

# CAPSCREW AND BOLT-NUT TORQUE SPECIFICATIONS

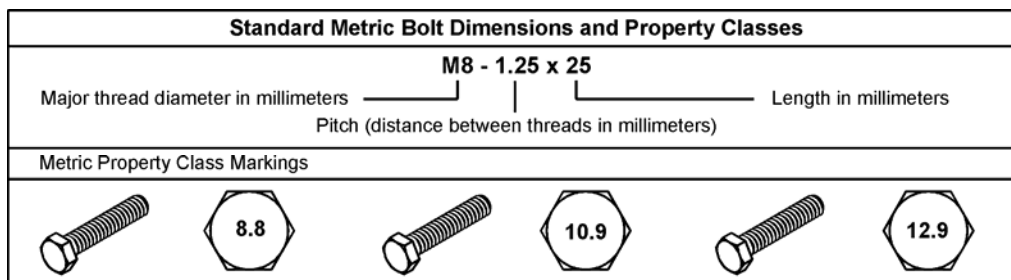
## STANDARD SAE G8 AND ALLOY STEEL AND HEX SOCKET CAPSCREWS

SIZE	THREAD	GRADE 8 Fasteners		Alloy Steel 12PT and Hex Socket Capscrews	
		USA UNITS lb-ft	METRIC UNITS N-m	USA UNITS lb-ft	METRIC UNITS N-m
		**LUBED	**LUBED	**LUBED	**LUBED
1/4 (0.25)	20 UNC	9	13	12	16
	28 UNF	10	14	14	19
5/16 (0.3125)	18 UNC	18	25	24	33
	24 UNF	20	27	27	37
3/8 (0.375)	16 UNC	33	45	45	61
	24 UNF	37	50	50	68
7/16 (0.4375) (* See Note below)	14 UNC	52	71	70	95
	20 UNF	58	79	79	107
1/2 (0.5)	13 UNC	80	109	108	146
	20 UNF	90	122	122	165
5/8 (0.625)	11 UNC	159	216	203	275
	18 UNF	180	244	230	312
3/4 (0.75)	10 UNC	282	383	361	490
	16 UNF	315	427	403	546
1 (1.0) (*** See Note below)	8 UNC	682	925	872	1182
	14 UNS	764	1,036	977	1325
1-1/4 (1.25) (**** See Note below)	7 UNC	1,363	1,848	1744	2365
	12 UNF	1,509	2,046	1930	2617
1-1/2 (1.5)	6 UNC	2,371	3,215	3033	4113
	12 UNF	2,668	3,618	3413	4628

- \* See Special Torque Specifications on page 2 for ROPS super nut.
- \*\* See page 3 for specifications for "LUBED" - engine oil on threads and shoulder.
- \*\*\* See Special Torque Specifications on page 2 for 950/1150 steering pins.
- \*\*\*\* See Special Torque Specifications on page 2 for loader lift arms and 1350/1850/2350 steering pins.

## STANDARD METRIC BOLTS AND GRADES (SAE J1701M)

SIZE (mm)	PITCH (mm)	PROPERTY CLASS 8.8		PROPERTY CLASS 10.9		PROPERTY CLASS 12.9	
		USA UNITS lb-ft	METRIC UNITS N-m	USA UNITS lb-ft	METRIC UNITS N-m	USA UNITS lb-ft	METRIC UNITS N-m
		** LUBED	** LUBED	** LUBED	** LUBED	** LUBED	** LUBED
6	1.00	6	8	8	11	10	13
7	1.00	10	13	14	19	16	22
8	1.25	14	19	20	27	24	32
10	1.50	28	38	40	54	47	63
12	1.75	49	66	70	94	81	110
14	2.00	77	105	111	150	130	176
16	2.00	121	164	173	235	202	274
18	2.50	167	226	239	324	279	378
20	2.50	244	331	337	458	394	535
24	3.00	422	572	584	791	682	925



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## SPECIAL TORQUE SPECIFICATIONS


ALLOY STEEL 12 PT CAPSCREW FOR LOADER LIFT ARM BALLCAPS, STEERING PINS, AND ROPS SUPER NUT					
SIZE	TYPE	THREAD	USA UNITS	METRIC UNITS	APPLICATION
			lb-ft	N-m	
			**LUBED	**LUBED	
1-1/4 (1.250)	12pt capscREW F-C ON HEAD	7 UNC	1900	2577	L-1350,1400,1800,1850,2350 (Lift arms ball caps only)
1-1/4 (1.250)	12pt capscREW B-7 ON HEAD	12 UNF	1320	1790	L-1000-L-1100 (Lift arm ball caps only)
1-1/4 (1.250)	Bolt (drilled center)	7UNC	850	1152	L-1350, L-1850, L-2350 (Steering Pins)
1 (1.0)	Bolt (drilled center)	8UNC	425	576	L-950, D-950, L-1150 (Steering Pins)
7/16 (0.4375)	Super Nut tightening bolts	20 UNF	114	155	ROPS Pin Super Nut (socket, hex or 12pt)
5/8 (0.625)	Super Nut tightening bolts	11 UNC	74	100	Hydraulic Cylinder Piston Retainer Nut

