

Wheel and Tire Balancing

Consider a Chevrolet TrailBlazer travelling at 60 miles per hour. The P245/70R16 tires have a diameter of 29.6 inches. At 60 miles per hour, they're running 703 rpm. If a tire is out of balance, at that speed it introduces 703 vibrations per minute into the vehicle. The tire is slapping the pavement 12 times per second (12 Hz). You think the customer is going to notice that?

Actually, tire related shake or vibration is one of the most common customer dissatisfiers, and it's most easily noticed when driving on a smooth highway. There are three causes: out-of-round, imbalance, and radial force variation (RFV). Each one of these conditions can result in shake or vibration, but the causes and cures are different for each. They are not necessarily related, but each of them must be addressed.

Here's where to find guidance in SI:

- "build" the vehicle
- General Information
- Vibration Diagnosis and Correction
- Diagnostic Information and Procedures
- Vibration Analysis -- Tire and Wheel

The Vibration Analysis chart contains thorough test procedures. The exact path you will follow depends on what you find on the vehicle you're diagnosing, but in general, you will check in this order: runout, imbalance, and RFV.

Runout (Out-of-Round)

TIP: It's tempting to start with wheel balance, but it's important to measure on-vehicle runout first. If runout is the cause of the vibration, balancing won't fix it. But removing the wheel/tire assembly to check balance can disturb runout evidence. This is because a small amount of runout in the wheel may cancel or accentuate a small amount of runout in the mounting surface, depending on which position the wheel is mounted. This is referred to "stack-up" of runout.

Wheel/tire runout is measured two ways, on-vehicle and off-vehicle. The on-



vehicle measurement includes possible runout of not only the wheel and tire but also the mating hub/axle flange and studs. Off-vehicle runout measures only the wheel and tire assembly. Further, it may be necessary to measure runout of just the wheel, with the tire dismounted.

The diagnostic chart explains how to interpret and correct various runout conditions you detect.

One of the repair methods is called match-mounting (vectoring). This procedure permits you to move the tire on the wheel to determine if the low and high spots cancel each other out. In a similar fashion, it may be possible to match-mount the wheel to the mounting flange. See SI for details.

Imbalance

Wheel/tire balance is fairly easy to understand, and of all the conditions mentioned here, offers the most visible evidence. The weights are there for everyone to see. However, if runout or RFV is the cause of the vibration, checking balance is not going to fix the condition.

That having been said, there is an appropriate time to check and correct

wheel/tire balance, according to the diagnostic chart.

TIP: Be sure to check for foreign materials, particularly inside the wheels, and particularly when the vehicle has been driven in snowy, icy or offroad conditions. Correcting an imbalance condition may be as simple as removing a chunk of mud.

The readily available off-vehicle, two-plane dynamic balancer is the equipment of choice for checking and correcting imbalance.

As with any precision tool, proper calibration, proper maintenance, and proper use are all important in obtaining satisfactory results.

Radial Force Variation

Radial force variation (RFV) refers to variations within the construction of the tire. All tires have splices in the various plies. These resulting stiffer spots do not cause problems unless they are excessive.

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The causes of radial force variation are impossible to see, so RFV is the least understood cause of vibration.

TIP: RFV can masquerade as excess runout or imbalance. RFV can cause vibrations even though the wheel/tire assembly has acceptable runout and is properly balanced. If you've eliminated these two conditions, RFV is your likely culprit.

TIP: The Vibration Analysis chart in SI contains a link to an Isolation Test, which can help you identify which wheel/tire assembly is the source of the vibration.

As you can see in the accompanying illustration, it's helpful to think of the tire's sidewall as a series of coil springs. If one of the "springs" is considerably stiffer than the others, the tire will bump each time that portion contacts the pavement. This will be perceived as a vibration.

RFV is measured by specialized equip-

ment in which the mounted tire is pressed against a load wheel. The load simulates the weight of the vehicle. As the tire is rotated, the equipment measures the variations in the tire's radial force.

Most vehicles will tolerate these RFV values:

P-metric tires on passenger cars	18 lbs (8.1 kg) or less
P-metric tires on light trucks	24 lbs (10.8 kg) or less
LT tires on light trucks	30 lbs (13.5 kg) or less

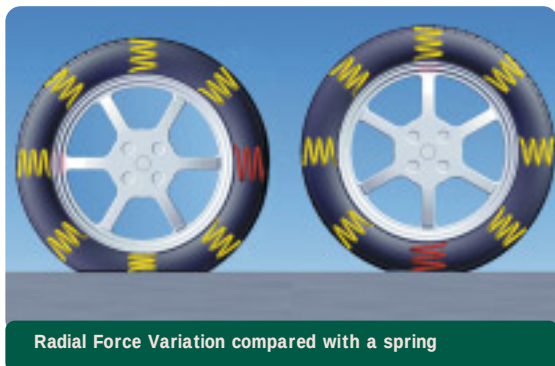
TIP: Technical Assistance has information on tire parameters that may deviate from these guidelines.

