CUSTOMERS' INFORMATION

Information on new developments on ROTAX ultralight engines

1) Engine type 582

The water-cooled ultralight engine type 532 has been most popular over many years and is installed in numerous ultralights.

Due to its steep power curve and its high peak performance the engine 532 occasionally caused uncomfortable speed instability at partial load between 4000 and 5000 r.p.m.

The development of a **cylinder** with 76 mm bore (instead of 72 mm on engine 532) increased the capacity to 580,7 cm^3.

Different cylinder port timing results in the following characteristics:

- same power output as type 532,
- increased torque at low engine r.p.m.
- stable operating behaviour over the whole speed range,
- very good throttle response.

By development of a piston with a special profile the piston/cylinder clearance could be reduced to 0,05 mm (0,08 mm on type 532), resulting in less noise and further increased engine life.

Besides, engine type **582** has been equipped with a **DUCATI dual capacitor discharge ignition unit**, contributing to more security as far as ignition is concerned. This ignition unit also offers an increased generator output.

In the **47 kW version** the engine type 582 can be supplied with **oil pump.** This means that the engine can be operated with pure fuel (no oil/fuel mixture) and with fresh oil from a separate oil tank (must be fitted on the airframe, not supplied by ROTAX). The average oil consumption is also approx. 2 % of the fuel consumption.

A suitable **oil filter**, e.g. ROTAX part no. **956 330**, must be fitted between oil tank and oil pump.

For the cooling system of all liquid cooled engines we now can supply 2 different versions of **expansion tanks** and an **overflow bottle.**

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For 2-carb engines a **double airfilter** (to be fitted directly on the carbs) is available.

An **air intake silencer** for the **2-carb version** will be introduced shortly. Two different configurations of intake silencers for 2-stroke engines are planned, with different filter arrangements:

- for rotary valve engines it will in most cases be an advantage to have the intake silencer body showing upwards (air filter pointing to magneto side).

- as usual on piston-ported (air-cooled) engines, the version with intake silencer body showing downwards is also possible. (air filter also pointing to magneto side).

For these air intake silencers the same air filter and filter cap as for the single carb silencer is to be used.

The DUCATI dual ignition unit having a 12-pole magneto flywheel, the tachometer of the 4-pole contact breaker ignition unit cannot be used. The new **tachometer 966 072** for **DUCATI ignition** unit will be available as of February 1990.

The exhaust systems of engine 532 can be used also on engine 582 without any modifications.

The **reduction gearbox** is the **same** as on engine type 532 (configuration not requiring an adapter flange between engine and gearbox).

Electric starters and **rectifier-regulators** are the same as for type 532.

Two engine **versions 582** with **reduced power output** were developed:

- The **version 38 kW** gives maximum output at 6000 1/min and can be supplied approx. February 1990.

This engine version will be supplied with a **modified exhaust system** (inlet tube dia. 60 mm instead of 80 mm for the high performance version).

The exhaust system will be supplied in **single parts** and has to be welded by the customer, respecting exactly the medium tube length indicated in the sketch supplied by ROTAX.

The **carburetor calibration** is also **different** from the high performance version.

- The engine **version 30 kW** at 5100 1/min is equipped with **special cylinders** with modified port timing. This engine version will be available approx. March/April 1990.

The engine also differs from the 47 and 38 kW versions in the following characteristics:

- Rotary valve and rotary valve timing,
- single carburetor with intake silencer,
- exhaust system in single parts, same as for 38 kW-version, but different length of inlet tube,
- different cylinder head gaskets.

Both versions of reduced output and r.p.m. were created due to customers' requests to comply with the general trend towards noise reduction and smoothness.

A technical data sheet Db. 380-E with power curves and an outline dimensions drawing for engine type 582 are enclosed.

The popular engine 532 with contact-breaker ignition will continue to be produced.

2) ROTAX engine type 503

In the course of further development of **engine 503** there was also a version with electronic **dual ignition** created, which will be available approx. March 1990.

Engines 503 with contact-breaker ignition will continue to be produced also in the future.

A **double airfilter** for the **2-carb** engine **version** is already available.

An **air intake silencer** for the **2-carb** engine **version** (refers also to 582 engine) will be available approx. February/March 1990. The air filter to be installed on this intake silencer is identical to that for the 1-carb silencer.

