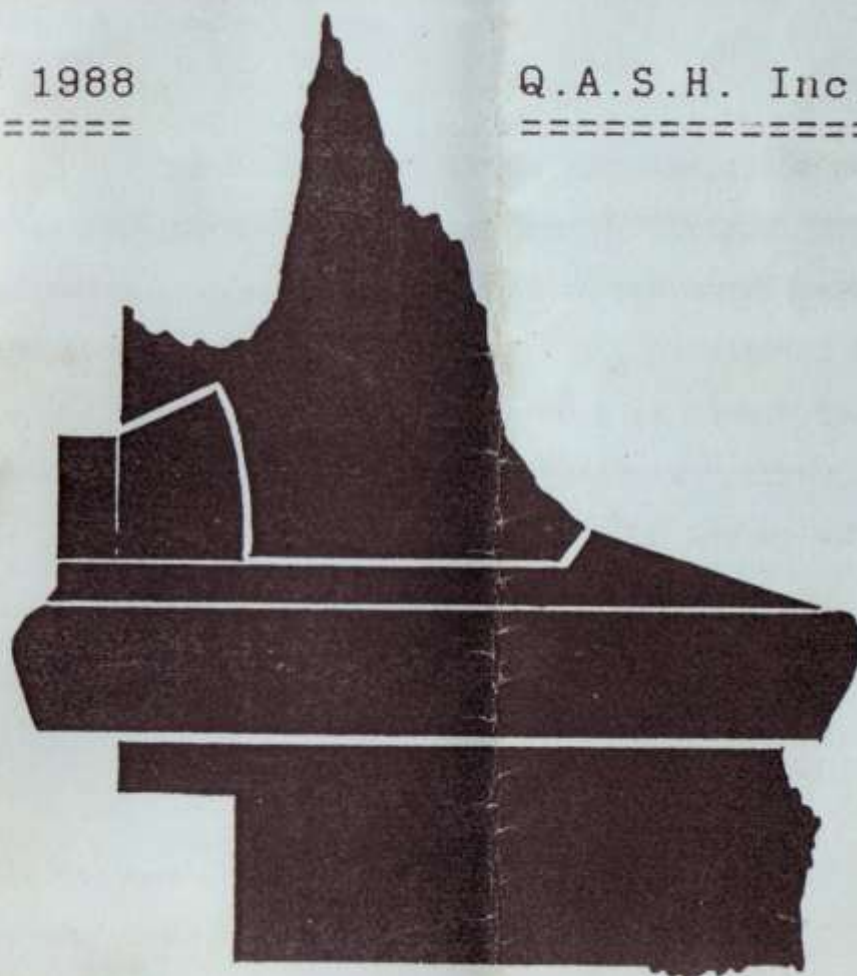


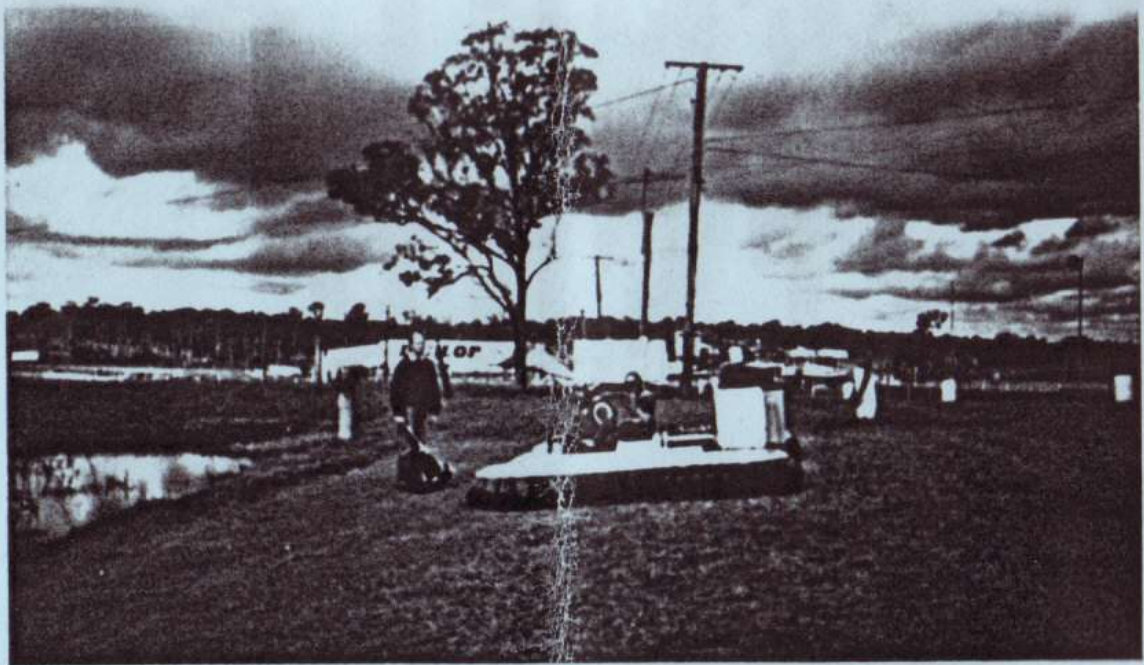
# QUEENSLAND AMATEUR SPORTING HOVERCRAFT

