



THE GLIDING FEDERATION OF AUSTRALIA

GFA AD 554
(ISSUE 1)

GFA AIRWORTHINESS DIRECTIVE

TYPE AFFECTED: Diamond Aircraft;
H 36-VT
HK 36-R
HK 36-TS
HK 36-TC
HK 36-TTS
HK 36-TTC
HK 36 TTC-ECO

SUBJECT: 1. Checking or replacement of engine suspension frame (all series of engine type Rotax 912A, 912F, 912S or 914F, IF equipped with the genuine Rotax engine suspension frame as notified in Rotax Service Bulletin SB-912-028/SB-914-016).

2. Checking of crankcase on Rotax engines of the following serial numbers;

912A up to S/N 4,410.384
912F up to S/N 4,412.796
914F up to S/N 4,420.156

BACKGROUND: Cracking has been found in both the above-mentioned items. See attached Service Bulletins.

DOCUMENTATION: The following documentation forms part of this AD;

Diamond Aircraft Industries Service Information No S136-003/1;
Rotax Service Bulletins SB-912-028 and SB-912-029 (for Rotax 912 series engines);
Rotax Service Bulletins SB-914-016 and SB-914-018 (for Rotax 914 series engines).

ACTION REQUIRED: Carry out actions as specified in the attached Service Information and Service Bulletins.

WEIGHT AND BALANCE: Not affected.

SIGNED:

[Signature]
[Signature]



CHIEF TECHNICAL OFFICER AIRWORTHINESS

For and on behalf of:

THE GLIDING FEDERATION
OF AUSTRALIA

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IMPLEMENTATION:

1. For the engine suspension frame, within the next 10 hours of operation, but in any case before 15 August 2001.
2. For the crankcase of affected engines, within the next 50 hours of operation, but in any case before 15 August 2001.

Note: The Rotax Service Bulletins required implementation before 1 June 2001, but this is impossible because the Bulletins were not received by the GFA until early July.

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.

TECHNISCHE INFORMATION NR. SI36-003/1**ERSETZT SI36-003****SERVICE INFORMATION NO. SI36-003/1****SUPERSEDES SI36-003****I. TECHNISCHE ANGABEN****1.1 Betroffene Flugzeuge**

H 36-VT
HK 36 R
HK 36 TS
HK 36 TC
HK 36 TTS
HK 36 TTC
HK 36 TTC-ECO

mit Motor-Werknummern gemäß

Rotax SB-912-028 & SB-914-016

Rotax SB-914-017

Rotax SB-912-029 & SB-914-018

1.2 Gegenstand

ATA-Code: 71-20
Motorträger

ATA-Code: 78-10
Einströmröhre

ATA-Code: 72-20
Kurbelgehäuse

1.3 Anlaß

Siehe Rotax SB-912-028 & SB-914-016
Rotax SB-914-017
Rotax SB-912-029 & SB-914-018

I. TECHNICAL DETAILS**1.1 Airplanes affected**

H 36-VT
HK 36 R
HK 36 TS
HK 36 TC
HK 36 TTS
HK 36 TTC
HK 36 TTC-ECO

with engine serial numbers according to

Rotax SB-912-028 & SB-914-016

~~Rotax SB-914-017 *~~

Rotax SB-912-029 & SB-914-018

1.2 Subject

ATA-Code: 71-20
Engine Mount

~~ATA-Code: 78-10 *~~
~~Exhaust bends~~

ATA-Code: 72-20
Crankcase

1.3 Reason

See Rotax SB-912-028 & SB-914-016
~~Rotax SB-914-017 *~~
Rotax SB-912-029 & SB-914-018

* NOT APPLICABLE TO ANY DIAMOND AIRCRAFT IN AUSTRALIA.

1.4 Information

Siehe Rotax SB-912-028 & SB-914-016
Rotax SB-914-017
Rotax SB-912-029 & SB-914-018

II. SONSTIGES

Dieser Technischen Information sind beigefügt:

Rotax SB-912-028 & SB-914-016
Rotax SB-914-017
Rotax SB-912-029 & SB-914-018

Nach Durchführung von Rotax SB-914-017 (am Rotax 914-Motor) sind die wiederkehrenden Maßnahmen gemäß Technischer Mitteilung Nr. MSB36-070 nicht mehr erforderlich.

