

Direction-Plus Fuel Manager Pre-Filter + Provent Ultimate Catch Can Kit (FMPV635DPC) Installation Guide for Toyota Land Cruiser 300 Series

1. Direction-Plus Fuel Manager Pre-Filter Installation

This document is to be used as a guide for the installation of the **Direction-Plus Fuel Manager pre-filter kit (FM635DPK)** to a **Toyota Land Cruiser 300 Series V6 Diesel F33A-FTV (2022)**.

It is recommended that the installation of the product be carried out by a competent qualified mechanic.

Included in the kit

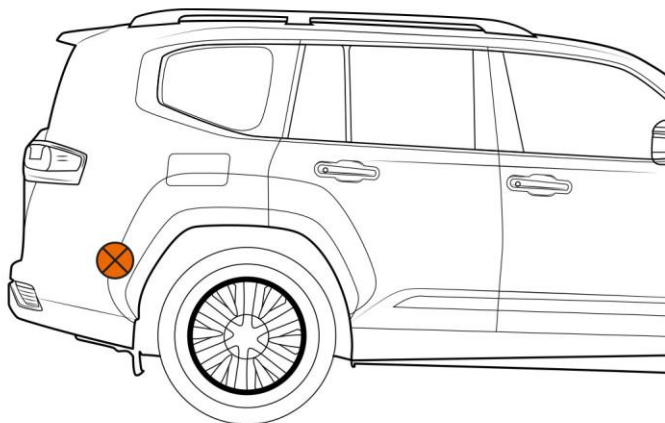


<i>Pre-assembled</i>	<i>Hardware Bag</i>	<i>Fuel Filter Mounting Kit Bag</i>
1 x Fuel Manager Pre-Filter	1 x Bracket (LC300PL150.1)	2 x M10x30 Bolts
2 x M16x1.5 to -8 Adaptors	1 x Bracket (LC300PL150.2)	2 x M10 Flat Washers
2 x -8 to ½" Hose Straight Fittings	1 x Bracket (LC300FM100.3)	2 x M10 Spring Washers
4 x M16 Alloy Washers	3 x M8x16 Bolts	
2 x M16x1.5 Plugs	3 x M8 Spring Washers	1 x M10 x 90mm Bolt
	3 x M8 Flat Washers	2 x M10 Flat Washers
	2 x 18-20mm Fuel Clamps	1 x M10 Nyloc Nut
	1 x 1500mm ½" Fuel Hose	1 x Inline hand pump
	10 x 200mm Cable Ties	

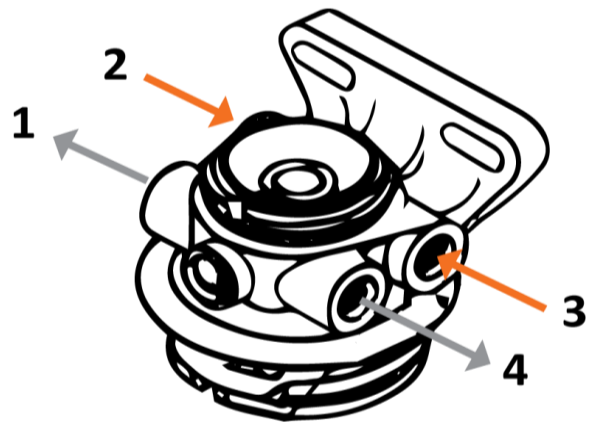
Tools Needed:

- Spanners
- Sockets
- Screw Drivers
- Pliers
- Snips/Cutter
- Rags
- Small container for priming
- We suggest using a thread sealant like Loctite 567 or equivalent.

APPROXIMATE MOUNTING LOCATION
FM635DPK
(driver side)



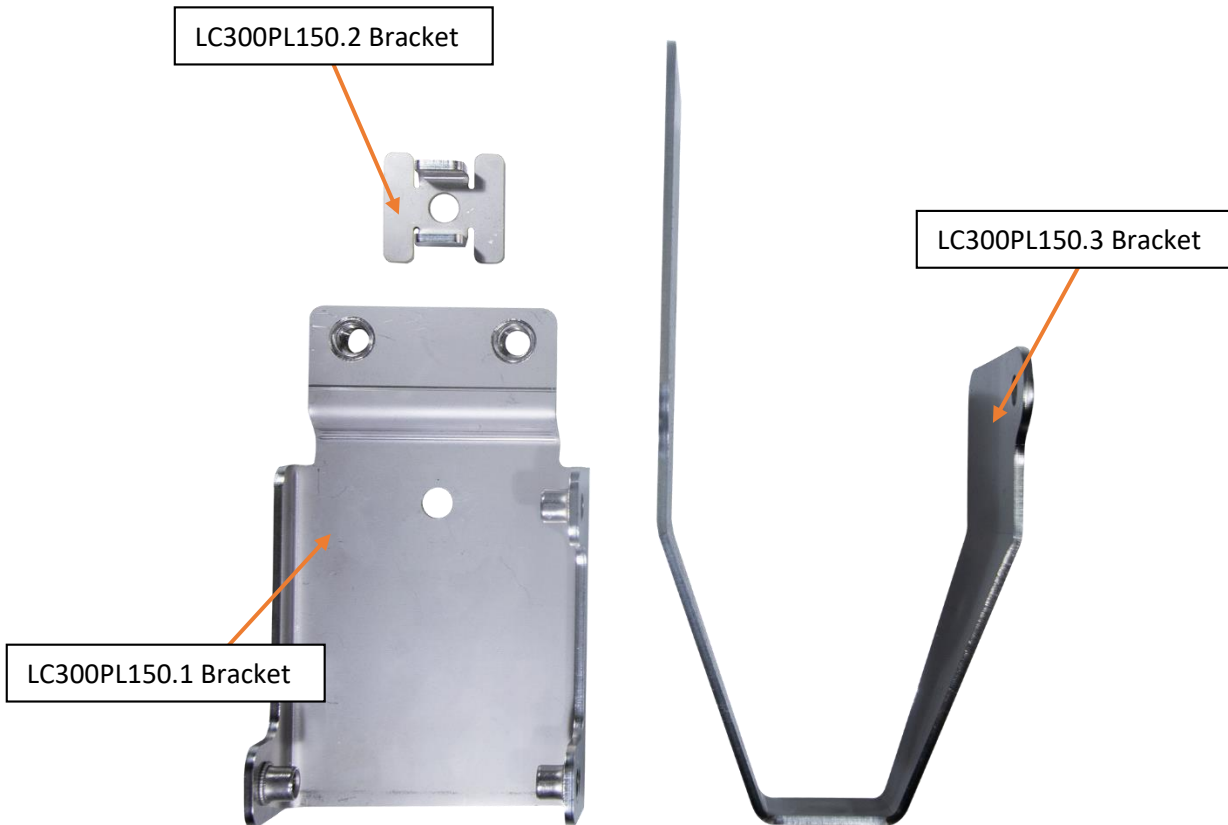
Fuel Manager Pre-Filter Normal Flow Header Connection



Ports 2 and 3 = INLET
Ports 1 and 4 = OUTLET

Fuel Manager Pre-Filter Installation Guide

1. Begin by removing the spare tire, this will make kit installation much simpler as it provides more access.
2. Using the **M10x90mm bolt, two flat washers and M10 nyloc nut**, Bolt the fuel filter bracket to the outside of the chassis rail under the driver's rear quarter panel. It uses the **LC300PL150.2 bracket** to locate the fuel filter bracket to the slots in the chassis rail.



