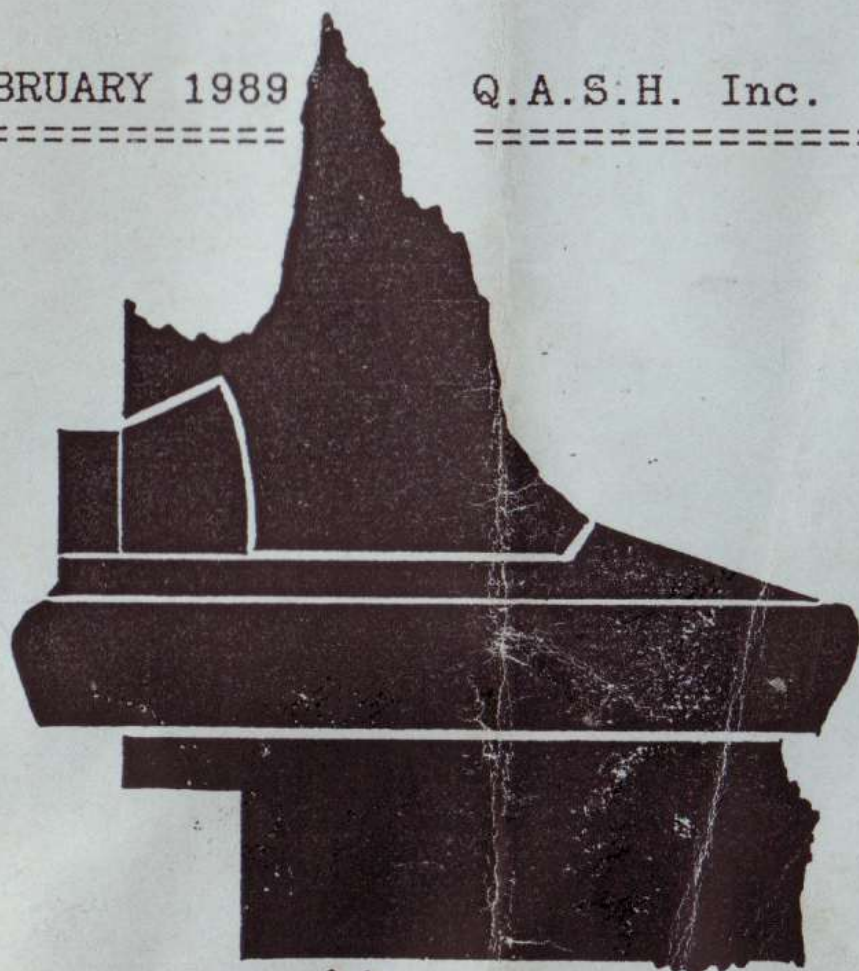


QUEENSLAND AMATEUR SPORTING HOVERCRAFT

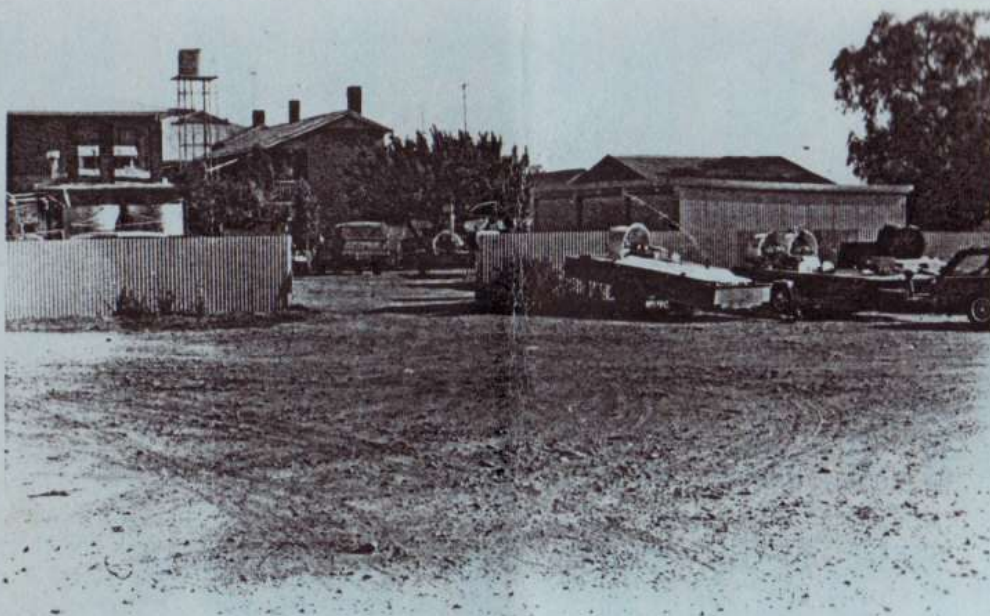
JANUARY/FEBRUARY 1989

Q.A.S.H. Inc.

