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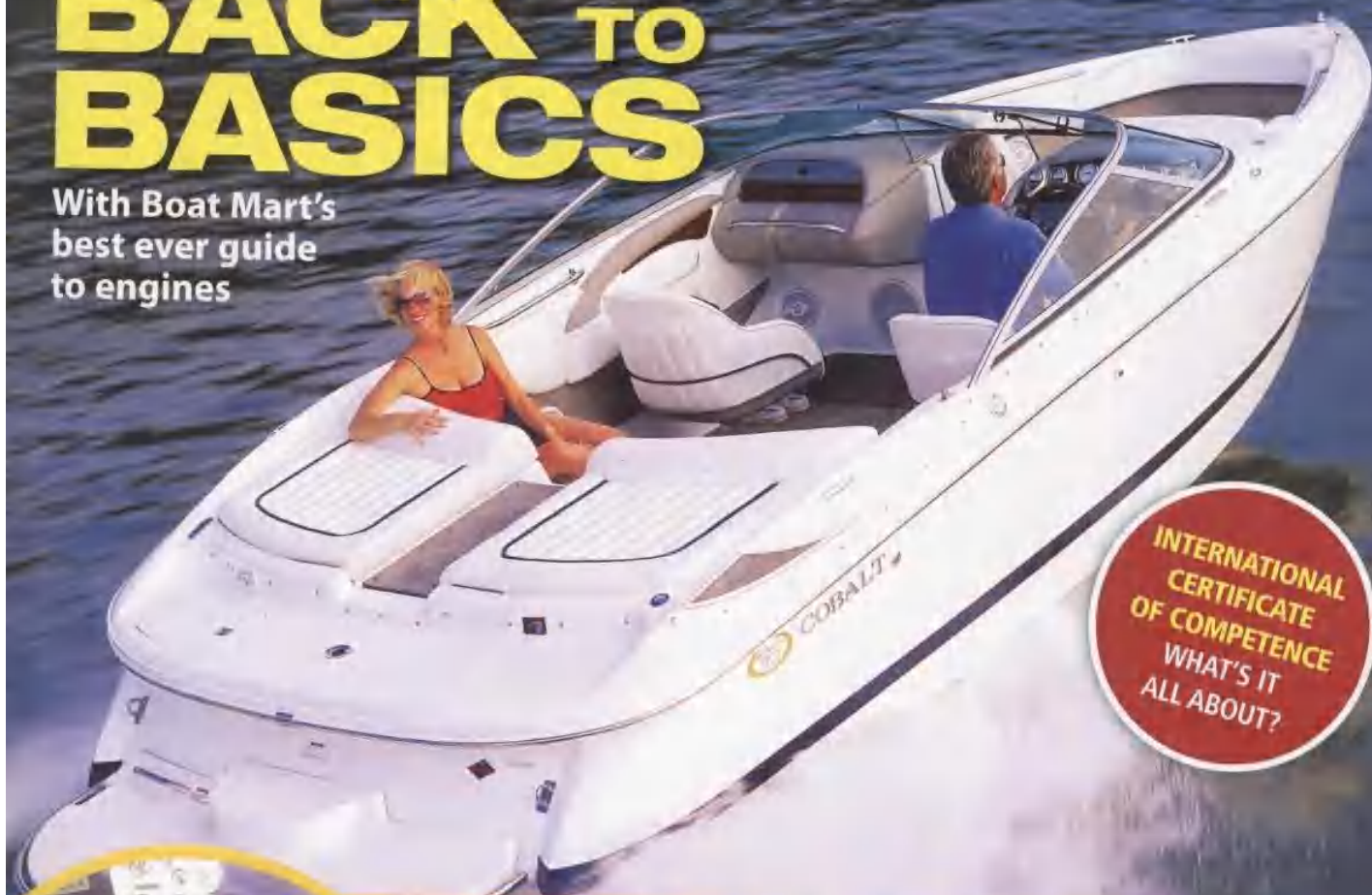
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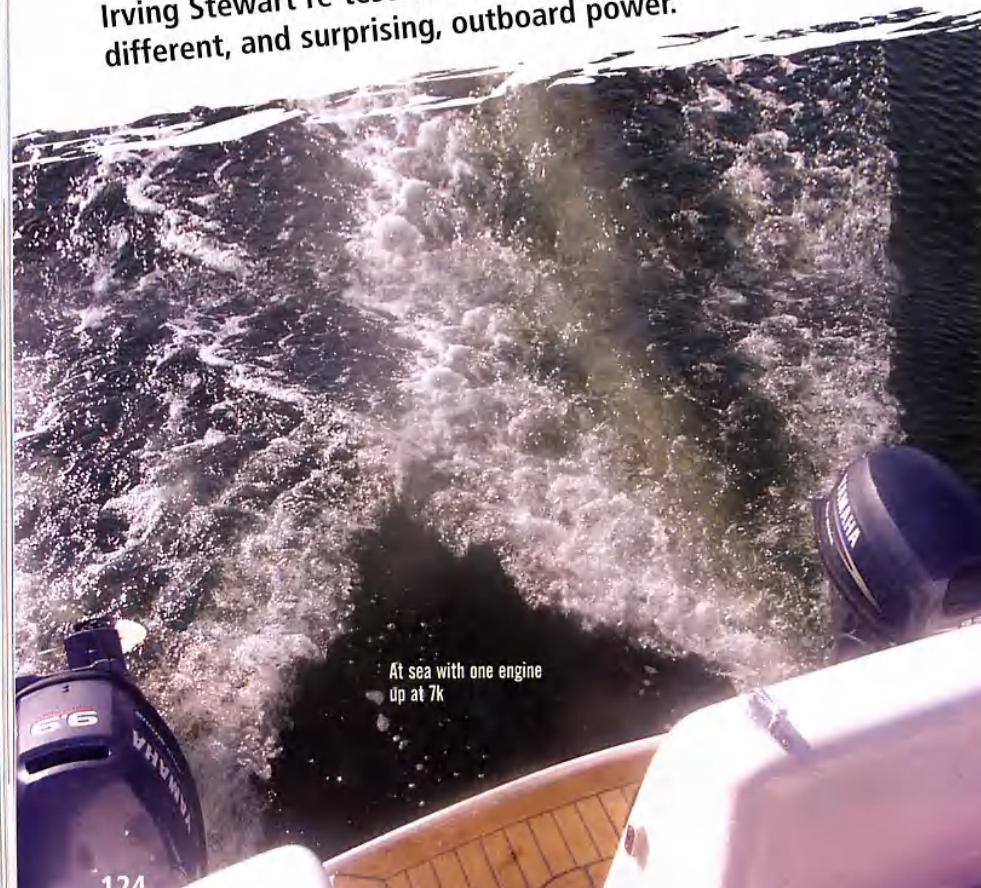




