Date Drafted: XX/XX/2019

AGENDA N^{O}:

(Secretary / Admin Use Only)

3J Improved Production
CEC Meeting outcome for 3J

Summary:

The IPRA category is a category that sits between 3E and 3D in the CAMS touring car side of the race regulations. It is described as being *"A competition automobile derived from a registered production automobile, with limited modifications to improve performance and reliability"*. Eligible vehicles are a combination of mass-produced touring cars, or cars that have been homologated by the FIA in Group A. Eligible engines for this category in general must come from one of these eligible vehicles, with some conditions, and this is where this CEC meeting decision came in.
Mr Ray Hislop has an improved production car with an engine block that came not from a mass-produced automobile but has a lineage back to an FIA Group A car. The question asked was whether this engine was eligible.

The CEC Meeting question asked (excerpt from the CEC Meeting Minutes)

Application from Mr. Ray Hislop "CAMS to provide a decision in regard to the engine block that I'm running in my BF Falcon log book #20080842 to the Improved Production Group 3J rules."
The engine block in question is described as: M6010Boss302

CEC Meeting reasoning and decision (excerpts from the CEC Meeting Minutes)

The reasoning behind the decision:
In application of the above Articles the CEC determined that:

- The FIA Group A Homologated Ford Mustang 5.0GT, FIA Homologation No. A-5266 can be defined as an Improved Production Car in accordance with Article 1.1(a)(i).
- The engine block as described within the base homologation (not Sporting Evolution ES or Variant Option VO) of this vehicle is of V8 configuration with cast iron block material, 5 crankshaft bearings and a capacity of 4968 cm³ (or 303.166 cu in), or otherwise referred to as a Ford 302 cu in engine.
- The M6010Boss302 engine block can be determined as being derived (refer definition) from the engine block as used in the FIA Group A Homologated Ford Mustang 5.0GT, FIA Homologation No. A-5266, in that it is from Ford as a manufacturer, is of V8 configuration with cast iron block material and is referred to as a 302 cu in capacity.
- Further an eligible engine block can then be subject to the provisions of Article 4.1 General, whereby "*the engine and components directly associated with its function are free*."

The Decision of the CEC itself

The CEC has determined that the M6010Boss302 engine block, as fitted to the FORD BF Falcon Log Book No. 20080842 of Mr. Ray Hislop, is eligible for competition within the CAMS Group 3J Improved Production Car regulations as it is determined that it is "derived" from the FIA Group A Homologated Ford Mustang 5.0GT, FIA Homologation No. A-5266.

RISKS:

The CEC in delivering this determination is mindful that it may have ramifications for the Improved Production Racing Association (IPRA) and the CAMS Group 3J Improved Production Cars category. The CEC encourages the IPRA to engage with the CAMS administration to review this determination and if required the regulations specific to CAMS Group 3J Improved Production Cars to ensure that the regulations as intended can be applied effectively should there be a need to do so.

ISSUES CRITICISED OR SUPPORTED:

What is meant by the descriptions of an engine block?

Whist reading this document, we will be referring to either an aftermarket engine block or a mass-produced block.

IPRA 3J rules show this definition of a mass produced block.

"derived from the same family of engines as an eligible Automobile using identical internal dimensions (with differences only in transmission mounting pattern, minor external casting differences etc.). The block type must be clearly identifiable, i.e. Nissan SR20DE, SR20DET, Holden Family II, Toyota 4AG series etc. The derived block must be identifiable as being from a mass produced Automobile, not exclusively developed for sporting evolution models produced for homologation purposes in small numbers for competition use only. Motorsport Australia will be the final arbiter in determining the eligibility of a block."

Aftermarket engine block

An aftermarket engine block is an engine block that differs from the mass-produced block in any way. For example, it may differ by being altered in material type, in material thickness/structure, it may have moved the location of ancillaries, or altered for better performance. It may also differ only by not being manufactured by the original vehicle manufacturer. These aftermarket engine blocks are sometimes referred to as Replacement blocks, Motorsport blocks, competition blocks, racing blocks, etc.

