

2001 Chevrolet S10 Pickup
2000-01 ENGINES 2.2L 4-Cylinder

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2.2L 4-Cylinder

ENGINE IDENTIFICATION

VEHICLE IDENTIFICATION NUMBER (VIN)

The VIN is stamped on metal pad located near lower left corner of windshield. The "4" in eighth character of VIN identifies 2.2L 4-cylinder engine.

BROADCAST CODE LABEL & PARTIAL VIN

The Broadcast Code label is located on the valve rocker arm cover. It identifies engine, transaxle, and vehicle relationship. The partial VIN (9 characters) is stamped on flange on left side of cylinder block, above starter.

ADJUSTMENTS

VALVE CLEARANCE ADJUSTMENT

Engine is equipped with non-adjustable hydraulic valve lifters.

TROUBLE SHOOTING

NOTE: To trouble shoot engine mechanical components, see appropriate table in TROUBLE SHOOTING article in GENERAL INFORMATION.

REMOVAL & INSTALLATION

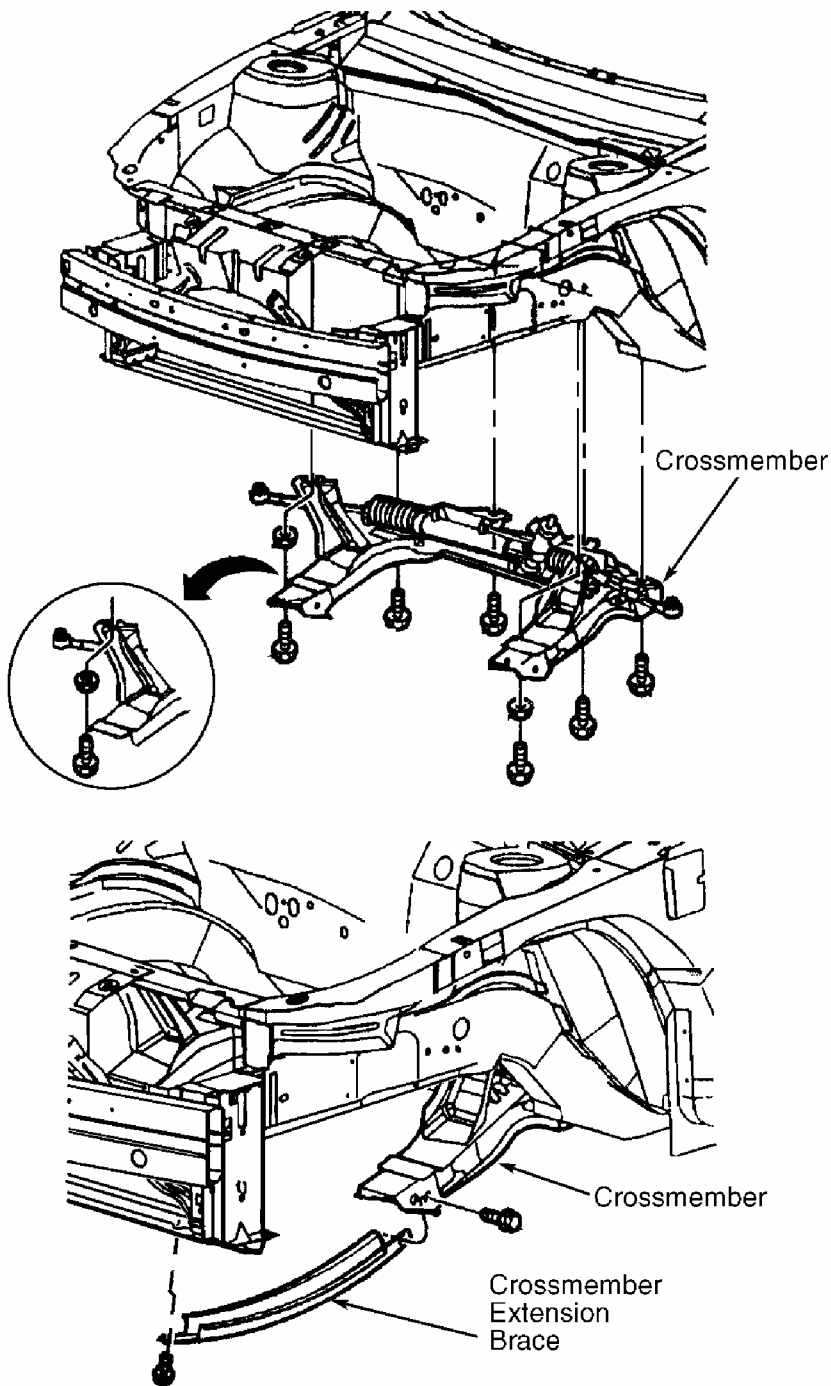
CAUTION: When battery is disconnected, vehicle computer and memory systems may lose memory data. Driveability problems may exist until computer systems have completed a relearn cycle. See COMPUTER RELEARN PROCEDURES article in GENERAL INFORMATION before disconnecting battery.

