



# ROTAX. SERVICE INFORMATION

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## SPECIAL FUELS FOR RACING PURPOSES

The engines type 128, 256 and 258 are designed for operation with leaded SUPER gasoline of Octane number 98 ROZ or higher, freely available in commerce.

As several mineral oil companies produce high octane special fuels for racing purposes and as our investigations on such special fuels showed they are very similar in structure, a special combustion chamber insert was designed for this purpose.

This new combustion chamber insert can be retrofitted on all engines type 128, 256 and 258.

Rotax part no.:	<b>223 339</b>
Identification:	<b>groove on outer diameter</b>
Combustion chamber volume:	<b>8,32 cm<sup>3</sup> ±0,4 cm<sup>3</sup></b>
Piston center protruding over cylinder top edge:	<b>2,05 mm</b>
Compression ratio (theoretical):	<b>16,0 : 1</b>

All other specifications indicated in the technical data sheet like ignition timing curve, spark plug and electrode gap, rotary valve timing and dimensions of exhaust system can be maintained without modification.

It is, however, occasionally necessary to reduce the main jet size by a few units.

As not all available special fuels could be tested for their suitability with this combustion chamber insert, the use of this insert is exclusively at your risk.

Addresses of special fuel suppliers only on request.

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## FUEL SUPPLY VIA PNEUMATIC FUEL PUMP

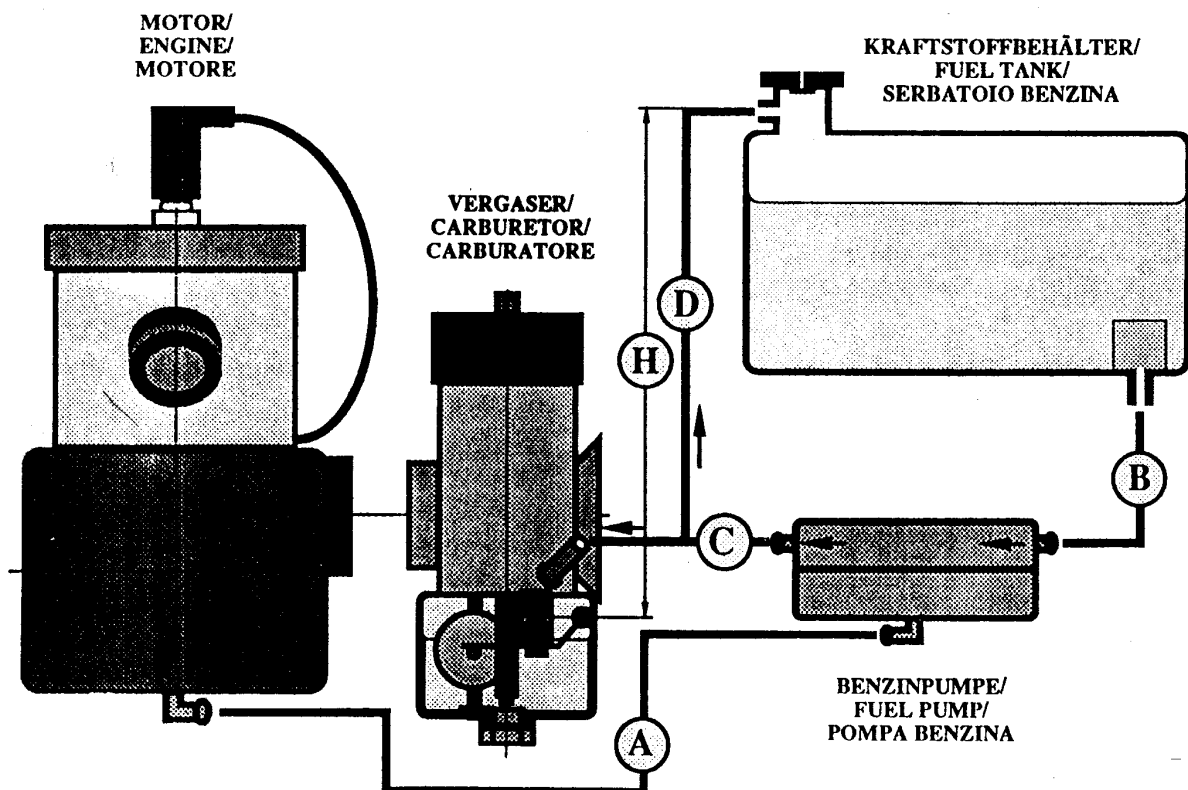
### FUNCTION

The continuous change in the crankcase between underpressure and overpressure is used to actuate a pneumatic diaphragm fuel pump via an impulse tube (A).

Through the suction tube (B) the fuel gets from the fuel tank to the fuel pump and through the pressure tube (C) from the fuel pump to the carburetor.

Most carburetors are foreseen for gravity fuel feed. This requires a big needle valve for sufficient fuel supply.

If with such carburetors a fuel pump is used, the big needle valve would get too much pressure resulting in overflow of the carburetor. Therefore it is absolutely necessary to make a return line (D) to the fuel tank. The fuel pressure to the needle valve then is provided by the height (H). This height (H) should be between 100 and 500 mm (3,9 - 19,7 inch).





## ADVANTAGES OF USING A FUEL PUMP

- Always constant fuel pressure in the carburetor, therefore independent from fuel level in the fuel tank.
- The carburetor is always supplied with fresh (cold) fuel.

## INSTALLATION INSTRUCTIONS

The fuel pump should be fitted at a cool place, as free of vibrations as possible. The impulse tube (A) should be routed so that at engine standstill the oil which has remained in the impulse tube flows back into the engine and does not glue the pump diaphragm.

The impulse tube (A) should not be longer than 500 mm (19,7 inch) and be made of stiff and fuel resistant material. Minimum inner dia. = 5 mm (0,2 inch).

The fuel tank must have a venting possibility so that no over- or underpressure is created. On the exit of the fuel tank a wide-meshed screen should be fitted for filtering the fuel.

The suction tube (B) should be kept as short as possible. The suction height should not exceed 500 mm (19,7 inch).

The T-joint in the pressure tube (C) for take-off of the return tube (D) should be as close as possible to the carburetor. The fuel return line (D) to the fuel tank must be above the highest possible fuel level (e.g. fuel tank cover) to make the pressure in the carburetor float chamber independent from the fuel level.

If another fuel filter is used, it should be fitted at the pressure side of the fuel pump, between pump and T-joint.

## FURTHER ITEMS TO RESPECT

- Only use fuel pumps recommended by the engine manufacturer as described in the technical data/spare parts list of the respective engine. Only these are tuned to the fuel requirements of the engine.
- Make sure that the fuel is absolutely free of contamination.