



TOYOTA WINCH

**August 16 Production Onwards
Winch Installation Instructions**

Accessory Part No. PZQ93-60020, PZQ93-60030

Installation Time : Approx. 90 min



CAUTION—It is extremely important that bolts are tightened to the correct torques in the correct sequence.

Check that all bolts are fully torqued as per the fitment instructions.

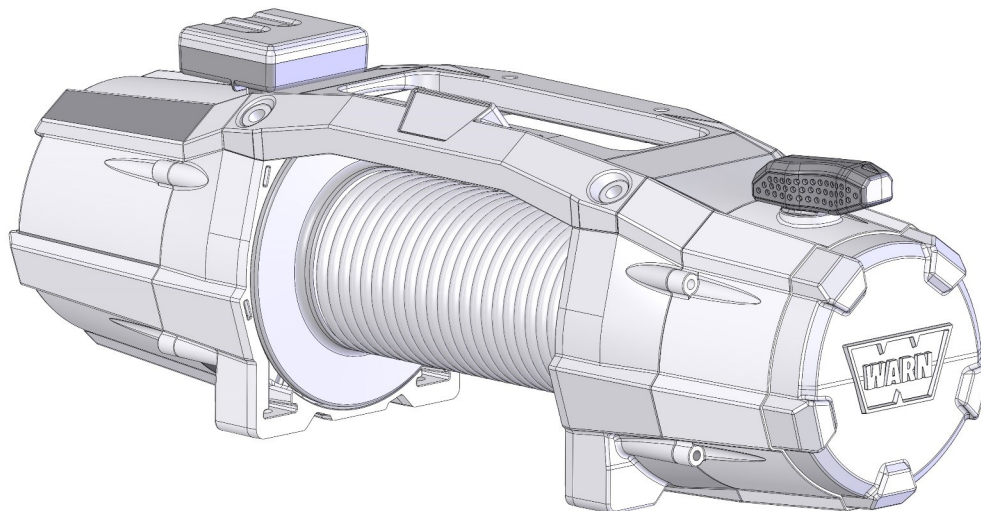
Place these instructions in vehicle's glove box after installation is complete.



Important:

- Read instructions carefully before installation - install winch as described. Do not use any other mounting location/method other than described in this instruction.
- It is advisable to seek assistance of another person when installing this product.
- Do not use this product in any motor vehicle for which it is not designed.
- Do not repair or modify the winch or components of the winch fitting instructions.
- Always wear heavy leather gloves when rotating clutch lever or when handling winch rope/cable.

See pages 2 - 7 for parts list.



Tools Required:

- | | | |
|--------------------------------------|-------------------------------|---------------------|
| • 8, 10, 15, 18mm ring/open spanners | • 1/4", 3/8" torque wrench | • Side cutters |
| • 8, 10, 13, 15, 18mm sockets | • 1/4", 1/2" ratchet wrench | • Sharp nose pliers |
| • Clip Removal Tool | • Philips, Torque screwdriver | • 3mm Allen Key |
| • 5mm Drill Bit and Electric Drill | | |

Parts List

Important: Check contents of kit before commencing fitment and report any discrepancies.



NOTE:

A Winch Fitting Kit is required to complete the winch fitment. Please refer to service kit part no. PZQ2960461

Winch PZQ93-60020

Item	Component Name	Qty.	Torque (Nm)	Service Kit Part No.
1	Winch - steel cable installed	1		
2	Contactora	1		PZQ938901K
3	Roller Fairlead	1		PZQ936002L
4*	Winch Remote Controller	1		PZQ298901A
5	Hook and Pin Assy	1		PZQ938901E
6	Overload Interrupt (OLI)	1		PZQ936002A
7	Screw Flange Hex M10 x 1.5P x 35	8	30	PZQ936002M
8	Nut Lock Flange Hex M10 x 1.5P	4		
9	Washer Flat M10 x 23 x 2	8		
10	Nut Nyloc M10 x 1.5P	4		
11	Winch Controller Harness	1		PZQ936002B
12	Contactora Bracket	1		PZQ936002R
13	Screw Hex M6 x 1.0P x 20	11		
14*	Adhesive Anti-Abrasion Tape - 50x50mm	1		PZQ936002B
15	Nut M6 Nyloc x 1.0P	10	9	
16	Washer Rectangular M6	2		PZQ938901K
17	Washer Flat M6	11		
18	OLI Bracket	1		PZQ936002R
19	Screw M5 x 0.8P x 25	4		PZQ936002A
20	Nut M5 Nyloc x 0.8P	4	4	
21	Washer Flat M5	4		
22	Nut Hex Flange M8 x 1.25P	8	8	
23	Washer Flat M8	6		
24	Screw Hex M8 x 1.25P x 16	1		
25	Screw Hex M8 x 1.25P x 12	1	8	
26	Contactora Cover Inner	1		PZQ938901Q
27	Contactora Cover Outer	1		
28	Screws Countersunk M5 x 12	2	2	
29	Wire Separator - Top	1		PZQ938901T
30	Wire Separator - Base	1		
31	Screw 10G x 16	2	1.5	

Parts List

Important: Check contents of kit before commencing fitment and report any discrepancies.

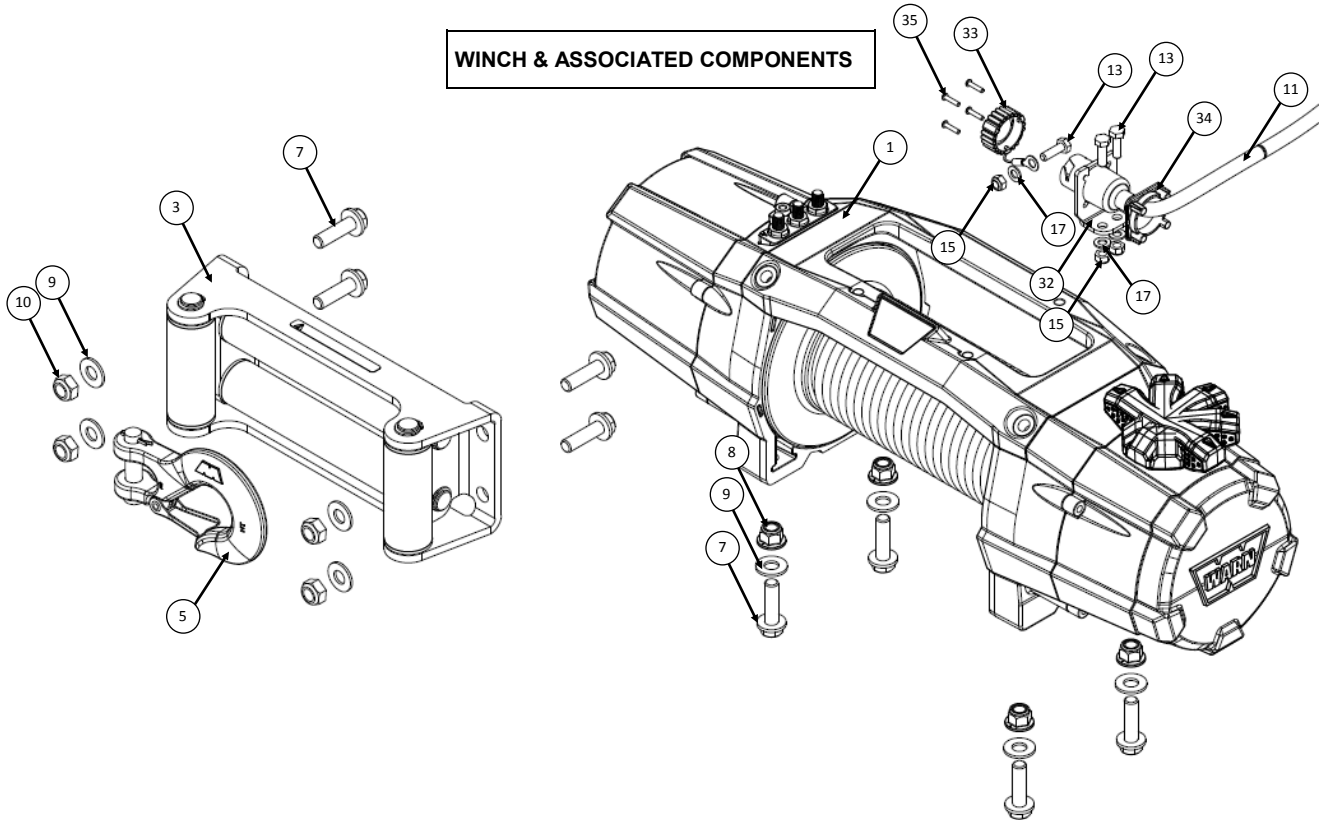
Winch PZQ93-60020 - Continued

Item	Component Name	Qty.	Torque (Nm)	Service Kit Part No.
32	Remote Socket Bracket	1		PZQ936002D
33	Remote Socket Cap & Lanyard	1		PZQ938901P
34	Remote socket plastic nut	1		
35	Screw M3 x 16	4	1.0	
36*	Adhesive Anti-Abrasion Tape - 100x100mm	1		PZQ936002B
37	Winch Harness Support Bracket	1		PZQ936002R
38	Cable Positive	1		PZQ936002C
39	Cable Negative	1		
40	Cable Motor A	1		
41	Cable Motor F1	1		
42	Cable Motor F2	1		
43*	Fuse 5A	2		PZQ936002B
44*	Cable Ties 200mm	30		
45*	Cable Ties 370mm	10		
46*	Warn Installation/Operation Guide	1		PZQ938901G
47*	Warn Basic Guide to Winching	1		
48*	Toyota Winch Usage Guide	1		PZQ938901L
49	Winch Assy Brace	1		PZQ936002R
50*	Split COT Tube - ϕ 16mm x 150mm	1		
51*	7x12 Clip - Cable Tie 140mm	1		

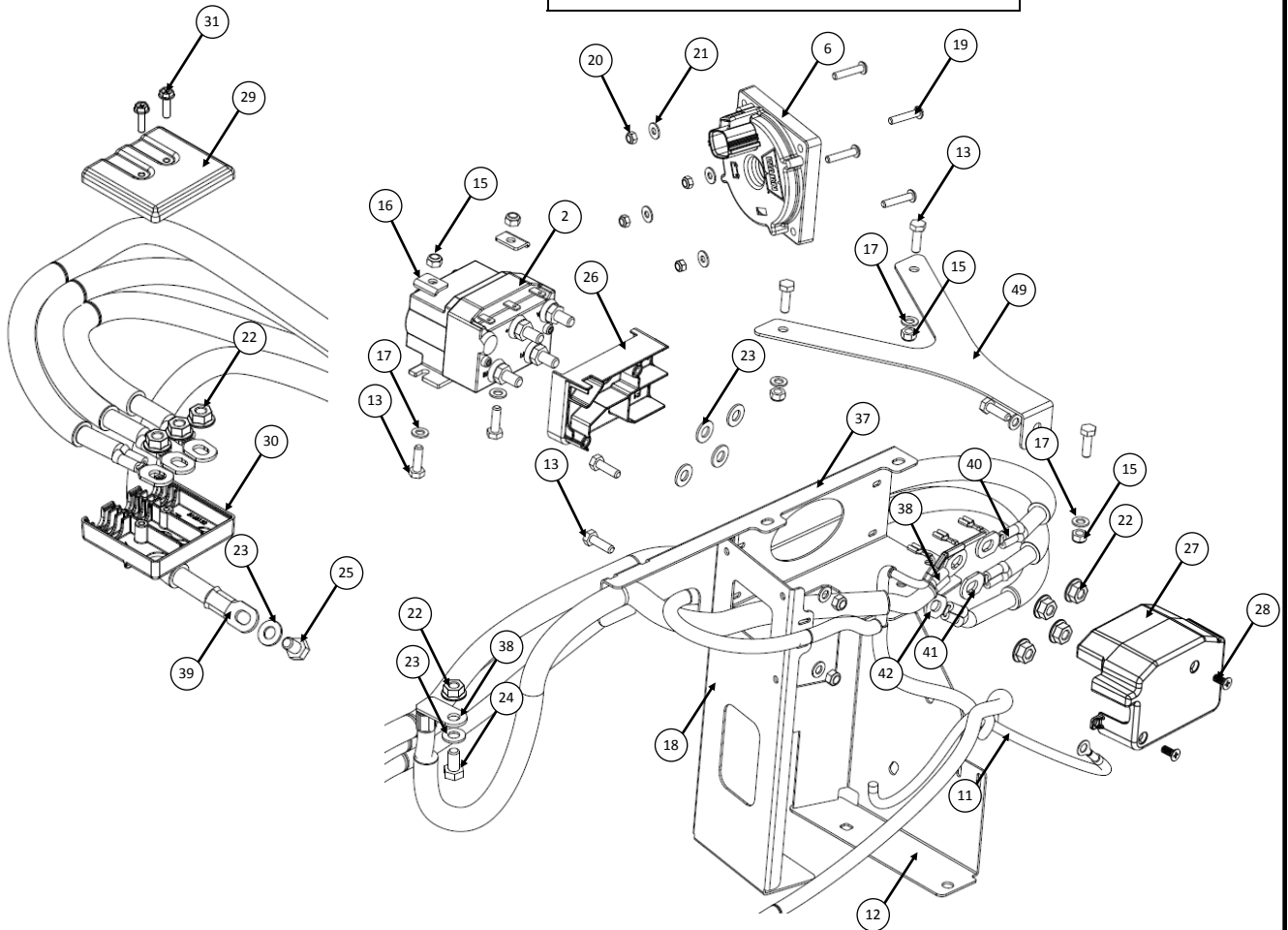
* Item not shown on diagrams

Refer to Page 4 for Diagrams of the Standard Winch System

WINCH & ASSOCIATED COMPONENTS



CONTACTOR & ASSOCIATED COMPONENTS



Parts List

Important: Check contents of kit before commencing fitment and report any discrepancies.



NOTE:

A Winch Fitting Kit is required to complete the winch fitment. Please refer to service kit part no. PZQ2960461

Winch - Lightweight PZQ93-60030

Item	Component Name	Qty.	Torque (Nm)	Service Kit Part No.
1	Winch	1		
2	Contactactor	1		PZQ938901K
3	Hawse Fairlead	1		PZQ936003H
4*	Winch Remote Controller	1		PZQ298901A
5*	Hook and Pin Assy	1		PZQ938901E
6	Overload Interrupt (OLI)	1		PZQ936002A
7	Screw Flange Hex M10 x 1.5P x 35	8	30	PZQ936003M
8	Nut Lock Flange Hex M10 x 1.5P	4		
9	Washer Flat M10 x 23 x 2	8		
10	Nut Nyloc M10 x 1.5P	2		
11	Winch Controller Harness	1		PZQ936002B
12	Contactactor Bracket	1		PZQ936002R
13	Screw Hex M6 x 1.0P x 20	11		
14*	Adhesive Anti-Abrasion Tape - 50x50mm	1		PZQ936002B
15	Nut M6 Nyloc x 1.0P	10	9	
16	Washer Rectangular M6	2		PZQ938901K
17	Washer Flat M6	11		
18	OLI Bracket	1		PZQ936002R
19	Screw M5 x 0.8P x 25	4		PZQ936002A
20	Nut M5 Nyloc x 0.8P	4	4	
21	Washer Flat M5	4		
22**	Nut Hex Flange M8 x 1.25P	8	8	
23**	Washer Flat M8	6		
24	Screw Hex M8 x 1.25P x 16	1		
25	Screw Hex M8 x 1.25P x 12	1	8	
26	Contactactor Cover Inner	1		PZQ938901Q
27	Contactactor Cover Outer	1		
28	Screws Countersunk M5 x 12	2	2	
29	Wire Separator - Top	1		PZQ938901T
30	Wire Separator - Base	1		
31	Screw 10G x 16	2	1.5	

Parts List

Important: Check contents of kit before commencing fitment and report any discrepancies.

