

Technical

Gear up!

IPRA^{VII} Magazine



**ITS OFFICIAL!
2018 NATIONALS
AT THE BEND**

INSIDE
ANNUAL
GENERAL
MEETING
REPORT

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From the President



Well 2017 is coming to an end and 2018 is looking like another big year to come. This year there has been a lot of work going on in the background regarding rule changes, tyre contracts and National Administrator's elections. I want to thank our members for your feedback on the proposed changes and the finessing of the rules but the biggest thanks must go to our Victorian State Delegate, Scott Willing. Scott has spent countless hours of debating and talking about the pros and cons of these changes with the other states and individually with members. His level headed approach and diplomatic demeanour has been invaluable in circumstances where not everyone sees eye to eye. Not everyone has the same opinion on the rule changes but a healthy debate has been had and we think the changes to rule set will be a benefit to club evolving into the future.

I would like to thank our committee in general for their work throughout the last year but a special thanks to my wife, Peta McKay, for her years of work on the committee. Peta has stepped down from the secretary role in need of a rest and to claw back some time for other adventures (don't worry she's not going to disappear into the sunset and will still help when possible). I would also like to welcome two new committee members for 2018, Luke Grech Cumbo and Paul Grziwotz as general committee members. We look forward to having you in the group and welcome your input.

Congratulations to our championship winners for 2017 Luke Grech Cumbo and Paul Grziwotz and all other class winners. Thanks to all our competitors this year – we all know the time and commitment that goes into getting the cars to the track and it's something to be proud of. We will be presenting the Club Championship trophies and Club Awards at our presentation event to be held on Saturday 17 February 2018. Further info on this event is included elsewhere in the mag but I invite you all to come along, congratulate our winners and launch of the 2018 race year.

A special mention to our competitors that competed interstate this year. We had a huge contingent of cars attending Bathurst, backed up by entrants to the V8 support event at Clipsal in Adelaide and then a few stalwarts that travelled to the west for Nationals at Barbagallo Raceway in November. Well done to you all for supporting these events, a tremendous effort from you all.

The next group of people I would like to thank (who will probably never read this but I'm going to thank them anyway) and that is the unsung heroes of every race meeting, the organisers, the fire crews, flaggies and all the volunteers out there that run a race meeting. Island Magic was a classic example of being out in the elements. Sunburnt on Saturday and drowned on Sunday, a big thanks to you all.

We have a few new cars starting with IP next year and this is always an exciting to compete against new cars and drivers. The program next year is much the same as previous years with two rounds each at Sandown and Phillip Island and one Winton but with some change in dates. The calendar is as follows:

Round 1 – MGCC – Sandown March 3-4

Round 2 – PIARC – Phillip Island May 5-6

Round 3 – VSRS Inc – Winton June 16-17

Round 4 – ASSA Vic – Sandown July 21-22

Round 5 – VMCI – Phillip Island September 29-30

I'm sure you have all seen that the Nationals in 2018 are in South Australia at Tailem Bend on a brand new track which promises to bigger then Ben Hur and will be a great event to show case the category and drivers. This event is to be held on 10/11 November and you should have received an email on behalf of IPRASA with preliminary details and information on expressing an interest to enter the event.

A big thanks must of course go out to your sponsors VACC and we have Wayne Alway to thank for this. A big thank you to Rick and Julie of Nuline Homes for their many years of support also to Dave Low from DLL Photography and Design for his great photos and web management. We also thank Lisa from Educational Living for their support for many years but on a said note, Educational Living is not in a position to continue their sponsorship next year. Their support will be sadly missed but we still intend to work with Lisa and Educational living but on a smaller scale. Thank you Lisa! See you at the track

Pistons Rule!

Gary McKay

From the outgoing Secretary



Howdy all,

Well, another year has come to an end and what a busy year it has been!

Our general meetings this year have been well attended and have been a great place to discuss rule changes and other

club business. We have offered prizes this year and congratulate Jamie Augustine for winning the \$1200 Traction Tyre voucher after attending all general meetings held and Wayne Alway for taking home the \$500 cash prize at the AGM.

Many of our members enjoyed the movie night held at the Palace Cinema in Balwyn where we watched the McLaren film. It was great movie and provided a terrific insight to the life and times of Bruce McLaren.

