

Yanmar SmartAssist-Direct Version 2.x

ECU Programming Guide System Operation, Diagnostics, and Programming

SMARTASSIST-Direct		
SMARTASSIS Direct	Language :	Terminal Information / Job Edit English
INDUSTRIAL ENGINE		Exit
		YANMAR DIAGNOSTIC TOOL
The Toro Company 8111 Lyndale Ave South Bloomington, MN 55068 U.S.A.		[©] 2016 The Toro Company All Rights Reserved Printed in the U.S.A.

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Introduction

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This user's guide is intended to provide ECU programming instruction using Yanmar's SmartAssist-Direct software (Version 2). This software is intended to assist with troubleshooting electrical issues and updating ECU software on Yanmar TNV Tier 4 engines.

This user's guide is designed to help you know when and why you need to make repairs. It will highlight particular problems that you may encounter and any special procedures that you may need to follow.

The information contained in this guide is supplementary and is not intended to be a replacement for other source material. To ensure information is current, relevant, and accurate, always refer to the latest product/serial number-specific service manuals, service bulletins, operator's manual, and parts books when necessary.



Engine Fault Codes

A list of SPN/FMI to "P" codes is provided in Table 1. They are sorted by SPN, then FMI, and the third column is the "P" code that Yanmar uses in their manuals.

Table 1

SPN	FMI	Code	Description	
28	0	P1126	Accelerator sensor 3 failure (Foot pedal in open position)	
28	1	P1125	Accelerator sensor 3 failure (Foot pedal in closed position)	
28	3	P0223	Accelerator sensor 2 (Excessive sensor output)	
28	4	P0222	Accelerator sensor 2 (Insufficient sensor output)	
29	3	P0228	Accelerator sensor 3 (Excessive sensor output)	
29	4	P0227	Accelerator sensor 3 (Insufficient sensor output)	
29	8	P1227	Pulse sensor failure (Pulse communication)	
51	3	P02E9	Intake throttle opening sensor fault (High voltage)	
51	4	P02E8	Intake throttle opening sensor fault (Low voltage)	
91	3	P0123	Accelerator sensor 1 (Excessive sensor output)	
91	4	P0122	Accelerator sensor 1 (Insufficient sensor output)	
100	1	P1198	Low oil pressure fault alarm	
100	4	P1192	Oil pressure switch open circuit	
102	3	P0238	EGR low pressure side sensor fault (High voltage)	
102	4	P0237	EGR low pressure side sensor fault (Low voltage)	
102	13	P0236	EGR low pressure side sensor (Abnormal learning value)	
105	3	P040D	Intake manifold temperature sensor fault (High voltage)	
105	4	P040C	Intake manifold temperature sensor fault (Low voltage)	
108	3	P2229	Atmospheric pressure sensor fault (High voltage)	
108	4	P2228	Atmospheric pressure sensor fault (Low voltage)	
108	10	P1231	Atmospheric pressure sensor characteristic fault	
110	0	P0217	Cooling water temperature sensor temperature abnormal high (Overheat)	
110	3	P0118	Cooling water temperature sensor fault (High voltage)	
110	4	P0117	Cooling water temperature sensor fault (Low voltage)	
157	0	P0088	Actual rail pressure rise error	
157	3	P0193	Rail pressure sensor fault (High voltage)	
157	4	P0192	Rail pressure sensor fault (Low voltage)	
157	15	P0093	Rail pressure deviation error during the actual rail pressure rise	
157	16	P000F	PLV open valve	
157	18	P0094	Rail pressure deviation error during the actual rail pressure drop	
167	1	P1568	Charge alarm	
167	5	P1562	Charge switch open circuit	

SPN	FMI	Code	Description	
172	3	P0113	New air temperature sensor fault (High voltage)	
172	4	P0112	New air temperature sensor fault (Low voltage)	
173	3	P0546	Exhaust manifold temperature sensor fault (High voltage)	
173	4	P0545	Exhaust manifold temperature sensor fault (Low voltage)	
174	0	P0168	Fuel temperature sensor temperature abnormal high	
174	3	P0183	Fuel temperature sensor fault (High voltage)	
174	4	P0182	Fuel temperature sensor fault (Low voltage)	
190	0	P0219	Overspeed	
237	13	U3002	VI (CAN message) reception data fault	
237	31	U0168	VI (CAN message) reception time out	
412	0	P1490	EGR gas high temperature alarm	
412	3	P041D	EGR gas temperature sensor fault (High voltage)	
412	4	P041C	EGR gas temperature sensor fault (Low voltage)	
630	12	P0601	EEPROM memory deletion error	
633	3	P0629	High-pressure pump drive circuit (High side VB short-circuit)	
633	5	P0627	High-pressure pump drive circuit (Open circuit)	
633	6	P1642	High-pressure pump drive circuit (High side GND short-circuit)	
651	3	P1271	Injector of 4th cylinder short circuit	
651	5	P0204	Injector of 4th cylinder open circuit (Inherent location of the injector)	
651	6	P0271	Injector of 4th cylinder coil short circuit	
652	3	P1268	Injector of 3rd cylinder short circuit	
652	5	P0203	Injector of 3rd cylinder open circuit (Inherent location of the injector)	
652	6	P0268	Injector of 3rd cylinder coil short circuit	
653	3	P1265	Injector of 2nd cylinder short circuit	
653	5	P0202	Injector of 2nd cylinder open circuit (Inherent location of the injector)	
653	6	P0265	Injector of 2nd cylinder coil short circuit	
654	3	P1262	Injector of 1st cylinder short circuit	
654	5	P0201	Injector of 1st cylinder open circuit (Inherent location of the injector)	
654	6	P0262	Injector of 1st cylinder coil short circuit	
1202	2	U0426	Immobilizer : System fault	
1209	3	P0473	EGR high pressure side sensor fault (High voltage)	
1209	4	P0472	EGR high pressure side sensor fault (Low voltage)	
1209	13	P0471	EGR high pressure side sensor (Abnormal learning value)	
1485	2	P068A	Main relay early opening	
1485	7	P068B	Main relay contact stuck	
2791	0	P0404	EGR over-voltage fault	
2791	1	P1404	EGR under-voltage fault	
2791	7	P1409	EGR feedback malfunction	
2791	9	U0401	EGR ECM data fault	

