

> DRAG PAK CHALLENGER: We Show You How It's Built



MOPAR



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JUNE 2011

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ENGINE CHALLENGE
SIX PARTS LISTS AND DYNO NUMBERS



THE 2010 AMSOIL/MOPAR MUSCLE ENGINE CHALLENGE



The 2010 Engine Challenge featured the Mopar small-block, with Indy/RHS X cylinder heads. This month we'll show you the parts it took to build them, and the numbers straight from Comp's engine dyno.

PARTS LISTS AND DYNO NUMBERS FOR SIX POWERFUL SMALL-BLOCKS

TEXT: DAVE YOUNG **PHOTOS:** DAVE YOUNG AND RANDY BOLIG

The 2010 AMSOIL/Mopar Muscle Engine Challenge featured the Mopar small-block, and all of the competitors were required to use the same RHS/Indy X cast iron cylinder heads on their engines. By now we're sure you know that Schurbon Engine and Machine won the 2010 contest, which was judged by the most peak horsepower per cubic inch. All of the engines in the 2010 contest

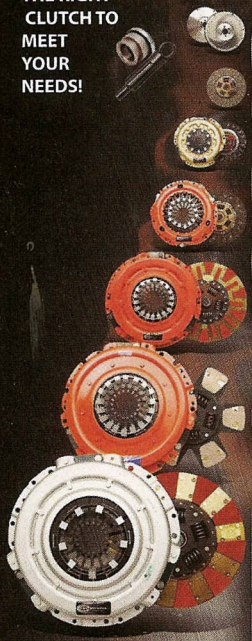
were impressive, and the fact that none of these engines failed is a testament to sound Chrysler engineering and the professional engine building techniques employed by the contestants. This month we'll give you a list of the parts that went into the engines and show you the dyno sheets attesting to their power. Each engine shop is listed in the order they finished in the 2010 AMSOIL/Mopar Muscle Engine Challenge.

Building powerful and durable engines

takes great skill, and this year's small-blocks impressed everyone as each of the engines that made the required dyno pulls scored well over one horsepower per cubic inch running on Rockett Brand 93 octane unleaded gasoline. In fact, we'd love to have any of these engines for one of our Mopars as they all impressed us with their power and durability. As you'll see from the parts lists and dyno sheets below, these small-blocks didn't act so small with some making horsepower



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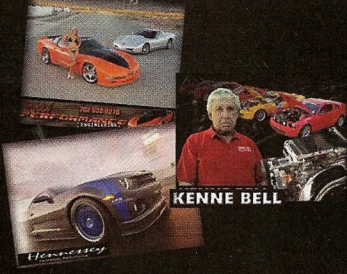


The Definition of DYAD:

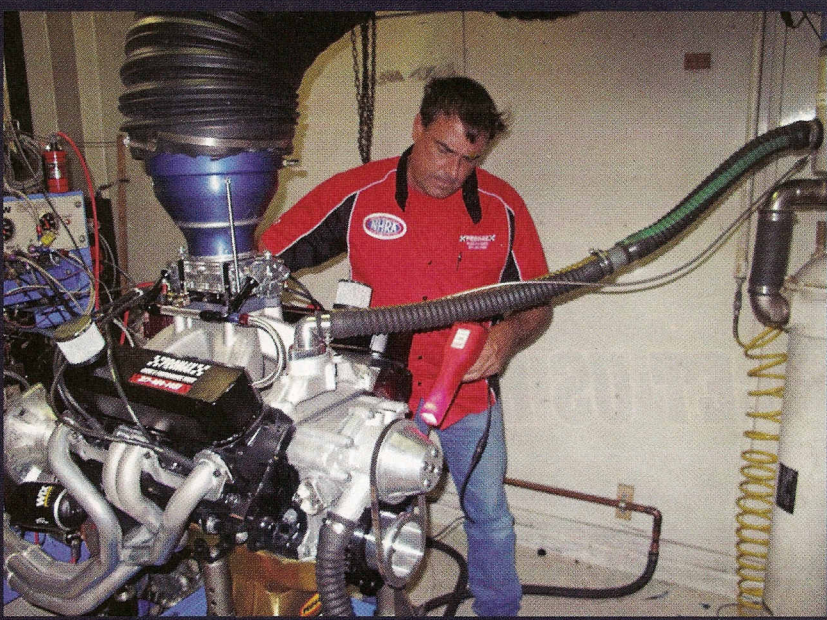
"\dy ad\ Two units treated as one; a couple; a pair, or combining power of two."



