Draining resources

Pits and lanes can both accommodate systems to safely collect used vehicle oils drained out of the vehicle sump, reports Richard Simpson

Used oils are an inevitable product of workshop activity. They are also potentially harmful to the health of workers who handle them; the consequences range from skin irritation to cancer in humans, and pollution of the wider environment, as just one litre of oil can contaminate a million litres of water.

Every workshop, large or small, must have an infrastructure that enables it to handle used oil in a way that will not harm either employees or the environment.

Traditionally, many workshops burned waste oil on site; the fuel powered space heaters. This practice was effectively banned in England and Wales in 2012 by the introduction of a permit costing £3,218. Scotland and Northern Ireland imposed even tighter legislation.

But waste oil still has its uses. Oakwood, now part of Enva, collects used oil from workshops and reprocesses it to provide fuels for large oil-burning applications, including asphalt production, power generation, heating and crop drying. Some used oil is also treated and returned to the lubricant industry for use in basic products. (Like many other service providers, Enva also collects and safely disposes of other garage wastes, including used filters, contaminated rags and batteries.)

Scania, in particular, uses Oakwood to collect waste from its own workshops, including the new dealer facility in Bridgwater, Somerset. Its general manager Nigel Champion explains that every precaution is taken against waste oil contaminating the outside environment. "We chose Balzer wide-bodied inspection pits, which have removable, cleanable floors. They have sufficient space to allow us to install the Alentic Orion oil collection system, which features a hopper on a cantilever arm that can be swung into position under the engine, gearbox and axle drain points."

The oil runs into the hopper (pictured above), and is then pumped pneumatically up and away into a 4,500-litre bunded tank, which is positioned on a mezzanine floor, well out of the way of potential damage. Alongside it are more bunded tanks containing fresh oils, which are piped direct to the various workstations on the shop floor.

"While we service vehicles over pits, when we have to remove large units such as engines and gearboxes, we raise the vehicle on lifts and lower the unit on to the workshop floor. To catch and contain the oil we use 'daleks': 125-litre wheeled drums with oil collection hoppers. These are plugged into the same waste oil system as the arms when full.

"If necessary, we can draw a sample of oil for analysis. Oil wear metal analysis

will often provide a very good clue as to why a unit has failed. All of the used oil – whether it be engine, gearbox, axle or transmission – goes into the same tank. The tank will need emptying every two or three months. It is discharged by gravity into a collection tanker." (Draining manifold shown top right.)

Used filters and oily rags go into separate bins for collection by Oakwood. The oil filter bins sit on palletised drip trays. When the containers are filled, they are all taken out of the workshop to a separate designated recycling building to await collection. Different bays in the same building also store returned service-exchange units, warranty return parts, recyclable card and paper, and scrap items awaiting collection.

GOOD FOR EVERYONE

"Running a clean operation is absolutely paramount. Clean working conditions are good for everyone, and

protection for the local environment was a requirement from the moment planning started for this facility," Champion concludes.

Nigel James manages the Imperial Commercials franchised DAF workshop in Swindon, which is a purpose-built facility that has been operating since 2015. Imperial is one of the largest independent commercial vehicle dealers in the UK. Employing 14 technicians and two apprentices on the DAF apprenticeship programme, the Swindon DAF workshop has three service pits and three flat bays where more major work can be carried out. The busy facility also includes dedicated bays for ATF, ADR and steam cleaning.

James says that its exact oil storage needs are unpredictable. He states: "It's difficult to judge just how much used oil we are going to generate: DAF offers long-drain and standard engine oils, and the oil change intervals are now set on a mileage rather than calendar basis."

Still, the workshop has bulk dispensers for engine, gearbox and axle lubricants, with two grades of each. Other more specialist (and expensive) lubricants for hydraulic and transmission applications are held in drums. All used oil is collected in wheeled 'daleks' irrespective of whether the vehicle is over a pit or on a lift. These are then pneumatically pumped out into a 2,400-litre used oil tank, where all types are commingled prior to collection by Enva. Other fluids are kept segregated and collected separately. "The used oil tank needs emptying every couple of weeks," James says.

He concludes: "Over the years I've been in the business, there's been an increasing emphasis on the responsible disposal of used oil and other workshop waste. Used oil and other fluids have to be disposed of in a verified and responsible process." TE

THE SERVICE-EXCHANGE SUMP

Replaceable oil filters are standard now on most vehicles, but oil supplier Castrol is now working on a replaceable (and intelligent) filled sump. Initially developed for an Aston Martin high-performance car with a dry-sump lubrication system, the second phase of the Nexcel active oil management system has been modified to suit passenger cars and vans with conventional 'wet' oil sumps.

Nexcel is a sealed, self-contained cell which contains the correct grade of oil for the engine and an integral filter. It incorporates a system which limits the volume of oil supplied to the engine until the engine has warmed up fully, via an electronic control unit and an electric pump. Oil condition analysis can also be incorporated.

Typically, a 2-litre engine might contain as much as 4.5 litres of oil. But in shorter work cycles, a two-litre supply can be more than adequate, and allow for faster engine warm-up and more economical running. The cells are clipped in and out of the engine bay, from above, in around 90 seconds, offering a spill-free oil change without the need to access the underside of the vehicle.

Used oil is returned within the cell for re-refining, without the risk of contamination from other grades of oil, or dilution by undesirables such as brake fluid.

The sheer volume of oil carried in heavy-duty diesel engines would make installing and removing sufficiently large Nexcel cells a challenge, but perhaps not an insurmountable one.