## 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 | PURItech (Passive system with FBC) |
| Installation date | 28/Jan/2015 |
| Report period | 16/Jul/2016 – 31/Jul/2016  (sixteen days) |
| K value | - |
| K value | - |

*Table 2- DPF Maintenance History*

| | |
| --- | --- |
| Filter maintenance date | DPF core was removed on Jul 22nd and was cleaned on Aug 12th for the first time. Considering system relatively high backpressure, filter isolation defect and air filter's deformation, DPF core was removed on Sep 16th and installed on Nov 17th. The third cleaning was unavoidable after only 6 days working and was done on 29th Nov. System only worked for two days and DPF was replaced by muffler on Nov 30th. DPF was installed for the fourth time on Jan/19/2016 and was replaced by muffler after only three days working because of high backpressure. A new DPF core was installed on May/14/2016 and was cleaned on Jun/25/2016. The DPF core was replaced by muffler on Jul/10/2016 due to high backpressure. |
| Dosing status | Dosing value has been kept constant from installation date until now. |

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*Table 3- Fuel and Additive Consumption Information*

| | |
|---|---|
| Bus mileage (from DPF installation date) | 99534 km |
| Bus mileage over the period | 3694 km |
| Working days over the period | 16 days |
| Stop days | 0 day |
| Data logger working days | 16 days |
| Working hours over the period | 217 hours 21 minutes |
| Average working hours per day (including stop days) | 13 hours 35 minutes |
| Bus average speed | 17 km/hr |
| idle speed time to all working time ration | 21.14 % |
| Total Bus fuel consumption over the period | 2143 lit |
| Fuel consumption per hour | 9.8 lit/hr |
| Average fuel consumption | 0.58 lit/km |