AUGUST 1988

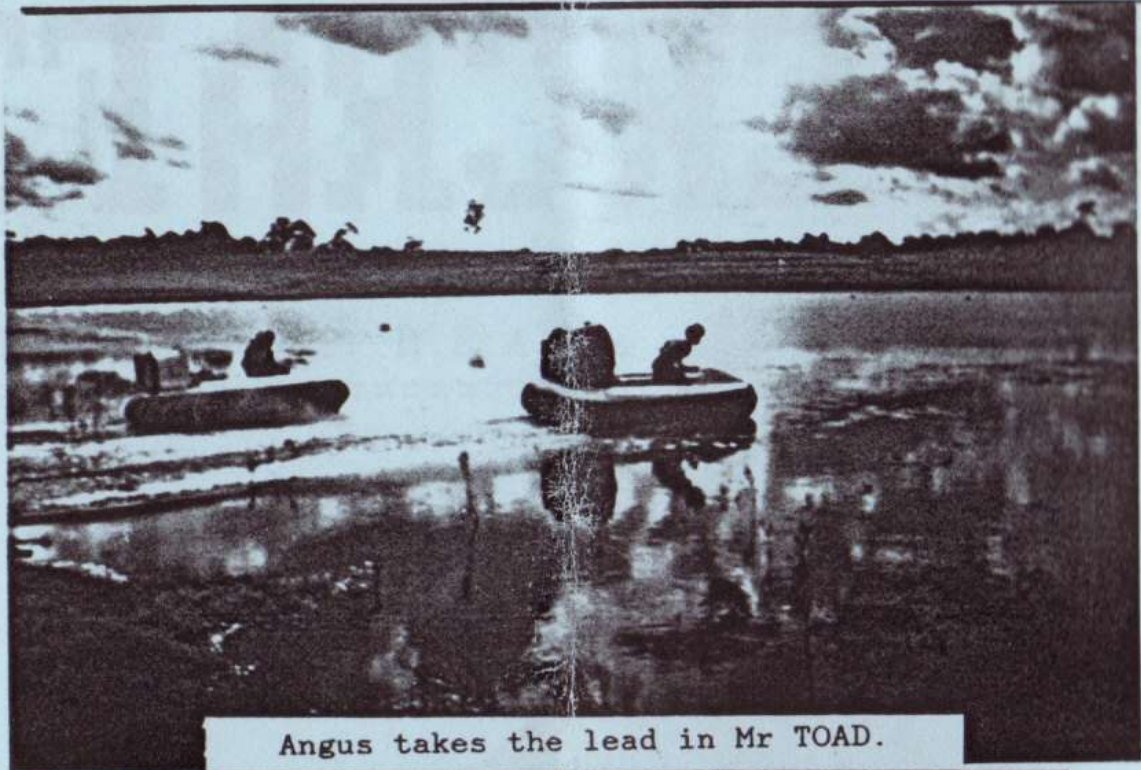
Q.A.S.H. Inc. 11th EDITION



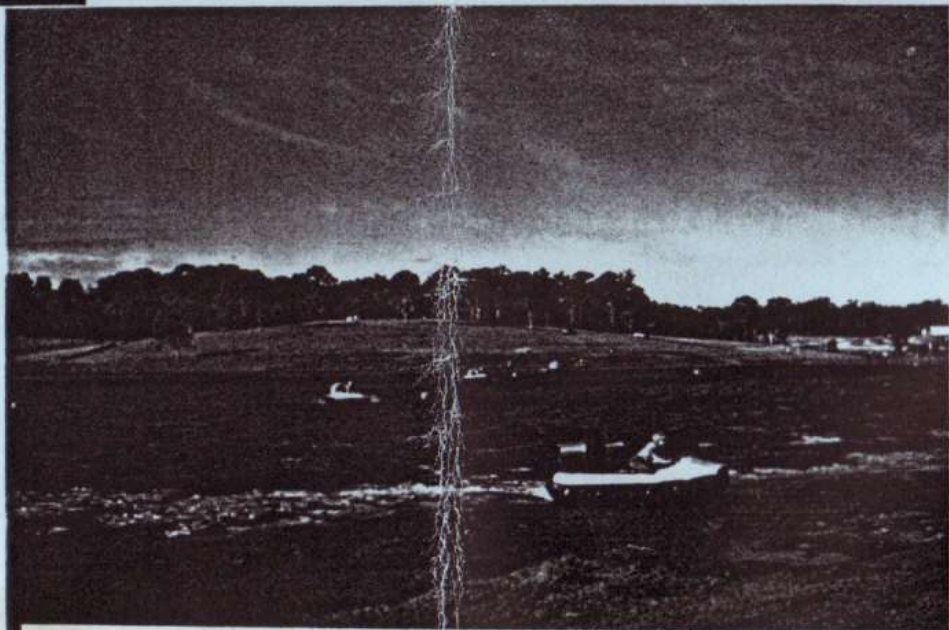
Q.A.S.H.



Kyle Kerr about to start the first heat with Murray Russell & Angus Kerr.



Angus takes the lead in Mr TOAD.



Five craft on their first lap at Lakeside.

