RAILS IN PLACE.**
7. **DO NOT ENTER AN EMPTY TANK FOR MAINTENANCE UNTIL ELECTRIC POWER AND FEED HAS BEEN SHUT OFF AND LOCKED. WHEN THE MACHINE HAS A LIFTING DEVICE, FULLY LOWER THE MECHANISM. AS AN ALTERNATE, THE RAKES COULD BE ADEQUATELY BLOCKED UP ALONG THEIR ENTIRE LENGTH.**



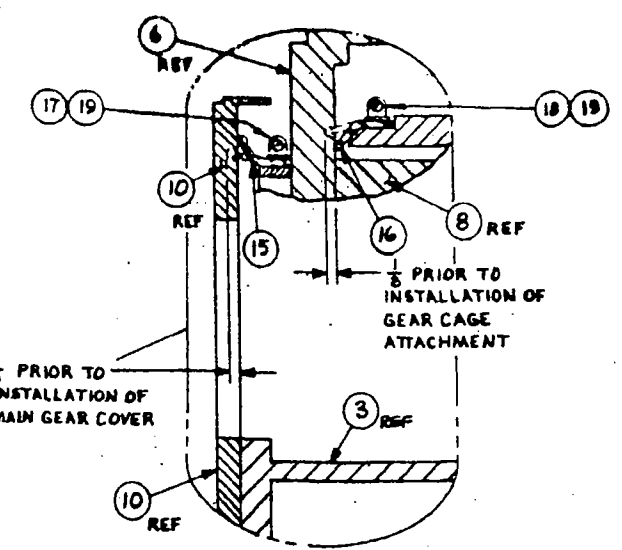
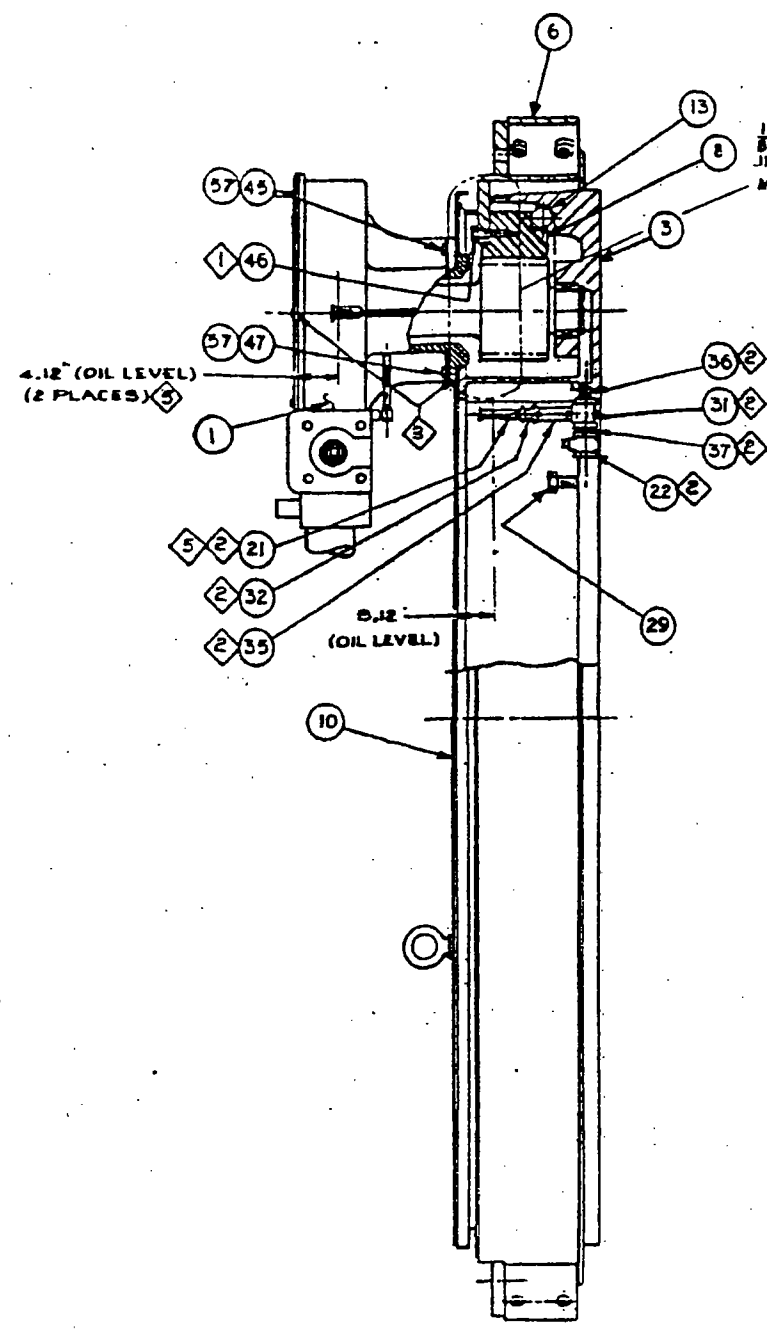
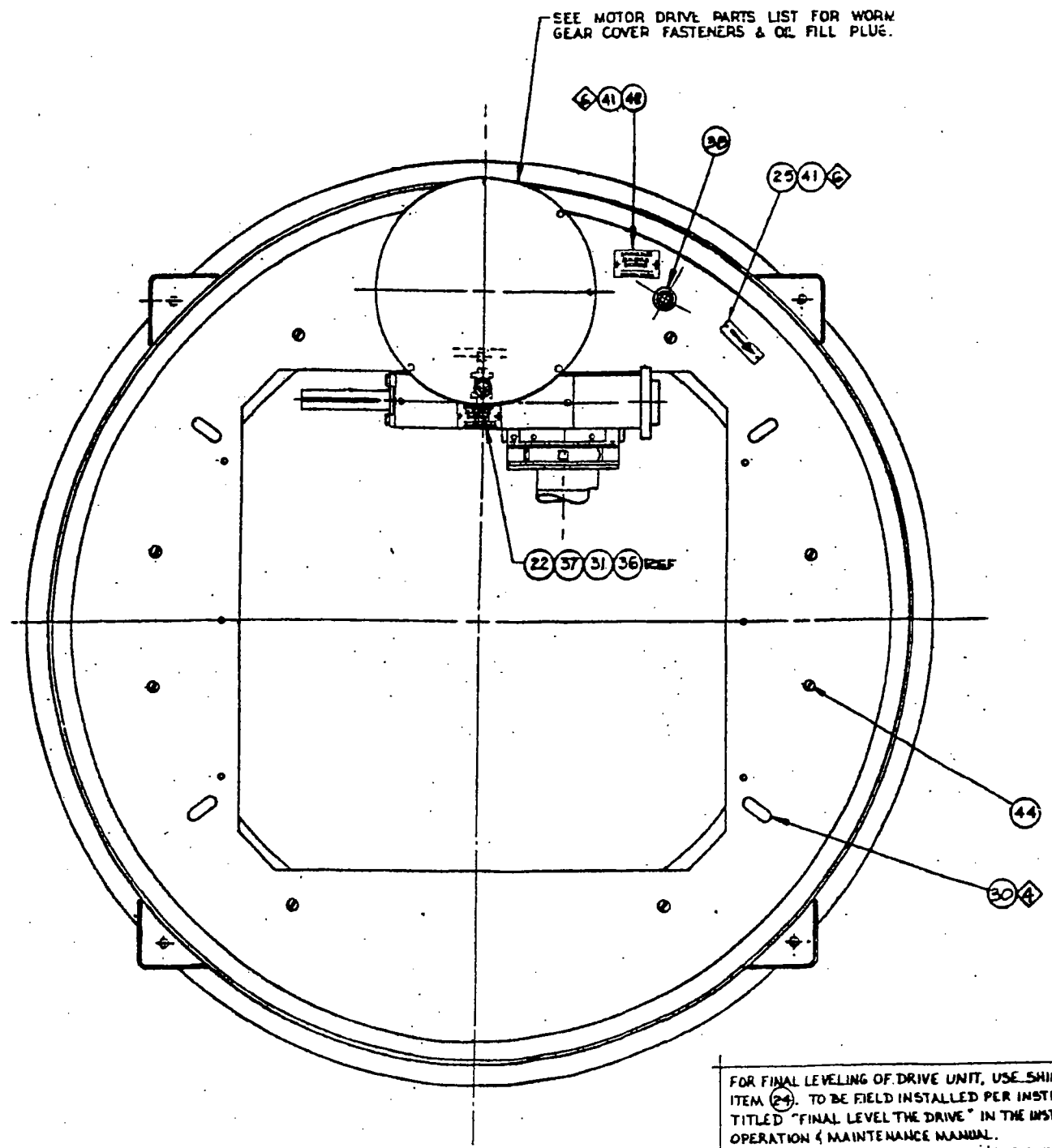
**SPRINGFIELD, MISSOURI
SOUTHWEST WWTP
PHASE 6 IMPROVEMENTS**

**Clarifier
Start-up Check List**

- Ensure rake arms are free from obstructions; ie. Personnel, ladders, etc
- Check fluid levels in drive
- Check that overload & alarm are operative
- Visually inspect ducking skimmer that all bumpers are in-place and are not bound
- Check rotating weir controls are functional and powered
- Start clarifier



**Dorr-Oliver Eimco
612 Wheeler's Farm Road
Milford, CT 06460
Tel: 203-876-5400 Fax: 203-876-5480**



- NOTES:**
- ① TORQUE CAPSCREWS ITEM ④⑥ 200 ± 10 FT/LB (LUBRICATED) FOLLOWING PROCEDURE ON DWG 904363.
 - ② APPLY PIPE THREAD SEALANT TO ALL PIPE JOINTS.
 - ③ APPLY ULTRA BLUE RTV-SILICONE TO CONNECTIONS INDICATED TO OBTAIN A LIQUID TIGHT SEAL.
 - ④ A QUANTITY OF (4) CAPSCREWS ITEM ④⑥ TO BE PLACED IN BAG & INSTALLED TO DRIVE UNIT; TO BE INSTALLED IN FIELD AFTER ITEM ③① EYE BOLT USAGE IS COMPLETE.
 - ⑤ NOTCH LINE ON SIGHT GLASS METAL CASING OF ITEM ②① AT OIL LEVEL.
 - ⑥ DO NOT DRILL THRU ITEM ①①, COVER, LESS 7/8" ALARM SPRING PACK.
- PART NO. 126021

PARTS LIST: L115688-1
NET WEIGHT 7500 LB (APPROX)

3	6770	6-11-91
E	16742	4-2-91
A	16696	5-5-90
A	16599	2-3-89
D/E		DATE
		REVISION

BAG AND ATTACH TO DRIVE UNIT THE FOLLOWING:
ITEM ②⑥ SPACERS, 16 REQUIRED
ITEM ②⑦ SPACERS, 16 REQUIRED
THESE SPACERS ARE TO BE FIELD INSTALLED (QUANTITY AS REQUIRED) BETWEEN GEAR CAGE CORNERS AND DRIVE CAGE.

FOR FINAL LEVELING OF DRIVE UNIT, USE SHIM PACKAGE ITEM ②④. TO BE FIELD INSTALLED PER INSTRUCTIONS TITLED "FINAL LEVEL THE DRIVE" IN THE INSTALLATION OPERATION & MAINTENANCE MANUAL.
ASSEMBLY SHOP NOTE: BAG & TIE SHIM PACKAGE TO DRIVE UNIT.

ILLUSTRATIVE SECTION

AMDED DWG 201559 TO NOTE 1. 38-0940 PKS RNR 3/10/98
ADDED ITEMS 41 & 42 & NOTE 6 07-11-88 SW RNR 15MAY91

DORR-OLIVER EIMCO A GEORGE COMPANY

DRIVE ASSEMBLY C80 DRIVE UNIT

115688
BAP0196-235
L-42388

OM NUMBER: BAP0196-235
OP PARENT: BA28525-100

DWG NO: BAP0196-235
DWG NO: L-42388

DESC: C80 DRIVE ASSY
DESC: ASSY, C80, BASIC, WITH MOTOR PACKAGE

MADE BY:
CHECKED BY:
RELEASE DATE:
PRINT DATE: 10/03/03

SUBL	QTY	TOT QTY	ITEM	DRAWING NUMBER	DESCRIPTION	REV	UM	R	WEIGHT
1	1	1	4 BAP0196-236	BAP0196-236	WORM GEAR ASSY, W/DRIVE CONTROL	1	+	EA	1446
3	1	4	4 115635A1A	115635-1	BASE, C80	A	+	EA	0
6	1	4	4 115631A	115631/PL L115632-1	CAGE ATTACH, GEAR, MACH, C80	A	+	EA	0
8	1	4	4 114933M14A	114933-14	GEAR, MAIN, C80B2	B	+	EA	0
10	1	4	4 115687A	115687	COVER, MAIN GEAR, C80	A	+	EA	0
13	155	620	85321W	85321	BALL, BEARING, CRM, 1 3/4	C	+	EA	620

15	24	96	88897A	88897	MODIFICATION, LIP SEAL			EA	0
16	24	96	88721C	88721	SEAL, LIP/FT, NEOP/PARAFFIN	F	+	FT	96

17	48	192	88556C	88556	CLAMP, BAND/FT, SS 3/8X.017XFT	B	+	FT	192

					ITEM 17 QTY IS 24.				
18	1	4	ITEM 18		SAME AS & QTY INCLUDED WITH ITEM 17. ITEM 18 QTY IS 24.			EA	0
19	2	8	F50245	N/A	CLAMP, WORM DRIVE, 300/400.3/8			EA	8

