

Kiwi HPV

The Newsletter of Kiwi Human Powered Vehicles Inc.



Nigel Farrell & Bob Knight ready for the Hour attempt

June 2009

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MARK YOUR DIARIES**NELSON SOCIAL RIDE**

What	Moutere Valley
Where	Village Cycles
When	2nd Sunday each month 09:00
Info	Duncan 021 267 2193

OTAGO SOCIAL RIDE

What	All welcome to join us
Where	Dunedin
When	2nd Sunday each month
Info	Chris O'Leary 03 477 1812

COAST-DOWN TESTS and VELOMOBILE MEETING

What	Coast-Downs: 8:00am. Need accurately calibrated cycle computer fitted to machines. The Velomobile Meeting follows at Uni Fine Arts car-park at 10:00am. All welcome, but the focus will be on velomobiles and tricycles.
Where	Coast-Downs: Kennedy's Bush Road, Halswell Velomobiles: Uni of Canterbury, Clyde Road, Chch
When	12th July 2009
Info	www.kiwihpv.org.nz

ANNUAL GENERAL MEETING

What	Kiwi HPV AGM
Where	CPIT, Chch
When	19th August 2009
Info	Paul Dunlop

SOUTHERN HPV MEETING

What	Kiwi HPV & Oamaru Ordinary CC
Where	Waimate Velodrome
When	6th September 2009 (rain day 13th Sep)
Info	www.kiwihpv.org.nz

HUMAN POWERED CHALLENGE

What	The Main Event
Where	Canterbury Agricultural Park, Christchurch
When	Sat 3rd Oct 2009 (rain day Sun 4th Oct)
Info	www.kiwihpv.org.nz

EDITORIAL

Duncan McDonald

Congratulations to both Bob Knight and Nigel Farrell on their record-breaking achievements! I am looking forward to the next attempt now that interest has been revived. Invercargill is looking like the place to go, I wonder how many members we have down that way?

Enthusiasm seems to be growing despite the onset of winter with a great turnout at the Nelson TT over the long weekend.

The Otago group are also busy building and riding so will be worth keeping an eye on at the next Human Power Challenge in October.

Perhaps one day we will be rotating the Challenge between major centres around the country.

This being my first issue as editor, I am in the process of getting the feel of the job whilst maintaining the newsletter's successful look and feel. I had hoped to get this issue out well before the end of the month but I have been hampered by the death of my computer's motherboard and software licensing issues upon resurrecting it.

My main problem with this issue has been deciding what articles to leave out. May it long continue! Those who have submitted articles may see them in the next issue.

Pete Hallam is our new Content Manager (Gatherer?) who is on the prowl for new articles and newsworthy items, so be prepared for his call.

One of the stalwarts of the Christchurch scene appears to be turning his hand to less tangible art forms. I hear Bruce McDowell is giving up building recumbents (after his current Chromoglide project is completed) to return to his love of photography. No doubt this means there should be an abundance of spectacular images available for future newsletters.

**Next time someone asks you how to ride a recumbent
give them this link:**

www.wikihow.com/Ride-a-Recumbent-Bicycle

MEET PETE HALLAM - CONTENT MANAGER

Pete is now Content Manager for Kiwi HPV. This involves the co-ordinating and the gathering together of articles and images for the bimonthly newsletter, so that the editor then has a store of material from which he can create the newsletter from.

To help achieve that, the plan is to create a database of possible articles and place then names against them. This is where you come in! Don't worry about putting pen to paper if you don't want to write the article I can get the information from you and then write the article.

Possible articles ideas are:

- Engineering projects
- Bought a new recumbent?
- Events
- Rides
- Trips
- Ideas
- Gems from the Web
- Products

We are currently making the future articles database and will be emailing it out soon to get names against the entries.

I look forward to working with you all.

Cheers,

Pete

Tel: **021 296 4674**

Email: **Peteh@ami.co.nz**



James McLeod's diminutive FWD lowracer

NEW HOUR RECORD, NELSON 31 MAY 2009**by Richard Middleton**

The New Zealand Hour Record for a faired recumbent HPV of 49.987km was set by Robb Simpson in the then world-record-breaking Kingcycle Bean, ridden at Denton Velodrome, Hornby, Christchurch on 15th June 1994. This was the same vehicle in which, in the UK, Pat Kinch had ridden 75.575 km in 1989.

