

# Installation Guide & User Manual



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## **About This Manual**

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This manual was written to help you understand all of the functions and capabilities of the Yamaha Snowmobile Diagnostic Tool in order for you to receive the maximum benefits from the diagnostic tool.

### **Introduction**

The diagnostic tool was designed as a workshop service and diagnostic tool for diagnosis and testing of Engine Control Systems and related components.

This tool provides a tremendous amount of information including:

- Diagnostic Trouble Codes (DTC)
- Engine Sensor Data
- Fuel Injection System Control Data
- Engine Controller Identification Information
- Online and Offline capable
- Live System Updates

The diagnostic tool is a very robust diagnostic tool designed to provide diagnostic capabilities on Yamaha snowmobiles with onboard diagnostic ports. Additional vehicles and functions will be added to future updates to the software.

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# Vehicles Supported by YSDT

Year	Product Line	Model	ECM Diagnostics	ECM Update Programing Capable
2014	Snowmobile	SRViper	X	X
		SRViper R-TX SE	X	X
		SRViper L-TX	X	X
		SRViper L-TX SE	X	X
		SRViper X-TX SE	X	X
2015	Snowmobile	SRViper R-TX LE	X	X
		SRViper R-TX SE	X	X
		SRViper R-TX DX	X	X
		SRViper L-TX LE	X	X
		SRViper L-TX SE	X	X
		SRViper L-TX DX	X	X
		SRViper X-TX LE	X	X
		SRViper X-TX SE	X	X
		SRViper S-TX DX	X	X
		SRViper M-TX 162 LE	X	X
		SRViper M-TX 162 SE	X	X
		SRViper M-TX 153 SE	X	X
		SRViper M-TX 153	X	X
2016	Snowmobile	SRViper R-TX LE	X	X
		SRViper R-TX SE	X	X
		SRViper R-TX DX	X	X
		SRViper L-TX LE	X	X
		SRViper L-TX SE	X	X
		SRViper L-TX DX	X	X
		SRViper X-TX LE	X	X
		SRViper X-TX SE	X	X
		SRViper M-TX 162 LE	X	X
		SRViper M-TX 153 LE	X	X
		SRViper M-TX 162 SE	X	X
		SRViper M-TX 153 SE	X	X
		SRViper M-TX 141 SE	X	X
		SRViper M-TX 162	X	X
		SRViper M-TX 153	X	X
		SRViper S-TX DX 146	X	X
		SRViper S-TX DX 137	X	X

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## Safety Guidelines

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This safety section contains information that must be followed to avoid damage to the YSDT diagnostic tool or serious injury or death to the user. Please acknowledge this section – read it carefully.

- Thoroughly read and understand this manual before using the tool.
- Always make sure the diagnostic connections are clean, dry, and in good condition before connecting to a vehicle.
- Verify the vehicle battery is fully charged and in good condition before attempting to use the diagnostic tool. Low battery voltage WILL cause communication issues as well as produce invalid test results.

### **WARNING**

Always make sure an approved exhaust ventilation system is in place and being used. Ensure the work area being used is well ventilated whenever running an engine. Carbon monoxide gas is extremely poisonous and can lead to serious injury or death.

### **WARNING**

Always stay clear of moving parts and remove all loose clothing that can be caught in moving parts on the vehicle.

### **WARNING**

Always wear approved safety glasses or goggles as necessary.

### **WARNING**

Use extreme caution when working around batteries. Batteries can produce a highly explosive hydrogen gas that can cause the battery to explode without warning.

### **CAUTION**

Always make sure diagnostic cables are free and clear of any belts, pulleys, or other moving parts on the vehicle being tested.

### **CAUTION**

Be sure diagnostic cables DO NOT come in contact with hot engine components such as exhaust manifold or engine block.

### **CAUTION**

Never allow diagnostic cables to lay near or on any ignition system components such as coils, spark plug wires, or solenoids as electrical interference may occur and may cause damage to the diagnostic tool and/or computer.

### **CAUTION**

Never allow cables to lay on the floor near or in puddles of water. Water may leak into the diagnostic connectors and cause serious damage.

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## Kit Contents

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Included with your kit you will find the following parts. If replacement parts are needed, order using the following part numbers.

- Diagnostics Tool – Hardware Interface to connect Laptop or PC to vehicle (must order complete kit to replace Hardware Interface)
- Diagnostics Cable (2.0 USB) – Connects the Laptop or PC to the tool
- Diagnostics Harness (10 Pin) – For use on Snowmobiles with a 10-pin diagnostic connector
- Diagnostics Filter Harness – Suppresses starter motor power feedback during starting when using the tool. To be used if tool stops functioning during vehicle starting cycles

■ **NOTE: The starter motor power feedback is not harmful to the tool.**

- Quick Start Manual/Guide
- Diagnostic Tool Bag

# Installing the Software

## Computer Requirements

Before installing the software, ensure your computer meets the following requirements:

- Computer – Laptop computer (recommended) or PC in service/shop area.
- Operating System – Windows XP (SP3), Windows 7, Windows 8; 4 GB RAM (min), dual core processor (recommended).

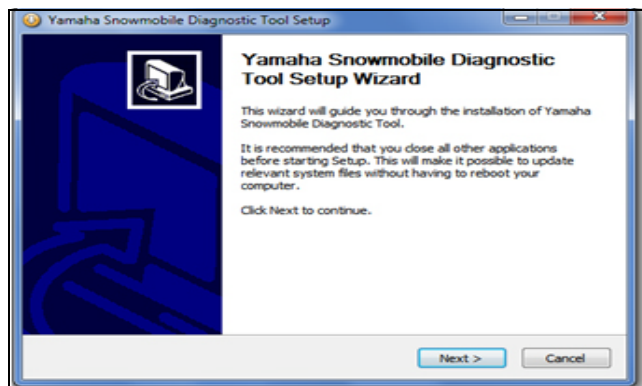
**NOTE: Windows Vista and Windows 8 RT will not be supported.**

- Internet Connection - required for installation and certain features.

## Installation Instructions

Locate the Diagnostic Tool link as provided by your Yamaha distributor and click to install the software.

When the install process has started, the Setup Wizard window will appear. Select the “Next >” button to begin.



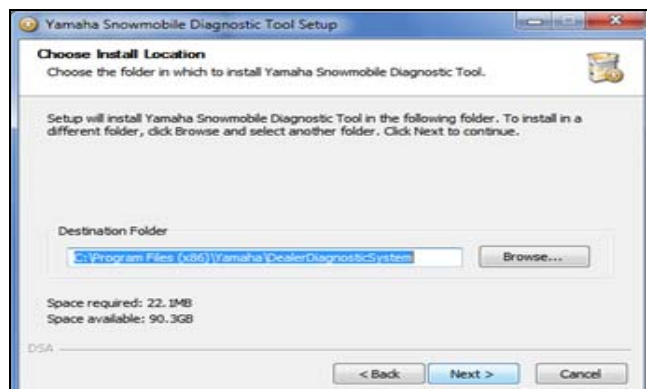
YSDTA

The next screen will ask for which users to install. Select one of the options; then select the “Next >” button to continue.



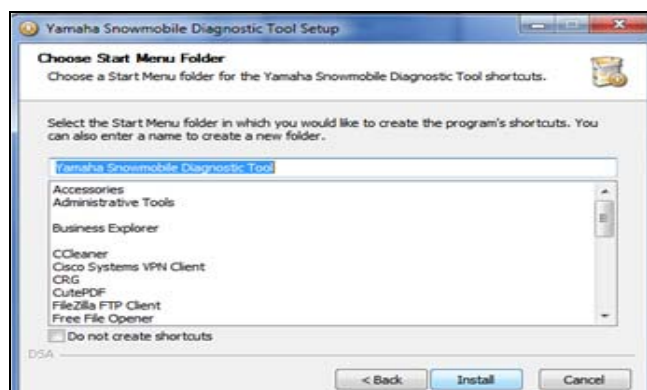
YSDTB

Choose a location to install. The default, recommended location will be displayed within the “Destination Folder” text box. Either accept this option or select the “Browse...” button and select a different destination folder. Select the “Next >” button to continue.