Teilebestellungen und Anträge auf Rückvergütung sind direkt an den nächstgelegenen Rotax-Generalvertreter bzw. Rotax-Service-Stützpunkt zu richten (siehe Anlage).

1.4 Information

See Rotax SB-912-028 & SB-914-016
~~Rotax SB-914-017 *~~
Rotax SB-912-029 & SB-914-018

II. OTHER INFORMATION

Attached to this Service Information are:

Rotax SB-912-028 & SB-914-016
Rotax SB-914-017
Rotax SB-912-029 & SB-914-018

When Rotax SB-914-017 is complied with (for the Rotax 914 engine), the recurring actions of Service Bulletin No. MSB36-070 are no longer required.

Orders of spare parts and applications for reimbursement should be addressed directly to the nearest Rotax General Agent or Rotax Service Station (see attachment).

ROTAX.

AIRCRAFT ENGINES

SERVICE BULLETIN

CHECKING OR REPLACEMENT OF ENGINE SUSPENSION FRAME PART NO. 886 567 ON ROTAX® ENGINE TYPE 912 AND 914 (SERIES)

MANDATORY

SB-912-028

SB-914-016

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:

- 912 A (Series)
- 912 F (Series)
- 912 S (Series)
- 914 F (Series)

if they are equipped with the genuine ROTAX® engine suspension frame part no. 886 567. In case of doubt contact your aircraft builder.

1.2) Concurrent ASB/SB/Sl and SL

none

1.3) Reason

One or more of the following could result in formation of cracks on the engine suspension frame part no. 886 567:

- 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

Vibrations, impacts, forces etc. could cause cracks on the engine suspension frame part no. 886 567.

▲ **WARNING:** Rectify any of the aforementioned without delay.

1.4) Subject

Checking or replacement of engine suspension frame part no. 886 567.

1.5) Compliance

- Within the next 10 hours of operation, but at the latest by June 1st 2001 the checking of the engine suspension frame must be conducted according to the following instructions in section 3.
- Every 100 hours of operation check the engine suspension frame as per the following instructions section 3.

1.6) Approval

The technical content of this Service Bulletin is approved by ACG.

d01408

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Initial Issue

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SB-914-016
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1.7) Manpower

- estimated man-hours:

engine installed 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

At exchange take care of the following:

- If necessary remove the engine suspension frame as per the following instructions and send it to a ROTAX_® Authorized Distributor or Service Center.

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

- Exchanged parts must be returned to an 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

For the replacement of the engine suspension frame the following parts are required:

- ◆ NOTE: The new parts volume is only necessary if cracks have been detected in the engine suspension frame.

Fig. item no	New part no	Qty per engine	Description	Old part no	application
	886 567	1	engine suspension frame assy.		ROTAX _® 912 / 914
	941 487	1	Allen screw M10x110		engine suspension frame
	945 753	4	lock washer		engine suspension frame
	840 947	3 / 1	Allen screw M10x35		engine suspension frame 912 / 914
	927 952	NB	thrust washer 10.1/20/0,5		engine suspension frame
	927 953	NB	thrust washer 10.1/20/1,0		engine suspension frame
	640 572	2	Allen screw M10x50		engine suspension frame 914
	927 410	2	washer 10,5		engine suspension frame

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.

3.1) Verification of the engine suspension frame:

see fig. 1

- Inspect the engine suspension frame assy. in accordance with the relevant Maintenance Manual 914 F. That is also effective ROTAX 912 engines.

◆ **NOTE:** Scrutinize the welding connections of circular tubing (1) and the struts (2) of the suspension frame. See fig. 1.

- If cracks are detected replace the engine suspension frame in accordance with the relevant Maintenance Manual 914 F. That is also effective ROTAX 912 engines.

◆ **NOTE:** If absolutely necessary, and if only one of the circular tube or struts are not cracked by more than 50%, a ferry flight is permitted. At complete fracture replacement without delay will be necessary.

- Connect negative terminal of aircraft battery.

3.2) Test run (if maintenance work has been carried out)

Conduct test run including ignition check and leakage test in accordance with the current Maintenance Manual of the respective engine type.