We have continued our trackside BBQ's on race weekends and these prove to be a popular gathering point for competitors to swap war stories of the day's events. Thanks to the people that have helped out with the BBQ's throughout the year, but in particular, I would like everyone to thank Gary McKay for his commitment in this regard. It takes a lot of effort to prepare the trailer, tow it, do the shopping, set it all up & then pack it down again and then clean it all up again once you get it all home and he done this over and over. Bravo Gary!

We are looking forward to our presentation event on Saturday 17 February 2018 where we will present the 2017 Championship trophies and club awards in the relaxed surroundings of Paynes Rise Winery in Seville. It's a family friendly event so bring your better halves and the kids and enjoy the day with good food, wine, music and kids entertainment!

At our Annual General Meeting held on 15 November 2017, our 2018 Committee was formed. Please see further on for all the details

I have stepped down from the Committee in 2018 but will continue to be around and help organising social events in the future. I thank the rest of the Committee for their help and support over the time and wish you all the very best for a wonderful Christmas and a safe and happy new year.

Cheers

Peta McKay

Executive Committee

President	Gary McKay
Vice President	David Cocks
Treasurer	Paul Rule
Secretary	Vacant
Membership Secretary	Michael Cruse
Vic State Delegate	Scott Willing
Editor	Jason Fankhauser
Web site	David Low
Eligibility/ Tech. advisor	Blair Coull

General Committee

Jason Bockmann	Brydan Darbyshire
Luke Grech Cumbo	Paul Grizwotz
Wayne Twist	



From the editor



Hi Everyone!

Well, the year is done, and Christmas decorations have been in Coles for over 3 months.

This edition is a wrap up of the year really, with a focus on Island Magic which was an eventful weekend from sun to floods.

Hope you have enjoyed reading the magazine this year. I put my hand up again for the Editor role in 2018, as I have not got the format to the standard I would like yet. Feel free to email ideas or contributions at any time. The magazine is for the benefit of the club and members, so it has to reflect your needs.

I would like to thank Peta McKay for her commitment to our club as she departs from the Committee. The effort Peta puts in is vast and unseen. I also would like to thank Gary for taking on the President position again, knowing the amount of disruption it causes him at work answering phone calls! Great to see new Committee members step up, and hopefully we will see new people in key roles in the near future. My uncle who is a long-standing bowling club member said to me that all clubs are run by SOS – the Same Old Six. Lets not let IPRA Vic get such a label!

Might see you on the track at least once next year work permitting, although a move back to Perth is on the cards. Otherwise, come and have a chat at the BBQ if I'm donning the apron!

Best wishes to each of your family's and stay safe. On and off the track.

Jason Fankhauser



Whats New

A drill with an automatic transmission? A rechargeable jacket? A battery powered Makita coffee maker? What is the world really coming too...

Some members will remember the day before battery drills where you had half a dozen 25m long extension leads in the shed, and a list of mates you could get some more from. Then, you wondered why you're your hammer drill had smoke coming out of it as it laboured on with 100V instead of 240!

These days, virtually every power tool can be purchased as a battery unit. More so, you just don't buy a drill, or an impact drive. You buy a whole kit of toys which share a couple of batteries. You can add to it through buying what the tradie calls 'skins' which is a device with no battery.

Although this concept has been around for many years now, the technology behind the batteries and variable speed controllers mean that many trade tools perform better than 240V units of the past, and with the convenience of not winding up extension cords at the end of a hard day.

So, what is new in this area of plastic battery tools? Well, try this:

Makita was one of the first to make brushless motor tools the norm, but also introduce 'Automatic' downshifting. What? Automatic down shifting you say? Yes, that's it. What the drive system does is start off at full speed where there is no load, but shifts down to the medium speed setting once it senses fastener resistance.



Above: Makita LXDT06 brushless impact driver

The impact mechanism kicks in at the slower speed to provide for a more precise driving action.

Did you feel the cold much this year? If so, perhaps you needed a Milwaukee powered jacket? Yep. That's it. A jacket you plug your drill battery into to keep your fingys warm.

For \$69, you can have another device to forget to charge overnight, so you can head to work with a flat phone, and be freezing as well. Jokes aside, it's a hi tech piece of gear. Look at its specs:

- 3 carbon fibre heating elements
- Easy touch heat controller
- 3 heat settings per zone, high, medium & low



- Powered by one M12™ REDLITHIUM™ battery for up to 6 hours of continuous heat on a single charge
- Washer and Dryer Safe

The mind starts wondering what other clothing options will come out with battery power.....