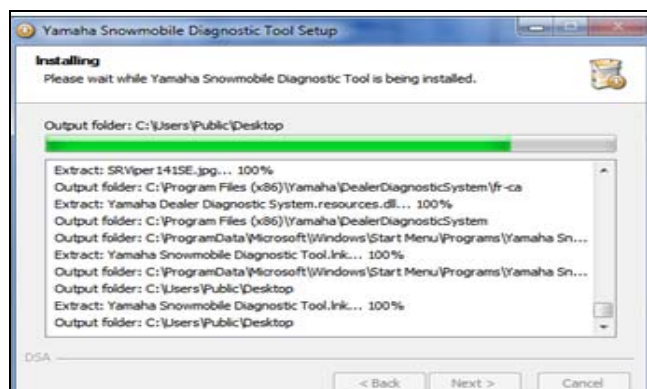
YSDTC

Choose a Start Menu folder for the Yamaha Snowmobile Diagnostic Tool shortcuts. The window will default to creating a new folder called “Yamaha Snowmobile Diagnostic Tool” as shown in the text box. Either accept this option and create a new folder, change the text and create a new folder with a different name, select a different folder from the list box, or click the “Do not create shortcuts” check box. Select the “Install” button to continue.



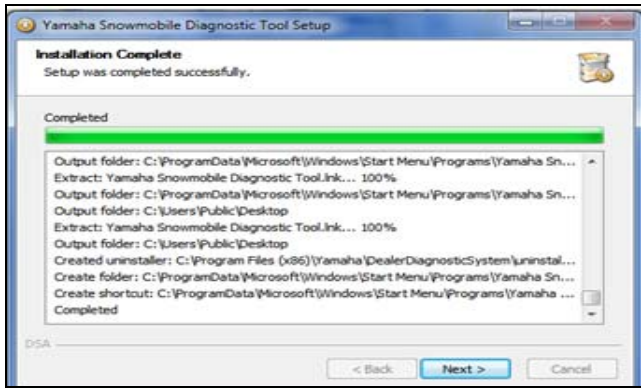
YSDTD

The next screen shows the installation progress. Wait while Yamaha Snowmobile Diagnostic Tool installs.



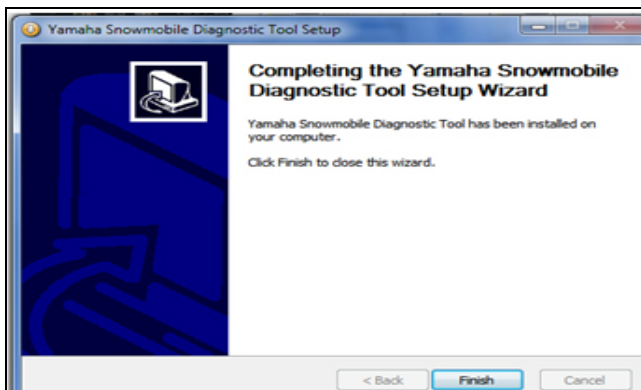
YSDTE

Once the process is complete, the following screen will be shown. Select the “Next >” button to continue.



YSDTF

Finally, the Setup Wizard screen will be shown confirming the Yamaha Snowmobile Diagnostic Tool has been installed. Select the “Finish” button to close the Setup Wizard. The YSDT application will launch automatically.



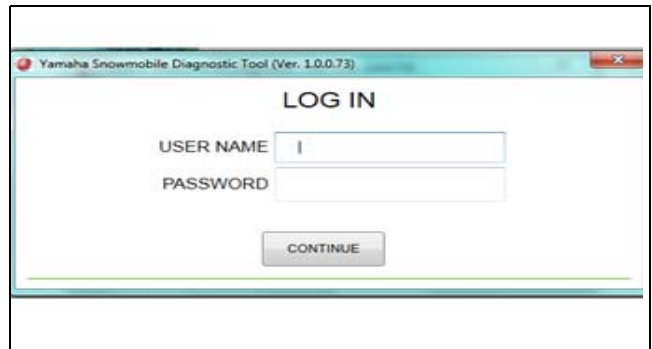
YSDTG

## Logging In

Once the Yamaha Snowmobile Diagnostic Tool application is run or has finished initializing, the following window will appear.

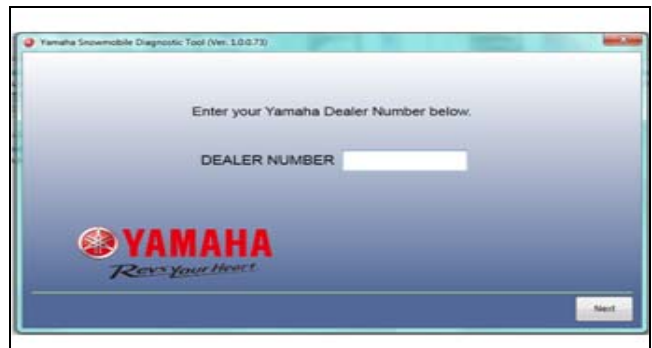
Your Yamaha distributor will supply the “user name”, “password” and “dealer number”.

Enter your dealership’s user name and password and select the “CONTINUE” button.



YSDTH

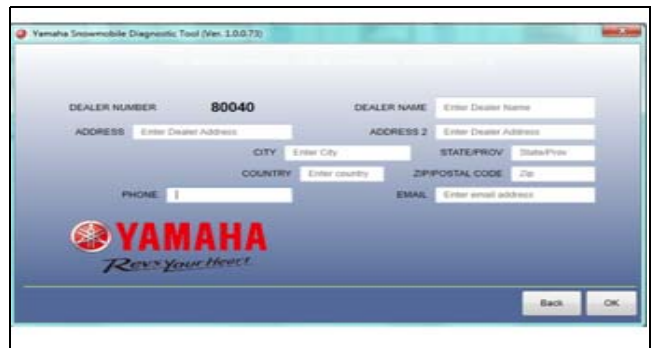
Next, enter your dealer number and select the “Next” button to continue.



YSDTI

Finally, enter the information as prompted in the corresponding text boxes. Select the “OK” button to finish the log-in process.

If your dealership has previously registered, the following information will be automatically populated. If the information populated is incorrect, the wrong dealer number may have been used. Click the “Back” button to go back and enter the correct dealer number. Otherwise make changes and click the “OK” button.



YSDTJ

# Using the Yamaha Snowmobile Diagnostic Tool Software

## Connecting the YSDT to the Vehicle

First, connect the receiver end of the diagnostic cable into the YSDT; then plug the other end of the diagnostic cable into the appropriate diagnostic connector of the vehicle.



YSDTK

Next, plug the type B USB 2.0 connector into the YSDT and the type A USB 2.0 connector into the computer.



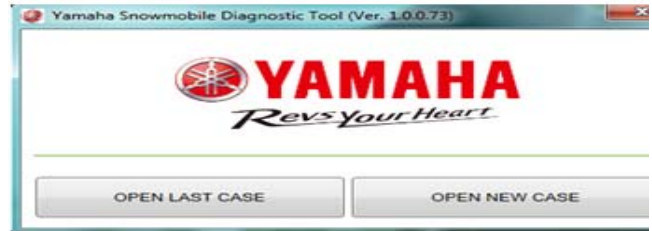
YSDTL

The complete setup should look like the following picture.



YSDTM

If previously logged in, the following initial window will appear. Select “OPEN LAST CASE” to load the last vehicle selected; otherwise select “OPEN NEW CASE”.














YSDTN

If not previously logged in, refer to “Logging In”.

## Icons

■NOTE: The icons are at the bottom of the application window.