3.3) Summary

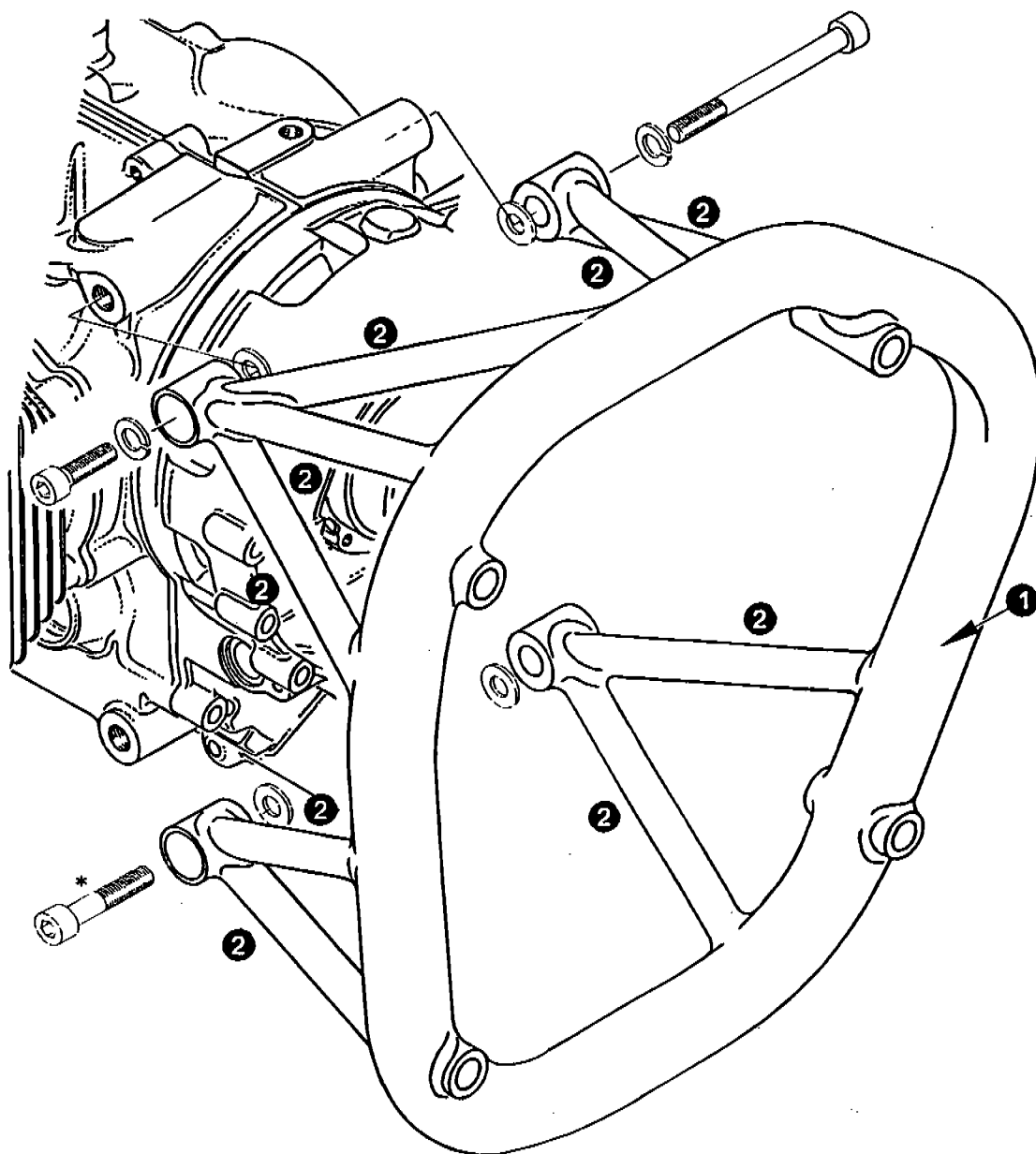
These instructions (section 3) have to be conducted in accordance with compliance in section 1.5.

▲ **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:



03080

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.

ROTAX.

AIRCRAFT ENGINES

SERVICE BULLETIN

CHECKING OF THE CRANKCASE ON ROTAX® ENGINE TYPE 912 AND 914 (SERIES)

SB-912-029

SB-914-018

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:

- 912 A up to S/N4,410.384
- 912 F up to S/N4,412.796
- 914 F up to S/N4,420.156

1.2) Concurrent ASB/SB/Sl and SL

none

1.3) Reason

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.