SPN	FMI	Code	Description	
2791	12	P0403	Open circuit between the EGR motor coils	
2797	6	P1146	Injector drive circuit (Bank1) short circuit	
2798	6	P1149	Injector drive circuit (Bank2) short circuit	
2950	3	P1658	Power short circuit of throttle valve drive H bridge output 1	
2950	4	P1659	GND short circuit of throttle valve drive H bridge output 1	
2950	5	P0660	No-load of throttle valve drive H bridge circuit	
2950	6	P1660	Overload on the drive H bridge circuit of throttle valve	
2951	3	P1661	VB Power short circuit of throttle valve drive H bridge output 2	
2951	4	P1662	GND short circuit of throttle valve drive H bridge output 2	
3242	0	P1436	DPF inlet temperature sensor temperature abnormal high	
3242	3	P1428	DPF inlet temperature sensor fault (High voltage)	
3242	4	P1427	DPF inlet temperature sensor fault (Low voltage)	
3250	0	P1426	DPF intermediate temperature sensor temperature abnormal high	
3250	1	P0420	DPF intermediate temperature sensor temperature abnormal low temperature	
3250	3	P1434	DPF intermediate temperature sensor fault (High voltage)	
3250	4	P1435	DPF intermediate temperature sensor fault (Low voltage)	
3251	0	P2452	DPF differential pressure sensor differential pressure abnormal high	
3251	3	P2455	DPF differential pressure sensor fault (High voltage)	
3251	4	P2454	DPF differential pressure sensor fault (Low voltage)	
3251	13	P2453	DPF differential pressure sensor (Abnormal learning value)	
3609	3	P1455	DPF high pressure side sensor fault (High voltage)	
3609	4	P1454	DPF high pressure side sensor fault (Low voltage)	
3695	14	P1425	Reset regeneration prohibition	
3719	0	P1424	Backup mode	
3719	7	P1446	Recovery regeneration prohibition	
3719	9	P1445	Recovery regeneration failure	
3719	16	P1421	Stationary regeneration standby	
3720	0	P1420	Ash cleaning request 2	
3720	16	P242F	Ash cleaning request 1	
4257	12	P0611	Injector drive IC error	
522243	5	P0543	Startup assist relay interrupted	
522243	6	P0541	Startup assist relay GND interrupted	
522323	0	P1101	Air cleaner clogged alarm	
522329	0	P1151	Oil/water separator alarm	
522400	2	P0336	Crank signal malfunction	
522400	5	P0337	No crank signal	
522401	2	P0341	Cam signal malfunction	
522401	5	P0342	No cam signal	

SPN	FMI	Code	Description
522401	7	P1341	Angle offset failure
522571	3	P1641	High-pressure pump drive circuit (Low side VB short-circuit)
522571	6	P1643	High-pressure pump drive circuit (Low side GND short-circuit)
522572	6	P062A	High-pressure pump drive circuit (Drive current (high level))
522572	11	P1645	High-pressure pump drive circuit (Pump overload error)
522573	0	P2463	Overaccumulation (Method C)
522574	0	P1463	Overaccumulation (Method P)
522575	7	P2458	Regeneration defect (Stationary regeneration failure)
522576	12	P160E	EEPROM memory read error
522577	11	P2459	Regeneration defect (Stationary regeneration not performed)
522578	12	P160F	EEPROM memory writing error
522579	12	P1405	Short circuit between the EGR motor coils
522580	12	P0488	EGR position sensor malfunction
522581	7	P148A	EGR stuck open valve malfunction
522582	7	P049D	EGR initialization malfunction
522583	1	P1410	EGR high temperature thermistor malfunction
522584	1	P1411	EGR low temperature thermistor malfunction
522585	12	P1613	CY146 SPI communication fault
522588	12	P1608	Excessive voltage of supply 1
522589	12	P1617	Insufficient voltage of supply 1
522590	12	P1609	Sensor supply voltage error 1
522591	12	P1618	Sensor supply voltage error 2
522592	12	P1619	Sensor supply voltage error 3
522596	9	U0292	TSC1 (CAN message) reception time out (SA1)
522597	9	U1301	TSC1 (CAN message) reception time out (SA2)
522599	9	U1292	Y_ECR1 (CAN message) reception time out
522600	9	U1293	Y_EC (CAN message) reception time out
522601	9	U1294	Y_RSS (CAN message) reception time out
522603	9	U1296	VH (CAN message) reception time out
522605	9	U1298	Y_ECM3 (CAN message) reception time out
522609	9	U1300	Y_ETCP1 (CAN message) reception time out
522610	9	U010B	CAN1 (for EGR): Reception time out
522611	9	U1107	Exhaust throttle (CAN message from the exhaust throttle time out)
522617	12	U1401	EGR target value out of range
522618	9	U1302	EBC1 (CAN message) reception time out
522619	9	U1303	Y_DPFIF (CAN message) reception time out
522623	7	P1647	Dual accelerator sensor (open position) failure
522624	7	P1646	Dual accelerator sensor (closed position) failure
522730	12	U0167	Immobilizer : CAN Communication fault



SPN	FMI	Code	Description	
522744	4	P1626	Actuator drive circuit 1 short to ground	
522746	12	P1438	Exhaust throttle (Voltage fault)	
522747	12	P1439	Exhaust throttle (Motor fault)	
522748	12	P1440	Exhaust throttle (Sensor system fault)	
522749	12	P1441	Exhaust throttle (MPU fault)	
522750	12	P1442	Exhaust throttle (PCB fault)	
522751	19	P1443	Exhaust throttle (CAN fault)	
522994	4	P1633	Actuator drive circuit 2 short to ground	
523249	5	P0008	No signal on both crank and cam speed sensor	
523460	7	P1670	Rail pressure fault (Operation time error during RPS limp home)	
523462	13	P1648	IQA corrected injection amount for injector of 1st cylinder error	
523463	13	P1649	IQA corrected injection amount for injector of 2nd cylinder error	
523464	13	P1650	IQA corrected injection amount for injector of 3rd cylinder error	
523465	13	P1651	IQA corrected injection amount for injector of 4th cylinder error	
523468	9	P1665	Rail pressure fault (Controlled rail pressure error after PLV valve opening)	
523469	0	P1666	Rail pressure fault (The times of PLV valve opening error)	
523470	0	P1667	Rail pressure fault (The time of PLV valve opening error)	
523471	6	P1467	Actuator drive circuit 3 short to ground	
523473	12	P1469	AD converter fault 1	
523474	12	P1470	AD converter fault 2	
523475	12	P1471	External monitoring IC and CPU fault 1	
523476	12	P1472	External monitoring IC and CPU fault 2	
523477	12	P1473	ROM fault	
523478	12	P1474	Shutoff path fault 1	
523479	12	P1475	Shutoff path fault 2	
523480	12	P1476	Shutoff path fault 3	
523481	12	P1477	Shutoff path fault 4	
523482	12	P1478	Shutoff path fault 5	
523483	12	P1479	Shutoff path fault 6	
523484	12	P1480	Shutoff path fault 7	
523485	12	P1481	Shutoff path fault 8	
523486	12	P1482	Shutoff path fault 9	
523487	12	P1483	Shutoff path fault 10	
523488	0	P1484	Recognition error of engine speed	
523489	0	P1668	Rail pressure fault (The actual rail pressure is too high during PRV limp home)	
523491	0	P1669	Rail pressure fault (Injector B/F temperature error during PLV4 limp home)	

"P" Codes





FMI (Failure Mode Indicator) Descriptions

The FMI code is used to provide more information about a fault. It represents the detection method, not the actual cause of how the component failed.

