

## Overall Information

**Table1- Overall Information**

Vehicle plate number	85423
CPK data logger number	LN: 001505, DN: 2001, Sim Number +989218469621
Bus line	Number 4 (south to north bus line)
Bus Terminals	South Bus Terminal - Park Way Bus Tehran Terminal
Total path distance	22.8 km
DPF producer company	HJS_02 (active system with FBC – electrical heater)
Installation date	19/Feb/2015
Report period	01/Jul/2015 – 15/Jul/2015 (fifteen days)
K value - DPF upstream	1.01 [1/m]
K value – DPF downstream	0.01 [1/m]

**Table 2- DPF Maintenance History**

Filter maintenance date	DPF has been working from installation date until now without any cleaning.
Dosing status	Dosing value has been kept constant from installation date until now.

**Table 3- Fuel and Additive Consumption Information**

Bus mileage (from DPF installation date)	24343 km
Bus mileage over the period	2610 km
Working days over the period	13 days
Stop days	2 days
Data logger working days	13 days
Working hours over the period	167 Hour 55 minutes
Average working hours per day (including stop days)	11 Hour 11 minutes
Bus average speed	15.53 km/hr
Idle speed time to all working time ration	53 %
Total Bus fuel consumption over the period	1540 lit
Fuel consumption per hour	9.17 lit/hr
Average fuel consumption	0.59 lit/km
Total Bus additive consumption over the period	0.740 lit
Average additive consumption	283 cc/km
Additive consumption to fuel ration	480 cc per 1000 lit (batch dosing with tank level)