LC300 Fuel Manager mounting brackets and mounting hardware



Fuel Manager bracket secured in place, note how smaller bracket lock in to prevent movement from the main bracket



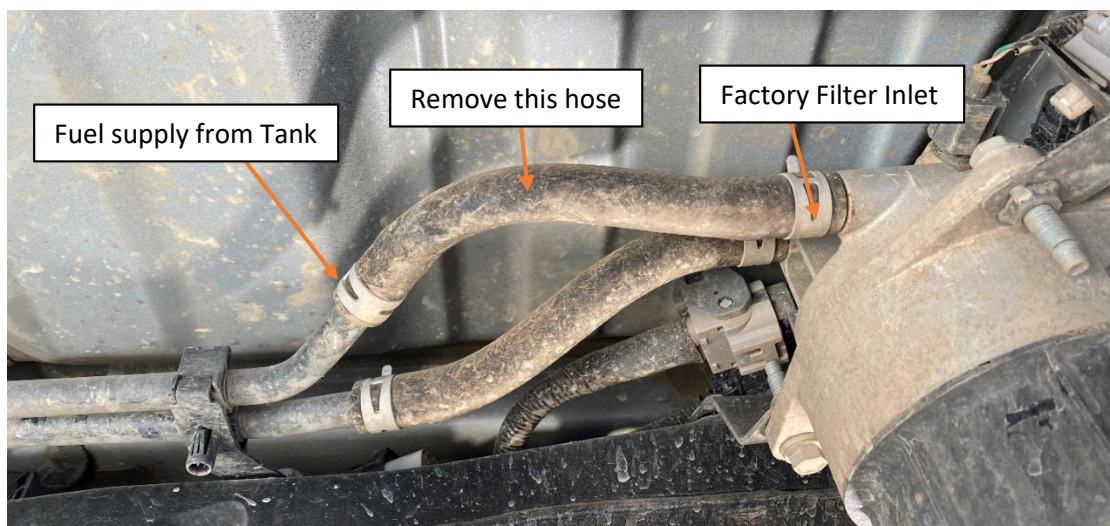
Inside view of new bracket secured in place

3. Install the threaded adaptors onto the Fuel Manager, using the **M16 washers** between the filter head and the **M16 adaptors**. Apply thread sealant like Loctite 567 or equivalent. Keep the exposed -8 thread clean when installing.



Fuel Manager Pre-Filter in place on bracket, fuel fittings face rear of vehicle

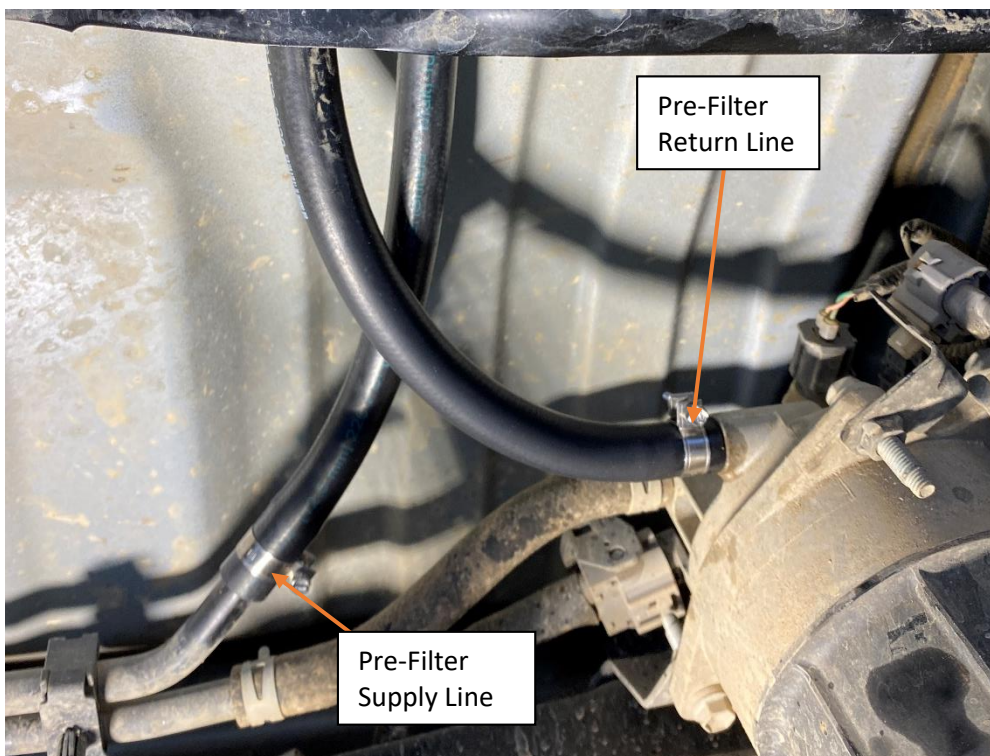
4. Install the Fuel Manager to the fuel filter bracket using the **two M10x30 bolts, 2 x spring washers and 2 x flat washers.**



