

*SCHROTH Racing Harnesses are
engineered and manufactured in Germany.*



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Installation and Operating Instructions for Racing Harnesses Quick Guide

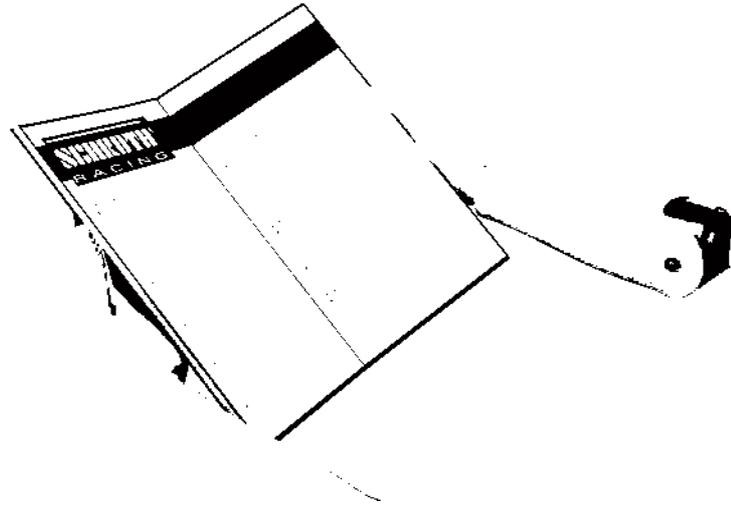
**ONLY for Porsche 911 Carrera [Type 992] GTx and
Cayman [Type 981 und Type 982] GTx vehicles**

QUICK GUIDE RACING HARNESSSES

WARNING

WARNINGS provide important information about proper installation, use or modification of the SCHROTH racing harness.

Ignoring these Warnings will significantly reduce the performance of the racing harness system, which can result in serious personal injury or death.



WARNING

Risk of serious injury or death. NOT street legal.

Persons who weigh less than 40 kg [88 lbs.] or who are less than 150 cm [4'11"] tall, regardless of age, must NEVER use SCHROTH racing harnesses.



DEFINITIONS

shoulder belt
[A]



3-bar slide

release strap



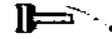
tilt lock adjuster

FIA label



FIA main and hologram label

lap belt
[B]



bracket

anti-sub strap
[C]



adjusting grip
rotary buckle
tilt lock adjuster

drawing shows standard Profi racing harness

PACKAGE CONTENS

Installation hardware:



2x fixing screw for lap belt



2x fixing screw for anti-sub strap



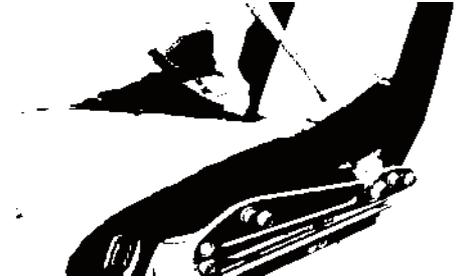
2x sleeve for lap belt



2x sleeve for anti-sub strap

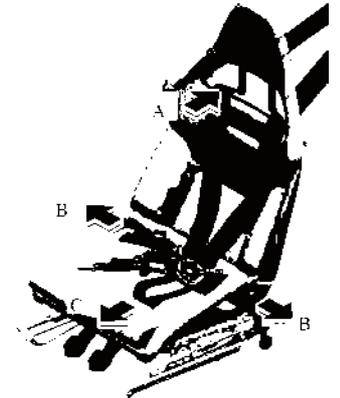
ASSEMBLY PREPARATION ON THE BUCKET SEAT

Before installing the 6-point harnesses, remove the 3-point belt including the belt buckle from the seat!



- Pull the shoulder straps through the dedicated upper openings of the backrest **-arrow A-**
- Pull the lap strap through the dedicated openings on the side of the seat **-arrow B-**
- Pull the anti-sub straps through the dedicated seat crotch-belt-slots **-arrow C-**

Safety harnesses must always be **on a straight line** between the seat and the anchorage points **without loops, twist or divert!**



If all of the intended restraint systems (airbags and 3-point belt) are installed and functional in a vehicle, wearing the six-point harness and / or a helmet is not permitted. Wearing a helmet without a HANS is not recommended.

General information of the seat belts can be found in the Owner's Manual of your vehicle.

ANCHORAGE LOCATIONS AND GEOMETRIES

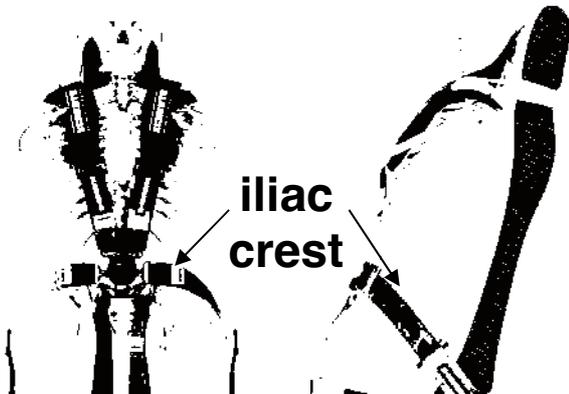
BELT ROUTING

- optimise strap routing around and from the wearer's body
- optimise anchor point locations

An occupant can be effectively restrained **ONLY** by load transfer through the hard points of the occupant's body. The only accessible hard points are the following:

- pelvic [iliac crest]
- thorax [chest] to a limited degree only
- clavicle [shoulders]

For this reason, the belt routing shown in the following graphic must be observed.



