Hutchens Hybrid Installation Instructions

Version 2

Helmet D-Ring Attachment

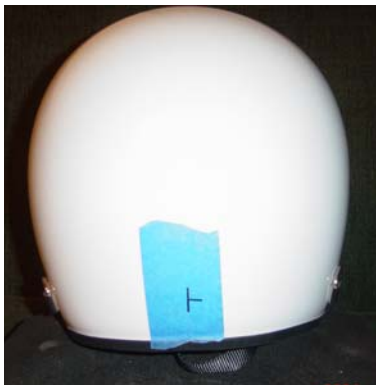
The Hutchens Hybrid Head and Neck Restraint comes with all of the parts to attach the D-rings to the helmet.

Supplied are (2) 10-32 ½" screws / (2) Nut-Washers / (2) Back-up washers and (2) D-rings.

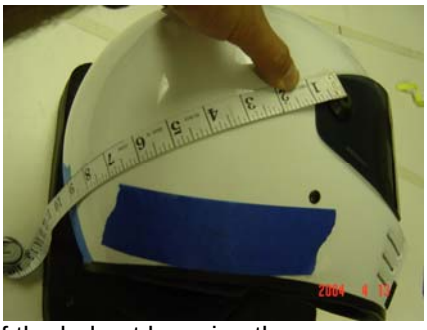
To locate the D-rings: Find the center of the helmet by:

1) Place a piece of masking tape at the center of the rear of the helmet, (estimate)

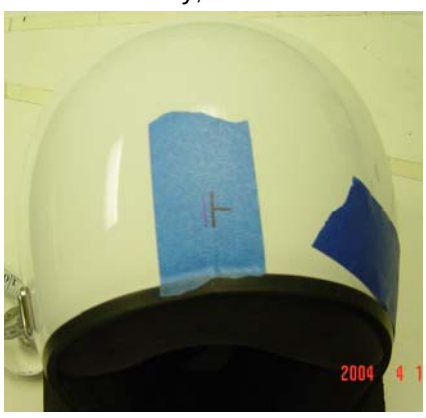
2) Mark the center of the tape 1.5" above the bottom of the helmet.

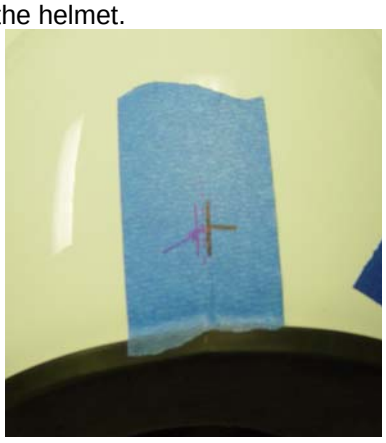


3) Measure from the helmet visor screw to the marked centerline on the right side of the helmet.



3a) Mark the left side of the helmet by using the measurement found in step 3 for the right side. Measure from the left side visor pivot point to the mark in the rear of the helmet. At the same distance as on the right side, mark on the tape on the rear of the helmet vertically, 1.5" above the bottom ridge of the helmet.





4) You should have two marks on the tape on the back of the helmet. Measure the distance between the two marks. The center of the two measurements is the center of the helmet.

5) Measure from the new centerline around the helmet 5.5" (+.5" /-0.0"). Mark this spot 1.5" (+.25" / -0.0") above the bottom of the helmet. Repeat the procedure on the opposite side of the helmet. Make the measurements on both sides of the helmet equal.

6) Drill the helmet using a 3/16" drill at the point marked in step 5.

7) Clean the hole in the helmet as much as possible. Use a medium strength thread locker on the Nut-washer and place it on the inside of the helmet over the hole. Tread the screw from the outside of the helmet trough the D-ring and into the helmet and Nut-Washer.

8) Tighten the helmet D-ring screw snuggly. Over tightening is not necessary and could damage the helmet shell.

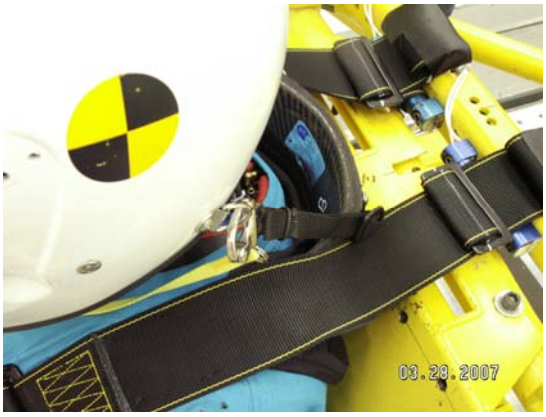
Fitting the Hutchens Hybrid Restraint in the car.

The Hutchens Hybrid is placed in back of the occupant between the seat and the wearer's back and shoulders. Because of this, it is recommended to contour the back of the seat with the foam seat inserts provided. This will help the restraint become a part of the seat from a comfort standpoint. If the foam is not used, the wearer may feel like they are able to "rock" from side to side in the seat with the restraint on.

FOAM back pad installed inside of a typical stock car seat.

The wings of the restraint should extend under the shoulder belts between the seat back and the occupant.

