TECHlink
GM
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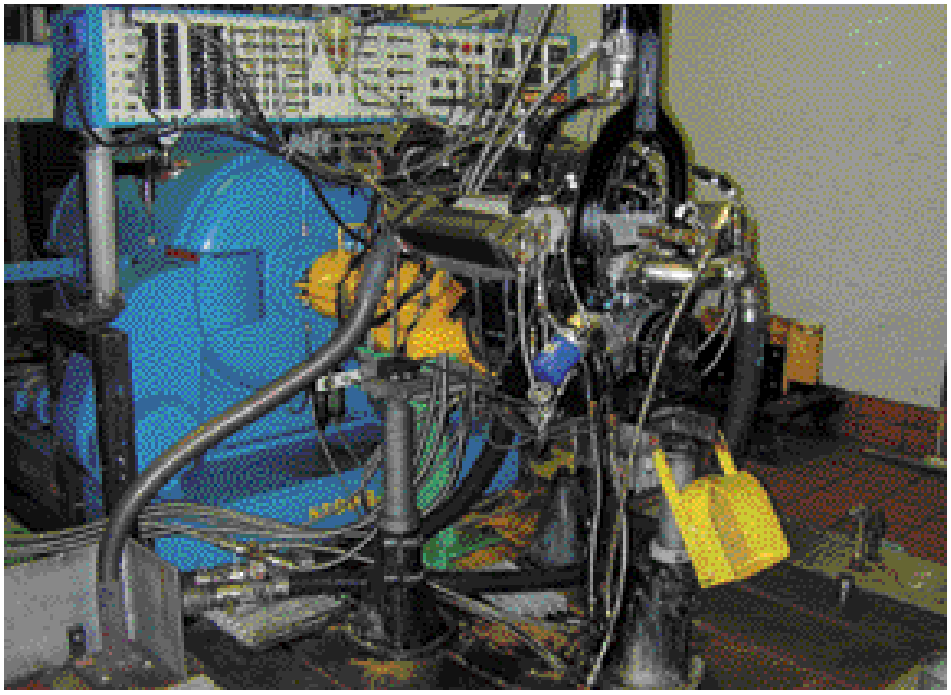
A Monthly Publication for GM Dealership Service Professionals

The Future of Engine Oil



Over the past few months, we've brought you several stories about the oil life monitoring systems installed on various GM vehicles. This month, we're taking a look at what's being done to improve the oil itself.

Although manufacturers' recommended oil change intervals have increased, some customers still insist on changing oil more often than necessary. Habits based on yesterday's technology are hard to overcome. With the likelihood of oil change intervals increasing even beyond those of today, you may be called on to explain how this is possible. Here are some facts to help you out.

How Oils Are Categorized

Engine oils recommended for use in GM vehicles can be identified by the "Starburst" symbol. This symbol indicates that the oil has been certified by the American Petroleum Institute (API). Do not use any oil that does not carry the Starburst symbol. Failure to use the recommended oil can result in engine damage not covered by warranty.

Oil containers also include the API "donut" symbol. The number in the center of the donut lists the oil's viscosity, which is the oil's resistance to flow – thicker when cold, thinner when hot. Multi-grade oil has two numbers – for instance, 5W-30. The number with the W indicates the viscosity under winter conditions, and the number after the W is the viscosity under summer conditions. Use the viscosity combinations listed in the owner's manual for the prevailing weather conditions. Depending on the weather extremes where you live, it may be possible to use the same multi-grade oil year round.

You may also be curious about the alphabetical performance category identified on the donut symbol. For each higher level of performance, the designation advances by one letter. For instance, category SG was introduced in 1988, followed by SH. The current category for gasoline engines, SJ, dates to 1996.

It's permissible to use an oil that meets the performance category in effect when the vehicle was manufactured, or any higher category introduced at a later date. It is not permissible to use a lower category. Your customers don't need to be concerned about all of these performance categories, though, as long as they simply purchase oil carrying the Starburst symbol.

How Oils Are Tested

The API, working with the American Society for Testing Materials (ASTM), and with the cooperation of the various vehicle manufacturers, has put together a process called sequence testing. Engine

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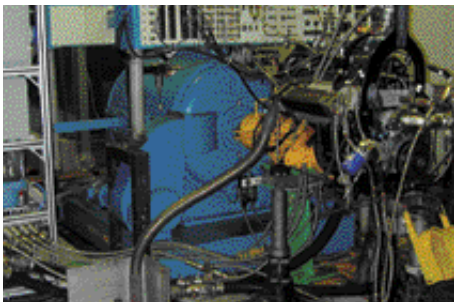
GM Service Operations

oils must undergo and pass the specified tests before being licensed to use the API Starburst symbol. To ensure that oils continue to meet the standards, API performs random testing of oils taken from retail shelves.

