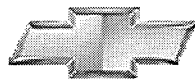
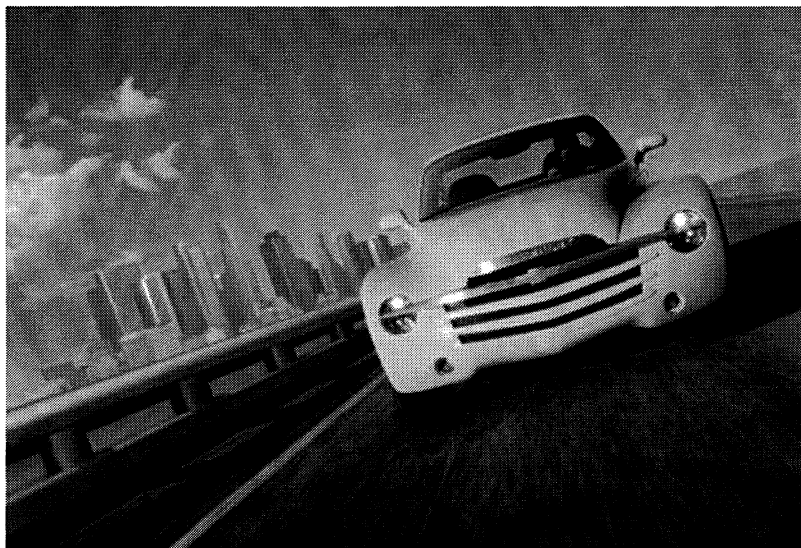


Chevrolet



SSR



2005

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Product Information

Chevrolet Ssr: Six Liters Of V-8 Corvette Power For The Ultimate Boulevard Cruiser Pickup

Ever since its debut for 2003, the Chevrolet SSR with its retractable hardtop has been turning heads as the ultimate boulevard cruiser pickup truck. For 2005, SSR gets to snap some necks with a potent new 6.0L LS2 V-8 engine and available six-speed manual transmission straight out of the legendary Corvette.

Flexing potent new muscle to match its stunning looks, SSR is powered by the newest version of Chevy's legendary small-block V-8. Ratings are 390 horsepower (291 kw) at 5400 rpm, while torque is 405 lb.-ft (549 Nm) at 4400 rpm.

This massive power dose is harnessed through Corvette's Hydra-Matic 4L65-E four-speed automatic transmission or an optional Tremec M10 six-speed manual gearbox.

Engineering advances in catalyst materials made possible catalytic converters that are more effective and less restrictive for the LS2's exhaust. The new converters are mounted closer to the exhaust manifold for quicker "lightoff" and reduced cold-start emissions. SSR's exhaust has been retuned to maintain its throaty sound.

In addition to its new powertrain, SSR has numerous other enhancements for 2005, all designed to make this outrageous retractable-top roadster the thrill ride of the year. Upgrades include:

- A retuned steering system for a more precise on-center feel and reduced low-speed effort
- A revised quasi-dual exhaust routing system with two pipes from the muffler with baffled tip inserts
- A new "dead pedal" design
- Self-supporting gas hood struts
- An MP3-capable base stereo system (1SA only)
- An embossed logo in place of the traction control button on manual transmission models
- New engine cover
- Aqua Blur replaces Ultra Violet in SSR's exterior body palette.

Also new for 2005 are several new GM accessory packages that include: auxiliary gauge package (volts, delivered torque, exterior temperature); a body color package, which adds the exterior color to SSR's auxiliary gauge package, engine cover insert and cargo area strips; a body color package with running boards; and a windbreak.

Striking looks, stunning innovation

While SSR's dramatic exterior shape may recall the full-fendered forms of the late '40s and early '50s, this innovative roadster is anything but retro when it comes to incorporating leading-edge technology and creative design solutions.

One of SSR's most distinguishing features is its cleverly engineered power-retractable hardtop, which provides an open-air driving experience without sacrificing cargo space. Incorporating a "top stack" design, SSR's retractable hardtop is the first ever applied on a pickup. It is the only system of its kind where the roof panels move independently, stacking vertically behind the passenger compartment – a design that ensures quick operation with minimal stowage requirements.

A single button on the console transforms SSR from an enclosed hardtop to a convertible in less than 30 seconds, neatly tucking the roof panels rearward between the passenger compartment and cargo bed. This unique vertical storage design system enables SSR to maintain the utility and convenience of a pickup – even with the top down.

Distinctive interior

SSR's interior design is based on Chevrolet's twin cockpit approach, with a horizontal cross-car bar and body-colored accents that pull exterior design cues inside. The satin chrome aluminum look used on elements of SSR's exterior continues on the interior door trim and instrument panel bezels. The cleanly

styled instrument panel contains gauges with bold graphics and a simple three-dial design for all climate controls.

Modern technology meets traditional methods

SSR's flared front fenders and quarter panels are formed using a blend of modern technology and some traditional methods used to produce the original 1947-1953 Advanced Design Chevy lineup of pickup trucks, which formed the inspiration for this unique modern-day muscle truck. The stamping process, for example, uses a unique method called "inverted toggle draw," which combines the original toggle draw process and the more recent stretch draw concept. The use of new Grade 5 deep-draw quality steel enables these shapes to be formed without splitting.

Underneath its sleek exterior, SSR incorporates a body-on-frame construction, which is an upper steel unibody mounted on a boxed frame. Fully hydroformed steel side rails provide the frame with strength and stiffness, relatively low weight and precision fits. Eight cross members – as opposed to only four or six in similar frame designs – boost structural strength while contributing to a smooth ride, more precise handling and reduced noise and vibration levels.

The upper unibody helps support SSR's retractable roof system, while minimizing the loss of structural integrity typically associated with convertibles by augmenting the stiffness of the entire vehicle with special cross members.

A well-mannered ride, new steering system

For 2005, SSR's steering system is significantly revised, including a retuned valve and t-bar assembly, and a new bearing and friction seal package. These upgrades provide a more precise on-center feel, smoother overall operation and reduced effort at lower speeds.

SSR's stiff frame and specifically tuned suspension provide a boulevard-cruiser ride, yet is responsive enough to handle the added horsepower of the LS2 V-8 while also delivering the durability levels expected in a truck.

The front suspension uses upper and lower control arms for superior kinematics, damping and stability, and works with SSR's rack-and-pinion steering to provide precise control. SSR's rear five-link live axle suspension, which uses monotube shock absorbers with mountings outboard of the frame, also provides improved body and wheel control. Steel coil springs and a micro cellular urethane auxiliary spring enhance ride comfort and stability during fully loaded conditions.

The SSR equipped with an automatic transmission has standard electronic traction control, an 8.6-inch (21.8-cm) rear axle, a Torsen differential and massive P295/40R20 rear tires ensure that SSR delivers its power to the ground with exceptional traction and control. The Torsen differential, proven on performance cars, works seamlessly with the traction assist to maximize performance during strong acceleration or over varying road surfaces. The SSR with a manual transmission foregoes the traction control feature and utilizes a 9.5-inch (24.1-cm) rear axle with an Eaton limited slip differential.

Four-wheel vented disc brakes with ABS and dynamic rear proportioning provide SSR with outstanding stopping performance, and world-class levels of brake feel, wear resistance and low noise. The use of non-asbestos organic compound lining extends brake life to 40,000 miles, depending on vehicle use and payload.

Accessories Complement Chevrolet SSR Versatility

Chevrolet Accessories and Chevy SSR offer consumers endless opportunities to personalize their vehicles to fit their lifestyles. With various accessory packages, Chevrolet Accessories enhance the flexibility and look of the SSR, which has attracted the attention of automotive enthusiasts since it first appeared on the show circuit.

Over the next four years, the SSR will offer consumers nearly 50 accessories to personalize the vehicle. A few examples include a cargo-area speaker system, head and taillamp treatments, power remote cargo cover and engine beautification packages.

"We've worked closely with the SSR vehicle development team to ensure the accessories complement the SSR design and functionality, and appeal to its market segment," said Nancy Philippart, GM Service and Parts Operations (SPO) executive director - GM Accessories Business Channel. "From the outset, the GM Design Center has been involved in all accessory designs and has ensured the accessories not only fit properly and look right, but also truly enhance the vehicle's image."

Creative customization accessories

The auxiliary gauge package consists of a cluster of three gauges - a voltmeter, instantaneous fuel consumption, and a transmission oil temperature gauge - with a satin chrome appearance. This package is seamlessly integrated and ergonomically positioned into the space between the console and lower instrument panel.

For customers who seek more storage, locking and form-fitted integrated side-saddle storage boxes are available. The ebony-finished storage boxes attach to the floor and side tracks of the vehicle and incorporate a highly durable exterior with a smooth-finished, easy-to-clean interior. The interior compartment for each box is approximately 12-inches deep, 40-inches long and 9-inches wide (305-mm deep, 1016-mm long and 229-mm wide). The storage box secures everything from tools and trailer hitch inserts to fishing equipment, car waxes and polishes.

The cargo netting package is another handy addition to help secure items that would otherwise slide around in the cargo area. The package includes a cross bar positioned between the upper rails, combined with cargo netting that attaches to the tailgate and four tie-down rings. The netting package is completely adjustable to the length of the cargo area.

Not just for appearance, integrated running boards provide additional protection against stone chips and scratches to the front surfaces of the SSR's wide-flared rear fenders. The running boards have a satin chrome appearance, incorporate a non-slip surface and attach directly to the vehicle frame.

The key to the accessory offering is a track system integrated into the cargo area of the SSR. The system consists of four tracks that enable easy and configurable application of current and future SSR accessory items.

"Creative, intuitive accessories that evoke emotion are what's going to keep the SSR fresh throughout its lifecycle. The accessory program is a key aspect behind the overall strategy of the vehicle," Philippart said.

Available at Chevrolet dealers

All Chevrolet Accessories can be purchased through GM dealerships.

Chevrolet Accessories permanently installed on a new GM vehicle at the time of delivery will be covered under the GM New Vehicle Limited Bumper-to-Bumper Warranty. GM Parts and Chevrolet Accessories permanently installed by a GM dealer after vehicle purchase will be covered for the balance of the new vehicle warranty, but in any event no less than 12 months or 12,000 miles.

Please visit www.gmaccessorieszone.com or call toll-free 866-901-9001 to speak to one of GM's knowledgeable accessory agents.

SPO, headquartered in Grand Blanc, Mich., markets automotive replacement parts and accessories worldwide under the GM Parts and ACDelco brand names. For more information, visit the Goodwrench web site at <http://www.goodwrench.com>.

New for 2005

- Gen IV 6.0L LS2 V-8 engine (390 horsepower/291 kw)
- Hydra-Matic 4L65-E four-speed automatic transmission (standard)
- Tremec M10 six-speed manual transmission (optional)
- New engine cover
- Retuned steering system for more precise on-center feel and reduced low-speed effort
- Revised exhaust routing – two pipes from muffler (quasi-dual exhaust)
- “Dead pedal” design change to accommodate manual transmission option
- Traction control button replaced with embossed SSR logo (manual transmission only)
- Self-supporting gas hood struts
- Sound system with CD player and MP3 playback capability (1SA package only)
- New Regular Production Accessories (RPAs):
 - Auxiliary gauge package (volts, delivered torque, outside temperature)
 - Windbreak
 - Body color package includes body color on:
 - Auxiliary gauges (volts, delivered torque, outside temperature)
 - Engine cover insert
 - Pickup bed strips
 - Body color package with running boards includes body color on:
 - Auxiliary gauges (volts, delivered torque, outside temperature)
 - Engine cover insert
 - Pickup bed strips
 - Running boards
- New bearing and low friction steering sealing package
- Retuned valve and torsion bar to lower steering efforts
- New exterior color: Aqua Blur (replaces Ultra Violet)
- Revised driver's side floor mat

Model Lineup

	Engine	Transmissions	
	6.0L V-8 (LS2)	4-spd auto (Hydra-Matic 4L65-E)	6-spd man (M10)
SSR	s	s	o

Standard s
Optional o

Specifications

Overview

Body style / driveline:	2-seat convertible roadster with retractable hardtop / rear-wheel drive
Construction:	2-sided galvanized steel on exterior panels
EPA vehicle class:	midsize truck
Manufacturing location:	Lansing, Mich.

Engine

Type:	6.0L OHV V-8
Displacement (cu in / cc):	366 / 6000
Bore & stroke (in / mm):	4.00 x 3.62 / 101.6 x 92
Block material:	cast aluminum
Cylinder head material:	cast aluminum
Valvetrain:	OHV, 2 valves per cylinder, camshaft in block, hydraulic roller lifters
Ignition system:	electronic direct
Fuel delivery:	sequential fuel injection
Compression ratio:	10.9:1
Horsepower (hp / kw @ rpm):	390 / 291 @ 5400
Torque (lb-ft / Nm @ rpm):	405 / 549 @ 4400
Recommended fuel:	93 octane recommended, not required
Maximum engine speed (rpm):	6500
Exhaust system:	stainless steel with single muffler and dual tailpipes
Emission controls:	evaporative system, catalytic converter, exhaust gas recirculation, positive crankcase ventilation
Estimated fuel economy (mpg city / hwy / combined):	
MPIG (city / hwy / combined)	automatic: 17 / 23 / 19 manual: 16 / 26 / 19
L/100km (city / hwy / combined)	automatic: 16.5 / 12.1 / 14.5 manual: 18.0 / 10.7 / 14.7

Transmissions

	Hydra-Matic 4L65-E	Tremec T-56 (M10)
Type:	4-spd auto w/ overdrive, rear-wheel drive	6-spd manual
Application:	std	opt
	Gear ratios (:1):	
First:	3.06	2.66
Second:	1.62	1.78
Third:	1.00	1.30
Fourth:	0.70	1.00
Fifth:	--	0.74
Sixth:	--	0.50
Reverse:	2.29	2.90
Final drive ratio:	3.73:1	3.73:1

Chassis/Suspension

Front:	double A-arm
Rear:	five-link solid axle
Steering type:	hydraulically assisted rack and pinion
Steering ratio:	16:1
Steering wheel turns, lock-to-lock:	3.05
Turning circle, curb-to-curb (ft / m):	38.1 / 11.6

Brakes

Type:	power-assisted front disc, rear vented disc with four-wheel anti-lock braking system
Front rotor (diam x thick, in / mm):	12 x 1.14 / 305 x 29; discs
Rear rotor (diam x thick, in / mm):	12.8 x 0.78 / 325 x 20; vented discs
Total swept area (sq in / sq cm):	front: 207.8 / 1340.4; rear: 216.6 / 1397.2

Wheels/Tires

Wheel size and type:	front: 19-inch x 8-inch aluminum rear: 20-inch x 10-inch aluminum
Tires:	front: P255/45R19 Goodyear rear: P295/40R20 Goodyear no spare: repair and inflation kit provided

Dimensions**Exterior**

Wheelbase (in / mm):	116 / 2946
Overall length (in / mm):	191.4 / 4862
Overall width (in / mm):	78.6 / 1996
Overall height (in / mm):	64.2 / 1631
Track (in / mm):	front: 64.1 / 1628; rear: 64.9 / 1648
Minimum ground clearance (in/mm):	6.1 / 154
Curb weight (lb / kg):	4760 / 2159
Weight distribution (% front / rear):	52 / 48

Interior

Seating capacity:	2
Head room (in / mm):	40 / 1016
Leg room (in / mm):	42.1 / 1069
Shoulder room (in / mm):	53.5 / 1359
Hip room (in / mm):	51.3 / 1303

Capacities

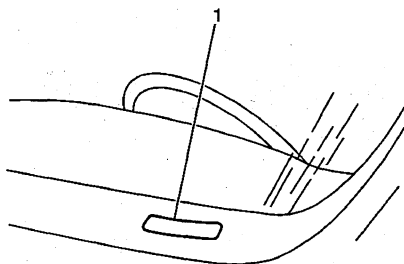
EPA interior volume (cu ft / L):	39.9 / 1130
Cargo volume (cu ft / L):	23.7 / 671
Trailer towing maximum (lb / kg):	2500 / 1134
Fuel tank (gal / L):	25 / 94.6
Engine oil (qt / L):	5.5 / 5.2
Cooling system (qt / L):	16.1 / 15.2
Maximum trailer weight (lb / kg):	2500 / 1134

Performance Data

0-60 mph (0-97 km/h):	manual: 5.29 sec automatic: 5.49 sec
1/4-mile (.4 km):	manual: 13.83 sec at 103.38 mph / 166.37 km/h automatic: 13.95 sec at 99.2 mph / 159.65 km/h
50-70 mph (81-113 km/h):	manual: 2.76 sec automatic: 3.01 sec

Vehicle Identification

Vehicle Identification Number (VIN)



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 and can be seen through the windshield from the outside of the vehicle:

Position	Definition	Character	Description
1	Country of Origin	1	U.S. Built
2	Manufacturer	G	General Motors
3	Make	C	Chevrolet Truck
4	GVWR/Brake System	E	6,001-7,000 HYD Brakes
5	Truck Line/Chassis Type	S	Sm Conventional Cab--4x2
6	Series	1	½ Ton
7	Body Type	4	Two Door Cab
8	Engine Type	H	GM 6.0L Aluminum V8
9	Check Digit	--	Check Digit
10	Model Year	5	2005
11	Plant Location	B	Lansing, MI
12-17	Plant Sequence Number	--	Plant Sequence Number

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:

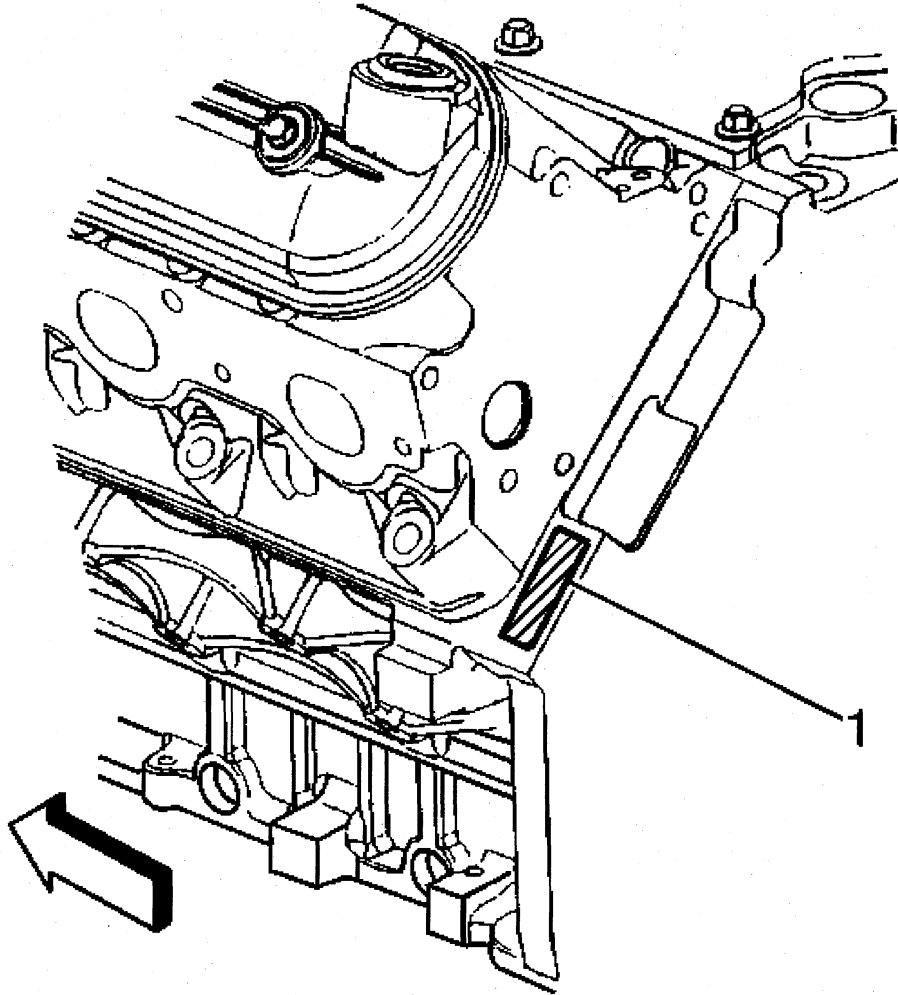
Position	Definition	Character	Description
1	GM Division Identifier	C	Chevrolet Truck
2	Model Year	5	2005
3	Assembly Plant	B	Lansing, MI
4-9	Plant Sequence Number	--	Plant Sequence Number

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

Engine ID and VIN Derivative Location

6.0L V-8 Engine

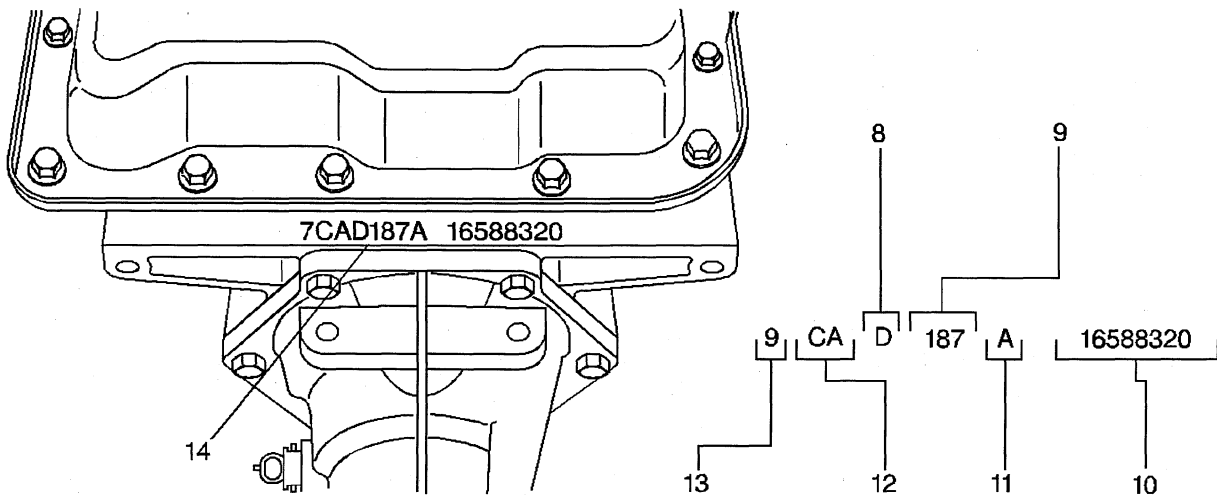
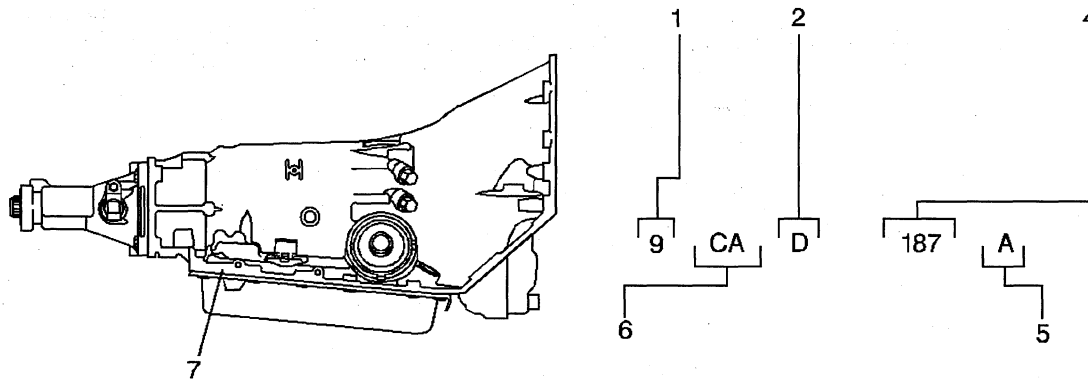


The vehicle identification number (VIN) is located on the left side rear of the engine block (1) and is typically a nine digit number stamped or laser-etched onto the engine at the vehicle assembly plant.

- The first digit identifies the division.
- The second digit identifies the model year.
- The third digit identifies the assembly plant.
- The fourth through ninth digits are the last six digits of the VIN.

