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SERVICE BULLETIN

Service Bulletin No. 2019-02

RECOMMENDED ACTION

SUBJECT: By-pass orifice between fuel supply line and fuel return line

MODELS AFFECTED: All models

TIME OF COMPLIANCE: not mandatory

AFFECTED SERIAL NUMBER: all engines with serial number below 191401

Field experience shows that certain aircraft fuel systems may, under certain conditions, allow varying amounts of air to enter the fuel supply lines (empty tanks/switching tanks, unporting of tanks, etc); this appears to be one of the most common reasons for engine stoppages.

In the ULpower fuel system, the fuel pump sucks fuel from the tank(s) and sends it to the engine where a fuel pressure regulator holds the fuel pressure between the engine and the fuel pump at approximately 3 bar above manifold pressure.

It is essential that there is a continuous supply of fuel for the engine to function normally. However, if at some point in flight, sufficient air is ingested to the system, the pressurized fuel lines will need to re-prime with fuel, displacing the air. The more air that is in the lines the longer it will take to clear and return to normal running. Air over the injectors at the time of opening will result in loss of power and/or engine stoppage.

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Solution 1

We have noted that in some installations it may be possible to reduce the (re)priming time with the addition of a restricted bypass unit.

Installing a restricted by-pass fuel line orifice between the pressurized fuel supply and the fuel return line may improve engine priming and recovery from air/vapour ingestion.

The bypass orifice allows fuel/air/vapour to flow in small quantities from the supply line on the pressure side of the fuel pump to the low pressure return line, enabling in many cases a much quicker return to normal engine operations.

As with all fuel systems, we advise that suitable ground testing of any restricted orifice be carried out before testing in flight and that the fuel system design, installation and maintenance is the responsibility of the aircraft builder/owner/operator.

How to install a restricted by-pass ?

For those wishing to install a restricted by-pass, we offer the following guidance, subject to regional regulations and approvals as may or may not apply.

See drawing below

Use an orifice of min 0.1mm to max. 0.5 mm diameter. Install in accordance with general rules applying to fuel related installations.


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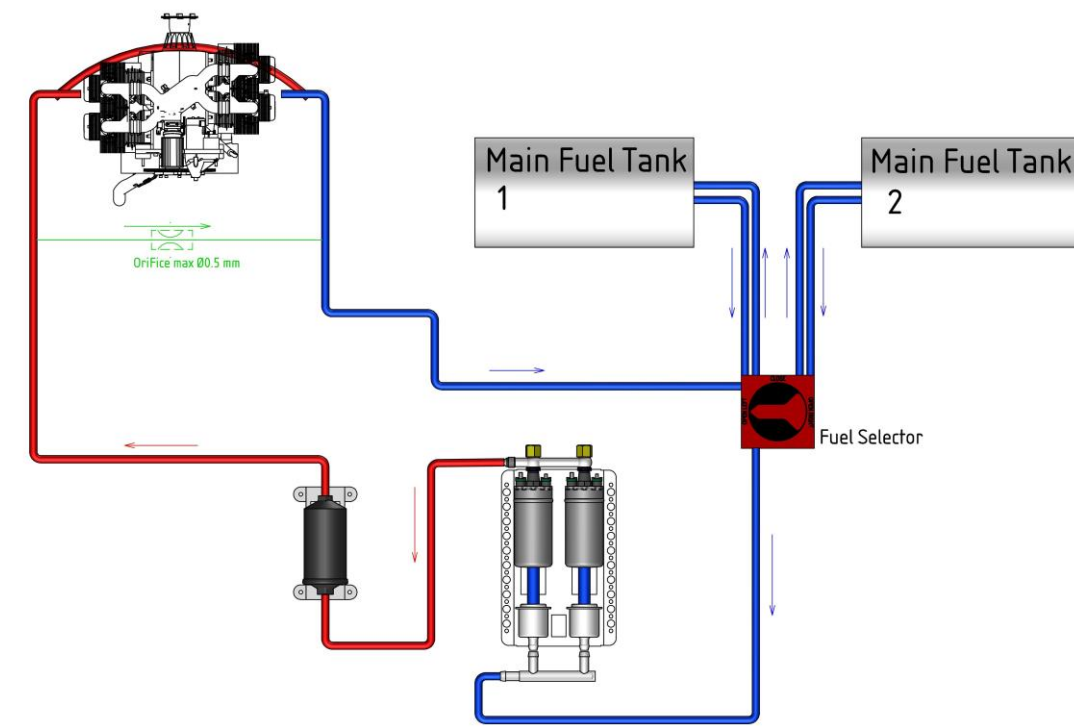
SOLUTION 2

As part of our continuous development and devotion to our concept "Easy to install", ULPOWER has designed a built-in by-pass solution which will be installed as standard equipment on all new engines with a serial number above 191401 (May 2019).

