MOTORSPORT AUSTRALIA MANUAL

TECHNICAL APPENDIX SCHEDULE I – SAFETY HARNESSES AND WINDOW NETS



motorsport.org.au

Modified Article	Date of Application	Date of Publication			

A capitalised and italicised word in this document is defined in the FIA International Sporting Code (Code) or the National Competition Rules (NCR), including their Appendices.

Any HEADING is for reference only and has no regulatory effect.

1. SAFETY HARNESS GENERAL REQUIREMENTS

- (a) A safety harness (including a seat belt) must be compliant with a standard as specified below and be installed and worn in accordance with the manufacturer's instructions, with Tables I-1 and I-2 of this *Schedule* and any additional requirement imposed by specific category, group and/or *Supplementary Regulations*.
- (b) Each safety harness must comply at least with one of the standards as specified in Table I-1 below.
- (c) A safety harness of a higher level than specified is permitted and encouraged.
- (d) Each safety harness with the words "For FHR use only" which appears on each shoulder strap must be worn only in conjunction with a Frontal Head Restraint (FHR) device.
- (e) The fitment of an elastic cord and or any retention device not homologated by the *FIA*, which is bonded or sewn to a safety harness shoulder strap is not permitted.
 - (i) It is permitted to use a Velcro© piece or alternative to retain the shoulder strap away from the *Driver* during a *Driver* change, provided this does not apply a load or crush to the shoulder strap and its webbing when fitted to restrain the *Driver*.
 - (ii) It is permitted to attach an elastic cord to the lap straps only. Attachment must be to the metal buckle only.
- (f) A safety harness damaged in any way, including in a collision, must be subject to inspection by a scrutineer. If appropriate, the *Automobile* log book will be endorsed with a requirement that the belt/harness be replaced.
- (g) The lap and crotch straps must not pass over the sides of the seat but through the seat, in order to wrap and hold the pelvic region over the greatest possible surface.

The lap straps must fit tightly in the bend between the pelvic crest and the upper thigh. Under no conditions must they be worn over the region of the abdomen.

Care must be taken that the straps cannot be damaged through chafing against sharp edges.

Important note:

Some safety harnesses may not comply with 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 the law.

TABLE I-1

	Configuration	Acceptable Standards	Identification
A	6-Point Harness 5-Point Harness	FIA 8853-2016 ³ FIA Hologram compulsory FIA 8853/98 ¹ FIA Hologram compulsory for each harness manufactured after 01/01/2013 SFI 16.1 ²	FIA Labels In considered with: FIA Stendard R85-2016 Man Man See Horizona Stendard R85-2016 Not valid after : 2021 Not valid after : 2016 SFI Label SFI Label SFI SPEC, 16.1 Date of Manufacturer Product Meria SFI SPEC, 16.1 Date of Manufacturer JAM ARR JUL SEP DEC 07 08
В	4-Point Harness 3-Point Harness	Includes Level A FIA 8854/98 ¹ AS 2596 ECE R16	ECE label (also known as E mark) which may also state AS standard/s. This seatbelt extensioner meets safety standards and regulations AS / 2596, ISO 3683 J386 FMVSS
С	Lap Sash Belt	AS 2596 ECE R16 AS E35	MEETS INT'L E4 D4604 ELR-V MADE IN JAPAN 【重要】 当エクステンダーは、国際 E4安全基準に適合しております。
D	Lap Belt	AS 2596 ECE R16 AS E35	The number (i.e. 4) is to indicate the country in which the product was manufactured and certified to the standard.

NOTE:

For International Competition, safety harnesses must not be used after 31 December of the year stated (XXXX).

For all other events, safety harnesses must not be used after 31 December, five years after the year stated (XXXX).

The extension of the safety harness validity detailed above for non – *International Competition* is subject to the following conditions:

Safety harnesses must be inspected during the normal scrutiny process;

Each *Competitor* must inspect and replace any damaged or worn safety harness before any *Competition* as required.

https://www.fia.com/presentation-forms-harnesses-according-fia-standard-8853-2016.

