ROAD TESTED

VOLVO: **FH 460 I-SAVE 6X2**

CM gets back in the driving seat to road test a Volvo FH that boasts I-See predictive cruise control, as well as aerodynamic improvements and further fuel savings

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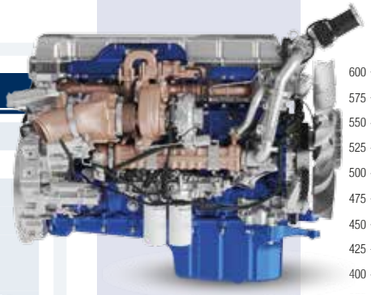
Commercial Motor Observant readers will have already noticed that the subject of this test looks rather familiar. Fear not, we aren't losing the plot. In most respects, this mildly face-lifted Volvo FH is identical to the Volvo FH 460 I-Save that we tested in late 2019. You will recall then, that the FH with the fuel-saving spec lived up to its promise and raised the bar for 44-tonne artics around our traditional Scottish route. Since then though, three of the Horsemen of the Apocalypse have ridden through our road test programme. The rather significant back-to-back global issues, first the pandemic and then the supply chain shortages caused by the semi-conductor drought, then exacerbated by the war in Ukraine, have meant we only managed a single 44-tonne test since then, the Mercedes-Benz Actros 2545 sneaking through a brief window between lockdowns. Now, with at least one of those issues, Covid, seemingly under control for the time being, we've dug out the *CM* test box from under a dusty pile of old lateral flow tests and jump-started the test programme back into life.

UNDER THE HOOD

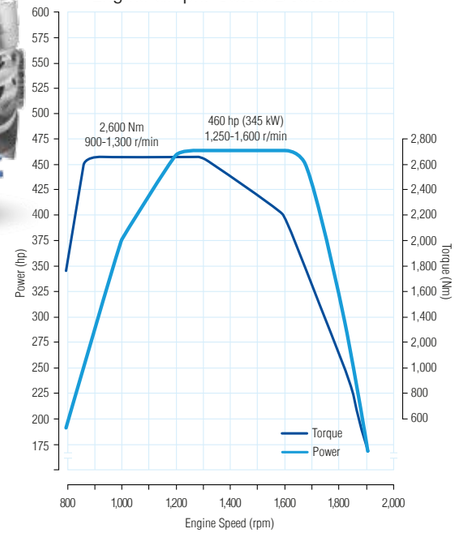
Mechanically, this FH is identical to the 2019 test truck, which means its specification includes the all-important turbo-compound energy recuperation system, without which we believe usable energy is literally being thrown out of the exhaust pipe. To recap, turbo-compounding utilises a conventional turbocharger for its normal function of boosting the pressure of the intake charge of air. However, the exiting exhaust gases, which still contain considerable energy, power a secondary turbine which in turns adds drive to the engine flywheel, adding some 300Nm to the

VEHICLE SPECIFICATION



Make / Model	Volvo FH 460 I-Save 6x2
Cab	Globetrotter XL sleeper
Engine	Volvo D13K460 in-line 6-cylinder with electronic unit injection and turbo-compounding. Euro-6d emissions via uncooled EGR and AdBlue SCR
Bore x stroke	131 x 158mm
Capacity	12.8 litres
Compression ratio	17.0:1
Maximum power	453hp (338kW) at 1,400-1,800rpm
Maximum torque	2,600Nm (1,918bft) at 900-1,250rpm
Transmission	Volvo AT2612F I-Shift 12-speed direct-drive with automated change. TP-LONG software
Gear ratios	11.73 to 0.78:1; reverse, 13.73 to 2.48
Final drive ratio	2.31:1
Clutch	Single dry plate with automated operation
Brakes	Disc brakes, with full EBS and Advanced Emergency Braking
Parking brake	Electronically controlled spring brake acting on front and drive axles
Secondary brakes	VEB+ engine compression brake, max 375kW at 2,300rpm
Brake dimensions	Front and rear, 430mm; middle, 420mm diameter
Chassis	Bolted and riveted ladder frame
Dimensions	266mm x 90mm x 8mm
Suspension	Front, steel parabolic; rear, air with lifting second axle
Steering	Volvo Dynamic Steering variable-assisted recirculating ball, with personal settings
Turns lock-to-lock	Four
Wheels and tyres	22.5 x 9in Alcoa alloy wheels with Michelin 385/55x22.5in (front and mid axles), 315/70x22.5in (rear) tyres
Fuel / AdBlue tank	480 / 100 litres
Electrical system	24V negative earth return
Battery / Alternator	2 x 12V, 210Ah gel / 150A

