

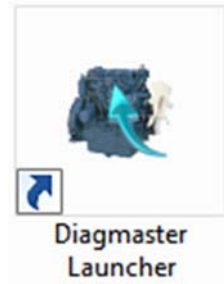
Diagmaster

KEA Engineering Distributor Meeting
October 2016

Date | Oct. 25. 2016

Place | KEA

- Diagnostics
 - Introduction
 - Basics
 - Usage and Features
 - Functions Specific to SCR



• Setting up Diagmaster ID from K-iSS website

1 get K-iSS website user ID & Password

- Your distributor registers you as a K-iSS user.
- You receive an Automatic Email from K-iSS.
- Please click WebLink from Automatic Email. (within 5 days)
- Please follow guidelines to create K-iSS User ID & PW.

Hello,
Thank you for your interest in K-iSS. A user registration has been initiated for you. Please proceed to the following link to complete your registration.
<https://wsg.kubota.co.jp/engine/kiss/XIUM005.do?Seq-No=7991&Key=XaImXUGPB>
This URL will be active only for five days after receiving this e-mail. If you fail to register, please contact your administrator.
Thank you,
K-iSS System Administrator

your created K-iSS User ID and Password

ID _____
PW _____

2 Log into K-iSS Website

(<https://wsg.kubota.co.jp/engine/login.html>)

For Earth, For Life
Kubota

Welcome!

K-iSS
Please enter your User ID and Password

User ID: _____
Password: _____

LOGIN

3 Click **Diagnosis Tools Information**

CRS Engine Technology and Service Information

- Diagnosis Tools Information ID
- ECU Adjustment Software Program ID
- ATD code/Key Registration ID

4 Register **DiagMaster User Info** (ONLY for first time)

Diagnosis Tools Information

DiagMaster User Info

1. Diagmaster user ID registration

2. input ID as you like

DiagMaster Security Level: automatically

DiagMaster administrator flag: Administrator

E-Mail Address: your E-Mail address

E-Mail with ID, PW, Code will be sent to your address.

5 you will receive E-mail from K-iSS System

K-iSS published DiagMaster registration code by your request as follows.
Login User ID : sals
Default Password : WxTX386
Registration code : H8EW41Fp5J05NRw2qCv87adPa7ySR

Thank you,
K-iSS System Administrator

your Diagmaster Login User ID, Default PW, Registration Code

User ID _____
Default PW _____
Reg Code _____

DiagMaster Registration EXPIRES at the end of each year.
Notice to renew will be sent to e-mail address. Refer to **A**

6 Download 3 files : [a]Database, [b]Program, [c]Driver (if necessary, [d] Firmware)

Diagmaster Update

1. Diagmaster Update Files

[please install Firmware if your firmware version is 1.0.X]

6 change the downloaded files' extension from "z_p" to "zip"

"z_p" cannot be recognized by Windows.

Rewrite z_p to zip

7 install (1)Diag Program, (2)Diag Database, (3)DST-i Driver (if necessary, (4) Firmware)

(1) Diag program install wizard

English

Next

(3) DST-i Driver install wizard

Next

Install

8 Initial registration of Diagmaster software

1. System Setting

2. User registration

Diagmaster 03

9 Register your ID, PW, Registration Code (written in E-Mail)

1. Add

2. "Enter Key" does NOT work. Make sure to "CLICK".

NO "SPACE". Case sensitivity on. COPY&PASTE your E-Mail (without SPACE) is strongly recommended. (lower-case "l" & upper-case "I" look same)

Now you are all set.

A Update your Diagmaster Registration (the end of each year)

Your Diagmaster Registration Account expires at the end of year. You will receive E-Mail from K-iSS System in December or so. Please follow E-Mail to Renew your Diagmaster Registration.

Thank you for using DiagMaster.
We inform that your DiagMaster user ID (sals) expires at the end of this year. If you continue using it, application of DiagMaster user ID update is necessary.

* Operation (To open the screen)
1. Click [K-iSS Top Menu] [ECU Service and Diagnosis] [Diagnosis Tools Information]
2. Click [Diagmaster Update - Toppage] [DiagMaster User Info] [Apply for DiagMaster Update]

Thank you,
K-iSS System Administrator

▲ E-Mail from K-iSS System

CRS Engine Technology and Service Information

1. Diagnosis Tools Information ID

Diagmaster User Info

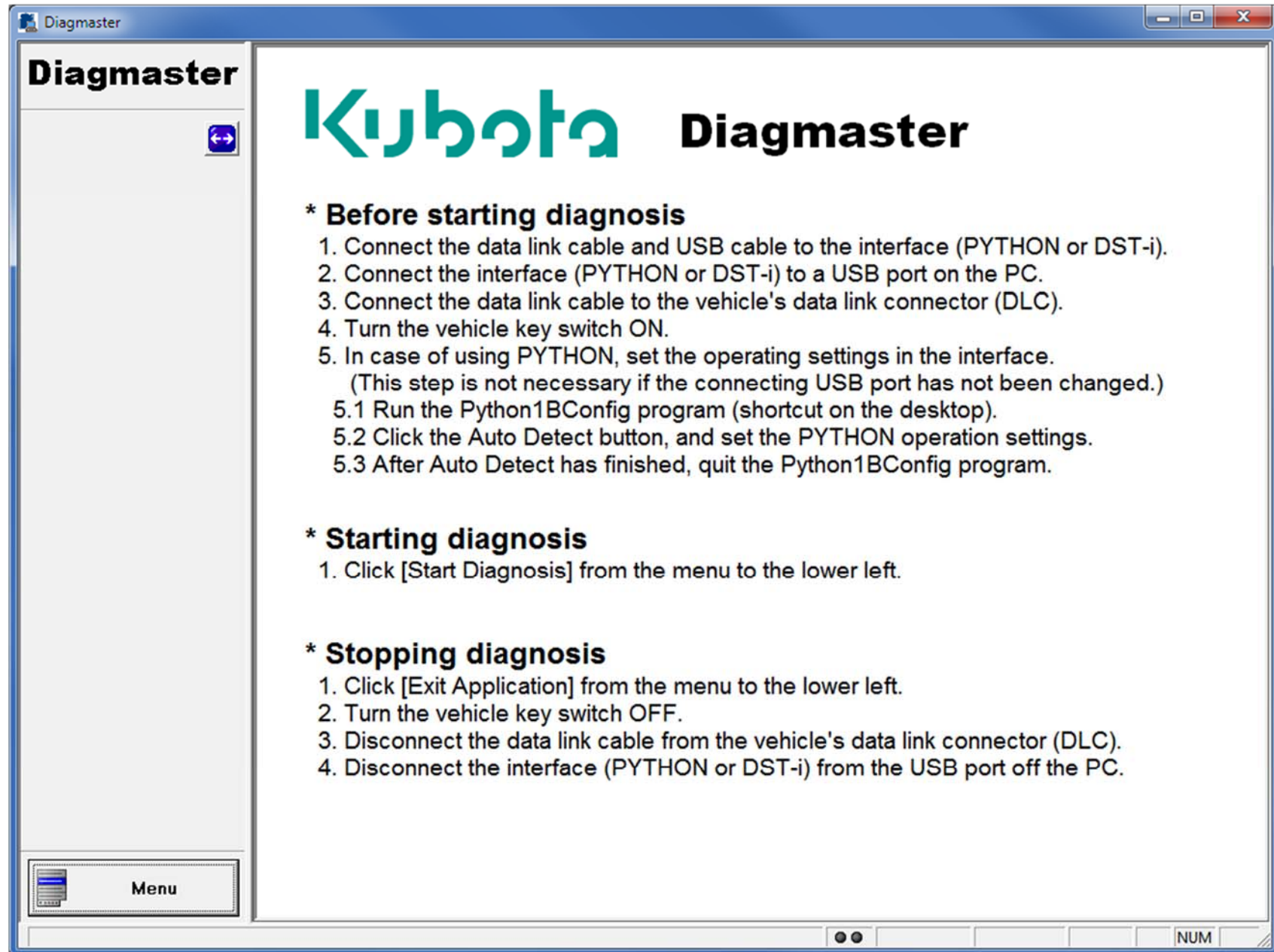
My User ID: _____

Registration Code Renewal Request

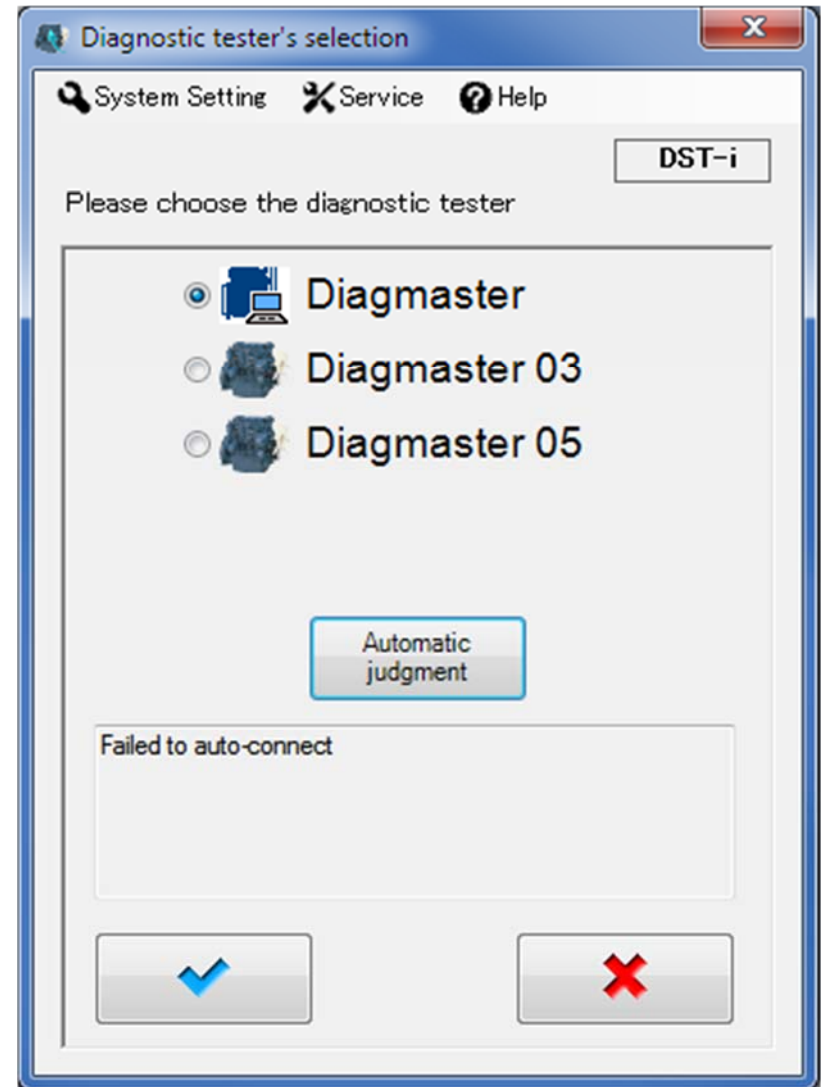
2. Apply for Diagmaster user ID renewal

3. Send

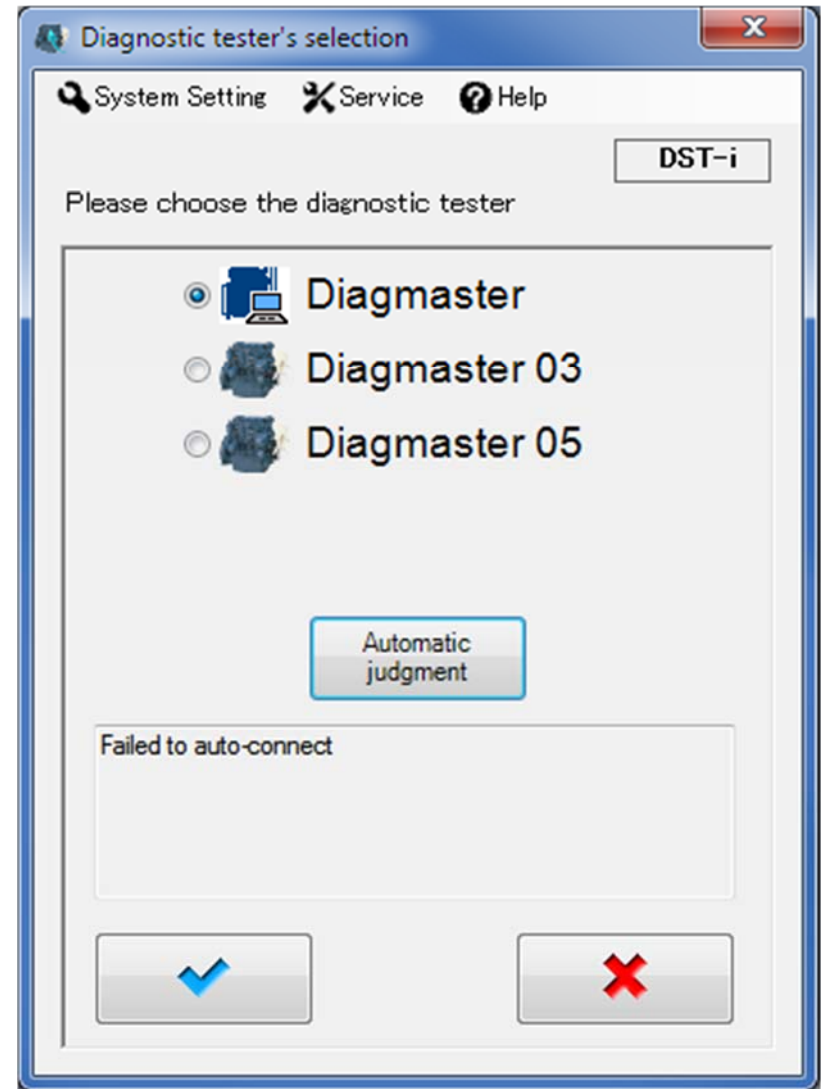
After receiving E-Mail, please update Diagmaster Registration same as... **8** **9**



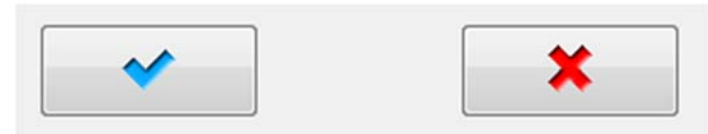
- The Menu Bar:
 - System Setting
 - Communication Setting
 - Select Language
 - User Registration
 - Reset Password
 - Change Brand
 - Version Information
 - Service
 - Reprogram History
 - Help
- Communication (top right corner)
 - DST-I
 - Python 1B



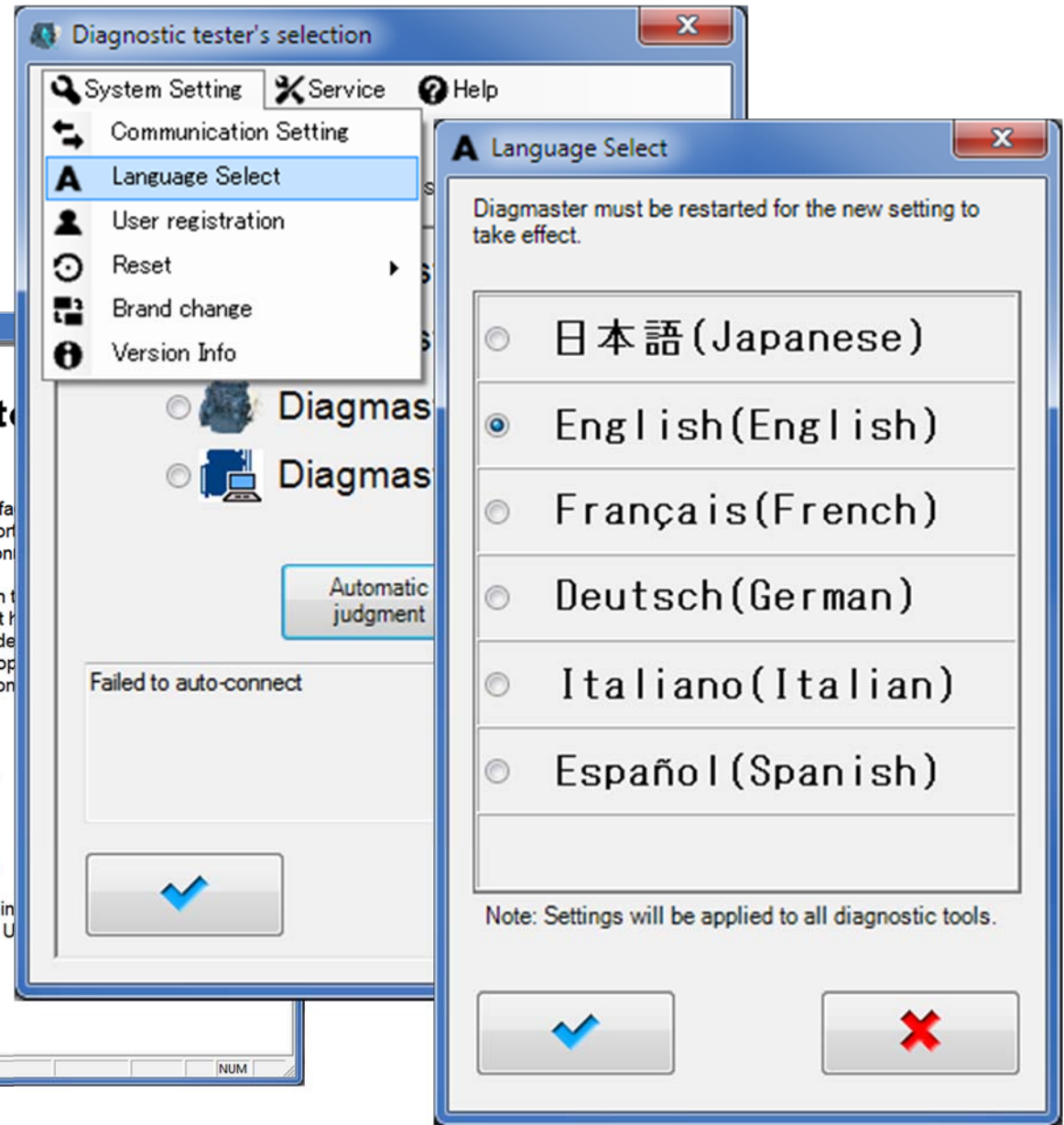
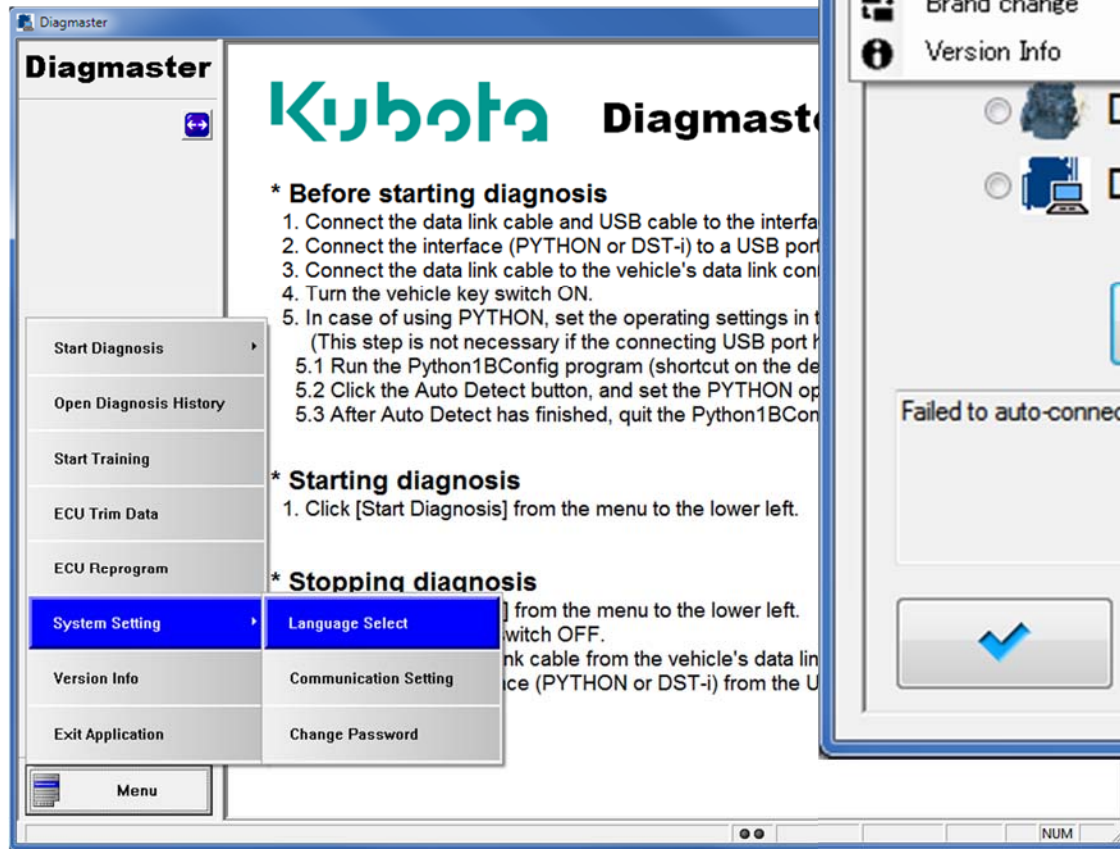
- Select the appropriate application:
 - Diagmaster → Denso ECU.
 - Diagmaster 03 → Bosch ECU.
 - Diagmaster 05 → Kubota ECU (reformer).
- Automatic Judgment (Auto Detect, Auto Connect, Auto Select.)
 - Auto [ECU] detecting by default.
 - To inhibit, double click Diagmaster Launcher Icon while holding down the CTRL (control) key.



