RXV / TXT

2020 Model

EX1 Powertrain
Training Guide (Condensed)

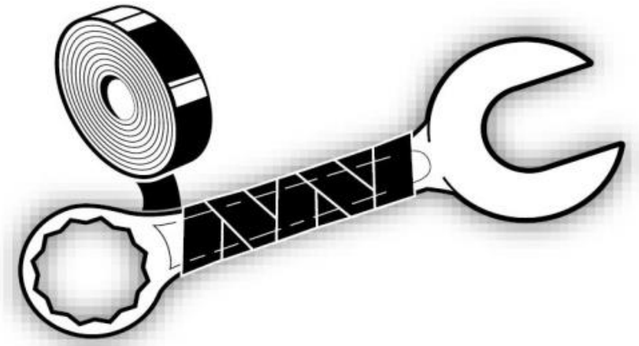
Revision Date 6-11-2020

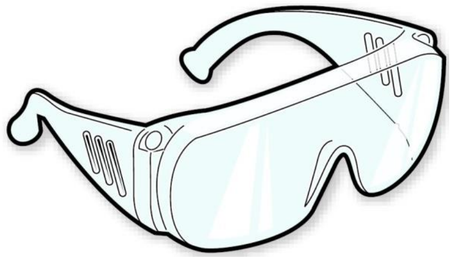
Table of Contents

2020 4-Cycle EFI Class Syllabus

Safety

- ✓ Store fuel in approved containers.
- ✓ Gasoline should be kept out of reach and should never be used by children.
- ✓ Never use gas to start a fire. It may cause severe injury or death.
- ✓ Do not store gasoline in your vehicle or living space. Always store and use gasoline in a well-ventilated area.
- ✓ Avoid prolonged breathing of vapors.
- ✓ Keep gasoline away from heat sources. Keep away from flame, pilot lights, stoves, heaters, electrical motors and other sources of ignition. Vapors can be ignited by a spark or flame source many feet away.
- ✓ Gas is harmful or fatal if swallowed. If swallowed, do not induce vomiting. Call your physician immediately. Never siphon gasoline by mouth.
- ✓ Always place container on the ground when filling to avoid static electricity ignition.
- ✓ Keep gasoline containers closed when not in use.
- ✓Always wear personal protective equipment.
- ✓ Wrap battery wrenches to prevent accidental connection.
- ✓ Do not operate gasoline engines without proper ventilation





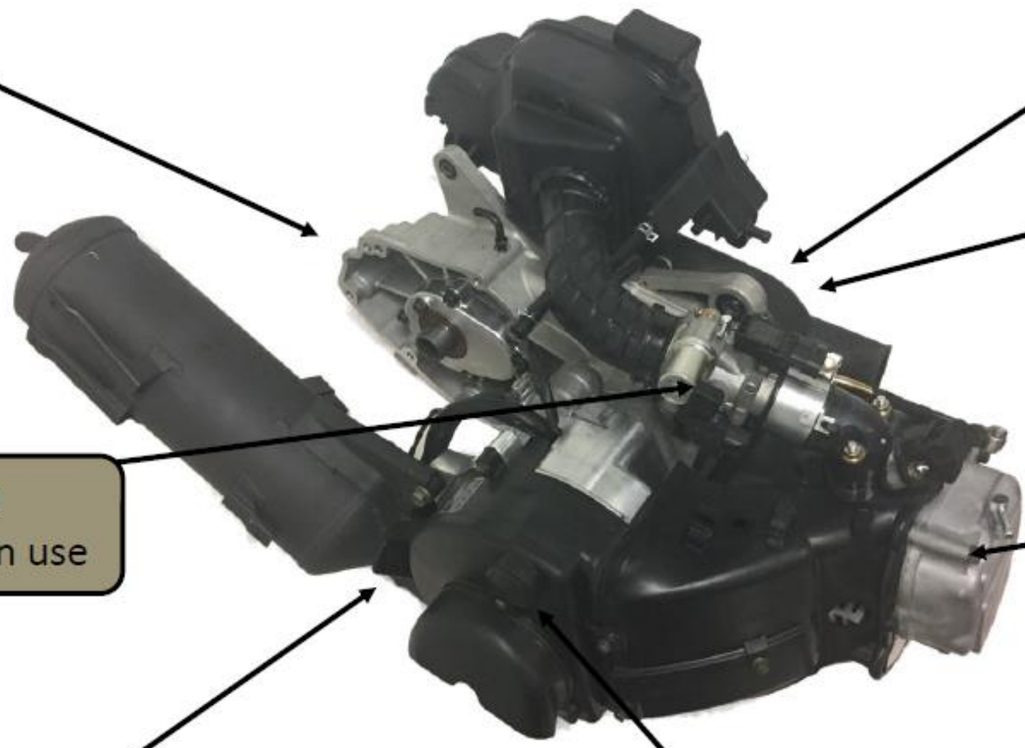
Features & Benefits

Features

Engine coupled to axle
Better reliability and no exposed rotating parts

Enclosed CVT maximizes belt life

Starting clutch eliminates downhill belt whine



Smart Engine Management
Shuts off accessories when not in use

149cc 2 valve engine
3,800 RPM cruise
Purrs versus thumps

Closed loop EFI optimizes mpg and performance in any condition

Starter generator integrated into engine
Eliminates exposed belts

Service Intervals

Engine Components	
Oil level check	Every 125 hrs. or semi-annually and top off as needed.
Oil change intervals	Every 400 hours of engine usage or biennial. (Whichever comes first)
Oil Filter / Screen	Check and clean as needed every oil change.
Sparkplug change intervals	Every 500 hours engine usage or biennial. (Whichever comes first)
Engine Valve adjustment	Every 1000 hours engine usage or once every four years.
Blow-by PCV	PCV drain tube shall be serviced every 400 hours during engine oil change.
Air filter	Inspect semi-annually or every 125 hours. Replace when it is dirty and engine performance affected.
CVT filter	Inspect semi-annually or every 125 hours. Clean as needed.
CVT Rollers Inspection	Inspect every 500 hrs. Replace every 1000 hrs. or four years. (Whichever comes first)

CVT Slipper shoe	Inspect every 1000 hrs or 4 years.
Gearbox oil	Inspect every 500 hrs or biennial and top off if needed. Replace every 1000 hrs. or four years.
Exhaust system	Check for leaks and graphite joint integrity every 300 hrs or during engine oil change
Fuel System	Check fuel line, and evaporative system hoses for cracks and damage every 300 hours or during engine oil change and replace as needed.
Carbon Canister	Check for hoses and clamps at connection points every 300 hours or during engine oil change
Engine Wiring	Check engine wiring: cracked insulation, loose hardware or corroded terminals monthly

Fuel System

⚠WARNING **Refuel only in well-ventilated areas.**

Do not add fuel near open flame or electrical items that can cause a spark.

Wear eye protection to protect from splashed fuel and fuel vapors.

Never use cigarettes in or near the area where refueling is done or fuel is stored.

Inspect the fuel cap, tank, and other components for leaks or damage that can cause a hazardous condition.

Do not overfill the tank. Do not fill the tank neck.

Never operate the vehicle with the fuel tank cap removed.

NOTICE: Oxygenated or reformulated gasoline, is mixed with alcohols or ethers. Excessive amounts of these blends can damage the fuel system or cause performance problems. If any performance problems occur, use gasoline with a lower percentage of alcohol or ether.

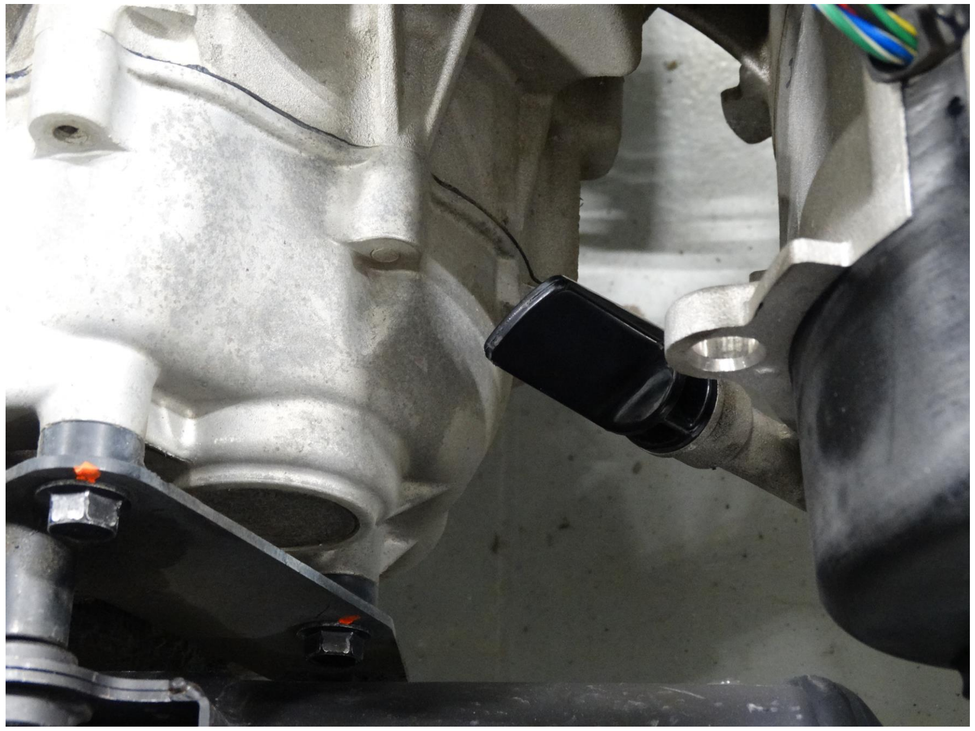
Use clean, regular grade unleaded fuel. An Ethanol blend of no more than 10% is acceptable.

1. Remove the fuel refill cap that is located under the seat.
2. Fill the tank with clean, automotive grade gasoline. See the following chart for requirements.

Fuel		NOTES
Grade requirement	Regular 87 octane	High altitude or heavy use/load applications can benefit from higher octane gasoline.
Ethanol content	10% maximum permissible	Exceeding the maximum permissible ethanol concentration can deteriorate the engine fuel system and starting performance.
Methanol content	Not permissible	The use of fuels containing methanol is not permissible.

3. Replace the cap when refueling is complete.

Oil Check & Change



Unscrew the dipstick from the crank case port.

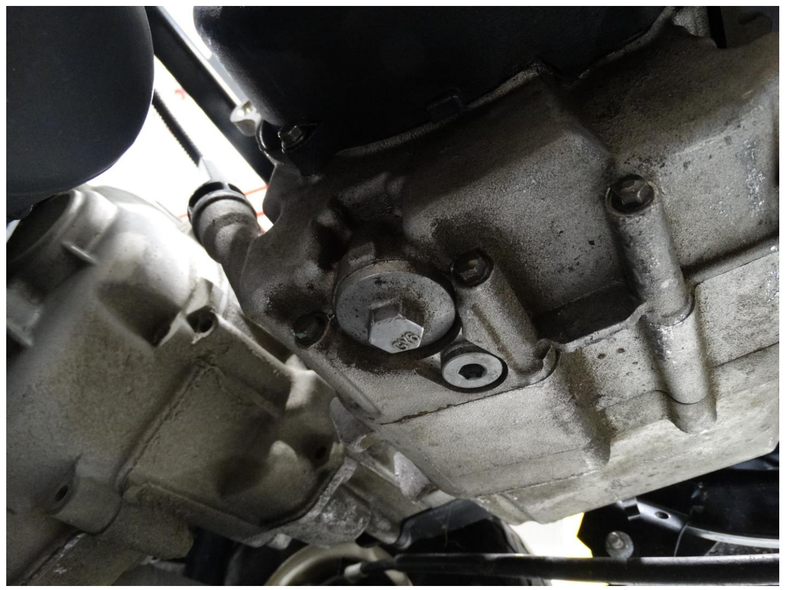
Verify oil on the hash marks of the stick.

The oil is checked on the dipstick on the passenger side rear of the crank case. The capacity is 1.5 Liter (51 oz's). The oil viscosity is 5W-30. It is recommended that the oil be changed every two years.

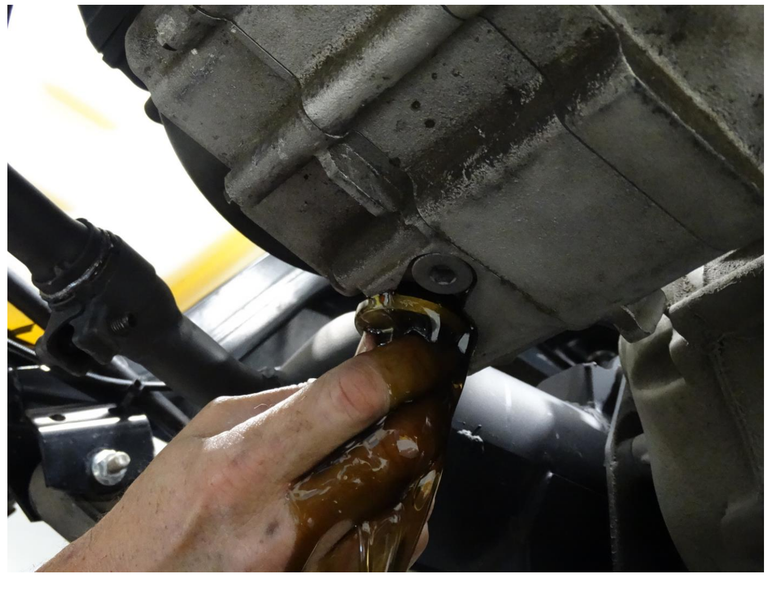
The oil level is adjusted through the plug on the top of the valve cover.

Oil Change

The oil must be changed every 400 hours or two years. Begin by jacking the car up from the front.

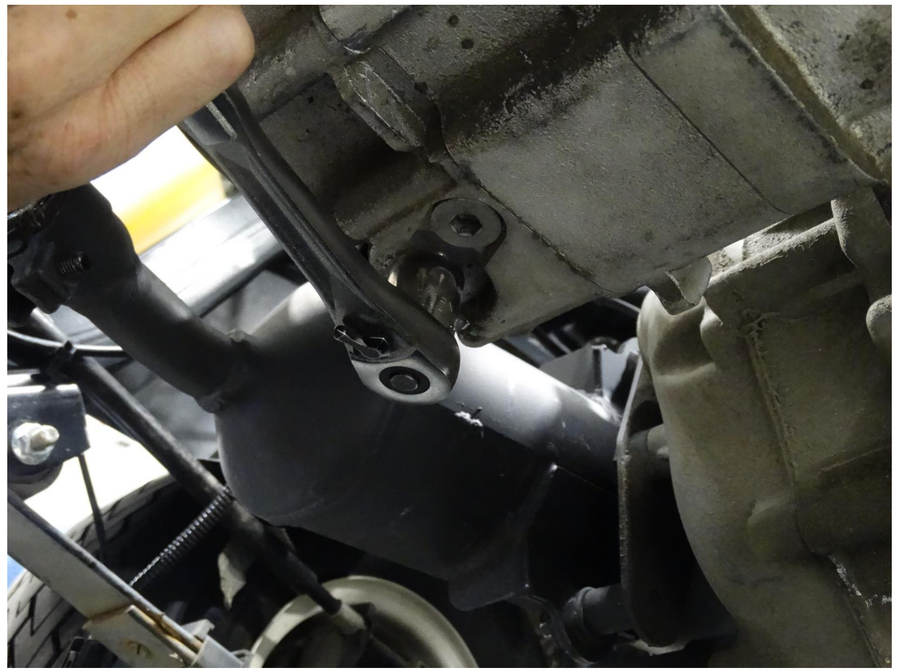


Access the drain plug at the rear of the crank case.



