

DIY installation of Rear View camera (RVC) for 2011 4 door Golf "R"

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(war and peace)



Special thanks to Xordis vwwatercooled.org.au

During the making of this DIY I had to use some information and photos from various sources. Thanks should go to the original poster of the information.

Tools.

- T20 torx bit with magnetic tip.
- Trim removal tool (optional really. All you need it for is to remove the stereo and you can do that with a spoon.
- Crimping tool (highly recommended)
- Clothes peg.

Parts

- decent wire from an auto electrician. 1mm. When you get your parts, you will see how thin the wire is for the RVC.

The bits I ordered ECSTuning

Camera – <http://www.ecstuning.com/Search/Camera/ES2095877>

Cable - <http://www.ecstuning.com/Search/ES1304785> - don't use the power wire from this, it is too short.

Just grab enough to run the length of the video cable + a metre on each end to be sure. 10 metres is heaps.

Cloth tape - <http://www.ecstuning.com/Search/ES10764> Cloth tape. Probably mandatory as pulling the cable through the back/boot rubber is extremely hard and I suspect tape would come off.

Drain - <http://www.ecstuning.com/Search/ES1174182> – I ended up not getting this as it was out of stock. I use a length of clear plastic tubing from Bunnings.

Plugs

<http://www.ecstuning.com/Search/ES340279> 4 Pin Connector - 3B0972722

<http://www.ecstuning.com/Search/ES370867> 4 Pin Flat Connector - 4B0973712

<http://www.ecstuning.com/Search/ES311353> - 2 Pin Connector - 1J0973802 I suspect this connector is wrong as I had to break the pink/purple bits for it to fit.

Wire

<http://www.ecstuning.com/Search/ES265436> WIRE SET - 000979129 x 2 – I used this wire for the short runs between plugs and terminals.

Terminals (Get at least one extra of these just in case, nothing worse than stuffing one up and not being able to finish cause your missing a 50c terminal. (Quantity below includes the extra)

<http://www.ecstuning.com/Search/ES470510> x 2 Flat Contact Female- Large - N90684405 This one is needed for the fuse box

<http://www.ecstuning.com/Search/ES467999> x 8 Flat Contact female- Small - N10335807

<http://www.ecstuning.com/Search/ES468001> x 3 Connector Male- Small - N10336105

Fuse

5A mini spade fuse. Available at supacheap or any auto accessories store. x 1

I divided the installation into 7 stages. By doing this the car is not disabled and can still be driven at the end of each task. Doing this in small bites makes the project less over whelming and each stage can be achieved easily.

1. Remove all necessary plastic trim pieces.
2. Run Camera and power cable.
3. Replace all plastic trim except Hatch cover.
4. Add new fuse circuit to fuse box.
5. Build new wire loom for hatch.
6. Fit camera, loom then test operation.
7. VAG-COM coding.
8. Finish up.

1. Remove all necessary plastic trim pieces.

Note:- This DIY is for a 4/5 door, a 2/3 Door would be different as far as the plastic trims are concerned.

The first thing I did was remove the rear hatch plastic cover. Remove the two screws hidden in the handles, and then using a trim tool pull off the panel, it's held on with several metal clips is requires a hard pull to remove. Remove the two panels for the rear lights to help see where the metal clips are and to help pull off the panel. The red circles show the metal clips, and the green ones show the two screws.





As suggested by Xordis I decided to run my main Camera and power wiring down the passenger side (Left side) of the car.

There are 7 main pieces of plastic trim to be removed. Removing the trim in the following order makes the job a lot easier.

Rear mudguard section,

Sill section front to back,

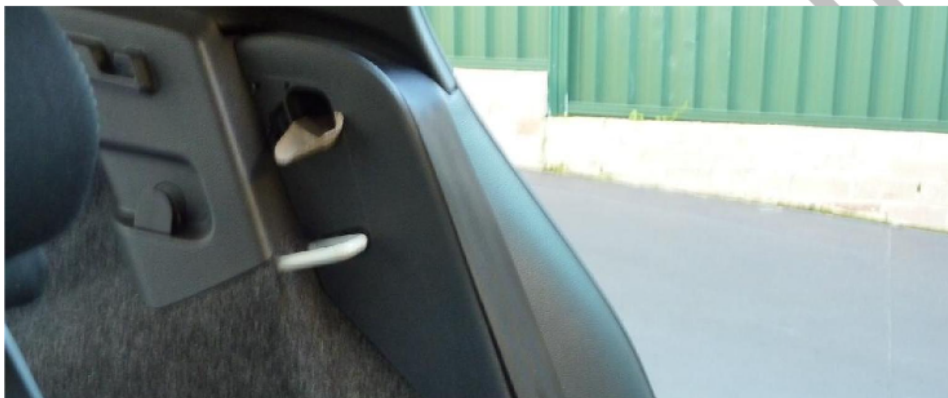
Passenger left kick panel.

Passenger side rear parcel shelf rest.

