

Overall Information

Table1- Overall Information

Vehicle plate number	78514
CPK data logger number	LN: 001496, DN: 1914, Sim +989218355923
Bus line	Number 4 (south to north bus line)
Bus Terminals	Tehran South Bus Terminal - Park Way Bus Terminal
Total path distance	22.8 km
DPF producer company	HJS_01 (Passive system with FBC)
Installation date	10/Sep/2014
Report period	16/Jul/2015 – 31/Jul/2015 (sixteen days)
K value - DPF upstream	1.80 [1/m]
K value – DPF downstream	0.04 [1/m]

Table 2- DPF Maintenance History

Filter maintenance date	DPF core was cleaned on Jun 13 th .
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)	46244 km
Bus mileage over the period	2053 km
Working days over the period	14 days
Stop days	2 days
Data logger working days	14 days
Working hours over the period	202 hours 24 minutes
Average working hours per day (including stop days)	12 hours 39 minutes
Bus average speed	10.20 km/hr
idle speed time to all working time ration	49 %*
Total Bus fuel consumption over the period	1335 lit
Fuel consumption per hour	6.61 lit/hr
Average fuel consumption	0.65 lit/km
Total Bus additive consumption over the period	571 lit
Average additive consumption	278 cc/km
Additive consumption to fuel ration	428 cc per 1000 lit (batch dosing with tank level)

*Notice: Engine rotational speed for this vehicle when air conditioning system is on, is approximately 800 rpm and without use of cooling system is about 544 rpm.

