

General Information

Conversion - English/Metric

English	Multiply/ Divide by	Metric
Length		
in	25.4	mm
ft	0.3048	m
yd	0.9144	
mi	1.609	km
Area		
sq in	645.2	sq mm
	6.45	sq cm
sq ft	0.0929	sq m
sq yd	0.8361	
Volume		
cu in	16,387.0	cu mm
	16.397	cu cm
	0.0164	L
qt	0.9464	
gal	3.7854	
cu yd	0.746	cu m
Mass		
lb	0.4536	kg
ton	907.18	
	0.907	tonne (t)
Force		
kg	9.807	newtons (N)
oz	0.2780	
lb	4.448	
Acceleration		
ft/s ²	0.3048	m/s ²
in/s ²	0.0254	
Torque		
lb in	0.11296	N-m
lb ft	1.3558	
Power		
hp	0.745	kW
Pressure (Stress)		
inches of H2O	0.2491	kPa
lb/sq in	6.895	
Energy (Work)		
Btu	1055.0	J (J= one Ws)
lb ft	1.3558	
kW hour	3,600,000.0	
Light		
Foot Candle	10.764	lm/m ²
Velocity		
mph	1.6093	km/h

Conversion - English/Metric (cont'd)

English	Multiply/ Divide by	Metric
Temperature		
(°F-32) / 1.8	=	°C
°F	=	(°C X 1.8) + 32
Fuel Performance		
235.215/mpg	=	L/100 km

Equivalents - Decimal and Metric

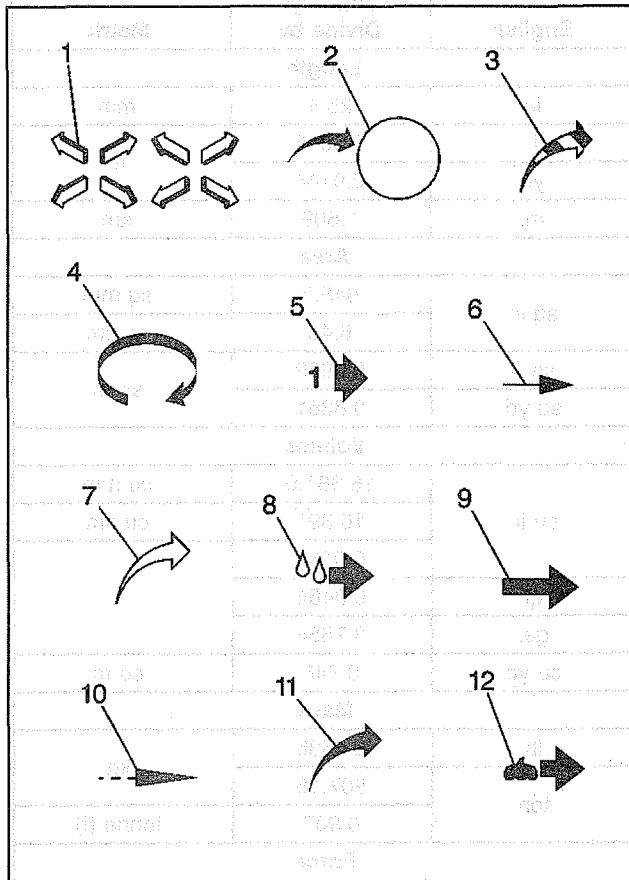
Fraction (in)	Decimal (in)	Metric (mm)
1/64	0.015625	0.39688
1/32	0.03125	0.79375
3/64	0.046875	1.19062
1/16	0.0625	1.5875
5/64	0.078125	1.98437
3/32	0.09375	2.38125
7/64	0.109375	2.77812
1/8	0.125	3.175
9/64	0.140625	3.57187
5/32	0.15625	3.96875
11/64	0.171875	4.36562
3/16	0.1875	4.7625
13/64	0.203125	5.15937
7/32	0.21875	5.55625
15/64	0.234375	5.95312
1/4	0.25	6.35
17/64	0.265625	6.74687
9/32	0.28125	7.14375
19/64	0.296875	7.54062
5/16	0.3125	7.9375
21/64	0.328125	8.33437
11/32	0.34375	8.73125
23/64	0.359375	9.12812
3/8	0.375	9.525
25/64	0.390625	9.92187
13/32	0.40625	10.31875
27/64	0.421875	10.71562
7/16	0.4375	11.1125
29/64	0.453125	11.50937
15/32	0.46875	11.90625
31/64	0.484375	12.30312
1/2	0.5	12.7
33/64	0.515625	13.09687
17/32	0.53125	13.49375
35/64	0.546875	13.89062
9/16	0.5625	14.2875
37/64	0.578125	14.68437
19/32	0.59375	15.08125

Equivalents - Decimal and Metric (cont'd)

Fraction (in)	Decimal (in)	Metric (mm)
39/64	0.609375	15.47812
5/8	0.625	15.875
41/64	0.640625	16.27187
21/32	0.65625	16.66875
43/64	0.671875	17.06562
11/16	0.6875	17.4625
45/64	0.703125	17.85937
23/32	0.71875	18.25625
47/64	0.734375	18.65312
3/4	0.75	19.05
49/64	0.765625	19.44687
25/32	0.78125	19.84375
51/64	0.796875	20.24062
13/16	0.8125	20.6375
53/64	0.828125	21.03437
27/32	0.84375	21.43125
55/64	0.859375	21.82812
7/8	0.875	22.225
57/64	0.890625	22.62187
29/32	0.90625	23.01875
59/64	0.921875	23.41562
15/16	0.9375	23.8125
61/64	0.953125	24.20937
31/32	0.96875	24.60625
63/64	0.984375	25.00312
1	1.0	25.4

Arrows and Symbols

This service manual uses various symbols in order to describe different service operations.



196216

Legend

- (1) Front of Vehicle
- (2) View Detail
- (3) Ambient Air Mixed With Another Gas or Indicate Temperature Change
- (4) Motion or Direction
- (5) View Angle
- (6) Dimension (1:2)
- (7) Ambient/Clean Air Flow or Cool Air Flow
- (8) Lubrication Point—Oil or Fluid
- (9) Task Related
- (10) Sectioning (1:3)
- (11) Gas Other Than Ambient Air or Hot Air Flow
- (12) Lubrication Point—Grease or Jelly

Special Tools Ordering Information

The special service tools shown in this service manual that have product numbers beginning with J or BT are available for worldwide distribution from:

OE Tool and Equipment Group
Kent-Moore

28635 Mound Road

Warren, MI, U.S.A. 48092-3499

Phone: 1-800-345-2233 or 810-574-2332

Monday through Friday

8:00 a.m.-7:00 p.m. Eastern Standard Time

Fax: 1-800-578-7375 or 810-578-7321

The TECH 2® scan tool and accessories can be purchased through:

Dealer Equipment and Services

5775 Enterprise Dr.

Warren, MI, U.S.A. 48092-3463

Phone: 1-800-GM-TOOLS or 810-574-2332

Monday through Friday

8:00 a.m.-6:00 p.m. EST

Fax: 1-810-578-7205

Diagnostic Work Sheets

The GM Diagnostic Worksheet has been designed to improve communications between the service customer and the technician. The diagnostic worksheet can provide the technician with more information than the conventional repair order, since it is filled out by the service customer. The GM Diagnostic Worksheets are available to you at no cost. GM Service Bulletin 58-01-01 has information on how to order this diagnostic worksheet.

Training

General Motors makes available automotive classroom training through the GM Training Centers and colleges.

GMCL (General Motors of Canada Ltd)

Dealers

Course scheduling for GMCL Training Centres, remote and college locations is determined by Dealer Training Needs requested in TAMS (Technician Activity Monitoring System). Dealers register their Training Needs electronically via DCS. Training is then scheduled when sufficient Needs are received to support minimum classroom attendance. Dealers who have entered Needs will receive invitations via DCS (Dealer Communication System) to attend the requested training. Dealers having questions concerning the GMCL training process can directly contact GMCL Training Co-ordinators via toll free numbers 1-800-263-9555 (English) or 1-800-263-9770 (French).

Fleets

GMCL Fleet Training is accomplished through a separate training organization in Canada. Fleets can request training by faxing a document contained in a GMCL brochure (Fleet Training - Your Competitive Advantage) distributed to fleets (FAX # 905-831-1598). Further information concerning Fleet training can be obtained by calling toll free to 1-888-456-6660.

United States

Dealers

All US Dealers enroll through the GM Enrollment Calling Center (EEC). Each GM Dealer has an assigned consultant that calls the Service Manager each month. During this consultation call, the EEC processes enrollments requested by the Dealer Service Manager. Technicians should advise their Service Manager of the training they need, course names, and course numbers for the classes they want to attend.

Fleets

Fleets are to call their GM Training Center.

Non-GM Dealer Technician

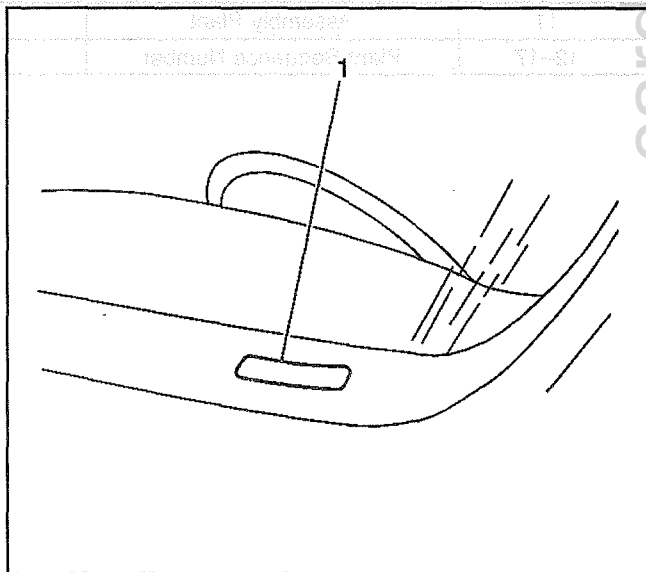
Technician training for non-GM dealers is available through ACDelco. This training is for ACDelco customers employed in the automotive or truck service industry.

GM Training Center course availability and schedules can be obtained by calling 1-800-825-5886.

Clinics are offered through ACDelco Warehouse Distributors. Contact yours directly.

Correspondence courses are available on batteries, spark plugs and filters. These courses can be obtained through any ACDelco Representative or ACDelco Warehouse Distributor.

Vehicle Identification



65474

Legend

(1) Vehicle Identification Number Plate Location

The vehicle identification number (VIN) plate is the legal identifier of the vehicle. The VIN plate is located on the upper LH corner of the instrument panel (IP) and can be seen through the windshield from the outside of the vehicle.

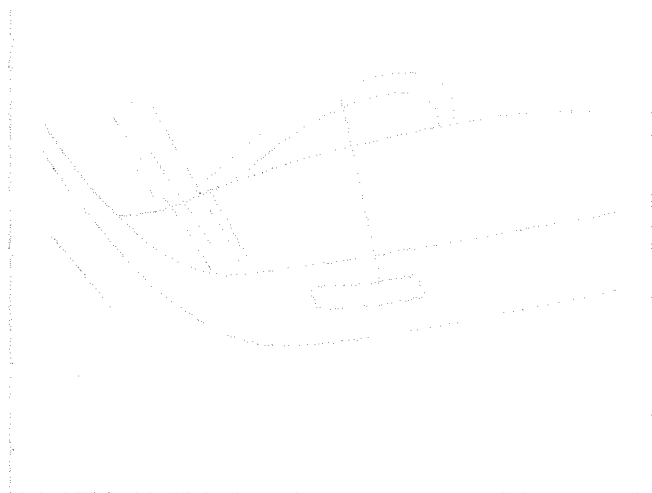
0-6 General Information

General Information

The last five digits of the assembly plant sequential number are stamped onto the rear side of the front sill (tie bar). This number is the same as the last five digits on the VIN plate. The VIN plate also has bar code characteristics.

Vehicle Identification Number (VIN) System

Position	Definition	Character	Description
1	Country of Origin	2	Canada
2	Manufacturer	G	General Motors
3	Division	1	Chevrolet
—	2	Pontiac	Camaro Sport Coupe
4-5	Carline/Series	FP	
—	FS	Firebird	
—	FV	Formula/Trans Am	
6	Body Type	2	Two Door
—	3	Two Door Convertible	Active (Manual) Belts with Driver and Passenger Inflatable Restraint System
7	Restraint System	2	
8	Engine	G	RPO LS1, V8, 5.7L, SFI, United States Production, Mid/Lux Division
—	K	RPO L36, V6, 3.8L, SFI, United States Production, Mid/Lux Division	2000
9	Check Digit	0	
10	Model Year	Y	St Therese, Quebec
11	Assembly Plant	2	
12-17	Plant Sequence Number	—	—



GMV (General Motors of Canada Ltd.)

Course scheduling for GMV Training Centers website

and college location is determined by (user)

Training needs requests in LAMS (Tech edge)

Activity Monitoring System. Dealer reports that

Training needs electronically via ECR. Training is then

scheduled when sufficient needs are worked at

support minimum classroom attendance. Dealers who

have entered needs will receive notification via

GC2 (Dealer Communication System) to alert to

requested training. Dealer's having questions

concerning the GMV Training program can contact

control GMV Training Coordinator via toll free

number 1-800-855-1774 (ext. 1445-1446).

(Print)

Feature

GMV (General Motors of Canada Ltd.)

request training a generalist in Canada (tech edge)

request training via LAMS (Tech edge)

in a GMV website. Training needs requests in LAMS (Tech edge)

Activity Monitoring System. Dealer reports that

Training needs electronically via ECR. Training is then

scheduled when sufficient needs are worked at

support minimum classroom attendance. Dealers who

VIN Derivative

All engines and transmissions are stamped or laser etched with a partial vehicle identification number (VIN), which was derived from the complete VIN. A VIN derivative contains the following nine positions:

Position	Definition	Character	Description
1	GM Division Identifier	1	Chevrolet
2	Model Year	Y	2000
3	Assembly Plant	2	St. Therese
4-9	Plant Sequence Number	—	—

A VIN derivative can be used to determine if a vehicle contains the original engine or transmission by matching the VIN derivative positions to their accompanying positions in the complete VIN:

VIN Derivative Position	Equivalent VIN Position
1	3
2	10
3	11
4-9	12-17

10000

The front gross axle weight (GAW) is the weight exerted on the front axle. The rear gross axle weight (GAW) is the weight exerted on the rear axle. The front and rear gross axle weights must not exceed the front and rear gross axle weight ratings. The payload rating defines the vehicle's maximum allowable cargo load. The cargo load includes the driver and the passengers. The payload rating is based on the vehicle's factory installed equipment. Deduct the weight of accessories added to the vehicle after the final date of manufacture from the payload rating.

The vehicle may have a Gross Combination Weight Rating (GCWR). The Gross Combination Weight Rating refers to the total maximum weight of the loaded tow vehicle (including driver and passengers) and a loaded trailer.

