

BLU & Kanja — Manual

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July 2020



Revision 1.4

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A lot of useful and recent information can be also found on the Internet. See <http://www.kanardia.eu> for more details.

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Revision History

The following table shows the revision history of this document.

Rev.	Date	Description
1.3	February 2020	Revised with LaTeX
1.4	July 2020	Instrument Screen Layout Changes updated

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1 Introduction

First of all, we would like to thank you for choosing Kanardia.

1.1 General Description

Kanardia BLU is a CAN-to-Bluetooth interface which in combination with Kanja Android application provides ability to upgrade and configure any CAN based Kanardia product.

2 Software Installation

2.1 System Requirements

To run Kanja application and control Kanardia devices with BLU interface you will need:

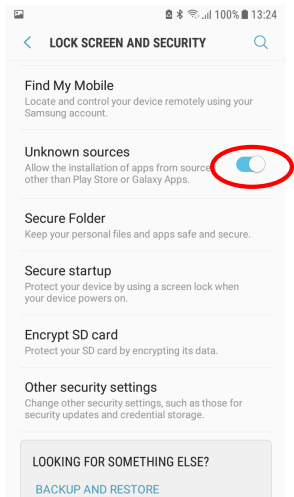
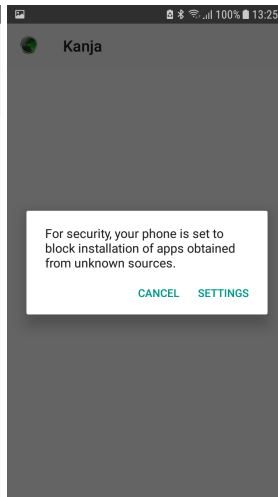
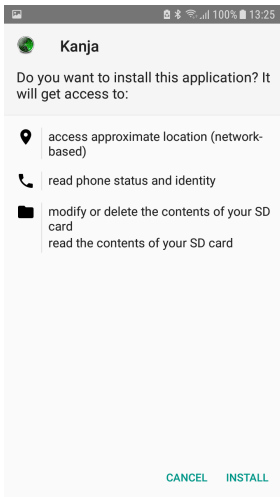
- Android version 4.4 (api19) or higher mobile phone or tablet,
- WiFi/3G data connection,
- Bluetooth v2.1 or later.

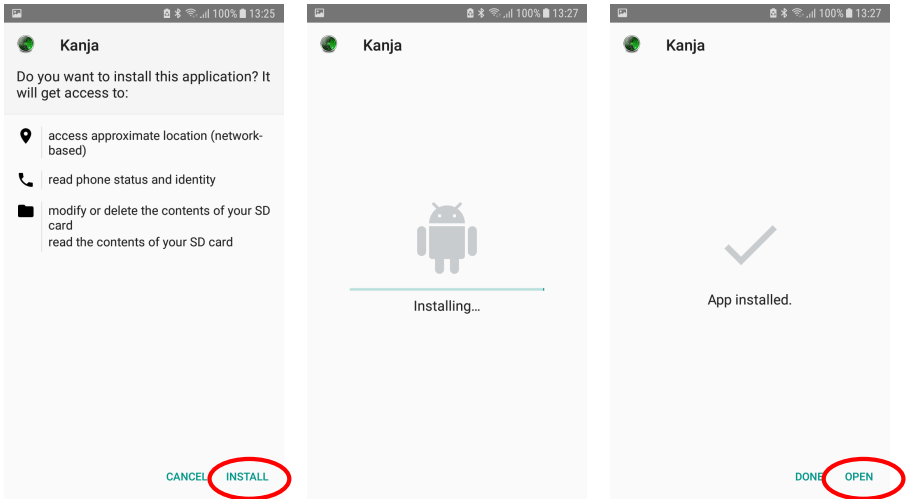
2.2 Application Installation

1. Download the “Kanja.apk” file from <http://horis.kanardia.eu/Database/Kanja.apk> to your Android device. Scan QR code bellow to access above link in your preferred browser.



2. Open/run “Kanja.apk” file. If the system shows the “Install blocked” message click on “Settings” button and temporary enable installation of applications from sources other than the Play Store.
3. Click on “Install” button to start installation. Click on “Done” button once the installation complete dialog is shown.