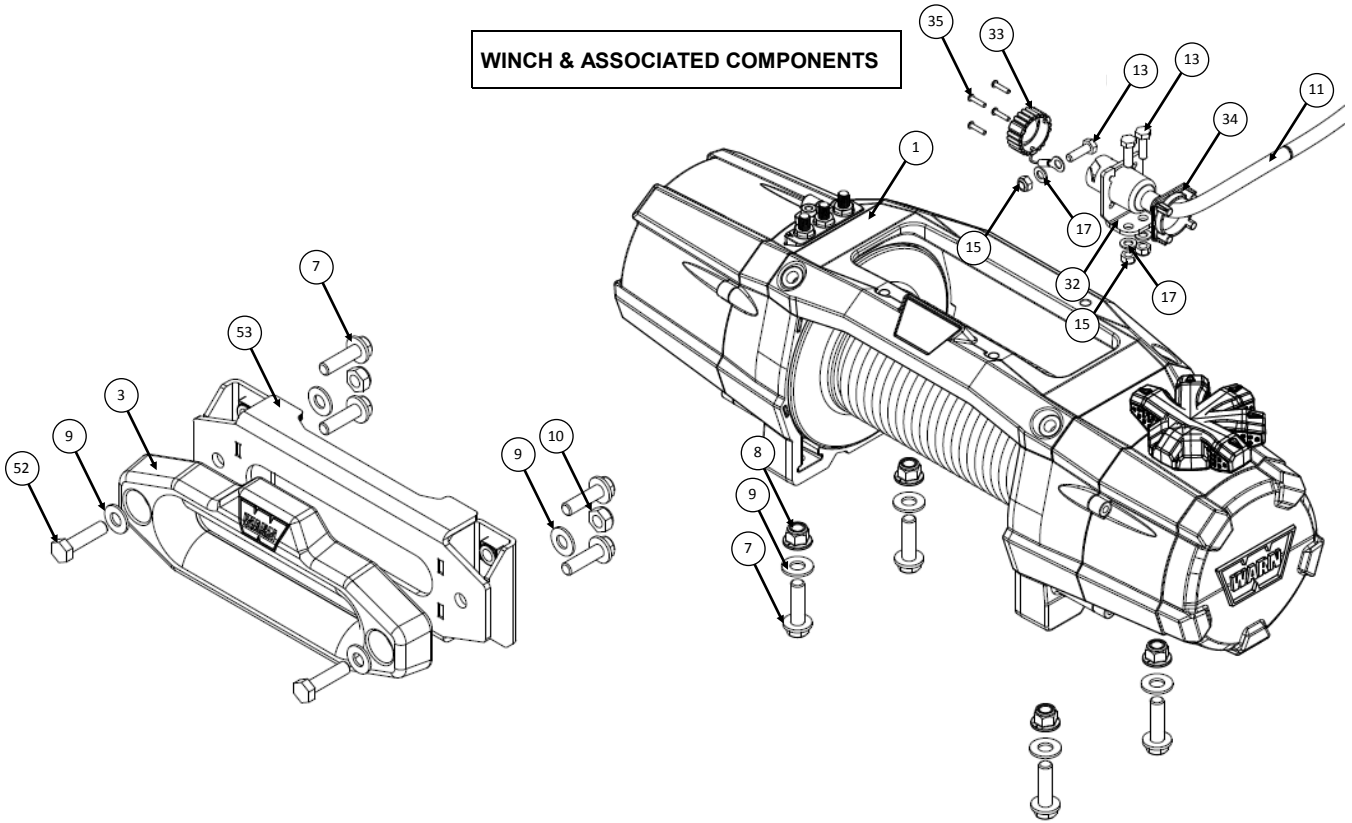
Winch - Lightweight PZQ93-60030 - Continued

Item	Component Name	Qty.	Torque (Nm)	Service Kit Part No.
32	Remote Socket Bracket	1		PZQ936002D
33	Remote Socket Cap & Lanyard	1		PZQ938901P
34	Remote socket plastic nut	1		
35	Screw M3 x 16	4	1.0	
36	Adhesive Anti-Abrasion Tape - 100x100mm	1		PZQ936002B
37	Winch Harness Support Bracket	1		PZQ936002R
38	Cable Positive	1		PZQ936002C
39	Cable Negative	1		
40	Cable Motor A	1		
41	Cable Motor F1	1		
42	Cable Motor F2	1		
43*	Fuse 5A	2		PZQ936002B
44*	Cable Ties 200mm	30		
45*	Cable Ties 370mm	10		
46*	Warn Installation/Operation Guide	1		PZQ938901G
47*	Warn Basic Guide to Winching	1		
48*	Toyota Winch Usage Guide	1		PZQ938901L
49*	Winch Assy Brace	1		PZQ936002R
50*	Split COT Tube - ϕ 16mm x 150mm	1		
51*	7x12 Clip - Cable Tie 140mm	1		
52	Bolt Hex M10 x 1.5P x 40	2	44	PZQ936003H
53	Hawse Spacer	1		PZQ936003B
54*	Synthetic Rope 100'	1		PZQ938902C
55*	Ballistic Nylon Sleeve	1		
56*	Synthetic Rope Installation Guide	1		

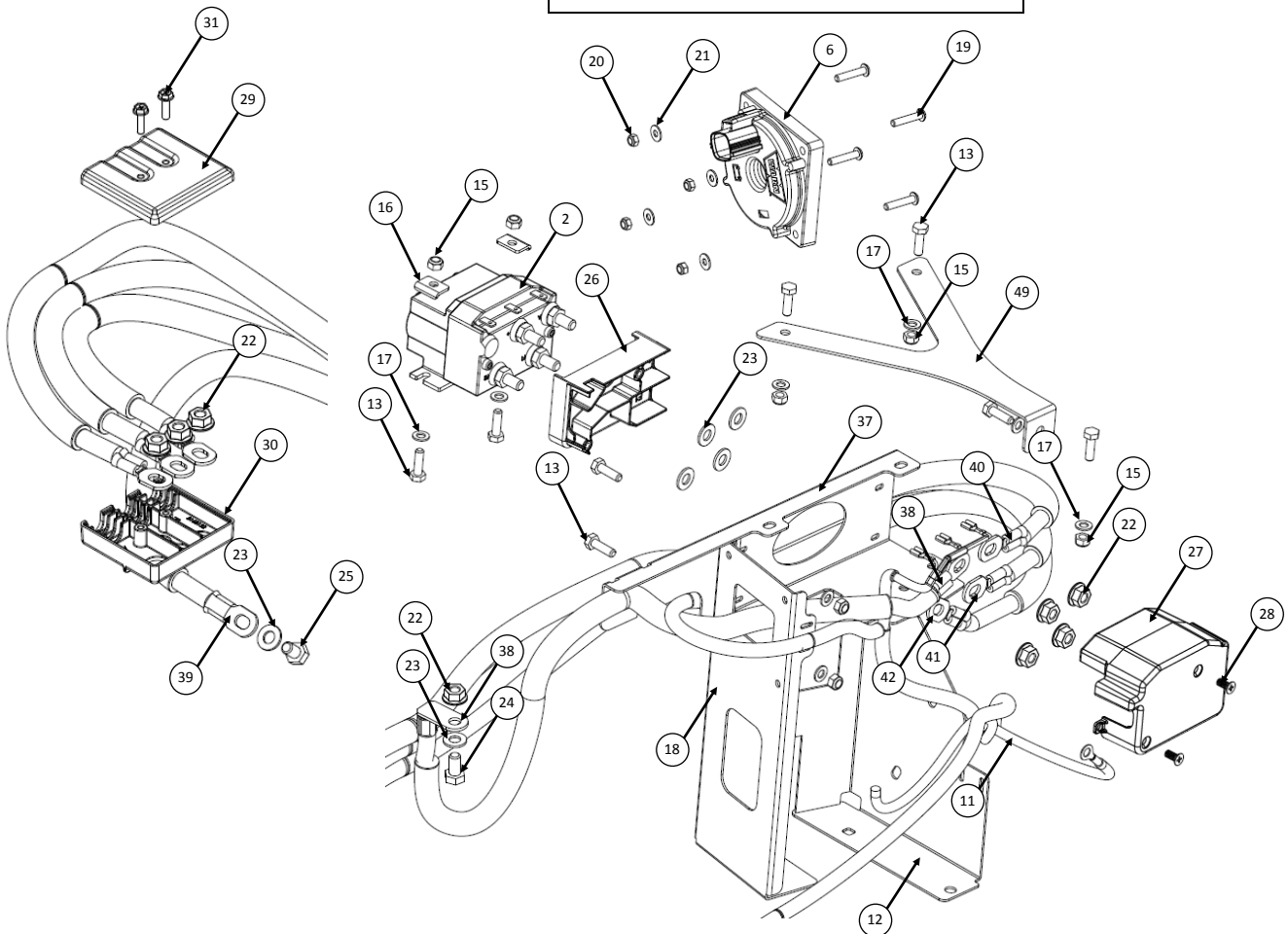
* Item not shown on diagrams

Refer to Page 7 for Diagrams of the Lightweight Winch System

WINCH & ASSOCIATED COMPONENTS



CONTACTOR & ASSOCIATED COMPONENTS



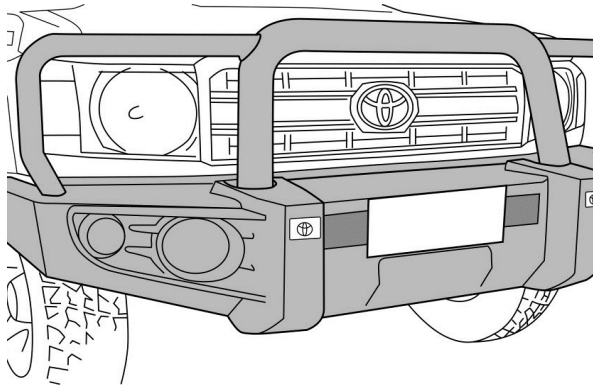


Figure 1: Remove existing Bull Bar or follow Bull Bar instructions to dismantle vehicle.



NOTE:

Use these instructions in conjunction with the installation and user manuals supplied with the Warn Zeon winch and Toyota Bull Bar.

Step 1:

- If vehicle has already been fitted with any of the following equipment, remove before beginning winch installation:
 - ⇒ Toyota Steel Bull Bar
 - ⇒ Toyota Alloy Bull Bar
 - ⇒ Vehicle Bumper



NOTE:

Refer to individual accessory instructions for removal procedures and any additional part requirements. For reinstallation procedures and individual component instructions, please refer to this set of instructions.

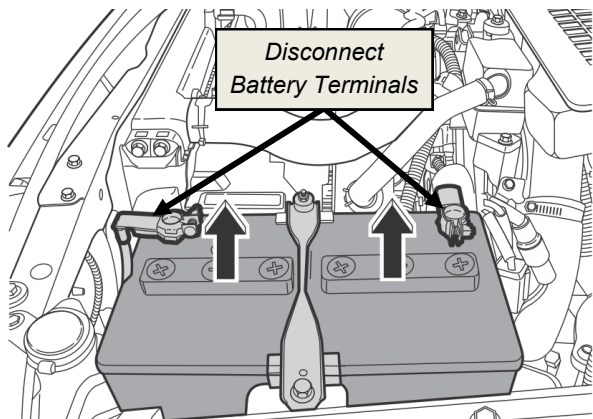


Figure 2: Remove Battery from vehicle

Step 2:

- Note down all Clock and Radio settings.
- Disconnect Negative and Positive Terminals from the Battery.
- Remove and retain battery from vehicle by removing 2X M6 Bolts, 2X M6 Nuts and 1X Battery Clamp.



NOTE:

For safety, wrap Battery Terminals with insulating PVC tape.

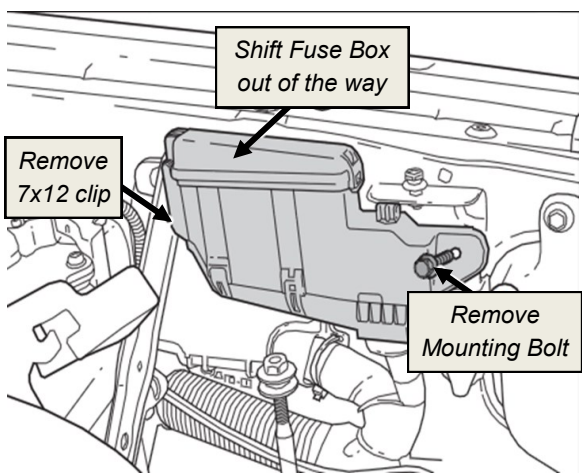


Figure 3: Shift Fuse Box

Step 3:

- Remove Fuse Box Mounting Bolt and release the 7x12 clip at the fender side of the Battery Tray Bracket.
- Shift the Fuse Box out of the way to gain access to the Battery Tray mount bolts.

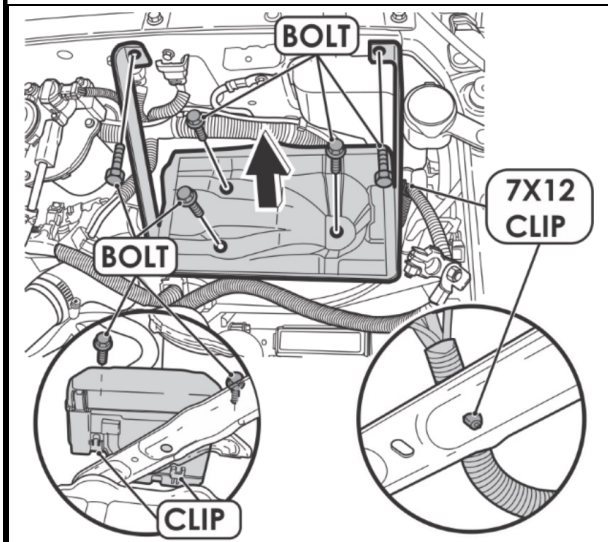


Figure 4: Remove Battery Tray from vehicle

Step 4:

- Remove 5X Bolts as shown, and then unclip the harness from the Battery Tray support.
- Remove 2X Bolts and the clip connecting the Fuse Box to the Battery Tray and slide the Fuse Box free.
- Remove the Battery Tray from the vehicle.

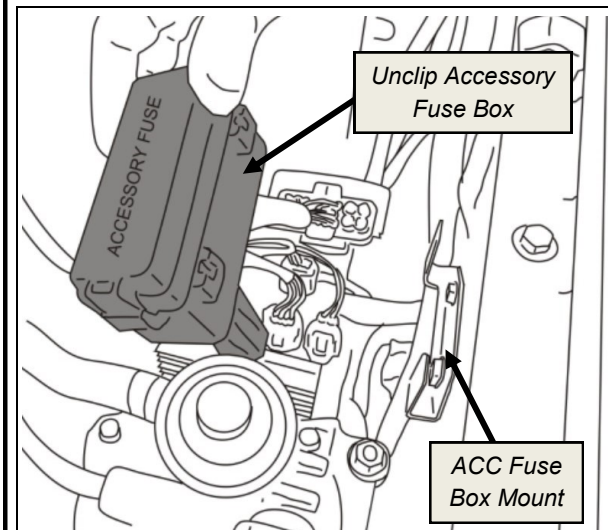


Figure 5: Unclip Accessory Fuse Box

Step 5:

- Unclip Accessory Fuse Box from mount and keep aside to gain access to Injector Module connectors.