## Temperature, Pressure and Engine Speed Overview

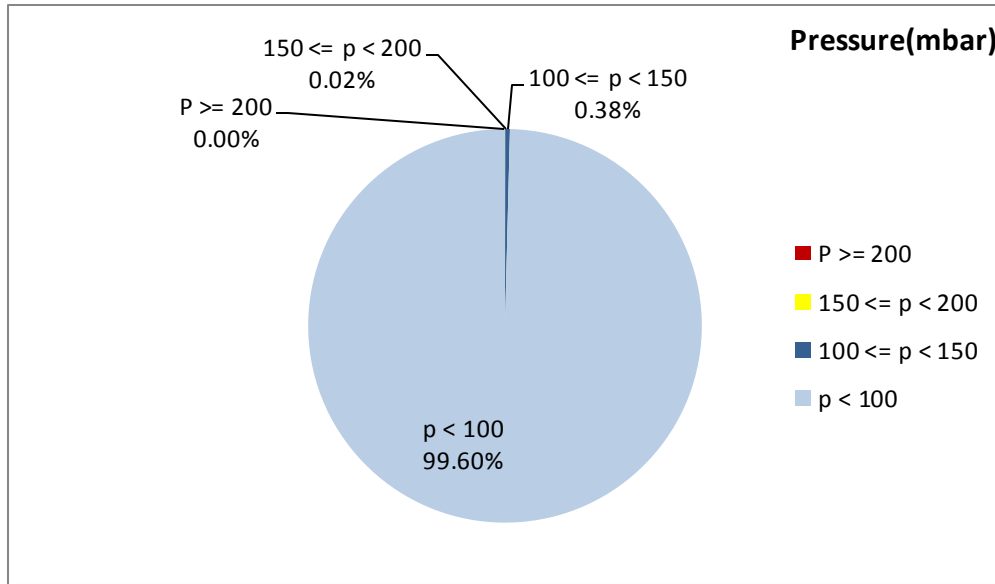


Figure 1- Pressure distribution over the working hours

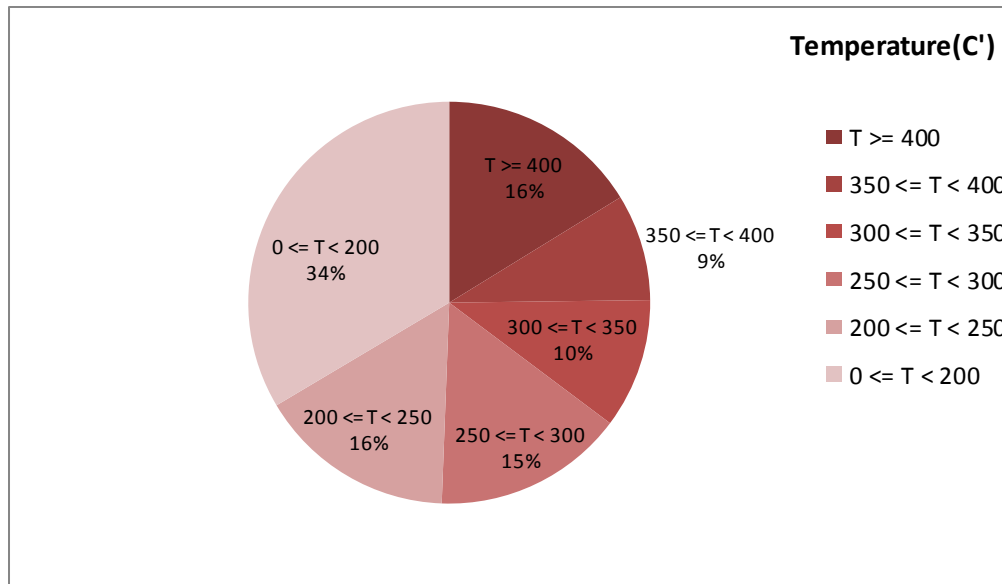


Figure 2-Temperature distribution over the working hours

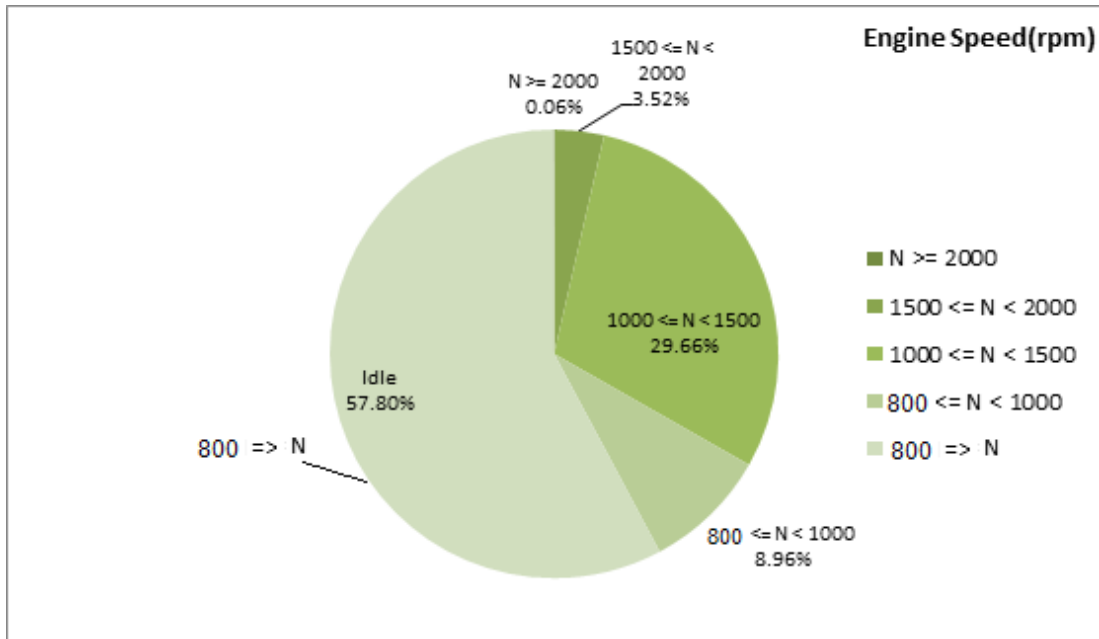


Figure 3- Engine speed distribution over the working hours

Table 4- Mean values

Mean temperature (C)	Mean pressure(mbar)	Mean engine speed(rpm)
272.15	12.26	823

Table 5- Mean values without idling

Mean temperature (C)	Mean pressure(mbar)	Mean engine speed(rpm)
331.47	21.88	1067

Table 6- Max-min values

Max-min temperature(C)	Max-min pressure(mbar)	Max-min engine speed(rpm)
674-50	189-0	2224-256