The vehicle's tires must be the proper size and properly inflated for the load the vehicle is carrying. For more information on tires refer to the "Tires"

The vehicle identification label displays the following information:

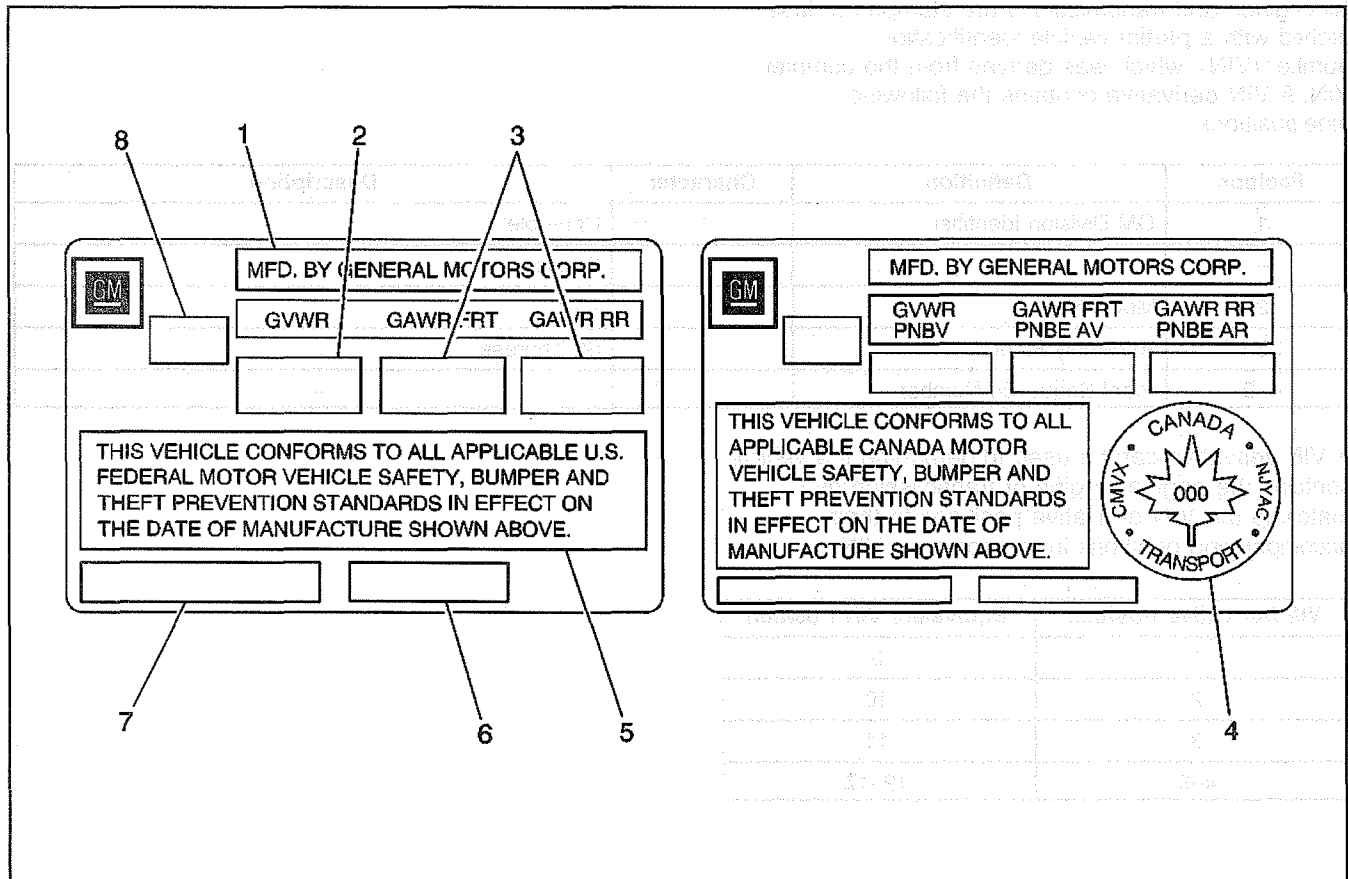
- (1) The make of the manufacturer
- (2) The Gross Vehicle Weight Rating (GVWR)
- (3) The Gross Axle Weight Rating (GAWR)
- (4) The vehicle's type (passenger car)
- (5) The vehicle's identification number (VIN)
- (6) The date of manufacture (MM/DD/YY)
- (7) The original equipment tire size and the recommended tire pressure

Gross vehicle weight (GVW) is the weight of the vehicle and everything it carries, including the following items when figuring the GVW:

- The basic vehicle weight (empty weight)
- The weight of the vehicle accessories
- The weight of the driver and the passengers
- The weight of the cargo

The gross vehicle weight must not exceed the Gross Vehicle Weight Rating.

Label - Vehicle Certification



65484

The vehicle certification label displays the following assessments:

- The name of the manufacturer (1)
- The Gross Vehicle Weight Rating (GVWR) (2)
- The Gross Axle Weight Rating (GAWR) (3)
- The vehicle payload rating
- The vehicle class type (Pass Car, etc) (6)
- The vehicle identification number (7)
- The date of manufacture (Mo/Yr) (8)
- The original equipment tire sizes and the recommended tire pressures

Gross vehicle weight (GVW) is the weight of the vehicle and everything it carries. Include the following items when figuring the GVW:

- The base vehicle weight (factory weight)
- The weight of the vehicle accessories
- The weight of the driver and the passengers
- The weight of the cargo

The gross vehicle weight must not exceed the Gross Vehicle Weight Rating.

The front gross axle weight (GAW) is the weight exerted on the front axle. The rear gross axle weight (GAW) is the weight exerted on the rear axle. The front and rear gross axle weights must not exceed the front and rear gross axle weight ratings.

The payload rating defines the vehicle's maximum allowable cargo load. The cargo load includes the driver and the passengers. The payload rating is based on the vehicle's factory installed equipment. Deduct the weight of accessories added to the vehicle after the final date of manufacture from the payload rating.

The vehicle may have a Gross Combination Weight Rating (GCWR). The Gross Combination Weight Rating refers to the total maximum weight of the loaded tow vehicle (including driver and passengers) and a loaded trailer.

The vehicle's tires must be the proper size and properly inflated for the load the vehicle is carrying. For more information on tires refer to *Tire Placard*.

Tire Placard

The diagram shows a standard tire placard with the following fields and callouts:

- 1: Specified Occupant Seating Positions (FRT, CTR, RR, SPA)
- 2: Total Occupant Seating (TOTAL)
- 3: Maximum Vehicle Capacity Weight (LBS., KG)
- 4: Tire Pressures, Front, Rear, and Spare (COLD TIRE PRESSURE PSI/KPa)
- 5: Tire Speed Rating, Front, Rear, and Spare (SPEED RTG.)
- 6: Tire Label Code
- 7: Engineering Model Minus First Character (MODEL)
- 8: Tire Sizes, Front, Rear, and Spare (TIRE SIZE)
- 9: Vehicle Identification Number (VIN)

Additional text on the placard includes: "TIRE-LOADING INFORMATION", "MAX. LOADING @ GVWR SAME AS VEHICLE CAPACITY WEIGHT", and "IF TIRES ARE H/T AND 4P SL/28KPa SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION".

65541

Legend

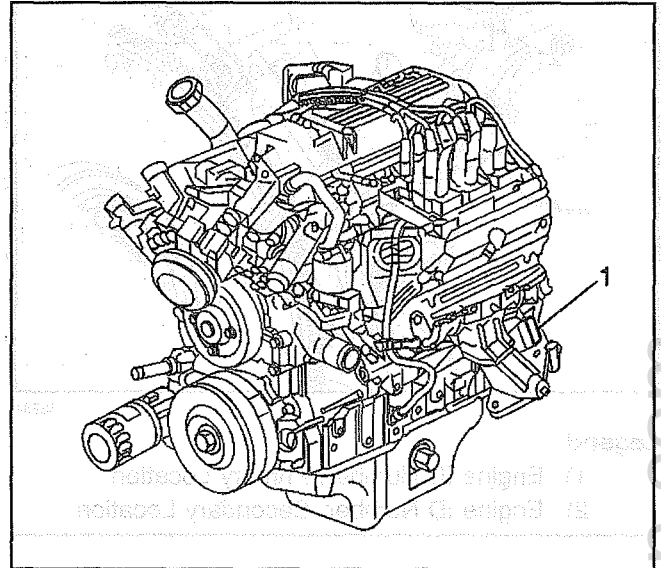
- (1) Specified Occupant Seating Positions
- (2) Total Occupant Seating
- (3) Maximum Vehicle Capacity Weight
- (4) Tire Pressures, Front, Rear, and Spare
- (5) Tire Speed Rating, Front, Rear, and Spare
- (6) Tire Label Code
- (7) Engineering Model Minus First Character
- (8) Tire Sizes, Front, Rear, and Spare
- (9) Vehicle Identification Number

The Tire Placard is permanently located on the edge of the driver's door. Refer to the placard to obtain:

- The maximum vehicle capacity weight
- The cold tire inflation pressures
- The tire sizes (original equipment tires)
- The tire speed ratings (original equipment tires)

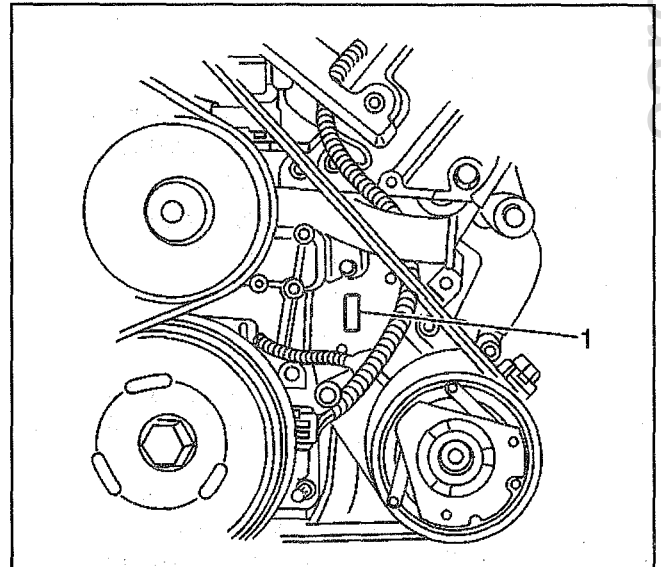
Engine ID and VIN Derivative Location (RPO L36)

The eighth character in the Vehicle Identification Number (VIN) identifies the engine. Adhesive-backed labels attached to the engine, laser etching, or stampings on the engine block indicate the engine unit number/date code. All engines are stamped with a VIN derivative. For added information on VIN derivative, refer to *VIN Derivative*.



446246

The primary location of the VIN derivative for the 3.8 L engine is above the starter motor on the engine block (1).

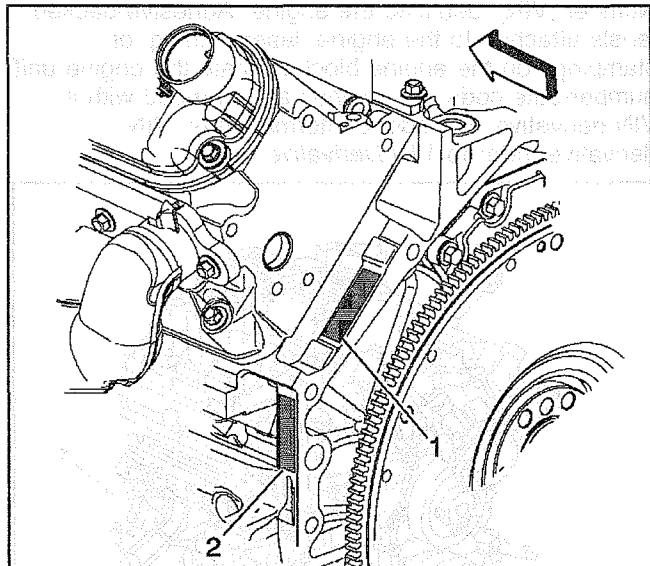


182099

The secondary location of the VIN derivative for the 3.8 L engine is below the water pump on the engine block (1).

Engine ID and VIN Derivative Location (RPO LS1)

Engine ID Number Locations



63234

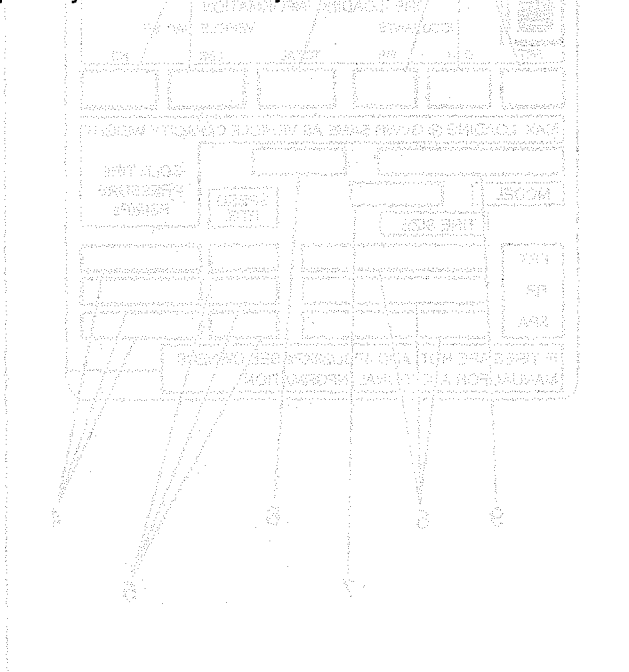
Legend

- (1) Engine ID Number, Primary Location
- (2) Engine ID Number, Secondary Location

The eighth digit of the vehicle identification number (VIN) is the engine code letter, which identifies the engine as a 5.7 L V8.

Stick-on labels attached to the engine, laser etching, or stampings on the engine block indicate the engine unit number/build date code.

The engine ID number will be located at either the primary or the secondary location, as shown.

