VOLVO CONSTRUCTION EQUIPMENT

MATRIS REPORT

Machine model	SerialNo	Operating Hours	Reading Date
L90G	617610	4729.8	5/11/2018

Company name	Dealer	Report Issuer
VOLVO REMARKETING	ARNOLD MACHINERY	

Contact name	Technician	Primary Application
	ORVIN OREBAUGH	Lose VirginBank (e.g. sand,

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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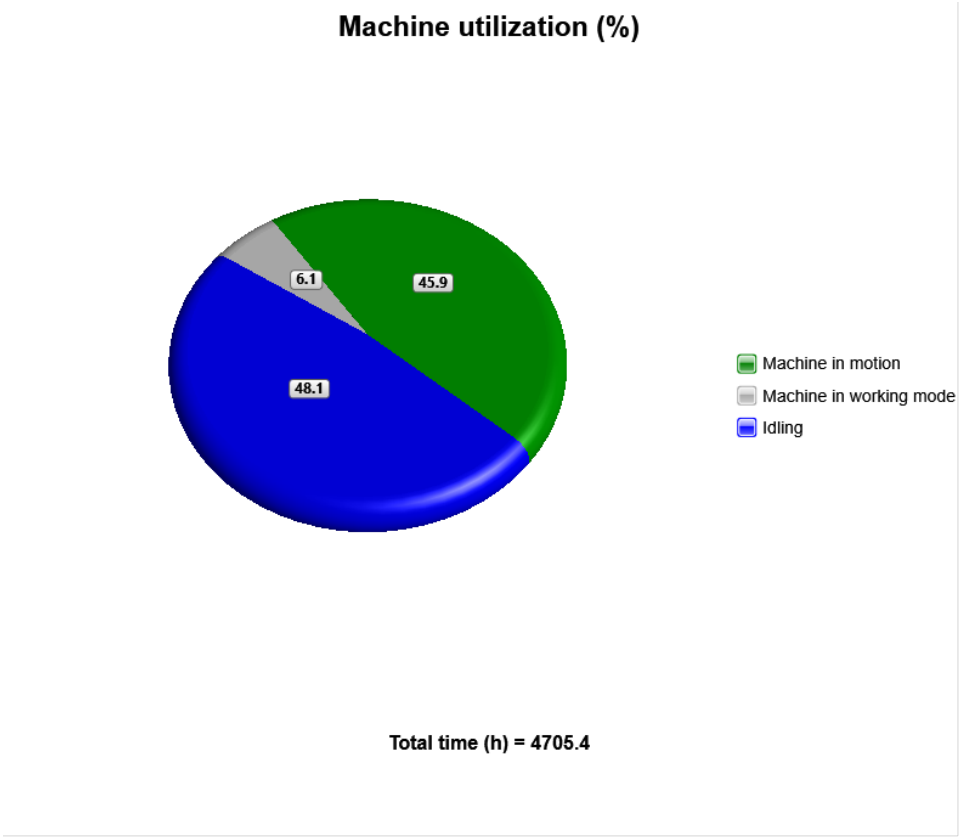

Definition:

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) .

Gear level position: Forward or reverse.

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

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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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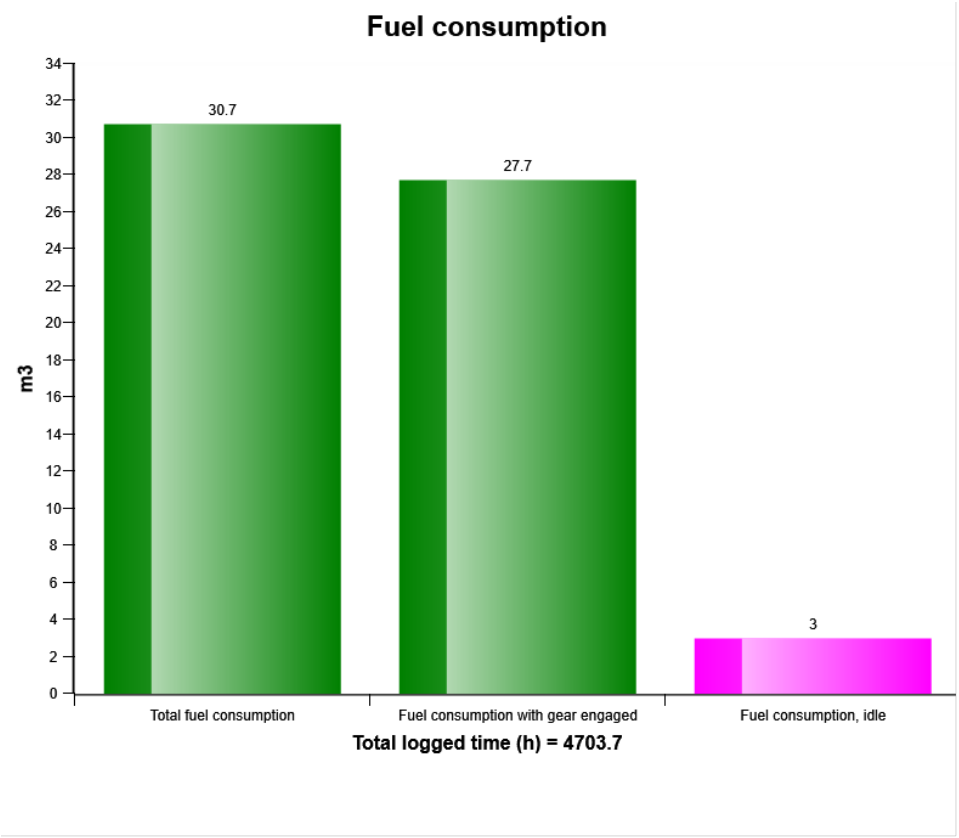

