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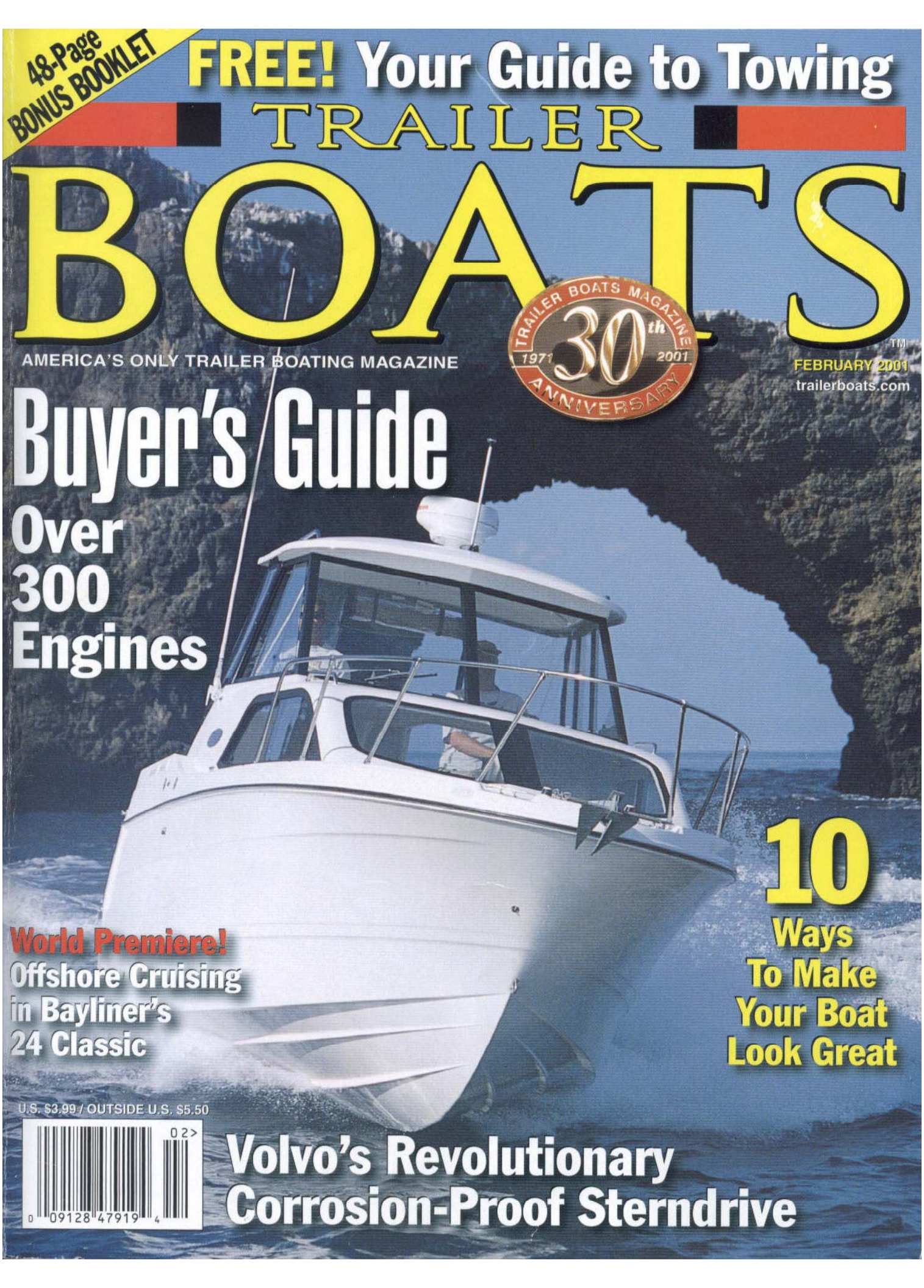

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PROPULSION

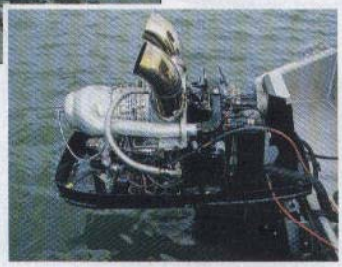
WITH JIM BARRON

TURBINE OUTBOARD

Mercury recently held its 2001 product press introduction and dealer meeting in Orlando, Florida, and I was there to see and test the newest outboards and sterndrives from this famous Fond du Lac, Wisconsin-based marine engine builder.

There are a number of new engines and drives from the manufacturer's three divisions — Mercury, MerCruiser and Mercury Racing — some of which we have discussed in the past and all of which we cover in our propulsion buyer's guide, "Marine Power 2001," beginning on page 44 of this issue.

Yet one of the most unique — and one you will not find in this year's propulsion guide — is a gas turbine-powered outboard. Yes, you read correctly. It is a turbine, as in turboprop aircraft.



■ *Mercury's "Special OPS" gas turbine outboard develops 320 hp, yet weighs only 220 pounds. Starting the experimental engine is time-consuming, but once it roars to life performance is excellent, albeit deafening.*

Called "Special OPS," this extraordinary outboard was developed in conjunction with Marine Turbine Technologies of Franklin, Louisiana. It uses a Rolls Royce Allison 250 Series gas turbine engine coupled with a Mercury Racing Offshore lower unit with a 1.87:1 gear ratio. This outboard develops a whopping 320 hp. Weight of the gas turbine powerhead is approximately 140 pounds, while the entire outboard weighs approximately 220 pounds. This gives the Merc turbine outboard an incredible horsepower-to-pounds ratio of 1.45:1. For comparison purposes, Mercury Racing's ProMax 300 outboard has a ratio of 0.64:1.

The air-cooled turbine is mounted horizontally and the output shaft is coupled to a 90 degree gearbox, which drives a vertical shaft. Shifting is accomplished in the lower unit with a conventional outboard dog-clutch configuration. The turbine has an air-to-air coupler, which allows the output shaft to be stopped without causing the engine to stall. A hydraulically controlled disc brake on the gearbox stops the vertical driveshaft when shifting, which greatly reduces dog-clutch wear.

MILITARY DUTY

The armed services have shown an interest in the Mercury turbine outboard as a replacement for conventional outboards, motivated by an objective to eliminate gasoline. Using one fuel for everything simplifies logistics, and this engine will run on diesel, kerosene or jet fuel.

This experimental engine was mounted on a 26-foot Munson Landing Craft. With a good-sized load, including a jeep, the boat can reach speeds in excess of 40 mph. Compared to a conventional outboard, starting is more time consuming. Once it has wound up to speed, acceleration is strong. The Flo-Scan fuel flow meter showed a burn rate of approximately 27 gallons per hour at wide-open throttle (WOT). This is comparable to or slightly better than we would expect from a 320 hp conventional V-8 engine. This gas turbine, as in most aircraft applications, is most efficient when running close to WOT, at which point it emits a thunderous roar, thanks to above-water exhaust.

If it ever makes it to the civilian market, this will not be a cheap engine. Aircraft gas turbine engines are horrendously expensive.

IN OTHER NEWS

As you may remember, in this column in the December 2000 issue ("Mega Mercs"), I told you that Mercury was developing a four-stroke V-6.

Well, now it is here. It is a surprisingly compact four-stroke V-6 that develops 250 hp. Details are sketchy, but it is reported that the Mercury is extremely lightweight, employs a considerable amount of composite materials and tips the scale at only a few pounds more than the 200 hp OptiMax.

We may see a formal introduction at the Miami International Boat Show in February of this year, with possible availability in midsummer as a 2002 model.