For the engines with **DUCATI** electronic **dual ignition** the newly developed **tachometer 966 072** is to be used.

Electric starters and **rectifier-regulators** are the **same** as for the engine with contact-breaker magneto generator.

A technical **data sheet Db. 419-E** and an outline dimensions **drawing** for type **503** with **dual ignition** are enclosed.

3) Reduction gearboxes for ROTAX UL-engines

The line of highly accepted ROTAX gearboxes with adaptor flange (execution "A") and the execution "B" without adaptor flange is extended by a new design:

As the market worldwide requires use of larger propellers for noise reduction and thus needs higher reduction ratios, a new stronger **gearbox** with **elastic coupling** (**execution "C"**) was developed.

The **bigger gear housing** allows reduction **ratios up to i = 4,0.** The **propeller shaft** is **hollow** (18 mm inner dia.) for a possible propeller adjustment device or for towing. See enclosed outline dimensions **drawing Skz. 3051** showing the **possible gear ratios.**

The "C" gearbox has a weight of approx. 8 kg (compared with 4,5 kg of the present "B" gearbox) and allows propellers up to 6.000 kg cm² mass moment of inertia (so far 3.000 kg cm²).

The new "C" gearbox will be available approx. April 1990. It can be fitted to engines type 377, 447, 503 and 532 (with crankcases having 8 x M8 threads) and on type 582.

The gearbox versions "A" and "B" will further be available.

4) Various novelties

4.1) Primer pump (for all 2-stroke UL-engines)

Additionally to the choke on carburetor (with hand lever or Bowden cable actuation) the carburetors will in the future have a nipple for primer connection. A manual primer pump with accessories can be supplied by ROTAX.

As an alternative or additional to the choke, in cases where this is an advantage, fuel can be injected into the carburetor during the starting procedure.

This primer pump is already shown in spare parts list no. 685 for type 503 UL, page 54.

4.2) After-muffler for exhaust systems

As of February/March 1990, a new after-muffler will be available, having the following characteristics:

- can be clamped to the exhaust muffler without welding,
- practically same dimensions as present after-muffler,
- larger flow diameter, therefore no influence on the engine performance.

NOTE:

- This new after-muffler will in the future replace the present after-muffler.
- As soon as available, it has to be used for engines 532 and 582.

The standard after-mufflers will be depleted on other engine types.

The exhaust mufflers will be adapted - without change of the part numbers - at the outlet tube for clamp fixation of the new after-muffler (see enclosed sketch).

4.3 Hourmeter

The **hourmeter 966 075** is suitable both for engines with **contact-breaker** ignition and **electronic ignition** unit (see data sheet enclosed).

4.4 Tachometer

We wish to emphasize that all engines used in flight have to be checked for correct propeller matching and before each take-off for full power availability. This requires a tachometer installed.

- 966 071 tachometer for engines with contact-breaker ignition unit
- 966 072 tachometer for engines with DUCATI (breakerless) ignition unit can be supplied by ROTAX.

4.5 High altitude compensator (= H.A.C. kit)

H.A.C. is a high altitude compensator developed by ROTAX which adjusts the air/ fuel mixture automatically from sea level to 6500 m altitude using a special BING carburetor. At request samples for types 503, 532 and 582 are available in a few months.

4.6 Radiators

The radiators supplied by ROTAX are very popular and enjoy high acceptance. Some novelties are in preparation or have been introduced:

- The **double radiator** system for type **582** incorporates a **cylinder head venting.**

The standard configuration is with venting tube connected to cylinder head on magneto side, foreseen for use with a pusher propeller, in which case the engine is inclined with magneto side up.

For tractor propeller configuration the venting tube must be transferred by the customer to p.t.o. side of the cylinder head (shortening the venting tube).

- The same system is in preparation for type 532.

- Apart from the presently supplied single-piece-radiator 995 695, a **new radiator 995 697** (without filler socket), is available e.g. for installation **below** the **engine.**

This radiator is filled through an **expansion tank,** either

- **922 310** (having in- and outlet positioned at **90 degrees** angle)
- **922 315** (having in- and outlet at **180 degrees**).

