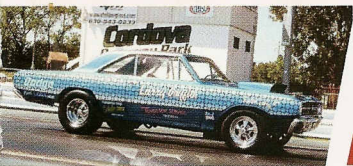


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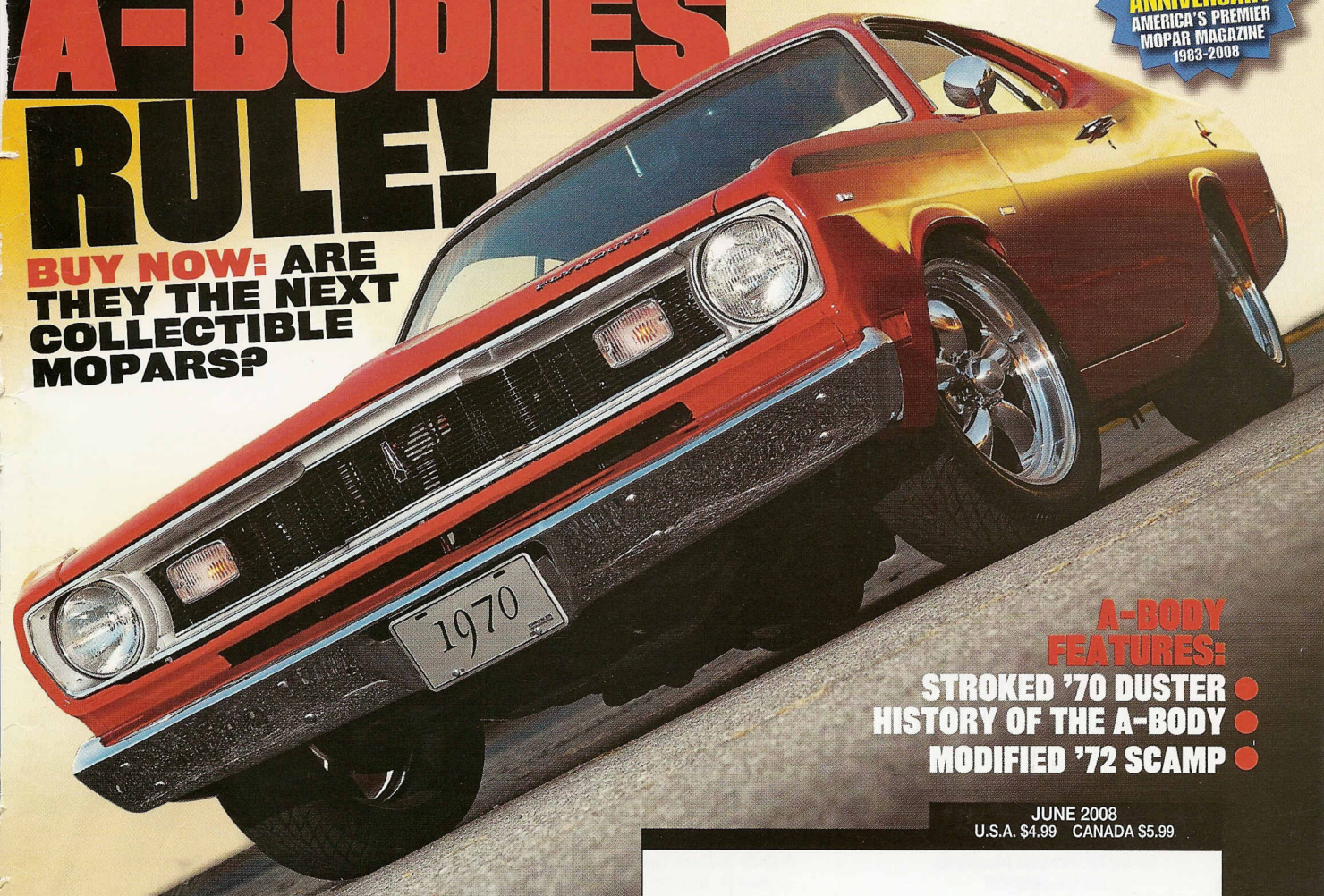
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THE MOPAR MUSCLE / AMSOIL ENGINE CHALLENGE

STREETABLE SMALL-BLOCKS

TEXT: DAVE YOUNG

PHOTOS: DAVE YOUNG AND RANDY BOLIG



Speed-O-Motive and Muscle Motors placed Fifth and Sixth, respectively, in the Mopar Muscle/Amsoil Engine Challenge. Follow along to find out what's inside these two stroker small-blocks.

