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Full yearly Membership fees:

1 January to 31 December
Social \$45
Motorsport/Competition \$65
Family \$90
(2 adults + kids under 18 - Family rate allows up to two competition members.)
Note: Applicants who wish to join part-way through the year will be charged a pro-rata membership fee based on the number of months left in the membership year. See the application form for details.

Meetings

Southern members meet on the final Tuesday of each month, January through to November, at the Civic Club, 134 Davey Street, Hobart.
The committee meeting is held between 6.30-8.00 pm. Drop in any night.

CMI's AGM is generally held at 7 pm on the last Tuesday of November at the Civic Club, Hobart.

All contributions to Veloce Nota are welcome and when published earn points towards the Clubman of the Year Award.

Please send all letters and contributions to The Editor: cmi.editorial@gmail.com

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A lightweight magazine this month; there hasn't been a lot happening.

My own news is that I'm not going to Bathurst after all.

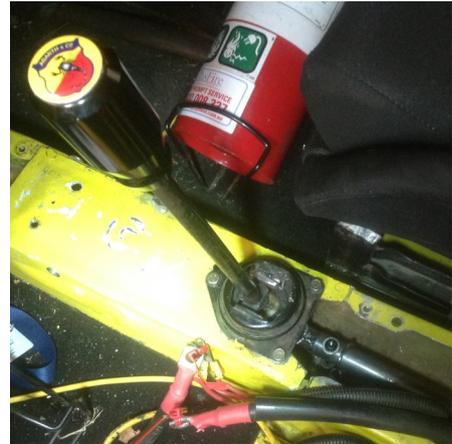
At the back of my mind throughout the preparation of the car has been the uncertainty about Covid-19, and the absolute certainty that the pollios have opened up too early in both Victoria and NSW. I know the curve is on the way down, and that's good, but it's dropped to daily figures that are still scary for a Tasmanian: hundreds in one state and a thousand in the other.

I said to the Challenge Bathurst Organisers that I felt like someone who had booked for a tour of a guinea-pig park, only to find out just before arriving that there was a lion on the loose as well. I'm double vaccinated, but the vaccine is not 100 per cent

effective, and there are literally thousands of infected people in both the states I would have to travel through.

Seems strange to hear someone who is prepared to race around Bathurst worrying about illness, but it's not really fear of the illness; it's not knowing what will happen in the week that I'm up there.

In the meantime, the Fiat gear lever (right) is on speaking terms with the VW shifter (bottom right) - at last.



Presidential Patter

I've just arrived home the Domain hillclimb and am pleased to report it was another enjoyable and well-run event. Special thanks to all the club members who volunteered to help out with the running of the event. The weather threatened to spoil things but it never really set in and the drivers were sensible and drove to the conditions. It is easy to forget that this event is only possible due to the work the club put into getting Council to reconsider their decision to discontinue it a few years back.

Over the course of the day I chatted with quite a few people about a recent change to the Special Interest (SI) registration conditions. The change is that

for cars to be considered for SI they must now be **'immaculate inside and out'**. It is my belief, and that of every person I spoke with, that this is a poor decision and will exclude a lot of cars which should be eligible for SI registration. Under the new rules SI only serves those owners of classic cars who like to get their cars in concours condition and keep them that way. That is not an interest of mine nor many owners of old cars who want their cars to look **good** but not necessarily immaculate. Many want to use them for club level motor sport and social events which you would not risk running an immaculate car in. I also think that with the premium now being placed on originality in

old cars the new SI rules could require a person to restore their car (and thereby devalue it) to make it eligible for SI. I also feel bad for a person that wants to restore their car to immaculate condition over a few years but wants to enjoy driving it while they do so. I could go on and on with other cases but won't. I will however make inquiries with my local Member of State Parliament to find out who made this decision, why it was made, and what consultation process was undertaken.

Our next event is the end-of-year dinner and I look forward to seeing you there.