21	1	4	86762C	86762	GAUGE, OIL, STRAIGHT STL 3/8MPFX2 3/8 SIGH	B	+	EA	0
					SIGHT				

22	1	4	86055A	86055	COCK, STEAM STOP, BRZ 3/4X125PSI	B	+	EA	8

24	1	4	49115H	49115	SHIM PACKAGE, C80/C80R/B2/B2R	A	+	EA	92

BOM NUMBER: BAP0196-235
 TOP PARENT: BA28525-100

DWG NO: BAP0196-235
 DWG NO: L-42308

DESC: C80 DRIVE ASSY
 DESC: ASSY, C80, BASIC, WITH MOTOR PACKAGE

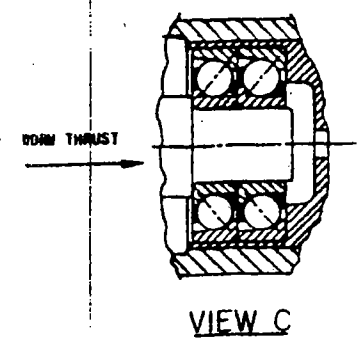
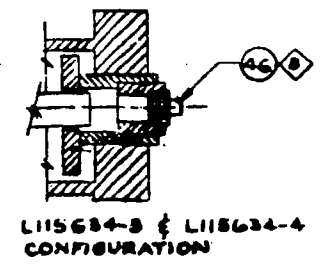
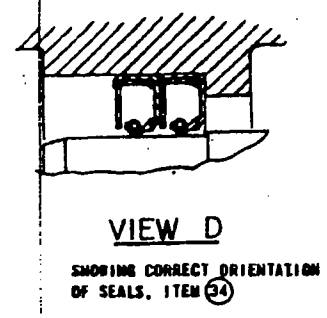
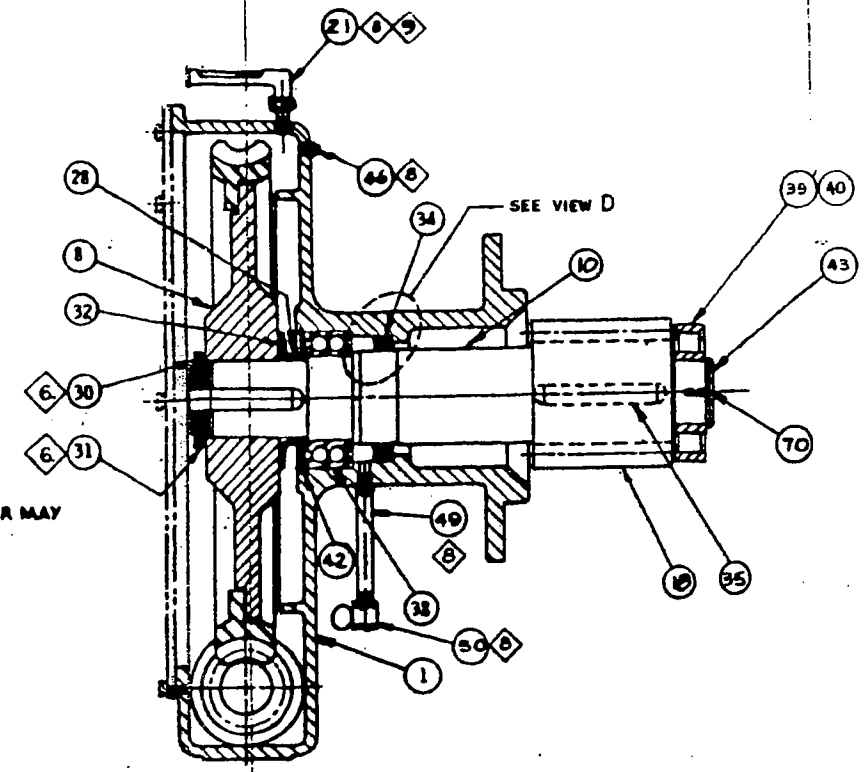
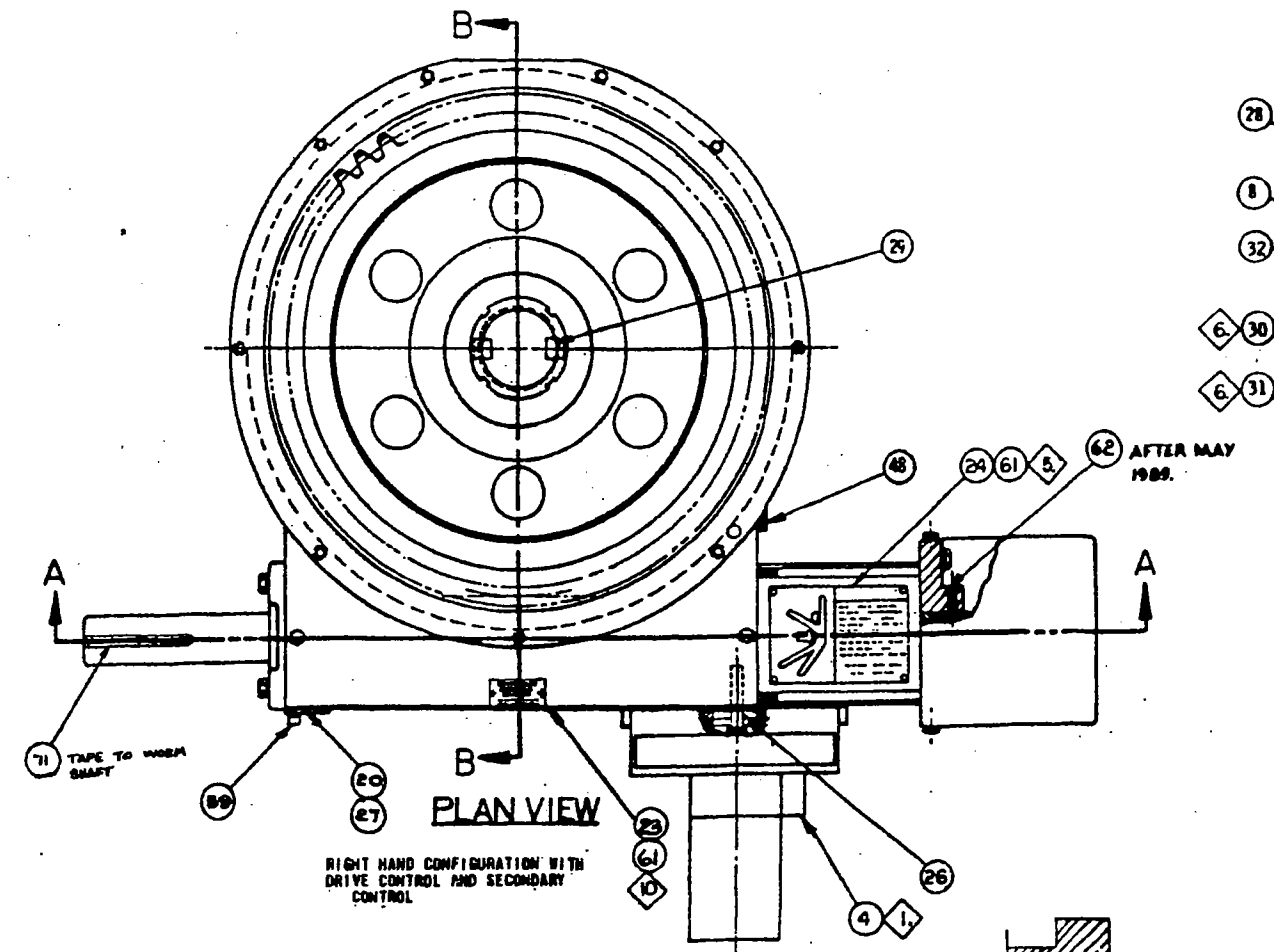
MADE BY:
 CHECKED BY:
 RELEASE DATE: 10/03/03

REV: 1 + QTY: 4

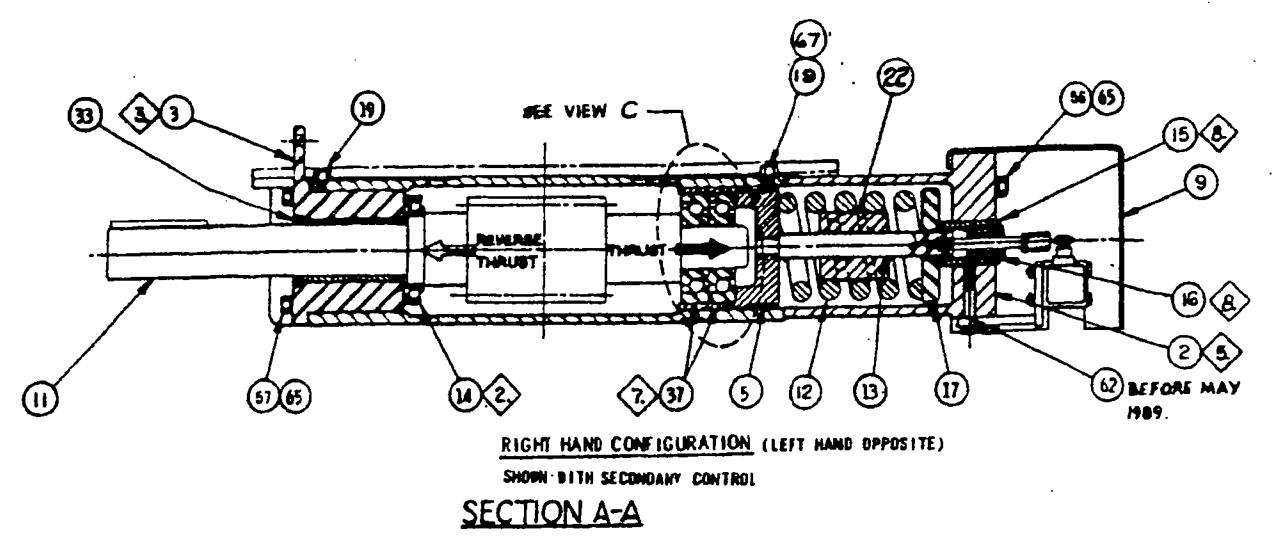
BUBL	QTY	LOT QTY	ITEM	DRAWING NUMBER	DESCRIPTION	REV	UM	R	WEIGHT
25	1	4	84640A	84640	K0069 K-C MANUFACTURING PLATE, INSTRUCTION, ARROW	A +	EA		4
26	16	64	88427A	88427	SPACER, STL 11GAX3 3/4X7 1/4 ****	+	EA		0
27	16	64	88427C	88427	SPACER, STL 16GAX3 3/4X7 1/4 ****	+	EA		0
29	4	16	F50458	86046	CAPSCREW, HX HD, FULL THRD, GR5, 1-8X3 1/2	+	EA		16
30	4	16	F7549D	87549	BOLT, EYE, 1" DIA	B +	EA		0
31	1	4	F11154	N/A	TEE, PIPE, STD, MI 3/4FPT	+	EA		0
32	1	4	F11780	N/A	CPLG, RDCR, STD, MI 3/4X3/8FPT	+	EA		0
35	1	4	F12524	N/A	NIPPLE, SCH 40, BLK 3/4MPTX4	+	EA		0
36	1	4	F10800	N/A	NIPPLE, SCH 40, BLK 3/4MPTX2	+	EA		0
37	1	4	F10815	N/A	NIPPLE, SCH 40, BLK 3/4MPTXCLOSE	+	EA		4
38	1	4	85471L	85471	PLUG, PIPE, VENTED, CI/CS/I, 2	+	EA		4
41	4	16	F13749	N/A	SCREW, U-DRIVE#4 X 1/4" 18-8	+	EA		4
42	1	4	903155A	903155	LUBE PLATE, 1"X2 STL, #35312	A +	EA		1
44	12	48	F50313	N/A	MACH SCR, FLT REC HD GR2 1-8X2 1/2	+	EA		0
45	4	16	F10104	N/A	CAPSCREW, HX HD, GR5 5/8-11X2	+	EA		0
46	36	144	F10103	N/A	CAPSCREW, HX HD, GR5 5/8-11X2 1/4 ****	+	EA		0
47	12	48	F10101	N/A	CAPSCREW, HX HD, GR5 5/8-11X2 3/4	+	EA		4
57	16	64	F11171	N/A	WSHR, FLT, HDN, F436, 5/8, CIRC, STRUCTURE ****	+	EA		1
	1	4	DRAWINGS	N/A	ASSEMBLY & REFERENCE BAP0196-235 ASSEMBLY DRAWING	+	EA		

NOTES

- 1. INSTALL & ADJUST DRIVE CONTROL PER DRAWING NO. 115189
- 2. NOTE CAREFULLY HOW REVERSE THRUST BEARING IS INSTALLED IN HOUSING TO TAKE REVERSE THRUST TOWARD BUSHING HOUSING. IMPROPER INSTALLATION WILL CAUSE BEARING FAILURE.
- 3. BUSHING HOUSING, ITEM (3), IS TO BE ASSEMBLED SO THAT THE CHAIN GUARD ATTACHMENT IS ON TOP, AS SHOWN.
- 4. APPLY SEALANT TO JOINTS INDICATED.
- 5. BEFORE ATTACHING END CAP TO WORM GEAR HOUSING, THE FOLLOWING MUST BE DONE:
 - a) DRILL (4) .104 DIA. HOLES THRU ONE (1) WALL ONLY OF END CAP & ATTACH ITEM (2) USING ITEM (1).
 - b) REMOVE ALL BURRS, CHIPS, ETC FROM INSIDE THE END CAP.
- 6. INSTALL LOCKNUT, ITEM (8), FINGER TIGHT ONLY. DO NOT BEND TABS OF LOCKWASHER, ITEM (3), AT THIS TIME.
- 7. BEARINGS, ITEM (27) ARE TO BE A PRESS FIT ONTO SHAFT OF WORM & SHAFT, ITEM (1) AND A SLIP FIT INTO SLIDING BEARING HOUSING, ITEM (8).
- 8. APPLY THREAD SEALANT TO THREADS OF ITEMS (15), (18), (21), (22), (49) AND (50) PRIOR TO ASSEMBLY TO INSURE LEAK PROOF JOINTS. (ALSO ITEM (46) FOR DRIVE CONFIGURATION L115634-3) & L115634-4)
- 9. NOTCH LINE ON SIGHT GLASS METAL CASING OF ITEM (21) AT OIL LEVEL.
- 10. DO NOT DRILL THROUGH. DRILL 1/4 DEEP MIN AND 5/16 DEEP MAX.



NOTE CAREFULLY HOW THRUST BEARINGS ARE ASSEMBLED IN HOUSING TO TAKE THRUST TOWARD SPRING; IMPROPER INSTALLATION WILL CAUSE BEARINGS TO FAIL.



PARTS LIST	DRIVE CONTROL		SECONDARY DRIVE CONTROL	
	WITH	W/OUT	WITH	W/OUT
L115634-1	X		X	
L115634-2		X	X	
L115634-3	X			X
L115634-4	X			X

LESS 2% ALUMINUM PAINT
PART NO. 126022

REV	DATE	BY	CHKD
D	11-1-82		
C	11-1-82		
B	11-1-82		
A	11-1-82		

DORR-OLIVER EIMCO A TRG/VEV COMPANY

WORM GEAR ASSEMBLY

115634

BAP0196-236

L-42389

ADD ITEMS	18549	JLC	TFS	10/2/82
ADDED ITEM 23, 61 & FLAG NOTE 10	07/16/82	RSW	BAK	10/2/82
	24	BY	BY	DATE

DORR-OLIVER EIMCO

Engineering BOM - Collated

OM NUMBER: BAP0196-236
 OP PARENT: BA28525-100
 DWG NO: BAP0196-236
 DWG NO: L-42389
 DESC: WORM GEAR ASSY, W/DRIVE CONTROL
 DESC: ASSY, C80, BASIC, WITH MOTOR PACKAGE
 MADE BY:
 CHECKED BY:
 RELEASE DATE:
 PRINT DATE: 10/03/03

SUBL	QTY	TOT QTY	ITEM	DRAWING NUMBER	DESCRIPTION	REV	UM	R	WEIGHT
1	1	4	111663B5A	111663-5	HOUSING, WORM GEAR, CI 21-1/2	K +	EA	B	0
2	1	4	204382A1A	204382-1	CAP, END, CI	B +	EA		0
3	1	4	L202316	202316, 202315-1	HOUSING ASSY, BUSHING, CI	C +	EA	A	100

4	1	4	DRIVECONTROL	N/A	SEE VARIABLE COMPONENTS P/L	+	EA		0
5	1	4	204169A	204169	SEAT, BEARING, SLIDING, STL	B +	EA	B	32
8	1	4	L203243-3	203243	WORM GEAR ASSY, RH	L +	EA	B	820

9	1	4	NOT REQUIRED	N/A	FOR THIS APPLICATION	+	EA		0
10	1	4	204186A	204186	PINION, MAIN, C80/C80B2	D +	EA	B	0
11	1	4	202306A	202306	WORM & SHAFT, STL 21 1/2PD	F +	EA	B	232

12	1	4	SPRING	N/A	SEE VARIABLE COMPONENTS P/L	+	EA		0
13	1	4	48686F	48686	ROD, STOP, STL, 8.72L	D +	EA	B	16

14	1	4	F60073	N/A	BEARING, BALL, UNMTD, ANG CONT SGL	+	EA	A	32

15	1	4	88887A	88887	SCREW, SPRING ADJUSTING, C&W, STL	A +	EA		4

16	1	4	86213A	86213	SCREW, STOP, STL	E +	EA	B	4

17	1	4	86196A	86196	SEAT, SPRING, STL	E +	EA		20

18	1	4	N/R18	NOT REQUIRED	FOR THIS ASSEMBLY	A	EA		
19	2	8	86223A	86223	PLUG, STL 5/8NF	A +	EA		
20	1	4	8997A	8997	PLATE, COVER, STL 12 & 21-1/2	B +	EA		

DORR-OLIVER EIMCO

Engineering BOM - Collated

MADE BY:
CHECKED BY:
RELEASE DATE:
PRINT DATE: 10/03/03

DESC: WORM GEAR ASSY, W/DRIVE CONTROL
DZSC: ASSY, C80, BASIC, WITH MOTOR PACKAGE

DWG NO: BAP0196-236
DWG NO: L-42389

QTY: 4

REV	UM	R	WEIGHT			
21	1	4	88931H	GAUGE, OIL, ELL, BRS 1/2MPT, 4 3/8 SIGHT Oil-Rite #B-1150-3	A + EA	8
22	1	4	88931	SEE VARIABLE COMPONENTS P/L	A + EA	0
23	1	4	903155C	LUBE PLATE, 1" X 2, STL	A + EA	1
24	1	4	49045A	NAMEPLATE, END CAP, WARNING SIGN	A + EA	0
26	1	4	ACTUATING PIN	SEE VARIABLE COMPONENTS P/L	+ EA	0
27	1	4	8998A	GASKET, PLATE, COVER, NEOP, 1/16	B + EA	4
28	1	4	87529A	SPACER, WORM GEAR, STL 21 1/2	B + EA	8
29	2	8	40463E	KEY, SQ, 3/8-16TAP, C1018 3/4X3-5/8	C + EA	0
30	1	4	87111X	NUT, BEARING LOCK, STL 3.1496SHAFT	+ EA	0
31	1	4	85698U	MSHR, LOCK, BEARING, STL 3.2	B + EA	0
32	1	4	86659V	SPRING, DISC, 3.23	H + EA	24
33	1	4	46758AR	SEAL, DOUBLE LIP, 3/8X3.001OD	S + EA	4
34	2	8	46763K	SEAL, OIL, 1/2 X 5.381 O.D.	N + EA	8
35	1	4	N/R2	FOR THIS ASSEMBLY	+ EA	0
37	2	8	F60045	BEARING, BALL, UNMID, ANG CONT SGL RW, 45MM	+ EA	2

TOTAL WEIGHT:

DORR-OLIVER EIMCO

Engineering BOM - Collated

M NUMBER: BAP0196-236
P PARENT: BA28525-100

DWG NO: BAP0196-236
DWG NO: L-4Z389

DESC: WORM GEAR ASSY, W/DRIVE CONTROL
DESC: ASSY, C80, BASIC, WITH MOTOR PACKAGE

MADE BY:
CHECKED BY:
RELEASE DATE:
PRINT DATE: 10/03/03

U/L	QTY	TOT QTY	ITEM	DRAWING NUMBER	DESCRIPTION	REV	UM	R	WEIGHT

38	1	4	F60131	N/A	BEARING, BALL, UNMTD, ANG CONT ID		+	EA	A 16

39	1	4	F60129	N/A	BEARING, NDL RLR, UNMTD, INR RACE, 3.25ID		+	EA	A 4

40	1	4	F60148	N/A	BEARING, NDL RLR, UNMTD, OTR RACE, 3.75ID		+	EA	A 4

					USE WITH ITEM 39.				
42	1	4	46766BD	46766	RING, RETAINING, INT, STL, 6.0 DIA		G	+	EA A 1

43	1	4	88762A	88762	GUIDE, BRG, STL		+	EA	B 0
46	1	4	F10943	N/A	PLUG, PIPE, SQ HD, SOLID, MS 1/2MPT		+	EA	A 4

48	2	8	F10948	N/A	PLUG, PIPE, SQ SKT, SOLID, MS 1 1/2MPT		+	EA	A 8
49	1	4	M016633	N/A	NIPPLE, SCH 40, BLK 1/4MPTX6		+	EA	A 4
50	1	4	85414A	85414	COCK, AIR, TEE HANDLE, BRS 1/4FPT		A	+	EA 4