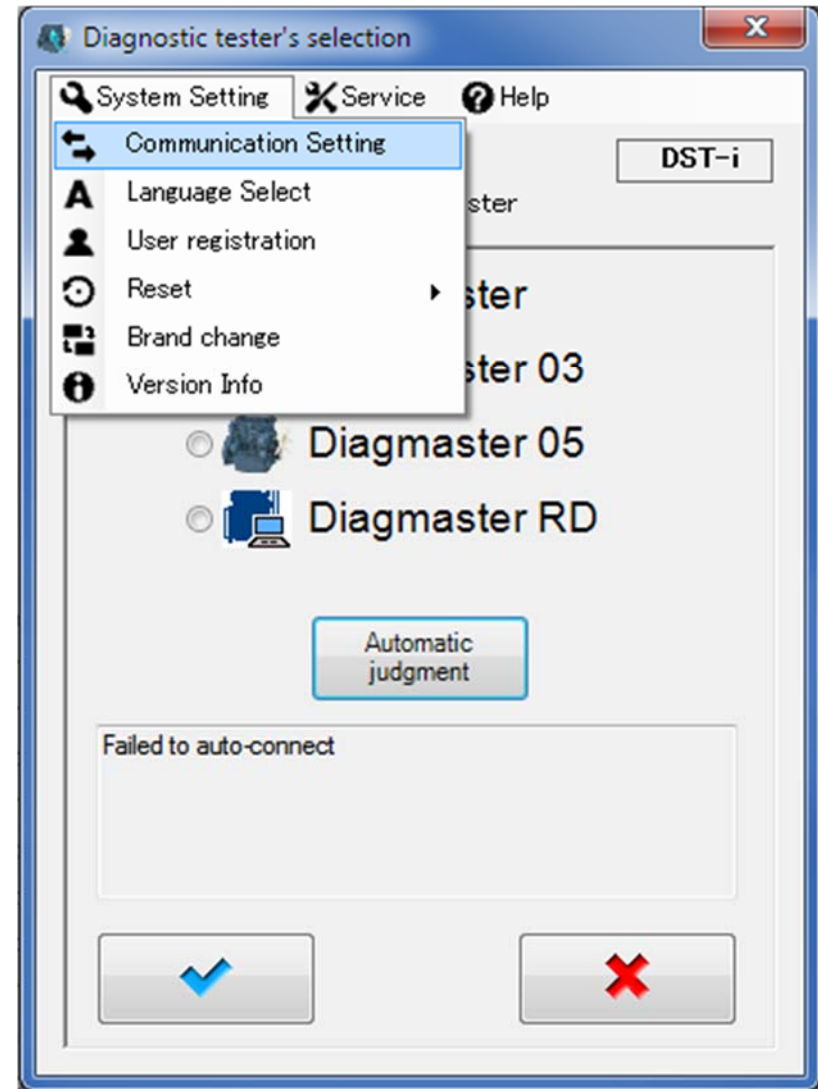
- Default Navigation Buttons
 - Blue check → proceed
 - Red “X” → cancel



- Language Select
 - Launcher
 - main page



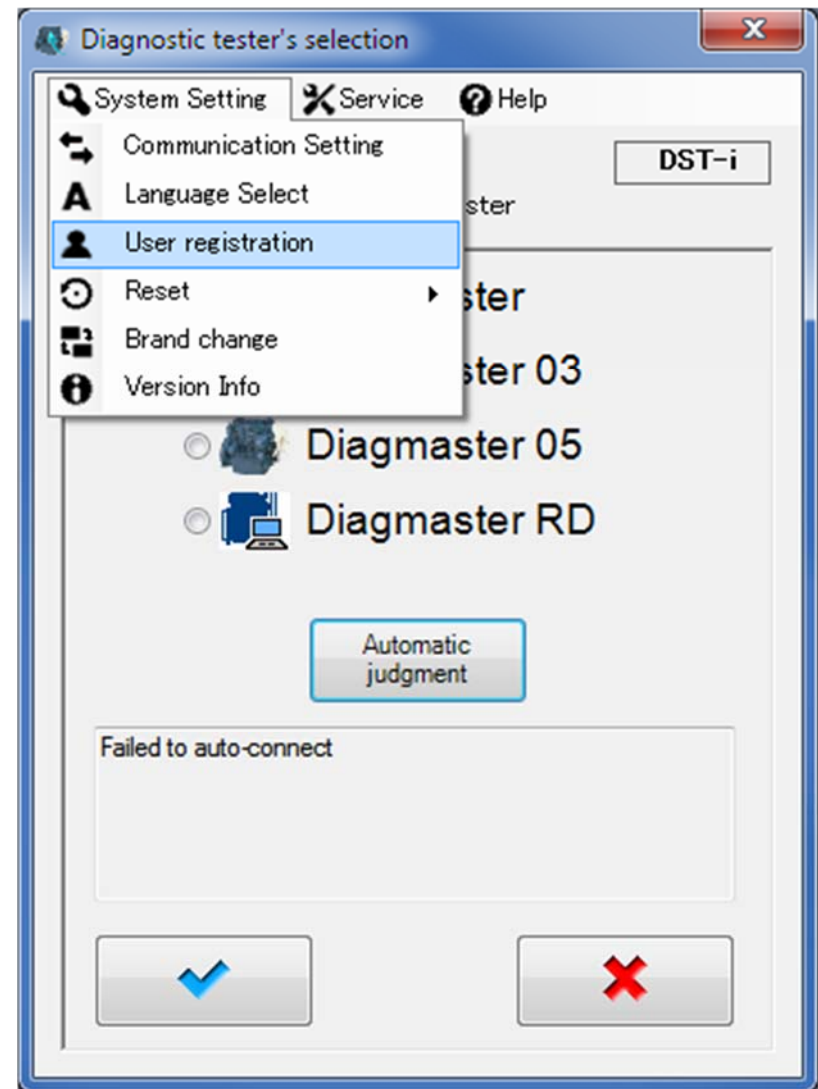
- Difficulties communicating?
 - Confirm DST-i is properly connected.
 - Verify Diagmaster recognizes the DST-i .



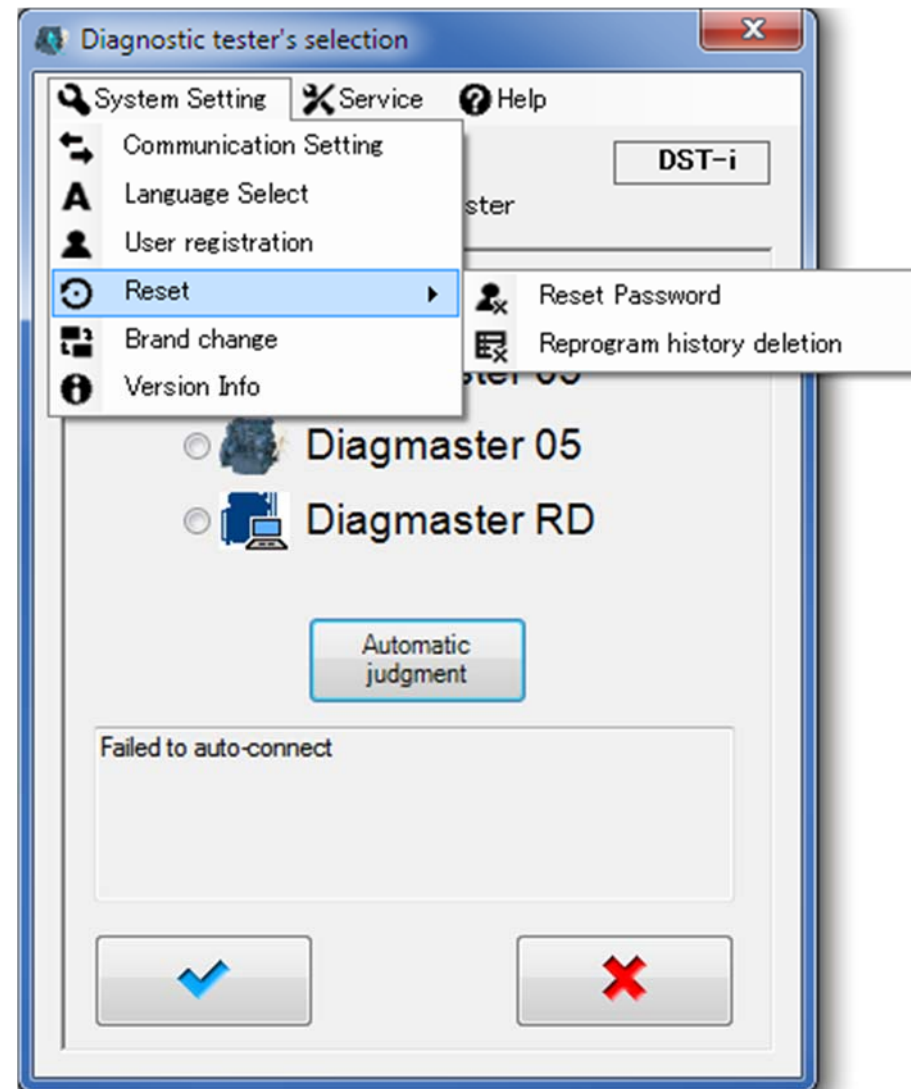
The image displays the Diagmaster software interface with several windows open:

- Communication Setting**: Shows "Select Interface" set to "DST-i" and "Interface Setting" set to "DSTi_ConfigTool.exe".
- DST-i Configuration**: Shows "Language" set to "English". Under "DST-i Information", it lists:
 - Vendor ID: J2534
 - Device ID: J2534-1
 - Name: DST-i
 - Config Application: C:\Program Files\DST-i\drivers\DSTi_ConfigTool.exe
 - Function Library: C:\Program Files\DST-i\drivers\DSTi_FunctionLibrary.dll
 - DLL Version: 02.00
 - API Version: 04.04
 - Protocols Supported: ISO9141,ISO14230,CAN,ISO15765
- Version Information (Top)**: Provides instructions for confirming software version:
 1. Connect the DST-i to the PC with a USB cable.
 2. When DST-i has the mode switch, turn on the mode switch.
 3. When you are ready, click the read button.Buttons: "read", "close".
- Version Information (Middle)**: Displays an error message with a warning icon: "It was impossible to acquire the version information from the DST-i. Check the connection with the personal computer." Button: "close".
- Version Information (Bottom)**: Shows the successfully acquired version information:
 - Version: Ver.2.0.1
 - Identification information 1: 21
 - Identification information 2: 0Button: "close".

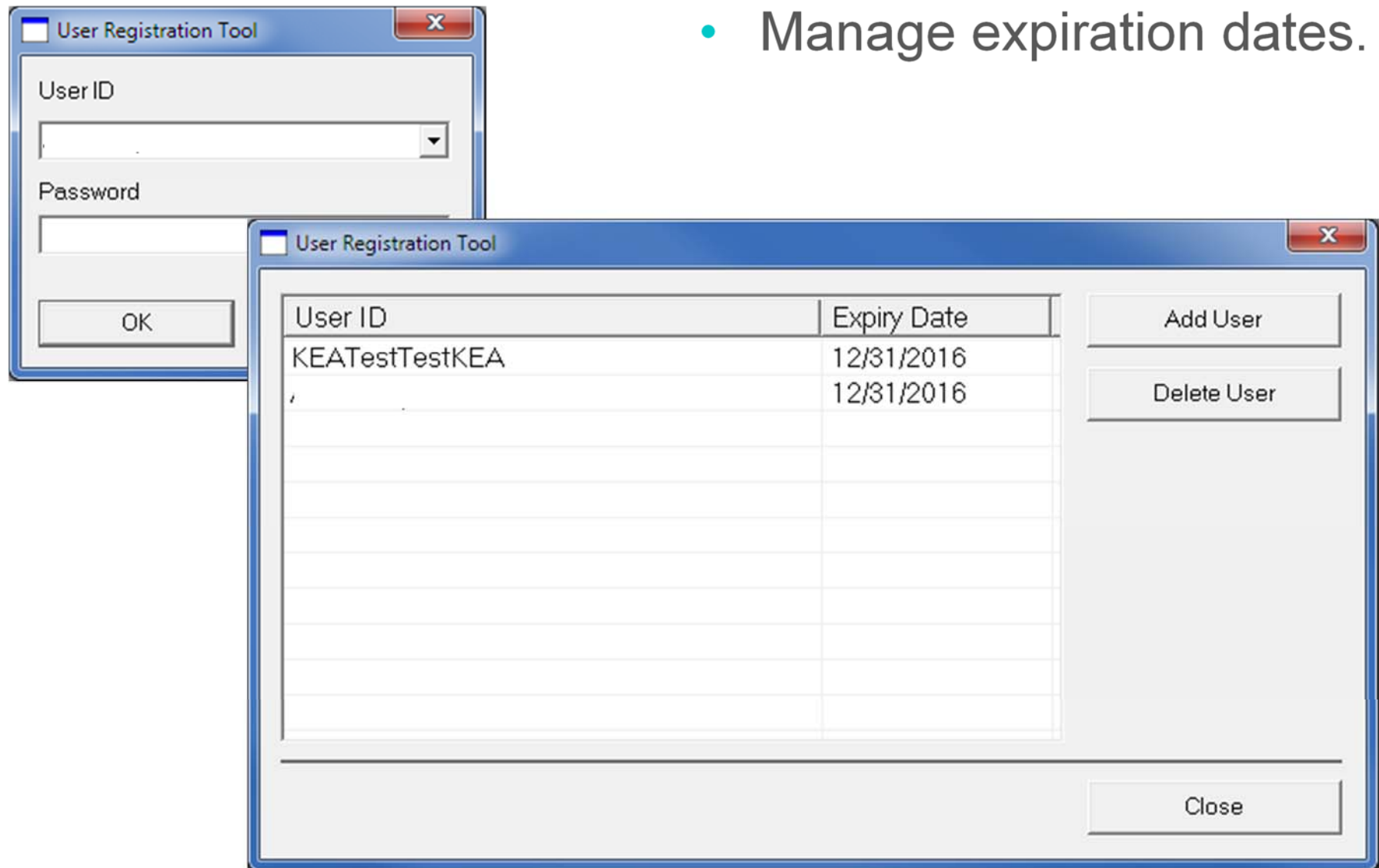
- New User, enter your:
 - Login User ID
 - Default Password
 - Registration Code