21st EDITION



Q.A.S.H.



Lake Cargelligo - The Royal Mail Hotel



Lake Cargelligo - The beach & sailing clubhouse



Lake Cargelligo - Frogs Hollow Circuit

QUEENSLAND AMATEUR SPORTING HOVERCRAFT Inc.

c/o 52 Utrecht St.,
LOGANHOLME Qld. 4129

Committee of management.

President : Mark Dobson	15 Daisy Hill Rd., Daisy Hill 4128 ph 8084395
Vice President : Des Goss	43 Luprena St., Mansfield 4122 ph 3499743
Secretary : Steven Odgaard	52 Utrecht St., Loganholme 4129 ph 2098498
Treasurer : John Russell	10 Brodie St., Holland Park 4121
Public Relations : Elizabeth Julian	ph 3783338
Chief Race Marshal: Kyle Kerr	ph 2072653
Craft Scrutineer: Phillip Audsley	ph 071 459268

Yearly Membership \$30-00 Associate Member \$15-00

Queensland Emblem on front cover designed by John Rapley.

INSURANCE

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Private insurance is available for club members through the Victorian Association. Apply to the Victorian Treasurer; Brian Watts
Ph 03 7231964 for details. Prices advertised in the H.A.V. newsletter vary between \$107-\$250 for between \$4,000 -\$10,000 craft and trailer coverage including \$1,000,000 public liability cover.

PREFACE

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Dear Air Cushion Vehicle enthusiast,

The national rally for 1989 was held at Lake Cargelligo, a small township with a population of 1300 in Central New South Wales, and Queensland was well represented by a party of 32 people and 10 light hovercraft. By comparison there were 13 craft from Victoria and 3 craft from South Australia. The Australia Day long weekend was cram-packed with Hovercraft rallies and novelty events of all description and the otherwise sleepy township was lavishly entertained by the unique antics of the tourists with their funny looking boats that effortlessly defy the age old laws of land and sea.

The people from Queensland were Phillip Audsley, Bob Bumstead, Robin McGee, Kristie McGee, Daniel McGee, Mark Dobson, Angus Kerr, Kyle Kerr, Trevor, Steve Koncz, Margaret Kovacs, Ricky Leask, Andrew Leask, Geoff Langford, Sue Langford, Aaron Langford, Steven Odgaard, Tony Podlich, Donna Reily, John W. Russell, Ann Russell, Nicky Russell, Cameron Russell, Murray Russell, John Russell, Tony Thatcher, Paul Thatcher & mate, Daniel Venn, Andrew Venn, Peter Venn and Stephen Venn.

The organized rallies to the extremities of the lake and adjoining canal system resulted in some of the largest flotilla of light hovercraft ever assembled in Australia and the novelty events such as the Tent Pegging competition and the mystery cruise provided plenty of fun-filled hover-action.

There were many prizes and awards given away at the presentation dinner on the Sunday night and among these the most prestigious was the Perpetual Trophy which was presented to Peter Venn for his outstanding achievement towards the advancement of hovercraft in Australia. Peter Venn with family and friends, gave hovercraft rides to approximately 120,000 Expo visitors in Brisbane during the 6 month period 30th April to 30th October 1988. During the Expo opening ceremony, the Turbo Team put on a spectacular starwars display, which involved hovercraft disguised as starships and creepy monsters. Mark Dobson was presented with a mounted claw off Brian Watt's monster for his very appreciated assistance given during the Team's stay in Brisbane.

The time trials held at the Frogs Hollow picnic ground not far from the township caused some very exciting competition, especially during the final laps of the handicap heats. Unlike the depiction of the Plough Inn Cartoon in Victoria's January issue, the Queenslanders didn't have to run home with tails between legs.

