

ENGINE COMPANY OPERATIONS CLASS 1



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Engine Company Operations

- 3 sessions
- Objectives.
 - To teach basic engine company functions at different types of fire buildings with the emphasis on the hose line placement as it relates to the fire location.



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Engine Company Operations

- A properly positioned hose line saves more lives than any other action on the fireground.
 - Whose life?


OURS!!!!!!!



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When Fire Wins: Causes of FDNY Deaths



- In 2011, NIOSH and the FDNY studied FF deaths for the past 20 years.
- One of the top 5 causes of a FF fatality was found to be water problems.
- All efforts should be focused on getting that first line in operation.



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Engine Company Operations


- Basic Fire Department Unit
- Responds to all incidents
- Unit Integrity 4-6 Firefighters
- 1st Due
- 2nd Due
- 3rd Due

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Engine Company Operations

- Order of arrival should determine priorities
 - First Engine – Fire attack, secure a water source
 - Second Engine – Ensure first line is getting in operation, ensure first engine has a water source, back up line
 - Third Engine – Back up line, third line, or as directed by IC



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Engine Company Operations

- Pump Capacity
- 750 GPM
- 1000 GPM
- 1250 GPM
- 1500 GPM
- 2000 GPM



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Engine Company Operations

- Tank size
- 500 gallons
- 750 gallons
- 1000 gallons
- 1500 gallons
- Tankers






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Engine Company Operations

- Front Mount
- Mid-ship
- Rear Mount
- Pump and Roll



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Engine Company Operations Prior to Response

- INSPECTION
- DAILY
- WEEKLY
- MONTHLY
- DOCUMENTATION



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Engine Company Operations Maintenance

- Tank Water
- Lights / Sirens
- Seat Belts
- Fluids
- Gates / Valves
- Transfer Valves
- Relief Valves



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Engine Company Operations Training

- Driver training
- Apparatus placement
- Getting water and problem solving



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Engine Company Tools & Equip.

- Hose / hydrants
- Nozzles
- Fittings / adapters
- Tools, wrenches, ladders, ropes, F/E
- NFPA 1901
- Handie-Talkie
- Hand lights





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Engine Company Firefighter




- **Helmet** - Flaps Down/ Chin Strap
- **Nomex Hood**
- **Coat** - Collar Up
- **SCBA**
- **Gloves**
- **Bunker Pants** - Knee Pads
- **Boots**- 3/4 Rubber or Bunker
- **Tools** - Spanner, Chock, Hose Strap, Webbing




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Engine Company Firefighter



- Wear your gear.
- Losing you helmet or forgetting to put on your gloves will cause a delay in the fire attack.



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Engine Company Assignments

- Officer
- Chauffeur
- Nozzle
- Back Up
- Doorman
- Hydrant
- They are all important




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Engine Company Officer

- Desire
- Leadership
- Communications
- Size Up
- Locating the fire!





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Engine Company Chauffeur




- Ability
- Attitude
- Driving Skill
- Route
- Radio Communications
- Problem Solving




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Nozzle Firefighter



- Stretches proper hose line
- Bleeds the line
- Operates nozzle correctly
- DECALS



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Nozzle Firefighter Officer Delegates - **DECALS**

- **D** Direction of Stream
- **E** Emergency Opening
- **C** Crack Down of Nozzle
(to gain control)
- **A** Advancement
- **L** Line "More Line"
- **S** Sweeping Floor





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Back Up Firefighter



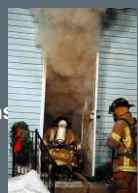
- Takes sufficient hose
- Flakes out hose line
- Chocks all doors
- Same side of the line
- Absorbs nozzle reaction



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“Doorman”

- Breaks hoseline, if necessary
- Remove all kinks
- Chocks all doors
- Monitors interior conditions
- May bring Forcible Entry Tools
- Relieves nozzle team



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Hydrant Firefighter

- Performs hydrant hook up
- May have a radio
- Assists Chauffeur
- Removes Kinks
- Moves up to Door position



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Who should remove kinks?



Everyone!!!!



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Transportation Fires and Accidents

- Automobiles
- Trucks and Buses
- Trains
- Planes
- Boats



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Residential Fire Buildings

- Houses
- Garden Apartments
- Hotel / Motels
- Nursing Homes / Hostels
- Mobile Homes



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Commercial Buildings

- Taxpayers / Malls
- Factories
- Schools
- Hospitals
- Institutions (Jail)
- Multi- Story Buildings
- Churches
- Storage Yards - Boat, Lumber




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Types of Responses





- RIT Response (Rapid Intervention Team)
- Mutual Aid
- Stand-By



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Water Supply

- Types of Pressure
- Static
- Residual



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Water Supply

- Tank Water
Limited Supply
- Tankers
of Gallons
Portable Reservoirs
Scuttle Operations



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Fire Pumps



- Centrifugal - Series, Parallel (Transfer Valve)
- Piston Pump
- Rotary Vane



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Water Supply



- Drafting
 - Sources or Site
 - Wells
 - Strainers
 - Achieving Prime
 - Winter Sites
 - Tides



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Water Supply

- Hydrants
 - Location and Spacing
 - Main Sizes, Dead End
 - Type of Hose Lay- Forward or Reverse and Water Relay
 - Thread Sizes - NY Corp, National Standard



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Fire Hydrant Inspection



- Obstructions
- Outlets (2 or 3)
- Aspect
- Ground Clearance
- Physical Damage
- Paint/Rust
- Operating Nut



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Fire Hydrant

- Keying the hydrant – Laying In
- Flushing
- Threads
- Frozen
- Drains Correctly



