B22 AeroPower

B25 AeroPower

Service letter
L-004 MANDATORY
Prevention of detonation and overrev

Symbol description

WARNING: Not following these instructions can result in severe personal injury or even death

CAUTION: Ignoring these instructions could cause severe damage to the engine and the sudden loss of power.

NOTE: Refer to supplementary information necessary to execute or better understand an instruction

1) Planning information

1.1) Engine affected

All engines B22 and B25 series

1.2) Concurrence of L/S or X

None

1.3) Reason

Some detonation phenomena have been observed on some engines. Some overrev damage has been observed on some engines.

1.4) Subject

i) Through the analysis of the episodes of detonation MWfly has identified some causes that favor this phenomenon that can be devastating for the engine.

- Long engine stops
- Use of poor fuel
- Inlet air temperature (cowling temperature) out of limits
- Non-standard exhaust system or air intake system
- Max take-off power overtime
- Improper use of variable pitch propeller
- Propeller inertia moment out of limits
- Not admitted spark plug type

ii) MWfly has seen that some clients tend to run the engine for a long time at the limiter. It seems that some clients do not have the perception to run at the limiter, especially on the takeoff phase. This fact is very dangerous for engine reliability.

1.5) New instructions for user

i) DETONATION PREVENTION

- **Instructions for engine use after a long stop**
  A long engine stop can cause injectors and fuel pump lock. After a of long engine stop (two months or more) it is mandatory to empty the fuel tank and use brand new fuel. The injector and fuel pumps must be cleaned and checked: the fuel rate should be the same as indicated in the data sheet of the injector.

- **Instructions for the use of fuel**
  Fuel stocked for a long time loses volatile elements, and degrade anti-detonate characteristics. Do not use old fuel or fuel that has been stocked for a long time (more than 2 months). Do not use poor fuel. For proper fuel characteristics read Manual B (user).

- **Instructions for cowling temperature**
  The cowling must be designed to have a proper air inlet temperature during flight, to prevent detonation conditions: limits and air temperature measurements method are written in manual A (installation).

- **Instructions related to non-standard Exhaust system or air intake system**
  In case of use of a non-standard exhaust system or air intake system, it is mandatory to get the approval of MWfly, by asking for the "mapping service" after installation is complete.

- **Instructions for max take-off power overtime**
  An extended max take-off power time produces engine overheating and connected detonation risks. The max take-off power time must be compliant with flight instructions (manual B).

- **Instructions for the use of variable pitch propeller with MWfly engine**
  If a variable pitch propeller is being used, it is mandatory to regulate the minimum blade pitch to avoid engine overrevs in case of regulation system fault It is also mandatory to install a MAP gauge and respect the use limits shown in manual B.

- **Instructions for propeller selection**
  A proper propeller inertia moment is very important to preserve engine components from extra load service conditions. The propeller selection must be compliant with engine limits (see manual A).

- **Instructions for the spark plugs**
  A wrong spark plug can easily produce a detonation condition. Be sure that the spark plugs you are using are compliant with manual B.

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

WARNING: if you have any doubt as to the compliance of your engine with the above instructions contact your authorized service center for an immediate check.

ii) **OVERREVS PREVENTION**

- **Instructions for engine overrevs**
  The engine ECU system has been equipped with an engine rpm limiter that limits engine overrevs by misfiring. However, a long engine overrev produces extra thermal and mechanical load on engine components, so that must be avoided.

  To avoid that situation, it is important to select the correct prop, and in case of a variable pitch propeller, to set the minimum pitch to have max engine speed as shown in the following table:

Engine type	Max RPM
B22D, B25D	3300
B22GLA, B22GRA, B25GLA, B25GRA	3900
B22GLB, B22GRB, B25GLB, B25GRB	4550

WARNING: in case of use for more than 10 seconds at the limiter condition it is necessary perform a complete control check of the engine before the next fly.

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1.6) Compliance
All B22 and B25 engines

1.7) Manpower
None, except when “mapping service” or other services are required

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

1.9) Other publications affected
User Manual B cap.7.4.2
Ordinary maintenance C cap. 7.3.8

1.10) Interchangeability of the parts
None affected

2) Material information

2.1) Material - cost availability
No material - For service cost contact an MWfly authorized service center

2.2) Rework of parts
None

3) Accomplishment/instruction

All service indicate should be done only by an MWfly Authorized Service Centre

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3.2) Summary

WARNING: Failure to comply with these instructions may result in engine damage, personal injury or death

Should this translated document conflict with the original Italian / SI System (metric), document, the original Italian document shall take precedent.

DOCUMENT VERSION

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