



Magnasteer power steering is now available on a wide range of cars from all five GM divisions.

Magnasteer is an electronic device added to conventional power rack and pinion steering to vary the amount of effort required to steer the car, dependent on vehicle speed. At low speeds, steering effort is lower, for ease in parking. As speed increases, steering effort is increased, for greater road feel. Additionally, on some models, evasive steering maneuvers also affect steering effort.

## Conventional Rack and Pinion Power Steering Operation

An understanding of Magnasteer begins with an explanation of conventional power steering. In a conventional power rack and pinion steering gear, the steering input shaft is joined to the pinion by a torsion bar inside the valve body. Whenever the steering wheel is

turned, the torsion bar twists slightly (a degree or two) as the steering effort is applied through the pinion to the resistance offered by the front wheels. The two halves of the spool-type hydraulic control valve are attached, one at each end of the torsion bar. So, when the torsion bar is twisted, the spool halves are realigned relative to each other and fluid is permitted to flow through to the steering gear. Steering effort, determined by the stiffness of the torsion bar and pump flow, is constant at all times.

## Magnasteer Operation

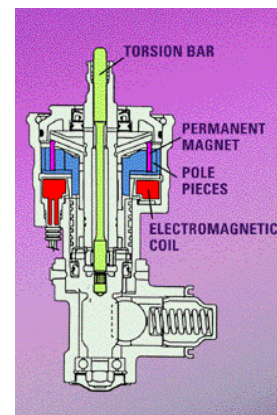
In a car equipped with Magnasteer, the basic power rack and pinion steering system continues to function normally. Magnasteer does not affect flow, so normal boost is available at all times.

The basic Magnasteer system varies only the driver's steering effort, regulated according to vehicle speed. In current production, Magnasteer is controlled by the Electronic Brake Control Module (EBCM); a few models in past years

used a stand-alone module.

The EBCM controls current flow through the Magnasteer electromagnetic coil, both the amount (amperage) and the direction (polarity). Pulse width modulation is used to vary the voltage and the resulting current flow. Current varies between -2 and +3 amps.

Current flows from the controller to the Magnasteer rotary actuator, mounted in the steering rack assembly. It consists of two magnets, a permanent magnet and an electromagnet.



The electromagnet receives the variable current. The permanent magnet has 30 poles spaced at 12° intervals.

There are two separate sets of pole

continued on page 2



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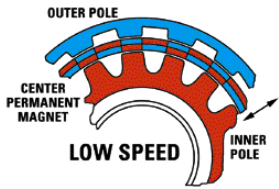
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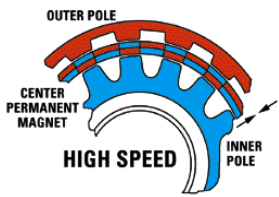
pieces, inner and outer, which close the magnetic field. The permanent magnet sits between the inner and outer poles of the electromagnet.

The strength and polarity of the magnetic field in the electromagnet determines the effect Magnasteer has on steering input.

At zero mph, negative current flows through the electromagnet, and the magnets begin to repel each other. The more the magnets repel each other,



steering effort decreases, as though the torsion bar became lighter. This is the desired condition at low road speeds, such as parking.



At about 45 mph, there is no current flow through the magnetic

coil, so steering effort is determined only by the torsion bar and pump flow.

Above 45 mph, current flows in a positive direction and increases as speed increases. The electromagnetic pole pieces and the permanent magnet attract each other, which raises the torsional rate of the steering gear, and adds to steering effort. It's as though the torsion bar gradually became stiffer. This provides greater road feel.

An added feature on some Magnasteer systems comes into play in a skidding condition. If excessive lateral G-forces are detected, Magnasteer increases steering effort, to encourage the driver not to oversteer.

## Magnasteer MAgE

The latest version of Magnasteer eliminates the permanent magnet. In this form, one pole piece of the electromagnet is mounted to the input shaft and the other to the pinion shaft. At the lowest speeds, there is no current flow through the electromagnet, and steering effort is dependent only on the stiffness of the torsion bar. As speed increases, current flow through the electromagnet increases, and steering effort increases.

In this version, the Magnasteer effect depends entirely on road speed, and there is no change during evasive maneuvers.

Only a highly informed driver could tell the difference between systems. Regardless of which version of Magnasteer is installed on a vehicle, the effect on the driver is the same – steering effort is noticeably easier at low speeds and increases as the car goes faster.

## Service

Diagnosis may be required, based on one of three driver concerns.