The engines used in sequence testing are inspected and assembled with a precision that would make NASCAR envi-



This dynamometer applies the specified load to the engine during the test sequence.

ous. During the test, the engine is lubricated with the oil being evaluated. The procedure subjects the engine to a sequence of carefully specified conditions, which may include speeds ranging from idle to maximum, at high and low temperatures, for specified amounts of time.

There are a number of sequence tests in use at the present. For instance, Sequence 2 concentrates on rust resistance, Sequence 5 checks for sludge and wear, Sequence 6 involves the oil's contribution to fuel economy. And the test shown in the accompanying photos is Sequence 3, for wear and oxidation.

At the end of the test, the engine is disassembled and inspected for the presence of sludge, varnish and other deposits, depending on the sequence. In the case of the Sequence 3 test, critical components are measured for wear. Camshafts and cam followers are critical parts that receive close attention during the post-test teardown. Although roller lifters are commonly used in production engines, specially designed flat-face followers are used in these test engines. This ensures that the oil being tested will continue to offer protection to older engines still on the road.

And the oil itself is analyzed for viscosity increase. Sequence 3 testing is quite severe, and a low quality oil may thicken to a jelly-like mass by the end of the test period.

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Techline News

SI 2000 – What's Next

The latest release of Service Information 2000 (SI 2000) is version 2000.06, and it should be in your dealership now. It includes all the latest service information, including service manual updates, service bulletins and campaigns. But there is more coming.

As additional service information is developed and released, SI 2000 will be updated through incremental broadcasts to dealerships' GM ACCESS servers twice each month. Then about every two months, a complete four CD set of SI 2000 will be shipped to dealerships.

The first incremental broadcast update will be later this month. After that, there will be an incremental broadcast approximately every two weeks. The first broadcast will be SI 2000 version 2000.06.01. Each broadcast update must be loaded to each individual PC running SI 2000. And the incremental updates must be loaded on each PC in the order of their release. For example, version 2000.06.01 must be loaded on the PC before version 2000.06.02 can be loaded.

To determine the current version of SI 2000 running on the PC, go to the Help menu. Then, select "view current application version." The current version of SI 2000 will be displayed.

More information about how to update each PC will be sent to dealerships soon. It's important to update each PC as soon as possible to ensure that everyone in the dealership is using the latest service information available.

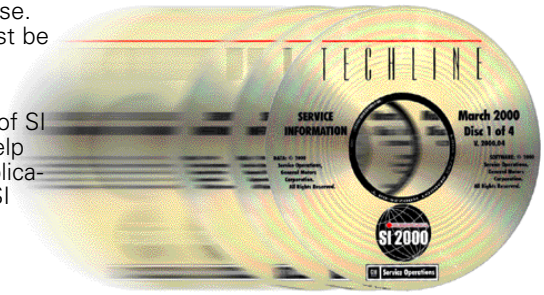
The latest GM service information also can be accessed another way in the dealership -- through the World Wide Web. SI 2000 on the Web is available by logging on to the GM Dealerworld site at <www.gm-dealerworld.com>.

Once you have entered GM Dealerworld, select SI 2000 and enter your dealership's log-in ID and password. Check with your dealership's Regional representatives for the necessary log-in ID and password for SI 2000 on the Web.

The content of the Web site is the same service information found on the SI 2000 package of CDs loaded on your PC.

Now either on your computer or on the Web, you have the latest GM service information right at your fingertips.

– Lisa Scott, Mike Waszczenko



TECHlink GM

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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.

Inclusion in this publication is not necessarily an endorsement of the individual or the company.

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What's Coming

Advances in oil performance do not happen quickly. It's probably safe to say that the relatively frequent advances in the past were the result of the "low hanging fruit" phenomenon. That is, the things that were easiest to accomplish were done first. As time goes on, the advances will require far greater effort and the development of new technology.

A conventional oil filter is used, although the braided cooler lines are part of the test setup.

The present oil technology works like this. The end product -- the oil in the plastic bottle -- is the result of combining base stock and additives.

Base stock is obtained by removing undesirable elements from the crude oil. The qualities of the end product are largely dependent on where the oil was obtained; certain oil fields yield crude that can be refined into better base stock than others.

After the crude oil is removed from the ground, it is subjected to various processes that eliminate the undesirable components. Up until now, the refining process depended heavily on solvent extraction and solvent dewaxing. Then additives were used to make up for the properties that the base stock did not provide.

Now, new processes are under development that will not only screen out more undesirable elements from the crude oil, but will also be able to transform undesirable components into desirable ones. The words used to describe these processes are jawbreakers -- hydrocracking (which rearranges molecules) and hydroisomerization (which converts waxes into useful oil).