FMI	Content
0	The data is valid, but exceeds the normal operation range. (Upper limit exceeded)
1	The data is valid, but does not reach the normal operation range. (Lower limit exceeded)
2	The data is unstable, intermittent, and inappropriate. (Intermittent fault)
3	The voltage exceeds the normal operation range or short-circuited on the high-voltage side. (Signal fault upper limit)
4	The voltage does not reach the normal operation range or short-circuited on the low-voltage side. (Signal fault lower limit)
5	The current does not reach the normal operation or the circuit is open. (Electric current fault low)
6	The current does exceeds the normal operation or the circuit is grounded. (Electric current fault high)
7	The machine system is not reacting or misaligned. (Machine system fault)
8	The rotational speed or pulse width/cycle is faulty. (Rotational speed, pulse width fault)
9	The update ratio is faulty. (Smart sensor and actuator fault)
10	The rate of change is faulty. (Rate of change fault)
11	The error code is unknown. (Incorrect sub-system error code)
12	There is a problem in the intelligent device/component. (Intelligent device problem)
13	Unable to calibrate. (Calibration disabled)
14	This is a special command. (Special command)
15	Normal. (Normal)

Regeneration

The YANMAR DPF system has five modes of regeneration:

• Normal (Self) Regeneration

Self regeneration occurs when the engine is operated at high speed and higher loads. As the exhaust temperatures rise, the particulate matter (PM) is continuously combusted and burned. There is no use of the intake throttle valve and no post injection used during self regeneration.

Assist Regeneration

Once the ECU measures soot levels >8g/L, an assist regeneration will be commanded. Assist regeneration uses the intake throttle to limit the amount of fresh air into the engine. This increases the exhaust temperature to allow for the PM to be burned off. Assist regeneration will run for a set time or until PM levels fall below the threshold. If PM is not reduced after 10 minutes, a reset regeneration will be commanded.

Reset Regeneration

Reset regeneration is commanded by the engine ECU every 100 engine hours, and as needed if the assist regeneration cannot lower the PM amount in a prescribed time. Reset regeneration uses a combination of the intake throttle valve and a post fuel injection event to raise the temperature within the exhaust to burn the PM.

Stationary Regeneration

Stationary regeneration is a back-up system in the event that the other regeneration methods above cannot sufficiently burn off the PM. The machine must be taken out of service to perform stationary regeneration. Stationary regeneration uses the intake throttle valve and post injection to raise the temperature in the exhaust to burn off PM. During stationary regeneration, the ECU will increase the engine speed to 2000 or 2200 RPM.

Recovery Regeneration

If a stationary regeneration fails to sufficiently burn off the PM and the soot levels are still too high, or the operator fails to perform a stationary regeneration within 8 hours of being alerted by the InfoCenter, the engine enters limp home or back-up mode, and the engine RPM derates. There will be two fault codes that **cannot** be cleared: P1424 Backup Mode and P1463 Overaccumulation (Method P).

Recovery regeneration is an extended stationary regeneration and is one of the methods that will return the engine to normal operation from back-up mode. Recovery regeneration is available on engines starting in 2015. The effective engine serial range is shown in Table 2. Earlier serial number engine ECUs can be reprogrammed to add the recovery regeneration mode. Reprogramming the engine ECU is outlined in this guide.



Serial Number for Updated Recovery Software

Table 2 lists the beginning engine s/n of engines that were programmed with updated software to provide an optional recovery regeneration mode that can be activated through the InfoCenter. This will allow a last chance regeneration when they fail to do a stationary regeneration. This can be done without connecting the Yanmar SmartAssist tool.

Table 2					
Engine Model	Starting E/N				
3TNV88C-DTR	02426				
3TNV88C-DTR2	02254				
3TNV88C-DTR3	02248				
3TNV88C-DTR4	04098				
3TNV86CT-DTR	00391				
4TNV86CT-DTR	03789				
4TNV98CT-NTRL	16420				

Regeneration Reject Codes

If a reset, stationary, or recovery regeneration is commanded by the ECU and the regeneration fails, a reason code is stored in the engine ECU. The reason codes for a regeneration being aborted are provided in Table 3.

Table 3

	Reason Codes for Regeneration Abort
1	Increase PM
2	Timeout (Cant Decrease PM)
3	Unexecution for a long time
4	DPF Temperature too Low
5	Requirement of Stationary Regeneration by Operator
6	PM High (>10g/l)
7	PM too High (>12g/l)
8	Interlock Open
9	Inhibit Switch Open
10	Accelerator Operation in Stationary or Recovery Regeneration
11	Key Switch Off
12	DPF Regeneration Prohibition by Failsafe Action

Click Historical Data and then clicking Lifetime Data to view the regeneration history for the engine.

File(F) View(V To	iol(T) Help(H)	-
65-		
	Diagnostic Data (Display)	
MenuToolBar	👻 4 🗙 Historical Data - Lifetime Data	
ECU Information		
 Summar Information 	Clear Description	Value Unit
The and more	Total CU Run Time	969.60
Diagnostic Codes	Tota Engine Hours	964.95
A A P OTC	Ergine Warning Total Run Hours	1.65
Active DTC	Ingine Warning Trip Run Hours	1.65
Logged DTC	Number Of Engine Run Times	1202
110000 12 10000 1200	Interval Of Engine Oil Exchange	964.90
DTC information List	Interval Of Oil Filter Exchange	964.90
En aza Erama Data	Interval Of Fuel Filter Exchange	964.90
P Theze Halle Data	SF Used Time	23.70
Dagnostio Teste	Number Of DOC Assist Regeneration	17
D agriostic rests	Number Of DOC Reset Regeneration	11
A lata Landing	Number Of DOC Reset Regeneration Abort	0
	Reason For DOC Reset Regeneration Abort	0
A Historical Data	Number Of DOC Stationary Regeneration	6
	Number Of DOC Stationary Regeneration Abort	4
 Lifetime Data 	Reason For DOC Stationary Regeneration Abort	7
Net of the second second	Number Of DOC Recovery Regeneration	0
 Map Table 	Number Of DOC Recovery Regeneration Abort	0
Log Data	Reason For DOC Recovery Regeneration Abort	0
	Total Time For DOC Regeneration	8.50
ECU Structures	Number Of SF Assist Regeneration	2
	Number Of SF Reset Regeneration	1
System Settings	Number Of SF Reset Regeneration Abort	0
	Reason For SF Reset Regeneration Abort	0
	Number Of SF Stationary Regeneration	1
	Number Of SF Stationary Regeneration Abort	1
	Reason For SF Stationary Regeneration Abort	7
	Number Of SF Recovery Regeneration	0
	Number Of SF Recovery Regeneration Abort	0
	Reason For SF Recovery Regeneration Abort	0
	Total Time For SF Regeneration	1.00
	Averaged Engine Speed In 100 Minutes	2293
	Averaged Engine Load Rate In 100 Minutes	52.0
	Averaged Engine Speed In 100 Minutes With Conditions	0
	Averaged Engine Load Rate In 100 Minutes With Conditions	0.0
	Consumed Fuel Mass	5355

The reason code for a regeneration being aborted is shown in the **Value** column. In this case, the code is "7", which corresponds to "PM too High (>12g/I)" in Table 3.



Yanmar ECU Updating/Reprogramming Instructions

Yanmar ECU software can be updated using Yanmar SmartAssist diagnostic software. Updating the software maybe needed to correct software issues, or add additional features like the recovery regeneration mode.

