

**Required data** out of Airplane and Ops Manuals for analyzing engine failure related data, procedures and accidents. Section numbers and titles might vary with airplane type/model and manufacturer. Please review the paper Airplane Control and Accident Investigation after Engine Failure ([click here](#)) to learn why these data are required.

Airplane type	:	Engine power/ thrust in Type Certificate	:
Engine type	:	Engine type in Type Certificate	:
Propeller type & blades	:	Propeller type in Type Certificate	:

**Pilot Operating Handbook or Airplane Flight Manual:**

- Section 1 - General: Definitions of  $V_{MC}$ ,  $V_{MCA}$ ,  $V_{MCG}$ ,  $V_{MCL}$ ,  $V_{YSE}$ ,  $V_{XSE}$ ,  $V_S$ ,  $V_1$ ,  $V_R$ ,  $V_2$  (if presented); Required placards related to  $V_{MC} / V_{MCA}$  that should be visible to the pilot in the cockpit (if these are listed in the Manuals); Does the airplane have a rudder boosting system and if so, by which engine(s) is it driven? Engine type and propeller type (if applicable) published in AFM.
- Section 2 - Limitations:  $V_{MC}$ ,  $V_{MCA}$ ,  $V_{MCG}$ ,  $V_{MCL}$ ,  $V_{YSE}$  data (knots or MPH). Any bank angle requirement included? Weight limitation graph (Weight versus Center of Gravity); Maximum approved fuel asymmetry (wing tanks).
- Section 3 - Emergencies: Airspeeds for safe operations:  $V_{YSE}$ ,  $V_{XSE}$ ,  $V_{SSE}$ , if any. These might be in a different section (performance); Engine inop. or single engine procedures: On ground and in flight (low speed, high speed); Fuel management during One Engine Inoperative operations (cross feed, transfer, max. fuel imbalance).
- Section 4 - Normal procedures: Is the propeller feathering system automatic, and is it to be armed by the pilot during pre-flight and approach checks? Engine inoperative go-around procedure, if any;  $V_{MCA}$  demonstration procedure, if any; Practice engine inoperative flight procedures, if any.
- Section 5 - Performance: Climb performance data (graph), both engines operative; Climb performance data (graph), one engine inoperative;  $V_{YSE}$  and bank angle advisories?  $V_1 / V_2$  graphs/ data; Stall speed ( $V_S$ ) graph (sometimes  $V_S$  versus bank angle graph).
- Section 7 - Flight Techniques: Use of  $V_2$  explained? Is published  $V_2$  the minimum  $V_2$  ( $V_{2MIN}$ ), or  $V_{2MIN}$  plus an increment). Any bank angle limitations published while airspeed is  $V_2$  or  $V_2 + xx$  knots; Engine failure during takeoff;  $V$  for zero thrust/drag (for engine-out training); Approach with an inoperative engine.

**Other data required:**

*Weighing report*

Date:	Empty weight:	cg limits:	Actual cg:
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