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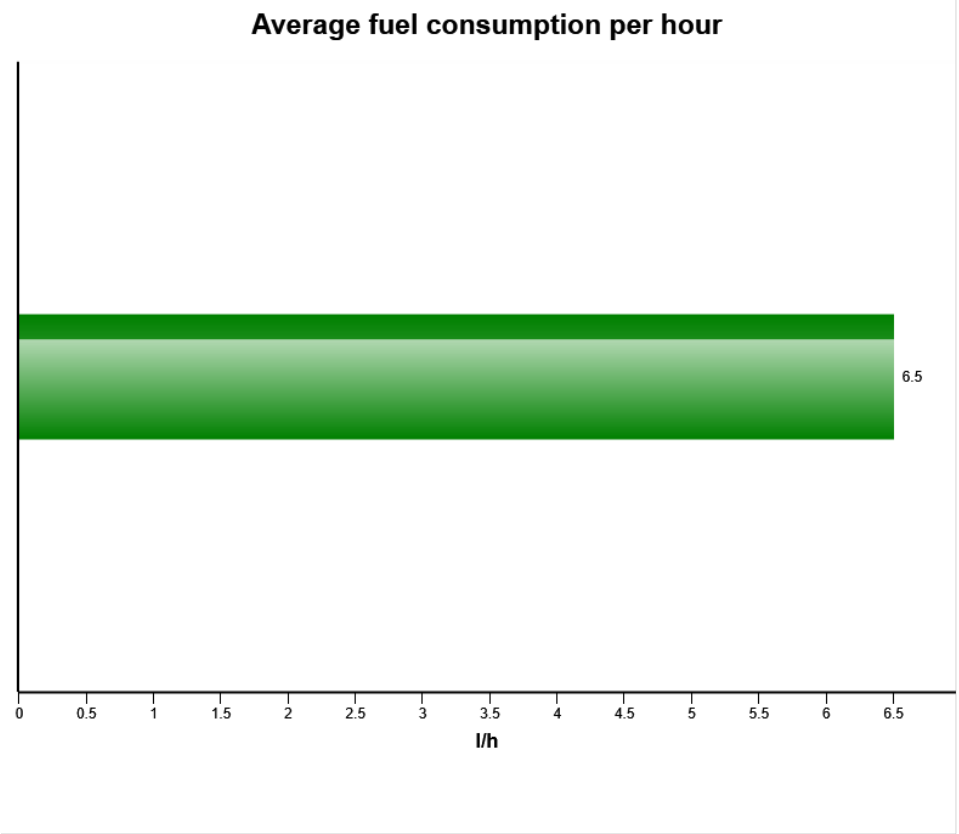

The diagram shows the average fuel consumption based on total operating hours.

Machine model	SerialNo	Operating Hours	Reading Date
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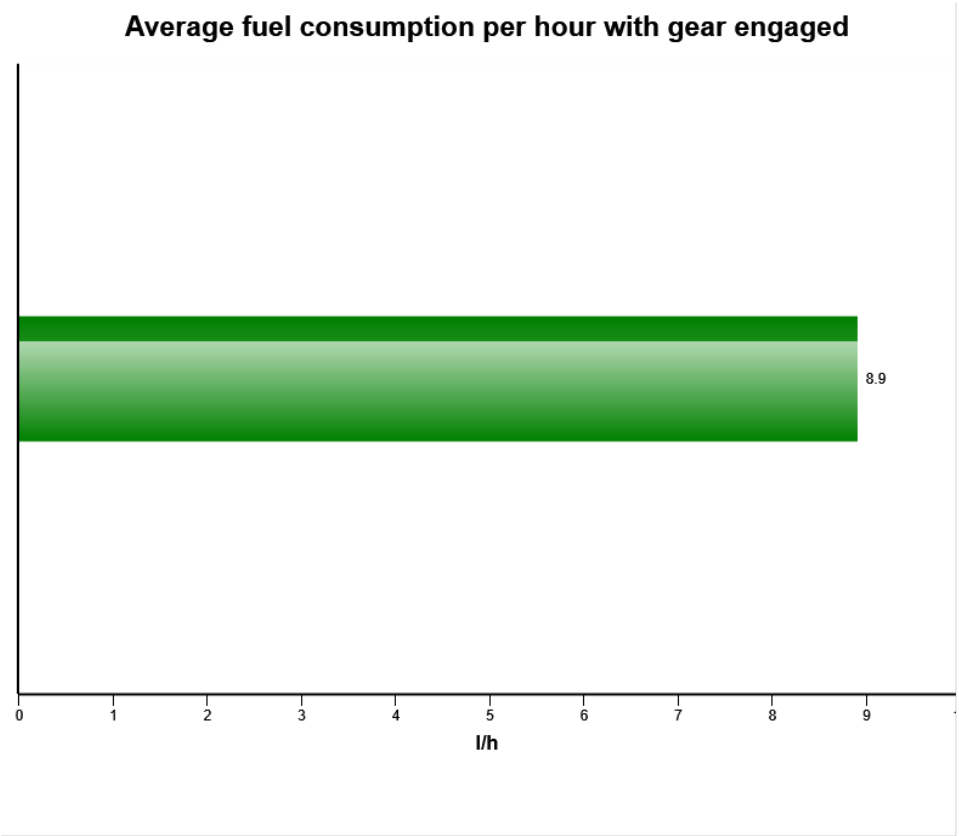

The diagram shows the average fuel consumption based on the operating hours with gear engaged.

