

Posted: Mon Nov 05, 2007 9:47 pm Post subject: Retrofitting touch screen sat nav controls

<http://www.jaguarforum.co.uk/viewtopic.php?f=14&t=10271&hilit=Retrofitting+touch+screen+sat+nav+controls>

by **x-dave** » Mon Nov 05, 2007 10:47 pm

After much planning and hard work, this is the guide for retrofitting the touch screen controls to an X-Type. It is my understanding that the process will be largely similar for the S-Type and later XJ models, albeit the wiring will take a different route. The photos are copyright P Clements and are used with permission.



Introduction

Fitting the touch screen controls are a commonly requested modification on these forums that is often quickly dismissed as being too expensive to be worthwhile. Hopefully this thread will prove that it need not be. This retrofit was completed for approx £500 and was a relatively straightforward task. Some of costs can be recouped by selling the bits swapped over. Below is the before photo, and above is the after photo.



Firstly the disclaimer: if you plan to do this remember that you risk damaging your car if you get it wrong. I will not be held responsible if this happens, although I will answer any questions and help out where I can.

Now the unfortunate bit: the target car will need to have the automatic climate control option to be upgraded. That is the system with the large LCD panel as shown above. If you have the manual dials then it really won't be cost effective to upgrade because you will be changing your climate control system as well.

If everything so far is ok though, then you will need the following:

- The touch screen, with the same spec as your windscreen (heated or normal, indicated by a separate 'F' heater button above the rear screen heater button.
- The sat nav DVD unit for the boot
- The remote climate control unit (more details below)
- An upgrade harness
- A TomTom GPS antenna/mouse
- A single optical link for the boot (daisy chained into your existing lead)

The touch screens and DVD units pop up on eBay regularly for an average selling price of £200 and £150 respectively. Shop around though and you can get them much cheaper. The GPS antenna shown below is the Jaguar one, but any TomTom one will do and they are much more common.



The remote climate control units are rarer on eBay but any car being scraped that had the touch screen controls will have one. It is attached to the right hand side of the heater/evaporator unit behind the dash. It can be accessed easily by removing the carpet above the RH foot well and reaching up. New from Jaguar these cost around £400, but the one below was sourced for £70 so shop around and play the breakers off one another if you can.



As with previous projects, the harness shown below was custom made by myself. Basically it consists of a shielded cable for the video signals and a bunch of straight and twisted cables to carry control signals and network commands between the front and rear of the car. The connectors are either donored from radio adapter leaders (the telemute kind) or crimped and insulated loose ends. The harness is completely plug-and-play with no cutting of any existing cables required to make it easy to fit and allow for the system to be swapped back in the future.

[update]

I have added a walkthrough and diagrams for creating the harness yourself. [See this post later in the thread for details.](#)



Fitting Guide

The process goes like this:

- 1) Remove the left hand floor trim pieces, boot/trunk carpet and the rear seats to route the cable from the front to back in the existing cable runs.
- 2) Run the harness up behind the hood/bonnet release lever trim and underneath the glove box (or steering column in LHD cars)
- 3) Swap out centre console panels for the touch screen
- 4) Install the sat nav DVD unit in the equipment rack in the boot/trunk
- 5) Daisy chain the new optical link into the link lead, and connect all cables/leads
- 6) Fit the remote climate control unit to the RH side of the heater/evaporator unit (accessed via the bottom)
- 7) Turn on car and play with the new controls!

Remove the left hand floor trim pieces, boot/trunk carpet and the rear seats to route the cable from the front to back in the existing cable runs.

I won't cover removing the boot carpet as it is obvious when you look at it. The rear seat cushion pulls up firmly at either front corner and then lifts out. The wings on the clips normally break off, but it will still hold firm without them. The seat back is held in place by the two bolts that become visible when the cushion is removed. Undo them both and lift the seat back off the hanging hooks.

The floor trim down the left hand side of the cabin is tricky to remove the first time, but so long as you unclip the front edges of the trim where it meets the lower B and A pillar trims it should be straightforward. Take your time and feel for the stress points with your fingers - those are where the clips are. If you do damage them beyond reuse then the good news is they are very cheap to replace new from a dealer.

This is the front cable run that is underneath the plastic trim:



And this is the rear:



The upgrade harness should be tucked underneath the inside edge (that is where the factory harness would fit).

Run the harness up behind the hood/bonnet release lever trim and underneath the glove box (or steering column in LHD cars)

The lower A panel trim / cowl trim is a pain to remove. Notice in the photo below (the removed trim is on the right) that there are two tongues that clip behind the carpet at the rear, and there are two metal push clips that fit into the front edge of the frame (one of the clip holes can be seen next to the bonnet/hood release lever). Route the harness up behind this and use common sense to run it underneath the glove box (or steering column) to the centre console.