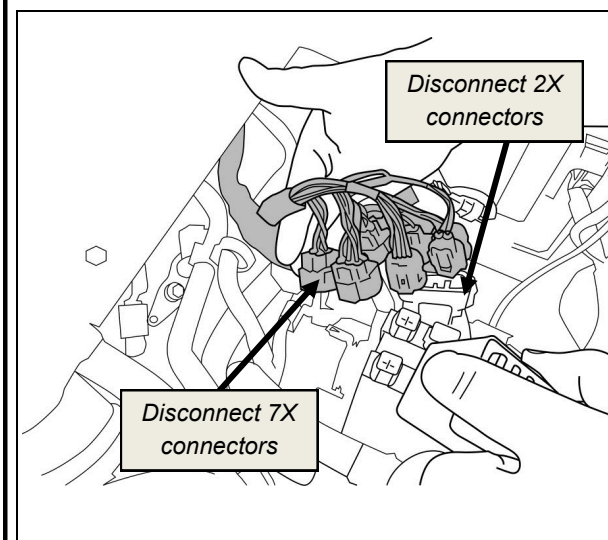


Figure 6: Disconnect Module connectors

Step 6:

- Disconnect 7X Injector Module connectors (small) and 2X Driver connectors (large).
- Keep connectors aside to gain access to Mounting Bolts for Injector Module Bracket.

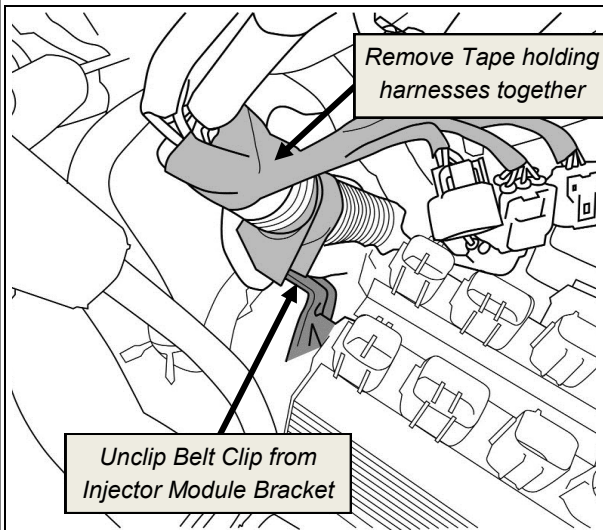


Figure 7: Unclip Belt Clip and remove Tape

Step 7:

- Unclip Belt Clip from Injector Module Bracket flange holding large OE harness.
- Remove Tape holding branch of Injector Module and Driver harnesses.

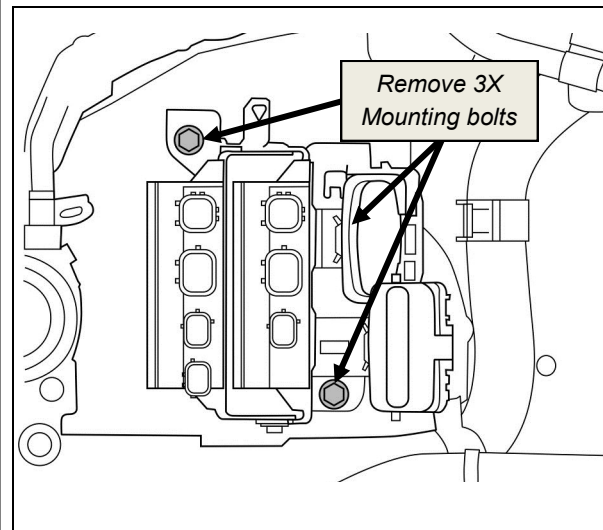


Figure 8: Remove Bolts securing Bracket

Step 8:

- Remove 3X M6 Mounting Bolts securing Injector Module Bracket to vehicle and keep aside.
- Retain Bolts for re-fitting Bracket to vehicle at Step 12.

HINT	Use a spanner to unfasten the Mounting Bolt underneath the OE Driver connector
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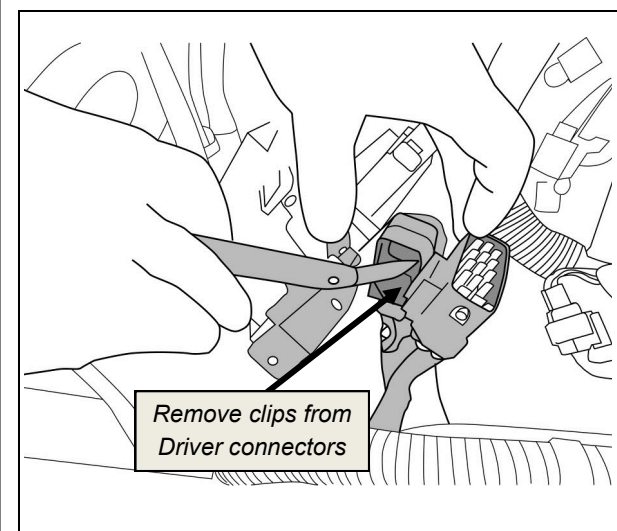


Figure 9: Remove 7X12 clips

Step 9:

- Remove 7x12 clips from 2X OE Driver connectors and place them aside.

HINT	Tilt Bracket sideways to gain better access to remove 7X12 clips from Driver connectors
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	NOTE: Use protective tape/pad on bracket or vehicle apron to protect engine bay from scratches
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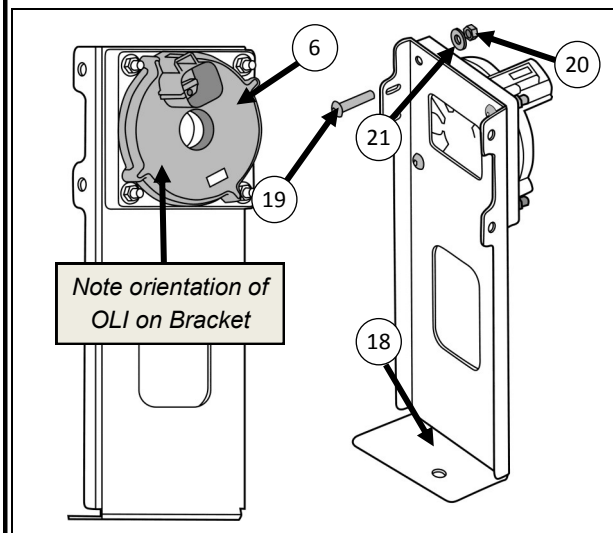


Figure 10: Install OLI onto Bracket

Step 10:

- Install OLI (Item 6) in correct orientation as shown in Figure 10 onto OLI Bracket (Item 18) using 4X Screw M5 x 0.8P x 25 (Item 19), 4X Washer Flat M5 (Item 21) and 4X Nut M5 Nyloc x 0.8P (Item 20)

	NOTE:	Place Washers under head of Nuts
	NOTE:	Ensure that the OLI is installed in the correct orientation as shown in Figure 10
		Nut Nyloc Hex M5 x 0.8P torque: 4 Nm

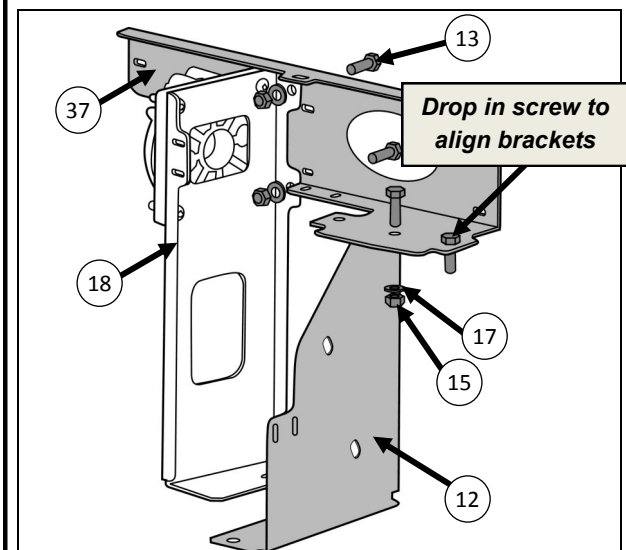


Figure 11: Assemble Contactor Bracket Assy

Step 11:

- Place Winch Harness Support Bracket (Item 37) on flat surface of Contactor Bracket (Item 12) and fasten using 1X Screw Hex M6 x 1.0P x 20 (Item 13), 1X Washer Flat M6 (Item 17) and 1X Nut Hex Nyloc M6 x 1.0P (Item 15).
- Align with 2X mounting holes on OLI bracket (Item 18) as shown in Figure 11 and fasten using 2X Screw Hex M6 x 1.0P X 20 (Item 13), 2X Washer Flat M6 (Item 17) and 2X Nut Hex Nyloc M6 x 1.0P (Item 15).

	NOTE:	Place Washers under head of Nuts
	NOTE:	Drop in a M6 screw between brackets when fastening to ensure correct alignment
		Nut Hex Nyloc M6 x 1.0P torque: 9 Nm

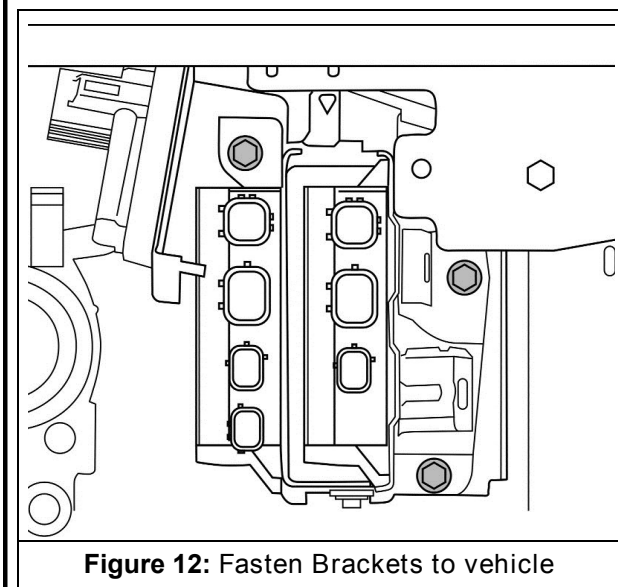


Figure 12: Fasten Brackets to vehicle

Step 12:

- Fit Contactor Bracket Assembly and OE Injector Module Bracket into vehicle using previously removed 3X OE M6 Bolts from Step 8.
- Tighten to specified torque.

		Bolt Hex M6 torque: 12.5Nm
	NOTE:	Ensure all cables & wiring are clear from any hot, moving or sharp edges. Failure to do so could result in damage to the electrical system.

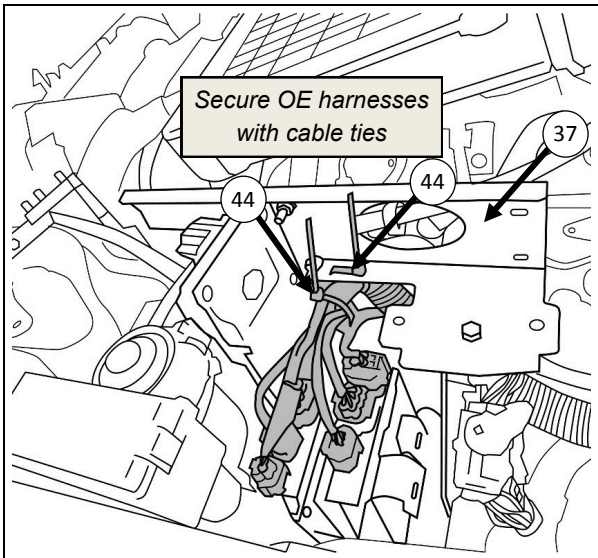


Figure 13: Insert Cable ties onto Bracket

Step 13:

- Reconnect previously removed 7X Injector Module connectors into OE modules. Route harnesses underneath Winch Harness support Bracket (Item 37) as shown. Insert 1X Cable Tie 200mm (Item 44) through slots on Winch Harness Support Bracket (Item 37) to secure OE harnesses as shown.
- Secure branch of OE harnesses with 1X Cable tie (Item 44) to prevent wires from chafing on Winch Harness Support Bracket (Item 37) edge.

	NOTE: Ensure all cables & wiring are clear from any hot, moving or sharp edges. Failure to do so could result in damage to the electrical system.
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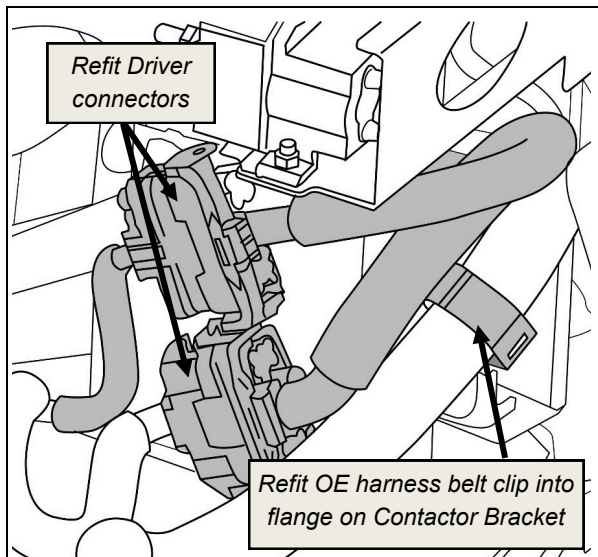


Figure 14: Refit OE connectors

Step 14:

- Refit previously removed OE harness belt clip into relocated flange on Contactor Bracket (Item 12).
- Refit previously removed Driver connectors into 7X12 slots on Contactor Bracket (Item 12) and route harnesses around Winch Harness Support Bracket (Item 37) as shown.

	NOTE: Ensure all cables & wiring are clear from any hot, moving or sharp edges. Failure to do so could result in damage to the electrical system.
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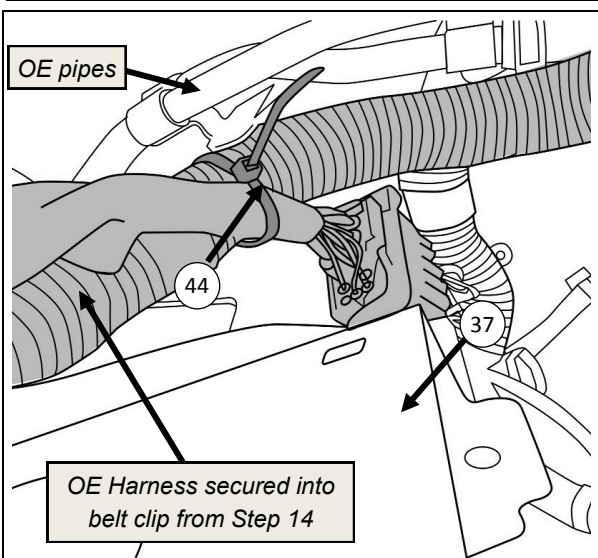


Figure 15: Secure Driver Harness

Step 15:

- Secure Driver harness to large OE Wire harness to prevent the wire from chafing on the COT tube with 1X Cable Tie (Item 44) in position shown in Figure 15.

	NOTE: Ensure all cables & wiring are clear from any hot, moving or sharp edges. Failure to do so could result in damage to the electrical system.
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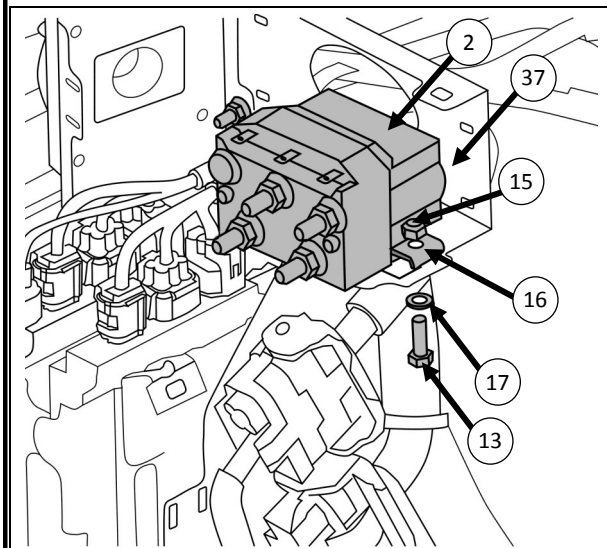


Figure 16: Install Contactor onto Bracket

Step 16:

- Place Contactor (Item 2) onto Winch Harness Support Bracket (Item 37) in orientation shown.
- Fasten to Bracket using 2X Screw Hex M6 x 1.0P x 20 (Item 13), 2X Washer Flat M6 (Item 17), 2X Washer Rectangular M6 (Item 16) and 2X Nut Nyloc Hex M6 x 1.0P (Item 15).

