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### A METHOD OF IDENTIFICATION OF A FAILED ENGINE IN TWIN-ENGINE PROPELLER AIRCRAFT – A SURVEY

**INTRODUCTION**

- From 1985 to 1997, among all documented in-flight engine shutdowns, wrong engine included almost 50% for turboprop and 30% for turbojet aircraft (Sallee & Gibbons, 1999).
- 40% of interviewed twin-engine helicopter pilots admitted confusing engine throttle in an emergency at least once (Wildzunas et al., 1999; as cited in Aviation Safety Council, 2016).
- Under stress, people tend to rationalize expected outcome, even if it does not correlate with reality, thus justifying erroneous decisions (Kontogiannis & Malakis, 2008).
- Decision-making is especially critical on takeoff, when time is of the essence.
- “Dead foot – dead engine” is currently used for identification of a failed engine.

**METHODOLOGY**

A survey was created to acquire more information on wrong identification of a failed engine in twin-engine turboprop aircraft.

- The survey was created through SurveyMonkey.
- The survey consisted of 10 questions.
- Participants were sampled from one U.S. airline that operates twin-engine turboprop aircraft.
- Link to the survey was distributed via email.

**RESULTS**

- 49 airline pilots completed the survey.
- Average experience flying twin-engine turboprops – 9 years and 6,300 flight hours.
- Almost 23% admitted having problems identifying a failed engine at least once in simulator training.
- Pros: most respondents found the method redundant and accurate.
- Cons: most respondents found the method time-consuming and having a likelihood of error.
- **29% of respondents agreed that there could be a better method of identification of a failed engine.**

**DISCUSSION**

- Pilots were experienced in flying turboprop twins.
- Almost 1/3 of pilots agreed that there could be a better method, which shows that the current method might not be very effective.
- Most pilots practice this method only during the simulator and rarely use it. This could be the explanation as to why they consider it systematic and accurate.

**CONCLUSION**

- The results of this study correlate with previous findings.
- This survey was part of a larger study aimed at testing an alternative method of identification of a failed engine.
- For further research, it is suggested to collect data from a bigger sample, as well as from pilots operating other aircraft types.