Correcting radial force variation is similar to correcting for runout. The stiffest part of the tire is matched up with the lowest part of the wheel.

Hunter GSP9700

The Hunter GSP9700 Vibration Control System is now available from GM Dealer Equipment (1.800.GMTOOLS).

A major benefit of the GSP9700 is that a single piece of equipment can:



continued on page 3



Dynamic menu building is a technique by which the Tech 2 will poll the Class 2 bus to find out what controllers are installed on the vehicle before it builds the menu choices to display. For instance, when Body is selected from the Powertrain/Body/Chassis selection menu, the Tech 2 will first inquire about what body related controllers are installed and build the menu accordingly. This is a more efficient use of the Tech 2's resources, but can cause problems for you when diagnosing a Class 2 related problem.

For example, if a 2001 Suburban has a BCM related fault and you select Body on the Tech 2, the menu selections displayed by the Tech 2 may be

erroneous because the BCM was unable to respond properly when the Tech 2 polled the bus. One indication that this has happened is that when you select the BCM, the Tech 2 displays only DTC Info. When you select DTC Info, you end up at the Class 2 DTC Check, which is under the Diagnostic Circuit Check.

The Tech 2 provides a Bypass Mode which can be enabled under Tool Options from the main menu. This will allow you to select the combinations manually. Try playing with the Bypass Mode before you need it, to be familiar with the feature.

— Thanks to Mark Harris

IDL



— Thanks to Tracy Timmerman

Know-How Broadcasts for November

Emerging Issues

November 14

9:00 AM, 12:30 PM, 3:30 PM EasternTime

Technology Close-Up

November 21

9:00 AM, 12:30 PM, 3:30 PM EasternTime



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General Motors service tips are intended for use by professional technicians, not a "do-it-yourselfer." They are written to inform those technicians of conditions that may occur on some vehicles, or to provide information that could assist in the proper service of a vehicle. Properly trained technicians have the equipment, tools, safety instructions and know-how to do a job properly and safely. If a condition is described, do not assume that the bulletin applies to your vehicle or that your vehicle will have that condition. See a General Motors dealer servicing your brand of General Motors vehicle for information on whether your vehicle may benefit from the information.

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- measure off-vehicle runout
- check and correct balance
- check and correct radial force variation

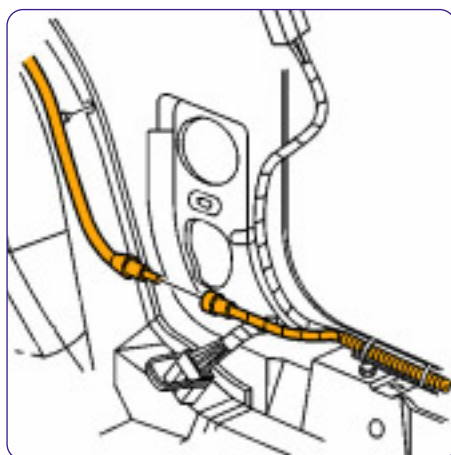
The tire, spinning at 90 rpm, is contacted by a load roller. The roller's radial position is affected by the varying stiffness of the tire as it rotates. While the tire rotates 4 revolutions, sensors take 128 readings per revolution.



Inner and outer Dataset® arms equipped with sensors measure the wheel's runout.

TIP: There is a high correlation between inside and outside measurements on most wheels. In cases where external measurements cannot be made, the tire must be removed to measure the inside dimensions of the bead seat.

By combining the data from the roller



Poor Radio Reception

Owners of some 2002 Oldsmobile Alero and Pontiac Grand Am models may comment about poor radio reception. This condition may be caused by a poor antenna co-ax connection at the passenger side lower kick panel (area in front of door, under the instrument panel). To correct this condition, remove the lower kick panel, re-connect the antenna co-ax and tape the connection securely to avoid any future disconnection.

- Thanks to Ray Romeo



and Dataset sensors, the GSP9700 can calculate vectoring and weight requirements. There is even a feature which determines where to place weights so they don't show on spoked wheels.

Important

When mounting a GM wheel to a balancing machine, always use the center pilot hole with a back cone. Use a flange plate to clamp the wheel to the cone and machine.

Any type of service equipment that removes tread rubber by grinding, buffing or truing is NOT recommended, and may void the tire warranty. Tires may have been ground by the tire company as part of the manufacturing process, and this is a legitimate procedure.

- Thanks to Dave Scribner at Hunter Equipment, and to Russ Dobson

Visor Contacts Inside Mirror

Owners of some 2000-03 Buick Century or Regal models may comment that the visor contacts the rear view mirror when moving the visor downward. This condition may be more likely with the OnStar® mirror.