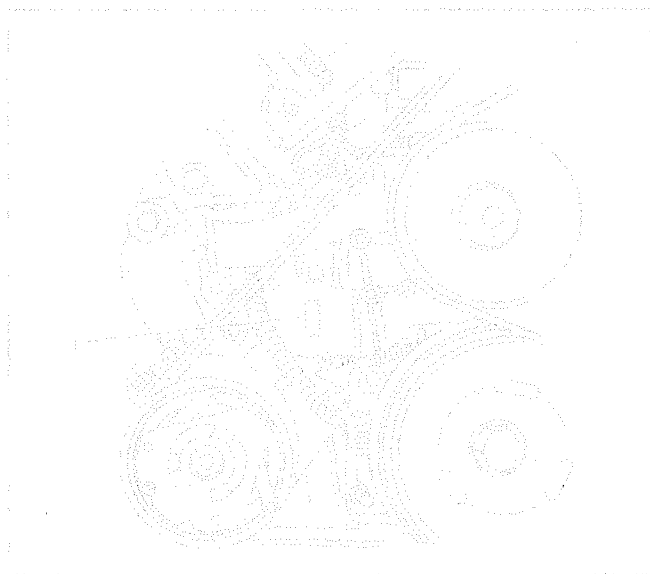


Legend

- (1) Specified Occupant Seating Positions
- (2) Total Occupant Seating
- (3) Maximum Vehicle Capacity Weight
- (4) Tire Pressure, Front, Rear, and Spare
- (5) Tire Speed Rating, Front, Rear, and Spare
- (6) The Label Code
- (7) Engineering Model minus First Character
- (8) The Glass Front, Rear, and Side
- (9) Vehicle Identification Number

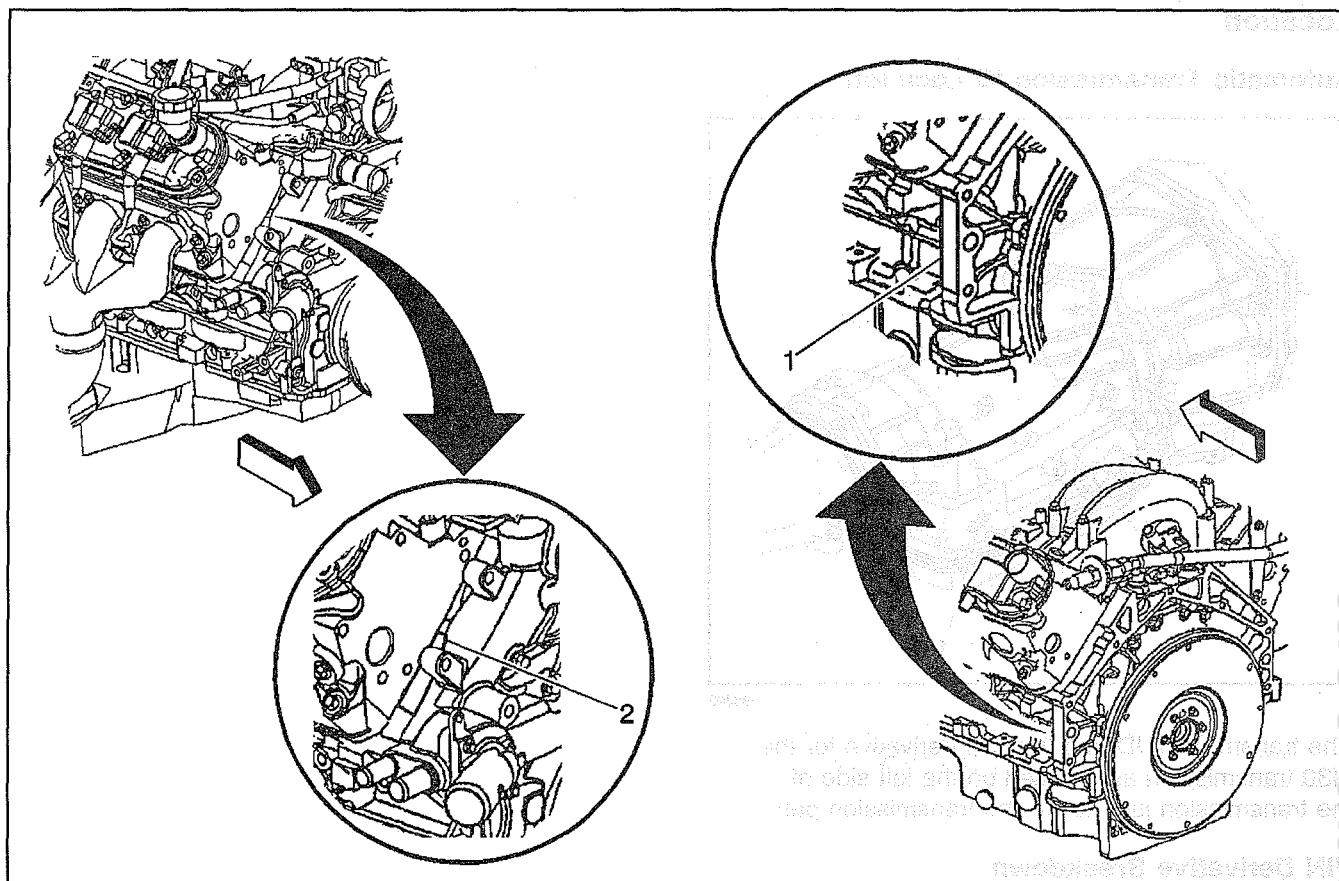
The VIN is located on the edge of the driver's door. Refer to the diagram to obtain the VIN.

- The maximum vehicle capacity weight
- The cold tire inflation pressures
- The tire sizes for each position
- The tire speed ratings



The secondary location of the VIN is on the driver's side door. The VIN is located on the edge of the door, near the hinge. The diagram shows the door open, with the VIN label visible on the edge of the door.

Engine VIN Derivative Locations



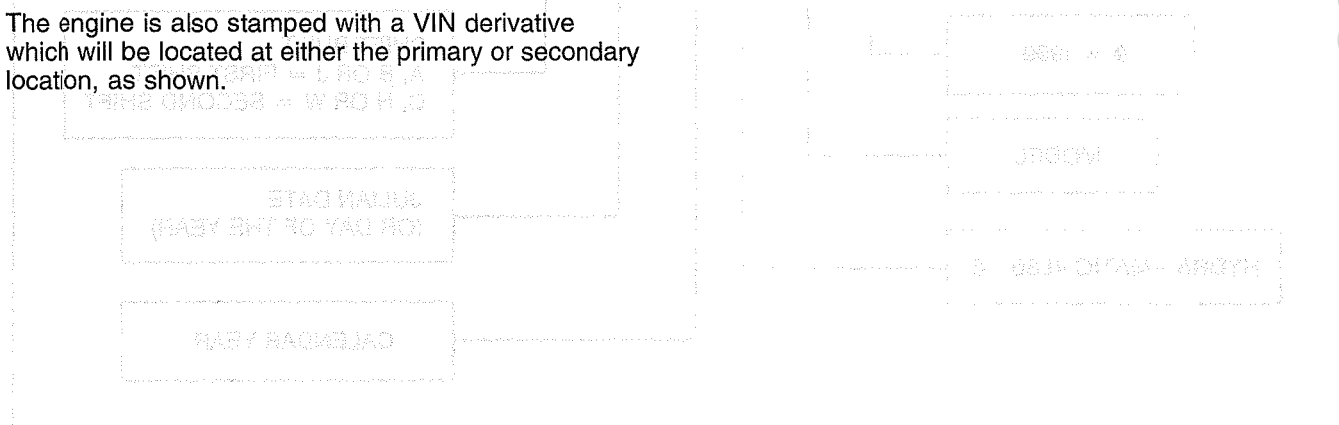
171897

Legend

(1) VIN Derivative, Primary Location

(2) VIN Derivative, Secondary Location

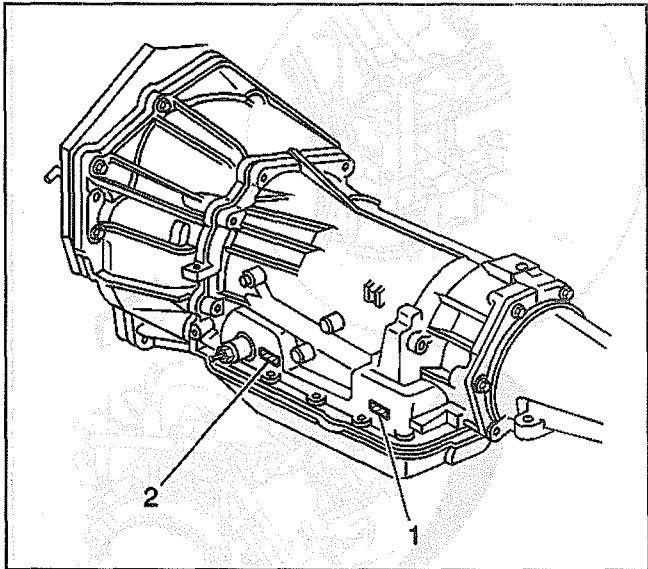
The engine is also stamped with a VIN derivative which will be located at either the primary or secondary location, as shown.



The transmission location (ID) number is located on the transmission housing, rear side and will be stamped with the following information:

Transmission ID and VIN Derivative Location

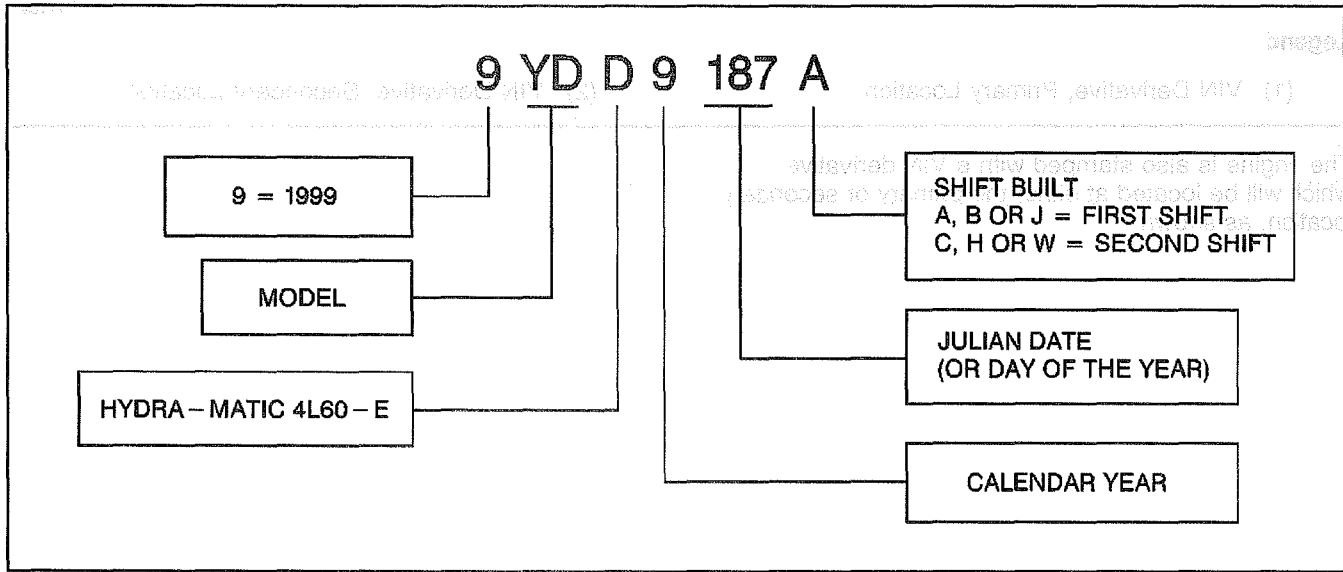
Automatic Transmission ID Location



486303

The transmission ID and the VIN derivative for the M30 transmission are located on the left side of the transmission just above the transmission pan.

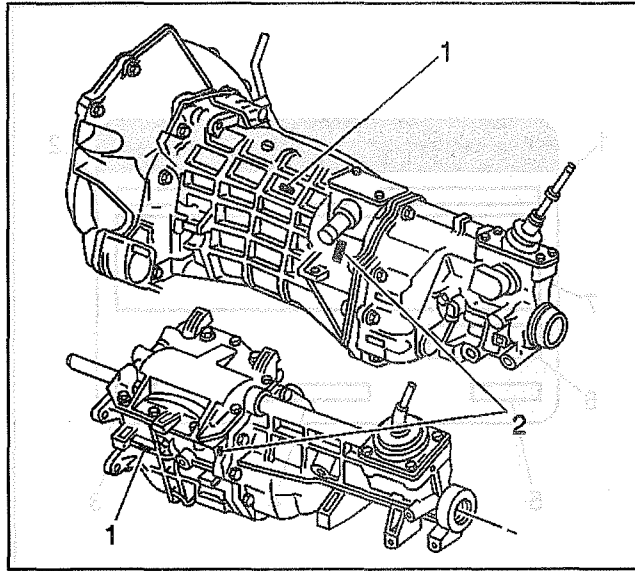
VIN Derivative Breakdown



174101

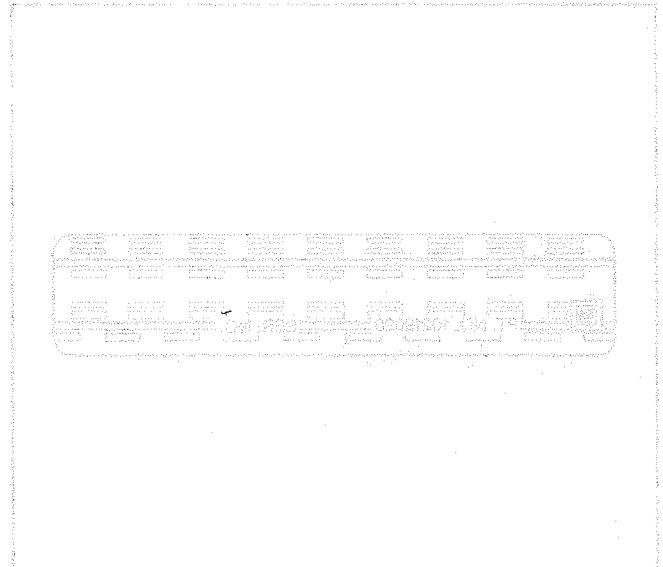
The transmission identification (ID) number indicates the transmission model year, type and when the unit was built.

Manual Transmission ID Location



486305

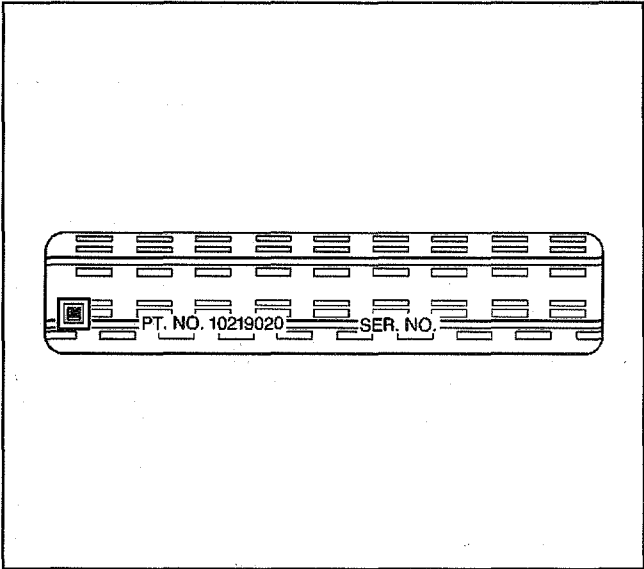
The transmission model identification is located on a label or tag on the transmission case. If this label is missing or unreadable, use the service parts identification label in order to identify the vehicle's transmission.



