

# Ford Ranger PX Fuel Manager Pre-Filter + ProVent Ultimate Catch Can Kit Installation Guide

This document is to be used as a guide for the installation of the **Direction-Plus™ Fuel Manager Pre-Filter + ProVent Ultimate Catch Can Kit to a 2011-2019 Ford Ranger PX & PXII 3.2 & 2.2 Diesel.**

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

## Important before starting

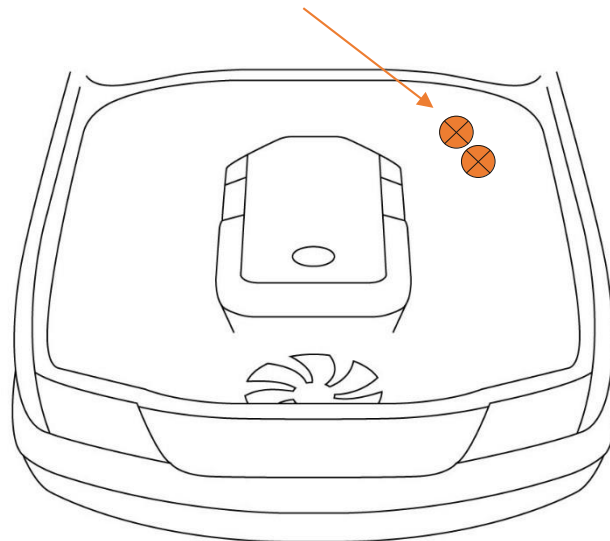
- Ensure the engine bay is clean and free from contaminants
- The filter head has direction arrows indicating the direction of flow
- You have the correct tools to complete the fitment
- Read the instructions in full and familiarize yourself with the installation before commencing any work

## Included in the kit

- 1 x Mann + Hummel Provent 200
- 1 x Mounting Bracket A
- 2 x 25mm – 19mm reducers
- 1 x Mounting Bracket B
- 2 x 750mm of 19mm Hose
- 1 x 65mm of 19mm Hose
- 4 x 19mm 90° Joiners
- 8 x 19mm Clamps
- 2 x 25mm Clamps
- 8 x Cable Ties
- 1 x M8x16 Bolt
- 2 x M8 Flat Washers
- 1 x M8 Spring Washers
- 1 x M8 Stainless Steel Nut
- 1 x M6x16 Bolt
- 1 x M6 Spring Washer
- 1 x M6 Mud Washer
- 2 x M8x25 Bolts
- 4 x M8 Flat Washers
- 2 x M8 Stainless Steel Nuts
- 1 x 1000mm of 12mm Hose
- 1x Drain Tap Assembly
- 2 x 18-20mm Hose Clamps
- 1 x FM100 30 micron assembly
- 2 x 90 DEG push lock hose fittings
- 2 x M16 x 1.5 adapters
- 2 x M16 x 1.5 plugs
- 4 x M16 flat washers
- 1 x fuel hose 10mm
- 2 x 10mm hose clamps
- 2 x M10 bolt
- 2 x M10 nut
- 4 x M10 washers

Kit contents are subject to change based on availability

Approximate mounting location



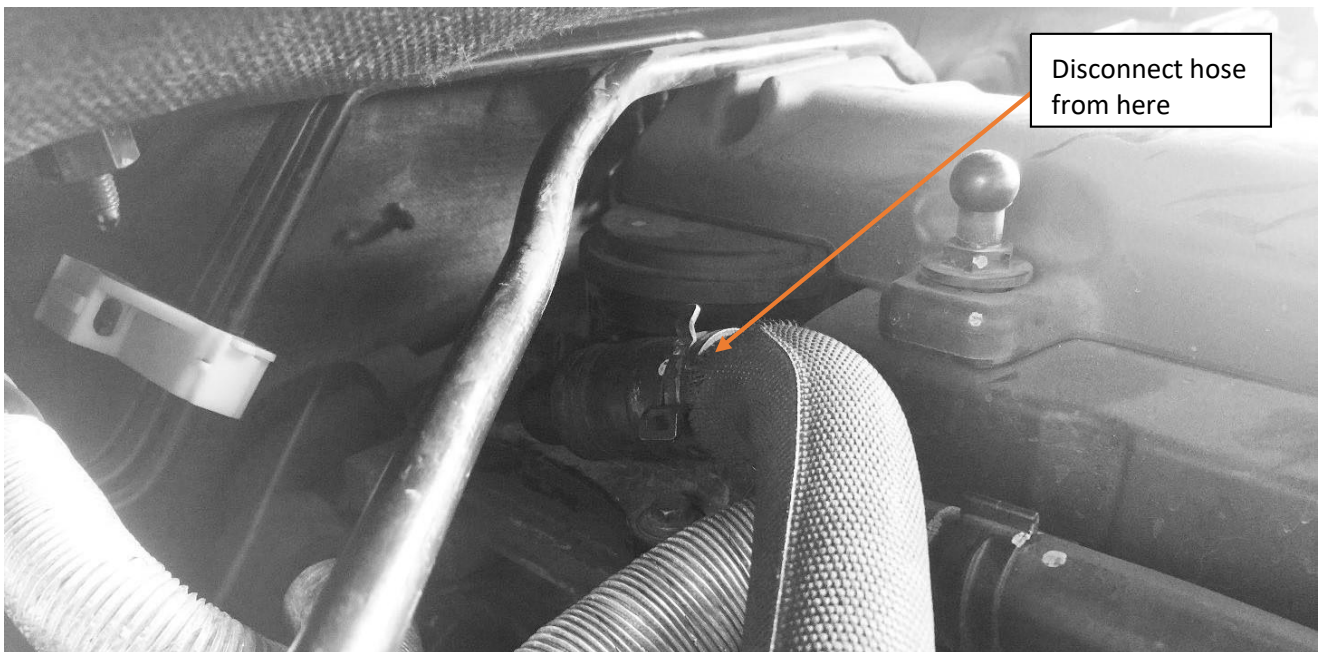
## ProVent Ultimate Catch Can Installation Guide

1. Begin by removing the engine cover to give access to the crankcase bypass hose on the back-driver's side of the engine.



