

## PRACTICAL EXPERIENCE, EXCEPTIONAL RESULTS.

Global operators have been putting their trust in Maximizer III™ pumping units in oil fields for more than three decades. The units are recognized worldwide for their dependability, durability, and extended service life. These qualities, plus very high mechanical efficiency, low operating costs, and high resale value, have earned Maximizer III units an excellent reputation.



## Maximizer III Pumping Units

Maximizer III pumping units and gear reducers are manufactured in a range of sizes from 114 through 1280 to continually enhance capabilities to address tomorrow's technological challenges. In addition, these facilities hold API licensure. Clients can be confident knowing that each product is designed to exceed the latest API Specification 11E and is backed by the API Specification Q1 Quality Assurance Program.

### Features, Advantages, and Benefits

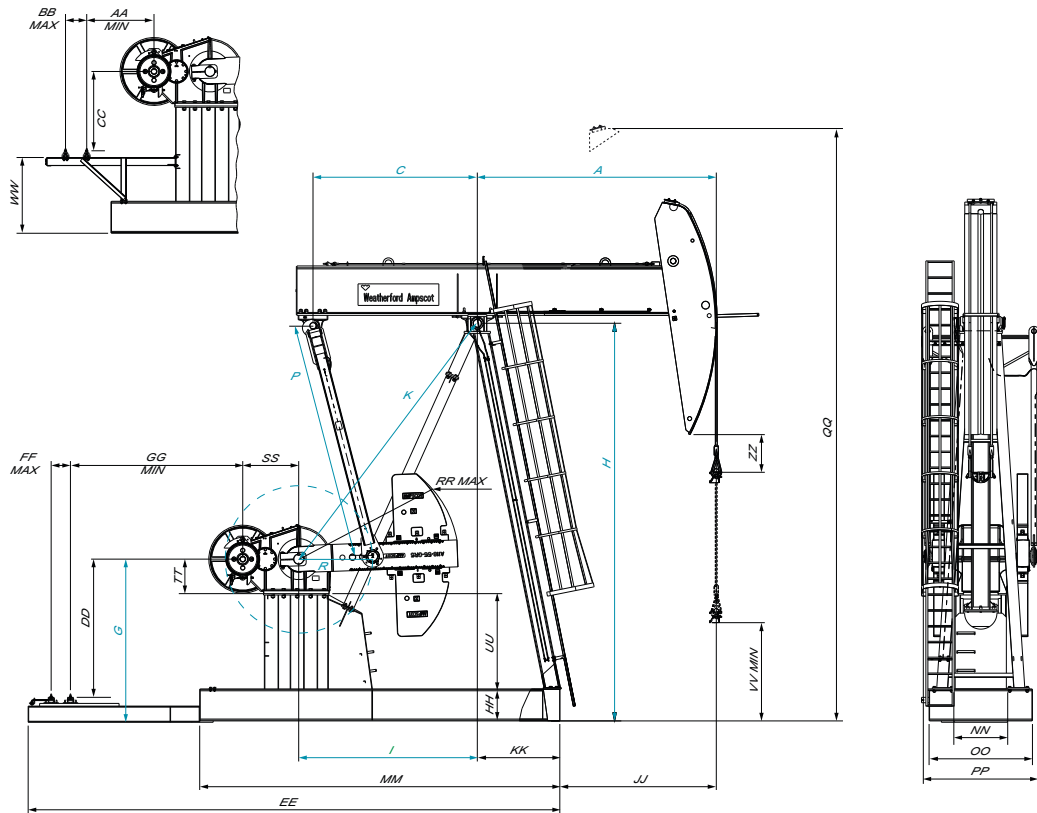
