



BLACKBOX SOLUTIONS

Steering wheel conversion kit

Version 1.5 (19.03.2020)

Introduction

Blackbox Solutions LTD supplies only the parts below. The steering wheel needs to be purchased prior ordering the conversion kit. To make sure you find the correct parts and if you intend to use the steering wheel with all functionality, ensure that the new steering wheel you buy it's fitted with at least the switches for the options that your car already has. For example if your vehicle has Paddle Shifts, then find a wheel that has those options.

The steering wheel and functionality in a Discovery 4 or Range Rover Sport 2010+ can be converted and fitted to either a Discovery 3 or Range Rover Sport 05-09.



AC031



**Steering Wheel
conversion**

**ADD-ON
AC032**



**Heated Steering
Wheel activation**

**ADD-ON
AC033**



**Adaptive
Cruise Control**

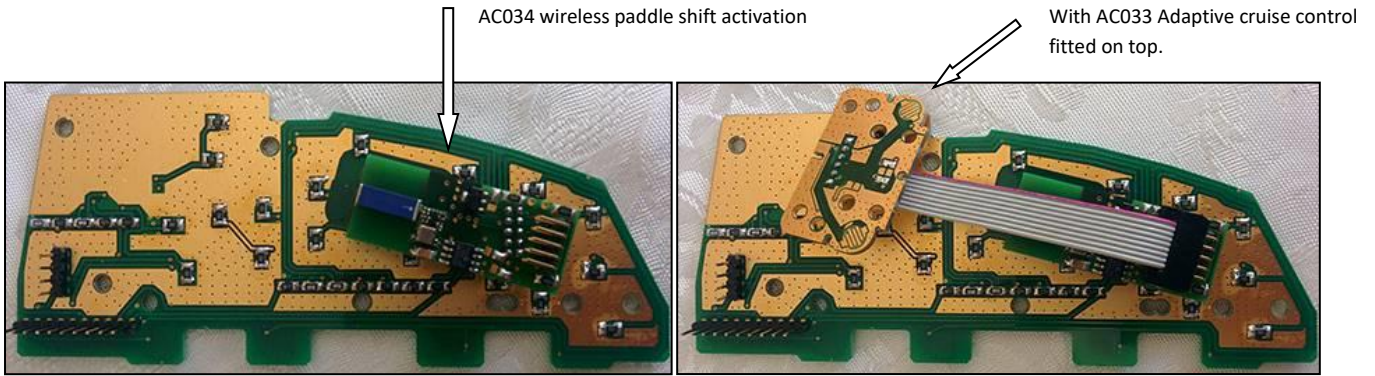
**ADD-ON
AC034**



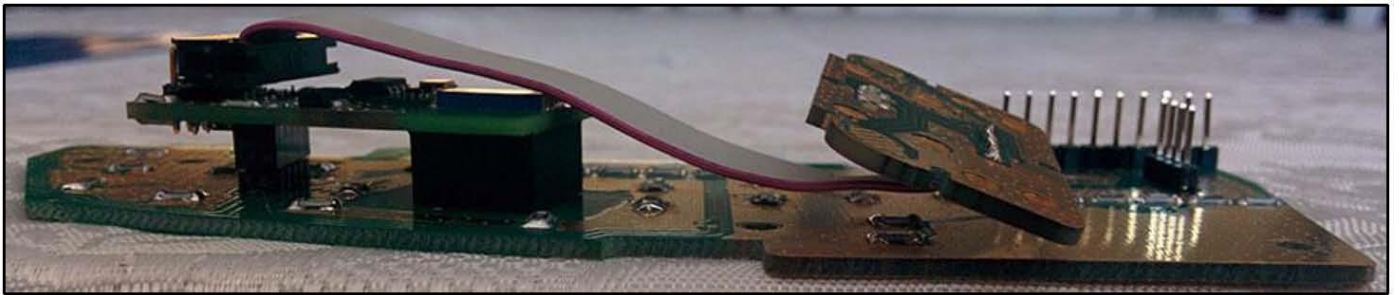
**Paddle Shift
activation**

The gold plated main boards are specially designed to route the various controls from the steering wheel to the ECU's without hindrance or interference and allow ample cooling throughout using our experience and the latest technologies available. This may seem a little excessive for parts that are not visible but we at Blackbox Solutions like to make sure that everything we supply far exceeds the quality of the original.

