

# VOLVO CONSTRUCTION EQUIPMENT MATRIS REPORT

Machine model <b>A40G</b>	SerialNo <b>341317</b>	Operating Hours <b>3850.8</b>	Reading Date <b>12/11/2018</b>
Company name <b>volvo</b>	Dealer	Report Issuer	
Contact name	Technician <b>mike seifert</b>	Primary Application <b>Mining</b>	
Site	Workorder	Ground Condition	

MATRIS Reading, Summary / Recommendation

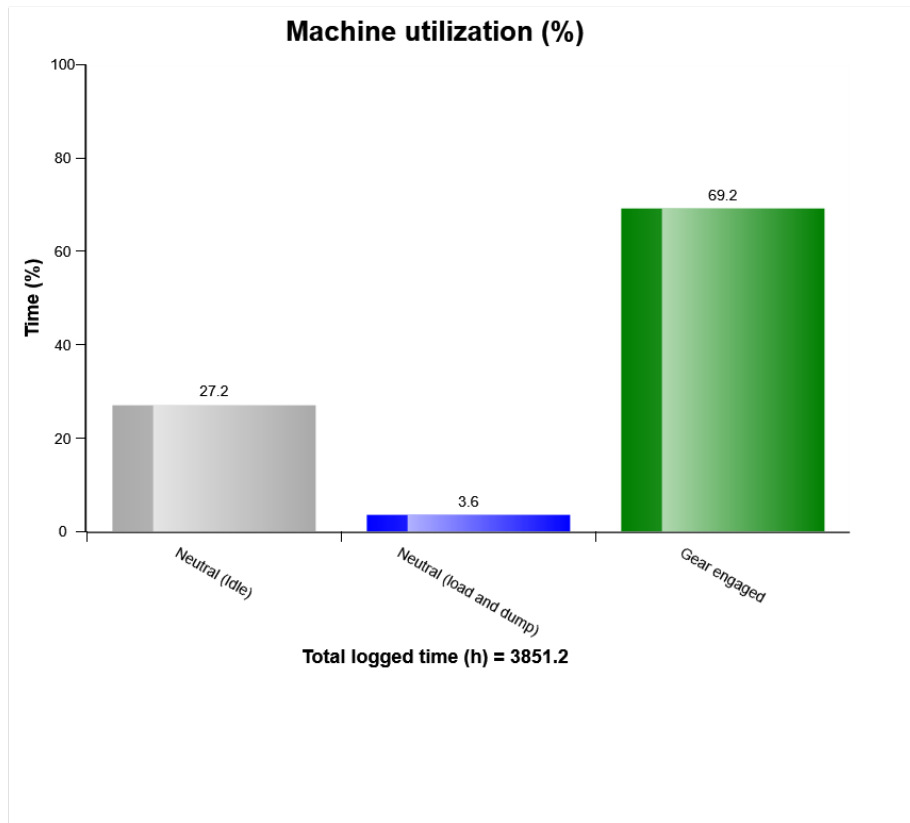


Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

Main equipment	Type	Equipment
	Tyre size/class	Sold without tyres
	Body extensions	Not mounted
	Tail-gate	Not mounted
	Extra spillguard	Not mounted
	Wear plates	Not mounted
	Pattern	None



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A40G	341317	3850.8	12/11/2018



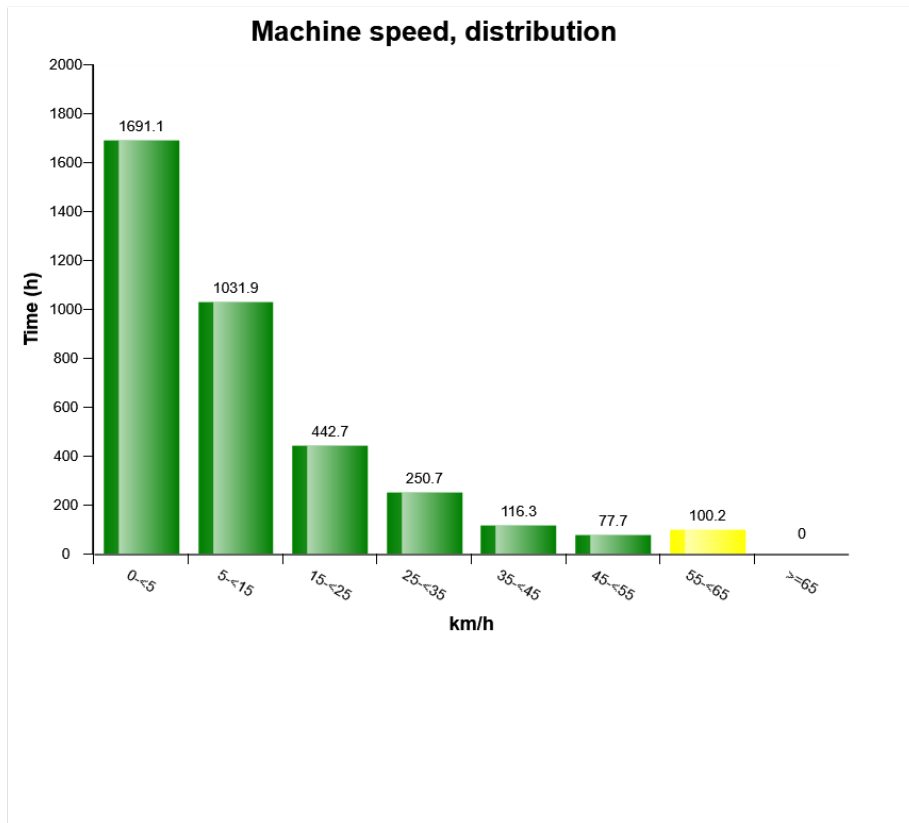
The diagram shows a simplified presentation of the machines utilization based on the relation between time in gear and time in neutral. The "Gear engaged " includes both forward and reverse gears.

This presentation of the machines utilization can only be seen as a guideline value since a full calculation of the machines utilization is more advanced. E.g. "Neutral" includes time for loading and dumping which should be seen as operating time.

High percentage of neutral time may indicate that the machine is underused due to e.g. under dimensioned loading tool or oversized hauler fleet



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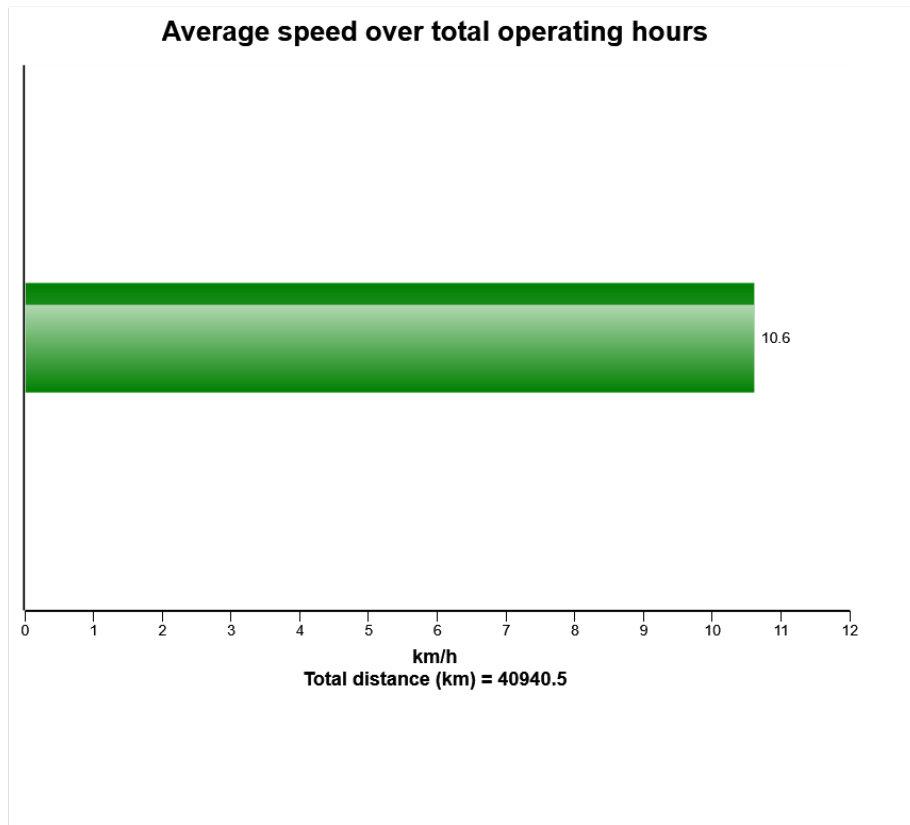


The presentation shows the time in hours in speed-intervals for the vehicle

Note that the interval 0-5 km/h includes machine not in motion. If the machine has been operated above 55 km/h there is a risk of engine over speed.



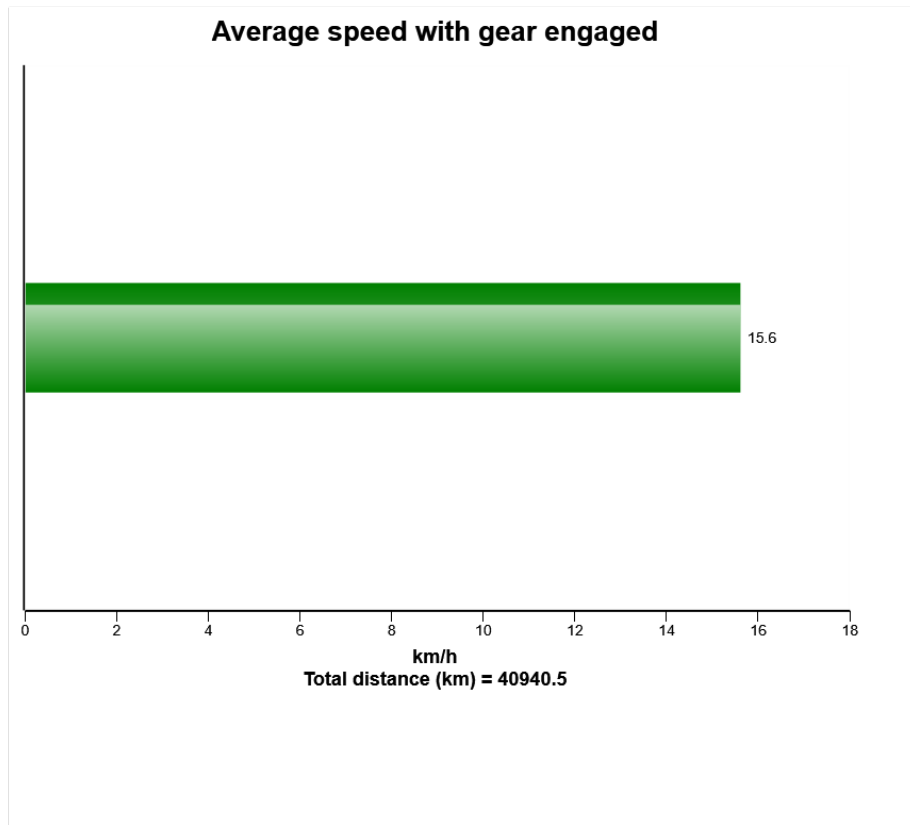
Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018



The diagram shows the machines average speed based on the total operating hours.



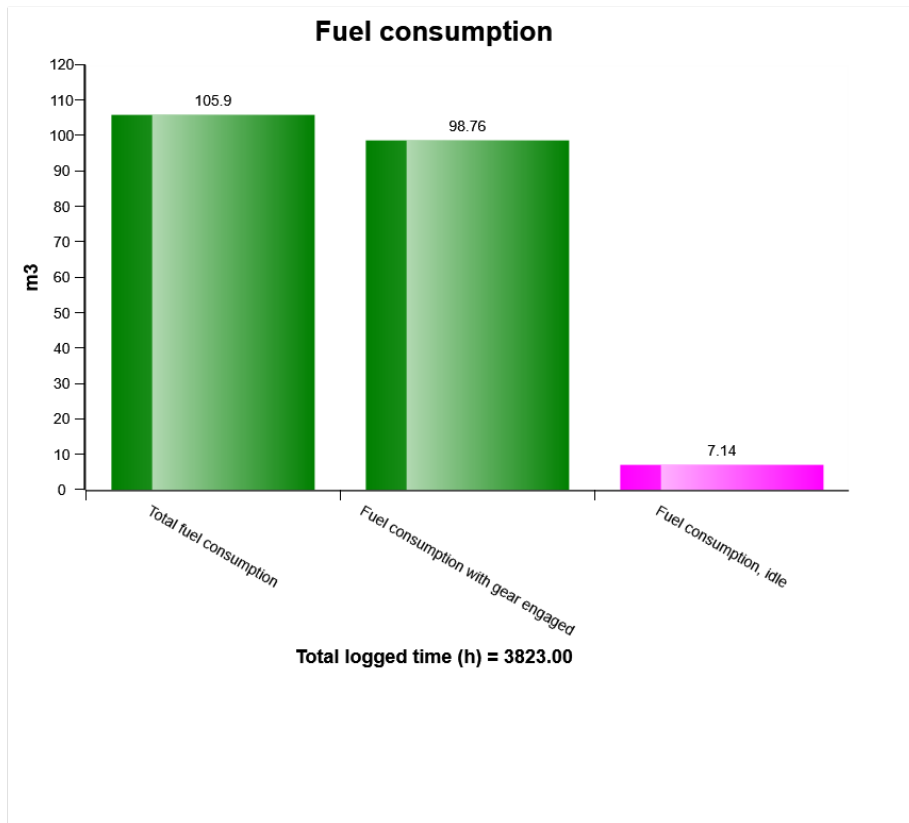
Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018



The diagram shows the machines average speed based on the operating hours with gear engaged.



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

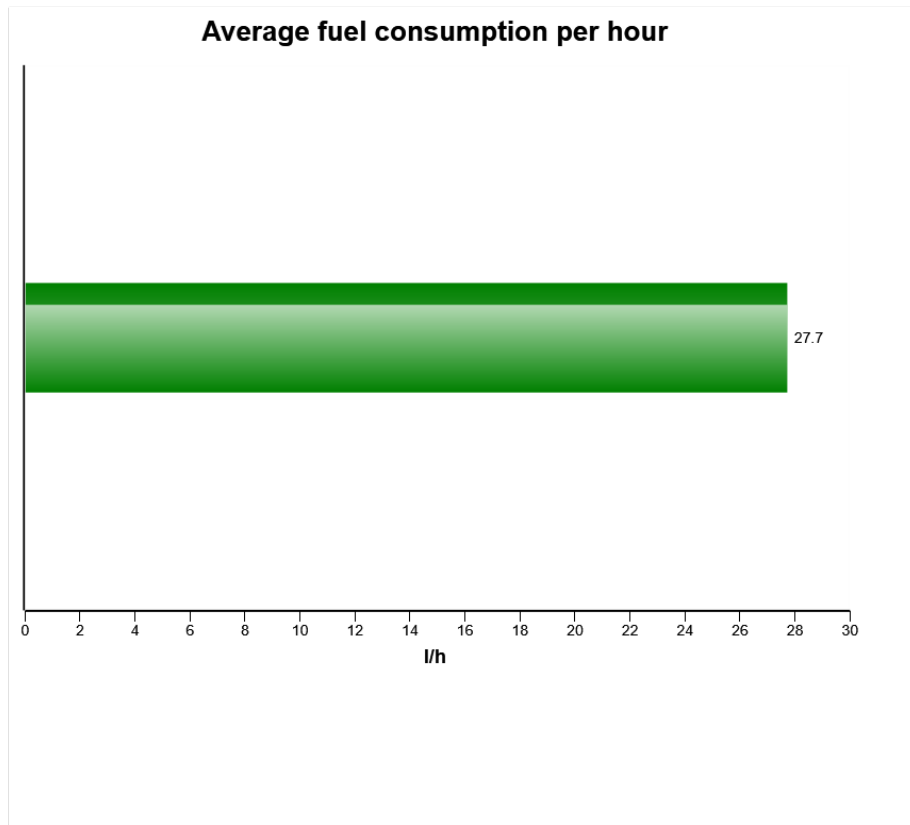


The diagram shows the total fuel consumption, fuel consumption with gear engaged and fuel consumption during idle.

High fuel consumption during idle can indicate that the machine is not fully utilized.