## Detailed Pressure Analysis

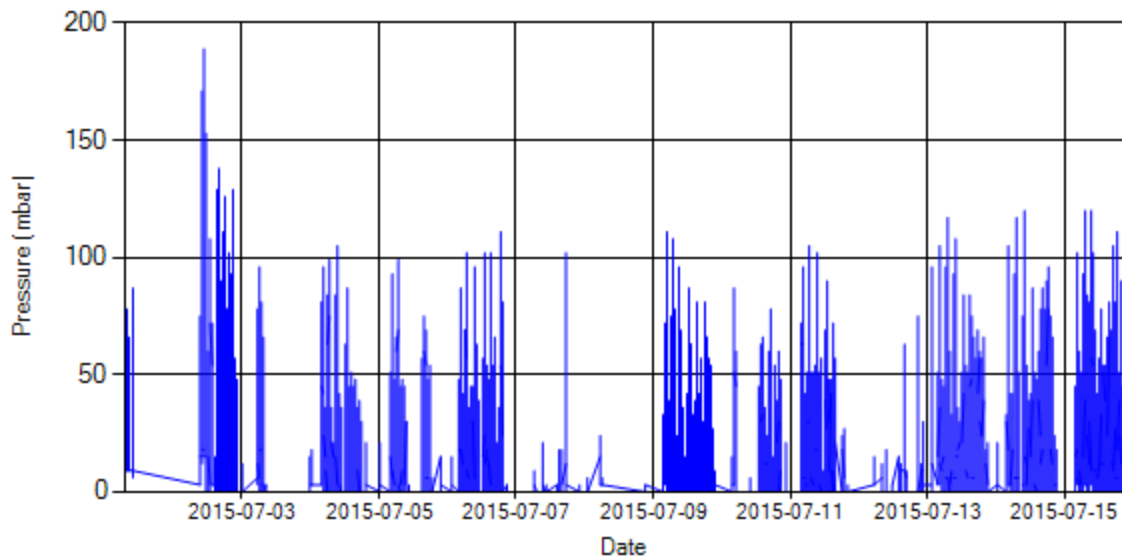


Figure 4- Pressure distribution over the period

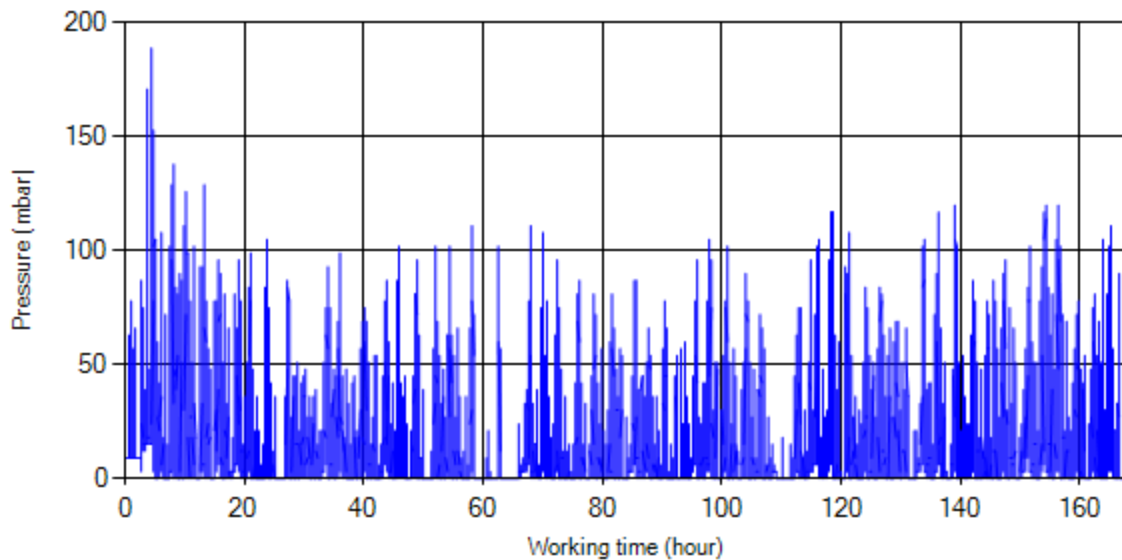


Figure 5- Pressure vs. working hours

Notice: backpressure distribution was shown into two diagrams. As obvious in figure 5, stop-working periods were eliminated and pressure was displayed along working hours.

