NEAR MISS

SPEAK ON "NEAR MISS". FOLLOW THE CHECKLIST

- near miss incidents - a serious problem in aviation
- possible reasons for near miss
- how misunderstanding between pilots and controllers leads to near miss
- equipment that helps pilots to keep situational awareness
- aircraft not equipped with transponders
- why to inform pilots about military flights in the area
- equipment that alerts controllers to a potential conflict between aircraft
- reports that pilots and controllers file in case of a near miss
- information included in near miss reports
- reasons for investigating near miss incidents
- ways of preventing near miss incidents
- situation connected with loss of separation you have had/heard about

(from "Steps to Proficiency" Test Preparation)

KEY WORDS & PHRASES

- be in conflict
- maintain/lose situational awareness
- forecast/detect /overlook/miss a potential conflict
- follow Standard Operating Procedures
- avoid AIRPROX/ risk of collision
- indicate traffic situation
- alert of collision danger
- offer an avoiding action
- evade conflicting traffic
- follow/comply with TCAS RA
- find an effective solution
- submit an AIRPROX / an air miss / a near miss report
- contain essential details
- analyze and investigate
- identify casual factors

NEAR MISS

DANGERS OF NEAR MISS/AIRPROX SITUATIONS

Aircraft proximity or near miss can be described as a loss of safe longitudinal, vertical, lateral or time separation between aircraft during a flight. If intervals between two aircraft are less-than-required, they are in conflict with each other and the situation may lead to:

- an AIRPROX
- a mid-air collision;
- injuries to cabin crew or unfastened passengers from avoiding action;
- high level of stress for pilots and controllers
- their working ability reducing and operational errors

POSSIBLE CAUSES

The loss /violation of separation may occur as a result of a level bust (altitude deviation when an aircraft doesn't stop at the cleared flight level and continues to climb or descend) or airspace infringement (entering the airspace without clearance). Pilots may deviate from track or the assigned level due to a technical malfunction or unfavorable weather conditions like thunderstorm, severe turbulence and severe icing.

Other reasons for separation reduction include loss of situational awareness or mental picture; shortage of information; lack of professional skills; misunderstanding (non-standard RTF, incorrect readbacks); work under pressure due to high traffic intensity; stress, fatigue and health problems. But sometimes it can happen during "slow traffic" periods when a controller is relaxed and may overlook/miss a conflict.

PREVENTIVE MEASURES

To avoid separation breakdown pilots and controllers must permanently maintain situational awareness and strictly follow Standard Operating Procedures. Modern technologies such as safety nets are available for controllers to forecast a potential unsafe situation, for example, a Short-Term Conflict Alert system. When a computer detects a possible conflict, the labels on controller`s radar display change their colour from white to orange. If the separation between aircraft is violated, labels turn red and sound alarm rings. On-board systems like TCAS (Traffic Collision Avoidance System) and GPWS (Ground Proximity Warning System) also help avoid risk of collision.

Also air traffic controllers and pilots should use standard phraseology and speak clearly to prevent misunderstanding that may cause aircraft proximity.

TCAS OPERATION

TCAS is an on-board system which indicates traffic situation and alerts pilots of collision danger. TCAS can issue two types of alert: Traffic Advisory (TA) and Resolution Advisory (RA). TA indicates that another aircraft is in the near vicinity, announcing "traffic, traffic", but it does not offer any avoiding action. RA is a direct verbal instruction to evade conflicting traffic by

commands “descend, descend” or “climb, climb”. When avoidance completed, the system declares “clear of conflict”. In case of a conflict between TCAS RA and ATC instructions, the TCAS RA always has priority, so the crew must always comply with TCAS RA.

ATC ACTIONS

In case of broken separation, the controller must find an effective solution, then communicate that solution to the pilots concerned, giving instructions about the altitude, heading or speed and make sure that pilots follow these instructions. Safe separation must be regained as quickly as possible. In case of TCAS RA the ATC controller must notify the supervisor and units concerned, and keep monitoring the maneuvers of the aircraft. In such a situation the pilot is expected to submit a safety report.

AIRPROX REPORT

Both pilots and controllers have to file special written statements about the near miss incident. A safety report submitted to authorities contain all essential details about the event such as aircraft information, weather conditions, suspected cause and actions taken. Situations of broken intervals are carefully analyzed and investigated to identify casual factors and reduce the risk of occurrence in the future.

Causes of near miss	***Pilot actions in case of TCAS RA***	***ATC actions in case of TCAS RA***
• loss of situational awareness • operational error • misunderstanding • level bust • deviation from the ATC clearance • malfunction of aircraft equipment • high workload • non-standard RTF • readback error	• immediately follow TCAS RA • disregard ATC instructions take an to avoid a collision • take an evasive action • file an air miss report	• acknowledge TCAS RA • notify the supervisor and all concerned • monitor the maneuvers • resume instructions when clear of conflict