Ciao
Rob

First and foremost, pistons are only there to carry the sealing ring set and achieve the compression ratio required! Pistons are involved as the moving part of the combustion chamber in an internal combustion engine and are subject to inertia loadings, combustion loadings, detonation stresses and incredible heat loads. While the cylinder head and cylinder walls are cooled by water – or fins when the engine is air cooled – the piston sheds most of its heat through the piston rings and a small amount into the piston pin and connecting rod. Very little of the piston skirt is ever in contact with the cylinder, so the operating temperature of the piston is always going to be much higher than the other bits that are mentioned above.

At the dawn of motoring, cast iron pistons were suitable because of vast knowledge of the material and the very low revs the engines could sustain. By about the beginning of WW1 and the ongoing development of aviation engines, aluminium pistons had started to be used as revs were raised, overall weight needed to be reduced and power was increased. Unfortunately, war has always spurred on industrial development at a far faster pace than peace ever did. Improvements in fuels and the reliability of ignition systems allowed the raising of compression ratios and further engine development, while improving gas flow provided power and reliability from reduced engine sizes. When supercharging was added to race engines, the stresses on the pistons dramatically increased, especially on the crown and piston pin bosses.

Recent developments have seen some (very light) exotic materi-

als banned because of health issues during machining and safe disposal at end of life. Some high-boost, lean-burn diesels have been using a combination of steel for the piston crown and aluminium only for the skirt in the (extreme) construction of their pistons. With the rapid development of 3D printing and additive manufacturing capabilities, Mahle and Porsche (and others) have been experimenting with building piston blanks in this way, requiring minimal machining and allowing the creation of internal cavities that are difficult when using molten aluminium to cast piston blanks. Additionally, with the development of CNC machining centres there is the ability to create small quantities of preproduction piston samples for developmental purposes, machined from solid billet in one of the high-strength aluminium alloys and with suitable skirt coatings to prevent scuffing.

As the years have passed, the pistons have gone from flat top 'Jam Tin', with the pin at about the middle of the skirt length, to now being squat, with a lumpy top and the pin very close to the oil groove. To further reduce the vertical height of the engine, the skirt will be scalloped to allow the piston to clear the crank counterweights at the bottom of the stroke (BDC); thus the piston no longer looks like a jam tin. To eliminate piston slap, a noise created as the piston rocks over as it changes direction at the top of the stroke, the pin hole in cast pistons will be off centre, anywhere between 1 mm and 2.5 mm offset, with the pin offset to the thrust side of the piston. Previously the earliest pistons had an expansion slot machined on the non-thrust side so they could

be installed very tightly in the bore, without possibly seizing. Usually, forged race pistons will keep the pin offset at zero, as that gives slightly more power at the cost of some noise.

Early Holdens, from model 48-215 and FJ all the way to the EJ had the Grey engine. This engine has a typical jam tin piston with a fully floating pin, retained by flat circlips. When the 149/179 Red engine appeared in the EH Holden, the compression height had been reduced, the piston was more slipper shaped and the pin was a press fit in the con-rod. Despite the differences in design, both engines continued to be raced for many more years, the red engine in XU-1 Toranas and HQ Holden race cars being eventually stretched out to 202 cubic inches by the manufacturer. When the 253/308 V-8 engines arrived, they continued the semi-slipper skirt shape and pressed-in the rod pin. By the time the L-34 Torana was released, it had a piston that had been dumbed down and 'productionised' from the Formula 5000 race engine, but still retained the pressed-in pin.

The most recent development for high volume production engines has seen some squat pistons with oval lands (the lands being a slightly larger diameter at 90 degrees to the pin than directly above it). This is to reduce the volume available to be occupied by unburnt gases and further improve the exhaust emissions. Previously, for pistons with longer skirts, the lands are round, should never touch the bore and can contribute to some of the emissions exhausted, taking into account the volume between the bore and lands, but only above the top ring. *Bill F.*

You may or may not know that regular correspondent Bill Freame makes pistons. See below...

