RESCUE 42

Innovative Tools for Extrication and Rescue

Basic Vehicle Stabilization

The Rescue 42 TeleCrib® Strut system can be used to quickly and easily stabilize vehicles, aircraft, machinery and light structural situations.

This presentation will go over some of the basic principals of safe stabilization and offer techniques for challenging situations.

Please call or go online and request our free instructional DVD for a more detailed overview of the system and stabilization:

(888) 427-3728,
www.RESCUE42.com

Disclaimer: All stabilization methods in this presentation have been tested and are known to be effective, however, they should be viewed as guidelines as it may be necessary to vary these methods, or adopt new ones. Do not use any procedure that contradicts your department's Standard Operating Procedures.

Sometimes You've Just Gotta Strut Your Stuff...

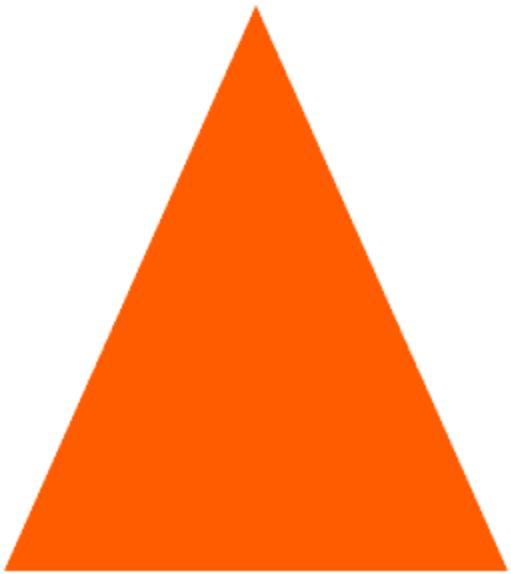
- WARNINGS -

Failure to understand and follow the warnings listed below may lead to equipment damage, injury or death.

- Never exceed working load ratings of struts or components
- Never side load a strut.
- Never use a strut that is cracked, cut, frayed, twisted, dented, bent or creased.
- Never use a strut without an end fitting (base and head).
- Never use for overhead lifting.
- Never change or modify a strut or any strut accessory.
- Never use a pin not provided by Rescue 42, Inc.
- Never use a strap not provided by Rescue 42, Inc.
- Never allow struts to be used by untrained personnel.
- Never use a strap that is cut or excessively abraded.
- Never insert fingers into pin holes.
- Never operate struts without full protective clothing including hand, head, foot (steel toe) & eye protection.
- Never allow a strut to slide in or out uncontrolled. Always control the strut with hands and pins.
- Never use a strut that is extended past the stops with the overextension indicators exposed (orange strip).
- Never carry or lift a strut without a pin installed to prevent the inner tubes from sliding out.
- Never operate a strut without all pins completely inserted through the tube and locked.
- Never use for applications other than emergencies or emergency training.
- Never use where the potential load is unknown and/or may exceed the load rating of the struts.

Stabilization Basics:

Stabilization is about stopping or preventing unwanted movement. If we use the example below, a pyramid with a narrow base is less stable than a pyramid with a wide base.



Wide footprint
will not tip easily

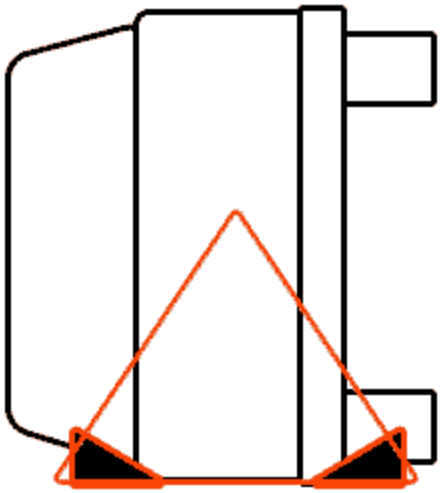
Narrow footprint
tips easily

Stabilization Basics:

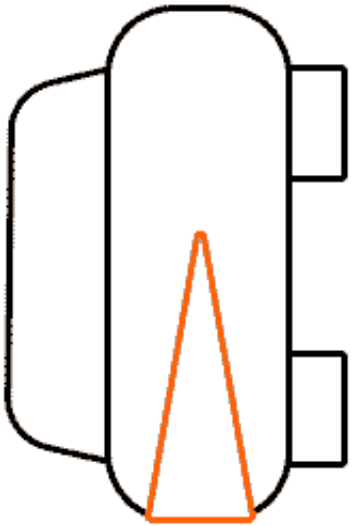
In the past, it was often easier to stabilize a vehicle not on its wheels. Surfaces of older cars were flat and made of steel. A couple of wedges provided enough surface area with the ground to keep the vehicle stable during extrication.

