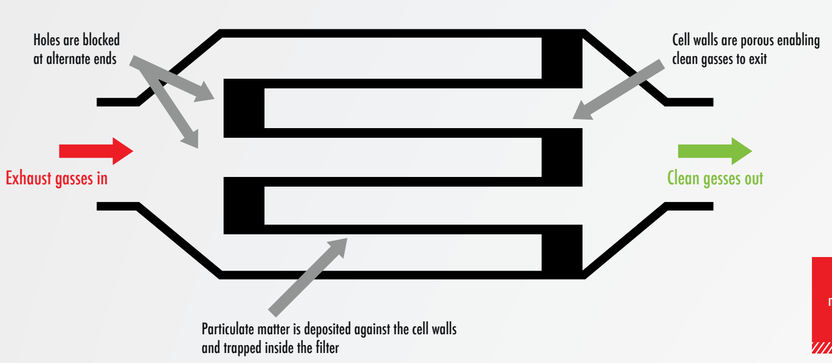
DIESEL PARTICULATE FILTERS (DPFs)

WHAT ARE THEY AND HOW DO THEY WORK?

- The DPF is the part of the exhaust system which removes particulate matter (soot) from the exhaust gasses
- Exhaust gasses containing particulate matter enter the DPF and flow into the channels
- The channels are closed off at alternate ends; therefore the exhaust gasses pass through the porous cell walls
- Particulate matter is too large to pass through the cell walls, and is trapped in the DPF
- Clean exhaust gasses exit the DPF. The trapped particulates will be burned off during regeneration

NO DPF, NO MOT

- As of February 2014, any vehicle that has had its DPF removed will automatically fail its MOT
- This legislation refers to any vehicle that was fitted with a DPF as standard
- Testing stations are required to carry out a physical check, to ensure the DPF is still in place
- DPFs were removed by firms, claiming the vehicles economy and performance would be improved
- Remedial work could be very costly – as well as the replacement DPF, the ECU is likely to need remapping



The Engine Management System (ECU) constantly monitors the filter and will carry out a regeneration to stop it blocking.

NO DPF NO MOT

If a vehicle has had its DPF removed from February 2014 it will fail its MOT

WHAT ARE THEY MADE FROM?

- Cordierite DPFs look very similar to Catalysts and are mostly used in additive systems in conjunction with Diesel Oxidisation Catalysts. They are mostly used in aftermarket products
- Silicon Carbide DPFs are constructed from small sections cemented together. More commonly used in O.E. and Catalysing DPFs, they are classed as a premium product

WHY ARE SiC DPFs A PREMIUM PRODUCT?

- 3-Year Warranty
- Higher Melting Point
- 99% Filtration Efficiency
- Higher thermal conductivity and heat resistance
- Increased regeneration consistency
- More resistant against Monolith fractures

DPF TECHNOLOGIES

Whilst all DPFs work in the same way, car manufacturers use slightly different variations of the technology:

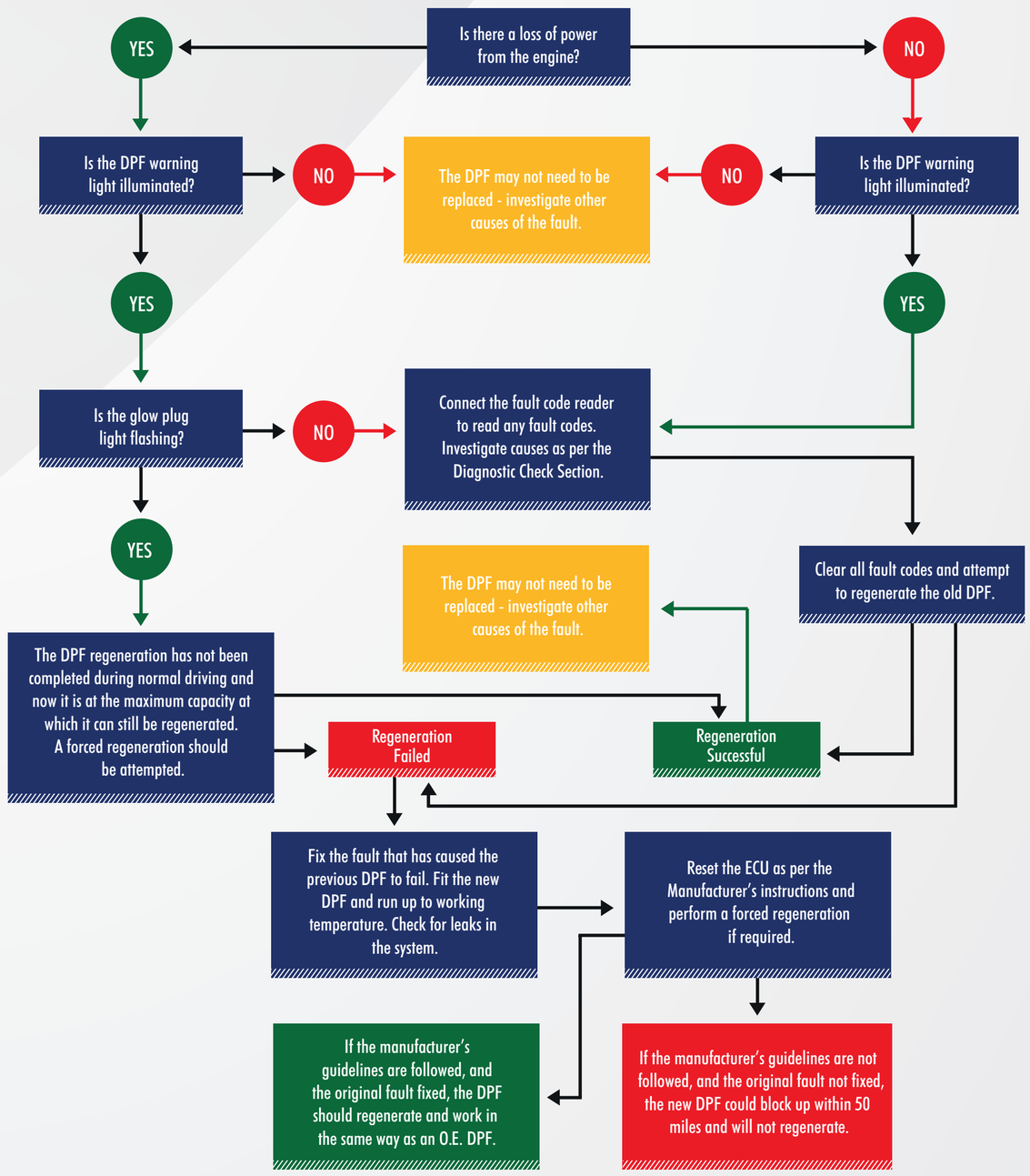
Coated DPFs - favoured by German manufacturers. These systems use a precious metal coating on the DPF to aid the "Regeneration" process. The coated DPF catalyses as well as filters, so the vehicle does not necessarily need a separate Cat. The coating of precious metals also lowers the temperature at which "Regeneration" takes place to 400°C

Fuel Additive Systems - favoured by French manufacturers. Used in conjunction with a diesel Cat, this type of DPF uses a fuel additive to aid the "Regeneration" process. The additive lowers the temperature at which "Regeneration" takes place to 400°C

REGENERATION

There are 3 different types of Regeneration – Passive Regeneration, Active Regeneration and Forced Regeneration:

- **Passive Regeneration** occurs during normal driving conditions, when the DPF becomes hot enough to burn off some of the trapped particulates naturally between 250°C and 500°C
- **Active Regeneration** is an ECU led process that increases the exhaust temperature by a post injection of fuel in the cycle. This raises the temperature of the DPF to burn off all the trapped particulates
- **Forced Regeneration** is carried out by garages with Diagnostic equipment



DOs AND DON'Ts

- Always use the correct oil as per the manufacturer's specifications
- Always use new fittings and replace the sensors where possible
- Follow the manufacturer's guidelines when resetting the ECU
- Don't use exhaust paste or undue force when fitting a new DPF

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