

Governor's Homeland Security  
Grant for Type-2 Urban Search & Rescue Trailer Caches



US&R - - Urban Search & Rescue



# History

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- California Emergency Services Act

- **Article 4.5 – Urban Heavy Rescue Act**

- ***§ 8584. Citation of article***

- This article shall be known and may be cited as the Urban Heavy Rescue Act of 1988.

- ***§ 8584.1. Acquisition and maintenance of urban heavy rescue units***

- (a) It is the intent of the Legislature that the state have an urban heavy rescue capability in the event of a major earthquake. It is also the intent of the Legislature that the Office of Emergency Services and the State Fire Marshal's Office pursue the necessary funding to carry out this article through the normal budget process.

- (b) The Fire and Rescue Division of the Office of Emergency Services shall acquire and maintain urban heavy rescue units and transportable caches of search and rescue gear, including hand tools and protective gear. The division shall position the units and caches to ensure a rapid response of personnel and equipment anywhere in the state, and ensure that a unit will be available on the scene within one hour of a major earthquake.



# History

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- ❑ In 2007, the Governor's Office of Emergency Services (OES) and California Fire & Rescue Training Authority made an application to the Governor's Office of Homeland Security (OHS) for grant funding. The request was for US&R "Medium" Type-2 Cache on a trailer.
  - ❑ The first installment was funded with \$1,000,000 on 9/25/2007.
  - ❑ The second Installment was funded with \$1,434,244 on 4/29/08
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# History

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- 1st Installment Purchased
    - 5 – Type 2 US&R Equipment Caches
      - 22', 2-axle equipment trailers
    - 1 – Training Cache
      - 22', 2-axle equipment trailer
      - Rescue Systems-I training equipment
      - Rescue Systems-II training equipment
      - Trench Rescue training equipment
      - Confined Space Operational training equipment
    - 1 – Type-3 US&R Equipment cache only
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# History

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- 2nd Installment Purchased
    - 11 – Type 2 US&R Equipment Caches
      - 22', 2-axle equipment trailers
    - 2 – Type 2 US&R Equipment Caches
      - 16', 2-axle equipment trailers
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# History

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- ❑ On January 8, 2008 the contract was finalized and awarded to Grainger.
  - ❑ OHS granted an extension to Jan 31, 2008 due to the fires in Southern California which caused the delay in completing the formal bid process.
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# History

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- Assignees were chosen
    - Based on a GIS map
    - Goal - that no California location would be more than 2 to 3 hours away from a US&R Rescue Unit
    - Assignees near these GIS points that could staff these Units were approached
      - Staffing needed to comply with FIRESCOPE recommended training
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# History

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- Assignees will operate under a MOA based on the Fire & Rescue Branch Engine Program
    - Meet MOA conditions
    - Provide Insurance
    - House Equipment
    - Respond to Mutual Aid requests
    - Be subject to Inspections by Cal EMA
-



# US&R Capability

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## Type-2

- Heavy Wall Construction
  - High Angle Rope Rescue
    - (not including highline systems)
  - Confined Space Rescue
    - (no permit required)
  - Trench and Excavation Rescue
-



# US&R Capability

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## Type-3

- Light Frame Construction
  - Low Angle Rope Rescue
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# US&R Capability

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## Other Types Type-1

- Heavy Floor Construction
  - Pre-cast Concrete Construction
  - Steel Frame Construction
  - High Angle Rope Rescue
    - (including highline systems)
  - Confined Space Rescue
    - (permit required)
  - Mass Transportation Rescue
-



# US&R Capability

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Other Types Type- 4

- Surface Rescue
  - Non-Structural Entrapment in Non-Collapsed Structures
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# Required Training

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## Type-3 US&R

- Rescue Systems-I
  - Confined Space Awareness
  - Hazardous Materials First Responder Operational
  - BLS First Aid
-



# Required Training

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## Type-2 US&R

- Rescue Systems-I
  - Rescue Systems-II
  - Trench Rescue
  - Confined Space Awareness
  - Hazardous Materials First Responder Operational
  - BLS First Aid
-



