

Pro-Cut Brake Lathe

GM Dealer Equipment has begun shipping the new essential Pro-Cut PFM 9.2 Auto-Compensating On-Vehicle Brake Lathe to all tier 1-4 dealers (franchise sales greater than 100) who sell Chevrolet Colorado and GMC Canyon trucks.

TIP: Tier 5 dealers will be required to sublet rotor turning on these vehicles to a facility equipped with approved equipment.

Refer to bulletin 03-05-23-005 for details.

The Pro-Cut lathe performs brake rotor turning on-vehicle. It can be used with both hubless and captured rotor configurations.

Explanation of Hubless vs. Captured Rotor

Until now, the typical GM car or truck has used a "hubless" brake rotor. That is, the rotor is slipped onto the studs on the hub, followed by the wheel. The wheel nuts clamp the rotor between the hub and the wheel.

The Colorado/Canyon introduces a new brake design called "captured rotor." Here, the wheel is mounted to the wheel studs on the front side of the hub, the same as before. But the brake rotor is bolted to the back side of the hub and is retained by separate fasteners.

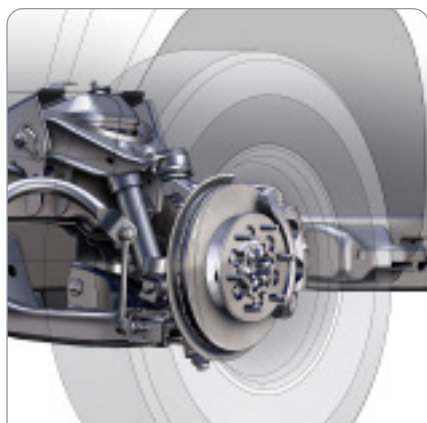
This affects rotor service in several ways.



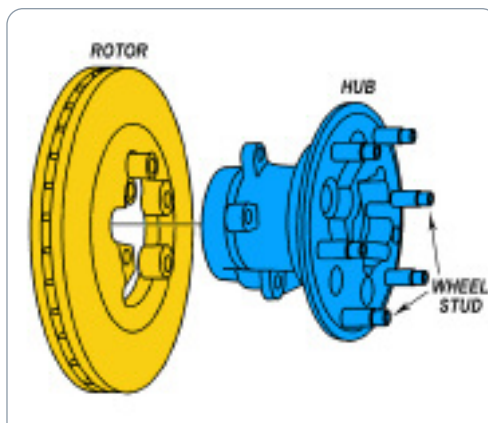
1. Rotor removal requires removal of not only the wheel, tire, and brake caliper, but also the hub/bearing assembly, which contains the ABS sensor and wiring. Then the rotor is removed from the backside of the hub.

2. Once the rotor is removed, it is difficult to chuck onto a lathe due to the large, irregularly shaped hole in the center (there is no round center hole, as in hubless rotors).

continued on page 4



Typical captured rotor



Captured rotor components

Techline News

REMINDER

DealerWorld ID and Password – U.S. service managers and technicians are reminded to obtain individual ID and password from your Partner Security Coordinator (PSC) for continued access to SI.

End of Support for Windows 98 – Effective January 15, 2004, GMSO will no longer test TECHLINE software applications on Windows 98SE, ME and NT. Dealers are strongly recommended to

upgrade with a full version of Windows 2000 Professional or Windows XP Professional. Review the hardware specifications before buying software to ensure the TECHLINE PC meets minimum specifications.

Refer to the December TechLink and GM Messenger communication for full details.

- Thanks to Mike Waszczenko and Lisa Scott



Contents

Pro-Cut Brake Lathe	1
Techline News Reminder	1
GMLAN and Class 2 Difficulties	2
GM TechLink in Sixth Year	2
Service Training Standards Requirements	2
20-Inch Accessory Wheels and Tires	3
Dinghy Towing Update	3
Winter Cover	5
Evaporator Case Water Intrusion	5
Steering Wheel Controls	5
2004 Chevrolet Aveo	6
TAC Corner	7
Waved Steel Clutch Plate	7
Fix It Right the First Time	8
Know How Broadcasts for February	8





Programming Corner

GMLAN and Class 2 Difficulties

Here are some ways to avoid trouble when using the Tech 2 to communicate with the GMLAN.

1. Be sure you have the current software installed on your Tech 2.

2. Perform the Tech 2 Cable Test before using the Tech 2 with the CANdi module for the first time. This has been discussed several times in TechLink (March 2003, August 2003 and December 2003) and also appears on the TechLink website under the Reference Guide tab. This test permits you to test the integrity of the Tech 2 and the cables.

TIP: Call TCSC for help at 800.828.6860.

3. Before using the Tech 2 to communicate with the GMLAN (or Class 2, for that matter), turn the ignition on and allow all controllers on the vehicle to wake up ("boot up"). Otherwise, you may get error messages from the

Tech 2 such as "No Communication" or "CANdi Module Not Detected".