Temperature, Pressure and Engine Speed Overview

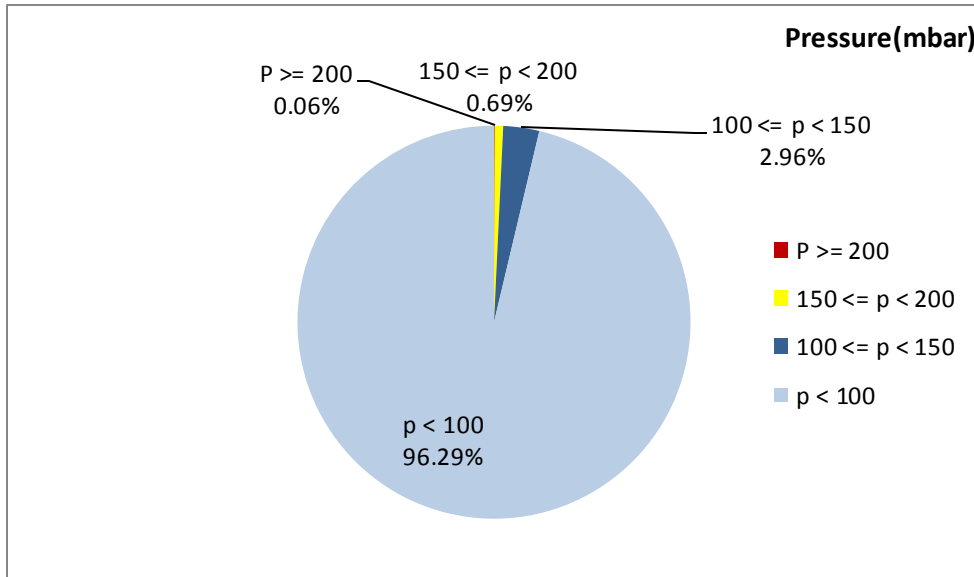


Figure 1- Pressure distribution over the working hours

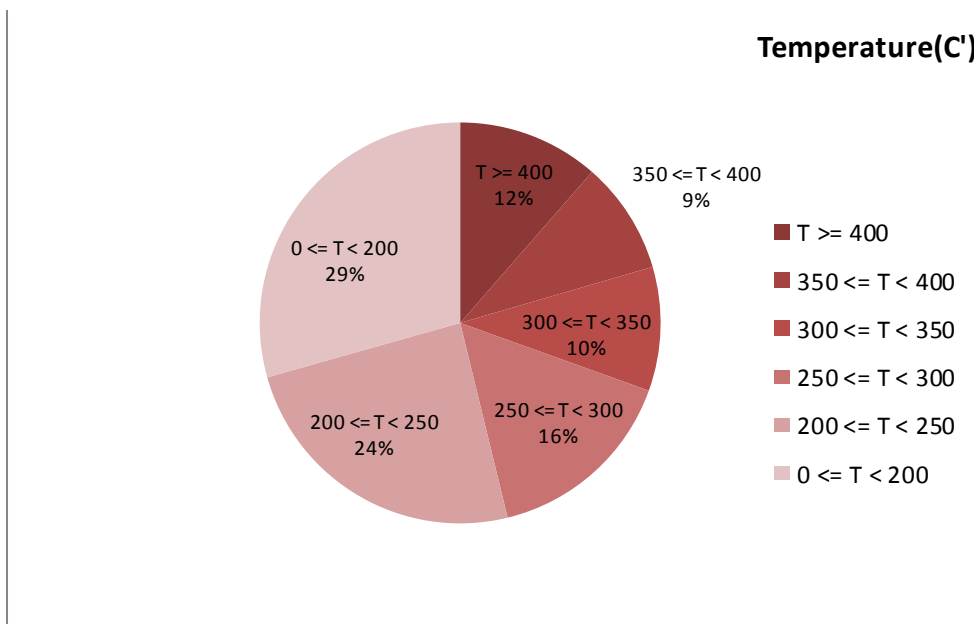


Figure 2-Temperature distribution over the working hours

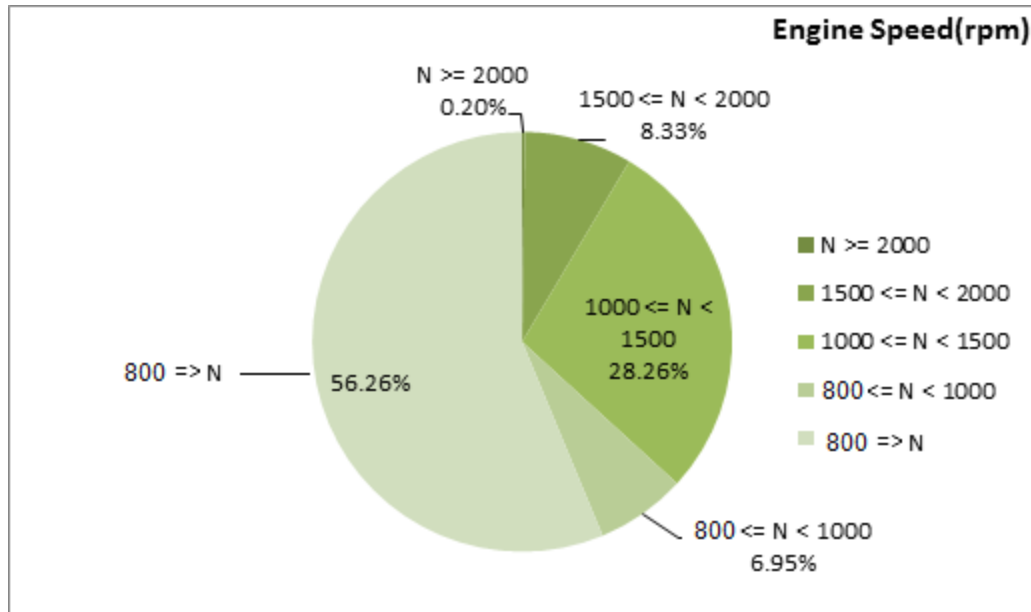


Figure 3- Engine speed distribution over the working hours

Table 4- Mean values

Mean temperature (C)	Mean pressure(mbar)	Mean engine speed(rpm)
259.67	23.14	905

Table 5- Mean values without idling

Mean temperature (C)	Mean pressure(mbar)	Mean engine speed(rpm)
302.38	37.09	1138

Table 6- Max-min values

Max-min temperature(C)	Max-min pressure(mbar)	Max-min engine speed(rpm)
546-50	231-0	2144-256