These are some pistons that we made to install in a 124 BC race engine.

The crown chamfer side is under the spark plug to help induce swirl and promote rapid burn, at 11.3:1 compression ratio, to be run on 'good' 98 ULP.

The 'H' beam con-rods were originally for a Mk 1 VW Golf that I bored out the big end, notched for the bearings and then had honed to finished size.

The assemblies have now been installed and we await a scrutineer to check capacity and seal the engine, ready to be raced in historic touring cars.

We are hoping to have it sealed and fully assembled, ready to install in the car as soon as lockdown is over and the car can be transported to BOI Performance.

It will be using the 124 BC twin downdraught manifold, with a choice of 40, 42 and 44 IDF's to try on it, in the search for best driveability.

As you can see from the photos, it has taken a little while to machine the piston forgings into something useful.



Above: Forged piston blanks before machining

Below: finished pistons

Bottom: piston/rod assembly



Domain Hillclimb

The weather for the 19th Domain Hillclimb, grim at first, improved steadily during the day and thanks to restraint (not always obvious) by the competitors, the event went off flawlessly. All 45 finishers from an entry of 53 could have had six runs.

An amazing selection of cars and drivers turned up, including about 20 first-timers. Interesting choice of event to start your competition career ...

Garry Griffiths's WRX broke a drive shaft and he shot off home to replace it. Back in time for the next run (!), he put in a string of sub-50-second runs and ended up third outright. An amazing effort that was recognised by his competitors.

Damien Moore did his usual trick of getting his 350Z among the four-wheel-drives, as did Michael Watt and Ritchie Thimm.

Italian cars were out in force too, with nine turning up – one of them with two different drivers. Top Italian was Jake Hill in Geoff Storr's Alfetta GTV, with a very respectable 54.29 that he pulled out right at the end.

Nick Yaxley was Driver of the Day for his efforts with the unlikely-looking but very quick turbo Volvo.

Darry Bennett's Suzuki was absent, having lost a wheel on the way from Dodges Ferry. But not wanting to be deprived of his chance to compete in his tenth consecutive Domain Hillclimb, he went home and got his Nissan Navara to do one run in that.

Hannah Clear in her BMW 320i overcame early nerves and a minor tank-slapper to get gradually down from a 70 to a 61-second run.



Byron Saunders finished in an unaccustomed last place after a clutch problem took his Pulsar out on the first run.

Rod Bender was fastest outright in his Volkswagen Golf R, and sportingly donated his trophy

copy of Stephen Mott's book 'The Penguin Hillclimb' to Darryl Bennett for his enthusiasm – as well as mentioning his own enthusiasm for Nick Yaxley's car control in the Volvo.

This was the spirit in which the

event was run, and as usual we got considerable help from competitors in setting up all the paraphernalia.

Pics mostly show Italian cars. We're an Italian car club, after all.

Pictures shown here are mostly by JD Media. Matthew Bissett was also there and you can see his gallery on the club's Facebook page. Contact photographers about getting copies. All prices I have seen are very reasonable.