NOTE: For reassembly reference, label all electrical connectors, vacuum hoses and fuel lines before removal. Also place mating marks on engine hood and other major assemblies before removal.

FUEL PRESSURE RELIEF

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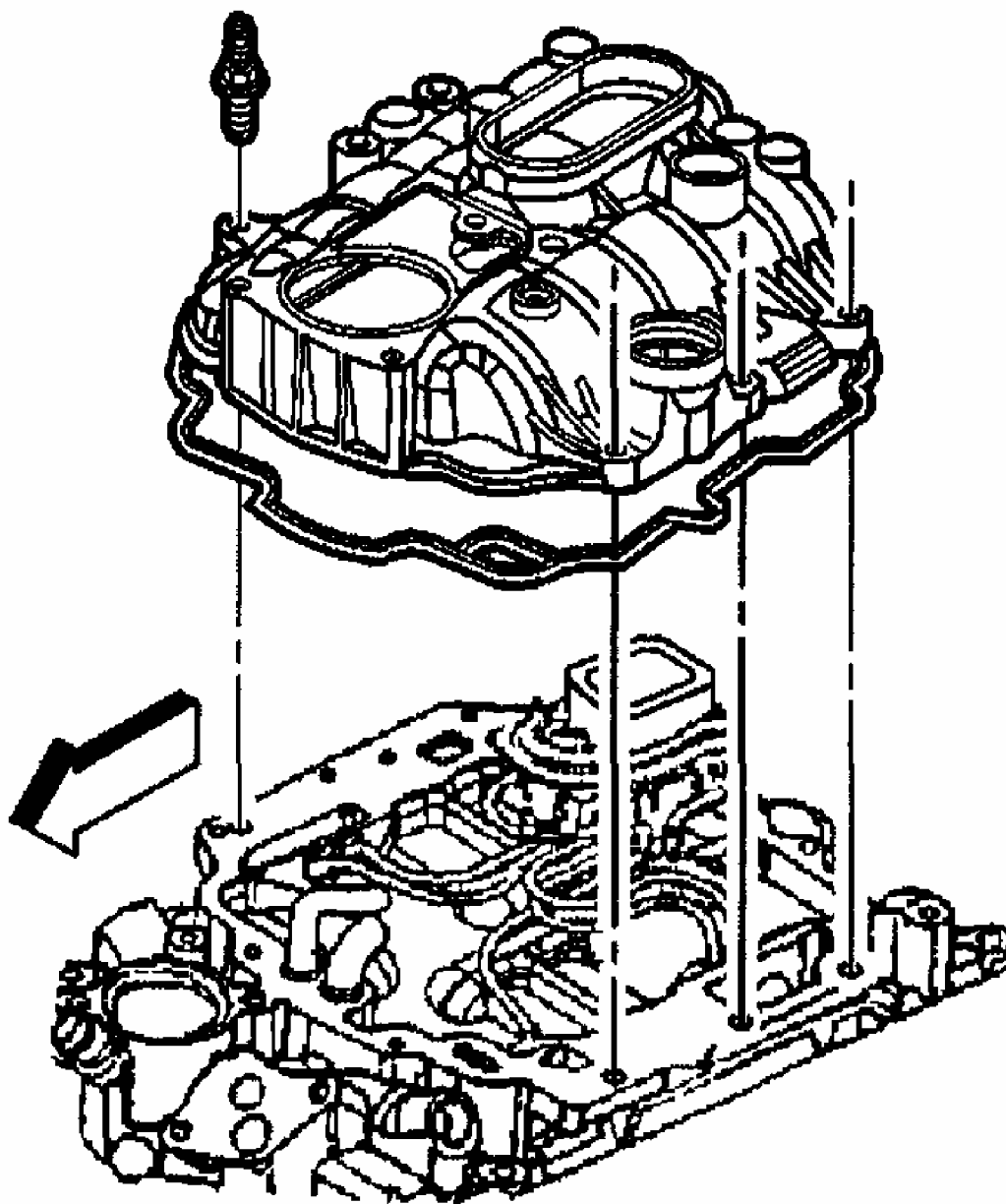


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Fig. 1: Removing Crossmember Assembly
Courtesy of GENERAL MOTORS CORP.

Installation

1. To install, reverse removal procedure. Tighten all fasteners to specification. See **TORQUE SPECIFICATIONS** . Apply lubricant to wash hose connectors when



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Fig. 228: Upper Intake Manifold-To-Lower Intake Manifold Gasket
Courtesy of GENERAL MOTORS CORP.

