



## AIRWORTHINESS DIRECTIVE

- TYPES AFFECTED:** Powered sailplanes fitted with Rotax 535 (A, B and C) engines.
- SUBJECT:** Examination of the starter gear of cracks.
- BACKGROUND:** Overseas experience has required the issue of Rotax Technical Bulletin No. 535-05 which asks for the inspection of the magneto flywheel teeth for cracks.
- ACTION REQUIRED:**
- (1) BEFORE NEXT FLIGHT.  
  
Check the roots of the teeth with a magnification glass for cracks in accordance with Technical Bulletin 535-05.  
  
If any cracks are noticed the engine must not be started.
  - (2) If any cracks appear in the flywheel carry out the detailed instructions of disassembly, replacement of the starter gear and reassembly in accordance with Technical Bulletin 535-05.
  - (3) Carry out this inspection every 25 hours of engine running time regardless of whether the starter gear (in accordance with Technical Bulletin No. 535-05) is replaced.
  - (4) Replace page 9 of the Manual for Rotax engine type 535 with the attached manual page.
- WEIGHT/BALANCE:** No change.
- DOCUMENTATION:** Bombardier Rotax Technical Bulletin 535-05 and Rotax engine type 535 Manual page 9 forms part of this Airworthiness Directive.
- IMPLEMENTATION:** Action (1), (2) and (3) must be carried out by the holder of a DA 1109 Glider Inspectors certificate endorsed for 25 hours or annual inspections of the Rotax 500 series engines.
- COMPLIANCE:** The requirements of this Airworthiness Directive are mandatory. This Directive is issued pursuant to the Civil Aviation Regulations under the delegated authority of the Civil Aviation Authority (CE05/88).

ISSUED BY:

CHIEF TECHNICAL OFFICER  
AIRWORTHINESS.

27/7/89

For and on behalf of:

GLIDING FEDERATION OF AUSTRALIA

Page 1 of 1



Subjet : Examination of the starter gear for cracks.

Engines affected : Motorised glider engines, all engines of type 535 A, B and C.

Reason : There is a certain possibility of crack formation starting from the root of tooth.

Priority, tasks : 1) Daily visual check as illustrated on page 2.

2) Scrutinize with a magnifying glass every 25 hours of operation.

3) In case of detected cracks

- no more engine starts allowed,
- remedy according to the following instructions,
- send damaged parts to local dealer or Rotax.

Weight and centre of gravity : Not affected.

Remarks : - Order parts from Rotax as required.

- This specific engine service has to be carried out by a licensed and qualified person and confirmed in the aircraft logbook.

