

Westbury Fire Department

Refresher Course III

RESCUE TOOLS

Module 1 – Hydraulic Extrications Equipment

I. Powering the Tools –

(4) Pre-connected Hydraulic Reels - (Spreaders, O-Cutter, Rams)

On-board Power System (964) – Reels – 100' – Portable Hoses 20'

- Review pressurizing, dumping system and converting from front & rear reels

Portable Power Units – (964 Hurst) – 2- 50' Hoses

(966, 969 - Holmatro) – 20' Hoses – attached to Combination Tool

- Review starting – stopping – powering tool - dumping pressure)

Hand Pump – How it works & when it should be used

- Review what tool(s) get used first.
- Staging tools on trap

II. Type of Extrications Equipment –

Spreaders (Jaws) – 41 lbs – 31" - **spread widths** – 24" /32" /40" – 3 sets – (72,000 lbs at tip – 24")

- Open – spreads / Close – Compress * **> arm length < lbs at tip**
- Spreader arms can be changed to give you different spread distances - Review
- Spread may start spread, but opening may be finished with a Ram
- Hurst Chains can be used with spreaders for pulling

O- Cutters (X-tractor) – 36 lbs - 6.5" open distance

- Cut hazards – Hybrid/electric cars/harden steel / Unsupported end

Combi Tool (Paladin) – 44 lbs – 36" – **spread width 16"** with spread force 12,500 & pulling force 68,000 lbs

- (Last tool to be used – has limitations!) – *Except only Tool on Engines*

Rams -	20A	30A	60A
<i>Weight</i>	18lbs	31lbs	44 lbs
<i>Opens</i>	20"	36"	62"
<i>Open Force</i>	15K lbs	15K lbs	15K lbs
<i>Close Force</i>	7K lbs	7K lbs	7K lbs

- Have cribbing ready when using rams.

III. Accessories –

- Spreader Accessories - accessory kit, chains
- Rams Accessories – steel support L shape block
- Rescue Chain kit – Note difference from your standard chains
- Manifolds/ portable hoses

Review Safety when using Hydraulic Equipment –

- Protective Clothing – includes safety glasses/eye protection –
(High Pressures & caustic hydraulic fluid)
- Dumping pressure before disconnecting hoses
- Hose coupling connections – Review Locks
- Extreme caution when using power equipment – lots of force that sometime cause a reaction
- Check tool, loose or broken pieces before put tool to work
- Don't cut case harden steel w/ cutter - projectile
- Only use Accessories meant to be used with Hurst tool
- Good communications needed within team when operating these tools
- Maybe working with other agencies or Departments
- Hurst oil is caustic – will burn if on skin especially Face & Eyes– (rinse large amount water & soap)
- Have Hose Line ready and at least extinguisher – prior to line

Review Safety when using Hydraulic Equipment on Hybrid vehicles –

- Identification that vehicle is Hybrid – Markings (front and back , Fuel & Power in Fuel gauge
- **Expose (remove plastics) before cutting**
- **Note** – Vehicle may still be on, won't sound like running ,
but step of gas pedal - car will jump forward – VERY Common!
- Over 300 Volts & 100 Amps – Cause death serious injury - Vaporization of limbs
- High Voltage line – Bottom of Door Jams, Battery under passenger seats – Not Always!
- Safest way to secure power is secured is to remove the key.
Or Remove High Voltage battery fuse (Under hood)
Least desirable – Under carpet above directly above battery – (Main Switch or Fuse)
(*best with electrical pliers – will be a big bang !*)
- Best practice – cuts as little as possible!

Module 2 – Air Tools

I. Air Bags

System components:

Bags – different sizes (tonnage/ lifting heights)

- (Max tonnage – 1” lift / @ Max lift = ½ the weight rating)
- 30 ton bag can expand to 10” (so @ 30 Ton = 1” , 15 Ton = 10”)

Multiple bags – smallest always on top

- Bottom bag – filled 1st, max lift = smallest bag’s capacity
- No more the 2 bag stacked – watch for pillowing
- Inflate ½ to ¾ of bag capacity, Line up bags X’s

Hose(s) - colors

Regulator – Intake & output pressures

Control Valve – Expand & Retract bag

Air Supply cylinder – review changing while operation in process

- Bags valve – open close valve

Explain when we might use air bags: Train, elevator, cars,
Industrial accidents/lift equipment...