Detailed Pressure Analysis

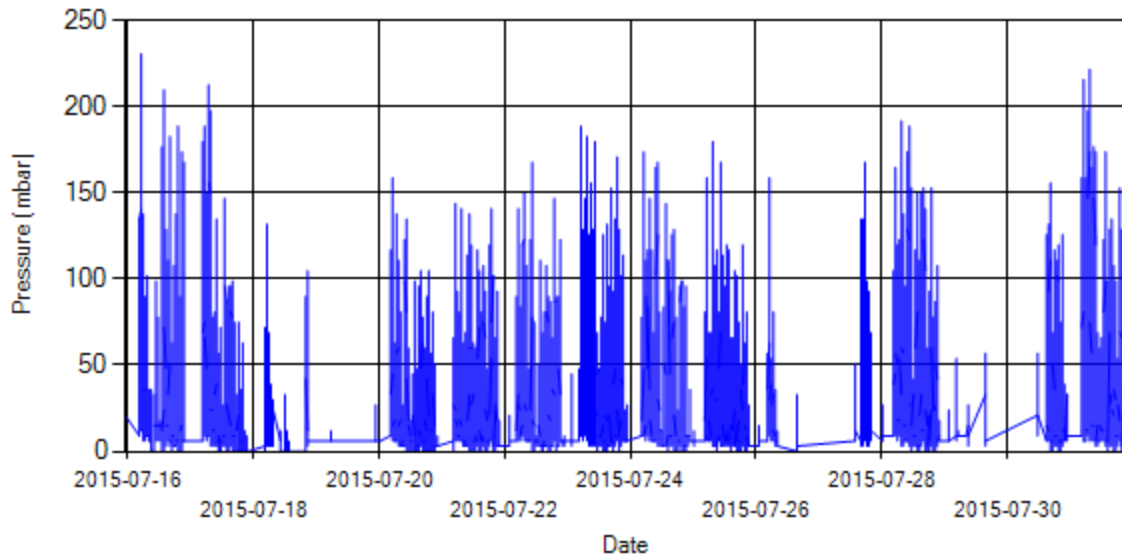


Figure 4- Pressure distribution over the period

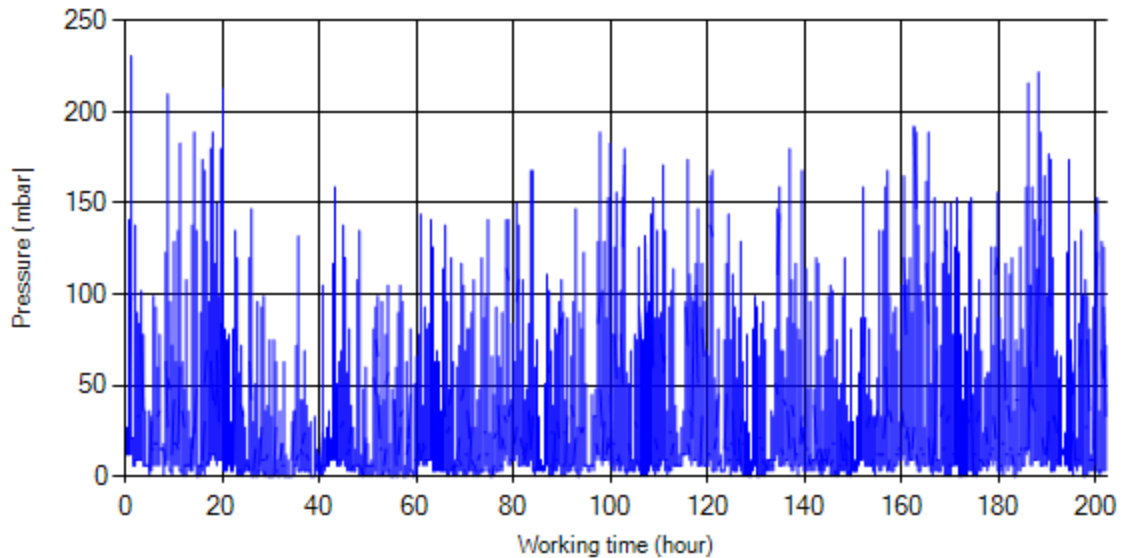


Figure 5- Pressure vs. working hours

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

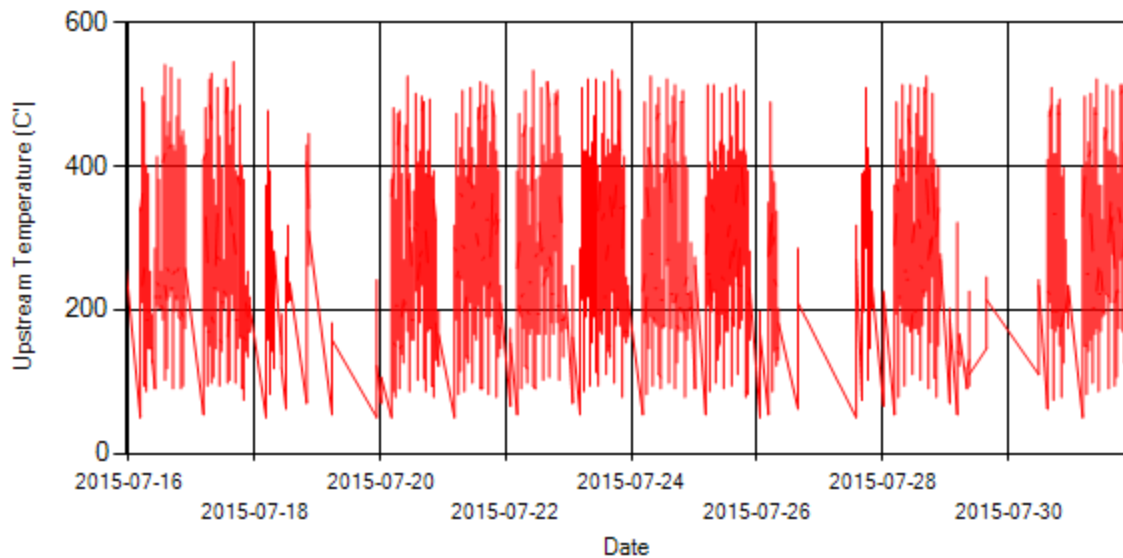


