

VOLVO CONSTRUCTION EQUIPMENT MATRIS REPORT

Machine model L90G	SerialNo 617643	Operating Hours 5385.8	Reading Date 5/14/2018
Company name Arnold Machinery	Dealer ARNOLD MACHINERY	Report Issuer	
Contact name	Technician lvcetech	Primary Application Rehandling	
Site	Workorder	Ground Condition	

MATRIS Reading, Summary / Recommendation

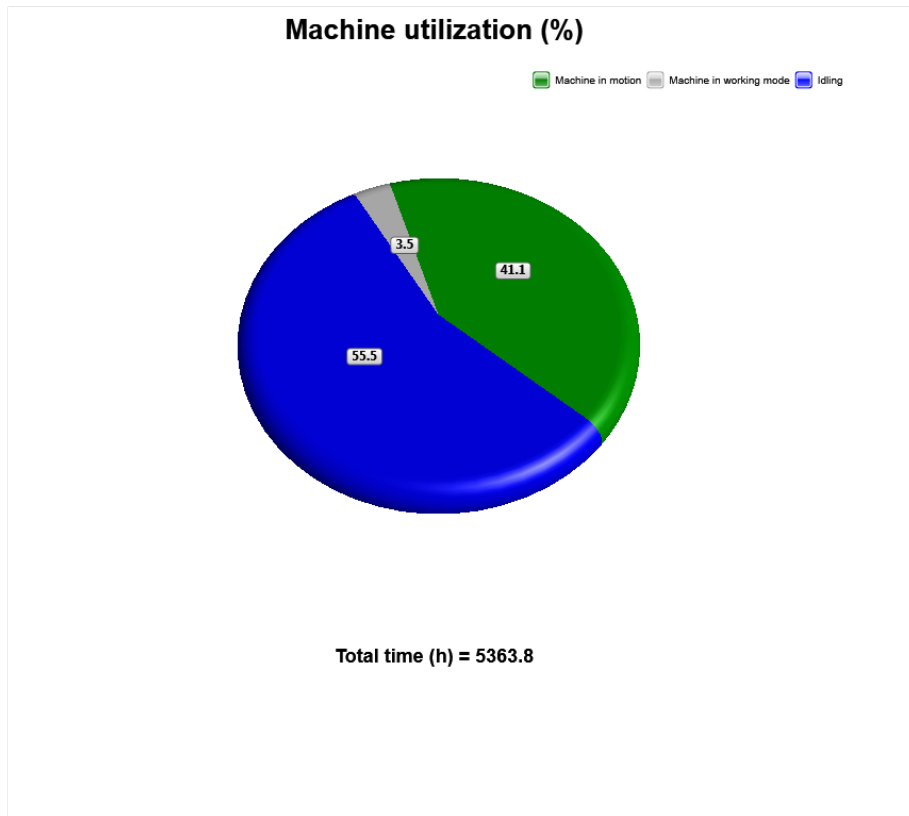


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Main equipment	Type	Equipment
	Tyre size/class	
	Main Attachment	
	Extra Counterweight	
	Ballast	
	Chains	
	Boom Suspension System	
	Attachment Interface	
	Volume m3 (yd3) / Area m2 (ft2)	
	Attachment make	



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Definition:

The graph shows the distribution of the operating time for the machine. The operating time is defined as the time with engine on.

Blue sector = Engine speed less than idling or equal to idling and machine speed less than 0.5 km/h (0.3 mph)

Gear level position: Neutral, forward or reverse.

Green sector = Machine in motion.

Engine speed larger than idling and machine speed larger than 0.5 km/h (0.3 mph) .



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Gear level position: Forward or reverse.

One typical situation is material transportation, in bucket or long distance transportation.

Grey sector = Engine in working mode.

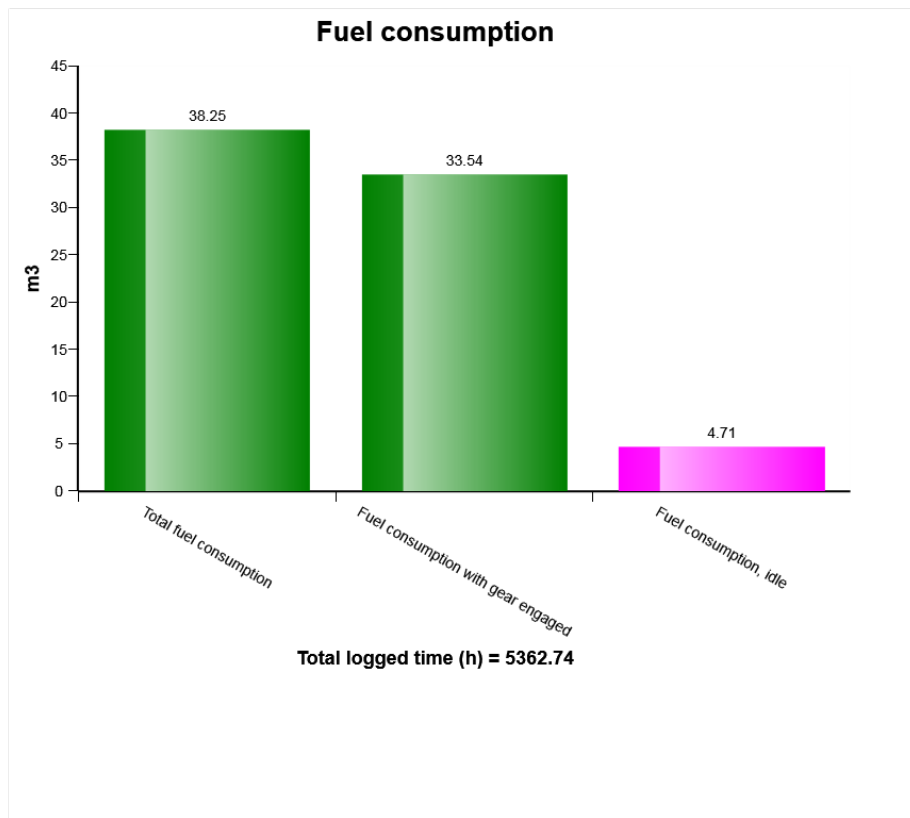
Engine speed larger than idling and machine speed less than 0.5 km/h (0.3 mph) .

Gear level position: Forward or reverse.

Typical application is loading and unloading of the bucket.



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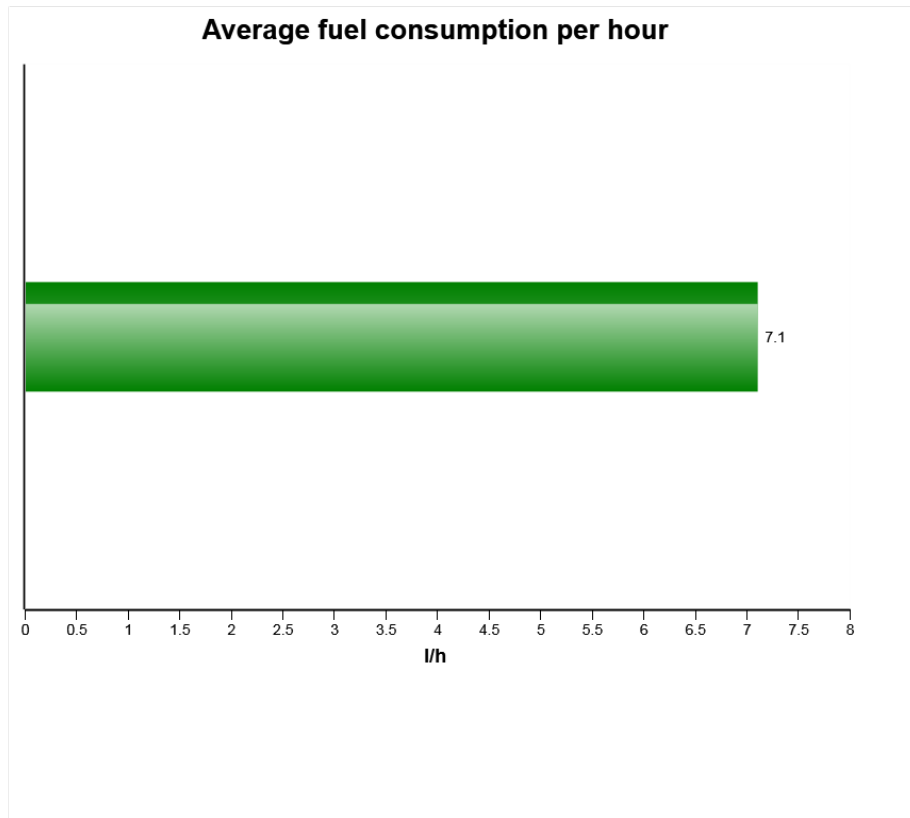


The diagram shows the total fuel consumption, fuel consumption with gear engaged and fuel consumption during idle.

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



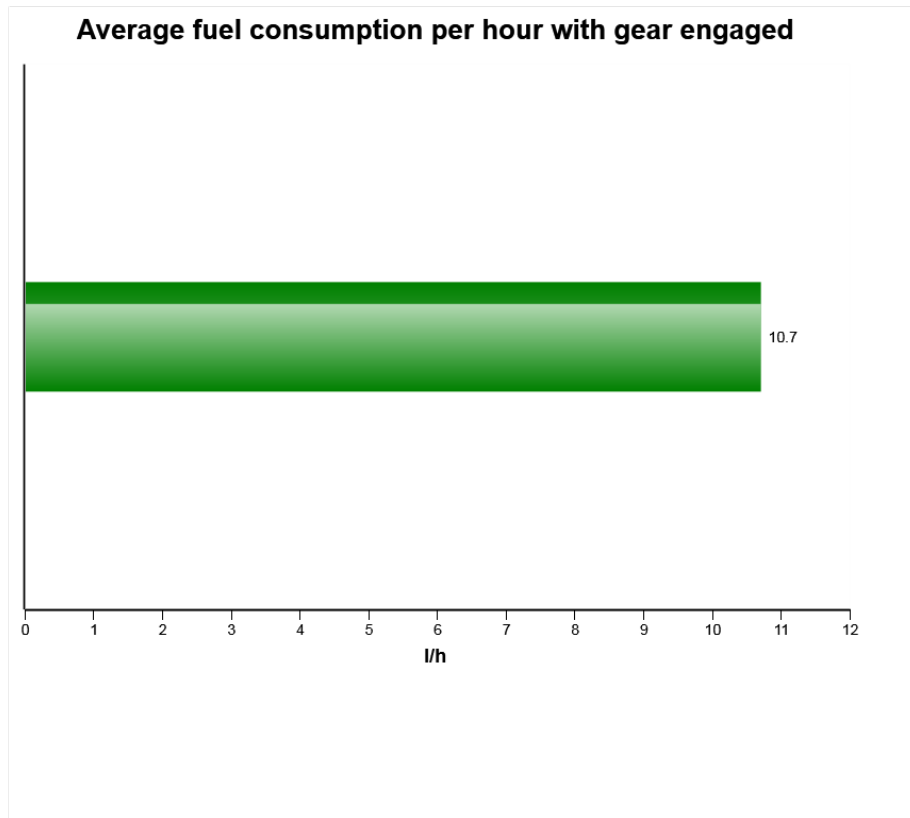
Machine model	SerialNo	Operating Hours	Reading Date
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The diagram shows the average fuel consumption based on total operating hours.



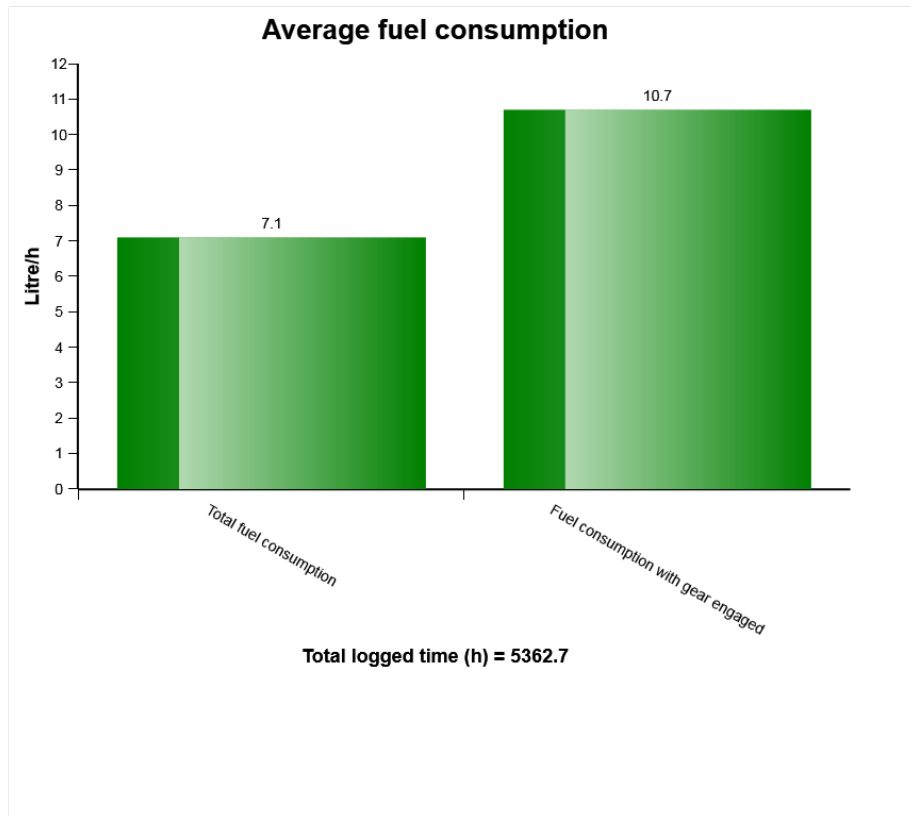
Machine model	SerialNo	Operating Hours	Reading Date
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The diagram shows the average fuel consumption based on the operating hours with gear engaged.



Machine model	SerialNo	Operating Hours	Reading Date
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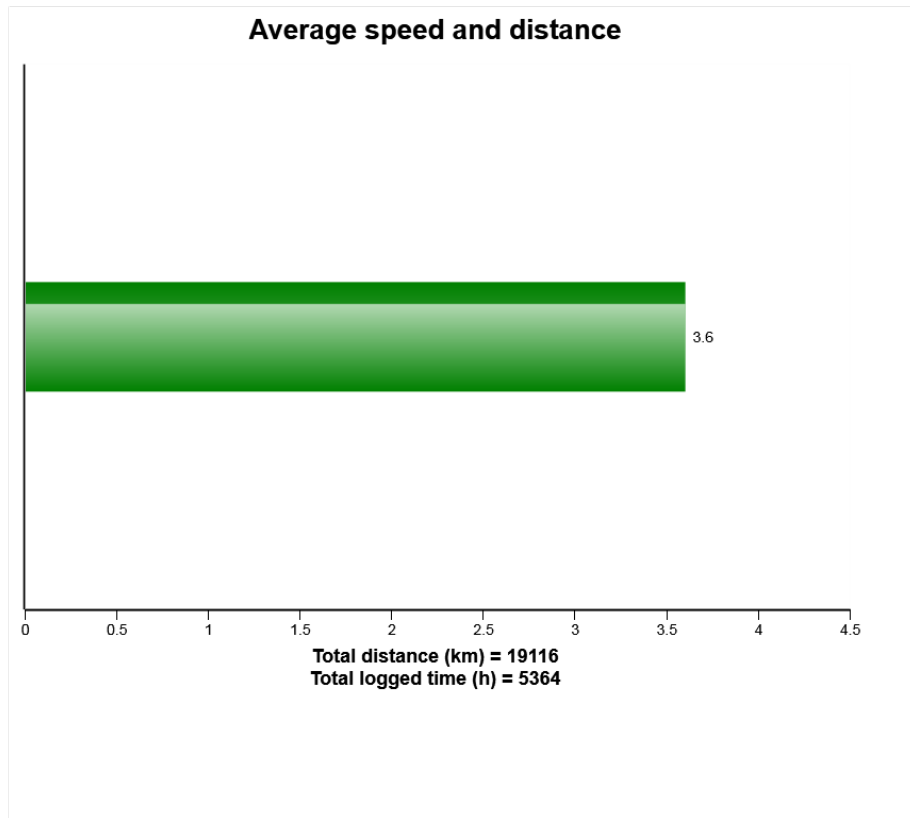


The diagram shows the total average fuel consumption versus average fuel consumption with gear engaged.

