

Notice: This system had bus electrical and RPM sensor problem during this period. So please consider notifications to get correct information.

Overall Information

Table1- Overall Information

Vehicle plate number	78524
CPK data logger number	LN: 001443, DN: 1930, 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 producer company	PURItch (Passive system with FBC)
Installation date	28/Jan/2015
Report period	01/Jul/2015 – 15/Jul/2015 (fifteen days)
K value - DPF upstream	1.83 [1/m]
K value – DPF downstream	0.06 [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)	24018 km
Bus mileage over the period	3321 km
Working days over the period	-
Stop days	-
Data logger working days	3 days
Working hours over the period	-
Average working hours per day (including stop days)	-
Bus average speed	-
Idle speed time to all working time ration	-
Total Bus fuel consumption over the period	2192 lit
Fuel consumption per hour	-
Average fuel consumption	0.66 lit/km
Total Bus additive consumption over the period	1.096 lit
Average additive consumption	330 cc/km
Additive consumption to fuel ration	500 cc per 1000 lit (batch dosing with tank level)

Notice: Bus electrical system had problem during this period and was fixed on Jul 13th. So DPF information missed from Jul 1st to 12th. But fortunately data of last three days (13th, 14th, 15th) were fully reliable and filter operation status can be probed.

Temperature, Pressure and Engine Speed Overview

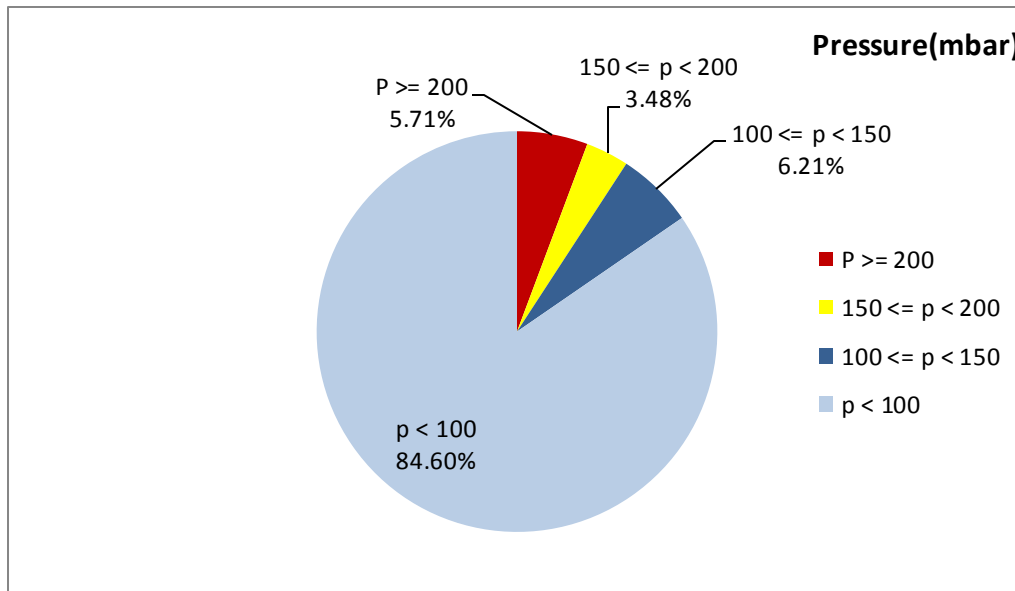


Figure 1- Pressure distribution over the working hours

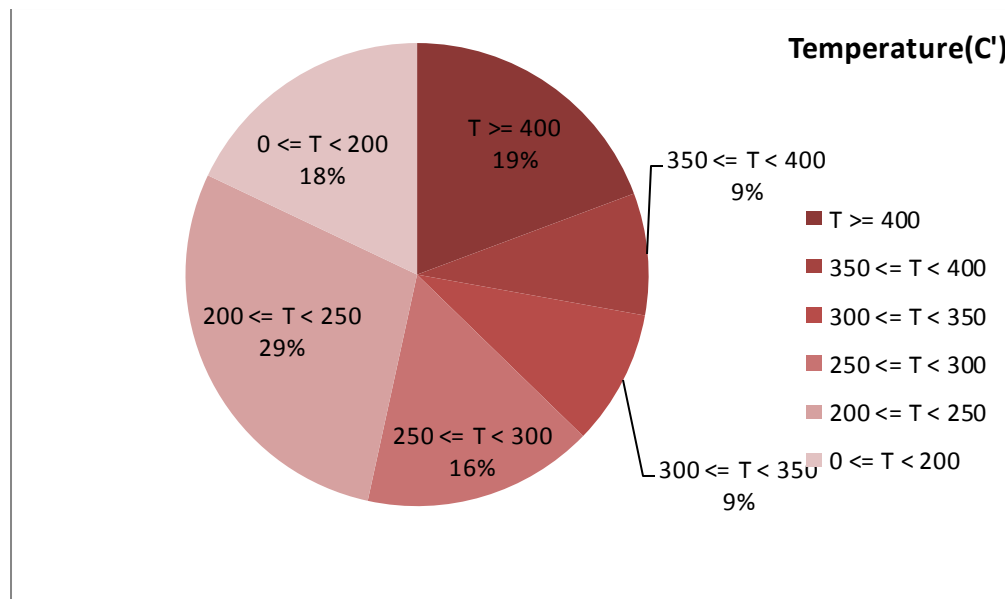


Figure 2-Temperature distribution over the working hours

Notice: figures 1 and 2 belong to data logger working days (13th, 14th, 15th).



