



GAS SAFE?

Gas-fuelled trucks are growing in popularity, albeit slowly, with IVECO, Scania and Mercedes-Benz among those manufacturers active in the market.

Operators who have switched on to gas include Waitrose and Veolia. The former began operating ten biomethane-fuelled Scania tractor units last year. The latter's gas line-up includes a fleet of Mercedes-Benz Econic NGT bin wagons deployed on a contract with Sheffield City Council and three IVECO Daily Natural Power vans on a graffiti-removal contract with the London Borough of Camden. All the vehicles can run on compressed natural gas (CNG).

Other gas enthusiasts include Preston-based H. Parkinson Haulage, which has acquired seven 395bhp IVECO Stralis NP 4x2 tractors that it runs on biomethane. And with branches in London and the south east, timber, fencing and building materials supplier Lawsons has put a 325bhp CNG Stralis NP 6x2 26-tonne rigid into service.

Finding space for tanks on chassis

Natural gas-fuelled trucks and buses are becoming a more common sight in operating fleets, and the workshop. But their service requirements, and the hazards that they pose to technicians, are very different to diesel engines', finds Steve Banner

and setting up refuelling facilities are not the only challenges associated with gas. Also, workshops have to change the way that they perform maintenance.

Gas engines can require more frequent oil changes, says IVECO alternative fuels director Martin Flach. "While the oil suffers less from soot and bypass gases than it would in a diesel engine, gas engines run quite hot, which means a tough life thermally," he says. "The spark plugs need changing every so often, too, and ideally what you want to do is change them when you drain the oil." That means one workshop visit, rather than two.

For that reason, IVECO recommends a lubricant and plugs change every 75,000km, so far as the 395bhp gas engine in Stralis is concerned, rising to 90,000km for the 454bhp model. "That compares with up to 150,000km for the

equivalent diesel," observes Flach.

Gas engines require a different mindset, explains Aaron McGrath, Scania technical manager, technical support services. He adds: "Gas truck servicing intervals are driven by the plugs, rather than the oil. The engine oil stays far cleaner than it does on a diesel, so much so that we've done away with the centrifugal oil cleaner on our latest 9- and 13-litre engines."

IVECO would like to push repair intervals closer to those of diesels, but plug durability will need to improve first, according to Flach. "As things stand, 150,000km would be too far," he judges.

Scania has adopted a conservative approach, so far as oil drains and plug changes are concerned. It lays down a 30,000km interval for both on gas long-haul operations. With the 9- and 13-litre engines, the interval has increased to



45,000km – a welcome rise, but still on the cautious side. In addition, some parts that are specific to certain gas fuelling systems will need periodic replacement, points out McGrath. He continues: “Low pressure gas filters should be replaced at 60,000km and dump valves at 120,000km. Other items such as tank level sensors should not need changing, however.”

Econic NGT engines require an oil and plug change every 60,000km or 1,200 operating hours – whichever comes sooner. The ancillary equipment they power on refuse collection vehicles means they work harder than the recorded mileage might suggest. Basic servicing work is carried out at the same time, including checking valve clearances and inspecting the poly vee-belt for wear and damage.

Volvo is rolling out 414bhp and 454bhp versions of the FM and FH that will run on liquefied natural gas (LNG). They have the advantage that the LNG consumed is ignited with a small amount of conventional fuel using heated compression ignition, so no need for spark plugs. Diesel from a 170-litre tank is injected into the engine followed by the LNG, which provides over 90% of the energy. “The diesel is essentially like a liquid spark plug,” says Anneli Soppi, chief project manager at Volvo Group Trucks Technology. Oil drain intervals are set at 100,000km.

Adhering to a mileage-based approach to servicing for gas vehicles is perhaps understandable, given the lack of industry experience with gas models and what might go awry on them – especially those deployed on long-haul work – compared to diesels.

Flach suggests, however, that the time may have come to switch to a regime that is more closely tailored to individual operational requirements, with telematics used to monitor the truck’s maintenance needs. “If you’re running at steady speeds lightly laden, then it may

be possible to extend the intervals a bit further,” he suggests.

BRAKING

While oil changes may be more frequent, brake friction materials should last longer than they would on a diesel truck, according to Flach. He explains: “With spark-ignition gas heavy trucks, you don’t get any engine braking, so you have to install a retarder or an intarder,” he says. “We fit a retarder as standard.”

That shoulders most of the braking effort, which means the service brakes do not have to work nearly as hard. “You can drive without touching the brake pedal. We fit a lot of the trucks we sell in Italy with retarders and they’re very reliable,” Flach adds.

One engine retardation system that is not an option for Scania gas trucks is an exhaust brake, comments McGrath, who calls it impractical. “You can’t shut off the exhaust, because it affects the gas injection on the inlet side.” As a result, Scania has been equipping its gas models with an Allison automatic gearbox with an integral retarder. He says: “Our New Generation gas trucks can be ordered with an Opticruise transmission, which means we can fit our own retarder.”

The LNG Volvos do not require a retarder, however, says Newman, because sufficient engine braking is available.

WORKSHOP ARRANGEMENTS

Additional safety measures need to be taken before a gas truck enters a workshop. That includes checking for any gas leaks. “The workshop needs to have adequate ventilation and must have a gas detector in the roof,” Flach says.


“Gas detection and extraction equipment and an alarm system are all required,” says McGrath.

In particular, the facilities should be risk-assessed in line with DSEAR: the Dangerous Substances and Explosive Atmospheres Regulations 2002.

Every workshop has to be provided with gas sniffer equipment, leak detection liquid and personal protective equipment, including gloves and goggles.

That’s partly because some variants of the fuel are more dangerous than diesel. “Remember that LNG is a cryogenic gas and extremely cold,” warns Flach. Reaching temperatures as low as -140°C, it can cause severe injuries if it splashes into eyes or spills on skin. (By contrast, CNG is stored at ambient temperature, but under high pressure.) Technicians have to undergo appropriate training. For example, IVECO sends technicians on two-day courses for dealing with the gas system’s high-pressure pipework.

Given the additional training and equipment that workshops require, operators who go the gas route seem to prefer to have all the necessary service and repair work carried out by franchised dealers. And that is encouraged by truck manufacturers.

“Always remember, though, that if you can work on a petrol car, then you can work on one of our gas trucks,” concludes Flach. “Because what you’re talking about is a big spark-ignition engine.” 

FURTHER INFORMATION

- DSEAR – <https://is.gd/ocejeh>
- Swagelok – <https://is.gd/wedeyi>
- The great (Britain) gas tour – <https://is.gd/roheza>