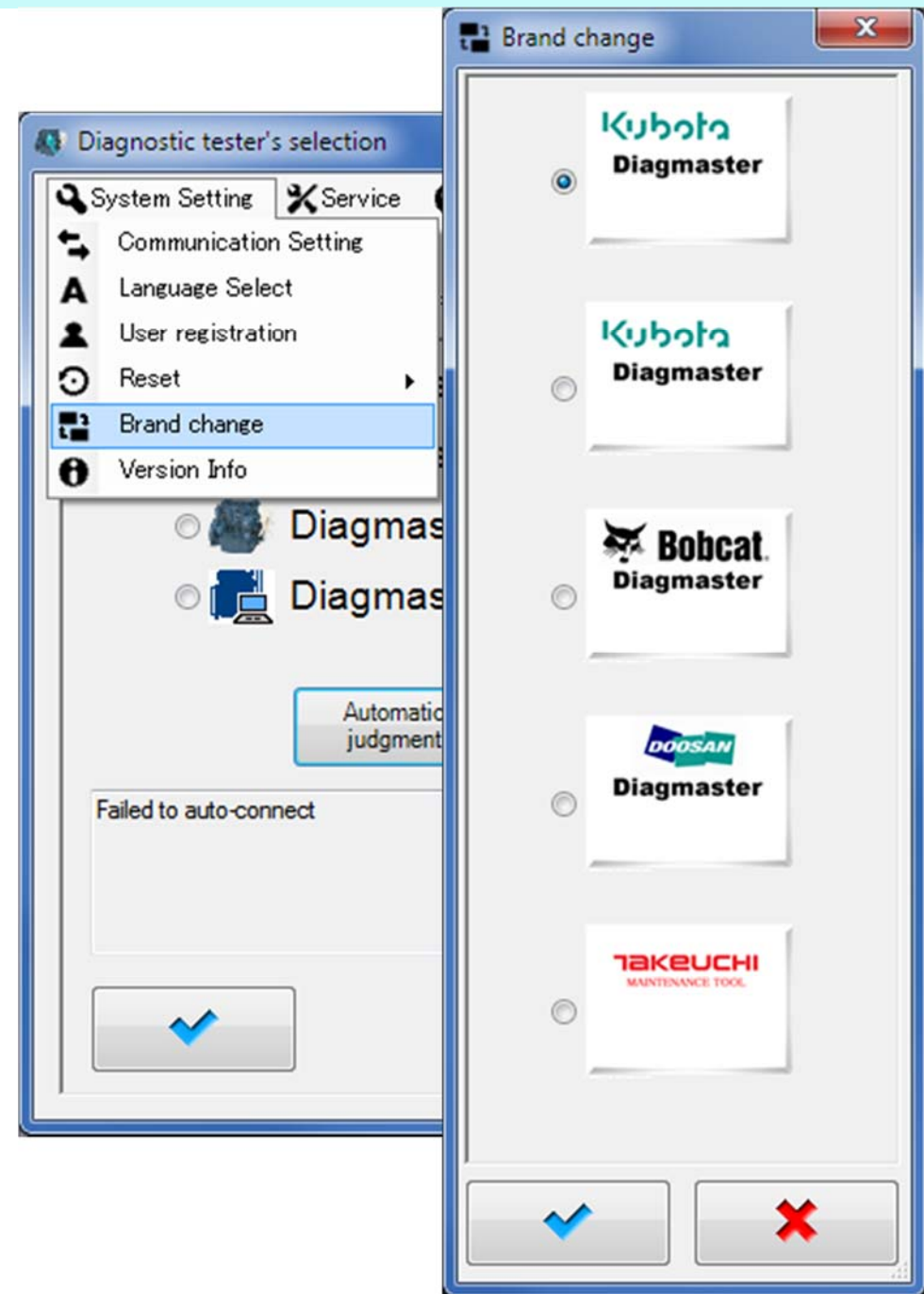
- Forgot your password?
 - Reset (erase users) instead of uninstalling the program.



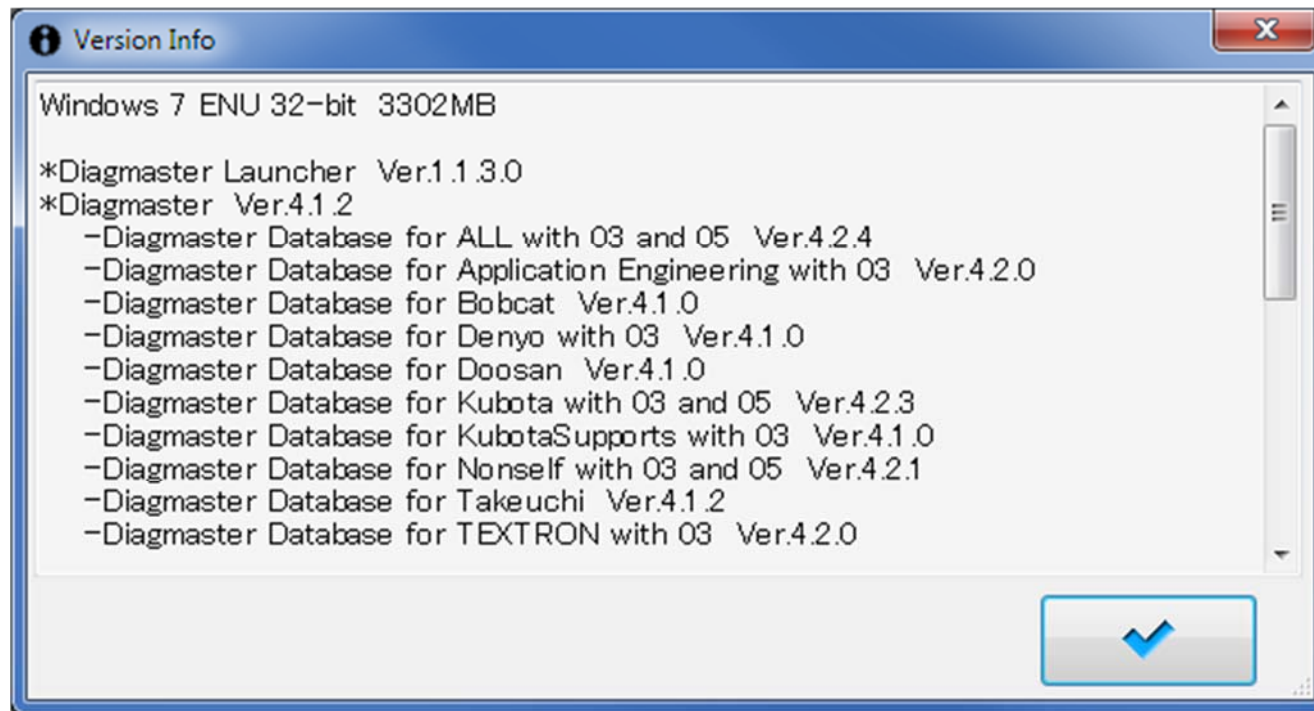
- Manage expiration dates.



- More than one database
 - Choose the desired branding logo.
 - (requires additional databases installed.)



- Version Info.
 - Installed Databases



Control Panel Home

View installed updates

Turn Windows features on or off

Install a program from the network

Uninstall or change a program

To uninstall a program, select it from the list and then click Uninstall, Change, or Repair.

Name	Publisher	Installed On	Size	Version
Diagmaster	Kubota Corporation	08-May-15		4.1.2
DST-i	DENSO CORPORATION	16-Jan-13	10.1 MB	1.1.0
Diagmaster Database for Nonself with 03 and 05	Kubota Corporation	16-May-16		4.2.4
Diagmaster Database for Application Engineering wit...	Kubota Corporation	16-May-16		4.2.0
Diagmaster Database for	Kubota Corporation	29-Sep-15		4.1.1
Diagmaster Database for	Kubota Corporation	06-Oct-14		4.1.0
Diagmaster Database for	Kubota Corporation	20-Jun-16		4.2.0
Diagmaster Database for	Kubota Corporation	08-May-15		4.1.1
Diagmaster Database for	Kubota Corporation	06-Oct-14		4.1.0
Diagmaster Database for	Kubota Corporation	16-May-16		4.2.0
Diagmaster Database for	Kubota Corporation	06-Oct-14		4.1.0
Diagmaster Database for	Kubota Corporation	20-Jun-16		4.2.0
Diagmaster Database for	Kubota Corporation	18-Jan-16		4.1.2
Diagmaster Database for	Kubota Corporation	18-Jan-16		4.1.2
Diagmaster Database for	Kubota Corporation	20-Jun-16		4.2.0
Diagmaster Database for	Kubota Corporation	16-May-16		4.2.3
Diagmaster Database for	Kubota Corporation	06-Oct-14		4.1.0
Diagmaster Database for	Kubota Corporation	03-May-16		4.2.0
Diagmaster Database for	Kubota Corporation	03-May-16		4.2.0
Diagmaster Database for	Kubota Corporation	16-May-16		4.2.0
Diagmaster Database for	Kubota Corporation	16-May-16		4.2.0
Diagmaster Database for	Kubota Corporation	16-May-16		4.2.1
Diagmaster Database for	Kubota Corporation	18-Jan-16		4.1.2
Diagmaster Database for	Kubota Corporation	06-Oct-14		4.1.0
Diagmaster Database for	Kubota Corporation	20-Jun-16		4.2.0
Diagmaster Database for	Kubota Corporation	02-Oct-14		4.1.0

Currently installed programs

Release Notes

Ver. ALL_4.2.4

ReInote

Date: 2016/5/13

Filename:

SetUp_Diagmaster_DB_For_ALL_With_03_05_Ver4.2.4.exe

Distribution:

Internal Use for Kubota Engine Division and Kubota Sales Companies(Engine)

Operational Requirements:

SetUp_Diagmaster_Ver420.exe or Upper version
Microsoft .NET Framework 2.0 or Upper version

Revision of Contents:

Launcher	Ver.1.1.3	Upgrade Function
Program for 03	Ver.4.2.0	Upgrade Function
Program for 05	Ver.4.1.2	Upgrade Function
DB for V38,V61,07	ALL_4.2.4	Supports additional models.
DB for 03	ALL_4.2.4	Supports additional models.
DB for 05	ALL_4.2.4	(not changed)

Improvements/Enhancements:

4.1.8→4.2.0

- Supports new function to test SCR/ACU.
- Restriction to DPF Reset Function: Need input new DPF Parts/Serial Number.
- Addition of the Signal-Groups.
- Addition of the model to support.
- Additional Manual-link of the model to support.
- Basical update to support multi-languages.

4.2.0→4.2.1

- Addition of the model to support.
- Correction of the model names.

4.2.1→4.2.2

- Addition of the flowlink.
- Fix problems to diagnose 03 engines
- Correction of the model names.

4.2.2→4.2.3

- Fix a problem to diagnose 03 engines.(L44SV, etc.)
- Addition of the model to support.
- Correction of the model names.

4.2.3→4.2.4

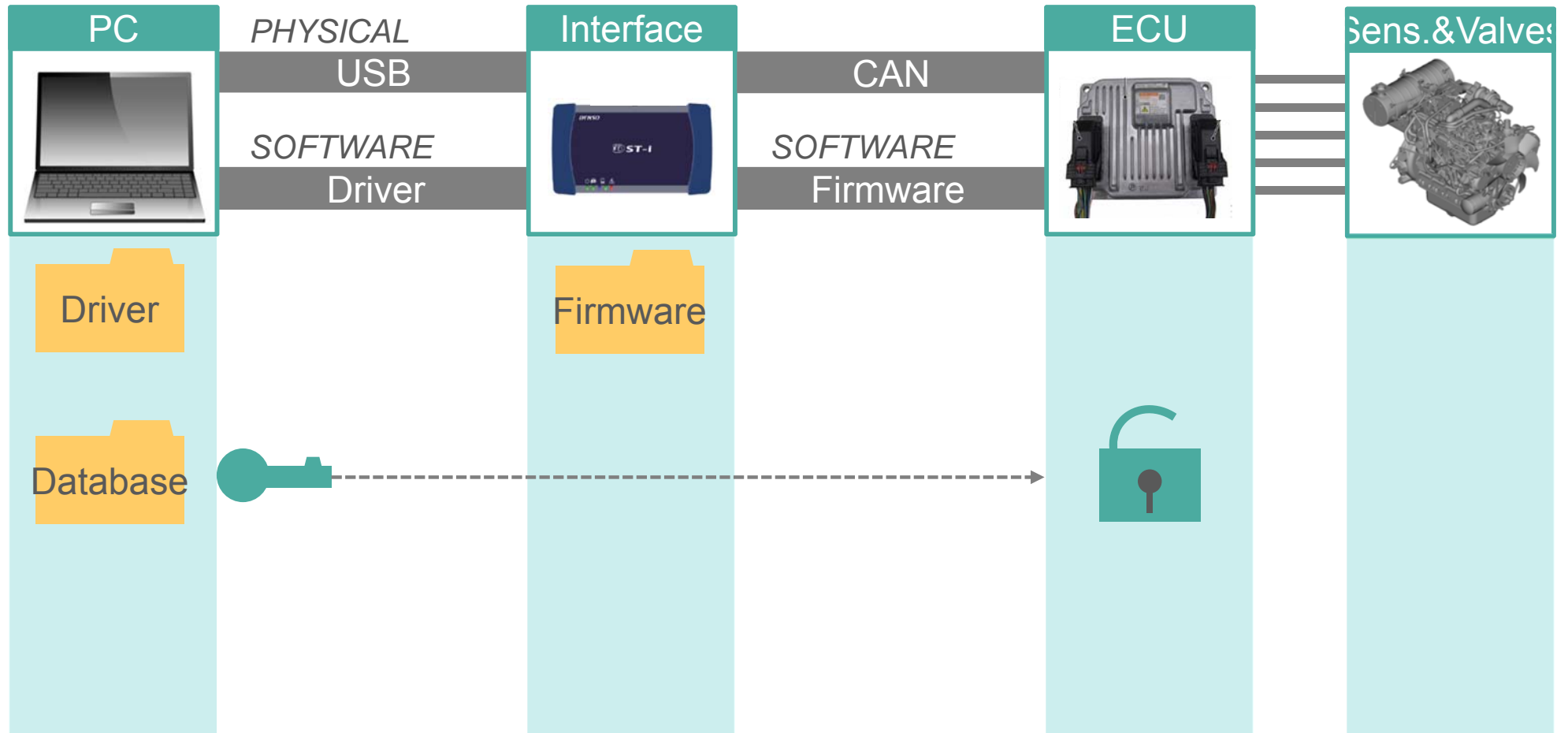
- Supports Built-In files for 07DOC models.
- Addition of the model to support.
- Correction of the model names.

- Installed database info.
- The Database has communication limitations.

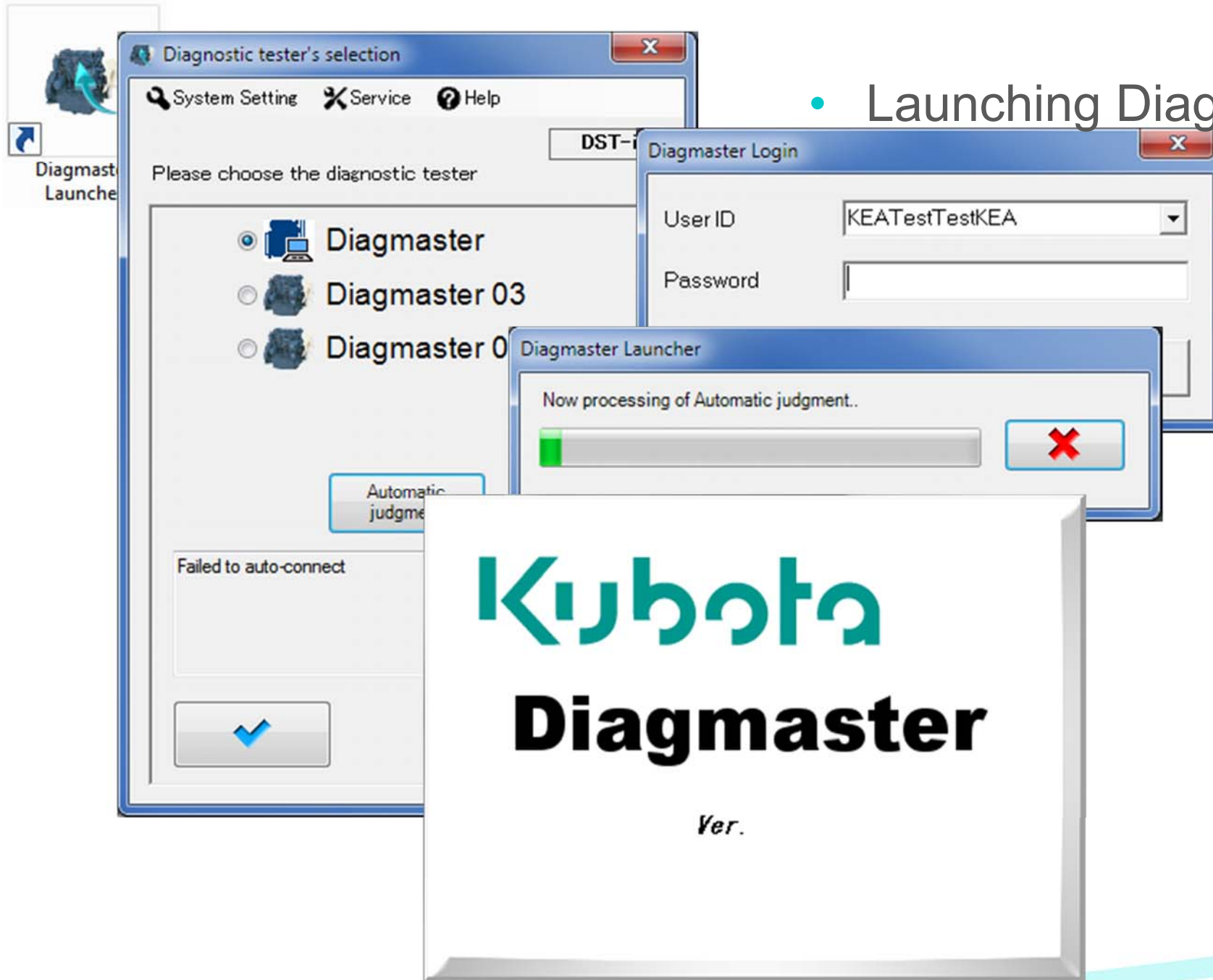
Requirements for connecting.