2.3 Kanja Application Updates

Kanja app is frequently updated. The latest version can be installed from Kanja itself by following next steps:

- Make sure your Android device is connected to the Internet and start Kanja.
- Select “tools” icon from top left corner of the screen to open up a list of options.
- Select the “Update Kanja” option. This will download new app.
- After downloading, the system will ask for confirmation.
- Once installation of new update has been completed, close all Kanja apps.
- Finally, start Kanja again.

3 Hardware Installation

BLU dongle has to be connected to Kanardia CAN network. Normally the easiest way to do it is to connect it in a place where RJ45 CAN bus terminator plug is connected. Shortly after the power is applied to Kanardia devices (CAN network) the BLU will indicate initialization routine by blinking red and blue LEDs. Once the initialization is complete the blue LED will blink in a rate of one blink per second.

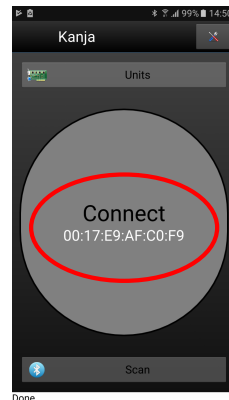
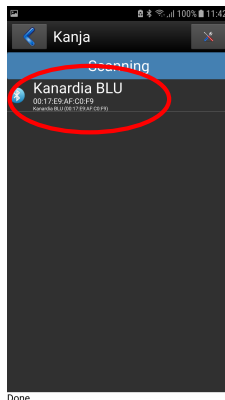
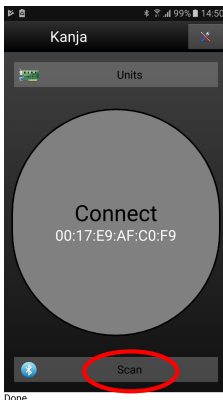


4 Kanja App User Interface

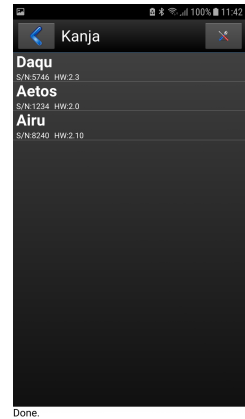
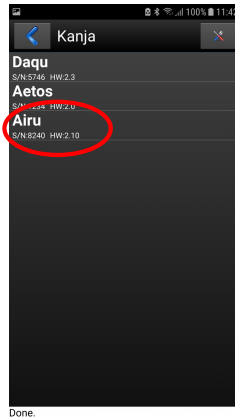
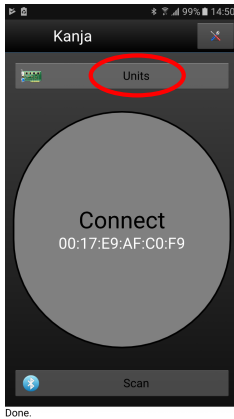
Kanja is an Android application used for configuring and monitoring Kanardia CAN instruments via BLU interface.

4.1 Connection and Device Scanning

1. Connect the BLU device into desired Kanardia CAN network/device.
2. Power on the Kanardia CAN network/device.
3. Make sure that the BLU initializes properly (blue LED blinking in a rate one blink per second).
4. Run the “Kanja” application on host Android system.
5. Click the “Scan” button to start scanning for Bluetooth devices and wait few seconds until the Kanardia BLU device appears on the device list. Note: Make sure that the Bluetooth module is enabled on host Android device.
6. Select the “Kanardia BLU” device.
7. Click on “Connect” button.

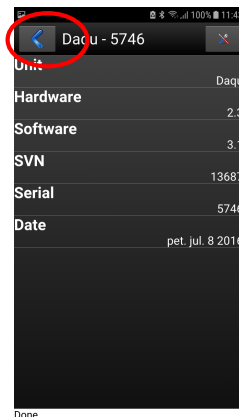
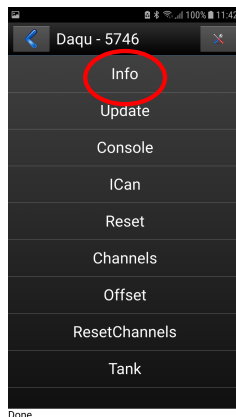


8. Confirm Bluetooth pairing request when the dialog appears.
9. Click on “Units” button and then click on desired device from units list.



4.2 Info

By clicking on the “Info” button a new dialog with basic device information is shown. Click on left arrow to return back to main menu.