Figure 3- Engine speed distribution over the working hours

Notice: RPM sensor problem that happened on Jul 7th, so all data about engine speed missed. Due to data logger and RPM sensor problems, engine speed data missed.

Table 4- Mean values

Mean temperature (C)	Mean pressure(mbar)	Mean engine speed(rpm)
293.27	57.58	-

Table 5- Mean values without idling

Mean temperature (C)	Mean pressure(mbar)	Mean engine speed(rpm)
324.12	64.84	-

Table 6- Max-min values

Max-min temperature(C)	Max-min pressure(mbar)	Max-min engine speed(rpm)
654-50	390-0	-

Notice: Tables 4, 2 and 3 belong to data logger working days (13th, 14th, 15th). Also table 5 was calculated by temperature's data.

Detailed Pressure Analysis

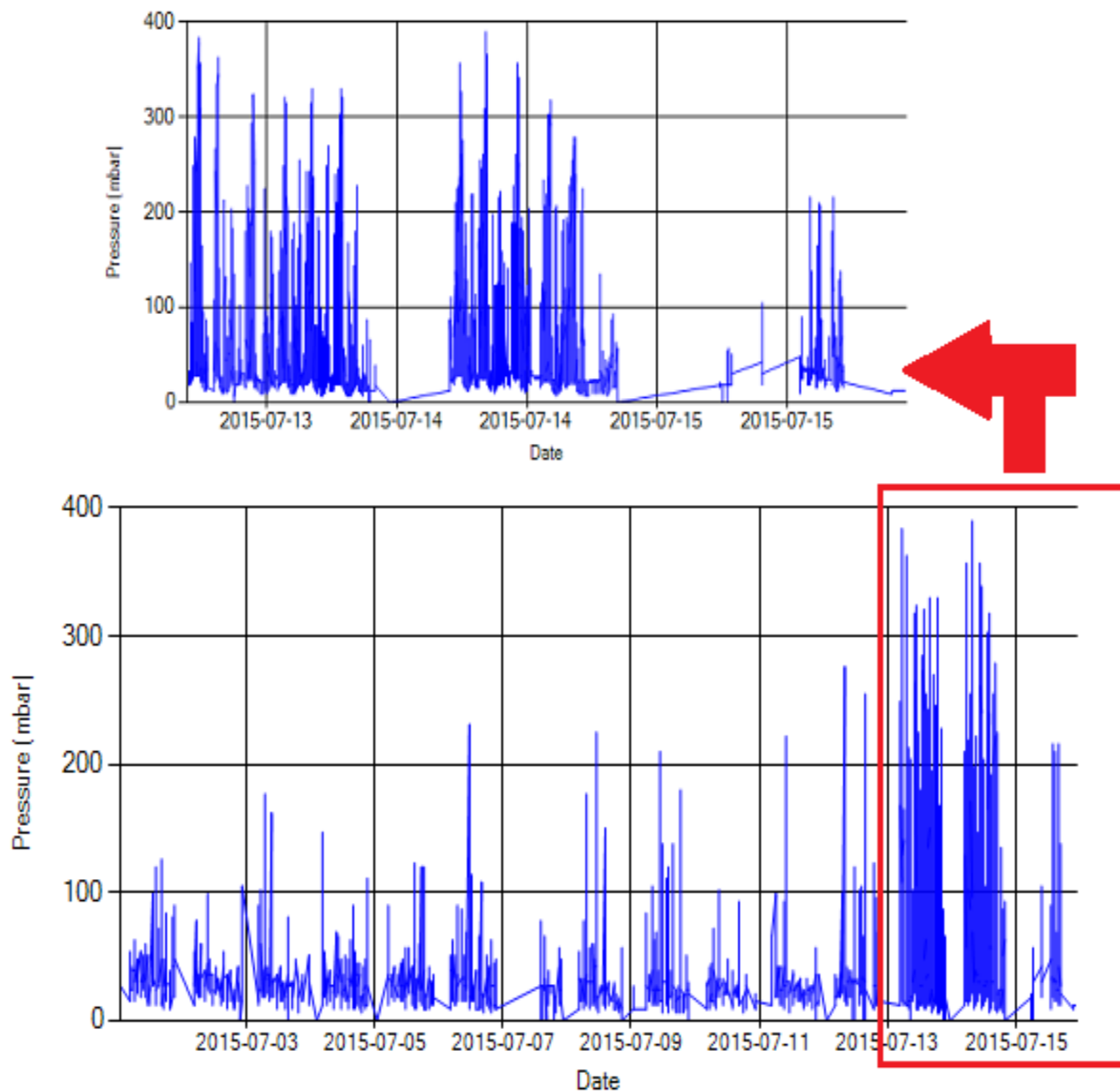


Figure 4- Pressure distribution over the period

Notice: Data logger electrical problem was fixed on Jul 13rd. So only reliable data are data logger working days (13th, 14th, 15th).