Hardware : (1) DST-i

Software : (1) Driver (2) Database (3) Diagmaster (※) Firmware



- Launching Diagmaster



Diagmaster

Kubota Diagmaster

*** Before starting diagnosis**

1. Connect the data link cable and USB cable to the vehicle.
2. Connect the interface (PYTHON or DST-i) to the vehicle's data link connector (DLC).
3. Connect the data link cable to the vehicle's data link connector (DLC).
4. Turn the vehicle key switch ON.
5. In case of using PYTHON, set the operating settings in the interface. (If necessary, if the connecting USB port has not been changed.)

*** Starting diagnosis**

1. Click [Start Diagnosis] from the menu to the lower left.

*** Stopping diagnosis**

1. Click [Exit Application] from the menu to the lower left.
2. Turn the vehicle key switch OFF.
3. Disconnect the data link cable from the vehicle's data link connector (DLC).
4. Disconnect the interface (PYTHON or DST-i) from the USB port off the PC.

Working History

Project Name	Working Date	User ID	Target	Brand	M...
untitled <15-06-16 12:06 >	15-06-16 12:06	KEATestTestKEA	ECU, BaudRate :	Diagmaster	Ex
untitled <15-06-16 09:42 >	15-06-16 09:42	KEATestTestKEA	ECU, BaudRate :	Diagmaster	Ex
untitled <17-06-16 12:22 >	17-06-16 12:22	KEATestTestKEA	ECU, BaudRate :	Diagmaster	Ve
untitled <15-06-16 14:08 >	15-06-16 14:08	KEATestTestKEA	ECU, BaudRate :	Diagmaster	Ex
untitled <6/8/2016 7:58 AM >	6/8/2016 7:58 AM	scottelder	Engine ECU, Ba	Diagmaster	Ti
untitled <17-05-16 09:42 >	17-05-16 09:42	KEATestTestKEA	ECU, BaudRate :	Diagmaster	Dc
untitled <20-04-16 18:39 >	20-04-16 18:39	rdake1983	ECU, BaudRate :	Diagmaster	Ve
untitled <14-04-16 10:51 >	14-04-16 10:51	KEATestTestKEA	ECU, ACU, Baud	Diagmaster	Ta
untitled <14-04-16 10:44 >	14-04-16 10:44	KEATestTestKEA	ECU, BaudRate :	Diagmaster	Ve
Merlo ECU Week 15 2016 W	06-04-16 14:08	KEATestTestKEA	ECU, BaudRate :	Diagmaster	Me
Week 15 2016 Wajax Trainir	06-04-16 14:01	KEATestTestKEA	ECU, BaudRate :	Diagmaster	SP
Manitou Training	31-03-16 15:31	KEATestTestKEA	ECU, BaudRate :	Diagmaster	Me
Kubota training 3/16 regen	3/16/2016 2:49 PM	rdake1983	ECU, BaudRate :	Diagmaster	OI
untitled <16-03-16 13:54 >	16-03-16 13:54	KEATestTestKEA	ECU, BaudRate :	Diagmaster	OI
untitled <04-03-16 15:19 >	04-03-16 15:19	KEATestTestKEA	ECU, BaudRate :	Diagmaster	Ta
untitled <25-01-16 16:04 >	25-01-16 16:04	KEATestTestKEA	ECU, BaudRate :	Diagmaster	SP

Start Diagnosis (Menu)

- New Diagnosis
- Restart Diagnosis

Open Diagnosis History

Start Training

ECU Trim Data

ECU Reprogram

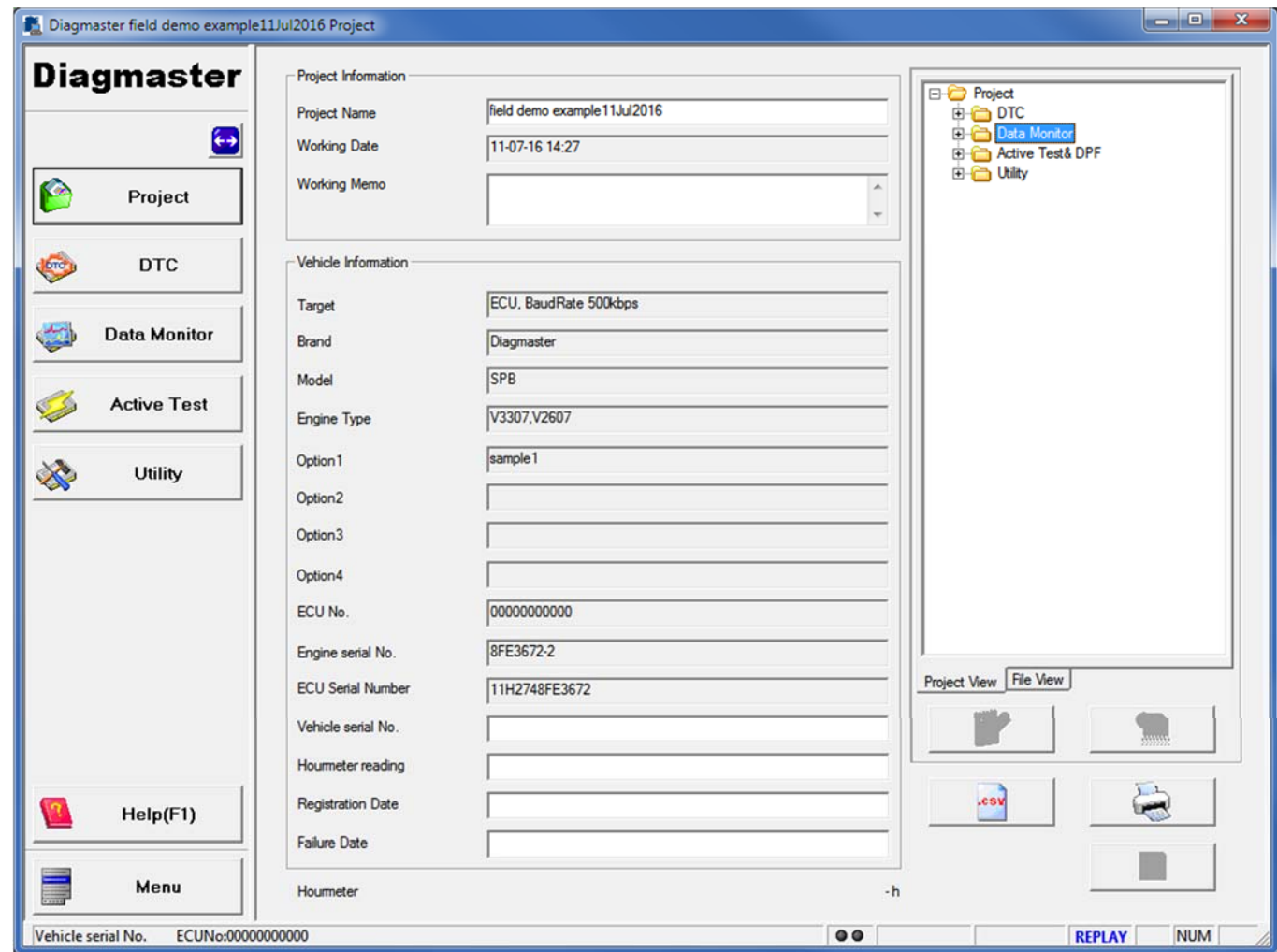
System Setting

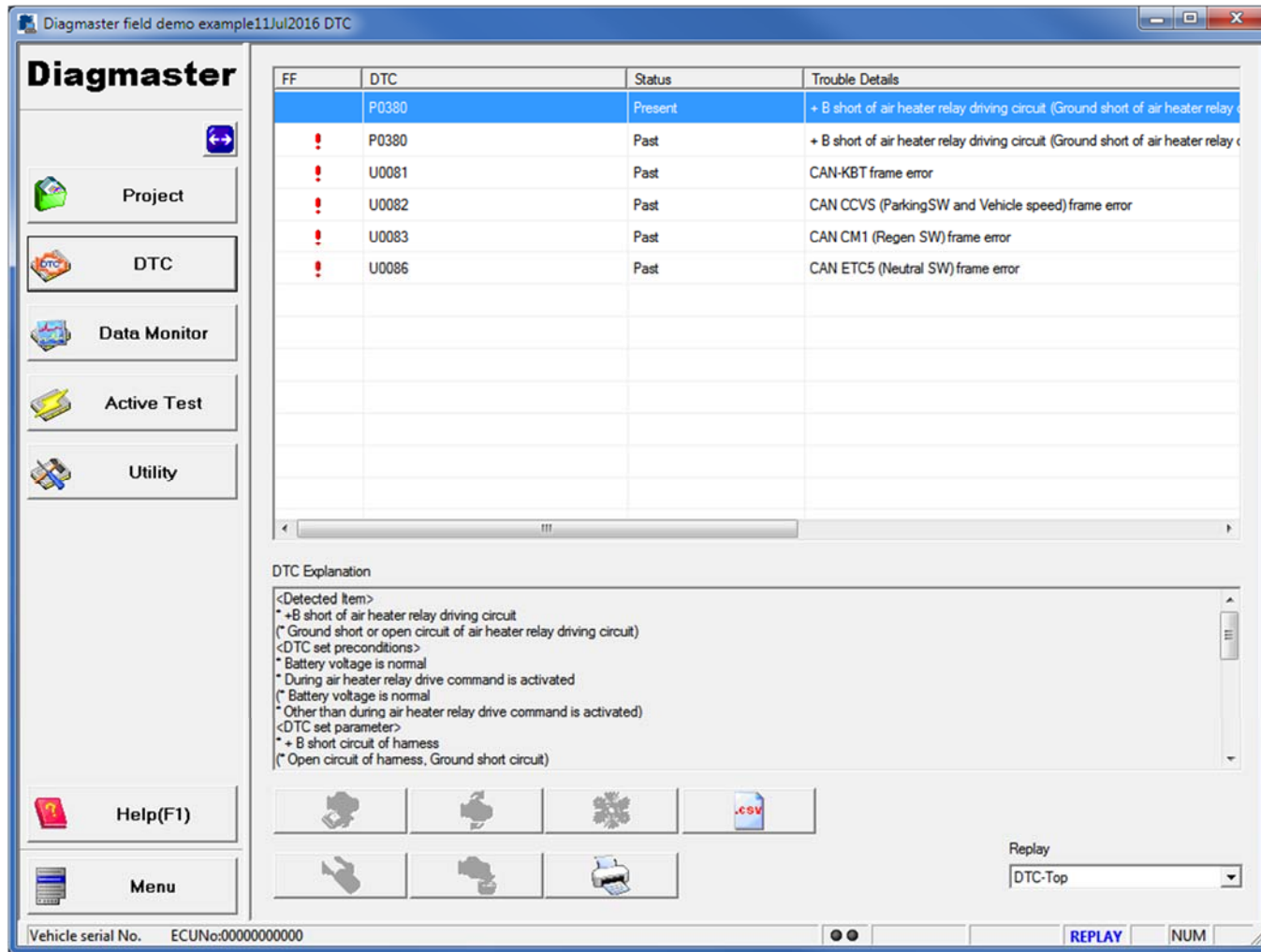
Version Info

Exit Application

Menu

- Project page
 - “Home” page
 - Project view
 - File view
 - Exporting
 - Printing
 - .CSV
 - Editing





The screenshot shows the Diagmaster software interface. The main window displays a table of DTCs with columns for FF, DTC, Status, and Trouble Details. The DTC P0380 is highlighted as 'Present'. Below the table, there is a 'DTC Explanation' section with a scrollable text area containing details for the selected DTC. The interface also includes a sidebar with navigation buttons for Project, DTC, Data Monitor, Active Test, and Utility, and a bottom status bar with vehicle information and control buttons.

FF	DTC	Status	Trouble Details
	P0380	Present	+ B short of air heater relay driving circuit (Ground short of air heater relay c
!	P0380	Past	+ B short of air heater relay driving circuit (Ground short of air heater relay c
!	U0081	Past	CAN-KBT frame error
!	U0082	Past	CAN CCVS (ParkingSW and Vehicle speed) frame error
!	U0083	Past	CAN CM1 (Regen SW) frame error
!	U0086	Past	CAN ETC5 (Neutral SW) frame error

DTC Explanation

<Detected Item>
* +B short of air heater relay driving circuit
(* Ground short or open circuit of air heater relay driving circuit)
<DTC set preconditions>
* Battery voltage is normal
* During air heater relay drive command is activated
(* Battery voltage is normal
* Other than during air heater relay drive command is activated)
<DTC set parameter>
* + B short circuit of harness
(* Open circuit of harness, Ground short circuit)

Vehicle serial No. ECUNo:000000000000

REPLAY NUM

- Diagnostic Trouble Codes
 - Present
 - Past
 - Freeze Frame
 - Clear
 - Save
 - Export
 - Print
 - CSV

- If the status shows Present, check the Trouble Details.
- If similar DTCs exist, begin diagnosis near the affected sensor or valve.

Past

When a DTC is no longer active, its status is changed to Past.

Present

When the engine has an active DTC, its status is Present, and the concern's conditions are occurring now.

FF	DTC	Status	Trouble Details
!	P0016	Past	NE-G phase shift
!	P0087	Past	Pressure limiter emer
!	P0088	Past	High rail pressure
!	P0089	Past	SCV stuck
!	P0093	Past	Fuel leak (in high pre
!	P0112	Past	Intake air temperatur
	P0113	Present	Intake air temperatur
	P0117	Present	Coolant temperature
	P0118	Present	Coolant temperature
	P0182	Present	Fuel temperature ser

