# HEAVY FUEL

Sticking a late-model powerplant in a classic is far from new, but we reckon this guy's 21st century approach is.

**Words:** Dave Smith **Photography:** Darren Maybury

## “The body had been repaired and restored, the frame was straight, and it had been repainted in its original black as Henry intended”

Revenge is sweet. Back in 1955, the Thunderbird was Ford's hurried answer to Chevrolet's new baby, the Corvette. Rampaging from concept to prototype to production in double-quick time, the T-bird hit the streets in autumn 1955 and, in that first year, outsold the Corvette 16,155 to 700 (although the 'Vette's 1954-55 production figures had been massaged by GM management) so Ford's noses were jolly well thumbed towards General Motors.

On March 29th, 1955, a Ford dealership in Indianapolis took delivery of this black 'Bird. Fast-forward 60 years and we find this first-year beauty residing in Worcestershire, UK, with owner Andrew Young. “I have a 1936 Chevrolet Master street rod that I found in New Jersey eight years ago,” says Andrew. “It was advertised as a barn find, although it was sold through a police auction after sitting in an impound yard for 25 years! I had it shipped in and spent three years building it. Now it has a small-block Chevy, overdrive auto, Ford 9” and discs all round.

“Then I started getting some pain from senior management – the wife – about getting a cabriolet. I wanted a proper classic cabrio, a Corvette or a Thunderbird, but had been disappointed after sitting in an early Corvette. It wasn't human-friendly, you could hardly get in or out if you're above a 32 inch waist or 28 inch leg; the Thunderbird was much better.

“I found this car here in the UK, back in May 2012, as an unfinished project. The body had been repaired and

If you get close enough to the back of the car to read these badges (above), it'll give you a clue about what's under the hood. Mind you, getting that close is easier said than done... And before the trainspotters start with, "Ah, I THINK you'll find that the porthole hardtop (right) didn't start until 1956..." then yes, we know. Thank you.


## "This was the first ECU they'd done for one of these motors – no other idiot wanted to try it!"

Andrew felt very lucky in finding a car where the vast majority of the bodywork restoration had already been done (top), up to and including that lovely paint job. However, have you ever tried fitting bulky, sharp-edged mechanical components to a freshly-painted car? That's pressure. These wheels (left) have divided opinion, but why shouldn't a car with a 21st century powerplant have 21st century alloys? Discuss.

restored, the frame was straight, and it had been repainted in its original black as Henry intended, but that's it. The engine was seized, the radiator was holed, the suspension was hanging off it; it was mechanically shot. It was still a six-volt positive-earth car, it had 94,000 miles on the clock and the Fordomatic two-speed automatic. I made an offer, which was refused, but then a short while later the guy called me back, asked if the offer still stood, and I brought it home.

"I knew the original 292 was no good so I decided to replace it with another Ford engine and had a look around to see what others were doing. There were lots of 4.6 Modular motors and manual transmissions on eBay that had come from the Rover sell-off, but that would have been too easy. I eventually decided on an engine made by Ford in Dagenham – a 3.6-litre twin turbo 32-valve V8 diesel from a written-off 2009 Range Rover Vogue. Then I started looking at the practicalities. Lots of people said 'It'll never work, it's too complex, it needs too many inputs from the transmission, wheel speed sensors' and so on, so I found someone at Simtek who could make me a standalone ECU. This was the first ECU they'd done for one of these motors – no other idiot wanted to try it! The ECU comes in three separate boxes as the turbos have variable geometry and each turbo needs its own controller, and the injectors run on 110 volts, so there's a big transformer inside the main ECU. There are little black boxes everywhere; it was a bit of an installation exercise. ➔

"I used a six-speed ZF manual that they use in big Jaguars and 7-series BMWs, and found that the Jaguar bellhousing pattern was the same, then I swapped the gears for diesel gear ratios. The clutch is a heavy-duty one for a Land Rover Discovery 2.7 diesel, with a dual-mass flywheel with modified ring-gear. The back axle caused serious issues. It was the original axle, a Dana 44 unit - the nine-inch wasn't around yet – and built to take a 190bhp Y-block. This new engine gave around 300bhp and 700nm (well above 500ft.lbs. - ACM) of torque, but the Dana 44 was commonly used in the Jeep Wrangler so you can get loads of bits for them. I got some 2.5:1 gears and 1.5", 33-spline halfshafts from Moser and a Detroit Truetrac geared locker diff. I had issues with the differential oil temperature, so fitted a B&M finned aluminium rear cover that doubles the oil capacity, and this cured it.