TIP: You can be confident that all modules are awake by the time the IP warning lamps and chimes stabilize.

4. Be sure to use the correct adapters. For instance, with the CANdi module, you need to use p/n 3000098, which is a 16-pin adapter.

TIP: Do not make the mistake of using the 71419 adapter from the old T50, T60, etc. Techline terminals. Although it also has 16 pins, it is incorrect for this application.

5. Most problems experienced with the CANdi module setup result from the cable or adapter, not the CANdi module itself.

TIP: For further information on GMLAN, tune in to the IDL broadcast called GMLAN Electrical Architecture and Functional Diagnostics 16048.20D.

- Thanks to Craig Jones and Mark Stesney



GM TechLink in Its Sixth Year

TechLink began in September, 1998, as an occasional publication of the Service Technology Group (which eventually became GM Service and Parts Operations). During the first year, six issues were published. TechLink became a monthly in October 1999.

TechLink owes much of its technical integrity to a dedicated group known as the Editorial Advisory Board. At present, there are 14 members; over the past five years, 20 people have served on the board. We've even welcomed two summer college interns. For a photo of some of the present members, check the Reference Guide tab of the TechLink website at <http://service.gm.com>.

Also too numerous to mention are the many subject matter experts from all

over GM who have contributed story ideas, provided important data, and reviewed stories for technical accuracy.

Some statistics – You are reading the 58th issue of TechLink. Each month, 68,000 copies are distributed to GM retail technicians, some fleets, and within GM wholesale. And we've posted 35 issues on the website, beginning in March 2001. The website is published in four languages: English, Spanish, French and German.

Over the past five years, we've received numerous unsolicited comments about TechLink from readers (mostly good!). And we'd like to hear from you. If you have a comment, suggestion or even a criticism, send them to:

mark.stesney@gm.com

jim.horner@sandycorp.com

- Thanks to Bob Savo

Service Training Standards Requirements

Beginning January 2004, the Emerging Issues seminars become part of the Service Training Standards requirements. Each dealership will be required to participate in at least 6 of the 12 Emerging Issues seminars broadcast in a given year. Dealers can meet this requirement by having either 6 different service technicians participate in distinct seminars, a single service technician view all 6 seminars, or any combination of the two. So long as 6 different broadcasts are viewed by service technicians at a dealership, the dealership will receive a 100% toward meeting the requirement.

- Thanks to Tracy Timmerman



GM TechLink is a monthly magazine for all GM retail technicians and service consultants providing timely information to help increase knowledge about GM products and improve the performance of the service department.

Manager, Product Readiness:

R. M. (Bob) Savo
GM Service and Parts Operations
bob.savo@GM.com

Publisher & Editor:

Mark Stesney
GM Service and Parts Operations
Mark.Stesney@GM.com

Technical Editor:

Jim Horner
Jim.Horner@SandyCorp.com
1-248-816-3641

Production Manager:

Marie Meredith

Desktop Publishing:

Greg Szaichler, MediaWurks
gspace@mediawurks.com

FAX number:

1-248-649-5465

Write to:

TechLink
PO Box 500
Troy, MI 48007-0500

GM TechLink on the Web:

<http://service.gm.com>

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.

Copyright© 2004 General Motors Corporation
All rights reserved.



20-Inch Accessory Wheels and Tires

General Motors has launched its collection of all-new 20-inch wheels, available in forged or chrome finishes to reflect consumers' personal styles. The wheels were designed with a specific tire as part of the GM tire and wheel system.

The accessory wheels and tires are suitable for installation on certain 1999-2004 Chevrolet Silverado and GMC Sierra pickups. Refer to bulletin 03-10-006 for specific details and exceptions. Here are the highlights.

TIP: Initially the Wheel Launch Kit and required parts will be available in the USA only. This program will be extended to Canada in 2004. Canadian dealers must confirm availability of parts before utilizing this bulletin.

Designed with a Specific GM Vehicle in Mind – Accessory wheels from GM offer the best fit and function, and most tailored appearance because they were designed to be an integral part of the vehicle architecture. The new 20-inch tire and wheel assembly has been tested at GM's proving grounds in Michigan and Arizona.

Tires – GM has created 20-inch wheels based on the Goodyear Eagle LS P275/55R20 tire. This tire was designed to GM's Tire Performance Criteria (TPC specification 1235 ms). GM's TPC specifications meet or exceed all Federal safety guidelines.

Spare Tire – Use a P265/75R16 or P265/70R17 tire mounted on the vehicle's original spare wheel as a spare. The spare tire is not intended for extended driving conditions.

Tire Changers – Dealers must have the correct level of tire changing equipment to perform tire changing services. GM requirements and recommendations for servicing glamour wheels are in the bulletin.

For further information regarding equipment meeting the requirements for this program, call 1-800-GM-TOOLS.

Balancing – MC style coated weights are recommended. If stick-on weights are used, follow the manufacturer's procedure (SI Document 664222).

