



# Heavy Rescue

Suffolk County Fire Academy

Session #5  
Industrial Accidents / "Odd-Job" Emergencies



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## Class 5 Objectives

- Discuss Establishing Command, Lockout / Tag Out & Operational Considerations aka "Tactics"
- Tools required to start a "Man vs Machine Bag"
- Address the most common incidents in Suffolk County:
  1. Ring Removals
  2. Snow Blower Incidents
  3. Impalements
  4. Head Stuck in a Fence



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## Establish Command

### First Arriving Officer On-Scene

- Make contact with caller and or Plant Personnel
- Size-Up
- Scene / Patient Access
- Notify Incoming Units
- Special Call Additional Resources
- Continue Size-Up and evaluation of rescue progress



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### Variables to Contend With...

- **Weather** – 4:30 pm in January with a person's hand stuck in a snow blower at the end of the driveway...
- **Location**- Is the victim located off road? Are you being called to an Emergency Room to assist the doctors?
- **Resources**- Do we possess the proper equipment to effect a successful extrication? Are we considering medical interventions?



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### Crush Syndrome

- Crush Syndrome is caused by the death of muscle tissue from traumatic injury that is accompanied by the release of muscle cell contents (myoglobin and potassium) into the bloodstream resulting in hypovolemia, hyperkalemia (abnormally high concentration of potassium in the blood), and if left uncorrected acute renal failure

**Bad Blood in Good Places = DEATH**



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### Scene Safety

- Our safety is always paramount
- Do not allow would be rescuers to re-enter area.
- Make sure all energy is released or captured.
  - Hydraulic
  - Pneumatic
  - Electrical
- Lock-Out / Tag-Out  
How would you Lock-Out / Tag-Out a Snow blower???



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### Man vs. Machine Kit

Think like an "ole school doctor"...



- Kit should contain tools that can start and even complete an operation
- Keep it basic! If additional tools are required they can be called for.
- Keep a laminated inventory list to check box and to replenish when used.



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### Hand Tools

If something can be assembled then...



- Ordinary Mechanics Hand Tools
- Open / Box Wrenches
- Screw Drivers
- Socket / Ratchets
- Allen / Hex Keys
- Torx Keys
- Nut Drivers
- Pliers
- Pipe Wrenches
- Wedges



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### Specialty Equipment

- Soapy Water
- HVAC / Plumber's Putty
- Gauze/ Cloth for Heat Syncs



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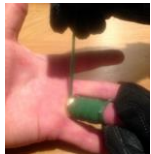
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### Additional Special Equipment

- Rope Saw "Weed Whacker Saw"
- Shims / Snap Ring Pliers
- Non-Rebreather Strap
- Rubber Bands



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### Ring Removals



- What Steps would you employ to remove this ring?
  1. Cool Water in a basin
  2. Lubricant
  3. Rubber Band / Non-Rebreather Strap
  4. Manual Ring Cutter  
Dremel Tool with Shims

What about for a Tungsten or Ceramic Ring???



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### Tungsten Ring Removals

The "Unbreakable Ring" is Very Brittle & Not Malleable



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### Impalements



- Access Issues?
- How would you stabilize these patients?
- Medical Concerns?
- What tools could be used for the extrication?



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### The Band Saw

- ▣ **Tool of Choice For Impalements**
  - Electric or Battery
  - No Sparks
  - Minimal Heat
  - Minimal Vibration
  - Smooth Cutting
  - Clean / Smooth Finish



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### Oxy-Acetylene Torches

- **Most widely used**
- **Benefits**
  - Wide range of equipment available
  - Very user Friendly (almost Fireman proof)
  - Can cut, Burn, and weld
- **Disadvantages**
  - Wide flammable limits
  - Acetylene Extremely hazardous above 15psig
  - Requires proper handling and storage
  - Can create large amounts of molten slag



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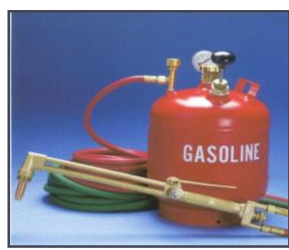
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### Petrogen Torch

- Popular amongst many USAR Teams.
- Fuel is easily accessible as it is Gasoline.
- Able to cut through dirt, water and thick metal
- ***MUST*** be properly maintained for effective operations



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### Victim Stabilization is Imperative



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### Head Stuck in a Fence



- Have the child stick their tongue out
- Lubricants – Surgical Lube
- Webbing – aka “the tourniquet trick”
- 4x4 wedges tapped below the victim
- Porto Power or Rabbit Tool
- Hydraulic Spreader



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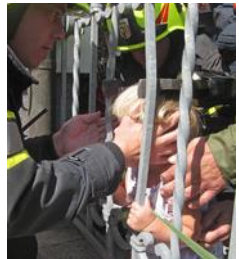
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### Safety

- **Remember!!** Every action will have a reaction. Think out your extrication process carefully
- Team leader / officer assigns specific jobs.
- Consult with your team. Someone may have a better idea
- Proper PPE is critical. The use of Tyvec suits, OB Gowns or a raincoat may be necessary to protect rescuers. Full faceshield is also a consideration
- **FATIGUE LEADS TO ERROR!!**



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### Conclusion

- Sometimes, Technical Extrications do not need to be so technical.
- Only through drills, practical use, and experimentation will each unit develop the techniques that work for them.



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