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



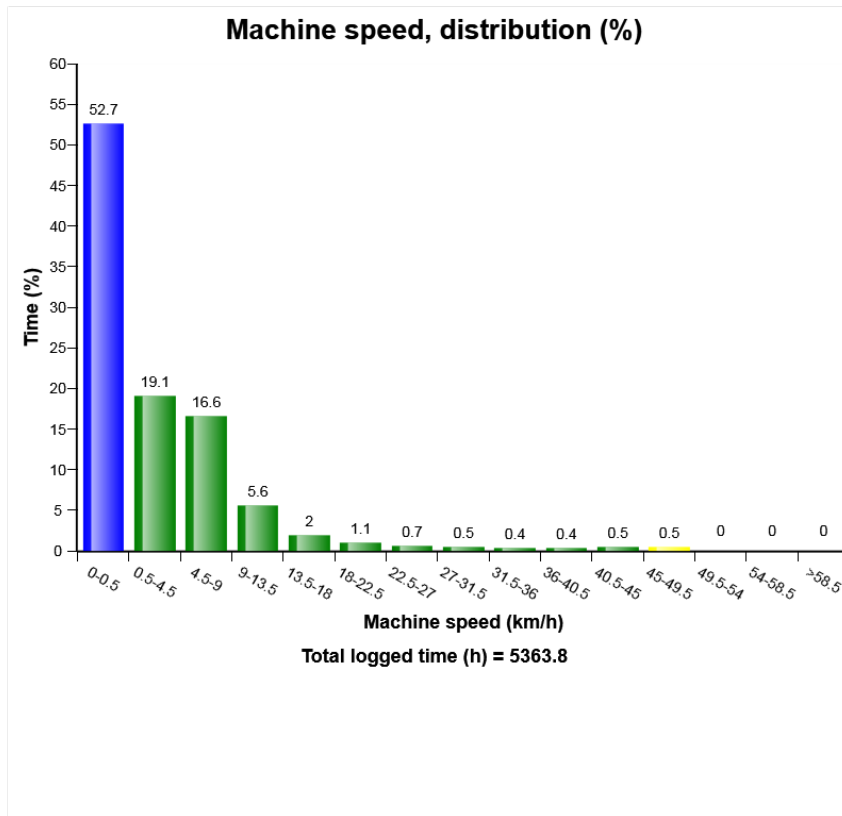
Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018



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



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018



Definition:

This graph describes the machine speed distribution.

The sum of all bars = 100% of machine speed time.

Under the graph total time with engine on, in hours, is displayed.

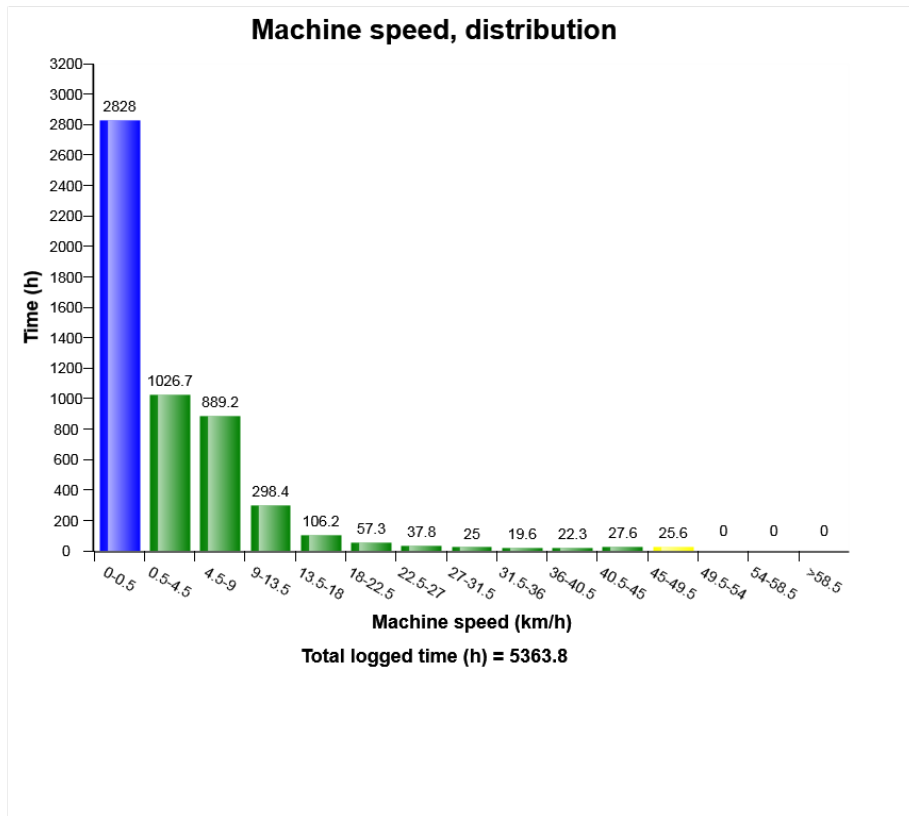
Explanation:

Y-axis: Time, specified for each speed interval.

X-axis: Machine speed, divided into speed intervals.



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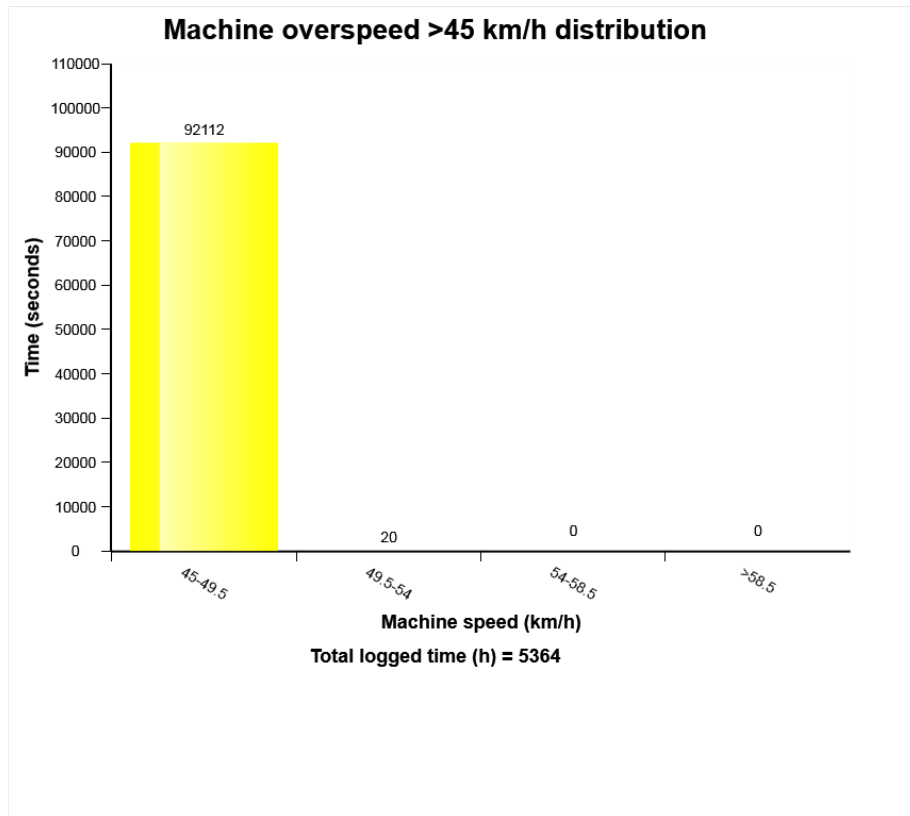
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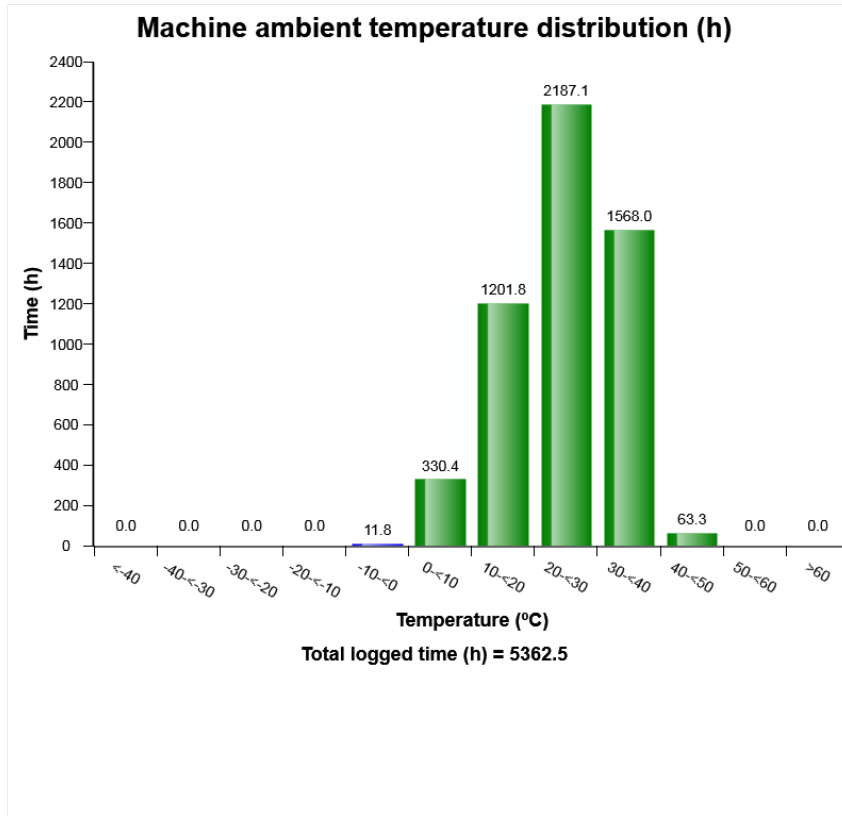
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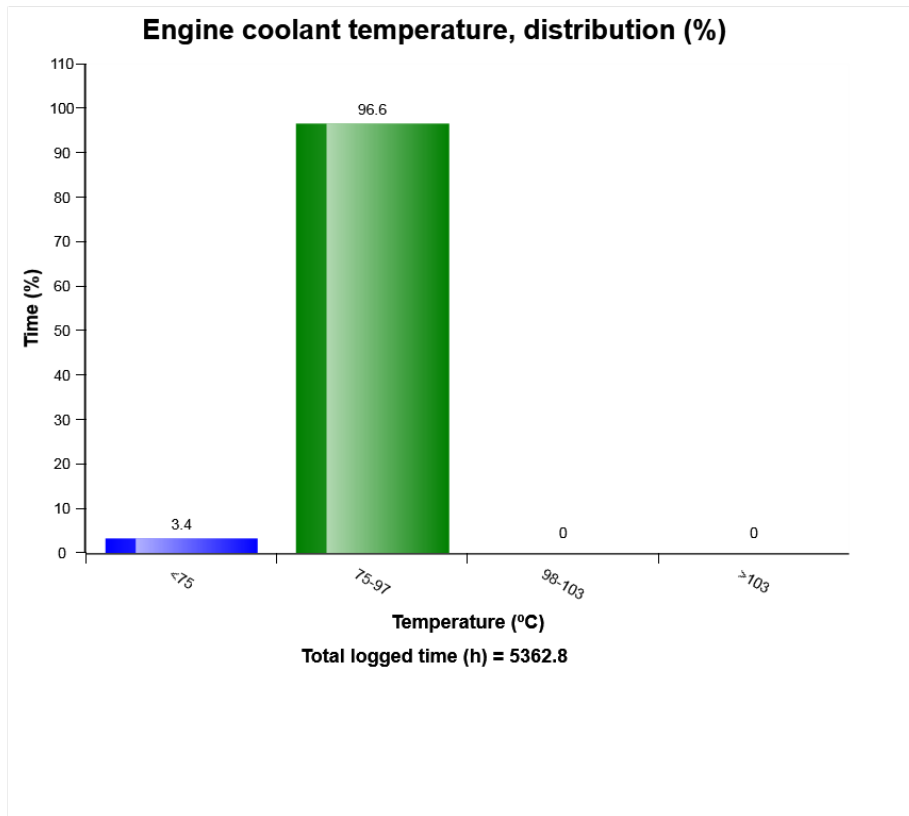


Definition:

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



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018



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.



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018

It is normal to have registrations in this region.

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

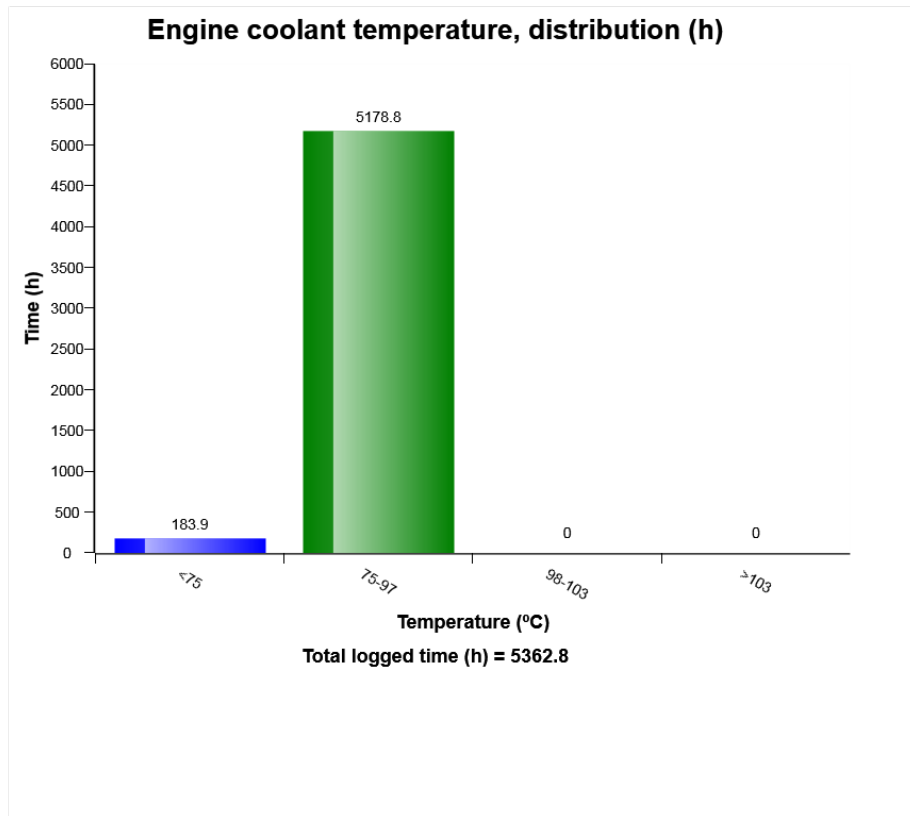
Yellow bar = High working temperature. It is normal to have some registrations in this region.