The tire and wheel assembly must be balanced on a computerized balancer, capable of static and dynamic balance modes. Assemblies should be balanced to within 1/4 ounce on either rim flange.

Center Cap – Install the center cap onto the wheel after the tire has been mounted and balanced, but BEFORE the

assembly is installed onto the vehicle. Push the cap in by hand. Alternately, use a nonmetallic object to push the cap into place. Hammering may result in damage to the cap.

Tire Pressure Monitoring

(TPM) – If the vehicle was originally equipped with TPM sensors, transfer the original sensors to the new wheels. Note the wheel location that the TPM sensor came from. Install the new tire/wheel/TPM sensor assembly in the same wheel location that the TPM sensor was originally. If the TPM sensors are not in the original positions, you must reprogram the sensors.

Air Valve (Valve Stem) – For vehicles without TPM, use GM p/n 9593595.

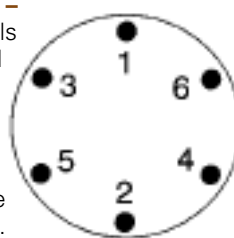
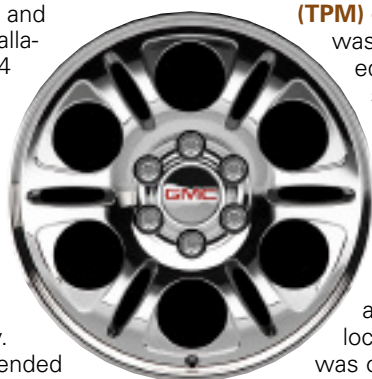
Wheel (Lug) Nuts

TIP: Aluminum wheels require special wheel nuts. Use GM p/n 9591772

Torque each wheel nut in the appropriate sequence to 190 Nm (140 lb ft). Re-check the torque after the first 160 km (100 mi). A wheel lock kit GM p/n 12497479 is also available.

Wheel Nut Caps – After tightening the wheel nuts, install the wheel nut caps finger tight, plus 1/2 turn. Black cap GM p/n 15646250, bright cap GM p/n 88963146.

Jounce Bumper – For 2WD vehicles, replace the existing front suspension spring/jounce bumper with Jounce Bumper kit, GM p/n 12499481. Follow the procedure in the bulletin.



Re-Programming – Reprogram the PCM for speedometer accuracy. Contact Techline to obtain a VCI number (1.800.828.6860 English or 1.800.503.3222 French).

Then refer to the table in the bulletin for the appropriate calibration part number, based on the model year and axle ratio.

TIP: Because this is not a warranty repair, dealers will incur a charge to obtain a VCI number.

Update the tire size value in the ABS module, using the Tech 2. Follow this path: Diagnostics > Model Year > Vehicle Type > Chassis > Product Line > GVW > ABS > Special Functions > Tire Size Calibration > Verify VIN > Select New Tire Size.

TIP: If original equipment tires/wheels are later reinstalled, it will be necessary to reset the programming of the PCM and the ABS module to the original specifications.

Labels – After installing the recommended P275/55R20 tires, place the provided tire inflation pressure and occupant/cargo capacities label on the door jamb, near the original tire label. Do not cover up the original tire label.

Warranty Information – USA dealers should refer to GM Warranty Administration Bulletin 00-03-10-003E and GM Parts Process / Policy Bulletin IB03-001 for more information.

Canadian dealers should refer to GM Warranty Administration Bulletin 01-03-10-003A.

Important: Installation of these accessory wheels, tires and additional parts and related procedures are entirely at customer expense.

- Thanks to Mikael Hassler,
Ann Briedis and Nina Price

Dinghy Towing Update

This information pertains to 2002-04 Envoy, TrailBlazer and Bravada.

The owner's manual is being revised regarding dinghy towing (towing the vehicle with all four wheels on the ground).

Early versions of the owner's manual said to turn the ignition to LOCK and

remove the Ignition A and Ignition B fuses from the engine compartment fuse block.

These vehicles do not have a LOCK position. The ignition should be turned to OFF. There is no need to remove the ignition fuses because there is no current draw in the OFF position.

Refer to the appropriate owner's manual for complete procedures.

- Thanks to Al Ferry

Pro-Cut Brake Lathe — from page 1

Bench machining may induce lateral run-out, which requires replacement of the rotor.

3. Brake Align Correction Plates will not work with captured rotors.

For these reasons, captured brake rotors must be turned on-vehicle.

Brake Rotor Lateral Run Out (LRO)

TIP: Refer to bulletin 01-05-23-001 and TechLink April 2001 for an explanation of brake rotor lateral run out.



Excessive LRO results in intermittent contact between the brake pads and rotor. Intermittent contact causes uneven rotor wear (thickness variation), which causes the piston to pump in and out of caliper when the brakes are applied. The customer senses this as brake pulsation through the brake pedal. For this reason, GM has established a total indicated run-out spec of 0.002-inch (0.050 mm) or less for all vehicles.

