



# **FITTING INSTRUCTIONS**

**3640160 – SUMMIT RAW RSTB NON PARKING SENSORS**

**3640170 – SUMMIT RAW RSTB WITH PARKING SENSORS**

**SUITED TO VEHICLE/S: FORD RANGER 2011 ON**

**MAZDA BT50 2011 ON**

## **NOTE THE FOLLOWING:**

- ◆ This product must be installed exactly as per these instructions using only the hardware supplied.
- ◆ In the event of damage to any tow bar component, contact your nearest authorised ARB stockist.
- ◆ Do not use this product for any vehicle make or model, other than those specified by ARB.
- ◆ Do not remove labels from this tow bar.
- ◆ This product or its fixing must not be modified in any way.
- ◆ The installation of this product may require the use of specialized tools and/or techniques
- ◆ It is recommended that this product is only installed by trained personnel.
- ◆ These instructions are correct as at the publication date. ARB Corporation Ltd. cannot be held responsible for the impact of any changes subsequently made by the vehicle manufacturer.
- ◆ During installation, it is the duty of the installer to check correct operation/clearances of all components.
- ◆ Work safely at all times.
- ◆ Unless otherwise instructed, tighten fasteners to specified torque.
- ◆ The eyelets on the rear bar have been designed and tested for connection of trailer safety chains. They are not to be used for recovery or direct towing.
- ◆ For recovery, fit a suitable and rated tow hitch to the central tow hitch receiver.
- ◆ Position high lift jack at lift locations beneath the middle of the wings and corner of the RSTB. Do not lift directly from the end of the wing.
- ◆ When using the tow hitch receiver, the centre panel should be in the raised position.

## **WARNING**

# **ARB 4x4 ACCESSORIES**

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# GENERAL CARE AND MAINTENANCE

By choosing an ARB Bar, you have bought a product that is one of the most sought after 4WD products in the world. Your bar is a properly engineered, reliable, quality accessory that represents excellent value. To keep your bar in original condition it is important to care and maintain it following these recommendations:

- Prior to exposure to the weather your bar should be treated to a Canuba based polish on all exposed surfaces. It is recommended that this is performed on a six monthly basis or following exposure to salt, mud, sand or other contaminants.
- As part of any Pre Trip Preparation, or on an annual basis, it is recommended that a thorough visual inspection of the bar is carried out, making sure that all bolts and other components are torqued to the correct specification. Also check that all wiring sheaths, connectors, and fittings are free of damage. Replace any components as necessary. This service can be performed by your local authorized ARB Stockist.

## FITTING REQUIREMENTS

### REQUIRED TOOLS FOR FITMENT OF PRODUCT:

BASIC TOOL KIT	SIDE CUTTERS
INSULATION TAPE	MULTIMETER
DEUTSCH CRIMPING TOOL	WIRE STRIPPER
NEEDLE NOSE PLIERS	POWER DRILL
ALLEN KEY SET	SOCKET SET
FINE ROUND FILE	TAPE MEASURE
MASKING TAPE	RUST PREVENTATIVE PAINT
HEAT SHRINK + HEAT GUN	SOLDERING IRON + SOLDER

### HAVE AVAILABLE THESE SAFETY ITEMS WHEN FITTING PRODUCT:

Protective eyewear 	Hearing protection 
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**NOTE: 'WARNING' notes in the fitting procedure relate to OHS situations, where to avoid a potentially hazardous situation it is suggested that protective safety gear be worn or a safe work procedure be employed. If these notes and warnings are not heeded, injury may result.**

### FASTENER TORQUE SETTINGS:

SIZE	Torque Nm	Torque lbft
M6	9 Nm	7 lbft
M8	22 Nm	16 lbft
M10	44 Nm	32 lbft
M12x1.75	77 Nm	57 lbft
M12x1.25	95 Nm	71 lbft

RSTB PARTS LISTING			
APPLICATION	PART NO.	QTY	DESCRIPTION
PREPARE REAR STEP TOW BAR (RSTB)	6522998	2	STONE GUARD PANEL
	6151300	4	NUT CAGED M6 2.6-3.5
	6151213	4	BOLT M6 x 1.0 x 20 Gd8.8 BZ
	4581287	4	WASHER SPRING M6 x 2.5 x 1.6 BLK ZN
	4584295	4	WASHER FLAT M6 x 12 x 1.3 BLK ZN
RSTB TO VEHICLE	3759002R	1	CHASSIS DOUBLE NUT PLATE RH
	3759002L	1	CHASSIS DOUBLE NUT PLATE LH
	4654222	2	NUT PLATE ASSY M12 x 1.75 340mm
	6151255	6	BOLT M12 x 1.75 x 40 Gd 8.8 ZP
	6151096	4	BOLT HXHD M12 x 1.25 x 40 CL8.8 ZP
	4584363	10	WASHER M12x26x4 HV300 TZP480
LICENSE PLATE TO VEHICLE	3789541	1	TEMPLATE RSTB L/PLATE
	3750339	1	BRKT NUMBER PLATE FRAME
	6151384	4	SCREW ST PHDCOL PH 5.2 x 16 TBZP480
	3750337R	1	BRKT NUMBER PLATE MOUNT RH
	3750337L	1	BRKT NUMBER PLATE MOUNT LH
	6821189	4	PLASTIC SNAP-IN LARGE GROMMET
	5848302	2	PACKER RB NYLON
	6602011	2	CANOE CLIP
	4581082	2	WASHER FLAT M6 x 19 x 1.6 BLK ZN
	6151162	6	NUT HEX M6 x 1.0 NYLOC PC8 TZP480
	6151213	6	BOLT M6 x 1.0 x 20 Gd8.8 BZ
	5670039R	1	SPRING LICENCE PLATE RH
	5670039L	1	SPRING LICENCE PLATE LH
4584295	12	WASHER FLAT M6 x 12 x 1.3 BLK ZN	
STEP PLATE TO RSTB	3195054	1	STEP PLATE EXTRUSION
	3163125	1	LIGHT BEZEL MOULDING
	3750395	1	LED MOUNT BRKT
	6151256	8	SCREW BTN HD M6 x 16 SS
	6151715	16	NUT M6 CAGED 3.6-4.5MM 836-D
	6821270	1	NARVA 90810 KIT W/ GASKET & SCREWS
	6821116	2	PLASTIC SNAP-IN SMALL GROMMET
FOR VEHICLES FITTED WITH PARKING SENSORS	6523209	1	DIFFUSER PANEL LH
	6523210	1	DIFFUSER PANEL RH
	FOR VEHICLES WITHOUT PARKING SENSORS		
	6523220	1	DIFFUSER PANEL RH
	6523221	1	DIFFUSER PANEL LH
	TOW TONGUE	4761170	1
55010		1	TOW BAR PULL PIN
55020		1	SPRING CLIP
180302		10	CABLE TIE 200MM

## TRAILER WIRING

The following trailer wiring solutions can be purchased from ARB. Purchase the main wiring harness with ECU (Part no. 3600010) in conjunction with the appropriate socket and tail listed below. Alternatively, this product is compatible with the factory trailer wiring solution.

To install this loom, a crimping tool suitable for crimping contact type size 16 Deutsch pins is required. Suitable crimping tools can be purchased from auto electrical wholesalers as shown.



