

TECHNICAL BULLETIN

2014 CAMS Manual of Motor Sport

Schedule D – Apparel

Schedule I – Safety Harnesses and Window Nets

REFERENCE:

<http://docs.cams.com.au/Manual/GeneralRequirements/GQ05-Schedule-D-2014-1.pdf>

<http://docs.cams.com.au/Manual/GeneralRequirements/GQ10-Schedule-I-2014-1.pdf>

RATIONALE:

To amend the requirements detailed in both Schedule D – Apparel and Schedule I – Safety Harnesses and Window Nets to enact the implementation of the mandatory use of Frontal Head Restraints in the applicable Motor Sport activities.

NOTE: An addendum has been included in the standards table 3.2 Frontal Head Restraints in Schedule D to recognise the SFI 38.1 standard devices until the 31/12/2015.

Since the first recognition of the use of Frontal Head Restraints by CAMS in the 2004 Manual of Motor Sport (HANS © device at the time) only the FIA standard has been referenced.

ACTION:

Amend

Schedule D – Apparel

1. The requirement for specified apparel for participants in motor sport is noted in NCR 141. These requirements vary in relation to the overall risk of the activity and, where appropriate, with regard to FIA and/or local civil authority regulations.

The tables below shall be used to determine the level and type of apparel required for a given event.

2. APPLICATION

The letters in the following tables represent the applicable standard as detailed in Article 3. These are referenced by apparel type and status of the competition.

The standards set out in this Article are the minimum requirement for the competition or activity listed.

The status of the application refers to the level of competition entered at a given meeting, not the status of the event/meeting.

A passenger in a vehicle shall be required to wear apparel as per the standard level for the activity.

Notes:

- NA = not applicable
- NR = no standing minimum requirement set by CAMS
- Any international competition listed on the FIA International Calendar will be subject to the standard of apparel detailed in the applicable FIA regulations and these will supersede the requirements set out below should a conflict exist.

2.1 Race	Motor Racing Automobile <u>other than a Superkart</u>					Superkarts								
	Club	Multi-Club	State	National	International	Club	Multi-Club	State	National	International	Private Practice	Demonstrations	Parades	Passenger-in Vehicle-Activity
Helmet	B	B	B ¹	BA ²	A	C	C	C	C	A ²	B	B	NR	B
Frontal Head Restraint	B	B	B ¹	BA ²	A	B	B	B	B	B ²	B	B	NR	B
Flame-retardant Overalls / Other Outerwear	B	B	B	B	A	E ¹	E ¹	E ¹	E ¹	E ²	B	B	NR	B
Flame-retardant Underwear	B	B	B	B	A	C	C	C	C	A ²	B	B	NR	B
Flame-retardant Balaclava	B	B	B	B	A	D	D	D	D	A ²	B	B	NR	B
Footwear	A	A	A	A	A	D	D	D	D	A ²	A	A	NR	A
Socks	A	A	A	A	A	C	C	C	C	C ²	A	A	NR	B
Gloves	A	A	A	A	A	D	D	D	D	D ²	A	A	NR	A
	Motor Racing notes:					Superkart notes:								
	A full-face helmet is highly recommended for a driver of an open car. <u>¹ A Level required from the 01/01/2015</u> <u>² B Level accepted until 01/07/2014</u>					¹ For each 250cc class driver the suit must be made of leather. ² Refer FIA/CIK requirements								