Cribbing (4x4 wood/plywood)

- Use of plywood – Hot surfaces, sharps, as a base
- Plywood Not Used in between bags

Safety Review:

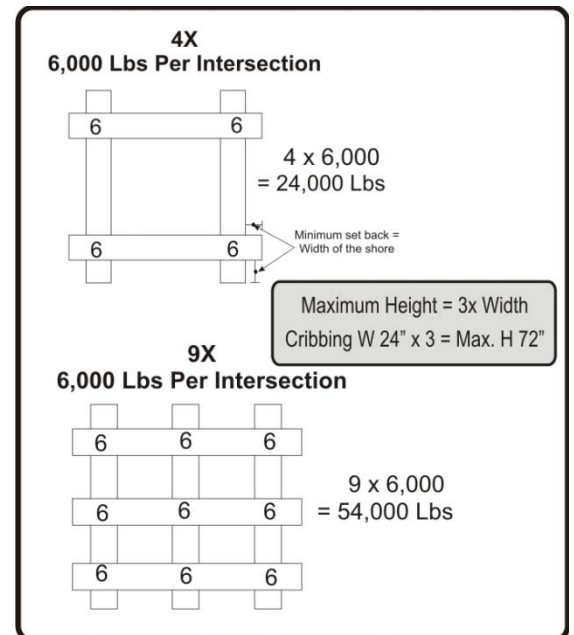
- Make sure all hose connected are tight before inflation
- Center X on bag under object lifting
- Inflate bottom bag first when lifting 2 bags
- Stay safe distance while making lift
- Always crib under lift
- Max working pressure – 118 lbs
- Full PPE & Especially gloves and eye protection
- Bottle Jack (20 Tons) and Floor Jack 3 Tons – Also can be use

II. Air Chisel – aka AJAX Tool

Review Demo System Components:

- Tools
- Tips
- Air Hose
- Regulator

Safety Review: Wear full PPE w/ eye protection



Module 3 – Electrical Equipment / Meters & Monitors/ Haz-Mat Equipment

Review/ Demo:

- Sawz All –
- Hand Drill
- Portable scene lighting
- Junction Boxes
- Electric Reels
- Pigtails
- Battery Operated Tools
- Electric Fans/ Hangers

Note: rig has assorted hand tools

Gas Meters – review operation – 4 gases it reads (O₂, CO, H₂S, LEL)

Most important O₂ < 19.5 something is taking the O₂ place ! (what?)

Thermal Imaging Camera – review operations & what displays

Take Spare Battery with when Taking Camera

Return all to Charger upon completion

Haz-Mat Equipment – display /refresh

- 1 hrs SCBA bottles
- Chemical Suits
- ERG2008

Module 4 – EMS & Scene Stabilization Module

I. E.M.S. – EMS goes hand and hand w/ MVA and Extrication

** Most Important – Touch Patient – Glove up – PPE (Bloodborne pathogens)

All FF should Know **AED** use

Stretcher use/operate

Stair Chair use/operate

Where to find **Long board** and head beds/blocks

Consult EMS in vehicle – they need to know what you’re doing - Re: extrication

Patient assessment – before extrication, patient needs to be **stabilized and protected**

II. Scene Stabilization @ MVA

Scene should be secure before operations – Rig/ Cones/Flares- if no fuel leak ... - **Protect US!**

Questions to ask:

- What time of day?
- What are road surface conditions?
- How fast the traffic going passing you? – does it need to be slowed down?
- What type of street? (Highway or Secondary Road)
- Where & How should rigs be positioned?
- Will the position give us a large enough safe working area?
- Are the roads/lanes being controlled – Police, Fire Police... ?
- Is PD called and are they coming?
- Is there enough lights to operate safely? – do we more?
- Are there flares out / should there be flares out? (haz-mat)
- Are there any utility problems? Is the car on a light pole with underground live wires?
- Are the wire on the ground live, and what hazards will they impose to the scene?
- Are the downed wires visible to all ?
- If the wires are not on ground are they down enough that members may walk into?
- Not all wire come from overhead – are there underground wire exposed?
- Do we have a hand line established or at least an extinguisher present and ready? (fire)
- Did we completely stabilize the vehicle?
- Was the patient stabilized and protected?
- What other scene problems may occur during operation that may need to be mitigated, assuring as safe working environment?