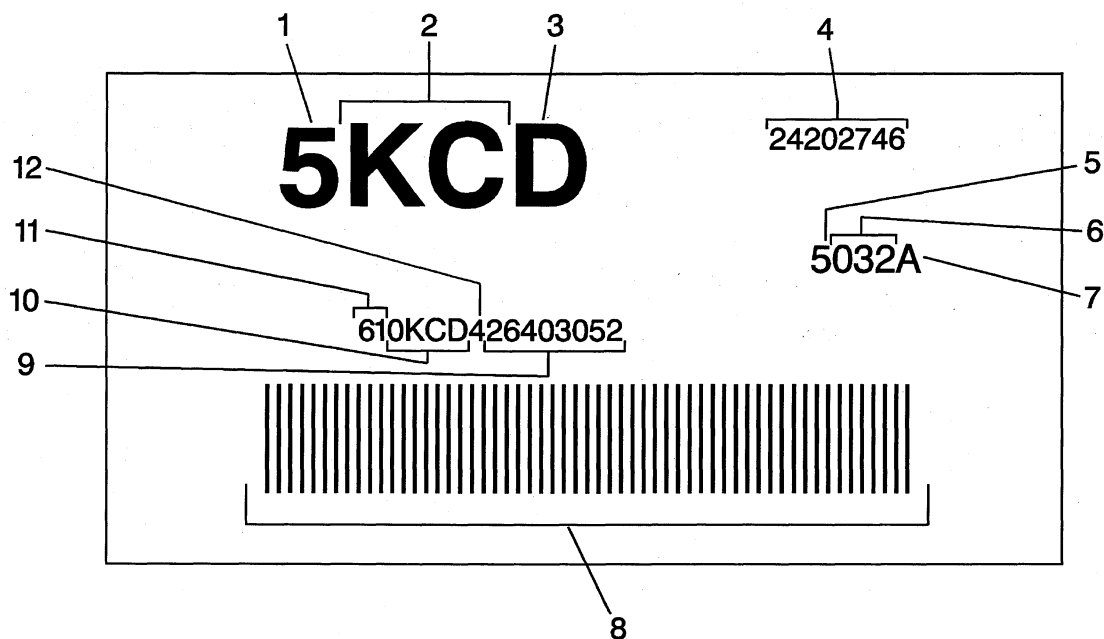
Transmission ID and VIN Derivative Location

4L65-E Transmission ID Location



- (1) Model Year
- (2) Hydra-Matic 4L60-E
- (4) Julian Date (or Day of the Year)
- (5) Shift Built (A, B, J = First Shift; C, H, W = Second Shift)
- (6) Model
- (7) Transmission ID Location
- (8) Hydra-Matic 4L60-E
- (9) Julian Date (or Day of the Year)
- (10) Serial No.
- (11) Shift Built (A, B, J = First Shift; C, H, W = Second Shift)
- (12) Model
- (13) Model Year
- (14) Transmission ID Location

Bar Code Label Contents(c)

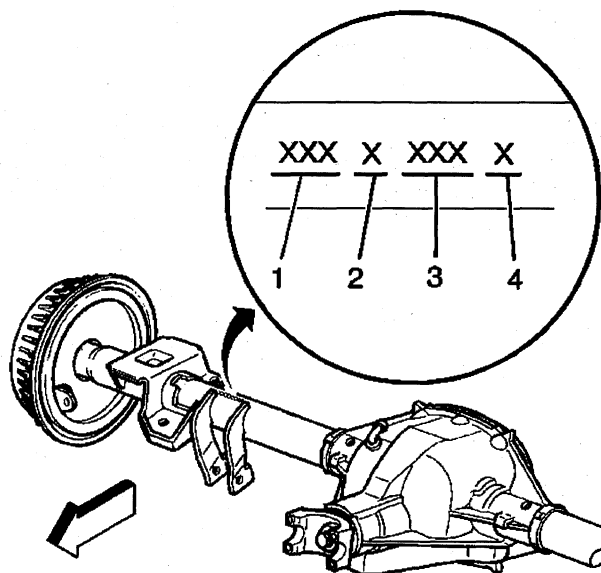


- (1) 5 = 2005
- (2) Model
- (3) Hydra-Matic 4L60-E
- (4) Transmission Asm. as Shipped Number
- (5) 5 = Model Year
- (6) Julian Date or Day of the Year
- (7) Letter After Julian Date Identifies the Plant Shift Build, See Shift Build
- (8) Bar Code
- (9) Serial Number
- (10) Broadcast Code
- (11) Transmission ID
- (12) Build Location Y = Toledo, OH, R = Romulus, MI, 4 = Ramos Arizpe, Mexico

Plant and Shift Build Chart

Plant	Build Line	1st Shift	2nd Shift	3rd Shift
Toledo, OH	ML1	J	W	X
	ML2	A	C	Not Used
	ML3	B	H	Not Used
	ML4	S	L	V
	ML5	K	E	Z
Romulus, MI	1	A	--	B
Ramos Arizpe, Mexico	1	A	--	--

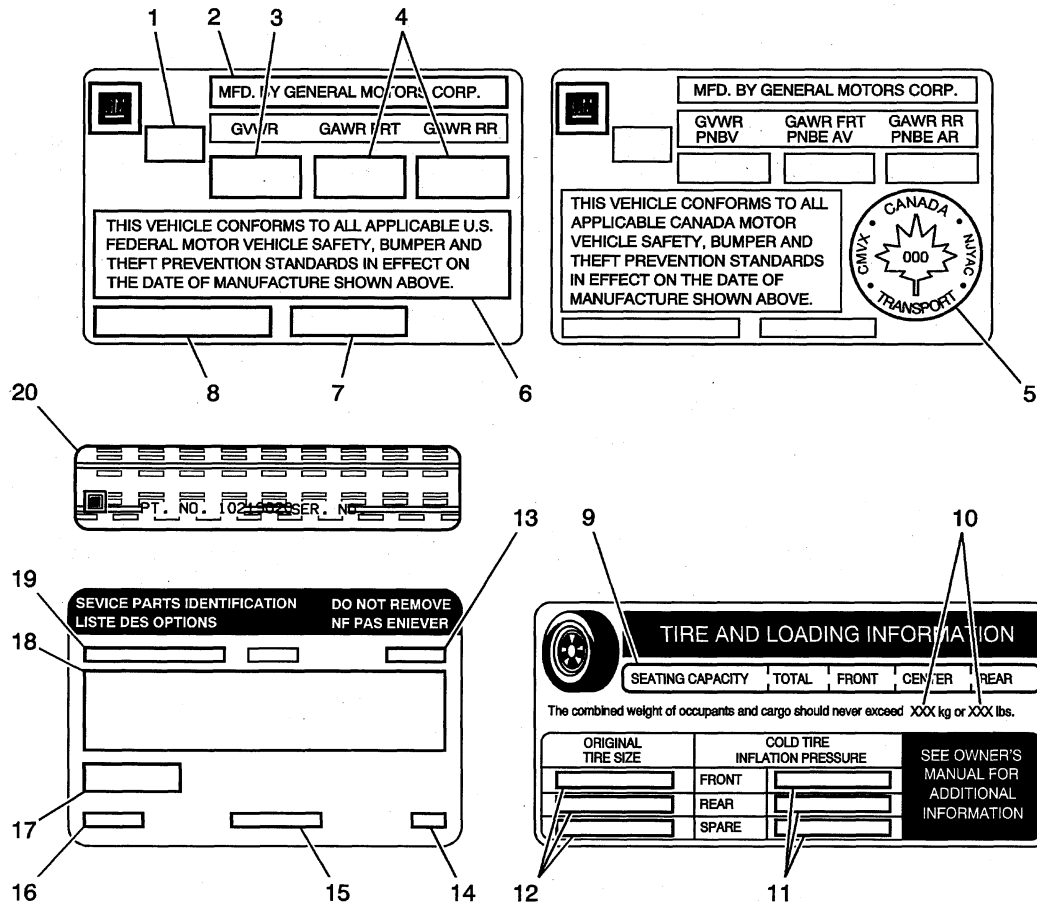
Axle Identification – Rear



- (1) Rear Axle Ratio
- (2) Build Source (C = Buffalo; K = Canada)
- (3) Julian Date
- (4) Shift Built (1 = First; 2 = Second)

All rear axles are identified by a broadcast code on the right axle tube near the carrier. The rear axle identification and manufacturer's codes must be known before attempting to adjust or to repair axle shafts or the rear axle case assembly. Rear axle ratio, differential type, manufacturer, and build date information is stamped on the right axle tube on the forward side.

Label - Vehicle Certification, Tire Place Card, Anti-Theft and Service Parts ID



Callout	Description
Vehicle Certification Label	
The vehicle certification label is located on the driver door and displays the following assessments:	
Gross Vehicle Weight Rating (GVWR)	
Gross Axle Weight Rating (GAWR), front and rear	
The gross vehicle weight (GVW) is the weight of the vehicle and everything it carries. The GVW must not exceed the GVWR. Include the following items when figuring the GVW:	
The base vehicle weight (factory weight)	
The weight of all vehicle accessories	
The weight of the driver and the passengers	
The weight of the cargo	
1	Name of Manufacturer
2	Gross Vehicle Weight Rating
3	Gross Axle Weight Rating (Front, Rear)
4	Canadian Safety Mark (w/RPO Z49)
5	Certification Statement
6	Vehicle Class Type (Pass Car, etc.)
7	Vehicle Identification Number
8	Date of Manufacture (Mo/Yr)

Callout	Description
Tire Placard	
The tire placard label is located on the driver door and displays the following assessments:	
9	Specified Occupant Seating Positions
10	Maximum Vehicle Capacity Weight
11	Original Equipment Tires Size
12	Tire Pressure, Front, Rear, and Spare (Cold)
Service Parts ID Label	
The vehicle service parts identification label is located on the instrument panel (I/P) compartment door. The label is use to help identify the vehicle original parts and options.	
13	Vehicle Identification Number
14	Engineering Model Number (Vehicle Division, Line and Body Style)
15	Interior Trim Level and Decor
16	Exterior (Paint Color) WA Number
17	Paint Technology
18	Special Order Paint Colors and Numbers
19	Vehicle Option Content
Anti-Theft Label	
20	<p>The Federal law requires that General Motors label certain body parts on this 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.</p> <p>Labels are permanently affixed to an interior surface of the part. The label on the replacement part contains the letter R, the manufacturer's logo, and the DOT symbol.</p> <p>The anti-theft label must be covered before any painting, and rustproofing procedures, and uncovered after the procedures. Failure to follow the precautionary steps may result in liability for violation of the Federal Vehicle Theft Prevention Standard and possible suspicion to the owner that the part was stolen.</p>

RPO Code List

The production/process codes provide the description of the Regular Production Options (RPOs) used on the vehicle. 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	Description
AAB	Memory - Driver Convenience Package
APV	Equipment - Camping Package, Table and Chairs
AJ1	Window Tinted - Deep, All Except W/S and DRS
AJ7	Restraint System - Seat, Inflatable, Driver and Pass, FRT and Side
AU0	Lock Control, Entry - Remote Entry
A31	Window - Power Operated, All Doors
A95	Seat - FRT BKT, High Back, Driver and Pass Recl
BCP	Cover - Engine, Appearance
BHP	Cover - Engine, Appearance, Body Color
BKF	Covering FRT - Floor Mats, AUX, Custom
BNK	Cover - Engine Compartment, Appearance
BVE	Steps, Running Board - Side
BVF	Steps, Running Board - Side, Color Keyed
B30	Covering FRT - Floor Mats, AUX
B32	Covering FRT - Floor Mats, AUX
CTD	Equipment - Cargo Tie Down (Moveable)
CJ3	HVAC System - Air Conditioner FRT, MAN Temp Cont, AUX Temp Cont
C44	Deflector - Air, Interior
C49	Defogger - RR Window, Electric
DJ2	Mirror I/S R/V - LT Sensitive, Reading, Home Convenience
DR2	Mirror O/S - LH and RH, Remote Control, Electric, Heated, LT Sensitive, Manual Folding, Color
DT3	Box - RR Compt, Stowage
ERJ	Equipment - Cargo, Trim Compartment Pkg, Aluminum
ERL	Equipment - Cargo, Trim Compartment Pkg, Body Color
ERK	Equipment - Cargo, Trim Compartment Pkg, Wood
EB6	GVW Rating - 6,050 lbs
EN3	Cover - Cargo, Storage System
E8A	Cover, RR Compt - Tonneau, RR Compt - Delete
E55	Body Equipment - End Gate
GT4	Axle Rear - 3.73 Ratio
GT5	Axle Rear - 4.10 Ratio
G80	Axle Positraction - Limited Slip
JF8	Brake - VAC Power, 4 WHL Disc
KA1	Heater - Seat, FRT
KG3	Generator - 145 amp
K34	Cruise Control - Automatic, Electronic
LM4	Engine - Gas, 8 CYL, 5.3L, SFI, ALUM, GM
LS2	Engine - Gas, 8 CYL, 6.0L, SFI, ALUM, GM
M10	Transmission - MAN 6 SPD, TREMEC, 85mm, 3.01 1st, 0.84 5th, 0.57 6th, O/D
M30	Transmission - Auto 4 SPD, HMD, 4L60-E, Electronic
M32	Transmission - Auto 4 SPD, HMD, 4L60-E, Electronic, HD
NC1	Emission System - California, LEV (Note: Not to be Used After 2007 MDL YR for Domestic NAO Pass Car and LT Duty Trucks)
NF4	Emission System - Clean Fuel Fleet
NT7	Emission System - Federal, Tier 2
NT8	Emission System - Federal, Tier 2 A
NT9	Emission System - Federal, Tier 2 Phase-Out

RPO	Description
NU1	Emission System - California, LEV2
NU4	Emission System - California LEV2 Plus
NW7	Traction Control - Powertrain Management Only
N40	Steering - Power, Non-Variable Ratio
PZ7	Wheel - 19X8 (FRT) and 20X10 (RR) Painted Alum
QMX	Tire All - Mixed Sizes (Front and Rear)
RAE	Equipment - Cargo Management System
R1W	Noise Control - Air Cleaner Resonator Duck
STW	Steering Wheel - Leather Wrapped with Redundant Controls
T61	Lamp System - Daytime Running
T96	Lamp - Fog, FRT
UQA	Speaker System - Premium Performance Enhanced Audio
UQB	Speaker - RR, Dual, AU, Cargo Area
UA6	Theft Deterrent System
UB0	Radio - AM/FM Stereo, Seek/Scan, CD, Auto Tone, Data System, Clock, ETR
UC6	Radio - AM/FM Stereo, Seek/Scan, RDS, Multiple Compact Disc, Auto Tone Control, Clock, ETR
UE1	Communication System - Vehicle, G.P.S. 1
US8	Radio - AM/FM Stereo, Seek/Scan, CD, Auto Tone, Clock, ETR, MP3, RDS
U2K	Digital Audio - System - S-Band
U19	Speedometer - INST, Kilo and Miles, Kilo Odometer
U68	Display - Driver Info Center
U73	Antenna - Fixed, Radio
VCL	Certification - Emission, Clean Fuel Vehicle, Fleet
VXK	Equipment - Accent Pkg, PUBX Bed Strips, Eng CVR Insert, Aux Gage Housing, Body Color
VXM	Equipment - Accent Pkg, PUBX Bed Strips, Eng CVR Insert, AUX Gage Housing, Running Boards, Body Color
VXN	Equipment - Accent Pkg, Chrome, Exterior
VYH	Cover - Hinge, RR Compt, Tonneau Cover, (Cargo) Protective
VC4	Label - Price/Fuel Econ, Puerto Rico and Virgin Islands
VG8	Vehicle - Label, Notice to Buyer
VK3	License Plate Front - FRT Mounting Pkg
VR4	Trailer Hitch - Weight Distributing Platform
V73	Vehicle Statement - USA/Canada
Y4K	Protector - Vehicle, Cover
Z82	Trailer Provision S - Special Equipment, H.D.
14P	Wheel Color - Chrome
73P	Wheel Color - Sterling Silver (03)
96P	Wheel Color - Ultra Silver (04)

Technical Information

Maintenance and Lubrication

Capacities - Approximate Fluid

Application	Capacities	
	English	Metric
Cooling System	13.7 quarts	13.0 L
Engine Oil with Filter	6.0 quarts	5.7 L
Fuel Tank	25.0 gallons	94.6 L
Rear Axle		
8.6 (Automatic)	2.1 quarts	2.0 L
9.5 (Manual)	2.7 quarts	2.6 L
Transmission		
Automatic - Pan Release	5.0 quarts	4.7 L
Automatic - Overhaul	11.0 quarts	10.6 L
Manual	3.71 quarts	3.5 L

Maintenance Items

Part	GM® Part Number	ACDelco® Part Number
Automatic Transmission Filter Kit	24208576	--
Engine Air Cleaner/Filter	15106528	--
Engine Oil Filter	88984215	PF46
Spark Plugs	12571164	41-985
Windshield Wiper Blades		
Driver's Side -- 20 inches (500 mm)	88958162	--
Passenger's Side -- 19 inches (475 mm)	88958166	--

Fluid and Lubricant Recommendations

Usage	Fluid/Lubricant
Engine Oil	The engine requires a special engine oil meeting GM Standard GM4718M. Oils meeting this standard may be identified as synthetic, and should also be identified with the American Petroleum Institute Certified for Gasoline Engines starburst symbol. However, not all synthetic API oils with the starburst symbol will meet this GM standard. You should look for and use only an oil that meets GM Standard GM4718M. GM Goodwrench® oil meets all the requirements for your vehicle.
Engine Coolant	50/50 mixture of clean, drinkable water and use only DEX-COOL® Coolant.
Hydraulic Brake System	Delco® Supreme 11 Brake Fluid or equivalent DOT-3 brake fluid.
Windshield Washer	GM Optikleen Washer Solvent.
Hydraulic Clutch System	Hydraulic Clutch Fluid (GM Part No. U.S. 12345347, in Canada 10953517) or equivalent DOT-3 brake fluid.
Parking Brake Cable Guides	Chassis Lubricant (GM Part No. U.S. 12377985, in Canada 88901242) or lubricant meeting requirements of NLGI #2, Category LB or GC-LB.
Power Steering System	GM Power Steering Fluid (GM Part No. U.S. 89021184, in Canada 89021186).

Usage	Fluid/Lubricant
Manual Transmission	SAE 75W-90 Gear Oil (GM Part No. U.S. 89021806, in Canada 89021807).
Automatic Transmission	DEXRON®-III Automatic Transmission Fluid. Look for "Approved for the H-Specification" on the label.
Key Lock Cylinders	Multi-Purpose Lubricant, Superlube (GM Part No. U.S. 12346241, in Canada 10953474).
Chassis Lubrication	Chassis Lubricant (GM Part No. U.S. 12377985, in Canada 88901242) or lubricant meeting requirements of NLGI #2, Category LB or GC-LB.
Rear Axle	SAE 75W-90 Synthetic Axle Lubricant (GM Part No. U.S. 12378261, in Canada 10953455) meeting GM Specification 9986115.
Hood Latch Assembly, Secondary Latch, Pivots, Spring Anchor, and Release Pawl	Lubriplate Lubricant Aerosol (GM Part No. U.S. 12346293, in Canada 992723) or lubricant meeting requirements of NLGI #2, Category LB or GC-LB.
Hood and Door Hinges, Fuel Filler Door, and Folding Seats	Multi-Purpose Lubricant, Superlube (GM Part No. U.S. 12346241, in Canada 10953474).
Tailgate Handle Pivot Points, Hinges, Latch Bolt, and Linkage	Multi-Purpose Lubricant, Superlube (GM Part No. U.S. 12346241, in Canada 10953474).
Weatherstrip Conditioning	Dielectric Silicone Grease (GM Part No. U.S. 12345579, in Canada 992887).
Weatherstrip Squeaks	Synthetic Grease with Teflon, Superlube (GM Part No. U.S. 12371287, in Canada 10953437).

Descriptions and Operations

Power Steering System

The hydraulic power steering pump is a constant displacement vane-type pump that provides hydraulic pressure and flow for the power steering gear. The hydraulic power steering pumps are either belt-driven or direct-drive, cam-driven.

The power steering fluid reservoir holds the power steering fluid and may be integral with the power steering pump or remotely located. The following locations are typical locations for the remote reservoir:

- Mounted to the front of the dash panel
- Mounted to the inner fender
- Mounted to a bracket on the engine

The 2 basic types of power steering gears are listed below:

- A recirculating ball system
- A rack and pinion system

In the recirculating ball system, a worm gear converts steering wheel movement to movement of a sector shaft. A pitman arm attached to the bottom of the sector shaft actually moves one tie rod and an intermediate rod move the other tie rod.

In the rack and pinion system, the rack and the pinion are the 2 components that convert steering wheel rotation to lateral movement. The steering shaft is attached to the pinion in the steering gear. The pinion rotates with the steering wheel. Gear teeth on the pinion mesh with the gear teeth on the rack. The rotating pinion moves the rack from side to side. The lateral action of the rack pushes and pulls the tie rods in order to change the direction of the vehicle's front wheels.

The power steering pressure hose connects the power steering pump union fitting to the power steering gear and allows pressurized power steering fluid to flow from the pump to the gear.

The power steering return hose returns fluid from the power steering gear back to the power steering fluid reservoir. The power steering return line may contain an integral fin-type or line-type power steering fluid cooler.

In a typical power steering system, a pump generates hydraulic pressure, causing fluid to flow, via the pressure hose, to the steering gear valve assembly. The steering gear valve assembly regulates the incoming fluid to the right and left chambers in order to assist in right and left turns.

Turning the steering wheel activates the valve assembly, which applies greater fluid pressure and flow to 1 side of the steering gear piston, and lower pressure and flow to the other side of the piston. The pressure assists the movement of the gear piston. Tie rods transfer this force to the front wheels, which turn the vehicle right or left.

Steering Wheel and Column

The steering wheel and column has 4 primary functions:

- Vehicle steering
- Vehicle security
- Driver convenience
- Driver safety

Vehicle Steering

The steering wheel is the first link between the driver and the vehicle. The steering wheel is fastened to a steering shaft within the column. At the lower end of the column, the intermediate shaft connects the column to the steering gear.

Vehicle Security

Theft deterrent components are mounted and designed into the steering column. The following components allow the column to be locked in order to minimize theft:

- The ignition switch
- The steering column lock
- The ignition cylinder

Driver Convenience

The steering wheel and column may also have driver controls attached for convenience and comfort. The following controls may be mounted on or near the steering wheel or column.

- The turn signal switch
- The hazard switch
- The headlamp dimmer switch
- The wiper/washer switch
- The horn pad/cruise control switch
- The redundant radio/entertainment system controls
- The tilt or tilt/telescoping functions
- The navigation/OnStar® features
- The HVAC controls

Driver Safety

The energy-absorbing steering column compresses in the event of a front-end collision, which reduces the chance of injury to the driver. The mounting capsules break away from the mounting bracket in the event of an accident.

Ignition Lock Cylinder Control Actuator

If the vehicle is equipped with a floor mounted console gear shifter, it has a ignition lock cylinder control actuator system in the steering column as an added safety feature. The ignition lock cylinder control actuators purpose is to prevent the steering wheel from being locked when the transmission is in gear and the vehicle may still be moving. The column ignition lock system consists of a ignition lock cylinder control acutator, and a park position switch that is located in the A/T shift lock control switch. The ignition lock cylinder control acutator contains a pin that is spring loaded out to mechanically prevent the ignition key cylinder from being turned to the lock position when vehicle transmission is not in the Park position. If vehicle power is lost, and/or the transmission is not in the Park position the operator will not be able to turn the ignition key to the lock position and will not be able to remove the ignition key from the column.

Suspension Description and Operation

Front Suspension

The front suspension has 2 primary purposes:

- Isolate the driver from irregularities in the road surface.
- Define the ride and handling characteristics of the vehicle.

The front suspension absorbs the impact of the tires travelling over irregular road surfaces and dissipates this energy throughout the suspension system. This process isolates the vehicle occupants from the road surface. The rate at which the suspension dissipates the energy and the amount of energy that is absorbed is how the suspension defines the vehicle's ride characteristics. Ride characteristics are designed into the suspension system and are not adjustable. The ride characteristics are mentioned in this description in order to aid in the understanding of the functions of the suspension system. The suspension system must allow for the vertical movement of the tire and wheel assembly as the vehicle travels over irregular road surfaces while maintaining the tire's horizontal relationship to the road.

This requires that the steering knuckle be suspended between an upper and a lower control arm. The lower control arm attaches from the steering Knuckle at the outermost point of the control arm. The attachment is through a ball and socket type joint. The innermost end of the control arm attached at 2 points to the vehicle frame, through semi-rigid bushings. The upper control arm attaches to the frame in the same fashion. Between the lower control arm and a spring seat on the vehicle's frame, under tension, is a coil spring.

This up and down motion of the steering knuckle as the vehicle travels over bumps is absorbed predominantly by the coil spring. The vertical movement of the steering knuckle as the vehicle travels over irregular road surfaces will tend to compress the spring and spring tension will lead the spring to return to the original, at-rest state. This action isolates the vehicle from the road surface. The upper and lower control arms are allowed to pivot at the vehicle frame in a vertical fashion. The ball joint allows the steering knuckle to maintain the perpendicular relationship to the road surface.

A shock absorber is used in conjunction with this system in order to dampen out the oscillations of the coil spring. A shock absorber is a basic hydraulic cylinder. The shock is filled with oil and has a moveable shaft that connects to a piston inside the shock absorber. Valves inside the shock absorber offer resistance to oil flow and consequently inhibit rapid movement of the piston and shaft. Each end of the shock absorber is connected in such a fashion to utilize this recoil action of a spring alone.

Front suspensions systems utilize a stabilizer shaft. The stabilizer bar connects between the left and right lower control arm assemblies through the stabilizer link and stabilizer shaft insulators. This bar controls the amount of independent movement of the suspension when the vehicle turns. Limiting the independent movement defines the vehicle's handling characteristics on turns.

Rear Suspension

These vehicles use either a coil spring suspension or an air suspension configuration that utilizes two air springs. On vehicles equipped with the air springs, two separate height sensors control the air springs, one for the left spring and one for the right spring.

A separate air compressor is used to inflate the air springs and maintain proper ride height.