APPLICATION	PART NO.	QTY	DESCRIPTION
TRAILER WIRING	3600010	1	RSTB WIRING INCLUDING ECU
	3600020	1	RSTB SOCKET & TAIL   7 PIN FLAT
	3600030	1	RSTB SOCKET & TAIL   12 PIN FLAT
	3600040	1	RSTB SOCKET & TAIL   7 PIN ROUND LRG
	3600050	1	RSTB SOCKET & TAIL   7 PIN ROUND SML

## OPTIONAL ACCESSORIES

**The following ARB accessories can be fitted to this product:**

APPLICATION	PART NO.	QTY	DESCRIPTION
OPTIONAL ACCESSORIES	171403	1	ARB AIR LINE FITTING
	10600030	1	ARB TRAILER CAMERA KIT
	58X22/A	1	RECOVERY HITCH AND SHACKLE
	6594050	1	50 AMP ANDERSON PLUG



**AIR LINE FITTING**



**TRAILER CAMERA KIT**

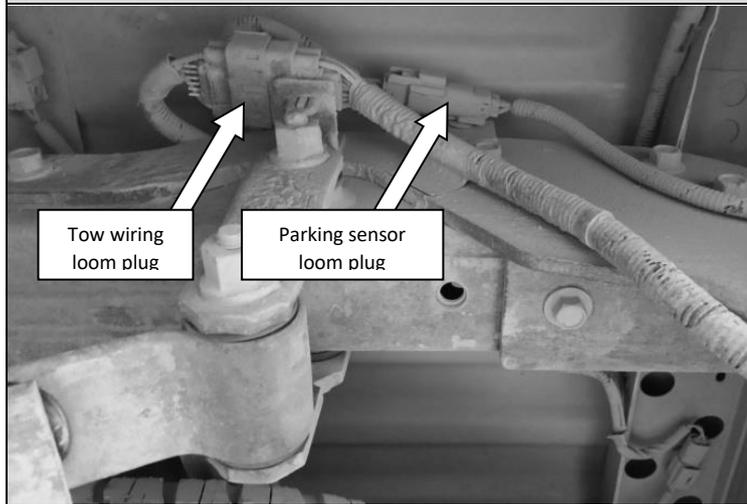


**RECOVERY HITCH**



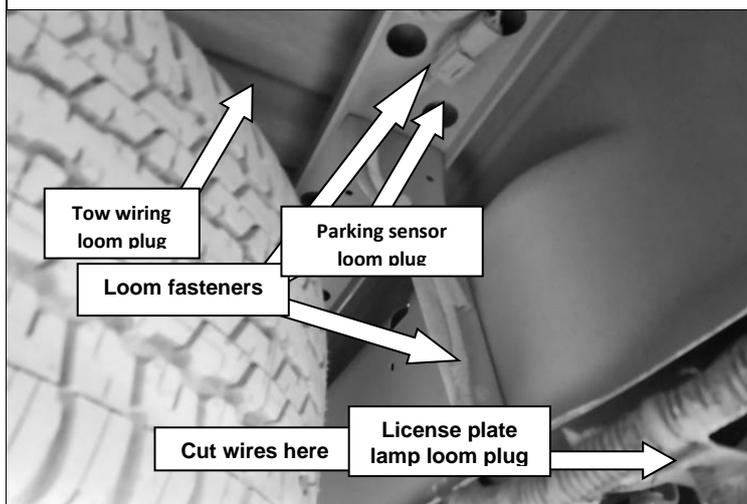
**ANDERSON PLUG**

## GENUINE ACCESSORIES REMOVAL



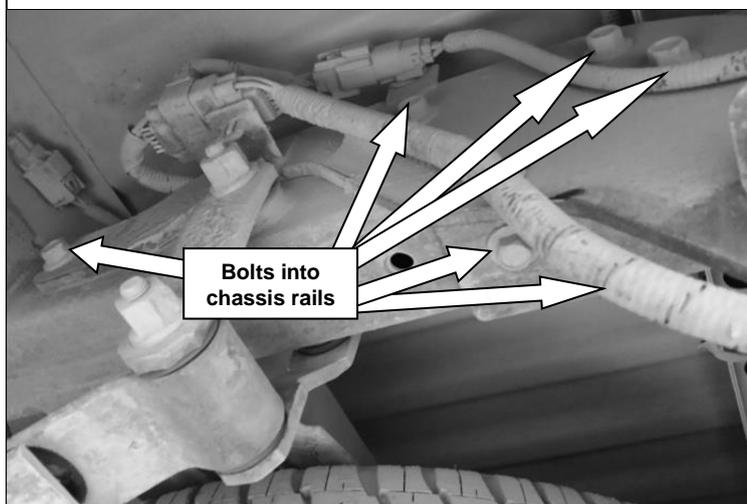
**For vehicles fitted with parking sensors and/or a trailer plug:**

1. Disconnect the parking sensor, tow wiring and license plate lamp looms from the vehicle at the locations shown.



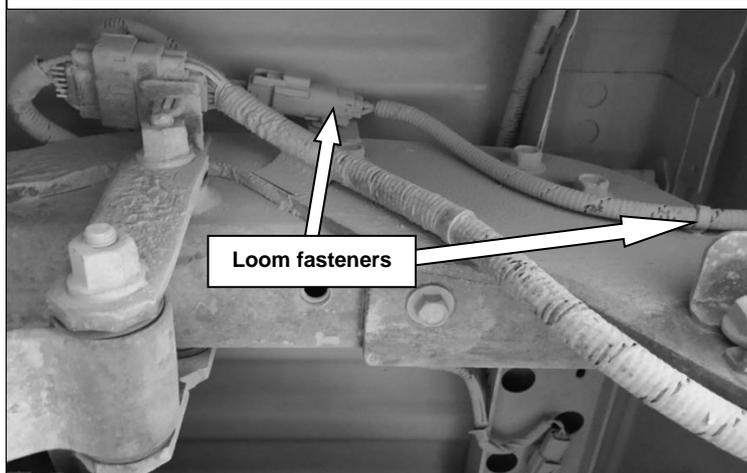
2. Disconnect loom for license plate lamp from vehicle by removing the 3 loom fasteners as shown.
3. Cut the license plate lamp loom at the point indicated in the photo and set loom aside for later use.

**Warning: Ensure vehicle lights are turned off before cutting wires.**



**For vehicles fitted with a bumper/tow bar:**

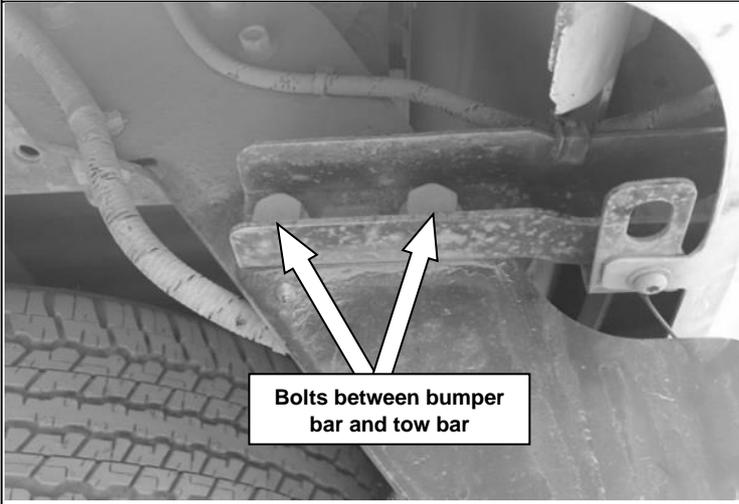
4. Disassemble the factory bumper bar and tow bar from the vehicle together by removing 6 M12 bolts from each chassis rail as shown.



