Tpms Connect Evo Control, Diagnosis, Universal Sensor Programming And Coding Tool For Tpm Systems

User's Manual

007935900385

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Foreword

Dear Customer,

Thanks for choosing our product. This product has been designed to give you years of satisfactory service. To ensure this, please read this User Manual thoroughly before using the product and keep the manual in a safe place for future reference.

Our exhaustive range of products sets a new standard in TPMS (Tire Pressure Monitoring System) diagnostics while offering an aesthetically pleasing design.

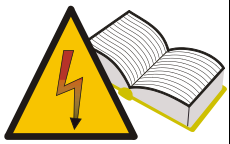
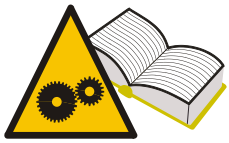
All of our products are designed and manufactured to the highest quality standards.

TPM-II will prove to be an indispensable tool for:

- Checking sensor operation before servicing the tires (when vehicle is brought in for service or repair).
- Establishing proper operation of the TPMS system when the customer picks up the vehicle.
- Determining why the “Tire Pressure” (TPMS) light turns on.
- Ensuring that sensor provides accurate pressure and temperature readings.
- Measuring wireless the pressure of tires (with no need to unscrew valve cap and connect a compressed air line with pressure gauge).
- Enabling time-saving, safe repair procedures with reference information (such as torque figures or part numbers) always handy to avoid damage due to improper procedures.
- Ensuring that sensors are refitted in their original positions after service (positioning tool)
- Programming of programmable sensors like SensIT and EZ sensor to replace a defective OEM sensor
- Perform a TPMS coding operation after a sensor replacement.

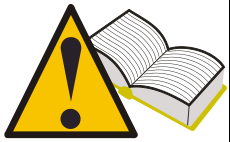
	**Instrument first use:** The battery has been partially charged, but it may be necessary to recharge it before using the instrument. Note: batteries must be charged and discharged once every three months to ensure a battery longer life.

1. Symbols used in the manual

	This symbol calls attention to important information concerning operation and safety.
	This symbol calls attention to important information and tips aimed at ensuring proper operation of the equipment.
	This symbol calls attention to important instructions concerning maintenance of electrical parts.
	This symbol calls attention to important service instructions.

2. Safety rules

	**To recharge the equipment, it is <u>mandatory</u> to use the power supply unit supplied. Item No. 1800155. The manufacturer shall not be liable for damage to equipment in the event when other power supply units are used.**
	This appliance has been designed and tested to ensure safe operation. The user is required to observe the information and warnings provided in this manual to ensure safe operation and preserve the safety features of the appliance.
	WARNING : For equipment package maintenance and handling after equipment installation, the provisions of Legislative Decrees DDLL 626 of 19/9/94 and 242 of 19/3/96 apply. Use appropriate tools to open package.
	CAUTION: USE UTMOST CARE !!! Do not allow operation of this equipment by unqualified persons. It is the owner's responsibility to keep warning labels and rating plates clean and legible. This manual is subject to changes and updates. Be sure to read the update and customization instructions included in this manual. The manual is divided into sections for ease of reference. Manual instructions - especially those concerning maintenance - are intended for use by specialized technical personnel with good knowledge of mechanics, electro mechanics or of the operation of computerized unit-based systems. The system has been designed to facilitate operation and troubleshooting, with a wide range of display messages providing

	detailed indications to help locate problems. Please read these instructions carefully before operating the equipment. Collect this manual and all literature supplied with the equipment in a file folder and keep it with the machine where operators can easily access it. Make sure installation has been performed in compliance with all applicable regulations and standards. Read this manual carefully and learn how to use the equipment properly and safely. Be sure to observe applicable accident prevention rules when operating and servicing the equipment. In the event of unauthorized changes to the equipment, the manufacturer shall not be liable for any resulting damage or incident. Please note that bypassing or removing safety devices is in violation of workplace safety rules in force in the user's country.

3. Upon receipt

Upon receipt, check packing and product components for damage in the presence of the carrier. Liability for transport damage attaches to the forwarding agent or carrier. Report any damage, giving details of the nature and severity of the damage, in the shipping document and file a claim against forwarding agent or carrier.

4. What is a TPMS system?

The TPMS or Tire Pressure Monitoring System continually monitors tire pressures and temperatures and sends the information to the vehicle's body computer to have it displayed on the instrument panel. The system is made up of an ECU placed inside the vehicle cab that receives radio frequency pressure and temperature signals from four sensors installed inside the tires.

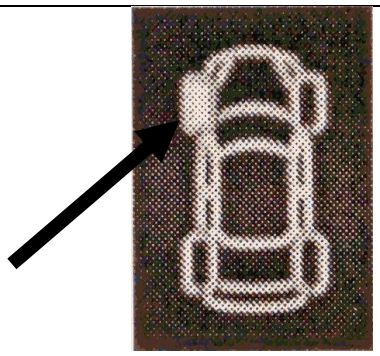
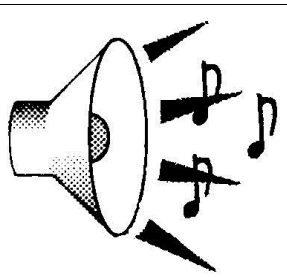
When the vehicle is running, the sensors transmit their signals every 20-30 seconds approximately. In the event of a significant pressure variation, transmission interval is shortened to 8-10 seconds.

When the vehicle is at standstill, transmission interval may vary between 10 and 40 minutes, depending on the type of sensor installed.

5. TPMS indicator lights

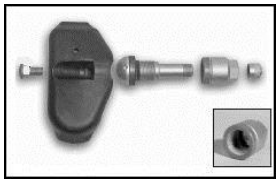
Outlined below are the most significant TPMS indicator lights.

Depending on the type of vehicle, this light may indicate one of the following conditions: • Turns on to indicate that the pressure of one or more tires is above or below the specified rated pressure. • Turns on to indicate a TPMS malfunction (for instance, when one of the sensors is malfunctioning). • Light operation may vary to differentiate indications when tire pressure has crossed the warning or alert thresholds.	

Tire location indicator This light indicates the location of the under- or overinflated tire. The light may be associated with a display message.	
Display messages	“Check tire pressure”
Audio Alarms Audio alarm for wrong tire pressure or TPMS malfunction	

6. Type of sensors

Sensors may be grouped into two broad categories, depending on whether they are incorporated into valve body or not as shown in the table below.

	**Design 1** The valve shown in the figure is made up two elements: - pressure sensor - valve body Valve body is made up of four elements: retaining screw, valve, nut and valve cap.

	**Design 2** The valve shown in the figure is a single component that incorporates both pressure sensor and tire valve. This valve design also features a grommet/O-ring (to keep air from escaping past the hole in the rim), a nut and the valve cap.

In design 1, valve and sensor may be replaced separately when needed; in design 2, valve and sensor are replaced as a set.

7. Package contents

Package contains:

- 1 TPM-II sensor diagnostic tool
- 1 SD CARD
- 1 USB connection cable for PC connection
- 1 CD-ROM with product update utility
- 1 External Power Supply.
- 1 Manual

8. OBD Option

Through this optional it is possible to connect the tool to the ECU of the vehicle in order to carry out the following procedures:

Flashing the ECU when the sensor is replaced

Flashing the ECU when rotating the tires

Adjust when possible the alarm threshold, set the winter tires etc.

Read and delete the malfunctions (Diagnostic Trouble Code)

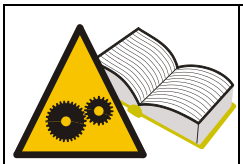
The optional kit includes intelligent OBD cable and software

9. Maintenance and care

Please follow these instructions to avoid malfunction or unexpected failures:

- Do not drop or knock the equipment.
- Avoid spilling fluids on the equipment.
- Do not use batteries other than those specified in this manual.
- Do not service the equipment when it is in operation.
- Do not clean the equipment when it is in operation.
- Keep the package for safe handling

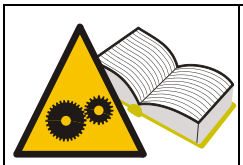
10. First Product Activations

	**Please check that with this device you receive also a sheet with the password to activate it**

Use of diagnostic software require an user license. There are 2 different type of User License:

1. **Sensor Diagnosis user license**. This license permits to diagnose tpms sensor.