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

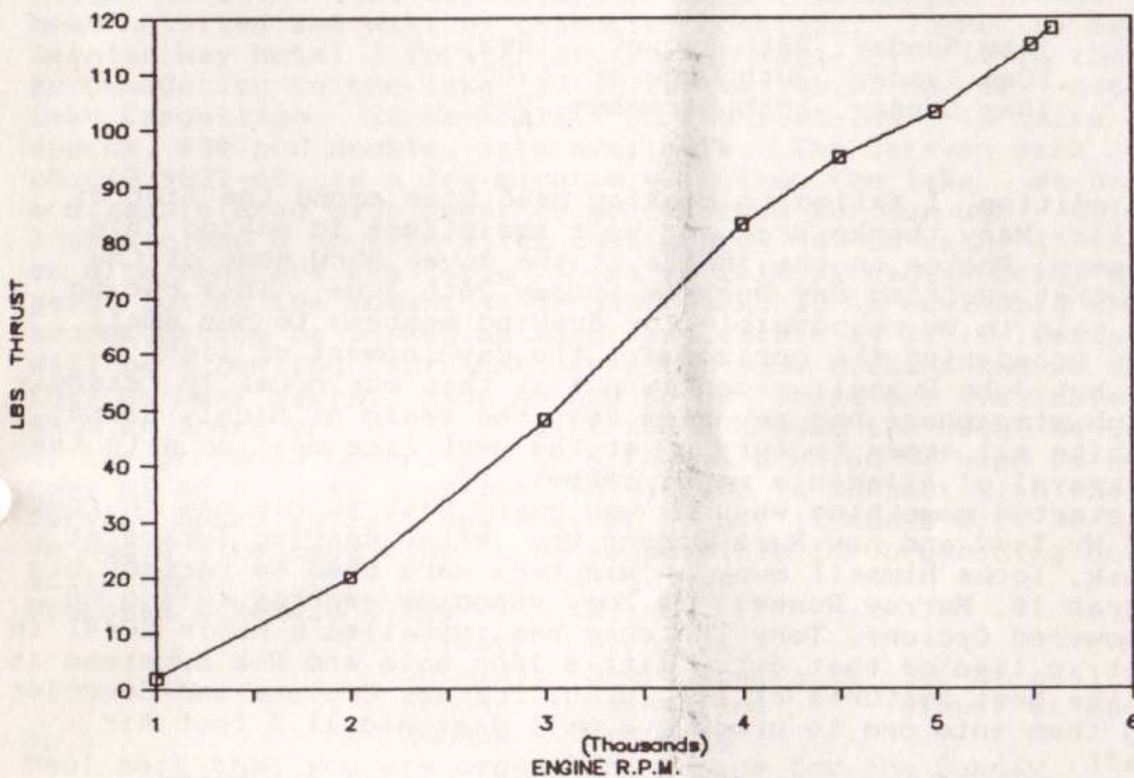
Secretary: Steven Odgaard 52 Utrecht St., Loganholme 4129  
Ph 2098498

Treasurer: John Russell 10 Brodie St., Holland Park 4121

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

Queensland Emblem on front cover designed by John Rapley.

