



Track and Time
Time Attack Regulations

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Official notice of waiver

The Track and Time organisation (hereafter Track and Time) makes an effort to ensure that every participant operates in a safe environment. In spite of strict application of the regulations, every participant must be conscious of the potential risks, including the possibility of serious injury that may even result in death, even if the participant is not directly responsible.

These regulations constitute a guide aiming at raising the level of general safety, and do not in any case guaranty the participants, spectators or any other person against injuries or death.

The application or publication of these regulations does not offer any guaranty, expressed or implied, of safety or of application for a specific purpose.

This set of rules was originally published in French. In case of any discrepancy between the two versions, the French version will prevail.

The male gender is used throughout to simplify the text but is meant to address both women and men.

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1. GENERAL

1.0 DATE OF APPLICATION

1.0.1 In force as of January 25, 2012. Track and Time reserves the right to modify these rules from time to time.

1.1 APPLICATION

1.1.1 By participating in an event, a participant agrees to abide by the rules and regulations set forth in this publication. The interpretation and the determination of these rules by the officials of Track and Time shall be final, definitive and non disputable.

1.1.2 No dispute shall be initiated against Track and Time or the members responsible with the intent of reversing or modifying the results of the application of such rules or to try to recuperate damages or other form of compensation allegedly resulting from or required following such application, and if a person initiates or maintains a dispute violating this clause, that person accepts to reimburse Track and Time for all costs associated with such legal proceedings.

2 SAFETY AND COMPETITION

2.0 HELMETS

2.0.1 Helmets may be full face or open face. They must be in good condition inside and out and must never have been involved in a collision or major impact.

2.0.2 A helmet approved according to Snell 2005 standard, or more recent, rated M is acceptable for all car classes. If the car is equipped with a roll cage, every occupant of the car must wear a Snell SA 2000, or more recent, helmet. The expiration date for Snell 2005 standard is December 31st, 2020.

2.1 SAFETY BELTS & RACING SEATS

2.1.1 Every competitor must properly wear a safety belt (restraint system) at all times on the track. The participant is responsible to ensure that the belts fitted to his vehicle are in good condition and are installed adequately.

2.1.2 Three point OEM seat belts or D.O.T. approved are acceptable in all car classes for vehicles with or without a roll bar.

2.1.3 Safety belts must be of nylon webbing, with metal buckle attachments in good condition and must be acceptable as such to the chief inspector.

2.1.4 A five or six-point belt or race harness, meeting FIA or SFI 16,1 standard, is required in all vehicles with roll cage, regardless of car class.

- 2.1.5 The use of straps on a restraint system not D.O.T approved, with 4, 5 or 6 tie-down points or a racing harness is prohibited on cars not fitted with a roll bar or cage. A “CG lock” or other locking mechanism to restrain the movement at the hip on an original safety belt is permitted.
- 2.1.6 When a harness is used, its shoulder straps shall be a pair of belts being held down at a maximum angle of 45 degrees to the floor. When appropriate, it is acceptable to tie the harness straps to the original tie-down points or the OEM rear safety belts.
- 2.1.7 In all cases, the material of the belts shall be a minimum of 70 mm wide (2,75 inch) nominal, except for the anti-submarining belts which may be 44 mm (1,75 inch) wide.
- 2.1.8 Competitors not using the original tie-down points must use 3/8 inch bolts (10 mm) of SAE grade 5 or better. All tie-down points shall be either on the original chassis or the rollover cage, or an adequately reinforced point.
- 2.1.9 A racing seat, moulded in one piece, conforming to FIA standards may be installed in a vehicle equipped with a roll bar or cage.

2.2 SAFETY IN CASE OF FIRE

- 2.2.1 Competitors on the track or working on the track must wear long sleeved shirts, trousers, shoes and socks made of non-synthetic material.
- 2.2.2 Competitors in class TA0, except those whose car still has all its original safety equipment installed, including airbags in activated mode, interior panels and original seats, must wear gloves and a racing suit in good condition, made of single or multiple layers of Nomex.

2.3 PROTECTION IN CASE OF ROLLOVER – SAFETY BAR (ROLL BAR)

Note: The roll bar is not mandatory except in the cases specified in point 1 of article 2.3. The roll bar is highly recommended for all classes.

- 2.3.1 A roll bar is mandatory for:
- i) all vehicles with a foldable or removable top (ex. convertibles);
 - ii) all vehicles in class TA0, except for cars that still have all their original safety equipment installed, including airbags in activated mode, interior panels and original seats.
- 2.3.2 An unusual installation of a roll bar is subject to the approval of the chief inspector. The chief inspector may approve the installation of a roll bar that meets other recognised standards
- 2.3.3 See Appendix C for minimum fabrication criteria.

2.4 VEHICULE REQUIREMENTS

All vehicles must conform to the following:

- 2.4.1 All vehicles must conform to the technical inspection sheet provided.
- 2.4.2 Have a wheelbase of 183 cm (72 inches) or more, a track width, front and rear, of 107 cm (42 inches) or more and a maximum height of 160 cm (63 inches).
- 2.4.3 Have four wheels fitted with four tires in good condition, having no deformation and not showing any undertread. Eligible tires are: DOT summer and four-season street tires, DOT R-compound and non-DOT slicks (race tires).
- 2.4.4 A tandem braking system that can operate on all four wheels at the same time via a single hydraulic system.
- 2.4.5 Gas lines. If the gas lines originally go through the cockpit, the installation will be considered as conforming to this regulation, as long as the original interior is kept unchanged, including the carpets. If the interior is stripped and that the gas lines become exposed, they shall then be installed in conformity with Article 253, paragraphs 3.1 and 3.2 of the FIA rules (see Appendix B). Moreover, a minimum 5BC extinguisher or a fire suppressing system shall be mounted inside the cockpit. Otherwise, the gas lines shall be reinstalled on the outside of the car.
- 2.4.6 Have a structure and a body that surround and protect the driver at least to the waist level when sitting in a normal driving position. Exterior panels must be of metal, fibre reinforced plastic, or other fire resistant material, except for OEM panels.
- 2.4.7 For cars with internal combustion engines, use only hydrocarbon-based fuels or diesel, including bio-diesel, gasoline with ethanol or other additive added, ex.: propylene or other additive raising the octane rating, added directly to the OE fuel tank. Any other source of fuel or fuel additive than the original system is forbidden, including nitrous oxide and propane.
- 2.4.8 Have a starter in working order that can be operated from inside the vehicle. The engine must be able to run at idle on the pre-grid (ex.: without overheating) for a reasonable period of time in order to ensure the smooth progress of the event.
- 2.4.9 Karts and open-wheel cars are prohibited.
- 2.4.10 The battery must be securely fixed to the vehicle. If the battery is in the cockpit (ex.: no partition wall between the battery and the pilot), it must be completely enclosed and securely fixed in a well ventilated protecting box (ex.: marine type).
- 2.4.11 Hub caps and trim rings that are not bolted on must be removed.
- 2.4.12 Have an overflow can for the cooling fluid. Engine breathing tubes must also have adequate catch cans and must not vent to the atmosphere.
- 2.4.13 The following vehicles, sometimes referred to as home made or kit cars, may participate in an event with the same safety equipment as the other vehicles as long as they have proper rollover protection.

