

Overall Information

Table 1- Overall Information

Vehicle plate number	78514
CPK data logger number	LN: 001496, DN: 1914, Sim +989218786219
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 company producer	HJS_01 (Passive system with FBC)
Installation date	10/Sep/2014
Report period	16/Jun/2015 – 30/Jun/2015 (fifteen days)
K value – DPF's upstream	1.54 [m^{-1}]
K value – DPF's downstream	0.04 [m^{-1}]

Table 2- Maintenance Table

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)	41700 km
Bus mileage over the period	2509 km
Working days over the period	14 days
Stop days	1 day
Data logger working days	14 days
Working hours over the period	214 hours, 48 minutes
Average working hours per day (including stop days)	11hours, 41 minutes
Bus average speed	11.68 km/hr
Idle speed time to all working time ration	53%
Total bus fuel consumption over the period	1622 lit
Fuel consumption per hour	7.55 lit/hr
Average fuel consumption	0.66 lit/km
Total bus additive consumption over the period	0.68 lit
Average additive consumption	0.273 cc/km
Additive consumption to fuel ration	422 cc per 1000 lit (batch dosing with tank level)

Temperature, Pressure and Engine Speed Overview

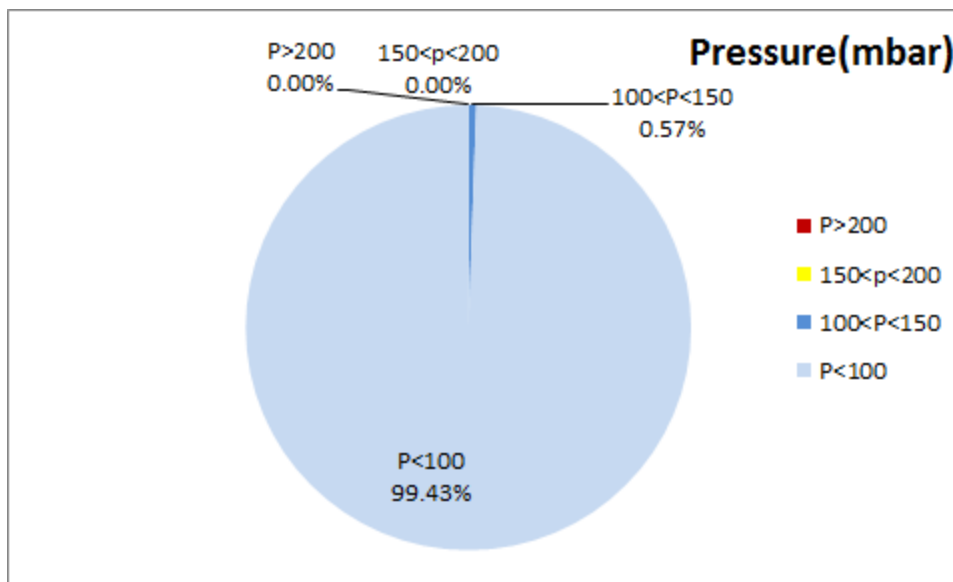


Figure 1- Pressure distribution over the working hours

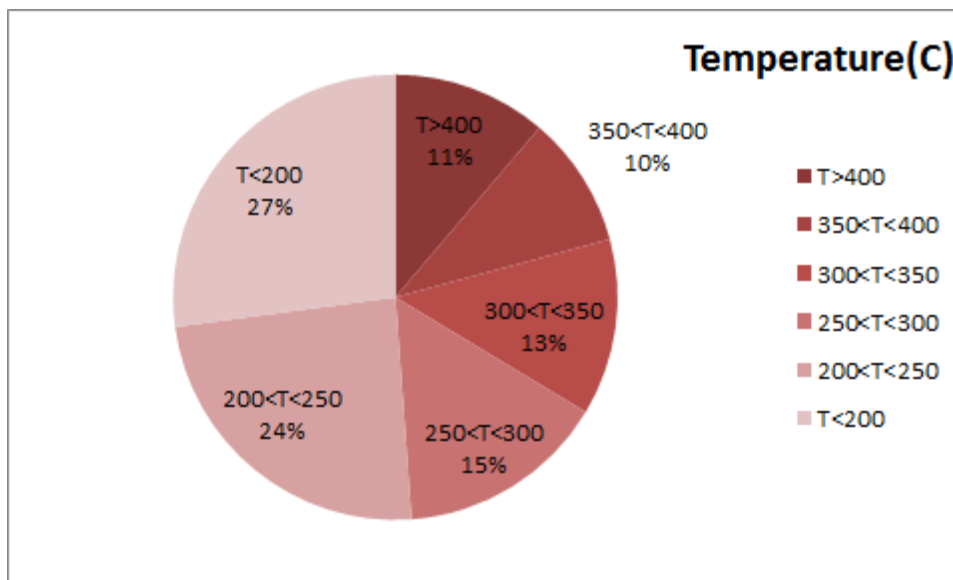


Figure 2-Temperature¹ distribution over the working hours

¹ - Flow temperature (DPF's upstream)

