

## Overall Information

**Table1- Overall Information**

Vehicle plate number	33572 (28958)
CPK data logger number	LN: 001521, DN: 1995, Sim Number +989218469643
Bus line	Number 2 (west to east bus line)
Bus Terminals	Khavaran Bus Terminal - Western Bus Terminal
Total path distance	19 km
DPF producer company	HJS_03 (active system with FBC – electrical heater)
Installation date	19/Feb/2015
Report period	16/Jun/2015 – 30/Jun/2015 (fifteen days)
K value – DPF's upstream	1.71[m <sup>-1</sup> ]
K value – DPF's downstream	0.08 [m <sup>-1</sup> ]

**Table 2- Maintenance Table**

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)	18712 km
Bus mileage over the period	2419 km
Working days over the period	13 days
Stop days	2 days
Data logger working days	13 days
Working hours over the period	199 hours, 12 minutes
Average working hours per a day (including stop days)	13 hours, 16 minutes
Bus average speed	2.14 km/hr
Idle speed time to all working time ration	51%
Total bus fuel consumption over the period	1583 lit
Fuel consumption per hour	7.94 lit/hr
Average fuel consumption	0.65 lit/km
Total bus additive consumption over the period	0.657 lit
Average additive consumption	0.272 cc/km
Additive consumption to fuel ration	415 cc per 1000 lit (batch dosing with tank level)

