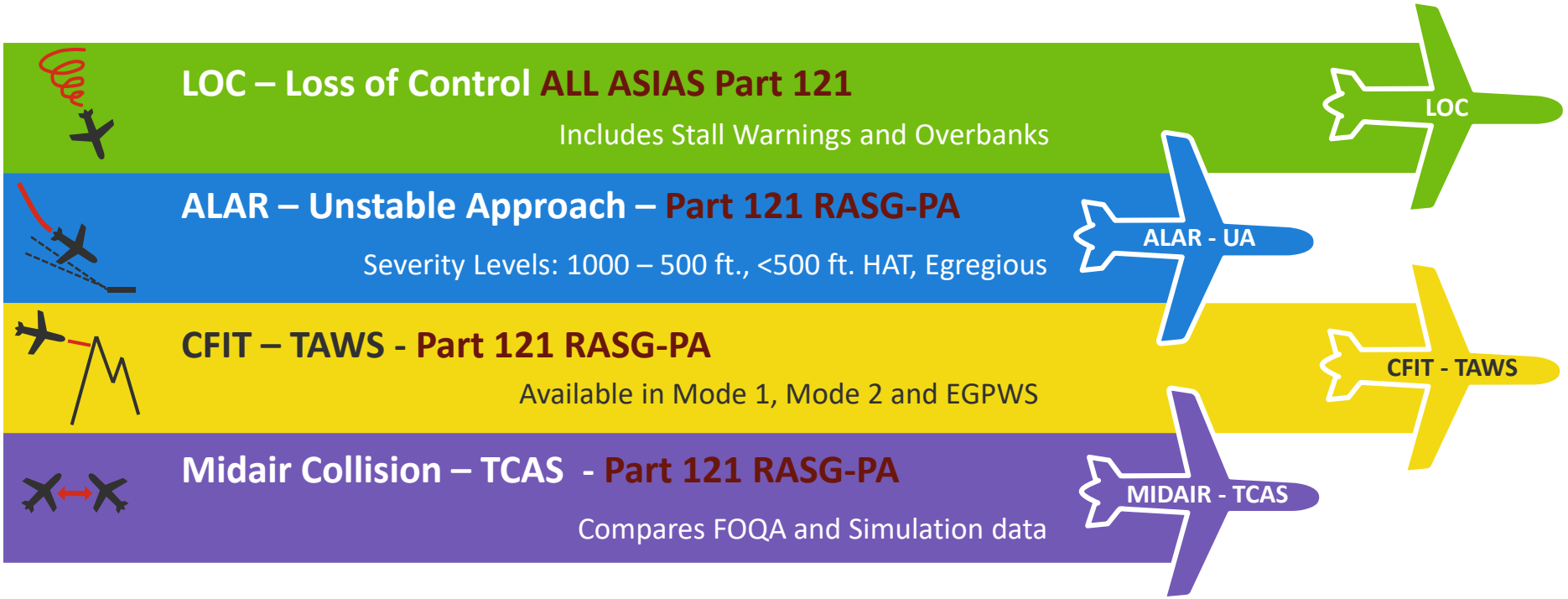
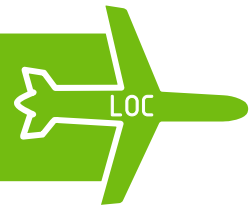
Content


LOC – Loss of Control ALL ASIAS Part 121
Includes Stall Warnings and Overbanks
ALAR – Unstable Approach – Part 121 RASG-PA
Severity Levels: 1000 – 500 ft., <500 ft. HAT, Egregious
CFIT – TAWS - Part 121 RASG-PA
Available in Mode 1, Mode 2 and EGPWS
Midair Collision – TCAS - Part 121 RASG-PA
Compares FOQA and Simulation data
LOC
ALAR - UA
CFIT - TAWS
MIDAIR - TCAS

JIMDAT is monitoring metrics for… LOC

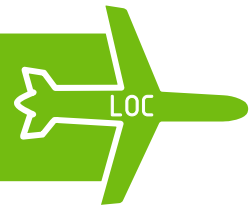
LOC/ ASA	SE 26	Policies and Procedures SOP
	SE 30	Training Human Factors Automation
	SE 31	Training Advanced Maneuvers
	SE 192	Low Airspeed Alerting
	SE 193	Non-Standard, Non-Revenue Flights
	SE 194	Standard Operating Procedures Effectiveness and Adherence
	SE 195	Flight Crew Training Verification and Validation
	SE 196	Effective Upset Prevention and Recovery Training, Including Approach-to-Stall
	SE 197	Policy and Training for Non-normal Situations
	SE 198	Scenario-Based Training for Go-Around Maneuvers
	SE 199	Enhanced Crew Resource Management Training
	SE 201	Bank Angle Alerting and Recovery Guidance Systems
	SE 202	Bank Angle Protection