Ex.: Aurora (Cobra style), Factory5, Caterham, Lotus 7, Lowcost. These vehicles will be classed in the highest existing class.

2.5 IDENTIFICATION AND SPONSORSHIP

2.5.1 The vehicle number and class identification must be visible on both sides of the vehicle. Numbers must be a minimum of 8 inches (200 mm) high and at least 1 inch (25 mm) thick. The class letters and number must be at least 4 inches (100 mm) high and be placed after the identification number.

2.5.2 Even if there are two divers on a same car, only one identification number must be displayed at one time on track.

2.5.3 Mandatory sponsor stickers must be placed on the vehicle and be easily seen. Vehicles not displaying the sponsors' stickers will not be allowed to participate in the competition. All stickers must be in place before the start of the event.

2.6 COMPETITORS REQUIREMENTS

2.6.1 To be eligible to participate in Track and Time events the participant must, before the event (there will be no registration at the event):

- i. be properly registered and have paid the registration fees ;
- ii. have obtained an annual competition licence from Time Attack, and
- iii. submit the duly filled annual medical self-declaration form, and
- iv. submit the duly filled annual technical inspection self-declaration form, and
- v. submit the duly filled annual vehicle classification form.

2.6.2 Two types of competition licence are issued by Track and Time : Grade A, which allows the holder to participate in Track and Time events on his own, and Grade B that requires the participant to be accompanied by a Track and Time recognised instructor during an event.

2.6.3 To obtain a Track and Time competition licence, one must:

- i. hold a licence from an organisation recognised by Track and Time, or
- ii. have passed the Track and Time competition school or from an other organisation recognised by Track and Time and be recommended by a Track and Time recognised instructor, or
- iii. have a track experience judged satisfactory by the chief instructor, and
- iv. fill out the Track and Time competition licence request form.

The list of Track and Time recognised organisations is the following: ASQ, ASN Canada FIA and their regional representatives in Canada, SCCA, NASA, BMW club racing, Porsche club racing, COMSCC, and any other organisation that Track and Time may add to these rules from time to time.

2.6.4 The chief instructor recommends the issuance of a Track and Time competition licence of Grade A or Grade B, or turns down the participant's request, based on the information submitted and by his evaluation of the competence of the requester.

The chief instructor reserves the right to reclass a participant from Grade A to Grade B and vice versa, at any time and without the possibility of appeal by the participant, after observing him on track.

- 2.6.5 Any pilot who participates for the first time with Track and Time must display an « X » of at least 10 inches high and of contrasting color, on both sides of his car.
- 2.6.6 At all times Track and Time reserves the right to refuse access to the track and to evict a pilot without advance notice and for any reason.
- 2.6.7 All competitors, officials, track workers, volunteers and passengers must read and sign the waiver before being allowed access to any restricted area (for example, the pits, the work stations, or any other area reserved to competitors) or to participate in an event.
- 2.6.8 No competitor may register more than once to the same event. On the other hand, a vehicle may be registered by a maximum of two (2) different drivers.
- 2.6.9 Every pilot is responsible for the behaviour of his support crew.
- 2.6.10 The help of every competitor is essential for the success of the event. The organisers may demand the help of competitors during an event and may exclude one or more results or even refuse some trials to competitors refusing to carry on the requested tasks.
- 2.6.11 It is strictly forbidden for any driver, visitor, member of a support crew or official to consume alcoholic beverages during an event before the absolute and total end of activities on track for that day.

2.7 PASSENGERS

2.7.1 Except in his first time attack season with Track and Time, all competitors having a Grade A Track and Time time attack licence may bring a passenger on board during his stints on track. Section 2 must be followed taking into account the passenger. It is the pilot's responsibility to ensure his passenger's safety on track. Any dangerous driving, any spin or off-track excursion from the pilot when he is accompanied by a passenger will result in the ban of this privilege for the rest of the day.

Track and Time reserves the right to refuse this privilege to a competitor .

2.8 THE COURSE

- 2.8.1 Every change done to the track configuration, with the approval of the event official or officials, must be brought to the attention of the participants at the drivers meeting.
- 2.8.2 The course, including the start and finish, must be clearly defined. When the use of pylons on the track is required, their location must be properly marked in order to place them back in the same place if they are displaced.

2.9 THE TRIALS

- 2.9.1 To be allowed participation in the event, all competitors must attend the drivers meeting unless prior arrangement has been made with the organiser. This measure aims at insuring the safety of the participant and that of the others.
- 2.9.2 On track, point-by passings are permitted in designated zones. Passing zones and procedure must be properly explained during the drivers meeting.
- 2.9.3 A hand signal or a turn light indicator is acceptable as a pass-by signal.
- 2.9.4 A participant whose car is equipped with arm restraints must necessarily equip his vehicle with turning flashers and use them to authorise a passing.
- 2.9.5 The vehicle being passed must stay on the race line.
- 2.9.6 During timed laps, the vehicles are grouped according to their class. A starting order will be proposed in ascending order of lap times in order to minimise passings. It will be of the pilots' responsibility to conform to it as best as they can, without delaying the starts should some competitors classed in front of them not show on the grid at the specified starting time.

In case two competitors are driving the same car, the race director will assign a group to each of them, to the best of it's ability, so not to cause prejudice to the other competitors in that class.

- 2.9.7 Drivers must observe an etiquette and a cooperation without flaw. Any behaviour judged aggressive or unsporting on track or off will be severely punished. Sanctions may go from exclusion of the participant to cancellation of his Track and Time competition licence.

2.10 EVENT ORGANISATION

- 2.10.1 Every session must comprise a warm-up lap or a portion of a lap before the vehicle crosses the timing line.
- 2.10.2 Every session must comprise a cool-down lap or a portion of a lap before the vehicle gets to the exit to pit area.
- 2.10.3 Competitors may complete as many laps as they can during the pre-determined duration of on track sessions.
- 2.10.4 The duration of the sessions is determined by the race director and may change during the day. The director must ensure the equity between all groups.
- 2.10.5 The organisers cannot guaranty that all participants will have the same number of timed laps considering the yellow and red flags that may be given during a particular session and the different competitors lap times.
- 2.10.6 The duration of the session begins when the first vehicle enters the track and ends when the first vehicle crosses the checker flag.
- 2.10.7 Every competitor may, during a timed session, leave the track through the official exit without penalty.

2.10.8 If a vehicle has a mechanical issue during a timed session, the pilot will not be given a rerun. He may, on the other hand, use an other vehicle of the same class in his other sessions.

2.11 AWARDING OF POINTS

2.11.1 Unless otherwise informed to the contrary, each track day will count as three (3) rounds. The day will be divided into seven (7) sessions: one practice and 3 rounds of 2 sessions each.

2.11.2 Only the fastest lap time of a competitor, including penalties, will count for each round. When an event is held over a two-day period (or more), the fastest lap time of each round of both days (or more), including penalties, will count. Unless the class winner's time meets the criteria outlined in section 2.11.3, the winner will be awarded 100 points that will count towards the championship. The other participants will be awarded points equivalent to the percentage of their time to the first one in their class. The results will then be increased according to clause 2.11.4.