Optimal performance of your racing harness requires proper installation and proper use. Heed and obey the following instructions with respect to racing harness geometry and routing:

- Bracket installation and operation
- Wearing the racing harness
- Adjusting the racing harness

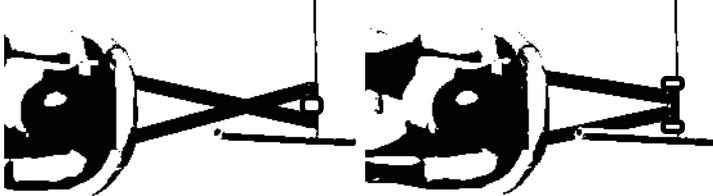
INSTALLATION INSTRUCTIONS

SHOULDER STRAPS [A]

It is important to ensure that the strap is as straight as possible (from the fixing point on the safety cage to the top of the FHR)!

For attachment to the roll bar, see p.11 ff.

Prevent lateral slippage of the shoulder strap fixing by additional measures (the yellow elements)!

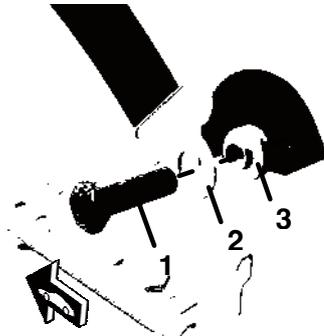


schematic visualization of the safety harnesses, when the straps are crossed

schematic visualization of the safety harnesses, when the straps are not crossed

LAP BELT AT THE TRANSMISSION TUNNEL [B]

- Before installing the strap, remove the perforated area of the carpet and the insulation.
- Move bucket seat to the foremost position.
- Position the dedicated spacer sleeve -3- and harness bracket of the lap strap -2- on the hole provided and tighten with the dedicated fastening screw -1- (tightening torque 50 Nm).



Installation notes:

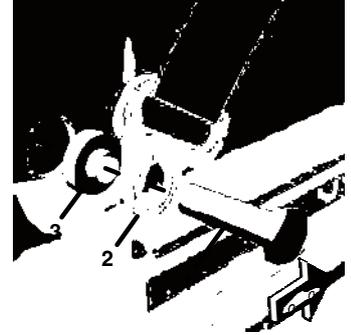
direction of the bracket upwards
angle of the bracket inside

LAP BELT AT THE SIDE SILL [B]

- Before installing the strap, remove the perforated area of the carpet and the insulation.
- Move bucket seat to the foremost position.
- Position the dedicated spacer sleeve -3- and harness bracket of the lap strap -2- on the hole provided and tighten with the dedicated fastening screw -1- (tightening torque 50 Nm).

Installation notes:

direction of the bracket upwards
angle of the bracket inside

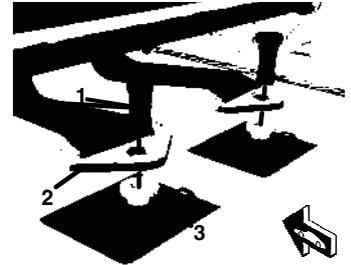


ANTI-SUB STRAP [C]

- Before installing the strap, remove the perforated area of the carpet and the insulation.
- Move bucket seat to the foremost position.
- Guide the harness brackets -2- through the seat to the rear, position them with the dedicated spacer sleeve -3- [only in 911 Carrera (Type 992) GTx] on the hole provided and tighten them with the dedicated fastening screws -1- (tightening torque 50 Nm).

Installation notes:

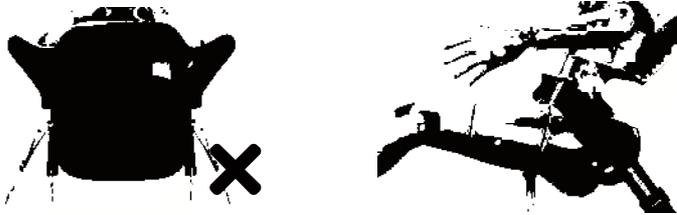
angle of the bracket upwards



spacer sleeve -3- only in 911
Carrera (Type 992) GTx

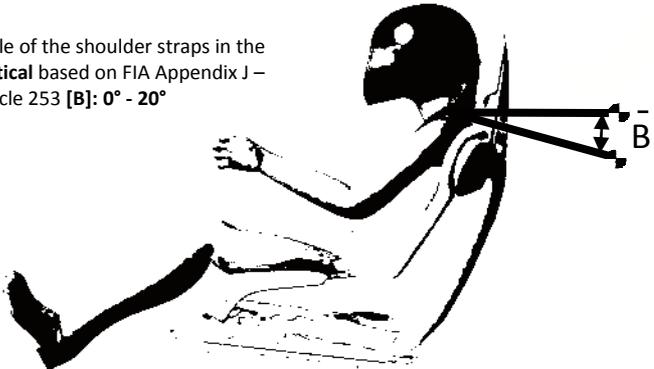
SHOULDER AND LAP BELT ROUTING [APPLIES TO ALL RESTRAINT TYPES]

To achieve optimal restraining function – lap belt strap length must be as short as possible. This requirement can be achieved by following the instructions set forth below:



VERIFICATION OF THE SHOULDER STRAP ANGLES [A] - ONLY VALID FOR 911 CARRERA [TYPE 992] GTX

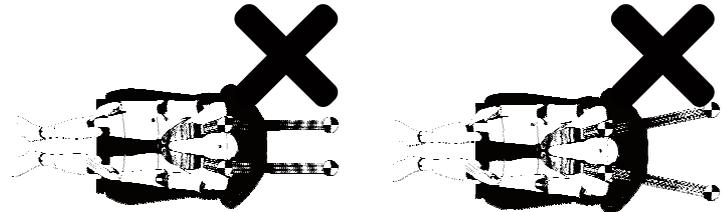
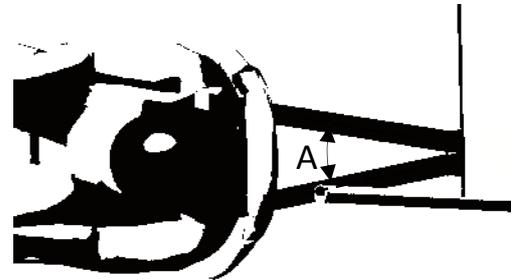
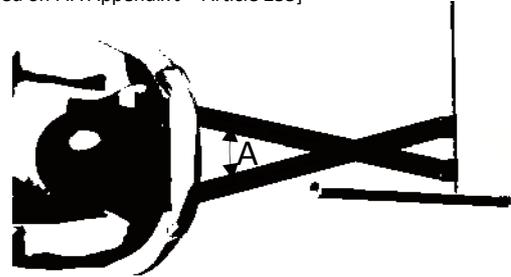
angle of the shoulder straps in the **vertical** based on FIA Appendix J – Article 253 [B]: 0° - 20°