Figure 6- Temperature distribution over the period

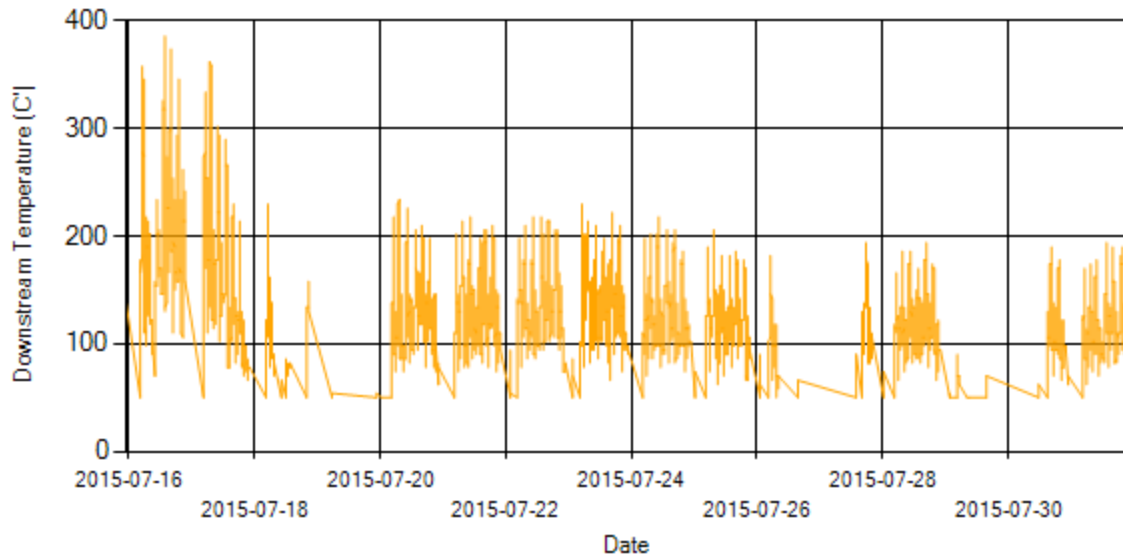


Figure 7- Temperature distribution over the period

Notice: DPF downstream temperature sensor got problem during this period and was showing low and unreasonable values.