1. Light steering effort at all speeds
2. Heavy steering effort at all speeds
3. Erratic steering effort levels at various speeds

Systematic diagnostic procedures are presented in the appropriate service manual.

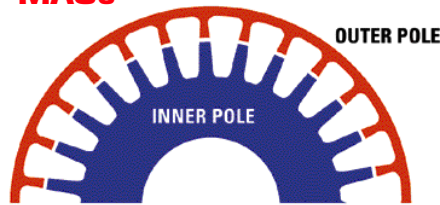
**NOTE:** The Magnasteer system on some vehicle lines can be recalibrated for steering effort, using the Tech 2. There are three settings: Factory, More Firm, and Less Firm. On those vehicles where recalibration is available, use this feature only at the customer's request. Refer to the appropriate service manual for details.

The Magnasteer activator is serviceable only by replacing the entire steering rack assembly. Individual components are not available.

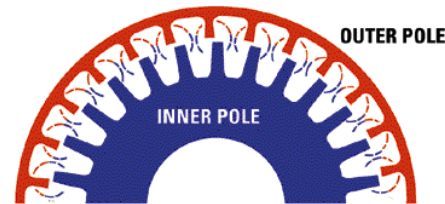
## Electronic Testing

Malfunctions in the electronic portions of the Magnasteer system are diagnosed using the Tech 2 to access diagnostic codes.

## MAGe



## STRAIGHT AHEAD



## STEERING MANEUVER

## Hydraulic Testing Tips

The power steering system section of the service manual presents a test procedure for the Magnasteer hydraulic components, which are the same as those used in non-Magnasteer systems. Use of tester J-44721 permits you to test the operation of the steering gear and the pump, and identify system restrictions.

– Ken Hill and Scott Bower contributed to this article.



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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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## Tools

### Power Steering Analyzer

Power Steering Analyzer J-44721, a new essential tool, has been released by Kent-Moore and will be in your dealership soon. You'll need it to perform the power steering system diagnostic procedures in the 2001 service manual.

The J-44721 analyzer is an updated version of the J-25323 analyzer, which was previously essential for Oldsmobile dealers and available to all dealers.

If you already have the J-25323, you can convert it to become the J-44721 by adding the components in kit J-25323-UPD.

The major difference between the two analyzers is that the J-44721 is equipped with two pressure gauges instead of one, for accurate readings at both low and high pressures. Also, the J-44721 includes an adapter assortment that permits using the analyzer on all current GM cars and trucks.

In addition to the pressure gauges, the analyzer contains a flow meter to measure fluid flow under various conditions. And, a valve permits adding a variable restriction to the circuit as called for in the service manual procedures.



#### Testing Tips

The power steering system section of the service manual provides a test procedure for the power steering system hydraulic components. Use of analyzer

J-44721 permits you to test the operation of the steering gear and the pump, and identify system restrictions that may be present in the pressure or return lines.

The analyzer is installed in the pressure line between the pump and the steering gear. If the system has been repaired, accurate diagnosis requires that the system be bled of air before beginning the test.

Also, any air introduced during the installation of the analyzer must be purged. Maintain the proper level of fluid in the reservoir during the test; use only approved power steering fluid.

The power steering system must be warmed up by allowing the engine to idle until it reaches operating temperature.

The hydraulic tests require you to observe pressure and flow readings under various operating conditions and engine speeds. Never close the control valve on the analyzer unless told to do so by the procedure, and never leave the valve completely shut for more than 5 seconds at a time.

– Matt Stange contributed to this article

### Identifying OE Engine Oil Filters

If you question whether the proper routine maintenance has been performed on a vehicle, there are several things to look at. One way to check if routine maintenance has been performed is to identify the current engine oil filter. If the vehicle still has the original equipment (OE) oil filter after 20,000 miles, for example, routine maintenance may not have been performed.

For 1998-2001 models equipped with a GM Powertrain produced engine, there are several ways you can distinguish between OE oil filters (factory

installed) and non-OE oil filters (which have been installed after the vehicle was new).

This information applies to all vehicles except Saturns, Chevrolet Metro, Tracker and Prizm, Cadillac Catera, and 3.5L V6 (LX5) engines with the PV6 cartridge type filter.

1. OE filters have a small part number label (25.4mm x 35mm). Non-OE filters have a larger label (39mm x 60mm) that includes tightening instructions.
2. OE filters have a seal with a red teflon coating. Non-OE filters have a black, uncoated seal.
3. All filters have an ink-stamped 6 digit Julian date code at the

wrench flat end of the filter (065003 = March 5, 2000, 3rd shift). OE filters have an "OE" at the end of the date code. Non-OE filters do not.