**For vehicles fitted with parking sensors:**

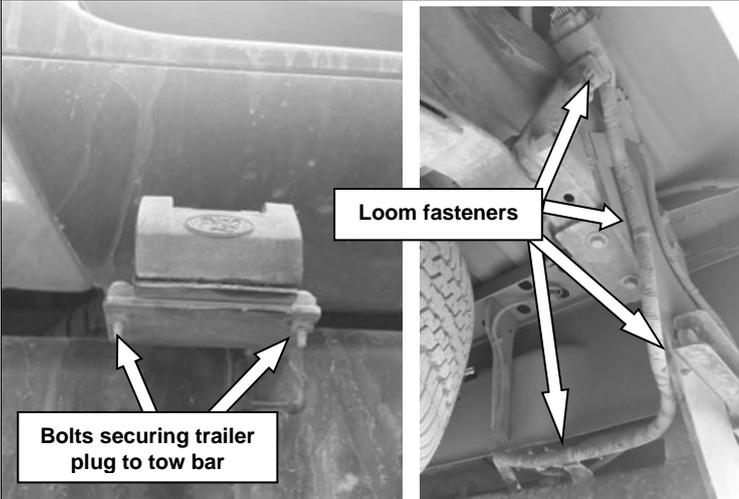
5. Remove the 2 loom fasteners from the tow bar for the parking sensor loom as shown.

## VEHICLE/RSTB WIRING



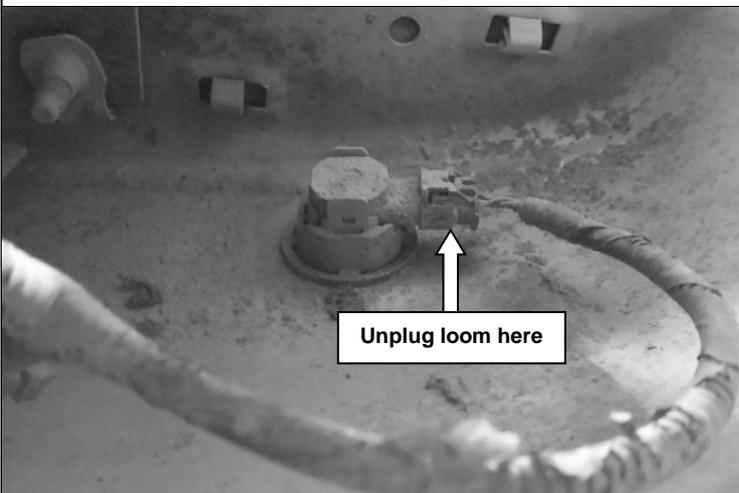
### For vehicles fitted with a bumper/tow bar:

6. Disassemble the bumper bar from the tow bar by removing 2 M12 bolts from each side as shown.



### For vehicles fitted with a trailer plug:

7. Remove 4 loom fasteners from the tow bar on the trailer wiring loom as shown.
8. Disconnect the trailer plug from the tow bar by removing 2 bolts. Place the plug to the side where it will not be damaged during fitment of the Rear Step Tow Bar (RSTB).



### For vehicles fitted with parking sensors:

9. Carefully unplug the parking sensor loom from the 4 parking sensors and 2 license plate lamp connections in the bumper bar. Leave sensors and housings in the bumper bar at this stage.
10. Remove the parking sensor loom from the bumper bar by removing 8 loom fasteners. Place loom to one side for later use.

**Note: Mark each harness/sensor with location for later use.**



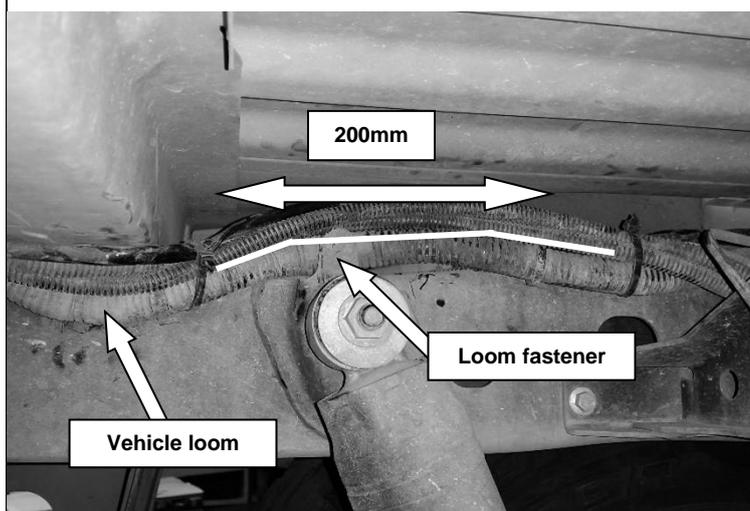
11. Remove the spare wheel from beneath the tub using the wheel nut wrench and jack handle pieces supplied with the vehicle. Insert as shown through the access slot above the number plate position and rotate counter-clockwise to release the wheel.

## VEHICLE/RSTB WIRING

A trailer wiring solution that incorporates a smart ECU is available for this vehicle. To fit this solution, the rear vehicle wiring harness must be cut and high quality, waterproof Deutsch connectors installed to provide signal pickup points for the ECU.

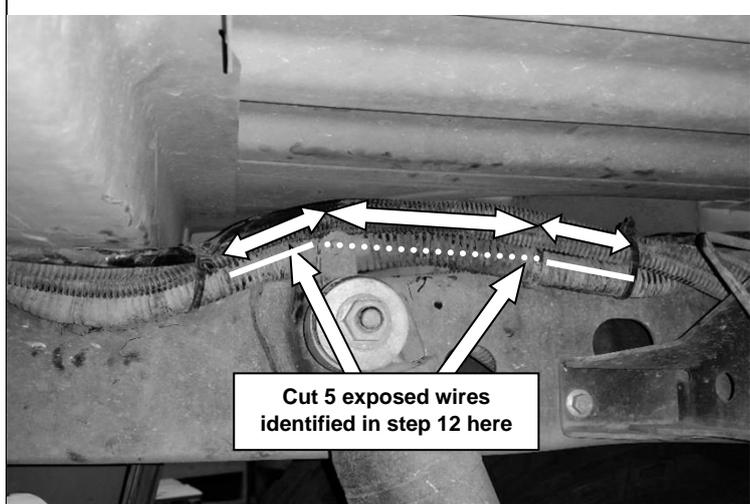
To install this loom, a suitable crimp tool is required. Refer to Page 4 for more details about the crimp tool.

Follow the steps below to install the trailer wiring solution:



12. Locate the vehicle loom on the left hand chassis rail near shock mount as shown. Remove tape if present and expose 200mm of the following coloured wires from the split corrugated tubing:

- Green w/ Blue trace
- Green w/ Brown trace
- Blue w/ Brown trace
- Purple w/ Brown trace
- Purple w/ Green trace



13. Cut a 90mm section from the centre of the 5 exposed wires. This will leave 55mm of wire before they re-enter the corrugated tubing at each end.

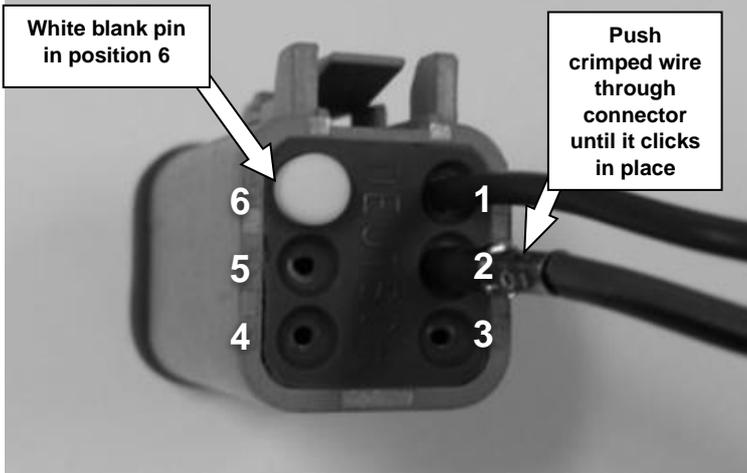


14. Remove 6mm of the plastic insulation coating from the end of each newly cut wire.

15. Insert each wire into the shorter end of a metal Deutsch pin.

16. Insert the longer end of the metal Deutsch pin into a crimping tool and crimp the wire and pin together as shown.

## VEHICLE/RSTB WIRING



17. Insert one set of wires into a male 6-pin connector from the back in the following order:

Pin position	Wire colour
1	Green w/ blue trace
2	Green w/ brown trace
3	Blue w/ brown trace
4	Purple w/ brown trace
5	Purple w/ green trace