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A40G	341317	3850.8	12/11/2018

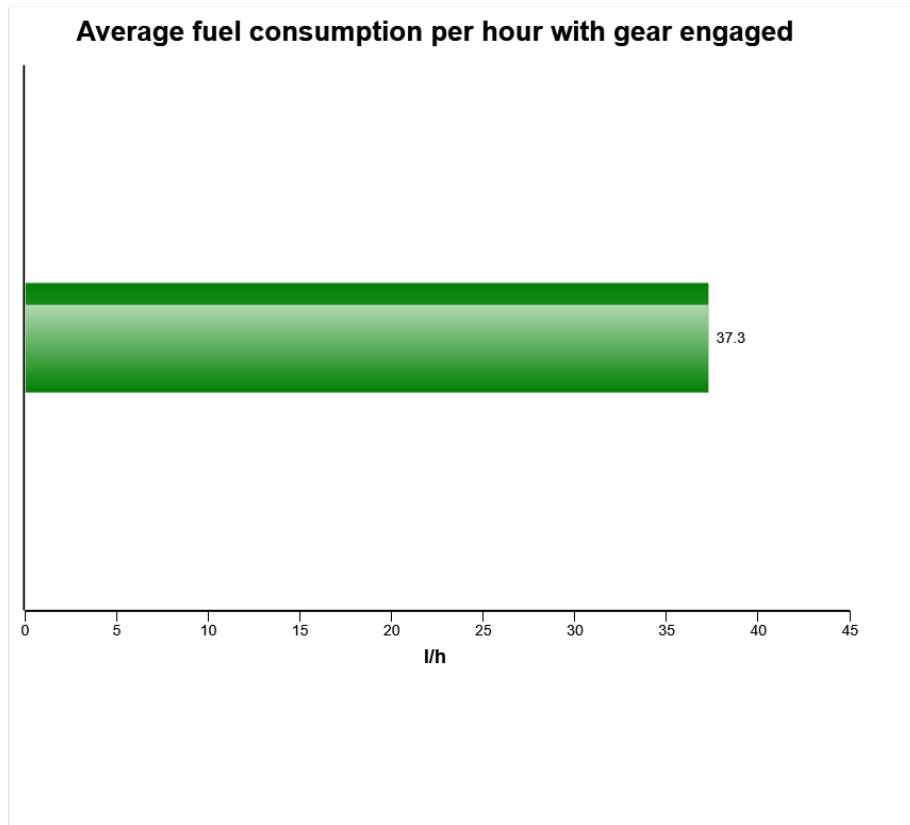


The diagram shows the average fuel consumption based on total operating hours.





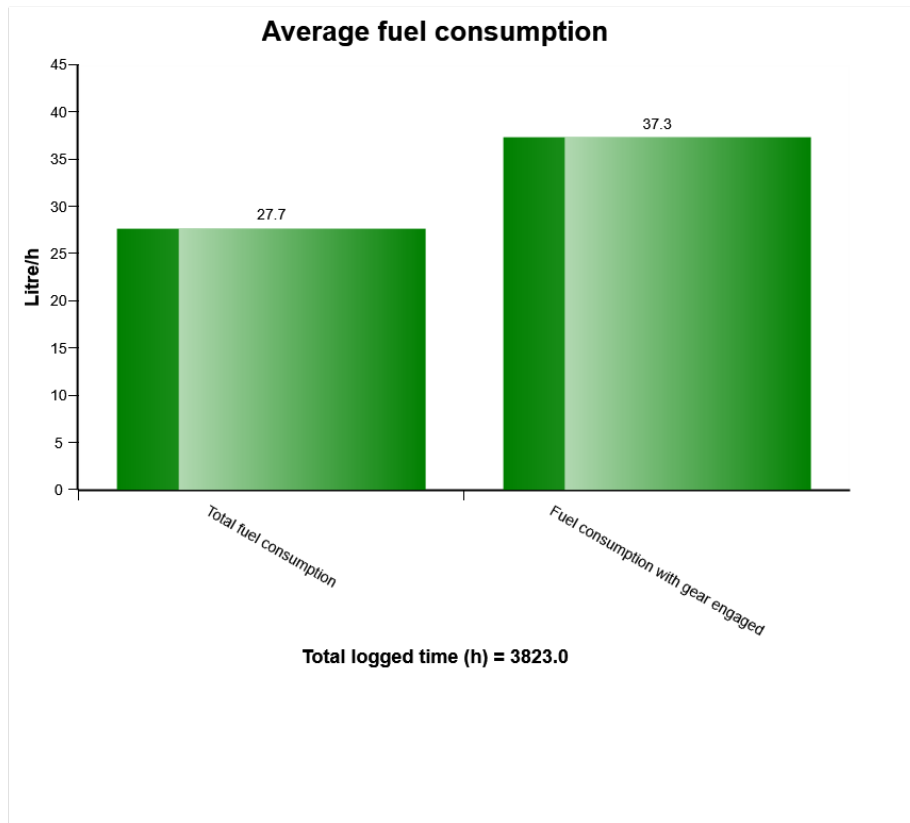
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The diagram shows the average fuel consumption based on the operating hours with gear engaged.



Machine model	SerialNo	Operating Hours	Reading Date
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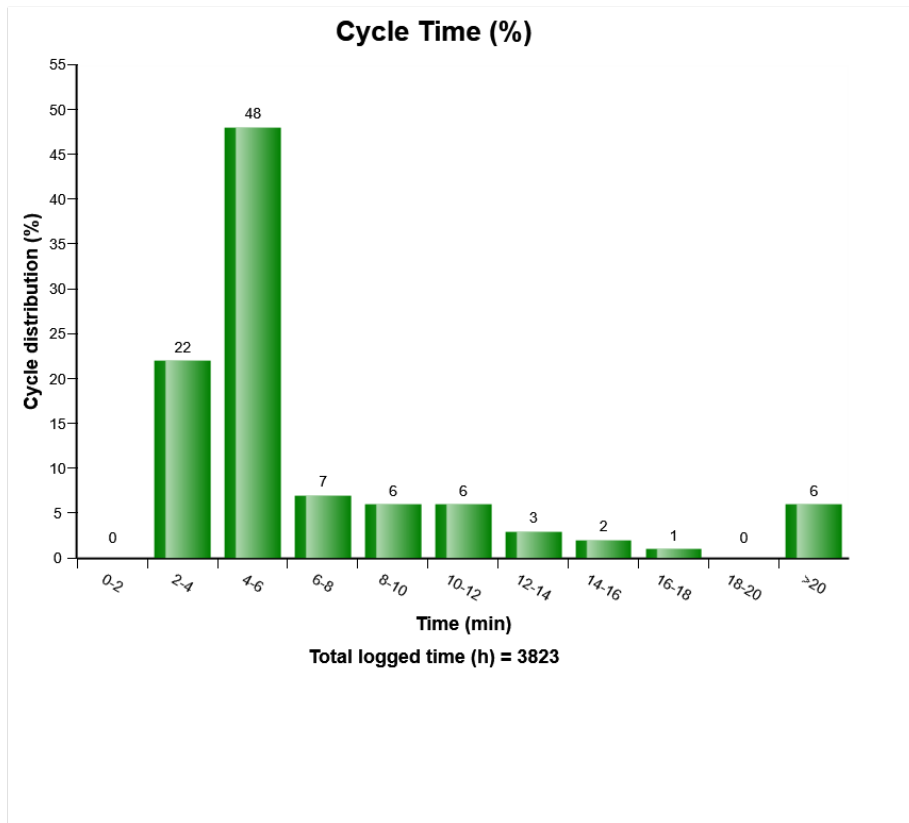


The diagram shows the total average fuel consumption versus average fuel consumption with gear engaged.

Big difference between the bars can indicate that the machine is not fully utilized, high idle lowers the total average fuel consumption.



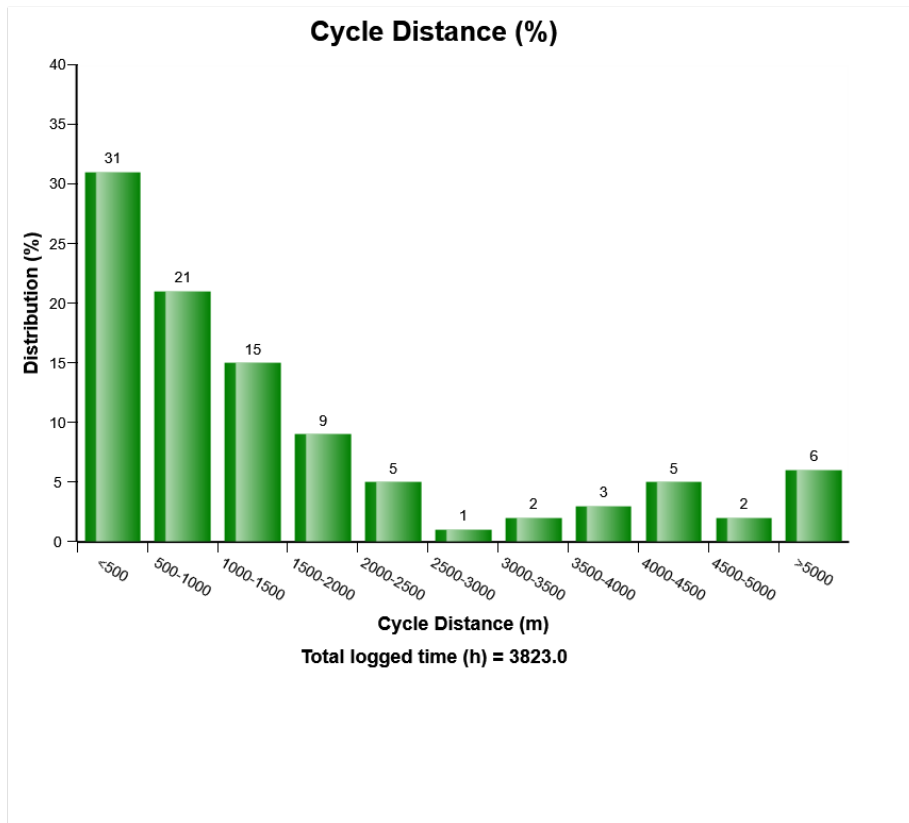
Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018



The diagram shows the distribution of the working cycle time. The time between 2 valid cycle registrations is registered. Time starts from lifting the body.



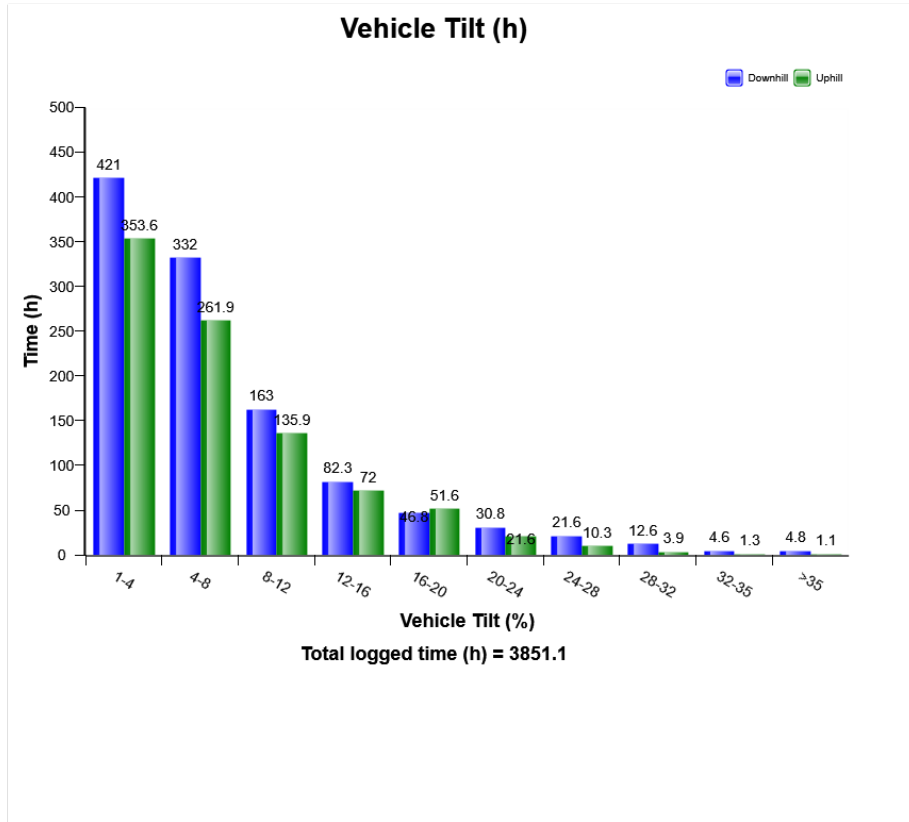
Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018



The diagram shows the distribution of the working cycle distance. The distance driven between 2 valid cycle registrations.



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018



The diagram shows the distribution of the longitudinal tilt in percent (not degrees), the criteria to get registrations is that the vehicle speed exceeds 1km/h (0,62mph) and that the engine is on.



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A40G	341317	3850.8	12/11/2018

**Accumulated performance**  
**Total logged time (h) =**

<b>Total logged time (h) =</b>
<b>Total fuel consumption</b>
<b>Production (tonne)</b>
<b>Tonne/h</b>
<b>Tonne/litre</b>
<b>Litre/tonne</b>
<b>Number of cycles</b>
<b>Cycles overloaded (%)</b>
<b>Load utilisation / cycle (%)</b>

The table shows the accumulated values for respectively area stated in the table.

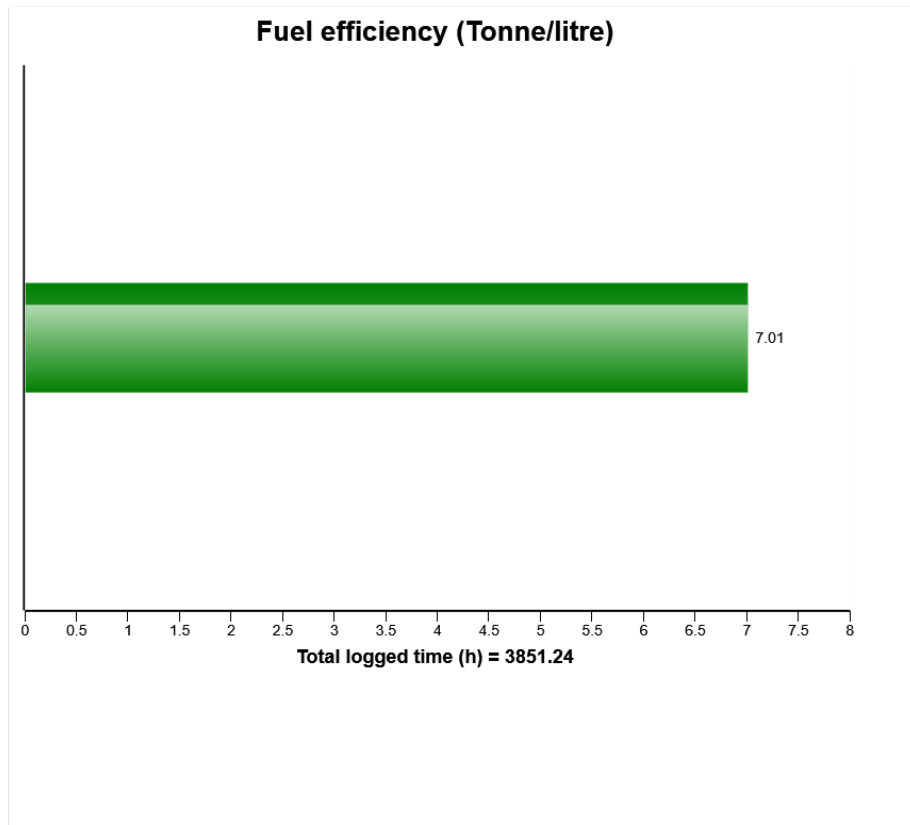
Values are saved over the life of the machine only when the engine is running.



3851.2
105941.7
743051.5
192.9
7.0
0.1
23127
5.0
82.4



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A40G	341317	3850.8	12/11/2018

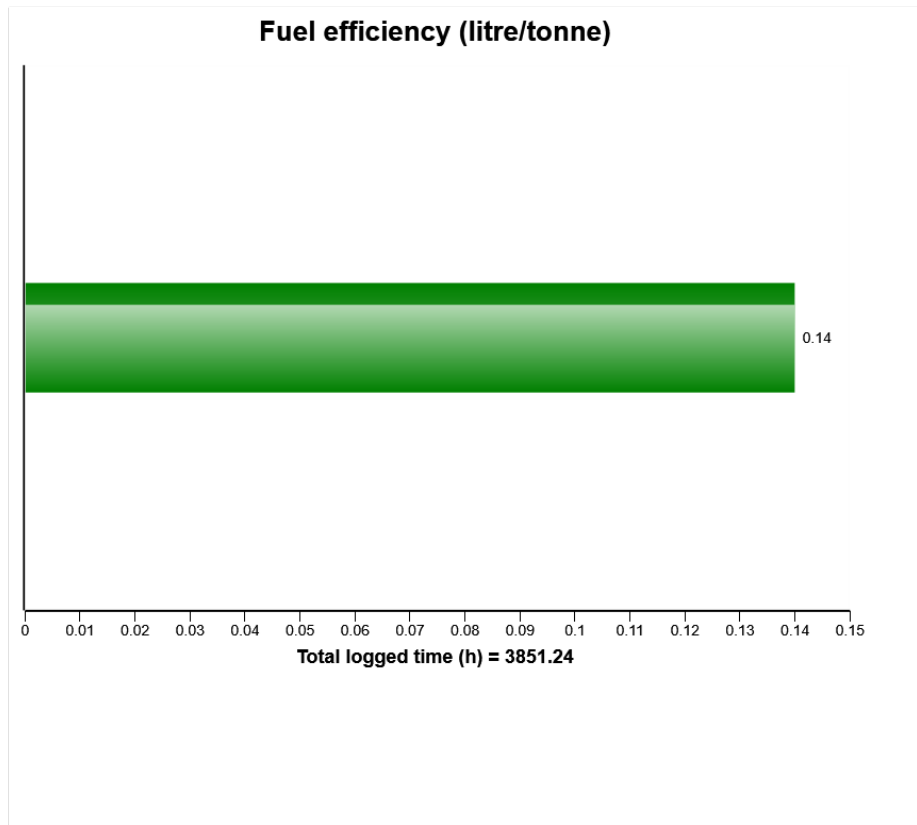


The presentation display the average produced tonne per fuel unit over the machines lifetime





