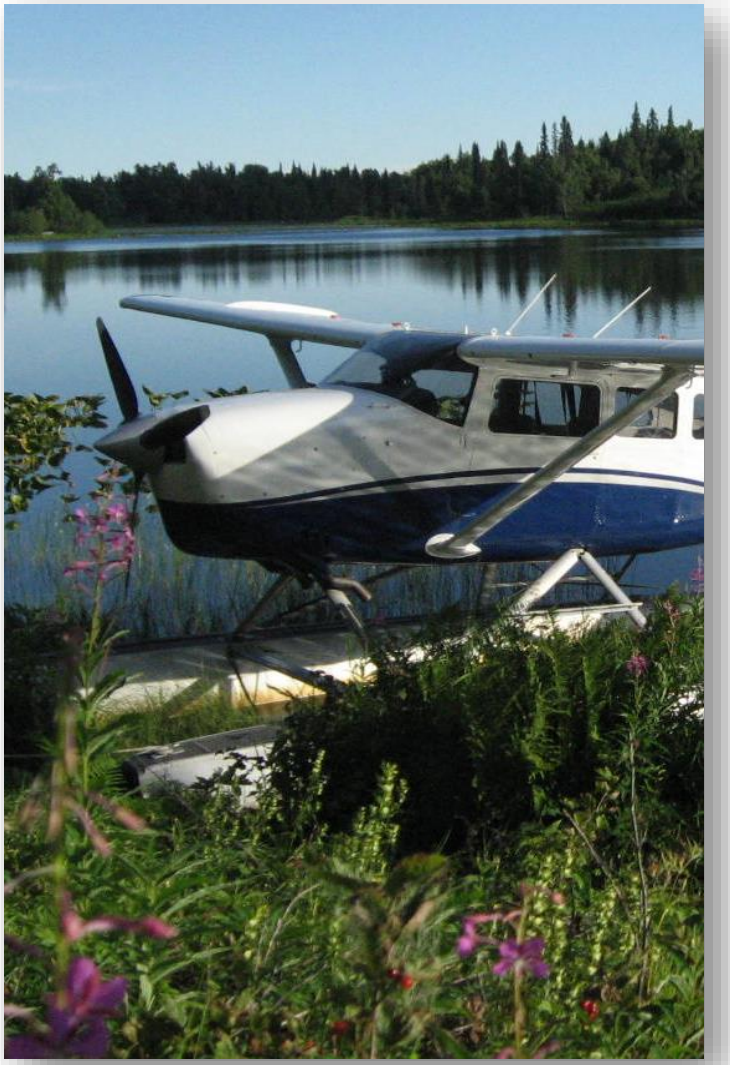
Beyond the Preflight

Federal Aviation Administration

Preflight from an AMT'S Perspective



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Produced by AFS-850
The FAA Safety Team (FAASTeam)