NOTE: The engine ECU software must FIRST be downloaded from the Yanmar site—you do not need to be connected to the machine for this process. You will need:

- 1. An Internet connection
- 2. Engine information from the engine ECU decal:
 - a. Engine model number -
 - b. 5-Digit E/N number -



Reprogramming the engine ECU is a three-step process:

- The Engine ECU software must be checked out from the Yanmar server before it can be uploaded to the engine ECU. It is model and engine serial number dependent, meaning you need the engine model and E/N to check out the software. Checking out the software from Yanmar ensures that you are getting the very latest software. This process requires an Internet connection to your computer.
- Uploading the new software to the engine ECU: An Internet connection is not required for this process. Yanmar SmartAssist is connected to the engine ECU and the software is updated. Programs running the background can cause Yanmar SmartAssist to stop working. If the reprogramming process is interrupted, the engine ECU will fail the to be programmed and will no longer work.
- 3. After successfully reprogramming the engine ECU. The ECU software must be checked back in to the Yanmar server. An Internet connection is needed for this operation. There are two ways to return the software:
 - a. The next time you start the SmartAssist program and are connected to the Internet, the ECU file is automatically returned to the Yanmar server.
 - b. After programming, you can manually send back the file, with an Internet connection.



Returning Software to the Yanmar Server

Step 1.

Double-click the SmartAssist icon to start the program. Enter your User ID (if required) and password and then click **Login**.

NOTE: An Internet connection is required.

SMARTASSIST Login version 2.10.0
Serial No 00001237
Password
Login Exit
version 2.10.0.0
SA-Dircei





Retrieving Engine Software from the Yanmar Server and Downloading to your Computer

		File(F) View(V) Iool(I) Help(H)
Step	3.	🔊 Main Menu 🖻 🖶 📼
		MenuToolBar * ×
1	At the Main Menu , click Data Management in the menu	ECU Access
	on the left side.	Data Management
2	Click ECU Soft Download from the Data Management	Diagnostic Data (Display)
	drop-down menu.	Product Operation Data (Display)
		ECU Soft Download
		Trim Data Download
		Manual Search
		Saved Data
		Exchange Information Management
		Database Access
		Advanced Settings/Additional Settings
		Job Assistant

Step 4.

On the ECU Soft Download window, click Software Update (Onboard Reprogramming).

🎲 ECU Soft Download
Please choose a part to change.
ECU Exchange (Onboard Reprogramming)
ECU Exchange (Off board Reprogramming)
Software Update (Onboard Reprogramming)
Cancel
Software for reprogramming the machine's ECU while it is installed in the machine



Step 6.

1. Enter the Engine Model No and Five-Digit Serial No (E/N Number) from the engine ECU label into the boxes shown below.

Note: All letters are capitalized and the Serial No on the form is the E/N number from the ECU label.







Download Time

00:00:02

Cancel

Step 8.

When the ECU software has finished downloading to your computer, a "Software download is complete." message is displayed.

Click **OK** to continue. -

1	 ECU Soft 1. Click 2. Click The ir 3. Input 4. Click 	Download (Details) the DL check box. the "ECU Serial No" co put dialog box opens. the hardware serial num "Send".	lumn. ber of your service ECU.				
	L	icense Serial No : 000	001237				
		User ID : 9S	202273 🇊 SMARTASSIST-D	irect			
		Field : IND	USTRIAL 🕋 Softwa	re download is com	plete.		
	F	Product Category : Eng	gine				
	Write Mode : Software Up Model : 4TNV86CT-5TK						
	_	Serial No : 044	184				
	DL \	Controller Name	Parts Name	Service ECU	ECU Serial No.	Notes	
		ENGINE	ECUASSY,4-86CT-DTR		150806Q3029	Details	
	Prev Send Cancel						

Step 9.

After clicking **OK** in Step 8, you will be returned to the **Main Menu**.

SMARTASSIST-Direct
File(F) View(V) Tool(T) Help(H)
🔊 Main Menu 🖻 🗣 🖻
MenuToolBar * ×
ECU Access
Data Management
Diagnostic Data (Display)
Product Operation Data (Display)
ECU Soft Download
Trim Data Download
Manual Search
Saved Data
Exchange Information Management
Database Access
Advanced Settings/Additional Settings
Job Assistant

NOTE: An Internet connection is not required for remaining steps.



Updating ECU Software

Important Information! Read Before Continuing.

- 1. Connect the Yanmar diagnostic cable to the machine and to your computer
- 2. Reprogramming takes approximately 20 to 30 minutes to complete. Make sure your computer has enough battery power or is plugged in.
- 3. Make sure no other software is running on your computer while ECU software is updating.
- 4. An Internet connection is NOT required to update ECU software.

NOTE: During reprogramming, if the diagnostic cable becomes unplugged or your computer loses power, SmartAssist will abort the programming. SmartAssist will no longer respond, the engine ECU will not work, and the machine will not start.

In the event that this happens, <u>Stay Calm!</u> Go to the Recovering Aborted ECU Programming Event section on page 41 in this manual for specific instructions on how to recover.

Continuing on to updating the software in the ECU:

SMARTASSIST-Direct			
File(F) View(V) Tool(T) Help(H)			
🔊 Main Menu 🗇 🗣 🖻			
MenuToolBar •×			
ECU Access			
Diagnostics (Execution)			
Product Operation Data (Acquisition)			
ECU Reprogramming (Flash)			
Set Value Copy			
Component Replacement (Execution)			
Data Management			
Database Access			
Advanced Settings/Additional Settings			
Job Assistant			

Step 11.	🎲 Reprogram Writing Mode Selection
1. Click Update on the Reprogramming Writing Mode Selection window.	Please select a method of writing. First Time ECU Programming
	Update
	Cancel
	Update of the controller.

ĺ	Reprogram Writing File Selection				
Step 12.	Please select the writing object.				
1. Click on the line with the model	Target All Target	- Model All Model	•		
number and the line will be shaded	Model ECU Serial No.	Serial No ECU Type	Date 2016-12-22		
green.	Prev	Next Cancel	2010-12-22		
	🌾 Reprogram Writing File Selection				
	Please select the writing object.				
	Target All Target	- Model All Model	•		
2. When the line is shaded green, the	Model ECU Serial No.	Serial No ECU Type	Date		

2. When the line is shaded green, the **Next** button becomes active. Click **Next**.





Step 13.

1. If the model and serial numbers are Reprogram Writing File S - • × correct, click OK. Please select the writing object. Taraat All Taraat Madal All Madal Are you sure you want to write in this content? Date Model : 4TNV86CT-DTR 4TNV 2016-12-22 SerialNo : 04484 ECU Type ECU Serial No.: 150806Q3029 Prev OK Cancel Prev Next Cancel 1 Reprogram Writing File Selection Please select the writing object.

Note: Verify that the Ignition key is in the ON position.

Note: Once you click **OK**, SmartAssist will start updating the ECU software.

2. Click OK. ---



- ▲ Note: Programming will take approximately 20 minutes—be patient.
- ▲ Note: Power must not be interrupted to machine or computer while programming!
- ▲ Note: This version of SA-D 2.x is much more robust and other programs in the background should not interfere with programming.

Step 14.

1. This progress meter will start to display that the ECU is being updated.

🕸 Writing
processing [L_PAR_B]
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2. After a few seconds, the "Please wait..." message will appear letting you know that SmartAssist is connecting with ECU. It will disappear in a 5 to 10 seconds.