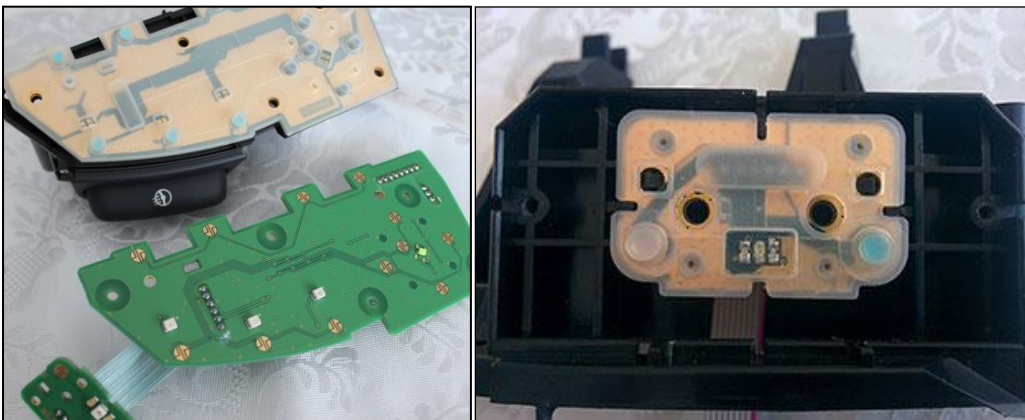
The AC031 steering wheel conversion is mandatory should you wish to fit the optional add-ons. These add-ons, AC032 Heated wheel and AC033 Adaptive cruise control, are easily slotted onto the AC031 whilst only one part of the AC034 connects directly to the board, with the other part wired next to the gear selector.



Side view.



The original parts are easily interchanged with our parts, even the manufactures silicon membrane fits snugly on the parts we supply.



The paddle shift area is molded and best to buy the wheel with all the parts fitted, not doing so would be very costly when obtaining original parts.