Two direct double-acting shock absorbers provide ride control. The shock absorbers are angle-mounted between the frame. The shock absorbers are attached with brackets. The brackets are attached to the anchor plate.

The rear spring steel stabilizing bar helps minimize body roll and sway during cornering. The rear stabilizer shaft is connected to the rear axle and the frame.

The rear suspension system on this vehicle consists of the following components:

- The rear axle
- Two coil springs or two air springs

- Two height sensors, air suspension only
- Air compressor, air suspension only
- Air supply lines, air suspension only
- Two shock absorbers
- The rear axle tie rod
- Two upper control arms
- Two lower control arms

Air Suspension

The primary mission of the Air Suspension System is the following for the rear suspension under loaded and unloaded conditions:

- Keep the vehicle visually level
- Provide optimal headlight aiming
- Maintain optimal ride height

The Air Suspension System consists of the following items:

- Air Suspension Compressor Assembly
- Air Suspension Sensors
- Rear Air Springs

The Air Suspension Compressor Assembly has the ability to detect faults and indicate the appropriate fault code via a blink code on the inflator switch LED. The Air Suspension Compressor Assembly will indicate the code when the condition to cause the code becomes current.

During compressor activation the exhaust valve will be activated for a calibrated length of time to provide compressor head relief. After a calibrated length of time the compressor relay will activate to start the compressor. When trim height is achieved the relay will be deactivated. The exhaust valve and compressor relay are part of the air suspension compressor assembly. The Air Suspension System shall maintain the rear trim height within 4 mm (0.15 in) in all loading conditions and the leveling function shall deactivate if the vehicle is overloaded. The side to side variation has to be maintained within 8 mm (0.31 in). After ignition is turned off, the module will stay awake for between 30 minutes and 2 1/2 hours. The system will exhaust pressure within 30 minutes after ignition is turned off to lower the vehicle after unloading. The leakage of the complete load leveling system shall not result in more than 1.4 mm (0.05 in) drop of rear suspension height at GVWR during a 24 hour period.

There are software Leveling Sequence Timers that detect conditions of excessive output at which no leveling is accruing. These timers shall keep track of conditions which cause excessive run time or no calibratable change in trim height. These timers are defined in more detail below.

Accumulator Timer

The primary purpose of the accumulator timer is to detect conditions in which excessive activity may occur. The conditions are generally as follows: in the compress mode the existences of pneumatic leaks in the system, in the exhaust mode the existence of pneumatic blockage or unloaded vehicle conditions. The accumulator shall keep track of the accumulated run time of the compressor. If the accumulator timer reaches its calibratable limit the output function will be disabled until the accumulator is reset. The accumulator timer will be reset with each transition into the RUN power mode or if the complementary output activation is required.

Progress Timer

The primary propose of the progress timer is to quickly detect conditions in which excessive output activity may occur at zero vehicle speed condition. If the Air Suspension System does not detect a calibratable change in position within a calibratable time period, the output function will be disabled. The timer will be reset with each ignition switch cycle into the RUN position.

Air Suspension Sensors

The air suspension sensor arm is attached to an armature that rotates inside a coil. The inductance of the coil, not the resistance, changes dependant on the position of the armature in the coil. The air suspension

module determines the angle of the sensor arm by sending a pulse width modulated supply voltage through the coil and measuring the response time. The sensors must be calibrated to the correct D height and are not adjustable.

Rear Air Springs

The air springs are mounted in the frame in the same location where the coil spring is mounted for a vehicle without air suspension. Support pieces are affixed to the axle for the air springs.

Wheels and Tires

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Wheel Nut (In Sequence)	140 N·m	100 lb ft

General Description

The factory installed tires are designed to operate satisfactorily with loads up to and including the full rated load capacity when these tires are inflated to the recommended pressures.

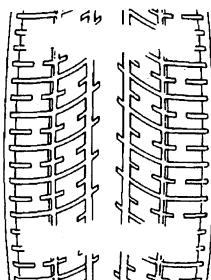
The following factors have an important influence on tire life:

- Correct tire pressures
- Correct wheel alignment
- Proper driving techniques
- Tire rotation

The following factors increase tire wear:

- Heavy cornering
- Excessively rapid acceleration
- Heavy braking

Tread Wear Indicators Description



The original equipment tires have tread wear indicators that show when you should replace the tires.

The location of these indicators are at 72 degree intervals around the outer diameter of the tire. The indicators appear as a 6 mm (0.25 in) wide band when the tire tread depth becomes 1.6 mm (2/32 in).

Metric Wheel Nuts and Bolts Description

Metric wheel/nuts and bolts are identified in the following way:

- The wheel/nut has the word Metric stamped on the face.
- The letter M is stamped on the end of the wheel bolt.

The thread sizes of metric wheel/nuts and the bolts are indicated by the following example: M12 x 1.5.

- M = Metric
- 12 = Diameter in millimeters
- 1.5 = Millimeters gap per thread

Tire Inflation Description

When you inflate the tires to the recommended inflation pressures, the factory-installed wheels and tires are designed in order to handle loads to the tire's rated load capacity. Incorrect tire pressures, or under-inflated tires, can cause the following conditions:

- Vehicle handling concerns
- Poor fuel economy
- Shortened tire life
- Tire overloading

Inspect the tire pressure when the following conditions apply:

- The vehicle has been sitting at least 3 hours.
- The vehicle has not been driven for more than 1.6 km (1 mi).
- The tires are cool.

Inspect the tires monthly or before any extended trip. Adjust the tire pressure to the specifications on the tire label. Install the valve caps or the extensions on the valves. The caps or the extensions keep out dust and water.

The kilopascal (kPa) is the metric term for pressure. The tire pressure may be printed in both kilopascal (kPa) and psi. One psi equals 6.9 kPa.

Inflation Pressure Conversion (Kilopascals to PSI)

kPa	psi	kPa	psi
140	20	215	31
145	21	220	32
155	22	230	33
160	23	235	34
165	24	240	35
170	25	250	36
180	26	275	40
185	27	310	45
190	28	345	50
200	29	380	55
205	30	415	60
Conversion: 6.9 kPa = 1 psi			

Tires with a higher than recommended pressure can cause the following conditions:

- A hard ride
- Tire bruising
- Rapid tread wear at the center of the tire

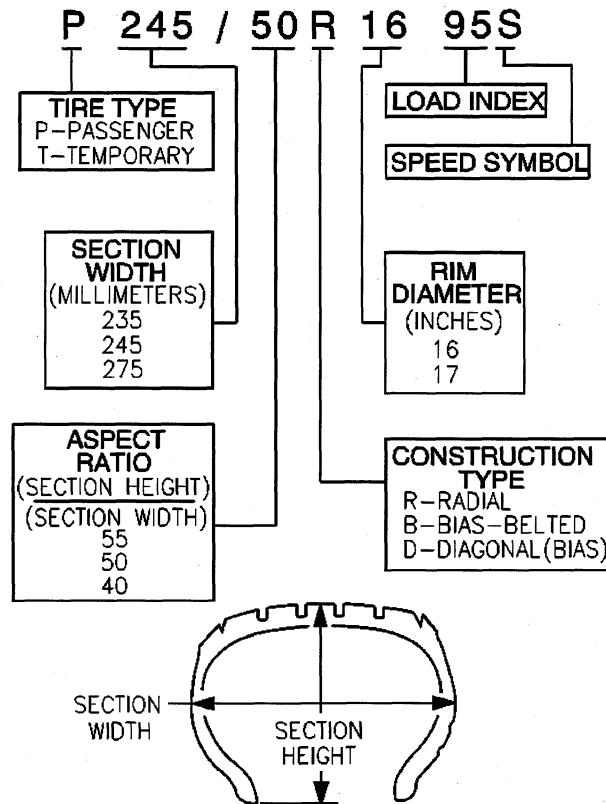
Tires with a lower than recommended pressure can cause the following conditions:

- A tire squeal on turns
- Hard steering
- Rapid wear and uneven wear on the edge of the tread
- Tire rim bruises and tire rim rupture
- Tire cord breakage
- High tire temperatures
- Reduced vehicle handling
- High fuel consumption
- Soft riding

Unequal pressure on the same axle can cause the following conditions:

- Uneven braking
- Steering lead
- Reduced vehicle handling

P-Metric Sized Tires Description



Most P-metric tire sizes do not have exact corresponding alphanumeric tire sizes. Replacement tires should be of the same tire performance criteria (TPC) specification number including the same size, the same load range, and the same construction as those originally installed on the vehicle. Consult a tire dealer if you must replace the P-metric tire with other sizes. Tire companies can best recommend the closest match of alphanumeric to P-metric sizes within their own tire lines.

Driveline System Description and Operation

Driveline/Axle – Propeller Shaft

The propeller shaft is a tube with universal joints at both ends which do not require periodic maintenance, that transmit power from the transfer case or transmission output shaft to the differential.

One Piece Propeller Shaft Description

A one piece propeller shaft uses a splined slip joint to connect the driveline to the transmission or transfer case.

Universal Joint Description

The universal joint is connected to the propeller shaft. The universal consist of 4 caps with needle bearings and grease seals mounted on the trunnions of a cross or spider. These bearings and caps are greased at the factory and no periodic maintenance is required. There are 2 universal joints used in a one piece propeller shaft . The bearings and caps are pressed into the yokes and held in place with snap rings, except for 2 bearings on some models witch are strapped onto the pinion flange of the differential. Universal joints are designed to handle the effects of various loads and rear axle windup conditions during acceleration and braking. The universal joint operates efficiently and safely within the designed angle variations. when the design angles are exceeded, the operational life of the joint decreases.

Rear Drive Axle Description and Operation

Rear Axle Assembly Description

The rear axle for this vehicle consist of the following components:

- Aluminum Differential Carrier Housing
- Torsen® Limited Slip Differential Assembly
- Ring Gear and Drive Pinion Shaft
- Left and right axle shaft tubes
- Left and right axle shafts
- Fill Plug
- Drain Plug

Rear Axle Assembly Operation

The rear axle receives torque from the propeller shaft and transfers it to the axle's pinion gear through the universal joint and the pinion yoke. The pinion gear transfers torque to the ring gear, which is splined to the drive pinion at a 90 degree angle. The ring gear is attached to the differential assembly. The only differential assembly available is the Torsen® limited slip differential.

Torsen® Limited Slip Differential Description

The Torsen® limited slip differential assembly consists of the following components:

- Eight helical planet gears
- Two helical side gears
- Two thrust washers
- Thrust block
- Thrust block lock bolt
- Two piece differential case
- Torsen® Limited Slip Differential Operation

The Torsen® limited slip differential combines the function of an open differential and a limited slip differential through the use of helical cut side gears and planet gears. The left side gear has helical teeth cut in the left-hand direction and the right side gear has helical teeth cut in the right-hand direction. The eight planet gears also have helical teeth, and are arranged within the differential case in pairs, which lie parallel to the axle shafts. In each pair, there is one left-hand helix gear and one right-hand helix gear. This arrangement allows the planet gears to:

- Mesh with the corresponding planet gear
- Mesh only with left or right side gear

This design allows only the four right-hand planet gears to mesh with the left side gear and the four left-hand planet gears to mesh with the right side gear. The planet gears in each pair also mesh with each other. With the gearing arranged as such, turning one rear wheel on the vehicle will result in the opposite rear wheel turning in the same amount, but in the opposite direction, as with an open differential. As a result, each wheel is able to compensate or differentiate for the different axle shaft and wheel speeds that occur when the wheel is turning without causing the tires to chip or hop.

The majority of limited slip devices function by generating internal friction - it is that friction which provides resistance to wheel spin. With a Torsen® differential, friction is generated when torque is applied to the helical shaped gear teeth. When torque is applied, an axial thrust force on the side gears will result and the side gears are literally pushed sideways apart from each other and against the inner walls of the differential case. At the same time, the loading on the gear teeth tries to separate the side gears and the planet gears. This pushes the planet gears outward against the walls of the differential case. Since the gears are being pushed against the differential case under load, friction is created. Because the friction that is created is a direct result of the torque applied to the differential by the drive train, the amount of friction that is generated is always in proportion to the amount of torque applied. This allows the Torsen® to differentiate freely when low or no torque is applied. Under power, the differential is essentially locked, allowing variations in traction under each tire to occur without spin or slip.

There is enough friction in the Torsen® differential to allow it to transfer approximately 65-70 percent of the total axle torque to the wheel with the greater amount of traction when the traction surfaces are unequal between the rear wheels. When this limit is reached, wheel spin may occur. However, the Torsen® will continue to send 65-70 percent of the available torque to the wheel with better traction, which allows the vehicle to move off of a slippery surface. In normal cornering there is enough of a difference in the load on each wheel to overcome the friction of the Torsen®, allowing the unit to differentiate while sending 65-70 percent of the total axle torque to the slower turning wheel.

The components of the Torsen® limited slip differential are not serviceable, the only repair is the replacement of the differential assembly.

Braking System Description and Operation

Hydraulic Brake System Description and Operation

System Component Description

The hydraulic brake system consists of the following:

Hydraulic Brake Master Cylinder Fluid Reservoir

Contains supply of brake fluid for the hydraulic brake system.

Hydraulic Brake Master Cylinder

Converts mechanical input force into hydraulic output pressure.

Hydraulic output pressure is distributed from the master cylinder through two hydraulic circuits, supplying diagonally-opposed wheel apply circuits.

Hydraulic Brake Pressure Balance Control System

Regulates brake fluid pressure delivered to hydraulic brake wheel circuits, in order to control the distribution of braking force.

Pressure balance control is achieved through dynamic rear proportioning (DRP), which is a function of the ABS modulator.

Hydraulic Brake Pipes and Flexible Brake Hoses

Carries brake fluid to and from hydraulic brake system components.

Hydraulic Brake Wheel Apply Components

Converts hydraulic input pressure into mechanical output force.

System Operation

Mechanical force is converted into hydraulic pressure by the master cylinder, regulated to meet braking system demands by the pressure balance control system, and delivered to the hydraulic brake wheel circuits by the pipes and flexible hoses. The wheel apply components then convert the hydraulic pressure back into mechanical force which presses linings against rotating brake system components.

Brake Assist System Description and Operation

System Component Description

The brake assist system consists of the following:

Brake Pedal

Receives, multiplies and transfers brake system input force from driver.

Brake Pedal Pushrod

Transfers multiplied input force received from brake pedal to brake booster.

Vacuum Brake Booster

Uses source vacuum to decrease effort required by driver when applying brake system input force.

When brake system input force is applied, air at atmospheric pressure is admitted to the rear of both vacuum diaphragms, providing a decrease in brake pedal effort required. When input force is removed, vacuum replaces atmospheric pressure within the booster.

Vacuum Source

Supplies force used by vacuum brake booster to decrease brake pedal effort.

Vacuum Source Delivery System

Enables delivery and retention of source vacuum for vacuum brake booster.

System Operation

Brake system input force is multiplied by the brake pedal and transferred by the pedal pushrod to the hydraulic brake master cylinder. Effort required to apply the brake system is reduced by the vacuum brake booster.

Disc Brake System Description and Operation

System Component Description

The disc brake system consists of the following components:

Disc Brake Pads

Applies mechanical output force from the hydraulic brake calipers to friction surfaces of brake rotors.

Disc Brake Rotors

Uses mechanical output force applied to friction surfaces from the disc brake pads to slow speed of tire and wheel assembly rotation.

Disc Brake Pad Hardware

Secures disc brake pads firmly in proper relationship to the hydraulic brake calipers. Enables a sliding motion of brake pads when mechanical output force is applied.

Disc Brake Caliper Hardware

Provides mounting for hydraulic brake caliper and secures the caliper firmly in proper relationship to caliper bracket. Enables a sliding motion of the brake caliper to the brake pads when mechanical output force is applied.

System Operation

Mechanical output force is applied from the hydraulic brake caliper pistons to the inner brake pads. As the pistons press the inner brake pads outward, the caliper housings draw the outer brake pads inward. This allows the output force to be equally distributed. The brake pads apply the output force to the friction surfaces on both sides of the brake rotors, which slows the rotation of the tire and wheel assemblies. The correct function of both the brake pad and brake caliper hardware is essential for even distribution of braking force.

Park Brake System Description and Operation

System Component Description

The park brake system consists of the following:

Park Brake Lever Assembly

Receives, multiplies, and transfers park brake system apply input force from operator to park brake cable system.

Releases applied park brake system when lever is returned to at-rest, lowered, position.

Park Brake Cables

Transfers input force received from park brake lever, through park brake cable equalizer, to park brake apply levers.

Park Brake Cable Equalizer

Evenly distributes input force to both the left and right park brake units.

Park Brake Apply Lever

Multiplies and transfers input force to park brake actuator/adjuster.

Park Brake Actuator/Adjuster

Uses multiplied input force from apply lever to expand park brake shoe (rear disc, drum-in-hat system), or drum brake shoes toward the friction surface of the drum-in-hat of the rear brake rotor, or the brake drum.

Threaded park brake actuators/adjusters are also used to control clearance between the park brake shoe (rear disc, drum-in-hat system), or the drum brake shoes and the friction surface of the drum-in-hat (of the rear brake rotor), or the brake drum.

Park Brake Shoe (Rear Disc, Drum-In-Hat System)

Applies mechanical output force from park brake actuator to friction surface of the drum-in-hat (of the rear brake rotor).

System Operation

Park brake apply input force is received by the park brake pedal assembly being depressed, transferred and evenly distributed, through the park brake cables and the park brake cable equalizer, to the left and right park brake apply levers. The park brake apply levers multiply and transfer the apply input force to the park brake actuators/adjusters which expand the park brake shoe (rear disc, drum-in-hat system), or the drum brake shoes toward the friction surface of the drum-in-hat (of the rear brake rotor), or the brake drum in order to prevent the rotation of the rear tire and wheel assemblies. The park brake release handle assembly releases an applied park brake system when it is pulled rearward.

ABS Description and Operation

Antilock Brake System

When wheel slip is detected during a brake application, the ABS enters antilock mode. During antilock braking, hydraulic pressure in the individual wheel circuits is controlled to prevent any wheel from slipping. A separate hydraulic line and specific solenoid valves are provided for each wheel. The ABS can decrease, hold, or increase hydraulic pressure to each wheel brake. The ABS cannot, however, increase hydraulic pressure above the amount which is transmitted by the master cylinder during braking.

During antilock braking, a series of rapid pulsations is felt in the brake pedal. These pulsations are caused by the rapid changes in position of the individual solenoid valves as the EBCM responds to wheel speed sensor inputs and attempts to prevent wheel slip. These pedal pulsations are present only during antilock braking and stop when normal braking is resumed or when the vehicle comes to a stop. A ticking or popping noise may also be heard as the solenoid valves cycle rapidly. During antilock braking on dry pavement, intermittent chirping noises may be heard as the tires approach slipping. These noises and pedal pulsations are considered normal during antilock operation.

Vehicles equipped with ABS may be stopped by applying normal force to the brake pedal. Brake pedal operation during normal braking is no different than that of previous non-ABS systems. Maintaining a constant force on the brake pedal provides the shortest stopping distance while maintaining vehicle stability.

Engine Description and Operation

Engine Mechanical Specifications 6.0L

Application	Specification	
	Metric	English
General		
Engine Type	V8	
Displacement	6.0L	364 CID
RPO	LS2	
VIN	H	
Bore	101.618-101.636 mm	4.0007-4.0017 in
Stroke	92.0 mm	3.622 in
Compression Ratio	10.9:1	
Firing Order	1-8-7-2-6-5-4-3	
Spark Plug Gap	1.02 mm	0.04 in
Block		
Camshaft Bearing Bore 1 and 5 Diameter	59.58-59.63 mm	2.345-2.347 in
Camshaft Bearing Bore 2 and 4 Diameter	59.08-59.13 mm	2.325-2.327 in
Camshaft Bearing Bore 3 Diameter	58.58-58.63 mm	2.306-2.308 in
Crankshaft Main Bearing Bore Diameter	69.871-69.889 mm	2.75-2.751 in
Crankshaft Main Bearing Bore Out-of-Round	0.006 mm	0.0002 in
Cylinder Bore Diameter	101.618-101.636 mm	4.0007-4.0017 in
Cylinder Head Deck Height - Measuring from the Centerline of Crankshaft to the Deck Face	234.57-234.82 mm	9.235-9.245 in
Cylinder Head Deck Surface Flatness - Measured Within a 152.4 mm (6.0 in) Area	0.11 mm	0.004 in
Cylinder Head Deck Surface Flatness - Measuring the Overall Length of the Block Deck	0.22 mm	0.008 in
Valve Lifter Bore Diameter	21.417-21.443 mm	0.843-0.844 in
Camshaft		
Camshaft End Play	0.025-0.305 mm	0.001-0.012 in
Camshaft Journal Diameter	54.99-55.04 mm	2.164-2.166 in
Camshaft Journal Out-of-Round	0.025 mm	0.001 in
Camshaft Lobe Lift - Intake	7.78 mm	0.306 in
Camshaft Lobe Lift - Exhaust	7.77 mm	0.305 in
Camshaft Runout - Measured at the Intermediate Journals	0.05 mm	0.002 in
Connecting Rod		
Connecting Rod Bearing Clearance - Production	0.023-0.065 mm	0.0009-0.0025 in
Connecting Rod Bearing Clearance - Service	0.023-0.076 mm	0.0009-0.003 in
Connecting Rod Bore Diameter - Bearing End	56.505-56.525 mm	2.224-2.225 in
Connecting Rod Bore Out-of-Round - Bearing End - Production	0.004-0.008 mm	0.00015-0.0003 in
Connecting Rod Bore Out-of-Round - Bearing End - Service	0.004-0.008 mm	0.00015-0.0003 in
Connecting Rod Side Clearance	0.11-0.51 mm	0.00433-0.02 in
Crankshaft		
Connecting Rod Journal Diameter - Production	53.318-53.338 mm	2.0991-2.0999 in
Connecting Rod Journal Diameter - Service	53.308 mm	2.0987 in
Connecting Rod Journal Out-of-Round - Production	0.005 mm	0.0002 in
Connecting Rod Journal Out-of-Round - Service	0.01 mm	0.0004 in

Application	Specification	
	Metric	English
Connecting Rod Journal Taper - Maximum for 1/2 of Journal Length - Production	0.005 mm	0.0002 in
Connecting Rod Journal Taper - Maximum for 1/2 of Journal Length - Service	0.02 mm	0.00078 in
Crankshaft End Play	0.04-0.2 mm	0.0015-0.0078 in
Crankshaft Main Bearing Clearance - Production	0.02-0.052 mm	0.0008-0.0021 in
Crankshaft Main Bearing Clearance - Service	0.02-0.065 mm	0.0008-0.0025 in
Crankshaft Main Journal Diameter - Production	64.992-65.008 mm	2.558-2.559 in
Crankshaft Main Journal Diameter - Service	64.992 mm	2.558 in
Crankshaft Main Journal Out-of-Round - Production	0.003 mm	0.000118 in
Crankshaft Main Journal Out-of-Round - Service	0.008 mm	0.0003 in
Crankshaft Main Journal Taper - Production	0.01 mm	0.0004 in
Crankshaft Main Journal Taper - Service	0.02 mm	0.00078 in
Crankshaft Rear Flange Runout	0.05 mm	0.002 in
Crankshaft Reluctor Ring Runout - Measured 1.0 mm (0.04 in) Below Tooth Diameter	0.7 mm	0.028 in
Crankshaft Thrust Surface - Production	26.14-26.22 mm	1.029-1.0315 in
Crankshaft Thrust Surface - Service	26.22 mm	1.0315 in
Crankshaft Thrust Surface Runout	0.025 mm	0.001 in
Cylinder Head		
Cylinder Head Height/Thickness - Measured from the Cylinder Head Deck to the Valve Rocker Arm Cover Seal Surface	120.2 mm	4.732 in
Surface Flatness - Block Deck - Measured Within a 152.4 mm (6.0 in) Area	0.08 mm	0.003 in
Surface Flatness - Block Deck - Measuring the Overall Length of the Cylinder Head	0.1 mm	0.004 in
Surface Flatness - Exhaust Manifold Deck	0.13 mm	0.005 in
Surface Flatness - Intake Manifold Deck	0.08 mm	0.0031 in
Valve Guide Installed Height - Measured from the Spring Seat Surface to the Top of the Guide	17.32 mm	0.682 in
Intake Manifold		
Surface Flatness - Measured at Gasket Sealing Surfaces and Measured Within a 200 mm (7.87 in) Area that Includes Two Runner Port Openings	0.3 mm	0.118 in
Lubrication System		
Oil Capacity - with Filter	5.68 liters	6.0 quarts
Oil Capacity - without Filter	5.20 liters	5.5 quarts
Oil Pressure - Minimum - Hot	41 kPa at 1,000 engine RPM 124 kPa at 2,000 engine RPM 165 kPa at 4,000 engine RPM	6 psig at 1,000 engine RPM 18 psig at 2,000 engine RPM 24 psig at 4,000 engine RPM
Oil Pressure Relief Valve Oil Pressure - as Measured at Oil Pressure Sensor Location	379-517 kPa Maximum	55-75 psig Maximum
Oil Pan		
Front Cover Alignment - at Oil Pan Surface	0.0-0.5 mm	0.0-0.02 in
Rear Cover Alignment - at Oil Pan Surface	0.0-0.5 mm	0.0-0.02 in
Oil Pan Alignment - to Rear of Engine Block at Transmission Bell Housing Mounting Surface	0.0-0.25 mm	0.0-0.01 in