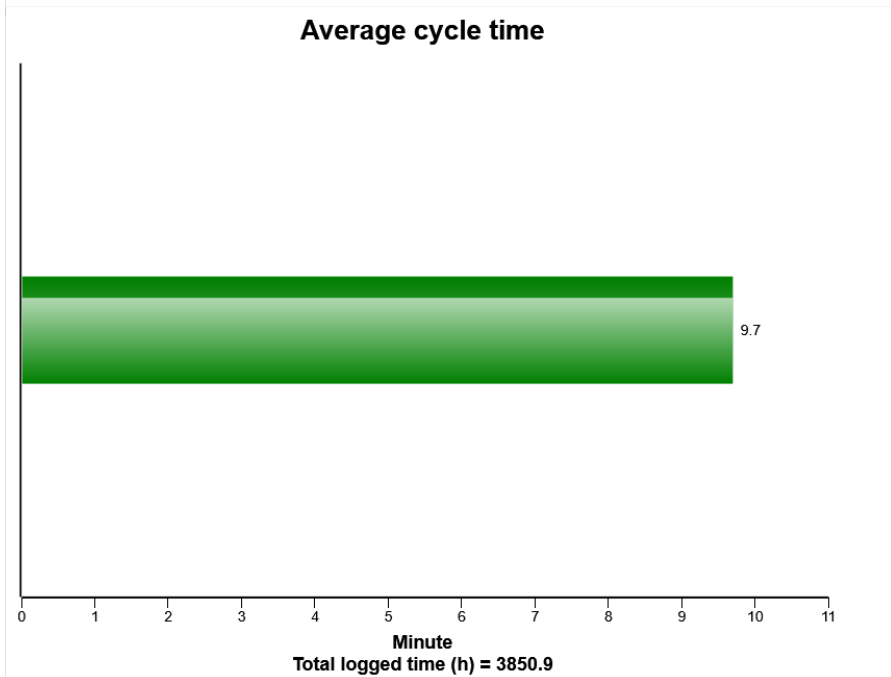
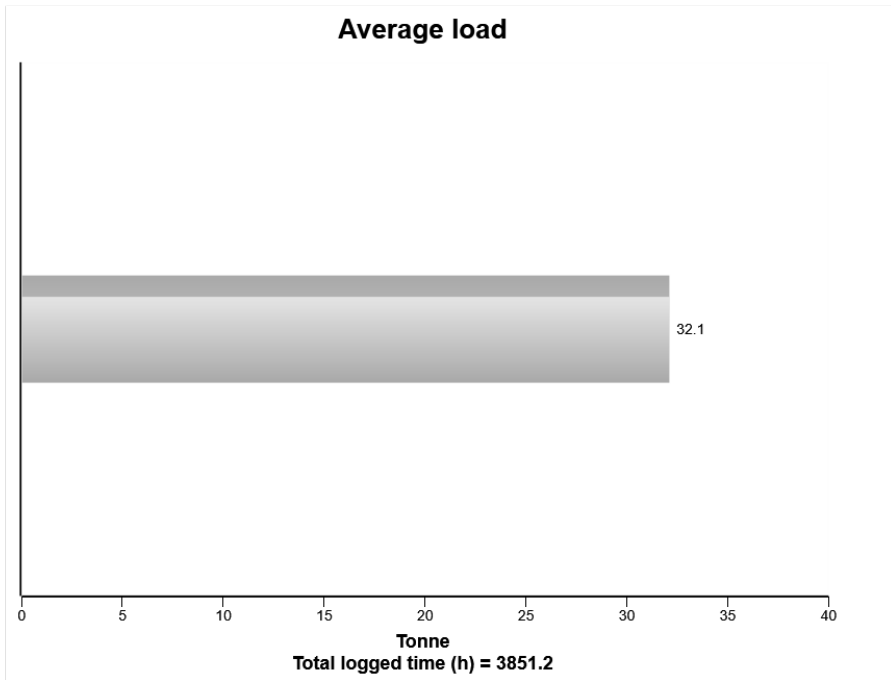
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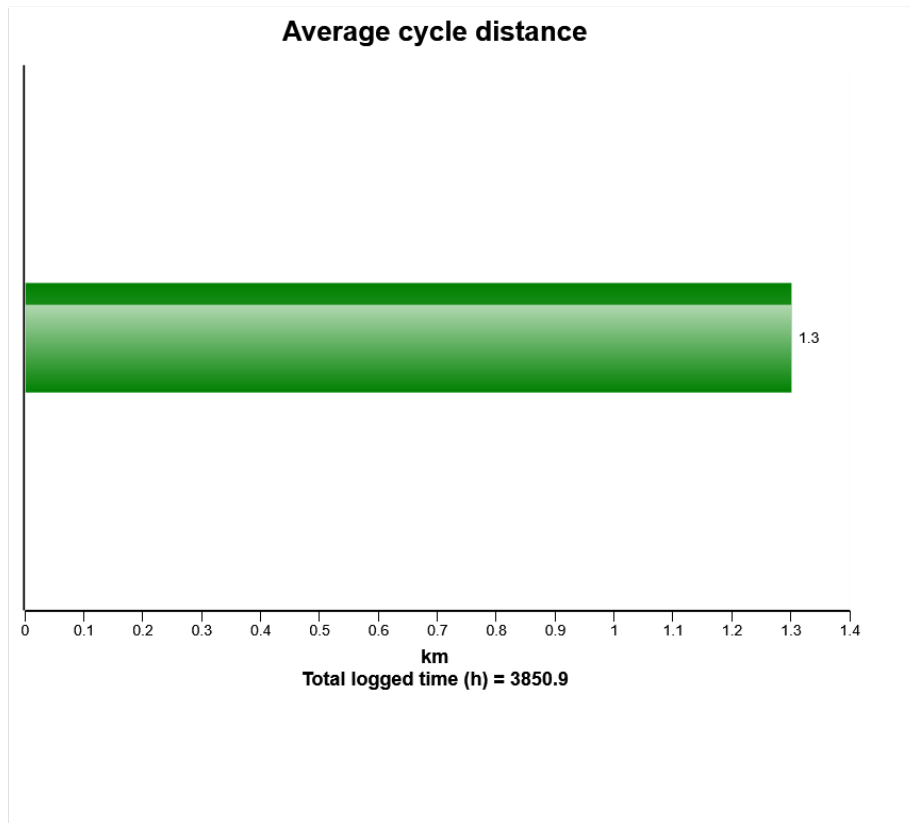
The presentation shows the average fuel consumption per tonne over the machines lifetime



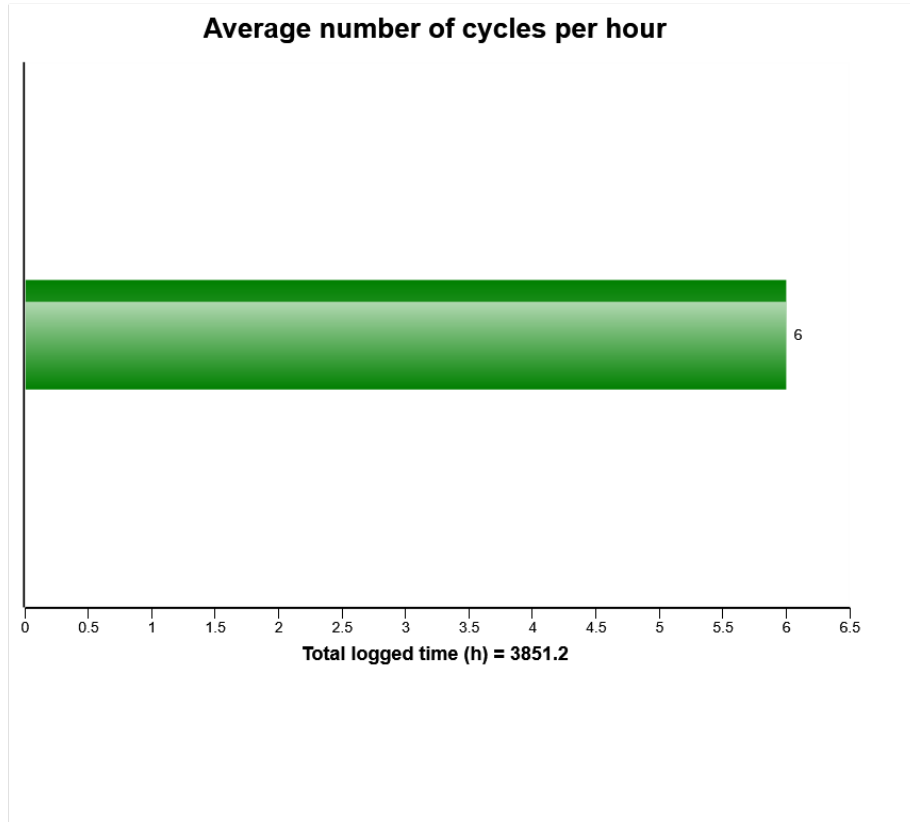
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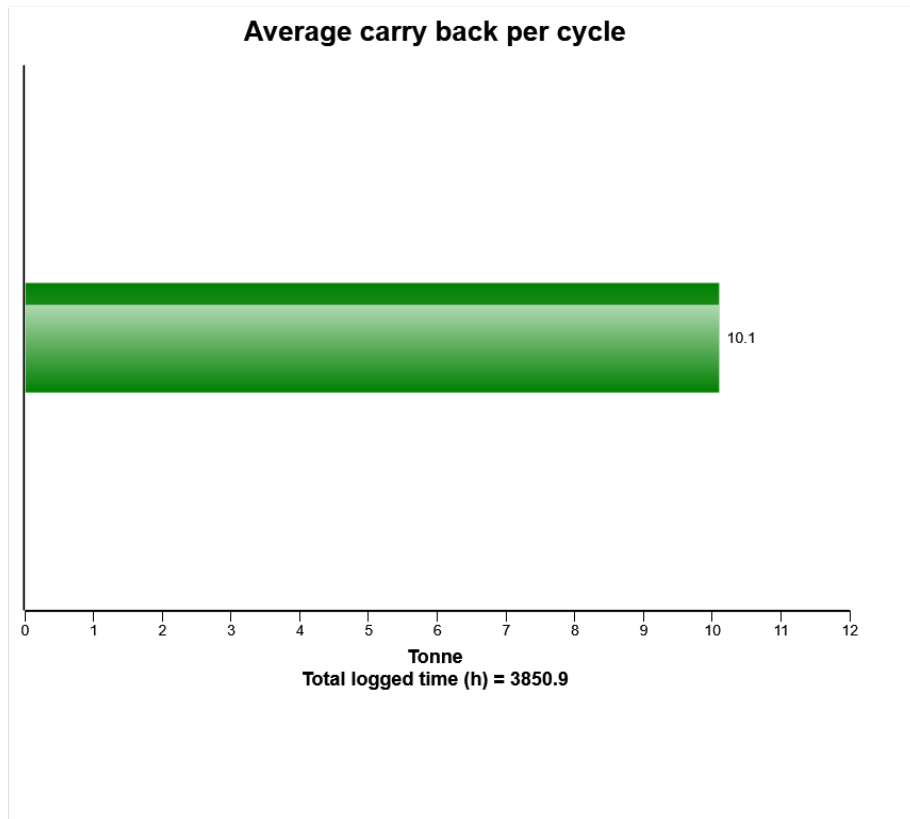
Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018



The presentation shows the average number of cycles per hour over the machines lifetime.



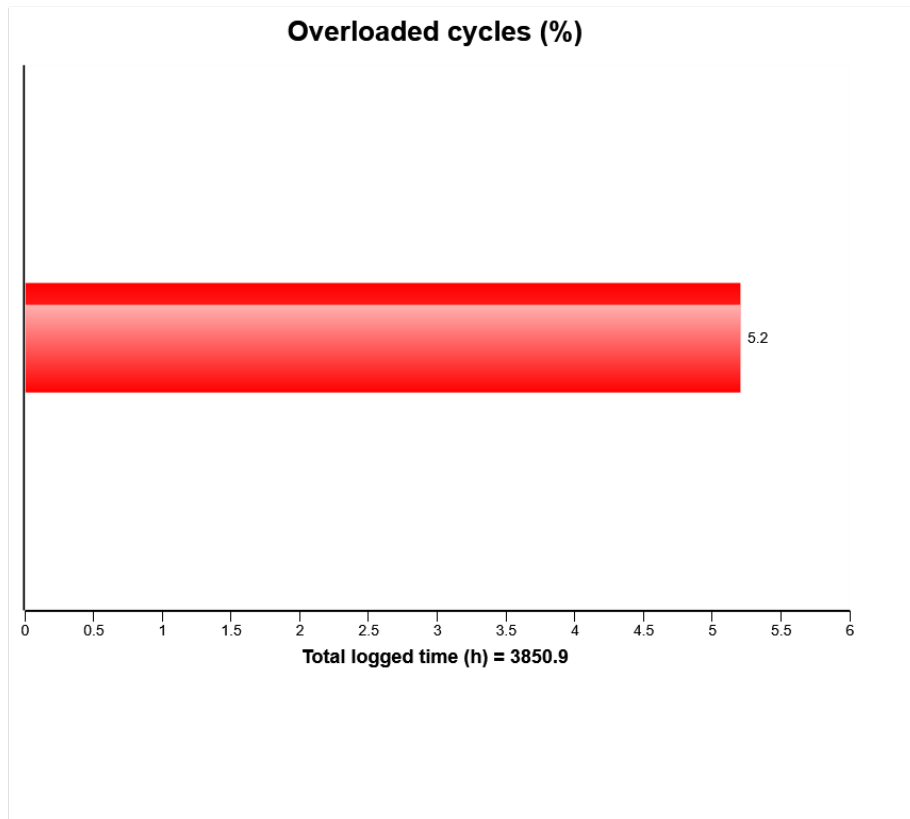
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A40G	341317	3850.8	12/11/2018



An error has occurred while processing HtmlTextBox 'htmlTextBox1':  
'WordSection1' is an unexpected token. The expected token is "" or "". Line 1, position 18.



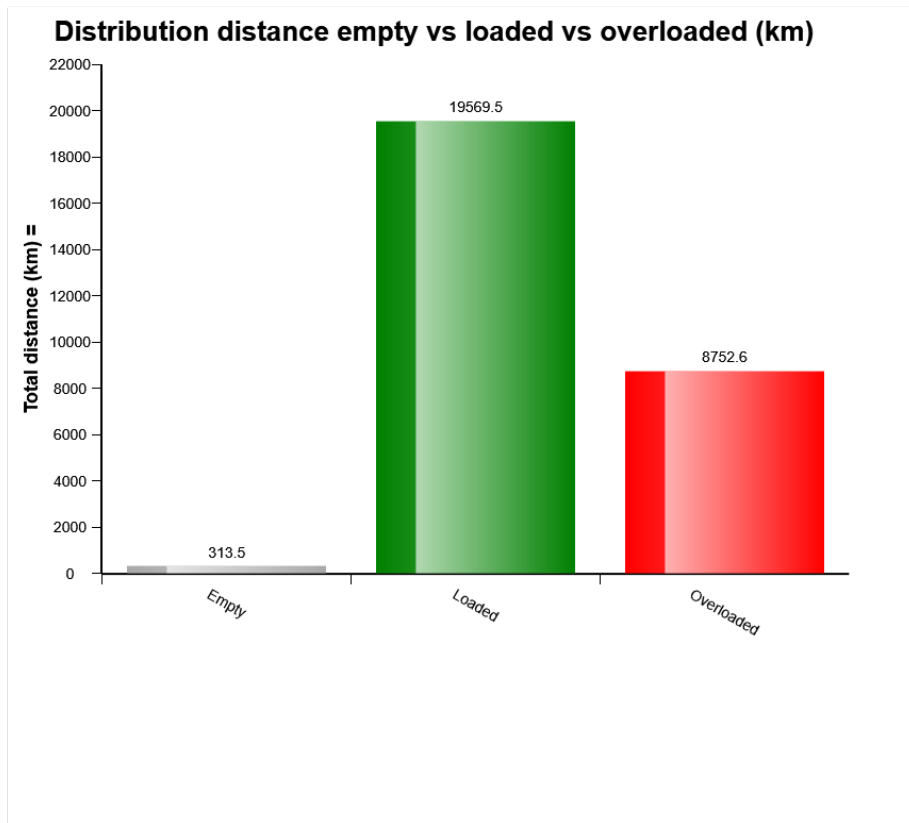
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An error has occurred while processing HtmlTextBox 'htmlTextBox1':  
The ':' character, hexadecimal value 0x3A, cannot be included in a name. Line 1, position 656.