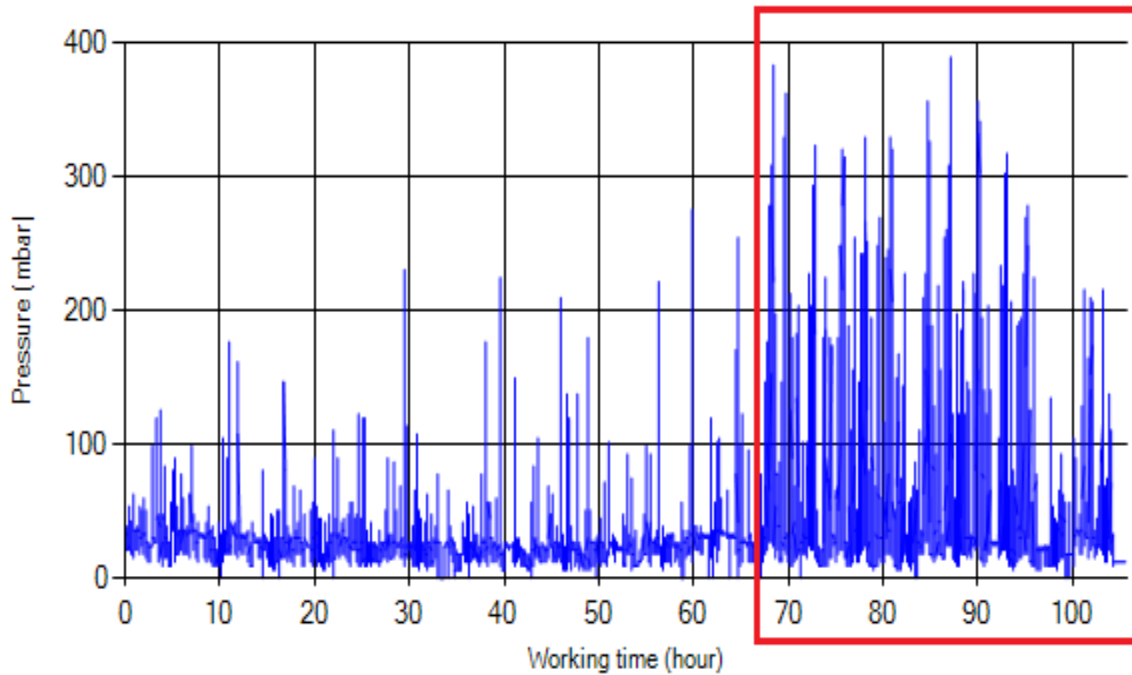
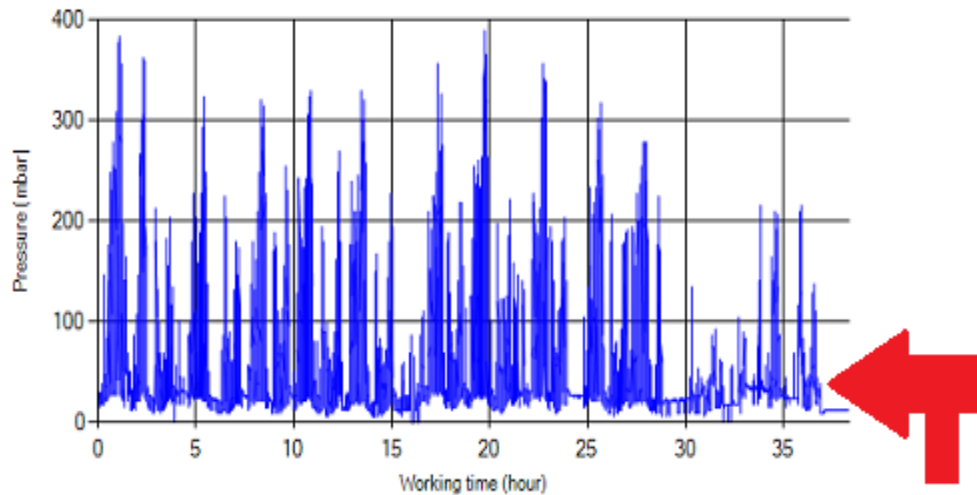


Figure 5- Pressure vs. working hours

Notice: Data logger electrical problem was fixed on Jul 13rd. So only reliable data are data logger working days (13th, 14th, 15th).

