CARAX TPMS-1010 TPMS Manual

To ensure correct operation and service please read these instructions before installing and operating the TPMS

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Tire Pressure Monitoring Systems, TPMS

Tire Pressure Monitoring Systems (TPMS) improves safety while driving. Once installed in your vehicle, the system will automatically monitor your tires in real-time for pressure and temperature. When any tire's pressure and/or temperature appear abnormal, the system will, in real-time, transmit signals to active an alarm and show a digital figure to warn the driver of a problem. The system aids safety, can extend the tire life and help reduce fuel consumption.

NOTICE

FCC Notice

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the factoring measures.

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected

Caution: Any changes or modifications in construction of this device which are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

To comply with the FCC RF exposure compliance requirements, this device and its antenna must not be co-located or operating to conjunction with any other antenna or transmitter. **System Scope of Use and Warnings**

Tire Pressure Monitoring System, TPMS

This system is a sensing device designed to measure and display tire operation and / or activate an alert to the driver when pressure and temperature irregularities are detected. It is the responsibility of the driver to react promptly and with discretion to alerts. Abnormal tire inflation pressure should be corrected at the earliest opportunity.

Caution: The system is wireless RF product; therefore, it may not receive signal due to interference environment or incorrect operating or installation. When the system continually cannot receive signal from one of the tire sensor more than 20 minutes since the system be switched on, the system will show " E2". In this case, it may cause by a RF interference environment and driver need to drive the vehicle to other place. If the display still cannot receive any correct signal from tire sensor, then, driver needs to find a nearby qualified tire maintain service for checking and maintain. It may cause by a tire sensor damaged or battery power consumption is low (the battery consumption will be lower than under normal using condition due to sensors need to send warning signal continually to driver) . If the system might damaged and will show "E1". Driver needs to drive to other place (there might be a interference nearby) or send the system to agent for repair

* System Installation and Usage

Use of the TPMS requires that qualified personnel according to the instructions here have properly installed it. This system is suitable for use on a passenger car, SUV and 4X4 tires, with up to maximum cold inflation pressure of 74 Psi (Guage) ,below instruction is Guage value mentioned.

*Reacting to Alerts

When an alert or warning is received, reduce vehicle's speed and proceed to a safe location to stop where the tire can be inspected and /or serviced.

The low-pressure alert indicates that the air pressure has dropped to a selected minimum and a high-temperature alert indicates that the temperature of the tire content has surpassed the threshold value set. When the battery voltage icon flash which means the battery voltage of vehicle is below battery voltage default (11v).

*Use of Chemicals

Temporary resealing or re-inflation products containing internal sealants or propellants in any tire assembly may adversely affect the operation of the sensor/transmitter.

Specifications of TPMS

TPMS CRX-1010 RECEIVER SPECIFICATIONS				
Operating voltage	12V DC			
Operating current	< 200mA			
Storage temperature	-30°C to 75°C			
Operating temperature	-25°C to 75°C			
TPMS CRX-1010 SENSOR A	ND TRANSMITTER SPECIFICATIONS			
Storage temperature	-40°C to 125°C			
Operating temperature	-30°C to 110°C			
Operating humidity	Max 95%			
Operating frequency	433.92MHz ± 50kHz			
Pressure monitoring range	0~74 psi			
Dressure reading essures	At Normal condition			
Pressure reading accuracy	± 1psi at normal pressure range			
Temperature reading accuracy	± 4°C in normal environmental condition			
Transmission power	Max 75 dBµV/m			
Battery	3V			
Sensor weight	29g ± 1g			

System Installation

There are two parts of system installation

- 1. Setting up the display unit in the vehicle
- 2. Installing the transmitter unit sensor in each tire.

We strongly suggest installing the display unit first, and then install the tire transmitters. <u>Note</u>: Warranty including "Wireless Display Unit and Wireless Transmitter Sensor and Power Connection cable", not including other accessories.

When remove transmitter sensors to different tires and replace new transmitter sensors, suggest to change all of the valve steams and screws.