2. **<u>ODB Diagnosis User license</u>**. This license include sensor diagnosis and OBD TPMS diagnostic .

	**Each license include European, Asian and USA vehicle.**

Each user license is activated with a password directly on the tool. Password is released from your distributor. If password is not putted on the tool, it doesn't work.

Each activation password released is based on the following information:

1. Device Serial Number
2. Type of User License

Password contains an expiration date and this date is the same date when it was generated. With the password it is possible to download from the website, update and activate the tool with the database coverage available at the expiration date of the password.

	**When the password is expired ~~will expiry~~ you can download a new database coverage from the website but you can't activate it on the TPM tool. Please refer at your distributor to subscribe a new 12 months software update**

11. Subscription

At first activation (or subscription) a password will be issued . When it is expired it is important to renew your subscription to continue the possibility to update tpms database coverage. There are - 2 different types of subscription:

1. **<u>Sensor Diagnosis subscription</u>**. This subscription include:
   - 12 months update database coverage to diagnose tpms sensor.

- Sensor Clone Driver user license and 12 months update
- 12 months free update database coverage of universal sensor programming supported

2. **<u>ODB Diagnosis subscription</u>**.
   - 12 months update database coverage to diagnose tpms sensor.
   - Sensor Clone Driver user license and 12 months update
   - 12 months free update database coverage of universal sensor programming supported
   - 12 months TPMS OBD diagnostic update

12. How to power on/off the equipment

Touch the  key to power on the equipment.

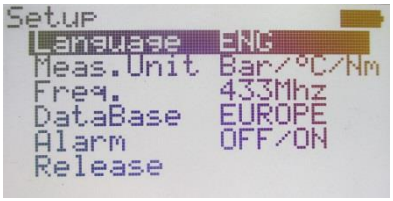
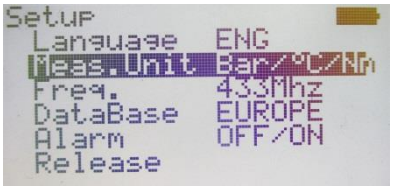
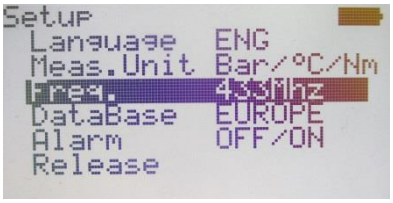
Keep key  pressed down to power off the equipment.

The equipment will power off automatically when no buttons have been pressed for 10 minutes to save battery life.

13. Recharging the equipment (par.7)

The batteries placed inside the equipment are charged. ***<u>The equipment may only be recharged using the supplied power supply .</u>*** In the event the equipment should run fully flat, it will take about 3 hours to fully recharge it.

14. Settings

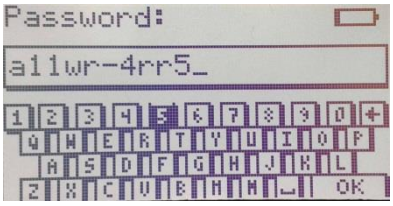
Step	Screen shot	Description
1		Select option **SETUP** from the main menu page to enter the settings menu
2		LANGUAGE user can choose the required language. Many languages are available from: French, Italian, English, Portuguese, Spanish and German
3		MEASURMENT UNIT user can choose different parameters to display the value. Pressure (bar / psi / KPa) Temperature (C/F) Torque (Nm / FtLbs)
4		FREQUENCY it's possible to setup the Operating Frequency of the tool. USA (315Mhz) EUROPE (433Mhz)

5		DATABASE it is possible to choose a European or American (US) database. Europe : officially imported in EU USA : parallel import or US market
6		Selecting ALARM it's possible to enable or disable SOUND and VIBRATION
7		RELEASE the tool will show software info's: Firmware VERSION Database VERSION Serial number: XXXXXX

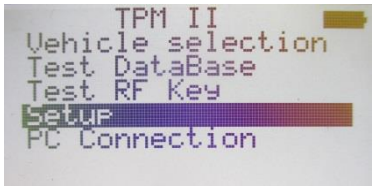
15. PASSWORD INPUT

There are 2 different ways to activate the tool:

- Insert the password on the tool itself
- Insert the password with the PC software update program while PC is connected at the tool.

Step	Screen shot	Description
1		Select the "**SETUP"** option from the main menu
2		Select PASSWORD.
3		Enter the password to enable the activation of the software. It also releases the functions ordered. The password contains an expiration date that relates to the licence activation date plus one year.

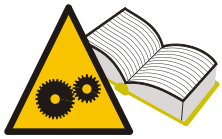
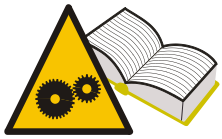
16. Software Version

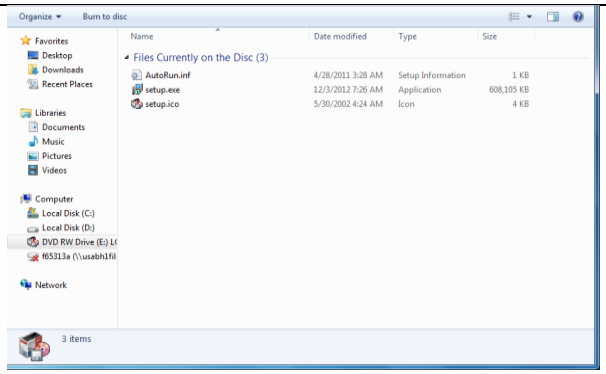
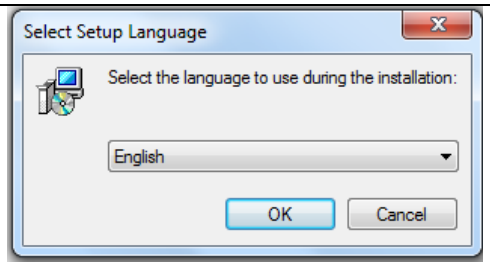
Step	Screenshot	Description
1		Select the “**SETUP”** option from the main menu
2		Select Release.
3		Software version information or activation

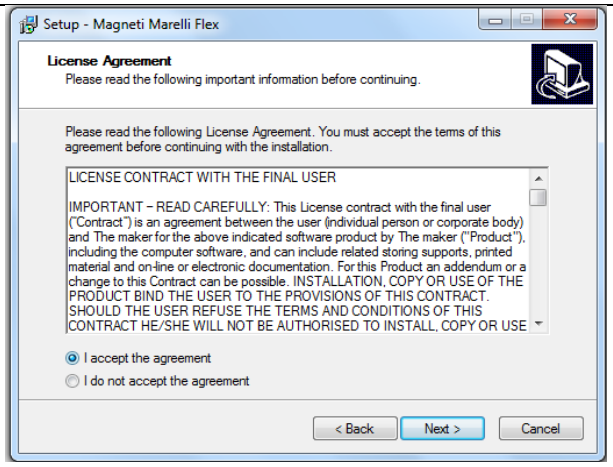
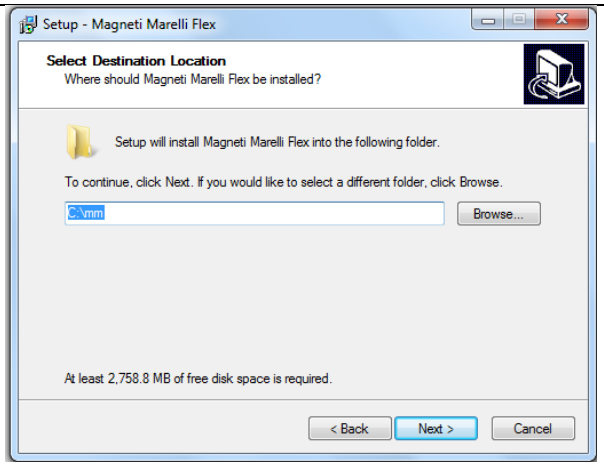
Main information displayes:

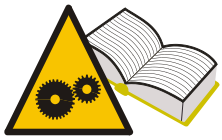
- **Fw version** Displayed on the first line. This indicates the version of the user interface.
- **DB version**. This version indicated the database version availableon the tool
- **DB Authoriz**. This version indicated the database version activated on the tool
- **Expiration Date** Indicates the date of subscription expiration.
- **Serial Number:** is the serial number of the tool.