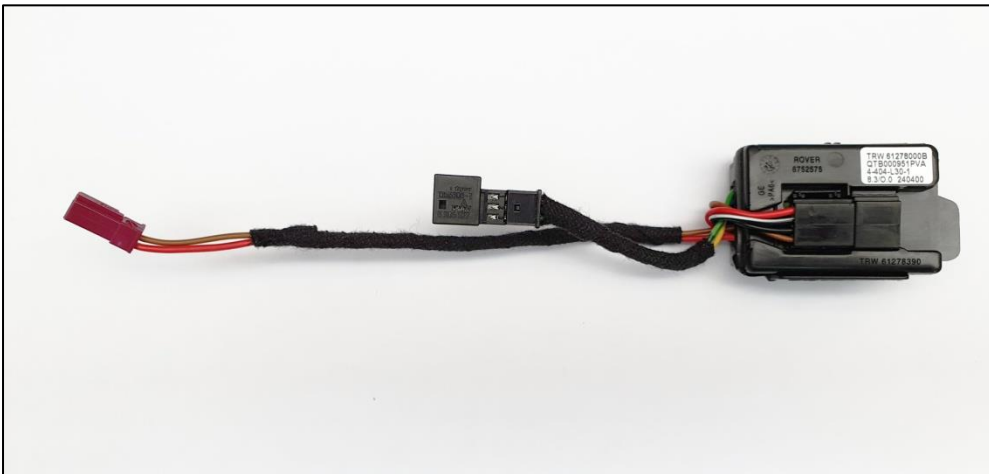


Steering wheel heater control module and wiring

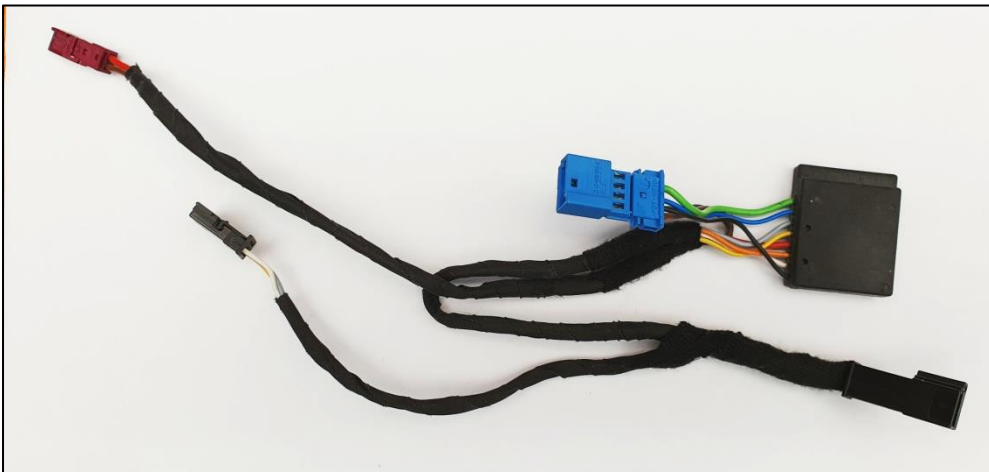
There are 3 types of heating control modules, an early one with 3 pin connector before 2014, the L322 module with a socket and a newer type after 2014 which also have a socket instead of the connector, the only one compatible is the early type before 2014 that has a connector. Please make sure you have the right type of control module otherwise the heated steering function will not work.