Using the Pro-Cut PFM 9.2

TIP: Purchase of the Pro-Cut lathe includes set-up and training, plus a training CD. The following is a summary only.

When performing on-car rotor turning, it is essential that the cutting tools be properly oriented to the wheel hub centerline, to ensure that LRO of the finished brake rotor is within specifications. The Pro-Cut PFM 9.2 is auto-compensating, which means that the user does not have to perform any critical set-up to ensure a high quality job.

Cleaning – As with any brake job, on-car turning requires that all mating surfaces be clean and free of corrosion. Use J-42450A to clean the hub flange around the wheel studs, and use J-41013 to clean the hub/rotor mating surfaces.



Cleaning mounting surfaces

Tool Installation – Select the proper direct-fit adapter from the four that are included with the Pro-Cut, attach to the vehicle using the lug nuts, and torque properly. Attach the Pro-Cut to the adapter and tighten the retaining knob.



Direct Fit Adapter

TIP: When the Pro-Cut is attached to the vehicle, it is supported by the vehicle's wheel hub. The Pro-Cut carriage is used only to hold the lathe when not in use, and to assist in positioning the lathe to the wheel hub.

Auto-Compensation – Run the built-in auto-compensation routine. This aligns the lathe to the hub centerline, to ensure an accurate cut. An indicator lamp tells when this has been accomplished.



Indicator lights

Rotor Turning – Take three scratch cuts to determine the required depth of cut. The Pro-Cut is equipped with micrometer controls. Once the cutters have been set, run the Pro-Cut to automatically turn the rotor.



Micrometer adjusters



Turning the rotor automatically

TIP: On vehicles with rear disc brakes and limited slip differential, consult SI for special instructions.

TIP: Non-directional sanding is not required due to lathe performance.

Inspection – Follow standard GM practices for measuring LRO, using a dial indicator. The specification is 0.002-inch (0.050 mm) or less for all vehicles.

Wheel Torque – Improper, uneven wheel lug nut torque can cause rotor distortion, which undoes the careful work you've done in finishing the brake rotor. (This is not a significant factor of the captured rotor.) Follow standard GM practices for installing wheel lug nuts. This requires a torque wrench or an impact wrench equipped with J-39544 Torque Sockets.

TIP: Be sure to index-mark the rotor and a wheel stud so the rotor can be put back in the same orientation, if it is removed for any reason.

For more information, be sure to watch the 10280.13D Technology Close-Up – Brakes Town Hall broadcast on January 29.

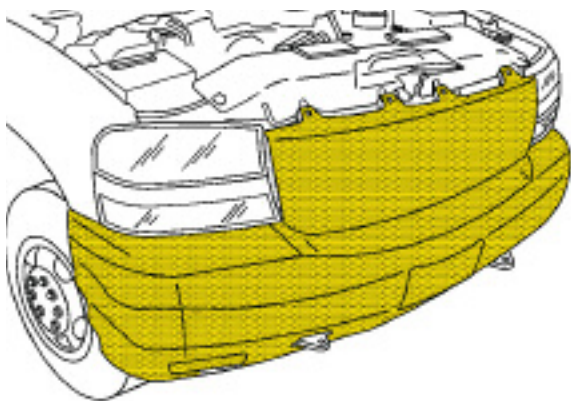
- Thanks to Dave Roland, Jeff Hastings and Derek Trimble

Winter Cover

This information applies to trucks with the LB7 and LLY Duramax diesel engine. A winter cover is included for use in cold weather states.

Installing the winter cover enhances heater performance and reduces the amount of time it takes to warm the inside of the vehicle when the temperature is below 0°F (-18°C).

The cover installs over the front bumper and restricts airflow to the engine compartment.



Overheating Guidelines

The following guidelines apply, to avoid overheating the engine:

- Do not use when temperatures are expected to be above 32°F (0°C).
- Do not use when towing a trailer.
- Do not modify the cover.

Installation Tips

The vinyl cover may appear undersized before being fitted for the first time. This is normal. It's best to install for the first time when the cover is warm.

The cover is retained by push-pins in the grille area, snaps, and black tabs, which must be bent into a J-shape.

Cut the black stitches provided if a front license plate is required.

More information can be found in the owners manual on SI (document 837330). Follow this path:

Build vehicle > Features and Controls > Starting and Operating > Description and Operation > Winter Cover.

- Thanks to Steve Love

Evaporator Case Water Intrusion

A potential water leak path from the evaporator case drain provision has been identified on all 2001-04 Buick Rendezvous and Pontiac Aztek models. Under certain high humidity and high ambient temperature conditions, when the vehicle is driven for extended periods with low blower motor speed, condensation moisture can reach the vehicle interior under the carpeting. If an owner encounters this condition and water testing shows no other cause for the water leak, install an extension elbow to reduce the likelihood of reoccurrences. The part number recommended is 22542866, which is used on other General Motors products.