2.2 Rally/ Road	Gravel					Tarmac					Other								
	Club	Multi-Club	State	National	International	Club	Multi-Club	State	National	International	Club	Multi-Club	State	National	International	Private Practice	Demonstrations	Parades	Passenger-in Vehicle Activities
Helmet	B	B	B ¹	BA ²	A	B	B	B ¹	BA ²	A	D	D	D	D	NA	B	B	NR	B
Frontal Head Restraint	B	B	B ¹	BA ²	A	B	B	B ¹	BA ²	A	C	C	C	C	NA	B	B	NR	B
Flame-retardant Overalls / Other Outerwear	D	D	C	B	A	C	C	B	B	A	F	F	F	F	NA	D	D	NR	D
Flame-retardant Underwear	B	B	B	B	A	B	B	B	B	A	C	C	C	C	NA	B	B	NR	B
Flame-retardant Balaclava	C	C	B	B	A	B	B	B	B	A	D	D	D	D	NA	C	C	NR	C
Footwear	B	B	B	A	A	B	B	A	A	A	C	C	C	C	NA	B	B	NR	B
Socks	B	B	B	A	A	B	B	A	A	A	C	C	C	C	NA	B	B	NR	B
Gloves (not mandatory for co-drivers)	B	B	B	A	A	B	B	A	A	A	C	C	C	C	NA	B	B	NR	B
	Gravel Rally notes:					Tarmac Rally notes:					Other Rally/Road Event notes:								
	Gravel Rallies include Special Stage, Non-Special					Tarmac Rallies include Special Stage, Targa					Other rally/road events include Touring								

	Stage and Rallysprints.	Rallies and Rallysprints.	Assemblies, Economy Runs and other road events complying with civil road rules.
	The wearing of a helmet and flame-retardant apparel is not mandatory in liaison/transport sections.		
	A full-face helmet is highly recommended for the crew of an open car.		For Touring Road Events the apparel requirements applicable to the sub-event being conducted shall apply.
	<u>¹ A Level required from the 01/01/2015</u> <u>² B Level accepted until 01/07/2014</u>		

2.3 Off Road										2.4 Speed (includes Drifting & Regularity)								
	Club	Multi-Club	State	National	International	Practice Testing	Demonstrations	Parades	Passenger-in Vehicle Activity	Club	Multi-Club	State	National	International	Practice/Private Practice	Demonstrations	Parades	Passenger-in Vehicle Activity
Helmet	B	B	B ¹	BA ²	NA	B	B	NR	B	B	B	B	B	A	B	B	NR	B
Frontal Head Restraint	B	B	B ¹	BA ²	NA	B	B	NR	B	B	B	B	B	A	B	B	NR	B
Flame-retardant Overalls / Other Outerwear	C	C	C	C	NA	C	C	NR	D	D	D	D	D	A	D	D	NR	D
Flame-retardant Underwear	B	B	B	B	NA	B	B	NR	B	B	B	B	B	A	B	B	NR	B
Flame-retardant Balaclava	B	B	B	B	NA	B	B	NR	B	C	C	C	C	A	C	C	NR	C
Footwear	B	B	B	B	NA	B	B	NR	B	B	B	B	B	A	B	B	NR	B

Socks	B	B	B	B	NA	B	B	NR	B	B	B	B	B	A	B	B	NR	B
	Off Road notes:									Speed notes:								
	A full-face helmet is highly recommended for any crew member of a car without a windscreen. <u>¹ A Level required from the 01/01/2015</u> <u>² B Level accepted until 01/07/2014</u>									A full-face helmet is highly recommended for a driver of an open car.								

2.5 Autotest	Motorkhana					Khanacross								
	Club	Multi-Club	State	National	International	Club	Multi-Club	State	National	International	Practice/Testin	Demonstrations	Parades	Passenger in Vehicle
Helmet	D / B ¹	D / B ¹	D / B ¹	D / B ¹	NA	B	B	B	B	NA	D ¹ / B ¹	D ¹ / B ¹	NR	D ¹ / B ¹
Frontal Head Restraint	C	C	C	C	NA	C	C	C	C	NA	C	C	NR	C
Flame-retardant Overalls / Other Outerwear	F	F	F	F	NA	F / D ¹	F / D ¹	F / D ¹	F / D ¹	NA	F / D ²	F / D ²	NR	F / D ²
Flame-retardant Underwear	C	C	C	C	NA	C	C	C	C	NA	C	C	NR	C
Flame-retardant Balaclava	D	D	D	D	NA	D	D	D	D	NA	D	D	NR	D