 / 	Show / Hide left-side tool bar
	Internet Not Connected / Icon Disappears when Internet connection is present
 / 	USB not connected / USB connected
 / 	No vehicle connected / Vehicle connected
 / 	Engine ECM not connected / Engine ECM connected
 / 	Instrument cluster not connected / Instrument cluster connected

The vehicle model and VIN may be displayed at the bottom of the window.









1Y



## Screens

■NOTE: The screens toolbar is on the left side of the application window.

 IDENTIFY	The IDENTIFY screen is used to connect to the vehicle and view ECU ID information.
 TROUBLE CODES	The TROUBLE CODES screen is used to view and reset active/inactive codes.
 SENSOR DATA	The SENSOR DATA screen is used to view values of vehicle sensors.
 TESTS	The TESTS screen is used to activate/deactivate specific vehicle functions.
 ECU UPDATE	The ECU UPDATE screen is used if a calibration upgrade/update is available.
 SYSTEM SETUP	The SYSTEM SETUP screen is used to change user settings/preferences.



2Y

■NOTE: Some screens/functions may not be applicable to all models.

## IDENTIFY Screen

When the YSDT software is opened, the default screen is the IDENTIFY screen. There are two tabs within this screen. The default tab is “VEHICLE SELECTION”; there are several options to identify a vehicle.

■NOTE: Make sure the vehicle key is turned to the ON position, YSDT is connected to the vehicle and Laptop or PC with the proper harness, and the vehicle’s battery is fully charged prior to making a selection.

### Option 1

Click the “AUTO IDENTIFICATION” button. This will automatically select the appropriate vehicle and populate the text box with the VIN of the vehicle.

■NOTE: Some vehicles do not support this feature.

### Option 2

Enter the complete VIN (17 characters) of the vehicle in the text box and click the “CONTINUE WITH VIN” button.

### Option 3

Select a product from the “PRODUCT LINE” drop down list, select a year from the “MODEL YEAR” drop down list, and select a vehicle from the “VEHICLE” drop down list.



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If you click on the “ECUID” tab you can view ECU information retrieved from the vehicle. To select which ECU information is displayed make a selection from the drop down list.

### Types of ECU’s



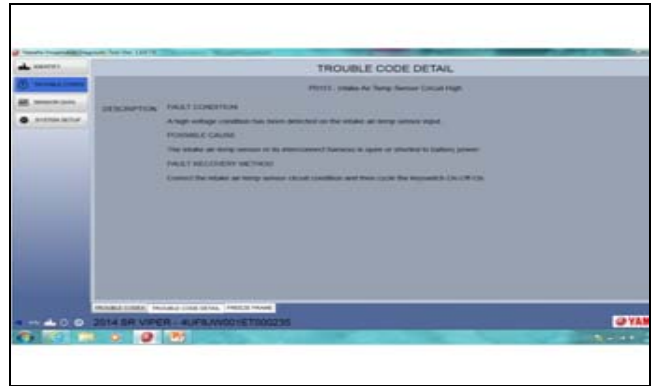
Engine Control Module (ECM)



Instrument Cluster



YSDTO



YSDTQ

## TROUBLE CODES Screen

When the TROUBLE CODES screen is opened, the default tab opened is “TROUBLE CODES”. This tab will display Active and Inactive trouble codes on compatible models; you can also clear Inactive trouble codes.

The icon displayed next to the code indicates which ECU is producing the trouble code. The status of the trouble code will also be displayed on the right side of the screen.

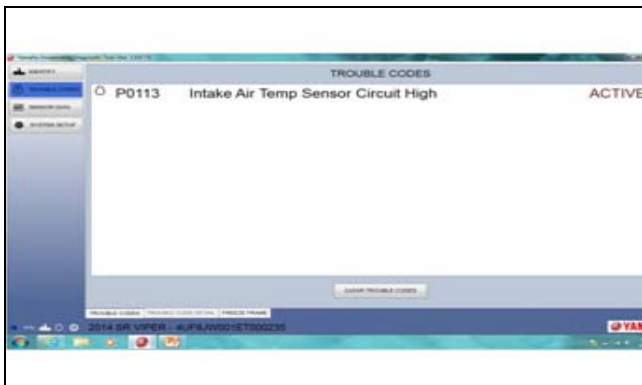


(ECM) Engine Control Module Code



Instrument Cluster Code

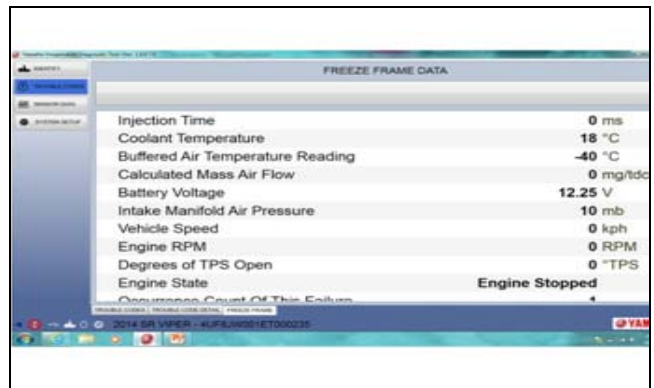
Click the “CLEAR TROUBLE CODES” button to remove all inactive troubles codes from the tool display and from the vehicle.



YSDTP

To view the details of a Trouble Code, click on the code or click the “TROUBLE CODE DETAIL” tab. Under this tab, you can view a description of the fault, a possible cause of the fault, and how to clear the code.

Under the “FREEZE FRAME” tab, you can view sensor data values of when the trouble code was activated. This displays data for all sensors applicable for the vehicle being serviced. Scroll through the list of sensors using the scrolling bars on the side and bottom of the screen.



YSDTR

**NOTE:** If a code has been activated multiple times, the information displayed will be from the most current code activation.

# Possible Trouble Codes

Code	Fault	Description	Applicable Models
			SR Viper
P0031	O2 Heater Control Circuit Low	A low voltage condition has been detected on the O2 heater control output. It is possible that the O2 heater or its interconnect harness is shorted to chassis ground. To clear the fault code correct the O2 Heater Control circuit condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P0032	O2 Heater Control Circuit High	A high voltage condition has been detected on the O2 heater control output. It is possible that the O2 heater or its interconnect harness is shorted to battery power. To clear the fault code correct the O2 Heater Control circuit condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P0107	Manifold Absolute Pressure Circuit Low	A low voltage condition has been detected on the manifold absolute pressure sensor input. It is possible the MAP sensor or its interconnect harness is open or shorted to chassis ground. To clear the fault code correct the MAP sensor circuit condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P0108	Manifold Absolute Pressure Circuit High	A high voltage condition has been detected on the manifold absolute pressure sensor input. It is possible the MAP sensor or its interconnect harness is shorted to battery power. To clear the fault code correct the MAP sensor circuit condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P0112	Intake Air Temperature Sensor Circuit Low	A low voltage condition has been detected on the intake air temperature sensor input. It is possible the intake air temperature sensor or its interconnect harness is open or shorted to chassis ground. To clear the fault code correct the intake air temperature sensor circuit condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P0113	Intake Air Temperature Sensor Circuit High	A high voltage condition has been detected on the intake air temperature sensor input. It is possible the intake air temperature sensor or its interconnect harness is shorted to battery power. To clear the fault code correct the intake air temperature sensor circuit condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P0115	Engine Coolant Temperature Sensor 1 Circuit	A constant voltage condition has been detected on the engine coolant temperature sensor input. It is possible the engine coolant temperature sensor is faulty or the thermostat may be stuck. To clear the fault code correct the engine coolant temperature sensor circuit condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P0117	Engine Coolant Temperature Sensor 1 Circuit Low	To clear the fault code correct the engine coolant temperature sensor circuit condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position. A low voltage condition has been detected on the engine coolant temperature sensor input. It is possible the engine coolant temperature sensor or its interconnect harness is open or shorted to chassis ground.	X
P0118	Engine Coolant Temperature Sensor 1 Circuit High	A high voltage condition has been detected on the engine coolant temperature sensor input. It is possible the engine coolant temperature sensor or its interconnect harness is shorted to battery power. To clear the fault code correct the engine coolant temperature sensor circuit condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P0120	Throttle Position Sensor Circuit	This code will be set any time an error has occurred in the TPS circuit. The TPS or its interconnect harness is open, shorted to ground or shorted to battery power. To clear the fault code correct the TPS circuit condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P0122	Throttle Position Sensor Circuit Low	A low voltage condition has been detected on the TPS input. It is possible the TPS or its interconnect harness is open or shorted to chassis ground. To clear the fault code correct the TPS circuit condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P0123	Throttle Position Sensor Circuit High	A high voltage condition has been detected on the TPS input. It is possible the TPS or its interconnect harness is shorted to battery power. To clear the fault code correct the throttle position sensor circuit condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P0130	O2 Sensor Circuit	An intermittent open or open circuit condition has been detected on the O2 sensor input. It is possible that the O2 sensor or its interconnect harness have an intermittent open or an open circuit. To clear the fault code correct the O2 sensor circuit condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P0131	O2 Sensor Circuit Low	A low voltage condition has been detected on the O2 sensor input. It is possible the O2 sensor or its interconnect harness is shorted to chassis ground or an air leak may exist in the exhaust. To clear the fault code correct the O2 sensor circuit condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P0132	O2 Sensor Circuit High	A high voltage condition has been detected on the O2 sensor input. It is possible the O2 sensor or its interconnect harness is shorted to battery power. To clear the fault code correct the O2 sensor circuit condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P0171	System Too Lean The ECM internal O2 feedback is lower than expected.	It is possible that this symptom is caused by low fuel pressure, dirty fuel filter or dirty injectors. To clear the fault code correct the lean condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P0172	System Too Rich	The ECM internal O2 feedback is higher than expected. It is possible that this symptom is caused by excessive fuel pressure, faulty MAP sensor or faulty temp sensors. To clear the fault code correct the rich condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P0201	Injector Circuit/ Open Cylinder 1	An intermittent open or open circuit condition has been detected on the fuel injector circuit, PTO side cylinder. It is possible that the injector or its interconnect harness have an intermittent open or an open circuit. To clear the fault code correct the injector circuit condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X