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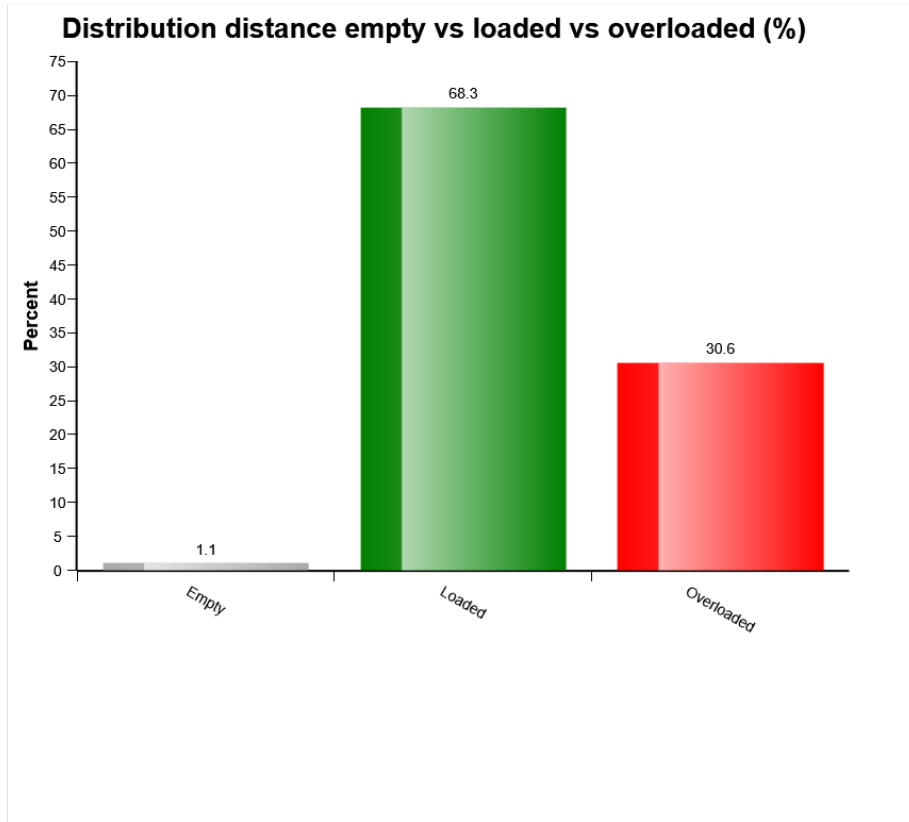


Much time operated with overload puts unnecessary stress to the machine which could lead to shorter machine life and higher repair and maintenance cost.

Much time operated empty could indicate that the machine has been operated a lot when not in production.



Machine model	SerialNo	Operating Hours	Reading Date
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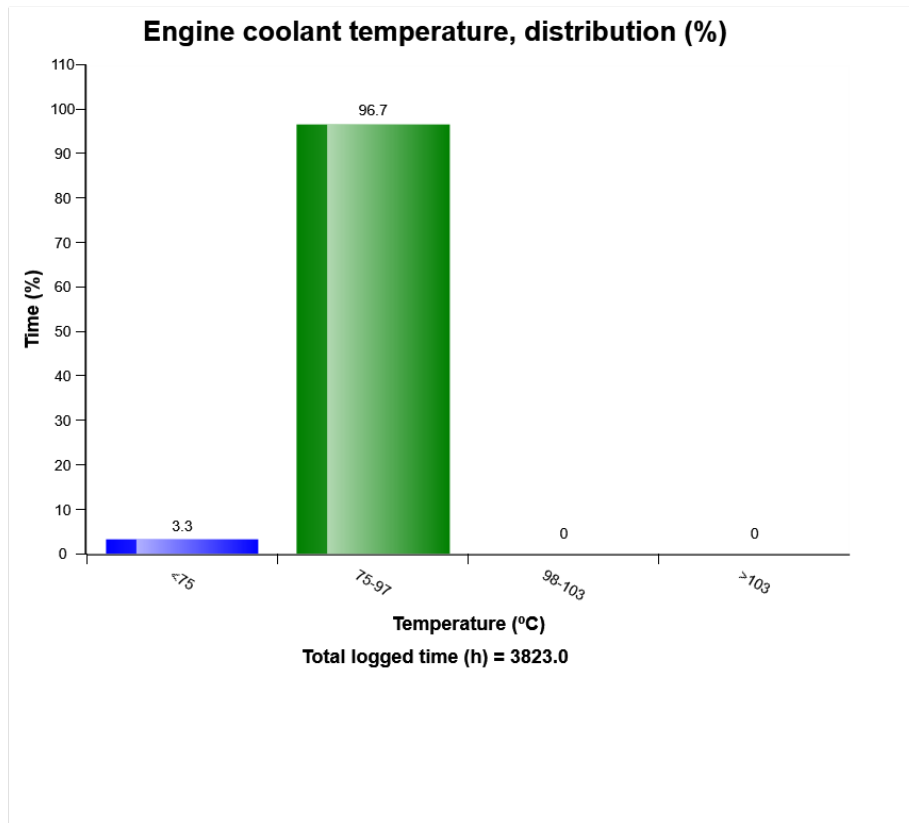
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Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018



**Definition:**

The graph shows the time distribution of the temperature, while engine running.

**Explanation:**

Y-axis: Time

X-axis: Temperature distribution in classes.

Blue bar = Warm-up phase.

During the engine warm-up phase, this temperature region is passed.

It is normal to have registrations in this region.



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

**Green bar** = Normal working temperature. The Major part of the registrations shall be in this region.

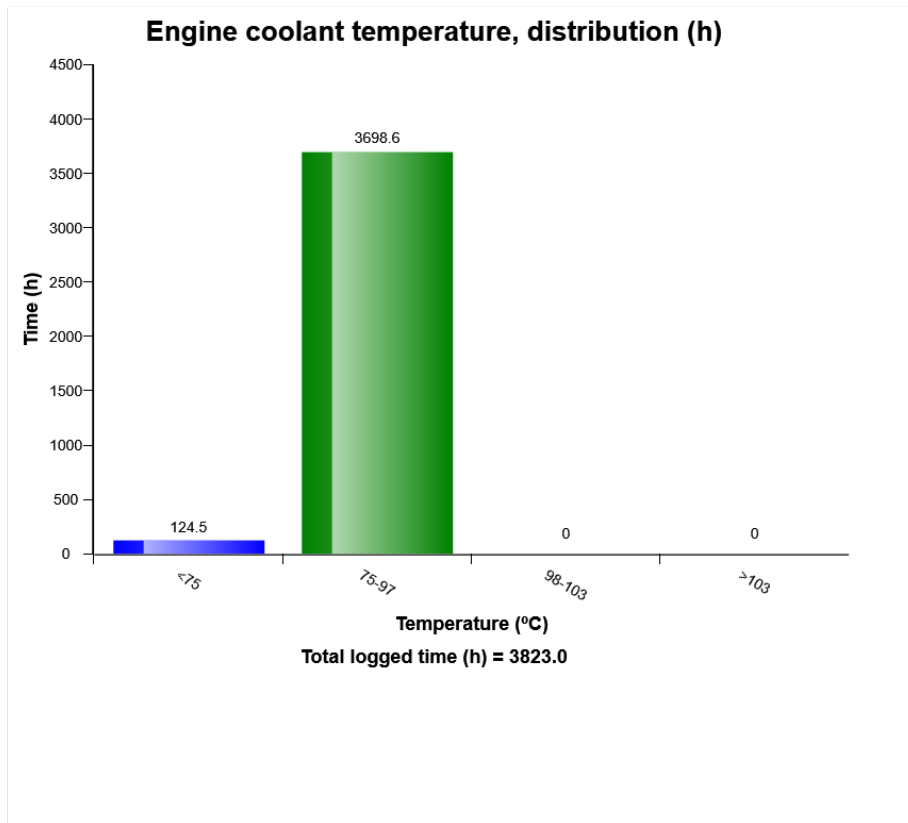
**Yellow bar** = High working temperature. It is normal to have some registrations in this region.

**Red bar** = Alarm.

Registrations in this region is not normal, running in this region may cause severe damage.



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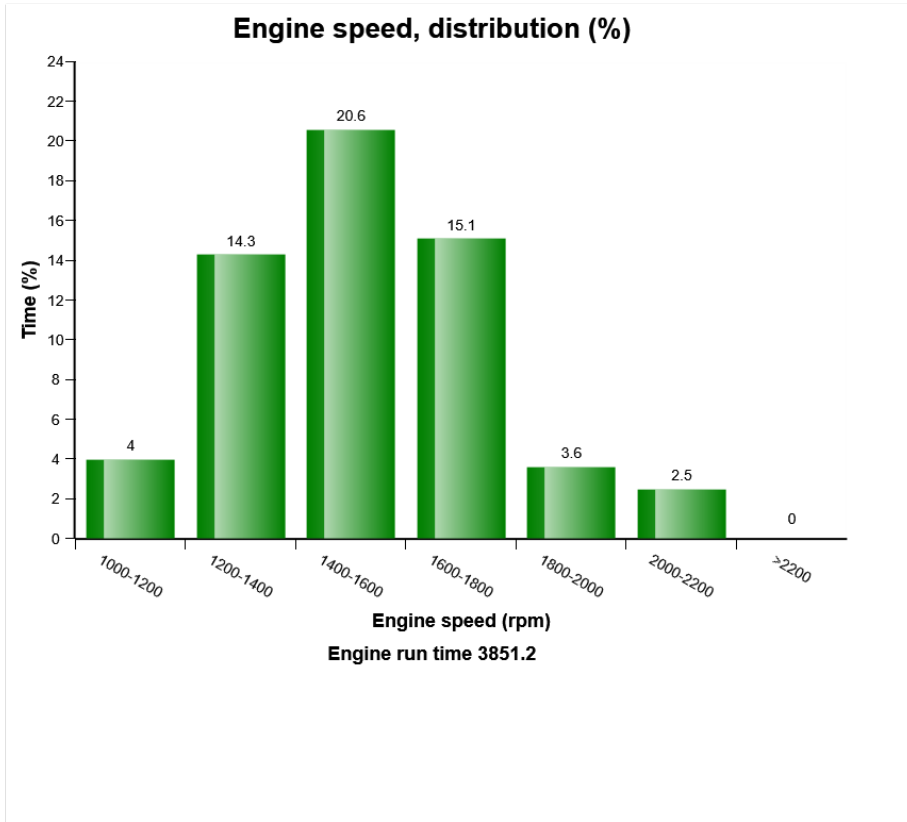
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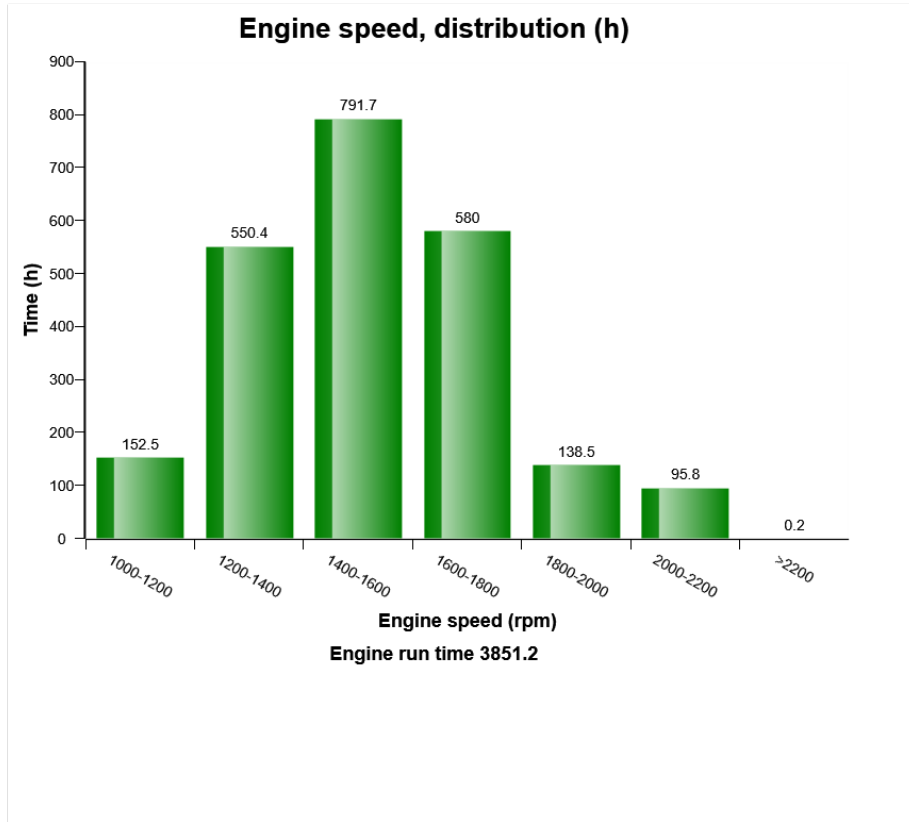
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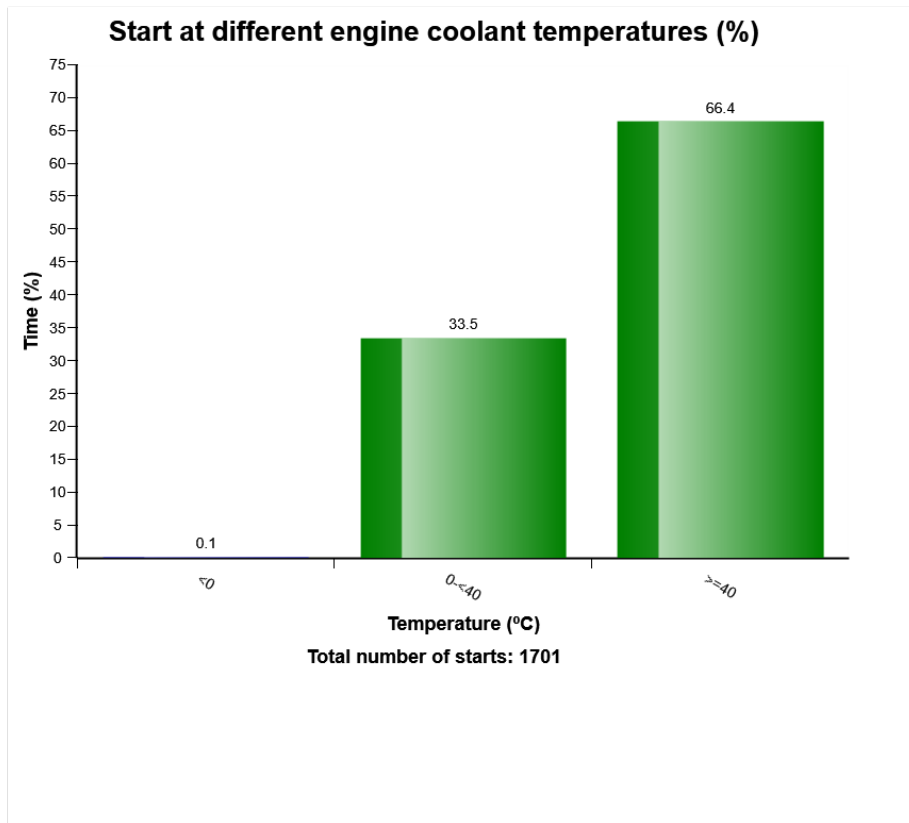
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Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018



**Definition:**

The graph shows the distribution of engine coolant temperature, at the starting moment.

**Explanation:**

Y-axis: Number of engine starts

X-axis: Engine coolant temperature.

A great proportion of engine wear is due to cold starts. Try to avoid extremely cold starts. Try using an electric coolant heater.



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

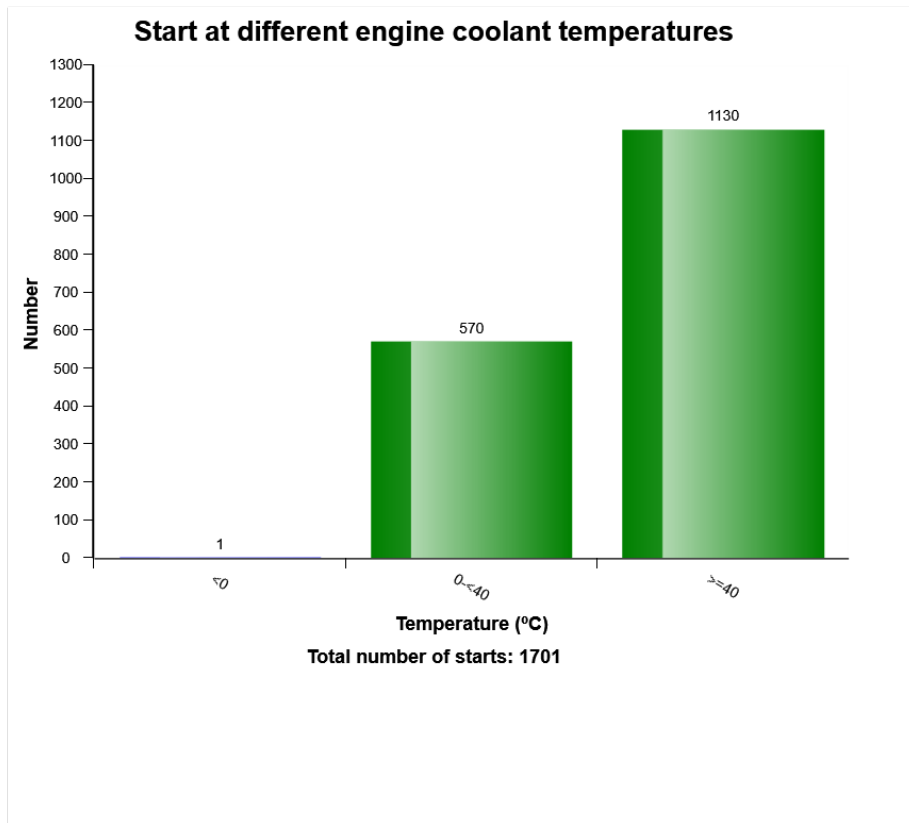
Under the graph the total number of engine starts is displayed.

Also see " *Number of starts / hour*" to get a complete picture of engine starting.