### THRUST CURVE - SCARAB 2, KT300 ENGINE.



Dear Air Cushion Vehicle enthusiast.

This month's rally, despite the notice of it being at Kangaroo Pt. in the last three editions has been swapped with the planned October venue - Kholo to Savages Crossing. The change of plan is brought about by popular demand at the last meeting and by fact that the Wivenhoe dam is presently discharging water and the state of the rapids downstream has made the river in this area excellent for air cushioned travelling.

The venue is Kholo Bridge at 10am Saturday 20th August 1988 and the destination is Savages Crossing which is approximately 25km upstream. however some may wish to venture further to Twin Bridges if the water level at Savages is high enough to conduct a road crossing. Des Goss estimates mainly from the experience of running out of fuel in the middle of tree studded rapids that about 45 litres is a fairly safe capacity for this trip. The fuel consumption is generally less efficient in narrow, winding stretches of a river than in smooth, straight bay runs.

The estimated time of return to Kholo is 3pm. allowing of course for exploration and lunch breaks.

For further detail of this run on the picturesque Brisbane River, please see the map on the back page or contact Des Goss ph 3499743.

The dates for the next three race meetings at Lakeside have now been finalized.

Race Day 2	10am Sunday	28th August	1988
Race Day 3	10am Sunday	30th October	1988
Race Day 4	10am Sunday	18th December	1988

In the last edition, I failed to mention Brad Goss among the list of race marshalls: Many thanks Brad for your assistance in making this event a success. Photos on the inside of the cover show some of the action from that exciting day back on Sunday 26th June. This racing business is said to be responsible for drawing members to our small club and for broadening the horizon for the development of light hovercraft, but John Russell recently put it that our normally friendly and open club atmosphere has reverted into the realm of highly secret back yard units all eager to turn up at the next race meeting with the nearest portrayal of Alladin's magic carpet.

Angus Kerr started something when he won every heat in his new 10 foot Turbo named Mr Toad and now Mark Dobson who, after driving Turbos at Expo all week, locks himself away in his back yard shed to perfect his 10 foot scarab 16. Murray Russell is busy changing gearbox ratios on his Rotax powered Cyclone. Tony Thatcher has installed a Robin EC441 in his Hoverjet in lieu of that gutsy little 10hp solo and Bob Bumstead is taking all the best features of the Turbo, Scarab, Cyclone and Hoverjet and rolling them into one to produce a well designed 11.5 foot Air Cushion Craft.

With all this competition, the Q.A.S.H. will certainly be better prepared for OZ Hover 89.

Letter from the Oz Hover 89 committee. 3rd August 1988

On the weekend of the 30/31st July, Paul, Mandy (the soon to be Mrs. Moody), Brian & Carol Watts, Peter & myself went up to Lake Cargelligo. This trip was to answer a few questions which present themselves with the staging of the national rally. The lake itself is quite large with lots of areas to be explored. It appears that the adjoining Lake Curlew is also accessible from Lake Cagelligo. With many kilometres of lakes and channels to explore, no one should leave from boredom. The river is accessible by a short drive. We are currently negotiating with the sail & powerboat club to have full use of their facilities. This includes club rooms, lease of the foreshore area, use of amenities, and daily kiosk facilities. If operational, the kiosk will supply rolls, sandwiches, tea, coffee ice-creams & cold drinks for the long hot calm days!! They also have a large b.b.q. which could be used for our own get together at night. A television can also be arranged (videos of course) for a fee. Lake Cargellico's township has a supermarket & a butcher which will be open on Saturday for all shopping needs. The proprietors of the sports club have been asked to come up with a menu & price for our dinner. The town has three hotels with accommodation, all within 5 mins walk from the lake. They are recommended in this order:

Royal Mail	14 Forster St	ph 068 9821-6
Australia	9 Forster St	ph 068 9821-81
Commercial	32 Forster St	ph 068 9821-12

Please note the last digits are on manual exchange. These hotels have been notified and will be expecting bookings. There are two motels : Lachlan Way Motel 2 Forster St ph 068 9821-201. It is the closest accommodation to the lake, 12 units available, approx. \$46 per double. Lake Cargelligo 28 Canada St ph 068 9821-281. 10 units available, approx. \$36 per double, cots available. The caravan park Naradhan St ph 068 9821-69, is a few minutes walk from the lake. We have arranged a sizeable area with power to be reserved for our use. All amenities looked clean & powered sites cost approx. \$7-50 each. At this stage no on site vans are available. There is talk of cabins being placed in the park, but at the moment it is just talk. It is advisable that accommodation be booked as soon as possible as it is limited. There will be a bowling tournament over the same weekend and we were told they do book early. Maps on how to get there are available from the RACQ as there are a lot of dirt roads around the area. We took a video of the proposed hovering site & township which we hope to send you a copy of as soon as possible. We will be in contact with the Maritime Service Board to find out whether or not licenses will be necessary. We would like each club to be responsible for organizing one days activities.

