GFA AD 587
(ISSUE 1)

GFA AIRWORTHINESS DIRECTIVE

TYPE AFFECTED:	Diamond Aircraft HK-36 R and T series, all serial numbers.
SUBJECT:	Checking of the crankcase of Rotax 912 and 914 engines.
BACKGROUND:	Cracks may be found in the crankcase of the above engine types. See attached Rotax Service Bulletin.
DOCUMENTATION:	Diamond Aircraft Industries Service Information No SI36-021 and Rotax Service Bulletin No SB-912-029 R1/SB-914-018 R1 form part of this AD.
ACTION REQUIRED:	Carry out actions described in Section 1.5.3 of Rotax Service Bulletin.
WEIGHT AND BALANCE:	Not affected.
IMPLEMENTATION:	First inspection within the next 50 hours of operation, but in any case by 31 March 2003. Thereafter, every 100 hours of operation.
COMPLIANCE:	The requirements of this GFA Airworthiness Directive are mandatory. This Directive is issued pursuant to the Rules and Regulations of the Gliding Federation of Australia.

SIGNED:  SENIOR TECHNICAL OFFICER AIRWORTHINESS	For and on behalf of: THE GLIDING FEDERATION OF AUSTRALIA

Diamond AIRCRAFT

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TECHNISCHE INFORMATION NR.
SI36-021
SI20-014
SI22-003
SI40V1-004

SERVICE INFORMATION NO.
SI36-021
SI20-014
SI22-003
SI40V1-004

I. TECHNISCHE ANGABEN

1.1 Betroffene Flugzeuge

HK 36 R-, T-Serie	alle Werknummern
DV 20	alle Werknummern
DV 22	alle Werknummern
DA 40	Werknr 40.001 V1

1.2 Gegenstand

ATA Code: 71-00
Motor

1.3 Anlaß

Service Bulletins SB-912-029 R1 und SB-914-018 R1 der Firma Rotax betreffend Kontrolle des Kurbelgehäuses bei Rotax Motoren Type 912 und 914 (Serie).

1.4 Information

Service Bulletins SB-912-029 R1 und SB-914-018 R1 der Firma Rotax sind uneingeschränkt anwendbar. Es sind mit diesen Service Bulletins am Flugzeug keine weiteren Arbeiten verbunden.

II. SONSTIGES

Dieser Service Information sind die Service Bulletins SB-912-029 R1 und SB-914-018 R1 der Firma Rotax in englischer und deutscher Sprache beigefügt.

I. TECHNICAL DETAILS

1.1 Airplanes affected

HK 36 R-, T-series	all serial numbers
DV 20	all serial numbers
DV 22	all serial numbers
DA 40	serial no. 40.001 V1

1.2 Subject

ATA code: 71-00
Engine

1.3 Reason

Service Bulletins SB-912-029 R1 and SB-914-018 R1 from Rotax according to the checking of the crankcases on Rotax engines type 912 and 914 (series).

1.4 Information

The Service Bulletins SB-912-029 R1 and SB-914-018 R1 from Rotax are applicable without any restrictions. There will be no further work necessary for these Service Bulletins on the aircraft itself.

II. OTHER INFORMATION

The Service Bulletins SB-912-029 R1 and SB-914-018 R1 from Rotax in English and German languages are attached to this Service Information.

ROTAX.
AIRCRAFT ENGINES

SERVICE BULLETIN

CHECKING OF THE CRANKCASE
ON ROTAX® ENGINE TYPE 912 AND 914 (SERIES)
SB-912-029 R1
SB-914-018 R1

MANDATORY

Repeating symbols:

Please, pay attention to the following symbols throughout this document emphasizing particular information.

▲WARNING: Identifies an instruction, which if not followed, may cause serious injury or even death.

■CAUTION: Denotes an instruction which if not followed, may severely damage the engine or could lead to suspension of warranty.

◆NOTE: Information useful for better handling.

1) Planning information

1.1) Engines affected

All versions of the engine type:

Group A)

- 912 A to S/N 4,410.384
- 912 F to S/N 4,412.796
- 914 F to S/N 4,420.313

Group B)

Field experience indicates that an inspection also of the following engine serial numbers is necessary.

- 912 A up to S/N 4,410.385 to S/N 4,410.471
- 912 F up to S/N 4,412.797 to S/N 4,412.816
- 912 S to S/N 4,922.766

1.2) Concurrent ASB/SB/SI and SL

none

1.3) Reason

Field experience indicates that the engine type 912 S has to be included in the revision 1.
(see chapter 1, group B)

The area of the engines concerned this one type 914 became 1 in the Revision changed. One or more of the following could result in formation of cracks on the crankcase:

- Unapproved and untested modifications
- Improper carburetor synchronization
- Unsuitable idle speed (too low)
- Unsuitable engine suspension / non-neutralized vibrations
- Propeller balance out of tolerance
- Friction torque in the backlash range of gearbox not within tolerance
- Lack of maintenance
- Ground contact
- Excessive thermal strain
- Exceeding of maximum admissible engine speed
- Exceeding of maximum admissible manifold pressure

Vibrations, impacts, forces, thermal strain etc. could cause cracks on the crankcase.