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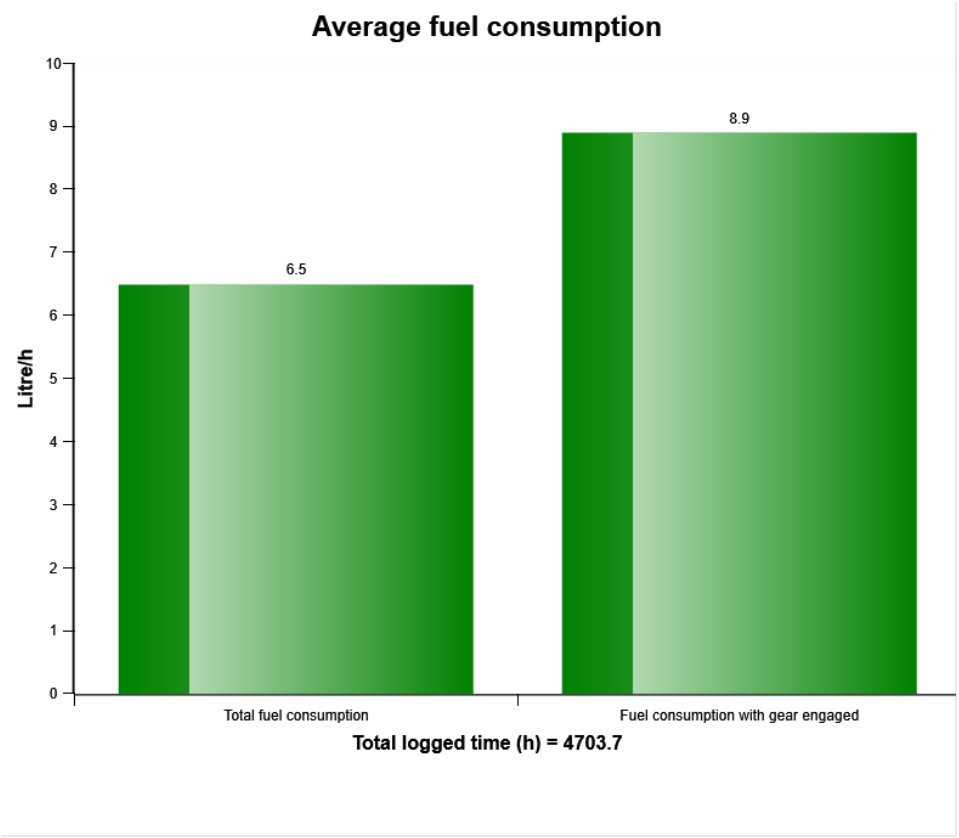

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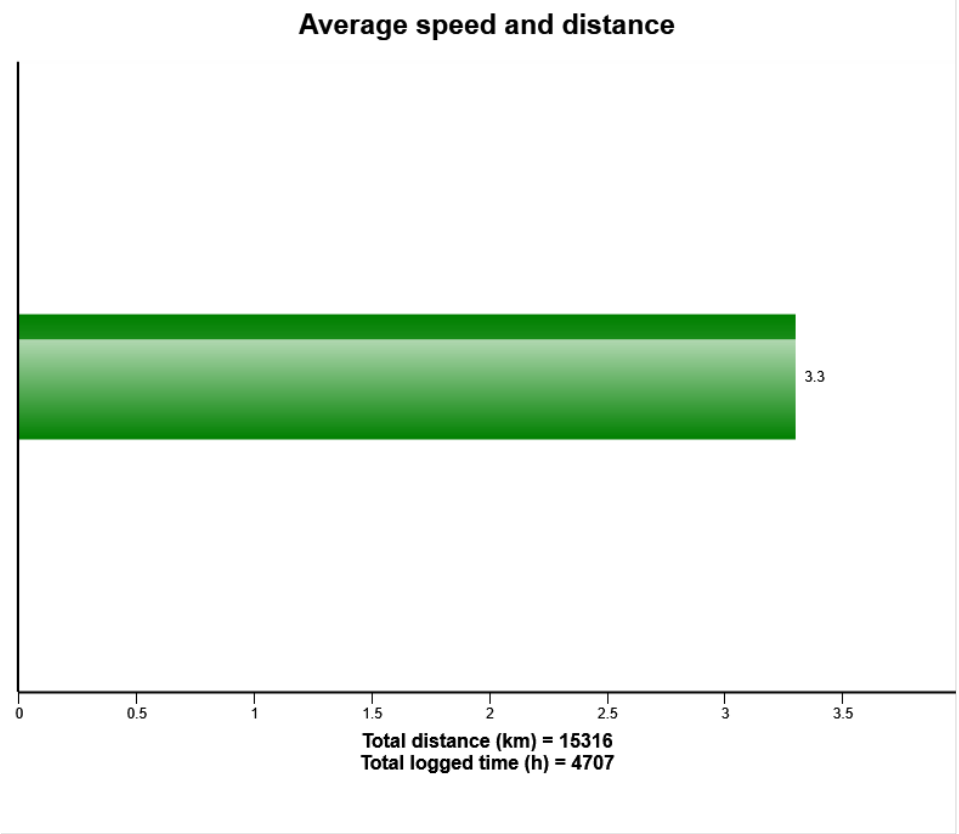

The diagram shows the machines average speed based on the total operating hours.