	NOTE:	Ensure that the Washer Rectangular M6 sits on top of the Contactor as shown in Figure 16
	NOTE:	Ensure that the Contactor is installed in the correct orientation as shown in Figure 16
		Nut Nyloc Hex M6 x 1.0P torque: 9 Nm

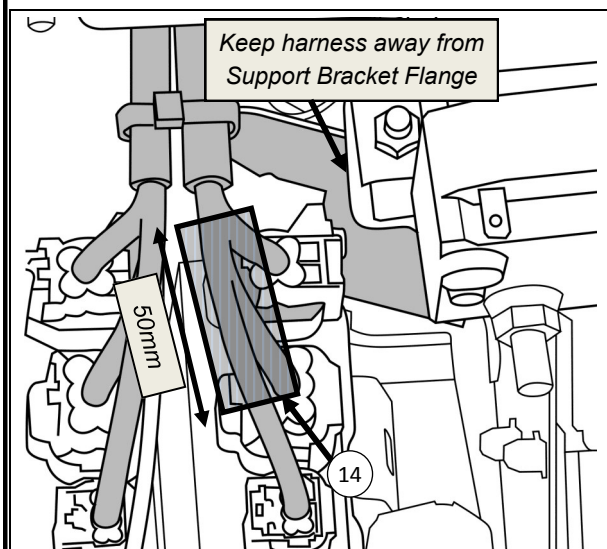


Figure 17: Install Anti-Abrasion Tape

Step 17:

- Add Adhesive Anti-Abrasion Tape - 50 x 50mm (Item 14) to the branch of the Injector Module connectors closest to the flange of the Winch Harness Support Bracket (Item 37).

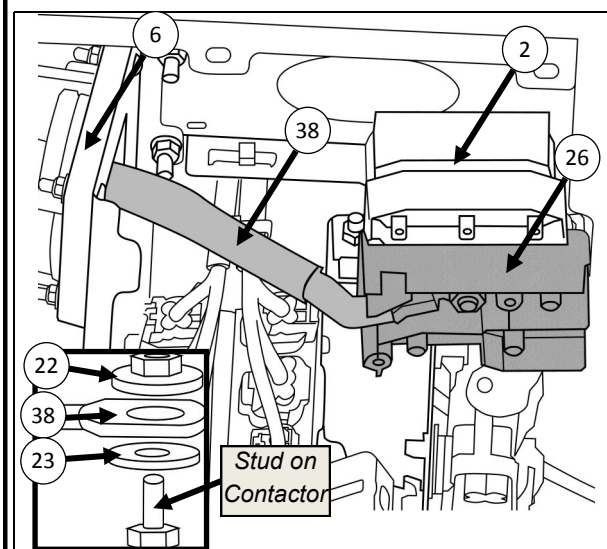


Figure 18: Connect Cable Positive

Step 18:

- Place Contactor Cover Inner (Item 26) onto Contactor (Item 2)
- Install 1X Washer Flat M8 x 17 (Item 23) onto "+" terminal on Contactor (Item 2) (to fit onto underside of ring terminal).
- Thread Cable Positive (Item 38) through OLI (Item 6) and fasten onto correct terminal (+) on Contactor (Item 2).
- Tighten using 1X Nut Hex Flange M8 x 1.25P (Item 22).

	NOTE:	Refer to markings on Cover Contactor Inner for the correct cable position
	NOTE:	Ensure that the straight ring terminal end of the Winch Positive Cable is fastened to the correct terminal of the Contactor
		Nut Hex Flange M8 x 1.25P torque: 8 Nm

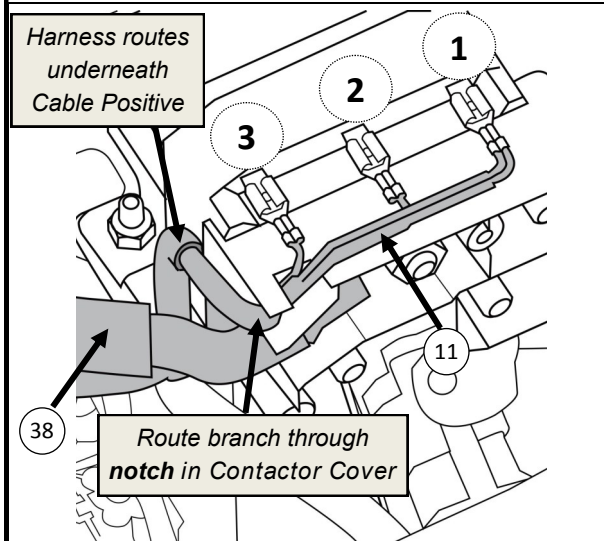


Figure 19: Route Winch Controller Harness

Step 19:

- Feed through the 3X Spade terminals of the Winch Controller Harness (Item 11) underneath the Cable Positive (Item 38) and connect to Contactor (Item 2) as described below:
 - ⇒ Black and white wire to terminal 1
 - ⇒ Brown wire to terminal 2
 - ⇒ Green wire to terminal 3



NOTE:

Ensure branch of Spade Terminals are routed through notch in Contactor Cover Inner.

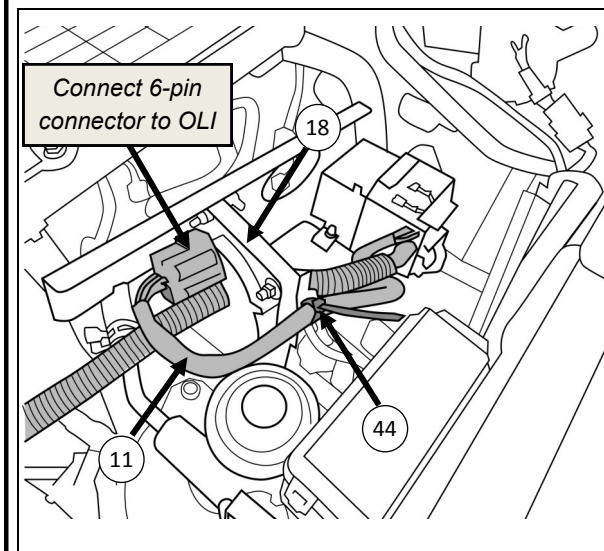


Figure 20: Route Winch Controller Harness

Step 20:

- Route 6-pin connector branch of Winch Controller Harness (Item 11) towards OLI (Item 6) alongside OLI Bracket (Item 18) as shown in Figure 20. Connect 6-pin connector to OLI (Item 6).
- Secure harness to slots on OLI Bracket (Item 18) with 1X Cable Tie 200mm (Item 44) as shown.



NOTE:

Ensure all cables & wiring are clear from any hot, moving or sharp edges. Failure to do so could result in damage to the electrical system.

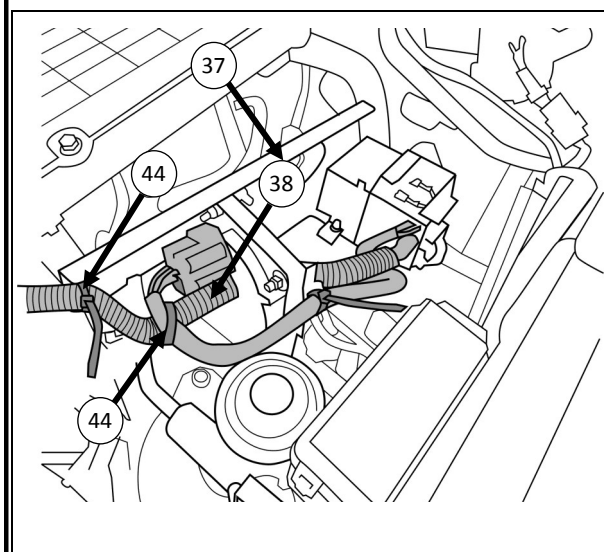


Figure 21: Route Winch Controller Harness

Step 21:

- Secure Cable Positive (Item 38) to Winch Harness Support Bracket (Item 37) with 1X Cable Tie 200mm (Item 44) as shown.
- Secure COT tube section of Winch Controller Harness (Item 11) to Cable Positive (Item 38) near 6-pin connector with 1X Cable Tie 200mm (Item 44) as shown in Figure 21.



NOTE:

Ensure the seals on the 6-pin connector are not pulled too tight when securing harness.



NOTE:

Ensure all cables & wiring are clear from any hot, moving or sharp edges. Failure to do so could result in damage to the electrical system.

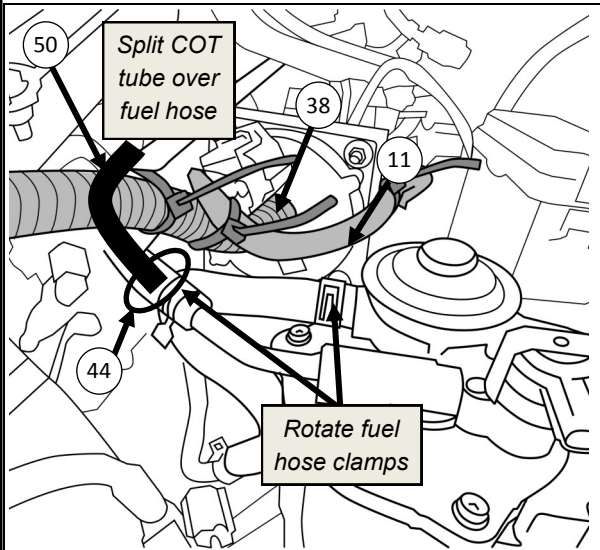


Figure 22: Rotate Fuel Hose clamps

Step 22:

- Rotate 2X OE Fuel Hose clamp tabs away from Cable Positive (Item 38) and Winch Controller Harness (Item 11) to gain better clearance from the wiring as shown in Figure 22.
- Add Split COT Tube - $\phi 16\text{mm} \times 150\text{mm}$ (Item 50) to the fuel hose close to the Winch Harness Support Bracket (Item 37) and secure with 1X Cable Tie 200mm (Item 44) as close to the fuel hose clamp as possible.



NOTE:

Ensure the COT tube slit is facing away from the Brackets and Wiring

Step 23:

- Connect Earth Ring Terminal on ground branch of Winch Controller Harness (Item 11) to vehicle Body on LH apron as shown in Figure 23.

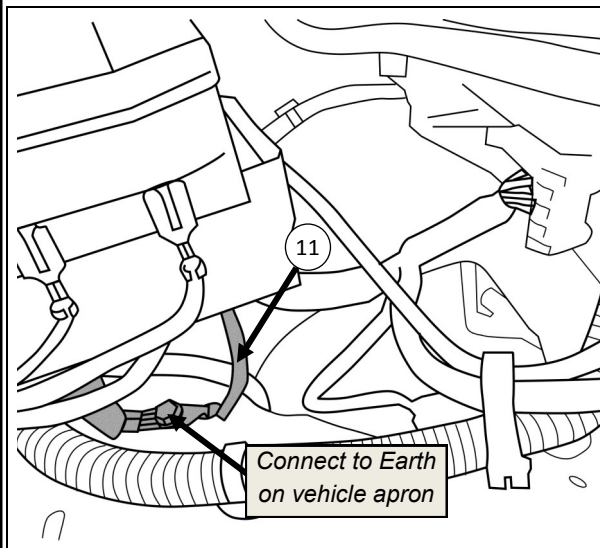


Figure 23: Connect to vehicle Earth



NOTE:

Earth terminal is located next to the entry point for the Bullbar Wire Harness in the fender/apron cavity



Bolt Hex M6 torque: 6.9Nm

Step 24:

- Remove the Cable tie attaching the Wire Harness into the Accessory Fuse Box.
- Route the 2-Female terminal and Deutsch Socket branch of the Winch Controller Harness (Item 11) towards the Accessory Fuse Box near the Injector Module Bracket.

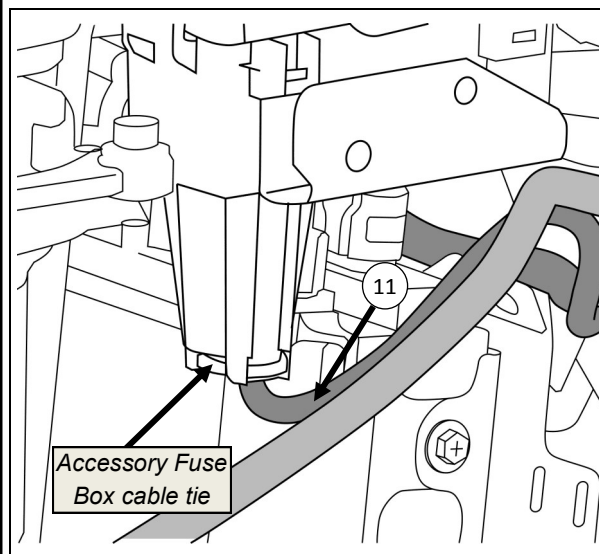


Figure 24: Route Winch Controller Harness



NOTE:

Ensure all cables & wiring are clear from any hot, moving or sharp edges. Failure to do so could result in damage to the electrical system.

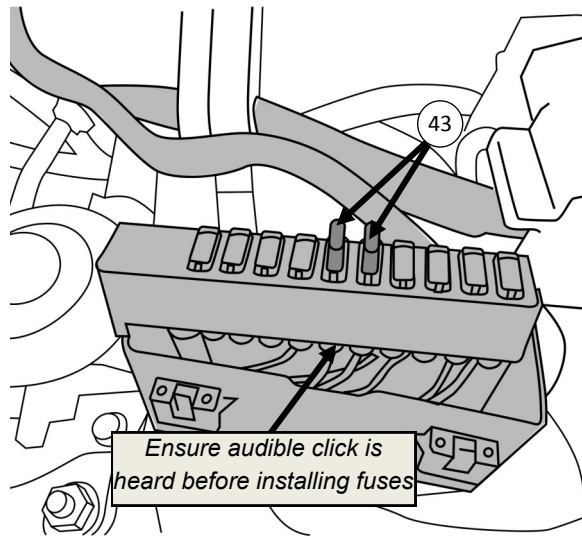


Figure 25: Connect to Accessory Fuse Box

Step 25:

- Feed in White fuse terminal on Winch Controller Harness (Item 11) from the bottom of the fuse box and connect to position 5 ("WINCH OLI 5A") and Red fuse terminal to position 6 ("WINCH CONTROL 5A") on Accessory Fuse Box.
- Ensure an audible click is heard on insertion of the terminals into the Accessory Fuse Box.
- Install 2X Fuse 5A (Item 43) supplied with Winch Controller Harness (Item 11) into Accessory Fuse Box at positions 5 and 6.
- Secure Winch Controller Harness (Item 11) bundle to Accessory Fuse Box entry point with 1X Cable Tie 200mm (Item 44).

HINT	Dismount fuse box to assist with installing white and red wires.
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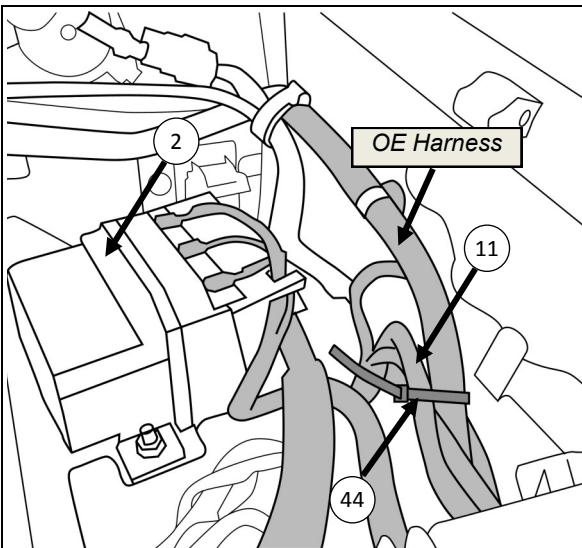


Figure 26: Route Winch Controller Harness

Step 26:

- Route the Winch Controller Harness (Item 11) near the OE harness on the LH apron and secure with 1X Cable Tie 200mm (Item 44) in position shown in Figure 26.

