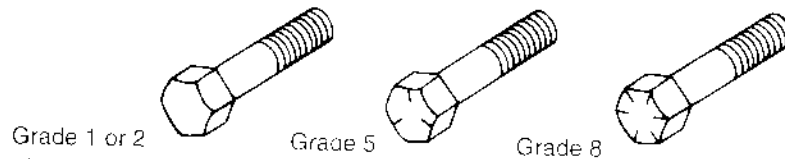


# METRICS

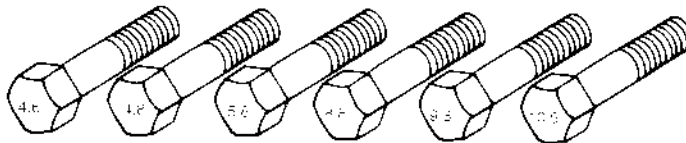
## BOLT STRENGTH IDENTIFICATION

### ENGLISH SYSTEM



**English bolts:** Identification marks on the bolt head represent Rockwell hardness. Generally, the bolt's grade is equal to the number of marks plus two. The higher the grade, the stronger the bolt.

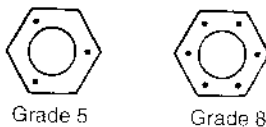
### METRIC SYSTEM



**Metric bolts:** Identification class numbers on bolt heads represent tensile strength. Higher numbers indicate stronger bolts. Common metric fastener bolt strength properties are 9.8 and 10.9.

## HEX NUT STRENGTH IDENTIFICATION

### ENGLISH SYSTEM



Identification dots represent Rockwell hardness. The nut's grade is equal to the number of dots plus two. The higher the grade, the stronger the nut.

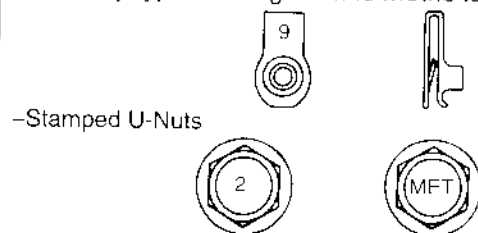
### METRIC SYSTEM



Identification class numbers on nuts represent tensile strength. Higher numbers indicate stronger nuts. Nuts may also have blue finish or paint daub on hex flat.

## OTHER TYPES OF PARTS

Metric identification schemes vary by type of part, most often a variation of that used for bolts and nuts. Note that many types of English and Metric fasteners carry no special identification if they are otherwise unique.



-Stamped U-Nuts

-Tapping, thread forming and certain other case hardened screws.



-Studs. Large studs may carry the property class number. Smaller studs use a geometric code on the end.

# METRICS

## ENGLISH/METRIC CONVERSION

DESCRIPTION	MULTIPLY	BY	FOR METRIC EQUIVALENT
Acceleration	ft/s <sup>2</sup>	0.3048	m/s <sup>2</sup>
	in/s <sup>2</sup>	0.0254	m/s <sup>2</sup>
Torque	lb-in	0.11298	N·m
	lb-ft	1.3558	N·m
Power	horsepower	0.746	kW
Pressure or Stress	inches of water	0.2491	kPa
	psi	6.895	kPa
	psi	0.069	bar
Energy or Work	BTU	1055.0	Joules(J)
	lb-ft	1.3558	Joules(J)
	kiloWatt-hour	3,600,000 or $3.6 \times 10^6$	Joules(J)
Light	foot candle	10.764	lumens/square meter (lm/m <sup>2</sup> )
Fuel Performance	miles/gal	0.4251	kilometers/liter (km/L)
	gal/mile	2.3527	liters/kilometer (L/km)
Velocity	mph	1.6093	kilometers/hour (km/h)
Length	inch	25.4	mm
	foot	0.3048	m
	yard	0.9144	m
	mile	1.609	km
Area	square inch (in <sup>2</sup> )	645.2	mm <sup>2</sup>
	square ft (ft <sup>2</sup> )	6.45	cm <sup>2</sup>
		0.0929	m <sup>2</sup>
Volume	square yard	0.8361	m <sup>2</sup>
	cubic inch (in <sup>3</sup> )	16387.0	mm <sup>3</sup>
		16.387	cm <sup>3</sup>
		0.0164	liters (L)
	quart	0.9464	liters (L)
	gallon	3.7854	liters(L)
	cubic yard	0.7646	m <sup>3</sup>
Mass	pound	0.4536	kg
	ton	907.18	kg
	ton	0.9078	tonne (t)
Force	kilogram	9.807	N
	ounce	0.2780	N
	pound	4.448	N
Temperature	degree Farenheit (°F)	(°F-32) 0.556	degree Celsius (°C)

# Customer Information Worksheet

CUSTOMER NAME \_\_\_\_\_

Repair Order No. \_\_\_\_\_

DATE \_\_\_\_\_

PLEASE HELP US by checking all the spaces that describe the drive problem.

