

Attachment 3

To Operations Group Factual Report

DCA13IA058

Airspeed Indications and Low Speed Cues

AIRSPEED INDICATIONS

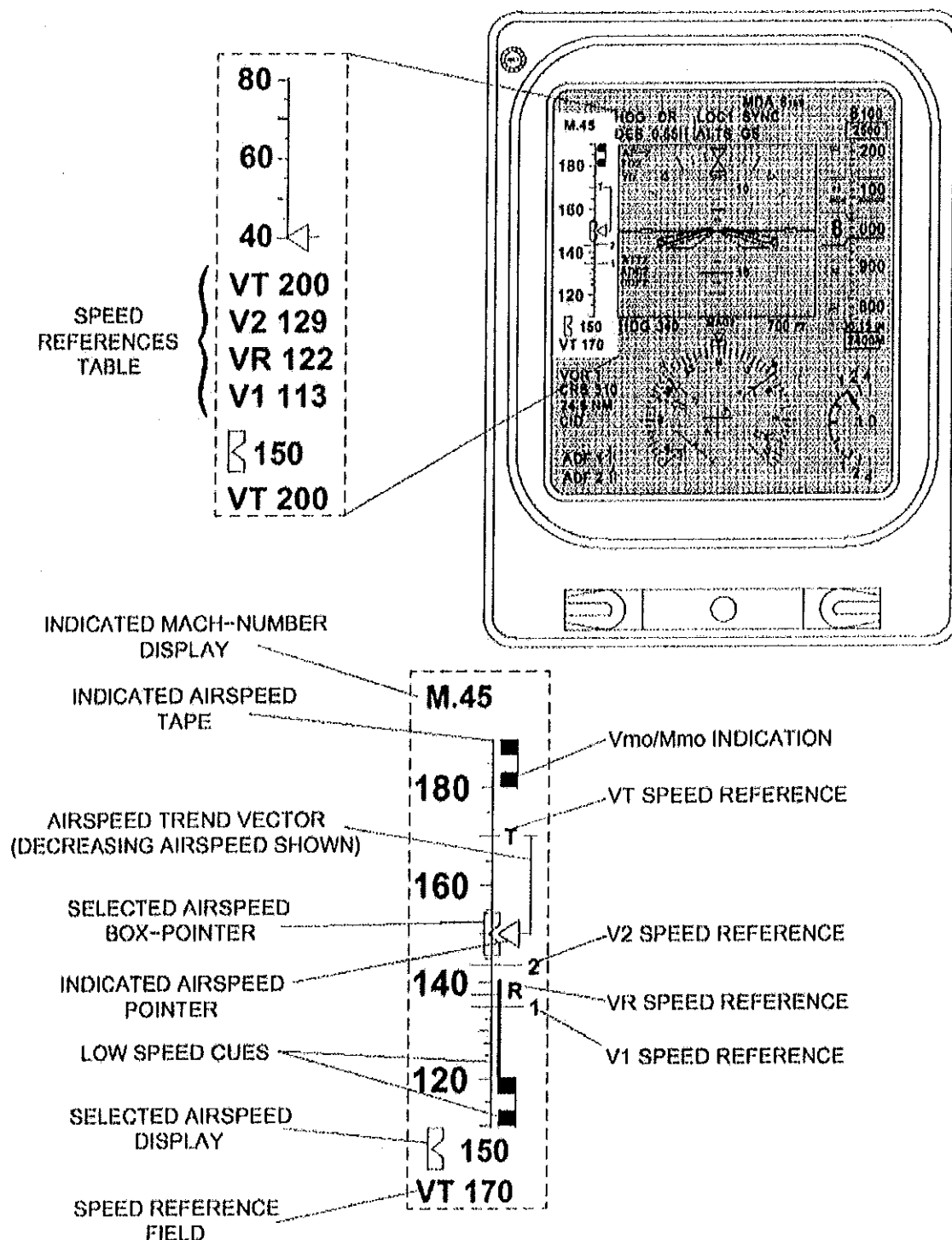


Figure 13

Mach Readout (white)
Indicates Mach speed.
Displayed when Mach is above 0.45 and is removed when Mach is below 0.40.

Airspeed Indicator

IAS /Mach Reference (magenta)
Indicates airspeed as selected using the speed knob on flight control panel.

Speed Reference (cyan)
Indicates reference speed as set by pilot using the speed reference knob on air data reference panel.