This year's Engine Challenge has certainly brought attention to the Mopar small-block and its propensity for making horsepower. Engine builders from around the country built some stout small-blocks for our contest, and some of the dyno numbers would have been impressive even for big-block engines. It takes careful planning and hard work to be competitive in our contest, and since cost is just as important as power, parts selection

is critical.

This month, we'll go inside the Speed-O-Motive and Muscle Motors entries in our

contest and detail the parts and techniques each engine builder used to be competitive in our contest.



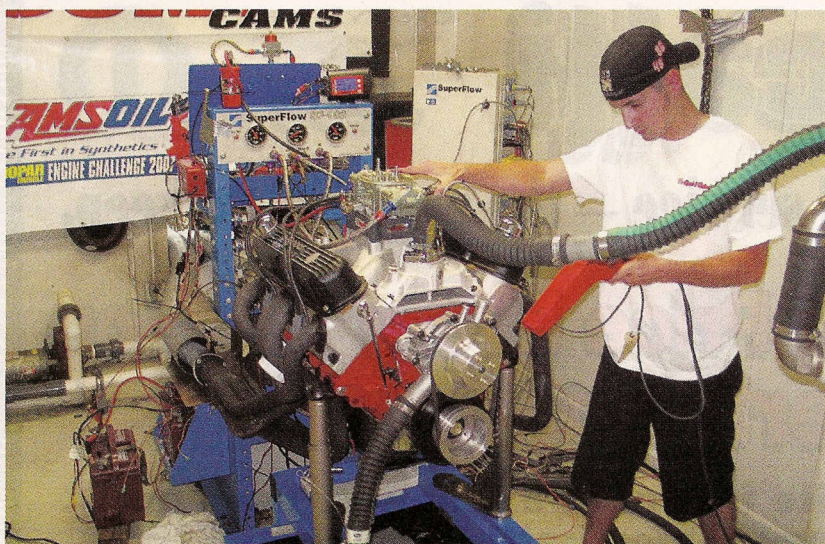
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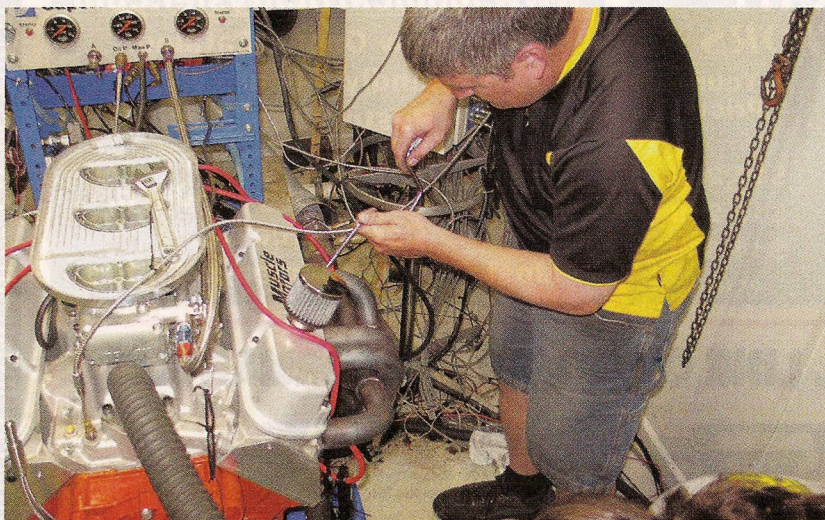


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Engine builder and dyno operator Tucker Caven of Speed-O-Motive tuned his stroker small-block to nearly 530 hp for the second highest power score of the contest.



Though he brought one of the smallest displacement engines to our contest, engine builder Mike Ware of Muscle Motors impressed us when his 400ci small-block screamed to more than 450 hp and a stump-pulling 456 lb-ft of torque on Comp's dyno.



Comp Cams hosted our dyno challenge again this year, offering their research facility, dyno cell, and personnel to ensure our contest ran smoothly.