Allow the oil to drain into a suitable pan.

Fun fact: The EX1 engine has a 33 micron oil filter.



Use a 17mm socket to remove the plug.

Clean the oil filter screen in solvent. Inspect the seal for any cuts or damage then replace the filter.

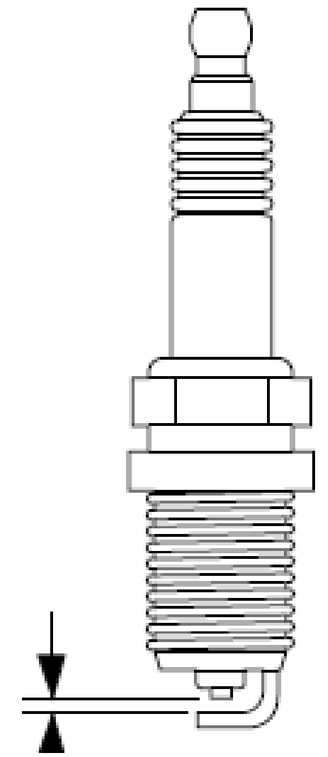
Spark Plug Change

Use only an NGK CR6-HSA Spark plug!

⚠ CAUTION **Do not over tighten the spark plug. Over tightening the plug can cause damage to the aluminum cylinder head threads.**

1. Remove the spark plug when the engine is cold.
2. Inspect and replace the spark plug at the intervals indicated in the *SCHEDULED MAINTENANCE CHART* on page 28.

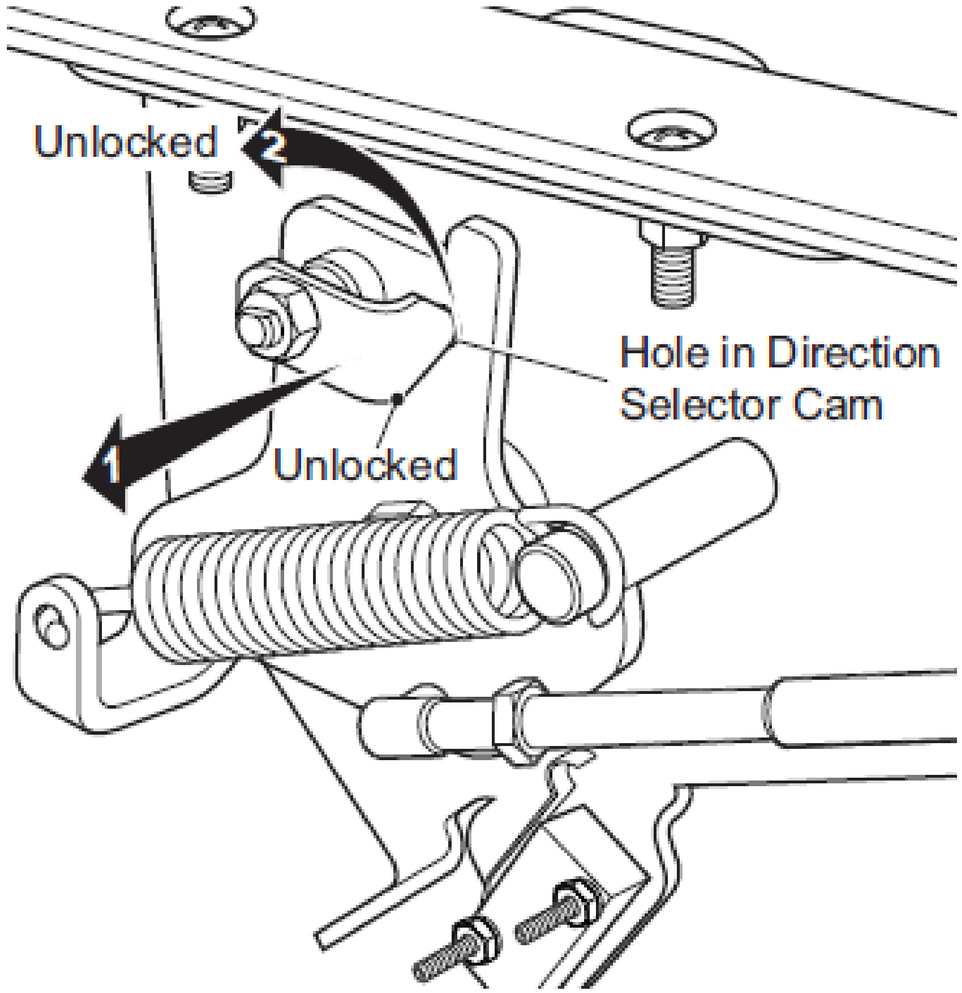
INSPECT	CONDITION OF SPARK PLUG	ACTION
Electrode	Sooty	Clean carefully with a wire brush.
	Worn or damaged	Replace spark plug.
Condition of plug	Fouled (indicated by a wet, black appearance) possibly caused by:	
	• dirty air filter element or other restrictions in the air intake system	Clean air system. Replace spark plug.
	• incorrectly adjusted valves	Adjust valves. Replace spark plug.
	• park plug wire in poor condition	Repair or replace wire. Replace spark plug.
	• poor fuel quality	Change fuel. Replace spark plug.
Porcelain insulator	Visible cracks	Replace spark plug.
Gap	Correct gap (see illustration at right)	Reinstall spark plug.
	Incorrect gap (see illustration at right)	Adjust to correct measurement.



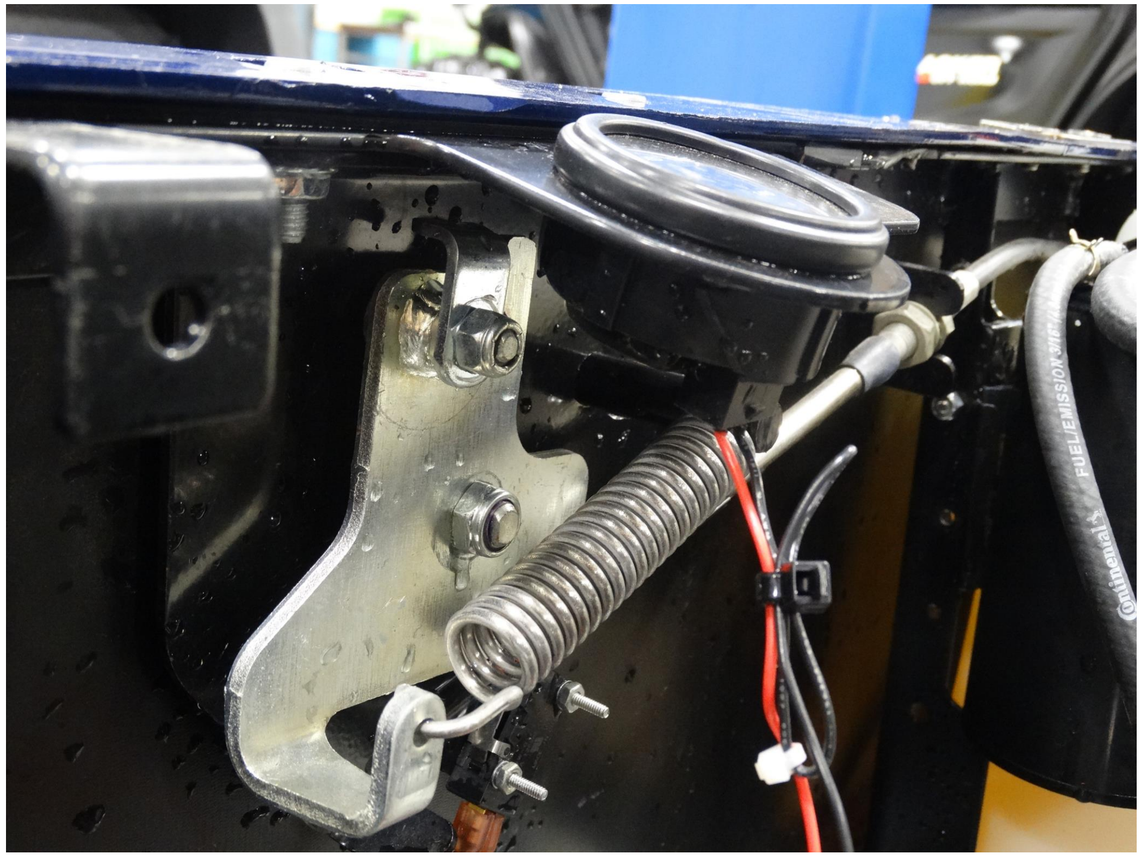
3. Apply a light coat of anti-seize compound to the spark plug threads.
4. Tighten to 16 ft. lbs. (22 Nm) torque.

Battery & Charge Voltage Test

Surface and charge voltage can be checked on the 12V starting battery.

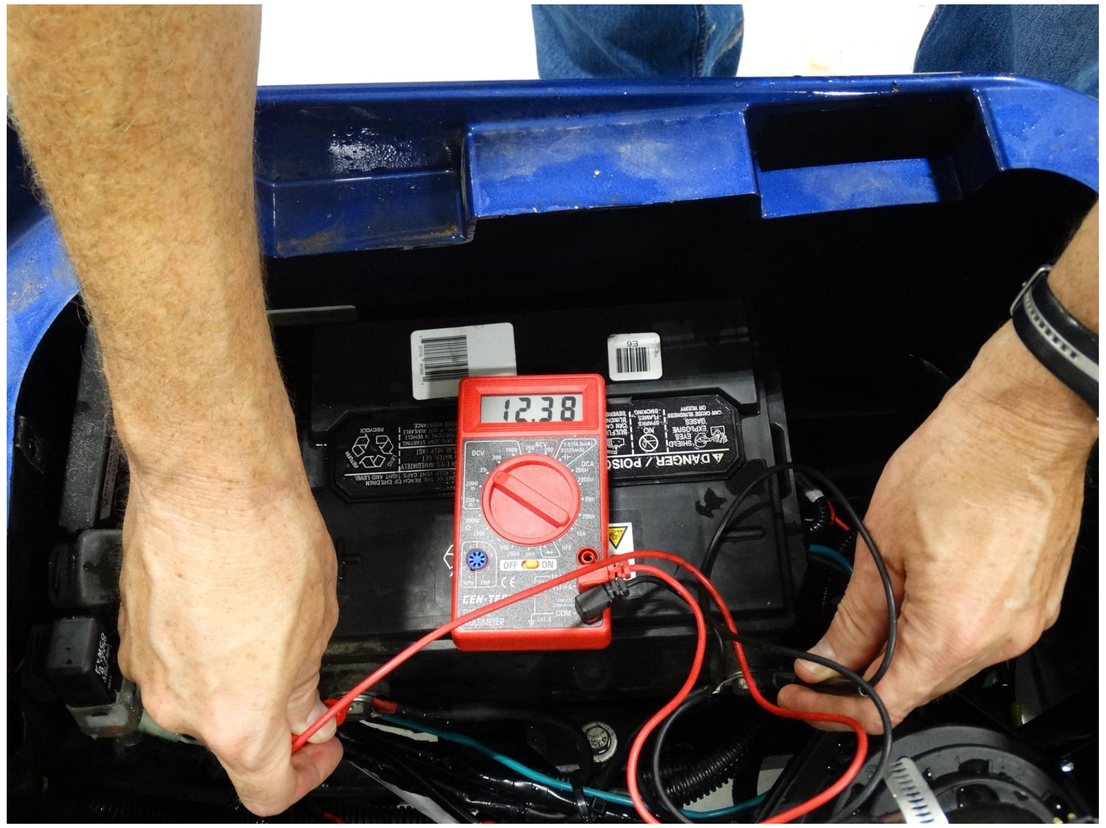


Place the neutral lock out in the locked position.



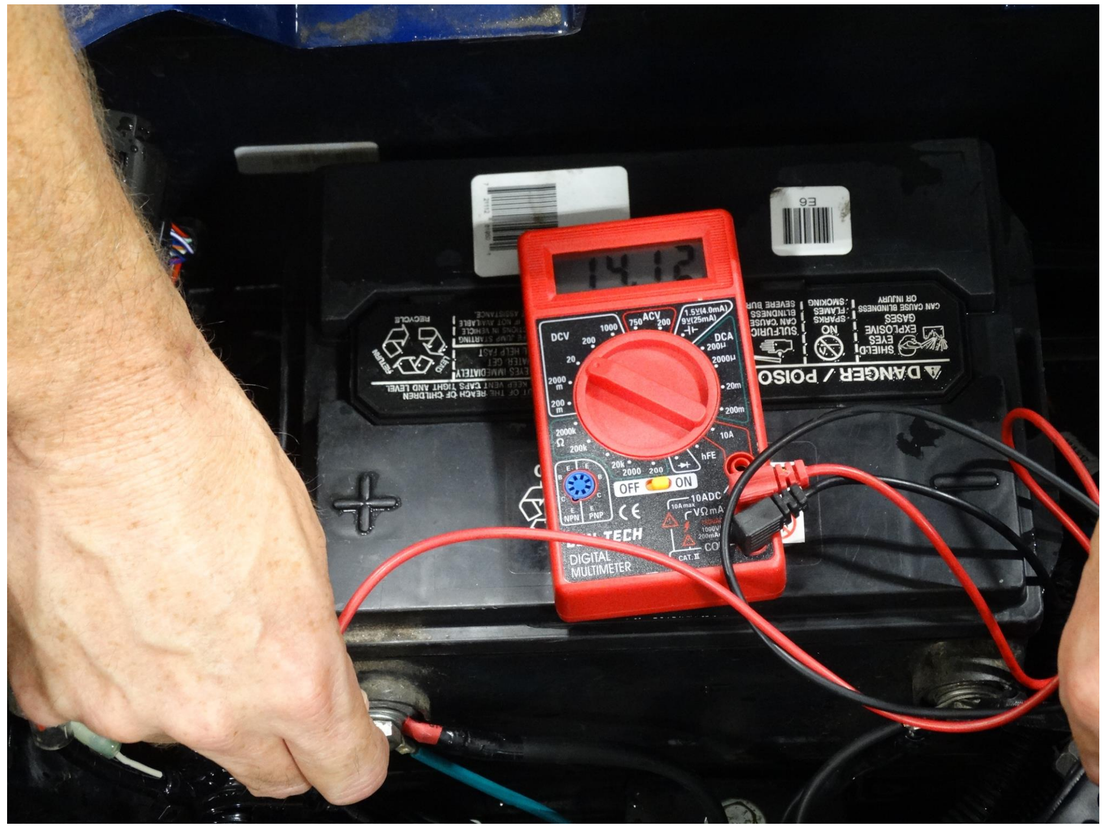
The car will have to be cranked to check charge voltage.

Battery & Charge Voltage Test



Verify battery reference voltage without starting the car. Voltage should run between 12V and 12.66V. Crank the engine over. Voltage should not drop more than 1V while cranking. If so; charge or replace the battery.