## Detailed Temperature Analysis

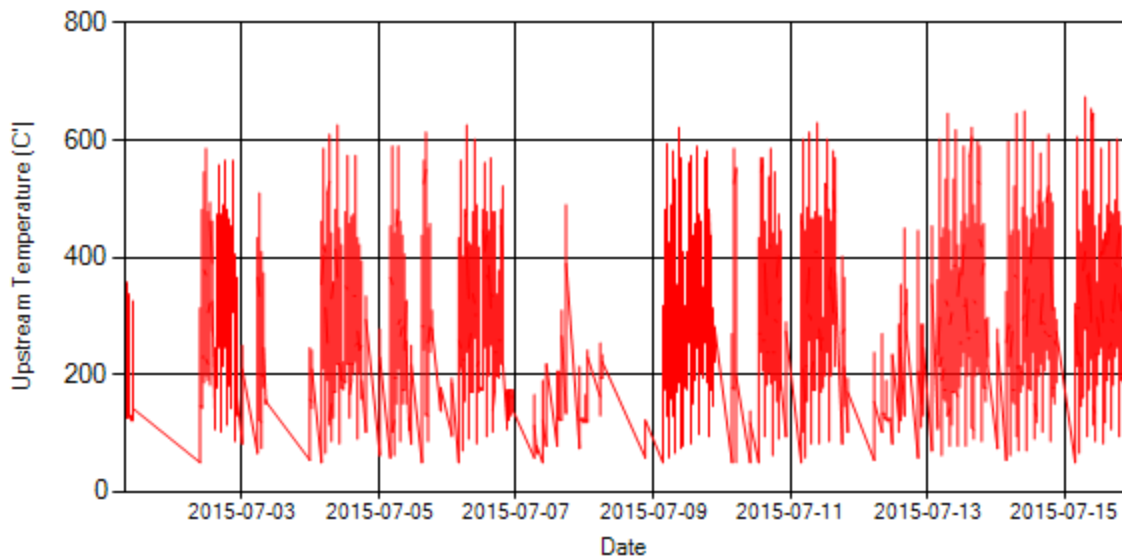


Figure 6- Temperature distribution over the period

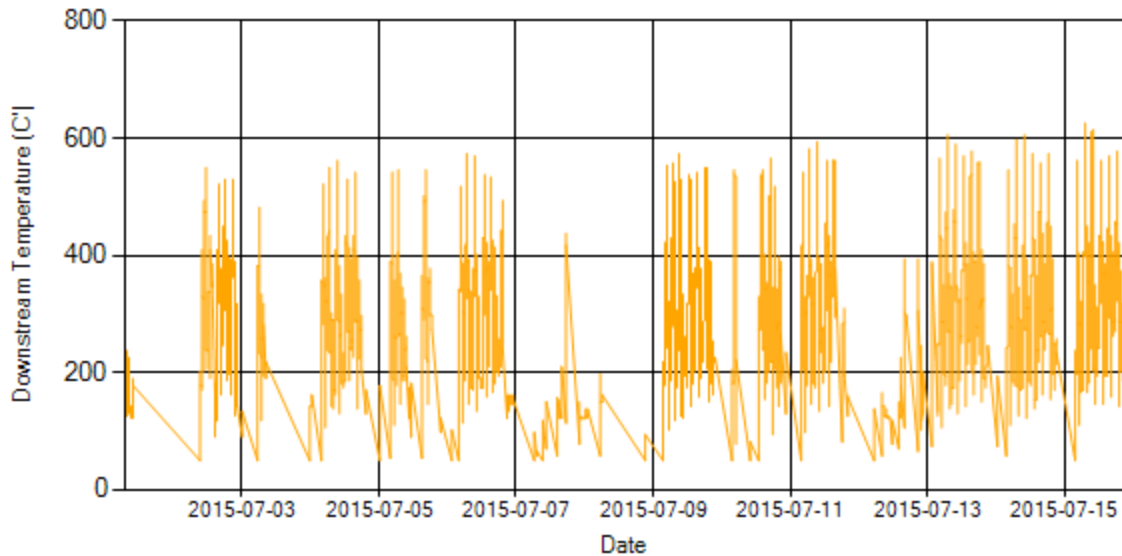


Figure 7- Temperature distribution over the period

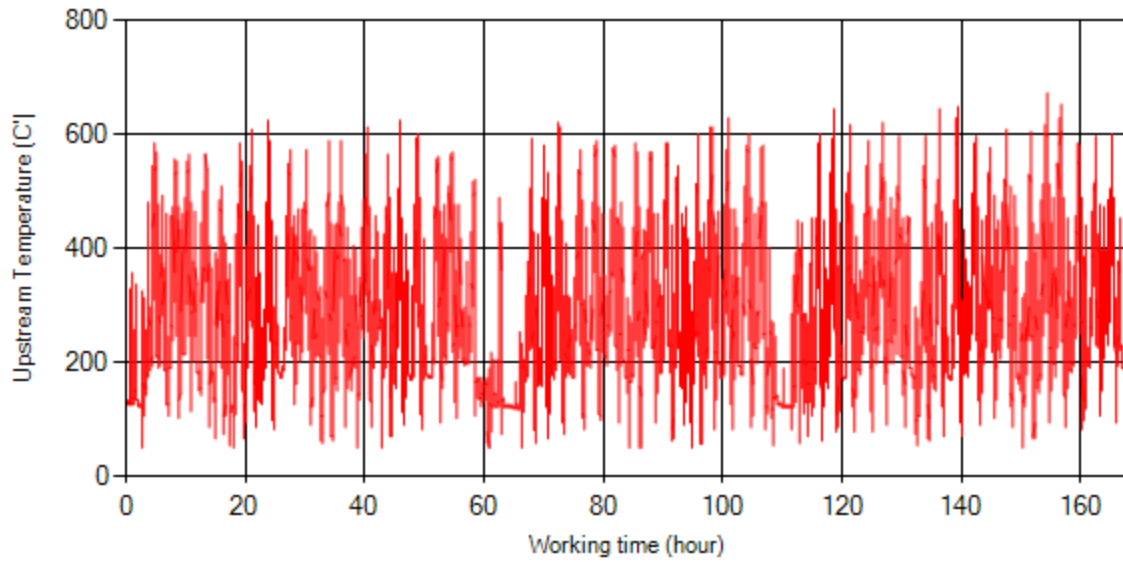


Figure 8- Temperature vs. working hours