## Temperature, Pressure and Engine Speed Overview

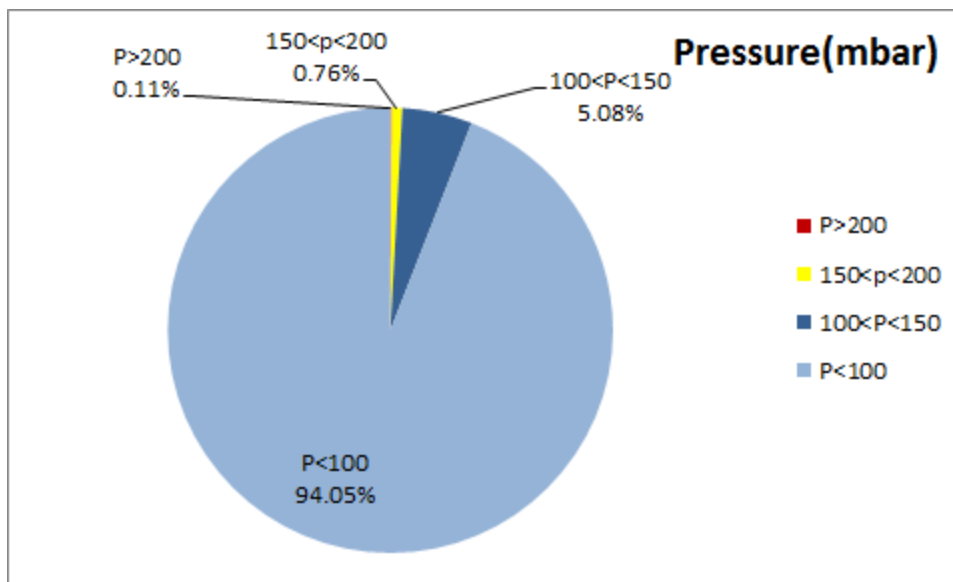


Figure 1- Pressure distribution over the working hours

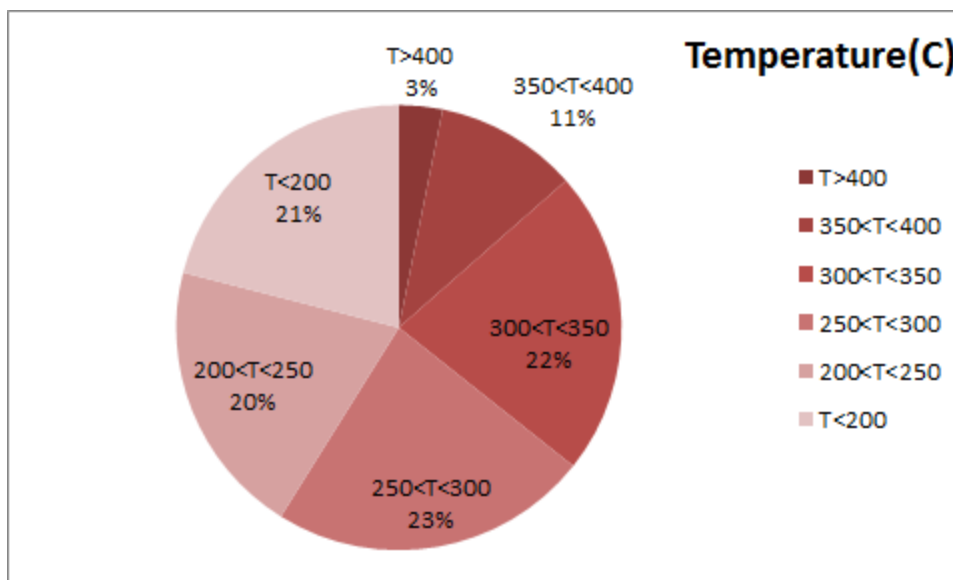
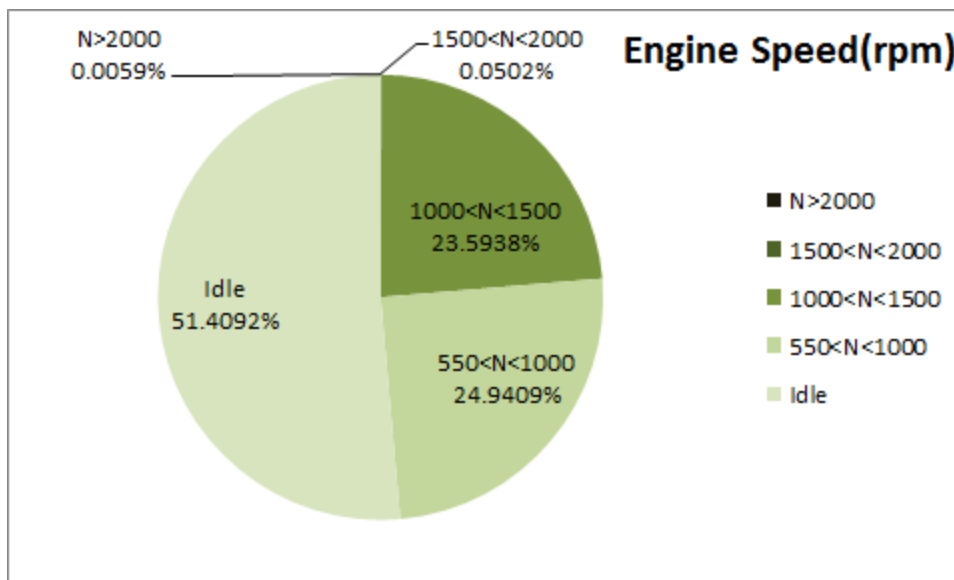


Figure 2-Temperature<sup>1</sup> distribution over the working hours

<sup>1</sup> - Flow temperature (DPF's upstream)



**Figure 3- Engine speed distribution over the working hours**

Notice: This vehicle cooler system was not used during this period. So upper limit for idle engine speed was considered to be 550 rpm.

**Table 4- Mean values**

Mean temperature <sup>2</sup> (C)	Mean pressure(mbar)	Mean engine speed(rpm)
267.29	33.32	743

**Table 5- Mean values without idling**

Mean temperature(C)	Mean pressure(mbar)	Mean engine speed(rpm)
320.41	54.63	954

**Table 6- Max-min values**

Max-min temperature(C)	Max-min pressure(mbar)	Max-min engine speed(rpm)
510-50	303-0	2128-256

<sup>2</sup> - Flow temperature (DPF's upstream)