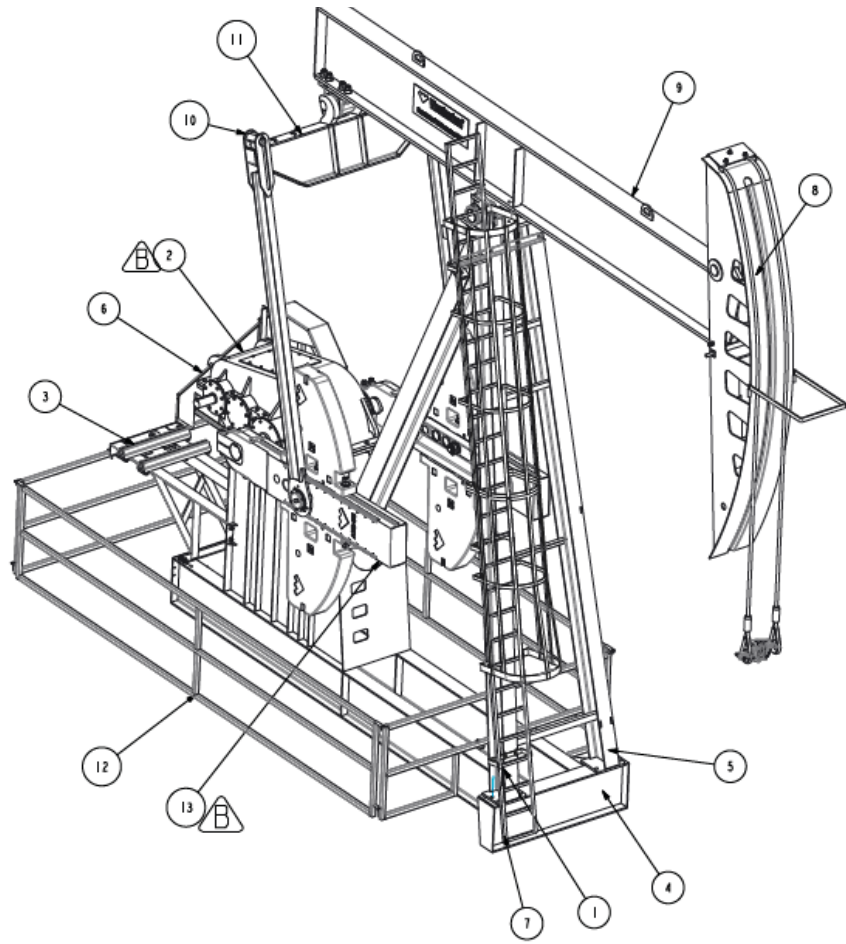
- Maximizer III pumping units are designed with the following features: safety line with stops running the length of the walking beam, lifting hooks, crank guards, belt guards, caged ladders, and ground-level lubrication to provide the highest level of safety.
- The gear reducer is designed with a piece gear case and gears in accordance with API Specification 11E to provide long life and easy maintenance.
- Class I working geometry operates in either direction, which equalizes gear wear and extends reducer life.
- Three-legged Sampson post, with the rear leg mounted high in the pedestal base, adds upper structure stability while equalizing surface loads.
- Crank arm provides convenient counterweight adjustment.
- Bolt-on crank arms can be removed in the field without the use of hydraulic press or special tools.
- Quick-release retainer pin expedites removal of horsehead for well servicing.