Because development is still underway, it's too soon to put firm numbers to the improvements or to pinpoint an exact timetable, but here are some benefits your customers can expect from engine oils in the near future:

- improved fuel economy, due to improved friction modifiers

- reduced oil consumption, due to the use of fewer "light ends," which are volatile components in the base stock

- overall increase in oil life, due to the more efficient removal or conversion of the undesirable components in the crude oil.

Be on the lookout for the next increase in engine oil performance. The API designation is likely to skip a few letters to SL. Regardless, oils approved for use in GM engines will continue to wear the "Starburst" symbol. And be sure to check the appropriate owner's manual to keep abreast of the latest in oil change intervals.

– Bob Olree and Sid Clark contributed to this article.

Tools

Reminder: Battery Testing and Replacement Using the Midtronics Tester

Subject Vehicles: 1997 - 2001 Passenger Cars and Trucks

You will soon be receiving a warranty administration bulletin explaining the proper procedure to follow when testing batteries that are under warranty. Certain information is needed to properly complete the warranty claim. GM uses the requested information in the process of continual product improvement. Claims submitted without this information will be subject to review and possible subsequent debit.

Refer to service bulletin 99-06-03-012 issued in December 1999 for the complete procedure. Here are points of emphasis.

NOTE: Always shield your eyes and avoid leaning over the battery whenever possible.

The Midtronics Micro 410 Battery Tester J-42000 should be used. It is capable of identifying batteries that are serviceable and can be charged, without the need to perform a traditional load test. Follow the instructions in the service bulletin.

The battery's correct CCA (cold crank amp) rating must be entered in the Midtronics tester.

Use the terminal test adapters supplied with the tester; the only acceptable substitute is GM P/N 12303040.

The seven-digit Midtronics tester code is a critical piece of information. The procedure states that if the battery fails the "In Vehicle" test, you must disconnect the battery cables (do not remove the battery from the vehicle at this time), install the terminal adapters and re-test the battery using the tester's "Out of Vehicle" test. Replace the battery only if the second test shows a REPLACE BATTERY or BAD CELL result. The test code from the second test must be entered in the comments section of the warranty claim.

Leaking batteries are to be claimed using failure code 6J, to assist engineering with product analysis, and do not require a Midtronics test code.

If a battery has leaked and has soaked the battery insulator blanket, a new blanket must be installed on the new battery.

Refer to the bulletin for correct Cadillac Roadside Service claim procedures.

– Steve Diamond contributed to this article.

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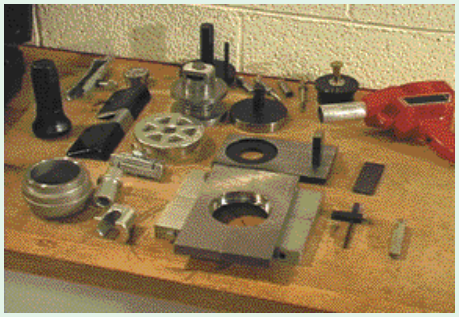
C5 Rear Axle Tool Kit Announced

When the C5 Corvette was introduced in 1997, the external oil seals and any leak items could be replaced, but the internal compo-



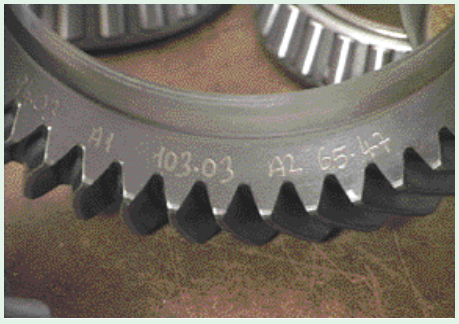
nents of the Getrag-designed rear axle were serviceable only by replacement of the whole unit. Now, a new tool kit from Kent-Moore permits servicing the rear axles in all C5 Corvettes.

With this new tool kit, you will be able to adjust pinion depth, shim the differential case, and service the limited slip components of the rear axle.

All procedures are detailed in the 1997-2001 Corvette service manuals. Here are the highlights.

Setup Values

All ring gears are stamped with setup values that are particular to that gear set. These numbers,

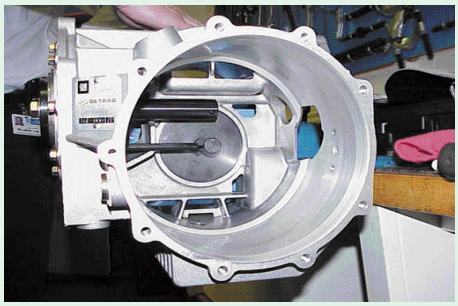


Setup Value on Ring Gear

labeled A1 and A2, are based on noise measurements, determined at the time of manufacture. You must use these setup values when calculating the thickness of the pinion and differential case shims, to ensure quiet axle operation.