31. Remove the fuel meter body seal and discard.
32. Remove the 6 poppet nozzles from the lower intake manifold bores.

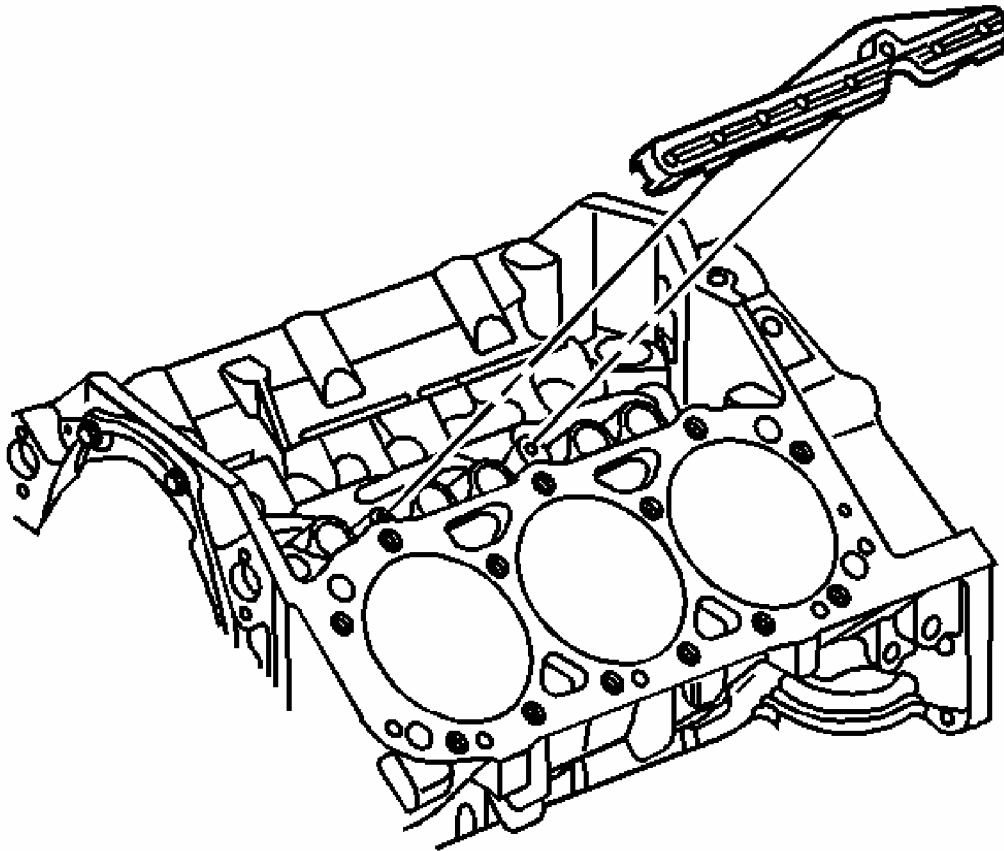


Fig. 166: View Of Valve Lifter Pushrod Guides
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Place the components in a rack so that the components can be reinstalled to their original location.