17. PC Software & Driver Installation

	**When installing new software, please remove the old version before the new installation.**
	**Before software installation, please be sure that you have "administrator" privileges.**

STEP	Screen shot	Step Description
1		Insert the CD-ROM into the PC. Setup Software starts automatically. (When enabled) If the setup installation doesn't start, use the following procedure: • Computer on the desktop or Start button • CD-ROM/DVD unit • Double click on the setup
2		Select the language of the installation.

3		Read carefully the "License Agreement". If you agree, please select "I accept". Selecting "I don't accept the agreement" will result in the software not being installed
4		Select the path of installation.
5		Follow the other displayed indications. At the end of the installation, the setup requires -a PC restart.
6		After the PC restart, please check that you have: • A new icon on the desktop regarding the TPMS Manager software. • A new group program regarding the TPMS manager software.

	**To avoid problems during the installation and the software setup, it is suggested that the Firewall and the Antivirus Software should be deactivated until the processes are complete.**

17.1. Language setting on TPMS MANAGER SW

STEP	Screen shot	Description
1		Launch TPMS manager software by clicking on the icon on the desktop. After starting up the program click on the flag icon in the right upper corner of the program screen.
2		Select your language pushing on relative flag button

17.2. TPM II– PC Setup Communication

	**Wireless communication reduces the number of wires/cables in the workshop. This reduces both obstacles interfering with people's movement in the shop and mechanical shock from the PC or TPM II tool due to accidental collision.**

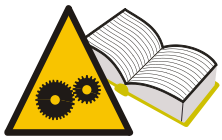
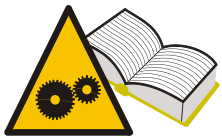
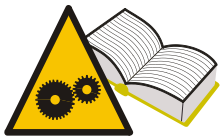
The TPM II can communicate with a PC in 2 different ways:

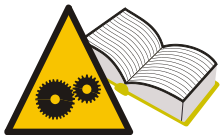
- USB
- Bluetooth wireless communication

On the tool is showed which communication type is enabled

There is no USB symbol found in the tool when the tool is connected to a pc Bluetooth symbol is present see picture.

17.3. Bluetooth Setup

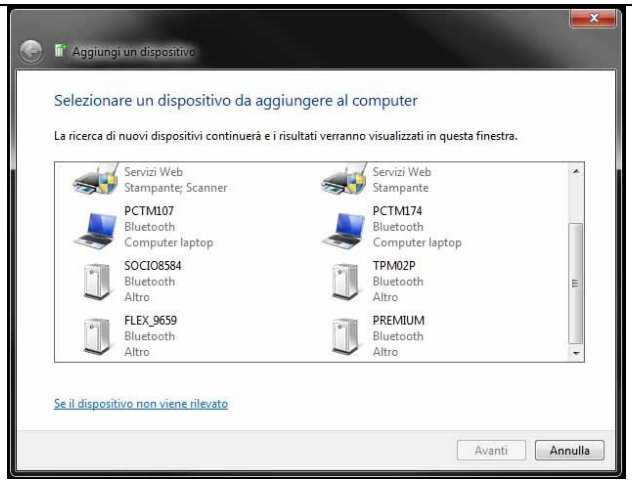
	**Before proceeding with this section, be sure that the Bluetooth driver for the Bluetooth peripheral on the PC is correctly installed.**
	**To avoid conflict with the driver and the software management, please check that only 1 Bluetooth peripheral is active on the PC.**
	**The Bluetooth on the TPM II ~~tool~~ is a device classified as Class 1 distance in open space (space without any obstacle). Please use a Bluetooth peripheral device PC of at least Class 1 to ensure proper communication in a workshop area ranging between 15-20m from the**

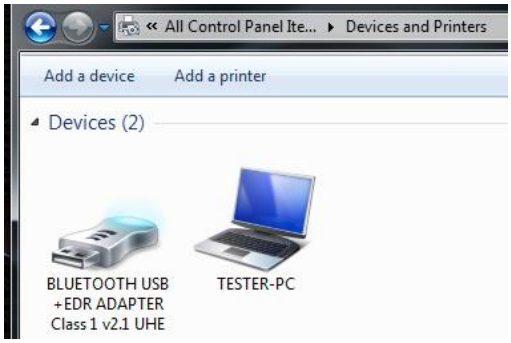
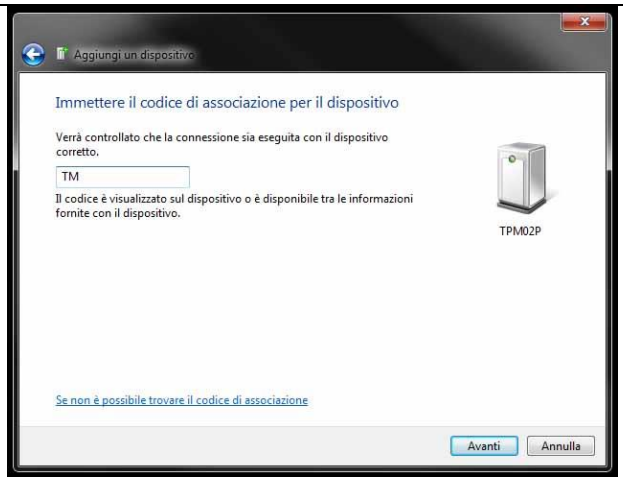
	car.
	**A homologated Bluetooth dongle is optional available. We advise using this dongle to prevent disappointments as not all dongles are the same.**

17.4. Bluetooth Setup for Windows 7

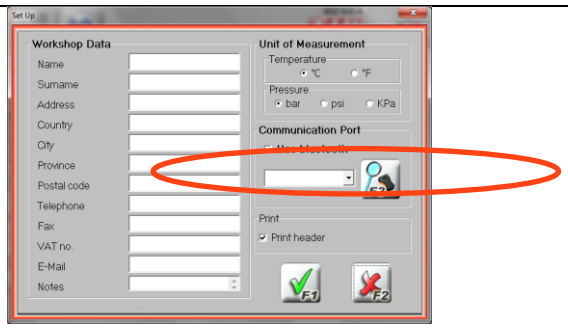
The procedure depicted in this paragraph is valid only for the Windows 7 operating system. The same procedure can be followed for other operating systems using the different windows and setups specific for that operating system.

Please carefully check that the Bluetooth driver is installed in and supported by your operating system.

STEP	Image	Description
1		Open in sequence the following items on the PC: • Select the Windows Button • Select: Printer & Devices • Select: Add new device
2		Switch ON the TPM tool

3		Activate the Bluetooth peripheral on the PC.
4	 	On the Bluetooth device window, select “Add a device” and wait until new devices are displayed. If only one tpm device is detected, click on the tpm Device icon and confirm. .
6		Windows requires a password. Please insert the following value in capital letters, confirm and wait until Bluetooth pairing: **TECNO**

7		A window with all Bluetooth devices paired with the PC is displayed. Please select TPM02 press the right button (mouse) and click on «Properties».
8		Click on the «Services» tab. NEW PICTURE TPM02 DEVICE
9		Read the Serial Port Number (COM value).
10		Launch the TPM MANAGER-software from the desktop icon. Click on the Settings Icon.

