

DESIGNATED PILOT EXAMINER ADVISORY GROUP WP 07

EXAMINER BULLETIN NO. 12

September 21, 2004

SUBJECT: ENGINE MANAGEMENT AND SAFETY ISSUES.

Practical test applicants are often ill informed in regard to the need for proper engine care during prolonged low power operations, particularly power off stalls, steep spirals, emergency approach & landing, and the power off 180 degree accuracy approach and landing. Many applicants don't understand the importance of clearing the engine with periodic applications of power and they are ignorant of the proper use of carburetor heat. When reminded to turn the carburetor heat on they then forget to turn it off when power is restored. They are unaware of how the heat can cause power loss and may even bring the engine into detonation/pre-ignition. Numerous mishaps, including a recent event in Arizona, could likely be traced to this type of engine mismanagement.

Examiner actions:

1. Brief practical test applicants that proper engine management is expected and that mismanagement may be cause for disapproval. Remind them that poor judgment regarding over cooling engines and/or failure to use carburetor heat appropriately is abusive, dangerous and not acceptable.
2. Examiners should verify that the applicants use carburetor heat, when appropriate, and that they must clear the engine frequently during the ensuing power off glide. Examiners shall also ensure that the heat is turned off by applicant when power is restored.
3. Since pilots trained in southern Arizona seem to be particularly weak on this subject, examiners should have some discussion with applicants regarding carburetor heat use, and its hazards, including those times when its use is inappropriate.
4. Applicants must be instructed to actually move controls, as appropriate, not just say it or touch it.

Applicants should be able to describe the cause and effect of carburetor ice and the dangers of over cooling the piston engine. They should understand dangers of engine hesitation, rough running, or even quitting when the throttle is reopened. They should understand both the safety and maintenance implications of cracked cylinders, sticking valves, fouled spark plugs.

They must understand that these abuses cause unwarranted maintenance expense and may lead to an accident. Commercial and CFI applicants, in particular, should have a very good grasp of this subject. They should understand that while carb heat may be undesirable in dusty conditions and/or when ambient temperatures exceed 90 degrees, it is to be used at almost all other times for low power operations or when ice is detected/suspected.

Applicants shall use carburetor heat whenever appropriate for low power operations or when ice is suspected. If it is hot and dusty the applicant should not use heat but should mention the conditions and decision to forego heat. They must turn the heat off as power

is added for the go around/missed approach so as to get full power. In addition, applicants are expected to keep the engine warm during prolonged glides. Power should be applied at least once during every 360 degrees of turn during the steep spiral and on base during the 180 power off approach.

CFI applicants, in particular, are expected to keep the engine warm during all of their demonstrations, including the emergency approach and landing demonstration.

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