Accessories for Tire Pressure Monitoring System

NO.	Accessory Name	Quantity
А	Display	1
В	Magnetic bracket on vacuum suction cup	1
С	Power Connection for Cigarette Lighter	1
D	Sensor	4
E	Tire Valves	4
F	Screw for Tire Valves (Nylok screw)	4

Caution: the power connection is NOT COMPATABLE with USB interface; please do not plug in any USB devices.

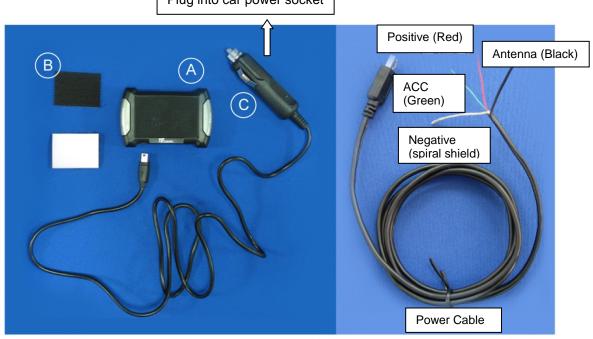


Display Unit Installation

- 1. Plug in one side of C the power cable connection into A the display located on the side.
- Connect the power cable C into the vehicle's cigarette lighter socket for power connection. (or cut the cigar jet and not to cut the cable more than 5cm. plug the power cable with ACC, Positive, Negative into fuse box)

Note: Plugging the power cable with ACC, Positive, Negative into fuse box, the LED light will turn on only when ACC is on and the LED light will be off when ACC is turned off.

- Install the display unit in front of driver at an appropriate position. Stick the Velcro B into the bottom of the display unit A, and Stick the unit into the convenient place.
- 4. After set up the monitor please take off the protection film from the panel of monitor.



Plug into car power socket

Wireless Transmitter Sensor Installation



Step	Operation Process	Photograph
1	Use a jack to raise the vehicle and place jack stands underneath the vehicle for safety. Refer to vehicle owner's manual for full service advice. Seek the assistance of a qualified motor mechanic if required.	
2	Take off the tires and bleed the air. Then take off the air valve of the tire from the wheel. (NOTE: You must change the valve to TPMS valve). This part of the process will normally require the service of a tire fitting service or mechanic.	
3	Recognize the number on each sensor with position of tire on the vehicle. (VERY IMPORTANT)a.RF - 1 B.=Right Front, No. 1 =b.RR - 2 ==Right Rear, No. 2 =Left Rear, No. 3 =c.LR - 3 ==Left Rear, No. 3 =d.LF - 4=Left Front, No. 4	
4	Set up the new TPMS special valve in the wheel. Use wrench to fix the valve, and then tighten nut to 40~45kgf-cm (4~4.5Nm).	
5	Use the new TPMS special Nylok screw to tighten the transmitter sensor into the valve on the wheel. Torgue value must be 40~45kgf-cm (4~4.5Nm).	

	Adjust the transmitter sensor angle so that the transmitter	
6	fits tightly on the wheel and then tighten the screw for the transmitter's sensor so that it is fixed on the wheel.	
7	Clean inside the tire to prevent the tire from damaging the transmitter sensor.	
8	Inflate the tires. Balance the tire a. Balance tires using a balance machine b. A lead tire weight may need to be added for balancing. c. Balance until the tire balance shows balance as "OK" The Steps above will require the assistance of a tire fitting service or a mechanic. It is important that the wheels are balanced after the fitting of the TPMS sensors in order to ensure the safe operation of the tire when refitted to the vehicle. •	
9	Set up the other three tires in the same manner.	
10	Turn the ignition key of the vehicle until the power is activated on the cigar lighter, this may be first or second position depending on the car manufacturer. The in-car display will be activated. The function button of the display unit can be switched to pressure or temperature depending on the customer's need.	^{psi} 32 33 34 34

System Operation

After the system is installed, it will automatically monitor the tire pressure and temperature. Once the ignition is turned on, and the vehicle is in motion, the display will show the real-time tire pressure and temperature individually.

System Alarm

The alarm system will start, if tire pressure is too low, and if tire temperature is too high, the alarm system will start too, and tire pressure will show on display. If high tire temperature and low tire pressure situation happen at the same time, the system will show low tire pressure at first and then show tire temperature, both of tire pressure and temperature will show on the screen for six seconds by turns.