11		Select the COM Port Number read in step 9 and confirm. Then flag “Use Bluetooth”

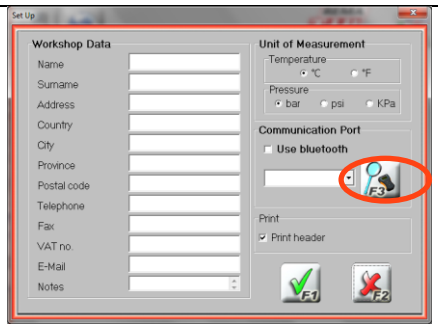
17.5. USB Setup

	**The TPMS CONNECT EVO tool’s internal battery is <u>not</u> recharged through the USB connection to the PC.**

17.6. USB installation

The USB driver is installed automatically during the procedure setup. In case of a failure during setup/installation, please go to EMERGENCY USB SETUP for Windows 7.

STEP	Images	Description
1		Launch TPM Manager ~~Flex~~ software from desktop icon, then click on the Settings Icon. Connect the TPMS CONNECT EVO tool by USB cable with the PC.~~.~~ The tool will automatically switch on.

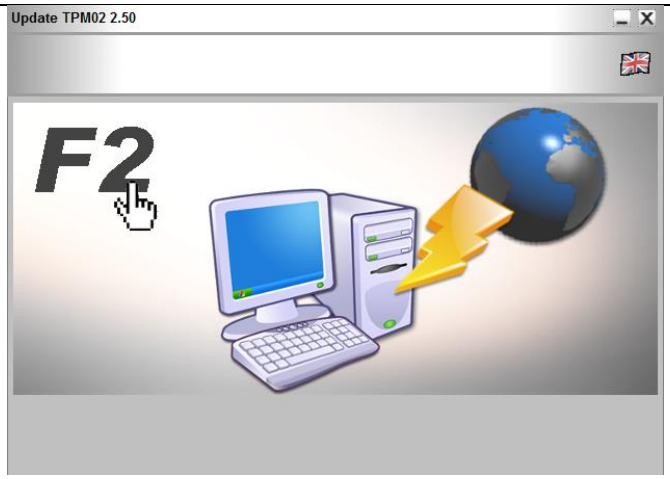
2		Select the “search device icon” or press F3. If you are searchin the USB connection, make sure you unflag the use Bluetooth function. icona. Sw will automatically start to search the COM port to which the TPMS CONNECT EVO is connected. The software will set the found port automatically in it’s configuration.
3		Exit from Setup

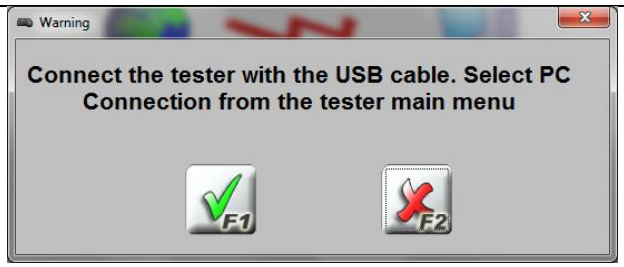
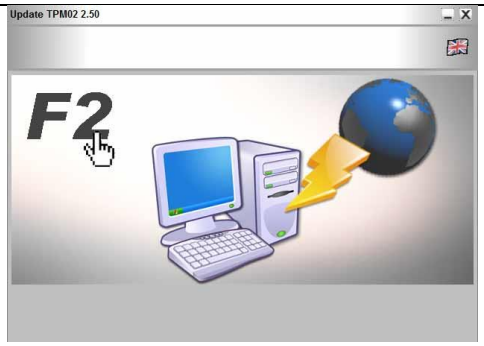
	**Tools update is only possible with an usb connection**

18.Software Update

	**In order to update the tester, you will need: a PC with the software supplied on the CD-ROM installed, Internet access and a password. Obtain the password from your supplier.**
	**The password is associated with the serial number of your tester and the database release you have enabled.**

	**If, after updating the tester, you select a vehicle and get “Vehicle not available - Contact Service”, it means you have used a password for an older release. Contact your supplier to obtain the latest release password**

1		Launch TPMS Manager software and click on F3 button
2		Press on F2 button (press in the middle) to start the update program..

3		The Software requires to connect the TPMS CONNECT EVO tool with the PC trough an USB cable.
4		Enter the password and press “OK”.
5		Wait until the update is complete.
6		Press “OK” at the end of the update.
7		Close the update program to finalize the process.

<u>In order to update the tester, you will need a PC with the software supplied on the CD-ROM installed, Internet access and a password. Obtain the password from your supplier.</u>

The password is associated with the serial number of your tester and the database release you have enabled.

If after updating the tester you select a vehicle and get "Vehicle not available - Contact Service", it means you have used a password for an older release than that of the current database on the tester. Contact your supplier to obtain the latest release password

19. How to position the equipment during sensor test or universal sensor programming

The equipment incorporates a low-frequency antenna to transmit sensor data. An arrow on the top panel of the TPMS CONNECT EVO shows where the tip of the antenna is located. In order to properly energize the valve, the equipment must be aligned with valve body as shown in the figure below. Anyway, the equipment must be placed over the tire and tilted towards valve body.

Correct position

This set-up ensures the ideal condition for low-frequency data transmission to the sensor installed inside the tire. Other set-ups, like that shown in the next figure, could lead to noise between equipment and valve. This prevents communication between the two and makes accurate sensor diagnosis impossible.

WRONG position

20. Functions

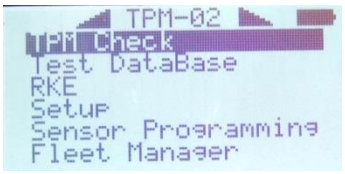
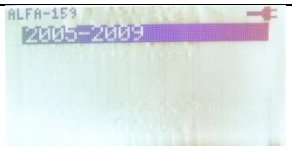
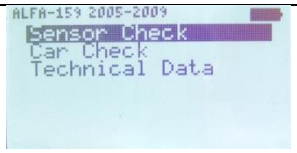
20.1. Keypad

The equipment is equipped with a 7-button keypad featuring:

1) On/Off button to power on and off the equipment
2) Up, Down, Left e Right arrow buttons for browsing
3) Enter button to confirm selection or acknowledge display messages
4) Esc button to go back to previous menu or cancel an operation in progress.

20.2. Sensor Test

When you select this function, the tester will attempt to actuate the sensor and configure the receivers to verify correct valve data transmission.

Step	Screen shot	Description
1		Select option **TPM CHECK** from the main menu page
2		Select vehicle make
3		Select vehicle model
4		Select vehicle's year of manufacture
5		Select **Sensor Check**
6		The tester will attempt to actuate the sensor by sending it a low-frequency signal.

		
7		If the tester receives the correct data from the valve, it will beep and display pressure, temperature, battery state and ID (identification code). Press Enter to go to the next menu.
8		This menu offers the following options: • **ESC** to go back to tester main menu. • CHECK to repeat the test without going back to main menu in the event the tester was unable to communicate with the sensor. • lets you save the test to tester memory.

Step 7: In some cases, the sensor will transmit data if it senses a pressure variation of a least 0.2 bar in the tire. When the tester shows a message reading **Deflate tire**, it means that you need to reduce ~~induce a~~ pressure ~~variation~~ in order to enable valve data transmission.

Step 7 : If the tester receives data in the wrong format but signal is the correct frequency, message "**f=433MHz Sensor not recognized**" is displayed. If the tester did not receive the frequency signal either, message "**No signal received**".

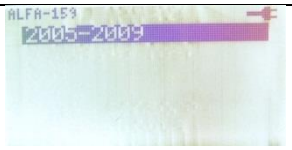
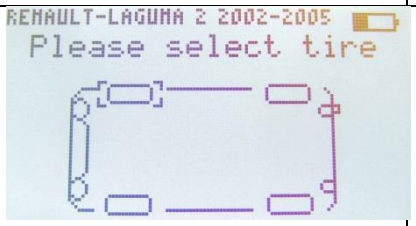
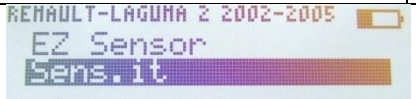
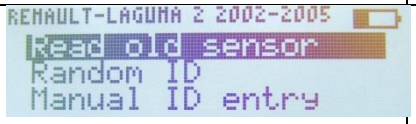
Step 8: When ID and pressure data is not displayed, the sensor is likely to be malfunctioning. To determine whether the sensor is actually faulty, test the other vehicle sensors; if ID and pressure values from the other sensors are displayed correctly, the sensor is faulty.