VERIFICATION OF THE SHOULDER STRAP ANGLES [A] CONTINUED - ONLY VALID FOR 911 CARRERA [TYPE 992] GTX

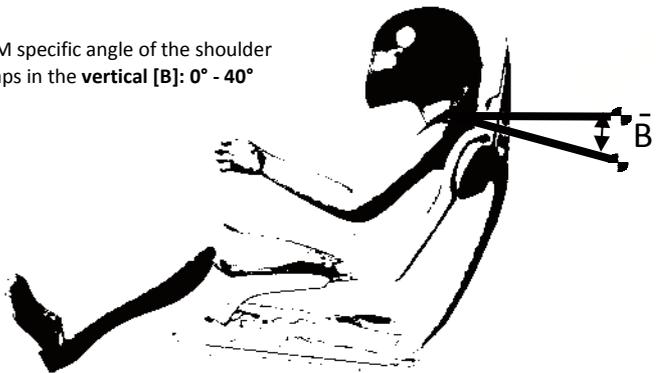
recommended angle of the shoulder straps to each other in the **horizontal** [A]: 20° - 25°

depending on the sitting position, the belt must be crossed to comply the the angle [angle based on FIA Appendix J – Article 253]



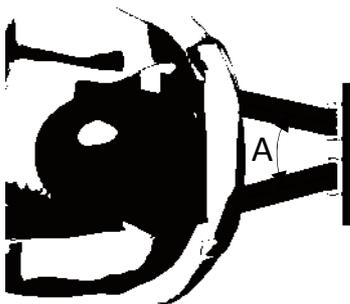
VERIFICATION OF THE SHOULDER STRAP ANGLES [A] - ONLY VALID FOR CAYMAN [TYPE 981 AND TYPE 982] GTX

OEM specific angle of the shoulder straps in the vertical [B]: 0° - 40°



OEM specific angle of the shoulder straps to each other in the horizontal [A]: 10° - 70°

The straps have to be mounted at the intended attachment without crossing each other.



VERIFICATION OF THE LAP BELT STRAP ANGLES [B] - APPLIES TO ALL RESTRAINT TYPES

OEM specific angle of the lap belt straps in the vertical [A]: 15° - 90°

Measure the angle between the horizontal and the theoretical line between the harness anchorage and the center of the dedicated harness opening in the seat.



ANTI-SUB STRAP ROUTING [6-POINT] - APPLIES TO ALL RESTRAINT TYPES

! WARNING

Risk of severe injury and death.

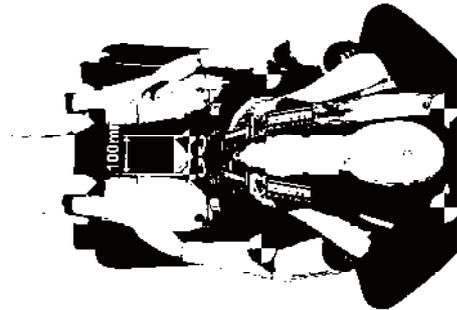
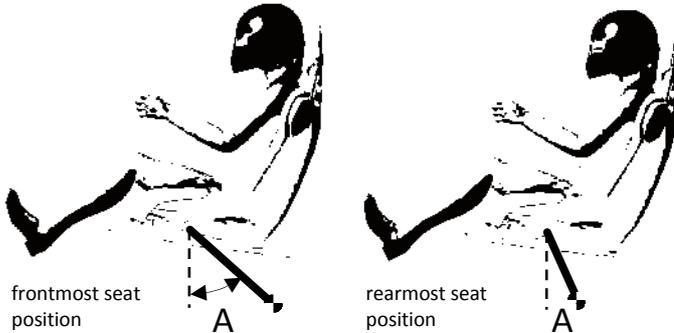
Use the 6-point SCHROTH Racing Harness with anti-sub strap only if the racing seat is designed with anti-submarining holes.

NEVER run the anti-submarining straps over the front edge of a factory seat down to the floor. Such routing does not provide the desired anti-submarining effect, and in fact encourages submarining, which can cause severe injury and death.

VERIFICATION OF THE ANTI-SUB STRAP ANGLES [C] - APPLIES TO ALL RESTRAINT TYPES

OEM specific angle of the lap belt straps in the vertical [A]: **25° - 70°**

Measure the angle between the horizontal and the theoretical line between the harness anchorage and the center of the dedicated harness opening in the seat.



**IMPORTANT INFORMATION ABOUT BOLTS AND TORQUES
BOLT DIAMETER**

Bolts not supplied by SCHROTH must be of grade 8.8 at a minimum.

! WARNING

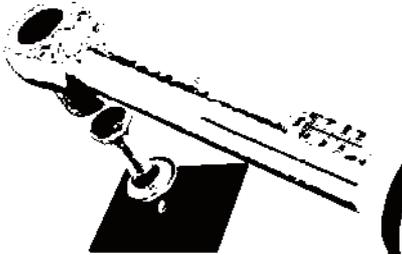
BOLT FAILURE MAY RESULT IN SEVERE INJURIES OR DEATH.

- Never use bolts of the wrong diameters or bolts that are too short and may allow the bolts to become loose and separate from the anchorages. Use of improper bolts will cause the racing harness to fail.
- Never use bolts that are too long and may intrude into the fuel tank or other parts of the car.
- Always tighten bolts with the proper torque. Improperly tightened bolts may loosen during harness belt use and may become separated during a crash.
- Never over-tighten bolts. Over-tightening bolts may destroy the thread and allow the bolt to separate during a crash.