The alarm will keep making sound till turning off alarm system or solving abnormal situation, and below the manual will explain operation process.



The driver can follow the steps to adjust the system of pre-loaded values %Notice: the system has been pre-set with alert figures. If the driver wants to change the figure, then follow the professional tire technician's instruction.

Step	Operation process	Photograph
		psi 32 33 34 34
1	By pressing the function key , it will switch among displaying the pressure unit, displaying the temperature unit, displaying the battery voltage, and displaying both pressure unit and temperature unit by turns. The operator can choose which one to set up first.	° 39 39 38 38
		^{psi} 32 33 34 34
2	If the pressure unit is chosen. Press the <u>function key</u> for 3 seconds, it will switch to kPa, psi, bar in turn. Once the preferred unit is chosen release the <u>function key.</u>	5 10 −5 10 5 10 −5 10 **
		5.1 5.2 2.1 2.2
3	If the temperature unit is chosen. Press the <u>function key</u> for 3 seconds, it will switch to $^\circ$ C and $^\circ$ F in turn. Once the	° 39 39 38 38
	preferred unit is chosen release the <u>function key.</u>	102 102 100 100

Choosing preferred Pressure Units and Temperature Units

Standard Front/Rear Tire Pressure Setting

Step	Operation process	Photograph
1	Pressing the <u>set key</u> for over 3 seconds can change to the front tire standard pressure set up mode.	【Set】Key
2	The wireless receiver and <i>d</i> isplay unit will show the preset front tire standard pressure default (34 psi / 230 kPa / 2.3 bar).	- P - 34
3	By pressing the <u>function key</u> once, the psi value will add 1 unit; and the unit value will return to 20 psi when it has reached 48 psi. (the kPa value will add 10 units; and the unit value will return to 140 kPa when it has reached 330kPa / the bar value will add 0.1 units; and the unit value will return to 1.4bar when it has reached 3.3 bar) The system will use this setting as the standard value for low tire pressure monitoring, which means when the tire has deflated to a pressure value lower than this setting, the system will automatically start to warn the driver.	【Function】 Key
4	As for the preset standard value 34psi/230kpa for tire pressure monitoring. High tire pressure monitoring which means when tire pressure has reached 51psi or 1.5 times of the original standard value (the initial preset value is 345kPa or 3.5 bar). For low tire pressure monitoring which means when tire pressure has reached 27psi or 0.8 times of the original standard value (the initial present value is 184 kPa or 1.8bar).	
5	Press the <u>set key</u> to complete the front tire pressure warning value setup mode. The system will automatically enter the rear tire pressure set up mode.	【Set】Key
6	Set up rear tire standard pressure value by using the same steps 1~5 from front tire pressure warning value set up mode.	_{рsi} - Р - 34

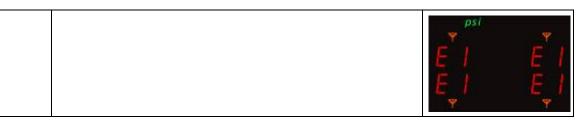
Tire Over Temperature Warning

Step	Operation process	Photograph
1	After the setting operation of standard tire pressure, the systems will automatically entry the setting mode of high tire temperature.	
2	The display unit will show tire over temperature warning setup value (the factory default value is 80°C / 176°F.) for the tires.	° Hi 80

3	Press the <u>function key</u> to change the high temperature figure. The high temperature figure set up range is from 60°C to 100°C (the °F value will add 1 unit; and the unit value will return to 140 °F when it has reached 212 °F), the driver can continually push the <u>function key</u> to adjust the appropriate high temperature figure. When the tire temperature exceeds this setting, the system will generate the warning signals.	【Function】 Key
4	Press the set key to complete the high temperature setting operation.	[Set] Key