56	4	16	F10082	N/A	CAPSCREW, HX HD, GR5 3/4-10X10 1/2		+	EA	0
57	4	16	F10224	N/A	CAPSCREW, HX HD, GR5 3/4-10X2 1/4		+	EA	32

59	2	8	F10257	N/A	CAPSCREW, HX HD, GR5 1/2-13X3/4		+	EA	

61	6	24	F13749	N/A	SCREW, U-DRIVE#4 X 1/4" 18-8		+	EA	
62	1	4	F11055	N/A	SETSCREW, SKT HDLS CP FT ALLOY 1/2-13X3/4		+	EA	
65	8	32	F11851	N/A	WASHER, FLAT, THRU HDN, F436 3/4		+	EA	

Engineering BOM - Collated

DORR-OLIVER EIMCO

MADE BY:
CHECKED BY:
RELEASE DATE:
PRINT DATE: 10/03/03

DESC: WORM GEAR ASSY, W/DRIVE CONTROL
DESC: ASSY, C80, BASIC, WITH MOTOR PACKAGE

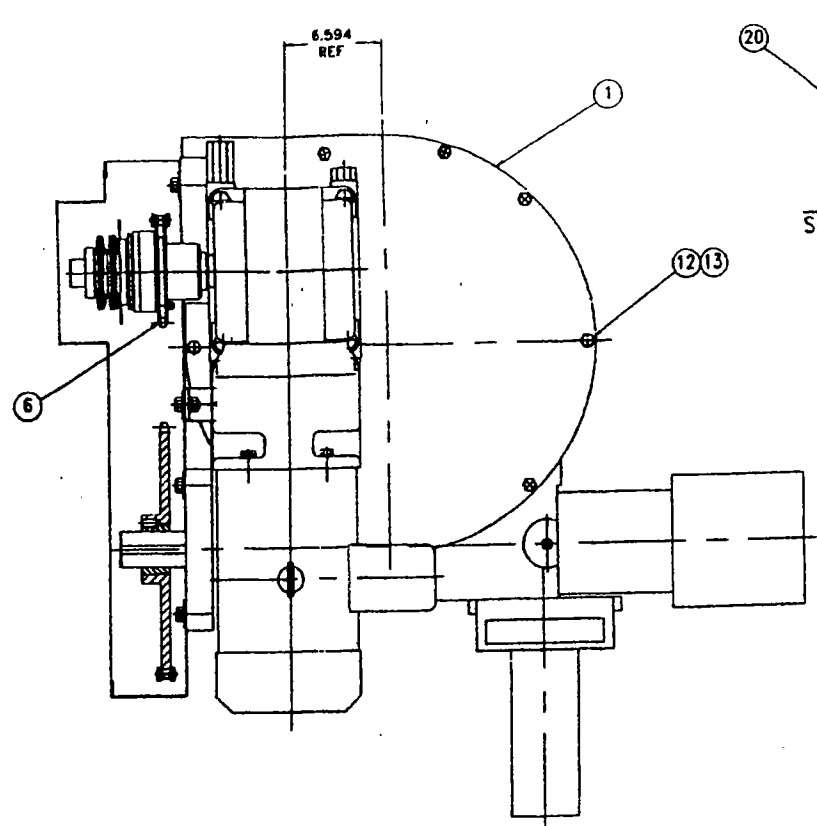
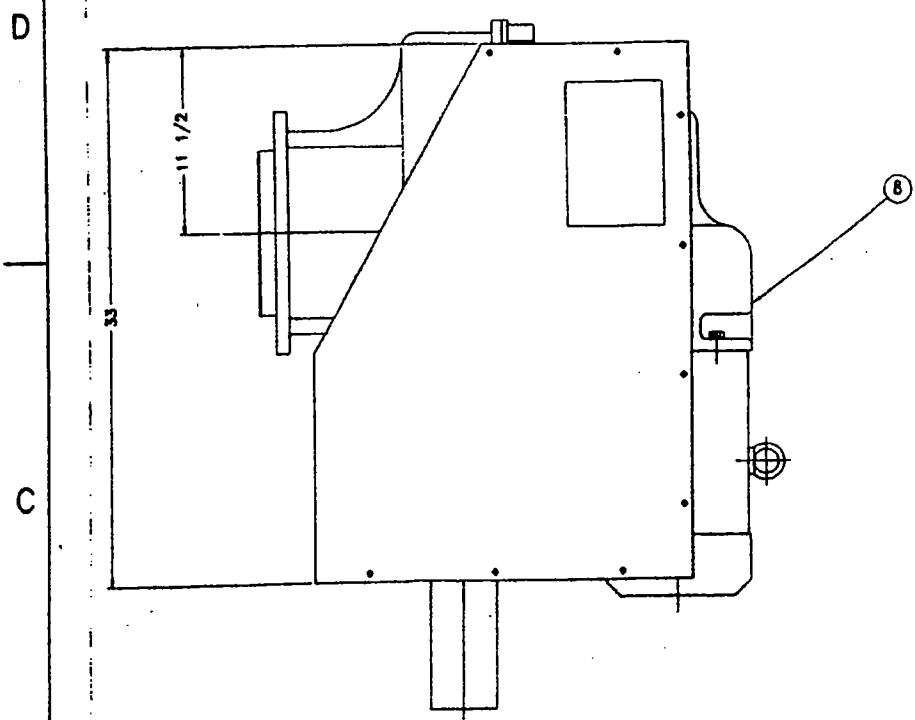
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DWG NO: L-47389

ITEM NUMBER: BAP0196-236
PARENT: BA28525-100

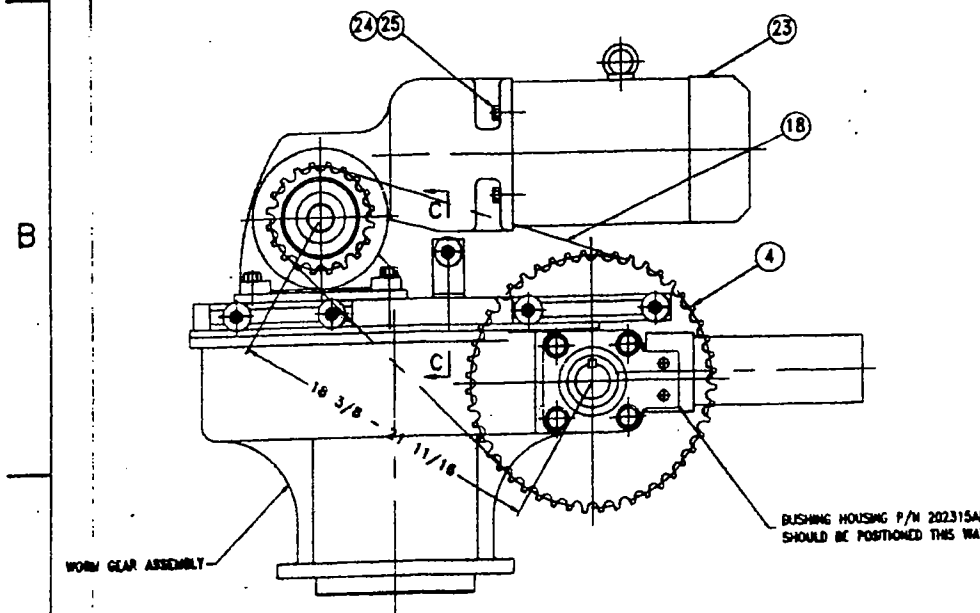
EV: 1 + QTY: 4

U/L	QTY	TOT QTY	ITEM	DRAWING NUMBER	DESCRIPTION	REV	UM	R	WEIGHT
67	1	4	E11177	N/A	WASHER, PLAIN, TYPE A-W, THRU HDN, STL 5/8X1 3/4X.134	+	EA		0
70	1	4	F11785	N/A	CAPSCREW, SKT FLT HD ALLOY 3/8-16X1 ASSEMBLY & REFERENCE	+	EA		4
	1	4	DRAWINGS	N/A	BAP0196-236 WORM GEAR ASSEMBLY 115713 DRIVE CONTROL INSTALLATION & ADJUSTMENT PROCEDURES.	+	EA		0
	1	4	REVISION	N/A	ENGINEERING CHANGES EN 99-3037 (REV 1) - INITIAL RELEASE REF L115634-3 (REV.G) - CHANGED ITEM 11 TO SHORTER WORM SHAFT.	+	EA		0

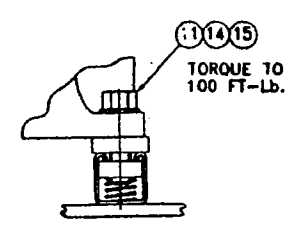
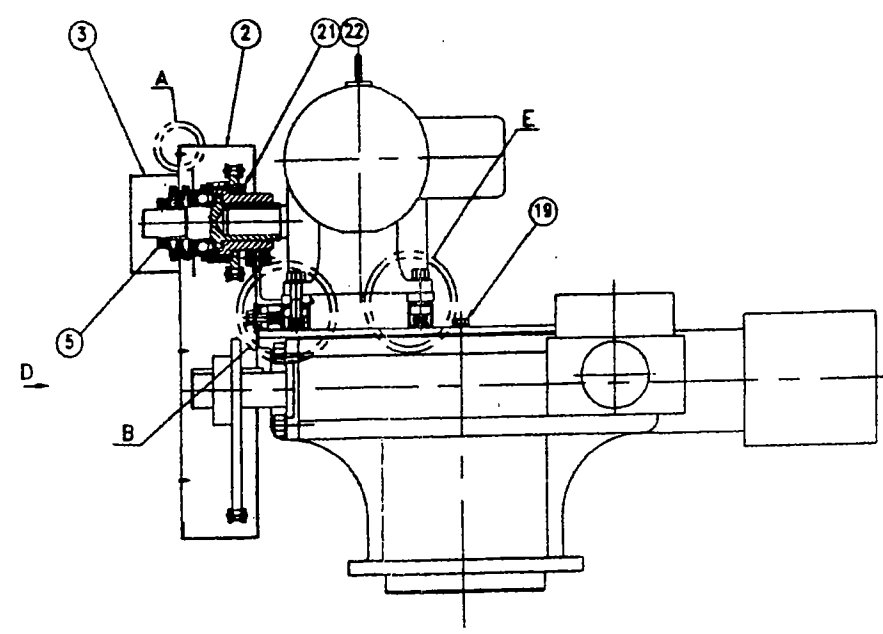
PARTS LIST			
ITEM NO.	QTY.	PART OR P/N NO.	DESCRIPTION
1	1	126111	REDUCER COVER (17D03861)
2	1	126112	CHAIN GUARD (17D03860)
3	1	126113	CHAIN GUARD COVER (17D01064)
4	1	130338	LARGE SPROCKET (17A00797)
5	1	126114	TORQUE LIMITER (17B01182)
6	1	126115	SMALL SPROCKET (17B01183)
7	1	126116	CHAIN GUARD SUPPORT ANGLE (17B01184)
8	1	130362	WORM GEAR REDUCER (17A00800)
9	2	126118	PLATE - SPACER (17B01185)
10	5	125735D	CHANNEL NUT W/SPRING (88558)
11	4	125735F	CHANNEL NUT W/SPRING (88558)
12	15		HEX. HD. SCREW 1/2-13 x 1" LG.
13	15		LOCKWASHER 1/2"
14	4		HEX. HD. SCREW 5/8-11 x 2 1/4" LG.
15	4		LOCKWASHER 5/8"
16	1		HEX. NUT 5/8-11
17	5		PLAIN WASHER 1/2" TYPE "B", WIDE (1.3/4" O.D.)
18	1	130338	CHAIN (17A00798)
19	1	130340	BREATHER (17A00799)
20	9		PAN HD. TAP. SCREW #8 x 1/2" LG. TYPE AB, S/S
21	3		HEX. SOCKET HD. CAP SCREW 5/16-18 x 1" LG.
22	3		5/16" HI-COLLAR LOCKWASHER
23	1	130363	ELECTRIC MOTOR (17A00801) "RELIANCE ELECTRIC"
24	4		HEX. HD. SCREW 1/2-13 x 1 1/4" LG.
25	4		LOCKWASHER 1/2"



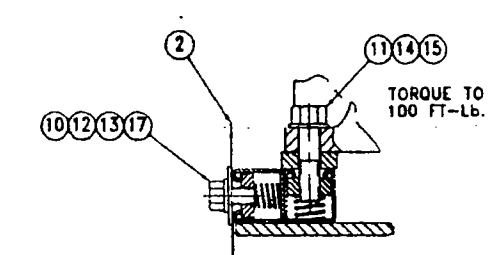
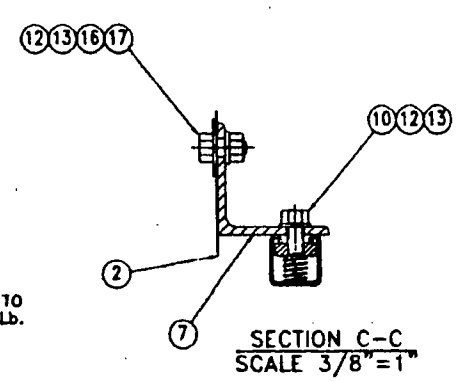
DETAIL A
SCALE 3/4"=1"



VIEW D
ITEMS 2&3 ARE NOT SHOWN



DETAIL E
SCALE 3/8"=1"



DETAIL B
SCALE 3/8"=1"

PART NUMBER 126117

UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS ARE +/- 0.005" ALL FINISH DIMENSIONS ARE +/- 0.002" METRIC DIMENSIONS ARE +/- 0.13mm DIMENSIONS ARE +/- 0.13mm		DRAWN BY MG		DATE 5/16/03		USED BY PROJECT No. M766-1		17D03859 1	
THE DESIGNATION "MILD STEEL" OR U.S. MEANS A.S.T.M. A-36 OR BETTER ALL WELDING TO BE IN ACCORDANCE WITH SPECIFICATIONS OF AWS D1.1 OR C.S.A. W58		DORR-OLIVER EIMCO COMPANY		DRIVE ASSEMBLY		SCALE 3/16" = 1"			

BOM NUMBER: 126117
 TOP PARENT: BA28525-100

DWG NO: 17D03859
 DWG NO:

DESC: MOTOR DRIVE ASSEMBLY
 DESC: ASSY, C80, BASIC, WITH MOTOR PACKAGE

MADE BY: DSB
 CHECKED BY: JAG
 RELEASE DATE: 07/10/03

REV: 1 + QTY: 4

PRINT DATE: 10/03/03

BUBL	QTY	TOT QTY	ITEM	DRAWING NUMBER	DESCRIPTION	REV	UM	R	WEIGHT
	1	4	DRAWINGS	N/A	ASSEMBLY & REFERENCE				
1	1	4	126111	17D03861	17D03859 - MOTOR DRIVE ASSEMBLY				
2	1	4	126112	17D03860	REDUCER COVER	0 +	EA		0
					CHAIN GUARD	0 +	EA		0
3	1	4	126113	17C01064	CHAIN GUARD COVER				
4	1	4	130338	17A00797	LARGE SPROCKET	0 +	EA		0
5	1	4	126114	17B01182	TORQUE LIMITER	0 +	EA		0
6	1	4	126115	17B01183	SMALL SPROCKET				
7	1	4	126116	17B01184	CHAIN GUARD SUPPORT ANGLE	0 +	EA		0
8	1	4	130362	17A00800	WORM GEAR REDUCER	0 +	EA		0
9	2	8	126118	17B01185	PLATE - SPACER				
10	5	20	125735D	88558	CHANEL NUT W/SPRING	0 +	EA		0
11	4	16	125735F	88558	CHANEL NUT W/SPRING	1	EA		0
12	15	60	F10256	N/A	CAPSCREW, HX HD, GR5, 1/2-13X1 ****				60
13	15	60	M011232	N/A	WSHR, LOCK, STL, 1/2				
14	4	16	F10103	N/A	CAPSCREW, HX HD, GR5 5/8-11X2 1/4 ****				
15	4	16	M011222	N/A	WASHER, LOCK, STL, 5/8 ****				
16	1	4	F10871	N/A	NUT, HX, GR5 5/8-11				
17	5	20	F16743	N/A	WSHR, PLN TYPE B-W F844 1/2				
18	1	4	130339	17A00798	CHAIN				
19	1	4	130340	17A00799	BREATHER	0 +	EA		0
20	9	36	M012716	N/A	TAPPING SCREW, PAN REC HD, F				
21	3	12	F11113	N/A	CAPSCREW, SKT HD, ALLOY 5/16-18X1				

BOM NUMBER: 126117
 TOP PARENT: BA28525-100

DWG NO: 17D003859
 DWG NO:

REV: 1 + QTY: 4

DESC: MOTOR DRIVE ASSEMBLY
 DESC: ASSY, C80, BASIC, WITH MOTOR PACKAGE

MADE BY: DSB
 CHECKED BY: JAG
 RELEASE DATE: 07/10/03
 PRINT DATE: 10/03/03

BUBL	QTY	TOT QTY	ITEM	DRAWING NUMBER	DESCRIPTION	REV	UM	R	WEIGHT
22	3	12	M038533	N/A	MSHR, LOCK, HI CLR, 5/16, STL	+	EA		0
23	1	4	130363	17A00801	ELECTRIC MOTOR, RELIANCE ELECTRIC	1 +	EA		0
24	4	16	F10255	N/A	CAPSCREW, HX HD, GR5 1/2-13X1 1/4	+	EA		16
25	4	16	M011232	N/A	MSHR, LOCK, STL, 1/2	+	EA		3
	1	4	REVISION	N/A	ENGINEERING CHANGES	+	EA		0
					EN 20180 (REV 1) - INITIAL RELEASE				

LUBRICATION SCHEDULE

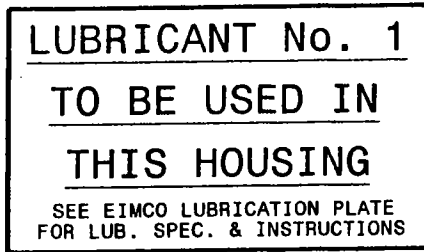
equipment location	frequency	lubrication type	lubrication amount	lubrication supplier	lubrication product
worm & main gear housing	change oil after 500 hour initial breakin then each year after if using mineral oil or every two years for synthetic oil	oil bath	3-1/2 ga. Worm 23 ga. Main	Mobil Tribol Royal Purple Royal Purple Shell	SHC 636 800/680 Synfilm GT680 Synergy Worm Gear Oil 680 Omala Oil HD680
gearmotor	yearly	grease	2 oz.	Exxon Mobil Chevron USA	Polyrex EM SRI No. 2
electric motor	yearly	grease	0.5 cu-in.	Exxon Mobil Chevron USA Shell Texaco	Unirex N2 SRI No. 2 Dolium R Premium RB
torque limiter	yearly	grease	liberal coating	any of above	MIL-G-3545-13 spec. or equal

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Lubrication

The drive is a combination of Dorr-Oliver Eimco manufactured drive components and accessory equipment (garmotors, motors or reducers) purchased from others. These instructions apply only to the Dorr-Oliver Eimco manufactured components. Note: EIMCO® drives are shipped without oil. Fill each drive housing, initially, to the level indicated on the sight glass, referring to "Oil Fill Procedure" below. Approximate oil quantities are listed on a following page.