## Detailed Pressure Analysis

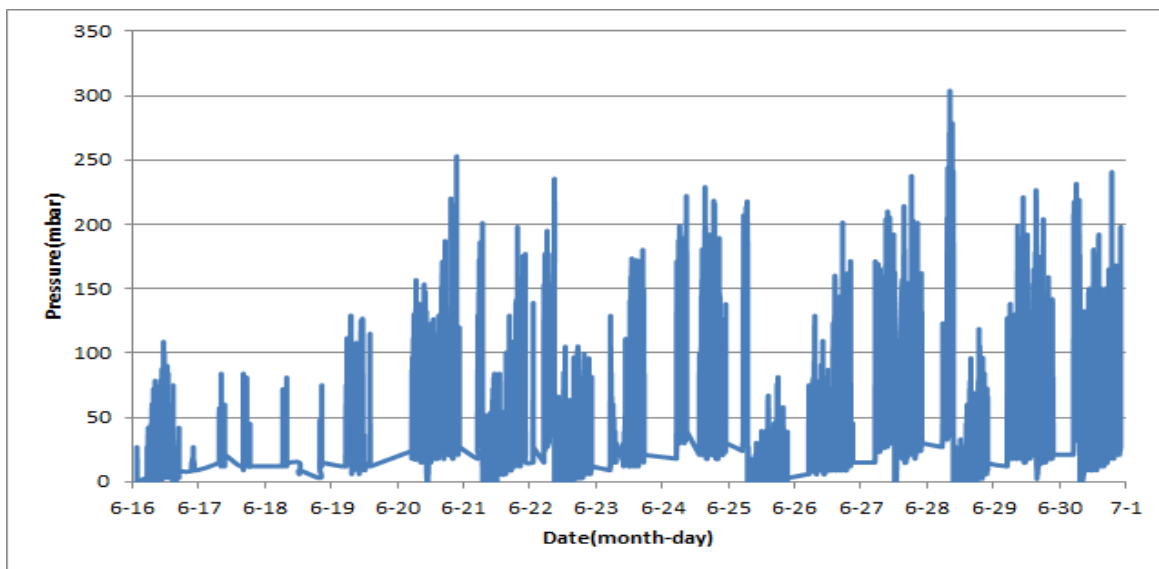


Figure 4- Pressure distribution over the fifteen days

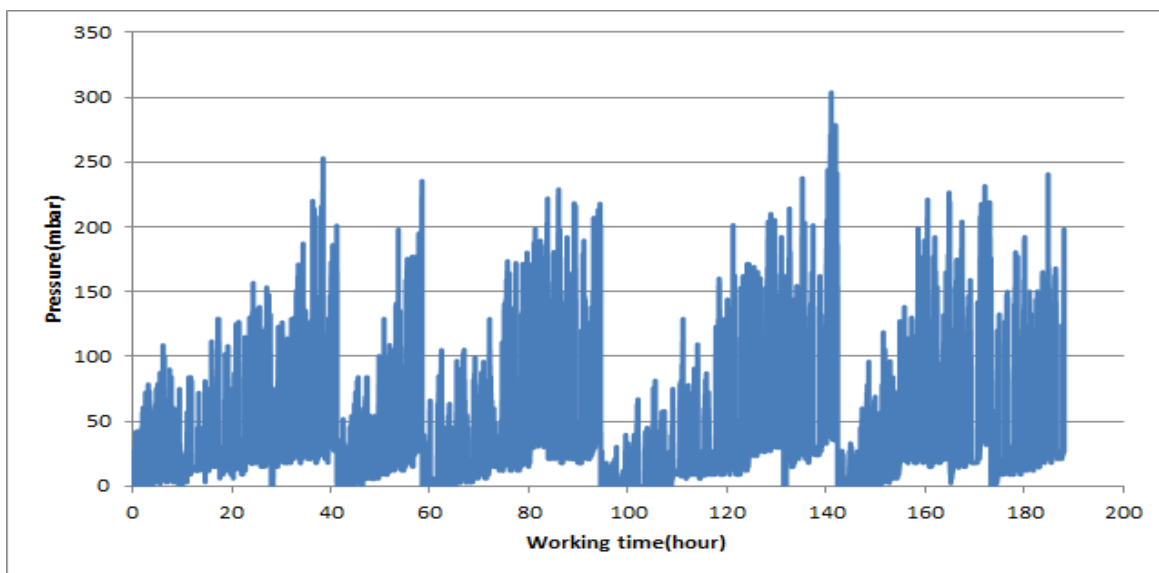


Figure 5- Pressure vs. working hours

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

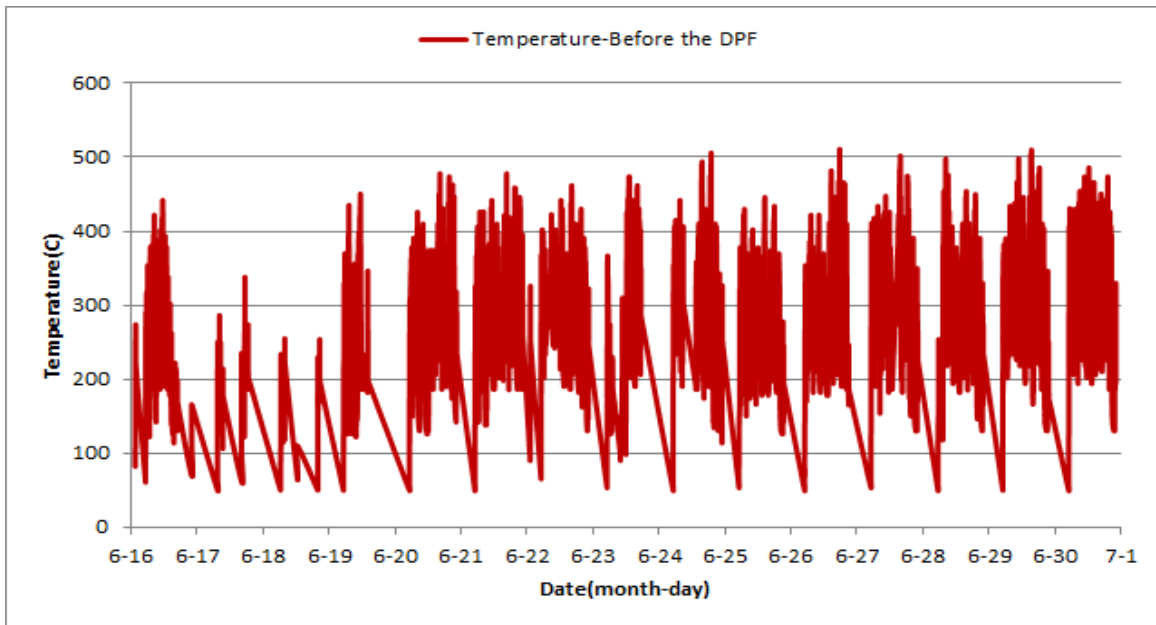


