



# FLEXIGLASS FITTING MANUAL - SECTION 1.3G

## MAZDA BT-50 2011+ FLEXI-XOVER, FLEXISPORT & WORKSMART ISSB7

**Note:** Familiarise yourself with the instructions before you start to ensure you are clear on all aspects of the fit

### SAFETY EQUIPMENT

- Hearing protection required
- Eye protection required

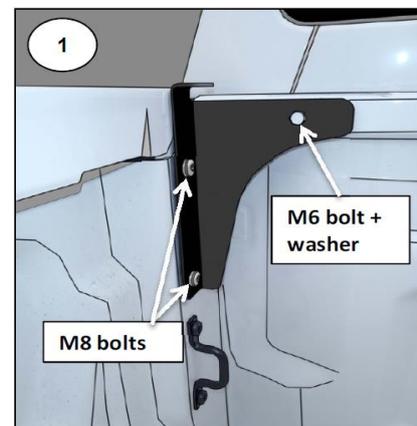
### TOOLS REQUIRED

- Silicone sealant & applicator
- Pneumatic or electric drill
- 5mm Drill bit
- Rivet gun with 5mm capacity
- 6mm Allen key
- Pneumatic or hand driver
- 14mm Socket
- Cable cutter, stripper, crimp tool
- Lock tight
- Knife or scissors
- Snake for guiding cables
- IPA Wipes or similar cleaning product
- Toledo cable strippers
- Würth Cable strippers
- 13mm Socket
- 13mm Combination spanner
- Rivet gun
- 10mm Socket
- 10mm Combination spanner

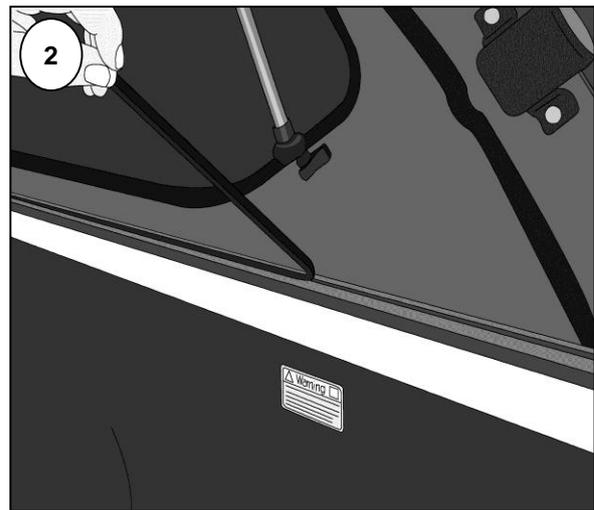
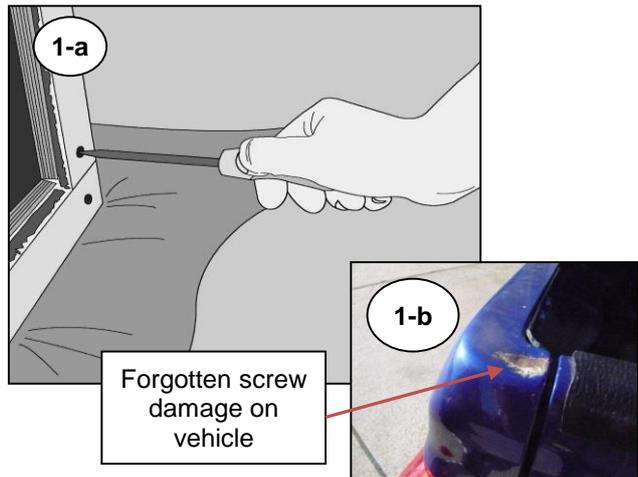
### MATERIALS & PARTS REQUIRED

Part No.	Description	Qty.
BKT780LR	PX Ranger Tub Bracket	1pr
SCRHHSS625	Screw Set SS 6x25mm	2
WSH180	Washer 1/4x5/8x18G	2
SEAL205	Silicon clear 970	
TAPE380	Tape CLR 35mmx2.1M All Weather	1
SCRHHSS825	Screw Set Hex Head SS 8x25mm	4
TAPE05	Single Sided Foam Tape 24mm	2M
SEAL325	Seal D Rubber X30M Roll Thin	1.1M