A lubricant plate is mounted to each drive housing (main gear, worm gear, secondary gear, as furnished) at the oil fill opening. The "Lubricant No." (No. 1 or No. 2) indicated on this plate refers to the "Lubricant Number" shown on the lubrication plate mounted on the chain or belt guard. Lubricant No. 1 is shown in the lubricant plate example below.



Using the "Lubricant Number" specified (1 or 2) determine the type of oil to be used in the drive. This will vary based on the "Ambient Temperature Range" to be expected at the equipment installation site. For temperatures outside of those ranges shown on the Lubrication Plate, contact the Dorr-Oliver Eimco Engineering Department. Refer to the Offices page at the end of this manual.

LUBRICATION PLATE					
LUBRICANT SELECTION AND INSTRUCTIONS					
Lubricant Number	Lubrication Method	Ambient Temperature Range	Lubricants		AGMA Number
			Mineral Oil	Synthetic Oil	
①	Oil Bath	-40°F TO 110°F		Mobil SHC 636	8S
		0°F TO 50°F	Mobilgear 629		4EP
		50°F TO 110°F	Mobilgear 634		7EP
②	Oil Bath	-40°F TO 110°F		Mobil SHC 636	8S
The above are Mobil Oil Corporation products. For product information, call 1-800-662-4525					

Note: Although a Mobil product is specified, any equivalent product can be used. Refer to the Lubricant Equivalents List in this manual (contact lubricant supplier if desired equivalent is not listed).

LUBRICATION FILL AND DRAIN LOCATIONS

1. Main drive assembly drawing reference L42388 (BAP0196-235) fill point thru item 38 – drain point item 22.
2. Worm gear drive assembly drawing reference 17D03859 fill point thru vent item 19.
3. Worm gear assembly drawing reference L42389 (BAP0196-236) drain points thru items 50 & 42.

(Item 50 is the main oil drain cock, however item 42 should also be removed to drain remaining oil outside of oil dam area.

(THESE DRAWINGS LOCATED IN SECTION 3)

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1. Check oil levels weekly.

A general oil level check can be made while the drive is operating, but to be more accurate, stop the drive a few minutes to allow the oil to settle. Adding oil in excess of the amount required will cause oil to over flow.

2. Drain condensate once a week.

This will keep the oil free of water and other contaminants. Refill to operating level.

3. Clean the sight glass vent opening.

If the vent opening in the top screw plug is clogged or dirty, a sight glass will not show the correct oil level and it may not show an oil level at all. Check monthly.

4. Check the condition of the drive oil 500 hours after initial start-up, then every six months thereafter. Take an oil sample (100 ml, or 4 oz.) from the drain piping of each housing (worm gear, secondary gear and main gear), using a clean receptacle to collect each sample (allow the oil to flow from the drain until water and other settled contaminants are no longer present and the oil consistency is uniform). Refill the drive housings to operating level.

Send the samples to a commercial lubricant laboratory for analysis. The samples of Mobil oil must conform to the "Lubricant Used Oil Analysis Specifications" on a following page.

5. Replace the oil, if required.


If the oil is not tested by qualified oil analysis, then oil change intervals are as follows:

Initial Replacement: All gear housings should be drained and refilled with fresh oil, referring to "Oil Fill Procedure" below, after the first 500 operating hours.

Regular Oil Replacement: Mineral oil should be replaced each year, unless ambient temperatures dictate otherwise. Synthetic oil should be replaced every two years.

Oil Fill Procedure: Stop the drive, then drain the housing and refill with fresh oil, as specified below. At first, until the oil settles, a sight glass will not show an accurate oil level, due to settling time, trapped air and other factors. Allow the drive to sit at least 10-15 minutes after filling to check the oil level, and then recheck the level while operating [refer to Item 1 above]. Be aware that too much oil added will overflow.

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	<p><u>DRIVE UNIT VENT CAUTION:</u> Vent holes in vented pipe plugs (if used) <u>must</u> be kept clear of dirt, paint or other foreign material.</p>
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LUBRICANT USED OIL ANALYSIS SPECIFICATIONS	
Mobil SHC636:	
Appearance	Bright and clear, not cloudy
Kinematic Viscosity at 40° C per ASTM D445	551-784cSt
Total Acid Number (TAN)	< 2.0 increase from new
Oxidation by FTIR	< 10
Karl Fischer H ₂ O per ASTM D 1744	< 0.1
CU FT-IR	< 30 ppm
FE FT-IR	< 50 ppm
SN FT-IR	< 30 ppm
SI FT-IR	< 45 ppm
AL FT-IR	< 30 ppm
Mobil Mobilgear 629:	
Appearance	Bright and clear, not cloudy
Kinematic Viscosity at 40° C per ASTM D445	122-166cSt
Total Acid Number (TAN)	< 2.0 increase from new
Oxidation by FTIR	< 10
Karl Fischer H ₂ O per ASTM D 1744	< 0.1
CU FT-IR	< 30 ppm
FE FT-IR	< 50 ppm
SN FT-IR	< 30 ppm
SI FT-IR	< 70 ppm
AL FT-IR	< 30 ppm
Mobil Mobilgear 634:	
Appearance	Bright and clear, not cloudy
Kinematic Viscosity at 40° C per ASTM D445	373-506cSt
Total Acid Number (TAN)	< 2.0 increase from new
Oxidation by FTIR	< 10
Karl Fischer H ₂ O per ASTM D 1744	< 0.1
CU FT-IR	< 30 ppm
FE FT-IR	< 50 ppm
SN FT-IR	< 30 ppm
SI FT-IR	< 70 ppm
AL FT-IR	< 30 ppm
Possible sources of contamination:	
Cu = Copper (bearing cages, bronze worm gears)	
Fe = Iron (steel gears & other components, bearings, corrosion)	
Sn = Tin (bronze worm gears, bearings)	
Si = Silicon (bronze worm gears, casting sand)	
Al = Aluminum (bronze worm gears)	

Note: The above "lubricant used oil analysis specifications" are not an all inclusive list. For additional information regarding used oil analysis, contact your local Mobil distributor, or call Mobil Customer Service at 1-800-662-4525.


Mobil oil that does not meet the above "Lubricant Used Oil Analysis Specifications" must be replaced.

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Note: Although a Mobil product is specified, any equivalent product can be used. Alternate oil manufacturers will have their own test qualifications and should be consulted for requirements when testing those brands of oil. See Lubrication Chart on Page 2.C.1 and Lubrication Equipment List on Pages 2.C.7 and 2.C.8.

6. Lubrication of other Equipment

Accessory equipment - For equipment (motors, pumps, etc.) supplied but not built by Dorr-Oliver Eimco, refer to the manufacturer's instructions.

	<p><u>CAUTION:</u> Accessory equipment must be properly lubricated, as specified in the manufacturer's instructions, to maintain the equipment warranty. If you have any questions regarding proper lubrication of accessory equipment provided by Dorr-Oliver Eimco, contact your Dorr-Oliver Eimco representative referring to the Offices page at the back of this manual.</p>
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Drive chain (if used) - Lubricate monthly with SAE 30 weight oil.

7. Sight Glass Replacement - If the oil level sight glass is replaced, it must be notched to show the oil level, as shown on the Drive Assembly drawing. Do likewise for drives shipped without the oil level notched.

DRIVE OIL QUANTITIES IN APPROXIMATE U.S. GALLONS

<u>MODEL</u>	<u>WORM GEAR</u>	<u>MAIN GEAR</u>
C80	3½ gals.	23 gals.

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MANUFACTURER	SYNTHETIC OILS 2 SYN - 5 SYN		
	AGMA EQUIVALENT NUMBER/VISCOSITY cSt AT 40°C		
	2 SYN/ISO 68	4 SYN/ISO 150	5 SYN/ISO 220
MOBIL	*SHC 626	*SHC 629	*SHC 630
TRIBOL		800/150	800/220

* Synthesized hydrocarbon

MANUFACTURER	SYNTHETIC OILS 6 SYN - 8 SYN		
	AGMA EQUIVALENT NUMBER/VISCOSITY CST AT 40°C		
	6 SYN/ISO 320	7 SYN/ISO 460	8 SYN/ISO 680
MOBIL	*SHC 632	*SHC 634	*SHC 636
TRIBOL	800/320	800/460	800/680

* Synthesized hydrocarbon

Consult a qualified lubrication engineer or your Dorr-Oliver Eimco representative before using a synthetic bearing and gear oil that is not listed above as an equivalent. Physical characteristics of Mobil SHC® 600 series synthetic oils are listed below:

	Mobil SHC 626	Mobil SHC 629	Mobil SHC 630	Mobil SHC 632	Mobil SHC 634	Mobil SHC 636
Product Number	60293-8	60294-6	60295-3	60298-7	60291-2	60299-5
ISO Viscosity Grade	68	150	220	320	460	680
Specific Gravity	0.858	0.866	0.866	0.867	0.867	0.867
Gravity, API	33.16	32.4	33.9	31.7	31.4	31.7
Pour Point, °C (°F) max., ASTM D 97	-54 (-65)	-45 (-49)	-45 (-49)	-42 (-44)	-42 (-44)	-42 (-44)
Flash Point, °C (°F) min., ASTM D 92	245 (473)	245 (473)	250 (482)	250 (482)	250 (482)	250 (482)
Viscosity, ASTM D445						
cSt at 40° C	69.9	142.8	217.7	325.8	436.4	663.8
cSt at 100° C	10.9	18.3	25.9	38.6	44.9	62.8
Viscosity Index, ASTM D 2270	147	144	152	169	159	165
Copper Corosion 24 Hrs at 121° C, ASTM D130	1B	1B	1B	1B	1B	1B
Rust Protection ASTM D665A and 665B, Distilled and Synthetic sea water	Pass	Pass	Pass	Pass	Pass	Pass
FZG Scuffing, Fail stage, DIN 51534	11	13	13+	13+	13+	13+
Color, ASTM D1500, Max	3.5	3.5	3.5	3.5	3.5	3.5
TOST Life, Hrs., ASTM D943-2	10,000+	10,000+	10,000+	10,000+	10,000+	10,000+

Rev. 2 11-2002 MCN2002-0517	LUBRICANT EQUIVALENTS LIST	11-AA1
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MANUFACTURER	PETROLEUM BASED OILS 2EP - 5EP AGMA EQUIVALENT NUMBER/VISCOSITY cSt AT 40°C		
	2EP/ISO 68	4EP/ISO 150	5EP/ISO 220
MOBIL	Mobilgear 626	Mobilgear 629	Mobilgear 630
AMOCO	Permgear EP #68	Permgear EP #150	Permgear EP #220
EXXON	Spartan EP-68	Spartan EP 150	Spartan EP 220
GULF OIL	EP Lubricant H.D. 68	EP Lubricant H.D. 150	EP Lubricant H.D. 220
TEXACO	Meropa 68	Meropa 150	Meropa 220
PHILLIPS	All Purpose Philgear (ISO Grade 68)	All Purpose Philgear (ISO Grade 150)	All Purpose Philgear (ISO Grade 220)
SHELL	Omala 68	Omala 150	Omala 220
STANDARD OF CALIFORNIA CHEVRON USA	Chevron Gear Compound NL68	Chevron Gear Compound NL150	Chevron Gear Compound NL220
SUN OIL	Sunep 68	Sunep 150	Sunep 220
KEYSTONE	Zeniplex - 2	Keygear 90	Keygear 110
LUBRICATION ENGINEERS	Monolec 300	Almasol 604	Almasol 607

MANUFACTURER	PETROLEUM BASED OILS 6EP - 8EP AGMA EQUIVALENT NUMBER/VISCOSITY cSt AT 40°C		
	6EP/ISO 320	7EP/ISO 460	8EP/ISO 680
MOBIL	Mobilgear 632	Mobilgear 634	Mobilgear 636
AMOCO	Permgear EP #320	Permgear EP #460	Permgear EP #680
EXXON		Spartan EP 460	Spartan EP 680
GULF OIL	EP Lubricant H.D. 320	EP Lubricant H.D. 460	EP Lubricant H.D. 680
TEXACO	Meropa 320	Meropa 460	Meropa 680
PHILLIPS	All Purpose Philgear (ISO Grade 320)	All Purpose Philgear (ISO Grade 460)	
SHELL	Omala 320	Omala 460	Omala 680
STANDARD OF CALIFORNIA CHEVRON USA	Chevron Gear Compound NL320	Chevron Gear Compound NL460	Chevron Gear Compound NL680
SUN OIL	Sunep 320	Sunep 460	
KEYSTONE	None	Keygear 140	None
LUBRICATION ENGINEERS	Almasol 605	Almasol 608	Almasol 609