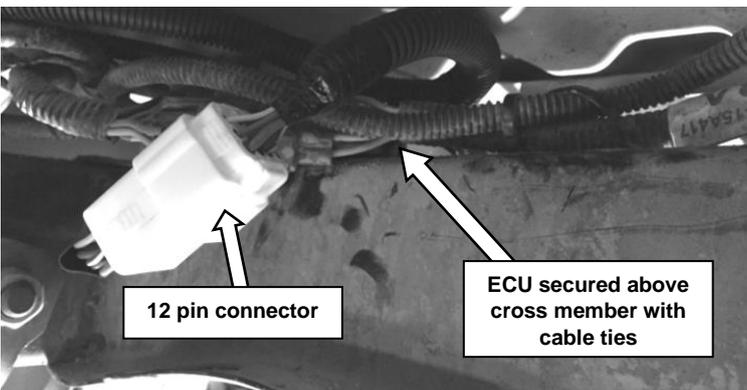
**Note:** Pin positions are shown on the back of the connector.

On 2018 on vehicles wire colour may change to the following order:

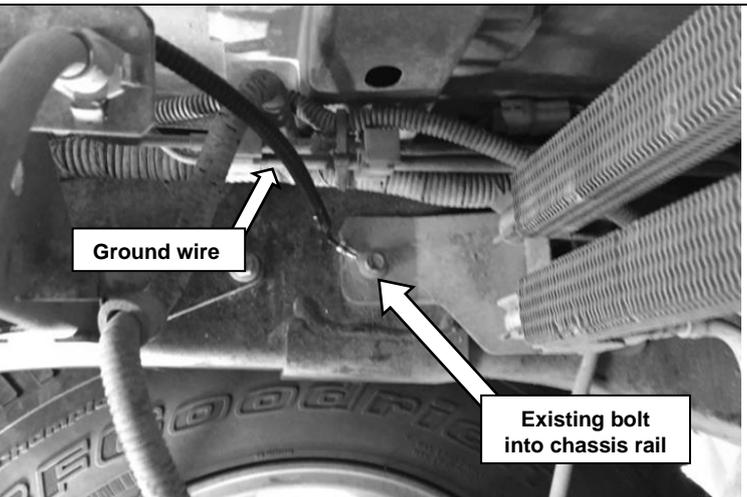
Pin position	Wire colour
1	Green /Blue
2	Green/Brown
3	Blue/orange
4	Purple/Brown x 2
5	Purple/Green



18. Insert the white blank pin into position 6 as shown in the previous step.  
 19. Insert the plastic cover to the front of the connector as shown.  
 20. Repeat steps 17-19 for the other connector.

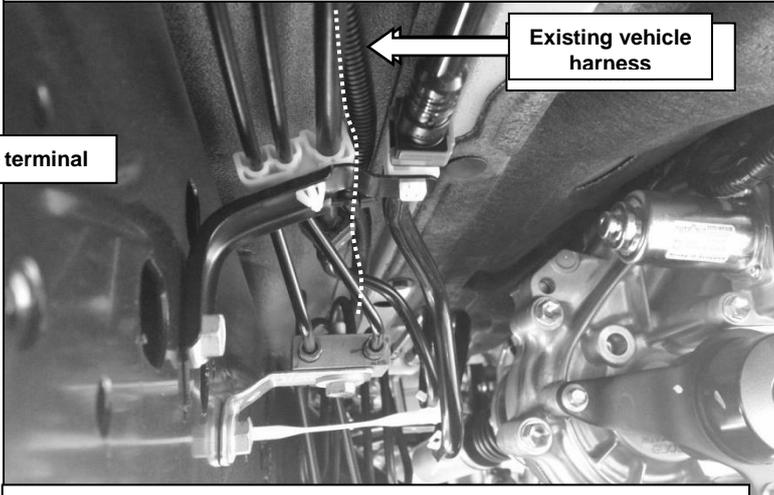


21. Position ECU on top of cross member beneath tub as shown. Secure using the ECU mounting holes and cross member holes with 2 cable ties.  
 22. Connect the ECU unit to the RSTB wiring harness using the large 12 pin connector.



23. Connect the ground wire of the RSTB harness to the bolt on the left chassis rail towards the centre of the vehicle as shown.

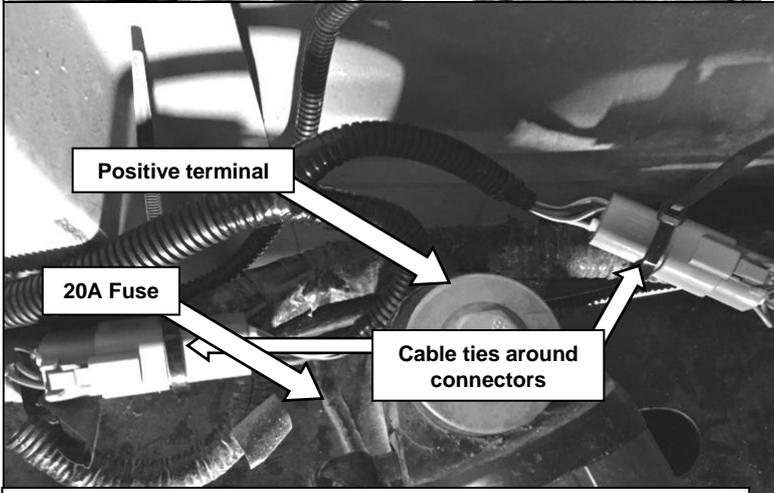
## VEHICLE/RSTB WIRING



24. Route the positive supply wire to the front of the vehicle following the existing vehicle harness along the left chassis rail.



25. Continue routing the positive supply wire through the engine bay to the battery.
26. Connect the positive supply wire to the positive terminal of the battery using the existing bolt as shown.



27. Connect the RSTB wiring harness to the 2 male 6-pin connectors.
- Note: The RSTB wiring harness is not polarity sensitive in this region so the male 6-pin connectors can be connected to either female connector.**

28. Ensure vehicle tail lights function correctly.
29. Fasten the connectors to the vehicle loom using the cable ties provided.

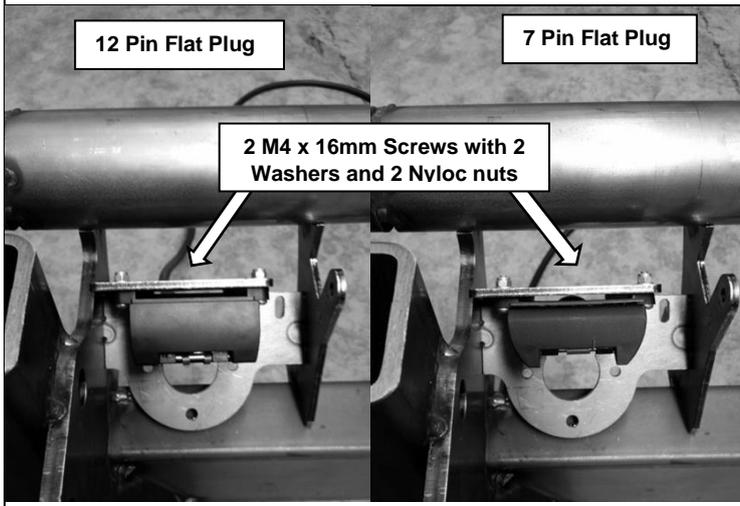


30. Re-wrap the un-cut wires with the existing split corrugated tubing and new tape.
31. Tidy and fasten all wiring using the cable ties provided.
- Warning: Make sure all wires are securely fastened away from any hot, sharp or moving surfaces. Do not fasten wiring harness to fuel or brake lines.**
32. Ensure vehicle tail lights function correctly.