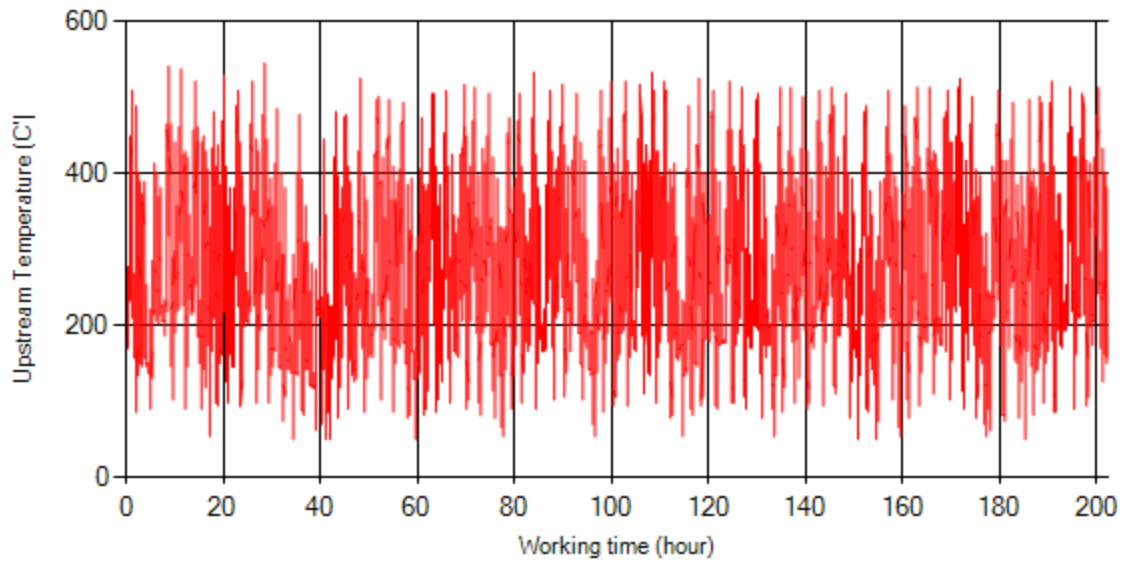


Figure 8- Temperature vs. working hours

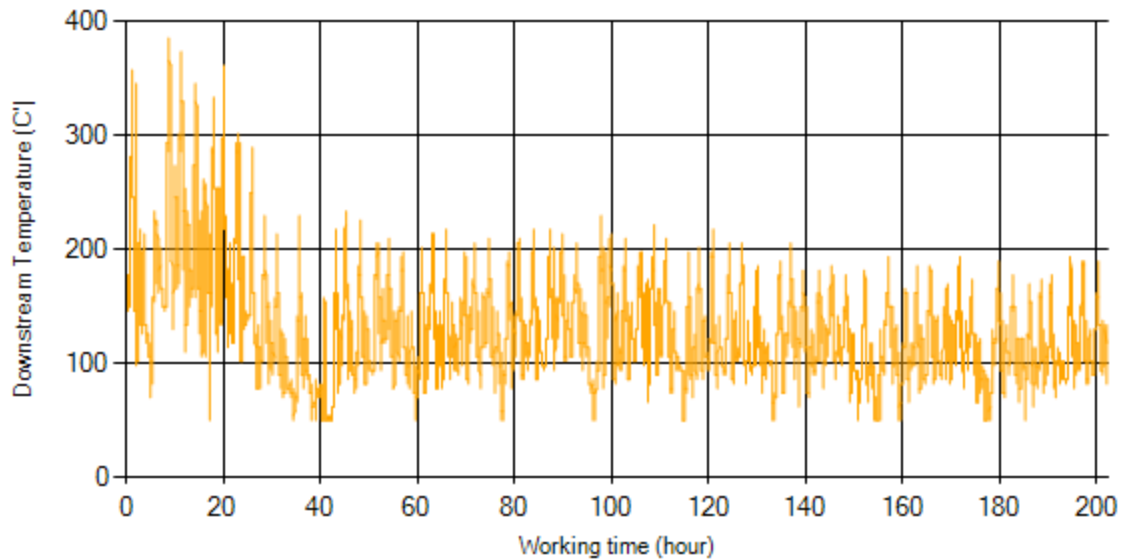


Figure 9- Temperature vs. working hours

Engine Speed Diagrams

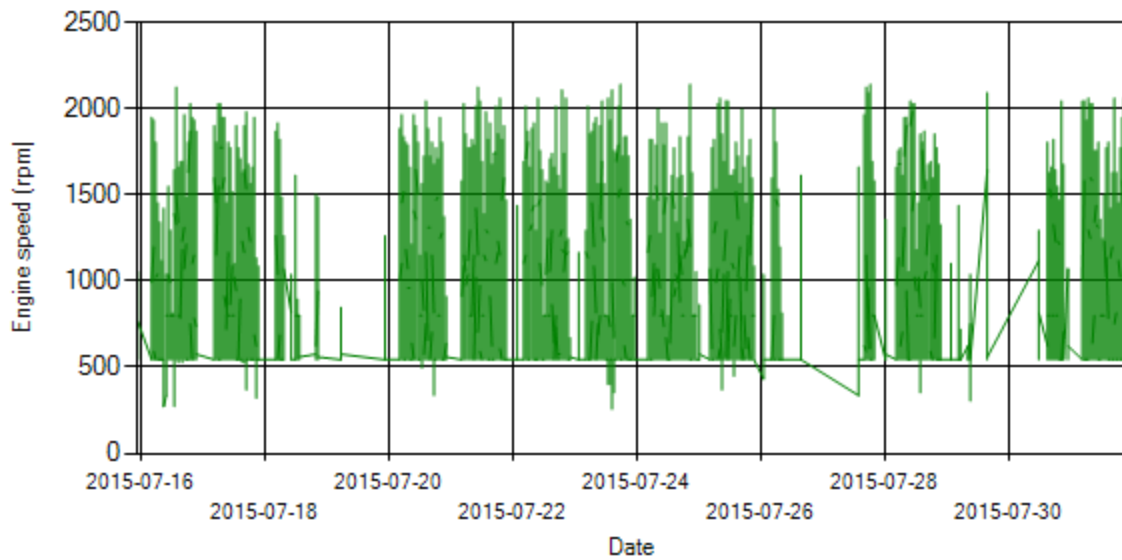


Figure 10- Engine speed distribution over the period

