



# Service Insights

Service repair news from your GM Parts Dealer

Vol. 3, 2016

## 2017

## CADILLAC XT5 CROSSOVER



### *Highlights of this issue:*

- Fully dressed Duramax 6.6L puts diesel power everywhere
- Genuine GM Rewards gets a big upgrade
- NEW, InShop Clinics bring GM Training to your shop

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# Dressed for Success

Duramax 6.6L puts diesel power everywhere

Ever owned a really great leather jacket — the kind you could throw on at a moment's notice with jeans or dress clothes and be just as ready for an afternoon in the country as a big night on the town?

The 2016 6.6L V8 Duramax LML Universal Fit Engine (PN# 12648716) might just be the mechanical equivalent.

Available now, this production Duramax arrives fully dressed out and ready to bring workhorse durability and performance anywhere it's welcomed with installation convenience. This includes project vehicles, imports needing a serious power upgrade and any number of GM vehicles, where the powertrain can accommodate a Duramax engine upgrade.



What would you re-power with a Duramax?

» Ready to go power

Taking the brunt force of a full-size heavy-duty pickup truck to all these new places couldn't be easier. The Duramax 6.6L Universal Fit Engine comes fully suited up with the following: intake manifold (with throttle body), fuel injectors, intake heaters, turbocharger, fuel injector pump, glow plug module, harmonic balancer and all engine mounted sensors.

The fully dressed option still needs a harness and a controller, but going the fully dressed route assures all components are ideally matched.

Output is 397 hp (294kW) with 765 lb.-ft. (1037Nm) of torque at 3000 RPM. Specifications tell the rest of this Duramax story:

Engine Orientation:	Longitudinal
Compression Ratio:	16.0:1
Valve Configuration:	OHV
Valves Per Cylinder:	4 valves per cylinder
Valve Lifters:	Mechanical roller
Firing Order:	1 – 2 – 7 – 8 – 4 – 5 – 6 – 3
Bore X Stroke:	103 mm x 99 mm
Fuel System:	Direct injection diesel with high pressure common rail



Duramax 6.6L V-8 Turbo Diesel (LML)

Practicality, strength and diesel efficiency — all tied up in a Duramax bow. That's a look guaranteed to never go out of style.

# InShop Comes to Your Shop

## GM training hits the street

GM's InShop Clinics have proven their worth as valuable training resources that bring the latest OEM repair steps and trends directly from the factory to the field. Until recently, GM Training Clinics were conducted exclusively at GM Dealerships or in conference/training facilities.

Now, your staff can take part — front row and center — as GM training experts discuss leading edge auto repair technology within your own doors.

**Interested?** Contact a GM Wholesale Parts Dealer to arrange a date for the InShop.

### That's it.

Instructors are available for three hours, which includes prep time, an hour dedicated to formal instruction and an additional hour to answer remaining questions and provide further help.

Recent attendees have given the programs high marks. Marlon Epps, Fleet Manager for the city of Savannah, GA, touts the personalized training. "I'm impressed by the effort put forth to educate our technicians with minimal disruption to their day," says Epps. "I look forward to having them back again."

Students receive a certificate for attendance. As always, GM Training Clinics are free for Shops. Now, with the InShop option, they're more convenient than ever since participants don't even need to leave the workplace.

That's just one more benefit of working with GM and your GM Wholesale Parts Dealer.

### >> InShop Course Catalog

Current clinics cover some of the most sought after training for collision repairers, along with mechanical repair instructions that can benefit shops who also perform this work.

[gmserviceinsights.com](http://gmserviceinsights.com)

GM Service Insights is available online with past magazine issues, search tools for articles and much more . . .



Courses include:

- 1 Bolt on Body Panel Adjustments (W-NR03-01.01IST)
- 2 Post Collision-Brake Inspection and Repair (W-EM05-07.01IST)
- 3 Post Collision-Power Steering Inspection and Repair (W-EM05-08.01IST)
- 4 Post Collision-Tires and Wheels (W-EM05-09.01IST)
- 5 Supplemental Restraints-Service and Repair (W-EM05-02.01IST)
- 6 A/C Compressor Replacement (W-DS11-17.01IST)
- 7 Fuel Pump Replacement (W-DS11-17.02IST)
- 8 Batteries (W-DS11-17.03IST)

New classes will be added for the 2017 Clinic year. Check back with your GM Wholesale Parts Dealer to learn what's new and make GM InShop clinics a part of your shop's technical training.



Technicians from the Fleet Department for Savannah, Ga. attend an InShop Clinic.



# Earn With Ease

Genuine GM Rewards just got a big upgrade

**Rewards are compensation for a job well done. Redeeming them shouldn't require any additional sweat.**

That's the road GM took with its most recent upgrades to the Genuine GM Rewards and ACDelco 360 Rewards programs. Reward points now add up faster, are easier to manage and can be allocated automatically to hard-working, deserving employees.

