

A new trick up its sleeve

BY JOE SAGE

Remember when a hybrid was an oddball little car, highly specialized for the singular bragging point of being a hybrid? You can still get such a thing, but hybrid systems today have become as mainstream a part of a powertrain designer's toolkit as fuel injection and turbochargers, themselves once highly specialized items.

The proof? Meet the nation's best-selling vehicle, the big, beefy, hard-workin' Ford F-150 pickup—now available as a full hybrid.

When Ford first put their efficient turbocharged EcoBoost V6 in the F-150 in 2011, they were cautious about how it might be received by a V8-happy pickup market, not expecting to sell all that many. But sales went through the roof. Thus as the entire industry now embraces "electrification" of all sorts, Ford has plenty of reason for confidence moving forward with a full hybrid F-150 this year.

The familiar 3.5L EcoBoost V6 turbo is tied with the naturally-aspirated 5.0L gasoline V8 at 400 hp and beats its torque at 500 lb-ft to the V8's 410. (A 3.0L PowerStroke diesel V6 beats that with 440 lb-ft, though it's lower on horses, at 250.) Combining

the EcoBoost's top horsepower and torque with hybrid fuel efficiency, the new 3.5L PowerBoost full hybrid V6 powertrain blows them all out of the water, at 430 hp and 570 lb-ft of torque.

All that torque gives the EcoBoost V6 turbo the highest (or tied-highest) tow capacity in the F-150 lineup. The F-150 PowerBoost full hybrid's tow capacity is a little less than EcoBoost or V8 (it carries additional battery weight), but it tops the diesel.

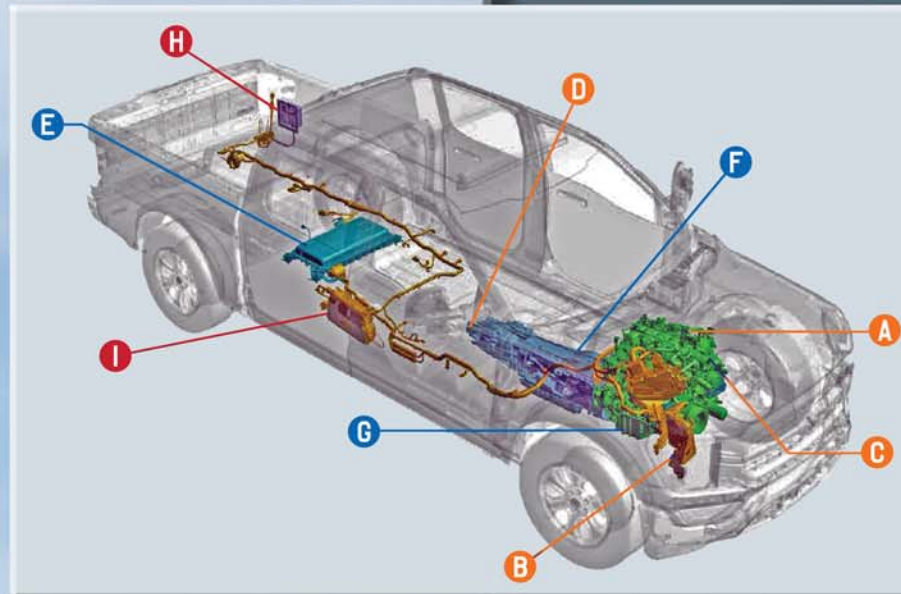
There are two EcoBoost V6 engines in the F-150 lineup—2.7L and 3.5L—both twin-turbocharged and intercooled. The PowerBoost hybrid starts with the 3.5L EcoBoost V6 and adds the full hybrid system shown in the breakaway at upper right.

The hybrid F-150's handsome interior is largely conventional (including the new console-mounted shift lever that flips down electrically to create a flat, open workspace), while adding available data screens in the binnacle to keep an eye on your hybrid virtuousness via color-coded bars and numbers. While hypermiling novelty has begun to wear off, it's a nice reminder of the special powers you have at your fingertips and under your toes.

The F-150's new full hybrid powertrain can be seen as a stepping stone—an evolutionary point on a longer path from liquid fuels to efficient turbos, to a full EV on the horizon. It can also be seen as a destination in its own right—a rock solid proven truck, now specifically engineered to deliver more power, range and tow capacity.

It's enough to make you wonder why you would buy any other. If your towing needs are very specific, you can get 600 to 1600 lb higher capacity from other engines. Or maybe you just like a V8 growl, though the growl of the hybrid is plenty satisfying. The PowerBoost hybrid engine runs \$2500, while a regular 3.5L EcoBoost runs \$600. That \$1900 difference seems very reasonable against \$100-a-tank-or-so fillups the hybrid's extra range may let you skip (until EPA figures arrive, we can only speculate the break-even, although personal driving style and duty variables kick in, anyway—but you know you'll be ahead of the game).