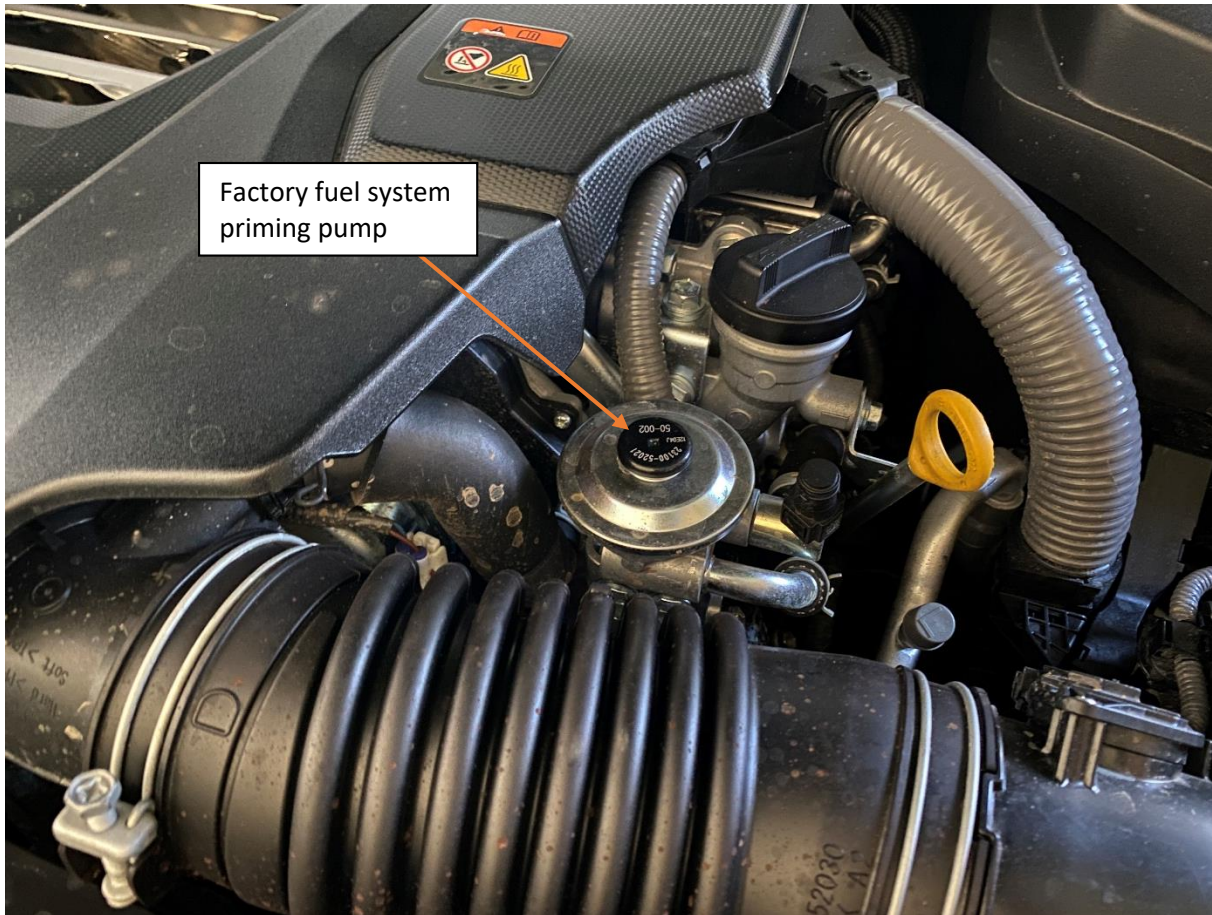
Factory Fuel Filter hose locations

5. Cut the **supplied ½" fuel line** in half. Install the **straight° -8 hose fittings** to one end of each of two hoses. Make sure the hose is seated all the way on the push lock fitting. Finally, apply **Loctite 567** to the -8 thread on the adaptor in the fuel filter ports before securing the straight -8 hose fitting in place.

6. Find the factory fuel hose that supplies the factory fuel filter. Remove the hose completely. To the hardline side, measure, cut and install other end of the new fuel filter supply hose and secure with one of the new **stainless EFI hose clamps**.
7. Measure and cut the **new fuel filter return hose** to the inlet to the factory fuel filter do not secure yet.
8. Temporarily install the **inline priming pump** to the end of the pre-filter return hose, pump until there is fuel just about to come out of the pre-filter outlet hose. *This is done to minimize any air locks in the system.*
Retain hand pump in vehicle for future filter servicing & replacement.
9. Remove the inline priming pump and connect the hose from the pre-filter assembly outlet to the factory fuel filter. Secure in place with an **18-20mm clamp**. Use the factory priming pump in the engine bay to draw the fuel the rest of the way.



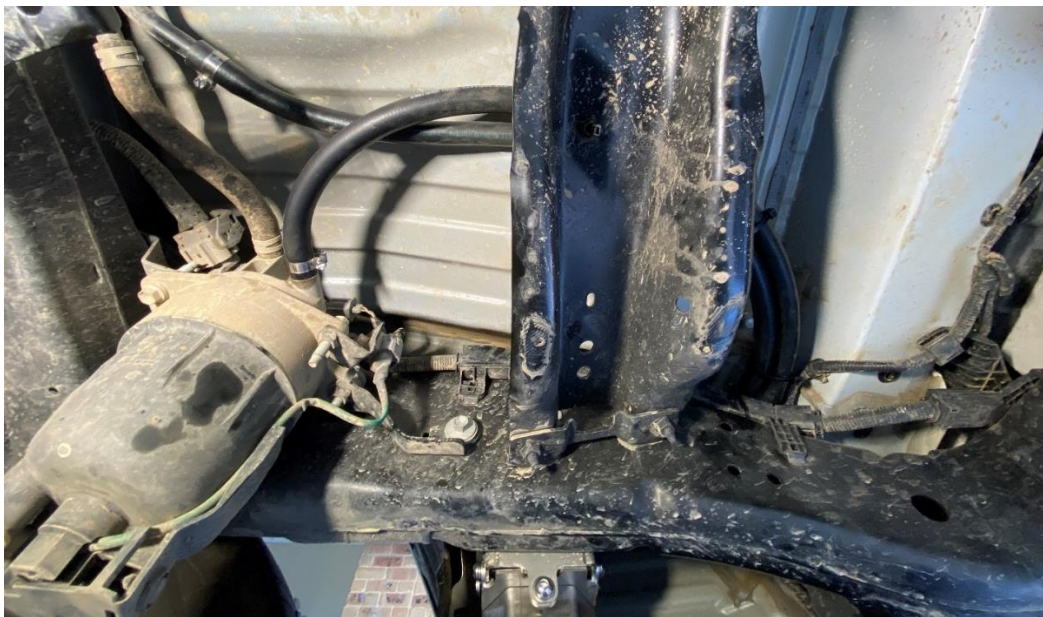
LC300 Fuel Manager Pre-filter fuel hose installed



Factory fuel system priming pump

LC300 factory fuel system priming pump

- 10. Bolt the Fuel Manager filter cover into place (bracket LC300PL150.3), using the 3x M8x16mm bolts, 3x M8 spring washers and 3x M8 flat washers.**



Fuel hose routing for Fuel Manager pre-filter on LC300



Fuel Manager filter cover (LC300FM1000.3) bolted in place

11. Once complete start the vehicle, carefully and thoroughly checking for leaks.
12. Run the vehicle for at least 20 minutes to ensure there are no air pockets in the fuel system.
13. Reinstall the spare tire that you removed in step 1.

End of Fuel Manager Installation Guide

Go to next Page to install the ProVent Ultimate Catch Can kit

2. Direction-Plus ProVent Ultimate Catch Can kit Installation

This document is to be used as a guide for the installation of the **Direction-Plus™ ProVent Ultimate Catch Can Kit (PV635DPK)** to a **Toyota Land Cruiser 300 Series V6 Diesel (2022)**.

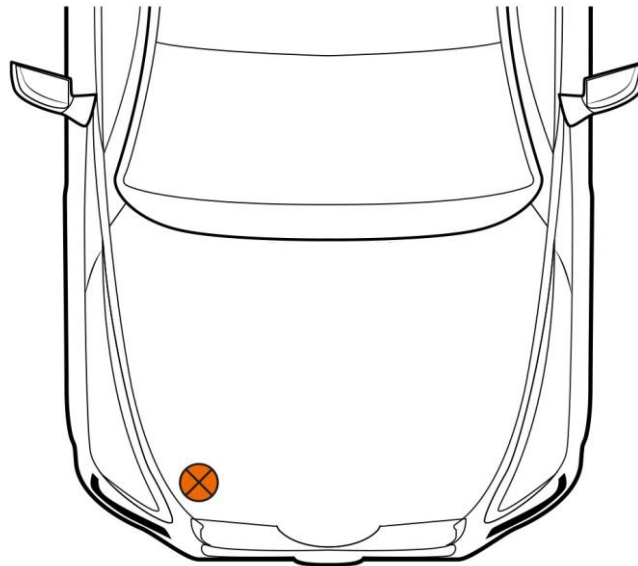
It is recommended that the installation of the product be carried out by a competent qualified mechanic.