This condition, which may be caused by the inside rear view mirror being placed in a higher position during the assembly process, is easily correctable.

The mirror has a ball pivot on the windshield side (toward front of vehicle) and a ball pivot on the mirror side (toward rear of vehicle). The rear ball pivot must be moved downward. This places the mirror assembly lower on the windshield, allowing clearance between the visors and mirror. Minor adjustment may be necessary, right or left.

After completing the previous process to center the mirror between the sun visors, adjustment for rear vision is made using the ball socket on the mirror side.

TIP: This same procedure may be used to remedy comments about being able to see the roof-mounted console in the rear view mirror on some vehicles.

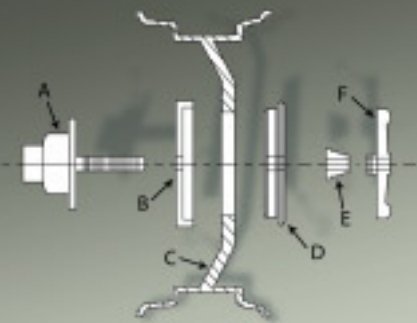
- Thanks to Wayne Zigler

Valve Index Balancing

This applies to trucks with 16 and 19 1/2 inch hub-centric offset dual wheels. The term hub-centric means that the wheel is oriented to the vehicle by means of the hub hole in the wheel, not by the mounting studs and nuts.

The procedure ensures that the wheel is mounted to the balancer and to the vehicle using the same location method.

TIP: The adapter and backing plate used to align the hub of the wheel to the balancer are relatively new, and are available by calling 1.800.GMTOOLS (1.800.468.6657). Mount the wheel on the balancer using the parts shown in the illustration.



- A - Balancer Faceplate
- B - Backing Plate
- C - Wheel
- D - Adapter
- E - Cone, Used as Spacer
- F - Nut

Rotate the wheel/tire assembly until the valve is at 12 o'clock. Loosen the nut. If the hub hole in the wheel does not fit the adapter snugly, the wheel will drop slightly and "hang" on the adapter, with the valve at 12 o'clock position. Then tighten the nut to secure the wheel to the balancer.

Balance the wheel/tire assembly in the usual manner.

With the vehicle raised, mount the wheel/tire to the vehicle with the valve and the hub pilot tab at 12 o'clock position. Again, if the hub hole does not fit the mounting flange snugly, the wheel will drop slightly and "hang" on the tab. Then, tighten the wheel nuts to secure the wheel.

IMPORTANT: Rotate the wheel to place the valve at 6 o'clock.

Lower the vehicle and torque the wheel nuts to specification.

- Thanks to Tom Bussard at Hennessy Industries, Inc.

New Airbag Features in 2003 Full-Size Pickup Trucks

Supplemental Inflatable Restraint (SIR) technology is moving to another level of sophistication in the 2003 C/K trucks.

TIP: The dual-stage inflator module feature and the instrument panel disable switch continue to be used.

There are three interrelated parts to the new SIR system:

- Passenger Presence System
- Seat Belt Tension Retractor Sensor
- Seat Position Switch

Here's a brief explanation of each. You can find additional information in SI:

- "build" the vehicle
- Restraints
- SIR
- Description and Operation

Passenger Presence System (PPS)

The only readily visible evidence of a change is the inclusion of a new telltale in the rearview mirror. It reads either PASSENGER AIR BAG ON or PASSENGER AIR BAG OFF.

A Passenger Presence System (PPS) sensor in the passenger seat detects the



Telltale in mirror

size of the passenger, based on weight. If the passenger does not exceed the PPS weight threshold, the instrument panel (I/P) airbag is disabled. In the event of an accident, the I/P airbag does not deploy. Also, if the front passenger seat is empty, the I/P airbag will not deploy.

The PPS sensor consists of a gel-filled bag mounted beneath the seat cushion foam, which operates an electrical pressure sensor. The pressure sensor converts the pressure from the occupant to an electrical signal and sends the signal to the PPS module.

PPS Diagnostics

The PPS module monitors itself for faults. The PPS module communicates



Gel-filled bag

with the SDM to turn on the AIRBAG indicator in the instrument cluster when a fault is present. When a Tech 2 is used, the PPS module will flash DTCs using the rear view mirror indicators.

PPS Service

IMPORTANT: The PPS is a calibrated unit. When replacing the assembly, all parts in the service kit must remain together. Do not mix any of the old parts with the new parts. After repairing or replacing the PPS, the system must be zeroed in order to function correctly.

See SI for details.

Seat Belt Tension Retractor Sensor

The second addition to the SIR system is the Seat Belt Tension Retractor Sensor, which enhances the PPS when an infant seat is properly restrained on the front outboard passenger seat.