*Ranger PX Engine Bay – Overall View*

2. Locate the factory bypass hose which runs from the valve cover on the driver's side of the engine to the intake pipe just after the concertina section. The hose is about 500mm in length and has a few bends in it. Once located, this hose needs to be disconnected from the valve cover and the 90° fitting on the valve cover needs to be rotated to face the rear of the vehicle.



*Factory bypass hose location*

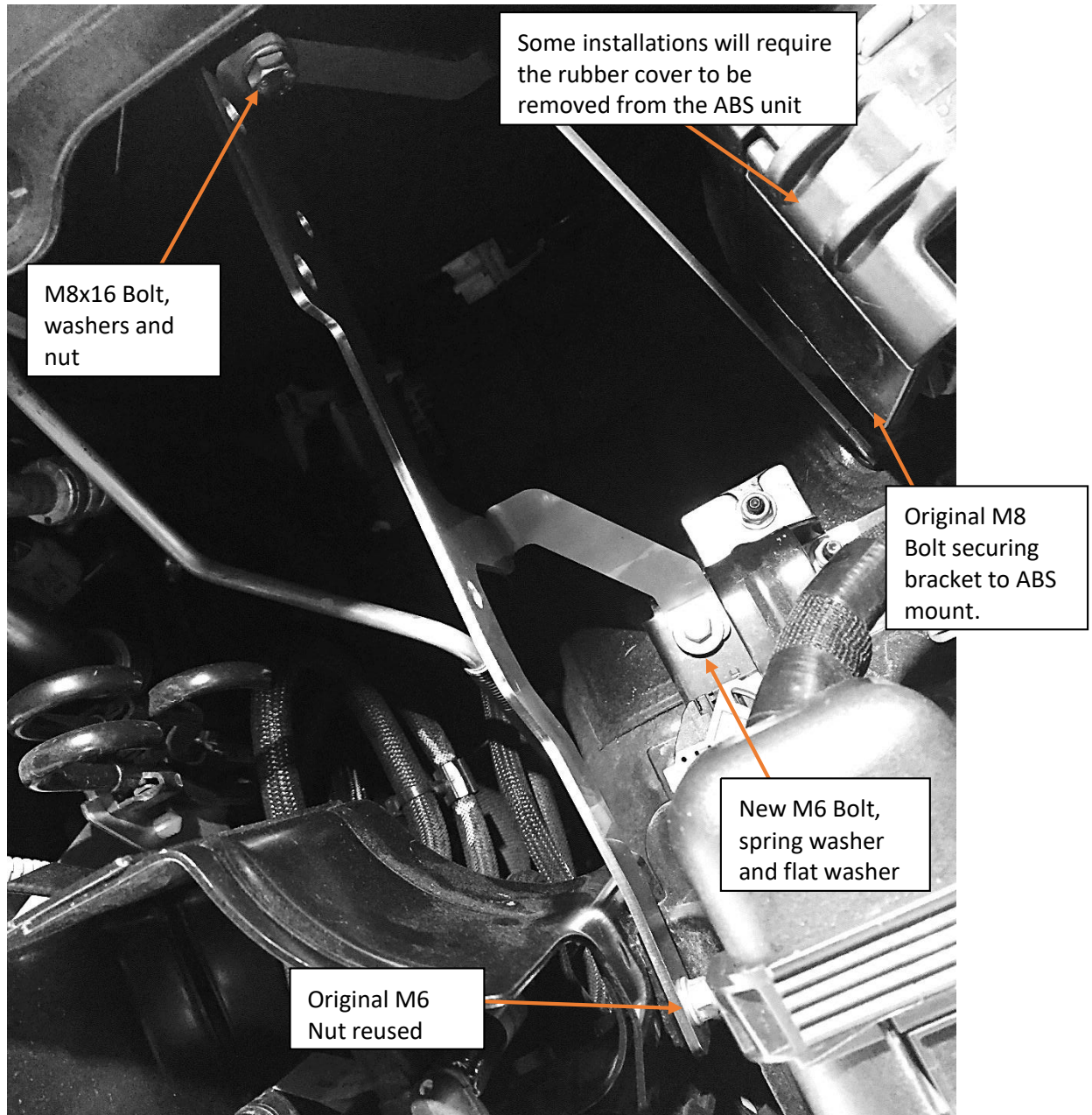
3. Locate the M6 nut located on the factory fuel filter bracket. It needs to be removed to allow fitment of the new bracket. You will also need to remove the bolt that retains the ABS unit nearby, the brace secures to this and the factory bolt gets reused.



*Top down view: image shows new ProVent bracket mounting location*

4. Bolt the Brackets into place using the M6 stud from the previous step to locate. Then use the M6 bolt, spring washer and mud washer on the leg to the existing empty threaded hole on the vehicle. Lastly, bolt the brace in place and secure the two brackets together using the M8x16 bolt, two flat washers, a spring washer and M8 nut. The bracket when in place should look like the picture below.