Included in the kit



<i>Loose in Box</i>	<i>Bagged</i>	<i>Provent Fitting Kit Bag</i>
1 x Mann + Hummel Provent 200	3 x 16mm 45° Joiners	2 x M8x25 Bolts
1 x Mounting Bracket	8 x 16mm Spring Clamps	4 x M8 Flat Washers
2 x 1100mm of 16mm Hose	2 x 25mm Spring Clamps	2 x M8 Spring Washers
	2 x 16mm to 25mm Hose Coupler	2 x M8 Nuts
	8 x 200mm Cable Ties	
		<i>Provent Drain Kit Bag</i>
		1 x 1000mm of 12mm Hose
		1x Drain Tap Assembly
		2 x 12mm Spring Clamps

APPROXIMATE MOUNTING LOCATION
PV635DPK



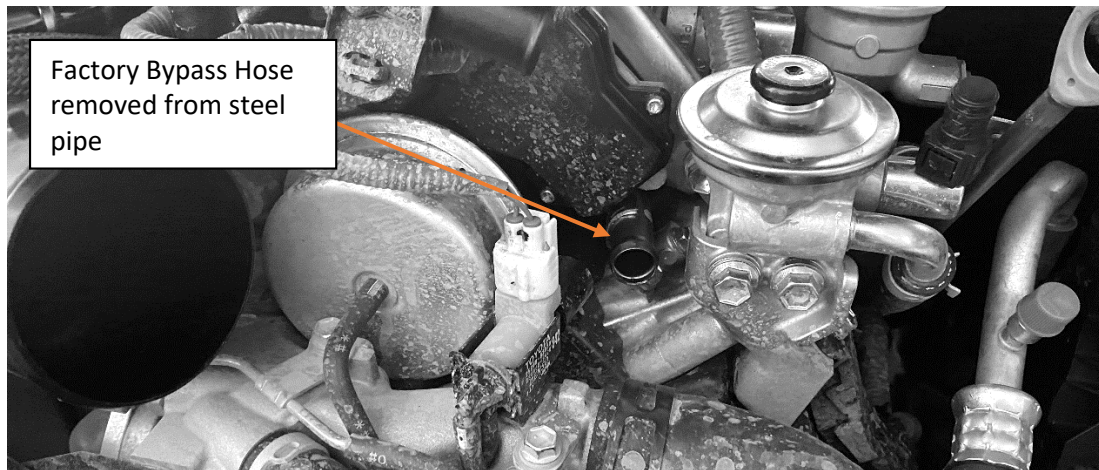
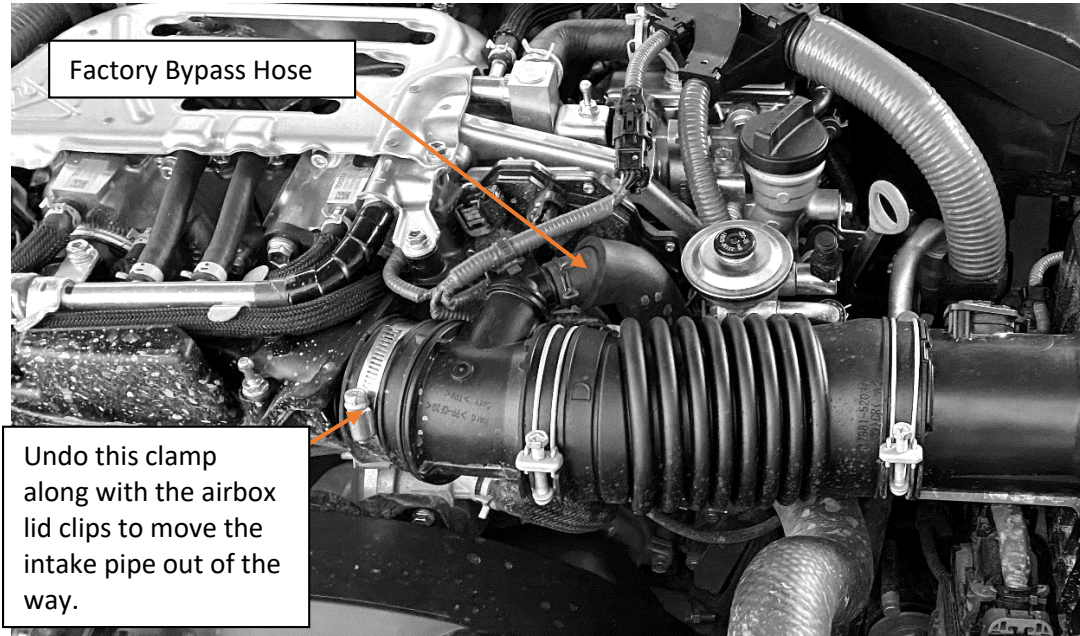
ProVent Ultimate Catch Can Installation Guide

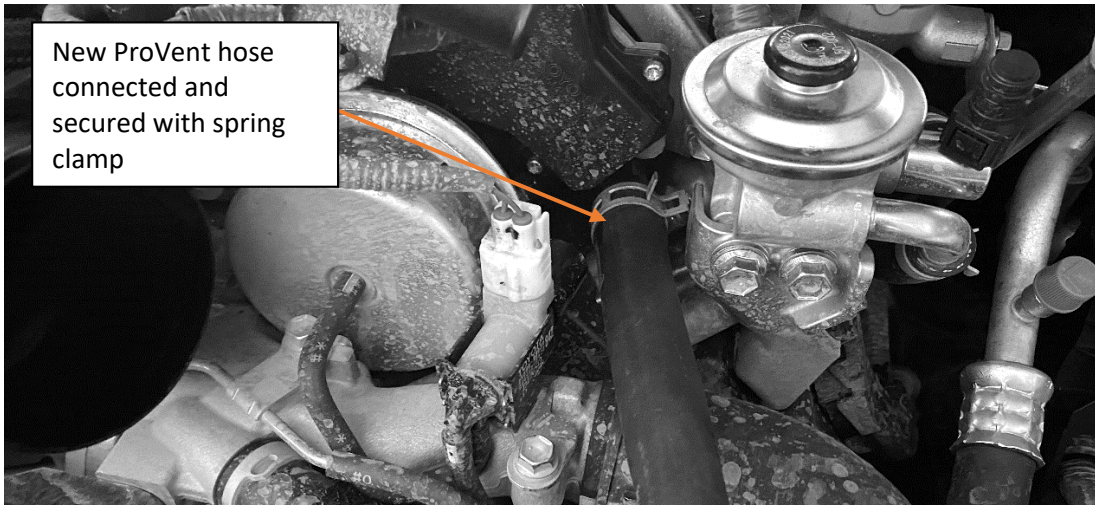
1. Begin by removing the engine cover to give access to the crankcase bypass hose in the front passenger corner.