3



First, be sure to place some heavy form of protective tape (duct or packaging) over the lower section of the vertical "B" pillar trim as shown in the photo. These plastic bits are attached by sharp steel clips that damage the plastic very easily



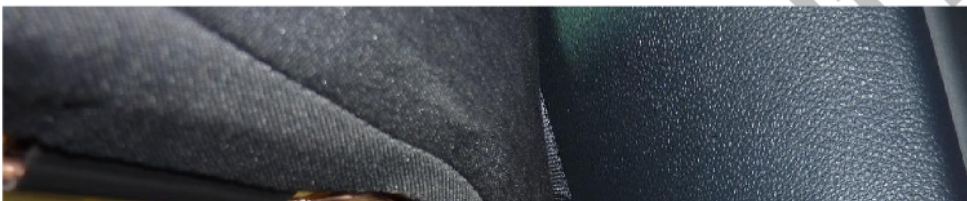
This is the first piece to be removed. Rear passenger mudguard section. You can see above the white rear seat anchor a small plastic cover (removed in photo). Remove this cover to gain access to the two screw holes.



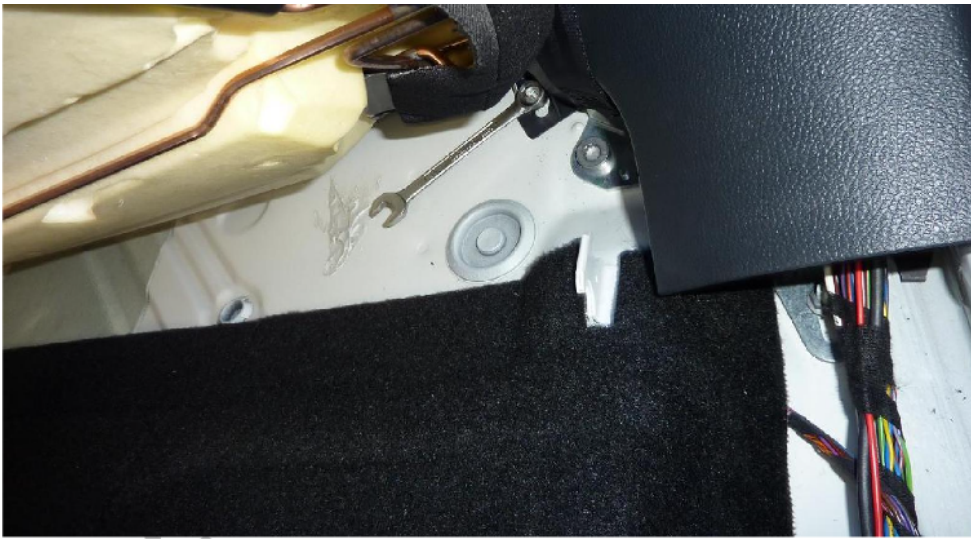
4



Place a shaped piece of cardboard down the hole to prevent dropping the screw. You can also use a magnetic torx screw driver, but cardboard is safer. Remove the two screws.



Lift up the front of the rear seat (just pull up hard at the front) to gain access to the 10mm nut holding the bottom of the plastic



the bottom of the plastic section.
Now just wriggle and pull gently and the plastic piece will come off. Put the 2 screws and the section in a safe place.

5

Now the sill section front to back.



Remove this sill section starting at the front by just pulling up hard. Each clip should pop off one at a time. Release the flap to free the seat belt. You may need to move the seat back and forth to get the long section out. Now you will see why you protected the "B" pillar

Front Passenger side kick panel



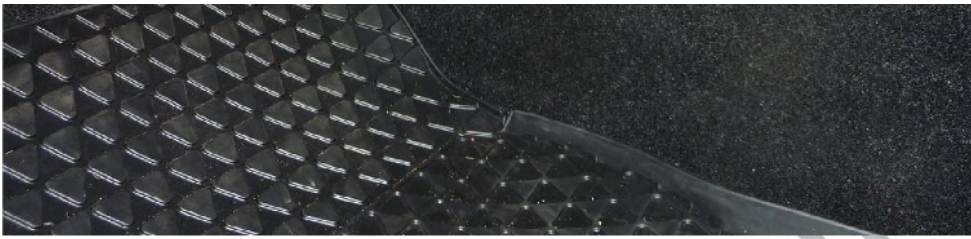
There are no screws holding the section. Just wrap your finger round the back and pull out towards the centre of the car.
The photo does not show it but be sure the sill panel is removed first.

6

Transmission tunnel passenger side section



There is only one screw holding this section. Remove the screw then with 2 hands pull the section squarely down and it will come free.



Now return to the back of the car to remove the horizontal section that the parcel shelf sits on.



To gain access to the screw you can see near the tail light you need to just pop off the top of the lower boot surround, it pops off easily. Undo the screw then pull the section off.

Remove the Drivers side fuse cover.

7



Remove this soft panel from underneath the glove box. It is held in with two black thumb screws.



Remove the RNS-510 head unit and plugs. There are several threads on how to do this. It is very simple. Be sure you have your security code for your head unit as you will probably need it when to reinstall it.

Remove the Drivers pocket box. This is done by opening the box and pushing in the sides then pulling out the whole box.