Program enhancements include the following:

- **One website.** A single *earnPOWER* homepage features both Genuine GM Rewards and ACDelco 360 Rewards. Keeping track of points is easier since all programs appear on the same page.
- **One wallet.** Points earned from both programs accumulate together in the same wallet. Combined points mean more points that can be used for EY (Exclusively Yours) gift cards or redeemed toward the purchase of a new GM vehicle. In addition, points can be used for the latest electronics, sporting goods, tools and household goods, along with thousands of other hot-selling products.
- **Log in with ease.** You can still use your current log-in pages ([GenuineGMRewards.com](http://GenuineGMRewards.com) or [ACDelco360.com](http://ACDelco360.com)) but now, you'll only need a single user ID. Remembering your user ID is a breeze since it's also your shop's email address. Current program members will reset their previous IDs the next time they log in.

- **Easy Enrollment.** If you are not enrolled in Genuine GM Rewards, contact your GM Dealer for an invitation. Your Dealer will get you set up and will send you an email invitation with a link for enrollment.

When it arrives, open and click on the enclosed link to create an *earnPOWER* profile. Information entered by a Dealer will be pre-populated. (Note: If any information is incorrect, request a revised invitation.)

Create a password and a new email address, if desired. Complete by clicking the Finished button.

- **Spread the joy.** Shop owners can use the *earnPOWER* Toolkit to allocate reward points to individual employees. Simply enter employee information and the percentage of points to be received, with the total for all employees adding up to 100. Points are allocated for each rewards program (ACDelco, Genuine GM Collision and Powertrain).
- **Take control.** The *earnPOWER* Toolkit also allows you to assign system administrators who can share management duties for all your programs.
- **Available help.** Have questions? Get assistance from the *earnPOWER* Help Desk at 888-639-2967. GM also will be providing additional training.

With benefits like that, it's our most user-friendly Rewards platform yet, and it might just be a reward in itself.

Earn With Ease cont'd.



How will you use your Genuine GM Rewards points?



GM GENUINE Rewards



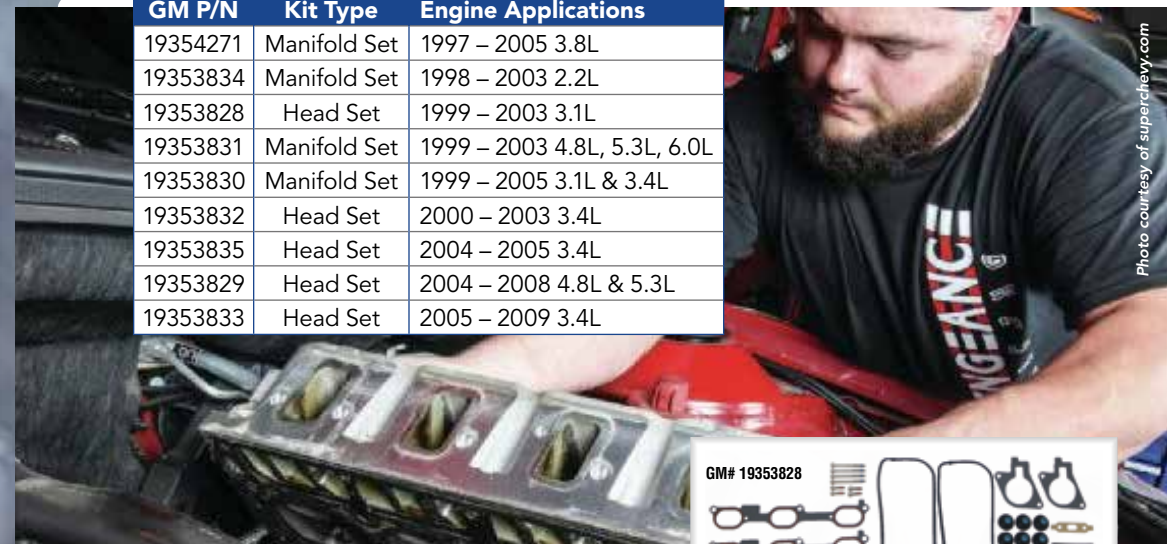
GM Introduces . . .

# Gasket Assembly Kits

Replacing a critical engine gasket is the repair industry's version of open heart surgery. Neither doctors nor techs can afford to be searching for missing vital components or using less than perfect parts during these operations.

Shops now can head off both these problems when they use GM's new line of gasket assembly kits. The kits feature intake manifold and cylinder head gaskets in nine different versions so they'll fit numerous vehicle applications.

GM P/N	Kit Type	Engine Applications
19354271	Manifold Set	1997 – 2005 3.8L
19353834	Manifold Set	1998 – 2003 2.2L
19353828	Head Set	1999 – 2003 3.1L
19353831	Manifold Set	1999 – 2003 4.8L, 5.3L, 6.0L
19353830	Manifold Set	1999 – 2005 3.1L & 3.4L
19353832	Head Set	2000 – 2003 3.4L
19353835	Head Set	2004 – 2005 3.4L
19353829	Head Set	2004 – 2008 4.8L & 5.3L
19353833	Head Set	2005 – 2009 3.4L



## >> One Part Number Kits

Since only a single part number is needed for ordering, repairers won't waste valuable service time picking out and entering multiple numbers. Also, they won't risk overlooking components and have to put a repair on hold while placing a new order.

**The gasket kits carry 12 month/unlimited mile warranties and are competitively priced.** Because they're Genuine GM Parts, they're the highest OE quality and guaranteed to fit. Engineered and designed to incorporate the latest updates and upgrades. Customers receive a long-term repair solution they won't have to return for troublesome redo work. Shops are assured problem-free installations that cut repair time and reduce the risk of costly come-backs.

