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PUSH THE LIMITS IN THE ENGINE MASTERS CHALLENGE

TRADITIONAL MUSCLE CLASS SCOTT MAIN // FORD WINDSOR





SUBLIME

TURNMASTER-18×60

VINTAGE

JON KAASE FORD MEL

CLASS WINNER

WORK

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RACE-READY

727 TOROUEFLIT

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LS6 CHEVELLE SAVED

HOT ROD WHERE IT ALL BEGAN

THE COMPETITORS

VINTAGE CLASS

JON KAASE // WINDER, GEORGIA	CLASS: V
Mercury Edsel Lincoln (MEL)	473 CI
Peak HP	795 at 6,500
Peak Torque	692 at 5,600
Average HP	622.4
Average Torque	648.7
Overall Score	2,687

Key Components: Scat connecting rods, Diamond pistons, Comp solid roller cam, valve-seat extensions

Competition Notes: This is basically the same engine Jon brought to last year's competition, but with a different camshaft and some minor changes. Jon and partner Royce Brechler won not only the Vintage class but also took home the Horsepower King and Torque Monster awards for their efforts.





JOE CRAINE // SAN ANTONIO, TEXAS		ASS: V
Ford Y-Block	375 CI	
Peak HP	566 at 6,400	
Peak Torque	524 at 4,800	
Average HP	471.4	
Average Torque	496.6	
Overall Score	2,581	

Key Components: Custom Moldex crankshaft, Diamond pistons, Eagle connecting rods, Iskendarian cam, Mummert intake manifold with a custom Weiand tunnel-ram plenum chamber

Competition Notes: Joe's son, David, helped during the competition. This was Joe's first time as a competitor, though he'd attended the Engine Masters Challenge before.

TED EATON // LORENA, TEXAS	CLASS: V
Ford Y-Block	403 CI
Peak HP	537 at 5,900
Peak Torque	523 at 5,000
Average HP	465.8
Average Torque	493.9
Overall Score	2,381

Key Components: Billet Moldex Crankshaft, Cunningham connecting rods, JE pistons; Iskendarian cam, Mummert cylinder heads, Mummert intake manifold, 12.91:1 compression ratio

Competition Notes: Ted's engine was originally a 1954 Mercury 256ci version of the Y-block. Ted is a Y-block specialist and has been building them for customers for more than 15 years.





DANIEL BOSHEARS // FLINTSTONE, GEORGIA		ASS: V
Chrysler Polyspheric 318	360 CI	
Peak HP	496 at 6,400	
Peak Torque	448 at 4,400	
Average HP	409.7	
Average Torque	431.8	
Overall Score	2,338	

Key Components: Scat crank and rods, CP pistons, Trend pushrods; Lunati solid roller cam; Poly SS-X Wind Tunnel intake manifold

Competition Notes: This is the 10th Engine Masters Challenge that Daniel has competed in—always with a Chrysler engine.

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THE 2018 ENGINE MASTERS CHALLENGE Engine Masters

Engine Masters Challenge 2018, Presented by JE Pistons

t was a year of changes for the 2018 AMSOIL Engine Masters Challenge, Presented by JE Pistons. Our long-running engine builders' shootout has moved from the University of Northwestern Ohio to Presenting Sponsor JE Pistons' manufacturing center in Mentor, Ohio. Though the setting may have been different, the classes were a carryover from last year: Vintage and Traditional Muscle.

The rules were basically the same, as well. The Vintage class is open to any domestic V8 engine from 1954-or-earlier or any six-cylinder engine from 1964-or-earlier, while the Traditional Muscle class is open to any domestic V8 engine from 1955-and-later, and the displacement had to range between 320 and 497 ci. In either class, the engine block must be cast iron, but aluminum cylinder heads were allowed. If using aftermarket parts, both the block and heads must be commercially available, and retain the stock cylinder spacing and valve angle. Likewise, any commercially available stainless-steel valves were allowed, but the use of exotic titanium valves or spring retainers is prohibited. The cylinder heads had to match the stock configuration, so race-only parts like symmetrical-port small-block Chevy heads were prohibited. All engines ran with 4150-flange carburetors and had to use a distributor, rather than a crank trigger and individual coils. Aluminum connecting rods were permitted in the Vintage class, but Traditional Muscle required steel rods. The compression ratio in Traditional Muscle was limited to 11.75:1, while the Vintage-class competitors could run as much compression as they dared. All engines were required to run a beltdriven mechanical water pump mounted in the stock location, and the coolant temperature the dyno runs were made on was 160 degrees Fahrenheit at the start of the run. All engines ran on Sunoco's 100-octane 260 GT oxygenated unleaded gasoline.

Competitors' scores were based on a calculation of the average power and torque made between 3,500 and 6,500 rpm divided by the engine's displacement. For Traditional Muscle, the scoring range was 3,500 to 6,800 rpm for small-blocks and 3,500 to 6,300 rpm for bigblocks. Regardless of class, each engine was run through a 3,000- to 7,000-rpm sweep on the dyno. Each competitor had a single 35-minute session on JE's Superflow dyno to make as many runs as he wanted, and the best three runs were used to calculate the final score.

THE 2018 ENGINE MASTERS CHALLENGE

THE COMPETITION



01) The new facility at JE Pistons had an area dedicated to receiving the competitors' engines. Here, they could finish assembly and install them on the dyno carts in preparation of their run.

02) Tech inspectors RJ Sledge and Adger Smith scrutinized each engine for compliance with the rules as well as safety issues such as ensuring the flywheel bolts were torqued to spec.

03 Ted Eaton was first on the dyno, and his Ford Y-block made really good power before fogging the entire dyno room with steam. A head-gasket failure caused water to shoot out of the deck at the left side of the engine like a geyser. It also filled the rear cylinder on that side, hydro-locking the engine and cracking the bore. Note the cool, custom offset-cap connecting rods Ted had made to extract just a bit more stroke out of this combination.

04) The Vintage class was fraught with other head-gasket failures, and the faces in this sequence say it all. Here, Zach Nelson and his team from SAM Tech watch as their Poly 318 blows a gasket, detonates, and destroys the electrodes on half of its spark plugs.

05) The Studebaker of Dave Molnar and team experienced ignition problems; the engine wouldn't rev high enough to make a full sweep on the dyno. In spite of their best efforts and lots of help and donated components from other competitors, they couldn't get the engine running in their allotted time.

06] The Traditional Muscle class competitors suffered fewer failures on the dyno. Here, Scott Main prepares his Clevor (Windsor with Cleveland-style heads) Ford. Title sponsor AMSOIL provided engine oil to all the competitors.

07] Aside from fielding two engines in the competition, SAM Tech brought an entire crew of students to help the competitors set the engines on the dyno carts, and help install and remove each engine from the dyno. Their tireless efforts kept the competition running on schedule.









In the end, Jon Kaase won the Vintage class and Scott Main took the trophy for Traditional Muscle. Victory for either one wasn't granted without a thorough teardown and inspection of each engine, however. Our inspectors scrutinized both engines for compliance with the rules and calculated the displacement of each engine and the compression ratio of Scott's, since the Traditional Muscle class had a limit on compression. All engines were within the rules, so Jon and Scott were each awarded a check for \$10,000 for the win.

UP NEXT

We are happy to announce that the Engine Masters Challenge will be back at JE Pistons in 2019, with new classes and even more prize money. You won't want to miss it.