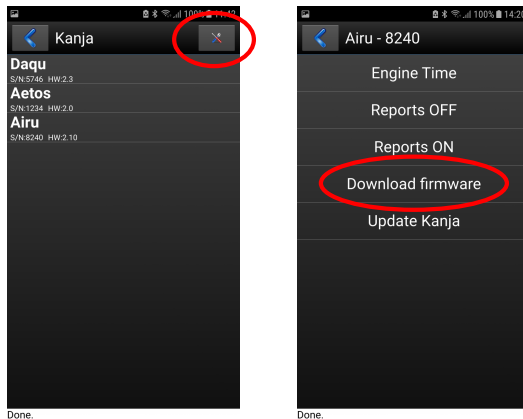


4.3 Update Devices

Typically, an update has two steps. In the first step latest firmware is downloaded to Android and in the second step, the new firmware is transferred into units.

4.3.1 Downloading Firmware

Latest firmware and supplementary files are automatically downloaded every-time when Kanja is started assuming that the Internet connection is available. The downloaded files are then kept on your Android device. If the Internet connection was not available during Kanja start and it was established later or if you unsure, then the latest firmware can be downloaded explicitly. Click tool icon in the top right corner to show settings menu. When opening the application, Kanja will check for new data files if the network is available.

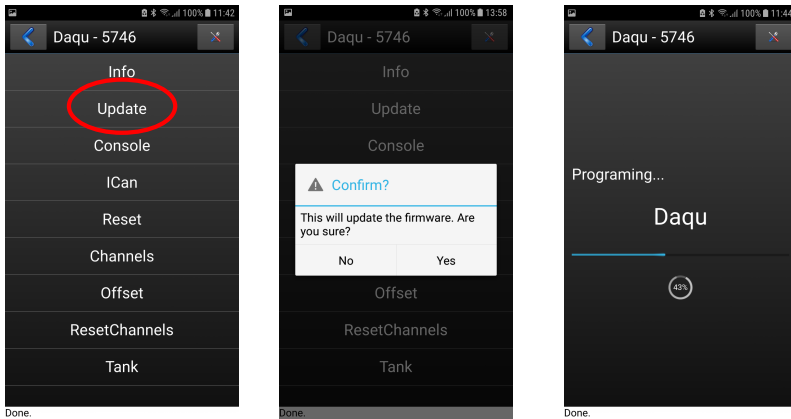


Select “Download firmware” option from this menu. Download is pretty fast and it takes only one or two seconds (this depends on your connection speed.). Status line at the bottom will change from “Done” to “Downloading” and then back to “Done”. Hit “Back” arrow on the top left corner to return to the previous screen.

4.3.2 Updating Units with New Firmware

Once the new firmware was obtained, you can update selected unit. Unless you are already in the “Units” window, select the “Units” button and a list of available units appears. Select the unit and then press the “Update” button. This buttons starts an update. A new dialog appears with firmware download progress.

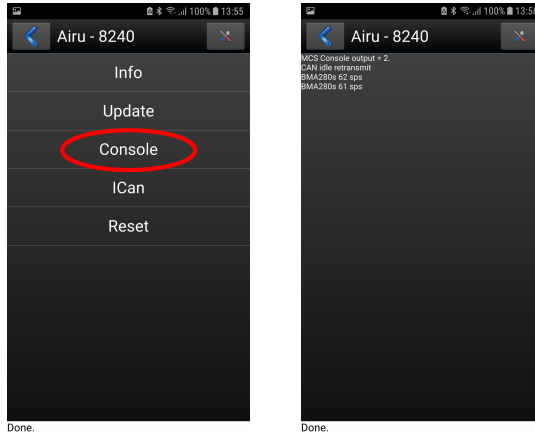
Note: If for any reason the firmware update procedure fails the application will automatically try to repeat the update.



Note: In case the application could not successfully update the device (device not working properly) shortly disconnect the power from Kanardia CAN network/device and connect it back. Once you will reconnect Kanja with Kanardia BLU the application will automatically upgrade the problematic unit.