Proposed schedule :	Day	Night	
	Friday	Victoria	
	Saturday	South Australia	BBQ at sail club BYO F&D
	Sunday	Queensland	Dinner at sports club
	Monday	Victoria	

Paul said that you are organizing a race for the Sunday. I hope this will be of some help and if there are any questions left unanswered, please contact Paul or myself.

Yours sincerely  
Tracey Maksimovic

Program for Race Meeting Sunday, 28th August 1988

- 
- 10-00am : All craft to be available for scrutiny.  
All drivers to register with the chief marshal.
  - 10-30am : Driver briefing. All drivers must attend.
  - 10-45am : Unofficial practise
  - 11-15am : Official practise. ( Timed amphibious circuit.)
  - 11-30pm : Official practise. ( Timed lacustrine circuit.)
  - 11-45pm : Heat one - Amphibious circuit ( formula 2 racing craft )
  - 12-00pm : Lunch Break.
  - 1-00pm : Unofficial Practise.
  - 1-15pm : Heat two - Amphibious circuit ( formula 2 racing craft )
  - 1-30pm : Heat one - Lacustrine circuit ( for heavy cruisers. )
  - 1-45pm : Heat three - Amphibious circuit.
  - 2-00pm : Heat two - Lacustrine circuit.
  - 2-15pm : Heat four - Amphibious circuit.
  - 2-30pm : Final - Lacustrine circuit.
  - 3-00pm : Heat five - Amphibious circuit.
  - 3-30pm : Final - Amphibious circuit.
  - 4-00pm : Close.

Race officials.

- a. The chief marshal may prohibit a driver from taking part in a race if he considers that the driver is not competent to race safely.
- b. The chief marshal has overall control of the meeting and his word is final, subject only to formal appeal.

Driver Eligibility.

- a. The driver must wear a crash helmet and suitable protective clothing including a life jacket at all times while racing.
- b. The driver must be 18 years and over unless a competition is especially designated otherwise.

Scrutiny.

- a. All craft must be passed by the chief scrutineer at the meeting before operating.
- b. All craft must be fitted with a lanyard switch.
- c. All craft must carry a fire extinguisher.

Flags.

Purpose

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Queensland flag	start race
Yellow flag	warning of danger
Blue flag	passing craft
Red flag	all craft stop, race stopped
Black flag	craft stop
Black/White chequered	finish of race

Damaged craft.

It is the duty of all drivers whose craft become damaged to ensure that their continuation in the race does not endanger other drivers. A golden rule that must be adhered to is that when you unload your craft from the trailer, from that moment on your craft must be operated at walking pace only unless you are participating in a race. Safety is paramount.

Thrust test for hovercraft.

Wayne Summerhayes of Yamanto is now the proud owner of a yellow Scarab Two hovercraft and he intends to use it extensively for river cruising and fishing in some of those hard to get at deep holes. Before John Rapley sold his craft he had the thrust engine serviced and dynotuned and the results and theory behind this test are presented for the benefit of any club member wishing to conduct a similar thrust check.

Procedure: Anchor the craft to a well braced vertical column using two pieces of rope at least 12mm dia. and a 300lb tension spring scale in the middle of the link. The craft must be tested on a flat concrete floor and there must be no wind which could influence the readings. Start the engine/s and allow to warm up for 3 minutes then with someone standing along side to prevent the craft from skewing sideways, bring the craft up onto its air cushion and throttle up the thrust engine in increments of 1000rpm at first and then in steps of 500rpm as the power curve begins to flatten out. Plot the tension readings against each rpm increment.

