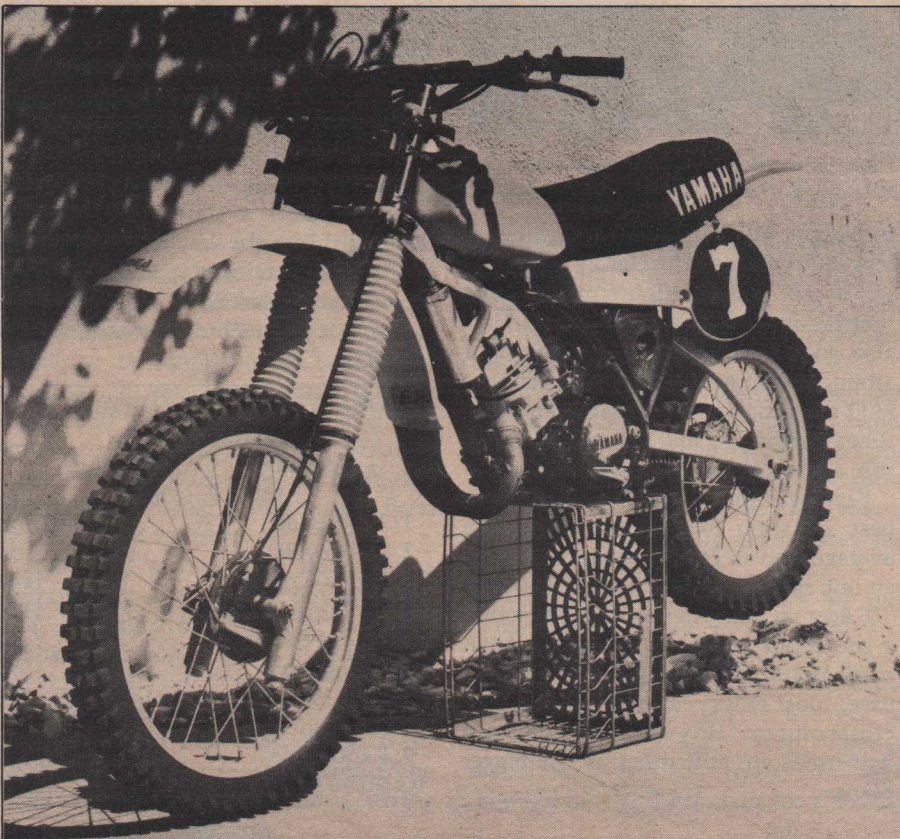


Here you can see a standard barrel and the heavily modified waterjacket barrel.