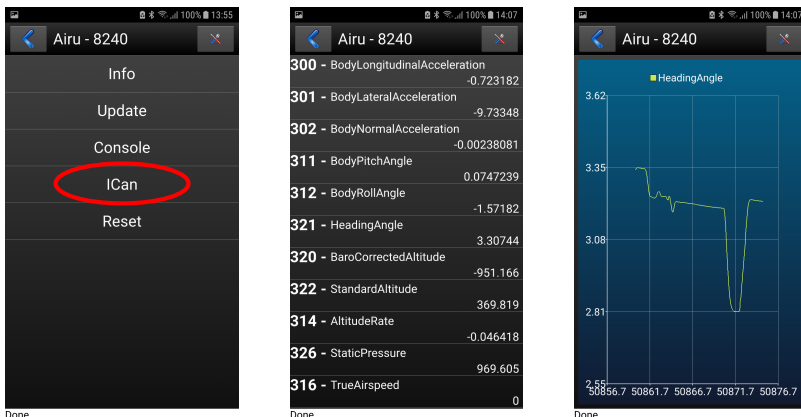
4.4 Console

Clicking on the “Console” button opens a dialog with debug console for selected unit.



4.5 ICan

Clicking on “Ican” button opens a new dialog which displays all real-time data presented on CAN bus. Clicking on desired parameter opens a new dialog where the parameter value is plotted.



4.6 Engine Time Settings

Clicking on settings icon (icon with spanner and screwdriver) opens a new dialog:

- Engine Time
- Reports OFF
- Reports ON
- Download firmware
- Update Kanja

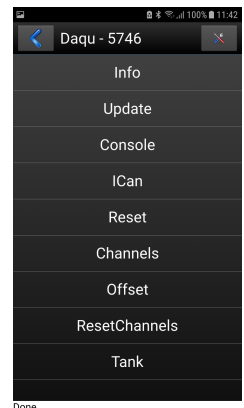
Clicking on the “Engine Time” button opens a new dialog where the engine time value can be changed:

1. Write the desired engine time value (hours) in the field.
2. Click “Set” button to update engine time.
3. Click on left arrow button to return to settings dialog.

4.7 Daqu Options

When selecting Daqu from available options in the list following extra options are shown as on the picture bellow. The extra options are:

1. Reset Channels
2. Offset
3. Tank



4.7.1 Reset Channels

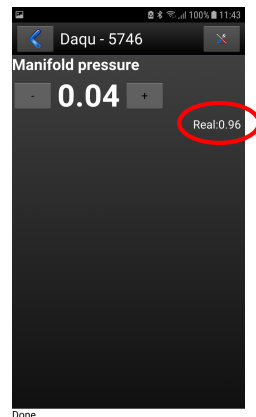
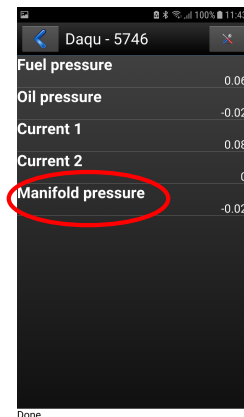
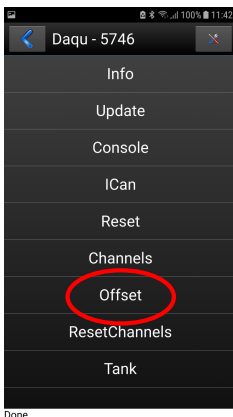
This option will reset all Daqu sensor channels to default values. Be aware that all channel settings will be gone and you will have to set each channel again.

4.7.2 Offset

On selecting Offset new dialog will open which will enable user to edit various offset values for sensors connected to the system. Following offset values can be edited:

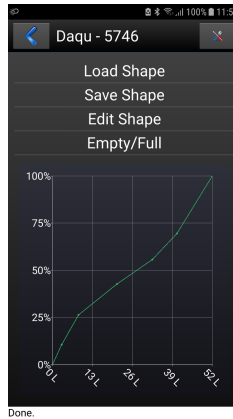
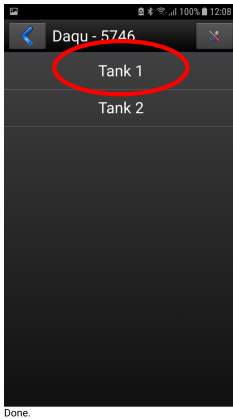
- Fuel pressure,
- Oil pressure,
- Current 1,
- Current 2,
- Manifold pressure.

When adjusting offset value observe Real value to adjust to appropriate level.