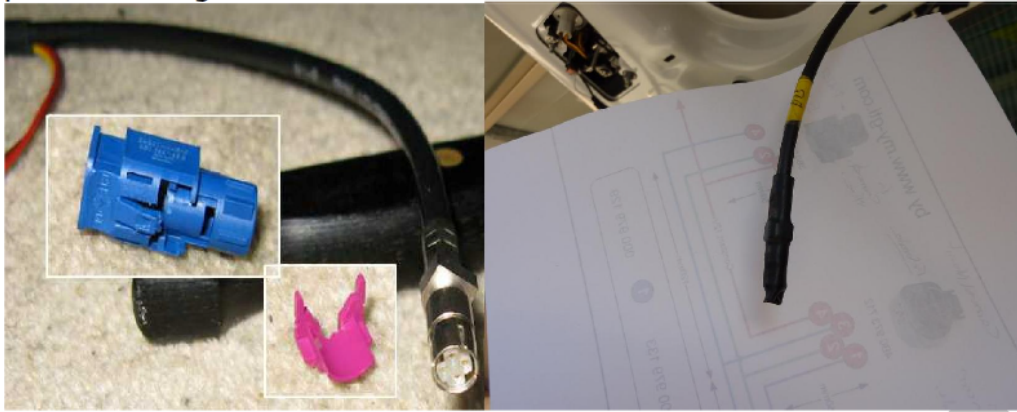
Now everything is removed to allow you to run the video and power cable.

Task 1 is complete.

2. Run Camera and power cable

The video and power cables must be run from the front of the car to the rear as the RNS-510 end

plug is too big. Remove the blue plastic surround from round the video cable. Just pop the pink clip and remove it and the blue section just slides off. I then covered the end with heat shrink tubing to prevent damage.



The video and power cables are best run together. However, start with just the power cable at the fuse box on the drivers side. Run it across up and behind the driver's floor airbag across the transmission tunnel and along the bottom of the glove box to the area of the passenger kick panel. REMEMBER:- DO NOT use the power wire that came with the video cable kit. It is NOT long enough. Offcourse you can lengthen it if you want.

Now feed the video cable (small end) through the hole where the RNS-510 was. Just find the best path you can for the cable to travel along the bottom of the glove box to the kick panel as before. It is not critical but make the run shorter rather than longer. Leave about 10" (20cm) of video cable hanging out of the RNS-510 hole. Feel free to use cable ties or cloth tape to secure as you feel necessary.



Now feed both cables together along the floor sill all the way to the back, up the mudguard to the rear side panel where the air bag is located.



It is easy to pull back the carpet and underfelt to run your cables with the existing ones that you will be able to see.



Remove the rubber thingy (just the bottom at this stage) to gain access to the wiring loom. Now you need to feed something plastic (NOT WIRE) and a bit flexible down the cavity till it come out the bottom, as shown in the next photo. I used a bit of old TV antenna coax. This is a fiddle and takes lots of attempts, but it does eventually come through.



You can see my antenna coax here with the yellow arrow.

Now you need to attach your power and video combination and gently pull it through from the bottom out the top. I attached a length of thin nylon rope to my coax then the video/power to the nylon rope.



Here you can see the video/power pulled through.

Now pop off the top of the rubber thingy and feed the cables through. This is also tight but it does go through nicely.



You can see that I kept the orange nylon rope attached to the two cables for the whole time of this feed bit.

Once through the rubber thingy you need to get the cables through the upper rear hatch behind the plastic trim and then to the area where the camera will be.

You will need to pop of one clip of the window surround to see what you're doing.



Both the video and power cables should now be in the back hatch. You can now put the upper hatch window surround back in place. Check that your cables are run securely and safely. You can no refit the blue plastic cover with its

pink locking tap to the end of the video cable.

Task 2 is now complete.

3 Replace all plastic trim except Hatch cover.

Refit all the plastic trim sections you removed except the main rear hatch piece. Remember the kick panel first, then the long sill panel, parcel shelf support then rear mudguard trim. You can now reconnect all the cables to the RNS510 including the new multipin video plug and re-install the RNS-510. I would personally leave off the RNS-510 plastic surround for now until the whole job is finished.

Task 3 is now complete

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4. Add new fuse circuit to fuse box

This is the start of the electrical work. The terminals you will be using as can see when holding them in your hand are tiny and fragile. They really cannot be successfully crimped with a pair of pliers. I would recommend buying or borrowing a crimp tool. They are not expensive. If you ruin or break the terminal its finished and you need to use another terminal (depending on how many spares you bought.)



Important:- Be sure all doors are unlocked and the keys are removed from the ignition.

Disconnect the battery by removing the negative (-ve) terminal only. Do not disconnect the +ve terminal.

I do not know why you do not disconnect the +ve terminal but -ve only seems to be the way with modern cars with heaps of electronics.

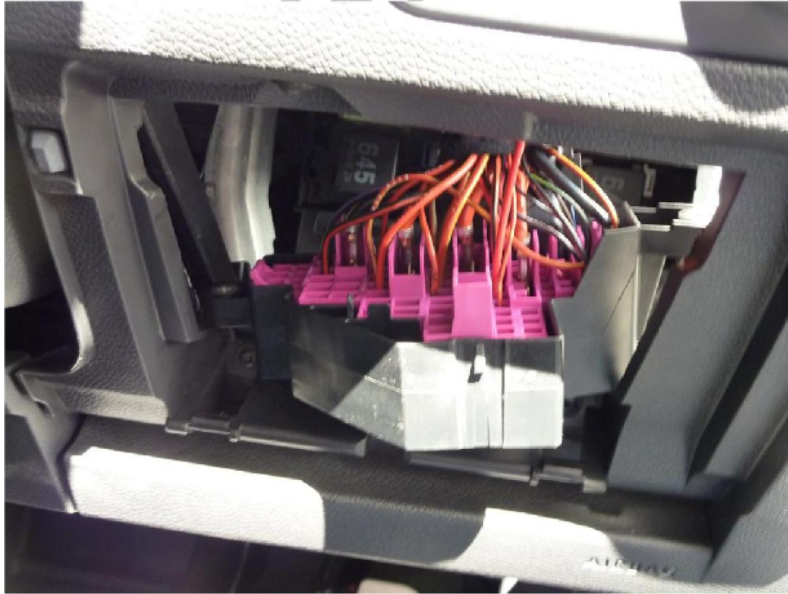
Take a photo of the fuse box and



You can then wriggle the whole fuse box down to the opening left by the removal of the driver's little flap box.

