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VEHICLE STABILIZATION (1.1)

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- NFPA 1670

TASK SKILL DESCRIPTION AND DETAIL

This heading includes information about the following:

- Vehicle Stabilization is an essential first step in handling a motor vehicle accident scene.
- A vehicle accident should be sized up from a distance to determine possible stability issues before firefighters approach the vehicle or access patients.
- If a vehicle is on its side or top, it needs to be stabilized
- If a vehicle is on its wheels, it needs to be evaluated for stability, and the wheels chocked at a minimum. The techniques below could be used for a vehicle on its wheels if the vehicle is unstable or on uneven terrain.
- For a vehicle that is on its side, there are two options for stabilization with Paratec struts.
    - Struts on each side
    - Two struts on one side with a tie-back
        - This is the preferred method. When using this method, all of the struts are on the bottom side of the vehicle and not in the way of removing the roof or doors, or blocking access to the patient on the top side of the vehicle.
- The steps for placing struts on both sides are:
    - Prepare the struts before approaching the vehicle. Attach the base, thread the strap through the loop on the base, and attach the tip (if not pre-rigged). Having the strut pre-rigged before approaching the vehicle limits the amount of time spent near the vehicle in a hazardous area.
    - Pre-select the purchase points where the strut will meet the vehicle from a distance. Again this limits the time spent near the unstable vehicle
        - Purchase points should be strong, metal, non-moving, structural points on the vehicle frame, roof, door structure or the unibody (see Figure 1). You may need to break glass or plastic away to gain access to the structure (see Figure 2).

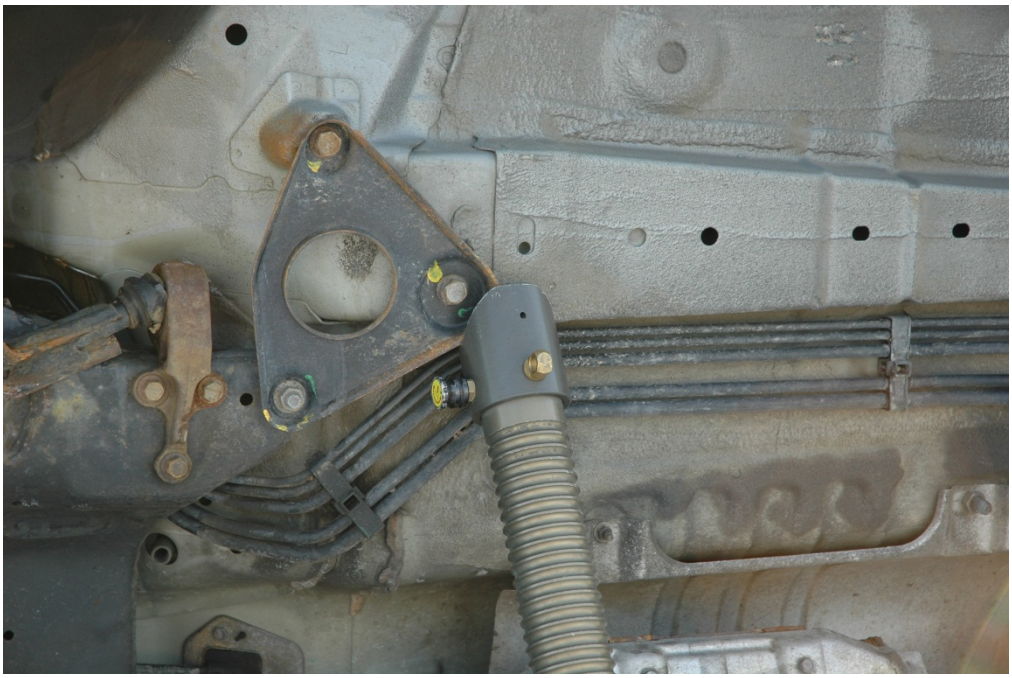

Figure 1 - Strut placed on a structural component of the vehicle

Figure 2 - Break glass to gain a purchase point if needed

- Pre-extend the strut to the approximate height before approaching the vehicle.
- If possible, have one person handle each strut so that they are placed simultaneously.
- Move in on each side and place the strut under a strong, non-moving purchase point as close to the center of the vehicle as possible. Try to place the struts directly across from each other if possible.
- Locate attachment points for each end of the base strap.
    - An attempt should be made to maintain a right triangle between the two legs of the strap and the vehicle. The system will be strongest when all the angles of the struts and straps are as close to right angles as possible (see Figure 3)