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

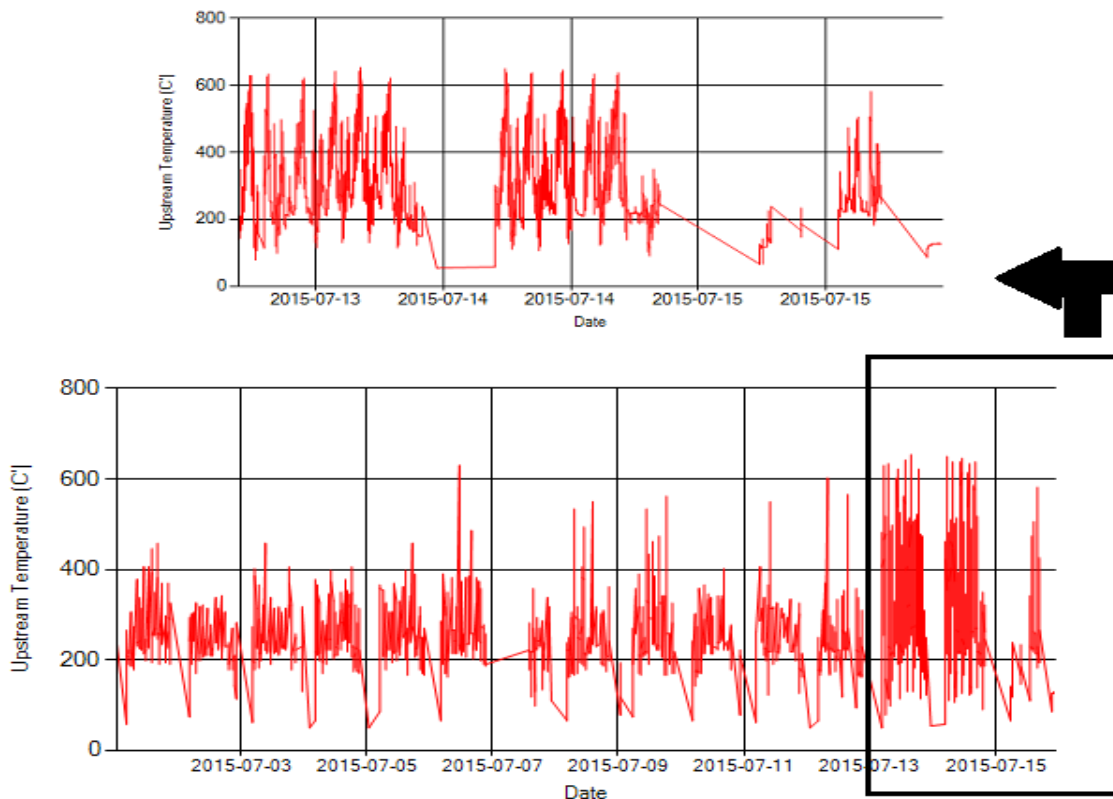


Figure 6- Temperature distribution over the period

Notice: Data logger electrical problem was fixed on Jul 13th. So only reliable data are data logger working days (13th, 14th, 15th).

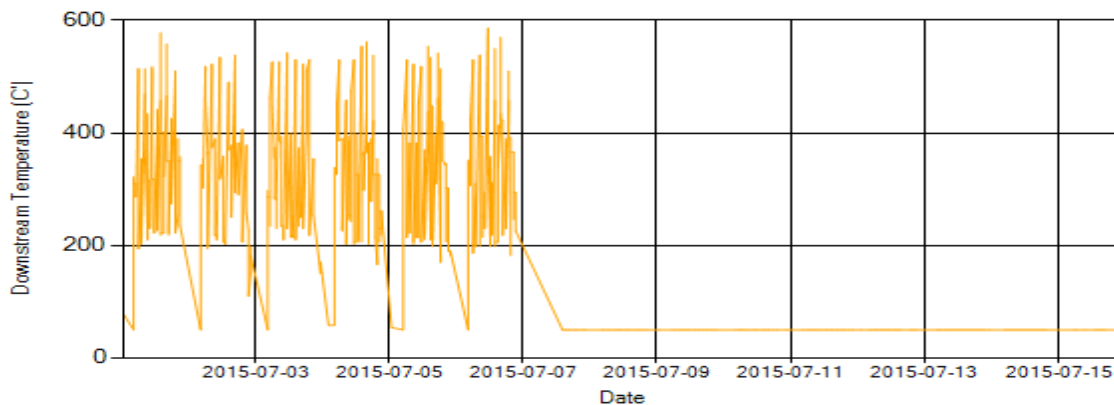


Figure 7- Temperature distribution over the period

Notice: As depicted in Figure 7, temp 2 data have been missed because of sensor problem since Jul 7th.