Adjusting Pinion Depth

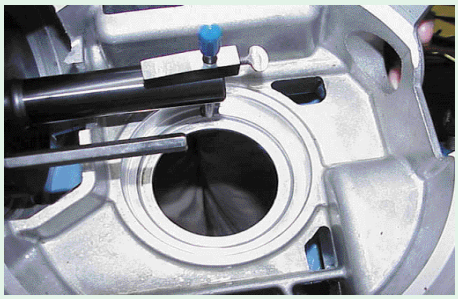
Pinion depth is measured indirectly. When the J-42168-2 Shim Gauge and J-42168-11 Pinion Housing Spacer are installed in place of the pinion, they represent the depth of the pinion gear.



Measuring Pinion Depth

The Differential Centerline Cylinder installs in the left side bearing race bore in place of the ring gear and differential assembly. This establishes the centerline of the ring gear.

The shim thickness is determined mathematically. First obtain the measurement between the Shim Gauge and the Differential Centerline Cylinder using a feeler gauge. Following the instructions supplied with the tool set, you will use your measurement and the A1 value on the ring gear to calculate the



Picking Up the Location of the Bottom of the Left Side Bearing Bore

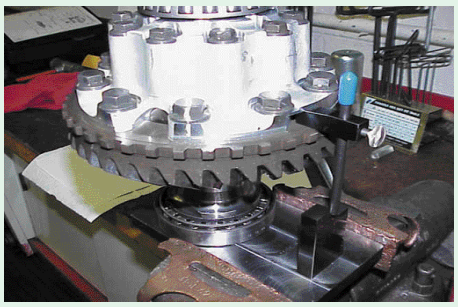
required shim pack.

Shims are available in five sizes: 0.2, 0.25, 0.3, 0.5 and 1.0 mm and may be combined into a shim pack of the necessary thickness.

Shimming the Differential Case

The left bearing is measured and shimmed first. Begin with the Shim Gauge positioned in the pinion bearings and set the Depth Gauge to contact the bottom of the left side bearing bore in the case.

With the ring gear and differential case assembly sitting on the measuring fixture, and the Depth Gauge



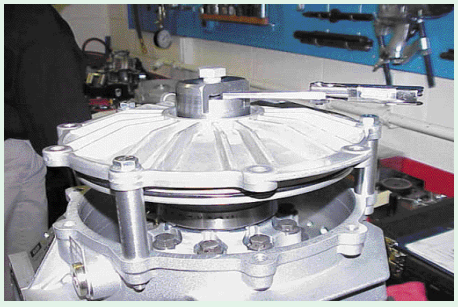
Measuring Length of Axle Carrier

on the ring gear, measure the distance to the Gauge Block with a feeler gauge. The Gauge Block has two steps. Be sure to use the correct one for the axle you're servicing. Following the instructions supplied with the tool set, you will use your measurement and the A2 value on the ring gear to calculate the required shim pack.

Shims are available in four sizes: 1.9, 2.0, 2.1, and 2.2 mm.

The right output shaft clearance is measured using the Side Bearing Shim Selector, spacers, and bolts. The thickness of the feeler gauge indicates the thickness of the shim required.

The information given here is merely a highlight of the entire procedure. The tool kit is accompanied by a videotape, which demonstrates these and other major procedures in



Measuring Clearance of Right Output Shaft

detail for you. Be sure to watch it. In all cases, refer to the service information for the complete procedure.

– Bill McCune and Ron Minoletti contributed to this article

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Enrolling in Technical Training Clicks On-Line

You would like to enroll in an Interactive Distance Learning (IDL) course or the latest hands-on training center course, but you're just not sure how. Simply put, go on-line. Course enrollment is now available on the Web as part of the Training Management System (TMS) through the GM Service Technical College (STC). In the future, GM training for all dealership positions will be able to be managed and tracked with TMS.

TMS provides access to all technicians' training information in an easy-to-use format and includes:

- Course Catalog
- Course Enrollment
- Course Schedules
- Waiting Lists for Courses
- Individual Training Plans
- Reports
- Course Evaluations
- Online Assessments and Tests
- Training History
- On-line Help

Service Managers have access to the training information for each of their technicians and can view reports on their technicians' training performance individually or as a group. Technicians also can view their own training records and enroll in classes on-line.

TMS can be accessed through an Internet Service Provider (ISP) on the Web or through GM ACCESS.

Through an ISP:

Once your computer is connected to the Web, start your Web browser and enter the GM STC Web site address: <www.gmstc.com>. From the GM STC home page, select the tab titled "Training Management" to go to the TMS log-in screen.