WATERCOOLING FC



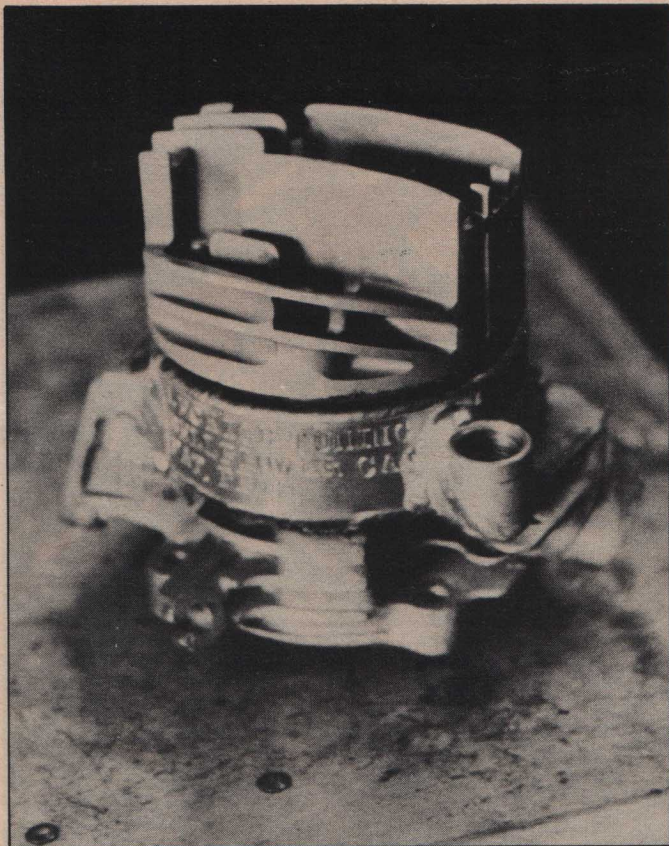
LIQUID LUXURY

By Brian George

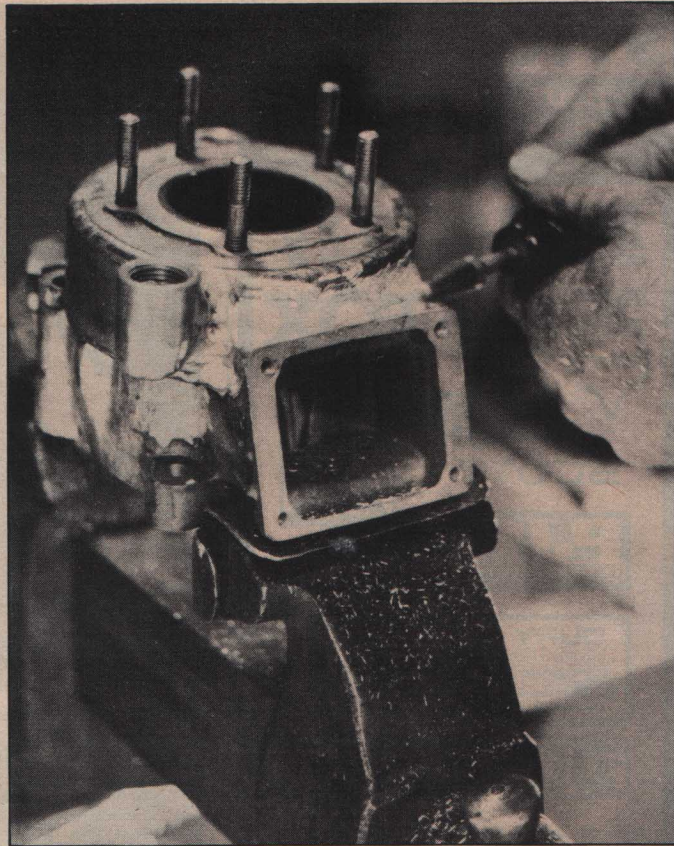
Modifying one of today's racebikes is serious business. Lots of dollars are spent by riders trying to get that extra "edge" over their competition.

There are many different ways to spend money on modifications, too. Some riders prefer to get the ultimate suspension setups for their bike, while others work on getting the most out of their powerplant. And most of them do both.

One new modification is becoming a standard "must" for 125s, and that is watercooling. On both 125s and 250s, riders are finding that in a 45-minute moto, the power lost by an overheated engine can be crucial. The power output of today's engines is creating some enormous heat build-up, and halfway through a long moto, the horsepower sucked away by all of the heat can mean the difference between winning a moto, and fighting just to



The head does not receive water-cooling, but the fins are turned down to match the contour of the barrel.



The intake/reed cage area looks absolutely massive with no fins on the barrel.

DR MOTOCROSSERS

keep up.

There are other benefits to water-cooling besides just the extension of the motor's power. The life expectancy of an engine is increased to almost three times that of a normal air-cooled cylinder. In our minds, this makes water-cooling not only a luxury of the elite competitors, but a practical addition to anybody's weekend racer. Both motocross and desert bike engines can get increased life spans way beyond the usual. For this reason, we decided to look into the art of water works cylinders.

A number of companies, such as Leckich Tuning and Porting and Mugen Power Machines, are building water-cooled cylinders these days, but a vast majority of the water-cooled bikes springing up across the country are home-grown models designed and manufactured inside of a garage. While some of these admittedly look trick, the problems that can be encountered when building one of these systems without the knowledge of the experts

can be overwhelming. Probably half of the water pumpers ever developed at home have been shelved because of numerous setbacks and unforeseen roadblocks.

Leckich has been building water-cooled motors since 1976. The whole operation is run by Jerry Leckich and his three sons Mike, Brent and Jeff, and their first experience in liquified heat reduction came with the water-cooled heads that were manufactured back in the mid-seventies.

Jerry, a former race car driver and Indianapolis car mechanic, was using his porting knowledge on his son's desert bikes and Honda Odysseys, but the constant overheating of the Odyssey started him thinking about the possibilities of water-cooling. He bought one of the heads for the 250cc engine, and found out that it wasn't doing the job he expected of it. He concluded that the heat from the cylinder was the main cause of the power loss, and that it would be better to cool the cylinder, rather than just

the head. From there, he built a waterjacket and began welding up his first water pumper.

He knew the problems the 125s were having with heat build-ups, and knew the advantages that water-cooling would lend.

We followed Leckich through a conversion on our Yamaha YZ125G test bike. This bike had a lot of miles on it and would clearly lose power at the 15 minute mark. The fins on both the barrel and head are milled down, then the waterjacket is welded onto the barrel. After the rough barrel is carved, a long process of grinding begins to smooth out the welds and excess finnage. A brief sanding (for looks), then the barrel and head are glass-beaded for a "cast" look.

To ensure the quality of the jacket, each cylinder is pressure-tested before it is sent out, and if it fails the test, everything is rewelded, filed back down, and pressure tested again.