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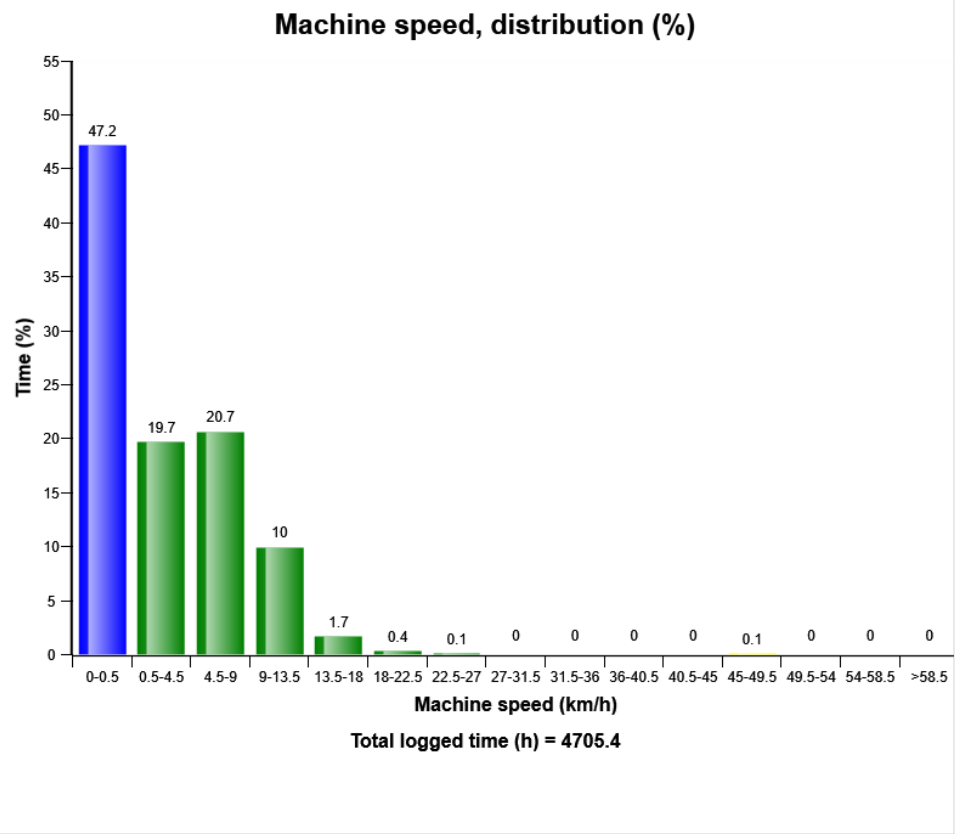

Definition:

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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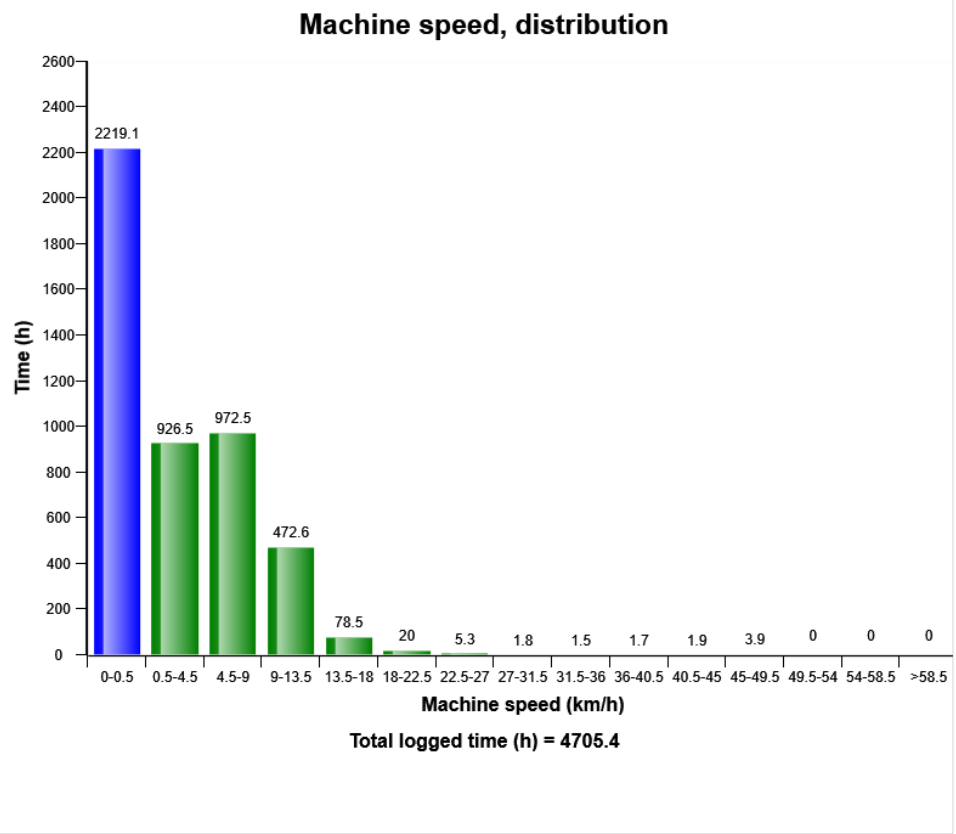

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Regeneration ignored
Total number of ignored regenerations 32