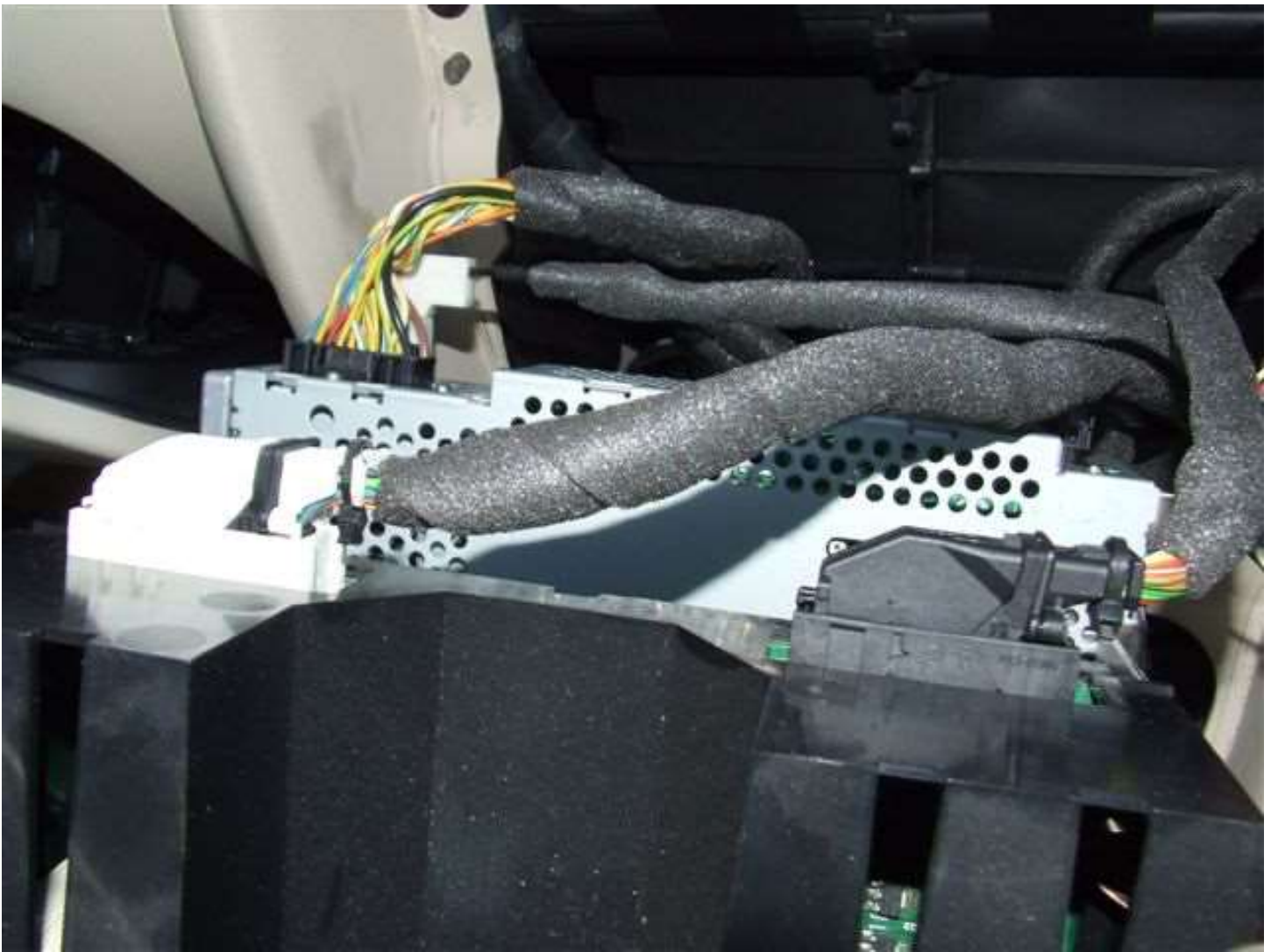


Swap out centre console panels for the touch screen

The centre console is easy to remove. Open the ashtray and with your fingers under the front edge of the gear stick or J-gate trim pull firmly upwards. There are two clips at the front and the back. Once that is out remove the exposed screws holding the ash tray in and carefully slide it out. There are two T star headed screws behind that holding the base of the console electronics in place. At the top there are two more of those screws which are hidden behind the hazard switch trim. Gently remove the trim by hooking a small flat screwdriver under a pointed corner and prying it up. (Don't worry, you can't break it through force, the clips are sprung plastic.)



Remove all the connectors, and detach the climate control panel and telephone buttons from your CD player or tape deck. The two connectors from the climate control panel need to be poked through the hole on the RH side so they fall behind the steering column (glove box on LHD vehicles), ready to plug straight into the remote unit when fitted.

