



4X4 ENGINEERING

SOHZJ70WL

SAFARI OIL COOLER SYSTEM

Toyota 70 Series (1HZ) Landcruiser - Wide Nose



Parts List

ITEM	PART NO	DESCRIPTION	QTY
1	330-055-000	CORE - OIL COOLER	1
2	330-051-200	BRACKET - CORE MOUNTING - UPPER	1
3	330-051-000	BRACKET - CORE MOUNTING - LOWER	1
4	330-051-500	ROD - BRACKET CLAMP	4
5	330-448-200	ISOLATOR - RUBBER - CORE - UPPER	1
6	330-448-000	ISOLATOR - RUBBER - CORE - LOWER	1
7	000-1017	BOLT - SHOULDER - M5 x 0.8 x 8mm (17mm O/L)	8
8	000-304	WASHER - STAR - 6mm - S/S	14
9	000-987-290	TIE-STRAP - NYLON - 290mm LONG	2
10	000-949-825	BOLT - BANJO - M22 x 1.5	2
11	000-318-900	WASHER - ALUMINIUM - 22/29mm	4
12	330-811-000	HOSE ASSY - 16mm ID x 1360mm LONG	1
13	330-811-200	HOSE ASSY - 16mm ID x 1110mm LONG	1
14	000-642-900	ADAPTOR - ST. - M22 x 1.5 x 7/8" JIC	2
15	330-052-000	THERMOSTAT ASSY - OIL FILTER	1
16	000-461-073	O'RING - VITON - 73mm ID x 3.5mm SECTION	1
17	000-935-100	CLAMP - HOSE SUPPORT - 29/15	4
18	330-051-900	BRACKET - CLAMP MOUNTING	1
19	000-013-100	BOLT - HEX - M8 x 1.25 x 25mm (SEMS)	2
20	000-005-200	BOLT - HEX - M6 x 1.0 x 30mm (SEMS)	2
21	000-204	NUT - NYLOC - 6mm x 1.0 - S/S	2
22	000-321	WASHER - BODY - 6mm x 20mm	2
23	330-048-000	BRACKET - FAN MOUNTING	2
24	000-002-100	BOLT - HEX - M6 x 1.0 x 14mm (SEMS)	7
25	330-092-000	ASSEMBLY - FAN	1
26	000-1022-300	SCREW - B/H - M5 x 16mm - S/S	4

27	000-221	NUT - NYLOC - 5mm x 0.8	4
28	000-320	WASHER - FLAT - 5mm	4
29	330-083-000	LOOM/RELAY/SWITCH - FAN	1
30	333-987-000	TIE-STRAP - NYLON – TOYOTA – 110MM	5
31	330-046-200	DUCT - AIR	1
32	330-046-990	BRACKET - DUCT MOUNTING - UPPER	1
33	330-046-995	BRACKET - DUCT MOUNTING - LOWER	1
34	000-003-100	BOLT - HEX - M6 x 1.0 x 20mm (SEMS)	1
35	000-322	WASHER - BODY - 6mm x 30mm - S/S	1
36	000-434-050	TAPE - FOAM - SELF ADHESIVE - WIDE - 500mm	1
37	000-434-066	TAPE - FOAM - SELF ADH. - NARROW - 660mm	1
38	000-423-015	SPIRAL WRAP - 1/4" x 150mm	1
39	000-987-178	TIE-STRAP - NYLON - 178mm LONG	10
40	330-046-250	HOSE - OIL COOLER INLET	1
41	000-930	CLAMP - HOSE - 12mm x 90/110mm	1
42	333-044-250	FLANGE – OIL COOLER INLET	1
43	333-992-250	SPACER – FLANGE – OIL COOLER INLET	2
44	000-006	BOLT - HEX - M6 x 1.0 x 35mm	2
45	000-310-100	WASHER – FLAT M6 X 15MM	2
46	000-003	BOLT - HEX – M6 X 1.0 X 20MM	4
47	000-362	WASHER - BODY - 6mm x 25mm	4

Installation Guide

Special Tools

- Metric Wrench and Socket Set
- 7mm Drill Bit
- 7mm Flexible Shaft Hose Clamp Driver
- Metric Allen Key set
- Torque Wrench
- Oil Filter Wrench
- Power Drill
- Hydraulic Sealant (Loctite 569 or equivalent)
- Side Cutters
- 12V Test Lamp/Multimeter
- Sharp Blade
- Engine Oil
- 150mm ruler

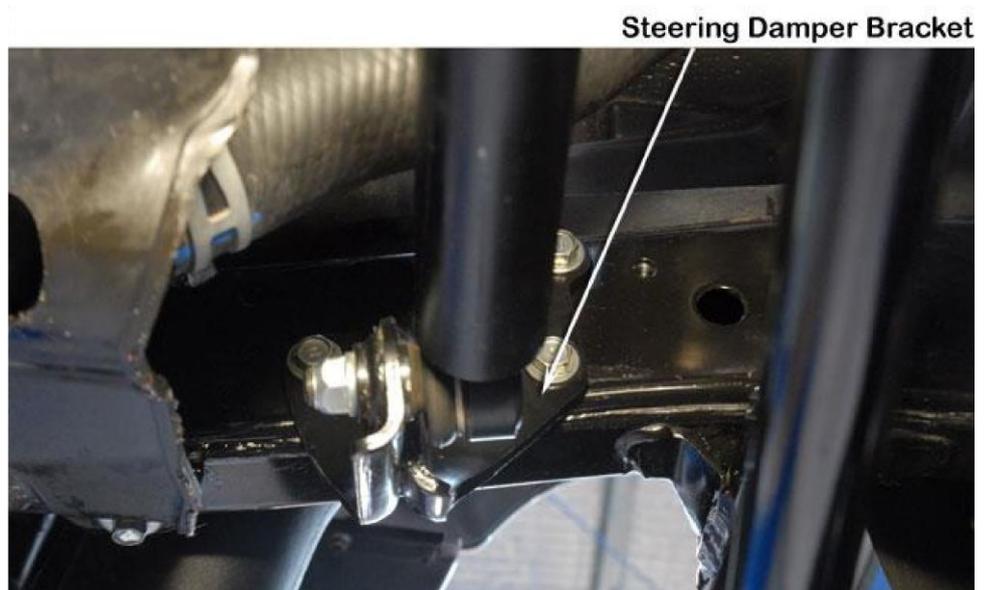
CAUTION: Do not use thread tape or similar on hydraulic fittings.

Installation Guide

- 1** Disconnect the negative terminal from the battery.
- 2** Remove the air cleaner assembly in accordance with the factory service manual.
- 3** Disconnect all wiring from the alternator.