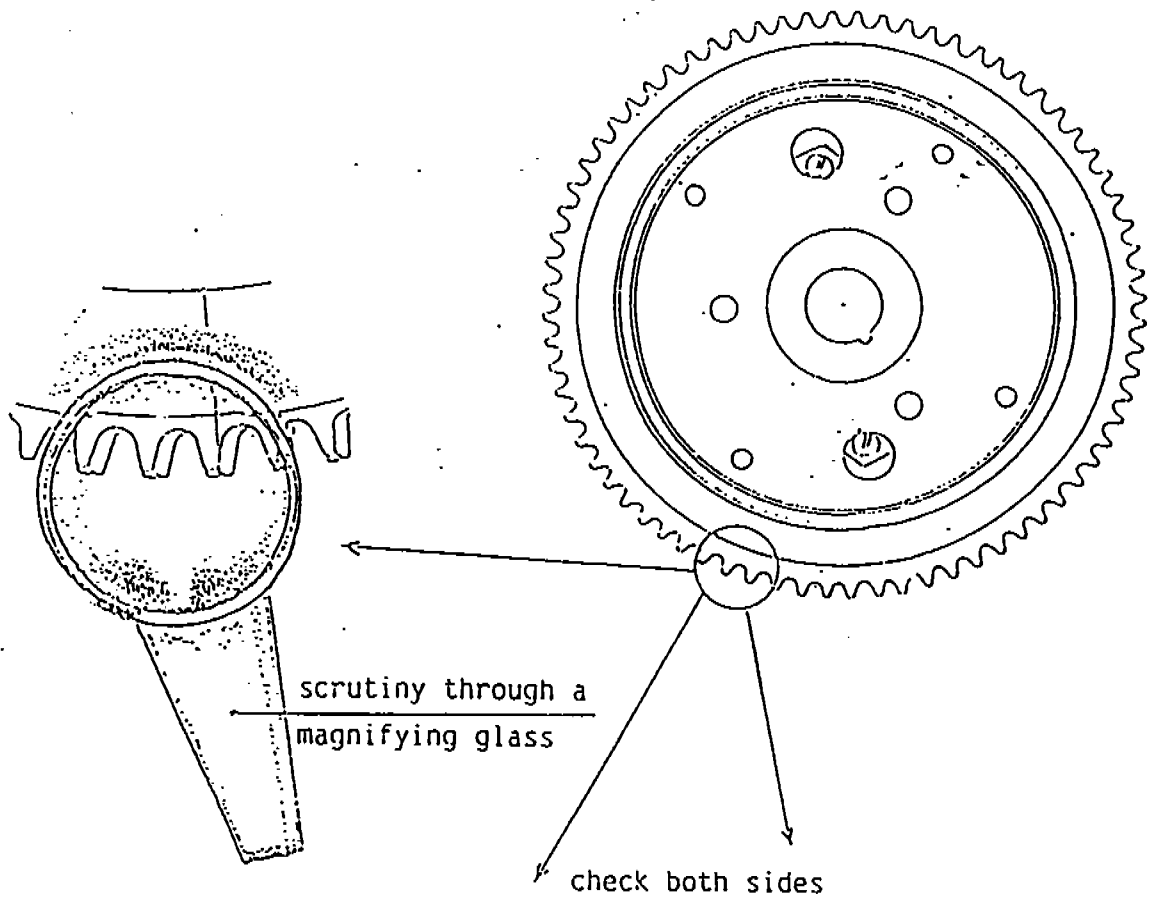
Gunskirchen, 1989 03 08

Approved by  
Bundesamt für Zivilluftfahrt

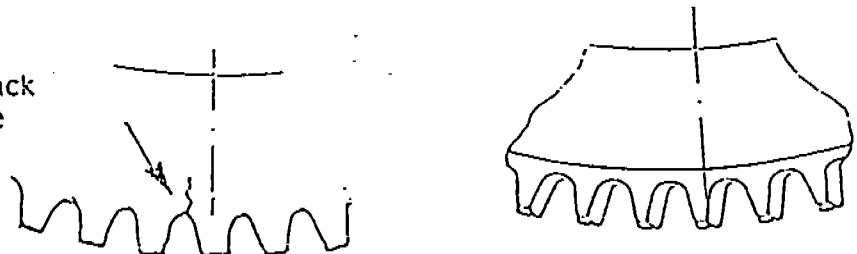
13. April 1989

# Examination of the starter gear

Visual check on non running engine for cracks beginning at tooth root.



thats how a crack  
would look like



Instructions for the removal and refitting of magneto  
flywheel ass'y and exchange of starter gear

1) Disassembly:

- 1.1. If coverplate fitted, remove it (ill. 1).  
Re-use not foreseen.

Tool: Socket spanner 13 A/F

- 1.2. Fasten flywheel fixture with three hex. HD. screws M8 x 16  
to flywheel (ill. 2).

Tool: Flywheel-fixture 876 080  
socket spanner 13 A/F

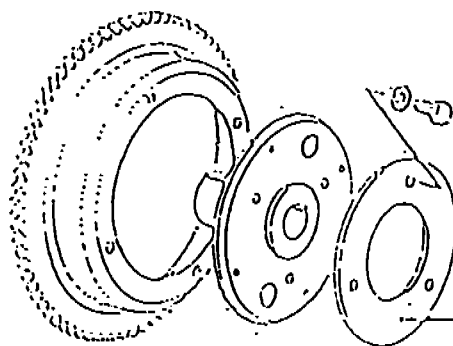
- 1.3. Remove hex. nut M22 x 1,5 from crankshaft (ill. 5).

Tool: Socket 30 A/F on torque wrench or on suitable extension

- 1.4. Place protection cap or mushroom-like protector on crankshaft  
end, fasten puller to flywheel fixture and pull off flywheel.

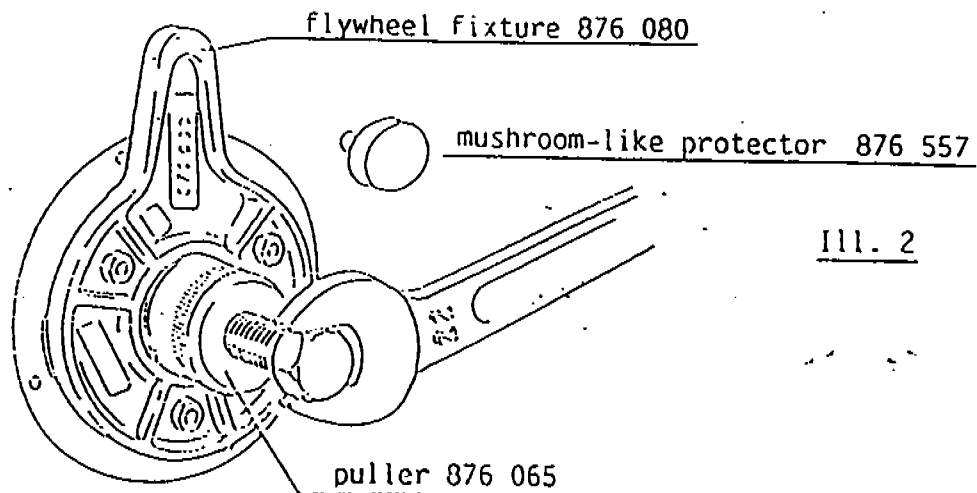
Tool: Protector 876 557  
puller 876 065  
open end or socket spanner 22 A/F

Advice: If need be, break bond of flywheel to crankshaft taper  
by carefully heating up to 120°C.