### Structural Bearings

- Maximizer III high-capacity structural bearings are readily available for ease of maintenance and repair.
- All Maximizer III units have high-efficiency roller bearings.
- Crank pin assemblies feature a standard tapered pin and self-aligning spherical roller bearings, with an easily accessible inspection cover.
- Center bearings have excellent load characteristics and infinite L10 life, with proper maintenance.
- Equalizer bearings for the 114 and 160 units incorporate self-aligning spherical roller bearings. Larger units use a rugged double-tapered roller assembly.

# Parts Identification

- 1 Sampson post A-leg
- 2 Main frame
- 3 Reducer sub-base
- 4 Counterweights
- 5 Crank pin assembly
- 6 Crank
- 7 High-mount base extension
- 8 Motor rails
- 9 Brake lever
- 10 Brake assembly
- 11 Gear reducer
- 12 Reducer sheave
- 13 Pitman arm
- 14 Sampson post support leg
- 15 Center bearing assembly
- 16 Equalizer beam
- 17 Equalizer bearing assembly
- 18 Sampson post ladder
- 19 Walking beam
- 20 Horsehead
- 21 Wireline
- 22 Polish rod hanger



## Dimensional Data with API Dimensions

GRP	Size	API Dimensional Data (in.)													
		A	C	G	H	I	K	P	R	AA MIN	BBMAX	CC	DD	EE	FF MAX
2A	114-173-74	84	85	82	179 3/8	94	135 2/8	102 6/8	36	28	26	50 1/8	NA	221	NA
2A	114-119-86	94	83	82	179 3/8	94	135 2/8	102 6/8	36	28	26	50 1/8	NA	221	NA
2A	114-119-100	110.63	83	82	179 3/8	94	135 2/8	102 6/8	36	28	26	50 3/8		221 4/8	
2A	160-173-100	110.63	83	82	179 3/8	94	135 2/8	102 6/8	36	27	25	50 1/8	NA	235	NA
2A	160-173/200-74	84	84 6/8	81.88	179	94	135 3/8	102 6/8	36	27	25	50 2/8		225 1/8	
3	228-246-86	97.63	118	103 1/8	243 3/8	125.63	188 2/8	142.63	50	67 6/8	14	50 4/8	84.63	370 3/8	41
2	228-213-100	112	84	82	179 2/8	90	132.63	99 6/8	36	56	14	29 3/8		247 3/8	
3	228-213-120	135 4/8	118	103 1/8	243 3/8	125.63	188 2/8	142.63	50	40 3/8	14	50 4/8		296 3/8	
3	320-305-100	118	118	103 4/8	243 6/8	126 4/8	188.88	142.63	50	37 1/8	18	50 4/8	84.88	370 3/8	29
3	320-305-120	136	118	103	243 2/8	126.63	188.88	142.63	50	37 1/8	18	50 4/8		301 2/8	
4	320-256-144	156 1/8	113.63	104 6/8	243 2/8	126.63	188.88	142.63	50	24	18	50 4/8		301 2/8	
4	456-256/305-144	155 2/8	124	122 6/8	274 3/8	133	201 6/8	148	55	54 6/8	18	62 3/8	104 3/8	312.63	18
4	640-305-144	155 3/8	124	122 6/8	274 3/8	133	201 6/8	148	55	34.63	18	62 3/8		318 1/8	
5	640-365-168	177 6/8	122	119.88	295 1/8	132	220	176.88	55	34.63	18	59 4/8		321 4/8	
5	912-365-168	177 6/8	122	119.88	295 1/8	132	220	176.88	55	32.63	20	59 4/8		321 4/8	
5	912-427-168	177 6/8	122	119.88	295 1/8	132	219 3/8	176.88	55	32.63	20	59 4/8		321 4/8	
5	912-427-192	203 1/8	122	119.88	295 1/8	132	219 3/8	176.88	55	32.63	20	59 4/8		321 4/8	
6	1280-305-240	230	122	120 1/8	339 6/8	133 3/8	257	219.88	60	27 6/8	20	59 6/8		329 6/8	
6	1280-365-192	203	122	120 1/8	339 6/8	133 3/8	257	219.88	55	27 2/8	20	59 6/8		329 6/8	
6	1280-365-240	230	122	120 1/8	339 6/8	133 3/8	257	219.88	60	27 6/8	20	59 6/8		329 6/8	
6	1280-427-192	203	122	120 1/8	339 6/8	133 3/8	257	219.88	55	27 2/8	20	59 6/8		329 6/8	
6	1824-365-240	230	122	120 1/8	339 6/8	133 3/8	254 4/8	219.88	60	16 2/8	23	62 6/8		329.88	

Dimensional Data (in.)

