



Federal Aviation Administration

Memorandum

Date: JUL 24 2006
To: Manager, Small Airplane Directorate, ACE-100
From: Manager, Fort Worth Aircraft Certification Office, ASW-150
Prepared by: Lowell Foster, Aerospace Engineer, ACE-111
Subject: Review and Concurrence, Equivalent Level of Safety for 14 CFR § 23.1545(b)(4),
Airspeed Indicator, on Eclipse Model 500, Project TC3853CH-A
(ELOS) ACE-06-01

This memorandum documents concurrence for the subject finding of Equivalent Level of Safety (ELOS). We request your office to review and concur with the proposed ELOS finding to 14 CFR part 23, §23.1545(b)(4), Airspeed Indicator. The proposed ELOS will allow for the compliance to the regulation to be accomplished by use of a digital airspeed display that presents the appropriate V_{SO} and V_{FE} speeds automatically depending on flight condition. The ability to include a marked white arc for flap deployment speeds it not possible or appropriate.

Background:

The Eclipse Model 500 does not have a white arc to indicate the lower limit at V_{SO} at the maximum weight and the upper limit at the flaps extending speed V_{FE} .

Applicable Regulation:

The applicable regulation is 14 CFR part 23, § 23.1545(b)(4), which states:

Section 23.1545(b)(4) Airspeed indicator.

.....
(b) The following markings must be made:

.....
(4) For the flap operating range, a white arc with the lower limit at V_{SO} at the maximum weight, and the upper limit at the flaps-extended speed V_{FE} established under Sec. 23.1511.

.....

Compensating Features:

The Model 500 design for the flap operating range provides the pilot with information on the upper and lower airspeed limits for each of the three flap settings. For each flap setting, the speed at which the next flap setting can be set is displayed. On the airspeed indicator tape LDG (landing) and T/O (take-off) are shown at the speed at which this flap setting can be selected by the pilot. The upper limiting airspeed (redline) and the lower airspeed (redline) airspeeds are also depicted and adjusted for flap settings.

Refer to the figures below.

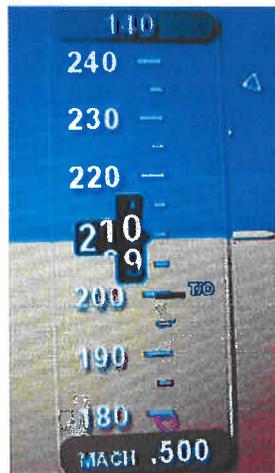


Figure above depicts the indication for the speed below which the takeoff flaps can be selected.

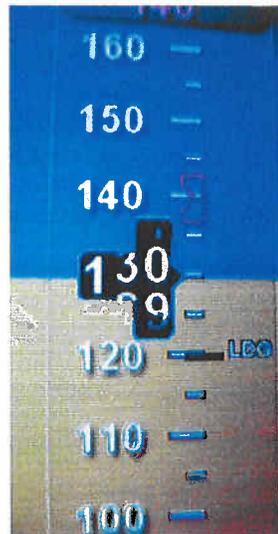


Figure above depicts the indication for the speed below which the landing flaps can be selected.

The Eclipse is a turbojet aircraft requiring type specific training. Operating speeds are included in the training and the Operating Limitations Placard also provides VFE:

OPERATING LIMITATIONS

THIS AIRCRAFT CONTAINS MARKINGS AND PLACARDS THAT MUST BE COMPLIED WITH WHEN THIS AIRCRAFT IS OPERATING IN THE NORMAL CATEGORY. OTHER LIMITATIONS WHICH MUST BE COMPLIED WITH ARE CONTAINED IN THE FAA APPROVED AIRPLANE FLIGHT MANUAL.
NOT APPROVED FOR FLIGHT INTO KNOWN ICING.
THIS AIRPLANE IS APPROVED FOR VFR, IFR, DAY AND NIGHT OPERATION.

V_O (All Weights) - OPERATING MANUEVERING SPEED180 KEAS
V_{LO} - MAX LANDING GEAR OPERATING SPEED200 KEAS
V_{MC} - MIN CTRL SPEED WITH THE CRITICAL ENGINE INOP...
.....LESS THAN STALL SPEED
V_{LE} - LANDING GEAR EXTENDED275 KEAS
TURN OFF STROBE LIGHTS IN VICINITY OF OTHER AIRCRAFT OR DURING FLIGHT THROUGH CLOUDS OR FOG.
NO ACROBATIC MANEUVERS, INCLUDING SPINS, APPROVED.
LANDING WITH CABIN PRESSURIZED IS PROHIBITED.

Recommendation: We concur that the proposed design features described as compensating features in the background section above provide an equivalent level of safety to the requirement of 14 CFR § 23.1545(b)(4).

Concurred by:

Michelle M. Owsley
Manager, Aircraft Certification Office, ASW-150

7/20/06
Date

for

Manager, Standards Office, ACE-110

7-24-06
Date

acting

Manager, Small Airplane Directorate, ACE-100

7-24-06
Date