PARTICIPANTS

Diamondback Engines
7723 FM 723
Richmond, TX 77469
281/238-6900
diamondbackengines.com

Indy Cylinder Head
8621 Southeastern Ave.
Indianapolis, IN 46239
317/862-3724
indyheads.com

Mid America Racing Engines
1945 W 18th St.
Washington, IA 52353
319/653-6282

MRL Performance
4651 Culley Ln.
Jackson, MI 49201
517/569-2672

Muscle Motors
2085 Glenn St.
Lansing, MI 48906
517/482-4900
musclemotorsracing.com

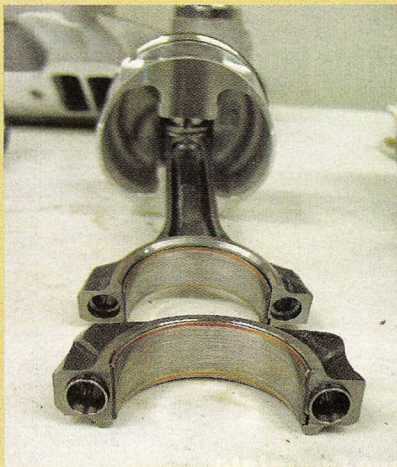
R.M. Competition
28648 Maple
Roseville, MI 48066
586/909-1591

Schurbon Engine and Machine
203 S. Clark St.
Maquoketa, IA 52060
563/652-3100

Speed-O-Motive
131 W. Lang Ave.
West Covina, CA 91790
626/869-0270
speedomotive.com



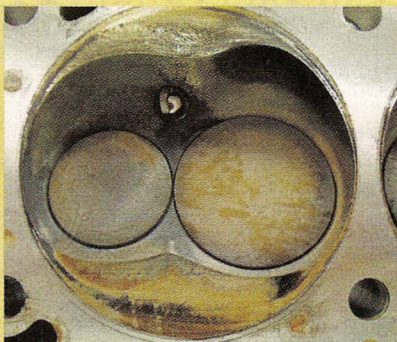
Remember, these aren't high-compression race engines—they all had to run on Rockett Brand 93-octane, unleaded pump gas.



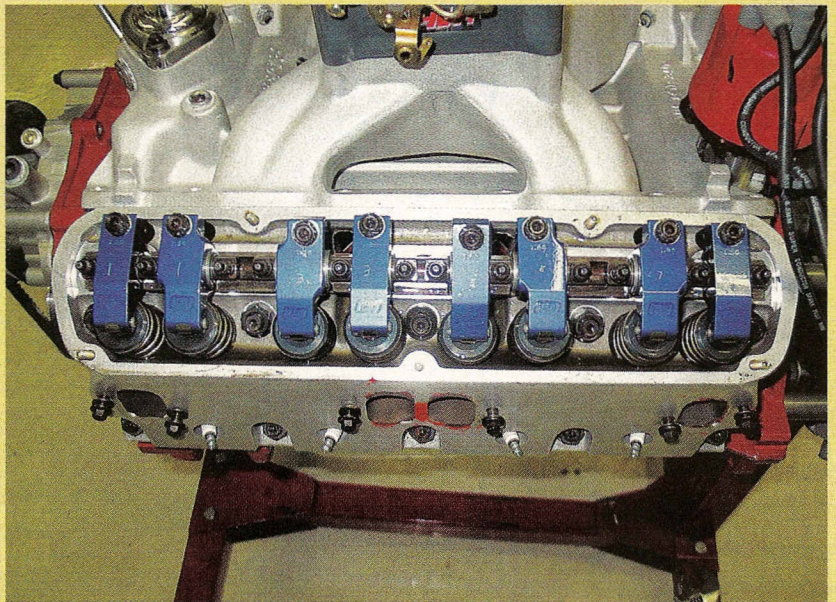
During the tear-down, there was no evidence of abnormal wear. True to form, Speed-O-Motive built a powerful, durable engine for our competition.