## Temperature, Pressure and Engine Speed Overview
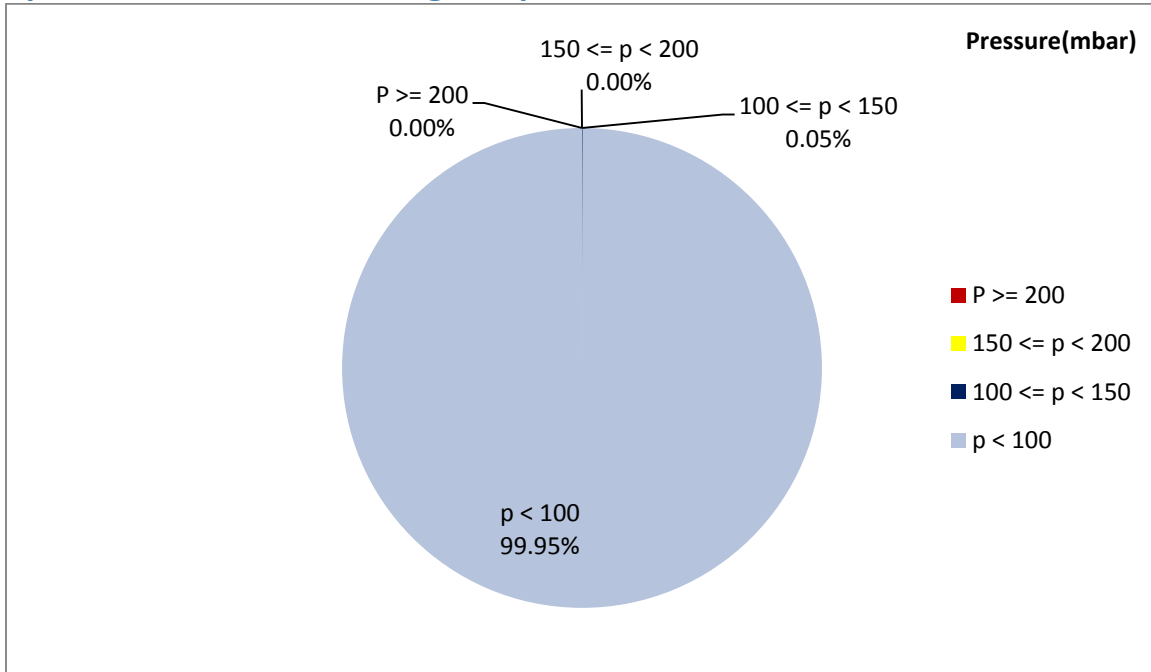


*Figure 1- Pressure distribution over the working hours*
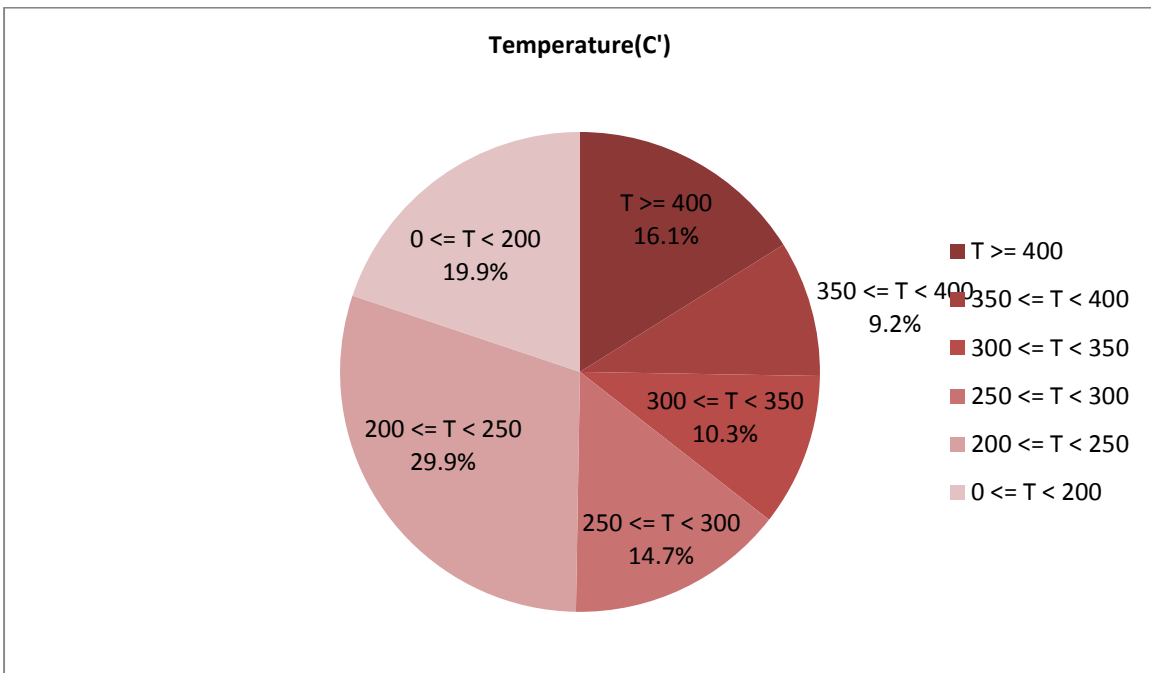


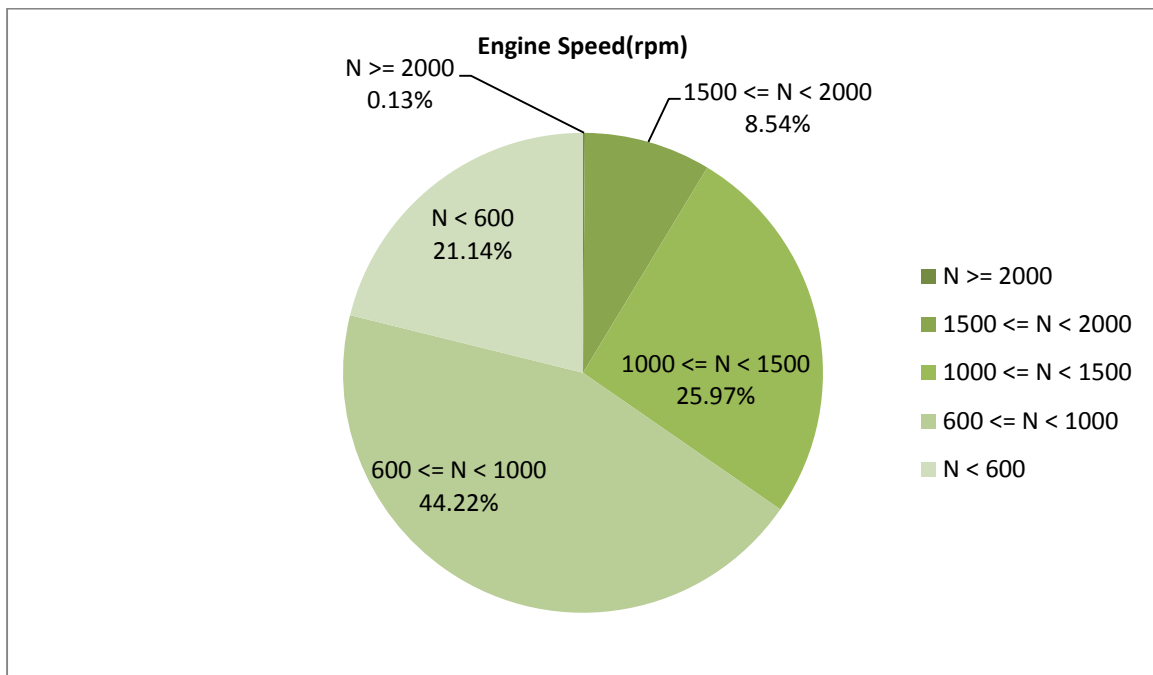*Figure 2-Temperature distribution over the working hours*

