

# *Installation Guide and User Manual*



***Y.S.D.T.***

***YAMAHA SNOWMOBILE DIAGNOSTIC TOOL***

90890-03233



---

---

# About This Manual

---

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 Capability
- 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.

**Y.S.D.T.  
Installation Guide and User Manual  
©2014 by Yamaha Motor Co., Ltd.  
Fourth edition, November 2020  
All rights reserved.  
Any reproduction or unauthorized use  
without the written permission of  
Yamaha Motor Co., Ltd.  
is expressly prohibited.**

---

---

# Table of Contents

---

Vehicles Supported by Y.S.D.T. ....	3
Safety Guidelines .....	4
Kit Contents .....	4
Installing the Software .....	5
Logging In.....	6
Using the Yamaha Snowmobile Diagnostic Tool Software.....	7
Icons .....	7
Screens .....	8
Identify Screen.....	8
Trouble Codes Screen .....	9
Sensor Data Screen .....	10
Available Sensors.....	13
Tests Screen.....	15
Output Drivers Tab for Four-Stroke Snowmobiles.....	16
Procedures Screen .....	17
ECU Update Screen .....	17
Service Info Screen.....	19
System Setup Screen.....	19
Reports Screen.....	20
Updating the Software.....	21
Uninstalling the Software .....	21
Appendix .....	22
Output Drivers Tab for Two-Stroke Snowmobiles .....	22
Two-Stroke Snowmobiles, Specific Procedures .....	23
Oil Injector Replacement .....	23
Oil Pump Replacement .....	24

## Vehicles Supported by Y.S.D.T. — Snowmobiles

2014-2020 Product				2021 Product			
Year	Model	ECM Diagnostics	ECM Update Programming Capable	Year	Model	ECM Diagnostics	ECM Update Programming Capable
2014	SRViper (all)	X	X	2021	Mountain Max 800 154	X	X
2015	SRViper (all)	X	X		Mountain Max 800 165	X	X
2016	SRViper (all)	X	X		SRViper L-TX	X	X
2017	Sidewinder (all)	X	X		SXVenom	X	X
	SRViper (all)	X	X		SXVenom Mountain	X	X
2018	Sidewinder (all)	X	X		Sidewinder B-TX LE	X	X
	SRViper (all)	X	X		Sidewinder L-TX GT	X	X
	SRVenture DX	X	X		Sidewinder L-TX GT EU	X	X
2019	Sidewinder (all)	X	X		Sidewinder L-TX LE	X	X
	SRViper (all)	X	X		Sidewinder L-TX SE	X	X
	MP600 XE Transporter	X	X		Sidewinder M-TX	X	X
2020	Sidewinder (all)	X	X		Sidewinder S-TX GT	X	X
	SRViper (all)	X	X		Sidewinder S-TX GT RU	X	X
	MP600 XE Transporter	X	X		Sidewinder SRX LE	X	X
					Sidewinder X-TX	X	X
					Transporter 800	X	X
					Transporter Lite	X	X

## Safety Guidelines

This safety section contains information that must be followed to avoid damage to the Y.S.D.T. 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.

## Kit Contents

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

- **90890-03233 Complete Kit Diagnostics Tool** – Hardware Interface to connect Laptop or PC to vehicle (must order complete kit to replace Hardware Interface).
- **90890-11146 Diagnostics Cable (2.0 USB)** – Connects the Laptop or PC to the tool.
- **90890-11144 Diagnostics Harness (10 Pin)** – For use on Snowmobiles with a 10-pin diagnostic connector.
- **90890-11145 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.**

## Required for 2-Stroke Models

- **90890-11154 Diagnostic Harness (2-Stroke)** – For use on 2-stroke snowmobiles with a 10-pin diagnostic connector.
- **90890-11153 External Power Harness** – For use on 2-stroke snowmobiles to view sensor data, trouble codes, and run the appropriate output driver tests when the engine is not running.

■ **NOTE: Disconnect this harness when the engine is running to avoid engine starting issues.**

- Quick Start Manual/Guide
- **90890-11147 Diagnostic Tool Bag**

## Optional Accessories

**Hood Harness Extensions** — Allows the unit engine to run with the hood located on the workbench.

Part Number	Description
90890-11131-00	SRViper Hood Harness Extension
90890-11149-00	Sidewinder Hood Harness Extension
90890-11155-00	2-Stroke Hood Harness Extension

# 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 7, Windows 8, Windows 10; 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.



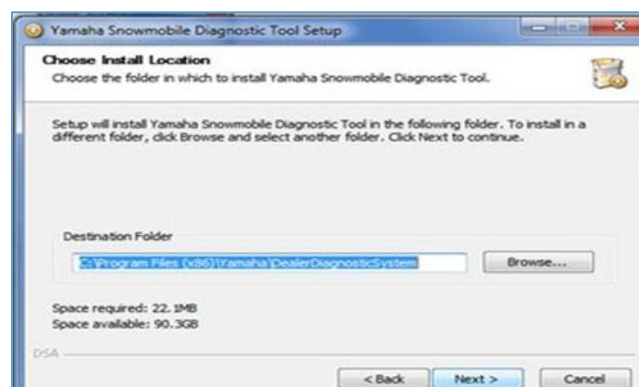
YSDTA

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



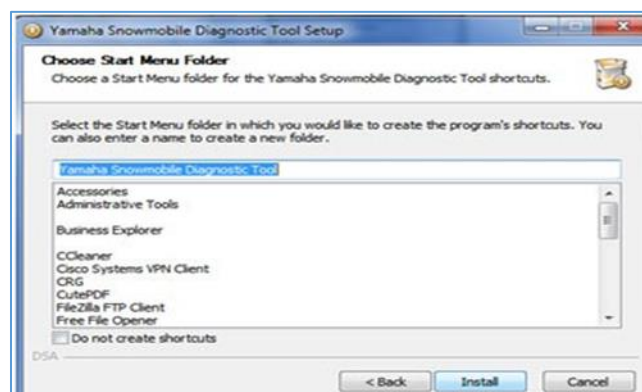
YSDTB

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.



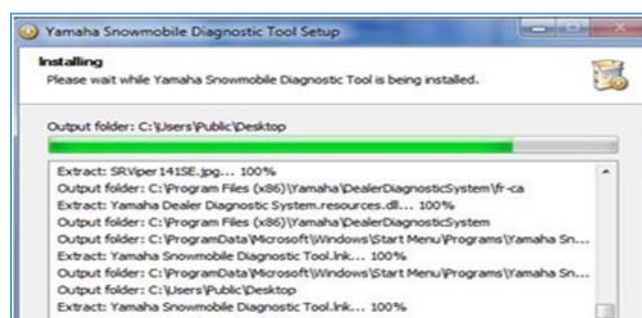
YSDTC

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.