Mass-produced engine block.

When we talk about a mass-produced engine block, we mean an engine block, supplied as standard with a mass-produced vehicle. A mass-produced block includes both engines that were sold as part of a new vehicle, or a new engine sold by the original manufacturer as a direct replacement for that road car.

What this CEC decision means for how the IPRA Rules are to be read

Up until this CEC decision, there have been varying opinions on whether an aftermarket block was legal in IPRA or not. With this CEC decision, it has been confirmed that under a number of conditions, it is legal to use an aftermarket engine block in 3J Improved Production.
The general conditions under which this ruling would permit the use of an aftermarket block are as follows.

- The engine must be derived from an eligible vehicle.
- The engine must be from the same manufacturer as the original automobile.
- It is most liketly that it will need to be made from the same material
- It also has to be the same configuration as the original engine (eg V8)

The understanding of the word “derived” was taken from the definition below.

Source: Macquarie Dictionary
Derive /dəˈraiv/, v., **-rived, -riving.**

1. to receive, obtain, take, or trace (something) from a source or origin: *He derives his good looks from his father.*
2. **to obtain by reasoning; deduce.**
3. *Chem.* to make (a compound) from another one by chemical substitution, etc.
4. to come or originate (fol. by *from*): *His good looks derive from his father.*

This definition of the statement "derived from an eligible vehicle" can now be read that it has to ***trace something from a source or origin***. It does not have to be the exact same engine, just derived from. The limitation that the engine block must come from the same manufacturer as the original automobile still applies. The CEC also looked at the question of same manufacturer and decided that separate companies owned by the original manufacturer, such as "Ford Performance", which is owned by Ford, is considered the same manufacturer.

What difference will this CEC Decision make on what engines can be used?

The first answer is nothing will change on what is legal in IPRA, this is not a change to the rules. This is merely the defining of a question that the category weas unsure about for many years. What will change, is that this decision will provide certainty on what can be done for competitors. This certainty will allow those Ford competitors who were unsure about aftermarket blocks to now have confidence that they are permitted to be used, and competitors will start to build engines using these blocks.
Currently in IPRA, we only definitively know of one vehicle that is currently racing, that is using a block that did not come from a mass manufactured vehicle*. There may be more, and IPRA would need to find this out quickly. It is understood that a few more will be built if this regulation stays unchanged into next season.

** NOTE: If you believe that you have an engine that may be affected, then please contact your State IPRA representitives for details.*

In terms of what types of engines will be legal now that were in question before, it is still not 100% clear. But what we can be sure of is that most V8 engines sold by Ford Performance would be permitted. I would also expect that most V8 engines sold by Chevrolet performance would also be permitted, but this has not been confirmed. There may be other manufactures that have a performance arms, that are owned by the manufacturer that also manufacture racing engine blocks, but early investigations show this to be unlikely.

What could this definition mean for IPRA engines?

The main thing that is most likely to come from the use of these aftermarket engines is an increase in reliability and also in power for some of the competitors. Here is what are the most likely opportunities of this CEC decision, broken down by engine type.

**NOTE: Many of the stats shown here are from discussions with competitors in the IPRA community. We do not have access to definitive power figures that can be backed up with dyno ramp tests. The numbers used are our best estimates from these discussions, and with external references where possible.*

Naturally aspirated V8 engined cars

For naturally aspirated V8 engines, there is expected to be some gains in both performance and reliability from the use of aftermarket engine blocks. Mass produced engine blocks are one of the limits to the potentntial performance of a V8 engine. It is expected that aftermarket engines would result in less failures at the power levels used in the Mass produced engine blocks. It is also expected that a performance increases of up to 15% would be possible with aftermarket engine blocks.