Extension of the safety harness validity is not permitted for a FIA 8853/2016 standard harness.

¹ "Not valid after XXXX" shown on each strap as detailed below:

² SFI Harness to be returned to original manufacturer for re-webbing within two years of the date of manufacture shown on SFI label or be replaced. This requirement is imposed by the SFI Foundation (Inc).

³ FIA 8853-2016 only in accordance with FIA Presentation Forms:

TABLE 1-2

Event Type	Event Permit Level	Туре	Notes
Observed Section Trial	All	D	
Motorkhana	All	D	Type D minimum for each Specials
Khanacross	All	С	Type B minimum for each Specials
Speed ⁴	Club	С	
		Α	Where FHR is required – refer Schedule D
	State and above	С	Registered closed Automobile
		В	Other Automobile
		Α	Where FHR is required – refer Schedule D
Circuit_Race ⁴	All	A	
Rally (includes Cross Country)	All	Α	
Rallysprint	S1	С	
	S2	Α	
Other Road Events	Touring / Navigation Assemblies	C, D	Must comply with civil regulations or otherwise as required for any other sub event/s or special test/s.
	Touring Road	C, D	Must comply with civil regulations or otherwise as required for any other sub event/s or special test/s.
Off Road	All	Α	

NOTE:

2. SAFETY HARNESS MOUNTINGS

- (a) A safety harness must be securely mounted on at least two points (Type D), three points (Types B and C) or five/six 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 must be at least 150mm behind the wearer's neck. Under no circumstances must a safety harness mounting bolt be used to affix a safety cage to the bodyshell.
- (b) A safety harness must be used in its homologation configuration without any modifications or removal of parts, and in conformity with the manufacturer's instructions with consideration to the requirements when using a FHR and application of the following:
 - (i) The shoulder straps must 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 occupant's shoulder where a frontal head restraint is not used. It is highly recommended that this angle should not exceed 10° (refer drawing I-1).
 - (ii) 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.

⁴ Except 5th Category Historic: For *Automobiles* of the 5th Category Historic classifications whilst competing in events exclusively for the 5th Category, each safety harness must be of a type and configuration as specified in the relevant 5th Category Historic group technical regulations.

- (c) A safety harness must be mounted using the following:
 - (i) For a *Production Car*, any unmodified seat belt mounting point may be used;
 - (ii) Where a safety harness is affixed to an un-reinforced section of the *Body Shell*, each attachment point must be reinforced by the use of a steel plate not less than 75mm x 50mm x 3mm thick (refer drawing I-4) or otherwise no less than an area of 40cm² x 3mm thick;
 - (iii) Except for a crutch strap mounted in accordance with (d) any bolt used must be a minimum of 10mm grade 8.8, or an eye bolt to the recognised thread diameter of 7/16" or 11mm or using fasteners as homologated by the *FIA* and in compliance with the *FIA* requirements.
 - (iv) Shoulder straps may be fixed to the safety cage or to a reinforcement bar by means of a loop, and/or be fixed to a transverse reinforcement compliant with *Schedule* J and the following:
 - (A) Where a reinforcement bar is installed in an Automobile, the reinforcement bar, together with its fixings must comply with the load testing requirements of the FIA Code Appendix J – Article 253 6.2 when installed in the Automobile.
 - (B) When looped around a transverse bar adjustment mounting buckles are to be placed as close as possible to the bar to reduce the amount of slip of the shoulder strap mountings.
 - (C) It is permitted to retain a shoulder strap/s into position to maintain its position for use with FHR using material such as safety cage padding.
- (d) Only a crotch strap or straps may be mounted in accordance with drawing I-6 where the following must apply:
 - (i) Bar/s must not bend under a strap load of at least 14.7kN.
 - (ii) All edges must be appropriately rounded (>1.5mm radius).
 - (iii) The bars must directly clamp on each other firmly clamping the webbing.
 - (iv) Each attachment point must be reinforced by the use of a steel plate in accordance with Article 2(c)(ii) or a single steel plate in accordance with drawing I-5.
 - (v) The belt is correctly routed in accordance with drawing I-6.

