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707-Horsepower Supercharged 6.2-liter HEMI® Hellcat V-8 Makes New 2015 Dodge Charger SRT Hellcat World's Most Powerful Sports Sedan

Extreme durability, TorqueFlite Eight-speed Automatic Transmission, Upgraded Driveline Deliver Additional Enhancements

- Supercharged 6.2-liter HEMI® Hellcat V-8 delivers 707 horsepower – highest output of any passenger-car engine ever produced by Chrysler Group
- With 707 horsepower, 650 lb.-ft. of torque, top speed of 204 miles per hour (mph) and an 11.0 second NHRA-certified elapsed quarter-mile time, the 2015 Dodge Charger SRT Hellcat is the world's quickest, fastest and most powerful sport sedan
- Fearless powertrain design; component content 91 percent new compared with 392 HEMI V-8
- Engineered in-house by SRT for awe-inspiring engine performance – a key SRT hallmark
- Raises bar for SRT validation; supercharged 6.2-liter HEMI development inspired demanding new test protocols
- New 2015 Dodge Charger SRT Hellcat features brawny new TorqueFlite eight-speed automatic transmission to handle prodigious torque of supercharged 6.2-liter HEMI
- New axles deliver greater efficiency, capacity to withstand higher torque
- Largest front-brake package ever offered by Chrysler Group – 15.4-inch Brembo two-piece rotors, gripped by six-piston Brembo calipers
- Uniquely tuned front spring rates, adaptive shocks for improved ride and greater control
- Higher output for 392 HEMI: 485 horsepower and 475 lb.-ft. of peak torque

October 28, 2014, Auburn Hills, Mich. - Dodge and SRT are making high performance accessible to many by dropping the supercharged 6.2-liter HEMI® Hellcat V-8 into the engine compartment of the new 2015 Dodge Charger SRT Hellcat.

The 707-horsepower engine that debuted in the new 2015 Dodge Challenger SRT Hellcat makes the latest Charger SRT the fastest, most powerful sports sedan in the world.

Material success

Only the strongest, most durable materials can contain the power generated by the new supercharged 6.2-liter HEMI V-8. Its cast-iron block features unique water jackets to deliver optimal cooling. And of course, it's HEMI Orange with a tough, powder-coated finish.

The breakthrough 6.2-liter SRT engine features a forged-steel crankshaft with induction-hardened bearing surfaces. The result is a crank so well-engineered, it can withstand firing pressures of 1,595 psi (110 bar) – the equivalent of five family sedans standing on each piston, every two revolutions. And its unique, specially tuned crank damper has been tested to 13,000 rpm.

High-strength, forged-alloy pistons, developed using advanced telemetry measurement, are coupled to powder-forged connecting rods with high load-capacity bushings and diamond-like carbon-coated piston pins.

The new supercharged 6.2-liter HEMI V-8 has premium-grade, heat-treated aluminum-alloy cylinder heads, which are optimized for superior thermal conductivity. Die-cast aluminum rocker covers echo the block's HEMI Orange motif.

Sodium-cooled exhaust valves feature hollow-stem construction and special, steel-alloy heads, which stand up to temperatures as high as 1,472 Fahrenheit (800 Celsius). Cam profiles afford 14.25-mm inlet and 14.0 mm of exhaust lift.

Special delivery

The new engine marks the return of supercharger technology to the SRT fold, delivering the full brand experience with fresh potency.

The 2,380cc/rev blower features integral charge coolers and an integrated electronic bypass valve to regulate boost pressure to a maximum of 80 kPa (11.6 psi). Its twin-screw rotors are specially coated with:

- a proprietary formula of polyimide and other resins
- nanometer-sized, wear-resistant particles
- solid lubricants, such as PTFE (Teflon)

The coating accommodates tighter tolerances between the rotors. This reduces internal air leakage and helps deliver improved compressor performance and higher efficiencies. The coating not only can withstand the temperatures generated by compression, it provides a superior corrosion resistance.

The new supercharged V-8, sealed for life with premium synthetic oil, boasts a drive ratio of 2.36:1 and a maximum speed of 14,600 rpm. The drive system's one-way clutch de-coupler improves refinement, while allowing for precisely the kind of auditory feedback SRT customers find alluring.

The supercharger gulps air through an Air Catcher inlet port, which is concealed behind a stylish new grille and connects to a patented twin-inlet, eight-liter air box.

The fuel system keeps pace with an in-tank pump, which accommodates variable pressures, half-inch fuel lines and eight injectors, each capable of delivering a flow rate of 600cc/min.

Such performance promises an under-hood environment that is torturous, to say the least. So SRT responded with some clever engineering.

The large-nosed crank drives a high-flow gerotor oil pump that feeds a lubrication circuit servicing eight high-flow piston cooling jets. A high-capacity oil/air heat exchanger, mounted in the front of the car, mitigates oil temperatures when driving conditions are harshest, such as on track days.

The 2015 Dodge Charger SRT models use 0W-40 synthetic oil, developed specifically for SRT vehicles by Pennzoil.

Additional cooling measures include a low-temperature circuit with two air/coolant heat exchangers integrated into the supercharger housing. This setup is designed to keep air temperatures below 140 degrees Fahrenheit (60 degrees Celsius), under extreme ambient conditions, while enabling air flow of up to 30,000 liters per minute.

So effective is this feature that engine power will not be de-rated due to cooling demands, even after 20 minutes of hard driving on a road course at an ambient temperature of 100 degrees Fahrenheit (37 degrees Celsius).

From mild to wild

The 2015 Dodge Charger SRT Hellcat has its own unique voice with a range that spans the car's three programmable drive modes. The Street setting is authoritative, yet reserved; while Sport mode affords an ominous burble. In Track mode, the SRT Hellcat sounds hellacious.