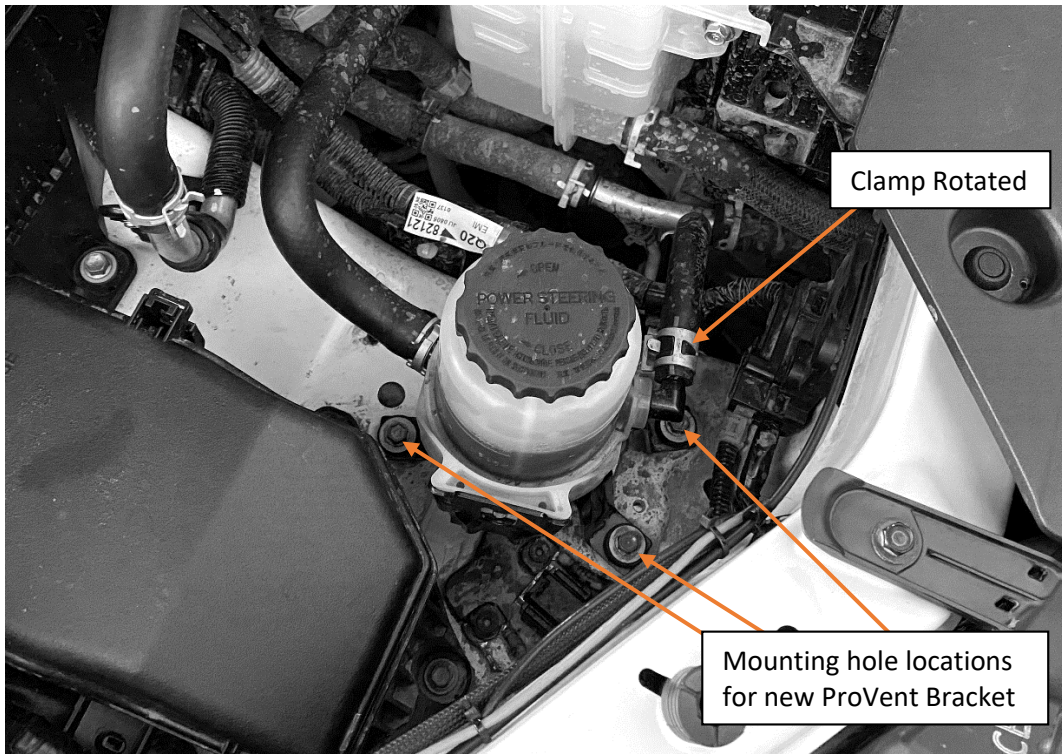
Land Cruiser 300 Series Engine Bay – Overall View

2. Locate the factory bypass hose which runs from a steel pipe next to the fuel filter primer on the passenger side of the vehicle to the intake pipe in front of it. The intake pipe will need to be removed to fully access the hose. The hose is only about 120mm in length and has two bends in it. Once located, this hose needs to be disconnected from the steel pipe box and rotated about 90°. A **16mm 45° Joiner** needs to be inserted into the end facing down, secure in place with a **spring clamp**.
3. Secure on end of the first 16mm hose to the steel pipe the bypass hose was removed from. Secure in place with a **spring clamp**.





4. Locate the three bolts that are used to mount the power steering reservoir. Remove the bolts. If the clamp is on the front side of the power steering reservoir, rotate to the tabs face the rear of the vehicle. Bolt the **new bracket** in place, it goes under the rubber isolators of the power steering reservoir and requires to be fed under the isolators at an angle to fit. **Reuse the original bolts** to secure in place.



Top-down view: image shows ProVent bracket mounting location



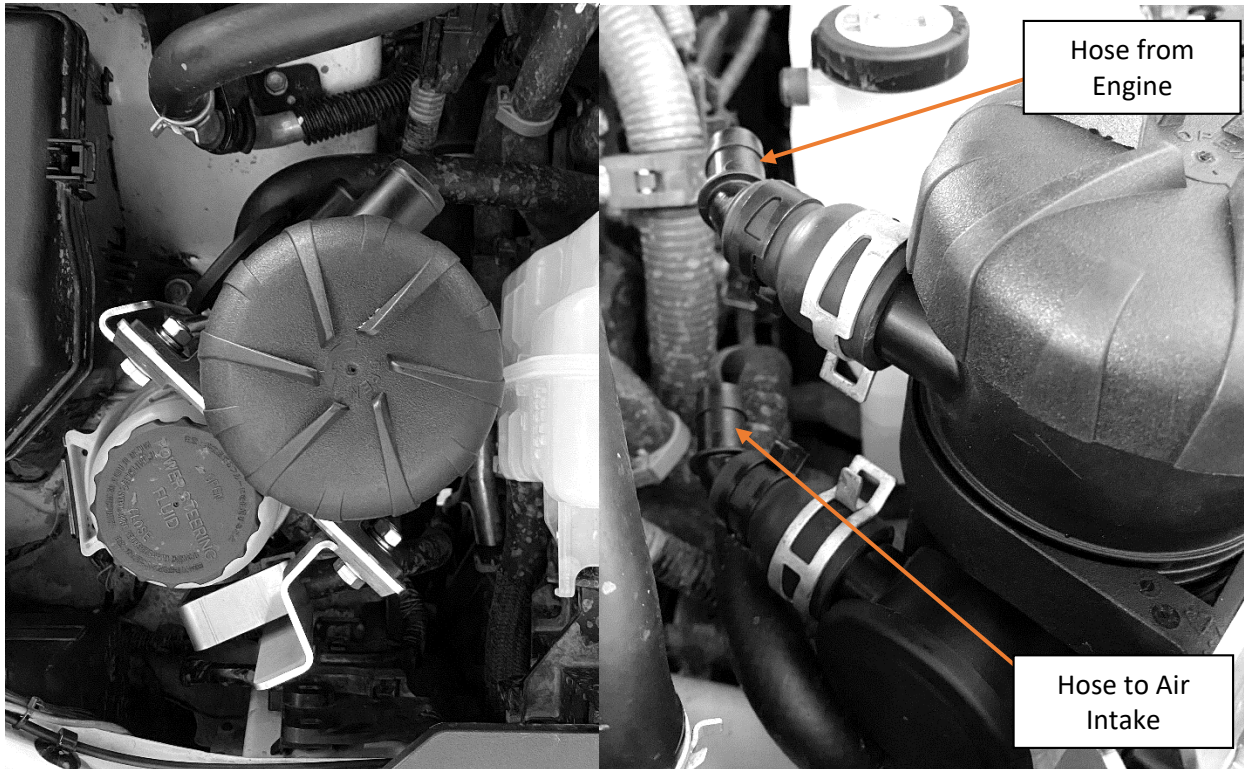
New Provent Ultimate Catch Can bracket mounted in place, reuse original bolts

5. Connect the **12mm (1/2") Hose** to the underside of the catch can body, using a **12mm spring clamp** to secure it in place.



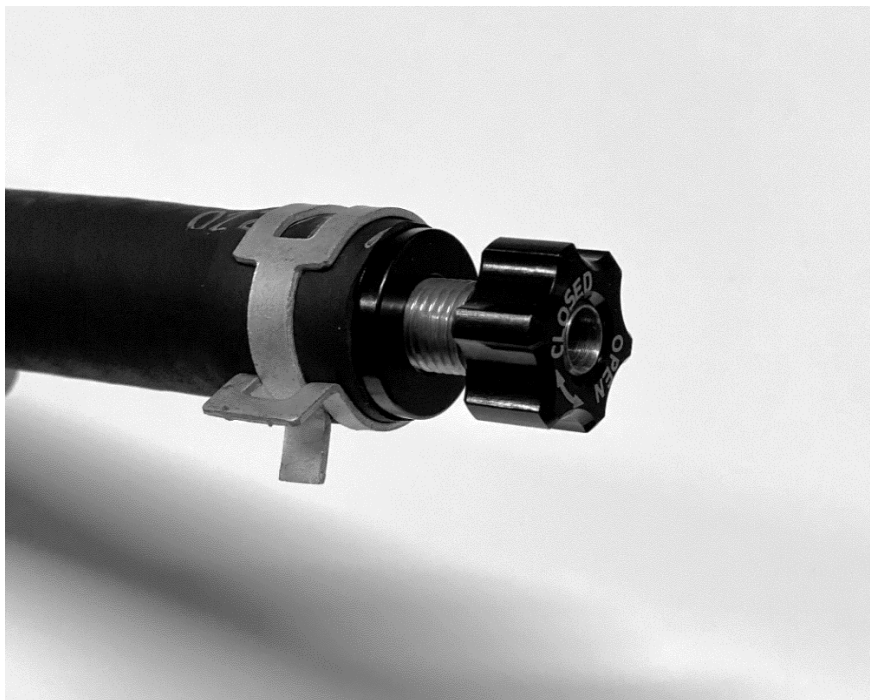
Provent Ultimate Catch Can with 12mm hose connected and secured with a clamp

6. With a **flat washer** on each of the **M8x25mm bolts**, mount the ProVent Ultimate Catch Can to the mounting bracket. Use a **flat washer, spring washer and nut** to secure the bolts on the other side.