With the fuse box somewhat out of the way you can now locate the power wire you ran and crimp the female terminal 906 844 05 to it.

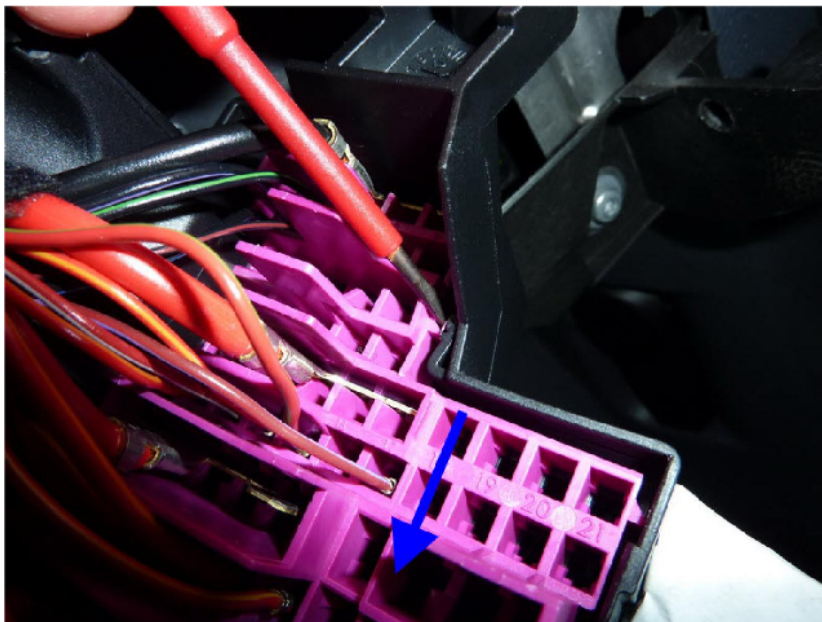
During the process of getting the fuse box down to the flap box area you will gain access to the back of the fuse box to remove the back cover. Just lift the clips with your finger and the cover pops off.



Here you can see the wires in the back of the fuse box.

The large pink plastic carrier is actually a locking mechanism.

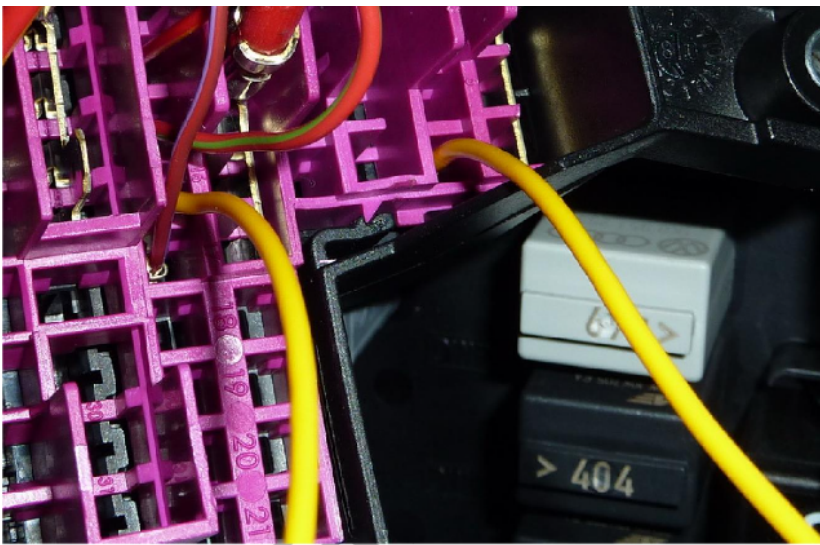
14



To unlock the pink mechanism move the little clip as in the photo and slide the whole pink assembly in the direction of the arrow.

NOTE:- This photo is not my actual wiring. It shows the adding of 2 circuits. We are only adding 1 at point 16.

This photo is just the best



close up view I could find, as I forgot to take my own photo.

Insert your newly crimped terminal into the free slot 16, paying attention to the direct. It will go in with a slight click.

Now push the locking mechanism back into place.

Your new circuit is now added. Secure your power wire to the existing loom, put the back cover on the fuse box and wriggle it back to where it should be, screw it into place and refit the spring clips.

DO NOT INSTALL A FUSE INTO SLOT 16 YET.

Now replace all the fuses in their correct position as per the photo you took before. But NOT slot 16.

Now you can reconnect your battery. When you start the car you will most probably get a chime and 3 dashboard error lights (steering wheel, Slippery road and tyre with exclamation mark) and an ESP error. Do not panic. There are actually no error codes to be found.

If you drive the car 20 metres the errors will clear. It seems the ESP system just forgets where it is if the battery is disconnected and needs the pulsed input from the wheels to get its bearings.

Task 4 is now complete.

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5. Build new wire loom for hatch

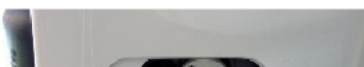
Note:- If its pink and on a plug, then its a locking part. Look at it closely and you will find a way to slide or unclip it.

