2021 MOTORSPORT AUSTRALIA MANUAL

TECHNICAL APPENDIX



Schedule I – Safety Harnesses and Window Nets

Modified Article	Date of Application	Date of Publication
TABLE I-1; NOTE 3	01/01/2021	01/01/2021

1. SAFETY HARNESS GENERAL REQUIREMENTS

- (a) A safety harness (including a seat belt) must 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.
- (b) Each safety harness must comply at least with one of the standards as specified in Table I-1 below.
- (c) A 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 FHR device.

Important note:

- (i) 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.
- (ii) 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.
- (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 alterative 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 waist strap only. Attachment must be to the metal buckle only.

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 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 installed in accordance with the manufacturer's instructions with consideration to the requirements when using a Frontal Head Restraint 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.
- (c) A safety harness must be mounted using the following:
 - (i) On a series production *Automobile*, any unmodified seat belt mounting point may be used;
 - 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 plate not less than 75mm x 50mm x 3mm thick (refer drawing I-4);

- (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 except for homologated 1st category applications;
- (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) 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.
 - (B) It is permitted to retain a shoulder strap/s into position to maintain FHR adjustment using material such as safety cage padding.
- (d) Only a crutch 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 plate in accordance with drawing I-4 or a single plate in accordance with drawing I-5
 - (v) The belt is correctly routed in accordance with drawing I-6

3. FITTMENT OF SAFETY HARNESSES 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 NETS

- (a) In a *Circuit Race*, each closed *Automobile* which is required to have a safety cage fitted must have a safety window net fitted in the *Driver*'s door window opening.
 - (i) 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.
 - (ii) The net may be locally modified to preserve the *Driver*'s view of the external mirror.
 - (iii) The 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.
 - (iv) The handle or lever must have coloured markings.
 - (v) 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".

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- (b) On each *Automobile* derived from series production *Automobiles* 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.
 - (i) 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 quick release system.
 - (ii) 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.
 - (iii) 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*, is exempt from the requirement for Window Nets.

- (c) Each Off Road *Automobile* must be equipped (for each occupant) with a safety net or 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 arm restraints a window net must be used to cover each opening, except for the front window opening.
 - (iii) For an *Automobile* with an opening roof each occupant is required to have a wrist/arm restraint on each arm.
 - (iv) If 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 an SFI 3.3 standard.

TABLE I - 1

	Configuration	Acceptable Standards	Identification
A	6-Point Harness	FIA 8853-2016 ³ FIA Hologram compulsory FIA 8853/98 ¹ FIA Hologram compulsory for each harness manufactured after 01/01/2013	In compliance with: FA Standard 853:298 & 854:498 The set of Ministeriors The set of Ministeriors The set of Ministeriors The Standard 853:98 & 854:498 FA Standard 853:98 & 854:498
	5-Point Harness	SFI 16.1 ²	This Manufacturer Carifice That This Product Meets SFI SPEC. 16.1 Date of Manufacture JAN APP JU. OCT 03 04 FEB SAMUP DEC 07 08
В	4-Point Harness 3-Point Harness	Includes Level A FIA 8854/981 AS 2596 ECE R16	The subset extension modes and yzabe technisms AS / 2506, US 083, JAS FRANS ES METER WT LEA DOAD INTER
С	Lap Sash Belt	AS 2596 ECE R16 AS E35	
D	Lap Belt	AS 2596 ECE R16 AS E35	

NOTE:

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

- (i) For International events, safety harnesses must not be used after 31 December of the year stated (XXXX).
- (ii) 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 events is subject to the following conditions:

- (iii) Safety harnesses must be inspected during the normal scrutiny process;
- (iv) Each *Competitor* must inspect and replace any damaged or worn safety harness before any *Competition* as required.

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: <u>https://www.fia.com/presentation-forms-harnesses-according-fia-standard-8853-2016</u>. Extension of the safety harness validity is not permitted for a *FIA* 8853/2016 standard harness.

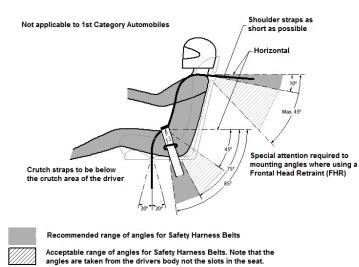
TABLE I-2

Event Type	Event Permit Level	Туре	Notes
Observed Section Trial	All	D	
Motorkhana	All	D	
Khanacross	All	С	Type B minimum for each Specials
Speed Events	All	С	Registered closed Automobile
		В	Other Automobile
		А	Where FHR is required – refer Schedule D
Race ¹ - 1st Category Group 2A/2C	All	А	
Race ¹ - Other Automobile	All	А	
Rally	All	А	
Rallysprint	S1	С	
	S2	А	
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	А	

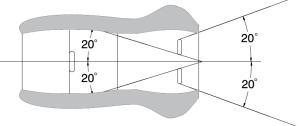
NOTE:

¹ Except 5th Category: For *Automobiles* of the 5th Category whilst competing in events exclusively for the 5th Category, each safety harness must be of a type and configuration as specified in the specific group technical regulations.

Drawing I-1

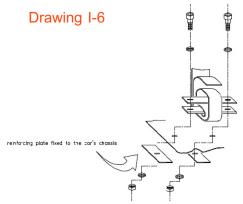


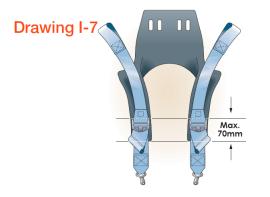
Drawing I-2



Drawing I-3 Drawing I-4 R10mm 1st Category and similar A automobiles 50mm min. R3mm 75mm min. > Shoulder harnesses on certain 1st and 5th A crutch strap or straps may share a common mount Category automobiles may be best set perpendicular to the upper spine. with a lap belt or belts **Drawing I-6 Drawing I-5**







Drawing I-8



Drawing I-9

Recommended harness placement with use with FHR

20 00° × 10 10 ×.)0 TO TECHNED 20°

Drawing I-10

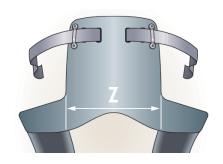


TABLE I-3

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-	95	55	15	-25	-65	-105	-145
	(110)	(70)	(30)	(-10)	(-50)	(-90)	(-130)	(-170)
able 2: Reference Values for 140mm F	HR Collar							
Z FHR COLLAR WIDTH (MM)	140	140						
X FHR to belt anchorage (mm)	100	200	300	400	500	600	700	800
Y belt anchorage to separation (mm)	155	115	75	35	-5	-45	-85	-125
	(130)	(90)	(50)	(10)	(-30)	(-70)	(-110)	(-150
able 3: Reference Values for 160mm F	HR Collar							
Z FHR COLLAR WIDTH (MM)	160	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)
able 4: Reference Values for 180mm F	HR Collar							
able 4. Reference values for roomin r								
Z FHR COLLAR WIDTH (MM)	180							
	180	200	300	400	500	600	700	800
Z FHR COLLAR WIDTH (MM)		200 155	300 115	400 75	500 35	600 -5	700 -45	800 -85

- 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.

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