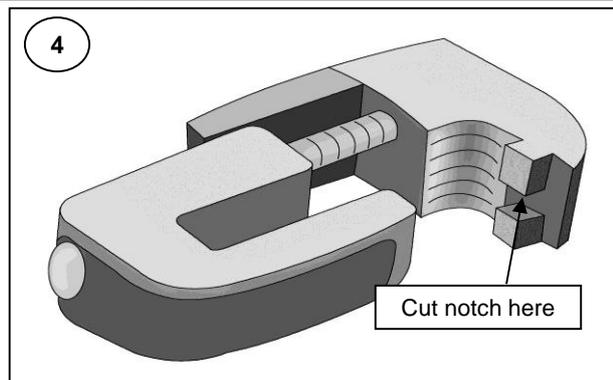
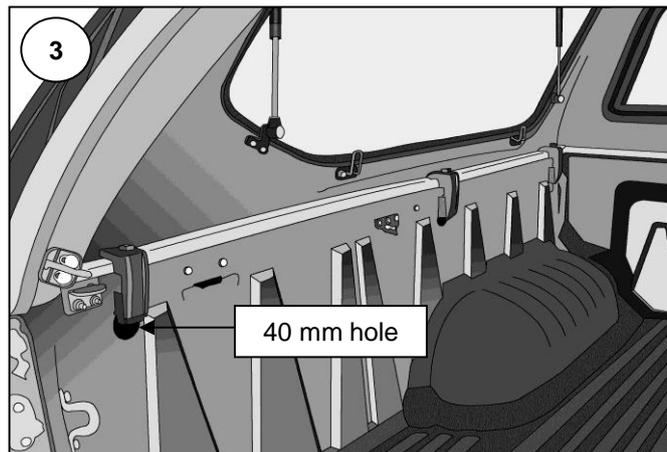
- 1 Remove front headboard loop per usual canopy fit. Remove tie down hooks at rear and side of tub Retain all hardware for later use. **Note:** if the headboard did not have bolts into the front panel (due to mid life design change of headboard loop) use SCRHHSS625 (M6x25) and WSH180. If there was no headboard loop fitted also use SCRHHSS825 (M8x25).
- 2 Complete the sealing of the tub at front per a typical canopy fit Fill the gaps between the headboard and tub sides with clear silicon to seal against water ingress, and run a strip of TAPE05 across the top surface of the headboard.
- 3 Fit brackets BKT780L/R into both front corners using bolts from the headboard loop removal. **See ILL 1.** Ensure the brackets are firmly seated against each surface before tightening



- 4 Place canopy on it's front end on a soft surface and remove the base rail protector strips. See **ILL 1-a**. Any forgotten screw leads to damage on the vehicle. Make sure that all screws are removed. **ILL 1-b**.
- 5 Lift prepared canopy onto tub and position for best fit.
- 6 Remove the plastic trim from each canopy base rail and retain for future use. See **ILL 2**.
- 7 If an over lip liner is fitted holes will need to be cut in the liner to allow the fitment of the six clamps. If an underlip liner is fitted ascertain how stiff the plastic is. If it is too stiff to allow the clamp to be pushed up between it and the metal lip, proceed to step 11



- 8 Use a 40mm hole saw to cut a hole in the liner so that the top is level with the bottom edge of the coaming lip. Repeat for all six holes. See **ILL 3**.
- 9 If the securing screws cannot be avoided cut a notch in the clamp locating ridge of the top jaw of the clamp to bridge them. See **ILL 4**.