3. FITMENT OF A SAFETY HARNESS FOR FRONTAL HEAD RESTRAINT (FHR)

- (a) Each safety harness must be compliant with *FIA* or SFI standards and it is strongly recommended to use only a 6 point harness homologated to *FIA* standard 8853/98 or *FIA* standard 8853-2016. A safety harness with either a 75mm or a 50mm wide shoulder strap may be used with FHR. The following must apply:
 - (i) The length adjustment device of the shoulder strap must be positioned on the FHR yoke with the upper edge not more than 70mm from the lower edge of the FHR yoke as shown in Drawing I-7.
 - (ii) The shoulder strap anchorage points on the *Automobile* must be symmetrical about the centre line of the *Driver*'s seat. When viewed from above, the angle between the shoulder straps must be approximately 20°-25° as shown in Drawing I-8.
 - (iii) This can be achieved with reference to the values in Table I-3 which have been calculated based on 75mm wide belts (values for 50mm wide belts are shown in brackets) and four FHR collar sizes according to Drawing I-10. Negative values indicate that the shoulder straps are crossed. These values should be closely respected, but a tolerance of +/-20 mm would be acceptable. Strap movement in the anchorages should be taken into account.
 - (iv) The values in orange denote that theoretical separation is less than strap width. In this case it is recommended that the straps are installed side by side to avoid any overlap, hence the actual separation must be equal to the strap width. If the value is negative, the strap should be crossed. Shoulder straps over 200mm long are not recommended.

4. WINDOW NET/S

A window net is designed to protect the *Driver* from having any body part protrude through the window opening in an incident.

- (a) Unless specified otherwise in category or classification *Standing Regulations* and closed *Automobile*, in a *Circuit Race*, which is required to have a safety cage fitted must have a window net fitted to cover the *Driver*'s door window opening.
 - (i) The *Driver's* door window opening that must be covered is the area of the window contained within the following:

Where the seat back is visible through the *Driver's* door window opening, forward from a vertical line drawn from the rear most point of the seat back, or forward from the rearmost point of the *Driver's* door window opening;

Rearward from a vertical line drawn at the centre of the steering wheel rim; and

Below a straight line drawn between the intersections of the vertical lines described above, and the uppermost longitudinal or lateral half roll bar members of the safety cage structure.

- (ii) The window net must be fixed directly to the safety cage structure, except for a *Production Car*, where it is permitted for the upper fixings to attach to the *Bodyshell*.
- (iii) The window net and fixings must be able to withstand a load of 500N applied at any point.
- (iv) The window net may be locally modified to preserve the Driver's view of the external mirror.
- (v) The window net must be affixed by means of a rapid release system so that, even with the *Automobile* inverted it must be possible to detach the mechanism with one hand.
- (vi) The handle or lever must have coloured markings.
- (vii) A push button release system is authorised provided that it respects the requirements of this article. The push button must be visible from the outside, be of a contrasting colour and be marked "press".
- (b) A single Racing Net is permitted to be used in the *Driver's* side door window opening in place of a window net where:
 - (i) an Automobile is fitted with a permanently closed window on the Driver's door that is:
 - made from a clear polycarbonate;
 - the polycarbonate is at least 4mm thick;

the polycarbonate is secured to the door using the method originally used to retain the window glass plus additional fixings or to the door with only window fixings (e.g. Christmas tree clips) that are no more than 100mm apart;

the original door window glass is not retained in that door; and

the polycarbonate has a single hand opening cut into the window of 100mm in length and 25mm in width.

