Section # 2

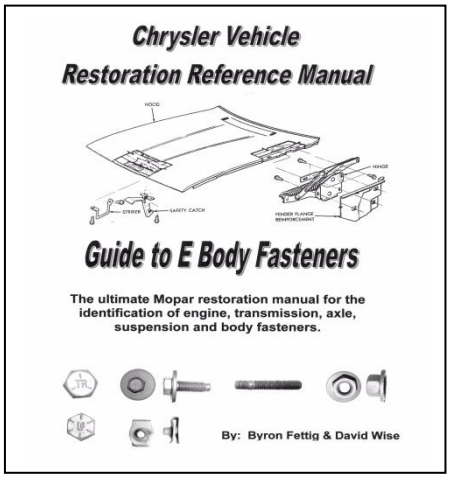
Assembly Fasteners

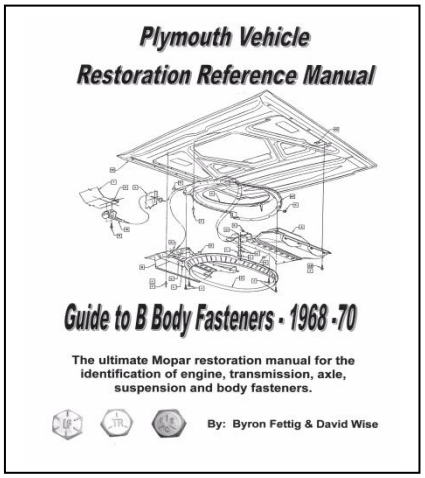
There were many suppliers of assembly fasteners to Chrysler through the years. In general there were specific fastener manufacturers for powertrain and specific manufacturers for vehicle assembly. There was very little crossover from one to the other. However, there were approximately 30% of the manufacturers that manufactured fasteners for both parts of a vehicle.

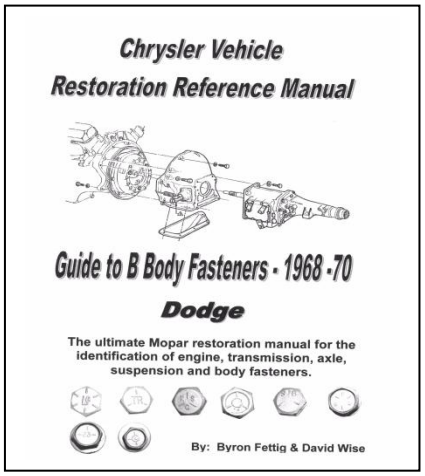
We have found that the manufacturer use ran in time periods for about 5 years before different head markings started to appear between 1962-80. The approximate periods were 1962-65, 66-67, 1968-71, 1972-76, and 1977-80. In general the majority of the changes take place near the end of the reference periods. There are some variations between assembly plants.

Please keep in mind that there was some crossover from one period to the other but not much. In our estimation there was only about 25% crossover between periods. As an example it is very unlikely to find more than 2 or 3 fasteners manufactures that were still manufacturing fasteners for Chrysler from 1963-67 that could still be found in 1977-82 vehicles.

One of the common errors made during the restoration of a vehicle is using a fastener by the incorrect manufactured (head marking), incorrect grade, and/or finish. The following few pages will provide you with a “rough” guideline of some of the fastener head markings that were used during the various periods note above. This is just a sample of a few manufacturers (head marking). To find out more about which specific head marking of fasteners should be on you specific vehicle I would recommend that the MMC Detroit Reference Fastener manual be reviewed.







