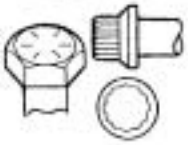
Technical Bulletin

12/03

Bolt Markings & Torque Values

The AERA Technical Committee would like to offer the following information regarding bolt markings and torque values. Some of the older engines that were manufactured by the OE did not supply a torque value for specific bolts. In this case the torque value is decided by the size of the bolt.

Below is a chart showing the size markings of the Grade 5 and Grade 8 bolts and their torque values by bolt size. Anytime the OE does not supply a torque value, this chart should be used to correctly torque a bolt. These values apply to DRY bolts with no lubricant applied. Any time a lubricant is used during assembly a reduced torque value would be used. Because of the differences in lubricants no conversion formula is available.

SAE Grade Number	5	8
Bolt Head Markings These are all SAE Grade 5 (3) line	 	

	Bolt Torque Grade 5				Bolt Torque Grade 8			
Body Size	Cast Iron Nm	Cast Iron Ft/lbs	Alum Nm	Alum Ft/lbs	Cast Iron Nm	Cast Iron Ft/lbs	Alum Nm	Alum Ft/lbs
1/4 20	9	7	8	6	15	11	12	9
1/4 28	12	9	9	7	18	13	14	10
5/16 18	20	15	16	12	30	22	24	18
5/16 24	23	17	19	14	33	24	25	19
3/8 16	40	30	25	20	55	40	40	30
3/8 24	40	30	35	25	60	45	45	35
7/16 14	60	45	45	35	90	65	65	50
7/16 20	65	50	55	40	95	70	75	55
1/2 13	95	70	75	55	130	95	100	75
1/2 20	100	75	80	60	150	110	120	90
9/16 12	135	100	110	80	190	140	150	110
9/16 18	150	110	115	85	210	155	170	125
5/8 11	180	135	150	110	255	190	205	150
5/8 18	210	155	160	120	590	215	230	170
3/4 10	325	240	255	190	460	340	365	270
3/4 16	365	270	285	210	515	380	410	300
7/8 9	490	360	380	280	745	550	600	440
7/8 14	530	390	420	310	825	610	660	490
1" 8	720	530	570	420	1100	820	890	660
1" 14	800	590	650	480	1200	890	960	710