# Trailer Basics

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## Trailer

### Charmac

- 2-Axle (6000 # axles), Electric brakes
  - 22' foot box length
  - 2-48" x 96" through compartments
    - Roll-up doors each side forward of axles
    - Slide out equipment trays
      - Slide out both sides
  - 14 foot rear entry compartment
    - Rear ramp door
  - Code-3 Lighting package
-



*Charmac*

**GOVERNOR'S OFFICE OF  
EMERGENCY SERVICES**

FIRE & RESCUE  
BRANCH

**US&R-TYPE-2**

**CA-OES FIRE**

FUNDED BY GOVERNOR'S

OFFICE OF HOMELAND SECURITY



Charmae

Charmae

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EMERGENCY SERVICES

CA-OES FIRE

US&R-TYPE-2

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FIRE & RESCUE  
BRANCH

US&R-TYPE-2

CA-OES FIRE

**GOVERNMENT  
EMERGENCY**

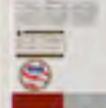
**FIRE & RESCUE  
BRANCH**

***US&R-TYPE-2***

*OFFICE OF HOMELAND SECURITY*



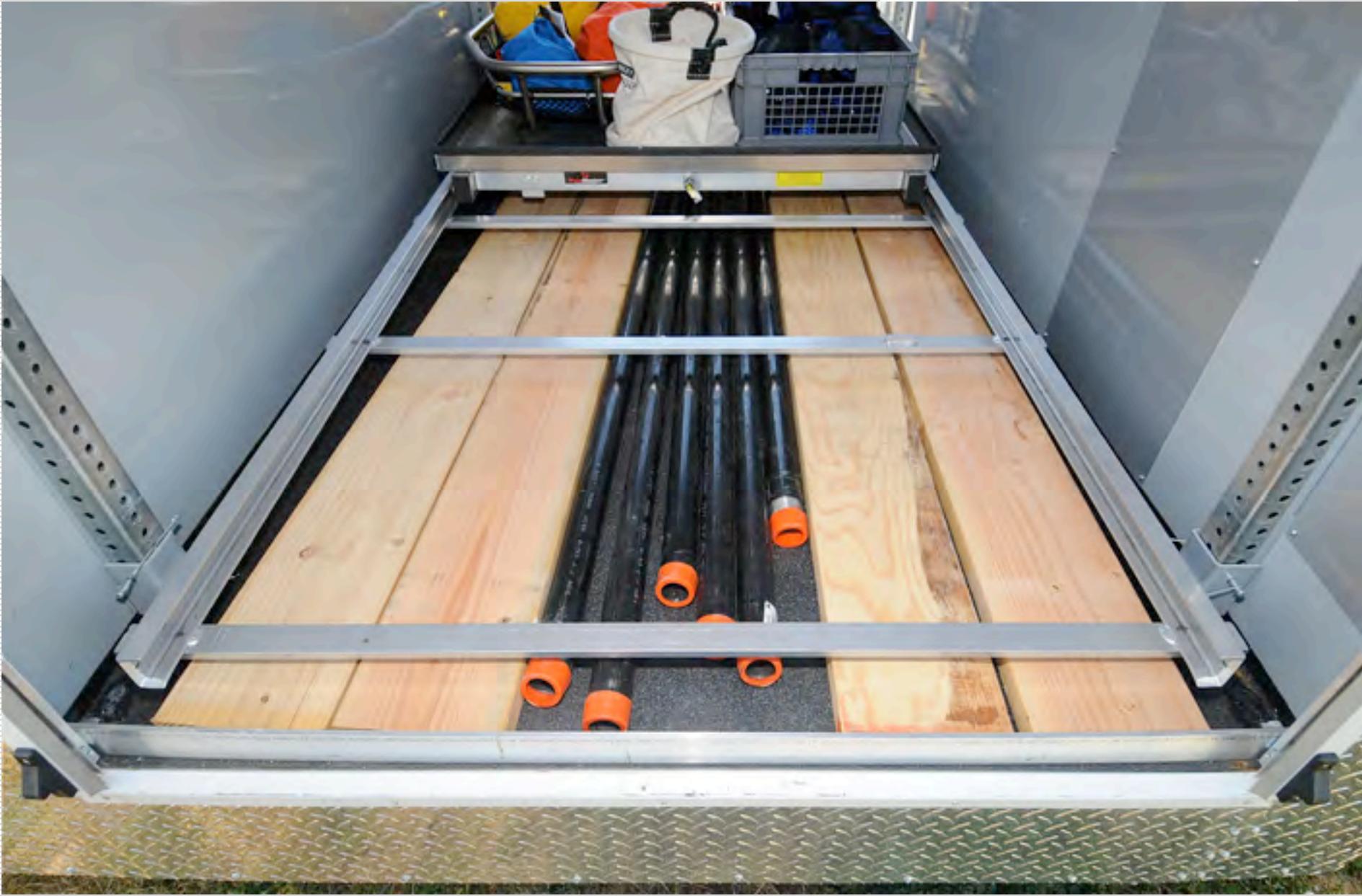
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# Trailer