Considering the importance of these gaskets in preventing serious engine failures, why trust anything else? First class operations demand first-rate parts. Settling for anything other than Genuine GM Parts is settling for less.

## Avoid a case of the Big Ticket Blues

No repairer enjoys putting customers in a position where they have to make difficult financial decisions. This scenario plays out again and again when a vehicle has serious engine problems and the options are a costly repair or an even more expensive replacement.

Dana Haglin, owner of Haglin Automotive and Boulder Transmission in Boulder, CO, says he sees just this situation play out when a vehicle has blown a head gasket. "There's always the chance the engine has sustained more serious damage. But often you can't find out unless you perform that repair, drive the vehicle and see what happens," he says.

That's not good news for customers looking to save money. An alternative with a far better, more predictable outcome is a replacement engine, since it doesn't carry such surprises and instead offers peace of mind with a long-term, nationwide warranty.

Not every customer can or may want to handle that type of financial commitment. But there's plenty you can do to help customers navigate this tough decision and feel good about whatever decision they reach.

Use the following suggestions.

**Keep it private.** A busy service desk or waiting area is no place to spring potentially painful news on a customer. Pull the customer aside, maybe into an office or private area, and quietly go over the estimate. If you're communicating over the phone, ask for several minutes to speak privately.

**Build trust.** Many customers are suspicious of shops. Seeing a large bill is only going to ramp up their distrust. Take the time to



explain the repair and why it's necessary. If possible, walk the customer to the shop floor to examine the problem and speak with the tech who performed the analysis. Always answer any questions fully.

**Be an advocate.** Never let the customer feel like he or she is alone deciding what to do. Again, because of their suspicions, some customers are going to feel they're in an adversarial situation. Remind customers that your goal is helping them (not simply offering a paid service). Never rush their decision.



**Review alternatives.** When faced with an expensive repair, many customers will consider investing in a new vehicle. Go over the benefits of a repair vs. a purchase. Point out that, though costly, repairing offers considerable advantages. For example, if the repair cost is \$4,000, that's still significantly cheaper than dropping \$18,000-\$28,000 on a new vehicle that also will command higher insurance premiums and other expenses. Spending \$4,000 now can save much more down the road.

**Provide financing options.** Consider partnering with financing programs that offer customers attractive low interest, long term payment plans. Having access to a payment plan sometimes is the only convincing some customers need.

**Sell value.** When it comes to expensive repairs, customers typically want something more than a part or service that puts them back on the road. They're looking for other benefits that add value to their investment.

This is where GM Parts can help greatly. Customers get top-of-the-line, dependable factory technology with a long term, high mileage warranty guaranteed to help keep a vehicle running years into the future. With the right parts, customers effectively trade their worst fears for confidence.

That kind of value is a great investment at almost any price.

# SEMA Surprises

## Chevrolet readies showstoppers for automotive specialties event

The annual SEMA Show is kind of a second Christmas for automotive professionals. Often shrouded in secrecy, world-renowned exhibitors tie the bows on their latest and greatest innovations. When show doors finally open, attendees are treated to a plethora of shiny new market-shaping automotive products and ideas—vehicles, parts, accessories, tools, components and training, along with special events headlined by industry celebrities — all of it under heavy media scrutiny.

Standing prominent under those hot lights is Chevrolet Performance, which will roll out a host of new technology at the Las Vegas Convention Center Nov. 1–4 for SEMA 2016. While Chevrolet won't reveal its full hand until then, Chevrolet Performance Associate Manager Curt Collins sketched out an appetizing schedule and general description of products to be introduced.

These include:

- **Media Monday.** On Monday morning at nearby Spring Mountain Racing School, select media members will experience first-hand some of the new performance products to be unveiled at SEMA. Later that evening, the Wynn Las Vegas Hotel plays host to the formal introduction of show cars and production vehicles to be displayed at SEMA during the four-day event. Chevrolet also will present some of the other products making their way to the SEMA floor, including new crate engines and transmissions, and car and truck parts and accessories.
- **New catalog.** The 2017 Chevrolet Performance catalog makes its debut at the Monday night coming out party.
- **Start your engines.** Tuesday through Thursday, a Ride and Drive event on the SEMA grounds will allow lucky show goers to experience some of Chevrolet's most exciting and new cars and trucks. "After that, they will get the opportunity to take a 'hot lap' with a professional driver in one of Chevrolet's hottest performance vehicles driven by a professional driver," says Collins.
- **Happy anniversary, Camaro!** Chevrolet celebrates the 50th anniversary of the history-making coupe that helped carve out the muscle car era and five decades later continues to redefine cutting-edge power and performance.

**Can't make it to SEMA 2016?** No problem. Keep up to date on the latest show news and happenings with Chevrolet Performance at [www.theblock.com](http://www.theblock.com).

SEMA, like Christmas, comes but once a year. Leave it to Chevrolet to deliver both the ticket for admission and the season's best new automotive gifts to be unwrapped inside.

The Courtney Force Concept COPO Camaro



Inside look from last year's Courtney Force Concept COPO Camaro



The ever popular Chevrolet booth at last year's SEMA show



# 2017 CADILLAC XT5 CROSSOVER

LIGHTWEIGHT, EFFICIENT PACKAGES  
ENABLE MORE SPACE

The Cadillac XT5 is completely new, residing on a unique chassis and structure.