Angus Kerr from Queensland who won heats 1 & 2 and Gavin Dehn from Victoria who won heat 4, shared the fastest lap time of 56 seconds and Owen Ellis from Victoria who won heat 3 was very close at 57 seconds. Angus flew a Turbo 10 s, Gavin, a Turbo 235 and Owen, a Turbo 235 CST. The other participants were Murray Russell - fibreglass Cyclone, Tony Thatcher and Steve Koncz - Hoverjet, David Watts - Turbo 235 CST and Mark Dobson - Scarab 16.

Here are the time trial results for the special event held at Frogs Hollow on Sunday 29th January 1989 on a clockwise amphibious circuit.

Heat 1 2-15pm Scratch

Angus Kerr	Murray Russell	Gavin Dehn	David Watts	Mark Dobson
0-00	0-00	0-00	0-00	0-00
0-59	1-07	1-12	1-21	1-29
2-00	2-10	2-18	2-31	2-50
2-57	3-14	3-20	3-45	4-12

Heat 2 2-40pm Handicap

Angus Kerr	David Watts	Gavin Dehn	Tony Thatcher	Murray Russell
0-57	0-30	0-52	0-51	0-58
2-05	1-38	2-00	2-00	break down
3-01	2-50	3-07	3-11	
3-58	4-04	4-12	4-17	

Heat 3 2-52pm Reverse Grid Scratch

Owen Ellis	Angus Kerr	Gavin Dehn	Tony Thatcher	David Watts
0-00	0-00	0-00	0-00	0-00
1-07	1-09	1-23	1-19	1-22
2-04	2-08	2-19	2-37	2-40
3-07	3-11	3-26	3-44	3-54
4-06	4-09	4-34	4-53	5-09

Heat 4 3-25pm Reverse Grid Handicap

Gavin Dehn	Angus Kerr	Steve Koncz	Owen Ellis	Murray Russell
0-12	0-44	0-00	0-47	0-34
1-18	1-46	1-15	1-53	1-38
2-26	2-44	2-22	2-50	2-46
3-30	3-43	3-26	3-47	3-54
4-38	4-40	4-42	4-45	4-58

A calibrated 300 lb-wt spring scale supplied courtesy of Mack Trucks was used to compare the thrust of some of these mean little machines. For some who had long been exaggerating their guesstimations and for other more modest drivers, the results brought mixed reactions, but all the same, they are documented below for the benefit of everyone.

Caroline Osmond	Turbo Wombat	Robin EC25	Vic	48 lb-force
Peter Streader	OD Prop	Robin EC25	Vic	72 lb-force
Peter Maksimovic	Turbo 225	Robin EC44	Vic	106 lb-force
Robert Bumstead	ACC 2	Rotax 503	Qld	112 lb-force
Ken Osmond	Turbo 225	Robin EC44	Vic	112 lb-force
Phillip Audsley	Turbo 225	Robin EC44	Qld	123 lb-force
Brian Watts	Turbo 245	Yamaha PE485	Vic	133 lb-force
Gavin Dehn	Turbo 235	Yamaha PE485	Vic	137 lb-force
John Russell	Turbo 235	Yamaha PE485	Qld	138 lb-force
Angus Kerr	Turbo 10s	Yamaha PE485	Qld	138 lb-force
Jim Watsford	Turbo 235	Yamaha PE485	Vic	138 lb-force
Tony Thatcher	Hoverjet	Robin EC44	Qld	142 lb-force
Steven Odgaard	Scarab 2	Kwaka 550GT	Qld	150 lb-force

Phillip Audsley had an exciting ordeal in the adjoining lake between lake Cargelligo and the Lachlan River - Lake Curlew, when the head of a fan locating bolt sheared off and caused the fan to sag hard onto the fibreglass duct. Leaving the craft on the swampy bank minus one complete hub assembly, a quick dash back to the carpark in John Russell's turbo saw the offending bolt promptly replaced. Phillip was soon under way once the axle assembly had been bolted back in his disabled craft.

John Russell's renovated turbo 225 with new skirt and reconditioned Yamaha engine, was an ideal rescue craft and its performance kept an ear to ear smile on John's dial for most of the weekend.