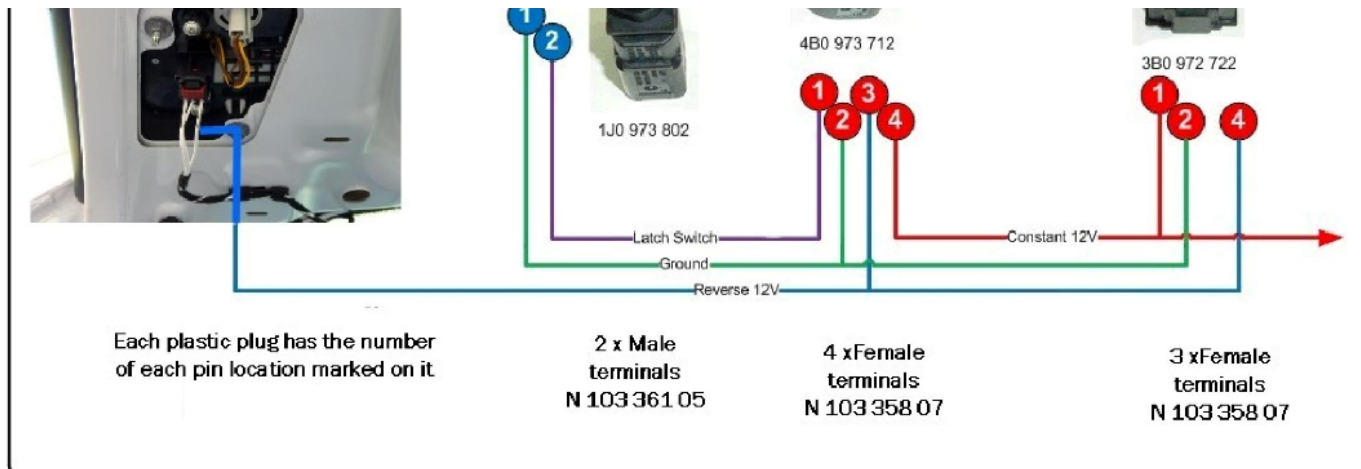
This diagram shows the wiring loom you are going to build. Previous versions of this gave you lengths of wire and runs. I have found it better to build as you go as you have to splice the "Reverse 12V" from the reversing light on the Golf "R" as at the time of writing the plugs to the reverse light were not available.

Volkswagen RVC Wiring Harness

Golf "R"

by www.my-gti.com





Here is a better photo of the reversing light. You need to splice into the 3rd white wire from the left. You can tell because if you trace it through the plug you will see it goes to the yellow wire in the reverse light.

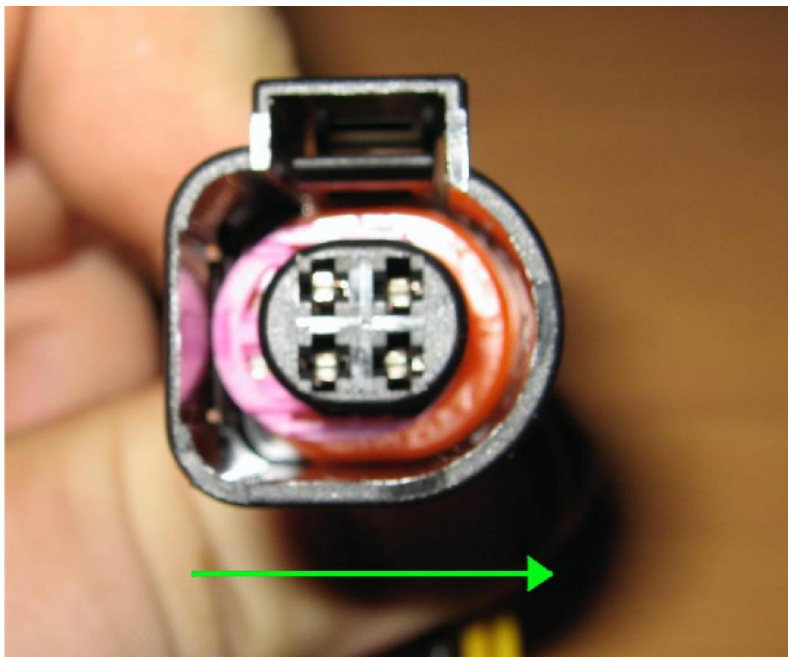
To build the loom you can use what ever wire will fit the terminals or the yellow repair wires if you ordered them. Be very careful with the terminals, they are fragile. Each of the plastic plugs will only going to one socket you cannot put it in the wrong one.

16

Plug 4B0 973 712 goes into the main body on the camera assembly.
 Plug 3B0 972 722 goes into the lose plug at the end of several wires.
 Plug 1J0 973 802 goes into the OEM loom plug you will be removing from the existing VW Boot release. Also note with this plug before inserting your crimped terminals it is necessary for you to remove and discard the pink/purple bits inside.



This photo shows plug



4B0 973 712.

Before you can install the crimped terminal you need to remove the pink locking tab by sliding it.

Then when all 4 terminals with wires are inserted you replace the pink tab back in place.

Each of the black plastic plugs has a number engraved into it showing each pin number.

The best method to construct the new loom is to unplug and remove the existing VW latch by removing the 3 torx screws, rotate the assembly clockwise a bit and pull it out, then replace it temporarily with the camera assembly to get the correct lengths of the wires.