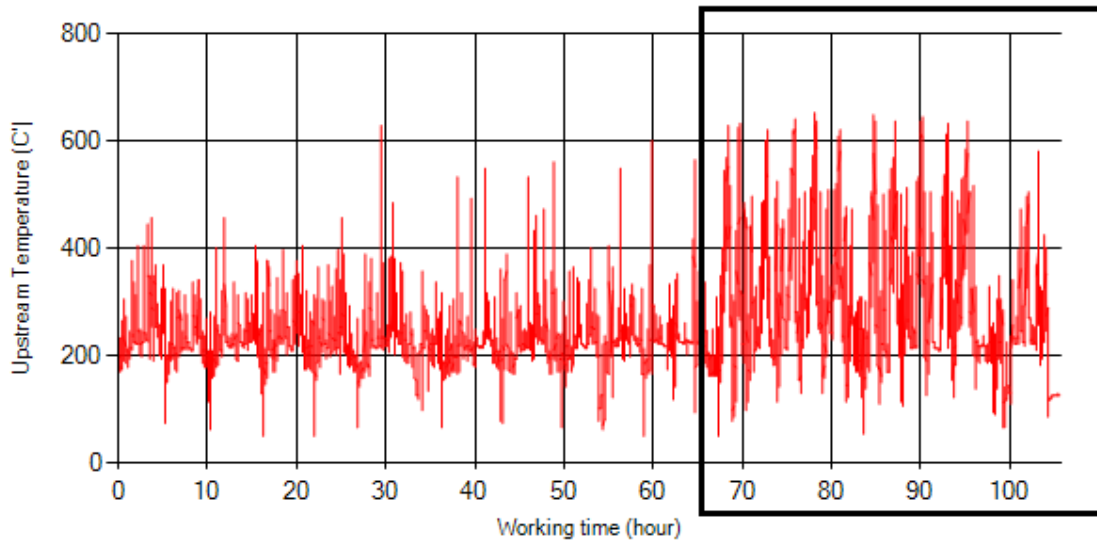
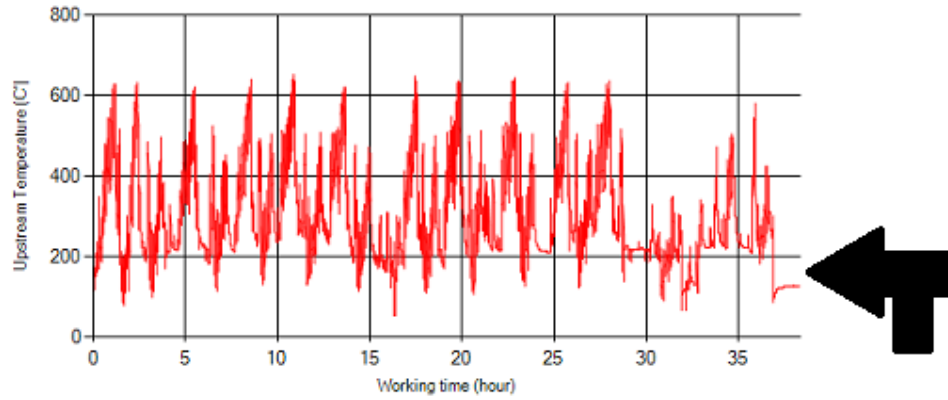