Transmission Usage

Body Type	Car Line (Division)	Engine Size	Fuel System	Engine RPO	Automatic Transmission Used	Manual Transmission Used
F	CAMARO (CHEVROLET)	5.7L V8	SFI	LS1	4L60-E (M30)	T56 (MM6)
F	CAMARO (CHEVROLET)	3.8L V6	SFI	L36	4L60-E (M30)	T-5 (M49)
F	FIREBIRD (PONTIAC)	5.7L V8	SFI	LS1	4L60-E (M30)	T56 (MM6)
F	FIREBIRD (PONTIAC)	3.8L V6	SFI	L36	4L60-E (M30)	T-5 (M49)

Labeling - Anti-Theft

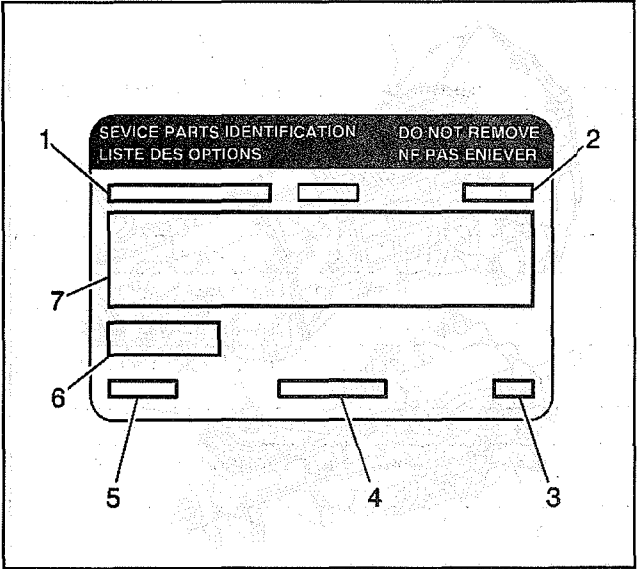


175291

Federal law requires that General Motors label certain body parts on every vehicle with the VIN. The purpose of the law is to reduce the number of motor vehicle thefts by helping in the tracing and recovery of parts from stolen vehicles.

The labels are permanently affixed to an interior surface of the part. The label on a replacement part contains the letter R, the manufacturer's logo, and the DOT symbol.

Label - Service Parts ID



65485

Legend

- (1) Vehicle Identification Number
- (2) Engineering Model Number (Vehicle Division, Vehicle Line and Body Style)
- (3) Interior Trim and Decor Level
- (4) Exterior (Paint Color) WA Number
- (5) Paint Technology
- (6) Special Order Paint Colors and Numbers
- (7) Vehicle Option Content

The Service Parts Identification Label aids the service personnel in identifying the parts and options originally installed on the vehicle.

RPO Code List

The production/process codes provide a description of the Regular Production Options (RPOs) used on the Camaro and Firebird. The RPO list is printed on the Service Parts Identification Label. The following is a list of the RPO abbreviations and the description of each:

RPO Table

RPO	Description
A26	Window Glazing, European
AG1	Driver Front Seat, Power Adjuster
AH3	Front Seat, Manual 4-Way Adjuster
AK5	Inflatable Restraint System, Driver and Passenger
AN4	Restraint Provisions, Child
AQ9	Front Seat, Driver and Passenger Recline
AR9	Front Bucket Seat, Deluxe European Style
AU0	Remote Entry Lock Control
AU3	Side Door Elec Lock Control
AX4	Restraint Conversion Seat, Manual European
A31	Window, Power Operated Side
A90	Lock Control, Rear Compt Lid Remote Elec Release
B35	Covering Rear Floor Mats
B4C	Sales Special Service Pkg (Police)
B84	Molding, B/S Exterior
CC1	Roof Hatch Removable Panels, Glass
C49	Rear Window Defogger, Electric
C60	HVAC System AC Man Controls
DD9	Mirror, O/S LH & RH Remote Control Electric Color
DE4	Sunshade, Removable Hatch Roof
DG7	Mirror, O/S LH & RH Remote Control Electric Color
D21	Sunshade, Windshield
D35	Mirror, O/S LH Remote Control, RH Manual Color
D82	Paint Special
FE2	Suspension System, Ride and Handling
FE4	Suspension System, Special Ride and Handling
FE7	Suspension System, Front and Rear Heavy Duty
FE9	Certification Emission-Federal
F41	Suspension System, Front and Rear Firm Ride and Handling
GU2	Axle Ratio 2.73
GU4	Axle Ratio 3.08
GU5	Axle Ratio 3.23
GU6	Axle Ratio 3.42

RPO Table (cont'd)

RPO	Description
G80	Axle Positraction
IL2	Trim, Interior Leather (W/AQ9) Pontiac
IL4	Trim, Interior European Camaro
IL5	Trim, Interior (w/AQ9) Pontiac
IPB	Trim, Interior Cloth Camaro and Firebird
IPD	Trim, Interior (w/AR9) European Camaro
IP2	Trim, Interior Leather Camaro
IP3	Trim, Interior Leather Pontiac
JAF	Brake Provisions, European
J65	Brake System, PWR Front and Rear Disc
K05	Heater, Engine Block
K29	Module Powertrain Control, Export
K34	Cruise Control, Automatic
K68	Generator, 105 Amp
LS1	Engine, Gas V8 5.7L SFI Aluminum
L36	Engine, Gas V6 3.8L MFI HO
M49	Transmission, Manual 5 Speed OD
MM6	Transmission, Manual 6 Speed OD
M30	Transmission, Auto 4 Speed Electronic
NK3	Steering Wheel, Sport Soft Rim Simulated Leather
NM8	Leaded Fuel System Compatible, European
NP5	Steering Wheel, Leather Wrapped
NP7	Steering Column, EEC Approved
NW9	Traction Control, Electronic
N36	Steering Wheel, 4 Spoke Sport
N60	Wheel, Aluminum Painted
N66	Wheel, Styled Aluminum 17" 5 Spoke Polished
N73	Wheel, Custom Sport Var4 17" (Restricted to Camaro SS)
N92	Cover, Wheel Bolt-on
N96	Wheel, 16 X 8 Cast Aluminum
N98	Wheel, 16 X 8 Cast Aluminum Chrome
PA6	Wheel, Styled Painted 16"
P05	Wheel, Styled Chrome 16"
QA9	Wheel, 17 X 9 Aluminum Painted (Blue Tint)
QB3	Wheel, 16 X 7.5 Steel
QCB	Tire, All P235/55R16 BW
QEA	Tire, All P215/60R16 BW
QFK	Tire, All P275/40R17 BW
QFZ	Tire, All P245/50R16 BW
QLC	Tire, All P245/50R16 BW

RPO Table (cont'd)

RPO	Description
TR7	Headlamps, Control Leveling System Automatic
T1G	Vehicle, Military Personnel
T37	Lamp, Fog Deluxe
T39	Lamp, Turn Signal Aux
T43	Spoiler, Rear
T62	Lighting, Daytime Running Delete
T65	Lighting, Daytime Running Export
T78	Headlamp Control, Delete
T79	Lamp, Fog Rear
T82	Headlamp Control, Automatic ON-OFF
T84	Headlamps, RH Rule of Road
T85	Headlamps, LH Rule of the Road
T89	Lamp, Tail & Stop Export
T96	Lamp, Fog
UA6	Theft Deterrent System
UB3	Cluster, Inst Oil Cool Temp Volts Trip Odom Tach
UC2	Speedometer, Inst Kilo Positive Bias
UK3	Electronic System Steering Wheel Acc Controls
UL0	Radio, AM/FM Stereo Auto Rev Music Srch Cass Clock ETR
UM6	Radio, AM/FM Stereo Auto Rev Cass Clock ETR
UN0	Radio, AM/FM Stereo Compact Disc Auto Tone Clock
UQ0	Speaker Sys, 4 Dual Frt Dr Mtd Dual STD RGE Qtr/Shelf
UW3	Radio, AM/FM Stereo Auto Rev Music Search Cass Data Sys
UZ7	Speaker System, 8 Quat Frt Dr Mtd Dual RR Hatch Amplifier
U1S	Player, Multiple Compact Disc
U62	Speaker System, 4 Dual Coax Frt Dual Coax PKG Shelf
U73	Antenna, Fixed Radio
U75	Antenna, Power Radio
VK3	License Plate, Front Mounting Pkg
VL4	License Plate, Rear Mounting Pkg
V12	Cooling System, Power Steering
V76	Hook, Tow
WS6	Performance Package Special
WS9	Model Conversion, Formula
WU6	Sales Package, Firehawk Upfitter
WU8	Sales Package, Z28 SS
W52	Entertainment System Option B
W53	Entertainment System Option C
W54	Entertainment System Option D
W55	Entertainment System Option E (MONSOON)

RPO Table (cont'd)

RPO	Description
W59	Entertainment System Option I
W66	Merchandised Pkg, Formula
W68	Sales Package, Firebird Upfitter
W73	Entertainment System Option J
X10	Entertainment System, Option I
X20	Entertainment System, Option J
Y3F	Sales Package, RS Camaro
Y81	Merchandised Pkg, Firebird
Y82	Merchandised Pkg, Trans Am
Y84	Merchandised Pkg, Trans Am GTA
Y87	Merchandised Pkg, Performance Enhancement
Z5X	Mirror Provisions, Arabic Language
01U	Primary Color, Exterior Special
1LE	Performance Package, Component Special
1OI	Interior Trim, Arctic White
10Q	Molding Color, Arctic White
10T	Top Color, Arctic White
10U	Primary Color, Exterior Arctic White
11Q	Molding Color, Pewter Metallic
11U	Exterior Color, Pewter Metallic
102	Trim Combination, Leather Arctic White Camaro and Firebird
103	Trim Combination, Leather Arctic White Pontiac
105	Trim Combination, Leather Arctic White Pontiac
14B	Trim Combination, Cloth Dark Gray
14D	Trim Combination, Cloth Dark Gray
14I	Interior Trim, Very Dark Gray
142	Trim Combination, Leather Very Dark Gray Camaro and Firebird
143	Trim Combination, Leather Very Dark Gray Firebird
144	Trim Combination, Leather Very Dark Gray Camaro
20Q	Molding Color, Blue Metallic
20U	Exterior Color, Blue Metallic
28Q	Molding Color, Navy Blue Met
28U	Primary Color, Exterior Navy Blue Metallic
31Q	Molding Color, Bright Green
31U	Primary Color, Exterior Bright Green
36Q	Molding Color, Fern Green
36U	Exterior Color, Fern Green
41Q	Molding Color, Black
41T	Top Color, Black
41U	Primary Color, Exterior Black
52B	Trim Combination, Cloth Light Neutral

RPO Table (cont'd)

RPO	Description
52D	Trim Combination, Cloth Light Neutral
52I	Interior Trim, Medium Neutral
522	Trim Combination, Leather Light Neutral
523	Trim Combination, Leather Medium Neutral II
524	Trim Combination, Leather Medium Neutral
56T	Top Color, Medium Dark Neutral
63Q	Molding Color, Sport Gold
63U	Exterior Color, Sport Gold
73B	Trim Combination, Cloth Flame Red
73I	Interior Trim, Flame Red
79Q	Molding Color, Mystic Teal
79U	Primary Color, Exterior Mystic Teal
81Q	Molding Color, Bright Red
81U	Primary Color, Exterior Bright Red
88Q	Molding Color, Bright Purple
88U	Primary Color, Exterior Bright Purple
92B	Trim Combination, Cloth Medium Pewter
92I	Interior Trim, Pewter
96Q	Molding Color, Cayenne Red
96U	Primary Color, Exterior Cayenne Red Metallic
99Q	Molding Color, Hugger Orange
99U	Exterior Color, Hugger Orange

Labels - How to Obtain Replacement

Obtain replacements for the following labels through the GM Service Parts Operations:

- The vehicle emission control information (exhaust emission tune-up) label
- The spare wheel caution label
- The jacking label
- The serpentine belt routing label
- The engine fan caution label
- The spare tire storage label

The following labels are not available as service parts:

- The vehicle certification label
- The tire pressure placard
- The service parts identification label

Fasteners

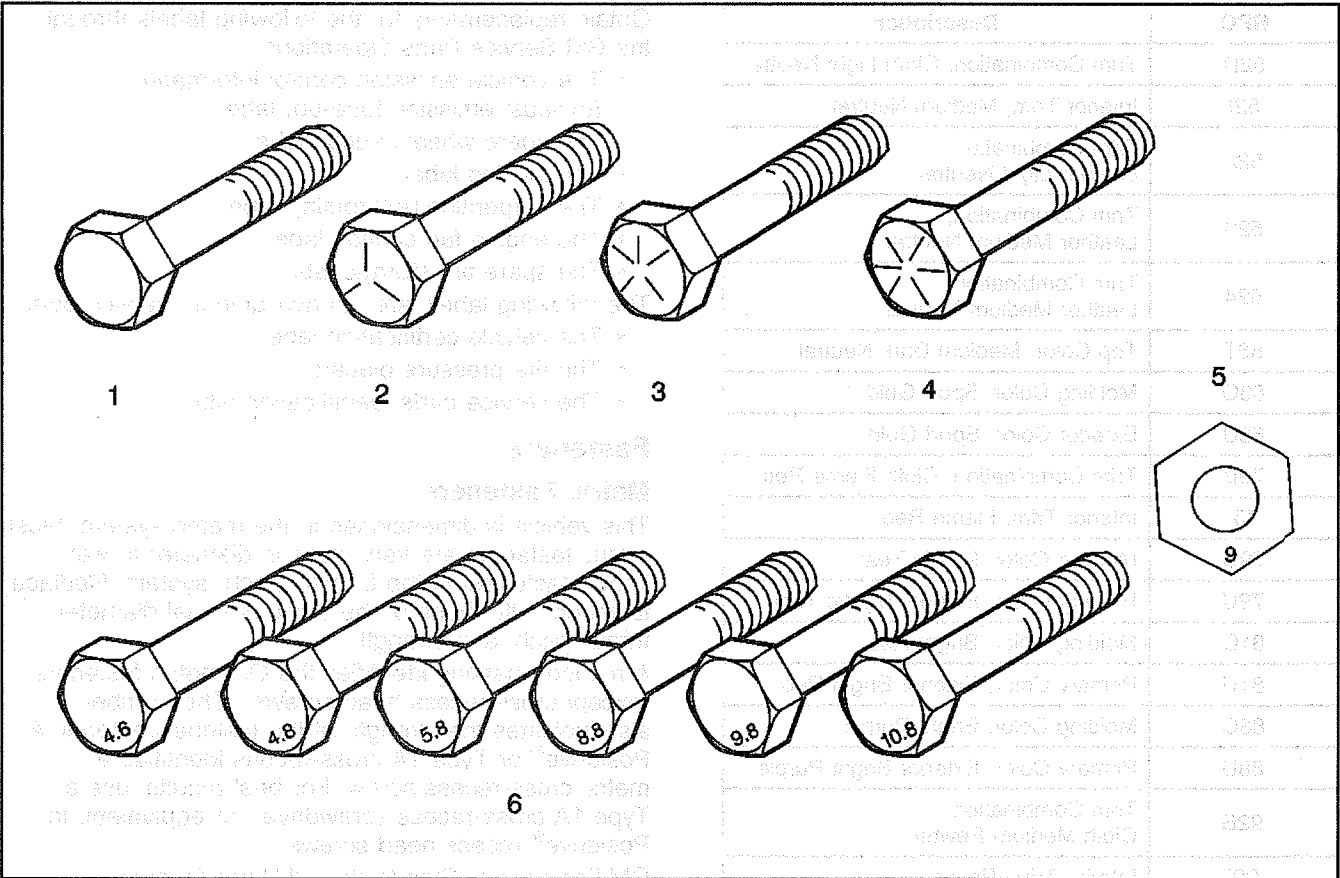
Metric Fasteners

This vehicle is dimensioned in the metric system. Most metric fasteners are very close in diameter to well known fasteners in the English (inch) system. Replace fasteners with those of the same nominal diameter, thread pitch, and strength.