3. Remove the bolts and valve lifter pushrod guide.

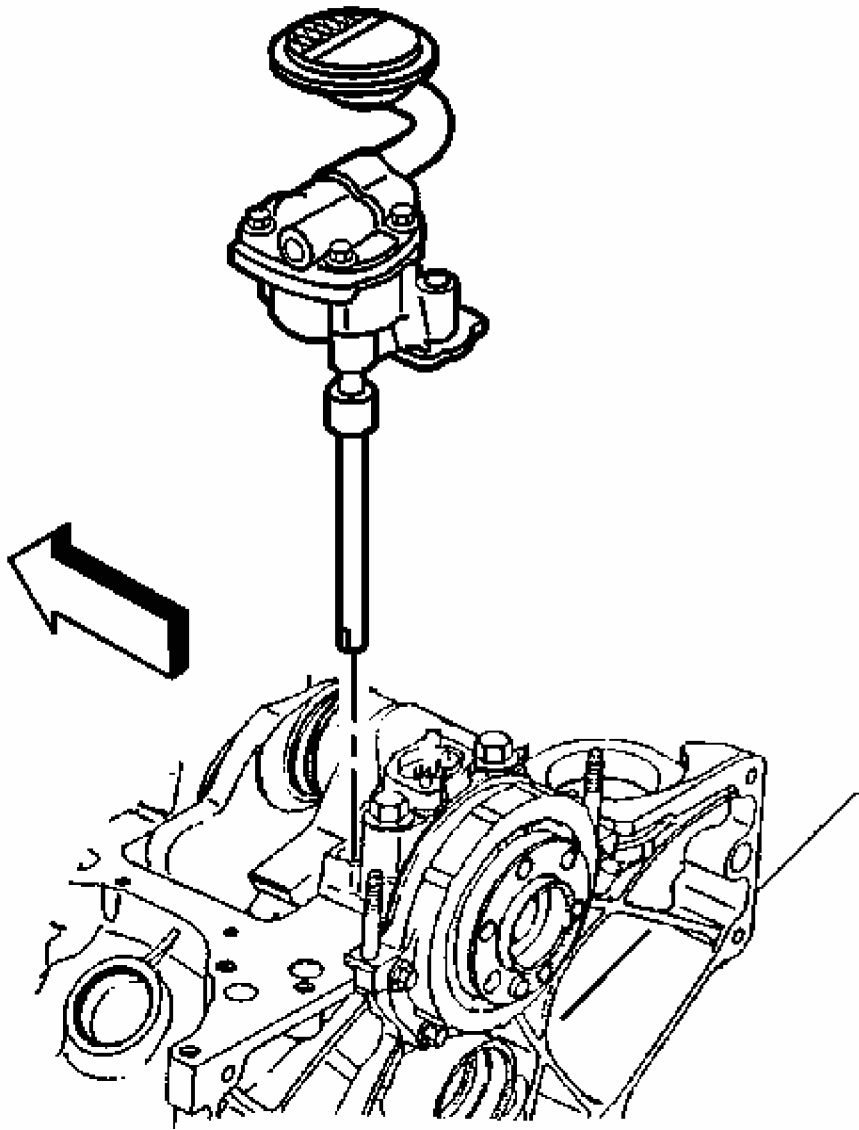


Fig. 311: View Of Oil Pump
Courtesy of GENERAL MOTORS CORP.

3. Remove the oil pump.

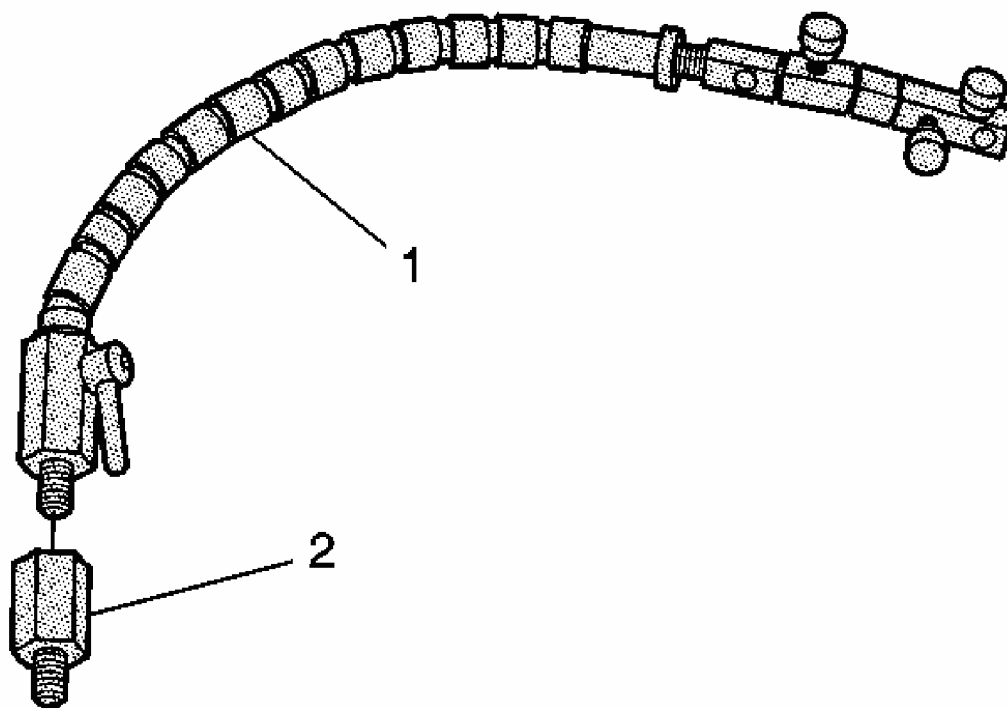


Fig. 516: View Of Swivel Base
Courtesy of GENERAL MOTORS CORP.