These days, the measurement of a good employer is deemed by many as a reflection of the type of coffee machine they have in the office. But what about tradie's and other mobile service providers? No problem – enter the Mikata battery coffee maker.



Available in Bunnings for \$99, it like the jacket, uses its branded current battery unit, but also runs on 240V. In real terms, it's a percolator so you have to wrestle with filter paper and stuff. Mind you, most innovative owners would likely improvise and cut some fly screen up to make a reusable filter.

These are only some examples of what really is the start of things to come in this space. As battery technology improves, so will the adaption of battery power to our homes, tools, cars, etc. Well, that's until the world runs out of Lithium.... JF

IPRA VICTORIA PRESENTS

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2018

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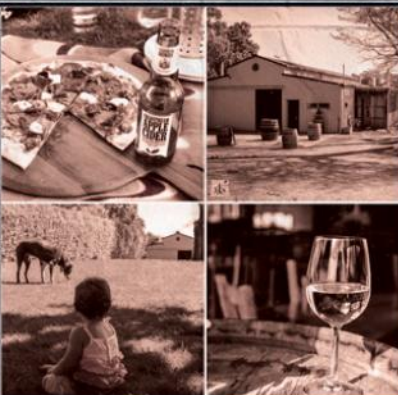


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Clubs News

2018 Nationals Announcement

Letter of announcement from IPRA SA below.



To all IPRA and Saloon Cars

IPRASA is proud to announce that the 2018 National Round for both Improved Production and Saloon Cars will be held on the 5km National level circuit at The Bend Motorsport Park, Tailem Bend, SA, on the 9th – 11th of November 2018. The proposed event schedule will consist of an optional Practice Day Friday, and competition Saturday and Sunday.

As “The Bend” is such a new track, we’re still in the progress of finalising pricing, but we would like to open up non-financial Expressions of Interest for the 2018 Nationals. We anticipate that entry will be in the vicinity of \$900-\$1200.

Please help us provide a better event for you by lodging your Expressions of Interest and sending an email to nationals@iprasa.org.au with your Name, Category (IP or Saloon) and if you would be likely to attend the Friday Practice. Yes, that’s all we need right now.

In January 2018, once we have an indication of numbers and a more detailed price structure, we will announce pricing for the event and call for deposits to secure your spot.

For interstate competitors looking to maximise their travel, please note that the South Australian State Championship has Round 4 on the 20th and 21st of October at Tailem Bend, and Round 5 on the 17th of November at Mallala. Information can be tracked via the IPRASA or Sporting Car Club of SA Websites and Facebook pages.

We’re looking forward to hearing from you and seeing you all next year!

IPRASA Nationals Sub Committee

Below: The Bend Motorsport Park Pit Building Construction



IPRA Vic Calendar

WHEN	WHAT
17 February	IPRA Vic Season Launch and Presentation
1-4 March	Supercars Adelaide 500**
3-4 March	Round 1 – MGCC – Sandown March 3-4
22-25 March	Supercars 2018 Formula 1 Australian Grand Prix
6-8 April	Supercars Tyrepower Tasmania SuperSprint*
13-15 April, 2018	Shannons Nationals Round 1: The Bend
20-22 April	Supercars WD-40 Phillip Island 500
4-6 May	Supercars Perth SuperSprint*
5-6 May	Round 2 – PIARC – Phillip Island
10-13 May, 2018	Shannons Nationals Round 2: Sandown
18-20 May	Supercars Winton SuperSprint*
1-3 June, 2018	Shannons Nationals Round 3: Phillip Island
15-17 June	Supercars CrownBet Darwin Triple Crown
16-17 June	Round 3 – VSRS Inc – Winton
6-8 July	Supercars Watpac Townsville 400**
20-22 July	Supercars Coates Hire Ipswich SuperSprint*
21-22 July	Round 4 – ASSA Vic – Sandown
24-26 August	Supercars The Bend SuperSprint
28-29 July, 2018	Shannons Nationals Round 4: Queensland Raceway
4-Aug	Supercars Red Rooster Sydney SuperNight
1-2 September, 2018	Shannons Nationals Round 5: Winton
14-16 September	Supercars Sandown 500**
21-23 September, 2018	Shannons Nationals Round 6: Sydney Motorsport Park
29-30 September	Round 5 – VMCI – Phillip Island
4-7 October	Supercars Supercheap Auto Bathurst 1000**
19-21 October	Supercars Vodafone Gold Coast 600*
2-4 November	Supercars ITM Auckland SuperSprint
23-25 November	Supercars Coates Hire Newcastle 500**

*Denotes Dunlop Super2 Series Event * Denotes ECB SuperUtes Series Event *Island Magic dates not confirmed.