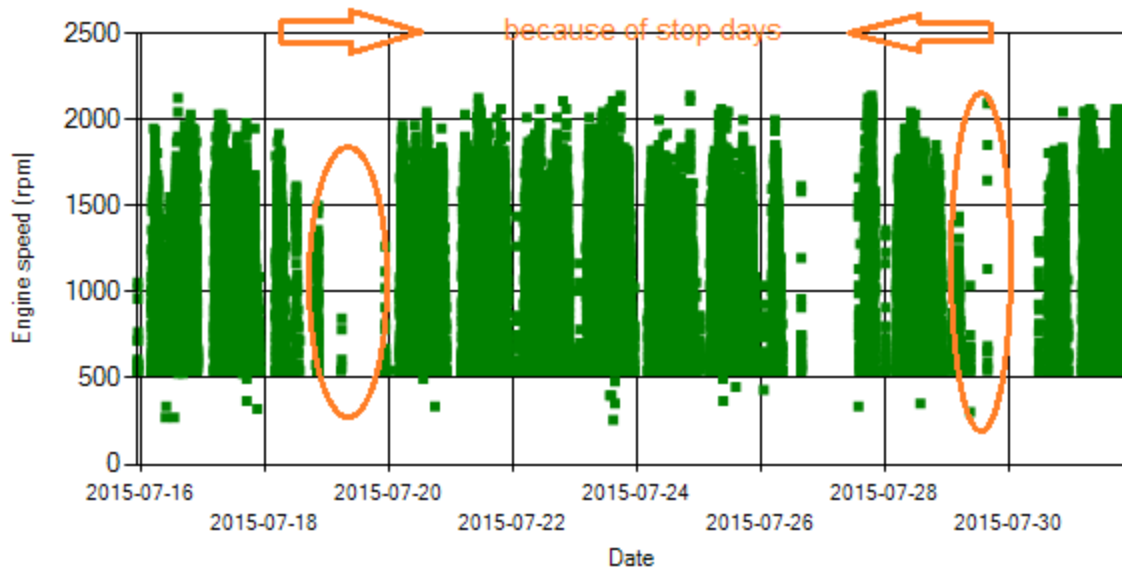


Figure 11- Engine speed diagram for calculating CPK's working days

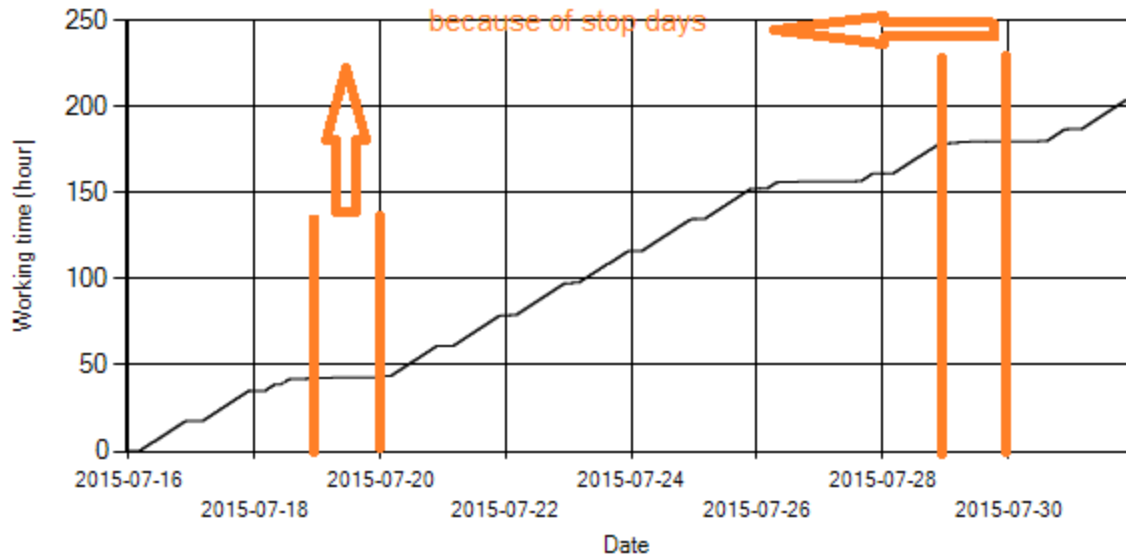


Figure 12- Time diagram for calculating CPK's working days

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 19th and 27th.