This record was broken three years later when 50.226km was ridden by Lee Vertongen on 29 January 1997 at Wanganui Velodrome, on a track bike using the Obree 'superman' riding position.

Bob Knight had been wondering for a while whether the rather difficult handling of the Burrows Ratracer which he brought out from England with him would be able to withstand a sustained speed of around its sprint speed. He was fairly nervous about it, having crashed the machine in Abbey Park Leicester at 56 kph during a half-hour race in 2003. His suggestion of an Hour Record attempt received an enthusiastic response at the Kiwi HPV Committee, so over a period of six weeks he set about building a coroplast fairing.

Unfortunately the weather in Rangiora proved abominable for the week or so just before the actual hour attempt, and Bob had been unable to manage any rides in the fully faired machine. Accordingly the Nelson riders enquired and found that they could have access to the Trafalgar Park track on the Saturday morning, and since by this time Nigel Farrell had expressed interest in the attempt, both machines came and were tried on the course. Nigel had his familiar 451/451 SWB FWD in the blue/white coroplast fairing, which is well-known to Kiwi HPV members.

The oval appears smooth at normal cycling speeds but two of the 'corners' are difficult at the required speed of around the 50 kph mark.

On Saturday night after sweeping it, we walked the track with Paul Dunlop's new distance measuring device, a little wheeled counting affair, and as a check with my 48 inch penny farthing with a ring of sticky tape around the rim. The latter was calibrated by measuring 5 rotations on a fibreglass tape. Both were wheeled as carefully as we could along the outside edge of the blue line that marks the inner oval of the track. One gave 521 metres, the other 518.75 metres. The official Council measurement is 520 metres, and we accepted 520 as accurate for the actual distance. In fact both machines would travel well over this distance as a result of riding outside the line: I had the presence of mind to check Bob's computer immediately after

the attempt and it read 1.5 km further than the measured distance. This extra distance is not counted in a Record, and experienced riders keep as close to the line as possible.

Annaliisa Farrell, Nigel's wife, is an experience track racer - in fact the NZ Criterium Champion - and agreed to launch Nigel, while I, on the opposite side of the field held Bob's machine. The technique is to hold the machine upright with the cleats clipped in, and at the sound of the gun (actually, a radio) the rider pedals out of the hands of the catcher, who merely runs alongside to stop the thing falling over at very low speed. As soon as they were going Annaliisa and I sat down in the stands to tally off the laps, checking one another all the time.

Concentration all round as Bob prepares for a warmup, held by Richard with Aarn watching.



Away they both went, the threatened icy weather holding off and the air reasonably still. Annaliisa voiced worries about Nigel going too fast too early; I voiced worries about Bob crashing an untested machine in which he had had precisely 54 minutes' riding experience. (That was Saturday.) But it was looking well even though Bob was taking a wide line, and I knew without his confirming it to me afterwards that this wide line was largely to do with not knowing what the thing was likely to do at any point.

For the first fifteen minutes there was a very, very slow creep as Bob closed the gap. There was very little in it, maybe an eighth of a lap, but at one point Bob could just see Nigel coming off the straight ahead of him.

Unfortunately, based on past experiences in the UK, I had recommended that the closer the screen was to the eyes the better, for visibility's sake. Both Bob and I are motorcyclists (what a dreadful admission, but it's true) and we weren't too worried about this: applications of neat washing up liquid on the inside usually prevent misting of a motorcycle helmet's visor. What we hadn't banked on was the fact that when you ride a motorbike you aren't breathing hard. So during Saturday's trials when it became apparent that misting up was a very big problem, Nigel offered his cordless drill and together we all cut a slit at the base of the windscreen and this reduced the misting to the point where Bob thought he could probably see okay.

However during the Record Attempt, the misting gradually started to increase, and with the already dodgy handling of the Ratracer compounded by the tiller steering Bob had built to narrow the frontal area, and the slightly dodgy corners of the track, being able to see exactly where he was going was becoming more and more of an issue.