The current plan is to utilize this part in production as soon as possible and a bulletin will contain the breakpoints when the production change occurs.

- Thanks to Tom Russell

Steering Wheel Controls

Some 2003 and 2004 GM vehicles equipped with the OnStar system have Steering Wheel Controls (SWC) that can be used in conjunction with the OnStar Personal Calling Voice Recognition system.

Here is how the Steering Wheel Controls function on vehicles with OnStar voice recognition and Steering Wheel Controls.

1. On the following vehicles, the push-to-talk button invokes the voice recognition feature. A subsequent press will re-invoke voice recognition for use with a voice mail system, or other system which may require tones to be transmitted, such as dialing an extension after reaching an office phone system. Saying the word "dial" will transmit the tone(s) associated with the digits entered. Subsequent presses of the button will re-invoke the voice recognition system and the process repeats. Pressing the white dot button will exit voice mode if a call has not been placed. To disconnect from the call, press the white dot button or the "end" button on the steering wheel.

NOTE: If the vehicle has NAV or the UV8 cell phone, these buttons function differently and/or are disabled for OnStar functions. Consult the specific vehicle owner manual for proper operation.

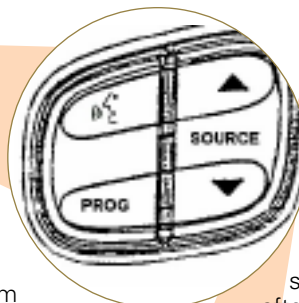
Seville, DeVille, Cadillac CTS, Cadillac XLR, Cadillac SRX

2. On the following vehicles, the push-to-talk button invokes voice recognition. A

subsequent press will re-invoke voice recognition for use with a voice mail system, or other system which may require tones to be transmitted, such as dialing an extension after reaching an office phone system. Saying the word

"dial" will transmit the tone(s) associated with the digits entered. Subsequent presses of the button will re-invoke the voice recognition system and the process repeats. Pressing the white dot button will exit voice mode if a call has not been placed. The user must use the white dot button to end a call.

Escalade, Escalade EXT, Escalade ESV, Denali, Denali XL, Yukon, Yukon XL, Tahoe, Suburban, Avalanche, Sierra Crew, Sierra Ext, Silverado Crew, Silverado Ext, Hummer H2, TrailBlazer, TrailBlazer EXT, Envoy, Envoy XL, Bravada, Envoy XUV, Rainier, Ascender



3. For the final group of vehicles, the mute button invokes voice recognition. A subsequent press will re-invoke voice recognition for use with a voice mail system, or other system which may require tones to be transmitted, such as dialing an extension after reaching an office phone system. Saying the word "dial" will transmit the tone(s) associated with the digits entered. Subsequent presses of the button will re-invoke the voice recognition system and the process repeats. Pressing the white dot button will exit voice mode if a call has not been placed. The user must use the white dot button to end a call.

Aztek, Rendezvous, Century, Regal, LeSabre, Bonneville, Grand Prix, Montana, Venture

4. The following OnStar equipped vehicles do not have steering wheel controls for use with the voice recognition function. The voice recognition function used for dialing an OnStar Personal Call is accessed using the white dot button.

Cavalier, Silhouette, Impala, Monte Carlo, Aurora, Ion, LS/LW, Malibu, Park Avenue, Express, Savana, VUE

- Thanks to Steve Love and Jim Mikolaizik



Announcing the 2004 Chevrolet Aveo



Chevrolet has just introduced the entry-level Aveo (T200) subcompact four-door and five-door sedan. Priced below the Cavalier, the Aveo provides Chevrolet dealers with a tremendous opportunity to attract younger, first-time buyers.

All Aveo models feature Chevrolet's identifiable grille, with trademark horizontal chrome mid-grille band and gold Chevy bowtie emblem. Additional brand cues include a silver outlined bowtie on the center caps of the standard steel wheels and a gold bowtie on the center caps of optional alloy wheels, offered on LS models. The bowtie is also featured on center pad of the steering wheel.



Aveo Instrument Panel

The Aveo is equipped with highly distinctive standard aerodynamic halogen headlamps and amber side turn signal lamps. Fog lamps are also available.

P185/60R14 all-season steel-belted radials are mounted on either steel or alloy 14-inch wheels.

The Aveo features a 1.6-liter dual overhead cam 16-valve inline 4-cylinder engine that delivers 105 horsepower at 5800 rpm and 107 lb-ft of torque at 3600 rpm. It's teamed with either a manual 5-speed or automatic 4-speed transaxle.

The front suspension consists of McPherson struts with offset coil springs and a stabilizer bar. The steering gear is mounted on a front suspension cross

member, to improve shock absorption for more precise and stable handling.

The torsion beam axle mount compound link-type rear suspension is designed to optimize driving performance when cornering.

All Aveos are equipped with a power-assisted dual diagonal brake system, with discs in front and drums in the rear. A Delphi four-channel, four-sensor ABS system (DBC-7) with Electronic Brake force Distribution (EBD) is available.