High-speed/Flap Overspeed Cue (red/black checkerboard)
Visually represents both the maximum operating speed (V_{MO}/M_{MO}) and, when the flaps are extended, the V_{FE} for the selected flaps position. If speed is exceeded by more than 3 knots the overspeed clacker sounds.

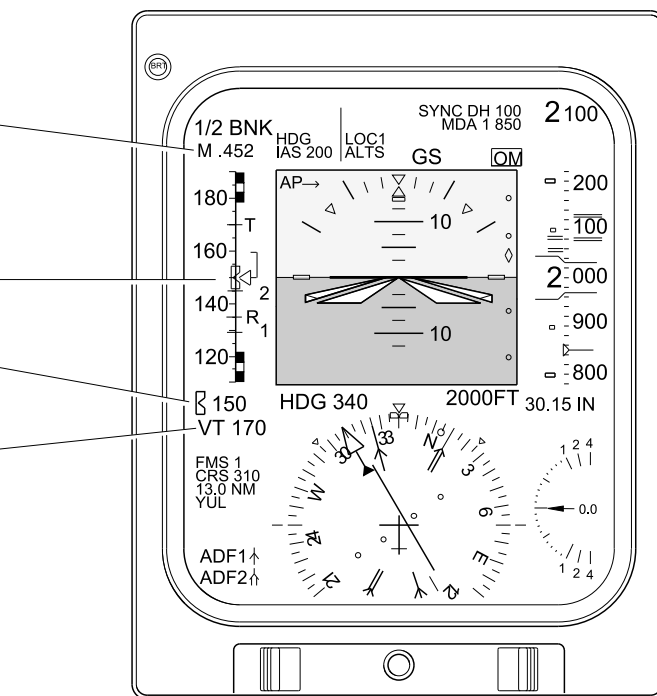


Indicated Airspeed Tape (white)
Moving tape that indicates current airspeed. Tape range is 40 to 400 knots with a display of 80 knots.

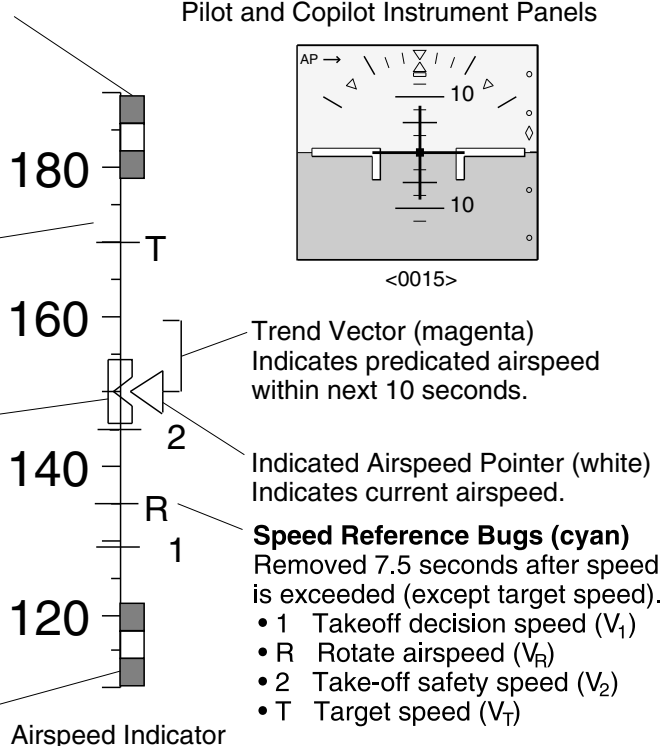
- Marks at 5 knot increments.
- Digits at 20 knot increments.

IAS Bug (magenta)
Indicates airspeed reference marker as set by pilot using the speed knob on flight control panel.

Low Speed Cue (red/black checkerboard)
Descends from stick shaker speed to edge of tape window and acts as cue to impending stall speed. Displayed 3 seconds after lift-off. If AOA data fails, checkerboard stops at 100 kts. and is replaced by a yellow line up to 120 kts.



Primary Flight Display
Pilot and Copilot Instrument Panels



Indicated Airspeed (IAS) and Mach Indications <TC> or <JAA>
Figure 34-13-3

Mach Readout (white)
Indicates Mach speed.
Displayed when Mach is above 0.45 and is removed when Mach is below 0.40.