Alarm Instruction

Туре	Warning Description	Photograph
1	The tire pressure of RF Tire (22 psi) is below tire pressure default (27 psi), it will active an alarm with "Beep sound" to warn the driver, press set key to turn off the alarm.	^{وه} 11 22 14 14
2	The tire pressure of LF Tire (52 psi) is above tire pressure default (51 psi), it will active an alarm with "Beep sound" to warn the driver, press set key to turn off the alarm.	ω 52 34 34
3	The tire temperature of LR Tire (82 °C) is above tire temperature default (80 °C), it will active an alarm with "Beep sound" to warn the driver, press <u>set key</u> to turn off the alarm.	° 99 39 82 38
4	The battery voltage of Vehicle is under battery voltage default, which the battery check icon will illuminate.	psi 33 33 34 34
5	When display is not in battery monitor mode, the battery voltage icon will flash to warn the driver, when the battery voltage of vehicle is below 11V.	ه 10.5
6	When it lasts 20 minutes above that wireless receiver couldn't receive one of the signal from wireless transmitter sensor, the display will show E2; E1 indicates all wireless transmitter sensor not receivable.	^{عو} 13 43 44 45 45



Note when display unite shows E1 or E2, place any wireless devices (cell phone, etc) further away from display unit or locate a qualified tire service center to correct the issue.

Reset for Tire Changes and Rotation

The rotation is necessary to prolong the life of your tires. The system requires resetting the tire position to ensure the transmitter sensor can indicate the right position of your tires on display unit. TPMS provides three modes of tire rotation methods and one mode for random repositioning and single sensor replacement.

Mode 1: Front to Rear tires exchanged

Mode 2: Tires diagonal exchanged

Mode 3: Front tires diagonal exchanged, and Rear tires parallel exchanged to Front.

Mode 4: Random tire repositioning

Mode 5: Single sensor replaced

- $No.1 \rightarrow Front-right tire$ $No.2 \rightarrow Rear-right tire$
- No.3 \rightarrow Rear-left tire
- No.4 \rightarrow Front-left tire



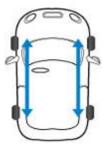


Warming

1. Do not turn off the vehicles power during this process. Doing so will immediately interrupt the repositioning setup process. The ignition can either be in the on or start position (At this time, enter Mode 5 to use single sensor replaced).

2. After repositioning, check the display is detecting all tire pressures correctly. If the system cannot work normally, please reset it and follow the instructions again.

Mode 1: Front to Rear tires exchanged



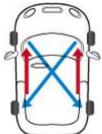
Step	Operation process	Photograph
1	Rotate the tires. Front to Rear, and Rear to Front. To prevent incorrect positioning, mark the tires.	
2	Press both the <u>set key</u> and <u>function key</u> simultaneously for 5 seconds. The display will flash red, and a "beep" sound will be heard. You can release the buttons, and the system will have entered into mode 1.	【Function】 Key 【Set】 Key
		1
	3-1 After entering mode 1, the display will show "1". 3-2	4 1
3	Numbers show in LED lights stands for tires' ID, photograph (1) and (3) means tires position before changing, photograph (2) and (4) means after changing. 3-3	2 4 1
	The operator only needs to press the set key for 3 second and listen for the "beep". This means that mode 1 has been chosen and will exchange all four sensors ID positions and will automatically return the monitoring status to normal.	3 3 2
		a e

Mode 2 : Tires diagonal exchanged



Step	Operation process	Photograph
1	Rotate the tires diagonally. To prevent from incorrect positioning, mark the tires.	
2	Press both the <u>set key</u> and <u>function key</u> simultaneously for 5 seconds. The display will flash red, and a "beep" sound will be heard. You can release the buttons, and the system has entered into mode 1. If press <u>function key</u> again, then the system has entered into mode 2.	【Function】 Key 【Set】 Key
		2
	3-1After entering mode 2, the display will show "2".3-2	4 1
3	Numbers show in LED lights stands for tires' ID, photograph (1) and (3) means tires position before changing, photograph (2) and (4) means after changing. 3-3 The operator only needs to press the <u>set key</u> for 3 second	2 4
	and listen for the "beep". This means the mode 2 has been chosen and will exchange all four sensors ID positions and will automatically return the monitoring status to normal.	3 3 2
		2 3

Mode 3 : Front tires diagonal exchanged, and Rear tires parallel changed to Front