Some Service and Pre-Delivery Tips

Aveo PDI service bulletin 03-00-89-040 explains several unique product features. The information is useful for all technicians, not just the PDI

technician. Here are some highlights.

Coolant – The Aveo cooling system is factory filled with blue silicate/hybrid coolant and will be serviced with traditional green coolant. This type of coolant must be drained, flushed and refilled every 30,000 miles (48,000 km). Use P/N 12378560 (1 gal). In Canada, use P/N 993088 (1L) or P/N 993089 (4L).

Power Steering Fluid – The power steering system uses DEXRON® III fluid. Check the fluid level and adjust as necessary. Use P/N 12378470 (1 qt). In Canada, use P/N 10952621 (500 ml) or P/N 10952622 (1L).

TIP: The use of conventional power steering fluid in the system may lead to leaks.

Fuse – The radio/clock fuse is installed in a fuse holder for shipping. The fuse holder must be fully depressed toward the fuse panel and the fuse will slide into place. This must be done to ensure proper operation of the radio and clock.

Automatic Transmission – To move the automatic transmission shift lever out of Park or Neutral, push down on the shifter knob.

When the HOLD button is depressed, the Hold indicator located in the Secondary Information Center will light. There are two Hold mode features:

Winter Function – When the vehicle is at a stop, depress the hold button. The transmission will start off in third gear. This will reduce the torque to the front wheels and will help the vehicle maintain traction on slippery road surfaces.

Manually Controlling Shift – When the vehicle is in motion, depressing the Hold button will make the transmission operate like a three speed transmission. You will be able to downshift the transmission manually. The transmission will not shift into forth gear when the Hold feature is activated.

The automatic transmission uses T-IV fluid GM P/N 88900925 (1 qt). In Canada, use P/N 22689186 (1L).

TIP: Do not intermix DEXRON® III fluid with the T-IV fluid.

Radio Code – Each radio has a four-digit unlock code that must be entered before the radio will operate. The code is located on a paper card inside the glove box. Be sure the owner is aware of this code and remind them to keep the code in a safe place. Any time the battery is disconnected, COD will appear in the display, and the code must be entered into the radio.

License Plates – Aveos built before December 3, 2003 will not have the license plate fasteners placed in the glove box. Use p/n 9423101 to fasten the license plate.

TIP: The cost of the fasteners should be included in the net item column for the PDI claim.

The Aveo doesn't use a front license plate bracket. There are four dimples in the front fascia. The inboard dimples are the ones that should be used to fasten the license plate. The outboard dimples are used for European countries.

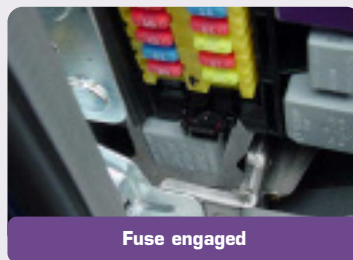
Tire Pressure – The vehicle's tires are shipped inflated to 40 psi (276 kPa) and the pressure must be reduced to 30 psi (207 kPa). The tire pressure label can be found at the bottom of the driver's B-pillar.



Factory-fill blue coolant



Fuse in shipping position



Fuse engaged



Press knob down to shift

GMDAT Key Cutting Equipment

Kaba Ilco Computerized Code Cutting								
Function	Standard Steel Blank	Standard Brass Blank	All Transponder or RKE Keys	Part Number	Description			
Computerized Duplicating and Code Cutting	Highly Recommended	Highly Recommended	Highly Recommended	74-ULTRACODE	Ultracode Code Cutter & Duplicator			
Kaba Ilco Machine Duplicating and Code Cutting								
Function	Standard Steel Blank	Standard Brass Blank	All Transponder or RKE Keys	Part Number	Description	Kit (Required)		
Machine Duplicating and Code Cutting	Available*	Available*	Available*	74-029A-GM	Combo Key Duplicator & Key Code Cutter	74-029A-GMDAT		
Kaba Ilco Machine Duplicating								
Function	Standard Steel Blank	Standard Brass Blank	All Transponder or RKE Keys	Part Number	Description			
Machine Duplicating	Not Recommended	Available*	Not Recommended	74-045-110VAC	Heavy Duty Duplicator			
Kaba Ilco Hand Held Code Cutting								
Function	Standard Steel Blank	Standard Brass Blank	All Transponder or RKE Keys	Part Number	Description	Kit (Required)		
Hand Operated Code Cutting	Available*	Available*	Available*	74-MK1-P26	Exacta Cutter & Case	74-MK1-GMDAT		
Curtis Computerized Code Cutting								
Function	Standard Steel Blank	Standard Brass Blank	All Transponder or RKE Keys	Part Number	Description			
Computerized Duplicating and Code Cutting All Models	Highly Recommended	Highly Recommended	Highly Recommended	C9100021	PC+ Computerized Code Cutter			
Curtis Hand Held Code Cutting								
Function	Standard Steel Blank	Standard Brass Blank	All Transponder or RKE Keys	Part Number	Description	Cam Set (Required)	Carriage (Required)	Code Book (Required)
Chevy Aveo - Hand Operated Code Cutting	Available*	Available*	Available*	C-20791 (15XL-45) C-20792 (15XL-47)	45 Degree or 47 Degree Code cutter	C21222	C21223	C21403
Chevy Optra - Hand Operated Code Cutting	Available*	Available*	Available*	C20791 (15XL-45) C20792 (15XL-47)	45 Degree or 47 Degree Code cutter	C21222	C21223	C21403
Chevy Epica - Hand Operated Code Cutting	Available*	Available*	Available*	C20791 (15XL-45) C20792 (15XL-47)	45 Degree or 47 Degree Code cutter	C21222	C21225	C21403