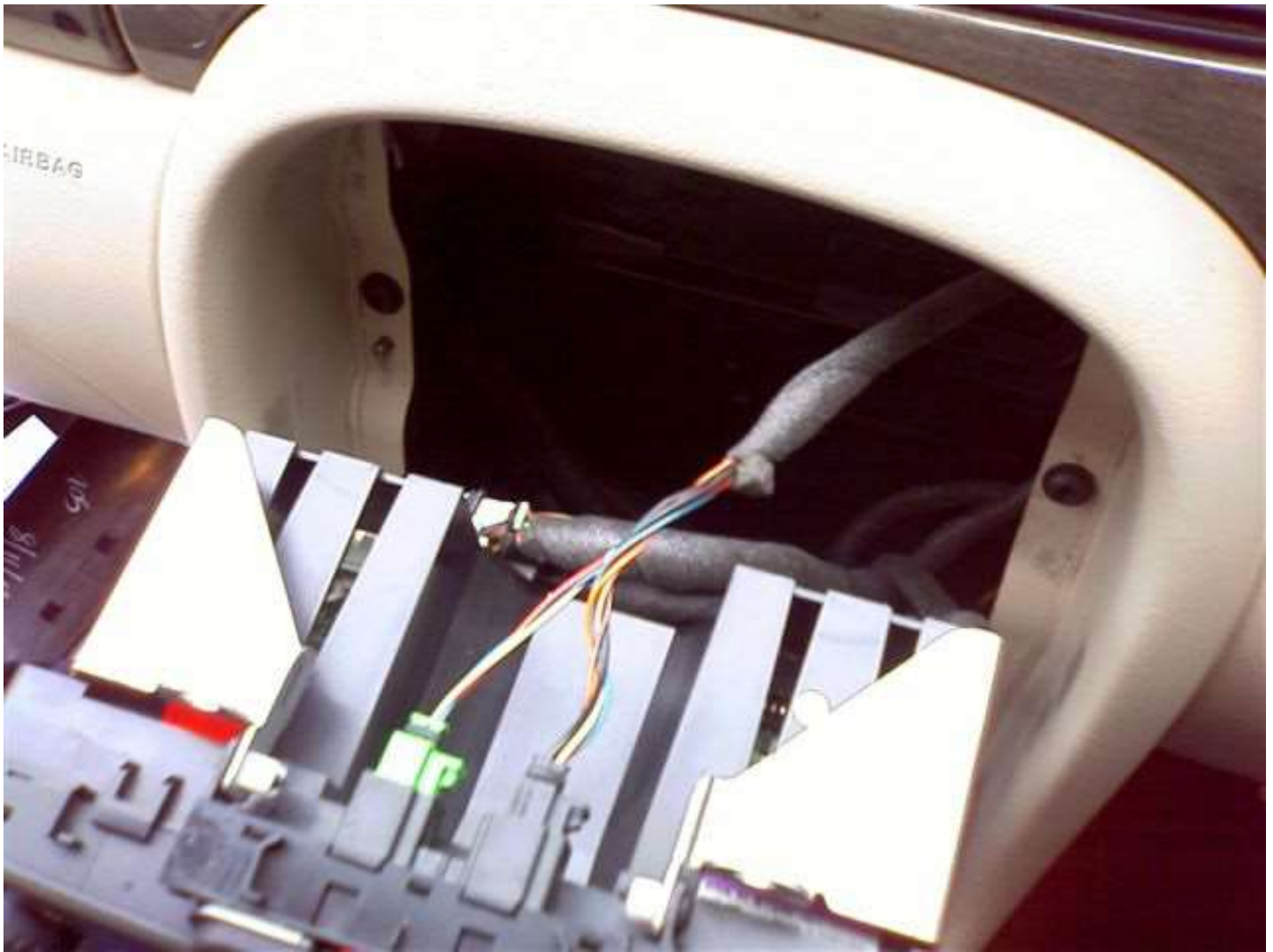


Mount the CD player or tape deck to the touch screen frame, and swap over your hazard switch if needed. I couldn't find a mating connector for the touch screen so my harness is terminated with insulated ends that need to be matched up to the correct pins. The stereo connector though is straight plug-and-play. (Note: in the future I will supply blanks for the other pins on the screen connector to allow them to be stacked and taped after fitting to avoid them being pulled out when refitting.)



Now plug the new harness into the stereo head unit and connect the other end into the original stereo harness. Carefully slide the equipment back into place and replace all the screws and trim.

Just in case you forget, the green heated seat connector goes on the left:



Install the sat nav DVD unit in the equipment rack in the boot/trunk

The harness routes into the back via the existing cable trays. You will need to remove the existing equipment rack to gain enough access to fit it.



Screw the DVD unit to the rack while it is detached and then connect the harness to the DVD unit (shown unfitted below). One of the connectors is plug-and-play, the other is loose ends as with the screen. Once connected up use tape or a cable tie to hold the cables together to prevent them being knocked out when refitting the rack.



Daisy chain the new optical link into the link lead, and connect all cables/leads

The DVD unit sits on the optical D2B network with the stereo head unit, and other devices such as the CD changer, telephone, voice controls, etc. Each network has a custom optical link lead that connects to each device in a specific order. Get the order wrong and nothing will work! Using the diagrams, carefully disassemble and reassemble the new link lead in the correct sequence, and connect it up. (Note, the factory link lead for the DVD unit has a right angle connector, but the more common straight out one will work just fine.)



Plug the GPS antenna into the rear of the DVD unit, and route the cable along the bodywork and attach it inside the parcel shelf by poking it through one of the holes in the top of the boot/trunk. Make sure it is fixed in place with tape or velcro so it doesn't move around. Then refit the equipment rack and all the carpet.

Fit the remote climate control unit to the RH side of the heater/evaporator unit (accessed via the bottom)

Remove the carpet above the RH foot well, and on your back with your head painfully positioned up in the gap slot the remote climate control unit into the existing mounting. Fix it in place with a single screw where shown. Plug it into the original climate control harness you rerouted earlier.



Turn on car and play with the new controls!



It is worth noting that the upgrade harness gives you one advantage over the factory system - you get an inline connector that allows you to plug in any RGB video switch and put your own video onto the touch screen, shown below.



I am going to be pretty busy over the next few weeks as I rip out and replace the wiring in my new car, but I am happy to give advice to anyone who wants to retrofit the touch screen to their car, and maybe make up some more harnesses when time allows it. In closing I'd just like to thanks Phil for having lots of paitence and being the guinea pig by volunteering to fit this to his car, and Joe for advice after he performed a similar install in his own car.

Remember; when your dealer tells you it can't be done they are only telling you that they don't know how. 😊

[My XJR retrofit project.](#)

Last edited by x-dave on Sun Nov 25, 2007 11:30 pm; edited 1 time in total

📅 Posted: Sun Nov 25, 2007 6:37 pm Post subject:

As promised, this is the walkthrough for making up the harness. I have modified the design slightly since Phil's harness to incorporate improvements, and also to allow the same design to be used for X-Type, S-Type and later XJ models. The new harness is much easier to fit as it runs down the centre of the car following the telephone (X-Type) or telematics (S, XJ) harness. This means you don't have to have to remove all the plastic trim down the side of the vehicle, allowing it to be fitted in just 30 minutes rather than two hours.

I have produced a schematic diagram which should be easy to follow for anyone familiar with Jaguar's own electrical schematics, which can be downloaded as a PDF file [here](#). It shows how the harness fits in with the existing wiring, what types of cable to use, cables lengths, connectors, etc.

Click on any of the following pictures to view a larger version.