2.11.3 In case the best lap time achieved in a class is slower than the best lap time achieved in a class with a power to weight ratio (P/P) greater than its own, the points allocated to that class will be calculated as a percentage of the faster lap time. (Ex. the best time in TA0 is 50 seconds and the best time in TA1 is 48 seconds. The winner of TA0 would receive $48/50 * 100 = 96$ points and so on for the other participants in that class.)

2.11.4 The points of every participant will be modified as follows depending on the number of participants in their class:

if there is only one participant in the class, the participant will be awarded 100 points or the result obtained if clause 2.11.3 is applicable. For more than one participant, the points awarded will be multiplied by a factor of $1 + 0,005$ times the number of participants, up to a maximum of 5 participants, for a factor of maximum 1,02. (Ex. The winner of a class being awarded 100 points will receive a final score of 100,000; 100,500; 101,000; 101,500; 102,000 depending if there are 1, 2, 3, 4 or 5 or more participants.)

2.11.5 Tiebreaker

In case of a tie in the championship points (overall champion), the points difference between the first and second in class will be used. The driver having the greatest difference in points with the second in class shall be the winner.

2.11.6 A DNS (“Did Not Start”) is given to a participant who fails to start when given the signal by the race official. All laps of that session will be marked as DNS.

2.11.7 A FWO (“Four Wheel Off”) is given to a participant, including during warm-up and cool down laps, in the following cases:

1. His vehicle goes off track, meaning all four wheels leave the track or the area marked as the track;
2. He has littered the track surface after cutting a corner or has displaced a cone or other object on the track that forces the other participants to slow down or change their race line to avoid the object ;

3. He goes out of control on the track, delaying the normal progress of the event (ex. : it forces a red flag);
4. He ignores or misses flags ;
5. His conduct on track puts him and the other participants in danger or delays the normal progress of the event (ex.: drives too slowly on a warm-up or cool down lap). The race official may declare a vehicle FWO (Four Wheels Off). All laps of that session will be marked as such.

2.12 RERUNS

2.12.1 A rerun is only given when authorised by an official.

2.12.2 If a vehicle is given a red flag following a timing problem, an official may give the driver a rerun.

2.13 OFFICIAL RESULTS

2.13.1 Official results should include:

- i. The name and date of the event;
- ii. The club's name;
- iii. Each competitor's name;
- iv. Each competitor's vehicle's brand and model;
- v. Each competitor's class;
- vi. The best day's lap times, including penalties;
- vii. The published results in each category in descending order.

2.13.2 The temporary results become official:

- i. 20 minutes after being posted, when there is no inquiry regarding the results and that there are no protest unresolved.

2.13.3 Official Timing

Personal in-car timing equipment is permitted, but in case of discrepancy between it and Track and Time's system, the latter shall prevail and will be considered the only official timing system for the event.

2.14 PROTESTS AND APPEALS

2.14.1 Every protest or appeal shall follow this procedure:

- 1 – Submit to a race steward a written request within the prescribed delay (20 minutes maximum after posting of results) along with a 50\$ deposit.
- 2- The stewards will deliberate and the decision announced by the race director shall be final and without appeal.

2.14.2 Any steward may at any time during an event request proof of a competitor's vehicle classification or an inspection.

2.15 VEHICLE NOISE LEVEL

2.15.1 No noise exceeding 92 dBA as measured at 15 meters from the source may be emitted by a person, an animal or an equipment, including a vehicle. No protest or appeal will be permitted regarding decisions made by the organiser regarding the noise levels permitted on a specific site, the measuring system or the corrective measures asked. Track and Time may ban the use of such equipment or the presence of any person not conforming itself to the maximum noise level tolerated.

2.15.2 In case the venue where the event takes place is submitted to a more stringent tolerated noise level than the one provided in clause 2.15.1, the maximum noise level allowed will be published at the time of the announcement of the event so that participants may have time to insure their conformity before registering.

TRACK
AND
TIME

3 EVENT ORGANISATION

3.0 SAFETY ON COURSE

- 3.0.1 Track and Time will ensure that the spectators' zone, including the parking zones, are at a safe distance from the track, particularly from the pit out and pit in areas. Safety on course is a priority
- 3.0.2 Particular attention will be paid to safety in the pits: a maximum speed of 15 km/h is permitted.
- 3.0.3 A reliable communication system between the officials and the flagging stations on the track will be provided if the course is not entirely visible from the central point where the officials are set up.
- 3.0.4 Track and Time will arrange to supply a red flag, a yellow flag and one 10 BC extinguisher or more at each flagging station, as well as at the pit out and pit in areas. The track workers must have had training on their use.
- 3.0.5 The Track and Time plan in case of major emergency will have at least a quick access to an unlocked cellular telephone with a list of local emergency numbers easily accessible to all organising members and officials.
- 3.0.6 Track and Time may refuse access to a vehicle or a competitor at an event.
- 3.0.7 The person responsible for the course is in charge of the management of safety on track when vehicles are on track. If the track becomes littered, he will advise to waive the red flag at every flagging station. Once the obstacle is removed, he may advise to waive the green flag.

3.1 FLAGS

- 3.1.1 Flags will only be used under the directives of the responsible of the course.
- 3.1.2 The starting flag: used to signal drivers in the pre-grid to access the track or to restart a vehicle that was given a red flag and had stopped at a flagging station. The green flag may be pointed, waived or simply accompanied by a clear sign of hand by the flagger, signalling the driver he can enter the track.
- 3.1.3 The black and white checker flag: when waived at the finish line or at an other place on the track, as specified in the supplemental regulations, the checker flag indicates the end of the timed session.
- 3.1.4 The red flag: when waived at all flagging stations and by the starting flagger under the advice of the responsible of the course, it tells the participants that they must slow down promptly to first gear and reach the pit-in area in a safe manner and await the officials instructions. Drivers should always be ready to stop. In Time Attack, the red flag is commonly used when a FWO (Four Wheels Off) occurs in order for the responsible of the course to bring back the vehicles on track in a safe area and that the vehicle that lost control may regain the track or that a towing vehicle may reach it.
- 3.1.5 The black flag: when waived at the start/stop line or at any other flagging station under the instructions of the responsible of the course, it tells the driver to go back to the pits immediately and wait there for the officials' instructions. The black flag is often used when a vehicle has missed the

checker flag or liquids or heavy smoke comes out of a vehicle or seems to be having a mechanical problem.

3.1.6 The yellow flag: when waived at a station, it informs the drivers that there is an incident ahead and that they must proceed with extreme care and that passing is forbidden. The drivers must look as far ahead as possible to detect a waived green flag on the course that indicates that normal operation restarts.

3.1.7 The green flag: used to replace the yellow flag at any flagging station, it indicates that the driver may regain its full speed.

3.2 ORGANISERS DOCUMENTATION

3.2.1 At the event premises, the following items will be available:

- i. The insurance certificate;
- ii. A copy of the supplemental regulations if existing;
- iii. The list of officials, which will also be read at the drivers' meeting.

3.3 THE OFFICIALS

3.3.1 At every event, officials will be designated. They will have the authority to apply the rules.

- Race Director (1)
- Stewards (2)

3.4 INSURANCE AND WAIVERS

3.4.1 Every event organised by Track and Time will have had insurance coverage applied for.

3.4.2 All competitors, officials, timing crew, workers, pit crew and any other person being authorised to access areas normally closed to the public must read, understand and sign the waiver. It is strictly forbidden to anyone not having signed the waiver to enter the racing or timing areas to look on, do volunteer work or participate in the event.