3. Programming will continue and status will be displayed on a progress bar.

Writing

Processing [C_ESN] ...

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Corporation



The engine ECU software update is now complete.







Return Software to the Yanmar Server

After a successful ECU programming, the software is still checked out and resident on your computer and needs to be returned back to the Yanmar Server. To return the software, you will need to have an Internet connection.

There are two ways to return the software back to Yanmar Server:

1. Once you are back to the **Start** menu, click **Industrial Engine**, and then click **Engine**.



2. A "Please wait..." message appears to let you know that the software is being sent back. Note: This window is displayed only for a short time then it disappears.



NOTE: If the "Please wait..." message does not appear, then you will need to manually return the software as explained in the following steps.



Yanmar Tier 4

The file can be returned manually to the Yanmar server:	ℑ SMARTASSIST-Direct		
	File(F) View(V) Tool(T) Help(H)		
	🔊 Main Menu 🖪 🖢 📼		
	MenuToolBar •×		
1. Click Data Management.	ECU Access		
	Data Management		
2 Click Exchange Information Management	Diagnostic Data (Display)		
	Product Operation Data (Display)		
	ECU Soft Download		
	Trim Data Download		
	Manual Search		
	Saved Data		
	Exchange Information Management		
	Database Access		
	Advanced Settings/Additional Settings		
	Job Assistant		







4. The successfully completed ECU file will be listed in the window shown below.

Exchange information management (Completion) Operation Name All Item •			•				- 0
Complete	Model	Serial No	ECU Serial No.	ECU Name	Write Mode	Download Date	Write Date
	3TNV86CT-DTR	00267	140929B2673	ENGINE	ECU Soft Update	22 December,2016	22 December,2016
he selected	work is transmitte	ed as "complet	ted" to the managem	ient server.			

5. Select the check box under the **Complete** heading. A check mark will appear and the line will be shaded green. The **Send** button will be active.







Reprogramming Instructions for a New Replacement ECU

A new Yanmar ECU has no software installed. Software is installed using Yanmar SmartAssist diagnostic software.

<u>NOTE:</u> Once a new ECU has software installed, it will only work on that specific engine. The software <u>cannot</u> be removed, or reprogrammed for another engine. **Make sure the engine needs an ECU before programming new one.**

NOTE: Before removing a suspect ECU, if you are able to communicate with the suspect ECU, perform a "Set Value Copy" procedure which will save all the historical data from the ECU so it can be uploaded to the new ECU.

<u>NOTE</u>: It is important to note that the engine ECU software must FIRST be downloaded from the Yanmar server site. You do not need to be connected to the machine for this process. You will need:





Programming the Engine ECU is a four-step process:

- 1. The Engine ECU software must be checked out from the Yanmar server before it can be uploaded to the new service ECU. It is engine model and serial number dependent, meaning you need the engine model and E/N to check out the software. Checking out the software from Yanmar ensures that you are getting the very latest software release. This process requires an Internet connection to your computer.
- 2. Uploading the software to the new service ECU. An Internet connection is not required for this process. Yanmar SmartAssist is connected to the engine ECU and the software is updated. It is important that while uploading the software to the Engine ECU that no other software programs are running on your computer at the same time. Other programs running the background can cause Yanmar SmartAssist program to stop working. If the reprogramming process is interrupted, the Engine ECU will fail to be programmed and will no longer work.
- 3. After successfully programming the new service ECU. The ECU software must be checked back in to the Yanmar server. An Internet connection is needed for this operation. There are two ways to return the software:
 - a. The next time you start the SmartAssist program and are connected to the Internet, the ECU file is automatically returned to the Yanmar server.
 - b. After programming, you can manually send back the file, with an Internet connection.
- 4. After successfully programming the new service ECU, the label on the new service ECU must be filled out and covered with a protective film that is supplied with the controller.

Step 1.

Double-click the SmartAssist icon to start the program. Enter your User ID (if required) and password and click **Login**.

NOTE: An Internet connection is required.



NDUSTRIAL ENGINE Engine

Step 2.

- 1. Click Industrial Engine.
- 2. Next, click Engine.



Exit

YANMAR DIAGNOSTIC TOOL

Retrieving Engine Software from the Yanmar Server and Downloading to Your Computer

	3 SMARTASSIST-Direct		
	File(F) View(V) Tool(T) Help(H)		
Step 3.	🔊 Main Menu 🖻 🔹 🖻		
	MenuToolBar * ×		
1. At the Main Menu, click Data Management .	ECU Access		
	Data Management		
2. Click ECU Soft Download from the Data Management	Diagnostic Data (Display)		
drop down.	Product Operation Data (Display)		
	ECU Soft Download		
	Trim Data Download		
	Manual Search		
	Saved Data		
	Exchange Information Management		
	Database Access		
	Advanced Settings/Additional Settings		
	Job Assistant		

Step 4.	🕸 ECU Soft Download	
	Please choose a part to change.	
On the ECU Soft Download window, click ECU Exchange (Onboard Reprogramming).	ECU Exchange (Onboard Reprogramming)	
	ECU Exchange (Off board Reprogramming)	
	Software Update (Onboard Reprogramming)	
	Cancel	
	Software for reprogramming the Service ECU while it is installed in the machine.	





Step 6.

1. Enter the Engine Model No and 5-digit Serial No (E/N Number) from the engine ECU label into the boxes shown below.

Note: All letters are capitalized and the **Serial No.** is the **E/N** number from the ECU label.







2. Click on the highlighted area under **ECU Serial No**. This will bring up a window to enter the new ECU Serial Number:







6. Software is being downloaded to your computer.

SMARTASSIST-Direct

The ECU Soft is being downloaded. Please wait for a while.

Cancel

Step 8.

When the ECU software has finished downloading to your computer, a "Software download is complete." message appears.

Click **OK** to continue.

5	# ECU Soft Download (Details) 1. Click the DL check box. 2. Click the "ECU Serial No" column. - The input dialog box opens. 3. Input the hardware serial number of your service ECU. 4. Click "Send".					
	License Serial No : 00001237 User ID : 9S202273 Field : INDUSTRIAL Product Category : Engine					
	Model : 4TNV86CT-D-TNV					
	DL 🔽	Controller Name	Parts Name	Service ECU	ECU Serial No.	Notes
	2	ENGINE	ECUASSY,4-86CT-DTR		150806Q3029	Details
	Prev Send Cancel					



Step 9.

After clicking **OK** in Step 8, you are returned to the **Main Menu**.

🔊 Main Menu 🖻 🖶 🖻	
MenuToolBar	8 : 8
ECU Access	
Data Management	
Diagnostic Data (Display)	
Product Operation Data (Display)	
ECU Soft Download	
Trim Data Download	
Manual Search	
Saved Data	
Exchange Information Management	
Database Access	
Advanced Settings/Additional S	ettings
Job Assistant	

NOTE: An Internet connection is not required for remaining steps.