Read
DTC



Continually
Read DTC



Read
FF Data



Save to
.csv File



Clear
DTC



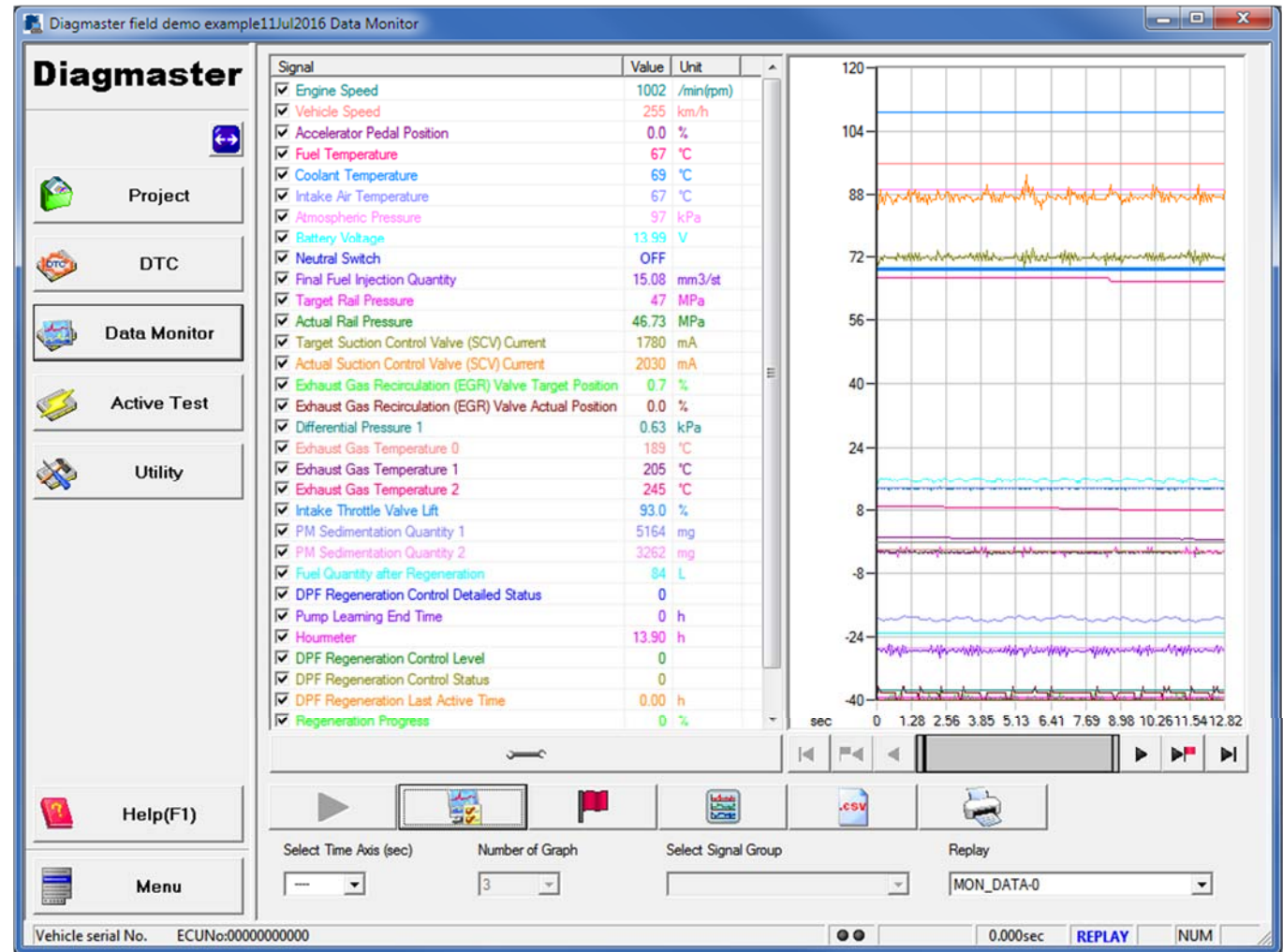
Save DTC
to File



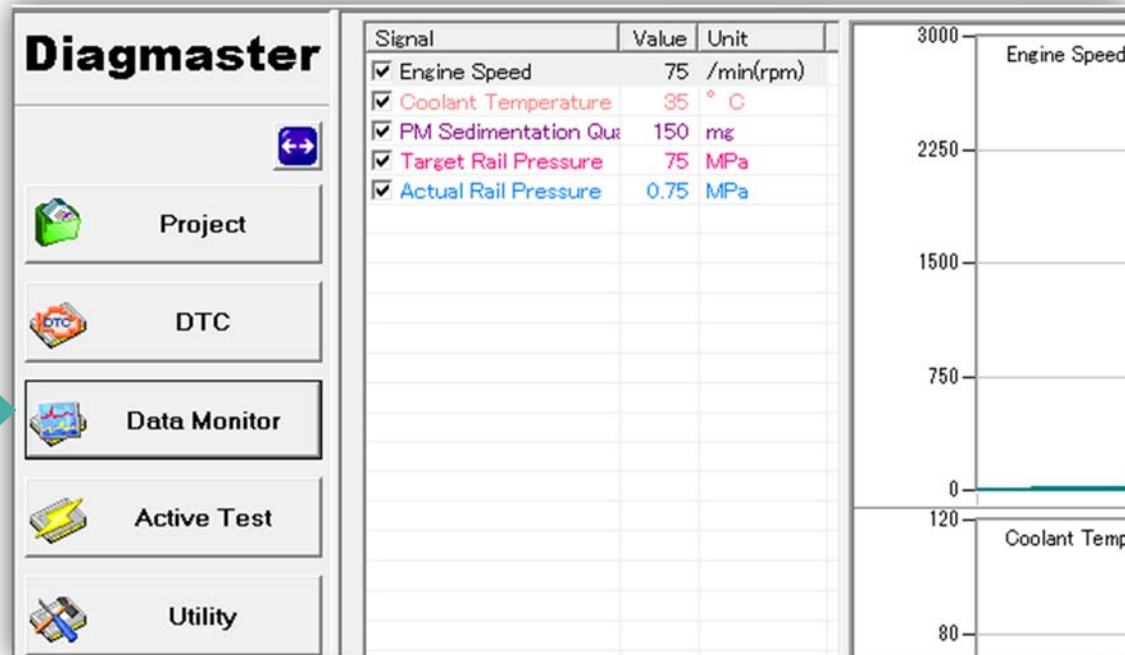
Print DTC
Listed



- Data Monitor
 - Signal Setting
 - Save Setting
 - Export
 - Print
 - CSV



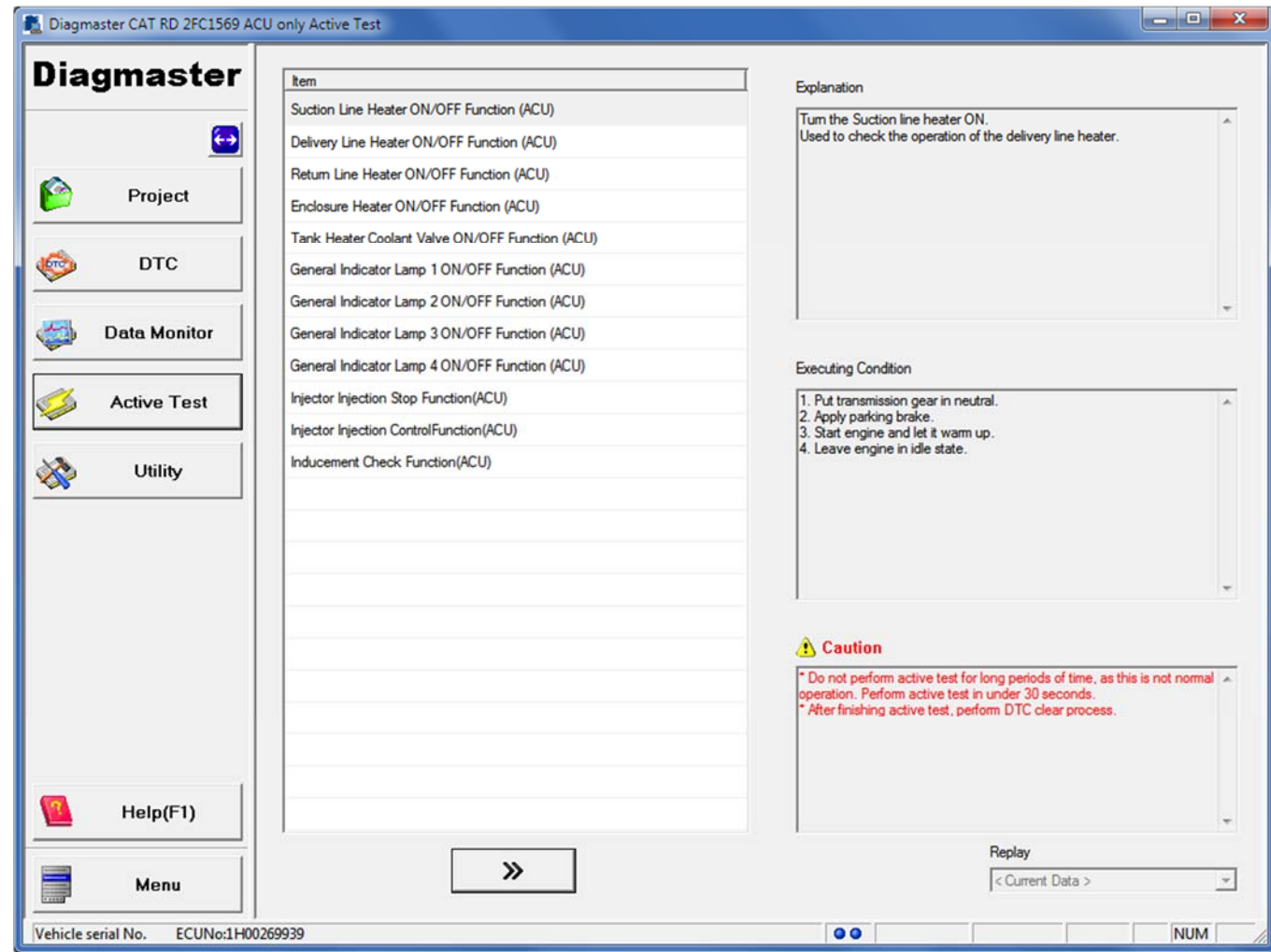
- DTC cannot support all of troubles.
- Sometimes we need to figure out the cause of troubles from parameters.
- Parameters ensure your diagnosis.
- Indication : Actual Rail Pressure should trace Target Rail Pressure.



Essential Parameters

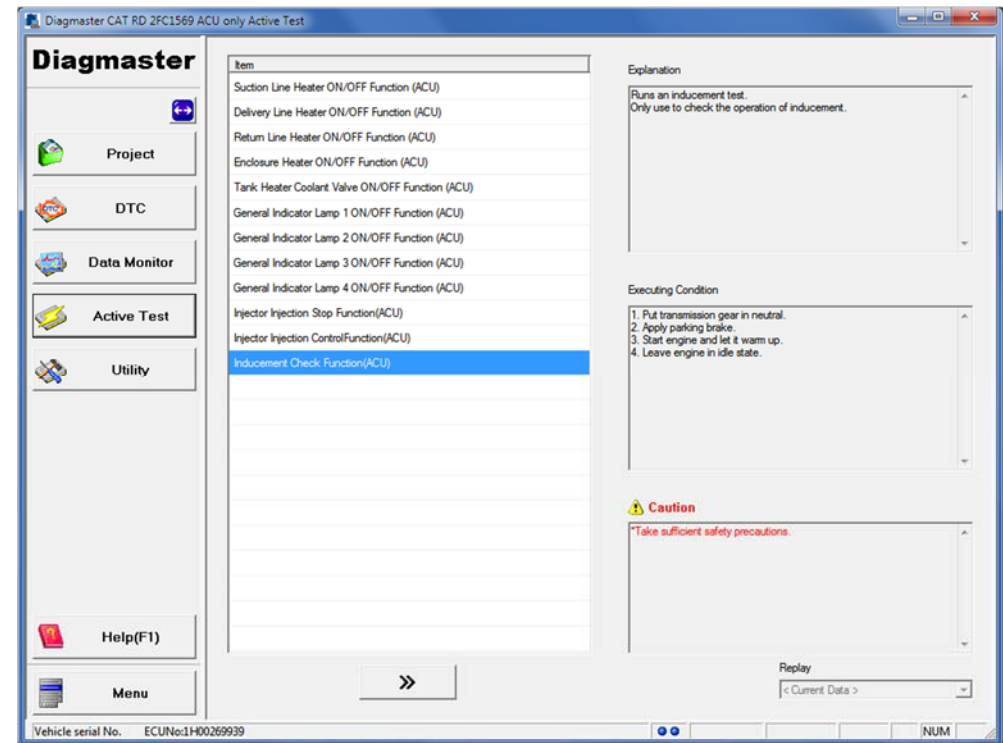
- Engine Speed (rpm)
- Target Rail Pressure
- Actual Rail Pressure

- Active Tests
 - Items*
 - *Vary by ECU
 - Explanation
 - Test details
 - Run Conditions
 - Enabling criteria
 - Cautions
 - Supplemental criteria

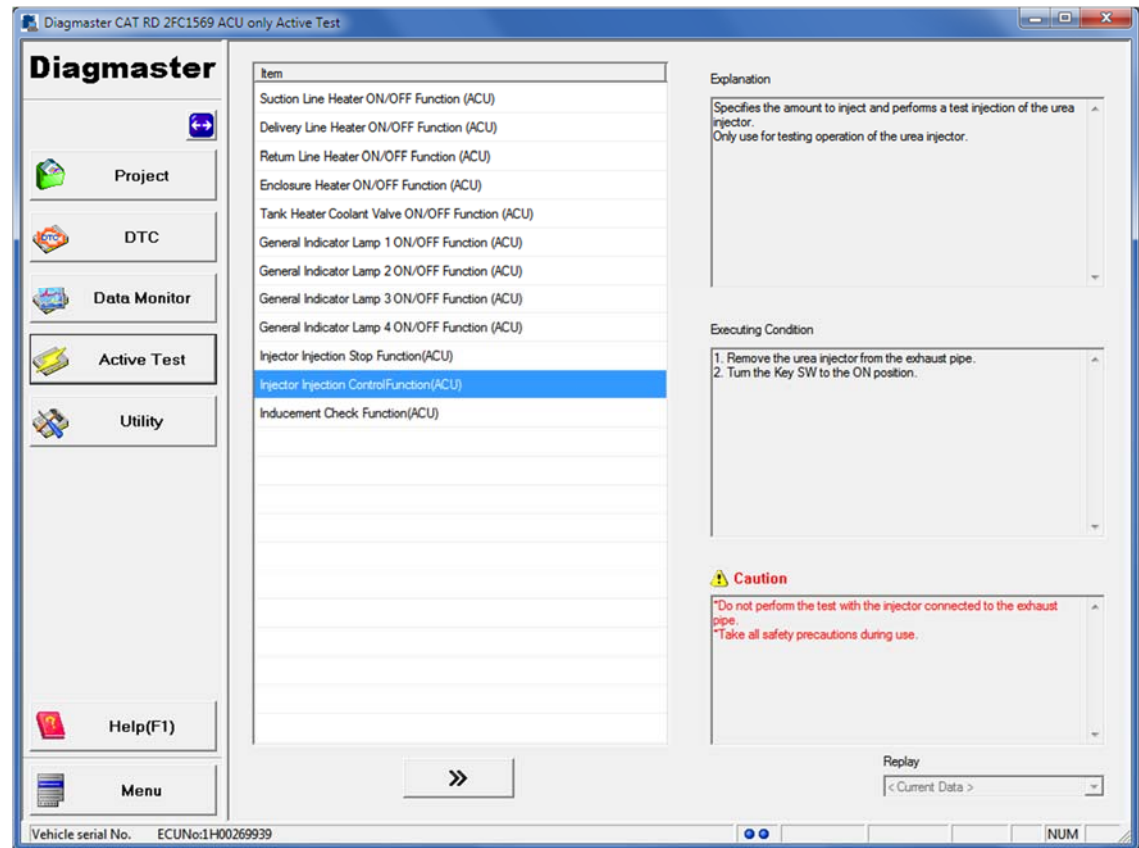


- Active Test
- Data monitor
- Changing Specified Values

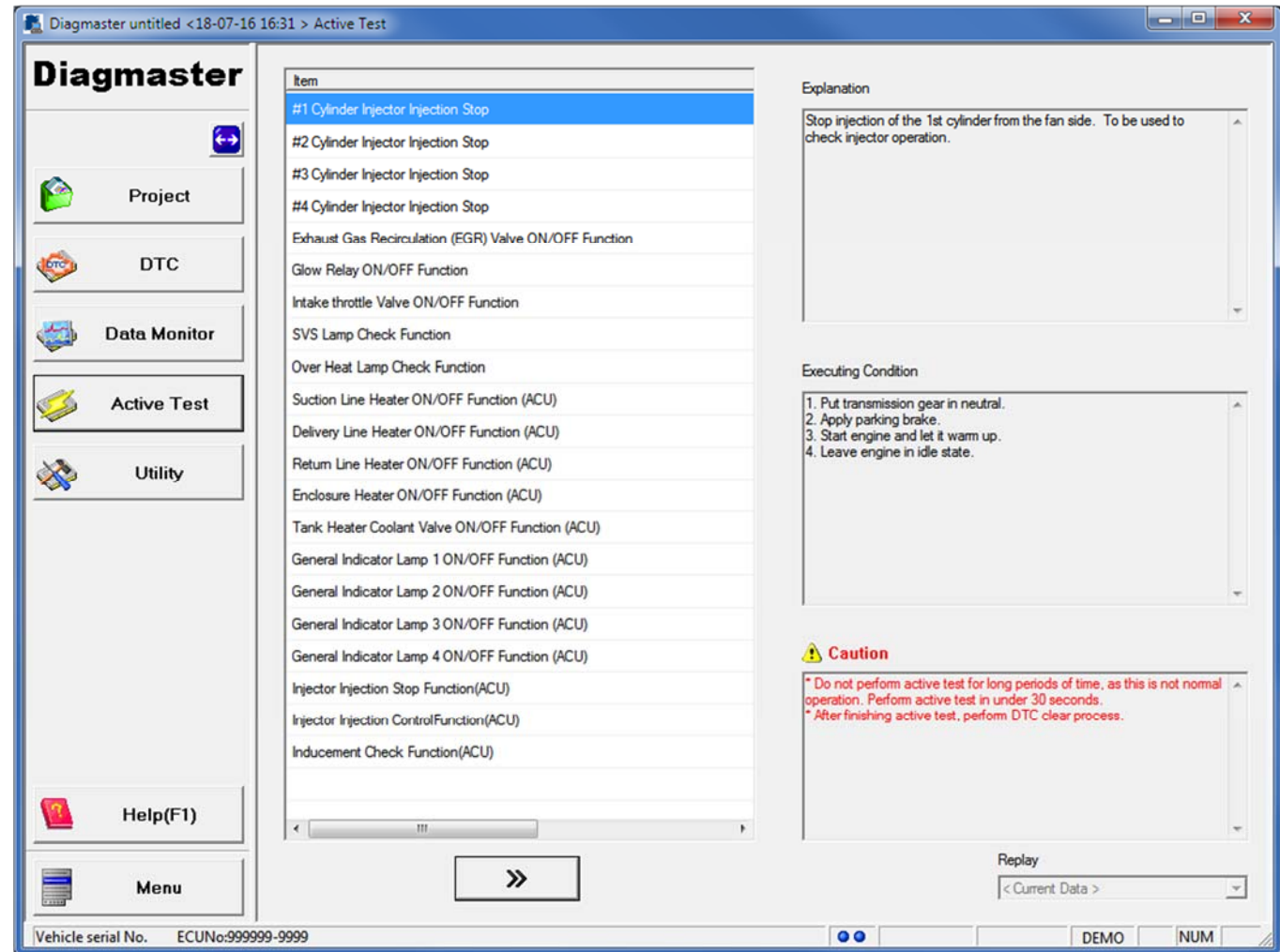
- Active Test
 - Inducement
 - Replicates inducement criteria.
 - Level 1
 - Level 2
 - About 10-15 minutes.
 - DEF heaters
 - Checks output
 - Automated
 - Suction line
 - Delivery line
 - Return line
 - Enclosure
 - Coolant valve
 - App. Review Electrical Check



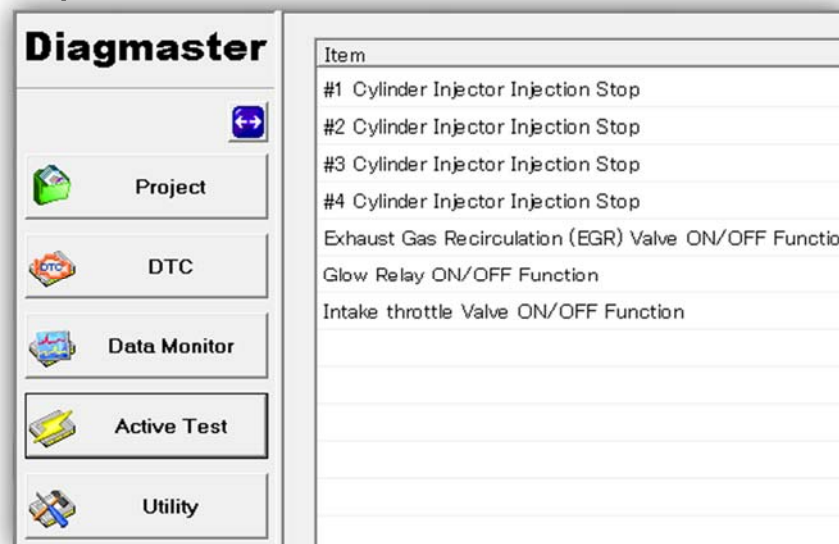
- Active Test
 - DEF inj. Check
 - Stop check
 - Start flow check



- Active Test
(some variances)



- Active Test enables to check electrical valves by switching ON/OFF.
- especially, Injection Stop is very useful for diagnosis. (the easiest way to check fuel system.)
- Valve ON/OFF is difficult to check by your eyes. We have to listen to operating noise carefully.
- Injection Stop is required for Injector maintenance (1500hr)



Active Test

- Injection stop
- EGR valve ON/OFF
- Glow relay ON/OFF
- Throttle valve ON/OFF

- Start engine and leave in idle state.
- Connect engine and PC, and start Diagmaster.
- Choose “Enclosure heater ON/OFF Function (ACU)” from Active test.
- Adds item of enclosure heater current to data monitor and start to log.

Item added for this test

Analog input voltage
for enclosure line heater current
(ACU)

• Procedure is the same as active test of DEF Tube heater.