For Chevrolet Metro and Tracker models, the original filters have Suzuki printed on them, and replacement filters do not. On Chevrolet Prizm models, the original filters are black with white Japanese characters, and a caution in English. Replacement filters do not have any Japanese writing.

The next time routine maintenance comes into question, identifying the engine oil filter may help you determine if scheduled maintenance has been performed.

– Rich Burrell

### Water Inside Rear Spoiler

A water sloshing sound may be heard coming from the rear spoiler of some 2000 Pontiac Grand Prix models when the trunk lid is raised and lowered.

If it is confirmed that water is inside the spoiler, remove the spoiler and look for a small hole on both the left and right underside of the spoiler approximately 16 inches inboard from the outboard tip of the spoiler, and two a couple of inches from the rear edge. The small holes may be covered by pieces of tape that should be painted the same color as the spoiler.

Remove the tape to drain the water from the spoiler. Do not retape over the holes. Once the water is removed from the spoiler, reinstall the spoiler on the vehicle.

### RKE Receiver Module Location

The Remote Keyless Entry (RKE) module/receiver has been relocated on 2001 Pontiac Grand Prix models. The module is now located at the cross car beam in front (windshield side) of the passenger side air bag. It was previously located behind the Driver Information Center.

At its new location, the RKE module is accessed by removing the defroster grill. To remove the module, it must be disengaged from the retaining tabs by moving it to the left and then pulling up.

– Fred Tebbets

# Engine Controls

## PERFORMANCE DIAGNOSIS

Think of the best engine performance technician you've ever worked with – how is this person different from you? Likely, you both have many of the same things available.

- essential tools such as the Tech 2 and Fluke 87 DVOM, absolute necessities for this type of work.

- the same diagnostic resources, such as SI2000 for bulletins, preliminary information and service information.

- access to Technical Assistance for those tough cases.

Probably the only thing differentiating you from this person is among these four things, listed in order of importance:

1. diagnostic strategy

2. knowledge of electrical basics
3. knowledge of individual components
4. extra tools

Here they are in detail.

### Diagnostic Strategy

Strategy Based Diagnostics (SBD), along with a complete understanding of the service resources available, are critical in the success of any technician. These skills are the most important to learn, above all else.

### Electrical Basics

Among the essentials you need to know:

- the relationships between volts, amps and ohms
- schematic reading skills
- the differences

between frequency and duty cycle; analog and digital;

Class 2 and UART; capacitance and inductance

Get the picture?

### Individual Component Knowledge

Service manual diagnostics for individual components are the front line of defense. You should always refer to the diagnostic charts associated with various fault codes or symptoms.

But, you've truly mastered a component only when you begin to understand the importance of the voltage level or frequency you're about to measure, or the scan data you're about to read, and the potential causes for variations as you read each step.

There are principles behind the names of various engine sensors and output devices. You're on the road to higher understanding once you realize that a component is not just an Intake Air Temperature Sensor but a thermistor, or not just an Exhaust Gas Recirculation Valve but a solenoid. This type of knowledge comes from training or experience.

### Extra Tools

Extra tools are something you can buy any time, once you understand their benefits. Buying a tool before realizing its potential is a bad idea. Also realize that mastering diagnostic strategy, electrical basics and component knowledge should come before you even consider buying advanced tools.

The accompanying article is the first of

several to be devoted to engine controls. With every coming article, we intend to feature a specific powertrain input or output device. We'll answer many questions, including:

- What type of device is it?
- What is its purpose?
- How is built?
- What does its circuitry look like?
- How is this component best diagnosed? (scan tool, DVOM)

The purpose of these articles is to help you develop the skills and knowledge you need, to become the performance technician that others consider the best. Concentrate on whichever of these four things you need to work on, to differentiate yourself from the others. Only you know what they are.

## THERMISTORS

### (first in a series)

A thermistor is a temperature-sensitive resistor. The thermistors used in GM vehicles have a negative temperature coefficient, meaning the resistance goes down as the temperature goes up. Here are some thermistors used by the Powertrain Control Module (PCM), along with their role in PCM decision making.