Seat Belt Tension Retractor Sensor

When an infant seat is properly restrained, the seat belt is tightly secured. This pulls on the tension retractor sensor in the lower seat belt anchor. The PPS module uses this information, along with a signal from the PPS sensor in the seat, to determine if the I/P airbag should be enabled or suppressed.

Seat Belt Tension Retractor Sensor Diagnosis

If a fault is detected, the PPS module sets a DTC 023. The code may be flashed by the rear view mirror indicator, using the Tech 2.

Seat Position Switch

And third, a seat position switch (SPS) is used to determine how close a front

seat occupant is to the frontal airbag. In the event of an airbag deployment, the SPS determines whether to enable or disable Stage 2 deployment. There is an SPS for each front seat, and each SPS affects only the airbag on the side of the vehicle where the SPS is located.

The SPS consists of a Hall-effect switch, mounted to the seat track. The Hall-effect switch divides the seat travel into two parts: seat forward or seat rearward.



Seat Position Switch

In the seat rearward position, Stage 2 deployment is enabled. In the seat forward position, Stage 2 deployment is disabled, and only Stage 1 is permitted.

TIP: The SPS is secondary to the PPS status. And the SPS and PPS are secondary to the manual I/P disable switch. If the manual I/P disable switch is in the disable mode, the passenger airbag will not deploy, regardless of SPS or PPS status.

SPS Diagnosis

The SDM monitors the SPS circuit, and if a fault is detected, the SDM will set codes B0083 or B0084. And the SDM defaults to disabling Stage 2 frontal deployment.

Airbag Deployment Summary

In the event of an accident, the airbag SDM deploys the frontal airbags in response to inputs from the deployment sensors.

The SDM uses information from the seat position sensors to determine whether to enable or disable Stage 2 deployment. The driver side and passenger side are treated separately.

In addition, passenger frontal airbag deployment will be suppressed by any of the following:

- manual I/P disable switch turned to the disable position
- weight on the passenger seat below the PPS threshold
- presence of an infant seat, as detected by PPS and passenger seat belt tension retractor sensor.

- Thanks to Chuck Wieseckel

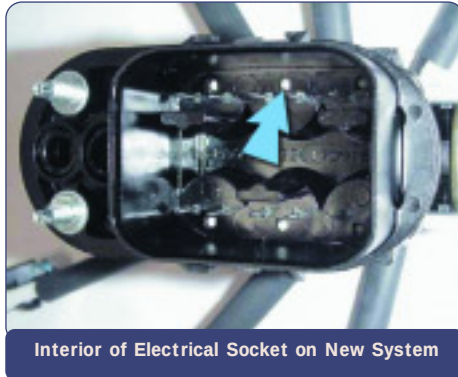
Multi-port Flexible Injection System (MFI)

Last October, we introduced you to a new MFI fuel system on 2002 Chevrolet Astro and GMC Safari Vans and 2002 Silverado and Sierra pickups equipped with the LU3 V6 engine and YF5 California emissions package.

Now that you've had a chance to view this system and possibly service it, here are some reminders about this new fuel system

The injector at the end of the fuel tube is a Multec 2 injector. This is the same injector that is used on most passenger cars. In this case, it's attached to a fuel tube and a fuel meter body rather than a fuel rail.

It is possible to differentiate the new Multi-port Flexible injection from the earlier generation SCPI system by simply removing the manifold injector connector and looking inside the cavity. Both the SCPI and the MFI have two electrical pins visible inside the cavity.



Interior of Electrical Socket on New System

TIP: You can also look at the VIN number: X.

On the SCPI system, between the two electrical pins is a small black hole, used to remove the injector from the fuel meter body with a small screwdriver.

On the MFI system, between the two electrical pins is a small white post in a hole. This is where you push with a screwdriver to remove the injector.

The white plastic tip added to the end of the fuel tube is a retainer used to hold the fuel tube securely in place with the injector spray pointed toward the intake port. This tip also moves the injector further away from the heat of combustion which actually protects the injector from building up deposits on the tip. Moving the injector further from the heat and vapors formed inside the intake manifold keeps the injector very clean.



White plastic tip

TIP: As with any other Multec 2, cleaning of this system is not recommended by the manufacturer.

Remember that MFI and SCPI systems are similar in appearance but different when it comes to servicing the system.

- Thanks to Dan Wimer

Sunshade Removal Tips

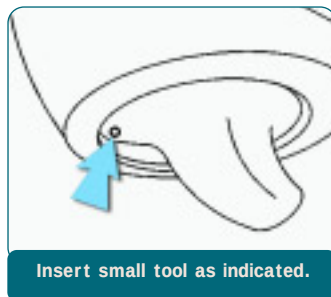
The new style 2002 -2003 S/T GMC Envoy, Chevrolet TrailBlazer, Oldsmobile Bravada, GMC Envoy XL and Chevrolet TrailBlazer EXT vehicles are all equipped with a tab-retaining sunshade system that attaches to the roof sheet metal.