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The jokes



Q: Why does a chicken coop have 2 doors?
A: Because if it had four doors, it would be a chicken sedan.

A grizzly old truck driver was eating in a truck stop when three Hell's Angels' bikies walked in. The first bikie walked up to the old man, pushed his cigarette into the old man's pie and then took a seat at the counter.

A moment later the second bikie walked up to the old man, spat into the old man's drink and then he too took a seat at the counter.

The third bikie walked up to the old man, turned over the old man's plate, and then he took a seat at the counter. Without a word of protest, the old man quietly left the cafe.

Shortly thereafter, one of the bikies said to the waitress, "Humph, that old coot wasn't much of a man was he?"

The waitress replied, "Not much of a truck driver either, he just backed his prime mover over three motorcycles and drove off."

Driverless cars...



"Does your car have any idea why my car pulled it over?"

Race Reports

Race Report – Island Magic 2017

Average engine size	3465cc
Total engine capacity on grid	93 litres
Under 3l cars	14
Over 5l cars	7
Number of manufacturers	8
Avg qualifying time	1:50.75
Manufacturers	
BMW	4
Datsun/Nissan	2
Ford	2
Holden	7
Honda	3
Mazda	7
Eunos	1
Hyundai	1

Maybe it was the unstable weather forecast, or just a big year for some, with the lowest entry numbers for IPRA at Island Magic for many years. Numbers aside, a good show was put on in what can be described as more than challenging conditions at times.

Event	Starters	Finishes
Q	27	26
R1	26	20
R2	26	20
R3	22	16

Unsurprisingly, Ray Hislop qualified the Falcon with a fastest time of 1:42.166. Off his normal pace which he put it down to be more about the track conditions which seemed to support the times of his chasers including Damian Milano in 2nd position. The IPRA diversity was showcased with the first 7 qualifiers driving either a Ford, Holden, Nissan, Honda and BMW.

Race 1 saw Hislop hold P1, but also knock half a second off his time. Damian Milano was a DNF due to power steering issues allowing Paul Rule to 'inherent' in his words 2nd but still a good effort for the stalwart

Torana driver. Scott Wilson was equally happy with his third place, as too was Andrew Butcher in the BMW E46 how was showing good pace. As a side note, we have seen the competitiveness of the runners in IPRA get both faster but more gentlemanly (lower damage rate in 2017) but with closer racing. P2 to P14 finishes had a fastest race time of less than 2 seconds apart (over 4 seconds in 2016), whilst P2 to P4 was less than 4 tenths. David Cocks with his shiny VK back from the panel beaters must have had Lucas electrics put in the car at the same time, with multiple electrical bits being naughty.



Race 2 witnessed a dump in rain synonymous of Phillip Island circuit which has many convinced it has its own ecosystem. The arduous conditions resulted in some mud being thrown around wheel arches, and also an unfortunate incident resulting in Scott Wilson being a DNF, and needing the panel shop number from Cocks. Wilson also was a recipient of a 5 second penalty to add dirt to a wound. Rule held his 2nd spot, showing experience matters, but also having some visibility at the front of the pack. Rule incidentally halved his lap time split to Hislop from dry to wet.

Andrew Butcher confirmed how well balanced and adaptive an E46 is, finishing in a PB position of 3rd, just in front of Gary McKay who fortunately finished without a dent on the glossy Torana. Damien Milano, ended up in 5th position, not bad from a rear start in the wet. Mathew Logan matched Milano's best lap time, and continued a strong weekend. Wayne Alway and John Perkins speed there way to finish 8th and 9th spots.

For race 3, the deluge of water seemed to wash the track clean in a hurry, with Hislop largely matching his time and position of Race 1. A DNF of Rule allowed Andrew Butcher to seize his best weekend points total, and finish the highest placed Victorian member. Graeme McPherson got the pedal back down, moving from 16th to 4th position behind Mathew Harris's Civic.