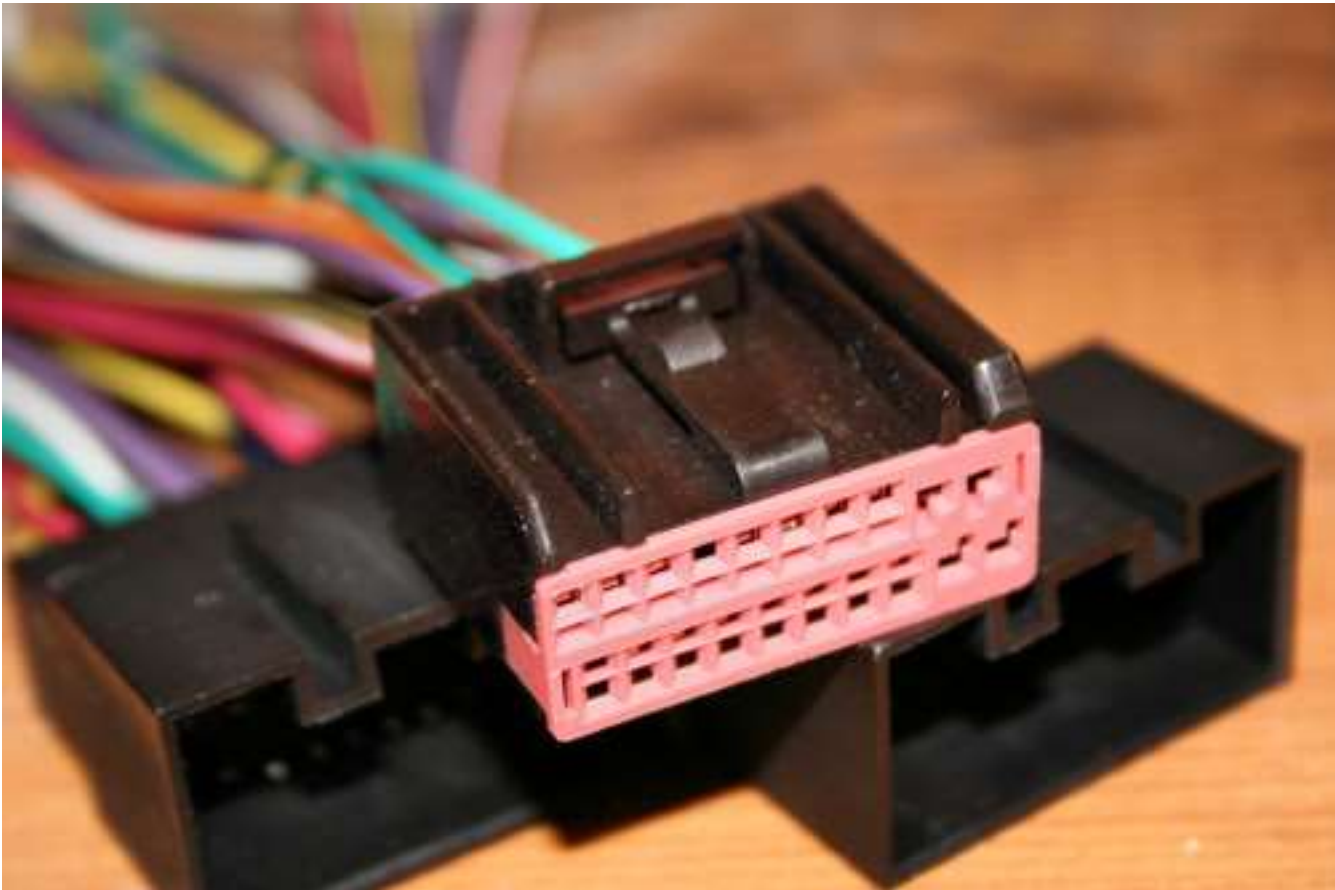


These are all the bits and pieces you will need to make the harness:

- Cabling (see schematic for details)
- 2x donor Autoleads SOT-082 leads
- AMP Multilock connectors (040 6way cap+plug+crimps)
- Crimp ratchet + dies for AMP 040 22-24awg crimps
- Wire strippers
- Harnessing tape
- Electric screwdriver
- Heat gun
- Various sizes of heat shrink tubing and solder joints
- Plastic G clips for mounting the harness in the vehicle



This is a close-up of the shielded video cable. This particular cable is Defstan 6 Multi-Core Cable, 16/0.2 mm for each core. It is a specialised video cable used in the construction of SCART leads. It is quite expensive though, so whichever cable you choose to carry the video signal just make sure it has a braided shield/screen, otherwise you may get ghosting on your display.



This is a close-up of the SOT-082 leads that will donor some the connectors for the stereo and the DVD unit.

To start with, cut the cables to length as shown in the schematic. If you can't find the correct guage twisted pair cabling for the SCP network

connection, you can easily make it yourself using an electric screwdriver as shown below.