UCUE  
H  
E-2 CA- Y  
RESURF

O.E.S. US&R  
WATER RESCUE  
CACHE

# Trailer





# Equipment Load

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- ❑ Equipment is loaded to provide a balanced, safe ride without overload.
  - ❑ CHP have assisted in weight and balance between axles and tongue weight
  - ❑ GVW of Trailer is 9,999 pounds
  - ❑ Tongue weight is loaded at 1200 pounds
  - ❑ Load equalizer Hitch is supplied
-

# Equipment Load



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# Equipment Load



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# Trailer Electrical

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- ❑ Trailer is setup for both 12 volt and 110 volt interior lighting.
  - ❑ Protected with Code Standard breaker protection
  - ❑ 6500 KW Generator can power trailer
  - ❑ 110 volt Duplex boxes on trailer are GFI protected
-

# Trailer Electrical



# Trailer Electrical



# Trailer Electrical





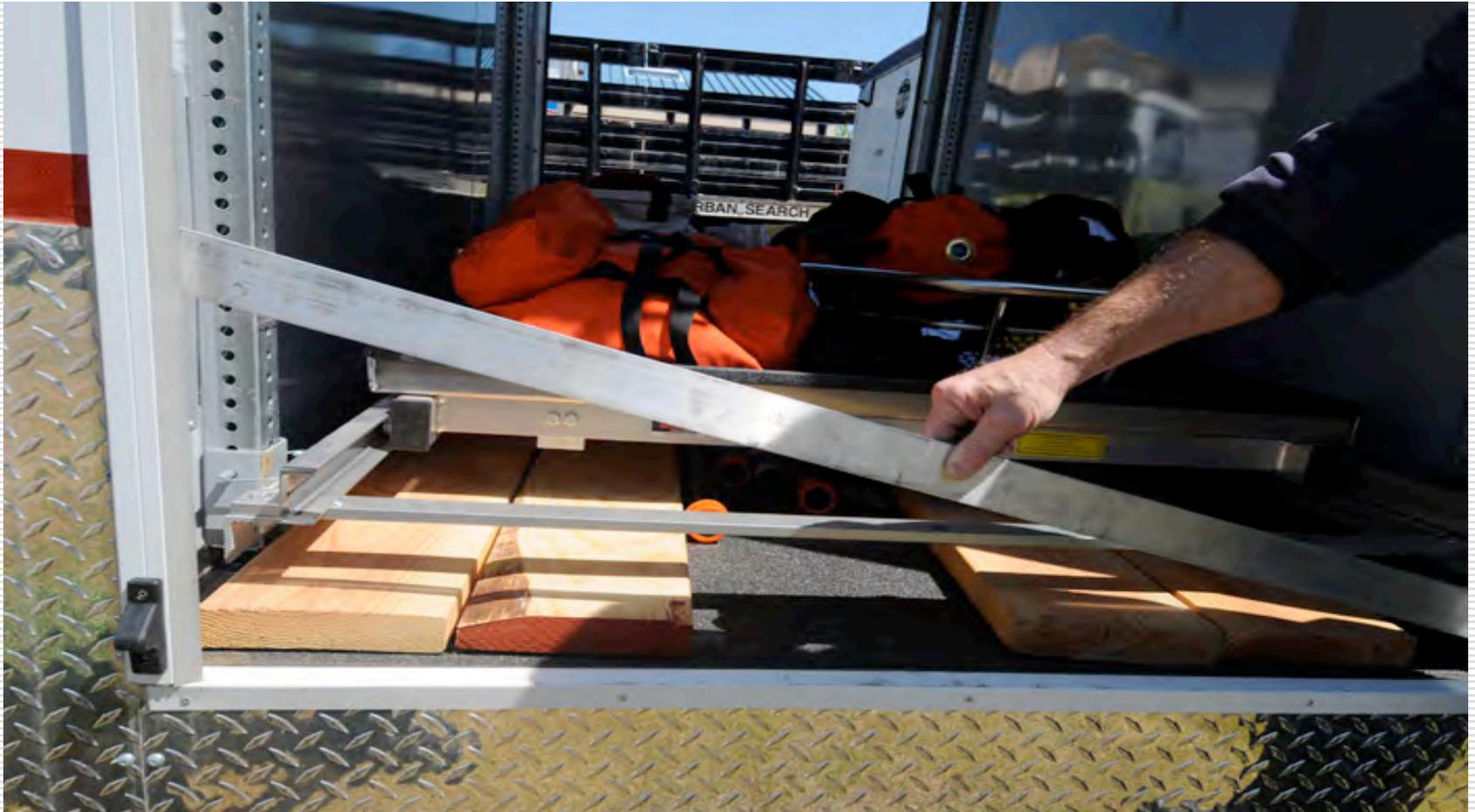
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# Door Protection