Fastener Size Reference Chart

Thread					Typ.Hex Head Size
Size	Diameter	TPI Course	TPI Fine	Root Dia. Course	
#0	0.0600	-	80	0.0447	
#1	0.0730	64	72	0.0560	
#2	0.0860	56	64	0.0668	
#3	0.0990	48	56	0.0771	
#4	0.1120	40	48	0.0813	
#5	0.1250	40	44	0.0971	
#6	0.1380	32	40	0.1073	
#8	0.1640	32	36	0.1299	
#10	0.1900	24	32	0.1570	
#12	0.2160	24	28	0.1722	
$^{1}/_{4}$"	0.2500	20	28	0.1850	$^{3}/_{8}$"
$^{5}/_{16}$"	0.3125	18	24	0.2400	$^{1}/_{2}$"
$^{3}/_{8}$"	0.3750	16	24	0.2940	$^{9}/_{16}$"
$^{7}/_{16}$"	0.4375	14	20	0.3440	$^{5}/_{8}$"
$^{1}/_{2}$"	0.5000	13	20	0.4000	$^{3}/_{4}$"
$^{9}/_{16}$"	0.5625	12	18	0.4540	$^{7}/_{8}$"
$^{5}/_{8}$"	0.6250	11	18	0.5070	$^{15}/_{16}$"
$^{3}/_{4}$"	0.7500	10	16	0.6200	1-$^{1}/_{8}$"
$^{7}/_{8}$"	0.8750	9	14	0.7310	1-$^{5}/_{16}$"
1"	1.0000	8	12	0.8370	1-$^{1}/_{2}$"

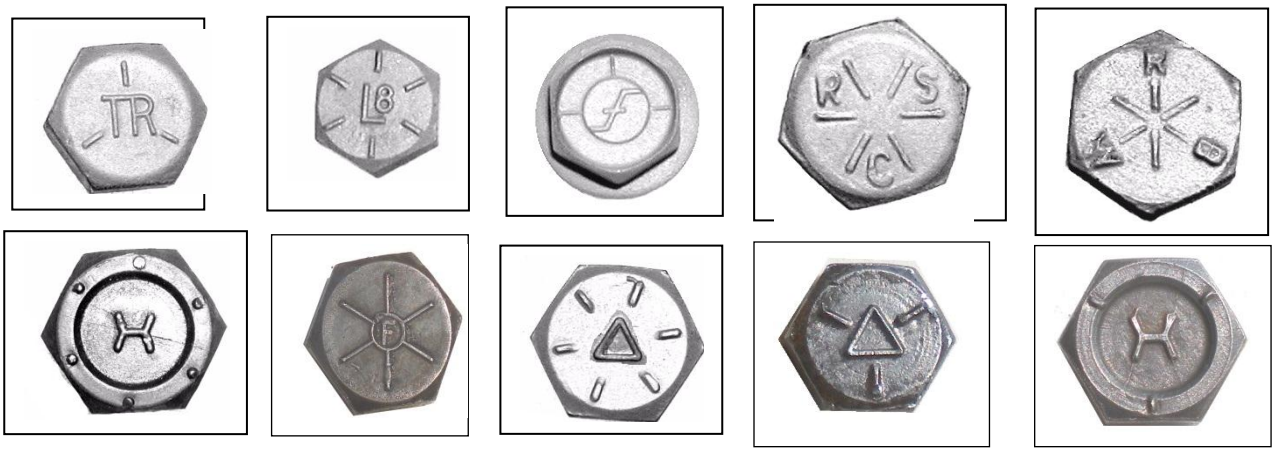
1962-65
Powertrain : Most popular manufacturers