Code	Fault	Description	Applicable Models
			SR Viper
P0202	Injector Circuit/ Open Cylinder 2	An intermittent open or open circuit condition has been detected on the fuel injector circuit, center cylinder. It is possible that the injector or its interconnect harness have an intermittent open or an open circuit. To clear the fault code correct the injector circuit condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P0203	Injector Circuit/ Open Cylinder 3	An intermittent open or open circuit condition has been detected on the fuel injector circuit, MAG side cylinder. It is possible that the injector or its interconnect harness have an intermittent open or an open circuit. To clear the fault code correct the injector circuit condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P0217	Engine Coolant Over Temperature Condition	The engine coolant temperature is too high for engine operation. Possible causes for this code are poor snow conditions, engine coolant level is low or the water pump may not be circulating coolant properly. To clear the fault code correct the engine coolant over temperature condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P0261	Cylinder 1 Injector Circuit Low	A low voltage condition has been detected on the injector circuit output, for the PTO side cylinder. It is possible the injector or its interconnect harness is shorted to chassis ground. To clear the fault code correct the injector circuit condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P0264	Cylinder 2 Injector Circuit Low	A low voltage condition has been detected on the injector circuit output, for the center cylinder. It is possible the injector or its interconnect harness is shorted to chassis ground. To clear the fault code correct the injector circuit condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P0267	Cylinder 3 Injector Circuit Low	A low voltage condition has been detected on the injector circuit output, for the MAG side cylinder. It is possible the injector or its interconnect harness is shorted to chassis ground. To clear the fault code correct the injector circuit condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P0508	Idle Air Control System Circuit Low	A low voltage condition has been detected on the ISC control circuit. It is possible the ISC or its interconnect harness is shorted to chassis ground. To clear the fault code correct the ISC circuit condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P0509	Idle Air Control System Circuit High	A high voltage condition has been detected on the ISC control circuit. It is possible the ISC or its interconnect harness is shorted to battery power. To clear the fault code correct the ISC circuit condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P0511	Idle Air Control System Circuit	An open circuit condition has been detected on the ISC control circuit. It is possible the ISC or its interconnect harness is open. To clear the fault code correct the ISC circuit condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P0522	Engine Oil Pressure Sensor Circuit Low	A low voltage condition has been detected on the engine oil pressure sensor input circuit. It is possible the engine oil pressure sensor or its interconnect harness is open or shorted to chassis ground. To clear the fault code correct the engine oil pressure sensor circuit condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P0523	Engine Oil Pressure Sensor Circuit High	A high voltage condition has been detected on the engine oil pressure sensor input circuit. It is possible the engine oil pressure sensor or its interconnect harness is shorted to battery power. To clear the fault code correct the engine oil pressure sensor circuit condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P0562	System Voltage Low	A low voltage condition has been detected on the system power circuit. It is possible the regulator/rectifier output or the battery charge condition is low. To clear the fault code correct the battery charging circuit condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P0563	System Voltage High	A high voltage condition has been detected on the system power circuit. It is possible the regulator/rectifier output is high or the battery cable connections may be loose. To clear the fault code correct the battery charging circuit condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P0780	Shift Error	A gear change was not detected when the command was given to change gears. It is possible the reverse actuator, forward relay, reverse relay or gear position switch may be faulty or not connected. To clear the fault code verify that the relays are activating the reverse actuator and gear position switch when an attempt is made, then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P1315	Crankshaft Position Out of Sync	The ECM was unable to determine the crankshaft position from the signal given by the crankshaft position sensor. It is possible that the crankshaft position sensor is faulty or the CPS may have debris on it causing a poor signal. Before replacing the CPS verify that the battery is in good health, connections from the battery to the starter are tight, and that the engine is turning over properly. To clear the fault code correct the crankshaft position out of sync condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P1338	Crankshaft Spike Detected	The ECM has detected an abnormal spike in the signal from the CPS. It is possible that the signal from the CPS to the ECM is intermittent or the signal is out of the defined parameters due to inconsistent cranking speed, improper combustion or a faulty CPS sensor. To clear the fault code correct the crankshaft spike detected condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P1339	Crankshaft Tooth Not Detected	The ECM has detected an incorrect number of teeth in the signal sent from the CPS. It is possible that the air gap from the CPS to the timing gear on the output shaft assembly is out of specification, the CPS is reading an incorrect number of teeth due to debris on the CPS or CPS is faulty. To clear the fault code correct the crankshaft tooth not detected condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P1685	Main Relay Open Circuit	An open circuit has been detected on the coil side of the ISC relay. It is possible that the ISC relay in the PDM is not making connection or the wiring to the ISC relay is open due to a broken wire. To clear the fault code correct the main relay open circuit condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P1686	Main Relay Circuit Low	A low voltage condition has been detected on the coil side of the ISC relay. It is possible that the ISC relay in the PDM or its interconnect harness is shorted to chassis ground. To clear the fault code correct the main relay circuit low condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X