Heading out to sea on less than 20hp

# Motorcat

Irving Stewart re-tests an old favourite, but this time with very different, and surprising, outboard power.



At sea with one engine up at 7k

It's not often that an outboard manufacturer gets really enthralled about low horsepower engines despite the fact that engines under 50 horsepower are the backbone of British boating. When you get down to 20 horses and below, there simply isn't much profit for the engine builders and companies. It was only when Yamaha insisted that I test their 9.9hp Hi-Thrust four-stroke I knew a story was brewing!

Assuming that such a diminutive engine would be on a small boat I was disappointed when it transpired we were to use three tons and 30 feet of canvas. I took it to sea and even stayed on board the night before the test!

### SECOND TIME AROUND!

In 2004 I tested the remarkable Motorcat Cruiser at sea fitted with twin 50hp

injection two-strokes. Subsequently the Motorcat was nominated as Boat Mart's 'Boat of the Year' for its all round innovation, seaworthiness, handling, performance and downright low fuel consumption.

In effect this wasn't just a comparative test of this proven boat, but an advanced evaluation of its performance using two 9.9hp Yamaha outboards. They were fitted with the new Hi-Thrust props giving remarkable 'grunt' from these diminutive engines. They also offered the advantage of far higher than normal thrust, when compared to engines of similar size, conventional gearboxes and props.