Application	Specification	
	Metric	English
Piston Rings		
Piston Ring End Gap - First Compression Ring - Measured in Cylinder Bore - Production	0.20-0.41 mm	0.008-0.016 in
Piston Ring End Gap - First Compression Ring - Measured in Cylinder Bore - Service	0.20-0.41 mm	0.008-0.016 in
Piston Ring End Gap - Second Compression Ring - Measured in Cylinder Bore - Production	0.37-0.69 mm	0.015-0.027 in
Piston Ring End Gap - Second Compression Ring - Measured in Cylinder Bore - Service	0.37-0.69 mm	0.015-0.027 in
Piston Ring End Gap - Oil Control Ring - Measured in Cylinder Bore - Production	0.22-0.79 mm	0.009-0.031 in
Piston Ring End Gap - Oil Control Ring - Measured in Cylinder Bore - Service	0.22-0.79 mm	0.009-0.031 in
Piston Ring to Groove Clearance - First Compression Ring - Production	0.030-0.10 mm	0.0012-0.0040 in
Piston Ring to Groove Clearance - First Compression Ring - Service	0.030-0.10 mm	0.0012-0.0040 in
Piston Ring to Groove Clearance - Second Compression Ring - Production	0.035-0.078 mm	0.0014-0.0031 in
Piston Ring to Groove Clearance - Second Compression Ring - Service	0.035-0.078 mm	0.0014-0.0031 in
Piston Ring to Groove Clearance - Oil Control Ring - Production	0.013-0.201 mm	0.0005-0.0079 in
Piston Ring to Groove Clearance - Oil Control Ring - Service	0.013-0.201 mm	0.0005-0.0079 in
Pistons and Pins		
Pin - Piston Pin Clearance to Piston Pin Bore - Production	0.002-0.01 mm	0.0008-0.0004 in
Pin - Piston Pin Clearance to Piston Pin Bore - Service	0.002-0.015 mm	0.0008-0.0006 in
Pin - Piston Pin Diameter	23.952-23.955 mm	0.943-0.943 in
Pin - Piston Pin Fit in Connecting Rod Bore - Production	0.007-0.02 mm	0.00027-0.00078 in
Pin - Piston Pin Fit in Connecting Rod Bore - Service	0.007-0.022 mm	0.00027-0.00086 in
Piston - Piston Diameter - Measured Over Skirt Coating	101.611-101.642 mm	4.0-4.001 in
Piston - Piston to Bore Clearance - Production	-0.022-0.030 mm	-0.0009-0.0012 in
Piston - Piston to Bore Clearance - Service Limit with Skirt Coating Worn Off	0.024-0.08 mm	0.00094-0.0031 in
Valve System		
Valves - Valve Face Angle	45 degrees	
Valves - Valve Face Width	1.25 mm	0.05 in
Valves - Valve Lash	Net Lash - No Adjustment	
Valves - Valve Lift - Intake	13.27 mm	0.522 in
Valves - Valve Lift - Exhaust	13.25 mm	0.521 in
Valves - Valve Seat Angle	46 degrees	
Valves - Valve Seat Runout	0.05 mm	0.002 in
Valves - Valve Seat Width - Exhaust	1.78 mm	0.07 in
Valves - Valve Seat Width - Intake	1.02 mm	0.04 in
Valves - Valve Stem Diameter - Production	7.955-7.976 mm	0.313-0.314 in
Valves - Valve Stem Diameter - Service	7.95 mm	0.313 in
Valves - Valve Stem-to-Guide Clearance - Production - Intake	0.025-0.066 mm	0.001-0.0026 in
Valves - Valve Stem-to-Guide Clearance - Service - Intake	0.093 mm	0.0037 in
Valves - Valve Stem-to-Guide Clearance - Production - Exhaust	0.025-0.066 mm	0.001-0.0026 in

Application	Specification	
	Metric	English
Valves - Valve Stem-to-Guide Clearance - Service - Exhaust	0.093 mm	0.0037 in
Rocker Arms - Valve Rocker Arm Ratio	1.70:1	
Valve Springs - Valve Spring Free Length	52.9 mm	2.08 in
Valve Springs - Valve Spring Installed Height	45.75 mm	1.8 in
Valve Springs - Valve Spring Load - Closed	340 N at 45.75 mm	76 lb at 1.8 in
Valve Springs - Valve Spring Load - Open	980 N at 33.55 mm	220 lb at 1.32 in

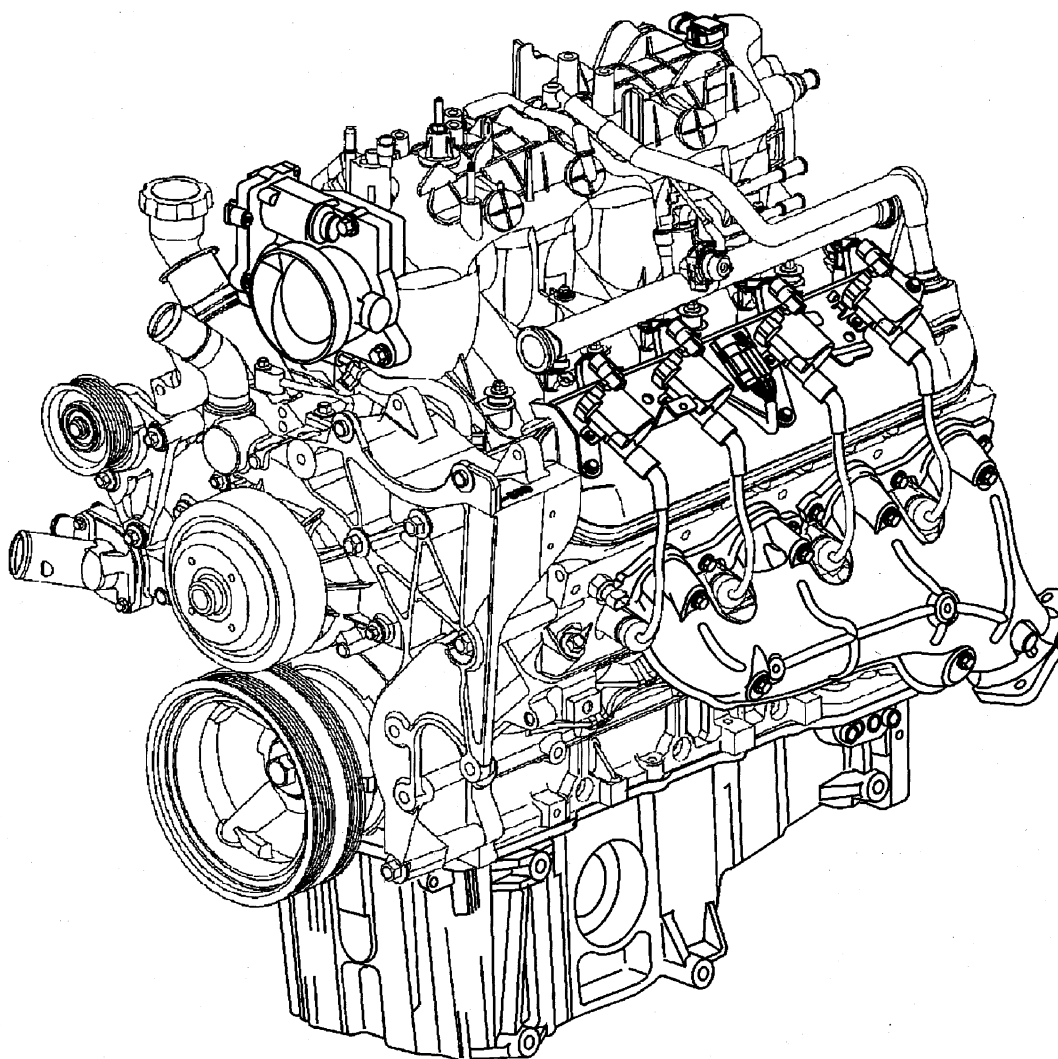
Fastener Tightening Specifications

Application	Specification	
	Metric	English
Air Cleaner Outlet Duct Clamp	7 N·m	62 lb in
Air Conditioning Belt Tensioner Bolt	50 N·m	37 lb ft
Air Conditioning Bracket Bolt	50 N·m	37 lb ft
Air Conditioning Compressor Line-to-Condenser Bolt	16 N·m	12 lb ft
Air Conditioning Compressor Line-to-Thermal Expansion Valve (TXV) Nut	20 N·m	15 lb ft
Camshaft Position (CMP) Sensor Bolt	12 N·m	106 lb in
CMP Sensor Wire Harness Bolt	12 N·m	106 lb in
Camshaft Retainer Bolts	25 N·m	18 lb ft
Camshaft Sprocket Bolts	25 N·m	18 lb ft
Connecting Rod Bolts - First Pass	20 N·m	15 lb ft
Connecting Rod Bolts - Final Pass	75 degrees	
Coolant Air Bleed Pipe and Cover Bolts	12 N·m	106 lb in
Coolant Temperature Sensor	20 N·m	15 lb ft
Crankshaft Balancer Bolt - Installation Pass to Ensure the Balancer is Completely Installed	330 N·m	240 lb ft
Crankshaft Balancer Bolt - First Pass - Install a NEW Bolt After the Installation Pass and Tighten as Described in the First and Final Passes	50 N·m	37 lb ft
Crankshaft Balancer Bolt - Final Pass	140 degrees	
Crankshaft Bearing Cap M10 Bolts - First Pass in Sequence	20 N·m	15 lb ft
Crankshaft Bearing Cap M10 Bolts - Final Pass in Sequence	80 degrees	
Crankshaft Bearing Cap M10 Studs - First Pass in Sequence	20 N·m	15 lb ft
Crankshaft Bearing Cap M10 Studs - Final Pass in Sequence	51 degrees	
Crankshaft Bearing Cap M8 Bolts	25 N·m	18 lb ft
Crankshaft Oil Deflector Nuts	25 N·m	18 lb ft
Crankshaft Position (CKP) Sensor Bolt	25 N·m	18 lb ft
Cylinder Head Bolts - First Pass all M11 Bolts in Sequence	30 N·m	22 lb ft
Cylinder Head Bolts - Second Pass all M11 Bolts in Sequence	90 degrees	
Cylinder Head Bolts - Final Pass all M11 Bolts in Sequence	70 degrees	
Cylinder Head Bolts - M8 Bolts in Sequence	30 N·m	22 lb ft
Cylinder Head Coolant Plug	20 N·m	15 lb ft
Drive Belt Idler Pulley Bolt	50 N·m	37 lb ft
Drive Belt Tensioner Bolt	50 N·m	37 lb ft
Engine Block Coolant Heater	50 N·m	37 lb ft
Engine Block Oil Gallery/Coolant Plugs	60 N·m	44 lb ft
Engine Ground Strap-to-Frame Nut	25 N·m	18 lb ft
Engine Ground-to-Engine Block Bolts	16 N·m	12 lb ft
Engine Harness Bracket Nut	10 N·m	89 lb in
Engine Mount Bracket Spacer	50 N·m	37 lb ft
Engine Mount Frame Bracket	100 N·m	74 lb ft
Engine Mount Nuts	50 N·m	37 lb ft

Application	Specification	
	Metric	English
Engine Sight Shield Bolt	10 N·m	89 lb in
Engine Sight Shield Bracket Bolt	5 N·m	44 lb in
Evaporative (EVAP) Emission - Purge Solenoid Bolt	10 N·m	89 lb in
Exhaust Manifold Bolts - First Pass	15 N·m	11 lb ft
Exhaust Manifold Bolts - Final Pass	20 N·m	15 lb ft
Exhaust Manifold Heat Shield Bolts	9 N·m	80 lb in
Exhaust Manifold Studs	20 N·m	15 lb ft
Flywheel Bolts - First Pass	20 N·m	15 lb ft
Flywheel Bolts - Second Pass	50 N·m	37 lb ft
Flywheel Bolts - Final Pass	100 N·m	74 lb ft
Front Cover Bolts	25 N·m	18 lb ft
Fuel Rail Bolts	10 N·m	89 lb in
Fuel Rail Crossover Tube Bolts	3.8 N·m	34 lb in
Fuel Rail Stop Bracket Bolt	50 N·m	37 lb ft
Generator Power Lead Nut	9 N·m	80 lb in
Ignition Coil Bracket-to-Valve Rocker Arm Cover Bolts	12 N·m	106 lb in
Ignition Coil-to-Bracket Bolts	10 N·m	89 lb in
Intake Manifold Bolts - First Pass in Sequence	5 N·m	44 lb in
Intake Manifold Bolts - Final Pass in Sequence	10 N·m	89 lb in
J 42386-A Bolt	50 N·m	37 lb ft
Knock Sensor Bolts	20 N·m	15 lb ft
Oil Filter	30 N·m	22 lb ft
Oil Filter Fitting	55 N·m	40 lb ft
Oil Filter Tube-to-Bottom of Oil Pan Bolts	12 N·m	106 lb in
Oil Filter Tube-to-Side of Oil Pan Bolts	12 N·m	106 lb in
Oil Level Indicator Tube Bolt	25 N·m	18 lb ft
Oil Pan Baffle Bolts	12 N·m	106 lb in
Oil Pan Closeout Cover Bolt - Left Side	9 N·m	80 lb in
Oil Pan Closeout Cover Bolt - Right Side	9 N·m	80 lb in
Oil Pan Cover Bolts	12 N·m	106 lb in
Oil Pan Drain Plug	25 N·m	18 lb ft
Oil Pan M6 Bolts - Oil Pan-to-Rear Cover	12 N·m	106 lb in
Oil Pan M8 Bolts - Oil Pan-to-Engine Block and Oil Pan-to-Front Cover	25 N·m	18 lb ft
Oil Pan Oil Gallery Plugs	25 N·m	18 lb ft
Oil Pressure Sensor	20 N·m	15 lb ft
Oil Pump Cover Bolts	12 N·m	106 lb in
Oil Pump Relief Valve Plug	12 N·m	106 lb in
Oil Pump Screen Nuts	25 N·m	18 lb ft
Oil Pump Screen-to-Oil Pump Bolt	12 N·m	106 lb in
Oil Pump-to-Engine Block Bolts	25 N·m	18 lb ft
Rear Cover Bolts	25 N·m	18 lb ft
Service Lift Bracket M8 Bolt	25 N·m	18 lb ft
Service Lift Bracket M10 Bolts	50 N·m	37 lb ft
Spark Plugs - New Cylinder Heads	20 N·m	15 lb ft
Spark Plugs - All Subsequent Installations	15 N·m	11 lb ft
Throttle Body Bolts	10 N·m	89 lb in
Throttle Body Nuts	10 N·m	89 lb in
Throttle Body Studs	6 N·m	53 lb in
Timing Chain Dampener Bolts	25 N·m	18 lb ft
Upper Engine Mount Bracket	50 N·m	37 lb ft
Valley Cover Bolts	25 N·m	18 lb ft

Application	Specification	
	Metric	English
Valve Lifter Guide Bolts	10 N·m	89 lb in
Valve Rocker Arm Bolts	30 N·m	22 lb ft
Valve Rocker Arm Cover Bolts	12 N·m	106 lb in
Water Inlet Housing Bolts	15 N·m	11 lb ft
Water Pump Bolts - First Pass	15 N·m	11 lb ft
Water Pump Bolts - Final Pass	30 N·m	22 lb ft

Engine Component Description



The 6.0 Liter V8 engine is identified as RPO LS VIN H.

Camshaft and Drive System

A billet steel one-piece camshaft is supported by 5 bearings pressed into the engine block. The camshaft timing sprocket is mounted to the front of the camshaft and is driven by the crankshaft sprocket through the camshaft timing chain. The camshaft position sensor lobes are incorporated into the front face of the camshaft sprocket with the camshaft position sensor mounted in the engine front cover. A timing chain dampner is mounted to the front of the engine block above the crankshaft sprocket. The externally splined crankshaft sprocket is positioned to the crankshaft by a key and keyway. The crankshaft sprocket

external splines drive the oil pump drive gear. A retaining plate mounted to the front of the engine block maintains camshaft location.

Crankshaft

The crankshaft is cast nodular iron. The crankshaft is supported by 5 crankshaft bearings. The bearings are retained by crankshaft bearing caps which are machined with the engine block for proper alignment and clearance. The crankshaft journals are undercut and rolled. The center main journal is the thrust journal. A crankshaft position (CKP) reluctor ring is press fit mounted at the rear of the crankshaft. The reluctor ring is not serviceable separately.

Cylinder Heads

The cylinder heads are cast aluminum and have pressed in place powdered metal valve guides and valve seats. Passages for the engine coolant air bleed system are at the front of each cylinder head. The valve rocker arm covers are retained to the cylinder heads by 4 center-mounted rocker arm cover bolts.

Engine Block

The engine block is a cam-in-block deep skirt 90 degree V configuration with 5 crankshaft bearing caps. The engine block is cast aluminum. The 5 crankshaft bearing caps each have 4 vertical M10 and 2 horizontal M8 mounting bolts. The camshaft is supported by 5 camshaft bearings pressed into the block.

Exhaust Manifolds

The exhaust manifolds are a one-piece cast iron design. The exhaust manifolds direct exhaust gasses from the combustion chambers to the exhaust system. Each manifold also has an externally mounted heat shield that is retained by bolts.

Intake Manifold

The intake manifold is a one-piece composite design that incorporates brass threaded inserts for mounting the fuel rail, throttle body, and wire harness studs. Each side of the intake manifold is sealed to the cylinder head by a non-reusable silicone sealing gasket/nylon carrier assembly. The electronically actuated throttle body bolts to the front of the intake manifold. The throttle body is sealed by a one-piece push in place silicone gasket. The fuel rail assembly, with 8 separate fuel injectors, is retained to the intake by 4 bolts. The injectors are seated into their individual manifold bores with O-ring seals to provide sealing. A fuel rail stop bracket is retained to the rear of the left cylinder head by a mounting bolt. The manifold absolute pressure (MAP) sensor is installed and retained to the top front of the intake manifold and sealed by an O-ring seal. The evaporative emission (EVAP) solenoid valve is mounted to the fuel rail at the left front of the intake manifold. There are no coolant passages within the intake manifold.

Oil Pan

The structural front-sump oil pan is cast aluminum. Incorporated into the design is the oil filter mounting boss, drain plug opening, oil level indicator tube opening, and oil pan baffle. An internal oil filter tube directs pressurized oil from the engine block to the oil filter. Filtered oil is returned to the engine block through the oil filter tube to the engine block upper oil galleries. The oil filter tube assembly, which is mounted in the center area of the pan, includes the press-fit oil pressure relief valve. The alignment of the structural oil pan to the rear of the engine block and transmission bell housing is critical.

Piston and Connecting Rod Assembly

The pistons are cast aluminum. The pistons use 2 compression rings and a oil control ring assembly. The piston is a low friction, lightweight design with a flat or recessed top and barrel shaped skirt. The piston pins are chromium steel and are a full-floating design. The connecting rods are powdered metal. The connecting rods are fractured at the connecting rod journal and then machined for the proper clearance. All applications use a piston with a graphite coated skirt. The piston and pin are to be serviced as an assembly.

Valve Rocker Arm Cover Assemblies

The valve rocker arm covers are cast aluminum and use a pre-molded silicon gasket for sealing. Mounted to each rocker cover are the coil and bracket assemblies. Incorporated into the left cover is the positive

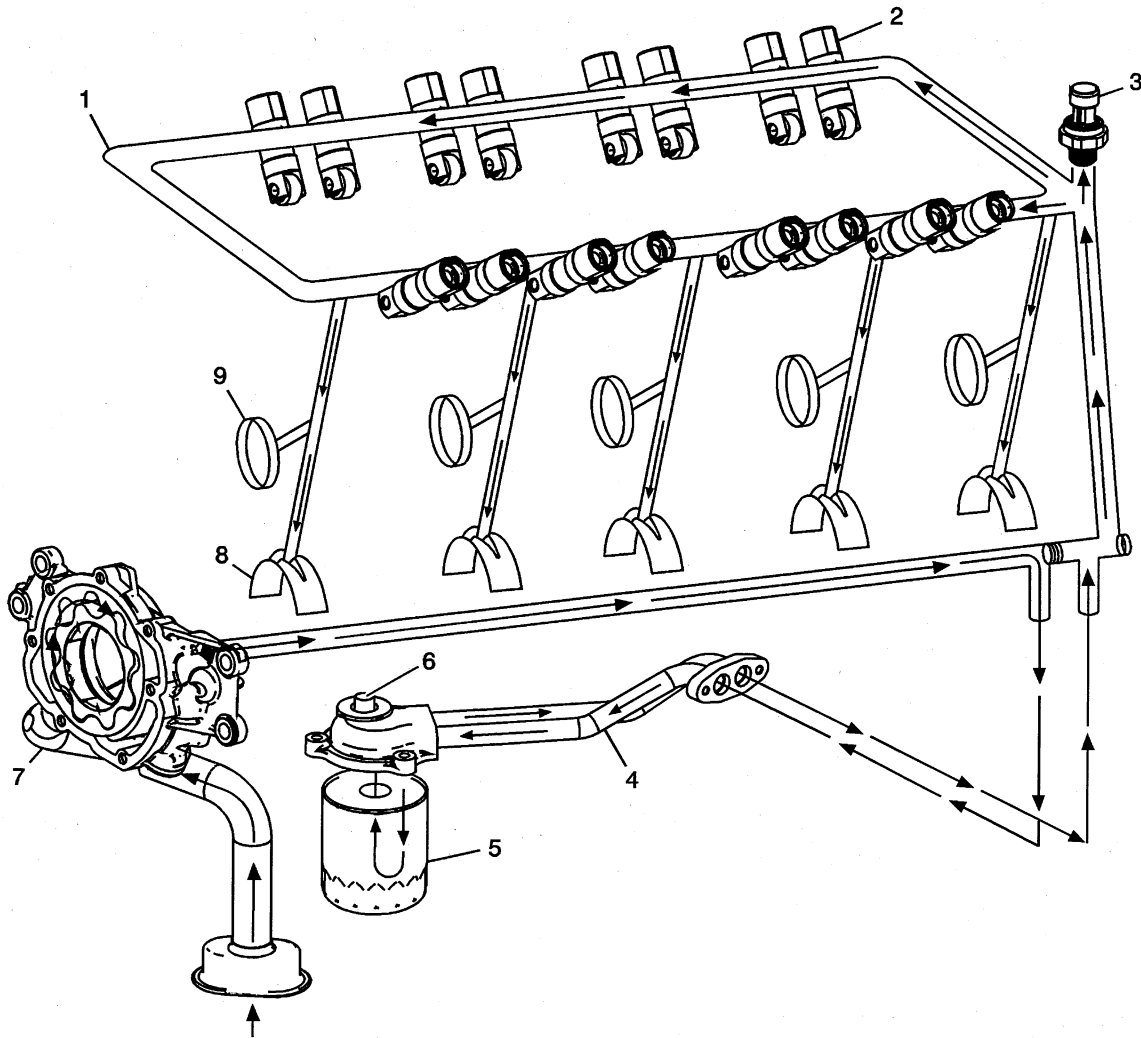
crankcase ventilation (PCV) system dirty air passage. Incorporated into the right cover is the oil fill tube and the PCV fresh air passage.

Valve Train

Motion is transmitted from the camshaft through the hydraulic roller valve lifters and tubular pushrods to the roller type rocker arms. The nylon valve lifter guides position and retain the valve lifters. The valve rocker arms for each bank of cylinders are mounted on pedestals or pivot supports. Each rocker arm is retained on the pivot support and cylinder head by a bolt. Valve lash is net build.