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
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Definition:

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

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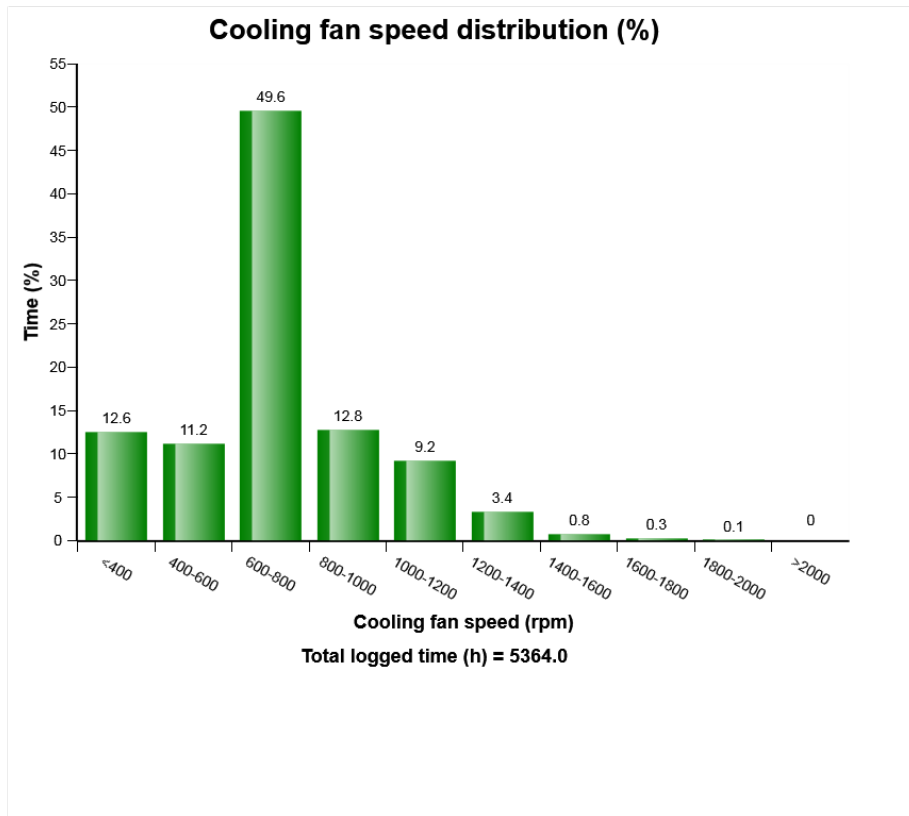
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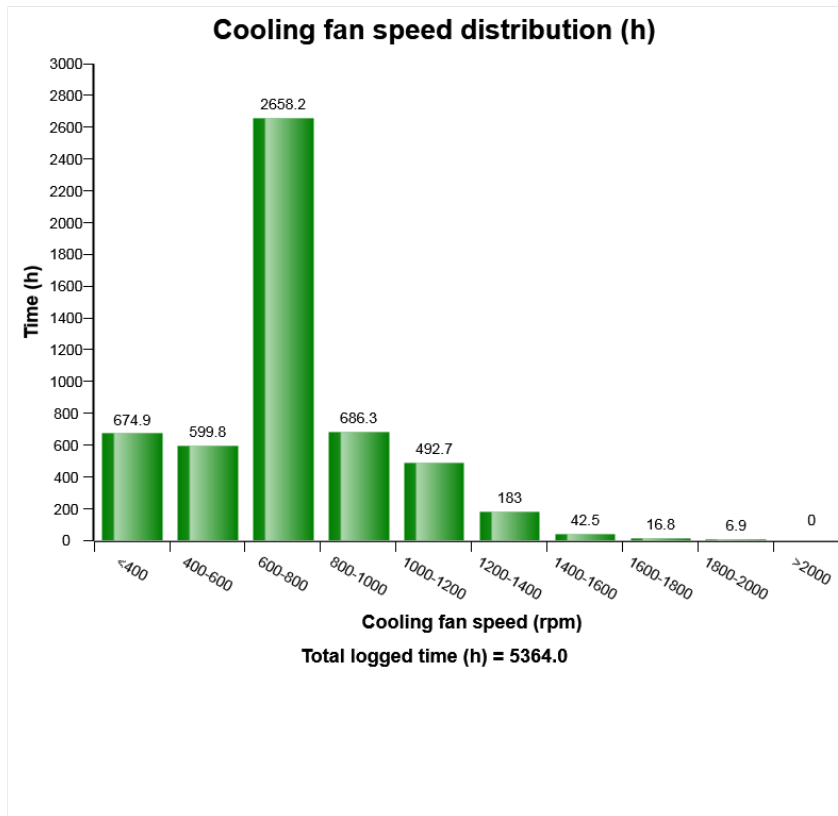
Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018



The diagram shows the time distribution for the cooling fan in different rpm ranges.



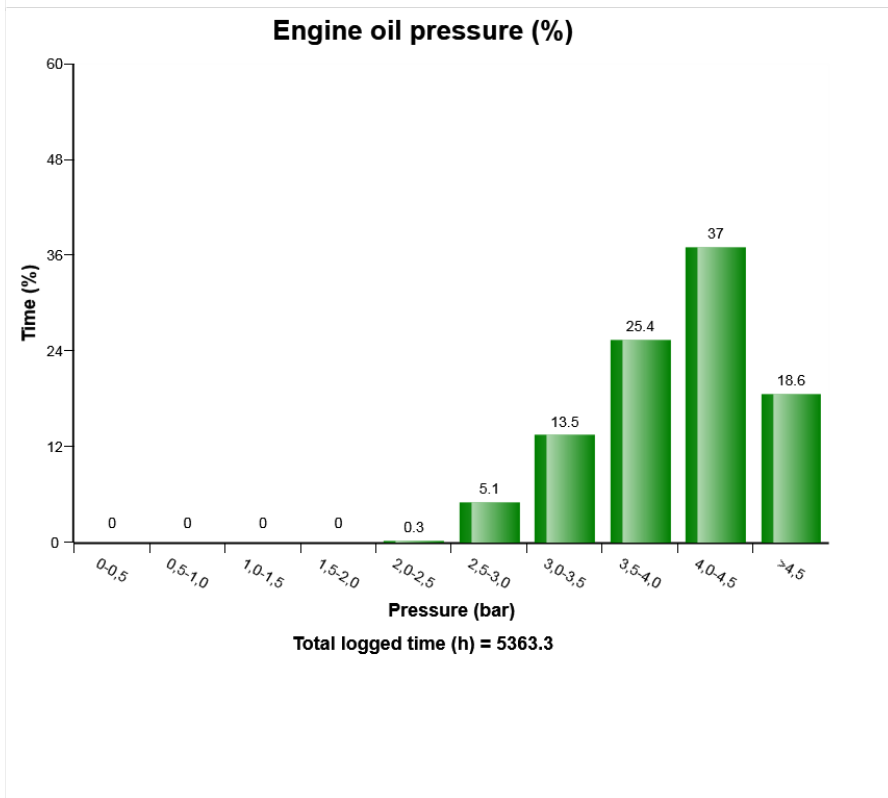
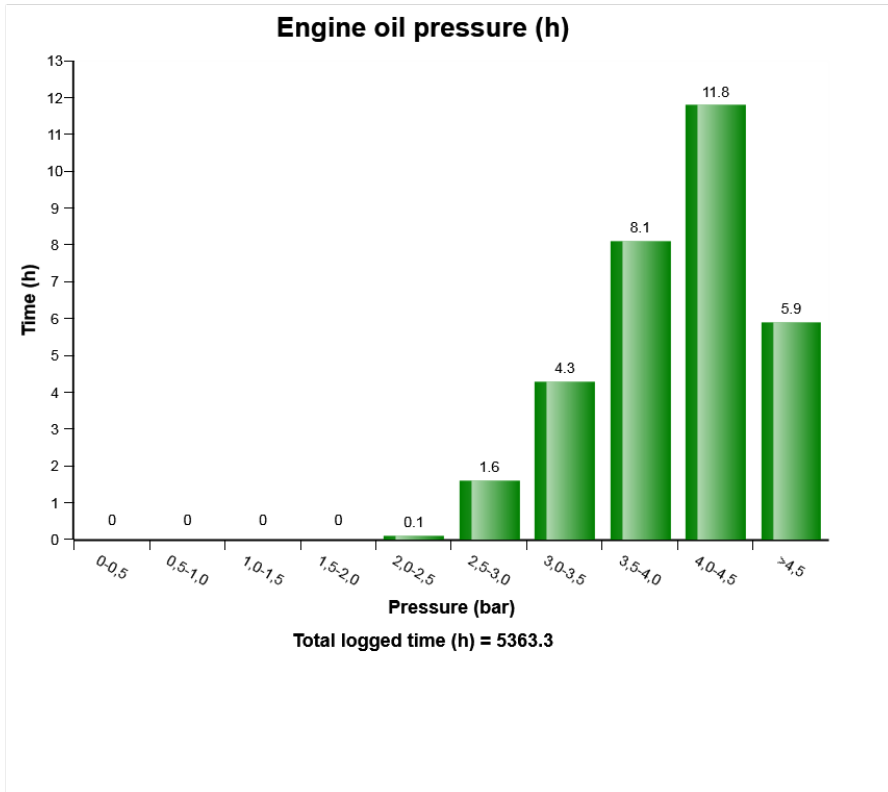
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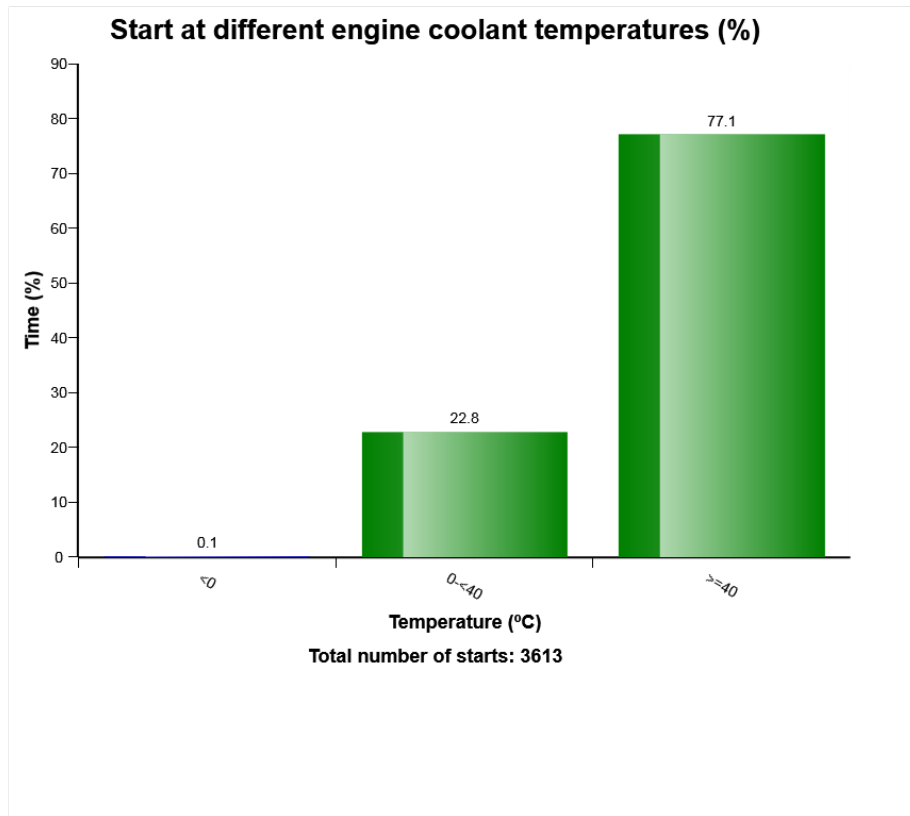
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L90G	617643	5385.8	5/14/2018



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.



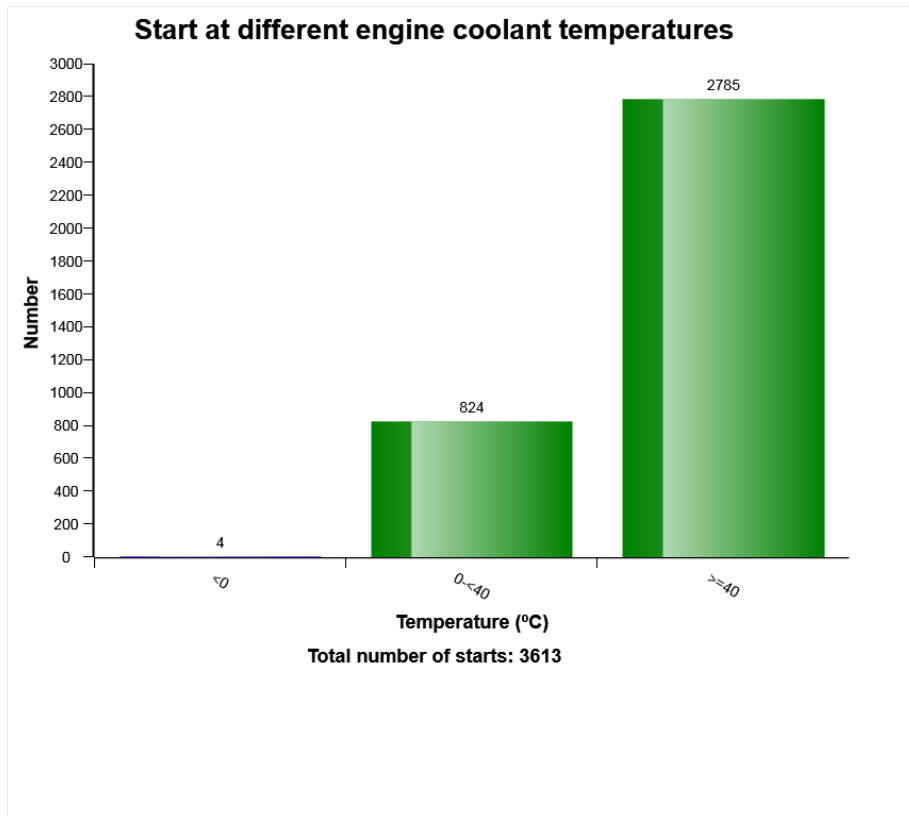
Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018

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.



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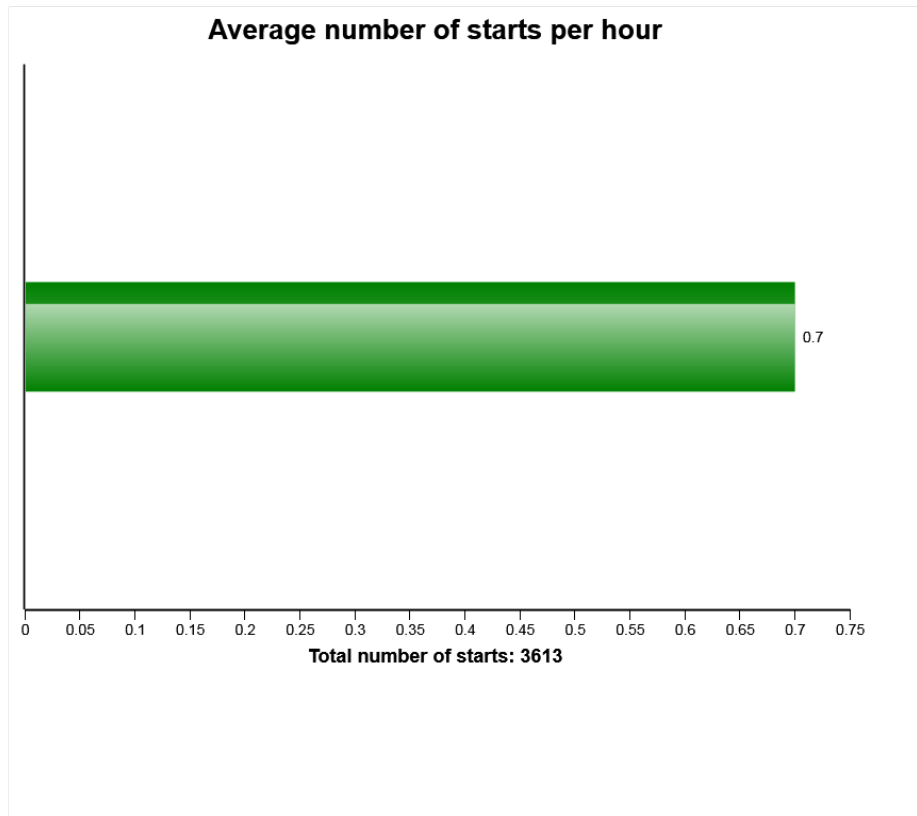
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Definition:

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.



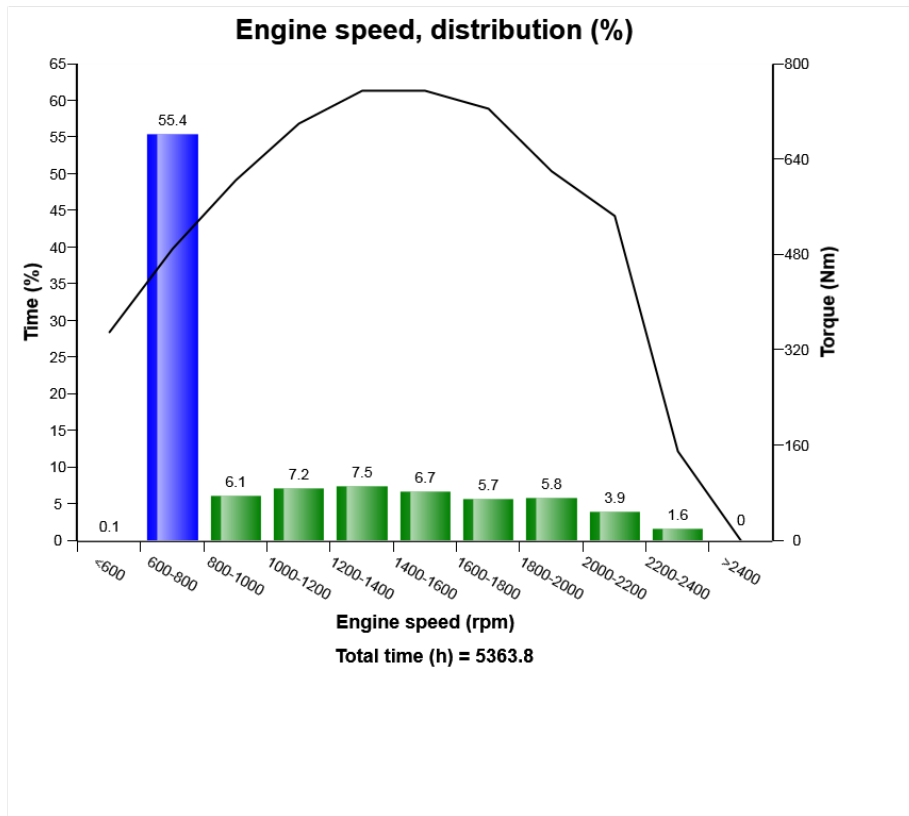
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To see at which different temperatures engine is started see" Start at different engine temperatures."