Through GM ACCESS:

The GM STC Web site also is available via GM ACCESS to GM dealership personnel and employees with a Web browser connection to the GM Socrates Web site. Once connected to the site, <www.gmaccess.com>, go to the GM ACCESS approved site list and select the GM Service Technical College item. Selecting the tab titled "Training Management" will take you to the TMS log-in screen.

At this point, whether using an ISP or GM ACCESS, enter your student number with no dashes (in most cases this will be your social security number) as the username. This same student number also is used as the password. After logging in the first time, and every 30 days after that, the individual should select the User Manager option and change their password to prevent unauthorized access of their training information.

GM Dealerworld

Coming in 2000, the GM STC Web site will be available to GM dealership employees through the GM Dealerworld Enterprise Portal. This is an Internet portal that allows access to other GM-approved Web sites using a single log-in. GM Dealerworld is accessible at www.gm-dealerworld.com via any PC that has a connection to the Internet.

Prior to accessing any site through GM Dealerworld, dealership personnel must obtain a user ID and password from the designated dealer employee who is the GM Enterprise Portal (GMEP) Security Manager in the dealership. This user name and password will become the only ID required for the user to access all applications available through GM Dealerworld.

Course Information

Each GM STC course is made up of one or more components.

- Web-based training (WBT) (currently available on CD-ROM) covers basic theory of operation.

- Live Interactive Distance Learning (IDL) broadcasts provide diagnostic information.

- Hands-on training allows service technicians to demonstrate their skills and knowledge in a performance-based setting. Hands-on training is available at the GM Training Centers and select satellite locations.

- GM Service Know How Videos support the GM STC curriculum by providing information on new product features, emerging technologies and/or specific repair procedures.

Course Enrollment

When technicians enroll themselves in a course, there is a two-step enrollment and approval process. Technicians must meet the appropriate prerequisites to enroll and obtain approval from their Service Manager.

Technicians can enroll by following this procedure:

1) Go to www.gmstc.com

2) Select "Training Management"

3) Enter your ID and your password

4) Select the "Schedule" tab and enter the appropriate search criteria. A list of courses will be presented with a link to self-enroll.

When technicians enroll themselves in a class via the TMS, the enrollment is first placed on a "pending" status. Upon submitting an enrollment request, the TMS returns an e-mail message that the enrollment was successful, but must be approved by a service manager. An e-mail message is then sent to the service manager requesting approval for the technician's pending enrollment.

The service manager must then access the TMS, select the "Enroll" tab, and then select "View" pending enrollment records. A list of enrollments awaiting approval is presented, with an option to approve or cancel the pending enrollment. Once selecting approve or cancel, the TMS will return a message indicating the success of the enrollment. Additionally, another e-mail will be sent to both the service manager and the technician that states that the enrollment has been approved and confirmed.

When service managers perform enrollment, it is a single-step process. Service managers can enroll a technician by selecting the "Training Management" tab, entering their social security number for ID and password (with no dashes), then selecting the "Schedule" tab and entering the necessary information. An additional link to enroll a trainee also is available.

Course Testing

Currently GM Service Know How Videos offer course testing on-line. To access the available tests, complete these steps:

1. Go to www.gmstc.com

2. Select "Training Management"

3. Enter your social security number (no dashes) for both your ID and password.

4. Select "Tests"

5. On the test page make sure that "course number" is displayed in the left window and "contains" is in the right window. Then enter the course number in the lower window and submit. (i.e. - 12241.20v for the G-Van Sliding Door Repair test). Another option is to enter the letter "V" in the lower window and submit. This will bring up a list of all the tests that are available. Once you have located the test you wish to take, select "Take Test."

6. Complete the test.

7. At the end of the test, results are displayed along with an option to submit an evaluation on the video test. Training records are immediately updated.

With TMS, dealership managers are able to manage their training more effectively as they have current training status, various reporting options, schedules and training management tools available as needed.

Watch for an upcoming video that will provide additional information on other features of the TMS. Contact the Help Desk at 1-800-336-0886 for further information.

– Jean Hart

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TAC Tips

Cadillac Road Texture Detection/Normal Force Feature Description

Road texture detection is a feature used by the EBTCM (ABS system) on 1997-1999 Cadillac DeVille Concours, 1997-2000 Cadillac Seville SLS and STS, 1997-2000 Cadillac Eldorado ETC and 2000 Cadillac DeVille DTS models with CVRSS. It is not the same as the rough road parameter.

The road texture detection feature allows the EBTCM to use inputs from the CVRSS module to "understand" road surface conditions. The EBTCM uses this information to reduce false ABS activation caused by rough roads as well as to help optimize ABS braking performance on different types of road surfaces.

There are four different road textures that the EBTCM recognizes based on input from the CVRSS system:

1. smooth
2. course
3. rough
4. harsh

The Tech2 displays this parameter as "normal force" and does not refer to the original name of road texture detection. The normal force is expressed as a percentage of pulse width modulation on the Tech2.

