

Tucker Helmet Harness Installation Instructions & Use.

It is important to note that the Tucker Helmet Harness concept has been used by sprint car, stock car, and monster truck drivers for many years before the Hans or Hutchens devices were even thought of. At the time, the concept was called a helmet restraint strap that looped around the shoulder and under arm while attaching to the side of the helmet. The Tucker Helmet Harness took this concept even further by modifying the tethers allowing all helmet loads to be transferred through the tethers directly to the seat harness, eliminating stress on the body resulting from the use of harness devices such as the Hutchins or D-cell designs. Additionally, crash tests prove that side impacts cause the shoulder belts to slip off the opposite shoulder. However, the Tucker Harness has the tether on the outer sides of the seat shoulder harness; the tethers pull the opposing shoulder harness along with body keeping the strap directly located on the shoulders.

The Tucker Helmet Harness is designed to provide slight forward movements also referred to as “nod” movement as well as minor rotation to access vision through side mirrors. This “nod” movement is helpful for monster truck drivers to see through the clear polycarbonate floorboard while negotiating a wheel stand or high jump over a bus or motor home. Additional “nod” movement is important in an open cockpit car with low reclining seats commonly found in formula type racecars

Several Monster Truck racers have noted that their thick foam helmet supports caused lifting of the helmet shell, but with the use of the Tucker Helmet Harness the driver can use the tethers to draw the helmet back down to the normal position creating a euphoric type, free-floating sensation or weightlessness in the head region. The head is supported in an upright position that is in-line with the spine during high jump and free style competition. When both end-over-end and lateral rollovers occur, the tethers act like stabilizers insuring that the head rests comfortably inside the helmet stable and secure. This harness can reduce the need for the attachment of a headrest to the seat. However, a lateral g-force headrest is recommended on both right and left sides for all seats.

- 1) Checking helmet for proper fit before helmet harness hardware installation. Place helmet on wearer noting that all helmets shall fit in accordance with the manufacturer supplied instructions: helmet shall be form fitting, have the current SNELL Foundation rating (see your track or race organization rule book) and shall be used with snugly fastened chin strap at all times.
- 2) Locating the mounting points of tether attachment points of D-Rings on wearer's helmet. The D-rings shall be mounted somewhat behind and on a level with or slightly below the ear openings and then mark the location on the outside of helmet.

- 3) Drilling rivet fastener through holes in shell. Using a 3/16" diameter drill bit in drill, wrap a section of visible tape 1/4" from cutting tip of drill around bit shank to prevent drilling too deep into the helmets interior as damage to foam and or knit liner may occur. Drill holes on each side of helmet in location previously marked. After holes are drilled, use a larger size drill to clean up sharp edges on holes to prevent load stress risers.
- 4) Attachment of D Ring Hardware Assembly. Insert 3/16" diameter rivet supplied though d-ring tab, then through helmet shell hole. Place support washer on back or inside wall of shell while aligning holes and insert rivet through support washer and crimp rivet with rivet gun making sure the assembly is compressed tightly. Repeat this step for other side. Rotate tether d-ring with adequate lever arm pressure until right side is at 7 o'clock, left side is at 5 o'clock position. This will assure helmet and tethers load uniformly.
- 5) Connecting Helmet Harness to Helmet. Put helmet harness on, get into race vehicle seat and connect all seat belt straps (do not tighten yet), next attach loose helmet harness tethers to d-rings, then tighten seatbelts in the following sequence: tighten lap first, this allows pelvis region to be positioned at the optimum location, this is a point were the seat back and seat bottom join together. Next tighten seat belt shoulder harness securely; tighter is better. At this point, a round foam helmet support can be worn as it can greatly aid in comfort while taking some of the helmet load off the neck region. Then, adjust helmet tethers snugly or until the helmet reaches the limits of the tethers, here the wearer's head loads the brow area, this load then is transferred through the tethers into the seat restraints. Otherwise, a loose tether causes much of the inertial load, this is the combined helmet and head load transferred to the seat restraints though the wearer's neck.
- 6) Interior Safety Checks. Given all the information herein, the mounts shall be placed as indicated for proper functioning of the Tucker Helmet Harness but that care be taken to assure a good load transfer from shell to the tethers; making sure that the support washers supplied will prevent the fastening assembly from tearing loose from the shell. Beware that there shall be no projections on the inner liner surface of the shell to serve as puncture and/or laceration hazards for the wearer.
- 7) Using Your Tucker Helmet Harness In Competition. It has been determined that this device is effective with or without the addition of a firm, high density foam SFI certified helmet support. The helmet support, however, is highly recommended for comfort as well as safety. If the driver uses a helmet support in conjunction with the Tucker Helmet Harness, the benefits will be diminished road/engine noise as well as vibration normally experienced in the head and neck region. It has also been found that neck fatigue is greatly reduced by the use of this device.
- 8) Release the Tucker Helmet Harness. Simply grab the release lanyard strap (yellow) located at cheek bone level using one hand on each side of helmet; pull outward or

forward toward steering wheel. After the tethers are released, the driver may release shoulder harness belts.

- 9) It is imperative to practice the emergency evacuation cycle at least 25 times at an evacuation time of under a maximum of 10 seconds. This time frame includes the time the driver first pulls on the release tethers, releases the seat belt harness, force air hose, radio wires, cool suit hose, window net, and occupant is completely out of the race vehicle. Further it is recommended that all users of helmet devices advise the safety steward of their specific helmet head and neck device release operation.