Code	Fault	Description	Applicable Models
			SR Viper
P1688	Reverse Relay Open Circuit	An open circuit has been detected on the coil side of the reverse relay. It is possible that the reverse relay in the PDM is not making connection or the wiring to the reverse relay is open due to a broken wire. To clear the fault code correct the reverse relay open circuit condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P1689	Reverse Relay Circuit Low	A low voltage condition has been detected on the coil side of the reverse relay. It is possible that the reverse relay in the PDM or its interconnect harness is shorted to chassis ground. To clear the fault code correct the reverse relay circuit low condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P1691	Forward Relay Open Circuit	An open circuit has been detected on the coil side of the forward relay. It is possible that the forward relay in the PDM is not making connection or the wiring to the forward relay is open due to a broken wire. To clear the fault code correct the forward relay open circuit condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P1692	Forward Relay Circuit Low	A low voltage condition has been detected on the coil side of the forward relay. It is possible that the forward relay in the PDM or its interconnect harness is shorted to chassis ground. To clear the fault code correct the forward relay circuit low condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P1694	Headlight Relay Open Circuit	An open circuit has been detected on the coil side of the headlight relay. It is possible that the headlight relay in the PDM is not making connection or the wiring to the headlight relay is open due to a broken wire. To clear the fault code correct the headlight relay open circuit condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P1695	Headlight Relay Circuit Low	A low voltage condition has been detected on the coil side of the headlight relay. It is possible that the headlight relay in the PDM or its interconnect harness is shorted to chassis ground. To clear the fault code correct the headlight relay circuit low condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P2228	Barometric Pressure Sensor "A" Circuit Low	A low voltage condition has been detected on the barometric pressure sensor input. It is possible the barometric pressure sensor or its interconnect harness is open or shorted to chassis ground. To clear the fault code correct the barometric pressure sensor circuit condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P2229	Barometric Pressure Sensor "A" Circuit High	A high voltage condition has been detected on the barometric pressure sensor input. It is possible the barometric pressure sensor or its interconnect harness is open or shorted to battery power. To clear the fault code correct the barometric pressure sensor circuit condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P2300	Ignition Coil "A" Primary Control Circuit Low	A low voltage condition has been detected on the PTO side cylinder ignition coil. It is possible the ignition coil or its interconnect harness is open or shorted to chassis ground. To clear the fault code correct ignition coil "A" primary control circuit low condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P2303	Ignition Coil "B" Primary Control Circuit Low	A low voltage condition has been detected on the center cylinder ignition coil. It is possible the ignition coil or its interconnect harness is open or shorted to chassis ground. To clear the fault code correct ignition coil "B" primary control circuit low condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
P2306	Ignition Coil "C" Primary Control Circuit Low	A low voltage condition has been detected on the MAG side cylinder ignition coil. It is possible the ignition coil or its interconnect harness is open or shorted to chassis ground. To clear the fault code correct ignition coil "C" primary control circuit low condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
U0155	Lost Communication With the Gauge	The CAN communication between the gauge and the ECM is intermittent or has failed. It is possible that the CAN communication wires from the gauge or to the ECM are open or shorted to each other. To clear the fault code correct the Lost communication with gauge condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position.	X
U1000	Vehicle Not Registered or Invalid Pin Entered	The vehicle has not been registered or had the correct PIN entered. The vehicle must be warranty registered before the correct PIN will be supplied. To clear the fault code correct the vehicle not registered or invalid pin entered condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position. <b>Note: If this code is active please contact your Yamaha Distributor.</b>	X
U1001	Vehicle Not Registered and Vehicle Limits Enabled	The vehicle has not been registered or had the correct PIN entered and the engine hours have exceeded the allowable time. The vehicle must be warranty registered before the correct PIN will be supplied. To clear the fault code correct the vehicle not registered vehicle limits enabled condition and then turn the key to the OFF position (for a minimum of 10 seconds) then turn the key to the ON position. <b>Note: If this code is active please contact your Yamaha Distributor.</b>	X

# SENSOR DATA Screen

When the SENSOR DATA Screen is opened, the default tab is “SENSOR DATA”. Under this tab, you can view voltage or physical values for various sensors on the vehicle being serviced.

When this tab is opened, a default list of sensors is displayed. You can add or remove sensors by using the “+” or “-” buttons in the lower-right corner of the screen. Once you have the desired sensors displayed, you can save this list for future use by clicking the “SAVE SET” button. You will be prompted to enter a name for the set. To open previously saved sets, click the “LOAD SET” button and choose the desired set from the list. Click the “CLEAR LIST” button to remove all items from the display.



YSDTS

A sensor value can be viewed in full-screen mode by clicking



the **expand icon** ( ) located at the far right position of a sensor’s row. This opens the full screen in a new window. To exit full-screen mode, click the “X” in the upper-right corner of the screen.



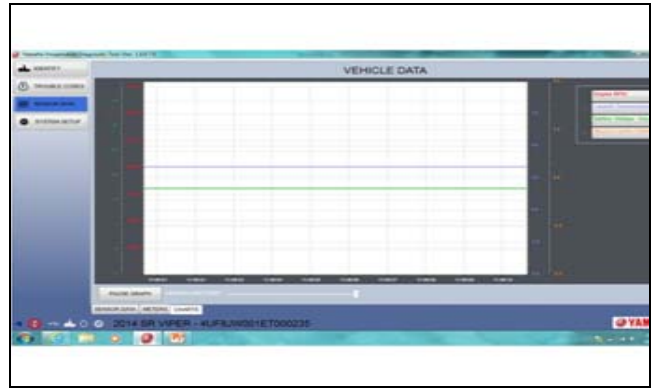
YSDTT

A sensor can be viewed graphically by clicking the



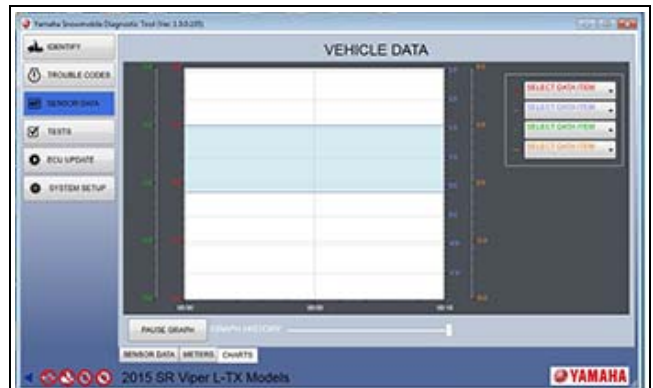
**graph icon** ( ) located at the far-right position of a sensor’s row. This will open the “CHARTS” tab and allow for up to four sensors to be shown graphically by selecting them from the drop down lists located on the right side of the screen.

With the “CHARTS” tab selected, the graph will begin displaying values for the sensors selected. Click the “PAUSE GRAPH” to stop displaying values of the sensors. With the graph paused, you can scroll through the data by using the sliding icon in “GRAPH HISTORY”. Click the “RESUME GRAPH” to continue displaying data.



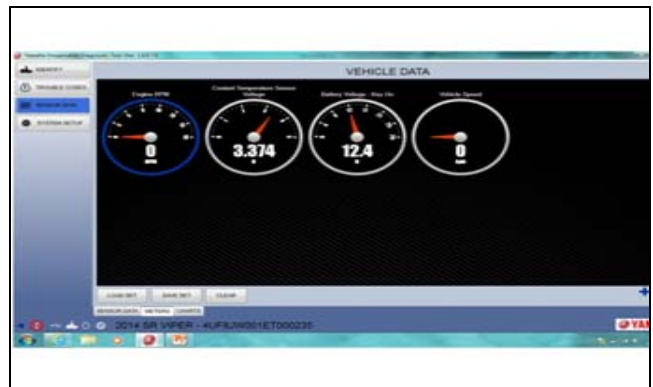
YSDTU

Each sensor is displayed on a separate axis on the right or left side of the graph. By default, the lower and upper values are set to the minimum and maximum allowable value for the sensor on that axis. To zoom within the default range, highlight the area by clicking and holding the left mouse button on the axis you wish to zoom. Once you have the desired range of values highlighted, release the left mouse button and it will zoom to the selected values. To return to the default range of values, double click within the axis.



3Y

Sensor data can also be displayed with gauges by clicking the “METERS” tab. When the “METERS” tab is opened, a default list of meters are displayed. This can be changed by clicking the “+” or “-” buttons in the lower right side of the screen. Once you have the desired meters displayed, you can save this list for future use by clicking the “SAVE SET” button. Type a name for the set you are saving. To open previously saved sets, click the “LOAD SET” button and choose the desired set from the list. Click the “CLEAR” button to remove all items from the display.