Figure 6- Temperature distribution over the fifteen days

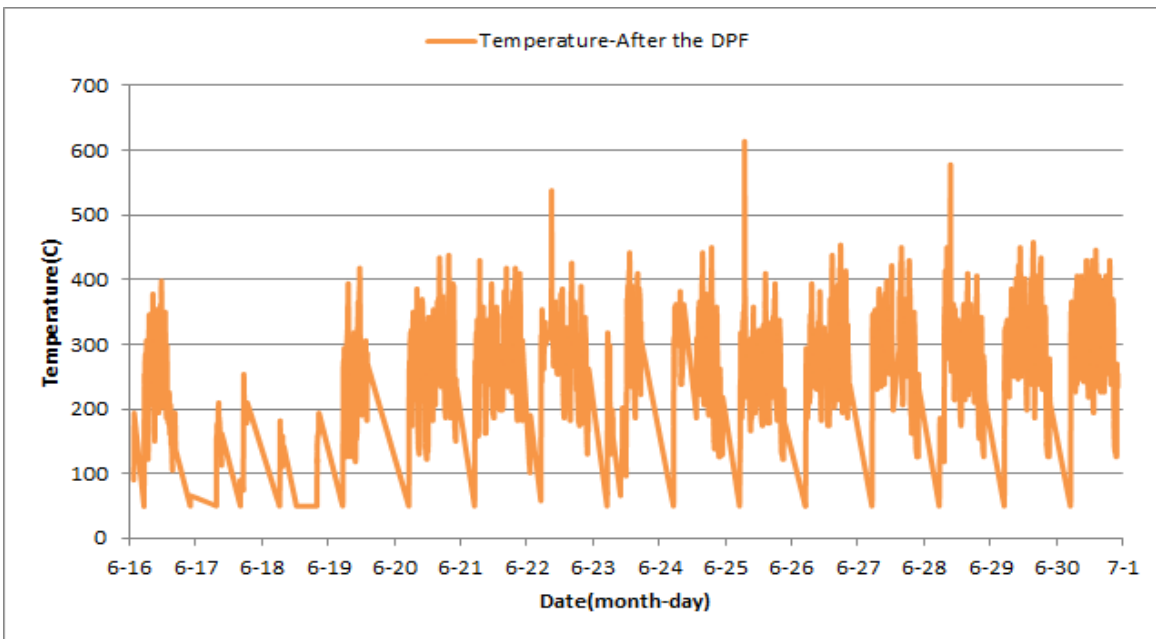


Figure 7- Temperature distribution over the fifteen days

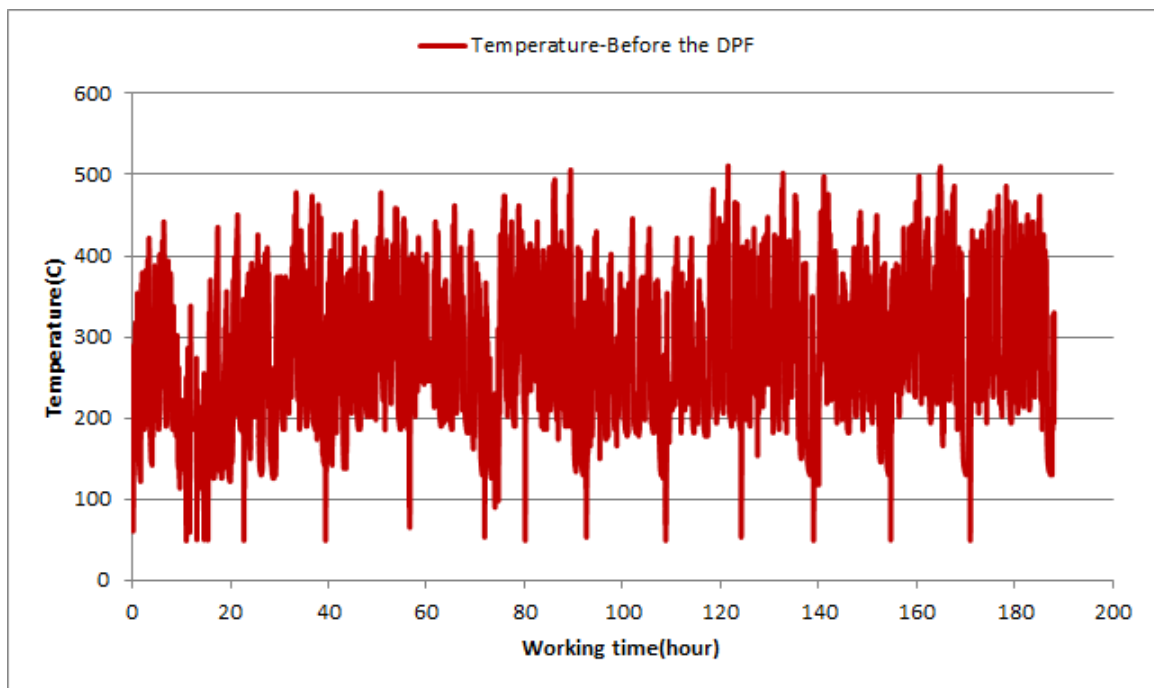


Figure 8- Temperature vs. working hours

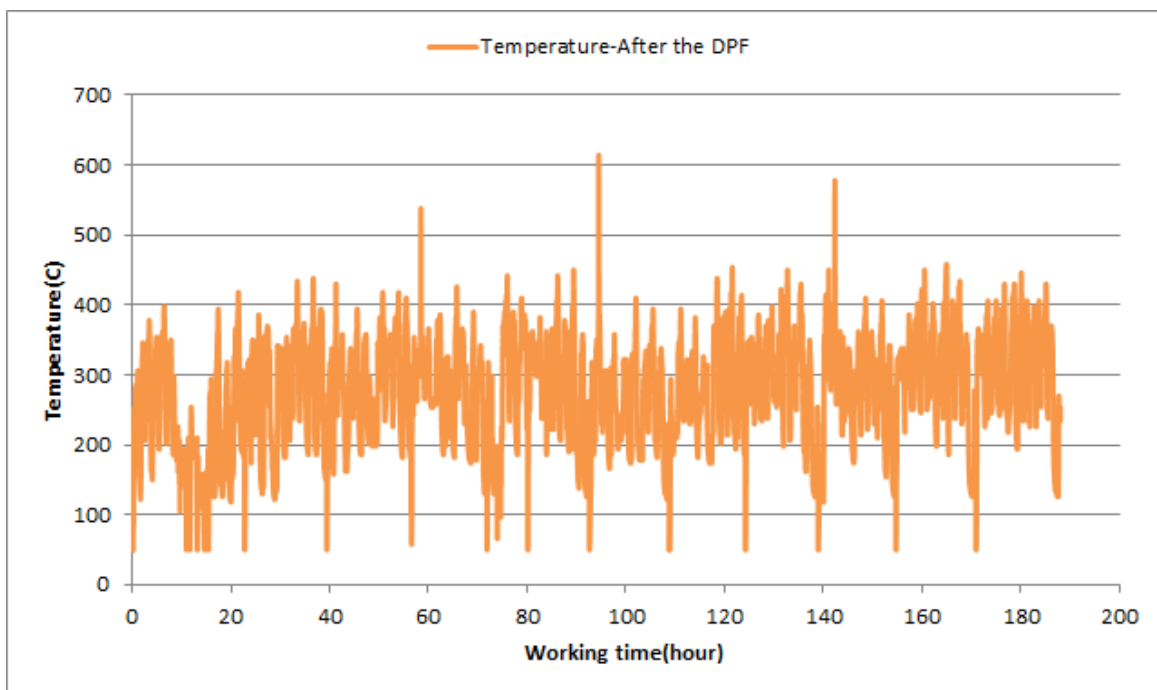


Figure 9- Temperature vs. working hours