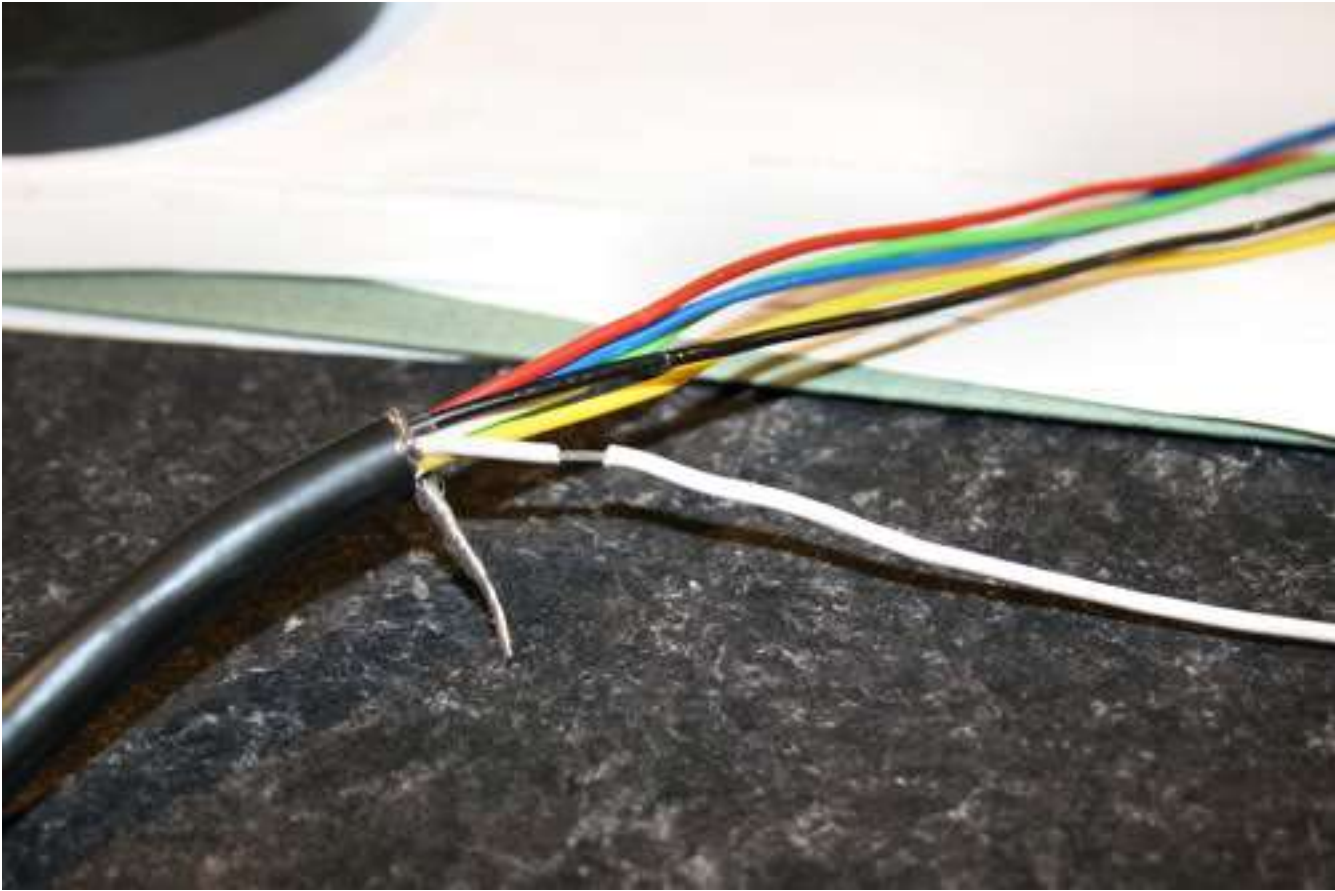


You need to twist the entire length in one go, so you will need to position the screwdriver 4 metres away from the wire spools. Twist until the cable stops oscillating, then leave it for 30 seconds before cutting the ends to give the pair memory.

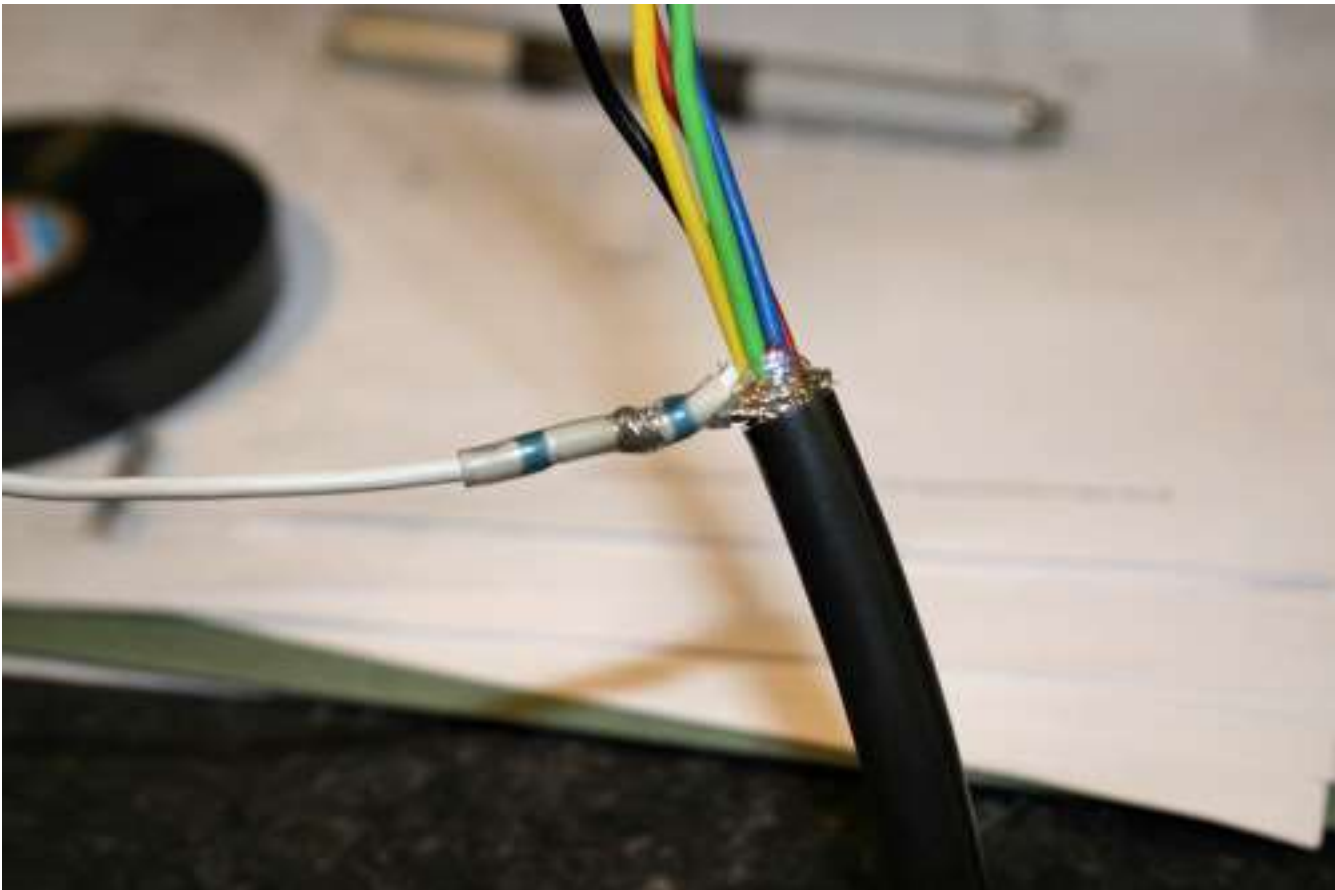


Cut the other cables to length and temporarily tape one end together as a bunch to make them easy to handle. The video cable is in two lengths to allow for an inline connector for a DVD player or reversing camera, etc, to be displayed on the front display. If you don't want that feature just leave it