Installing Software to a New Engine ECU	SMARTASSIST-Direct
	File(F) View(V) Tool(T) Help(H)
1 From the Main Manu click ECU Access	Main Menu 🗗 💠 📼
and then click ECU Programming (Flash).	MenuToolBar & ×
	ECU Access Diagnostics (Execution)
	Product Operation Data (Acquisition)
	ECU Reprogramming (Flash)
	Set Value Copy
	Component Replacement (Execution)
	Data Management
	Database Access Advanced Settings/Additional Settings
	Job Assistant
Reprogram Writin	a Mode Selection

2. From the Reprogram Writing Mode Selection window, click First Time ECU Programming. Please select a method of writing. First Time ECU Programming Update Cancel Writes to the new empty auxiliary equipment controller.





1 Reprogram Writing File Selection Please select the writing object. Target All Target - Model All Model Model ECU Serial No. Serial No ECU Type Date 4. When the line is shaded green, the 4TNV86CT-DTR 150806Q3029 04484 2016-12-22 Next button becomes active. Click Next. Prev Next Cancel Please select the writing object. Tarant All Tarant -5. Click OK. -Are you sure you want to write in this content? Date Model : 4TNV86CT-DTR 2016-12-22 4TNV SerialNo : 04484 ECU Type ECU Serial No : 150806Q3029 Prev OK Cancel Prev Next Cancel



- ▲ Note: Programming will take approximately 20 minutes, be patient.
- ▲ Note: Power must not be interrupted to machine or computer while programming!
- ▲ Note: This version of SA-D 2.x is much more robust and other programs in the background should not interfere with programming.

7. Programming will continue and status will be displayed on a progress bar.



8. After a few seconds this window will appear letting you know that SmartAssist is connecting with ECU. It will disappear in 5 to 10 seconds.



9. Programming will continue and progress will be displayed on status bar.

🗊 Writing				
processing [C_ESN]				
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Yokogawa Digital Computer				
Corporation				

10. When this window appears, the ECU has been SMARTASSIST-Direct successfully updated. Turn the Ignition key off for at Processing was completed. least 30 seconds. Write down the QCODE. It will be recorded on the Turn off the key, and turn on the key after 2 minutes. new ECU decal. "After key is turnd off, ECU software will be reprogramed. " QCODE is [HHA00000]. 11. Click OK. • If the error lamp is carrying out continuous lighting even when the ECU power is turned off, please reset again. OK





14. Click **Yes** to allow SmartAssist to automatically return the ECU software file back to the Yanmar server the next time you log into SmartAssist.







You will be returned to the Main Menu.

Return Software to the Yanmar Server

After a successful ECU programming, the software is still checked out and resident on your computer and needs to be returned back to the Yanmar Server. To return the software, you will need to have an Internet connection.

1. Once you are back out to the **Start Menu**, click on **Industrial Engine** then click **Engine**.



TORO. Count on it.

2. A "Please wait..." message appears. This message is displayed for a short time then it disappears.

Recovering Aborted ECU Programming Event

While programming a Yanmar engine ECU and something happens during programming to cause SmartAssist to stop programming the engine ECU, the ECU can no longer resume programming by normal instruction.

The important thing to remember is to stay calm. Do not start closing windows or disconnecting SmartAssist from the machine.

The following procedure gets SmartAssist to recover the ECU and start the programming process again.

IMPORTANT: The ECU can be recovered if you follow this procedure exactly. Please understand that not following this procedure could end with an ECU that will no longer function at all, and a new ECU will needed.

If SmartAssist stops programming an ECU, the first step is to determine why it occurred. The most common reasons for this failure are:

- 1. Machine power is interrupted (Key turned off) or the diagnostic cable becomes unplugged
- 2. Computer power failed (Battery died or power cord was disconnected)
- 3. Another application on your computer started running or you navigated away from the SmartAssist program while it was uploading software to ECU.
- 4. Machine CAN bus issues

How do we know when programming has been aborted?

There are two ways to determine if programming has stopped unexpectedly.



In either case, first determine why it failed (plug cable in, plug in computer AC power, etc.).

	Please select the Target A	ile Selection writing object. Ill Target	• M	odel All Model		
Click Cancel .	Model 3TNV86CT-DTR	ECU Serial No. 140929B2673	Serial No 00267	ECU Type	Date 2017-03-21	
		Pre	ev Next	Cancel		

You will be returned to the **Main Menu**.

From	he Main Menu :	Image: Signal state of the second s
1.	Turn the machine ignition key to ON.	Main Menu 🗇 🗣 📼 MenuToolBar 🛛 🕏 ×
2.	From the Main Menu , click ECU Access , and then click ECU Programming (Flash) .	ECU Access Diagnostics (Execution) Product Operation Data (Acquisition) ECU Reprogramming (Flash) ECU Reprogramming (Flash) Set Value Copy Component Replacement (Execution) Data Management Database Access Advanced Settings/Additional Settings Job Assistant
3.	Click Re-write (When error occurs while writing it).	Reprogram Writing Mode Selection Please select a method of writing. First Time ECU Programming Update Abnormality has occurred in the write operation.Please execute Re-write. Re-write(When error occurs while writing it) Cancel Respect to an error at the time of writing last, perform the Re-write.



		🎲 Reprogram Writing File Selection		
		Please select the writing object.		
		Target All Target	- Model All Model	•
4	Click the line with the model	Model ECU Serial No.	Serial No ECU Type	Date
ч.	number and the line will be shaded	4TNV86CT-DTR 150806Q3029	04484	2016-12-22
	green.		Next General	
		Prev		
		🎲 Reprogram Writing File Selection		- • 💌
		Please select the writing object.		
		Target All Target	- Model All Model	•
5.	When the line is shaded green, the	Model ECU Serial No.	Serial No ECU Type	Date
	Next button becomes active. Click Next.	4TNV86CT-DTR 150806Q3029	Next Cancel	2016-12-22
		Reprogram Writing File Selection		
		Please select the writing object.		
6.	Click OK.	T Checking the contents written		•
		Are you sure you want to wr 4TNV Model : 4TNV	ite in this content? /86CT-DTR	Date 2016-12-22
		SerialNo : 0448	4	
		ECU Type :		
		ECU Seriar No : 1508	06Q3029	
		Prev O	Cancel	
		Prev	Next Cancel	

	Reprogram Writing File Selection Please select the writing object.	
Note: Verify that the ignition key is in the	Target All Target	del All Model
	Model ECU Serial No. Seria	No ECU Type Date
Note: Once you click OK , SmartAssist will start updating the ECU software.	4 INV n Make sure the ECU is connected	and the power is turned ON.
7. Click OK .		
	Prev Next C	ancel

- ▲ Note: Programming will take approximately 20 minutes, be patient.
- ▲ Note: Power must not be interrupted to machine or computer while programming!
- ▲ Note: This version of SA-D 2.x is much more robust and other programs in the background should not interfere with programming.
- 8. This progress bar will display that the ECU is being updated.

🚏 Writing
processing [L_PAR_B]
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9. After a few seconds, a "Please wait..." message will appear letting you know that SmartAssist is connecting with ECU. It will disappear in 5 to 10 seconds.

Ŷ	Writing	
ſ	蹐 ECU activation waiting	
	Please wait for a while start of ECU.	e for the





The engine ECU software update is now complete.





You will be returned to the Main Menu

After a successful ECU programming, the software is still checked out and resident on your computer and needs to be returned back to the Yanmar Server. To return the software, you will need to have an Internet connection.