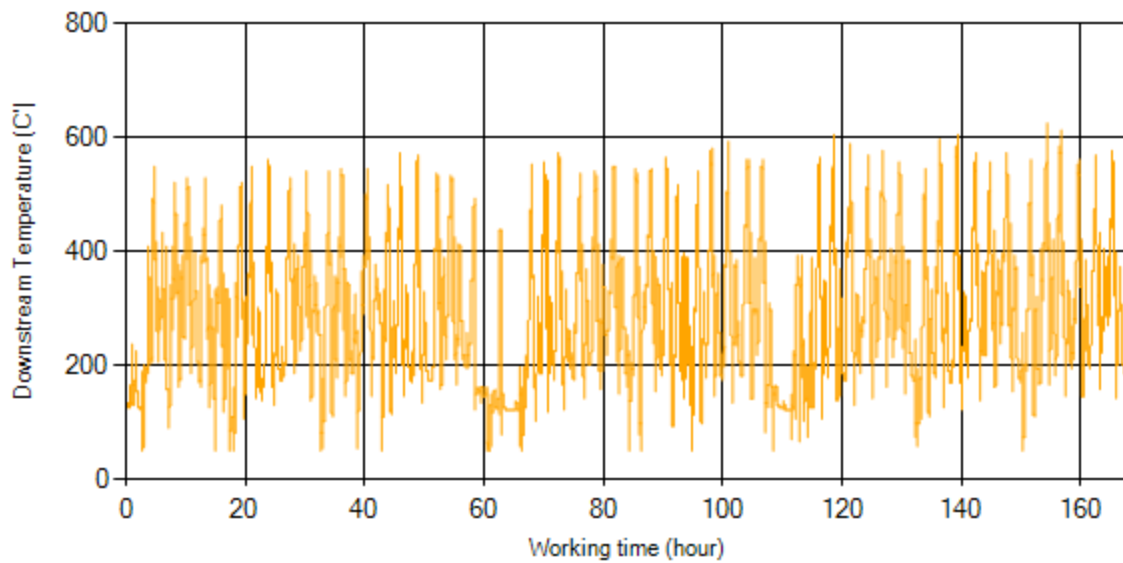


Figure 9- Temperature vs. working hours

## Engine Speed Diagrams

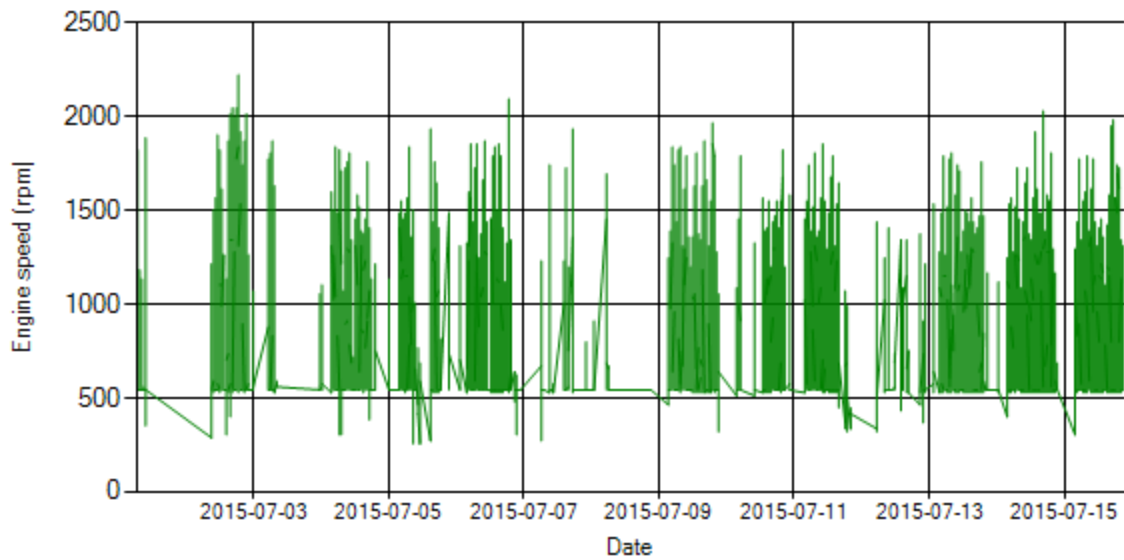


Figure 10- Engine speed distribution over the period

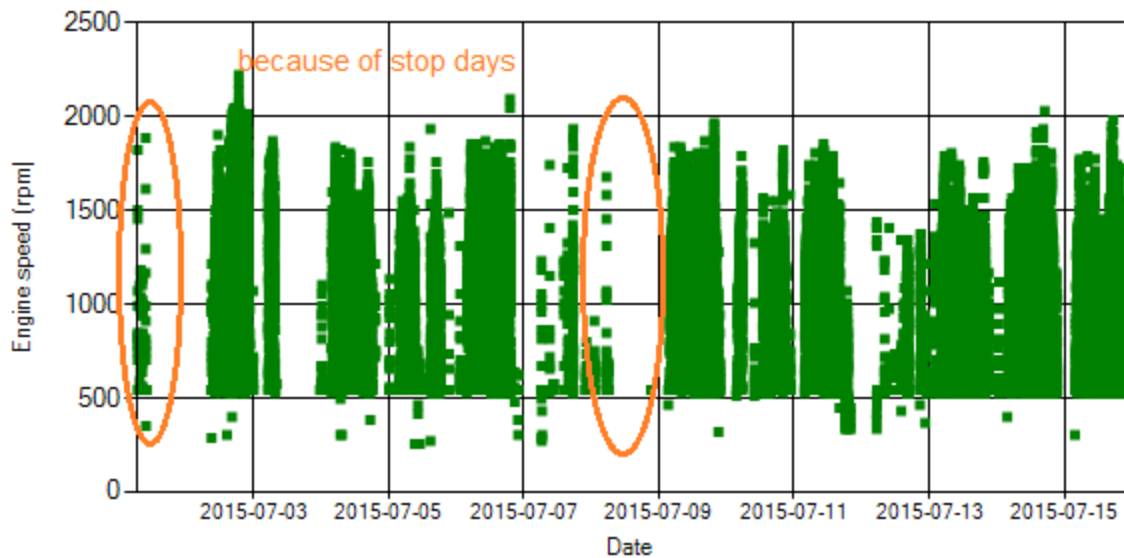


Figure 11- Engine speed diagram for calculating CPK's working days