3.4.3 All forms must be fully completed including the date or dates and the name of the event (at the top of the form).

3.4.4 At registration, the individuals responsible for the waiver must keep the copy under their control at all times and must sign as witness in the section assigned to this when a participant signs the mandatory sections

3.5 INCIDENT REPORT

3.5.1 A report will be written for every incident, whether a claim is anticipated or not. The 'Incident Report' should contain as much information as possible, including the name and address of any witness or injured person as well as the medical treatment given, the details of any videos and photographs that may have been taken, etc.

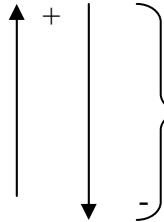
TRAACH AND TINSIE

4 CATEGORIES, ELIGIBILITY AND MODIFICATIONS TO VEHICLES

4.0 AVAILABLE CLASSES

9 classes based on modifications and weight to power ratio will be used

Class	Weight to power ratio in lb/hp
TA0	4,99 & -
TA1	5 à 5,99
TA2	6 à 7,99
TA3	8 à 9,99
TA4	10 à 11,99
TA5	12 à 14,49
TA6	14,5 à 16,99
TA7	17 à 20,99
TA8	21 & +



Arrows on the left use the following logic :
- Attribution of units of weight to power ratio
- Change in class following modifications

Note: the weight to power ratio table is calculated to the second decimal. Each class starts at a round number, ex. 12,00

According to modifications to the vehicle and with certain basic characteristics, the vehicle will either be moved to another class or will need to add or remove points to its weight to power ratio to determine its final class. (See 4.7, 4.8 and 4.9)

4.1 ORIGINAL EQUIPMENT SPECIFICATIONS

4.1.1 Original equipment 'OE' specifications are defined as follows: all original equipment parts or replacement parts that are identical to the original equipment parts and that could have been purchased for this "production vehicle" together with all original equipment specifications and installed by the vehicle manufacturer. For example, pistons could be replaced with aftermarket parts if those have the same weight and the same compression ratio. On the other hand, the replacement of cast pistons with forged pistons would be considered a modification.

4.1.2 Parts or specifications installed by the dealer are not considered original equipment (OE), unless they were required by a manufacturer's technical bulletin. Parts or specifications listed by the manufacturer as "competition" type or for a similar goal are not considered original equipment (OE).

4.2 LEGALITY OF ALLOWED MODIFICATIONS

The allowed modifications included in this guide may not be legal for vehicles used on public roads. It is the competitor's responsibility to ensure that his vehicle conforms to all applicable safety and traffic rules when he drives his vehicle on public roads.

4.2.1 Modifications authorised for a category are the only ones allowed in that category. As a general rule: in case of doubt, don't do it.

4.3 DEFINITION OF A MODIFICATION

A modification is defined as follows:

- 4.3.1 The removal of a part, except when that part has been replaced by a replacement part identical to the OE part.
- 4.3.2 The addition of a part, except when the added part is an original equipment (OE) part or a replacement part identical to the original equipment (OE) replacement part.
- 4.3.3 A non-original adjustment method or service procedure.
- 4.3.4 A change or substitution affecting the specification of the original equipment.

4.4 TECHNICAL INSPECTION

- 4.4.1 The vehicle must be available for inspection to the technical inspector as needed. The vehicle must pass all mandatory inspections.

4.5 THE BURDEN OF PROOF

- 4.5.1 As far as conformity of a vehicle to all applicable rules and, except for class TA0, to requirements of production vehicles, the burden of proof lays on the participants. Every participant must be ready to show the owner's manual, the manufacturer's maintenance manual(s), the manufacturer's catalogue and other official documents as proof of vehicle conformity and admissibility.

4.6 MODIFICATIONS ALLOWED IN ALL CLASSES

If a modification is not included in this section, it will be dealt with in sections 4.8 and 4.9.

4.6.1 Suspension :

Any alignment, suspension bushings of any material, attachment point reinforcement, strut tower bars, aftermarket shock absorbers single adjustable only (such as Koni yellow, KYB, Bilstein sport) with standard valving (no custom valving), add, remove or change one (but one only) anti-roll bar, free.

4.6.2 Brakes

Rotors, pads, callipers, hoses and other components, free.

4.6.3 Engine

Normally aspirated

Cat-back, air intake to the intake manifold, free.

Turbo or supercharged

Cat-back, air intake to the compressor, free.

4.6.4 Transmission and differential

The choice of gearing ratios in either, free.

4.6.5 Bodywork

4.6.5.1 Removal of air conditioning, change of steering wheel, removal of spare tire, removal of interior accessories not needing the use of tools, and the modification of one (1) seat, free.

4.6.5.2 For vehicles in class TA0, the addition of any aerodynamic element is free.

4.7 CALCULATION OF THE BASIC WEIGHT TO POWER RATIO (STEP 1)

The weight to power ratio (W/P) is determined by the weight of the vehicle in race trim divided by the power of the engine. It is used to establish the starting class of the car according to the table in article 4.0

Definition of weight in race trim: the weight of the car with all its fluids at proper level and a half tank of gas, plus the weight of the driver and his safety gear, such that it will be used on track. An official weighing is still the best way to determine the weight in race trim. In case the weighing is done at less or more than a half tank of gas, the weight will be readjusted accordingly. Appendix E lists the weight of gas for different amounts in liters.

In the case where a competitor cannot or does not want an official weighing of his car, he may use the nominal values listed in Appendix A. These values are based on the nominal weight of the car with half a tank of gas, plus 175 pounds for the pilot and his safety gear.

4.7.1 CALCULATION OF THE WEIGHT TO POWER RATIO (W/P) USING INFORMATION IN APPENDIX A

4.7.1.1 STOCK VEHICLES

The W/P ratio is taken directly from the table in Appendix A, i.e. the ratio is determined by the original weight of the car plus a half tank of gas, plus 175 pounds for the pilot and his safety gear (hereafter "nominal track weight") and the original power of the engine.

4.7.1.2 VEHICLES WITH COMPLETE OEM ENGINE SWAP FROM AN OTHER VEHICLE

As long as the engine is OEM without any modification, the original power of the swapped engine is used along with the nominal track weight of the vehicle, according to Appendix A, to determine the W/P ratio.

4.7.2 CALCULATION OF THE WEIGHT TO POWER RATIO (W/P) USING OTHER INFORMATION

4.7.2.1 USE OF ENGINE DYNAMOMETRIC MEASURES

A dynamometric (dyno) chart of the engine is required if one or more of the following conditions apply:

- Addition of a compressor (turbo or mechanical supercharger) on a vehicle not originally equipped with one;
- Vehicle using a non stock programmable ECU or a programmable computer (Hondata, DTA, Megasquirt, etc.)
- Vehicle whose engine has had internal modifications, except for a change of camshaft;
- Vehicle whose engine block or head is not stock (« Frankenstein » engine)

In those cases the power of the new engine derived from the dyno chart (see 4.7.3) is used in conjunction with the nominal track weight of the vehicle, as taken from Appendix A, to determine the weight to power ratio.