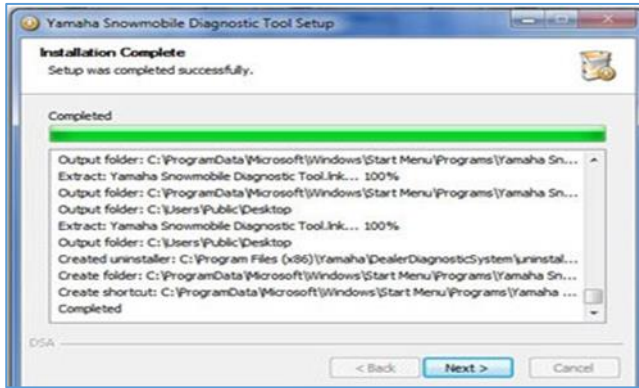
YSDTD

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



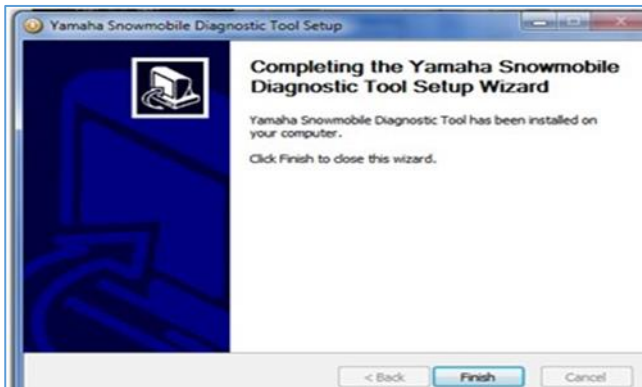
YSDTE

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 Y.S.D.T. application will launch automatically.



YSDTG

---

---

## Logging In

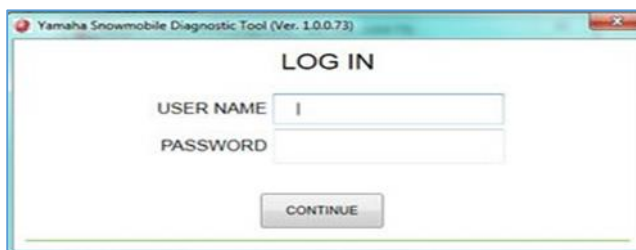
---

---

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

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

Enter your dealership’s username 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.

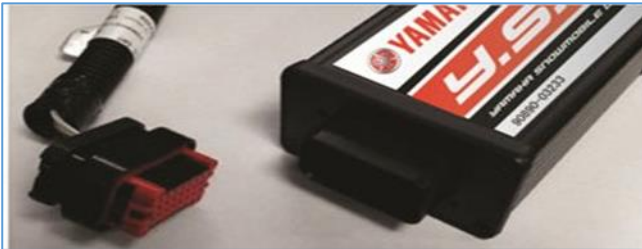


YSDTJ

# Using the Yamaha Snowmobile Diagnostic Tool Software

## Connecting Y.S.D.T. to the Vehicle

First, connect the receiver end of the diagnostic cable into the corresponding plug end of the Y.S.D.T.; 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 Y.S.D.T. 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

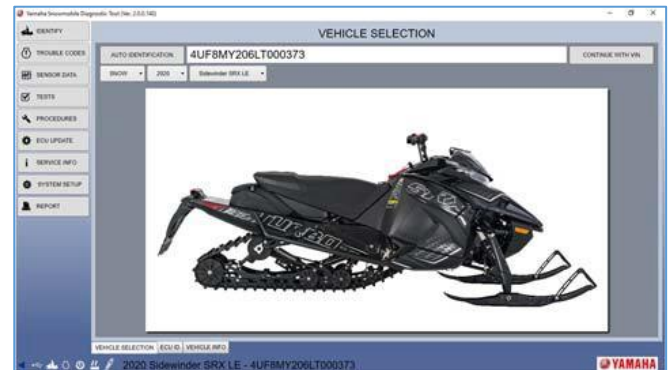
If not previously logged in, refer to **“Logging In”**.

## 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
	Handlebar controls not connected / Handlebar controls connected
	SCM not connected / SCM connected







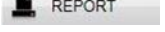
The vehicle model and VIN may be displayed at the bottom of the window.

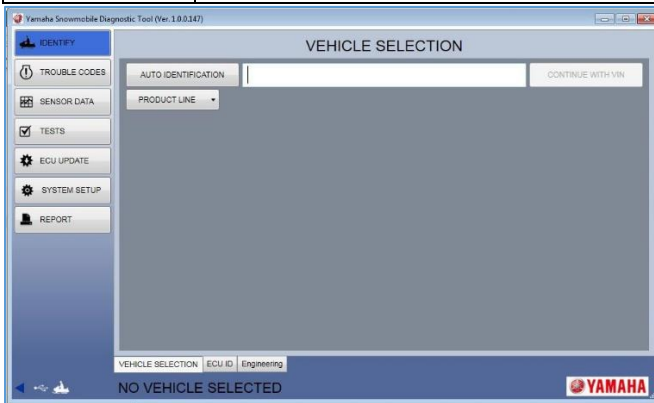




# Screens

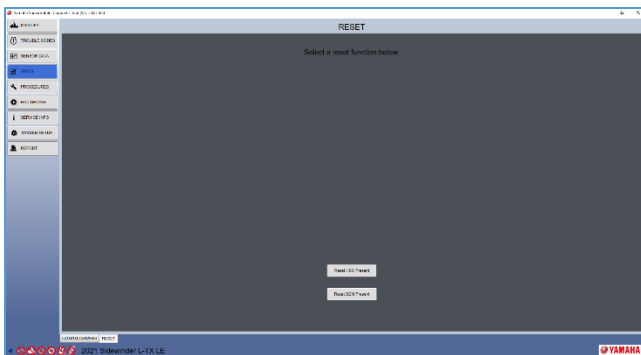
■ **NOTE:** The screens toolbar is on the left side of the application window.

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



17Y

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



■ **NOTE:** If you hook a gauge to a machine with Suspension Control and then put it back on a machine without it, you can clear the error that states it can't connect to the suspension control module.

## Identify Screen

When the Y.S.D.T. 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, Y.S.D.T. 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.