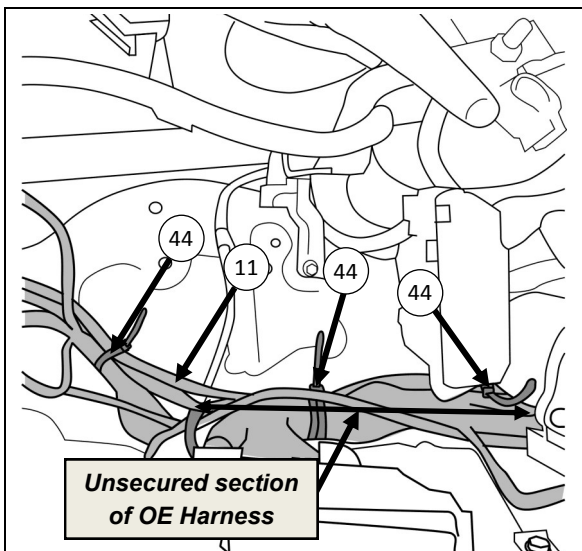


Figure 27: Route Winch Controller Harness

Step 27:

- Continue to route Deutsch Socket end of Winch Controller Harness (Item 11) towards front of the vehicle and underneath the Fuel Sedimenter.
- Ensure that the PVC section of the Winch Controller Harness (Item 11) is placed underneath the unsecured OE harness as shown in Figure 27. Secure with 3X Cable Tie 200mm (Item 44) to OE wiring harness bundle.



NOTE: Take care not to cable tie around washer hose that runs along the OE wiring harness bundle.



NOTE: Ensure all cables & wiring are clear from any hot, moving or sharp edges. Failure to do so could result in damage to the electrical system.

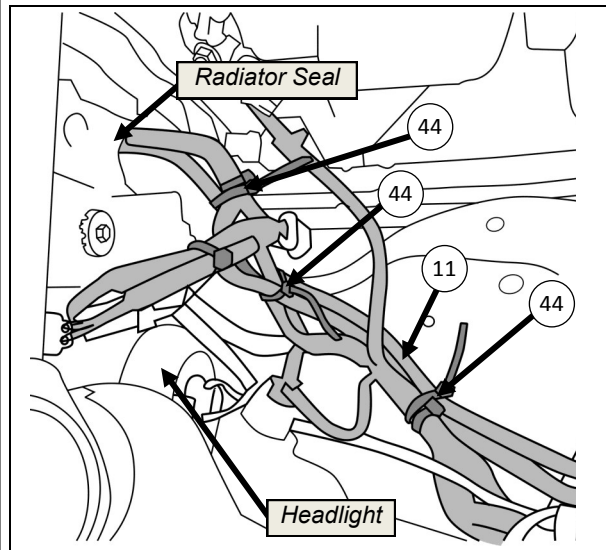


Figure 28: Route Winch Controller Harness

Step 28:

- Continue routing the Deutsch Socket end of the Winch Controller Harness (Item 11) under the Battery Tray as shown and secure with 2X Cable Ties 200mm (Item 44) to Bullbar and OE Harness.
- Route the Deutsch Socket towards the front of the vehicle by passing through the radiator seal on the vehicle.

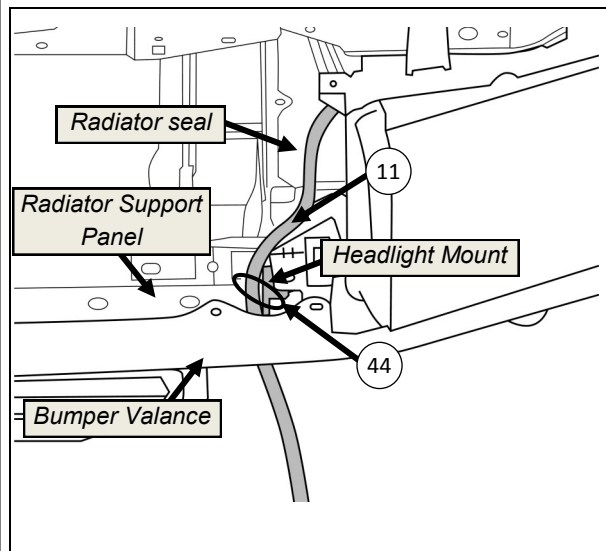


Figure 29: Route Deutsch Socket

Step 29:

- Route Deutsch Socket end of Winch Contactor Harness towards the front of the vehicle (Item 11) and leave aside slack for installation to Bull Bar later.
- Secure Winch Controller Harness to Headlight mount with 1X Cable Tie 200mm (Item 44).

	NOTE:	Ensure that the grille mounting clips are not covered.
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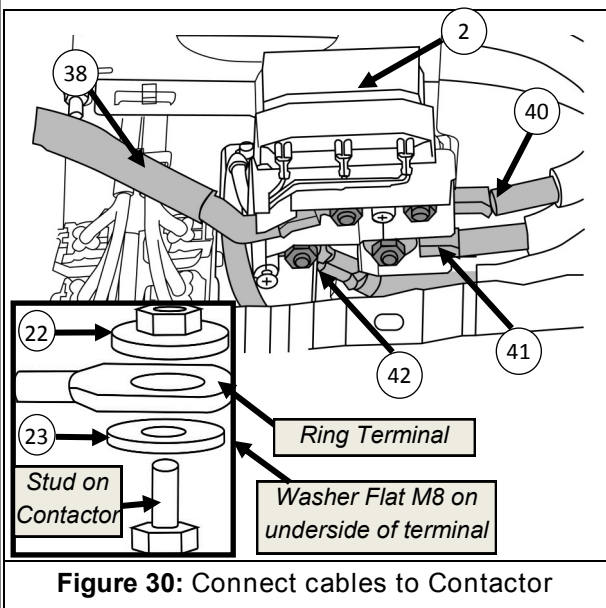


Figure 30: Connect cables to Contactor

Step 30:

- Connect Cable Motor A (Item 40), Cable Motor F1 (Item 41) & Cable Motor F2 (Item 42) to the correct terminals on the Contactor (Item 2) as shown in Figure 30, using 3X Washer Flat M8 (Item 23) and 3X Nut Hex Flange M8 x 1.25P (Item 22). Refer to labels on individual cables for identification.
- Install 1 x Washer Flat M8 (Item 23) on the underside of each ring terminal of Cable Motor A/F1/F2 (Items 40/41/42)

	NOTE:	Refer to Contactor Cover Inner markings for cable positions
	NOTE:	Ensure the "F2-C" labelled end of Cable Motor F2 is connected to Contactor. This is essential to achieve clearance below the cover.
		Nut Hex Flange M8 x 1.25P torque: 8 Nm

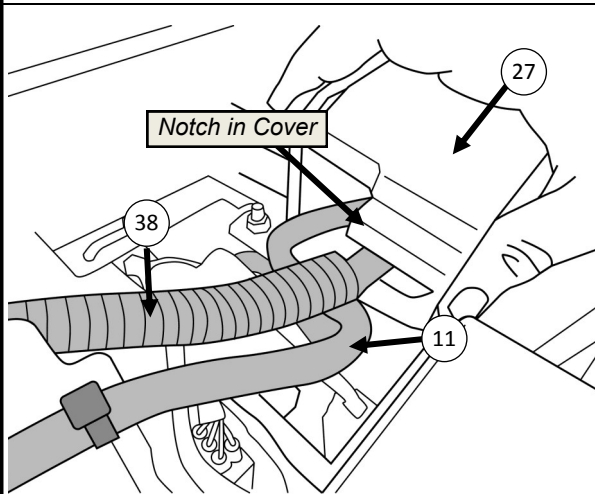


Figure 31: Install Contactor Cover Outer

Step 31:

- Place Contactor Cover Outer (Item 27) onto Contactor Cover Inner (Item 26) and fasten using 2X Screw Countersunk M5 x 12 (Item 28).

HINT	Use a 90° Philips Head Socket to fasten the screws	
	NOTE:	Ensure that the Winch Controller Harness routes through notch in Contactor Cover Outer.
	Screw Countersunk M5 torque: 2.0 Nm	

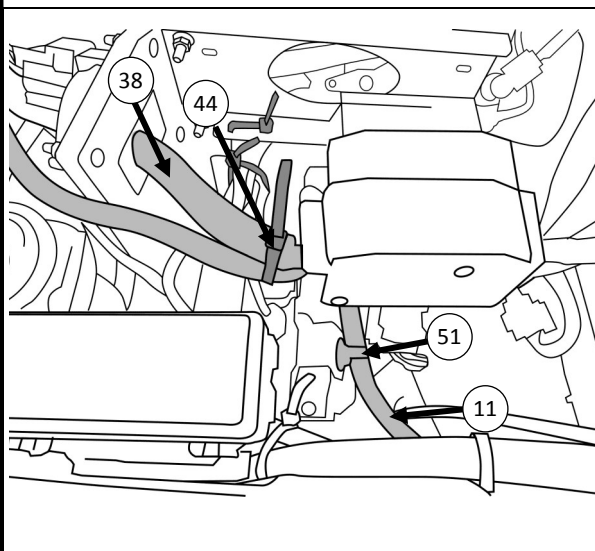


Figure 32: Secure Winch Controller Harness

Step 32:

- Secure Winch Controller Harness (Item 11) to Cable Positive (Item 38) with 1X Cable Tie 200mm (Item 44) in position shown in Figure 32.
- Fit 1X 7x12 Clip - Cable Tie 140mm (Item 51) to OE injector module bracket slot and secure Winch Controller Harness (Item 11) in position shown in Figure 32.

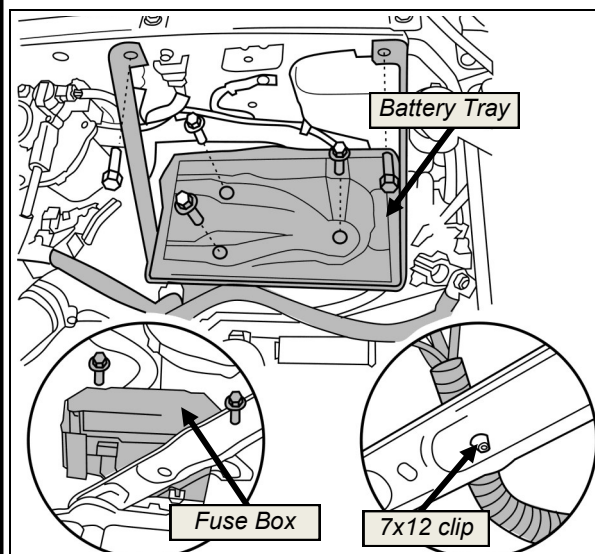


Figure 33: Reinstall Battery Tray

Step 33:

- Reinstall Fuse Box and Battery Tray to vehicle by reversing the removal steps.

	Bolt Hex M8 torque (Battery Tray - Upper): 12.5 Nm	
	Bolt Hex M8 torque (Battery Tray - Lower): 8.0 Nm	
	Bolt Hex M6 torque (Fuse Box): 8.4 Nm	
	NOTE:	Do not refit battery at this stage

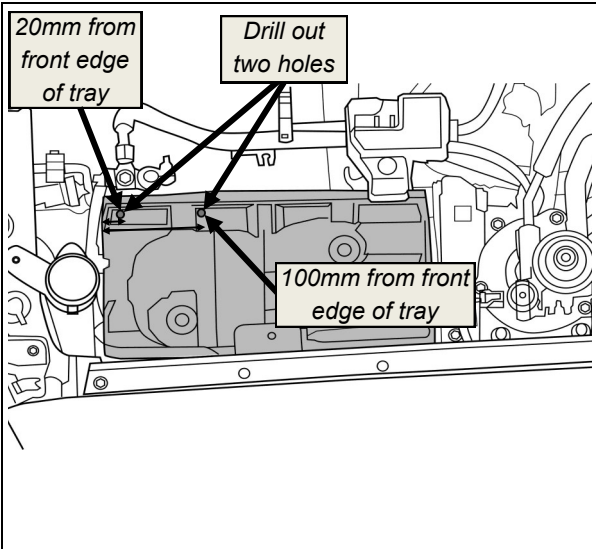


Figure 34: Drill out holes into Battery Tray

Step 34:

- Using a ruler, measure and mark out two points; 20mm and 100mm from the front edge on the inboard side of the Battery Tray respectively as shown.
- Drill out two holes as shown with a $\phi 5$ mm drill bit to accept a cable tie to secure Cable Motor A/F1/F2 (Items 40/41/42) and Cable Negative (Item 39)
- Feed in 1X Cable Tie 370mm (Item 45) through holes to secure cables in Step 49. Do not secure Cable tie at this stage.

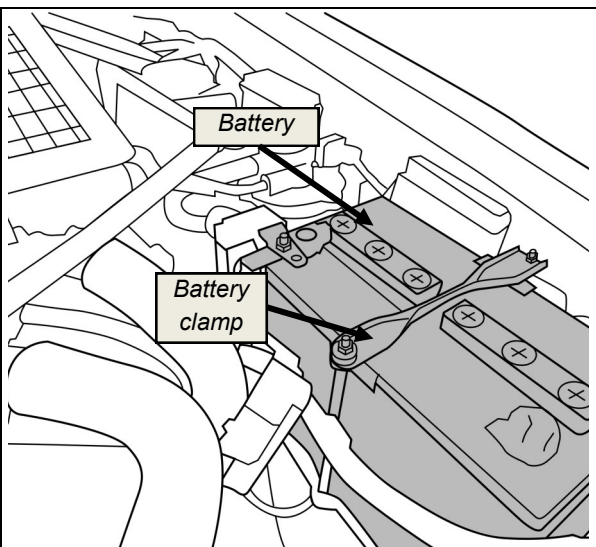


Figure 35: Reinstall Battery

Step 35:

- Reinstall Battery into Battery Tray and refit Battery clamp by reversing the removal steps.
- Refit Positive Terminal to Positive Post on Battery.

	Bolt Hex M6 torque (Battery clamp): 8.0 Nm
	Nut Hex M6 torque (Battery Clamp): 5.0 Nm
	Nut Hex M6 torque (Battery Terminal): 6.9 Nm
	NOTE: Do not refit Negative Terminal at this stage

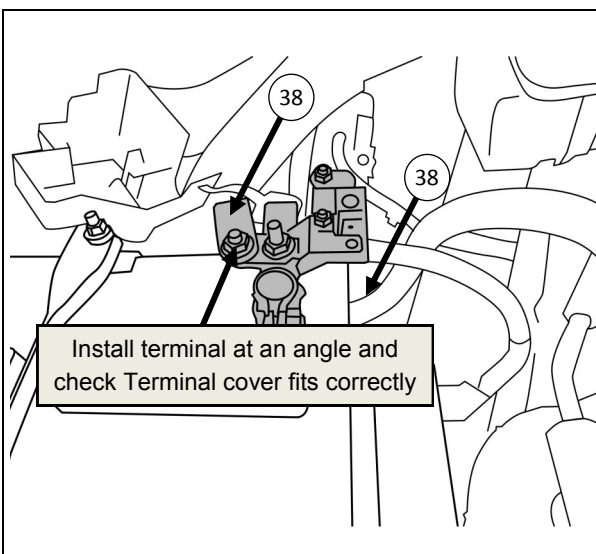


Figure 36: Connect Cable Positive

Step 36:

- Connect Cable Positive (Item 38) terminal to Battery Positive at a slight angle relative to the OE terminal using 1X Screw Hex M8 x 1.25P x 16 (Item 24), 1X Washer Flat M8 (Item 23) and 1X Nut Flange Hex M8 x 1.25P (Item 22). Finger tighten at this stage.
- Ensure that the Positive Terminal Cover can clip on and off easily after the Cable Positive (Item 38) is connected.
- Once checked, tighten Cable Positive (Item 38) terminal to specified torque and clip Positive Terminal Cover back on.