4.7.2.2 USING A DYNAMOMETRIC CHART AND A WEIGHING RESULT

A dynamometric chart and a weighing result are required if one or more of the following conditions apply:

- The vehicle has a tubular or semi-tubular chassis;
- A competitor prefers, to his advantage or not, to have his vehicle classed according to the actual weight to power ratio, whatever the engine and/or bodywork modifications he has done to his vehicle.

T&T reserves the right to validate the values submitted for the weight to power ratio calculation at any time.

4.7.3 RULES TO FOLLOW FOR THE DYNAMOMETRIC AND WEIGHING TESTS

The dynamometer gives the power to the wheels. This must be converted to an engine power by using the following table (dyno power ÷ conversion factor)

Dyno Type \ Powertrain	FWD	RWD	AWD
DynoJet (inertia dyno)	0.86	0.84	0.81
Mustang (Eddy current dyno)	0.84	0.83	0.80
DynaPack (hub dyno)	0.87	0.85	0.82

Weight calculation with scales

The weight must be taken on four approved, independent, calibrated scales. The retained weight is for the vehicle in racing condition including the driver and his safety gear onboard.

4.8 ADJUSTMENT TO THE BASE WEIGHT TO POWER RATIO (STEP 2)

The W/P ratio is adjusted according to the following criteria. One unit added or subtracted increases or decreases the W/P ratio which in turn could put the vehicle in a lower or a higher class.

4.8.1 POWERTRAIN

- Front wheel drive vehicles: add three quarters of a unit **(+0,75)** to the weight to power ratio.
- Four wheel drive vehicles: subtract one half of a unit **(-0,5)** to the weight to power ratio.

4.8.2 DIFFERENTIAL

- Limited slip differential (LSD), whether stock or added: subtract one quarter of a unit **(-0,25)** to the weight to power ratio

4.8.3 TIRES

Width

- Tires wider than 245 mm: subtract one quarter of a unit **(-0,25)** to the weight to power ratio.
- Tires narrower than 205mm: add one quarter of a unit **(+0,25)** to the weight to power ratio.

Treadwear

- Tires of 201 treadwear and more: add two units **(+2)** to the weight to power ratio.
- Tires of 60 treadwear and less: subtract two and a half units **(-2,5)** to the weight to power ratio.
- Non "D.O.T" tires (slicks): subtract four units **(-4,0)** to the weight to power ratio.

Preparation

For tires of treadwear between 61 and 200, no shaving is allowed.

4.8.4 AERODYNAMIC ELEMENTS

4.8.4.1 Two levels of aerodynamics are considered and they bring about two levels of adjustment to the weight to power ratio values. Level 1 subtracts 0,33 point **(-0,33)** to the weight to power ratio for each element or group of elements present, as defined in this section, the level 2 subtracts 0,66 points **(-0,66)**.

4.8.4.2 Except for class TA0, the dimensions of the aerodynamic elements (such as: wing, splitter, spoiler, etc. are limited as follows:

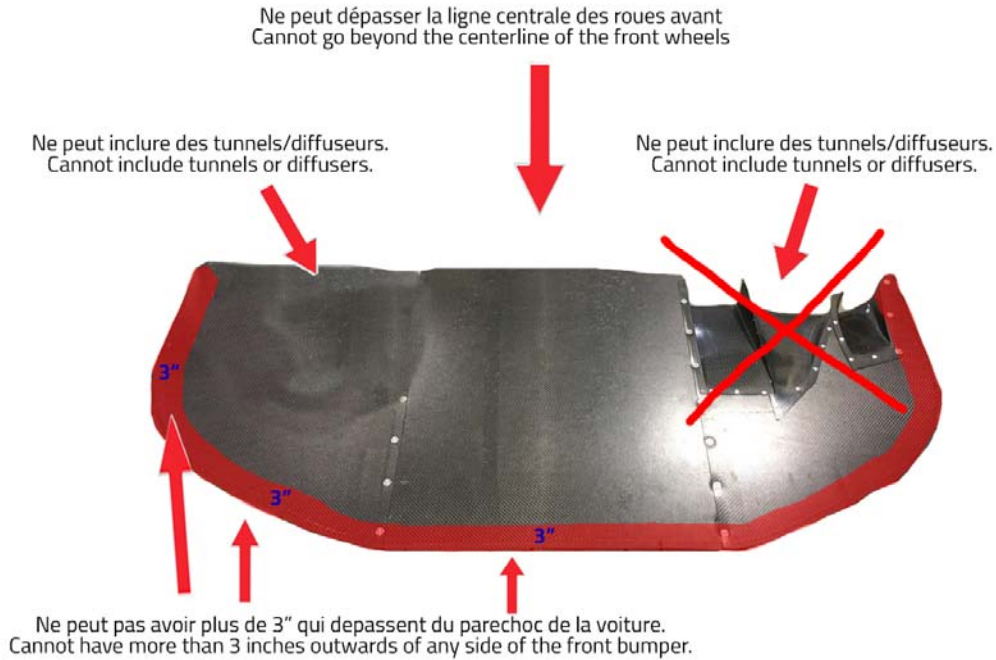
Level 1:

Front element: a splitter comprised of only one element affixed to the lower front part of the car, having no underbody portion farther back than the rear of the bumper cover, protruding no more than 2 inches (5,1 cm) in front of the bumper cover and not reducing the original ground clearance at that point will not be penalized as a Level 1 aero.

No element may protrude more than 3 inches (7,6 cm) in front or to the side of the bumper cover or, if there is no bumper cover, in front of the forward most point, or to the side of the junction point between the fender and where the bumper cover would have been. The length of the portion of the

appendage that lies under the car may not exceed the distance to the center of the front wheel and may not include any tunnel or diffuser.

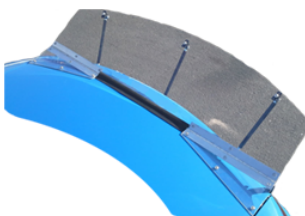
Aéro avant Niveau 1 Front Aero Level 1



Rear element: no wing – or equivalent – may be of the GT type with one or more planes, nor extend more than 3 inches (7,6 cm) on each side of the trunk cover or 3 inches (7,6 cm) farther than the rear bumper cover, or if there is no bumper cover, to the rearmost point of the body. The maximum permissible height of the element is 8 inches (20,3 cm) above its attachment point. Any spoiler or wing, even OEM, is considered a Level 1 aero element.

Aéro arrière niveau 1 Rear level 1 aero

Ailerons en lexan
Lexan spoilers



Ailerons non-OEM
Aftermarket spoilers

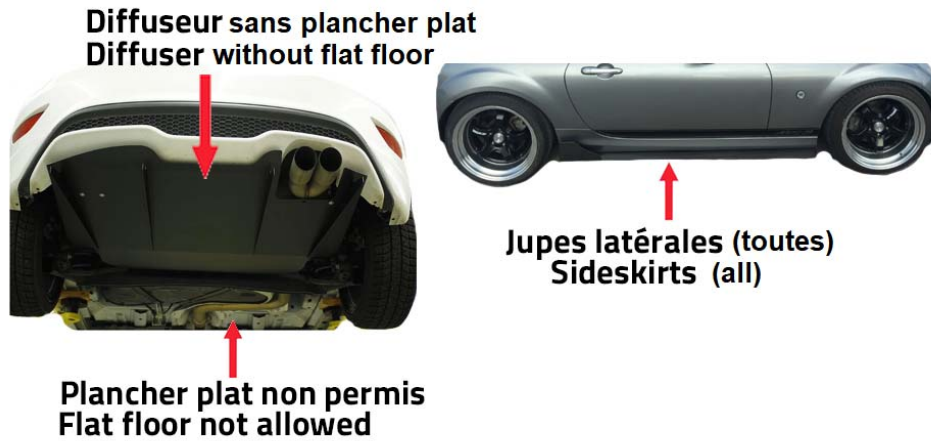


Ailerons GT OEM
OEM GT wings
(Civic Type R,
Subaru BRZ ts, etc)



Undercar element: No flat floor is allowed. Side skirts and a rear diffuser without flat floor are considered Level 1 aero elements.

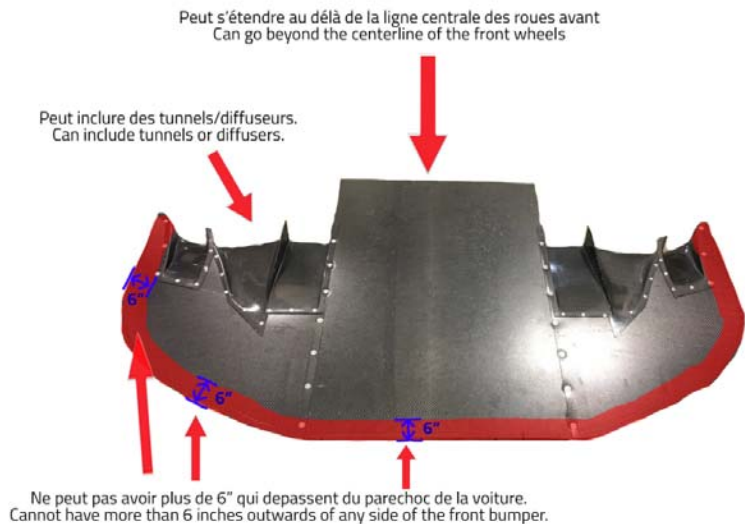
Aéro sous la voiture niveau 1 Underbody aero level 1



Level 2:

Front element: no element may protrude more than 6 inches (15,25 cm) in front or to the side of the bumper cover or, if there is no bumper cover, in front of the forward most point, or to the side of the junction point between the fender and where the bumper cover would have been.

Aéro avant Niveau 2 Front Aero Level 2



Rear element: a wing may be of the GT type with one or more planes. It may not extend more than 6 inches (15,25 cm) on each side of the trunk cover or 6 inches (15,25 cm) farther than the rear bumper cover, or if there is no bumper cover, to the rearmost point of the body.

Aéro arrière niveau 2 Rear level 2 aero

Ailerons style GT à un ou plusieurs niveaux
GT style wings of either 1 or several elements



Undercar element: Flat floor, complete or partial, with or without tunnels.

Aéro sous la voiture niveau 2 Underbody aero level 2



**Plancher plat permis
(complet ou partiel)**

**Flat floor allowed
(full or partial)**



**Plancher sculpté et tunnels permis
Sculpted floor and tunnels allowed**

4.8.4.3 - Rear wing and/or spoiler: Level 1 subtract 0,33 unit (-0,33) to the weight to power ratio, Level 2 subtract 0,66 unit (-0,66) to the weight to power ratio

- Front splitter and/or fence: Level 1 subtract 0,33 unit **(-0,33)** to the weight to power ratio, Level 2 subtract 0,66 unit **(-0,66)** to the weight to power ratio
- Rear diffuser: Level 1 subtract 0,33 unit **(-0,33)** to the weight to power ratio
- Flat floor, including rear diffuser: Level 2 subtract 0,66 unit **(-0,66)** to the weight to power ratio

Each group mentioned above is effectively "and/or", meaning only 0,33 unit per group for level 1 and 0,66 per unit for level 2. A Level 1 would thus have a maximum total adjustment of 1,0 unit, a Level 2 a maximum adjustment of 2 units.

4.8.5 CALCULATION OF THE ADJUSTED WEIGHT TO POWER RATIO

The total of the adjustments in 4.8.1, 4.8.2, 4.8.3 and 4.8.4 above determines the vehicle's starting class.

Ex. A four wheel drive vehicle with a track weight of 2880 lbs and having 160 HP, no limited slip differential, using 225 mm wide tires of 220 treadwear and having a splitter and a fence added:

$2880/160 = 18,00 - 0,5$ unit for AWD = 17,50 + 0 unit for diff. + 0 unit for tire width + 2 units for treadwear - 0,33 unit for the group of splitter and fence = 19,17. The adjusted class is thus TA7.

4.9 FINAL ADJUSTMENT TO THE CLASS (STEP 3)

From the class obtained in article 4.8, the vehicle class is adjusted further as follows:

- If a participant submits a dyno chart and uses the weight found in Appendix A to calculate the weight to power ratio of his vehicle, only articles 4.9.2 and 4.9.3 apply.
- If a participant submits a weighing result and uses the power found in Appendix A to calculate the weight to power ratio of his vehicle, only articles 4.9.1 and 4.9.2 apply.
- If a participant submits both a dyno chart and a weighing result to calculate the weight to power ratio of his vehicle, only article 4.9.2 applies.
- In all cases, the application of article 4.9 cannot add more than 2 classes to the adjusted class determined in article 4.8.

.1 Engine modifications

- **Normally aspirated engine:** external bolt-on modifications to the engine including, but not restricted to, camshafts, intake piping, intake and exhaust manifolds, reprogramming of OE ECU: **+ 1 class (towards TA0)**.
- **Boosted (turbo or supercharged) engine:**
 - i. External bolt-on modifications, increase in compressor pressure of 15% or less, excluding a change in compressor: **+1 class (towards TA0)**

- ii. External bolt-on modifications to the engine, increase in compressor pressure up to 30%, reprogramming of the OE ECU, excluding a change in compressor: + **2 classes (towards TA0)**.

.2 Suspension modifications

-Any suspension modification such as: springs, double-adjustable shock absorbers, coil-over suspension, anti-sway bars, etc. +**1 class**

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.3 Bodywork modifications

- removal of one (1) or more interior panel excluded from the allowed list: **+1 class**
- Vehicles equipped with a roll cage may remove all interior panels, carpet, as well as seats, without penalty, as long as the dashboard stays in.
- Vehicles equipped with a roll bar may remove all interior panels, rear seat and carpet without penalty.
- Modification to exterior panels, including glass and metal removal: **+1 class**

Note: Bodywork modifications can only add one class maximum to a vehicle's classing.

See Appendix D for examples of class calculations.



Appendix A: Vehicle classes

VEHICLE CLASSING

A.0 VEHICLE CLASSES

- .1 Any vehicle not in this table will be temporarily classed at the event at which it is registered. A formal request for classification must be sent to Track and Time a minimum of 7 days before the event. Every competitor having a vehicle that is not listed in this table and who has not sent a request in the prescribed delay will be classed in the highest class available
- .2 The organisers may turn away a vehicle if they judge it unsafe. Classed vehicles may be excluded following a technical inspection. Registration of all SUVs and vans is strictly forbidden.