Cadillac's new crossover embodies the company's expertise for lightweight and agile driving dynamics. The new XT5 is 278 pounds (126 kg) lighter than the current SRX, and 100 pounds lighter than the Audi Q5 – despite the Cadillac being seven inches longer. The new XT5 is more than 650 pounds lighter than the Mercedes-Benz GLE-Class, achieving this with no compromise to body rigidity and crash performance.

## Advanced powertrain add to efficiency and dynamics

The 2017 Cadillac XT5 is powered by the new 3.6-liter V6 engine which debuted earlier this year on the brand's ATS and CTS sport sedans and is featured on the CT6. This engine has been completely redesigned and features Active Fuel Management cylinder deactivation technology, which allows the engine to seamlessly and automatically switch to a fuel-saving 4-cylinder mode under low or moderate loads.

With SAE-certified peak output of 310-horsepower and 271 lb-ft of torque, the new V6 uses variable valve timing for strong response and smooth power delivery. Cadillac's new Stop/Start technology automatically stop and start the engine when the vehicle is at rest in traffic stops, saving fuel and reducing emissions, while enhancing the quietness expected of a luxury vehicle.



*The all-new 3.6L V6 for the Cadillac ATS, CTS, CT6 and upcoming XT5 features cylinder deactivation, direct injection and stop/start technology. The 3.6L was selected by WardsAuto as one of the 10 Best Engines in the industry for 2016.*



40-20-40 Cargo area remote fold down rear seat.



Rear-seat legroom is increased 3.2 in. (8.1 cm) in the XT5, compared to the SRX. The rear seat reclines and slides fore and aft, as well.





Make plans to attend ATRA at the Paris Hotel & Casino, October 27-30.  
powertrainexpo.com

## Business Booster Shot

*GM helps shops revitalize transmission repairs at ATRA*

Not feeling great about your transmission business or wondering if your repair numbers are as healthy as they could be? The good doctors from GM just might have the cure.

They'll be setting up shop at the **Automatic Transmission Rebuilders Association's (ATRA) 2016 Powertrain Expo, the largest gathering of transmission professionals in the world, Oct. 27-30 at the Paris Hotel & Casino in Las Vegas.** The Expo is just the place to pick up on the latest in transmission technology and business innovation.

GM will provide a close-up look at its current line of transmissions — 8- and 9-speed models — in addition to an M32 Manual (available in remanufactured versions). Because each offers GM's plug and play technology, they're easier to install and calibrate. That means labor cost savings, making them attractive options to skittish customers wary of high repair bills. That also translates into more work time for you to do more business.

### >> TEHCMs and TCMs

GM additionally will highlight the differences between transmission components — Transmission Electro-Hydraulic Control Modules (TEHCM) in 6 speed transmission and Transmission Control Modules/Valve Body in 8 speed formats. TEHCM offers a significant upgrade since it is fully internal and combines the functions of the transmission control module, valve body solenoids in one unit. TEHCM is found on 6T30/40/45/50, 6T70/75, 6L45/50, 6L80 and 6L90 transmissions.

To aid repairers working on this technology, GM has the latest information on OE modules. Further, it will demonstrate how to download the latest calibration software and use its Assisted Remote Programming Tool.

GM's TEHCM comes with a 12 months/unlimited miles warranty. GM's automatic transmissions are covered by a 36 months/100,000 miles warranty and their manual transmissions are warranted for 12 months/12,000 miles. Add top of the mark manufacturer quality and fit, shops and customers get substantial value when using GM products.

Cutting edge business and repair information and reliable, cost-saving parts — those are strong reasons to stop by GM's booth at ATRA.

## Strut and Shock Absorber Inspection for 2017 Cadillac XT5

Document ID: 2326580

### Removal Procedure

**Note:** The strut assembly DOES NOT have to be removed from the vehicle to perform the following inspection procedure.

**Note:** A light film of oil on the top portion of the strut is normal. DO NOT replace the strut for this condition.

**Condition 1** — Oil or fluid residue only on the bottom of the strut tube or on other strut components and not originating from the shaft seal, is not a strut related problem. DO NOT replace the strut, look for other external leaks.

**Condition 2** — Light film/residue on the strut tube, but not on the spring seat and originating from the shaft seal, is a NORMAL condition. DO NOT replace the strut.

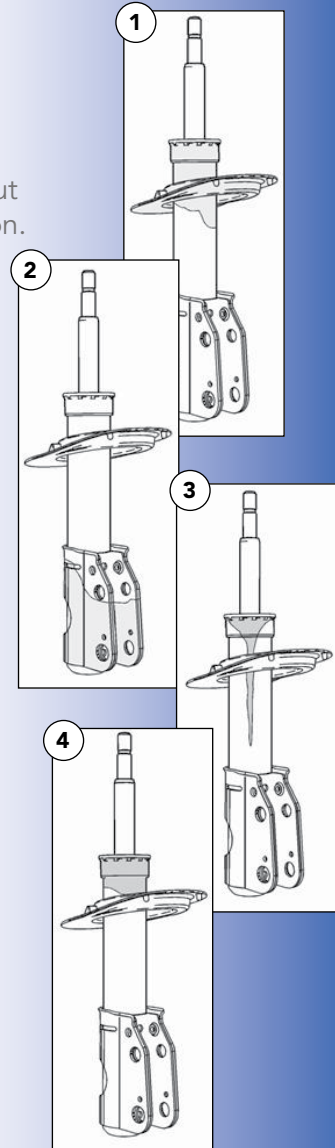
**Condition 3** — Oil drip or trail down the strut tube and originating from the shaft seal, is an ABNORMAL condition. Replace the strut.