NOTE:- Make sure you NEVER close the rear hatch without the old latch installed and plugged in, other wise you will not be able to open the hatch again.

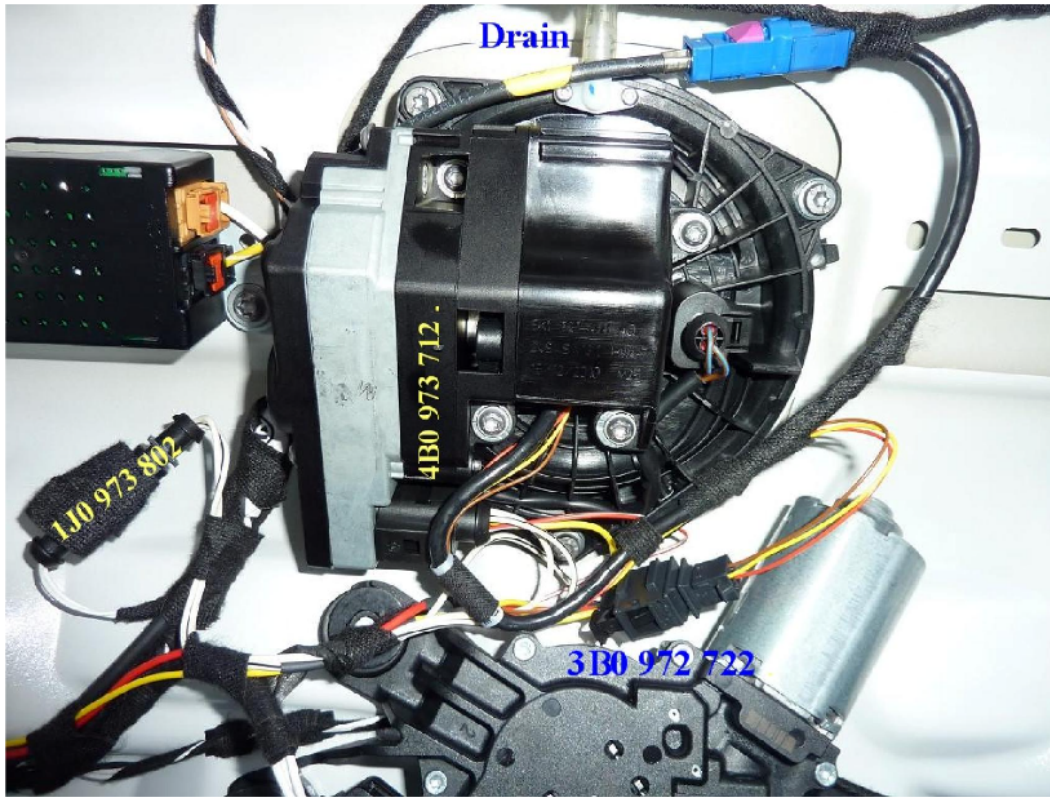
Now build the new loom one wire at a time double checking each wire before you plug each crimped terminal into its correct plug. Because once the terminal is fitted to a plug it is pretty much impossible to get out again.

Once your loom is built. Task 5 is now complete.

6. Fit camera, loom then test operation

If you're satisfied with your loom you can now remove the old VW latch and fit the camera temporarily and plug in your loom. I would not secure the loom at this stage until final testing. Be

permanently and plug in your loom. I would not secure the loom at this stage until final testing. Be sure to fit the blue plastic cover with its pink locking tab to the metal end of the video cable if you have not already done so.



Now plug the 5A fuse into slot 16 at the fuse box.

Close the hatch and then open it as usual and it should open.