Key Cutting

The accompanying chart outlines available key cutting equipment. Original equipment key blanks for the Chevrolet Aveo are steel and are difficult to accurately cut with hand-held key cutting equipment. Due to the risk of mis-cutting high-cost Transponder and RKE key blanks with hand-held key cutters, GM recommends using computerized duplicating/code cutting equipment.

In addition, RKE and Immobilizer (Transponder) Keys require reprogramming with Tech 2 after cutting. Refer to SI for detailed procedures.

- Thanks to Jeff Strausser

* Original equipment key blanks for these vehicles are steel and are difficult to accurately cut with hand held key cutting equipment.

Due to the the risk of "mis-cutting" high cost Transponder and RKE key blanks with the hand held cutter, computerized duplicating/code cutting equipment is highly recommended. Current computerized equipment will require software updates for GMDAT vehicles.

Contact 1-800-GM-TOOLS (1-800-468-6657) for Ilco products or Barnes Distribution (Curtis) 1-800-555-2878.

TACorner

Beginning with this issue, the Technical Assistance Center (TAC) will be providing administrative and Technical tips in the TAC Corner.

Access the most current information in SI:

SI on the web is more current than using SI via the CDs. The SI web is updated weekly on Thursday.

The CD version is updated through GM Access every second week, and requires the technician to process the update, at start up.

The stand-alone CD is updated once a month.

Be Prepared:

We have verified that some recent callers do not represent GM dealerships. We need your assistance to help us confirm that the caller is a GM Technician or Shop Foreman using GM supplied Service Information and is thus an authorized caller. To accomplish this, we are asking that callers be prepared with an SI document ID number that relates to the primary vehicle concern of the call. This request applies to all vehicles produced from 1998 to present. This will also help us more quickly assist in diagnosis and assure that the caller has properly researched the issue before calling GM TAC.

Please perform all the necessary diagnostics and informational searches before calling TAC. This allows us to serve you better.

Strategy Based Diagnosis (SBD):

The goal of SBD is to provide guidance when you create a plan of action for each specific diagnostic situation. By following a similar plan for each diagnostic situation, you will achieve maximum efficiency when you diagnose and repair vehicles. Although each of the SBD boxes is numbered, you are not required to complete every box in order to successfully diagnose a customer concern. The first step of your diagnostic process should always be the Verify the Customer Concern box. The final step of your diagnostic process should be the Repair and Verify the Fix box. Refer to the Strategy Based Diagnostics chart in SI. Use the keyword "strategy".

The guidelines for using Technical Assistance are in the P&P Manual, Section 5.3.1. The sections cover:

1. Being Prepared – follow SBD
2. Logging Calls
3. Closing a TAC Case
4. Returning a Survey Request

The forms for Technical Assistance are also available in this section.

- GM-TAF TAC Form
- TAC Case Call Log Sheet
- Diagnostic Worksheet

The worksheets help organize the call.

- Thanks to GM Technical Assistance

TACTips

Waved Steel Clutch Plate

This information applies to 4L60E/4L65E automatic transmissions.

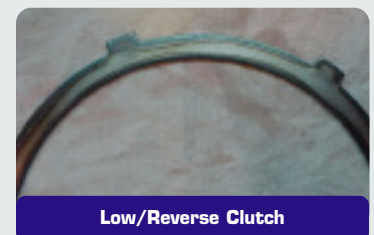
On approximately November 1, 2003, a new heat treating process is used for some transmission clutches. The Forward Clutch waved steel clutch plate (648) appears dark in color, as if it were overheated at one time. The Low/Reverse Clutch waved steel clutch plate (682A) has a similar appearance on the inner and outer edges.

Only the appearance has changed; the functionality of the clutches is no different. These waved clutch plates will be used for both production and service.