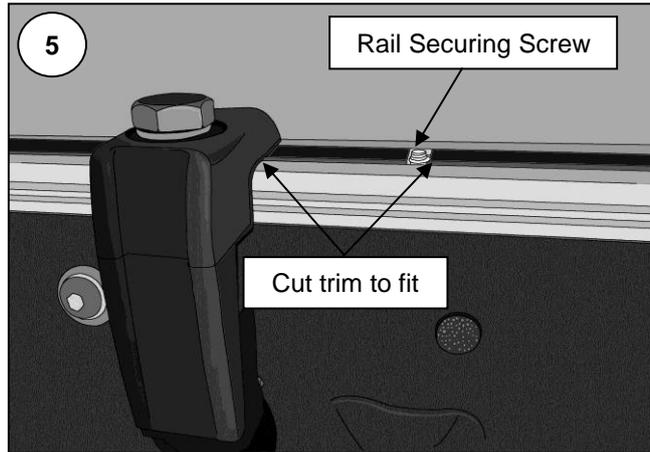


- 10 Use a 17mm socket and a torque wrench to tighten the six clamp bolts to a setting of **10NM**.

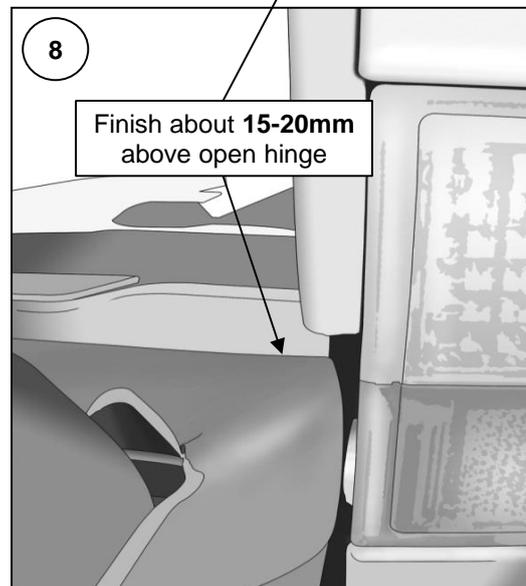
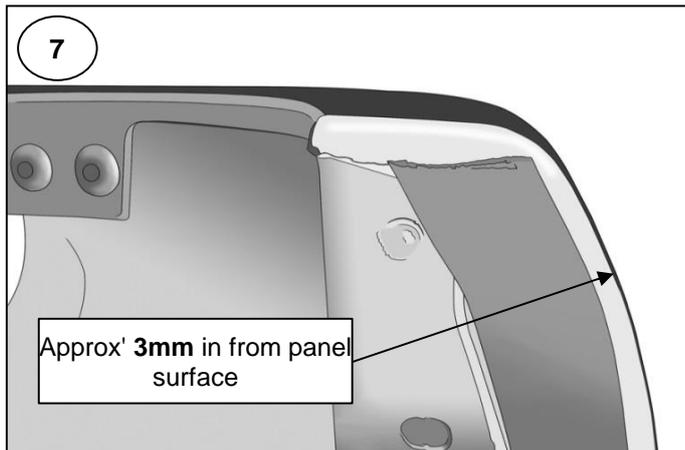
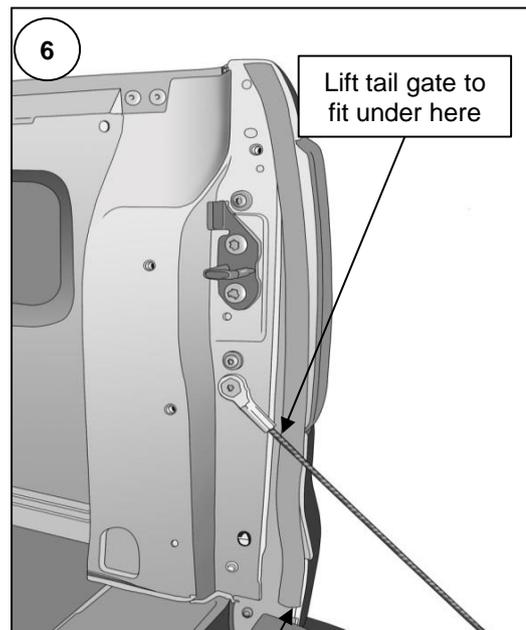
**Note:** Be careful not to over tighten the bolts as the captive nut can be pulled from it's housing if tightened over much.

- 11 Check to see that the canopy has sealed against all surfaces of the tub.  
An additional strip of TAPE05 may be added to the top of the headboard if required.