YSDTV

**NOTE:** The type of gauge displayed can be changed by double clicking the sensor’s gauge.

## Available Sensors

Sensor Name	Sensor Description	Sensor Output Value
Engine Run Time	Overall Engine Operating Time	Displays the accrued time on the engine in hours.
Degrees of TPS Open	Angle of throttle plate.	Displays the position of the TPS in degrees.
Ambient Air Pressure	Ambient Air Pressure	Displays the value of the atmospheric pressure in in.-HG or mb depending on units selected in user preferences.
Air Temperature Sensor	Value of Air Temperature Sensor	Displays the value of the intake air temperature in °F or °C depending on units selected in user preferences.
Relay Battery Voltage	Voltage to ECM	Displays the voltage supplied to the ECM from the main relay. If this voltage is not very close to the Battery Voltage - Key On it may indicate an issue with the circuit.
Coolant Temperature Sensor	Value of coolant temperature	Displays the value of the coolant temperature in °F or °C depending on units selected in user preferences.
Vehicle Speed	Miles/Kilometers Per Hour	Displays the track speed in MPH or KMH depending on units selected in user preferences.
Idle RPM	Target RPM at operating temperature.	Displays the target idle speed determined by the ECM. This value is dependent on engine coolant temperature and will change as the engine reaches operating temperature.
Engine Overheat	Engine Hot	Displays the current state of the engine coolant temperature. "Good" will be displayed if the engine coolant temperature is below 221°F or 105°C. "Hot" will be displayed if the engine coolant temperature is above 221°F or 105°C.
Low Oil Pressure	Reading from oil pressure switch or an analog sensor at specific RPMs	Displays the current state of oil pressure by inputs to the ECM from the oil pressure switch or the oil pressure sensor. "Good" will be displayed if the ECM detects adequate oil pressure and "Low" will be displayed if the ECM detects a low oil pressure condition exists.
Gear Position	Forward/Reverse	Displays the current direction of travel dependent on the gear position switch.
RPM Limit	Rev Limiter Set point	Displays the current RPM Limit set point determined by inputs to the ECM.
RPS Engine Control	Runaway Prevention Switch	Displays the current status of the RPS Engine Control strategy. If all systems are operating correctly "INACTIVE" will be displayed. If the system determines the engine needs to be shutdown "ACTIVE" will be displayed.
ISC	Idle Speed Control (ISC)	Displays the current target position of the ISC determined by the ECM, this value will be displayed in the number of steps of targeted ISC position.
Warranty Registration	After 5 hours of operation, engine RPM limited	Displays the status of the Warranty Registration Limitation. "Limited" will be displayed if the correct PIN has not been entered and the engine hours exceed 5 hours. "Good" will be displayed if the correct PIN has been entered or the engine hours are less than 5 hours. <b>Note: If "Limited" is displayed please contact your Yamaha Distributor.</b>
Registration Status	Yes/No	Displays the PIN registration status. "Not Registered" will be displayed if the PIN has not been entered. "Registered" will be displayed if the PIN has been successfully entered. <b>Note: If "Not Registered" is displayed please contact your Yamaha Distributor.</b>
Engine RPM	Revolutions Per Minute	Displays the current engine RPM determined by the signal sent to the ECM from the Crankshaft Position Sensor.
Battery Voltage - Key On	Current Voltage of the Battery	Displays the voltage supplied to the ECM from the key switch. If this voltage is not very close to the Relay Battery Voltage it may indicate an issue with the circuit.
Air Temperature Sensor Voltage		Displays the voltage sent to the ECM of the Air Temperature Sensor.
Intake Manifold Air Pressure Sensor Voltage		Displays the voltage sent to the ECM of the Intake Manifold Air Pressure Sensor.
State of Oil Pressure Switch	Reading from oil pressure switch at specific RPM	Displays the position of the oil pressure switch. "Off" will be displayed when there is adequate pressure at the switch which creates an open circuit, there may still be a low oil pressure alarm if the oil pressure sensor detects a low oil pressure reading for current RPM. "On" will be displayed if there is inadequate oil pressure at the switch, which closes the circuit.
Intake Manifold Air Pressure	Intake Manifold Air Pressure	Displays the value of the intake air pressure in in.-HG or mb depending on units selected in user preferences.
Idle RPM	Target RPM at operating temperature	Displays the target idle RPM specified by the ECM. Engine coolant temperature will affect the target idle RPM, if the engine coolant temperature is below the operating temperature the target idle RPM will be higher.
Engine State	Engine Stop/Started/Idle Speed/Part Load/ Throttle Trailing/Trailing Throttle Fuel cutoff	Displays the current engine state determined by the ECM dependent on inputs to the ECM.
CPS Synchronization	Crank Position Sensor	Displays the current state of the CPS synchronization strategy determined by the ECM. This is used to determine engine position and timing of spark and injection. "True" will be displayed if the ECM is able to determine the position of the engine. "False" will be displayed if the ECM is not able to determine the position of the engine.
Maximum Manifold Air Pressure	Maximum pressure reached over life of vehicle	Displays the maximum Intake Manifold Air Pressure measured over the vehicles total run time. Units displayed will be in.-HG or mb depending on units selected in user preferences.
Maximum RPM	Maximum RPM reached over life of vehicle	Displays the maximum RPM measured over the vehicles total run time.
Maximum Engine Coolant Temperature	Maximum temperature reached over life of vehicle	Displays the maximum Engine Coolant Temperature measured over the vehicles total run time. Units displayed will be °F or °C depending on units selected in user preferences.
Maximum Intake Air Temperature	Maximum temperature reached over life of vehicle	Displays the maximum Engine Intake Temperature measured over the vehicles total run time. Units displayed will be °F or °C depending on units selected in user preferences.

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## TESTS Screen

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This screen allows the technician to activate or deactivate certain sensors; functions will vary depending on product line and model.

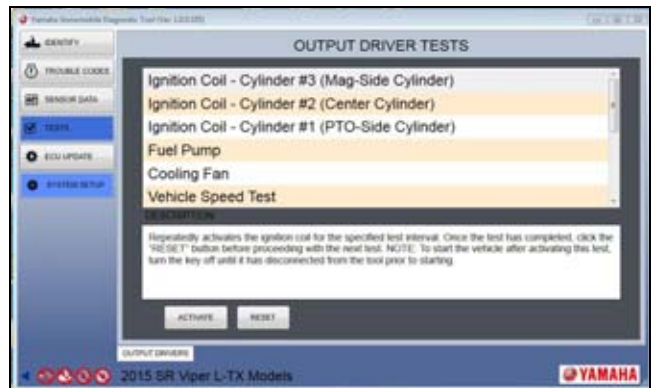
When the TESTS screen is opened for the first time of a session, there will be a warning message displayed. Read and understand the warning; then check “I have read and acknowledge the above WARNING statement and have complied with it” and click the “OK” button to continue. Otherwise click the “CANCEL” button which will exit you from the “TESTS” screen.



4Y

When the “TESTS” screen is opened, the default tab is “OUTPUT DRIVER”. This tab shows which output driver tests are available for the vehicle being serviced.

Select a test and click the “ACTIVATE” button to perform the test. Click the “RESET ACTIVATE” button to reset it. Click the “DEACTIVATE” button to deactivate the test. Click the “RESET DEACTIVATE” button to reset it.



5Y

■NOTE: “DEACTIVATE” and “RESET DEACTIVATE” may not be applicable to the vehicle being serviced.