Machine model	SerialNo	Operating Hours	Reading Date
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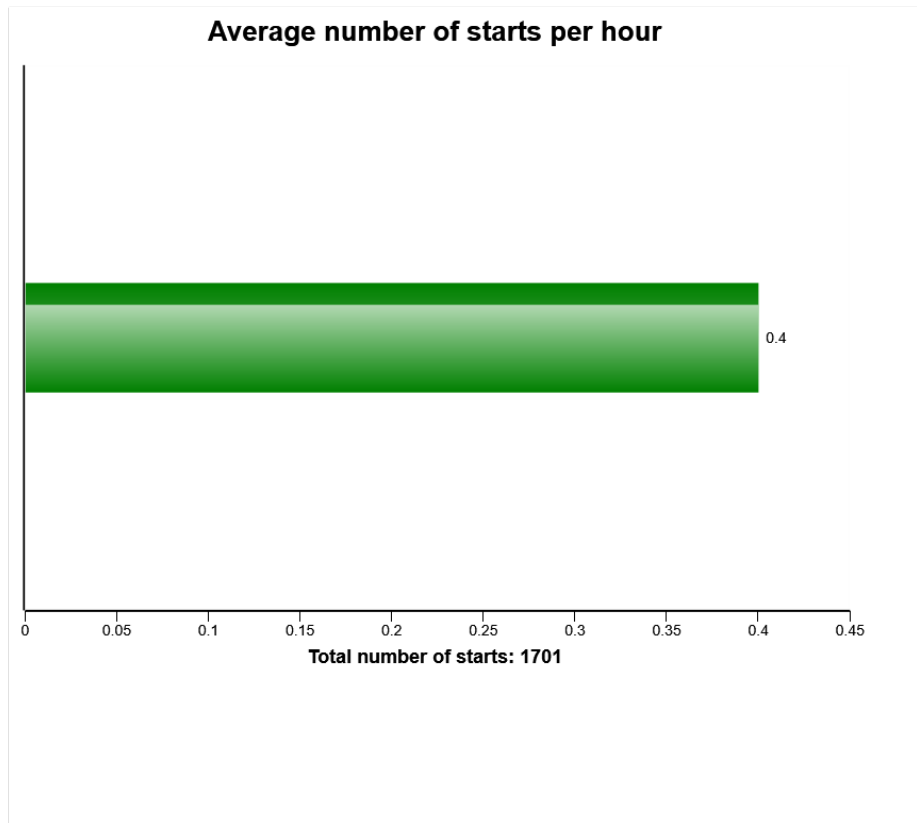
Machine model	SerialNo	Operating Hours	Reading Date
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Also see " *Number of starts / hour*" to get a complete picture of engine starting.



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018



#### Definition:

The graph describes the average number of engine starts per engine running hour.

#### Explanation:

X-axis: Number of average starts per hour.

The actual time used for calculation, is time with engine on

If the fuel consumption is high one reason may be that the engine is not turned off often enough, perhaps machine is left idling for long periods. Check " Machine utilization".

The value can vary a lot depending on in which application the machine is used.

To see at which different temperatures engine is started see" Start at different engine temperatures."



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

Green bar = Number of average starts per hour



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

**High engine coolant temperature  
Total number of occurrences = 0**

	Op hours	Year	Month	Day	Hour	Minute	Duration (sec)
<b>A</b>	0	2000	0	0	0	0	0
<b>B</b>	0	2000	0	0	0	0	0
<b>C</b>	0	2000	0	0	0	0	0
<b>D</b>	0	2000	0	0	0	0	0
<b>E</b>	0	2000	0	0	0	0	0
<b>F</b>	0	2000	0	0	0	0	0
<b>G</b>	0	2000	0	0	0	0	0
<b>H</b>	0	2000	0	0	0	0	0
<b>I</b>	0	2000	0	0	0	0	0
<b>J</b>	0	2000	0	0	0	0	0

**Definition :**

This type of table shows the latest occasions when a specific event has occurred. When a specified criteria is fulfilled a registration is made. Each table row corresponds to one occasion. Operating hours is displayed in the first column, followed by year, month, day, hour and minute to show when an event has occurred.

The rows are not ordered chronological (The latest event may be in the middle).

Only one event per minute is registered.

Over the table the total number of events is displayed.

**Duration :**

**The duration of each event is shown after the timestamp of the event.**

**The duration is counted as long as the criteria is fulfilled.**

**Extreme value :**

**The extreme value column displays the most extreme value during the event.**



**Extreme (°  
C)**

0
0
0
0
0
0
0
0
0
0
0
0
0
0
0



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

**Criteria :**

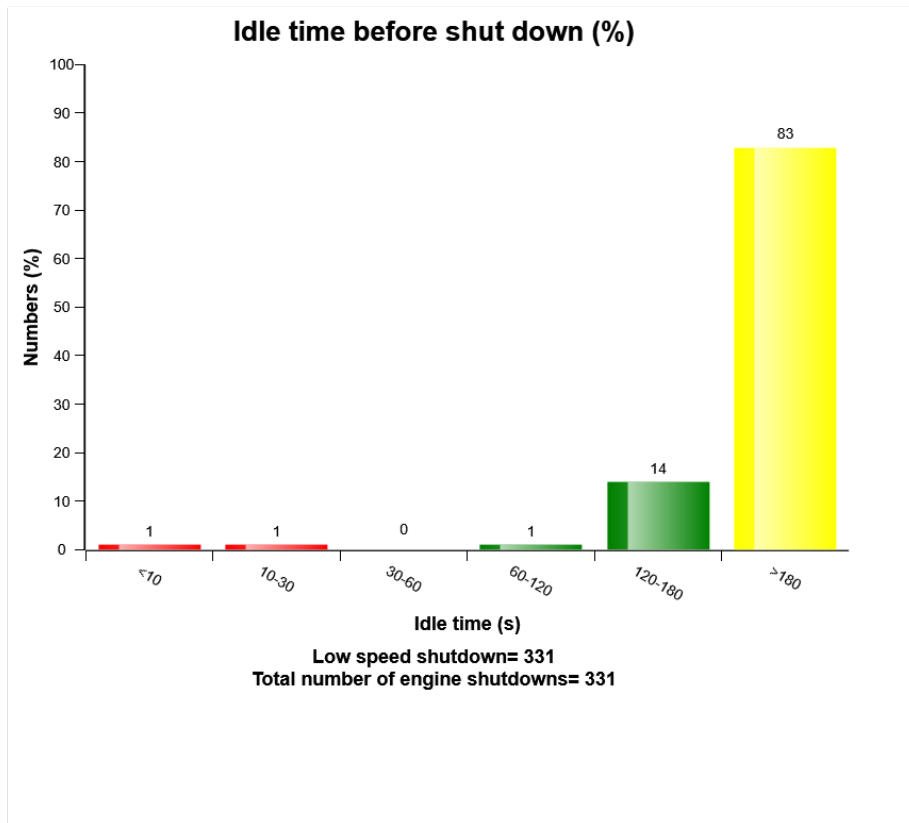
The criteria to get an registration, is that the alarm signal for high engine coolant temperature is active and that the diesel engine is running.







Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018



**Definition:**

This graph shows the distribution of delayed time at low idle speed until the engine is turned off.

The delayed time distribution for each bar is shown on top of its column in percentage.

The sum of bars is 100%.



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

**High engine oil temperature  
Total number of occurrences = 0**

	Op hours	Year	Month	Day	Hour	Minute	Duration (sec)
<b>A</b>	0	2000	0	0	0	0	0
<b>B</b>	0	2000	0	0	0	0	0
<b>C</b>	0	2000	0	0	0	0	0
<b>D</b>	0	2000	0	0	0	0	0
<b>E</b>	0	2000	0	0	0	0	0
<b>F</b>	0	2000	0	0	0	0	0
<b>G</b>	0	2000	0	0	0	0	0
<b>H</b>	0	2000	0	0	0	0	0
<b>I</b>	0	2000	0	0	0	0	0
<b>J</b>	0	2000	0	0	0	0	0

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**The duration is counted as long as the criteria is fulfilled.**

Extreme value :

**The extreme value column displays the most extreme value during the event.**



**Extreme (°  
C)**

0
0
0
0
0
0
0
0
0
0
0
0
0
0
0



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

**Criteria :**

The criteria to get an registration, is that the alarm signal for high engine oil temperature is active and that the diesel engine is running.





Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

**Starter overheating**  
**Total number of occurrences = 0**

Op hours	Year	Month	Day	Hour	Minute
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0

**Definition:**

The starter can be damaged if it is overheated.

Alarm is registered if the starter is used continuously more than 40 seconds and if it is less than five



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

minutes since the latest alarm .

### Explanation:

X-axis: Number of times that the starter alarm has been activated.



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

**Low Air filter pressure**  
**Total number of occurrences = 0**

Op hours	Year	Month	Day	Hour	Minute	Duration (sec)
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0

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event has occurred.

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Only one event per minute is registered.

Over the table the total number of events is displayed.

Duration :

**The duration of each event is shown after the timestamp of the event.**

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Criteria :

The criteria to get an registration, is that the alarm signal for air filter clogged is active, and that the diesel engine is running.



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

**Regeneration ignored**  
**Total number of ignored regenerations 0**

	Op hours	Year	Month	Day	Hour	Minute
*	0	2000	0	0	0	0
*	0	2000	0	0	0	0
*	0	2000	0	0	0	0
*	0	2000	0	0	0	0
*	0	2000	0	0	0	0
*	0	2000	0	0	0	0
*	0	2000	0	0	0	0
*	0	2000	0	0	0	0
*	0	2000	0	0	0	0
*	0	2000	0	0	0	0
*	0	2000	0	0	0	0
*	0	2000	0	0	0	0
*	0	2000	0	0	0	0
*	0	2000	0	0	0	0
*	0	2000	0	0	0	0
*	0	2000	0	0	0	0
*	0	2000	0	0	0	0
*	0	2000	0	0	0	0
*	0	2000	0	0	0	0
*	0	2000	0	0	0	0



**Duration  
(min)**

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0

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0

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0

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0

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Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

**Regeneration aborted**  
**Total number of occurrences = 0**

Op hours	Year	Month	Day	Hour	Minute
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0
0	2000	0	0	0	0



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

**Regeneration duration**  
**Total number of occurrences = 22**

Op hours	Year	Month	Day	Hour	Minute	Duration (min)
672	2016	10	5	15	5	43
746	2016	10	13	12	36	43
834	2016	10	24	12	38	43
919	2016	11	2	12	43	43
989	2016	11	16	12	22	35
990	2016	11	16	13	46	28
1064	2016	11	28	9	13	47
1566	2017	2	27	16	15	32
1566	2017	2	27	15	22	19
1708	2017	4	8	10	0	44
1839	2017	5	1	9	53	46
2034	2017	5	27	12	3	45
2535	2017	8	19	9	9	43
3036	2017	9	27	21	32	45
3240	2017	11	10	14	45	66
3644	2018	3	26	7	53	48
3655	2018	3	27	8	0	70
3735	2018	4	9	16	0	58
3810	2018	4	25	9	34	64
3810	2018	4	22	8	26	9



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

**Water level warning in water separator  
Total number of occurrences = 0**

Op hours	Year	Month	Day	Hour	Minute	Duration (min)
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0
0	2000	0	0	0	0	0



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

**High voltage**  
**Total number of occurrences = 2**

Op hours	Year	Month	Day	Hour	Minute	Duration (sec)	Extreme value
892	2016	10	29	15	46	3	29.5
653	2016	10	3	19	29	19	31.3
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0

**Definition :**

This type of table shows the latest occasions when a specific event has occurred. When a specified criteria is fulfilled a registration is made. Each table row corresponds to one occasion. Operating hours is displayed in the first column, followed by year, month, day, hour and minute to show when



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

an event has occurred.

The rows are not ordered chronological (The latest event may be in the middle).

Only one event per minute is registered.

Over the table the total number of events is displayed

**Duration :**

The duration of each event is shown after the timestamp of the event.

The duration is counted as long as the criteria is fulfilled.

**Extreme value :**

The extreme value column displays the most extreme value during the event.

**Criteria :**

Logging is performed when, Alarm high system voltage , is active.





Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

**Low voltage**  
**Total number of occurrences = 0**

Op hours	Year	Month	Day	Hour	Minute	Duration (sec)	Extreme value
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0

**Definition :**

This type of table shows the latest occasions when a specific event has occurred. When a specified criteria is fulfilled a registration is made. Each table row corresponds to one occasion. Operating hours is displayed in the first column, followed by year, month, day, hour and minute to show when



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

an event has occurred.

The rows are not ordered chronological (The latest event may be in the middle).

Only one event per minute is registered.

Over the table the total number of events is displayed

**Duration :**

The duration of each event is shown after the timestamp of the event.

The duration is counted as long as the criteria is fulfilled.

**Extreme value :**

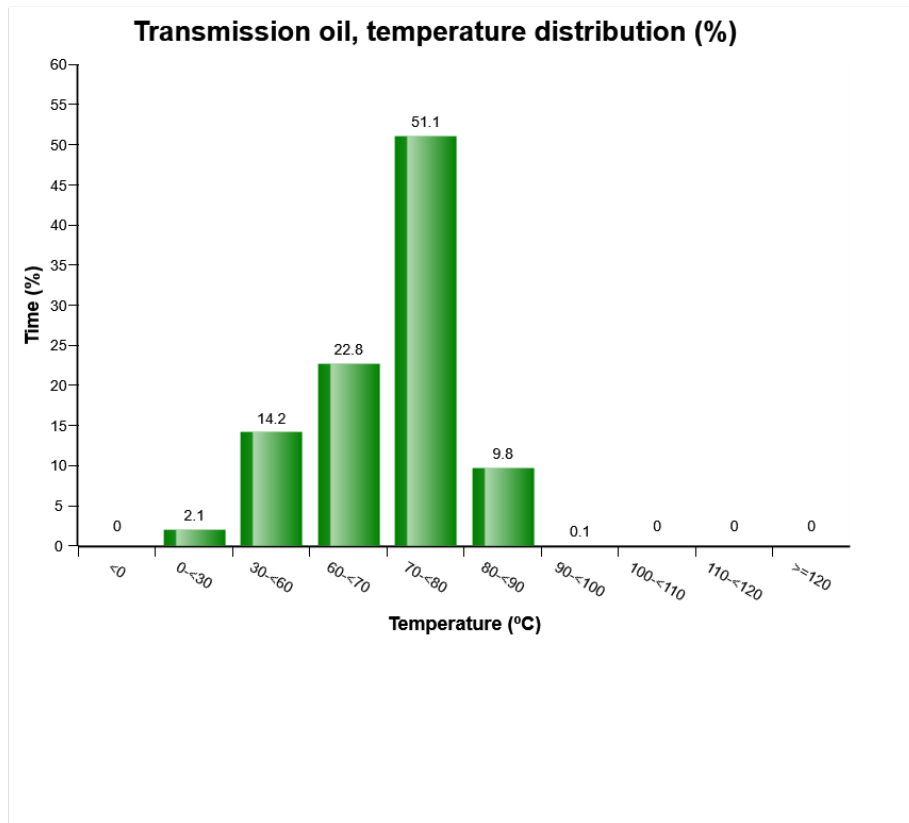
The extreme value column displays the most extreme value during the event.

**Criteria :**

Logging is performed when, Alarm low system voltage , is active.



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018



The diagram shows the transmission oil temperature in various temperature ranges. The time is displayed in the following ten temperature ranges:

<0°C Temperatures below 0°C

0 - <30°C Temperatures from 0°C until 30°C

30-<60°C Temperatures from 30°C until 60°C

60-<70°C Temperatures from 60°C until 70°C

70-<80°C Temperatures from 70°C until 80°C

80-<90°C Temperatures from 80°C until 90°C

90-<100°C Temperatures from 90°C until 100°C



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

100-<110°C Temperatures from 100°C until 110°C

110-<120°C Temperatures from 110°C until 120°C

≥120°C Temperatures over 120°C

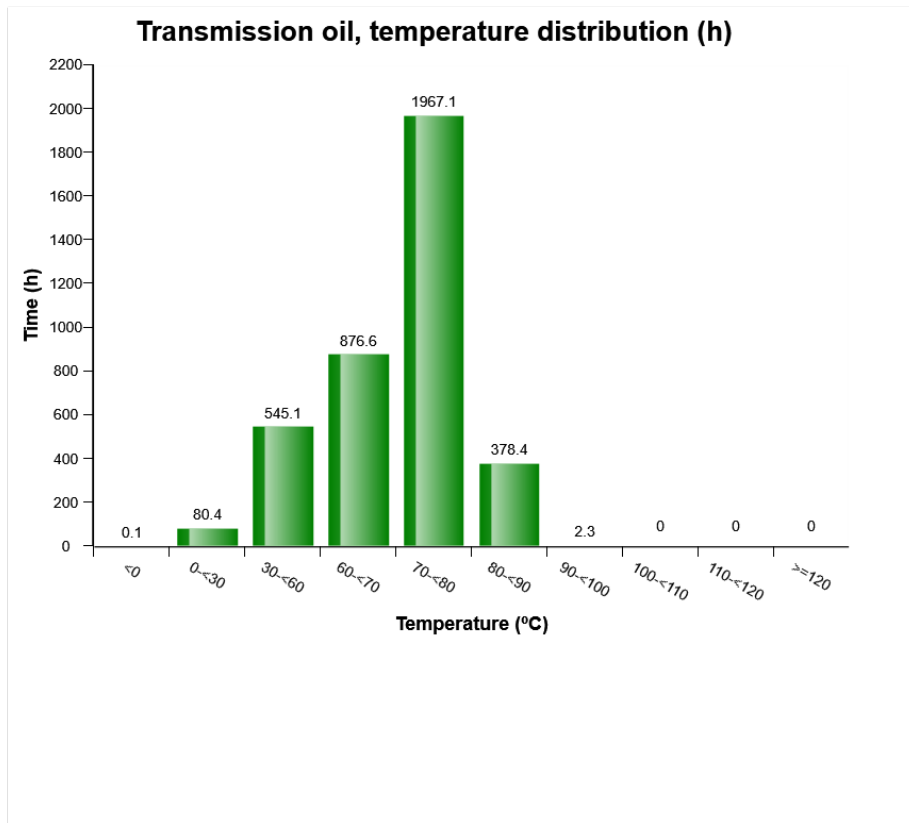
The bar that describes temperatures from 110°C until 120°C is yellow and means that the oil has begun to be overheated. Driver has been given orange central warning

The bar that describes >120°C is red and means that the oil has been overheated. Driver has been given red central warning.

