

DC9 Speed booklet.

An explanation to the different features of the speed booklet.

This document will show the booklet of a DC9.

The layout is basically the same for all SAS aircraft, only speeds and flap settings differ.

Some basic facts about DC9.

A/C version	-21	-41
Max takeoff weight:	44 450 kg	51 700 kg (48 900 flap 15)
Max landing weight	42 350 kg	46 250 kg
Takeoff flapsetting	15 only certified T/O flap	0, 5, 15
Landing flapsetting	40/25	40/25

5 is normal takeoff flap -41.

0 flap will give better performance in some cases (high temp, low QNH).

15 is used on short and/or slippery RWY. OBS max takeoff weight flap 15.

LANDING PAGE.

a)	DC-9-41			
b)	LANDING		46 t	
c)	FL	< 250	250-290	>290
d)	V_{HOLD}	218	228	238
e)	V_P	Clean.. 218	GO-AROUND	
		0 180	V₂ 5 145	
		5 168	V_{Fl up} 151	
		15 154	V_{Sl in} 176	
		25 149	V_{Clean} 201	
f)		V_A 25 140		
g)	FLAPS	50°	40°	25°
h)	V_A	134	139	140
i)	V_{TH}	129	134	139

- a) Aircraft version.
- b) Landing weight (one page/ton). Shaded on pages above 46 ton.
Owerweight landings with DC9 is no problem, shading is just a reminder.
"Aircond armed" is also a reminder. In case of an engine failure during a go around with owerweight, the aircondition system will shut off. Thus giving you a somewhat better engine performance.
- c/d) FL and corresponding speeds (**V_{HOLD}** is the lowest speed to be used).
- e) **V_P** (pattern clean) is a maneuvering speed, while **V_{Clean}** is a performance speed.
V_P is 10-15 kt higher than **V_{Clean}**. Use **V_P** under all normal conditions and **V_{Clean}** as climb speed, one engine operation.

On the right side are the speeds related to "Go around". Always retract flaps to 5 in a go around.
V_{2 5} is used in case of engine failure, use **V_{2 5} + 10kt** under normal conditions.
V_{Fl up} retract flaps.
V_{Sl in} retract slats
V_{Clean} as above.
- f) Approach speed flaps 25. The same as below.
- g) Flap 50, not used any more due to noise certification.
Flap 40, normal landing flap.
Flap 25, used only during landings with one engine out.
- h) **V_A** - approach speed. Used on final, if you have to maneuver use **V_A + 10 kt**.
- i) **V_{TH}** Minumum speed over the Threshold. Start reducing from **V_A** when passing 150 ft.

This document is a complement to the different speedsheets written by Kjell Mathisen VSAS 061. Today most of the modern A/C use the FMS to show takeoff speeds. Even the guys in DC9 (the CLASSIC) of SAS are using a small handheld computer to calculate takeoff performance. The speedbook is only a backup, and used if time does not permit full calculation.

Of course this document is FREEWARE.

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See you in the internet as SAS 093

Takeoff page below !!!

TAKEOFF PAGE.

a)	DC-9-41			
b)	TAKEOFF		46 t	
c)	FLAPS	0°	5°	15°
d)	V_1 ... {	147	133	123
e)	V_R ...	144	129	118
f)	V_2 ...	151	137	128
g)	V_{FI} up 151			
h)	V_{SI} in 176			
i)	V_{Clean} 201			
j)	CLIMB SPEED.....281 / 0.73			

- a) Aircraft version.
- b) Takeoff weight.
- c) Flapsetting. (0 shaded, not used very often).
- d) V_1 - highest speed at which you can abort a takeoff, on a marginal runway, without ending up on the grass.
The lower V_1 (shaded) are called "reduced V_1 ". They are used when takeoff weight are limited by the rwy lenght and it is slippery (ice or wet conditions). You will reach V_1 earlier and thus have more rwy left for braking.
- e) Speed at which you start to rotate the A/C. Rotate to approximately 16° nose up (normal time 5-6 sec.) Retract landing gear and establish a climb.
- f) Lowest speed in climb on one engine. Normal climb $V_2 + 10$. Do not exceed 20° nose up
- g) Retract flaps.
- h) Retract slats.
- i) Lowest speed clean A/C.
- j) Optimum climb speeds. Not in use any more . 280kt / M0.74 are normal climb speeds.