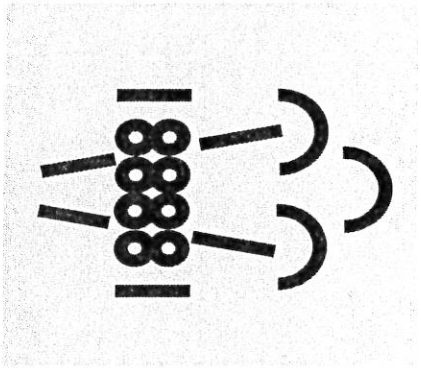
VOLVO DPF PARK REGENERATION PROCEDURE

Under certain duty cycles, driver action is needed to perform a parked regeneration. When driver action is needed to perform a parked regeneration the After-treatment DPF Regeneration Needed icon on the instrument cluster flashes and the message "Parked REGEN Needed" is displayed. Initiate a parked After-treatment DPF regeneration at the next stop by,

1. **The regeneration icon must be illumninated in order to begin this process.**

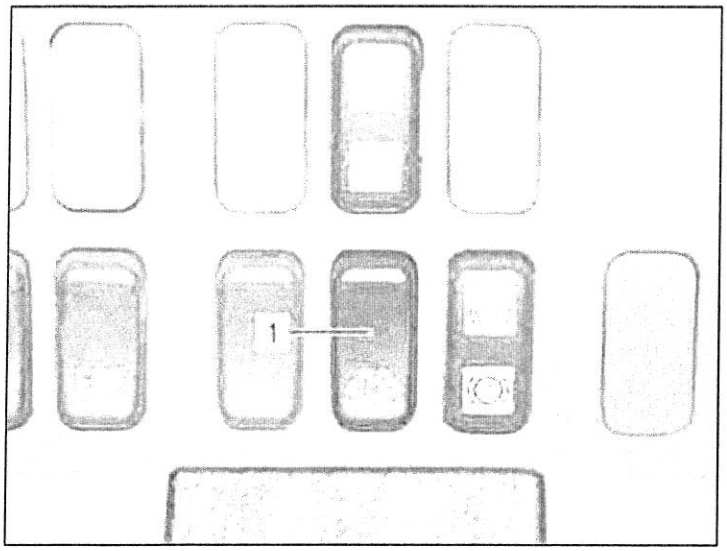


2. **Insure the DEF guage on the dash indicates the tank is at least ¼ full.**
3. **Park vehicle in a safe location (no tall grass etc.).**
4. **Put chocks in front of and behind the wheels.**
5. **Ensure nothing is near the exhaust.**
6. **Move the coach 2-3 feet and then cycle the park brake and transmission;**
    a. **Set the parking brake,**
    b. **Shift transmission into neutral,**
    c. **Turn 'off' fast idle,**
    d. **Turn 'off' all HVAC switches (Heat, A/C, Ventilation).**
7. **Find the REGNERATION icon by using the windshield wiper lever;**
    a. **Press arrow on windshield wiper lever and scroll down using windshield wiper lever,**
    b. **Find ATS,**
    c. **Press arrow again on windshield wiper lever,**
    d. **Request REGENERATION will show on screen,**
8. **Press arrow and engine speed will increase and the 'Parked' REGENERATION will begin.**
9. **DO NOT TOUCH ANY FURTHER CONTROLS.**
10. **Observe the vehicle and its immediate surroundings during the 20 to 40-minute regeneration process.**
11. **If the regeneration is successful, the engine speed will return to idle and the "DPF regeneration" lamp will go out.**

12. If the regeneration fails, the "DPF Regeneration" lamp will reappear. In that case, repeat steps 5-6-7-8 and contact the Control Center.

SETRA DPF 'PARK' REGENERATION PROCEDURE

1. The regeneration light must be illumninated in order to begin this process.
2. Insure the DEF guage on the dash indicates the tank is at least ¼ full.
3. Park vehicle in a safe location (no tall grass etc.).
4. Put chocks in front of and behind the wheels.
5. Ensure nothing is near the exhaust.
6. Move the coach 2-3 feet and then cycle the park brake and transmission;
    a. Turn 'off' fast idle (engine must be at idle),
    b. Engage and release Parking Brake,
    c. Set the parking brake,
    d. Shift transmission into and out of gear,
    e. Ensure transmission is in neutral and remains throughout this process,
    f. Turn 'off' all HVAC switches (heater, A/C, ventilation).

