

***Cruise Control
Speed limiter
RPM limiter***

AP900Ci



FOREWORD:

This installation manual is written for professional installers with knowledge and experience with modern vehicle engineering and vehicle-electronics.

The AP900Ci is a modular product that has been designed and produced to the highest quality standards of the automotive industry.

The AP900Ci can provide the following functions:

- Cruise Control
- Variable Speed limiter
- Fixed speed limiter
- RPM limiter

These features can be used separately or in combination.

Read this installation manual and user manual carefully. Always leave the user manual with the vehicle for the end user after completing the installation



Pay extra attention to the text behind the exclamation mark.

With this guide we try to support you as best we can to achieve a smooth installation of the product. It is advisable to read the manual carefully for you starts installation. If you need more support, please contact one of our technical support experts. Our contact details can be found on the last page of this manual.

If you have any comments or suggestions for improvement, please let us know.

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INTRODUCTION

CAN-bus is used in most modern vehicles because it offers a flexible and robust communication in the vehicle system. The AP900Ci can be connected to practically any vehicle because the product can be programmed with the correct CAN data for the vehicle model in question. The AP900Ci is usually provided by your supplier with the vehicle-specific data pre-programmed.

If you install AP900Ci and SL900Ci on a regularly base, it's also possible to program the module yourself for the desired vehicle, you require a USB programming cable (LTK-0900090). This makes it easier to stock product for multiple vehicles. The programming application also offers the possibility to adjust the AP900Ci settings before and during installation. Such as response time for engage (INIT), stabilizing speed (GAIN), setting a speed limit and operating options. It's also possible to use the diagnostic function with a laptop, you can check the input and output signals visually.

symbol	action	meaning
	2 x low	Module gives 2 low tones
	green	The LED of the command module light up green
		ON/OFF function command module
		SET/+ function command module
		RES/- function command module
		CANCEL function command module

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SAFETY DIRECTIONS



The AP900Ci is designed to function as a Cruise Control, Speed Limiter or RPM limiter.



The installer must have sufficient knowledge and experience with modern vehicle-electronics.



Incorrect and/or substandard installation, connection, adjustments and/or diagnostics of the vehicle and/or Cruise Control may indirectly affect road safety.



Never change or manipulate an AP900Ci. Changes or technical manipulations to the product may adversely affect its safety and lead to the expiry of the warranty period.



Connections made without connectors should be soldered properly. **DO NOT USE SCOTCH LOCKS!** Isolate the connection preferably carefully with high-quality insulation tape.



Always install the electronic module in a place where heat, vibration and moisture are kept to a minimum, for example under the dashboard.



Always remove the negative clamp from the battery before working on the vehicle. Loss of volatile data is possible (radio, on-board computer, clock, etc.) .



Always use a digital multimeter for measurements. Do not use a test-light or LED-circuit-tester. This can lead to damage to the microelectronics in the vehicle.



Cut wires without connectors to size and avoid unnecessary lengths. Finish the cabling neatly with cable bundle tape after all connections have been made.









The CAN-bus wires are twisted in pairs to ensure reliable operation. After connecting to the CAN-bus wires (blue twisted with blue and white) the not twisted length may be not more than 5cm.



Because the AP900Ci is programmed for the vehicle model, it is not necessary to calibrate the speed signal.

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Kit Content

Item	Part No.	QTY	Description	Picture
1	A10.2014940	1	Electronic module	
2	190.5000400	1	Main harness	
3	LTK.1400150	1	Hardware kit	
4	190-5002***	1	Throttle connection cable	
5		1	Users-Manual	
6		1	Installation-Manual	

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TOOLS REQUIRED

For connections where a connector does not apply, it is strongly recommended to solder and isolate with vulcanizing tape to ensure a reliable installation.

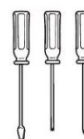
1. Digital multimeter
(don't use a test-light or LED-circuit-tester)
2. Insulation tape and bundle tape
3. Screwdrivers
4. Soldering iron
5. Side cutter
6. stripping pliers



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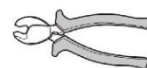
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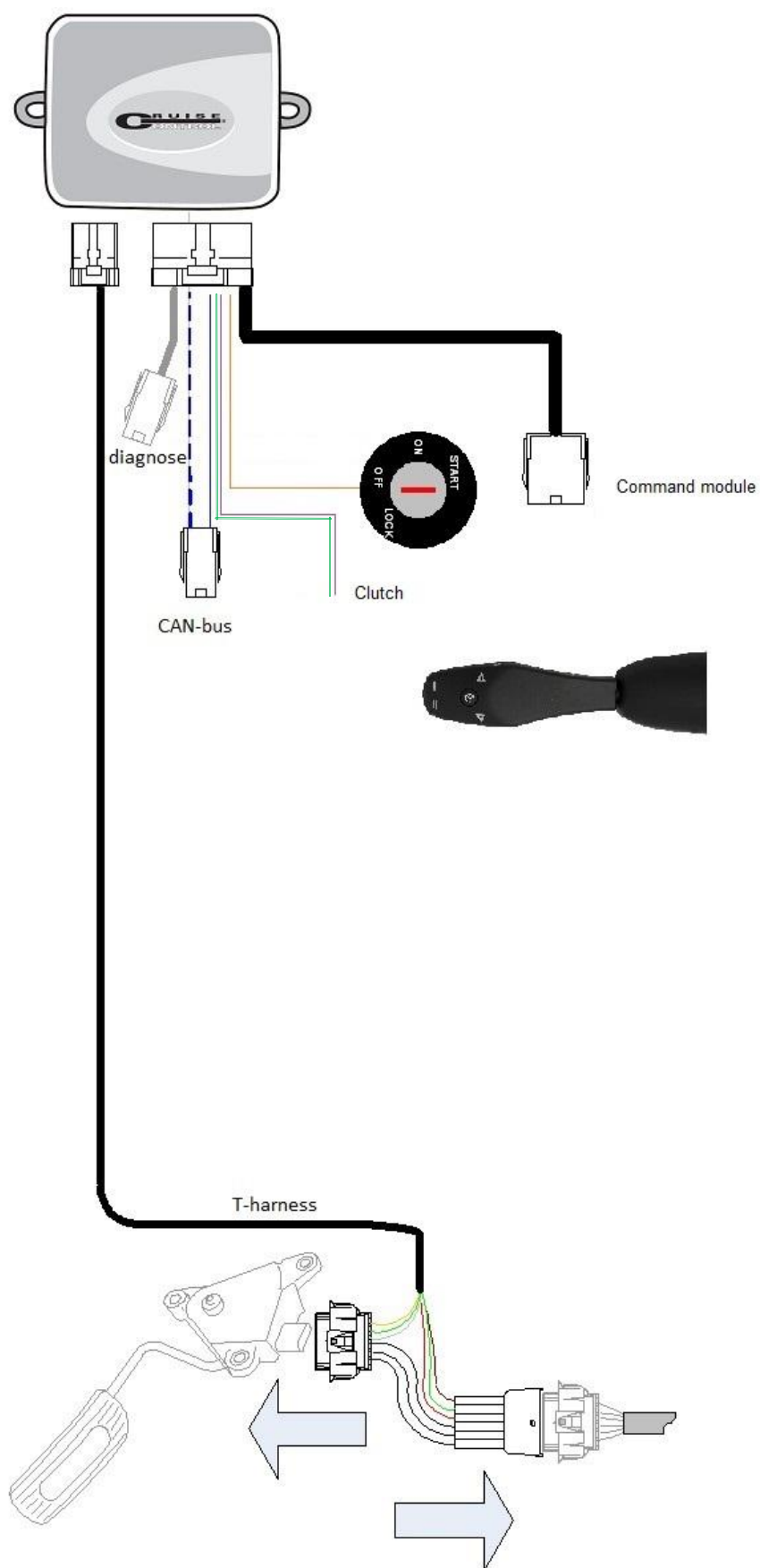
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WIRING DIAGRAM