A number marking identifies the OE metric fasteners (except cross-recess head screws). The number also indicates the strength of the fastener material. A Posidrive® or Type 1A cross-recess identifies a metric cross-recess screw. For best results, use a Type 1A cross-recess screwdriver, or equivalent, in Posidrive® recess head screws.

GM Engineering Standards and North American Industries have adopted a portion of the ISO-defined standard metric fastener sizes. The purpose of this was to reduce the number of fastener sizes used while retaining the best thread qualities in each thread size. For example, the metric M6.0 X 1 screw, with nearly the same diameter and 25.4 threads per inch replaced the English 1/4-20 and 1/4-28 screws. The thread pitch is midway between the English coarse and fine thread pitches.

Fastener Strength Identification



Legend

- (1) English Bolt, Grade 2 (Strength Class)

(2) English Bolt, Grade 5 (Strength Class)

(3) English Bolt, Grade 7 (Strength Class)

(4) English Bolt, Grade 8 (Strength Class)
- (5) Metric Nut, Strength Class 9

(6) Metric Bolts, Strength Class Increases as Numbers Increase

The most commonly used metric fastener strength property classes are 9.8 and 10.9. The class identification is embossed on the head of each bolt. The English (inch) strength classes range from grade 2 to grade 8. Radial lines are embossed on the head of each bolt to identify the strength class. The number of lines on the head of the bolt is two lines less than the actual grade. For example, a grade 8 bolt will have 6 radial lines on the bolt head. Some metric nuts are marked with a single-digit strength identification number on the nut face.

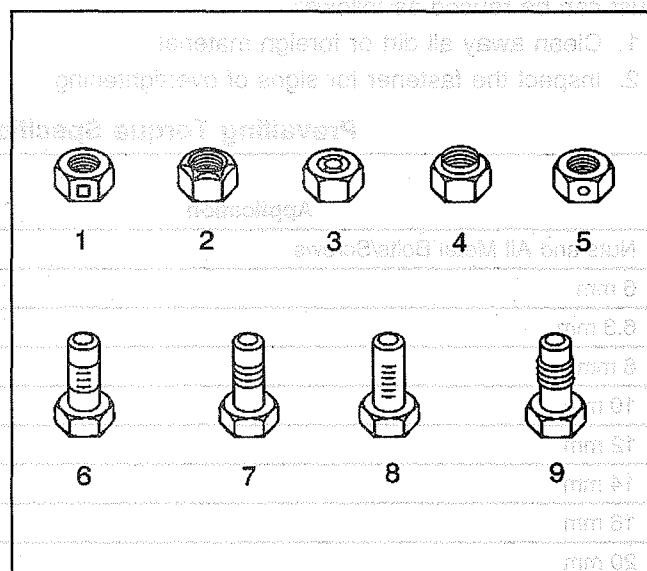
The correct fasteners are available through GM SPO. Many metric fasteners available in the aftermarket parts channels were designed to meet the metric standards of countries other than the United States, and may exhibit the following defects:

- Reduced strength
- No numbered head marking system
- Wrong thread pitch

The metric fasteners on GM products are designed to new, international standards. The following are the most common sizes and pitches, except for special applications:

- M6.0 X 1
- M8 X 1.25
- M10 X 1.5
- M12 X 1.75

Prevailing Torque Fasteners



Legend

- (1) Prevailing Torque Nut, Center Lock Type
- (2) Prevailing Torque Nut, Top Lock Type
- (3) Prevailing Torque Nut, Nylon Patch Type
- (4) Prevailing Torque Nut, Nylon Washer Insert Type
- (5) Prevailing Torque Nut, Nylon Insert Type
- (6) Prevailing Torque Bolt, Dry Adhesive Coating Type
- (7) Prevailing Torque Bolt, Thread Profile Deformed Type
- (8) Prevailing Torque Bolt, Nylon Strip Type
- (9) Prevailing Torque Bolt, Out-of-Round Thread Area Type

A prevailing torque nut is designed to develop an interface between the nut and bolt threads. Distortion of the top of a metal nut or the use of a nylon patch on the threads in the middle of the hex flat provides the interface.

English	Metric	English	Metric
1/4 in	M6.0	1/2 in	M12.0
5/16 in	M8.0	9/16 in	M14.0
3/8 in	M10.0	5/8 in	M16.0
7/16 in	M14.0	3/4 in	M18.0
1/2 in	M16.0	7/8 in	M20.0
9/16 in	M18.0	1 in	M22.0
5/8 in	M20.0	1 1/8 in	M24.0
3/4 in	M22.0	1 1/4 in	M26.0
7/8 in	M24.0	1 3/8 in	M28.0
1 in	M26.0	1 1/2 in	M30.0
1 1/8 in	M28.0		
1 1/4 in	M30.0		
1 3/8 in	M32.0		
1 1/2 in	M34.0		
1 3/4 in	M36.0		
2 in	M40.0		
2 1/4 in	M45.0		
2 1/2 in	M48.0		
2 3/4 in	M50.0		
3 in	M55.0		
3 1/2 in	M60.0		
4 in	M65.0		
4 1/2 in	M70.0		
5 in	M75.0		
5 1/2 in	M80.0		
6 in	M85.0		
6 1/2 in	M90.0		
7 in	M95.0		
7 1/2 in	M100.0		
8 in	M105.0		
8 1/2 in	M110.0		
9 in	M115.0		
9 1/2 in	M120.0		
10 in	M125.0		
10 1/2 in	M130.0		
11 in	M135.0		
11 1/2 in	M140.0		
12 in	M145.0		
12 1/2 in	M150.0		
13 in	M155.0		
13 1/2 in	M160.0		
14 in	M165.0		
14 1/2 in	M170.0		
15 in	M175.0		
15 1/2 in	M180.0		
16 in	M185.0		
16 1/2 in	M190.0		
17 in	M195.0		
17 1/2 in	M200.0		
18 in	M205.0		
18 1/2 in	M210.0		
19 in	M215.0		
19 1/2 in	M220.0		
20 in	M225.0		
20 1/2 in	M230.0		
21 in	M235.0		
21 1/2 in	M240.0		
22 in	M245.0		
22 1/2 in	M250.0		
23 in	M255.0		
23 1/2 in	M260.0		
24 in	M265.0		
24 1/2 in	M270.0		
25 in	M275.0		
25 1/2 in	M280.0		
26 in	M285.0		
26 1/2 in	M290.0		
27 in	M295.0		
27 1/2 in	M300.0		
28 in	M305.0		
28 1/2 in	M310.0		
29 in	M315.0		
29 1/2 in	M320.0		
30 in	M325.0		
30 1/2 in	M330.0		
31 in	M335.0		
31 1/2 in	M340.0		
32 in	M345.0		
32 1/2 in	M350.0		
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41 in	M435.0		
41 1/2 in	M440.0		
42 in	M445.0		
42 1/2 in	M450.0		
43 in	M455.0		
43 1/2 in	M460.0		
44 in	M465.0		
44 1/2 in	M470.0		
45 in	M475.0		
45 1/2 in	M480.0		
46 in	M485.0		
46 1/2 in	M490.0		
47 in	M495.0		
47 1/2 in	M500.0		
48 in	M505.0		
48 1/2 in	M510.0		
49 in	M515.0		
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67 in	M695.0		
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68 in	M705.0		
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69 in	M715.0		
69 1/2 in	M720.0		
70 in	M725.0		
70 1/2 in	M730.0		
71 in	M735.0		
71 1/2 in	M740.0		
72 in	M745.0		
72 1/2 in	M750.0		
73 in	M755.0		
73 1/2 in	M760.0		
74 in	M765.0		
74 1/2 in	M770.0		
75 in	M775.0		
75 1/2 in	M780.0		
76 in	M785.0		
76 1/2 in	M790.0		
77 in	M795.0		
77 1/2 in	M800.0		
78 in	M805.0		
78 1/2 in	M810.0		
79 in	M815.0		
79 1/2 in	M820.0		
80 in	M825.0		
80 1/2 in	M830.0		
81 in	M835.0		
81 1/2 in	M840.0		
82 in	M845.0		
82 1/2 in	M850.0		
83 in	M855.0		
83 1/2 in	M860.0		
84 in	M865.0		
84 1/2 in	M870.0		
85 in	M875.0		
85 1/2 in	M880.0		
86 in	M885.0		
86 1/2 in	M890.0		
87 in	M895.0		
87 1/2 in	M900.0		
88 in	M905.0		
88 1/2 in	M910.0		
89 in	M915.0		
89 1/2 in	M920.0		
90 in	M925.0		
90 1/2 in	M930.0		
91 in	M935.0		
91 1/2 in	M940.0		
92 in	M945.0		
92 1/2 in	M950.0		
93 in	M955.0		
93 1/2 in	M960.0		
94 in	M965.0		
94 1/2 in	M970.0		
95 in	M975.0		
95 1/2 in	M980.0		
96 in	M985.0		
96 1/2 in	M990.0		
97 in	M995.0		
97 1/2 in	M1000.0		

0-20 General Information

General Information

A prevailing torque bolt/nut that is clean and free of rust can be reused as follows:

1. Clean away all dirt or foreign material.
2. Inspect the fastener for signs of overtightening.

3. Hand start the fastener at the original location.
4. Inspect the fastener for torque development, referring to the following table.
5. Tighten the fastener within specifications.

Prevailing Torque Specifications (Metric-Size Fasteners)

Application	Specification	
	Metric	English
Nuts and All Metal Bolts/Screws		
6 mm	0.4 N·m	4 lb in
6.3 mm	0.4 N·m	4 lb in
8 mm	0.6 N·m	7 lb in
10 mm	1.4 N·m	12 lb in
12 mm	2.2 N·m	18 lb in
14 mm	3.0 N·m	27 lb in
16 mm	4.2 N·m	37 lb in
20 mm	7.0 N·m	62 lb in
Adhesive or Nylon Coated Bolts/Screws		
6 mm	0.4 N·m	4 lb in
6.3 mm	0.4 N·m	4 lb in
8 mm	0.6 N·m	7 lb in
10 mm	1.2 N·m	11 lb in
12 mm	1.6 N·m	14 lb in
14 mm	2.4 N·m	21 lb in
16 mm	3.4 N·m	30 lb in
20 mm	5.6 N·m	50 lb in

Prevailing Torque Specifications (English-Size Fasteners)

Application	Specification	
	Metric	English
Nuts and All Metal Bolts/Screws		
0.250 in	0.4 N·m	4 lb in
0.312 in	0.6 N·m	5 lb in
0.375 in	1.4 N·m	12 lb in
0.437 in	1.6 N·m	16 lb in
0.500 in	2.4 N·m	21 lb in
0.562 in	3.2 N·m	28 lb in
0.625 in	4.2 N·m	37 lb in
0.750 in	7.0 N·m	62 lb in
Adhesive or Nylon Coated Bolts/Screws		
0.250 in	0.4 N·m	4 lb in
0.312 in	0.6 N·m	5 lb in
0.375 in	1.0 N·m	9 lb in
0.437 in	1.4 N·m	12 lb in
0.500 in	1.8 N·m	16 lb in
0.562 in	2.6 N·m	23 lb in
0.625 in	3.4 N·m	30 lb in
0.750 in	5.2 N·m	49 lb in

Thread Inserts

Repair Procedure

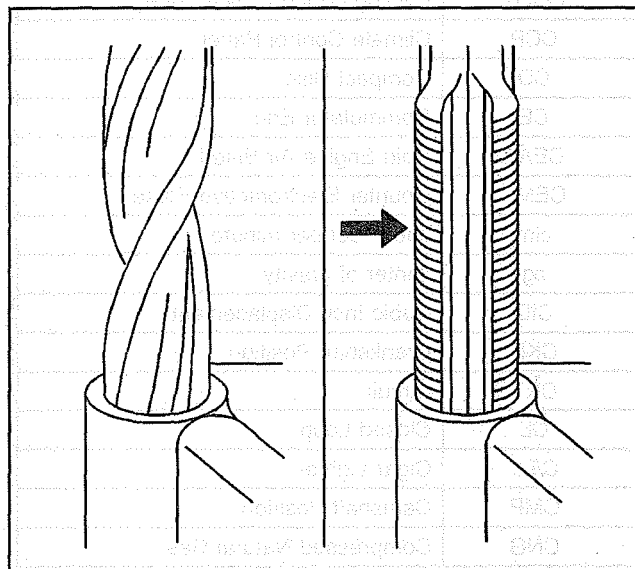
Tools Required

General purpose thread repair kits. These kits are available commercially.

Caution: Wear safety glasses in order to avoid eye damage.

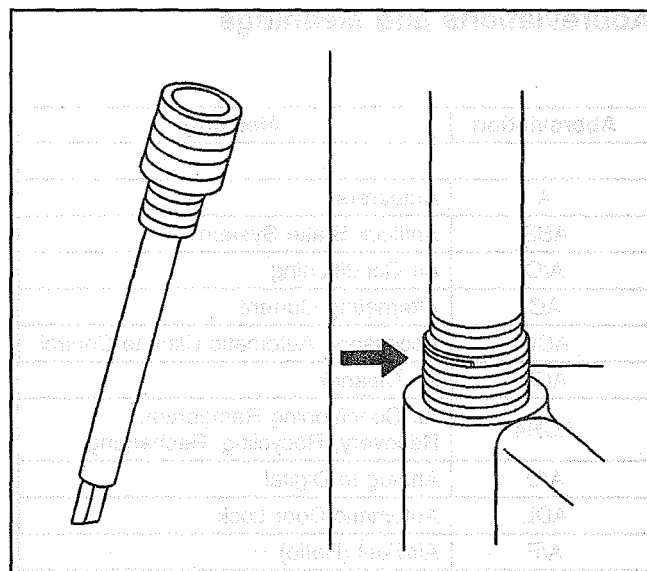
Important: Refer to the thread repair kit manufacturer's instructions regarding the size of the drill and tap to use.

Avoid any buildup of chips. Back out the tap every few turns and remove the chips.



4962

1. Determine the size, the pitch, and the depth of the damaged thread. If necessary, adjust the stop collars on the cutting tool and tap to the required depth.
2. Drill out the damaged threads. Clean out any chips.
3. Lubricate the tap with light engine oil. Tap the hole. Clean the threads.



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4. Thread the thread insert onto the mandrel of the installer. Engage the tang of the insert onto the end of the mandrel.

Important: The insert should be flush to one turn below the surface.

5. Lubricate the insert with light engine oil (except when installing in aluminum) and install the insert.
6. If the tang of the insert does not break off when backing out the installer, break the tang off with a drift.