1. smooth = 20% PWM
2. course = 40% PWM
3. rough = 60% PWM
4. harsh = 80% PWM

The EBTCM and CVRSS module have two dedicated circuits between them: one for the left side and one for the right side. The EBTCM applies 12 volts to those two circuits and the CVRSS module toggles the voltage at a frequency of 333 Hz. Although the 333 Hz remains constant, the percentage of time the circuit is left high (12 volts) or low (0 volts) affects the PWM percentage.

In this particular case, the greater the percentage of time the voltage remains high at the EBTCM (12 volts), the higher the PWM value expressed on the Tech2.

The CVRSS module toggles the two circuits and varies the PWM percentage (frequency remains constant at 333 Hz). This is done based on inputs received from the four body position sensors. The sensors are an analog input to the CVRSS module that range in scale from 0.25 volts to 4.75 volts. When the road surface is harsh, the output of the body position sensors will provide more variance than when the road surface is smooth (very little variance). The software in the CVRSS module distinguishes between the possible differences and then communicates the road surface conditions to the EBTCM as described above.

Do not confuse this feature with the rough road parameter, which is an entirely different data parameter.

ECM/PCM Flash Calibrations when Reprogramming is not Allowed

A change to SPS was made recently during ECM/PCM flash programming that does not allow reprogramming of an ECM/PCM with the same calibration that is currently in the control module. This change affects 1996 and later model year cars and trucks. When the same calibration is detected, the Techline terminal has always displayed the message that the calibration that is trying to be installed is the same as what is in the ECM/PCM. In the past, it was possible to click "OK" and continue with the programming procedure. Now, when "OK" is entered, the Techline terminal stops the programming process and displays this message: "Important: The calibration selected is already the current calibration in the control module. Reprogramming with the same download file is not allowed."

There is no valid reason to install the same calibration back into the vehicle except for in some specific cases. One example is when the ECM/PCM has lost the vehicle identification number and a DTC B1001 is set. One other example would be a parts ECM/PCM that was installed in a different vehicle for testing and now is installed in a second vehicle. For these two known situations contact TAC to obtain a VCI number.

Note: It's still possible to obtain a VCI number for a truck when differential gear ratios or tire sizes are changed if it is a supported combination that is available for that model and year.

S-Truck Rear Axle Horizontally Mounted Hop Shock Missing

Technicians may notice that the power hop shock (horizontally mounted at the rear axle) is missing from some 2000 model year 2WD Chevrolet S-10 and GMC Sonoma Pickups equipped with sport chassis package RPO-ZQ8. The shock on ZQ8-equipped trucks with the 4.3L engine and automatic transmission was eliminated to improve ride quality. Comparably equipped vehicles built after VIN breakpoint 1GCCS19W4Y8215947 will have the brackets but will not be equipped with the shock. Do not install a power hop shock on these vehicles.

The shock continues to be used on 4.3L engine, manual transmission pickups equipped with the ZQ8 package. Four-cylinder engine ZQ8-equipped trucks have never had the shock or brackets.

OnStar Restricted Parts Ordering Procedure

All OnStar VCUs, VIUs and handsets are available only through the OnStar Restricted Parts Program. To order one of these restricted parts, call the OnStar Technical Assistance Center at 1-888-ONSTAR1 (1-888-667-8271) and select prompt #4. Once an OnStar TAC case has been opened, the results from any diagnostics used to determine the need for a replacement part will need to be provided to the OnStar TAC consultant. The OnStar TAC consultant may then request further testing on the system.

Once the consultant identifies the need for a replacement part, the consultant will require the number off of a UMS claim form. This form is maintained by the parts department and is used for Delco radio exchanges. Allow two full working days for delivery of the part.

-- GM Technical Assistance

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2001 Aurora New Model Features

The 2001 Oldsmobile Aurora has hit the streets. Along with its all-new sheet metal and 3.5L V6 and 4.0L V8 engines, the Aurora offers a number of new features and components. Since its launch earlier this year, there have been a few items that may come to the attention of your customers. Some of these may require service, while others may only need a quick explanation on proper operation to Aurora owners.

Underhood

Starting underhood, the 3.5L V6 (VIN H, RPO LX5) joins the completely redesigned 4.0L V8 (VIN C, RPO L47) in Aurora's engine lineup. The dual overhead cam 3.5L V6, first introduced in the Intrigue, is part of the premium V-engine family.

For 2001, a new low-friction valvetrain, new pistons and redesigned combustion chambers contribute to make the V8 cleaner, quieter and more fuel-efficient. And the V8 engine now requires only 87-octane gasoline.