The battery is a U1 350 CCA unit.



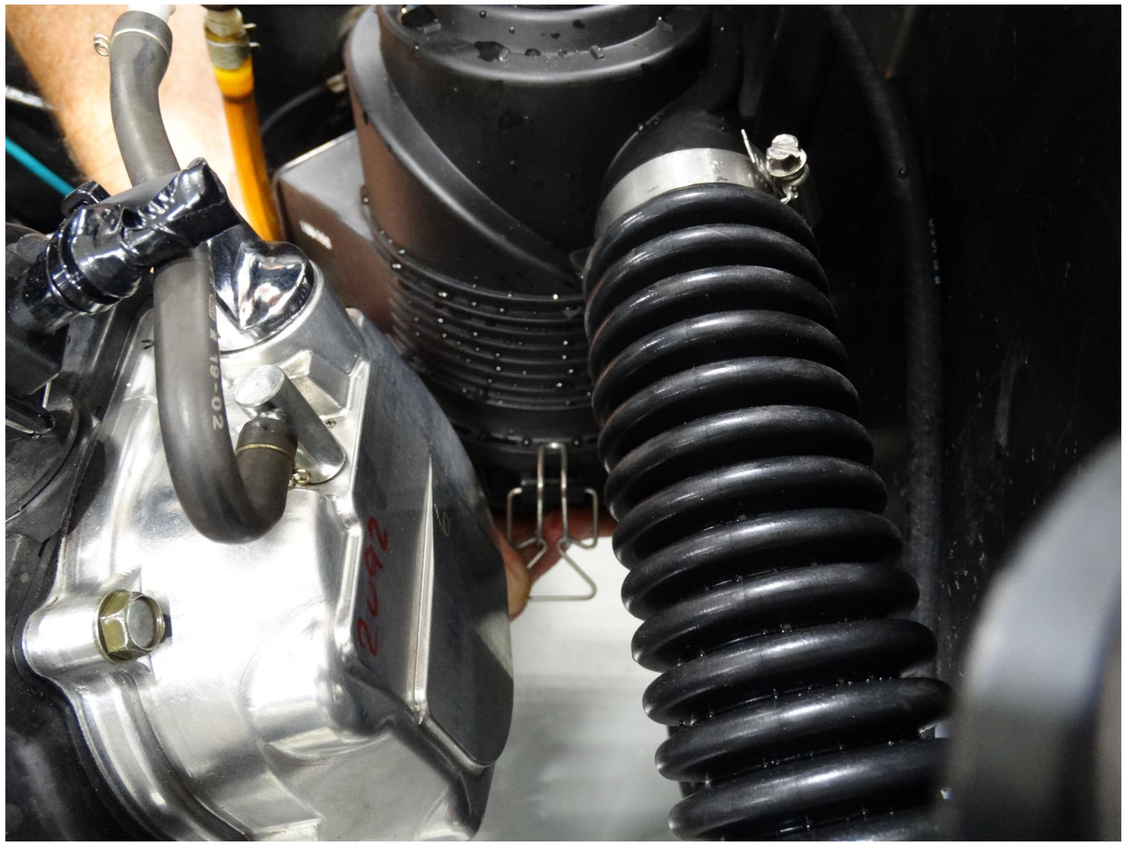
Crank the engine and bring up to charge RPM. Voltage should run between 13.75V and 14.25V. If not; check wiring, ISG controller, and stator. The diagnostic feature will also indicate voltage problems.

PVC Drain

Drain the PVC fitting on the bottom of the air intake hose every 400hrs or at each oil change. Make sure to capture any oil that is drained.

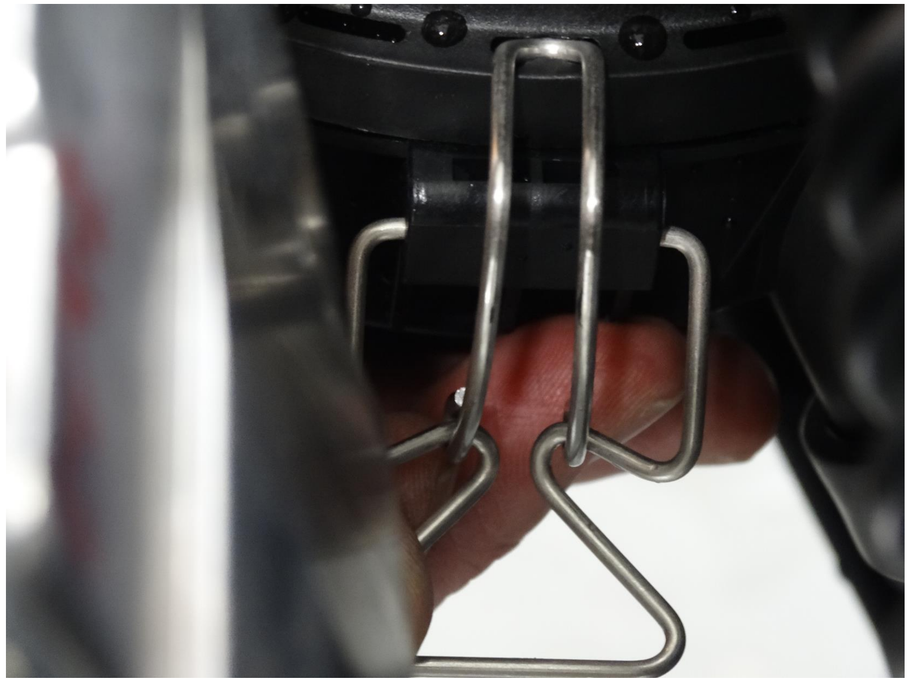
Air Filter Removal

The air filter should be checked every 125 hours. This should be done more frequently under dusty conditions.

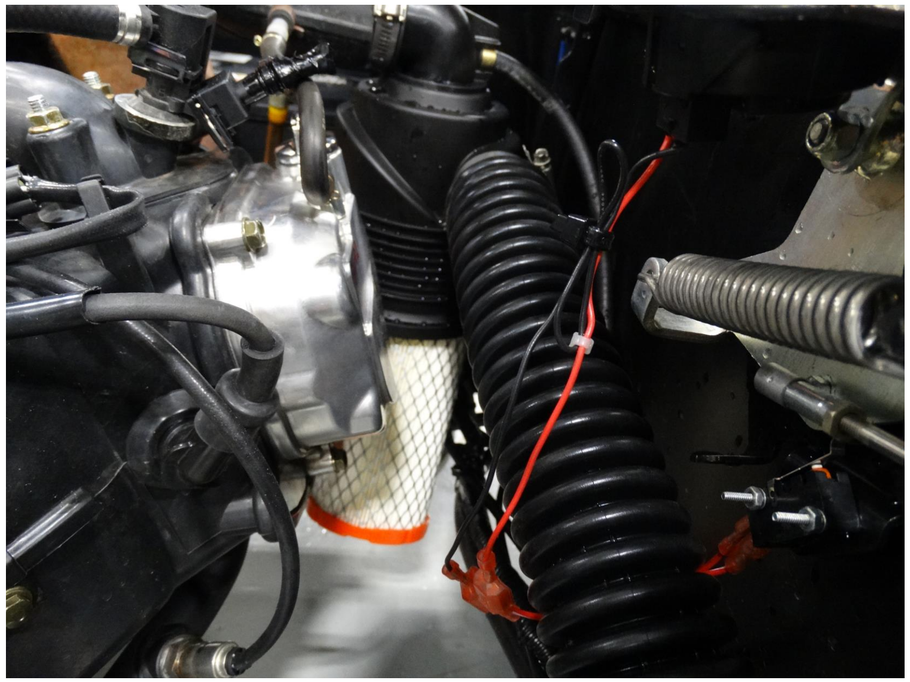


Access the filter housing clasp that retains the housing cover.

Remove the housing cover and filter to inspect or replace. Make sure the housing is free from all dirt and debris.

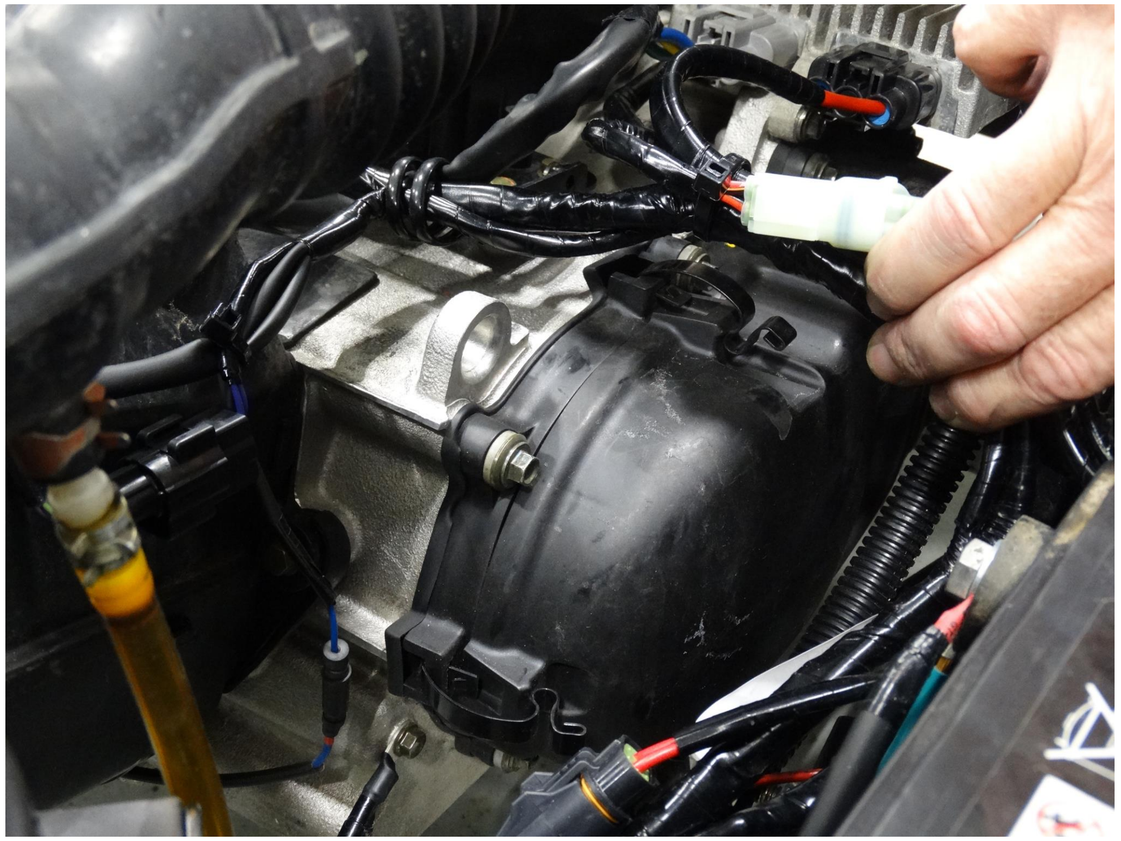


Remove the clasp from the locked position.



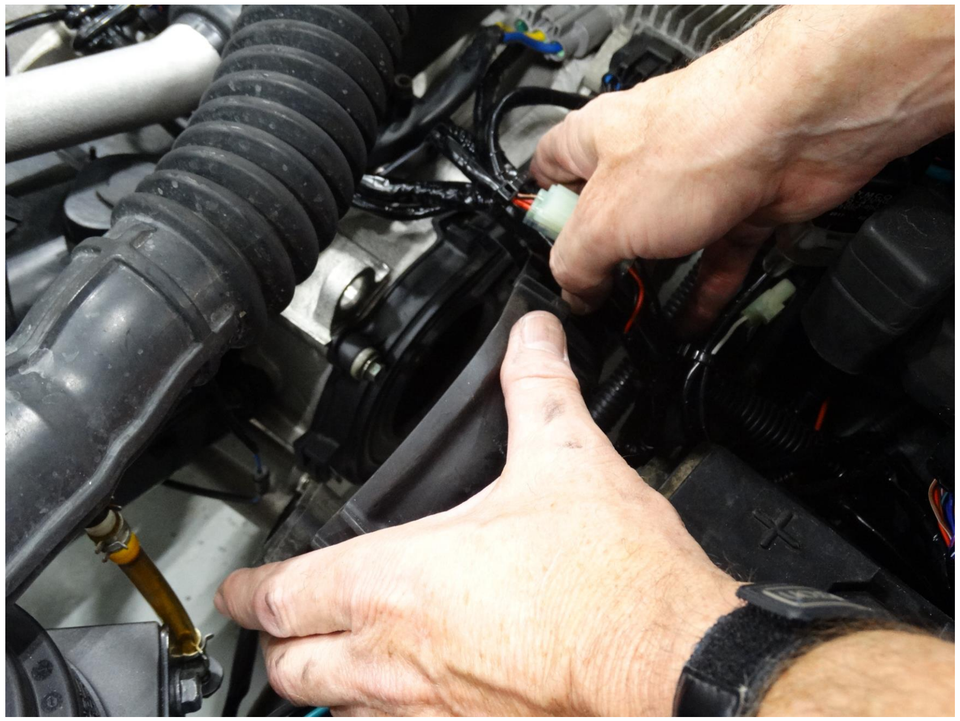
CVT Filter Check

The CVT filter should be checked and cleaner every 125 hours or semi-annually.



Remove the clasps around the perimeter of the filter housing. Connect the top clasp 1st. during reinstallation. The lower clasp should be connected next and the front clasp connected last.

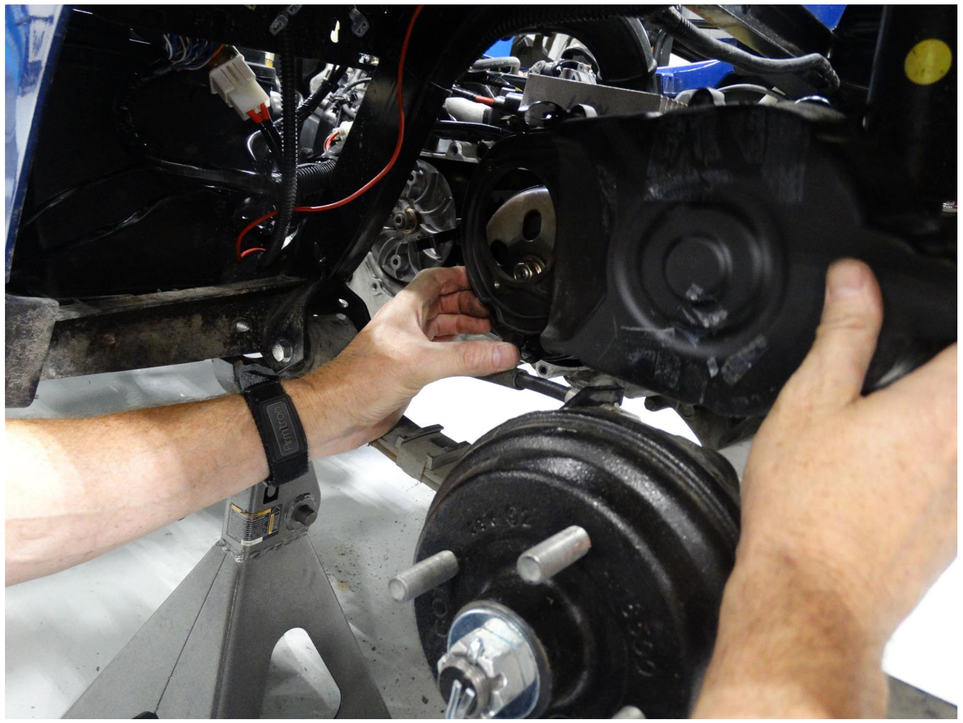
Remove the filter screws and wash the foam element with warm soapy water.