	Op hours	Year	Month	Day	Hour	Minute	Duration (min)
*	1988	2015	10	6	7	2	164
*	2135	2015	11	2	16	18	58
*	2135	2015	10	31	21	19	1
*	2626	2016	2	26	10	39	90
*	2628	2016	2	26	13	26	1
*	2628	2016	2	26	12	26	53
*	2628	2016	2	26	13	31	38
*	4140	2010	2	10	9	9	1
*	4140	2010	2	10	8	53	0
*	4140	2010	2	10	10	46	1
*	4140	2010	2	10	10	31	2
*	4140	2010	2	10	10	26	2
*	4140	2010	2	10	10	11	0
*	4140	2010	2	10	9	41	0
*	4140	2010	2	10	9	37	1
*	4140	2010	2	10	9	27	0
*	4140	2010	2	10	14	40	49
*	4159	2010	2	19	14	1	32
*	4159	2010	2	19	11	26	49
*	4535	2010	7	27	12	43	18

Machine model	SerialNo	Operating Hours	Reading Date
L90G	617610	4729.8	5/11/2018

Regeneration aborted
Total number of aborted regenerations 320

	Op hours	Year	Month	Day	Hour	Minute
*	4405	2010	6	8	8	0
*	4405	2010	6	8	8	15
*	4414	2010	6	10	8	27
*	4414	2010	6	10	10	12
*	4415	2010	6	10	11	36
*	4415	2010	6	10	12	58
*	4423	2010	6	22	9	7
*	4431	2010	6	25	7	37
*	4439	2010	7	5	10	27
*	4439	2010	7	3	10	53
*	4440	2010	7	5	10	41
*	4451	2010	7	8	17	21
*	4452	2010	7	9	9	52
*	4569	2010	8	4	16	36
*	4604	2010	8	17	16	15
*	4654	2010	9	10	8	18
*	4655	2010	9	10	8	45
*	4666	2010	9	15	16	40
*	4692	2010	9	23	9	24
*	4693	2010	9	27	9	13

Machine model	SerialNo	Operating Hours	Reading Date
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Regeneration duration
Total number of occurences = 1273

	Op hours	Year	Month	Day	Hour	Minute	Duration (min)
*	4604	2010	8	17	16	47	21
*	4605	2010	8	18	7	2	32
*	4611	2010	8	20	4	19	28
*	4617	2010	8	23	10	6	31
*	4622	2010	8	27	3	15	30
*	4629	2010	9	6	13	36	31
*	4637	2010	9	7	14	6	29
*	4645	2010	9	8	15	22	33
*	4654	2010	9	10	8	26	20
*	4654	2010	9	10	8	3	15
*	4655	2010	9	10	8	55	31
*	4662	2010	9	14	12	56	30
*	4666	2010	9	15	16	35	5
*	4666	2010	9	16	7	43	30
*	4675	2010	9	17	9	10	29
*	4683	2010	9	20	14	31	29
*	4692	2010	9	23	8	59	25
*	4692	2010	9	27	8	44	29
*	4693	2010	9	27	9	24	28
*	4697	2011	2	14	15	35	36

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Regeneration intervals
Total number of occurences = 662

	Op hours	Year	Month	Day	Hour	Minute	Duration (min)
*	4578	2010	8	9	21	17	417
*	4585	2010	8	11	2	57	392
*	4592	2010	8	13	9	15	355
*	4599	2010	8	16	14	24	303
*	4605	2010	8	18	7	34	375
*	4612	2010	8	20	4	46	312
*	4618	2010	8	23	10	36	249
*	4622	2010	8	27	3	46	390
*	4629	2010	9	6	14	8	482
*	4638	2010	9	7	14	25	0
*	4638	2010	9	7	14	36	452
*	4646	2010	9	8	15	55	485
*	4655	2010	9	10	9	26	438
*	4663	2010	9	14	13	26	198
*	4666	2010	9	16	7	56	0
*	4667	2010	9	16	8	13	495
*	4676	2010	9	17	9	39	451
*	4684	2010	9	20	14	59	500
*	4693	2010	9	27	9	53	217
*	4697	2011	2	14	16	11	374

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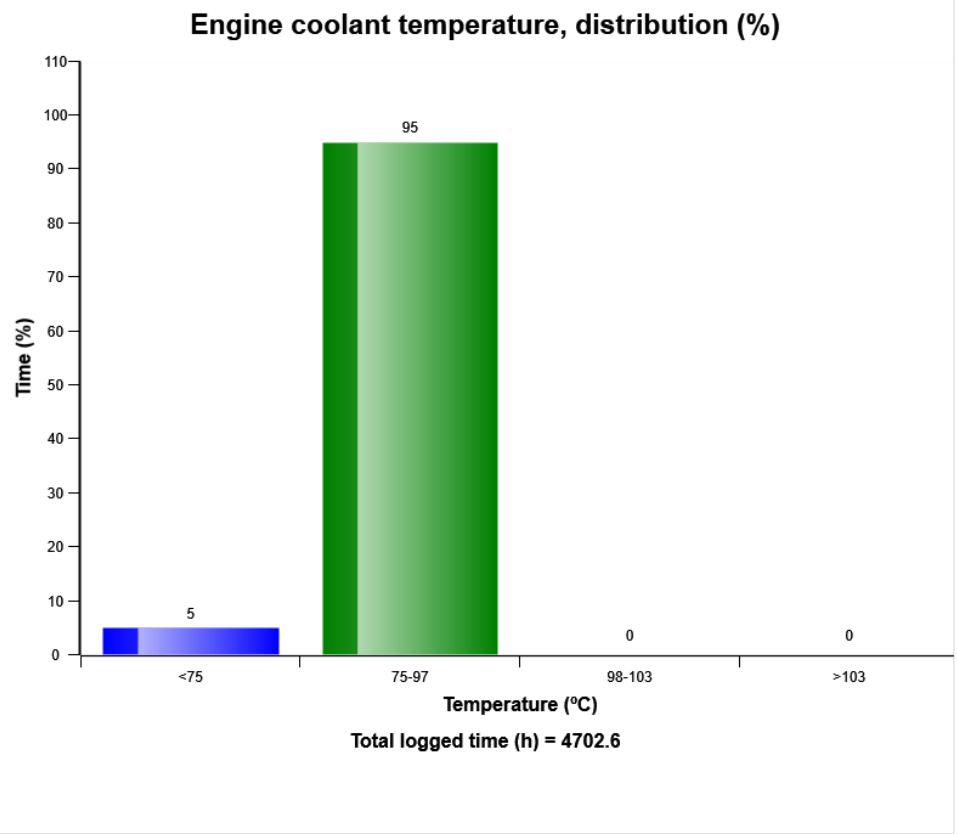

Definition:

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.