## Engine Speed Diagrams

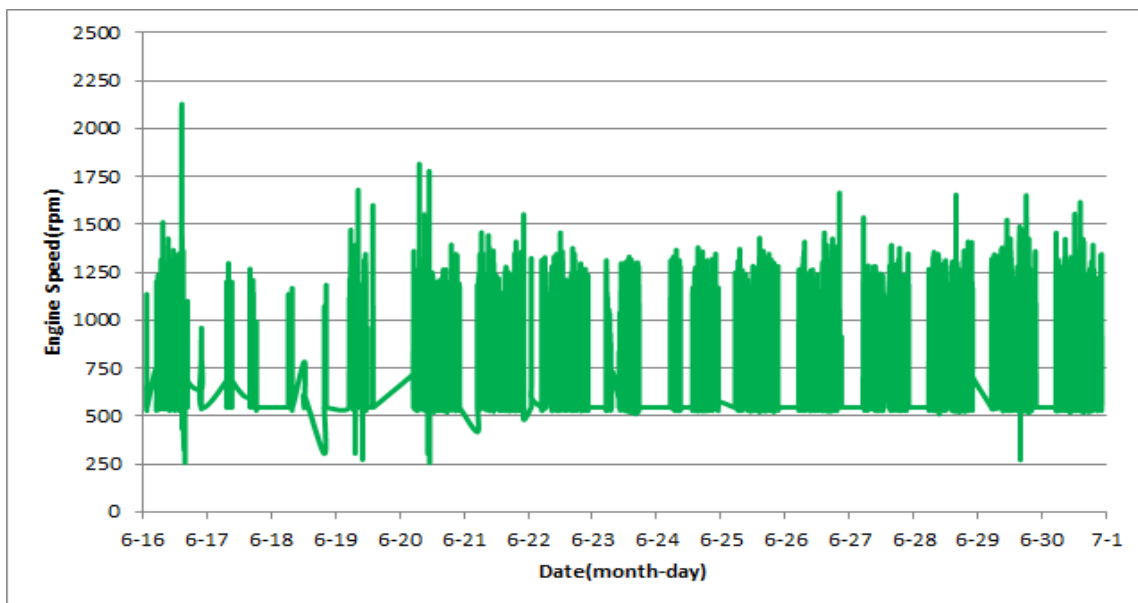


Figure 10- Engine speed distribution over the fifteen days

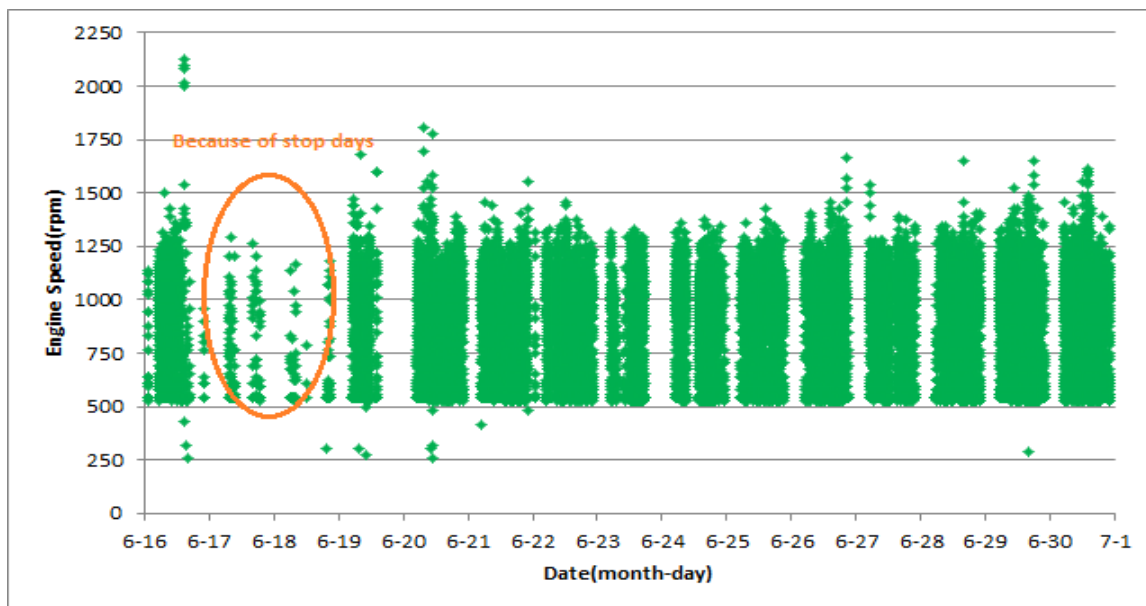


Figure 11- Engine speed diagram for calculating CPK's working days



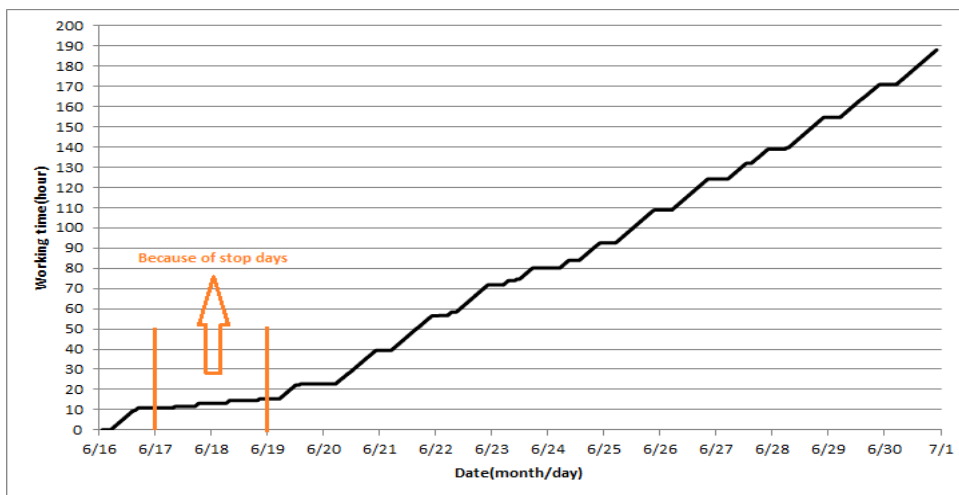


Figure 12- Time diagram for calculating CPK's working days

Notice: Data logger sampling time can be calculated from Figure 12. The lines parallel with Date axis show days without CPK's (data logger) data. As depicted in Figure 12, data logger didn't sample on Jun 18<sup>th</sup> and 19<sup>th</sup> because of stop days. ( Bus was at mechanic garage on these dates)

