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BIG Mercury Racing's new
300XS ran clean and fast
on our speeding Bullet
BAD AND
BEAUTIFUL

STORY AND PHOTOS BY JOHN TIGER, JR.

MERCURY
Racing

It's here! Mercury's latest, biggest, baddest and cleanest two-stroke outboard engine, the OptiMax 300XS, has arrived. Performance outboard fans have waited a long time for this engine, and our recent test of a production unit bolted to a Bullet 21XD bore results that made the wait well worth it. We ran the 300XS through its paces on Nashville's J. Percy Priest Lake late last fall, before the winter weather set in, and it was extremely impressive in all respects.

YES, IT'S FAST

Rigged to our 1300-pound, 21-foot, 10-inch Bullet single console test hull, the 300XS was bolted to a manual Rapid Jack 14-inch setback jackplate (standard Bullet fare) so the engine's propshaft was a lofty inch and three-quarters above the pad. Twisting a huge 15- x 30-inch Performance Propeller "Performer BC4" four-blade round-ear propeller at a sedate 5990 rpm, we smoked the surface of Percy Priest at just over 96 mph with two aboard and a half-tank of fuel.

That was our best top speed attempt, and it occurred after, unfortunately, we whacked something submerged with our baseline test wheel (a 14½x28-inch Mercury Lightning Pro ET four-blade). With that propeller, speeds were almost exactly the same, but at a higher rpm rate (6350 vs. 5990 with the 30-inch wheel). The Merc reps in attendance were certainly pleased with the performance of their new outboard, but dismayed that we lost the only sample Pro ET prop they had.

My opinion? It's just as well. *BWB* readers know I'm adamant about testing only what's available to the general public, not one-off items that readers can't buy off the shelf. As I understand it, the Pro ET prop is still not available, almost a year after it was introduced (maybe it will

be by the time you read this). The Performer BC4 wheel we used is available, and though it's a very thick, non-race blade that will easily withstand some abuse, it works well. The price for this prop is a reasonable \$850.

Admittedly, our load was light, conditions were right, and we had more than enough time to wring the rig for its best performance. Still, everyday performance from a rig like this should still be a strong 90-plus mph even with a full load and warmer conditions. That's great



news for ultra-performance buffs, that thin slice of the marine market that lusts after lightweight, ferociously fast single-engine outboards (be they bass boats or sport hulls).

While the 300XS is slightly heavier and bulkier than its predecessor (the 300X), and with its rev limiter set at 6400 rpm compared to the 6900-rpm limit of the 300X, it has shown that it can truly perform on hulls like our Bullet. For all but the most hard-core performance outboarders, this new 300XS will

scratch the performance itch nicely.

The torque this beast produces is amazing. Our test hull was a fully rigged 21-foot Bullet, and while we didn't have her heavily loaded, it's not like we were testing with some fly-weight race hull. Even with a big wheel and a low 1.62:1 gear ratio, the new 300XS muscled our big Bullet from a dead stop to 30 mph in 4.9 seconds, even without the aid of a hydraulic jack so it could be lowered for more bite. Comparatively speaking, that 4.9-second time is even quicker than the 5.2-second time posted by its predecessor, the 300X, when we tested it on a 20-foot Bullet ("Where Bullets Fly," December 2004).

You can easily feel the massive torque of the XS when the throttle is mashed; despite being positioned with the propshaft almost two inches above the pad, it simply hunkered down and powered the big Bullet up and over the hump onto plane. When it's floored from a dead idle, it's easy to feel the torque; there's no hesitation, and the engine's enormous low-end power is felt right in the seat of your pants.

Midrange performance is also strong; however, when compared to the results we obtained from the 300X, it's off a tad. The older engine powered its 20-foot Bullet from 40 to 60 mph in a rocket-quick 3.3 seconds. This combo (remember, it's a 21-footer that weighs a bit more) took 4.8 seconds to cover the same ground. That's not slow by any means, it's just not as impressive as its predecessor.

In all, the 300XS puts it out there in strong fashion, especially for a DFI outboard. While performance is pretty much on par with its EFI predecessor, fuel consumption and running quality is where it wins hands down—and makes it mighty tough to go back to the old ways.