Engine Coolant Temperature Sensor (ECT) – affects fuel delivery, idle, TCC apply, EGR, cooling fans, EVAP, knock/ignition control

Intake Air Temperature Sensor (IAT) – affects air density air/fuel adjustments, spark adjustments

Transmission Fluid Temperature Sensor (TFT) – affects TCC apply, line pressure

Temperature vs. Resistance Values  
(approximate)

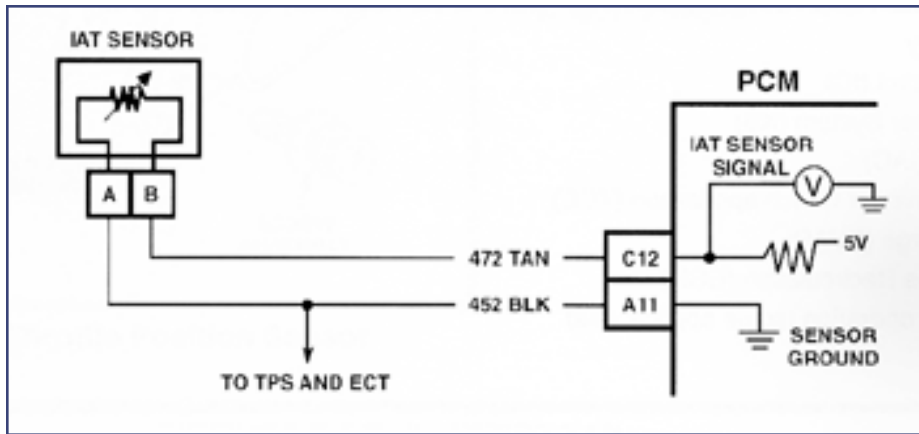
°C	°F	Ohms
100	212	177
90	194	241
80	176	332
70	158	467
60	140	667
50	122	973
40	104	1459
30	86	2238
20	68	3520
10	50	5670
0	32	9420
-10	14	16180
-20	-4	28680
-30	-22	52700
-40	-40	100700

Engine Oil Temperature Sensor (EOT) – affects engine oil life monitor calculations

Note the change in resistance for temperature is not linear. For example, the difference in resistance between –40 and –22 degrees F, a change of 18 degrees, is 48,000 ohms. The change between 194 and 212 degrees, also 18 degrees, is only 64 ohms.

All thermistor-based sensors have two wires.

Circuit basics can be explained using the IAT diagram. The PCM supplies a 5-volt signal through a dropping resistor and out to the IAT on the tan wire. The IAT provides a ground path through the sensor and back to the PCM on the black wire. Note that this sensor ground is often shared by other components and can be influenced by a shorted condition within them.



When the IAT sensor is very cold (high resistance) it acts like a roadblock for the flow of electrons to ground. The IAT sensor signal in the PCM is high. As the IAT sensor heats up, the resistance drops, and more voltage is dropped across the sensor. The circuit is very simple.

Circuitry on a thermistor-based sensor is very easy to test. On a cold engine (one that has not run within six

Don't forget the potentially shared ground paths with other sensors. Thermistors rarely fail for reasons other than circuitry. Terminal corrosion at ECT sensors is a common cause for failure. Connector and sensor replacement is typically necessary.

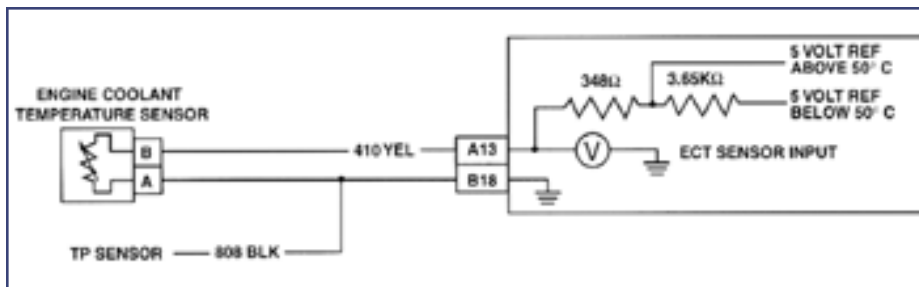
Sensor wiring for an ECT sensor is unique. Earlier, we mentioned the difference in resistance changes on the upper and lower end of the tempera-

tions to just one resistor. This strategy is to maximize the accuracy of the sensor for higher engine temperatures and was necessitated by the resistance characteristics of the sensor. This results in an obvious shift in voltage at the 122 degree mark. At that point, the voltage jumps up immediately from below 1 volt to about 3.5 volts. This becomes important to know if you use a scope to diagnose an ECT circuit live or when using a scan tool on a truck product that includes ECT voltage on the data list.

