Runway Safety

2014/07/01-054 (I) PP

Abstract: Lasting 15 to 25 minutes, this presentation offers suggestions for runway incursion prevention

Format: Information Briefing - Power Point presentation

Required Personnel – FAASTeam Program Manager or designated FAASTeam Rep (s)

Optional Personnel – CFIs and DPEs who can speak on strategies to prevent runway incursions.

AFS 850 Support:

In addition to this guidance document, a Power Point presentation that supports the program is provided. FPMs and presenters are encouraged to customize this presentation to reflect each individual program.

Appendix I – Equipment and Staging

Equipment:

- Projection Screen & Video Projector suitable for expected audience

    - o   Remote computer/projector control available at lectern or presenter location

        - §   In lieu of remote – detail a Rep to computer/projector control.

- Presentation Computer

    - o   **Note:** It is strongly suggested that the entire program reside on this computer.

- Back up Projector/Computer/Media as available.

- PA system suitable for expected audience

    - o   Microphones for Moderator and Panel

        - §   Optional Microphone (s) for audience
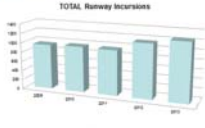
- Lectern (optional)

Staging:

- Arrange the projection screen for maximum visibility from the audience.

- Equip with PA microphones
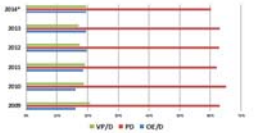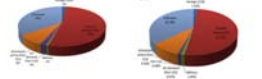
- Place Lectern to one side of screen. This will be used by presenters and moderator

Slides	Script
FAAST Runway Safety Training Proper Planning Promotes Safer Ground Operations Presented to: <Audience> By: <Presenter> Date: « »	**Slide 1** **Presentation Note:** *This is the title slide for FAAST Runway Safety Training.* *Presentation notes (stage direction and presentation suggestions) will be preceded by a Bold header:* *the notes themselves will be in Italic fonts.* ***Program control instructions*** *will be in bold fonts and look like this:* **(Click)** *for building information within a slide; or this:* **(Next Slide)** *for slide advance.* *Some slides contain background information that supports the concepts presented in the program.* *Background information will always appear last and will be preceded by a bold Background***:** *identification.* *We have included a script of suggested dialog with each slide. Presenters may read the script or modify it to suit their own presentation style.* *The production team hopes you and your audience will enjoy the show. Break a leg!* **(Next Slide)**

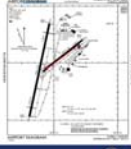|	
Welcome • Exits • Restrooms • Emergency Evacuation • Breaks • Sponsor Acknowledgement	**Slide 2** If you have any additional introductory points you can add them here. **(Next Slide)**
Introduction • Everybody *knows* Runway Safety is critical. • Everybody *talks* about safe ground operations. • Everybody *emphasizes* Runway Safety.	**Slide 3** Runway Safety is a "hot topic" in the aviation industry. All pilots, controllers and vehicle operators know and are taught the importance of safe ground operations. Ground operations place aircraft and occupants at the closest point to other aircraft and vehicles during any flight. Everybody **_knows_** that Runway Safety is critical. Everybody **_talks_** about safe ground operations. Everybody **_emphasizes runway_** safety. **(Next Slide)**
Introduction BUT	**Slide 4** •1 But, how are we doing **individually** as pilots, air traffic controllers and vehicle operators? **(Next Slide)**

	Slide 5 **WE NEED TO IMPROVE!** **If EVERYBODY knows, talks and emphasizes Runway Safety, WHY did we have 951 Runway Incursions in Fiscal Year (FY) 2009; 966 in FY2010; 954 in FY2011; 1150 in FY 2012?** **In FY2013 there were 1241 runway incursions; that means an average of 3.4 runway incursions each day! This makes the number more sobering.** **We Individual pilots, controllers and vehicle operators must not know, talk about or emphasize what Everybody does!** **This module is to help you improve safety as you navigate around airports.** **(Next Slide)**
	Slide 6 What is a runway incursion? "In accordance with the current edition of Federal Aviation Administration (FAA) Order 7050.1, Runway Safety Program, the definition of a runway incursion is, any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle, or person on the protected area of a surface designated for the landing and takeoff of aircraft." (Next Slide)

