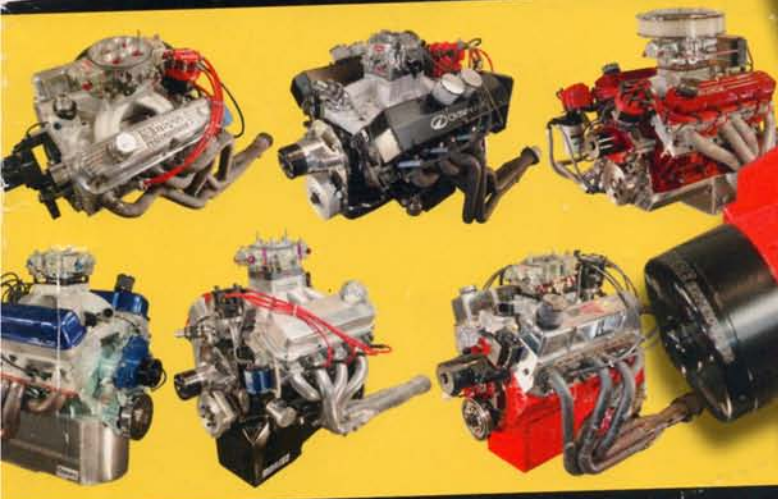
FREE 2009 CALENDAR INSIDE

SPECIAL REPORT: 40TH ANNIVERSARY OF THE COPO CAMARO

POPULAR HOT RODDING

MUSCLE CAR ENGINE SHOOTOUT

22 MOTORS DYNO TESTED!



FORD • CHEVY • BUICK • OLDS • PONTIAC • MOPAR

GOODGUYS COLUMBUS ACTION

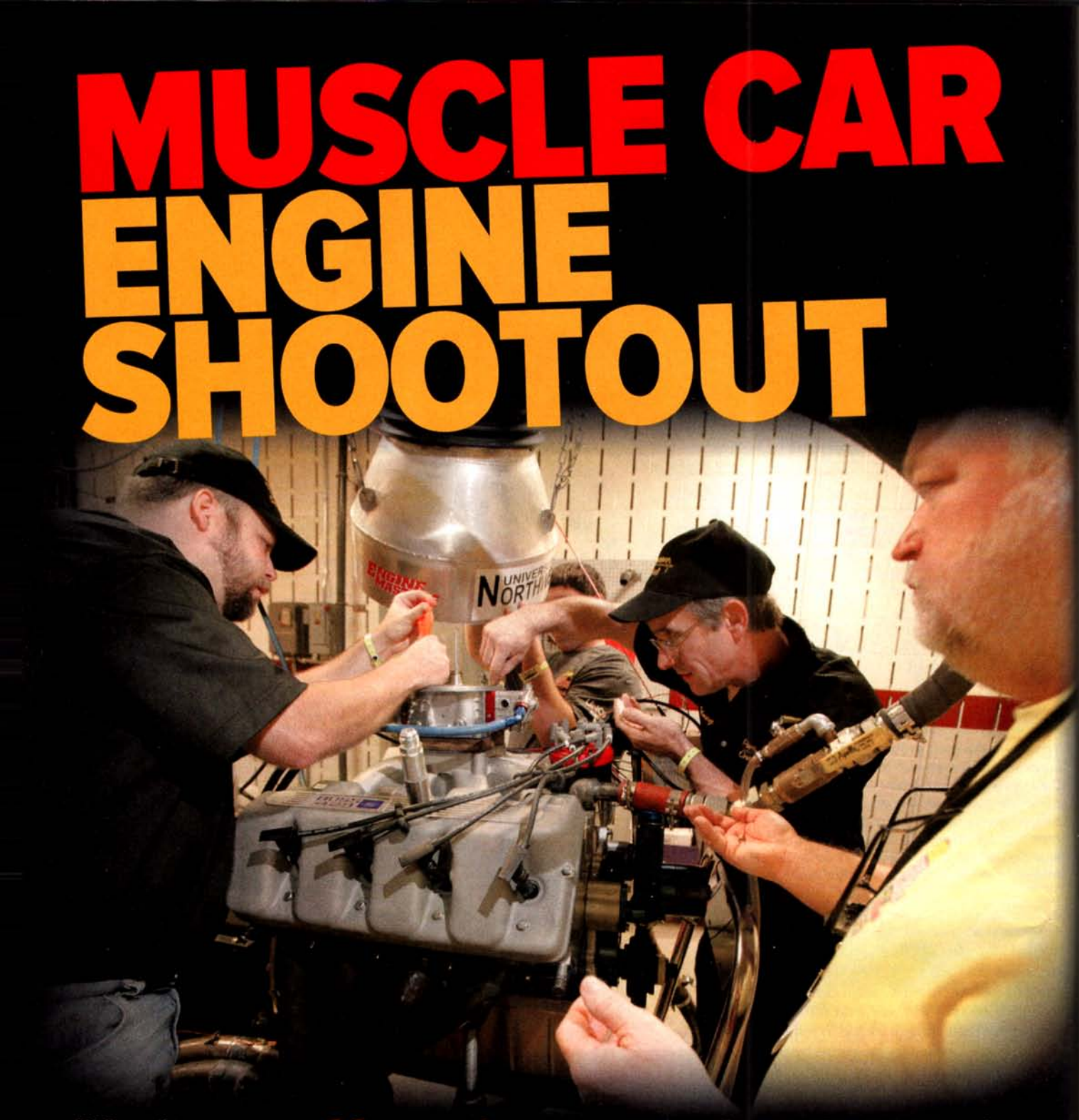
PLUS:

BULLETPROOF OVERDRIVE!
A 700-R4 THAT HANDLES 600 HP

LOUD & PROUD!
EASY ELECTRIC EXHAUST CUTOUTS

WIN THIS NOVA!
614HP LSX-POWERED CHEVY II

MUSCLE CAR ENGINE SHOOTOUT



We dyno test 22 muscle car powerplants large and small at the 2008 Jegs Engine Masters Challenge. How did your favorite engine fare?

By Johnny Hunkins & Liz Miles • Photography by Johnny Hunkins

You wouldn't know it from looking at the engine tech featured in most magazines, but the world was once inhabited by more than small- and big-block Chevys, a few small-block Fords, and a smattering of Mopars. When the pages of car mags and the online forums are chock-a-block full of Camaros, youngsters could easily be forgiven for thinking F-bodies with small-block Chevys were the only thing that roamed the streets in 1969. *Au contraire*!

The 1960s and 1970s were a rich, diverse cornucopia of horsepower—without an import in sight, save a VW or two. Buicks, Pontiacs, Oldsmobiles, Mopars, and many flavors of Ford and Chevy—both big and small—roamed the boulevards, dispensing street justice at the drop of a hat. In those days, you could argue for days about which powerplant was best, but in the end, the formula was just too complex to declare a knock-out. You simply can't know what engine is best when

so many variables need to be pinned down and taken into account. Which engine is bigger? Which car is heavier? Which one has more compression? Who's got a fair dyno?

The Jegs Engine Masters Challenge endeavors to answer the question of which muscle car engine is best, but to do that fairly, you've got to set some limitations and establish boundaries. Adding to your excitement, we bring into the equation some of the best engine builders in their respective fields, as well as big cash prizes to make it worth the effort. We can't have any Olds guys crying foul because a Chevy guy built an Olds 400, can we?

In the spirit of fairness, you've got to first account for the disparity in engine displacement, otherwise the biggest big-blocks would rule the roost. Your solution is to divide the "power" score by cubic inches to level the playing field. As in past years, that "power" score is the average of torque and horsepower in a range between 2,500 and 6,500 rpm (from three competitive dyno pulls). Those torque and hp numbers are added together for the score, then divided by cubic inches for the factored, final score.