Newer vehicles often have rounded body styles and are made with thin steel or plastic dent resistant panels which can act like springs when they roll and bounce. Because they are more like beach balls than bricks they have a very narrow footprint when they land on their side or roofs, making them more unstable.

Old Car
[Brick]



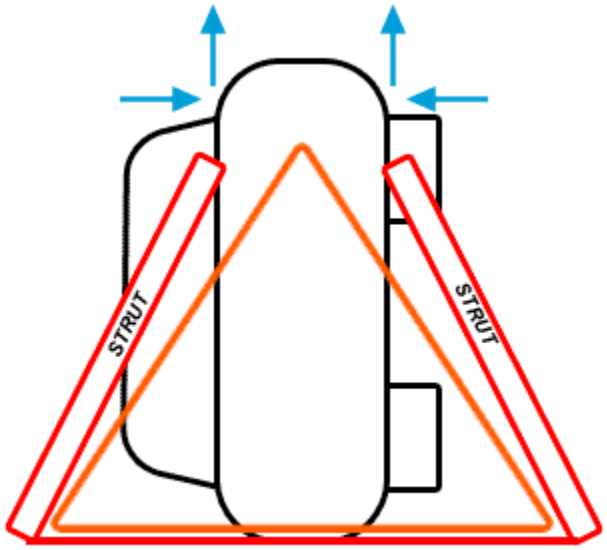
New Car
(Beach Ball)



Stabilization Basics:

The best way to stabilize a “Beach Ball” car, is with tensioned buttresses. A buttress is simply a column (strut) tipped over with its top anchored to the car. Then a tensioning device (ratchet strap) is used to pull the base of the strut towards the car. This helps to apply even force to the car in a sideways and upward direction.

This provides a very wide footprint, which decreases the likelihood of the vehicle tipping over during the extrication keeping both patients and rescuers safer.



TeleCrib® Stabilization System:

TeleCrib® Struts are triple telescoping advanced fiber composite tubes with adjustment holes every three inches. The tubes have stops to prevent the tubes from being overextended and to allow the user to simply pull out as much strut as needed.

Most TeleCrib® kits contain 1,2, or 4 long struts, 1,2 or 4 short struts, several ratchet straps, hook cluster, cinch ring, screw jack head, A-frame head and canvas accessory bag.

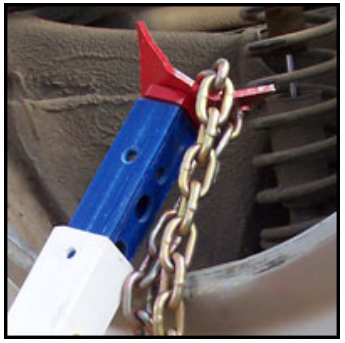
Struts should be carried with bases and heads installed but may be stored in the fully collapsed position if necessary due to space restrictions. Numerous accessories enhance the performance of the struts.

For a detailed description of how to assemble and maintain your TeleCrib® struts, please see your Owner's Manual (can also be downloaded from our website – www.RESCUE42.com)

TeleCrib® Stabilization Basics:

Upon arriving at the scene, analyze the vehicle(s) and establish a plan for patient extrication. Select either a long or short strut and extend the strut so that it will end up between 45º and 70º to the vehicle when tightened. Place against the vehicle with the Combi-head firmly anchored, either in the “V”, with the spike driven through metal, or with the chain slot.

Position a strap from the baseplate to the vehicle or to another strut baseplate and tighten slightly. Repeat the process on the other side of the vehicle, and as many times as necessary until the desired number of struts are in place. When all struts are in place, commence tightening the straps until the desired stability is achieved. Struts may be tightened into place either with a strap, pulling tool, Strut Jack or Screw Jack Head.



Possible Stabilization Scenarios:

Vehicle on its wheels –

Due to increased ground clearance with SUVs and Trucks, traditional step chocks may not be tall enough to secure a car on its wheels.

TeleCrib® Struts can be used to keep a vehicle from rolling on a grade or in this scenario, keep the vehicle body stable to prevent slipping during extrication.

Possible Stabilization Scenarios:

Vehicle on its side –

4 struts: 2 struts against the bottom of the vehicle, 1 at the hood and 1 at the trunk. Attach the ratchet straps from baseplate to baseplate or from baseplate to vehicle framing.

3 struts: 1 strut against the bottom of the vehicle with the ratchet strap from hood to trunk strung though the baseplate hole, 1 strut at the hood and 1 at the trunk with the ratchet straps attached from baseplate to vehicle frame.

Possible Stabilization Scenarios:

Vehicle on its roof –

2 struts: under the trunk or braced against the "C" pillar (typically the "high side" due to motor weight). Ratchet straps from baseplate to baseplate.

4 struts: 2 struts under trunk, 2 under hood or, as shown below right, in framing with ratchet straps connected from baseplate to baseplate or to vehicle framing.