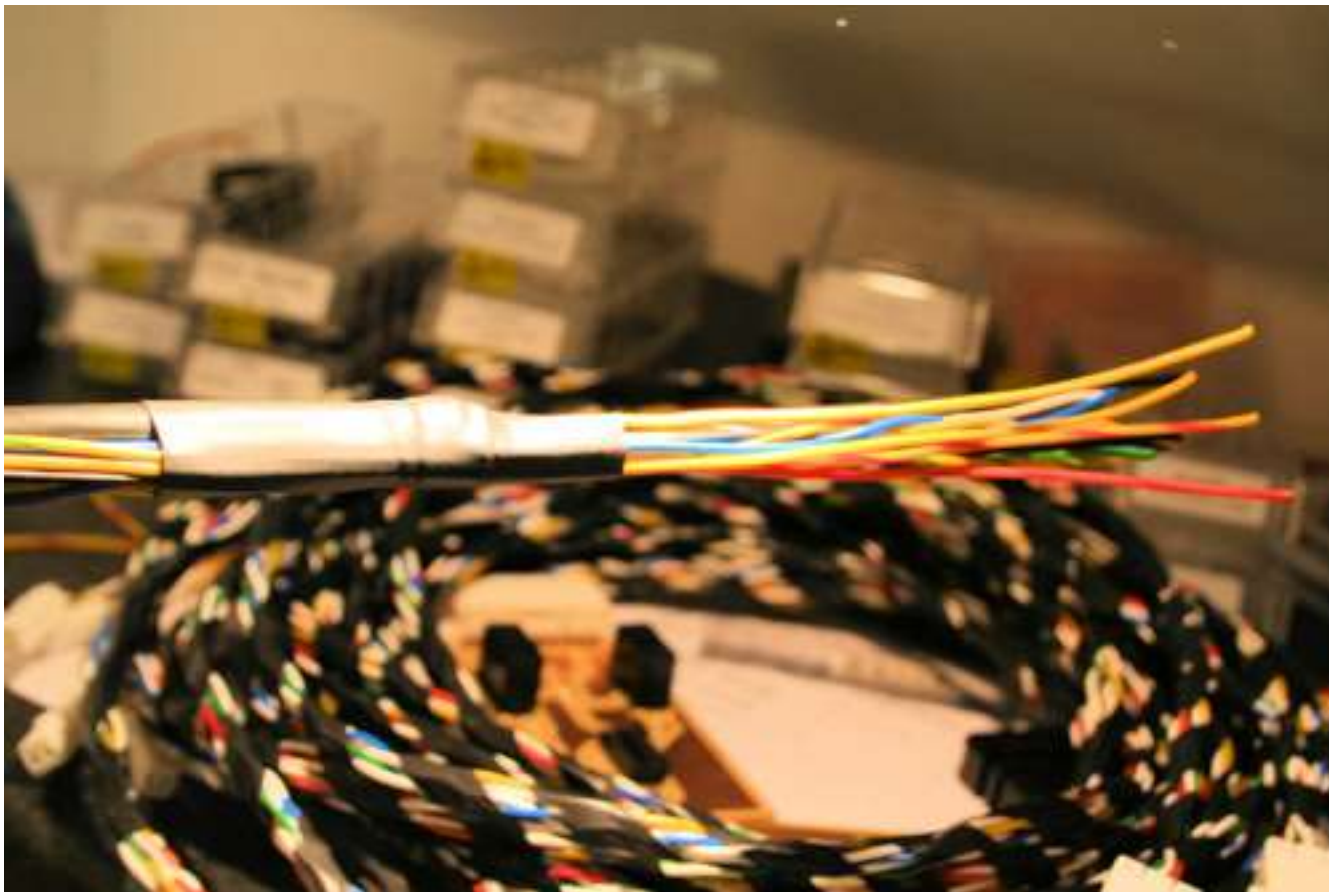
out. To attach the braided screen to the white wire in the video cable at each connector, remove a small part of the insulation and twist the screen around it as shown below.



Use a heat shrink solder joint to complete the join as shown. Use insulating tape to clean the edges of the screen up.



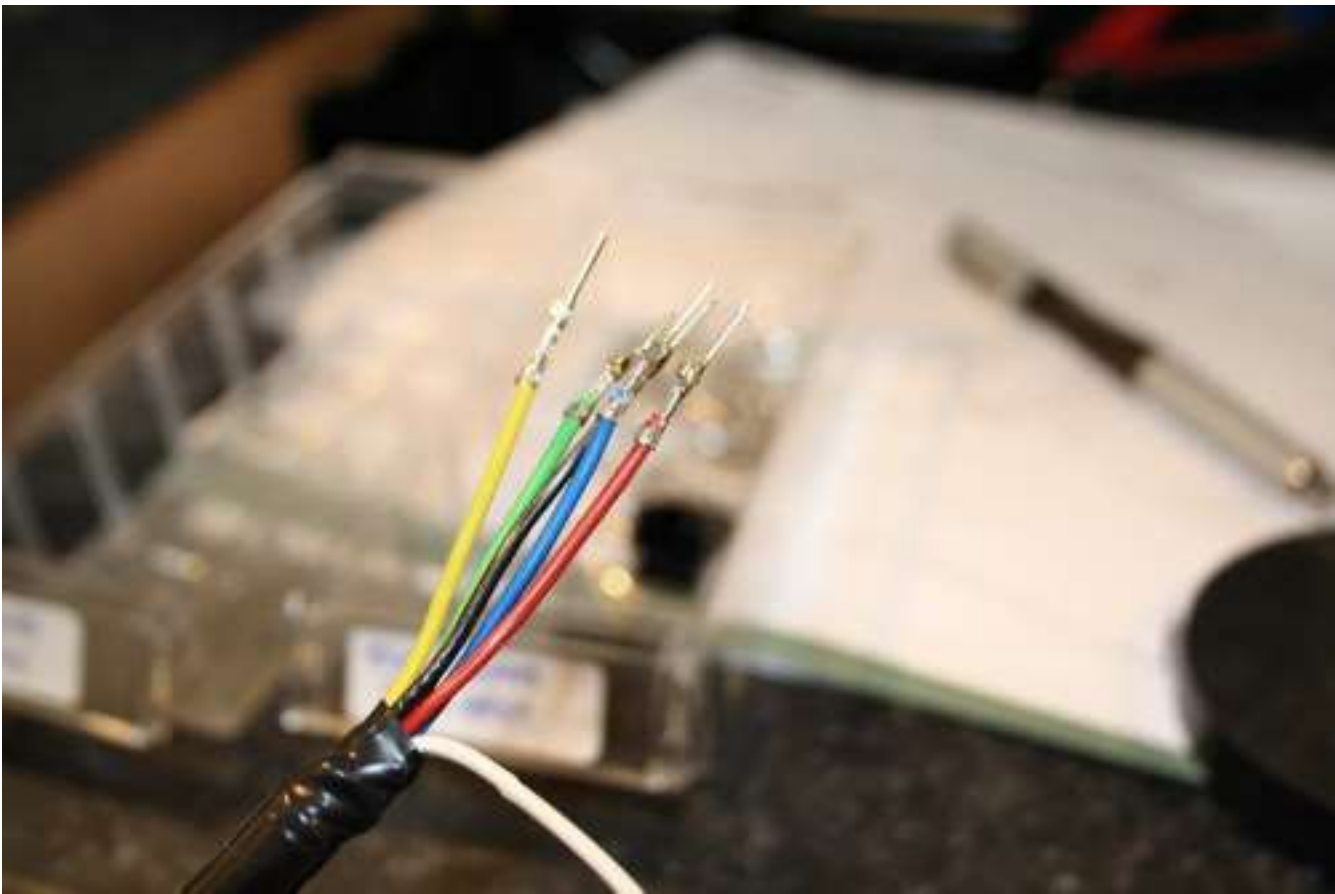
Working from the touch screen display end backwards, bind all the cables together.



