

marathon™

Generators

Generator Drive Disc Bolt Specifications

Pancake Light Tower and AVR		
Frame Size	Fastener Grade 8	Torque ft-lb
201	3/8 x 24	43-48
331	3/8 x 24	43-48
332	3/8 x 24	43-48
333	3/8 x 24	43-48
334	3/8 x 24	43-48
337	3/8 x 24	43-48

Lima MAC / Lima SER		
Frame Size	Fastener Grd 8 / M12.9	Torque ft-lb
250	3/8 x 24	43-48
260	3/8 x 24	43-48
280	3/8 x 24	43-48
360	M10 x 1.50	43-48
440	5/8 x 18	192
580	1/2 x 20	96
680	5/8 x 18	192

MagnaPLUS / MARINER / HARSH DUTY / MagnaSELECT		
Frame Size	Fastener Grd 8 / M12.9	Torque ft-lb
281	3/8 x 24	43-48
282	3/8 x 24	43-48
283	3/8 x 24	43-48
284	M10 x 1.50	43-48
285	M10 x 1.50	43-48
286	M10 x 1.50	43-48
287	M10 x 1.50	43-48
361	M10 x 1.50	43-48
362	M10 x 1.50	43-48
363	M10 x 1.50	43-48
431	5/8 x 18	192
432	5/8 x 18	192
433	5/8 x 18	192

MagnaMAX ^{DVR}		
Frame Size	Fastener Grade 8	Torque ft-lb
431	5/8 x 18	192
432	5/8 x 18	192
433	5/8 x 18	192
572	5/8 x 18	192
573	5/8 x 18	192
574	5/8 x 18	192
575	5/8 x 18	192
741	5/8 x 18	192
742	5/8 x 18	192
743	5/8 x 18	192
744	5/8 x 18	192

Notes:

Always use **Grade 8** or **Metric 12.9** fasteners and hardened washers when mounting drive disc(s).

Never use Split-Lock washers. They may cause stress risers which may result in drive disc failure.




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Generators

SAE Flywheel Adaptor Bolt Specifications

SAE #	Fastener Grade 5	Torque ft-lb
00	1/2 x 13	60
0	1/2 x 13	60
1/2	1/2 x 13	60
1	7/16 x 14	39
2	3/8 x 16	25
3	3/8 x 16	25
4	3/8 x 16	25
5	3/8 x 16	25
6	3/8 x 16	25