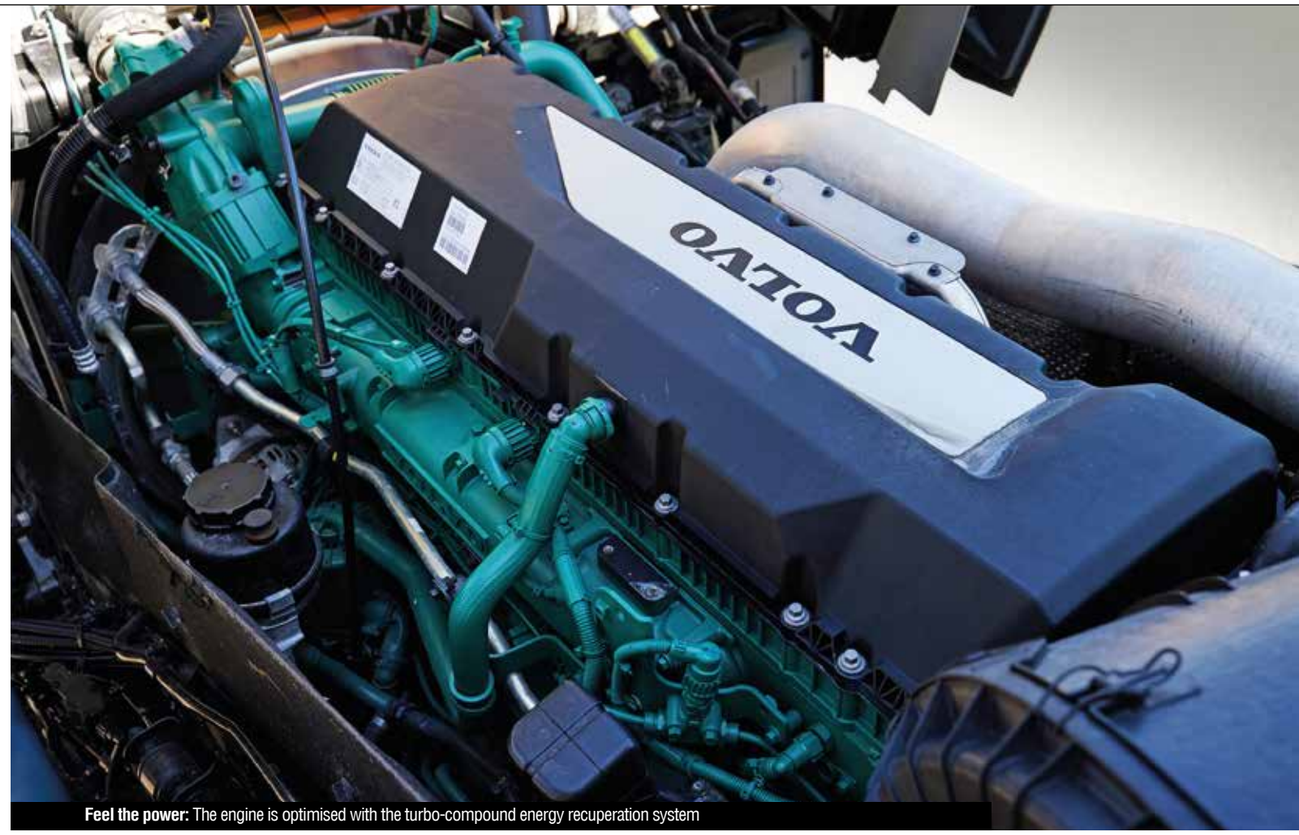
Engine Graph: **Volvo D13K460**



The current engine is now at its peak, now we await the next generation Fuel Face engine

ACCELERATION

Make / Model	Volvo FH 460 I-Save 6x2
0-80kph	50.2 seconds
32-64kph	24.3 seconds
48-80kph	26.3 seconds



Feel the power: The engine is optimised with the turbo-compound energy recuperation system

engine's torque output. Originally used to provide extra power, Volvo's interpretation is optimised to enhance fuel economy, which it reckons it does to the tune of around 3.5%. However, development of the current engine is now at its peak, with the arrival of the next generation Fuel Face engine likely before we test another FH.