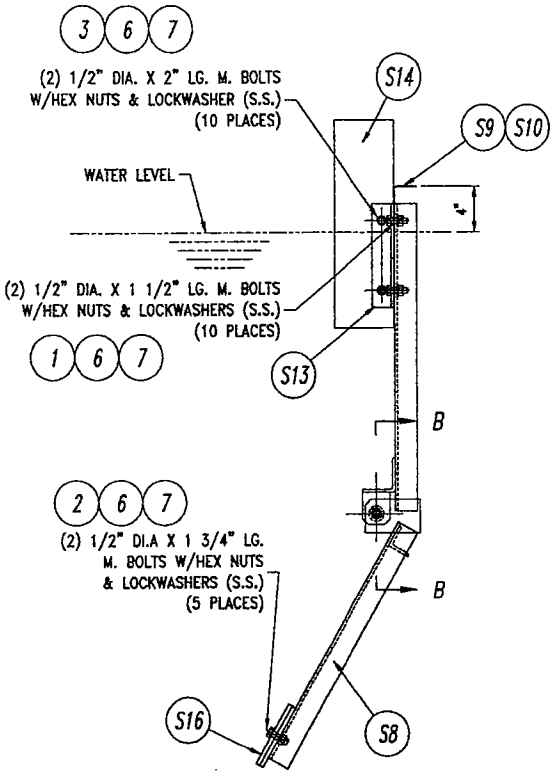
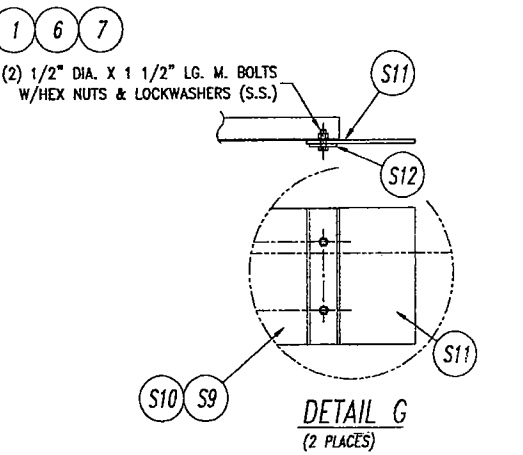
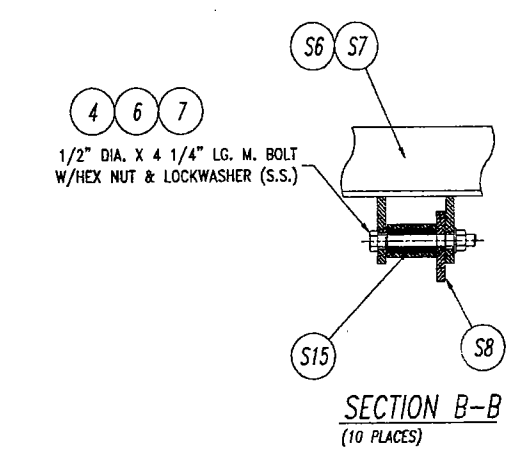
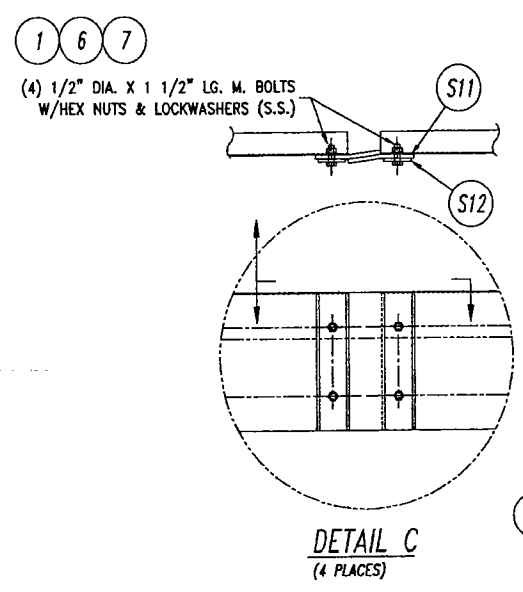
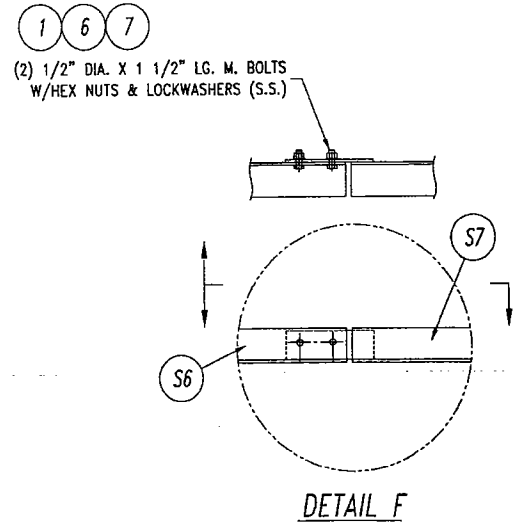
Rev. 2 11-2002 MCN2002-0517	LUBRICANT EQUIVALENTS LIST	11-AA1
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MANUFACTURER	GREASE	MANUFACTURER	GREASE
	NLGI No. 2** EQUIVALENT		NLGI No. 2** EQUIVALENT
MOBIL	Mobilith AW-2	SHELL	Darina EP2
AMOCO	Rykon #2	STANDARD OF CALIFORNIA CHEVRON USA	RPM Multimotive #2
EXXON	Ronnex MP		
GULF OIL	High Temperature Grease	SUN OIL	Sunaplex 992 EP
TEXACO	Multipak EP2	KEYSTONE	81 EP-2
PHILLIPS PET	Philube 2 EP	LUBRICATION ENGINEERS	Alma-Gard 3752

CAUTION: Do not mix lubricant types without first verifying product compatibility. Consult a qualified lubrication engineer or your Dorr-Oliver Eimco representative. When changing to a product that is not compatible with existing lubricant, the existing lubricant (oil or grease) must be completely removed before the new lubricant type is installed.

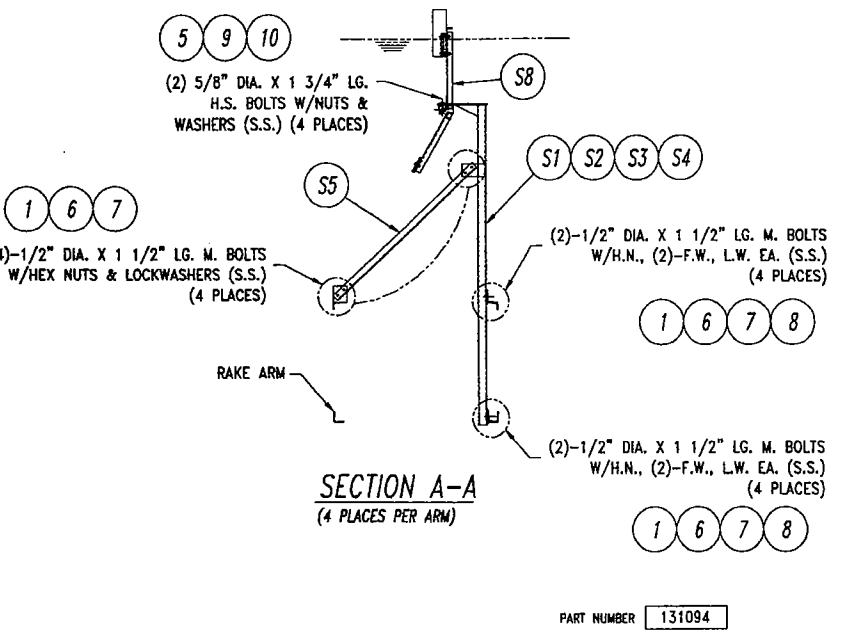
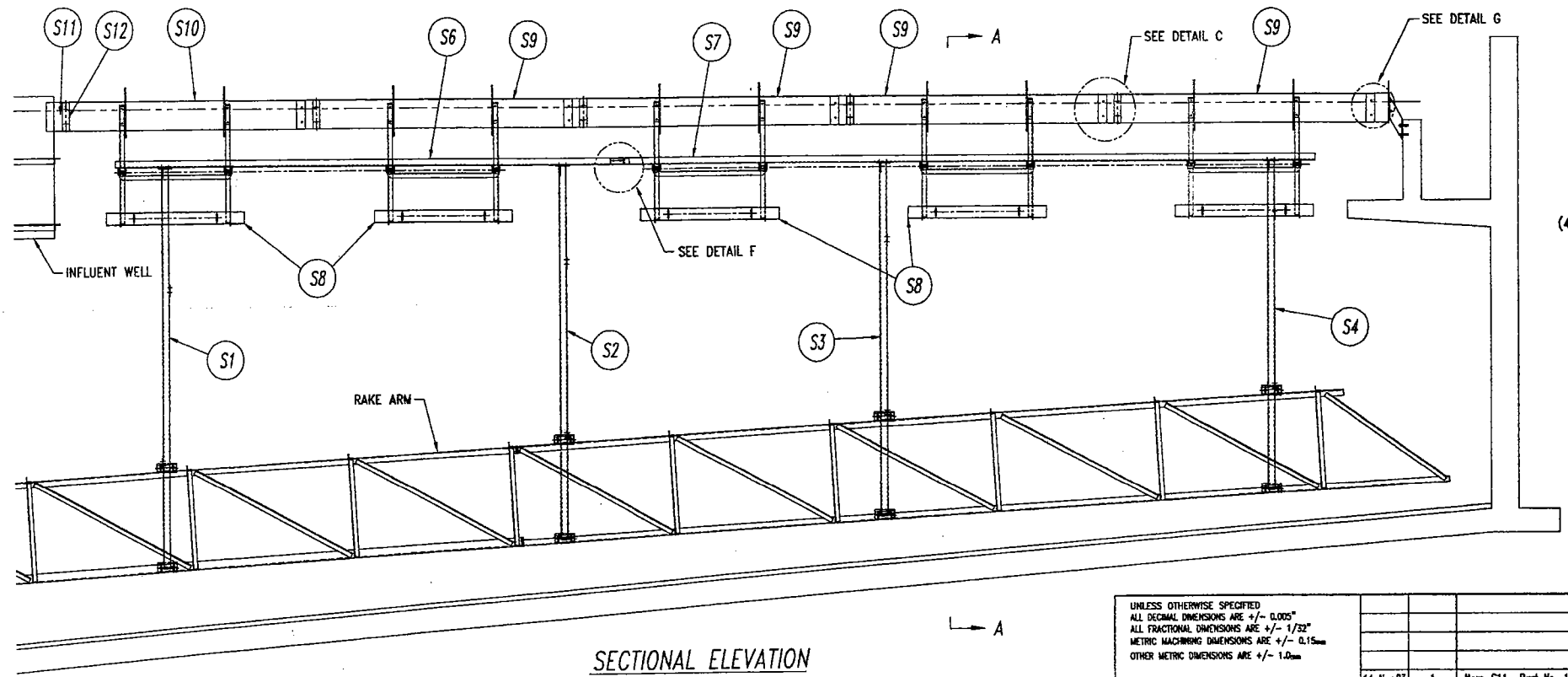
** NLGI #2 antiwear (EP) lithium complex (high temperature) grease.

8 7 6 5 4 3 2 1



PARTS LIST			
ITEM NO.	QTY.	PART OR PICS NO.	DESCRIPTION
S1	1	131091D	SKIMMER SUPPORT (17D03889)
S2	1	131091C	SKIMMER SUPPORT (17D03889)
S3	1	131091B	SKIMMER SUPPORT (17D03889)
S4	1	131091A	SKIMMER SUPPORT (17D03889)
S5	1	131091E	SKIMMER SUPPORT (17D03889)
S6	1	131092A	SKIMMER SUPPORT (17D03890)
S7	1	131092B	SKIMMER SUPPORT (17D03890)
S8	5	125025	SKIMMER SUPPORT ARM (17B01188)
S9	4	131093A	SKIMMING BLADE (17B01205)
S10	1	131093B	SKIMMING BLADE (17B01205)
S11	10	134611	WIPER (A45275)
S12	10	125026	WIPER PLATE (17A00790)
S13	10	125038	SKIMMER BUMPER SUPPORT CLIP (17A00794)
S14	10	125029	SKIMMER BUMPER (17A00777)
S15	10	125036	BUSHING (17A00793)
S16	5	125033	SKIMMER COUNTERWEIGHT (17A00791)
1	74		1/2" X 1 1/2" LG. M. BOLT (304 S.S.)
2	10		1/2" X 1 3/4" LG. M. BOLT (304 S.S.)
3	20		1/2" X 2" LG. M. BOLT (304 S.S.)
4	8		1/2" X 4 1/4" LG. M. BOLT (304 S.S.)
5	8		5/8" X 1 3/4" LG. M. BOLT (304 S.S.)
6	114		1/2" HEX NUT (304 S.S.)
7	114		1/2" LOCKWASHER (304 S.S.)
8	32		1/2" FLATWASHER (304 S.S.)
9	8		5/8" HEX NUT (304 S.S.)
10	8		5/8" LOCKWASHER (304 S.S.)

QUANTITIES SHOWN ARE FOR ONE ARM OF A TWO ARM SYSTEM



PART NUMBER 131094

UNLESS OTHERWISE SPECIFIED
 ALL DECIMAL DIMENSIONS ARE +/- 0.0005"
 ALL FRACTIONAL DIMENSIONS ARE +/- 1/32"
 METRIC MACHINING DIMENSIONS ARE +/- 0.15mm
 OTHER METRIC DIMENSIONS ARE +/- 1.0mm

THE DESIGNATION "MILD STEEL" OR M.S. MEANS A.S.T.M. A-36 OR BETTER
 ALL WELDING TO BE IN ACCORDANCE WITH SPECIFICATIONS OF AWS D1.1 OR C.S.A. W59

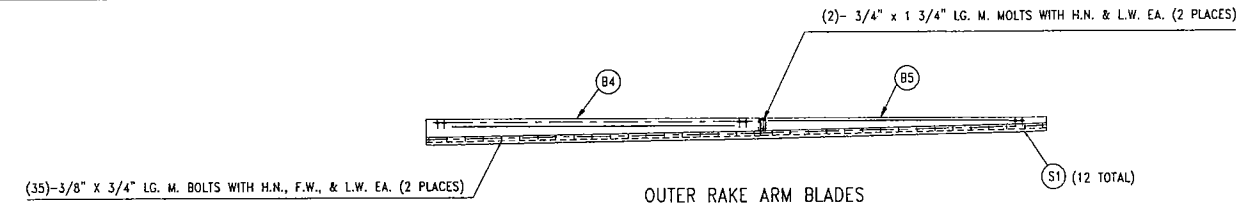
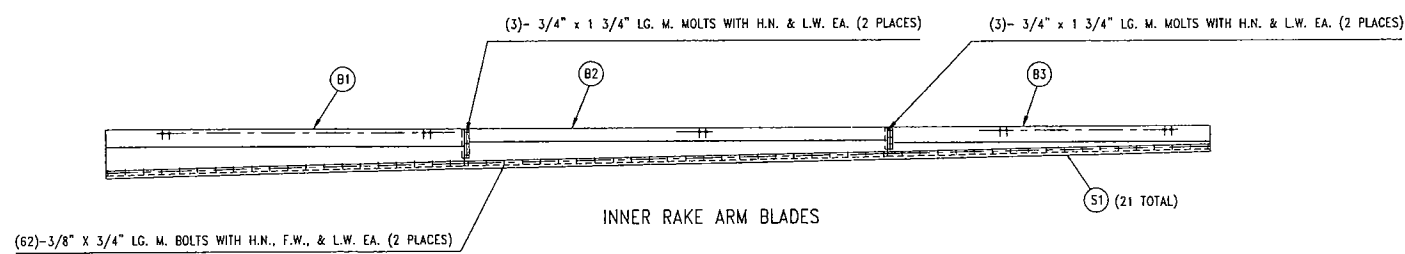
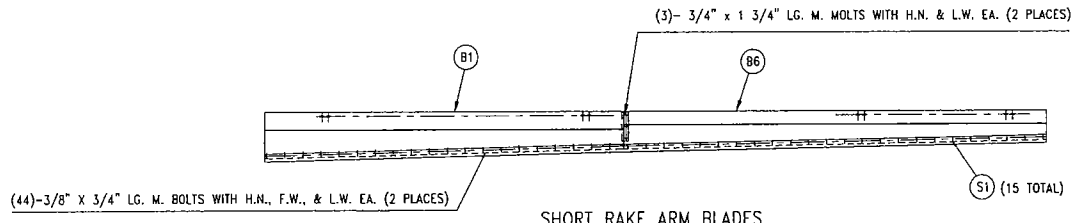
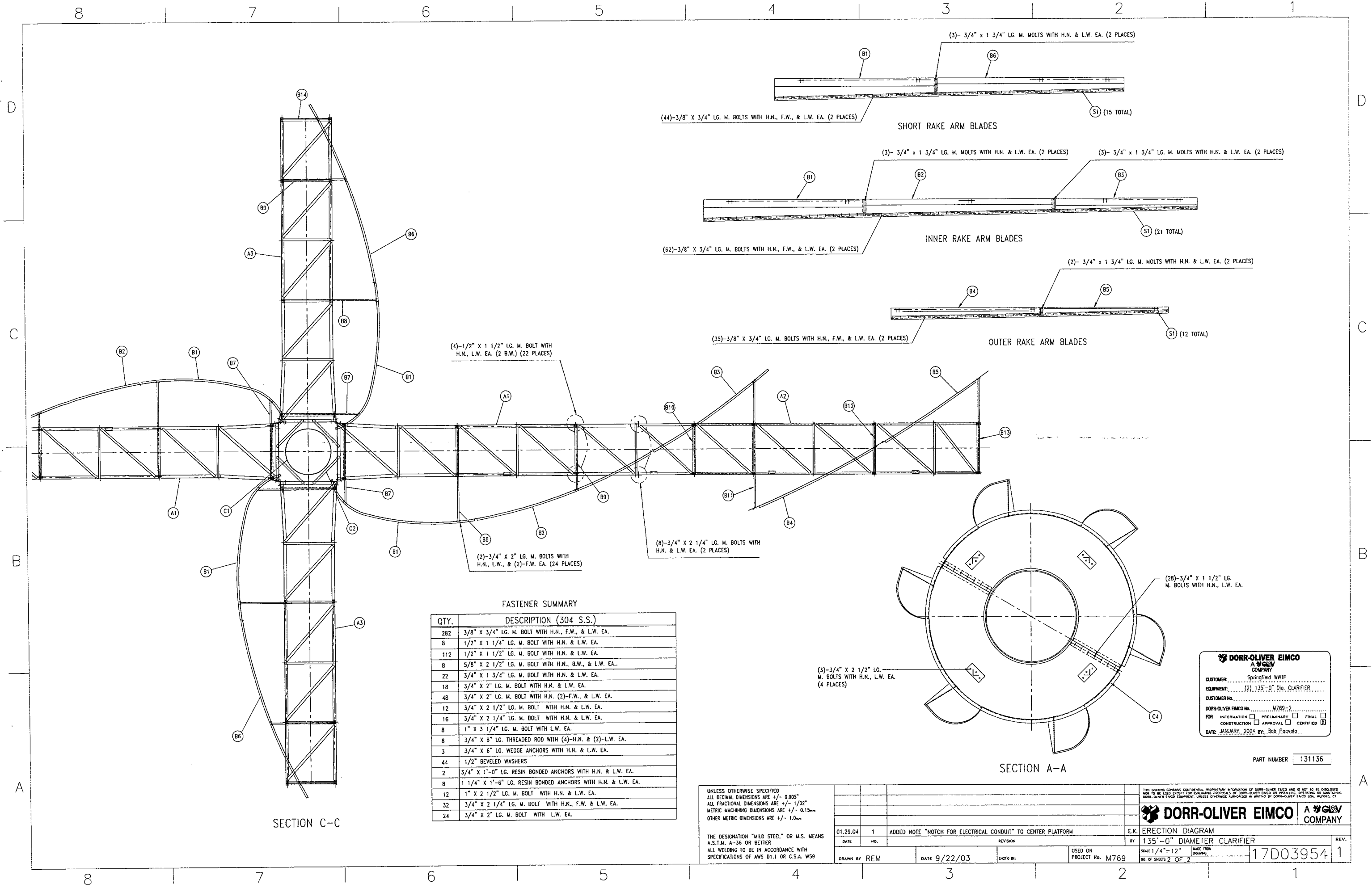
DATE	14-Nov-03	REV	1	ITEM	S11	PART NO.	134611	WSS	125028
DRAWN BY	REM	DATE	7/10/03	CREATED BY	Jaworski	USED ON PROJECT NO.	M769-2	SCALE	3/8"=12"

THIS DRAWING CONTAINS CONFIDENTIAL PROPRIETARY INFORMATION OF DORR-OLIVER EIMCO AND IS NOT TO BE DISCLOSED NOR TO BE USED EXCEPT FOR THE PURPOSES OF THE PROJECT FOR WHICH IT WAS PREPARED. ANY UNAUTHORIZED REPRODUCTION OR TRANSMISSION OF THIS DRAWING IS STRICTLY PROHIBITED. CONTACT DORR-OLIVER EIMCO FOR FURTHER INFORMATION.