All those little statistical or philosophical riddles aside, Ford has hit the nail firmly on the head with this truck—so firmly, you may be left scratching your chin and thinking, wait, what, they didn't always make one of these? ■



- A** Available 3.5-liter EcoBoost V6 adapted for hybrid driving and mobile generator requirements.
- B** 12V battery powers engine starters while a high to low voltage converter powers low voltage loads.
- C** Belt driven starter is used for water pump and belt starter motor.
- D** Ford designed, engineered and assembled 10-speed modular hybrid transmission.
- E** 1.5 kW-hr lithium-ion battery is liquid cooled and engineered to minimize weight while delivering optimum performance. It is mounted between the frame rails below the load floor with a unique vibration isolation system, leaving passenger space and cargo area uncompromised.
- F** The 35kW electric motor works in tandem with the engine for power and torque, utilizes regenerative braking energy capture, and supports 2.4kW or 7.2kW of available Pro Power Onboard while in generator mode.
- G** Electrically boosted brakes and high voltage air conditioning compressor accommodate engine-off situations.
- H** Power in box 120V and/or 240V outlets capable of supplying 2.4kW or 7.2kW available Pro Power Onboard.
- I** Pro Power Onboard 2.4kW or 7.2kW inverter converts direct current from the high voltage battery to standard alternating current, useful for tools and devices.

Our sample is a King Ranch, next-to-top trim against Platinum, with a nice Western feel to its branding elements throughout. Equipped with an FX4 Off-Road Package we'd always choose, along with Pirelli Scorpion ATR tires, we gave it a good run out to the ends of the Earth.

The F-150 hybrid comes with a 30.6-gallon fuel tank only, notably larger than the 23-gallon base tank in other gasoline models, or its 26-gallon alternative (standard in diesel), though the other gasoline trucks do offer a 36-gallon tank. The hybrid's extended range should catch up with or beat that. And one less decision may be welcome among the complexities of cab-bed-chassis-payload-tow-gas tank variables in truck builds.

SPECIFICATIONS

FACTORY	Dearborn, Michigan
ENGINE	3.5L PowerBoost™ Full Hybrid V6 alum block/heads, port fuel inj w dir inj
HP / TORQUE	430 hp / 570 lb-ft
COMPRESSION RATIO	10.5:1
DRIVETRAIN	4x4
REAR AXLE RATIO	3.73
TRANS	10-spd modular electronic hybrid
SUSPENSION	F: indep dbl-wishbone w heavy duty gas-pressurized coil-over shocks, stamped lower control arm; R: leaf spring / solid axle, heavy-duty gas-pressurized shocks.
STEERING	electronic power-assisted
BRAKES	F: Nitro Tough iron 350x34mm, 2x 51mm sliding caliper power anti-lock vented; R: Nitro Tough iron 336x20mm, 1x 54mm sliding eIPB, power anti-lock vented.
WHEELS(opt)	20" alum alloy chrome-like PVD
TIRES	275 / 60R20 OWL all-terrain
LENGTH / WHEELBASE	243.5 / 157.2 in
BED STYLE / LENGTH	6.5 ft Styleside / 78.9 in
TURNING CIRCLE	51.1 ft
APPR / DEPART / BRKVR	24.0 / 26.3 / 19.0°
GROUND CLEARANCE	8.8 in
HEADROOM (F/R)	40.8 / 40.4 in
LEGROOM (F/R)	43.9 / 43.6 in
WEIGHT	5540 lb
TOW CAPACITY	11,000-12,400 lb
FUEL / CAPACITY	37 octane reg unl / 30.6 gal
MPG	tdb
BASE PRICE	\$60,055
3.5L POWERBOOST FULL HYBRID ENGINE	2500
FX4 OFF-ROAD PACKAGE	1005
EQUIP GROUP 601A: King Ranch Series, power tailgate, tailgate step, power-deployable running boards, Bang & Olufsen Sound System Unleashed	4560
KING RANCH CHROME APPEARANCE	1995
360-DEGREE CAMERA PACKAGE	765
MAX RECLINE DRIVER/PASSENGER SEATS	340
TWIN PANEL MOONROOF	1495
FORD CO-PILOT360 ACTIVE 3.0 PREP PACKAGE	995
PRO POWER ONBOARD	955
INTERIOR WORK SURFACE	165
PARTITIONED LOCKABLE STORAGE	215
SPRAY-IN BEDLINER	595
WHEEL WELL LINER	180
DESTINATION CHARGE	1695
TOTAL	\$77,515