5. If you are installing the PreLine fuel filter system as well as the ProVent, install the bolts for the PreLine from the ABS side towards the engine side, it will make it easier later on.
6. Connect the 12mm (1/2") Hose to the underside of the catch can body, using an 18-20mm Clamp to secure it in place.



*Provent 200 with 12mm hose connected and secured with 18-20mm clamp*

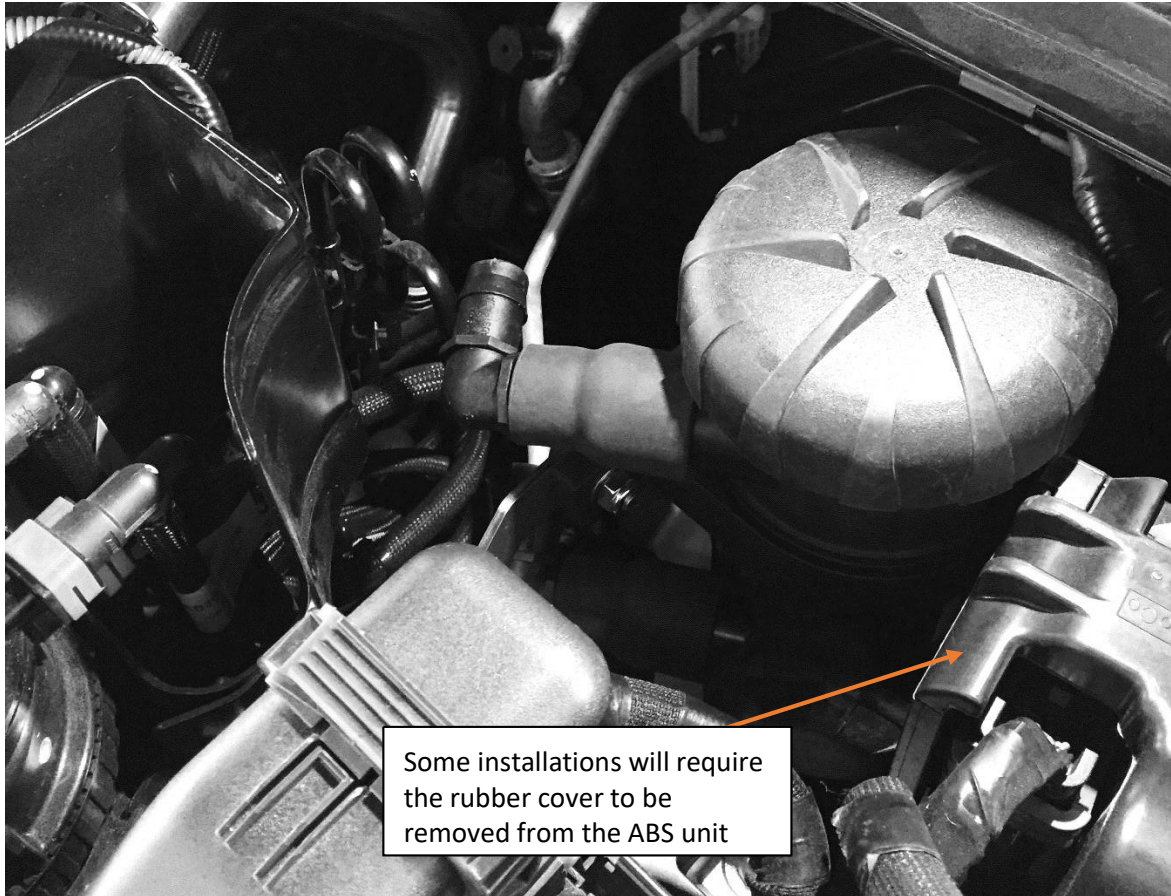
7. Feed the 12mm Hose down the side of the engine bay, under the vehicle to an out of the way location, making sure it is clear of any suspension, driveline and exhaust components, fit the Tap hose tail into the hose and secure with an 1820mm clamp.



*Hose tail and tap assembly inserted into 12mm hose, secured with 12-20mm worm drive clamp*

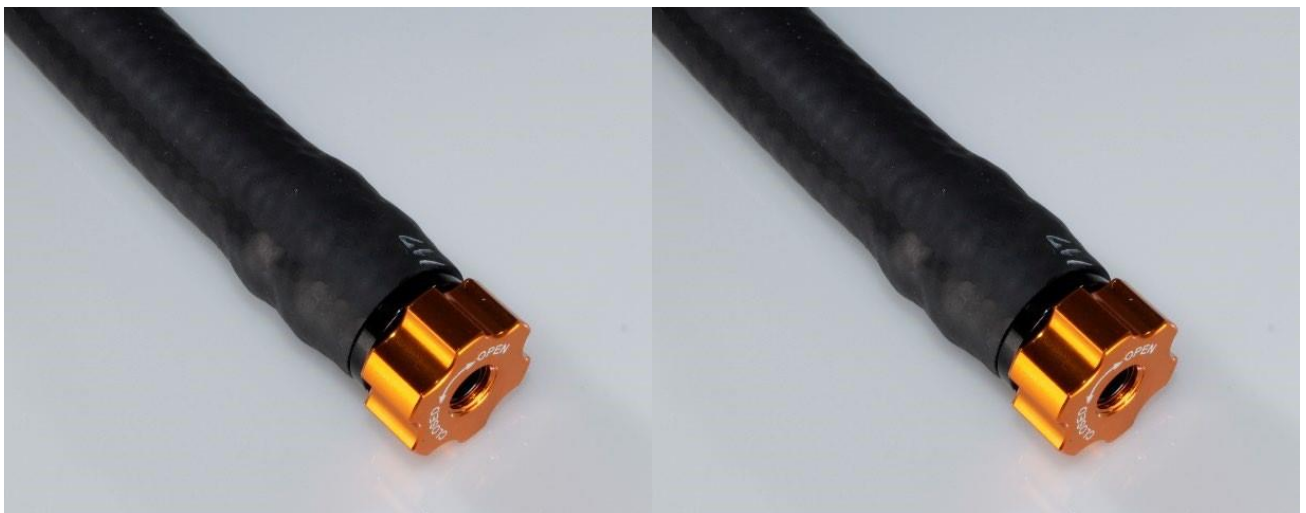
8. Bolt the ProVent 200 to the bracket using the supplied M8 bolts, spring washers, flat washers and nuts. Make sure to orient the ProVent 200 unit to be facing the same as the picture following.