NOTE: If installing an engine with the new integrated bypass (identified by a mark "o" on the top of the restrictor) it would not be appropriate to use an external restrictor in addition as it may reduce fuel pressure over the rail.

injector WITH integrated by-pass.
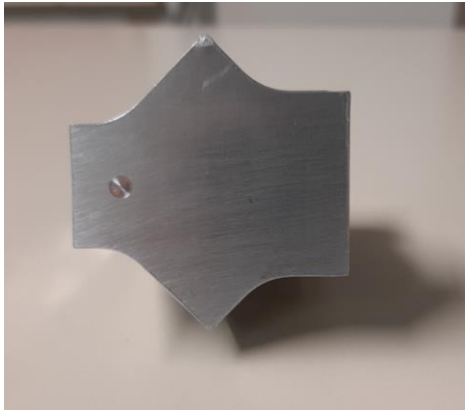
Injector WITHOUT integrated by-pass
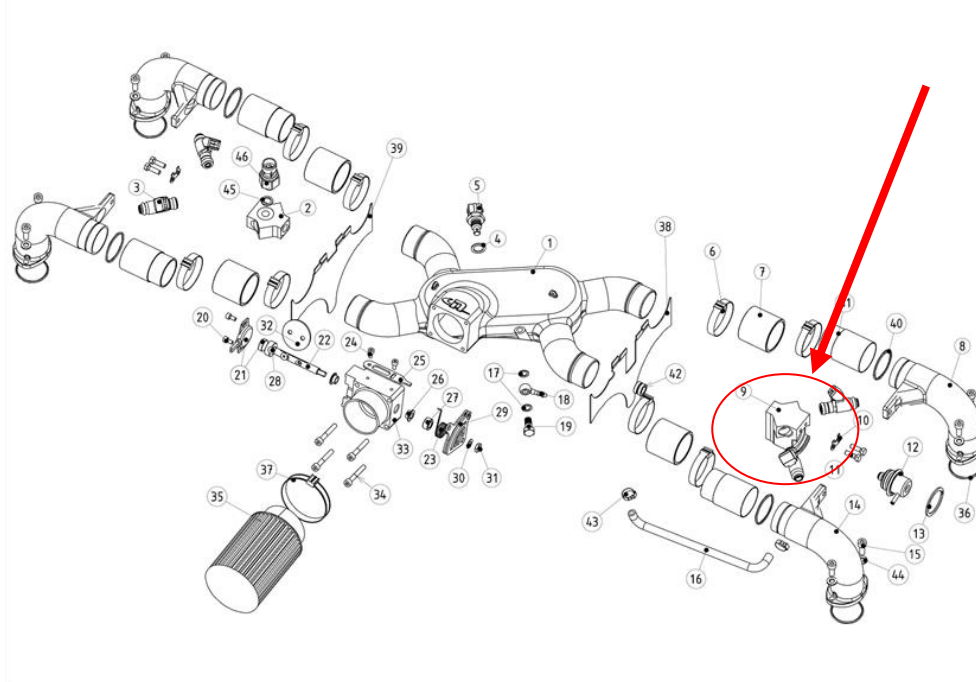
The integrated by-pass solution (K1100001 – Integrated by-pass kit for UL260/350 - 87 EUR) (K1100002 – Integrated by-pass kit for UL390/520 - 93 EUR) * may also be retro-fitted on older engines. A procedure can be downloaded from http://ulpower.news/new-feature-on-ulpower-engines-integrated-by-pass-unit ,our website for tutorials, video's, people stories, events, etc…***Part numbers and prices are subject to changes. Contact your local agent for current prices**

If you are unsure about performing this procedure, please contact your local ULPower dealer. They will gladly assist you.

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