15. Select the adapter (2), as required, and install to the swivel base (1). Tighten until snug.

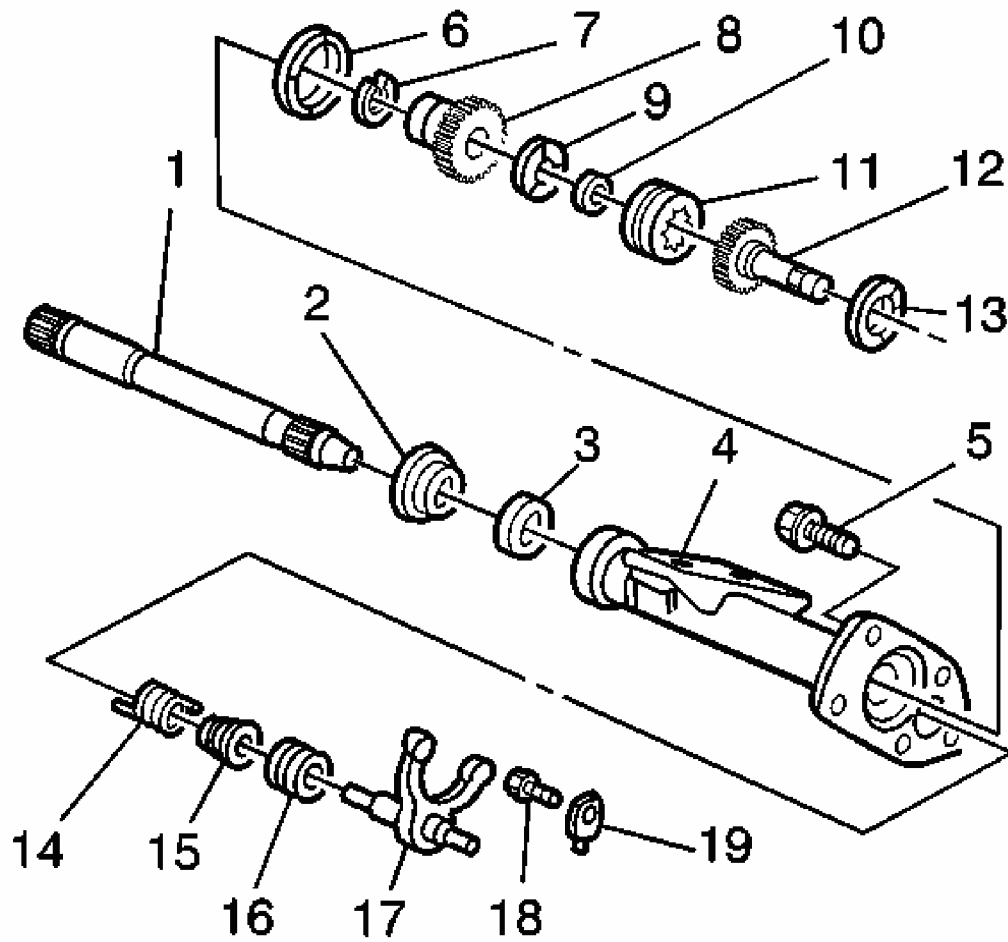


Fig. 68: Locating Inner Axle Shaft Housing Components
 Courtesy of GENERAL MOTORS CORP.

7. Install the following components into the inner axle shaft housing:
 - The thrust washer (9)
 - The clutch fork inner spring (16)
 - The clutch fork (17)
 - The clutch fork sleeve (11)
 - The clutch cable retainer spring (15)
8. Apply sealant (GM P/N 1052492 or equivalent) to the inner axle housing to differential carrier sealing surface.
9. Install the inner axle shaft housing to the differential carrier assembly.
10. Install the inner axle shaft housing bolt at the 1 o'clock position.

Fig. 119: View Of Shock Absorber
Courtesy of GENERAL MOTORS CORP.

1. Install the retainer and the grommet on the stem. Fully extend the stem.
2. Install the shock absorber up through the lower control arm and the spring. Insert the stem end through the hole in the upper control arm frame bracket.
3. Install the grommet to the stem.
4. Install the retainer to the stem.

NOTE: Refer to Fastener Notice in Cautions and Notices.

5. Install the shock absorber upper nut.

Tighten: Tighten the shock absorber upper nut to 12 N.m (106 lb in), while holding the stem with a wrench.

6. Install new nuts, if needed.
7. Install the shock absorber lower bolts through the pivot holes to the lower control arm holes.

Tighten: Tighten the shock absorber lower bolts to 30 N.m (22 lb ft).

8. Lower the vehicle.

SHOCK ABSORBER REPLACEMENT (4WD)

Removal Procedure

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.
2. Remove the tire and wheel. Refer to **Tire and Wheel Removal and Installation** in Tires and Wheels.

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2004 ACCESSORIES & EQUIPMENT Instrument Panel, Gages, and Console - Blazer/S-10, Jimmy/Sonoma

Fuel Gage

The IPC displays the fuel level as determined by the PCM. The IPC receives a class 2 message from the PCM indicating the fuel level percent. The fuel gage defaults to empty if:

- The PCM detects a malfunction in the fuel level sensor circuit.
- The IPC detects a loss of class 2 communications with the PCM.

When the fuel level is less than a pre-determined value, the low fuel indicator illuminates.

Odometer

The IPC contains a season odometer and a trip odometer. Momentarily press the trip/reset switch on the IPC in order to toggle between the season odometer and the trip odometer. Press the trip/reset switch for greater than 2 seconds, while the trip odometer is displayed, in order to reset the trip odometer.