The 2.75-inch, straight-through, twin-exhaust system includes durable, double-walled exhaust manifolds and ceramic catalysts capable of withstanding temperatures up to 1,922 degrees Fahrenheit (1,050 degrees Celsius).

The 2015 Dodge Charger SRT Hellcat also transformed the brand's vehicle-development process. New tests were required to validate the high-performance engine's durability. This required construction of new laboratories with dynamometers that can measure such prodigious levels of performance. The development teams conducted almost 2 million customer-equivalent hours of dynamometer testing on the supercharged HEMI V-8 to ensure the long-term quality and performance.

During development, the HEMI Hellcat was subjected to 100 consecutive drag starts. But even after proving itself on the track, SRT engineers were not content. So every engine gets a 42-minute dynamometer shakedown before it is shipped to Chrysler Group's assembly plant in Brampton, Ontario, Canada – home to the Challenger and Charger lineups.

Gear glory

For 2015, Chrysler Group also adds a new member to its TorqueFlite family of eight-speed automatic transmissions. Like its predecessors, it is unparalleled in efficiency and unrivaled for its smoothness. But to withstand the supercharged 6.2-liter HEMI V-8's groundbreaking output, this transmission's maximum engine-torque capacity is 30 percent greater than any eight-speed previously offered by Chrysler Group.

With the new transmission, the company added an extra layer of quality testing to make sure shift responsiveness matches SRT customers' expectations in a wide range of driving scenarios. This is accomplished by adding pinion gears, one each in the 1st and 3rd gear sets, and five more clutch-pack disks – two in clutch E and one each in clutches A, C and D.

The defining benefit of the 2015 Dodge Charger SRT Hellcat is the TorqueFlite transmission's 7.03 ratio spread.

Gear ratios are:

1st – 4.71	6th – 1.00
2nd – 3.14	7th – 0.84
3rd – 2.10	8th – 0.67
4th – 1.67	Reverse – 3.30
5th – 1.29	

The final-drive ratio for the TorqueFlite, as paired with the supercharged 6.2-liter HEMI V-8, is 2.62. The transmission's overall top gear is 1.76.

A new M-gate shifter and steering-wheel-mounted paddles, better connect driver and transmission – key considerations when tapping the nearly 200 possible drive-mode combinations, which stem from five distinct settings:

- Street (Default)
- Sport
- Track
- Valet
- Custom

The TorqueFlite transmission also is calibrated to match the drive modes, from ultra-smooth in the Street mode to lightning-fast, 160 millisecond shifts in Track mode.

SRT's launch control is standard. The feature's performance is enhanced by new, stiffer, asymmetric half-shafts, which minimize "power hop" under hard acceleration, and a new driveshaft that boasts high-strength CV joints and geometry optimized for spirited driving.

The new driveshaft and half-shafts also benefit from premium lubricants designed for high-speed operation.

Like the beefy new TorqueFlite eight-speed automatic, a new-for-2015 rear axle also accommodates higher torque output. The Charger SRT Hellcat's 230-mm axle also provides for efficiency improvement, compared with the one it replaces.

Design features that contribute to the axle's efficiency gains include:

- Lightweight aluminum housing
- Cooling fins
- High-efficiency head, tail and differential bearings
- Low-viscosity fluid

Echoing the 2015 Dodge Charger SRT Hellcat's theme of durability, its new axle benefits from:

- Welded ring gears
- Advanced, shot-peened gear material
- Hardened shims for added strength at key interfaces
- Robust four-pinion differential
- A four-point mounting system for improved stability

An asymmetric limited-slip differential allows for unique bias-ratio tuning for on- and off-throttle behavior. This serves to enhance grip, stability and steering response, enabling smooth power delivery for hard acceleration on corner exits. When trail-braking, the differential further tightens to stabilize the car and prevent oversteer.

Fundamental improvements

The new 2015 Dodge Charger SRT benefits from upgrades to the standard 392 HEMI V-8. Horsepower climbs to 485 from 470, while peak torque jumps to 475 lb.-ft. from 470 lb.-ft.

The 392 is also mated with a TorqueFlite eight-speed automatic transmission. Ratio spreads and gear ratios are the same for both versions, but the 392's gearbox has a final-drive ratio of 3.09 and an overall top gear of 2.07.

Like the Dodge Charger SRT with the Hellcat engine, the Charger SRT 392 gets a new lightweight axle. It measures 220 mm.

Tires and chassis

Helping to fill the wheel wells on the Dodge Charger SRT 392 model are new, standard, SRT-exclusive Slingshot split-seven spoke 20-by-9.5-inch, lightweight forged-aluminum wheels with a Hyper Black finish. The Charger SRT Hellcat rides on the same Slingshot wheels with a standard Matte Black finish or the optional Brass Monkey/Dark Bronze finish.

Two new 275/40ZR20 Pirelli P Zero tires provide performance for all seasons. Both Pirelli P Zero Nero and P Zero tires are Y-Plus rated to handle the extreme speeds of the Charger SRT Hellcat.

Standard on both Charger SRT models is the largest front-brake package ever offered in a Chrysler Group passenger vehicle, featuring all-new 15.4-inch Brembo two-piece rotors, the largest two-piece rotor Brembo manufactures in North America, with six-piston calipers for outstanding heat management/thermal capacity and longevity.

New anti-lock braking system (ABS), electronic stability control (ESC) and traction control systems are uniquely tuned per powertrain and configurable SRT drive modes.

Further, uniquely tuned front spring rates and adaptive shocks for improved ride and greater control.

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