Green bar = Number of average starts per hour



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Definition:

The graph describes the engine speed distribution, compared with the engine torque curve.

The sum of all bars = total time of engine running.

Explanation:

Y-axis_1: Engine running time.

Y-axis_2: Torque (Nm)

X-axis: Engine speed in rpm.



Machine model	SerialNo	Operating Hours	Reading Date
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□

Black curve = Engine torque curve. The highest part of the torque curve points out at which engine speed that the engine is strongest. To use the machine most efficient, keep the engine speed in the highest part of the torque curve. See below examples:

Blue bar = Idling interval.

Green bars = Normal engine speed range.

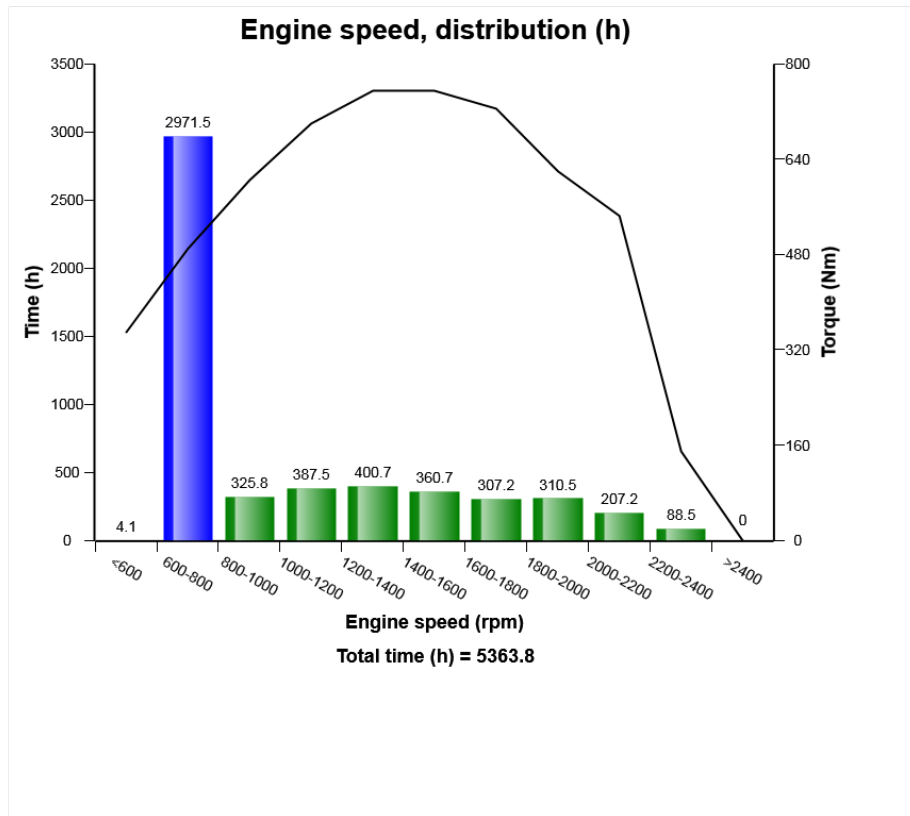
Red bar =The engine speed has exceeded the maximum design speed.

Never exceed the maximum engine design speed .

Exceeding the maximum design speed may cause severe damage to the engine.



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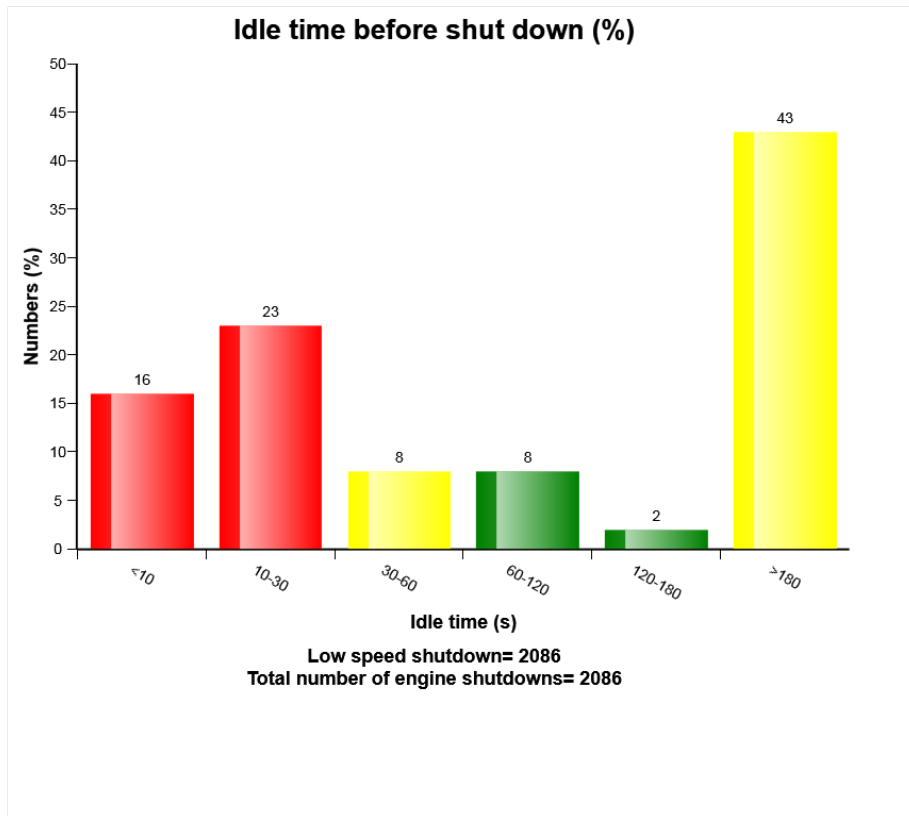
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Definition:

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%.



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Low Engine Oil Pressure
Total number of occurrences = 0

	Op hours	Year	Month	Day	Hour	Minute	Duration (sec)
A	0	2000	0	0	0	0	0
R	0	2000	0	0	0	0	0
Q	0	2000	0	0	0	0	0
P	0	2000	0	0	0	0	0
O	0	2000	0	0	0	0	0
N	0	2000	0	0	0	0	0
M	0	2000	0	0	0	0	0
L	0	2000	0	0	0	0	0
K	0	2000	0	0	0	0	0
J	0	2000	0	0	0	0	0
I	0	2000	0	0	0	0	0
H	0	2000	0	0	0	0	0
G	0	2000	0	0	0	0	0
F	0	2000	0	0	0	0	0
E	0	2000	0	0	0	0	0
D	0	2000	0	0	0	0	0
C	0	2000	0	0	0	0	0
B	0	2000	0	0	0	0	0
S	0	2000	0	0	0	0	0
T	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



**Extreme
(bar)**

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0



Machine model	SerialNo	Operating Hours	Reading Date
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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.

Criteria :

In order for an occurrence of low engine oil pressure to be recorded in a data point and the count to increment by 1, the engine 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."





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hours is displayed in the first column, followed by year, month , day , hour and minute to show when an event has occurred.

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Criteria :

In order for an occurrence of low engine oil level to be recorded in a data point and the count to increment by 1, an Alarm shall have been received at start up of machine



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Only one event per minute is registered.

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Duration :

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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.

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.



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Only one event per minute is registered.

Over the table the total number of events is displayed.

Duration :

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

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.



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Alarm is registered if the starter is used continuously more than 40 seconds and if it is less than five minutes since the latest alarm .

Explanation:

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



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Regeneration ignored
Total number of ignored regenerations 55

	Op hours	Year	Month	Day	Hour	Minute	Duration (min)
*	4487	2017	6	14	12	52	102
*	4487	2017	6	13	20	38	4
*	4487	2017	6	13	7	10	1
*	4487	2017	6	12	15	39	16
*	4487	2017	6	14	6	47	0
*	4514	2017	6	20	0	31	24
*	4514	2017	6	20	21	5	4
*	4514	2017	6	20	8	30	2
*	4514	2017	6	20	1	5	3
*	4514	2017	6	20	0	56	1
*	4515	2017	6	21	13	39	5
*	4515	2017	6	21	13	52	5
*	4515	2017	6	21	12	39	53
*	4597	2017	7	10	16	46	35
*	4597	2017	7	11	8	4	252
*	4597	2017	7	11	15	17	8
*	4597	2017	7	11	7	12	2
*	4692	2017	8	1	10	6	4
*	4692	2017	8	1	14	38	27
*	4782	2017	8	17	12	23	59



Machine model	SerialNo	Operating Hours	Reading Date
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Regeneration aborted
Total number of occurrences = 130

Op hours	Year	Month	Day	Hour	Minute
4305	2017	5	10	2	0
4409	2017	5	30	12	20
4435	2017	6	2	11	17
4443	2017	6	6	8	36
4468	2017	6	8	12	8
4476	2017	6	10	0	26
4485	2017	6	11	22	36
4485	2017	6	10	14	27
4486	2017	6	12	8	22
4551	2017	6	29	17	24
4568	2017	7	5	16	8
4640	2017	7	21	11	59
4856	2017	8	29	17	26
4862	2017	8	30	14	8
4886	2017	9	1	17	32
4997	2017	9	18	8	21
4997	2017	9	16	14	53
5006	2017	9	18	17	25
5137	2017	10	7	14	57
5241	2017	10	21	15	1



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Regeneration duration
Total number of occurrences = 912

Op hours	Year	Month	Day	Hour	Minute	Duration (min)
5241	2017	10	21	14	53	8
5242	2017	10	23	8	12	28
5250	2017	10	24	13	27	28
5259	2017	10	25	13	0	27
5259	2017	10	25	11	51	0
5268	2017	10	26	11	34	29
5276	2017	10	27	10	37	27
5284	2017	10	28	10	39	27
5292	2017	10	30	12	4	26
5300	2017	10	31	11	15	29
5308	2017	11	1	16	9	28
5309	2017	11	1	16	40	0
5315	2017	11	2	13	33	0
5317	2017	11	2	15	25	27
5325	2017	11	3	14	32	28
5334	2017	11	4	13	39	29
5342	2017	11	6	16	52	28
5351	2017	11	7	16	26	29
5357	2018	2	22	10	28	29
5359	2018	2	27	9	17	0



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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 :

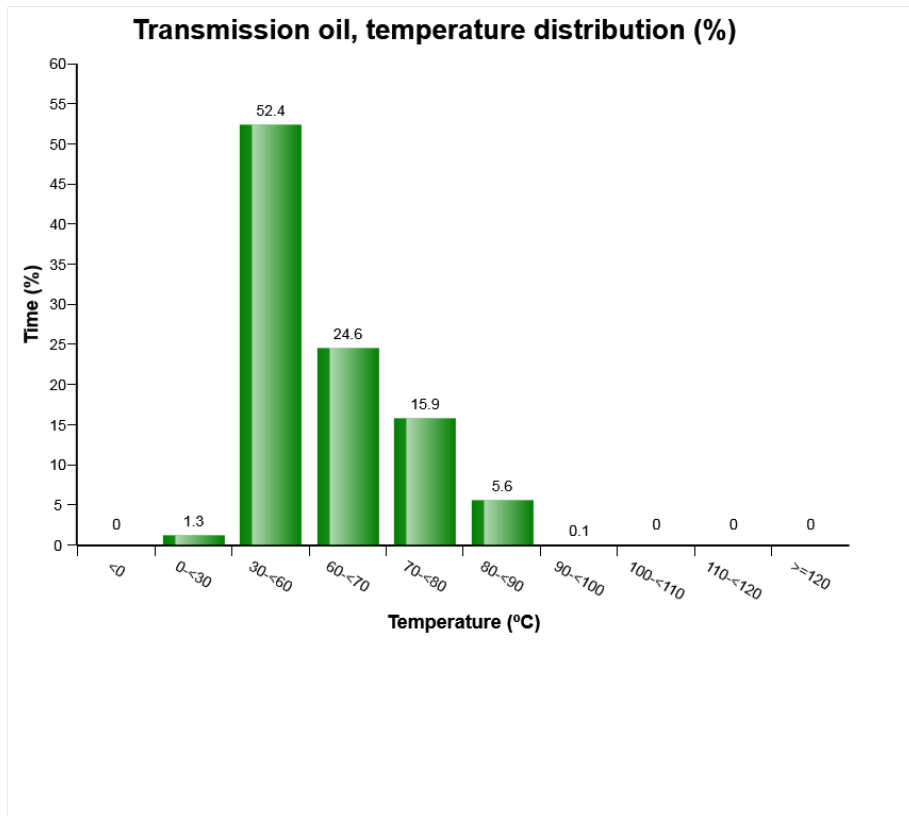
The extreme value column displays the most extreme value during the event.

Criteria :

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



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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



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

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

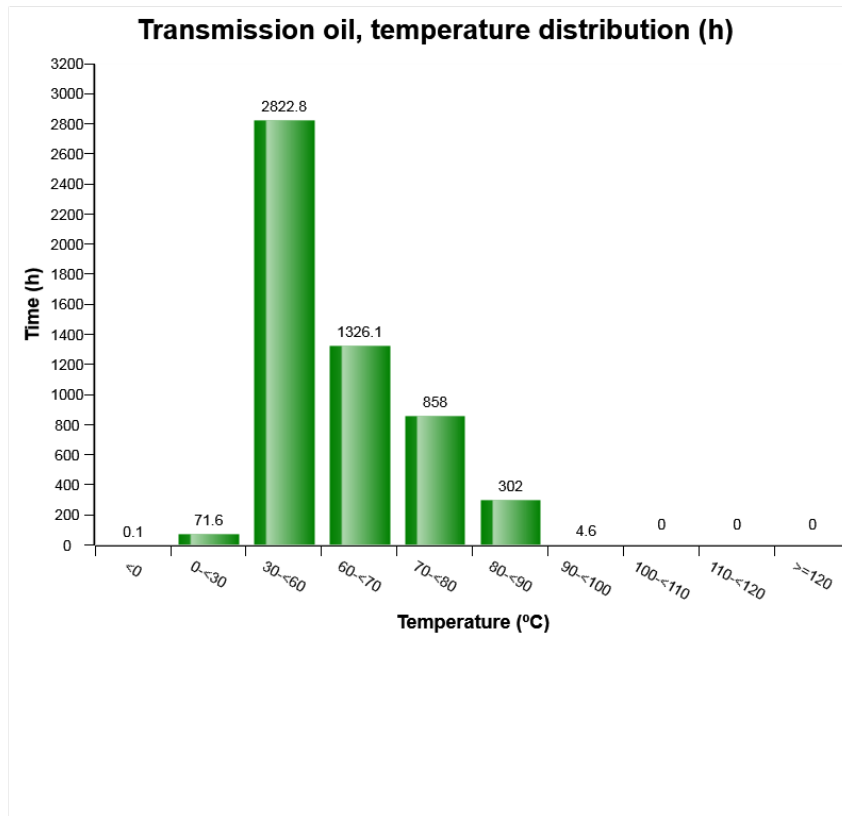
The bar that describes temperatures from 110°C until 120°C is yellow and means that the oil has begun to be overheated. Driver has been given orange central warning

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



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

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



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018

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

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

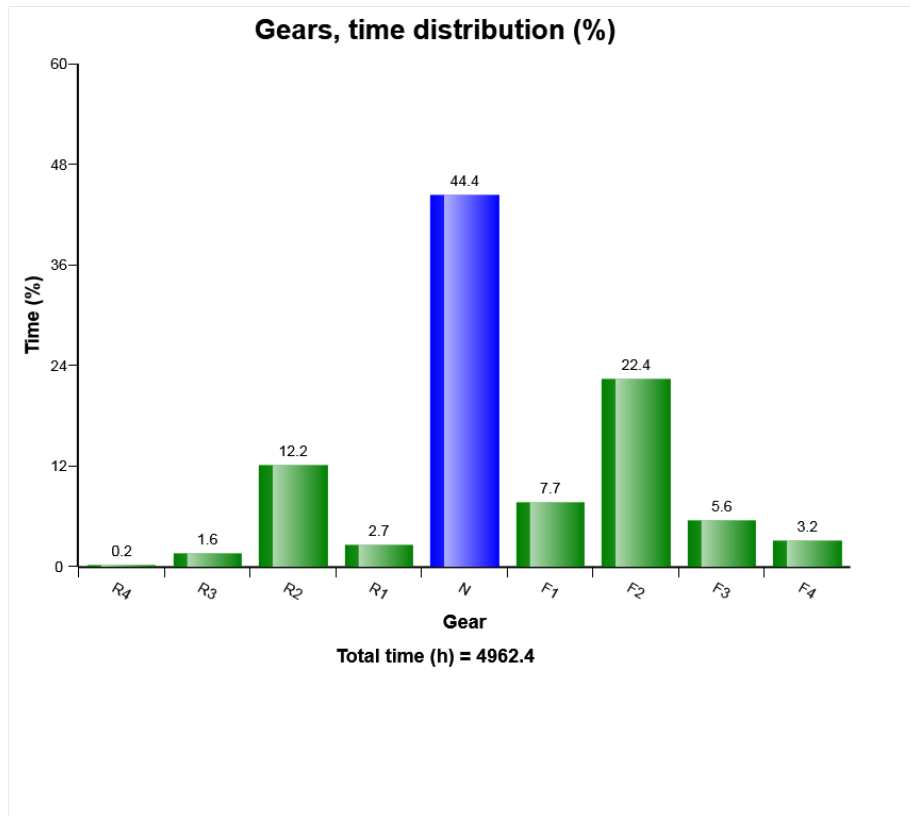
The bar that describes temperatures from 110° C until 120°C is yellow and means that the oil has begun to be overheated. Driver has been given orange central warning

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
L90G	617643	5385.8	5/14/2018



Definition:

The graph describes the distribution of the usage of the different gears, expressed as percentage of total engine running time.