- 12 Carefully replace the plastic trim to the bottom rail channel. Cutting it either side of each clamp and each rail bolt. See **ILL 5**.



**Note:** The tail gate has a very noticeable gap between it and the corner of the tub. To overcome problems of water ingress a length (approx' 520mm) of **SEAL325 "D"** rubber is to be fitted down the side of the opening. See **ILL 6,7 & 8**.

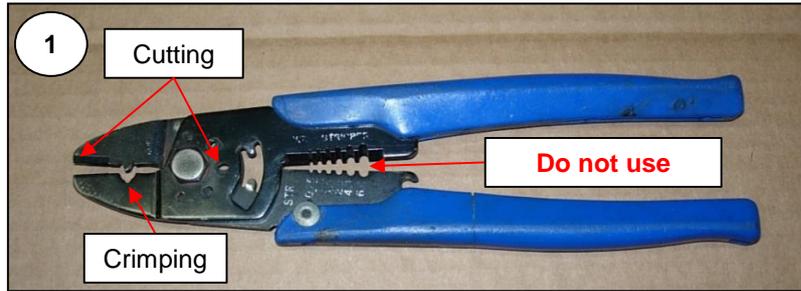


- 13 Wipe the contact areas on the sides of the opening with IPA to improve adhesion before applying the self adhesive rubber seal. The tail gate will need to be lifted a little to slacken the wire support strops and allow the seal to be fitted under it.
- 14 Keep the edge of the rubber parallel to the outer surface, including the light casing, about 3mm in (at the start of the corner radius).

- 15 Maintaining the parallel spacing from the panel/lamp faces finish the seal about 15-20mm above the tailgate hinge as shown. A little Super glue can be applied at the top and bottom ends to give some added security against peeling.

## ELECTRICAL WIRE STRIPPING SAFETY PROCEDURE

It is Flexiglass policy that the use of combination electrical cutting/crimping and stripping pliers be restricted to cutting and crimping use only.



It is a documented fact that the use of these pliers can cause personal injury due to the fact that they are reliant upon holding the cable in one hand while pulling with the pliers with the opposite hand. Any attachments to the gripped end can be pulled into and through the palm of the gripping hand causing injury.

The single hand action strippers are to be used at all times for stripping cable ends ready for joining or connecting.

Two types of cable strippers are recommended, one operates with the pliers at 90° to the cable (2) the other operates in-line with the cable (3).



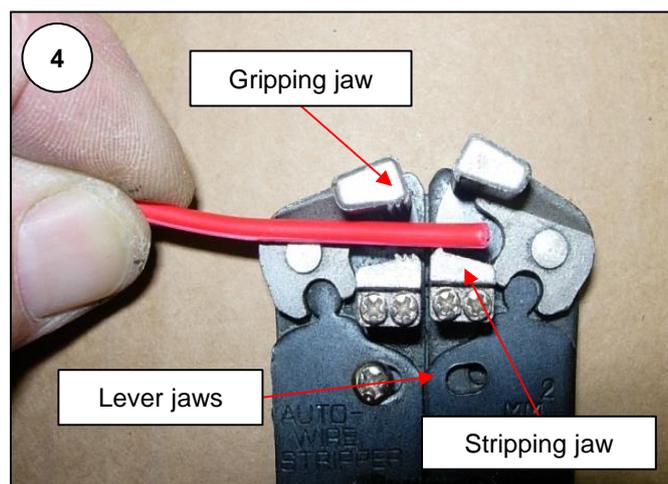
The tool in **ILL 2** is a generally stronger and harder wearing item but the other is very useful for getting to cables in restricted space, it is therefore recommended that both types be available.