1 strut: supporting under trunk with 3/8" grade 70 chain and ratchet straps providing additional stabilization.

Possible Stabilization Scenarios:

Stacked vehicles –

2 struts: The vehicles are first secured together using a ratchet strap to connect the top car to the bottom car. Using the chain saddle technique (next slide) on the high side of the top car it is stabilized to eliminate slippage that could crush the passenger compartments.

TeleCrib® Chain Saddle Technique:

Depending on the wreck, you may not be able to get a solid purchase point on the vehicle. Our DVD gives step by step instructions on the chain saddling technique – we'll cover the basics here:

The slots on the flat side of the combi-head solidly hold a 3/8" chain link. Rescue 42 dealers carry a 3/8" x 20' grade 70 chain with grab hooks on each end for this purpose.

- To create a chain saddle, simply place the chain under the suspended section of the vehicle (in this case the trunk)
- Slip a link of chain into the chain slot of one strut head
- Keeping the chain taught, place a link of chain into the strut head on the other side
- Tighten the ratchet strap
- You have now completely stabilized the vehicle.

TIP: To keep the chain from "riding up" the body, attach a ratchet strap to each side of the chain around the wheel well (or other stationary object).
This technique also works well with aircraft and machinery stabilization.

Advanced Stabilization Scenarios:

Vehicle around a tree or pole –

If a vehicle is traveling at sufficient speed it can imbed or wrap itself around a stationary object like a tree or utility pole. Extrication is extremely challenging in this case because the only thing holding the vehicle stable may need to be removed for patient access.

In this rescue, TeleCrib® struts were placed on either side of the vehicle to lock it into place at which point the tree could be removed.

The vehicle is almost completely suspended off the ground, but the struts are able to hold it in its original position without further endangering the patient or crew.

Advanced Stabilization Scenarios:

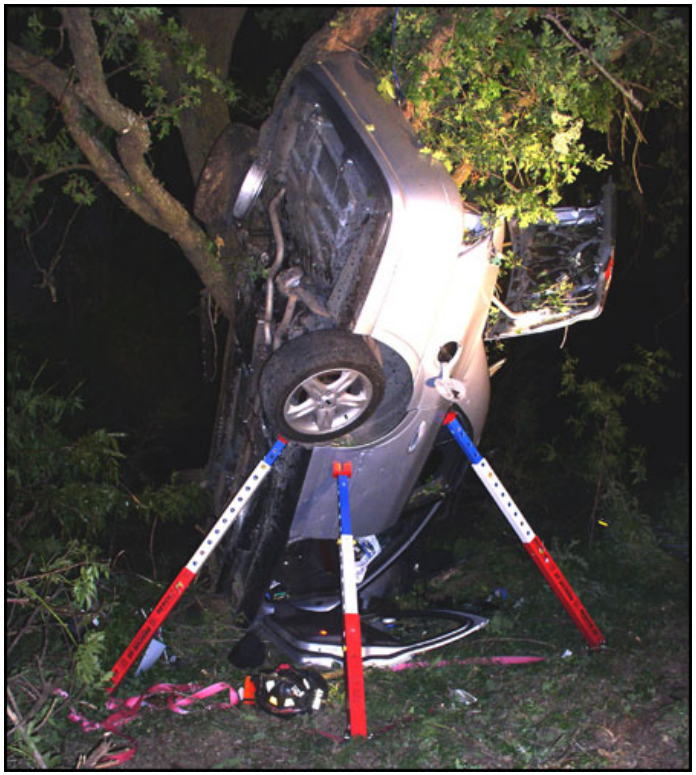
Vehicle in a ditch –

A challenging scenario for rescuers is a vehicle in a ditch or on a significant grade. Great care must be taken to keep the vehicle from shifting or sliding during extrication.

In both of these examples, TeleCrib® struts were used on both sides of the vehicle, as well as at the front/back to prevent it from sliding further.

In the bottom picture, struts were used horizontally to brace the vehicle against the wall to prevent lateral movement.

Advanced Stabilization Scenarios:



Vehicle suspended –

It is also possible for vehicles to end up completely suspended with minimal or no ground contact. Carefully examine the scene before approaching the vehicle. In the example at right, three struts were used to lock the vehicle against the tree. An additional strap could also be looped around the tree and attached to the vehicles framing.

The vehicle on the left was balancing on a large rock. Struts were used to stabilize the rear of the vehicle to allow for removal of the doors.

Additional Instructional Resources:

Resources available from www.RESCUE42.com

- A-Frame Setup (PowerPoint)
- Ratchet Strap Care and Operation (PowerPoint)
- Strut Jack Operation (PowerPoint)
- Tripod Setup (PowerPoint)
- TeleCrib® Owner's Manual (PDF)
- Examples of various Stabilization Scenarios on our "Struts in Action" web pages

Call or go online to order your free Instructional TeleCrib® DVD:

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