October 11, 2004

Re: Proposed Rule Changes for 2005

To: The sport

From: CARS

Attached you will find a report from the CARS Rules Committee which outlines the proposed rule changes for 2005. Input is invited from the sport from all those involved in the sport. The deadline for receiving all responses is November 1, 2004.

Responses may be made in the following ways: a) by mail to either the CARS technical director, Paul Westwick , #408, 1169 Nelson St., Vancouver, BC, V6E 1J3 or to the CARS office, 595 Elm Rd, Stouffville, ON, L4A 1W9; b) by fax to the CARS office at 905-640-64444; or c) (preferably) by email directly to Paul Westwick at technical@carsrally.ca. Responses can also be sent to office@carsrally.ca and they will be forwarded to Paul Westwick.

Responses may address all or some of the proposals, but your responses should clearly identify who is making the response and the proposal(s) for which they are intended. It would also be very helpful if rational for your position was provided.

Terry Epp
President

2004 CARS Rules Committee Report
Paul Westwick (chair), Andrew Comrie-Picard, Andrew Dobric,
Brian Sharp, Ivan Bütikofer, Mike Dyer, Rob Metcalfe, Scott Comens

1) Super-rally:

C.R.A.B. requested that we create a "super-rally" format, similar to what is done in the FIA Asia-Pacific championship, and proposed for next year's WRC. Teams who DNF one leg would be required to pass a thorough technical inspection. If they passed, they would be allowed to start the next leg. Bonus points would be given for each leg completed, 3/2/1 for 1st 2nd 3rd overall, and per class.

Discussion:

There are benefits and challenges to this concept: It is frustrating for a team which has had a DNF due to a very minor, fixable problem, to be forced to sit out the remainder of an event, especially when they have plenty of time to fix it before the next leg. Teams could gain valuable stage experience if allowed to restart. Events and sponsors could benefit from having more cars in the later stages of the rally.

Past experience with allowing unofficial re-starts has been negative. Restarted DNF teams had nothing left to lose, and all too often drove recklessly and caused problems for events, thus interfering with the results of teams that were still in the rally. It's clear that any provision to allow re-starts needs to be accompanied by per-leg bonus points.

As a matter of fairness, any such provision must have a clear process and scheduled time limits, so that the teams know exactly what they must do, and the organizer knows exactly who is starting the next leg in time to post a start order. The FIA regulations state that the team must notify the organizer of their intention to restart before the stewards meeting at the end of the current leg, and that the car must report to the overnight parc ferme 6 hours before the start of the next leg. This allows plenty of time to schedule a thorough re-inspection. FIA requires this inspection to be equivalent to the pre-event scrutineering.

In the WRC and FIA zone championship events, one leg of a rally is one day of competition. Any CARS super-rally regulation needs to include a definition of a leg. Using the FIA definition, only Baie and Defi would qualify, and possibly Rocky if there were no minimum stage distance. There is some danger that implementing such a system would lead more events to stretch their schedules into two days, to take advantage of the per-leg bonus points. This has obvious implications for team budgets, as well as the cost of televising the national series.

There is an alternate solution, within the present regulations: two day dual status events could be structured as one national event and two regional events. A team which is DNF on day 1 would DNF the national and the first regional, but would be eligible to enter the second regional, subject to re-inspection. This would do nothing for the national teams, but it would give the regional teams a second chance to gain experience.

Question to the sport:
Are you in favour of allowing "super-rally" format on 2-day events?

2) Production class ECU's

The induction rule for production class (NRR II.G.8.c) is out of date, relative to modern ECU technology. In the current wording, it's not clear if the "elements which control the quantity of fuel" includes everything related to fuel control, from the injector back to the fuel tank, or only the ECU. The current rules do not mention (and thus do not permit) any change to the ignition system. In modern systems, this is controlled by the ECU, and closely tied to the fuel control and boost control. Clearly there is no point in trying to police ignition timing.

The current wording can be retained as it applies to carburetted vehicles, but new wording is required for ECU controlled, fuel injected vehicles. FIA's Group N regulations contain wording which fits ECU systems much better.

