MERCYONE℠

MercyOne Air Med

Helicopter Landing Zone & Safety Operations

Objectives:

- Introduction
- Discuss when and how to call
- Review requirements for establishing a safe landing zone
- Personal safety in an around helicopter for ground personnel
- Crash recovery

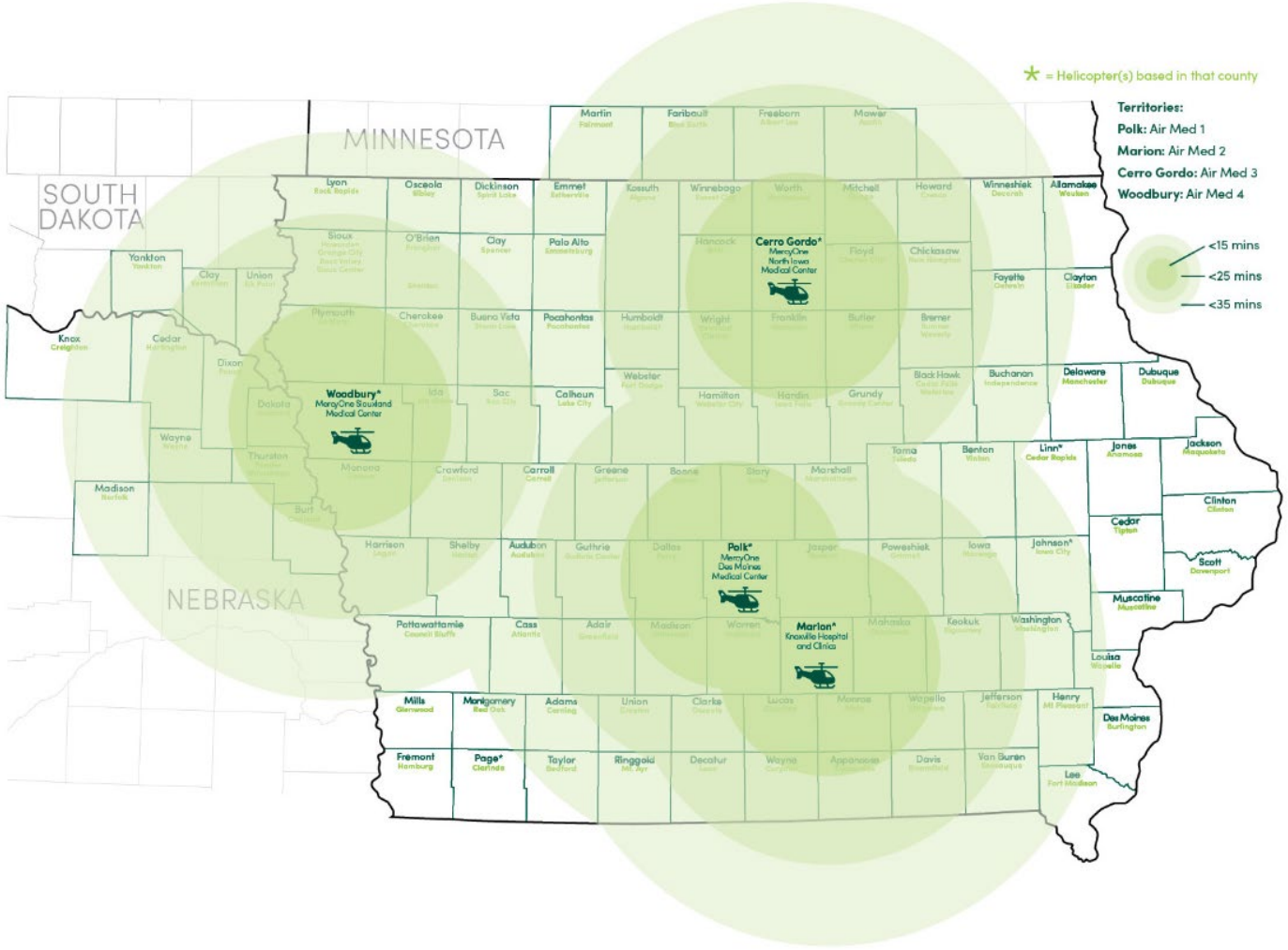
Our team

Who We Are

- Helicopter EMS (HEMS) services
  - MercyOne Des Moines Medical Center
  - Knoxville, IA Municipal Airport
  - MercyOne Northern Iowa Medical Center
  - MercyOne Siouxland Medical Center

  – Partner with Air Methods Corporation

  – Able to transport patients to any hospital



Our Capabilities

Adults

Pediatrics

Neonatal

Airway Management

- Transport Ventilator
- Surgical Cricothyrotomy

Blood Products

Capabilities

Standard Mission Profile:

- 3 Crew Members
  - Pilot
  - Nurse
  - Paramedic
- One patient

Things that affect a Standard Mission Profile

- Weight of patient
- Weather (ceiling, snow, wind, ice, thunderstorms, visibility)

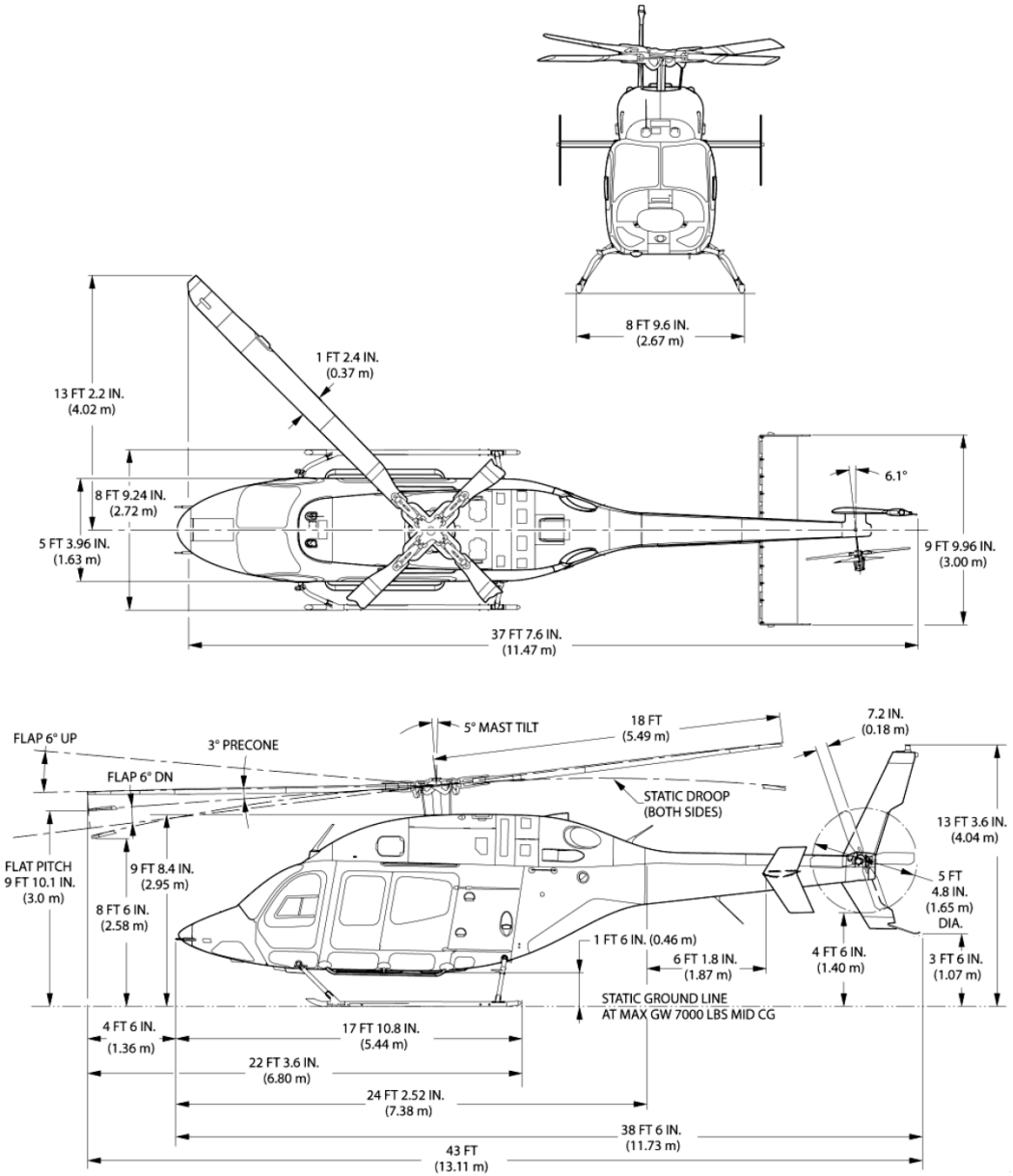
MERCYONE

Our Helicopter

Bell 429

Bell 429 Facts

- Dual Engine
- Dimensions 43’ x 36’
- Speed 155 kts. (178 MPH)
- State of The Art E.L.T.
- Certified for Night Vision
- Rear Load system
  - Independent Cot
- IFR Capable



Instrument Flight Rules (IFR)

Flight Plan Required by Air Traffic Control
Instrument approach into airports only
Minimum departure requirements

- 700’ ceiling with 2 miles visibility
- Approach minimum vary with navigation equipment at airport
    - As low as 200 ft. ceiling & 1/2 mile visibility

WAAS Approaches
- Wide Area Augmentation System

WAAS approach is a procedure that allows the pilot to use on board navigation equipment to execute an approach and landing to an airport or helipad using only reference to the aircraft instruments.

