

# Paddleshift Installation Instructions

V1.05

Thank you for purchasing the Paddleshift Modification Kit for Tiptronic/Steptronic gearboxes. The Paddleshift kit fits into the existing wiring of your vehicle to allow the control of gear selection by means of steering wheel mounted paddles. Tiptronic/Steptronic gearboxes have the facility to manually select gears by putting the gear selector into sport mode, and pulling or pushing the gear lever to select the required gear. The Paddleshift kit connects into this gear selection facility to control gear selection by using paddles rather than the Tiptronic/Steptronic gear shifter.

This kit is available with or without the steering wheel paddles. The paddles can be bought from your Land Rover dealer [part number LR023033 & LR023034] and fit all Range Rover L322 models. They are also available online at places such as eBay or Powerful UK [www.powerfuluk.com/vehicles/range-rover-full-size/l322-vogue-2002/interior.html].

Installation of the Paddleshift kit is at your own risk. We cannot take any liability for any damage however caused during the installation or operation. You should be competent at home mechanics and take normal sensible precautions, such as ensuring ignition remains off when removing such items as airbags and ensuring live and earth wires remain isolated effectively [see handbook and service instructions].

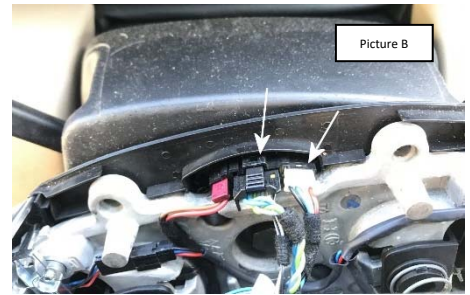
## Installation Instructions:



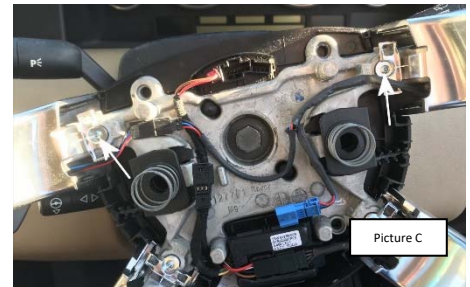
1. Removal of the Airbag Module and Steering wheel to fit the Paddles
  - The steering wheel airbag is removed by inserting a small bar into the 2 holes on either the side of the steering wheel (Picture A) and gently pressing on the airbag to release the 2 catches. An Airbag removal tool is available from eBay, or you can make your own using a 3mm bar approximately 12cm long, bent at one end and with 2 marks on the shaft [one at approximately 5.2cm and one at 6.2cm]. Push the tool into the hole in the side of the steering wheel up to the 5.2cm mark [this is where the catch is located], feel for a spring and push in to the 6.2cm mark. Gently press on the airbag at the same time to release the catches one side at a time.
  - Unclip the 2 [or 3] electrical connectors (Picture B), noting which goes where, and remove the airbag unit. The 6-pin black/yellow connector is for the Airbag, the 4-pin white connector is for the switches, and [if fitted] the black 3-pin connector is for the heated steering wheel. Once the airbag has been removed, undo the 16mm nut to release the steering wheel. You might find it easier to keep the steering wheel at the straight-ahead position so when the wheel is re-attached the steering is unaffected.
2. Attaching the Paddles
  - The paddles attach to the rear of the steering wheel by removing the two T10-Torx screws that hold the spokes in place (Picture C) and replacing the rear top spoke on both sides with the paddles [www.youtube.com/watch?v=yAlNqs63nio].
  - Refit the steering wheel back onto the steering column.
3. Installing the Transmitter Module
  - The Transmitter Module fits into the airbag module into the space at the bottom (Picture D) – this module will push snugly into place (sensible static precautions should be taken when installing this module i.e. avoid touching the electronic components where possible).
  - Connect the four wire Transmitter 'Y' lead between the rotary coupler behind the wheel and the existing wheel wiring loom. Connect the single four pin connector to the paddles.
  - To ensure the airbag fits back into position correctly, make sure:
    - the 4-pin paddles connector plug in the space towards the bottom of the Airbag,
    - the 4-pin 'Y' lead joining plug towards the top of the Airbag underneath where the Airbag connector will sit, and
    - the heated steering wheel connector [if fitted] at the side – outside the clip/spring that holds the Airbag into position.
  - Re-connect the black/yellow Airbag connector last.
  - Ensure the cabling around the airbag module avoids the clips that hold the airbag module to the steering wheel and are not crushed when the Airbag is re-attached.
  - Re-attach the Airbag module to the steering wheel by pressing the airbag onto the 2 catches being careful not to trap any wires. If the Airbag module does not easily fit into