Airspeed Indicator

IAS /Mach Reference (magenta)
Indicates airspeed as selected using the speed knob on flight control panel.

Speed Reference (cyan)
Indicates reference speed as set by pilot using the speed reference knob on air data reference panel.

High-speed/Flap Overspeed Cue (red/black checkerboard)
Visually represents both the maximum operating speed (V_{MO}/M_{MO}) and, when the flaps are extended, the V_{FE} for the selected flaps position. If speed is exceeded by more than 3 knots the overspeed clacker sounds.



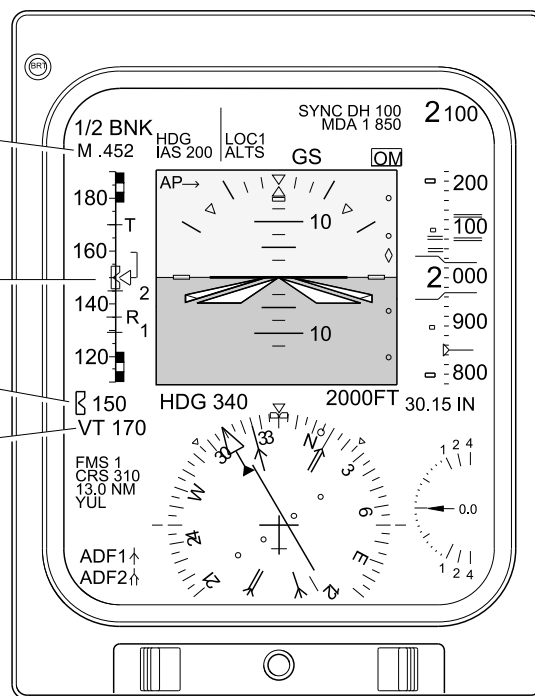
Indicated Airspeed Tape (white)
Moving tape that indicates current airspeed. Tape range is 40 to 400 knots with a display of 80 knots.

- Marks at 5 knot increments.
- Digits at 20 knot increments.

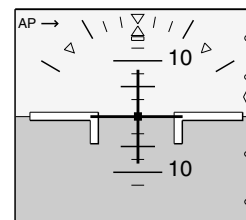
IAS Bug (magenta)
Indicates airspeed reference marker as set by pilot using the speed knob on flight control panel.

Low Speed Awareness Indicator (green line)
Indicates 1.26 times the computed stick pusher speed. Displayed in flight only.

Low Speed Cue (red/black checkerboard)
Descends from stick shaker speed to edge of tape window and acts as cue to impending stall speed. Displayed 3 seconds after lift-off. If AOA data fails, checkerboard stops at 100 kts. and is replaced by a yellow line up to 120 kts.



Primary Flight Display
Pilot and Copilot Instrument Panels



<0015>

180

160

140

120

Airspeed Indicator

Trend Vector (magenta)
Indicates predicted airspeed within next 10 seconds.

Indicated Airspeed Pointer (white)
Indicates current airspeed.

Speed Reference Bugs (cyan)
Removed 7.5 seconds after speed is exceeded (except target speed).

- 1 Takeoff decision speed (V_1)
- R Rotate airspeed (V_R)
- 2 Take-off safety speed (V_2)
- T Target speed (V_T)

Indicated Airspeed (IAS) and Mach Indications <FAA>
Figure 34-13-4

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D. Low Speed Cue

The low speed cue provides an indication of the speed margin to the stick shaker during normal low speed maneuvers and approaches to stall. The top of the low speed cue corresponds to 1.05 times the computed stick pusher speed.

NOTE

The minimum speed margin between shaker and pusher is 5% of the pusher speed. This is larger in some parts of the flight envelope, particularly higher altitudes where factors other than landing field performance are the prime consideration. Therefore, the stick shaker speeds will be equal to or above the low speed cue. Respect the stick shaker warning to ensure adequate margin to full stall

A green line is displayed on the PFD speed tape that is 1.26 times the computed stick pusher speed. The green line is calculated through flap angle, AOA and Mach. The green line is not intended to be used as a substitute for reference speeds, or as a minimum maneuvering speed. It is intended to function as a low speed awareness indicator for the flight crew to inform them that they have a 26% margin above the stick pusher activation speed that is based on the current flight conditions. <FAA>

	Flight Crew Operating Manual CSP A-013	
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