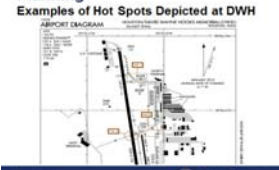|	
Introduction Distribution of Runway Incursion Types 	**Slide 7** This slide breaks the Runway Incursions down for years 2009 through 2014 into three categories: **Vehicle Operators, Pilot Deviations and ATC Errors.** **Two things should readily stand out in this graphic presentation.** **First,** it is readily apparent that pilots make the largest number of mistakes resulting in Runway Incursions. **Secondly,** notice that the percentages for each group each year is almost the same. It doesn't change. We all ask: "Why?" No one has produced the answer yet. Even looking at 2014 which is not a complete year, we are making mistakes at the same rate! ***The FY2014 statistics are as of June 2014.** (Next Slide)
Introduction Pilot Deviations resulting in Runway Incursions by Type Operation 	**Slide 8** This slide shows an analysis of two **years of pilot deviations by type operation - FY2012 and FY2013.** **Historically, General Aviation pilots make the most mistakes resulting in Runway Incursions.** There are possible reasons, but the reasons can't become an excuse. The purpose of this module is to suggest mitigations to potentially make your ground operations safer. Some extenuating circumstances/reasons:

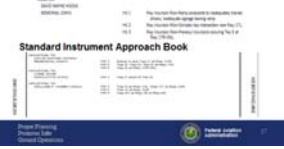|	
	• 1 Single pilot as opposed to crew aircraft; • 2 An airline pilot sits higher above the taxiway surface and therefore has a better view; • 3 More proficient; • 4 Fly to the same airports on a repeated basis. So, a GA single pilot must make up for these disadvantages in some manner. **Better and more thorough planning is one way to level the playing field.** **(Next Slide)**
What we will discuss • What can we as General Aviation pilots do to reduce our Runway Incursion numbers? • Using a sample flight from Key Field Airport, Meridian, Mississippi (KMEI) to David Wayne Hooks Memorial Airport (KDWH), Houston, Texas • We will present techniques all can use to promote safe ground operations.	**Slide 9** What can General Aviation Pilots do to reduce the number of Runway Incursions? Again! One is **better planning**! Stay alert and focus on what we are doing. We'll use an example flight from Key Field Airport, Meridian, Mississippi to David Wayne Hooks Memorial Airport in Houston, Texas. The weather in our example is not an issue but poor visibility and night exacerbates the pilot's problems and must be considered when planning ground operations. We will present techniques pilots can use to plan their ground operations and increase their safety while operating on the Airport Movement Area. **(Next Slide)**

Planning • For Single Pilot Operations Review AC 91-73B • For Crewed Operations Review AC 120-74B	**Slide 10** As part of your personal pilot education program, review and adapt applicable portions of *Advisory Circular 91-73B - Parts 91 and 135 Single Pilot, Flight School Procedures During Taxi Operations*. Review *AC 120-74B - Parts 91, 121, 125, and 135 Flight crew Procedures During Taxi Operations* if you operate in a crew aircraft. Each of these Advisory Circulars has excellent hints you can adapt to your individual piloting situation. **(Next Slide)**

Planning
• Plan your ground taxi route the same as your flight operations.
• Get the big picture – departure and arrival airports.
• Start with the Airport Diagram.
• Take the time to ask yourself questions:
  1. Where am I located on the airport?
  2. What are the winds? This indicates the most probable runway.
  3. Are there Hot Spots?
  4. Are there hazards to avoid?
  5. Are there Hot Spots?
  6. Visualize your expected taxi route.
	Slide 11
	
	We all do a pretty good job of flight planning: route, weather, fuel NOTAMS. How many people spend significant time making a detailed plan for their taxi routes from the ramp to the departure runway and from the landing runway to the parking ramp?
	
	Pilots – use the same sequence developing taxi routes as the actual flight plans. Follow a logical sequence of steps to plan the taxi route. Make a personal checklist for taxi planning. One airline has a Departure Briefing Guide printed on their cockpit checklist with items deemed most important to consider and brief.
	
	Step 1: Get the big picture. Review the Airport Diagram with your location in mind. Just like the weather synopsis shows the overall weather for your route of flight; determine where your aircraft is parked on the airport surface.