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# Door Protection



# Equipment Storage

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# Equipment Storage



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# Equipment Storage



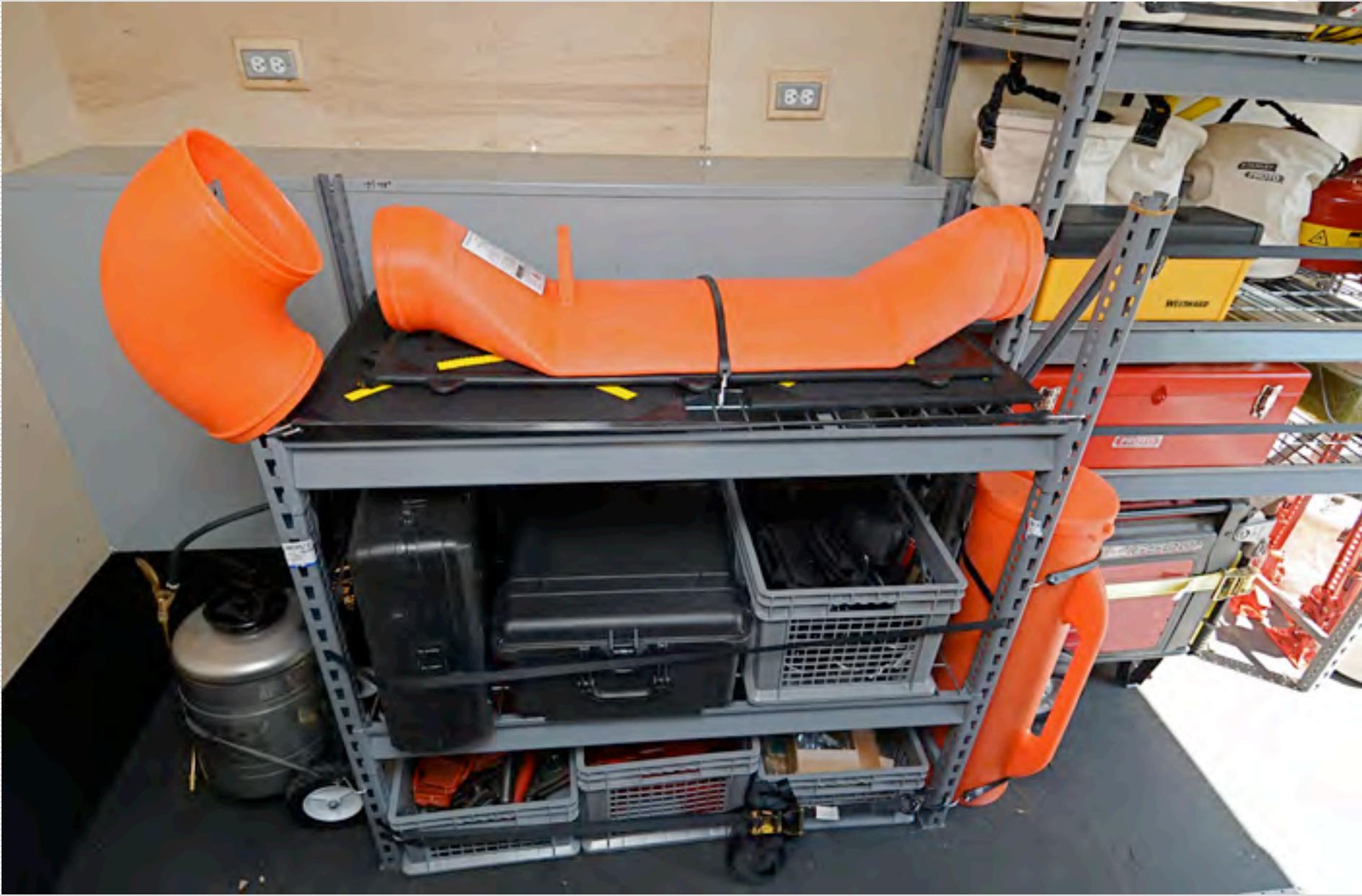


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Two white canvas bags with black handles and straps, one containing a red and black tool.

A coiled yellow and black cable or hose.

Three white canvas bags with black handles and straps, one containing a yellow tool.

A yellow and black toolbox with the brand name "WESTWARD" printed on the side.

Two red fire extinguishers with yellow labels and black handles.