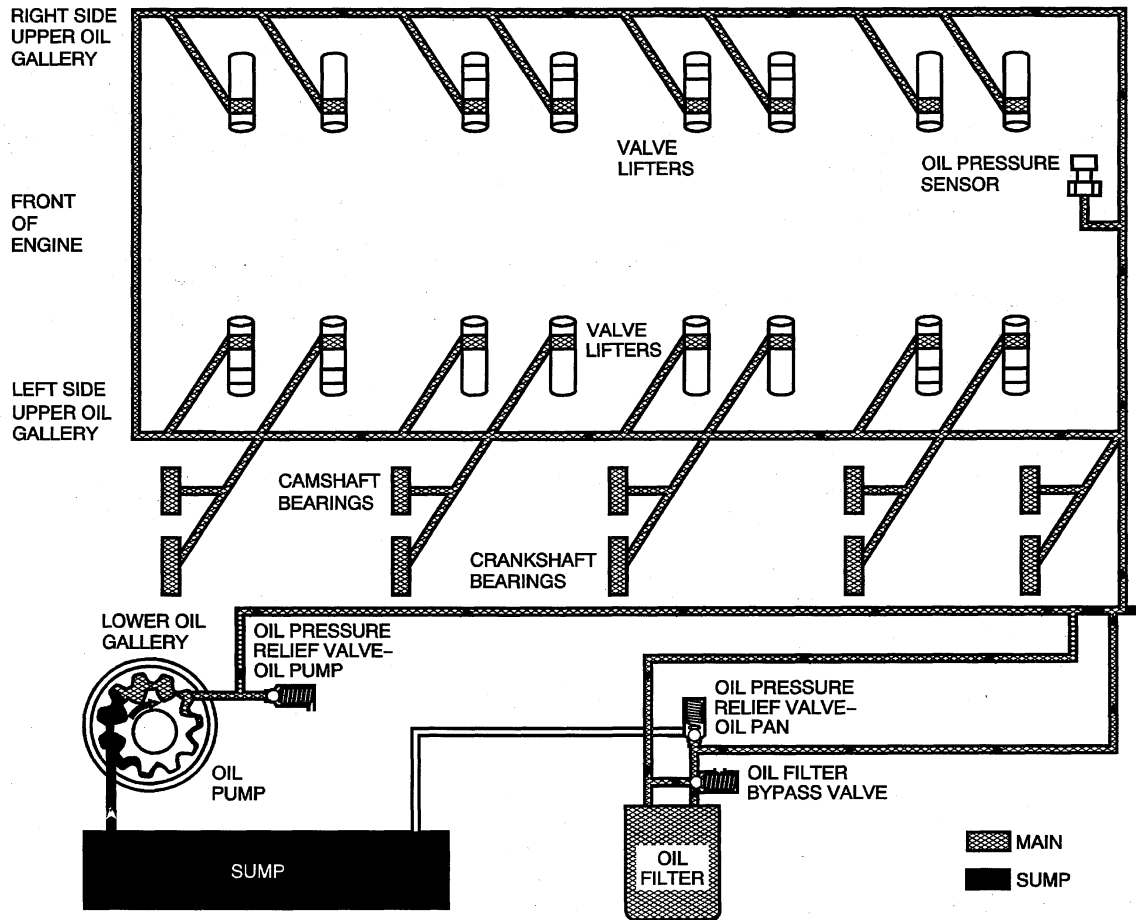
Lubrication Description

Component Locator



- (1) Upper Main Oil Galleries
- (2) Valve Lifters
- (3) Oil Pressure Sensor
- (4) Oil Filter Tube
- (5) Oil Filter
- (6) Oil Pressure Relief Valve
- (7) Oil Pump
- (8) Crankshaft Bearings
- (9) Camshaft Bearings

Main Pressure Below 55 psi

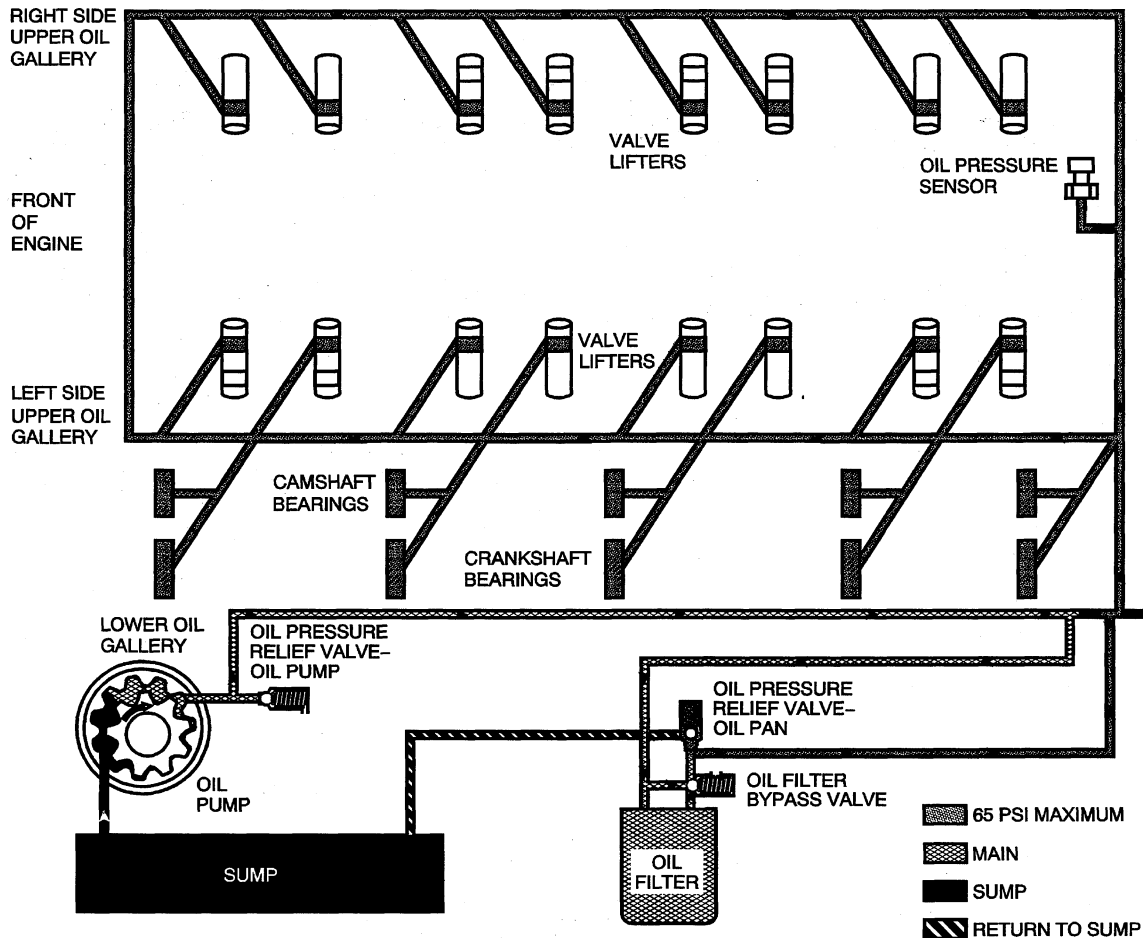


Engine lubrication is supplied by a gerotor type oil pump assembly. The pump is mounted on the front of the engine block and driven directly by the crankshaft sprocket. The pump gears rotate and draw oil from the oil pan sump through a pick-up screen and pipe. The oil is pressurized as it passes through the pump and is sent through the engine block lower oil gallery. Contained within the oil pump assembly is a pressure relief valve that maintains main oil pressure within a specified range.

Pressurized oil is directed through the engine block lower oil gallery and through the oil filter tube to the full flow oil filter, where harmful contaminants are removed. A bypass valve is incorporated into the oil pan at the oil filter boss, which permits oil flow in the event the filter becomes restricted. A second pressure relief valve is incorporated into the oil filter tube. The oil pan mounted oil pressure relief valve limits oil pressure directed to the oil galleries and valve system components to 379-517 kPa (55-75 psi) maximum.

Oil is then directed from the filter to the upper main oil galleries. Oil from the left upper oil gallery is directed to the crankshaft and camshaft bearings. Oil that has entered both the upper main oil galleries also pressurizes the valve lifter assemblies and is then pumped through the pushrods to lubricate the valve rocker arms and valve stems. Oil returning to the pan is directed by the crankshaft oil deflector. The oil pressure sensor is located at the top rear of the engine.

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When main oil pressure exceeds 379 kPa (55 psi), the oil pressure relief valve exhausts excess oil to the sump.

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Drive Belt System Description

The drive belt system consists of the following components:

- The drive belt
- The drive belt tensioner
- The drive belt idler pulley
- The crankshaft balancer pulley
- The accessory drive component mounting brackets
- The accessory drive components
 - The power steering pump, if belt driven
 - The generator
 - The A/C compressor, if equipped
 - The engine cooling fan, if belt driven
 - The water pump, if belt driven
 - The vacuum pump, if equipped
 - The air compressor, if equipped

The drive belt system may use 1 belt or 2 belts. The drive belt is thin so that it can bend backwards and has several ribs to match the grooves in the pulleys. There also may be a V-belt style belt used to drive certain accessory drive components. The drive belts are made of different types of rubbers -- chloroprene or EPDM -- and have different layers or plys containing either fiber cloth or cords for reinforcement.

Both sides of the drive belt may be used to drive the different accessory drive components. When the back side of the drive belt is used to drive a pulley, the pulley is smooth.

The drive belt is pulled by the crankshaft balancer pulley across the accessory drive component pulleys. The spring loaded drive belt tensioner keeps constant tension on the drive belt to prevent the drive belt from slipping. The drive belt tensioner arm will move when loads are applied to the drive belt by the accessory drive components and the crankshaft.

The drive belt system may have an idler pulley, which is used to add wrap to the adjacent pulleys. Some systems use an idler pulley in place of an accessory drive component when the vehicle is not equipped with the accessory.

Crankcase Ventilation System Description

A closed crankcase ventilation system is used in order to provide a more complete scavenging of crankcase vapors. Filtered air from the air induction system duct is supplied to the crankcase, mixed with blow-by vapors, and passes through a crankcase ventilation metering device before entering the intake manifold. The primary component in the positive crankcase ventilation (PCV) system is the PCV flow metering device (valve or orifice). Vacuum changes within the intake manifold result in flow variations of the blow-by vapors. If abnormal operating conditions occur, the design of the PCV system permits excessive amounts of blow-by vapors to back flow through the crankcase vent tube and into the engine induction system to be consumed during normal combustion. This engine ventilation system design minimizes oil consumption and significantly reduces the potential for oil ingestion during vehicle limit handling maneuvers.

LS2 Engine

The LS2 engine utilizes an integral PCV system which is located in the engines valley cover beneath the intake manifold. The engine valley cover contains composite oil separating baffles and PCV plumbing. Filtered fresh air is routed from up stream of the throttle plate to the front of the right valve rocker arm cover through a formed nylon tube. The design of the rocker cover shields rocker arm oil spray thereby reducing the potential for oil being drawn into the throttle bore area during back flow of the ventilation system. Blow-by vapors are routed from the valley cover through a fixed orifice (2.5 mm) within a steel PCV tube, then through a formed rubber hose before entering the intake manifold behind the throttle body.

Engine Cooling

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Air Cleaner Outlet Duct Clamp Screw	7 N·m	62 lb in
Coolant Air Bleed Pipe Stud/Bolt	12 N·m	106 lb in
Coolant Heater Cord Bolt	8 N·m	71 lb in
Coolant Heater	50 N·m	37 lb ft
Engine Block Coolant Drain Plug	60 N·m	44 lb ft
Fan Clutch Bolt	23 N·m	17 lb ft
Fan Clutch Nut	56 N·m	41 lb ft
Fan Shroud Bolt	9 N·m	80 lb in
Radiator Bolt	25 N·m	18 lb ft
Surge Tank Bolt/Nut	9 N·m	80 lb in
Thermostat Housing Bolt	15 N·m	11 lb ft
Transmission Control Module (TCM) Cover Bolt	9 N·m	80 lb in
Transmission Control Module (TCM) Electrical Connector Bolt	8 N·m	71 lb in
Water Pump Bolt (First Pass)	15 N·m	11 lb ft
Water Pump Bolt (Final Pass)	30 N·m	22 lb ft

Cooling System Description and Operation

Coolant Heater

The optional engine coolant heater (RPO K05) operates using 110-volt AC external power and is designed to warm the coolant in the engine block area for improved starting in very cold weather (-29°C (-20°F)). The coolant heater helps reduce fuel consumption when a cold engine is warming up. The unit is equipped with a detachable AC power cord. A weather shield on the cord is provided to protect the plug when not in use.

Cooling System

The cooling system's function is to maintain an efficient engine operating temperature during all engine speeds and operating conditions. The cooling system is designed to remove approximately one-third of the heat produced by the burning of the air-fuel mixture. When the engine is cold, the coolant does not flow to the radiator until the thermostat opens. This allows the engine to warm quickly.

Cooling Cycle

Coolant flows from the radiator outlet and into the water pump inlet. Some coolant flows from the water pump, to the heater core, then back to the water pump. This provides the passenger compartment with heat and defrost capability as the coolant warms up.

Coolant also flows from the water pump outlet and into the engine block. In the engine block, the coolant circulates through the water jackets surrounding the cylinders where it absorbs heat.

The coolant then flows through the cylinder head gasket openings and into the cylinder heads. In the cylinder heads, the coolant flows through the water jackets surrounding the combustion chambers and valve seats, where it absorbs additional heat.

From the cylinder heads, the coolant flows to the thermostat. The flow of coolant will either be stopped at the thermostat until the engine reaches normal operating temperature, or it will flow through the thermostat and into the radiator where it is cooled. At this point, the coolant flow cycle is completed.

Efficient operation of the cooling system requires proper functioning of all cooling system components. The cooling system consists of the following components:

Coolant

The engine coolant is a solution made up of a 50-50 mixture of DEX-COOL and suitable drinking water. The coolant solution carries excess heat away from the engine to the radiator, where the heat is dissipated to the atmosphere.

Radiator

The radiator is a heat exchanger. It consists of a core and two tanks. The aluminum core is a tube and fin crossflow design that extends from the inlet tank to the outlet tank. Fins are placed around the outside of the tubes to improve heat transfer to the atmosphere.

The inlet and outlet tanks are a molded, high temperature, nylon reinforced plastic material. A high temperature rubber gasket seals the tank flange edge to the aluminum core. The tanks are clamped to the core with clinch tabs. The tabs are part of the aluminum header at each end of the core.

The radiator also has a drain cock located in the bottom of the left hand tank. The drain cock unit includes the drain cock and drain cock seal.

The radiator removes heat from the coolant passing through it. The fins on the core transfer heat from the coolant passing through the tubes. As air passes between the fins, it absorbs heat and cools the coolant.

Pressure Cap

The pressure cap seals the cooling system. It contains a blow off or pressure valve and a vacuum or atmospheric valve. The pressure valve is held against its seat by a spring, which protects the radiator from excessive cooling system pressure. The vacuum valve is held against its seat by a spring, which permits opening of the valve to relieve vacuum created in the cooling system as it cools off. The vacuum, if not relieved, might cause the radiator and/or coolant hoses to collapse.

The pressure cap allows cooling system pressure to build up as the temperature increases. As the pressure builds, the boiling point of the coolant increases. Engine coolant can be safely run at a temperature much higher than the boiling point of the coolant at atmospheric pressure. The hotter the coolant is, the faster the heat transfers from the radiator to the cooler, passing air.

The pressure in the cooling system can get too high. When the cooling system pressure exceeds the rating of the pressure cap, it raises the pressure valve, venting the excess pressure.

As the engine cools down, the temperature of the coolant drops and a vacuum is created in the cooling system. This vacuum causes the vacuum valve to open, allowing outside air into the surge tank. This equalizes the pressure in the cooling system with atmospheric pressure, preventing the radiator and coolant hoses from collapsing.

Coolant Recovery System

The coolant recovery system consists of a plastic coolant recovery reservoir and overflow tube. The recovery reservoir is also called a recovery tank or expansion tank. It is partially filled with coolant and is connected to the radiator fill neck with the overflow tube. Coolant can flow back and forth between the radiator and the reservoir.

In effect, a cooling system with a coolant recovery reservoir is a closed system. When the pressure in the cooling system gets too high, it will open the pressure valve in the pressure cap. This allows the coolant, which has expanded due to being heated, is allowed to flow through the overflow tube and into the recovery reservoir. As the engine cools down, the temperature of the coolant drops and a vacuum is created in the cooling system. This vacuum opens the vacuum valve in the pressure cap, allowing some of the coolant in the reservoir to be siphoned back into the radiator. Under normal operating conditions, no coolant is lost. Although the coolant level in the recovery reservoir goes up and down, the radiator and cooling system are kept full. An advantage to using a coolant recovery reservoir is that it eliminates almost all air bubbles from the cooling system. Coolant without bubbles absorbs heat much better than coolant with bubbles.

Air Baffles and Seals

The cooling system uses deflectors, air baffles and air seals to increase cooling system capability. Deflectors are installed under the vehicle to redirect airflow beneath the vehicle and through the radiator to increase engine cooling. Air baffles are also used to direct airflow through the radiator and increase cooling capability. Air seals prevent air from bypassing the radiator and A/C condenser, and prevent recirculation of hot air for better hot weather cooling and A/C condenser performance.

Water Pump

The water pump is a centrifugal vane impeller type pump. The pump consists of a housing with coolant inlet and outlet passages and an impeller. The impeller is mounted on the pump shaft and consists of a series of flat or curved blades or vanes on a flat plate. When the impeller rotates, the coolant between the vanes is thrown outward by centrifugal force.

The impeller shaft is supported by one or more sealed bearings. The sealed bearings never need to be lubricated. Grease cannot leak out, dirt and water cannot get in as long as the seal is not damaged or worn.

The purpose of the water pump is to circulate coolant throughout the cooling system. The water pump is driven by the crankshaft via the drive belt.

Thermostat

The thermostat is a coolant flow control component. Its purpose is to help regulate the operating temperature of the engine. It utilizes a temperature sensitive wax-pellet element. The element connects to a valve through a small piston. When the element is heated, it expands and exerts pressure against the small piston. This pressure forces the valve to open. As the element is cooled, it contracts. This contraction allows a spring to push the valve closed.

When the coolant temperature is below the rated thermostat opening temperature, the thermostat valve remains closed. This prevents circulation of the coolant to the radiator and allows the engine to warm up. After the coolant temperature reaches the rated thermostat opening temperature, the thermostat valve will open. The coolant is then allowed to circulate through the thermostat to the radiator where the engine heat is dissipated to the atmosphere. The thermostat also provides a restriction in the cooling system, after it has opened. This restriction creates a pressure difference which prevents cavitation at the water pump and forces coolant to circulate through the engine block.

Engine Oil Cooler

The engine oil cooler is a heat exchanger. It is located inside the left side end tank of the radiator. The engine oil temperature is controlled by the temperature of the engine coolant that surrounds the oil cooler in the radiator.

The engine oil pump, pumps the oil through the engine oil cooler line to the oil cooler. The oil then flows through the cooler where the engine coolant absorbs heat from the oil. The oil is then pumped through the oil cooler return line, to the oil filter, to the engine block oil system.

Transmission Oil Cooler

The transmission oil cooler is a heat exchanger. It is located inside the right side end tank of the radiator. The transmission fluid temperature is regulated by the temperature of the engine coolant in the radiator.

The transmission oil pump, pumps the fluid through the transmission oil cooler line to the transmission oil cooler. The fluid then flows through the cooler where the engine coolant absorbs heat from the fluid. The fluid is then pumped through the transmission oil cooler return line, to the transmission.

Engine Electrical

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Battery Box Rear Cover Nuts	10 N·m	89 lb in
Battery Box Slide Nuts	25 N·m	18 lb ft
Battery Box to Frame Bolts	25 N·m	18 lb ft
Battery Box Upper Cover Nuts	10 N·m	89 lb in
Battery Hold Down Retainer Bolt	25 N·m	18 lb ft
Engine Wiring Harness Auxiliary Negative Battery Cable Bolt	16 N·m	12 lb ft
Engine Wiring Harness Ground Bolt	16 N·m	12 lb ft
Forward Lamp Wiring Harness Ground/Negative Cable Bolt	9 N·m	80 lb in
Generator Bolt	50 N·m	37 lb ft
Generator Bracket Bolt	50 N·m	37 lb ft
Generator Cable Nut	9 N·m	80 lb in
Ground Strap Bolt to Engine	50 N·m	37 lb ft
Ground Strap Nut to Frame	25 N·m	18 lb ft
Negative Battery Cable Bolt	15 N·m	11 lb ft
Negative Cable Nut to Frame	25 N·m	18 lb ft
Positive Battery Cable at Junction Box	6 N·m	53 lb in
Positive Battery Cable Bolt	15 N·m	11 lb ft
Positive Cable at Underhood Bussed Electrical Center (UBEC) Bolt	9 N·m	80 lb in
Starter Bolt	50 N·m	37 lb ft
Starter Lead Nut	9 N·m	80 lb in
Starter Solenoid Nut	3.4 N·m	30 lb in
Surge Tank Bolt/Nut	9 N·m	80 lb in
Transmission Cover Bolt	9 N·m	80 lb in

Battery Usage

Base	
Cold Cranking Amperage (CCA)	600 A, 770 A
Reserve Capacity Rating	115 Minutes
Replacement Battery Number	78-6YR, 78-7YR

Battery Temperature vs Minimum Voltage

Estimated Temperature °F	Estimated Temperature °C	Minimum Voltage
70 or above	21 or above	9.6
50	10	9.4
32	0	9.1
15	-10	8.8
0	-18	8.5
Below 0	Below -18	8.0

Generator Usage

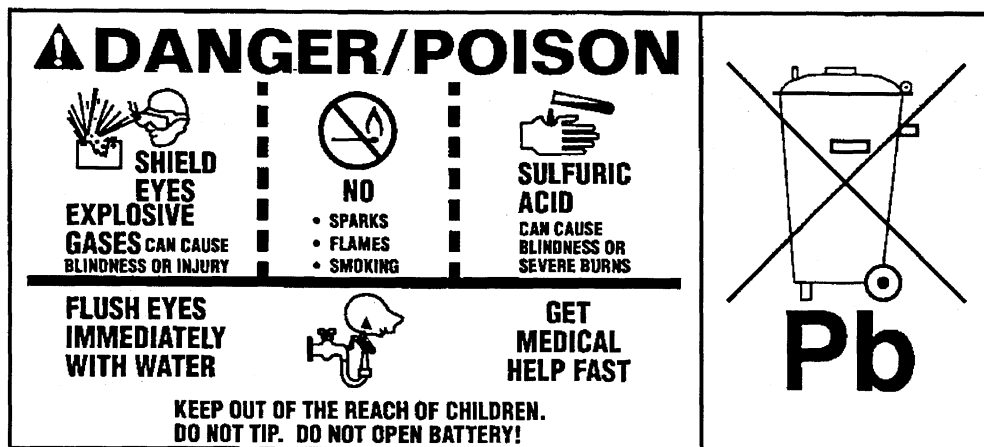
Engine	Generator Model	Rated Output AMPS	Load Test Output AMPS
Gasoline Engine	AD230	102 A	71 A

Battery Description and Operation

Caution

Batteries produce explosive gases, contain corrosive acid, and supply levels of electrical current high enough to cause burns. Therefore, to reduce the risk of personal injury when working near a battery:

- Always shield your eyes and avoid leaning over the battery whenever possible.
- Do not expose the battery to open flames or sparks.
- Do not allow the battery electrolyte to contact the eyes or the skin. Flush immediately and thoroughly any contacted areas with water and get medical help.
- Follow each step of the jump starting procedure in order.
- Treat both the booster and the discharged batteries carefully when using the jumper cables.



The maintenance free battery is standard. There are no vent plugs in the cover. The battery is completely sealed except for two small vent holes in the side. These vent holes allow the small amount of gas that is produced in the battery to escape.

The battery has three functions as a major source of energy:

- Engine cranking
- Voltage stabilizer
- Alternate source of energy with generator overload.

The battery specification label (example below) contains information about the following:

- The test ratings
- The original equipment catalog number
- The recommended replacement model number

CATALOG NO.

1819

CCA 770	LOAD TEST 380
REPLACEMENT MODEL 100-6YR	

A battery has 2 ratings:

- Reserve capacity
- Cold cranking amperage

When a battery is replaced use a battery with similar ratings. Refer to the battery specification label on the original battery or refer to Battery Usage .

Reserve Capacity

Reserve capacity is the amount of time in minutes it takes a fully charged battery, being discharged at a constant rate of 25 amperes and a constant temperature of 27°C (80°F) to reach a terminal voltage of 10.5 V. Refer to Battery Usage for the reserve capacity rating of the original equipment battery.

Cold Cranking Amperage

The cold cranking amperage is an indication of the ability of the battery to crank the engine at cold temperatures. The cold cranking amperage rating is the minimum amperage the battery must maintain for 30 seconds at -18°C (0°F) while maintaining at least 7.2 volts. Refer to Battery Usage for the cold cranking amperage rating for this vehicle.

Circuit Description

The battery positive terminal supplies Battery Positive voltage to the under hood fuse block and the rear fuse block. The under hood fuse block provides a cable connection for the generator and a cable connection for the starter.

The battery negative terminal is connected to chassis ground G305 and supplies ground for the AD converter in the DIM.

Starting System Description and Operation

The PG-260M and Hitachi-S14-100B are non-repairable starter motors. It has pole pieces that are arranged around the armature within the starter housing. When the solenoid windings are energized, the pull-in winding circuit is completed to ground through the starter motor. The hold-in winding circuit is completed to ground through the solenoid. The windings work together magnetically to pull in and hold in the plunger. The plunger moves the shift lever. This action causes the starter drive assembly to rotate on the armature shaft spline as it engages with the flywheel ring gear on the engine. At the same time, the plunger closes the solenoid switch contacts in the starter solenoid. Full battery voltage is then applied directly to the starter motor and it cranks the engine.

As soon as the solenoid switch contacts close, current stops flowing through the pull-in winding as battery voltage is now applied to both ends of the windings. The hold-in winding remains energized; its magnetic field is strong enough to hold the plunger, shift lever, starter drive assembly, and solenoid switch contacts in place to continue cranking the engine. When the engine starts, the pinion gear overrun sprag protects the armature from excessive speed until the switch is opened.