DORR-OLIVER EIMCO A **CEVA** COMPANY

SKIMMER ERECTION DIAGRAM
 BY 135'-0" DIAMETER CLARIFIER
 17D03891 1

8 7 6 5 4 3 2 1



(4)-1/2" X 1 1/2" LG. M. BOLT WITH H.N., L.W. EA. (2 B.W.) (22 PLACES)

(2)-3/4" X 2" LG. M. BOLTS WITH H.N., L.W., & (2)-F.W. EA. (24 PLACES)

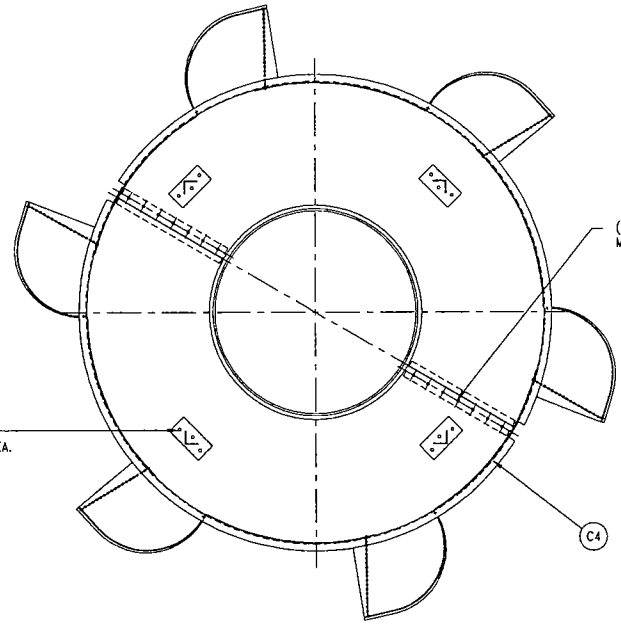
(8)-3/4" X 2 1/4" LG. M. BOLTS WITH H.N. & L.W. EA. (2 PLACES)

(3)-3/4" X 2 1/2" LG. M. BOLTS WITH H.N., L.W. EA. (4 PLACES)

(28)-3/4" X 1 1/2" LG. M. BOLTS WITH H.N., L.W. EA.

FASTENER SUMMARY

QTY.	DESCRIPTION (304 S.S.)
282	3/8" X 3/4" LG. M. BOLT WITH H.N., F.W., & L.W. EA.
8	1/2" X 1 1/4" LG. M. BOLT WITH H.N. & L.W. EA.
112	1/2" X 1 1/2" LG. M. BOLT WITH H.N. & L.W. EA.
8	5/8" X 2 1/2" LG. M. BOLT WITH H.N., B.W., & L.W. EA.
22	3/4" X 1 3/4" LG. M. BOLT WITH H.N. & L.W. EA.
18	3/4" X 2" LG. M. BOLT WITH H.N. & L.W. EA.
48	3/4" X 2" LG. M. BOLT WITH H.N. (2)-F.W., & L.W. EA.
12	3/4" X 2 1/2" LG. M. BOLT WITH H.N. & L.W. EA.
16	3/4" X 2 1/4" LG. M. BOLT WITH H.N. & L.W. EA.
8	1" X 3 1/4" LG. M. BOLT WITH L.W. EA.
8	3/4" X 8" LG. THREADED ROD WITH (4)-H.N. & (2)-L.W. EA.
3	3/4" X 6" LG. WEDGE ANCHORS WITH H.N. & L.W. EA.
44	1/2" BEVELED WASHERS
2	3/4" X 1'-0" LG. RESIN BONDED ANCHORS WITH H.N. & L.W. EA.
8	1 1/4" X 1'-6" LG. RESIN BONDED ANCHORS WITH H.N. & L.W. EA.
12	1" X 2 1/2" LG. M. BOLT WITH H.N. & L.W. EA.
32	3/4" X 2 1/4" LG. M. BOLT WITH H.N., F.W. & L.W. EA.
24	3/4" X 2" LG. M. BOLT WITH L.W. EA.



SECTION A-A

DORR-OLIVER EIMCO
A STEEL COMPANY

CUSTOMER: Springfield WWTP
EQUIPMENT: (2) 135'-0" Dia. CLARIFIER
CUSTOMER No. _____
DORR-OLIVER EIMCO No. M769-2
FOR INFORMATION PRELIMINARY FINAL
CONSTRUCTION APPROVAL CERTIFIED
DATE: JANUARY, 2004 BY: Bob Pasvolo

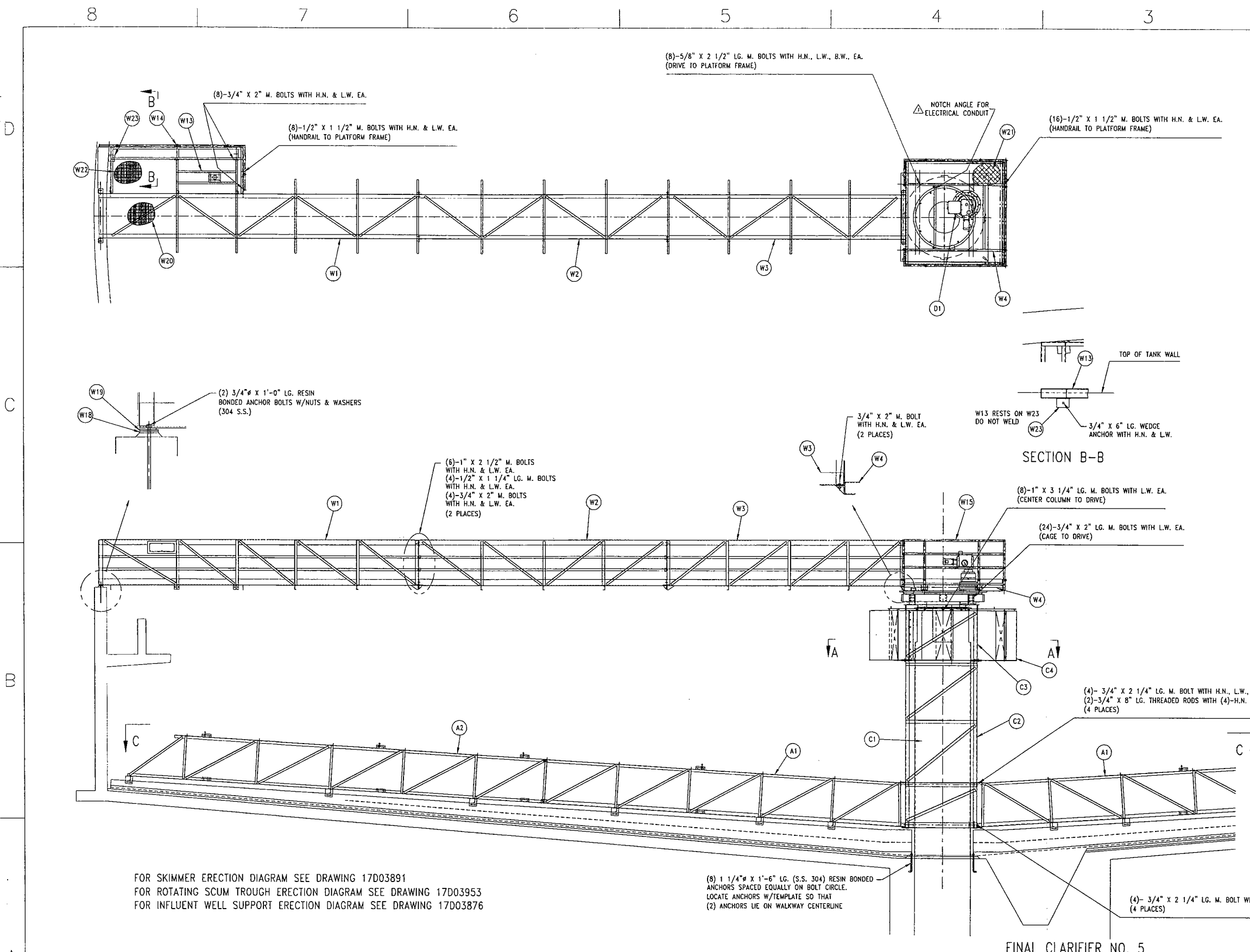
PART NUMBER 131136

UNLESS OTHERWISE SPECIFIED
ALL DECIMAL DIMENSIONS ARE +/- 0.005"
ALL FRACTIONAL DIMENSIONS ARE +/- 1/32"
METRIC MACHINING DIMENSIONS ARE +/- 0.15mm
OTHER METRIC DIMENSIONS ARE +/- 1.0mm

THE DESIGNATION "MILD STEEL" OR M.S. MEANS A.S.T.M. A-36 OR BETTER
ALL WELDING TO BE IN ACCORDANCE WITH SPECIFICATIONS OF AWS D1.1 OR C.S.A. W59

01.29.04	1	ADDED NOTE "NOTCH FOR ELECTRICAL CONDUIT" TO CENTER PLATFORM	E.K.	ERECTION DIAGRAM
DATE	NO.	REVISION	BY	135'-0" DIAMETER CLARIFIER
DRAWN BY REM	DATE 9/22/03	CHK'D BY:	USED ON PROJECT No. M769	NO. OF SHEETS 2 OF 2

17D03954 1



PARTS LIST				
ITEM NO.	QTY.	PART OR PICS NO.		DESCRIPTION

FOR SKIMMER ERECTION DIAGRAM SEE DRAWING 17D03891
FOR ROTATING SCUM TROUGH ERECTION DIAGRAM SEE DRAWING 17D03953
FOR INFLUENT WELL SUPPORT ERECTION DIAGRAM SEE DRAWING 17D03876

SERIAL NUMBER M769-2A COLOR CODE; WHITE/GREEN
SERIAL NUMBER M769-2B COLOR CODE; WHITE/RED

NOTE TO ERECTOR
ASSEMBLE WALKWAY TRUSS WITH 1 1/2" CAMBER

UNLESS OTHERWISE SPECIFIED
ALL DECIMAL DIMENSIONS ARE +/- 0.005"
ALL FRACTIONAL DIMENSIONS ARE +/- 1/32"
METRIC MACHINING DIMENSIONS ARE +/- 0.15mm
OTHER METRIC DIMENSIONS ARE +/- 1.0mm

THE DESIGNATION "MILD STEEL" OR M.S. MEANS A.S.T.M. A-36 OR BETTER
ALL WELDING TO BE IN ACCORDANCE WITH SPECIFICATIONS OF AWS D1.1 OR C.S.A. W59

FINAL CLARIFIER NO. 5

DATE 01.29.04 1
DATE 9/22/03
DRAWN BY REM
USED ON PROJECT No. M769
NO. OF SHEETS 1 OF 2

ADDED NOTE "NOTCH FOR ELECTRICAL CONDUIT" TO CENTER PLATFORM

REVISION

REVISION

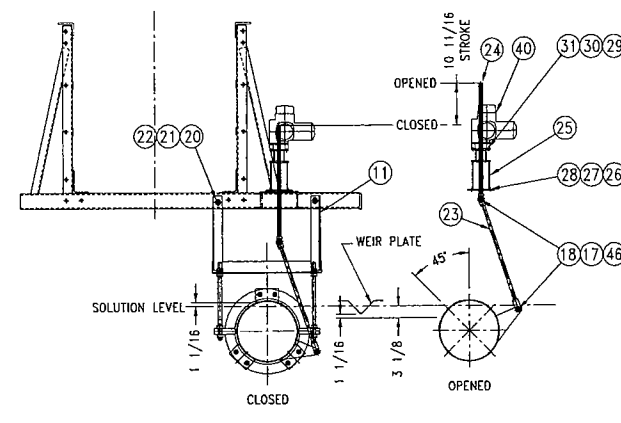
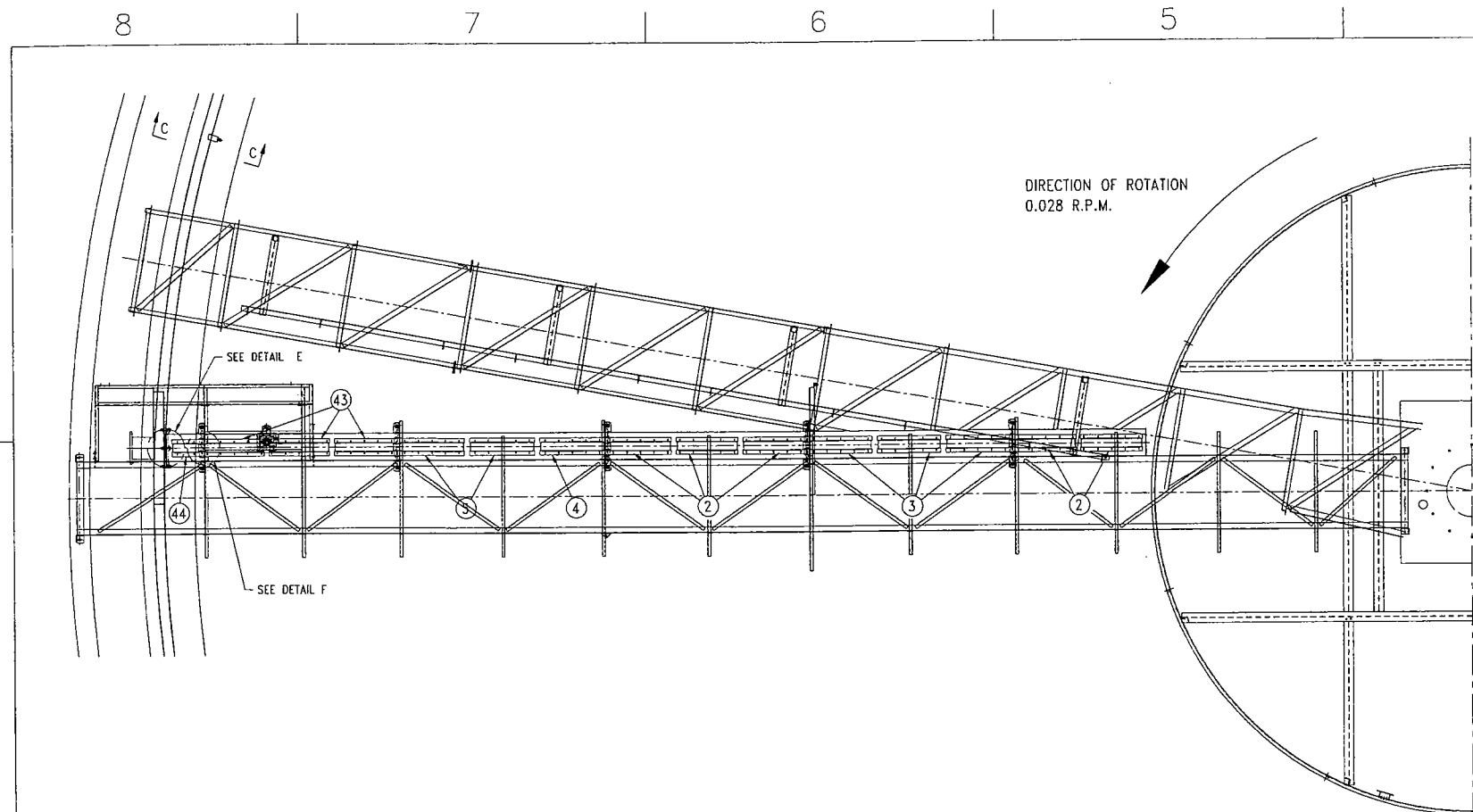
E.K. ERECTION DIAGRAM
BY 135'-0" DIAMETER CLARIFIER
SCALE 1/4" = 12"
NO. OF SHEETS 1 OF 2