A challenging weekend for Milano got worse when the Commodore's engine puffed some smoke, but right at pit entry allowing a safe DNF from the race. Interestingly, the 20 starters of race 3 were not the 20 finishes of Race 2, contributed by John Perkins and Brendan O'Conner who were DNS'rs. Wayne Twist, Paul Grziwotz, Bruce Henley and David Cocks (9th to 12th) all finished with straight cars after a consistent weekend. JF

Island Magic Top 10 for the event

Pos	Car	Driver	Competitor/Team	Vehicle
1	23	Ray Hislop	R.H.M	Falcon BF
2	59	Andrew Butcher	Epilepsy Foundation / PIARC	BMW E36 M3
3	98	Mathew Harris	Tyrepower Campbelltown / Fabre	Honda Civic
4	73	Graeme J. McPherson		Commodore VE
5	43	Mathew Logan	Mack Trucks	Commodore
6	63	Gary McKay	G P Automotive / PIARC	Torana LJ
7	9	Wayne Alway	Allford Wreckers/WPS Racing/PI	Mazda RX7
8	37	Daniel Pullens		Nissan S14 Silvia
9	19	Wayne Twist	W.D.T Asset Management	BMW E46
10	45	Paul Grziwotz	Electrical Automation Solution	Honda Civic



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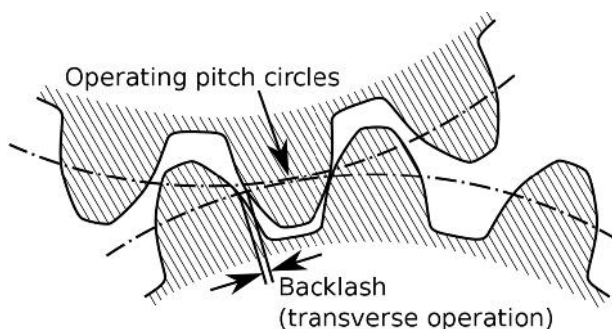
Gears or cogs as they are known are one thing every car has in common. Even a Tesla has a gear train. Every standard car has a spur, helical, and a spherical bevel gear set. Well, unless you have switched to a Hollinger where the helical one might disappear. Gears are documented in history back to 400AC where chariots had the rear wheels driving through a differential arrangement to keep a pointer towards south.

There are a lot of myths about gears. Particularly around race tracks. The most common one being straight cut gears are stronger than helical. Absolutely wrong. So, I'm going to try to put some facts straight, but also go over some gear design theory which will help understand why using the right oil is critical.

Although gears have been around for hundreds of years, the ability to get a gear made is getting harder by the day. About 20 years ago, every state had multiple gear cutters. They were not so big factories, with grey haired men wearing glasses and an apron. Absolute masters of their craft. Then, in about 1999, they started disappearing, and so did a lot of the cutting machines which headed off shore.

Sure there are still gears made in Australia, such as Hollinger and Phitzner for example. These are proprietary gear manufacturer's though, using CNC machines to largely mass produce. Being able to get a replica lay gear set machined for a FJ Holden or the like means you have limited options, and the need for deep pockets. Like many things, such a shame to see these skills disappear from our country.

Anyway, I have digressed a bit. A gear is like a sprocket. The difference is sprockets transfer torque via a chain, whereas gears drive one another directly. The way a roller on a chain engages with a sprocket tooth is not that indifferent to a gear. You see, with a perfectly machined gear set, there is virtually no rubbing between the gear teeth. The gear geometry is such that as the two teeth approach each other, the contact surfaces follow the same arc path. As their contact pressure loads up, they roll along one another. As the faces close and depart, there is some sliding but at low pressure. Best to watch in a video really.



The perfect geometry of a gear set is impacted by many things: quality, gear spacing, wear and distortion of cases and shafts. Some of these issues can be corrected by adjusting the backlash, which is performed by adjusting the distance between the gears. This is often not achievable in gearboxes (not without expensive machining), however differentials typically use shimming to change backlash.

So, glazed eyes I suspect are setting in, so let's get real in terms of race cars. Sliding between the gear faces causes losses and heat. As gearboxes for example wear (bearings), they generate more heat due to more friction. The more wear, the more geometry issues are presented, and the wear accelerates along with the heat generation. Snowball effect.

But... let's take a step back. Many race car gearboxes were designed for road use. When us Mechanical Engineers design gears, we find that its surface fatigue which gauges the size (width) of the gear. Not strength. In other words, a road car gearbox is designed based on achieving a certain life expectancy based on the load assumptions. When we then crank up the power to the input, the pressure on the tooth increases and strength can become a dominant factor, not life. In short, put more horsepower through a standard gearbox does two things – reduce life of the gear surfaces, and creates fatigue of the tooth base. Either will cause it to go bang in time.