LOC Definition for Overbanks



Overbank Classification for > 45°	
All Overbanks	Roll Attitude > 45° for 2 seconds or more
Subthreshold Roll	Max Roll Rate from 35° to Max Roll Angle < 5° per second
	Max roll command into roll < max normal load factor into the roll (35° to M ~ Max to 35°).
	Max Normal Load Factor: out of the roll > into the roll.
	Vertical speed decreases > 1,000 fpm between entry bank angle of 30° to end of overbank at 45°
	Max Roll Rate: out of the roll > into the roll.
	Max Normal Load Factor from 35° to max roll angle < 1.2g.
	Roll angle is within 2° of max roll angle for < 5 seconds.
	TCAS RA alert is not present within 15 seconds.
	GPWS alert is not present within 15 seconds.
Not Subthreshold Roll	Roll Attitude > 45° when at least 1 of the Subthreshold Roll criteria is not met. (This is All Overbanks – Subthreshold Rolls.)
Roll Command into the Bank	Roll Command > 5° in the direction of bank when bank angle > 45° resulting in bank angle of 50° or more.

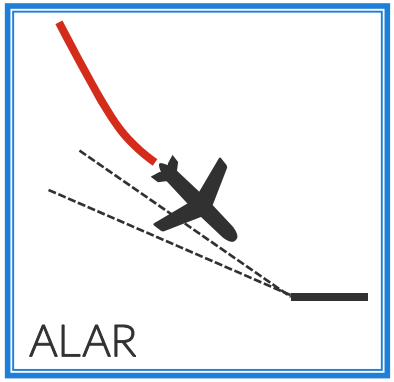
LOC Definition for Stall Warnings



	Stall Warnings Classification for duration 2 seconds or longer	
SW1	Stall Warning Not Associated with Imminent Stall	All stall warnings not otherwise classified. Windshear is included here, excluded in the other classifications.
SW2	Stall Warning Associated with Maneuvering (near or beyond the performance margins of the airplane)	< 15 seconds since last flap movement
		Roll Attitude > 20^{o} at any altitude or > 10^{o} above 30,000' and airspeed is NOT decreasing more than 4 kts/minute in the last period of declaration within the past minute prior to 2-second stall warning.
SW3	Stall Waning Associated with the unobserved speed decay	Airspeed is decreasing between -120 and -4 kts/minute in the last period of declaration within the past minute prior to 2-second stall warning.
		Increasing angle of attack with loss of airspeed
		Stall Warning Associated with Maneuvering is false.
SW4	Stall Warning with Delayed AOA Reduction This stall warning classification can occur together with any other stall warning classification. The other stall warning classifications however are mutually exclusive.	Successive stall warnings occur with AOA within 0.5^{o} of the first stall warning's AOA.
		Stall warning duration from start of first warning to end of last warning > 6 seconds.
		Speed Brakes not retracted < 10^{o} within 6 seconds from start of event.

