HONDA 40hp Tiller Steer 4-Stroke Outboard

Released in the middle of last year, the new 40hp 4-stroke Honda is without doubt as near to the clichéd 'state of the art' as outboards have been built, and introduces a whole new set of benchmarks for Industry and consumers. In this special report prepared on F&B's "mule" (our Stacer 429 Nomad TS), we logged the most impressive set of figures we've recorded since the program began.

What a little beauty – a screamer in fact, and one that absolutely took our breath away.

The Honda 40 was tested on our Stacer 429 tinny with exactly the same weight, crew conditions and test program, and it has returned absolutely mind-boggling figures – and completely justifies Honda's claims for serious engineering improvements that we can actually measure.

So often, some of these big multi-national companies make grandiose claims that become watered down in the real world when we finally get to test the product, but in this case, especially concerning fuel consumption vs. performance, the Honda 40 was exceptional.

But let's go back to the beginning and find out what it is, before we get on the boat and take it for a run.

The Engine Specs

The new Honda BF40 is an in-line, 3 cylinder, 6 valve, 808cc, single overhead cam (SOHC) marine engine.

Yes, that's one heck of a mouthful, but then this is one heck of an engine and it embodies all the very latest thinking in outboard engineering.

The 40 shares virtually identical specifications to its bigger BF50 brother, and I suspect that the only real difference between them is the way the electronic fuel management system has been set-up.

That's obviously a simplification with an engine as sophisticated as this, but by and large, these modern engines are basically controlled by micro-computers, it's relatively easy for the engineers to both limit and increase available horsepower at the propeller.

In this case, the 808cc engine produces 40hp at 5,500 revs, with a recommended engine rev range between 5,000-6,000rpm.

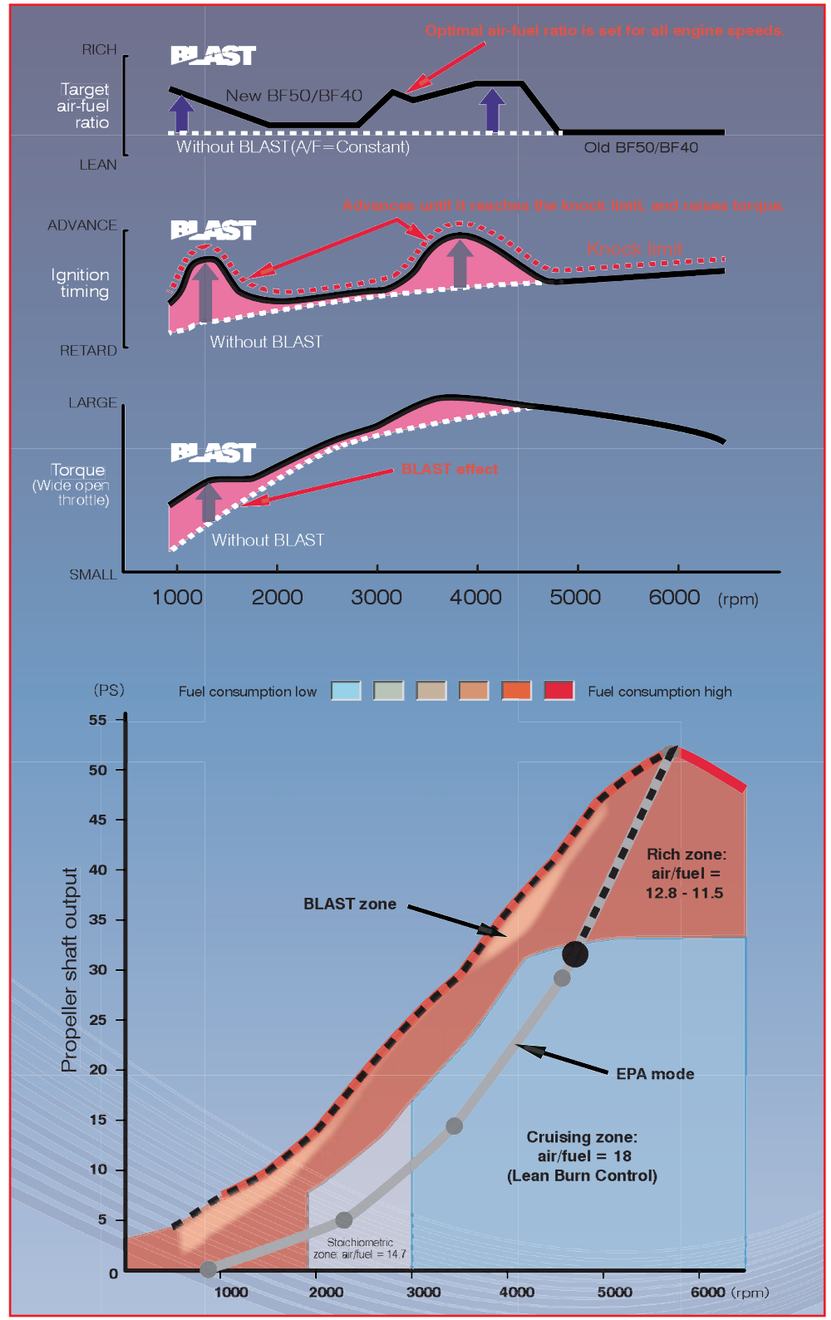
It's the lightest 4-stroke engine in its class, with a weight of 98kg for the long shaft leg and 102kg for the extra long – that in itself is unusual because not too many of these outboards are available with 25" legs.

The fuel supply is programmed fuel injection and again, this is a first in this class of engine.

Ignition is transistorised, and it's fitted with several features not normally found in outboard motors by anybody else – this includes the unique Honda BLAST technique, and their Lean Burn Control, which brings down to this class of outboard all the advantages that we normally see in bigger outboards where the manufacturers talk about V-Tec or the like, all of which refers to the "variable valve timing" ie some call it VVT, others V-Tec, etc.

Again, it's a simplification of the process, but really, BLAST technology here is based on the same philosophy ie, it is based on the engine ignition timing being linked to the computer which controls the air : fuel ratio, so the computer can set the optimum timing from the input of the sensors set in train throughout the system.

BLAST technology traces the air : fuel ratio that results in the maximum torque for each engine revolution, whilst simultaneously tracing the maximum 'Knock Limit Ignition Timing' that can be obtained using a richer air : fuel ratio in the fuel throttle zone, and advancing the ignition timing to the limit (27 degrees) in order to produce greater torque.



As you can see on the attached graphs and illustrations, this is not just a theory.

It's a very well established principle that has been used on many of the contemporary European diesels, where the engineers have utilised today's new found computer power and milliseconds' processing to terrific effect, minimising wasted fuel, maximising free oxygen for the BLAST to the nth degree, and then varying the timing of the valves to create the bigger bang (so to speak) more efficiently.

It is a marvel of modern micro-computers and engineering, because when it's all said and done, we're still working with pistons going up and down on a crankshaft, and fuel being