Re gear types, helical gears are the pick for transmissions for 2 main reasons. 1. They are stronger. 2. They are quieter. They are stronger because with the tooth on an angle, you are bending it around two axes, and the width of the face is longer so the pressures are lower. The downside is though, they create an axial thrust which needs to be dealt with. They also don't like being engaged with one another without their speed being synchronised. A spur gear will be perpendicular, can slide in and out of mesh a lot easier deleting the need for synchronisation rings (in some cases) in what commonly known as 'dog engagement'.



Above: Helical versus Spur gears
Left: Spur gear geometry

So what about oil? Well, no oil will stop you smashing the teeth out due to torque overload. The oil can reduce heat though, and the less heat, the less distortion of the case and the better the geometry. Oil is more critical in a standard gearbox than something like a Nascar 4 speed box with big spur gears and direct drive 4th. Why? Because the contact pressures are bigger, and if the gear faces are not maintained apart by having oil in-between them, then they will wear at a massive rate, then fail as the

geometry changes. Revisit my oil article in winter edition for a recap.

Mind you, if you use an oil which has a too higher viscosity, then it may not lubricate the bearings and bushes properly involving some compromise.

Well, I think that's enough gear stuff, but email me if you have a question.

Jason Farkhauser

Types of Gears



Race results – Island Magic

Qualifying

Scheduled Start 11:40

Start Sat Nov 25 11:39

Elapsed Time 20:43

Fastest Lap Av.Speed Is 157kph,

130% of first 1 is 2:12.8159



Pos	Car	Driver	Competitor/Team	Vehicle	Cap	CL	F/Lap	F/Time
1	23	Ray Hislop	R.H.M	Falcon BF	6000	4	4	1:42.166
2	88	Damien Milano		Commodore VY	6000	5	4	1:44.110
3	37	Daniel Pullens		Nissan S14 Silvia	3400	10	9	1:46.712
4	44	Paul Rule	Highbury Automotive / PIARC	Torana Hatchback SS	5800	12	9	1:46.797
5	98	Mathew Harris	Tyrepower Campbelltown / Fabre	Honda Civic	2000	10	10	1:46.882
6	59	Andrew Butcher	Epilepsy Foundation / PIARC	BMW E36 M3	3200	11	3	1:47.091
7	86	Robert Braune	Braune Supatune	BMW E30	2840	6	4	1:47.138
8	51	Scott Wilson	Wilson Homes Racing	Commodore VP	6000	7	7	1:47.184
9	43	Mathew Logan	Mack Trucks	Commodore	6000	6	6	1:47.952
10	73	Graeme J. McPherson		Commodore VE	6000	9	4	1:48.108
11	57	John Perkins	Superior Rigging Services	Mazda RX7	2354	8	4	1:48.943
12	63	Gary McKay	G P Automotive / PIARC	Torana LJ	3300	11	11	1:49.655
13	9	Wayne Alway	Allford Wreckers/WPS Racing/PI	Mazda RX7	2354	7	6	1:49.672
14	67	Bruce Henley	Stawell Cartage	Mazda RX8	2354	8	7	1:49.751
15	89	Velibor Tomic		Honda Integra Type R	1998	6	3	1:49.941
16	28	David Cocks	Bullas Building Consultants, M	Commodore VK	6000	11	5	1:50.481
17	64	John Angiolella	JKL Constructions P/L	BMW E36	3200	6	4	1:50.619
18	19	Wayne Twist	W.D.T Asset Management	BMW E46	3200	11	9	1:50.776
19	45	Paul Grziwotz	Electrical Automation Solution	Honda Civic	1998	11	5	1:50.872
20	56	Malcolm Henley	PIARC	Mazda RX7	2354	11	10	1:51.672
21	4	Michael Hazelton	The Beat Bar Kings Cross	Mazda RX7	2354	4	4	1:52.009
22	11	Brendan O'Connor	Nankang Tyres	Ford Falcon	4000	8	2	1:53.801
23	35	Tom Prentice	RESTO35	Mazda 626	2500	7	4	1:54.644
24	93	Matthew Butters	Continental Appliance Repairs	Pulsar	1998	10	7	1:59.752
25	46	Phil Kirkham	Declan Kirkham Racing / Inerti	Eunos 30X	2500	2	2	2:02.735
26	97	Mike Sinclair	PIARC /Scarcella Designz / WUR	Hyundai Excel	1498	8	4	2:10.098
	80	Tony Groves	Mornington Mazda Racing	Mazda RX7	2340			

