
Version 1.3

(06.09.2019)

Installation Instructions

Multimedia adapter in combination with rear view camera

Item number: 35538

Rear view camera Interface universal

Item number: 36460

36459

36456

36492-1

36492-2

36492-3

39540, 39540-1

Navigation unit VW MFD2/ RNS2

RNS 510

RNS 315

Audi RNS-E

For reverse driving systems from the after-market

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Liability Exclusion

Dear Customer

Our cable sets are developed according to the connection- and circuit diagrams of the corresponding car manufacturer. Before the original production the cable sets will be tested on an original car. Therefore, the integration into the car electronics will be executed according to the instructions of the manufacturer. Regarding the necessary pre-understanding and the accuracy of the presentation of texts and pictures our mounting guidelines correspond to the usual ones in car technology and car electronics. Practically, they have been proved one's worth a hundred times.

However, should there be any difficulties during the installation of our products we will be at your disposal any time for support by phone or by mail. Moreover, we offer you to execute the installation at our works in Bad Segeberg.

Costs which may arise because a third person will execute the installation of our products will not be supported by us in any case. Only if there is a mistake caused by our product we will pay the proved costs of the installation as well as the costs of the removal of the defective product. The refund of expenses will be limited to gross EUR 110,- ; we reserve the right to check the described mistake in our works in Bad Segeberg. In case of a proved reclamation the costs for dispatch for the check in our factory will be transferred to you.

According to our experience each specific factory which has the necessary diagnostic device, diagnostic software and the circuit diagrams of the manufacturer can find possible mistakes at our products within a short time. So the installation and removal including diagnostic inspection can be realised in at most 60 minutes.

We also made the experience that many specific factories cannot work with the circuit diagrams of the manufacturer, and that they cannot read usual wiring diagrams. Therefore, very easy installation works will take many hours. You will understand that we neither take the risk to find a reliable specific factory nor the financing of the training of the staff of your favoured factory.

Costs which will arise because you buy missing parts or spare parts at other suppliers will be refunded by us up to the amount of the costs which had been arisen by additional supply (saved expenses). In this case, there would be no right for refund according to the legal guarantee right as long as we have no deadline for supplementary performance or a deadline for supplementary performance has not expired.

So if you have any problems with the installation or operation of one of our products please call us, send us an email, send us the product or take your car to our factory in Bad Segeberg. We are sure to find an appropriate solution for each concern.

With best regards,

Your Kufatec GmbH & Co. KG Team

Copy Right

Our installation- and removal instructions, installation plans, software and other documentation with texts or pictures are protected by copy right.

A publication or distribution of these documents is only permitted with a written approval of Kufatec GmbH & Co. KG.

General Notes

Regarding the development there has especially been paid attention to your personal safety together with the most possible operating comfort, modern design and actual product technologies.

Despite most possible accuracy in case of incorrect installation or use or in case of incorrect operating, it is possible that injuries or damages of property may arise.

Therefore, please read the operating instructions you have received carefully and completely, and keep it with you.

All articles of our production will be checked at 100% — for your safety.

We reserve the right to make technical changes which serve the progress at any time.

Before the installation or startup it may be necessary, depending on the article and purpose of use, to check the legal instructions of each country.

In case of warranty claim the device has to be sent to the seller originally packed together with the sales receipt and a detailed description of the mistake. Please consider the manufacturer's instructions for return (RMA). The legal warranty instructions are valid.

The warranty claim and also the permission for startup will expire in case of:

- *unauthorised changes on the device or the accessories which have not been executed or approved by the manufacturer or its partners*
- *opening of the box*
- *repair of the device on your own*
- *incorrect use / no normal use / startup*
- *influence of force on the device (falling down, wilful damage, accident, etc.)*

During the installation please consider all safety and legal instructions. The device may only be installed by trained qualified personnel or persons who are similar qualified.

In case of installation- or function problems please reduce the search of the mistake to approx. 0.5 hours for mechanical works or 1.0 hours for electronic works

To avoid unnecessary additional work and expenses, please send immediately an inquiry to our technical support with the Kufatec contact form (<http://www.kufatec.de/shop/de/infocenter/>).

Please absolutely mention the following:

- *car chassis number*
- *part number of the add-on kit*
- *exact description of the problem*
- *work steps already made*

Safety Instructions

The installation may only be executed by trained qualified personnel. Please execute the installations only in a condition of dead voltage. Here please separate for example the battery from the main power supply and consider the instructions of the car manufacturer.

