

SERVICE BULLETIN

Title: Fuel Return Line XT-912 Engines

Identification	SB-022
Status	Mandatory
Issue	1
Issue Date	14 December 2018
Applicability	XT-912 series trike bases prior to serial number XT-912-0559. All 100hp engines are compliant.
Compliance	Prior to next service.

Issued by: Stuart Coad

Approved by: Rick Duncan – Airborne Windsports.

Summary of Changes:
First issue

Introduction

A fuel return line has become mandatory for Airborne Windsports Edge XT-912 aircraft.

Airborne Windsports previously conducted testing showing the fuel pressure to be within the Rotax 912 series specified operating limits as per:

BRP-Powertrain Installation Manual
For Rotax Engine Type 912 Series,
Edition 2/Rev. 1 February 01/2015
Page 5

1.2.1) Fuel pressure

Operating Limits

Fuel pressure: Max. 0.4 bar (5.8 psi) Min. 0.15 bar (2.2 psi)

Publication of Rotax BRP Information Safety Notice IM-73-00-00 the information was upgraded in the Installation Manual regarding installation of a fuel return line.

According to

Page 6

1.3) Requirements of the fuel system

“Fuel return line

NOTICE The installation of a fuel return line is mandatory.”

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Action

Airborne Windsports have developed a low-cost kit that is easy to install and satisfies Rotax requirements to return fuel back to the fuel tank; and maintain the required fuel supply pressure. It is part #113306.

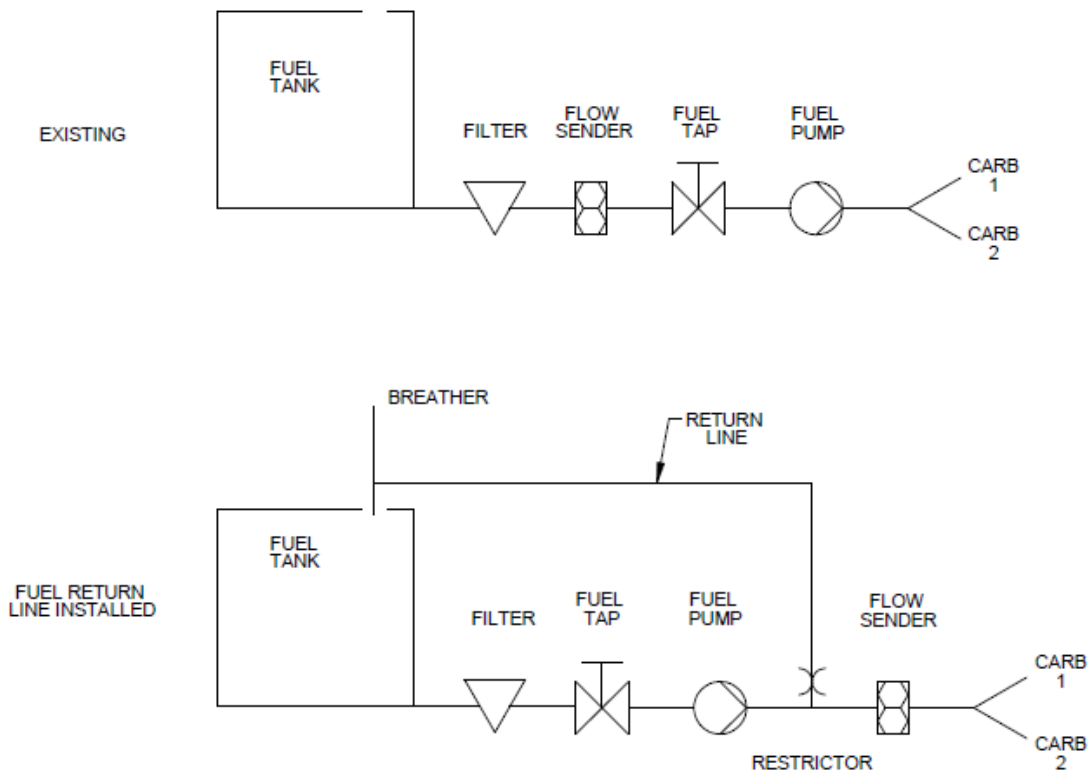
Fitting instructions are below and come with the kit. Fitting of the kit involves relocating the fuel flow sender and installing a partially assembled return line.