When the ignition switch is released from the CRANK position, voltage is removed from the starter solenoid S terminal. Current flows from the motor contacts through both windings to ground at the end of the hold-in winding. However, the direction of the current flow through the pull-in winding is now in the opposite direction of the current flow when the winding was first energized.

The magnetic fields of the pull-in and hold-in windings now oppose one another. This action of the windings, along with the help of the return spring, cause the starter drive assembly to disengage and the solenoid switch contacts to open simultaneously. As soon as the contacts open, the starter motor is turned off.

Charging System Description and Operation

Generator

The generator features the following major components:

- The delta stator
- The rectifier bridge
- The rotor with slip rings and brushes
- A conventional pulley
- Dual internal fans
- The regulator

The pulley and the fan cool the slip ring and the frame.

The generator features permanently lubricated bearings. Service should only include tightening of mount components. Otherwise, replace the generator as a complete unit.

Regulator

The voltage regulator controls the rotor field current in order to limit the system voltage. When the field current is on, the regulator switches the current on and off at a rate of 400 cycles per second in order to perform the following functions:

- Radio noise control
- Obtain the correct average current needed for proper system voltage control

At high speeds, the on-time may be 10 percent with the off-time at 90 percent. At low speeds, the on-time may be 90 percent and the off-time 10 percent.

Circuit Description

The generator provides voltage to operate the vehicle's electrical system and to charge its battery. A magnetic field is created when current flows through the rotor. This field rotates as the rotor is driven by the engine, creating an AC voltage in the stator windings. The AC voltage is converted to DC by the rectifier bridge and is supplied to the electrical system at the battery terminal.

When the engine is running, the generator turn-on signal is sent to the generator from the PCM, turning on the regulator. The generator's voltage regulator controls current to the rotor, thereby controlling the output voltage. The rotor current is proportional to the electrical pulse width supplied by the regulator. When the engine is started, the regulator senses generator rotation by detecting AC voltage at the stator through an internal wire. Once the engine is running, the regulator varies the field current by controlling the pulse width. This regulates the generator output voltage for proper battery charging and electrical system operation. The generator F terminal is connected internally to the voltage regulator and externally to the PCM. When the voltage regulator detects a charging system problem, it grounds this circuit to signal the PCM that a problem exists. The PCM monitors the generator field duty cycle signal circuit. The

system voltage sense circuit receives battery positive voltage that is Hot At All Times through a fuse link that is connected to the starter motor. This voltage is used by the regulator as the reference for system voltage control.

Engine Controls

Engine Controls – 6.0L V-8

Ignition System Specifications

Application	Specification	
	Metric	English
Firing Order	1-8-7-2-6-5-4-3	
Spark Plug Wire Resistance	188-312 ohms	
Spark Plug Torque	15 N·m	11 lb ft
Spark Plug Gap	1.52 mm	0.060 in
Spark Plug Type	GM P/N 12571164 AC Spark Plug P/N 41-985	

Fastener Tightening Specifications

Application	Specifications	
	Metric	English
Accelerator Control Cable Bracket Bolts	10 N·m	89 lb in
Accelerator Pedal Mounting Bolts	20 N·m	15 lb ft
Camshaft Position (CMP) Sensor Bolt	29 N·m	21 lb ft
Crankshaft Position (CKP) Sensor Bolt	25 N·m	18 lb ft
Engine Coolant Temperature (ECT) Sensor	20 N·m	15 lb ft
Engine Sight Shield Bolts	10 N·m	89 lb in
Engine Sight Shield Bracket Bolts	10 N·m	89 lb in
EGR (Exhaust Gas Recirculation) Valve Bolts (First Pass)	10 N·m	89 lb in
EGR Valve Bolts (Final Pass)	25 N·m	18 lb ft
EGR Valve Pipe-to-Cylinder Head Bolts	50 N·m	37 lb ft
EGR Valve Pipe-to-Exhaust Manifold Bolts	25 N·m	18 lb ft
EGR Valve Pipe-to-Intake Manifold	12 N·m	106 lb in
Engine Wiring Harness Retaining Nut	5.5 N·m	49 lb in
EVAP Canister Bracket Bolt	25 N·m	18 lb ft
EVAP Canister Mounting Bolt	25 N·m	18 lb ft
EVAP Canister Mounting Nuts	10 N·m	89 lb in
EVAP Canister Purge Valve Shoulder Bolt	10.5 N·m	93 lb in
EVAP Canister Vent Valve Bracket Mount Bolt	12 N·m	106 lb in
Fuel Fill Hose Clamp	2.5 N·m	22 lb in
Fuel Fill Pipe Bracket Bolt	12 N·m	106 lb in
Fuel Fill Pipe Ground Strap Bolt	9 N·m	80 lb in
Fuel Fill Pipe Housing to Fill Pipe Bolts	2.3 N·m	20 lb in
Fuel Fill Vent Hose Clamps	2.5 N·m	22 lb in
Fuel Filler Bracket Bolt	12 N·m	106 lb in
Fuel Filter Bracket Bolt	12 N·m	106 lb in
Fuel Filter Fitting	25 N·m	18 lb ft
Fuel Rail Attaching Bolts	10 N·m	89 lb in
Fuel Rail Crossover Pipe Retainer Clip Attaching Screw	3.8 N·m	34 lb in
Fuel Return Pipe Attaching Screw	5 N·m	44 lb in
Fuel Tank Shield-to-Frame Bolts	18 N·m	13 lb ft
Fuel Tank Strap Bolts	40 N·m	30 lb ft
Heated Oxygen Sensor (HO2S)	42 N·m	31 lb ft
Idle Air Control (IAC) Valve Attaching Screws	3 N·m	27 lb in
Ignition Coil Mounting Bolts	8 N·m	71 lb in

Application	Specifications	
	Metric	English
Intake Manifold Sight Shield Fasteners	10 N·m	89 lb in
Knock Sensor (KS)	20 N·m	15 lb ft
Powertrain Control Module (PCM) Connector End Bolts	8 N·m	71 lb in
Throttle Body Attaching Bolts and Nuts	10 N·m	89 lb in
Throttle Position (TP) Sensor Attaching Screws	2 N·m	18 lb in
Upper Engine Wiring Harness Nut	5.5 N·m	49 lb in

Exhaust System

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Catalytic Converter Heat Shield Bolts	7 N·m	62 lb in
Catalytic Converter to Muffler Nuts	45 N·m	33 lb ft
Exhaust Manifold Bolts		
First Pass	25 N·m	18 lb ft
Second Pass	25 N·m	18 lb ft
Third Pass	25 N·m	18 lb ft
Exhaust Manifold Heat Shield Nuts	9 N·m	80 lb in
Exhaust Manifold Heat Shield Studs	10 N·m	89 lb in
Exhaust Pipe to Manifold Nuts	50 N·m	37 lb ft
Heated Oxygen Sensor	42 N·m	31 lb ft
Left Exhaust Hanger Bolts/Nuts	25 N·m	18 lb ft
Park Brake Cable to Frame Bolt	20 N·m	15 lb ft
Rear Brake Hose to Frame Bolt	20 N·m	15 lb ft
Rear Lower Shock Bolt	80 N·m	59 lb ft
Right Exhaust Hanger Nuts	25 N·m	18 lb ft

Exhaust System Description

Important

Use of non-OEM parts may cause driveability concerns.

The exhaust system design varies according to the model designation and the intended use of the vehicle.

In order to secure the exhaust pipe to the exhaust manifold, the exhaust system utilizes a flange and seal joint coupling. A flange and gasket coupling secures the catalytic converter assembly to the muffler assembly.

Hangers suspend the exhaust system from the underbody, allowing some movement of the exhaust system and disallowing the transfer of noise and vibration into the vehicle.

Heat shields protect the vehicle from the high temperatures generated by the exhaust system.

Resonator

Some exhaust systems are equipped with a resonator. The resonator, located either before or after the muffler, allows the use of mufflers with less back pressure. Resonators are used when vehicle characteristics require specific exhaust tuning.

Catalytic Converter

The catalytic converter is an emission control device added to the engine exhaust system in order to reduce hydrocarbons (HC), carbon monoxide (CO), and oxides of nitrogen (NOx) pollutants from the exhaust gas.

The catalytic converter is comprised of a ceramic monolith substrate, supported in insulation and housed within a sheet metal shell. The substrate may be washcoated with 3 noble metals:

- Platinum (Pt)
- Palladium (Pd)
- Rhodium (Rh)

The catalyst in the converter is not serviceable.

Muffler

The exhaust muffler reduces the noise levels of the engine exhaust by the use of tuning tubes. The tuning tubes create channels inside the exhaust muffler that lower the sound levels created by the combustion of the engine.

Transmission/Transaxle Description and Operation

Manual Transmission - Tremec 6-Speed

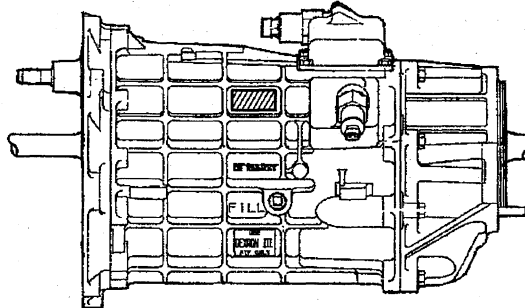
Fastener Tightening Specifications

Application	Specification	
	Metric	English
Bolt - Bracket Backup Lamp Switch	10 N·m	89 lb in
Bolt - Concentric Clutch Actuator Cylinder	15 N·m	11 lb ft
Bolt - Retainer	12 N·m	9 lb ft
Bolt - Retainer	22 N·m	16 lb ft
Bolt - Retainer	50 N·m	37 lb ft
Bolt - Reverse Lockout Assembly	20 N·m	15 lb ft
Bolt - Shift Control Adapter Plate	18 N·m	24 lb ft
Bolt - Shift Lever	25 N·m	34 lb ft
Bolt - Transmission	60 N·m	44 lb ft
Bolt - Transmission Mount	65 N·m	48 lb ft
Bolt - Transmission to Clutch Housing	48 N·m	35 lb ft
Bolt - Vehicle Speed Sensor	18 N·m	13 lb ft
Plug - Transmission Drain	18 N·m	13 lb ft
Screw - Set (T-15 Torx™) Shift Knob	5 N·m	44 lb in
Switch - Backup Lamp	27 N·m	20 lb ft

Lubrication Specifications

Application	Specification	
	Metric	English
Dexron™ III, IIE	3.45 liters	3.65 quarts

Manual Transmission Description and Operation



Manual transmissions are identified by the number of forward gears and the measured distance between the centerline of the output shaft and the counter gear.

The 6-speed, manual transmission (RPO MM6/M12), used in Corvettes, incorporates the following features:

- An aluminum case.
- Fully synchronized gearing with an enhanced synchronizer cone arrangement:
 - Tripple-cone: FIRST, SECOND
 - Double-cone: THIRD, FOURTH, FIFTH, SIXTH
 - Single-cone: REVERSE
- An internal shift rail mechanism.
- A remote transmission shift control mounted forward of the transmission.
- An external transmission shift rod enabling the forward mount location of the transmission shift control.
- An extended-length transmission output shaft mating directly to the rear axle drive pinion (in the rear of the differential housing).
- Tapered roller bearings supporting the mainshaft and countershaft.
- Caged roller bearings under all speed gears.
- Solenoid inhibit of SECOND and THIRD gears.
- Solenoid inhibit of REVERSE gear during predefined forward motion.

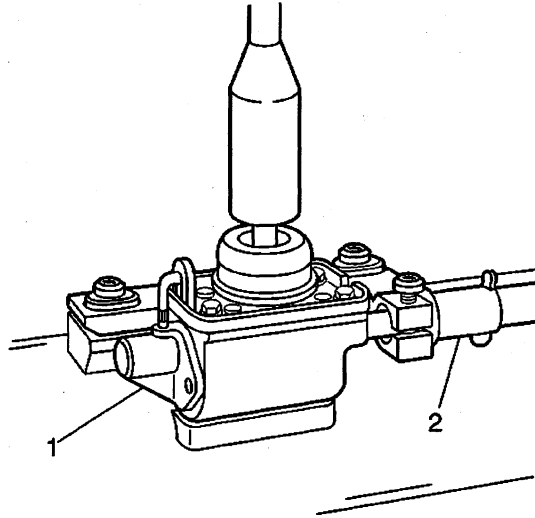
These features combine to yield a rugged, reliable system capable of handling input torques of up to 610 N·m (450 lb ft) for the MM6 and 540 N·m (400 lb ft) for the M12.

The gear ratios used in this transmission offer a wide operating range providing excellent acceleration and fuel economy.

The gear ratios are as follows:

Gear	MM6 Ratio (:1)	M12 Ratio (:1)
FIRST	2.66	2.97
SECOND	1.78	2.07
THIRD	1.30	1.43
FOURTH	1.00	1.00
FIFTH	0.74	0.84
SIXTH	0.50	0.57
REVERSE	2.90	3.28

Shift Control and Shift Rod



To allow the rear-of-vehicle transmission location, the transmission shift shaft has been relocated to the front of the transmission. The shift shaft is connected to a transmission shift rod (2) which contains two sealed universal-style joints, enabling the range of motion necessary in order to shift gears. The shift rod (2) is connected to the transmission shift control (1) which is a lubricated and sealed unit, mounted to the driveline support assembly. The mounting system utilized for the shift control (1) incorporates rubber insulators. The cockpit of the vehicle is isolated from the driveline through the use of a shift control closeout boot which seals off the shift control and the driveline tunnel shift control opening.

Gear Select (Skip Shift)

To ensure good fuel economy and compliance with federal fuel economy standards, SECOND and THIRD gears are inhibited when shifting out of FIRST gear under the following conditions:

- Coolant temperature is above 50°C (122°F).
- Vehicle speed is between 20 and 29 km/h (12 and 19 mph).
- Throttle is opened 35 percent or less.

Reverse Lockout

A reverse lockout system (consisting of a reverse lockout solenoid which operates a reverse lockout mechanism) is utilized to prevent shifting into REVERSE gear when the vehicle is moving forward at a speed of 5 km/h (3 mph) or more.

Skip Shift Description and Operation

The skip shift solenoid is a performance feature which forces the driver to shift from first gear to fourth gear during light acceleration and low engine load conditions. This feature is used to ensure good fuel economy and compliance with federal economy standards. The skip shift system consist of the following components:

- The powertrain control module (PCM).
- The skip shift solenoid.
- The skip shift lamp.

With the ignition ON, battery voltage is supplied directly to the skip shift solenoid. The powertrain control module (PCM) controls the solenoid by grounding the control circuit. When the skip shift system is active the PCM also grounds the control circuit of the skip shift lamp. The lamp illuminates to inform the driver that the 1-4 skip shift is engaged. The PCM determines when the skip shift system is active when the following parameters are met:

- The vehicle speed is between 24-31 km/h (15-19 mph).
- The engine coolant temperature (ECT) is greater than 77°C (171°F).
- The BARO is greater than 76 kPa.
- The accelerator pedal position (APP) is less than 26 percent.

When the conditions are met the powertrain control module (PCM) grounds the skip shift solenoid control circuit. This energizes the skip shift solenoid and mechanically blocks the gear shift lever from going into the second or third gear positions. When the drivers pulls back on the shift lever with the system enabled the transmission will go into fourth gear.

When the conditions for skip shift engagement are no longer met the powertrain control module (PCM) disables the skip shift solenoid, allowing the driver to use second and third gears.

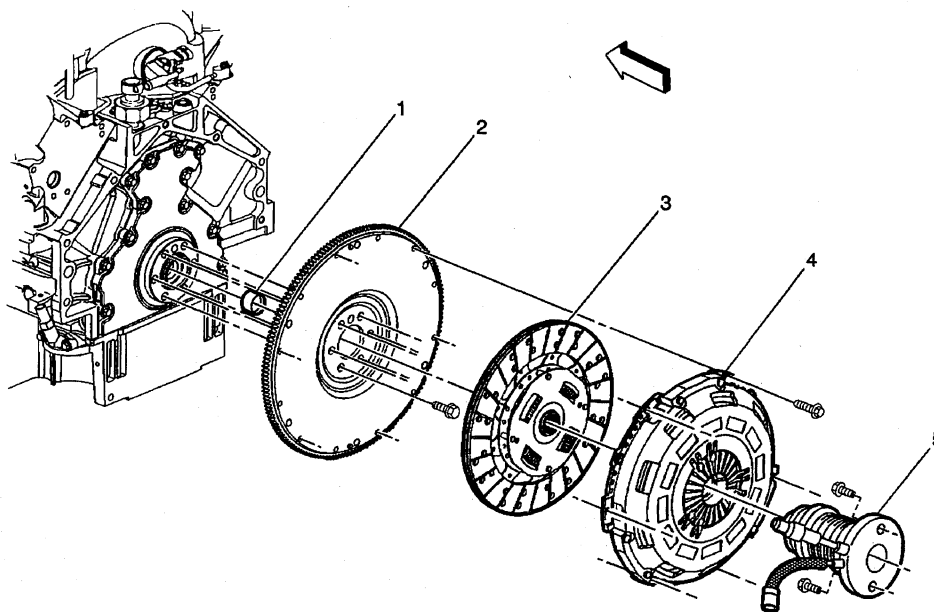
Once the skip shift solenoid is enabled the system will not be re-enabled until the vehicle speed returns to 0 km/h (0 mph) and the conditions for enabling skip shift solenoid are met.

Clutch

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Bolt - Bell Housing Mounting	54 N·m	40 lb ft
Bolt - Clutch Concentric Actuator Cylinder	20 N·m	15 lb ft
Bolt - Clutch Master Cylinder	20 N·m	15 lb ft
Bolt - Clutch Pedal Assembly	20 N·m	15 lb ft
Bolt - Clutch Pressure Plate	28 N·m	21 lb ft
Bolt - Clutch Pressure Plate - Fourth Increment	70 N·m	52 lb ft
Bolt/Stud - Clutch Housing	50 N·m	37 lb ft
Nut	9 N·m	80 lb in
Nut - Master Cylinder Assembly Mounting	36 N·m	27 lb ft

Hydraulic Clutch System Description and Operation



- (1) Clutch Pilot Bearing
- (2) Engine Flywheel
- (3) Clutch Driven Plate
- (4) Clutch Pressure Plate
- (5) Clutch Actuator Cylinder

The following are the principal components of the clutch system:

- The driving members; attached to the engine and turning with the engine.
- The driven member; attached to the driveline and transmission and turning with the driveline and transmission.
- The operating members; including the spring, the clutch hydraulic system, and the clutch pedal linkages, required to apply and release the pressure, which holds the driving and driven members in contact with each other.

Clutch Driving Members

The clutch driving members consist of two, flat surfaced, iron plates, machined to a smooth finish. One of these surfaces is the rear face of the engine flywheel and the other is a comparatively heavy flat ring, with one side machined, known as the clutch pressure plate.

Clutch Driven Members

The driven member (clutch disc) has a splined hub that freely slides lengthwise along the splines of the input shaft, which also drives the shaft through these same splines. Suitable friction facings are attached to each side of the plate by rivets.

In order to make the clutch engagement as smooth as possible and eliminate chatter; the steel segments driving the splined hub are slightly waved, which causes the contact pressure on the facings to rise gradually as the waved springs flatten out.

Clutch Operating Members

The driving member and the driven member are held in contact by spring pressure. This pressure is exerted by a one-piece conical or diaphragm spring.

A diaphragm spring is a conical piece of spring steel that has been specially stamped to give it greater flexibility. The diaphragm is positioned between the cover and the pressure plate so that the diaphragm spring is nearly flat when the clutch is in the engaged position. The action of this type of spring is similar to that of an ordinary oil can.

The pressure of the inner rim of the spring on the pressure plate decreases as the flat position is passed. The inner rim of the diaphragm bears on the pressure plate and is pivoted on a ring on the outer edge of the pressure plate. The application of a pulling load on the inner section of the pressure plate will cause the inner rim to move away from the flywheel and allow the pressure plate to move away from the clutch disc, thereby releasing or disengaging the clutch. When the pressure is released from the inner section, the OIL CAN action of the diaphragm causes the inner section to move in, and the movement of the inner rim forces the pressure plate against the clutch disc, thus engaging the clutch.

The clutch release bearing is moved by the actuator assembly to move the release levers which move the pressure plate to the rear, thus separating the clutch disc from the flywheel when the clutch pedal is depressed by the driver. A piston return spring in the actuator cylinder preloads the clutch linkage and assures a small load on the release bearing with the actuator assembly at all times. As the clutch disc wears, the diaphragm spring fingers move forward forcing the release bearing, actuator assembly, and pushrod to move. This movement forces the actuator cylinder piston to move forward in its bore, consuming hydraulic fluid from the master cylinder reservoir, thereby providing the SELF-ADJUSTING feature of the hydraulic clutch linkage system.

Hydraulic Clutch Description

The clutch hydraulic system consists of a master cylinder and an actuator cylinder. When pressure is applied to the clutch pedal (pedal depressed), the pushrod contacts the plunger and pushes it down the bore of the master cylinder. In the first 0.8 mm (0.031 in) of movement, the recuperation seal closes the port to the fluid reservoir tank, and as the plunger continues to move down the bore of the cylinder, the fluid is forced through the outlet line to the actuator cylinder mounted to the driveline support assembly. As fluid is pushed down the pipe from the master cylinder, this in turn forces the piston in the actuator cylinder outward. As the actuator cylinder piston moves forward, it forces the release bearing to disengage the clutch pressure plate from the clutch disc. On the return stroke (pedal released), the

plunger moves back as a result of the return pressure of the clutch. Fluid returns to the master cylinder and the final movement of the plunger opens the port to the fluid reservoir, allowing an unrestricted flow of fluid between system and reservoir.