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

*Table 4- Mean values*

| Mean temperature (C) | Mean pressure(mbar) | Mean engine speed(rpm) |
|---|---|---|
| 281.57 | 6.28 | 931 |

*Table 5- Mean values without idling*

| Mean temperature (C) | Mean pressure(mbar) | Mean engine speed(rpm) |
|---|---|---|
| 297.91 | 7.96 | 1033 |

*Table 6- Max-min values*

| Max-min temperature(C) | Max-min pressure(mbar) | Max-min engine speed(rpm) |
|---|---|---|
| 614-50 | 111-0 | 2176-288 |

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## Detailed Pressure Analysis
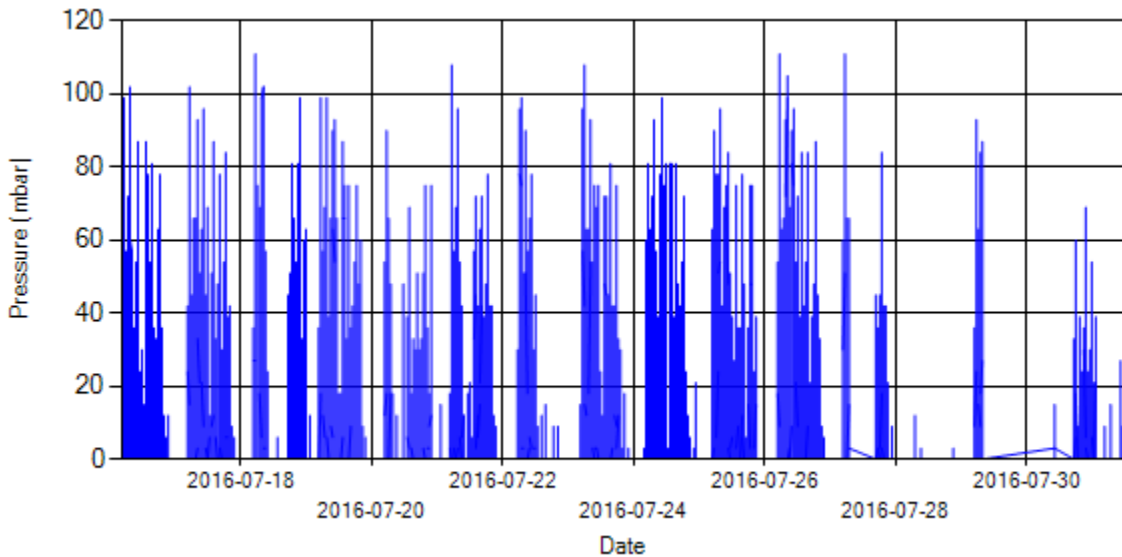