The sum of all bars = 100% = total engine running time.

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

Explanation:

Y-axis: Engine running time, in percent.

X-axis: Active gear.



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018

Green bars:

R1 = First reverse gear

R2 = Second reverse gear

R3 = Third reverse gear

R4 =Fourth reverse gear

N = Neutral position

F1=First forward gear

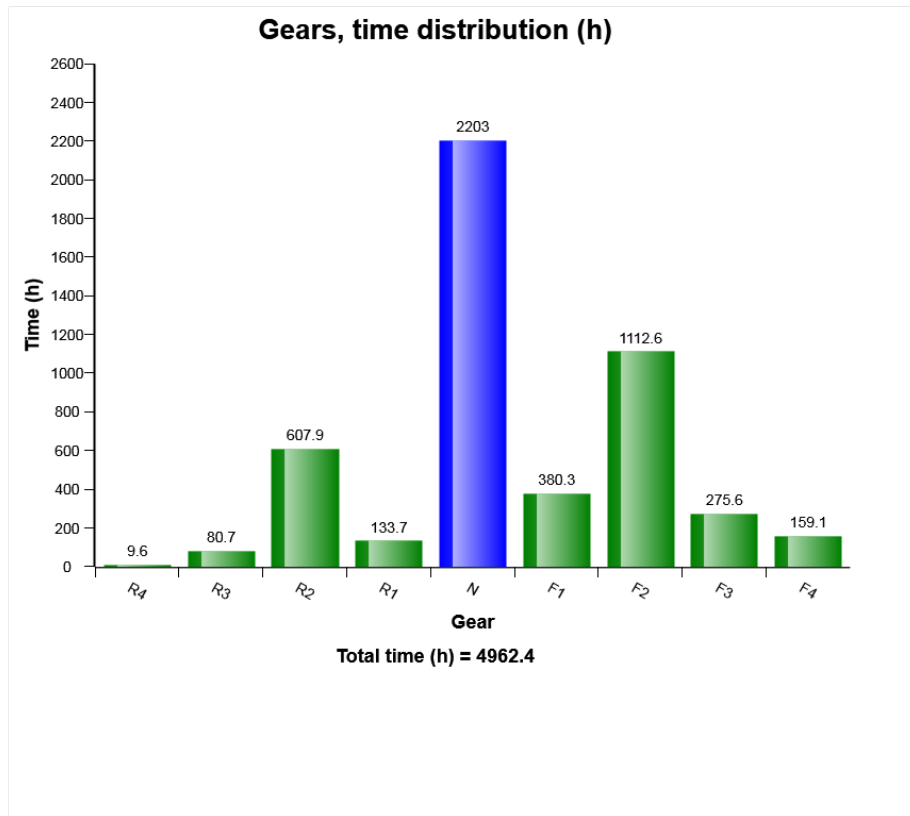
F2=Second forward gear

F3=Third forward gear

F4=Fourth forward gear



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018



Definition:

The graph describes the distribution of the usage of the different gears, expressed as total running time for each gear..

The sum of all bars = Total engine running time.

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

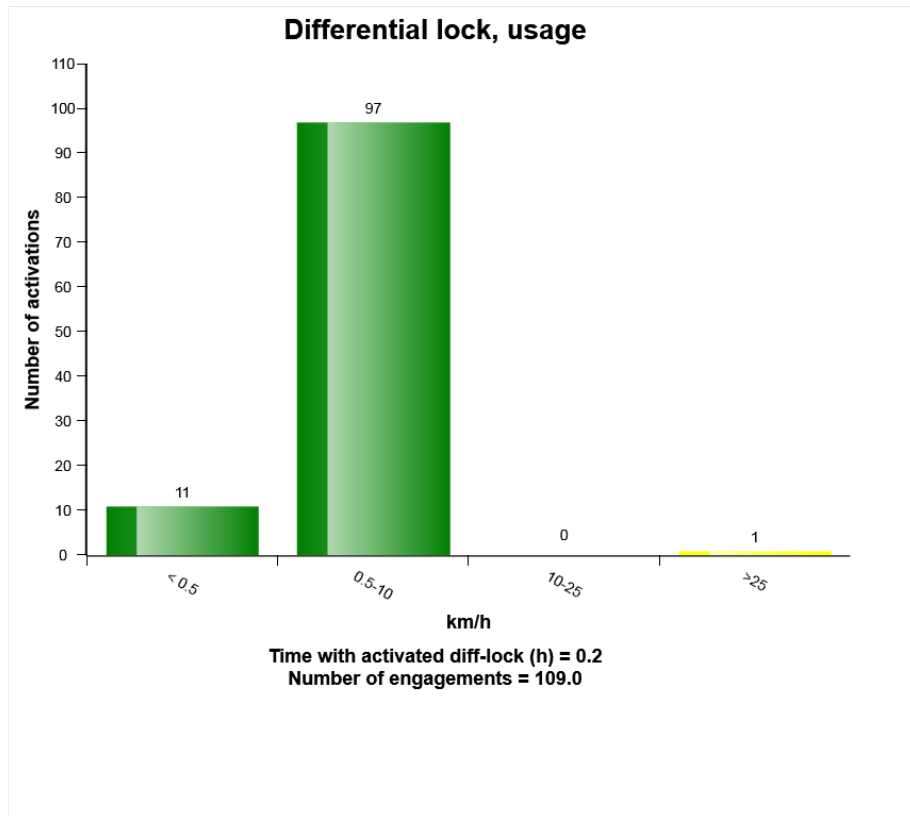
Explanation:

Y-axis: Engine running time, in hours.

X-axis: Active gear.



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018

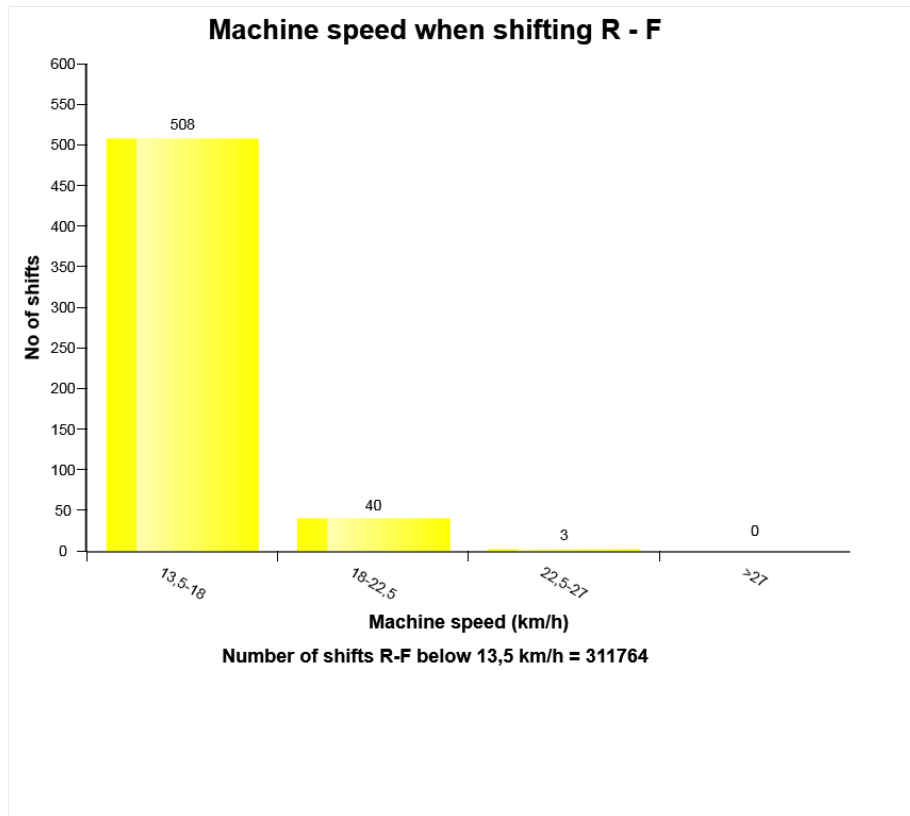


Definition:

The diagram show, number of times the differential lock has been engaged at each speed interval



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018



Definition:

The graph shows the machine speed at direction shift, reverse to forward (R-F)

Explanation:

Y-axis: Number of shifts (reverse-forward)

X-axis: Machine speed in km/h.

Under the graph the total number of directional gear shifts R-F below 13,5 km/h is displayed.

Transmission wear depends on current speed when shifting direction. Less machine speed when shifting direction generally cause less wear on the transmission.



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018

Yellow bar = From 13,5km/h to18 km/h

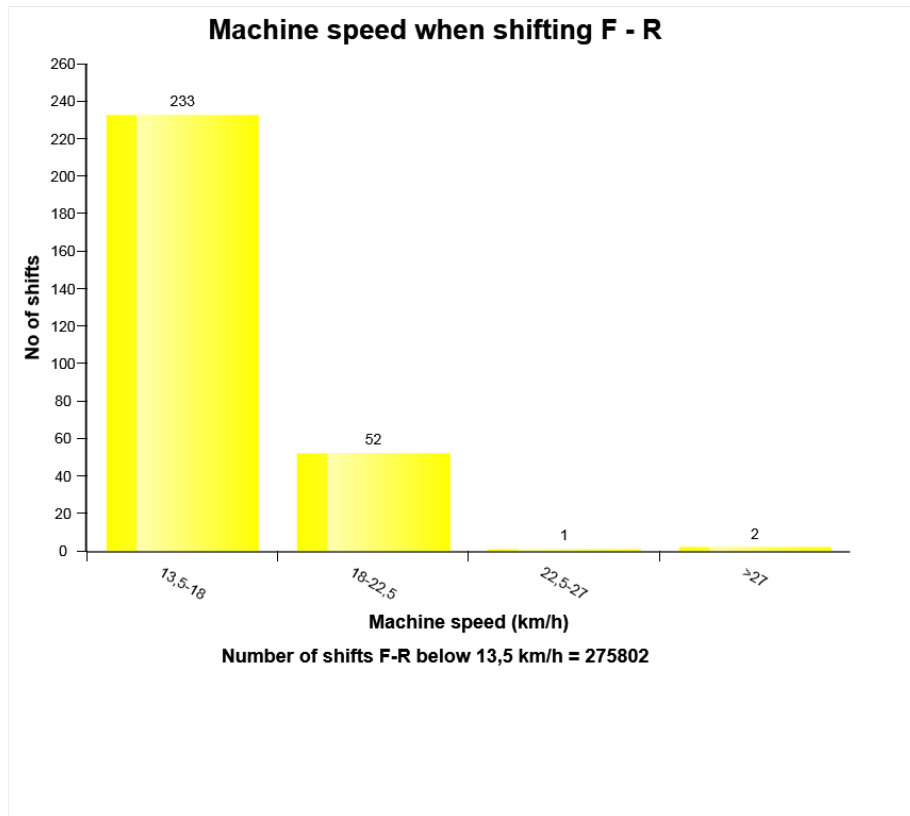
Red bar = From 18km/h to 22,5 km/h

Red bar = From 22,5km/h to 27 km/h

Red bar = Over 27 km/h



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018



Definition:

The graph shows the machine speed at direction shift, forward to reverse (F-R).

Explanation:

Y-axis: Number of shifts (forward to reverse)

X-axis: Machine speed in km/h.

Under the graph the total number of directional gear shifts F-R below 13,5 km/h is displayed.

Transmission wear depends on current speed when shifting direction. Less machine speed when shifting direction generally cause less wear on the transmission.



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018

Yellow bar = From 13,5km/h to 18 km/h

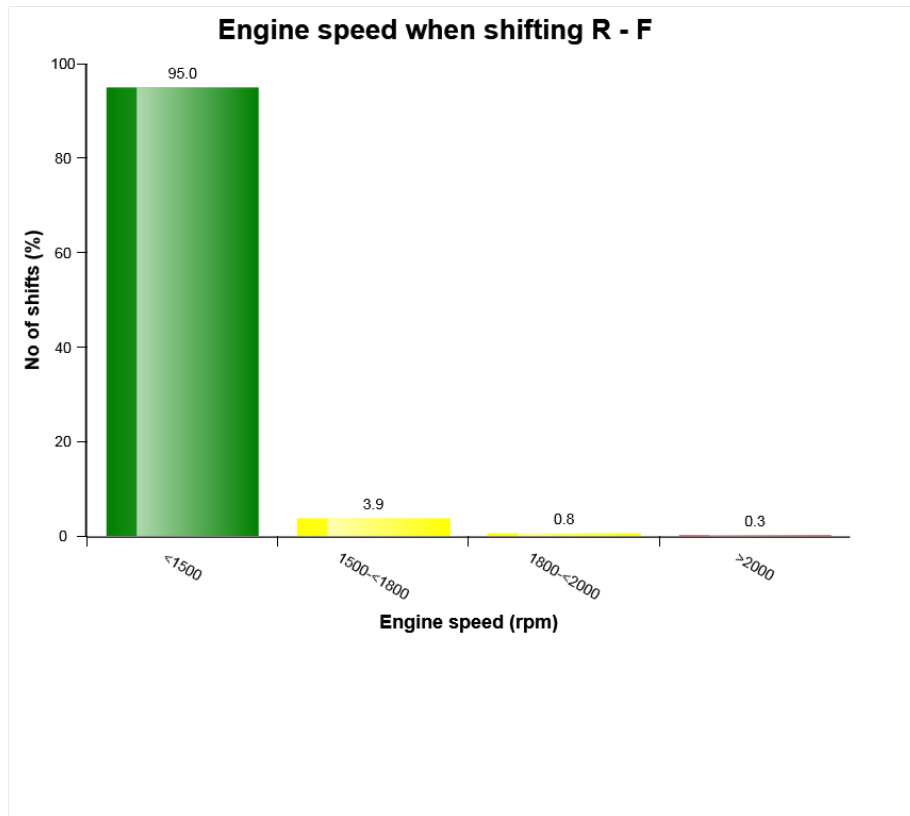
Red bar = From 18km/h to 22,5 km/h

Red bar = From 22,5km/h to 27 km/h

Red bar = Over 27 km/h



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018



Definition:

The graph shows the machine speed at direction shift, reverse to forward (R-F)

Explanation:

Y-axis: Number of shifts (reverse-forward)

X-axis: Machine speed in km/h.

Under the graph the total number of directional gear shifts R-F below 13,5 km/h is displayed.

Transmission wear depends on current speed when shifting direction. Less machine speed when shifting direction generally cause less wear on the transmission.