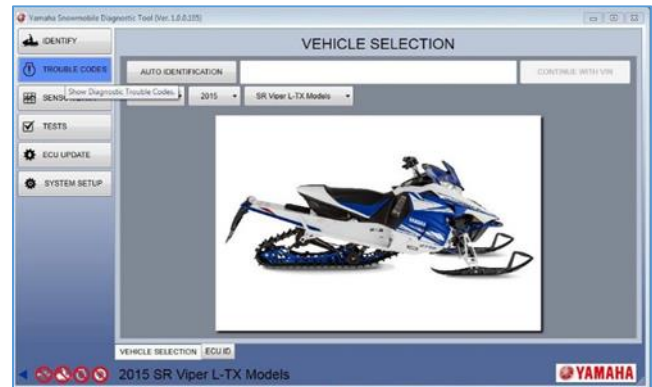
■ **NOTE:** Some vehicles do not support this feature.

### 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.

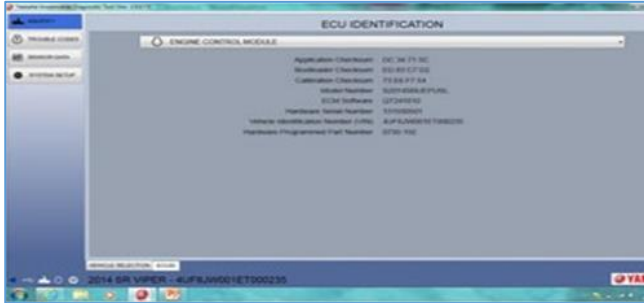


1Y

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
	iQS
	Stealth Handlebar Controls



YSDTO

## 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.

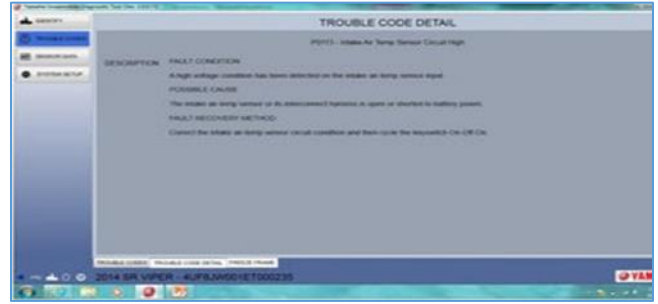
The icon displayed next to the code indicates which ECU is producing the trouble code. The status of the trouble code will also be displayed on the right side of the screen.

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



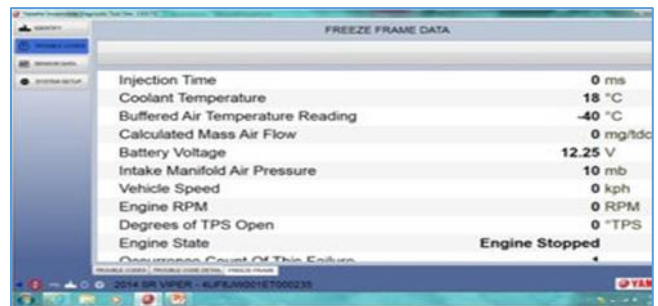
YSDTP

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.



YSDTQ

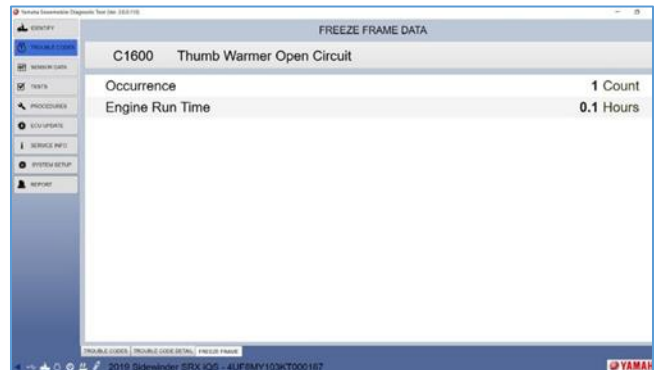
Under the “FREEZE FRAME” tab, you can view sensor data values of when the trouble code was activated. This displays data for all sensors applicable for the vehicle being serviced. Scroll through the list of sensors using the scrolling bars on the side and bottom of the screen.



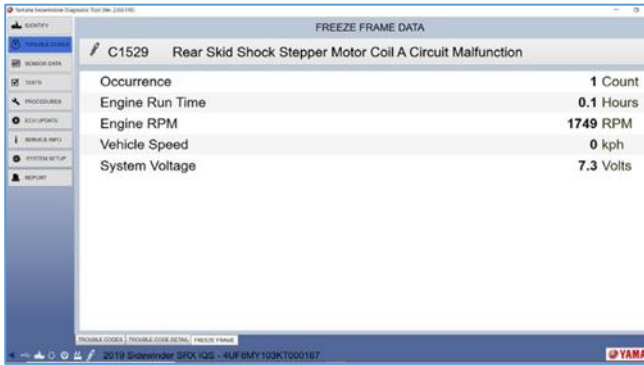
YSDTR

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

■ **NOTE:** iQS and Stealth Handlebar Controls capture less FFD Data.



C1600



iQS FFD

## 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

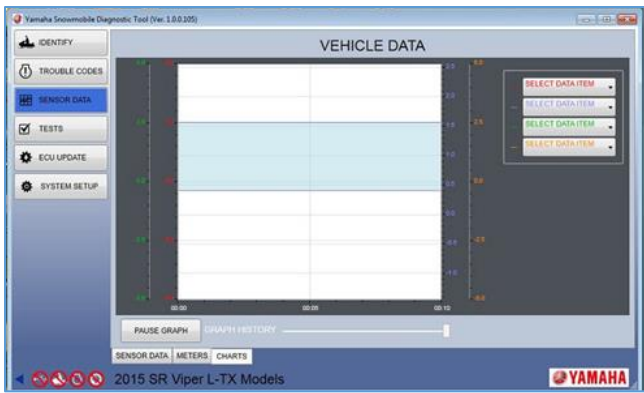
A sensor can be viewed graphically by clicking the **graph icon** (📊) located at the far-right position of a sensor’s row. This will open the “CHARTS” tab and allow for up to four sensors to be shown graphically by selecting them from the drop-down lists located on the right side of the screen.