TIGHTENING TORQUES BY BOLT DIMENSION

- Each bolt diameter and type of thread requires an individual torque for proper tightening. The torques are defined by national and international standardisation organisations.
- For safe installation always tighten bolts to the recommended torque.
- For any installation use e.g. "Loctite 243" or spring washers where recommended to secure bolt fastening.

	M 8	5/16"	M 10	3/8"	7/16" 20 UNF	15/32"	1/2"
Torque in Nm	25	25	50	50	50	87	113
Torque in ft-lb	18,5	18,5	37	37	37	64,5	83,5



ABOUT SEATS

SEAT REQUIREMENTS



Risk of severe injuries or death. Use only racing seats.

Racing harnesses will function properly only when installed in vehicles equipped with seats having a headrest or backrests with seatbelt openings in an integrated headrest. Otherwise the shoulder belts will slide off occupant's shoulders during an accident. Never modify factory seats to create new slots. The seat structure may be impaired or sharp edges of the seat frame may damage the racing harness webbing.

min. 120mm

min. 75mm



right



right



right



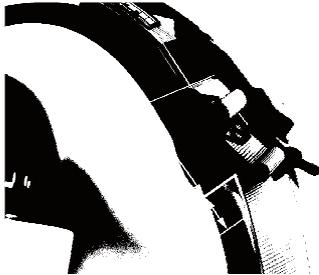
wrong



wrong

INITIAL RESTRAINT ADJUSTMENT DURING INSTALLATION

While first installing your racing harness the following items may require minor adjustments to the belts.



- **Shoulder belt tilt lock adjusters** must be positioned as shown in images above when using a FHR or 250mm (10”) below the collarbones when not using a FHR.
- **Lap belt tilt lock adjusters** must not be positioned within the openings of the bucket seats. Adjusters must be either outside of the seat opening or close to the rotary buckle inside the seat.
- **Anti-sub strap tilt lock adjusters** are recommended to be positioned either in the opening of the seat pan or right above. This position will allow adjustment without interfering in an uncomfortable manner with your upper thighs.

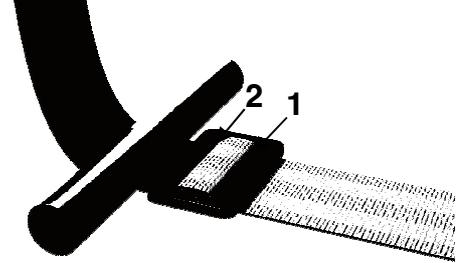
WRAP SYSTEMS AND INSTALLATIONS

3-BAR SLIDE – WRAPPING INSTRUCTIONS

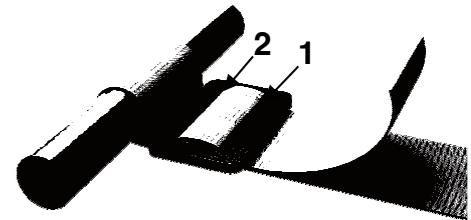
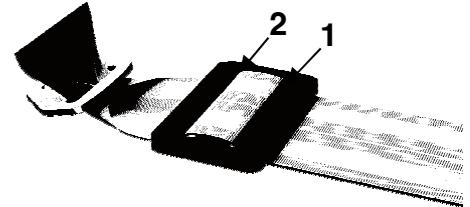
Do not install a lap belt directly to a roll cage using the wrap around technique.

WRAPPING INSTRUCTIONS:

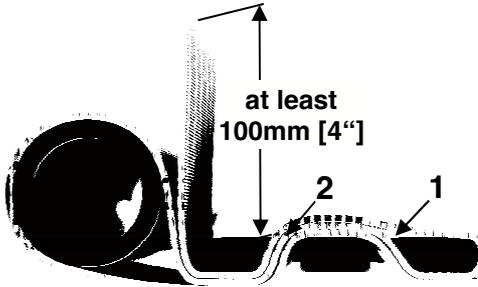
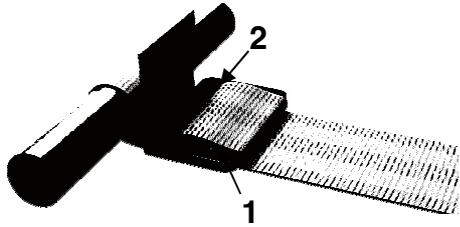
1. Slide the webbing through slot 1 and 2 as shown



2. In case of the combination with a bracket and 75 mm [3”] webbing, fold the webbing in as shown in next image and follow the further instructions.



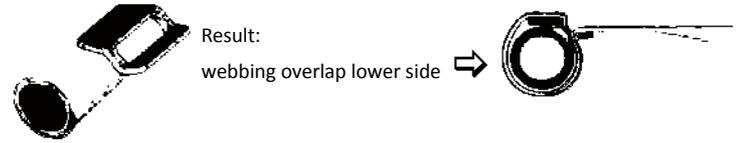
3. Make sure the strap end protrudes at least 100 mm [4"] or even longer from slot 2. If it is less than 100 mm [4"] disassemble and start over again. If longer, roll in the strap end and fix it by a cable tie to the shoulder belt.



4. Check again for proper shoulder belt tilt lock adjuster positioning and for the 3-bar slide to be as close as possible to the roll cage bar or end bracket.