Step 8: battery state "ko" means that sensor battery is flat and sensor must be replaced. Battery state "vv" means that the battery is not fully charged; when this is the case, you might want to replace the sensor to be on the safe side; definitely replace the sensor if the customer claimed intermittent TPMS light operation. Battery state "ok" means that sensor battery is in good working order.

20.3. UNIVERSAL SENSOR PROGRAMMING

With this feature it is possible to clone an old sensor using a programmable universal sensor to replace the faulty broken tpms sensor. This procedure flashes the universal programmable sensor with the specific firmware of the original TPMS sensor. If the ID code of the old sensor is available (i.e. old ID code is written on the sensor or it's possible to read it using sensor check feature or it's possible read it into controller using OBD option) it is possible to program the original ID code into the new universal sensor and avoid to use OBD setting to program the controller.

Step	Screen shot	Description
1		Select VEHICLE SELECTION from the main menu page

2		Select vehicle make, use the arrow keys to go up and down the list
3		Select vehicle model
4		Select vehicle's year of manufacture
5		If the vehicle is supported the TPMS CONNECT EVO tool shows the line Select **Universal Sensor Programming.**
6		Select universal sensor Type (if you have more than one possibility). Please check carefully that universal sensor that you want program is the same type as selected in the TPMS CONNECT EVO tool
7		Select the position on the vehicle where the new sensor will be mounted
8		Select reason of replacement
9		Select the procedure for programming the ID code of the new sensor. - READ OLD SENSOR, The TPMS CONNECT EVO scans the original sensor and copies the original ID into the new sensor.

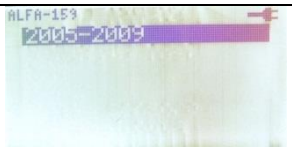
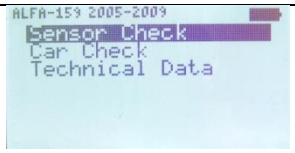
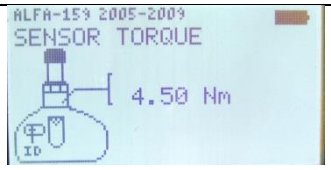
		- RANDOM ID, the ID is generated by the TPMS CONNECT EVO and programmed to the new sensor - MANUAL ID entry (input manually the ID code digit, read from the original sensor)
10		Follow the sequence on the screen until programming procedure is finished. At the end of programming, a message will be displayed that programming was successful.

ID CODE is a unique code that permits the vehicle to recognize the sensor and it's position. Please avoid to put the same ID code for different sensors. This could be causing problems on the car.

20.4. Tightening Torques

This function provides an overview of sensor and wheel tightening torques; over tightening may cause irreparable damage to sensor,rim and/or tyre.

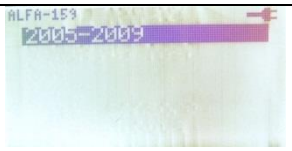
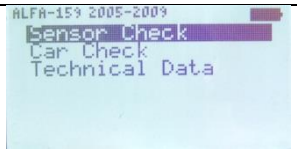
Step	Screen shot	Description
1		Select **Vehicle Selection** from the main menu page
2		Select vehicle make

3		Select vehicle model
4		Select vehicle's year of manufacture
5		Select **Technical Data**
6		The tester displays: **Sensor Torque** - Tightening torque for pressure sensor nut - Tightening torque for retaining screw[1] of pressure sensor valve body.
7		Clicking 3 times on the down arrow will show also the **Wheel Torque** which shows the torque of the wheel nuts or bolts of the wheel.

[1] Sensor screw tightening torque is only provided for design 1, see paragraph 10 in this manual.

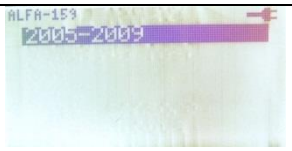
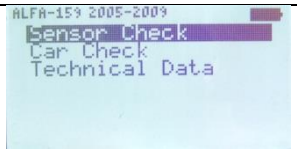
20.5. Spare Part Number

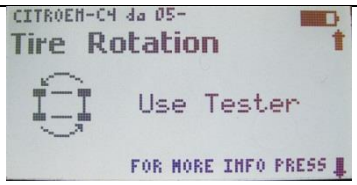
Step	Screen shot	Description
1		Select option **Select vehicle** from the main menu page

		
2		Select vehicle make
3		Select vehicle model
4		Select vehicle's year of manufacture
5		Select **Technical Data**
6		Press “arrow down” for more info. The tester displays the part number of the appropriate valve for the selected vehicle. OEM part numbers and Rema Tip Top number are displayed.

20.6. Tire Rotation and Sensor Replacement

Step	Screen shot	Description
1		Select option **Vehicle selection** from the main menu page

		
2		Select vehicle make
3		Select vehicle model
4		Select vehicle's year of manufacture
5		Select **Technical Data**
6		Press arrow down button until NEW SENSOR appears in the screen.
7		• "NEW SENSOR" provides information on what tool or technique should be used when a sensor is replaced by a new sensor.
8		Press arrow down again: This calls up a menu with the following options: • "TYRE ROTATION" provides information on what tool or technique should be used when rotating sensors positions.

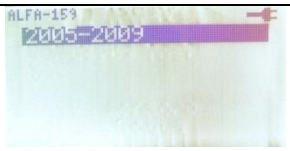
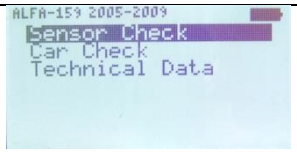
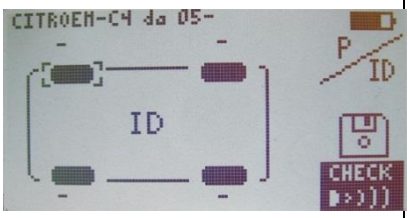
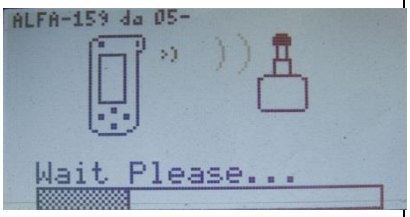
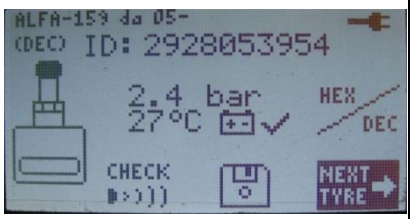
		

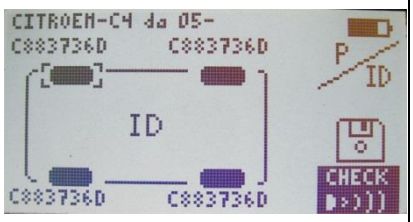
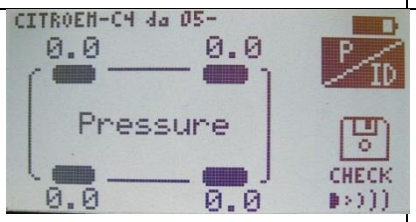
	**Step 6 and 7 - Possible indications are:** - **<u>Tester</u>: it indicate that it is necessary to flash the ECU of the vehicle using OBD option** - **<u>Manual</u>: it indicates the a manual procedure exists and then it is necessary to check the vehicle book** - **<u>Drive</u>: This means you need to drive the vehicle at steady speed for a few minutes (refer to vehicle manual)**

20.7. Car/EASY CHECK

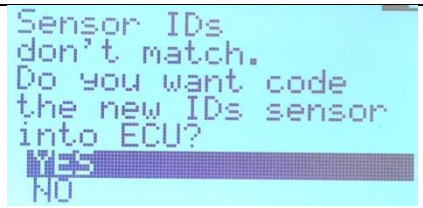
To promote transparent customer relationships, this function may be used to establish correct operation of tire sensors when your customer brings in the vehicle for service or picks it up (Check in and Check out).