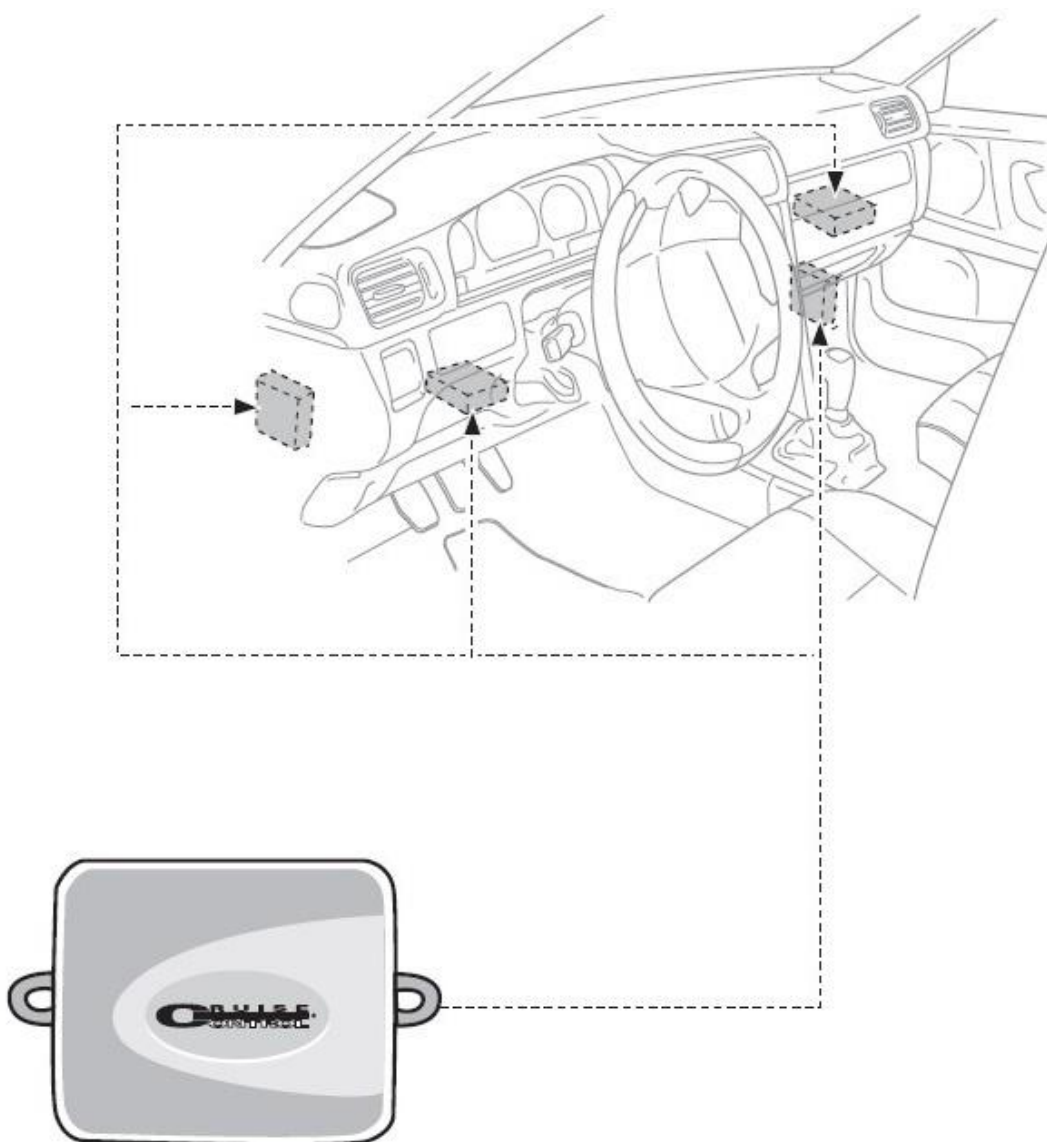


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INSTALLATION AND CONNECTIONS

6.1 LOCATION MODULE

Always place the module in the passenger compartment of the vehicle. Avoid locations with excessive heat, moisture and power lines. Usual mounting areas are under the dashboard, behind the glove compartment or behind the A-style panel at the driver side or passenger side. Never place the module in the engine compartment. Place the module temporarily at the chosen location, when the installation is ready, the module can be permanently attached.



6.2 WIRING CONNECTIONS

When the module is positioned, it is possible to route and connect the harness. If necessary, use a digital multimeter to determine the correct connection points. See also the wiring diagram at page 7.

! Follow the connection data as stated in the vehicle-specific manual and/or the pop-up screen that is displayed after programming the module via the PC.