Some links to theperformance potential of aftermarket engine blocks are listed here:

- https://www.chevrolet.com/performance/engine-components/small-block/race-blocks
- https://www.enginebuildermag.com/2017/03/nascar-cup-series-chevrolet-5-8l-v8-engine/
- https://performanceparts.ford.com/part/M-6010-R500
- https://www.enginebuildermag.com/2017/10/ford-fr9-efi-v8-engine/

Restricted Turbo engined cars

Restricted Turbo engines are currently limited in performance by the use of an air inlet restrictor. This inlet restrictor limits air flow, and is therefore the ultimate performance limit for these engines.

It is for this reason that an aftermarket block in a restricted turbo engine would be unlikely to provide any performance gains. It is already possible to reach this limit with mass produced engine blocks.

Some mass produced engine blocks used for Turbo cars are at their limit producing the power of an IPRA engine at the restrictor limit. It is therefore possible that some turbo cars may gain reliability with an aftermarket engine block.

Given all of this, it is possible that there may be a reliability gain with aftermarket blocks in some instances in restricted turbo cars, but a power gain is very unlikely.

Rotary engine cars

For rotary engined competitors, there are aftermarket manufacturers of housings, such as “Racing Beat” who manufacture billet rotor housings. The suggestion from the rotary guys is that these housings are better than standard, but there would be little if any power gains from these housings, given the level of development of current 13B IPRA engines.

Naturally aspirated cars other than V8’s

For European cars like the BMW M3, which is a very competitive IPRA car, there appears to be no aftermarket block options. Given this, they are unlikely to see any gains from this new interpretation.

REFERENCE MATERIAL:

3J – Improved Production Technical Regulations

https://performanceparts.ford.com/part/M-6010-R500

https://www.enginebuildermag.com/2017/10/ford-fr9-efi-v8-engine/

https://www.bulletraceengineering.com.au/billet-blocks

Options:

What are the options given this decision?

1) Do nothing

The current regulations, based on the CEC decision, simplistically means that a competitor could use an aftermarket block if their vehicle manufacturer has an owned business arm that makes aftermarket blocks and can find an appropriate FIA homologation document.

If we do nothing to the IPRA regulations, there is a very narrow field of competitors who could take advantage of this freedom, namely the Ford and probably Holden V8 cars only.

Competitors without Ford or Holden N/A V8's will most likely be unable to find an aftermarket block that meets the current criteria of an fia group A document, and a manufacturer produced aftermarket block.

If nothing was to be done to the regulations, it is likely that only that Holden and Ford competitors will gain access to a potential performance bump of up to 15% over the current mass produced engines and a gain of increased reliability.

2) Add in a change to restrict 3J to mass produced engines

The next option is to change the regulations for 3j to limit engines to mass produced vehicle engines only (see 3j rules, 4.2 C (ii) as an example definition of this). This was the position that many in IPRA believe the current regulations to have already been.

A change like this would mean that any existing vehicle with an aftermarket engine would become illegal to use. If this option is selected, IPRA may want to put in place a sunset clause to help the transition away from an aftermarket block for existing competitors currently running legal aftermarket blocks.

At this point IPRA definitivly know of one active competitor with an engine that would be affected. There may be more competitors wanting to, or building a vehicle with an aftermarket block, but none have yet raced these cars that we know of.

For the vast majority of competitors, this change would have no effect on them or their cars.

3) CAMS could broaden the permissions for aftermarket blocks so that more competitors could take advantage of this

With the current regulations, it is most likely that only Ford and Holden cars could take advantage of aftermarket blocks.

If the IPRA members want to have access to aftermarket blocks, then IPRA have been requested to make a broader change to make this freedom more evenly available across the entire field.

A regulation could be put in place that permits any block in any car as long as it is derived from an eligible vehicle and is of the same general configuration. This regulation would clear up the current grey area about which other engines may be eligible that are not mass produced.

This potential change could permit the V8 guys to run RHS blocks, Dart blocks and other engine blocks, not necessarily made by Ford or GM themselves. The Japanese cars could run a pure, custom racing block from an external supplier, such as Magnum or Bullet. The rotary cars could use Racing Beat housings.

Japanese engine examples:
https://www.bulletraceengineering.com.au/billet-blocks

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