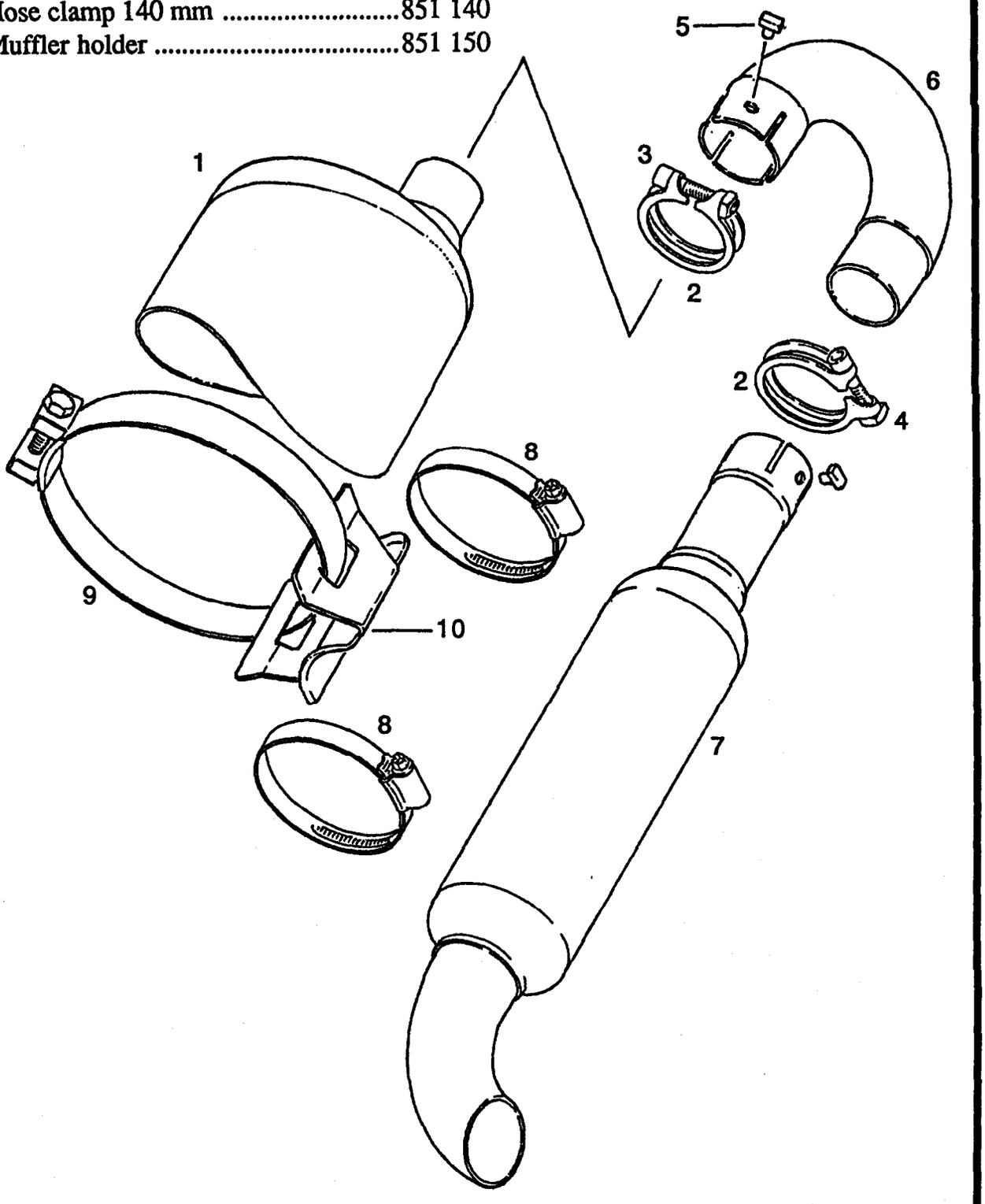
An **overflow bottle (922 320)** of 0,5 litre capacity is also available, see **enclosed drawing** with dimensions.