Sunshade Removal Procedure

The sunshade can be removed without degradation to the retaining system or to the roof sheet metal by following the removal procedure in the GM service manual.

This is the recommended service manual method for removing the sunshade.

- Remove the windshield garnish molding.
- Release the front assist handle from the headliner.
- Recline the bucket seat and release the upper portion of the center pillar trim panel.
- Open and rotate the sunshade parallel to the side window.
- Insert a small tool into the bezel access hole.



Insert small tool as indicated.

IMPORTANT: Midway through the rotation cycle the tool will move further into the access hole.

- Push upward on the tool while rotating the sunshade parallel to the windshield. The sunshade pivot arm bezel should appear to be recessed into the bezel.



Pulling sunshade downward

IMPORTANT: Ensure the pivot arm is recessed into the bezel before removing the sunshade from the headliner.

- Apply outbound pressure to the sunshade while the sunshade is parallel to the windshield.
- Pull the sunshade downward while maintaining outbound pressure to the sunshade. You will notice a separation between the headliner and the sunshade bezel.
- In order to remove the sunshade from the headliner, carefully grab the headliner at the windshield pillar area and apply downward pressure while gently rocking the sunshade up and down.
- Remove the inboard retainer screw.
- Remove the inboard retainer from the headliner.
- If equipped with lighted sunshades, perform the following:
- Reach above the headliner to access the electrical connector.
- Remove the electrical connector from the headliner substrate.
- Disconnect the sunshade electrical connector from the headliner harness.
- Remove the sunshade from the vehicle.

Roof Sheet Metal Inspection

Following the recommended removal method in



sequence will ensure the integrity to the roof sheet metal. In the event the sunshade was removed before reviewing the service manual, inspect the roof sheet metal for any potential degradation and straighten the effected areas before installing the sunshade.

Installation

Refer to the GM Service Manual for the installation procedure of the sunshade and inboard retainer, and the torque specifications to the inboard retaining screw.

- Thanks to Jim Clower and Andy Slawick

Pontiac Vibe EVAP System

This condition can affect All Wheel Drive Pontiac Vibe. With the check engine light illuminated, there may be DTCs P0440, P0441, P0442 and P0446. The codes refer to a condition with the EVAP system, most often with the fuel tank vent hose connection at the ORVR valve. The valve is located at the top right corner of the fuel tank.

First connect the Evaporative Emissions System Tester J-41413-200 to the underhood EVAP service port. The port can be identified by the green cap covering the port.

TIP: At first, leave the gas cap untouched to verify that the customer didn't leave the gas cap loose.



Quick disconnect vent hose connector

When the tester starts to force smoke through the EVAP system, you will notice smoke leaving the EVAP canister vent hose. This is normal. Pinch off the vent hose before looking for signs of a leak. If smoke is found to be leaking from the top right front corner of the fuel tank, the plastic quick disconnect vent hose may either be partially disconnected or there is too

much of a strain at the connection between the ORVR valve and the vent hose.

To resolve the concern without dropping the fuel tank, grasp the plastic vent hose close to the top of the tank and push toward the ORVR valve. If the hose was partially disconnected, you will hear a click.

Retest the system with the EVAP system tester. If you still see smoke, rotate the vent hose toward the center of the vehicle. Remove the vent hose from the side of the fuel tank. Grasp the hose at the top of the tank and gently move the hose toward the middle of the vehicle. You should only have to move the valve slightly to correct the leak.

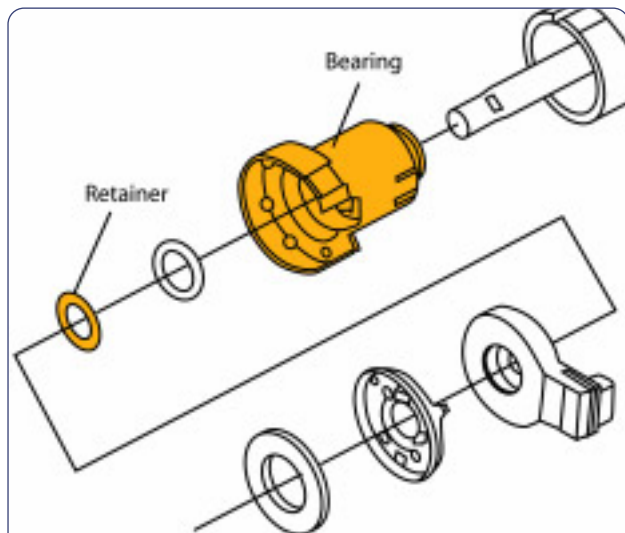
Retest the system for leaks. When the leak is corrected, you will no longer notice smoke leaving the EVAP system. Make sure you clear the DTCs before returning the vehicle to the customer.



