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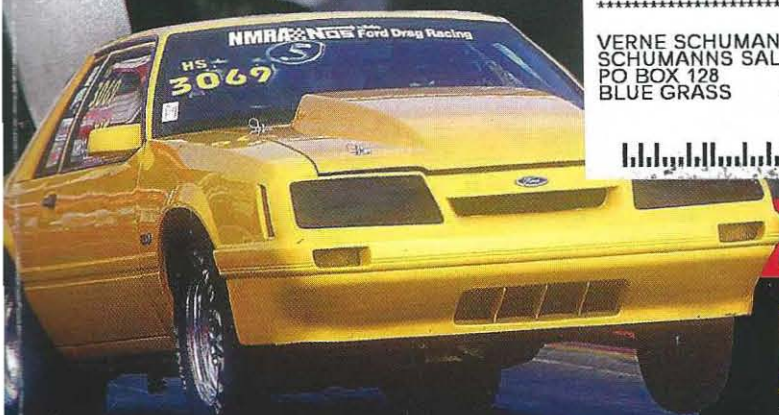
The Voice of the Racing Marketplace

Volume 16, Number 8 August 2001

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PISTONS & RINGS Update

3 mm oil ring," confirmed Prock. "They've narrowed that considerably from 3/16. We buy rings from Childs & Albert and Speed Pro. Speed Pro's Competition Series ring seems to be the up-and-coming ring for nitrous applications. It's nichrome plasma-faced, and they make it in a .043 thickness. They are used in the NMCA Fastest Street Car Competition. Those engines make intense cylinder pressure and heat, and they are always looking for higher crankcase vacuum, higher rpm, and better oil control. And the Speed Pro rings seem to survive pretty well."

"Total Seal has been developing a lot of new and different rings," noted Fife, "and in the last couple of years their gapless top ring is beginning to get some recognition." Again, however, the import market is driving the development of new ideas—and of old ideas applied to smaller engines. "They've come up with a small-bore dike ring," Fife continued, "which picks up air as it flows over the piston. It's L-shaped, so it forces air in behind it to seal it against the cylinder wall. It works well in turbo applications; we've seen good results in applications up to 35 psi, and we think it could take even more than that."

With so many more applications available—and so many more opportunities for confusion, Hi-Tech is beginning to package more pistons and rings together. "We've started to supply a lot of our pistons with rings," noted Falkenrath. "There are so many options, like shallow grooves and deep grooves, especially with diesels and imports. So we are just shipping the rings with the pistons. It's just so much better for the customer when everything matches up."

Schumann's Dynamic Performance, Blue Grass, Iowa, offers piston rings in 600 and 1,000 horsepower versions. "The 600 horsepower Dynamic

Performance Rings are ductile iron, plasma moly, close tolerance, 80,000 psi high strength racing top rings," said Verne Schumann. "The rings are high strength, low porosity ferrous alloy, with reverse torsion tapered face design which yields an effective low friction unit that eliminates top ring residual pressures that can lift the top ring off its piston land seating and affect the top ring performance."

Schumann's 1,000 Horsepower Performance Racing Industry

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Dynamic Performance rings are "over designed with technically advanced metallurgy high density, low porosity high heat transfer composition ferrous alloys destined for top and second compression rings," he said. The 1,000 Horsepower Dynamic Performance Rings are available in 5/64, 1/16, 1.5 mm and 1.2 mm compression rings and oil rings of 1/8, 3/16, 4 mm and 3 mm.

Even cylinder sleeves have benefited from advancing technology. Ductile iron—first developed for engine blocks around 1960—has been used in sleeves only since the 1990s. "And we haven't advertised it except for the last two years," said Dave Metchkoff, of L.A. Sleeve Co., Santa Fe Springs, California. "Nobody made sleeves out of it because it was hard to machine, and hard to seat the rings. But we've come up with a combination that has been working for us and for many customers." He said the beauty of the material "is that it stays round; it returns to its shape." For a moderately tuned, naturally aspirated motor, it's just not necessary, continued Metchkoff. "But ductile iron is what we use for performance applications: Blown alcohol, Top Fuel, NASCAR, Indy cars."

More recently, however, Metchkoff has noted a demand for ductile iron sleeves in the import performance market. "There is tremendous, untapped potential in that import market. There is a demographic of about 15-18. Those kids love the Honda/Acura 1.6- and 1.8-liter motors, and they love boring those motors 2 mm over. And we have a sleeve for that application. You want to sleeve a Honda motor because 30 pounds of boost will split the block. We make a thick, flanged sleeve that will withstand 30 pounds of boost and keep the motor together."

"Pistons are not an impulse item," said Mills. "Either you need a set of them, or you don't. When we advertise, we're not trying to convince someone that they need new pistons; we're trying to convince someone who needs pistons to buy our pistons rather than Brand X."

On the other hand, noted Levis, a piston is "a renewable part, an expendable part. You have to replace them. And the lighter a piston is, and the more horsepower they are getting out of it, the less time it will last."

PRI

August 2001

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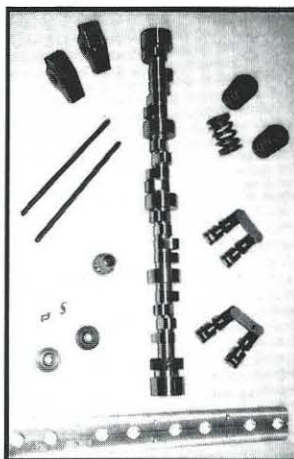
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