And this is when Nigel, with the confidence of years of riding his machine and even riding it on open roads in time trial events, started to increase his own pace. Moreover Nigel had no screen, and with an obviously better handling machine was able to close in better on the innermost racing line. So from about half-way through the hour, the gap opened up again and Nigel started to close in on Bob. Exactly when he lapped him (actually, half-lapped him; they started on opposite sides of course) him I didn't note, but it was quite late on in the piece.



And then in the 85th lap disaster, of a thankfully mild sort, struck. We felt it in the stands: a sudden blast of cold wind. You could see Bob's racing line start to waver: he was fighting to keep it on the track, and thinking of what happened to him at Leicester I knew what was going on in his mind. - Afterwards he was to tell me it was the most terrifying experience of his entire life. - He felt he had no idea at all whether the thing was going to fall, whether he could hold it upright,



whether he would crash, and almost worst of all to an HPV combatant, whether he would get in the way of Nigel's attempt.

There were about ten minutes to go, and for the whole of that time you could see Bob's machine slowing in every corner, and see him trying to accelerate to pick up the lost speed in the all-too-short straights. And - since we're all physicists and know that $F=MA$ - you know how this acceleration takes it out of you. From then on, Nigel started lapping him regularly - well, four times of course - and had, unfortunately, to do so on the outside of the track because Bob was sticking as close to the middle as he dared so that if the now badly gusting wind took him out, he would go onto grass and not into the hard wall around the outside of the track.

You could see the worry in Annaliisa's face. She wasn't worried for her husband - he seemed in complete control of his bike despite the wind - she was watching, with cheeks drawn and teeth clamped anxiously together, to see if Bob's Ratracer was going to fall. And at one point when it looked as if he might actually stop and withdraw, both Annaliisa and I were on our feet yelling at him to keep going, because we could see he was within grasp of breaking the existing Record. I had never thought I could be so agitated as a spectator. It was horrible.

But, in the end, it was over, reasonably comfortably for Nigel and, most important for Bob, without a crash, though he'd lost skin from his knees on the inside of the fairing. Comparing notes with Nigel afterwards, Nigel too had lost a bit of skin off a knee: he'd slipped down in his seat at one point and was unable to wriggle back up while pedalling at full power, so the fairing rubbed a nasty little sore with every pedal-thrust. He was also having neck cramps towards the end, trying to flex his head backwards and forwards to ease the pain. But his familiarity with his bike was such that he was able to relax and let it move with the wind, and it is a very great credit to the fact that his machine had sound handling right from the start and even more

of a credit when it is known that it was the first recumbent Nigel had built. (If I may digress again briefly, Rob English had some pertinent first-hand remarks to make about the necessity of absolutely sound handling on record machines after a certain incident which, in the event, may now be viewed by anyone

(www.youtube.com/watch?v=i5Dapy1xUq0)

However everyone's delight is tempered by the galling knowledge that Claire King holds the UK women's hour record at 52.343 km. Claire was riding Geoff Bird's hard-shell, head-in machine, and if we are to see the record raised further, this is likely to be the way it has to go.

Bob Knight: 50.7272 kilometres. **New NZ Hour Record.**

Nigel Farrell: 52.6643 kilometres. **Newer NZ Hour Record**

HOURLY RECORD DEVELOPMENT

Distance (kms)	Date	Rider	Vehicle	Venue
49.987	15 Jan 1994	Robb Simpson	Kingsbury "Bean" HPV	Denton Park Oval, Christchurch
50.226	29 Jan 1997	Lee Vertongen	track cycle	Wanganui Velodrome
50.727	31 May 2009	Bob Knight	faired Burrows Ratracer	Trafalgar Park, Nelson
52.664	31 May 2009	Nigel Farrell	Streamliner HPV	Trafalgar Park, Nelson

You can read more of Richard's doings on his **British Human Power Club** blog page. <www.bhpc.org.uk/colonial-diaspora.aspx>

He obviously does not have enough to do so you will have to scroll down quite a bit to find the preparations for this Hour Record attempt

Be warned: This is aimed at his British friends and some may not appreciate his humour. Some sensitive souls may even be offended.