Timeframe

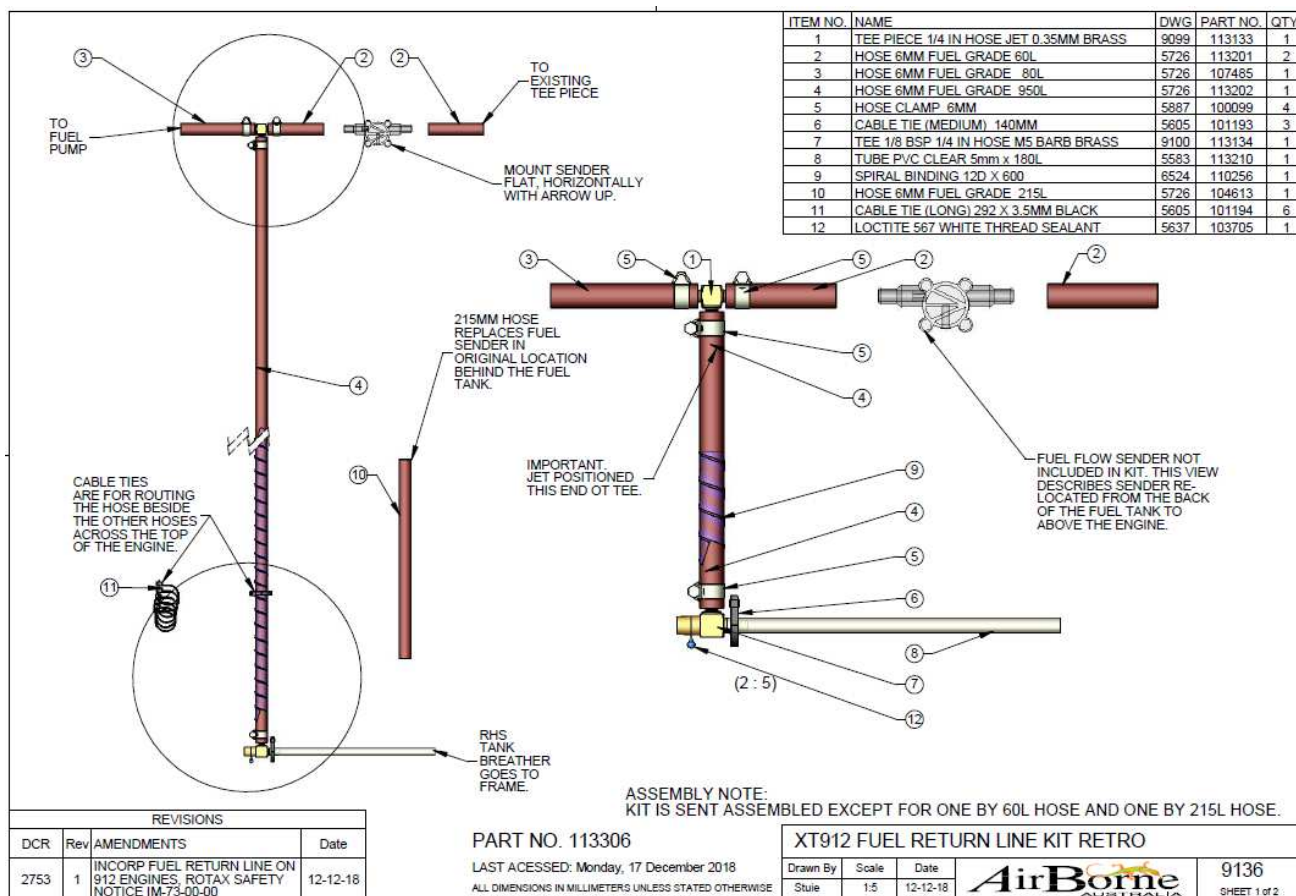
At next service, e.g. 25, 100, 200, 300 hours.

Return Line Flow Diagram

Flow diagram of existing fuel supply and after return line is installed.