Orange wire	12V switched feed (+15)
-------------	-------------------------

- !** Make sure the ignition is off when the connection is made for the switched power supply.
- !** Use a digital multimeter to check that the chosen power supply is providing full battery power.

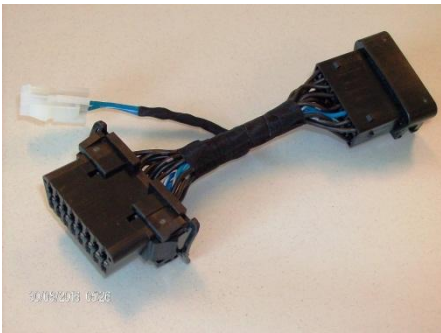
Blue wire (twisted)	CAN high
Blue/white wire (twisted)	CAN low

Option:

If the CAN-bus connection is located in the OBD connector, the OBD attachment connector or the OBD break-out cable can be used.



Part No. LTK-1100130



Part No. 190-5004020

Purple wire	Clutch (if necessary)
<p>! If the clutch signal is not present on the CAN-bus, the purple wire must be connected. This is also visible in the programming tool, at the CAN-bus is no ✓ at the Clutch / Neutral. The purple wire can be connected in 2 ways:</p> <ol style="list-style-type: none"> 1. On a switched wire from the OE clutch-switch 2. On an optional clutch-switch that is installed . Connect this to the 2-pins connector with the purple and green/white wire in it. <p>Connect the purple wire to a wire that, when operating the clutch:</p> <ul style="list-style-type: none"> • Switch to ground • Switches from ground to 12V • Switch off ground • Switches from 12V to ground <p>! WARNING: When there is no clutch protection engine damage can occur!</p> <p>! The Cruise Control will function normally when the purple thread is not Connected. If this connection is not necessary, the purple and green/white wire can be cut off and insulate.</p>	
Accelerator pedal harness	Connection to accelerator pedal (T-harness)
Place the included throttle connection cable between the connectors of the accelerator pedal and insert the square black 8-pins connector into the module.	
8-pins connector (white)	Command module
There are several command modules available to provide the most suitable solution for each application. Install the command module at a location which guarantees a safe operation under all circumstances. See the installation-manual supplied with the command module for the specific installation instructions.	
4-pins connector (white)	Programming tool connection for in-vehicle diagnose
In addition to programming the module, the programming tool can also be used on this connection for diagnosis. For example, it can be checked that all signals from the CAN-bus, control and accelerator pedal are coming in well into the module.	

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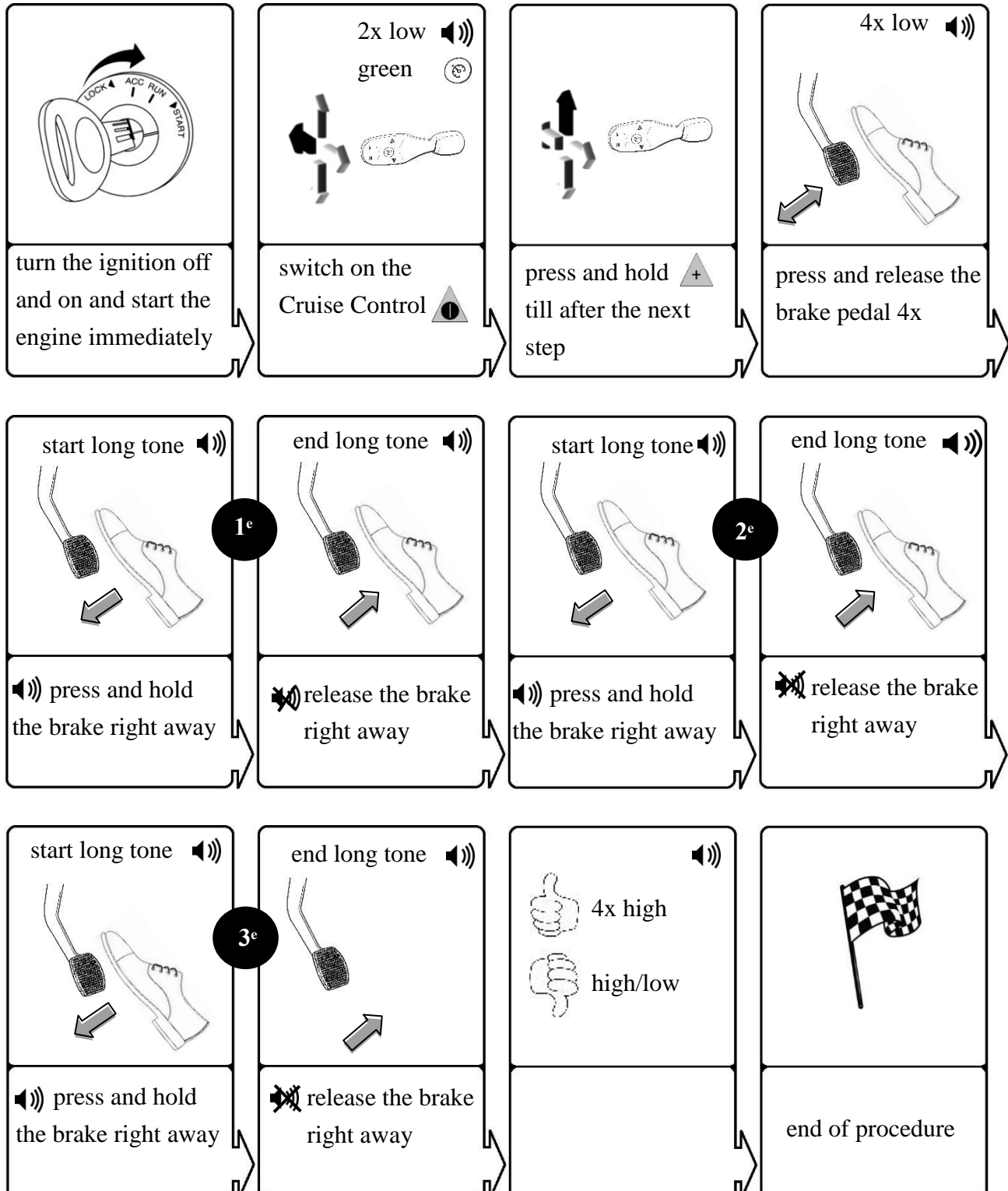
SET-UP

To set up the Cruise Control a view procedures needs to be done in the following order on a normal installation - Activation, Throttle calibration, Diagnostic to check the installation, road test and adjusting the INIT/GAIN if necessary.