4.7.3 Tank

Tank dialog enables you to configure tank shape. Tank shape translates fuel level sensor value into fuel quantity. First you have to select which tank you wish to edit. Tank 1 is connected as Fuel Level 1 in Daqu Channel configuration. After selecting tank new dialog will open which will present current fuel tank shape.



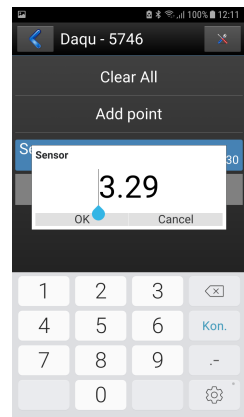
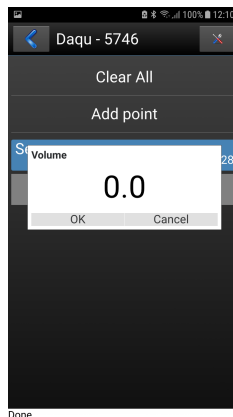
Done.

MEASUREMENTS	
0.0 L	2.30
3.0 L	22.40
8.5 L	52.17
21.0 L	83.00
32.5 L	107.47
40.5 L	133.47
52.0 L	

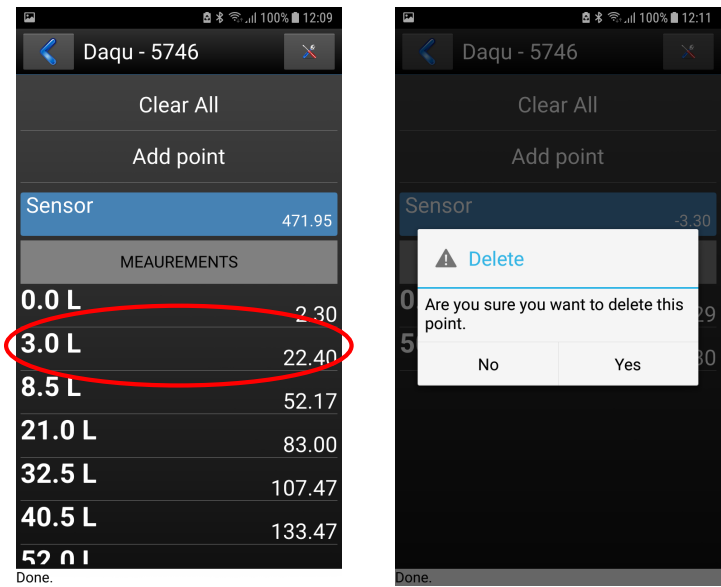
In Tank Edit dialog you can Load, Save, Edit tank shape and you can also set Empty/Full values.

Done.

MEASUREMENTS	
0.0 L	2.30
3.0 L	22.40
8.5 L	52.17
21.0 L	83.00
32.5 L	107.47
40.5 L	133.47
52.0 L	

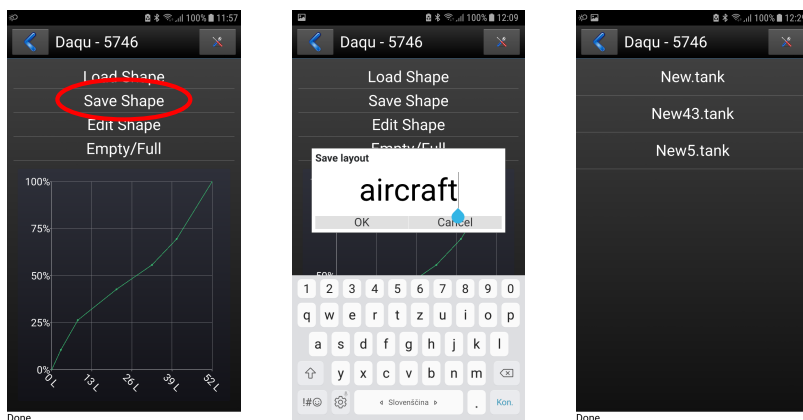


When editing shape you can add new measurement by clicking to the Add Point button. You will have to enter current volume inside the tank and sensor value for this point. The points entered do not have to be in order. When adding new point will be inserted to the appropriate place. However it is important that all sensor values are in ascending or descending order. If they are not warning dialog will open when you will try to close this page.