Fuel tank vent hose routing to ORVR valve

- Thanks to Jeff Strausser

Steering Clunk Noise



Retainer, left, and bearing, right

Owners of some 1998-2002 Cadillac Seville may comment about a clunking or rattling noise heard while travelling over bumps. The sound comes from the lower steering column, and may be caused by the clearance between the steering shaft and lower steering column shaft bearing.

A new bearing 26100500 and retainer 07847029 have been released to address this condition.

TIP: The retainer is used on power tilt and telescope columns only.

Refer to bulletin 02-02-35-004 for details.

- Thanks to Bill Denton

Blower Motor Inoperative

Owners of some 1999-2002 Oldsmobile Alero and Pontiac Grand Am models may comment that the blower motor is inoperative. If the correction requires resistor replacement, check the resistor for signs of corrosion. If signs of corrosion are present, refer to bulletin 01-08-57-003 and verify that the air intake foam sealing strip is correctly positioned and securely adhered. This additional step will help prevent repeat occurrences of this issue.

- Thanks to Ray Romeo

Hose Clamps Eliminated

Clamps have been eliminated from both ends of the radiator overflow hose on mid-year 2002 S/T vehicles. This is not a production error; do not install clamps under warranty.

- Thanks to Dan Oden

Key Release Difficulty

Owners of some 2003 Cadillac CTS models may experience the inability to remove the key from the ignition lock cylinder, even though the battery is in a good state of charge.

This condition may be caused by a misadjusted transmission shift control linkage. The gate-release button on the shift knob

has a micro-switch which allows the ignition key to be released. The cable adjustment is crucial to the proper operation of the key. Refer to current document ID 792993 in SI for the proper shift control linkage adjustment procedure before proceeding with additional diagnosis

- Thanks to GM Technical Assistance

New Engine Coolant Fill Procedure

On 2003 G and H vans with a 4.8, 5.3, or 6.0L Gen III V8 engine, there is a new engine coolant fill procedure. It is necessary because the engine cooling system does not use a pressurized coolant surge tank.

After the engine coolant has been drained from the engine, if engine coolant is added only through the radiator neck and engine coolant overflow reservoir, the engine coolant may not flow beyond the closed

thermostat, located on the engine at the lower radiator hose connection. Although the engine coolant level may appear full in the radiator neck, the system may be 4 to 6 quarts low, and a major engine overheat condition may occur.

After correcting the reason for the coolant drainage, use the following procedure to fill the entire engine cooling system to capacity.

Remove the upper radiator hose at the radiator. Remove the half-inch diameter coolant air bleed hose from the radiator, located 5 inches below coolant pressure cap.

Slowly fill the cooling system through the upper radiator hose with coolant mixture until it flows without air bubbles from the coolant air bleed hose, and coolant level stabilizes in the upper radiator hose.

Install the coolant air bleed hose and the upper radiator hose to the radiator. Fill the radiator with coolant mixture and install the coolant pressure cap.

Start and run the engine at 2000-2500 RPM until the engine reaches normal operating temperature. Then, allow the engine to idle for 3 minutes.

Shut the engine off and allow the engine to cool. Top off the coolant as necessary in the reserve tank, inspect the concentration of the engine coolant, rinse away any excess coolant from the engine and the engine compartment, and inspect the cooling system for leaks.

The written procedures on the GM SI website will be corrected shortly and a Service Manual Update bulletin will be published.

- Thanks to GM Technical Assistance

Headlamp Replacement Due To Moisture

Owners of some 2000-2003 Chevrolet Malibus may comment on moisture in one or both headlamps. This may be due to normal atmospheric conditions.

The headlamps on the Malibu are vented, and may exhibit fine condensation on the inner surface of the lens under certain atmospheric conditions. This condensation will clear more quickly with the headlamps turned on or when the vehicle is in

motion. It may take up to six hours for the moisture to clear under these conditions.

Headlamps should not be replaced for fine condensation on the inside of the lens that clears with operation of the lamps. Headlamps should be replaced only if:

- there is water accumulated in the bottom of the lamp
- the moisture does not clear with operation of the lamps

- comparison with the lamp on the opposite side of the car indicates a difference in performance.

TIP: The black rubber seal around the outside of the lamp is for appearance only, and does not seal the lamp from moisture.

For more information on evaluating exterior lamps for moisture inside the lamp, please refer to bulletin 01-08-42-001.