4

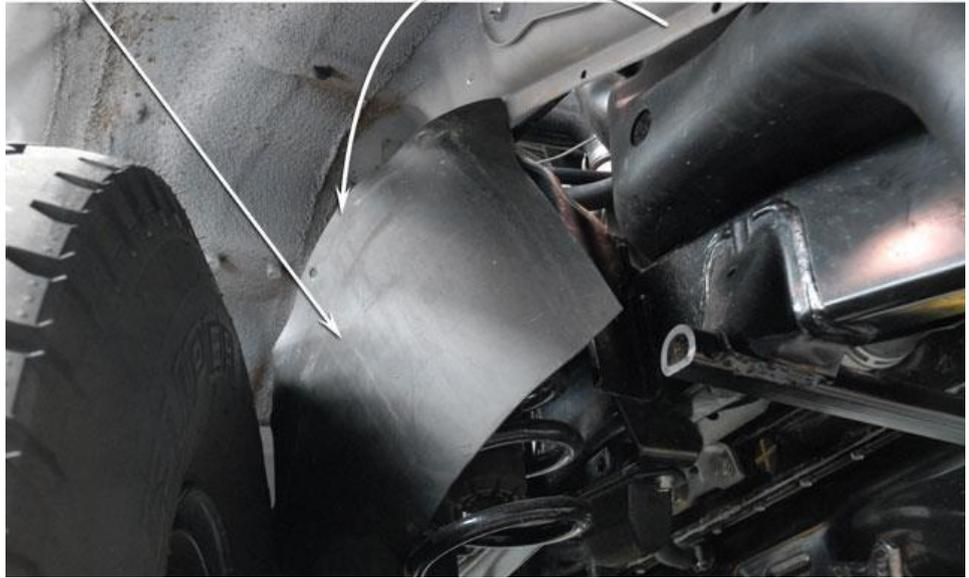
Remove the three steering damper bracket retaining bolts from the RHS chassis rail.



5

Unclip the RHS rubber inner guard liner.

Guard Liner



6

Unbolt the radiator fan shroud from the radiator (do not remove shroud).

Move the fan shroud towards the LHS of the vehicle.

Install the air duct (Item 31) from underneath the vehicle. Note that this may require a degree of force on the duct.

Move Shroud

Air Duct



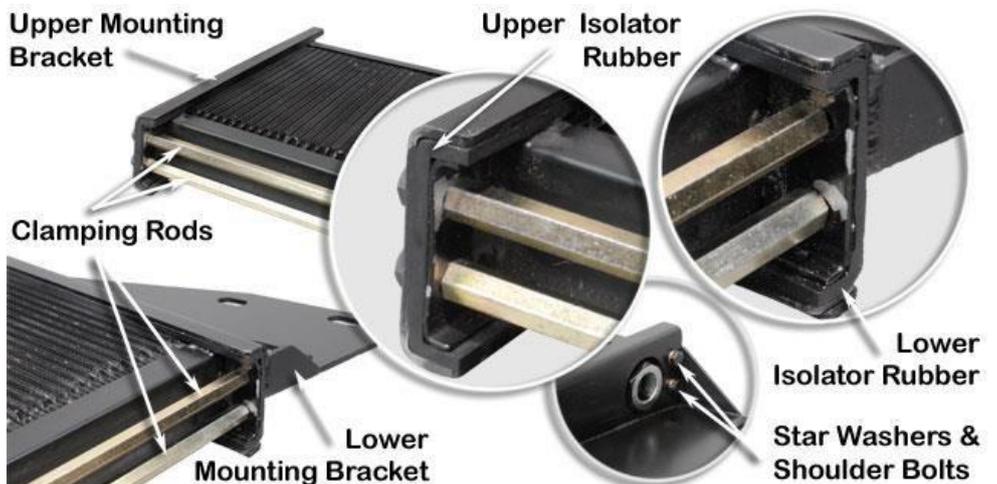
7

Install the upper and lower isolator rubbers (items 5 & 6) to the upper and lower oil cooler core mounting brackets (Items 2 & 3).

Install the four bracket clamping rods (Item 4) to the oil cooler.

Install the upper and lower mounting brackets (Items 2 & 3) to the oil cooler (Item 1) and retain with star washers (Item 8) and M5 shoulder bolts (Item 7)

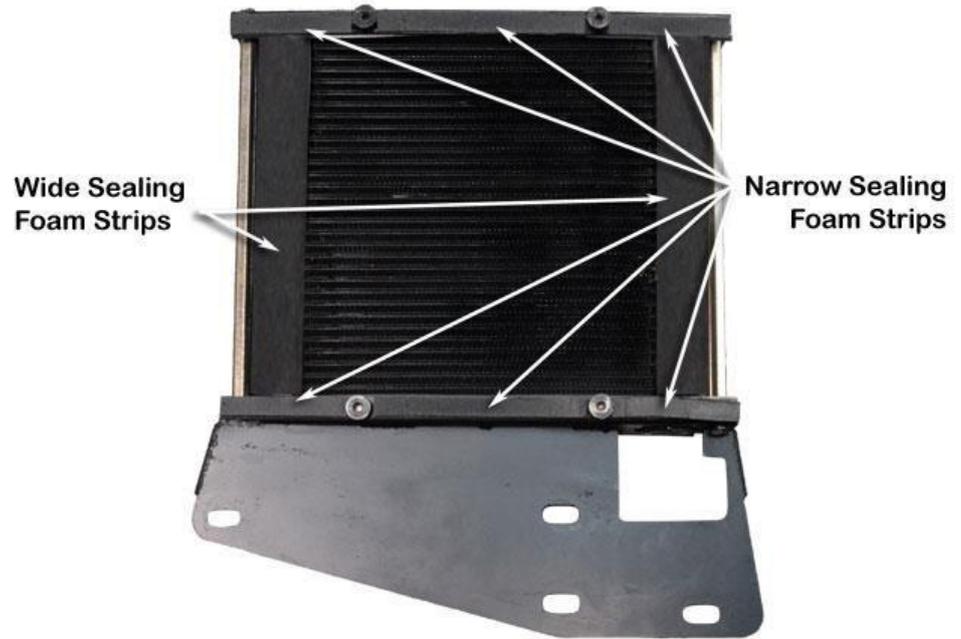
Evenly tighten all eight shoulder bolts (Item 7)



8 Measure and cut the wide and narrow sealing foam strips (Item 36 & 37) to length as shown.

Remove the adhesive backing from the wide oil cooler sealing foam strips (Item 36) and install onto the oil cooler core (Item 1) as shown.

Remove the adhesive backing from the narrow oil cooler sealing foam strips (Item 37) and install onto the oil cooler core mounting brackets (Items 2 & 3) as shown.



9 Install the fan mounting brackets (Item 23) to the fan assembly (Item 25) in the orientation relative to the wiring loom as shown.

