

During the restoration of *Canobie* in 2009 the old electric motor was ditched.

The boat, nearing 100years old, was unlikely to be venturing out of the Swan River in the future. And so electric motor propulsion was sought, to fulfil the needs of short river trips and motoring in an out of the Swan River marinas.

Canobie's sister boat *Vanity*, based in Hobart was fitted with a Thoosa 9000 electric motor system in 2009 and had done some sea successful trials at the time *Canobie* was nearing completion of restoration. *Vanity* is longer and a little heavier than *Canobie*, having been lengthened by 7ft in the 1920's.

After trawling websites and talking to various people for some weeks I decided to adopt the Thoosa 7000HT model, the next model size down from Vanity's.





System selected:

- Thoosa 7000HT, marketed by ASMO Marine Propulsion Systems. Australian Agent: Blue Mountains Import Export. Recommended boat size: 28 -38 ft.
- Package included: Motor and coupling; Throttle unit; Controller; 30A Charger; Link 10 Battery Monitor; Key Switch unit. Total weight 37 Kg.
- Motor type: Lynch motor, 48V DC, 7.4Kw.
- Battery Regeneration available.

Batteries (purchased separately): REMCO, Chinese manufacture, from Whitworths.; AGM (absorbed glass matt) sealed; 4 x 12V x 120Ah in series. 1000 charge/discharge cycles claimed. 3-5 year life claimed, if in float mode.

Batteries were sized to give 2 hours motoring time at 30Ah, discharging not more than 50% of capacity.

Propeller type: Slipstream stainless steel 3-blade folding; model S5, 15.5x11 RH, purchased from Max O'Grady.

Installation: Mike Foster;

Electrics: Steve Humphries



Electric motor unit

Compartment with charger and controller

THOOSA 7000-HT

The Thoosa 7000-HT is a 48V system. The system uses a permanent magnet motor, set up in a gearing console made in stainless steel and is regulated by a 4-quadrant motor controller.

ASMOIMarine

Electric Inboard Drive Systems

7kW continuesly power (Replaces a 17~25HP combustion engine)

ARACTERISTIC

reased reliability electric motor starts every time.

ver immediately available need for pre-heating – the power is immidiately availible.

r weight: weight of the electric system is very low - and batteries re distributed for better weight optimization.

maintenance costs: only maintenance parts in the system are the brushes ne gearbelt.





General comments:

- It is an electrically isolated system. No grounding required.
- There has been very mixed results with the regeneration system reported by other boat owners. My prop seems to rotate OK in regeneration position, but I have not checked to see how much it is positively charging. I have constant shore power if needed, so it isn't a priority for me, and the races are too short to add much power anyway.
- Vibration from the motor is very small, especially with the 3-blade prop. I haven't had to mount the motor on elastomeric mounts at all.
- All the components from Thoosa have been excellent. The monitor is very difficult to read in the cockpit because of bright daylight, so I shifted it inside the cabin. But it is not in sight, from the helm position.

Battery performance:

- I chose the 'cheap' Chinese batteries (\$350 each!), expecting that technology advancements in lithium systems will take over soon.
- The rule of thumb is that with each knot of speed the remaining battery capacity is halved.
- These 120Ah batteries are very sensitive to that. I get more like only 1-1.5 hrs at 30Ah. 30Ah pushes the boat at a guessed 4 knots. 40Ah throttle flattens the batteries very fast.
- I try to run the batteries down no more than 50%, but I have been caught out trying to get from RPYC to the start line at RFBYC and flattened the batteries. 1st set of batteries lasted only 18 months.
- Prop and hull fouling also knocks the stuffing out of the motoring range.

Positives:

- The system is very reliable, clean, dry and very easy to maintain. Expected maintenance is just an annual tighten, plus brushes check, plus replacement of timing belt at 3000hrs.
- Thoosa system has proven components, good manuals and good technical back-up if required.
- AGM batteries are clean, with no fumes or smell.

Negatives:

- Battery sizing. I should have gone for 200Ah batteries. But I was trying to save weight.
- The system is expensive to buy, but probably worth it in the long run.
- I wouldn't have the system installed if the boat was doing any offshore work, simply because of the battery limitations, unless it was backed up by a portable generator.

Charger

Unit concealed under cockpit



Canobie