Results for the Scarab 2 powered by a 25hp KT300 Kawasaki industrial 2 cylinder 2 stroke with 2 x 24" dia multiwing fans set at 45 deg. Pulley ratio : approx 2:1 engine to fans.

rpm	thrust	Area of thrust slipstream	= 6.283 sq ft.
1000	2 lb	Temperature of air	= 59 deg F = 15 deg C
2000	20 lb	Air pressure	= 29.92" HG = 1013.25 hectaPa.
3000	48 lb	Air density	= .076 lb/cu ft. = 1.225 kg/cu metre
4000	83 lb		
4500	95 lb	Mass flow rate	= Area x flow velocity x density
5000	103 lb	Thrust	= mass flow rate x ( air vel. - craft speed )
5500	115 lb		
5600	118 lb		

For a static craft, the velocity of the thrust slipstream = sq root of ( Thrust divided by Area of slipstream divided by air density )

=  $\sqrt{ ( T / A \times d ) }$

For the maximum thrust condition.

T = (118x32) poundals, A = 6.283 sq ft. and d = .076 lb/cu ft.

ie. Velocity =  $\sqrt{ ( 118 \times 32 ) / 6.283 \times .076 }$   
= 88.9 ft per second or 60.6 mph

We can calculate the brake horsepower at the fans if we know the thrust and the slipstream velocity.

Power = Force x Velocity.  
= 118 x 88.9 / 550 ft-lb/second  
= 19 horsepower at the fans

Private Air Cushion Vehicle Regulations  
issued by the Director of Harbours & Marine - J. Leech  
5th August 1988 Ref JCS:AT:VLG-013.

1.
  - a) Private light hovercraft are those ACV's having an unladen weight of less than 1000 kgs.
  - b) Private light hovercraft means any air cushion vehicle which is used for pleasure.
  - c) Unladen weight means the weight of an air cushion vehicle ready for service, excluding the weight of the usable fuel, occupants, baggage, cargo, stores, buoyant life saving equipment, portable emergency equipment and non permanent ballast.
2. Private light hovercraft must be registered with the Department of Harbours and Marine, the applicant in making application for initial registration will be required to submit:-
  - a) A declaration from "Queensland Amateur Sporting Hovercraft Inc." or an organization approved by the Board, certifying that the said hovercraft complies with the design and manufacturing standards of that organization.
  - b) A test report on the sufficiency of the primary components.  
(Primary components are those parts of the hovercraft whose failure would seriously endanger the safety of the hovercraft, its occupants or any third party.)
3. Certificates of Registration shall last 12 months.
4. Such registration number as issued by the board shall be displayed with numerals and letters not less than 200mm high and of a contrasting colour.
5. The Board may require private light hovercraft to be mounted out of water on blocks of sufficient height to enable thorough inspection by a Marine Board Surveyor.
6. Life saving appliances and equipment:-

A.C.V.s of less than 200 kg when operating beyond smooth water limits but within limits approved by the board shall be provided with the following:-

  - (i) One lifejacket or buoyancy vest for each person on board.
  - (ii) One 1.5 kg dry powder extinguisher or other equal extinguisher.
  - (iii) One " V " sheet.
  - (iv) One anchor, cable and rope suitable for the intended purpose, minimum combined length 20 metres.
7. A.C.V.s of more than 200kg but less than 500kgs operating beyond smooth waters.

In addition to the above equipment, the following is to be carried.

- (i) Two buckets not less than 9 litre capacity with lanyards fitted.

- (ii) One waterproof torch.
- (iii) One signal mirror.
- (iv) One lifebuoy.
- (v) One bilge pump of a capacity of not less than 45 litres per minute, if the hovercraft is not fitted.

8. A.C.V.s of more than 500kg unladen weight but less than 1000kg operating beyond smooth water limits shall, in addition to all the aforementioned equipment, be provided with the following:-

- (i) Six self igniting hand flares.
- (ii) One liquid damped compass.
- (iii) One chart of the waters in which the hovercraft is operating.
- (iv) Emergency supply of fresh drinking water in suitable containers and consisting of 2 litres for each person on board.
- (v) One buoyant apparatus or inflatable life-raft capable of accommodating all persons on board.

9. For the purpose of this regulation:-

- a) A lifejacket shall be an approved coastal lifejacket.
- b) A buoyancy vest shall be in accordance with relevant Australian Standards specification for buoyancy vests of the Standards Association of Australia.
- c) Anchor cable may be chain or rope; a chain pendant not less than 2 metres in length shall be provided between anchor and rope.
- d) The minimum size of anchors and cables shall be in accordance with the following scale:-

Private Light Holding Diameter	Approved (Breaking Force)	Chain Unladen	Rope Hovercraft High Power Anchor
	( kg )	( mm )	( Kilo-Newtons )
up to 200kg	1.4	6	7.56
over 200kg but less than 500kg	1.8	6	8.90
over 500kg but less than 1000kg	3.9	6	11.12

NOTE: No person shall operate an air cushion vehicle or private light hovercraft on other than private property unless he/she holds a current licence to do so.