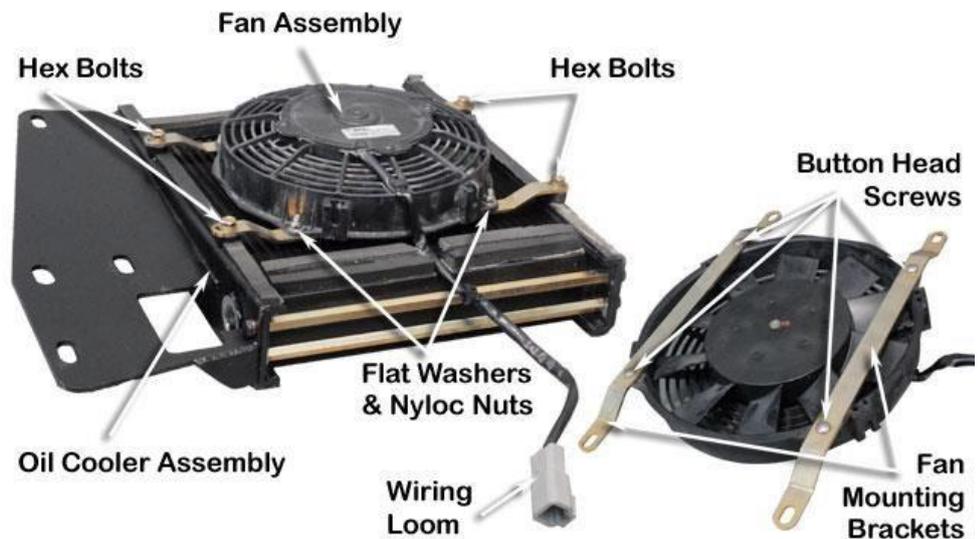
Retain with M5 button head screws (Item 26), flat washers (Item 28) and nyloc nuts (Item 27). Do not tighten fully yet.

Install the fan assembly onto the oil cooler assembly and move brackets (Item 23) to align the mounting holes to the upper and lower bracket bosses.

When correctly aligned, carefully lift the fan assembly and tighten the M5 button head screws (Item 26) fully.

Install the fan assembly to the oil cooler assembly and retain with four M6 SEMS bolts (Item 24).

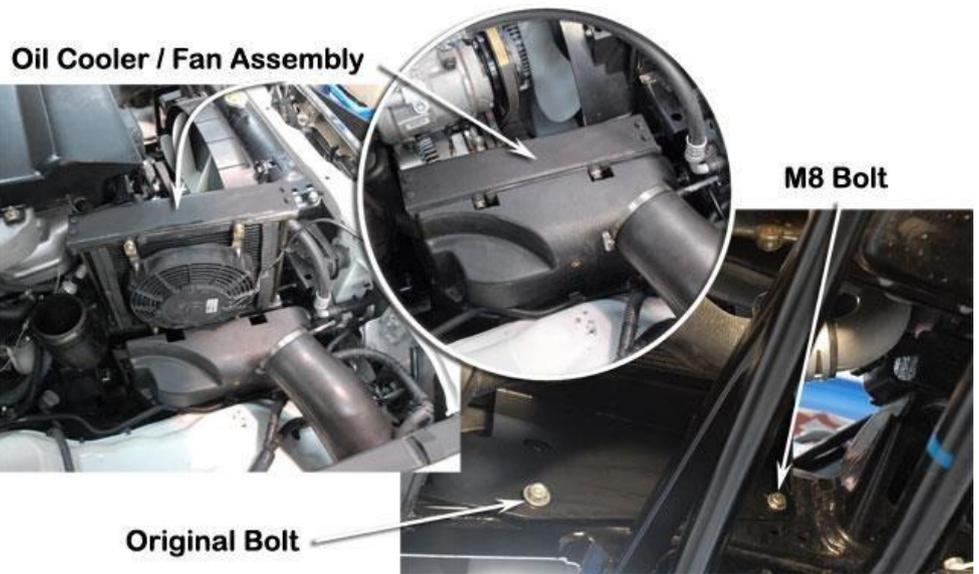
Use a sharp blade to trim a notch in the foam strip for the fan wiring loom.



10

Install the oil cooler/fan assembly carefully from above taking care to protect the oil cooler core fins from damage.

Secure to the RHS chassis rail with one steering damper bracket bolt and one M8 SEMs bolt (Item 19).



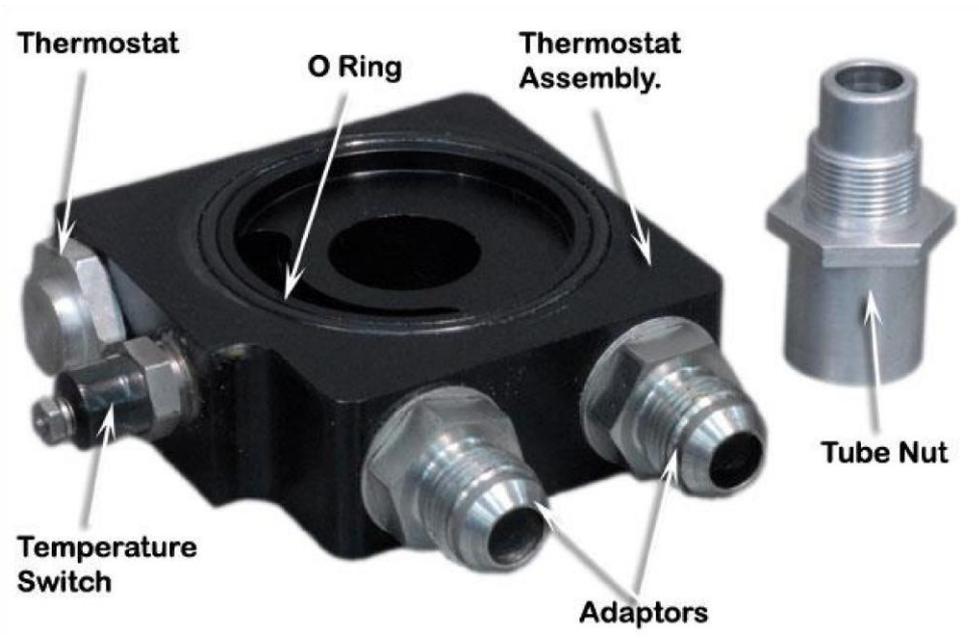
11

Secure the oil filter/thermostat block (Item 15) into a vice with soft jaws.

Place a small amount of hydraulic sealant to the threads of the temperature switch (Item 29) and install into the block.

Repeat the process for the two aluminium washers (Item 11) and M22 adaptors (Item 14).

Place a small amount of rubber grease to the O ring (Item 16) and install the O ring into the ring groove in the block as shown



12

Remove the engine oil filter from the engine block.

Install the 150mm spiral wrap (Item 38) over the turbocharger oil supply hose as shown.

Install the oil filter/thermostat block (Item 15) to the oil filter location on the engine block. Note orientation.

Secure the block in place with the tube nut. (Item 15) and tighten to 30 ft.lb torque.