7.1 ACTIVATION PROCEDURE

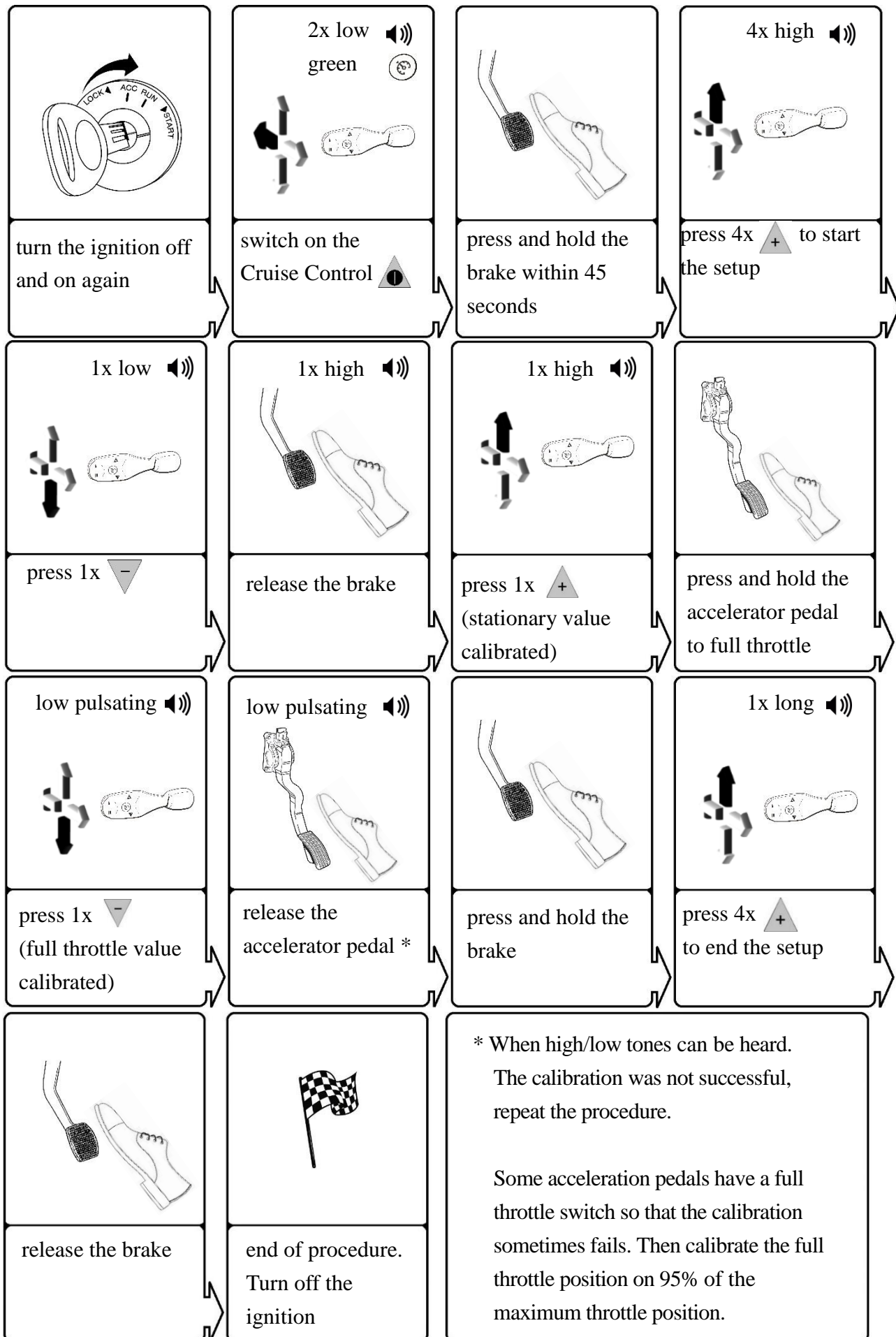
From a safety point of view, the Cruise Control functions are blocked from factory. The software in the AP900Ci must be verified with the vehicle CAN-data. Run the activation procedure to activate the Cruise Control functions.



If the procedure is not performed correctly, the Cruise Control will **NOT** function.