## PREPARE REAR STEP TOW BAR (RSTB)

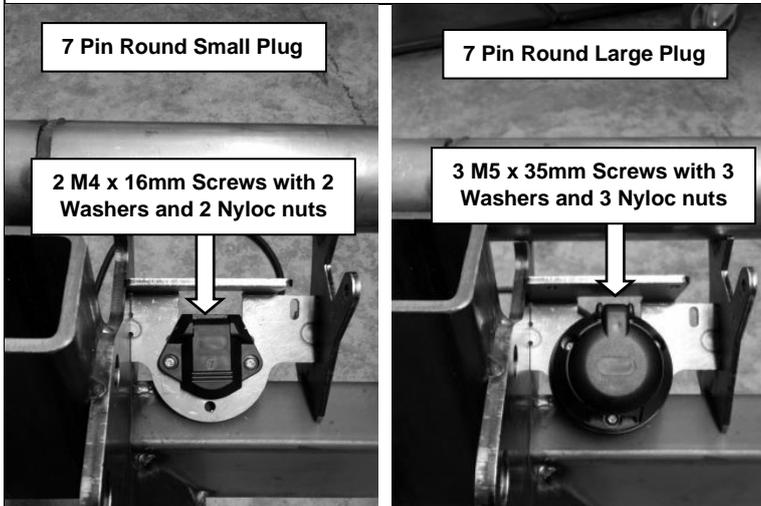


33. Place the RSTB on a flat surface that will not damage its coating as shown.



### For fitment of flat trailer plugs:

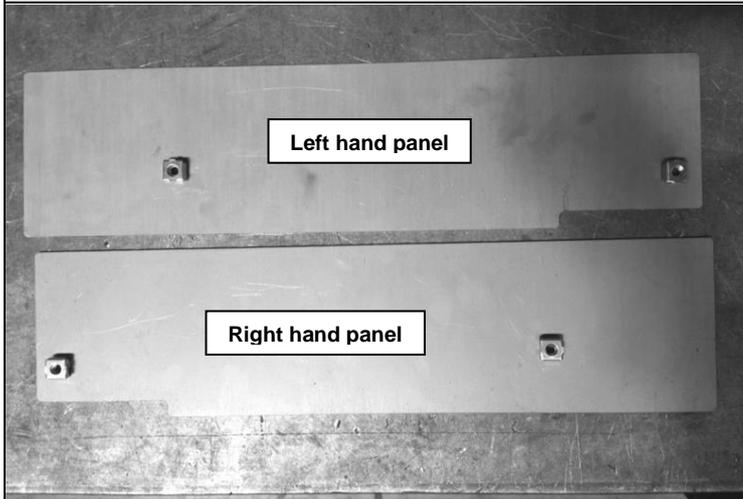
34. Using the appropriate mounting holes as shown and fasteners supplied with the trailer plug, attach the trailer plug to the trailer plug bracket on the RSTB.



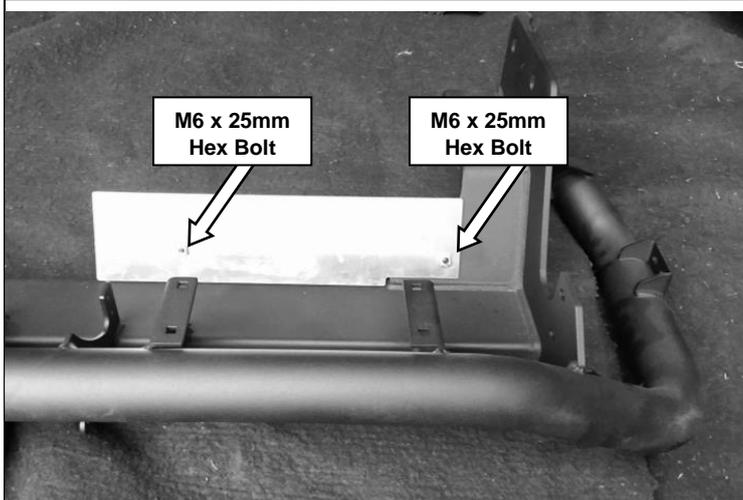
### For fitment of round trailer plugs:

35. Using the appropriate mounting holes as shown and fasteners supplied with the trailer plug, attach the trailer plug to the trailer plug bracket on the RSTB.

## PREPARE REAR STEP TOW BAR (RSTB)



36. Fit 4 short-leg M6 caged nuts to the stone guard panels as show.



37. Fix both stone guard panels to the RSTB using 2 M6x20 hex head bolts, 2 M6x25 hex head bolts, 4 M6 spring washers and 4 M6 flat washers. Tighten to the specified torque.



M6 X 1.0 - 9 Nm.

## RSTB TO VEHICLE

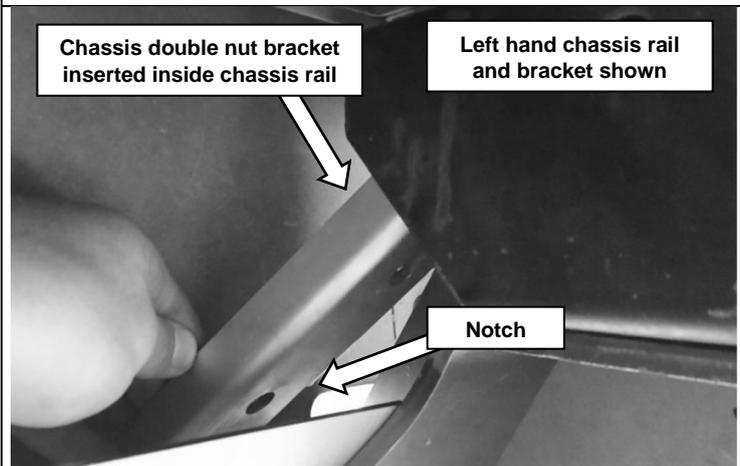


38. With the assistance of other people or a lifting device, lift the RSTB up beneath the chassis rails aligning the threaded holes in the side of the chassis with those in the vertical surfaces of the RSTB.

**Note: Take care to ensure the trailer plug wiring is not damaged during this step.**



39. Fix the vertical plates of the RSTB over the threaded holes in each chassis rail using 2 M12x1.75x40 (coarse pitch) hex head bolts and 2 M12 flat washers per chassis rail. Leave finger tight at this stage.



40. Insert one chassis double nut plate inside each chassis rail as shown. Position over existing holes.

**Note: The notch in the chassis double nut plate should face the outer rear corner of the vehicle.**

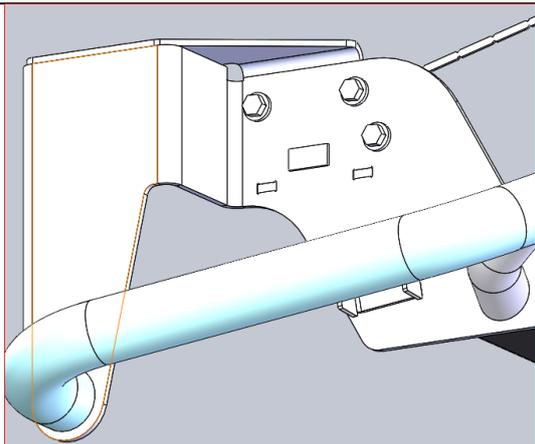


41. Place 2 M12x1.25x40 (fine pitch) hex head bolts and 2 M12 flat washers per chassis rail through the RSTB plate as shown. Attach using the chassis double nut plates placed inside the chassis rails in the previous step. Leave finger tight at this stage.