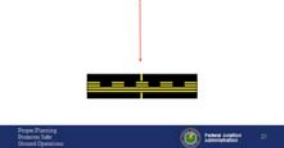|	
	Step 2: If available, listen to the ATIS for winds and active runway.
	Step 3: Monitor Ground Control and listen for taxi instructions to other aircraft. Make a mental picture of what to expect.
	Step 4: Are there hazards to be aware of – Hot spots, construction, airport geometry, non-standard position of runway hold lines, NOTAMS.
	Step 5: Review the Airport Diagram – AGAIN – visualize the expected route based on the ATIS or Ground Control instructions you've heard, NOTAMS and your knowledge of airport geometry issues.. Most commercial operators require crews to brief their expected departure taxi routes before moving the aircraft. Think it through before you move!
	See **Advisory Circular 91-73B or AC 120-74B** for more details.
	(Next Slide)
	<u>Slide 12</u> • 1 This slide represents one example from Skyvector.com. • 2 There may be other places pilots can go to see pictures of airports and develop a better "Big Picture." • 3 Visualize your expected route of taxi. **(Next Slide)**

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Planning Get the Big Picture – Plan your taxi route	**Slide 13** Remain aware that once in the aircraft moving along a taxiway the visual picture you may see will appear different than the picture you saw during planning on the website or the Airport Diagram. Have the Airport Diagram out in front of you in view for ready reference. If in doubt about your route or where you are, **STOP!** Don't be embarrassed to ask questions of the controller. It's OK to ask for directions! Ask for progressive taxi instructions if you are not familiar with the airport or route of taxi that has been assigned. There is no STIGMA ATTACHED TO ASKING FOR CLARIFICATION OR ***PROGRESSIVE TAXI!*** **(Click)**
Planning What is a Runway Safety Hot Spot? FAA's *Focus on Hot Spots Brochure* defines "A 'hot spot' is a runway safety related problem area or intersection on an airport." Hot spots are shown in two ways: 1. Airport Diagrams - graphically 2. Textually in Airport/Facility Directory (A/FD) and Instrument Approach books	**Slide 14** 1. Typically, it is a complex or confusing taxiway/taxiway or taxiway/runway Intersection. 2. A confusing condition may be compounded by a miscommunication between a controller and a pilot, and may cause an aircraft separation standard to be compromised. 3. The area may have a history of surface incidents or the potential for surface incidents.

	This may be due to any mix of causes:
	
	• *Airport geometry*
	
	• *Ground traffic flow*
	
	• *Markings, signage, or lighting*
	
	• *Human factors.*
	
	Hot Spots for an airport can be found in three places:
	
	   1. *Airport Diagrams – graphically*
	
	   2. *Airport/Facility Directory (A/FD) textually*
	
	   3. *Instrument Approach books textually.*
	
	(Next Slide)

Planning • Do the same process for the arrival airport. • Know where you will park.	<u>**Slide 15**</u> Do the same process of planning for your arrival airport. Usually, **at cruise when not too busy or a low threat environment** while reviewing the approach, look at the Airport Diagram. Use the forecast winds or actual winds from ATIS and determine the probable runway. Visualize the taxi route from the runway to the ramp you think you will receive. Find out where the FBO you will use is located on the airport. If you call to make sure there is parking for your stay, arrange servicing or rent a car, ask the location on the airport. **AirNav.com,** in this example, is one website that provides

	a graphic display of FBO locations on airports. This information may only be available for airports with more than one FBO. Using this information pilots can determine an expected taxi route from the runway to the ramp. Locate the FBO on the Airport Diagram. ***Have the Airport Diagram out and in view for quick reference after landing!*** If unfamiliar or unsure, ask for clarification or ***PROGRESSIVE TAXI!*** ***Don't be shy about asking for help!!!*** (Next Slide)
 Planning Examples of Hot Spots Depicted at DWH	**Slide 16** DWH historically has a high incidence of Runway Incursions. Looking at the Airport Diagrams we see possible reasons. **There is not much distance on Taxiway Echo between the runways.** For a pilot exiting 17R or 35L going to the East Ramp, it would be very easy to have a runway incursion if not cognizant of the hazard and ready because of you planning. REMEMBER – AIRPORT GEOMETRY IS ONE OF THE HAZARDS CONTRIBUTING TO RUNWAY INCURSIONS AND PILOTS SHOULD LOOK FOR AND BE READY FOR THEM!