**Condition 4** — Extreme wet film of oil covering the strut tube and pooling in the spring seat and originating from the shaft seal, is an ABNORMAL condition. Replace the strut.

### Inspection

1. Verify the customer's concern is present. If the concern is present, continue to the next step. If the concern is not present, then the vehicle is operating normally.
 

**Note:** The strut assembly DOES NOT have to be removed from the vehicle to perform the following inspection procedure.
2. Raise and support the vehicle. Refer to *Lifting and Jacking the Vehicle*.
3. Visually inspect each of the shock absorbers or struts for external fluid leaks. Refer to the following conditions 1, 2, 3, and 4 for visual inspection.
  - If conditions 1 or 2 are found, continue to step 4.
  - If conditions 3 or 4 are found, replace strut. Refer to *Strut Replacement*.
4. If equipped with electronic suspension control system, ensure that the system is working properly. Refer to Diagnostic Starting Point-Electronic Suspension Control.
5. Use your hands in order to lift up and push down on each corner of the vehicle 3 times. Remove your hands from the vehicle. If the corner motion exceeds 2 cycles, replace the strut. If the strut does not exceed 2 cycles, NO repair is necessary.



ACDelco

# INSIDER

Over 100 Years of Experience

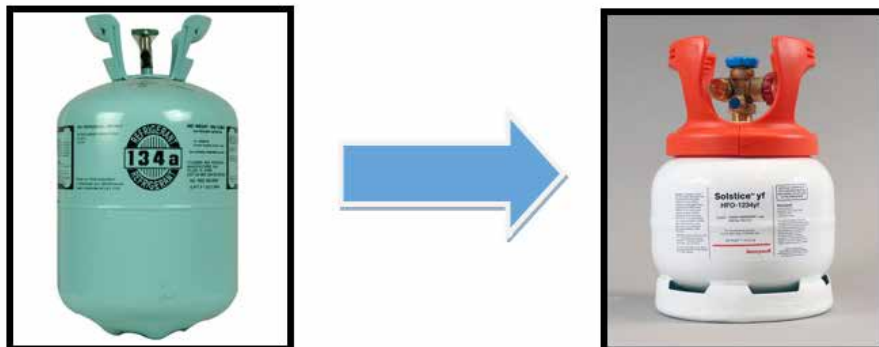
## R-1234yf Refrigerant Rollout Coming to More GM Models

A number of 2017 Chevrolet, Buick, GMC and Cadillac models will join the current Cadillac XTS and Chevrolet Spark EV in using the new air conditioning refrigerant R-1234yf. The XTS was the first U.S. vehicle to use R-1234yf refrigerant in 2013. R-1234yf is an environmentally friendly alternative to R-134a refrigerant, which is a greenhouse gas that has been cited as contributing to climate change. R-1234yf has a 99.7 percent lower Global Warming Potential (GWP) than R-134a. It is the industry accepted solution for a low GWP refrigerant.

The following 2017 models are currently targeted to receive R-1234yf in the North American market: Chevrolet Camaro, Cruze, Malibu, Colorado, Silverado, Tahoe and Suburban; GMC Acadia, Canyon, Sierra and Yukon models; Cadillac ATS, CTS and XT5; and Buick Cascada and LaCrosse. There will be more vehicles added for the 2018 model year.

The U.S. Environmental Protection Agency's (EPA) motor vehicle greenhouse gas regulations require improvements in overall fuel economy and the use of R-1234yf will play a considerable role in helping GM vehicles achieve these targets under the new regulations. The new refrigerant has been tested and studied extensively by many organizations, including the Society of Automotive Engineers (SAE) International, the U.S. EPA, global regulatory and scientific organizations, as well as every major automotive manufacturer. All of these groups agree that R-1234yf is a safe and environmentally friendly alternative to R-134a.

The refrigerant compound is HFO (hydrofluoroolefin) 1234 (1 - double bond, 2 - hydrogens, 3 - carbons, 4 - fluorines) yf (position of the fluoro atoms).



## Differences in Refrigerants

R-1234yf does not require significant changes to the design of automotive air conditioning systems. It has thermodynamic properties similar to R-134a, so system diagnosis is similar to R-134a systems. It also can be handled much the same way as R-134a, although it does require dedicated service equipment. (Refer to the appropriate Service Information for the latest diagnostic and repair procedures.)

While R-1234yf is very similar to R-134a, there are some important differences. R-1234yf is considered a mildly flammable gas and should not be serviced near any open flame or significant source of energy (for example, welding). Like all automotive refrigerants, it is illegal to release R-1234yf into the atmosphere. In the case of an unintentional release, the immediate area should be ventilated; taking additional care to ventilate pits or low areas as the refrigerant is heavier than air and can collect in these areas.