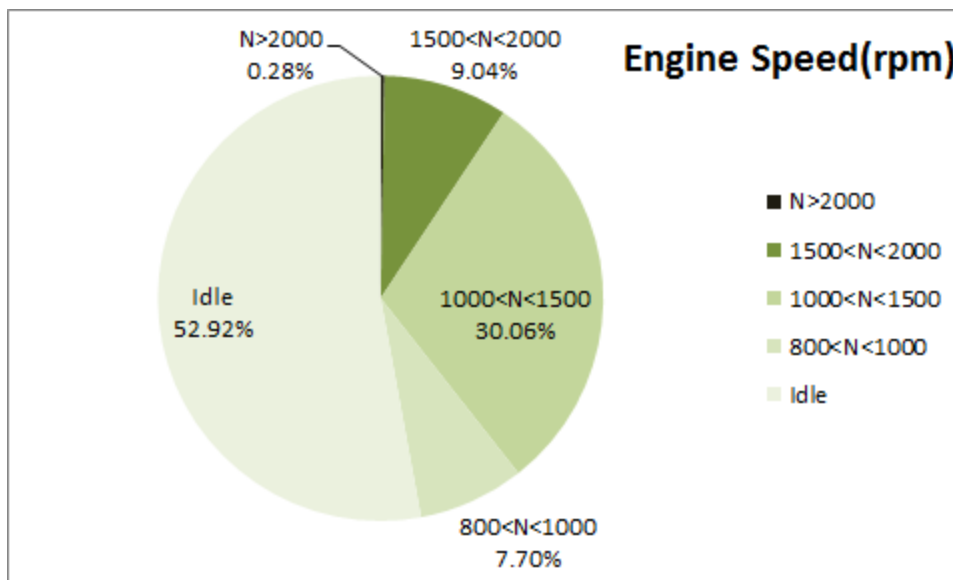


Figure 3- Engine speed distribution over the working hours

Notice: with using bus cooler system, idle rpm increase compare with working times without using ventilation system. So during hot months of year 800 rpm is considered as upper limit for idle engine speed.

Table 4- Mean values

Mean temperature ² (C)	Mean pressure(mbar)	Mean engine speed(rpm)
266.98	12.49	938

Table 5- Mean values without idling

Mean temperature(C)	Mean pressure(mbar)	Mean engine speed(rpm)
314.24	24.73	1261

Table 6- Max-min values

Max-min temperature(C)	Max-min pressure(mbar)	Max-min engine speed(rpm)
542-50	132-0	2224-304

² - Flow temperature (DPF's upstream)

