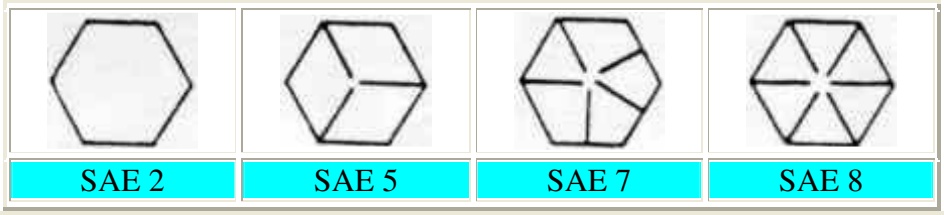
BOLTS AND TORQUE SPECS

Always use the proper grade fastener. You should use at least grade 5 fasteners on almost everything automotive. Bolts are graded by tensile strength and are easily identified by the number of slash marks on the head of the bolt. The more marks the higher the quality. Hardware store bolts with no markings on top are usually soft, mild steel, grade 2 quality and should be avoided like the plague.

Another thing to watch is torque specs. A bolt that has been over tightened can be just as lethal as one that hasn't been tightened enough. A bolt that has been tightened beyond recommended torque specs can easily break in service. Also, keep in mind that torque specs will be less for bolts that have oil or lubricate on them than for clean, dry bolts. Use the following tables to determine bolt grade and torque specs.

U.S. BOLT GRADES



SAE 2	SAE 5	SAE 7	SAE 8

	2	5	7	8	SOCKET HEAD CAP SCREW
I.D. Marks	No markings	3 lines	5 lines	6 lines	Allen head
Material	Low carbon	Medium-carbon, tempered	Medium-carbon, quenched & tempered	Medium-carbon, quenched & tempered	High-carbon, quenched & tempered
Tensile strength (Minimum)	74,000 psi	120,000 psi	133,000 psi	150,000 psi	160,000 psi

U.S. BOLT TORQUE SPECIFICATIONS

Torque in pounds-foot

		2	2	5	5	7	7	8	8	Socket head cap screw	Socket head cap screw
Bolt Dia.	Thread per inch	Dry	Oiled	Dry	Oiled	Dry	Oiled	Dry	Oiled	Dry	Oiled
1/4	20	4	3	8	6	10	8	12	9	14	11
1/4	28	6	4	10	7	12	9	14	10	16	13
5/16	18	9	7	17	13	21	16	25	18	29	23
5/16	24	12	9	19	14	24	18	29	20	33	26
3/8	16	16	12	30	23	40	30	45	35	49	39
3/8	24	22	16	35	25	45	35	50	40	54	44
7/16	14	24	17	50	35	60	45	70	55	76	61
7/16	20	34	26	55	40	70	50	80	60	85	68
1/2	13	38	31	75	55	95	70	110	80	113	90
1/2	20	52	42	90	65	100	80	120	90	126	100
9/16	12	52	42	110	80	135	100	150	110	163	130
9/16	18	71	57	120	90	150	110	170	130	181	144
5/8	11	98	78	150	110	140	190	220	170	230	184
5/8	18	115	93	180	130	210	160	240	180	255	204
3/4	10	157	121	260	200	320	240	380	280	400	320
3/4	16	180	133	300	220	360	280	420	320	440	350
7/8	9	210	160	430	320	520	400	600	460	640	510
7/8	14	230	177	470	360	580	440	660	500	700	560
1	8	320	240	640	480	800	600	900	680	980	780
1	12	350	265	710	530	860	666	990	740	1060	845