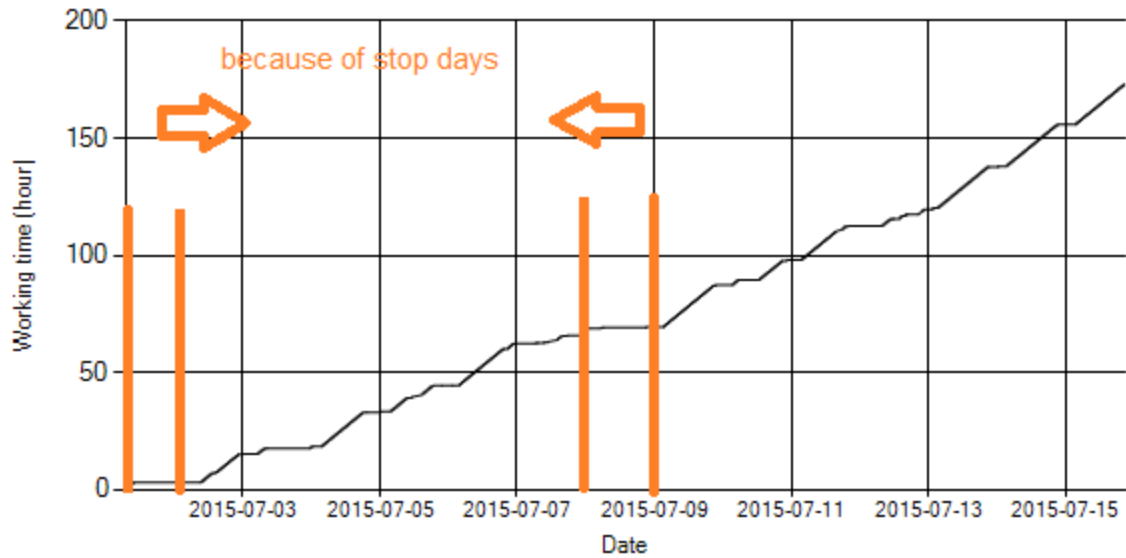


Figure 12- Time diagram for calculating CPK's working days

Notice: Data logger sampling time can be calculated from Figure 12. The lines parallel with Date axis show days without data logger data. As depicted in Figure 12, data logger didn't sample on Jul 1<sup>st</sup> and 8<sup>th</sup>.