Automatic Transmission - 4L65-E

Transmission General Specifications

Name	Hydra-matic 4L65-E
RPO Codes	M30
Production Location	Toledo, Ohio Romulus, MI Ramos Arizpe, Mexico
Vehicle Platform (Engine/Transmission) Usage	S/T
Transmission Drive	Longitudinally-Mounted Rear Wheel Drive
1st Gear Ratio	3.059:1
2nd Gear Ratio	1.625:1
3rd Gear Ratio	1.000:1
4th Gear Ratio	0.696:1
Reverse	2.294:1
Torque Converter Size (Diameter of Torque Converter Turbine)	245 mm 258 mm 298 mm 300 mm
Pressure Taps	Line Pressure
Transmission Fluid Type	DEXRON® III
Transmission Type: 4	Four Forward Gears
Transmission Type: L	Longitudinal Mount
Transmission Type: 60	Product Series
Transmission Type: E	Electronic Controls
Position Quadrant	P, R, N, , D, 2, 1 P, R, N, , 3, 2, 1
Case Material	Die Cast Aluminum
Transmission Weight Dry (Approximate)	245 mm Converter 65.4 kg (144.30 lbs) 258 mm Converter 79.9 kg (176.6 lbs) 298 mm Converter 70.5 kg (155.70 lbs) 300 mm Converter 86.17 kg (190.5 lbs)
Transmission Weight Wet (Approximate)	245 mm Converter 72.4 kg (159.55 lbs) 258 mm Converter 89.2 kg (197.7 lbs) 298 mm Converter 80.5 kg (176.16 lbs) 300 mm Converter 98.4 kg (218.0 lbs)
Maximum Trailer Towing Capacity	6,130 kg (13,500 lbs)
Maximum Gross Vehicle Weight (GVW)	3,900 kg (8,600 lbs)

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Accumulator Cover to Case Bolt	8.0-14.0 N·m	6-10 lb ft
Case Extension to Case Bolt	42.0-48.0 N·m	31-35 lb ft
Case Extension to Case Bolt (4WD Shipping)	11.2-22.6 N·m	8.3-16.7 lb ft
Converter Cover Bolt	10 N·m	89 lb in
Converter Housing to Case Screw	65.0-75.0 N·m	48-55 lb ft
Cooler Pipe Connector	35.0-41.0 N·m	26-30 lb ft
Detent Spring to Valve Body Bolt	20.0-27.0 N·m	15-20 lb ft
Floorshift Control Bolt	10 N·m	89 lb in
Flywheel to Torque Converter Bolt	63 N·m	46 lb ft
Forward Accumulator Cover to Valve Body Bolt	8.0-14.0 N·m	6-10 lb ft
Heat Shield to Transmission Bolt	17 N·m	13 lb ft
Line Pressure Plug	8.0-14.0 N·m	6-10 lb ft
Manual Shaft to Inside Detent Lever Nut	27.0-34.0 N·m	20-25 lb ft
Negative Battery Cable Bolt	15 N·m	11 lb ft
Oil Level Indicator Bolt	47 N·m	35 lb ft
Oil Pan to Transmission Case Bolt	11 N·m	97 lb in
Oil Passage Cover to Case Bolt	8-14.0 N·m	6-10 lb ft
Park Brake Bracket to Case Bolt	27.0-34.0 N·m	20-25 lb ft
Park/Neutral Position Switch Screw	3 N·m	27 lb in
Plate to Case Bolt (Shipping)	27.0-34.0 N·m	20-25 lb ft
Plate to Converter Bolt (Shipping)	27.0-34.0 N·m	20-25 lb ft
Plug Assembly, Automatic Transmission Oil Pan (C/K)	30-40 N·m	22.1-29.5 lb ft
Plug Assembly, Automatic Transmission Oil Pan (Y)	28-32 N·m	20.7-23.6 lb ft
Pressure Control Solenoid Bracket to Valve Body Bolt	8.0-14.0 N·m	6-10 lb ft
Pump Assembly to Case Bolt	26.0-32.0 N·m	19-24 lb ft
Pump Cover to Pump Body Bolt	20.0-27.0 N·m	15-20 lb ft
Shift Cable Grommet Screw	1.7 N·m	15 lb in
Shift Control Cable Attachment	20 N·m	15 lb ft
Speed Sensor Retainer Bolt	10.5-13.5 N·m	7.7-10 lb ft
Stud, Automatic Transmission Case Extension (Y-car)	18.0-22.0 N·m	13-16 lb ft
TCC Solenoid Assembly to Case Bolt	8.0-14.0 N·m	6-10 lb ft
Trans Mount to Transmission Bolt	25 N·m	18 lb ft
Transmission Fluid Pressure Manual Valve Position Switch to Valve Body Bolt	8.0-14.0 N·m	6-10 lb ft
Transmission Oil Cooler Pipe Fitting	35.0-41.0 N·m	26-30 lb ft
Transmission Oil Pan to Case Bolt	9.5-13.8 N·m	7-10 lb ft
Transmission to Engine Bolt	47 N·m	35 lb ft
Valve Body to Case Bolt	8.0-14.0 N·m	6-10 lb ft

Fluid Capacity Specifications

Application	Specification	
	Metric	English
Pan Removal	4.7 L	5 qts
Overhaul	10.6 L	11 qts
245 mm Torque Converter Approximate Fluid Capacity Dry Fill	8.3 L	8.8 qts
258 mm Torque Converter Approximate Fluid Capacity Dry Fill	8.8 L	9.3 qts
298 mm Torque Converter Approximate Fluid Capacity Dry Fill	11.25 L	11.9 qts
300 mm Torque Converter Approximate Fluid Capacity Dry Fill	11.50 L	12.1 qts

Transmission Component and System Description

The 4L60E transmission consists primarily of the following components:

- Torque converter assembly
- Servo assembly and 2-4 band assembly
- Reverse input clutch and housing
- Overrun clutch
- Forward clutch
- 3-4 clutch
- Forward sprag clutch assembly
- Lo and reverse roller clutch assembly
- Lo and reverse clutch assembly
- Two planetary gear sets: Input and Reaction
- Oil pump assembly
- Control valve body assembly

The electrical components of the 4L60-E are as follows:

- 1-2 and 2-3 shift solenoid valves
- 3-2 shift solenoid valve assembly
- Transmission pressure control (PC) solenoid
- Torque converter clutch (TCC) solenoid valve
- TCC pulse width modulation (PWM) solenoid valve
- Automatic transmission fluid pressure (TFP) manual valve position switch
- Automatic transmission fluid temperature (TFT) sensor
- Vehicle speed sensor assembly

Adapt Function

Transmission Adapt Function

The 4L60-E transmission uses a line pressure control system, which has the ability to continuously adapt the system's line pressure. This compensates for normal wear of the following parts:

- The clutch fiber plates
- The seals
- The springs

The PCM maintains the Upshift Adapt parameters for the transmission. The PCM monitors the AT ISS sensor and the AT OSS during commanded shifts in order to determine if a shift is occurring too fast or too slow. The PCM adjusts the signal from the transmission pressure control solenoid in order to maintain a set shift feel.

Transmission adapts must be reset whenever the transmission is overhauled or replaced.

Automatic Transmission Shift Lock Control Description

The automatic transmission shift lock control is a safety device that prevents an inadvertent shift out of PARK when the ignition is ON. The driver must press the brake pedal before moving the shift lever out of the PARK position. The system consists of the following components:

- The automatic transmission shift lock control solenoid.
- The automatic transmission shift lock control switch.
- The park/neutral position switch.

With the ignition in the ON position battery positive voltage is supplied to the park/neutral position switch. With the transmission in the PARK position the contacts in the park/neutral position switch are closed. This allows current to flow through the switch to the automatic transmission shift lock control switch. The circuit continues through the normally-closed switch to the automatic transmission shift lock control solenoid. The automatic transmission shift lock control solenoid is permanently grounded. This energizes

the automatic transmission shift lock control solenoid, locking the shift linkage in the PARK position. When the driver presses the brake pedal the contacts in the automatic transmission shift lock control switch open, causing the automatic transmission shift lock control solenoid to release. This allows the shift lever to move from the PARK position.

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
AD	Automatic Disconnect
A/D	Analog to Digital
ADL	Automatic Door Lock
A/F	Air/Fuel Ratio
AH	Active Handling
AIR	Secondary Air Injection
ALC	Automatic Level Control, Automatic Lamp Control
AM/FM	Amplitude Modulation/Frequency Modulation
Ant	Antenna
AP	Accelerator Pedal
APCM	Accessory Power Control Module
API	American Petroleum Institute
APP	Accelerator Pedal Position
APT	Adjustable Part Throttle
ASM	Assembly, Accelerator and Servo Control Module
ASR	Acceleration Slip Regulation
A/T	Automatic Transmission/Transaxle
ATC	Automatic Transfer Case, Automatic Temperature Control
ATDC	After Top Dead Center
ATSLC	Automatic Transmission Shift Lock Control
Auto	Automatic
avg	Average
A4WD	Automatic Four-Wheel Drive
AWG	American Wire Gage
B	
B+	Battery Positive Voltage
BARO	Barometric Pressure
BATT	Battery
BBV	Brake Booster Vacuum
BCA	Bias Control Assembly
BCM	Body Control Module
BHP	Brake Horsepower
BLK	Black
BLU	Blue
BP	Back Pressure
BPCM	Battery Pack Control Module
BPMV	Brake Pressure Modulator Valve
BPP	Brake Pedal Position
BRN	Brown

BTDC	Before Top Dead Center
BTM	Battery Thermal Module
BTSI	Brake Transmission Shift Interlock
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	Coast Clutch
cm ³	Cubic Centimeters
CCM	Convenience Charge Module, Chassis 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
CEX	Cabin Exchanger
cfm	Cubic Feet per Minute
cg	Center of Gravity
CID	Cubic Inch Displacement
CKP	Crankshaft Position
CKT	Circuit
C/Ltr	Cigar Lighter
CL	Closed Loop
CLS	Coolant Level Switch
CMC	Compressor Motor Controller
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
CSFI	Central Sequential Fuel Injection
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)
D	
DAB	Delayed Accessory Bus
dB	Decibels
dBA	Decibels on A-weighted Scale
DC	Direct Current, Duty Cycle
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
DIM	Dash Integration Module
DK	Dark
DLC	Data Link Connector
DMCM	Drive Motor Control Module
DMM	Digital Multimeter
DMSDS	Drive Motor Speed and Direction Sensor
DMU	Drive Motor Unit
DOHC	Dual Overhead Camshafts
DR, Drvr	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, Engine Control
ECC	Electronic Climate Control
ECI	Extended Compressor at Idle
ECL	Engine Coolant Level
ECM	Engine Control Module, Electronic 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
EHPS	Electro-Hydraulic Power Steering
EI	Electronic Ignition
ELAP	Elapsed
ELC	Electronic Level Control
E/M	English/Metric
EMF	Electromotive Force
EMI	Electromagnetic Interference
Eng	Engine
EOP	Engine Oil Pressure
EOT	Engine Oil Temperature

EPA	Environmental Protection Agency
EPR	Exhaust Pressure Regulator
EPROM	Erasable Programmable Read Only Memory
ESB	Expansion Spring Brake
ESC	Electronic Suspension Control
ESD	Electrostatic Discharge
ESN	Electronic Serial Number
ETC	Electronic Throttle Control, Electronic Temperature Control, Electronic Timing Control
ETCC	Electronic Touch Climate Control
ETR	Electronically Tuned Receiver
ETS	Enhanced Traction System
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
FEX	Front Exchanger
FF	Flexible Fuel
FFH	Fuel-Fired Heater
FI	Fuel Injection
FMVSS	Federal U.S. Motor Vehicle Safety Standards
FP	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, Forward
G	
g	Grams, Gravitational Acceleration
GA	Gage, Gauge
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

H	
H	Hydrogen
H ₂ O	Water
Harn	Harness
HC	Hydrocarbons
H/CMPR	High Compression
HD	Heavy Duty
HDC	Heavy Duty Cooling
hex	Hexagon, Hexadecimal
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
HPVS	Heat Pump Ventilation System
Htd	Heated
HTR	Heater
HUD	Head-up Display
HVAC	Heater-Ventilation-Air Conditioning
HVACM	Heater-Vent-Air Conditioning Module
HVIL	High Voltage Interlock Loop
HVM	Heater Vent Module
Hz	Hertz
I	
IAC	Idle Air Control
IAT	Intake Air Temperature
IC	Integrated Circuit, Ignition Control
ICCS	Integrated Chassis Control System
ICM	Ignition Control Module
ID	Identification, Inside Diameter
IDI	Integrated Direct Ignition
IGBT	Insulated Gate Bi-Polar Transistor
ign	Ignition
ILC	Idle Load Compensator
in	Inch/Inches
INJ	Injection
inst	Instantaneous, Instant
IP	Instrument Panel
IPC	Instrument Panel Cluster
IPM	Instrument Panel Module
I/PEC	Instrument Panel Electrical Center
ISC	Idle Speed Control
ISO	International Standards Organization
ISS	Input Speed Shaft, Input Shaft Speed
K	
KAM	Keep Alive Memory
KDD	Keyboard Display Driver
kg	Kilogram

kHz	Kilohertz
km	Kilometer
km/h	Kilometers per Hour
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
LDM	Lamp Driver Module
LED	Light Emitting Diode
LEV	Low Emissions Vehicle
LF	Left Front
lm	Lumens
LR	Left Rear
LT	Left
LT	Light
LT	Long Term
LTPI	Low Tire Pressure Indicator
LTPWS	Low Tire Pressure Warning System
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
MIN	Mobile Identification Number
mL	Milliliter
mm	Millimeter
mpg	Miles per Gallon
mph	Miles per Hour
ms	Millisecond
MST	Manifold Surface Temperature
MSVA	Magnetic Steering Variable Assist, Magnasteer®
M/T	Manual Transmission/Transaxle
MV	Megavolt

mV	Millivolt
N	
NAES	North American Export Sales
NC	Normally Closed
NEG	Negative
Neu	Neutral
NI	Neutral Idle
NiMH	Nickel Metal Hydride
NLGI	National Lubricating Grease Institute
N·m	Newton-meter Torque
NO	Normally Open
NOx	Oxides of Nitrogen
NPTC	National Pipe Thread Coarse
NPTF	National Pipe Thread Fine
NOVRAM	Non-Volatile Random Access Memory
O	
O ₂	Oxygen
O ₂ S	Oxygen Sensor
OBD	On-Board Diagnostics
OBD II	On-Board Diagnostics Second Generation
OC	Oxidation Converter Catalytic
OCS	Opportunity Charge Station
OD	Outside Diameter
ODM	Output Drive Module
ODO	Odometer
OE	Original Equipment
OEM	Original Equipment Manufacturer
OHC	Overhead Camshaft
ohms	Ohm
OL	Open Loop, Out of Limits
ORC	Oxidation Reduction Converter Catalytic
ORN	Orange
ORVR	On-Board Refueling Vapor Recovery
OSS	Output Shaft Speed
oz	Ounce(s)
P	
PAG	Polyalkylene Glycol
PAIR	Pulsed Secondary Air Injection
PASS, PSGR	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
PEB	Power Electronics Bay
PID	Parameter Identification
PIM	Power Inverter Module
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, Position
POT	Potentiometer Variable Resistor
PPL	Purple
ppm	Parts per Million
PROM	Programmable Read Only Memory
P/S, PS	Power Steering
PSCM	Power Steering Control Module, Passenger Seat Control Module
PSD	Power Sliding Door
PSP	Power Steering Pressure
psi	Pounds per Square Inch
psia	Pounds per Square Inch Absolute
psig	Pounds per Square Inch Gauge
pt	Pint
PTC	Positive Temperature Coefficient
PWM	Pulse Width Modulated
Q	
QDM	Quad Driver Module
qt	Quart(s)
R	
R-12	Refrigerant-12
R-134a	Refrigerant-134a
RAM	Random Access Memory, Non-permanent memory device, 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
REX	Rear Exchanger
RIM	Rear Integration Module
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 device, memory contents are retained when power is removed.
RPM	Revolutions per Minute Engine Speed
RPO	Regular Production Option
RR	Right Rear
RSS	Road Sensing Suspension
RTD	Real Time Damping
RT	Right

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
SIAB	Side Impact Air Bag
SIR	Supplemental Inflatable Restraint
SLA	Short/Long Arm Suspension
sol	Solenoid
SO2	Sulfur Dioxide
SP	Splice Pack
S/P	Series/Parallel
SPO	Service Parts Operations
SPS	Service Programming System, Speed Signal
sq ft, ft ²	Square Foot/Feet
sq in, in ²	Square Inch/Inches
SRC	Service Ride Control
SRI	Service Reminder Indicator
SRS	Supplemental Restraint System
SS	Shift Solenoid
ST	Scan Tool
STID	Station Identification Station ID
S4WD	Selectable Four-Wheel Drive
Sw	Switch
SWPS	Steering Wheel Position Sensor
syn	Synchronizer
T	
TAC	Throttle Actuator Control
Tach	Tachometer
TAP	Transmission Adaptive Pressure, Throttle Adaptive Pressure
TBI	Throttle Body Fuel Injection
TC	Turbocharger, Transmission Control
TCC	Torque Converter Clutch
TCS	Traction Control System
TDC	Top Dead Center
TEMP	Temperature
Term	Terminal
TFP	Transmission Fluid Pressure
TFT	Transmission Fluid Temperature
THM	Turbo Hydro-Matic
TIM	Tire Inflation Monitoring, Tire Inflation Module
TOC	Transmission Oil Cooler

TP	Throttle Position
TPA	Terminal Positive Assurance
TPM	Tire Pressure Monitoring, Tire Pressure Monitor
TR	Transmission Range
TRANS	Transmission/Transaxle
TT	Tell Tail Warning Lamp
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 Receiver Transmitter
U/H	Underhood
U/HEC	Underhood Electrical Center
U-joint	Universal Joint
UTD	Universal Theft Deterrent
UV	Ultraviolet
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
VCIM	Vehicle Communication Interface Mode
VCM	Vehicle Control Module
V dif	Voltage Difference
VDOT	Variable Displacement Orifice Tube
VDV	Vacuum Delay Valve
vel	Velocity
VES	Variable Effort Steering
VF	Vacuum Fluorescent
VIO	Violet
VIN	Vehicle Identification Number
VLR	Voltage Loop Reserve
VMV	Vacuum Modulator Valve
VR	Voltage Regulator
V ref	Voltage Reference
VSES	Vehicle Stability Enhancement System
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

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Conversion - English/Metric

English	Multiply/ Divide by	Metric
In order to calculate English measurement, divide by the number in the center column.		
In order to calculate metric measurement, multiply by the number in the center column.		
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	16,387.00	cu mm
	16.387	cu cm
	0.0164	L
qt	0.9464	
gal	3.7854	
cu yd	0.764	cu m
Mass		
lb	0.4536	kg
ton	907.18	
	0.907	tonne (t)
Force		
Kg F	9.807	newtons (N)
oz F	0.278	
lb F	4.448	
Acceleration		
ft/s²	0.3048	m/s²
in/s²	0.0254	
Torque		
Lb in	0.11298	N·m
lb ft	1.3558	
Power		
hp	0.745	kW
Pressure (Stress)		
inches of H2O	0.2488	kPa
lb/sq in	6.895	
Energy (Work)		
Btu	1055	J (J= one Ws)
lb ft	1.3558	
kW hour	3,600,000.00	
Light		
Foot Candle	10.764	lm/m²

Velocity		
mph	1.6093	km/h
Temperature		
(°F - 32) 5/9	=	°C
°F	=	(9/5 °C + 32)
Fuel Performance		
235.215/mpg	=	100 km/L

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
39/64	0.609375	15.47812
5/8	0.625	15.875
41/64	0.640625	16.27187

Fraction (in)	Decimal (in)	Metric (mm)
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

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Fasteners

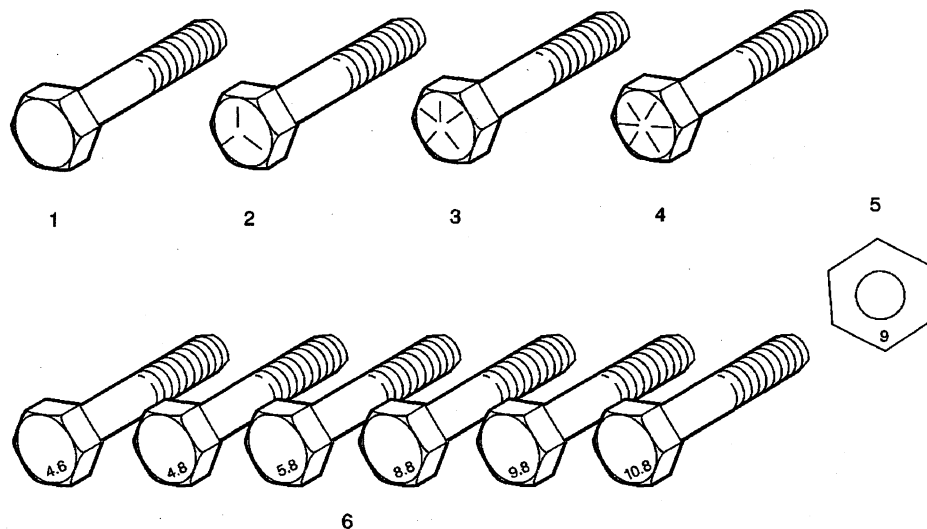
Metric Fasteners

This vehicle provides fastener dimensions using the metric system. Most metric fasteners are approximate in diameter to equivalent English fasteners. Make replacements using fasteners 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 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



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 in order to identify the strength class. The number of lines on the head of the bolt is 2 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 are designed to metric standards of countries other than the United States, and may exhibit the following:

- Lower 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 common sizes and pitches, except for special applications:

- M6.0 X 1
- M8 X 1.25
- M10 X 1.5
- M12 X 1.75
- M14 X 2.00
- M16 X 2.00

Prevailing Torque Fasteners

Prevailing torque fasteners create a thread interface between the fastener and the fastener counterpart in order to prevent the fastener from loosening.

All Metal Prevailing Torque Fasteners

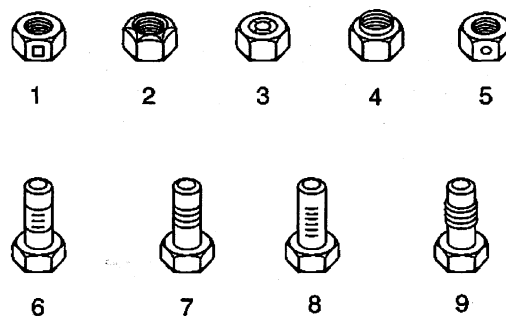
These fasteners accomplish the thread interface by a designed distortion or deformation in the fastener.

Nylon Interface Prevailing Torque Fasteners

These fasteners accomplish the thread interface by the presence of a nylon material on the fastener threads.

Adhesive Coated Fasteners

These fasteners accomplish the thread interface by the presence of a thread-locking compound on the fastener threads. Refer to the appropriate repair procedure in order to determine if the fastener may be reused and the applicable thread-locking compound to apply to the fastener.



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 fastener may be reused **ONLY** if:

- The fastener and the fastener counterpart are clean and not damaged
- There is no rust on the fastener
- The fastener develops the specified minimum torque against its counterpart prior to the fastener seating

Metric Prevailing Torque Fastener Minimum Torque Development

Application	Specification	
	Metric	English
All Metal Prevailing Torque Fasteners		
6 mm	0.4 N·m	4 lb in
8 mm	0.8 N·m	7 lb in
10 mm	1.4 N·m	12 lb in
12 mm	2.1 N·m	19 lb in
14 mm	3 N·m	27 lb in
16 mm	4.2 N·m	37 lb in
20 mm	7 N·m	62 lb in
24 mm	10.5 N·m	93 lb in
Nylon Interface Prevailing Torque Fasteners		
6 mm	0.3 N·m	3 lb in
8 mm	0.6 N·m	5 lb in
10 mm	1.1 N·m	10 lb in
12 mm	1.5 N·m	13 lb in
14 mm	2.3 N·m	20 lb in
16 mm	3.4 N·m	30 lb in
20 mm	5.5 N·m	49 lb in
24 mm	8.5 N·m	75 lb in

English Prevailing Torque Fastener Minimum Torque Development

Application	Specification	
	Metric	English
All Metal Prevailing Torque Fasteners		
1/4 in	0.5 N·m	4.5 lb in
5/16 in	0.8 N·m	7.5 lb in
3/8 in	1.3 N·m	11.5 lb in
7/16 in	1.8 N·m	16 lb in
1/2 in	2.3 N·m	20 lb in
9/16 in	3.2 N·m	28 lb in
5/8 in	4 N·m	36 lb in
3/4 in	7 N·m	54 lb in
Nylon Interface Prevailing Torque Fasteners		
1/4 in	0.3 N·m	3 lb in
5/16 in	0.6 N·m	5 lb in
3/8 in	1 N·m	9 lb in
7/16 in	1.3 N·m	12 lb in
1/2 in	1.8 N·m	16 lb in
9/16 in	2.5 N·m	22 lb in
5/8 in	3.4 N·m	30 lb in
3/4 in	5 N·m	45 lb in

S = Standard Equipment A = Available -- (dashes) = Not Available

■ = Included in Equipment Group □ = Included in Equipment Group but upgradeable

*Indicates availability of feature on multiple models. For example, it indicates feature availability on 2WD and 4WD Models or Rear wheel drive and All-wheel drive Models.

Codes listed in the shaded column titled Ref. Only RPO Code are for internal use only and should not be ordered.

Free Flow RPO Code	Ref. Only RPO Code	Description 1 - Equipment groups 1SA and 1SB available on the CS15703 Model.	CS15703	
			1SA ¹	1SB ¹
	AJ7	Air bags , frontal and side impact, driver and front passenger	S	S
	CJ3	Air conditioning , manual	S	S
	K34	Cruise control , electronic with set and resume speed, includes telltale in instrument panel cluster	S	S
	C49	Defogger , rear-window, electric	S	S
	U68	Driver Information Center , includes trip computer (personal and business trip odometer, fuel data, estimated range, average fuel economy, instantaneous fuel economy, trip timers and personalization features) and message center (monitors numerous systems including low battery, transmission fluid life, oil level, oil life, washer fluid and door ajar)	S	S
	B32	Floormats carpeted, front, removable 1 - Not available with (BKF) Customized Floormats	*S ¹	S ¹
	AU0	Keyless entry , remote, includes power programmable door locks, panic button and rear cargo area cover release	S	S
		Mirror , inside rearview, manual day/night, includes dual reading lights	S	--
	A95	Seats , front leather seating surfaces reclining buckets, 6-way power driver seat, 2-way power passenger seat, power lumbar and manual recline	S	S
	US8	NEW! Sound system , ETR AM/FM stereo with CD and MP3 player, includes Radio Data System (RDS), seek-and-scan, digital clock, auto-tone control, automatic volume, and TheftLock	S	--
	STW	Steering wheel , leather-wrapped rim, includes driver information and redundant audio controls	S	S
	UA6	Theft-deterrent system , PASSlock	S	S
	A31	Windows , power, includes driver express-down	S	S
	U73	Antenna , built into windshield	S	S
	T61	Daytime running lamps	S	S
	T96	Fog lamps , front, halogen	S	S
	AJ1	Glass , Solar-Ray deep tinted rear window	S	S
		Mirrors , outside rearview, power, heated, color-keyed	S	--
		Tire sealant and inflator kit	S	S
	QMX	Tires , front P255/45R19, touring, blackwall, rear P295/40R20, touring, blackwall	S	S
	PZ7	Wheels , front 19" x 8" (40.6 cm x 17.8 cm), rear 20" x 10" (50.8 cm x 25.4 cm) painted aluminum, (96P) Ultra Silver finish	S	S
	KG3	Alternator , 145 amps	S	S

Free Flow RPO Code	Ref. Only RPO Code	Description 1 - Equipment groups 1SA and 1SB available on the CS15703 Model.	CS15703	
			1SA ¹	1SB ¹
	JF8	Brakes , 4-wheel antilock, 4-wheel disc	S	S
		Differential , Zexel-torsen, limited slip, 8.6" rear (automatic transmission only) 1 - Included and only available with (M32) Transmission, 4-speed automatic.	S ¹	S ¹
	LS2	NEW! Engine , 6.0L V8 aluminum SFI (390 HP [290.8 KW] @ 5400 rpm, 405 lb.-ft. [546.8 N-m] @ 4400 rpm)	S	S
	EB6	GVWR , 6050 lbs. (2744 kg)	S	S
	GT4	Rear axle , 3.73 ratio	S	S
	ZQ8	Suspension Package , Sport	S	S
	N40	Steering , power	S	S
	Z82	Trailer equipment , heavy-duty, includes trailering hitch cross member and 7-wire harness	S	S
	NW7	Traction assist system , electronic, switch-operated 1 - Not available with (M10) Transmission, 6-speed manual, Tremec.	S ¹	S ¹
	M32	NEW! Transmission , 4-speed automatic, heavy-duty, electronically controlled with overdrive 1 - Includes Differential, Zexel-torsen, limited-slip, 8.6" rear.	S ¹	S ¹

S = Standard Equipment A = Available -- (dashes) = Not Available

■ = Included in Equipment Group □ = Included in Equipment Group but upgradeable

No deletions allowed to Equipment Groups. Additional options may be added; check ordering information section for compatibility.