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# Position Labels







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# Equipment ID



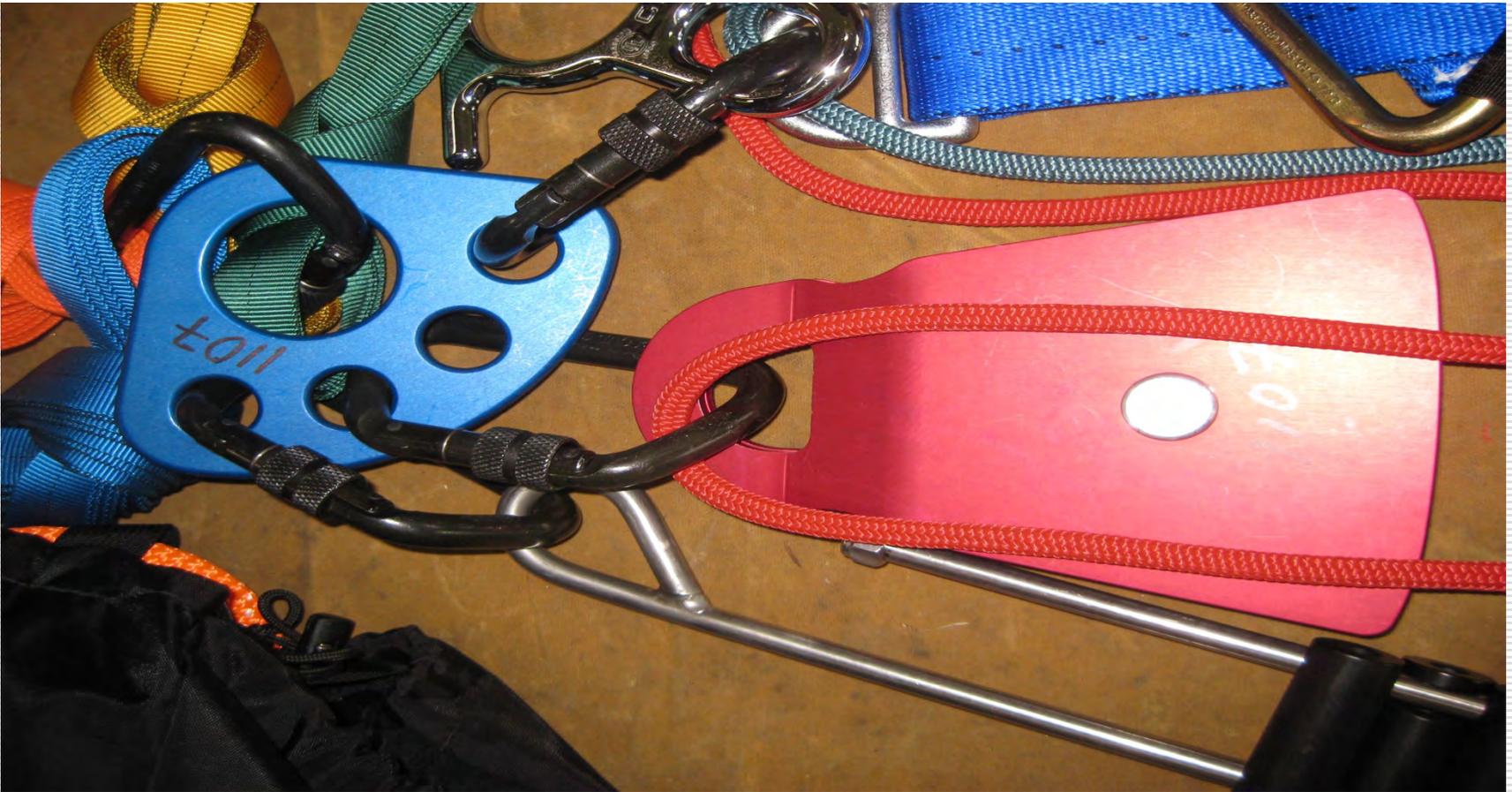
# Equipment ID



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# Equipment ID



# Portable Lighting





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# Portable Lighting

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# Portable Lighting





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# Rope Rescue



# Equipment Recall



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## PRODUCT RECALL

Dear Customer:

CMC Rescue recently sent out a product recall notice for the bars on our CMC Rescue Basic, part number 200890.

Our records show that you received one or more pieces with the first generation bars. Please replace them with the end-coded bars. This can be done easily by reorienting the locking nut using a 5/16 in. wrench. The new bars must be placed in the orientation shown on the reverse side. Please note that the new design has the nuts not slide around the end of the rack as the previous version did. Once all the bars are in place, tighten the locking nut until the end of the frame is flush with the nut. Verify that the bars are positioned correctly so that the rope will pass each bar onto the rack - the rope should be on the side of the bar opposite of the notch that fits over the frame.