Abbreviations and Meanings

Abbreviation	Meaning
A	
A	Ampere(s)
ABS	Antilock Brake System
A/C	Air Conditioning
AC	Alternating Current
ACC	Accessory, Automatic Climate Control
ACL	Air Cleaner
ACR4	Air Conditioning Refrigerant, Recovery, Recycling, Recharging
A/D	Analog to Digital
ADL	Automatic Door Lock
A/F	Air/Fuel (Ratio)
AIR	Secondary Air Injection
ALC	Automatic Level Control
AM/FM	Amplitude Modulation/Frequency Modulation
Ant	Antenna
AP	Accelerator Pedal
API	American Petroleum Institute
APP	Accelerator Pedal Position
APT	Adjustable Part Throttle
ARS	Automatic Restraint System
ASR	Acceleration Slip Regulation
A/T	Automatic Transmission/Transaxle
ATC	Automatic Temperature Control
ATDC	After Top Dead Center
Auto	Automatic
avg	average
AWD	All Wheel Drive
AWG	American Wire Gage
B	
B+	Battery Positive Voltage
B-	Battery Negative Voltage
BARO	Barometric (pressure)
batt	battery
BBV	Brake Booster Vacuum
BCM	Body Control Module
BHP	Brake Horsepower
BLK	Black
BLU	Blue
BP	Back Pressure
BPM	Brake Pressure Modulator
BPMV	Brake Pressure Modulator Valve
BPP	Brake Pedal Position
BRN	Brown
BTDC	Before Top Dead Center
BTSI	Brake Transmission Shift Interlock

Abbreviation	Meaning
Btu	British thermal units
C	
°C	Degrees Celsius
CAC	Charge Air Cooler
CAFE	Corporate Average Fuel Economy
Cal	Calibration
Cam	Camshaft
CARB	California Air Resources Board
cc	cubic centimeters
CCM	Central Control Module
CCOT	Cycling Clutch Orifice Tube
CCP	Climate Control Panel
CD	Compact Disc
CE	Commutator End
CEAB	Cold Engine Air Bleed
CEMF	Counter Electromotive Force
cfm	cubic feet per minute
cg	center of gravity
CID	Cubic Inch Displacement
CKP	Crankshaft Position
CKT	Circuit
CL	Closed Loop
C/Ltr	Cigar Lighter
CMP	Camshaft Position
CNG	Compressed Natural Gas
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
Coax	Coaxial
COMM	Communication
Conn	Connector
CPA	Connector Position Assurance
CPP	Clutch Pedal Position
CPS	Central Power Supply
CPU	Central Processing Unit
CRT	Cathode Ray Tube
CRTC	Cathode Ray Tube Controller
CS	Charging System
CTP	Closed Throttle Position
cu ft	cubic foot/feet
cu in	cubic inch/inches
CV	Constant Velocity (joint)
CVRSS	Continuously Variable Road Sensing Suspension
Cyl	Cylinder(s)

Abbreviation	Meaning
D	
DAB	Delayed Accessory Bus
dB	decibels
dBA	decibels on A-weighted scale
DC	Direct Current
DCM	Door Control Module
DE	Drive End
DEC	Digital Electronic Controller
DERM	Diagnostic Energy Reserve Module
DI	Distributor Ignition
dia	diameter
DIC	Driver Information Center
Diff	Differential
DK	Dark
DLC	Data Link Connector
DMM	Digital Multimeter
DOHC	Dual Overhead Camshafts
DR	Driver
DRL	Daytime Running Lamps
DTC	Diagnostic Trouble Code
E	
EBCM	Electronic Brake Control Module
EBTCM	Electronic Brake and Traction Control Module
EC	Electrical Center
ECC	Electronic Climate Control
ECI	Extended Compressor at Idle
ECL	Engine Coolant Level
ECM	Engine Control Module
ECS	Emission Control System
ECT	Engine Coolant Temperature
EEPROM	Electrically Erasable Programmable Read Only Memory
EEVIR	Evaporator Equalized Values in Receiver
EFE	Early Fuel Evaporation
EGR	Exhaust Gas Recirculation
EGR TVV	Exhaust Gas Recirculation Thermal Vacuum Valve
EI	Electronic Ignition
ELAP	Elapsed
ELC	Electronic Level Control
E/M	English / Metric
EMF	Electromotive Force
Eng	Engine
EOP	Engine Oil Pressure
EOT	Engine Oil Temperature
EPA	Environmental Protection Agency
EPR	Exhaust Pressure Regulator

Abbreviation	Meaning
EPROM	Erasable Programmable Read Only Memory
ESC	Electronic Suspension Control
ESD	Electrostatic Discharge
ETC	Electronic Throttle Control, Electronic Temperature Control
ETCC	Electronic Touch Climate Control
ETR	Electronically Tuned Receiver
EVAP	Evaporative Emission
EVO	Electronic Variable Orifice
Exh	Exhaust
F	
°F	Degrees Fahrenheit
FC	Fan Control
FDC	Fuel Data Center
FED	Federal (all United States except California)
FEDS	Fuel Enable Data Stream
FF	Flexible Fuel
FI	Fuel Injection
FMVSS	Federal Motor Vehicle Safety Standards
F/P	Fuel Pump
ft	foot/feet
FT	Fuel Trim
F4WD	Full Time Four Wheel Drive
4WAL	Four Wheel Antilock
4WD	Four Wheel Drive
FW	Flat Wire
FWD	Front Wheel Drive
G	
g	grams, gravitational acceleration
GA	Gage
gal	gallon
gas	gasoline
GCW	Gross Combination Weight
Gen	Generator
GL	Gear Lubricant
GM	General Motors
GM SPO	General Motors Service Parts Operations
gnd	ground
gpm	gallons per minute
GRN	Green
GRY	Gray
GVWR	Gross Vehicle Weight Rating

Abbreviation	Meaning
H	
H	Hydrogen
H ₂ O	Water
Harn	Harness
HC	Hydrocarbons
H/CMR	High Compression
HD	Heavy Duty
HDC	Heavy Duty Cooling
hex	hexagon
Hg	Mercury
Hi Alt	High Altitude
HO ₂ S	Heated Oxygen Sensor
hp	horsepower
HPL	High Pressure Liquid
HPS	High Performance System
HPV	High Pressure Vapor
Htd	Heated
HTR	Heater
HUD	Head-up Display
HVAC	Heater-Vent-Air Conditioning
HVACM	Heater-Vent-Air Conditioning Module
HVM	Heater Vent Module
Hz	Hertz
I	
IAC	Idle Air Control
IAT	Intake Air Temperature
IC	Integrated Circuit, Ignition Control
ICM	Ignition Control Module
ID	Identification, Inside Diameter
IDI	Integrated Direct Ignition
ign	ignition
ILC	Idle Load Compensator
in	inch/inches
INJ	Injection
inst	instantaneous
I/P	Instrument Panel
IPC	Instrument Panel Cluster
I/PEC	Instrument Panel Electrical Center
ISC	Idle Speed Control
ISO	International Standards Organization
ISS	Input Speed Shaft
K	
KAM	Keep Alive Memory
KDD	Keyboard Display Driver
kg	kilogram
kHz	kilohertz
km	kilometer
km/h	kilometers per hour

Abbreviation	Meaning
km/l	kilometers per liter
kPa	kilopascals
KS	Knock Sensor
kV	kilovolts
L	
L	Liter
L4	Four Cylinder Engine, In-line
L6	Six Cylinder Engine, In-Line
lb	pound
lb ft	pound feet (torque)
lb in	pound inch (torque)
LCD	Liquid Crystal Display
LDCL	Left Door Closed Locking
LDCM	Left Door Control Module
LED	Light Emitting Diode
LF	Left Front
LH	Left Hand
lm	lumens
LR	Left Rear
lt	left
LT	Light
M	
MAF	Mass Air Flow
Man	Manual
MAP	Manifold Absolute Pressure
MAT	Manifold Absolute Temperature
max	maximum
M/C	Mixture Control
MDP	Manifold Differential Pressure
MFI	Multiport Fuel Injection
mi	miles
MIL	Malfunction Indicator Lamp
min	minimum
ml	milliliter
mm	millimeter
mpg	miles per gallon
mph	miles per hour
ms	millisecond
MST	Manifold Surface Temperature
M/T	Manual Transmission/Transaxle
MV	Megavolt
mV	millivolt
N	
NAES	North American Export Sales
NC	Normally Closed
NEG	Negative
Neu	Neutral
NLGI	National Lubricating Grease Institute

Abbreviation	Meaning
N-m	Newton-meter (torque)
NO	Normally Open
NOx	Oxides of Nitrogen
NPTC	National Pipe Thread Coarse
NPTF	National Pipe Thread Fine
NVRAM	Non Volatile Random Access Memory
O	
O ₂	Oxygen
O ₂ S	Oxygen Sensor
OBD II	On-Board Diagnostics II
OC	Oxidation Converter (Catalytic)
OD	Outside Diameter
ODO	Odometer
OE	Original Equipment
OEM	Original Equipment Manufacturer
OHC	Overhead Camshaft
OL	Open Loop
ORN	Orange
OSS	Output Shaft Speed
oz	ounce(s)
P	
PAG	Polyalkylene Glycol
PASS	Passenger
PASS-Key®	Personalized Automotive Security System
P/B	Power Brakes
PC	Pressure Control
PCB	Printed Circuit Board
PCM	Powertrain Control Module
PCS	Pressure Control Solenoid
PCV	Positive Crankcase Ventilation
PM	Permanent Magnet (Generator)
P/N	Part Number
PNK	Pink
PNP	Park/Neutral Position
PRNDL	Park, Reverse, Neutral, Drive, Low
POA	Pilot Operated Absolute (Valve)
POS	Positive
POT	Potentiometer (Variable Resistor)
PPL	Purple
ppm	parts per million
PROM	Programmable Read Only Memory
P/S	Power Steering
PSD	Power Sliding Door
PSP	Power Steering Pressure
psi	pounds per square inch
psia	pounds per square inch absolute
psig	pounds per square inch gage

Abbreviation	Meaning
pt	pint
PWM	Pulse Width Modulated
Q	
qt	quart(s)
R	
R-12	Refrigerant-12
R-134a	Refrigerant-134a
RAM	Random Access Memory (non permanent memory devise, memory contents are lost when power is removed)
RAP	Retained Accessory Power
RAV	Remote Activation Verification
RCDLR	Remote Control Door Lock Receiver
RDCM	Right Door Control Module
Ref	Reference
Rev	Reverse
RF	Right Front, Radio Frequency
RFA	Remote Function Actuation
RFI	Radio Frequency Interference
RH	Right Hand
RKE	Remote Keyless Entry
Rly	Relay
ROM	Read Only Memory (permanent memory devise, memory contents are retained when power is removed)
RPM	Engine Speed (Revolutions Per Minute)
RPO	Regular Production Option
RR	Right Rear
rt	right
RTD	Real Time Damping
RTV	Room Temperature Vulcanizing (sealer)
RWAL	Rear Wheel Antilock
RWD	Rear Wheel Drive
S	
s	second(s)
SAE	Society of Automotive Engineers
SC	Supercharger
SCB	Supercharger Bypass
SCM	Seat Control Module
SDM	Sensing and Diagnostic Module
SEO	Special Equipment Option
SFI	Sequential Multiport Fuel Injection
SI	System International (modern version of metric system)
SIR	Supplemental Inflatable Restraint
SLA	Short/Long Arm (suspension)
sol	solenoid

Abbreviation	Meaning
SO2	Sulfur Dioxide
SP	Splice Pack
SPO	Service Parts Operations
sq ft	square foot/feet
sq in	square inch/inches
SRC	Service Ride Control
SRI	Service Reminder Indicator
ST	Scan Tool
S4WD	Selectable Four Wheel Drive
Sw	Switch
syn	synchronizer
T	
Tach	Tachometer
TBI	Throttle Body Fuel Injection
TC	Turbocharger
TCC	Torque Converter Clutch
TCS	Traction Control System
TDC	Top Dead Center
TEMP	Temperature
Term	Terminal
TFP	Transmission Fluid Pressure
TFT	Transmission Fluid Temperature
TOC	Transmission Oil Cooler
TP	Throttle Position
TPA	Terminal Positive Assurance
TPM	Tire Pressure Monitoring
TR	Transmission Range
TRANS	Transmission/Transaxle
TV	Throttle Valve
TVRS	Television and Radio Suppression
TVV	Thermal Vacuum Valve
TWC	Three Way Converter (Catalytic)
TWC+OC	Three Way + Oxidation Converter (Catalytic)
TXV	Thermal Expansion Valve
U	
UART	Universal Asynchronous Receive and Transmit
U/H	Underhood
U/HEC	Underhood Electrical Center
U-joint	Universal Joint
UTD	Universal Theft Deterrent
UV	Ultraviolet

Abbreviation	Meaning
V	
V	Volt(s), Voltage
V6	Six Cylinder Engine, V-Type
V8	Eight Cylinder Engine, V-Type
Vac	Vacuum
VAC	Vehicle Access Code
VATS	Vehicle Anti-Theft System
VCM	Vehicle Control Module
VDOT	Variable Displacement Orifice Tube
VDV	Vacuum Delay Valve
vel	velocity
VES	Variable Effort Steering
VF	Vacuum Fluorescent
VIO	Violet
VIN	Vehicle Identification Number
VMV	Vacuum Modulator Valve
VR	Voltage Regulator
V ref	Voltage Reference
VSS	Vehicle Speed Sensor
W	
w/	with
W/B	Wheel Base
WHL	Wheel
WHT	White
w/o	without
WOT	Wide Open Throttle
W/P	Water Pump
W/S	Windshield
WSS	Wheel Speed Sensor
WU-OC	Warm Up Oxidation Converter (Catalytic)
WU-TWC	Warm Up Three Way Converter (Catalytic)
X	
X-valve	Expansion valve
Y	
yd	yard(s)
YEL	Yellow

Key and Lock Cylinder Coding

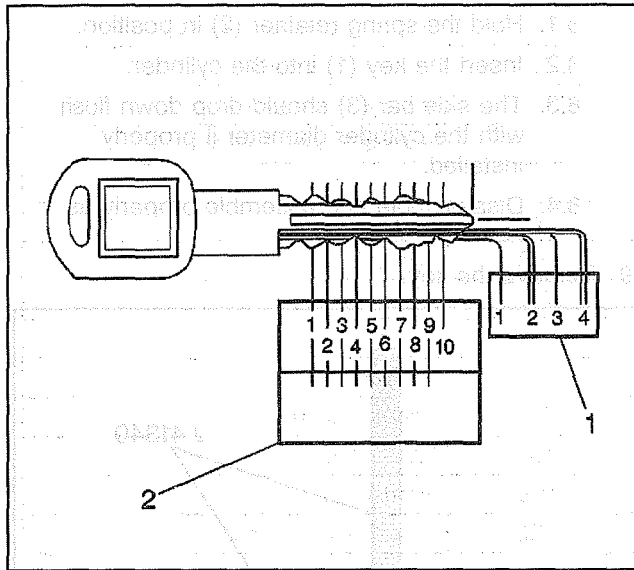
Key Identification and Usage

The lock cylinder keyway is designed so that other model keys will not enter a current model lock cylinder. A single key is used for all locks on the vehicle.

The key identification is obtained from the four-character key code stamped on the knockout portion of the key head. Knock the plugs out of the key head after the code numbers have been recorded. The code list, available to owners of key cutting equipment from equipment suppliers, determines the lock combinations from the code numbers.