### OPERATING INSTRUCTIONS

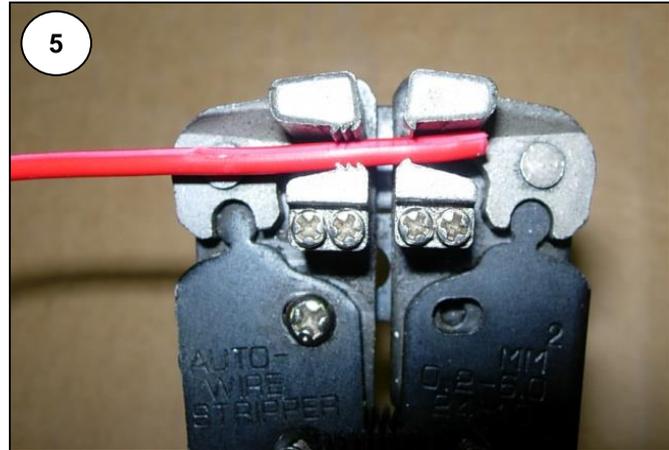
- 13 Squeeze handles sufficiently to bring the lever jaws together. Lay cable between stripping jaws as shown in **ILL 4**.

**Note:**

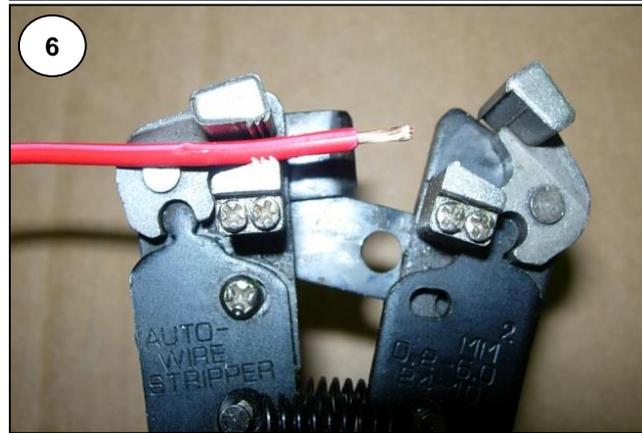
There should be no necessity to strip more than 10mm of sheathing from the cable end for any of the connectors used by Flexiglass. If for any reason a longer stripped end is required, do it in repeated 10mm bites, the pieces can then be slid off the end using the fingers.



- 14 Continue squeezing the handles together to engage the gripping and stripping jaws.



- 15 Increase the pressure slightly as you continue to squeeze. The stripping jaws will then move independently of the pliers cutting and stripping the end of the wire until with a sharp click both sets of jaws will automatically disengage.



- 16 The Wurth pliers are simpler in operation. After placing the cable in the "V" of the bottom ILL 7, squeeze the handles together. The squeezing action brings the jaws together and forces the bottom jaw forward both cutting and pulling the sheath from the cable. See ILL 8 & 9.