(Just as well I only wrote one page in this issue, so he will have something worth reading.- Ed)

THE BIKE TRUCK

Steven Muir

Alistair is attempting to live without a car. A growing family meant growing food storage requirements and a larger fridge which he purchased from Noel Leemings. The problem was how to get the 70kg load home without admitting car-free defeat and borrowing a friend's car & trailer or paying a delivery fee. The solution was to use Steven Muir's home built three wheel bike trailer. It is made from bent steel square tube (21mm & 25mm x 1.6mm) and 25x3mm angle, welded with an arc welder and finished with enamel paint. The tow bar is attached with a 12mm gate hinge & bolt, then a lighter hinge on the right with wooden brace to keep the tow bar from slopping laterally. The hitch is a 12mm rod end bearing and the wheels are 20" bike wheels rear and an old wheelchair castor for the front wheel.

The original plan was to lie the fridge on its side, however Alistair found on arrival that's not the done thing, and so it was placed upright on the trailer as per manufacturers requirements, with unused wooden boxes at the front. The boxes were intended to raise the fridge above the wheels as he was unsure if it would fit with packaging, but fortunately it squeezed in between the wheels ok. It was a slow journey home but it went smoothly and the fridge arrived home safely. Alistair then took the old fridge off to the secondhand dealers to dispose of it.



***Alistair** biking with the old fridge.*

NELSON TT REPORT**31 MAY 2009****by Richard Middleton**

After the Hour Record it was time for the plebs, and so we all scurried about taping on yellow numbers for the video-camera ending because I've rather cruelly been nagging the Committee to obtain times, not just placings, for all riders. This is because a high proportion of us are builders, and what we need is comparative figures. I had also unilaterally slimmed this race from a one-hour enduro to a half-hour race, and again this is in deference to the fact that HPV riders tend to be free-thinkers rather than serious athletes. This all sounds wond'rous egotistical of me but I assure everyone it was after soliciting the views of the entire Membership and very careful discussion with the entire Committee. (I'm lying. One brief email to one of 'em. - Doesn't pay to be too democratic or nothing gets done. - My first name is Adolph.)



Richard's tail fairing is prominent on the startline

I'd hoped to try my new foam fairing on the Duplo bike but the wind had become too strong and I found the fairing was steering me, so after a trial lap I removed it. Luckily Trafalgar Park often has an open turnstile so I'll have to go back and test it when all is still.

The early part of the **Enduro Half Hour** race was to sort out who was going at which speeds, and one or two 'trains' established themselves out of the field of 13. It is well-known that if you can tuck in with a couple of other riders and share the lead, you can go up to five kph faster. HPV chaps being essentially co-operative we were all yelling at each other to drop in and pick up a wheel, but inevitably some are fitter than others and it didn't always work out. Amongst us was Annaliisa Farrell, I having squeezed one of our trikes into the van to lend her for the day, who from her positioning clearly knew her stuff but then everyone knew who she was so that was scarcely surpris-

ing. Newcomer Nigel Schroder had an elegantly simple low racer he'd built, and as a sprints champion he too knew the form and was able to give some of us a few useful tips as to how to drop in and out of a team. At the end he went off on a sprint on his own and unsurprisingly won the event.

After R&R we took turns to thrash out a solo **400m sprint**, which Bob Knight organised so it ran like the proverbial clockwork.

For the first lap of the **Devil take the Hindmost** we all followed my son John on his prone bike, which he constantly assures me is comfortable, and then he pulled off and the race itself actually began. The successful tactic appears to be to sit in someone's slipstream for as long as you dare, and only sprint to overtake the last man at the last moment, but it depends rather on nobody extending a gap so great that the rest of the field can't catch them. With 14 riders it's a 14 lap race which is well over seven kms, a fair distance for repeated sprinting, and quite gruelling. Again Annaliisa showed her knowledge of tactics, but trikes are so much slower than bikes that again it was Nigel Schroder who eventually won. We hit some decent speeds in the sprints, and my computer told me afterwards it had managed 28.3 mph, which is 45 kph if you patronise these ghastly new-fangled French measurements. ('Are you still measuring in English?' is what Jim Matthews asked me, he having cycled [in his red car (Ed)] over with his father from Richmond to watch.)

