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1. Fuel system

Description of system

See III. 30.

The fuel flows from the tank via a coarse filter/water trap ❶ to the two electric fuel pumps ❷ connected in parallel. From the pumps fuel passes on via the fuel pressure control ❸ to the two carburetors.

Via the return line ❺ surplus fuel flows back to the fuel tank and suction side of fuel system.

◆ **NOTE:** The fuel pressure control ensures that the fuel pressure is always maintained approx. 0,25 bar above the variable boost pressure in the "airbox" and thus ensures proper operation of the carburetors.

On the standard version of the engine the fuel lines from fuel pressure control to the carburetors have already been laid.

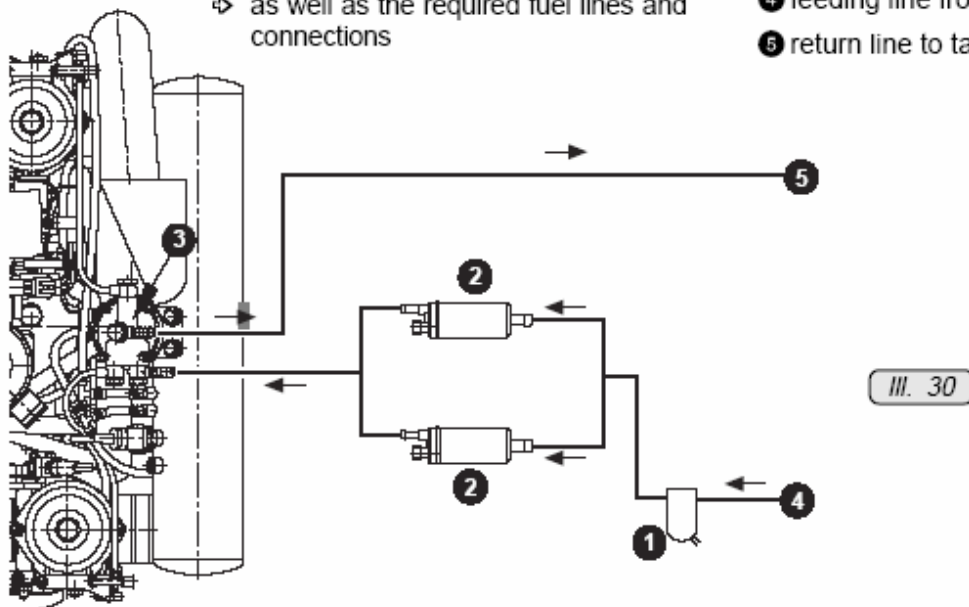
The fuel system from tank to the fuel pressure control has to be installed by the aircraft builder.

The fuel system includes the following items:

- ⇒ tank
- ⇒ coarse filter
- ⇒ watertrap
- ⇒ fire cock
- ⇒ 2 electric fuel pumps
- ⇒ as well as the required fuel lines and connections

legend:

- ❶ coarse filter / watertrap
- ❷ 2 x electric fuel pump
- ❸ fuel pressure control
- ❹ feeding line from tank
- ❺ return line to tank



Only the following connections per III. 30 have to be established:

- ⇒ Feeding lines to suction side of the electric fuel pumps ❷
- ⇒ lines from pressure side of the electric fuel pump to inlet of fuel pressure control ❸
- ⇒ Returnline from fuel pressure control to oil tank ❺

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Operating limits

▲ **WARNING:** Design and layout of the fuel system has to warrant engine operation within the specified limits.

Fuel pressure:

max. airbox pressure + 0,35 bar
min. airbox pressure + 0,15 bar
nominal airbox pressure + 0,25 bar

For the best fuel economy set fuel pressure at: **airbox pressure + 0,255 bar**

▲ **WARNING:** Fuel pressure in excess of stated limit can lead to an override of the float valve with subsequent engine stop.

◆ **NOTE:** On the standard engine no connection is provided for measuring the fuel pressure. Refer to chapter 14.5.

Requirements of the fuel system

↔ **fuel lines:** See Ill. 30.

▲ **WARNING:** Fuel lines have to be established to the latest requirements such as FAR or JAR by the aircraft builder.

■ **ATTENTION:** The fuel return ⑤ must be a line of low flow resistance. Max. tolerated pressure loss is **0,1 bar** (1,5 p.s.i.) between fuel pressure control and tank inlet with **both** electric fuel pumps in action. Otherwise the carburetors could flood. Secure fuel hoses with suitable screw clamps or by crimp connection.

