

# **FOR SALE 2017 Chevrolet Volt**

## **Price \$19,000**

54800 Miles

4 Door sedan

Color Silver with Gray Leather Interior

AC with Auto Temp Control

Heated Seats and Steering Wheel

Back-Up Camera

Looks and Drives Like New

Other Options and Features – Must See and Drive

See attached article for explanation of how a Volt works

See attached information about recent accident damage and repair. Accident was purely cosmetic on passenger side. No mechanical or electrical damage.

# The Volt's Hybrid Drive System

BY [LARRY WEBSTER](#)

POPULAR MECHANICS

PUBLISHED: OCT 12, 2010

With a fully charged battery the Volt behaves like a pure EV and switches to gas propulsion once the battery is depleted. It's in this second, "charge-sustaining" mode where the Volt really displays its technical prowess.

There are two electric motors—a 149 horsepower primary drive motor and a 74-hp motor/generator—and a 1.4-liter internal combustion (ICE) gas engine. All three elements are connected via a planetary gearset.

Planetary gearsets—which are common elements of automatic transmissions—are ingenious devices that have three meshed elements: A sun gear in the middle, a ring gear with internal teeth and smaller planet gears between the two which are joined together by a carrier. Alternating the speed and direction of the various elements changes the ratio between the inputs and outputs.

In the case of the Volt, the main output is the driven front wheels, which are connected to the planet carrier. The large drive motor is affixed directly to the sun gear. The ring gear is where things get interesting.

One clutch connects the ring gear to the transmission case and when engaged, it stops the ring gear from rotating. A second clutch joins the smaller motor/generator to the ring gear. A third clutch combines the engine crankshaft to the motor/generator.

At low speeds and with a fully charged battery, the ring-gear clutch is engaged and the main electric motor routes power to the front wheels. As vehicle speeds increase to about 70 mph, the main electric motor starts to fall out of its most efficient operating range so then two things happen: The ring-gear clutch opens, and the motor/generator clutch connects the second motor to the ring gear. Then both motors power the car.

When the battery is depleted, the operation slightly shifts. Again at low speeds, the ring gear is locked in place via its clutch but now the clutch between the engine and the motor/generator closes, which spins the

generator to supply the electricity. This setup is known as a series hybrid because the gas engine does not directly power the wheels.

But the Volt isn't always a series hybrid. Once the speed climbs to about 70 mph, the motor/generator again couples to the ring gear but now—in "charge-sustaining" mode—the smaller electric motor is also affixed to the running gas engine. In effect, the gas engine supplies power directly to the transmission, which is just like a parallel hybrid.

This last mode has caused some consternation because over the Volt's development GM has stated that the gas engine never directly powers the car. While that's not entirely true, there are a few things to keep in mind. The first is that the car can't move solely on the gas engine—if the main electric motor quits, the car will be stranded. Secondly, the engine routes its power through the motor/generator.

In any case, the Volt's technology defines its own new category, a combination of EV and hybrid that defies conventional definition. And as we've experienced, it works.

Before Repair



After Repair





# McCARTHY/MORSE CHEVROLET

9201 Metcalf • Overland Park, KS 66212

Direct Service Line (913) 649-8555

Phone (913) 649-6000



0201ICVCB226393

CELL: 913-302-1713

CUSTOMER NO. <b>1011825</b>	ADVISOR <b>TIM LITTLE</b>	0582	TAG NO. <b>89</b>	INVOICE DATE <b>12/16/22</b>	INVOICE NO. <b>CVCB226393</b>
GEORGE N PAVLAKIS 9514 CEDAR ST OVERLAND PARK, KS 66207-3323	LABOR RATE	LICENSE NO	MILEAGE <b>49,589</b>	COLOR <b>SILVER/</b>	STOCK NO. <b>M3142</b>
	YEAR / MAKE / MODEL <b>17/CHEVROLET/VOLT/5DR HB LT</b>			DELIVERY DATE <b>03/15/16</b>	DELIVERY MILES <b>1</b>
	VEHICLE I.D. NO. <b>1 G 1 R A 6 S 5 6 H U 1 0 1 4 8 9</b>			SELLING DEALER NO.	PRODUCTION DATE
NONE	F.T.E. NO.	P.O. NO.	R.O. DATE <b>10/05/22</b>		
RESIDENCE PHONE <b>913-302-1713</b>	BUSINESS PHONE	COMMENTS <b>E# 1.5L L4</b>		MO: 49589	

LABOR & PARTS  
**J# 1 50CVZ REPAIR PER ESTIMATE HOURS: 53.60 TECH(S):0342 0466 3216.00**  
 RIGHT SIDE DAMGED  
 REPAIR PER ESTIMATE