Return Line Assembly



The drawing shows the kit as it should be received, the parts referred to in this Service Bulletin, and some fitting comments.

Skills

The maintainer is expected to have the skills as required by the National Aviation Authority (NAA) of the respective country.

Tools

Jewellers flat blade screwdriver or similar

Small flat blade screwdriver

¼" socket or spanner

Side cutters

Procedure to replace parts

In an appropriately clean work area, starting at the left hand rear of the fuel tank:

- 1/ TURN FUEL TAP OFF on trike. Remove engine cowl if there is one.
- 2/ REMOVE FUEL SENDER from trike. Note the position of the fuel sender wires then disconnect from the top link module. At the left back of the fuel tank, cut off any cable tie stand-offs that secure the fuel flow sender. Remove hose clamp at top of fuel filter. Remove hose clamp at bottom of fuel tap elbow. The fuel flow sender should be able to be removed from the trike. Remove hoses from both sides of the fuel sender and discard.



- 3/ **INSTALL 215L HOSE.** Using the existing hose clamps, install the 215L hose from the fuel tap elbow to the fuel filter. Note: Face the hose clamps outwards to the rear wheel for ease of access.



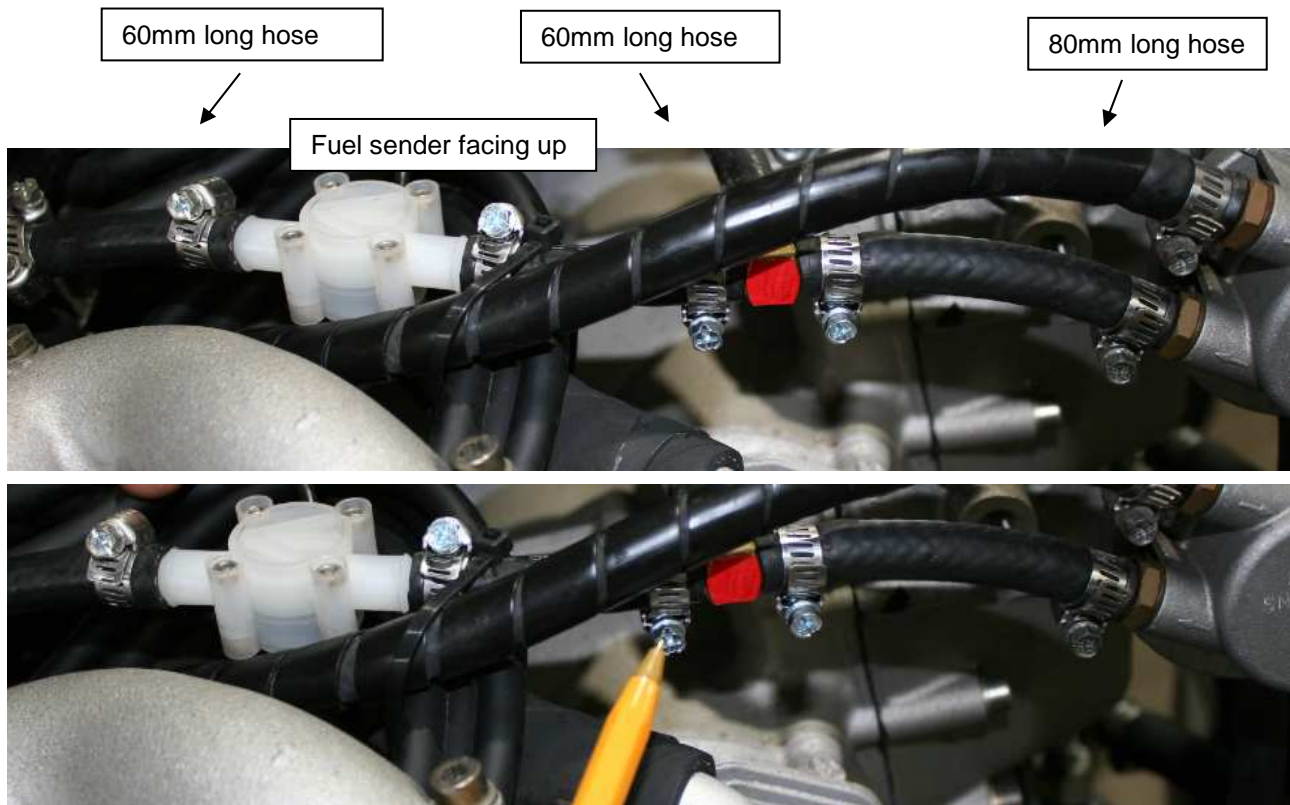
- 4/ **ATTACH FUEL SENDER TO THE 60L HOSES.** Attach the 60L hose coming from the kit to the INLET of the fuel sender, and the loose 60L hose to the OUTLET of the sender.