Provent Ultimate Catch Can bolted to bracket and with couplers and fittings installed– Please note ProVent rotation in this image is correct, refer to the image on the last page of this installation guide for how to rotate the unit.

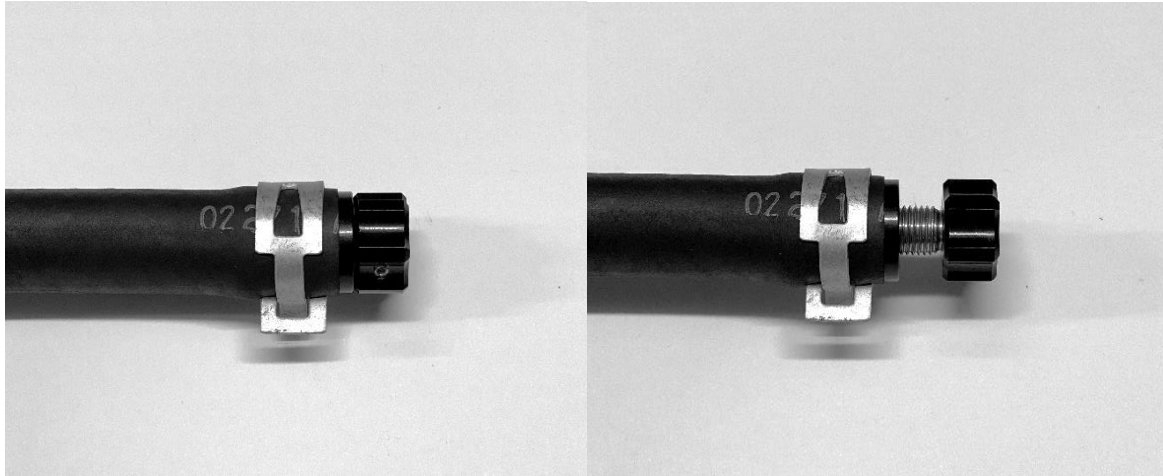
7. Feed the 12mm Hose down the side of the engine bay, under the vehicle to an out of the way location, making sure it is clear of any suspension, driveline and exhaust components, fit the **Drain Tap** into the hose and secure with a **12mm spring clamp**.



Drain Tap inserted into 12mm hose, secured with a clamp

8. Use the supplied **cable ties** to secure the 12mm hose into the location required under the vehicle to prevent movement. *Note: Leave a slight amount of slack in the line where the body and chassis join to prevent stretching the hose.*

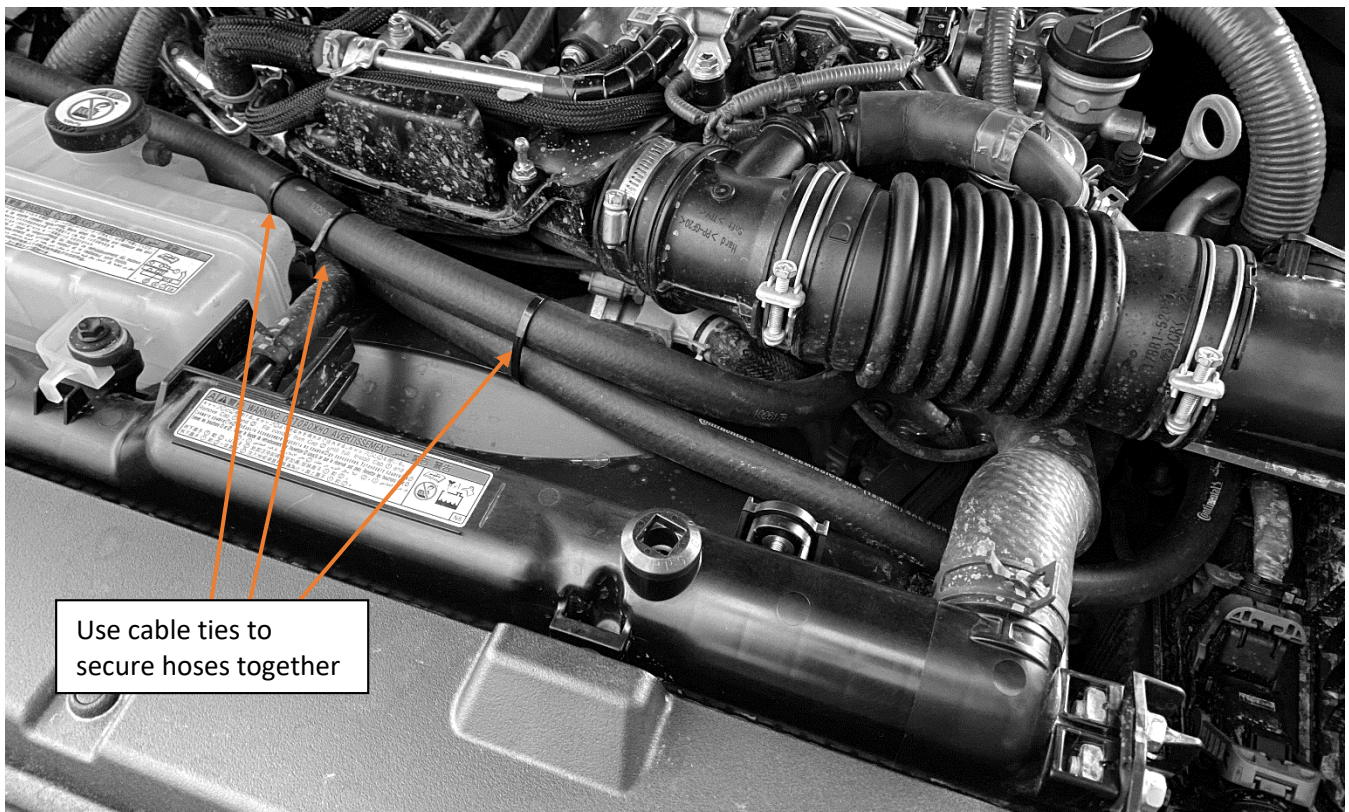
9. **Make sure the tap position is closed** and avoid placing the tap in a location in which it will fill with dirt and mud. (See image below)



Left image: Tap Open.

Right image: Tap Closed.

