

Docket No. SA-533

Exhibit No. 2-Y

NATIONAL TRANSPORTATION SAFETY BOARD

WASHINGTON, D.C.

Airspeed Bug Information

(5 Pages)

ATTACHMENT

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 ATR42 PILOT HANDBOOK	PROCEDURES AND TECHNIQUES	2.02.01
	OPERATING SPEEDS	P 1

DEFINITIONS

- V_S Minimum stalling speed for a specified configuration. It is a function of the aircraft weight.
- V_{mCG} Minimum control speed on the ground from which a sudden failure of the critical engine can be controlled by use of primary flight controls only, with the other engine operating at RTO power.
- V_1 Speed at which the pilot can make a decision following failure of critical engine: either to continue takeoff or to stop the aircraft.
- V_R Speed at which rotation is initiated to reach V_2 at 35 ft. height.
- V_2 Takeoff safety speed reached before 35 ft height with one engine failed and providing second climb gradient not less than the minimum (2.4%).
- V_{mca} Minimum control speed in flight at which the aircraft can be controlled with 5° bank, in case of failure of the critical engine with the other engine at RTO power (takeoff flaps setting and gear retracted).
- V_{mcl} Minimum flight speed at which aircraft can be controlled with 5° bank in case of failure of the critical engine, the other being set at GA power (landing flaps setting, gear extended) and which provides rolling capability specified by regulations.
- V_{FE} Maximum speed for each flap configuration.

AIRSPEED BUGS: AIRSPEED BUGS FOR TAKEOFF & LANDING WILL BE SET AS FOLLOWS:

FLIGHT REGIME	YELLOW BUG	INTERNAL BUG	WHITE BUG	RED BUG
Takeoff	V_1 / V_r	V_2	V_{mLB} 0 Normal	V_{mLB} 0 Icing
Landing	V_{ga} (Note 1)	V_{mHB} 30 (Note 2)	V_{mLB} 0 Normal	V_{mLB} 0 Icing

⚠ **Note 1:** $V_{ga} = V_{mHB} 30 + 5$ KTS (not corrected for wind) or $1.1 V_{mca}$, whichever is higher.

⚠ **Note 2:** Corrected for wind. Wind factor = 1/3 of the headwind velocity or the gust in full with a maximum wind factor of 15 KTS.

02/01/2009

After reviewing the ATR42-320 Eng PW121 V Speed card for a landing at 33,000 Lbs the airspeed bugs would have been set as follows for a normal flaps 30 landing in Icing Conditions.

Internal Bug, V Approach (VMHB 30 Icing) 116 KTS
Yellow Bug, VGA (VMHB 30 Icing + 5 KTS) 121 KTS
White Bug, (VMLB 0 Normal) 123 KTS
Red Bug, (VMLB 0 Icing) 143 KTS

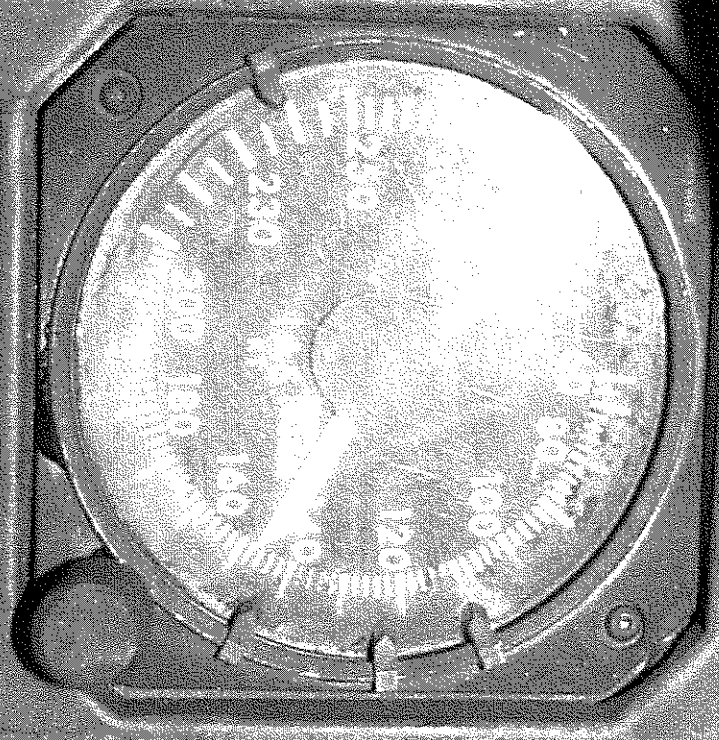
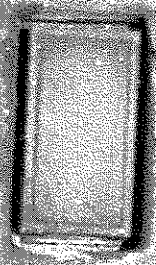
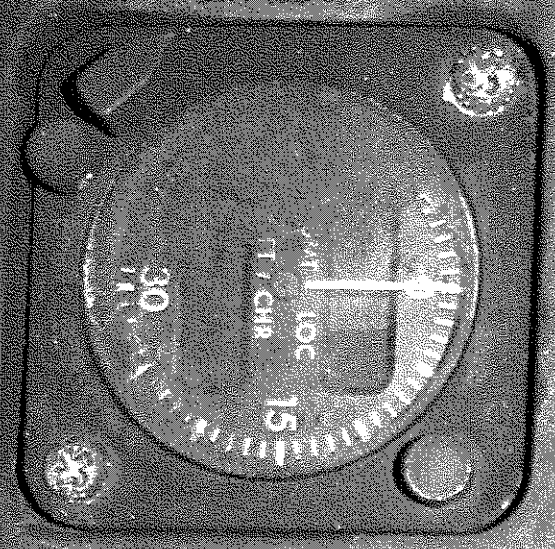
Photos of both Airspeed Indicators show the bugs were set as follows.

Left Side Airspeed Indicator

Internal Bug, V Approach (VMHB 30 Icing) 109 KTS
Yellow Bug, VGA (VMHB 30 Icing + 5 KTS) 110 KTS
White Bug, (VMLB 0 Normal) 124 KTS
Red Bug, (VMLB 0 Icing) 145 KTS

Right Side Airspeed Indicator

Internal Bug, V Approach (VMHB 30 Icing) 106 KTS
Yellow Bug, VGA (VMHB 30 Icing + 5 KTS) 112 KTS
White Bug, (VMLB 0 Normal) 126 KTS
Red Bug, (VMLB 0 Icing) 144 KTS



(Part 1000)