- *In order to not endanger your own driving safety please never use security relevant screws, bolts or other fixation pieces at steering, brake system or other components.*
- *Connect the device only at 12V wiring system voltage with ground connection to the autobody. This assembly is not allowed for the use in trucks or other cars with 24V wiring system voltage..*
- *Please avoid the installation of the device at positions where the driving safety or the functional efficiency of other subassembly integrated in the car are restricted.*
- *This module may only be used together with the following mentioned car types and models; the installation may be executed exclusively by use of the circuit points mentioned in the assembly instructions.*
- *Kufatec GmbH & Co. KG does not assume liability for damages which are caused by incorrect installation, the use of inapplicable circuit points or the installation into car types and -modules which are not foreseen.*
- *We would like to draw your attention to the fact that the module processes the data of the MOSTprotocol of the car mentioned below. Therefore, during the installation of the module it will be used a model-specific complete system which we as the manufacturer of the mentioned construction line only know partly.*
- *Especially in case of changes within the same model line and the same year we therefore cannot guarantee the applicability of our construction line in each case. Kufatec GmbH & Co. KG does not assume liability for the applicability of our construction line with changes made by the manufacturer.*
- *Kufatec GmbH & Co. KG does not assume liability that the installation of the here described component has been permitted according to the guarantee instructions of particular car manufacturers. Therefore, please consider the guidelines for installation and guarantee conditions of your car manufacturer before installation.*
- *The manufacturer reserves the right to change components without giving reasons.*
- *Subject to errors and changes.*

Requirements for the determinable operation

Please use the device only in its the corresponding area.

In case of unprofessional and untypical use, installation or modification the permission for operation and the warranty claim will expire

Assembly Instructions

Automatic rear view camera shift

The rear view camera that is going to be assembled has to emit a **NTSC signal!**

The reverse signal has to be delivered via the CAN bus for the automatic rear view camera shift!

The automatic shift is limited to the following systems:

Navigation	Vehicle
Audi RNS-E (not for item number 193)	A3 (8P), A4 (8E, 8H), - not A6 (4B)
VW MFD2, RNS315, RNS510	Golf 5/ 6, Jetta, Passat 3C/ B7, Eos, Scirocco (1K), Tiguan, Touran, Touareg (7L), T5
VW MFD1, Audi RNS-D, MB Comand 2.0, 2.5	No automatic shift!

Note for VW vehicles with OPS

It might happen that the combination of the rear view camera + the optical parking system doesn't get accepted for some vehicles. In that case the OPS function has to be deactivated in the installation list (Address 19).

e.g. T5 GP (as of 2010) - The OPS function does not apply to vehicles with OPS in the BACK (optical parking system in the back) - no limitation for vehicles with OPS in the BACK and FRONT.

If the vehicle doesn't emit the reverse signal (e.g. Audi A2, A6 (4B)), the cable 35676, 35677 can directly be connected with the reverse signal of the vehicle. (**Only RNS-E, MFD2**)



Fig.1

Plugs without a use

The Cinch cables as well as the 2-pole plug of the provided cable set are not needed to connect the rear view camera.