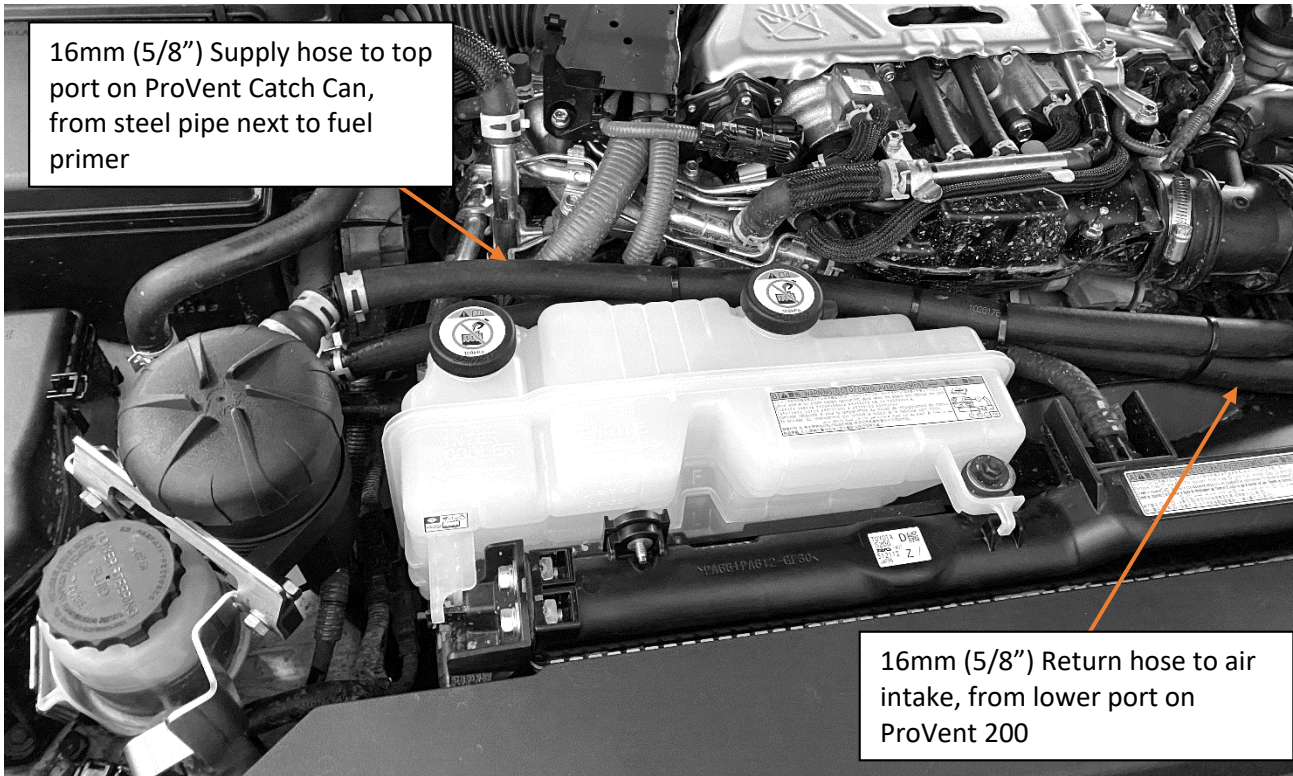
10. Mount one end of the remaining **1100mm long 16mm (5/8") hose** to the lower **16mm (5/8") 45° joiner fitting** on the ProVent Ultimate Catch Can. Secure in place with a **hose clamp**.
11. Mount the other end of the same 1100mm long 16mm (5/8") hose to the 16mm (5/8") 45° joiner fitting you put on the factory bypass hose earlier. Trim to length if needed. Secure in place with a **hose clamp**.



Lower hose connection to the outlet port on the ProVent Catch Can.

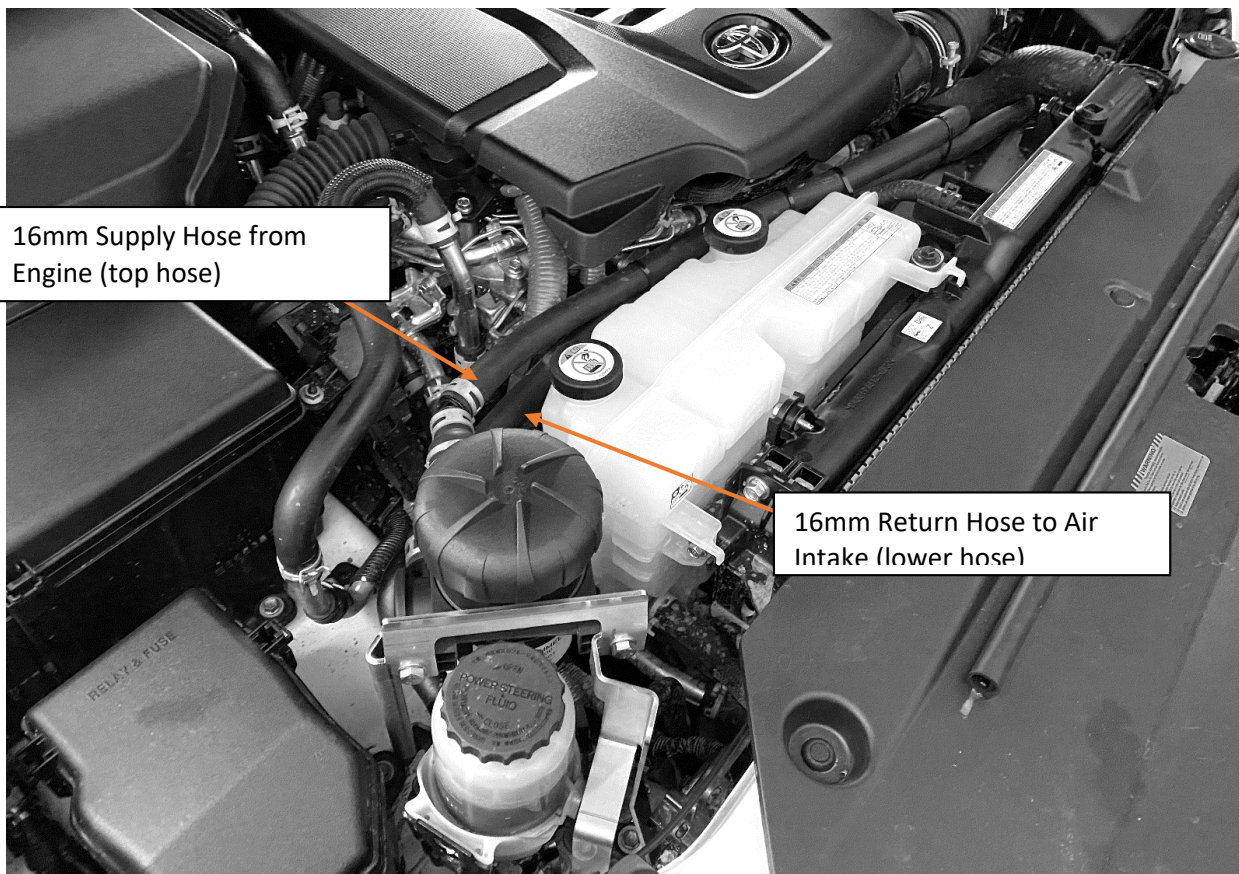
Note hose runs under the intake pipe. Please note rotation of factory bypass hose.

