BGA Airworthiness and Maintenance Procedure
MOTOR GLIDER ENGINE INSPECTION AND REPAIR (AMP 2-16)

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1. General

The aim of this leaflet is to outline the scope of piston engine work permitted under the BGA Part M subpart F and BCAR A8-24 maintenance approvals in addition to the scope of work permitted under BGA CS-22 Powered Sailplane (MG and SS) authorisations (and Part 66 L2 license when introduced).

The scope of work excludes all engines installed in CS-23 powered tug aircraft and CS-22 non-automotive adapted engines supported by type certificate holders.

Authorisation for the scope of work described in this leaflet is by an “EO” inspector code and relevant type rating included in the BGA inspector authorisation. Details of the BGA EO rating can be found in the BGA Airworthiness Exposition Part 2 and appendix 2-10.

Engines maintained or repaired using this procedure are only eligible to be installed in aircraft remaining within the BGA CAMO. Engines sold outside the BGA CAMO or to be installed in anything other than a motor glider are not eligible for further operation.

Description of work done the phrase; “This engine is only eligible to be installed in a motor glider within the BGA CAMO”

2. Facilities

All engine repair and maintenance must be carried out in a suitable clean and well lit facility with access to suitable tooling and equipment and tools must be calibrated where required. Facilities are not specifically approved and it is the responsibility of the certifying engineer to ensure suitable standards are maintained.

The engine facility itself must have suitable work benches, engine stand/fixture, storage trays & racks, cleaning equipment, inspection & measuring equipment, specialist tooling and equipment for engine and component disassembly, inspection and rebuild.

Work on applicable engines must be segregated from all other maintenance and in particular other engine work.

The engine facility must be accepted by the BGA and recorded on the inspector database. The acceptance is not transferable and if changed a new application is required.

Repair and maintenance facilities are subject to audit by the BGA Quality group.

Further information and guidance on facilities can be found in Appendix 1 and BGA AMP Manual Leaflet 2-2

3. Data

Repair, inspection and maintenance data must be available and up to date as applicable to the engine being worked on.

4. Scope of Work

Repair and maintenance work under this leaflet is limited to the following tasks:

Replacement of parts
Dismantle, cleaning, inspection and reassembly of;

- Crank cases (including refurbishment)
- Rotating shafts (including refurbishment)
- Reciprocating parts
- Gear trains/chain
- Bearings
- Oil & fuel pumps
- Engine accessories
- Accessory drives

Shock load & over speed inspections
Time Continued refurbishment
Repair where appropriate, using standard repair techniques such as thread inserts.

Work on actively type supported automotive adapted engines and engine accessories is limited to dismantle, cleaning, inspection and reassembly using released parts. This includes shock load & over speed inspections.

See Appendix 1 for capability and exclusions listing

Time continued refurbishment is defined as engines inspected and repaired using new parts where required. These engines may contain used serviceable parts that are within in-service tolerances. Refurbishment is defined as disassembly, cleaning, inspection (including NDT), replacement of hardware such as studs, removable inserts and plugs. Refurbishing operations may include oversize re-bore, crankshaft regrinding and re-facing. Worksheets and log book entries will detail what work has been carried out including machined parts, used parts inspected and reused and parts used. The hours run will continue from that previously recorded.

Refurbishment excludes camshaft re-profiling, heat treatments and surface hardening, line boring, sleeving and crack repair.

Note: In service cylinder, piston and cylinder head work, engine testing and adjustment is covered by engine maintenance authorisations.

The following tasks and types are excluded:

Engine zero hour overhaul
Bendix or Slick Magneto overhaul
Propeller repair and overhaul
Any aeroplane
Any motor glider that is equipped for towing

5. Outsourcing services

Services outsourced to a third party such as machining operations, re-bore and re-grinding shall be inspected and certified by the engineer responsible for the engine repair and maintenance unless a form 1 is supplied. The certifying engineer shall be responsible for the outsourced operations. For items without a form 1 the certifying engineer shall inspect as a minimum the dimensional accuracy including surface finish and radii/undercuts.

NDT services shall be entrusted to a company approved for aircraft component NDT who can issue a Form 1 release.

6. Parts and materials

Where possible parts released with a Form 1 shall be used.

If released parts are not available, commercially sourced parts may be used. These must be the best quality available preferably OEM parts.

Non released parts must comply with Part 21A.307c and adaptation to aircraft use be accepted by the aircraft owner. Refer to AMP leaflet 2-15 for further guidance.

Non released parts must comply with the following criteria;

1. Not life limited, nor part of the primary structure, nor part of the flight controls.
2. Manufactured in accordance with the applicable design.
3. Marked in accordance with Part 21 Subpart Q.
4. Identified for installation in the specific aircraft.
5. To be installed in an aircraft for which the owner has verified compliance with conditions 1 through 4 and has accepted responsibility for this compliance.

Parts used during the repair and refurbishment process must be recorded on BGA 286 and non released parts accepted by the aircraft owner in accordance with 5. Above.

7. Parts to be replaced

During maintenance the following parts will be replaced as a matter of routine.

Gaskets
Oil Seals
O rings
Sealing rings
Lock, spring & shake proof washers
Lock plates & tab washers
Stretch bolts
Self locking nuts
Roll, cotter & split pins
Locking wire
Rubber hoses and connectors
Disposable element filters

All other parts including bearings, shell bearings, static, reciprocating and rotating parts, springs, valves, studs, drive belts, brushes, mounts, jets and floats shall be inspected and replaced as necessary.

8. Engine testing

Engines maintained in accordance with this process shall be tested prior to final release. Test rigs are not normally available so testing once installed in the airframe is acceptable. The engine test must include the following:

Start up and initial break in
Idle and moderate speed running to establish and verify all engine operating parameters
Engine ancillary function checks including adjustments
Oil consumption check
Leak and checks for any abnormality or overheating
Magneto drop off checks (twin/dual mags only)
Power checks if permitted by airframe manufacturer
Post engine inspection including oil sample check
Check Flight and run in
Post check flight inspection

9. Certification

Engine repair and maintenance shall be recorded on worksheets (BGA 205 or equivalent) and released with an M.A.801 for EASA aircraft or ANO Release to Service for Annex II aircraft.

The work carried out shall be summarised in the engine log books and the detailed worksheets held in the aircraft maintenance records.

Any lifed items installed on the engine such as magnetos will be recorded on the worksheets for transfer to the AD and lifed items status report BGA 280

Appendix 1 - Capability and Exclusions List:

The following engine/airframe combinations are eligible for work under this AMP;

Rollason RS series / Slingsby T61
Danum VW series / Slingsby T61, Scheibe SF25
Hirth F10 / ASK 14
Rectimo 1200 series / RF3/4, SFS31.
Rotax 275 series / ASH 25E
Rotax 501 / Pik 20E
Rotax 505 / DG400
Rotax 535 / DG500, Janus CM
Stamo MS1500 series / Slingsby T61, Scheibe SF25

The following engines are eligible for work under this AMP but restricted to inspection only:

Limbach SL1700 series
Limbach L2000 series
Limbach L2400 series
Grob 2500 series
Koing SC340
Sauer S1800 series
Sauer S2100 series
Solo series

The following engines are excluded from wok under this AMP:

Rotax 912 series
Rotax 914 series
AE50 series (Rotary)
FES (Electric)
Lange EA42 (Electric)
TBS J40 (Turbojet)
Any engine installed in a tug aircraft
Any engine installed in a motor glider equipped for glider towing
Any engine installed in an aircraft not in the BGA Airworthiness Organisation

End.