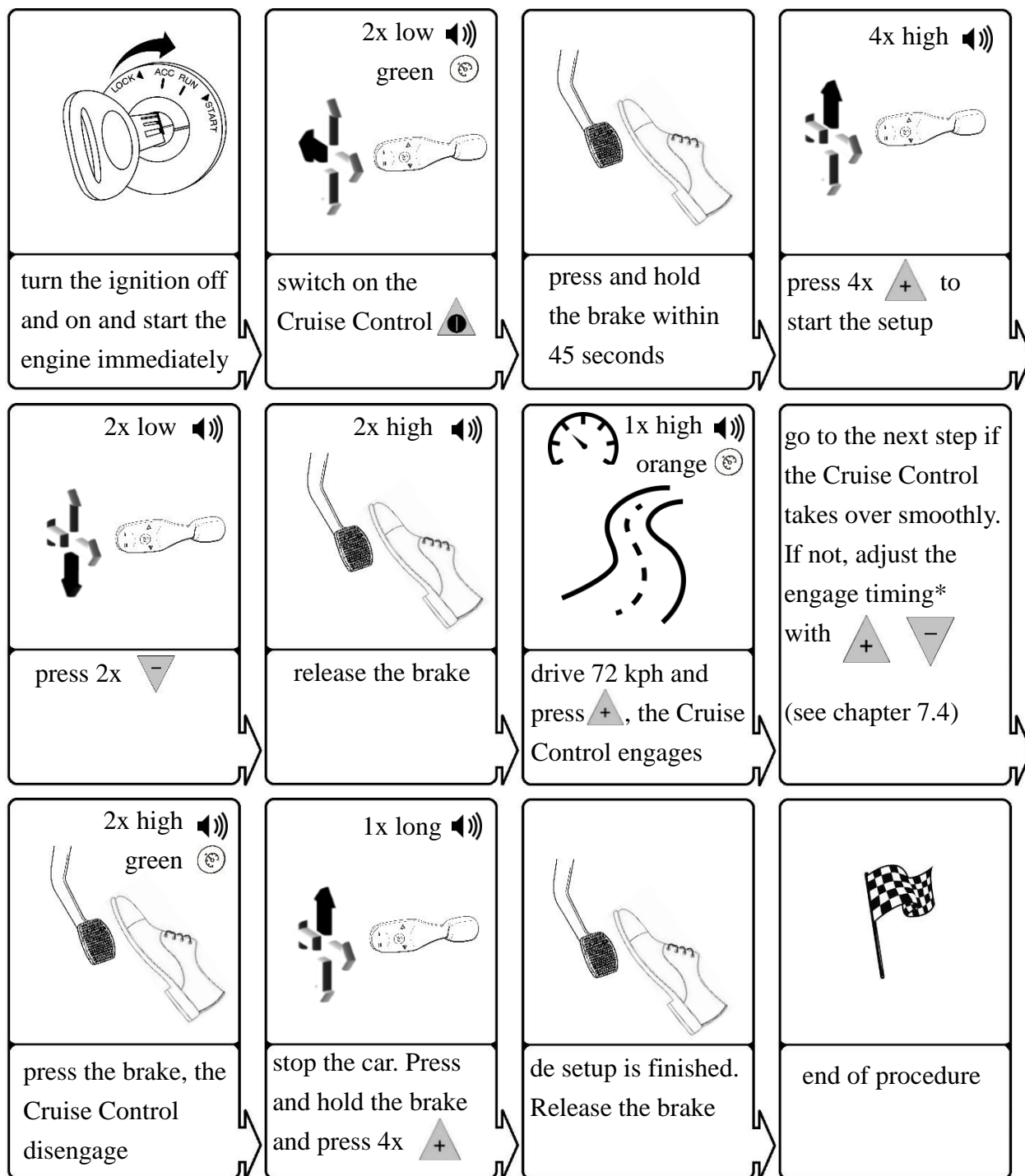
The activation procedure cannot be repeated when it is performed properly.

7.2 THROTTLE CALIBRATION





7.3 SPEED-SIGNAL CALIBRATION

In exceptional cases, it may be necessary to calibrate the speed-signal.

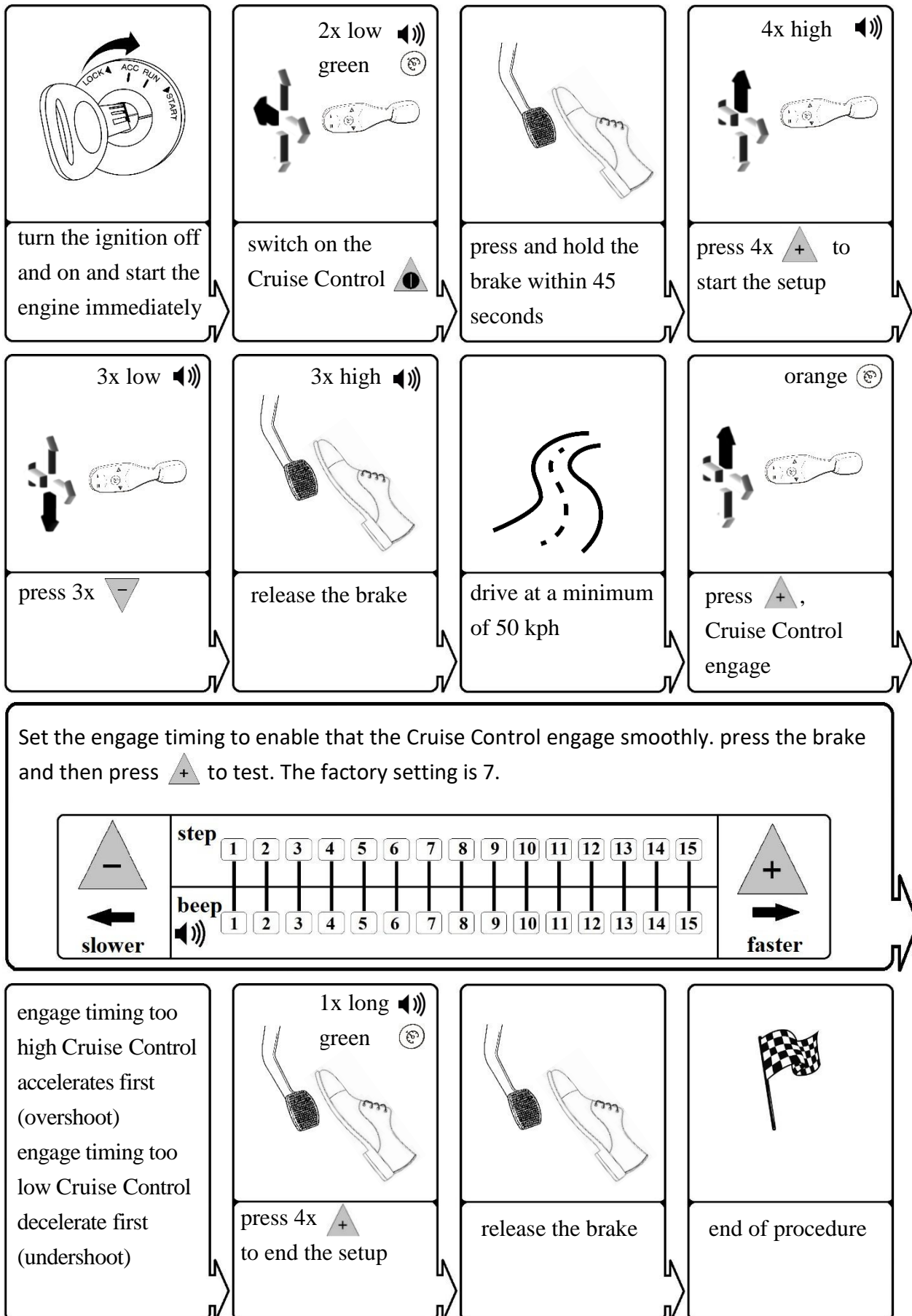


* During speed calibration, the engage timing (INIT) of engaging the Cruise Control can be adjusted immediately. The engage timing is well adjusted if the Cruise Control keeps the speed constant during engaging.