	NOTE: Install Screw head with washer from underside of Positive Battery Terminal
	Nut Hex M8 Flange torque: 8 Nm

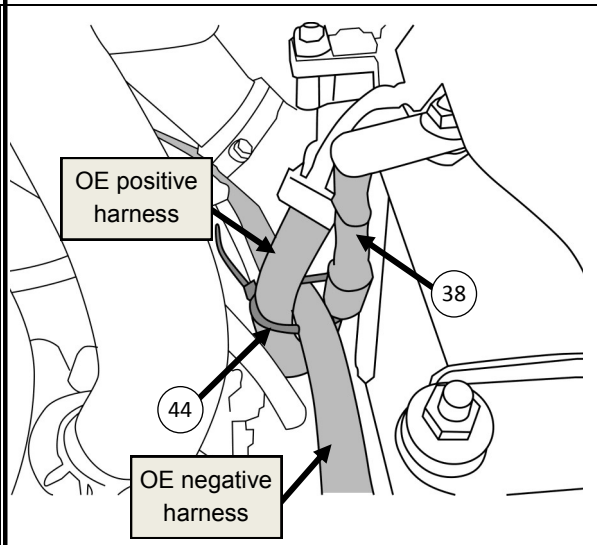


Figure 37: Route Cable Positive

Step 37:

- Secure Cable Positive (Item 38) to OE Positive and Negative harness with 1X Cable Tie 200mm (Item 44).

	NOTE: Ensure all cables & wiring are clear from any hot, moving or sharp edges. Failure to do so could result in damage to the electrical system.
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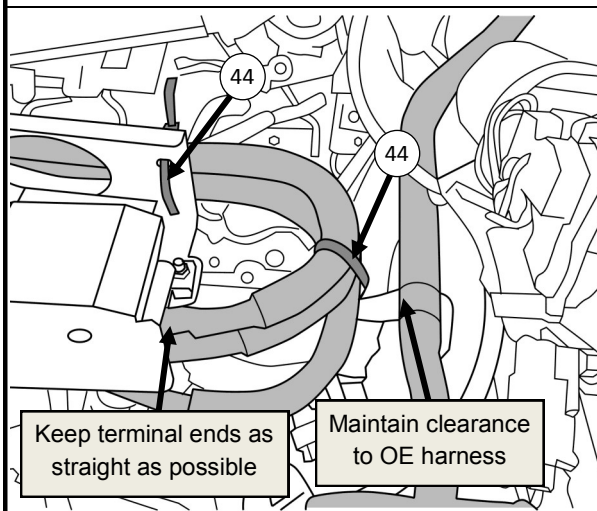


Figure 38: Route Winch Cables

Step 38:

- Route Cable Motor A/F1/F2 (Items 40/41/42) onto Winch Harness Support Bracket (Item 37) and secure with 1X Cable Tie 200mm (Item 44) through slots on Bracket.
- Secure bundle of cables with 1X Cable tie 200mm (Item 44) and ensure that clearance is maintained to the OE harness and Battery Isolator (if installed).

	NOTE: Ensure the bend radius of the cables out of the Contactor is maximised so as to not bend the crimped terminal end of the wire.
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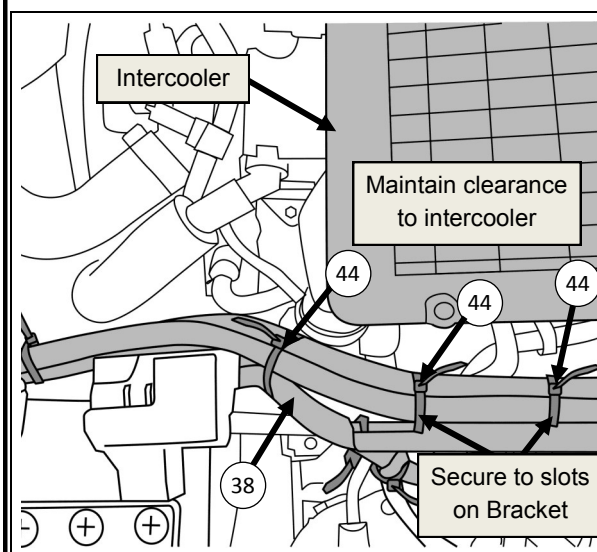


Figure 39: Route Winch Cables

Step 39:

- Route Cable Motor A/F1/F2 (Items 40/41/42) onto Winch Harness Support Bracket (Item 37) and secure with 2X Cable Tie 200mm (Item 44) through slots on Bracket.
- Secure bundle of cables with 1X Cable tie 200mm (Item 44) to Cable Positive and ensure that adequate clearance is maintained to the Intercooler.

	NOTE: Ensure all cables & wiring are clear from any hot, moving or sharp edges. Failure to do so could result in damage to the electrical system.
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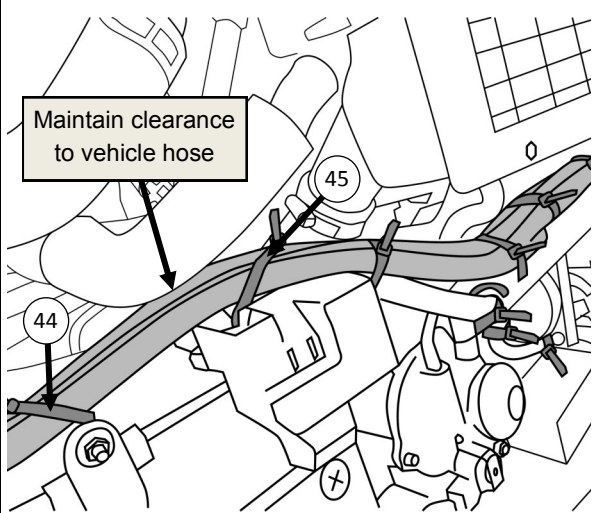


Figure 40: Route Winch Cables

Step 40:

- Route Cable Motor A/F1/F2 (Items 40/41/42) towards the front of the vehicle.
- Secure bundle in 2 locations shown
 - ⇒ To OE Positive Harness with 1X Cable Tie 370mm (Item 45)
 - ⇒ To J-bolt using 1X Cable tie 200mm (Item 44)
- Leave rest of wire bundle slack for installation to Winch (Item 1) at Step 46.

	NOTE:	Maintain adequate clearance to vehicle hose by running cables in parallel when in close proximity to hose
	NOTE:	Ensure all cables & wiring are clear from any hot, moving or sharp edges. Failure to do so could result in damage to the electrical system.

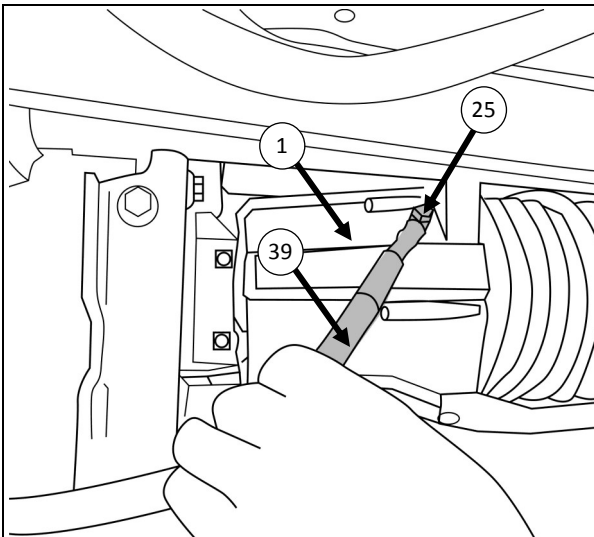


Figure 41: Connect Cable Negative to Winch

Step 41:

- Place Winch (Item 1) close to front of vehicle.
- Connect Cable Negative (Item 39) to Winch motor ground using 1X Screw Hex M8 x 1.25P x 12 (Item 25) and 1X Washer Flat M8 (Item 23).

	NOTE:	Install Cable Negative at a ~45° angle relative to the winch to ensure it clears the winch cradle and doesn't stress the crimped end of the wire.
	Screw Hex M8 x 1.25P x 12 torque: 8 Nm	

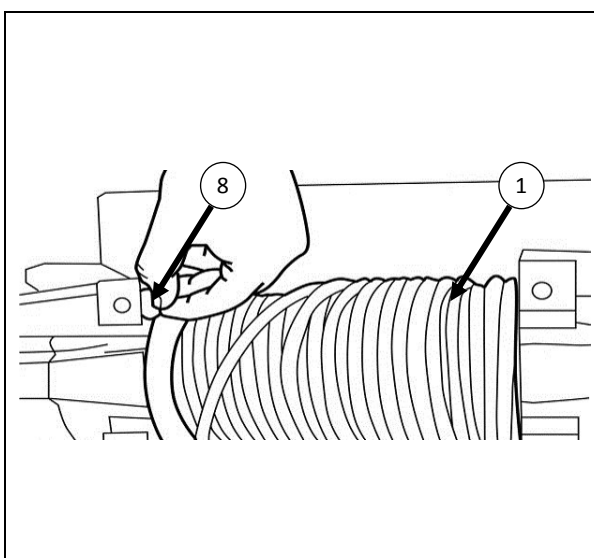


Figure 42: Install Winch Nuts

Step 42:

- Set 4X Nut Lock Flange Hex M10 x 1.5P (Item 8) into pockets on underside of Winch (Item 1) feet as shown in Figure 42.

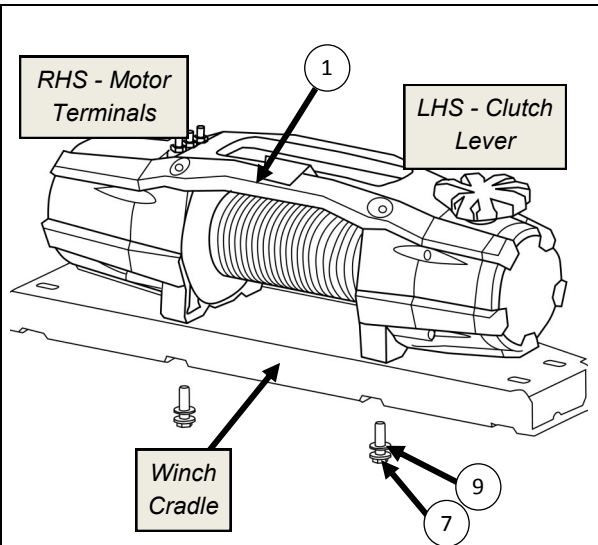


Figure 43: Fit Winch to Winch Cradle

Step 43:

- Fit up Winch Cradle to vehicle according to instructions supplied with Bull Bar.
- Place Winch (Item 1) onto Winch cradle, ensuring that the clutch lever is on the LHS of the vehicle and the motor terminals are on the RHS of the vehicle.
- Fasten Winch (Item 1) to Winch Cradle using 4X Screw Flange Hex M10 x 1.5P x 35 (Item 7) and 4X Washer Flat M10 x 23 x 2 (Item 9).

	NOTE: Place Washers under head of Screws
	Screw Hex Flange M10 x 1.5P: 30 Nm

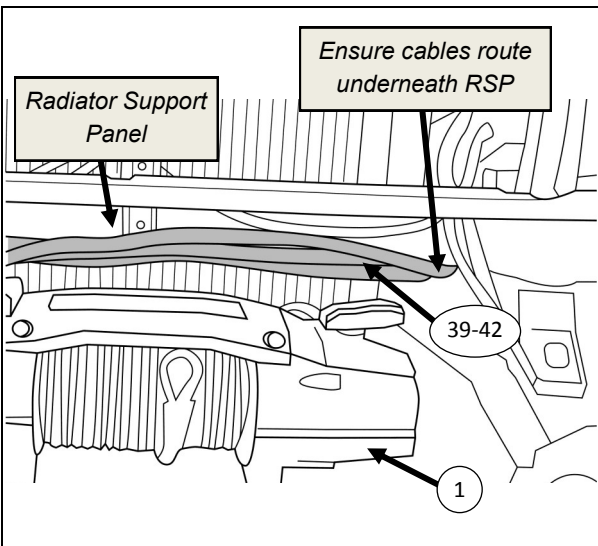


Figure 44: Route Winch Cables along RSP

Step 44:

- Route slack length of Cable Motor A/F1/F2 (Items 40/41/42) to front of vehicle towards the Winch (Item 1) by routing underneath the radiator support panel close to the vehicle chassis and headlight as shown.
- Follow same routing for Cable Negative (Item 39) and feed through underneath the radiator support panel into the vehicle engine bay towards the vehicle battery.

	NOTE: Do not secure the cables yet. Secure at Step 48 once cables are connected to Winch
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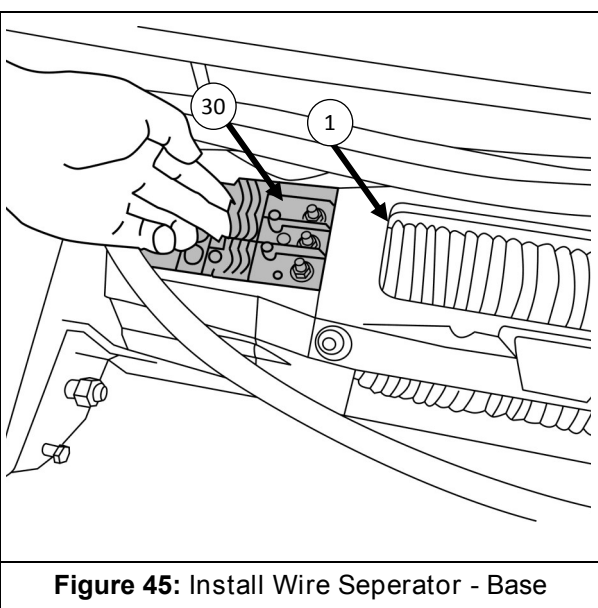


Figure 45: Install Wire Separator - Base

Step 45:

- Place Wire Separator - Base (Item 30) over motor terminals on Winch (Item 1) as shown in Figure 45.

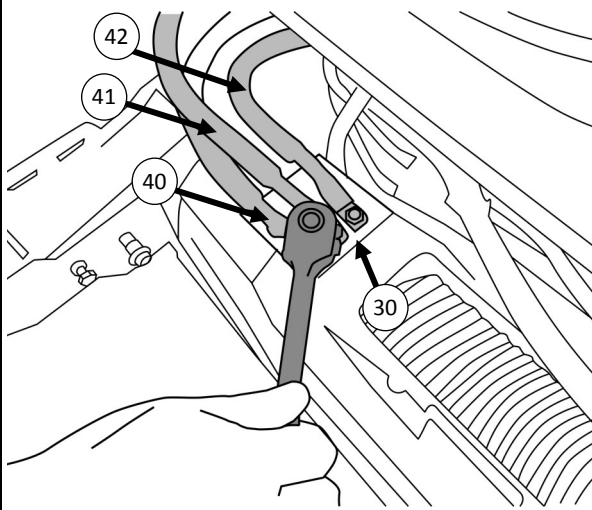


Figure 46: Install Winch cables to Winch

Step 46:

- Install Cable Motor A/F1/F2 (Items 40/41/42) to Winch Motor. Refer to markings on Wire Separator - Base for correct position for each cable.
- Install using 3X Nut Hex Flange M8 x 1.25P (Item 22).



NOTE: Ensure the "F2-W" labelled end of Cable Motor F2 is connected to Winch Motor.