Objective

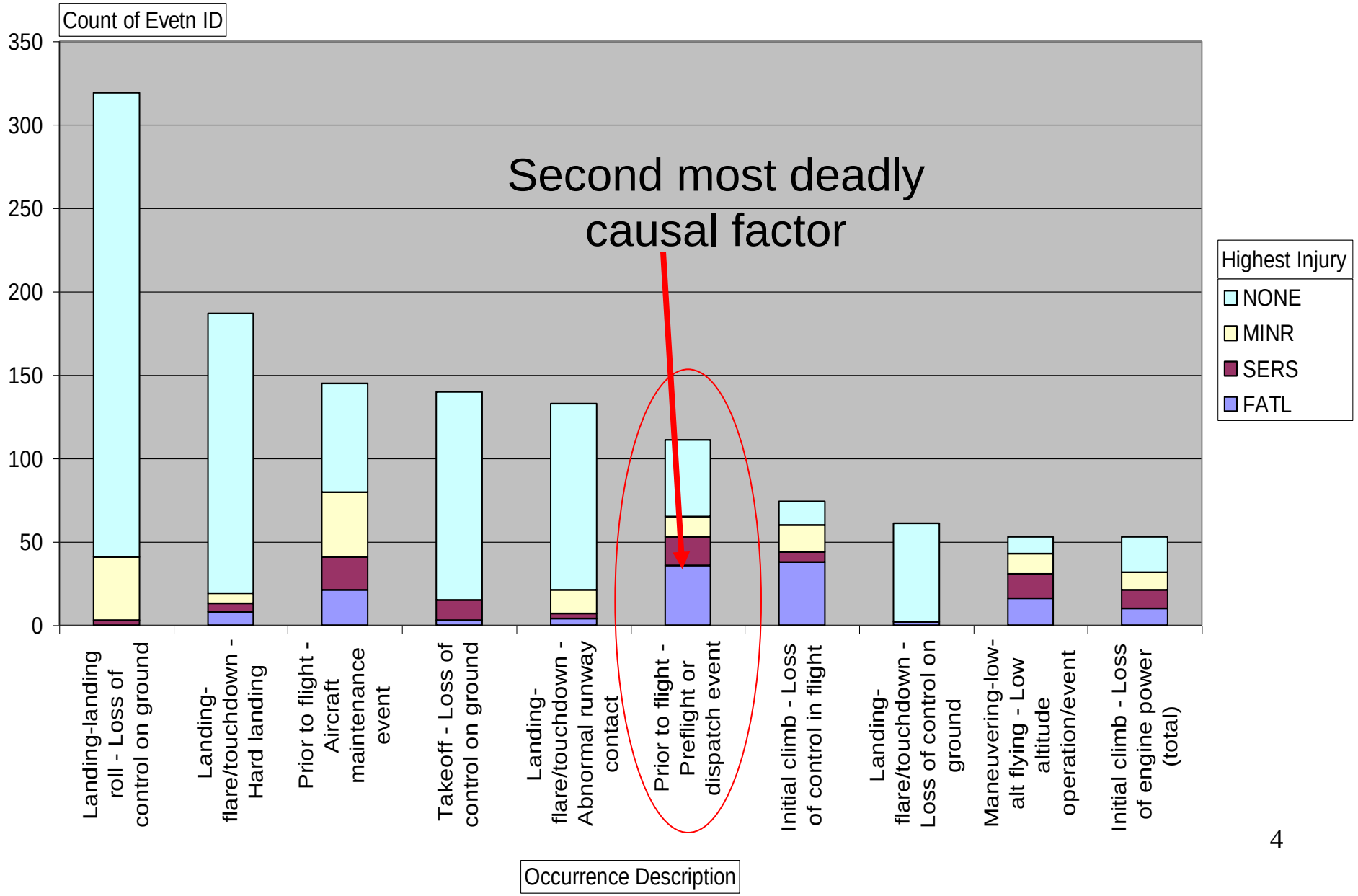
Highlight methods of pre-flighting an aircraft while emphasizing additional techniques

Purpose

- **Help to reduce the risk of an accident and save lives**

- **Increase pilots' knowledge about the aircraft they operate**

NTSB Accident Causal Chart



Before Arriving at the Aircraft

Conduct an Aircraft Records Review to determine the following items:

- **Inspection time and/or date requirements**
- **Airworthiness Directive compliance information**
- **STC's applied to the aircraft and their function**
- **Major Repairs and Alterations complied with**
- **Confirm Mechanic Certifications held**