- Albia, Monroe County Hospital
- Centerville, MercyOne Centerville Medical Center
- Des Moines, MercyOne Des Moines Medical Center
- Leon, Decatur County Hospital
- Mount Ayr, Ringgold County Hospital
- Osceola, Clarke County Hospital
- Ottumwa, Ottumwa Regional Health Center
- Stuart, Designated Scene LZ
- Mason City, MercyOne North Iowa Medical Center

Safety Features

- Night Vision Goggles (NVGs)
- Satellite Tracking
- Satellite Weather
- GPS
- Helicopter Terrain Avoidance Warning System
- Operational Control Center
  - Assists in mitigating risk factors
- Quarterly Aviation Training

When and how to call

- Who should fly?
- How do I call?
- Weather shopping

What Patient's Should Be Flown?

- **Medical**
  - Stroke
  - Respiratory Distress
  - STEMI
  - Altered Mental Status
  - Hypotension
  - Cardiac Arrest
  - Any patient that needs rapid transport
- **Trauma**
  - Unstable VS - *hemorrhage*
  - Penetrating injuries to head/neck/torso
  - Chest wall deformity
  - 2 or more long bone fractures
  - Crushed, degloved, mangled or pulseless extremity

When To Call

- Time Critical (Trauma, STEMI, Stroke)
- Remote / Inaccessible Locations
- Prolonged Extrications
- Multiple Patients
- Anytime you feel the patient would benefit (we can always be cancelled)

Standby Requests

Standby Requests Reserve the Helicopter for a scene or hospital transfer.

- Allows for quick response when activated
- **> 20 miles away**, our crew will automatically launch,
- We can be launched without responders on the scene initially
- Can be cancelled at any time

THERE IS NO CHARGE TO THE PATIENT OR REQUESTING AGENCY FOR A CANCELLED STANDBY REQUEST!!

Requesting a Helicopter

Who Can Request?

- EMS Provider
- Physician/Hospital Personnel
- Firefighter
- Law Enforcement

How To Request Us

Call MercyOne Dispatch

1-800-AIR-1911

Provide the Following Information to Dispatch:

- Name, agency & call back number
- Nature of incident & number of patients
- Approximate age & weight of patient
- Radio Frequency
- Units Responding

Weather Shopping

What is weather shopping?

- It's the practice of calling, in sequence, various flight services until a service agrees to take a flight assignment, *without sharing the reasons the flight was declined by the previously called services.*

- The calling of subsequent helicopters is not necessarily a problem. It all comes down to if information is passed on about who has previously turned down the flight and why

Mercyone asset has declined a flight due to weather

assign the next closest MercyOne Asset for **interhospital**

OR

assign **NEXT CLOSEST AIRCRAFT FOR SCENE**

If Air med asset is not available or declines flight also,

assign the next closest Air med Asset for interhospital

Requirements for establishing a safe landing zone

- Size requirements and location selection
- Day vs Night considerations
- Approach and departure paths
- High and low recon
- Pre-landing communications/report