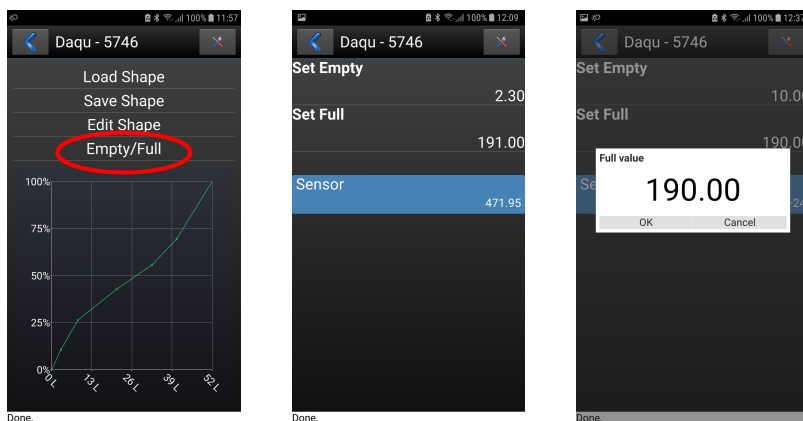


If you want to delete single measurement click on the measurement and delete dialog will appear.

If you want to save current tank shape select Save Shape from the main menu.



After Editing tank shape you must verify Empty/Full values. This values are not part of tank shape but they depend on the type of the sensor used. Therefore you can use same tank shape with capacitive sensors with voltage output or with resistive sensor.



When closing main Tank Edit page the settings will be saved into Daqu and you can verify the Fuel Level indication in the Ican page.

4.8 Instrument Screen Layout Change

Kanja can also be used to update your Kanardia instrument layout. Currently supported instruments for this feature are: Digi & Indu Round Indicators.

The layout creation can be done in two ways:

- You can create a layout yourself using our *Customizer* desktop application. It is available for download on our website. Customizer exports an `iml` file, which then has to be copied to your Android's `Downloads` folder. From there it will be accessible to Kanja.
- Or, you can contact Kanardia info@kanardia.eu and explain your requested change. Once the changes are ready you will be notified by email. We will tell you the name and location of the new layout file. The layout files are automatically downloaded when Kanja is started. Alternatively, they can be explicitly downloaded with the “Download Firmware” command, see section 4.3.1 - Downloading Firmware. Let's assume that you want to set “Digi-Demo-panel.isb” located in the “DIGI” folder. The name and location of your layout will be different, of course. Layout files are short binary files with `isb` extension.

Follow these steps to update your instrument with the new layout:

1. Start Kanja (this will also download the latest firmware and all layouts).
2. Connect it with “Blu” - a list of connected CAN devices appears.
3. Select your device (must be supported for layout change) from the list.

4. For Kanardia layouts:

- (a) Select “Screen OEM” option to access layout files from Kanardia’s server
- (b) Search for the folder location and then for the target `isb` file. In this demo case, select “DIGI” folder. A new list will appear and from the list select “Digi-Demo-panel.isb”
- (c) As soon as an `isb` file has been selected, Kanja copies the selected `isb` file into instrument’s firmware

5. For Customizer layouts:

- (a) Select “Screen Custom“ to access the Customizer files from your Downloads folder
- (b) Search for the target `iml` file
- (c) When the `iml` file is selected, Kanja translates it to `isb` format and copies it to the instrument’s firmware

6. Close Kanja and restart the instrument.

4.9 Engine Time Change

Sometime a change of engine total time is necessary on Indu RPM instruments. Kanja can be also used for this. Please follow the following procedure:

1. Connect “Blu” to the CAN network (or into the instrument). Please make sure that CAN network is terminated. The terminators are special terminators plugs, Daqu and Magu. At least one terminator must be connected.
2. Start Kanja,

3. Connect it with “Blu” - a list of connected CAN devices appears.
4. From the list of devices, select the “RPM” device.
5. Press the “Tools” button on top right corner of the screen. A list of options appears.
6. Select the “Engine Total Time” option.
7. Enter new engine total time.
8. The new engine time shall appear on the RPM.
9. Wait for about 10 seconds and then turn the power off.
10. Start it again and make sure that new time is correctly shown in the display.

5 Limited Conditions

Although a great care was taken during the design, production, storage and handling, it may happen that the Product will be defective in some way. Please read the following sections about the warranty and the limited operation to get more information about the subject.