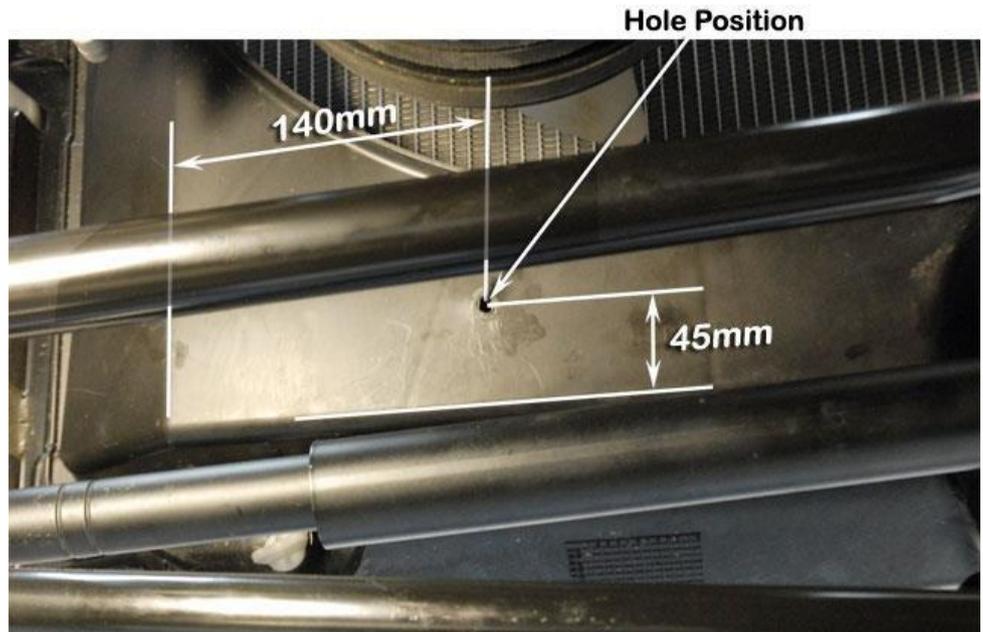
13 Reinstall Oil Filter

14

Reinstall the radiator fan shroud.

Mark the hole position on the radiator fan shroud as shown.

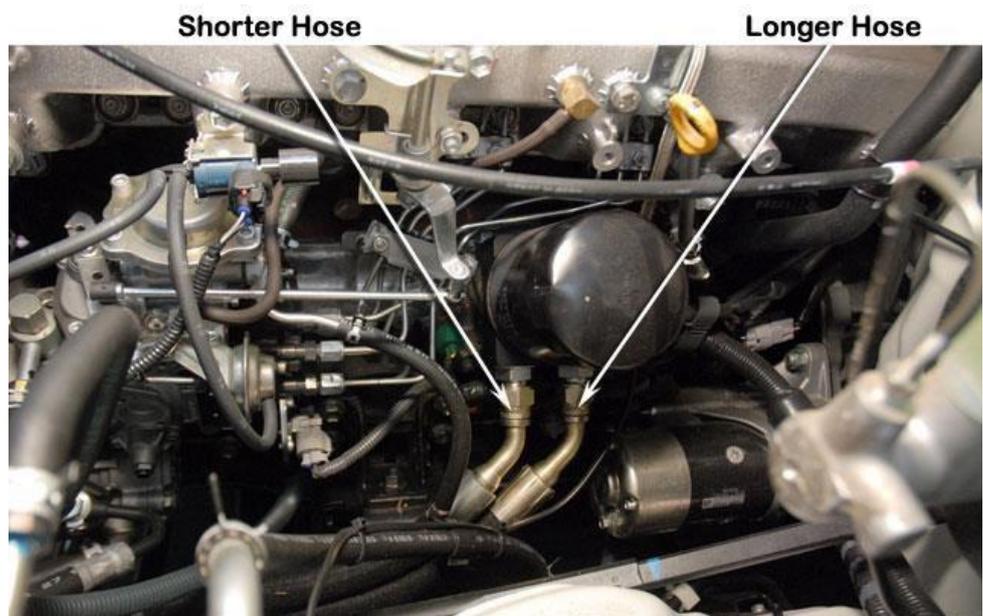
Drill a 7mm hole in the marked position.



15

Install the longer hose assembly (Item 12) to the rearward adaptor (Item 14) and the shorter hose (Item 13) to the forward adaptor (Item 14) of the oil filter/thermostat block **but do not tighten fully yet.**

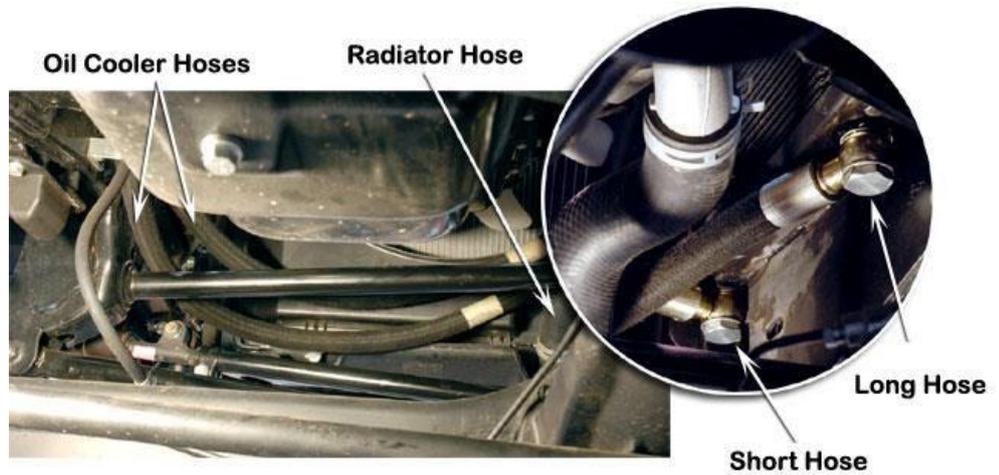
Route the hoses along the LHS chassis rail towards the front of the vehicle.



16 Route the two hoses (Items 12 & 13) along the radiator fan shroud and over the lower radiator hose.

Install the shorter hose (Item 13) to the forward port and the longer hose (Item 12) to the rearward port of the oil cooler assembly.