Aircraft Records include

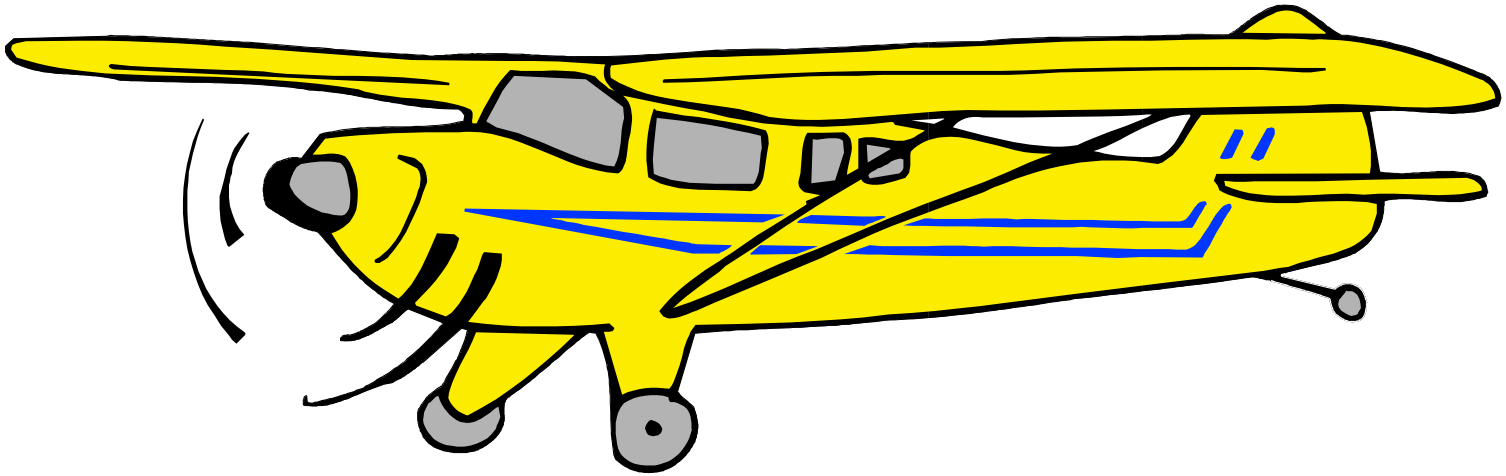
- Airframe Records (to include weight and balance)
- Powerplant Records
- Propeller Records
- Accessories/Appliances
- FAA Form 337's (These forms contain information on Major Repair and Alterations conducted on the aircraft.)

Additional Inspection Items

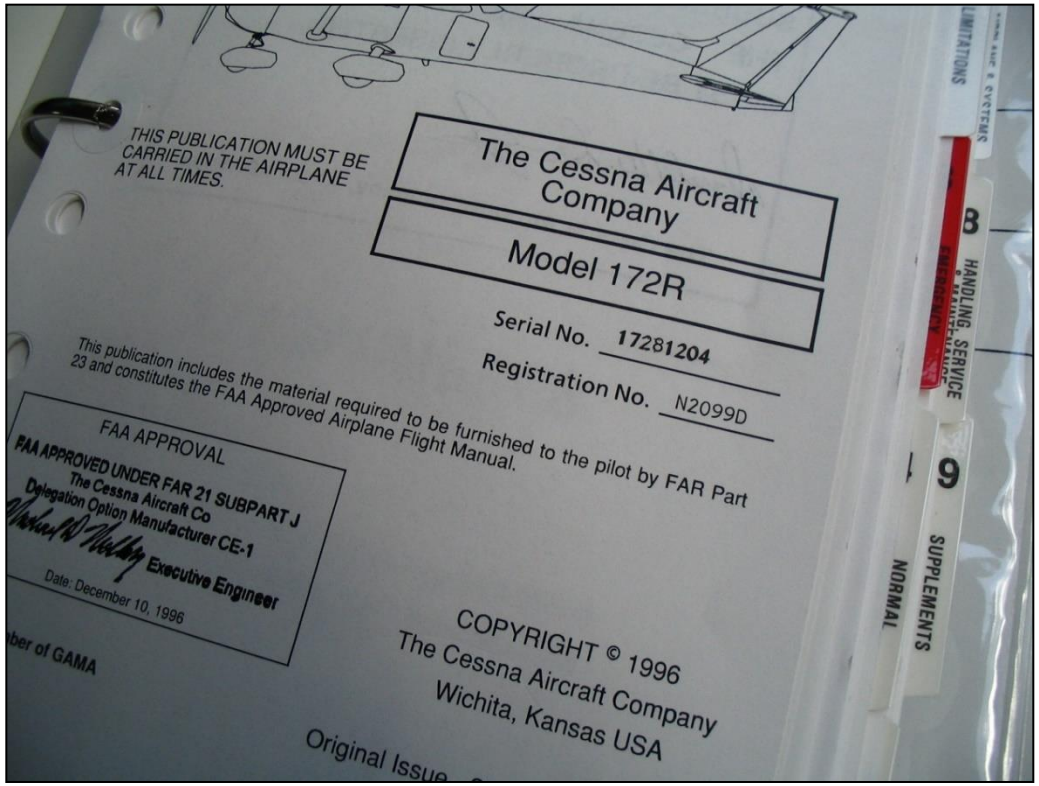
- **Using the information discovered from your records review, include these additional items to the preflight inspection checklist**
- **Using this information will allow you to conduct a thorough preflight**

At the Aircraft

- **Always use your preflight checklist**
- **Approaching the aircraft with additional knowledge will reduce your risk of an accident**



Checklist usage is imperative, but your eyes, hands, and attention to detail are critical to a pre-flight inspection

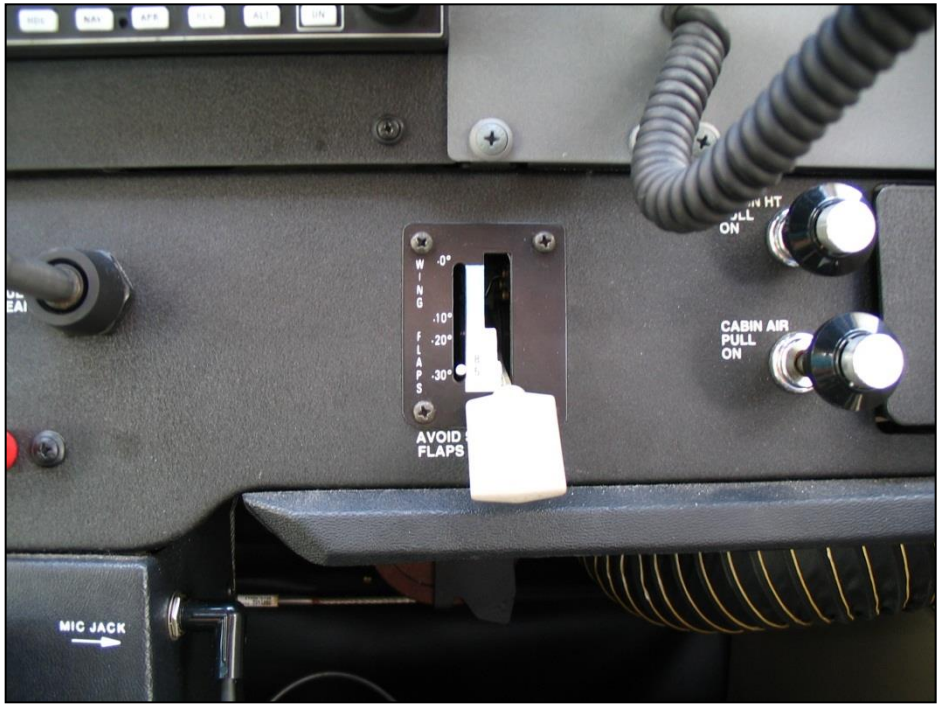


Pre-flight Inspection Techniques

- While inspecting your fuel for water and other contaminants, never hold strainer up to a blue sky
- At quick glance your mind will see what you want to see

Pre-flight Inspection Techniques

- Inspect for proper Flap travel.
- Always listen and watch for proper operation

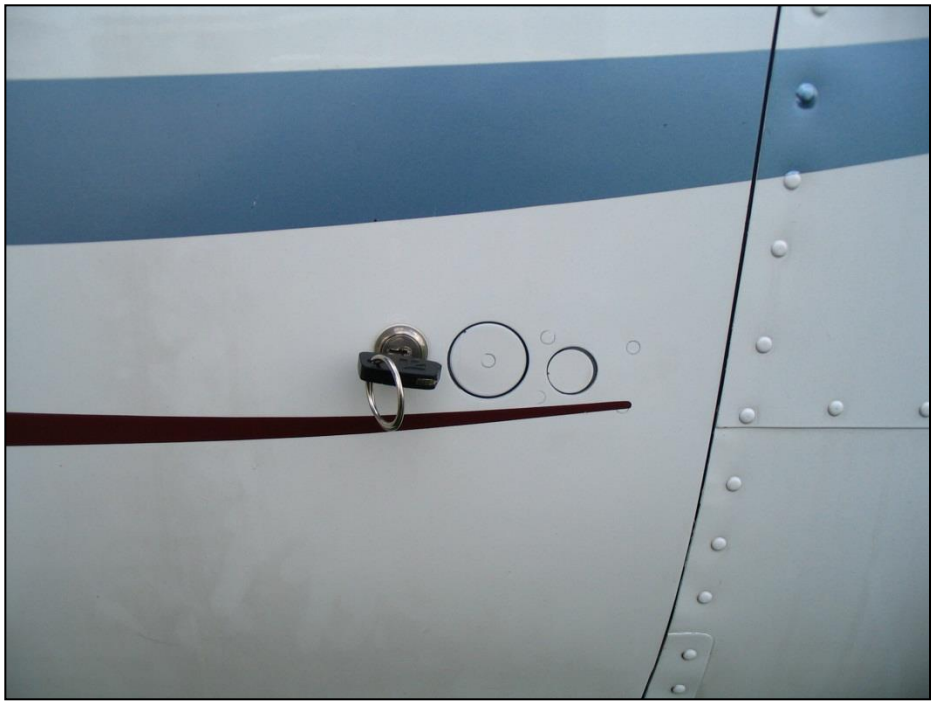


Pre-flight Inspection Techniques

- If equipped, check Pitot Heat for proper operation
- Check for clogged pitot tube and static ports

Pre-flight Inspection Techniques

Check cargo doors – closed properly and locked if appropriate

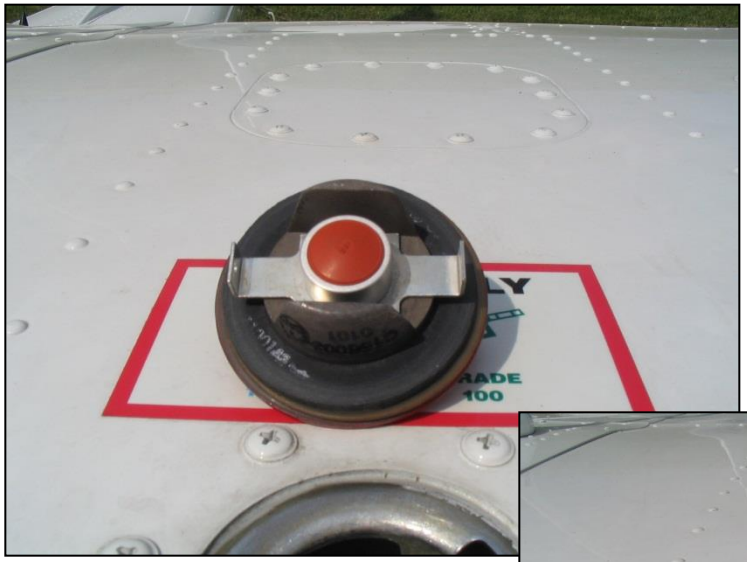


Pre-flight Inspection Techniques

Inspect for loose or “smoking” rivet heads

Pre-flight Inspection Techniques

Inspect fuel cap seals and latching mechanisms



Inspect closed installation of fuel caps

Pre-flight Inspection Techniques

Apply pressure to all flight controls. Try to move up, down, and forward and aft

- **If unusual movement or sound is detected please ask for the assistance of an AMT**
- **You can judge free play in the controls by comparing the left and right sides**

Pre-flight Inspection Techniques

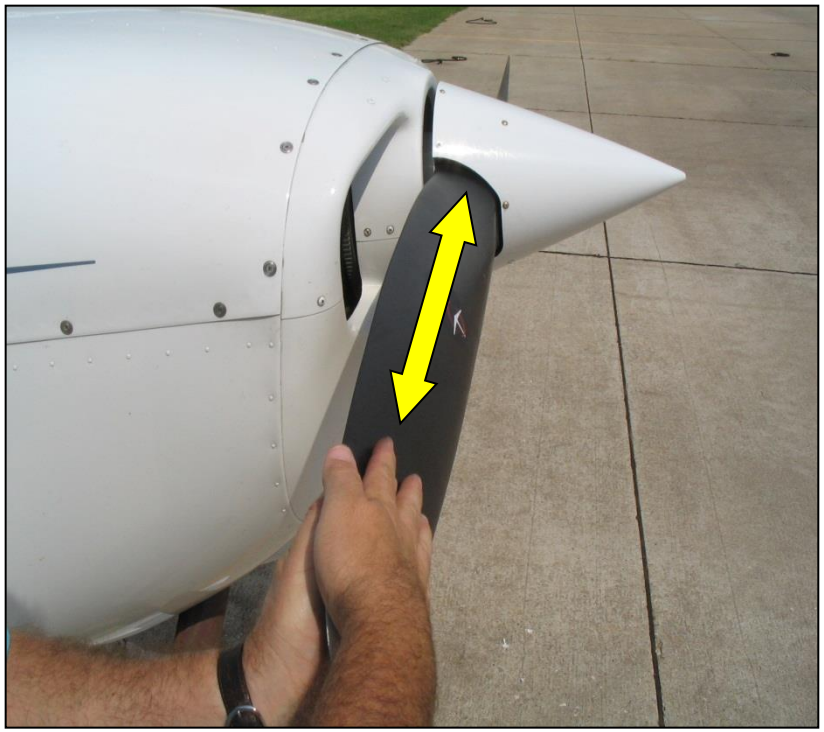
- While inspecting the spinner and bulkhead, move the spinner up and down and listen for abnormal noise (popping)
- This could indicate a broken spinner bulkhead

Pre-flight Inspection Techniques

- Apply forward and aft pressure to the propeller
- There should be no blade movement on a fixed pitch prop
- If inspecting a constant speed prop, some movement may be detected
- However, consult with an AMT to determine if the movement is in excess of the manufacturer's limits

Pre-flight Inspection Techniques

- **Place your hands on the front and back of the prop blades**
- **You should feel a smooth transition from hub to the tip**
- **If you feel any abnormal bumps in the blade, bring it to the attention of an AMT before flight**



Pre-flight Inspection Techniques

- Use caution around hot items
- Check items for looseness and security
- If irregularities are found, ask an AMT for assistance before flight

Pre-flight Inspection Techniques

Pre-flight inspections are your last opportunity to determine that the aircraft is in a safe operational condition

Pre-flight Inspection Techniques

- Check the security of aircraft structures
- If they have movement on the ground, they will have excessive movement in flight
- When in question, ask an AMT before flight

Check condition of emergency equipment

- Fire Extinguisher
- First Aid
- Flashlight
- Etc…

Pre-flight Inspection Techniques

- **Check flight control trims for freedom of movement and proper direction of travel**
- **Always listen and watch for proper operation**

Pre-flight Inspection Techniques

Rotate Fuel Selector:

- **Check for freedom of movement**
- **Check for proper direction and travel**
- **To all positions and check for smooth operation and positive detents**

In Summary

We hope this presentation has increased your knowledge of a pre-flight inspection. Applying the basic techniques learned in the presentation will reduce your risk of an accident

Pilot Personal Minimums Worksheet

Step 4: Assemble and evaluate baseline personal minimums.

Baseline Personal Minimums					
Weather Condition		VFR	MVFR	IFR	LIFR
Ceiling					
	Day				
	Night				
Visibility					
	Day				
	Night				
Turbulence		SE	ME	Make/Model	
	Surface Wind Speed				
	Surface Wind Gust				
	Crosswind Component				
Performance		SE	ME	Make/Model	
	Shortest runway				
	Highest terrain				
	Highest density altitude				

Step 5: Adjust for specific conditions.

	If you are facing:		Adjust baseline personal minimums to:
Pilot	Illness, medication, stress, or fatigue; lack of currency (e.g., haven't flown for several weeks)	Add	*At least* 500 feet to ceiling
			At least ½ mile to visibility
Aircraft	An unfamiliar airplane, or an aircraft with unfamiliar avionics/ equipment:		*At least* 500 ft to runway length
enVIronment	Airports and airspace with different terrain or unfamiliar characteristics	Subtract	*At least* 5 knots from winds
External Pressures	"Must meet" deadlines, passenger pressures; etc.		

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Federal Aviation Administration

Developing *Personal* Minimums

Think of personal minimums as the human factors equivalent of reserve fuel. Personal minimums should provide a solid safety buffer between:

- *Skills required* for the specific flight, and
- *Skills available* to you through your training, experience, currency, and proficiency.

Step 1 – Review Weather Minimums

Step 2 – Assess Weather Experience and Personal Comfort Level

Step 3 – Consider Winds and Performance

Step 4 – Assemble Baseline Values

Step 5 – Adjust for Specific Conditions

Step 6 – Stick to the Plan!

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Safety Management Systems (SMS) Coming to General Aviation

Safety Management System (SMS) | Federal Aviation Administration (faa.gov)

Thank You and Be Safe!

Safety Is Not Expensive

It's Priceless!

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Questions?

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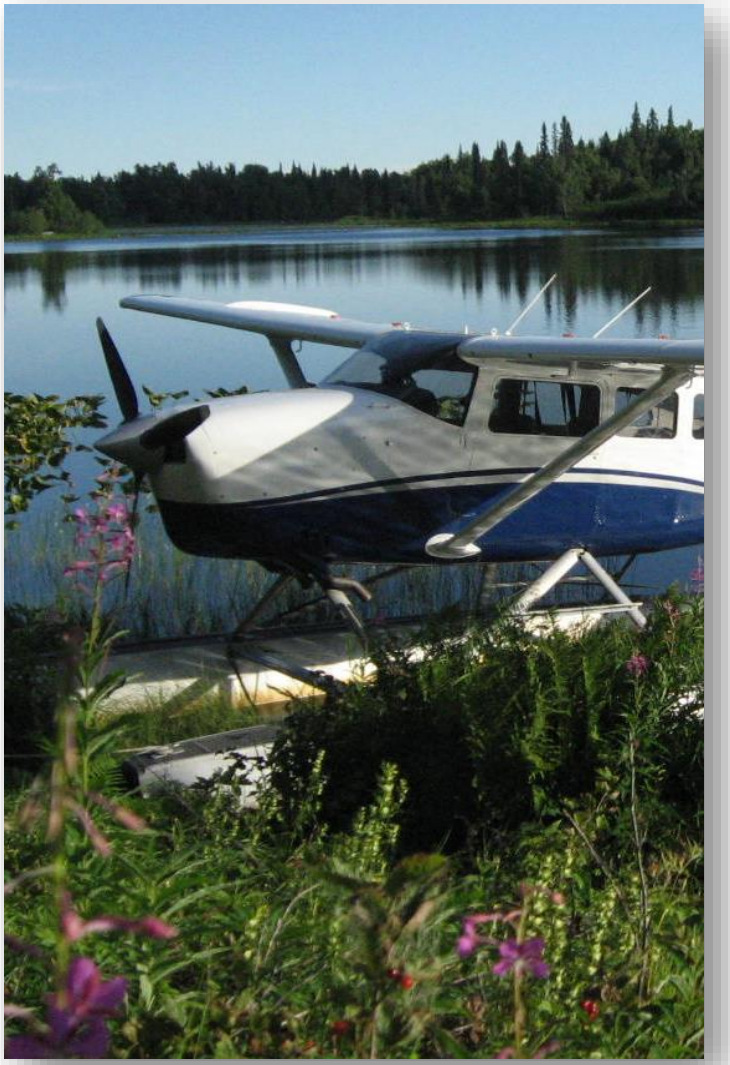

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