GG MIN	HH	JJ	KK	MM	NN	OO	PP	QQ	RR MAX	SS	TT	UU	VV MIN	WW	ZZ
NA	15.88	42 4/8	41 4/8	180	28	72 1/8	70.63	249 3/8	80	24.63	17 1/8	49	71 4/8	27.88	25
NA	15.88	52.63	41 4/8	180	28	72 1/8	70.63	259 6/8	80	24.63	17 1/8	49	70 6/8	27.88	15
	15 6/8	68 6/8	41.88	181	28	72 1/8	70.63	273.88	80	24.63	17 1/8	49	65 4/8	27 6/8	14 2/8
NA	15.88	69	41 4/8	180	28	72 1/8	68.88	274 6/8	80	30 2/8	20	46 1/8	64.63	27.88	14.06
	15 6/8	42 4/8	41 4/8	179.63	28	72 1/8	68.88	249 3/8	80	30 2/8	20	46 1/8	72 3/8	27 6/8	23.88
99 1/8	15.88	44 2/8	53 2/8	246 6/8	36	90 4/8	76 6/8	322 6/8	100 3/8	33 2/8	24	63 2/8	75 2/8	48 3/8	76.88
	15.88	70 4/8	41 4/8	180	36	72 1/8	76 6/8	270 2/8	80 3/8	33 3/8	24	42 1/8	53 1/8	48 3/8	15 4/8
	15.88	81 6/8	53 3/8	246 6/8	36	72 1/8	76 6/8	346 3/8	100	33 2/8	24	63 2/8	89 6/8	48 3/8	29.88
102	16 2/8	64.63	53 2/8	246.88	36	72 1/8	84	337 1/8	100	35.63	24	63 2/8	72 4/8	48 6/8	48.63
	15 6/8	82 3/8	53 6/8	247 3/8	36	72 1/8	84	350 6/8	100	35.63	24	63 2/8	84 4/8	48 2/8	29.88
	15 6/8	102 3/8	50.88	247 3/8	36	72 1/8	84	375	100	35.63	24	63 2/8	67.63	48 2/8	15 4/8
108 6/8	23.63	94	61 2/8	267 3/8	38 3/8	76 6/8	85 4/8	410 4/8	118 2/8	39.88	28	71 1/8	99 2/8	56 1/8	21 4/8
	23.63	94 2/8	61 2/8	267 3/8	38 3/8	76 6/8	99 1/8	410 3/8	118 4/8	45 6/8	30	69 1/8	98 6/8	56 2/8	21
	23.63	116.63	61 2/8	267 3/8	38 3/8	76 6/8	99 1/8	442 6/8	118 4/8	45 6/8	30	66 2/8	75 1/8	56 2/8	40 4/8
	23.63	116.63	61 2/8	267 3/8	38 3/8	76 6/8	103 4/8	442 6/8	118 4/8	45 6/8	30	66 2/8	75 1/8	56 2/8	40 4/8
	23.63	116.63	61 2/8	267 3/8	38 3/8	76 6/8	103 4/8	442 6/8	118 4/8	45 6/8	30	66 2/8	75 1/8	56 2/8	40 4/8
	23.63	141.88	61 2/8	267 3/8	38 3/8	76 6/8	103 4/8	463	118 4/8	45 6/8	30	66 2/8	76 2/8	56 2/8	11
	23.63	161	68	308.88	49 4/8	76 3/8	117 1/8	546 4/8	118	52 4/8	33	63 4/8	83 6/8	56	17 4/8
	23.63	135	68	308.88	49 4/8	76 6/8	117 1/8	509.88	118	52 4/8	33	63 4/8	131 3/8	56	23 6/8
	23.63	161	68	308.88	49 4/8	76 3/8	117 1/8	546 4/8	118	52 4/8	33	63 4/8	83 6/8	56	17 4/8
	23.63	135	68	308.88	49 4/8	76 6/8	117 1/8	509.88	118	52 4/8	33	63 4/8	131 3/8	56	23 6/8
	23.63	161	68	308.88	49 4/8	76 3/8	131	546 4/8	118	58 6/8	36	63 4/8	83 6/8	56	17 4/8