Phillip Hughes from North Arm Cove visited us at our May meeting and gave an entertaining report on the state of hovercraft activity in NSW and then after returning home from his holiday in the sunshine state sent us some interesting literature on his own hovercraft - a Universal hovercraft powered by a V8 Toyota engine, plus pamphlets on the NZ Riverland Surveyor 8 & 12, the Hoverman Airdash, the Hoverman Ranger 5 and performance charts for Breezax axial impellers. These were displayed at the July meeting and will again be available for perusal at the next meeting.

Last month's rally was held at the Pacific Highway - Logan River Bridge and was attended by Des Goss and Phillip Audsley with their Turbo 225s and Steven Odgaard and Bob Bumstead. Bob just called in to see us off, but assures us that his ACC2 will be ready in four or five weeks and Steve's Scarab is in for minor modifications and servicing in early preparation for Oz Hover 89, so in the two turbos, Phillip, Des and Steve set off down the Logan. We visited the Slipping Sands on North Stradbroke Is., Swan Bay near the Jumpinpin Bar, watched the AP1-88 hovercraft go past at Never Fails Is., had lunch at Tippler's Resort on South Stradbroke Is., watched the seaplanes destined for Expo take-off, had a billy tea break on Short Island and returned at 4pm. Two photos on the back page show Des and Phillip at Swan Bay and the Hover-mirage AP1-88 thundering past Phillip at almost twice the speed of the turbo.

Proposed trips for the coming months.

Saturday, 20th August 1988 Kholo to Savages Crossing. Sunday, 18th  
September 1988 Noosa River.  
Saturday, 15th October 1988 Kangaroo Pt. to Bishop Is.

The 15th general meeting is convened for 7-30pm, Wed. 24/8/88 at Archerfield Airport in the S.A.A.A. building.

Steven Odgaard  
sec.