Figure 8- Temperature vs. working hours

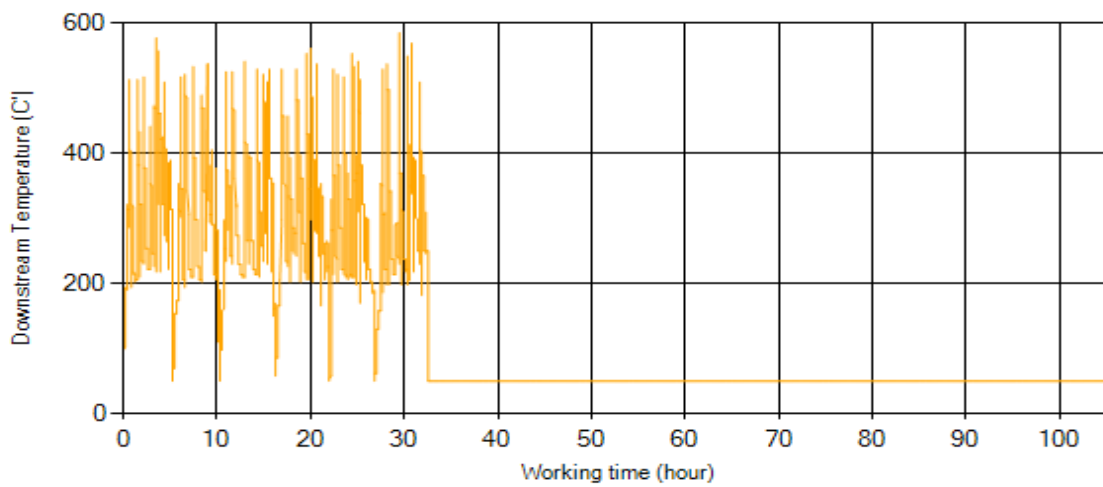


Figure 9- Temperature vs. working hours

Engine Speed Diagrams

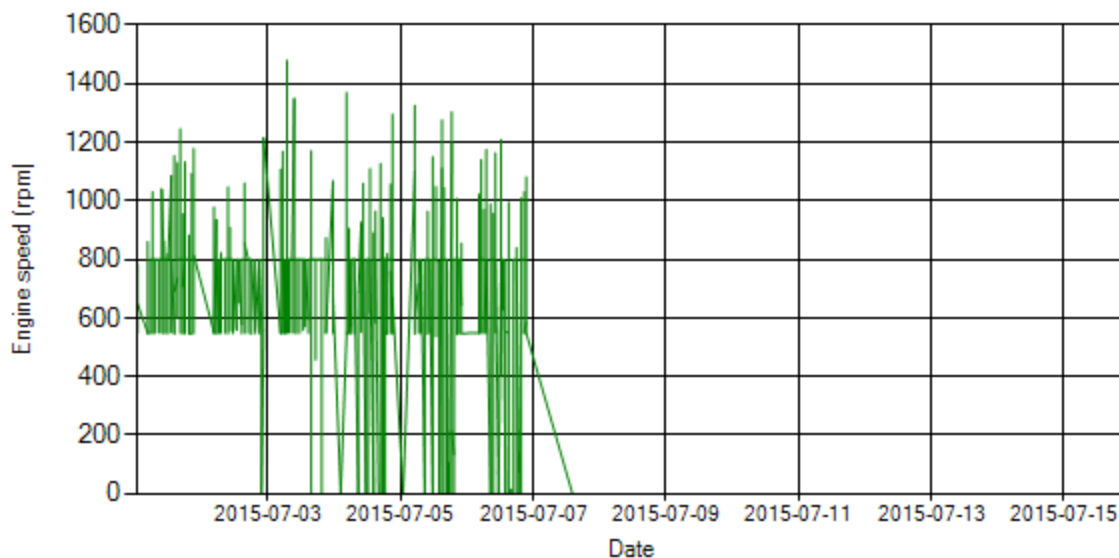


Figure 10- Engine speed distribution over the period

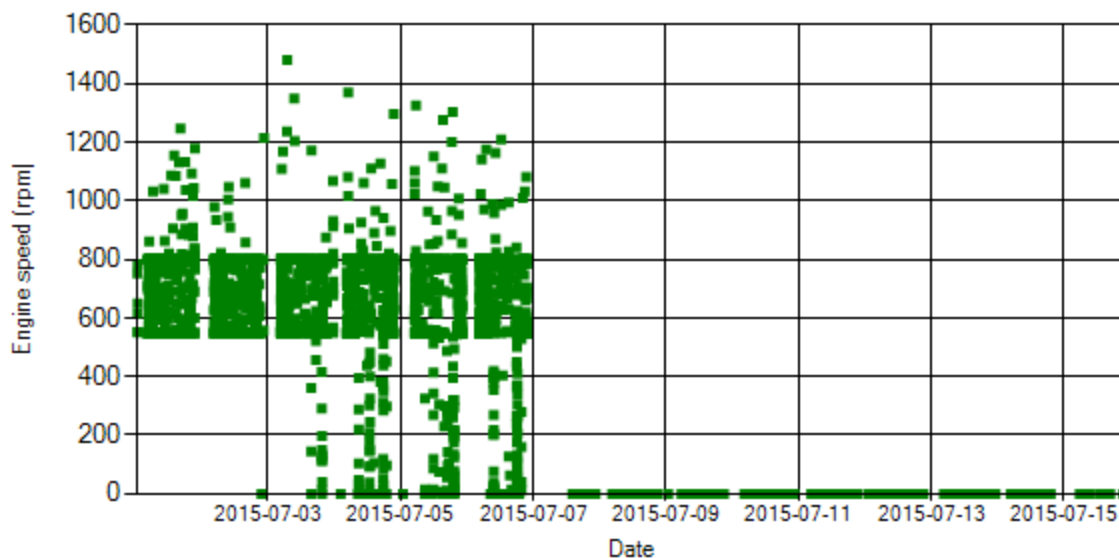


Figure 11- Engine speed diagram for calculating CPK's working day

Notice: As mentioned above, RPM sensor data have been missed because of sensor problem since Jul 7th. Besides that, considering data logger electrical problem figures 10 and 11 are fully unreliable.