The right cylinder heads are vitally important to the goal of producing power, and Speed-O-Motive made a slightly unconventional cylinder head choice for their engine. Instead of using factory Magnum heads, or an aftermarket Mopar or Indy head, Brodix B1B-AMC cylinder heads topped this small-block. Though somewhat more expensive than more conventional heads, the B1s are known for their power potential. Speed-O-Motive optimized their heads by installing Competition Products roller valvesprings and porting the heads in-house to improve flow. T & D rocker arms were used to actuate the valves, and a Howard's cams solid roller camshaft and lifters were utilized to actuate the valvetrain. Up top, an Edelbrock Victor 340 single-plane intake was matched with a 1,000-cfm Holley carburetor for induction. The mixture was ignited by an MSD distributor and ran very well—to the tune of nearly 530 hp and a Fifth Place finish in our contest.

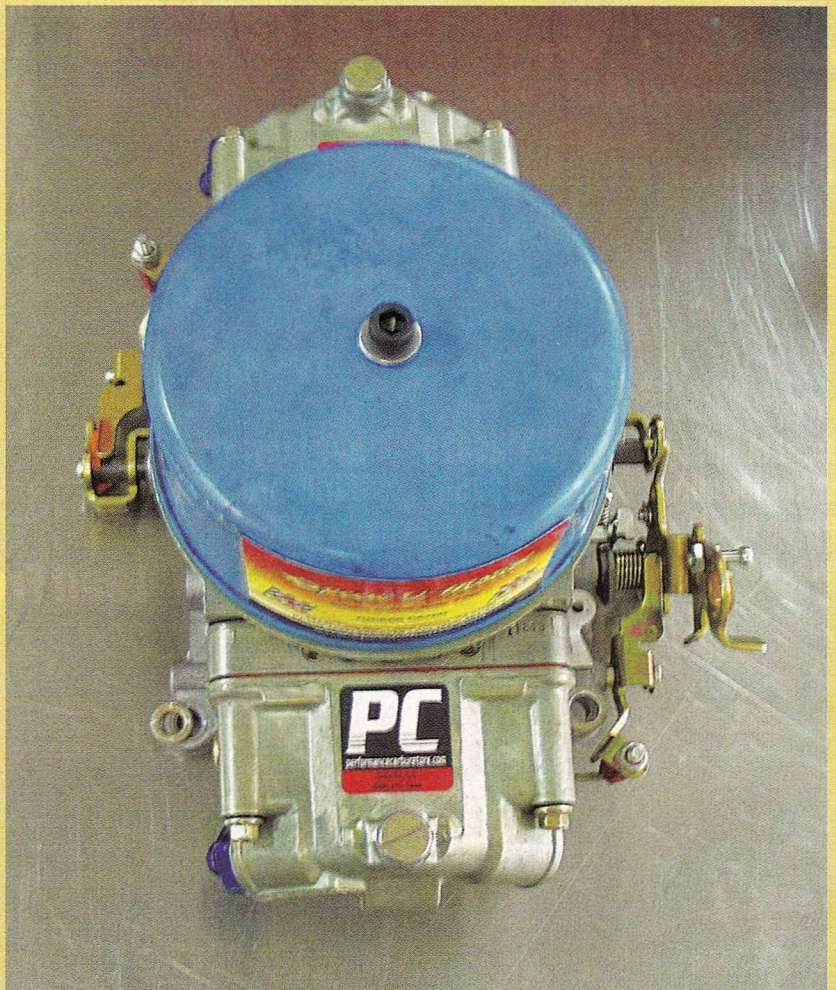
Congratulations to Speed-O-Motive for placing so well.



Large valves, relatively small combustion chambers, and dual quench areas make the Brodix B1-AMC heads a great choice for serious small-block power.

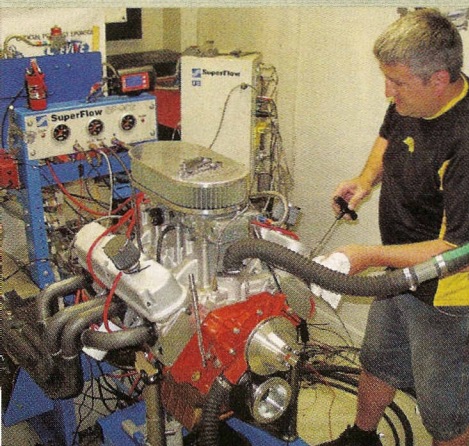


T & D shaft-mounted rocker arms are some of the best rockers on the market, but they also added to the expense of this engine, perhaps keeping Speed-O-Motive from placing better in our contest.