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018

Yellow bar = From 13,5km/h to18 km/h

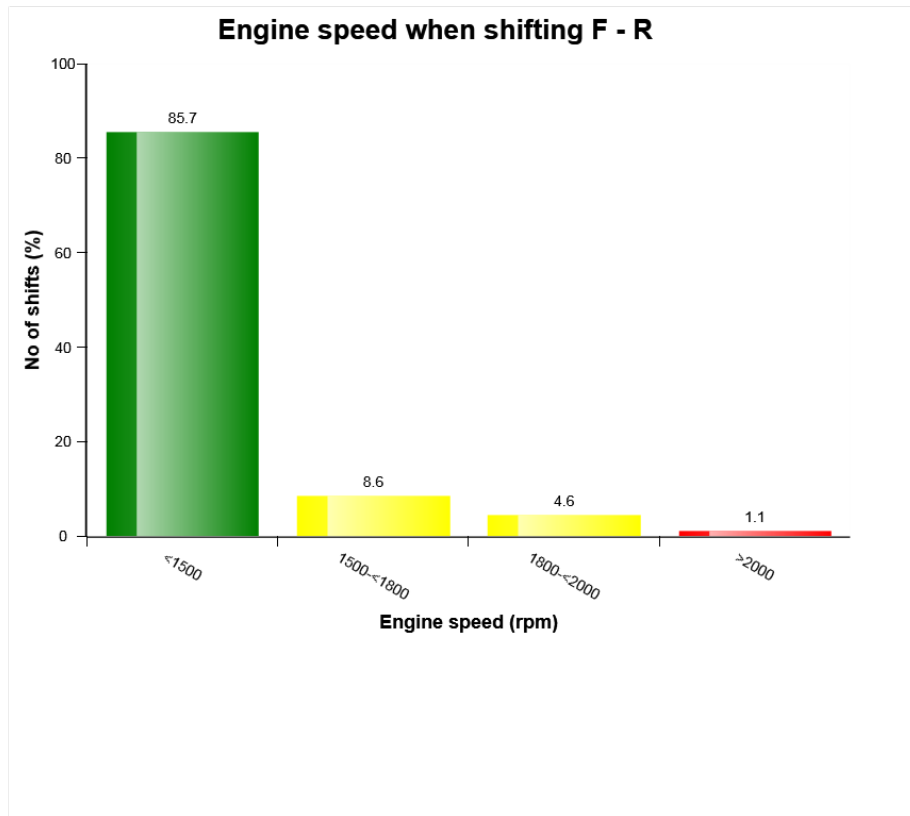
Red bar = From 18km/h to 22,5 km/h

Red bar = From 22,5km/h to 27 km/h

Red bar = Over 27 km/h



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018



Definition:

The graph shows the machine speed at direction shift, forward to reverse (F-R).

Explanation:

Y-axis: Number of shifts (forward to reverse)

X-axis: Machine speed in km/h.

Under the graph the total number of directional gear shifts F-R below 13,5 km/h is displayed.

Transmission wear depends on current speed when shifting direction. Less machine speed when shifting direction generally cause less wear on the transmission.



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018

Yellow bar = From 13,5km/h to 18 km/h

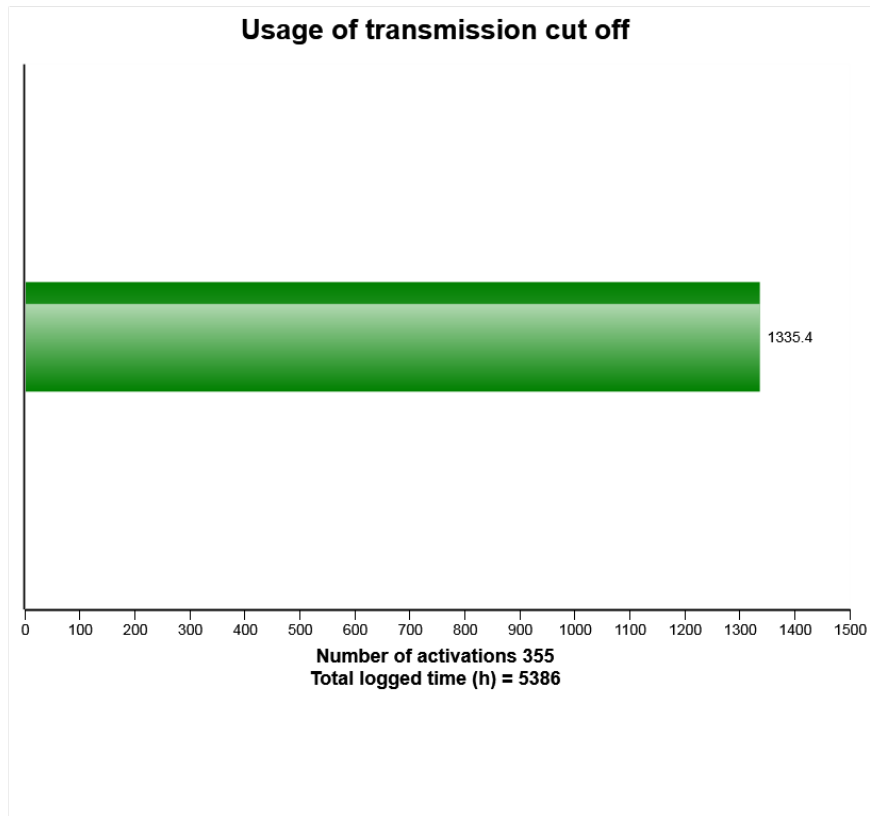
Red bar = From 18km/h to 22,5 km/h

Red bar = From 22,5km/h to 27 km/h

Red bar = Over 27 km/h



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018

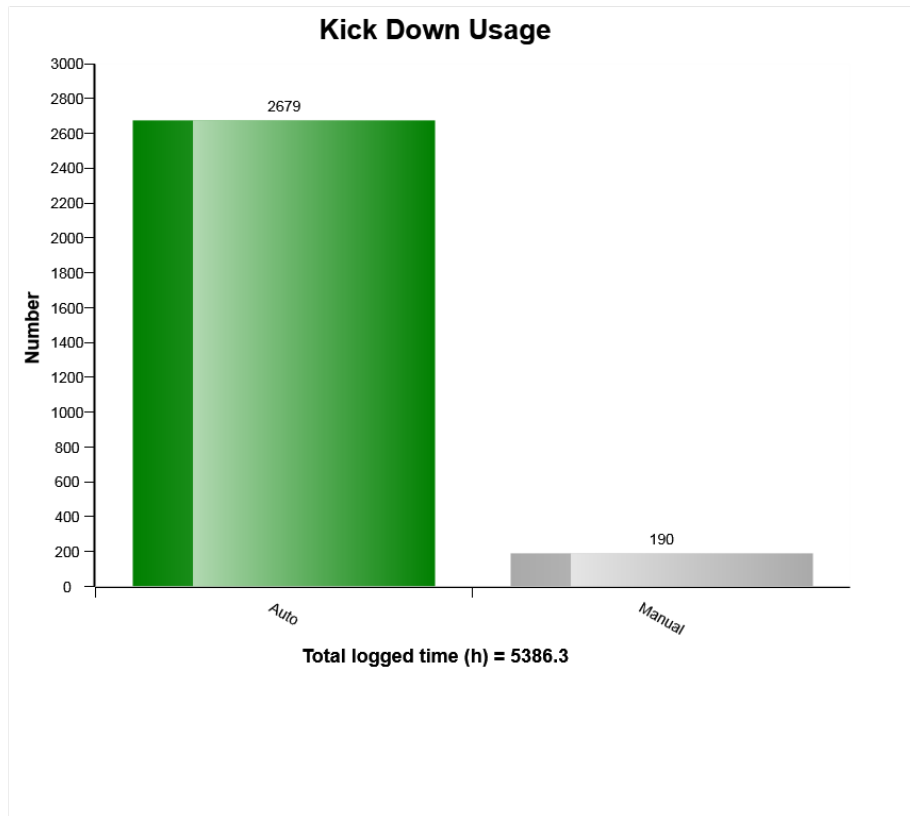


The diagram shows the time that the transmission cut off has been ON.

Below the diagram total number of activations is presented.



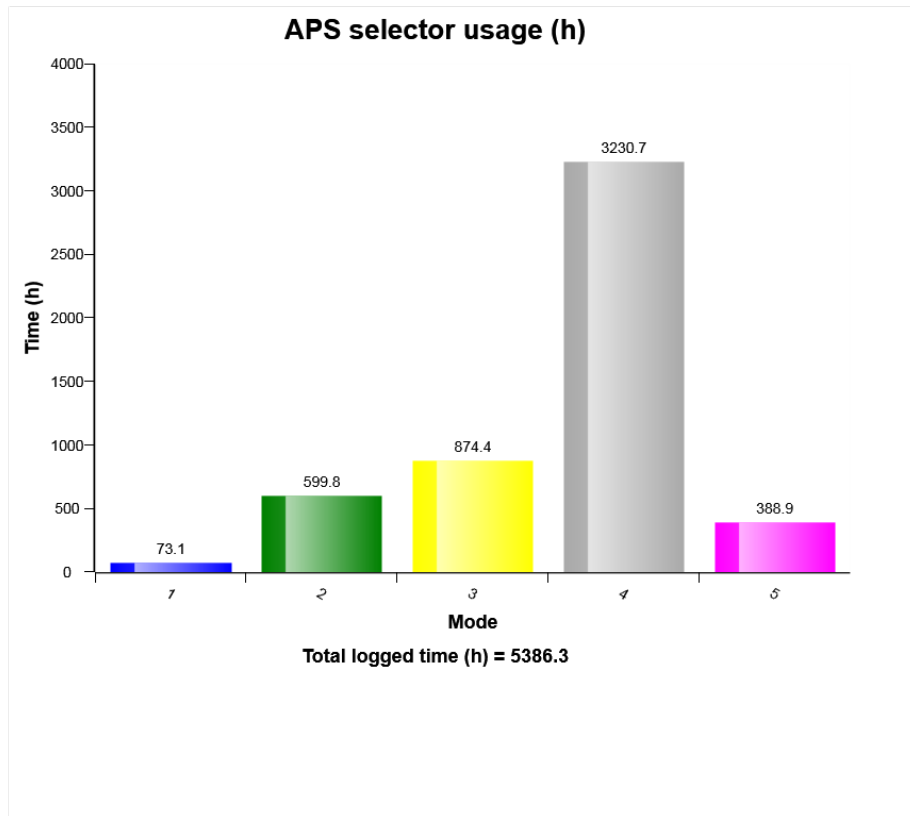
Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018



The diagram shows the distribution between Auto and Manual activations of the Kick down function.



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018



The diagram shows the time distribution for the different APS modes.

For WLO :

Mode1 = Light

Mode2 = Normal

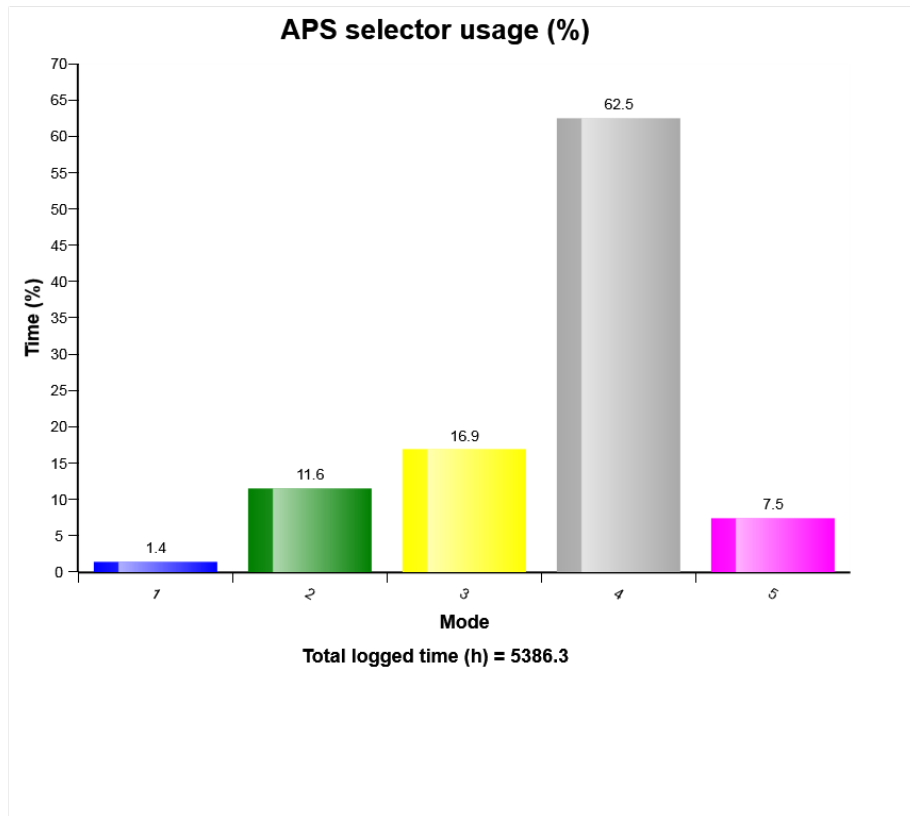
Mode3 = Heavy

Mode4 = Auto

Mode5 = Service.



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018



The diagram shows the time distribution for the different APS modes.

For WLO :

Mode1 = Light

Mode2 = Normal

Mode3 = Heavy

Mode4 = Auto

Mode5 = Service.



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018

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.

Criteria :

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



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018

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 :

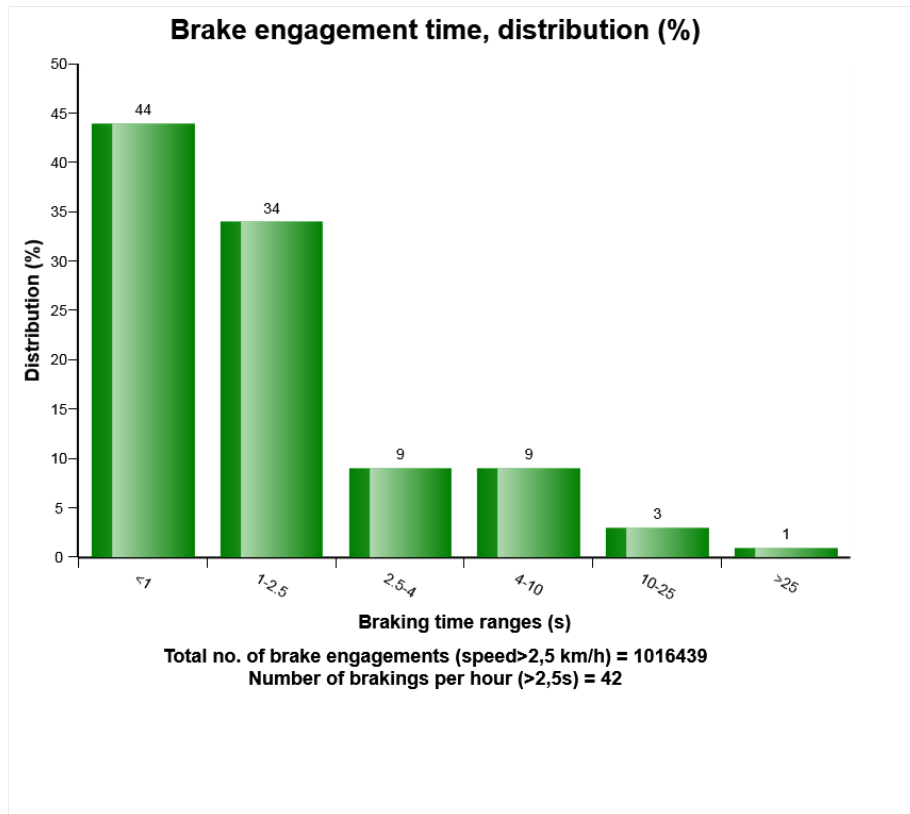
The extreme value column displays the most extreme value during the event.

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
L90G	617643	5385.8	5/14/2018



Definition:

The graph describes the duration of brake engagements: Distribution in percent.

This chart illustrates time with higher brake pressure than 5.0 bar (72.5 psi) and machine speed exceeding 2.5 km/h (1.55 mph).

The sum of bars=100% of brake engagements.

Explanation:

Y-axis: Percentage of times that the brake has been engaged in each class.

X-axis: Brake engagement time range in seconds.