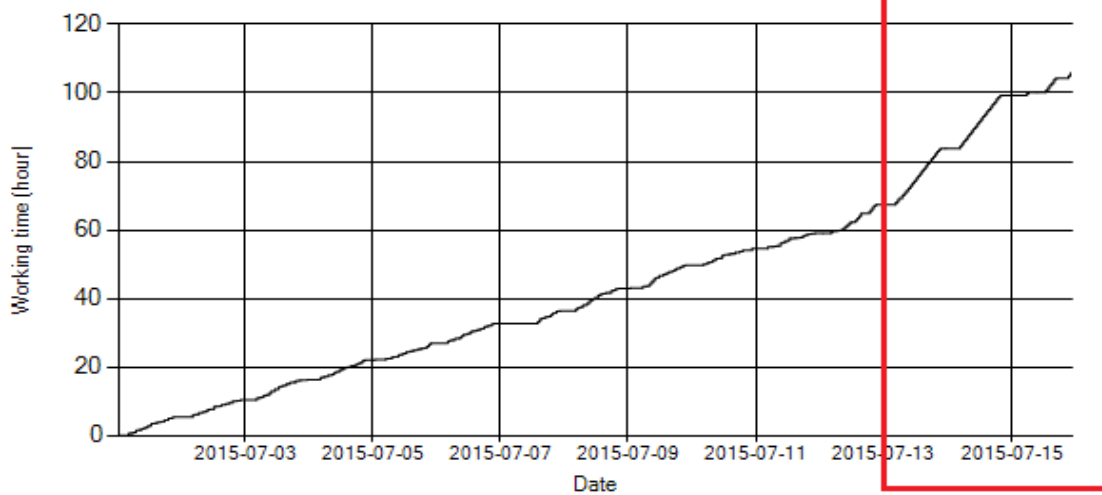
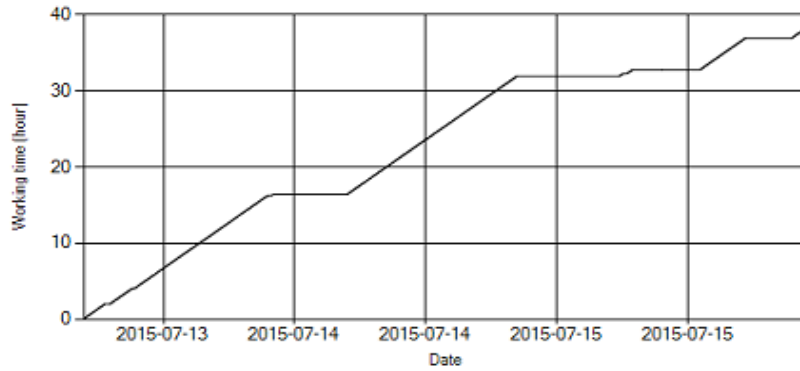


Figure 12- Time diagram for calculating CPK's working days

Pressure-Engine Speed diagrams

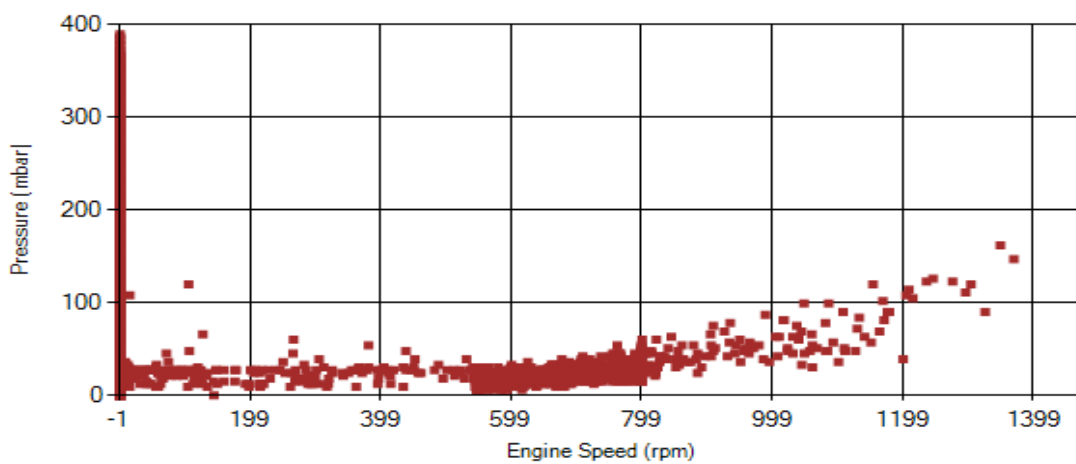


Figure 13- Pressure against engine speed

Notice: Because of technical problems this chart data are unreliable.

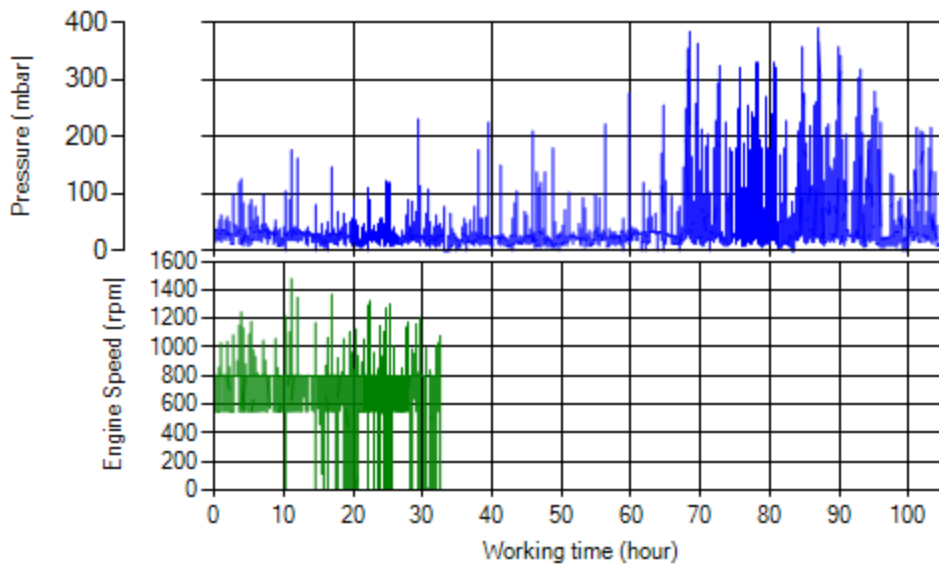


Figure 14- P, N distribution vs. working hours

Notice: Because of technical problems this chart data are unreliable.