▲WARNING: Rectify any of the aforementioned without delay.

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1.4) Subject

Checking of the crankcase.

1.5) Compliance

Group A)

1.5.1) Engine type 912 A, 912 F

- Within the next 50 hours of operation, but at the latest by June 1st 2001 the checking of crankcase must be conducted according to the following instructions in section 3.
- Every 100 hours the checking of crankcase must be conducted according to the following instructions in section 3.

1.5.2) Engine type 914 F

- Within the next 50 hours of operation, but at the latest by January 1st 2002 the checking of crankcase must be conducted according to the following instructions in section 3.
- Every 100 hours the checking of crankcase must be conducted according to the following instructions in section 3.

Group B)

1.5.3) Engine type 912 A, 912 F, 912 S

- Within the next 50 hours of operation, but at the latest by March 1st 2003 the checking of crankcase must be conducted according to the following instructions in section 3.
- Every 100 hours the checking of crankcase must be conducted according to the following instructions in section 3.

1.6) Approval

The technical content of this Service Bulletin has been approved by ACG.

1.7) Manpower

- estimated man-hours:
  engine istalled in the aircraft - - - manpower time will depend on installation and therefore no estimate is available from the engine manufacturer

1.8) Mass data

- change of weight - - - none.
- moment of inertia - - - unaffected.

1.9) Electrical load data

no change

1.10) Software accomplishment summary

no change

1.11) References

In addition to this technical information refer to current issue of

- Illustrated Parts Catalog (IPC)
- Maintenance Manual (MM)

1.12) Other publications affected

none

1.13) Interchangeability of parts

not affected

2) Material Information

2.1) Material - cost and availability

Price and availability will be supplied on request by ROTAX® Authorized Distributors or their Service Centers.

2.2) Company support information

- In case of cracks on the crankcase the complete engine must be returned F.O.B. to a ROTAX® Authorized Distributor or Service Center.
- Shipping cost, down time, loss of income, telephone costs etc. or cost of conversion to other engine versions or additional work, as for instance simultaneous engine overhaul is not covered in this scope and will not be borne or reimbursed by ROTAX®.

2.3) Material requirement per engine

none. The repair has to be performed by the engine manufacturer.

2.4) Material requirement per spare part

none

2.5) Rework of parts

none

2.6) Special tooling/lubricant-/adhesives-/sealing compound-Price and availability

none

3) Accomplishment / Instructions

Accomplishment

All the measures must be taken and confirmed by the following persons or facilities:

- ROTAX®- Airworthiness representative
- ROTAX®-Distributors or their Service Centers
- Persons approved by the respective Aviation Authority

▲WARNING: Proceed with this work only in a non-smoking area and not close to sparks or open flames. Switch off ignition and secure engine against unintentional operation.

- Secure aircraft against unauthorized operation.
- Disconnect negative terminal of aircraft battery (if a removal of engine is necessary).

3.1) Checking of crankcase:

see fig. 1

- Visually inspect the crankcase (1) and engine suspension for cracks in accordance with the relevant Maintenance Manual.

◆NOTE: Scrutinize the crankcase for cracks especially in the area of cylinder 1 upper side (2), between cylinder 1 and 3 upper side (3) and cylinder 4 lower side (4). See fig. 1.

For those engines using the ROTAX® cooling air baffle. Visually inspect for oil leaks in area (2) and (3). If leaks are found, then further investigation to determine the cause of the oil leak is required. If the exact origin of the leak can not be determined i.e. governor, then removal of the cooling air baffle may be required.

Alternative methods of inspection may be used, i.e. bore scope , to inspect the areas without removal of the shroud.

◆NOTE: If absolutely necessary, and if only a small amount of oil leakage is found, a ferry flight to a maintenance facility is permitted. At a massive oil leakage replacement of engine without delay will be necessary.

- If cracks are detected the nearest ROTAX® Authorized Distributor (see also our official ROTAX-Web-Site: www.rotax-aircraft-engines.com) has to be informed and if necessary the engines has to be removed from aircraft and must be returned to a ROTAX® Authorized Distributor.
- Reconnect negative terminal of aircraft battery (after installation of engine).