## **AIR CUSHION CRAFT**

24 COBALT DRIVE, BETHANIA, QLD. 4205

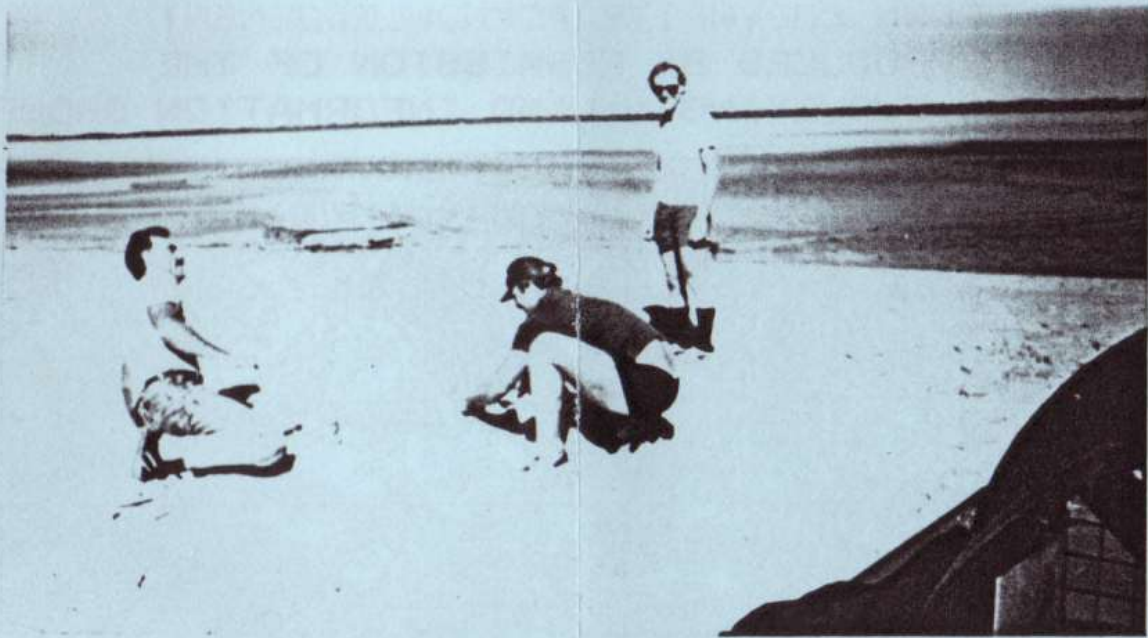
PHONE: (07) 805 1681

**SKIRT FABRIC AVAILABLE**

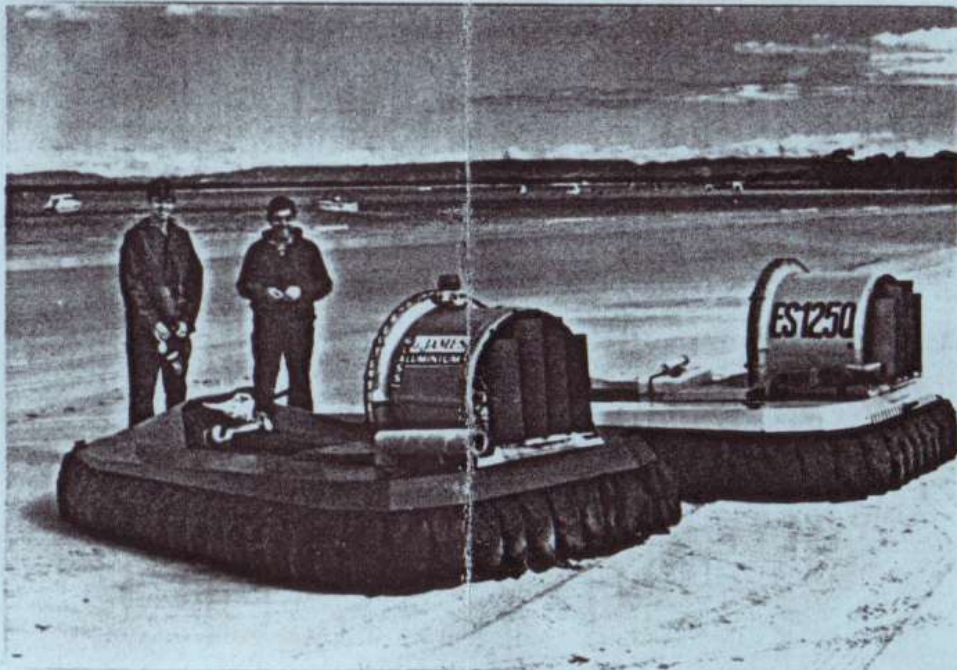
**SKIRTS MADE / REPAIRED**

**ROTAX — ENGINES**

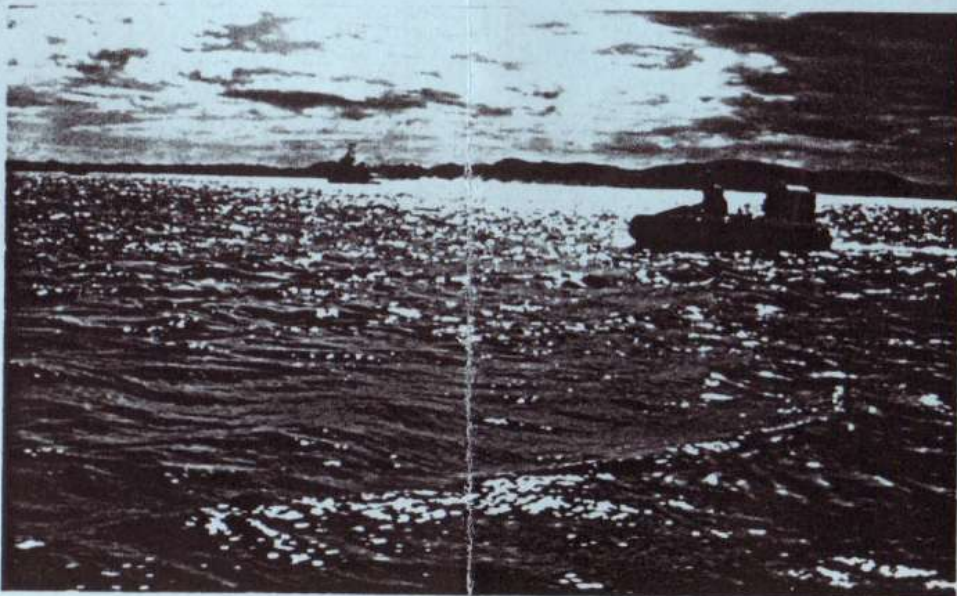
8.



Mark shows John and Steve how to build a sand-castle on Fraser Is. Little Nicky lost interest and went off to collect shells while Dess sneaked in with his trusty pocket camera.



Dess & Phillip at Jumpinpin - Don't forget the G James sign.



Just like the world's tallest building, from perspective, Phillip's Turbo is a big hovercraft.