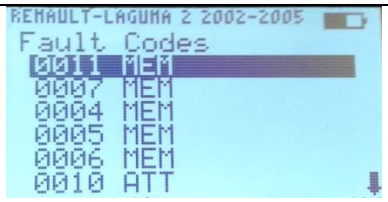
Step	Screen page	Description
1		Select option **VEHICLE SELECTION** from the main menu page
2		Select vehicle make

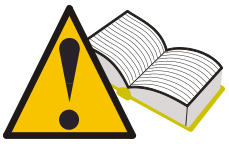
3		Select vehicle model
4		Select vehicle's year of manufacture
5		Select **Car/Easy Check**
6		Through the arrow keys select the tire to be tested. Press Enter to confirm when You are ready.
7		The tester will attempt to actuate the sensor by sending it a low-frequency signal.
8		If the tester receives the correct data from the valve, it will beep and display pressure, temperature, battery state and ID (identification code). Press NEXT TYRE to test the next wheel; press Esc to return to step 6.

….		Steps 6 through 8 are repeated to test the other vehicle wheels.
18		The tester displays a screen page with ID.
19		Is possible to see also the pressures collected ,selecting  Once the tester is finished, it is possible to save the collected info into the test database selecting 
The latter case is likely due to an oversight during the test procedure. Two valves with the same ID installed on the same vehicle are a rare occurrence.		

If you have OBD options it's possible continue with EASY CHECK procedure otherwise you can realize just sensor check.

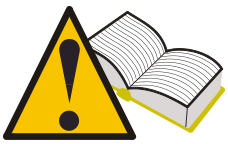
20		Connect TPM tool to OBD socket
21		**<u>Sensor ID code check on the vehicle control unit. During this phase the software ensures that the control unit has the same ID codes read through radio frequencies; if this is not the case the software requests if you want to match the control</u>**

		unit codes with those acquired through radio frequencies.
22		**Check of fault codes in the control unit. If fault codes are present the software requests to the operator if he/she wants to remove them.**
23		Test report processing to be saved/printed by means of PC. 



Easycheck should always be performed before delivering the vehicle to the customer to make sure that sensors and control unit are consistent and work properly.

Easycheck is useful also in case of replacement of more sensors it allows resetting several sensors at the same time.



Easycheck is available only with OBD option.

21. Test database

This function lets you manage, view and repeat any tests performed during past sessions.

21.1. Last 30 Cars:

This function lets you view Vehicle Test results saved during past sessions. You may also use the “Location Test” function to determine whether the sensors installed on the vehicle are still in the same positions as when the test was saved.

Specifically, you may perform the “vehicle test” when the vehicle is brought in (as outlined in paragraph 12.6) and save the test; upon vehicle delivery, you may call up the vehicle log and check - together with the owner - that sensors are operating properly and are still in the same positions as when the vehicle was brought in. This way, you can establish that any TPMS malfunction has nothing to do with tire repair.

21.2. Last 30 sensors:

This function lets you view Sensor Test results.

21.3. Last 30 Prog.Sensor:

This function shows you the last 30 programmed universal sensors

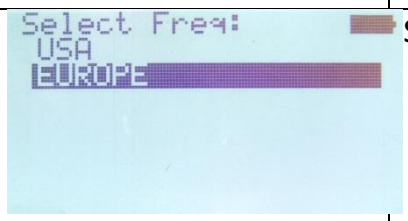
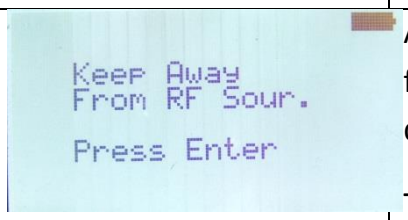
21.4. Upload to PC:

This function lets you upload all data stored in the tester to your PC via the USB port or Bluetooth using TPMS manager

NOT CORRECT< ITS SHOWS FIRMWARE AND SD CARD UPDATE

21.5. Test RF Key

The purpose of this function is to check radio frequency data transmission from vehicle remote control devices and battery charge. To ensure accurate test results, perform this test well away from any radio frequency signal sources.

Step	Screen shot	Description
1		Select option TEST RF KEY from the main menu page RKE
2		Select frequency
3		A message to move away from other radio-frequency source, such as automatic gates, wireless devices, is displayed. Then press ENTER
4		The diagnostic tester will display RF monitor as well as the number of data received on frequency in use. Press ESC to exit

22. Why do you need the TPMS CONNECT EVO PLUS function?

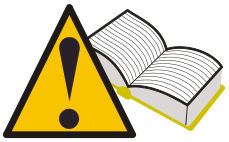
A complete vehicle TPMS system consists of TPMS sensors that transmit data to the vehicle by Radio Frequencies, and one or more control units that receive those data and send them to the other intelligent units inside of the vehicle. It will lit the TPMS light on your dashboard when something is wrong.

The TPMS CONNECT EVO PLUS accessory allows communicating with the vehicle system control unit to:

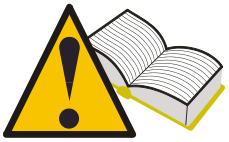
- check for any fault codes in the control unit;
- reset codes of solved faults from the control unit;

- check the tyre pressure read by the control unit and read other design parameters;
- relearn/reprogram the sensor ID code in case of replacement (if needed);
- carry out several adjustments when foreseen (summer/winter tyres, alarm thresholds, function enabling/disabling).

The TPMS CONNECT EVO PLUS accessory is especially suitable for sensor replacement procedures since it reads the ID code of the new sensor through Radio Frequencies even with fitted tyre, and writes this code in the control unit thus avoiding the user to manually enter it.

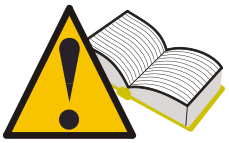


During all operations the vehicle dashboard must always be on (key ON but engine OFF). Otherwise the instrument will not be able to communicate with the vehicle on-board control unit and the relevant error will be triggered. Pay attention to those vehicles that switch off the dashboard after some time to save the battery.



Connect the diagnosis socket when prompted by the instrument.

We recommend connecting it completely to avoid fake contacts and communication problems.



When you are prompted to connect the EOBD cable the display will show the position of the diagnosis socket on the vehicle. Warning: in certain cases to reach the diagnosis socket it may be necessary to open/remove the door.

Vehicle models differ one from the other so for this reason operations available on one vehicle may be completely different from those available on other models.

23. Type of TPMS systems installed on vehicles

As for the sensors self-learning functions it is possible to classify vehicles in 3 categories.

Vehicle with identification code self-learning of a new sensor or the wheel position	**Model A** The vehicle electronics allows learning the new code of a new sensor or the new position of the sensor after one wheel rotation. Usually this procedure is carried out by driving the vehicle for nearly 10 km at the end of which any warning lights turn off. Yet on some vehicles it is necessary to codify the new identification codes if all 4/5 sensors are replaced at the same time.
*Vehicle with identification code self-learning of a new sensor but **not** of the wheel position*	**Model B** The vehicle is able to learn the new sensor position after one wheel rotation, but can not learn the ID code of a new sensor. To do that it is necessary to connect to the vehicle EOBD diagnosis socket and to enter the sensor ID code
Vehicle without self-learning function	**Model C** Both after one wheel rotation and after replacing one or more sensors it is necessary to connect to the OBD diagnosis socket to set the wheel position and/or the new sensor ID code.

According to the type of vehicle the software provides indications about how to complete the TPMS sensor replacement procedure.

To carry out the coding functions it is not necessary to have the EOBD cable when the sensor reads the code through Radio Frequencies. The TPMS CONNECT EVO and the EOBD accessory do not need to be near the sensor at the same time and connected to the EOBD socket thus avoiding the need of very long cables.