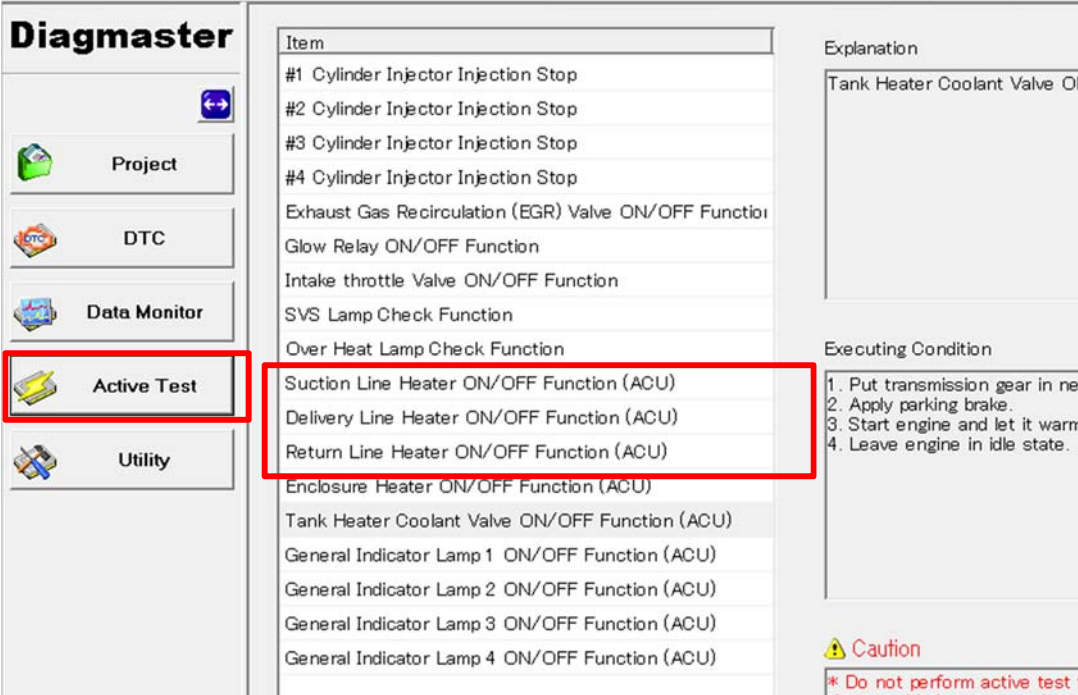
The screenshot shows the Diagmaster software interface. On the left, a sidebar menu includes 'Project', 'DTC', 'Data Monitor', 'Active Test' (highlighted with a red box), and 'Utility'. The main window displays a list of test items, with 'Enclosure Heater ON/OFF Function (ACU)' highlighted in red. To the right, there are sections for 'Explanation' (containing 'Tank Heater Coolant Valve ON/OFF Function (ACU)'), 'Executing Condition' (listing steps: 1. Put transmission gear in neutral, 2. Apply parking brake, 3. Start engine and let it warm up, 4. Leave engine in idle state.), and a 'Caution' section with a warning icon and text: '* Do not perform active test for long time as this is not normal operation'.

Item	Explanation
#1 Cylinder Injector Injection Stop	Tank Heater Coolant Valve ON/OFF Function (ACU)
#2 Cylinder Injector Injection Stop	
#3 Cylinder Injector Injection Stop	
#4 Cylinder Injector Injection Stop	
Exhaust Gas Recirculation (EGR) Valve ON/OFF Function (ACU)	Executing Condition 1. Put transmission gear in neutral 2. Apply parking brake. 3. Start engine and let it warm up. 4. Leave engine in idle state.
Glow Relay ON/OFF Function (ACU)	
Intake throttle Valve ON/OFF Function (ACU)	
SVS Lamp Check Function (ACU)	
Over Heat Lamp Check Function (ACU)	
Suction Line Heater ON/OFF Function (ACU)	
Delivery Line Heater ON/OFF Function (ACU)	
Return Line Heater ON/OFF Function (ACU)	
Enclosure Heater ON/OFF Function (ACU)	
Tank Heater Coolant Valve ON/OFF Function (ACU)	
General Indicator Lamp 1 ON/OFF Function (ACU)	Caution * Do not perform active test for long time as this is not normal operation
General Indicator Lamp 2 ON/OFF Function (ACU)	
General Indicator Lamp 3 ON/OFF Function (ACU)	
General Indicator Lamp 4 ON/OFF Function (ACU)	

- Start engine and leave in idle state.
- Connect engine and PC, and start Diagmaster.
- Choose Suction/Delivery/Return line heater ON/OFF function from active test.
- Adds item of Suction/Delivery/Return line heater current to data monitor and starts to log.

Item added for this test

Analog input voltage
for Suction/Delivery/Return line
heater current (ACU)
(*Choose item for each test)



The screenshot shows the Diagmaster software interface. On the left, a vertical menu contains icons and labels for 'Project', 'DTC', 'Data Monitor', 'Active Test', and 'Utility'. The 'Active Test' option is highlighted with a red box. The main window displays a list of test items, with three items highlighted in red: 'Suction Line Heater ON/OFF Function (ACU)', 'Delivery Line Heater ON/OFF Function (ACU)', and 'Return Line Heater ON/OFF Function (ACU)'. To the right of the list is an 'Explanation' section with a table containing 'Tank Heater Coolant Valve ON/OFF Function (ACU)'. Below the list is an 'Executing Condition' section with a numbered list of steps: 1. Put transmission gear in neutral, 2. Apply parking brake, 3. Start engine and let it warm up, 4. Leave engine in idle state. At the bottom right, there is a 'Caution' icon and text: '* Do not perform active test for a long time, as this is not normal operation.'

Item	Explanation
#1 Cylinder Injector Injection Stop	
#2 Cylinder Injector Injection Stop	
#3 Cylinder Injector Injection Stop	
#4 Cylinder Injector Injection Stop	
Exhaust Gas Recirculation (EGR) Valve ON/OFF Function (ACU)	
Glow Relay ON/OFF Function (ACU)	
Intake throttle Valve ON/OFF Function (ACU)	
SVS Lamp Check Function (ACU)	
Over Heat Lamp Check Function (ACU)	
Suction Line Heater ON/OFF Function (ACU)	
Delivery Line Heater ON/OFF Function (ACU)	
Return Line Heater ON/OFF Function (ACU)	
Enclosure Heater ON/OFF Function (ACU)	
Tank Heater Coolant Valve ON/OFF Function (ACU)	
General Indicator Lamp 1 ON/OFF Function (ACU)	
General Indicator Lamp 2 ON/OFF Function (ACU)	
General Indicator Lamp 3 ON/OFF Function (ACU)	
General Indicator Lamp 4 ON/OFF Function (ACU)	

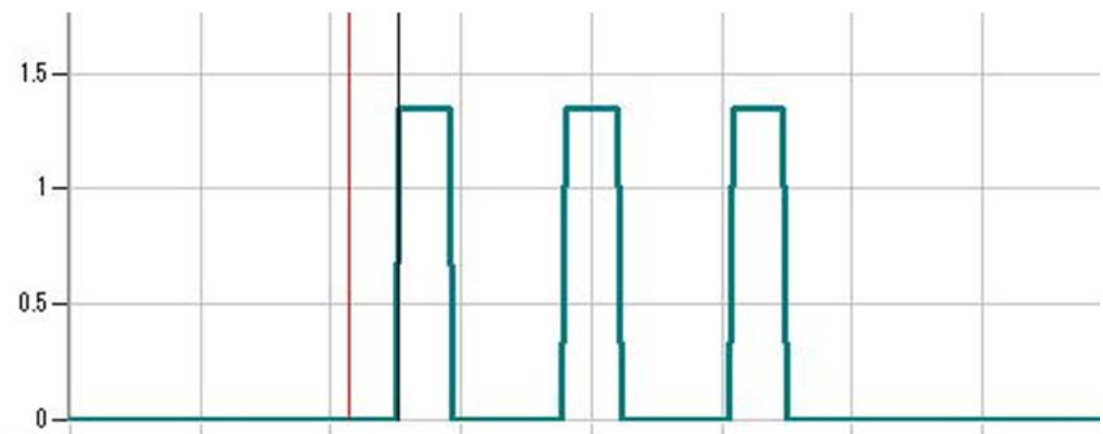
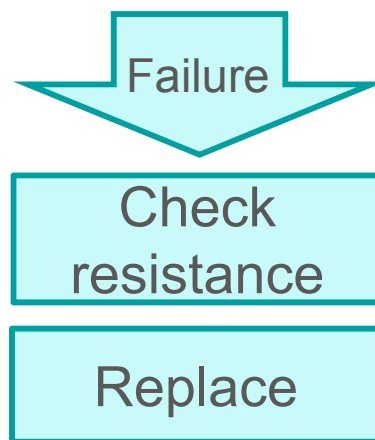
Executing Condition

1. Put transmission gear in neutral
2. Apply parking brake.
3. Start engine and let it warm up
4. Leave engine in idle state.

Caution
* Do not perform active test for a long time, as this is not normal operation.

- Starts active test, then current flows 3 times automatically.
- Check that current is generated.

DEF Pump heater operating test	
Reference Value	Current is generated (not that 0 A)



• Check the presence of current because it is calculated value.

- Start engine and leave in idle state.
- Connect engine and PC, and start Diagmaster.
- Choose Tank heater coolant valve ON/OFF function (ACU) from active test.
- Adds coolant valve status to data monitor and starts to log.

Tools : Diagmaster

Item added for this test

Coolant valve status

The screenshot shows the Diagmaster software interface. On the left, a vertical menu contains several options: Project, DTC, Data Monitor, Active Test (highlighted with a red box), and Utility. The main window displays a list of test items. The item 'Tank Heater Coolant Valve ON/OFF Function (ACU)' is highlighted with a red box. To the right of the list, there is an 'Explanation' section and an 'Executing Condition' section. The 'Executing Condition' section contains a numbered list of steps: 1. Put transmission gear in neutral, 2. Apply parking brake, 3. Start engine and let it warm up, 4. Leave engine in idle state. At the bottom right, there is a 'Caution' warning icon and text: '* Do not perform active test for a long time as this is not normal operation'.

Item	Explanation
#1 Cylinder Injector Injection Stop	Tank Heater Coolant Valve ON/OFF Function (ACU)
#2 Cylinder Injector Injection Stop	
#3 Cylinder Injector Injection Stop	
#4 Cylinder Injector Injection Stop	
Exhaust Gas Recirculation (EGR) Valve ON/OFF Function (ACU)	Executing Condition 1. Put transmission gear in neutral 2. Apply parking brake. 3. Start engine and let it warm up 4. Leave engine in idle state.
Glow Relay ON/OFF Function (ACU)	
Intake throttle Valve ON/OFF Function (ACU)	
SVS Lamp Check Function (ACU)	
Over Heat Lamp Check Function (ACU)	
Suction Line Heater ON/OFF Function (ACU)	
Delivery Line Heater ON/OFF Function (ACU)	
Return Line Heater ON/OFF Function (ACU)	
Enclosure Heater ON/OFF Function (ACU)	
Tank Heater Coolant Valve ON/OFF Function (ACU)	
General Indicator Lamp 1 ON/OFF Function (ACU)	
General Indicator Lamp 2 ON/OFF Function (ACU)	
General Indicator Lamp 3 ON/OFF Function (ACU)	
General Indicator Lamp 4 ON/OFF Function (ACU)	

- Starts active test.
- Check that valve operates 3 times automatically.
- Used primarily for purging the system.

Checking coolant valve operation

Judgment
standard

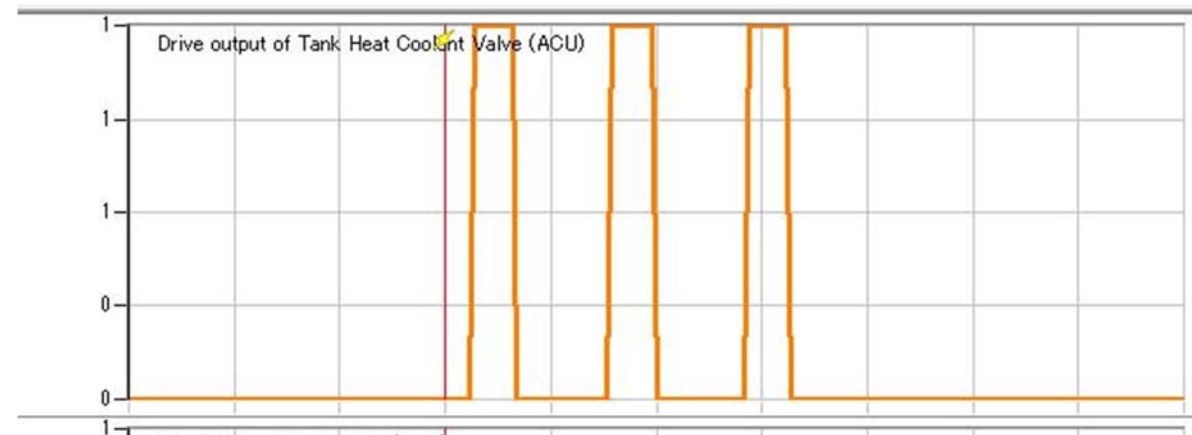
Coolant valve status
plots like right.

Failure

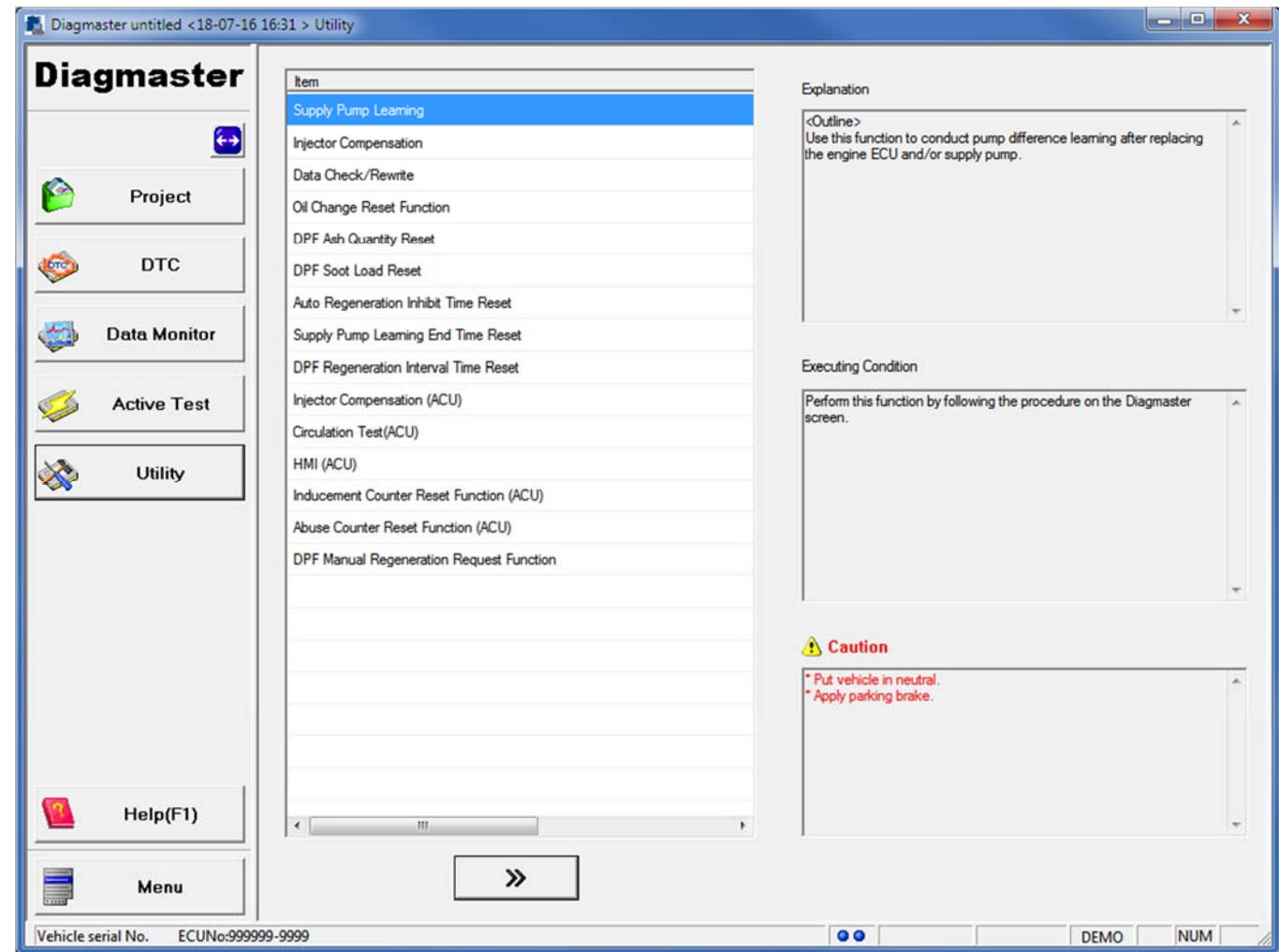
Check coil
resistance

Failure

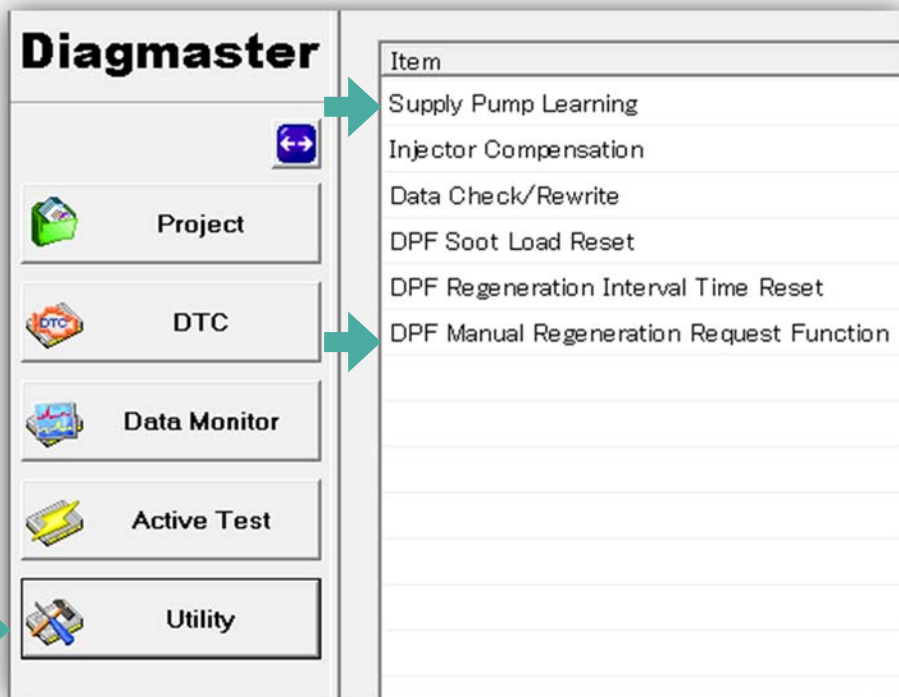
Replace



- Utility Tests
 - ACU
 - ECU



- When an ECU is replaced...
 - Need to register *Injector Compensation* and *Injection Timing Correction* from K-iSS.
 - New ECU doesn't know the real DPF status such as PM Level.
 - *Manual Re-gen* conform actual PM Lv to ECU's PM Lv.