Carefully slide the housing out of the way.

Clutch Removal & Belt Inspection

In order to remove the CVT and inspect the belt a few tools are needed. A plastic pry bar is needed to remove the driver side fender liner. Use a ratchet, extension, and an 8mm socket to remove the CVT enclosure.



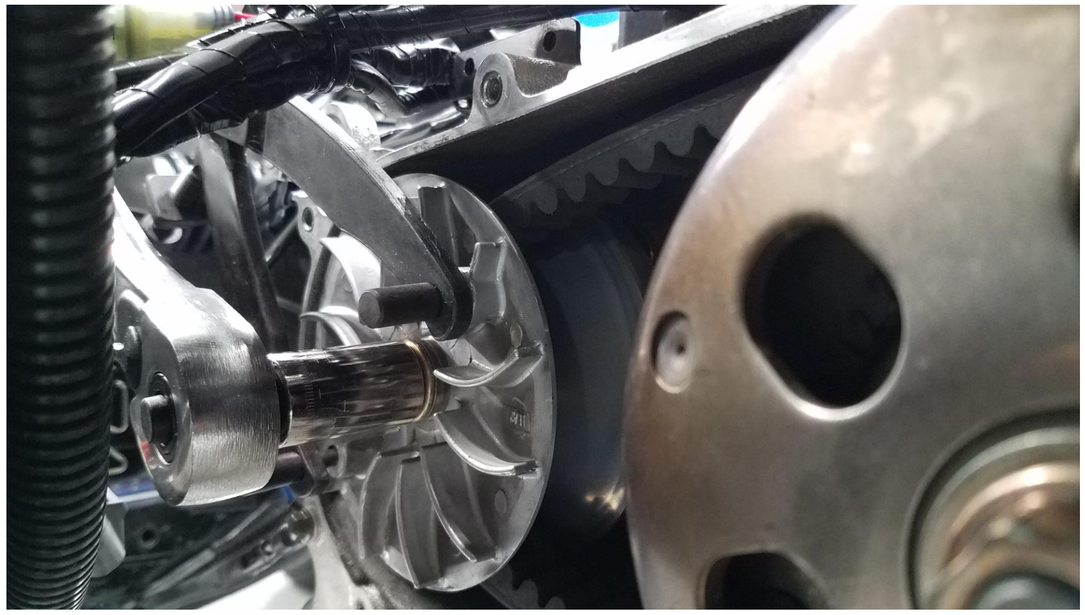
Carefully remove the cover through the fender opening.

The CVT is now exposed. Look for cover damage, dirt contamination, and belt damage.

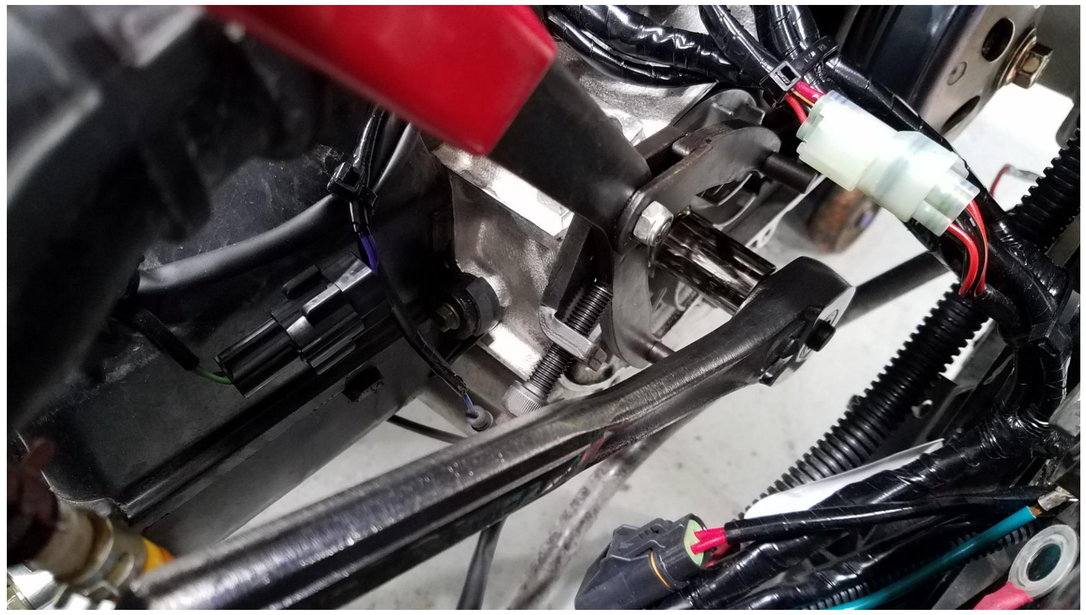
The clutches and belt will need to be inspected at 500 hour intervals. The clutches must be removed in order to remove the belt. A ratchet, 17mm socket and the clutch holding tool will be required for this operation.

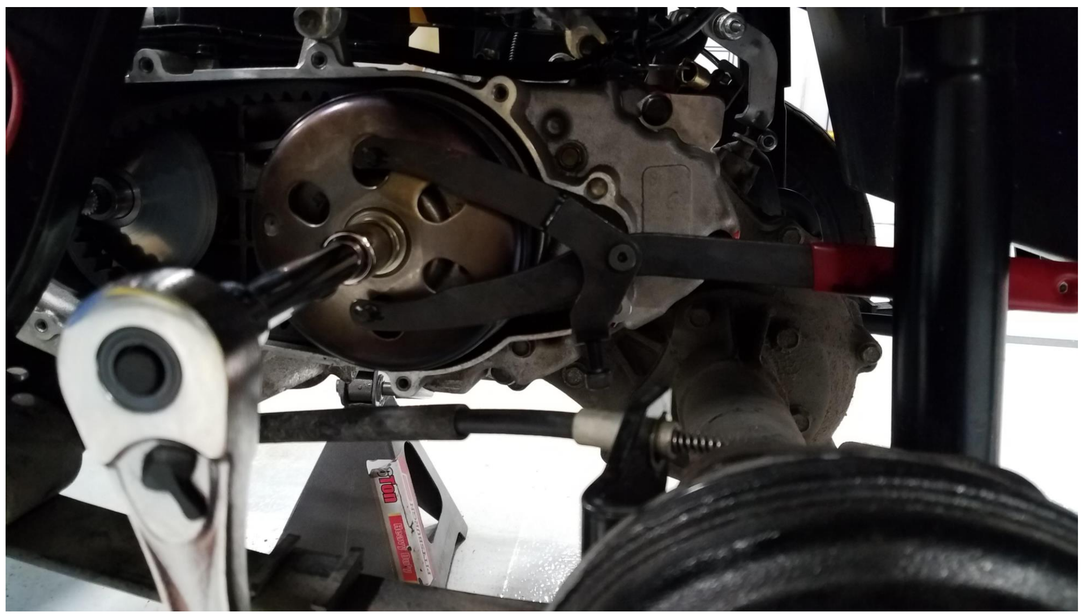
Squeeze the belt together to reduce belt tension for easier removal.

Clutch Removal & Belt Inspection



Insert the clutch holding tool into the holes on the drive clutch sheave as shown. Remove the 17mm bolt with a ratchet and socket.





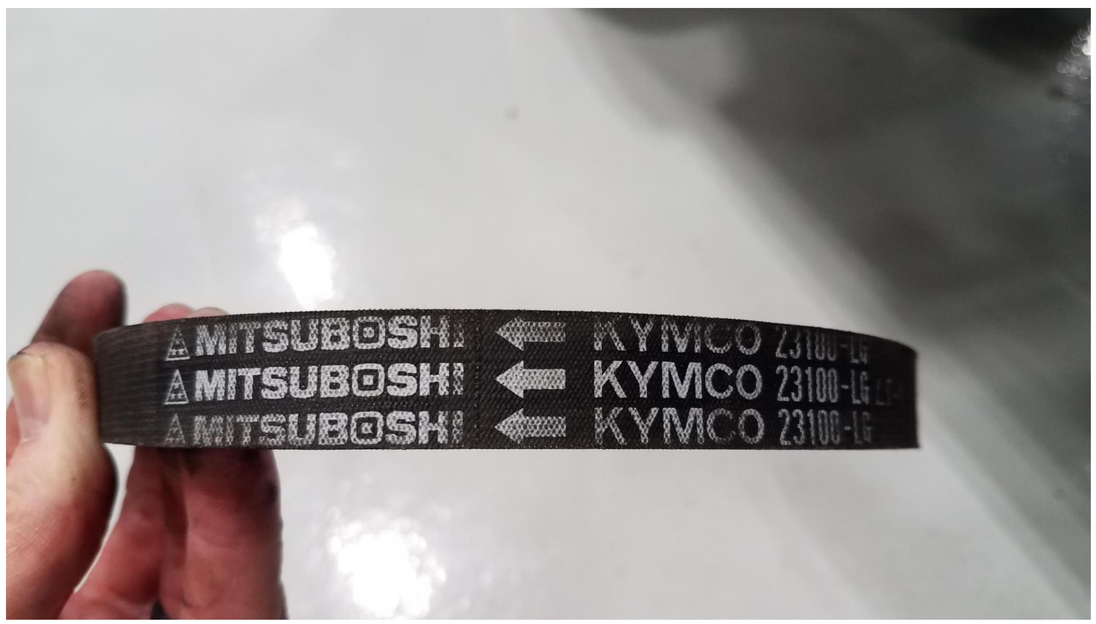
The holding tool is used in the large holes of the driven clutch so that it can be removed with the 17mm ratchet and socket.

Clutch Removal & Belt Inspection

Remove the drive clutch outer sheave.

The belt and driven clutch are removed as a set.

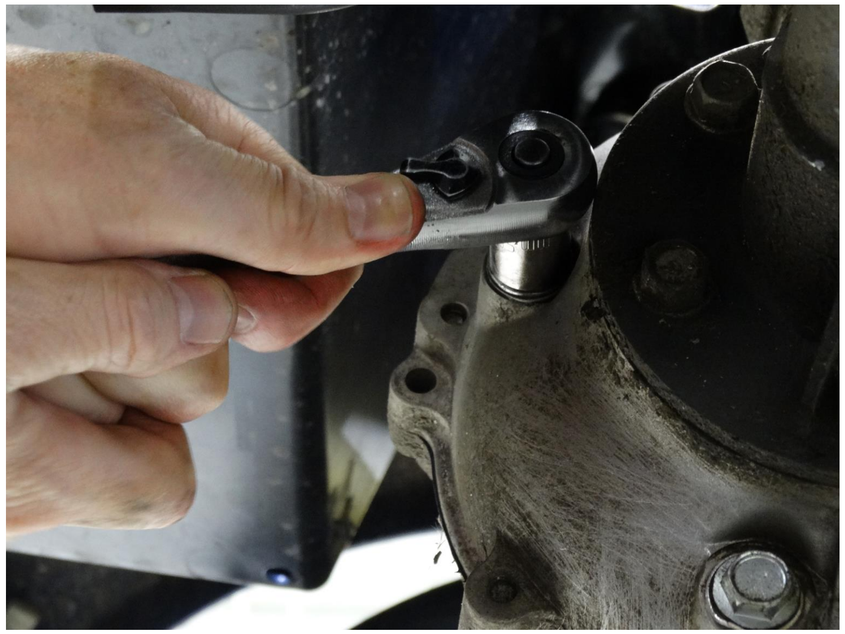
Inspect the belt for glazing, cracking, fraying, and separation. Replace the belt if necessary.



Reinstall in reverse order. Put the belt back on in the same direction that it was removed. Torque the 17mm bolts to 35 ft-lbs.

Rear Transaxle Fluid Change

The differential fluid should be checked every 500 hours or every two years. The fluid should be changed every 1000 hours or 4 years. The differential case holds 1 Liter (34oz's) of Mobil 424 fluid.



Check & fill the differential case by the check plug on the side.

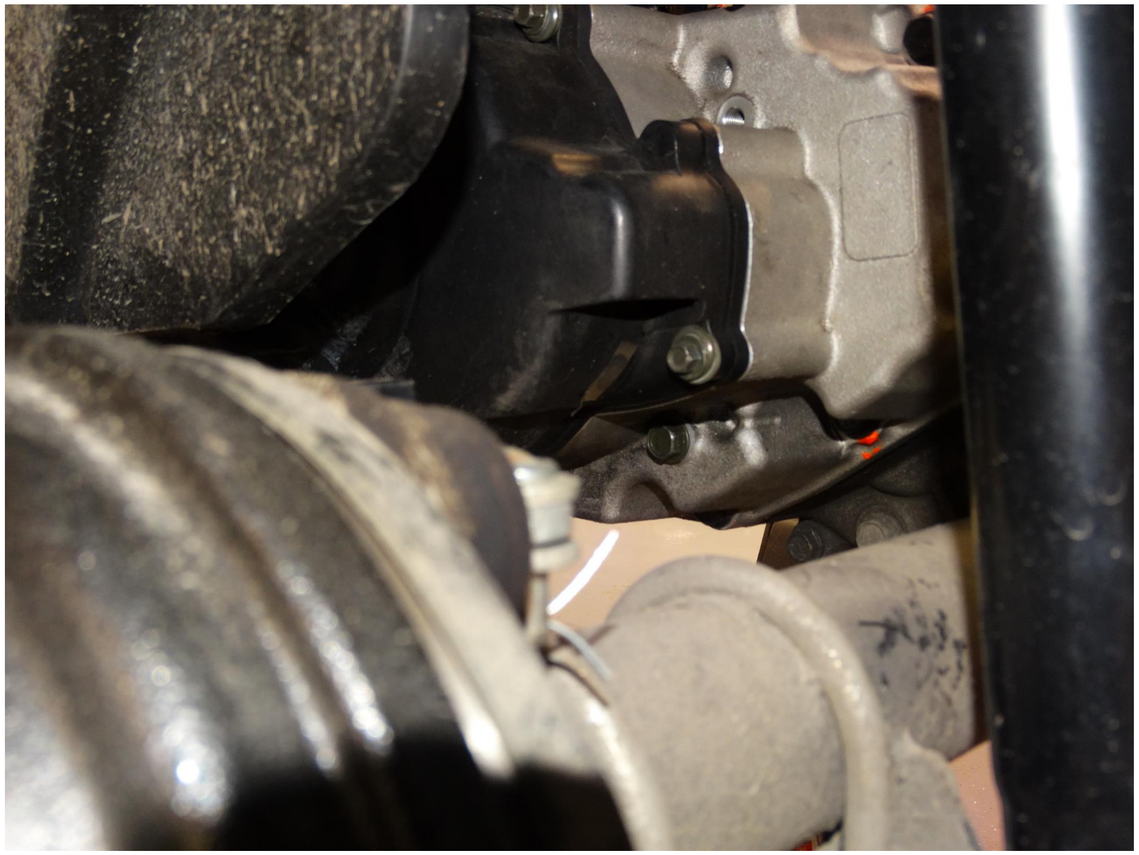
Fun fact: Differential gear ratio is 11:47 - 1

Drain the differential case from the plug at the bottom on the passenger side. Use a 14mm socket.