Size requirements and location selection

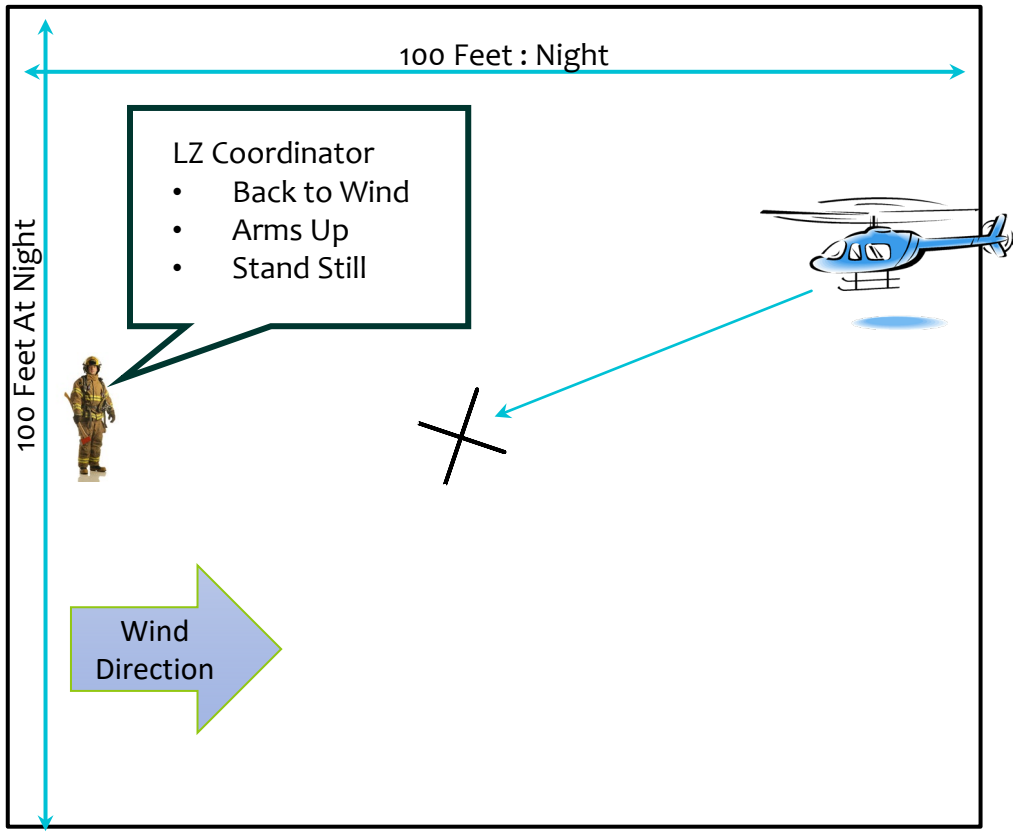
- 100’ x 100’ (ideal)
- Land into wind
- As hard and level of surface as available
- 200’- 300’ away from patient care area
- LZ coordinator
- No crime scene tape
- Trash/blowing debris
- Snow/dust considerations

Landing Zone Hazards

Helicopter pilots need to see the outside world (or a reasonable representation of it) to hover accurately — making brownouts a problem. Graham Lavery Photo

Selecting A Landing Zone

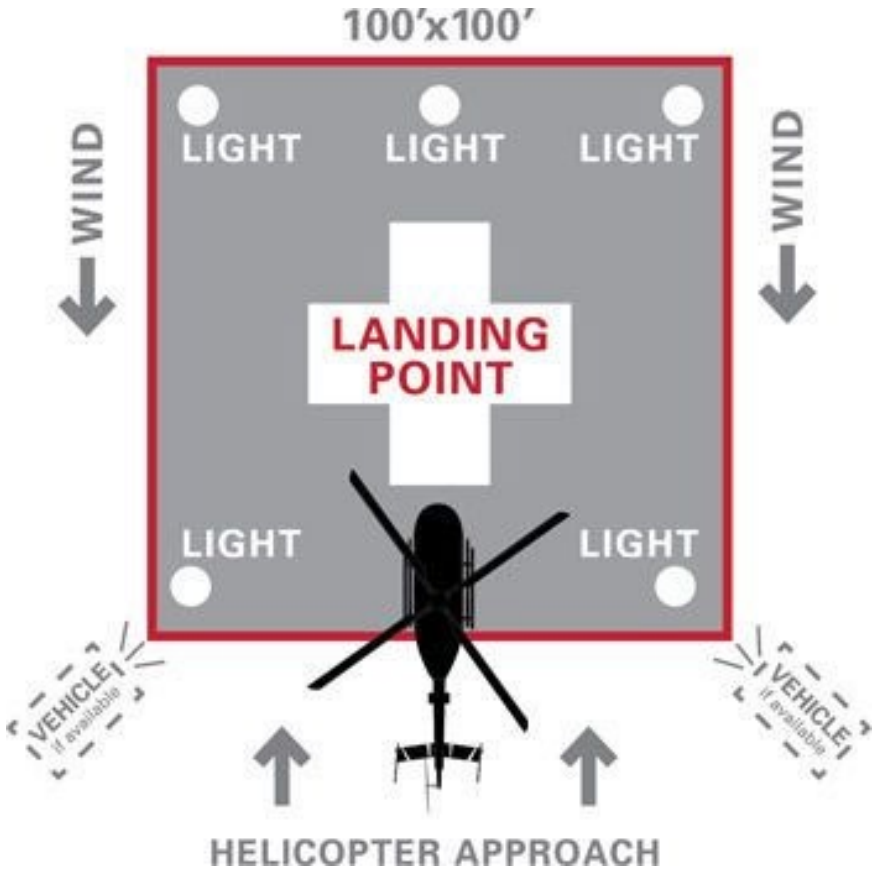
- 100’ x 100’ (ideal)
- Land into wind
- Hard, level surface
- 200’- 300’ away from patient care area
- LZ coordinator
- Conditions extremely dusty, wet the landing zone down prior to our arrival if possible
- No crime scene tape



Night Considerations

- Once the aircraft is in final approach, turn off strobes and high beam lights.
- Aided night vision for pilot and medical crews
- Added safety for all night transport missions.
- Avoid bright lights directed at the aircraft as they can wash out the NVGs.