Once the cylinder is complete, the radiator is built up from scratch. Each

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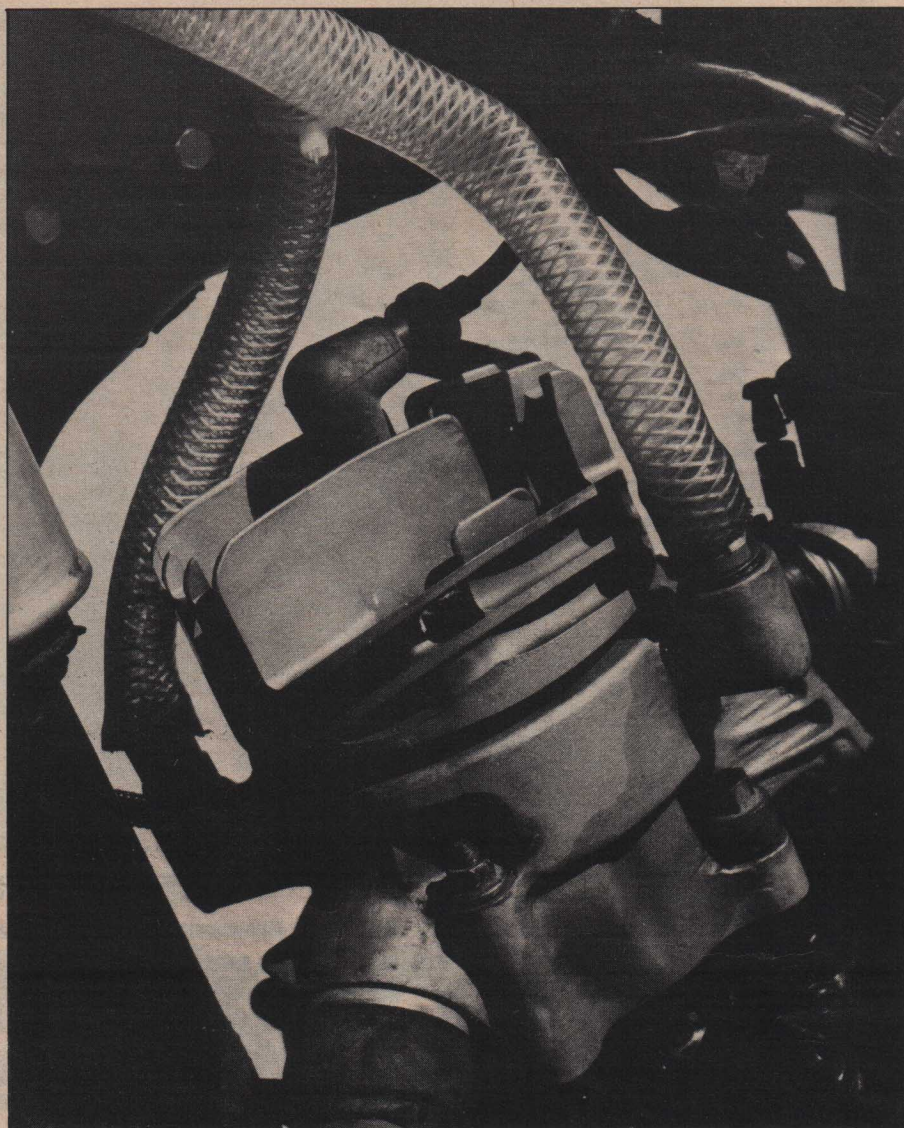
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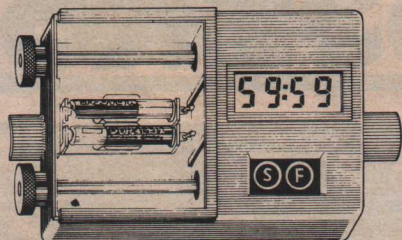
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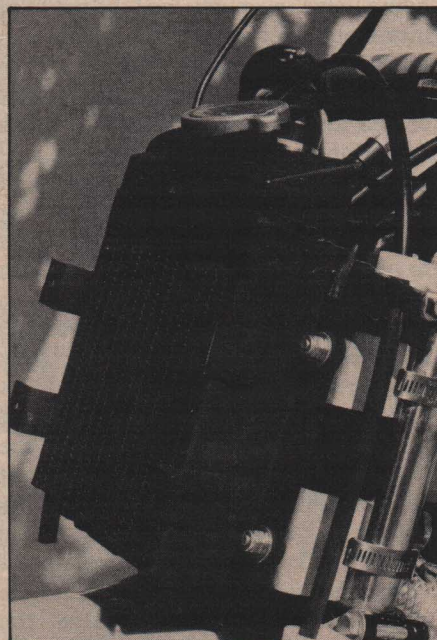
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radiator is pressure tested, and built to work under seven pounds of pressure during normal use. This eliminates any sudden bursts of hot water or anti-freeze if a leak should occur while riding, and allows the radiator cap to be removed right after riding to check the fluid levels.

When riding a water-cooled bike, there is no difference in the amount of power. The jacket doesn't make the engine any faster, it just keeps the horses there longer. The whole radiator adds only a few pounds to the bike, and is easy to get used to in a short time.

The whole package, including all of the cylinder work, radiator, brackets and hoses, goes for \$380. This brings it within reach of most racing budgets, especially when you consider the fact that your engine will last much longer. □

Where To Get It

Leckich Tuning and Porting
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Bellflower, California 90706
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