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Friction Loss

- Hose Diameter
- Excessive Hose Lays
- Rough Hose Lining
- Damaged Hose Coupling
- Sharp Bends, Kinks
- Valves Closed Down
- Wrong Hose Gaskets
- Elevation +/-



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Hose Loads

- Flat Load
- Horseshoe Pack
- Preconnects 1 1/2", 1 3/4", 2", and 2 1/2"
- Continuous Bed 2 1/2", 3", 4", 5"



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Standpipe & Sprinkler



- *Connect 2 – 2 1/2" Lines*
- *Check for blockage*
- *Garbage, tennis balls and stuff*
- *Operating Pressure 150 psi*
- *Flow Meters*



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Nozzles



- Solid Bore
- Vari-Stream
- Task Force / Automatic
- Foam
- Distributor/ Cellar Pipe
- Vindicator

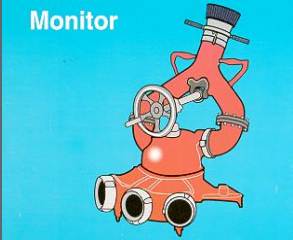


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Large Volume Appliances

- Deck Pipes
- Portable Multiversal
- Tower Ladder
- Ladder Pipe



Monitor



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Stages of Fire



- Incipient
- Growth
- Free Burning
- Smoldering



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Backdraft

- Define
- Recognition



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Flashover



- Define
- Conditions



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Rollover

- Define
- Recognition



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Ventilation



- Types
 - Vertical
 - Horizontal
- Timing
 - "Got water?"





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Building Construction



- Effects on Operation
- Fire Extension
- Fire Spread



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Forcible Entry

- Rule # 1
- Types of Doors
- Inward Outward
- Check Behind Doors
- Windows



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Communications

- Verbal
- Radio
- PASS Alarm
- Reports - "How are we Doing?"




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SEARCH



- Knowledge and Training
- Orderly
- Systematic
- Primary/ Secondary
- 2 in 2 Out





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Line Placement

- Where's the fire?
- 1st Engine
- 2nd Engine
- 3rd Engine



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Line Placement Cellar Fire

- 1st Line
 - Top of cellar stairs
 - Advances down if possible
- 2nd Line
 - Back up 1st Line
 - Options
- 3rd Line
 - As needed



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Line Placement 1st Floor Fire

- **1st Line**
 - Front door to fire
- **2nd Line**
 - Back up 1st Line
 - Options
- **3rd Line**
 - As needed



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2nd Floor Fire



- **1st Line**
 - Up the stairs
- **2nd Line**
 - Back up 1st Line
 - Options
- **3rd Line**
 - Options



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Line Placement Upper Floor Fire



- Standpipes
 - Attack
 - Evacuation
- Stairways
 - Rope Stretch
- Elevators



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Break



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Engine Ops at Private Dwellings

- Pumper arriving with 4 – 6 firefighters
- Need for 1 or 2 hand lines
- Water between victim & fire
 - Life
 - Exposure
 - Confinement
 - Extinguishment



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Engine Ops at Private Dwellings

- Combustible nature of interior & exterior = rapid fire spread
- Unprotected interior stairs
- 1½" or 1¾" hand lines
 - Fast fire spread
 - Mobility
- Water supply is critical



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Engine Ops at Private Dwellings

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Engine Ops at Private Dwellings


- Always consider a positive water source,
- Leave front of building open for Ladder, we can add hose, they cant add a section of ladder.
- Booster tank while hooking up?
- Primary consideration of 1st line front door protect interior stairs



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Types of Private Dwellings

- Cape Cod
- Colonial
- Queen Anne
- Ranch
- Split Level



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Cape Cod



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Colonial



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Queen Anne



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Ranch



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Multi-Level



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Garden Apartments



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Mobile Homes



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Vacant Buildings



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Engine Ops Cellar Fires

- Indications of a cellar fire:
 - Fire/smoke venting from cellar windows
 - High heat and heavy smoke, no visible fire on the 1st floor
 - Very hot floor boards



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Engine Ops Cellar Fires



- Hazards:
 - Gas/Oil burners
 - Electrical service panels
 - Kitchen stoves
 - Storage
 - Possible living area




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Engine Ops Cellar Fires

- 1st Hose line:
 - Through front door, down interior stairs
 - Unable to advance down stairs: (Heat, Fire Blocked stairway)
 - Protect interior stairs
 - Protect search teams
 - Extinguish any fire extending vertically




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Engine Ops Cellar Fires

- 2nd Hose line:
 - Back-up line
 - If not needed, can be used to extinguish any fire that may have extended to upper floors
 - 1st line unable to enter basement or no interior stairs down, 2nd line may have to enter from rear or other outside entrance



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Engine Ops Cellar Fires

- 3rd Hose line
 - If 2nd line is used through an outside entrance, use a back up line
 - As directed by IC.



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Engine Ops First Floor/ Upper Floor Fires



- Through front door , extinguish fire
- 2nd line standing by outside (back-up) if not needed as a back-up stretched to floor above to extinguish extension as needed
- 3rd line as ordered



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Engine Ops Fully Involved PD



- Consider 2 lines, possibly a large diameter line for master streams
- Keep front of building open for Aerial device
- Prevent auto-exposure
- Consider 2½" line, more gallons per




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Exposure Protection


- Do not operate a line directly into a window
- Sweep line across face of building starting at top allowing water to flow down.



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Summary

- Engine operations require teamwork not only from a single unit, but at times multiple units
- The most impactful thing we can do on the fire ground is to get water on the fire



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