Fig. 2

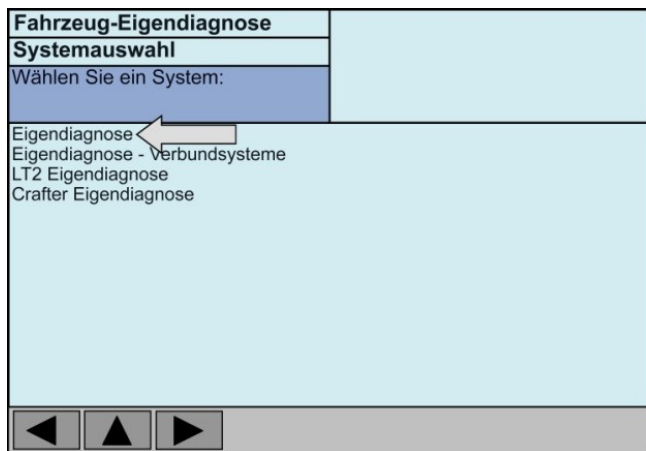


Fig. 3

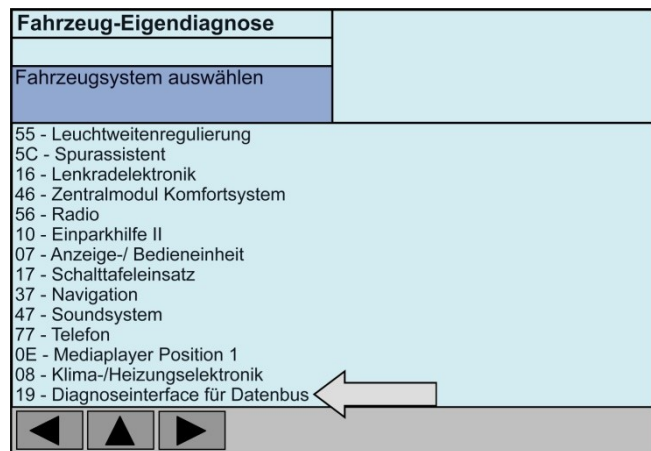
Coding

Address 19 - Set rear view camera to "coded"

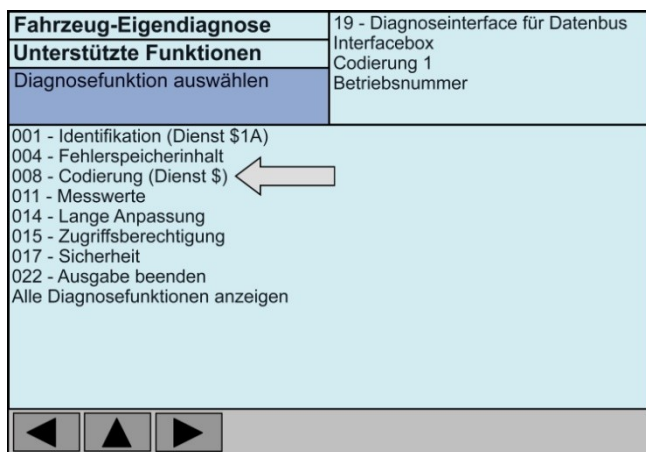
Not necessary for VW MFD2



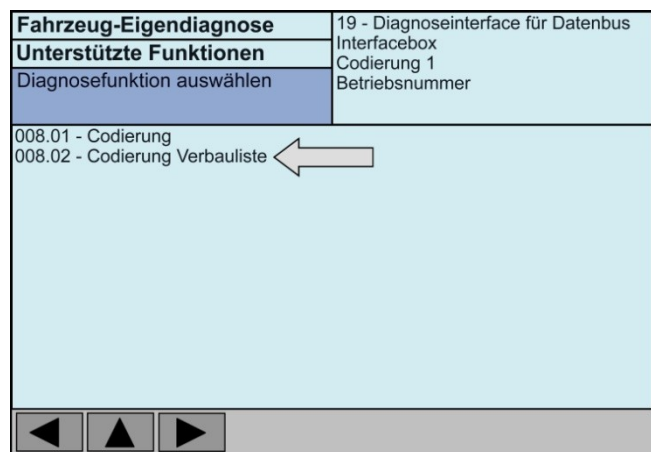
Self-diagnostic



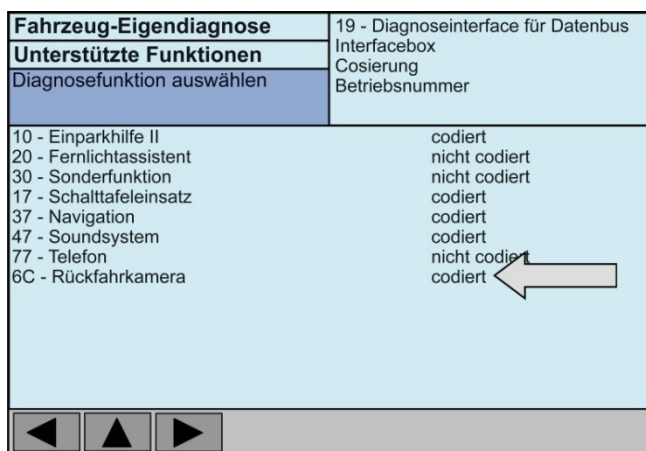
Address 19 Diagnostic Interface for data bus



Coding



Installation list



Set rear view camera to coded – confirm Coding

Additional coding for VW OPS

Addition for VW vehicles with factory-made **OPS** function (optical parking system)