Nut Hex Flange M8 x 1.25P torque: 8 Nm

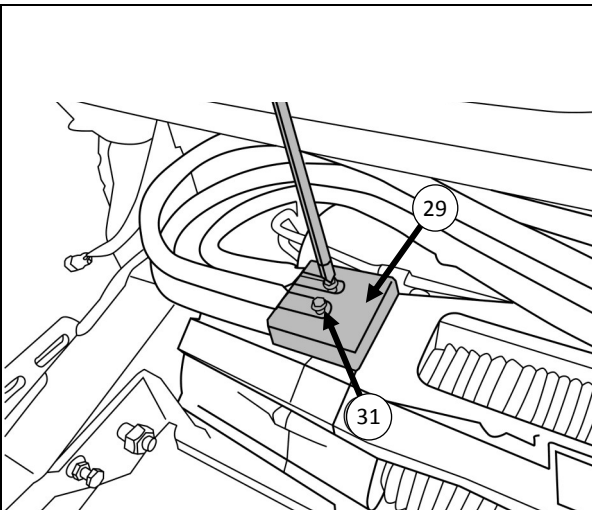


Figure 47: Install Wire Separator - Top

Step 47:

- Place Wire Separator - Top (Item 29) over Wire Separator - Base (Item 30) and install using 2X Screw 10G x 16 (Item 31).



Screw 10G x 16 torque: 1.5 Nm

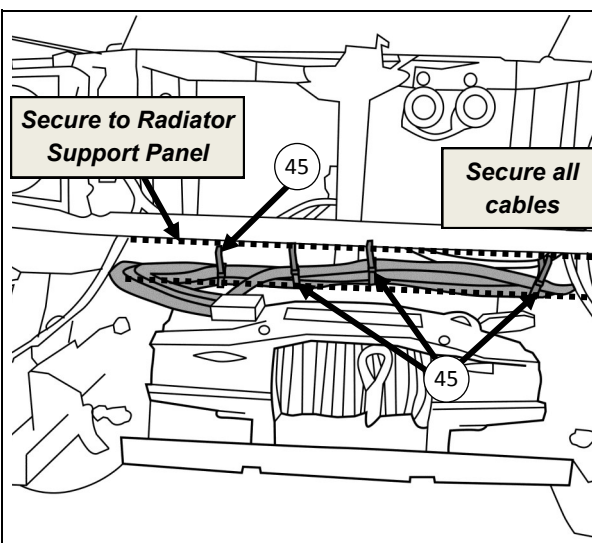


Figure 48: Route Winch Cables

Step 48:

- Secure Cable Motor A/F1/F2 (Items 40/41/42) and Cable Negative (Item 39) to radiator support panel in 3 locations shown using 3X Cable Tie 370mm (Item 45)
- Secure Cable Motor A/F1/F2 (Items 40/41/42) using 1X Cable Tie 370mm (Item 45) to radiator support panel in 1 location shown.



NOTE: Ensure the bend radius of the cables out of the Winch is maximised so as to not bend the crimped terminal end of the wire.

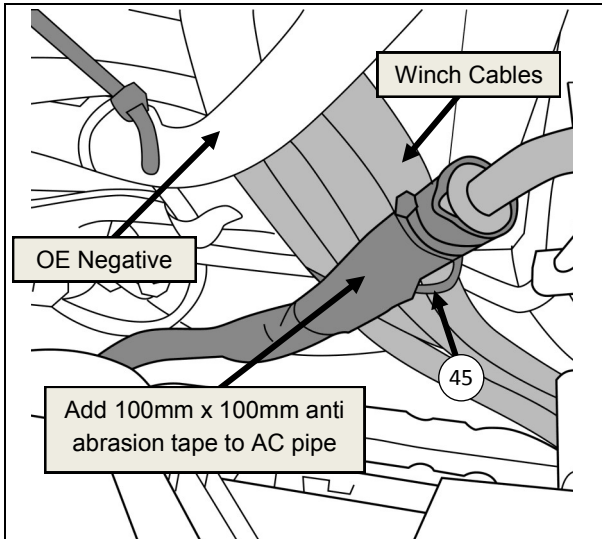


Figure 49: Route Winch Cables

Step 49:

- Add anti-abrasion tape 100mm x 100mm (Item 36) to AC pipe protector near winch cables to protect the AC pipe.
- Secure bundle of cables to previously inserted cable tie at Step 34.



NOTE:

Ensure all cables & wiring are clear from any hot, moving or sharp edges. Failure to do so could result in damage to the electrical system.

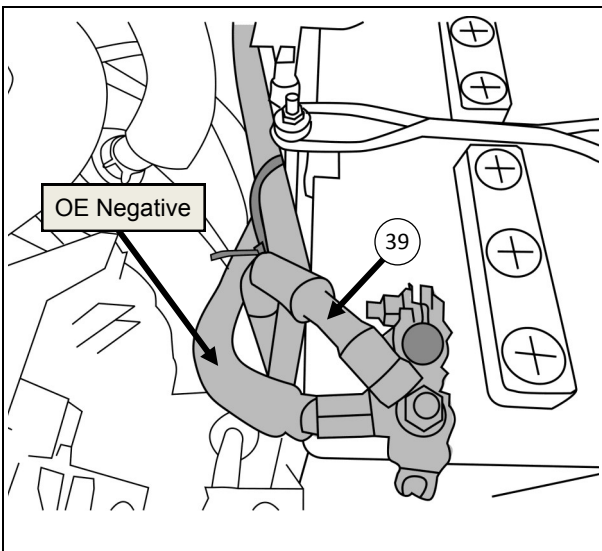


Figure 50: Connect Cable Negative

Step 50:

- Reconnect Negative Terminal to Battery.
- Connect Cable Negative (Item 39) to Negative Terminal on battery in orientation shown. Ensure Cable Negative (Item 39) routes inside of the OE Negative Cable as shown in Figure 50.



NOTE:

Ensure all cables & wiring are clear from any hot, moving or sharp edges. Failure to do so could result in damage to the electrical system.



Nut Hex M6 Nyloc torque: 6.9 Nm

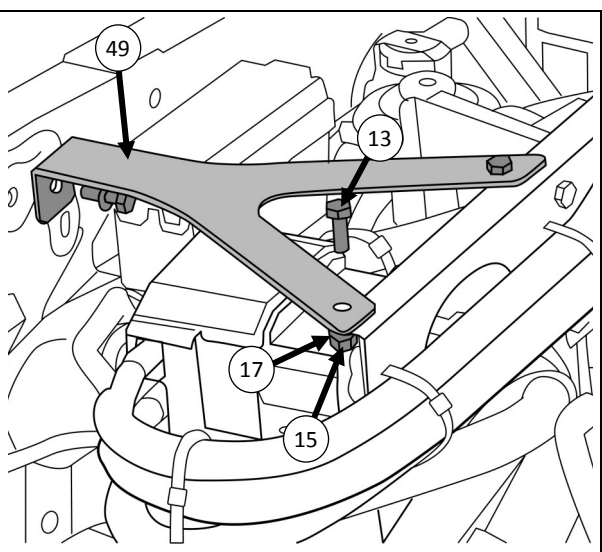


Figure 51: Fit Winch Assy Brace

Step 51:

- Fit Winch Assy Brace (Item 49) to Winch Harness Support Bracket (Item 37) and vehicle apron using 3X Screw Hex M6 x 1.0P x 20 (Item 13), 3X Washer Flat M6 (Item 17) and 2X Nut M6 Nyloc X 1.0P (Item 15).



Screw Hex M6 x 1.0P x 20 torque: 9.0 Nm

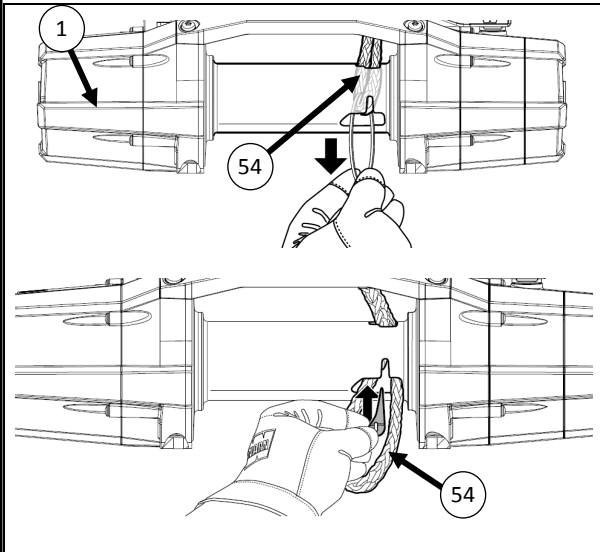


Figure 52: Install rope to winch



NOTE:

Step 52 for Winch - Lightweight Fitment Only (Synthetic Rope)

Step 52:

- Install Synthetic Rope 100' (Item 54) to Winch (Item 1).
- Refer to Warn Synthetic Rope Installation Guide (Item 56) included in kit for advice on installing synthetic rope.
- Ensure that the Ballistic Nylon sleeve (Item 55) included in the kit is installed correctly as per the Synthetic Rope Installation Guide (Item 56) i.e. slide the sleeve along the length of the rope towards the hook.
- Complete installation information for synthetic rope replacement log, including installation date, which can be found on page 30 of these instructions.

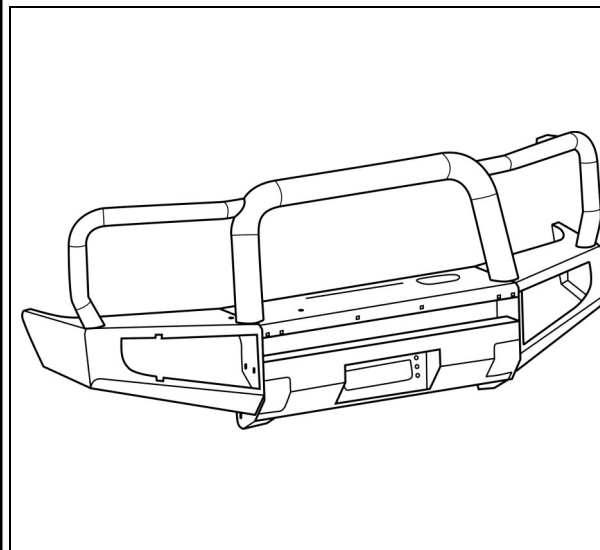


Figure 53: Bring Bull Bar close to vehicle

Step 53:

- Position Bull Bar on a soft surface close to vehicle to prepare to fit the Roller or Hawse Fairleads (Item 3), and the Remote Socket Bracket (Item 32).

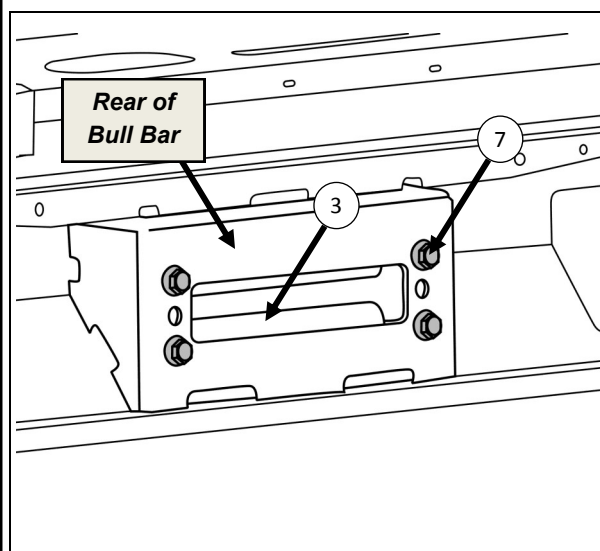


Figure 54: Install Roller Fairlead



NOTE:

Step 54 for Winch - Standard Fitment Only (Steel Cable)

Step 54:

- Position Roller Fairlead (Item 3) on front of Bull Bar.
- Install using 4X Screw Flange Hex M10 x 1.5P x 35 (Item 7) fed through the back side of the Bull Bar.
- Fasten using 4X Nut Nyloc M10 x 1.5P (Item 10) and 4X Washer Flat M10 x 23 x 2 (Item 9) on the front side of the Roller Fairlead (Item 3).



NOTE:

Add tape to edges of fairlead opening in bullbar when installing the Roller Fairlead to prevent chipping the Bull Bar finish.



Screw Flange Hex M10 x 1.5P x 35 torque: 30 Nm

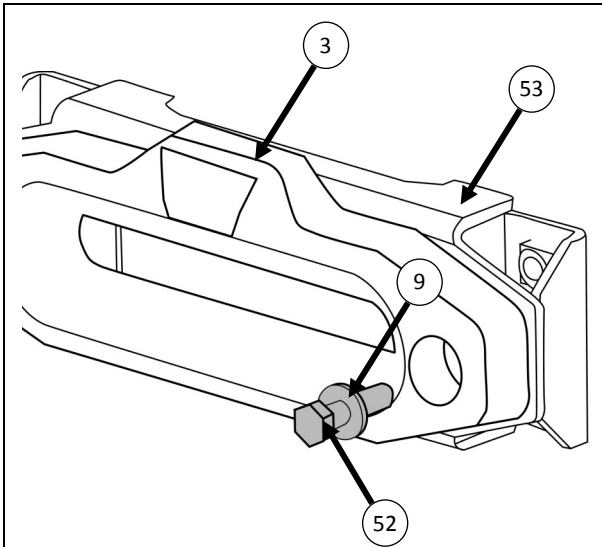


Figure 55: Install Hawse Fairlead to Spacer



NOTE:

Steps 55-56 for Winch - Lightweight Fitment Only (Synthetic Rope)

Step 55:

- Install Hawse Fairlead (Item 3) to Hawse Spacer (Item 53) using 2X Bolt Hex M10 x 1.5P x 40 (Item 52), 4X Washer M10 x 23 x 2 (Item 9) and 2X Nut Nyloc M10 x 1.5P (Item 10).
- Tighten fasteners to correct torque.



Bolt Hex M10 x 1.5P x 40 torque: 44 Nm

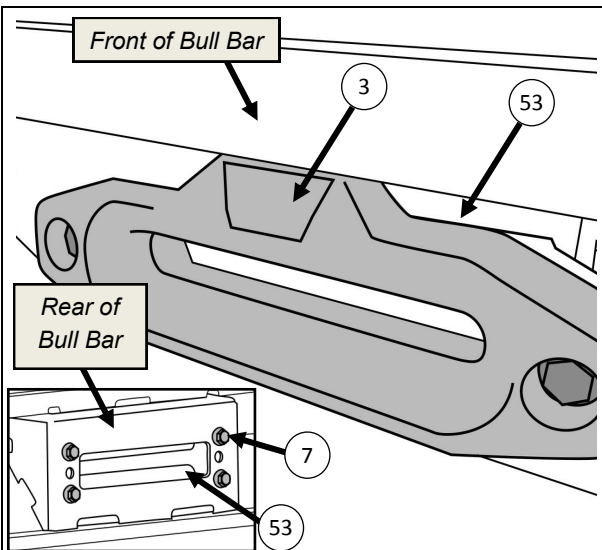


Figure 56: Install Hawse Spacer to bullbar

Step 56:

- Install Hawse Spacer and Fairlead assembly to Bull Bar using 4X Screw Flange Hex M10 x 1.5P x 35 (Item 7) fed from the back side of the Bull Bar.
- Tighten fasteners to correct torque.



NOTE:

Add tape to edges of fairlead opening in Bull Bar when installing the Hawse Fairlead to prevent chipping the Bull Bar finish.