Class	From		To
TA0	4,99	&	-
TA1	5,00	-	5,99
TA2	6,00	-	7,99
TA3	8,00	-	9,99
TA4	10,00	-	11,99
TA5	12,00	-	14,49
TA6	14,50	-	16,99
TA7	17,00	-	20,99
TA8	21,00	&	+

Weight of driver 175 lbs
Gasoline density 1,661 lbs/L

Drivetrain factor

FWD 0,75
RWD 0
AWD -0,5

List of cars:

See Appendix A on the website:

<http://trackandtime.ca/wp-content/uploads/2020/01/Annexe-A.pdf>

Appendix B Standards and instructions for gas lines installation

In case of doubt, the FIA standards will always be accepted by Track and Time.
Copy of FIA rules Appendix J, Article 253 – 2013, Art.3, sub. 3.1 and 3.2

LINES AND PUMPS

3.1 Protection

Fuel, oil and brake lines must be protected externally against any risk of deterioration (stones, corrosion, mechanical breakage, etc.) and internally against all risks of fire and deterioration.

Application: Optional for Group N if the series production fitting is retained.

Obligatory for all the Groups if the series production fitting is not retained or if the lines pass inside the vehicle and their protective covering has been removed.

In the case of fuel lines, the metal parts which are isolated from the shell of the car by non-conducting parts must be connected to it electrically.

3.2 Specifications and installation

Obligatory application if the series fitting is not retained.

Lines containing cooling water or lubricating oil must be outside the cockpit.

The fittings of fuel lines, lubricating oil lines and of those containing hydraulic fluid under pressure must be manufactured according to the specifications below:

- * when flexible, these lines must have threaded, crimped or self-sealing connectors and an outer braid resistant to abrasion and flame (do not sustain combustion) ;

- * the minimum burst pressure measured at a minimum operating temperature is of:

- 70 bar (1000 psi) 135°C (250°F) for the fuel lines (except the connections to the injectors and the cooling radiator on the circuit returning to the tank):

- 70 bar (1000 psi) 232°C (450°F) for the lubricating oil lines.

- 280 bar (4000 psi) 232°C (450°F) for the lines containing hydraulic fluid under pressure.

If the operating pressure of the hydraulic system is greater than 140 bar (2000 psi), the burst pressure must be at least double the operating pressure.

Lines containing fuel or hydraulic fluid may pass through the cockpit, but without any connectors inside except on the front and rear bulkheads according to Drawings 253-59 and 253-60, and on the braking circuit and the clutch fluid circuit.

Appendix C

Standards and instructions for roll bars and roll cages safety.

In case of doubt, the FIA standards will always be accepted by Track and Time.

.1 ROLLOVER PROTECTION – ROLL BARS

.1 The top of the roll bar shall be installed at least 2 inches (50 mm) above the driver's helmet when he is seated in a normal driving position. It must also be located as close as possible to the roof in closed vehicles or in vehicles with a hard top as delivered or convertible, as long as the top is installed and up during competition. The top of the roll bar shall not be more than 10 inches (255 mm) behind the rearmost part of the driver's helmet when seated in a normal driving position.

.2 The roll bar shall be designed to withstand the compression forces resulting from the weight of the vehicle applied to it on roll over and resist the longitudinal forces resulting from the weight of the vehicle sliding on the ground on the roll bar.

.3 Both vertical lateral sides forming the main hoop shall occupy the full width of the cockpit and be installed as near as possible to each side of the cockpit in order to offer the maximum protection zone.

.4 The vehicle shall be fitted with a head restraint system to prevent whiplash and that the driver's head hits the underside of the main hoop. The head restraint shall be able to withstand a force of 200 pounds (90 kg) in the rearward direction. It is recommended to use a head restraint of approximately 36 square inches (230 square cm) with resilient padding 2 inches (50 mm) thick.

.5 The forward braces and portions of the main hoop that may come in contact with the driver's helmet (when the driver is sitting in a normal driving position and strapped with a shoulder belt or harness) shall be covered with a soft material such as Ethafoam or Ensolite or any other similar material of a minimum thickness of half an inch (13 mm).

.6 Tubes forming the main hoop and all reinforcements shall be made of seamless or ERW or DOM mild steel or chrome-moly steel, such as SAE 4130, tubing. It is recommended that mild steel be used because chrome alloy steels present welding challenges and must undergo stress relief thermal treatment after welding. A mandatory proof of the use of alloy steel shall be provided by the participant.

.7 Tubing dimensions used in fabricating the roll bar shall be determined from the following table. The table is based on Appendix J of the SCCA Solo rules, 2005 edition (all dimensions are in inches).

Vehicle curb weight	Tubing size	Tubing material
Less than 2000 lb	1.500 x .120	Mild steel
From 2001 to 3500 lb	1.750 x .120	Mild steel
Over 3500 lb	2.000 x .120	Mild steel
Vehicle curb weight	Tubing size	Tubing material
Less than 1500 lb	1.375 x .090	Alloy steel
From 1501 to 2500 lb	1.625 x .095	Alloy steel
Over 2500 lb	2.000 x .095	Alloy steel

- .8 An inspection hole of at least 3/16" (5 mm) in diameter shall be drilled in a non-critical part of the main hoop to allow verification of the material thickness.
- .9 Nuts and bolts used to attach the roll bar to the vehicle chassis or frame (ex. a bolt-on roll bar) shall be of SAE Grade 5 and at least 3/8" (10 mm) in diameter.
- .10 One continuous tube shall be used for the main hoop and bends shall be continuous and smooth, not showing any signs of crimping or wall defects.
- .11 When the roll bar is to be fixed to the vehicle's chassis by welding, the welds shall be of the best quality possible with complete penetration. Arc welding, particularly Tungsten Arc Welding (TIG) shall be used where possible. Alloy steels shall be heat treated after welding.
- .12 Two (2) longitudinal reinforcement tubes of at least the same diameter as the main hoop shall be installed. At least one diagonal lateral tube of at least the same diameter as the main hoop shall be installed to prevent lateral deformation of the roll bar. In most cases, a tube installed between the lower corner of the roll bar and the opposite upper corner is sufficient.
- .13 The rear longitudinal reinforcement tubes shall be fixed as close as possible to the lower part of the top bend of the main hoop but not lower than 6 inches (150 mm) from the top and at an included angle of 30 degrees.
- .14 On vehicles with a chassis (frame), the roll bar and the reinforcements shall be attached where possible to the chassis. Reinforcement plates shall be fixed to the chassis either with welds or bolts and shall have a minimum thickness of 3/16 of an inch (5 mm).
- .15 On unibody or frameless vehicles or on vehicles where attaching the roll bar to the chassis is not practical, mounting plates shall be used to solidify the structure of the roll bar to the floor of the vehicle. The minimum area of each mounting plate shall be 20 square inches (130 square cm). The consideration is to distribute the load on as large an area and as close to the vertical structure as possible.
- .16 Mounting plates that are bolted to the structure shall have a minimum thickness of 3/16 of an inch (5 mm). A backup plate shall be used on the opposite side of the panel and the plates shall be through bolted together. Mounting plates that are welded shall have a minimum thickness of 0,080 inch (2 mm). Where possible, mounting plates should extend on the vertical portion of the structure, such as the door pillar.
- .17 Removable roll bars and braces shall be carefully designed and fabricated to be as strong as permanent installations. If a tube must fit inside an other to facilitate removal, the tubes shall fit tightly one over the other and the removable part shall rest on a permanently fixed mounting part. Both tubes shall be fixed together using at least two (2) bolts to ensure a safe mounting. The overlapping portion of both tubes shall be a minimum of 8 inches (200 mm) long.