5.1 Warranty

Kanardia d.o.o. warrants the Product manufactured by it against defects in material and workmanship for a period of twenty-four (24) months from retail purchase.

Warranty Coverage

Kanardia's warranty obligations are limited to the terms set forth below:

Kanardia d.o.o. warrants the Kanardia-branded hardware product will conform to the published specification when under normal use for a period of twenty-four months (24) from the date of retail purchase by the original end-user purchaser ("Warranty Period"). If a hardware defect arises and a valid claim is received within the Warranty Period, at its option and as the sole and exclusive remedy available to Purchaser, Kanardia will either (1) repair the hardware defect at no charge, using new or refurbished replacement parts, or (2) exchange the product with a product that is new or which has been manufactured from new or serviceable used parts and is at least functionally equivalent to the original product, or, at its option, if (1) or (2) is not possible (as determined by Kanardia in its sole discretion), (3) refund the purchase price of the product. When a refund is given, the product for which the refund is provided must be returned to Kanardia and becomes Kanardia's property.

Exclusions and Limitations

This Limited Warranty applies only to hardware products manufactured by or for Kanardia that have the "Kanardia" trademark, trade name, or logo affixed to them at the time of manufacture by Kanardia. The Limited Warranty does not apply to any non-Kanardia hardware products or any software, even if packaged or sold with Kanardia hardware. Manufacturers, suppliers, or publishers, other than Kanardia, may provide their own warranties to the Purchaser, but Kanardia and its distributors provide their products *AS IS*, without warranty of any kind.

Software distributed by Kanardia (with or without the Kanardia's brand name including, but not limited to system software) is not cov-

ered under this Limited Warranty. Refer to the licensing agreement accompanying such software for details of your rights with respect to its use.

This warranty does not apply: (a) to damage caused by use with non-Kanardia products; (b) to damage caused by accident, abuse, misuse, flood, fire, earthquake or other external causes; (c) to damage caused by operating the product outside the permitted or intended uses described by Kanardia; (d) to damage caused by service (including upgrades and expansions) performed by anyone who is not a representative of Kanardia or an Kanarida Authorized Reseller; (e) to a product or part that has been modified to significantly alter functionality or capability without the written permission of Kanardia; (f) to consumable parts, such as batteries, unless damage has occurred due to a defect in materials or workmanship; or (g) if any Kanardia serial number has been removed, altered or defaced.

To the extent permitted by applicable law, this warranty and remedies set forth above are exclusive and in lieu of all other warranties, remedies and conditions, whether oral or written, statutory, express or implied, including, without limitation, warranties of merchantability, fitness for a particular purpose, non-infringement, and any warranties against hidden or latent defects. If Kanardia cannot lawfully disclaim statutory or implied warranties then to the extent permitted by law, all such warranties shall be limited in duration to the duration of this express warranty and to repair or replacement service as determined by Kanardia in its sole discretion. Kanardia does not warrant that the operation of the product will be uninterrupted or error-free. Kanardia is not responsible for damage arising from failure to follow instructions relating to the product's use. No Kanardia reseller, agent, or employee is authorized to make any modification, extension, or addition to this warranty, and if any of the foregoing are made, they are void with respect to Kanardia.

Limitation of Liability

To the extent permitted by applicable law, Kanardia is not responsible for indirect, special, incidental or consequential damages resulting from any breach of warranty or condition, or under any other legal theory, including but not limited to loss of use; loss of revenue; loss of actual or anticipated profits (including loss of profits on contracts); loss of the use of money; loss of anticipated savings; loss of business; loss of opportunity; loss of goodwill; loss of reputation; loss of, damage to or corruption of data; or any other loss or damage howsoever caused including the replacement of equipment and property, any costs of recovering, programming, or reproducing any program or data stored or used with Kanardia products and any failure to maintain the confidentiality of data stored on the product. Under no circumstances will Kanardia be liable for the provision of substitute goods or services. Kanardia disclaims any representation that it will be able to repair any product under this warranty or make a product exchange without risk to or loss of the programs or data. Some jurisdictions do not allow for the limitation of liability for personal injury, or of incidental or consequential damages, so this limitation may not apply to you.

5.2 TSO Information — Limited Operation

This product is not TSO approved as a flight instrument. Therefore, the manufacturer will not be held responsible for any damage caused by its use. The Kanardia is not responsible for any possible damage or destruction of any part on the airplane caused by default operation of instrument.