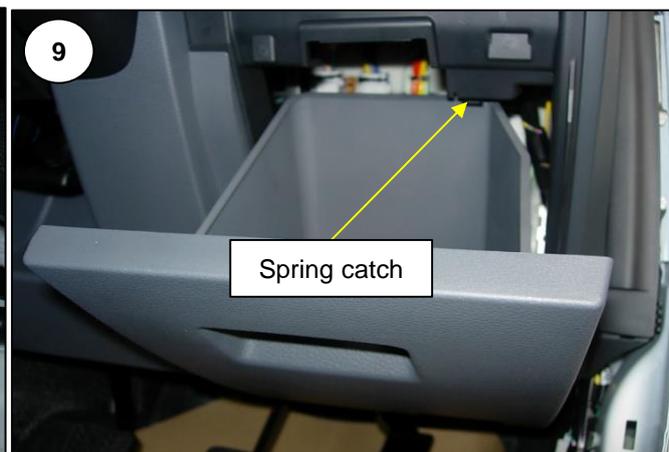
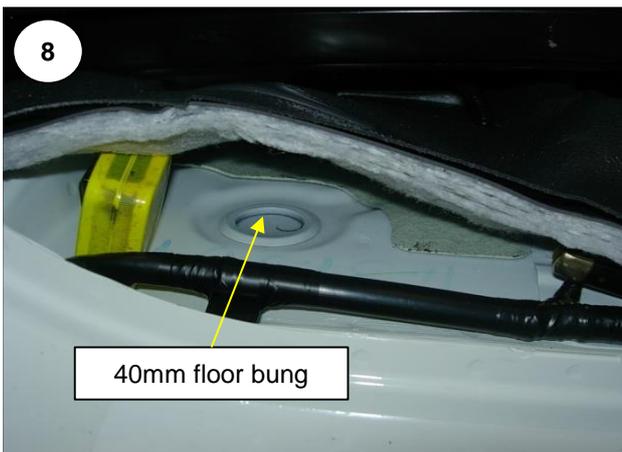
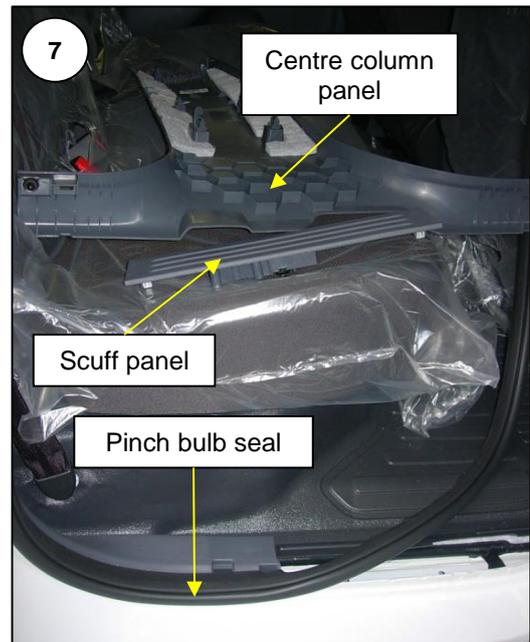
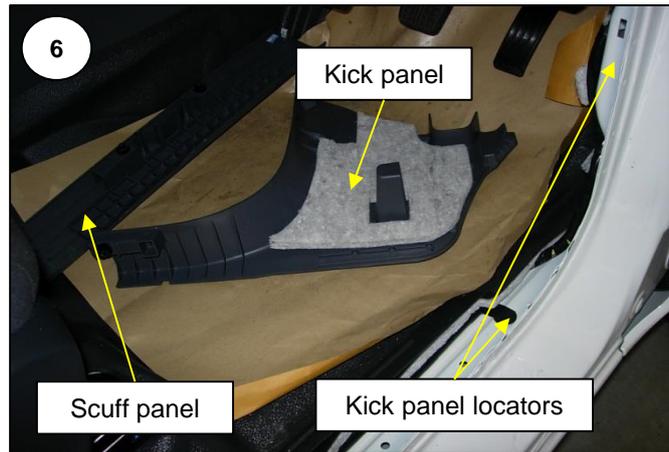


**NOTE:** Two options for making electrical connections are available. The preferred method is soldered joints, operators must be trained and familiar with ----- Soldering Iron S.O.P ISS ---. Found in the S.O.P. section of the Secure Members page of the Flexiglass web site. The alternative (illustrated) is using Scotchlock connectors.

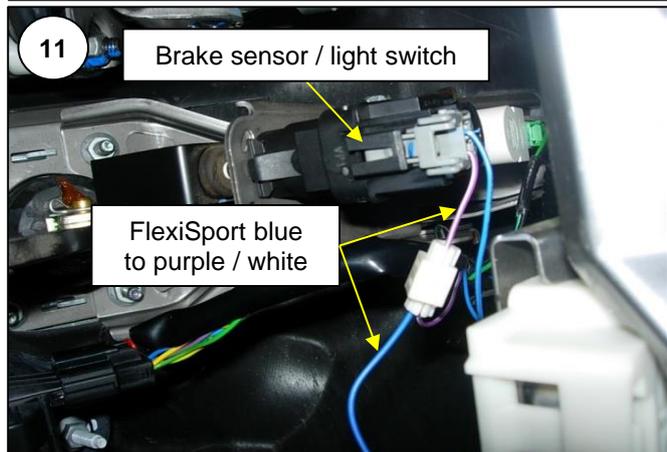
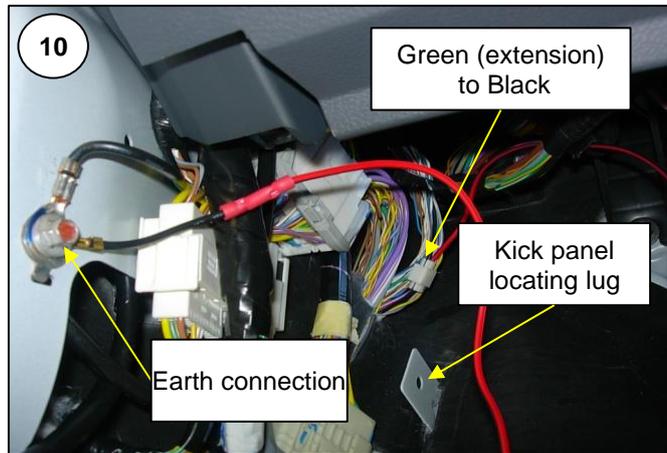
**WIRING INSTRUCTIONS**