Domain Hillclimb

19th CMI Domain Hillclimb - held on 24th October 2021 - Official Results

Car#	Driver	Car	Fastest	Outright	Class	Run #1	Run #2	Run #3	Run #4	Run #5	Run #6
3	Rod Bender	VW Golf R white 2000T4WD	47.18		1 F1	56.31	53.76	48.14	47.85	47.18	
41	Jamie Lonergan	Subaru WRX blue 2500T4WD	47.70		2 F2	56.55	51.96	48.95	47.70	50.57	48.01
53	Garry Griffiths	Subaru WRX silver 2000T4WD	48.12		3 F3	59.71	49.98	48.43	48.12	49.97	
9	Marcus Easter	Subaru Sti white 2500T4WD	48.31		4 F4	56.24	54.18	50.47	50.30	49.10	48.31
80	Damien Moore	Nissan 350Z white 3500	48.94		5 D1	57.43	56.07	51.08	50.08	49.07	48.94
218	Vaughan Barton-Johnson	Nissan Pulsar GTiR blue 2000T4WD	49.08		6 F5	57.38	55.81	52.4	49.08	49.28	53.32
37	Michael Watt	Mazda 3 MPS silver 2260T	50.08		7 E1	62.96	58.22	52.86	51.40	51.08	50.08
11	Ritchie Thimm	Mazda 3 dk. Blue 2000	50.48		8 B1	62.68	57.97	52.78	51.40	52.98	50.48
5	Josh Creese	Subaru WRX white 2500T4WD	50.77		9 F6	60.81	57.29	51.99	50.77	50.89	51.25
42	Michael Elliott	Mazda RX7 white 2616R	50.98		10 D2	62.72	59.00	52.21	51.42	50.98	54.21
28	Scotty Wyman	Proton Satria Gti silver 1834	51.54		11 B2	65.02	56.10	51.54	68.52	53.22	52.49
59	Al VanDullerman	Mitsu Starion reddish 2000T	51.74		12 D3	53.35	54.23	51.74			
2	Rob VanDerNiet	Honda CRX white 1600	52.51		13 A1	59.89	57.69	54.20	52.51	52.68	52.85
86	Vlad Gala	Toyota 86 GT red 2000S	53.27		14 D4	63.80	62.30	54.42	54.68	53.27	56.30
47	Julian Gill	Ford Capri GT orange 3000	54.03		15 C1	64.40	60.72	57.28	55.84	55.30	54.03
10	Scott Ellis	Mini Cooper S blue 1600T	54.11		16 C7	63.49	59.64	54.80	54.11	54.95	54.33
159	Jake Hill	Alfa Romeo Alfetta GTV bianco 2000	54.29		17 B3	66.97	61.17	57.08	54.29		
38	Ricky Scott	Hillman Hunter white 1760	54.67		18 B4	66.99	61.08	56.29	54.67	104.16	54.77
245	Nick Yaxley	Volvo 245 red 2319T	54.87		19 E2	65.73	61.57	57.08	56.85	54.87	55.25
33	Phil Sawers	Holden Torana white 3300	55.02		20 C8	69.12	63.89	55.81	62.80	57.75	55.02
7	Oliver Pamham	Ford Fiesta ST white 1600T	55.05		21 C2	64.88	60.34	57.49	56.45	55.84	55.05
130	Gary Lucas	Fiat Abarth 130TC nero 2000	55.50		22 B5	63.49	58.91	56.23	56.35	56.05	55.50
48	Liam O'Connor	Subaru Liberty blue 2000	56.28		23 F7	67.32	63.05	58.60	57.63	57.35	56.28
49	John Dowling	Alfa Romeo 147 argenta/rosso 2000	57.00		24 B6	65.13	61.22	58.80	58.22	57.13	57.00
750	Peter Lowe	Alfa Romeo 75 argenta 2500	57.05		25 C3	58.49	58.38	57.05			
525	Bruce Heron	Triumph Dolomite yellow 2000	57.06		26= B7	73.78	64.95	60.25	57.06	58.70	57.11
26	Loran Algie	Mitsu Lancer blue 2600	57.06		28= C4	71.25	64.11	58.74	57.06	64.42	58.60
4	Bruce MacLean	VW Golf R black 2000T4WD	57.10		28 F8	66.40	62.28	62.82	58.98	58.10	57.10
22	Julian Toigo	BMW Z4M Red 3200	57.44		29 D5	73.84	68.37	62.21	60.48	58.87	57.44
19	Luke Alessandrini	Toyota Celica silver 2000	57.49		30 B8	70.64	63.90	58.95	60.14	57.49	
105	Andrew Johnstone	Alfa Romeo 105 GT veloce marrone 1600	57.50		31 A2	69.85	65.85	59.39	57.50	80.68	60.55
18	John Lyus	Ferrari Mondiale T rosso 3400	57.71		32 D6	68.27	62.22	59.32	58.41	58.01	57.71
55	Chris Smith	BMW 318i red/white/blue 1800	58.32		33 B9	68.68	67.23	60.27	59.39	58.85	58.32
20	Steven Puckering	Ford Falcon white/blue 4100	58.64		34 D7	71.83	66.60	59.17	58.64		
23	Hamish Elliot	Hyundai Getz silver 1600	58.83		35 A3	65.75	62.36	60.36	60.06	60.26	58.83
21	Eugene Miller	Mazda MX5 green 1800	59.01		36 B10	69.01	68.75	60.08	59.01	59.61	59.27
85	Tristan Roberts	Fiat 850 sport rosso 900	59.52		37= A4	67.27	66.11	61.51	59.52	60.42	59.64
75	Graham Mitchell	Alfa Romeo 75 argenta 2500	59.52		37= C5	73.44	69.17	59.52			
119	Pat Alessandrini	Fiat X1 9 arancio/rosso 1500	60.42		39 A5	74.10	65.50	60.42	62.44	60.85	
8	Chris Edwards	Lotus Europa green 1600	60.96		40 A6	76.01	69.70	68.53	63.32	60.96	61.90
212	Hannah Clear	BMW 320i Silver 2500	61.46		41 C6	70.10	66.82	65.12	64.61	65.41	61.46
15	Scott Bannister	Hillman Imp blue/white 875	62.04		42 A7	72.80	68.31	63.55	62.33	63.48	62.04
52	John King	MG B yellow 1800	63.85		43 B11	73.53	71.31	65.12	63.85	64.16	64.58
100	Daryl Bennett	Nissan Navara 2300T4WD	69.76		44 F9	69.76					
27	Byron Saunders	Nissan Pulsar GTiR black/green 2000T4WD	70.56		45 F10	70.56					