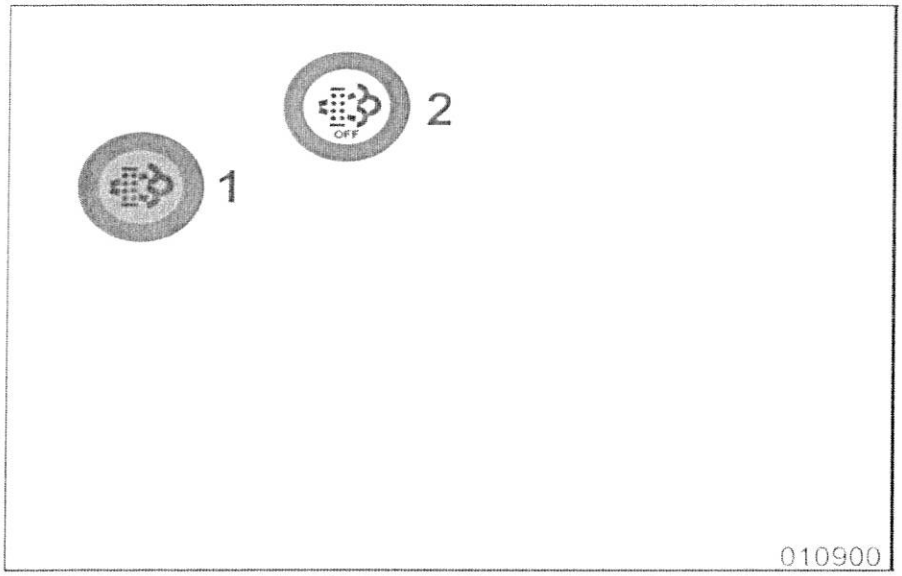


7. Press and hold the Diesel Particulate Filter (DPF) switch until engine speed increases to approximately 1600 rpm. Maintaining pressure on the DPF switch for approximately 4-5 seconds may be required.
8. The DPF lamp will begin flashing when the regeneration process begins.
9. If the regeneration process does not start, repeat step 4, 5 & 6.
10. Monitor the vehicle and surrounding area during regeneration which could take up to one hour.
11. Once the regeneration process is complete, the vehicle will return to normal low idle.

VANHOOL 'PARK' REGENERATION PROCEDURE

1. The regeneration icon must be illumninated in order to begin this process.

2. Insure the DEF guage on the dash indicates the tank is at least ¼ full.
3. Park vehicle in a safe location (no tall grass etc.).
4. Put chocks in front of and behind the wheels.
5. Ensure nothing is near the exhaust.
6. Move the coach 2-3 feet and then cycle the park brake and transmission;
    a. Set the parking brake,
    b. Shift transmission into neutral,
    c. Turn 'off' fast idle,
    d. Turn 'off' all HVAC switches (Heat, A/C, Ventilation).
7. Press and hold the "Stationary regeneration request" button (Button #1 below) for at least 2 seconds.



1 - "Stationary regeneration request" push-button (with integrated lamp)
2 - "Regeneration inhibited" push-button (with integrated lamp)
NOTE: During initial engine start, DPF lights will illuminate briefly.

8. The Parked DPF Regeneration should start. Engine speed will increase. The "DPF regeneration" lamp will go out and the "DPF REGENERATION ACTIVE" message will appear on the dashboard display.
9. Observe the vehicle and its immediate surroundings during the 20 to 40 minute regeneration process.
10. If the regeneration is successful, the engine speed will return to idle and the "DPF regeneration" lamp will go out.

11. If the regeneration fails, the "DPF Regeneration" lamp will reappear. In that case, repeat steps 5-6-7-8 and contact the Control Center.

DPF REGENERATION OVERVIEW

Diesel engines produce soot (black carbon) particles during combustion of the fuel/air mix due to incomplete combustion. These particles include tiny nanoparticles—smaller than a thousandth of a millimeter (one micron). This soot and other particles from diesel engines worsen the particulate matter pollution in the air and are harmful to health. The majority of buses operated by Silverado Stages are equipped with legally required Diesel Particulate Filter (DPF) systems to reduce particulate matter (PM) emissions by at least 85%.

Diesel Particulate Filter (DPF) systems

Ash, from normal engine operation, builds up in the filter as it cannot be converted into a gas and pass through the walls of the filter. A computer monitors one or more sensors that measure back pressure and/or temperature, and based on pre-programmed set points the computer makes decisions on when to activate the filter regeneration cycle. In order to remove the accumulated soot from the filter and lower the filter pressure, the DPF system burns off the accumulated particulate either passively through the use of a catalyst (Diesel Exhaust Fluid - DEF) or actively, by utilizing a fuel burner to heat the filter to soot combustion temperatures.

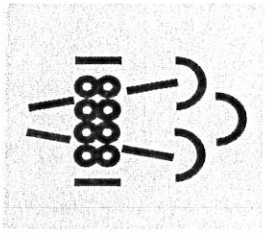
Types of regeneration

Passive - Typically, a 'passive' or 'automatic' regeneration process occurs during normal driving by using the heat of the exhaust and adding a catalyst (DPF fluid).