Detailed Pressure Analysis

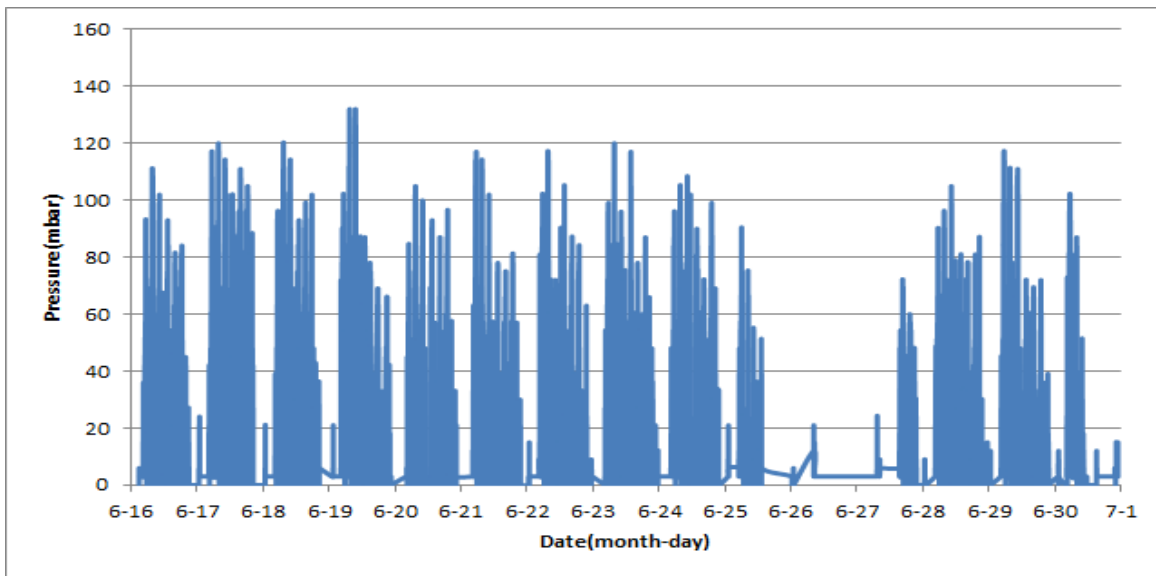


Figure 4- Pressure distribution over the fifteen days

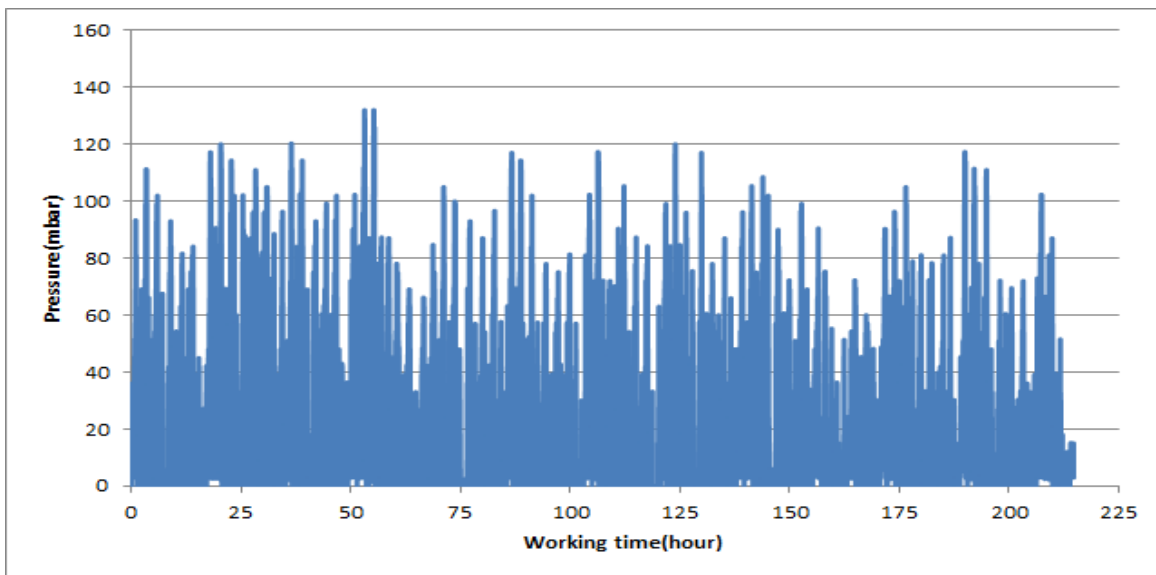


Figure 5- Pressure vs. working hours

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