The weather was cold and windy but not unpleasant and it was good to see a big turn-out. I specially liked seeing Zach Domikez's square-section framed LWB, but then I have a soft spot for LWBs. He belongs to that characteristically less-than-earnest HPV type who leave their panniers on for the race. James McLeod too deserves special mention not so much for organising the event but rather for cycling to it on his racing machine, a diminutive 349/349 low racer. Young Niall McLeod was among the spectators for a brief but enthusiastic period: I think we are going to have another recumbenteer before many more years go by.

My special thanks go to Sam MacEachern⁽¹⁾ for providing me with a very nice 406 Primo tyre without which I would have been slightly scuppered, because the day before I'd found a gaping hole in my Stelvio and examination revealed a major delamination. Good old Sam. I can't understand more than one word in forty that he utters, but ta for the tyre.

1. Sam McEachern is the first person I spotted when we moved to Nelson, riding a Kingcycle with a Streamer front fairing. He's pure Scottish, and no Englishman ever understood a Scot since Bannockburn. What with him and Duncan McDonald and James McLeod it's rather worryingly beginning to feel like a gathering of the clans up here.

NELSON TT 2009 – PRIZES	
First Overall	
13	Schroder low-racer / Nigel Schroder with 39 points, having placed first in all three events
Second Overall	
5	Middleton Duplo LWB / Richard Middleton with 35 points, having placed either second or third in all three events
Third Overall	
14	Titanium Century SWB / Symon Holmes with 29 points
Special Prize	
4	James McLeod for outstanding design achievement, with his self-designed and self-built low racer
Special Prize	
12	Annaliisa Farrell for outstanding performance: as a first time entrant at a Kiwi HPV event: as a first time tricyclist: and as the only woman competitor at the Nelson TT 2009 event



John Wilson's Easy Racer Fold Rush

ADVENTURES IN TRIKE BUILDING

Chris O'Leary

2008 saw me building my first recumbent trike (*Padre I*) and riding it at the HPC. It was my first build, completed a week before the event and I had never ridden a bent in my life. The trike was heavy, with rear suspension, a 55 degree seat inclination and 20 inch wheels all round. I've commuted most days since the event on the trike and enjoyed it immensely – I've become pretty hooked on riding and building trikes but I wanted to go faster.



The HPC opened my eyes to all sorts of machines and riders. Two wheeled low racers looked the fastest way to go, but that would have meant leaving the trike behind and I wasn't quite at the point where I was going to chuck it all in for a completely new approach. There's a lot left in the multi-track or trike world that I hadn't explored. Trikes are fun and the 'trike grin' hasn't left me yet. The *Padre* trike took 12 months to build over nights and weekends. With

the next HPC less than 5 months away (and counting?) I needed to get a new trike built and on the road a lot quicker than the last effort.

There seemed to be common design elements with fast trikes;

- Narrow track \leq 700mm
- Seat inclination generally 30⁰ or less
- Bottom bracket higher than the seat,
- Weight < 15kg
- Rear wheel no larger than 20 inch
- Front wheels typically 16 inch
- Minimum ground clearance

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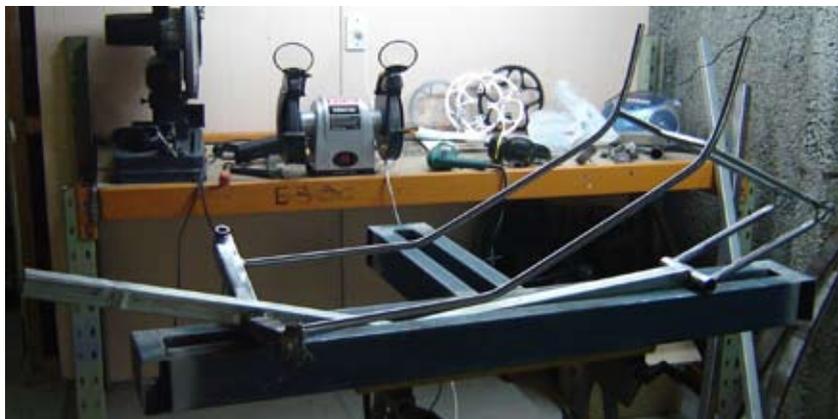
NELSON TT 2009							
Entry #	Vehicle Name Rider's Name	Enduro					Score
		Laps	Time	Speed (kph)	Place		
1	Nazca Pioneer SWB Sam McEachern	31	30' 26.63"	31.77	4th	10	
3	Middleton Prone SWB John Middleton	26	31' 13.55"	25.98	11th	3	
4	McLeod MiniV low-racer James McLeod	28	30' 22.15"	28.77	8th	6	
5	Middleton Duplo LWB Richard Middleton	33	30' 08.07"	34.17	2nd	12	
6	Alan Page Volae SWB	30	30' 38.03"	30.55	6th	8	
7	Easy Racer Foldrush LWB John Wilson	27	31' 09.03"	27.04	10th	4	
8	Greenspeed GTO Tricycle Haykey Kaariniaan	13	31' 25.63"	12.91	13th	1	
9	MBB Lowracer Duncan McDonald	27	30' 37.55"	27.51	9th	5	
10	ARC Sports SWB Aarn Tate	29	30' 30.95"	29.65	7th	7	
11	Blue LWB Zachary Domikez	23	30' 32.23"	23.50	12th	2	
12	Middleton tricycle Annaliisa Farrell	30	30' 37.59"	30.56	5th	9	
13	Schroder low-racer Nigel Schroder	33	30' 07.83"	34.17	1st	13	
14	Titanium Century SWB Symon Holmes	32	30' 42.75"	32.51	3rd	11	
20	Candlish LWB Paul Candlish	-	-	-	-	-	