After replacing ECU...

Reset DPF data or calibration required, because new ECU doesn't know your engine well.

- Supply Pump Learning
- DPF Manual Regeneration
- Check ECU Trim data is correct

- Utility Test
 - Resets
 - Relearning

The image displays three overlapping windows from the Diagmaster CAT RD 2FC1569 ACU only Utility. The top window shows the main menu with 'Project' and 'DTC' options, and a list of functions including 'Abuse Counter Reset Function (ACU)'. The middle window shows the 'Abuse Counter Reset Function (ACU)' utility test screen, displaying the description: '<Step 1> Press the "Start" button to start this function.' and a 'Data Display' table. The bottom window shows the same utility test screen, displaying the description: '<Step 2> The procedure has been completed. Press CLOSE button to exit.' and a 'Data Display' table. Both utility test windows include a 'Caution' section with the text 'No Caution'. The vehicle serial number 'ECUNo:1H00269939' is visible at the bottom of the utility test windows.

Diagmaster CAT RD 2FC1569 ACU only Utility

Diagmaster

Item

- Data Check/Rewrite
- Injector Compensation (ACU)
- Circulation Test(ACU)
- HMI (ACU)
- Inducement Counter Reset Function (ACU)
- Abuse Counter Reset Function (ACU)**

Explanation

<Outline>
This function is used to reset the Abuse Counter.

Executing Condition

Perform this function by following the procedure on the screen.

Utility

Abuse Counter Reset Function (ACU)

Description

<Step 1>
Press the "Start" button to start this function.

Data Display

Item	Value	Unit
------	-------	------

Caution
No Caution

Vehicle serial No. ECUNo:1H00269939

Utility

Abuse Counter Reset Function (ACU)

Description

<Step 2>
The procedure has been completed.
Press CLOSE button to exit.

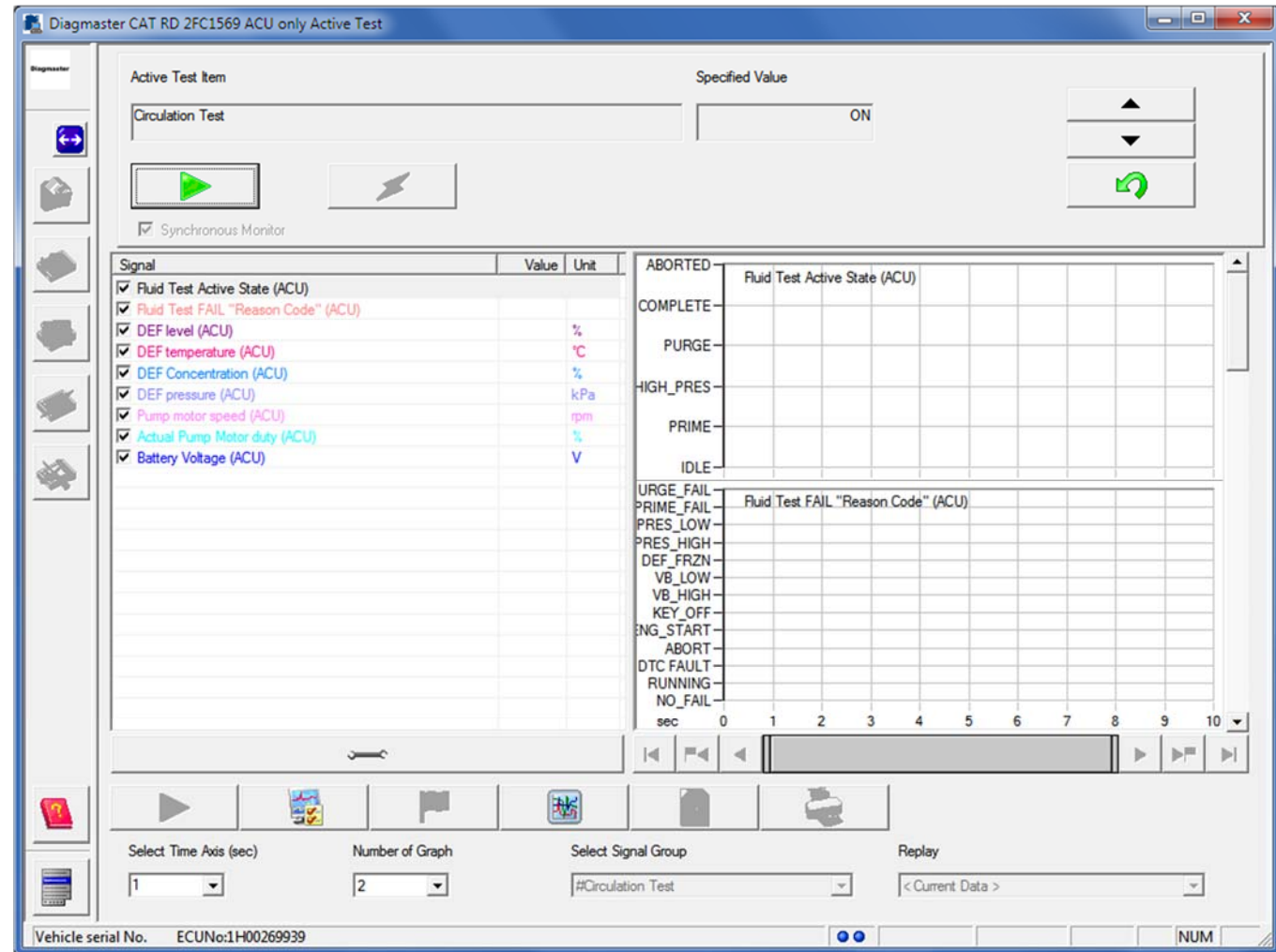
Data Display

Item	Value	Unit
------	-------	------

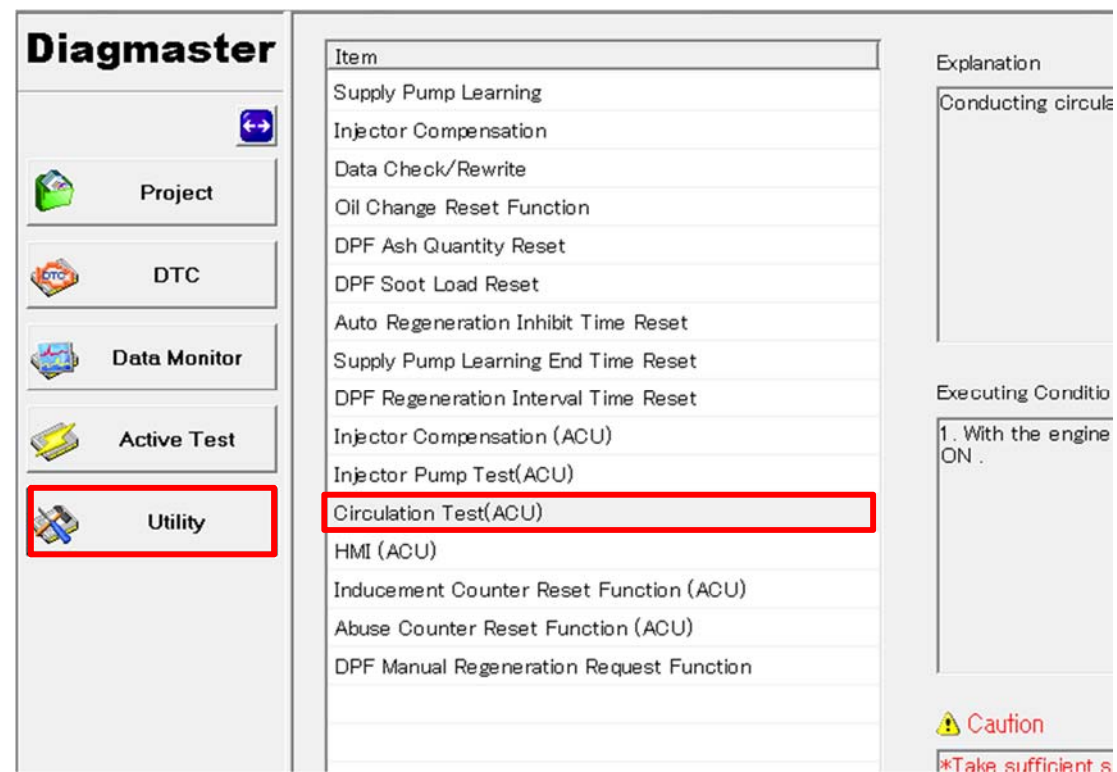
Caution
No Caution

Vehicle serial No. ECUNo:1H00269939

- Utility
 - ACU Circulation



- Connect engine and PC, and start Diagmaster with key-on.
- Choose “Circulation Test (ACU)” from Utility.



• Do test with stopping engine.

- Starts the test.
- DEF pump operates automatically.
- Check that DEF circulation test detail status becomes <0: Idle>→ <1: Prime>→ <2: High press.>→ <3: Purge>→ <4: Complete>

Operating test of DEF Pump	
Judgment Standard	Status became 4:complete after test.



Check DEF line

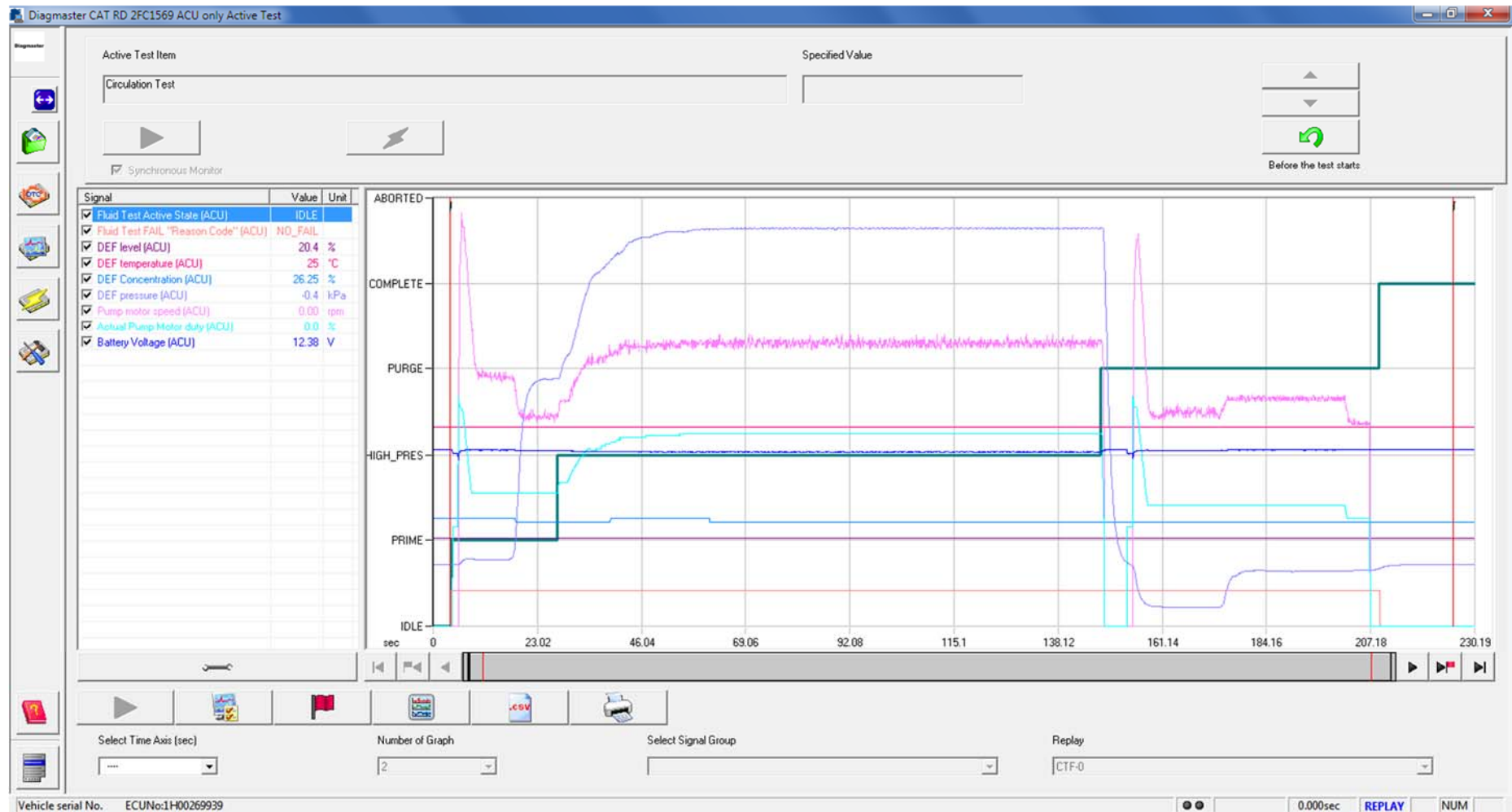
Replace

Diagmaster

- Project
- DTC
- Data Monitor
- Active Test
- Utility**

Item	Explanation
Supply Pump Learning	Conducting circula
Injector Compensation	
Data Check/Rewrite	
Oil Change Reset Function	
DPF Ash Quantity Reset	
DPF Soot Load Reset	
Auto Regeneration Inhibit Time Reset	
Supply Pump Learning End Time Reset	
DPF Regeneration Interval Time Reset	
Injector Compensation (ACU)	
Injector Pump Test(ACU)	
Circulation Test(ACU)	Executing Conditio
HMI (ACU)	
Inducement Counter Reset Function (ACU)	
Abuse Counter Reset Function (ACU)	
DPF Manual Regeneration Request Function	1. With the engine ON .
	*Take sufficient s

Caution
*Take sufficient s



- Utility Tests
 - HMI (under construction)

The image displays two overlapping windows from the 'Diagmaster CAT RD 2FC1569 ACU only Utility' software.

The background window, titled 'Diagmaster', shows a list of items:

- Data Check/Rewrite
- Injector Compensation (ACU)
- Circulation Test(ACU)
- HMI (ACU)** (highlighted)
- Inducement Counter Reset Function (ACU)
- Abuse Counter Reset Function (ACU)

The foreground window, titled 'Utility', is the 'HMI' configuration screen. It contains the following sections:

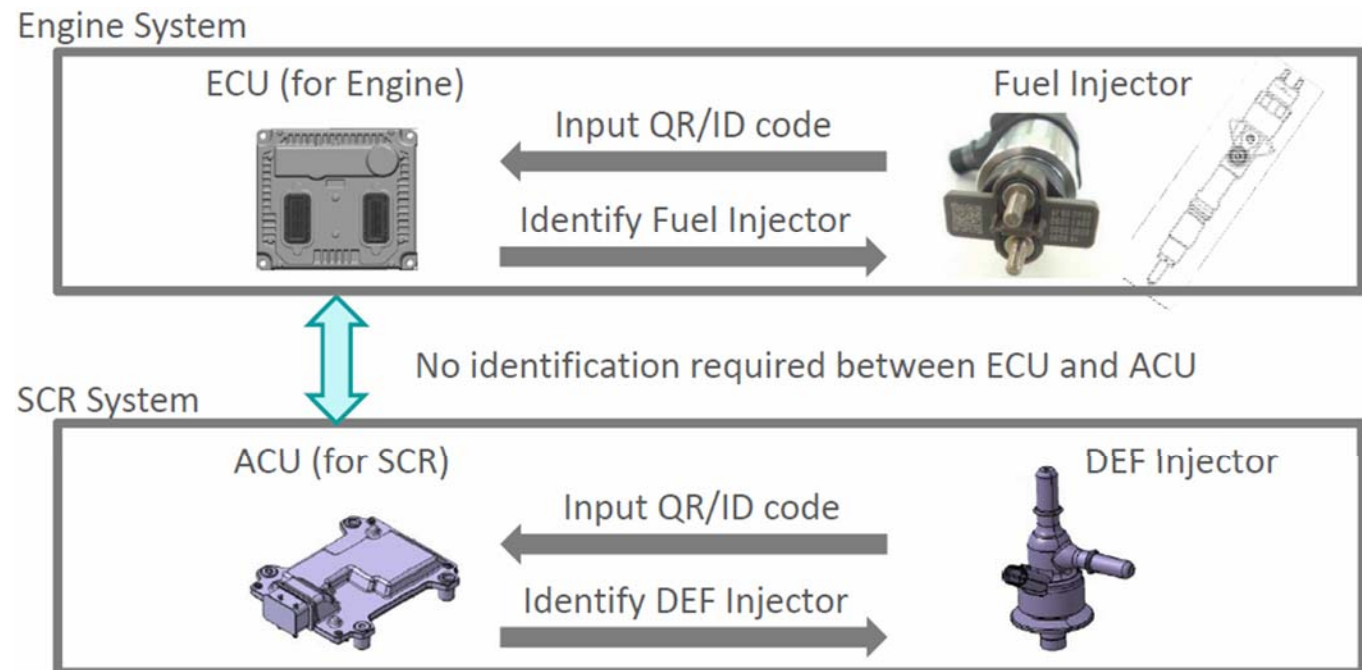
- Inducement Reason:** Radio buttons for DEF Level, DEF Quality (selected), and System Tampering.
- Inducement Severity:** Radio buttons for Initial Warning, Low Level Inducement Active, Severe Inducement Active (selected), and Restored Operation.
- Repeat Occurrences:** Radio buttons for Active (selected) and Non Active.
- Time Left On Repeat Occurrences:** Input fields for DEF Quality (0 s), System Tampering (0 s), Tank Level (79.2 %), and DEF Quality (21.25 %).
- Time Left to Reduction Level:** Radio buttons for To Level1 and To Level2, and a Time Left input field.
- Table:** A table with columns 'DTC', 'Trouble Details', and 'Set'.