Not necessary for Audi **RNS-E**, VW **MFD2**

Address 10 – parking aid - Byte 00 - HEX 10 >>> set to >>> HEX 30

Select the **vehicle self-diagnostic** in order to perform the vehicle coding. Perform the coding step by step as follows:

Address 10

Byte 00 - HEX - 30

Fahrzeug-Eigendiagnose	
Systemauswahl	
Wählen Sie ein System:	
Eigendiagnose ←	
Eigendiagnose - Verbundsysteme	
LT2 Eigendiagnose	
Crafter Eigendiagnose	
◀ ▶ ▲ ▼	

Self-diagnostic



Fahrzeug-Eigendiagnose	
Fahrzeugsystem auswählen	
55 - Leuchtweitenregulierung	
5C - Spurassistent	
16 - Lenkradelektronik	
46 - Zentralmodul Komfortsystem	
56 - Radio	
10 - Einparkhilfe II ←	
07 - Anzeige-/ Bedieneinheit	
17 - Schalttafeleinsatz	
37 - Navigation	
47 - Soundsystem	
77 - Telefon	
0E - Mediaplayer Position 1	
08 - Klima-/Heizungselektronik	
09 - Elektronische Zentralelektrik	
◀ ▶ ▲ ▼	

Address 10 parking aid



Fahrzeug-Eigendiagnose	19 - Diagnoseinterface für Datenbus
Unterstützte Funktionen	Interfacebox
Diagnosefunktion auswählen	Codierung 1
	Betriebsnummer
001 - Identifikation (Dienst \$1A)	
004 - Fehlerspeicherinhalt	
008 - Codierung (Dienst \$) ←	
011 - Messwerte	
014 - Lange Anpassung	
015 - Zugriffsberechtigung	
017 - Sicherheit	
022 - Ausgabe beenden	
Alle Diagnosefunktionen anzeigen	
◀ ▶ ▲ ▼	

Coding



Fahrzeug-Eigendiagnose	
008 - Codierung	
Byte Index	Hex
0	30
1	
2	
3	
4	
5	
◀ ▶ ▲ ▼	

[]		
1	2	3
4	5	6
7	8	9
C	0	Q
HEX		BIN

Select HEX

enter + confirm Coding value

Additional coding for rear view camera connection - VW RNS 510 + multimedia adapter 35538

Note: This coding **only** applies to the connection of a rear view camera to the **RNS 510** in combination with a multimedia adapter (Plus - **35538**). This only works for multimedia adapters with hardware 3.1 or higher.

Not necessary for Audi **RNS-E**, VW **MFD2**

Select the **vehicle self-diagnostic** in order to perform the vehicle coding.

Address 37 Navigation

Navigation is coded to **rear view camera Low**

Byte 03 - **Bit 6 set to 1** - **x1xxxxxx**

Fahrzeug-Eigendiagnose	
Systemauswahl	
Wählen Sie ein System:	
Eigendiagnose ←	
Eigendiagnose - Verbundsysteme	
LT2 Eigendiagnose	
Crafter Eigendiagnose	
<div style="text-align: right;"> ◀ ▶ ▶▶ </div>	

Self-diagnostic

Fahrzeug-Eigendiagnose	
Fahrzeugsystem auswählen	
01 – Motorelektronik 02 – Getriebeelektronik 16 – Lenkradelektronik 17 – Schalttafeleinsatz 46 – Zentralmodul Komfortsystem 37 – Navigation ← 10 – Einparkhilfe II 07 – Anzeige-/Bedieneinheit 09 – Elektrische Zentralelektrik	
<div style="text-align: right;"> ◀ ▶ ▶▶ </div>	

Address 37 Navigation

Fahrzeug-Eigendiagnose	19 - Diagnoseinterface für Datenbus
Unterstützte Funktionen	Interfacebox
Diagnosefunktion auswählen	Codierung 1
	Betriebsnummer
001 - Identifikation (Dienst \$1A)	
004 - Fehlerspeicherung	
008 - Codierung (Dienst \$) ←	
011 - Messwerte	
014 - Lange Anpassung	
015 - Zugriffsberechtigung	
017 - Sicherheit	
022 - Ausgabe beenden	
Alle Diagnosefunktionen anzeigen	
<div style="text-align: right;"> ◀ ▶ ▶▶ </div>	