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 is 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

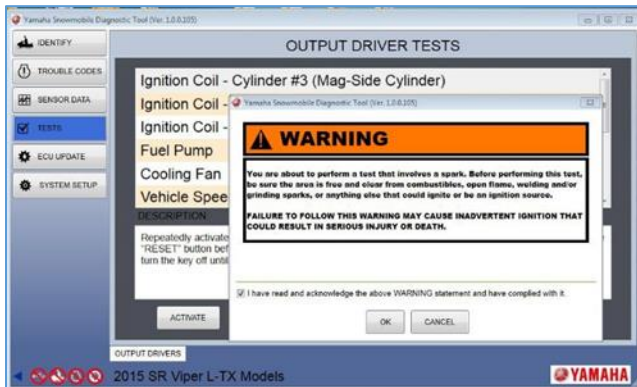
Sensor Name	Description	Output Value
ABV-VSV Status	Air Bypass Valve and Vacuum System Valve	Display the status in on/off. On is open, off is closed.
Active Profile	Suspension profile setting	Displays the current setting of the iQS suspension setting
Air Temperature Sensor	Value of Intake Air Temperature	Displays the value of the intake air temperature in °F or °C depending on units selected in user preferences.
Air Temperature Sensor Voltage	Voltage to ECM	Displays the voltage sent to the ECM of the Air Temperature Sensor.
Ambient Air Pressure	Ambient Air Pressure	Displays the value of the atmospheric pressure in in.-HG or mbar depending on units selected in user preferences.
Atmospheric/Ambient Air Pressure	Atmospheric/Ambient Air Pressure	Displays the value of the atmospheric pressure in in.-HG or mbar depending on units selected in user preferences.
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.
Coolant Temp Attention	Engine getting warm	Displays the status of the coolant temp attention message. "Good" will be displayed if the engine coolant temperature is within its operating range. "Warm" will be displayed if the engine is running above the normal operating range.
Coolant Temp Warning	Engine hot	Displays the status of the coolant temp warning message. "Good" will be displayed if the engine coolant temperature is within its operating range. "Hot" will be displayed if the engine is running above the warning coolant temperature range.
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.
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.
Degrees of TPS Open	Angle of Throttle Plate	Displays the amount of throttle valve opening in degrees.
Engine Break-In State	1st Level/2nd Level/Complete	Displays the engine break-in status. "1st Level" will be displayed during the initial break-in period. "2nd Level" will be displayed during the secondary break in period. "Good" will be displayed once both break-in periods have been completed.
Engine Direction	Forward/Reverse	Displays the direction the engine is spinning. "Forward" will be displayed to indicate forward direction of travel.
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.
Engine RPM	Revolutions Per Minute	Displays the current engine RPM determined by the signal sent to the ECM from the Crankshaft Position Sensor.
Engine Run Time	Overall Engine Operating Time	Displays the accrued time on the engine in hours.
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.
Exhaust Temperature Sensor	Temperature in Degrees	Displays the temperature of the exhaust temperature sensor in °F or °C depending on units selected in user preferences.
Exhaust Valve Position Voltage	Volts	Displays the exhaust valve position based on servo motor voltage.
Gauge Switch #1	Position of switch	Displays the current setting of the gauge switch
Gauge Switch #2	Position of switch	Displays the current setting of the gauge switch
Gear Position	Forward/Reverse	Displays the current direction of travel dependent on the gear position switch.
Hand Warmer Heater	Shown in % duty cycle	Displays the current percentage of the hand warmer
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.
Intake Manifold Air Pressure	Intake Manifold Air Pressure	Displays the value of the intake air pressure in -HG or mbar depending on units selected in user preferences.

Sensor Name	Description	Output Value
Intake Manifold Air Pressure Sensor Voltage	Voltage to ECM	Displays the voltage sent to the ECM of the Intake Manifold Air Pressure Sensor.
ISC	Idle Speed Control	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.
ISC Target Idle	RPM	Displays the target idle RPM specified by the ECM.
Knock Detection MAG Cylinder	Knock Detected on MAGside Cylinder	Displays the knock detection system for the MAG cylinder. "Good" will be displayed if no knock is detected. "Detected" will be displayed if knock has been detected on the MAG cylinder.
Knock Detection PTO Cylinder	Knock Detected on PTOside Cylinder	Displays the knock detection system for the PTO cylinder. "Good" will be displayed if no knock is detected. "Detected" will be displayed if knock has been detected on the PTO cylinder.
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.
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.
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 mbar 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.
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>
Regulated Voltage	Total Voltage Output from Regulator	Displays the output from the regulator to the ECM. This is displayed in volts.
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.
Reverse Denied	ECU denied request or was unsuccessful to switch into reverse	Displays the status of the reverse shift command. "Good" will be displayed if the request was successful. "Denied" will be displayed if the request was unsuccessful. If the request was denied one or more conditions of the request were outside the parameters of the function engine or vehicle speed may have been outside its parameters.
Reverse Switch	Position of switch	Displays the current setting of the reverse switch
Reverse Switch Position	On/Off	Displays the position of the reverse switch position located on the throttle control housing. "On" should be displayed when the button is depressed fully. "Off" should be displayed when the switch is not depressed.
RPM Limit	Rev Limiter Set Point	Displays the current RPM limit set point determined by inputs to the ECM.
RPMs Limited	Reached the RPM Limit	Displays the status of the RPM limiter. "Good" will be displayed if the RPM limiter is not activated. "Limited" will be displayed if the RPM limiter is active.
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.
RPS Position	Runaway Prevention Switch	Displays the position of the RPS switch on the throttle control housing. "On" should be displayed when the throttle is depressed. "Off" should be shown when the throttle is released.
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.
Target Intake Pressure	ECM determined target intake pressure	Displays the targeted intake air pressure determined by the ECM
Throttle Position Sensor	Volts	Displays the voltage of the throttle position sensor.
Thumb Warmer Heater	Shown in % duty cycle	Displays the current percentage of the thumb warmer
Turbocharger Boost Sensor	Sensor between turbo and throttle body	Displaying the boost pressure between the turbo and throttle body
Vehicle Speed	Miles/Kilometers Per Hour	Displays the track speed in MPH or KM/H depending on units selected in user preferences.
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>
WGV-VSV Duty Cycle	Waste Gate Valve and Vacuum System Valve	Displays the current duty cycle in a percentage

## Tests Screen

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

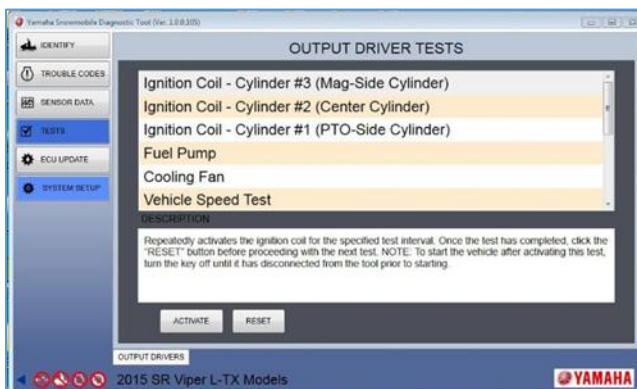
When the **TESTS** screen is opened for the first time of a session, there will be a warning message displayed. Read and understand the warning; then check “I have read and acknowledge the above WARNING statement and have complied with it” and click the “**OK**” button to continue. Otherwise click the “**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**” button to reset it. Click the “**DEACTIVATE**” button to deactivate the test. Click the “**RESET**” button to reset it.