Picture A



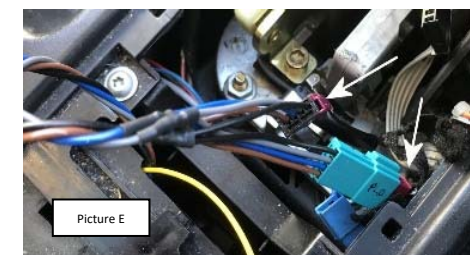
Picture B



Picture C



Picture D

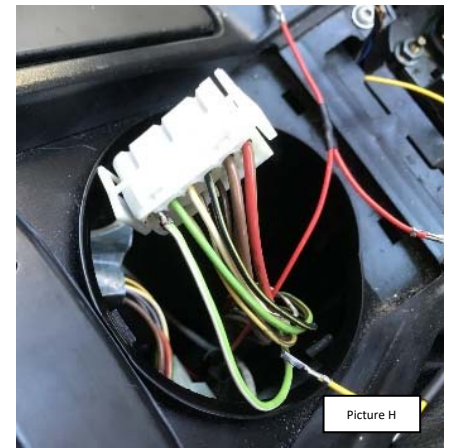
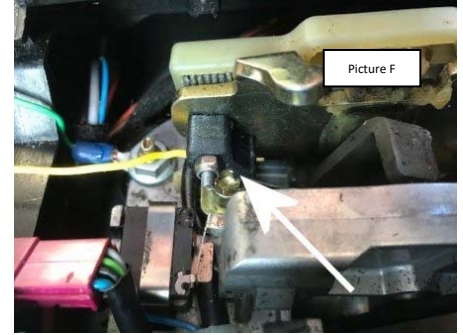


Picture E

place, ensure the 3 plugs are correctly positioned and no wires are trapped. You may wish to test operation before refitting the airbag onto the clips.

#### 4. Installing the Receiver Module

- The Receiver Module fits into the centre console behind the gear shift selector.
- On 02-05 Range Rovers:
  - Raise the centre cubby box lid, lift up the ashtray/mug-holder, then lift up the rear of the gear selector surround and rotate to gain access to the connectors. [[www.youtube.com/watch?v=OemGs9ol-nE](http://www.youtube.com/watch?v=OemGs9ol-nE)]
  - Separate the 4-Pin Purple/Maroon Tiptronic/Steptronic wiring connector and install the Receiver module between the connectors (Picture E).
  - Connect the Yellow wire & spring contact by bolting the mounting block through the hole on the gear selector (Picture F), and ensure it depresses when 'D' is selected on the gear selector.
  - Earth the gear selector assembly (Picture G) by connecting the 10mm nut to a suitable earth point (i.e. the earth on the cigarette lighter using the piggy back spade connector).
  - Connect the Red power cable to a switched live supply – the white connection block beneath the cup/holder ashtray can be used (Picture H). Unclip this block by rotating and find a 12v switched power supply (on some cars the green/white wire is a 12v switched power supply) and connect using a Scotchlok or your own preferred method.
  - Re-install the gear selector surround.
- On 06-09 Range Rovers:
  - Remove the centre gear surround trim (Picture I).
    - Open cubby box lid and remove 2 Torx screws by the catch.
    - Lever out rear of box liner from the rear recesses and remove the liner.
    - Disconnect the 2 wires to the cigarette lighter.
    - Remove the 2 transmission side panels (one Torx in footwell).
    - Remove HEVAC control panel.
    - Remove clock panel.
    - Remove 2 Torx under clock panel.
    - Remove 2 Torx holding rear sides of the centre console top trim.
    - Pull centre console top trip upwards.
    - Disconnect the connectors & gear lever gaiter. [[www.youtube.com/watch?v=rGz0vf79TJY](http://www.youtube.com/watch?v=rGz0vf79TJY)]
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  - Earth the gear selector assembly (Picture G) by connecting the 10mm nut to a suitable earth point (i.e. the earth on the cigarette lighter using the piggy back spade connector).
  - Connect the Red power cable to a switched live supply (the supply to the cigar lighter can be used) using a Scotchlok or your own preferred method.
  - Re-install the gear selector surround trim.