Inspect the seal washer and replace if necessary.

Gear Box Fluid Change

The gear box fluid should be checked every 500 hours or every two years. The fluid should be changed every 1000 hours or 4 years. The differential case holds 1 Liter (34 oz's) of Mobile 424 oil.

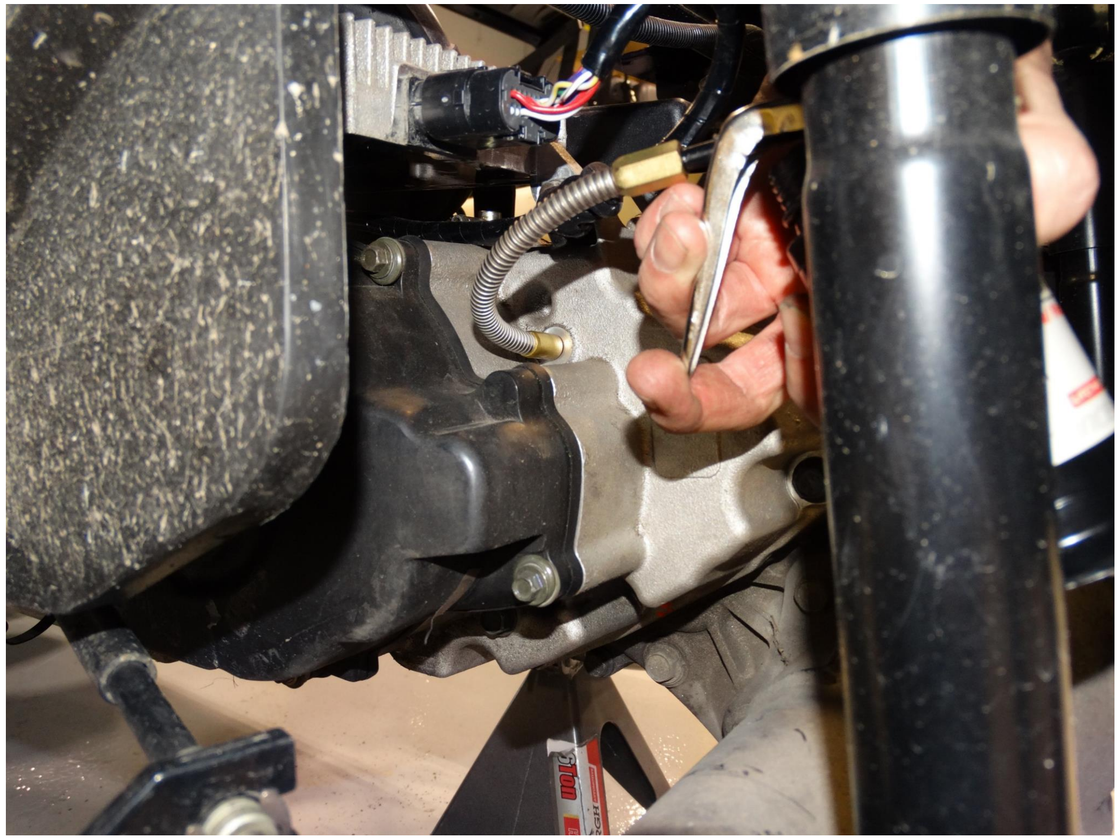


The check / drain plug is located on the bottom of the gear case on the driver side.

Inspect the plug and seal.

Gear Box Fluid Change

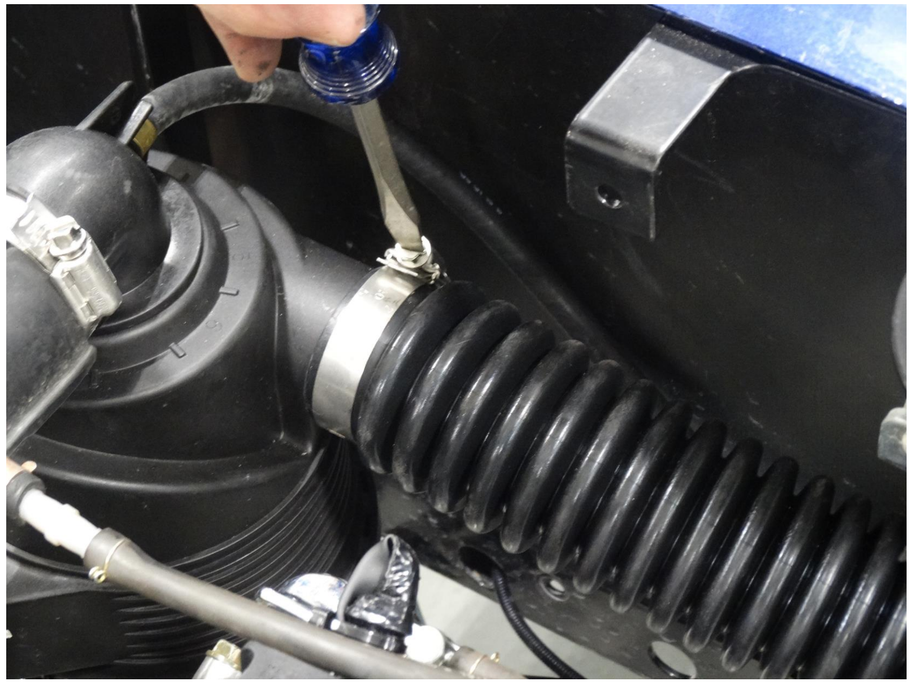
Remove the upper plug to access the fill port.



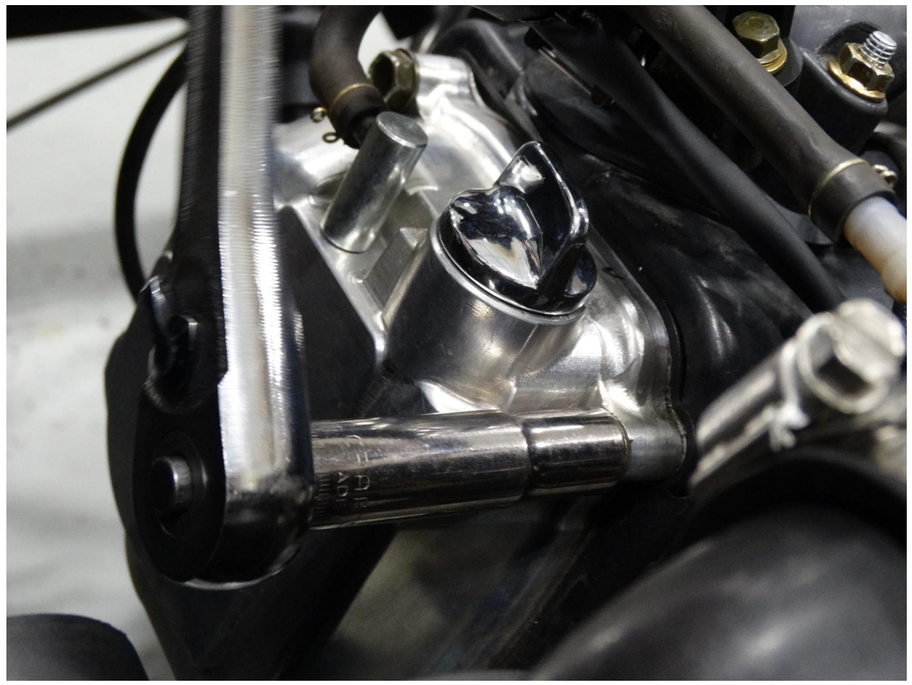
Use a squirt can to fill with 1 Liter (34 oz’s) of Mobile 424.

Valve Adjustment

Valve adjustment should take place every 1000 hours or 4 years. Make sure the key switch is off and the key removed to prevent accidental start up.



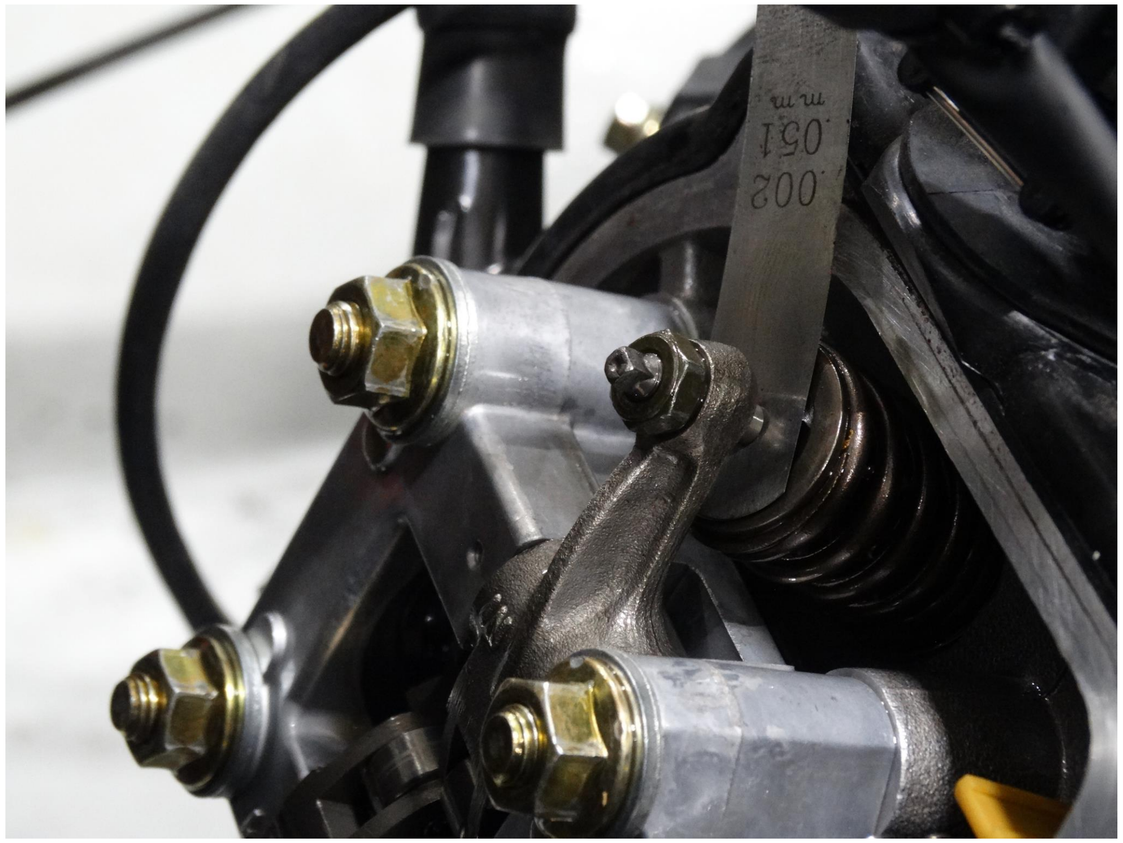
Remove the air hose to gain easier access to the valve cover.



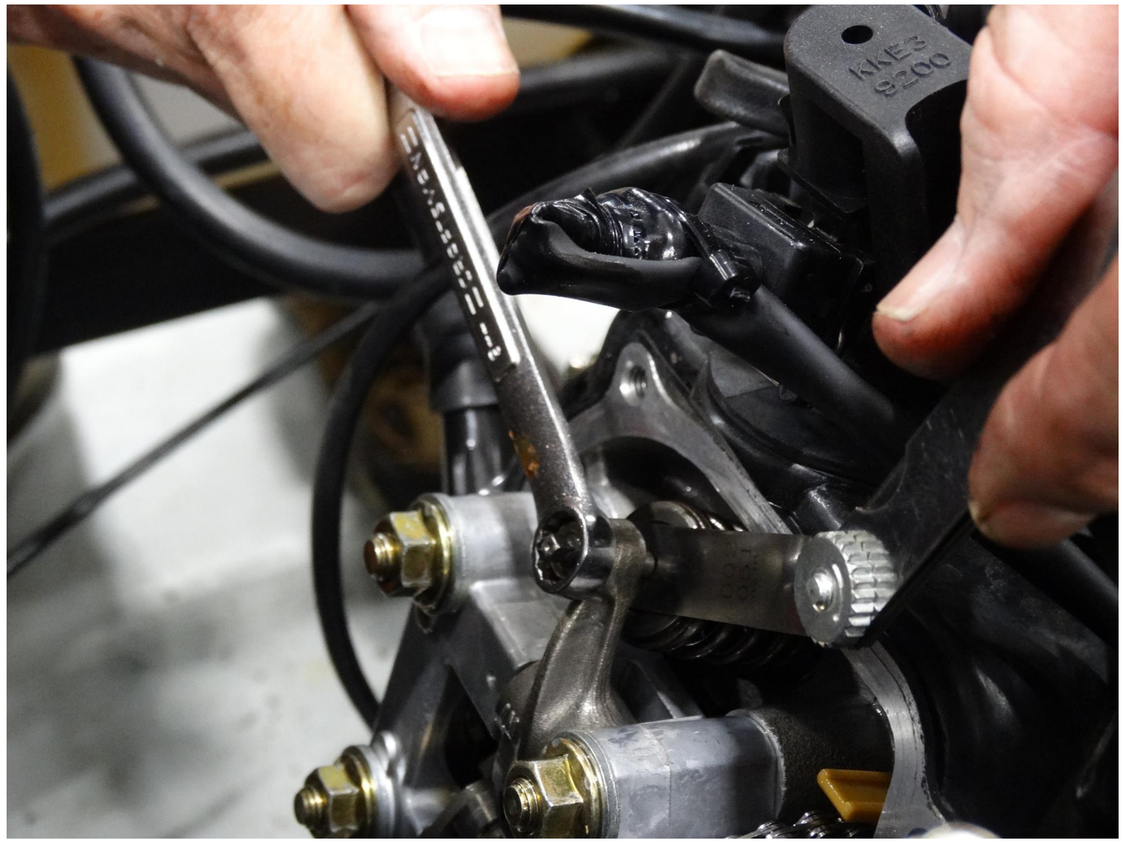
Remove the valve cover with a 10mm socket.

Rotate the engine with a 14mm socket to TDC compression stroke. Make sure to pass the decompressor on the camshaft.

Valve Adjustment

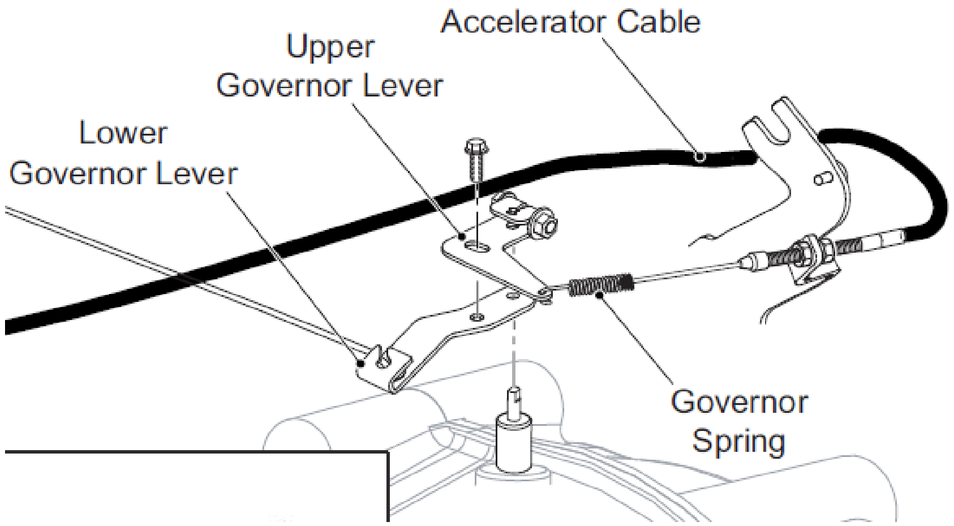


Verify intake and exhaust valve clearance at .002” to .004”.