An emission device on both engines is the Secondary Air Injection (AIR) system, which lowers emission levels to the point that the Aurora qualifies as a Low Emission Vehicle (LEV). It uses an air pump to pump fresh air into the exhaust stream. The air helps the catalyst to quickly get to a working temperature, lowering tail pipe emissions on start-up.

During cold weather, customers may notice a momentary headlamp flicker when the AIR pump begins to run if several accessories also are being used (heated seats, defogger, etc.). This is a normal operating characteristic and does not affect performance in any way. The AIR system will operate until coolant temperature reaches 165 degrees on the V6 engine and 195 degrees on the V8 engine.

One additional note about the Aurora's engines is regarding the correct oil filters. The V6 uses the same oil filter as the Intrigue V6, AC 25177917. The only oil filter listed in the owner's manual, AC Type PF-58, is for the V8 only.

Exterior

The V6 and V8 Auroras use different rear deck lids and, depending on the model, different rear license plate retainers. The V8 models have an aluminum deck lid. The license plate retainers are black with a foam seal and screw directly into the deck lid. If the foam seal is not in place, there is a direct path for water to enter the trunk. The V6 models have a steel deck lid with an insert pocket for the rear license plate. The plate is retained by the conventional white retainers and four screws. The screws do not go through the deck lid into the trunk compartment.

Moving up to the front of the car, the front fascia has a pocket for a license plate. All Auroras now include a front cover with two pushpins that retain the cover to the front fascia in place of the license plate. In states that require a front license plate, the front cover is not needed and can be discarded.

Early production models built between December 1999 and February 2000 may have a headlamp fogging or etching condition due to the outgassing of the headlamp socket seal. The gas may etch the headlamp lens, which may require replacement. A new, cured seal is now being used. The etching of the lens does not affect the performance of the headlamp or lens.

Owners of early production models may also notice that the wheel center cap may move slightly or rattle. To correct this condition, use an epoxy to secure the wire ring that supports the retention legs to the groove inside the cap. The epoxy will keep the wire ring attached to the legs and not permit the legs to come out of the groove and allow the cap to move. Melting the cap or using a silicone sealer is not recommended.

Aurora models built after February 21, 2000 use a new caster trail suspension, with new components such as lower control arms and spindles, that lessens the degree of caster on the car from six degrees to five degrees. This provides better handling without any adverse effects to the ride. There are differences in the alignment specifications between the models with the new suspension and earlier models.

Interior

Class 2 communication is used throughout the Aurora. This allows many components, including radio components, to communicate on the same communication line, eliminating many wires. However, when one line from the radio to the radio speakers is grounded in some way, none of the speakers will work. If this condition is evident, check for a pinched speaker wire by the mirror patch in the doors. There is a tweeter speaker located in each front door. If a wire leading to a speaker is pinched, the radio will appear to work, but there will not be any sound from any of the speakers.

The radio also has a new feature, speed-compensated volume (SCV), which many owners may not fully understand. SVC has settings for low, medium and high. SVC is off when the vehicle arrives at the dealership from the assembly plant. When turned on, as vehicle speed increases or decreases, the radio volume also increases or decreases. However, the change in volume is not linear. It is designed to increase or decrease in steps. If the vehicle is stopped quickly, it may take a second for the radio volume to catch up to the vehicle's speed. The result is that the radio volume may seem to be louder than usual for a second when coming to a quick stop.

The Aurora also features battery run-down protection that turns off all accessories after 20 minutes with the ignition off. This may be a concern for owners who use a mobile phone in the vehicle. For continuous power to run accessories, move the run-down protection fuse (22/23) over one spot to the third leg position.

To improve grounds in the Aurora, the assembly plant is using torque monitoring equipment to ensure proper ground connections. If a vehicle exhibits an intermittent electrical condition, check for loose ring terminals or pulled open ground pack connectors.

The OnStar communication system, which is not currently available on 2001 Aurora models either through dealer-installation or the factory, will be available shortly. An OnStar wiring harness will be installed on vehicles beginning this summer to make OnStar standard in all remaining 2001 Aurora models.

– Ian Doran

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Bulletins – April 2000

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

GENERAL INFORMATION:

99-00-84-021A; Replaces 99-00-84-021; Expediting Parts; 2000 and Prior Passenger Cars and Trucks

00-00-89-006; February 2000 Bulletin Summary; 2001 and Prior Passenger Cars and Trucks

HVAC:

00-01-38-004A; Replaces 00-01-38-004; Intermittent A/C Operation (Clean Terminals, Seal A/C Low Pressure Sensor); 1996-99 Chevrolet and GMC G-Van (Plant Code 1)

STEERING:

00-02-34-001; Side to Side Steering Wheel Movement/Bump Steer (Install New Front Leaf Spring Spacer and U-bolts); 1997-2000 Chevrolet and GMC B7 Medium Duty School Bus Models with 10,000# Front Axle, 11,000# Front Suspension and Ross Power Steering (RPOs FM6, FNO, NXW)