Active - If the self-cleaning temperature is not reached while driving (e.g. due to frequent stopping), the filter will develop too much pressure at which point an 'active' regeneration must be used – commonly referred to as a 'forced' or 'parked' regeneration.

DPF Regeneration Required warning light

If the icon "DPF Regeneration Required" warning light illuminates, it means that the diesel particulate filter is becoming full and regeneration is needed;



Phase 1: The warning lamp will light to indicate that the particulate filter has to be regenerated at the next opportunity by either;

a) Driving uninterrupted for at least 20-minutes at 40+ MPH in order to get the engine to perform a passive regeneration, or
b) Performing a 'parked' regeneration which takes approximately 30 minutes.

Phase 2: If you continue driving without carrying out a regeneration, the warning lamp may begin to flash which indicates the filter is full, at which point you must carry out the 'parked' regeneration immediately or the engine speed will reduce to 5 MPH.

Phase 3: If you still do not carry out the regeneration, the "ENGINE WARNING" message may appear. You must immediately carry out a 'parked' regeneration or engine power will be reduced.
Phase 4: If you still do not carry out the stationary regeneration, the "STOP ENGINE" message will also appear after a while. Immediately carry out a 'parked' regeneration, if not, the engine will be shut off.
Phase 5: If engine shut off occurs, notify the Control Center and ask for assistance from a mechanic. A mechanic will contact you and guide you through possible remedies.
Phase 6: If you are still unable to perform a regeneration, a mechanic will be dispatched to your location to perform a forced regeneration utilizing a lap-top computer which takes 30-40 minutes.
Phase 7: If the mechanic is unable to perform a regeneration, the bus will have to be towed to the garage.

Forced or Parked Regeneration Procedure
Drivers are capable of performing a 'parked' regeneration if done before engine shutdown occurs. Procedures vary slightly based on make and model of bus. (*Refer to 'Parked Regeneration Procedure' for the specific model of bus being operated.*)

The vehicle must be stationary to begin the regeneration, and remain stationary to complete. The DPF Regeneration system is self-monitoring. Typically, steps the driver must perform include:

1. The regeneration light must be illuminated in order to begin this process.
2. Park vehicle in a safe location. Ensure nothing is near the exhaust (no tall grass etc.).
3. Set the parking brake.
4. Ensure transmission is in neutral and remains throughout this process.
5. Turn 'off' fast idle.
6. Turn 'off' all HVAC systems (heater, A/C, ventilation).
7. Follow make/model specific regeneration instructions.
8. **Once the process begins, do not touch any further controls until the regeneration process is complete.**

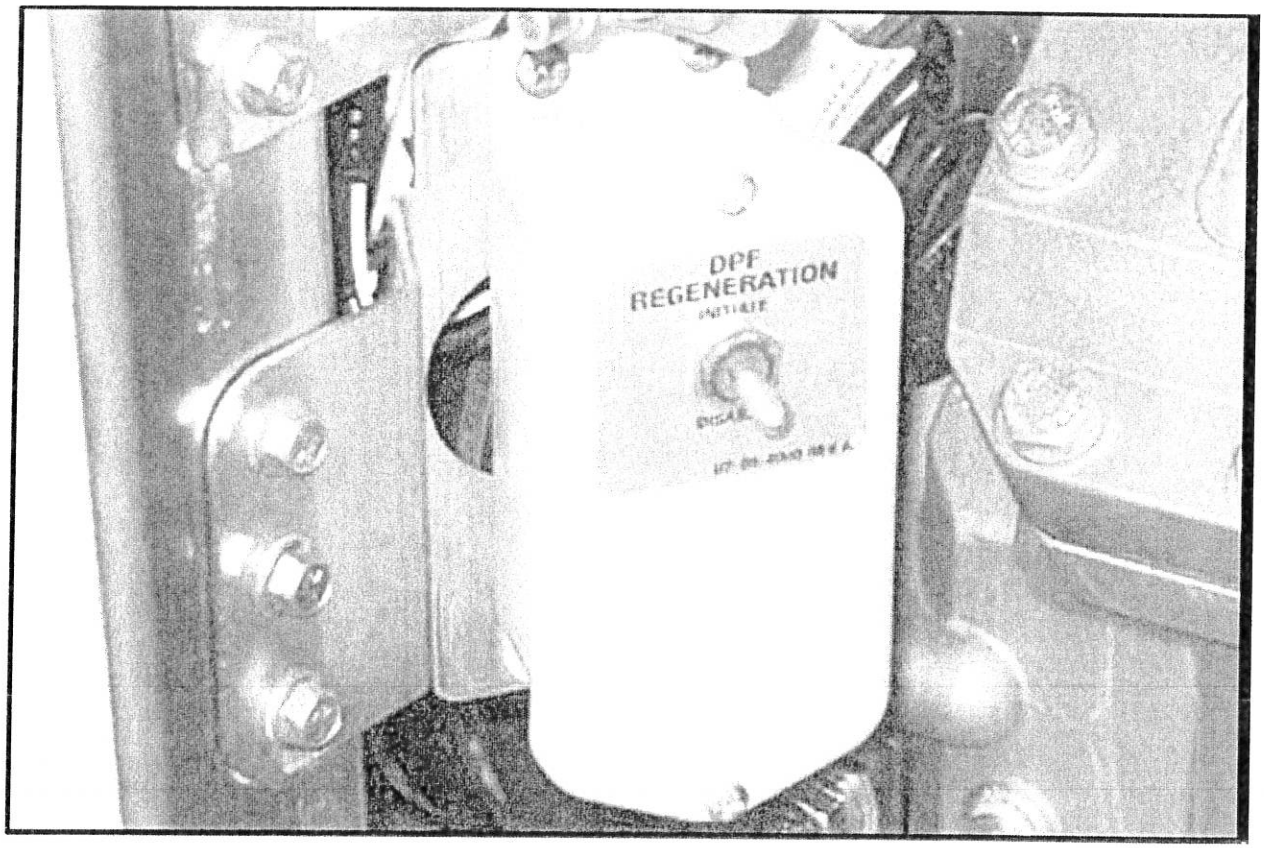
Diesel Exhaust Fluid (DEF)
Buses are equipped with DEF tanks of various sizes. There is a gauge on the dash showing the level of DEF present in the tank. DEF tanks should be topped off at the end of each trip.

