AIR TRAFFIC BULLETIN PROCEDURES

A communication from the Director of Policy, Mission Support Services
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*T,*E,*R, F*: Air Traffic Recovery: What, Why, and How?

The Human Performance ATC Controller Recovery Project began in February 2019 to understand better the role human performance plays in recovery from a loss of separation event and to aid in developing tools and coping skills for controllers during such events.

FAA Order JO 3120.4, Air Traffic Technical Training, defines controller recovery as "corrective actions taken or not taken by air traffic control in response to an unsafe situation/outcome in order to return to the correct margin of safety."

Working towards the team's goal of understanding human performance in recovery from a loss of separation event, the Human Performance Team (AJI-342) conducted an in-depth analysis of loss of separation Risk Analysis Events (RAEs).

Let's examine one such event to better understand how challenging controller recovery can be.

Below is a controller statement from an event. Note the impact on the controller when dealing with an unanticipated event:

"I had **N123** in LUAW (Line Up and Wait) on Runway **22** waiting for **N456** to complete a Touch-N-Go on Runway **13R**. While **N456** was on short final for Runway **13R**, a **Helo555** called ready to depart from west side of the airfield. I also had 2 helicopters **(Helo333)/ Helo444**) inbound who were 2 - 2.5 miles out to land**.** I quickly responded to **Helo555** to depart and proceed outbound…**N456** is now upwind Runway **13R** and crossing the intersection of Runway **22).** I tell Aircraft **N456** to continue upwind. I then clear Aircraft **N123** for take-off on Runway **22**. As I'm scanning the runways watching Aircraft **N123** start his departure rotation, I noticed a helicopter going east about to cross the departure end of Runway **22.** I thought that helicopter was **Helo333** which was supposed to land and according to our Letter of Agreement (LOA), would make him restricted west of Runway **22.** Finally, I reached out to **Helo333** and told them to turn base now to land. **Helo333** then responded that they were still 1 mile west**. I then realized my mistake and that the helicopter crossing the departure end was my helicopter outbound Helo555**. I became flustered and a bit panicked and tried to reach out to **Helo555**, but accidentally called them the 3rd helicopter call sign, **Helo444**, adding even more confusion to the whole scenario. At this point, **N123** passes below **Helo555** by maybe 50 to 100 ft. I apologize to **N123** about the close aircraft, he responded that he had the helicopter in sight. I then later reach out to **Helo555** and apologize, and they said it was OK. **N123** did not report an RA, and neither aircraft reported having to take evasive maneuvers."

The controller was busy and had a lot going on; let's take a closer look at some of the human factor elements of this operational scenario.

The controller reports several aircraft in the pattern, which could mean they were experiencing a high workload. Some observations:

- The emphasis on a quick response indicates that the controller may have been experiencing time pressure.
- This error may have occurred due to the high workload and stress (narrowed attention, decreased memory), compounding the workload and stress even more.
- Realization of the error results in an update of how the controller understood the situation.
- Experience of confusion and panic physiologically can result in increased heart rate, sweating, and shaking. Behaviorally, the effects can include memory impairment, communication problems, narrowing of attention, and loss of situational awareness.
- The controller demonstrates the impacts of stress, including memory impairment and communication issues.
- Responding to the unanticipated event using the wrong call sign further increased stress levels and compounded the negative effects of the situation.

RAE analysis identified common/repeated errors that, once identified, helped the team to target and develop coping techniques to aid controllers in the field.

One significant observation directly relating to controller recovery was how panic could result in memory impairment and communication problems; that is, panic from one event that may have been the result of stress (misidentifying Helo555 as Helo333) led to a poor cognitive process that ultimately impacted another situation (calling Helo555 by Helo444's callsign).

The ability of a controller to think and respond quickly and effectively varies from situation to situation and controller to controller. However, from the team's analysis, four ATC Recovery mitigation themes emerged:

- improving the quality of communications
- responding in a measured way
- reducing the impact of distractions
- practicing and training for a response

The analysis also revealed a gap in training and educational resources designed to help air traffic controllers address negative physiological and behavioral responses to unplanned situations/events. By identifying these common themes, the team is able to focus on the development of educational materials and realistic training scenarios that focus on the identified mitigations and specifically address the development of skills such as reducing startle response, remaining calm, staying focused, and prioritizing while eliminating distractions. These activities could help prepare controllers to better respond during stressful situations.

The Human Performance team is working to assist the Agency in preparing individuals to effectively, and safely respond to unplanned situations.

Prepared individuals are more likely to execute the appropriate procedures properly and follow the expected processes during unanticipated events. The team's goal is to increase awareness of the causes and consequences of impaired performance during unplanned incidents and prepare our controllers to maintain their capabilities during such stressful situations.

This effort will also require analyses of Academy, supervisory, and on-the-job controller training. It will involve working with experienced stakeholders such as current and retired air traffic controllers, staff, management officials, and pilots. The team has completed the event analysis portion of the initiative and is currently in the process of collecting and analyzing information provided by aviation focus groups. This analysis will help the team better understand the pilot-controller dynamic during unplanned air traffic events.

In the near future, the Human Performance team will disseminate materials to increase awareness of the negative impacts of unplanned incidents on physiology and behavior and how to mitigate or cope with those effects.

The air traffic scenario at the beginning of this article is an example of a high-workload environment. The stress associated with the event compounded the situation and created a domino effect, with the controller flustered and executing poor decisions.

