

3.5 ENGINE INOPERATIVE PROCEDURES

WARNING

IN CERTAIN COMBINATIONS OF AIRCRAFT WEIGHT, CONFIGURATION, AMBIENT CONDITIONS, SPEED AND PILOT SKILL, NEGATIVE CLIMB PERFORMANCE MAY RESULT. REFER TO CHAPTER 5 PERFORMANCE FOR ONE ENGINE INOPERATIVE PERFORMANCE DATA.

IN ANY EVENT THE SUDDEN APPLICATION OF POWER DURING ONE-ENGINE INOPERATIVE OPERATION MAKES THE CONTROL OF THE AIRCRAFT MORE DIFFICULT.

3.5.1 DETECTING THE INOPERATIVE ENGINE

NOTE

One engine inoperative means an asymmetric loss of thrust, resulting in uncommanded yaw and roll in direction of the so-called "dead" engine (with coordinated controls). To handle this situation it is indispensable to maintain directional control by mainly rudder and additional aileron input. The following mnemonic trick can help to identify the failed engine:

"Dead foot - dead engine"

This means that, once directional control is re-established, you feel the control force on your foot pushing the rudder-pedal on the side of the operative engine, while the foot on the side of the failed engine feels no force. Further, the engine instruments can help to analyze the situation.

3.5.2 ENGINE SECURING (FEATHERING) PROCEDURE

NOTE

Depending on the situation, attempts can be made to restore engine power prior to securing the engine.

The minimum control speed (V_{MC}) with one engine inoperative (windmill) and 5° bank angle towards the good engine is 65 KIAS.

The climb speed with one engine inoperative (feather) is 90 KIAS (V_{YSE}).

- (a) Maintain lateral & directional control.
- (b) MIXTURE control levers full forward
- (c) PROPELLER RPM levers full forward
- (d) THROTTLE levers full forward
- (e) LANDING GEAR & FLAPS UP
- (f) Inoperative engine identify and verify

Shut down and feathering of the affected engine:

- (g) Operative engine Apply maximum power or power as required to keep safe flight

Securing the feathered engine:

- (h) THROTTLE lever affected engine IDLE

CONTINUED

CAUTION

THE DESIGN OF THE PROPELLER FEATHERING SYSTEM DOES NOT ALLOW THE FEATHERING OF A PROPELLER WHICH IS NOT TURNING. FOR THIS REASON, IT IS VERY IMPORTANT THAT IF THE PROPELLER IS TO BE FEATHERED, THIS IS DONE BEFORE IT STOPS TURNING, OR FEATHERING WILL NOT BE POSSIBLE.

- (i) PROPELLER RPM lever affected engine - FEATHER
- (j) MIXTURE control lever affected engine - IDLE cut-off
- (k) Ignition switch (magneto) affected engine - OFF
- (l) ALTERNATOR affected engine - OFF
- (m) FUEL PUMP inoperative engine - OFF
- (n) FUEL SELECTOR inoperative engine - OFF
- (o) THROTTLE control lever on dead engine up enough to silence the gear horn.

CONTINUED

CAUTION

REMOVAL OF GEAR HORN POWER, BY PULLING THE GEAR HORN CB, WILL ALSO REMOVE POWER TO THE STICK LIMITER.

NOTE

The remaining fuel in the tank of the failed engine can be used for the good engine, to extend the range and maintain lateral balance, by setting the good engine fuel selector in the CROSSFEED position.

NOTE

The engine performance data will not be valid if an engine has been stopped and the propeller is not feathered.

END OF CHECKLIST

3.5.3 UNFEATHERING & RESTARTING THE ENGINE IN FLIGHT**NOTE**

Restarting the engine is possible at all airspeeds above a safe flying airspeed up to V_{NE} (194 KIAS) and up to the maximum demonstrated operating altitude.

(a) Preparation:

- (1) Airspeed..... 90 KIAS minimum
- (2) FUEL SELECTORS..... ON
- (3) FUEL PUMP check ON
- (4) THROTTLE lever set (3-4 cm forward of IDLE)
- (5) ALTERNATE AIR as required

(b) Unfeathering the engine:

- (1) PROPELLER RPM Lever Fully forward

(c) Starting the windmilling engine:

- (1) MIXTURE control lever Rich
- (2) Ignition switch BOTH
- (3) ALTERNATOR ON

(d) If the engine does not windmill:

- (1) Ignition switch START, until propeller windmills

CONTINUED

(e) If the engine does not start:

(1) MIXTURE control lever IDLE cut-off

(2) MIXTURE control lever advance forward slowly until
the engine starts.

WARNING

**IF THE OIL PRESSURE HAS NOT MOVED INTO THE
GREEN SECTOR WITHIN 15 SECONDS AFTER
STARTING, SWITCH OFF THE ENGINE.**

NOTE

If it is not possible to start the engine, continue with
Paragraph 3.5.2 - ENGINE SECURING (FEATHERING)
PROCEDURE.

END OF CHECKLIST