The accommodation at the Royal Mail Hotel was very comfortable and affordable however the Cats-eye thistle weed in the carpark caused alot of pain when thorns were scuffed off shoes and became lodged in the hallway carpet. These thorns were also responsible for several flat car and trailer tyres. At Condobolin my RHS trailer inner tube had to be thrown away with no fewer than 9 puncture holes.

The best feature of the weekend was the culmination of people from all over Australia with a common interest, and the promotion of their sport which is only just beginning to emerge from the pioneering stage.

Each state group was asked to provide 3 representatives to stand on a federation committee and it is now assured that the Australian Hovercraft Federation will shortly become incorporated.

The committee is as follows:

Ken Osmond, Brian Watts and Peter Maksimovic
Kevin Dixon, Bruno Davids and Roger Dix
Mark Dobson, John W. Russell and Daniel Venn

Victoria
South Australia
Queensland

"SUNSHINE"



Well it's that funny season again, all sorts of things are happening. The club might very well hold a competition for members to guess what colour Des is going to paint his craft after its yearly overhaul. And the gentleman who wears a smile from ear to ear every time he steps into his craft, is he after more thrust. The ROCKET LAUNCHER is still alive and well or should we call it the mobile ejection seat, will a set of wings or prop appear in the future. And while we are in that area will that other machine get up over hump, what do they call it, Hoverpoo or something. The best rumour to surface which will be very hard to beat is that a Scarab 2 may be dressed in a new skirt very soon, now this comes from a very reliable source. Here is one for the connoisseurs; the Victorians have found a new way of preparing spaghetti thanks to the expertise of Tracy and Helen, ON THE GROUND.

SERIES ON HOVERCRAFT SKIRTS No 4.

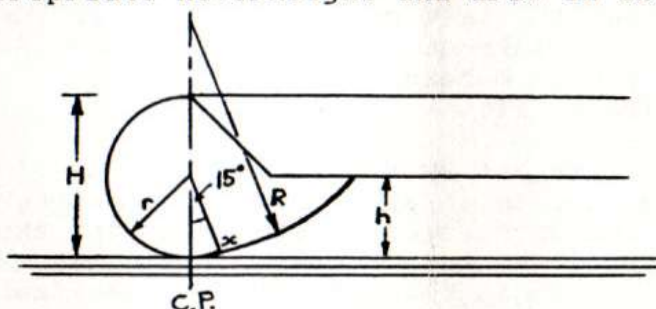
The bag skirt cross section.

To design the cross section, the height must first be established and this should be about one-eighth of the craft width. The cross section of the bag is comprised of two radii, the outer curve and the inner curve.

For simplicity it can be assumed that the ground contact point is directly beneath the outer extremity of the hull and therefore the outer radius is equal to half the distance between the ground and the upper fixing point.

The ground contact point can in fact be positioned fractionally in from the outer hull edge but for the sake of stability, it must never be outside.

To design the cross section, make a scale drawing of the craft lower hull at the appropriate hoverheight and draw in the outer semi-circle.



The radius of the inner circle is calculated by multiplying the outer radius by a factor given in the following table.

Pressure Differential bag pressure / cushion pressure	Factor inner radius / outer radius
1.2 : 1	6.0
1.3 : 1	4.53
1.4 : 1	3.5
1.5 : 1	3.0
1.6 : 1	2.66
1.7 : 1	2.43
1.8 : 1	2.25

The choice of pressure differential is based upon the degree of stability required. The higher the ratio the greater the stability, but at the expense of undulating surface performance.

After calculating the inner radius, draw in the inner circle.

This will give the inner skirt fixing point and note that the change-over from the small radius to the larger radius is at a point 15 degrees in from the ground point.

The skirt cross section calculated in this way has balanced geometry and will automatically take up this shape, provided that the pressure differential is accurately predicted.

PART 1. Fan Blade Pitch Selection by John Russell.
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With the kind permission of Geoff Langford and Luke Air Conditioning a tabulation of available thrust values verses fan blade pitch and blade numbers has been reproduced as follows.
Using these figures an attached graph has been prepared for the 740mm duct with 9 bladed multiwing fan and hub.
Also shown on the graph are the absorbed horsepower figures required to achieve the stated thrust / revs.
It is interesting to note that the lower the number of fan blades used, the more efficient the transformation of horsepower to thrust becomes. (Varies between 3.7 to 5.2 lbs thrust per horsepower absorbed.)