**PRE 2014 MODULE
COMPATIBLE**

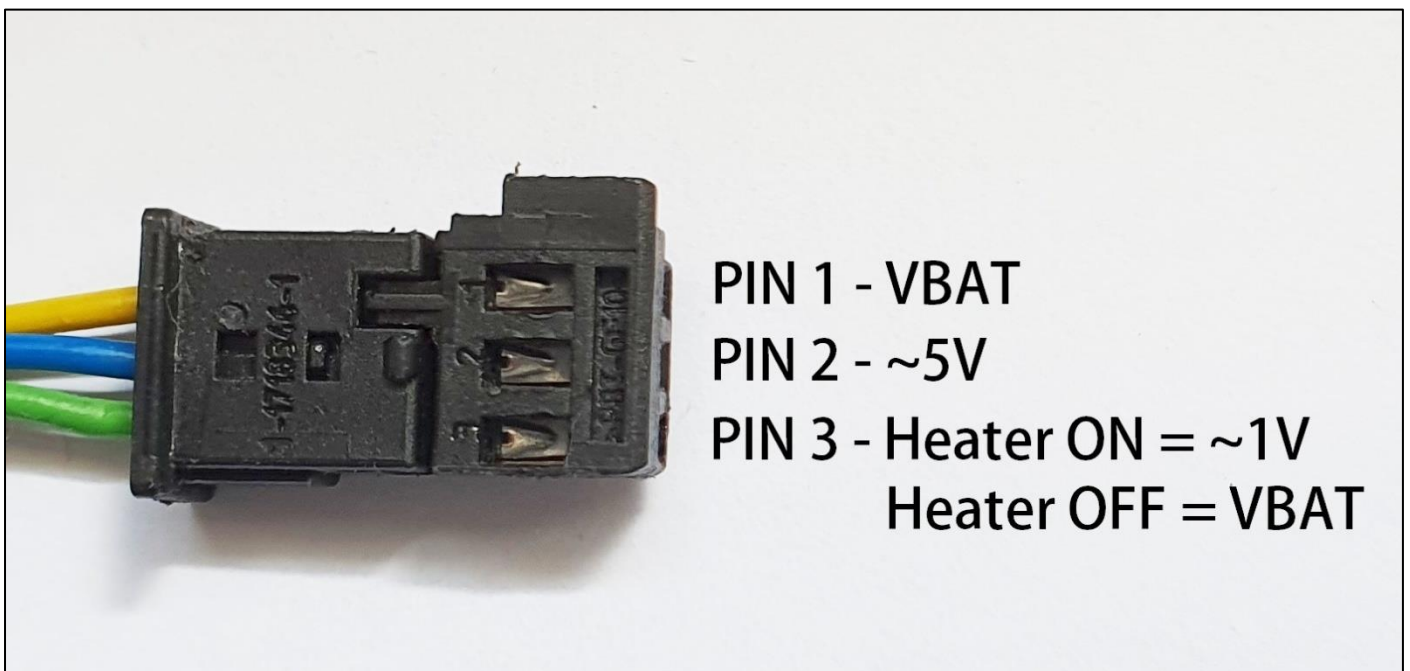


**L322 MODULE
NOT COMPATIBLE**



**POST 2014 MODULE
NOT COMPATIBLE**

The connector on the module has 3 wires colored yellow, blue, green, if you need to troubleshoot the module please measure with a multimeter the pins, the voltages should be according to the image below:



For more information and to see other products:

www.blackbox-solutions.com

Step by step Instructions

You will need a pair of the Discovery 4 or 2010MY on Range Rover Sport steering wheel switch packs. There are a small number of variations available as well as the respective BBS conversion PCB's.



These are for a Range Rover Sport and are Matt Black with polished ends on the buttons and have the heated steering wheel and Adaptive Cruise Control (ACC) buttons.

These part numbers may have been superseded but that is typically a change to the design of the electronics we will not be using.



Choose a side, both are the same process so it does not really matter which, but in this case we have chosen the right side, give all the buttons a quick press and then lay it face down on a surface that will not damage the front and remove the 5 screws on the rear.

If you have to shake a screw out make sure that you grip it so the front does not come off.



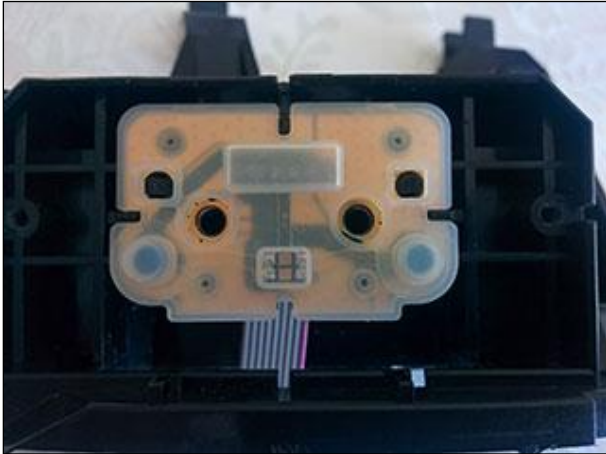
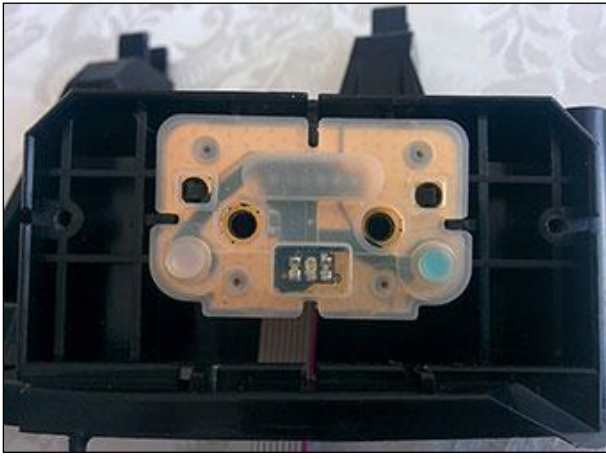
Then with it face down, lift the rear section slightly off the front by a millimeter or two and give it a little sideways wiggle before fully pulling it away. Along with the button pressing, this gives the best chance of assuring that the little white push rods stay in place. At worst you just have to put them back in place (bit fiddly) but DO NOT lose any and do not turn it upside down as they will all fall out.