- Thanks to GM Technical Assistance

Power Door Lock Programming

On 2003 Chevrolet Tahoe, Suburban, Silverado C/K Pickup, and GMC Yukon, Yukon XL, or Sierra C/K Pickup, customers may have difficulty in programming the automatic door locks, following the procedure in Section 2 of the owner's manual.

The corrected procedure is located in SI under document number 866362 and can be made available to your customers.

These procedures are not part of the Driver Information Center programming feature found in Section 3 of the owner's manual.

TIP: When cycling through the lock and unlock modes by using the lock and unlock switches on the door, count the number of chimes heard after each press of the switch to determine each lock option.

- Thanks to GM Technical Assistance

Radio Programming

In the past few months, GM Service and Parts Operations has fielded a variety of calls from technicians who have encountered programming issues with up-level radios which have been swapped from another vehicle.

The following procedures must be followed when swapping up-level radios for:

- 2003 C/K Trucks and Sport Utilities
- G and H Vans
- Hummer H2
- C Series Medium Duty Trucks.

NOTICE: Failure to do so will cause permanent damage to the radio.

- First, ensure the TIS software is up to date at the Techline client and then update the Tech 2 accordingly.
- Check the RPO code of the original radio in the vehicle. If the RPO code of the radio being installed is the SAME as the RPO code of the original radio, program as normal.
- If the RPO code of the radio being installed is DIFFERENT from the RPO code of the original radio that is

being removed or swapped, you must call the Techline Customer Support Center (TCSC) for a VCI number BEFORE programming the radio.

US dealers call 1.888.337.1010 (Prompt 3).

Canadian dealers call 1.800.828.6860 (English) or 1.800.503.3222 (French).

If you need assistance with programming, please contact the Techline Customer Support Center at the number listed above.

- Thanks to Craig Jones and Rich Adkins

This review of service bulletins released through mid-September lists the bulletin number, superseded bulletin number (if applicable), subject and models.

GENERAL INFORMATION:

02-00-89-014; New Labor Operation Codes for Dealer-Installed GM Accessories Replaced During Warranty Coverage Period; 2002 and Prior GM Passenger Cars and Trucks, 2003 Hummer H2

02-00-89-015; Dealer Installed Regular Production Accessories (RPA); 2003 Buick Rendezvous, Pontiac Aztek

HVAC:

02-01-39-004; New PAG Oil Released; 2002 Chevrolet Cavalier, Oldsmobile Alero, Pontiac Grand Am, Sunfire, with 2.2L Engine (VIN F -- RPO L61), all 2002 Passenger Cars, Trucks and Hummer H2

SUSPENSION:

02-03-09-002; Intermittent Boom, Rumbling Noise and/or Disturbance Heard in Passenger Compartment While Driving at Highway Speeds (Replace Rear Coil Springs); 2002 Chevrolet TrailBlazer, GMC Envoy with Rear Coil Springs

02-03-10-005; Diagnostic Tips for Steering Wheel Shake/Vibration (Oscillation) Concerns; 2003 Chevrolet Kodiak and GMC Topkick C4500-C5500 Conventional Cab

BRAKES:

02-05-25-005; Diagnostic Trouble Code C0201 Set and Stored in History; 2003 Chevrolet Express and GMC Savana 2500/3500 Vans, Chevrolet Silverado and GMC Sierra 2500/3500HD Pickups with Manual HVAC (RPOs C33 or C42)

ENGINE / PROPULSION SYSTEM:

02-06-01-027; Higher Than Expected Oil Consumption; 2002-03 Chevrolet Silverado and GMC Sierra 2500-3500, 2003 Chevrolet Kodiak and GMC Topkick C4500-C5500 with 6.6L Duramax™ Diesel Engine (VIN1 -- RPO LB7)

02-06-01-028; Engine Crankcase Flush; 2003 and Prior GM Cars and Trucks, 2003

Hummer H2 with Gasoline Engines

02-06-03-008; replaces 43-64-07A; Low Voltage Display on IP Gauge, Lights Dim at Stop Lights, Battery Discharged, No Start, Slow Cranking, Dim Lights at Idle, Low Generator Output; 1990-2003 Passenger Cars and LD Trucks, 2003 Hummer H2

02-06-03-009; Battery Charging Tips; 1990-2003 Passenger Cars and LD Trucks, 2003 Hummer H2

02-06-04-041; Diagnostic Hints/Troubleshooting Guide for Denso Common Rail Fuel Systems; 1999-2002 Chevrolet and GMC C-Model MD Tilt Cab, 2000-03 Chevrolet and GMC WT5500 MD Tilt Cab

02-06-04-043; Revised DTC P0340 Camshaft Position Sensor (CMP) Sensor Circuit Diagnostic; 1996 Chevrolet Astro Van, GMC Safari Van with 4.3L Engine (VIN W -- RPO L35)