*ProVent 200 bolted into place at correct rotation, 25-19mm reducers and elbows are shown installed in this image to give you an idea of fitment (clamps not fitted)*

9. 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.
10. Make sure the tap position is closed and avoid placing the tap in a location in which it will fill with dirt and mud.



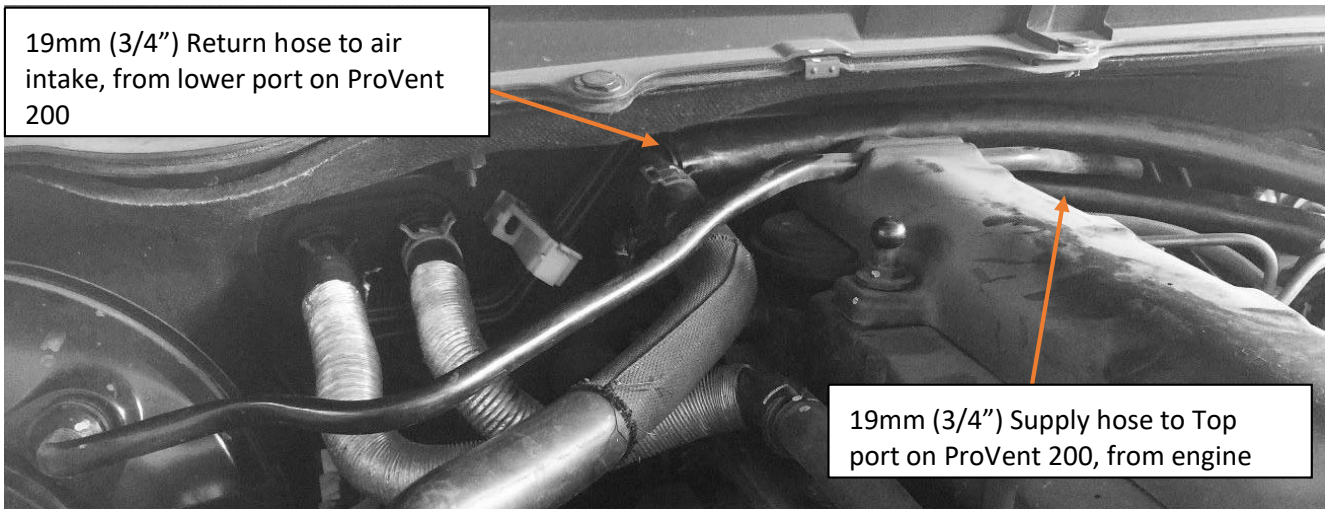
*Left image – Tap Open. Right image – Tap Closed.*

11. Connect the 25-19mm reducers to the ports on the side of the ProVent 200 unit. Use the 25mm spring clamps to secure in place.
12. To the 19mm end of these reducers, fit the 19mm elbows and use 19mm clamps to secure in place.