## Special Tools

New dedicated tools and equipment are required by U.S. EPA regulations to service vehicles equipped with R-1234yf. Existing R-134a equipment cannot service R-1234yf because of fitting differences, refrigerant mixing and safety requirements.

SAE J2843-compliant Recovery/Recycle/Recharge machines must feature integrated refrigerant identifiers or a USB port for connection with a hand-held identifier.

SAE J3030 dual-refrigerant R/R/R machines for both R-1234yf and R-134a have also been introduced recently.

## Genuine GM Parts Door Hinges and Hardware Available

GM recently released a number of Genuine GM Parts door hinges, door hinge detent rollers, door hinge pins and tailgate hinges covering vehicles from 1982-2016.

The parts – 65 in all – are branded Genuine GM Parts and are available for service centers to purchase. See your GM Dealer for more information.



## The New Chevrolet Volt Takes Charge



The 2016 Chevrolet Volt offers an electric range of up to 53 miles (83 kilometers) – a nearly 40 percent increase over the first-generation model. The all-new Voltec propulsion system has been redesigned to be even more efficient, which helps deliver improved fuel economy as well as stronger acceleration than the previous generation.

New features for the 2016 model include:

- Regen-on-Demand™, which can control the vehicle's energy regeneration using a paddle on the back of the steering wheel
- Stronger body structure with more high-strength steel and a quieter ride
- Improved capability braking system
- 120 V portable charging cord set boasting a simpler, compact design and more convenient storage location
- Active grille shutters that help balance design with efficiency
- Available illuminated charge port.

The Volt also features 10 air bags, a Rear Vision Camera, and crash-avoidance items such as Lane Change Alert, Rear Cross Traffic Alert, Forward Collision Alert and Forward Automatic Braking.

**Driving Modes** – Four driving modes are available on the 2016 Volt, which are accessed by pressing the MODE button on the center console.



**Normal (Default)** – Activates when the vehicle is started, and is used in normal driving conditions for efficient operation.

**Sport** – Increases throttle response and power delivery characteristics for a sportier driving experience.

**Mountain** – Best deployed when in mountainous terrain (long grades of 5 percent or steeper) to help to preserve battery power and maintain higher speeds.

**Hold** – Forces the Volt into extended range operation to maintain battery charge.

**Battery Charging** – A new feature for charging the Volt is programmable charging using GPS, which enables owners to be able to set their charging preferences exclusively for their “home” charging location. The vehicle will automatically adjust to that setting when it’s at that location. Owners only have to program the system once and the Volt will return to those settings every time it’s at the home location.

Owners can pre-set their battery charging level at 240 V or 120 V, which can be set on either 8 A or 12 A. They can also choose whether to begin charging immediately, set a departure time for each day of the week, or set a departure time and a utility rate schedule to charge only at off-peak rates.

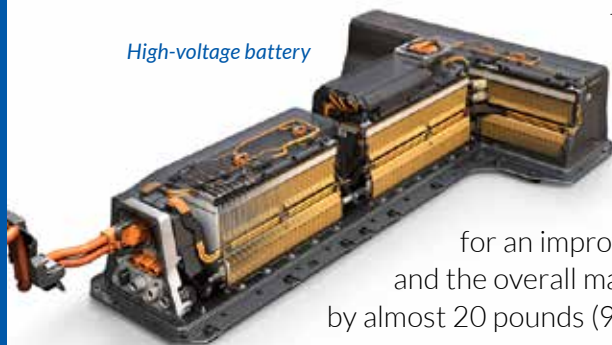


Depending on the charging setting, typical charging times are:

CHARGING SETTING	VOLTAGE	AMPERAGE	APPROX. CHARGE TIME
Charging Station	240	16	4.5 hours
Portable Cord Set (default setting)	120	8	19 hours
Portable Cord Set	120	12	12.5 hours

## High-Voltage Battery System

GM's industry-leading battery technology is improved for 2016 and includes revised cell chemistry that increases energy storage capacity by 20 percent on a volume basis versus the original cell. The cells are also positioned lower for an improved (lower) center of gravity and the overall mass of the pack has decreased by almost 20 pounds (9 kg).



High-voltage battery system features include:

Battery Type	Rechargeable energy storage system comprising multiple-linked modules
Mass	403 lbs. (183kg)
Chemistry	Lithium-ion
Thermal system	Liquid active thermal control
Cells	192 Lithium-ion
Cell Groups	96
Energy	18.4 kWh, of which approximately 14.2kWh are usable in order to extend the life of the battery

## Enhanced Twin-Motor Drive Unit — Power Inverter Module

The Volt's new drive unit was engineered with a focus on increased efficiency, performance, improved packaging and reduced noise and vibration. The enhanced twin-motor drive unit operates approximately 5 to 12 percent more efficiently and boosts torque while weighing 100 pounds (45 kg) less than the previous unit.



*Power Inverter Module – Motor A and B – High Voltage Connections*

1. High-voltage connection to battery
2. Drive motor-generator B; capable of 87 kW output
3. High-voltage connection to power electronics
4. Drive motor-generator A, capable of 48 kW output
5. Power Inverter Module

The Power Inverter Module manages power flow between the battery and the electric drive motors and is built directly into the drive unit to reduce mass, size and build complexity. The module receives and monitors driver commands and other sensor inputs that are used to vary the torque and speed of each electric motor-generator (Motor A and Motor B). These inputs also command the engine controller and engine operation.