Final Assembly: Most popular manufacturers

1966-67
Powertrain : Most popular manufacturers

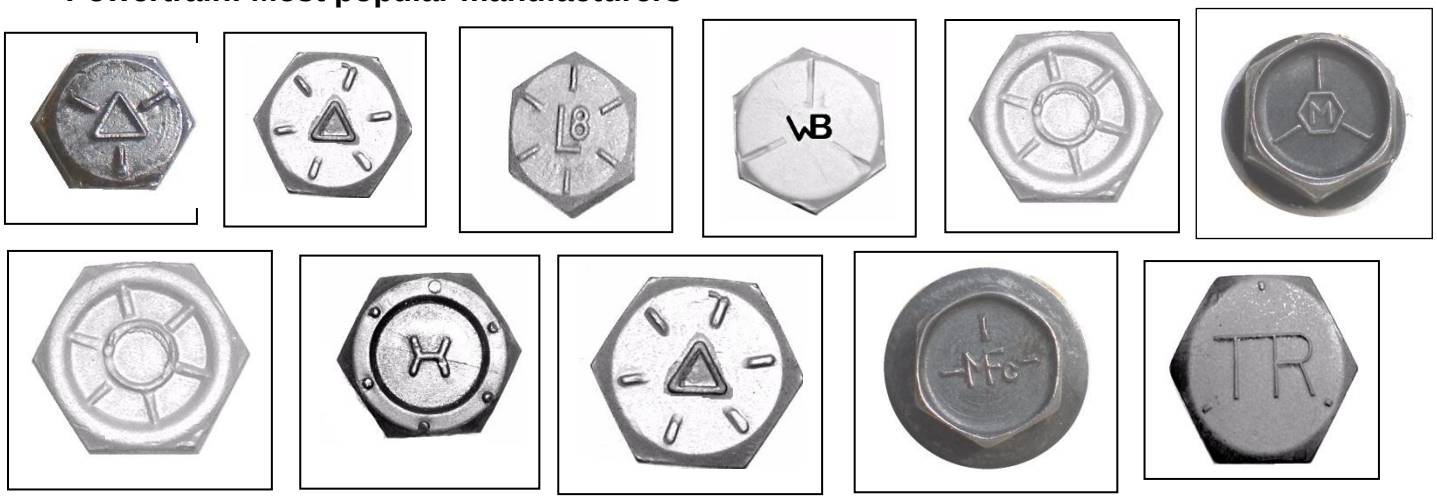
Final Assembly: Most popular manufacturers

1968-71
Powertrain : Most popular manufacturers



Final Assembly : Most popular manufacturers

1972-76
Powertrain: Most popular manufacturers



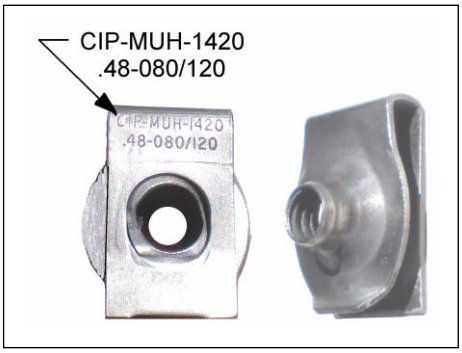
Final Assembly : Most popular manufacturers