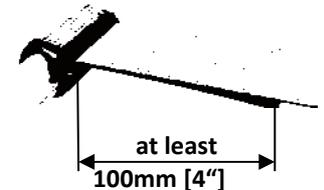
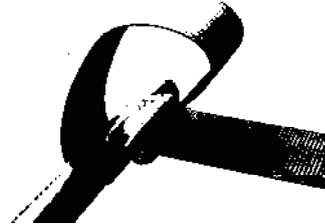
2-BAR SLIDE – WRAPPING INSTRUCTIONS

Do not install a lap belt directly to a roll cage by wrap around technique.
(for use with 50mm [2"] webbing only)



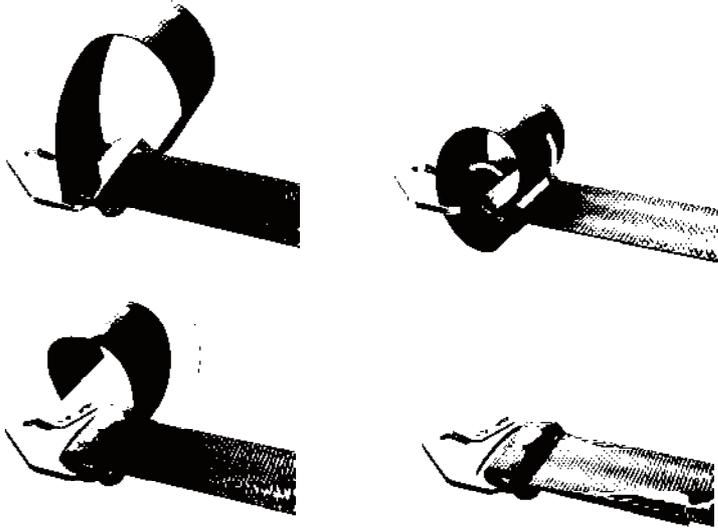
WRAPPING INSTRUCTIONS:

Slide a minimum of 600 mm [24"] of strap length through 2-bar slide and from underneath around roll bar.

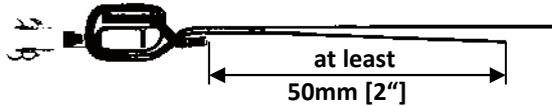


The webbing must be wrapped tightly!

Slide a minimum of 600 mm [24"] of strap length through 2-bar slide and from underneath around bracket.



1

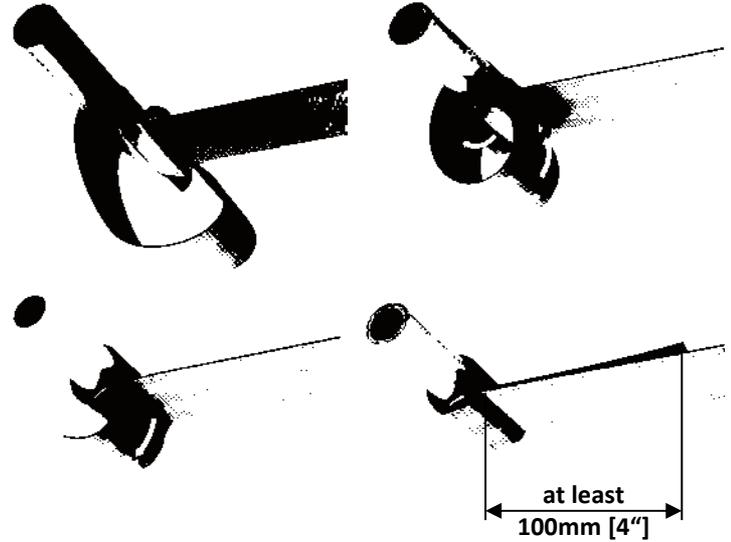


The webbing must be wrapped tightly!



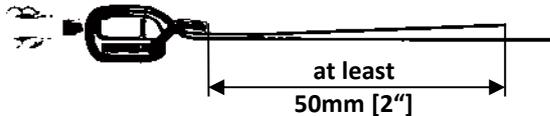
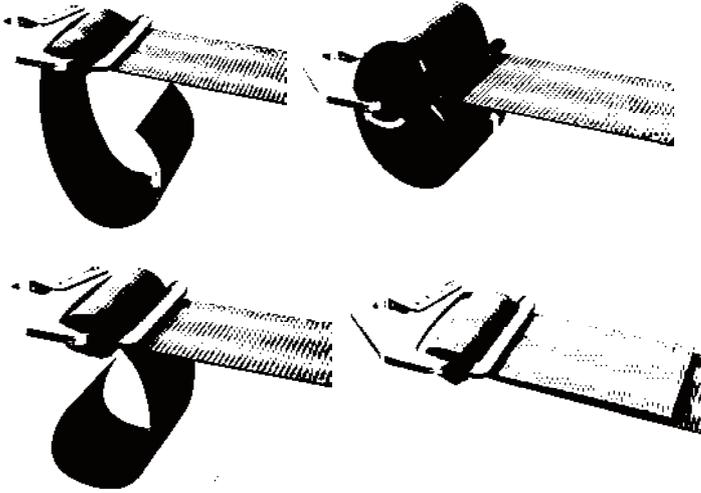
WRAPPING INSTRUCTIONS:

Slide a minimum of 600 mm [24"] of strap length through 2-bar slide and from above around roll bar.



The webbing must be wrapped tightly!

Slide a minimum of 600mm [24"] of strap length through 2-bar slide and from above around bracket.



The webbing must be wrapped tightly!

WARNING

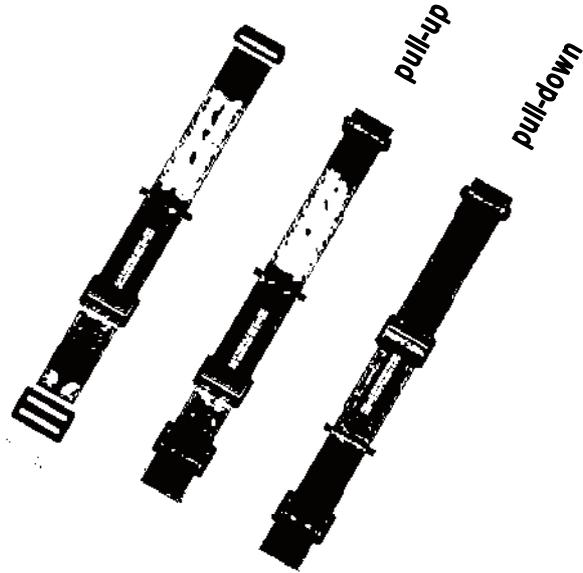
Risk of severe injuries or death.