## Output Drivers Tab

Test Name	Test Description	Test Instructions
Ignition Coil - Cylinder #3 (MAG-Side Cylinder)	Repeatedly activates the MAG side ignition coil for the specified test interval. Once the test has completed, click the "RESET" button before proceeding with the next test. <b>NOTE: To start the vehicle after activating this test, turn the key off until it has disconnected from the tool prior to starting.</b>	With the key in the ON position and the engine off, using an appropriate spark tester, click the "ACTIVATE" button. There will be multiple triggers of the ignition coil, this will happen very rapidly. Once the test has been completed click the "RESET" button.
Ignition Coil - Cylinder #2 (Center Cylinder)	Repeatedly activates the center cylinder ignition coil for the specified test interval. Once the test has completed, click the "RESET" button before proceeding with the next test. <b>NOTE: To start the vehicle after activating this test, turn the key off until it has disconnected from the tool prior to starting.</b>	With the key in the ON position and the engine off, using an appropriate spark tester, click the "ACTIVATE" button. There will be multiple triggers of the ignition coil, this will happen very rapidly. Once the test has been completed click the "RESET" button.
Ignition Coil - Cylinder #1 (PTO-Side Cylinder)	Repeatedly activates the PTO side ignition coil for the specified test interval. Once the test has completed, click the "RESET" button before proceeding with the next test. <b>NOTE: To start the vehicle after activating this test, turn the key off until it has disconnected from the tool prior to starting.</b>	With the key in the ON position and the engine off, using an appropriate spark tester, click the "ACTIVATE" button. There will be multiple triggers of the ignition coil, this will happen very rapidly. Once the test has been completed click the "RESET" button.
Fuel Pump	Activates the fuel pump for the specified test interval. Listen for the fuel pump building pressure. <b>NOTE: To start the vehicle after activating this test, turn the key off until it has disconnected from the tool prior to starting.</b>	With the key in the ON position and the engine off, click the "ACTIVATE" button, the fuel pump will cycle on and off during the specified test interval. Fuel pressure should build to the specified pressure. Once the test has been completed click the "RESET" button.
Cooling Fan	Activates the cooling fan from the ECM for a specified test interval. <b>NOTE: To start the vehicle after activating this test, turn the key off until it has disconnected from the tool prior to starting.</b>	With the key in the ON position and the engine off, click the "ACTIVATE" button, the cooling fan will cycle on and off during the specified test interval. Listen to hear the fan, there will be an audible noise heard. Once the test has been completed click the "RESET" button.
Vehicle Speed Test	Displays the selected speed on the gauge. <b>NOTE: To start the vehicle after activating this test, turn the key off until it has disconnected from the tool prior to starting.</b>	With the key in the ON position and the engine off, click the one of the three available speeds to be displayed, the units displayed will be determined by the units the gauge is set to. Once the test has completed click the "RESET" button. This test verifies the gauge is receiving the correct signal to display speed.
Engine RPM Test	Displays the selected RPM on the gauge. <b>NOTE: To start the vehicle after activating this test, turn the key off until it has disconnected from the tool prior to starting.</b>	With the key in the ON position and the engine off, click the one of the two available RPM's to be displayed. Once the test has completed click the "RESET" button. This test verifies the gauge is receiving the correct signal to display engine RPM.
Headlight Relay	Repeatedly activates the headlight relay. <b>NOTE: To start the vehicle after activating this test, turn the key off until it has disconnected from the tool prior to starting.</b>	With the key in the ON position and the engine off, click the "ACTIVATE" button, the headlights will turn of and off for the specified test interval. Once the test has completed click the "RESET" button. This verifies the signal from the ECM is activating the relay located in the PDM, the wiring from the PDM to the headlight bulbs and the headlight bulbs.
Forward Shift Relay	Activates the forward shift relay. <b>NOTE: The gear shift actuator will also activate if connected to the vehicle harness. NOTE: To start the vehicle after activating this test, turn the key off until it has disconnected from the tool prior to starting.</b>	With the key in the ON position and the engine off, click the "ACTIVATE" button, if not already in forward gear it will shift into forward gear. Once the test has completed click the "RESET" button. This verifies the signal from the ECM is activating the relay located in the PDM, the wiring from the PDM to the gear shift actuator and the gear shift actuator.
Reverse Shift Relay	Activates the reverse shift relay. <b>NOTE: The gear shift actuator will also activate if connected to the vehicle harness. NOTE: To start the vehicle after activating this test, turn the key off until it has disconnected from the tool prior to starting.</b>	With the key in the ON position and the engine off, click the "ACTIVATE" button, if not already in reverse gear it will shift into reverse gear. Once the test has completed click the "RESET" button. This verifies the signal from the ECM is activating the relay located in the PDM, the wiring from the PDM to the gear shift actuator and the gear shift actuator.
Idle Speed Controller (ISC)	Repeatedly cycles the ISC stepper motor for the specified test interval. Listen for the ISC valve to rotate from fully open to fully closed. <b>NOTE: To start the vehicle after activating this test, turn the key off until it has disconnected from the tool prior to starting.</b>	With the key in the ON position and the engine off, click the "ACTIVATE" button, listen to hear the ISC stepper motor moving. Once the test has been completed click the "RESET" button. This test verifies the operation and function of the ISC stepper motor. To view the target position of the ISC select the ISC on the gauge display.

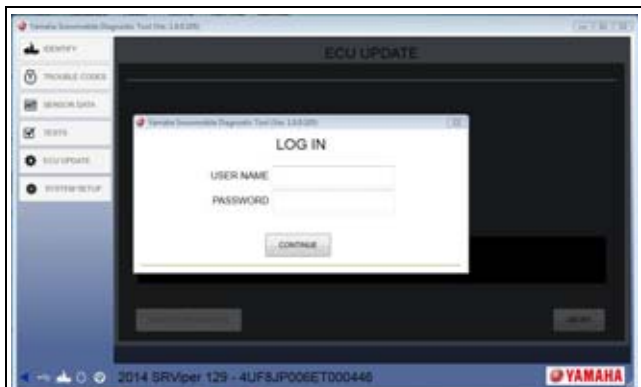
## ECU UPDATE Screen

If there is an ECU update available, the following screen will appear automatically once the vehicle identification has been completed. Click the “CONTINUE” button to download the update to the ECU.



6Y

A prompt to log in will appear. Enter your user name and password; then click the “CONTINUE” button to log in and proceed with the download.



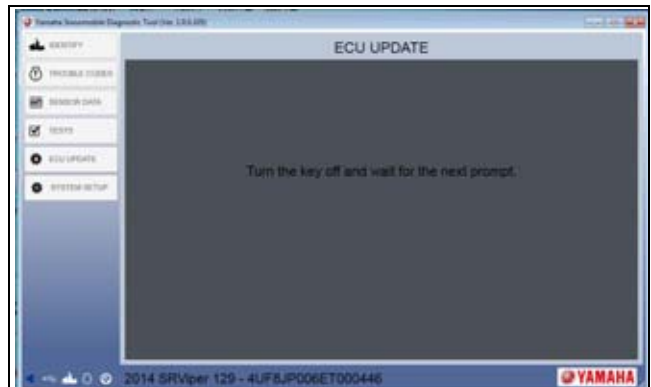
7Y

Before the ECU update can begin, the entire file will be downloaded to your computer prior to uploading to the ECU. The following warning message will appear. Read and understand the warning message and perform any necessary tasks; then click the “OK” button to continue.



8Y

When the progress bar reaches 100%, the following screen will appear. Turn the key off and wait for the next prompt.



9Y

If the key is not turned off, the following screen will appear. Click the “OK” button to return to the “IDENTIFY” page.



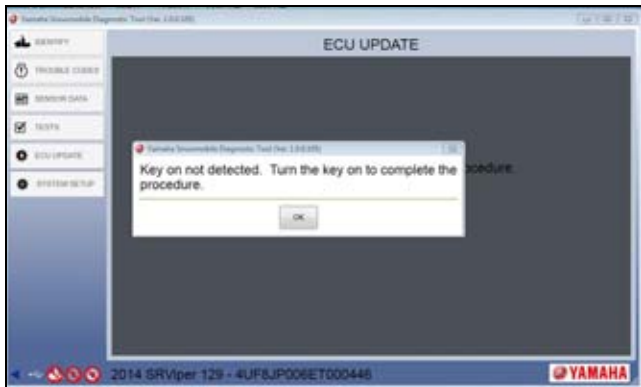
10Y

Once the key is turned off, the following screen will appear. Turn the key on to complete the procedure.