*Figure 4- Pressure distribution over the period*
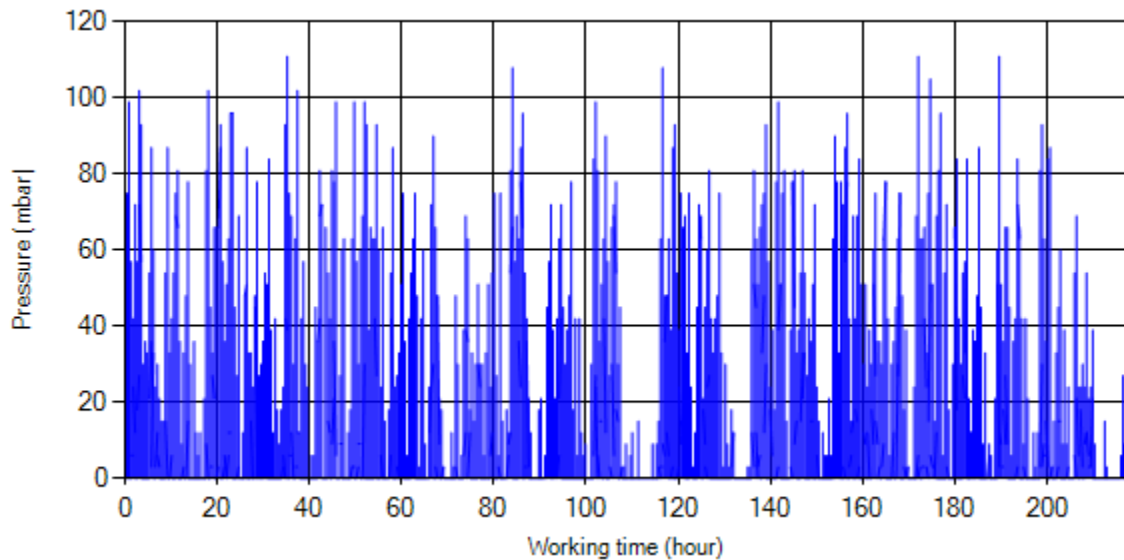


*Figure 5- Pressure vs. working hours*

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.
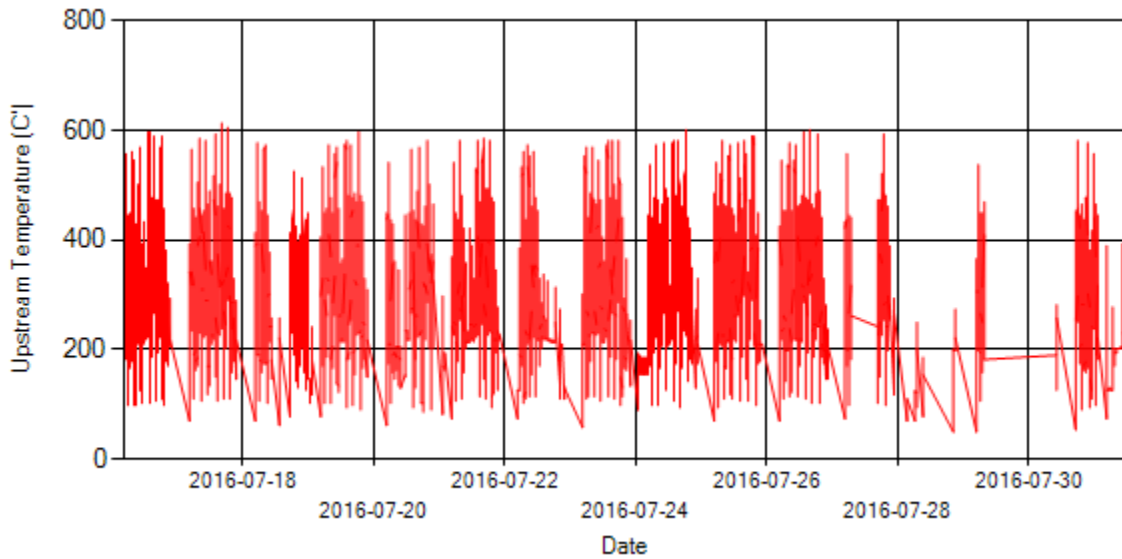
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## Detailed Temperature Analysis
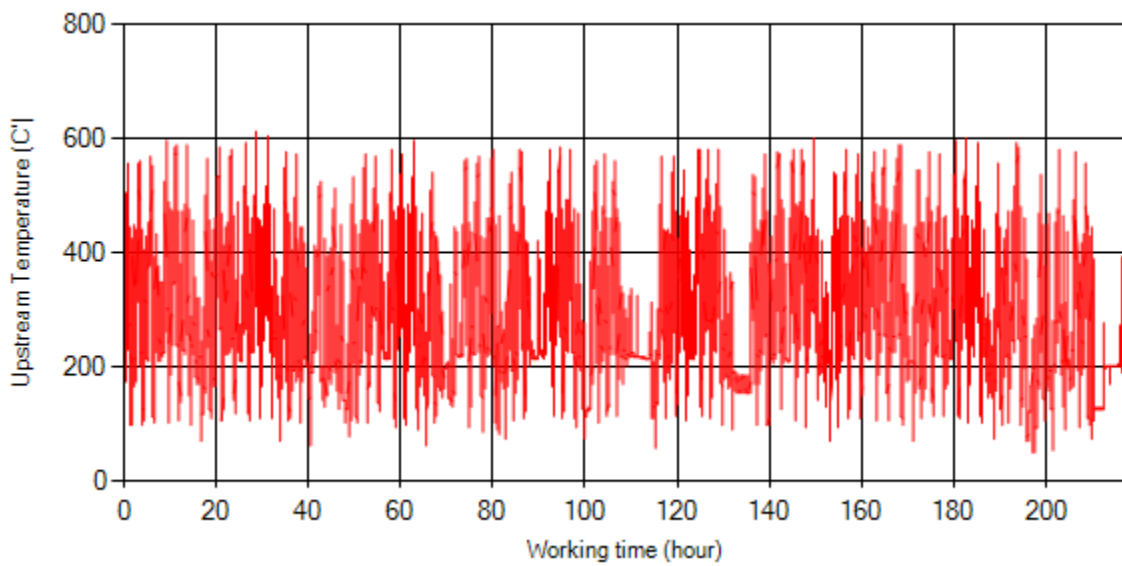


