

## ROOF RESTING LIFT & INVERTED DASH DISPLACEMENT

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The following article addresses the challenges faced with performing a dash displacement on an overturned or roof-resting passenger vehicle. The method described here combines a few different techniques in both the realm of stabilization/lifting and extrication. The inverted dash displacement illustrates how effective stabilization and lifting can facilitate a rapid extrication of a pinned occupant in an inverted vehicle. Certain situations may eliminate this method as a viable option; however it is an excellent technique to add to the option list.

By now, we are all probably familiar with the various methods available for performing a dash displacement on a typical passenger vehicle when resting upright on its wheels. They include a ram push off the base of the 'B' post, a column pull using chain off the front of the vehicle, and use of spreaders at the 'A' post. There are indeed variations of the above methods as well. Relief cuts made in the 'A' post and the upper front fender frame between the 'A'-post and front wheel aid in isolating the effort and vehicle movement to the target area.

This also decreases the force required to perform the displacement. Less force also means less undesirable tearing or folding of post and floorpan. Typically cribbing is placed between the ground and the push point on the vehicle to prevent the floorpan deflection and tearing in order to maximize dash movement. Vehicle stabilization is usually accomplished with a few step-blocks and wedges.

Now, let's turn the car over on its roof. Let's assume that the roof is moderately crushed. This scenario presents a few problems when the occupant is pinned by the dash and/or steering assembly.

One problem is that there is little room between the vehicle and the ground for the dash to displace without causing unpredictable vehicle movement. Even if the room exists for the dash to drop to the ground after the 'A'-post is cut, one must be concerned about supporting the vehicle to avoid collapse as the roof structure integrity is altered from cutting.

Another problem is that visibility in the passenger compartment may be quite limited due to roof damage and debris. In addition, the push point can't be cribbed to the ground as the vehicle is upside down and the push point is now on the top side and the components we desire to move are on the ground side. Without the correct equipment, stabilization can be a challenge. Cribbing the roof rail may be undesirable if roof removal is required. Box cribs at the rear are labor, time, and material intensive and provide no positive connection with the vehicle. Such cribbing may also hamper patient access and extrication.

The solution to the support issue once the 'A'-post is cut is to have rear end stabilization in place prior to cutting. If space between the dash and ground is needed to allow the dash to displace, a rear lift of the vehicle will typically resolve this. Both of these issues can be resolved with the Res-Q-Jack® equipment where the techniques for roof resting stabilization and rear lift are employed.(Fig.1)

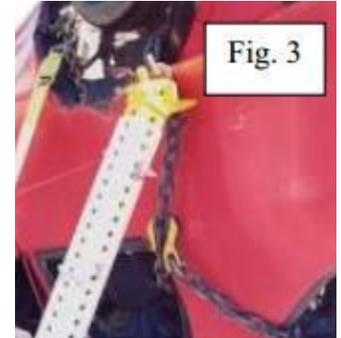
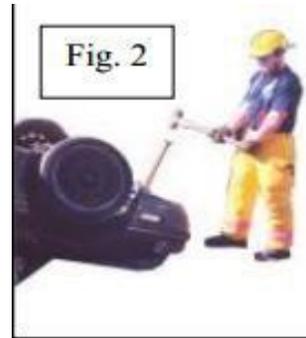


The universal roof-resting stabilization and lift techniques developed allow for unencumbered patient access and multiple extrication options. It provides a quick, repeatable, and safe procedure to both stabilize and lift the roof-resting passenger vehicle. The initial stabilization is accomplished by wedging the nose of the vehicle.

Next one might consider translational stabilization to Fig. 1 prevent sliding movement of the vehicle. This may be accomplished by tying the vehicle off to fixed objects. Another unique Res-Q-Jack® technique is to drive a picket through the hood and into the ground where the situation allows. (Fig.2) Next a restrained chain saddle around the rear of the vehicle or rear post chain wraps provide for positive purchase points for the Res-Q-Jack® CRG heads. (Fig.3)

A jack strut is placed at each side of the vehicle at approximately a 50 degree angle. The bases are tied to each other with a 3300 lb. (WLL) strap and tightened. If no lift is needed we need not go further with this setup. However, if lifting is desired, the rear facing cam straps pre-attached to the bases are hooked into the chain at a reasonable distance below the end fitting to create triangles on each side of the vehicle. These straps are not yet tightened. They are left somewhat loose to allow the vehicle lift to occur without damage to straps. If sway becomes a problem during lift, straps may be quickly tensioned to prevent movement. Once the vehicle is close to desired height, the straps may be tightened up by hand.

Additional jacking will apply final tension to these straps. A third stand may be applied at the rear of the vehicle by creating a purchase point in the rear of the trunk lid with a hammer and halligan if purchase can not be made in another fashion. Ratchet straps attached to the third stand base and the side stand bases will tighten and restrain the third strut.



The front facing cam straps on the side struts are run up to the undercarriage to counteract load of third stand on side stands. With the above method, equipment, and a little experience you now have a stable elevated roof-resting vehicle in about three minutes.

An interesting technique to allow visual access into the passenger compartment which exposes both the hinge and nador sides of the door simultaneously is to squeeze the rocker panel just beneath the bottom door seam. (Fig.4)

Following this squeeze, the spreader tips can be placed between the rocker panel and the door bottom. A few small spreads should allow the rescuer to get the spreader tips to reach in beyond the door side trim in order that the entire door assembly may be spread outward forming a shape like a 'V'. (Fig.5) With this done, visibility into the compartment should exist, and both the nador pin side and the hinge side of the door should be slightly opened to allow tool access.

Following door removal, the portion of the front fender panel between the front wheel and the 'A'-post should be spread apart from the vehicle beginning at the undercarriage side working toward the hood side. (Fig.6)

This should expose the upper fender rail. This rail should be severed just behind the front wheel suspension spring. (Fig.7)

Next, a three inch section of the 'A'-post should be cut out where the windshield meets the dash. (Fig.8) This gap prevents the two cut ends from jamming together.

To address the risk of tearing or folding the floorpan due to inability to crib between floorpan and any ground, the 'A'-post should be cut aggressively from the dash side all the way into the wheel well as deep as possible at the bottom of the dash. (Fig. 9)

A second cut could be made higher toward the floorpan just above the hinge. (Fig.10)

The section of 'A'-post located between these two cuts, can be bent out towards the front of the vehicle with the spreaders. (Fig.11)

The spreaders are now inserted into the cutout in the 'A'-post. (Fig.12)

Spreading should lower the dash. (Fig.13)

If this procedure is not working, a ram should be used between the base of the 'B' post and the 'A'-post near the dash.