If the code numbers are not available from the records or from the knockout plug, lay the key on the key code diagram in order to determine the lock combinations (the tumbler numbers and the position arrangement).

Cutting Keys



65495

After the code has been determined from the code list or the key code diagram, perform the following steps:

1. Cut a blank key to the proper level (1) of each of the tumbler positions (2).
2. Inspect the key operation in the lock cylinder.

Replacement Lock Cylinders

New lock cylinders (except ignition lock cylinders) are available from the service parts warehouse with new lock cylinder locking bars. The tumblers are also available and must be assembled into the cylinder as recommended. For additional information, refer to the following.

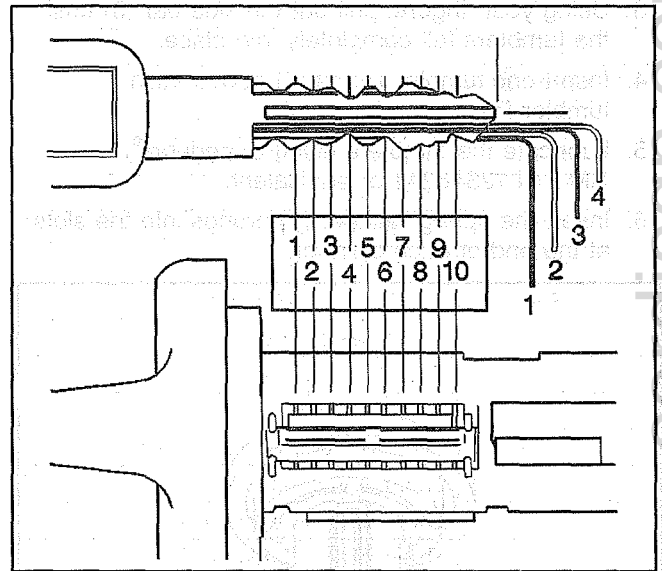
Lock Cylinder Tumbler Operation

All lock tumblers are shaped alike with the exception of the notched position on one side. As the key is inserted into the lock cylinder, the tumblers are lowered to the correct height so that the notches on each tumbler are at the same level. When the notches on all six tumblers line up, two small springs push the side bar into the notches, allowing the cylinder to turn in the cylinder bore. Five types of tumblers are used in making the lock combinations, and each tumbler is coded and stamped with a number between 1 and 5.

Assembling and Coding Ignition Lock Cylinders

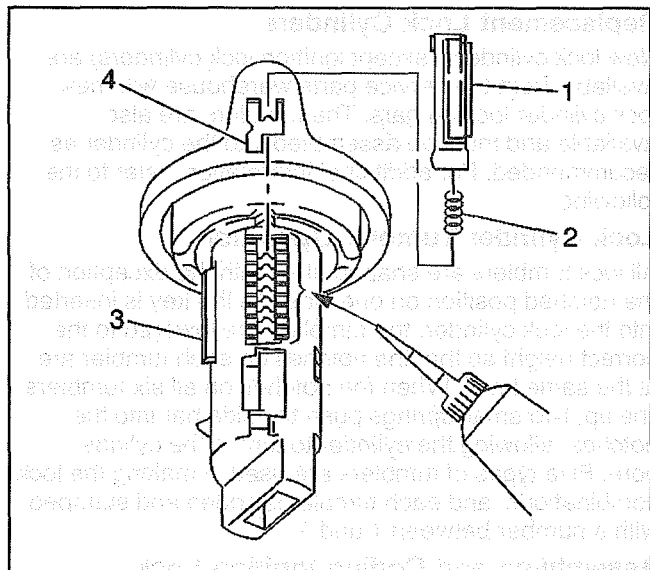
Tools Required

J 41340 Lock Cylinder Staking and Holding Fixture



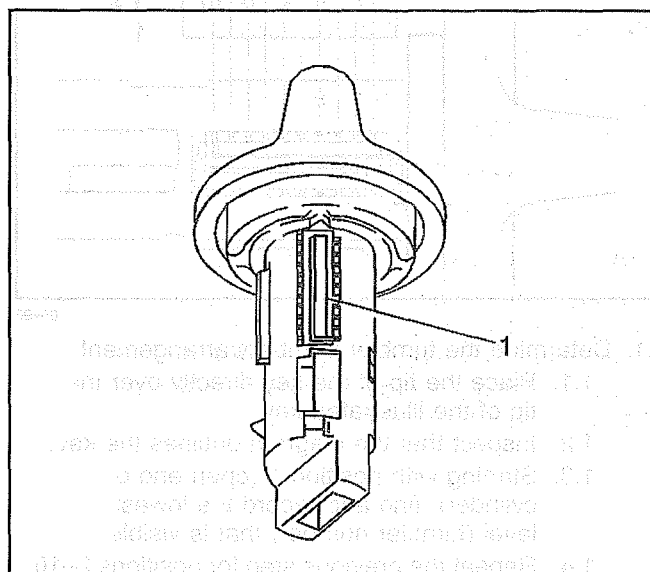
65496

1. Determine the tumbler numbers/arrangement:
 - 1.1. Place the tip of the key directly over the tip of the illustrated key.
 - 1.2. Inspect that the diagram outlines the key.
 - 1.3. Starting with position 1 (open end of cylinder), find and record the lowest level (tumbler number) that is visible.
 - 1.4. Repeat the previous step for positions 2-10.



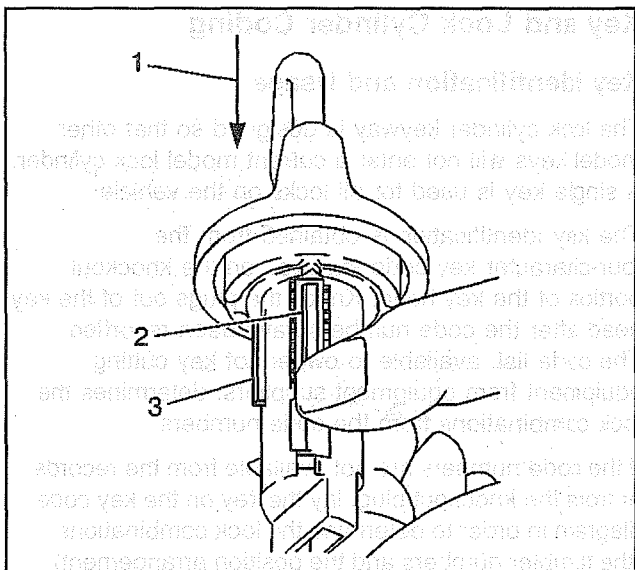
65498

2. Starting with position 1, insert the tumblers (4) into their corresponding slots in the coded order.
3. Using your fingers, pull out the side bar (3) until the tumblers fall completely into place.
4. Insert one tumbler spring (2) above each tumbler (4).
5. Lubricate the tumblers using Superlube® GM P/N 12346241 or equivalent.
6. Insert the spring retainer (1) prongs into the slots at the end of each cylinder.



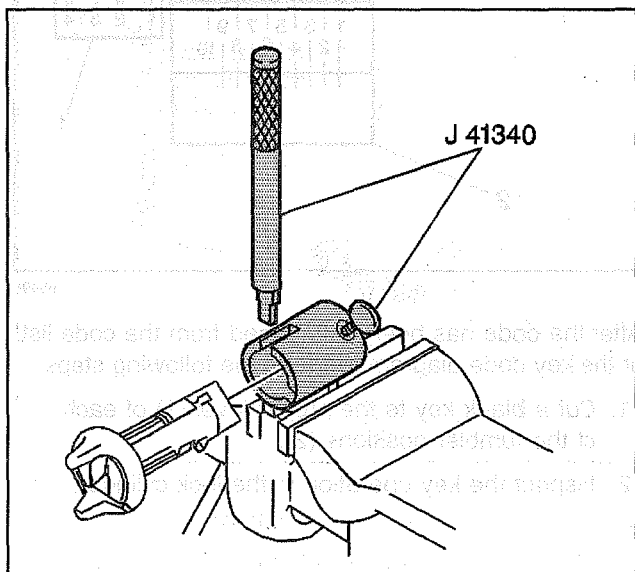
65499

7. Press down the retainer (1) until fully seated in the depression.



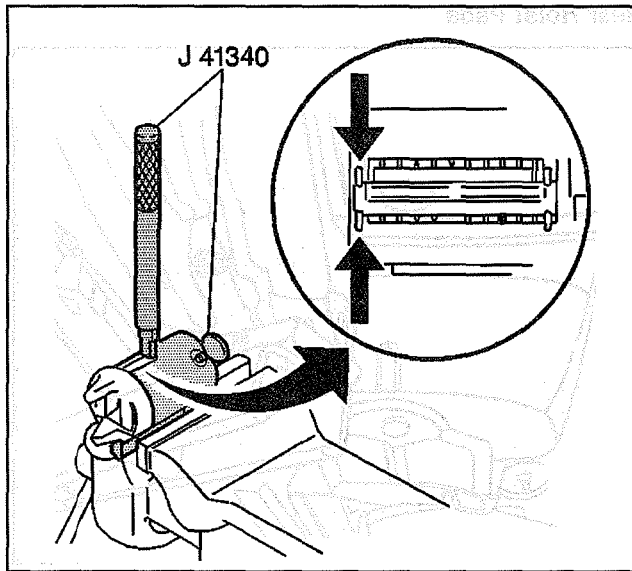
65501

8. Inspect for proper tumbler installation:
 - 8.1. Hold the spring retainer (2) in position.
 - 8.2. Insert the key (1) into the cylinder.
 - 8.3. The side bar (3) should drop down flush with the cylinder diameter if properly installed.
 - 8.4. Disassemble and assemble properly as needed.
9. Remove the key.



65502

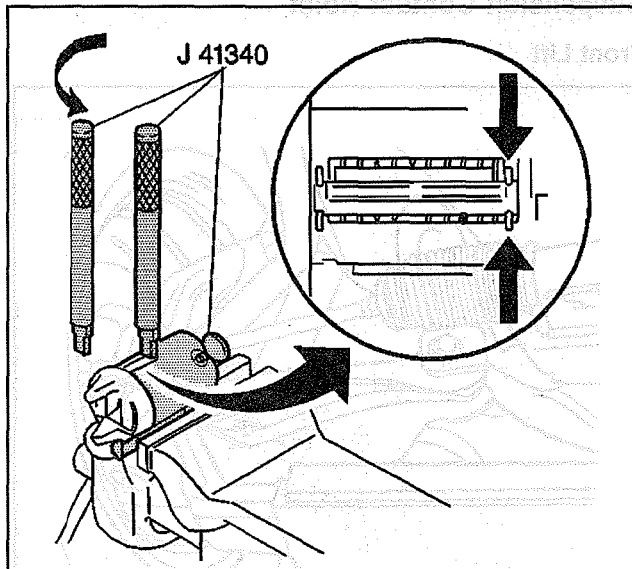
10. Secure the cylinder in the J 41340.
 - 10.1. Inspect that the spring retainer is facing up and positioned directly under the punch slots.
 - 10.2. Push the cylinder into the J 41340 until butted with the cylinder bezel.
 - 10.3. Tighten the holding screw.



65503

11. Stake the bezel end of the retainer in place:

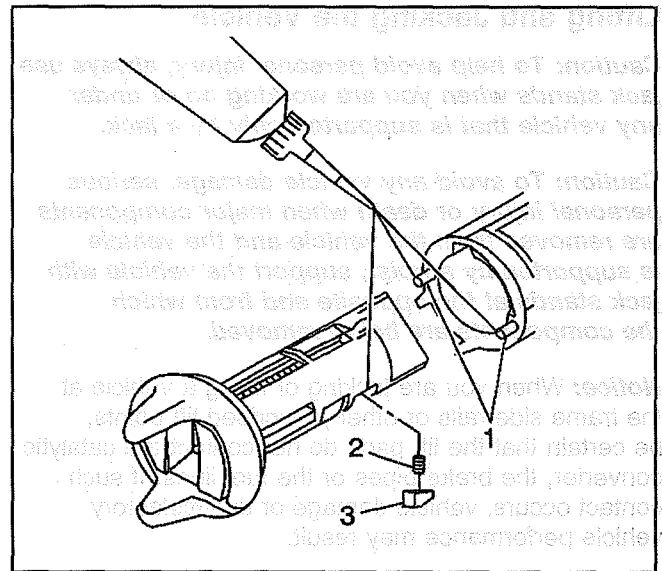
- 11.1. Hold the flat side of the punch, part of *J 41340*, squarely against the face of the cylinder bezel.
- 11.2. Stake the lock cylinder metal over the retainer corners.



65504

12. Stake the other end of the retainer:

- 12.1. Remove the punch, part of *J 41340*.
- 12.2. Rotate the punch, part of *J 41340*, 180 degrees.
- 12.3. Hold the punch, part of *J 41340*, squarely against the end of the punch slot on *J 41340*.
- 12.4. Stake the metal over the other end of the retainer.



65505

13. Loosen the holding screw.
14. Remove the cylinder from the *J 41340*.
15. Inspect that the retainer is properly staked. Restake as needed.
16. Lubricate the cylinder retainer slot.
17. Insert the following parts into the cylinder retainer slot:
 - The retainer spring (2)
 - The retainer (3)

Important: Use a paste type grease, not a spray, for the following step.

18. Lubricate the following parts with GM P/N 12345996 or equivalent as needed:
 - The detent pins (1)
 - The cylinder retainer (3)

Side Door Lock Cylinder Coding

The side door lock cylinder has five snap-in tumblers. The number 1–5 positions (beginning closest to the cylinder head) are a brass retainer tumbler. The 6–10 positions are standard tumbler positions. Therefore, only the 6–10 positions are required.

Lifting and Jacking the Vehicle

Caution: To help avoid personal injury, always use jack stands when you are working on or under any vehicle that is supported only by a jack.

Caution: To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed.

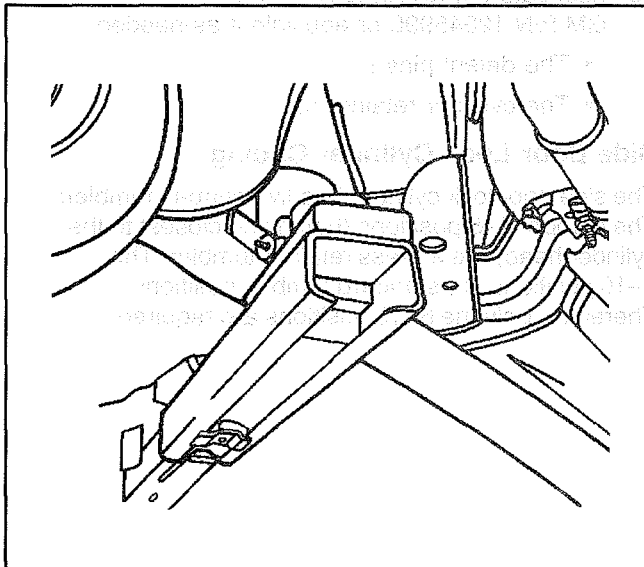
Notice: When you are jacking or lifting a vehicle at the frame side rails or other prescribed lift points, be certain that the lift pads do not contact the catalytic converter, the brake pipes or the fuel lines. If such contact occurs, vehicle damage or unsatisfactory vehicle performance may result.