If you have a AC032 Heated Steering Wheel switch (right side) or AC033 Adaptive Cruise Control switches (Left side) you will also need to remove the 2 screws on each side of the switches taking the same care about the push rods.

Pull off the silicone membrane(s) you then need to prise the original board away from its mounting (couple of plastic barbs) by putting your finger through the hole where the switches were and where the cable is fed (see left), push one side free then the other taking care not to break the plastic.

Fit our replacement boards and place silicone membrane(s) over the fascia.

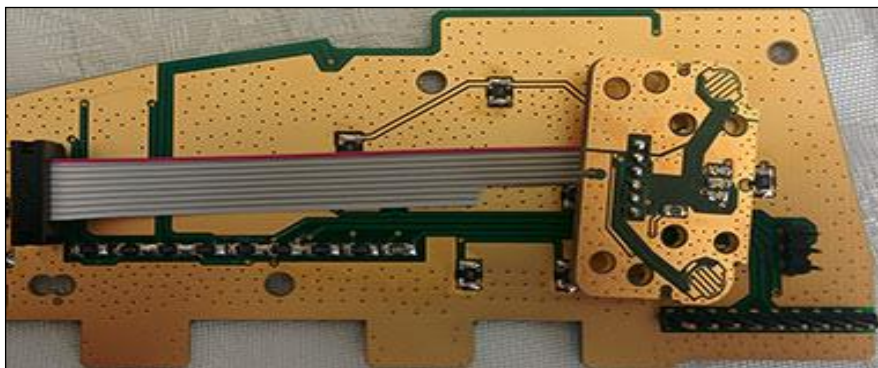
Note: this picture is the AC032 Heated Steering Wheel add-



The Adaptive Cruise Control board is fitted to the rear plastic frame first. The Grey ribbon cable needs to be threaded through to the front. The board is quite tight so must be pushed on very firmly until the plastic barbs latch and the board is fully seated.

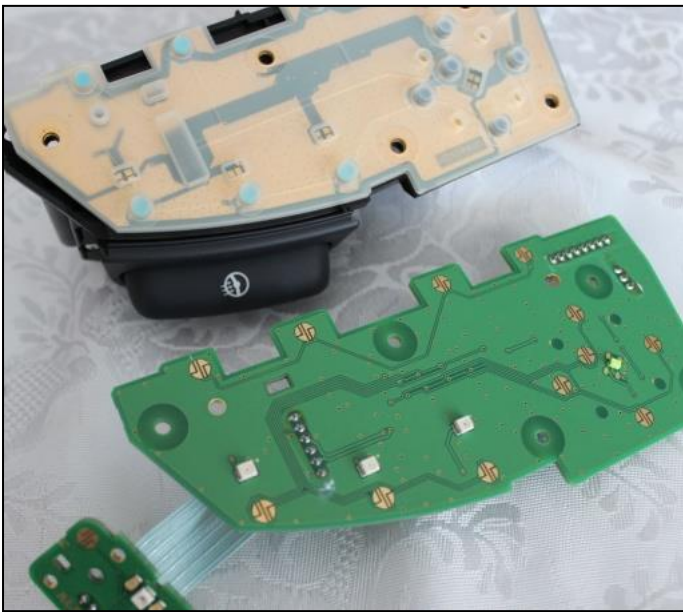
Then refit the silicone membrane pushing the four pegs that hold it in place through the PCB and screw on the side cover - buttons ensuring the push rods are in the right place.

Note: this picture is the AC033 Adaptive Cruise Control board with 2 LED's.



Then plug the 10 pin Header on the other end of the ribbon cable onto the matching 10 pins on the back of the main board as shown. Pin one is indicated by an arrow/triangle in green on the Main board which should match up with the Red stripe of the ribbon cable, push down ensuring it is properly on all 10 pins.

Please note if you have purchased the AC034 Paddle Shift Activation add-on when you fit the AC033 Adaptive Cruise Control board please see the documentation below as the connection is different.