Coding

Fahrzeug-Eigendiagnose														
008 - Codierung														
Byte Index	Hex	Bit-Muster												
0														
1														
2														
3		x1xxxxxx												
<div style="text-align: right;"> ◀ ▶ ▶▶ </div>		<div style="border: 1px solid gray; padding: 5px; width: 100px;"> <div style="border: 1px solid gray; height: 20px; margin-bottom: 5px;"></div> <table border="1" style="width: 100%; text-align: center;"> <tr><td>1</td><td>2</td><td>3</td></tr> <tr><td>4</td><td>5</td><td>6</td></tr> <tr><td>7</td><td>8</td><td>9</td></tr> <tr><td>C</td><td>0</td><td>Q</td></tr> </table> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> HEX BIN </div> </div>	1	2	3	4	5	6	7	8	9	C	0	Q
1	2	3												
4	5	6												
7	8	9												
C	0	Q												

Select BIN

enter + confirm Coding value

▶▶▶ perform RNS 510 RESET ▶▶▶

Perform a **RESET**. To do so, press the following button combination at the same time: < + > + i



The rear view camera function is activated once the RESET is successfully performed.

Additional coding for Audi RNS-E

Address 56 – Channel 04 – set from 0 >>> to >>> 1

NOTE TEST PATTERN

If the Interface was installed correctly, the navigation shows a test pattern. The test pattern function is only available for a hardware version **3.1** or higher. In that case, check the connection of the video source.



Connection after-market camera

The rear view camera that is going to be assembled has to emit a **NTSC signal!**

Connect the video cables to the 18-pole plug of the Interface.

NOTE: The rear view camera is not connected via the Cinch input on the board.

If there is an error regarding the display of the image while putting the vehicle in reverse, you have to use the Cinch-input on the circuit board instead.



Fig. 4

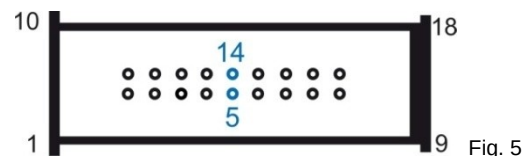


Fig. 5

Connect the Cinch cable (item number 35570) to the main cable set (plug Interface side) as follows:

black - PIN 5 yellow - PIN 14

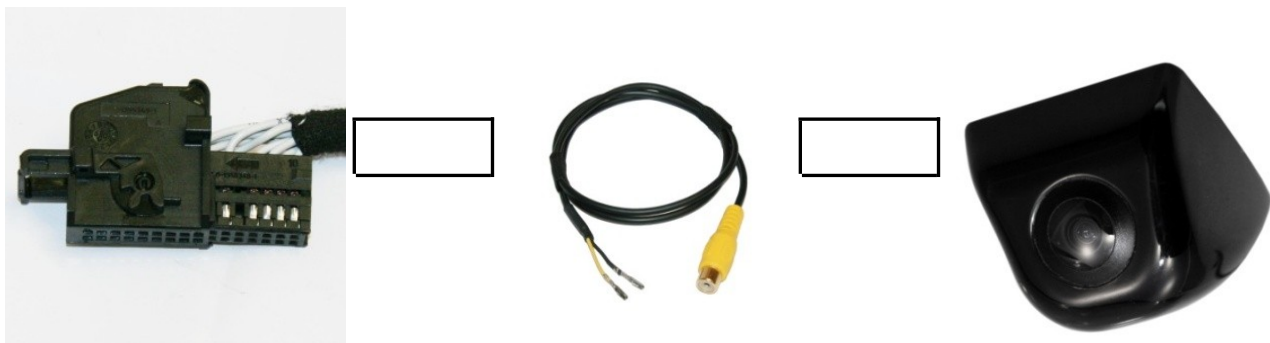


Fig. 6

NOTE: Do **NOT** connect the power supply of the camera to ignition plus. The camera can only be turned on as long as the rear gear is engaged. Otherwise the camera is overheating.

NOTE: If the vehicle has rear lights with PWM signal (clocked rear lights), additionally use our signal filter (item number 40188).

Connection OEM camera

Use item number **36136**, **36136-1** & **36136-3** (not appropriate for the camera in the VW logo).