NEW!



KENNE BELL



Dyno testing Mopar engines is great fun, and we appreciate the participation of the contestants and sponsors of our event. Best of all, we get to give our readers real world power numbers for engines that are very similar to what they would build.



Remember that these engines were limited to RHS's cast iron replacement cylinder heads, making the power numbers even more impressive. These engine builders showed the capability of the RHS/Indy X heads on small and large displacement engines, making them a good choice for your next small-block build.

numbers that would be impressive even from larger displacement engines. Be sure to visit our website where you can see videos of the 2010 contest, and check out the rules for the 2011 contest which will feature a big-block Mopar engine.



Our sponsors are an important part of the Mopar Muscle Engine Challenge, and we wouldn't be able to host the contest without companies like AMSOIL, Comp Cams, Cometic, Clevite, and Rockett Brand racing fuels. We appreciate their support and thank them for allowing us to provide our readers this valuable information.

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SCHURBON ENGINE AND MACHINE



At exactly 340 cubic inches, last year's winner Schurbon Engine and Machine brought one of the smallest displacement engines to our 2010 contest, making over 1.5 horsepower per cubic inch for a backup win in this year's dyno competition.

SCHURBON ENGINE AND MACHINE POWER

Test Information:

File name: Schurbon_Challenge13.
Data page: STP Corrected Torque a
Tested on: Sep 13, 2010

| EngSpd RPM | STPPwr CHp | STPTrq Cib-ft |
|---------------|---------------|------------------|
| 3,000 | 183.4 | 321.1 |
| 3,100 | 186.1 | 315.2 |
| 3,200 | 189.8 | 311.5 |
| 3,300 | 194.1 | 308.8 |
| 3,400 | 199.2 | 307.7 |
| 3,500 | 205.2 | 308.0 |
| 3,600 | 212.2 | 309.6 |
| 3,700 | 220.3 | 312.8 |
| 3,800 | 230.0 | 317.8 |
| 3,900 | 241.9 | 325.8 |
| 4,000 | 258.5 | 339.5 |
| 4,100 | 277.2 | 355.1 |
| 4,200 | 294.9 | 368.8 |
| 4,300 | 308.9 | 377.3 |
| 4,400 | 320.5 | 382.6 |
| 4,500 | 330.6 | 385.8 |
| 4,600 | 340.2 | 388.4 |
| 4,700 | 349.9 | 391.0 |
| 4,800 | 358.8 | 393.7 |
| 4,900 | 369.9 | 396.5 |
| 5,000 | 380.1 | 399.3 |
| 5,100 | 390.1 | 401.7 |
| 5,200 | 400.2 | 404.2 |
| 5,300 | 409.9 | 406.2 |
| 5,400 | 419.3 | 407.9 |
| 5,500 | 427.9 | 408.6 |
| 5,600 | 435.6 | 408.5 |
| 5,700 | 442.6 | 407.8 |
| 5,800 | 449.1 | 406.7 |
| 5,900 | 455.1 | 405.1 |
| 6,000 | 461.2 | 403.7 |
| 6,100 | 467.0 | 402.1 |
| 6,200 | 472.6 | 400.3 |
| 6,300 | 478.1 | 398.6 |
| 6,400 | 483.7 | 396.9 |
| 6,500 | 489.1 | 395.2 |
| 6,600 | 494.1 | 393.2 |
| 6,700 | 498.9 | 391.1 |
| 6,800 | 503.2 | 388.7 |
| 6,900 | 506.4 | 385.5 |
| 7,000 | 509.1 | 382.0 |
| 7,100 | 510.8 | 377.9 |
| 7,200 | 511.3 | 372.9 |
| 7,300 | 511.1 | 367.7 |

SCHURBON ENGINE AND MACHINE PARTS

BLOCK:

Factory 340 Chrysler

CRANK:

Factory 318 Chrysler

PISTONS:

CP Bullit forged

CONNECTING RODS:

Dyers remanufactured
forged

CAMSHAFT:

Comp Cams solid roller

TIMING GEARS AND CHAIN:

Cloyes

VALVESPRINGS:

Used Winston Cup

ROCKER ARMS:

Comp Cams aluminum roller

CYLINDER HEADS:

RHS/Indy X heads

INTAKE MANIFOLD:

Indy single-plane

CARBURETOR:

Holley four-barrel

OIL PAN:

Milodon

DISTRIBUTOR:

MSD Pro-billet

PROMAX PERFORMANCE



Promax Performance placed second in this year's competition, using a well-built Chrysler 340 to make an impressive 1.45 horsepower per cubic inch.

PROMAX PERFORMANCE POWER

Test Information:

File name: Promax_Quality28.sfd
Data page: STP Corrected Torque a
Tested on: Sep 15, 2010

| EngSpd RPM | STPPwr CHp | STPTrq Cib-ft |
|---------------|---------------|------------------|
| 3,000 | 208.5 | 365.0 |
| 3,100 | 213.7 | 362.0 |
| 3,200 | 218.2 | 358.0 |
| 3,300 | 222.6 | 354.3 |
| 3,400 | 227.4 | 351.3 |
| 3,500 | 232.9 | 349.6 |
| 3,600 | 239.5 | 349.4 |
| 3,700 | 247.6 | 351.4 |
| 3,800 | 257.9 | 356.4 |
| 3,900 | 272.0 | 366.4 |
| 4,000 | 288.8 | 379.1 |
| 4,100 | 304.7 | 390.4 |
| 4,200 | 319.1 | 399.1 |
| 4,300 | 332.2 | 405.7 |
| 4,400 | 343.5 | 410.0 |
| 4,500 | 354.1 | 413.2 |
| 4,600 | 364.2 | 415.8 |
| 4,700 | 374.2 | 418.2 |
| 4,800 | 384.3 | 420.5 |
| 4,900 | 394.4 | 422.7 |
| 5,000 | 404.4 | 424.8 |
| 5,100 | 414.1 | 426.5 |
| 5,200 | 423.2 | 427.5 |
| 5,300 | 431.5 | 427.6 |
| 5,400 | 438.8 | 428.8 |
| 5,500 | 445.2 | 429.1 |
| 5,600 | 450.8 | 428.8 |
| 5,700 | 456.0 | 420.2 |
| 5,800 | 461.1 | 417.5 |
| 5,900 | 466.2 | 415.0 |
| 6,000 | 471.6 | 412.8 |
| 6,100 | 476.7 | 410.4 |
| 6,200 | 481.7 | 408.0 |
| 6,300 | 485.9 | 405.1 |
| 6,400 | 489.8 | 402.0 |
| 6,500 | 493.0 | 398.3 |
| 6,600 | 495.2 | 394.1 |
| 6,700 | 496.4 | 389.1 |
| 6,800 | 496.7 | 383.6 |
| 6,900 | 495.7 | 377.3 |
| 7,000 | 493.7 | 370.4 |

PROMAX PERFORMANCE PARTS

BLOCK:

Factory 340 Chrysler

CRANK:

Factory 340 Chrysler

PISTONS:

forged flat-top

CONNECTING RODS:

Eagle Forged

CAMSHAFT:

Comp Cams solid roller

TIMING GEARS AND CHAIN:

Comp Cams

VALVESPRINGS:

Comp Cams

ROCKER ARMS:

Harland Sharp

CYLINDER HEADS:

RHS/Indy X heads

INTAKE MANIFOLD:

Edelbrock Super Victor

CARBURETOR:

Promax-prepped Holley

four-barrel

OIL PAN:

Milodon

DISTRIBUTOR:

MSD Pro-billet The Power

MID AMERICA RACING ENGINES



Mid America Racing Engines brought the largest displacement engine to our contest at 408 cubic inches. Making over 580 horsepower, the most of the competition, Mid America placed third in the 2010 Engine Challenge.