1.4) Subject

Checking of the crankcase.

1.5) Compliance

- 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^h 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.

d01431

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SB-914-018
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1.7) Manpower

- estimated man-hours:
engine installed 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

- Inspect the crankcase (1) and engine suspension 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 cooling air baffle 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.

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4) Appendix

The following drawings should convey additional information:

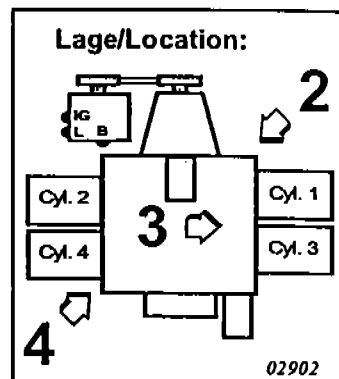
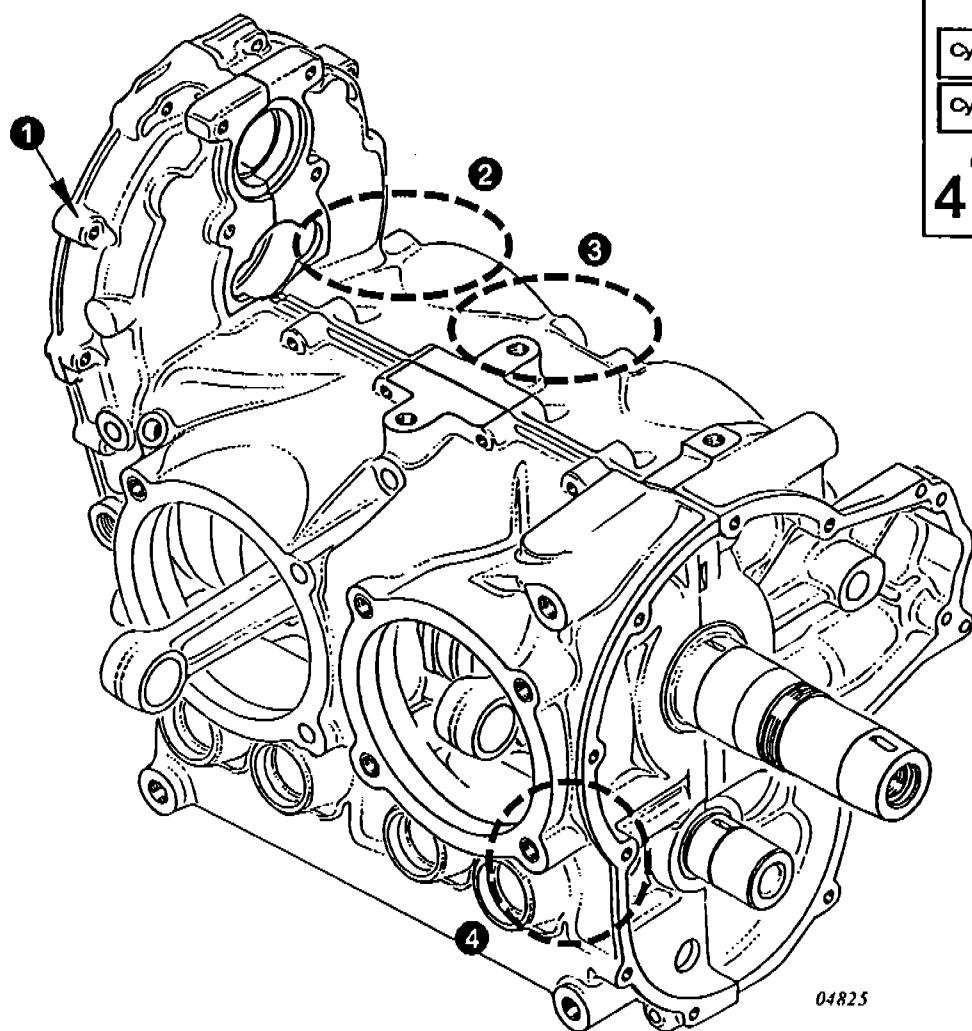


Bild / Fig. 1

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