Connect the cables to the main cable set (plug Interface side) as follows:

Black - PIN 5

Transparent - PIN 14

Red - PIN 1

Brown - PIN 2

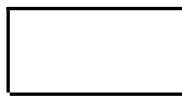
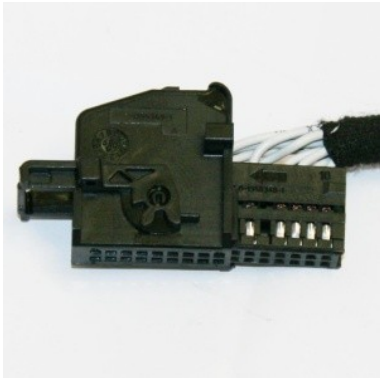


Fig. 7

Replace the original plug connection of the rear view camera with the provided 2-pole plug (Fig.8).
Connect the grey FAKRA socket afterwards (Fig.9).

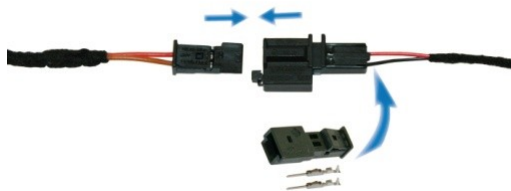


Fig. 8

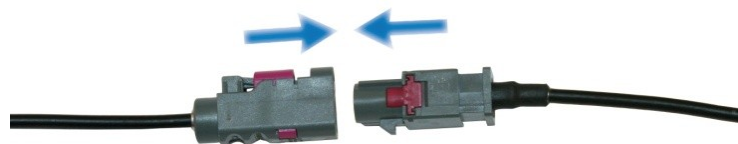


Fig. 9

If the cable set **36136-2** (not appropriate for the camera in the VW logo) is used, connect the cables as follows:

Black - PIN 5

Transparent - PIN 14

Blue/Red - connect Plug C body control unit to PIN 28

Red - use free slot for steady plus

Brown (with eyelet) - connect to ground pin

RNS 510

Depending on the vehicle model, remove the panel of the navigation by using an assembly lever (Fig.10). Loosen the 4 torx screws (Fig.11) and take out the navigation afterwards.



Fig. 10



Fig. 11

Incorporate the 26-pole plug (Fig.12). The rear view camera interface is connected with 4 cables (Fig.13). Attach the cables with factory materials.

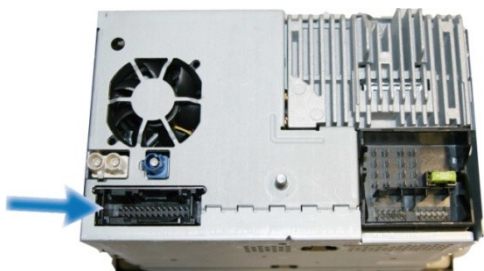


Fig. 12

black/white – CAN High - PIN 9
black/yellow – CAN Low - PIN 10
brown – ground – PIN 12
red – steady plus – PIN 15

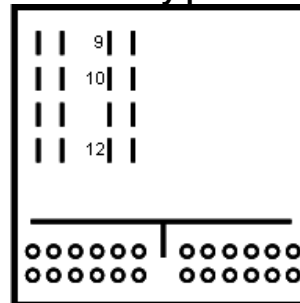


Fig. 13

NOTE RNS510: Connection of a rear view camera in combination with a multimedia adapter 35538 only works for an interface hardware 3.1 or higher.

Follow additional coding on page 6!

Coding

Address 19 – Diagnostic Interface – add the rear view function to the installation list

(Important note: Not for VW New Beetle 5C, see page 17)

Addition for factory-made OPS (optical parking system)

Address 10 – parking aid - Byte 00 - HEX 10 >>> set to >>> HEX 30

Audi RNS-E

Remove the navigation by using the appropriate release hooks (Fig.19,20).



Fig. 19



Fig. 20

Incorporate the 32-pole plug (Fig.21). The rear view camera interface is connected with 4 cables (Fig.22). Attach the cables with factory materials.

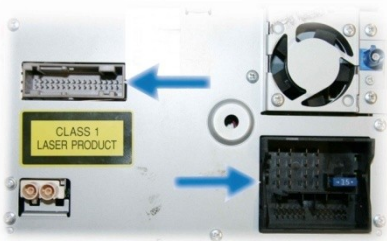


Fig. 21

black/white – CAN High - PIN 9
 black/yellow – CAN Low - PIN 10
 brown – ground – PIN 12
 red – steady plus – PIN 15

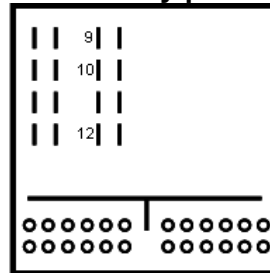
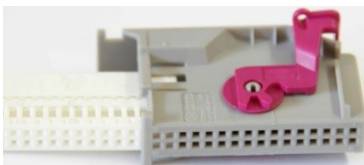


Fig. 22

NOTE for vehicles with factory-made AMI/Aux IN



Remove the cables for the AMI/Aux In **one by one** and connect them to the 32-pole plug of the Interface.