Table 12-2: Capscrew Torque Values




Capscrew Dia. and Ultimate Tensile Strength (PSI)	To 1/2 – 69,000 PSI To 3/4 – 64,000 PSI To 1 – 55,000 PSI			To 3/4 – 120,000 PSI To 1 – 115,000 PSI			150,000 PSI		
SAE Grade Number	1 or 2			5			8		
Capscrew Head Markings									
Capscrew Body Size (Inches) – (Thread)	Torque Ft-Lb (N-m)			Torque Ft-Lb (N-m)			Torque Ft-Lb (N-m)		
	Dry	Oiled	Plated	Dry	Oiled	Plated	Dry	Oiled	Plated
1/4 - 20	5 (7)	4.5 (6)	4 (5)	8 (11)	7 (9)	6 (8)	12 (16)	11 (15)	10 (14)
- 28	6 (8)	5.4 (7)	4.8 (6)	10 (14)	9 (12)	8 (11)	14 (19)	13 (18)	11 (15)
5/16 - 18	11 (15)	10 (14)	9 (12)	17 (23)	15 (20)	14 (19)	24 (33)	22 (30)	19 (26)
- 24	13 (18)	12 (16)	10 (14)	19 (26)	17 (23)	15 (20)	27 (37)	24 (33)	22 (30)
3/8 - 16	18 (24)	16 (22)	14 (19)	31 (42)	28 (38)	25 (34)	44 (60)	40 (54)	35 (47)
- 24	20 (27)	18 (24)	16 (22)	35 (47)	32 (43)	28 (38)	49 (66)	44 (60)	39 (53)
7/16 - 14	28 (38)	25 (34)	22 (30)	49 (66)	44 (60)	39 (53)	70 (95)	63 (85)	56 (76)
- 20	30 (41)	27 (37)	24 (33)	55 (75)	50 (68)	44 (60)	78 (106)	70 (95)	62 (84)
1/2 - 13	39 (53)	35 (47)	31 (42)	75 (102)	68 (92)	60 (81)	105 (142)	95 (129)	84 (114)
- 20	41 (56)	37 (50)	33 (45)	85 (115)	77 (104)	68 (92)	120 (163)	108 (146)	96 (130)
9/16 - 12	51 (69)	46 (62)	41 (56)	110 (149)	99 (134)	88 (119)	155 (210)	140 (190)	124 (168)
- 18	55 (75)	50 (68)	44 (60)	120 (163)	108 (146)	96 (130)	170 (230)	153 (207)	136 (184)
5/8 - 11	83 (113)	75 (102)	66 (89)	150 (203)	135 (183)	120 (163)	210 (285)	189 (256)	168 (228)
- 18	95 (129)	86 (117)	76 (103)	170 (230)	153 (207)	136 (184)	240 (325)	216 (293)	192 (260)
3/4 - 10	105 (142)	95 (130)	84 (114)	270 (366)	243 (329)	216 (293)	375 (508)	338 (458)	300 (407)
- 16	115 (156)	104 (141)	92 (125)	295 (400)	266 (361)	236 (320)	420 (569)	378 (513)	336 (456)
7/8 - 9	160 (217)	144 (195)	128 (174)	395 (535)	356 (483)	316 (428)	605 (820)	545 (739)	484 (656)
- 14	175 (237)	158 (214)	140 (190)	435 (590)	392 (531)	348 (472)	675 (915)	608 (824)	540 (732)
1 - 8	235 (319)	212 (287)	188 (255)	590 (800)	531 (720)	472 (640)	910 (1234)	819 (1110)	728 (987)
- 14	250 (339)	225 (305)	200 (271)	660 (895)	594 (805)	528 (716)	990 (1342)	891 (1208)	792(1074)

NOTES:

① Capscrews threaded into aluminum may require reductions in torque of 30% or more.

Metric Bolt Torque Table

Estimated with clamp load as 75% of proof load
as specified in ISO 898-1

Property Class	8.8 	10.9 	12.9 Socket Head Cap Screw 			
Minimum Tensile Strength MPa	M6 - M16: 800 M20 - M30: 830	1040	1220			
Nominal Size and Thread Pitch	Bolt Torque Specs in Foot Pounds or (Inch Pounds)					
	Dry	Lubed	Dry	Lubed	Dry	Lubed
M5 x 0.80	(54)	(41)	(78)	(59)	(91)	(68)
M6 x 1.00	(92)	(69)	(133)	(99)	(156)	(116)
M7 x 1.00	(156)	(116)	(222)	(167)	(260)	(195)
M8 x 1.25	18	14	27	20	31	23
M10 x 1.50	37	28	53	40	62	47
M12 x 1.75	65	49	93	69	108	81
M14 x 2.00	104	78	148	111	173	130
M16 x 2.00	161	121	230	172	269	202
M18 x 2.50	222	167	318	238	372	279
M20 x 2.50	314	235	449	337	525	394
M22 x 2.50	428	321	613	460	716	537
M24 x 3.00	543	407	776	582	908	681
M27 x 3.00	796	597	1139	854	1331	998
M30 x 3.50	1079	809	1543	1158	1804	1353
M33 x 3.50	1468	1101	2101	1576	2455	1842
M36 x 4.00	1886	1415	2699	2024	3154	2366

Lubed means cleaned dry bolts lubricated with a standard medium viscosity machine oil. Lubricate all contact areas of the bolts and washers. Lubricating the bolts is the suggested method. [Thread Engagement](#)