It's unlikely that you're going to get a P0118 ECT sensor code to work on tomorrow to exercise your new knowledge. But, the sooner you practice, the more likely that you will retain it. So get out there and give those Tech 2 circuit checks a try.

Be on the lookout in future issues for more articles on Performance Diagnosis.

- Craig Blake

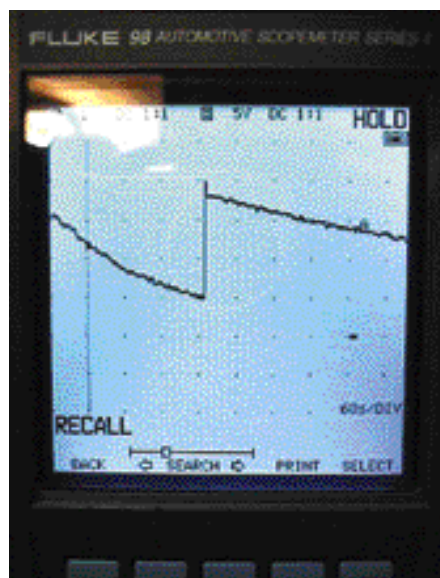


hours), scan data for ECT and IAT should be within ten degrees Fahrenheit.

If a malfunction in the circuit is suspected, observe the scan tool parameter with the sensor unplugged. The unplugged sensor will create very high (infinite) resistance and the scan tool should show a very cold temperature (approximately -40 degrees Fahrenheit). If this does not occur, check the sensor wire for open circuit voltage with a Fluke 87. It should be 5 volts. Less than 5 volts indicates a short to ground condition or a bad PCM.

The next quick circuit check involves a test lead outfitted with two appropriate male terminals. Use this test lead to jump the two sensor wires at the unplugged connector and observe the scan tool parameter. This low resistance connection should yield a very high temperature (260 degrees Fahrenheit or above). Failure of this test indicates ground circuit problems.

ture scale. In the PCM, there are two paths for the 5-volt reference. When the engine temperature is below 122 degrees Fahrenheit, it travels through two dropping resistors. When it reaches 122 degrees Fahrenheit, it transi-



## Cruise Control Cancels Intermittently

The cruise control may cancel intermittently when using the left turn signal on some 2000 Buick Century and Regal models. The resume function is still operational after the cruise control cancels.

This condition may be caused by an internal switch in the multifunction lever causing a backfeed to the cruise control module. The module thinks it has seen a brake switch input signal and cancels the cruise control set speed. If this condition is verified, replace the multifunction lever. Parts are available through GM SPO.

- Wayne Zigler

## Xtreme Pickup Truck Decal Installation

Xtreme models are shipped with an Xtreme decal that fits the windshield. This decal should not be installed during pre-delivery, because it may not be legal to do so in some states. Leave the decal in the vehicle; installation is at the customer's discretion.

- Dan Oden

## GM Service Clubs, Part 2

In the November issue of GM TechLink, we listed a number of GM service clubs around the country that meet to talk about the service issues that dealership service departments face each day.

This interactive communication is one of the benefits for service managers who attend a local service club meeting. The clubs provide a way for service managers to access a wide array of information from other dealership service departments as well as a number of GM sources.

Following is a list of additional GM service clubs. GM supports local service clubs and many GM representatives attend the club meetings. For more information about GM service clubs, contact any of the clubs listed here.

### **SOUTHEAST REGION**

**Atlanta Service Club**  
Contact: Jeff Burns  
Jerry Brown Chevrolet,  
Buford, GA  
770.945.4981

**Metrolina GM Service Managers Club**  
Contact: Tommy Cross  
Dale Earnhardt Chevrolet,  
Newton, NC  
704.465.3251

**Blue Ridge Service and Parts Managers Club**  
Contact: Sam Lilly  
Royal Chevrolet-Oldsmobile-Cadillac,  
Lynchburg, VA  
804.237.9400

**Triangle Service Managers Club**  
Contact: Tony Crabtree  
Don Lacefield Chevrolet-Buick, Hillsborough, NC  
919.732.2151