Temperature-Engine Speed diagrams

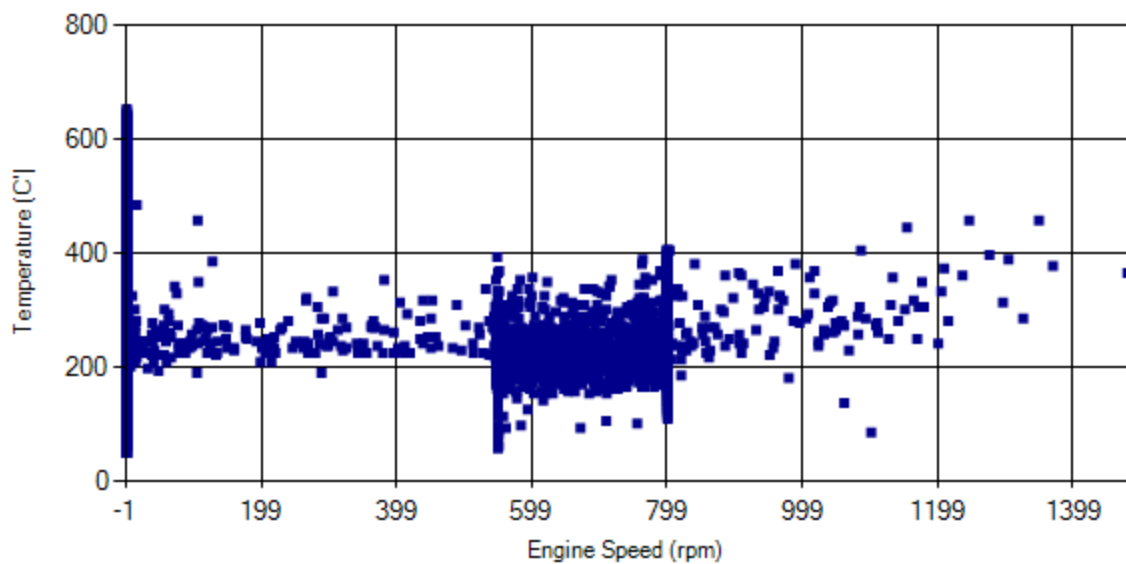


Figure 13- Temperature against engine speed

Notice: Because of technical problems this chart data are unreliable.

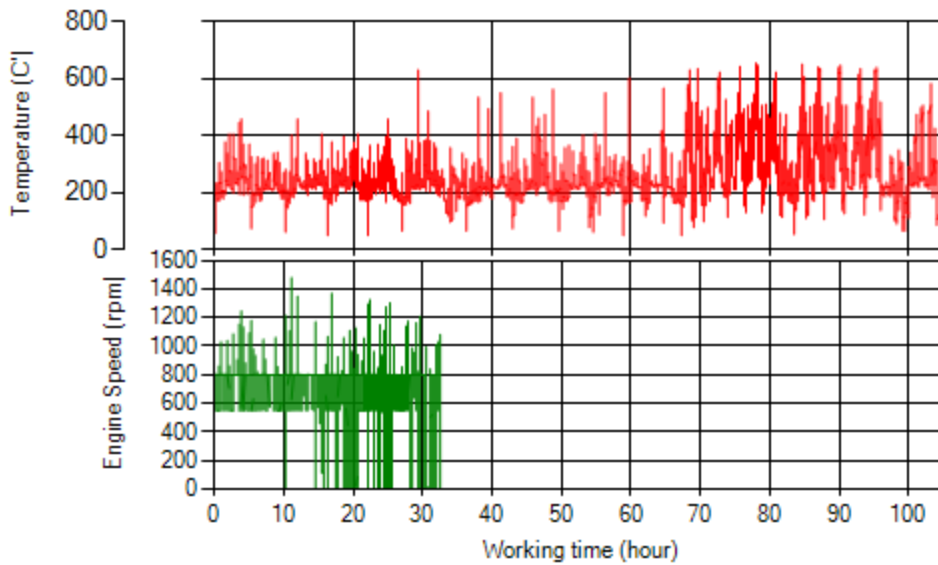


Figure 14- T, N distribution vs. working hours

Notice: Because of technical problems this chart data are unreliable.

Filter Operation Analysis

Considering data logger working days:

- As depicted in figure 1, 5.71 % of total working time, pressure is above 200 mbar and 9.19% above 150mbar.
- Figure 2 displays flow temperature distribution for DPF's upstream. It can be obviously observed that 19% of total working time temperature is above 400 °C and 28% above 350°C. Considering Figure 1, it can be obtained that, high temperature distribution in figure 2 was the result of high backpressure. So this high temperature distribution was deceptive and can't guarantee adequate filter operation.

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