## RSTB TO VEHICLE



42. Bend 2 x nut sticks as shown 1 RH 1 LH.  
(LH Shown) RH will have the nut side opposite.  
Insert into rear of chassis rail to receive final bolt through the side plate.



43. Place 1 x M12x1.75x40 (course pitch) bolts with M12 flat washer in the chassis rail through the side plate holes. Use the nut stick to engage the third M12x1.75x40 bolt and leave finger tight.

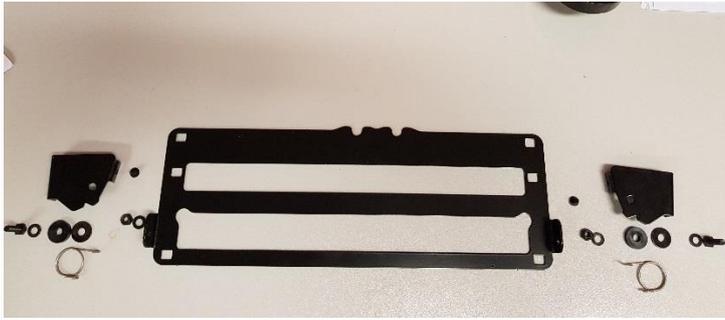


44. Position the bar so there is even spacing to the vehicle and tighten all fasteners to the specified torque.

 M12 X 1.75 - 77 Nm

 M12 X 1.25 - 95 Nm

## LICENSE PLATE TO VEHICLE



45. Insert canoe clips into mount plates.
46. Use an M6x20 bolt with flat washer thru the number plate frame mount flange.
47. Place the plastic washer on the m6 bolt followed by a M6 x 19 flat washer.
48. Install the spring and the mount plate onto the M6 bolt.
49. Secure with flat washer and M6 Nyloc nut
50. Repeat on other side mount.

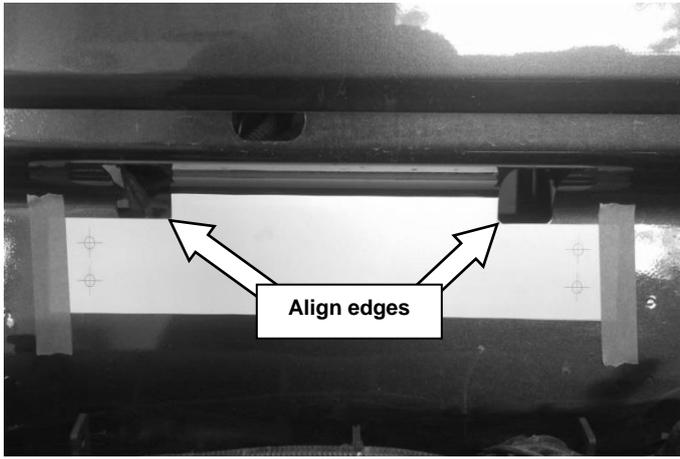


51. Tighten Nyloc nut till the mount can be pulled against the spring and return without jamming.



52. Clip in the 4 grommets for securing the number plate. Do not fit the plate yet.

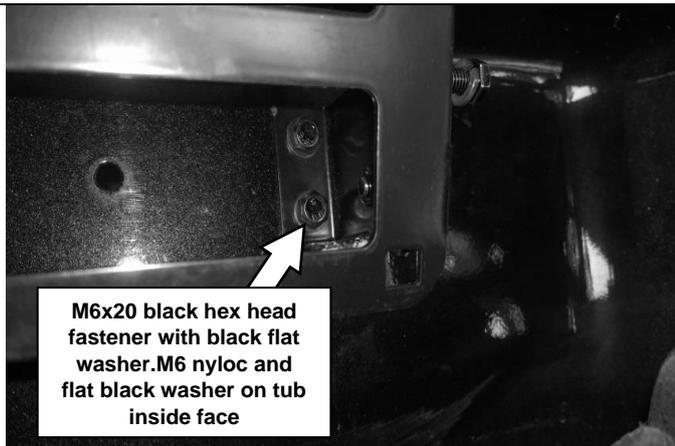
## LICENSE PLATE TO VEHICLE



53. Place the number plate drilling template on the rear panel of the tub as shown. When aligned use masking tape to hold in place
54. Centre punch the 4 holes, remove template and drill to  $\varnothing 6.5\text{mm}$  and de-bur each holes to remove all sharp edges.
55. Treat all raw edges with a rust preventative paint

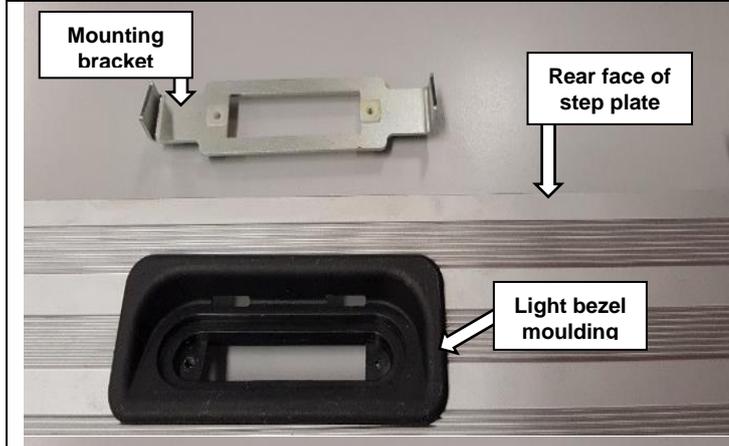


Warning: Drilling operations can result in flying metal debris, safety glasses should be worn.



56. Fix the license plate assembly to the beaver panel using 4 M6x20 HXHD fasteners, 8 M6 flat washers (black), and 4 M6 nyloc nuts as shown.
57. Tighten all screws to the specified torque.
58.  M6 X 1.0 - 9 Nm.

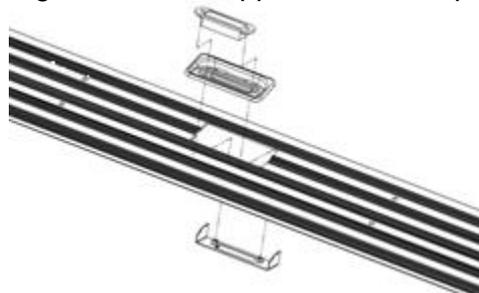
## STEP PLATE TO RSTB



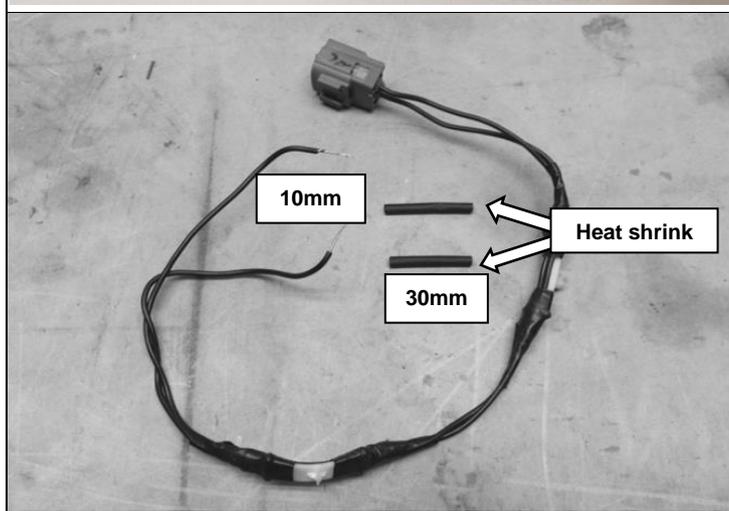
59. Push 2 plastic snap-in small grommets through the 2 holes in the LED mounting bracket as shown. Install the grommets from the underside of the bracket.
60. Fit the light bezel moulding to the step plate extrusion as shown with the deep section facing towards the rear face of step plate.