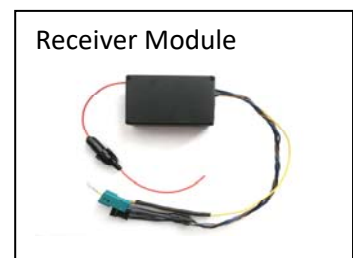
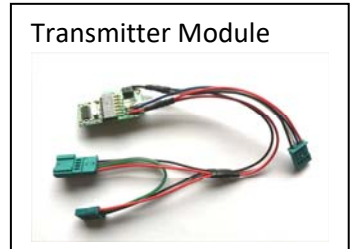
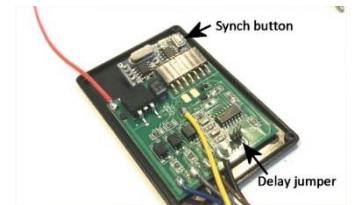
#### 5. Testing and Operating the Paddleshift Kit Installation

- Testing should check that all items work as normal.
- In Auto mode:
  - The car should change gears automatically as normal.
  - When in Drive, once either paddle is pulled, the car will switch into manual mode selecting a higher (+) or lower (-) gear as requested.
  - The car remains in Manual mode for a selectable delay of approximately 5 or 10-seconds following the last pull of a paddle, then returns to Auto mode.
  - The period of delay before returning to automatic mode can be adjusted by removing the jumper from the electronic board inside the Receiver Module.
    - Jumper attached = approximately 5-second delay,
    - No jumper attached = approximately 10-second delay.
- In Tiptronic/Steptronic mode:
  - The car should change gears as the Tiptronic/Steptronic gear selection lever is moved forwards or backwards as normal.
  - The car should change gears as the paddles are selected either (+) or (-).

- The Tiptronic/Steptronic electronics protect the gearbox from selecting an inappropriate gear. It will not allow the selection of a gear that is too high or too low for the vehicle speed. Therefore, as the car comes to a stop, 1<sup>st</sup> gear will be selected automatically.

## 6. Troubleshooting

- Transmitter module
  - With the ignition on, a red LED should light on the Transmitter module when either paddle is pulled.
- Receiver module
  - With the ignition on, a red LED should light on the Receiver module when either paddle is pulled.
  - The transmitter and receiver are synchronised to each other. If the transmitter module flashes but the receiver module does not, the two modules will need to be re-synchronised.
    - On the receiver module is a small white button
    - With the ignition on, press this button 8 times
    - The red LED should respond with 7 flashes
    - Press the white button once, and the red LED should light.
    - Pull the Paddles until the red LED flashes 3 times - the two modules are now synched.
    - Switch the ignition off, then on to re-check both Transmitter and Receiver modules are working.
- The gearbox ecu will record a fault if it sees an 'implausible' condition. e.g. a Tiptronic shift command when the gear lever is not in Sport/Manual Mode. Whilst the Paddleshift module is designed to not cause such faults, as the kit overrides the mechanical gear lever position interlock, it may be possible that such a fault could occur. This causes no harm to the car, but may confuse any future gearbox diagnostics. If when diagnosing a gearbox fault, plausibility faults are found, it is recommended that you simply clear the faults and test drive the car without using the Paddleshift, to regenerate an accurate fault list.



## Kit Contains:

- Paddles (optional)
- Transmitter Module
- Receiver Module
- Scotchlok connector
- Earth wire
- Instructions