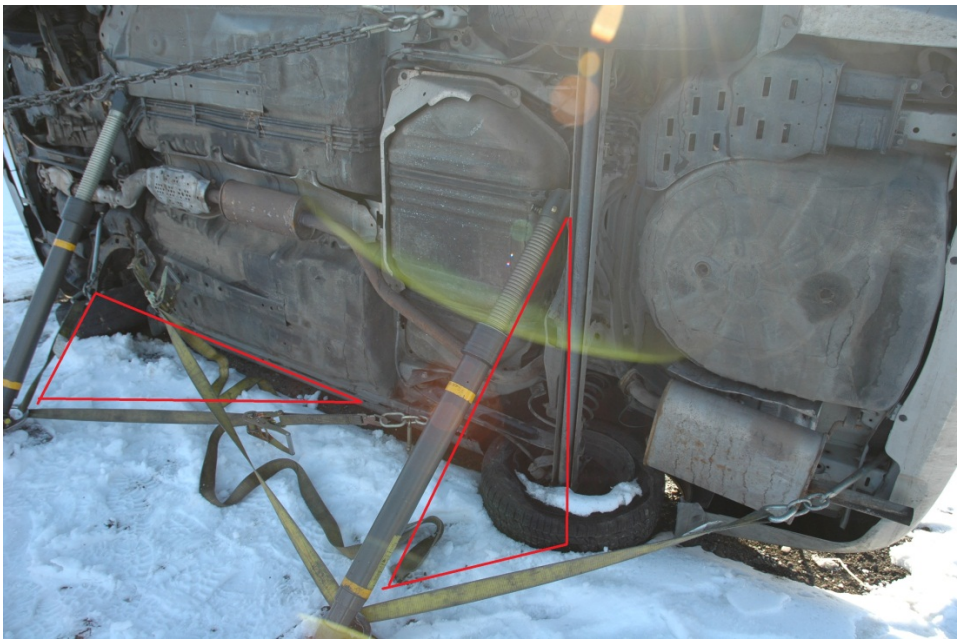

Figure 3 - Create right angle triangles if possible

- On unibody vehicles, utilize the small tie-down holes in the unibody structure as an anchor for your straps. You will need to use a towman's cluster to make the attachment (See Figure 4).

Figure 4 - Towman's clusters allow attachment to the unibody holes

- Attach both ends of the straps and take the slack out of the straps. Once both struts are in place, tighten both straps until the struts are snug.
- The vehicle is now stabilized (see Figure 5).

Figure 5 – Completed two sided stabilization

- The steps for placing two struts on the same side with a tie back are:
  - Size-up and pre-rig the struts in the same way as the previous method.
  - Pre-select the purchase points for the top of the strut as well as the attachment points for the straps.
  - Approach the vehicle and place the struts as quickly as possible.
  - Attach the ends of the straps to the vehicle, making sure to maintain proper angles.
  - Take the slack out of the straps but DO NOT tighten until the tie-back is in place.
  - Attach a chain or strap in a triangle near the top of the vehicle. Make sure not to attach to moving parts such as suspension components (see Figure 6).

Figure 6 - Chain attached to the vehicle in a triangle formation

  - Locate or place an anchor such as a vehicle, guardrail, utility pole, large tree, etc. If utilizing a vehicle, make SURE that the vehicle will not be moved (remove keys and mark steering wheel).
  - Use a come-along to tie back the vehicle to the anchor. Use a chain or strap to extend the reach of the come-along if the distance is too great (see Figure 7).

Figure 7 - Come Along secured to the vehicle

- Tighten the tie-back. Only apply pressure until the vehicle becomes stable. DO NOT over tighten.
- Double check that the straps on the base of the struts are snug, DO NOT overtighten.
- The vehicle is now stabilized.

Figure 8 - Completed one-sided stabilization

- The steps for stabilizing a vehicle on its roof are:
  - Size up the vehicle in the same manner as the previous examples.
  - A vehicle on its roof is usually very stable when on flat ground. If the roof or doors are going to be removed, the structure of the vehicle will become compromised. The weight of the vehicle may cause the chassis to drop, causing a hazard.
  - The vehicle will need to be supported so that the frame or Unibody are held motionless throughout extrication operations (see Figure 9).
  - Pre-rig struts and pre-select purchase points as described above.
  - Place struts on the high side or end of the vehicle. Place the struts to maximize lateral (side to side) stability. Avoid placing struts straight up and down.
  - Attach stability straps.

Figure 9 - Struts placed using the trunk opening for purchase points

  - If additional lateral stability is necessary, utilize additional struts on the sides of the vehicle, secured with straps at the base.
  - The vehicle is now stabilized (see Figure 10).

Figure 10 - Completed stabilization for a vehicle on its roof.

TASK SKILL INSTRUCTIONAL REQUIREMENTS AND IMPLEMENTATION

- PPE for Vehicle Stabilization training should include:
  - Helmet
  - Coveralls or Bunker Gear
  - Eye Protection
  - Gloves
  - Boots
- Training Steps Should Include:
  - Classroom Discussion/ Lecture
    - Hazard Identification
    - Vehicle and Scene Size Up
    - Equipment Identification
    - Stabilization Principles
  - Practical
    - Equipment Stabilization
    - Vehicle Size up/ Pre-planning
    - Vehicle Stabilization
      - Side
      - Roof
      - Wheels
    - Stabilization Removal

- Safety Considerations:
  - Training with real vehicles provides for Real Safety hazards
  - Unstable vehicles present crush injury hazards on the drill ground