## Specifications

API Size	Maximum Polished Rod Capacity (lb)	Standard Strokes-Fourth Stroke Optional (in.)	Torque Factor at 90°-Fourth Stroke Optional (in.)	Wireline Size (in.)	Wireline Center (in.)
114-143-074	14,300	74, 63, 52	36, 31, 26	1.00 × 274.00	11.00
114-119-086	11,900	86, 73, 61	41, 35, 30	1.00 × 274.00	11.00
114-119-100	11,900	100, 85, 71	48, 42, 35		
160-200-074	20,000	74, 63, 52	36, 31, 26	1.00 × 274.00	11.00
160-173-100	17,300	100, 85, 71	48, 42, 35	1.00 × 300.00	11.00
228-246-086	24,600	86, 77, 68	41, 37, 33	1.13 × 360.00	12.00
228-213-100	21,300	100, 85, 71	48, 41, 35	1.00 × 300.00	11.00
228-213-120	21,300	120, 107, 94	57, 51, 46	1.13 × 360.00	12.00
320-305-100	30,500	104, 93, 82	49, 45, 40	1.13 × 360.00	12.00
320-256-120	25,600	120, 107, 94, 82	57, 52, 46	1.13 × 360.00	12.00
320-305-120	30,500	120, 107, 94, 82	57, 52, 46, 45	1.13 × 360.00	12.00
320-256-144	25,600	144, 128, 113, 98	68, 61, 55	1.13 × 384	12.00
456-305-144	30,500	146, 124, 103, 83	67, 58, 49	1.25 × 420.00	16.00
640-305-144	30,500	146, 124, 103, 84	67, 58, 50		
640-365-168	36,500	168, 143, 119, 96	80, 69, 58	1.38 × 480	16.00
912-365-168	36,500	168, 143, 119, 96	80, 69, 58	1.38 × 480	16.00
640-365-168	36,500	168, 143, 119, 96	80, 69, 58	1.38 × 480	16.00
912-365-168	36,500	168, 143, 119, 96	80, 69, 58	1.38 × 480	16.00
1280-365-192	36,500	192, 163, 136, 110	91, 79, 66	1.38 × 480	16.00
1280-427-192	42,700	192, 163, 136, 110	91, 79, 66		
1280-305-240	30,500	239, 206, 175	112, 98, 85	1.38 × 584	16.00
1280-365-240	36,500	239, 206, 175	112, 98, 85		
1824-305-240	36,500	239, 206, 175	112, 98, 85	1.38 × 584	16.00





## Maximum Effective Counterbalance\*

Calculate ECB for other crank arm positions using the Effective Counterbalance Chart.

When selecting counterweights, the value in the table must be equal to or greater than the required counterbalance.

API Size	Structural Imbalance	Crank Number	Crank Only	4-B	4-D	4-F	4-H	4-J	4-L
114-143-074	347	A80L-36	3610	6710	7800	8880	9860	11100	
			4130	7720	8980	10240	11360	12810	
			4850	9130	10640	12130	13480		
114-119-086	125	A80L-36	2970	5670	6620	7560	8410	9500	
			3420	6550	7650	8750	9730	10990	
			4060	7790	9100	10410	11580		
114-119-100	-127	A80L-36	2290	4580	5390	6190	6910	7830	8570
			2670	5330	6270	7200	8030	9100	9960
			3210	6390	7500	8610	9610	10880	11900
160-200-074	340	A80L-36	3590	6680	7770	8850	9820	11060	12050
			4110	7690	8950	10200	11320	12760	13910
			4830	9100	10600	12090	13430	15140	16510
160-173-100	-132	A80L-36	2280	4580	5390	6190	6910	7830	8570
			2670	5330	6270	7190	8030	9100	9950
			3210	6380	7500	8610	9600	10880	11900
228-246-086	1530	A100-50	8010	11500	12750	14020	15170	16630	17820
			8690	12560	13940	15340	16620	18240	19560
			9570	13900	15450	17020	18450	20270	21750
228-213-100	176	A80-36	3240	5570	6390	7200	7930	8870	9620
			3710	6400	7350	8290	9130	10210	11080
			4380	7580	8700	9820	10820	12110	13130
228-213-120	400	A100-50	5060	7580	8480	9390	10220	11270	12130
			5560	8340	9340	10350	11270	12430	13380
			6190	9310	10420	11560	12590	13890	14960
320-305-100	1188	A100-50	6530	9420	10450	11500	12450	13660	14640
			7110	10300	11440	12600	13650	14990	16080
			7830	11410	12690	13990	15170	16670	17890
320-256-120	669	A100-50	5310	7810	8700	9610	10440	11490	12340
			5800	8570	9560	10570	11480	12640	13590
			6430	9530	10640	11770	12800	14100	15160
320-305-120	669	A100-50	5310	7810	8700	9610	10440	11490	12340
			5810	8570	9560	10570	11480	12640	13590
			6430	9530	10640	11770	12800	14100	15160
320-256-144	-100	A100-50	3760	5850	6590	7350	8040	8910	9620
			4180	6490	7320	8160	8920	9890	10670
			4710	7300	8230	9170	10030	11120	12000