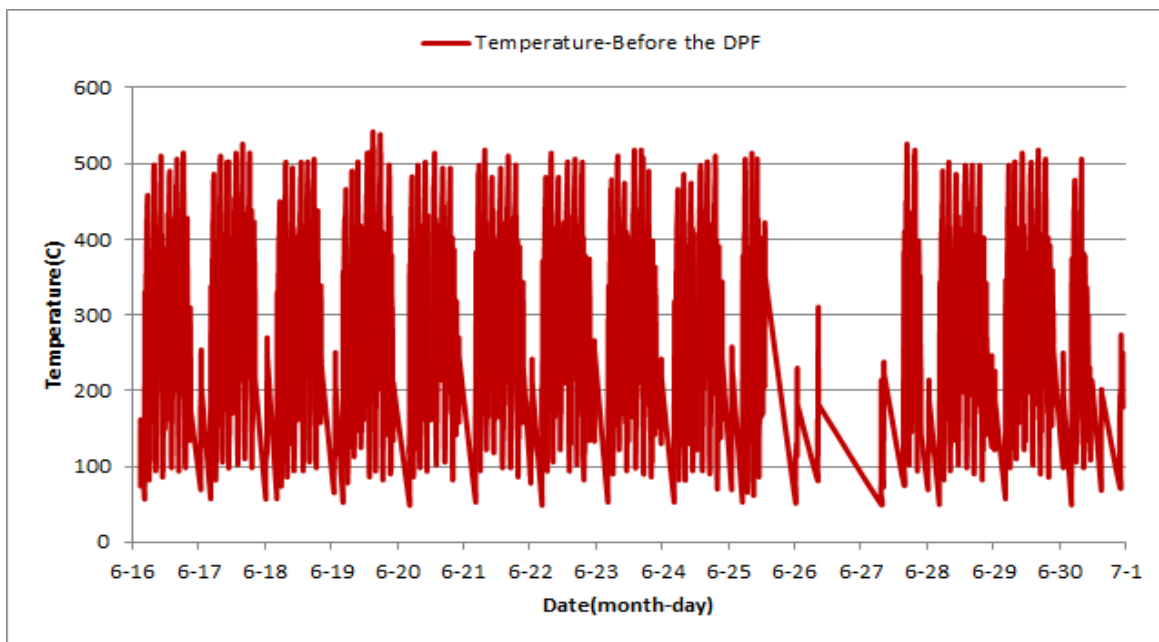


Figure 6- Temperature distribution over the fifteen days

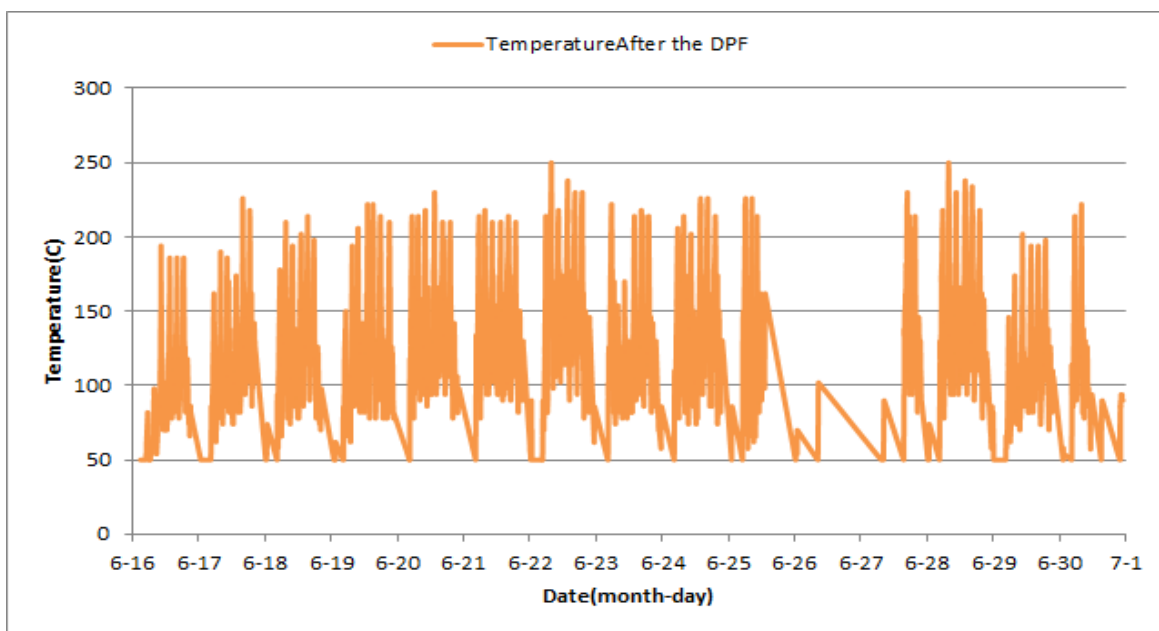


Figure 7- Temperature distribution over the fifteen days

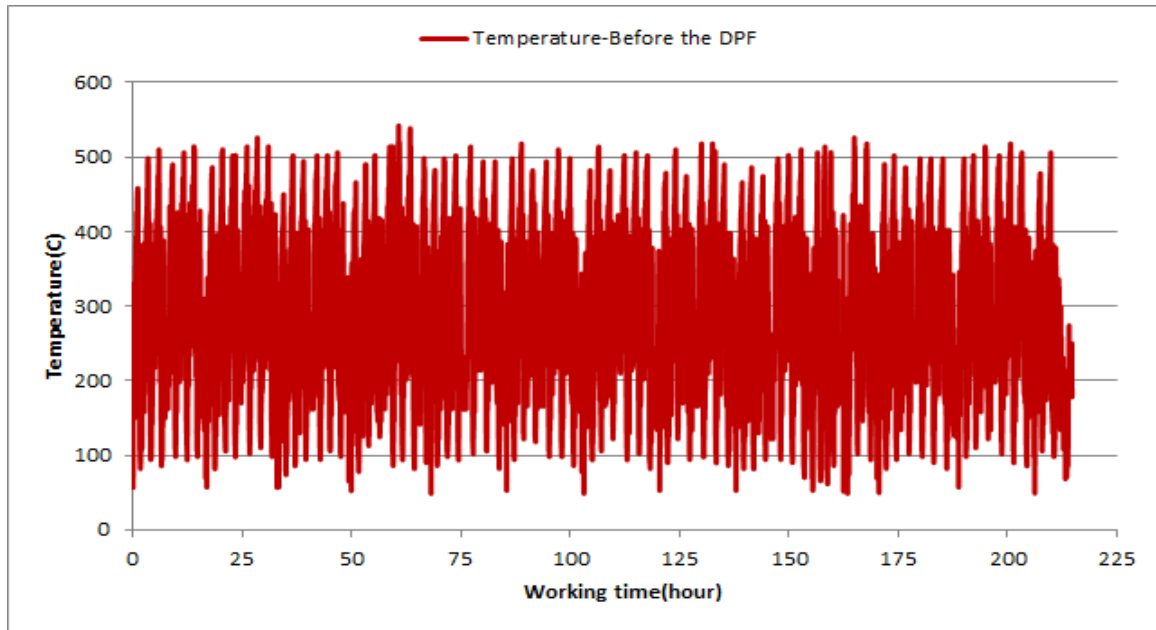


Figure 8- Temperature vs. working hours

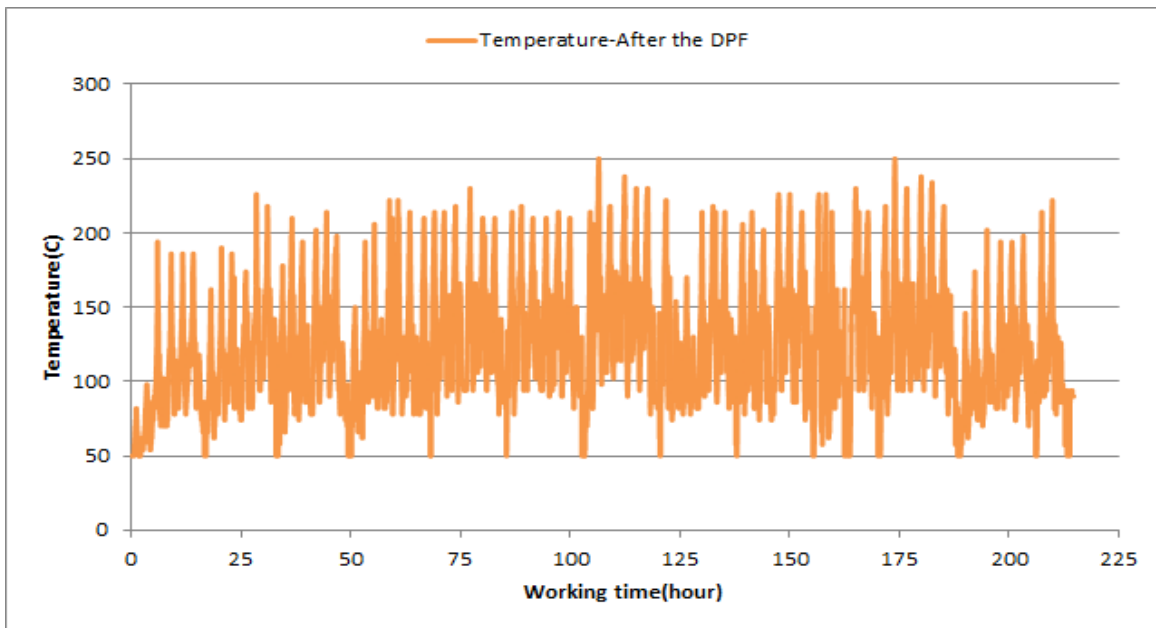


Figure 9- Temperature vs. working hours

Engine Speed Diagrams

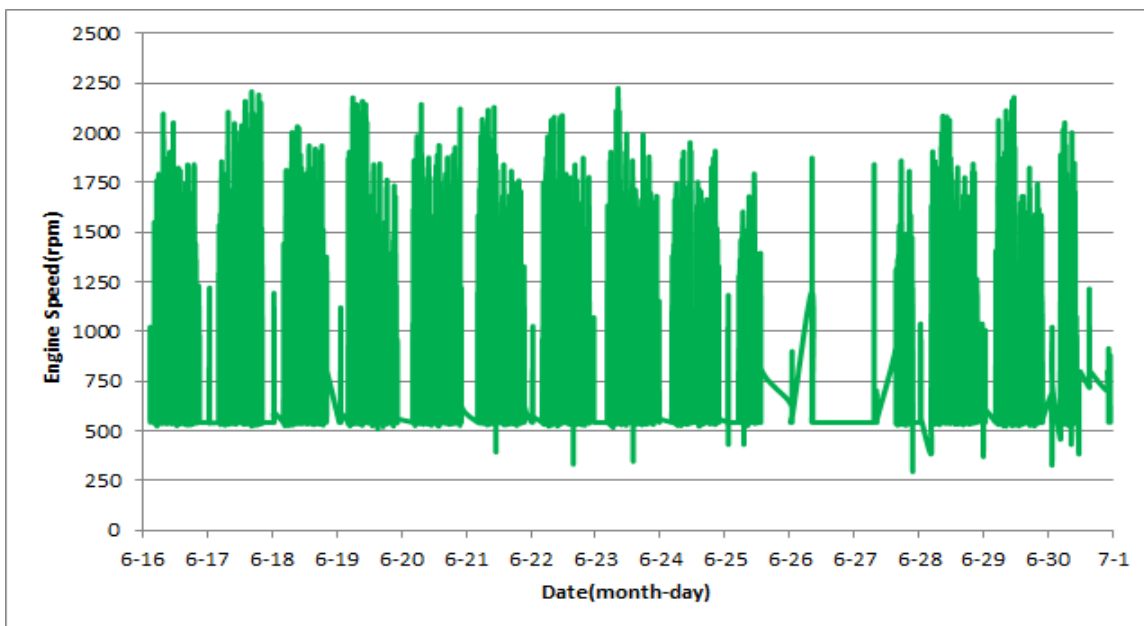


Figure 10- Engine speed distribution over the fifteen days

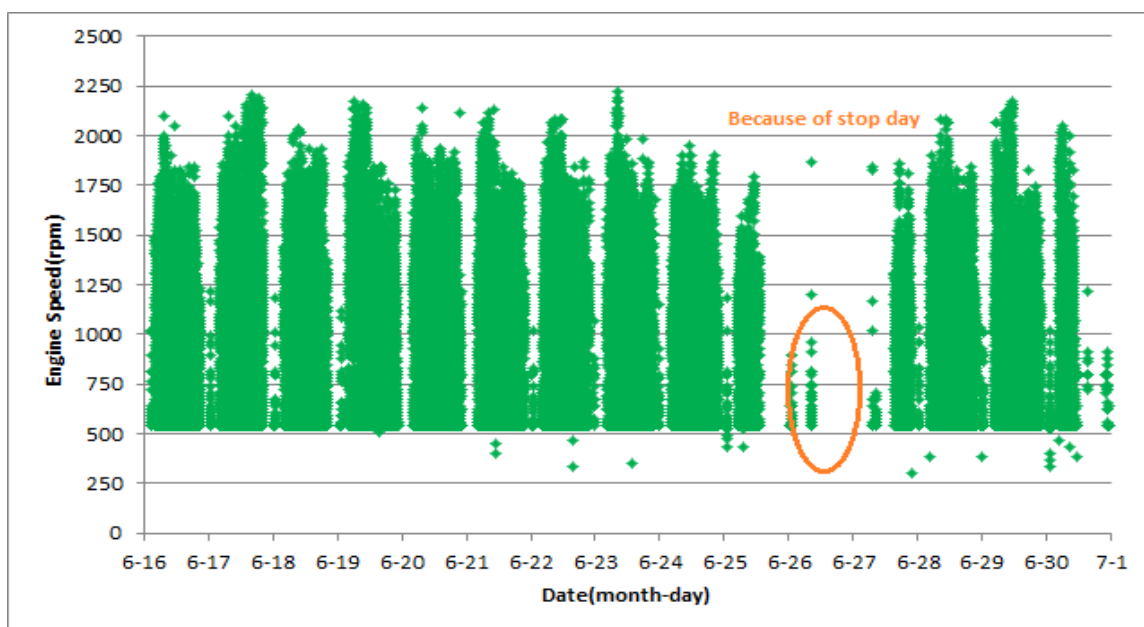


Figure 11- Engine speed diagram for calculating CPK's working days