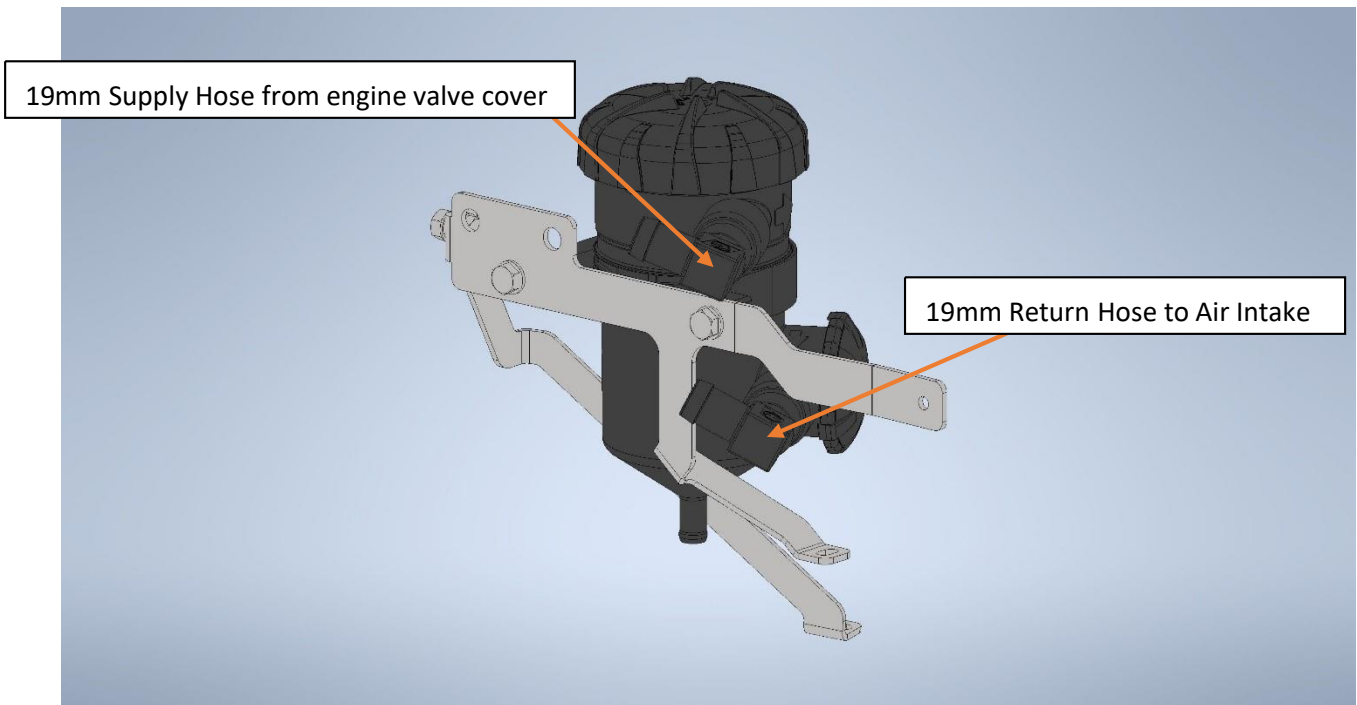


*This image shows how the ProVent Lines are to be assembled (note spring clamps are provided in the kit)*

13. Mount one end of the first 750mm long 19mm (3/4") hose to the lower 19mm (3/4") elbow connected to the ProVent 200. Secure with hose clamp.
14. Mount the other end of the same 750mm long 19mm (3/4") hose to a 19mm (3/4") 90° joiner fitting and use a clamp to secure. Connect the other side of the 19mm (3/4") 90° joiner fitting to the hose we disconnected from the engine head earlier on the driver's side. Secure with hose clamp.
15. Mount one end of the second 750mm 19mm (3/4") hose to the upper 19mm (3/4") fitting on the ProVent 200. Secure with hose clamp.
16. Mount the other end of the second 750mm 19mm (3/4") hose to a 19mm (3/4") 90° joiner fitting and use a clamp to secure. Connect the other side of the 19mm (3/4") 90° joiner fitting to the short 75mm length of hose and use a clamp to secure. Connect this hose to the factory elbow on the engine head we rotated towards the firewall in step 2. Secure with hose clamp.



*Hose configuration in PX Ranger with ProVent 200 installed – Note, the hoses need to be run in such a way to fit the engine cover back on, the hoses are long enough to allow for this. (hose clamps not shown)*