Start with some heat shrink to hold them secure, then use harness construction tape along the entire length of cabling.



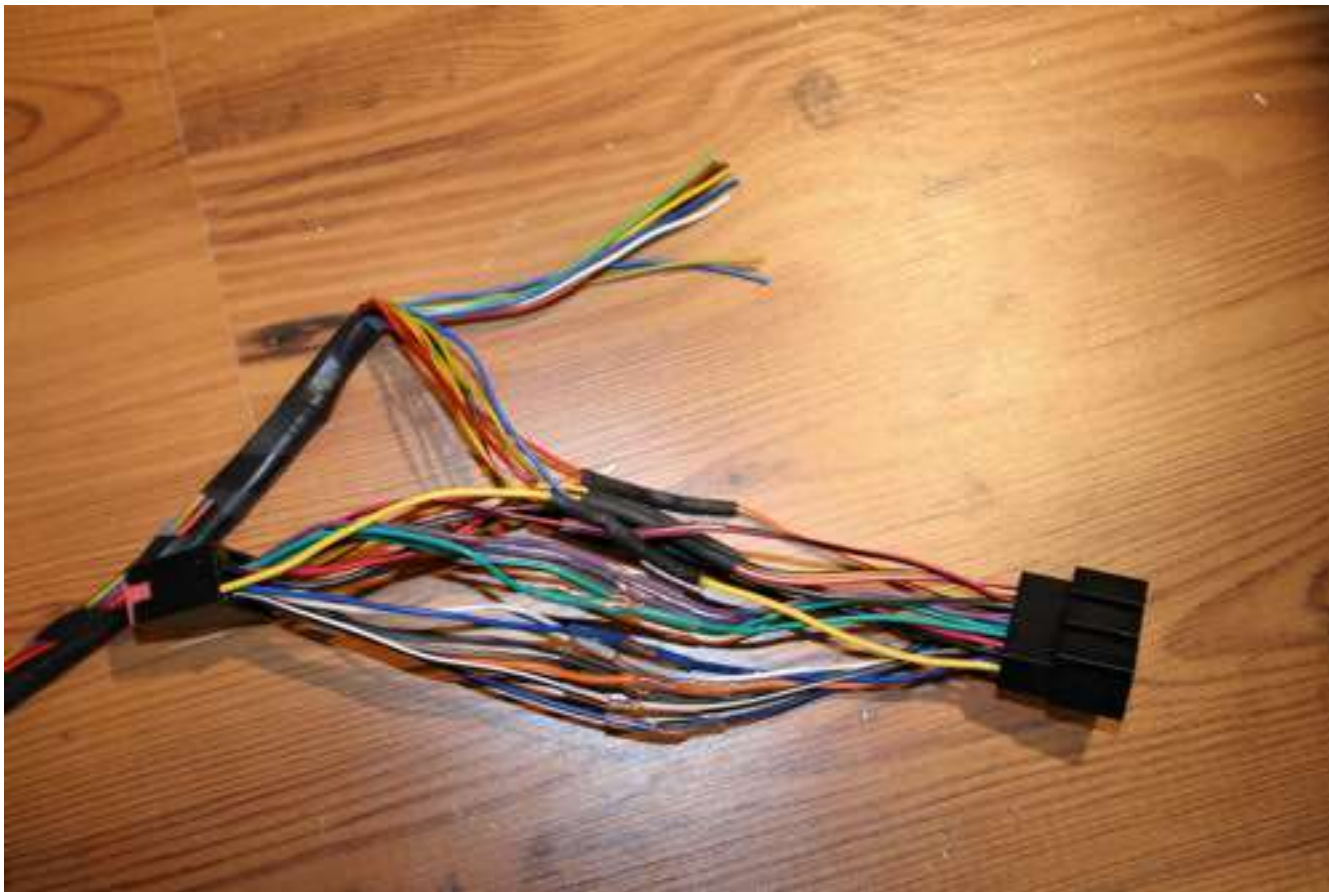
Crimp all the connector ends as appropriate. Shown below is NA10, the inline video connector.