Awards

Class A	Rob VanDerViet
Class B	Ritchie Thimm
Class C	Julian Gill
Class D	Damien Moore
Class E	Michael Watt
Class F	Rod Bender
Italian A	Andrew Johnstone
Italian B	Jake Hill
Best Presented	Scott Bannister
Driver of the Day	Garry Griffiths



About 20 CMI members and friends participated in another of Graham Mitchell's cryptic drives on Sunday 10 October 2021.

Advertised as being on the East Coast, the course included a lap of the Tasman Peninsula and finished with lunch at the Lufra Hotel.

With the usual enigmatic quality of many of Graham's questions nobody got all correct; however it was noteworthy that the first two crews had young people as navigators ... there's a lesson in observation there probably!



Cryptic East Coast Drive (Tasman Peninsula to Lufra) Sunday 10 October 2021 Results

- 1 - Tristan and Jasper Roberts, Fiat (27)
- 2 - Steve and Millie Gerard, VW (24)
- =3 - Chris and Ben Marshall, Fiat 128 (22)
- =3 - Chris and Geraldine Edwards, Ferrari (22)
- 5 - Rodney Cameron Tucker, Maserati (20)
- 6 - David Button and Peter Lowe, Alfa (19)
- 7 - Preston and Sue Clothier, BMW (18)
- 8 - John Hanley and John Tesoreiro, Commodore (17)
- 9 - Terry Quinn Renault, (16)
- 10 - Fiona and John Madigan, Mini (15)



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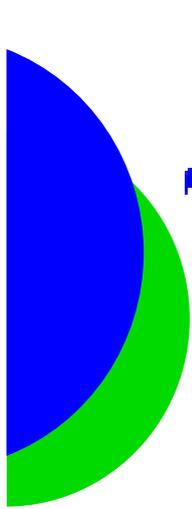
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