4-N	4-P	4-R	4-S	4-X	4-Y	4-Z	4-ZJ
13930	14940						
16090	17260						
19110							
9960	10680	12380					
11570	12400	14380					
13830	14820	17170					
20130	21290	23960					
22110	23390						
24610							
11030	11760	13490	17420				
12710	13550	15550	20090				
15080	16080	18450					
13790	14630	16550	20960				
15220	16140	18270					
17020	18050	20450					
16550	17500	19710	24770				
18180	19240	21690	27280				
20250	21440	24180	30460				
13990	14820	16740	21120				
15410	16330	18450	23300				
17210	18240	20620					
13990	14820	16740	21120	23320	27230		
15410	16330	18450	23300	25730	30060		
17210	18240	20620	26060	28780			
11000	11690	13290	16940	18770	22030		
12200	12970	14730	18780	20810	24420		
13710	14570	16560	21110	23380			



## Maximum Effective Counterbalance\* (continued)

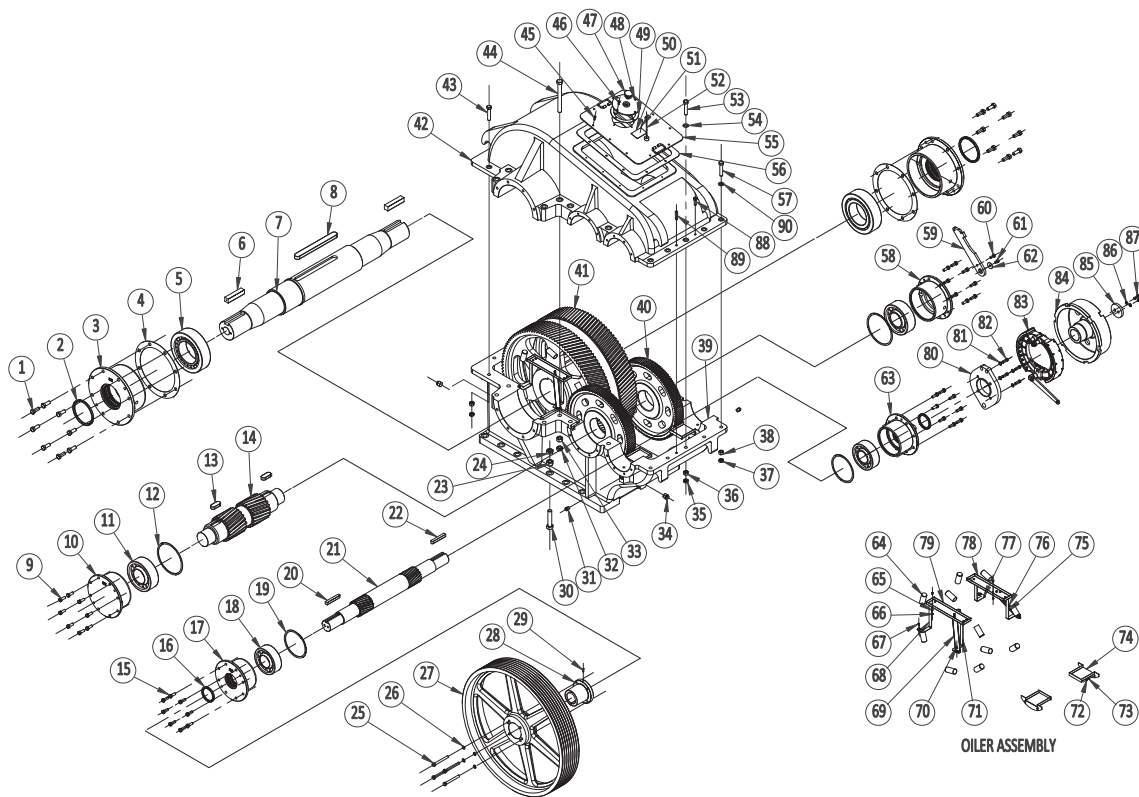
Calculate ECB for other crank arm positions using the Effective Counterbalance Chart.

When selecting counterweights, the value in the table must be equal to or greater than the required counterbalance.