Race 1

Event R7 6 Laps

Scheduled Start 15:45

Start Sat Nov 25 15:52

Elapsed Time 10:17

Fastest Lap Av.Speed Is 157kph

Race Av.Speed Is 156kph



Pos	Car	Driver	Competitor/Team	Vehicle	Cap	CL	F/Lap	F/Time
1	23	Ray Hislop	R.H.M	Falcon BF	6000	6	2	1:41.776
2	44	Paul Rule	Highbury Automotive / PIARC	Torana Hatchback SS	5800	6	5	1:47.220
3	51	Scott Wilson	Wilson Homes Racing	Commodore VP	6000	6	3	1:47.087
4	59	Andrew Butcher	Epilepsy Foundation / PIARC	BMW E36 M3	3200	6	4	1:47.533
5	73	Graeme J. McPherson		Commodore VE	6000	6	4	1:48.369
6	37	Daniel Pullens		Nissan S14 Silvia	3400	6	5	1:48.803
7	43	Mathew Logan	Mack Trucks	Commodore	6000	6	3	1:48.511
8	63	Gary McKay	G P Automotive / PIARC	Torana LJ	3300	6	4	1:49.417
9	57	John Perkins	Superior Rigging Services	Mazda RX7	2354	6	3	1:48.890
10	9	Wayne Alway	Allford Wreckers/WPS Racing/PI	Mazda RX7	2354	6	6	1:49.170
11	4	Michael Hazelton	The Beat Bar Kings Cross	Mazda RX7	2354	6	4	1:49.155
12	89	Velibor Tomic		Honda Integra Type R	1998	6	4	1:49.394
13	67	Bruce Henley	Stawell Cartage	Mazda RX8	2354	6	5	1:49.030
14	19	Wayne Twist	W.D.T Asset Management	BMW E46	3200	6	4	1:50.684
15	45	Paul Grziwotz	Electrical Automation Solution	Honda Civic	1998	6	4	1:50.842
16	56	Malcolm Henley	PIARC	Mazda RX7	2354	6	2	1:52.879
17	35	Tom Prentice	RESTO35	Mazda 626	2500	6	3	1:54.078
18	11	Brendan O'Connor	Nankang Tyres	Ford Falcon	4000	6	3	1:55.825
19	93	Matthew Butters	Continental Appliance Repairs	Pulsar	1998	5	3	1:59.385
20	97	Mike Sinclair	PIARC / Scarcella Designz / WUR	Hyundai Excel	1498	5	4	2:10.396
DNF	28	David Cocks	Bullas Building Consultants, M	Commodore VK	6000	5	4	1:49.238
DNF	46	Phil Kirkham	Declan Kirkham Racing / Inerti	Eunos 30X	2500	3	3	1:58.905
DNF	64	John Angiolella	JKL Constructions P/L	BMW E36	3200	3	2	1:52.117
DNF	88	Damien Milano		Commodore VY	6000	1	1	1:49.703
DNF	98	Mathew Harris	Tyrepower Campbelltown / Fabre	Honda Civic	2000	1	1	2:11.233

Race 2

Event R15 5 Laps
 Scheduled Start 10:50
 Start Sun Nov 26 11:00
 Elapsed Time 10:56