5Y

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

# Output Drivers Tab — Four-Stroke Snowmobiles

## (see Appendix for two-Stroke Snowmobiles)

Test Name	Test Description	Test Instructions
Ignition Coil Cylinder #3 (MAGSide 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 (PTOSide 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.
Fuel Injector Cylinder #1 (PTOSide Cylinder)	Disables the selected injector while the engine is running.	If the vehicle is running on one cylinder by fault. The test can asset in determining which cylinder is firing. Once the test is completed, click the "RESET" button.
Fuel Injector Cylinder #2 (Center Cylinder)	Disables the selected injector while the engine is running.	If the vehicle is running on one cylinder by fault. The test can asset in determining which cylinder is firing. Once the test is completed, click the "RESET" button.
Fuel Injector Cylinder #3 (MAGSide Cylinder)	Disables the selected injector while the engine is running.	If the vehicle is running on one cylinder by fault. The test can asset in determining which cylinder is firing. Once the test is completed, click the "RESET" button.



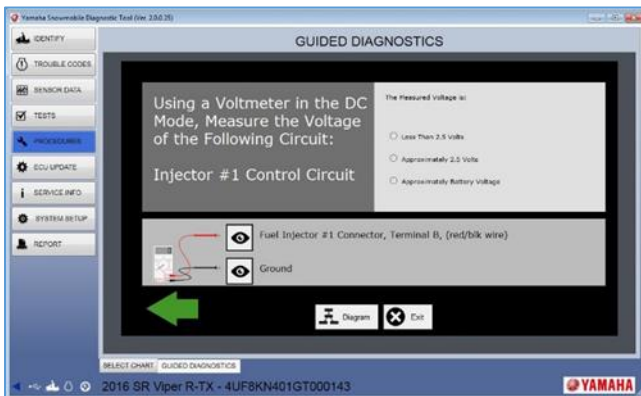
## Procedures Screen

When you open the **PROCEDURES** screen, the default tab is **"SELECT CHART"**. From this tab you can view the available procedures for the vehicle selected. To start the procedure, click on the code.



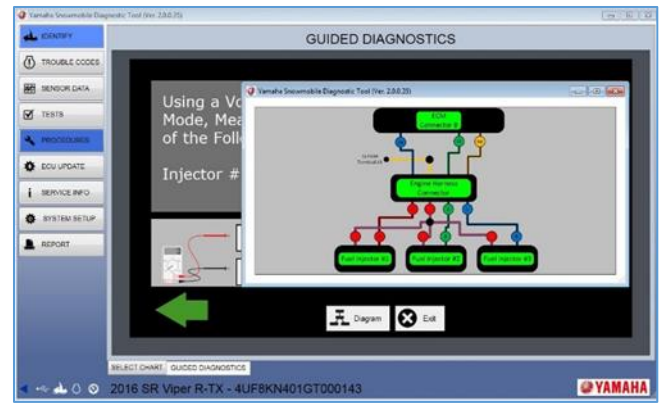
Procedures 1

Once you have opened a procedure, you will switch to the **"GUIDED DIAGNOSTICS"** tab and be taken through a number of tests to help determine the root cause of a diagnostic trouble code. These steps and tests must be followed exactly to ensure accurate test results.



Procedures 2

If there are images or wire diagrams available, you can click on the button in the lower portion of the screen.



Procedures 3

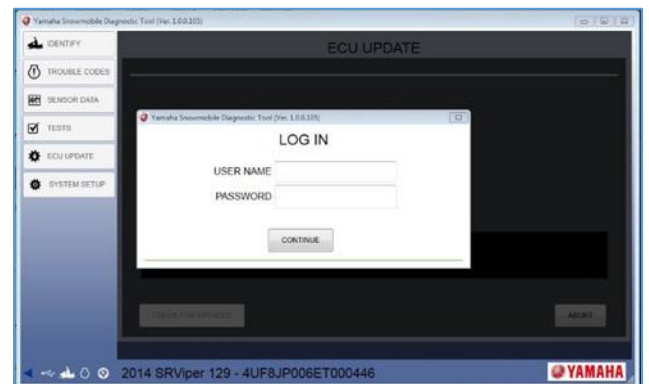
## ECU Update Screen

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 username and password; then click the **"CONTINUE"** button to log in and proceed with the download.



7Y

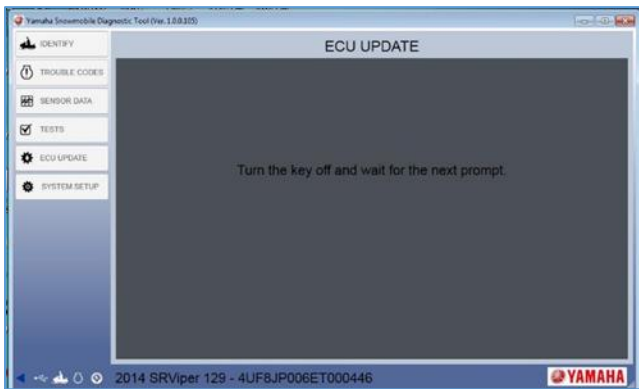
Before the ECU update can begin, the entire file will be downloaded to your computer prior to uploading to the ECU. The following warning message will appear. Read

and understand the warning message and perform any necessary tasks; then click the “OK” button to continue.