Night considerations



Communication Methods

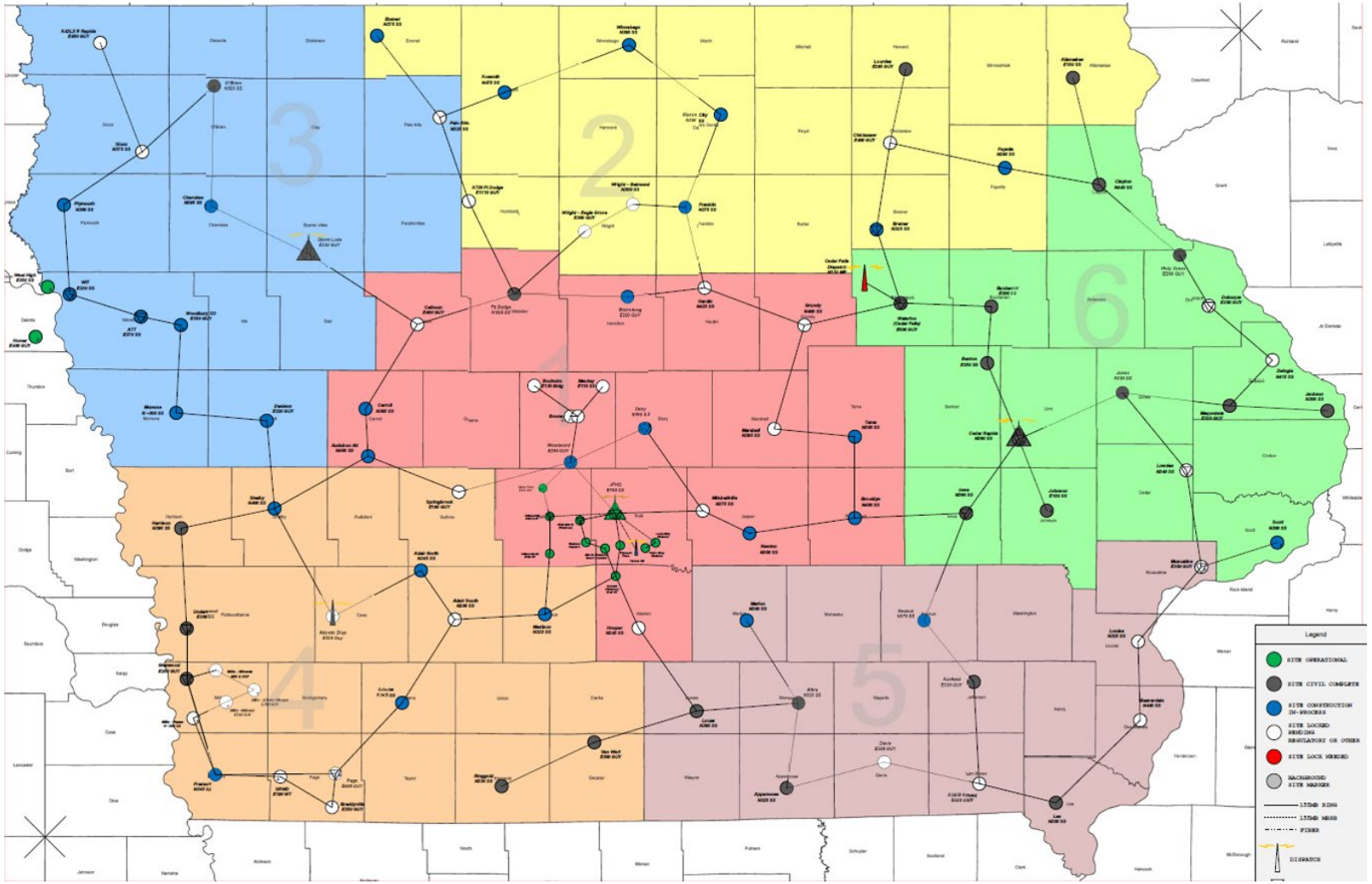
VHF

UHF

800mHz

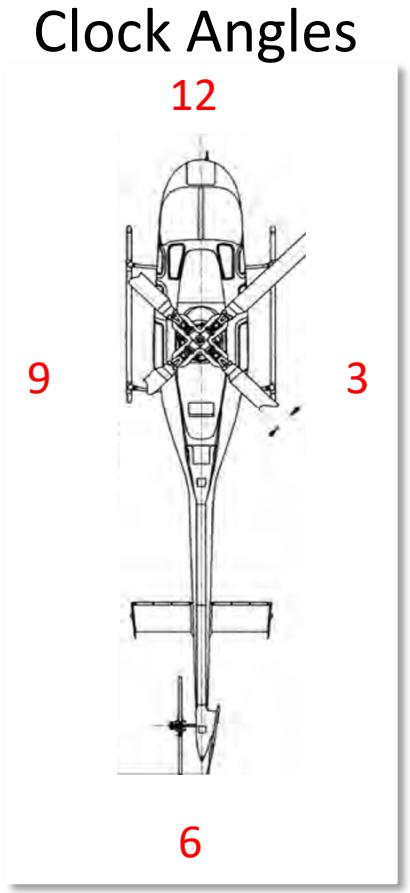
Satellite phone

Iowa Statewide Interoperability



Prior To Arrival

- Setup a landing zone with a possible alternate
- Designate a landing zone coordinator (ground contact)
- Advise the crew when you can see them
- When directing the aircraft to your position, use clock angles from the nose of the aircraft and not your position. *For example, “the scene is at your two o’clock”*
- Close all emergency vehicle doors

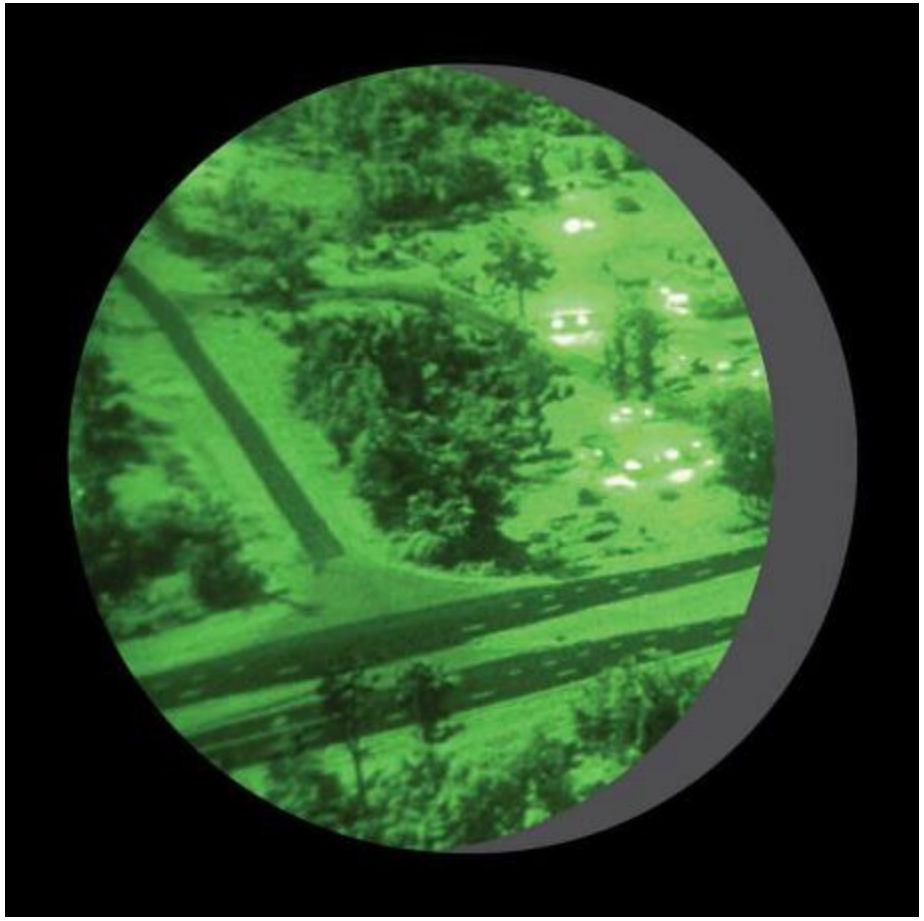


Obstacles

Do not assume the pilot knows the obstacles are there.

Ensure they know!

- **Towers**
- **Wires**
- **Trees, Shrubs**
- **Street Signs**
- **Light Poles**
- **Possible Blowing Objects**
- **Sloping Ground**



If the two people who were electrocuted didn’t see these wires, could a flight crew miss them?

IT’S POSSIBLE!

What does the pilot need to know?

Land In Front Of The Truck??

What to Expect When Landing

- 360° reconnaissance flyover.
- Abort or Go Around if there are ANY safety issues.
- Do not direct any lights at the aircraft.
- In the event ground personnel observe a safety issue call, ***go around, go around, go around*** without delay.
- The aircraft will abort and immediately start a climb.