*Indicates availability of feature on multiple models. For example, it indicates feature availability on 2WD and 4WD Models or Rear wheel drive and All-wheel drive Models.

Codes listed in the shaded column titled Ref. Only RPO Code are for internal use only and should not be ordered.

Free Flow RPO Code	Ref. Only RPO Code	Description 1 - Equipment groups 1SA and 1SB available on the CS15703 Model.	CS15703	
			1SA ¹	1SB ¹
	AAB	Driver Convenience Package , includes heated driver and front passenger seats and driver's memory seat	--	■
	DJ2	Mirror , inside rearview, auto-dimming, includes HomeLink and dual reading lights, and halo lighting	--	■
	UC6	Sound system , ETR AM/FM stereo with 6-disc CD changer, includes seek-and-scan, digital clock, auto-tone control, automatic volume, TheftLock and Radio Data System (RDS)	--	■
	UQA	Sound system feature , Bose premium speaker system	--	■
		Cargo area hard liner , two-piece (one cargo area, one tailgate), plastic 1 - Upgradeable to (ERK) Cargo Compartment Trim	□ ¹	□ ¹
	DR2	Mirrors , outside rearview, power, heated, color-keyed, with driver side auto-dimming feature	--	■
	BCP	Engine cover insert , Satin Chrome appearance 1 - (BCP) Engine cover insert will be body-color if (VXK) Regular production accessory, Body-Color Accent Package or (VXM) Regular production accessory, Body-Color Accent Package with Running Boards is ordered.	--	■ ¹

S = Standard Equipment A = Available -- (dashes) = Not Available

■ = Included in Equipment Group □ = Included in Equipment Group but upgradeable

No deletions allowed to Equipment Groups. Additional options may be added; check ordering information section for compatibility.

*Indicates availability of feature on multiple models. For example, it indicates feature availability on 2WD and 4WD Models or Rear wheel drive and All-wheel drive Models.

Codes listed in the shaded column titled Ref. Only RPO Code are for internal use only and should not be ordered.

Free Flow RPO Code	Ref. Only RPO Code	Description 1 - Equipment groups 1SA and 1SB available on the CS15703 Model.	CS15703	
			1SA ¹	1SB ¹
	AAB	Driver Convenience Package , includes heated driver and front passenger seats and driver's memory seat	--	■
	DJ2	Mirror , inside rearview, auto-dimming, includes HomeLink and dual reading lights, and halo lighting	--	■
	UC6	Sound system , ETR AM/FM stereo with 6-disc CD changer, includes seek-and-scan, digital clock, auto-tone control, automatic volume, TheftLock and Radio Data System (RDS)	--	■
	UQA	Sound system feature , Bose premium speaker system	--	■
		Cargo area hard liner , two-piece (one cargo area, one tailgate), plastic 1 - Upgradeable to (ERK) Cargo Compartment Trim	□ ¹	□ ¹
	DR2	Mirrors , outside rearview, power, heated, color-keyed, with driver side auto-dimming feature	--	■
	BCP	Engine cover insert , Satin Chrome appearance 1 - (BCP) Engine cover insert will be body-color if (VXK) Regular production accessory, Body-Color Accent Package or (VXM) Regular production accessory, Body-Color Accent Package with Running Boards is ordered.	--	■ ¹
ADDITIONAL OPTIONS				
Free Flow RPO Code	Ref. Only RPO Code	Description 1 - Equipment groups 1SA and 1SB available on the CS15703 Model.	CS15703	
			1SA ¹	1SB ¹
ERG		NEW! Regular production accessory, Auxiliary Gauge Package , with Satin Chrome appearance, includes 3 gauges; voltmeter, delivered torque and outside temperature reading (SPO-supplied, dealer installed) 1 - Not available with (VXK) Regular production accessory, Body-Color Accent Package or (VXM) Regular production accessory, Body-Color Accent Package with Running Boards.	A ¹	A ¹
BKF		Regular production accessory, Customized Floor Mats , includes SSR logo and decorative piping (SPO-supplied, dealer installed) 1 - Replaces (B32) Floormats when ordered	A ¹	A ¹
C44		NEW! Regular production accessory, Cockpit Windbreak (dealer installed)	A	A
ERK		Cargo Compartment Trim , includes compartment trim, cargo cover inner trim, 2 bed track covers and 7 cargo compartment wood strips 1 - Track covers and wood strips are not deleted when (VXK) Regular production accessory, Body-Color Accent Package or (VXM) Regular production accessory, Body-Color Accent Package with Running Boards are ordered.	A ¹	A ¹
VK3		License plate bracket , front (forced on ship to states requiring 2 plates)	A	A

ADDITIONAL OPTIONS				
Free Flow RPO Code	Ref. Only RPO Code	Description 1 - Equipment groups 1SA and 1SB available on the CS15703 Model.	CS15703	
			1SA ¹	1SB ¹
VXK		Regular production accessory, Body-Color Accent Package , includes body-color engine cover insert, body-color bed strips and body-color auxiliary gauge package housing 1 - Requires (ERK) Cargo Compartment Trim. Not available with (VXM) Regular production accessory, Body-Color Accent Package with Running Boards or (ERG) Regular production accessory, Auxiliary Gauge Package. Satin Chrome bed strips will be provided when (41U) Smokin' Asphalt exterior color is ordered.	A ¹	A ¹
VXM		Regular production accessory, Body-Color Accent Package with Running Boards , includes body-color engine cover insert, body-color bed strips, body-color auxiliary gauge package housing and body-color running boards 1 - Requires (ERK) Cargo Compartment Trim. Not available with (VXK) Regular production accessory, Body-Color Accent Package, (ERG) Regular production accessory, Auxiliary Gauge Package or (BVE) Regular production accessory, Integrated Running Boards. Satin Chrome bed strips will be provided when (41U) Smokin' Asphalt exterior color is ordered.	A ¹	A ¹
BVE		Regular production accessory, Integrated Running Boards , Satin Chrome appearance, includes non-slip surface (SPO-supplied, dealer installed) 1 - Not available (VXM) Regular production accessory, Body-Color Accent Package with Running Boards.	A ¹	A ¹
CTD		Regular production accessory, Cargo Netting Package , includes cargo storage netting, telescoping cross bar and 4 tie down rings (SPO-supplied, dealer installed)	A	A
RAE		Regular production accessory, Integrated Side Saddle Storage , (SPO-supplied, dealer installed), 2 covered and lockable hard shell storage boxes that attach to floor and side tracks	A	A
14P		Wheels , front 19" x 8" (40.6 cm x 17.8 cm), rear 20" x 10" (50.8 cm x 25.4 cm), (14P) chrome-plated	--	A
NE1		Emissions , Maine, Massachusetts, New York or Vermont state requirements	A	A
FE9		Emissions , Federal requirements	A	A
YF5		Emissions , California state requirements	A	A
NB8		Emissions override , California, Massachusetts or New York (for vehicles ordered by dealers in states of California, Massachusetts or New York with Federal emissions) 1 - Requires (FE9) Emissions, Federal requirements	A ¹	A ¹
NC7		Emissions override , Federal (for vehicles ordered by dealers in Federal emission states with California, New York, Vermont, Massachusetts or Maine emissions; may also be used by dealers in states of California, New York, Vermont, Massachusetts or Maine to order different state-specific emissions) 1 - Requires (YF5) Emissions, California state requirements or (NE1) Emissions, New York, Vermont, Massachusetts or Maine state requirements	A ¹	A ¹
VR4		Regular production accessory, Towing Package , extension that inserts into vehicle cross member and accepts 1.75" - 2.25" (4.45 cm - 5.72 cm) ball (ball not included) (SPO-supplied; dealer installed)	A	A
M10		NEW! Transmission , 6-speed manual, Tremec 1 - Includes Differential, Eaton, limited-slip, 9.5" rear.	A ¹	A ¹

S = Standard Equipment A = Available – (dashes) = Not Available

■ = Included in Equipment Group □ = Included in Equipment Group but upgradeable

No deletions allowed to Equipment Groups. Additional options may be added; check ordering information section for compatibility.

*Indicates availability of feature on multiple models. For example, it indicates feature availability on 2WD and 4WD Models or Rear wheel drive and All-wheel drive Models.

Codes listed in the shaded column titled Ref. Only RPO Code are for internal use only and should not be ordered.

Free Flow RPO Code	Ref. Only RPO Code	Description 1 - Equipment groups 1SA and 1SB available on the CS15703 Model.	CS15703	
			1SA ¹	1SB ¹
		Cargo area hard liner , two-piece (one cargo area, one tailgate), plastic 1 - Upgradeable to (ERK) Cargo Compartment Trim	□ ¹	□ ¹
	AAB	Driver Convenience Package , includes heated driver and front passenger seats and driver's memory seat		■
	BCP	Engine cover insert , Satin Chrome appearance		■
	DJ2	Mirror , inside rearview		■
	DR2	Mirrors , outside rearview		■
	UC6	Sound system , ETR AM/FM stereo with 6-disc CD changer		■
	UQA	Sound system feature , Bose premium speaker system		■

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*Indicates availability of feature on multiple models. For example, it indicates feature availability on 2WD and 4WD Models or Rear wheel drive and All-wheel drive Models.

Codes listed in the shaded column titled Ref. Only RPO Code are for internal use only and should not be ordered.

Free Flow RPO Code	Ref. Only RPO Code	Description 1 - Equipment groups 1SA and 1SB available on the CS15703 Model.	CS15703	
			1SA ¹	1SB ¹
	AJ7	Air bags , frontal and side impact, driver and front passenger	S	S
	CJ3	Air conditioning , manual	S	S
	K34	Cruise control , electronic with set and resume speed, includes telltale in instrument panel cluster	S	S
	C49	Defogger , rear-window, electric	S	S
	AAB	Driver Convenience Package , includes heated driver and front passenger seats and driver's memory seat	--	■
	U68	Driver Information Center , includes trip computer (personal and business trip odometer, fuel data, estimated range, average fuel economy, instantaneous fuel economy, trip timers and personalization features) and message center (monitors numerous systems including low battery, transmission fluid life, oil level, oil life, washer fluid and door ajar)	S	S
	B32	Floormats carpeted, front, removable 1 - Not available with (BKF) Customized Floormats	S ¹	S ¹
	AU0	Keyless entry , remote, includes power programmable door locks, panic button and rear cargo area cover release	S	S
		Mirror , inside rearview, manual day/night, includes dual reading lights	S	--
	DJ2	Mirror , inside rearview, auto-dimming, includes HomeLink and dual reading lights, and halo lighting	--	■
ERG		NEW! Regular production accessory, Auxiliary Gauge Package , with Satin Chrome appearance, includes 3 gauges; voltmeter, delivered torque and outside temperature reading (SPO-supplied, dealer installed) 1 - Not available with (VXK) Regular production accessory, Body-Color Accent Package or (VXM) Regular production accessory, Body-Color Accent Package with Running Boards.	A ¹	A ¹
BKF		Regular production accessory, Customized Floor Mats , includes SSR logo and decorative piping (SPO-supplied, dealer installed) 1 - Replaces (B32) Floormats when ordered	A ¹	A ¹
C44		NEW! Regular production accessory, Cockpit Windbreak (dealer installed)	A	A
	A95	Seats , front leather seating surfaces reclining buckets, 6-way power driver seat, 2-way power passenger seat, power lumbar and manual recline	S	S
	US8	NEW! Sound system , ETR AM/FM stereo with CD and MP3 player, includes Radio Data System (RDS), seek-and-scan, digital clock, auto-tone control, automatic volume, and TheftLock	S	--
	UC6	Sound system , ETR AM/FM stereo with 6-disc CD changer, includes seek-and-scan, digital clock, auto-tone control, automatic volume, TheftLock and Radio Data System (RDS)	--	■

Free Flow RPO Code	Ref. Only RPO Code	Description 1 - Equipment groups 1SA and 1SB available on the CS15703 Model.	CS15703	
			1SA ¹	1SB ¹
	UQA	Sound system feature , Bose premium speaker system	--	■
	STW	Steering wheel , leather-wrapped rim, includes driver information and redundant audio controls	S	S
	UA6	Theft-deterrent system , PASSlock	S	S
	A31	Windows , power, includes driver express-down	S	S

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Codes listed in the shaded column titled Ref. Only RPO Code are for internal use only and should not be ordered.

Free Flow RPO Code	Ref. Only RPO Code	Description 1 - Equipment groups 1SA and 1SB available on the CS15703 Model.	CS15703	
			1SA ¹	1SB ¹
	U73	Antenna, built into windshield	S	S
		Cargo area hard liner, two-piece (one cargo area, one tailgate), plastic 1 - Upgradeable to (ERK) Cargo Compartment Trim	□ ¹	□ ¹
ERK		Cargo Compartment Trim, includes compartment trim, cargo cover inner trim, 2 bed track covers and 7 cargo compartment wood strips 1 - Track covers and wood strips are not deleted when (VXK) Regular production accessory, Body-Color Accent Package or (VXM) Regular production accessory, Body-Color Accent Package with Running Boards are ordered.	A ¹	A ¹
	T61	Daytime running lamps	S	S
	T96	Fog lamps, front, halogen	S	S
	AJ1	Glass, Solar-Ray deep tinted rear window	S	S
VK3		License plate bracket, front (forced on ship to states requiring 2 plates)	A	A
		Mirrors, outside rearview, power, heated, color-keyed	S	--
	DR2	Mirrors, outside rearview, power, heated, color-keyed, with driver side auto-dimming feature	--	■
VXK		Regular production accessory, Body-Color Accent Package, includes body-color engine cover insert, body-color bed strips and body-color auxiliary gauge package housing 1 - Requires (ERK) Cargo Compartment Trim. Not available with (VXM) Regular production accessory, Body-Color Accent Package with Running Boards or (ERG) Regular production accessory, Auxiliary Gauge Package. Satin Chrome bed strips will be provided when (41U) Smokin' Asphalt exterior color is ordered.	A ¹	A ¹
VXM		Regular production accessory, Body-Color Accent Package with Running Boards, includes body-color engine cover insert, body-color bed strips, body-color auxiliary gauge package housing and body-color running boards 1 - Requires (ERK) Cargo Compartment Trim. Not available with (VXK) Regular production accessory, Body-Color Accent Package, (ERG) Regular production accessory, Auxiliary Gauge Package or (BVE) Regular production accessory, Integrated Running Boards. Satin Chrome bed strips will be provided when (41U) Smokin' Asphalt exterior color is ordered.	A ¹	A ¹
BVE		Regular production accessory, Integrated Running Boards, Satin Chrome appearance, includes non-slip surface (SPO-supplied, dealer installed) 1 - Not available (VXM) Regular production accessory, Body-Color Accent Package with Running Boards.	A ¹	A ¹
CTD		Regular production accessory, Cargo Netting Package, includes cargo storage netting, telescoping cross bar and 4 tie down rings (SPO-supplied, dealer installed)	A	A
RAE		Regular production accessory, Integrated Side Saddle Storage, (SPO-supplied, dealer installed), 2 covered and lockable hard shell storage boxes that attach to floor and side tracks	A	A
		Tire sealant and inflator kit	S	S

Free Flow RPO Code	Ref. Only RPO Code	Description 1 - Equipment groups 1SA and 1SB available on the CS15703 Model.	CS15703	
			1SA ¹	1SB ¹
	QMX	Tires , front P255/45R19, touring, blackwall, rear P295/40R20, touring, blackwall	S	S
	PZ7	Wheels , front 19" x 8" (40.6 cm x 17.8 cm), rear 20" x 10" (50.8 cm x 25.4 cm) painted aluminum, (96P) Ultra Silver finish	S	S
14P		Wheels , front 19" x 8" (40.6 cm x 17.8 cm), rear 20" x 10" (50.8 cm x 25.4 cm), (14P) chrome-plated	—	A

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*Indicates availability of feature on multiple models. For example, it indicates feature availability on 2WD and 4WD Models or Rear wheel drive and All-wheel drive Models.

Codes listed in the shaded column titled Ref. Only RPO Code are for internal use only and should not be ordered.

Free Flow RPO Code	Ref. Only RPO Code	Description 1 - Equipment groups 1SA and 1SB available on the CS15703 Model.	CS15703	
			1SA ¹	1SB ¹
	KG3	Alternator , 145 amps	S	S
	JF8	Brakes , 4-wheel antilock, 4-wheel disc	S	S
		Differential , Zexel-torsen, limited slip, 8.6" rear (automatic transmission only) 1 - Included and only available with (M32) Transmission, 4-speed automatic.	S ¹	S ¹
		Differential , Eaton, limited slip, 9.5" rear (manual transmission only) 1 - Included and only available with (M10) Transmission, 6-speed manual.	A ¹	A ¹
NE1		Emissions , Maine, Massachusetts, New York or Vermont state requirements	A	A
FE9		Emissions , Federal requirements	A	A
YF5		Emissions , California state requirements	A	A
NB8		Emissions override , California, Massachusetts or New York (for vehicles ordered by dealers in states of California, Massachusetts or New York with Federal emissions) 1 - Requires (FE9) Emissions, Federal requirements	A ¹	A ¹
NC7		Emissions override , Federal (for vehicles ordered by dealers in Federal emission states with California, New York, Vermont, Massachusetts or Maine emissions; may also be used by dealers in states of California, New York, Vermont, Massachusetts or Maine to order different state-specific emissions) 1 - Requires (YF5) Emissions, California state requirements or (NE1) Emissions, New York, Vermont, Massachusetts or Maine state requirements	A ¹	A ¹
	LS2	NEW! Engine , 6.0L V8 aluminum SFI (390 HP [290.8 KW] @ 5400 rpm, 405 lb.-ft. [546.8 N-m] @ 4400 rpm)	S	S
	BCP	Engine cover insert , Satin Chrome appearance 1 - (BCP) Engine cover insert will be body-color if (VXK) Regular production accessory, Body-Color Accent Package or (VXM) Regular production accessory, Body-Color Accent Package with Running Boards is ordered.	--	■ ¹
	EB6	GVWR , 6050 lbs. (2744 kg)	S	S
	GT4	Rear axle , 3.73 ratio	S	S
VR4		Regular production accessory, Towing Package , extension that inserts into vehicle cross member and accepts 1.75" - 2.25" (4.45 cm - 5.72 cm) ball (ball not included) (SPO-supplied; dealer installed)	A	A
	ZQ8	Suspension Package , Sport	S	S
	N40	Steering , power	S	S
	Z82	Trailer equipment , heavy-duty, includes trailering hitch cross member and 7-wire harness	S	S
	NW7	Traction assist system , electronic, switch-operated 1 - Not available with (M10) Transmission, 6-speed manual, Tremec.	S ¹	S ¹

Free Flow RPO Code	Ref. Only RPO Code	Description 1 - Equipment groups 1SA and 1SB available on the CS15703 Model.	CS15703	
			1SA ¹	1SB ¹
	M32	NEW! Transmission , 4-speed automatic, heavy-duty, electronically controlled with overdrive 1 - Includes Differential, Zexel-torsen, limited-slip, 8.6" rear.	S ¹	S ¹
M10		NEW! Transmission , 6-speed manual, Tremec 1 - Includes Differential, Eaton, limited-slip, 9.5" rear.	A ¹	A ¹

<p>S = Standard Equipment A = Available – (dashes) = Not Available</p> <p>■ = Included in Equipment Group □ = Included in Equipment Group but upgradeable</p> <p>*Indicates availability of feature on multiple models. For example, it indicates feature availability on 2WD and 4WD Models or Rear wheel drive and All-wheel drive Models.</p>					
		Transmissions		Axles	GVWR lbs. (kg)
Model	Engine	M32 4-Speed Automatic	M10 6-Speed Manual	GT4 3.73	EB6 6050 (2744)
CS15703	LS2 6.0L V8 aluminum SFI	S ¹	A ²	S	S
<p>1 - Includes Differential, Zexel-torsen, limited-slip, 8.6" rear.</p> <p>2 - Includes Differential, Eaton, limited-slip, 9.5" rear.</p>					

S = Standard Equipment A = Available -- (dashes) = Not Available

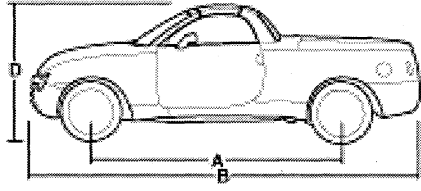
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*Indicates availability of feature on multiple models. For example, it indicates feature availability on 2WD and 4WD Models or Rear wheel drive and All-wheel drive Models.

Decor Level	Seat Type	Seat Code	Seat Trim	Interior
				Ebony
SSR	Front high-back reclining bucket	A95	Ultrasoft Nuance leather seating surfaces	192

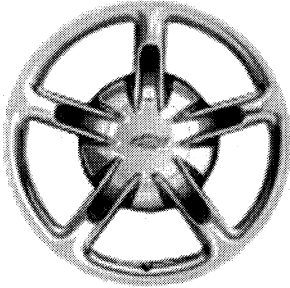
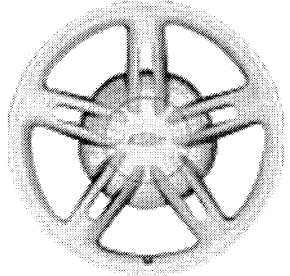
Exterior Solid Paint	Color Code	Touch Up Paint Number	Interior
			Ebony
NEW! Aqua Blur (Metallic) ¹	26U	WA-214M	A
Smokin' Asphalt	41U	WA-8555	A
Ricochet Silver (Metallic)	67U	WA-994L	A
Redline Red	70U	WA-9075	A
Slingshot Yellow ¹	79U	WA-423G	A
1 - Available at extra charge.			


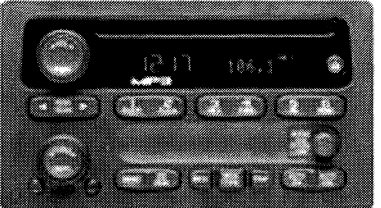
All dimensions in inches (mm) unless otherwise stated.

	Specifications	CS15703
	A Wheelbase	116.00 (2946)
	B Overall length	191.40 (4862)
	Body width	78.60 (1996)
	D Overall height	64.20 (1631)
	Front track width	64.10 (1628)
	Rear track width	64.90 (1648)
	Head room, front	40.00 (1016)
	Shoulder room, front	53.50 (1359)
	Hip room, front	51.30 (1303)
	Leg room, front	42.10 (1069)
	Tailgate width, at opening	38.90 (988)
	Interior width at floor	46.80 (1189)
	Interior width between wheelhousing	42.00 (1067)

Published dimensions indicated are without optional equipment or accessories. Additional accessories or equipment ordered at the customer's request can result in a minor change in these dimensions.

	2WD CS15703
Capacities	
Curb weight, approximate, lbs. (kg)	4760 (2159)
Cargo volume, approximate, cargo box, cu. ft. (liters)	22.5 (637.2)
Fuel capacity, approximate, gallon (liters)	25 (95)

	<p>14P Wheels, front 19" x 8" (40.6 cm x 17.8 cm), rear 20" x 10" (50.8 cm x 25.4 cm), (14P) chrome-plated</p>
	<p>PZ7 Wheels, front 19" x 8" (40.6 cm x 17.8 cm), rear 20" x 10" (50.8 cm x 25.4 cm) painted aluminum, (96P) Ultra Silver finish</p>

	<p>UC6</p> <p>Sound system, ETR AM/FM stereo with 6-disc CD changer, includes seek-and-scan, digital clock, auto-tone control, automatic volume, TheftLock and Radio Data System (RDS)</p>
	<p>US8</p> <p>Sound system, ETR AM/FM stereo with CD and MP3 player, includes Radio Data System (RDS), seek-and-scan, digital clock, auto-tone control, automatic volume, and TheftLock</p>

Maximum trailer ratings are calculated assuming standard equipped vehicle, driver and required trailering equipment. The weight of optional equipment, passengers and cargo will reduce the maximum trailer weight your vehicle can tow. 10 to 15% of the trailer weight is the recommended trailer tongue load.

Automatic Transmission with Ball Hitch		
Model	(LS2) 6.0L V8 aluminum SFI	
	Axle Ratio	Maximum Trailer Weight lbs. (kg)
CS15703	3.73	2500 (1134)

Addition of trailer tongue weight cannot cause vehicle weights to exceed Rear Gross Axle Weight Rating (RGAWR) or Gross Vehicle Weight Rating (GVWR).