*Figure 6- Temperature distribution over the period*



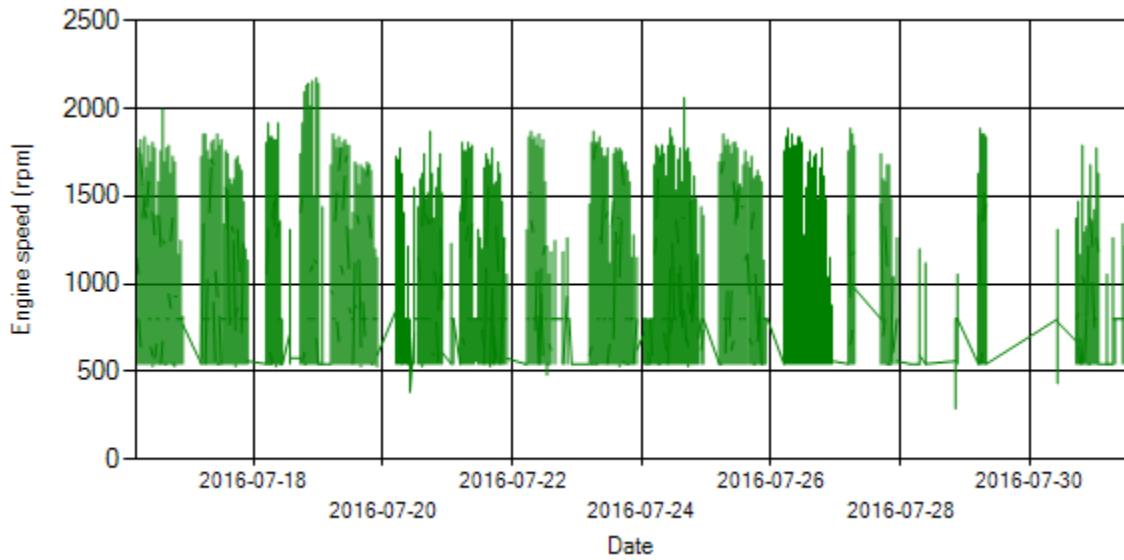*Figure 7- Temperature vs. working hours*