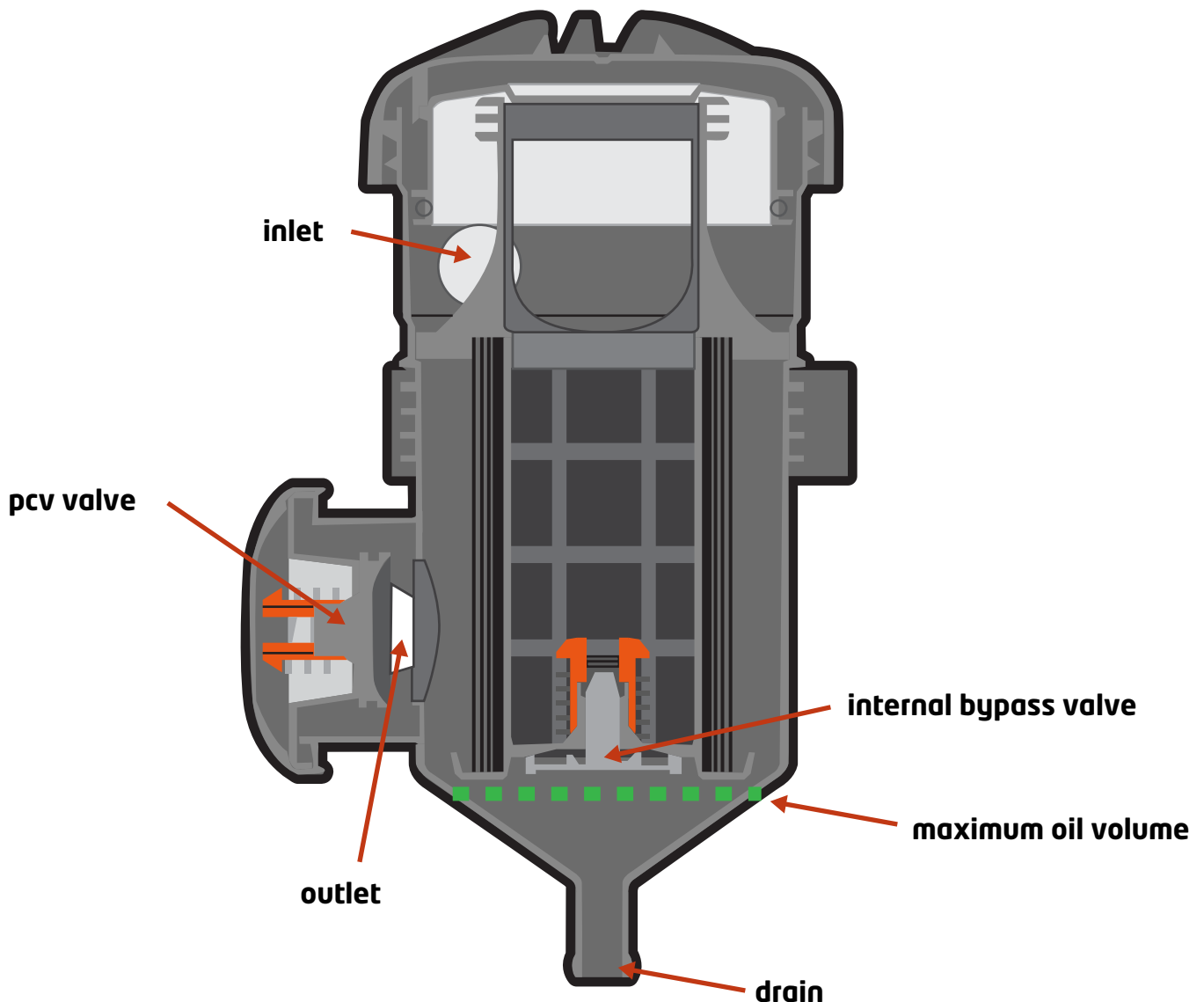




ProVent Install finished – Check to make sure everything is secure and then put the engine cover back on

17. Install the M16x1.5 plugs and M16 flat washers to the inlet and outlet ports that are facing the rear of the vehicle when the prefilter is installed
18. Install the M16x1.5 adapters and M16 flat washers to the inlet and outlet ports that are facing the front of the vehicle when the prefilter is installed
19. Mount the Pre-filter assembly to the mounting bracket using the 2 x 10mmx30mm bolts, 2 x 10mm flat washers.