While the bars on rappel racks have always been considered to be replaceable by the user, it is very important that the correct orientation be maintained. To assist you in ensuring proper assembly, we've included a sheet titled on our website to show you how. Please visit <http://www.cmcrescue.com> and search for part number 200890 to view it. If you would prefer that CMC make the exchange for you, please contact us. If you have any questions or concerns, please contact our Sales Department at 800-233-8741.

Steve Igoukby  
Supervisor, Quality & Engineering  
CMC Rescue, Inc.





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# Rope Equipment





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# Rope Equipment





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# "A" Bag Setup



# Bag "A"

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- 2 Complete RPM setup
    - 1 with 2 pulleys for "Z" rig
      - With 1 each color webbing
    - 1 with 1 pulley (ie: change of direction)
  - 6 webbing each color
  - 6 pairs of prusik cords
  - 14 caribiners
    - 15<sup>th</sup> caribiner is attached to "pre-rig"
-



# Bag "A"

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- 14 caribiners
  - 3 – 4" pulleys
  - 2 Brake Bar Racks
  - 2 Eight Plates
  - 2 Collector Plates
  - 2 Load Release Devices (LRD or Mariners Knot)
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# Bag "A"

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- 24 Pieces of webbing
    - 6 each color
  - 6 Pairs of prusik cord
    - 6 long; 6 short
  - 1 Pick-off strap
  - 1 Etrier
  - 1 Gibbs ascender
  - 1 Edge Protector
-