Additional cable item number 35676

18-pole plug RVC Interface – PIN 3

RNS-E Quadlock – PIN C2

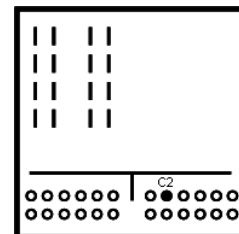
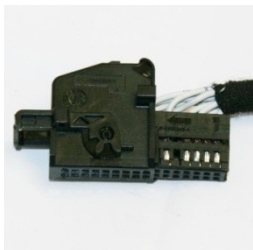


Fig. 23

Coding

Address 19 – Diagnostic Interface – add rear view camera function to installation list

Address 56 - Channel 04 – set from 0 to 1

The radio-navigation unit has to have a software status of at least 550.

VW MFD2/ RNS2

Depending on the vehicle model, remove the panel of the navigation by using an assembly lever (Fig.24). Loosen the 4 torx screws (Fig.25) and take out the navigation afterwards.



Fig. 24



Fig. 25

Incorporate the 18-pole plug (Fig.26). The rear view camera interface is connected with 4 cables (Fig.27). Attach the cables with factory materials.

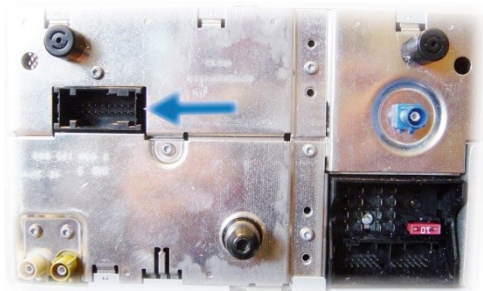


Fig. 26

black/white – CAN High - PIN 9
 black/yellow – CAN Low - PIN 10
 brown – ground – PIN 12
 red – steady plus – PIN 15

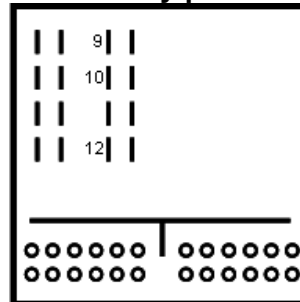


Fig. 27

Additional cable item number 35677

18-pole plug RVC Interface – PIN 3

MFD2/ RNS2 – PIN 6

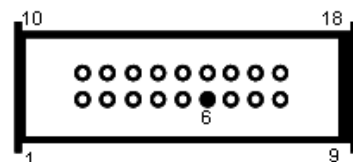
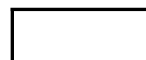
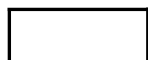
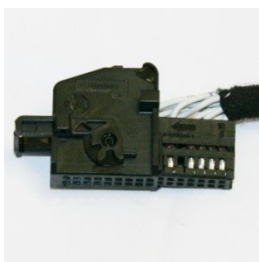


Fig. 28

VW MFD1/ Audi RNS-D/ MB Comand 2.0/ 2.5

Rear view camera solution as a Stand-Alone (MFD1, RNS-D, Comand 2.0/ 2.5):

The rear view camera has to be installed with the multimedia adapter item number 35537 (without item number 35570).

There is no automatic shift available for the installation of the rear view camera.

Connection cable item number 35677 (Cable Set Emblem Camera)

(VW EOS)

Lay the blank cable (reversing signal) imprinted with **B1, J519 (RF)** to the body control module.

Vehicles up to model year 2009: Connect the cable to the factory-made cable in **Pin 1 of plug B**.

Vehicles as of model year 2010: Connect the cable to the factory-made cable in **Pin 28 of plug C**.

Connection reversing signal Article no. 38806 (cable set emblem camera)

(VW NEW Beetle 5C)

The bare cable (reversing signal) with imprints B1, J519 (RF) is laid to the vehicle electrical system control unit.

Connect the cable to the factory cable in **pin 48 black/blue of connector B**.

Coding RNS 510

Address 56: Byte 03, Bit 6 - Rear View Low (a reset must then be performed)