A secondary objective of this particular test was to see whether a cruiser could be rigged for economical inland cruising and yet still be capable of going to

### TESTS IN TWO WATERS

To evaluate the Motorcat inland its performance and sound readings were obtained. Compared to the craft's design speed of well over 35mph, it was along at just five miles an hour when



tion and most relaxing. In fact, the person on board was amazed that the control of the helm remained so precise. It was quite frequent to the first tests the craft was taken to sea to determine the feasibility of running such a large craft with less than 20hp. Although the test conditions were calm, with only a little wind, there's no doubt that this craft handled well on the low power - especially considering it had a total of three, full water tanks and was fully equipped for cruising. It was as amusing to watch the faces of the other craft as they realised that the only outboards were our only source of propulsion. Indeed one concerned skipper, who had lifted one engine out of use, stayed in case our 'little auxiliary' wasn't up to the job.

# 30

steadfastly didn't believe that it would be possible, yet alone make over seven miles per hour! When we explained that using two engines, a total of a whole nineteen horsepower, only added another couple of miles an hour he disappeared leaving a long wake and lots of black smoke!



Two men and a big cat



20hp worth of wake at sea

### AN EXTRA TEST THROWN IN FOR GOOD MEASURE

Following the tests we returned to the Hamble to unload our test gear and grab a coffee. The Motorcat then returned home to Northney, a distance of around sixteen miles; at least ten of which the craft was in open sea punching against fair wind and tides up to 3k.

Significantly, I later learned that during our entire day out, including both the river trials and a good couple of hours at sea, plus the return journey to home port, the two Yamahas hadn't even managed to consume much more than an outboard tank's worth of petrol!

These tests proved, beyond a doubt, that the craft would safely tackle both river and estuary conditions with these engines. With

slightly larger engines of, say, 15 - 25hp the Motorcat would be perfectly happy to make extremely economical crossings to France, Ireland or even to go coastal cruising.

Since we tested the Motorcat it has been certified Cat B!

### A FEW POINTS DISCOVERED DURING THE TESTS

- The diminutive Yamaha 9.9hp Hi-Thrust outboards are fitted with 10a/h alternators which give a very high rate of charge for such small engines. This is of particular interest to those who may be cruising and using battery power for lights and other accessories whilst at anchor or moored.
- As proven in previous tests on this craft lifting an engine out of service doesn't cause a 50 percent drop in performance, nor does it cause the steering to become unduly biased. This is due to the displacement nature of the Motorcat's extremely easy running non-planing hulls.
- The huge advantages of twin engines, when manoeuvring a long craft, were equally apparent in river conditions with the small Yamahas as they were when the craft was first tested with 50 horsepower engines. The reverse thrust of the little Yams is quite astonishing!
- During the river sound tests it was noticed that an annoying resonance occurred between 3,800 and 4,000rpm. This disproportionately increased any of the sound readings which were taken from the helm, some 2.8m from the engines. By carefully throttling back slightly on one engine the resonance disappeared with no apparent unbalancing of the steering and no loss in speed. ▶▶





Gordon lifts one engine



Twin Yamaha 9.9 Hi-Thrust engines on 30ft of cruiser

■ During the river evaluation fuel consumption tests were effected at 2,500rpm giving 3.4 to 5.1mph depending on direction. Each engine consumed just fewer than 500ml in 30 minutes. This equates to less than 1L per engine per hour, or more than two and a half hours inland cruising per gallon!

■ During sea trials similar consumption tests were effected at 4,000rpm with both engines running.

The consumption equated to 1.2L per hour per engine with the craft holding just over 7mph.

Such frugal consumption, for a substantial family boat, makes the Yamahas even more fuel efficient than a small yacht's diesel auxiliary. Later 'guesstimates' put the cost of a two way cross Channel journey, with a full passenger load, at less than five gallons of petrol. You can do the maths!

■ You would expect that two small engines buzzing away on the stern, at over 4,000rpm, would be intrusive, but the tests proved this to be untrue. At sea the Yamahas proved to be barely noticeable; the ambient sound from the wind and other passing boats was infinitely louder than our own little hard working engines!