# Bag "B"

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- 1 Complete RPM setup
    - 1 with 2 pulleys for "Z" rig
      - With 1 each color webbing
  - 6 webbing each color
  - 5 ½ pairs of prusik cords
    - ½ pair (green short in "Pig-rig bag")
  - 9 carabiners, plus
    - 3 carabiners in "Pig-rig" bag
-

# Bag "B"

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- ❑ 9 caribiners
  - ❑ 2 – 4" pulleys
  - ❑ 2 Brake Bar Racks
  - ❑ 2 Eight Plates
  - ❑ 1 Collector Plates
  - ❑ 2 Load Release Devices (LRD or Mariners Knot)
-



# Bag "B"

---

- 24 Pieces of webbing
    - 6 each color
  - 6 Pairs of prusik cord
    - 6 long; 6 short
  - 1 Pick-off strap
  - 1 Etrier
  - 1 Gibbs ascender
  - 1 Edge Protector
-



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# RPM - "A" & "B" Bags





# Single RPM Setup

## Single RPM Configuration

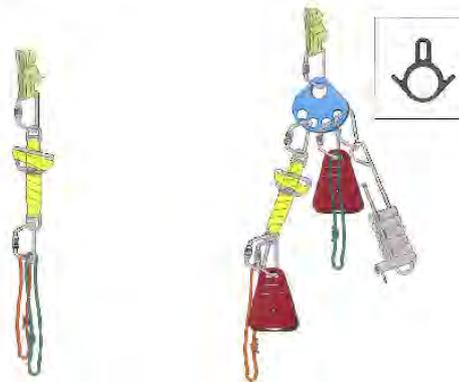


Figure 8-4: Single RPM Configuration Bays/Safety Line

Figure 8-5: Single RPM Configuration Main Line

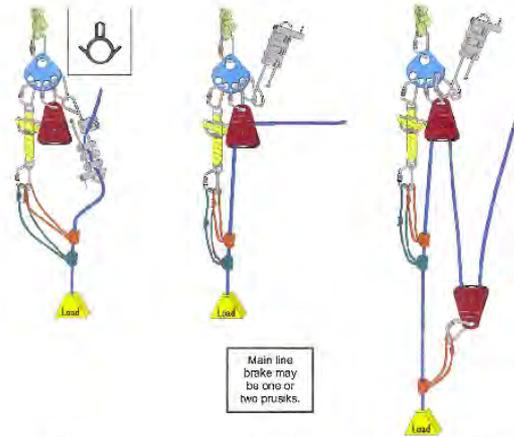
- ❑ Agencies that respond in more urban/structural environments often configure the RPM by attaching the equipment necessary to construct mechanical advantage systems directly to the collection plate. This simplifies operations in environments that provide larger operating distances between the main anchor and the working edge.
- ❑ Systems configured in this way minimize equipment needs and weight of systems utilized in high angle rope rescue operations.
- ❑ Although not specifically supported in this text, systems configured in this way are currently being used safely and efficiently in low angle rope rescue operations.
- ❑ The instructor will modify the RPM configuration to best meet local and regional needs.



# RPM into Z Rig Setup



**LOW ANGLE ROPE RESCUE OPERATIONAL**  
Chapter 11: Lower/Raise (Mechanical Advantage) Systems



- 3) Set the prusik(s) brake.
- 4) Remove the line from the DCD.
- 5) Attach haul prusik (short) to line on load side of prusik(s).
- 6) Install haul line in mechanical advantage pulley.
- 7) Connect mechanical advantage pulley to haul prusik with carabiner.

# Dual RPM Setup

## Prerigged Dual RPM Systems



Figure 8-6: With Brakes Bar Rack

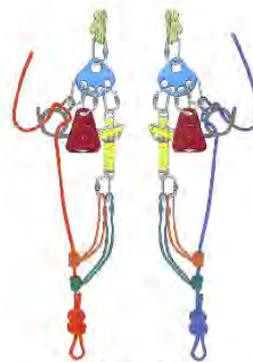


Figure 8-7: With Figure Eight Desender

- Prerigged dual RPMs with tandem prusiks are a common rural configuration where low angle rope rescue operations are most often, if not exclusively, utilizing a directional change pulley off the collection plate.
- When attached to anchors, the RPMs are configured with the load-releasing devices (LRDs) to the inside and adjacent as shown.
- This configuration is ideal for lower/raise operations in environments with a limited operating distance between the main anchor and the working edge. This is a common scenario in over the bank operations on narrow roadways.
- Either RPM can become the belay/safety or main line side of the system based on site specifics and operational needs.
- The equipment required for the construction of the mechanical advantage system is commonly carried in a pocket in one of the two rope bags, bagged separately, or preassembled and attached to a lifeline in a separate rope bag. (Figure 8-3)