Monitoring metrics for… ALAR

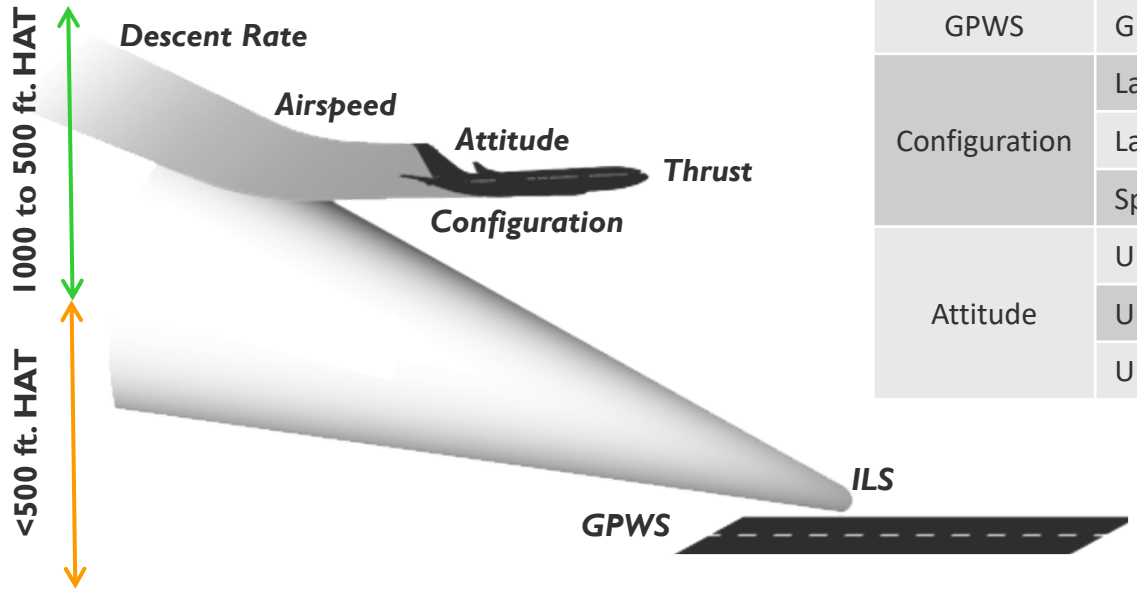
ALAR **(Unstable Approach)**	SE 3, 4, 5, 6, 7, & 8	Precision–Like Approaches
	SE 14, 15, & 16	ALAR Safety Culture
	SE 17, 18, 19, & 20	Maintenance Procedures
	SE 21 & 22	Flight Deck Equipment Upgrades for Improved Altitude Awareness and Checklist Usage
	SE 23	Flight Crew Training
	SE 24 & 25	Aircraft Design



UA Definition – Standard and Egregious

Unstable Approach Rate = $\frac{\text{\# of Unstable Approaches}}{\text{\# of all Approaches}}$

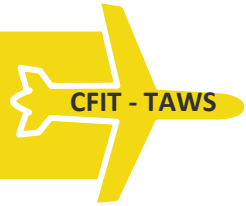
Go-Around Rate = $\frac{\text{\# of UAs followed by a Go-Around}}{\text{\# of Unstable Approaches}}$



Must exceed at least 3 criteria

Category	Criteria	Standard	Egregious
ILS	Above Glideslope	> 1 dot	> 2 dot
	Below Glideslope	< -1 dot	< -2 dot
	Localizer Deviation	> 1 dot L/R	> 2 dot L/R
Airspeed	High Speed	Vref + 20 kts	Vref + 35 kts
	Low Speed	Below Vref	-3 below Vref
Descent Rate	High Descent Rate	1000 ft./min	1500 ft./min
Thrust	Low Thrust Descent	N1 35%	Below approach power limit
GPWS	GPWS Alert	Any Alert	< 1000 ft.
Configuration	Late Flaps	> 2 degrees	< 300 ft.
	Late Gear	Any	< 1000 ft.
	Speed Brakes	Any	-
Attitude	Unstable Pitch	On	-
	Unstable Roll	On	-
	Unstable Yaw	On	-

Monitoring metrics for… CFIT



CFIT (TAWS)	SE 1	Terrain Awareness Warning System (TAWS)
	SE 3, 4, 6, 7, & 8	Precision-like Approach Implementation
	SE 12	CFIT Prevention Training
	SE 120	TAWS Improved Functionality

TAWS Definition

- **Enhanced (EGPWS) Event** - Terrain Awareness Warning preceded by a Awareness Caution (warning occurs within 2 seconds of caution)
  - Aural Warning: "Obstacle Ahead Obstacle Ahead Pull Up" or "Terrain Ahead Terrain Ahead Pull Up"

- **Mode 2 (Terrain) Event** - GPWS Pull Up Warning preceded by a GPWS Terrain Caution (warning occurs within 2 seconds of caution).
  - Aural Warning: "Terrain Pull Up"

- **Mode 1 (Sink Rate) Event** - GPWS Pull Up Warning preceded by GPWS Sink Rate Caution (warning occurs within 2 seconds of caution). This event is *landing specific.*
  - Aural Warning: "Sink Rate Sink Rate Pull Up"

Monitoring metrics for… TCAS RA

MIDAIR - TCAS

TCAS (Midair)	SE 165	TCAS Policies and Procedures
	SE 186	TCAS Sensitivity Level Command
	SE 188	Modifying ATC Procedures and Airspace Design
	SE 191	New TCAS/NextCAS Equipment