- (ii) The single Racing Net is installed in compliance with FIA Regulations (refer Article 6.).
- (iii) The Automobile is fitted with a seat to the FIA 8862-2009 or 8855-1999 or 8855-2021 standard incorporating side head supports.
- (c) A Racing Net is permitted to be installed on the Passenger's side of the Driver's seat in compliance with FIA regulations (refer Article 6.).
- (d) In other events (i.e. Speed, Autotest) for a Closed Automobile it is permitted to fit a Window Net in accordance with Article 4. (a) or for each Automobile derived from a Production Car manufactured after 1970 and which retains the unmodified door, hinges and latches of the registrable Automobile, the net may be mounted to the door frame.
 - A method of permanent attachment (metal strip with bolts or rivets) must be used to affix the net to the door and must incorporate a guick release system.

Note: Each 5th Category Historic *Automobile*, when competing in an event exclusively for such an *Automobile*, is exempt from the requirement for a window net.

5. OFF ROAD WINDOW NET OR WRIST/ARM RESTRAINTS

Each Off Road Event Automobile must be equipped (for each occupant) with a window net or wrist/arm restraints in accordance with the following.

- (i) Each device must ensure that each arm of each crew member cannot project beyond the line of the bodywork of the *Automobile*.
- (ii) Where an occupant is not using wrist/arm restraints a window net must be used to cover each opening forward to the centre line of the steering wheel, except for the front window opening, and be able to withstand a load of 500N applied at any point. The window net must be fixed to the Safety Cage Structure except for a *Production Car*, Ute or 4WD where it is permitted for the upper fixing to attach to the *Bodyshell*.

- (iii) For an Automobile with an opening roof each occupant is required to have a wrist/arm restraint on each arm
- (iv) If wrist/arm restraints are used, they must be worn by each occupant at all times whilst the *Automobile* is moving in a *Competition*. A wrist restraint must be at least to the SFI 3.3 standard and must be mounted on one end to the safety harness lap belt and the other end to each arm or wrist.

6. RACING NET/S

A Racing Net/s is as determined by the FIA in compliance with FIA Standard 8863-2013.

Unless specified otherwise in category or classification regulations the requirements of a Window Net (refer Article 4) must be complied with in addition to the use of Racing Net/s, where fitted.

Except where permitted in Article 4, a Racing Net may not meet the requirement of a window net due to the triangular shape.

FIA Standards

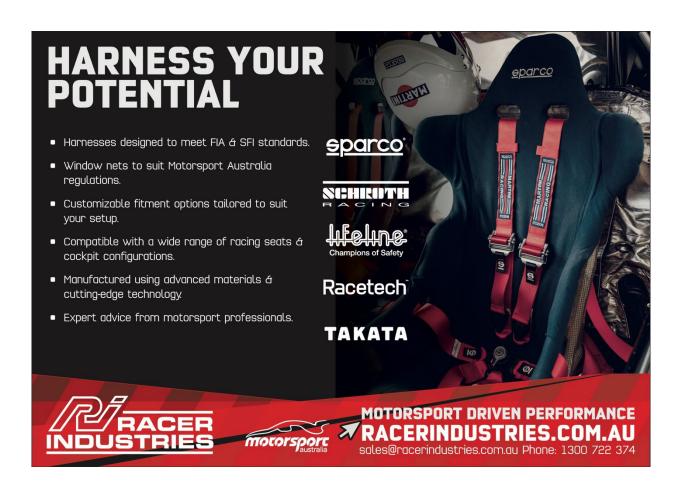
https://www.fia.com/regulation/category/761

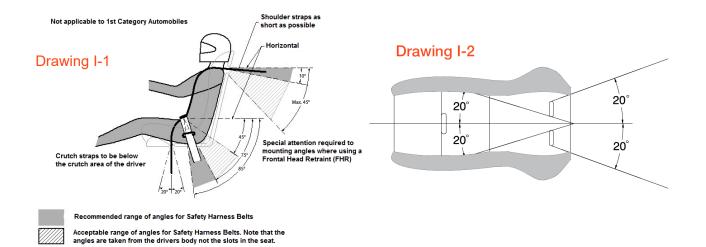
FIA Racing Nets Installation Specifications