API Size	Structural Imbalance	Crank Number	Crank Only	4-B	4-D	4-F	4-H	4-J	4-L	4-N	4-P	4-R	4-S
456-305-144	-80	A118-55	7510	10070	10990	11940	12810	13900	14800	16560	17440	19430	24000
			8640	11580	12630	13720	14720	15980	17010	19040	20040	22330	27580
			10220	13680	14930	16220	17400	18880	20100	22490	23680	26380	
640-305-144	-80	A118-55	7510			11930	12790	13890	14790	16550	17420	19410	23980
			8640			13710	14710	15960	17000	19020	20030	22310	27560
			10220			16210	17380	18860	20090	22470	23660	26360	
640-365-168	-434	A118-55	5910				10460	11390	12150	13640	14380	16070	19930
			6890				12130	13200	14080	15790	16650	18590	23050
			8260				14450	15710	16750	18790	19800	22100	27380
912-365-168	-434	A118-55	5910				10460	11390	12150	13640	14380	16070	19930
			6890				12130	13200	14080	15790	16650	18590	23050
			8260				14450	15710	16750	18790	19800	22100	27380
912-427-168	-921	A118-55	5500				9980	10900	11670	13150	13900	15580	19450
			6480				11650	12710	13590	15310	16160	18110	22560
			7850				13960	15220	16270	18300	19310	21610	26890
912-427-192	-1434	A118-55	4710					8920	9580	10890	11540	13010	16400
			5580					10500	11270	12770	13520	15220	19120
			6240					12700	13610	15390	16280	18290	22910
1280-365-192	-1123	A118-55	6790					9210	9880	11180	11830	13300	16680
			2500					10810	11580	13080	13830	15530	19440
			3350					13020	13940	15720	16610	18620	23250
1280-427-192	-1723	A118-55	3890					8610	9280	10580	11230	12700	16080
			4760					10200	10980	12480	13230	14930	18830
			5960					12420	13330	15110	16000	18010	22640
1280-305-240	-2900	A118-60	1860					5690	6230	7290	7820	9010	11750
			2500					6860	7470	8680	9270	10640	13760
			3350					8420	9140	10540	11240	12820	16450
1280-365-240	-2688	A118-60	5870					9700	10240	11290	11820	13010	15750
			7060					11420	12030	13230	13830	15190	18310
			8650					13730	14440	15830	16540	18110	21750
1824-365-240	-2688	A118-60	1862					5690	6230	7290	7820	9010	11750
			2502					6850	7460	8670	9270	10640	13760
			3352					8410	9130	10530	11240	12820	16450