Ill. 1

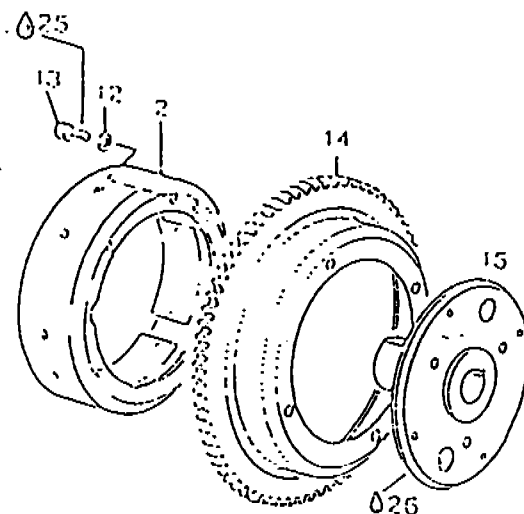
coverplate (superseded)



## 2) Exchange of the starter gear

2.1. Strip flywheel assembly to its components of magneto housing item 15, starter gear item 14 and magneto ring item 2 after removal of the four allen screws M6 x 11,5 item 13. Clean mating surfaces, remove Loctite residues.

2.2. Fit new starter gear 995 956, apply Loctite to mating surfaces, tighten screws M6 with 10 Nm.



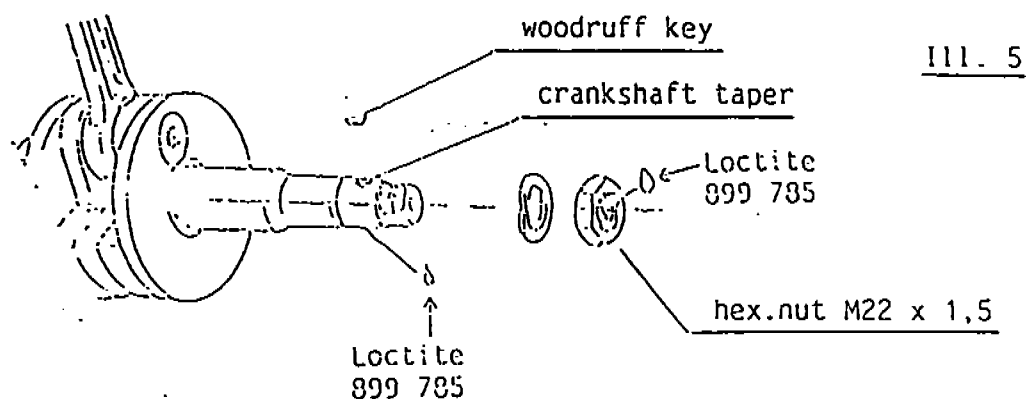
item	part no.	designation.
2	993 500	magneto ring
12	945 751	lockwasher A6 DIN 123
13	840 370	allen screw M6 x 11,5
14	935 956	starter gear 77 t
15	865 638	magneto housin
25	899 785	Loctite 221
26	899 788	Loctite 648

### 3) Refitting of flywheel assembly:

- 3.1. Degrease taper of crankshaft and magneto housing with suitable degreasing agent.
- 3.2. Insert woodruff key (ill. 5).
- 3.3. Apply Loctite 221, 899 785, on crankshaft taper.
- 3.4. Fit flywheel assembly on crankshaft.

Important: Make sure that armature plate ass'y and flywheel ass'y is clean and free of foreign matter.

- 3.5. Secure hex. nut M22 x 1,5 with Loctite 221, 899 785, tighten with 140 Nm.



- 4) Meet three hours curing time for Loctite, prior to engine start.

8) Maintenance instructions

8.1 Daily check before flight:

Check fuel quantity.  
Check oil level for rotary valve drive.

Check cooling liquid.  
Check throttle lever and choke for free movement.  
Check outside of engine, engine compartment, belt transmission and mountings for proper condition.  
Visual inspection of water- and oil-system for leaks.

8.2 Inspection after every 25 hours of operation or once a year:

Replace spark plugs.  
Visual control of engine.  
Replace fuel filter.  
Check fuel line for its condition and for leaks.  
Check mounting screws for tightness.  
Check cables Bowden and actuating controls.  
Check wires and electrical connections.  
Clean carburetor cover.  
If necessary, re-adjust idle r.p.m.  
Clean engine.  
Check and grease starter gear.  
Check rotary valve drive for wear (see par. 8.10).  
Check cooling system for leaks.  
Change gear oil of rotary valve drive.  
Check security of charging and lighting coils ( Technical Bulletin 535-04)  
Check starter gear for cracks. ( Technical Bulletin 535-05)

8.3 Change cooling liquid every 3 years.