Follow all instructions for Wrap Systems. Avoid slack in the system. 3-bar or 2-bar slides incorrectly wrapped or wrapped too far away from the roll cage bar or from the bracket may allow webbing to slide during an accident. Slippage or elongation will occur which may reduce the effectiveness of the racing harness and the FHR, if worn. Shoulder belts may slide off the FHR or will give extra travel allowing possible head and chest impact into the steering wheel.

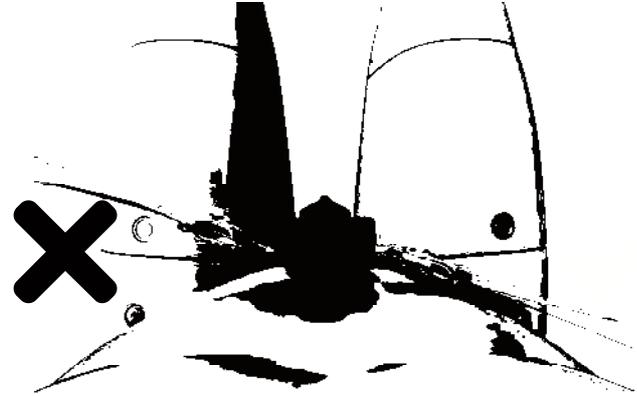
The webbing must be wrapped tightly!

FLEXI BELT™ ASSEMBLING VIA LIGHT WEIGHT WRAP SYSTEM

- Flexi Belt™ allows you to assemble the lap belt either as a pull-up or a pull-down version.
- As end brackets you can assemble SCHROTH snap-hook bracket or any other SCHROTH bracket with a 50 mm [2"] webbing slot.
- The 2-Bar slide is to be used for wrapping of the buckle latch/tongue.



- Follow the wrapping instructions above for both strap ends [pages 10-13].
- Make sure that, when the latch is buckled in, the angled part of the buckle latch faces towards the body. See figure below.

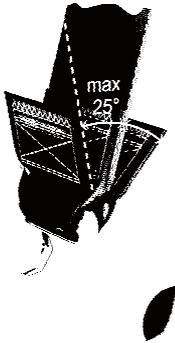


- In a pull-down configuration, locate the adjuster as close as possible to the buckle
- In a pull-up assembly make sure, the adjuster is well separated from the strap hole in the bucket seat so the adjuster will not interfere with the seat opening during a crash. See section "**Anchorage Locations and Geometries**", pages 4-8.

BOLT-IN BRACKETS

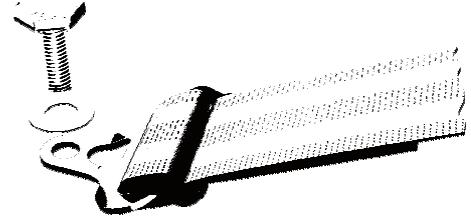


Install all brackets in direction of pull [stress direction] to avoid extensive stress to the anchor points during driving [fatigue stress] or during an accident.

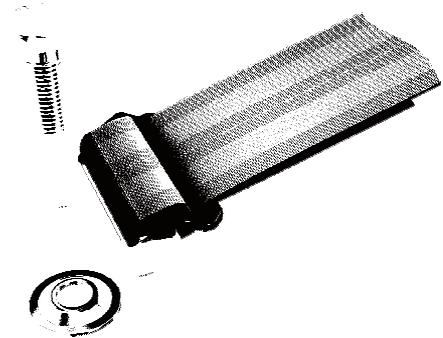


INSTALLATION EXAMPLES

LIGHT WEIGHT BOLT-IN BRACKETS B 64.20.XX



BOLT-IN BRACKET B 24.15.13 (SWIVELLING INSTALLATION SHOWN)



WEARING YOUR RACING HARNESS SAFELY

1. GENERAL INSTRUCTIONS

WARNING

Improper use of any harness belt can cause serious personal injury or death.

To help reduce the risk of serious injury in an accident:

- Never use the harness belt system for persons which weigh less than 40 kg (88 lbs.) or those who are less than 150 cm (4'11") tall, regardless of age.
- Never strap more than one person in place with each harness belt.
- Never use the lap belt portion of the harness belt without the shoulder belts and the anti-submarining strap (if a 5- or 6 point belt is installed).
- All straps must permanently run through the slots of the bucket seat.
- Always make sure that no strap is twisted when worn.
- Always wear the lap belt portion of the harness system low and tight across the pelvis.
- Never wear the belts over heavy clothing as it can interfere with proper positioning and adjustment of the belts, reducing the overall effectiveness of the system.
- Never wear the belts over rigid or breakable objects in or on your clothing, such as eye glasses, pens, jewellery, keys etc. as these may cause injury.
- Never allow straps to rub against sharp objects.
- Never allow the belts to be damaged by becoming caught in door or seat hardware.

2. HOW TO OPERATE TILT LOCK ADJUSTERS

SCHROTH racing harnesses utilise "tilt lock adjusters" for quick adjusting the harness belt.

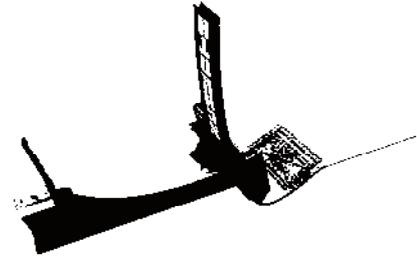
To lengthen a strap, tilt (lift) the adjuster up to 90 degree relative to the strap and pull in direction as indicated.



To tighten a strap, pull at the protruding strap end as indicated.