Will this mean that to take advantage of the increased fan efficiency, the more enthusiastic racers among us may try to fit multiple ducts to their eggshell light hulls ?

One complication for integrated lift systems is that in the search for maximum efficient thrust and subsequent pitch increase and blade quantity reduction, the pressure head is reduced and this is detrimental to the available lift.

This would appear to be borne out by the recent testing of a multiwing 9 blade hub with extended blades in an otherwise normal turbo superduct. The results were increased thrust but at the expense of lift, which started coming in at much higher R.P.M. than was normal for the original 12 blades. It would therefore become necessary to reach a compromise value on lift and thrust for each individual craft.

Information on thrust values for the different fan configurations is a bit scarce in Queensland at the moment. I intend to start documenting results obtained from playing around with my turbo 225 in the near future when the new engine installation is complete. I would greatly appreciate any similar statistics or further fan horsepower / thrust information from any other members so comparisons can start to be made for use by all club members. Any Offers ?

Until then I suppose we will just have to continue working on the "Suck it and See" method so aptly put by Luke Air Conditioning.

740 mm Duct
9 blade Hub.

A = 9 blades at 45°

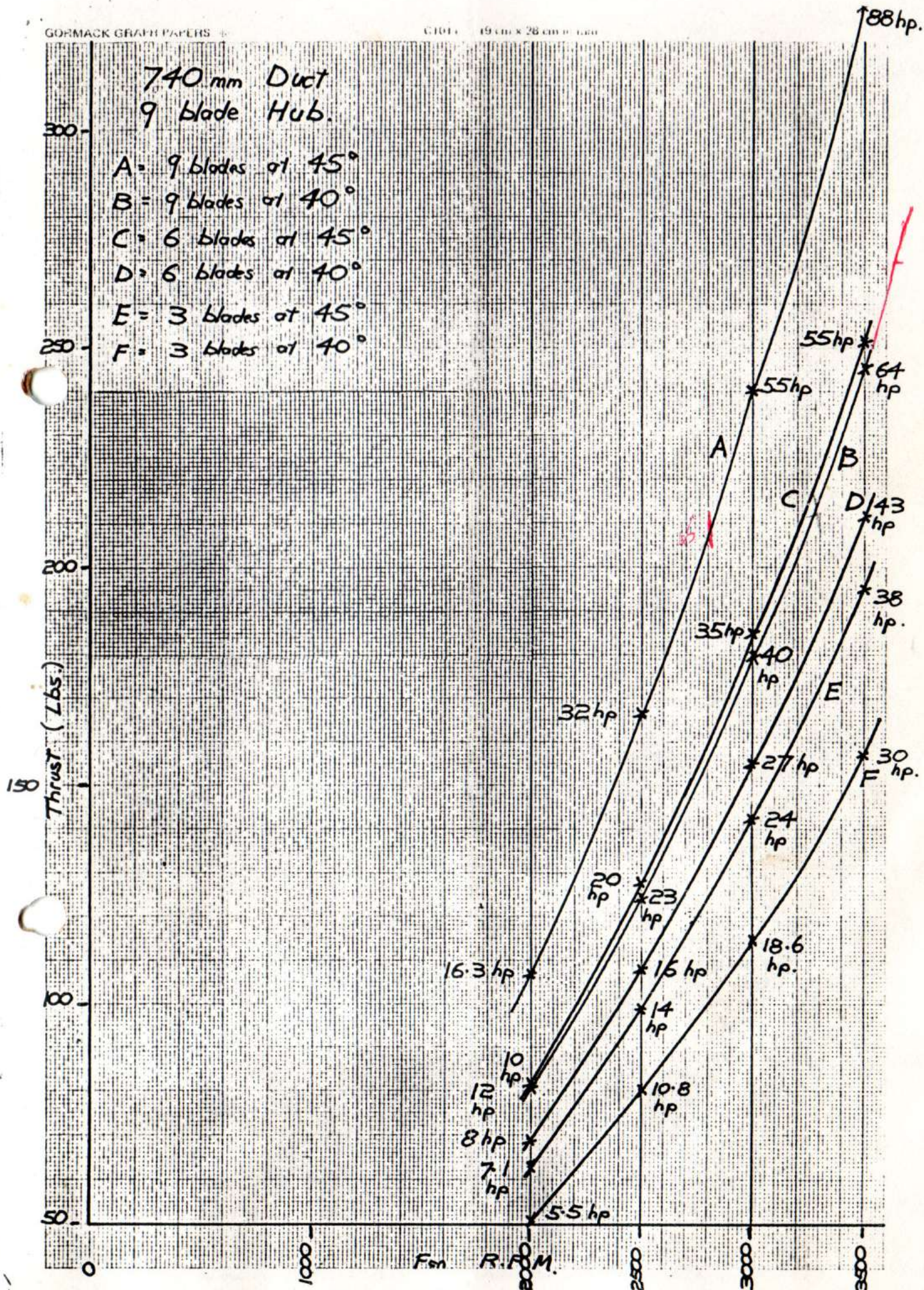
B = 9 blades at 40°

C = 6 blades at 45°

D = 6 blades at 40°

E = 3 blades at 45°

F = 3 blades at 40°



Club Tee Shirts are now available - White emblem on maroon shirt.
A MUST for all members \$20-00 each.
Contact Mark or Steve for orders.

Proposed Trips for the coming months:

Saturday	10am	18th February 1989	Toorbul Pt to Caloundra
Easter	24th - 27th March	1989	Mary River & Fraser Island
Labour Day	28th April - 1st May	1989	Noosa & Lake Cootharaba

The 19th general meeting is convened for 7-30pm Wed. 22nd February 1989
at Archerfield Airport in the S.A.A.A. building.

Wishing All a safe year of Hovering

Steven Odgaard
sec.

FOR SALE

1. 2 fibreglass Cyclone hovercraft

Black Cyclone 10' x 6'
18hp Robin engine 630mm Duct
Price : \$ 3,000 ono

White Cyclone 10' x 6'
Rotax 503 engine 760mm Duct
Price : \$ 6,000

Ph 8121136

2. New Release

TURBO VORTEX

Latest design by Paul Moody of Turbo Hovercraft Victoria
Features new antiplough-in fibreglass hull
and very stylish deck
Colour co-ordinated skirt
Complete with trailer
Contact Queensland Hovercraft Supplies

Price : \$ 16,000

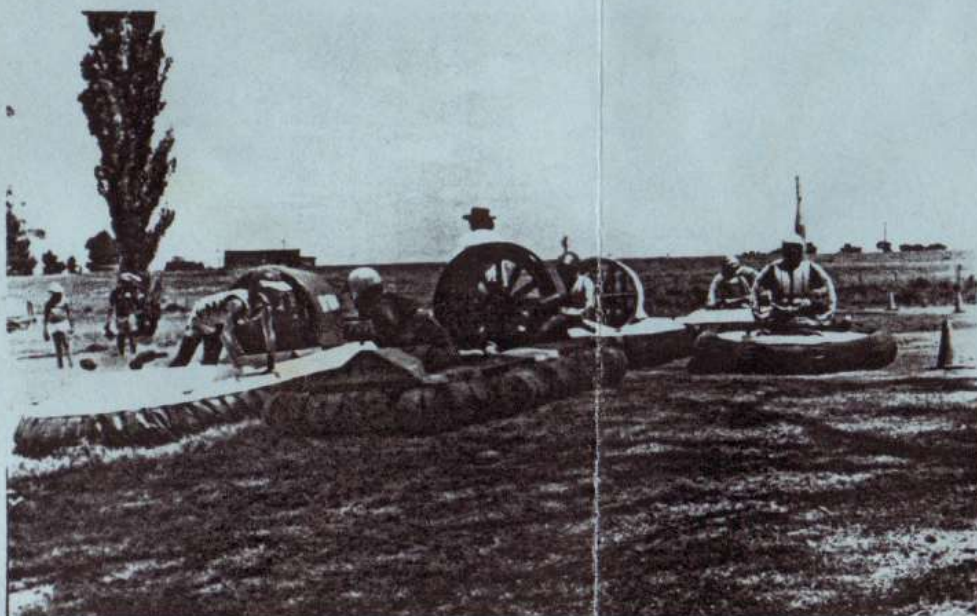
Ph 2072759



The Hoverjet Crew - Heads down, tails up



The friendly locals - Not so camera shy



David Watts chatting with Mark Dobson while Tony Thatcher grows impatient for the start to the next heat.