SUSPENSION:

00-03-10-002; Replaces 83-35-08; Chemical Staining of Chrome Wheels; 2001 and Prior Passenger Cars and Trucks

ENGINE/PROPULSION SYSTEM:

00-06-01-004; Identification of Camshaft Sprocket Design for Service; 2000 Buick Century, 2000 Chevrolet Impala, Malibu, Monte Carlo, Venture, 2000 Oldsmobile Alero, Silhouette, 2000 Pontiac Grand Am, Montana, With 3.1L or 3.4L Engine (VINs J, E – RPOs LG8, LA1)

00-06-01-006; Engine Tick Noise (Purge Air from Valve Lifters); 1999-2000 Chevrolet Tracker with 2.0L Engine (VIN C – RPO L34

00-06-01-007; Essential Tool J-43690 – Rod Bearing Clearance Checking Tool; 1999-2000 Cadillac Escalade, 1996-2000 Chevrolet and GMC C/K, M/L, S/T, G and P Models, 1996-2000 Oldsmobile Bravada, With 4.3L, 5.0L or 5.7L Engine (VINs W, M, R – RPOs L35, L30, L31)

00-06-01-008; Accessory Drive Belt Squeak/Chirp Noise (Install New Double Row Idler Pulley, Generator Bracket and Serpentine Belt); 1998-2000 Chevrolet Camaro, 1998-2000 Pontiac Firebird (Built Prior to VIN Breakpoint) with 5.7L V8 Engine (VIN G – RPO LS1)

00-06-04-013; Rough/Unstable Idle During Engine Warm Up (Reprogram PCM); 1999-2000 Chevrolet Tracker with Manual Transmission

00-06-04-014; No, Hard, or Slow Start, Backfire or "Kickback" During Crank/Start, "Grinding" or Unusual Noises During Crank, DTC P0338 (Replace Crankshaft Position Sensor); 1999-2000 Cadillac Escalade, 1995-2000 Chevrolet and GMC S/T Models, 1996-2000 Chevrolet and GMC C/K, M/L, G, P Models, 1996-2000 Oldsmobile Bravada, With 4.3L, 5.0L, 5.7L or 7.4L Engine (VINs W, X, M, R, J – RPOs L35, LF6, L30, L31, L29)

BODY AND ACCESSORIES:

00-08-64-004; Window Motor Noisy/Inoperative (Replace Motor/Regulator); 1998-2000 Chevrolet Corvette

00-08-68-001; Transmission Will Not Upshift After a Downshift at Highway Speeds While in Cruise Control (Replace Cruise Control Module (Servo)); 1999-2000 Chevrolet Tracker

Would You Like to See *TechLink* on the Web?

We've been receiving questions like these:

"When are you going to put TechLink on the Web?"

"We're not getting enough copies of TechLink every month for all of our technicians. Why don't you put it on the Internet?"

"I'd like to be able to look up an article from a past issue of TechLink. Wouldn't it be convenient to be able to find it on the Web?"

So, should we do it? We'd like to hear from you. Here are some of the ideas we're considering putting on the Web:

- The entire contents of the current month's *TechLink*, including illustrations
- New! Video clips to illustrate important points every month
- Articles from past issues indexed in easy-to-use archives
- Complete copies of past issues ready to print, in full color or black and white
- Late breaking news
- A convenient e-mail form so you can contact the *TechLink* staff
- Links to other Web sites you will find useful in your job
- User guides for the Tech2 and SI 2000.
- And just for fun, a monthly trivia quiz.

Take a few minutes to visit <www.gmtechlink.com>. It's still under construction, but it'll give you an idea what we're working on. While you're there, be sure to fill out the convenient questionnaire on the Web site and automatically e-mail it to us. Or, you can fax this form to 1-248-649-5465. It contains the same questions as the Web site.

Thanks for taking the time to let us know what you think.

Fill out this questionnaire online at www.gmtechlink.com or copy this page and fax it to 1-248-649-5465.

1. What is your job?

❑ A. Technician
❑ B. Service Consultant
❑ C. Service Manager
❑ D. Other

2. Which of the following best describes your business?

❑ A. Retail Dealership
❑ B. Fleet
❑ C. Other Service Facility
❑ D. GM Wholesale Organization

3. Would you like to see GM *TechLink* available on the Internet?

❑ A. Yes
❑ B. No

4. If GM *TechLink* were available on the Internet, where would you most likely access it from?

❑ A. Dealership
❑ B. Home
❑ C. Both

5. Would you like to see GM *TechLink* expanded to cover more service issues?

❑ A. Yes
❑ B. No

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