Pressure-Engine Speed diagrams

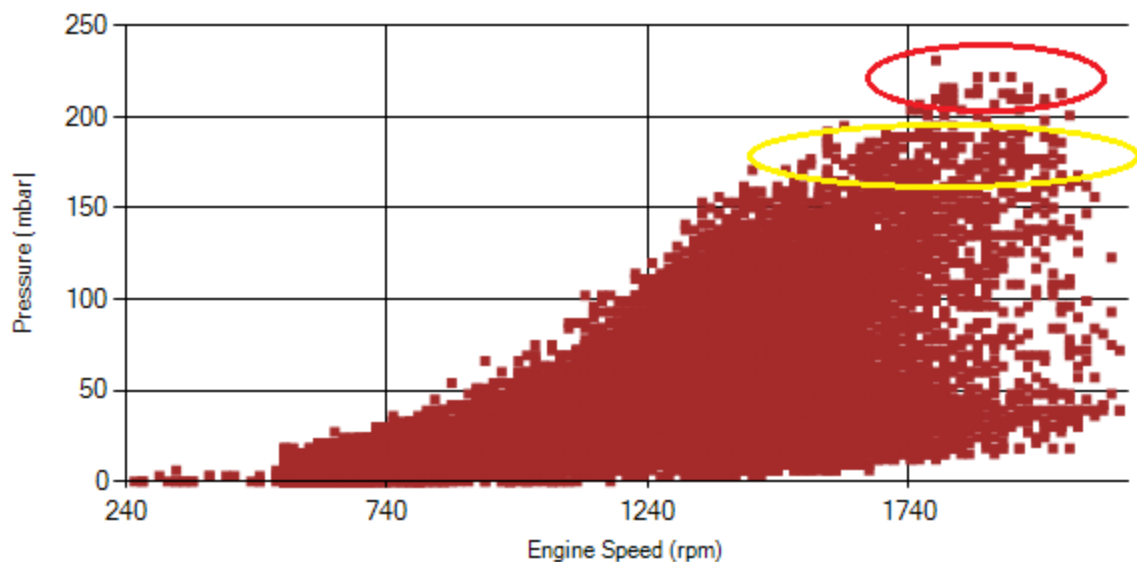


Figure 13- Pressure against engine speed

Notice: Red alarm (pressure>200 mbar) and yellow alarm (200>pressure>150) ranges were indicated in figure 13.