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## Engine Speed Diagrams



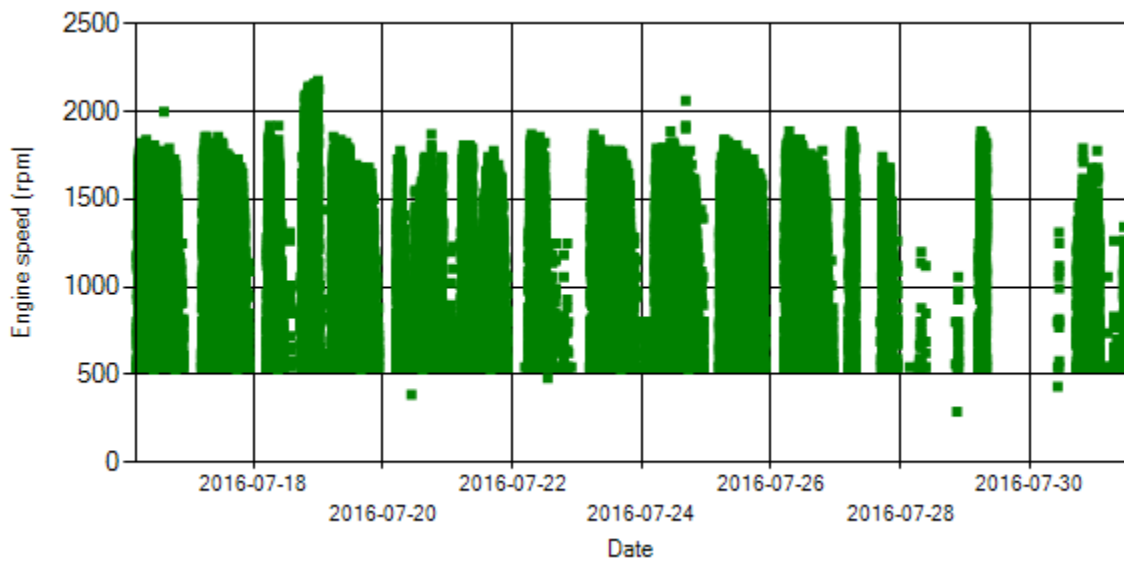*Figure 8- Engine speed distribution over the period*



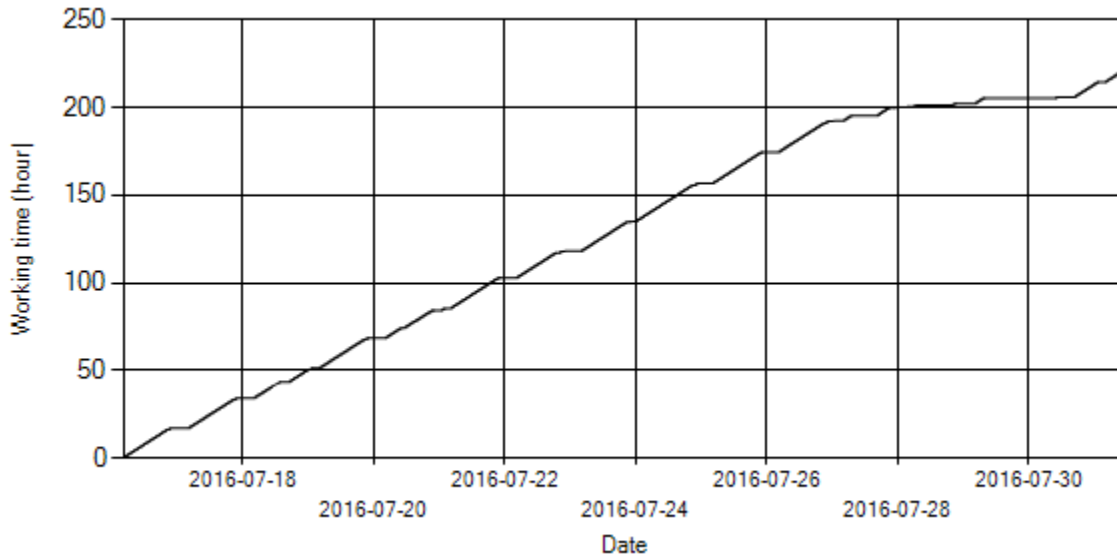*Figure 9- Engine speed diagram for calculating CPK's working days*