"The original drum brakes were horrible, and she really needs to be able to stop, so I fitted 13" front discs with Wilwood six-pot callipers, and 12" discs with four-pots at the rear. The clutch and brake pedal are aftermarket racing ones with the master cylinders under the dash and the reservoirs in the engine bay, whilst the throttle pedal is from a Transit, which uses the same throttle-by-wire variable resistor as the Range Rover. The car came with power steering, but it was the external-ram type and used the same steering ratio as a non-assisted car, so I converted it to rack and pinion. Now it's only two turns lock-to-lock, which makes it very nervous.

"I spoke to Spax at the Autosport show and got them to make a set of adjustable shocks for the car, then I had a company in Birmingham make some new leaf springs to 'UK road' spec using the originals as a template, and I made some anti-tramp bars. A company in Sheffield made me some new front coil springs the same length as the originals but 30% stiffer – I didn't want it lolloping around. The springs aren't lowered, though the measurements were taken from the originals which may have sagged a bit in 60 years. The wheels are 18x8" Lenso Concertos. They're one of those things that are very emotional, people either like 'em or they don't, but I just thought they looked right. The tyres are 255/40R18 Eagles, which are the exact same diameter as the original whitewall crossplies so they fill the arches the same.

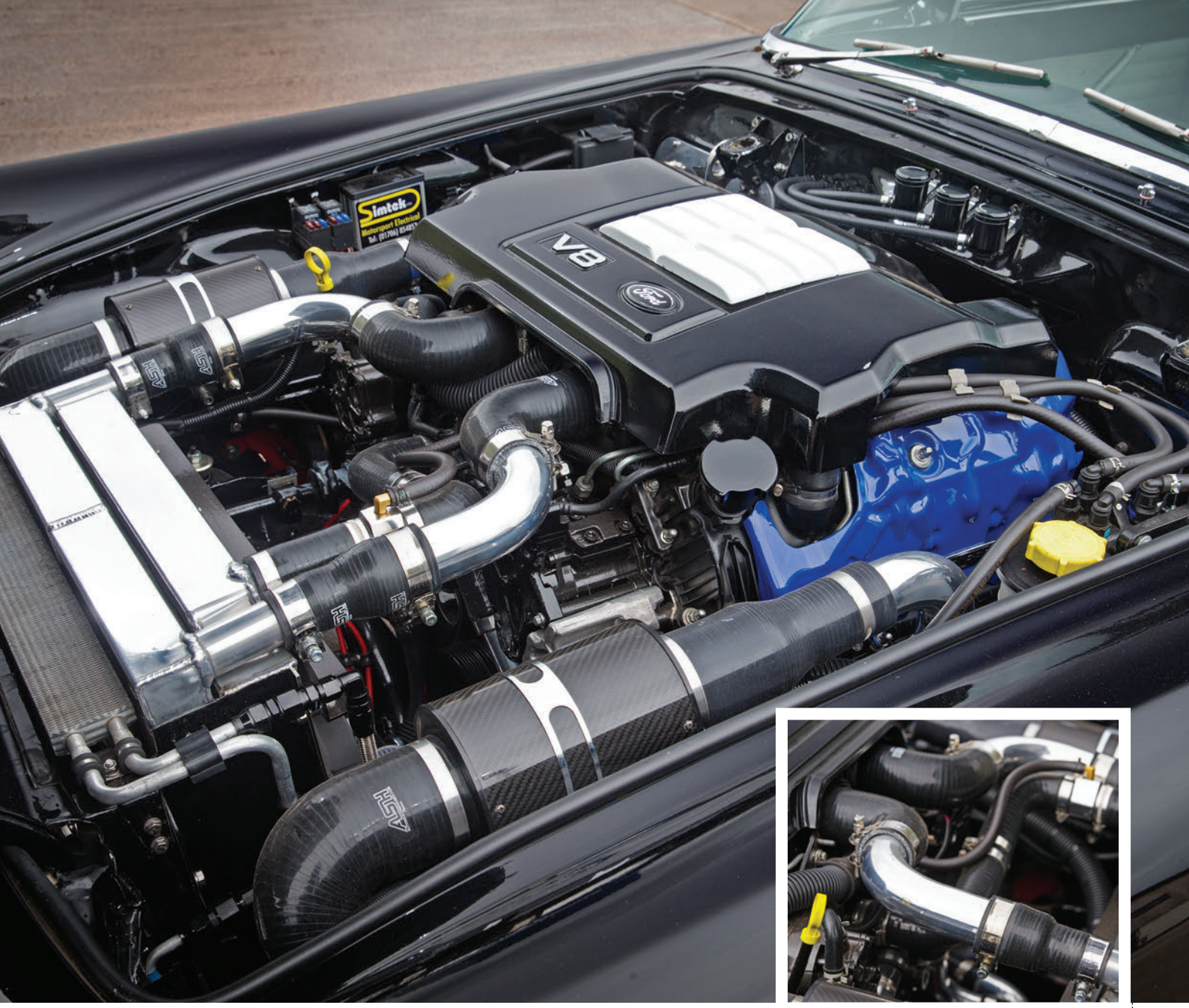
"The engine fits in the bay, and I have the knuckle-rash to prove it! Overall, the new motor isn't much larger than the original Y-block and the body and frame are unchanged, but the transmission is massive compared with the old two-speed auto so the tunnel needed stretching. I had an aluminium radiator built to hold the same amount of water as the original Range Rover rad, and use Evans waterless coolant, which is brilliant. The same company built me twin intercoolers that marry up to the side of the radiator and look like one unit, all to my technical drawing, and I'm very impressed. I used the original Range Rover power steering fluid cooler, and the Range Rover diesel cooler on the return line to the tank. The fuel tank is plastic. I went to the boat show and found a company that could make me a baffled, plastic tank to fit into the original location and take the Range Rover in-tank primer pump.

## Tech Spec

**1955 Ford Thunderbird**

- 2009 3.6 Range Rover V8 diesel
- Twin turbos
- EEC4 2000psi common-rail diesel injection
- Simtek ECU
- Fabricated aluminium radiator and intercoolers
- ASH silicone hoses
- Custom plastic fuel tank
- ZF 6-speed manual transmission
- Land Rover Discovery 2.7 clutch and flywheel
- Dana 44 rear end
- Moser 2.5:1 gears and 1.5" halfshafts
- Detroit Truetrac differential
- Wilwood discs and callipers all round
- Power-assisted rack and pinion steering
- Custom front coil and rear leaf springs
- Spax adjustable shocks
- Lenso Concerto 18x8" wheels
- Goodyear Eagle F1 255/40R18 tyres
- Home-built dual 2.5" stainless exhausts
- Cherry Bomb silencers
- Retrimmed interior
- Dakota Digital instruments
- 1,674kg kerb weight
- 300bhp and 700nm torque (est)

**The interior was all retrimmed throughout by Custom Coach Trimming (below), and looks amazing. The steering wheel is a Moto-Lita item on a custom hub, and has a whiff of the Shelby Cobra about it. The instruments in that leather-bound dash are all Dakota digital, including the GPS speedometer. The switches are all modern push-buttons in the original surrounds. Even that gear lever doesn't look out of place, although it stirs six speeds in an ultra-modern ZF 'box. There's not much in here to give away the massive electronic complexity that probably resides behind, much of it controlled by Simtek ECUs (right).**






**"Whilst the turbos take out a lot of the exhaust noise they do add a background whine"**


**Here's the high-tech end (above). This range of engines was codenamed the Lion V8, and straight out of the box gave 268bhp at 4,000rpm and 640Nm (472ft.lb.) of torque at 2,000-2,500rpm. That's already a lot more than the original Y-block V8, but Andrew's mapping and emissions equipment deletions has upped this to 310bhp at 3,300rpm and 720Nm (531ft.lb.) at 1,800-2,500rpm. Redline is 4,200rpm. And there's more to come.**

"I removed the diesel particulate filters and made my own dual 2.5" stainless exhausts, but I wouldn't do it again. It's very labour intensive. The silencers are just two Cherry Bombs. It's got a deep, distinct V8 rumble, and whilst the turbos take out a lot of the exhaust noise they do add a background whine. It's a four-valve engine, and there's a system that closes off two of the ports at low speed, which I removed. I also removed the EGR system and the start-up controls so it smokes a lot at start-up and stinks until it's hot, but that lot all took too much ECU capacity. Other than that and some sump modifications the engine's all pretty much stock.

"Inside, I had the original bench seat retrimmed in black and white leather, with the Ford Racing logo embossed in. The original instruments were all six-volt, so I bought Dakota digital gauges and made them fit with signals CAN-BUSsed in via a control box. There's no speedo output on the transmission – the speedo signal came from the wheel speed sensors – so the speedo uses a GPS signal, and there's a third CAN box controlling the cooling fans. The cockpit is all insulated against heat and rattles with FatMat, and Chris Vining at Custom Coach Trimming did the carpets and trimmed the seat, door cards and dash top in leather.

"I tried to keep the dash looking as original as possible, so I've used the original switch surrounds and legends but with LED-illuminated push-buttons instead of Bakelite knobs. All the lights apart from the headlamps are LEDs. The steering wheel is a Moto-Lita wood-rim with a hub specially made by Moto-Lita – again, some like it, some don't. I like it! I rewired the whole thing myself using modern thin-wall wiring, waterproof connectors underneath and multiplugs inside. I trained as an auto electrician many years ago, and have been building racing cars ever since. I converted the wipers from vacuum to electric using a new motor kit and the original linkages.

"In 1955, you bought a Thunderbird either as a soft-top or a hardtop. Someone has changed mine over the years, as strictly speaking it shouldn't have a porthole. I'm going to California soon, and I'll be bringing a soft-top and frame back in my hand luggage. ➔


"Last July I put it through the MoT. It had never been registered in the UK, and had been brought in pre-NOVA, so getting it ready to register was a two-month fiasco, but then the DVLA got it registered and issued a number plate and it was ready to hit the street. I took it out to a couple of shows; Rally of the Giants and a classic show at Ragley Hall. Once you're in high gear it's so lazy, but the performance is phenomenal if you squeeze the pedal. In sixth gear, 70mph is a 1,100-1,200rpm cruise, but in third, fourth and fifth it storms away, it just flies. In the Range Rover, it brings all the power in at about quarter-throttle because it's so heavy; this car is 1,674kg all told, so it's lively. It doesn't bring all the power in until about three-quarter throttle, but then everything happens. It's not an instant snap; you move away gently but then the turbos kick in and shove you into the seat. If the road is any kind of damp you need to pay attention when using the throttle and turning the wheel, otherwise you'll be facing the other way. I'm just making the throttle pedal longer to give it a bit more fine control.

"You could just hop in this car and do hundreds of miles. It's a bench seat, not buckets, so you do slide around a bit but it just eats up the miles. It sits at 90mph at 1,900rpm and if you put your foot down it takes off, but it tends to float above 120mph – it's not the right shape for it. It doesn't use much fuel - I don't know what it does to the gallon, and I don't care! It's not obvious that it's a diesel until you put a load on the engine. My wife likes Range Rovers, she has an Evoque at the moment, and my friend runs the local Range Rover dealership. I took the Thunderbird over there – it was some of his mechanics who told me it couldn't be done, and the place just ground to a halt when I showed up as they all came out to look. Don't tell *me* I can't do something..." **ACM**

Andrew (right) is a very, very clued-up guy when it comes to building specialist cars, and this one is a superstar. He took the complexity of a modern luxury SUV and made it work with the beautiful simplicity of a Fifties classic (top). From this he gets the world-turning torque, frightening speed and absolutely effortless cruising of a big-block with the fuel-efficiency of a supermini. Is this the future?

## "Don't tell *me* I can't do something..."