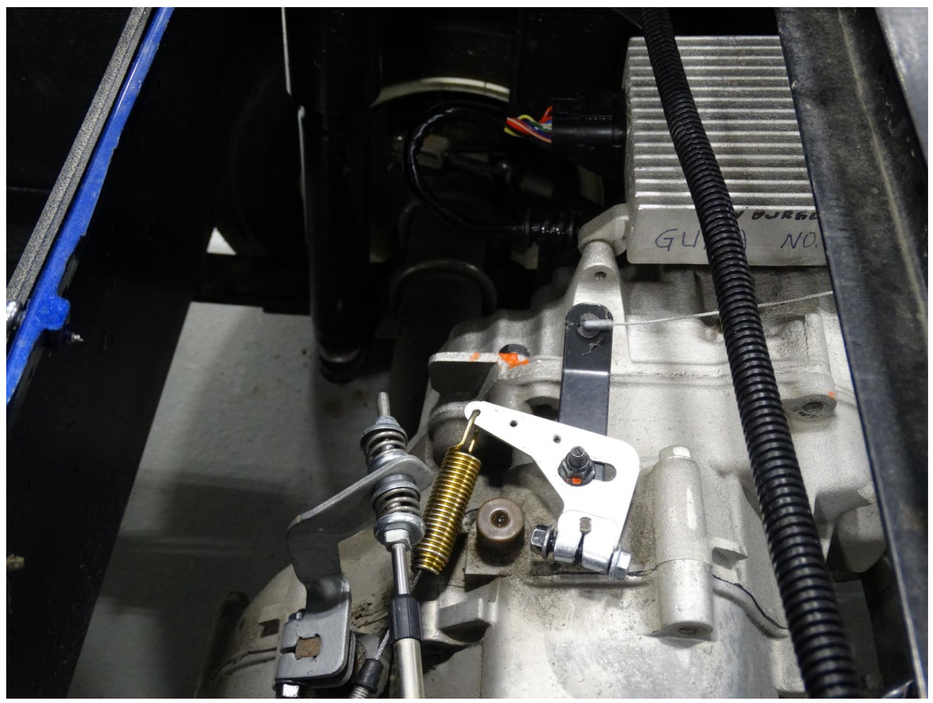


Adjust the valves with a 9mm wrench on the jam nut.
Use pliers or special tool to hold the adjusting screw.

Accelerator & Governor Adjustment



The governed speed is adjusted at the cable sleeve on the accelerator bracket. The cable should be adjusted in or out to achieve 3200 RPM. This will equal to 12.5 mph. The engine is electronically limited to 7000 RPM. A timed acceleration test can also be performed to confirm top speed.



Determine speed by measuring the time it takes to travel a known set distance with vehicle at maximum speed. Enter time and distance into this formula to calculate speed:

- Rate (in MPH) = (Distance in feet / 5280) / (Time in seconds / 3600)
- Rate (in KPH) = (Distance in meters / 1000) / (Time in seconds / 3600).

For example:

- (300 ft. / 5280) / (13.6 sec. / 3600) = 15 MPH
- (100 m / 1000) / (15 sec. / 3600) = 24 KPH.

Diagnostic & Trouble Shooting

The EX1 power train has a diagnostic feature to aid in trouble shooting. Diagnostics can be obtained by the malfunction indicator light (MIL) or the hand held diagnostic tool.

Switch the key switch on and off rapidly 3 times to put the vehicle into diagnostic mode. The first number of the code will flash on for approximately 1 second. This may occur multiple times. The second number of the code will flash on for .5 second. This may also occur multiple times. Each code sequence is separated by a 5 second interval where the light will remain off. Faults are displayed in numerical order and will cycle through 3 times. Faults will clear themselves if the key is left on in the diagnostic mode. The light will remain off if a fault is not detected.

Diagnostic Chart

NO	DTC#	P code	Fault description	Fault management
1	7-2	P0031	O2 HEATER voltage low	1. Check sensor connection at the plug. 2. Check ECU pin connection. 3. Check for faulty sensor resistance. 4. Check for a signal pin short to ground.
2	7 - 3	P0032	O2 HEATER voltage high	1. Check sensor connection at the plug. 2. Check ECU pin connection. 3. Check for faulty sensor resistance.
3	1 - 2	P0108	MAP sensor open circuit	1. Check if the connector of sensor is loosen. 2. Check ECU pin connection. 3. Check for faulty sensor resistance. 4. Check signal pin for open circuit
4	1 - 1	P0107	MAP sensor short to Ground	1. Check sensor connection at the plug. 2. Check ECU pin connection. 3. Check for faulty sensor resistance. 4. Check for a signal pin short to ground.
5	1 - 3	P0117	Eng temp sensor too Low	1. Check sensor connection at the plug. 2. Check ECU pin connection. 3. Check for faulty sensor resistance. 4. Check for a signal pin short to ground.
6	1 - 4	P0118	Eng temp sensor open circuit	1. Check sensor connection at the plug. 2. Check ECU pin connection. 3. Check for faulty sensor resistance. 4. Check if the signal pin open circuit
7	1 - 6	P0112	Air temp sensor too Low	1. Check sensor connection at the plug. 2. Check ECU pin connection. 3. Check for faulty sensor resistance. 4. Check for a signal pin short to ground.

Diagnostic Chart

NO	DTC#	P code	Fault description	Fault management
8	1 - 7	P0113	Air temp sensor open circuit	1. Check sensor connection at the plug. 2. Check ECU pin connection. 3. Check for faulty sensor resistance. 4. Check for open pin signal circuit.
9	2 - 3	P0121	TPS out of range	1. Check sensor connection at the plug. 2. Check ECU pin connection. 3. Check for faulty sensor resistance. 4. Check throttle position sensor adjustment.
10	2 - 1	P0122	TPS sensor too low	1. Check sensor connection at the plug. 2. Check ECU pin connection. 3. Check for faulty sensor resistance. 4. Check for a signal pin short to ground.
11	2 - 2	P0123	TPS sensor voltage high	1. Check sensor connection at the plug. 2. Check ECU pin connection. 3. Check for faulty sensor resistance.
12	7 - 4	P0131	O2 sensor voltage low	1. Check sensor connection at the plug. 2. Check ECU pin connection. 3. Check sensor voltage. 4. Check for signal pin open circuit.
13	7 - 5	P0132	O2 sensor voltage high	1. Check sensor connection at the plug. 2. Check ECU pin connection. 3. Check for a signal pin short to ground. 4. Check sensor voltage
14	2 - 4	P0231	Pump Relay voltage too low	1. Check sensor connection at the plug. 2. Check for ECU voltage signal to relay. 3. Check the fuel pump relay resistance. 4. Check for a signal pin short to ground.

Diagnostic Chart

NO	DTC#	P code	Fault description	Fault management
15	2 - 5	P0232	Fuel pump voltage too high	1. Check pump connection at the plug. 2. Check for ECU voltage signal to relay. 3. Check the fuel pump relay resistance. 4. Check charging system.
16	2 - 6	P0261	Injector voltage too Low	1. Check sensor connection at the plug. 2. Check for ECU voltage signal to the injector. 3. Check for ECU power source and resistance. 4. Check for a signal pin short to ground.
17	2 - 7	P0262	Injector voltage too high	1. Check sensor connection at the plug. 2. Check for ECU voltage signal to the injector. 3. Check for ECU power source and resistance.
18	3 - 1	P0335	Crank sensor malfunction	1.Check for a loose connector at the crankshaft position sensor. 2.Check rotor alignment with crankshaft position sensor while the crankshaft is turning. 3. Replace crank sensor.
19	3 - 2	P0351	Ignition coil malfunction	1. Check for loose connector at the ignition coil. 2. Check for ECU voltage signal to the Ignition coil. 3. Check for ECU power source and resistance. 4. Replace ignition coil.
20	4 - 5	P1560	5V Ref	1. Check ECU output of 5V to sensor. 2. Replace the ECU if the failure still exists even if the output power source of the ECU is normal.
21	1 - 5	P0217	Eng temp too high	1. Check cooling fan and blower housing for debris. 2. Reduce engine load.

Diagnostic Chart

NO	DTC#	P code	Fault description	Fault management
22	3 - 4	P0560	Battery	1. Check battery voltage. 2. Check the charge system.
23	3 - 6	P0611	ECU malfunction	1. Check to make sure the ECU can drive the relay or Injector. 2. Replace ECU.
24	4 - 4	P0336	ECU malfunction	1. Check the ECU for crank position sensor pulse. 2. Replace ECU.
25	3 - 3	P0650	MIL voltage too high	1. Check for an ECU voltage signal to lamp. 2. Check for ECU power source and resistance.
26	3 - 5	P0606	ECU Malfunction	1. Verify normal vehicle operation. 2. Replace ECU.
27	3 - 7	P062F	ECU Malfunction	1. Verify normal vehicle operation. 2. Replace ECU.
28	4 - 1	P0605	ECU Malfunction	1. Verify normal vehicle operation. 2. Replace ECU
29	4 - 2	P0602	ECU Malfunction	1. Verify normal vehicle operation. 2. Replace ECU.
30	4 - 3	P0603	ECU Malfunction	1. Verify normal vehicle operation. 2. Replace ECU.
31	4 - 6	P1A00	ISG Temperature Too High	1. Check if the temperature around the ISG-C exceeds 50°C. 2. If the temperature around the ISG-C exceeds 50°C, the controller will not operate continuously. 3. Check for accompanying faults P1A21, P1A20, P1A30, etc. The overheat issue may be caused by other faults.
32	4 - 7	P1A10	ISG Volt Too High	1. The voltage regulation function of the ISG-C fails during power generation. The ISG-C must be replaced.
33	5 - 1	P1A11	ISG Volt Too Low	1. Check if the battery voltage is too low.(The voltage threshold is 9V) 2. If the battery voltage is normal and this fault code still appears continuously, the ISG-C must be replaced.

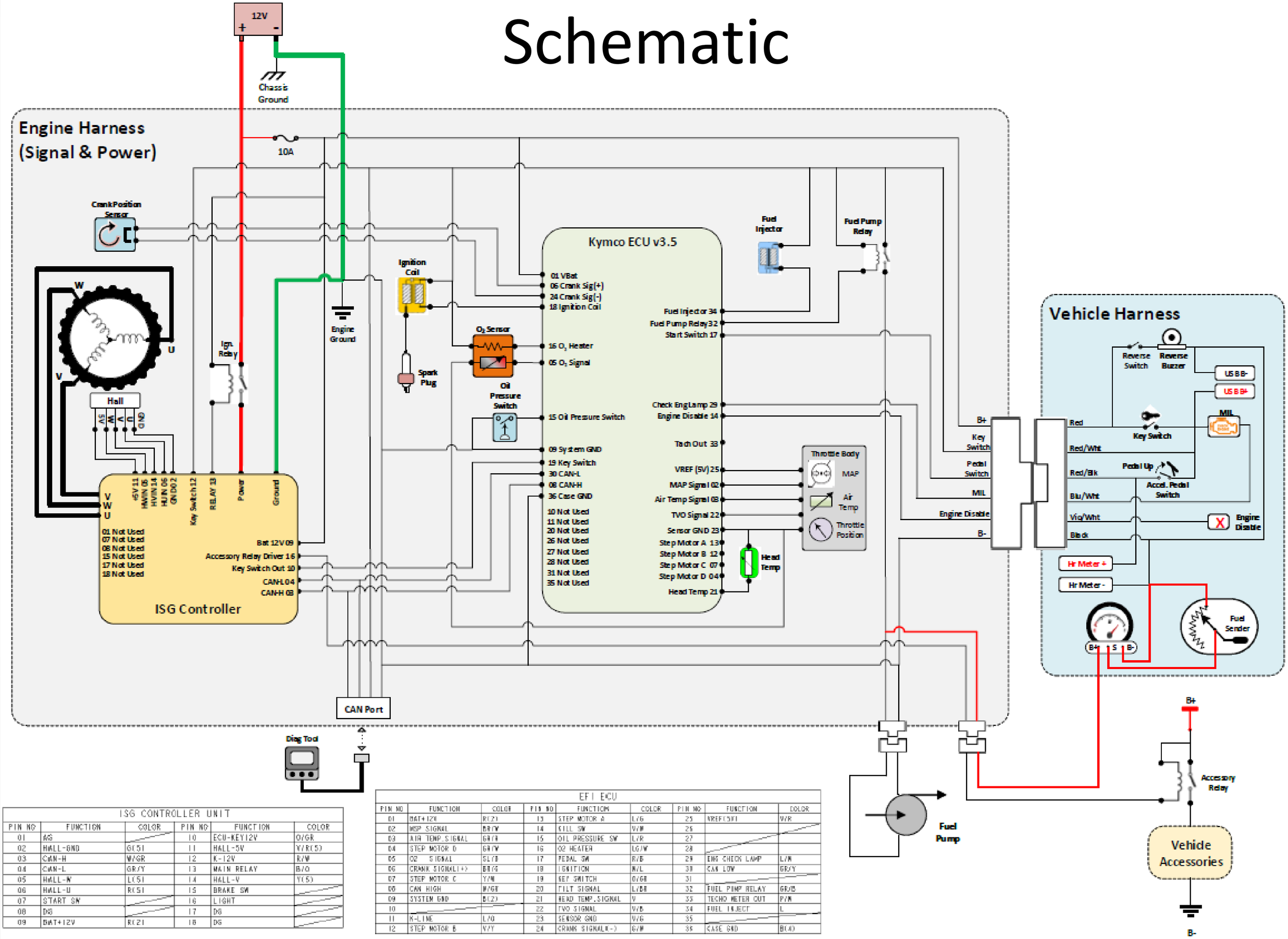
Diagnostic Chart

NO	DTC#	P code	Fault description	Fault management
34	5 - 2	P1A12	ISG Generator Volt	1. The voltage regulation function of ISG-C is abnormal during power generation. The ISG-C must be replaced.
35	5 - 4	P1A21	ISG Generator Current too high	1. Verify if the ISG motor can crank the engine smoothly. 2. Replace ISG stator. 3. Replace ISG-C.
36	5 - 3	P1A20	ISG Start Current	1. Verify if the ISG motor can crank the engine smoothly. 2. Verify if the ISG motor can crank the engine smoothly after removing the spark plug. 3. Replace the ISG stator. 4. Replace the ISG-C.
37	5 - 5	P1A30	ISG Hall Sensor	1. Check if the connector of hall effect sensor is loose. 2. Check the 5V power supply in the hall connector. 3. Check if the U/V/W output is 5V or 0V. 4. Replace ISG stator.
38	5 - 6	P1AB0	ISG Engine stall	1. This means that the ISG controller has a serious fault and must stop the engine. It will accompany other fault codes.
39	6-1	P1AB1	ISG Engine speed limit	1. Check for normal vehicle operation. 2. Replace ISG-C. 3. Check voltage regulation.
40	6 - 2	U0120	ISG Can Com fault	1. Check if the signal connector of ISG-C or ECU is loose. 2. Replace ISG-C.
41	6 - 3	P1AA1	ISG Current sensor fault	1. The current sensor in the ISG controller is abnormal. This may cause a mistake during diagnosis. 2. This fault does not affect the controller's function, but it is recommended to replace the ISG-C.
42	6 - 4	P1AA2	ISG Driver Relay	1. Check the power relay is working normally. 2. Check if the DC power connector of ISG-C is loose. 3. Check if DC positive wire is cracked or broken.