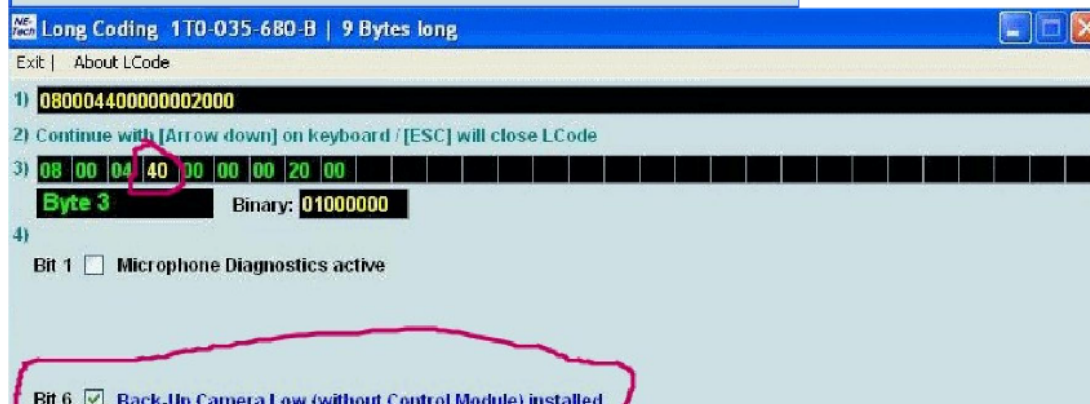
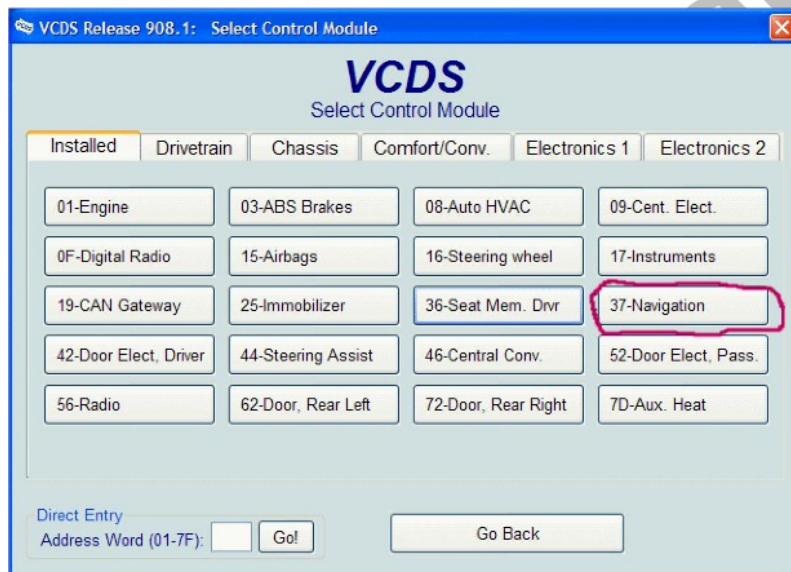
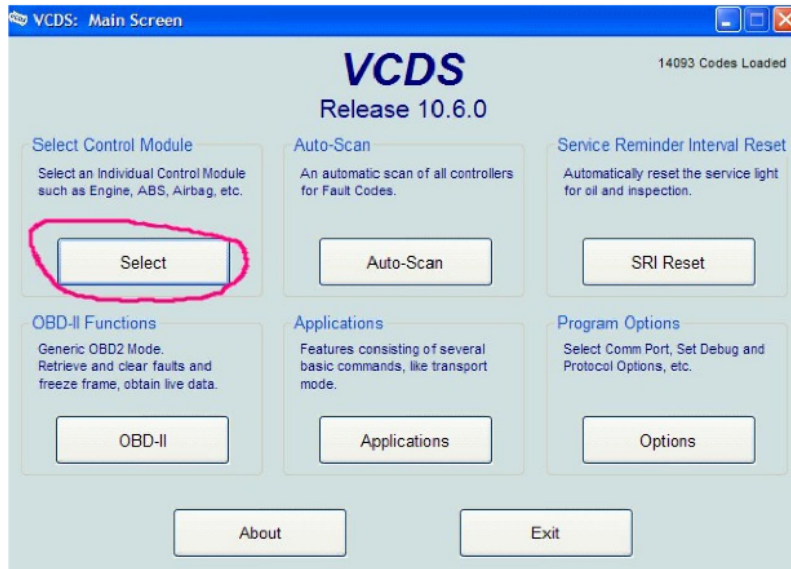
Start the car and put it into reverse you should hear the camera pop out, you can go and look if you like. At this stage the RNS-510 will not show the camera.

Task 6 is now complete

7. VAG-COM (VCDS) Coding

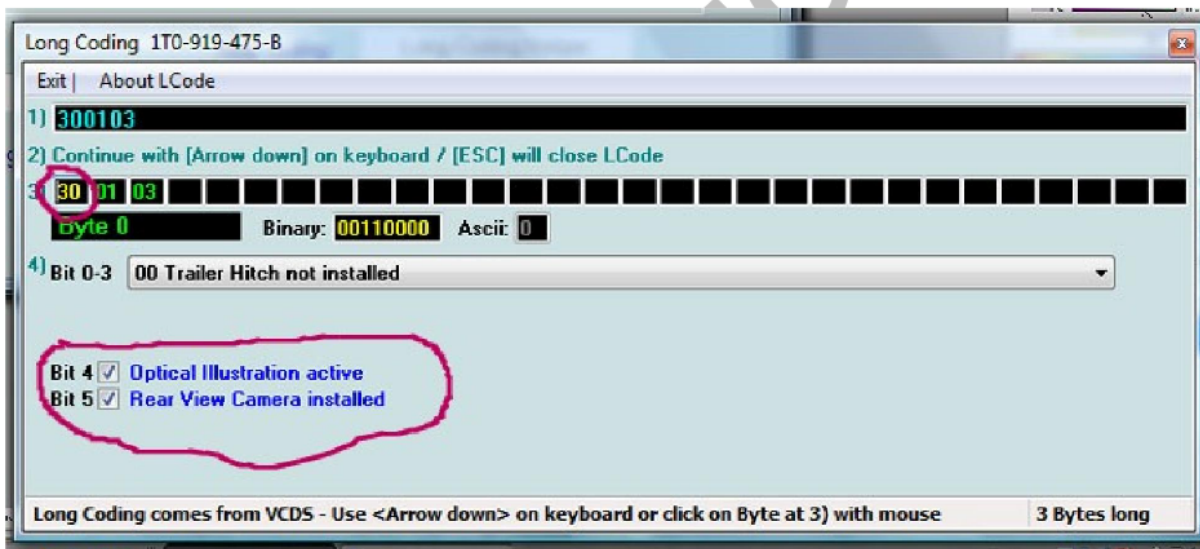
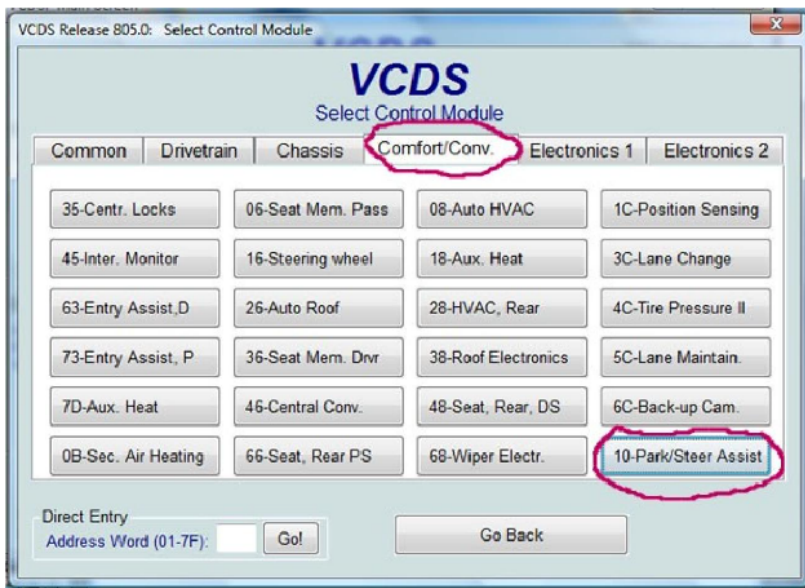
To get the camera to work we need to code it. There are two separate codings that need to be done.