The IPC displays the vehicle mileage and trip mileage as determined by the IPC. The IPC calculates the mileage based on the vehicle speed signal circuit from the PCM. The odometer will display 'error' if an internal IPC memory failure is detected.

PRNDL Display

The IPC displays the selected gear position as determined by the PCM. The IPC receives a class 2 message from the PCM indicating the gear position. The PRNDL displays blank if:

- The PCM detects a malfunction in the transmission range switch circuit.
- The IPC receives a class 2 message indicating the park position and the column park switch indicates a position other than park such as an open input.
- The IPC detects a loss of class 2 communications with the PCM.

Speedometer

The IPC displays the vehicle speed based on the information from the PCM. The PCM converts the data from the vehicle speed sensor to a 4000 pulses/mile signal. The IPC uses the vehicle speed signal circuit from the PCM in order to calculate the vehicle speed. The speedometer defaults to 0 km/h (0 mph) if a malfunction in the vehicle speed signal circuit exists.

Tachometer

The IPC displays the engine speed based on the information from the PCM. The PCM converts the data from the engine speed sensor to a 2 pulses/engine revolution signal. The IPC uses the engine speed signal circuit from the PCM in order to calculate the engine speed. The tachometer defaults to 0 RPM if a malfunction in the engine speed signal circuit exists.

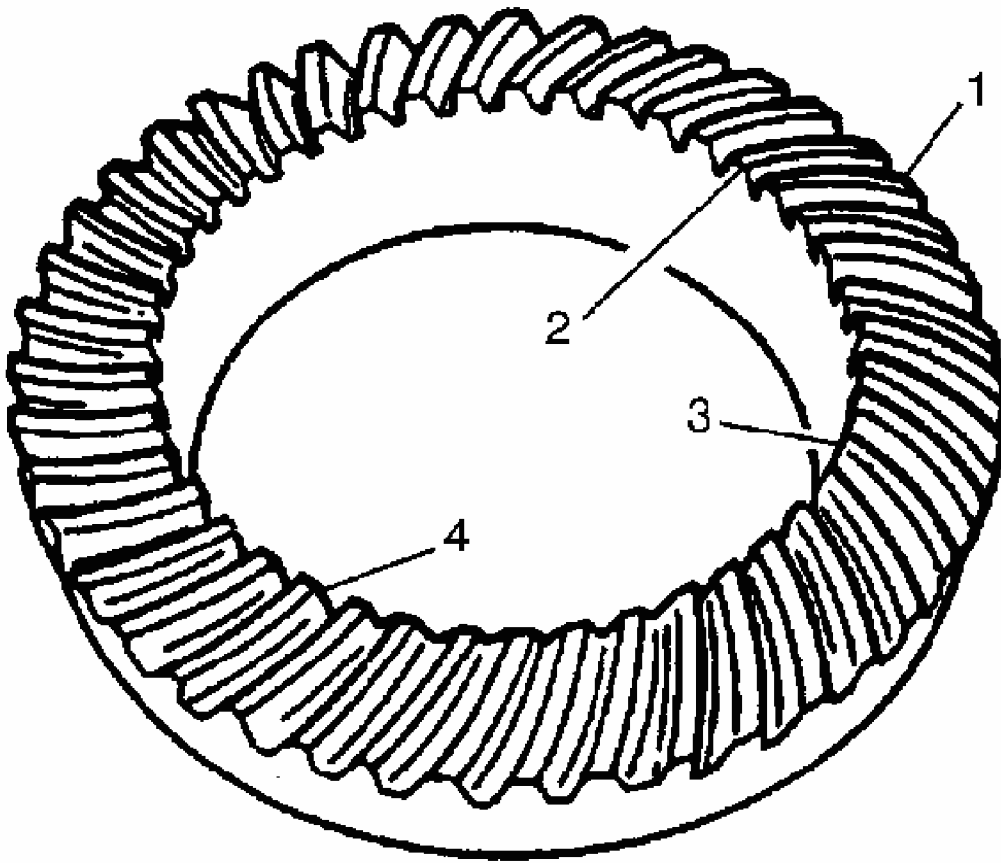


Fig. 87: Defining Gear Tooth Nomenclature
Courtesy of GENERAL MOTORS CORP.

The side of the ring gear tooth which curves outward, or is convex, is the drive side (4). The concave side is the coast side (3). The end of the tooth nearest the center of the ring gear is the toe end (2). The end of the tooth farthest away from the center is the heel end (1).

Adjustments Affecting Tooth Contact

The following 2 adjustments affect the tooth contact pattern:

- Backlash adjustment
- Pinion depth adjustment

The effects of bearing preloads are not readily apparent on hand-loaded tooth contact pattern tests. However, bearing preloads should be within specifications before proceeding with backlash and pinion depth adjustments.