ALUMINUM 12 PT CAPSCREWS USED FOR MOTOR PINION BALANCING						
SIZE	TYPE	THREAD	USA UNITS		METRIC UNITS	
			lb-ft	N-m		
			DRY	**LUBED	DRY	**LUBED
3/4 (0.75)	ALUMINUM	16 UNF	114	86	155	117
3/4 (0.75)	ALUMINUM 2024-T4	16 UNF	150	113	203	153
3/4 (0.75)	ALUMINUM	12 NF	217	63	294	85
15/16 (.9375)	ALUMINUM 2024-T4	12 NF (2 START)	285	214	387	290


2-THREAD (2-START) STEEL 12 PT. CAPSCREWS				
SIZE	TYPE	THREAD	USA UNITS	METRIC UNITS
			lb-ft	N-m
			**LUBED	**LUBED
3/8 (.3750)	12 pt	24 NF	25	34
9/16 (.5625)	12 pt	18 NF	87	119
15/16 (.9375)	12 pt	14 NF	428	584
1-5/16 (1.325)	12 pt	12 NF	1216	1660

**BOLT AND CAPSCREW MARKINGS ON HEAD**

**GRADE 5 BOLTS & CAPSCREWS**  
(\*TORQUE TO 70% OF GRADE 8 VALUES)



NOTCH ON  
GRADE 5  
12 POINT  
CAPSCREW  
HEAD




TAPER HEAD  
- OR -  
FLAT HEAD


(OLD LeTourneau manufactured capscREWS)

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**GRADE 8 MARKINGS  
ON BOLT HEAD**



TA11165B



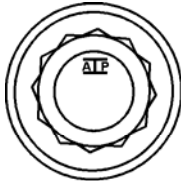
12 PT ALLOY  
CAPSCREW




HEX SOCKET  
HEAD CAPSCREW

TA11165H


**TYPICAL MARKINGS ON ALLOY CAPSCREW HEADS**




ALL PRO



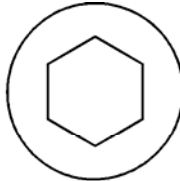
FERRY



DARLING



CARDINAL



SOCKET HEAD

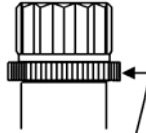
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**TYPICAL B-7 , 2-START and SUPER NUT**



B-7

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KNURL ON FLAT FOR 2-START



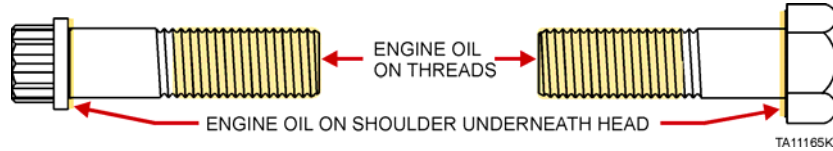
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SUPER NUT

**Key Items:**

- "LUBED" is defined as having the threads and under the head lubricated with engine oil. Engine oil is defined as SAE 30 or 40 weight oil, including multi viscosity grades 5W-30 through 15W-40. No other lubricant (such as anti seize, MolyKote, copper coat, grease, etc.) is permitted unless specifically called out in a LTI procedure.

**\*\*LUBED = LUBRICATED WITH ENGINE OIL ON THREADS AND UNDER HEAD**  
(SAE 30 or 40 weight oil, including multi viscosity grades 5W-30 through 15W-40)



TA11165K

**NOTE:** No other lubricant (such as anti seize, never seize, MolyKote, copper coat, grease, etc.) is permitted unless specifically called out in a LTI procedure.

- All capscrews and bolts should be started by hand until a minimum of three (3) threads are engaged prior to any air impact equipment being used.
- If a procedure in a Rebuild Manual, Repair and Overhaul or Operating and Service Manual calls for the use of Loctite® threadlocker on the threads, the torque specification for "lubed" should be used. The threads on both the fastener and mating part should be thoroughly cleaned with a proper solvent prior to use of Loctite®. The Loctite® thread sealant should only be used on the threads - not the head.
- Certain applications in components such as drivers or lift arm ball caps may specify a FERRY brand of capscrew. Use only FERRY brand capscrews in these applications.
- LeTourneau Technologies, Inc. recommends that any old 12pt LeTourneau-fabricated (fabrication was stopped many years ago) capscrew (refer to illustration under BOLT AND CAPSCREW MARKINGS ON HEAD) be replaced at the time of repair with alloy capscrews. If new capscrews are not available, then the LeTourneau-fabricated capscrews should only be torqued to Grade 5 specifications (70% of Grade 8 value - lubed).
- The torque specifications on the charts on page 1 only apply to Grade 8 bolts, metric bolts and 12pt black-colored alloy steel capscrews. Capscrews with gold-colored zinc chromate plating are excluded from these specifications and these capscrews should not be used on loaders or dozers except for driver covers.

<p>TA15356-1</p>	<p>TA15358B</p>	<p>TA15358A</p>
<p>Grade 8 Bolt ✓</p>	<p>12p Alloy Capscrew ✓</p>	<p>Does not apply ✗</p>

- **CLEANING:** It is mandatory to remove all paint, rust and debris from all mating surfaces, surfaces under the head of the bolt or capscrew and threads prior to installation and torquing of all bolts and capscrews.



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**ARROW INDICATES LOCATION TO BE CLEANED**



TA-129-4B

**CLEANING PAINT AND RUST PRIOR TO TORQUING**