The changes that justify carrying out another test, though, are non-mechanical, and consist of further optimisation of the I-See predictive cruise control system, together with a package of aerodynamic improvements, which together lead Volvo to predict further fuel savings of 3-4%.

Given that the aerodynamic changes are claimed to be so significant, it's worth detailing them in full. Starting at the top, the mirror backs are reshaped, but it's lower down that most attention has been given. The objective has been to eliminate as many airflow disrupting gaps as possible, particularly on the lower corners. Door extensions filling the gap forward to headlight panel are fitted, as are air-smoothing changes below the front grille, and to the foglamp panels and lower bumper skirt.

ON THE ROAD

Nowadays 460hp is increasingly being seen as not even an entry-level rating for 44 tonnes, or in many cases, for a 32-tonne tipper. It seems that to be sure of attracting and retaining the best drivers, you need to have a number beginning with '5' on the door or grille. But however you measure it, be it standing starts, hill climbs or overall journey times, the FH 460 is not noticeably slow in any situation. As requested, we drove as much as possible in

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NEED TO KNOW

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OUT OF HOURS

On the face of it, little has changed inside the FH cab in the three years since our last encounter. Internal storage, for items both large and small, remains impressive, while the outside lockers easily swallowed two medium cases and a host of testing kit. All the paraphernalia of daily life on the road, from drinks bottles to clipboards, can be accommodated within easy reach of the driving seat, and there are plenty of flat surfaces for off-duty needs.

The heated and ventilated comfort seat, together with the multi-dimensional adjustment of the steering column, ensure that all body shapes can be accommodated in comfort.

Our biggest disappointment with the otherwise impressive infotainment unit is its continuing lack of compatibility with Apple Car Play. In every other respect, including the competant truck-specific sat-nav, it's excellent. Another very minor irritant was that for the first few driving stints, you are likely to try to buckle up with the coiled hose of the optional dust moving airline, hanging parallel to the seatbelt on this example.

This time around, the Globetrotter cab had no coffee machine or microwave to prepare hot sustenance on the road, but the 33-litre fridge freezer ensured there was always a nice salad and bottle of mineral water to hand. And while you're enjoying your lunchtime salad from the comfort of the passenger seat, you can keep up to date with the latest daytime TV on the set mounted on the opposite wall. Moving around the cab is eased by the use of dashboard push buttons, increasingly favoured by fleet specifiers, but we still miss Volvo's signature armrest-mounted gear quadrant.

One significant improvement to the latest FH hadn't been brought to our attention beforehand, but within a few feet of driving off, it was clear that sound insulation has improved noticeably – and it was pretty good before. Not only is the FH Mouse Grey in colour, it's also as quiet as one. In the controlled environment of the proving ground, each of the objective readings at the various speeds has improved by between 1.5dB(A) and 3.0dB(A), which given the strange logarithmic way of measuring sound pressure, is more of an improvement than it would seem. On the road, at cruising speed, the loudest noise is from the tyres, or it would be, were it not for an annoying buzz from the wind deflector on the driver's door, hopefully just a malady of this particular example. Without the use of a noise meter to compare, we'd guess that this FH cab interior may even be quieter than with a whirring electric motor beneath.

IN-CAB NOISE

Make / Model	Volvo FH 460 I-Save 6x2
Tickover	45.4dB(A)
48km/h	50.6dB(A)
64km/h	53.2dB(A)
80km/h	56.7dB(A)
Max limited speed	56.9dB(A)

SECURITY

Make / Model	Volvo FH 460 I-Save 6x2
Engine immobiliser	Yes
Alarm	No
Central locking	Yes
Dead-locking	Yes
Secure bonnet	Yes
Locking fuel cap	Yes

All mod cons: The spacious cab offers all the features to make the driver's ride comfortable in both work and leisure modes

TEST WEIGHTS

Make / Model	Volvo FH 460 I-Save 6x2
Plated weights	
GVW	26,000kg
GCW	44,000kg (56,000kg design)
Front axle	7,500kg
Mid axle	7,500kg
Rear axle	11,500kg
Kerbweight*	8,750kg
Unladen test trailer	7,000kg
Net payload	28,250kg

* With full fuel and AdBlue tanks

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normal cruise control, with I-See set to its most economical parameters of 5kph over or 7kph under the desired speed. Adaptive cruise control was avoided solely because of the risk of unwittingly losing speed by catching marginally slower traffic, then having to waste fuel regaining it. The only section where journey times suffered a bit from the newly revised algorithms was on the arduous A68, where a real-world driver may be tempted to gain a bit of performance at the expense of fuel consumption on the trickier bits. But with the absence of a Power mode on the dash-mounted gear selection buttons, the benefits would be marginal anyway. A better benchmark is the long ascent of Holmescales Hill, just after J36 on the M6. Here, compared with the FH 16 750, the loss of 290hp translates into barely 30 seconds over 3 miles of climbing. The only situation where we had any potential issue with I-See was with both average speed detection zones and fixed cameras, where you need to stay alert to ensure the overspeed parameter doesn't lead you into the increasingly strict danger area.

As is our preference, before setting off we selected the Stable mode on the personal settings of the Volvo Dynamic Steering, which we find to

OPERATIONAL COSTS

Make / Model	Volvo FH 460 I-Save 6x2
Parts prices: Headlamp	£864
Oil filter	£31
Air filter	£88
Front bumper	£176 (total, 3 parts)
Rear mud wing	£136
Windscreen	£395
Turbo	£1,853
Warranty (Basic cover, months/km)	24 months/unlimited
Contract maintenance	Variable – deal specific
Windscreen	£85

FUEL FOR THOUGHT

We wouldn't normally pay a second thought to the fuel used in a full road test, because ever since we began testing trucks powered by compression ignition engines, they have been run on normal DERV fuel, made from long-dead dinosaurs and their habitat. However, the world is now a different place, and decarbonisation is the buzz word. By far the easiest method of achieving a greatly reduced carbon footprint from operating trucks is to run on HVO (hydrotreated vegetable oil), and every manufacturer of heavy trucks sold in the UK has now confirmed that all of their current engine ranges will run on HVO, with little or no modification.

To prove the point, Volvo elected to conduct this test on the fuel, so for the first time in our history, we present the first (almost) carbon neutral road test. We qualify that, because while we set off with a full tank of HVO, obtained from a Certas Energy depot, the current state of the public access roadside supply infrastructure meant that our traditional top-up on the A1 was of regular diesel. However Certas, the leading supplier of HVO, now has the first of a planned network of filling stations operating, so the availability can only improve. But until then, HVO is probably best used on operations returning to base where HVO can be bunkered.

One aspect of using HVO that has caused us some concern up to now has been a lack of transparency over its pricing. We've only gleaned that HVO is more expensive than DERV, but not being told how much by has led to us expecting the worst. Now, though, having seen that Volvo paid £2.18 per litre for this tankful, at a time when the retail price of diesel was around £1.85, it's not as bad as we expected. Certainly, a difference of 18% is significant, but if that's the price of a haulier instantly greening their operation, they may consider it a price worth paying.

NEED TO KNOW

The final overall figure was 9.82mpg, raising the record from 9.49mpg. An increase of 3.4%, this ties in neatly with Volvo's predicted results

be a good compromise between effort and feel. Notwithstanding Volvo's traditional tendency to over-estimate the quality of British roads and the effect on their front suspension, ride and handling were up to the usual high standard, with only rather soft cab suspension disturbing the equilibrium slightly.

Before discussing the test results, we should mention the test conditions. While road and weather conditions on the previous record-breaking test were near ideal, this time we encountered everything from a burning car near Manchester to a mini-monsoon in Northumberland, and countless sets of temporary traffic lights. On the plus side, completion of the new underpass means that the Hexham roundabout no longer exists as a fuel-guzzling feature of the route.