FULL RESULTS							
	400m Drags			DTTHM		Overall	
	Time	Place	Score	Place	Score	Score	Place
	40.47	7th	7	3rd	11	28	4th
	45.97	12th	2	13th	1	6	12th
	40.06	6th	8	8th	6	26	6th
	37.65	3rd	11	2nd	7	35	2nd
	36.65	2nd	12	7th	12	27	5th
	41.75	10th	4	9th	5	13	10th
	-	-	-	-	-	1	14th
	42.47	11th	3	3	9	17	9th
	39.94	5th	9	9	4	20	8th
	46.22	13th	1	1	2	5	13th
	41.50	8th	6	6	10	25	7th
	36.25	1st	13	13	13	39	1st
	37.78	4th	10	10	8	29	3rd
	41.53	9th	5	5	3	8	11th

ADVENTURES IN TRIKE BUILDING

Continued from page 15

Buying a new trike would certainly solve the problem – but at landed prices of \$4k and up it was a no go – I had to build. Greenspeed make arguably some of the world's best trikes and sell plans to various models. The Greenspeed GLR trike, was a design that fitted all the 'fast trike' criteria I outlined above – Surely having plans for a proven quick trike would short circuit the process and get me on the road in a shorter build time? I took the plunge and purchased the GLR plans and fired the MIG up. The plans called for 100% use of round tubing and preferably thin walled Cromoly. To build with thin walled Cromoly tubing there was to be no change out of \$600. By using a combination of left over 40mm 1.6mm mild steel square from the first build and small quantities of 1.6mm round tube I built a GLR frame for about \$100 (yes that's a hundy) in four weekends.



Sounds too good to be true ?...well yes it wasn't quite straight forward There were challenges. Given I had no budget for new components, the new trike had to be a complete transplant of components from the old Padre trike. I had to convert the Greenspeed (GS) 20/16 GLR trike into a 20/20 trike – this meant changing the GS plan's 20 inch rear and 16 inch fronts to 20 inch wheels all round. Whoa there Trigger – do that without thinking and you throw a number of key trike design elements out of kilter.

- Increasing the diameter of the front wheels altered the angle of the cross member and hence the steering caster. This 'in turn' (pun intended) would alter the steering geometry and the trike's stability at speed.
- Altering the height of the main tube relative to the ground due

to the 20 inch front wheels altered the original rear chainstay design angles.

- Kingpin inclination angles also had to change for the 20 inch front wheels – not too huge a problem but the number of design elements influenced by my change in front wheel choice mounted up.



The original GS plan intended the trike to utilise the GS indirect steering linkage system. Indirect steering complicated the trike design, and meant there would have been plenty of metal hanging underneath the main tube reducing ground clearance. Something I didn't want in a commuter. I already had steering arm jigs and king pin jigs for the Padre trike setup for the 20 inch wheel configuration – it seemed the easy thing to continue down that path. I am not overly happy with the final result. The seat design and the direct steering arms have increased the turning circle – still adequate for commuting but I'm not sure how it will cope with the almost hairpin like turn at the top of the HPC Enduro circuit this year - Also handle placement has put my hands very close to the front tyres – Ouch!