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*Figure 10- Time diagram for calculating CPK's working days*

Notice: Data logger sampling time can be calculated from Figure 10. The lines parallel with Date axis show days without data logger data. As depicted in Figure 10 system was in motion for all days of the period.
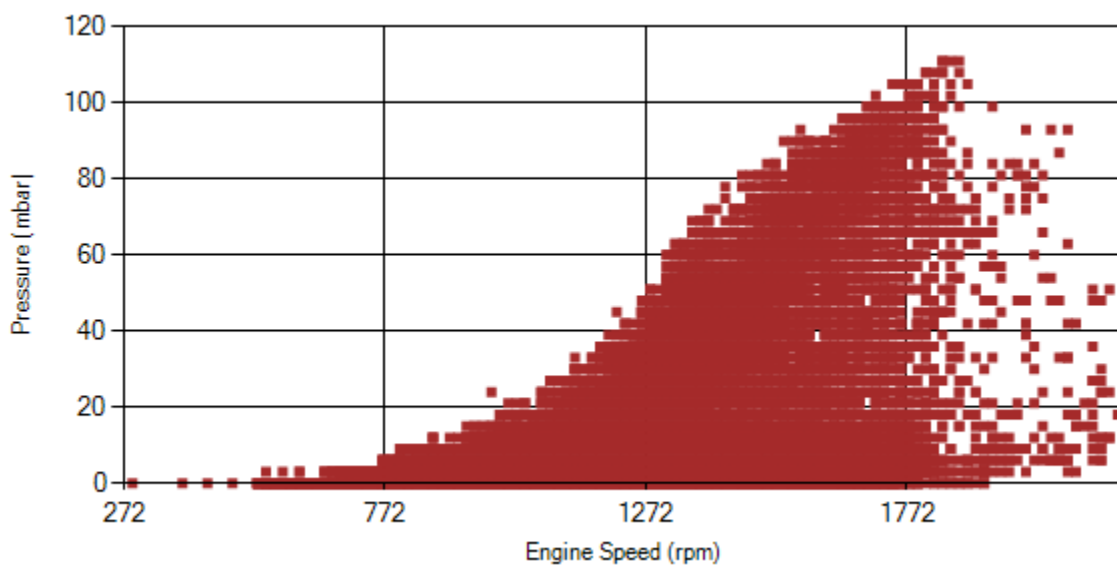
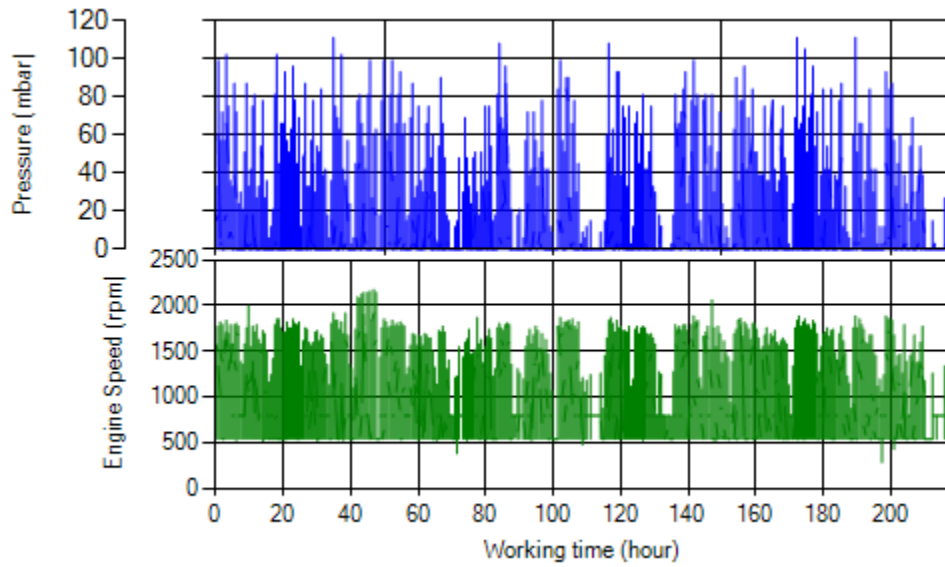## Pressure-Engine Speed diagrams