	(Next Slide)
	Slide 17 Textual Examples of Hot Spots at DWH. I THINK IT IS EASY TO SEE "A PICTURE IS WORTH A THOUSAND WORDS." **(Next Slide)**
	Slide 18 At the airports you use are there areas of Airport Geometry that could cause you to make a mistake? If this type pattern exists, use caution. **Always STAY ALERT when conducting ground operations!** **(Next Slide)**
	Slide 19 Another example of a potentially confusing taxiway pattern. What will this look like from the cockpit of your aircraft? **(Next Slide)**
	Slide 20 Even after all the proper planning, CAUTION must be exercised when you actually start moving the aircraft. There is a human error that is found in aviation called

	EXPECTATION BIAS. **MAKE SURE TO DISTINGUISH THE TAXI INSTRUCTIONS YOU'VE BEEN ASSIGNED WITH WHAT YOU'VE PLANNED!** **FOLLOW THE TAXI ROUTE ASSIGNED! IT _COULD_ BE DIFFERENT!** **Always have the Airport Diagram in view for reference.** **(Next Slide)**
Planning • We are all concerned with the high cost of flying and saving where we can. • But. . . . • If you use a GPS Navigator, completely program the system before initial aircraft movement to increase your chances of safe ground operations. • Here is Why?	**Slide 21** Flying is expensive! We all want to reduce our costs as much as possible. Programming the GPS while taxiing may only provide us false economy. Programming the GPS Navigator while taxiing is not only a poor piloting technique, studies have shown the risk is not worth the reward. Saving a few seconds does not equal the cost of a violation or aircraft damage! In a recent AOPA Course, they provided us with some numbers as examples. **(Next Slide)**
Planning False Economy	**Slide 22** These statistics are from the AOPA Ground Safety Course. Is the **Reward** worth the _RISK?_ **(Next Slide)**

Planning • Only perform checklists away from other aircraft and runways. • Have the Airport Diagram in view.	**Slide 23** Perform checklists away from other aircraft and runways. **Always have the Airport Diagram in view for reference.** THERE IS AN EXCELLENT CHANCE THAT BOTH AIRLINE PILOTS YOU MAY BE SHARING THE TAXIWAY WITH HAVE THE AIRPORT DIAGRAM OUT AND IN VIEW! **We fly with a chart in view. Why would we not have the Airport Diagram available for quick reference?** **The End**
Remember! When Departing, Do Not Cross This Taxiway Marking or Pass This Sign Without A Clearance! 4-22	**Slide 24** When departing, do not cross this taxiway marking or pass this sign without a clearance. Also now you must receive a specific clearance to cross any runway. **If not sure, DO NOT CROSS!!!** **(Next Slide)**
Remember! When Arriving – Taxi Clear of This Taxiway Marking to Completely Clear the Runway!	**Slide 25** After landing taxi past this taxiway marking to completely clear the runway. **(Next Slide)**

Questions?	**Slide 26** We have covered some of the areas pilots should consider to properly plan ground operations and conduct incident free safe operations. There are others! You may have your own techniques that may be even better. Share them with your fellow pilots. Most importantly, continue to study and always be alert when conducting ground operations. Finally, do not be timid about asking for clarification or Progressive Taxi Instructions. I'll show a list of runway incursion resources while I take questions from the audience. **(Next Slide)**
Runway Safety Resources for Pilots • FAASTeam Runway Safety Training Program and Presenter Notes • AC 91-73B – Single Pilot and Flight School Procedures During Taxi Operation • AC 120-74B – Flight Crew Procedures During Taxi Operations • FAA-H-8083 – 3A - Airplane Flying Handbook • FAA-H-8083 – 25A Pilot's Handbook of Aeronautical Knowledge • http://www.faa.gov/airports/runway_safety/	**Slide 27** Here are some runway safety resources for Pilots. **(Next Slide)**
FAAST Runway Safety Training Proper Planning Promotes Safer Ground Operations Presented to: <Audience> By: <Presenter> Date: < >	**Slide 28** **(The End)**