PARTS	QTY	FP-NUMBER	DESCRIPTION	UNIT PRICE	PRICE
JOB # 1	1	84030922	FENDER 8.130 N	442.15	442.15
JOB # 1	1	84269465	MIRROR 10.185 N	261.17	261.17
JOB # 1	1	23364928	COVER 10.186 N	87.95	87.95
JOB # 1	1	120-03202R	RF DOOR	1806.85	1806.85
JOB # 1	1	130-03210R	RR DOOR	1793.13	1793.13
JC AUTO 1674680 PO 214729BS					
JOB # 1 TOTAL PARTS					4391.25
JOB # 1 TOTAL LABOR & PARTS					7607.25

**J# 2+50CVZAST SCANS HOURS: TECH(S):141 300 0.00**  
 PERFORM PRE AND POST SCAN  
 SCAN SYSTEMS  
 SCANS COMPLETED

PARTS	QTY	FP-NUMBER	DESCRIPTION	UNIT PRICE	PRICE
JOB # 2 TOTAL PARTS					0.00
JOB # 2 TOTAL LABOR & PARTS					0.00

SUBLET	PO#	VEND	INV#	INV.DATE	DESCRIPTION	PRICE
JOB # 1	216187			11/30/22	GLASS	95.98
TOTAL - SUBLET						95.98

G.O.G. & SUPPLIES	QTY	DESCRIPTION	UNIT PRICE	PRICE
JOB # 1	1.0	PAINT MATERIALS	@ 300.000 /UNIT	300.00
JOB # 2	1.0	ASTECH	@ 225.340 /UNIT	225.34
TOTAL - GOG				525.34

MISC	CODE	DESCRIPTION	CONTROL NO	PRICE
JOB # 1	IR	INSURANCE RECEIVABLE	1011825	-8956.86
TOTAL - MISC				-8956.86

COMMENTS  
 AMERICAN FAMILY  
 PLEASE HAVE GEORGE PAVLAKIS SIGN POA

DISCLAIMER OF WARRANTIES:  
 ALL EXPRESSED WARRANTIES, IF ANY  
 BY A MANUFACTURER OR SUPPLIER  
 OTHER THAN THE DEALER ARE  
 THEIRS, NOT THE DEALER'S, UNLESS  
 OTHERWISE PROVIDED IN WRITING ON  
 THE FACE OF THIS ORDER OR IN A  
 SEPARATE WRITING FURNISHED TO  
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RESIDENCE PHONE <b>913-302-1713</b>	BUSINESS PHONE				

**TOTALS**-----

A LITTLE NOTE FOR OUR WARRANTY CUSTOMERS. IN 30-45 DAYS YOU WILL BE RECEIVING A SURVEY FROM CHEVROLET ASKING YOU ABOUT THE SERVICE YOU RECEIVED FROM US ON YOUR VEHICLE. THIS SURVEY IS EXTREMELY IMPORTANT TO OUR DEALERSHIP AS IS YOUR COMPLETE SATISFACTION WITH US. THIS SURVEY ACTS AS OUR GRADE CARD AND IF YOU CANNOT ANSWER COMPLETELY SATISFIED TO ALL QUESTIONS ON THE SURVEY WE HAVE FAILED. WE ALSO NEED YOUR HELP IN FILLING OUT AND MAILING THE SURVEY BACK IN. IF YOU ARE INDEED COMPLETELY SATISFIED WITH OUR SERVICE WE AT MORSE CHEVROLET AND CHEVROLET MOTOR DIVISION WOULD LOVE TO KNOW ABOUT IT. IF YOU HAVE ANY QUESTIONS, COMMENTS, SUGGESTIONS OR PROBLEMS PLEASE FEEL FREE TO CONTACT OUR SERVICE MANAGER STEVE RITTMILLER AT 913-649-8555 EXT 323 NAT ANY TIME

TOTAL LABOR....	3216.00
TOTAL PARTS....	4391.25
TOTAL SUBLET...	95.98
TOTAL G.O.G....	525.34
TOTAL MISC CHG.	0.00
TOTAL MISC DISC	-8956.86
TOTAL TAX.....	728.29
<b>TOTAL INVOICE \$</b>	<b>0.00</b>

( ) CASH ( ) CHECK ( ) CHARGE ( ) MC/VISA ( ) DISCOVER ( ) AMEX

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CUSTOMER SIGNATURE \_\_\_\_\_  
 \*\*\*\*\* DUPLICATE INVOICE \*\*\*\*\*