Screw Flange Hex M10 x 1.5P x 35 torque: 30 Nm

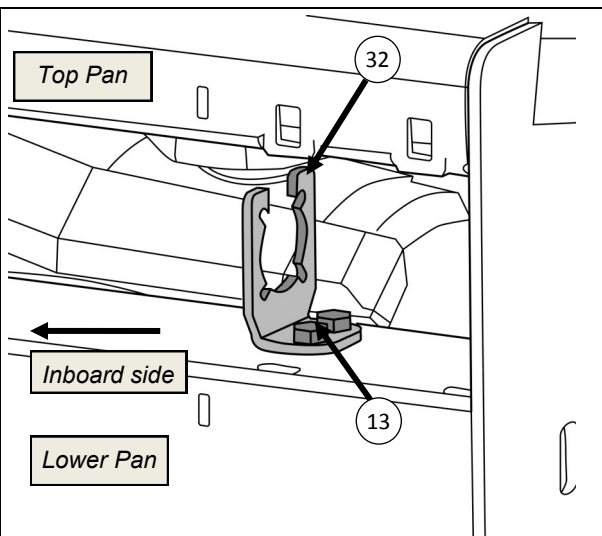


Figure 57: Install Remote Socket Bracket

Step 57:

- Locate 2 M6 holes on LHS of Bull Bar between the top and lower pans.
- Face Remote Socket Bracket towards inboard of vehicle and install (Item 32) onto Bull Bar using 2X Screw M6 x 1.0P x 20 (Item 13), 2X Washer Flat M6 (Item 17) and 2X Nut Nyloc Hex M6 x 1.0P (Item 15) as shown in Figure 57.



NOTE:

Place Washers under head of Nuts



Nut Nyloc Hex M6 x 1.0P torque: 9.0 Nm

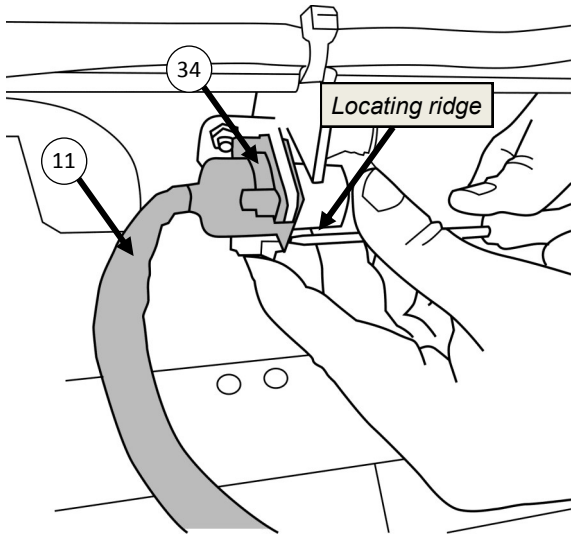


Figure 58: Install Remote Control Socket

Step 58:

- Install Remote Control Socket from Winch Controller Harness (Item 11) onto Remote Socket Bracket (Item 32) using Remote Socket plastic nut (Item 34) and 4X Screw M3 x 16 (Item 35).
- Position locating ridge on Remote Control Socket with opening in remote socket bracket as shown in Figure 58.

HINT	Slide rubber boot off Winch Controller Harness temporarily to aid in fitment.	
	NOTE:	There is enough slack in the contactor wiring harness to allow for the remote control socket to be installed with the Bull Bar off the vehicle
	Screw M3 x 16 torque: 1.0 Nm	

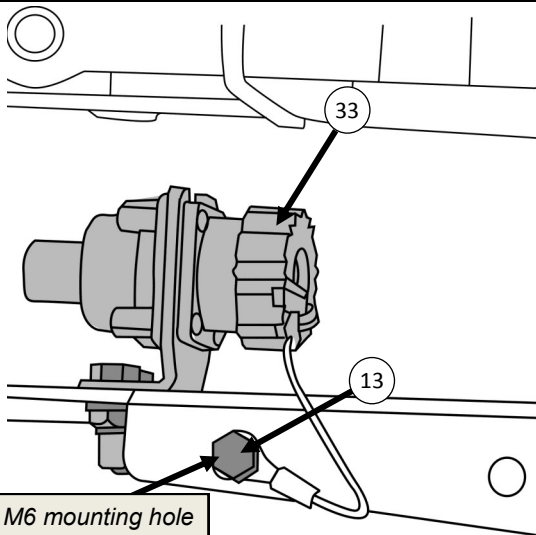


Figure 59: Install Remote Socket Lanyard

Step 59:

- Locate M6 mounting hole on lower pan of bullbar near Remote Socket Bracket (Item 32).
- Install Remote Socket Cap & Lanyard (Item 33) onto Bull Bar using 1X Screw M6 x 1.0P x 20 (Item 13), 1X Washer Flat M6 (Item 17) and 1X Nut Nyloc Hex M6 x 1.0P (Item 15) as shown in Figure 59.

	NOTE:	Ensure lanyard is threaded through cap before fastening to bullbar
	Nut Nyloc Hex M6 x 1.0P torque: 9.0 Nm	

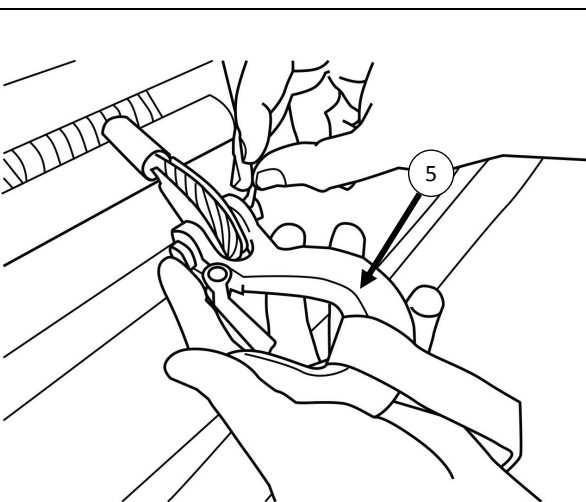


Figure 60: Attach hook to cable

	NOTE:	Step 60 for Winch - Standard Fitment Only (Steel Cable)
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Step 60:

- Remove plastic wrap from steel cable on winch drum.
- Rotate Winch clutch lever to disengage clutch and reel 30 cm of steel cable from the drum.
- Pass steel cable through Roller Fairlead (Item 3) and install Winch Hook and Pin (Item 5) as shown in Figure 60.
- Retain hook and pin with split pin as supplied in Winch Kit. Open split pin once installed.

	WARNING:	Always wear heavy leather gloves when rotating clutch lever or when handling winch rope or cable
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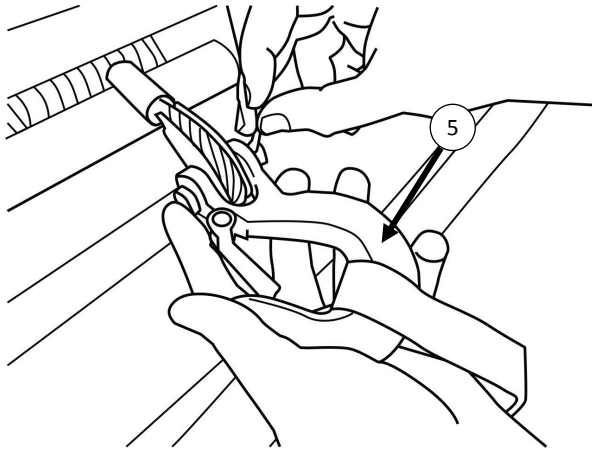


Figure 61: Attach hook to rope



NOTE:

Step 61 for Winch - Lightweight Fitment Only (Synthetic Rope)

Step 61:

- Rotate Winch clutch lever to disengage clutch and reel 30 cm of synthetic rope from the drum.
- Pass synthetic rope through Hawse Fairlead (Item 3) and install Winch Hook and Pin (Item 5) as shown in Figure 61.
- Retain hook and pin with split pin as supplied in Winch Kit. Open split pin once installed.



WARNING:

Always wear heavy leather gloves when rotating clutch lever or when handling winch rope or cable

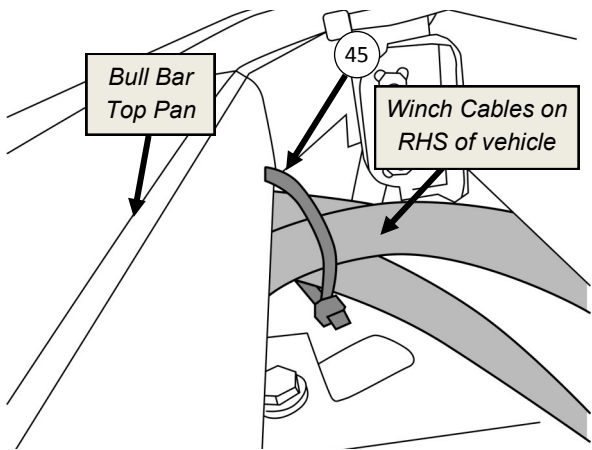


Figure 62: Secure Winch Cables

Step 62:

- Install Bull Bar to vehicle as per instructions supplied with PZQ2960382/392/403/408/413.
- Secure Cable Motor A/F1/F2 (Items 40/41/42) to fog light harness slot on Bull Bar near Winch Motor connections using 1X Cable Tie 370mm (Item 45) as shown.

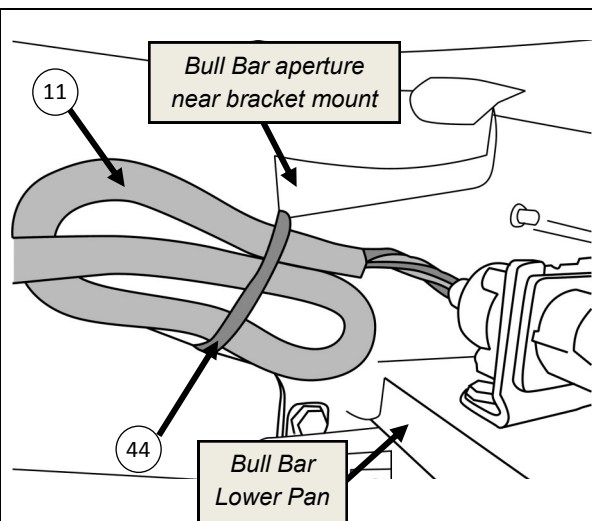


Figure 63: Secure Winch Controller Harness

Step 63:

- Secure the slack length of Winch Controller Harness (Item 11) to bullbar aperture near Remote Socket Bracket mount (Item 32) with 1X Cable Tie 200mm (Item 44) as shown.

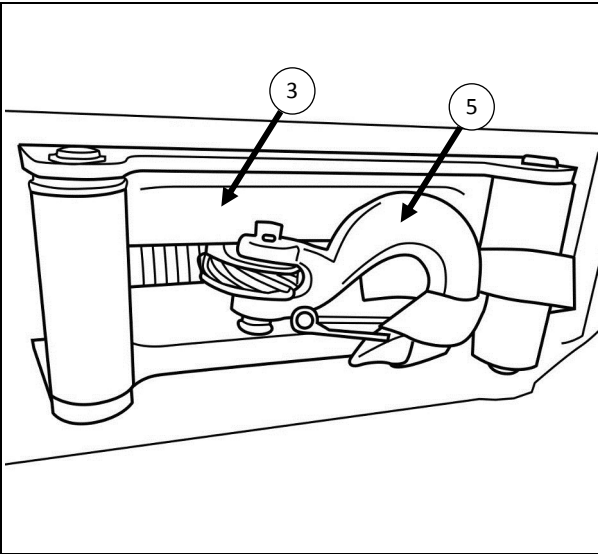


Figure 64: Stow hook on RFL



NOTE:

Step 64 for Winch - Standard Fitment Only (Steel Cable)

Step 64:

- Stow hook for winch in front of horizontal rollers as shown in Figure 64 by powering up the Winch (Item 1).
- Retract winch to apply tension to winch cable.
- Refer to Warn Installation/Operation Guide (Item 46) for further advice about stowing the hook for storage.



CAUTION:

Ensure hands are clear of winch hook and cable when retracting winch to apply tension. Use supplied strap when retracting.

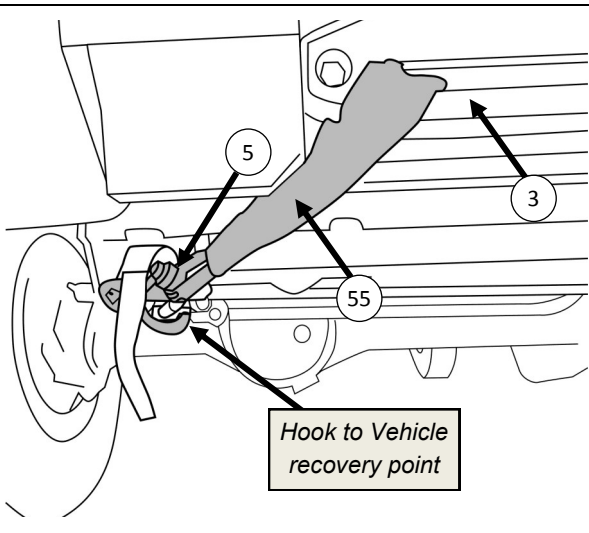


Figure 65: Stow Lightweight Hook



NOTE:

Step 65 for Winch - Lightweight Fitment Only (Synthetic Rope)

Step 65:

- To stow hook for the lightweight winch, route rope across Hawse Fairlead (Item 3) as shown in Figure 65 by releasing clutch and then powering up the Winch (Item 1).
- Attach to hook stowage point on vehicle recovery point with hook orientated as shown.
- Slide the Ballistic Nylon Sleeve (Item 55) as close to the hook as possible to ensure that there is no exposed synthetic rope (Item 54) past the Hawse Fairlead (Item 3) as shown.
- Retract winch to apply tension to winch rope.
- Refer to Warn user manual for further details about retracting rope for storage.

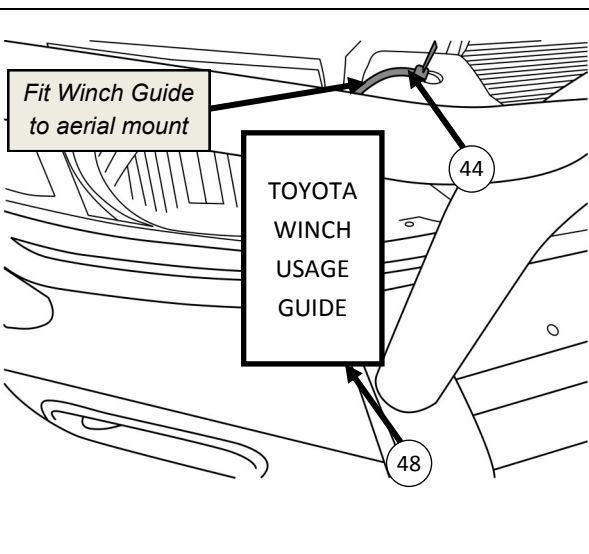


Figure 66: Fit Toyota Winch Usage Guide

Step 66:

- Fit Toyota Winch Usage Guide (Item 48) to aerial mount at the front of the bar using 1X Cable Tie (Item 44) through punch hole on the Winch Guide.
- Remove this Guide when the car is delivered to the customer and ensure the customer understands the instructions in the Winch Guide.
- Test operation of winch according to instructions in Warn Installation/Operation Guide (Item 46) and Toyota Winch Usage Guide (Item 48).

Warn Zeon 9 Synthetic Rope Replacement Log

Maintenance Instructions:

- Replace rope every 12 months with TOYOTA synthetic winch rope only.
- Inspect the rope before and after each winching operation. Frayed or damaged rope must be replaced immediately.
- The rope must always spool onto the drum as indicated by the drum rotation decal on the winch.
- Rope should be replaced when:
 - ⇒ Rope bulk anywhere along the length is reduced by 10% or more by abrasion.
 - ⇒ Two or more adjacent strands are cut.
 - ⇒ Flat areas or lumps are found that are not eliminated by flexing rope.
 - ⇒ Excessive fused or melted fibers are found. Any such areas will be stiff and the rope will have a glazed appearance.
- Refer to WARN[®] synthetic rope manual for further details.

Warn Zeon 9 Synthetic Rope Replacement Log

Date	Comment
	<i>Initial Installation</i>