Parity is also achieved by limiting bore and stroke to the stock dimensions, giving a slight amount of wiggle room for bore clean-up. Another thing you can do is limit the compression ratio—which we set at 10.5:1. This keeps things real, allowing 91-octane pump gas to be used. The most controversial move we made is with the valvetrain, which we limited to a flat-tappet mechanical cam. That's what was used back in the day for max-effort factory hot rods—and that's what we went with here, right or wrong. In any case, a flat-tappet is somewhat self-limiting in the lift department, and since we didn't want to get into imposing lift limits, it was a logical solution.

We could quibble about all the smaller, tweaky rules, but the one you'll relate to the most is that we limit competitors to using commonly available cylinder heads and intake manifolds. Builders can do as much love rubbing on them as they want, because that's the true measure of a master engine builder. Custom-ground cams are fine, but must retain the factory cam journal diameter. A production-style block with a stock deck height and cam height is also required.

We've tried our level best to create a challenge that you, the typical muscle car fanatic, can relate to. You can read that as engines with pump gas, real off-the-shelf (but massaged) parts that you can buy, a powerband in a streetable range, reasonable street compression ratios, non-exotic rotating assemblies and bearings, and engine sizes you'll recognize and identify with instantly.

What follows is a compilation of how our weeklong qualifying dyno sessions played out. All the key specs are listed, as well as the dyno numbers from an engine's best dyno pull during qualifying. Each qualifying score is the composite of the three qualifying pulls, and has taken into account the difference in cubic inches.

If you already peeked, you know that Jon Kaase's 400M Ford small-block was both top qualifier, and the eventual winner. That may not sit well with purists who remember the old days. The 400M was more of an agricultural implement—found in trucks, not muscle cars. And that's the rub, because it really highlights the fact that engine technology has marched on at the urging of many resourceful aftermarket manufacturers. Yes, the game has changed significantly in the last 30 to 40 years, and will change even more in the coming years. That's why we will be asking the same question in the 2009 Engine Masters Challenge! PHR

"Buicks, Pontiacs, Oldsmobiles, Mopars, and many flavors of Ford and Chevy—both big and small—roamed the boulevards, dispensing street justice at the drop of a hat."

MPG HEAD SERVICE 400M SMALL-BLOCK FORD

CLAIMED DISPLACEMENT: 405 CI
QUALIFYING SCORE: 2,499.1

Team leader:	Scott Main
Team members:	Bob Moore
Hometown:	Eaglewood, CO
Bore:	4.005 inch
Stroke:	4.012 inch
Compression ratio:	10.3:1
Carburetor:	Holley, 1050 cfm
Carb spacer:	CHI
Intake:	CHI
Cylinder heads:	CHI
Block:	Ford
Intake valve:	2.150 inch
Exhaust valve:	1.600 inch
Camshaft specs:	Cam Research; 244/246 degrees @ .050
Rocker arms:	T&D, 1.8:1
Crankshaft:	Scat
Rods:	Scat
Pistons:	CP
Rings:	Speed-Pro
Ignition:	MSD
Oil:	Royal Purple, 5W-30
Headers:	Hooker, 1 7/8-inch
Mufflers:	Magnaflow

DTS DYNO DATA BEST QUALIFYING PULL

RPM	TQ	HP
2,500	477	227
2,600	487	241
2,700	496	255
2,800	491	262
2,900	490	271
3,000	491	280
3,100	487	287
3,200	477	291
3,300	471	296
3,400	476	308
3,500	490	326
3,600	507	347
3,700	526	370
3,800	542	392
3,900	556	413
4,000	565	431
4,100	574	448
4,200	580	464
4,300	587	481
4,400	590	495
4,500	594	509
4,600	598	524
4,700	602	539
4,800	**606**	554
4,900	605	565
5,000	604	575
5,100	603	585
5,200	601	595
5,300	597	603
5,400	589	606
5,500	582	610
5,600	576	614
5,700	574	623
5,800	572	632
5,900	568	638
6,000	565	646
6,100	561	651
6,200	554	655
6,300	543	651
6,400	532	**648**
6,500	521	645