Typical Aftermarket or Non–Chrysler Head Markings

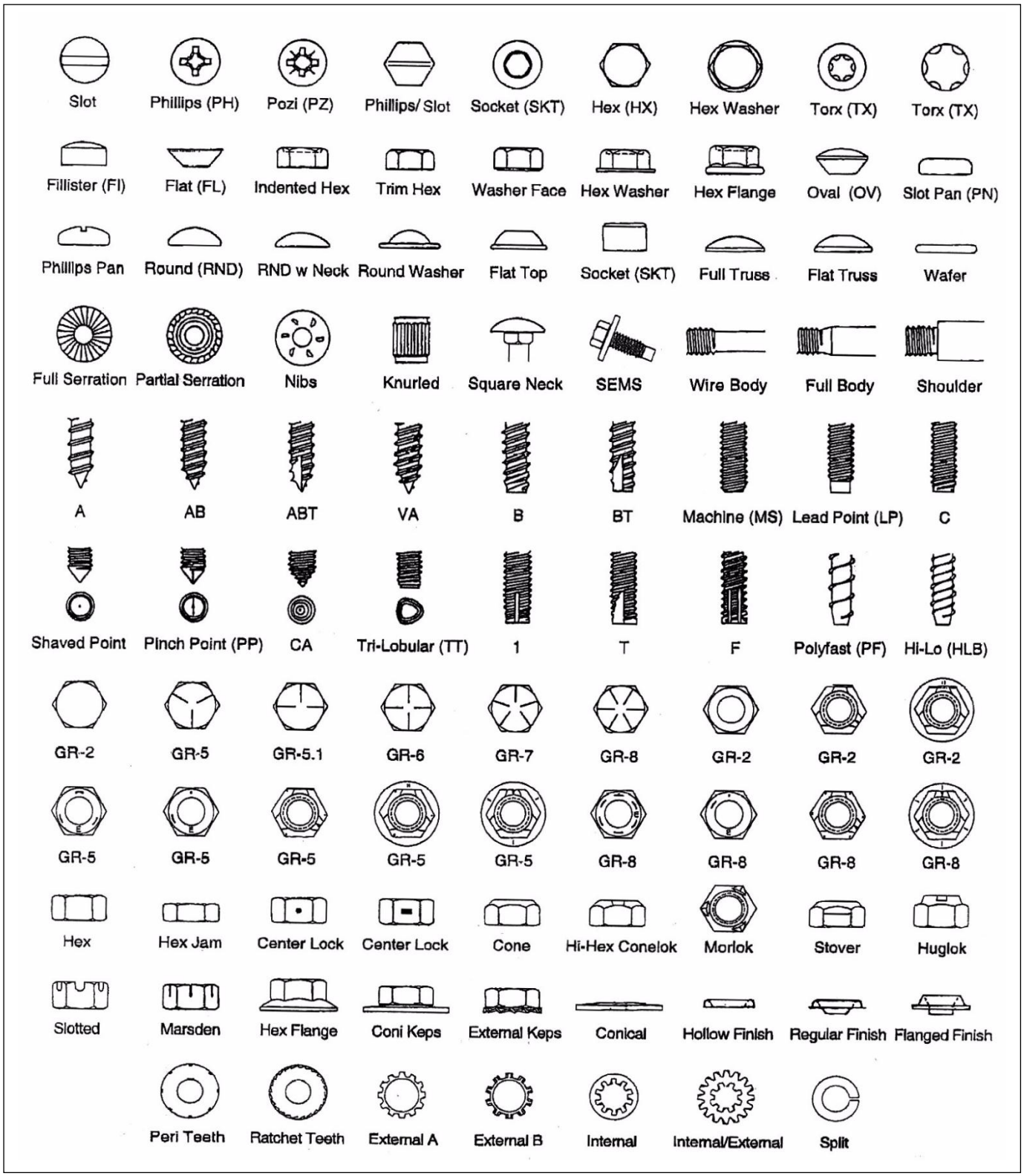
Note: The aftermarket fastener manufactures are too numerous to list However, the following are the typical ones that has been found on to be incorrect on restoration projects.

Miscellaneous

Most U nuts used on Chrysler vehicles have some type of identification marking stamped into the nut. Typical U nut applications are fender to inner fender, front valiance to fender, rear valiance to quarter panel etc…

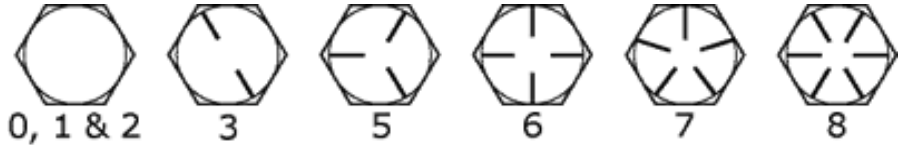


General Fastener Information



Fastener Grades

The identification of fastener grades varies between fastener manufacturers. The grade can be identified by circles, slashes, dimples, etc. The SAE has established a sequence of grades from 0 to 8 for steel bolts on the basis of the metal from which the bolt is made and the manner of manufacture. Available grades run from 2 to 8, with 8 being the strongest. Higher grade numbers almost always mean increased strength (an exception is that some grade 6 bolts are stronger than grade 7). The heads of steel bolts are marked to identify their grade.