Aircraft Departure

- From a cold start it may take 2 to 5 minutes before we actually take off
    - Request to maintain radio contact for 5 minutes after departure
- The landing zone coordinator:
    - Maintains security of the zone during our departure
    - Maintain the landing zone and its security for 5 minutes in the event of an in-flight emergency (if possible)

Personal safety in and around aircraft for ground personnel

- Tail rotor
- Roadways
- Pedestrians
- HAZMAT
- Hot load vs. Cold load

DO NOT APPROACH THE AIRCRAFT WHEN IT IS RUNNING!

Operation Around the Aircraft

Things Not To Do

- **DO NOT approach the helicopter when the rotor blades are turning unless signaled by the flight crew.**
- **DO NOT walk behind the helicopter *at any time*.**
- **DO NOT** open and close the helicopter doors, please allow the flight crew to operate the doors.
- **DO NOT** run near or into the landing area.
- **DO NOT** place or hold IV poles or bags above shoulder level in the landing zone .

Do Not approach or depart the aircraft from the uphill side.

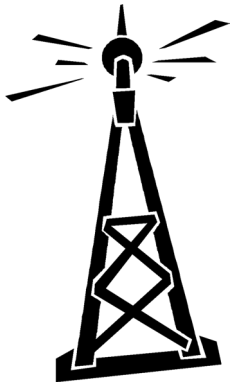
Operating Around The Aircraft

- Remain alert - Follow flight crew directions
- Use hearing & eye protection
- Walk, **NEVER RUN**
- Watch for slippery surfaces
- Approach and depart the aircraft from the same direction
- Secure all loose items prior to approaching the aircraft
- Helmets (Must be Secured)
  - Remove Hats, Loose Clothing
- Always have someone dedicated to holding onto the cot

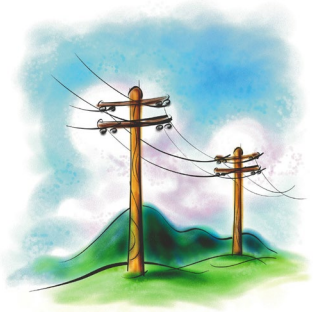
Roadways/Traffic

If a landing zone is on a road, please block off the road!

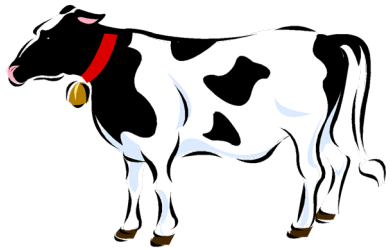
Landing Zone Hazards



- Overhead/Ground Wires
  - Can be difficult to see during the day and almost impossible at night



- Radio Towers/Guide Wires
- People
- Wildlife
- Vehicles
- Trees/Vegetation



- Any loose ground covering:
  - Snow (White out)
  - Dirt (Brown out)
  - Small Rocks (Projectiles)
  - Garbage
  - Fence Posts
  - Flares
- Signs (i.e. Mile markers)
- Lights / Lasers pointed at us
- L.E.D. Lights
  - (Unable to see under NVGs)

Hazardous Materials

ALL PATIENTS MUST BE DECONTAMINATED!

- FAA prohibits the transportation of hazardous material
  - Includes contaminated clothing
- Flight crews do not have HAZMAT
  - Or SCBA

Weapons:

- Firearms and Taser: OK
- OC spray/MACE: NOT PERMITTED ONBOARD

Hot Loading Procedures

Hearing Protection
Overhead Danger (stay low)
Tail Rotor Danger (stay clear of the rear)

Loose Objects (secure hats, blankets, and equipment)
Obey flight crew instructions
Assure cot is secured at all times
Depart the same way you came in

Only MercyOne Air Med crewmembers are permitted to rear load a patient while the aircraft is running due to safety concerns with the tail rotor

Cold load

- Assistance from ground team may be requested
- Follow all commands from flight team when approaching aircraft
- MUST be accompanied by Flight team
- Caution to low hanging antennas on tail
- Caution to tail rotor

Crash Recovery

- Fuel / Fluids
- O2
- Battery
- Emergency engine shutdown
- Emergency egress

Aircraft Hazmat

- JET A Fuel - On departure from MercyOne, we carry approx.120 gallons of fuel
- Fuel bladder along the bottom of aircraft
- Hydraulic Oil
- Engine Oil
- Oxygen

Oxygen Shut-off

- Large Green handle located to the left of center console between Pilot and co-pilot seats
- Push DOWN to turn O2 OFF

Battery

- 28 Volt Sealed Battery
- Battery ON/OFF switch located in cockpit
- Located in nose of the aircraft