At the top of the engine:

- 5/ **REMOVE OUTLET HOSE (280L) FROM FUEL PUMP.** Double check it is the outlet hose, it should be the bottom hose at the pump. Discard.



- 6/ ATTACH 80L HOSE OF KIT TO FUEL PUMP OUTLET. Re-use existing hose clamp. Note orientation of hose clamps to avoid rubbing on spark plug leads.
- 7/ ATTACH 60L HOSE FROM SENDER TO EXISTING TEE PIECE. Re-use existing hose clamp. Note orientation of hose clamp to avoid rubbing. FUEL SENDER MUST BE FACING UP AND ARROW POINTING AWAY FROM FUEL PUMP.



Using a medium cable tie secure the fuel sender to the fuel pump inlet line.



At the right hand rear of the fuel tank:

- 8/ REMOVE EXISTING BREATHER ELBOW AND HOSE. Carefully clean the hole to avoid fuel contamination.
- 9/ INSTALL TEE WITH BRASS BARB FROM KIT. Withdraw the tee from the 950L long hose. Apply Loctite 567 to thread and screw into tank. Do not over-tighten. Finish position of the tee should be pointing approximately at the RHS rocker covers. Using a medium cable tie secure the 190L clear breather hose. Route the breather hose into the trike frame.



At the top of the engine:

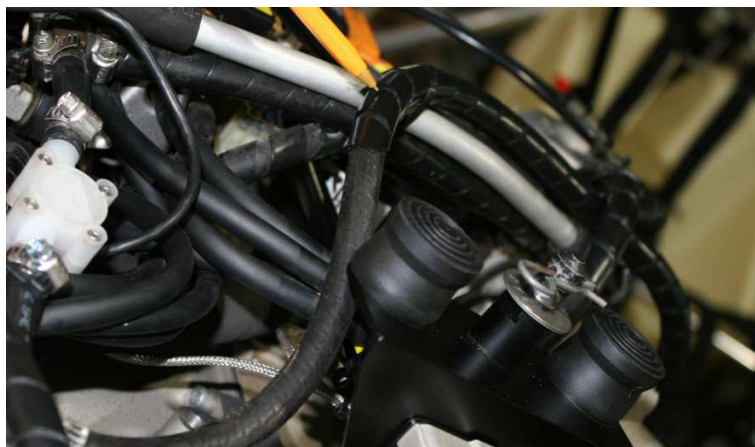
- 10/ ATTACH THE 950L HOSE. Route the 950L hose under the carburettor heater line through to the fuel tank return tee and secure using a hose clamp.



- 11/ RECONNECT THE FUEL FLOW SENDER TO THE TOP LINK MODULE. Route the sender wire under the equalizer and fuel hoses and reconnect to the engine sender module, black wire to GND, red wire to RD, blue wire to BL.



- 12/ SECURE THE KIT. Using a long cable tie secure the 950L hose along the equalizer tube to prevent possible siphoning. Also secure the 950L hose to the RHS carburettor fuel hose using two long cable ties.



Reattach the stand-offs at the 215L hose.

- 13/ TURN FUEL TAP ON. Reattach engine cowl if there is one.
- 14/ CONFIRM OPERATION. With the trike appropriately secure, start the trike and check for leaks, confirm normal fuel flow on your instrument, confirm fuel is being returned via the fuel return line by removing the cap and visually sighting fuel flow back into the tank when the engine is running. BEWARE OF PROP STRIKE.
- 15/ Record maintenance completed in maintenance log.

Documentation

Service Bulletin competed recorded in aircraft maintenance log.

End of Service Bulletin.