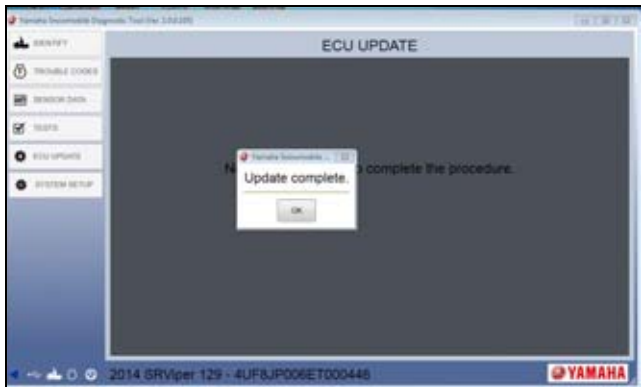
11Y

If the key is not turned on, the following screen will appear. Click the “OK” button to return to the “IDENTIFY” page.



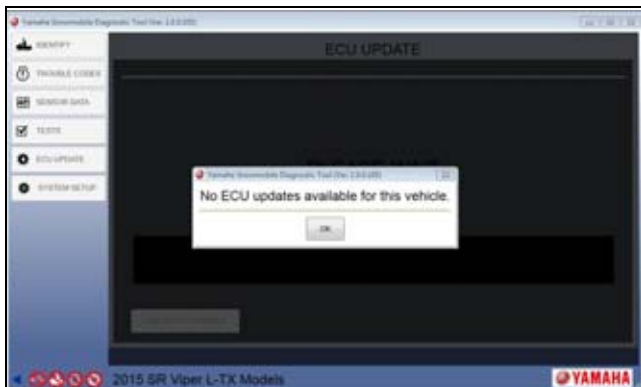
12Y

Once the key is turned on, the following screen will appear. Click the “OK” button to complete the update.



13Y

If the “ECU UPDATE” screen is opened manually and there are no updates available, the following screen will be shown. Click the “OK” button to return to the “IDENTIFY” screen.



14Y

NOTE: If an update is available, refer to the beginning of this section for instruction.

## SYSTEM SETUP Screen

When you open the SYSTEM SETUP screen, the default tab is “DEALER INFORMATION”. From this tab, you can view and edit your contact information. If there are changes made, click the “SAVE” button before exiting this tab.



YSDTW

Under the “SYSTEM CONFIG” tab, you can view your system configuration details. This information cannot be edited.



YSDTX

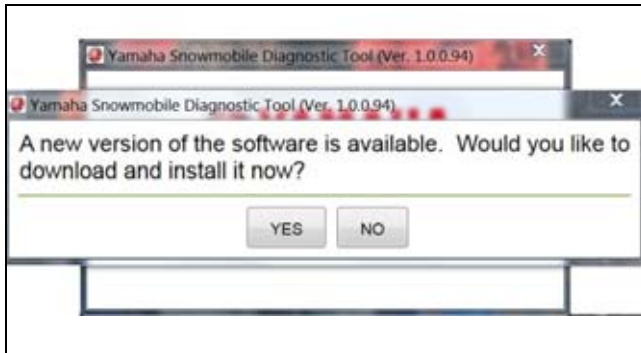
Under the “PREFERENCES” tab, the language and unit preferences can be viewed or edited. To edit, select your preferences from the drop down lists and click the “SAVE & RESTART” button to save the changes. The YSDT will close and restart with your new preferences.



YSDTY

## Updating the Software

Each time you open the YSDT software, it will automatically check for updates. If an update is found, the following screen will be shown.



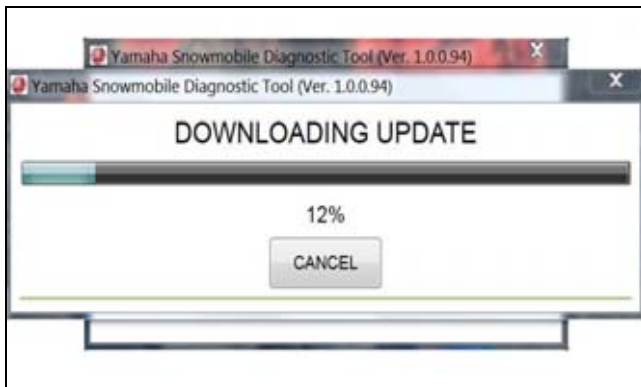
15Y

■NOTE: Always update to the latest version to allow access to the latest features and models.

Select either "YES" or "NO" to continue.

If "YES" is selected, the update will begin. Wait for the update to download.

Once the update is downloaded, the installation process must be performed again. The setup wizard will start automatically once the update has finished downloading. Refer to the "Installing the Software" portion of this manual for instructions on how to reinstall.



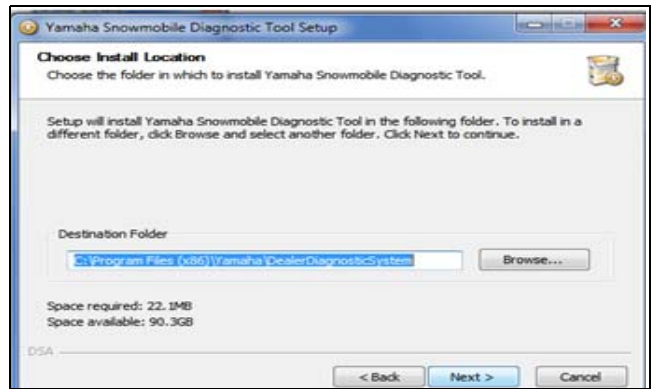
16Y

If "NO" is selected, the update window will close and this update screen will appear upon opening the next software session.

## Uninstalling the Software

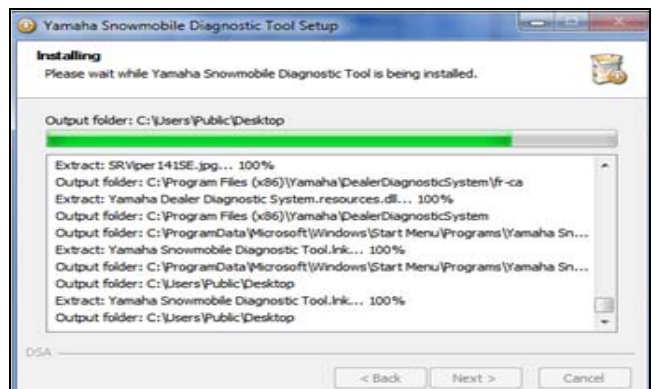
To begin the uninstall process, locate the Yamaha Snowmobile Diagnostic Tool folder using Windows Explorer or by opening "My Computer" and finding the file in the location you have saved it. Open the folder; then open the "Dealer Diagnostic System" folder. Double click the "UNINSTALL" application to perform the uninstall process.

The uninstall application will open the following window. Click the "UNINSTALL" button to begin uninstalling.



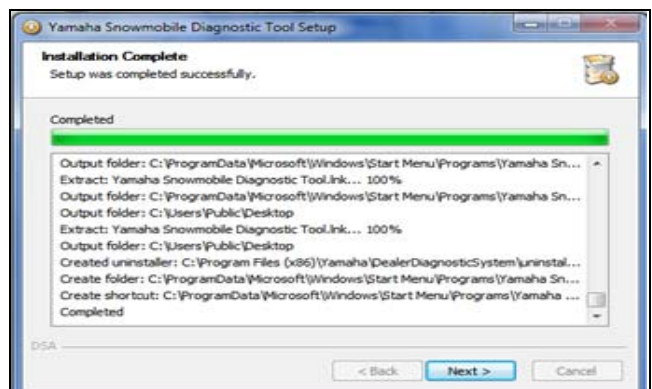
YSDTC

The next screen will show the progress of the uninstall. Wait while YSDT is uninstalled.



YSDTE

The following screen will be displayed when the uninstall process is complete. Click the "CLOSE" button to close the uninstall application.



YSDTF