Oil temperatures exceeding 110°C must be avoided since the properties of the oil are degraded



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018



The diagram shows the transmission oil temperature in various temperature ranges. The time is displayed in the following ten temperature ranges:

<0°C Temperatures below 0°C

0 - <30°C Temperatures from 0°C until 30°C

30-<60°C Temperatures from 30°C until 60°C

60-<70°C Temperatures from 60°C until 70°C

70-<80°C Temperatures from 70°C until 80°C

80-<90°C Temperatures from 80°C until 90°C

90-<100°C Temperatures from 90°C until 100°C



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

100-<110°C Temperatures from 100°C until 110°C

110-<120°C Temperatures from 110°C until 120°C

≥120°C Temperatures over 120°C

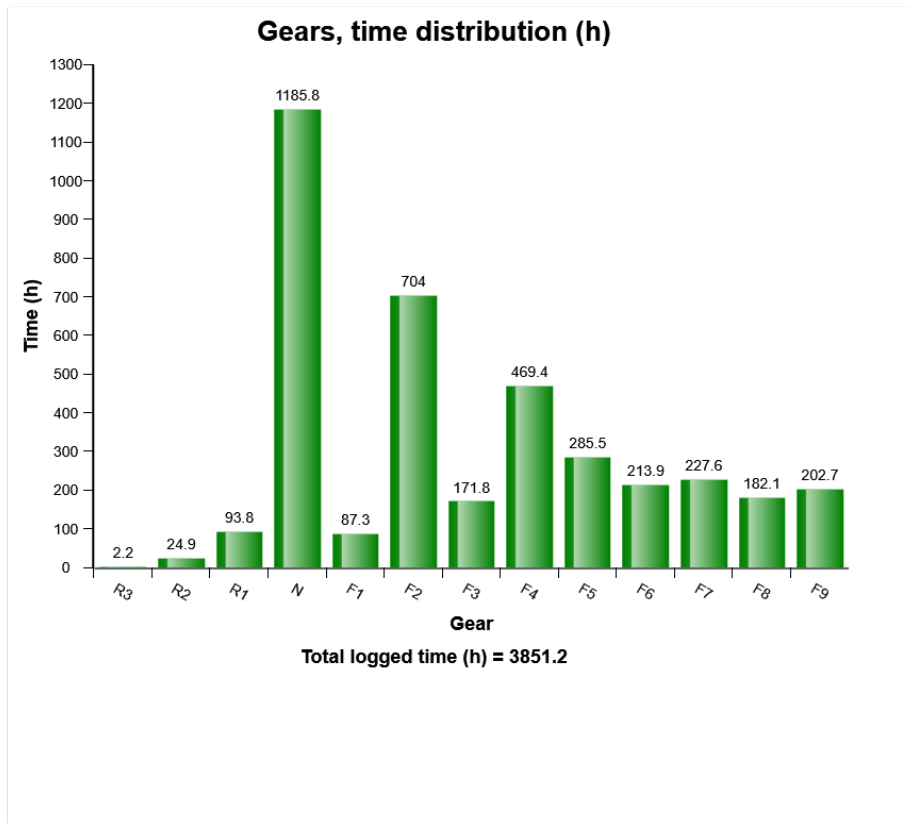
The bar that describes temperatures from 110° C until 120°C is yellow and means that the oil has begun to be overheated. Driver has been given orange central warning

The bar that describes >120°C is red and means that the oil has been overheated. Driver has been given red central warning.

Oil temperatures exceeding 110°C must be avoided since the properties of the oil are degraded



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

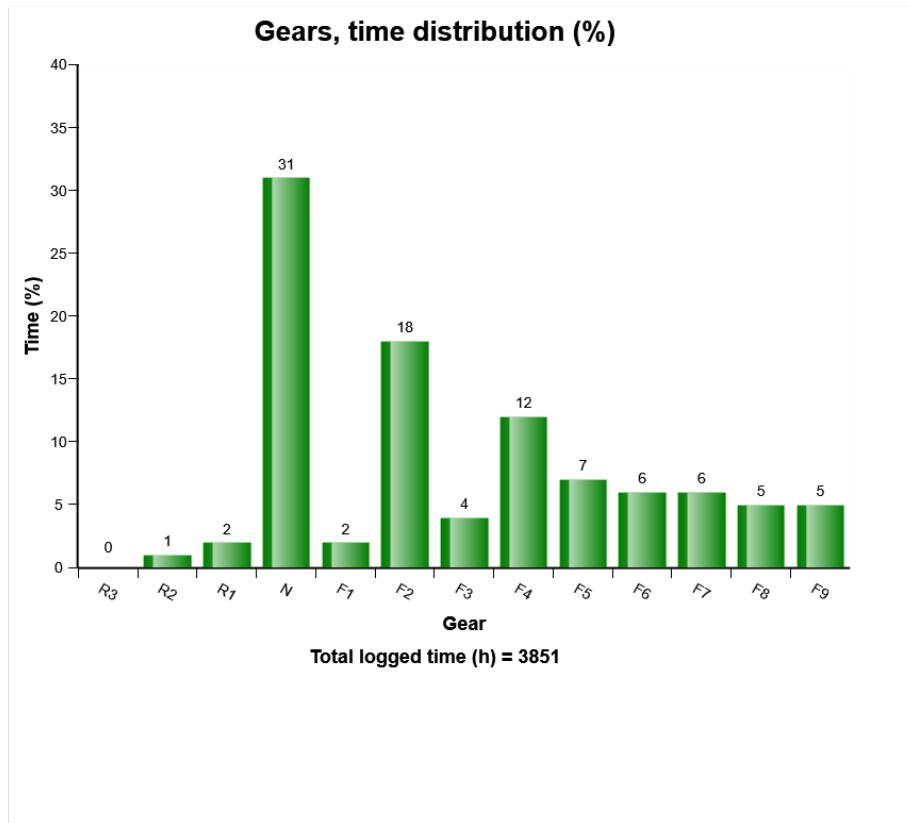


The diagram shows the time for each gear. Each bar represents a gear.

How the time is distributed between the gears depends on the operating conditions.



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018



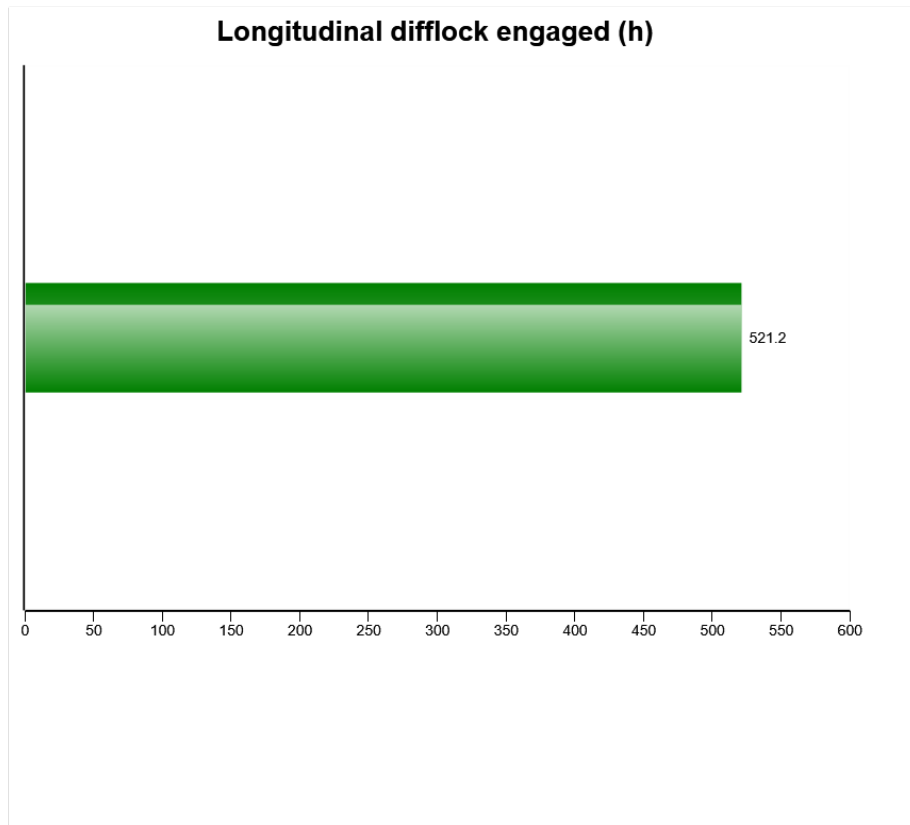
The diagram shows the time for each gear. Each bar represents a gear.

How the time is distributed between the gears depends on the operating conditions.





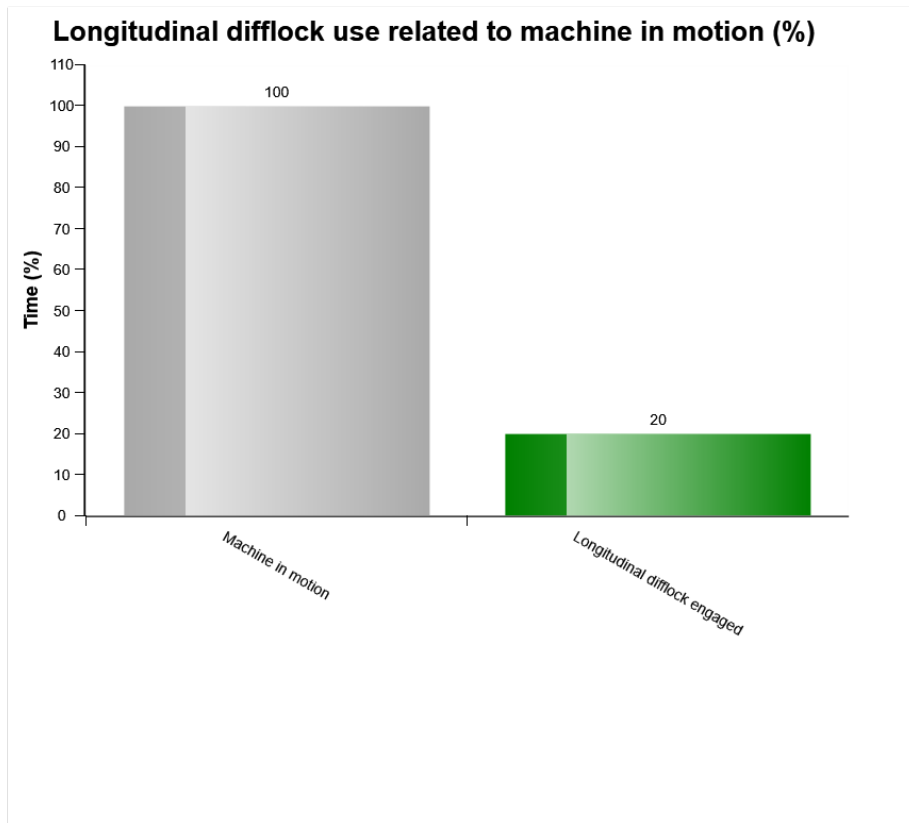
Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018



The diagram shows how long time in hours the longitudinal difflock has been engaged. The presentation only shows time when the machine is moving as this is when the wear on the difflock occurs. The difflock should always be disengage when not needed to avoid unnecessary wear.



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018



The diagram shows the percentage of engaged longitudinal difflock in relation to machine in motion.

The longitudinal difflock should always be disengaged when not needed to reduce wear.

The normal use of the longitudinal difflock in relation to the time that the machine has been operated depends on the operating conditions. Generally, the more offroad applications the machine operates in, the higher the longitudinal difflock use shall be in relation to the time that the machine has been operated. Also operating in uphill conditions on slippery surface can require longitudinal difflock.

Also check " Longitudinal difflock engaged (h)"



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

**Transmission oil pressure low  
Total number of occurrences = 2**

Op hours	Year	Month	Day	Hour	Minute	Duration (sec)	Extreme (bar)
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
120	2016	6	10	17	37	10	76.2
658	2016	10	4	7	51	0	0.0

**Definition :**

This type of table shows the latest occasions when a specific event has occurred. When a specified criteria is fulfilled a registration is made. Each table row corresponds to one occasion. Operating hours is displayed in the first column, followed by year, month, day, hour and minute to show when an



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

event has occurred.

The rows are not ordered chronological (The latest event may be in the middle).

Only one event per minute is registered.

Over the table the total number of events is displayed.

Duration :

**The duration of each event is shown after the timestamp of the event.**

**The duration is counted as long as the criteria is fulfilled.**

Extreme value :

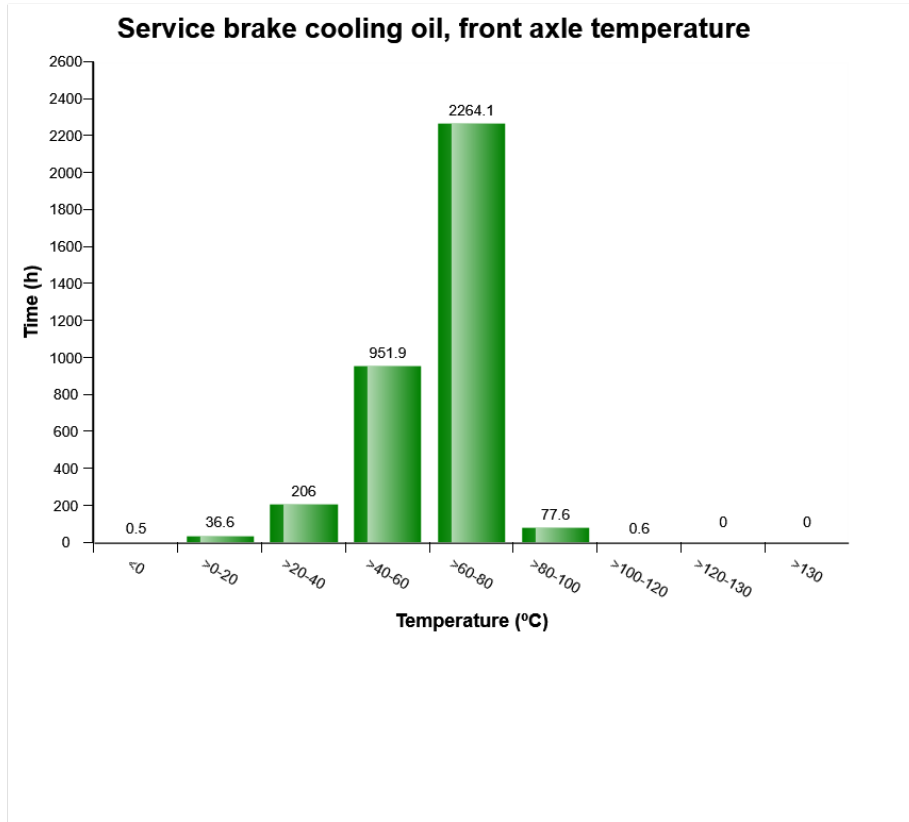
**The extreme value column displays the most extreme value during the event.**

Criteria :

In order for an occurrence of low transmission oil pressure to be recorded in a data point and the count to increment by 1, the transmission oil pressure state must change from "normal" or "error" to "low." The event of low transmission oil pressure will end when the status changes from "low" back to "normal" or "error."



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

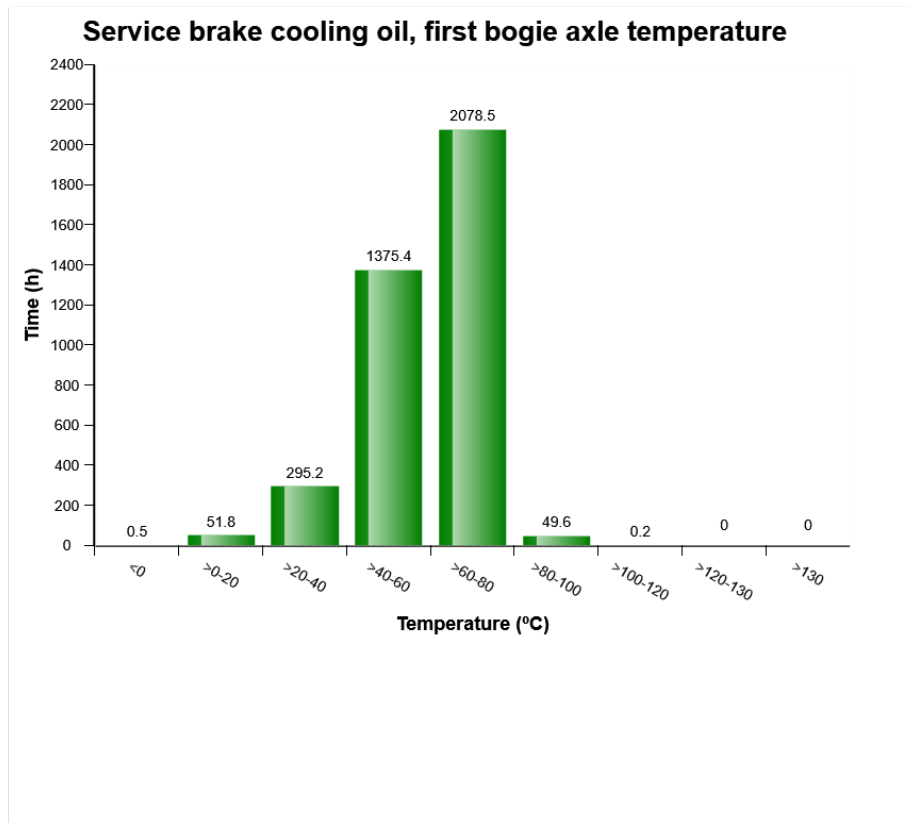


The diagram shows the front axle brake cooling oil temperature. The temperatures are divided into ranges, yellow bar (>120-130°C) and red bar (>130°C) shows abnormal temperatures. The temperature is registered in the line from the front axle to the oil cooler, that is, the warmest oil in the circuit.