## **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.

### 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).

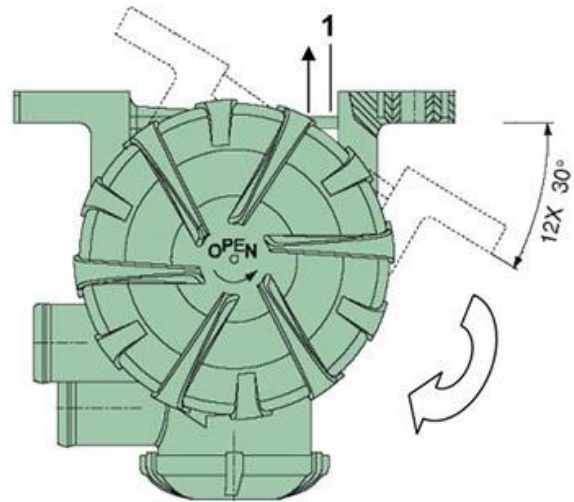


Fig. 5 Positions of outlet for ProVent 200

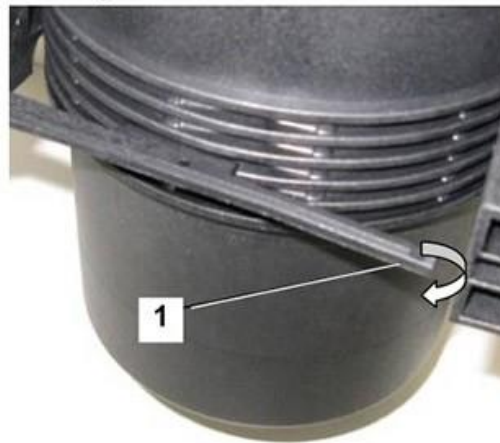


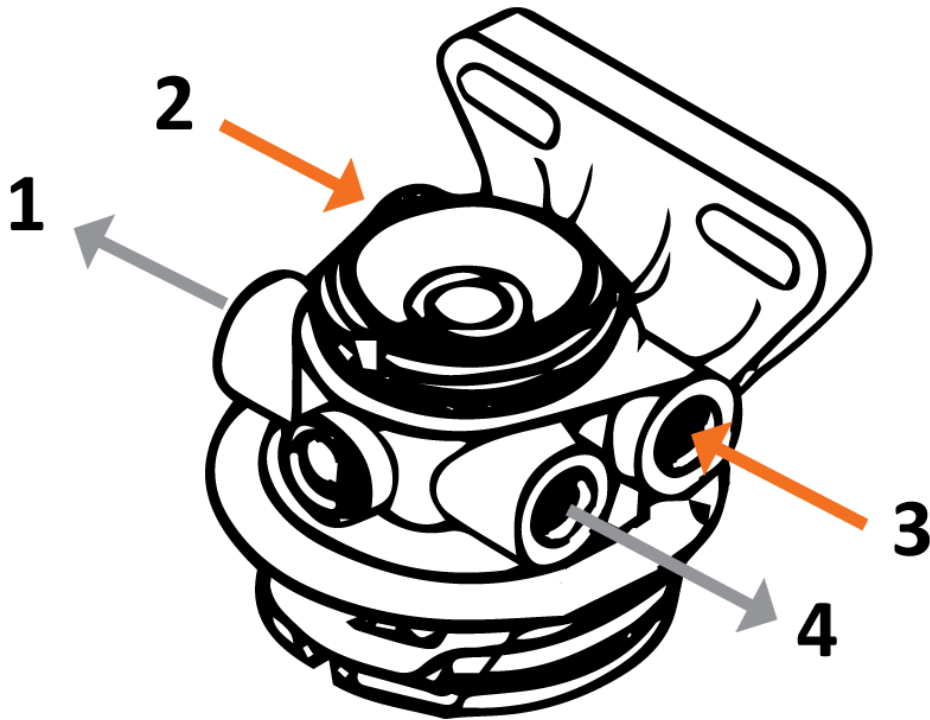
Fig. 6 Holder for ProVent 200

**End of ProVent Ultimate Catch Can installation**

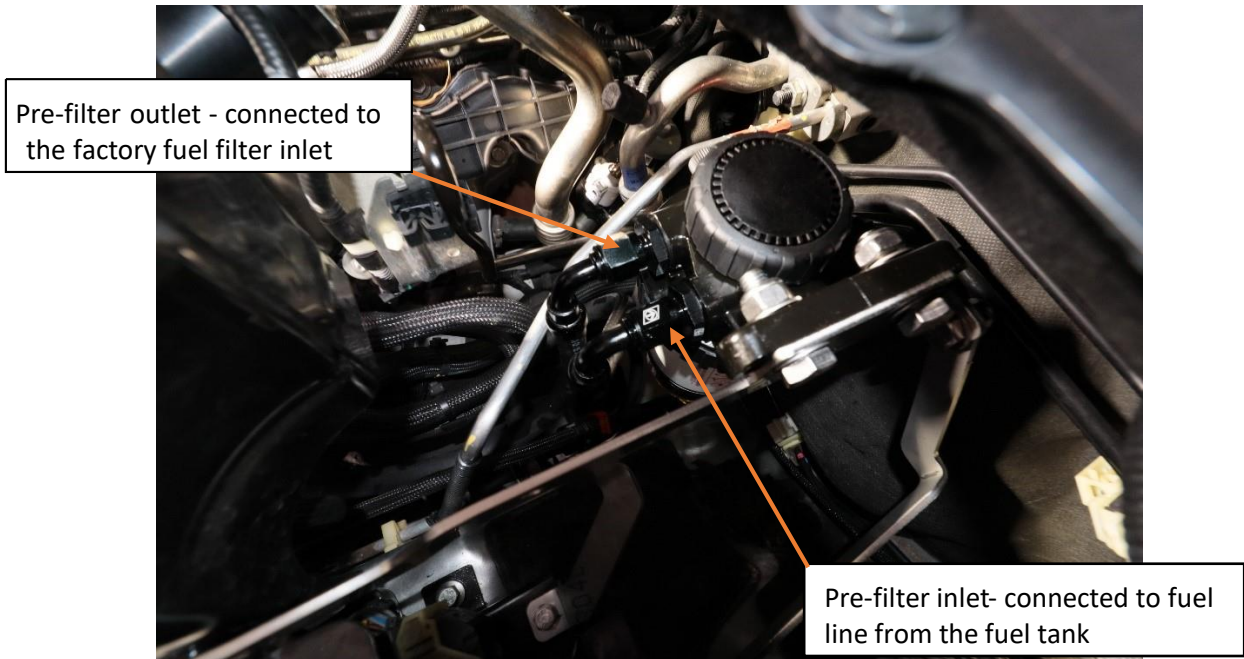
**Go to Next Page for Fuel Manager Pre-filter Installation Guide**