### Pressure-Engine Speed diagrams

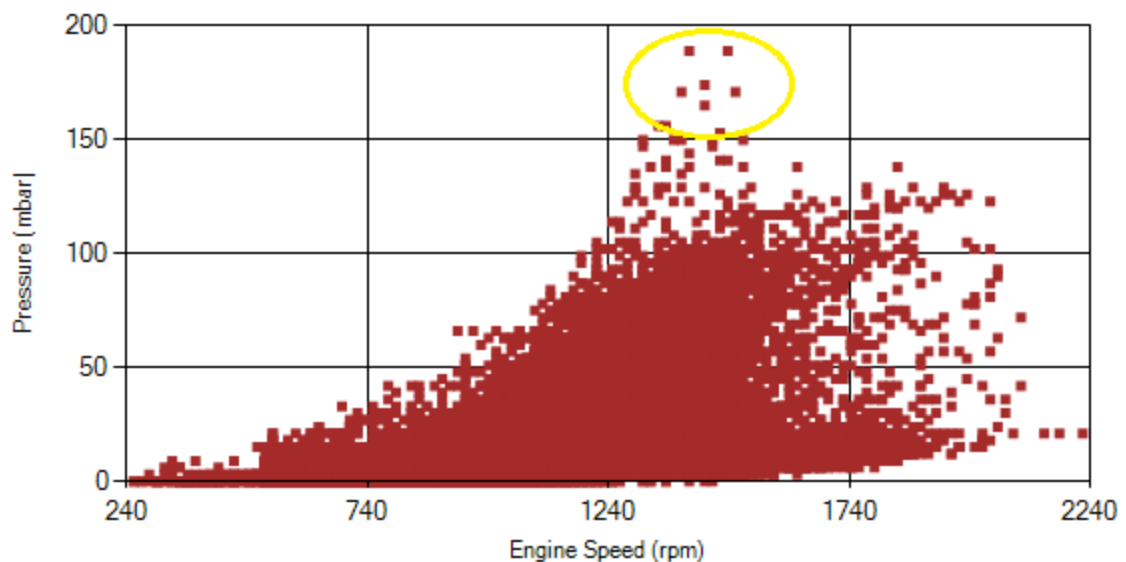


Figure 13- Pressure against engine speed

Notice: Yellow alarm ( $200 > \text{pressure} > 150$ ) region was indicated in figure 13.