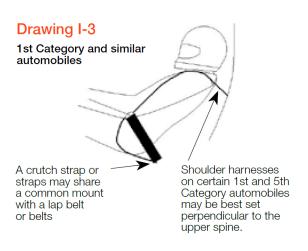
https://www.fia.com/sites/default/files/racing_nets_installation_specification_v8.pdf

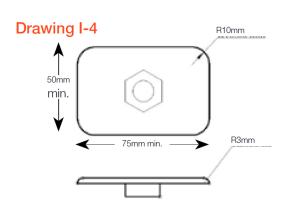
FIA Racing Net Presentation Forms

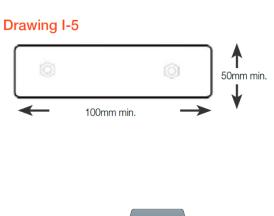
https://www.fia.com/presentation-forms-racing-nets-according-fia-standard-8863-2013

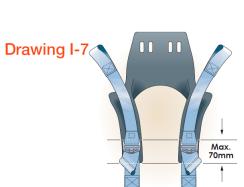


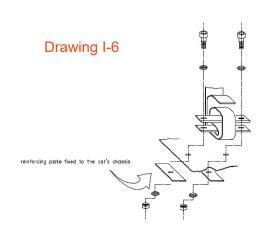


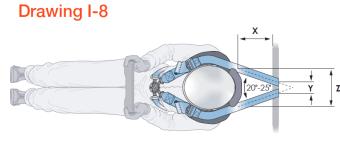












Drawing I-9

Recommended harness placement with use with FHR



Drawing I-10



TABLE I-3

Table 1: Reference Values for 120mm FHR Collar

Z FHR COLLAR WIDTH (MM)	120							
X FHR to belt anchorage (mm)	100	200	300	400	500	600	700	800
Y belt anchorage to separation (mm)	135- (110)	95 (70)	55 (30)	15 (-10)	- 25 (-50)	- <mark>65</mark> (-90)	-105 (-130)	-145 (-170)

Table 2: Reference Values for 140mm FHR Collar

Z FHR COLLAR WIDTH (MM)	140							
X FHR to belt anchorage (mm)	100	200	300	400	500	600	700	800
Y belt anchorage to separation (mm)	155 (130)	115 (90)	75 (50)	35 (10)	-5 (-30)	-45 (-70)	-85 (-110)	-125 (-150)

Table 3: Reference Values for 160mm FHR Collar

Z FHR COLLAR WIDTH (MM)	160							
X FHR to belt anchorage (mm)	100	200	300	400	500	600	700	800
Y belt anchorage to separation (mm)	175	135	95	55	15	-25	-65	-105
	(150)	(110)	(70)	(30)	(-10)	(-50)	(-90)	(-130)

Table 4: Reference Values for 180mm FHR Collar

Z FHR COLLAR WIDTH (MM)	180							
X FHR to belt anchorage (mm)	100	200	300	400	500	600	700	800
Y belt anchorage to separation (mm)	195 (170)	155 (130)	115 (90)	75 (50)	35 (10)	-5 (-30)	- 45 (-70)	-85 (-110)

Definitions for the reference values:

- dimension Z (mm) = width of the FHR collar, as shown in Drawing I-8 and I-10
- dimension X (mm) = distance from the rear edge of the FHR-belt-bearing-surface to the automobile attachment point (mm) as shown in Drawing I-8
- dimension Y (mm) = separation of the centres of the two shoulder straps at the automobile attachment points (mm) as shown in Drawing I-8

Values calculated based on 75mm wide straps (values for 50mm wide straps are shown in brackets)
Values in ORANGE colour denote that theoretical separation is less than belt width. In this case it is recommended that the belts are installed side by side to avoid any overlap, hence the actual separation shall be equal to the belt width. If the value is negative, the belt straps should be crossed. NOTE: Shoulder straps over 200mm long are permitted but not recommended.