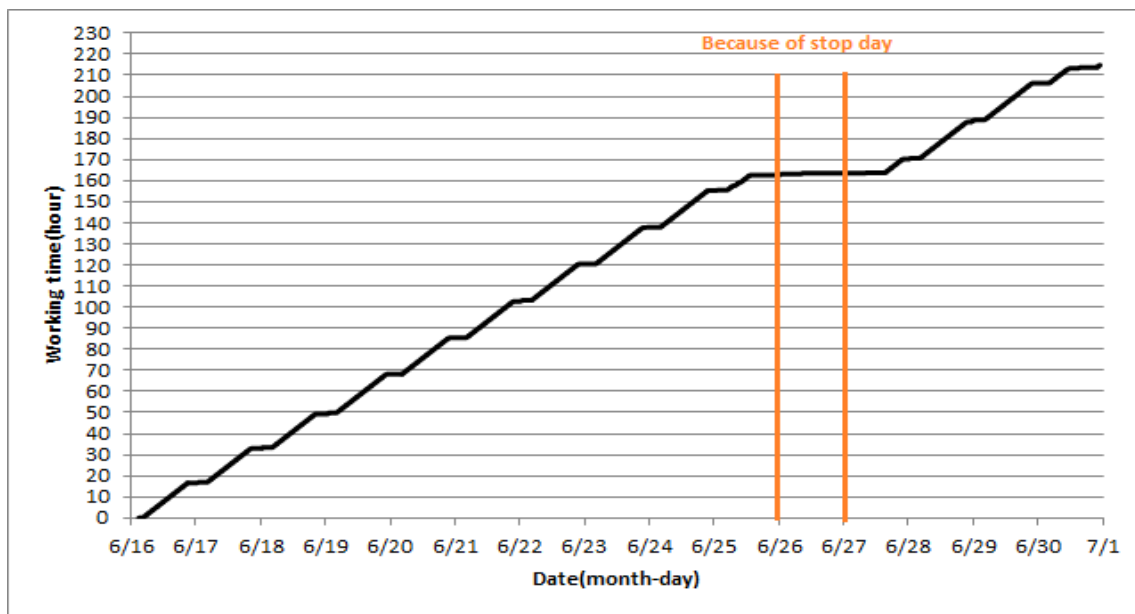


Figure 12- Time diagram for calculating CPK's working days

Notice: Data logger sampling time can be calculated from Figure 12. The lines parallel with Date axis show days CPK's (data logger) data. As depicted in Figure 