## Parts Identification

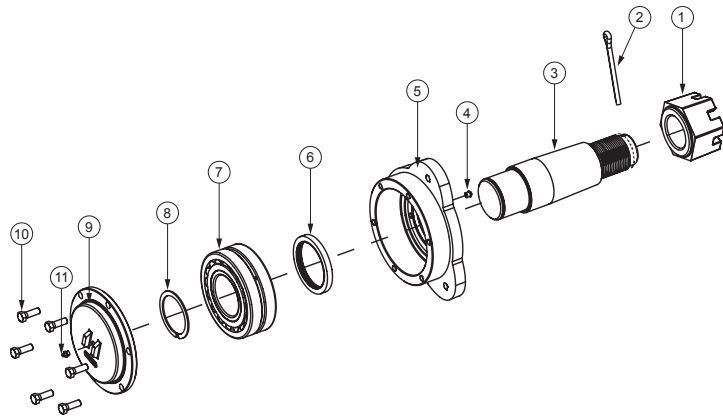


- |                         |  |                                     |
|-------------------------|--|-------------------------------------|
| 1 Gearbox               | 20 Inspection cover gasket               | 39 Intermediate-speed support plate |
| 2 Low-speed shaft       | 21 Splash guard                          | 40 Brake snap ring                  |
| 3 Low-speed gear        | 22 Splash guard bolt                     | 41 Brake band                       |
| 4 Low-speed pinion      | 23 Low-speed bolt                        | 42 Brake wheel                      |
| 5 High-speed gear       | 24 Low-speed housing                     | 43 High-speed support plate         |
| 6 High-speed pinion     | 25 V-ring                                | 44 High-speed seal                  |
| 7 Oiler assembly        | 26 Low-speed shim                        | 45 High-speed housing               |
| 8 Hose                  | 27 Low-speed slinger                     | 46 High-speed gasket                |
| 9 Oiler assembly nut    | 28 Low-speed bearing                     | 47 High-speed bearing               |
| 10 Flat washer          | 29 Crank key                             | 48 High-speed snap ring             |
| 11 Bolt                 | 30 Low-speed gear key                    | 49 High-speed slinger               |
| 12 Polyethylene gasket  | 31 High-speed gear key                   | 50 Brake key                        |
| 13 Gearbox cover gasket | 32 Intermediate-speed snap ring          | 51 Sheave key                       |
| 14 Gearbox cover        | 33 Intermediate-speed bearing            | 52 High-speed housing bolt          |
| 15 Gearbox cover bolt   | 34 Intermediate-speed gasket             | 53 Bushing                          |
| 16 Lock washer          | 35 Intermediate-speed housing            | 54 Reducer sheave                   |
| 17 Flat washer          | 36 Intermediate-speed housing bolt       | 55 Cap screw                        |
| 18 Breather             | 37 Intermediate-speed support plate bolt | 56 Lock washer                      |
| 19 Inspection cover     | 38 High-speed support plate bolt         |                                     |

# Maximizer III Components

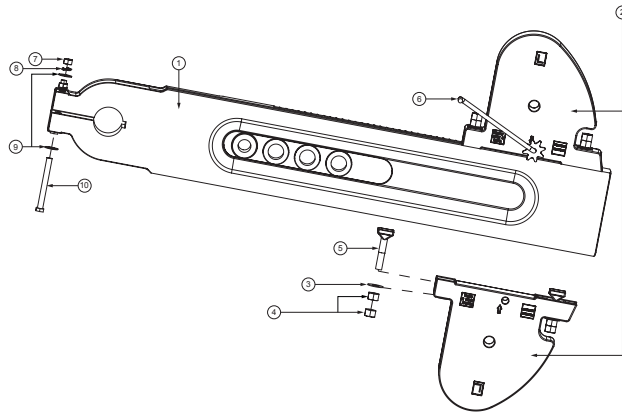
## Crank Pin Assembly

- 1 Crank pin nut
- 2 Cotter pin
- 3 Crank pin
- 4 Relief fitting
- 5 Crank pin housing
- 6 Seal
- 7 Bearing
- 8 Snap ring
- 9 Crank pin housing cap
- 10 Housing cap bolt
- 11 Grease fitting



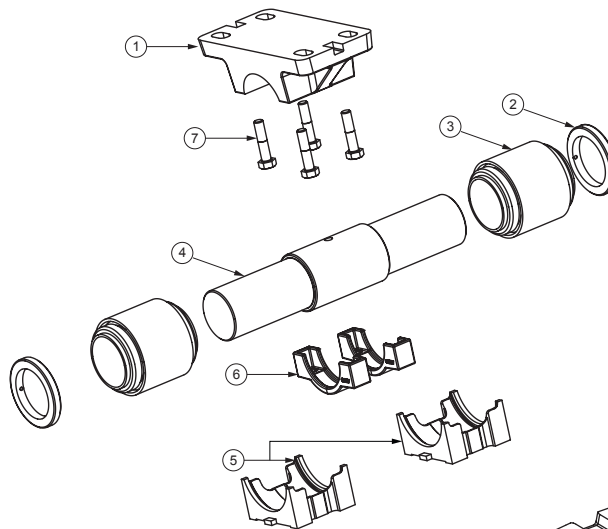
## Crank and Counterbalance

- 1 Crank
- 2 Counterweight
- 3 Washer
- 4 Nut
- 5 Counterweight bolt
- 6 Weight adjusting crank
- 7 Nut
- 8 Lock washer
- 9 Flat washer
- 10 Bolt



## Center Bearing Assembly

- 1 Saddle trunnion
- 2 Bearing retainer ring
- 3 Bearing
- 4 Saddle shaft
- 5 Bearing adapter
- 6 Saddle trunnion cap
- 7 Bolt



## Equalizer Bearing Assembly

- 1 Grease nipple
- 2 Bearing retaining ring
- 3 Bolt
- 4 Bearing housing
- 5 Bearing
- 6 Equalizer shaft