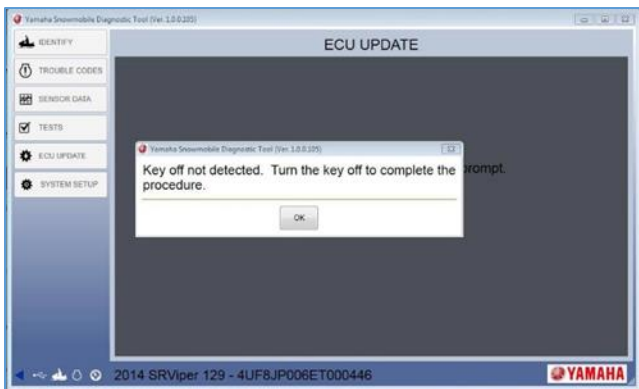
8Y

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



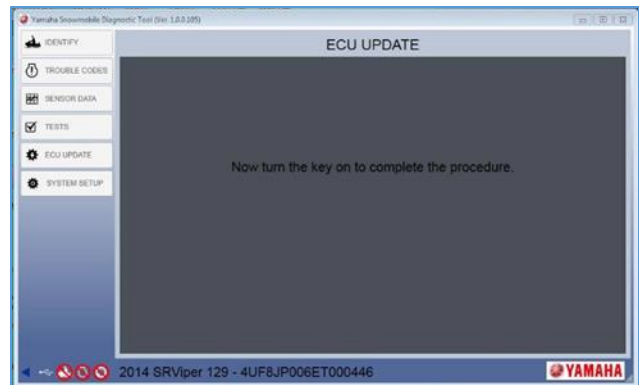
9Y

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



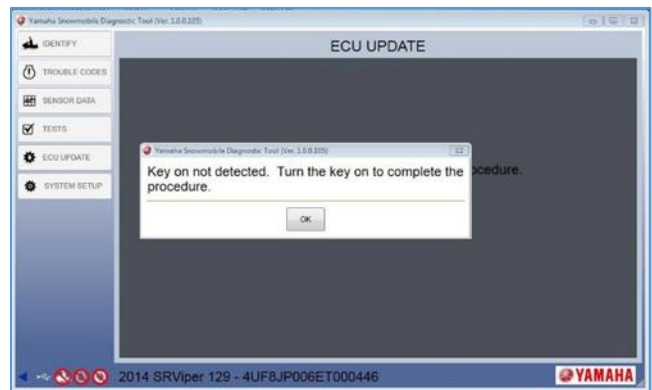
10Y

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



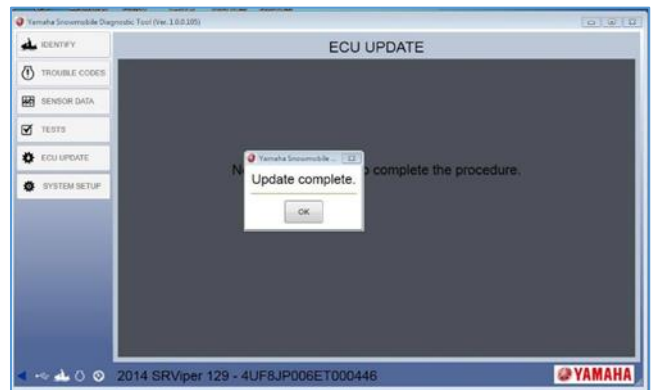
11Y

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



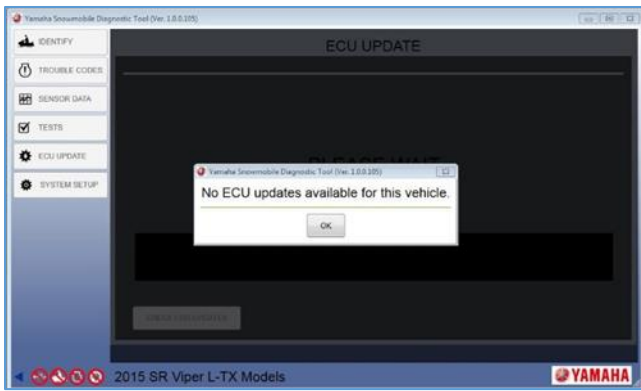
12Y

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.

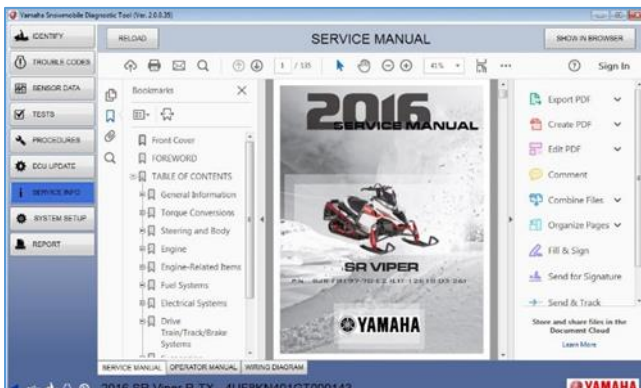


14Y

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

## Service Info Screen

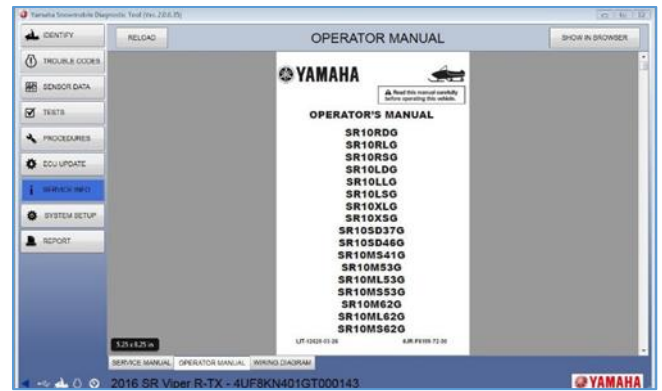
When you open the SERVICE INFO screen, the default tab is the “SERVICE MANUAL” tab. You can view the appropriate service manual for the vehicle that has been identified. Once the tab has been clicked on, the file will be downloaded and cached for future retrieval. This may take several minutes the first time the manual is downloaded.



Service Info 1

■ **NOTE:** This feature can be accessed with or without being connected to the vehicle. If not connected to the vehicle, identify the vehicle by manually entering the 17-character VIN and navigate to the appropriate screen.

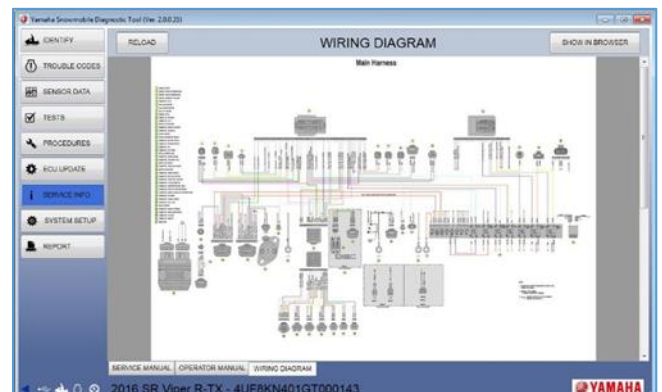
Under the “OPERATOR MANUAL” tab, you can view the appropriate operator manual for the vehicle that has been identified. Once the tab has been clicked on, the file will be downloaded and cached for future retrieval. This may take several minutes the first time the manual is downloaded.



Service Info 2

■ **NOTE:** This feature can be accessed with or without being connected to the vehicle. If not connected to the vehicle identify the vehicle by manually entering the 17-character VIN and navigate to the appropriate screen.