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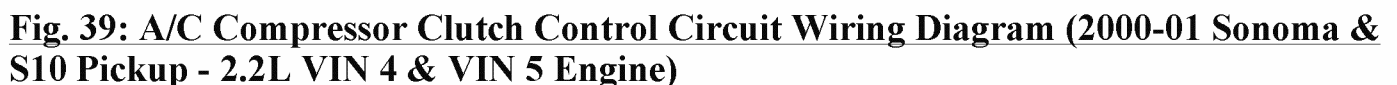
2000-01 A/C COMPRESSOR CLUTCH CONTROLS All Models

9. Check A/C compressor clutch voltage supply circuit (Dark Green wire) for short to voltage. If problem was found, repair as necessary. After repairs, go to step 22 . If problem was not found, go to next step.
10. Check A/C compressor clutch connector for poor connections. If problem was found, repair as necessary. After repairs, go to step 22 . If problem was not found, go to step 17 .
11. Check A/C compressor clutch relay connector for poor connections. If problem was found, repair as necessary. After repairs, go to step 22 . If problem was not found, go to step 16 .
12. Check HVAC control module connector for poor connections. If problem was found, repair as necessary. After repairs, go to step 22 . If problem was not found, go to step 18 .
13. Check IPM connector for poor connections. If problem was found, repair as necessary. After repairs, go to step 22 . If problem was not found, go to step 19 .
14. Check DIM connector for poor connections. If problem was found, repair as necessary. After repairs, go to step 22 . If problem was not found, go to step 20 .
15. Check PCM connectors for poor connections. If problem was found, repair as necessary. After repairs, go to step 22 . If problem was not found, go to step 21 .
16. Replace A/C compressor clutch relay. After repairs, go to step 22 .
17. Replace A/C compressor clutch hub and plate. See appropriate COMPRESSOR SERVICING article in GENERAL SERVICING. After repairs, go to step 22 .
18. Replace HVAC control module. See REMOVAL & INSTALLATION in appropriate AUTOMATIC A/C-HEATER SYSTEMS article. After repairs, go to step 22 .
19. Replace IPM. See appropriate INSTRUMENT PANELS article in ACCESSORIES & EQUIPMENT. After repairs, go to step 22 .
20. Replace DIM. See REMOVAL & INSTALLATION in appropriate BODY CONTROL MODULES article. After repairs, go to step 22 .
21. Replace PCM. See appropriate REMOVAL, OVERHAUL & INSTALLATION article in ENGINE PERFORMANCE. After repairs, go to next step.
22. Operate system to verify repair.

Compressor Clutch Does Not Disengage (Manual A/C)

1. If diagnostic system check has not been performed, see **DIAGNOSTIC SYSTEM CHECK (MANUAL A/C)** . If diagnostic system check has been performed, go to next step.
2. Start engine. Turn blower motor switch to OFF position. Place bi-level switch in OFF position. If A/C compressor operates, go to next step. If A/C compressor clutch does not operate, problem is intermittent.
3. Using scan tool, observe COMMANDED A/C parameter in POWERTRAIN data list. If scan tool indicates COMMANDED A/C parameter is ON, go to next step. If scan

2000-01 A/C COMPRESSOR CLUTCH CONTROLS All Models



2001 ACCESSORIES/SAFETY EQUIPMENT**General Motors Corp. - Air Bag Restraint Systems****DESCRIPTION & OPERATION**

WARNING: Accidental air bag deployment is possible. Personal injury may result. Read and follow all **WARNINGS** and **AIR BAG SAFETY PRECAUTIONS** before working on air bag system or related components.

SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM

SIR system is designed to supplement protection provided by driver and passenger-side seat belts. A frontal crash of sufficient force up to 30 degrees off center line of vehicle will deploy driver and passenger-side air bags. Steering column and knee bolsters below instrument panel also absorb crash energy.

SIR system consists of Sensing and Diagnostic Module (SDM), driver and passenger-side air bag modules, front end discriminating sensors, SIR coil assembly and AIR BAG warning light in instrument cluster.

AIR BAG MODULES

Air bag modules consist of an inflatable bag and an inflator. When vehicle is in an accident of sufficient force, SDM causes current flow through deployment loops. Current passing through inflators ignites inflator charges, producing gas which rapidly inflates air bags.

AIR BAG WARNING LIGHT

Ignition switch applies battery voltage to AIR BAG warning light. SDM controls AIR BAG warning light operation. When ignition switch is first turned on, AIR BAG warning light verifies system operation by flashing 7 times and turning off. During vehicle operation, AIR BAG warning light warns driver of malfunctions which could potentially affect SIR system operation.

FRONT END DISCRIMINATING SENSORS

Front end discriminating sensors are auxiliary sensors which assist SDM in determining when deployment should occur by providing an input signal to SDM. Front end discriminating sensors are not part of deployment loop.