3.2) Summary

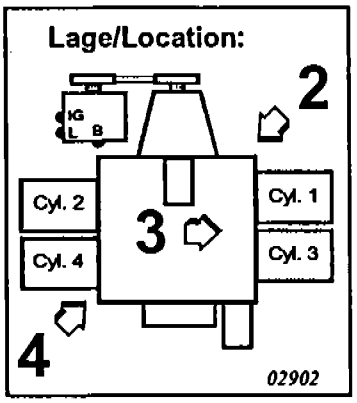
These instructions (section 3) have to be conducted in accordance with compliance in section 1.5.

▲WARNING: Non-compliance with these instructions could result in engine damage, personal injury or death!

Approval of translation to best knowledge and judgement - in any case the original text in German language and the metric units (SI-system) are authoritative.

4) Appendix

The following drawings should convey additional information:



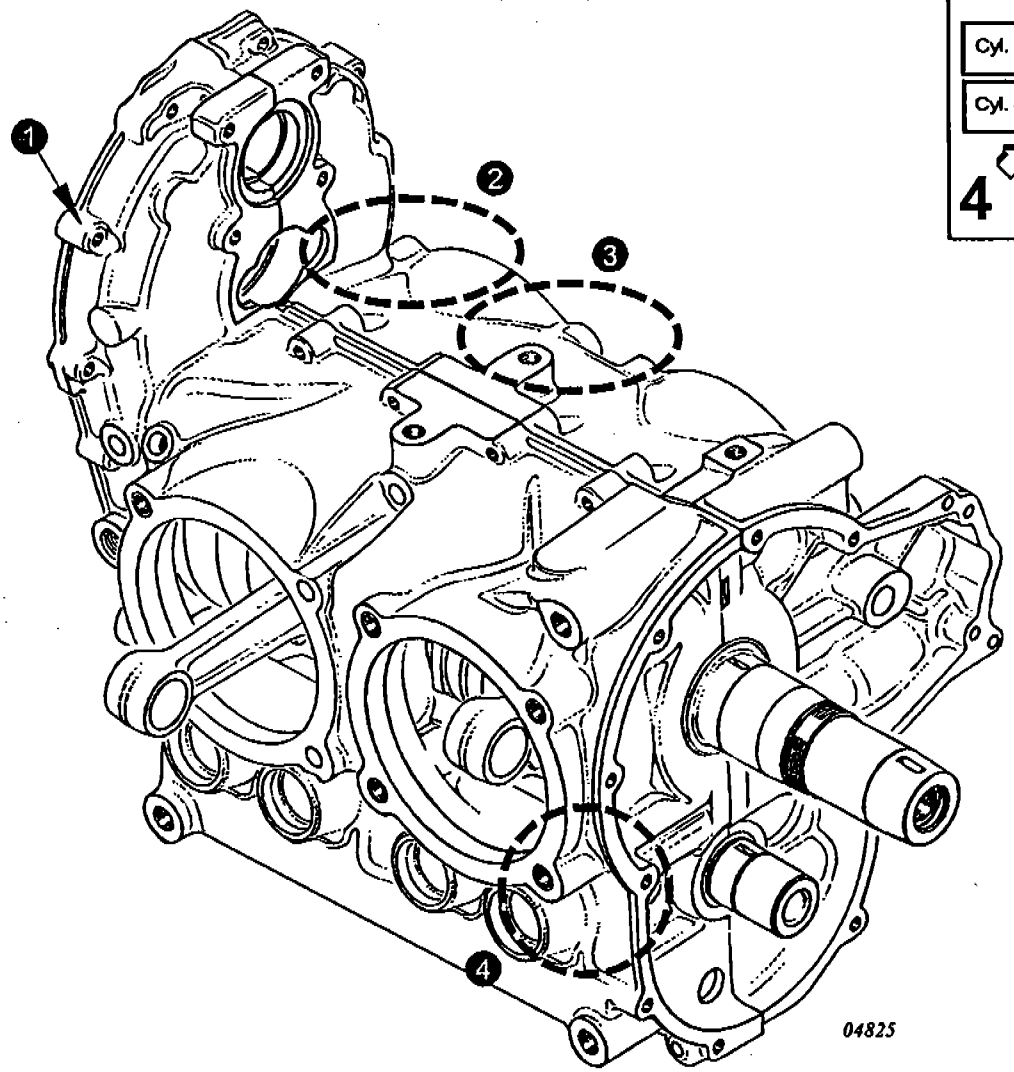


Bild / Fig. 1

◆ NOTE: The illustrations in this document show the typical construction. They may not represent full detail or the exact shape of the parts which have the same or similar function.
Exploded views are no technical drawings and are for reference only. For specific detail, refer to the current documents of the respective engine type.