### Pressure-Engine Speed diagrams

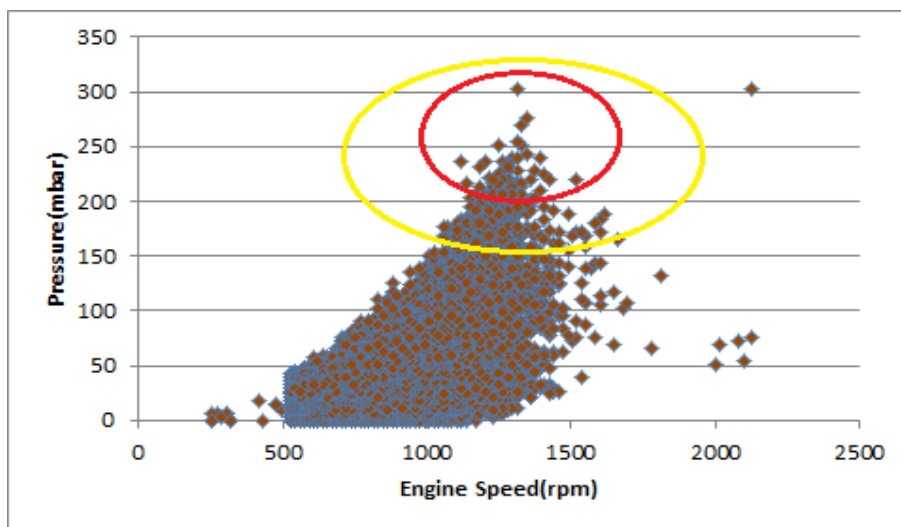


Figure 13- Pressure against engine speed

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

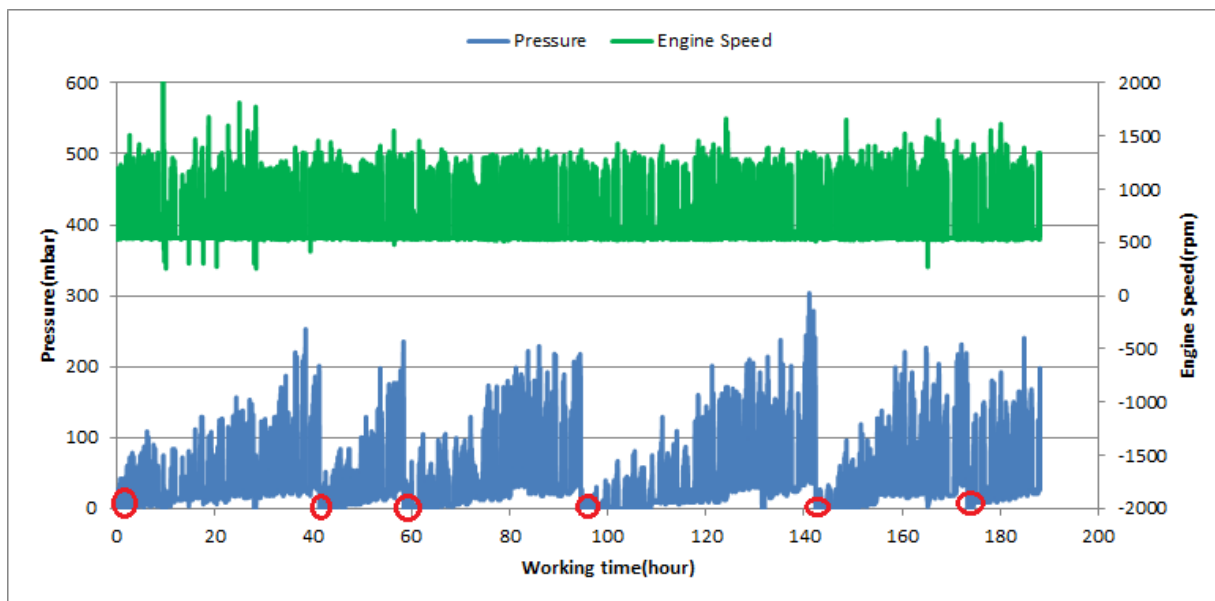


Figure 14- P, N distribution vs. working hours

Notice: The red circles show probable active regeneration times.