- Thanks to GM Technical Assistance



Forward Clutch



Low/Reverse Clutch



Car Issues -- Fix It Right the First Time

Model Year(s)	Vehicle Line(s) - Condition	Do This	Don't Do This	Reference Information / Bulletin
2003-2004	Cavalier/Sunfire – Grinding Noise on Clutch Apply (very low mileage)	Replace clutch hydraulic line.	Don't replace clutch/bearing.	02-07-31-003A
2002-2004	All cars with 4T40/4T45E and 4T65E – DTC P0716/P0717 and other codes	Disconnect, inspect and reconnect transaxle wiring harness at transaxle.	Don't replace the input speed sensor.	02-07-30-022B September 2003 TechLink
2001-2003	Venture/Montana/Silhouette/Rendezvous/Aztek – Rattle/Buzz from Exhaust System	Install clamp.	Don't replace the catalytic converter.	03-06-05-003
2004	Grand Prix with Monsoon Audio System – Speaker Buzz	Re-pin speaker wires in I/P fuse panel connector.	Don't replace speaker, amplifier or radio.	03-08-44-015
2000-2004	Impala/Monte Carlo – Condensation in Headlamp	Normal condition when limited to fog or fine mist appearance in high humidity conditions.	Don't replace headlamp assembly when no water droplets are evident.	01-08-42-001 September 2000 TechLink
2003-2004	CTS – Variable Effort Steering (VES) "Service Steering Message," DTC C1241 or C0450	Replace the only the VES solenoid.	Don't replace the entire steering gear.	03-02-36-001
2003-2004	Vibe – Normal Exhaust Odor	Provide copy of service bulletin to customer.	Don't replace catalytic converter.	03-06-05-006
1997-2004	Grand Am/Alero/Malibu – Brake Pulsation	Turn rotor and brake align procedure	Don't replace brake rotor for pulsation	00-05-23-002, 01-05-23-001 (Know How Video #15040.01B)
2003	All cars with 4T40/45E, 4T65E and 4T80E – Code P0742	Replace TCC PWM Solenoid	Don't replace transmission or valve body assembly	02-07-30-039B
2004	L61 EcoTech 4 Cylinder-2.2L Engine – Misfire, DTC P0300	Replace spark plug sets	Don't replace PCM or ignition cassettes	Recall 03042



Truck Issues -- Fix It Right the First Time

Model Year(s)	Vehicle Line(s) - Condition	Do This	Don't Do This	Reference Information / Bulletin
1993-2004	All Passenger Cars and Trucks – A/C Compressor	Follow SI and Bulletin for diagnostic information before replacing A/C compressor.	Don't replace A/C compressor.	Service VME, 10/31/03 01-01-38-013A
1999-2003	Fullsize Pickups – Rear Spring Slap Noise	Replace inserts and rubber washers.	Don't replace leaf spring.	Service VME, 11/17/03
1999-2004 (models with HomeLink option)	GM Car and Trucks models with HomeLink Universal Transmitter – Programming Diagnosis	Use J-41540 HomeLink Tester. Follow SI and refer customers to Owner's Manual.	Don't replace HomeLink Transceiver without validating internal fault recognized by J-41540.	01-08-97-001B
2002-2003	All TrailBlazers, All Envoys, Bravada – Squeak/Rub/Scrub Type Noise in Steering Column	Lubricate and remove material, per bulletin.	Don't replace upper or lower intermediate shaft.	02-02-35-006A
2002-2004	All TrailBlazers, All Envoys, Bravada, Rainier – Tail Lamp Socket Circuit Board	Replace both tail lamp circuit boards	Don't replace complete tail lamp assembly.	Service VME, 9/22/03 03-08-42-006A
2003-2004	Fullsize Pickups and Utilities – Servicing Wide Load Mirrors (RPO DPF)	Replace individual parts as needed.	Don't replace complete mirror assembly.	03-08-64-028
2003	Fullsize Pickups and Utilities – Transfer Case Service Light	Replace encoder motor sensor and reprogram TCCM	Don't replace module, encoder motor or transfer case for DTCs C0327, P0836, P0500	03-04-21-001B
2003	Fullsize Pickups – 6.6L Diesel Engine ECM	Follow SI and bulletins for proper diagnostics for P0181. Refer to the Owner's Manual (block heater and front cover)	Don't replace ECM (DTCs P0540 and P0181) unless diagnostics confirm need to replace	02-06-04-048, 03-06-04-021, 02-06-04-058
2002-2004	TrailBlazer, TrailBlazer EXT – Wavy Front Fascia	Repair fascia with Dual Lock	Don't replace front fascia	02-08-62-004
2002-2004	All TrailBlazers, All Envoys, Bravada – Mirror Erratic Return	Replace mirror actuator and reprogram module	Don't replace outside mirror assembly	02-08-64-008 02-08-64-021

**Know-How
Broadcasts
for February**

10280.02D
Emerging Issues

February 12,
2004

9:00 AM, 12:30 PM,
3:30 PM Eastern Time

10280.14D
2005 Chevrolet Equinox

February 26,
2004

9:00 AM, 12:30 PM,
3:30 PM Eastern Time



– Thanks to Tracy Timmerman