**Piedmont Service Managers Club**  
Contact: Jeff Keith  
Modern Chevrolet, Winston Salem, NC  
336.722.4191

### **WESTERN REGION**

**LOCAR Club**  
Contact: Gary Loy  
Cormier Chevrolet, Long Beach, CA  
310.830.5100

**Las Vegas Service Managers Club**  
Contact: Tom Hudlick  
Cadillac West, Las Vegas, NV  
702.873.8888

**San Diego Service Managers Club**  
Contact: Earl Ashbury  
Weseloh Chevrolet,  
Carlsbad, CA  
760.438.1001

**Inland Valley Service Managers Club**  
Contact: John Arnold  
Beach City Chevrolet, Long Beach, CA  
562.597.6633

**Central Coast Service Managers Club**  
Contact: Steve Montana  
Rio Vista Chevrolet,  
Buellton, CA  
805.688.3231

**Seattle Service Club**  
Contact: Roger Sideck  
Bill Hazelett Chevrolet,  
Kent, WA  
800.638.7222

**Inland Empire Fixed Operations Club**  
Contact: Dale Poole  
Chipman & Taylor Motors,  
Spokane, WA  
509.334.3555

**Salt Lake Service Club**  
Contact: Ty Johnson  
Jerry Seiner Buick-Pontiac-GMC, Inc., North Salt Lake, UT  
802.298.5163



## Service Operations Advisory Group

GM Service Operations relies on input from a number of sources to assess the opinions and needs of retail dealership service departments across the country. One of these sources is a group of eight technicians, recommended by their TechLine representatives in the five regions.

This advisory group serves as a sounding board for service issues, and their feedback is forwarded to the appropriated department within GM for evaluation. Their suggestions may also lead to future articles in GM TechLink.

Service Operations would like to extend their thanks to the present members of the advisory group, listed here.

**Dennis Murphy**  
Master Technician  
Superior Oldsmobile, Cadillac, GMC  
Paul Richards and Richard McIntyre, owners  
Brighton, MI

**George Reed**  
Shop Foreman/Asst. Service Manager  
Fischer Chevrolet/Oldsmobile  
Bob Fischer, president  
Titusville, FL

**Max Millender**  
ASE Master Technician  
Ewing Buick GMC Pontiac  
Fin Ewing, dealer principal  
Plano, TX

**Jon Finefrock**  
Master Technician  
Faulkner Chevy, Inc.  
Judith Faulkner, owner  
Lancaster, PA

**Lance Mossman**  
CMAT, L1  
Applegate Chevrolet  
Jim Applegate, owner  
Flint, MI

**Dennis Burtness**  
Shop Foreman  
Burtness Chevrolet  
John Bowditch, owner  
Orfordville, WI

**Mark Haynes**  
ASE Master Technician  
Steve Coury Buick-Pontiac-GMC  
Steve Coury, owner  
Cottonwood, AZ

**Joseph Herring**  
ASE Master Technician  
Harold Chevrolet  
Jim Lupient, owner  
Boomington, MN



## TAC Tips

### 2001 Pontiac Aztek Requires Windshield Removal To Replace Evaporator Core

Some information was omitted from SI2000. When remov-

ing the evaporator core, some of the bolts retaining the cross vehicle beam to the hinge pillars cannot be removed due to contact with the windshield. The bolts are approximately 8-10 inches in length. About 3-4 inches will

remain in the hole when they contact the windshield.

The windshield will need to be removed to complete the repair. Take care to avoid breaking the windshield during removal.

– GM Technical Assistance

### Tracker Sensitivity to Tire Vibrations

The 1999 Tracker became more sensitive to wheel and tire imbalance and tire radial force variation, due in part to the design change to rack and pinion steering. OEM tire specifications and the tire and wheel matching and balancing operations at assembly were made more stringent.



concerns may suddenly reappear. The 1999 Tracker uses a lug centered wheel, and relies upon the lug nut taper-to-wheel hole taper interface to center the wheel and tire assembly on the hub. Steering wheel vibrations induced by off-center wheel installations may be significantly reduced with the following procedure.

Start by ensuring that tire air pressure is correct.

Balance the wheel and tire assembly using electronic balancing equipment which also measures radial force variation. Wheel and tire assemblies which have a radial force variation reading of greater than 9 pounds should be evaluated for cause, and may require replacement of the wheel or tire.

Follow this procedure to install wheel lug nuts to aid in centering the wheel on the hub:

Rotate the hub to position two studs of the five at the top of the circle and

parallel to the road surface.

Place the wheel on all five studs, and spin on the top two lug nuts finger tight.

Rotate the wheel 180° so the opposing one stud is at the top of the circle, and spin the lug nut on finger tight.

Using hand tools, tighten these three points of the lug nut pattern to just past finger tight, which will center the wheel on the hub.