The temperature shown by yellow and red bars degrade the properties of the cooling oil, and may be the result of incorrect and hard operation of the machine. Check the brake pressure distribution in the diagram "Service brake pressure, distribution (%)". If the brake cooling oil temperature is high despite normal distribution of service brake pressure, there is probably a malfunction in the brake cooling circuit



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

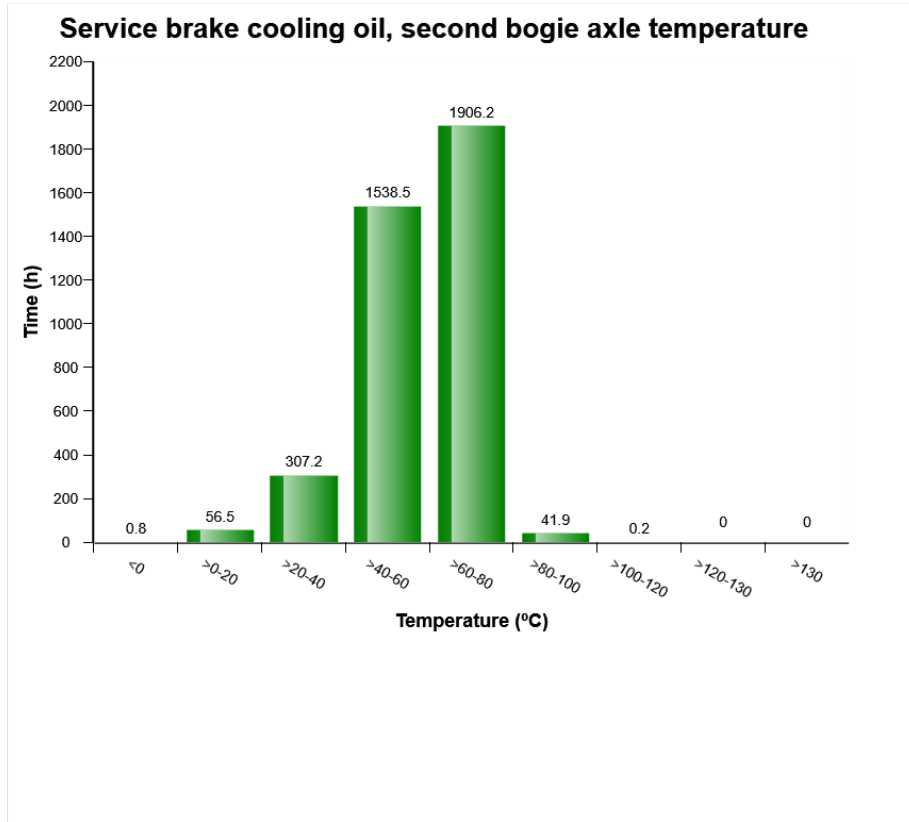


The diagram shows the first bogie axle brake cooling oil temperature. The temperatures are divided into ranges, yellow bar (>120-130°C) and red bar (>130°C) shows abnormal temperatures. The temperature is registered in the line from the first bogie axle to the oil cooler, that is, the warmest oil in the circuit.

The temperature shown by yellow and red bars degrade the properties of the cooling oil, and may be the result of incorrect and hard operation of the machine. Check the brake pressure distribution in the diagram "Service brake pressure, distribution (%)". If the brake cooling oil temperature is high despite normal distribution of service brake pressure, there is probably a malfunction in the brake cooling circuit



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

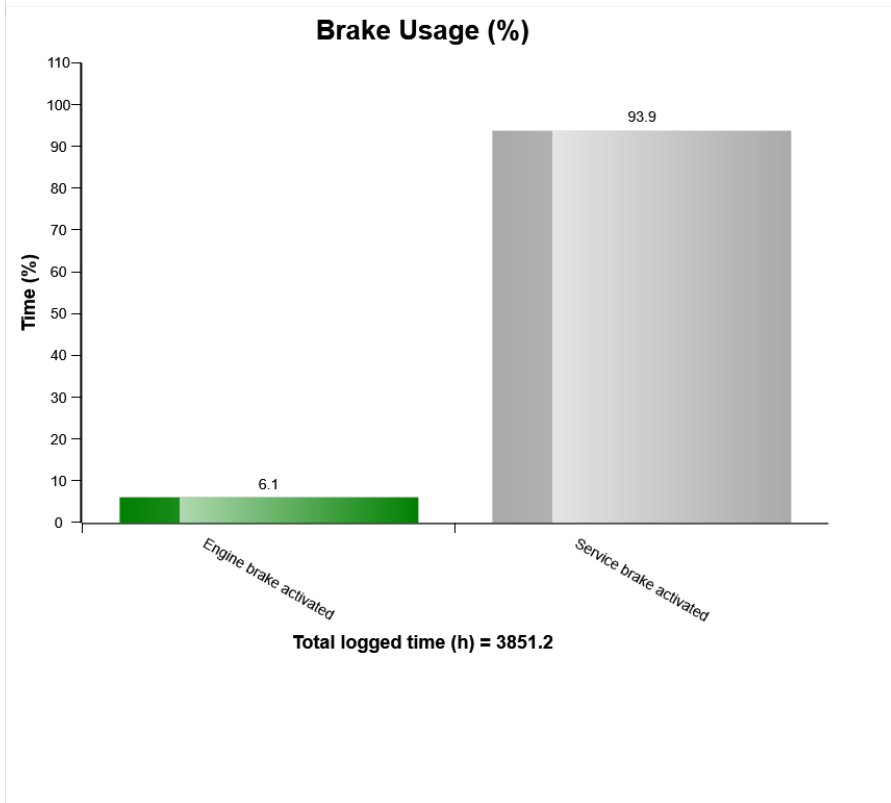
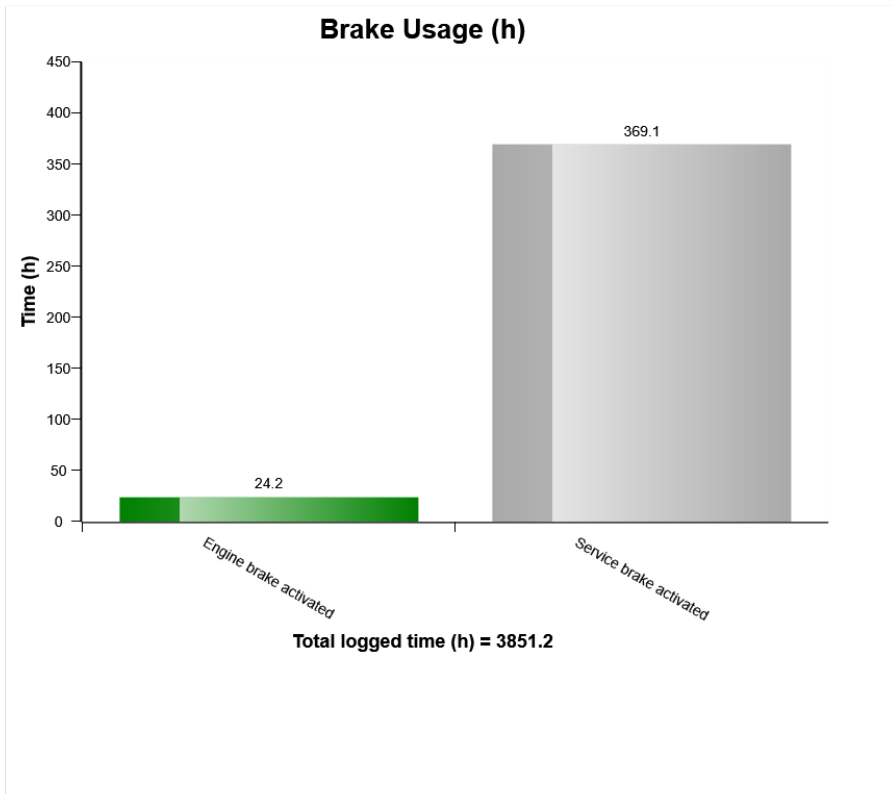


The diagram shows the Service brake cooling oil, second bogie axle temperature. The temperatures are divided into ranges, yellow bar (>120-130°C) and red bar (>130°C) shows abnormal temperatures. The temperature is registered in the line from the second bogie axle to the oil cooler, that is, the warmest oil in the circuit.

The temperature shown by yellow and red bars degrade the properties of the cooling oil, and may be the result of incorrect and hard operation of the machine. Check the brake pressure distribution in the diagram "Service brake pressure, distribution (%)". If the brake cooling oil temperature is high despite normal distribution of service brake pressure, there is probably a malfunction in the brake cooling circuit



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018





Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

**Low Brake Servo Pressure**  
**Total number of occurrences = 7**

	Op hours	Year	Month	Day	Hour	Minute	Duration (sec)
<b>H</b>	0	2000	0	0	0	0	0
<b>I</b>	0	2000	0	0	0	0	0
<b>J</b>	0	2000	0	0	0	0	0
<b>A</b>	2540	2017	8	17	15	43	0
<b>B</b>	3113	2017	10	3	7	21	0
<b>C</b>	3844	2018	7	27	12	32	0
<b>D</b>	3844	2018	7	31	10	50	0
<b>E</b>	3844	2018	8	21	10	11	0
<b>F</b>	3844	2018	9	6	15	8	0
<b>G</b>	3844	2018	9	18	9	35	10

Definition :

**This type of table shows the latest occasions when a specific event has occurred. When a specified criteria is fulfilled a registration is made. Each table row corresponds to one occasion. Operating hours is displayed in the first column, followed by year, month, day, hour and minute to show when an event has occurred.**

**The rows are not ordered chronological (The latest event may be in the middle).**

**Only one event per minute is registered.**

**Over the table the total number of events is displayed**

Duration :

**The duration of each event is shown after the timestamp of the event.**

**The duration is counted as long as the criteria is fulfilled.**

Extreme value :

**The extreme value column displays the most extreme value during the event.**



**Extreme  
(bar)**

0
0
0
153
155
147
137
137
129
151



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

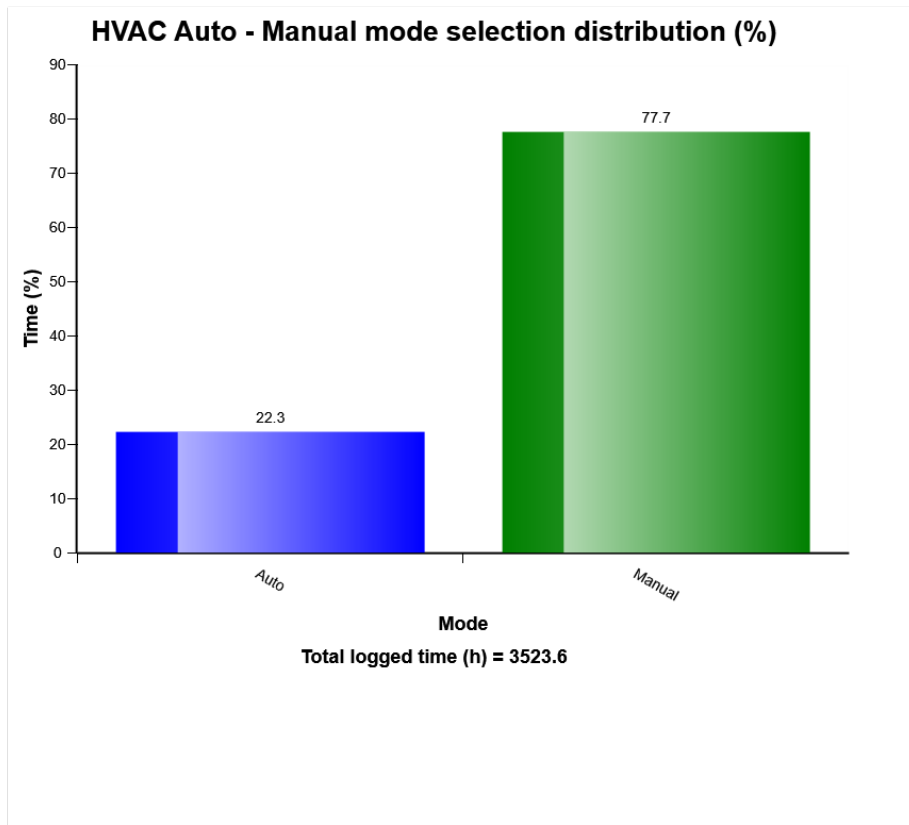
**Criteria :**

In order for an occurrence of low brake servo pressure to be recorded in a data point and the count to increment by 1, the low brake servo pressure state must be alarm. Gear not in Neutral and engine must be on.





Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018



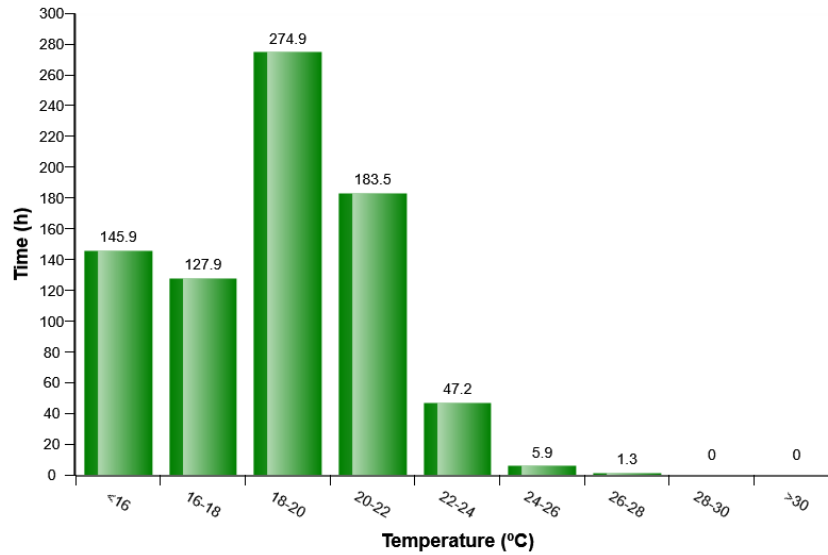
**Definition:**

The diagram describes auto-manual mode selection distribution of HVAC system in machine while it Works. The share of each mode compared to Total time of HVAC operation is displayed.