12, data logger didn't sample on Jun 26th due to stop day.

Pressure-Engine Speed diagrams

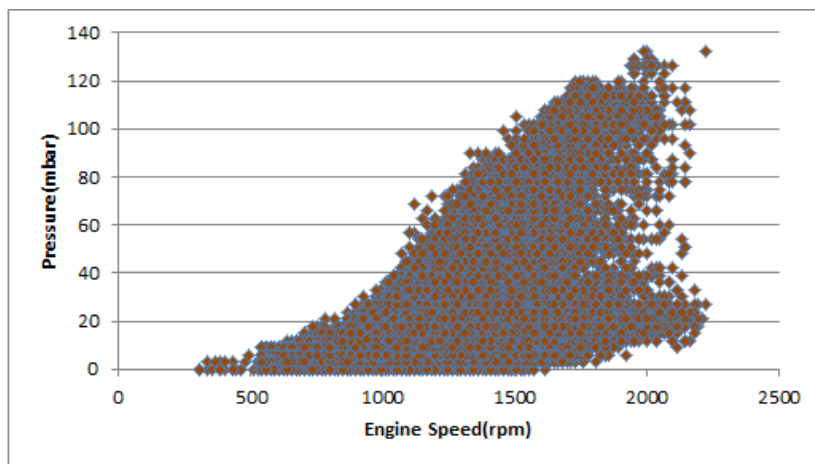


Figure 13- Pressure against engine speed

Notice: Red alarm (pressure>200) and yellow alarm (150<pressure<200) can't be observed in figure 13.