For lifting the vehicle, various lift points are recommended. Before you begin any lifting procedure, be sure the vehicle is on a clean, hard, level surface. Be sure all the lifting equipment meets weight standards and is in good working order. Be sure all the vehicle loads are equally distributed and secure. If you are only supporting the vehicle at the frame side rails, make sure the lifting equipment does not put too much stress on, or weaken, the frame side rails.

If you use any other hoisting methods than those called out, take special care not to damage the fuel tanks, the exhaust system or the underbody.

Frame Contact Hoist

Front Hoist Pads

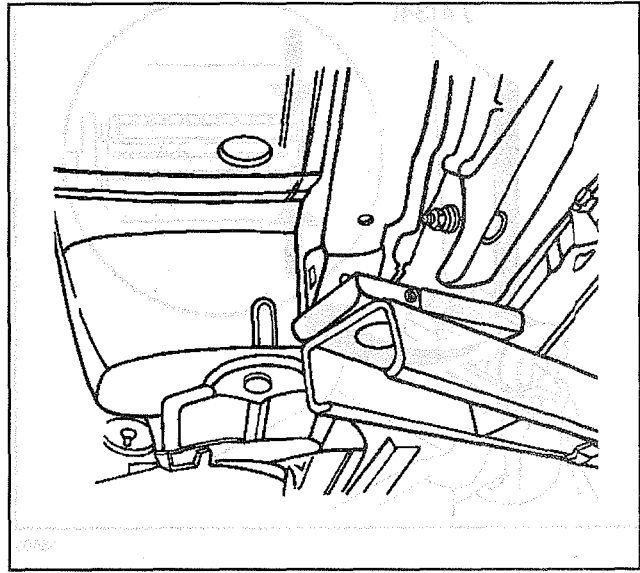


255759

Important: The front hoist pads must not contact the rocker panels, the front fenders, or the floor pan.

Position the front hoist pads (frame contact) as shown.

Rear Hoist Pads



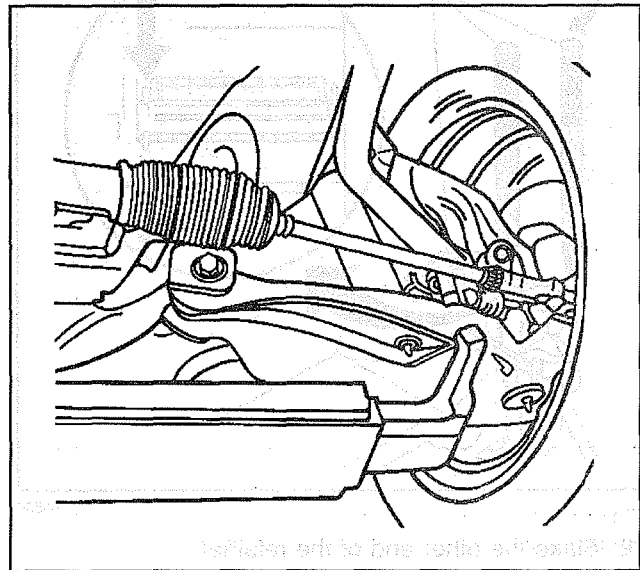
255757

Important: The rear hoist pads must not contact the body rocker panels or the floor pan.

Position the rear hoist pads (body/frame contact) as shown.

Suspension Contact Hoist

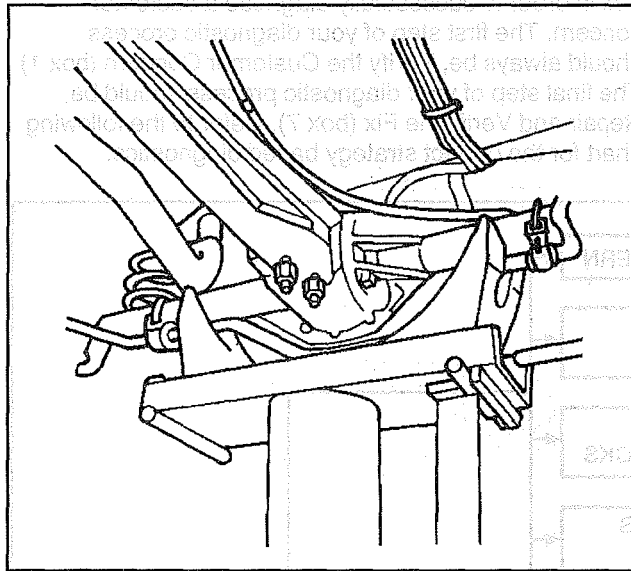
Front Lift



255761

Position the front lift (suspension contact) as follows: under the outer edge of the front suspension lower control arms.

Rear Lift

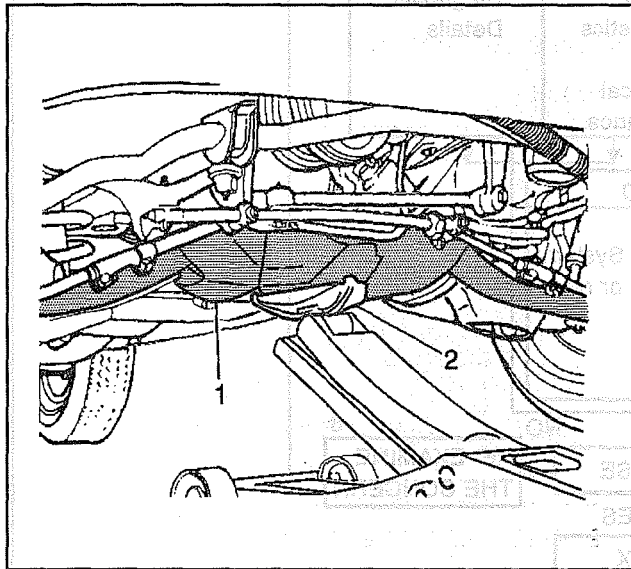


255755

Position the rear lift (suspension contact) as shown.

Vehicle Jacking

Under the Front Crossmember

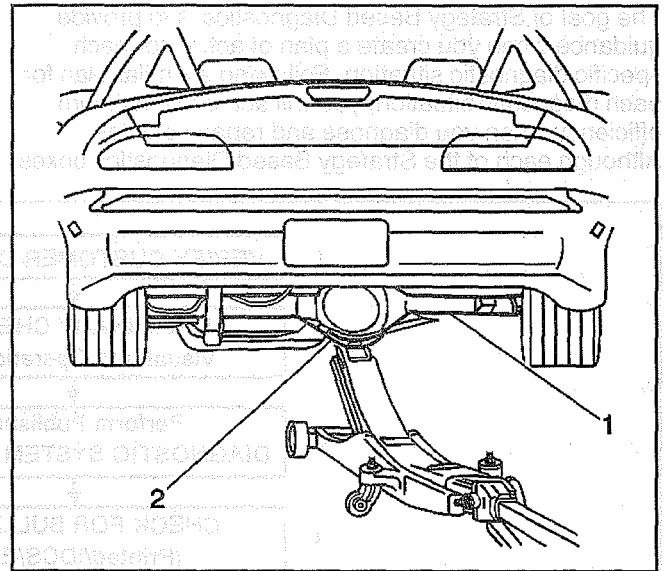


175243

Important: When lifting the vehicle with a floor jack, block the wheels at the opposite end from which you are raising.

Position the floor jack pad under the center of the front crossmember.

Under the Rear Differential



175241

Important: When lifting the vehicle with a floor jack, block the wheels at the opposite end from which you are raising.

Position the floor jack pad under the center of the rear axle differential.

Jack Stands

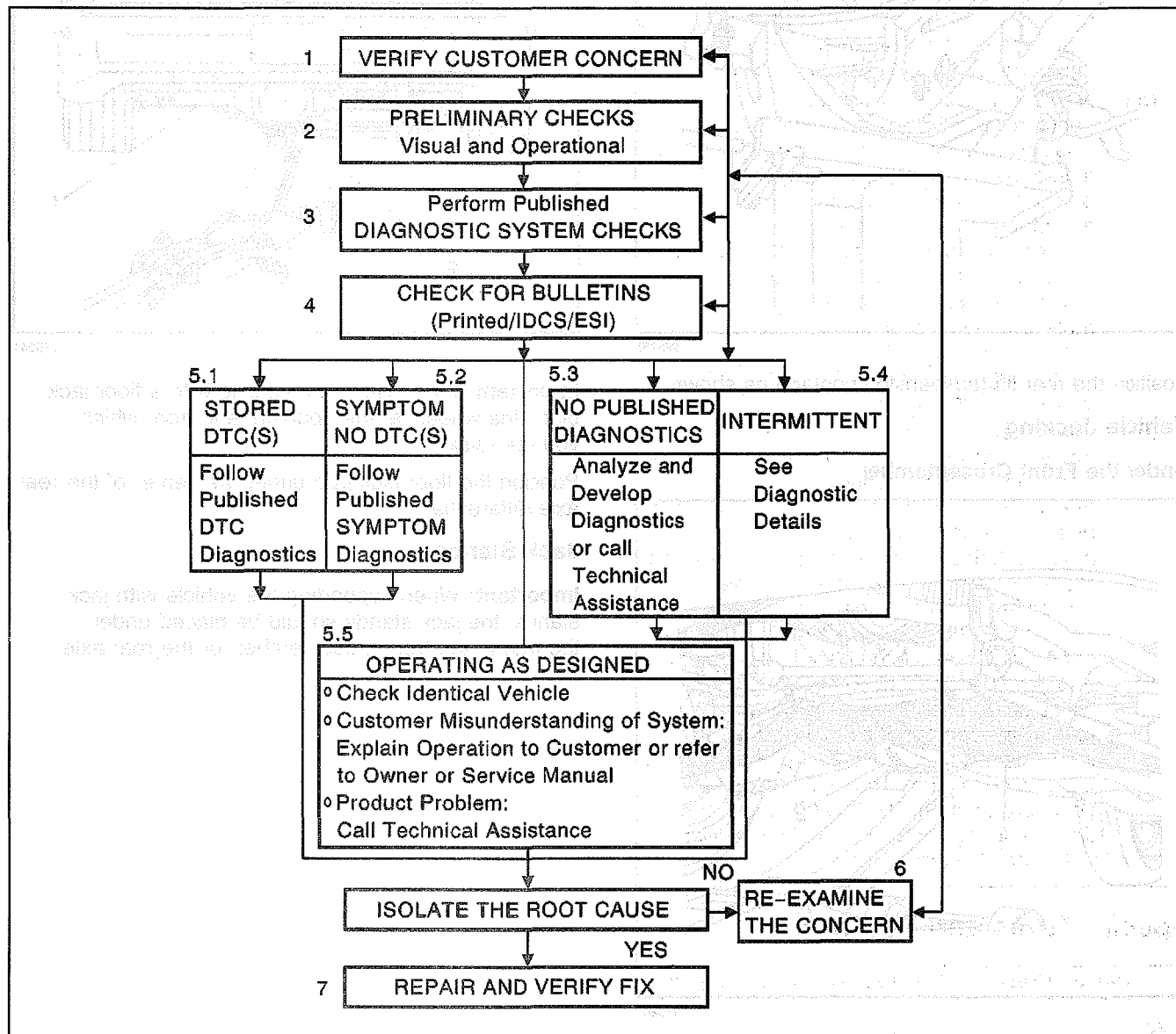
Important: When supporting the vehicle with jack stands, the jack stands should be placed under the frame, the front crossmember, or the rear axle.

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Strategy Based Diagnosis

The goal of Strategy Based Diagnostics is to provide guidance when you create a plan of action for each specific diagnostic situation. Following a similar plan for each diagnostic situation, you will achieve maximum efficiency when you diagnose and repair vehicles. Although each of the Strategy Based Diagnostics boxes

is numbered, you are not required to complete every box in order to successfully diagnose a customer concern. The first step of your diagnostic process should always be, Verify the Customer Concern (box 1). The final step of your diagnostic process should be, Repair and Verify the Fix (box 7). Refer to the following chart for the correct strategy based diagnostics.

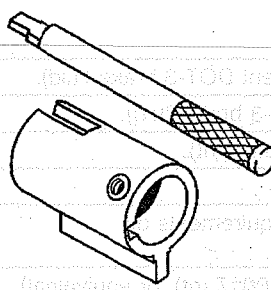


Legend

- (1) Verify the customer concern: The first part of this step is to obtain as much information as possible from the customer such as: Are there aftermarket accessories on the vehicle? When does the condition occur? Where does the condition occur? How long and how often does the condition occur? In order to verify the concern the technician should know the normal operation of the system and refer to the owner or service manual for any information needed.
- (2) Preliminary Checks: Conduct a thorough visual inspection. Review the service history. Detect unusual sounds or odors. Gather diagnostic trouble code information in order to achieve an effective repair.
- (3) Perform Published Diagnostic System Checks: One or more DTCs may not support a system. System checks verify the proper operation of the system. This will lead the technician in an organized approach to diagnostics.

- (4) Check Bulletins and Other Service Information: Such as videos, newsletters, and the Pulsat programs.
- (5.1) Stored DTCs: Follow the designated DTC table exactly in order to make an effective repair.
- (5.2) Symptom No DTC: Select the symptom from the symptom tables. Follow the diagnostic steps or suggestions in order to complete the repair, or refer to the applicable component/system check.
- (5.3) No Published Diagnostics: Analyze the concern. Develop a plan for the diagnostics. The service manual schematics will help you to see system power, ground, input and output circuits. You can also identify splices and other areas where multiple circuits are tied together. Look at component locations to see if components, connectors or harnesses may be exposed to extreme temperature, moisture, road salt or other corrosives (battery acid, oil or other fluids). Utilize the wiring diagrams, system description and operation, and system circuit description.
- (5.4) Intermittents: An intermittent condition is one that does not occur continuously and will occur when certain conditions are met. Generally, intermittents are caused by: Faulty electrical connections and wiring, malfunctioning components, electromagnetic/radio frequency interference, and aftermarket equipment.. Combine the technician knowledge with efficient use of the available service information. Evaluate the symptoms and conditions described by the customer. Use a check sheet or other method in order to identify the component. Follow the suggestions for intermittent diagnosis found in the service manual. The Tech 1, Tech 2 scan tools, and the J39200 (Fluke 87) have data capturing capabilities that can assist in detection of intermittents.
- (5.5) Vehicle Operates as Designed: This condition exists when the vehicle is found to operate normally. The condition described by the customer may be normal. Verify against another like vehicle that is operating normally under the same conditions described by the customer. Explain your findings and the operation of that system to the customer.
- (6) Re-examine the Concern: If a technician cannot successfully find or isolate the concern, a reevaluation is necessary. Re-verify the concern. The concern could be an intermittent or normal.
- (7) Repair and Verify Fix: After isolating the cause, make the repairs and validate for proper operation. Verify that the symptom has been corrected which may involve road testing the vehicle.

Special Tools and Equipment

Tool Illustration	Tool Number/Description
	J 41340 Lock Cylinder Staking and Holding Fixture

65540