If the speed increases, decrease the engage timing then by pressing . Tap the brake briefly and re-engage the Cruise Control to test the engage timing. Repeat this procedure if necessary. If the speed is decreasing when the Cruise Control is engaged, increase the engage timing by pressing . Read chapter 7.4 for tuning the engage timing when calibration speed signal is completed.

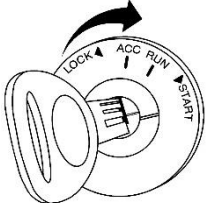


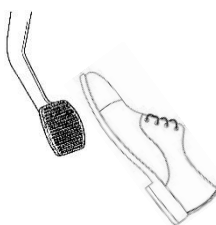

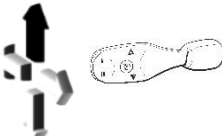


7.4 ADJUSTING ENGAGE TIMING


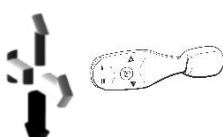

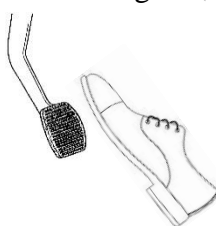


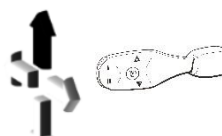


(Cruise Control process adjustment INIT)



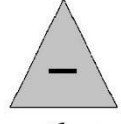
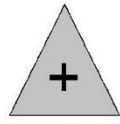

7.5 ADJUSTING SPEED SENSITIVITY



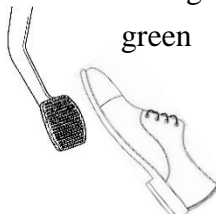
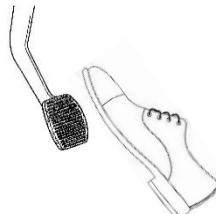


(Cruise Control process adjustment GAIN)

	2x low  green 		4x high  
turn the ignition off and on and start the engine immediately	switch on the Cruise Control 	press and hold the brake in 45 seconds	press 4x  to start the setup

4x low  	4x high  		orange  
press 4x 	release the brake	drive at a minimum of 50 kph	press  Cruise Control engage

Adjust the speed sensitivity until the Cruise Control is very constantly regulated (flat road +/- 1kph, viaduct on/off max. 2-3kph speed difference. The factory setting is 10

 less sensitive	step	3	4	5	6	7	8	9	10	11	12	13	31	 more sensitive
	beep 	3	4	5	6	7	8	9	10	11	12	13	31	

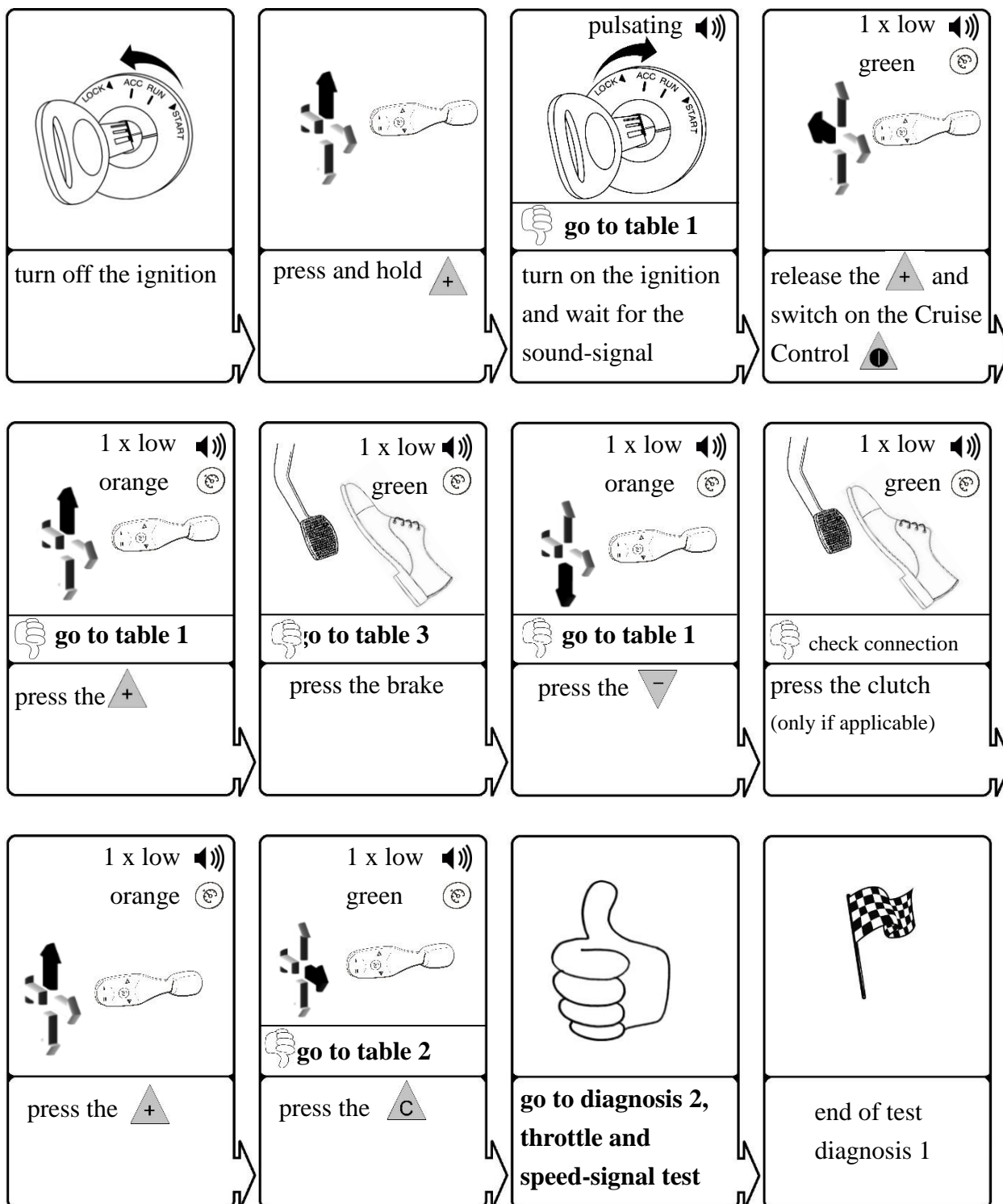
Sensitivity is too low, speed is not stable and fluctuates around set speed. Sensitivity too high, speed is stable but engine surges.	1x long  green  		
	press 4x  to end the setup	release the brake	end of procedure