The Human Performance team can help reduce the chances a non-optimal scenario plays out for you. With proper education and training, controllers can recognize developing situations earlier and be proactive. And, if an unfortunate traffic situation unfolds, the controllers will have the necessary tools to deal with the event safely and effectively.

Reference –
FAA Order JO 3120.4, Air Traffic Technical Training

Article submitted by AJI-3

*T: Aircraft Taxi Speeds

When is an aircraft on landing roll taxiing?

The speed at which an aircraft after landing has become a taxiing aircraft cannot be specifically defined because of many variables that include aircraft types, weight, gear configurations, weather, wind, or surface conditions.

Only the pilot in command (PIC) can determine when the aircraft has reached a safe speed and can maneuver the aircraft for the purpose of taxiing.

14 CFR § 91.13 Careless or reckless operation, (b) Aircraft operations other than for the purpose of air navigation. No person may operate an aircraft, other than for the purpose of air navigation, on any part of the surface of an airport used by aircraft for air commerce (including areas used by those aircraft for receiving or discharging persons or cargo), in a careless or reckless manner so as to endanger the life or property of another.

When exiting a runway or operating on a taxiway, controllers should not expect an aircraft's speed to exceed that of a person jogging. Pilots also consider the stress on the landing gear and tires when making turns and may opt to use a slower-than-normal taxi speed in low visibility, at night, or when facing the sun. When taxiing on a ramp, pilots are generally taught to maintain a speed no faster than that of a brisk walk.

Equipment such as ASDE-X, ADS-B Airport Surface Surveillance Capability (ASSC), and Runway Status Lights (RWSL) incorporate safety logic that can activate or deactivate features based on aircraft movement and speed. However, these do not indicate whether an aircraft has reached a safe taxi speed after landing.

Controllers must confirm the pilot will comply with taxi or runway exiting instructions before issuing instructions to other aircraft that are dependent upon compliance of the landing aircraft.

REFERENCE−

FAA Order JO 7110.65, Para 3-9-8b.2, Intersecting Runway/Intersecting Flighty Path Operations
FAA Order JO 7110.65, Para 3-9-9a.2, Nonintersecting Converging Runway Operations
FAA Order JO 7110.65, Para 3-10a.2, Intersecting Runway/Intersecting Flight Path Separation

*T,*E,*R, F*: Aircraft Speed (Below 10,000') Clarification FAR 91.117 and 7110.65AA

Flight Standards has received several reports involving pilot requests and controller assignments of aircraft speed. The reports indicate a lack of continuity between pilots and controllers regarding the pilot's need to meet the aircraft requirements of the manufacturer's operational manual. The following information may be helpful.

Scenario: Pilot requests to maintain a speed greater than 250 kt below 10,000 ft MSL.

A pilot flying a F/A18 Hornet departing XYZ airport climbing through 7,000 ft MSL requests to exceed 250 kt for a safe efficient climb and wing configuration. For clarification on this request, we need to look at the Code of Federal Regulations (CFR) 91.117 and FAA Order JO 7110.65, Air Traffic Control, for guidance. Looking at both regulations, we can see the rules are clear on how to handle this situation.

FAR 91.117 Aircraft Speed, (a), (c), (d)

(a) Unless otherwise authorized by the Administrator, no person may operate an aircraft below 10,000 feet MSL at an indicated airspeed of more than 250 knots (288 m.p.h.).
(c) No person may operate an aircraft in the airspace underlying a Class B airspace area designated for an airport or in a VFR corridor designated through such a Class B airspace area, at an indicated airspeed of more than 200 knots (230 mph).
(d) If the minimum safe airspeed for any particular operation is greater than the maximum speed prescribed in this section, the aircraft may be operated at that minimum speed.

FAA Order JO 7110.65 5−7−2. METHODS (a)- Ref: Note line item (1)

NOTE−

1. *A pilot operating at or above 10,000 feet MSL on an assigned speed adjustment greater than 250 knots is expected to comply with 14 CFR Section 91.117(a) when cleared below 10,000 feet*

MSL, within domestic airspace, without notifying ATC. Pilots are expected to comply with the other provisions of 14 CFR Section 91.117 without notification.

REFERENCE–
FAA Order JO 7110.65 5-7-2. METHODS (e) Speed adjustments. Ref: Note-Line items (1), (2), (3)

Summary:
In the above scenario, the controller needs to acknowledge the pilot's requested speed requirement. The controller must not deny this type of request, nor interfere with the pilot's authority to configure the aircraft for the safety of flight in accordance with the manufacturer's operations manual. To reiterate, air traffic controllers are not authorized to approve or deny requests to exceed either the 250-knot or the 200-knot limits.

The Air Traffic Procedures Bulletin (ATPB) is a means for headquarters to remind field facilities of the proper application of procedures and other instructions. It is published and distributed on an as-needed basis.

Articles must be submitted electronically in Microsoft® Word by the office of primary responsibility with approval at the group level or above. Articles may be submitted throughout the year.

*In this publication, the option(s) for which a briefing is required, is indicated by an asterisk followed by one or more letter designators, i. e., *T-Tower, *E-ARTCC, *R-TRACON, or *F-FSS.*

For additional information concerning the ATPB, reference FAA Order JO 7210.3, Facility Operation and Administration, paragraph 2-2-9.

Archived ATPB issues are available online: https://www.faa.gov/air_traffic/publications/