

Guidelines for Safety Structure Homologation / Approval

Please reference Appendix Two, Schedule A of the current MotorSport Manual when referring to these guidelines.

Homologation is the term applied to the certification process which ensures that a safety structure has been designed and constructed to a defined technical specification which in turn assures that a predetermined level of performance is achieved.

The purpose of this document is to provide guidelines relative to the application requirements and processing of safety cage and safety rollbar certification by the MotorSport New Zealand (MSNZ) Technical Department and to ensure compliance is maintained throughout the validity of the approval certificates.

The following practices are established / recorded to ensure that stated regulations are followed and a high level of consistency is maintained relative to the initial issue, update and/or modification and repair during the service life of the safety structures.

These guidelines cover the following;

Item	
	General Information – covering the different MSNZ certification schemes
1	Schedule A Homologation for Safety Structures
2	Appendix J Homologation for Safety Structures
3	Schedule AA Approval for Safety Structures
4	Type Approval Homologation for Safety Structure
5	Homologation of (existing) Safety Structures in Imported Vehicles
6	Modification of a homologated Safety Structure
7	Repairs to a damaged Safety Structure & Bodyshell replacement
8	Recognition Scheme for Single Seater / Sports Racing Car Safety Structures
9	MSNZ Recognised Manufacturers

General Information

A Safety Cage or Safety Rollbar is classified as a safety critical item meaning the structure has a direct effect on a driver's and/or passenger's safety in the event of an accident.

Safety Cage – this term is used to mean a structural framework (principle structure) made up of a main rollbar, two lateral rollbars (or front rollbar), their connecting members, one diagonal member, two backstays and (a minimum of) six mounting points. As of 01/01/2013 a transverse harness bar attached across either the main rollbar or backstays will become a mandatory member.

Safety Rollbar - this term is used to mean a structural framework (principle structure) made up of a main rollbar, one diagonal member, two backstays and (a minimum of) four mounting points.

As a general rule, safety structures may be fabricated by anyone who has the required knowledge, skills and ability although it is highly recommended that this work is entrusted to a MSNZ Recognised Manufacturer (refer item 9).

Once issued, the individual certificate designation/number ID (example NZ, TC, NZTA etc) identifies the category under which the certificate has been approved.

1) Schedule A Homologation for Safety Cages / Safety Rollbars

This is the general standard for safety cage/rollbar certification (acceptance) and is required for all* vehicles competing in Events permitted to Schedule A (ClubSport, National Race & National Rally) where a Safety Cage or Safety Rollbar is fitted.

exception - Vehicles with a current road registration and WOF competing in a ClubSport Basic Event, MSNZ homologation is not **considered mandatory.*

The structure must be homologated (certified) by MSNZ and a copy of the certificate must be contained in the vehicles MSNZ competition logbook.

All Schedule A Homologations are 'recognised' by the certificate designation 'NZ'.

All applications for homologation under Schedule A shall be submitted on the current Safety Cage / Rollbar Homologation Application – Technical Form T002.

Schedule A Homologation may be accepted under one of the following prescriptions, either;

- 1) Schedule A, Part Two Article 5 - design / construction criteria for Safety Cages / Safety Rollbars, or
- 2) Schedule A, Part Two Article 5.7– Alternative Design.

Applications processed under the prescriptions of 1) and 2) above may be accepted where they differ from the stated regulation requirements as follows;

- **Material Specification Unknown:** Where the material specification is unknown a test report for material hardness giving indicative material strength may be accepted (SGS Laboratories for example). This applies to all tube members used in the principal structure. Where the material strength differs from the stated minimums the structure will be subject to an engineers report and (dependant upon report outcomes) may be homologated under Alternative Design.

- **Material Dimensions Unknown:** Where the material dimensions (specifically wall thickness) are unknown, these dimensions shall be determined by drilling a pilot hole and physically measuring. This applies to all members used in the principal structure. Measurements shall be performed by either a member of the MSNZ Technical Department or a licensed Technical Officer / Advisor. Where the material dimensions differ from the stated minimums the structure will be subject to an engineers report and (dependant upon report outcomes) may be homologated under Alternative Design.
- **Welding Details Unknown:** Where the welding details are unknown and the appearance of the welds clearly show a professional standard of workmanship this information may be omitted. Should the appearance be questionable, in any way, then an ultrasonic inspection for penetration and inclusions must be performed. All member joins of the Principle Structure must be welded through 360°.
- **Declaration by Manufacturer / Constructor:** When, for what ever reason, Section 9 is not completed by the original manufacturer / constructor then a signed Affidavit of Compliance must be submitted by the applicant. This must state that the applicant has unsuccessfully attempted to obtain the required signoff by the original manufacturer / constructor and the reasons why, the material description / dimensions have been established and a hardness test performed (for indicative strength), and that to the best of the applicants knowledge the structure meets the minimum requirements of Schedule A.
- **Painted Structure:** When, for what ever reason, the applicant elects to submit photographs of a painted structure with an initial homologation application, then a physical inspection will be required by a member of the MSNZ Technical Department;
 - The structure shall be subject to a physical inspection.
 - A report may be produced detailing any specific features / necessary work required prior to homologation / approval being granted.
 - The following costs (additional to the standard application fee) shall apply; time spent performing inspection (minimum of 1 hour) charged at a rate of \$150 p/hour and (if required) any travel and accommodation expenses incurred (at cost).