Merc Racing 300XS OptiMax

Engine Tested:	OptiMax 300XS
Type:	2-cycle spark DFI
Displacement:	3.2L (193 cid)
Weight (per mfg.):	505 lbs.
Recommended WOT RPM:	5400-6000
Gear Ratio:	1.62:1
Propeller:	15x30" Performance Propellers Performer BC4 four-blade over-hub round-ear
Jackplate:	Rapid Jack manual
Setback:	14"

WEATHER CONDITIONS:

Air Temperature:	59 F
Water Temperature:	62 F
Wind:	5-10 mph
Water Conditions:	Calm

TEST RESULTS

Engine (rpm)	Speed (mph)	Fuel (gph)	mpg	Range ¹ (miles)
1000	5.4	1.6	3.4	109
1500	6.2	2.8	2.2	72
2000²	29.5	4.5	6.6	212
2500	36.5	7.0	5.2	169
3000	44.3	9.2	4.8	156
3500	54.5	12.4	4.4	142
4000	61.8	14.8	4.2	135
4500	71.1	15.3	4.6	151
5000	79.5	17.2	4.6	150
5500	87.8	19.6	4.5	145
6000 (WOT)	96.1	26.7	3.6	117

¹Based on 90% fuel capacity

²Optimum cruise speed

Bullet 21XD

Base Price:	\$26,500
Price As Tested:	\$49,700
Top Speed:	96.1 mph
0-to-30 mph:	4.9 seconds
Construction:	Fiberglass composites, balsa and wood coring
Console Type:	Single side
Length:	20' 10"
Beam:	7' 7"
Hull Weight:	1300 lbs.
Rigged Weight:	2180 lbs.
Trailered Weight:	3260 lbs.
Fuel Capacity:	36 gals.
Livewell Capacity:	30 gals.
Maximum Horsepower:	Not rated

Mercury Racing

Dept. BWB
N7480 County Road UU
Fond Du Lac, WI 54935
920/921-5330
mercuryracing.com

WHAT MANNERS!

Our most efficient cruise speed with the old 300X was at 2500 rpm, where we were pulling down 4.5 mpg at about 29 mph. This new engine kicks that result out into the cold; with the 300XS, we recorded a best cruise speed of 29.5 mph at 2000 rpm, where our fuel meters recorded 6.6 mpg—almost a 50 percent increase! Our full throttle mpg with both engines was about 3.5, which proves the adage that you have to drink some fuel to make horsepower, no matter the induction system. However, if the mpg results are averaged across the entire rpm range, the new 300XS beats the old 300X handily, scoring an average 4.4 mpg to the old engine's 3.3. That translates to a lot of extra cruising on an average weekend outing—and a lot less spent at the pumps.

What's every bit as impressive as the fuel economy of this big V-6 is its running quality. This engine truly has great manners. During our time with it (we tested two that weekend), the 300XS started each time with a flick of the key. It never coughed or sputtered, and it ran without a hiccup. There was no smoke, either; even when we first started the engine in the cold November morning, the XS huffed out a plume of white entrails at initial crank-up, but then settled into a wispy idle. When warm, the engine didn't exhaust any smoke at all.

Shifting was a bit clanky, but I actually prefer a little definition (compared to the Verado's fly-by-wire controls, for example, which don't offer enough feel and distinction for me). When the hammer is dropped, the XS immediately accelerates without hesitation; Merc Racing engineers obviously have this one tuned correctly. What's funny is, just like the 225 Pro XS, the 300XS sounds like it's revving a lot higher than it actually is at full bore. Our best rpm reading was under 6400 with the 28-inch Pro ET and under 6000 with the 30-inch Performance Propeller wheel, but the XS sounded like it was turning at least 6500 whenever we held the pedal to the metal.

WHAT IT'S MADE OF

This engine has been in development for some time. Merc Racing engineers have been working on it steadily throughout several seasons and didn't want to release it until it was right. They succeeded; this engine is the best running outboard to come from Mercury Racing in years. The others they've introduced were good; the 225 Pro Max, the 2.5 EFI/280, the 300X, and the 225XS (not to mention the 200XS, the 225 Pro XS and the 250XS) have all been great running outboards. I just don't remember being as impressed with any of them, save for perhaps the 300X and the 280 2.5.

