Overview

AutoElevate (AE) is an optional feature that automatically increases engine RPM and uses engine thermal controls to help manage/eliminate hydrocarbon (HC) buildup from achieving a level where it could damage the aftertreatment system.

Enabling AE will help minimize driver action needed during periods of low aftertreatment temperature and extended idle operation; however, some units may still see some HC absorption faults log and there are several scenarios which could cause this, some that are completely normal and not indicative of a failure.

HC cleanup also occurs over the road during normal operation when ATS temperatures are high enough for controlled elimination of the excess fuel.

An AE event is normally 15-20 minutes maximum, depending on ambient and ATS temperature conditions.

Normal Operation

- AE requires vehicles meet certain safety interlocks for activation:
  - Transmission in Neutral
  - Park Brake set to ON
  - Clutch out (not depressed)
  - Road speed = 0.0mph/kmh
  - Engine at idle speed (slow or fast)
  - PTO governor not enabled
  - Regen inhibit switch not enabled (not equipped on all units)

  If one or more of the above interlocks is not met FOR THE DURATION of the regen/AE event, either due to component fault or driver input, HC faults will be more prevalent.

Driver & Operational Inputs

- Drivers and driver training can have a large impact on AE functionality, some of the more common examples that have lead to HC faults are:

- Unit operation at low speed/low loads where ATS temperatures are low (city/traffic conditions)
  - Lower ATS temperatures during normal driving in urban routes can result in HC faults where the unit is unable to complete a driving HC cleanup.

- Driver setting the trailer brake rather than the park brake (most often to avoid idle shutdown timers)
- Drivers unaware of AE feature may take the following actions:
  - Disruption of the safety interlocks
  - Turn the ignition off thinking that engine is ‘running away.’

Chassis & Engine Faults

- Some vehicle faults can also result in AE being disabled, this may be because they invalidated safety interlocks or that they restrict engine/ATS operation in specific ways.

- Some examples from both are:

Engine/ATS
- Regen inhibit faults (ex. 2659/0)
- Engine Component faults (Jake Rockers, Jake Solenoid, EGR valve, Exhaust Gas Flap)
- ATS Component faults (DOC/DPF/SCR Temperature Sensors)
- PTCAN Communication

Chassis
- Wheel Speed/ABS/VSS Faults
- Service/Park Brake Switches
- Neutral Switch (if equipped)
- J1939 Transmission Gear Signal Interruptions
- ATS Inlet Piping Leaks
- IPPC faults

Conclusions

To best help with limiting the number of HC faults that are still seen by driver –

1. Repair any engine &/or chassis faults along with completion of campaigns/recalls in a timely manner.
2. Help drivers be aware of both the automatic/normal operation of the regeneration & AE processes. Several videos are available on Demand Detroit's YouTube site that may help with this:
   a) https://www.youtube.com/watch?v=1z8iE61v0cI
   b) https://www.youtube.com/watch?v=7Ezbvy0uVT4
   c) https://demanddetroit.com/video/2606/

In the absence of any faults preventing completion, an HC fault is resolvable by driver and does not require a technician or service visit. The above videos can help familiarize drivers with the updated technology in today's trucks.