If you have a side switch board, surplus ribbon cable can be folded in the space behind the side switch board, but in either case the replacement Main board is then fitted just as the original Main board was, and again it is a tight fit. Please note if you have purchased the AC034 you will have to fit the TX board to the Main board (left side) as in the documentation below, then refit the silicon membrane, place it on the back of the fascia and refit the 5 screws.

Then repeat for the other side.

AC034 Paddle Shift Activation add-on.



Receiver	Discovery 3	RRS pre-2010	C2658 PIN No:	Usage
Red	Pink/Green	Orange/Green	7	12V
Black	Black	Black	1	GND
Brown	Brown	Brown	6	STEP-
Yellow	Yellow	Yellow	5	STEP+

There are two yellow cables on the connector (C2658) that plugs into the gearshift mechanism: Pin 5 and Pin 10.

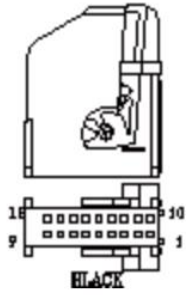
The yellow cable you are connecting to is the one from Pin 5.

Use the 3M Scotchlok clips provided to tap into the 4 wires required.

Connector: C2658

Description: Gearshift mechanism

Location: Beneath center console

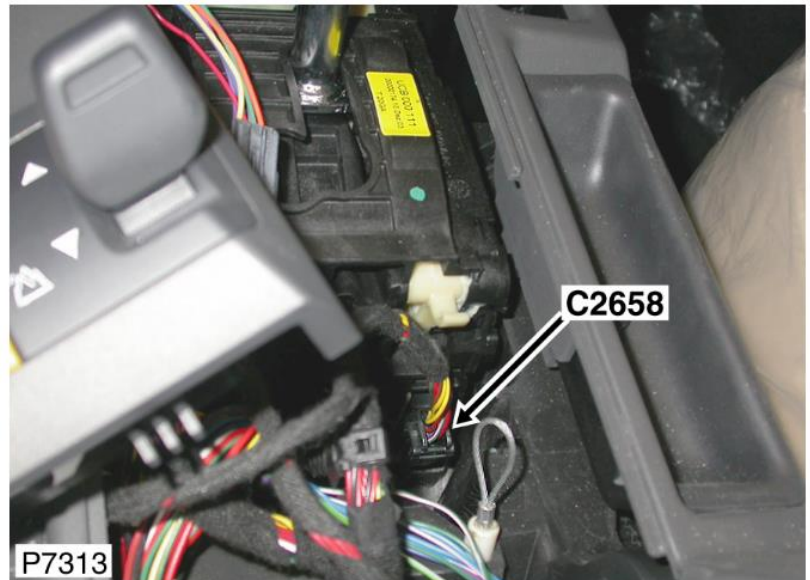


Part No.: YPC902000

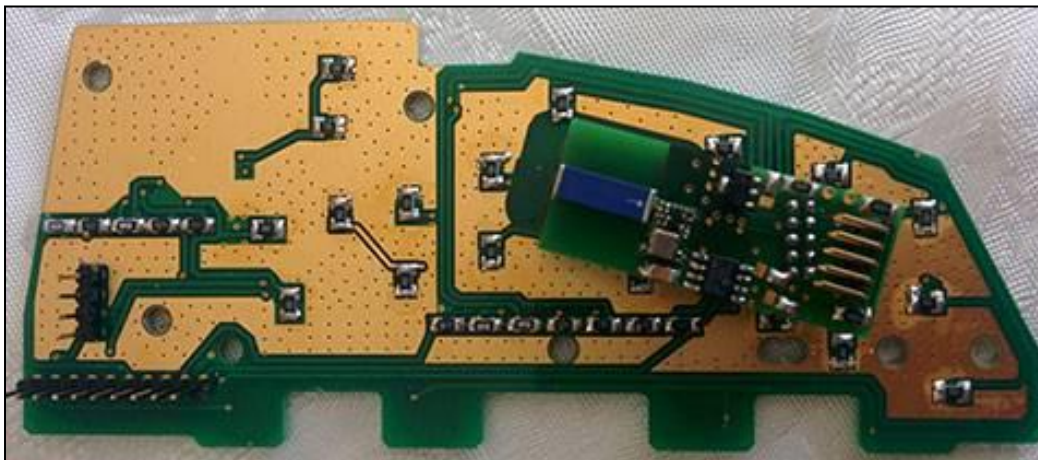
Colour: BLACK

Cavities: 18WY

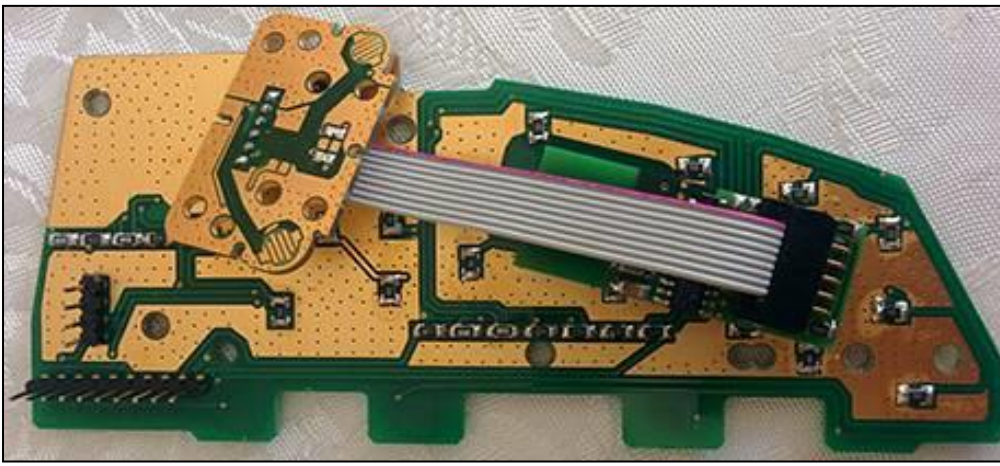
Harness: CONSOLE HARNESS



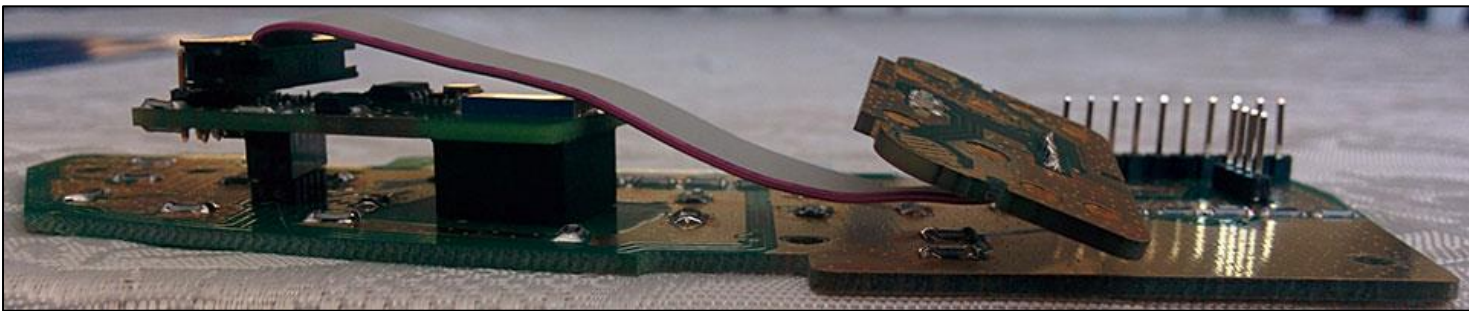
Instructions for AC034 Paddle Shift Activation & AC033 Adaptive Cruise Control



The TX board is fitted on the 10 pin Header (left main board) as shown in the above picture, again ensuring it is firmly connected and the rubber block is seated on the main board.



Please note if you are using the (ACC) Adaptive Cruise Control add-on (AC033) in conjunction with the Paddle shift activation add-on, make sure the ribbon cable is connected as the above & below pictures, due to the pins being flipped ignoring the pin 1 mark on the main board.



For further support contact: support@blackbox-solutions.com