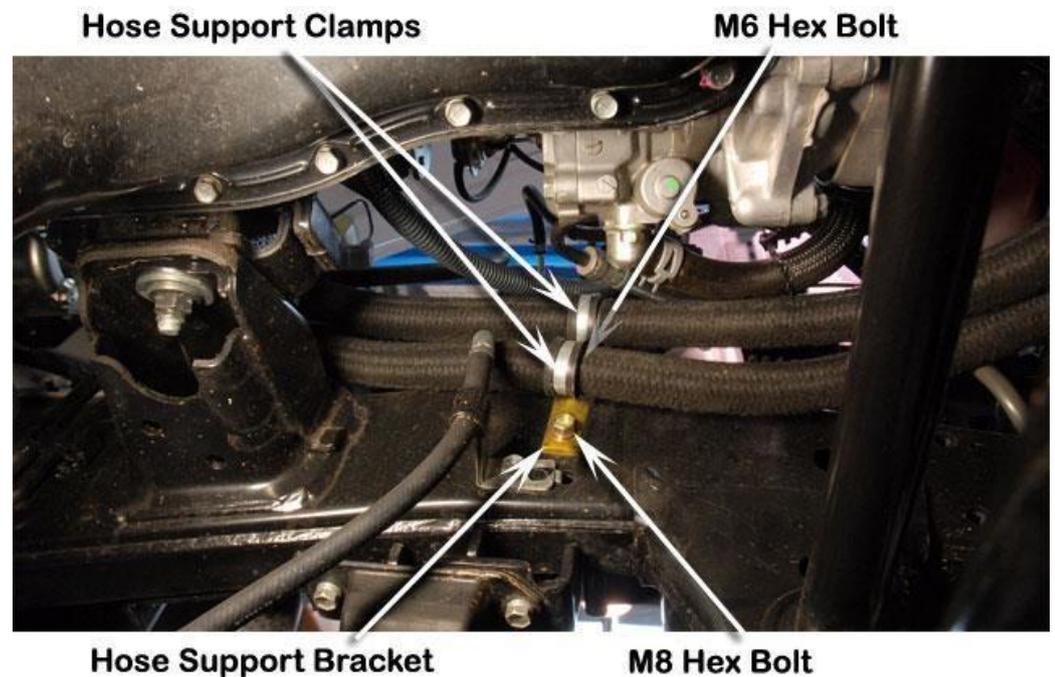
Secure the hoses with a washer (Item 11) on each side of the hose fitting and the M22 banjo bolts (Item 10). Do not tighten fully yet.



17

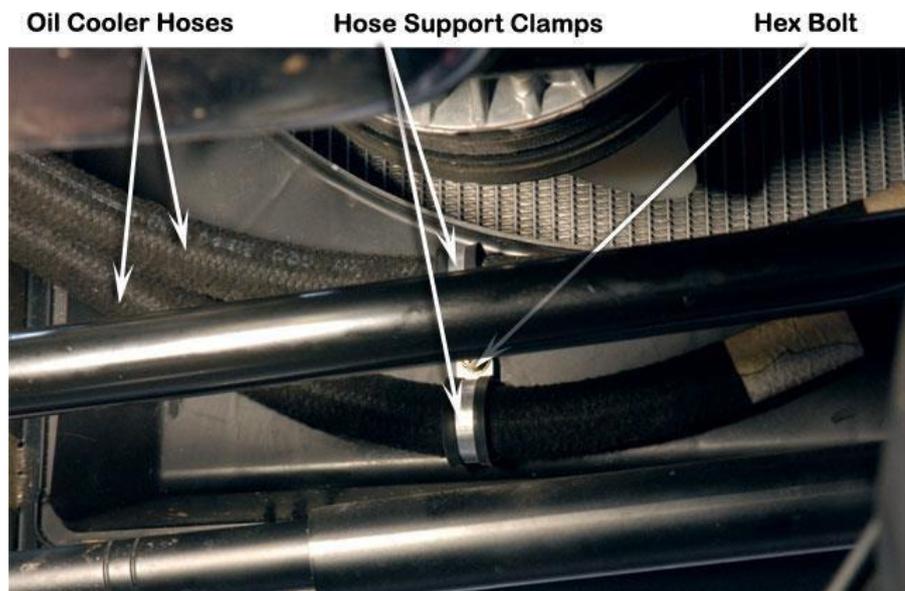
Install the hose support bracket (Item 18) to the LHS chassis rail in the position shown and secure with the M8 SEMs hex bolt (Item 19).

Install the two hose support clamps (Item 17) over the hoses and secure to the hose support bracket (Item 18) with an M6 SEMs hex bolt (Item 20).



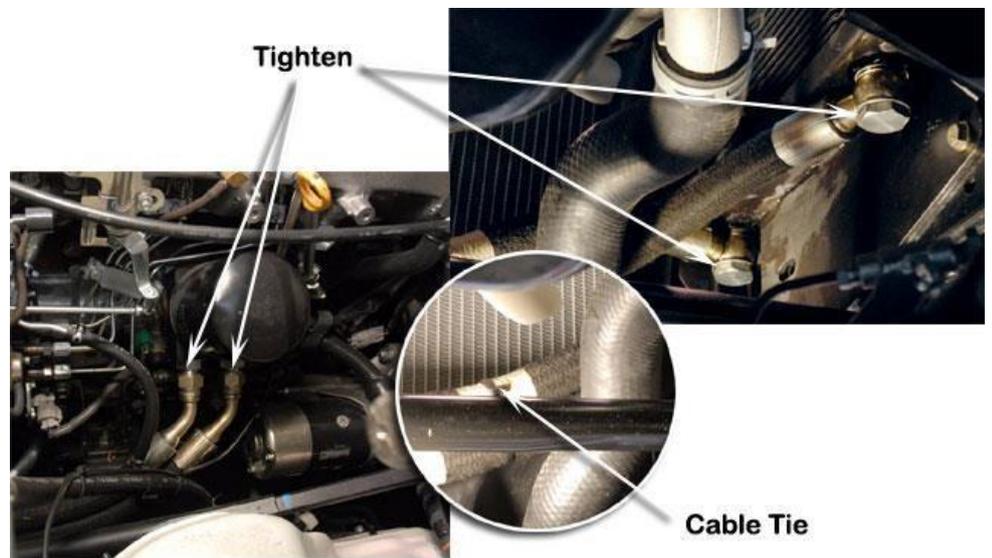
18

Install two hose support clamps (Items 17) over the hoses and secure with M6 SEMs hex bolt (Item 20), body washer (Item 22) and nyloc nut (Item 21).



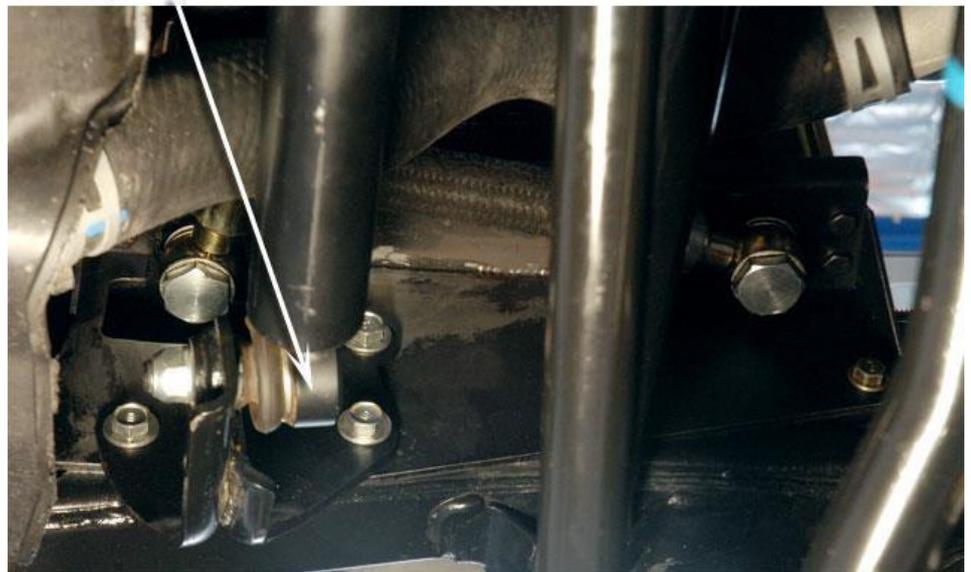
Tighten the hose fittings at each end of the two oil cooler hoses.