Photograph Function] Key [Set] Key
[Function] Key
7
3
41
2
1. 4
3 3 2
3 2

Mode 4 : Random re-position tires

Step	Operation process	Photograph
1	The tire shop will check the tire for abrasion and rotate tires into the appropriate position.	
2	Press both the <u>set key</u> and <u>function key</u> simultaneously for 5 seconds. The display will flash red, and a "beep" sound will be heard. You can release the buttons the system will have entered into mode 1. Continue to press the function key, each time for one second and each time wait for the beep until the display shows"4"., After entering into mode 4 the LED will show "4".	【Function】Key 【Set】Key
		Ч
	3-1 It will take about two second after entering mode 4, the display will show "4".	
3	3-2 When Tire No.1 needs to be reconfigured, deflate Tire No.1 once below 27 psi (tire low pressure default), and wait for the receiver to receive the signal. When tire No. 1 receives the signal, you will hear alarm "beep". Then, start inflate the tire No.1, it will keep on "beep" till Tire No. 1 is completely inflated to normal pressure.	18
	3-3 After finishing all the steps above. In the mode 4, the numbers will show "1" and turn to "2" automatically.	23
		32
4	Repeat the 3-2 step above for tire No.2, No.3 and No.4 System will be back to monitoring condition automatically, and receiver start to receive signals of tire pressure & tire temperature.	ря) 32 33 34 34

Mode 5 : Single sensor replaced

Step	Operation process	Photograph
1	Take off the broken sensor and replace it with a new sensor. (if you are only checking for a signal problem from Mode 4 instructions, there is no need to take off the sensor)	
2	Press both the <u>set key</u> and <u>function key</u> simultaneously for 5 seconds. The display will flash red, and a "beep" sound will be heard. You can release the buttons, and the system will have entered into mode 1. Continue to repress the function key for four times, and then the system will switch into mode 5.	【Function】Key 【Set】Key
		5 5 5 5
3	3-1 It will take about 2 seconds after entering mode 5, the display will show "5"	l
	 3-2 Press set key to choose tire which new sensor installed, LED will show Tire No.1 / 2 / 3 / 4. 3-3 	18
	When Tire No.1 (RF Tire) needs to be replaced, deflate tire No.1 below 27 psi (tire low pressure default value) and wait for the receiver to receive the signal. When Tire No. 1 receives the signal, you will hear "beep". Then, start inflate tire No.1, it will keep on "beep" till Tire No. 1 is completely inflated to normal pressure.	23
		32
4	After completing all the steps above, System will be back to monitoring condition automatically.	ряі 32 33 34 34

Appendix					
Glossary					
kPa	Pressure reading in Kilo Pascal				
psi	Pressure reading in pound per square inch				
bar	Pressure reading in bar				
°C	Temperature reading in degrees Celsius				
°F	Temperature reading in degrees Fahrenheit				
Inflating Pressure environment	Recommended inflation pressure of a tire at ambient temperature of 25°C / 77 °F by vehicle manufacturers.				
Low Pressure Alert	Visual and audible warning, this is activated when the tire's pressure goes below the preset level. Initial low pressure alert is 27 psi				
High Pressure Alert	Visual and audible warning, this is activated when the tire's pressure goes higher than the preset level. Initial High pressure alert is 51 psi				
High Temperature Alert	Visual and audible warning, this is activated when the tire's temperature goes higher than the preset level. Initial High temperature alert is 80°C.				
Display / Receiver Module	The electronic module mounted inside the vehicle that alerts the driver of any tire irregularities.				
Sensor / Transmitter Module	The electronic module mounted on the wheels that measure the air pressure and temperature of the tire.				