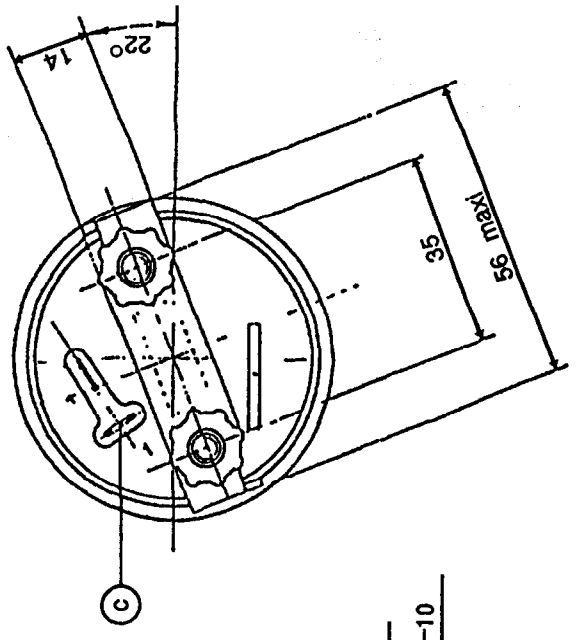
- Apart from the presently supplied **2-piece-radiator kit** we plan to introduce a similar radiator kit with **increased cooling capacity** (core height **290 mm** instead of presently 220 mm) for installation configurations where insufficient cooling air access requires a larger radiator surface.

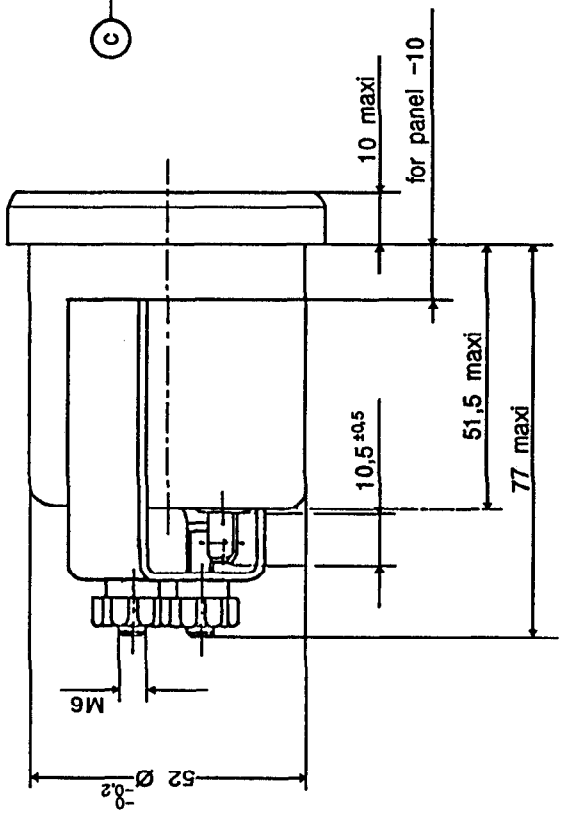
Available approx. mid 1990.

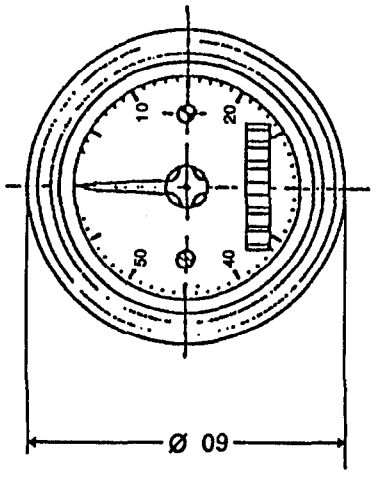
For our planning we would appreciate any information on your immediate sample and serial supply demand.

1	Muffler	various versions
2	Clamp	953 251
3	Cyl.screw M6x35	241 811
4	Square nut M6	942 991
5	Security bolt	929 920
6	Elbow assy.,.	878 407
7	After muffler assy.,.	878 967
8	Clamp 60-80	851 130
9	Hose clamp 140 mm	851 140
10	Muffler holder	851 150









Hourmeter Type 966 075

Connections:

1) For contact breaker ignition:

The hourmeter is connected either to the llOW AC output (yellow and yellow-black wires) or to the 30W AC output (green and green-black wires).

A tachometer, rectifier or auxiliary loads can be also connected to these outputs without interference with the hourmeter.

The symbols "+" and "-" on the black of the instrument do not need to be observed as it is AC powered.

2) For DUCATI ignition:

The hourmeter is connected either to the 170 W AC output (yellow and yel./black) or together with a rectifier regulator to one lighting cable and one connection to ground.

Power supply: .....6-100 V AC or DC
6 mA. max.

Weight: .....128 g.