Note:- depending on your version of VCDS (VAG-COM) the screen wording may be slightly different. Connect to controller 37 and in long coding under Byte 3 select Bit 6.

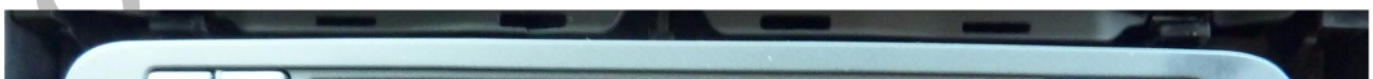


Next you need to tell the optical parking system (OPS) a camera is installed otherwise you cannot get both the RVC and OPS on the same screen.

Connect to controller 10 and in long coding under Byte 0 select Bit 4 and 5.



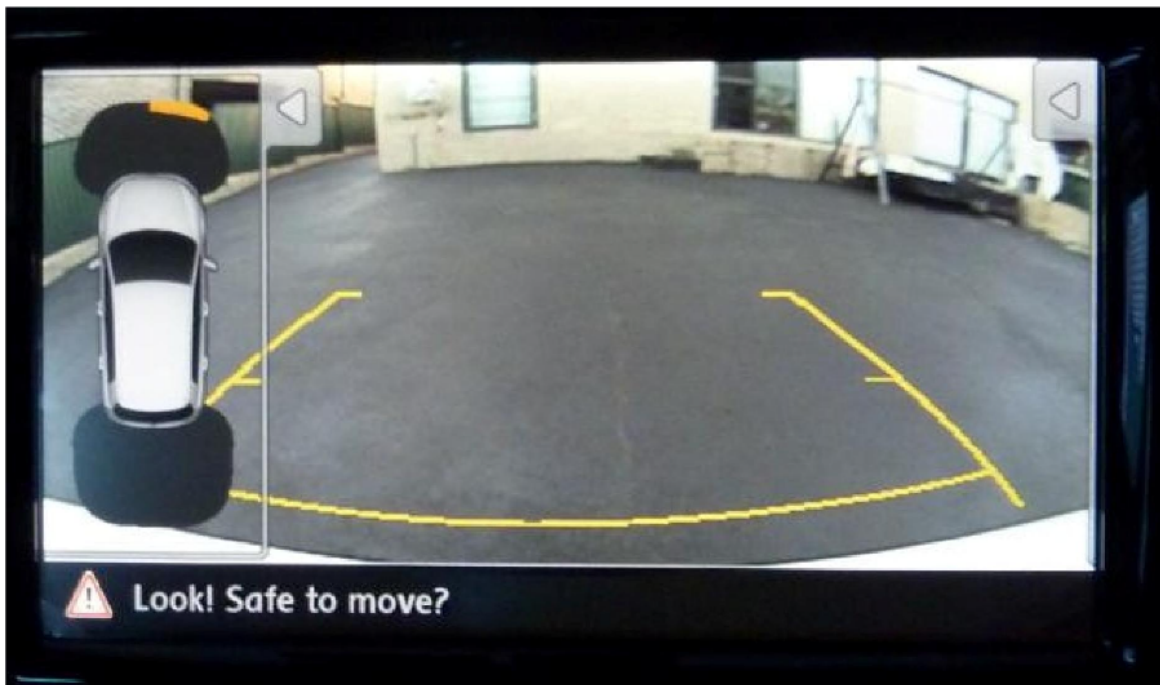
Now back out of your VCDS and reboot your RNS-510. This is done but holding these three buttons down together for several seconds.





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Now when you start the car and put it reverse you should see something like this:-



Task 7 complete.

8. Finish up

If you're satisfied it's all working you can tape your loom into position properly if not already done. Check the tightness of the screws holding a camera assembly in place, and then fit the drain tube. If you bought the tube just push it up from the bottom through the hole and fit it to the drain. I just bought a simple piece of clear plastic tube from Bunnings and did the same, perfect fit.





Refit the large plastic cover in the hatch and the RNS-510 surround and you're done. I recommend smearing a bit of some sort of lube on each of the metal clips for ease of fitting.

Task 8 and job complete