KNEE BOLSTERS

Knee bolsters are used to absorb energy and control forward movement of driver and front seat passenger. This is accomplished by limiting leg movement during a frontal crash.

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2001 GENERAL INFORMATION Computer Relearn Procedures - Domestic

Electronically Erasable Programmable Read Only Memory (EEPROM) Programming (7.4L)

1. If VCM was replaced, EEPROM in VCM must be programmed. If EEPROM is not programmed, a DTC will set.
2. Ensure battery is fully charged. Ensure cable is properly connected on Data Link Connector (DLC). Turn ignition switch to ON position. Perform EEPROM programming using Techline(R) equipment manufacturer's instructions and latest software applicable for vehicle model.
3. CKP sensor variation learn procedure should ONLY be performed on except Calif. models. DO NOT perform CKP sensor variation learn procedure on Calif. models. Verify vehicle application by using underhood emission control label. On Calif. models, go to next step. On except Calif. models, if EEPROM programming fails, ensure all harness connections on VCM are okay. Check Techline(R) for latest software. If EEPROM programming still fails, replace VCM. Once EEPROM is reprogrammed, use scan tool to reset Idle Air Control (IAC) valve and then go to step 5.
4. Once EEPROM is reprogrammed, password learn procedure for anti-theft system must be performed using proper procedure. Once password learn procedure for anti-theft system has been performed, perform powertrain On-Board Diagnostic (OBD) system check. See POWERTRAIN ON-BOARD DIAGNOSTIC (OBD) SYSTEM CHECK in appropriate SELF-DIAGNOSTICS article in ENGINE PERFORMANCE.
5. Once EEPROM is reprogrammed, CKP sensor variation learn procedure and password learn procedure for anti-theft system must be performed using proper procedure. Once CKP sensor variation learn procedure and password learn procedure for anti-theft system are performed, perform powertrain On-Board Diagnostic (OBD) system check. See POWERTRAIN ON-BOARD DIAGNOSTIC (OBD) SYSTEM CHECK in appropriate SELF-DIAGNOSTICS article in ENGINE PERFORMANCE.

Powertrain Control Module (PCM) Programming (4.8L, 5.3L & 6.0L)

1. Ensure battery is fully charged. Turn ignition switch to ON position. Program PCM using Techline(R) equipment manufacturer's instructions and latest software applicable for vehicle model.
2. Once PCM is reprogrammed, CKP sensor variation learn procedure, password learn procedure for anti-theft system, and PCM idle learn procedure must be performed.

NOTE: If programming fails, ensure all harness connections on PCM are okay. Check Techline(R) for latest software. If programming still fails, replace PCM.

Powertrain Control Module (PCM) Programming (6.5L Diesel)

1. If PCM was replaced, the PCM must be programmed. If PCM is not programmed, a DTC will be set.

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2001 MANUAL TRANSMISSIONS Manual Transmission - NV 1500 - Sonoma & S10 Pickup

Step	Action	Value(s)	Yes	No
1	Did you perform the <i>Diagnostic System Check - Manual Transmission</i> ?	—	Go to <i>Step 2</i>	Go to <i>Diagnostic System Check - Manual Transmission</i>
2	Notice: In order to avoid damage to the drive axles, support the lower control arms in the normal horizontal position. Do not run the vehicle in gear with the wheels hanging down at full travel. 1. Install a scan tool. 2. Turn ON the ignition with the engine OFF. Important: Record the Failure Records before clearing the DTCs. Using the Clear Info function erases the Failure Records from the PCM. 3. Record the DTC Freeze Frame and Failure Records. 4. Clear the DTC. 5. Raise the drive wheels. 6. Start the engine. 7. Allow the engine to idle in gear. Does the scan tool display vehicle speed above the specified value?	0 km/h (0 mph)	Go to <i>Step 3</i>	Go to <i>Step 4</i>
3	1. Turn OFF the ignition. 2. Turn ON the ignition with the engine OFF. 3. Review the Freeze Frame data and note the parameters. 4. Start the engine. 5. Operate the vehicle within the Freeze Frame conditions, and the Conditions For Running The DTC. Does the scan tool display vehicle speed above the specified value?	0 km/h (0 mph)	Go to <i>Intermittent Conditions in Engine Controls - 2.2L article</i>	Go to <i>Step 4</i>
4	1. Verify that the latest calibration is installed in the PCM. 2. Update the PCM with the latest calibration as necessary. Did the PCM require a calibration update?	—	Go to <i>Step 14</i>	Go to <i>Step 5</i>
5	1. Turn OFF the ignition. 2. Disconnect the PCM. 3. Measure the resistance between terminal C1 63 and C2 62. Is the resistance within the specified range?	966–2200 Ω	Go to <i>Step 7</i>	Go to <i>Step 6</i>

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Fig. 10: DTC P0502 Diagnostic Table (Steps 1-5)