- FLEXISPORT shown below.
- For FLEXI-XOVER only brake and earth required (Steps 22, 19-21)

- 17 Remove the scuff panel from the drivers side door opening then pull the pinch bulb seal from the lip of the door opening before removing the kick panel. See ILL 6.
- 18 Repeat for passenger side door opening.
- 19 From the driver side rear door opening, remove the scuff panel, pull off the pinch bulb seal where necessary then remove the centre column cover panel. See ILL 7.
- 20 You will now be able to lift the carpet beside the drivers seat and gain access to the floor bung. See ILL 8.
- 21 Remove the bung and cut a hole in it for the canopy harness, push the connectors (one at a time) through the hole and slide the harness through until the junction on the harness is just forward of the front door pillar. Refit the grommet to its hole.
- 22 For ease of access remove the fuse board cover from the lower right hand side of the driver side dash board. Pull the cover outwards, then press the spring catch upwards to release the top of the cover. It will then fall downwards and can be removed by pulling gently from its hinges.



- 23 Connect a length of single electrical cable on to the green canopy cable and also the black earth wire, they must be made long enough to pass across the vehicle to the passenger side foot well.
- 24 Pass the two extended cables across to the passenger side foot well kick panel position. Ensure you know which cable is which (re-using the earth lug, as shown is a simple method). See **ILL 10**. Secure the cables up under the dash board tidily out of sight.
- 25 To the front of a thick looping bundle of cables there is a smaller bundle joining it from above. Unwrap the smaller bundle and find a black cable, tap the canopy green cable into this. See **ILL 10**. Attach the earth as shown.
- 26 Behind the fuse board on the driver side, locate the brake sensor / light switch with two wires coming from it. Tap the blue Flexisport cable into the purple / white switch cable making sure the cable is routed tidily and securely. See **ILL 11**.



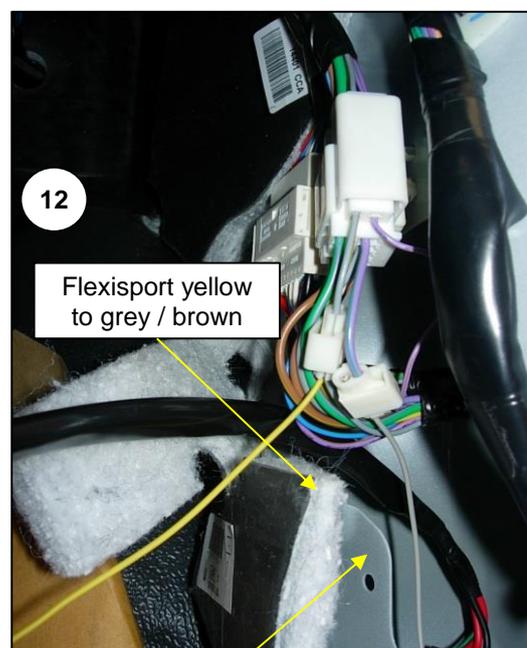
- 27 Behind the kick panel of the driver side foot well locate the multiconnector closest to the door opening. Attach the yellow Flexisport cable to the grey / brown cable and the grey Flexisport cable to the violet / green. See **ILL 12**.