Suggest changing NRR II.G.8.c as follows:

(c) induction

> (i) Carburetted engines: the carburettor(s) ~~or fuel injection~~ normally mounted on the recognized model may not be changed or removed. The elements which control the quantity of fuel fed into the engine may be modified, but not those which control the volume of air. Such alterations must not allow any additional air to be inducted to the engine (i.e., the removal of a vacuum hose from the air cleaner housing requires capping off the hole in the air cleaner housing).
>
> (ii) Fuel injected engines: The electronic control unit (ECU) for the injection is free. Inputs to the electronic control unit (sensors, actuators, etc.), including their function, must remain as standard. Outputs from the electronic control unit must retain their original functions. The injectors may be modified or replaced in order to modify their flow rate, but without modifying their operating principle or their mountings. The injector rail may be replaced with another of free design, provided that the mounting of the injectors is identical to the original.

The boost is free on turbo/supercharged-equipped vehicles. The air filter housing may not be modified. However, the original ducting to the inlet side of the housing may be moved or modified. The air filter is free except that it must have the same general dimensions as the original air filter and must fit within the original air filter housing. All air entering the engine must pass through the air filter.

Question to the sport:
Are you in favour of modifying NRR II.G.8.c as above?

3) Windows

NRR VI.C.6 has a penalty if windows are down more than 5cm. NRR II.C.9 says they must be rolled up. SCCA regulations allow 1" (2.54cm). There is some concern that 5cm could be enough for hands to get through.

Question to the sport:
Do you agree with changing the two sections to match, and to making the limit 2.5cm?

4) Phase out open class:

There was a proposal to phase out open class, by no longer issuing log books for open class vehicles, effective 2005, and banning them from competition effective at the end of 2007. This is intended to help in keeping stage speeds below 120 km/h. The committee does not support this proposal. Group N cars are not that much slower than open class, so it's not clear that the rule would even achieve its objective.

Question to the sport:
Do you agree with phasing out open class?

5) Consolidating the N classes

There is no burning need to remove N1, N2 and N3, except that it looks a bit embarrassing to see the class "not awarded" year after year in the history section. At the same time, in the absence of anyone competing in these classes, there is no burning need to retain them. If we see the return of any FIA international events, they can have event awards for the lower N categories, whether or not they score in the CRC. Having a single N class would also match the SCCA structure.

Question to the sport:
Are you in favour of consolidating Group N into one class?

6) Production brakes

There was a proposal to allow larger size rotors and calipers in production class, on grounds of safety and suitability for competition. The committee does not support this proposal. In competition, it is possible to over-drive any brakes, stock or over-size. Part of competitive driving is gauging the limits of your equipment, including your brakes, and backing off when you reach those limits. With bigger brakes, you drive deeper into every corner and start over-stressing every other component in the car. In the end, bigger brakes make you faster, not safer.

Question to the sport:
Are you in favour of making brake dimensions free in production class?

7) Production brake bias

Some modern vehicles with ABS use the ABS to control the front/rear bias, which means that the bias changes substantially when the ABS is disabled. In such cases, Group N authorizes a mechanical rear braking distributor. This is a cheap and relatively simple way to restore the original bias.

Suggest adding the following to the end of NRR II.G.8.k: "If the anti-lock braking system (ABS) is disconnected, the use of a mechanical braking distributor is authorized."

Question to the sport:
Are you in favour of modifying NRR II.G.8.k as above?

8) Group 5

There were several different proposals on adding Group 5, mostly based on copying the SCCA definition. The committee supports the concept. The only details in question are how to deal with the maximum displacement restriction in NRR II.D.10. Rather than change the limits applicable to all vehicles, the committee suggests only changing the limit for 2wd normally aspirated vehicles, and making it 5100cc.

Question to the sport:
Are you in favour of adding Group 5 (matching SCCA's wording) modifying NRR II.D.10 as above?

9) Recce & Notes

There was a proposal to require that any event offering recce must also offer organizer-supplied notes. Recce and notes each have additional associated expenses. Requiring both would be an undue burden on the event, which would necessarily be passed on to the competitor. In other jurisdictions where recce is done, it is common for junior teams to purchase notes from senior teams, thus avoiding the expense of attending the extra day. This is a much more economical solution than requiring the organizer to provide notes.

Question to the sport:
Are you in favour of requiring notes when an event offers recce?

10) Limited slip differentials in Production

The current rule (NRR II.G.8.g) only allows limited slips in P4, or if they were OEM. Allowing them in the lower P classes would match SCCA's regulation. The current rule has been interpreted by some to mean that any sort of modification to the limited slip mechanism in a P4 car is legal, even including adding active systems which are banned in open class. Allowing limited slips in P1-P3 will mean an additional expense for teams in those classes, but one that most will likely accept when weighed against the frustration of doing winter events with one wheel drive. Restricting production class limited slips to OEM or mechanical systems will keep the expense down.