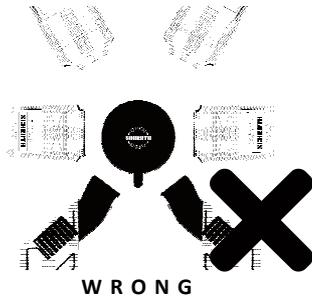
If tilt lock adjusters are equipped with a release strap, simply loosen the harness belt by pulling on the strap to lift the adjuster.



3. HOW TO ENGAGE YOUR RACING HARNESS

3.1 T-BAR 6-POINT MODELS

- Loosen the shoulder belts to allow for proper positioning of the lap belts and rotary buckle.
- Engage lap belt and tighten securely. If the race car is equipped with a sliding seat track, it is recommend that the seat be slid rearwards by one or two detents. After tightening the lap belt, slide the seat forward again into the correct seating position. This will optimally tighten the lap belt.
- Make sure the rotary buckle is well centered to your body.
- Now engage the anti-sub strap in the bottom slot if it is not fixed at the buckle.
- Tighten Anti-sub strap securely.
- Hook in shoulder belt latches. Make sure left and right shoulder belts are not interchanged [see diagram below].



- Tighten shoulder belts securely.

 **WARNING**

**FAILURE TO WEAR AND TIGHTEN THE RACING HARNESS PROPERLY
MAY CAUSE SEVERE INJURIES OR DEATH.**

Always position the belt only as described in this manual. Improper belt positioning may result in reduced safety performance or even malfunction of the racing harness.

Never position lap belts too high [extending above the pelvis], and/or at too low of an angle routing to the mounting point. Lap belts positioned too high or too low, may result in increased pelvic movement, submarining and will create extra load on the anti-sub straps.

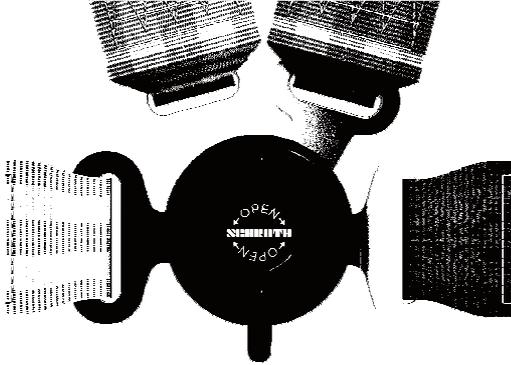
Never wear lap belts loosely. Loosely worn lap belts may result in increased pelvic movement, submarining and will create extra load on the anti-sub straps.

Loose shoulder belts will result in increased head trajectory during an accident.

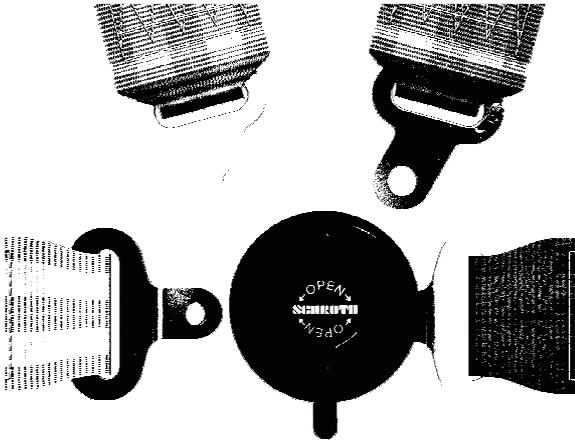
Loose anti-sub straps will allow the lap belt to ride up during an accident and create submarining and/or increase head trajectory.

HOW TO RELEASE YOUR RACING HARNESS

- a) Loosen the shoulder belts [not necessary in case of an emergency].
- b) Turn rotary buckle by approx. 90° into either direction.



- c) All latches except one will release from the buckle.



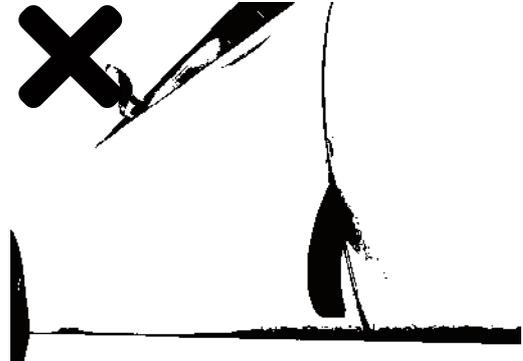
CARE AND MAINTENANCE

! WARNING

Risk of severe injuries or death.

Never allow straps to be caught by the seat rail or door.

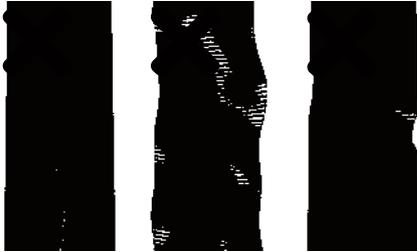
This could weaken the webbing and the racing harness may fail during an accident.



CARE AND MAINTENANCE CONTINUED

INSPECTION

- Inspect the harness belt thoroughly for damage before each use.



Cut and Abrasion as shown here require an immediate belt exchange.

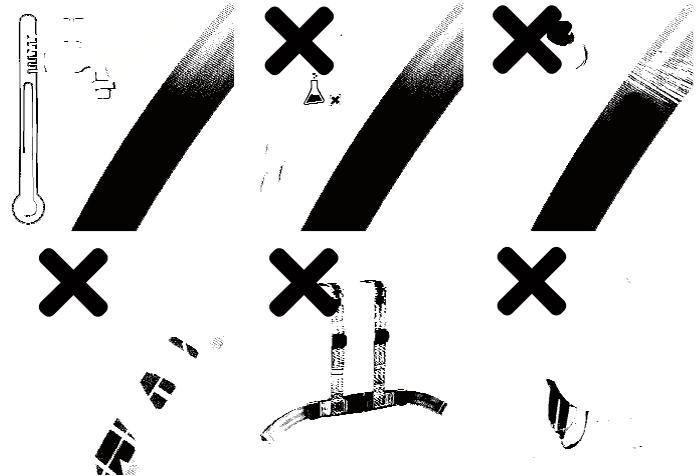
- Make sure that the inspection of the belt is included in regular check-ups of the race car and its equipment.
- Regularly check correct torque of bolts.
- Check for expiration date of the racing harness as it applies to the regulation of your sanctioning body and/or the FIA, SFI or NASCAR tag, prior to each use.