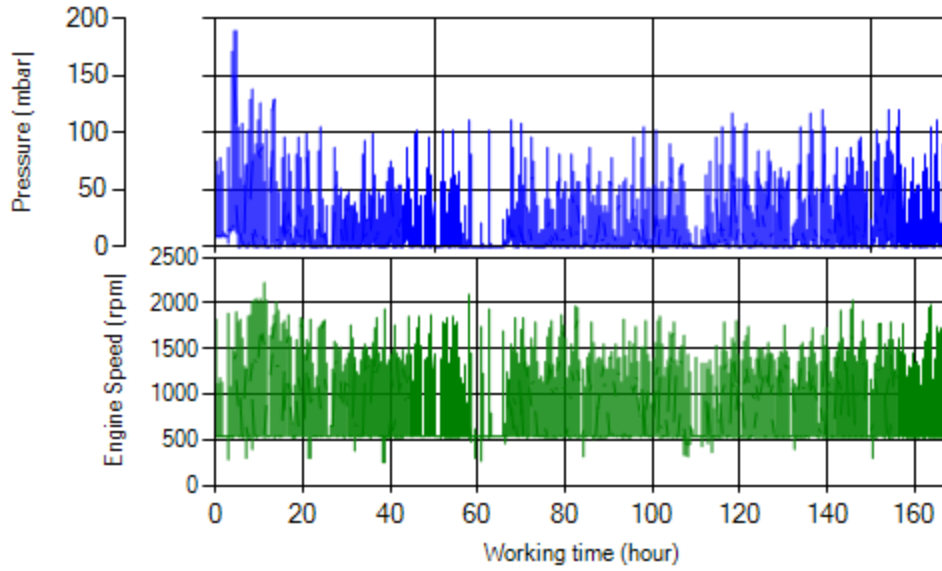


Figure 14- P, N distribution vs. working hours

### Temperature-Engine Speed diagrams

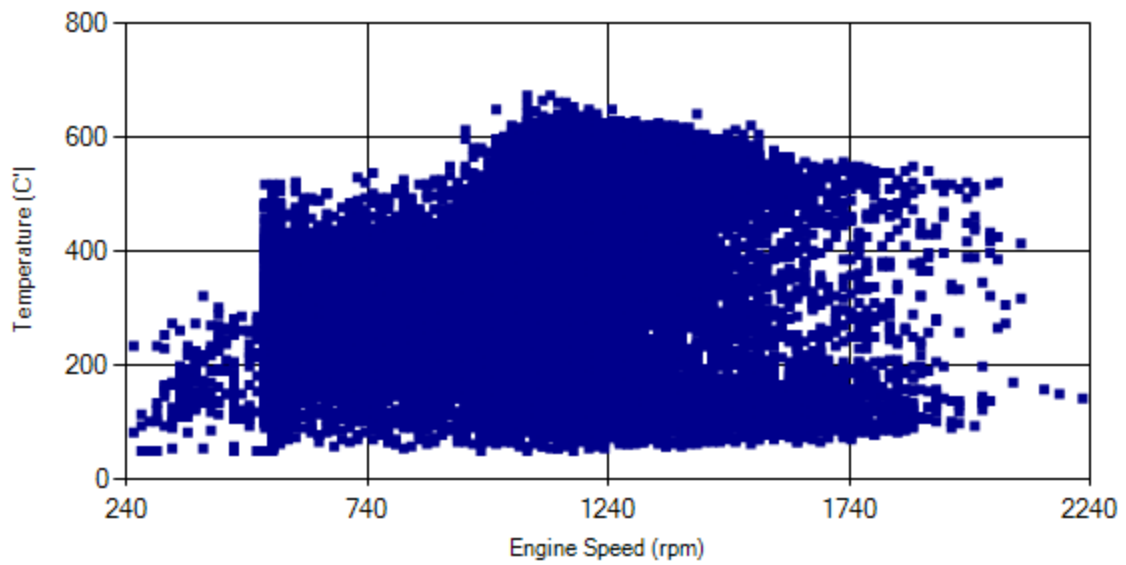


Figure 13- Temperature against engine speed

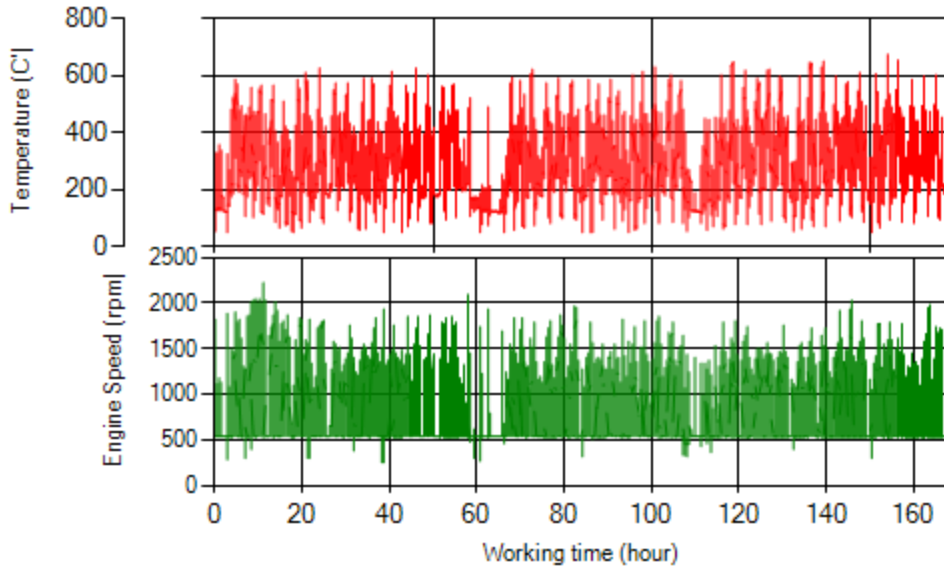


Figure 14- T, N distribution vs. working hours

### Filter Operation Analysis

- As depicted in figure 1, only 0.02% of total working time pressure is above 150 mbar.
- Figure 2 displays flow temperature distribution for DPF's upstream. It can be obviously observed that 16% of total working-time temperature is above 400 °C and 25% above 350°C.
- This vehicle operates in line 4, so due to path characteristic of this line, engine operates in high speed.

Filter operation status	Excellent <input checked="" type="checkbox"/>	Good <input type="checkbox"/>
	Maintenance required <input type="checkbox"/>	Failed <input type="checkbox"/>