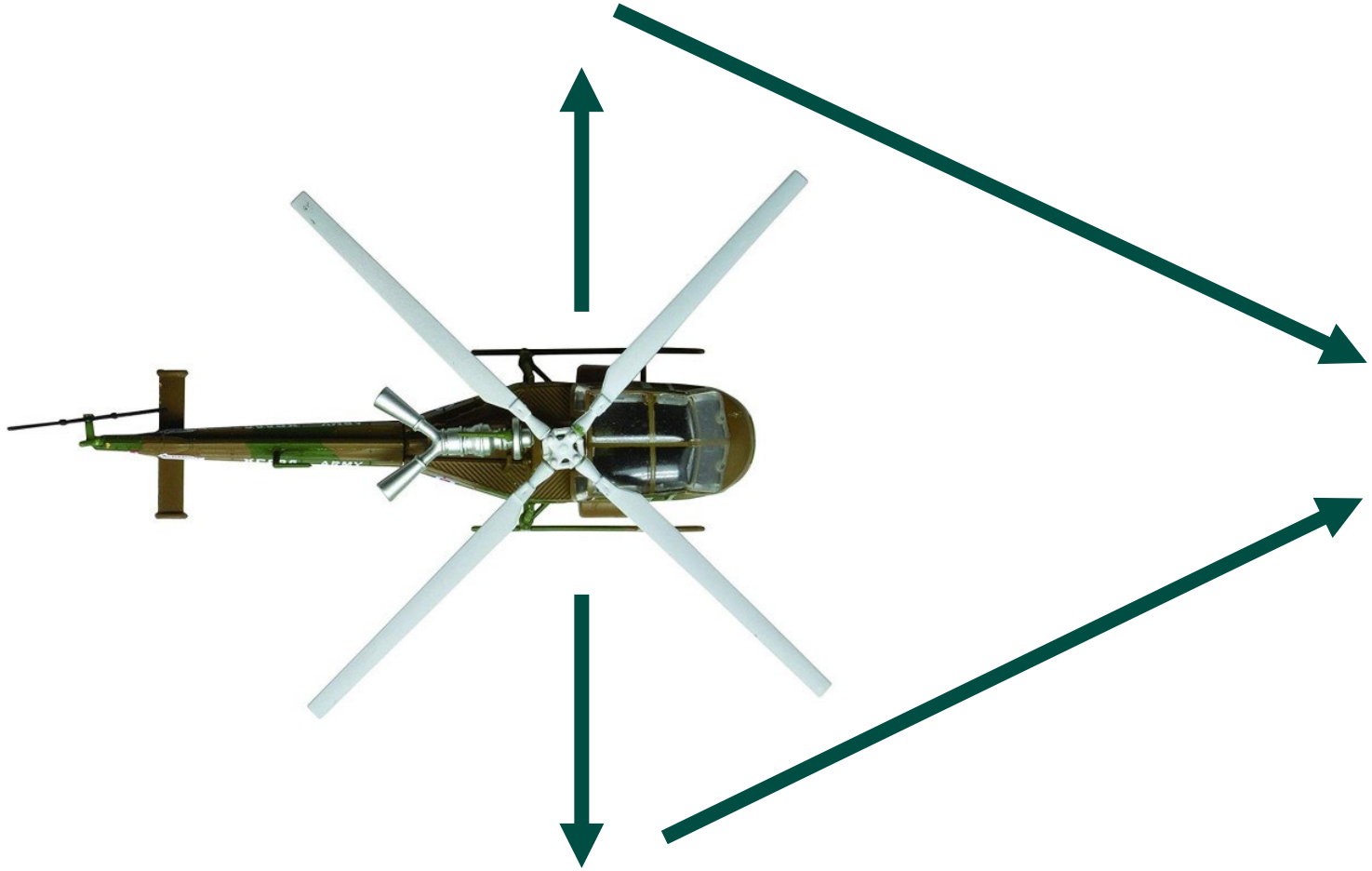
Emergency Engine Shutdown

Two buttons on center dashboard labeled “FIRE”

1. Ensure safe to approach aircraft before attempting an emergency engine shutdown
2. Locate the two “FIRE” buttons on center dash
3. Lift switch cover to press “FIRE”
4. Each button will shut down corresponding Engine (Left or Right)

Emergency Egress

- IF ABLE: Flight Team will remain in aircraft until blades stop turning unless hazard present in cabin
- If immediate hazard present: IF ABLE Flight Team will egress out the 3 and 9 o’clock and rendezvous at 12 o’clock outside rotor disc



MERCYONE℠

Thank You!

Questions?

References

- Thibeault, S. (2015). Transport Professional Advanced Trauma Course Manual. 6th ed.
- Advanced Trauma Life Support, 10th ed. (2018).
- Holleran, R. S. (2009). ASTNA Patient Transport-E-Book: Principles and Practice. Elsevier Health Sciences.