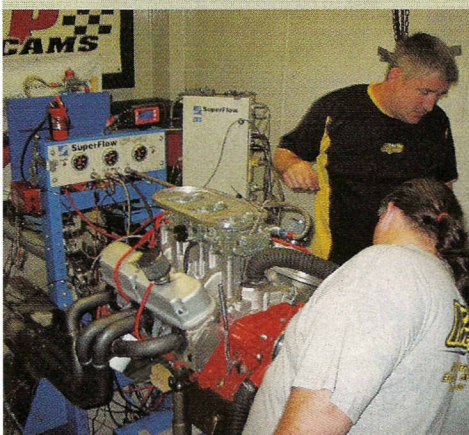
A Performance Carburetors-prepped Holley and Edelbrock Victor 340 single-plane intake handled the induction duties, providing plenty of fuel and air.

MUSCLE MOTORS LANSING, MICHIGAN



Muscle Motors built one of the smallest engines in our competition, and although limited by their induction setup, made plenty of power for a Sixth Place finish.

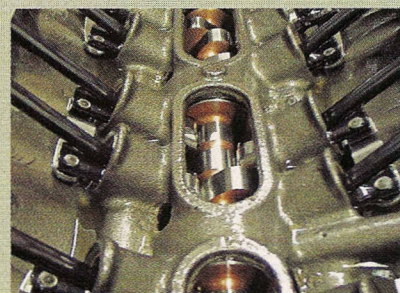
Supplying racers with big power keeps Muscle Motors busy throughout the year, so when time was short for our contest, engine builder Mike Ware made an executive decision. Instead of building an engine strictly for our competition, Mike got permission to bring an engine that he was already building for a customer. While he knew the small displacement and expensive parts in this motor would likely keep him from a top finish, he says this engine is more representative of what customers want. Rather than purpose-built dyno engines, Mopar customers today demand powerful, reliable engines that will last for many years in a street car, or many passes in a drag car.



The Muscle Motors entry made more than 450 hp and nearly 460 lb-ft of torque. Impressive numbers for a mere 400 ci of pump-gas small-block.

Starting with a factory block, engine builder Mike Ware performed all the necessary machine work in-house at Muscle Motors. Inside the block, he installed a Callies 3.79-inch, stroke-forged crankshaft, 6.379-inch connecting rods, and Ross 11:1 compression forged pistons for a final displacement of 400 ci. Oiling was handled by a Melling oil pump, Milodon deep pan, and Milodon windage tray. Since roller cams are known for making great power and providing improved reliability, Mike chose a solid roller cam for this engine.

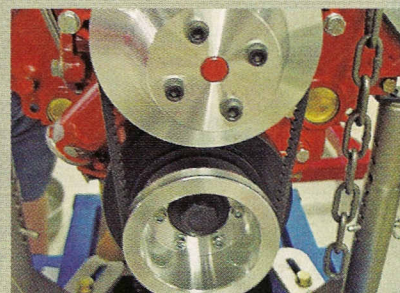
Topping his bulletproof short-block, Mike chose Edelbrock Performer RPM cylinder heads. He stated that the Edelbrock heads have great flow for the money, and since most Mopars are at least slightly front-heavy, aluminum heads are a great way to shave



Engine builder Mike Ware chose a solid roller cam for this engine to improve both power and reliability.

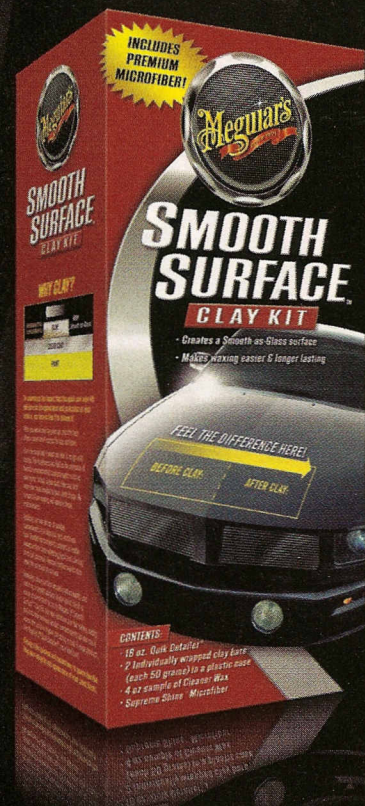


During tear-down, it was apparent that Muscle Motors had spared no expense on this engine. With a Callies crank, Ross forged pistons, and complete Milodon oiling system, this engine should give many years of great street performance.