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018

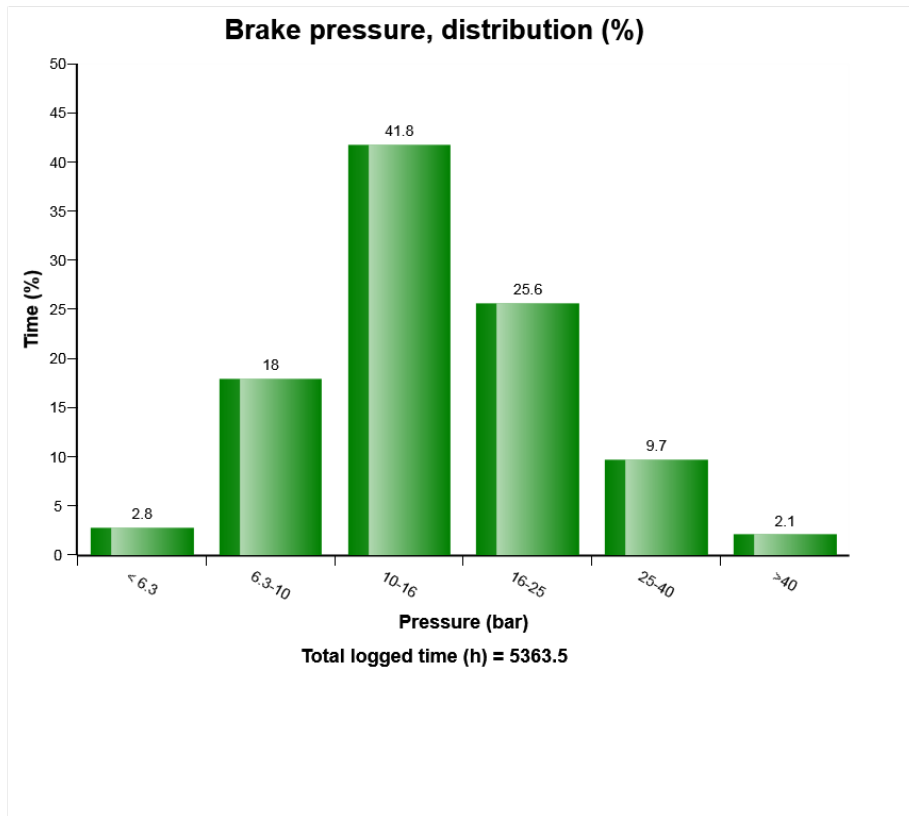
The distribution of the bars throughout the ranges reflects the operator's way of handling the machine.

To get a greater understanding of how the brake is used also study the presentation " *Brake pressure distribution*".

Green bars = Brake engagement duration in separate ranges



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018



Definition:

The graph describes the brake pressure distribution.

The sum of bars=100% of brake engagements.

Explanation:

Y-axis: Percentage of times that the brake has been engaged.

X-axis: Brake pressure distribution in bar.

The distribution of the bars throughout the ranges reflects the operator's way of handling the machine. A concentration in the lower ranges indicates that the machine is being operated correctly.



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018

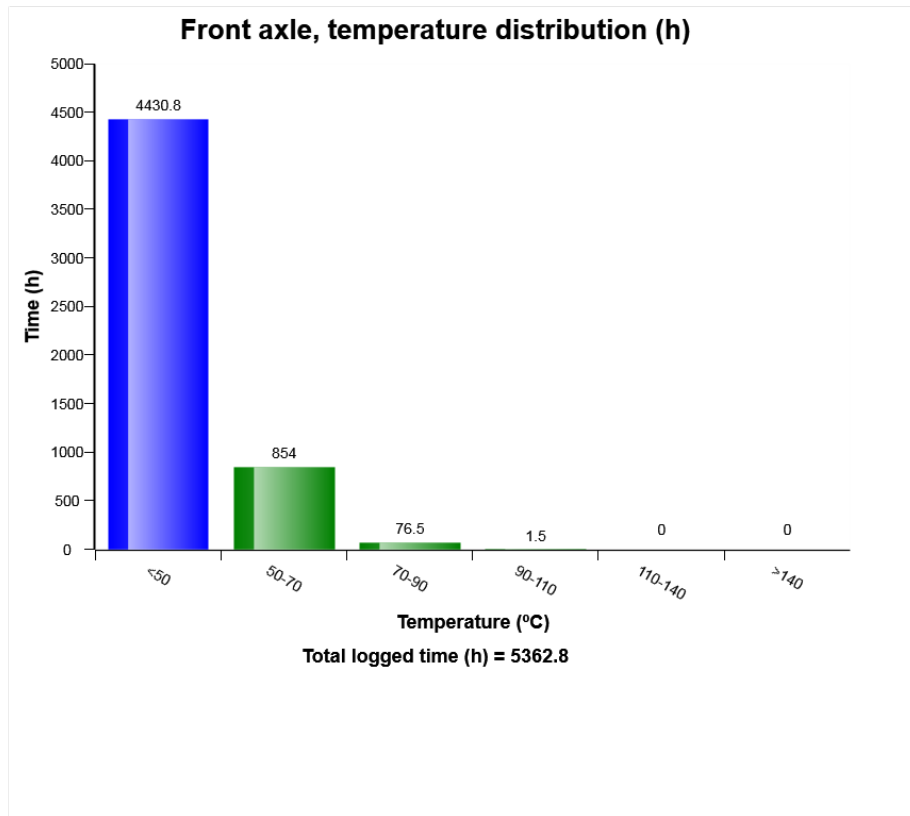
A concentration in the highest range indicates that the machine is operated hard and in an inefficient manner.

To get a greater understanding of how the brake is used also study the presentation "Brake engagement time".

Green bars = Brake pressure ranges



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018



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.



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018

It is normal to have registrations in this region.

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

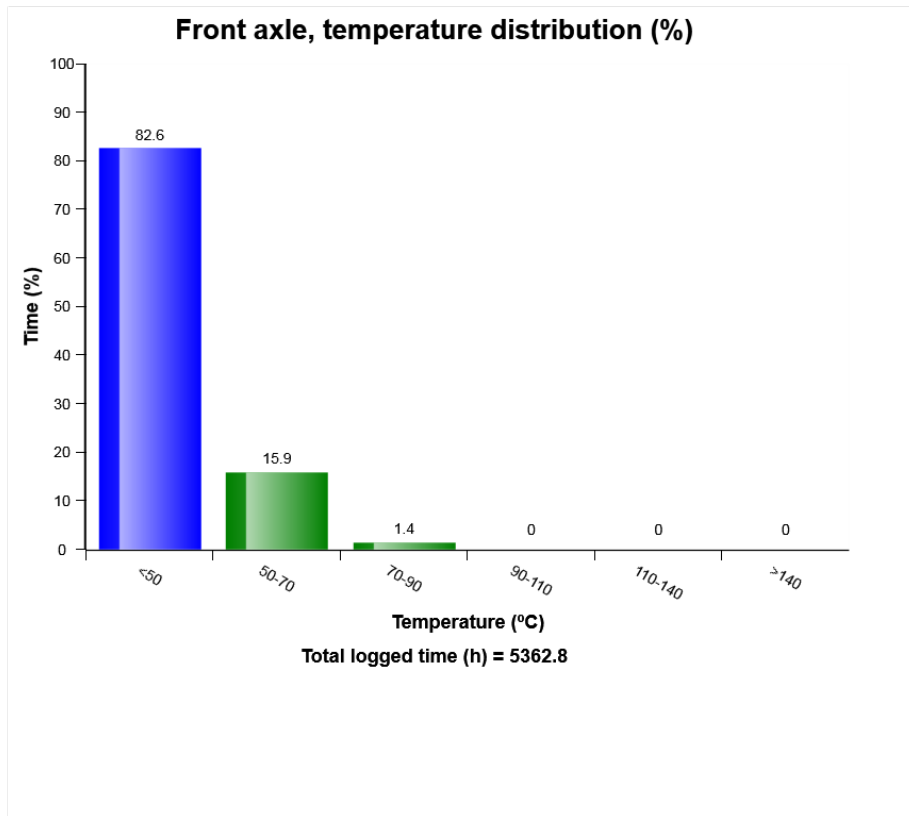
Yellow bar = High working temperature. It is normal to have some registrations in this region.

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
L90G	617643	5385.8	5/14/2018



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.



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018

It is normal to have registrations in this region.

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

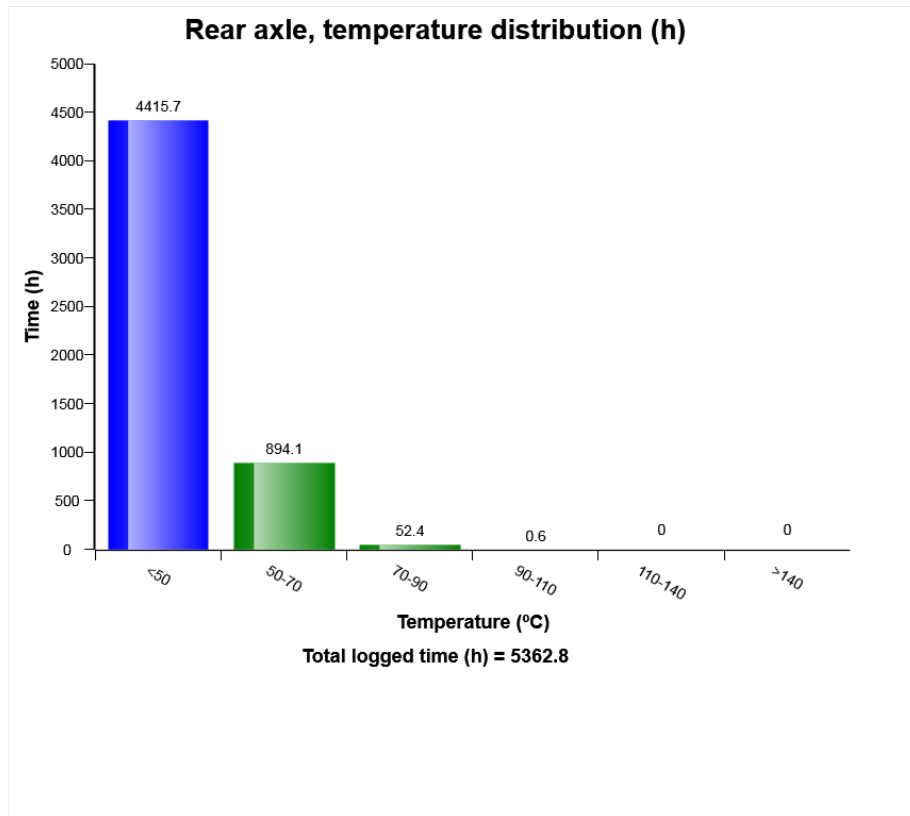
Yellow bar = High working temperature. It is normal to have some registrations in this region.

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
L90G	617643	5385.8	5/14/2018



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.



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018

It is normal to have registrations in this region.

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

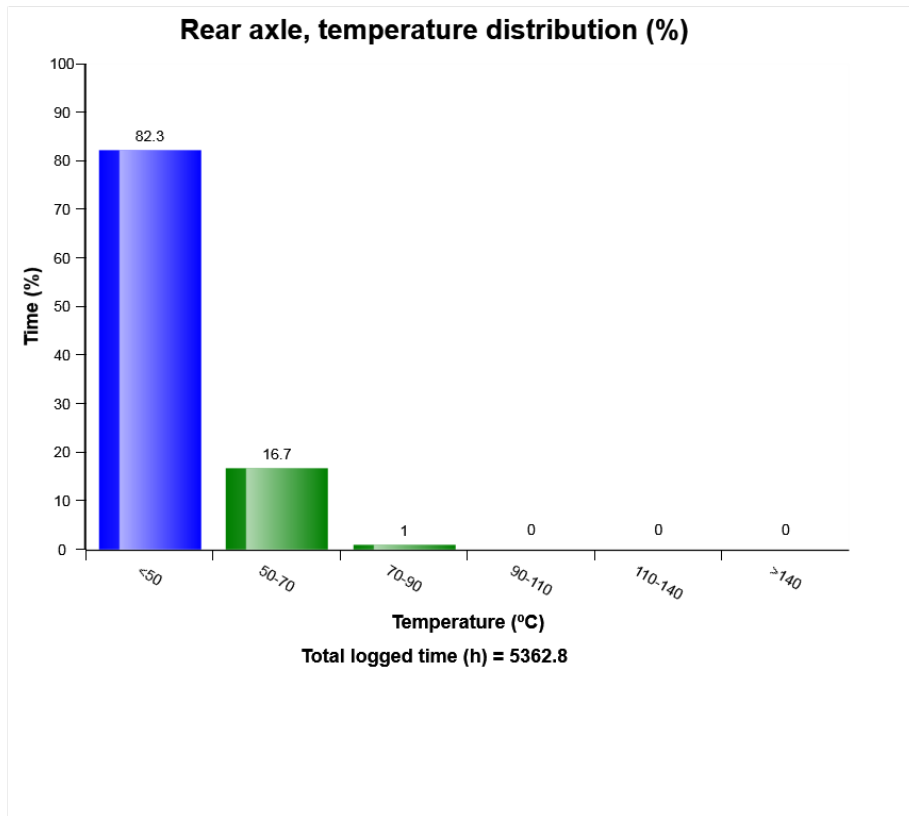
Yellow bar = High working temperature. It is normal to have some registrations in this region.

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
L90G	617643	5385.8	5/14/2018



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.



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018

It is normal to have registrations in this region.

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.



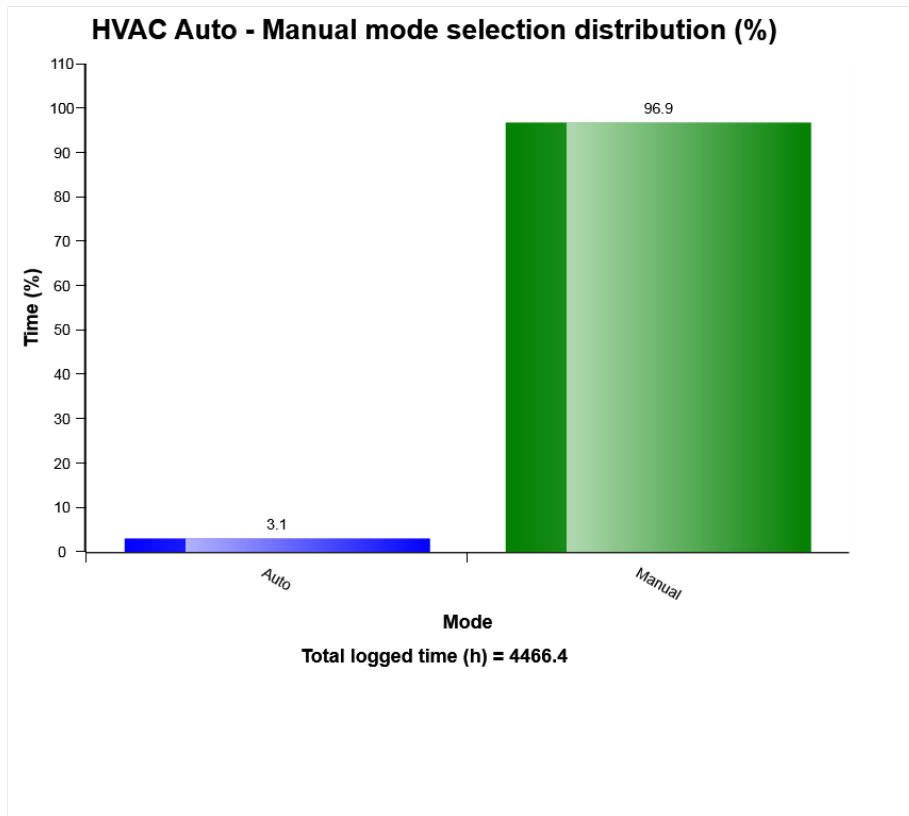
Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018

Parking brake usage
Total number of occurrences = 1282

Op hours	Year	Month	Day	Hour	Minute	Duration (minutes)
5384	2018	4	18	9	33	0
5384	2018	4	18	8	58	0
5384	2018	4	18	9	1	6
5384	2018	4	18	9	8	3
5384	2018	4	18	9	15	0
5384	2018	4	18	9	19	3
5384	2018	4	18	9	24	2
5384	2018	4	18	9	29	1
5384	2018	4	20	11	30	0
5385	2018	5	14	9	43	7
5385	2018	5	14	9	40	1
5385	2018	5	11	9	4	12
5385	2018	5	11	8	58	2
5385	2018	5	14	12	45	1
5385	2018	5	11	8	49	1
5385	2018	4	20	11	36	0
5385	2018	5	14	9	54	0
5385	2018	5	14	12	50	1
5385	2018	5	11	8	54	1
5385	2018	5	14	10	24	2