24. Functions

24.1. ID Sensor Coding

By selecting this function the instrument will enter the new sensor ID code into the control unit (OBD) in case of vehicle models B and C described in paragraph 9. It is possible to carry out this operation in 2 different ways:

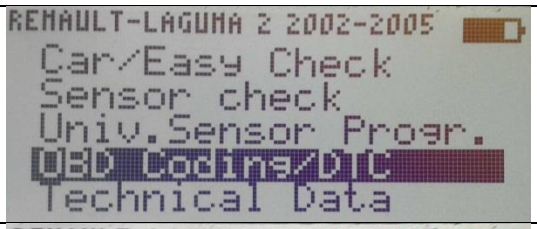
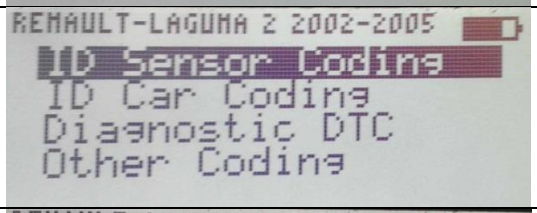
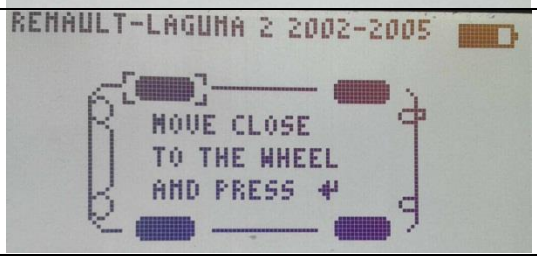
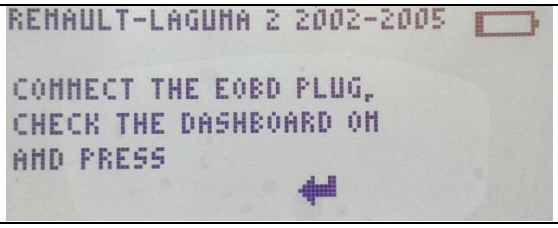
a. read the sensor code through Radio Frequencies, thus using the EOBD cable to send it to the control unit;
b. enter the code manually on the TPMS CONNECT EVO PLUS instrument and use the EOBD cable to send it to the control unit.

Mode “a” is the fastest and easiest one, and you do not have to manually enter the ID code in the instrument; furthermore this mode can be carried out with fitted tyre since the ID code is read by the instrument through radio frequencies.

Mode “b” can be used in unusual and special cases of many vehicles in the workshop featuring the same sensor that can jam radio frequencies. In these cases it is recommendable that the operator reads the ID code directly on the sensor. Nevertheless, this function allows completing the operation even in "extreme" cases.

To start the sensor coding operation select vehicle, make, model, year.

Step	Screen shot	Description
1		Choose VEHICLE SELECTION
2		Choose Make, model, year

3		Select OBD Coding/DTC
4		Select ID sensor coding
5		Use the arrow keys to go to the required sensor position on the vehicle
6		Press OK, read the sensor's ID
7		Go to the OBD connector and plug in the tool, press OK.

If the vehicle type is "a" the display will show the sensor learning procedure steps to be followed.

- If the vehicle type is "b" or "c" you will have to choose whether to enable the "automatic" procedure or to manually enter the code in the instrument. In both cases follow the displayed instructions to correctly perform the operations.

In case of vehicle type "A" the display will show you the operation to be carried out.

When the operation is completed, either with mode "a" or "b", the instrument reads the code that has just been memorised in the control unit to check if the operation was successful, and the display shows the relevant message.

24.2. Vehicle sensor coding

This function allows reprogramming the ID codes of all sensors present on the vehicle.

The modes to carry out this operation are the same mentioned in the previous paragraph.

In case of "automatic" coding, the software will prompt to approach all 4 wheels of the vehicle and to acquire the ID codes; then connect to the vehicle diagnosis socket to save the data in the control unit.

In case of “manual” procedure the sw will prompt to manually enter the 4 codes in the instrument and to connect the EOBD cable to the vehicle diagnosis socket to carry out the reprogramming procedure.

This function can be activated from the main menu by selecting the vehicle and then the "vehicle code".

24.3. Vehicle electronics control unit Errors and Faults reading

The TPMS-EOBD allows reading also the codes of the vehicle faults to immediately diagnose the vehicle electronics problems. To enable this function select the vehicle, then “Vehicle Diagnosis” and “Error code reading”. The message "No errors" will be displayed if no error is present. Otherwise the display will show the error code provided by the control unit, as well as the error description and its status (if available):

ATT indicates the current error when the instrument communicates with the control unit.

MEM indicates that the error is no longer present (but memorised) when the relevant datum is requested to the control unit.

Pay particular attention to the error state in case of problems with sensors since they transmit data only when the vehicle is moving.

For this reason the relevant fault could be missing because the control unit is not supposed to receive that information from the vehicle.

Because of the display dimensions only 2 faults can be displayed at the same time. If more than 2 faults are present use the "up" and "down" arrows to view the other present faults.

When the control unit detects an error upon reception of data from the pressure sensor, we recommend checking the sensor correct operation with the “Sensor Test” function. If the sensor works properly the faults may be due to the following reasons:

the vehicle antenna and/or the relevant electronics are faulty;

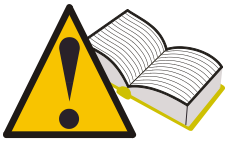
the sensor battery is low, so it is recommendable to repeat the "sensor test" several times;

this problem occurs under particular driving conditions, so we suggest analysing with the vehicle's owner the circumstances upon which the problem has occurred.

24.4. Fault codes reset from the control unit memory

Once the fault has been removed it is good rule to reset the faults memorised in the control unit to immediately switch off the fault warning light and avoid wrong diagnosis in the future. To enable this function select the vehicle, then “Diagnostic DTC and “Erase fault codes”. Once this function is completed the sw will automatically go back to the "Vehicle Diagnosis" section.

At the end of this function enter the fault code reading function mentioned before and check that the fault memory has been reset.



If the errors still remain in the control unit even after performing the reset function, it means that the faults cause has not been removed and so the control unit considers the fault is still present.

24.5. Settings

Some vehicle models can provide other supplementary functions, such as:

- summer/winter tyre setting. In this case the vehicle on-board control unit can memorise 4 ID codes for the sensors fitted on the winter tyre rims and 4 ID codes for the sensors fitted on the summer tyre rims. To avoid performing the 4 sensor learning procedure upon each season change, you have the possibility to set the

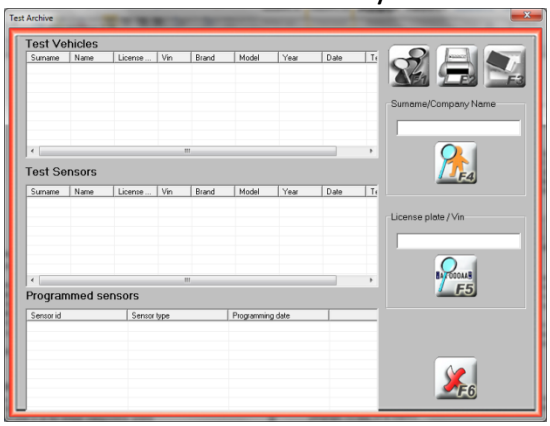
summer or winter tyres. The control unit sw automatically uses the 4 ID codes of the summer or winter tyres according to the settings.

- System enabling/disabling. This function allows enabling or disabling the TPMS system.

To get access to this function select "OBD coding /DTC " and then "Other Coding" in the main menu.

VIN or License Plate

VIN or license plate is used to recognize automatically a car and relative test already made in the past.



If a VIN or a license plate already has been registered by TPMS manager, TPMS manager recognizes automatically the car model and prepares the TPMS CONNECT EVO tool to start with the test.

In this way the user avoids to select a new vehicle as all data are already found by the software. At the end of the measurement a report is automatically send to the ~~at~~ PC and TPMS manager stores the test report for future use.

TEST DATABASE

VIN or license plate can also be used to find a previous made test report of a vehicle that is already stored in the database. (F2 Button).

VEHICLE TPMS SERVICING

This function permits to show dashboard (instrument panel) procedure to reset TPMS lights after sensor replacement/ tire rotation for vehicle that support this type of procedure

SAVE/PRINT REPORT

This feature permits to save/print on PC test report saved on the tool.