Footwear	C	C	C	C	NA	C	C	C	C	NA	C	C	NR	€
Socks	C	C	C	C	NA	C	C	C	C	NA	C	C	NR	€
Gloves (not mandatory for co-drivers)	C	C	C	C	NA	C	C	C	C	NA	C	C	NR	€
	Motorkhana notes:					Khanacross notes:					Notes:			
	<p>¹ Each driver of a Motorkhana special is required to wear a helmet to level B standard.</p>					<p>¹ Drivers of open vehicles and specials are required to comply with Level D outerwear.</p>					<p>¹ The helmet standard of the relevant discipline upon which the activity is based shall apply.</p> <p>² In khanacross-based activity, drivers and passengers in open vehicles are required to comply with Level D outerwear.</p> <p>Each driver and (where applicable) passenger in a Motorkhana special is required to wear a helmet to the B standard.</p>			

3. APPAREL STANDARDS**3.1 Helmet**

A	As specified in FIA Technical List 25 (see www.fia.com):	
	FIA 8860-2010, 8860-2004	FIA standard
	Snell (SAH) 2010, SA2010, SA2005	USA standard
	Snell SA2000 (to be reclassified to Level B after 31/12/2014)	USA standard
	SFI 31.1/2005, 31.1/2010, 31.1A, 31.2A	USA standard
	BS 6658-85 Type A/FR (not valid after 31/12/2013)	British standard
B	Level A	
	AS1698	Australian standard
	SFI 24.1 (youth helmet standard)	USA standard
	E22 (with 03, 04 or 05 amendments)	European standard
	BS 6658-85 Type A, A/FR (including amendments)	British standard
C	Full face helmet to:	
	Level A standard	
	Level B standard or	
	Snell M2000, M2005, M2010 (valid for Superkart competition only)	USA standard
D	Not mandatory	

3.2 Frontal Head Restraint (FHR)

A*	FIA 8858-2010 or 8858-2002 standard (see www.fia.com)
B	Not mandatory, FIA Level A standard device highly recommended
C	Not mandatory, highly recommended where circumstances are appropriate
-*	<u>SFI Standard 38.1 only FHR devices shall also be recognised as an acceptable standard until 31/12/2015, after which the SFI Standard 38.1 only FHR shall no longer be recognised.</u>

3.3 Flame-retardant Overalls / Other Outerwear

A	FIA 8856-2000 standard (see www.fia.com)
B	Level A; FIA 1986
C	Level A; Level B; SFI 3.2A/1 (single layer) or superior SFI standard
D	Clothing from ankles to neck to wrists. Clothing of flammable synthetic material, such as nylon, is not acceptable. Level A, B or C overalls are recommended
E	A one- or two-piece abrasion-resistant 'race' suit which is securely fastened at the wrists and ankles, and also at the waist on a two-piece suit. The material may be leather, Cordura®, Cordulon® or equivalent. Some classes/groups may require a suit of leather
F	Minimum of short sleeve shirt/t shirt and short pants

3.4 Flame-retardant Underwear

A	FIA 8856-2000 standard (see www.fia.com)
B	Not mandatory; FIA-standard flame-retardant underwear is recommended
C	Not mandatory

3.5 Flame-retardant Balaclava

A	FIA 8856-2000 standard (see www.fia.com)
B	A Level A balaclava is required, except where the driver/co-driver is wearing a helmet to Level A standard. If a Level A helmet is worn, the wearing of a flame-retardant balaclava is not mandatory, but is recommended
C	Not mandatory; a motor sport standard balaclava is recommended
D	Not mandatory

3.6 Footwear

A	FIA 8856-2000 standard (see www.fia.com)
B	Level A or shoes with leather uppers that cover the foot. Shoes which have a leather upper but which include elasticised ankle regions are acceptable (eg, elastic-sided work boots)
C	Enclosed shoes
D	Abrasion-resistant footwear which covers and protects the ankles

3.7 Flame-retardant Socks

A	FIA 8856-2000 standard (see www.fia.com)
B	Not mandatory; FIA-standard flame-retardant socks are strongly recommended
C	Not mandatory

3.8 Gloves

A	FIA 8856-2000 standard (see www.fia.com)
B	Not mandatory; FIA-standard flame-retardant gloves are strongly recommended
C	Not mandatory
D	Abrasion-resistant gloves that cover and protect the hands and wrists (including the fingers)

4. FURTHER REQUIREMENTS

These requirements are in addition to the other Articles of Schedule D.