Returning the software back to Yanmar Server:

1. Once you are back out to the **Start Menu**, click **Industrial Engine** and then click **Engine**.



 A "Please wait..." message will appear to tell you that it is sending back the software. The window will only be shown for a short time, then it disappears.





Set Value Copy

All of the engine data that is stored in the ECU can be download and saved using the Set Value Copy procedure in SmartAssist. This data can be uploaded into a new ECU so engine history is preserved.

To Save the Data from an old ECU:	🗊 SMARTASSIST-Direct
	File(F) View(V) Tool(T) Help(H)
Step 1.	
	🔝 Main Menu 🗇 🖶 📼
Connect the diagnostic cable to the engine ECU and SmartAssist	d start MenuToolBar ® ×
	ECU Access
	Diagnostics (Execution)
Step 2.	Product Operation Data (Acquisition)
1. From the Main Menu, click ECU Access.	ECU Reprogramming (Flash)
2. Click Set Value Copy.	Set Value Copy
	Component Replacement (Execution)
	Data Management
	Database Access
	Advanced Settings/Additional Settings
	Job Assistant R
	SMARTASSIST-Direct
	Make sure the ECU is connected and the power is turned ON.
3. Click OK .	OK

4. After clicking **OK**, this window appears briefly and then disappears





Stop 3	🎓 ECU Access		
Step 3.	Data Rate → 250k © 500k		
 Select 250k to set the Data Rate Click ECU Search. 	ECU Application 00:Engine		
 SmartAssist is checking the connection to the ECU. Once this is done, this window disappears and the Start button will become active as shown in next step. 	ECU Search Start Cancel		
Step 4.	🕸 ECU Access		
Click Start	Data Rate © 250k O 500k		
	ECU Application 00:Engine ECU Search ECU S/N 140929B2673 Start Cancel		
SmartAssist is now connecting with the engine ECU.	Wait Information SMARTASSIST Direct Getting information so please be patient. Communicating Engine ECU 1/1 It is initializing it. (LIFE) Cancel		





🎁 ECU Exchange

Step 6.

The data that will be saved is shown in the window.

1. Click Next.

Present data is preserved in the file.			
Classification	Value		
Engine Type(Vehicle Manufacture)	3TNV86CT-DTR		
Engine S/N	00267		
Engine Compensation 1	100		
Engine Compensation 2	100		
Engine Compensation 3	100		
Engine Compensation 4	100		
Engine Compensation 5	100		
Injection Timing Adjustment	60		
Engine Type	3TNV86CT-DTR		
Prev Next Cancel			

SmartAssist will now connect with the engine and copy all the data from the ECU.

😵 Wait Inf	formation		
-	SMARTASSIST Direct		
Getting information so please be patient.			
Communicating Engine ECU 1/1			
It is initializing it. (LIFE)			
Cancel			



Step 7 SMARTASSIST-Direct 8 Please write this data in new ECU after (1) A "Please write this data..." message appears to remind exchanging ECU. you to write this data back to the new ECU after it is installed. Click OK. OK Step 8 1. Install the new engine ECU in to the machine. 2. 3. Program the new Engine ECU with the current software. SMARTASSIST-Direct File(F) View(V) Tool(T) Help(H 凸 唱 X To Write the Data to a new ECU: 🔊 Main Menu 🗗 🗣 📼 MenuToolBar ∂× Step 1. **ECUAccess** Diagnostics (Execution) 1. Once at the Main Menu, click ECU Access. Product Operation Data (Acquisition) 2. Click Set Value Copy. ECU Reprogramming (Flash) Set Value Copy Component Replacement (Execution) Data Management Database Access Advanced Settings/Additional Settings Job Assistant SMARTASSIST-Direct Make sure the ECU is connected and the power is turned ON. Step 2. OK The following messages appear. Click **OK** when the key is turned to the ON position. 🗊 ECU Find - • × The connection to the ECU is being checked. This may take a few seconds. Cancel



Step 3.		- • 💉
 Select 250k to set the Data Rate. Click ECU Search. 	ECU Application 00:Engine ECU Search	
	Start	ancel

SmartAssist is checking connection to ECU, once this is done, this screen disappears and the **Start** button will be active as shown in the next step.

🗊 ECU Find
The connection to the ECU is being checked. This may take a few seconds.
Cancel

	🎓 ECU Access		
	Data Rate © 250k © 500k		
Step 4.			
1 Click Start	ECU Application 00:Engine		
	ECIL Search ECILS/N 140929B2673		
	Start Cancel		
	Wait Information		
	SMARTASSIST		
	Direct		
SmartAssist is now connecting with the engine ECU.			
	Getting information so please be patient.		
	Communicating Engine ECU 1/1		
	It is initializing it. (LIFE)		
	Cancel		





Yanmar Tier 4

Step 9.	Image Image Are you sure you want to write this data in ECU?
1. A "Write successful." message appears.	Classification
2. Click OK.	Engine S/N (* MARTASSIST-Direct (*)
	Engine Comper Engine Comper Engine Comper Engine Compensation 4 Engine Compensation 5 Injection Timing Adjustment Engine Type Prev Write Cancel
Stop 10	SMARTASSIST-Direct
Step 10.	The write process is complete.
1. Turn the ignition key to OFF.	
 Wait at least 30 seconds and turn ignition key back to ON. 	"After key is turnd off, ECU software will be reprogramed. "
3. Click OK .	even when the ECU power is turned off, please reset again.
	ОК
Step 11.	
 SmartAssist creates a report that Set Value Copy was successful. 	SMARTASSIST-Direct S3 Image: The report is made now.
2. Click OK.	OK
Step 12.	
SmartAssist saves the report.	
Click OK.	SMARTASSIST-Direct
	The report was preserved.
	OK

Step 13.

Set Value Copy is finished and SmartAssist will return to the Main Menu.

Saving an ECU File

When connecting to an engine that is experiencing an issue, it can be helpful to save a file from the ECU to use for troubleshooting or to have as a record of how the machine is performing. Saving a file before and after work was preformed will help validate the fix and provide a history of the engine.

SMARTASSIST-Direct

This data is also useful for the Toro TAC team or Yanmar service techs when trying to resolve an engine issue.

Saving an Engine ECU file is a simple process:

	File(F) View(V) Tool(T) Help(H)
Step 1.	
Connect the diagnostic cable to the engine ECU and	start Main Menu 🗗 🖶 📼
SmartAssist.	MenuToolBar #×
	ECU Access
Step 2. Once :	Product Operation Data
1. On the Main Menu, click ECU Access.	(Acquisition) ECU Reprogramming
2. Click Diagnostics (Execution).	(Flash)
	Set Value Copy
	Component Replacement (Execution)
	Data Management
	Database Access
	Advanced Settings/Additional Settings
3. Verify that the ignition key is in the ON	
position	Make sure the ECU is connected and the power is turned ON.
4. Click OK .	ОК
	With ECU Find
	This may take a few seconds.
	Cancel



Yanmar	Tier 4

Step 3.	🚏 ECU Access
	Data Rate →
Select 250k to set the Data Rate.	
Click ECU Search.	ECU Application 00:Engine
	ECU Search
	Start Cancel
ĺ	🏶 ECU Find
SmartAssist is checking connection to the ECU Once this is done, this screen disappears and the Start button becomes active.	The connection to the ECU is being checked. This may take a few seconds.
	Cancel
L	
ſ	Security Contractions Contractions
	Data Rate ⊚ 250k ☉ 500k
Sten 4	
	ECU Application 00:Engine
Click Start.	
	ECU Search ECU S/N 140929B2673
	Start
	1 Wait Information
	SMARTASSIST
	Direct
SmartAssist is now connecting with the engine ECU.	
	Getting information so please be patient.
	Communicating Engine ECU 1/1
	It is initializing it. (LIFE)
	Cancel

Step 5.