17D03954

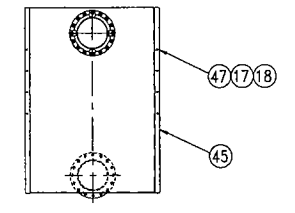
131136

DORR-OLIVER EIMCO COMPANY

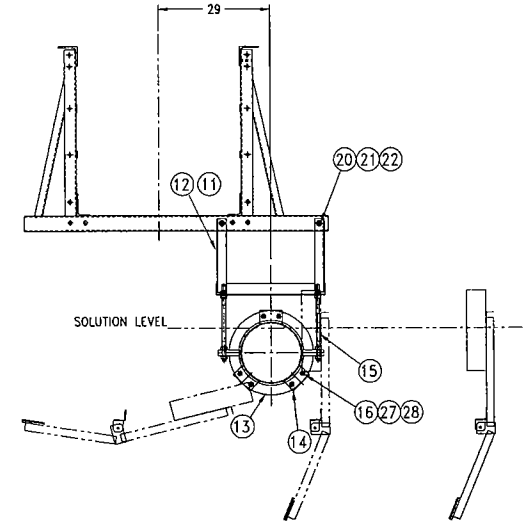
DATE: JANUARY, 2004 BY: Bob Paavola



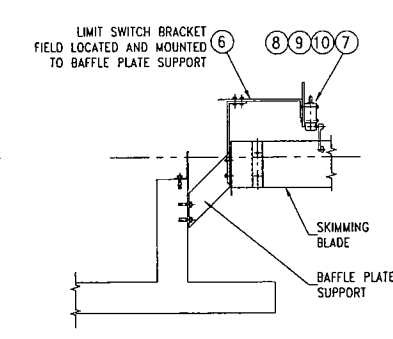
SECTION A-A
SCALE 1/2"=12"



SECTION D-D

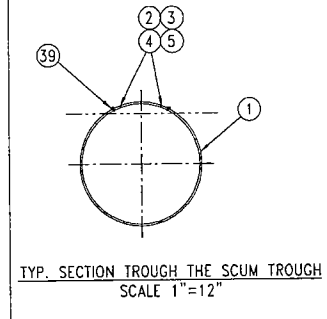
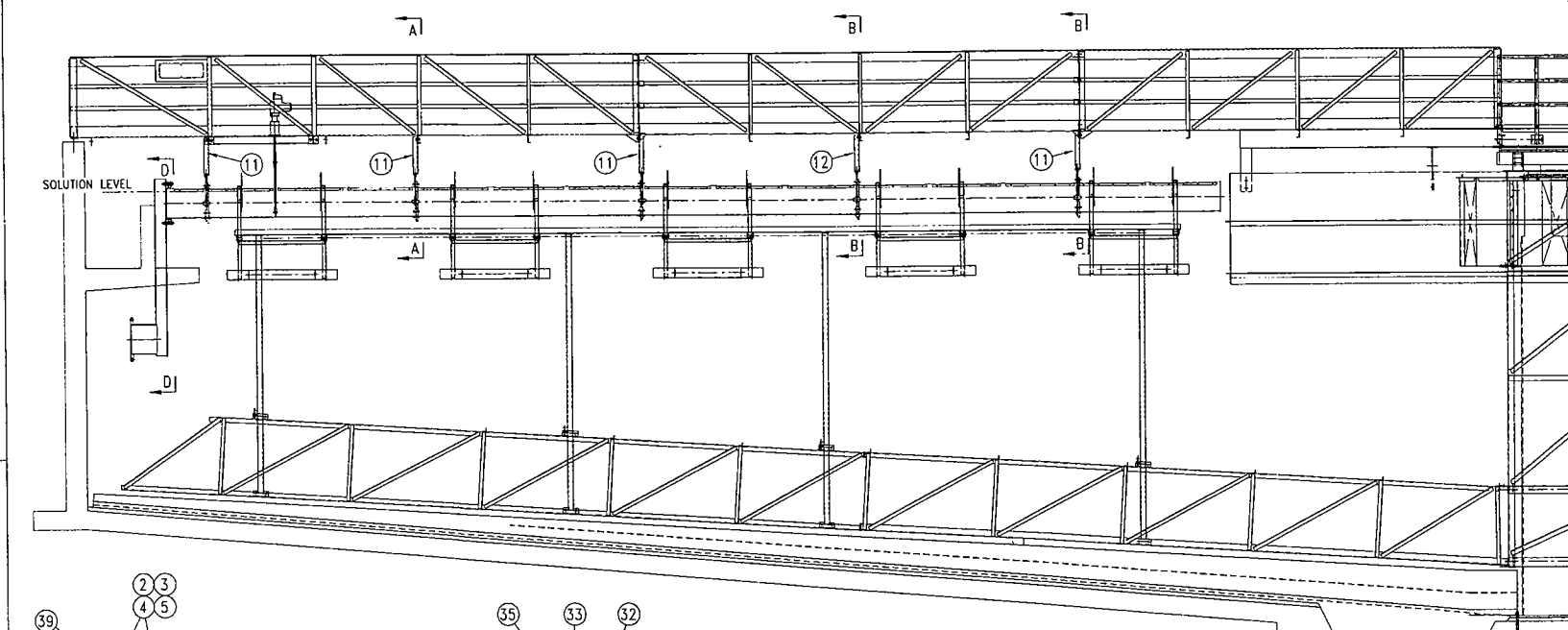


SECTION B-B
SCALE 1/2"=12"

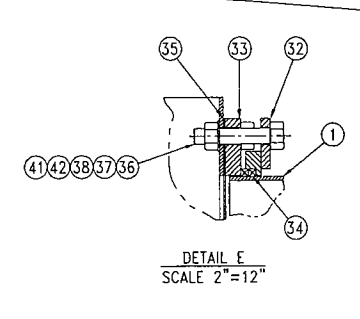


SECTION C-C
SCALE 1/2"=12"

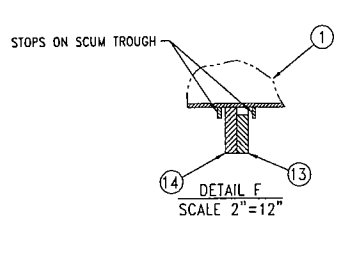
PARTS LIST			
ITEM NO.	QTY.	PART OR PICS NO.	DESCRIPTION
1	1	131245	ROTATING SCUM TROUGH (17D03885)
2	10	132182	WEIR PLATE (17B01207)
3	6	132183	WEIR PLATE (17B01207)
4	2	132184	WEIR PLATE (17B01207)
5	4	132185	WEIR PLATE (17B01207)
6	1	125766	LIMIT SWITCH BRACKET
7	1		LIMIT SWITCH (REFERENCE)
8	2		ROUND HD. SCREW 10-24 x 2 1/2" LG. (304 S.S.)
9	2		HEX. NUT 10-24 (304 S.S.)
10	2		LOCKWASHER #10 (304 S.S.)
11	4	131321	SCUM TROUGH HANGER (17B01203)
12	1	131322	SCUM TROUGH HANGER (17B01204)
13	5	132194	STATIONARY RING (17C01066)
14	15	132195	PLATE-BEARING (17B01208)
15	10	132204	HANGER ROD (17B01211)
16	30		HEX. HD. SCREW 5/8-11 x 2 1/4" LG. (304 S.S.)
17	12		HEX. NUT 1/2-13 (304 S.S.)
18	12		LOCKWASHER 1/2" (304 S.S.)
19	2		HEX. HD. SCREW 1/2-13 x 1 1/4" LG. (304 S.S.)
20	10		HEX. HD. SCREW 3/4-10 x 1 3/4" LG. (304 S.S.)
21	10		HEX. NUT 3/4-10 (304 S.S.)
22	10		LOCKWASHER 3/4" (304 S.S.)
23	1	132206	ACTUATOR ROD (17B01212)
24	1	132209	THREADED ROD (17B01213)
25	1	125732	ACTUATOR MOUNT (17C01061)
26	4		HEX. HD. SCREW 5/8-11 x 1 3/4" LG. (304 S.S.)
27	34		HEX. NUT 5/8-11 (304 S.S.)
28	34		LOCKWASHER 5/8" (304 S.S.)
29	4		HEX. HD. SCREW 3/8-16 x 1 1/4" LG. (304 S.S.)
30	4		HEX. NUT 3/8-16 (304 S.S.)
31	4		LOCKWASHER 3/8" (304 S.S.)
32	1	132210	CLAMPING RING (17B01214)
33	1	132211	LOOSE FLANGE (17B01215)
34	2	132213	1/2" SQ. PACKING, 52" LG. (17A00803)
35	1	132216	GASKET (17B01216)
36	4		HEX. HD. SCREW 1-8 x 5" LG. (304 S.S.)
37	12		HEX. HD. SCREW 1-8 x 3" LG. (304 S.S.)
38	16		HEX. NUT 1-8 (304 S.S.)
39	144		ROUND HD. SCREW 1/4-20 x 3/4 LG. (304 S.S.)
40	1	131076	ACTUATOR (17A00802)
41	12		LOCKWASHER 1" (304 S.S.)
42	4		FLAT WASHER 1" (304 S.S.)
43	6	132186	WEIR PLATE (17B01207)
44	2	132187	WEIR PLATE (17B01207)
45	1	131316	DISCHARGE BOX (17C01065)
46	2		HEX. HD. SCREW 1/2-13 x 2" LG. (304 S.S.)
47	8		1/2" X 6" LG. WEDGE ANCHOR (304 S.S.)



TYP. SECTION THROUGH THE SCUM TROUGH
SCALE 1"=12"



DETAIL E
SCALE 2"=12"



DETAIL F
SCALE 2"=12"

UNLESS OTHERWISE SPECIFIED
ALL DECIMAL DIMENSIONS ARE +/- 0.005"
ALL FRACTIONAL DIMENSIONS ARE +/- 1/32"
METRIC MACHINING DIMENSIONS ARE +/- 0.15mm
OTHER METRIC DIMENSIONS ARE +/- 1.0mm

THE DESIGNATION "MILD STEEL" OR "M.S." MEANS
A.S.T.M. A-36 OR BETTER
ALL WELDING TO BE IN ACCORDANCE WITH
SPECIFICATIONS OF AWS D1.1 OR C.S.A. W59

DATE		NO.		REVISION		BY		E.K.	
01.28.04		1		LIMIT SWITCH WAS SUPPORTED FROM SCUM TROUGH HANGER ITEM-12				ROTATING SCUM TROUGH ASSEMBLY DRAWING	
DRAWN BY		DATE		DATE		USED ON		NO. OF SHEETS	
REM		9/19/03		9/19/03		PROJECT No. M769		17D03953 1	

DORR-OLIVER EIMCO
A GEV COMPANY

CUSTOMER: Springfield WWTP
EQUIPMENT: (2) 135'-0" Dia. CLARIFIER
CUSTOMER No.:
DORR-OLIVER EIMCO No.: M769-2

FOR INFORMATION PRELIMINARY FINAL
CONSTRUCTION APPROVAL CERTIFIED

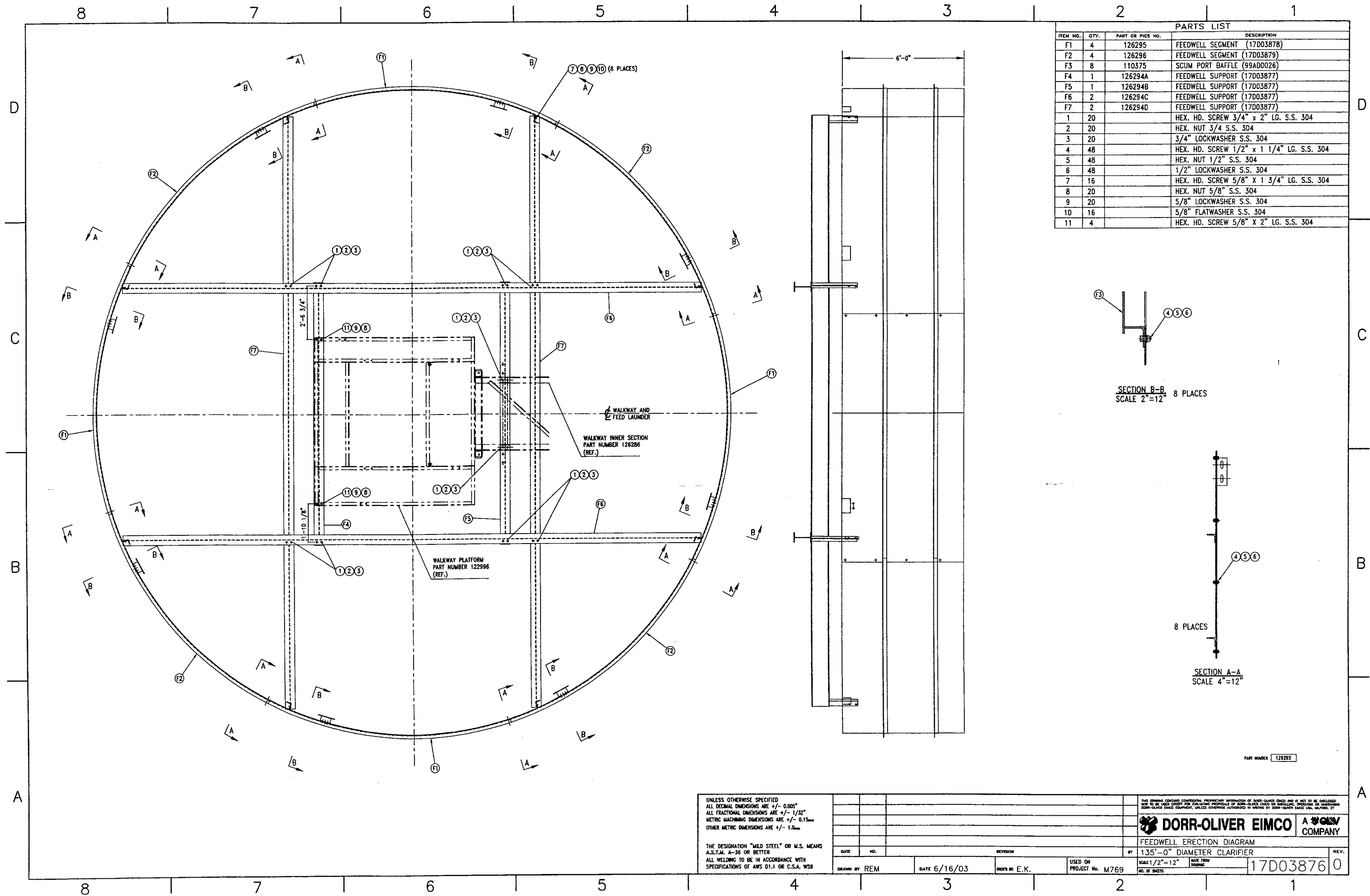
DATE: JANUARY, 2004 BY: Bob Pavloff

PART NUMBER 131136

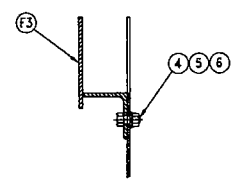
FINAL CLARIFIER NO. 5

DORR-OLIVER EIMCO A GEV COMPANY

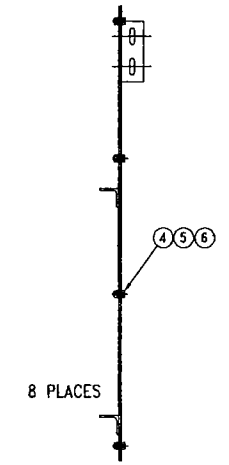
17D03953 1



PARTS LIST		DESCRIPTION
F1	4	FEEDWELL SEGMENT (17D03878)
F2	4	FEEDWELL SEGMENT (17D03879)
F3	8	SCUM PORT BAFFLE (99AD0026)
F4	1	FEEDWELL SUPPORT (17D03877)
F5	1	FEEDWELL SUPPORT (17D03877)
F6	2	FEEDWELL SUPPORT (17D03877)
F7	2	FEEDWELL SUPPORT (17D03877)
1	20	HEX. HD. SCREW 3/4" x 2" LG. S.S. 304
2	20	HEX. NUT 3/4 S.S. 304
3	20	3/4" LOCKWASHER S.S. 304
4	48	HEX. HD. SCREW 1/2" x 1 1/4" LG. S.S. 304
5	48	HEX. NUT 1/2" S.S. 304
6	48	1/2" LOCKWASHER S.S. 304
7	16	HEX. HD. SCREW 5/8" x 1 3/4" LG. S.S. 304
8	20	HEX. NUT 5/8" S.S. 304
9	20	5/8" LOCKWASHER S.S. 304
10	16	5/8" FLATWASHER S.S. 304
11	4	HEX. HD. SCREW 5/8" X 2" LG. S.S. 304



SECTION B-B
SCALE 2"=12" 8 PLACES



SECTION A-A
SCALE 4"=12" 8 PLACES

PART NUMBER 126295

UNLESS OTHERWISE SPECIFIED
 ALL DECIMAL DIMENSIONS ARE +/- 0.005"
 ALL FRACTIONAL DIMENSIONS ARE +/- 1/32"
 METRIC MACHINING DIMENSIONS ARE +/- 0.15mm
 OTHER METRIC DIMENSIONS ARE +/- 1.0mm

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 ALL WELDING TO BE IN ACCORDANCE WITH SPECIFICATIONS OF AWS D1.1 OR C.S.A. W59

DATE	NO.	REVISION	BY
DATE 6/16/03		CREW BY: E.K.	