Under-driving the water pump is just one of the tricks Mike Ware used to tweak every available horsepower from his potent 400ci small-block.

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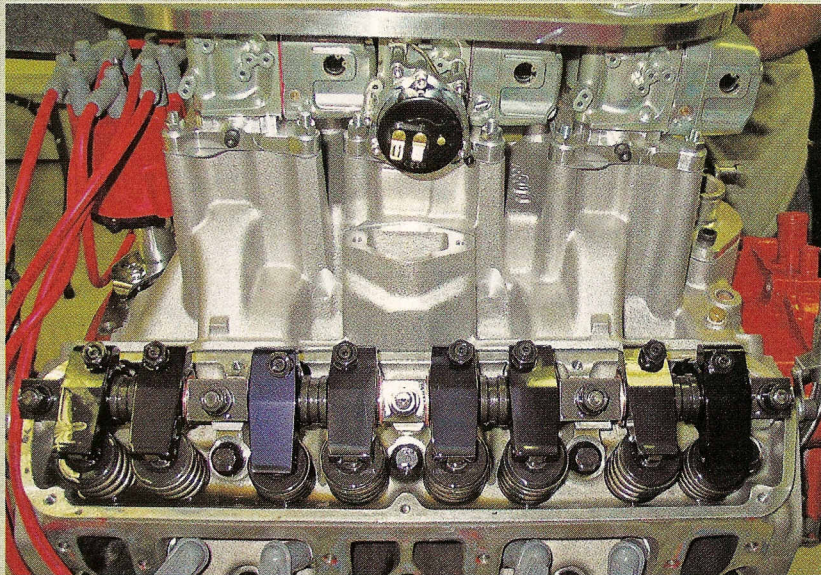
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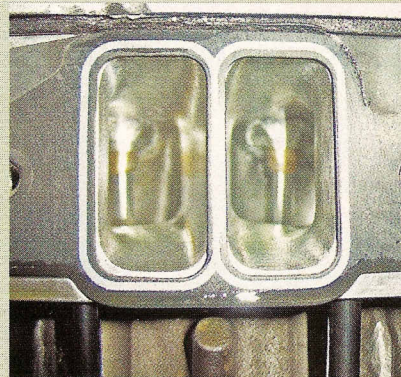
some 40 pounds from the front of the car. The heads were ported in-house at Muscle Motors before being treated to a multi-angle valve job, stainless steel valves, and new roller valvesprings. Since this engine was a customer's and would be installed in a T/A Challenger clone, Six-Pack induction was mandatory. While Mike knew the dual-plane Six-Pack intake would limit peak

power numbers, he chose his combination accordingly and made up for the loss of peak power in torque. In fact, this engine made as much torque per cubic inch as the top motors in this year's contest.

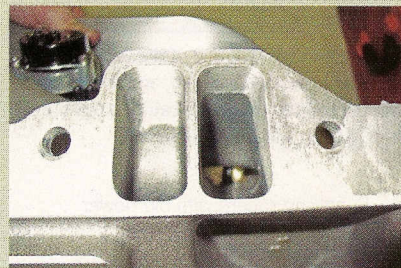
We congratulate Mike Ware and Muscle Motors for their Sixth Place finish, and, more importantly, for showing us the potential of a Six-Pack-equipped small-block. **MM**



A Six-Pack intake with a trio of Demon two-barrels adorned the Muscle Motors entry. This will make a great engine for the T/A Challenger clone it will power.



Edelbrock Performer RPM cylinder heads were chosen for their proven power potential as well as their light weight. The heads were ported in-house by Muscle Motors.



Though limited by the single-plane design of the Six-Pack intake, Mike optimized flow by port-matching the intake to the ports of the cylinder heads.



Though not purposely built for our dyno challenge, the Muscle Motors entry impressed us with excellent power and enough torque to move a house.