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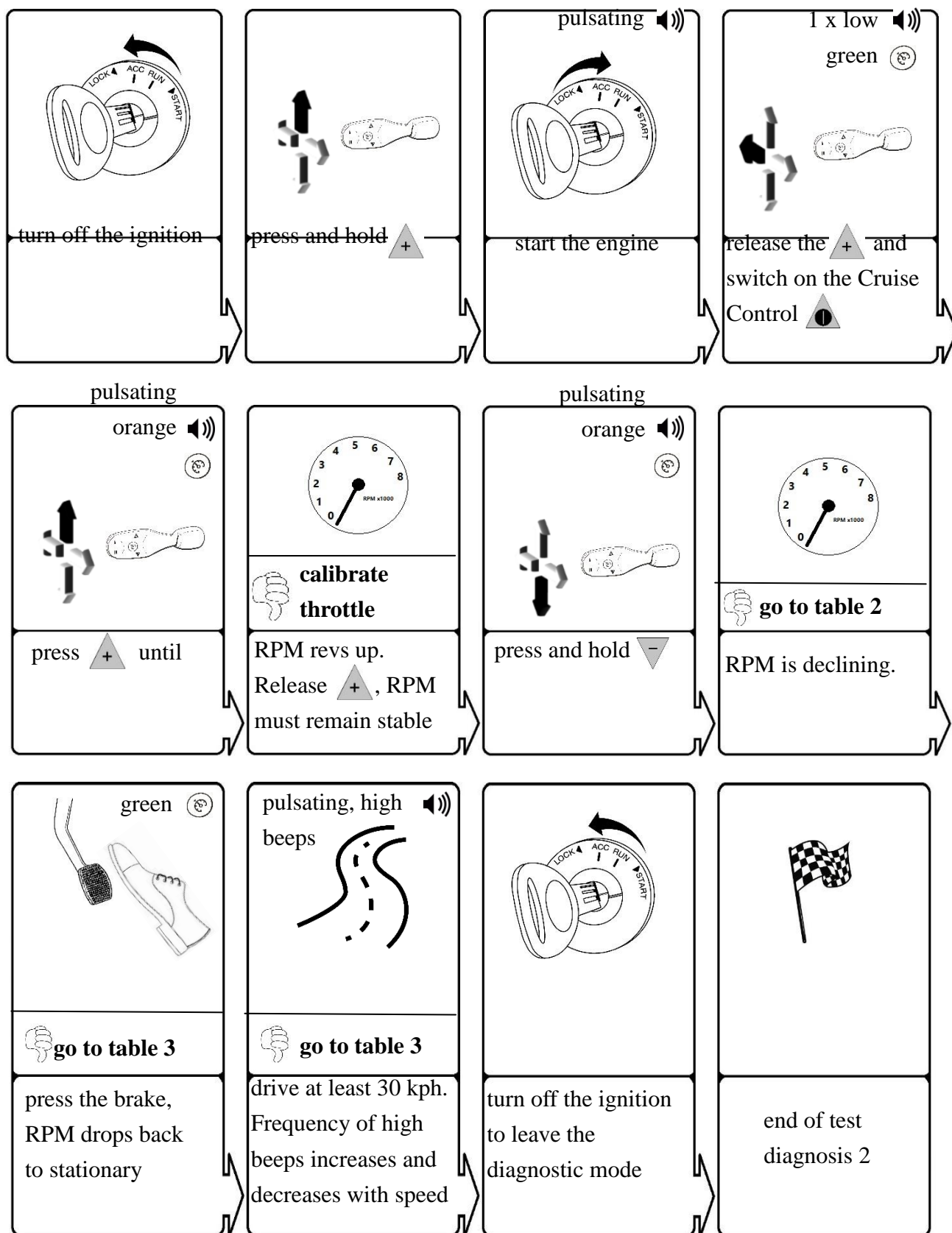
DIAGNOSE

The Cruise Control has an integrated diagnostic function. The diagnostic includes 2 steps to test all connections and features of the Cruise Control without using a laptop. first of all check the installation. Pull the handbrake and turn the gear into neutral. If something is not functioning, reference shall be made to a fault table.

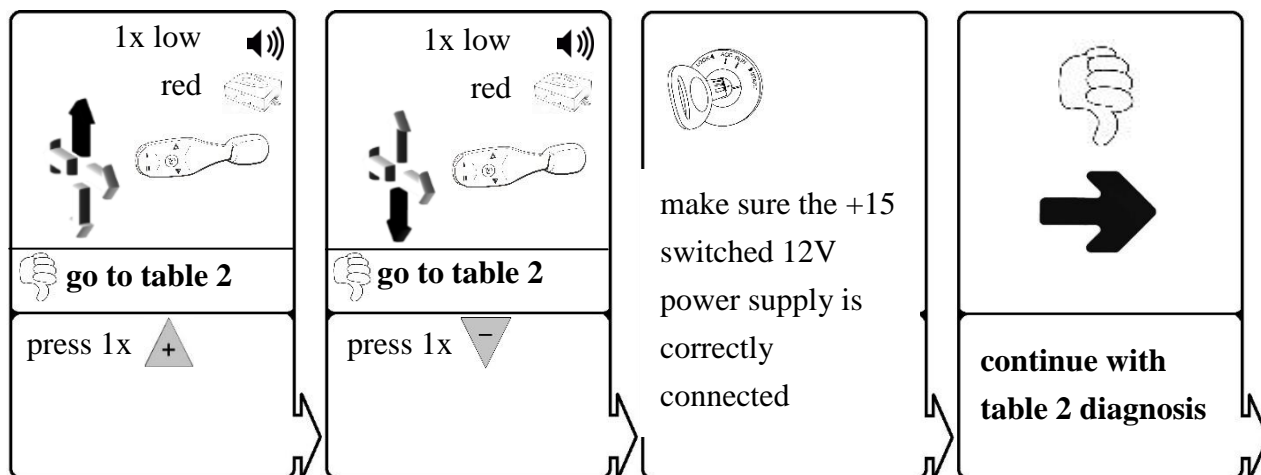
8.1 Diagnosis 1 (brake, clutch, command module test)