Buses are equipped with warning systems to alert drivers when the DEF tank is almost empty. If the DEF tank is allowed to run dry, the bus will de-rate and eventually shut down.

Buses are also equipped with warning systems to alert drivers when DEF is contaminated. Contamination may occur when any fluid other than authorized DEF is placed in a tank. The most common mistake is when someone puts diesel fluid in the DEF tank. DPF fluid tanks have a 'blue' filler cap. Diesel fuel tanks have a 'black' filler cap. **Do not make the mistake of putting diesel fuel in the DFP tank or putting DPF fluid in the diesel tank.**

MCI J4500 PARK REGENERATION PROCEDURE

1. The regeneration light must be illumninated in order to begin this process.
2. Insure the DEF guage on the dash indicates the tank is at least ¼ full.
3. Park vehicle in a safe location (no tall grass etc.).
4. Put chocks in front of and behind the wheels.
5. Ensure nothing is near the exhaust.
6. Move the coach 2-3 feet and then cycle the park brake and transmission;
    a. Set the parking brake,
    b. Shift transmission into neutral,
    c. Turn 'off' fast idle,
    d. Turn 'off' all HVAC switches (Heat, A/C, Ventilation).
7. Exit the bus and open the rear most passenger side door (just before the engine compartment).
8. Hold the manual regeneration switch for 5 seconds (see photo below).



9. If the regeneration process does not start within 60 seconds, repeat step 4, 5 & 6.
10. Monitor the vehicle and surrounding area during regeneration.

11. Once the regeneration process is complete, the vehicle will return to normal low idle.

2008 PREVOST REGEN PROCEDURES

On the dash, to the left of the steering wheel, there is a regen switch and warning light. When the light begins to flash (blue), the operator of the unit has 20-minutes to begin the regen process by following the steps below:

1. Pull into a safe location.
2. Put the transmission in 'neutral' and set the parking brake.
3. Turn off the climate control.
4. Make sure engine is NOT in fast idle.
5. Press the regen button. The rpm's will pick up, indicating the unit is in regen mode.
6. Do not touch anything until the regen process is complete as it may terminate the process early and you will have to re-start the process from the beginning.
7. When the rpm's return to normal, the regen process is complete (roughly 45 minutes).

If you miss the opportunity to perform the regen before the 'blue' flashing light turns to a 'yellow' flashing light, follow the below steps to "trick" the system:

1. From a parked position, put the bus in gear and roll forward a few feet.
2. Put the transmission in 'neutral' and set the parking brake.
3. Turn off climate control
4. Make sure engine is NOT in fast idle.
5. Change gears on the shift selector according to the following order:
   Neutral - **D**rive - **N**eutral - **D**rive - **N**eutral
6. Press and Hold the regen button down until the rpm's increase indicating the regen system had engaged.
7. When the rpm's return to normal, the regen process is complete (roughly 45 minutes).

Once the regen warning light begins flashing 'blue', you have less than 20-minutes to begin the regen process or the bus will lose power and D-rate. Once 20-minutes has passed the regen switch will start to flash rapidly, the bus will start to lose power, and D-rate. After this occurs, attempts to manually regen the bus will be unsuccessful. A mechanic must respond to the bus and force a regen by utilizing a laptop.