4.1 General

Each driver/competing crew member shall continue to comply with the requirement of NCR 141 until such time as they leave their automobile, or for rally/road events until the completion of a competitive section/stage – refer also to Article 2.2.

Apparel shall be worn as the manufacturer intended.

Individual category or event regulations may require higher standards of apparel than those detailed in Article 2. In such cases the higher standard shall apply.

4.2 Badges and Embroidery

The attachment of badges and use of embroidery on competitor's overalls can have a detrimental effect on the protection afforded by the garment.

(i) **Badges:** For apparel complying to the FIA 8856-2000 Standard, it is mandatory that all badges attached to the garment have a flame-resistant backing, and be attached only with flame-resistant thread to the outer layer of the garment only. For all garments the number and size of badges should be kept to the minimum required to meet commercial and regulatory obligations.

(ii) **Embroidery:** For apparel complying to the FIA 8856-2000 Standard, it is mandatory that all embroidery be done using flame-resistant thread. Embroidery is only permitted to the outer layer of the garment. This is strongly recommended for all apparel.

4.3 **Helmet Requirements and Advice**

(a) **Style**

In addition to the helmets approved for use above, each helmet shall be one of the following design types; full face or open face. An open-faced helmet is defined as a helmet that, as a minimum, covers the hairline of the average person and includes covering the ears.

Specifically excluded are helmets that do not cover, when viewed in side elevation, the area from the top of the ear to the bottom of the jaw, commonly referred to as “skull cap” style.

(a) **Modifications**

~~Other than as provided in this regulation, and then only for the purpose of fitting anchorage points for the attachment of an approved head restraint device, no helmet may be modified from its specification as manufactured except in compliance with instructions approved by the manufacturer and one of the standards organisations listed above, which certified the model concerned.~~

A helmet shall not be modified from its specification as manufactured except in compliance with instructions approved by the manufacturer and one of the standards organisations listed in this schedule, which certified the helmet concerned. Any item added or attached to a helmet by any means shall be considered as a modification. Any modifications or additions undertaken may invalidate the helmet certification.

Approved modifications may include:

- **Painting or wrapping (vinyl sticker or similar) in compliance with the manufacturer’s instructions which may require proof that it has been carried out accordingly.**
- **Adding or attaching of ducting for cooling purposes using components supplied by the manufacturer or in compliance with the manufacturer’s instructions.**
- **Adding or attaching communication equipment using components supplied by the manufacturer or in compliance with the manufacturer’s instructions.**

(b) **Frontal Head Restraints (FHR)**

~~The fitment of tether posts for an approved head restraint device must be carried out strictly in accordance with the restraint manufacturer’s fitting instructions and any guidelines published by the helmet manufacturer. Any holes drilled for the fitment of anchorage points must fall outside the impact test area defined by the relevant helmet standard.~~

~~Without limiting the general prohibition of helmet modification outlined in 4.3(a), it is nevertheless permissible to fit anchorage points for the attachment of approved head restraint devices to helmets complying with the following standards: Snell SA95, 2000 and 2005; SFI Spec 31.1, 31.2, 31.1A and 32.2A; BS 6658-85 Type A and A/FR; FIA 8860-2004 and FIA 8860-2010.~~

The drilling of holes in helmets for the fitment of FHR tether posts shall be undertaken only by the manufacturer of the helmet or an approved manufacturer’s agent. Tether posts may be fitted to helmets that are pre-drilled in accordance with the FHR manufacturer’s instructions.

~~(c)~~ **Communications Systems**

~~— The FIA has advised that communication systems in helmets must have been tested with that model of helmet for standard assessment. Any subsequent additions or modifications to facilitate communication or breathing devices may invalidate helmet certification.~~

Note: Decoration

Decoration of helmets is potentially dangerous, and members are warned of the hazard of using paint on approved helmets. Paint, stickers and transfers, or surface treatments can react with helmet shell material and affect its protective capacity; therefore, where a manufacturer provides guidelines or restrictions on the painting or decoration of helmets, these must be followed, using only paint or surface treatment specified by them (eg, air drying acrylic, polyurethane enamel or others) and preferably a painter having their approval. This is particularly important for injection-moulded shells which are not usually suitable for painting.