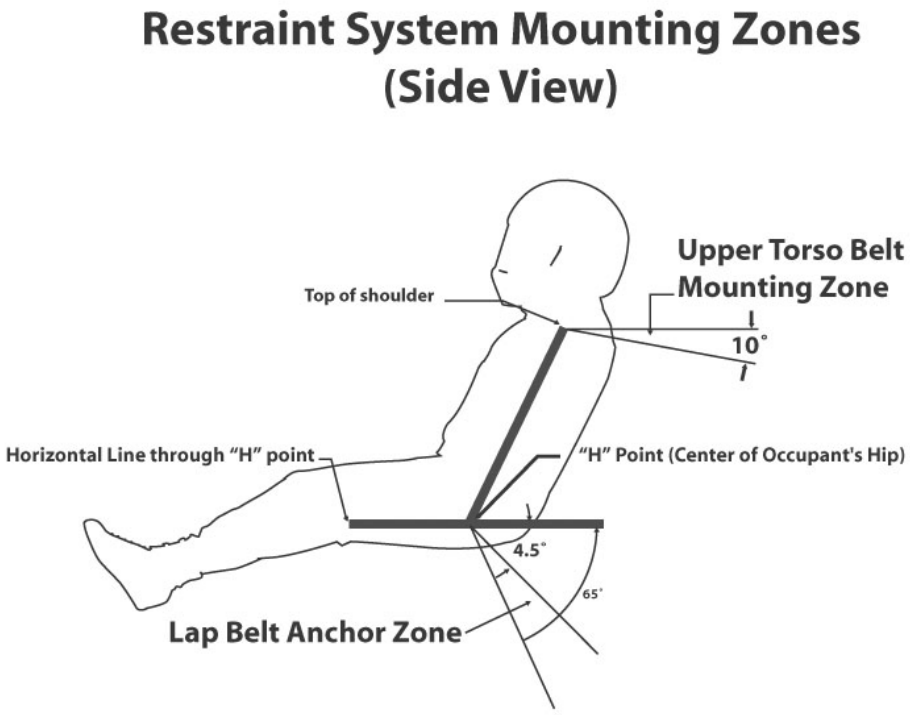
The shoulder belts of the car should be mounted with the shoulder belts mounted at 0 to 10 degrees down from the top of the shoulder.
(If the shoulder belts are mounted lower than this, the occupant will be pushed forward by the restraint when the shoulder belts are tightened.)



Top and side view of SFI test set-up for shoulder belts.

The Shoulder belts should be mounted with a separation at the back of the seat for the wider Hybrid Models. A picture of the SFI set-up and a typical stock car set-up is shown for comparison. The shoulder belts should be mounted as close to the occupant as possible, separated by 2-3 inches at the mount.

ISP Seat System set up for a Hybrid.



The correct restraint model, (I.E. Sprint, Late Model…..) is chosen by the seat angle and contour. The restraint should "fit" the contour of the seat and head rest / head restraint as well as the width of the seat and wearer's neck and shoulders. The wearer can quickly determine if the restraint will fit into the car's seat by holding it against the back of the seat lined up with the shoulder belts.

If the restraint is uncomfortable even after working with the foam insert, a different model may be chosen.

Fitting the Restraint to the Wearer

The Hybrid Head and Neck Restraint has an adjustable chest strap to fit a variety of wearers.

To adjust the chest strap: loosen the chest strap in the buckle and slide the buckle to fit the occupant's chest size. Since the chest strap provides a load path for head load, the harness should fit snug to tight in the chest area.

Waist Strap Adjustment and Fitting

The waist strap needs to attach to the seat belt buckle. It is a load path for the restraint, stabilizing the carbon part on the back of the wearer. There are different attachment methods and ends to connect into a variety of different racing harnesses. The photo bellow shows a latch and link buckle system.

Buckle attachment to Seat Belt System

Latch & Link Tabs

Large Ring

Small Ring

To adjust the Waist Strap, the wearer must be seated in the race car. The loops can connect into any part of the seat belt buckle that allows the loops to fall off the buckle when the buckle is released. There are systems that lend themselves to having the loops on the shoulder belt links or lap belt links or on the tongue of a latch and link system. A variety of links and loops can be ordered from Safety Solutions or your dealer.

The waist straps should be adjusted to be snug when the buckle is latched. You should be able to fit at least 2 to fingers under the belt when the buckle is latched. Adjustment is made by sliding the 1" webbing attaching the loops through the 3 bar adjuster on the Waist Strap. When the final adjustment has been made, insure that the webbing is "locked down" by weaving the webbing back through the adjuster as shown.

Helmet Tether Adjustment / In Car Adjustment:

The Helmet Tethers need to be adjusted with the wearer seated and buckled into the vehicle.

Restraint Tethers

Get into car and buckle into the seat system with the Chest and Waist Straps adjusted.

Once seated in the car, position the restraint comfortably under the shoulder harnesses and between the foam pads inserted in the seat.

With the helmet strapped securely, pull the yellow Quick Release tethers to open the Quick release on the restraint.

Attach the quick release to the Helmet Hook on the helmet making sure to have the tether ring pointing down.

(The Quick release will release better if the bail is hooked to the helmet D-ring from the "outside in".)

The helmet tethers are adjusted by weaving the tether through the 3-bar adjuster attached to the restraint. Make sure to lock the webbing when adjustment is made by weaving the tether back through the 3 bar.

With help, adjust the Helmet Tether to allow 1" (+1.25" / - 1.0") of straight forward movement before restraint is felt. *(Early restraint has been seen to reduce the overall neck tension in an impact with a Hybrid Head and Neck Restraint.)* This should allow up to 45 degrees of side to side rotation.

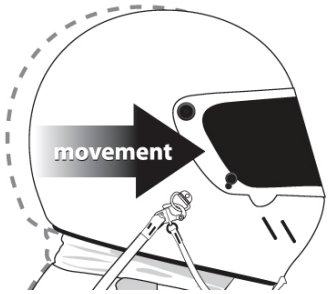


Diagram of Helmet Adjustment

Quick Release Tether Placement

The quick release tethers should be Velcro'd to the chin bar of the helmet or they can be cut short if desired. NEVER attach the tethers to the seat belts or the car.