# Pig Rig Setup



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# Pig Rig Setup



## Pig Rig Construction: 3:1



Figure 11-15: How to Construct a 3:1 Pig Rig

- 1) Tie a figure eight on a bight with a 4" loop in the end of the pig rig line.
- 2) Place rope on the ground, forming two bights as shown above.
- 3) Place bight "B" into pulley and connect a carabiner to this pulley.
- 4) Connect an anchor sling (5'-20') to this carabiner.
- 5) Place bight "A" into pulley and connect a carabiner to this pulley.
- 6) Secure figure eight on a bight into this carabiner on top of the pulley.
- 7) Connect the short prusik to this carabiner



Figure 11-16: Assembled 3:1 Pig Rig

# Pig Rig Setup





# Pig Rig in use Setup

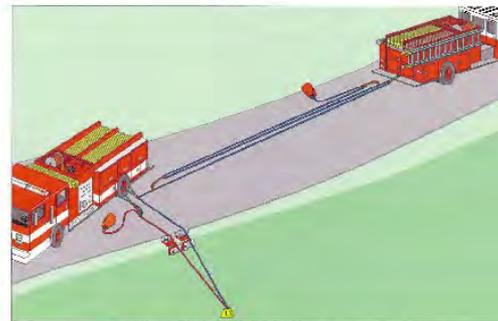
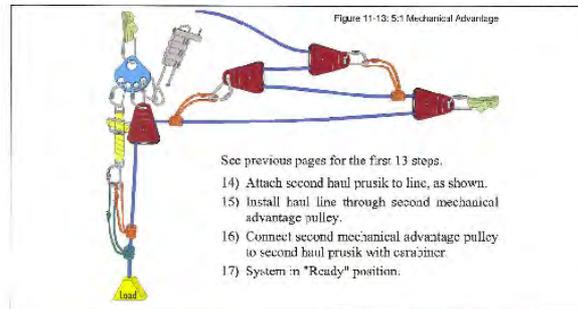


Figure 11-14: 5:1 Mechanical Advantage Directional Change System Layout.

# Liter Pre-Rig

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# Liter Pre-Rig



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# Pre Rig Bag

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- ❑ 1 Collection Plate
  - From "B" bag
- ❑ 2 16' Orange kernmantle tied into 2 legs each
- ❑ 6 Caribiners
  - 1 from "A" bag
- ❑ 4 Prusik cords



# Victim Harness





# Legal

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## Vehicle Registration (copy)

- Laminated
  - In Pouch In Side Compartment
  
  - If you use a toll road or toll bridge, you must pay the toll for the trailer
-



# DO NOT'S

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- ❑ DO NOT add more load weight
    - Fill the 3 fuel cans, that's it !!!
  - ❑ Do not apply decals, signs, stickers, or mount anything to the outside or inside of the trailer
    - No Exceptions
  - ❑ Your Fire Chief has signed a legal document agreeing to the above.
-



# DO's

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- ❑ Plan For Safe Operations
  - ❑ Follow Safe Practices
  - ❑ Keep Each Other Safe
  - ❑ Train, Train & Train
  - ❑ Familiarize Yourself With The Tools & Equipment
  - ❑ Good Luck & Enjoy the Rescue Unit
-

# Questions

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# Cal E\*M\*A Contact

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Fire & Rescue Branch  
3650 Schriever Avenue  
Mather, CA 95655

- 916-845-8711
    - Special Operations
      - D/C Lorenzo Gigliotti– 916-845-8729
      - A/C Joe Gear – 916-825-6416
-