So all factors considered, it was pleasing to discover at the final top-up back at Nuneaton that the final overall figure was 9.82mpg, raising the record from 9.49mpg. An increase of 3.4%, this ties in neatly with Volvo's predicted results. As an added bonus, consumption of AdBlue which, like fuel, isn't getting any cheaper, fell from 7.7% in 2019 to 6.2%. □

FUEL CONSUMPTION

Make / Model	Volvo FH 460 I-Save 6x2
Overall	9.82mpg (28.8 lit/100 km)
Motorway	9.53mpg (29.6 lit/100 km)
Severe gradients	6.76mpg (41.8 lit/100 km)
Trunking	10.73mpg (26.3 lit/100 km)
AdBlue rate	6.2% of diesel

AVERAGE SPEED

Make / Model	Volvo FH 460 I-Save 6x2
Overall	72.0kph
Motorway	74.6kph
Severe gradients	61.6kph
Trunking	73.8kph

HILL CLIMBS

Make / Model	Volvo FH 460 I-Save 6x2
Holmescales Hill (M6)	4min, 32sec
Broomhaugh Hill (A68)	2min, 46sec

VEHICLE DIMENSIONS (MM)

Make / Model	Volvo FH 460 I-Save 6x2
Overall width	2,496
Overall length	6,280
Overall height (to fit bunk)	3,720
External cab length	2,225
Internal cab width	2,000
Internal cab length	1,950
Internal cab height (over engine tunnel)	1,149
Step heights	383, 382, 384
Cab floor height	1,149
Engine cover height	90
Internal height (above bunk)	1,500
Bunk dimensions	2,000 x 815 x 160
Wheelbase (OAS)	4,100
Front overhang	1,365
Rear overhang	1,015
Fifth wheel height	1,600

TEST SCORES

Make / Model	Volvo FH 460 I-Save 6x2
Access to cab	✪✪○
Bunks	✪✪✪✪
Dash layout/controls	✪✪✪✪
Driving position	✪✪✪✪✪○
Storage	✪✪✪
Fit and finish	✪✪✪✪✪✪
Visibility	✪✪✪✪✪
Ride comfort	✪✪✪✪○○
Steering and handling	✪✪✪✪✪
Gearshift	✪✪✪✪✪
Lugability	✪✪✪✪✪○
Braking	✪✪✪✪✪○
Noise	✪✪✪✪
Performance, engine refinement and gearing	✪✪✪✪○○
Manoeuvrability	✪✪✪✪
Fuel economy	✪✪✪✪✪✪✪✪✪✪
Payload	✪✪✪✪✪✪○○○
Cost of ownership	✪✪✪✪✪✪✪✪✪○

How we score: Each of the above scoring criteria has been weighted to reward vehicles that push the boundaries of expectation. A score of 50% means the test subject has hit our expert's industry-wide basic standard for that class of vehicle, be that on seat comfort, engine performance or fuel economy.

> **"What is a surprise is that this latest 3.4% hike of the bar has been achieved with no mechanical alterations"**

IN THE MIRROR
ROAD TEST VERDICT

Before summarising the truck's performance, a few closing comments on the subject of HVO. No, there's no discernible difference in its operational characteristics, and yes, it does cost a bit more. But not as much as an electric truck, and even if you currently have to provide your own bunker, that should still be quicker and cheaper than installing a charging station. If gaining a lucrative contract depends on having an ultra-low-carbon footprint, then HVO is the clear choice at present.

We have written enough in recent times about the Volvo FH's undoubted qualities as a place to work and rest, and as a business tool, that we don't need to labour the point, although if we had one pleasant surprise, it was the reduced noise levels that should further reduce the stress of driving it.

That Volvo's predicted fuel savings on this truck were so accurate is no surprise. Nowadays, no manufacturer can get away with over-optimistic claims, although we would welcome more taking up the challenge to validate them around *CM's* Scottish route. What is a surprise is that this latest 3.4% hike of the bar has been achieved with no mechanical alterations. The combination of further refining the I-See software and of paying close attention to aerodynamic details that are seemingly unimportant when viewed individually, has been enough.

Of course, with CO_2 emissions inextricably linked to fuel consumption, even on conventional fuel, lowering the latter is good for the environment, especially with the other tailpipe emissions having been reduced to barely measurable levels. With the main focus of the forthcoming Euro-7 standard likely to be on CO_2, the days of 44-tonne artics achieving fuel consumption in double figures around our benchmark route are almost inevitable, a prediction that would have sounded inconceivable just a decade ago.

FINAL RESULT 88%