Under the “WIRING DIAGRAM” tab, you can view the appropriate wiring diagram for the vehicle that has been identified. Once the tab has been clicked on, the file will be downloaded and cached for future retrieval. This may take several minutes the first time the manual is downloaded.



Service Info 3

## 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.



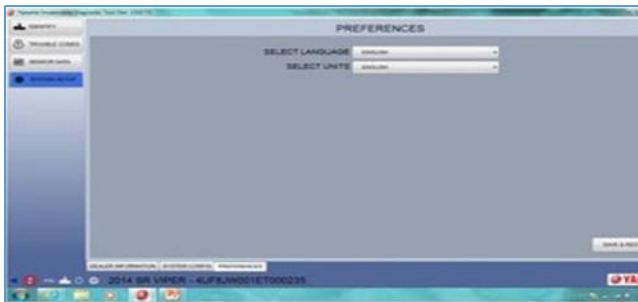
YSDTW

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



YSDTX

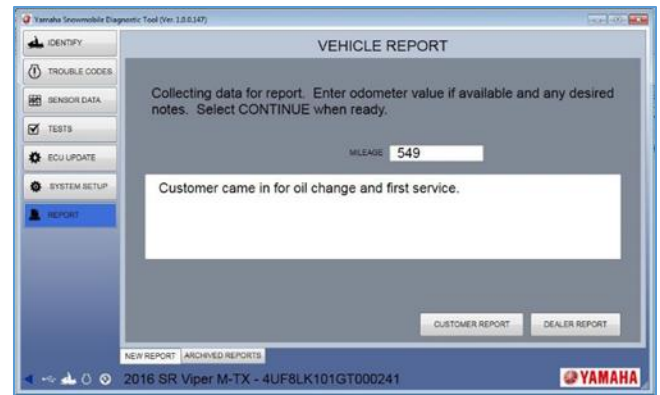
Under the “PREFERENCES” tab, the language and unit preferences can be viewed or edited. To edit, select your preferences from the drop-down lists and click the “SAVE & RESTART” button to save the changes. The Y.S.D.T. will close and restart with your new preferences.



YSDTY

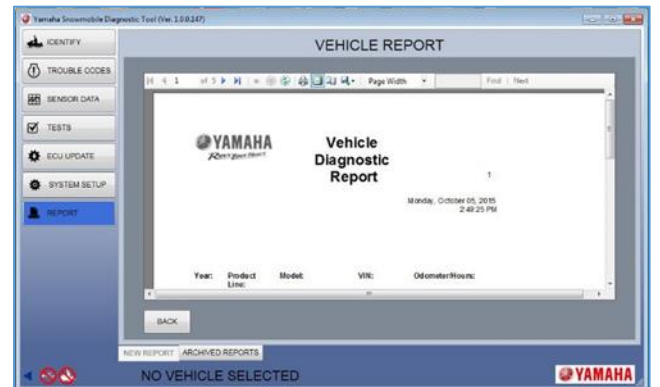
## Reports Screen

When you open the REPORTS screen and you are connected to a vehicle, the default tab is “NEW REPORT”. The software will then collect all information available from the vehicle’s ECUs in preparation of building the report. While the information is being collected you can enter the vehicle miles and any notes about the vehicle you would like attached to the report.



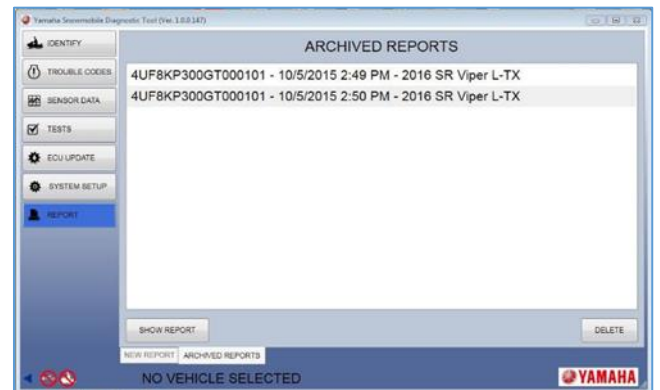
18Y

Once the data has been collected you can choose to create a **CUSTOMER REPORT** or a **DEALER REPORT**. The CUSTOMER REPORT will display the vehicle identification information, any notes made in the previous screen, any active or inactive trouble codes and the freeze frame information for those trouble codes. The DEALER REPORT will include all of the same information as the CUSTOMER REPORT along with current sensor data values for all sensors.



19Y

Once the report has been created a copy can be saved locally within the software by clicking the **ARCHIVE BUTTON**. These reports will be saved under the **ARCHIVED REPORTS** tab for viewing at a future time.



20Y

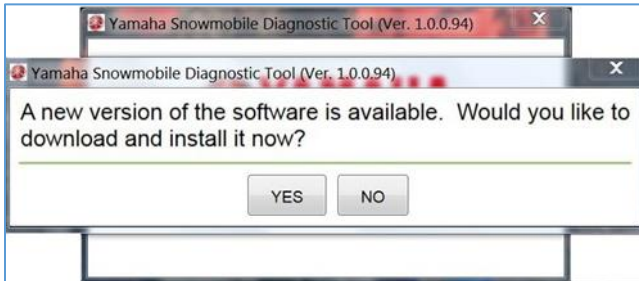
The report can also be saved to the PC in a location of the user's choice in PDF, Word or Excel format by clicking the Export Button.



21Y

## Updating the Software

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



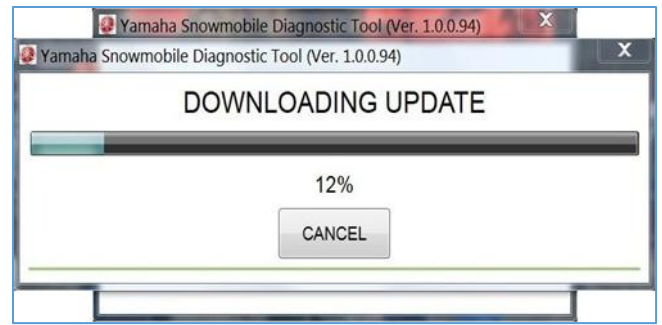
15Y

**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

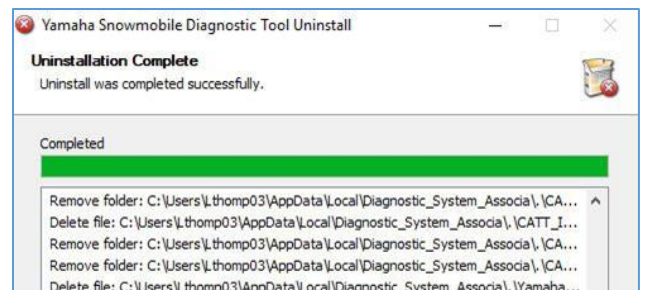
To begin the uninstall process, locate the Yamaha Snowmobile Diagnostic Tool folder using Windows Explorer or by opening "My Computer" and finding the file in the location you have saved it. Open the folder; then open the "Dealer Diagnostic System" folder. Double click the "UNINSTALL" application to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