61. Remove the foam ring from the LED lamp and discard.
62. Place the LED lamp in the light bezel moulding and fix to the mounting bracket using the screws supplied in the lamp kit.

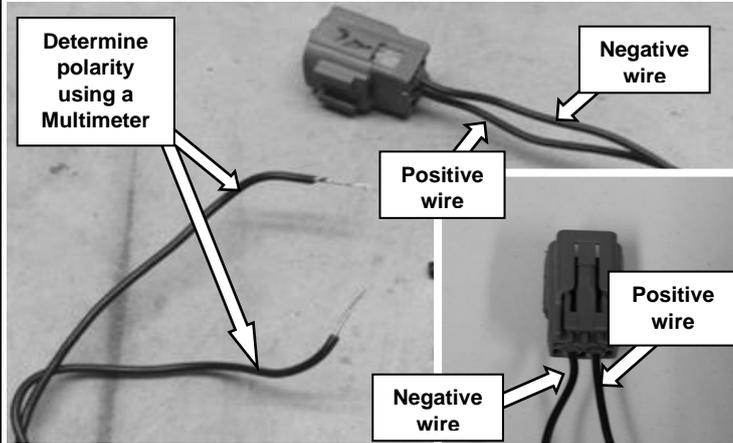


63. Fit the clear plastic plugs supplied in the lamp kit to the LED lamp above the screws.



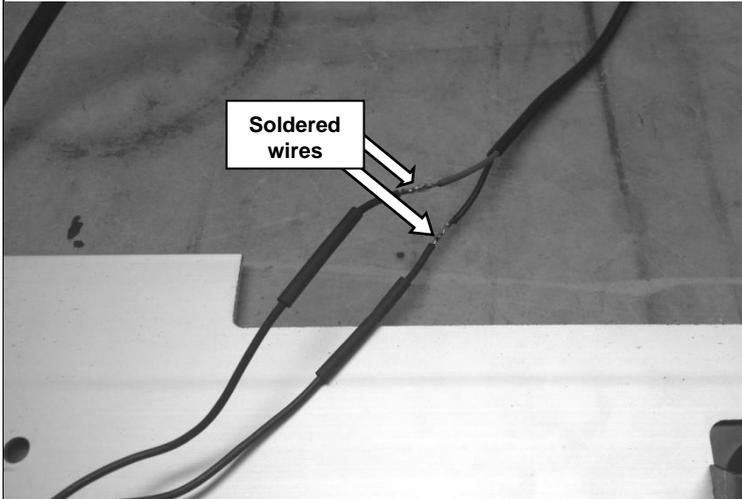
64. Remove 10mm of the plastic insulation coating from the license plate lamp loom that was cut and set aside in Step 3.
65. Insert a 30mm piece of heat shrink over each wire as shown.

## STEP PLATE TO RSTB



### For vehicles without parking sensors:

66. Identify the positive and negative wires from the license plate lamp loom using this photo as a reference.
67. Use a multimeter to help identify the wires at the cut ends as they may be hard to trace from the connector under the tape.
68. **Note: The LED lamp is polarity sensitive so it is important to identify and solder the correct wires together.**



### For vehicles without parking sensors:

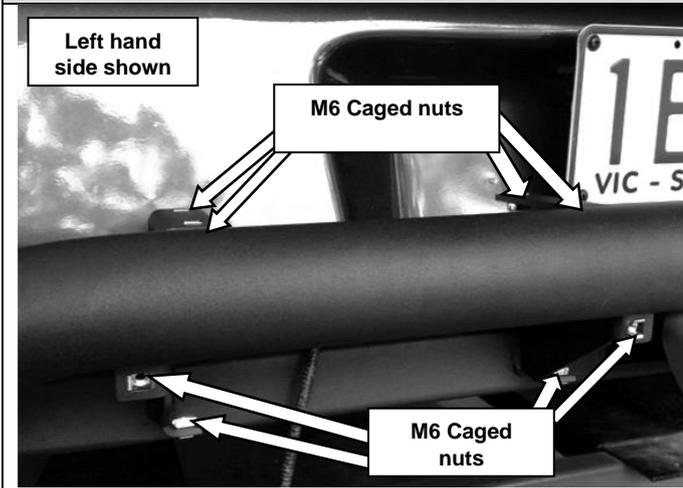
69. Using a soldering iron and solder, join the LED lamp wires to the license plate lamp loom using the colours in the table below:

LED Lamp wire	License plate loom
Red	Positive
Black	Negative



70. Place the heat shrink over the soldered wires and use a heat gun to shrink in place.
71. Further protect each join with corrugated tubing and insulation tape.

## STEP PLATE TO RSTB



72. Fit 16 long-leg M6 caged nuts to the RSTB. Fit 8 caged nuts to the left hand side as shown and 8 caged nuts to the right hand side.



73. Attach the step plate extrusion to the RSTB using 8 M6x16 button head screws taking care not to damage the LED lamp wire.

**NOTE : Do not install washers under the 8 M6 button head screws that are fixing the step plate extrusion to the RSTB**



74. Route the LED lamp loom through the RSTB to its fastening point identified in Step 1 and connect to the existing connector.
75. Ensure the license plate LED lamp functions correctly.

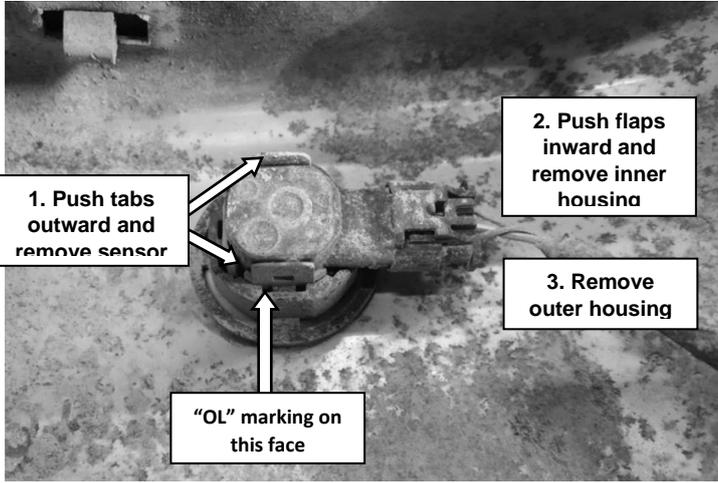


76. Tidy and fasten all wiring using the cable ties provided.

**Warning: Make sure all wires are securely fastened away from any hot, sharp or moving surfaces. Do not fasten wiring harness to fuel or brake lines.**

Test the LED lamp as per step 66 to confirm correct operation.

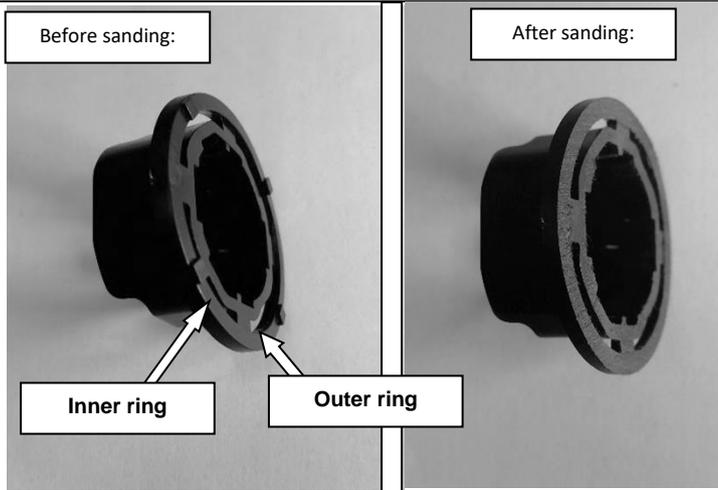
## SENSORS TO RSTB



### For vehicles fitted with parking sensors:

77. Remove the outer right (marked as “OR”) parking sensor assembly from the factory bumper bar. To do this, first unclip the sensor and then remove the sensor housing and retainer.