## Range-Extending Engine and Hybrid Transmission

The new 1.5L direct-injected 4-cylinder engine produces 101 horsepower at 5,600 rpm and uses regular unleaded gasoline. It features a coil-on-plug ignition, cooled exhaust gas recirculation and a variable displacement oil pump.

The 5ET50 electronically-controlled, continuously-variable automatic transaxle has a torque dampener assembly with a rotating friction clutch, a stationary mechanical (one way) clutch, and one stationary and one rotating friction clutch assembly. It also features a hydraulic pressurization and control system, a power inverter (and control) module, an electric fluid pump, two planetary gear sets and two electric drive motor-generators.

It has five modes of operation:

1. Single Motor Electric Vehicle (EV)
2. Dual Motor Electric Vehicle (EV)
3. Extended Range Low
4. Fixed Ratio Extended Range
5. Extended Range High

## High-Voltage Connectors

When attempting to remove or connect high-voltage connectors on the 2016 Volt, use care to avoid breaking any part of the connectors, which can be damaged if not handled properly.

For example, the PP2000 Axial connector — located between the T6 Power Inverter Module and the X3 connector of the Rechargeable Electric Energy Storage System (high-voltage battery pack) at the Volt's Battery Bulkhead Disconnect Unit — can prove particularly challenging when reconnecting the cable after diagnostics and/ or repairs. GM highly recommends proper training when working on high-voltage vehicles — and that all safety procedures are followed.



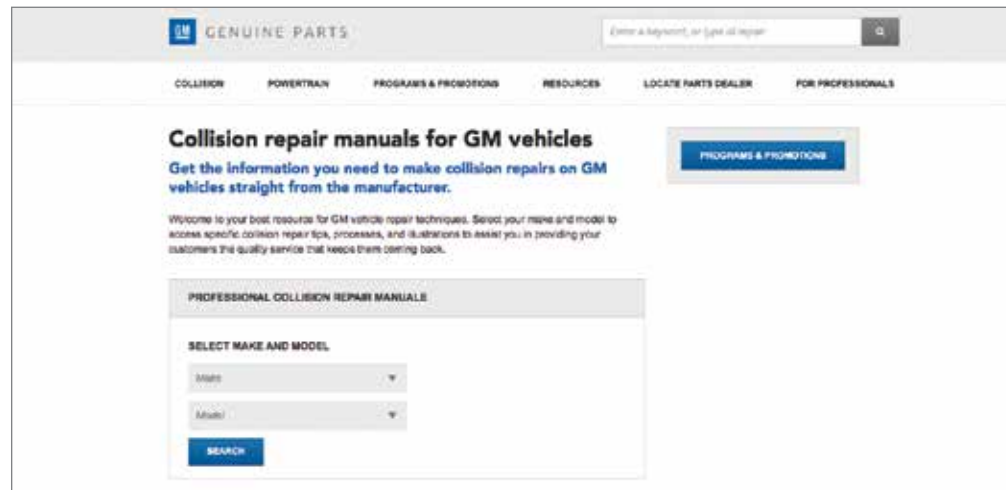
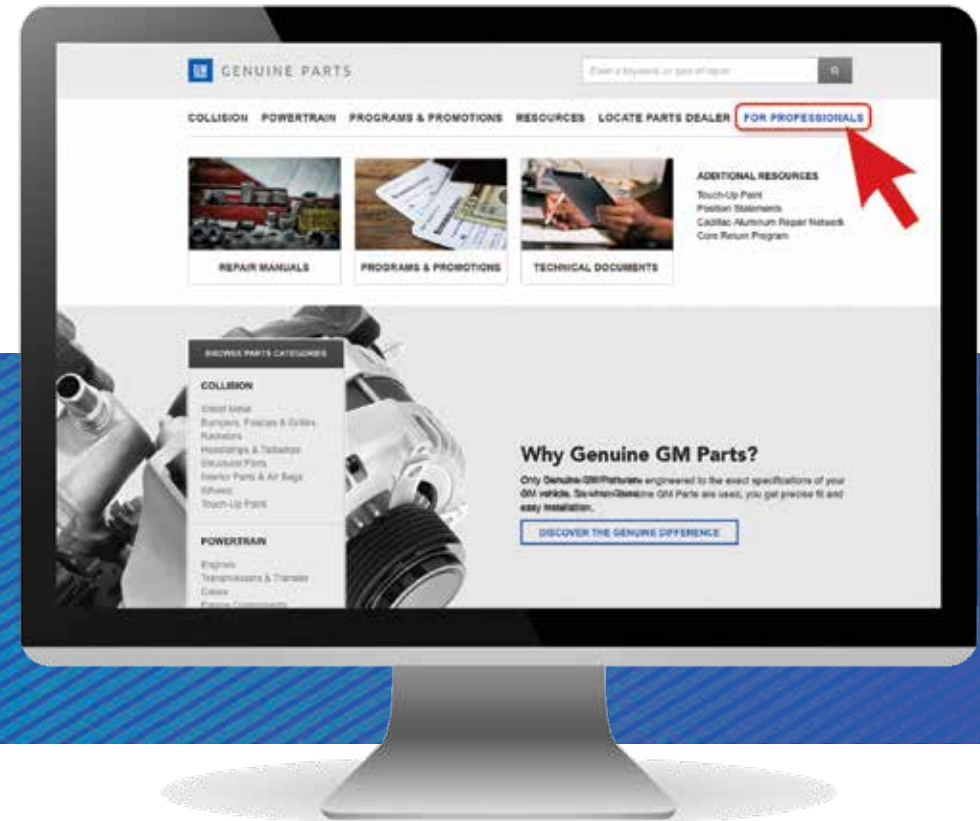
*Follow the Service Information procedures to properly remove or connect a high voltage connector.*