## Temperature- Engine Speed Diagram

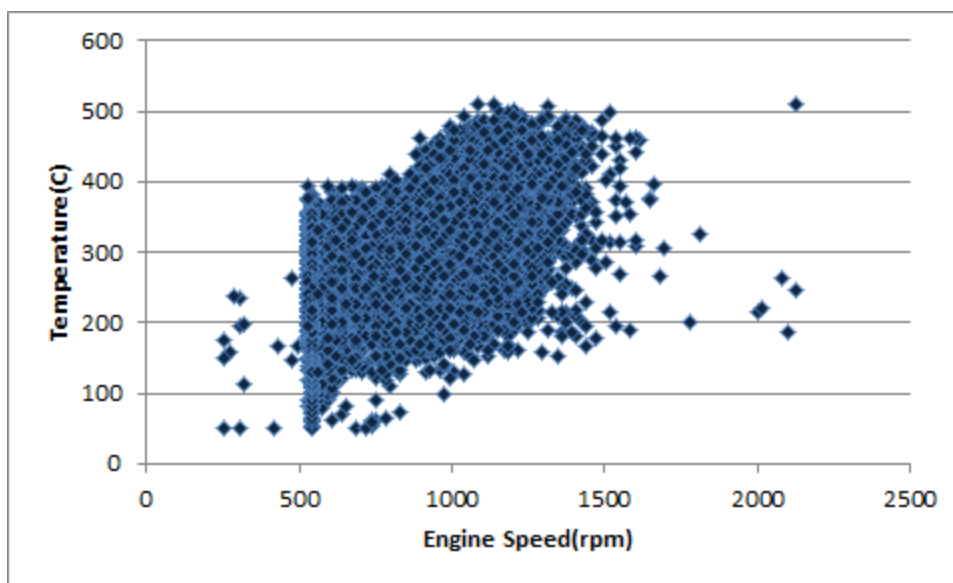


Figure 15- Temperature against engine speed

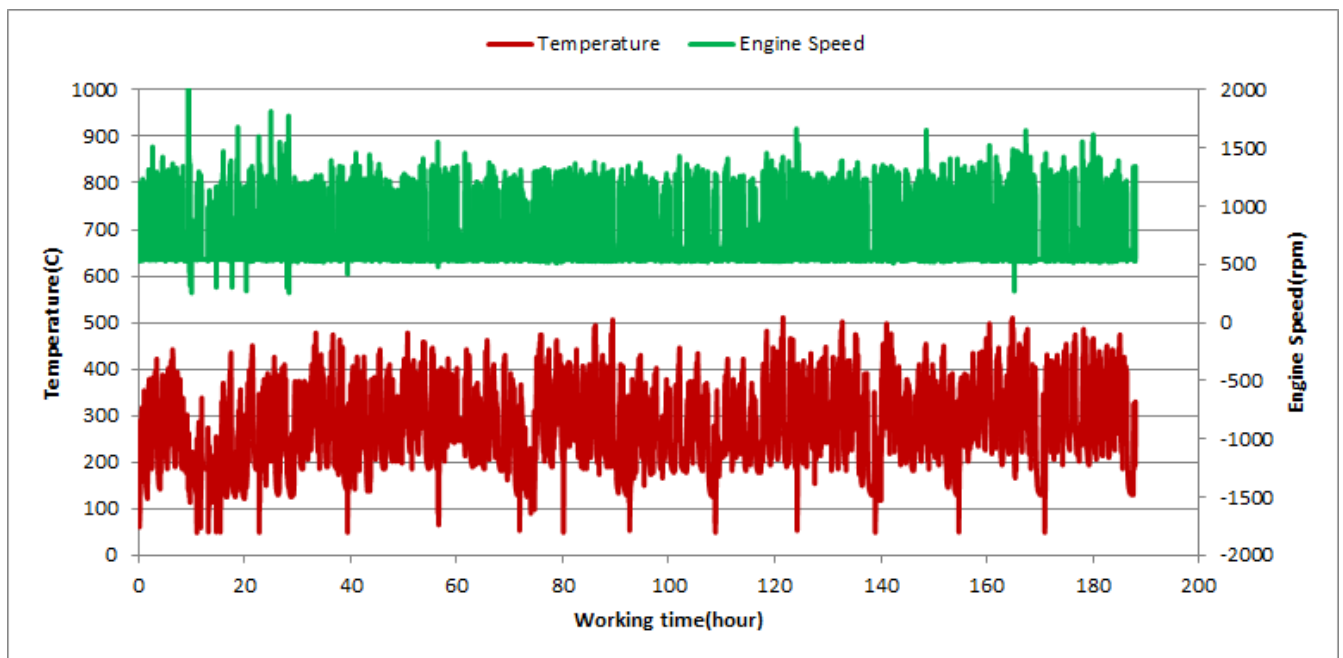


Figure 16- T, N distribution vs. working hours

## Filter Operation Analysis

- As depicted in Figure 1, only 0.11% of total working time pressure is above 200 mbar and 0.88% above 150mbar. So it can be concluded that operation of this filter is reasonably acceptable in this condition.
- Figure 2 displays flow temperature distribution for DPF's upstream. It can be obviously observed that 3 % of total working time temperature is above 400°C.
- This vehicle operates in line 2. Because of smooth path of this line, engine operates in low rotational speed. It is worth-mentioning this low engine speed distribution causes low temperature distribution.

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