Use a cable tie (Item 9) to retain the two hoses together as shown.



Reinstall the steering damper bracket to the RHS chassis rail.

Steering Damper



Install the upper duct mounting bracket (Item 32). Apply light pressure on the duct to seal against the oil cooler assembly and retain with two M6 SEMs hex bolts (Item 24).

Route the alternator wiring loom over the oil cooler assembly and install the wiring to the alternator

Alternator Wiring Loom

Duct Bracket



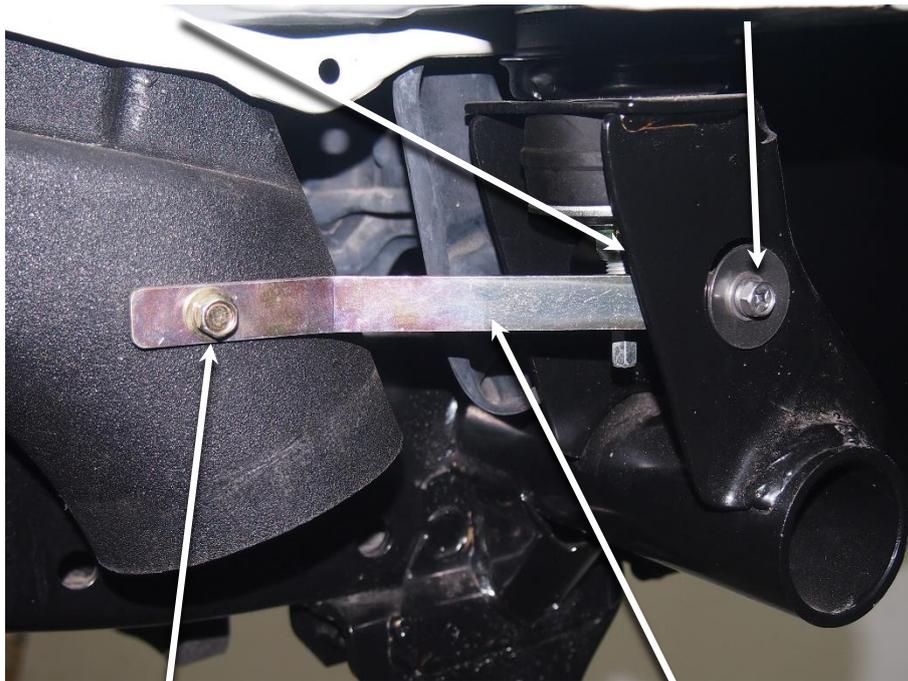
Apply Pressure

Install the lower duct support bracket (Item 33) and secure to the duct (Item 31) with a M6 SEMs hex bolt (Item 24).

Secure the bracket to the chassis with a M6 SEMs hex bolt (Item 34), 30mm body washer (Item 35), 20mm body washer (Item 22) and M6 nyloc nut (Item 21).

20mm body washer
and nyloc nut

Hex bolt and 30mm
body washer



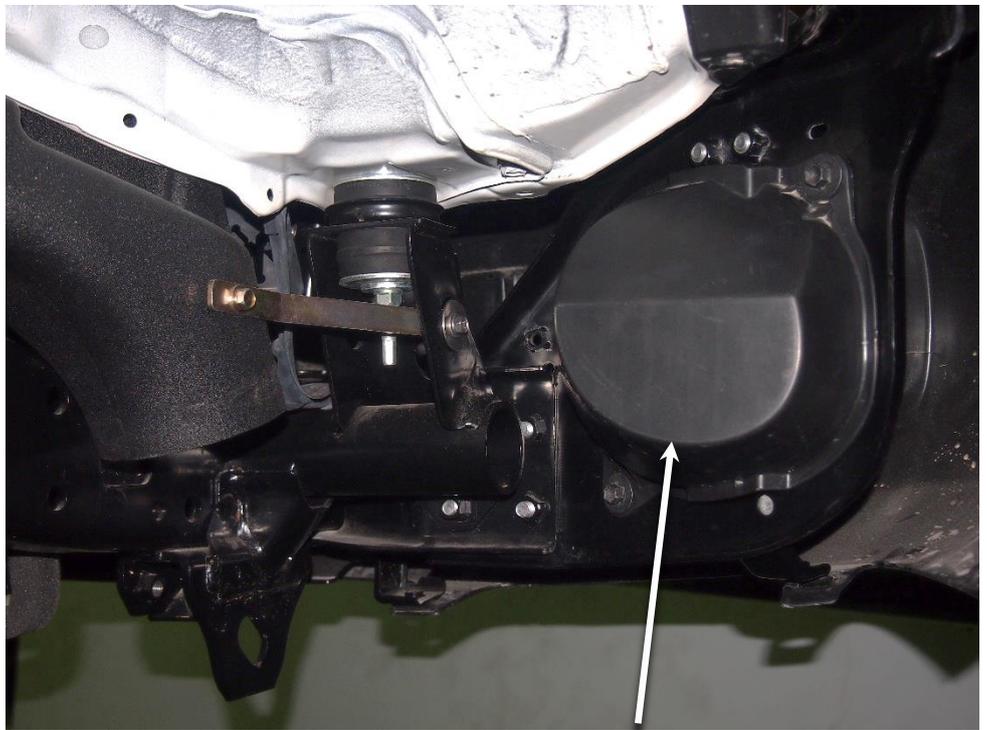
M6 SEMs hex bolt

Lower duct support bracket

Reinstall the air cleaner assembly and secure with the original mounting hardware.



Remove cover



Remove

Remove fog light cover from front right hand side of the vehicle.



Remove

Connect oil cooler inlet hose (Item 40) to Flange plate (Item 42) using M6 x 1.0 x 20mm bolts (Item 46), Star washers (item 8) and 6mm x 25mm flat washers (Item 47).



Connect oil cooler inlet hose to oil cooler duct. Use the 90/110mm hose clamp (Item 41) but do not fully tighten.



28

Fit spacers (Item 43) below flange plate and bolt to front bumper support bracket (where cover was removed from) using M6 x 10 x 35mm bolts (Item 44), 6mm Star washers (Item 8) and M6 washers (Item 45).