ECU Data Save can be done with the key on and engine off, or with the engine running. It just depends on the issue you are having whether to save the file with the engine running or not.

Step 1.

SMARTASSIST-Direct File(F) View(V) Operation(O) Tool(T) Help(H) To save a file, click the ECU Data Save icon. / B 🖬 🖬 🔛 🔊 蕍 Diagnostics 🗇 🚸 📼 ON LINE Active Code ECU Data Save **ECU Information** Diagnostic Codes Freeze Frame Data Diagnostic Tests Data Logging Historical Data ECU Structures System Settings Comment Baudrate : 250k Engine Type(Vehicle Manufacture):3TNV86C SMARTASSIST-Direct × Is the ECU maintenance data preserved? Step 6. To acquire all data from ECU again, time is somewhat needed for [YES]. A "Is the ECU..." message appears to prompt you to It doesn't preserve it for [NO]. It is necessary to preserve the data logging save the file. and the compulsion drive data on each screen. Click Yes. Yes No

Step 7.





Yanmar	Tier	4
rainnai	1101	

Step 8.

SmartAssist is now connecting to the engine ECU and saving the engine information.





The ECU data file is now saved in the SmartAssist application. It will need to be exported from SmartAssist to your computer desktop so it can be emailed. See Exporting Data File on page 58.





Step 2.

- 1. From the **Division** drop down list, select **Diagnosis data**.
- 2. From the **Kind** drop down list, select **ECU Maintenance data**.

🎲 Data Management			×
Division WriteData WriteData Keyword Customized data Diagnosis data Ope-machine info. Performance inspection (Agri) System data Upload data	No	All kind All kind ECU Maintenance data Data logging Active control Hysteresis Report file Data Logging User Set	
Select a file for data export. Set the division and kind, then select the file and click "Export".			Export Cancel



Step 3.

Division Diagnosis data Kind ECU Maintenance data • Keyword Find 1. Select the file to Type ECU Name Product Group Model Serial No Date export. Select 2001:ECU Maintenance data Engine 3TNV86CT-DTR 00154 10 August,2016 12:32:32 ECU Engine 2001:ECU Maintenance data Engine 3TNV86CT-DTR 00154 09 Septembe... 09:26:01 ECU Engine the line by 2001:ECU Maintenance data Engine 3TNV86CT-DTR 00154 09 Septembe... 13:50:15 ECU Engine clicking on it and 2001:ECU Maintenance data Engine 14 June,2016 13:03:27 ECU Engine 3TNV86CT-DTR 00161 it will be shaded 2001:ECU Maintenance data Engine 3TNV86CT-DTR 00222 30 June,2016 13:41:08 ECU Engine green. 2001:ECU Maintenance data Engine 3TNV86CT-DTR 00266 16 May,2016 10:56:23 ECU Engine 0004. COUMaintenana data Caria ATMINOCOT DTD 00000 10 May 2016 10.10.11 Coll Casia Select a file for data export. Set the division and kind, then select the file and click "Export". Export Cancel

🇊 Data Management

2. Click Export. -

Step 4.

otop n	🎁 Export		-							
	Search Desktop									
Select where you want the file to be saved.	Organize 👻 New fold		800 🗸							
Your computer desktop is a good place	4 🔆 Favorites	Name	Size	Item type	Date modified					
Tour computer desider is a good place.	🗮 Desktop	🥽 Libraries								
The file is automatically named with the	其 Downloads 📰	Mike Mueller								
The ne is additionation of the near the	Stopbox	P Computer								
engine model and s/n.	E Recent Places	Vetwork								
		J TOROPC 122-0856		File folder	2/17/2016 3:23 PM					
	A CLibraries	2016European Hybrid School		File folder	6/8/2016 7:59 AM					
1. Select Desktop .	Documents	bolo Pics		File folder	12/2/2015 2:20 PM					
	Music	🍌 Audio Files		File folder	2/16/2016 8:21 AM					
	Pictures	🍌 Clip Control		File folder	12/22/2015 8:59 AM					
	Videos	🍶 Dist Remote Training		File folder	8/29/2016 7:54 AM					
		Ja F15 Tier4		File folder	6/9/2016 1:28 PM					
2 Click Save	4 📑 Computer	퉬 F16 Hands On Training		File folder	8/9/2016 10:34 AM					
E. Chok Curc.	- M 00011/03	· · · · · · ·								
	STN 3TN	V86CT-DTR_00267_20160907_140734_S_B50_sv	ctecu_eng							
	Save as type: ECU	Maintenance data(*.ecu)								
) Hide Folders					Save	Cancel			

Step 5.	🇊 Data Manage	ement									8	
etep et	Division Diagnosis data • Kind ECU Maintenance data •										•	
1 Click " OK "	Keyword	rd								Find		
		Kind 📈	Product Gr	roup	Model	Serial No		Date	Time	Туре	ECU Name 📤	
	2001:E0	Co Maintenance data	Engine	_	3TNV86CT-DTR	00154	10 A	ugust,2016	12:32:32	ECU	Engine	
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	2001:E0	CU Maintenance data	Engine					une,2016	13:03:27	ECU	Engine	
	2001:E	CU Maintenance data	Engine			0	K	une,2016	13:41:08	ECU	Engine	
	2001:E	CU Maintenance data	Engine		3TNV86CT-DTR	00266 16 May,20		ay,2016	10:56:23	ECU	Engine	
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	Select a file for data export. Set the division and kind, then select the file and click "Export".									E	xport Cancel	



Step 6.	🚏 Data Management								
	Division Diagnosis data Kind ECU Mainte					aintenanc	nance data -		
	Keyword	Keyword							
Click Cancel .	Kind	Product Group	Model	Serial No	Date	Time	Туре	ECU Name	-
	2001:	Engine	3TNV86	00154	10 Au	12:32:32	ECU	Engine	
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	2001	Engine	3TNV86	00154	09 Se	13:50:15	ECU	Engine	
	2001:	Engine	3TNV86	00161	14 Ju	13:03:27	ECU	Engine	
	2001:	Engine	31NV26	00222	30 Ju	13:41:08	ECU	Engine	
	2001:	Engine	3TNV86	00266	16 Ma	10:56:23	ECU	Engine	
	0001.	Engine	OTNIV/OC	000000	16 140	10.10.11	FOU	Engine	
	Select a file for data export. Set the division and kind, then select the file and click "Export".								

Now you are at the **Main Menu** and the exported file will be located on your desktop. Attach file to an email and send.