Diagnostic Chart

NO	DTC#	P code	Fault description	Fault management
43	6 - 5	P0524	Oil pressure low	1. Check if the connector of the oil pressure switch is loose. 2. Check if the oil level is too low. 3. Change the oil. 4. Check oil pump output.
44	6-6	P0520	Oil pressure switch malfunction	1. Check connection to the oil pressure switch. 2. Check harness connection to the ECU. 3. Replace the oil pressure switch.
45	6 - 7	P11A0	Pedal switch protection	1. Check if the signal pin shorts to 12V when the pedal is released. 2. Replace Pedal switch.
46	7-1	P11A1	Stuck throttle protection	1. Check if the throttle can't be fully closed when the pedal is released. 2. Repair the cause of the stuck throttle..

Schematic



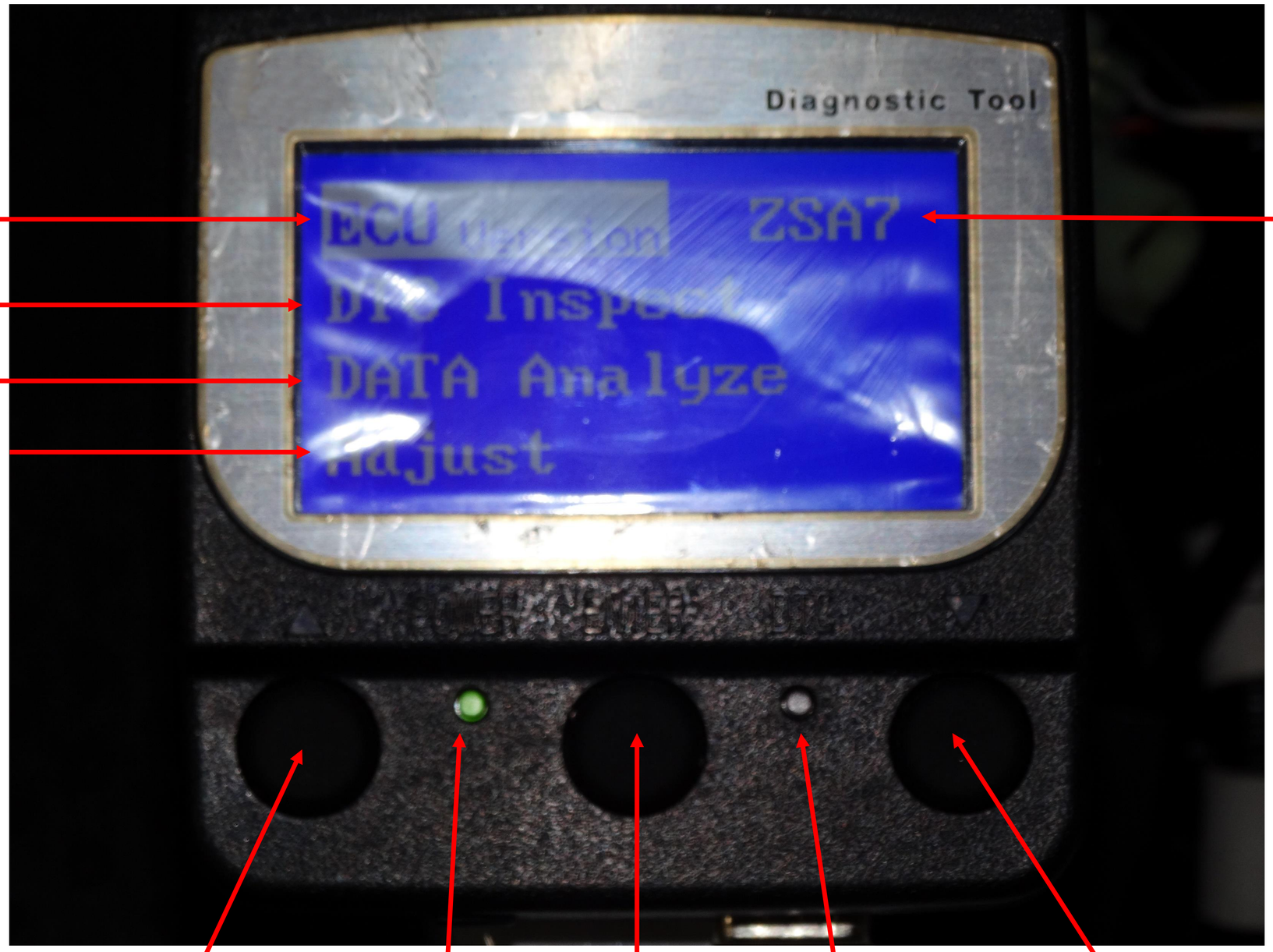
ISG CONTROLLER UNIT

PIN NO	FUNCTION	COLOR	PIN NO	FUNCTION	COLOR
01	NC		10	ECU-KEY12V	O/GR
02	HALL-GND	G(S)	11	HALL-5V	V/R(S)
03	CAN-H	W/GR	12	K-12V	R/W
04	CAN-L	GR/Y	13	MAIN RELAY	B/O
05	HALL-W	L(S)	14	HALL-V	Y(S)
06	HALL-U	R(S)	15	BRAKE SW	
07	START SW		16	LIGHT	
08	DG		17	DG	
09	BAT+12V	R(2)	18	DG	

EFI ECU

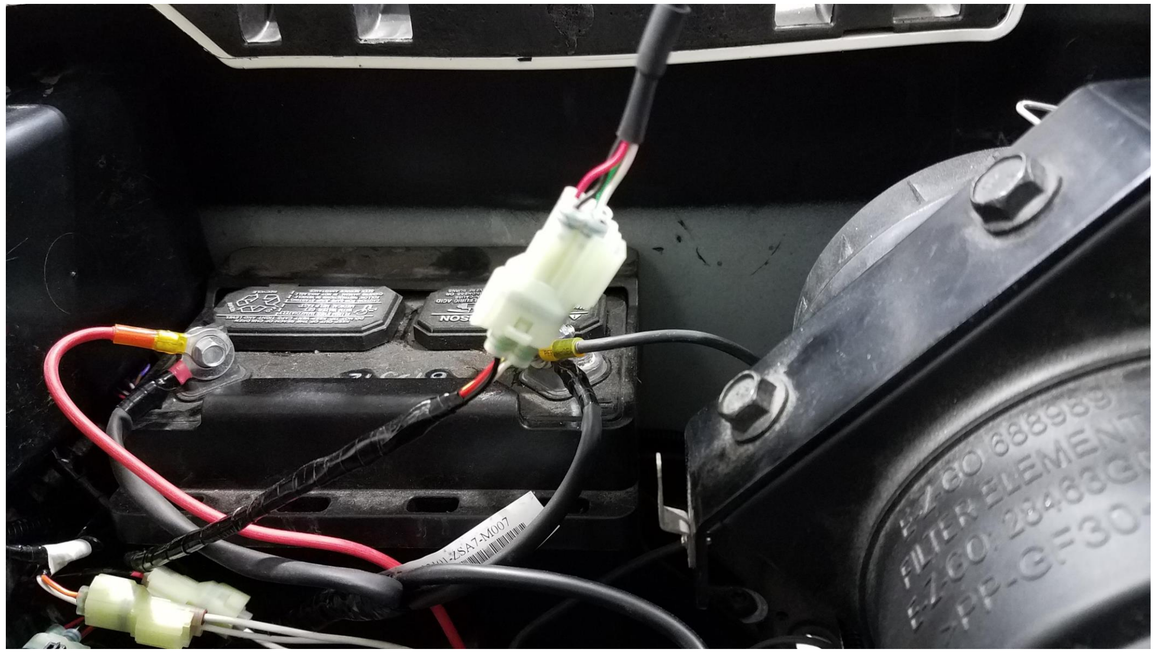
PIN NO	FUNCTION	COLOR	PIN NO	FUNCTION	COLOR	PIN NO	FUNCTION	COLOR
01	BAT+12V	R(2)	13	STEP MOTOR A	L/G	25	VREF(5V)	W/R
02	MAP SIGNAL	BR/W	14	KILL SW	V/W	26		
03	AIR TEMP.SIGNAL	GR/B	15	OIL PRESSURE SW	L/R	27		
04	STEP MOTOR D	GR/W	16	O2 HEATER	LG/W	28		
05	O2 SIGNAL	SL/B	17	PEDAL SW	R/B	29	ENG CHECK LAMP	L/W
06	CRANK SIGNAL(+)	BR/G	18	IGNITION	W/L	30	CAN LOW	GR/Y
07	STEP MOTOR C	Y/W	19	KEY SWITCH	O/GR	31		
08	CAN HIGH	W/GR	20	TILT SIGNAL	L/DR	32	FUEL PUMP RELAY	GR/B
09	SYSTEM GND	B(2)	21	HEAD TEMP.SIGNAL	V	33	TECHO METER OUT	P/W
10			22	TVO SIGNAL	V/B	34	FUEL INJECT	L
11	K-LINE	L/O	23	SENSOR GND	V/G	35		
12	STEP MOTOR B	Y/Y	24	CRANK SIGNAL(-)	G/W	36	CASE GND	B(4)

Diagnostic Tool PN# 10001280



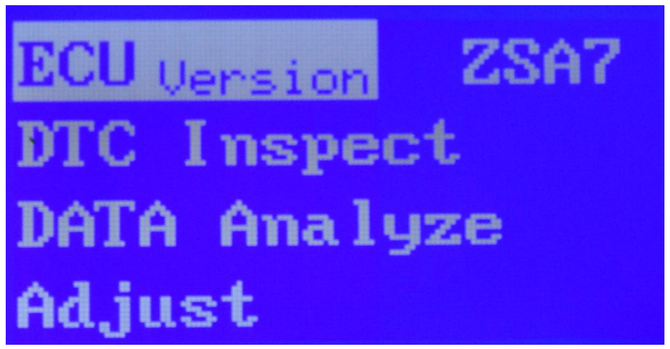
Diagnostic Tool Use

Locate the diagnostic plug that is placed close to the battery on all models. It should be covered to prevent corrosion.



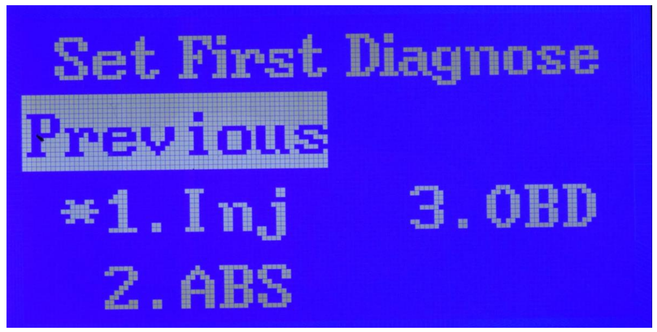
Turn the key switch to the on position to illuminate the hand held diagnostic tool. Check the diagnostic plug connection or the key switch function if the hand held does not turn on.

Diagnostic Tool Use

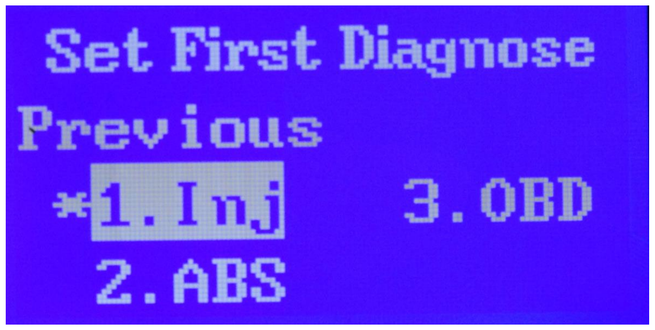


Use the navigation button an the ECU. Choose ECU version by pressing enter.

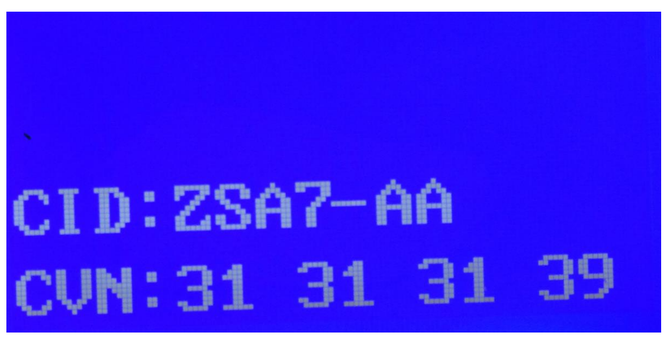
The next screen gives general information about the ECU.



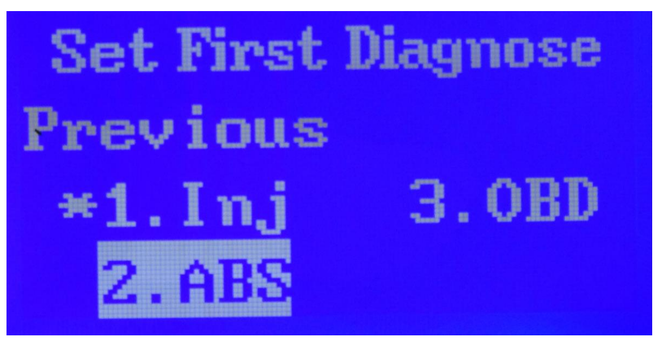
Highlight previous and press the enter button to return to the previous screen.



Choose the Inj selection to get detailed information about the injector software.

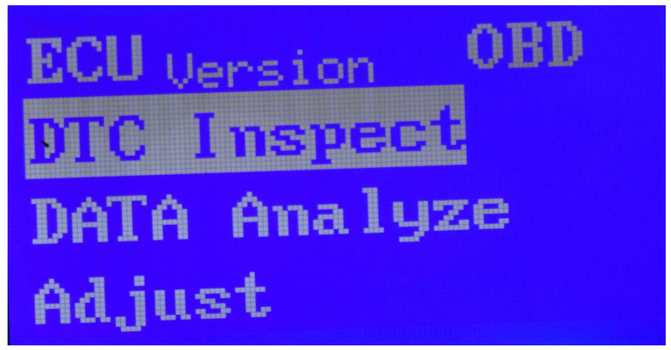


CID is a software version number. The last digit of the CVN number represents the month & year. Example - 11 - 2019



The ABS selection is not used on the EX1 Powertrain. Choose the OBD screen.