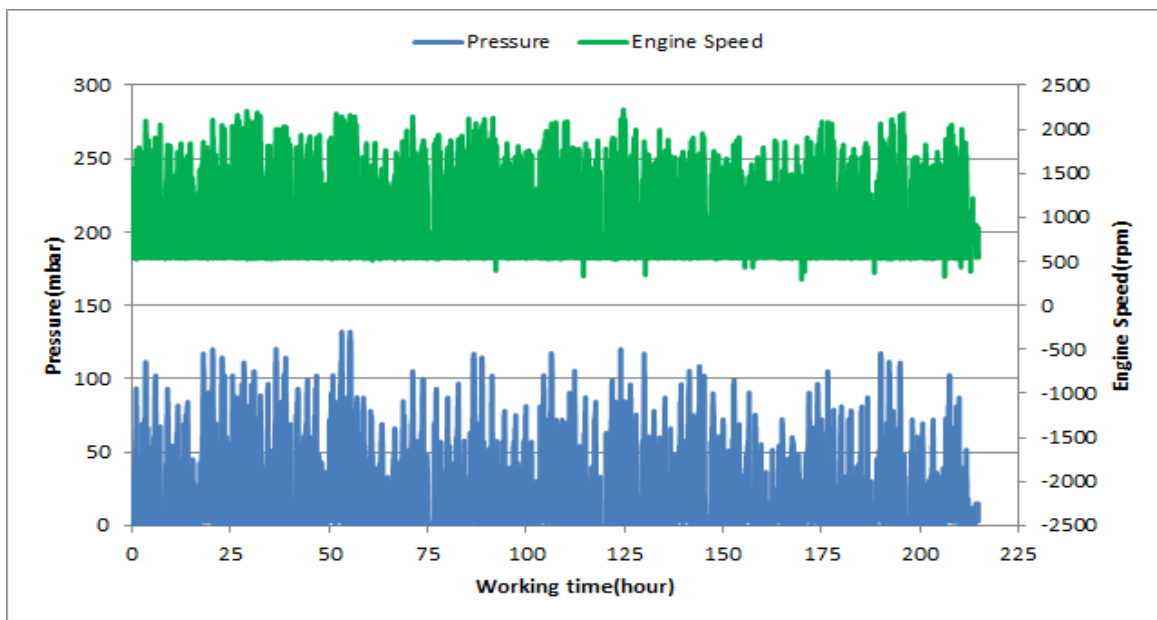


Figure 14- P, N distribution vs. working hours

Temperature- Engine Speed Diagram

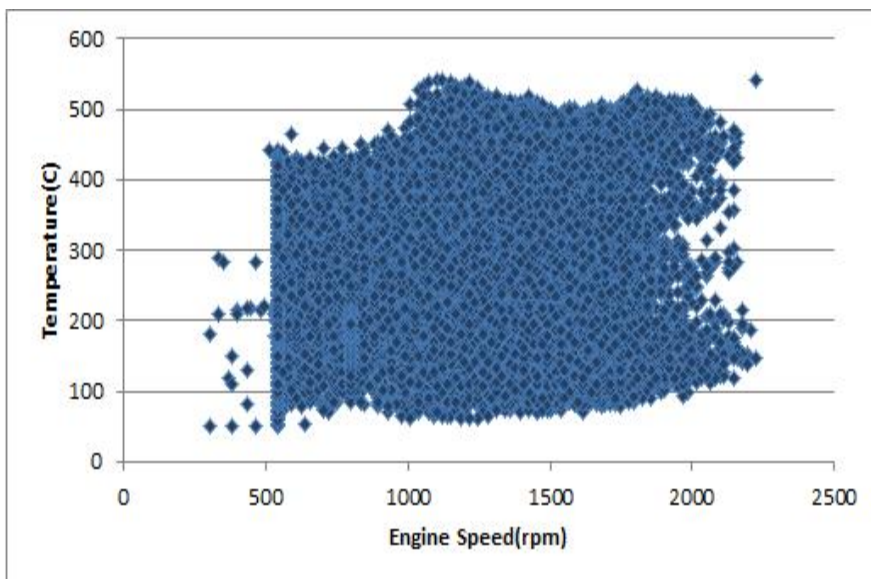


Figure 15- Temperature against engine speed

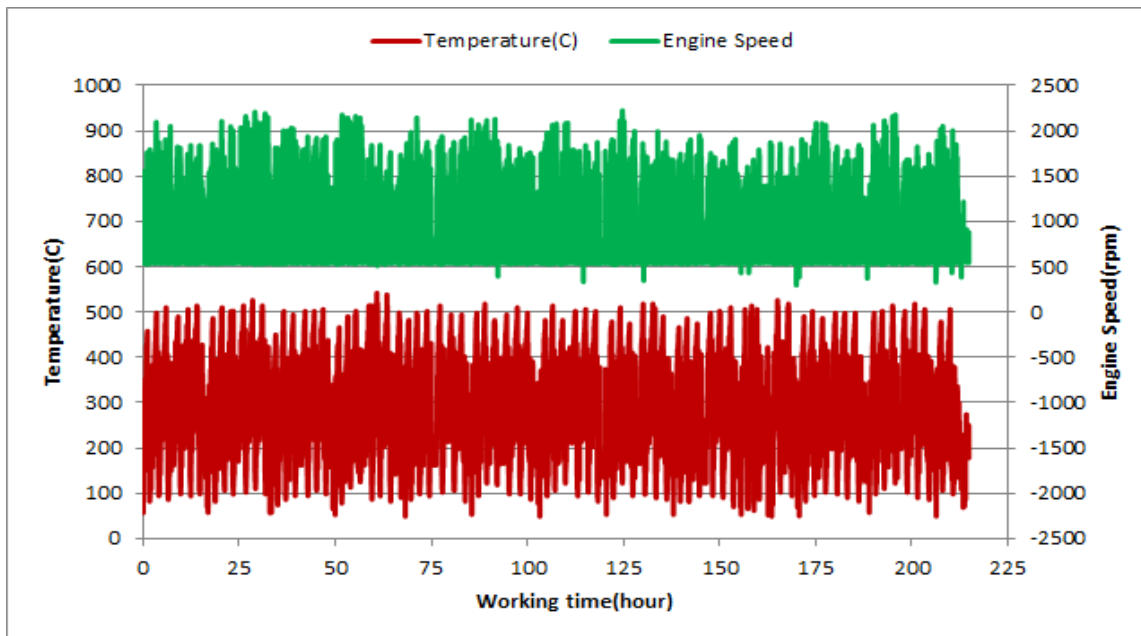


Figure 16- T, N distribution vs. working hours

Filter Operation Analysis

- As depicted in Figure 1, pressure above 150 mbar can't be seen. This excellent operation was result of filter core cleaning that was done on Jun 13th.
- Figure 2 displays flow temperature before the DPF. It can be obviously observed that 11% 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"/>