.2 ROLLOVER PROTECTION– ROLL CAGE

- .1 Although not mandatory, a roll cage is recommended for all vehicles requiring a rollover protection.

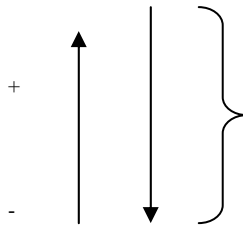
.2 Roll cages meeting the SCCA (RGC, section 18), NASA (RGC, section 15.5.8), CARS (RGC, part B, section 2) or ASQ standards are acceptable.

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Appendix D

Examples of class calculation

Class	W/P ratio in lb/hp
TA0	4,99 & -
TA1	5 à 5,99
TA2	6 à 7,99
TA3	8 à 9,99
TA4	10 à 11,99
TA5	12 à 14,49
TA6	14,5 à 16,99
TA7	17 à 20,99
TA8	21 & +



Arrows on the left use the following logic :
 - Attribution of units of weight to power ratio
 - Change in class following modifications
 (The higher the number, the lower the class)

BMW M3 1997 with a modified suspension and a roll cage and stripped of its inner panels except the dashboard, 245 mm wide tires of 40 treadwear, LSD, engine modifications: intake & ECU reprogramming.

3392 lb/240 HP = 14,13 W/P; - 2,5 for treadwear, -0,25 for LSD = 11,38; base class = TA4. No additional unit and no class change for bodywork, - 1 class for the suspension, - 1 class for engine modifications = FINAL CLASS TA2

BMW M Coupe 1999 with a modified suspension and a roll cage and stripped of its inner panels except the dashboard, 235mm wide slicks, LSD, engine modifications: intake & ECU reprogramming.

3348 lbs/240 HP = 13,95 W/P; - 4,0 for slick tires, -0,25 for LSD = 9,70 ; base class = TA3. No additional unit and no class change for bodywork, - 1 class for the suspension, - 1 class for engine modifications = FINAL CLASS TA1

HONDA Civic 1998 with modifications exceeding allowed modifications in all classes, thus requiring the use of a dyno chart (Dynapack was used) and a weighing result. (207 wheel HP (207/0,87) = 237 engine HP) 225 mm wide tires of 40 treadwear, rear aero level 1 .

2366 lbs / 237 HP = 9,98 W/P; +0,75 for FWD, - 0,25 for LSD, -2,5 for treadwear, - 0,33 for aero = 7,65; base class = TA2. Only suspension modifications apply: - 1 class for suspension = FINAL CLASS TA1

SUBURU WRX with Japanese STI swap: dyno chart required (an Eddy current dyno was used) (255 wheel HP (255/0,80) = 318 engine HP), 275mm wide tires of 60 treadwear, rear, front and floor level 2 aero.

3319 lbs/318 HP = 10,44 W/P; - 0,75 for AWD, - 0,25 for 275mm tires, - 2,5 for treadwear, - 2 for aero = 5,19 W/P; base class TA1. - 1 class for suspension, no inside body panels modifications = FINAL CLASS TA0

BMW 135i stock suspension, 255 mm wide tires of 40 treadwear.

3498 lbs/300 HP = 11,66 W/P; - 0,25 for 255mm tires, - 2,5 for treadwear = 8,91 = FINAL CLASS TA3

NISSAN Sentra specV with roll bar, Lexan windows, stripped interior except dashboard, 225 mm wide tires of 40 treadwear, modified suspension and level 1 rear aero. Classed according to W/P ratio: 2566 lbs/223 HP = 11,51 W/P; + 0,75 for FWD, -2,5 for treadwear, -0,33 for aero = 9,43; base class TA3. + 1 class for suspension, = FINAL CLASS TA2

Mitsubishi EVO X with modified suspension, 255 mm wide tires of 100 treadwear, no other modification.

3775 lbs/291 HP = 12,97 W/P; - 0,5 for AWD, - 0,25 for 255 mm tires, -0,25 for LSD = 11,97; base class TA4. - 1 class for suspension = FINAL CLASS TA3

MAZDA PROTEGESPEED 2003 stock, tires 225 mm, 200 treadwear

3059 lbs/170HP = 18,0 W/P; +0,755 for FWD = 18,75 = FINAL CLASS TA7

MAZDA MIATA 2003 with modified suspension, 225 mm wide tires of 100 treadwear, rear level 1 aero.

2566 lbs/142 HP = 18,07 W/P - 0,33 for aero = 17,74; base class TA7. - 1 class for suspension = FINAL CLASS TA6

FORD Focus with supercharger, roll cage, inner panels removed and modified suspension: calculation based on dyno chart (Dyno Jet used) (200 wheel HP / 0,86 = 232 engine HP), and weighing result, LSD, 245mm wide slick tires, level 2 aero front, rear and flat floor. 2516 lb / 232 HP = 10,85 W/P; +0,75 for FWD, - 0,25 for LSD and - 4 for treadwear, -2 for aero = 5,35; base class TA1. - 1 class for suspension = FINAL CLASS TA0

Appendix E

Table of gas weight

Gas weight: 1 liter = 1,65 pounds

Number of liters	Weight (pounds)
0,5	0,8
1	1,6
1,5	2,4
2	3,2
2,5	4,0
3	4,8
3,5	5,6
4	6,4
4,5	7,2
5	8,1
5,5	8,9
6	9,7
6,5	10,5
7	11,3
7,5	12,1
8	12,9
8,5	13,7
9	14,5
9,5	15,3
10	16,1
10,5	16,9
11	17,7
11,5	18,5
12	19,3
12,5	20,1
13	20,9
13,5	21,7
14	22,5
14,5	23,3
15	24,2
15,5	25,0
16	25,8
16,5	26,6
17	27,4
17,5	28,2
18	29,0
18,5	29,8
19	30,6
19,5	31,4
20	32,2

Number of liters	Weight (pounds)
20,5	33,0
21	33,8
21,5	34,6
22	35,4
22,5	36,2
23	37,0
23,5	37,8
24	38,6
24,5	39,4
25	40,3
25,5	41,1
26	41,9
26,5	42,7
27	43,5
27,5	44,3
28	45,1
28,5	45,9
29	46,7
29,5	47,5
30	48,3
30,5	49,1
31	49,9
31,5	50,7
32	51,5
32,5	52,3
33	53,1
33,5	53,9
34	54,7
34,5	55,5
35	56,4
35,5	57,2
36	58,0
36,5	58,8
37	59,6
37,5	60,4
38	61,2
38,5	62,0
39	62,8
39,5	63,6
40	64,4

Number of liters	Weight (pounds)
40,5	65,2
41	66,0
41,5	66,8
42	67,6
42,5	68,4
43	69,2
43,5	70,0
44	70,8
44,5	71,6
45	72,5
45,5	73,3
46	74,1
46,5	74,9
47	75,7
47,5	76,5
48	77,3
48,5	78,1
49	78,9
49,5	79,7
50	80,5
50,5	81,3
51	82,1
51,5	82,9
52	83,7
52,5	84,5
53	85,3
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