DTC	Trouble Details	Set
P203E	Tank Level sensor error	<input type="radio"/>
P203F	Tank Level: Empty	<input type="radio"/>
P204F	Tank Level: Leakage	<input type="radio"/>

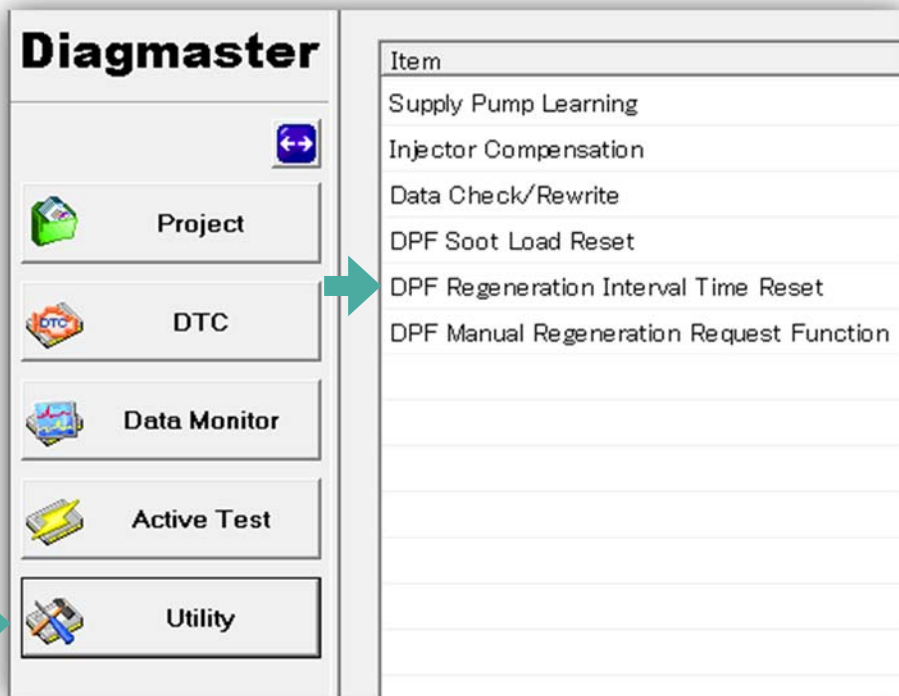
- Utility Tests

- Injector compensation

- ACU
 - ECU



- New Injector Code have to be registered at KiSS. [KiSS : <https://wsg.kubota.co.jp/engine/login.html>]
- Trim Data is "Injection Compensation" data and "Injection Timing Correction" data.



When Required ?

- After replacing DPF because of P3024.

- There are no injectors which are completely same. Injectors have property information in their ID code.
- Property information is delta from Master Injector which Denso has.

#1
cylinder



#2
cylinder



#3
cylinder



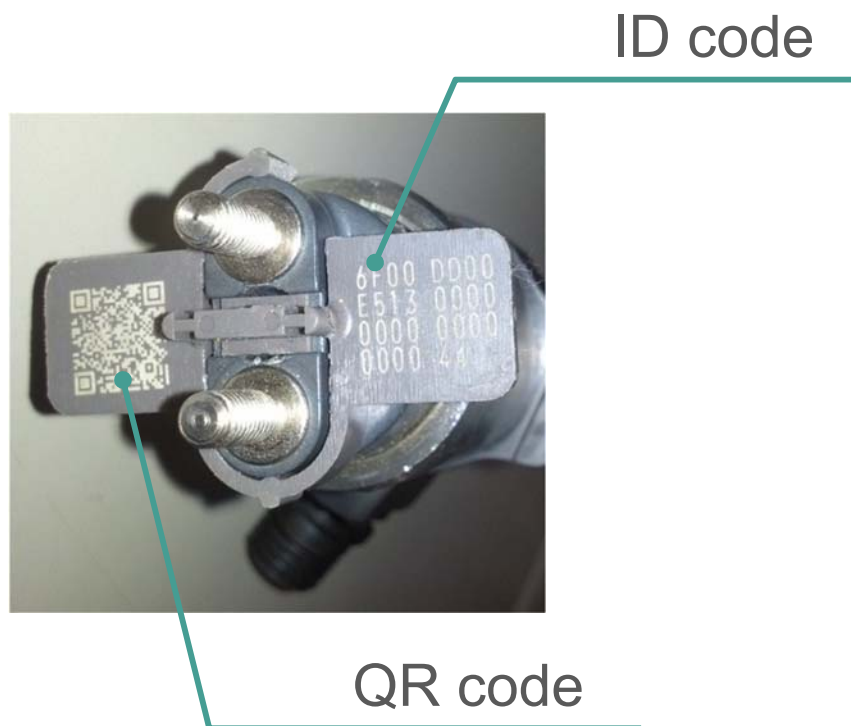
#4
cylinder



New
Injector



- In order to correct for variations of injection quantity caused by individual difference of Injectors, input ID code of equipped Injectors into ECU
- ID code is for Diagmaster. (printed by DENSO)
- QR code is for manufacturing line. (we don't use)

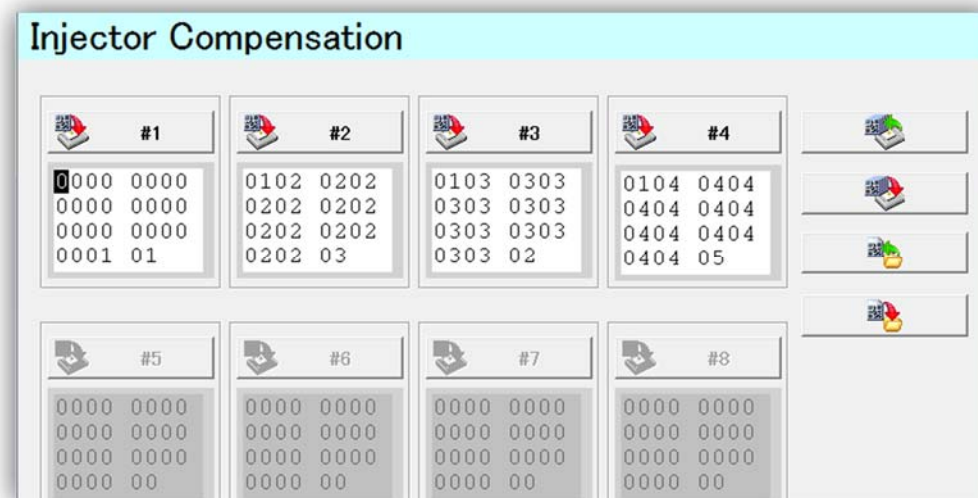
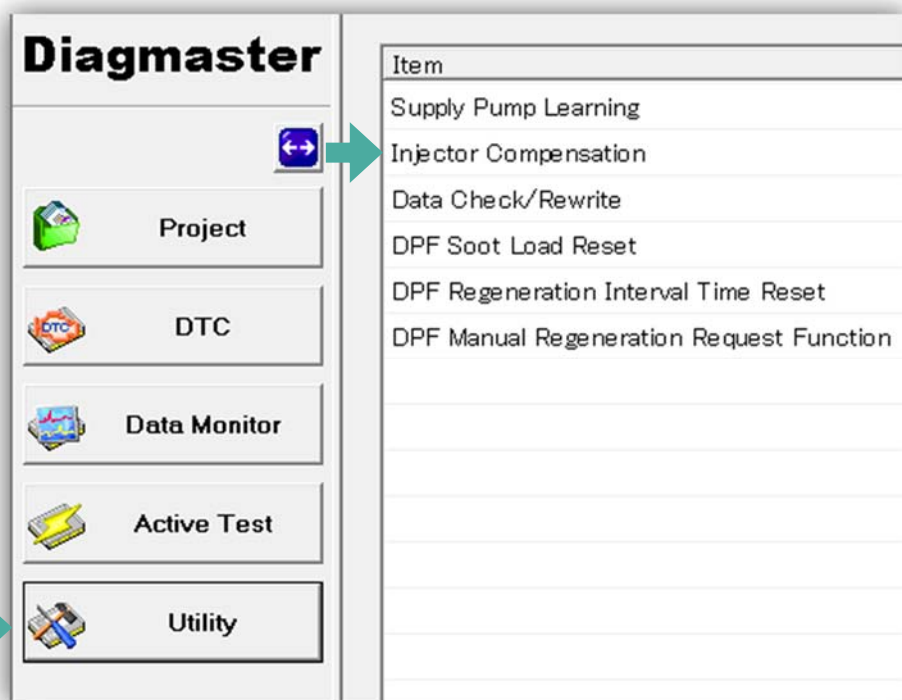


When Required ?

Injector of each cylinder recognized by ECU is different from equipped Injector.

- When Injector changed
- When Injector swapped with other cylinder
- When ECU changed

- In order to correct for variations of injection quantity caused by individual difference of Injectors, input ID code of equipped Injectors into ECU
- ID code is for Diagmaster. (printed by DENSO)
- QR code is for manufacturing line. (we don't use)



- Connect engine and PC, and start Diagmaster.
- Choose Injector Compensation (ACU) from Utility.
- Enter ID code that is described on the side of DEF Injector.

Tools : Diagmaster



ID code

Injector Compensation(ACU)



Diagmaster

↔

Project

DTC

Data Monitor

Active Test

Utility

Diagnosis Manual

Item
Supply Pump Learning
Injector Compensation
Data Check/Rewrite
Oil Change Reset Function
DPF Ash Quantity Reset
DPF Soot Load Reset
Auto Regeneration Inhibit Time Reset
Supply Pump Learning End Time Reset
DPF Regeneration Interval Time Reset
Injector Compensation (ACU)
Injector Pump Test(ACU)
Circulation Test(ACU)
HMI (ACU)
Inducement Counter Reset Function (ACU)
Abuse Counter Reset Function (ACU)
DPF Manual Regeneration Request Function

- Register ID code of DEF injector on K-iSS.
- Need to enter part No., serial No., DEF injector compensation (ID code).

Tools : Visual Check



ID code

DEF Injector					
	Part No.	Serial No.	Injection Timing	hour meter	Serviced Date
Before Exchange	1J508-19501	SN150512112958	313438323336		
After Exchanged	<input type="text"/>	<input type="text"/>	<input type="text"/>	Note (No more than 100 characters)	

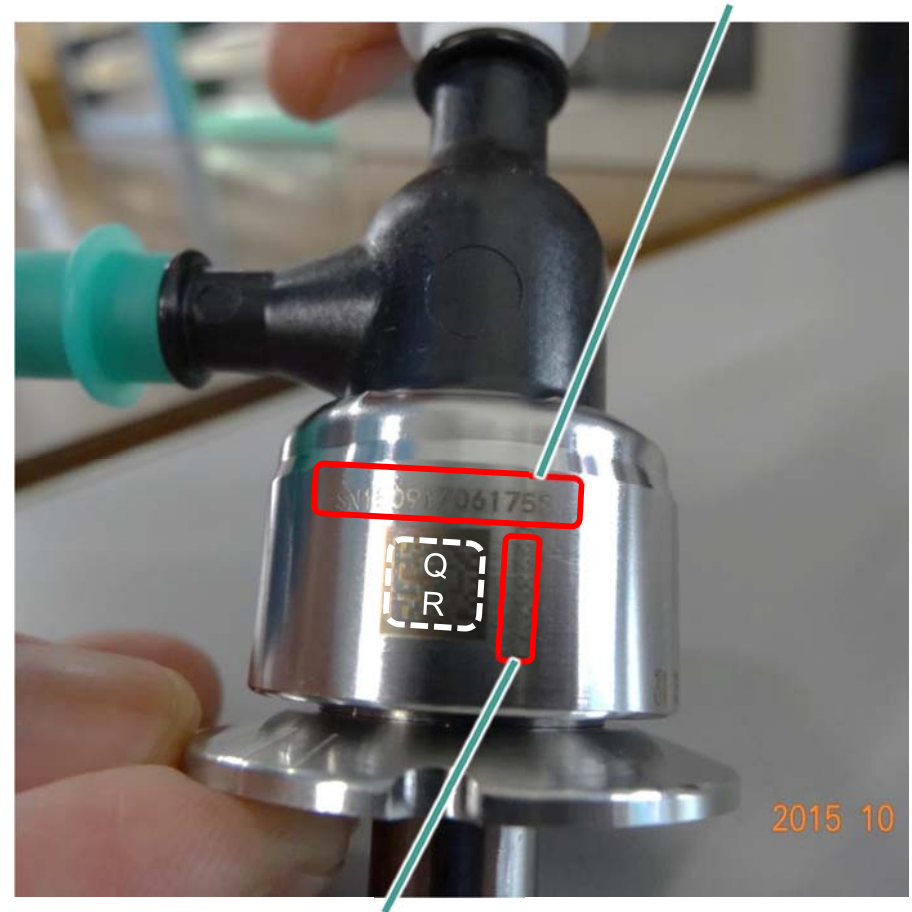
DEF Injector | Maintenance 【Code on DEF Injector】

Kubota Part No.
[10-digit number /alphabet]



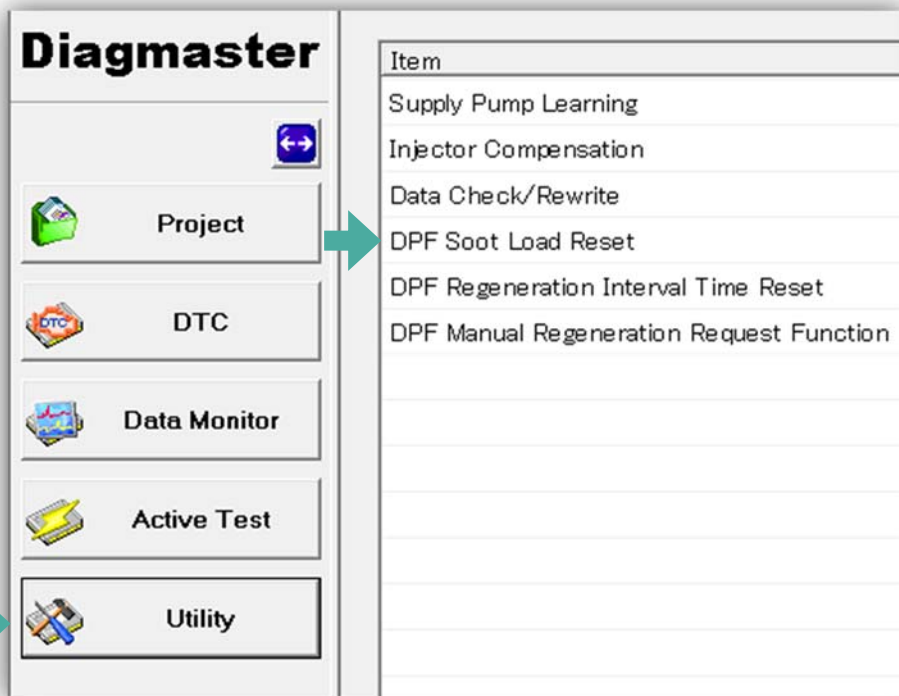
Correction value information
[each 2-digit, total of 12 digits]

Serial No.
[SN + 12-digit number]



Manufacturer Part No.
[8-digit number]

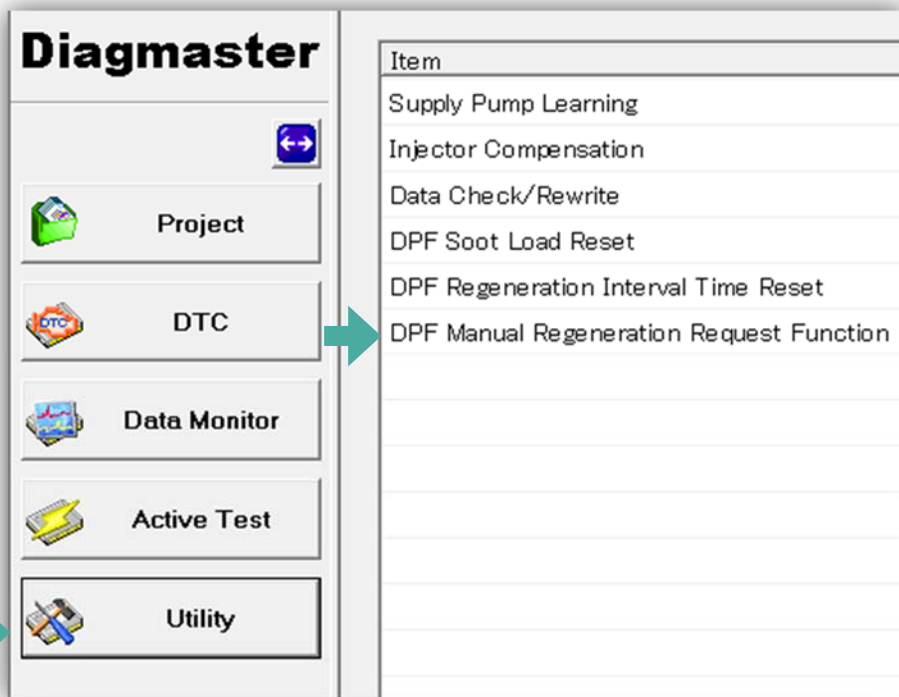
- Reset the value of PM.
- CAUTION! : at PM Lv.5, DO NOT reset soot load and execute Manual Re-gen. Too much PM generates too much heat.



When Required ?

- After replacing DPF.

- Order ECU to send regeneration request signal forcibly. To execute Regeneration, need to push Re-gen button of application.
- After Manual Re-gen, check 2 parameter at Data monitor.
 - (1). “DPF Regeneration Control Level” = “Level 0”
 - (2). “DPF Regeneration Control Status” = “Level 0”
- 3 Preconditions | Parking Brake ON , Neutral SW ON, Idling Speed.



When Required ?

- P3007 | PM accumulation Lv.4
- after replacing DPF
- after replacing ECU

Kubota

© 2016 Kubota Engine America Inc.
All Rights Reserved