Install the remaining two lug nuts and, using a star pattern, evenly torque all lug nuts to the correct value.

### Steering Wheel Shake/Vibration After Tire Replacement

The OEM tire has a Tire Performance Criteria Specification (TPC Spec) number on the sidewall. Replacement tires should carry the same TPC Spec number. If not, different or unwanted ride characteristics, such as steering wheel shake or vibration may be induced.

– Don Sherman contributed to this article.

## Service Bulletin Based on TechLink Reader's Information

GM is listening. Case in point: a suggested repair for 2000 Cadillac DeVille models was sent in to us here at GM TechLink.

The DeVille's right-hand HVAC air outlet vent would close while the blower is on high, and Gary Zaffino, a 21-year veteran technician at Massey Cadillac in Orlando, FL had come up with the fix.

Zaffino suggested fabricating a shim that could be installed on the left and right side of the vent. This would increase the tension on the blower door and prevent it from closing while the blower was set on high.

Service Operations, working with Engineering, investigated the condition and found that Zaffino's suggestion worked.

The result is service bulletin 00-01-39-001. The bulletin points out that a washer, P/N 5462496, should be installed between the right-hand air outlet duct housing and the control lever at the pivot point in order to increase the tension to hold the air outlet shut-off door open. This will keep the shut-off door in the open position when the blower fan is on high while still allowing the thumbwheel to rotate easily.

Zaffino says that when he diagnosed the condition, he knew that the tension needed to be increased somehow on the air outlet door.

"It needed just a little extra tension, but there's not much space in there. I first tried to place foam in the vent, but it would tear, and it needed to be thicker. Then I tried fabricating a shim that was cut to size. It provided the tension needed and was held in place by the vent.

"I'm proud that the information was used by GM. I'm glad I could help."

Now, will all reader suggestions become bulletins? Probably not. But if you have a suggestion for a product condition, try submitting a VME product report.

This system allows you to leave a voice mail message regarding any current product condition you've come across that you think GM engineers should know more about. To submit a product report, call 1-888-274-4185. When you are asked to input the mailbox number, use the following:

- Mailbox 32000, Truck
- Mailbox 32001, Car and U-Van
- Mailbox 32002, Powertrain

GM values input from the field on product concerns. Your insight can help GM increase vehicle quality and owner satisfaction.

In 2000, Tracker design changed to a hub centered wheel which eliminated the vibrations caused by off-center mounting of the wheel. The Tracker, however continues to be sensitive to tire induced vibrations, and customers may benefit from following the TPC Specification recommendation.

### Steering Wheel Shake/Vibration After Tire Rotation

After tires are rotated, steering wheel vibration

### OE information for the 1999 Tracker:

Model	Brand	Tire Size	Pressure	TPC Spec	Treadwear	Traction	Temperature
2WD base	Goodyear Wrangler ST	P195/75R15	26 PSI 180 kPa	1043MS	340	B	B
4WD base	Niroyal Tiger Paw	P205/75R15	26 PSI 180 kPa	1031MS	480	B	B

## Bulletins – November 2000

Warranty; 1996-2001  
Passenger Cars and  
Light Duty Trucks

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

### GENERAL INFORMATION:

00-0089-024; September, 2000 Bulletin Summary; 2001 and Prior Passenger Cars and Trucks

### HVAC:

00-01-38-008; A/C Inoperative (Repair Wires and Reroute Harness); 2000 Chevrolet and GMC S Truck Models With 2.2L Engine (VIN 4 – RPO LN2), Shreveport Assembly, Prior to VIN Breakpoint Y8302995

00-01-38-009; Refrigerant Dye Added to A/C System at Assembly Plant; All 2001 Passenger Cars

### SUSPENSION:

99-03-11-001A; Cancellation of Diagnostic Assistance and Parts Restriction Program for Delphi Chassis Suspension Components; 1999 Chevrolet and GMC C1/K1 Models (Silverado and Sierra) with MSR (Manual Selectable Ride) RPO ZX3

00-03-08-003; Revised Lower Control Arm Removal/Installation Procedure and Fastener Tightening Specifications; 1997-2000 Chevrolet Malibu, Oldsmobile Cutlass and Alero, Pontiac Grand Am

00-03-10-003A; General Motors Tire

### BRAKES:

99-05-25-003A; Cancellation of DBC 7 Diagnostic Assistance and Parts Return Program; 1999 Buick Century, Regal; 2000 Chevrolet Cavalier, Impala, Malibu, Monte Carlo, Venture; 2000 Oldsmobile Silhouette; 2000 Pontiac Sunfire, Montana