**WARNING:** Be aware there may be both THICK (3.0mm) and THIN (1.5mm) Violet/Green wires. The THICK wire is correct. Please use a test light to confirm before connecting.

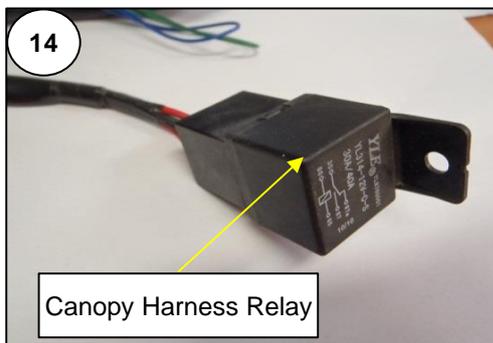
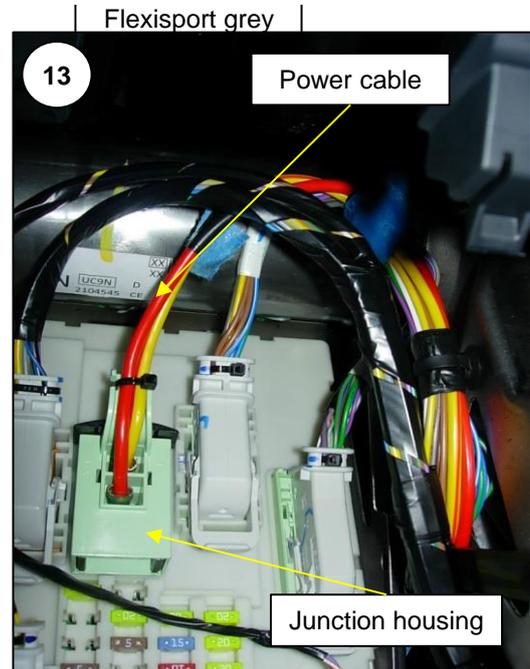
**Note:** Multiconnector shown in photos as white but may be brown in later models

- 28 At the top centre of the fuse board locate a pale green junction with two heavy cable coming from it. One is red the other yellow / red free the red cable from its restraints and pull it into a position that will allow it to have a section of casing removed and the short line from the Flexisport fuse to be soldered to it, remove the fuse from the holder until wiring is ready for final checking. See **ILL 13**. Wrap soldered joint thoroughly with electrical insulating tape and Re-secure the power and canopy cables.

**Note:** Connecting direct to the battery is an acceptable alternative to soldering on to the power cable but running the cable from the passenger side of the engine bay to the driver side where the canopy harness exits the floor is extremely difficult.



- 29 Run the harness rearwards along the chassis, zip tying it at intervals to convenient brackets etc keep it as high as possible, avoid getting too close to the exhaust system and do not tie to brake lines.
- 30 At the cab rear connect the two parts of the canopy wiring harness together using the snap connectors provided.
- 31 Replace the demister fuse in it's holder removed at stage 23 and check the function of each circuit.
- 32 If all circuits function correctly the harness along the door sill can be secured and the exit point through the grommet in the floor sealed with a little silicone sealant. Place a patch of polythene film over the silicone to prevent it gluing the carpet down.
- 33 Tidy up the wiring in the kick panel area and tuck the relay out of the way tying cables to fixtures or wire bundles as necessary.
- 34 The canopy harness relay is not a waterproof relay. We recommend to keep the relay behind the the kick panel **ILL 14**. Never place the relay out of the car **ILL 15**.



- 35 Take the excess harness cable, bundle it tidily out of sight beneath the vehicle and tie it securely to the underbody/chassis of the vehicle so that it can't drop down.
- 36 Replace the kick panels to the sides of the foot wells, remember to locate the lug on the floor into the socket at the front of the panel, before pushing forward then down at the back to secure fully. See **ILL 10**.
- 37 Replace the centre pillar cover on the drivers side making sure not to trap the seat belt.
- 38 Replace and snap down the scuff panels along the door bottom edges.
- 39 Clean and detail the vehicle and canopy ready for inspection and delivery to the client.