Annexes

Annex 1

kPa , psi, bar Conversion Table								
kPa	psi	bar	kPa	psi	bar	kPa	psi	bar
10	1	0.1	210	30	2.1	410	59	4.1
20	3	0.2	220	32	2.2	420	61	4.2
30	4	0.3	230	33	2.3	430	62	4.3
40	6	0.4	240	35	2.4	440	64	4.4
50	7	0.5	250	36	2.5	450	65	4.5
60	9	0.6	260	38	2.6	460	67	4.6
70	10	0.7	270	39	2.7	470	68	4.7
80	12	0.8	280	41	2.8	480	70	4.8
90	13	0.9	290	42	2.9	490	71	4.9
100	15	1	300	44	3.0	500	73	5
110	16	1.1	310	45	3.1	510	74	5.1
120	17	1.2	320	46	3.2	520	75	5.2
130	19	1.3	330	48	3.3	530	77	5.3
140	20	1.4	340	49	3.4	540	78	5.4
150	22	1.5	350	51	3.5	550	80	5.5
160	23	1.6	360	52	3.6	560	81	5.6
170	25	1.7	370	54	3.7	570	83	5.7
180	26	1.8	380	55	3.8	580	84	5.8
190	28	1.9	390	57	3.9	590	86	5.9
200	29	2	400	58	4.0	600	87	6

°C To °F and °F To °C Conversion Table							
°C	°F	°C	°F	°C	°F		
-40	-40	20	68	80	176		
-30	-22	30	86	90	194		
-20	-4	40	104	100	212		
-10	14	50	122	110	230		
0	32	60	140	120	248		
10	50	70	158	125	257		

<u>Annex 2</u>

Troubleshooting Guide

1. The receiver shows no sign or any information after its power is turned on.

1. The power cord connector is not fully contacted with the receiver

Solution: Remove the power cord and plug it into the outlet again until it is contacted completely.

2.The power cord failed

Solution : Ask your distributor to have your power cord replaced and send the defected one back to manufacturer for repair.

3. The battery is run out of power.

Solution : If the battery voltage is always lower than 9V every time you start the engine, it is recommended that the car should be brought to the service center for inspection.

4. The digits shown on the display panel become incomplete, or the light indicators become abnormal.

Solution : Send the defected receiver display back to agent for repair and reconfigure its ID using the Tire Switching Mode (Mode IV).

5. The fuse is blown in display

Solution : Send the defected receiver display back to agent for repair and reconfigure its ID using the Tire Switching Mode (Mode IV).

2. The Set button or the Conversion button has no response.

1. The inner circuits of the receiver failed

Solution : Ask your distributor to have your receiver replaced, reconfigure its ID using the Tire Switching Mode (Mode IV), and send the defected receiver back to manufacturer for repair.

3. The receiver cannot receive signal from one or some certain tires (but not all of them) after its power is turned on the numeric values representing the locations of those tires displayed on the screen become "E2".

1. There is interference from other electronic device in the vehicle.

Solution : Remove other electronic device in the vehicle to determine if TPMS is interfered by those removed devices.

2. The IDs of those tires do not set up correctly

Solution : Ask your installation supplier to reconfigure the IDs of those tires by using the Single Sensor Replacement Mode(Mode V)

3. The transmitter of those tires failed.

Solution : Ask your distributor to have those transmitters replaced, reconfigure the IDs of those tires by using the Single Sensor Replacement Mode (Mode V), and then send the defected transmitter back to manufacturer for repair.

4. The receiver cannot receive signal from any of the four tires after its power is turned on the numeric values representing tire locations displayed on the screen all become "E1".

1. There is interference from other electronic device in the vehicle.

Solution : Remove other electronic device in the vehicle to determine if TPMS is interfered by those removed devices.

2. The inner circuits of the display panel failed.

Solution : Ask your distributor to have your receiver replaced, reconfigure its ID using the Tire Switching Mode (Mode IV), and send the defected receiver back to manufacturer for repair.

5. The buzzer has no sound output.

1. The inner circuits of the receiver failed.

Solution : Ask your distributor to have your receiver replaced, reconfigure the IDs of the tires using the Tire Switching Mode(Mode IV), and then send the defected receiver back to manufacturer for repair

6. The pressure (or temperature)values show the wrong tire locations

1. The IDs of the four tires are not configures correctly

Solution : Ask your installation supplier to reconfigure the IDs of the tires by using the Tire Switching Mode (Mode IV or Mode V).

2. After rotating the tires, it cannot reconfigure the IDs from sensors.

Solution : Ask your installation supplier to reconfigure the IDs of the tires by using the Tire Switching Mode (Mode IV or Mode V).