

## Diagnostic Guide: P20EE Troubleshooting Process

### Purpose:

To provide troubleshooting assistance with P20EE (Low Conversion Efficiency) code on TIEF4 engines.

### Theory:

NOx sensors read primarily NOx concentration in the exhaust stream exiting the SCR (Selective Catalyst Reduction) muffler. A portion of the sensor's reading is N<sub>2</sub> concentration in the exhaust stream. Catalyzed DEF (Diesel Exhaust Fluid) is largely composed of N<sub>2</sub>, over-dosing DEF into the exhaust stream can lead to elevated N<sub>2</sub> amounts, which can falsely elevate Post-NOx sensor readings. P20EE code is set when a 300 second average of data shows the average value of the Post-NOx sensor higher than the Pre-NOx sensor. It is not uncommon for the two lines to cross momentarily on the graph.

### Troubleshooting:

#### 1. Check for DEF being overdosed into the system.

##### a. Check DEF concentration:

- 1) Check the DEF concentration in the tank using a refractometer. Value \_\_\_\_%
- 2) Check the DEF concentration the sensor is reading, utilizing KOBD ACE. Value \_\_\_\_%
- 3) DEF concentration should be 32.5%
  - a) If values match, but are not 32.5%, drain the DEF tank and fill with fresh DEF.
  - b) If values vary greatly, replace the header assembly.

##### b. Check DEF injector:

- 1) Remove the DEF injector from SCR inlet pipe on the machine. Leave the DEF injector connected electronically and to the DEF lines.
- 2) Place a container below the injector to catch any fluid, and perform Circulation Test (ACU).}