When did problem start to occur? ☐ Suddenly ☐ Gradually: approximate miles \_\_\_\_\_

Engine Starting Problems	Engine Quits Running Problems	Engine Idle Problems with the Vehicle Not Moving	Engine/Transmission Problems while the Vehicle is Moving
<input type="checkbox"/> Will not start – will not even crank	Engine Quits:	Engine speed is too slow all the time	<input type="checkbox"/> Runs rough
<input type="checkbox"/> Cranks, but will not start	<input type="checkbox"/> Right after starting	Engine speed is too slow when the A/C is on	<input type="checkbox"/> Bucks and jerks
<input type="checkbox"/> Tries to start, but won't	<input type="checkbox"/> While idling	Engine speed is too fast	<input type="checkbox"/> Hesitates/stumbles on acceleration
<input type="checkbox"/> Starts, but takes a long time	<input type="checkbox"/> When put into gear	<input type="checkbox"/> Engine speed is rough or uneven	<input type="checkbox"/> Misfires – cuts out
	<input type="checkbox"/> On acceleration		<input type="checkbox"/> Engine knocks or rattles
	<input type="checkbox"/> During steady speed driving		<input type="checkbox"/> Lack of power
	<input type="checkbox"/> On deceleration		<input type="checkbox"/> Backfires
	<input type="checkbox"/> Right after the vehicle is brought to a stop		<input type="checkbox"/> Poor fuel economy
	<input type="checkbox"/> When parking		<input type="checkbox"/> Transmission shifting concerns

About how often does the problem happen? ☐ All the time ☐ Most of the time ☐ Occasionally

When does the problem usually occur? ☐ Morning ☐ Later in the day ☐ Anytime

How long after starting the engine does the problem happen?

- ☐ Within 2 minutes of starting the engine
- ☐ Between 2 and 10 minutes after the engine starts.
- ☐ At least 10 minutes or longer after starting the engine.
- ☐ It could happen any time after starting the engine.

How long does the engine have to be off before the problem will happen again?

- ☐ 4 hours or more.
- ☐ More than 30 minutes, but less than 4 hours.
- ☐ Less than 30 minutes after being turned off.
- ☐ It does not matter how long the engine was off.

Do weather conditions affect the problem?

If yes, which ones?

Does outside temperature affect the problem?

If yes, what temperature?

☐ No

☐ Yes

☐ Hot

☐ Cold

☐ Rain

☐ Fog

☐ Snow

☐ Humid

☐ Dry

☐ No

☐ Yes

F: C

Please Check any of those driving conditions that cause the problem.

☐ Accelerating  
☐ Steady Speed

☐ Decelerating  
(approximate vehicle speed \_\_\_\_\_)

☐ Turning Right/Left  
(MPH / Km/h)

Type of fuel used?

☐ Regular unleaded

☐ Midgrade unleaded

☐ Premium unleaded

☐ Gasohol

☐ Other

Was the Check Engine light on?

☐ Yes

☐ No

☐ Flashing

Were other warning lights on?

☐ Yes

☐ No

☐ Flashing Which Ones? \_\_\_\_\_

Additional Comments:

Additional Customer Information Worksheet in the back of the manual.





# S.P.E.C.S.

Service Publications Error Correction System

## SPECS Case Submission Form

Attention Ford Motor Company Dealers! You can submit your Service Publication Concern via the web by visiting [www.FMCDealer.com](http://www.FMCDealer.com). Choose the role: "Technician" and then choose "Service Publications". This will take you to the Professional Technician Society (PTS) web site. Choose Service Publications and then SPECS to view the SPECS web site.

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- Use separate form for each concern
- Do not use this form to order publications
- Mail the completed form to the address on the reverse side **OR**
- FAX the completed form to (313) 565-7022

Date: \_\_\_\_\_

Publication: ☐ Car/Truck Workshop Manual ☐ Rotunda Publication  
☐ Wiring Diagram/EVTM ☐ TSB Article  
☐ PC/ED Manual ☐ OASIS SSMs

Vehicle Line: \_\_\_\_\_ Section and Pages: \_\_\_\_\_ Model Year: \_\_\_\_\_

Please check the area in which the concern is located in the publication:

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Schematic(s)           | <input type="checkbox"/> Special Service Tools/Equipment | <input type="checkbox"/> Diagnostic(s)          |
| <input type="checkbox"/> Index Error            | <input type="checkbox"/> Description & Operation         | <input type="checkbox"/> Disassembly & Assembly |
| <input type="checkbox"/> Removal & Installation | <input type="checkbox"/> Adjustments                     | <input type="checkbox"/> Other _____            |
| <input type="checkbox"/> Specifications         | <input type="checkbox"/> Pinpoint Test(s)                |   |

Explain your concern below: *(Please print)*

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

What do you think is the main cause of your concern?

- ☐ Missing Information ☐ Inaccurate Information ☐ Incomplete Information

Is the concern:

- ☐ Editorial ☐ Technical ☐ Both

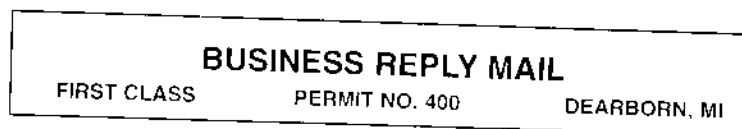
Please tell us who you are: *(Please print)*

Your Name: \_\_\_\_\_  
Company Name: \_\_\_\_\_ P&A Code: \_\_\_\_\_ Occupation: \_\_\_\_\_  
Street: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip/ Postal Code: \_\_\_\_\_  
Phone Number: \_\_\_\_\_ Fax Number: \_\_\_\_\_  
Email Address: \_\_\_\_\_

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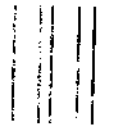
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Please tell us who you are: (Please print)

Your Name: \_\_\_\_\_  
Company Name: \_\_\_\_\_ P&A Code: \_\_\_\_\_ Occupation: \_\_\_\_\_  
Street: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip/ Postal Code: \_\_\_\_\_  
Phone Number: \_\_\_\_\_ Fax Number: \_\_\_\_\_  
Email Address: \_\_\_\_\_

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