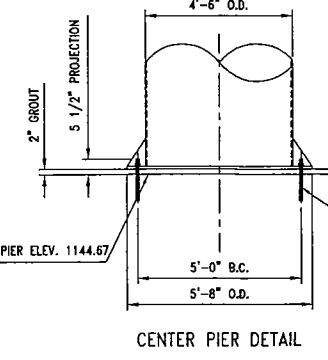
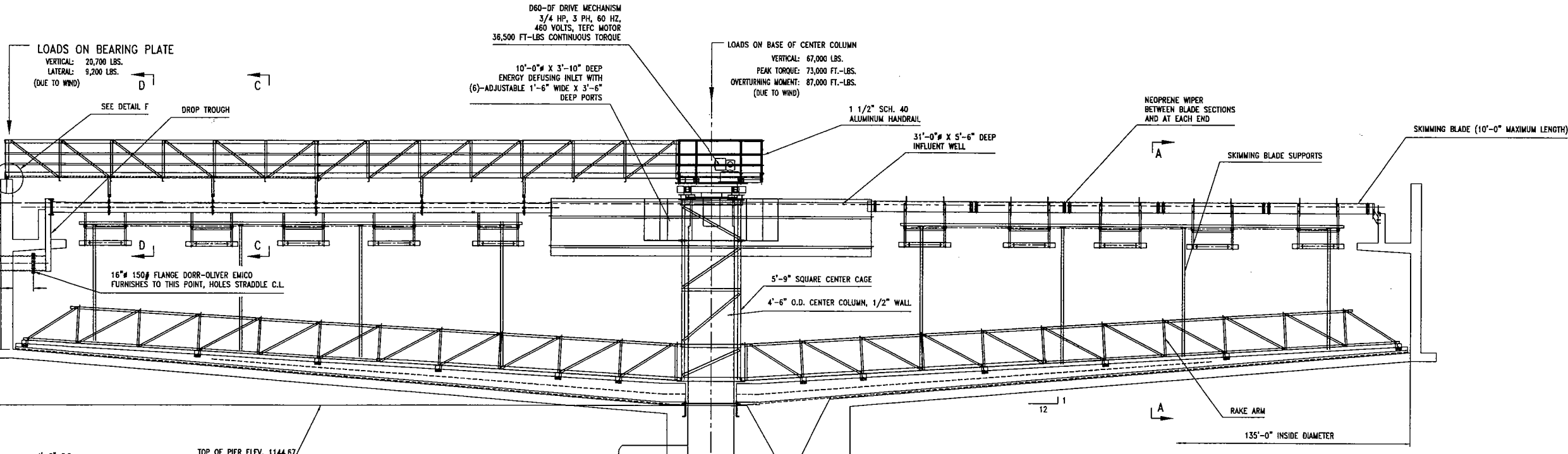
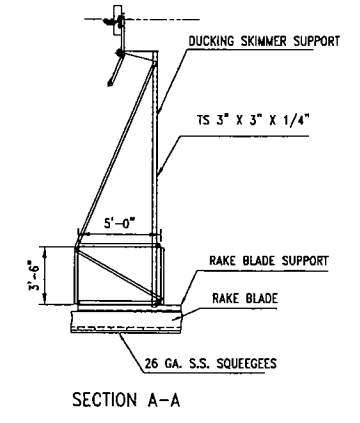
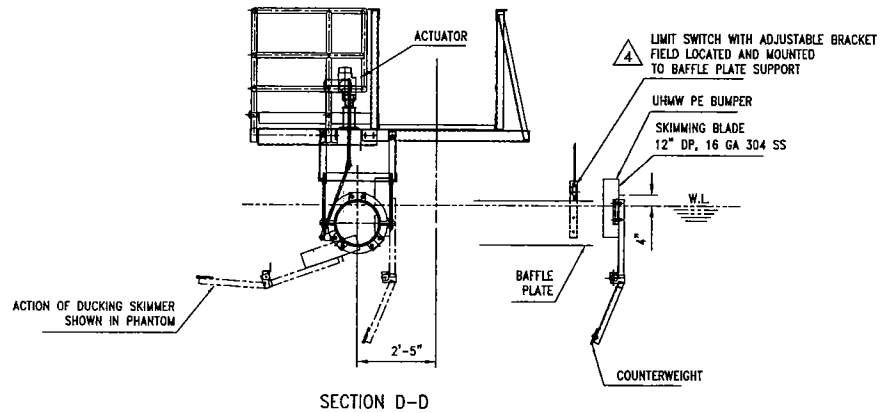
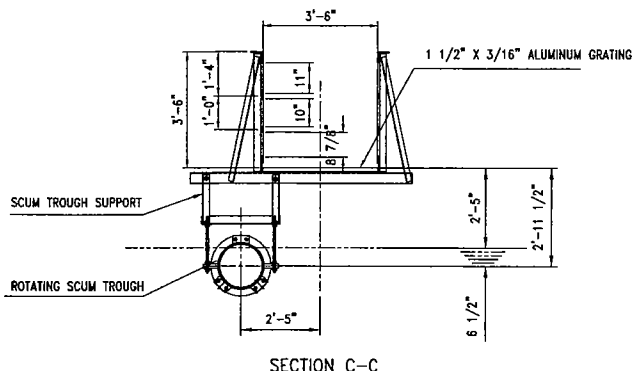
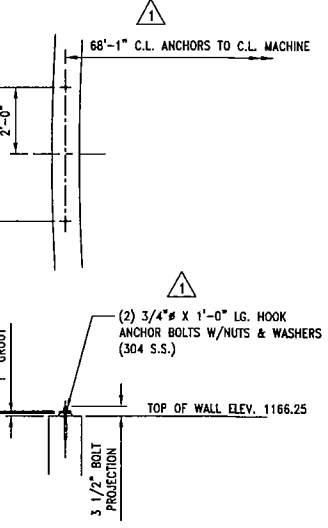
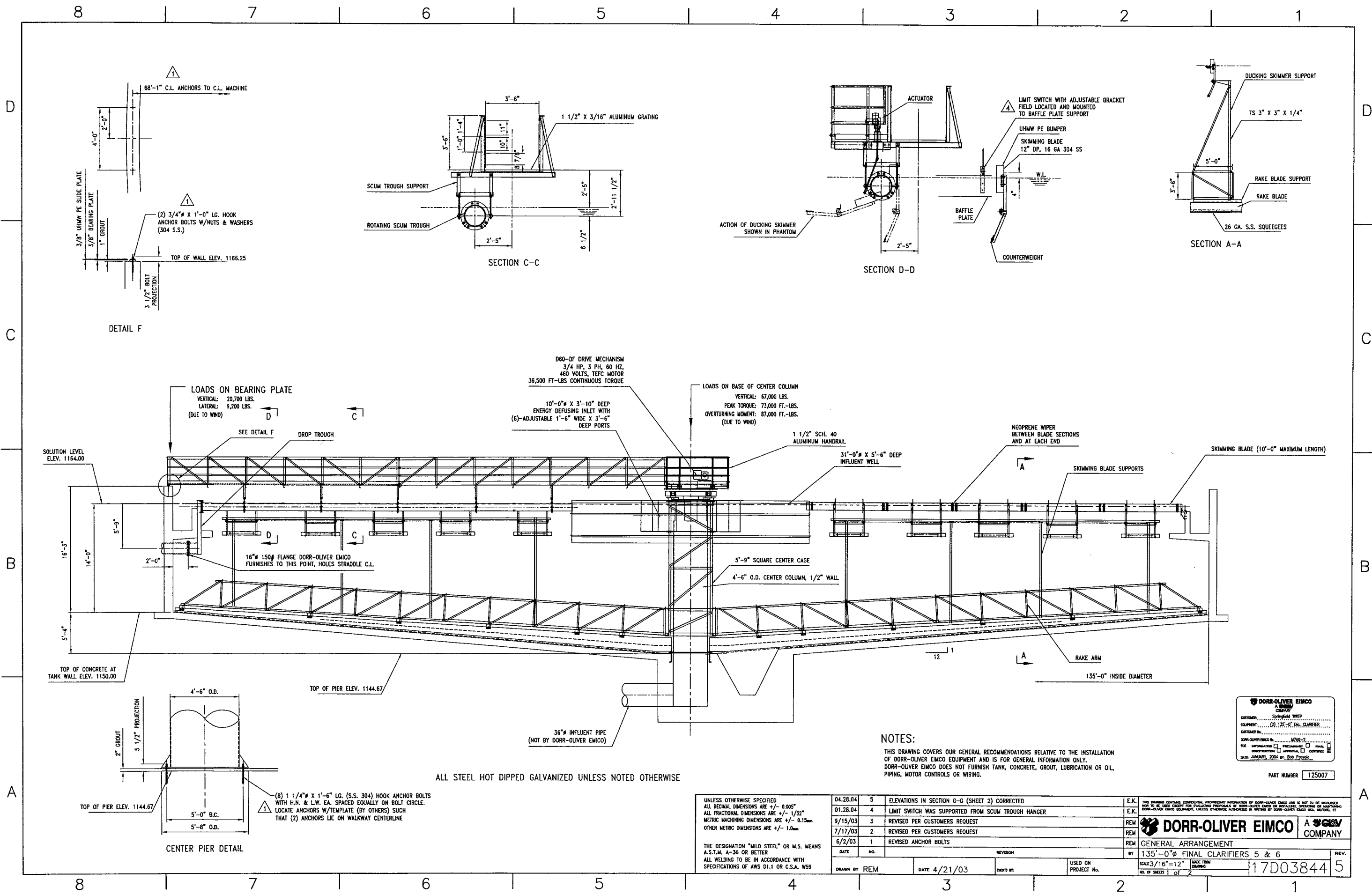
USED ON PROJECT No. M769

SCALE 1/2"=12" DATE FROM DRAWING

NO. OF SHEETS 17D03876 0

FEEDWELL ERECTION DIAGRAM
 135'-0" DIAMETER CLARIFIER

DORR-OLIVER EIMCO COMPANY



ALL STEEL HOT DIPPED GALVANIZED UNLESS NOTED OTHERWISE

NOTES:
 THIS DRAWING COVERS OUR GENERAL RECOMMENDATIONS RELATIVE TO THE INSTALLATION OF DORR-OLIVER EIMCO EQUIPMENT AND IS FOR GENERAL INFORMATION ONLY. DORR-OLIVER EIMCO DOES NOT FURNISH TANK, CONCRETE, GROUT, LUBRICATION OR OIL, PIPING, MOTOR CONTROLS OR WIRING.

DORR-OLIVER EIMCO
 COMPANY
 CUSTOMER: Springfield WWTP
 EQUIPMENT: (2) 135'-0" DIA. CLARIFIER
 DRAWING NO.: 17D03844
 DATE: JANUARY, 2004
 PART NUMBER 125007

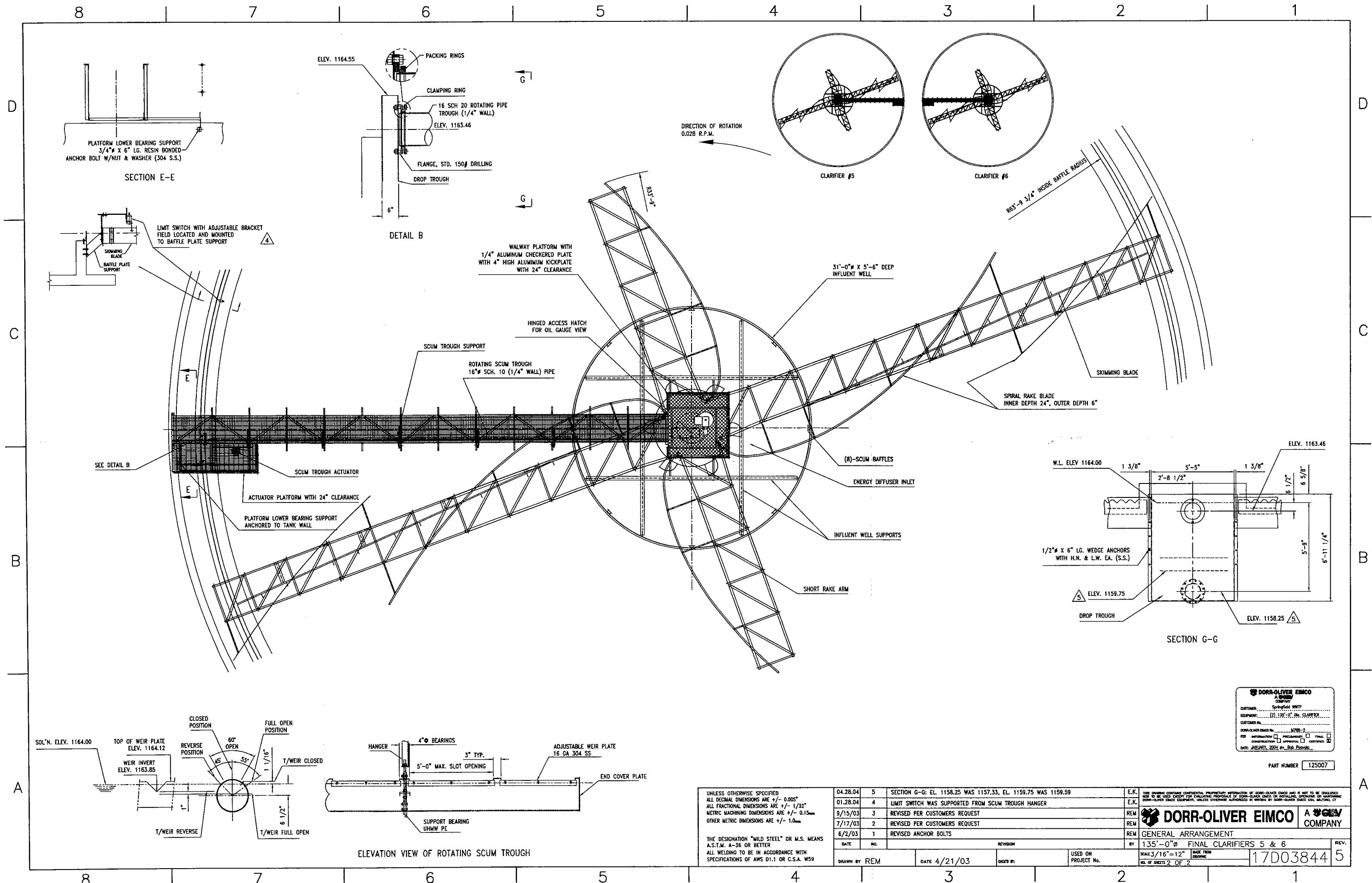
DATE	NO.	REVISION	BY	REV.
04-28-04	5	ELEVATIONS IN SECTION G-G (SHEET 2) CORRECTED	E.K.	
01-28-04	4	LIMIT SWITCH WAS SUPPORTED FROM SCUM TROUGH HANGER	E.K.	
9/15/03	3	REVISED PER CUSTOMERS REQUEST	REM	
7/17/03	2	REVISED PER CUSTOMERS REQUEST	REM	
6/2/03	1	REVISED ANCHOR BOLTS	REM	

UNLESS OTHERWISE SPECIFIED:
 ALL DECIMAL DIMENSIONS ARE +/- 0.005"
 ALL FRACTIONAL DIMENSIONS ARE +/- 1/32"
 METRIC MACHINING DIMENSIONS ARE +/- 0.15mm
 OTHER METRIC DIMENSIONS ARE +/- 1.0mm

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SCALE: 3/16" = 12"
 NO. OF SHEETS 1 OF 2

DRAWN BY: REM DATE: 4/21/03
 USED ON PROJECT No. 17D03844



UNLESS OTHERWISE SPECIFIED
 ALL DECIMAL DIMENSIONS ARE +/- 0.005"
 ALL FRACTIONAL DIMENSIONS ARE +/- 1/32"
 METRIC MACHINING DIMENSIONS ARE +/- 0.15mm
 OTHER METRIC DIMENSIONS ARE +/- 1.0mm

THE DESIGNATION "MILD STEEL" OR M.S. MEANS
 A.S.T.M. A-36 OR BETTER
 ALL WELDING TO BE IN ACCORDANCE WITH
 SPECIFICATIONS OF AWS D1.1 OR C.S.A. W59

DATE	NO.	REVISION	BY
04.28.04	5	SECTION G-G: EL. 1158.25 WAS 1157.33, EL. 1159.75 WAS 1159.59	E.K.
01.28.04	4	LIMIT SWITCH WAS SUPPORTED FROM SCUM TROUGH HANGER	E.K.
9/15/03	3	REVISED PER CUSTOMERS REQUEST	REM
7/17/03	2	REVISED PER CUSTOMERS REQUEST	REM
6/2/03	1	REVISED ANCHOR BOLTS	REM

DRAWN BY	DATE	CHECK BY	USED ON PROJECT No.	NO. OF SHEETS	REV.
REM	4/21/03			2 OF 2	5

THIS DRAWING CONTAINS CONFIDENTIAL, PROPRIETARY INFORMATION OF DORR-OLIVER EIMCO AND IS NOT TO BE REPRODUCED, COPIED, OR USED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF DORR-OLIVER EIMCO. UNLESS OTHERWISE AUTHORIZED BY DORR-OLIVER EIMCO, NO PART OF THIS DRAWING IS TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM.

DORR-OLIVER EIMCO COMPANY
 CUSTOMER: ...
 EQUIPMENT: ...
 DORR-OLIVER EIMCO, INC. ...
 DATE: JANUARY, 2004 BY: Bob ...

PART NUMBER 125007

SCALE: 3/16" = 12" MADE FROM DRAWING 17D03844

DORR-OLIVER EIMCO
 COMPANY
 CUSTOMER: ...
 EQUIPMENT: ...
 DORR-OLIVER EIMCO, INC. ...
 DATE: JANUARY, 2004 BY: Bob ...

PART NUMBER 125007

GENERAL ARRANGEMENT
 135'-0" Ø FINAL CLARIFIERS 5 & 6
 SCALE: 3/16" = 12" MADE FROM DRAWING 17D03844