WARNING

Risk of severe injuries or death.

Never use any belt that is cut, torn or damaged in any way! Replace it immediately, cut the old belt in half, and discard the old belt so that it cannot be used again. Cuts, tears and other damage to the belt will greatly reduce its effectiveness, may cause it to fail.

CLEANING





WARNING

Risk of severe injuries or death.

Never clean your racing harness with chemical solvents and spray cleaner.

Webbing or buckle housings weakened by solvents or chemicals may fail during an accident.

IN CASE OF AN ACCIDENT



WARNING

Risk of severe injuries or death.

Always replace a harness belt used during an accident. It is unfit for further use. The belt may otherwise fail in subsequent accident.

Replace it immediately.

In SCHROTH Profi asm[®] models a partly or fully ripped open SCHROTH asm[®] system indicates the need for immediate replacement of the racing harness.

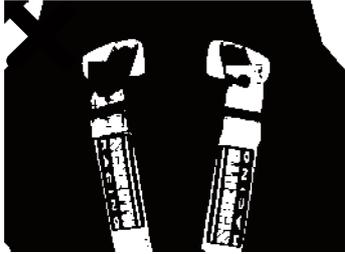
FIA and other sanctioning bodies require that inspectors cut the racing harness, or cut the labels off the racing harness, after an accident.

Always inspect all anchorages for damages such as deformations or cracks, after an accident.

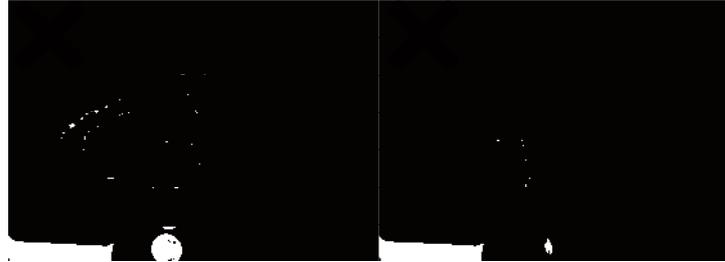
Strictly follow the recommendations of the vehicle or roll cage manufacturer if a repair should be necessary.

Re-use a harness belt that has been in an accident of any type cause serious injuries or death.

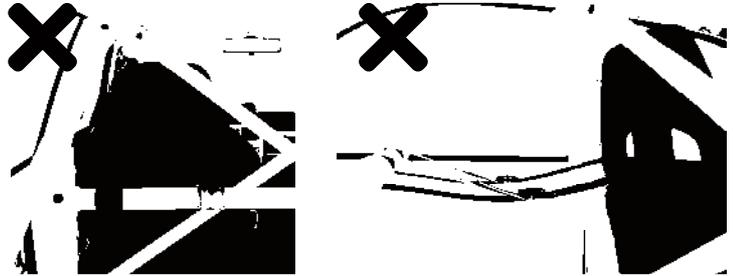
EXAMPLES OF IMPROPER INSTALLATION



Risk of severe injuries or death. 3-bar slides positioned in such a way may cut into the occupant's neck during an accident. Never install a racing harness with attachment hardware [such as the 3-bar slide pictured at left] next to the occupant's body or to tor on the inside of the seat openings.



Risk of severe injuries or death. Sharp edges may cut the webbing and the racing harness may fail during an accident. Never run straps over sharp edges and brackets.

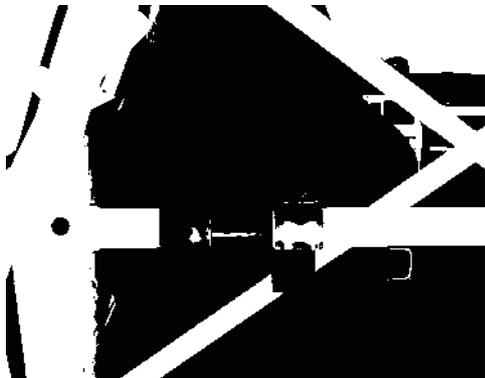


3-bar slides are positioned too far off of the roll cage and there is nothing to prevent lateral movement of the belts along the bar. Webbing is therefore improperly routed and folded back to the final part of the wrap to secure the 3-bar slide. This improper installation may allow webbing to slide through the hardware during an accident. Unintended elongation and severe head impact, resulting in severe injuries or death, may occur. If a FHR were to be used with this type of installation, the shoulder straps may slide off the FHR so its effectiveness in an accident will be eliminated. Severe injuries or death may occur. Always secure wrap around attachments against lateral sliding on the roll cage bar. Otherwise, severe injuries or death may occur.



This webbing runs too far back, and at too low of an angle. A Lap belt cannot be routed straight through seat slots. It will tend to slide off the pelvic bone and result in submarining. This will also add additional load to the anti-sub strap. Severe injuries or death may occur.

CORRECT INSTALLATION



EXAMPLE FOR A SPREADER USING FIA 8857-2001 PADDING MATERIAL

Cross the webbing if the distance from the seat openings to the mounting bolt point or harness bar exceeds 450 mm [18"].

When mounting to a harness bar with a wrap mount and the distance to the bar from the seat is less than 450 mm [18"], a section of roll bar padding, fixed with cable ties, should be added to the outside of each of the shoulder harnesses to ensure that they cannot further separate when unloaded.

3-Bar slides pictured in the **previous examples on page 22** are not positioned next to the roll cage bar and the final locking portion of the wrap has not been completed. This will result in significant slippage through the adjuster and significantly more elongation of the shoulder belts.

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