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

Machine model	SerialNo	Operating Hours	Reading Date
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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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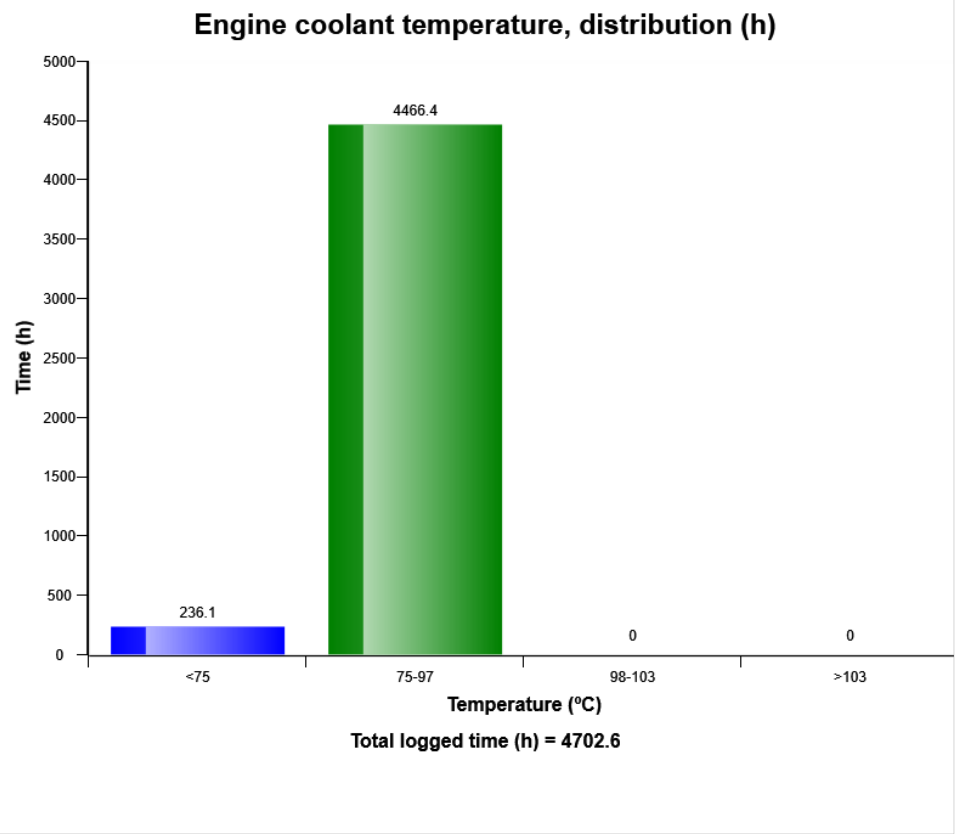

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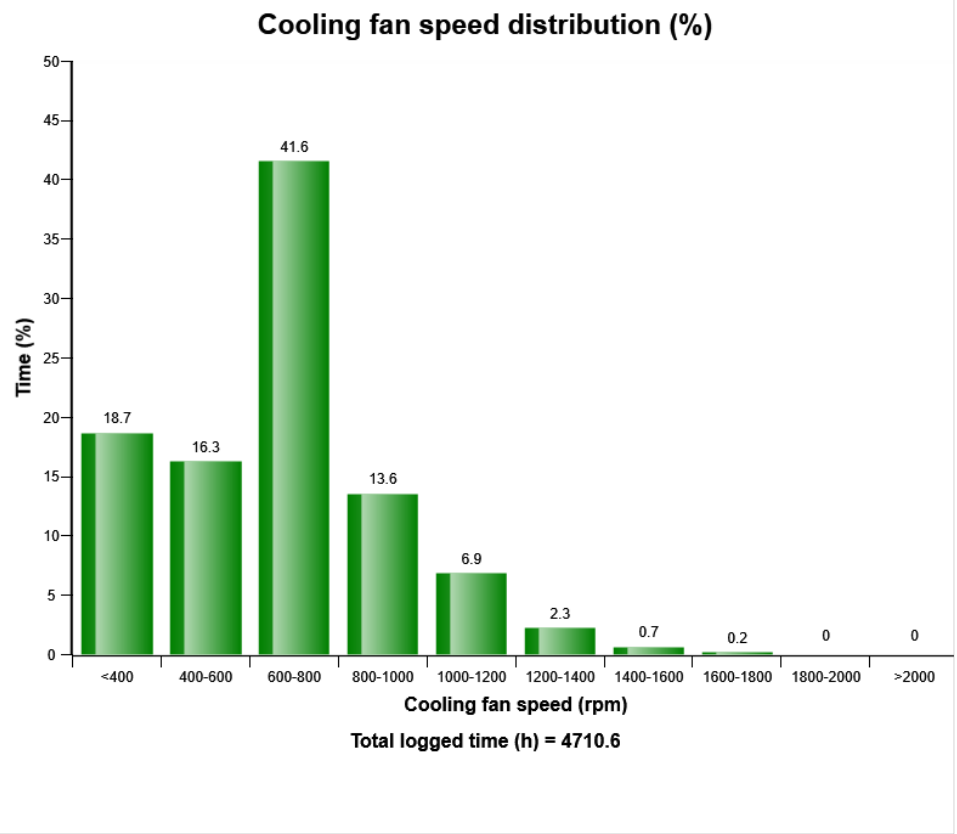

The diagram shows the time distribution for the cooling fan in different rpm ranges.

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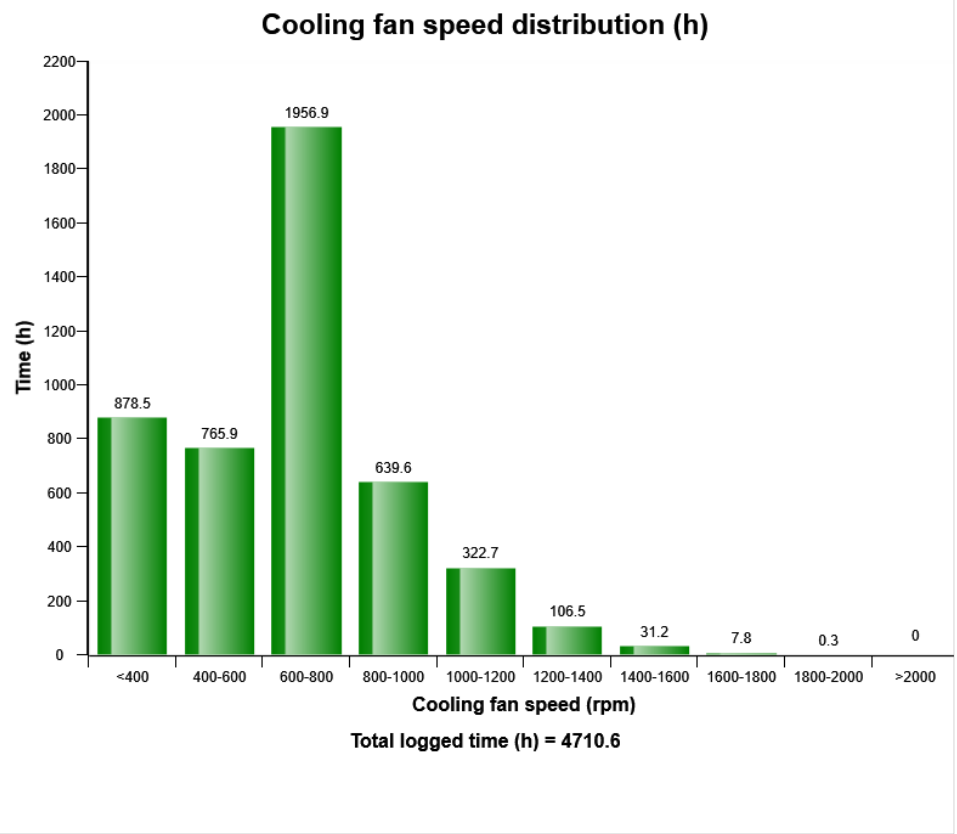

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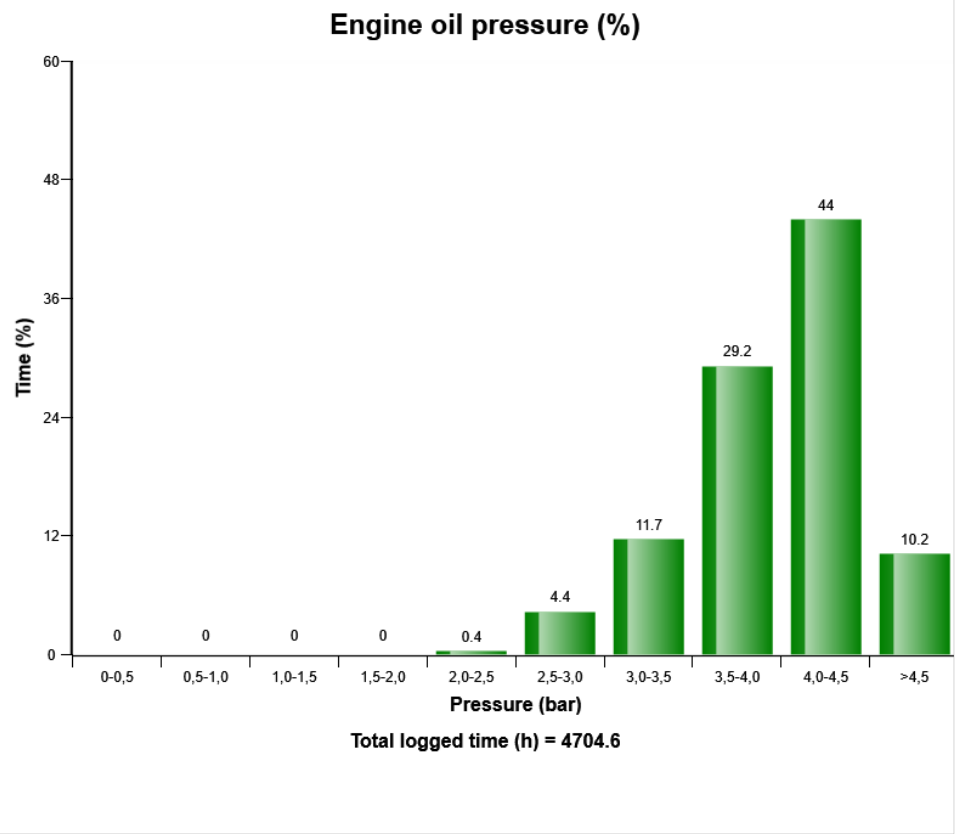