## Fuel Manager Pre-Filter Normal Flow Header Connection

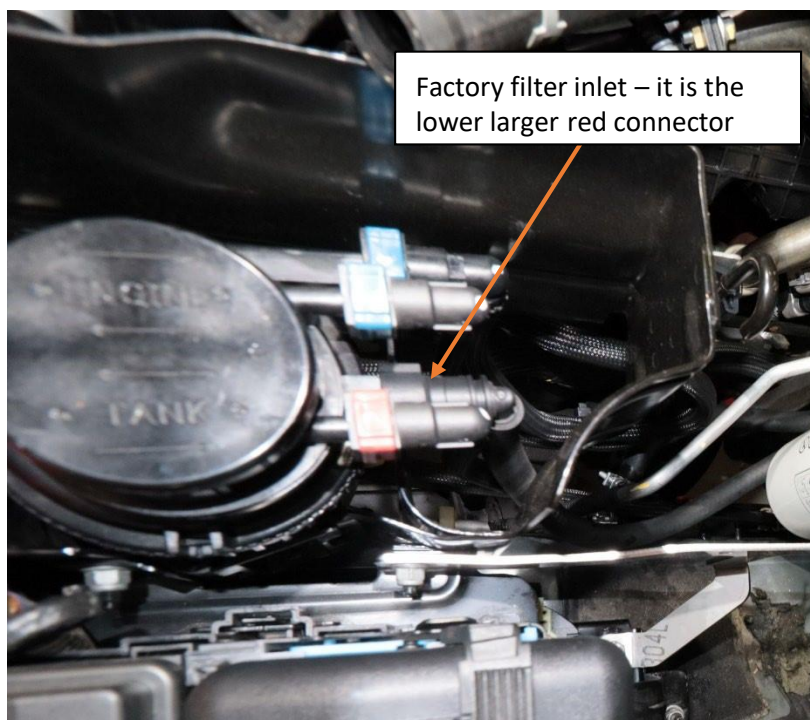


**Ports 2 and 3 = INLET**  
**Ports 1 and 4 = OUTLET**



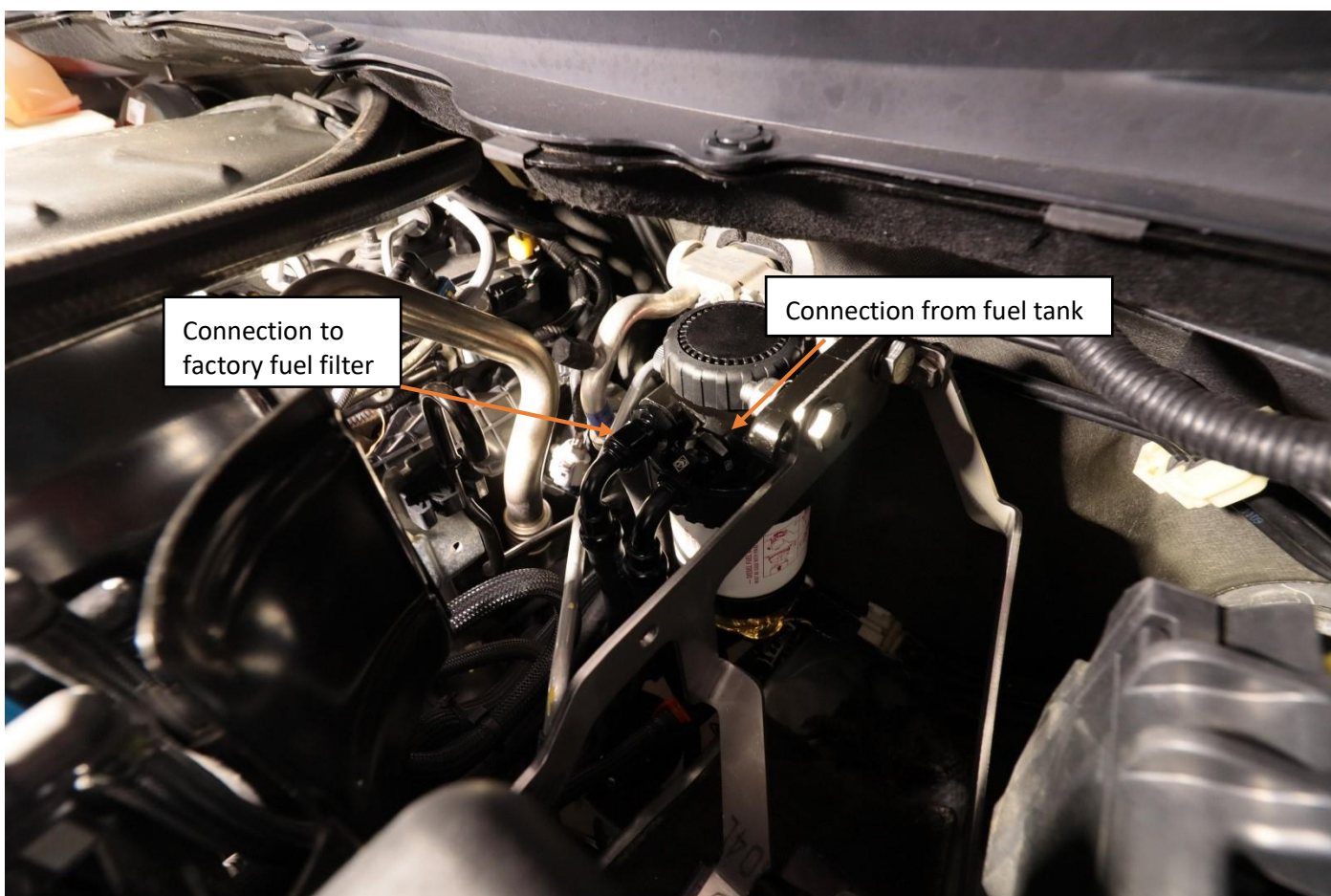
note: ProVent has been removed to better illustrate the pre-filter mounting

20. Remove the RED quick disconnect fitting from the original filter head (the larger lower fitting) and the other end of the pipe coming from the tank. Remove the factory piece of pipe. Keep this pipe in a safe place as it will be needed if the vehicle needs to be return to factory specification



21. With one end of the supplied 10mm fuel hose, Lubricate the inside portion of one end using diesel fuel or WD40
22. Install one of the 10mm 90° push-lock fittings into the pre-lubricated end of the 10mm fuel hose, ensuring that the hose stops firmly against the inside of the bell cover.

23. Connect the 10mm 90° push-lock fitting to the inlet of the pre-filter housing. Adjust the angle of the fitting tail to clear any obstructions.
24. Route the 10mm fuel hose down to the steel fuel pipe that was connected to inlet of the factory fuel filter and cut the hose to length approximately 25mm past the end of the steel fuel pipe
25. In the end of the same piece of fuel hose, install one of the 9.89mm female quick disconnect fitting and secure with a hose clamp. Connect this hose to the supply line from the tank.
26. With the remaining length of 10mm fuel hose Lubricate the inside portion of one end using diesel fuel or WD40.
27. Install the last 10mm 90° push-lock fitting into the pre-lubricated end of the 10mm fuel hose, ensuring that the hose stops firmly against the inside of the bell cover.
28. Connect the 10mm 90° push-lock fitting to the outlet of the pre-filter housing. Adjust the angle of the fitting tail to clear any obstructions.



example of pre-filter fitting orientation

29. Route the 10mm fuel hose to the inlet of the factory fuel filter and cut the hose to length, approximately 25mm past the end of the inlet barb
30. Install the last 9.89mm female quick disconnect fitting in the end of the same fuel hose and secure with a hose clamp. Connect this hose to the inlet of the factory fuel filter and secure with a supplied hose clamp.





31. Using the supplied nylon cable ties carefully secure both fuel hoses, ensuring they are not kinked and cannot contact any hot components.
32. Remove any loose tools from the work area
33. Turn the ignition key ON and allow the system to prime for approximately 30-60 seconds, repeat 4-6 times
34. Start and run the vehicle checking for leaks



*Completed installation of the ProVent® and Pre-filter Kit*

## **End of Installation Guide**