PRINT A TEST REPORT DIRECTLY FROM THE TPMS CONNECT EVO ~~TPM2~~ TOOL

When a Bluetooth connection between the TPMS CONNECT EVO and the computer is established, it is possible to directly print a report. Simply touch the print button on the TPMS CONNECT EVO tool and a print will be immediately made.

25. Sensor installation/removal procedure

25.1. Maintenance equipment required for TPMS-equipped tires

TPMS-equipped wheels normally use low-section tires with high speed rating or run flat tires, either self-supporting or auxiliary-supported (PAX System or SR Support Ring tires with insert). Tire installation/removal procedures are similar to those for conventional tires, except for auxiliary-supported run flat tires.

To install and remove TPMS-equipped wheel tires, we recommend using the latest tire changers which are especially suited to install low-section tires or large-size tires on alloy wheels. It is essential that the tire changer be equipped with plastic pressure rollers so as to ensure correct pressure during installation without damage to wheel rim, sensor and tire bead.

For auxiliary-supported run flat tires (PAX System or Support Ring)

equipped with TPM sensors, you will have to use tire removal/installation equipment approved by the tire manufacturer. These tires require special accessories and the installation/removal procedures are different from those used for standard tires.

Follow the installation and removal instructions and procedures provided by the manufacturers of tire, sensor, vehicle and tire removal/installation equipment.

The information provided herein is general information applicable to most sensors found in the market. In addition to the appropriate tire changer, when you change sensors you will also need suitable sensor replacement kits that include one or more wrenches, O-rings,

valve caps in different colors, valve body and valve insert.

Kit contents may vary depending on sensor type (see paragraph 10.0) and brands.

25.2. Sensor replacement

Installation and removal procedures vary slightly depending on sensor model.

A standard procedure for the valve-and-sensor assembly configuration (design 1, paragraph 10) may be as follows:

1. loosen the retaining screw so the sensor can move freely.
2. unscrew the nut completely
3. remove valve body from its seat; the sensor must be free to move otherwise the valve will not come off.
4. unscrew the retaining screw and remove valve body.

For incorporated sensors (design 2, paragraph 10), simply perform steps 2 and 3 of the above procedure.

A standard procedure for the valve-and-sensor assembly configuration may be as follows:

1. Obtain a complete replacement kit including TPM sensor and all other parts (valve body, retaining screw, nut, valve cap).
2. Insert valve and O-ring into valve seat. Install the nut to retain valve to wheel rim, but do not tighten yet. The nuts have a small plastic grommet inside that must be sheared upon final tightening. When the nut becomes hard to turn, stop.
3. Install sensor onto valve body and secure it with the retaining screw. These sensors can be installed at varying angles to accommodate different rim configurations. Before final tightening, look up the sensor manufacturer's instructions to make sure that torque is correct, that sensor is in the correct position (i.e. touching the wheel rim or not) and that the external portion of the sensor is below bead seat. If these requirements are not met, the sensor might damage during tire installation.
4. Tighten the valve nut firmly (the grommet inside the nut must break) to the torque specified by the sensor manufacturer.
5. Install the tire.

Standard procedure for incorporated sensor (design 2)

1. Make sure the O-ring is in place on the valve body and insert it into the rim hole.
2. Fit the nut to secure the sensor into place so that is parallel with the rim and
3. tighten to the torque specified by the TPMS manufacturer.
4. Install the tire.

For valve-and-sensor assemblies, replace valve body, screw and nut, O-ring, valve insert and valve cap each time tire is replaced or serviced. For incorporated sensors, replace valve insert, nut, O-ring and valve cap. Appropriate replacement kits are available from TPM sensor manufacturers.

You may retrieve the correct tightening torques for sensor installation and view them on tester display using the function described in paragraph 12.3 "Tightening torques".

Manufacturer (OEM) part numbers for sensors may be viewed on tester display using the function described in paragraph 12. " Part Number".

Check sensor for proper operation before refitting the wheel to avoid removing the wheel again in the event the sensor needs to be replaced.

25.3. Servicing the sensor with the tire installed.

The instructions outlined above require tire removal. Some tire changers equipped with rollers and/or beaddepressors enable sensor inspection and replacement with no need to remove the tire. If you have this type of equipment, please refer to the manufacturer's instructions.

25.4. Tire removal

TPMS-equipped wheels with internal sensors must be handled with great care during tire removal and installation procedures. A suitable tire changer and proper bead lubrication will greatly facilitate these operations.

Test sensor for proper operation before proceeding.

25.5. Breaking the bead

Remove valve cap and insert and wait until tire deflates before breaking the bead.

Many bead breakers use a blade to break the bead loose from the wheel; with this kind of equipment, position the wheel so the sensor is at 6 o'clock before beginning.

If the bead does not break loose at the first attempt, remember to insert the bead breaker blade away from sensor body throughout the procedure. If you are using a bead breaker with rollers, make sure the roller will not push the bead into the wheel well or the bead might hit the sensor during rotation.

If you are using a blade-type bead breaker, make sure the blade is well away from the sensor. Otherwise, the blade might push the tire bead into the wheel and it might contact and damage the sensor.

If you are using a bead breaker with rollers, make sure the tire bead

is not pushed too deep into the wheel well as it is stretched around

the wheel rim, or it might damage the sensor.

25.6. Demounting the upper bead

Lock the wheel onto the tire changing equipment - fitted with plastic shoes if servicing a light alloy wheel - lubricate the bead and position the head so that the sensor is just behind or under the head. Break the bead using the plastic-guarded lever and place bead over head chisel. Slowly turn the wheel clockwise keeping distance between bead and sensor steady.

25.7. Demounting the lower bead

To break the lower bead, place the head just before the sensor. Pry the tire bead up and over the head chisel, be careful not to hit the sensor. Slowly turn the wheel clockwise until prying out the tire. Check sensor for damage.

25.8. Tire installation

Before installing the tires, check for the following:

• Wheel rim must be in good condition, sensor and air valve must be in the correct position.

- Always replace valve insert, valve nut and O-ring.

• Make sure wheel and tire match before mounting.

• Clean the bead contact area on the wheel rim.

• Lubricate the bead seat and both tire beads using suitable lubricant for touring cars.

 Strictly follow the tire manufacturer's recommendations to ensure the rims you select are correct for the rim.

25.9. Seating the lower bead

Place the wheel rim on the tire changer, position it with the sensor at 9 o'clock and lock the rim. Position the tire on the rim and move the head to its working position. Place the bead over the rear end of the head and pry the tire into the wheel well. The sensor should be safely positioned halfway between the seating area on the head and the wheel rim. Slowly rotate the wheel until seating the bead.

25.10. Seating the external bead

Place the sensor nearly at 9 o'clock with respect to head. These tires normally have stiff sidewalls and it might be convenient to use pressure rollers (positioned as shown in the picture) to pry the bead under the wheel well edge.Slowly rotate the wheel until seating the bead.

Follow the instructions provided by the manufacturers of tyre changer, tire and sensor. Inflating the tire involves potential risks to operator safety; follow the instructions of tire and sensor manufacturers.

Check sensor for proper operation before refitting the wheel to avoid removing the wheel again in the event the sensor needs to be replaced.

When you have installed all four wheels, check that sensors are in the correct positions using the "Location Test" function

26. Hardware and software requirements for update/data upload PC.

- Processor: > Pentium II.
- Hard Disk: > 2 GB (500MB necessary)
- Operating system: Windows 98SE or higher
- 128 MB RAM
- USB ports 1.1 or higher
- Internet access to download Sw up-dates

27. SD CARD INSTALLATION

Normally SD Card is already insert in the tool. In case of needs you can follow this procedure:

1		Remove the rear door screw
2		Remove the door to get access to the SD card compartment
3		Insert the SD card and refit the door with its screw

4		Insert the OBD intelligent cable

The TPM-OBD can be inserted when it is necessary to connect to the vehicle control unit. It does not perform any active operation for the other functions.

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