Spacers

29

Tighten oil cooler inlet duct hose clamp

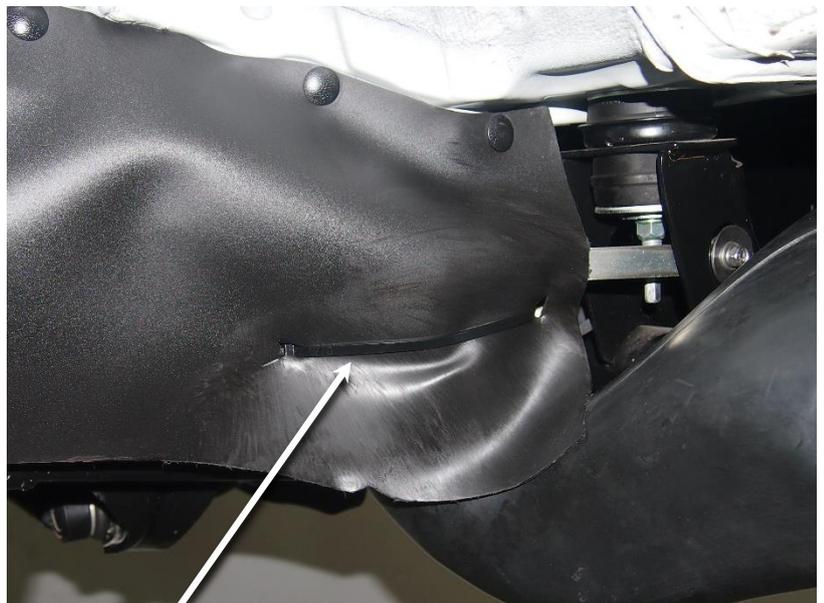


Tighten

30

Reinstall the inner guard liner.

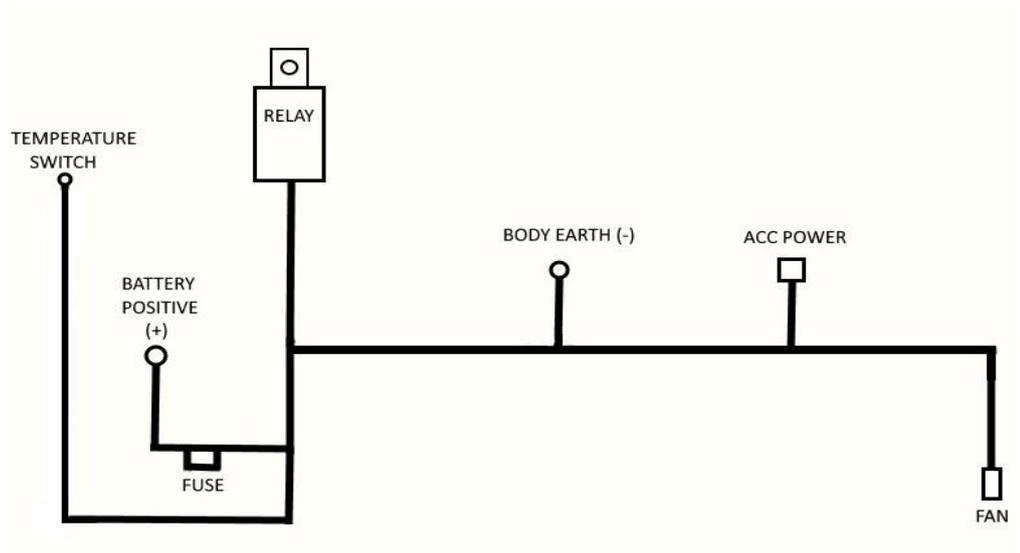
Pierce a hole in the inner guard liner and install a cable tie (Item 9) to secure the liner to the duct (Item 31).



Cable tie

30

Wiring loom diagram.



31

Remove battery from vehicle.



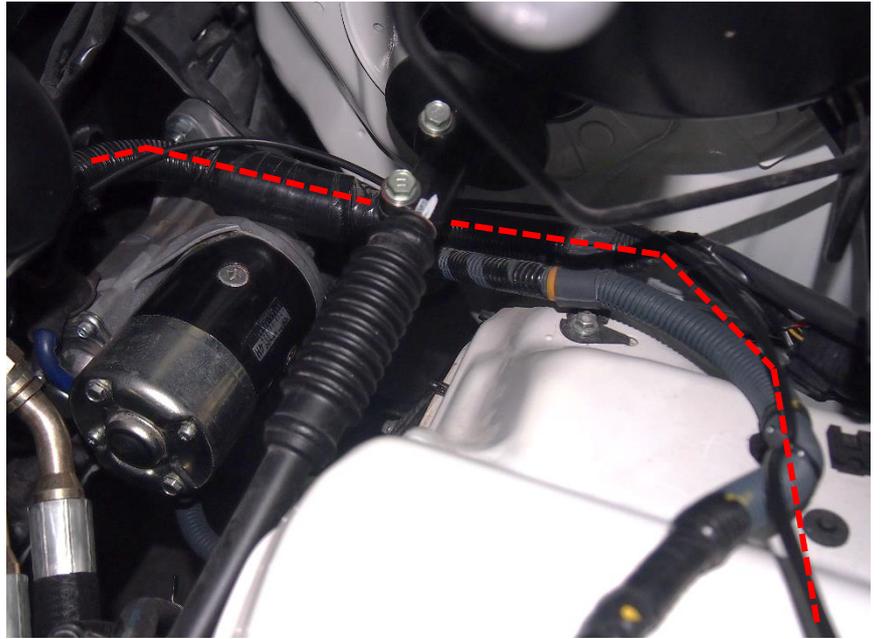
32

Mount Fan Relay onto Left hand inner guard using the factory bolt in position shown

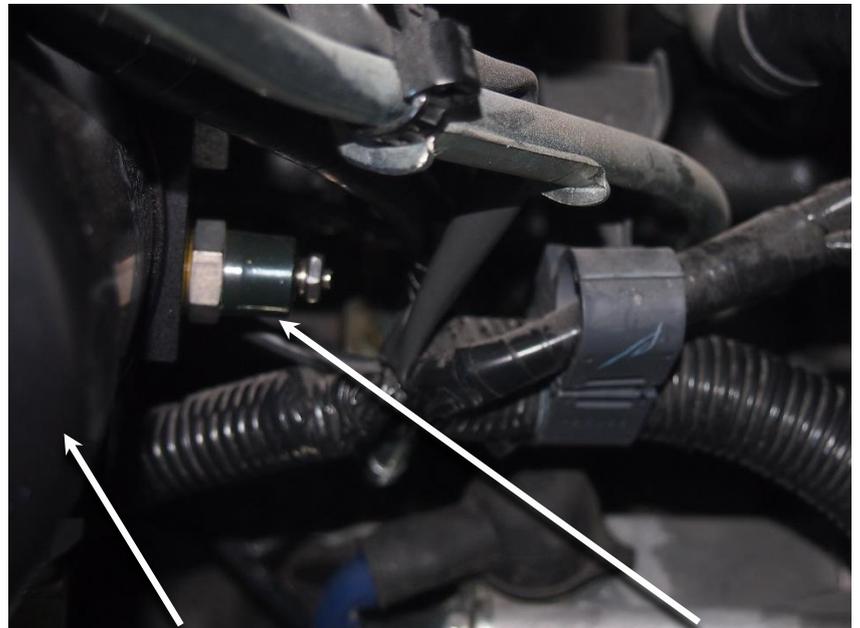


Fan loom and relay

Route oil temp wire along factory loom beneath steering column as shown. Secure to the factory loom with supplied cable ties (Item 39)