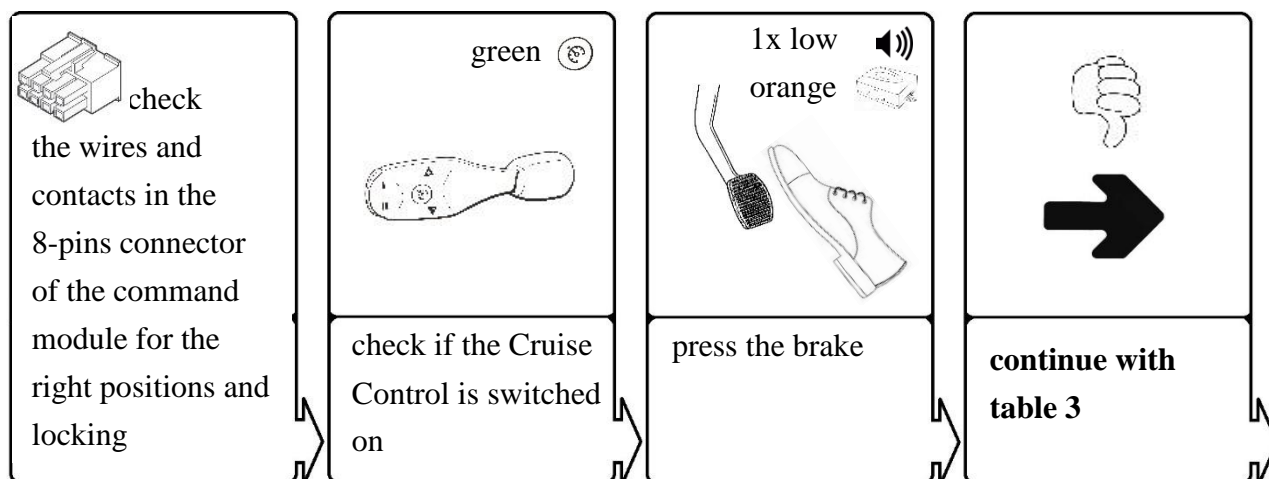
8.2 Diagnosis 2 (accelerator-pedal, speed-signal test)



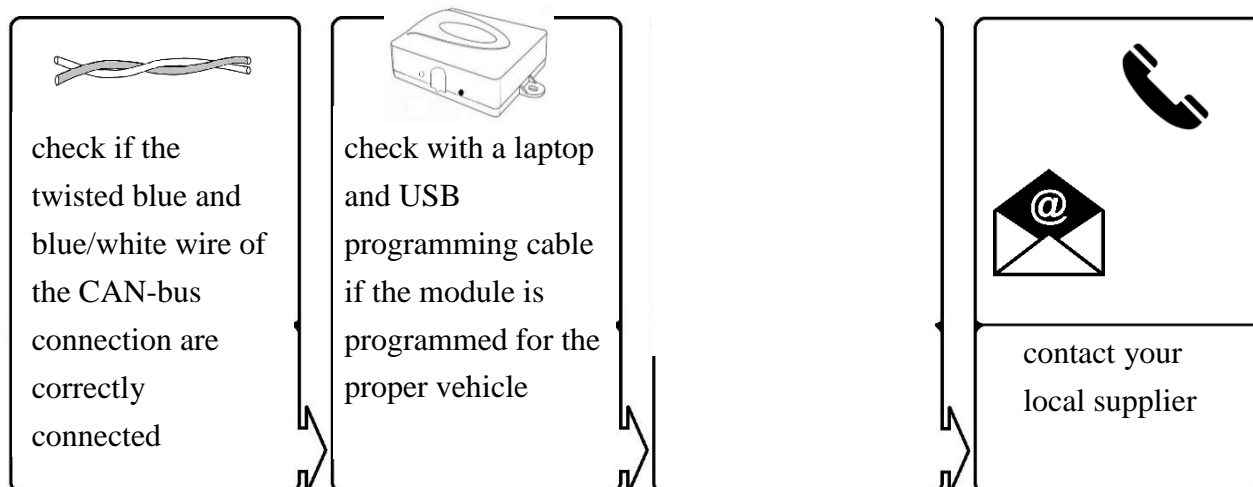
8.3 Table 1 Diagnosis



8.4 Table 2 diagnosis



8.5 Table 3 diagnosis



8.6 Error codes

The Cruise Control is equipped with an error code generator in case as the Cruise Control switches off or does not switches on for an abnormal reason. The error code is indicated with beeps: :

Tone	Discription
1	control function is pressed for more than 20 seconds
2	acceleration speed is more then 9 kph per second
3	speed drops below 33 kph
4	speed exceeds 250 kph
5	speed drops below 75% of the current set speed
6	speed exceeds 150% of the current set speed
7	throttle pedal not calibrated
8	speed increases abnormally

8.7 Frequently asked questions

	Question	Possible cause
1	Fails to enter the activation procedure	Cruise Control sees no brake signal: <ul style="list-style-type: none">- CAN-high and CAN-low (blue and blue/white) not connected properly or at the wrong location- Bad soldering- Gateway blocks communication from OBD. Connect behind the Gateway- Wrong vehicle-data programmed The signals of the command module don't gets to the module
2	The activation procedure closes with 2 high-low tones	Repeat the procedure or check the required signals
3	The Cruise Control does not switch on and gives high-low tones	Activation procedure not done correctly, repeat the activation procedure <ul style="list-style-type: none">- There is not reacted quickly enough with the brake on the 3 long beeps- There is a constant brake signal or no brake signal. usually caused by a faulty brake switch (note! The brake lights often still function normally).
4	The Cruise Control does not switch on and gives 7 beeps	The throttle pedal is not or not properly calibrated.

5	The Cruise Control falls far back in speed after engaging	Engage timing setting is too low (INIT)
6	The car accelerates when engaging the Cruise Control	Engage timing setting is too high (INIT)
7	The car is very nervous when the Cruise Control is engaged	The speed sensitivity is set too high (GAIN)
8	The car fluctuates in speed when the Cruise Control is engaged	The speed sensitivity is set too low (GAIN)
9	The vehicle enters emergency run and/or a check engine light lights up on the dashboard	Throttle connector disconnected while ignition was still on or within 30 seconds of the ignition was switched off (electrical circuit still active). Reset the vehicle

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Dealer address details: