NOAA Aviation Safety

NOAA

Office of Marine
And
Aviation Operations

Basic Aviation Safety
And Survival





General Overview

While the use of Aviation in the course of our jobs can be very rewarding, it comes with its own set of risks.

Aircraft are inanimate objects that do not tolerate complacency nor lack of training.

Preflight Prep

- Avoid gas producing foods. The U.S. Army has restricted issue of the “Beene-Weenies” combat meal to ground personnel only. The gas produced by this food may cause problems for Aircrew as they climb up into the low pressure regions of the atmosphere.

- Avoid drinking a lot of fluid before the flight. Most small aircraft do not have the facilities to accommodate “Pit Stops” after take-off. Differences in pressure altitude, vibration and the movement of the aircraft can all act to intensify the need for relief.

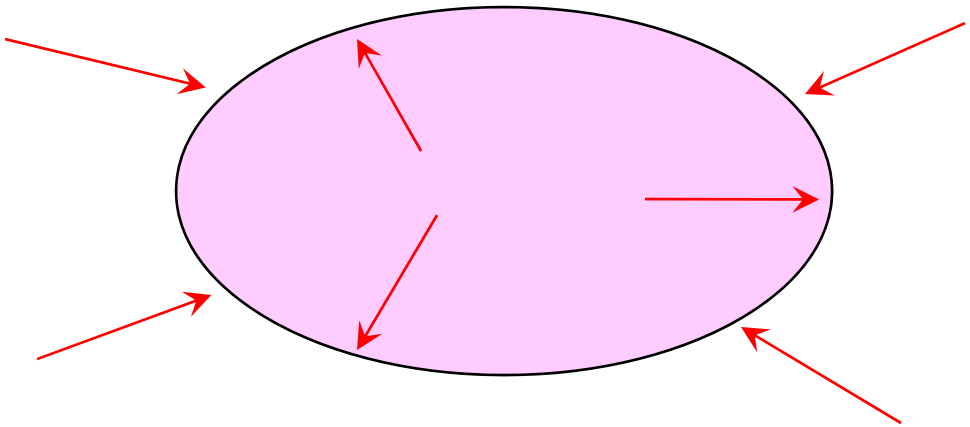




Required Training

- Over water Survival
- Cold Water Survival
- Cold Weather Survival

Physical Condition



- Nasal congestion, ear infections and other conditions which restrict the equalization of pressure or contain trapped fluid will be affected by the changes in pressure altitude.

- A good general rule to follow is not to fly if you must depend on the medication to keep the flight safe. In other words, if the untreated condition is one that would prevent safe flying, then you shouldn't fly until the condition improves — whether you take the medication or not.







Common side-effects of frequently used medications

If you must take over-the-counter medications:

- Read and follow the label directions.
- If the label warns of significant side effects, do not fly after taking the medication until at least two dosing intervals have passed. For example, if the directions say to take the medication every 6 hours, wait until at least 12 hours after the last dose to fly.
- Remember that you should not fly if the underlying condition that you are treating would make you unsafe if the medication fails to work.
- Never fly after taking a new medication for the first time.
- As with alcohol, medications may impair your ability to perform your assigned in-flight duties—even though you feel fine.
- If you have questions about a medication, ask your aviation medical examiner.
- When in doubt, don't fly.

Prescription Medicine

- Ask your Doctor if:
  - Your condition will be aggravated by the effects of flying.
  - Your prescribed medicines will effect your abilities to operate required equipment or focus on your assigned airborne mission.
  - Your Prescription has side effects that could cause a hazardous condition if they occurred during flight.

Arrival at Airport

- Airport Security
  - Controlled access Vs Uncontrolled





Airport Operations

- Aircraft parking and Ramp areas

Ramp Safety

- Aircraft danger zones

Ramp Safety

✈ Runway danger zones





Aircraft Operations

- Uncontrolled runways

Aircraft will land into the wind!

Airplane Danger Zones

- Propeller(s)
- Gage/vent tubes.
- Aircraft control surfaces





Floatplane Danger Zones

- Propeller
- Rudders
- Control Surfaces
- Ropes and tie-downs

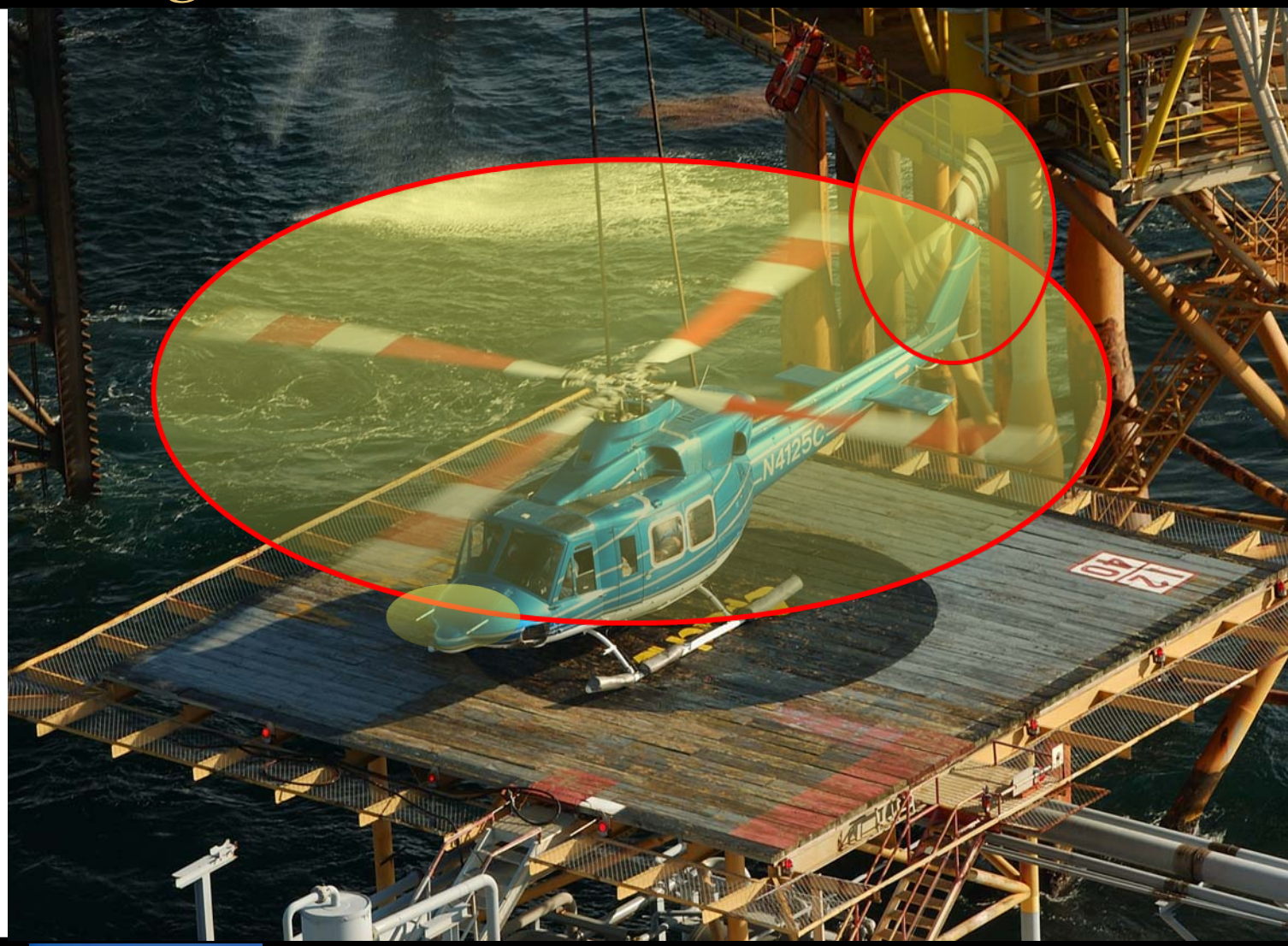
Helicopter Danger Zones

Main Rotor

Tail Rotor

Gage/vent tubes.

The tip of a Bell 212 tail rotor moves faster than a .45 caliber bullet!



Airborne Debris

- Passing Aircraft
  - The larger the aircraft; the more thrust it takes to move.
  - Unsecured cabin and access doors can be torn-off hinges.
  - Loose Equipment can become airborne projectiles
  - Turn-away from aircraft back-blast





Natural Hazards

- Birds
  - Nesting in Spring
  - Territorial
- Bees
  - Can invade the hollow parts of the aircraft.
  - Aggravated by vibration.
  - Increase activity as temperature increases
- Reptiles
  - Like to sun themselves in the morning.
  - May seek shade during midday.

Meet Your Crew

- ✈ Who's Who.
- ✈ Mission Planning.
- ✈ Capabilities vs. Requirements.

Crew Briefing

- Required By FAA
- Things to Note
  - Exits
  - Seat Belts
  - Fire Extinguishers
  - Route of flight
  - Flight Profile
  - Medical Kits
  - Survival Kits
  - Crash Position
- If in doubt - ask

Ask:

- ✈ Flight plan filed?
- ✈ Does someone hold manifest
- ✈ Hearing protection?
- ✈ ELT?





ALSE

- Requirements
- Oxygen
- Clothes

Ground Run-Up

Crew Duties

- Prepare the aircraft for flight.

Your Duties

- Note the exits and location of emergency equipment
- Check and verify equipment needed for in-flight use
- Secure all loose items & equipment

Expectations

- Taking-off and landing the aircraft requires close coordination between the flight crew and air traffic controllers– distracting them with non-emergency conversation during these critical times may lead to an accident

Taxi/Take-off

- The Physics
  - As Altitude increases – pressure drops
  - As Pressure Drops
    - Gas within the body expands
    - Nitrogen in our body is released

- The Effects
  - Expanding gas may induce intestinal pain
  - Nitrogen bubbles can form and collect in the joints causing Altitude-induced Decompression Sickness (the bends)
  - SCUBA within 24 hours prior will aggravate the effects mentioned

In-flight

Crew duties:

- Fly the Aircraft.
- Ensure the safety of the passengers and crew

Your duties:

- Focus on mission objectives.

The effects:

- Gas will pass – pressures will equalize; chewing gum may help
- Stay aware of what is happening around you





Descent & Landing

The Physics reverse.

The Effects:

Remaining gas/fluids will be compressed.

Severe ear pain may be caused by a congested ear when air has escaped at altitude and the ear is compressed during descent.

Countermeasures:

- Chew Gum
- Have crew hold altitude until condition passes





Deplane/departure

Exiting the Aircraft:

Ice or water may have collected on exterior surfaces of aircraft.

Areas near engine exhaust will be very hot.

Lingering effects:

Do not SCUBA for 24 hours after flight.

Physical Limitations:

Sitting for long periods, combined with aircraft vibrations may cause legs to be stiff.

Post-flight considerations

- Exit Ramp/Airport
  - Contact Manifest holder
  - Watch for other aircraft.
  - Note defective equipment.
  - Notify crew of aircraft deficiency.

- Seek Medical attention:
  - Pain from trapped gasses/fluids.
  - Sinus pain from congestion/pressure altitude changes
  - Sharp pain or sound of fluid in ears.
  - Dizziness or loss of balance.

Learning Game Placeholder

Learning Game: Choices

Title: Basic Aviation Safety

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Aviation Safety
Program

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