

GFA AN 180
(ISSUE 1)

AIRWORTHINESS ADVICE NOTICE

TYPE AFFECTED: All powered sailplanes fitted with a Limbach Series Engine

SUBJECT: Miscellaneous airworthiness information

REFERENCES: GFA Engineering Order **RH-S10-20-4**

ADVICE: **This AN is advisory, but useful for all powered sailplanes using Limbach Engines. Modifications are only approved by referenced documents either Engineering Orders or manufacturer approved changes.**

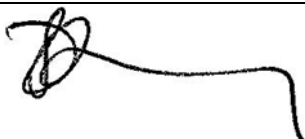
This is the Limbach Engine Type AN. It contains useful advice from GFA for the L1700, L2000, and L2400 engines. It is in addition to Limbach Technical Notices that should be referred to as well. It will be added to when issues are solved or come to light that are useful for airworthiness and maintenance of the engine.

ISSUE: This is the first issue mainly to advertise the availability of a replacement starter motor. Other issues such as fire protection are given in general ADs and ANs, hose replacement is being considered and will be a general advice issued in future, and a solution to single magneto reliability is being investigated and will be added to this AN in future. The objectives are to improve the safety of a good simple engine that is being used in many touring motor gliders (TMG).

Please submit Service Difficulty Reports (SDR) on all issues and if they raise our attention GFA will address them for the good of everyone.

LIMBACH WEBSITE <https://limflug.de/en/support/downloads.php> to download all technical notices.

SIGNED:



GFA Chief Technical Officer

For and on behalf of:

**THE GLIDING FEDERATION
OF AUSTRALIA**

1. REPLACEMENT STARTER MOTOR

Engineering Order (EO), RH-S10-20-4, authorizes and approves the change from a Bosch Porsche 944 starter motor, as originally supplied by Limbach GMBH, to a WOSP LMS574 starter motor, when replacement Bosch starters and spare parts cannot be obtained.

The need for this modification arises because new Bosch starters and spares cannot be obtained from Bosch or Limbach. An original Bosch failed twice over hundreds of hours in one Stemme S10 as shown by shattering the planetary gears. The LMS574 has more robust gears as shown:



The LMS574 appears to be a more robust modern construction and has a good reputation as a robust well made starter. It is also intended for the Porsche 944 car and required only minor modifications to suit. In fact less modification than the original starter as discussed below.



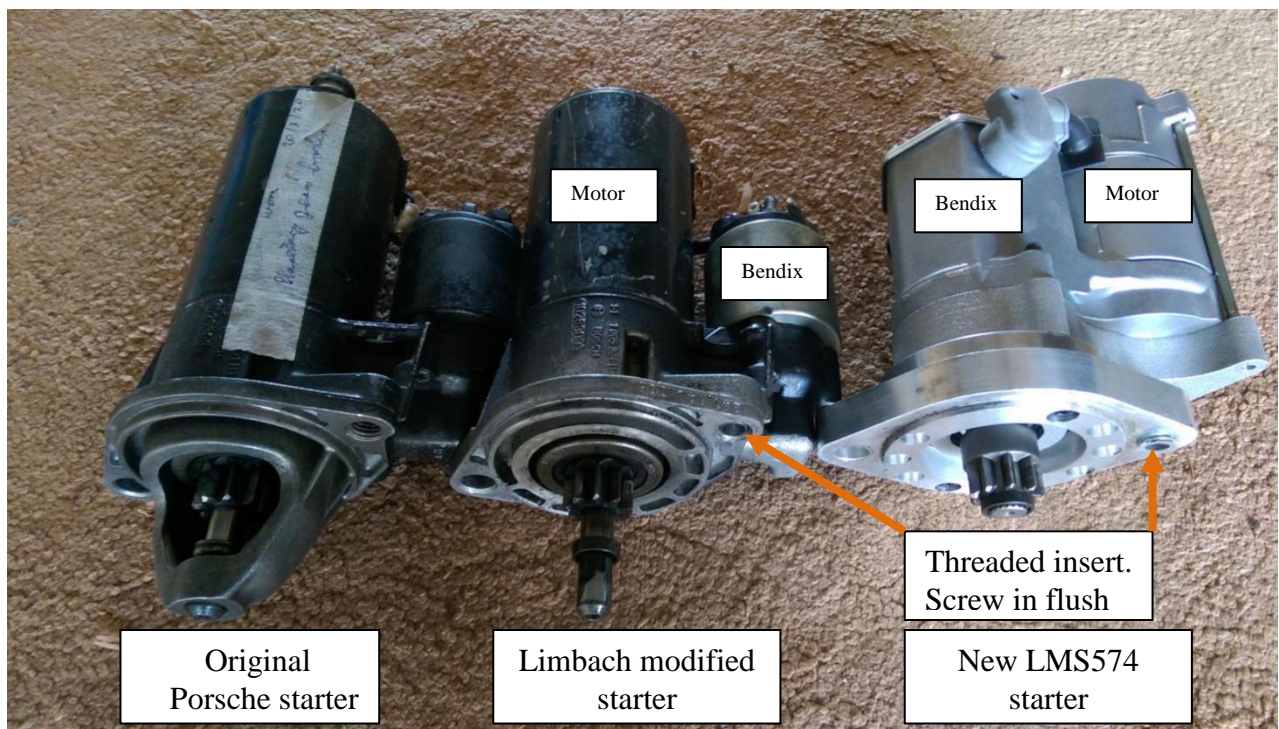
The same starter configuration is used on some Limbach L1700, L200, and L2400 engine versions, not all. The LMS574 could be used on the similar installations as per this EO. This should suit all Limbach engines with the adjacent Bosch serial number, 0 001 108 021, starter whether it was modified by Limbach or not.

The EO was developed by Rob Hanbury and approved by Mike Burns for the use in all applicable TMGs that need a new starter. Rob Hanbury is the holder of the EO and anyone who wants to use it must apply to him, hanbury.rob@gmail.com. The EO is free to anyone to use after paying the modification fee to GFA. On application you will be emailed a copy of the EO and if you elect to use it and it is applicable you must execute it exactly. Rob Hanbury being the holder is responsible for continuing airworthiness and will do this under the GFA system. On his departure from GFA another

GFA member will be appointed to manage it and the new starter can continue in use (CASA Reg 21.450).

There is no need to replace the original Bosch starter as there are only two recorded failures as mentioned above. It is only if the owner prefers to get a new modern starter motor that will probably improve safety/ reliability.

Starter motor comparison



The original Bosch starter motors were made for a Porsche 944. They were modified by Limbach to suit by trimming the nose, as shown. This nose bearing is provided by the Limbach in the accessory case. It also has an insert in the one mounting hole. The shape of the alternative starter motor is different but similar. The cable attachment points and size are similar enough to fit without changes, except as noted in the EO.

Using the EO

The EO is only approved for use in JAR-22 certified aircraft and on Limbach Engines originally supplied with the Bosch starter as identified above. It may be possible to approve it for use on other models but this requires approval by GFA.

The Registered Operator must appoint a GFA Engines; Replacement of Components inspector to approve the installation and certify the EO in the sailplane/ engine Logbook. Once installed the RO must advise the EO Design Approval Holder who will record it in the GFA system so the RO can be notified of any continuing airworthiness issues. The EO may be carried out by any competent person who follows the EO and is certified correct by the ROC inspector.