The shell being painted should be efficiently masked as paint penetrating the interior can affect the performance of the helmet liner. Paints requiring heat curing should not be used and any process should not exceed the maximum temperature of conditioning of the helmet in the standard to which it is approved. The manufacturer's instructions should also be consulted for any considerations on the use of stickers and transfers.

Accidents & Damage

Competitors are cautioned against using a helmet which has been damaged or involved in accident. Helmets shall be deemed by the Event Officials to be in a suitable condition for motor sport use.

4.4 Goggles & Visors

Goggles or visors must be worn by drivers of open cars. Those with glass lenses of any kind are not acceptable. Lenses shall be of a plastic material, with high-impact resistance, satisfactory optical qualities and complying with Australian Standard Specification AS 1609-1981, BS4110Z or equivalent international standard.

Note: Goggles must be configured so as to minimise the entry of dust into the eye from any angle, and be positively retained by an elastic strap behind the head or helmet. Conventional-style glasses are not acceptable.

4.5 Hearing Protection

It is recommended that hearing protection devices (eg, ear plugs) be worn at all times when exposed to high levels of noise.

4.6 Pit Crew Apparel – Circuit Races

Each person working on automobiles in the pit or paddock area must at least wear shoes and socks, short pants and a short sleeved shirt. On race day, each pit crew must be neatly attired. The Organiser is authorised to refuse entry to the pit area of any person unsuitably attired.

In a circuit race where a refuelling operation is permitted, each person involved in such operation or who is working within one metre of the refuelling or venting point must be attired in the following:

- One-piece overalls of flame-resistant materials extending from neck to wrists to ankles. Where such overalls consist of a single layer of material, separate flame-resistant underwear extending from neck to wrists to ankles must also be worn.
- A flame-resistant balaclava which covers the entire head and neck save for one or two eye openings, unless a helmet providing a similar level of protection is worn.
- Goggles which cover all exposed areas of skin not covered by the balaclava, or a full-face helmet and visor.
- Shoes of leather or other flame-resistant materials which completely cover the feet and which fit closely around the ankle to minimise the ingress of spilt fuel. The soles must be resistant to fuel.
- Those directly handling fuel shall require socks and gloves which comply with the requirements of the FIA 1986 or 8856-2000 standard.

4.7 Superkart Races and Practice

A superkart driver may wear appropriate wet weather clothing in addition to that specified.

4.8 Moratoriums

(a) There shall be two years' notice on the implementation of any increased apparel requirements, save for any identified and pressing safety-related requirements which may arise or become evident, for non-international events.

Schedule I - Safety Harnesses / Window Nets

(not applicable to Superkarts)

1. GENERAL REQUIREMENTS

A safety harness (including a seat belt) shall be compliant with a Standard as specified below and be fitted and worn in accordance with the manufacturer's directions, with Tables I-1 and I-2 of this Schedule and any additional requirement imposed by specific category, group and/or supplementary regulations.

Each safety harness shall comply at least with one of the Standards as specified in Table I-1 below.

Harnesses of a higher level than specified are permitted and encouraged.

Important note: Some safety harnesses may not comply with ~~civil registration requirements~~ **the law**. Where the automobile is to be driven on a public road, it is the competitor's responsibility to ensure that it complies with ~~civil legislation~~ **the law**.

2. MOUNTINGS

A safety harness shall be securely mounted on at least two points (Type D), three points (Types B and C) or five points (Type A) in compliance with the prescriptions of Drawings I-1, I-2 and I-3. If the two shoulder straps (**Types B and C**) join prior to a common mounting point then that junction shall be at least 150mm behind the wearer's neck.

Under no circumstances shall a safety harness mounting bolt be used to affix a safety cage to the bodyshell.