Note 1: If inspection can be coordinated to coincide with out of office duties the possibility of this may be advised (in order to reduce travel / accommodation costs).

Note 2: There will be no guarantee of acceptance (of a painted structure) where the quality of workmanship is deemed to be below an acceptable standard.

2) Appendix J Homologation for Safety Cages

This is the international standard for safety cage certification and is required for all vehicles (domiciled in New Zealand) that are required to comply with FIA safety requirements as part of their class regulations (e.g. FIA Group N, R etc), are to be used in international competitions (or compete overseas) or may potentially be sold overseas (at a future time). MSNZ is authorised (as an ASN) to certify safety cages under the prescriptions of FIA Appendix J.

Application for certification may be accepted under either the prescriptions of;

- 1) FIA Appendix J Article 253-8.1a – standard specification for Safety Cages, or
- 2) FIA Appendix J Article 253-8.1b - FIA Homologation Regulations for Safety Cages

Important Note: All Manufacturers are advised to study the current version of FIA Appendix J or the Homologation Regulations for Safety Cages (as published on an annual basis by the FIA) prior to construction. Copies of these FIA documents are available from the MSNZ Technical Department upon request.

International compliance/certification should be entrusted to a Recognised Manufacturer who will contact the MSNZ Technical Department to register their intent to fabricate a safety cage to international prescriptions. It is imperative to ensure that the proposed design is in compliance with the vehicles class / group and to obtain an application form.

It is the Safety Cage Manufacturers responsibility to create an identification plate (embedded, engraved or self-destroying sticker) and attach it to the safety cage. The identification plate must bear the name of the manufacturer, the homologation/certification number* (refer note below) and the manufacturer's individual series number for the structure.

Note; A copy of the ASN Safety Cage Homologation Application Form – Technical Form T002/FIA will be provided together with the assigned homologation number at the time of registration.*

An ASN (International) certificate will be issued identifying the design compliance with either Appendix J Article 253-8 or the FIA Homologation Regulations for Safety Cages. In addition to the logbook homologation certificate, a complete authenticated A4 copy of the certificate including pictures of the structure will be provided (for presentation to the event Scrutineers). The homologation certification should be accepted at all FIA sanctioned/international overseas events.

All Appendix J certificates are 'recognised' by the certificate designation 'NZ' followed by year of issue.

The following specific points are high-lighted relative to international safety cages;

- The design must comply with the vehicles class/group requirements (for example Group N / R etc.) relative to the date of the vehicles specific FIA homologation.
- Where the design and/or the material specification differ from that prescribed in article 253-8.3.2 (design) and 8.3.3 (material specification), an engineer's certificate issued by a company* recognised by the FIA must be provided with the homologation application.
- Where the design and/or the material specification for a transversal reinforcement (for harness attachment) differ from that prescribed in article 253-6.2, this needs to be included in the engineer's calculations / certificate.
- Each safety cage shall be fitted with an identification plate bearing the name of the manufacturer, the homologation number issued by the ASN and the individual serial number of the structure.
- These safety cages must not be modified in any way.
- It is the manufacturers responsibility to ensure they have (and work to) the current version of the FIA regulations.

* Currently OPUS INTERNATIONAL CONSULTANTS is the only FIA recognised company in NZ, although there are a number of FIA recognised engineers in Australia. Refer FIA Technical List No.35 – [http://argent.fia.com/web/fia-public.nsf/ODCE23E0F25825ADC12579270053AE30/\\$FILE/LT%2035-Calcul%20Armatures%20\(121011\).pdf](http://argent.fia.com/web/fia-public.nsf/ODCE23E0F25825ADC12579270053AE30/$FILE/LT%2035-Calcul%20Armatures%20(121011).pdf)

3) Schedule AA Approval (Formerly Schedule K and T&C Approval)

This is an alternative specification to that of Schedule A and is solely applicable to vehicles that due to their age/design characteristics have difficulty in complying with the requirements of Schedule A and in particular the requirements for safety cages and rollbars.

Schedule AA approval may only be granted under the following conditions;

- applicable to vehicles issued with a valid COD issued by MSNZ,
- applicable to vehicles of pre 1978 vintage, and
- applicable only where there is a genuine reason and/or it is impractical due to the vehicles age/design to comply with the requirements of Schedule A.

Note: Schedule A homologation should always be used where ever possible.

Vehicles with a Safety Cage or Safety Rollbar approved under Schedule AA are only authorised to compete in Events / Competitions permitted under Appendix Six of the National Sporting Code. This does restrict the number of events the vehicle will be eligible to compete in.

There is no set design / criteria for safety structures under Schedule AA Approval. Structures must be designed and fabricated to provide the best possible protection for the vehicle occupants relative to the vehicles' age, type of construction and potential performance.

All designs presented under Schedule AA Approval must be inspected and 'approved' (under the above criteria) by a MSNZ Roll Protection Advisor in consultation with the Historic & Classic Commission Chairman. Contact the MSNZ Technical Department relative to organising an inspection.

All applications for approval under Schedule AA shall be submitted on the Safety Cage / Rollbar Approval Application – Technical Form T006. A copy of the certificate must be contained in the vehicles MSNZ competition logbook.

All Schedule AA Approvals are 'recognised' by the certificate designation 'TC'.

4) Safety Cage 'Type Approval' Homologation

Recognised Manufacturers may apply for 'type approval' if they intend to construct a number of identical Safety Cages / Safety Rollbars (normally 6 or more structures). Such structures may be accepted under either Schedule A or FIA Appendix J prescriptions.

The Manufacturer should consult with the MSNZ Technical Department prior to applying for homologation to ensure the specific requirements of this scheme are applicable and may be met by the Manufacturer.

Application for a type approval homologation shall be made on the Safety Cage / Rollbar Type Approval Application – Technical Form T003 (which is only available directly from the MSNZ Technical Department).

Once issued the type approved certification is accepted exactly the same as other individual homologations with a copy of the certificate contained in the vehicles MSNZ competition logbook.

All type approvals are 'recognised' by the certificate designation 'NZTA'.

The Manufacturer will be bound by the following requirements;

- At the time of initial application the Manufacturer must advise of their intention to build a minimum number of identical structures.
- An application fee of \$600.00 will be applicable that covers the first six homologation applications after which a \$35.00 administration fee will be applicable for each subsequent homologation issued.
- Both fully welded and bolt-in structures may be homologated under the type approval scheme.
- All structures must be identical in design and material as per the initial (type approval) homologation.
- It is the Manufacturer's responsibility to apply to MSNZ for each individual certificate for each structure manufactured (using Technical Form T003) and to ensure compliance of each individual structure. In the case of bolt-in structures compliance with Schedule A Part Two Article 5.5 must be assured (photographs of all welded reinforcement plates and fixture specifications). Specific details available from the MSNZ Technical Department.
- If the Manufacturer wishes to introduce additional members to a type approval, this is possible provided an extension is applied for (by / through the Manufacturer). Where accepted, the type approval record will be amended by MSNZ accordingly.
- If the design (including the material size / specification, method of construction) is changed by the Manufacturer in any way a new type approval must be applied for.

5) Safety Cage Homologation for Imported Vehicles

Where a vehicle is purchased from overseas and imported into New Zealand with an existing Safety Cage or Safety Rollbar fitted it may be possible to gain Schedule A homologation if the following requirements can be achieved;

- A certified copy of the vehicles original safety cage / safety rollbar homologation / certification documents as issued by the overseas ASN is provided (which must be linked to the vehicle in question; normally by individual structure number or vehicle chassis number), together with
- A copy of the vehicles (overseas) competition logbook as issued by the sanctioning body of the series in which the vehicle has previously competed.

Note; *If the above requirements cannot be achieved the requirements of Schedule A will apply as detailed under Item 1.*

Application for homologation (of an existing safety structure) shall be submitted on the Safety Cage Homologation Application – Technical Form T002. Once issued, a copy of the certificate must be contained in the vehicles MSNZ competition logbook.

All such certificates issued under Schedule A homologation are 'recognised' by the certificate designation 'NZ'.