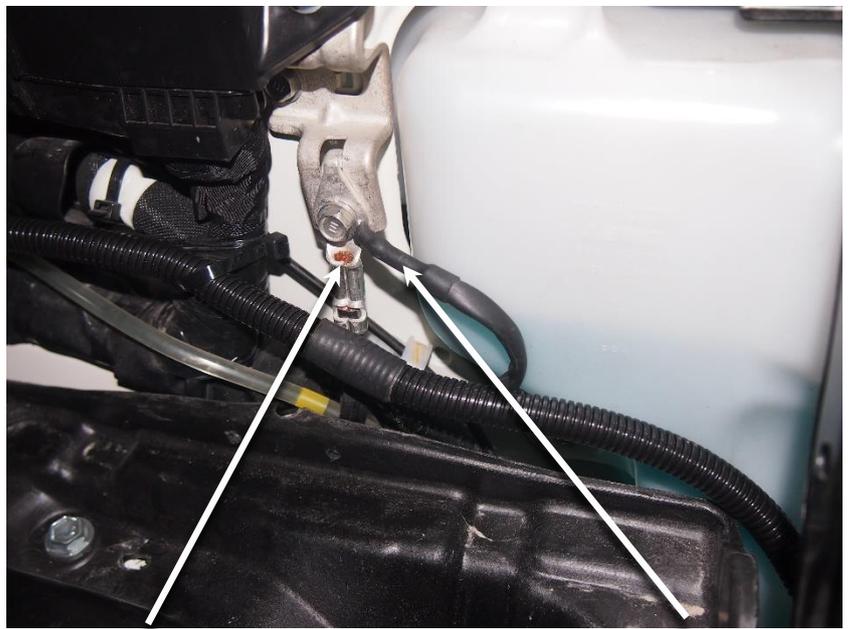
Connect oil temp wire to temperature sensor on oil filter/thermostat block.



Oil Filter

Oil Temp Sensor

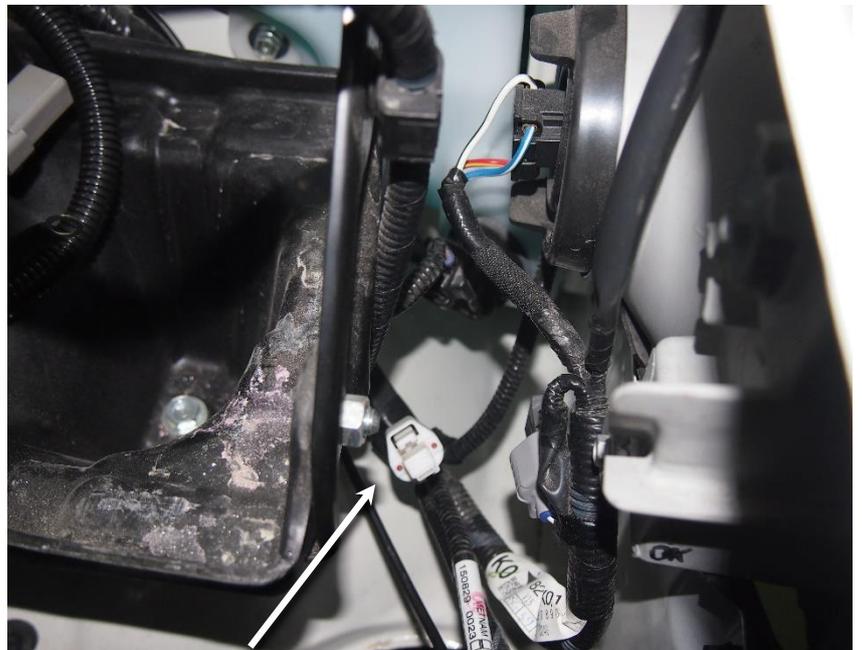
Route the rest of the wiring loom along the inner guard, behind the battery tray and connect the fan loom earth wire to the body earth as shown.



Body Earth

**Fan loom
earth wire**

Locate the accessory power connection behind left hand front headlight and remove blanking plug.



Accessory power

37

Connect accessory plug to vehicle loom as shown.



Fan loom accessory power

38

Remove the front grille



39

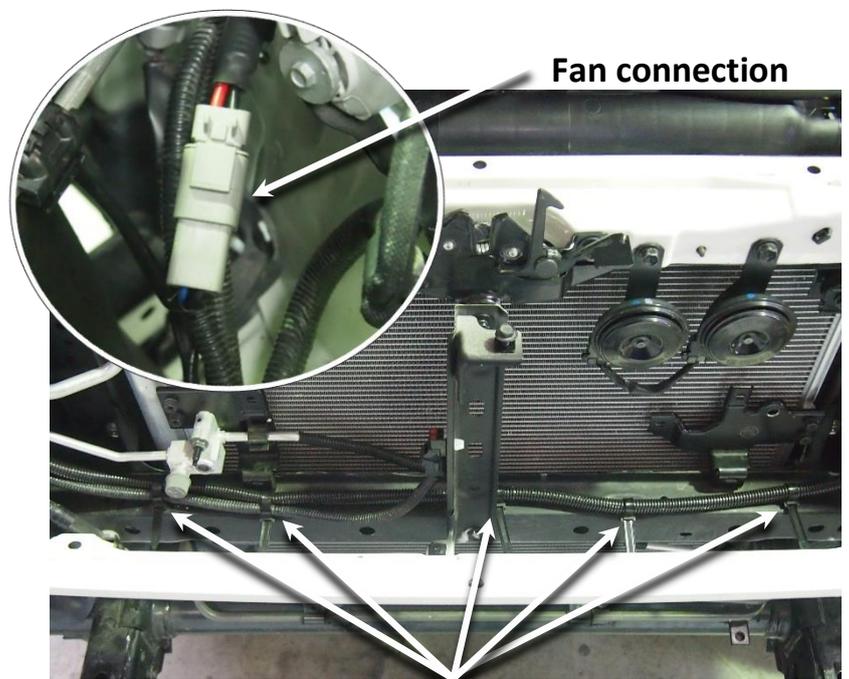
Route fan wiring between the radiator support panel and the headlight as shown.



Fan loom

Route fan wiring along the front of the vehicle then in behind the right hand headlight. Connect to fan wiring and secure in the positions shown using 5x 110mm tie straps (item 30)

Reinstall the front grille.



Secure Here

Reinstall vehicle battery and connect positive wire from fan loom to the battery positive terminal.



Fan Loom
Positive Wire

Battery
Positive

Completion of Installation

- Start engine and check for oil leaks at all connections.
- Check engine oil level and top up if necessary.
- Ensure that all hoses and wiring are well supported and clear of any components that may rub or cause damage.
- Road test vehicle until normal operating temperature is achieved and check oil cooler fan operation. Ensure that fan rotation is correct by placing hand over the duct inlet (Item 30) to feel for suction at duct entry. If no suction is felt, the fan wiring polarity may need to be reversed at the oil cooler fan plug.