SAE grades on bolt heads

Grade 3 Grade 5 Grade 8

Differences Between Fastener Grades

SAE Grade	Diameter	Proof Load PSI	Tensile Strength Min. PSI	Hardness Rockwell	Material and Heat Treatment
Grade 2	1/4" - 3/4" 3/4" – 1"-1/2"	55,000 33,000	74,000 60,000	B80 - B100 B70-8100	Low or medium carbon steel
Grade 5	1/4" - 1" 1"- 1-1/2"	85,000 74,000	120,000 105.000	C25 - C34 C-19 - C30	Medium carbon steel quenched and tampered
Grade 8	1/4" - 1-1/2	120,000	150,000	C33 - C39	Medium carbon alloy steel quenched

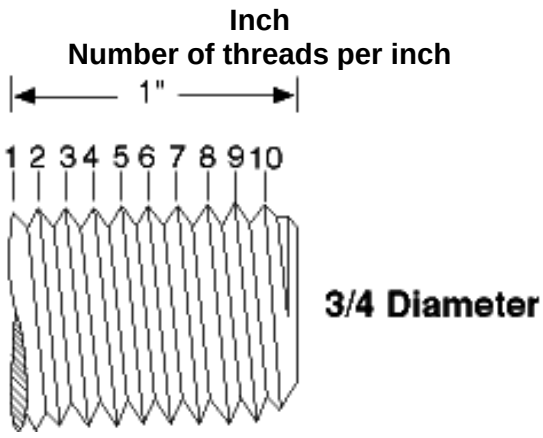
	"				and tempered

Fastener Finishes (General Industry Reference)

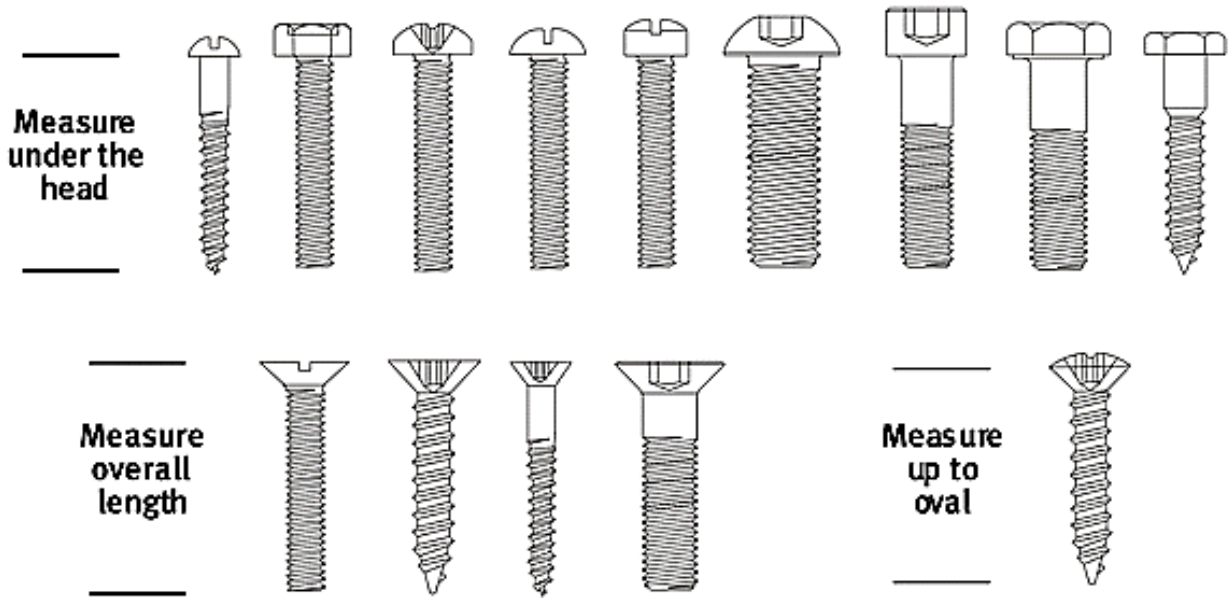
Finish	Color	For use on (material)	Corrosion resistance	Characteristics
Zinc (electroplated)	white to blue gray	all metals	good	Most common used plating. Good rust resisting qualities, appearance, and low cost.
Cadmium (electroplated)	bright or dull silver gray	all metals	excellent	Superior rust resisting qualities. Used in marine and aviation applications. Relatively high cost and toxic to the environment.
Chromate	yellow, olive drab, black, blue/white	zinc & cadmium plated parts	very good	A secondary dipping process after plating increasing corrosion resistance, adding color or brilliance.
Dichromate Dip (Chromate Conversion Coating)	A combination of yellow, brown, green or iridescent	zinc and cadmium plated parts	very good	A secondary dip same as chromate only with rainbow appearance.
Black Zinc	black	all metals	very good	Shining black appearance with good rust-resisting qualities.
Black Oxide	black	ferrous metals and stainless steel	fair	A chemical discoloration that does not add to part thickness. Usually combined with an oil dip. Rust resistance comes from the oil only.
Phosphate & oil	charcoal gray or black	steel	good	Zinc or manganese phosphate used with a rust-inhibiting oil dip. Low cost.
Color Phosphate	blue, green, red, purple, etc.	steel	very good	Chemically produced coating superior to regular phosphate and oil.
Iridite	olive drab, green, black, red, blue, bronze	all metals	good	Applied on top of zinc or cadmium plating as a die for color and additional corrosion protection.
Nickel	silver	all metals	very good	Hard stable finish, relatively expensive and sometimes hard to apply.
Chromium	bright blue/white	all metals	very good	Hard lustrous finish adds wear resistance and is very expensive.
Hot Dip Zinc (galvanizing)	dull gray	all metals	very good	Parts are dipped in pure zinc. Gives maximum corrosion protection. Adds a thick irregular coating. Size must be adjusted to allow for thickness of coat.
Passivating	bright - etched	stainless steel	excellent	Parts are dipped in nitric acid that removes iron particles and brightens the finish. Produces a passive corrosion-resistant finish.
Anodizing	frosty - etched	aluminum	excellent	Acid dip produces a hard oxide surface. Can be color dipped after anodizing for preferred finish.
Phosphate	dull gray or black	ferrous metals	good	Chemical rust proofing of steel. Supplied plain as a base for paint or black oil-stained for appearance.