■ As a highly economical source of power for river and inland cruising, there's no doubt that these little 9.9hp High-Thrust engines, which definitely produce enormous thrust for their size, are more than sufficient to shove the substantial Motorcat around under all conditions. They'll also cope at sea, given sensible weather, and can keep making good headway even against wind and a 3k tide.

Now what would be really interesting would be a pair of 15hp Hi-Thrust engines to test on the same craft!

**IN CONCLUSION**

As anyone experienced in long distance cruising will testify there's much truth in the fable of the tortoise and the hare. Illogically, in these times of high fuel prices and diminishing reserves, we seem to be driven by fashion to make power boating prematurely extinct by employing huge horsepower to get, and keep, large planing craft out of the water at speeds in excess of 35k. The fact that the very fuel that has to be carried to produce such performance renders the craft incapable of long distance cruising seems to elude many owners seemingly eager to impress others.

This test proves beyond any doubt that efficient displacement craft will cruise

efficiently, safely and extremely on very low horsepower. Whilst flamboyant craft are seeking the re-fuelling port boats like the Motorcat powered by engines such as the Yamahas, will be steadily cruising more distant shores with their wallets in a satisfied self-satisfied style. You know it makes sense.

Our thanks are due to Gary AquaPac for providing our test boat and also to Yamaha UK and A special thanks goes to Victor of his 'cat' and 'the two Gordons' who formed the test crew. ■



Heading up river for the inland tests



Handling beautifully at 4mph

RIVER TESTS	1,000rpm	1,500rpm	2,000rpm	2,500rpm	3,000rpm	3,500rpm	4,000rpm	4,500rpm	4,900rpm
TWO ENGINES MPH	2.6	3.5	4.7	5.6 cruise	6.4	7.4	8.00	8.4 max	8.4
ENGINE LIFTED	1.6	3.0	3.8	4.8	5.4	6.2	6.9	7.7	7.9
1 ENGINE STOPPED (DOWN)		2.4	-	4.3	-	5.3	-	-	-

RIVER TIMES	0 - 5.6mph	0 - 8.4mph	5.6 - 8.4mph	0 - 4,900rpm
2 ENGINES	5.97s	10.07s	6.85s	11.53s
ONE ENGINE OFF (UP)	9.44s	-	-	-
ONE ENGINE OFF (DOWN)	9.06s	-	-	-

RIVER TEST CONDITIONS	OCCASIONAL SUNNY SPELLS	18°C	
RIVER	Flat calm	Tide	1.5mph
WIND	1 - 2mph	Crew	3 adults
FUEL	30L in each main tank	Extra weight	50kg (fuel)

SEA TESTS	1,000rpm	2,000rpm	3,000rpm	4,000rpm	5,000rpm
2 ENGINES	1.5mph	3.2mph	5.8mph	7.2mph	9.1mph**
ENGINE LIFTED	1.2mph	2.9mph	5.1mph	5.7mph	7.3mph

The maximum speed recorded during sea trials was 9.1 mph at 5,100rpm. It should be noted that the craft loses 1mph with 'boarding shoe' bow reinforcement fitted to the test boat.

SEA TIMES	STAND - PLANE	STAND - CRUISE	STAND - OPTIMUM	STAND - MAX	CRUISE - MAX	STAND - MAX RPM
SPEEDS	-	0 - 3.2mph	untested	0 - 7.2mph	3.2 - 7.2mph	0 - 5,000
RUN ↑	-	7.36s	untested	16.5s	6.56	10.76s

TEST CONDITIONS	OCCASIONAL SUNNY SPELLS	18°C	WIND CHILL TO 13°C
SEA	Solent chop to 12'	TIDE	1.9mph
WIND	Gusting 3 - 8mph	CREW	3 adults
FUEL	30L in each main tank	EXTRA WEIGHT	50kg (fuel)

#### WHO TO TALK TO

Yamaha 9.9hp Hi-Thrust engines  
 Yamaha Motor (UK)  
 Tel: 01932-358-000  
 Email: ymuk@yamaha-motor.co.uk

Motorcat  
 Motorcats Ltd  
 Tel: 01243-430-892  
 Email: sales@motorcats.com

Two engines  
 give us 9k