The 3.2-liter block is very similar to those that have come before, and serves as a baseline assembly for the entire family of 3-liter engines. There are, of course, internal differences between the 300 and its smaller brothers. The big difference is the stroked crankshaft, which is balanced to ensure smooth running. The placement of the crankpins gives the engine slightly more stroke length, which accounts for the extra .2 of a liter of displacement.

The 300's pistons are also new, and they feature a special porting and dome profile along with a heat- and wear-resistant composite coating for longer life. The porting layout was designed and applied using Merc's Formula One racing results.

As you might expect, the exhaust ports are raised and widened so that they're larger, and spew more spent gases than those on the other engines in the 3-liter family. The intake and transfer ports are also modified for better intake flow. The 3.2's cylinder head combustion chamber design is also unique; engineered so that the 300 produces more power at the top of its rated rpm range.

The induction system also features special reeds and reed cages to flow more fuel charge into the engine. That charge is induced and monitored by the OptiMax direct fuel-injection system. This two-stage system, according to Mercury, does a better job of atomizing fuel



Though the design of this 21-foot Bullet is due for an update, it was still plenty fast with the Merc 300XS.

different applications (1.62:1 or 1.75:1). The availability of those optional ratios combined with the design of the Sport Master housing and skeg has helped Merc Racing win more than its share of *BWB* engine shootouts.

I LIKED IT, I LIKED IT

I'm sure it's easy to tell I am very impressed with the 3.2-liter 300XS. It makes for a very strong, tractable high-performance outboard. I'll still throw in the caveat that I'd like to see it shed 50 pounds or so and bump the rev limiter to the 7000-rpm range, but maybe time will bring those improvements. I should mention that Merc's fit and finish is exemplary on this model; the two I inspected were really put together well, both outside and under the cowl.

For now, it's clear that Mercury has introduced an outboard that may well rightfully claim "King of the Hill" over all other outboard engines. We'll hopefully get a chance to prove or disprove that claim, as we're looking forward to comparing this engine head-to-head with others in its horsepower league. Those contenders should start practicing now; Mercury Racing has a clearly dominant player in the 300XS, and it should be proud of what it has developed. The XS is a superb outboard engine. At \$19,800 out the door it's expensive, but hey—what outboard isn't anymore? **BWB**

so the engine can digest it more efficiently. The system injects the air/fuel mixture into the combustion chambers at 95 psi, which is 15 psi higher than standard OptiMax setups. It's monitored by the SmartCraft Engine Guardian system. This system, with the entire OptiMax injection setup, has come a long way since its introduction (way back in 1996!) and despite early teething problems, it seems to have become an accepted standard in the world of direct fuel-injected two-strokes. I speak with many Mercury dealers and customers during the course of each season, and for the past several years, I've noticed that complaints and failures surrounding OptiMax motors have dropped to almost zero.

The center section of this engine and the cowl design are really the only two complaints I have. I loved the mean, beefy midsection of the 300X. The XS uses what appears to be a standard 3-liter mid, equipped with heavy-duty engine mounts. It's far too plain for such a powerful engine. Bring back the 300X mid! The cowl design is also way too vanilla for an engine this cool. The older "alien" design wasn't my favorite either, but the gentle, rounded shape devoid of any serious

power bulges or angles is just too nondescript. All the Merc Racing aficionados I speak with can't shed their affection for the older, square design of the 2.5 engines built in the early to mid 1990s. I'm thinking Merc needs to design a cowl that mimics the aggressive race-inspired toughness of that model, but reflects a newer, more modern approach. How about it, Merc?

On the business end, the XS uses the tried-and-true trio of available Fleet Master, Torque Master and Sport Master gearcase offerings that have served Mercury Racing well for the past decade. While the lower unit often goes forth as a never-you-mind, in this case it (particularly the Sport Master) deserves high accolades from performance buffs. Though it's not the best case for single engine V-bottoms in ultra high-speed applications (usually, only Allison hulls in 110-plus mph situations), it works incredibly well on anything from 80-mph bass boats to 130-mph Mod V-type tunnels. It's truly the workhorse lower unit of the high-performance outboard market and, to date, no other engine manufacturer has designed anything as good. Yamaha's lower comes close, but the Merc trumps it with a choice of gear ratios for

SOURCES:

Mercury Racing
Dept. BWB
N7480 County Road UU
Fond du Lac, WI 54935
920/921-5330
mercurymarine.com