A safety harness shall be ~~mounted as per one of the following:~~ **installed in accordance with the manufacturer's instructions with consideration of the requirements when using a Frontal Head Restraint and application of the following:**

The shoulder straps shall be directed to the rear and installed in such a way that they do not make an angle greater than 45° to the horizontal from the occupants shoulder. It is highly recommended that this angle should not exceed 10°, (refer drawing I-1). The maximum angles in relation to the centre-line of the seat are 20° divergent or convergent (refer drawing I-2). The shoulder straps may be installed crosswise symmetrically about the centre-line of the front seat.

Mounting points for a safety harness

- (a) on a series production automobile, any unmodified seat belt mounting point may be used;
- (b) where a safety harness is affixed to an un-reinforced section of the body shell, each attachment point shall be reinforced by the use of a plate not less than 75mm x 50mm x 3mm thick ~~as per~~ **(refer drawing I-4);**
- (c) except for a crutch strap mounted in accordance with (e) any bolt used shall be a minimum of 10mm grade 8.8, or an eye bolt to the recognised thread diameter of 7/16" or 11mm;**

~~(ed)~~ to the safety cage; or **shoulder straps may be fixed to the safety cage or to a reinforcement bar by means of a loop, and/or be fixed or leaning on a transverse reinforcement welded between the backstays of the safety cage in accordance with Schedule J, Article 15.1 (e) Safety Harness mounting to a transversal member and drawing J-27, J-28.**

~~(de)~~ to a substantial part of the automobile structure.

only a crutch strap or straps MAY be mounted in accordance with drawing I-6 where the following shall apply:

- **bars shall not bend under a strap load of at least 14.7kN**
- **all edges shall be appropriately rounded (>1.5mm radius)**
- **the bars shall directly clamp on each other firmly clamping the webbing**
- **the belt is correctly routed in accordance with drawing I-6**
- **a minimum of two 8mm grade 8.8 bolts shall be used**
- **each attachment point shall be reinforced by the use of a plate in accordance with drawing I-4 or a single plate in accordance with drawing I-5**

~~Under no circumstances shall a safety harness mounting bolt be used to affix a safety cage to the bodyshell.~~

3. A safety harness damaged in any way, including in a collision, shall be subject to inspection by a Scrutineer. If appropriate, the automobile's log book shall be endorsed with a requirement that the belt/harness be replaced.

4. WINDOW NETS

In a circuit race, each closed automobile which is required to have a safety cage fitted shall have a safety window net fitted in the driver's door window opening. The window net must cover the opening forward to the centre of the steering wheel and be able to withstand a load of 500N applied at any point. The net may be locally modified to preserve the driver's view of the external mirror. It must be affixed by means of a rapid release system so that, even with the vehicle inverted it must be possible to detach the mechanism with one hand. To this end, the handle or lever must have coloured markings. A push button release system is authorised provided that it respects the prescriptions of this article. The push button must be visible from the outside, be of a contrasting colour and be marked "press".

On each automobile derived from series production automobiles manufactured after 1970 and which retains the unmodified door, hinges and latches of the registerable automobile, the net may be mounted to the door frame. Such an automobile fitted with a permanently closed shatterproof window on the driver's door that complies with strength requirements imposed above will be deemed to comply with the requirement for a window net. On each other automobile the net must be mounted to the safety cage.

Note: Each 5th Category automobile, when competing in an event exclusively for such an automobile are exempt from the requirement from Window Nets.

