

MIDAIR

Joint Safety Implementation Team as Modified by JIMDAT

Implementation Plan for Safety Enhancement 165R4 Midair – TCAS Policies and Procedures

Statement of Work:

The purpose of this enhancement is to prevent midair collisions by: re-enforce or strengthen guidance for flight crews to follow TCAS Resolution Advisories (RA's) even in the presence of contravening ATC instructions; establishing procedures for TCAS range setting; and recommending TCAS-capable simulators and flight-training devices be used for training TCAS responses and maneuvers.

Lead Organization for Overall Safety Enhancement Completion (LOOSEC):

FAA-AFS

Safety Enhancement:

Safety Enhancement 165 Midair – TCAS Policies and Procedures

The purpose of this enhancement is to prevent midair collisions by: re-enforcing or strengthening guidance for flight crews to follow TCAS Resolution Advisories (RA's) even in the presence of contravening ATC instructions; establishing procedures for TCAS range setting; and recommending TCAS-capable simulators and flight-training devices be used for training TCAS responses and maneuvers.

Recommended for plan based on mitigation benefit to JSAT Midair accidents.

JIMDAT Score

DIP Stand Alone Fatality Risk Reduction:

2020 - (0.00) 100% - (0.00)

Differential beyond original 46 SE CAST plan:

2020 - (0.00) 100% - (0.00)

CAST directed the RR JSIT to examine areas of remaining risk. One of the vagaries of the CAST accident database is that it does not contain transport category to transport category midair collisions such as the ones the team analyzed. Therefore, several highly-effective SE's did not score well against the CAST accident database. However, the JSIT midair sub-team strongly believed that the US airspace environment has a component of midair risk. Additionally, increasing airspace complexity, changes to the traffic mix, and growing traffic count may represent an area of heightened future risk. Therefore, this SE is recommended for incorporation into the CAST Safety Plan.

Total Resource Requirements:

\$250,000 administrative and travel for outputs 1-3.

Costs of output 4 depend on the current capability of airline operator simulators.

Completion Date:

5 years following CAST approval.

Output 1:

Regulators re-enforce or strengthen guidance for flight crew compliance with TCAS RA's, even in the presence of contravening ATC instructions (guidance may include the language on pilot-in-command final decision authority as in AC 120-55B).

Resources:

FAA AFS (LOOC), FAA ATO

\$100,000 administrative and travel.

Timeline:

2 Years following CAST Approval.

Actions:

Complete the required process to revise appropriate guidance material with full consideration of ICAO Annex 2 Chapter 3.

Revise FAA Order 7110.65 to reflect the revised guidance.

Output 2:

For aircraft equipped with TCAS II, airline/operators establish standard operating procedures and standardized training (ground school and simulator training) on pilot response to TCAS RA's, including following the RA promptly and accurately even in the presence of contravening ATC instructions (reference AC 120-55B).

Resources:

ATA (LOOC), Airlines/Operators

\$100,000 administrative and travel.

Timeline:

1 year following CAST Approval.

Actions:

Airlines/operators establish standard operating procedures and standardized training (ground school and simulator training) on pilot response to TCAS RA's, including following the RA promptly and accurately even in the presence of contravening ATC instructions (reference AC 120-55B).

Simulator training should include a scenario(s) that involves contravening ATC instructions.

Output 3:

Airline/operators establish procedures for TCAS range setting appropriate to the traffic situation (e.g., use maximum range in low-traffic situations). (Highlight/emphasize AC 120-55B, para. 11.d.3. "Good Operating Practices".)

Resources:

ATA (LOOC)

\$50,000 administrative and travel.

Timeline:

1 year following CAST approval.

Actions:

Airline/operators establish procedures for TCAS range setting appropriate to the traffic situation (e.g., use maximum range in low-traffic situations). (Highlight/emphasize AC 120-55B, para. 11.d.3. “Good Operating Practices”)

Output 4:

Regulators recommend that TCAS-capable simulators or flight-training devices are used for training TCAS responses and maneuvers.

Resources:

FAA AFS (LOOC)

Timeline:

1 year following CAST approval.

Actions:

1. Develop guidance material to recommend use TCAS capable simulators or flight training devise to train TCAS responses and maneuvers
2. Revise AC 120-55B to remove the option of using CBI to train TCAS responses and maneuvers. (Action Step deleted by JIMDAT 2/26/2009)

Output 5 :

Conduct a study of TCAS –RA events involving contravening ATC instructions and determine the need for further safety action including consideration of regulatory and guidance solutions and recommend appropriate Safety Enhancements to CAST

Resources:

JIMDAT (LOOC)

Timeline:

1 year following CAST approval.

Actions:

1. Conduct study
2. Develop Safety Enhancements as appropriate
3. Report results to CAST and GA JSC

Output 6 :

If not mandated, Operators will be encouraged to incorporate TCAS DO-185, Change 7.1.

Resources:

ATA (LOOC), RAA, NACA, Operators

Timeline:

2 years following CAST approval.

Actions:

1. ATA, RAA, and NACA will prepare letters to their operators encouraging them to incorporate TCAS DO-185, Change 7.1, if installation is not made mandatory.

Relationship to Current Aviation Community Initiatives

JPDO NextGen R&D includes efforts to develop real time controller display of aircraft TCAS RAs.

Impact on Non - Part 121 or International Applications: