

## SECTION I: SE OVERVIEW

*Study Topic  
Overview  
Summary*

CAST chartered the Airplane State Awareness (ASA) Joint Safety Analysis Team (JSAT) in August 2010 and the ASA Joint Safety Implementation Team (JSIT) in 2012 as a follow-on activity to the previous Loss of Control (LOC) JSAT in 2000. Historically, Loss of Control-Inflight (LOC—I) has been, and continues to be, one of the largest categories of commercial aviation fatal accidents. Loss of ASA is a subset of LOC—I accidents and incidents, defined as events in which the flightcrew lost awareness of the airplane's attitude or energy state. Between 2001 and 2010, half of all LOC—I accidents involved loss of ASA. The ASA JSIT recommended, and CAST adopted, 19 ASA SEs, 5 of which focus on air carrier training.

The ASA JSAT's study of 18 LOC accidents and incidents showed that go-arounds, in some situations, contributed to flightcrew loss of ASA.

*SE Objective*

CAST recommends air carriers conduct effective, scenario-based go-around training that matches realistic situations. In addition, air carriers should perform an assessment to identify additional improvements to go-around procedures and training. This assessment would include a review of ongoing go-around initiatives, research planning, review of ASIAs metrics and data, and review of air traffic control go-around procedures.

*Primary Risks  
Mitigated*

Loss of Control-Inflight (LOC—I)

Action	Organization(s)	Strategy	Description	Due Date
<a href="#">Action 1</a>	FAA AFS	Guidance	Publish guidance material addressing scenario-based go-around training.	02/28/2015
<i>Comments: CAST closed this action based on publication of Safety Alert for Operators (SAFO) 15004.</i>				
<a href="#">Action 2</a>	Air Carriers	Procedures, Training	Modify policies, procedures, and training to incorporate the recommendations in Action 1.	04/30/2017
<i>Comments: CAST closed this action based on air carrier association reports of operator implementation. CAST will continue to monitor the metrics.</i>				

*See section II of this SE for detailed action descriptions.*

**References:** The detailed analysis in the ASA JSAT Final Report (June 5, 2015) and the ASA JSIT Final Report (December 31, 2014) is available through CAST.



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*SE 198 consists of two actions, which this section lays out in detail.*

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- **Action 2 (Air Carriers, Air Carrier Industry Associations)**.....PAGE 4  
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## SECTION III: SUPPLEMENTAL INFORMATION

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*This section contains the following additional information that may be of interest to implementers:*

- Source Study
- Related Initiatives
- Total Cost / Resource Overview

## SECTION IV: REVISION LOG

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*This section provides a history of revisions to this SE.*



## SECTION II: DETAILED ACTION INFORMATION

## Action 1: Publish guidance material addressing scenario-based go-around training

## Primary

## Implementer

FAA Flight Standards Service, Safety Standards (AFS)

## Action Objective

FAA AFS should publish guidance material addressing scenario-based go-around training.

## Action Timeline

Flow Time: 18 months

Due Date: 02/28/2015

Timeline/Flow for  
Future Adopters

N/A

## CAST Lead

FAA AFS

#	Organization(s)	Detailed Steps
1a	FAA AFS	<p>Develop and publish guidance on scenario-based go-around training encouraging air carriers to incorporate the following elements in their go-around procedures and training:</p> <ul style="list-style-type: none"> <li>a. Go-around maneuvers from various stages of the approach, including configurations other than final landing configuration;</li> <li>b. Go-around maneuvers from visual approaches followed by loss of visual references;</li> <li>c. Go-around maneuvers with extreme pitch trim configuration, such as nose-up trim resulting from flight at speeds below Vref with the autopilot engaged;</li> <li>d. Go-around maneuver in low-weight configuration with all engines at go-around thrust;</li> <li>e. Go-around maneuver after the initial touchdown, such as from a bounced or long landing;</li> <li>f. Go-around maneuver with air traffic control (ATC) clearance change just after go-around is initiated; and</li> <li>g. Academic training on possibility of encountering the somatogravic illusion during go-around and its potential consequences.</li> </ul> <p><i>Safety Alert for Operators (SAFO) 15004 published October 1, 2015.</i></p>
1b	FAA AFS	<p>Report completion and publication of the guidance material to air carrier industry associations, JIMDAT, and CAST.</p> <p><i>Reported to air carrier industry associations, JIMDAT, and CAST in October 2015.</i></p>
Notes	Step "e" of subaction 1a was added in anticipation of recommendations from the Runway Excursion (RE) Joint Safety Analysis and Implementation Team (JSAIT).	



## SECTION II: DETAILED ACTION INFORMATION

## Action 2: Modify policies, procedures, and training to incorporate recommendations

Primary  
Implementer

Air Carriers

Action Objective

Air carriers should modify policies, procedures, and training to incorporate the recommendations in [Action 1](#).

Action Timeline

Flow Time: 24 months (upon completion of Action 1)

- 12 months to incorporate changes to training
- 24 months for all pilots to receive training (initial and/or recurrent)

Due Date: 04/30/2017

- 02/28/2016 to incorporate changes to training
- 04/30/2017 for all pilots to receive training (initial and/or recurrent)

Timeline/Flow for  
Future Adopters

TBD

CAST Lead

Airlines for America (A4A)

#	Organization(s)	Detailed Steps
2a	Air Carrier Industry Assns.	Communicate with member air carriers when the FAA has published the guidance from Action 1.
		<i>Complete.</i>
2b	Air Carriers	Review current go-around policies, standard operating procedures (SOP), manuals, and training programs for consistency with the recommendations in the FAA guidance from Action 1.
		<i>Complete.</i>
2c	Air Carriers	Consult with aircraft manufacturers to develop aircraft-specific procedures for those scenarios not already covered in their training.
		<i>Complete.</i>
2d	Air Carriers	Update go-around policies, SOPs, manuals, and training programs to incorporate the proposed scenarios.
		<i>Complete.</i>
2e	Air Carriers	Coordinate with pilot labor organizations to communicate these revisions and the rationale behind them to the line pilot community.
		<i>Complete.</i>
2f	Air Carriers	Conduct the scenario-based training for the line pilots in initial and recurrent training.
		<i>Complete.</i>
2g	Air Carriers	Air carrier actions are considered complete when— <ul style="list-style-type: none"> <li>a. The air carrier has revised its go-around training, as necessary, to reflect the guidance material from Action 1, and</li> <li>b. All pilots have received the training (initial or recurrent).</li> </ul>
		<i>Complete.</i>

Note: See section III for detailed costs and resources.



## SECTION II: DETAILED ACTION INFORMATION

2h	Air Carrier Industry Assns.	Track implementation of member carriers and report progress to JIMDAT and CAST.
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*Reported to JIMDAT and CAST in April 2017.*

## Notes

Assumes the following:

- No increase to training footprint, only revision and improvement of currently performed go-around training.
- Scenarios will be varied; not all scenarios need to be used in each training session.
- Revisions will occur as part of normal air carrier training and manual update cycles.



## SECTION III: SUPPLEMENTAL INFORMATION

**Source Study** ASA Joint Safety Analysis Team (JSAT) Final Report (June 5, 2014)  
ASA Joint Safety Implementation Team (JSIT) Final Report (December 31, 2014)

**Related Initiatives**

- Bureau d'Enquêtes et d'Analyses (BEA) Study, Airplane State Awareness – Go-Around (ASAGA)
- Flight Safety Foundation (FSF) go-around initiative
- CAST Runway Excursion (RE) Joint Safety Analysis and Implementation Team (JSAIT)
- A4A Flight Safety Committee's "Soft Go-Around" Study

**Total Cost** **\$1,500,000** Note: For labor, 1 Full Time Equivalent (FTE) = \$250,000

**Action 1** \$300,000 1.2 FTE

**Action 2** \$1,200,000 4.8 FTE

	Organization	Resources Needed
<b>Direct Resource Overview – Government</b>	FAA AFS	<ul style="list-style-type: none"> <li>• Action 1: 1.0 FTE.</li> <li>• Action 2: Inspector resources required for normal review and acceptance or approval, as applicable, of airline manuals and training programs as part of duties performed.</li> </ul>
	FAA AIR	<ul style="list-style-type: none"> <li>• Action 1: 0.2 FTE.</li> </ul>

	Organization	Resources Needed
<b>Direct Resource Overview – Industry</b>	Air Carrier Industry Assns.	<ul style="list-style-type: none"> <li>• Action 2: 0.2 FTE (assumes ~0.05–0.1 FTE at each association for coordination).</li> </ul> <p>Note: 55 air carriers are represented by three CAST-member air carrier industry associations:</p> <ul style="list-style-type: none"> <li>○ Airlines for America (A4A),</li> <li>○ Regional Airline Association (RAA), and</li> <li>○ National Air Carrier Association (NACA).</li> </ul>
	Air Carriers	<ul style="list-style-type: none"> <li>• Action 2: 3.3 FTE (assumes 0.06 FTE at each air carrier to perform review and make revisions).</li> </ul>
	Aircraft Manufacturers	<ul style="list-style-type: none"> <li>• Action 2: 0.8 FTE (assumes 0.2 FTE each supporting air carrier requests).</li> </ul> <p>Note: Four manufacturers of Title 14, Code of Federal Regulations (14 CFR) part 25 airplanes operated in U.S. 14 CFR part 121 operations are represented at CAST:</p> <ul style="list-style-type: none"> <li>○ Airbus (CAST member),</li> <li>○ Boeing (CAST member),</li> <li>○ Bombardier (represented by Aerospace Industries Association (AIA)), and</li> <li>○ Embraer (represented by AIA).</li> </ul>
	Labor Organizations	<ul style="list-style-type: none"> <li>• Action 2: 0.5 FTE (assumes 0.25 FTE at each organization for support and communication).</li> </ul> <p>Note: Two pilot labor organizations are represented at CAST:</p> <ul style="list-style-type: none"> <li>○ Air Line Pilots Association (ALPA), and</li> <li>○ Coalition of Air Line Pilots Associations (CAPA).</li> </ul>



## SECTION III: SUPPLEMENTAL INFORMATION

*Indirect  
Resource  
Overview*

The organizations identified in this section are not expected to incur direct costs associated with implementing this SE, but they may incur indirect costs within their normal line of work.

Organization	Description
N/A	N/A



## SECTION IV: REVISION LOG

*Major revisions (whole numbers) represent CAST-approved changes to SE language. Minor revisions (decimals) represent minor changes to target dates or completion notes that do not affect implementer actions.*

Revision	Date	Description
1.0	09/17/2018	New SE format. Content reorganized and terminology updated. No substantive changes.
0.2	04/06/2017	Action 2 closed.
0.1	02/02/2017	Action 1 closed at October 2015 CAST meeting. Action 2 due date extended from 02/28/2017 to 04/30/2017.
Original	12/04/2014	CAST adopted SE 198.