6) Modification of a Homologated Safety Cage / Safety Rollbar

Modification is considered to be, any process made to the safety structure by machining, welding and/or process that involves a permanent modification of the material or the safety structure. It is possible to perform modifications to a Schedule A 'homologated' or Schedule AA 'approved' safety cage or safety rollbar under the following conditions;

- All proposed modifications should be presented to the MSNZ Technical Department for approval prior to any work commencing.
- Modifications may only be performed by the original safety cage manufacturer / constructor (as detailed on the homologation certificate) or with their written permission or (failing that) with permission from the MSNZ Technical Department.
- Once the proposed modification has been completed a Safety Cage / Rollbar Extension Application – Technical Form T004 shall be completed and submitted to the MSNZ Technical Department for acceptance and update (re-validation) of the existing homologation.
- An Extension Application is only valid where tube members are added that are not part of the principal structure. This may include; side intrusion bars, reinforcements and gussets, seat mounts etc.
- The existing homologation number will be retained.
- An Extension Application can not be used where any tube members are introduced that form part of the principle structure. In this case a new application will be required. (As an example; the addition of two lateral rollbars and a connecting member to a Safety Rollbar will require a new application. In this instance a new homologation number will be issued).
- Any permanent modification to a homologated structure will invalidate the original certification hence an extension certificate must be issued to re-validate the homologation / approval before the vehicle can be used in competition.

7) Repairs to a damaged Safety Cage / Safety Rollbar (including replacing entire bodyshell)

Where damage is sustained to a Schedule A homologated or Schedule AA approved Safety Cage or Safety Rollbar, repairs may be authorised by the MSNZ Technical Department. It is possible under a 'Notice of Repair' Application (refer Technical Form T005) to repair damage to a safety structure and/or remove a homologated safety cage from a damaged bodyshell and re-install in a 'new' bodyshell. Always contact the Technical Department in the first instance for advice.

In all cases the following applies;

- Initially contact the MSNZ Technical Department for approval/guidance prior to any repair work commencing.
- Repairs may only be performed by the original safety cage manufacturer / constructor (as detailed on the homologation certificate) or with their written permission or (failing that) with permission from the MSNZ Technical Department. It is always highly recommended to contact the MSNZ Technical Department in the first instance for advice.
- A 'Notice of Repair' – Technical Form T005 must be completed in full by the 'repairer' and submitted with photographs of the structure prior to and post repair to the MSNZ Technical Department. Upon acceptance a 'Repair Certificate' will be issued.
- Any damaged tube members (in the principle structure) shall be replaced in their entirety.
- All material used shall respect the original specification and dimensions of the originally homologated structure or as approved in writing by the MSNZ Technical Department.

- If there are any changes made during the repair to the original specification and dimensions of the originally homologated structure then approval must be authorised by the MSNZ Technical Department prior to the repair commencing.
- If repair requires the replacement of the entire bodyshell then a physical inspection will be required by a member of the MSNZ Technical Department or a licensed Technical Officer / Advisor. The recording of the new chassis number will be required on the Notice of Repair and the vehicles MSNZ Competition Logbook notated accordingly.

8) Safety Structure Recognition

Safety Rollbar recognition is only applicable to rollbar structures as fitted to Single-Seater or Sports Racing Cars.

Note; recognition certificates are only required for vehicles issued with a MSNZ logbook after the 1st September 2010 Vehicles issued with a MSNZ logbook prior to this date are exempted from the certification requirement.

This form of certification is exactly as its title suggests; recognition (and acceptance) of an original safety structure as fitted by the vehicles original manufacturer. Recognition is achieved by physical inspection and documented evidence presented by the vehicle owner. Presentation of sufficient / accurate documented evidence is the responsibility of the vehicle owner.

In all cases the following conditions apply;

- In the first instance contact the MSNZ Technical Department.
- Complete the Safety Structure Recognition Application – Technical Form T029 and submit to the MSNZ office
- It is the vehicle owners' responsibility to gain the necessary information to confirm the originality and compliance of the manufacturers' rollbar and to sign the declaration accordingly.

All Recognition Certificates will be 'recognised' by the certificate designation 'NZR'.

9) Recognised Manufacturers

Reference; Schedule A Part One Article 4.6 (1) and Part Two Article 5.2

To assist competitors and to alleviate many of the common problems associated with the construction and certification process for safety structures, MotorSport New Zealand has established a list of 'registered' manufacturers who have a proven record of safety cage / rollbar construction. Such manufacturers are expected to provide the necessary assurance of design compliance and quality of fabrication together with handling the homologation / certification process on behalf of the customer.

A list of MSNZ Recognised Manufacturers is available on the MSNZ website – displayed by area.

END