■ **ATTENTION:** For prevention of vapour locks, all the fuel lines on the suction side of the fuel pump have to be insulated against heat in the engine compartment and routed at distance from hot engine components, without kinks and protected appropriately.

At very critical conditions e.g. problems with vapour formation the fuel lines could be routed in a hose with cold air flow.

↔ **Fuel filter:** See Ill. 30.

Coarse filter: on fuel tank as per valid certification

Fine filter: in the feed line from tank to the 2 fuel pumps an additional fine filter with meshsize 0,1 mm has to be provided.

The filter has to be controllable for service. A combination of filter/watertrap is recommended.

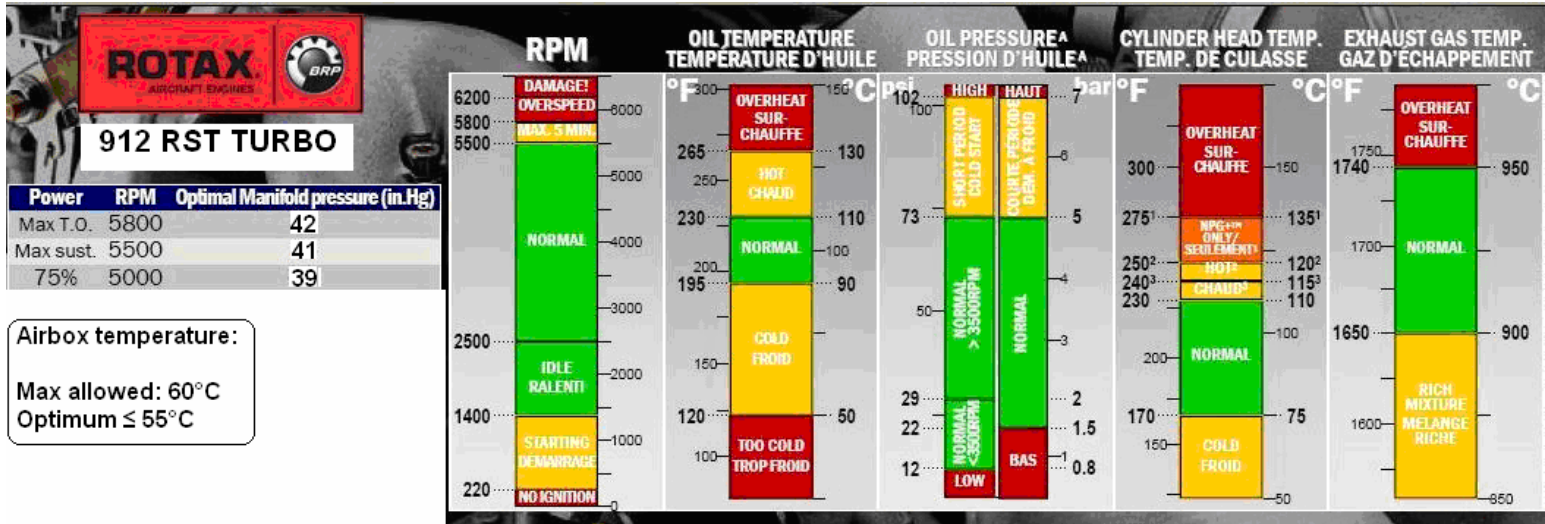
↔ **Fuel temperature:**

To prevent vapour locks temperatures in excess of 36°C (100°F) are not permissible in the vicinity of fuel lines, float chamber and such.

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2. Turbocharger operation limits.

WARNING: Every turbo engine has to be cooled down after flight, that means: let the engine run at idle (to have appropriate oil pressure) for 5 minutes (all parameters has to be stabilized).



WARNING: It is very important to respect engine parameters limitations, this will avoid engine problems. Remember not to overheat the turbocharged engine.

OPTIMUM ENGINE PARAMETERS:

Manifold pressure (in. Hg)	Engine RPM	Propeller pitch (°)
42	5800	15,5 – 16,5*

* When engine indicates more than 42 in. Hg, it is allowed to increase propeller pitch up to 16,5°. When the propeller is set to 16,5° and the engine has still more than 42 in. Hg contact Celier Aviation.

EXHAUST GAS TEMPERATURE:

RST user should not be afraid when MED80 shows first step of alarm. There was series of MED80 set incorrectly as for the RST engine limitations. Check the indicated temperature to be sure that it does not rise over 950°C.