Summary

The facts....

The trike is quicker – how much quicker I'm still finding out. It accelerates quick off the mark and cruising speed appears to be about 3-5km/hr faster. Top speed may not be that much better than the old Padre but I can get to that top speed quicker and hold it longer.

Steering is not fantastic but adequate – my knuckles have calloused nicely at the tyre contact points and as long as you keep the trike

above 10km/hr you hardly notice the smell of burning flesh.

The 20° seat inclination and low seat height was an issue in traffic initially. A headrest, mirrors and decent flag and lighting has gone a long way to addressing this. After three weeks of commuting I am more than comfortable with the riding position.

Zero brake steer

By all accounts I should have lost some hill climbing ability with the very low seat inclination and wider, more open body configuration angle (BCA). However the raising of the bottom bracket well above the seat height compared to the Padre trike seems to have given me better application of leg power to the pedals and the reduced overall trike weight has probably helped a lot as well.

Greenspeed plans are for the initiated. I would not want to be a newbie hoping to build for the first time from a GS plan and the team at GS never intended that to occur. It could be done but not without a lot of outside assistance.

Potential Development

Redesign steering arms to allow better turning circle and hand clearance. Reconsider GS indirect steering in future designs

Experiment with BCA's. Based on my ergonomics and biomechanics background I have a notion that there will be a 'sweet spot' for my own body – I just haven't found it yet!

Once prototype is tweaked consider a full build using thin-walled cromoly tube or just lose some more beer belly

So have I built a low racer or a quicker commuter? The jury is out. Its safe to say I have a faster trike but I've sacrificed some comfort, vision in traffic, ground clearance, and due to the changes to the intended GLR geometry, reduced manoeuvrability.

The new riding posture will mean that I probably won't be retaining the 2009 Rob the Nest crown! I have however, gained valuable build experience and recumbent knowledge that can only come by 'doing'.

Whilst plenty of recumbent internet sites can be deliciously addictive and seem to be full of armchair experts, I firmly believe there's no substitute for your own builds and plenty of recumbent miles under your belt. There's still a few months to go to this years HPC....where's that MIG gun.....



<i>Trike Specifications</i>	(mm unless stated)
Length	1880
Height	700 (to top of seat rails)
Width	790
Track	705
Wheelbase	1300
Seat height	280 (actual butt height)
BB height	400
Seat to BB differential	+120
Ground Clearance	110 (to chain keeper under seat)
Caster angle	Approx 10 degrees
Seat inclination angle	20 degrees
Wheels	20 inch 1.85 Maxxis Miracle tyres
Gearing	9 speed bar end shifters , 27 speed
Componentry	XT FD, Deore RD, Hayes hydraulic disc brakes

AN OFF ROAD RECUMBENT

Pete Hallam

For some time now I have dreamed of an off road recumbent. There are good reasons for this; I love being off road away from cars in the solitude of NZ bush. And on a recumbent you get a good comfortable view of that bush.

The plan is to use the bike on some Bike to Bunk adventures. These are off road cycles that use huts or wild camps as the overnight stop. We have done a few of these but always on an upright bike.

So I wrote down the attributes of a perfect off road recumbent then set about looking for it. It was soon apparent that the perfect one didn't exist in my price bracket so I compromised.

My wish list for the perfect bike was:

- Room for large tyres; knobbles are essential muddy off road requirements.
- Disc brakes; good stopping is essential for safety on steep descents.
- Suspension; keeps the comfort at speed.
- Long wheel base; more stable.
- An upright riding position; makes it more maneuverable and more power can be placed on the pedals.
- A thin seat; legs at the side to stable it on rough terrain
- High handle bars so vigorous steering does not get in the way of pedaling, essential I would say.
- Pannier rack is essential for carrying the tent etc.