### ENGINE/PROPULSION SYSTEM:

99-06-01-002E; Exchange Program for 2001 Model Year; 2001 Chevrolet and GMC C/K and G Light Duty Models, Chevrolet and GMC B7, C6, C7 Medium Duty Models with 8.1L Engine (VINs E, G – RPO L18)

00-06-01-022; Engine Noise (Replace Belt Tensioner); 1999-2001 Chevrolet Tracker with 2.0L Engine (VIN C – RPO L34)

00-06-03-008; Battery Testing Using Essential Tool J42000 Battery Tester; 2001 Corvette

00-06-04-042; Malfunction Indicator Lamp (MIL) On With DTC P0446 Set (Reprogram PCM); 1998-2000 Chevrolet and GMC K/K Models with 7.4 L Engine (VIN J – RPO L29) with California Emissions (NB6)

00-06-04-044; Engine Hesitates, Stalls and/or Will Not Start (Replace Modular Fuel Sender Strainer); 2000 Chevrolet Cavalier, Malibu; 2000 Oldsmobile Alero; 2000 Pontiac Grand Am, Sunfire

### TRANSMISSION/TRANSAXLE:

00-07-30-017; Allison Automatic Series 1000 Transmission Exchange Program (Early Concern Detection); 2001 Chevrolet and GMC C/K 2500/3500 Pickup Models with Allison Automatic Series 1000 Transmission (RPO M74)

### BODY AND ACCESSORIES:

00-08-42-007; Stop/Tail Lamp(s) Inoperative or Intermittent and/or Water in Lamp (Replace Circuit Board/Gasket and/or Lamp Assembly); 1997-1999 Chevrolet Malibu, 1999-2000 Pontiac Grand Am

00-08-49-011; Availability of Smoker's Package; 2001 Chevrolet Venture, 2001 Oldsmobile Silhouette, and 2001 Pontiac Montana

00-08-50-014; Driver's Bucket Seatback Movement During Braking (Replace Seatback Recliner Assembly); 2000 Chevrolet and GMC C/K Pickup (Silverado and Sierra) and Utility (Suburban, Tahoe, Yukon, Yukon XL) Models

00-08-52-004A; Intermittent Operation of Remote Keyless Entry System (Replace Instrument Panel Cluster); 2000 Chevrolet Impala, Monte Carlo

00-08-61-003; Clunk/Pop Noise From Front Of Vehicle (Shim Rear Frame/Cradle Mounts); 2000 Chevrolet Impala, Monte Carlo

00-08-110-004; Rear Quarter Trim Gaps to the B-Pillar (Insert Screw); 1998-2000 Chevrolet Camaro (coupe); 1998-2000 Pontiac Firebird (coupe)

## Thanks for the Information

GM Service Operations sent out a questionnaire asking about the Tech 2 and Electrical Service Information in late September to every dealership in the U.S. The questionnaire was also distributed throughout GM dealerships around the world.

The goal was to gather feedback about the operation and use of the Tech 2 as well as GM Service Information. The response has been overwhelming and GM Service Operations would like to say "Thanks."

The screenshot shows a questionnaire form titled "Tech 2 Satisfaction". It includes a header with the title and two small icons. Below the title is a paragraph of text explaining the purpose of the survey. There are two main sections: "Your Information" and "1. What is your primary role in the dealership? (Mark one)". The "Your Information" section has fields for Name, Dealership, Country, and Telephone number. The "1. What is your primary role..." section has radio button options for Technician, Shop Foreman, Service Manager or Service Writer, Service Advisor, and Other/Please specify. Below this is section "2. How often do you use the tool? (Mark one)" with radio button options for All the time, Most of the time, Some of the time, and Never. At the bottom, there is a "Page 1 of 1" indicator.

The efforts of everyone who completed a questionnaire are appreciated. All of the data is being compiled and a summary of the results of both questionnaires will be put together. With this feedback from actual users of the tools, future product improvements will be made based on what technicians want and need.

Thanks to all who responded to the questionnaires and look for more details soon about future enhancements based upon your feedback.

– Jeff Flood

## ERRATA

### 2001 Tire Pressure Monitor Tool

An illustration in the November, 2000 issue of GM TechLink was incorrect. The tool number J-41760 is correct, but this is what the Tire Pressure Sensor Programmer tool looks like.