# Free Resources Available for Repair Professionals

Technical documents, collision repair info, paint codes and more, all at your fingertips.

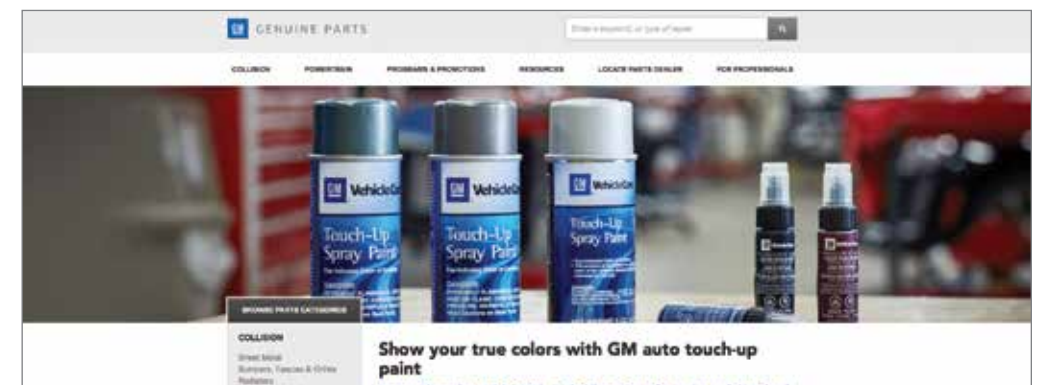
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Now with an updated section dedicated to repair professionals



## FREE Access to GM Recommended Collision Repair Procedures

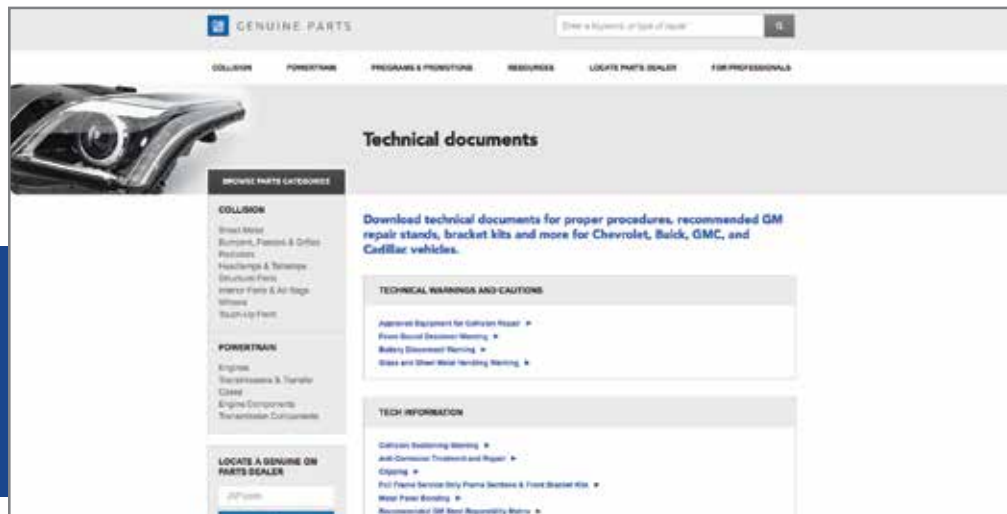
- Complete repair procedures for GM vehicles dating back to 2000 (even for discontinued makes and models)
- Complete vehicle repair download in one document with bookmarked sections for easy navigation



## Paint Codes

- Search by year, make, model
- Access color codes and touch-up paint GM part numbers

# Free Resources Available for Repair Professionals



## Why Genuine?

Genuine GM Parts are engineered and built to meet or exceed OEM specs. We apply the latest engineering advancements — learned from decades of manufacturing and service expertise.

## Technical Documents and Positions Statements

- GM's recommendations for safe repairs
- Covers safety issues ranging from using salvage parts to airbags

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## GM Parts Programs and Promotions

- Collision and Powertrain parts conquest programs make Genuine GM Parts very price competitive
- Links to online ordering tools, technical training and partner resource
- Tech "Hotline", tech magazines, diagnostic tools subscriptions and more . . .

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## Cadillac Aluminum Repair Network

- Group of Certified body shops authorized to repair Cadillac mixed-metal aluminum vehicles.
- Authorized repair facilities will meet all:
  - Tooling, equipment and Genuine Parts requirements
  - Maintain a staff of repair techs certified in the latest Cadillac aluminum structural repairs
- Contact your local Cadillac Dealer for more details

*Genuine GM Parts . . . why settle for less?*