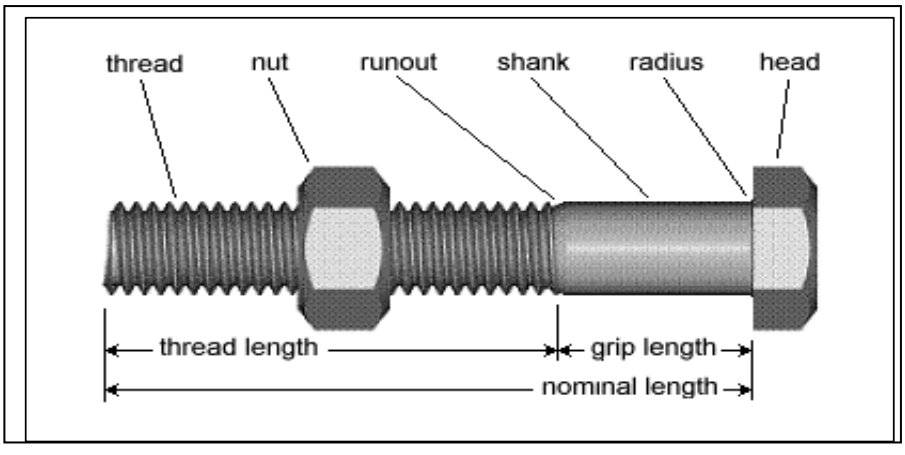
General Fastener Identification References

How to measure a fastener



Diameter inches		Threads per inch		Type
3/4	-	10	=	Coarse
3/4	-	16	=	Fine





Section Notes
