



## AIRWORTHINESS DIRECTIVE

PROPELLOR TYPE: Hoffman variable pitch  
HO-V 62 R/L 160 T

SPECIAL CONDITIONS: When fitted to Limbach 2000 series engines

POWERED SAILPLANES AFFECTED:

- (1) All Grob 109 series
- (2) All LS28/M2/80hp series

BACKGROUND:

- (1) During 1983 the manufacturer became aware of blade cracking, apparently related to induced stress, while operating at over 2900 rpm.

Simultaneously in Australia one G109 was found to have signs of blade cracking.

The manufacturer has issued a number of bulletins, the final one forming part of this AD.

- (2) German AD 83 150/4 issued 21/12/84 and Hoffman S.B. No. 4C (Revision I 11/12/84 was issued bringing forward the final date limiting propellers that have not been modified to 31st March, 1985.)

REQUIRED ACTION:

- (1) S.B. E4C (17/2/84) to be implemented fully.
- (2) Cockpit placards to be fitted as directed.
- (3) Maintenance Release to be appropriately endorsed.
- (4) Log book record of modification must be kept.
- (5) Propellor removal/installation/inspection to be carried out by appropriately endorsed GFA inspector.

COMPLIANCE:

The requirements of this AD are mandatory. This Directive is issued pursuant to Air Navigation Regulations under the delegated authority of the Secretary of the Department of Aviation.



SERVICE BULLETIN NO. E 4 C

20.02.1984

The German Issue of this S. B. is  
LBA approved

This S. B. replaces S. B. No. E 4 B dated 18th Jan., 1984  
which now is considered inactive.

Product affected:           HOFFMANN variable pitch propeller  
                                  HO-V 62 R/L 160 T when installed with  
                                  Limbach engine series L 2000.

Aircraft affected:       All powered gliders which are equipped with  
                                  propeller/engine combination mentioned above.

Compliance:               See compliance and required action,  
                                  as described below.  
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#### BLADE ROOT RETENTION

##### Discussion:

A metal ferrule is attached to the blade body using lag screws.  
In flight, when using RPMs between 2950 and about 3250 stresses  
may arise in the lag screws exceeding the fatigue limit.

Remedial measures have been worked out which result in a con-  
siderably improvement of blade root retention and which means  
that the critical RPM-range has changed, it is increased now.

Listed below are required actions and dates for the different  
modification changes.

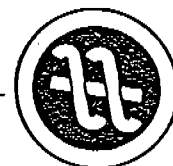
#### Part 1

Affected: Propellers of which blades have not yet been modified  
since issue of S. B. No. 4 dated 15th July, 1983 and  
which are not yet marked "SB 4" on the outer collar of  
the ferrule.

Compliance and required actions (if not already done)

##### 1) Immediately

- a) avoid RPM above 2900 in continuous operation.  
Cruising with RPM above 2900 is not permitted.  
After take-off reduce RPM to 2900 as soon as safety  
of flight allows.
- b) Acrobatic manoeuvres using engine power are not  
permissible.  
Acrobatic manoeuvres with engine shut down are  
permissible.



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2) Within the next 10 service hours (engine running time) after 15th July, 1983

a) check RPM indicator.

Apply correction marking.

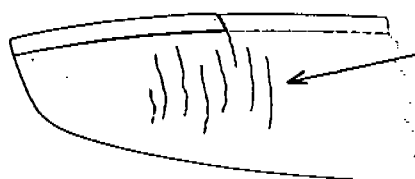
Example: "Reading 2830 is true 2900".

Apply a decal close to the RPM indicator reading:

"Avoid continuous operation above 2900 RPM".

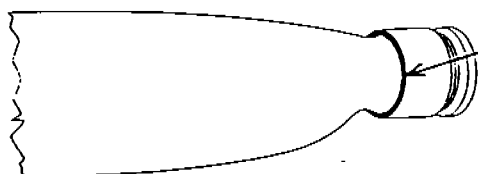
b) Inspect propeller using the advises of owner's manual E 0107.72. To do this, the spinner dome must be removed. The inspection has to be carried out by a qualified person.

- If cracks in the lacquer are revealed with the directions across to the blade axis or if the metal leading edge is cracked, remove the propeller within the next 20 hours of service for special inspection in the factory.



such cracks may also appear in inner blade sections.

- Inspect carefully all around the blade root the area between blade body and metal ferrule. Blades of newer construction are sealed in this area with Silicone rubber material. With such blades no cracks can be tolerated in the Silicone material or its connection to the metal ferrule (contrary to description in the manual). If a crack is revealed in this area, the prop has to be removed from service for special inspection in the factory.



inspect carefully this circumference.



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- 5) Within the next 10 flight hours after the effective date of this revision at latest, however on March 31, 1985, the propeller must be subjected to a general overhaul and modification according to part 3 of the Service Bulletin.

## Part 2

Affected: Propellers of which blades have been modified already according to S. B. No. 4 dated 15th July, 1983 and which are already marked on the outer collar of the ferrule with SB 4

Compliance and required actions (if not already done)

1) Immediately

- a) avoid continuous RPM above 2900. Cruising with RPM above 2900 is not permitted. After take-off reduce RPM to 2900 as soon as safety of flight allows.
- b) Acrobatic manoeuvres using engine power are not permissible.  
Acrobatic manoeuvres with engine shut down are permissible.

2) Within the next 10 service hours (engine running time) after 15th July, 1983

- a) check RPM indicator.  
Apply correction marking.  
Example: "Reading 2830 is true 2900".  
Apply a decal close to the RPM indicator reading:  
"Avoid continuous operation above 2900 RPM".

3) Before accumulating 600 service hours (engine running time) since new

- or earlier, if required according to S. B. No. E 1 F (TBO) or a later approved issue
- however latest until 31st August, 1985  
remove propellers from service for major overhaul and modification according to part 3 of this S. B.



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## Part 3

**Affected:** Propellers, of which blades are marked with modification letter A or B behind blade Serial Number.

This means:

- A blade ferrule with 6 lag screws  
(in production from October 1983)
- B blade ferrule with 5 larger lag screws (12 Ø)  
(application at overhaul in our factory from  
18th Jan., 1984)

Further modification letters probably behind the Serial Number do not affect this Service Bulletin. The marking SB 4 on the outer collar of ferrule (see part 1 of this S. B.) becomes invalid by letter A or B behind the Serial Number.

Hersteller: <b>HOFFMANN</b>	
Nabe: HO-V 62 R	W.Nr.: A 666
Blatt: L 160 T	W.Nr.: 3333 B
Geräte Nr.: 32.130/13	Prüfung: XXXXXXXX
VP 20-512-( )	Datum: XXXXXXXX

← indication of  
modification letter

Marking Example

## Advices

- 1) The maximum allowable continuous RPM under all operating conditions is 3000.
- 2) The decal "Avoid continuous operation above 2900 RPM" may be removed.
- 3) Recommendation: Avoid RPMs above 3100 in principle.
- 4) Recommendation: Check RPM-indicator once a year.
- 5) Overhaul time of propellers is 600 hours according to indications of Service Bulletin E 1 F dated Nov. 2, 1983. The propellers are subject to service time development. Prolongations of service time will be published in Service Bulletin No. E 1 ( ).

HOFFMANN PROPELLER ROSENHEIM

LBA NR. I-EC 2, Nr. I-C 14

str.  
-OEM,  
ly power.  
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-SB