**Note:** Take care to not damage housings when pushing tabs to release clips. Also ensure the orientation and position of each sensor is the same as that in the factory bumper bar.

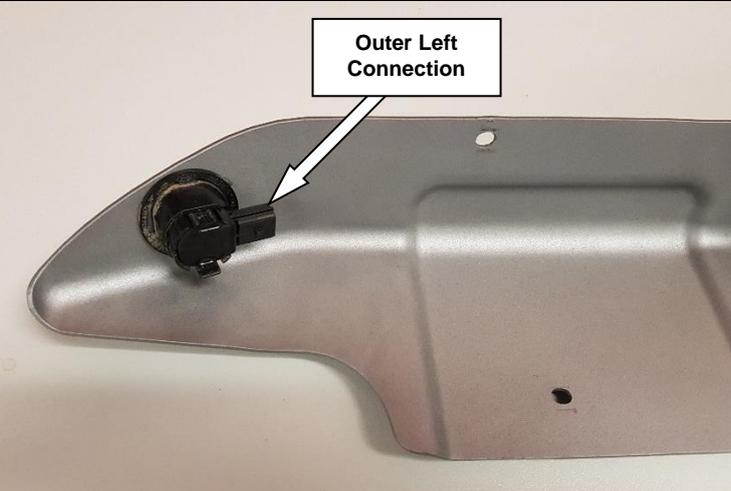


### For vehicles fitted with parking sensors:

#### FOR OUTER LEFT AND OUTER RIGHT SENSOR RETAINERS ONLY:

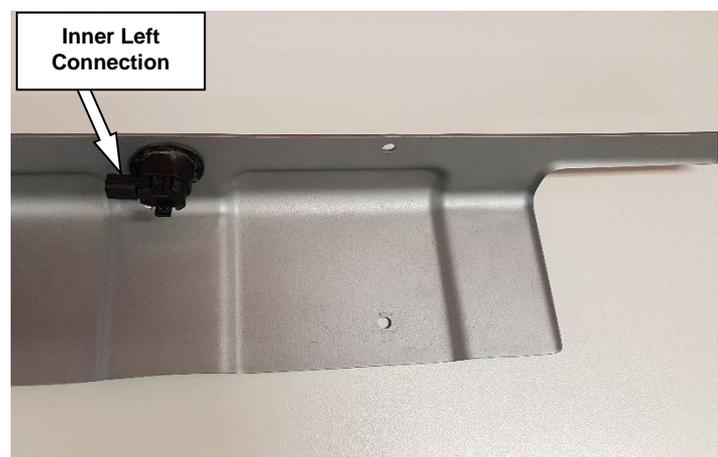
78. Remove material from the face of the retainers using 120 grit sandpaper on a flat surface. Sand until the outer ring is level with the inner ring as shown.

**CAUTION:** Take care not to remove excess material as this will reduce the clamping performance of the assembly.



### For vehicles fitted with parking sensors:

79. Insert the inner and outer parking sensor housing into the rear left diffuser panel as shown. The inner housing will click into place.
80. Insert the sensor into the housing assembly with the connector facing the inside of the diffuser panel as shown. The sensor will click into place.



### For vehicles fitted with parking sensors:

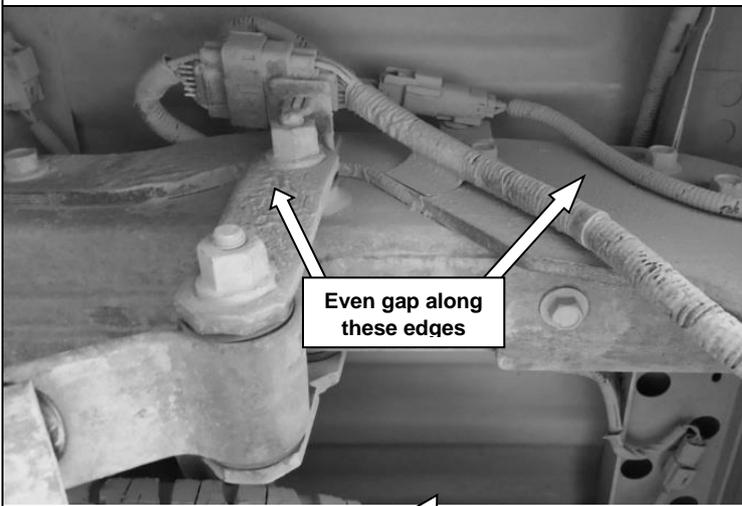
81. Repeat steps 77-80 for the remaining 3 sensors (“IL” – Inner left, “OR” – Outer right, “IR” – Inner right). Take care to ensure the orientation and position of each sensor is the same as that in the factory bumper bar.
- The **outer** sensors are to be fitted to the diffuser panel’s connection facing inwards.
  - The **inner** sensors are to be fitted to the diffuser panels facing outwards.

## PANELS TO RSTB/VEHICLE



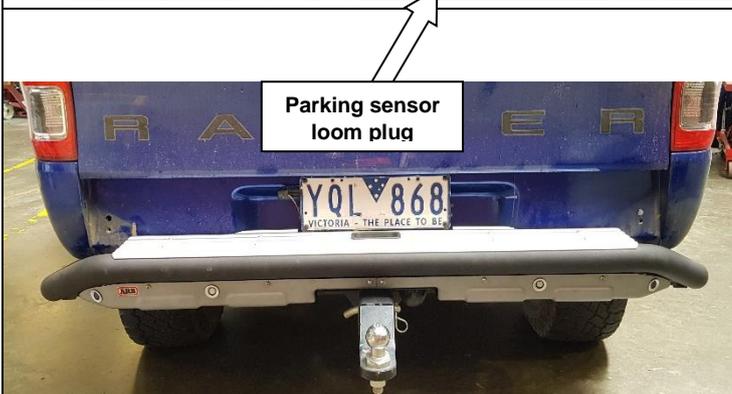
82. Position each diffuser panel so there is an even gap between the panel and the RSTB tube. Tighten fasteners to the specified torque.

 M6 X 1 -9 Nm.



### For vehicles fitted with parking sensors:

83. Connect the parking sensor loom to the main vehicle loom using the connector identified in Step 1.



84. Test parking sensors to ensure they are working correctly.
85. Tidy and fasten all wiring using the cable ties provided.

**Warning: Make sure all wires are securely fastened away from any hot, sharp or moving surfaces. Do not fasten wiring harness to fuel or brake lines.**

## FITTED PRODUCT



### **NOTICE: ONCE RSTB IS FITTED:**

- ◆ Ensure all bolts are tensioned correctly.
- ◆ All wiring is clear of sharp edges or moving surfaces and secured properly.
- ◆ Piping is secured well away from sharp or moving components.
- ◆ Check all wiring and connections to turn signal lamps, sensors, tail lamps, washers etc. are functioning correctly.
- ◆ Misalignment of parking sensor to hole in Diffuser may cause malfunction.
- ◆ Test operation of parking sensors after fitment.

### **NOTE:**

When parking sensors are fitted, do not add any accessories to the RSTB on or around the sensors, this may affect the function of the sensors.

Sensors may not function well under the following conditions:

- ◆ After the vehicle, has been sitting out in hot or cold weather.
- ◆ When the system is affected by electrical equipment or devices generating an ultrasonic wave.
- ◆ When operating in bad weather