What I got was nearly perfect:

- It is an Australian made touring machine so the frame is strong and rugged.
- Cycle Science chromoly frame.
- Long wheel base with 26 and 20inch wheels.
- Shimano Exage 170 cranks and LX Deore gear and brake set.
- Thumb shifters.
- Room for knobbly tyres.
- Cable V Brakes.
- Mavic off road rear wheel.
- Hardrock 26 x 1.95 inch rear tyre with mud tread.

- Sun Chinook front wheel.
- CST General Style 20*1.5 inch front tyre.
- Pannier rack.
- Mesh seat.
- Chopper style handle bars.
- 21 speed mountain bike gears (26-48 front and 12-32 back).

The first thing to do was to test the new machine. The first test was the 20ish km Jacks Jollies loop in Hanmer. It's mostly all dirt roads with some gnarly 4WD tracks in the middle.

The second test was some intermediate single tracks in the Hanmer forest. These are designed for keen cross country and beginner down hiller cyclists.



The results were then noted:

- The mesh seat is good at handling bumps at low speed but not great at speed. So I kept the speed down.
- Long wheel base is great for steep downs and hitting large obstacles. It's not so great at switch backs and does add to the weight. Sliding on corners is more controllable on a long wheel base as it tends to under steer first.
- The knobbly tyres are great and the bigger the knobbles are the better control. They slipped a bit on up hills but that could be because my machine was a tad large and if the seat was all

the way back I might be able to get more grip.

- The steering is perfect as it doesn't get in the way of my knees. I raised the bars a bit to clear the knees, it now looks like a chopper. When I wear my snowboarding helmet in winter and ride this bike I look like I'm imitating a Harley's Angle. Youth is eternal.
- The small wheel at the front is good. It doesn't get in the way of the pedals and means for an upright sitting position, so controlling the bike is easy. In fact lots of my upright friends have had a go on the bike and have been able to ride it straight away, not so on my other recumbent.
- The upright position also means you can get more leverage on the pedals for a quick burst of speed.

Good brakes are essential, the V brakes on this machine are very good and only disc brakes could better them.

I used straight pedals with no clips. They do have straps but I rarely use them when off road. Going up requires walking so having trainers (i.e. not cleats) on helps.

Conclusion:

Things I will get on my next off road recumbent:

- Suspension would be good to enable more speed
- Disc brakes would be nice but not essential
- A thinner seat would be handy for the gnarly sections where feet down is required
- I will get a smaller frame so the seat is over the back wheel for traction
- I will make sure the sliding of the seat is better designed; this one slides back a bit over time

Things I like and will keep:

- Knobbly tyres.
- Long wheel base.
- Chopper style handle bars.
- Strong frame.
- Small wheel at the front.

Thoughts:

Going down technical stuff is super fun on this bike. It is the nice surprise offered by the bike. Cruising along dirt roads looking at the mountains is perfect on this bike and is its reason for living. Going up is a work out and something worth doing just to go down. I now

understand the downhill bikers a bit better; they push up for the fun of going down. The next ride is to a hut.

I will upgrade in a few years but for the moment this one is perfect for me.

See these sites for some more ideas:

www.trike.ru/en/english.php

www.hasebikes.com/30-1-recumbent-trike-kettwiesel-ride.html

www.kinetics.org.uk/html/offroad_smgmt.shtml



Steven Muir's Bike Truck with passengers on the Walk for the Planet.

MORE IMAGES FROM THE NELSON TT



Ready for the start



***Annaliisa Farrell, John & Richard Middleton & Paul Dunlop
measuring the course after the Hour Record is set***



Sam McEachern showing confidence in the Devil Takes the Hind-most event, followed by ***Symon Holmes, Alan Page, Duncan McDonald, Aarn Tate, James Mcleod, John Wilson & Zachary Domike***



John Middleton at speed on his prone machine

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Contact Details:

Patricia Buffery (Rotorua)

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Also willing to (part) trade for car.

Contact details:

Joern Scherzer

38 Staithes Drive North,

Whitby 5024

(Wellington)

Ph: **(04) 235 9118**

Mobile: **021 125 0997**

Email: **joern.scherzer@ecologic.org**



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Graeme Holmes, constructor of the Rapide velomobile has also been working on a Perspex fairing/front windscreen. Anyone who has tried a front screen will know how much comfort they can add to winter riding, which, along with improved aerodynamics, make them a popular way to improve an HPV's practicality.

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