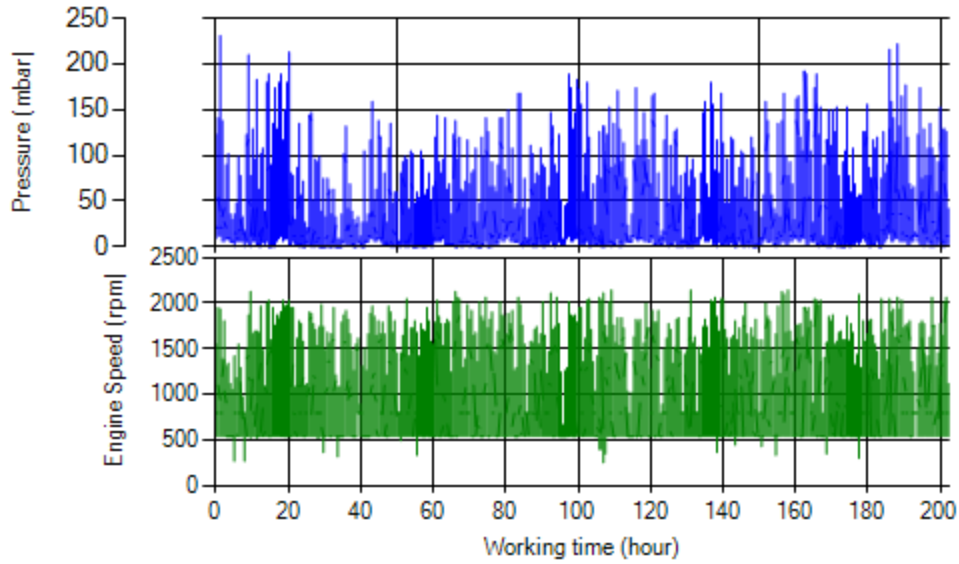


Figure 14- P, N distribution vs. working hours

Temperature-Engine Speed diagrams

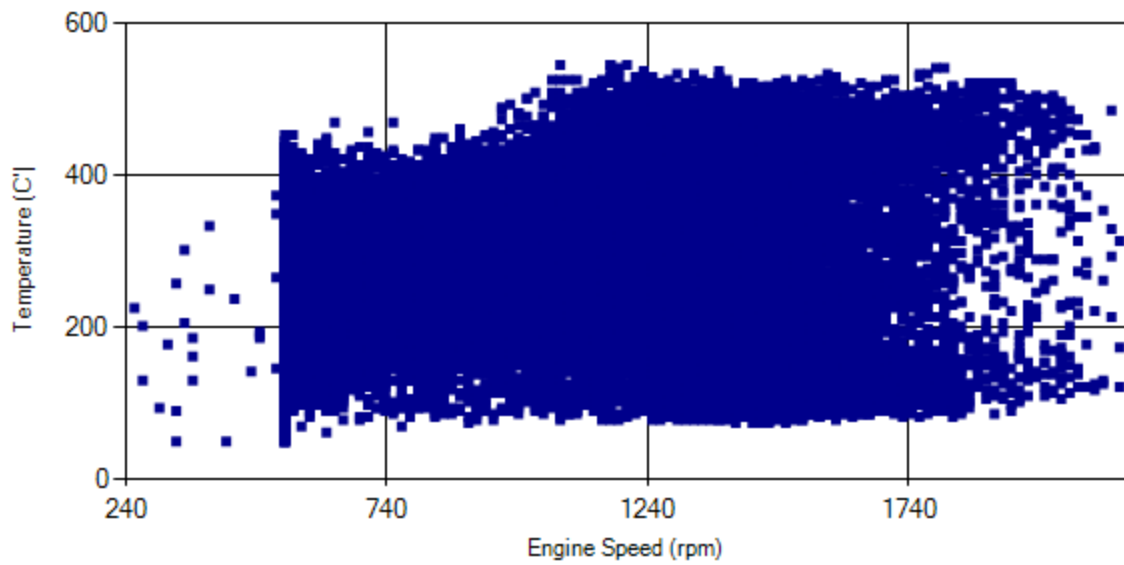


Figure 13- Temperature against engine speed

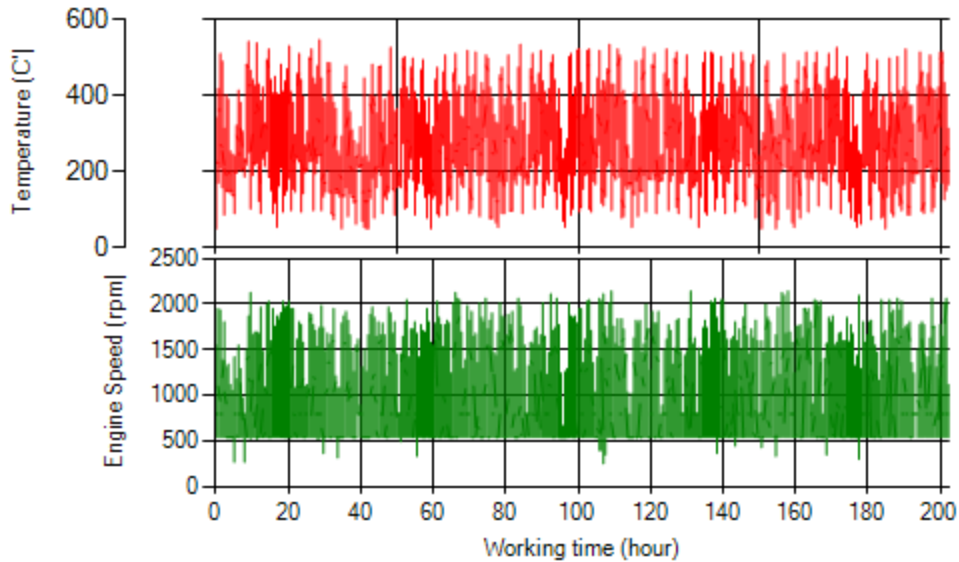


Figure 14- T, N distribution vs. working hours

Filter Operation Analysis

- As depicted in figure 1, only 0.06% of total working time pressure is above 200 mbar and 0.75% above 150mbar.
- Figure 2 displays flow temperature before the DPF. It can be obviously observed that 12% of total working time temperature is above 400 °C and 21% above 350°C. This high temperature distribution is one of the important factors for filter excellent operation during the period.

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