*Figure 11- Pressure against engine speed*

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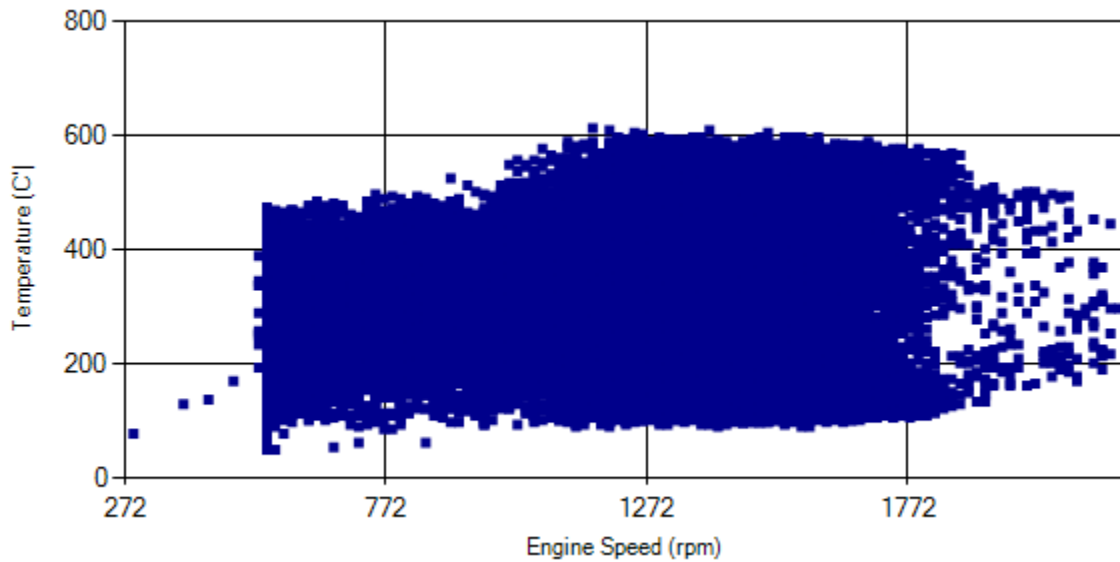*Figure 12- P, N distribution vs. working hours*

## Temperature-Engine Speed diagrams
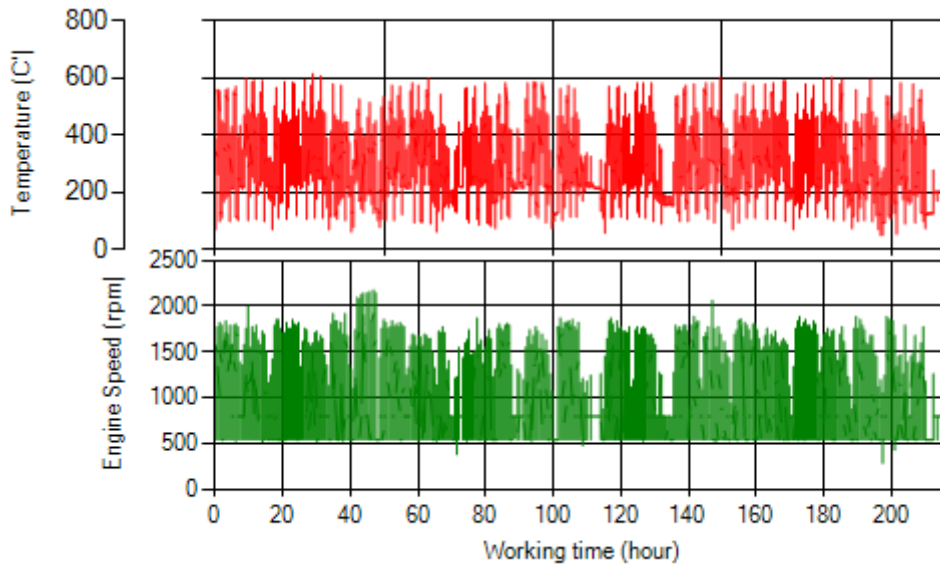


*Figure 13- Temperature against engine speed*

*Figure 14- T, N distribution vs. working hours*

## Filter Operation Analysis

**NOTE:** system was working without DPF core on this period.

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