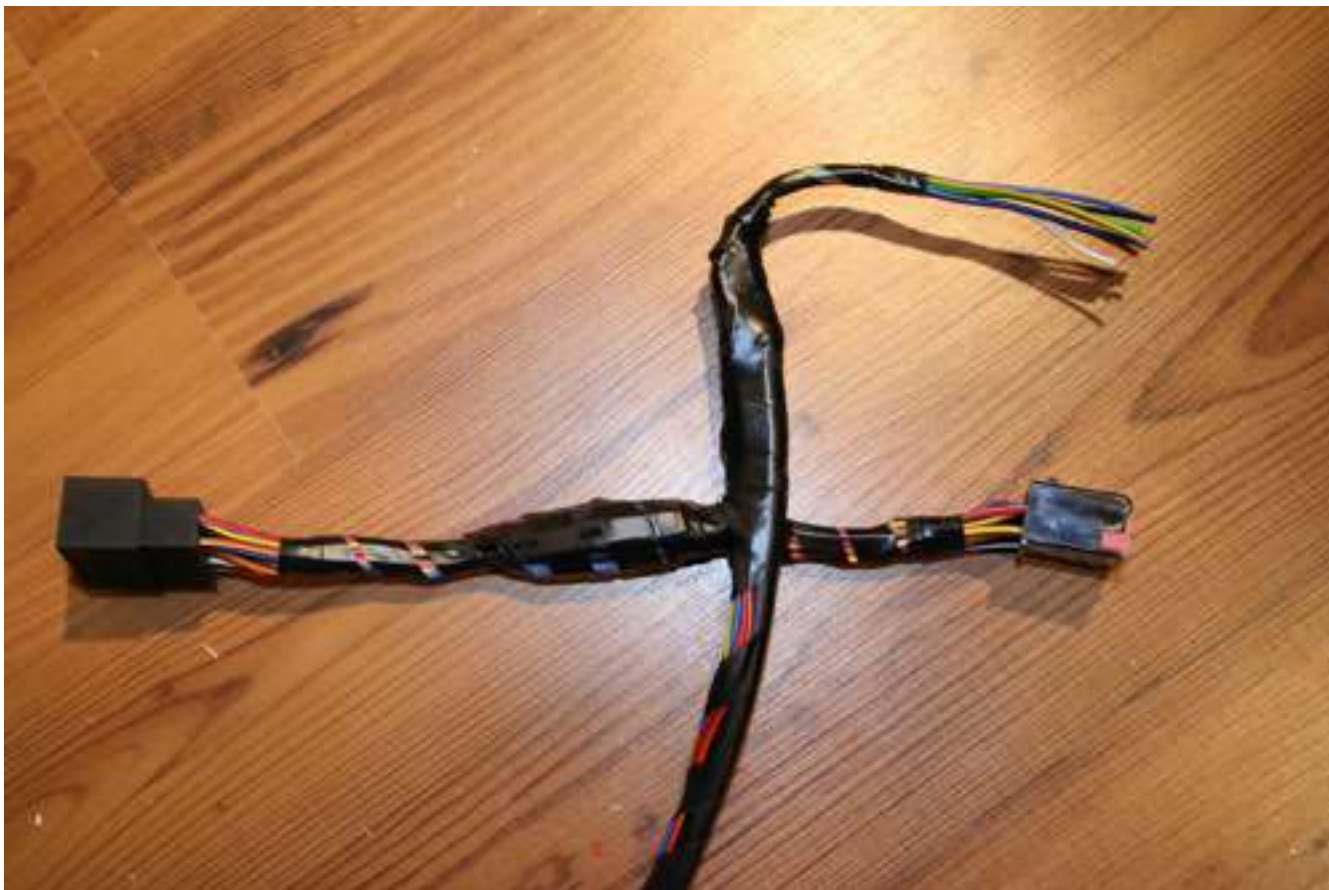
The photo below shows NA10 after it has been completed, with the display end ready to be connected in with the SOT-082 donor leads.



Using the schematic splice the cables together as appropriate using heat shrink solder joints.



Position the cables and connectors as shown below and tape securely in the 'cross' shape. This is the shape needed behind the display, and it helps to ensure that the connector for the stereo forces the loose pins into the back of the display connector to stop them falling out.



That is pretty much it. All you need to do now is crimp and insulate the screen cables at IP70 (using AMP Multilock 070 22-24awg crimps, and heat shrink tubing), and splice the other SOT-082 lead plug onto NA7. NA1 should be finished in the same way as IP70. Check all the wires in the harness for continuity and you are finished.

Hi Dinsdale,

I installed a CDC in my '07 2.0 Sport estate last week - it's really simple. The bracket is positioned behind the left-hand panel in the boot, it contains space for the phone module, voice module, CDC and Nav module. The power lead is there too; however you will need to get the right fibre optic connection lead for your set up - there are a number of leads available that correspond to which equipment you have installed: - here's a summary (apologies if it's long-winded) of the leads you need if you're fitting the CDC:

Item(s) installed/Part number

CD only/1X43-14B242-A

CD and Phone/1X43-14B242-C

CD and Voice/1X43-14B242-C

CD, Phone and Nav/1X43-14B242-D

CD, Voice and Nav/1X43-14B242-D

CD, Phone, Voice and Nav/1X43-14B242-E

CD, Phone and Voice/1X43-14B242-L

CD and Nav/1X43-14B242-M

You must have the right lead for your equipment! The leads are available from the dealers; at some cost. Beware of e-bay sales; you need to make sure the suffix letter is right.

Once it's all plugged in and installed the head unit simply detects it and it works; well, mine did. Obviously you need the right head unit with the CDC button. There may be fault codes stored in the ECU stating that a CDC has been installed; the dealer may pick this up at the next service, but it shouldn't cause a problem.

Hope this is useful. Oh, one final thing; the mounting screws into the bracket are really hard to get to, you will need a L-shaped phillips screwdriver unless you're prepared to remove the whole bracket.

Interestingly, I was actually able to get my own connectors [for the retrofit] from a Lincoln LS...a vehicle that I'm not sure was sold in Europe. But in the US, scrapped LSes are easier to come by than scrapped S-Types, and the front/rear electronic modules have the same connectors, so it makes sense to go for that instead.

U = blue

B = black

R = red

Y = yellow

YG = yellow/green

OR = orange/red

YR = yellow/red