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018

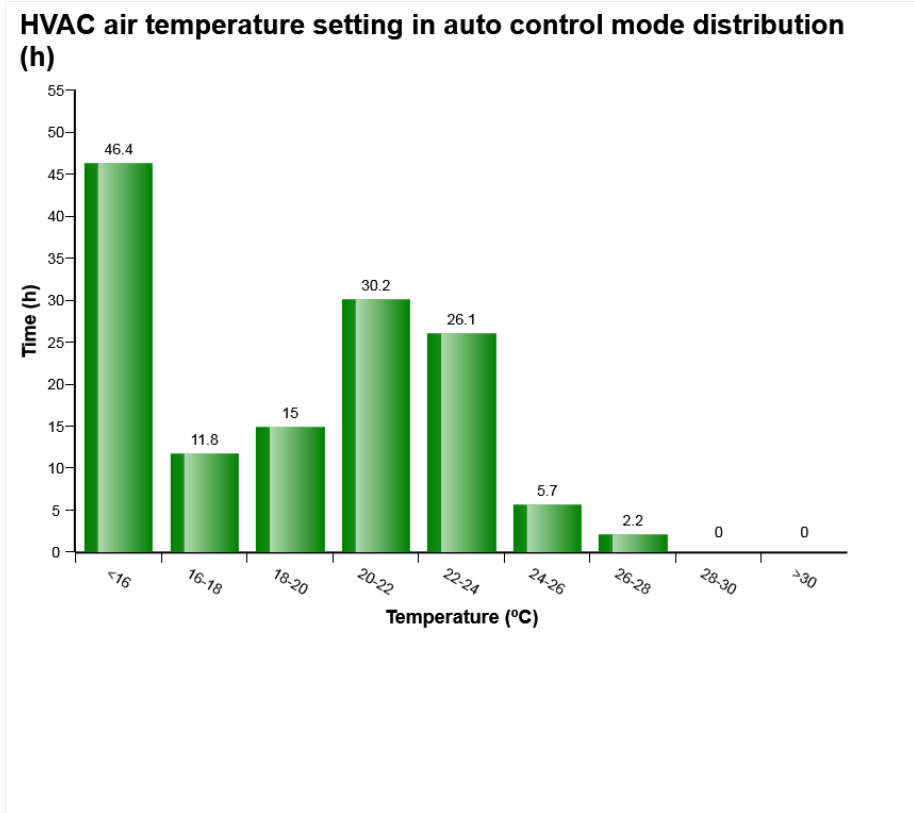


Definition:

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
L90G	617643	5385.8	5/14/2018

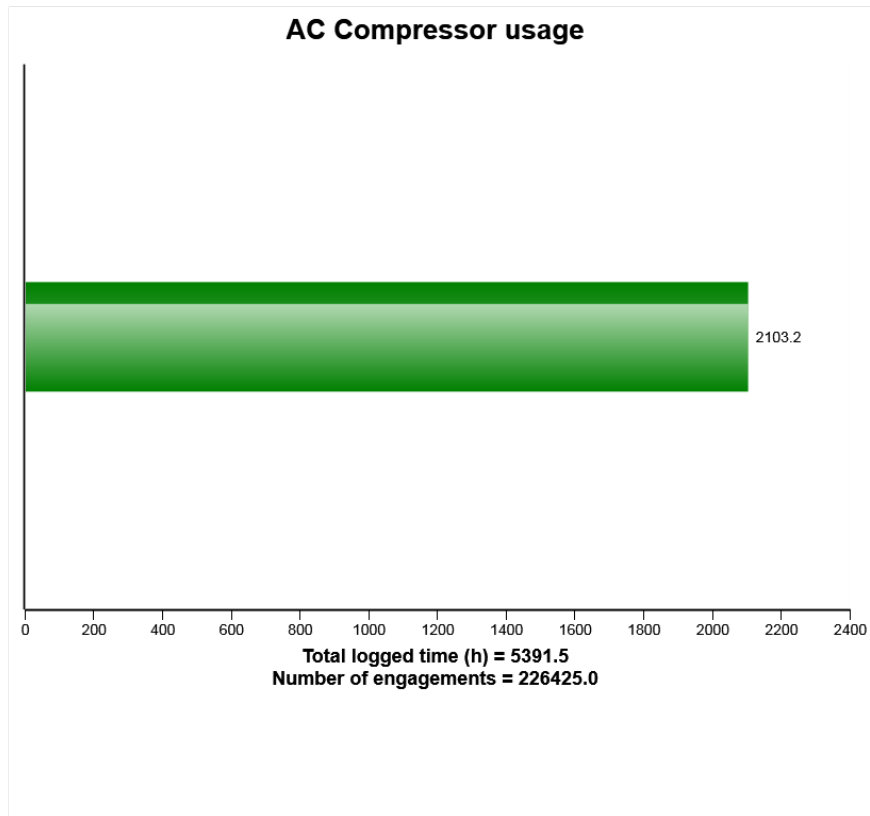


Definition:

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



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018



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.

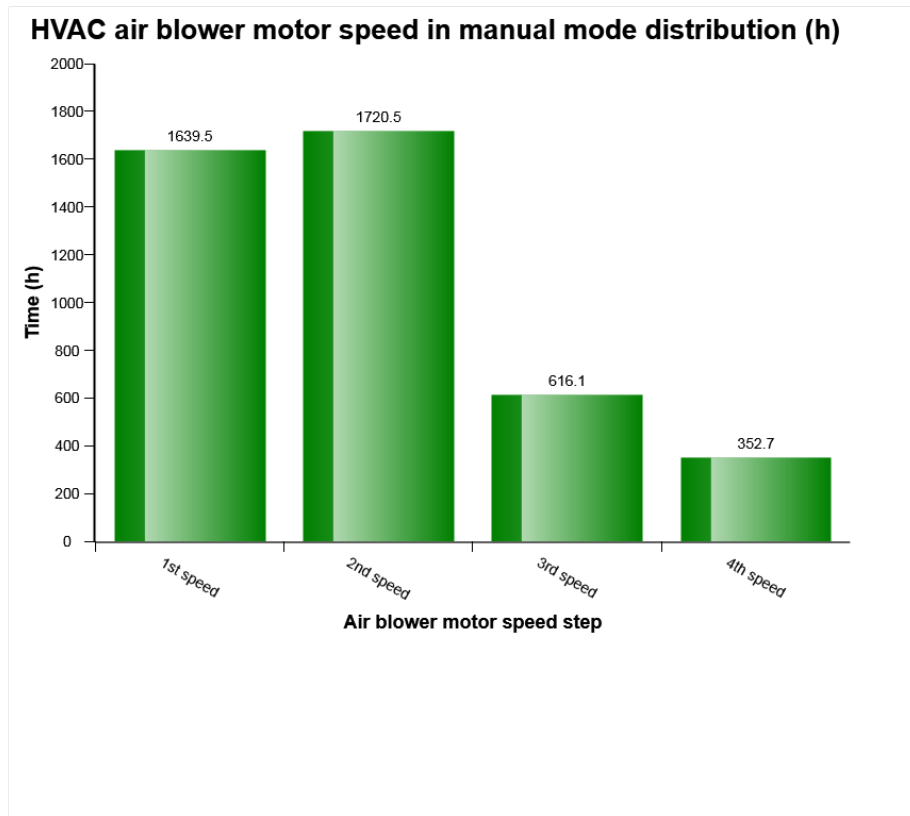


Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018

-



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018



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
L90G	617643	5385.8	5/14/2018

AC High Pressure
Total number of occurrences = 256

Op hours	Year	Month	Day	Hour	Minute	Duration (sec)	Extreme (° C)
2382	2016	6	22	17	38	21	36
2383	2016	6	22	17	53	12	36
2480	2016	7	7	16	53	12	40
2490	2016	7	8	15	56	49	38
2520	2016	7	12	15	14	12	36
2529	2016	7	13	15	1	163	38
2572	2016	7	22	13	55	10	40
2575	2016	7	22	16	28	18	41
2580	2016	7	23	12	8	16	40
2645	2016	8	5	14	45	25	40
2645	2016	8	5	15	12	224	41
2664	2016	8	8	15	23	13	38
2690	2016	8	11	14	42	19	40
2697	2016	8	12	12	47	13	40
2698	2016	8	12	14	0	13	41
2699	2016	8	12	15	27	76	42
2762	2016	8	22	16	1	19	33
2887	2016	9	8	15	32	55	37
3028	2016	10	6	16	44	112	34
4508	2017	6	14	15	23	78	33

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



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018

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.

Criteria :

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



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018

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 :

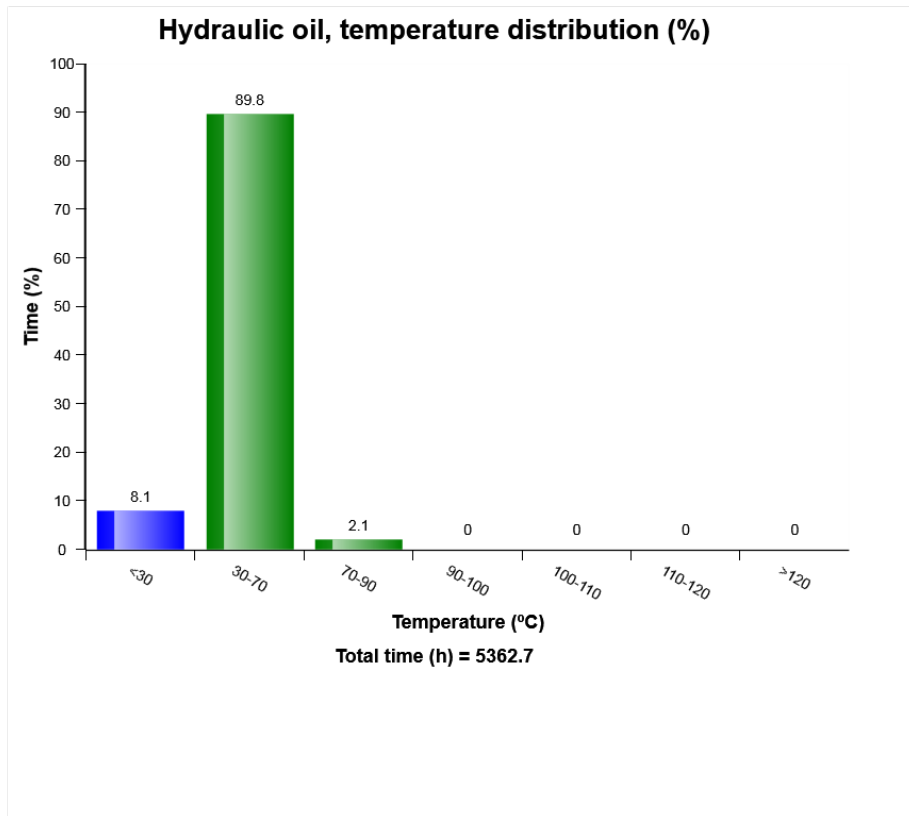
The extreme value column displays the most extreme value during the event.

Criteria :

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



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018



Definition:

The graph describes hydraulic oil temperature distribution.

The sum of bars = Engine total running time.

Under the graph the total engine running time is displayed.

The value of each bar presented above the bars with one decimal.

Explanation:

Y-axis: Engine running time in percent of time.



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018

X-axis: Oil temperature distribution in °C.

Blue bar = Below 30°C, warming-up phase.

Green bar = From 30 ° C to 70°C, normal working temperature

Green bar = From 70 ° C to 90°C, normal working temperature

Green bar = From 90 ° C to 100°C, normal working temperature

Yellow bar = From 100 ° C to 110°C, high working temperature

Red bar = From 110°C to 120°, To high temperature

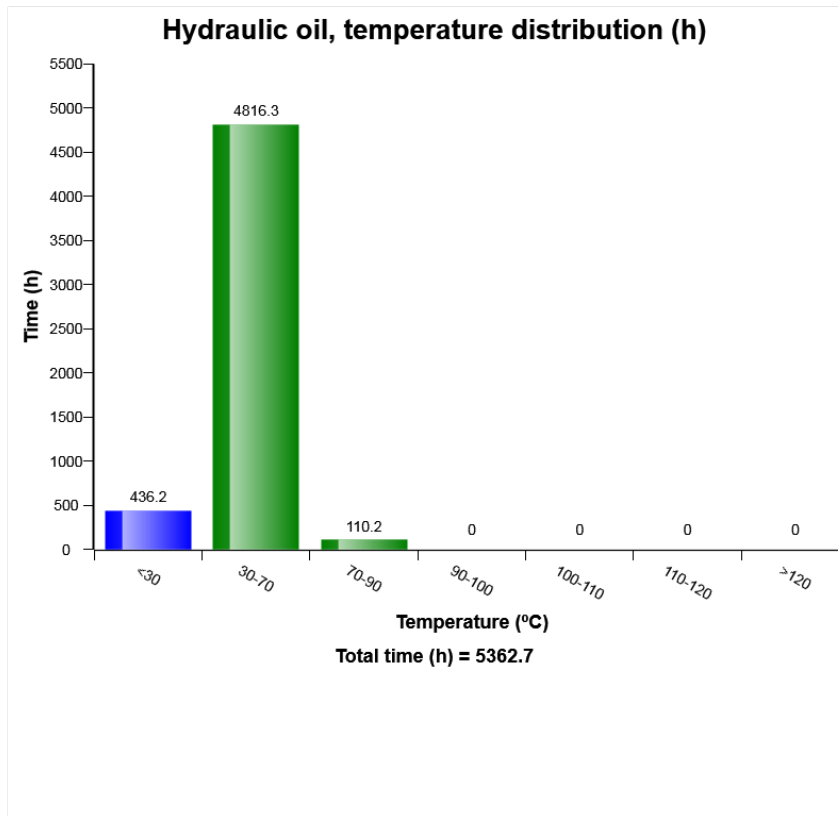
Red bar = Over 120°, Alarm

Temperature in this area is not normal.

Temperature over 120°C may cause severe damages on the hydraulic system.



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018



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.



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018

It is normal to have registrations in this region.

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
L90G	617643	5385.8	5/14/2018

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.

Criteria :

Logging is performed when, Alarm high hydraulic oil temperature , is active.



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018

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.

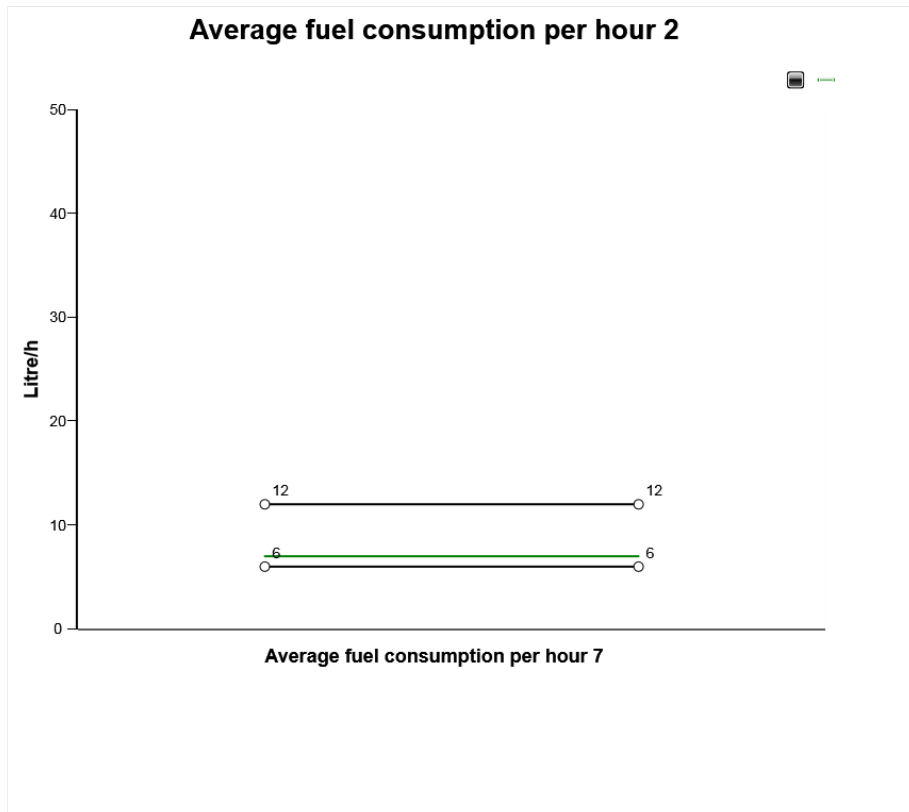
The duration is counted as long as the criteria is fulfilled.

Criteria :

The criteria to get a registration, is that the Alarm signal for low hydraulic oil level i s active and that the diesel engine is running.



Machine model	SerialNo	Operating Hours	Reading Date
L90G	617643	5385.8	5/14/2018



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