The Group N wording is as follows: "The use of a mechanical type limited slip differential is authorised, provided that it can be fitted in the series housing and is homologated in Option Variant (VO). In order to allow its fitting, the interior of the original differential's housing may be modified. "Mechanical limited slip differential" means any system which works purely mechanically, i.e. without the help of a hydraulic or electric system. A viscous clutch is not considered to be a mechanical system. If the homologated vehicle is fitted with a viscous clutch, it may be retained but it will not be possible to add another differential. If the original vehicle is fitted with a differential controlled by an electronic system, the electronic control unit is free, but must be entirely interchangeable with the original unit (i.e. the differential must work when the unit is replaced with the series unit). Sensors and actuators on the input side must be standard, as must their function. No sensor may be added, even for the purpose of data recording."

Questions to the sport:
Are you in favour of allowing limited slip differentials in P1-P3?
Are you in favour of restricting limited slip differentials in production to OEM or mechanical systems, along the lines of the Group N restriction?

11) Group 2 multipliers

There were several proposals to change the multipliers in G2, to remove the 3 and 4 valve multipliers, or only the 3 valve multiplier, in order to open the class to additional cars. The committee does not support this proposal. With the addition of G5, 2wd cars that don't fit into G2 will have a class. No matter how the limit is defined, there will always be a car just beyond the limit and therefore uncompetitive in the next class up.

Question to the sport:
Are you in favour of removing the multi-valve multipliers for G2?

12) Sequential Gearboxes in G2/G5

These are banned in open class. For the same reasons, they should be banned in G2/G5.

Question to the sport:
Are you in favour of banning sequential gearboxes in G2 and G5?

13) Combine P1 and P2

There was a proposal to combine P1 and P2, on the basis that Justy's are fairly competitive with Swifts, and don't really need to be in a separate class.

Question to the sport:
Are you in favour of combining P1 and P2?

14) Service

There was a proposal to increase the minimum mandatory service duration (NRR III.B.4) from 20 minutes every 150km, to 30 minutes. The current minimum is extremely short for a small team with only one service person. The drawbacks might be stretching the event schedule a little, or motivating an organizer to change from 3x20 minute services to 2x30 minute services.

Question to the sport:
Are you in favour of increasing the minimum service time to 30 minutes?

15) Over-boring in production

NRR II.G.8.o prohibits over-boring for the use of oversize pistons. This rule used to allow over-boring, until 2002 when it was changed to match the SCCA production rules. This rule is difficult to enforce, and mostly just makes life difficult for lower budget teams needing their engines rebuilt. As worded, an engine block must be replaced, not rebuilt. If a manufacturer specifies oversize pistons for use in rebuilding their engines, it could reasonably be considered OEM, even though the parts were never installed on a production line.

Question to the sport:
Are you in favour of allowing manufacturer's oversize pistons in production class?

16) Seeding and Speed Factors

There has been some discussion in the sport about changing the way in which start orders are set, however no concrete proposal was ever submitted. Further discussion is required, on the basis of a clear concrete proposal, so it is unlikely that any change will be implemented in the 2005 rulebook.

Questions to the sport:
Are you in favour of the general principle of using speed factors to set start orders?
Do you have a concrete proposal for implementing such a system?

17) Minor administrative:

Fuel cells: NRR II.C.11.b - change "FIA or CARS approved fuel cell" to "FIA or SFI approved fuel cell". CARS doesn't have standards by which to decide if a fuel cell should be approved or not.

Batteries: NRR II.C.7.a - "Batteries must be securely mounted ~~with metal-to-metal mounts~~." Many modern cars now have very solid plastic mounts or housings for the battery. Modifying them to make them metal might even make them weaker than stock.

Vehicle eligibility: NRR II.D.9 "The vehicle must be based on a model built by a recognized manufacturer. <u>The manufacturer must be</u> listed in the NADA Official Used Car Guide..." The original wording could be interpreted to mean that the specific model had to be listed, thus outlawing Escort Cosworths and Mitsubishi EVO's, and anything else not sold in North America.

Roof vents: NRR II.E.3.b, II.F.4.b, and II.G.8.q, delete the words "commercially available" as unenforceable and not particularly meaningful.

Question to the sport:
Any comments on the above?