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



YSDT1

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



## Appendix — Output Drive Tab — Two-Stroke Snowmobiles

Test Name	Test Description	Test Instructions
Fuel Injector - Cylinder 1 (MAG- Side Cylinder)	Deactivates the MAG-side injector with the engine running. If an engine is running on one cylinder this can aid in determining which cylinder is not running.	With the engine running, click the “ <b>DEACTIVATE</b> ” button. This will deactivate the cylinder until the “ <b>RESET</b> ” button is clicked or until the engine is shut off and the CATT II Tool is disconnected.
Fuel Injector - Cylinder 2 (PTO- Side Cylinder)	Deactivates the PTO-side injector with the engine running. If an engine is running on one cylinder this can aid in determining which cylinder is not running.	With the engine running, click the “ <b>DEACTIVATE</b> ” button. This will deactivate the cylinder until the “ <b>RESET</b> ” button is clicked or until the engine is shut off and the CATT II Tool is disconnected.
Oil Pump	Cycles the oil pump 5 times. The oil pump is a plunger style oil pump that will repeatedly activate/deactivate. Listen for an audible sound each time the pump is activated. <b>NOTE: The 2-pin external power connector needs to be plugged in to supply power to the oil pump.</b>	With the engine off and the 2-pin external power connector plugged in, click the “ <b>ACTIVATE</b> ” button and listen to hear the pump. Once the test has been completed click the “ <b>RESET</b> ” button.
Exhaust Servo	Verifies the position of the exhaust servo motor. Before controlling the position of the servo motor the ECM must learn the working range of the valve. This can be done by clicking “Cycle Servo Full Valve Range”. <b>NOTE: The 2-pin external power connector needs to be plugged in to supply power to the exhaust servo motor.</b>	With the engine off and the 2-pin external power connector plugged in, click the “ <b>Cycle Servo Full Valve Range</b> ” button to learn the range of the servo motor. Next click the “ <b>Set Valve to Fully Open</b> ” button; this will open the exhaust valves. Next click the “ <b>Set Valve to Full Closed</b> ” button, this will allow the valves to return to the closed position. Once the test has been completed click the “ <b>RESET</b> ” button. <b>NOTE: Before testing is started, verify the free length of the servo cables.</b>
Idle Speed Controller (ISC)	Verifies the functionality of the ISC stepper motor.	With the engine off and the 2-pin external power connector plugged in, click the “ <b>Cycle ISC Full Range</b> ” button to learn the range of the ISC. Next click the “ <b>Open Valve</b> ” button; this will open the ISC. Next click the “ <b>Close Valve</b> ” button, this will close the ISC. Once the test has been completed click the “ <b>RESET</b> ” button. When the ISC is moving listen for an audible noise to detect the movement. To view the target position of the ISC select the ISC on the gauge display.

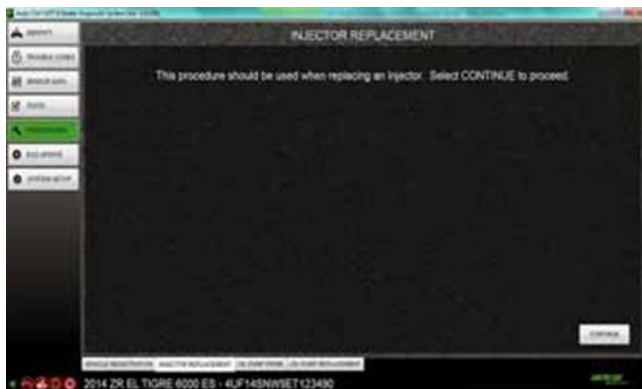
## 2-Stroke-Specific Procedures

### Injector Replacement Tab

#### CAUTION

If an injector needs to be replaced, the following procedure must be completed using <6'7 II or engine damage may occur.

When the "INJECTOR REPLACEMENT" tab is opened, the following screen will be displayed. To continue with an injector replacement, click "CONTINUE". If you accessed this screen inadvertently, click on the correct page or tab to exit.



CATTII-040

Click "MAG INJECTOR" or "PTO INJECTOR" depending on which injector is being replaced.

■ **NOTE:** If both injectors are being replaced, this procedure must be completed separately for each injector.



CATTII-041

Once the injector is selected, you will be prompted to enter the VIN of the vehicle being serviced and the injector tag descriptions for lines A and B as shown. Click "CONTINUE" to update the ECM's injector ID.



CATTII-042

Once the ECM injector ID update has been completed, the following screen will be displayed. To exit this procedure, click on another screen or tab.



CATTII-043

### Oil Pump Prime Tab

#### CAUTION

The oil pump prime procedure is used to evacuate air from the oil lines after an engine or oil pump service. Failure to perform this procedure may cause engine damage.

#### CAUTION

The engine should be run to operating temperature to remove any excessive oil from the engine. Failure to do so may cause spark plug fouling.

When the "OIL PUMP PRIME" tab is opened, the following screen will be displayed. To continue with an oil pump prime, click "CONTINUE". If you accessed this screen inadvertently, click on the correct page or tab to exit.



CATTII-044

Once you click the “**CONTINUE**” button, the following screen will be displayed. The oil pump will activate to evacuate air from its lines. If air still exists in the lines after the oil prime function has been completed, it may be necessary to prime the oil pump again. Click the “**RETRY**” button to activate the oil pump prime function.



CATTII-045

## Oil Pump Replacement Tab

### CAUTION

**If an oil pump needs to be replaced, the following procedure must be completed using <6'7 II or engine damage may occur.**

When the “**OIL PUMP REPLACEMENT**” tab is opened the following screen will be displayed. To continue with an oil pump replacement, click “**CONTINUE**”. If you accessed this screen inadvertently, click on the correct page or tab to exit.



CATTII-046

You will be prompted to enter the VIN of the vehicle being serviced and the oil pump tag descriptions for lines A and B as shown. Click “**CONTINUE**” to update the ECM’s oil pump ID.



CATTII-047

Once the ECM oil pump ID update has been completed, the following screen will be displayed. To exit this procedure, click on another screen or tab.



CATTII-048

■ **NOTE:** Once the oil pump replacement procedure has been completed, refer to the **Oil Pump Prime** procedure.