MID AMERICA RACING ENGINES POWER

Test Information:
File name: Mid_America_Challenge
Data page: STP Corrected Torque at
Tested on: Sep 14, 2010

| EngSpd RPM | STPPwr CHp | STPTrq Cib-ft |
|---------------|---------------|------------------|
| 3,000 | 246.5 | 431.5 |
| 3,100 | 252.1 | 427.2 |
| 3,200 | 258.7 | 424.6 |
| 3,300 | 265.9 | 423.2 |
| 3,400 | 274.0 | 423.3 |
| 3,500 | 283.4 | 425.3 |
| 3,600 | 294.5 | 429.7 |
| 3,700 | 308.7 | 438.2 |
| 3,800 | 326.8 | 451.6 |
| 3,900 | 346.7 | 466.9 |
| 4,000 | 364.0 | 477.9 |
| 4,100 | 380.0 | 486.8 |
| 4,200 | 394.6 | 493.4 |
| 4,300 | 408.3 | 498.7 |
| 4,400 | 421.2 | 502.7 |
| 4,500 | 433.8 | 506.3 |
| 4,600 | 446.3 | 509.5 |
| 4,700 | 458.9 | 512.8 |
| 4,800 | 471.1 | 515.5 |
| 4,900 | 483.0 | 517.7 |
| 5,000 | 494.0 | 518.9 |
| 5,100 | 504.0 | 519.1 |
| 5,200 | 512.7 | 517.8 |
| 5,300 | 520.1 | 515.4 |
| 5,400 | 526.4 | 512.0 |
| 5,500 | 532.0 | 508.1 |
| 5,600 | 537.6 | 504.2 |
| 5,700 | 543.1 | 500.4 |
| 5,800 | 548.7 | 496.8 |
| 5,900 | 554.8 | 493.9 |
| 6,000 | 561.4 | 491.4 |
| 6,100 | 567.8 | 488.9 |
| 6,200 | 573.0 | 485.4 |
| 6,300 | 577.3 | 481.2 |
| 6,400 | 580.0 | 476.0 |
| 6,500 | 580.5 | 469.1 |
| 6,600 | 580.5 | 462.0 |
| 6,700 | 579.5 | 454.2 |
| 6,800 | 576.3 | 445.1 |
| 6,900 | 571.6 | 435.1 |
| 7,000 | 566.4 | 424.9 |

MID AMERICA RACING ENGINES PARTS

BLOCK:
Factory 360 Chrysler

CRANK:
Eagle forged, four-inch stroke

PISTONS:
CP forged

CONNECTING RODS:
Scat forged

CAMSHAFT:
Cam Motion solid roller

TIMING GEARS AND CHAIN:
PBM

VALVESPRINGS:
PBM

ROCKER ARMS:
Harland Sharp aluminum roller

CYLINDER HEADS:
RHS/Indy X heads

INTAKE MANIFOLD:
Edelbrock single-plane

CARBURETOR:
Holley four-barrel

OIL PAN:
Moroso

DISTRIBUTOR:
MSD Pro-billet

MRL PERFORMANCE



MRL Performance utilized the same plan as the top two finishers in our contest, building a 340 cubic inch powerplant with a flat-tappet camshaft. Placing fourth, MRL showed us what a mild engine could do with out-of-the-box cylinder heads.

MRL PERFORMANCE POWER

Test Information:
File name: MRL_Challenge18.sfd
Data page: STP Corrected Torque at
Tested on: Sep 15, 2010