12. Mount the last loose **1100mm 16mm (5/8") hose** to the upper **16mm (5/8") 45° joiner fitting** on the ProVent Ultimate Catch Can. Trim to length if needed. Secure in place with a **hose clamp**.



Hose configuration in Land Cruiser 300 Series with ProVent Ultimate Catch Can kit installed

Note: the hoses need to be run underneath the intake pipe in order to fit the engine cover back on, the hoses are long enough to allow for this, just make sure to keep clear of the radiator fan!!



ProVent 200

The housing can (prior to installation) be turned in the holder in 30° steps around the longitudinal axis.

This enables the position "Inlet and outlet fitting to flange" to be flexibly adjusted to the installation situation.

- Remove the retaining clip (1) upward from the groove and turn the holder into the desired position.
- Press the holder together somewhat in the desired position and engage the retaining clip in the groove again
- Mount the holder in the vertical position. Recommended tightening torque for M8 screws: 10 Nm.
- Ensure sufficient strength of the screw and nut material.
- Connect the hoses to the inlet, outlet and oil return fittings (make sure a sufficient length of hose is pushed on) and secure with hose clamps (see Chap.4.2 and 4.3).
- Connect the oil return hose (and non-return valve if necessary) to the oil sump.
- To ensure proper functioning, the ProVent should be protected against dirt (mount splash guards if necessary).

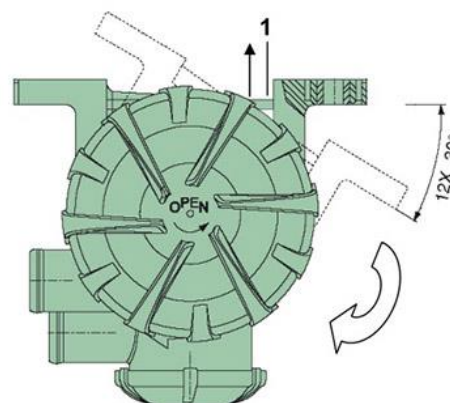


Fig. 5 Positions of outlet for ProVent 200

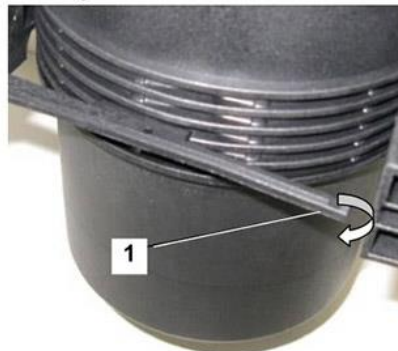
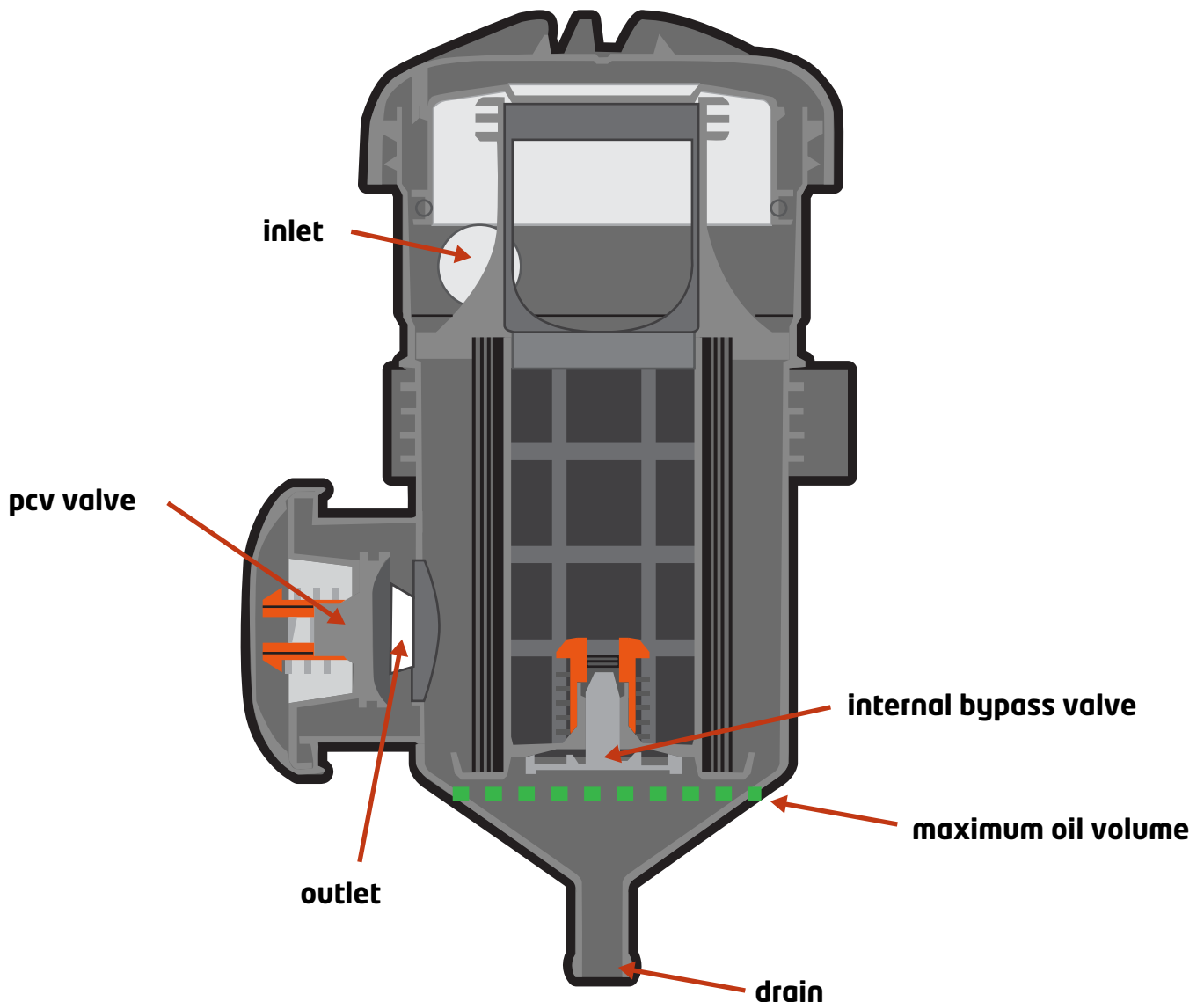


Fig. 6 Holder for ProVent 200

End of ProVent Ultimate Catch Can Kit Installation

PV200 INTERNAL BYPASS VALVE SECTIONAL DIAGRAM



Due to the way the internally vented PV200 works, the PV200 must be drained regularly to ensure correct operation of the internal bypass valve. Failure to regularly draining/servicing the Catch Can may cause engine damage due to over pressurisation of the crankcase ventilation system.

The ■ ■ ■ in the diagram indicates the maximum permissible oil level. For the PV200 internal bypass valve to correctly operate the internal oil volume **MUST NOT** exceed the level indicated by the ■ ■ ■ shown in the diagram.

If the internal oil volume is to exceed the level indicated by the ■ ■ ■ shown in the diagram, the internal bypass valve cannot operate as designed due to it being submerged. This condition is likely to cause over pressurisation of the crankcase ventilation system and damaging the engine.

WARNING: Colder climates can cause increased condensation inside the Catch Can. This will fill the reservoir quicker than oil and will need to be drained regularly. Failure to do so could & can damaged the Catch Can or vehicle.