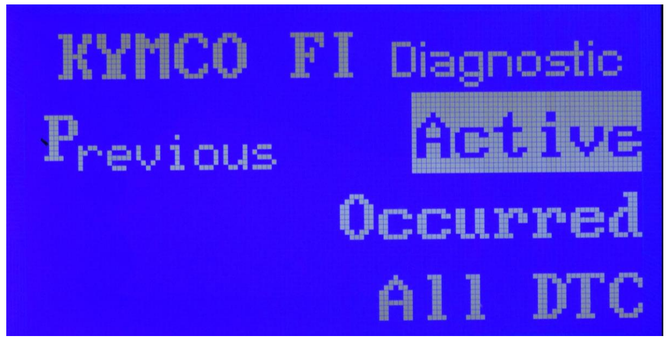
Diagnostic Tool Use



Navigate and choose the DTC Inspect selection.

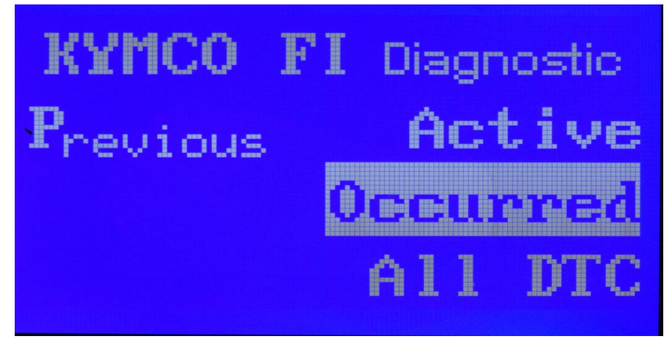
The previous selection returns the screen to the previous selection.

Choose DTC load.



Choose active in the diagnostic menu. This selection will show any active faults while the engine is running.

Active diagnostic faults will be displayed on the bottom of the screen.



Previous faults since last key on will be found in the occurred screen.

Make sure to click on the code that is displayed in order to get a P code and its definition.

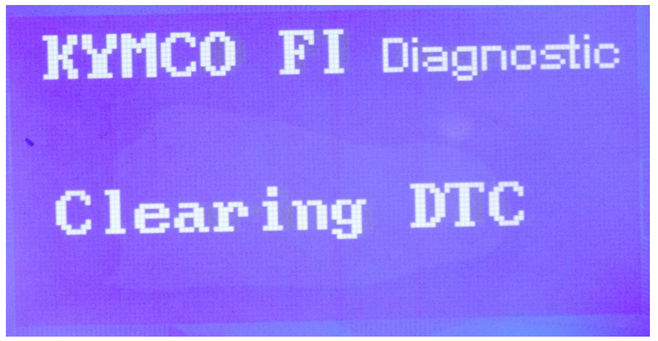
Diagnostic Tool Use

Choose the previous screen to go back.

Choose All DTC. This selection can also give historic faults.

Navigate to the previous selection and press enter.

In order to clear historic faults; DTC Clear must be chosen.

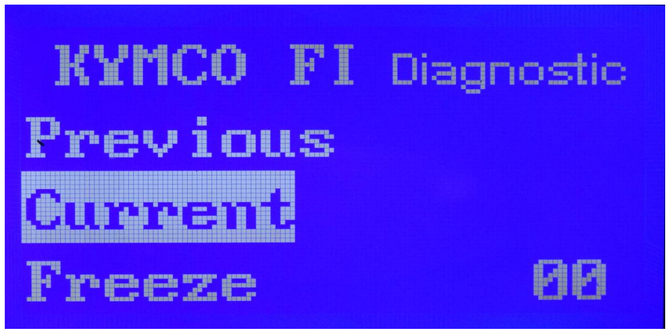


Clearing DTC will appear after the DTC Clear selection is made.

The indication on the screen will be made when clearing is complete.

Use the enter / exit button to back out of all screens and return to the original home screen.

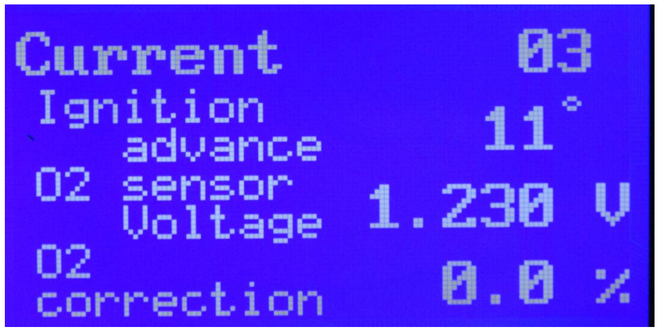
Diagnostic Tool Use



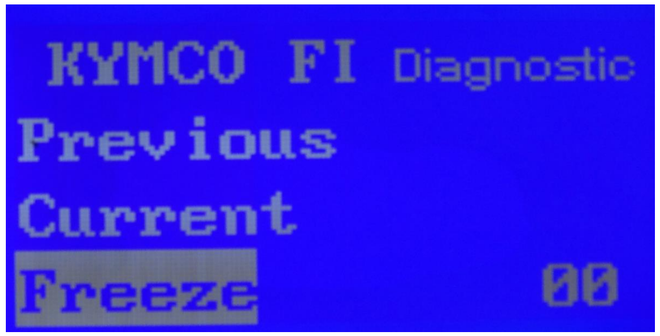
Press the exit button to the original diagnostic screen. Current fault codes will be displayed while the engine is running.

Current diagnostic information is displayed in real time.

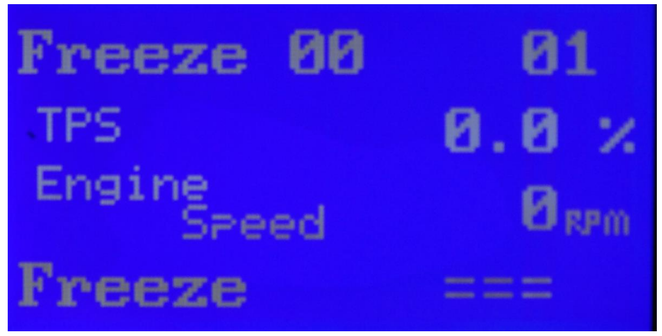
Atmospheric pressure and temperature readings are shown.



Ignition and O2 sensor values are shown.



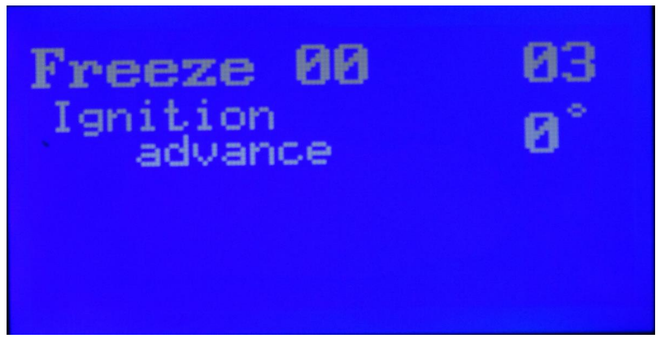
Press the enter / exit key to return to the previous screen. Choose freeze.



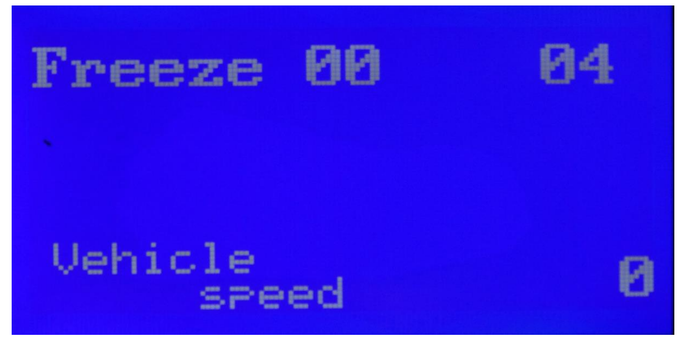
The freeze feature allows the technician to record engine performance in a moment in time. The engine must be running to record.

Diagnostic Tool Use

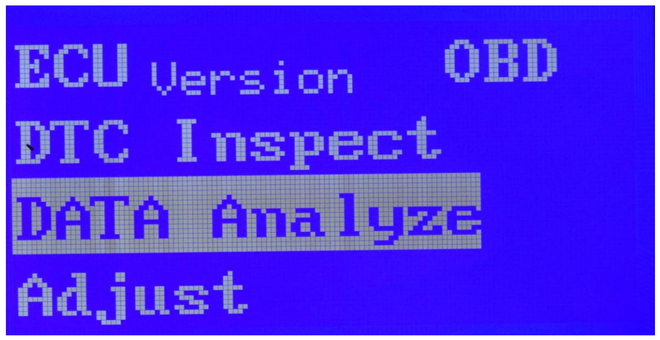
Engine running conditions are recorded.



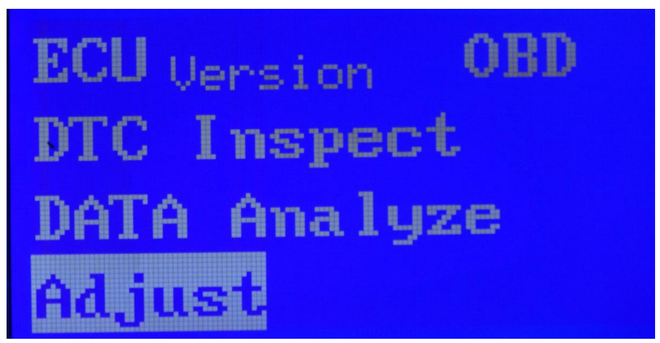
Ignition advance is recorded.



Vehicle speed is recorded.



Use the enter / exit button to return to the home screen. Choose data analyze. This selection will show detailed engine operation data. The terminology dictionary is located on the next page.

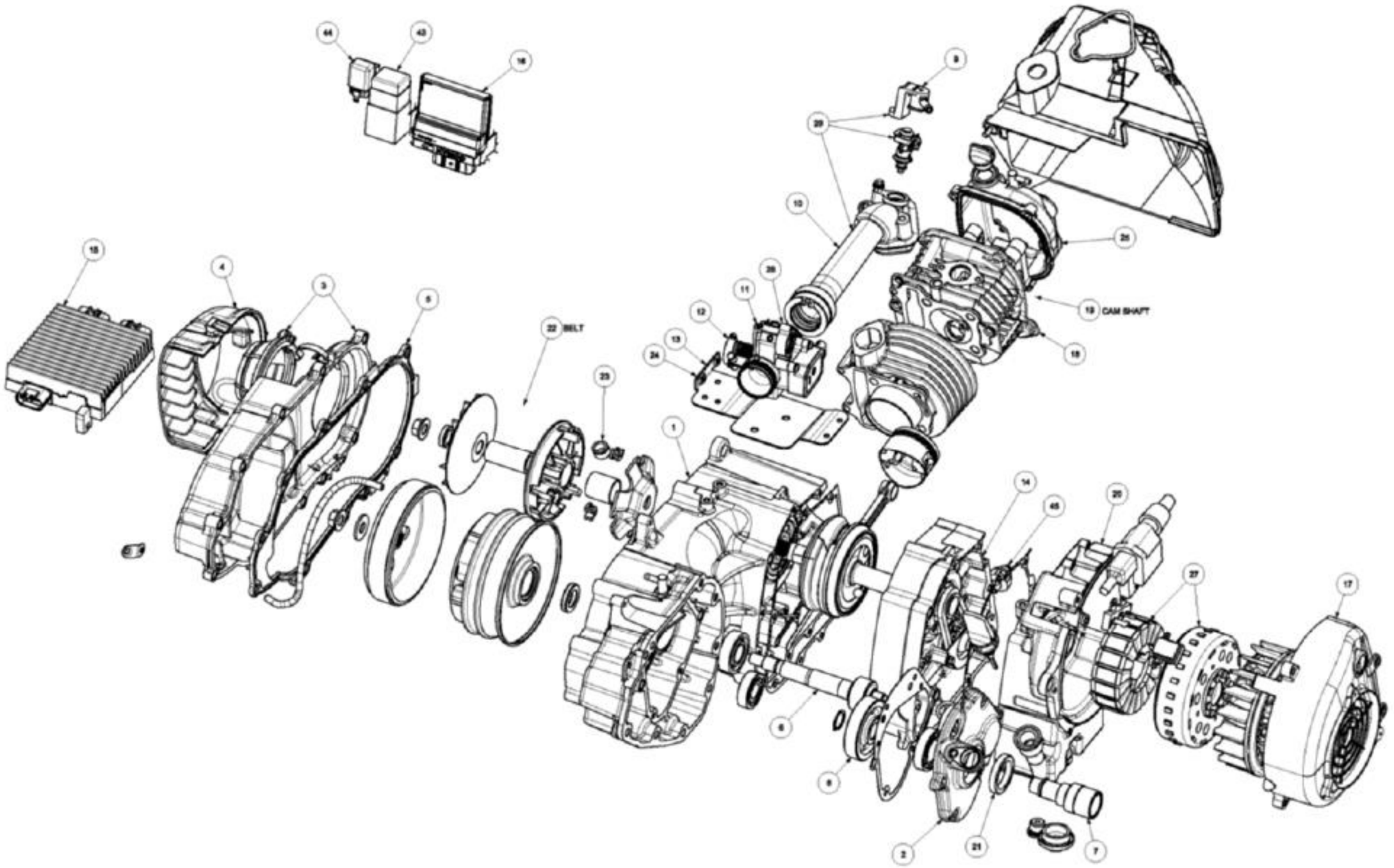


The adjust selection shows CO adjustment values. The original settings should not be tampered with.

Diagnostic Tool Terminology

1. Engine speed – Engine speed is measure in RPM.
2. Engine temp C – This reading is measured in Celsius. The engine will go into a limp home mode if 180c is reached. The engine shuts down at 190c to prevent damage. Limp mode is limited to 3200 RPM.
3. Engine kill switch – The switch status changes with key switch and throttle activation.
4. Oil pressure – On means that the pressure switch is being grounded due to low pressure. Off means pressure is good. Pressure at idle runs 3 – 4 PSI. Max pressure is built after 3000RPM.
5. Air temp – Atmospheric temperature measured in degrees Celsius.
6. Atom (Atmospheric) – This is measured in Kpa. Also know as Kilopascal.
7. Intake pressure – Also measured in Kpa. This value will rise and fall based on load conditions.
8. Fuel injection – Measured in milliseconds. This value will change based on operator & engine demand.
9. Ignition adv – Ignition timing measured in degrees. This value will change based on sensor and demand conditions.
10. Ignition dwell – Measured in milliseconds.
11. O2 sensor – Shown in voltage values. The voltage will change based on certain engine conditions.
12. Heater – This setting turns on until the O2 sensor gets up to temperature.
13. O2 correction – The correction value begins at 100. Rising and falling O2 sensor voltage affects the is value. The voltage value is subtracted from 100 to give a correction value.
14. ISG current – Amperage is shown during engine startup, running, and charging. (+) Current is shown while the engine is turning over during start up. (–) Current is shown when the charging system outputs current to recharge the battery. The charging system has a peak 30A capability with a running charge current of 25A.
15. MOS – This is an acronym for mosfet. Internal ISG temperature is shown here and is measured in degrees C.
16. ECU counter – This value is calculated as engine run time. The time also includes engine coast down when the throttle is released.
17. Batt voltage – Measured in DC voltage. Normal charge voltage is 13.75V to 14.25V.

Exploded View



Notes