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

**HVAC air temperature setting in auto control mode distribution (h)**

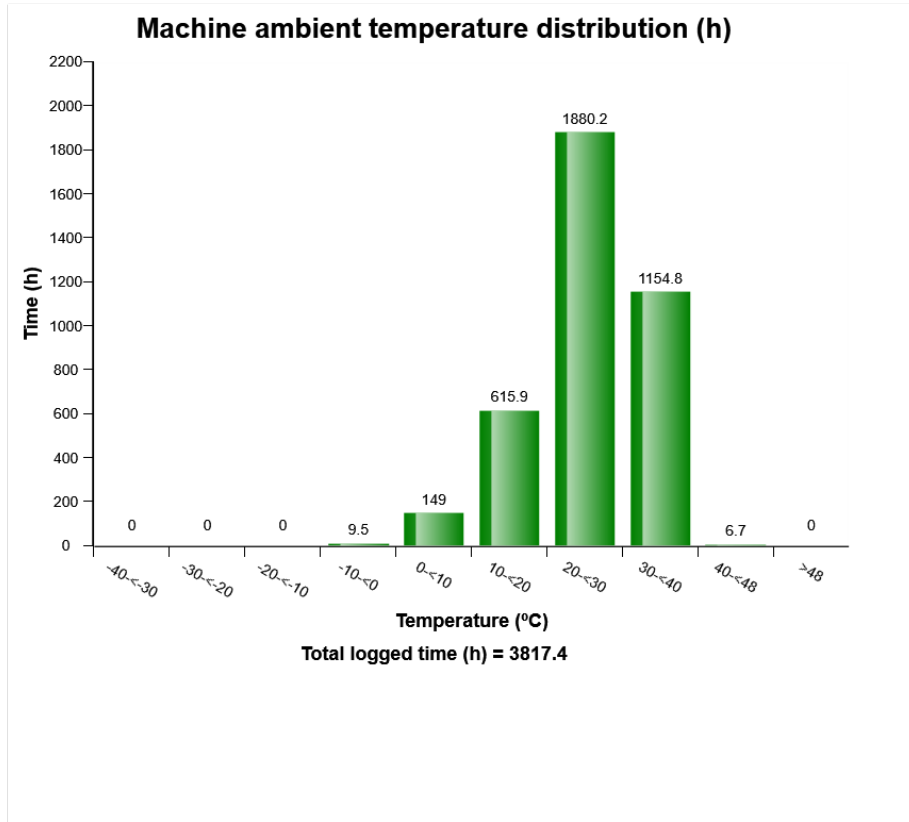


**Definition:**

The diagram describes air temperature setting distribution for HVAC auto control mode established by operator in Cabin



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

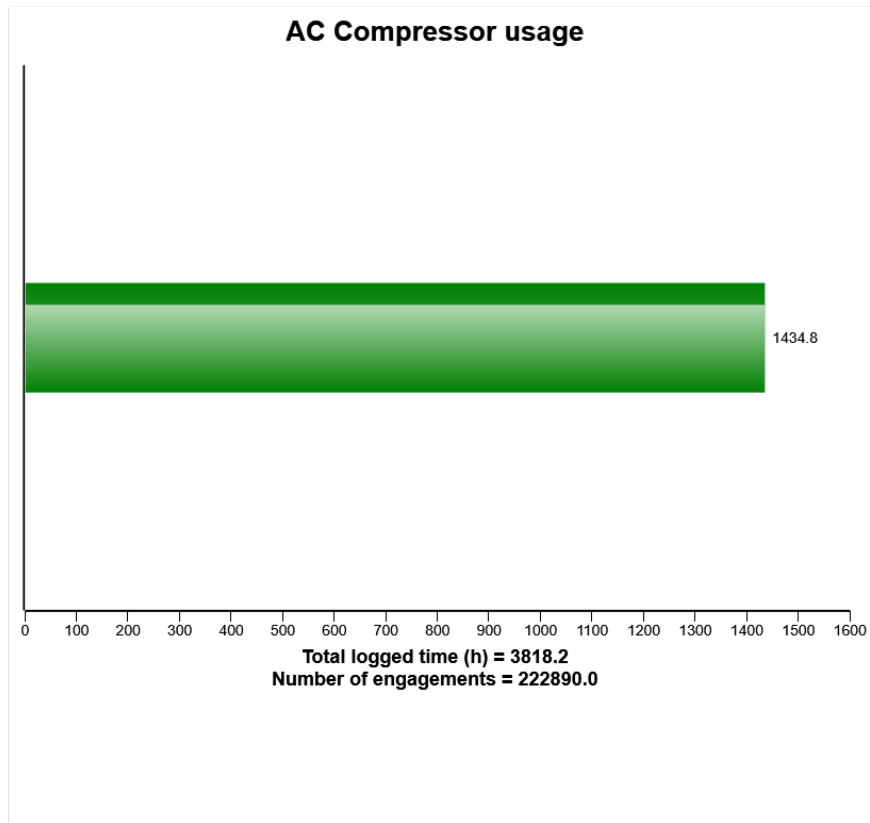


**Definition:**

The diagram describes ambient temperature distribution of the machine while machine operates.



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018



**Definition:**

The graph shows the total time of AC compressor engagement.

**Explanation:**

Green bar: Total time in hours, AC compressor has been engaged.

Under the graph the total engine running time (in hours) is displayed.

Total number of AC compressor activations is also displayed.

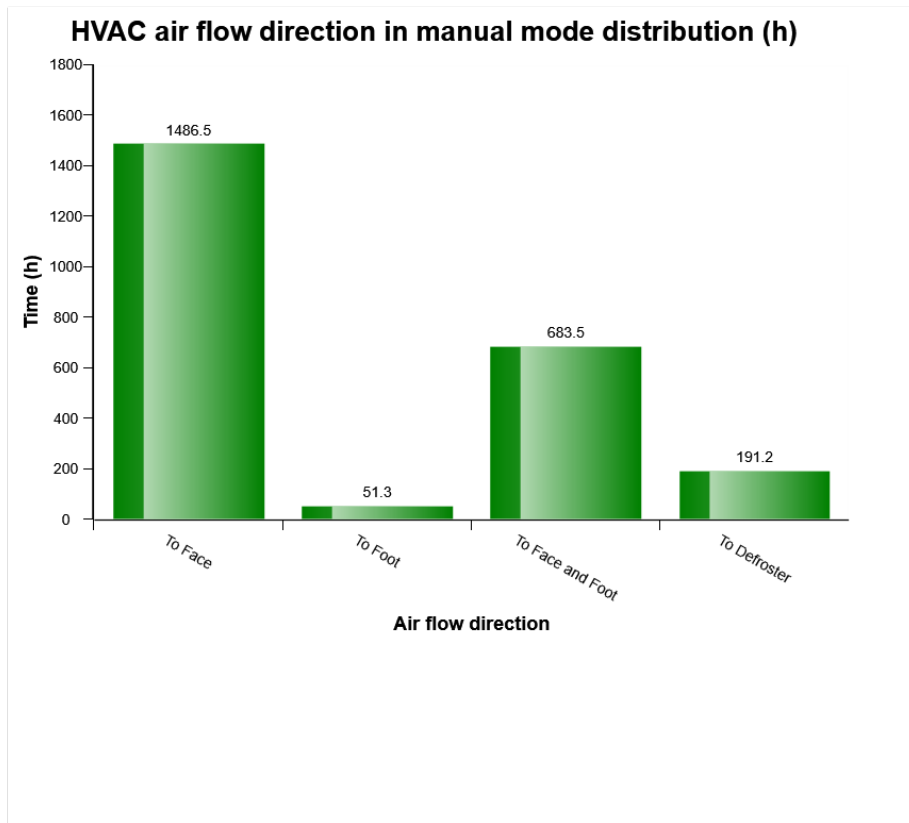




Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

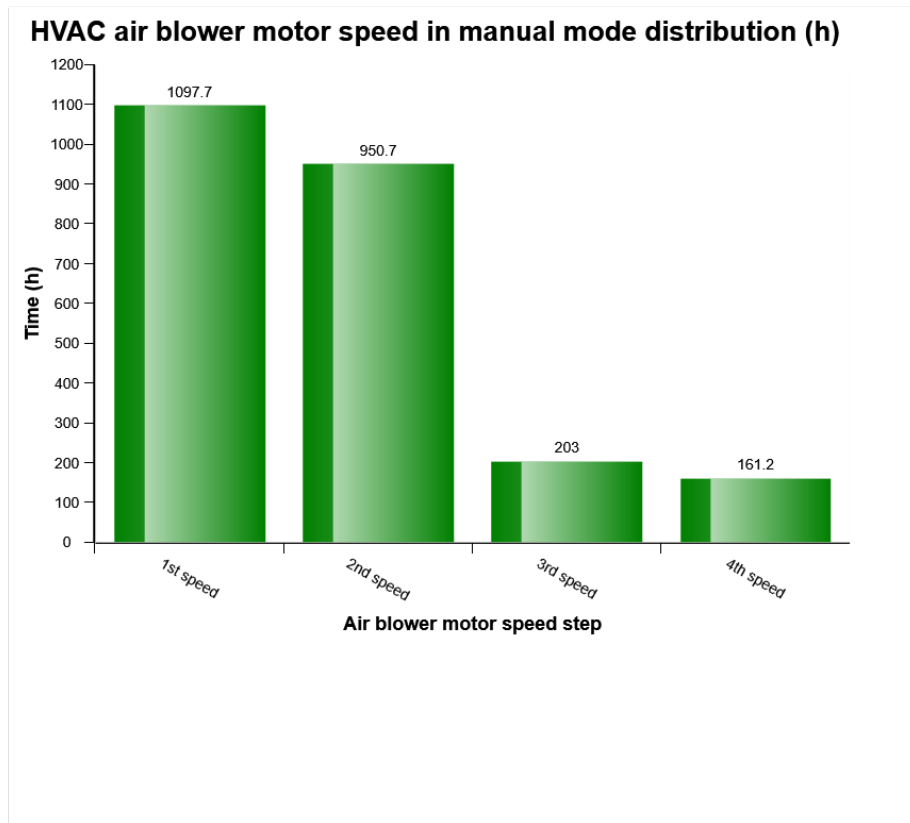


**Definition:**

The diagram describes air flow direction distribution for HVAC manual control mode established by operator in Cabin.



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018



**Definition:**

The diagram describes air blower motor speed distribution for HVAC manual control mode established by operator in Cabin.



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

**AC High Pressure**  
**Total number of occurrences = 23**

Op hours	Year	Month	Day	Hour	Minute	Duration (sec)	Extreme (° C)
182	2016	6	17	21	56	154	37
183	2016	6	17	22	41	70	38
209	2016	6	21	21	54	163	37
582	2016	9	20	13	37	23	37
2334	2017	7	14	12	34	55	35
2359	2017	7	20	13	29	192	38
2364	2017	7	21	12	36	41	38
2368	2017	7	21	16	26	91	40
2368	2017	7	21	16	48	36	40
2368	2017	7	21	16	51	24	40
2368	2017	7	21	17	0	113	40
2369	2017	7	21	17	15	32	38
2387	2017	7	25	15	46	13	36
2398	2017	7	26	17	20	24	39
2403	2017	7	27	12	46	24	37
2535	2017	8	15	10	32	37	31
2847	2017	9	16	14	58	15	32
3624	2018	3	14	7	31	31	6
3647	2018	3	22	10	28	79	20
3657	2018	3	24	12	13	62	27

**Definition :**

This type of table shows the latest occasions when a specific event has occurred. When a specified criteria is fulfilled a registration is made. Each table row corresponds to one occasion. Operating hours is displayed in the first column, followed by year, month, day, hour and minute to show when



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

an event has occurred.

The rows are not ordered chronological (The latest event may be in the middle).

Only one event per minute is registered.

Over the table the total number of events is displayed

**Duration :**

The duration of each event is shown after the timestamp of the event.

The duration is counted as long as the criteria is fulfilled.

**Extreme value :**

The extreme value column displays the most extreme value during the event.

**Criteria :**

Logging is performed when, High AC Pressure signal is active. Ambient temp is viewed.



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

**AC Boiling Protection  
Number of engagements = 0**

<b>Op hours</b>	<b>Year</b>	<b>Month</b>	<b>Day</b>	<b>Hour</b>	<b>Minute</b>	<b>Duration (sec)</b>	<b>Extreme (° C)</b>
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0

**Definition :**

This type of table shows the latest occasions when a specific event has occurred. When a specified criteria is fulfilled a registration is made. Each table row corresponds to one occasion. Operating hours is displayed in the first column, followed by year, month, day, hour and minute to show when



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

an event has occurred.

The rows are not ordered chronological (The latest event may be in the middle).

Only one event per minute is registered.

Over the table the total number of events is displayed

**Duration :**

The duration of each event is shown after the timestamp of the event.

The duration is counted as long as the criteria is fulfilled.

**Extreme value :**

The extreme value column displays the most extreme value during the event.

**Criteria :**

Logging is performed when, Boiling protection signal is active. Ambient temp is viewed.



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

**AC System Cut Out Pressure**  
**Total number of occurrences = 3**

Op hours	Year	Month	Day	Hour	Minute	Duration (sec)	Extreme (° C)
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
0	2000	0	0	0	0	0	0
2535	2017	8	15	10	33	13	31
3647	2018	3	22	10	29	23	20
3657	2018	3	24	12	13	47	27

**Definition :**

This type of table shows the latest occasions when a specific event has occurred. When a specified criteria is fulfilled a registration is made. Each table row corresponds to one occasion. Operating hours is displayed in the first column, followed by year, month, day, hour and minute to show when





Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

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Over the table the total number of events is displayed

**Duration :**

The duration of each event is shown after the timestamp of the event.

The duration is counted as long as the criteria is fulfilled.

**Extreme value :**

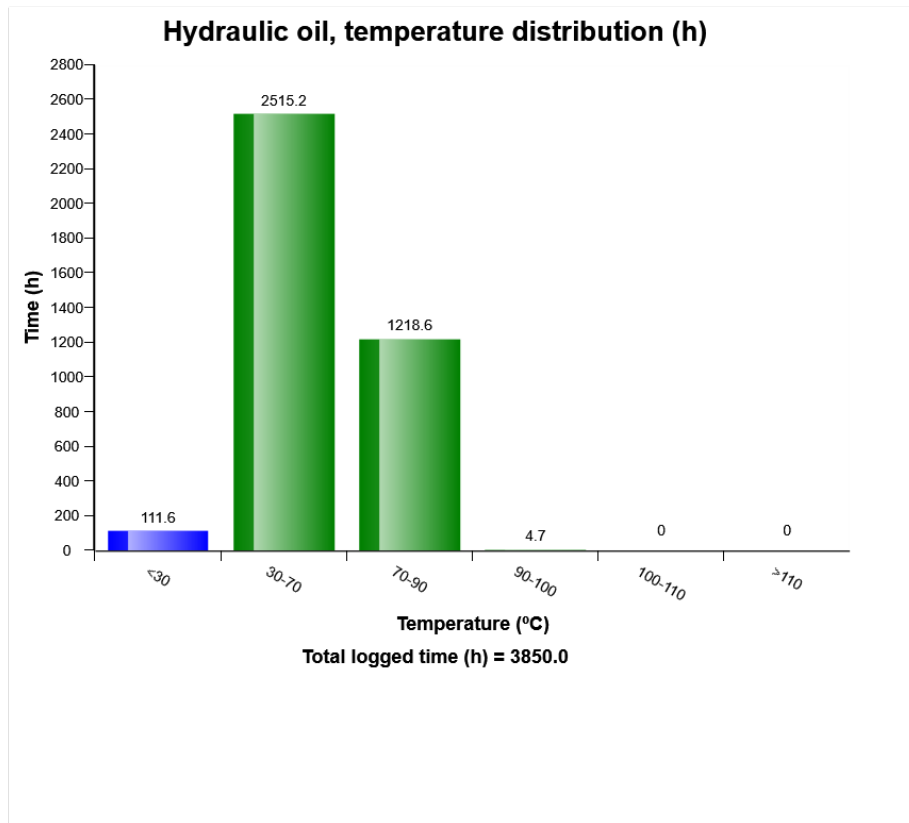
The extreme value column displays the most extreme value during the event.

**Criteria :**

Logging is performed when, AC cut out pressure signal is active. Ambient temp is viewed.



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018



**Definition:**

The graph shows the time distribution of the temperature, while engine running.

**Explanation:**

Y-axis: Time

X-axis: Temperature distribution in classes.

Blue bar = Warm-up phase.

During the engine warm-up phase, this temperature region is passed.

It is normal to have registrations in this region.



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018

**Green bar** = Normal working temperature. The Major part of the registrations shall be in this region.

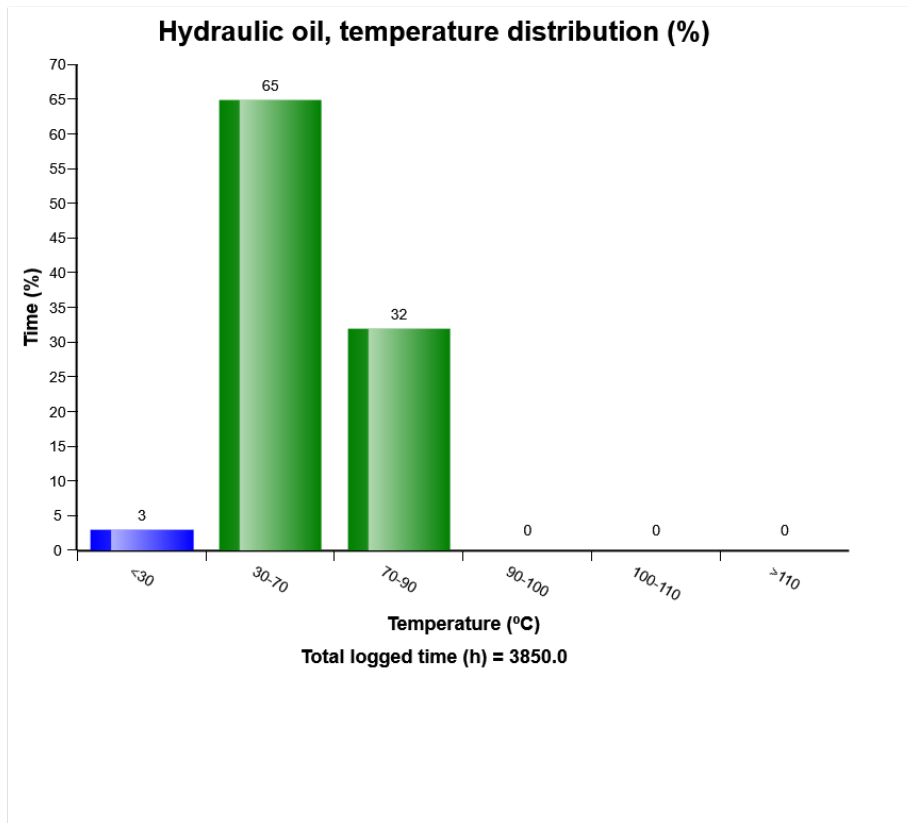
**Yellow bar** = High working temperature. It is normal to have some registrations in this region.

**Red bar** = Alarm.

Registrations in this region is not normal, running in this region may cause severe damage.



Machine model	SerialNo	Operating Hours	Reading Date
A40G	341317	3850.8	12/11/2018



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A40G	341317	3850.8	12/11/2018

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Registrations in this region is not normal, running in this region may cause severe damage.