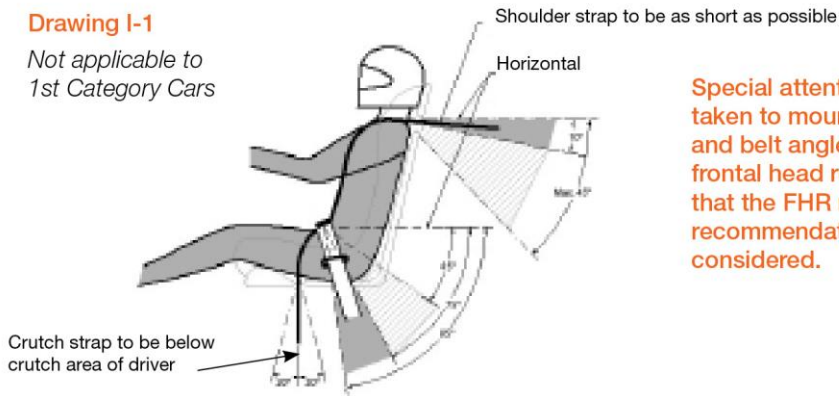
DRAWINGS

Safety Harnesses and Window Nets

Drawings

Drawing I-1

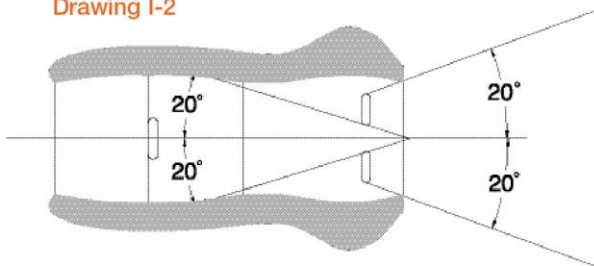
Not applicable to 1st Category Cars



Special attention should be taken to mounting points and belt angles when using a frontal head restraint. Ensure that the FHR manufacturer's recommendations are considered.

- Recommended range of angles for Safety Harness Belts
- Acceptable range of angles for Safety Harness Belts. Note that the angles are taken from the driver's body, not the slots in the seats.

Drawing I-2

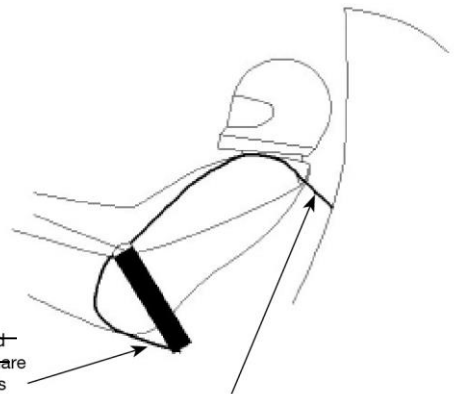


Drawing I-3

1st Category and similar cars

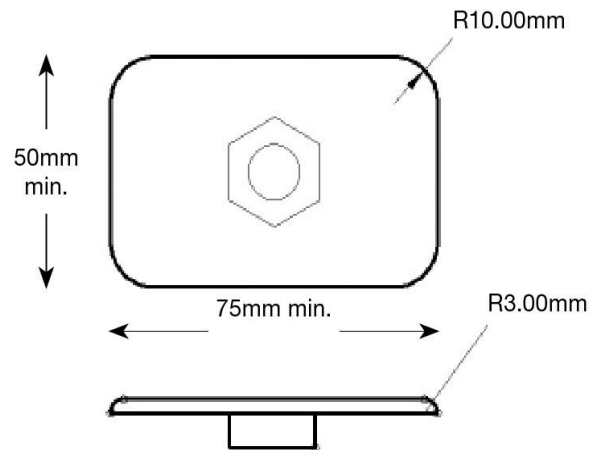
A crutch strap or straps may share a common mount with a lap belt or belts.

Crutch strap and lap belts may share common mounts



Shoulder harnesses on certain 1st and 5th Category vehicles may be best set perpendicular to the upper spine.

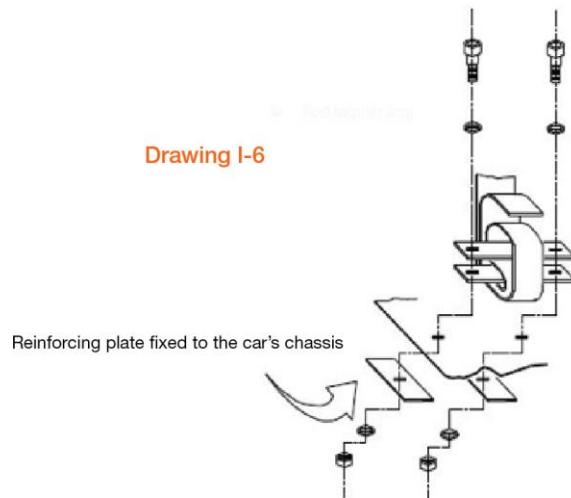
Drawing I-4



Drawing I-5



Drawing I-6



END