Competitor# 51 5 Seconds Penalty



Pos	Car	Driver	Competitor/Team	Vehicle	Cap	CL	F/Lap	F/Time
1	23	Ray Hislop	R.H.M	Falcon BF	6000	5	4	2:06.723
2	44	Paul Rule	Highbury Automotive / PIARC	Torana Hatchb	5800	5	4	2:09.412
3	59	Andrew Butcher	Epilepsy Foundation / PIARC	BMW E36 M3	3200	5	5	2:13.207
4	63	Gary McKay	G P Automotive / PIARC	Torana LJ	3300	5	5	2:14.501
5	88	Damien Milano		Commodore VY	6000	5	5	2:10.699
6	4	Michael Hazelton	The Beat Bar Kings Cross	Mazda RX7	2354	5	5	2:14.243
7	43	Mathew Logan	Mack Trucks	Commodore	6000	5	5	2:10.783
8	9	Wayne Alway	Allford Wreckers/WPS Racing/PI	Mazda RX7	2354	5	5	2:16.147
9	57	John Perkins	Superior Rigging Services	Mazda RX7	2354	5	5	2:16.997
10	98	Mathew Harris	Tyrepower Campbelltown / Fabre	Honda Civic	2000	5	5	2:17.074
11	35	Tom Prentice	RESTO35	Mazda 626	2500	5	5	2:18.632
12	64	John Angiolella	JKL Constructions P/L	BMW E36	3200	5	5	2:19.225
13	46	Phil Kirkham	Declan Kirkham Racing / Inerti	Eunos 30X	2500	5	5	2:19.075
14	45	Paul Grziwotz	Electrical Automation Solution	Honda Civic	1998	5	3	2:21.323
15	28	David Cocks	Bullas Building Consultants, M	Commodore VK	6000	5	5	2:17.720
16	73	Graeme J. McPherson		Commodore VE	6000	5	5	2:20.465
17	19	Wayne Twist	W.D.T Asset Management	BMW E46	3200	5	5	2:23.202
18	37	Daniel Pullens		Nissan S14 Si	3400	5	5	2:21.307
19	97	Mike Sinclair	PIARC /Scarcella Designz / WUR	Hyundai Excel	1498	5	5	2:28.916
20	56	Malcolm Henley	PIARC	Mazda RX7	2354	5	5	2:37.279
DNF	89	Velibor Tomic		Honda Integra	1998	2	2	2:21.779
DNF	51	Scott Wilson	Wilson Homes Racing	Commodore VP	6000	2	2	2:20.896
DNF	11	Brendan O'Connor	Nankang Tyres	Ford Falcon	4000			

Race 3

Event R22 10 Laps

Scheduled Start 15:00

Start Sun Nov 26 15:07

Elapsed Time 17:17

Fastest Lap Av.Speed Is 157kph

Race Av.Speed Is 154kph

Current Race Lap Record Is 1:39.8873 Set On

27/11/2016 By Ray Hislop In A Falcon BF



Pos	Car	Driver	Competitor/Team	Vehicle	Cap	CL	F/Lap	F/Time
1	23	Ray Hislop	R.H.M	Falcon BF	6000	10	2	1:41.825
2	59	Andrew Butcher	Epilepsy Foundation / PIARC	BMW E36 M3	3200	10	4	1:46.710
3	98	Mathew Harris	Tyrepower Campbelltown / Fabre	Honda Civic	2000	10	10	1:46.683
4	73	Graeme J. McPherson		Commodore VE	6000	10	6	1:47.661
5	43	Mathew Logan	Mack Trucks	Commodore	6000	10	6	1:47.968
6	63	Gary McKay	G P Automotive / PIARC	Torana LJ	3300	10	2	1:48.977
7	9	Wayne Alway	Allford Wreckers/WPS Racing/PI	Mazda RX7	2354	10	8	1:47.941
8	37	Daniel Pullens		Nissan S14 Silvia	3400	10	6	1:47.658
9	19	Wayne Twist	W.D.T Asset Management	BMW E46	3200	10	9	1:49.757
10	45	Paul Grziwotz	Electrical Automation Solution	Honda Civic	1998	10	9	1:49.758
11	67	Bruce Henley	Stawell Cartage	Mazda RX8	2354	10	9	1:49.430
12	28	David Cocks	Bullas Building Consultants, M	Commodore VK	6000	10	8	1:50.557
13	56	Malcolm Henley	PIARC	Mazda RX7	2354	10	10	1:50.888
14	35	Tom Prentice	RESTO35	Mazda 626	2500	9	6	1:53.036
15	93	Matthew Butters	Continental Appliance Repairs	Pulsar	1998	9	7	1:57.873
16	97	Mike Sinclair	PIARC /Scarcella Designz / WUR	Hyundai Excel	1498	8	2	2:08.047
DNF	44	Paul Rule	Highbury Automotive / PIARC	Torana Hatchback SS	5800	3	3	1:48.068
DNF	46	Phil Kirkham	Declan Kirkham Racing / Inerti	Eunos 30X	2500	3	3	1:59.707
DNF	88	Damien Milano		Commodore VY	6000	1	1	1:51.656
DNF	4	Michael Hazelton	The Beat Bar Kings Cross	Mazda RX7	2354	1	1	1:57.714