| EngSpd RPM | STPPwr CHp | STPTrq Cib-ft |
|---------------|---------------|------------------|
| 3,100 | 188.2 | 318.8 |
| 3,200 | 191.9 | 314.9 |
| 3,300 | 195.3 | 310.8 |
| 3,400 | 199.0 | 307.3 |
| 3,500 | 203.2 | 304.8 |
| 3,600 | 208.2 | 303.8 |
| 3,700 | 214.4 | 304.3 |
| 3,800 | 221.7 | 306.5 |
| 3,900 | 230.9 | 310.9 |
| 4,000 | 242.2 | 318.0 |
| 4,100 | 257.5 | 329.8 |
| 4,200 | 275.6 | 344.7 |
| 4,300 | 293.5 | 358.5 |
| 4,400 | 309.4 | 369.3 |
| 4,500 | 321.8 | 375.5 |
| 4,600 | 332.8 | 380.0 |
| 4,700 | 342.8 | 383.1 |
| 4,800 | 352.4 | 385.6 |
| 4,900 | 362.1 | 388.1 |
| 5,000 | 371.6 | 390.4 |
| 5,100 | 381.1 | 392.5 |
| 5,200 | 390.4 | 394.3 |
| 5,300 | 399.1 | 395.5 |
| 5,400 | 407.2 | 396.1 |
| 5,500 | 414.7 | 398.0 |
| 5,600 | 421.5 | 395.3 |
| 5,700 | 427.6 | 394.0 |
| 5,800 | 433.4 | 392.4 |
| 5,900 | 439.0 | 390.8 |
| 6,000 | 444.1 | 388.7 |
| 6,100 | 449.4 | 386.9 |
| 6,200 | 453.9 | 384.5 |
| 6,300 | 458.1 | 381.9 |
| 6,400 | 461.4 | 378.6 |
| 6,500 | 464.3 | 375.2 |
| 6,600 | 466.8 | 371.4 |
| 6,700 | 468.5 | 367.3 |
| 6,800 | 470.5 | 363.4 |
| 6,900 | 471.9 | 359.2 |
| 7,000 | 472.9 | 354.8 |
| 7,100 | 472.2 | 349.3 |

MRL PERFORMANCE PARTS

BLOCK:
Factory 340 Chrysler

CRANK:
Factory 340 Chrysler forged

PISTONS:
Icon forged

CONNECTING RODS:
Probe

CAMSHAFT:
Lunati Voodoo solid flat-tappet

TIMING GEARS AND CHAIN:
Summit Racing Equipment

VALVESPRINGS:
Howards Cams

ROCKER ARMS:
Hughes Engines

CYLINDER HEADS:
RHS/Indy X heads

INTAKE MANIFOLD:
Mopar Performance single-plane

CARBURETOR:
Biggs Performance-prepped Holley four-barrel

OIL PAN:
Milodon

DISTRIBUTOR:
Mopar Performance electronic



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PROMAX PERFORMANCE

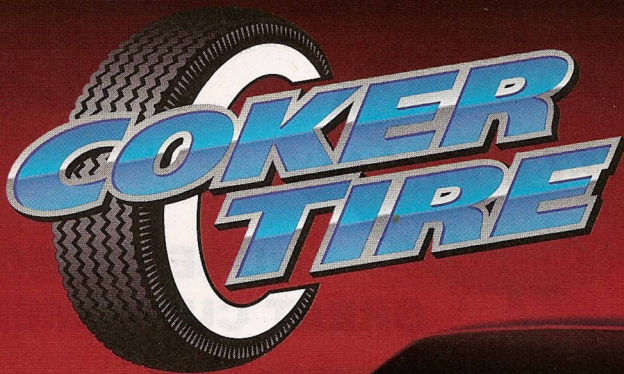
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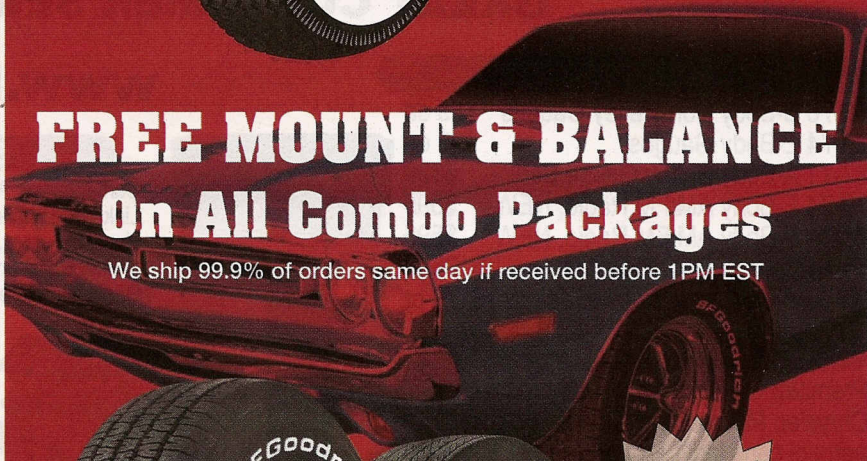
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