02-06-04-044; Service Engine Soon (SES) Light Illuminated, DTC P0440 Set (Replace Fuel Tank Evaporative Emissions Control System EVAP Vent Solenoid Harness); 2000-02 Chevrolet Cavalier, Pontiac Sunfire

02-06-04-045; Revised DTC P0327; 2002 Chevrolet Cavalier, Oldsmobile Alero, Pontiac Grand Am, Sunfire

TRANSMISSION / TRANSAXLE:

02-07-30-022A; replaces 02-07-30-022; Service Engine Soon (SES) Light On with DTCs P0716 and/or P0717, P0730, P0753, P0758, P1860, P1887, or other Miscellaneous Transmission Trouble Codes Set (Repair Wiring at Transaxle Wiring Pass-thru Connector); specified 2000-03 Passenger Cars and Vans with 4T65-E, 4T40-E or 4T45-E Transaxle (RPOs MN3, MN7, M15, M76, MN4, MN5)

02-07-30-025A; replaces 02-07-30-025; Harsh Shifting, Delayed Upshifts, Possible CHECK TRANS Lamp Illuminated, Possible DTC 21 Stored in TCM Memory (Follow TPS Relearn Procedure); 1999-2003 Chevrolet and GMC W-Series MD Tilt Cab Models with Diesel Engine and Aisin Automatic Transmission

02-07-30-030; Transmission 1-2 Shift Shudder, Vibration, Slips, Chuggle (Install Generator Voltage Sense Circuit); 2001-03 Chevrolet Silverado, GMC Sierra with

4L60-E Automatic Transmission (RPO M30)

BODY AND ACCESSORIES:

01-08-66-005B; replaces 01-08-66-005A; Availability of Pickup Box Reinforcement Kits for Toolbox/Rear Window Barrier/Ladder Rack Applications; 1999-2003 Chevrolet Silverado and GMC Sierra (New Body Style) Pickups with Steel Fleetside Pickup Box (RPO E63), Except Dual Rear Wheel (RPO R05), Stepside (RPO E62) and Inner Composite (RPO E37) Pickup Boxes

01-08-66-014A; replaces 01-08-66-014; Pickup Box Sheet Metal Fracture/Damage with Aftermarket Accessories Installed (Repair Pickup Box Fracture/Damage and Install Pickup Box Reinforcements); 1999-2003 Chevrolet Silverado and GMC Sierra (New Body Style) Pickups with Steel Fleetside Pickup Box (RPO E63), Except Dual Rear Wheel (RPO R05), Stepside (RPO E62) and Inner Composite (RPO E37) Pickup Boxes

02-08-44-012; Enable or Disable Remote Keyless Entry (RKE) Radio Personalization Feature; 2000-02 Chevrolet Cavalier, Malibu, Oldsmobile Alero, Pontiac Grand Am, Sunfire

02-08-61-003; Side Assist Step Pad Warping (Install New Step Pad Kit); 2001 GMC Sierra C3 Luxury Pickup Models with Uplevel Side Assist Steps (RPO BVF)

02-08-62-001; Front Fascia Loose (Replace Front Fascia Pencil Braces); 2002 Chevrolet TrailBlazer, GMC Envoy, Oldsmobile Bravada built before VIN breakpoint

02-08-64-017; No Start, Service Engine Soon Lamp On, ABS Warning Lamp On, Air Bag Light On, DTCs Set, Various Door Electrical Functions Inoperative (Replace Driver and/or Passenger Door Harness and/or Repair Body Harness Connector); 2002 Chevrolet TrailBlazer, GMC Envoy, Oldsmobile Bravada built before April 2002

02-08-66-005A; Loose or Broken Rear Compartment Opening Molding (Install New Molding Assembly); 1997-2002 Chevrolet Malibu, 1997-99 Oldsmobile Cutlass, 1999-2002 Oldsmobile Alero and Pontiac Grand Am

02-08-98-001A; Metal Panel Bonding; 2003 and Prior GM Passenger Cars and Trucks, 2003 Hummer H2

Powertrain Quality Center Update

A new Powertrain Quality Center (PQC) was implemented July 1 to obtain faster and more accurate quality information on all replaced assemblies (August 2002 TechLink).

This information and more is included

in a new bulletin 02-07-30-029A issued in September.

TIP: Before replacing an OEM engine or transmission, service assembly or over-the-counter assembly, be sure to follow instructions in bulletin 02-07-30-029A.

The new bulletin explains which engine and transmission assemblies are involved, how to obtain pre-approval, and how to

submit warranty claims. It also includes a two-page template which acts as a guide to the information required by PQC for pre-approval of warranty engine assemblies.

TIP: Fill out a copy of this template before calling PQC, to expedite the phone call and avoid callbacks.

- Thanks to Jim Colyer