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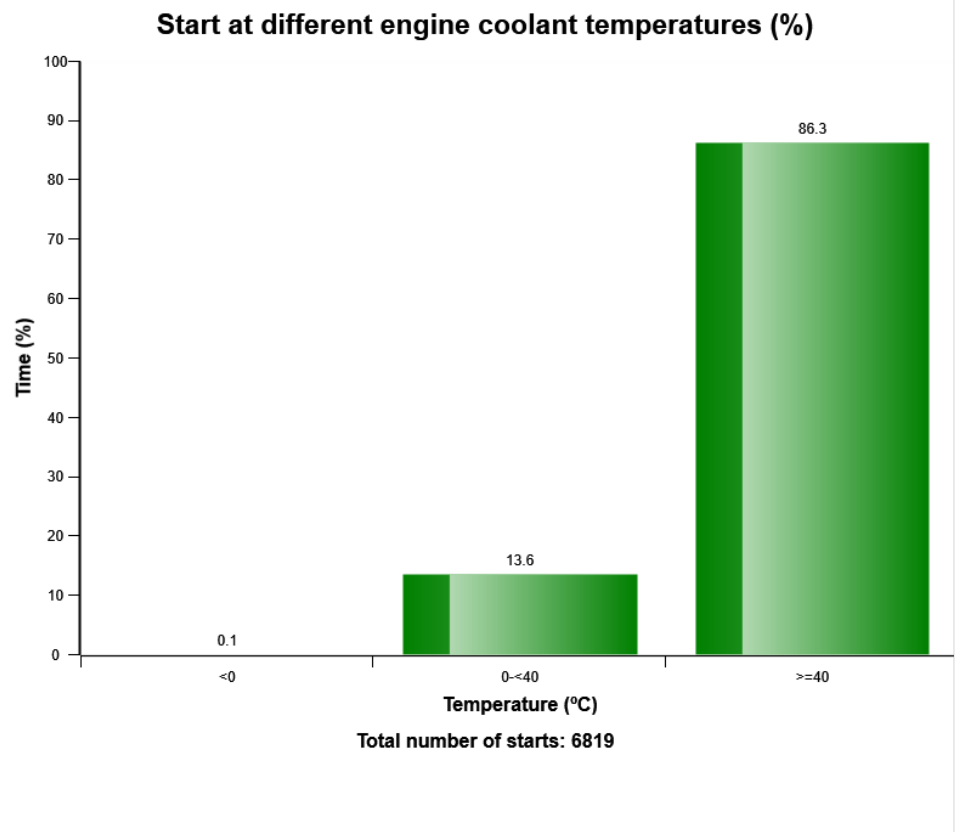

Definition:

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.

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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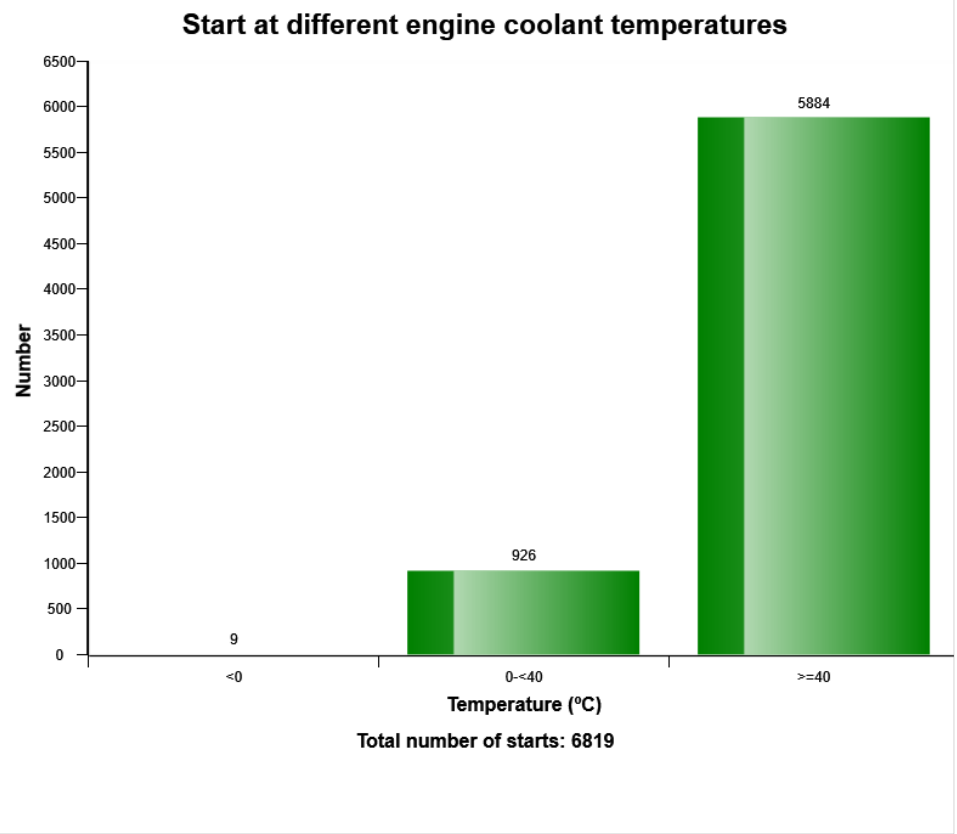

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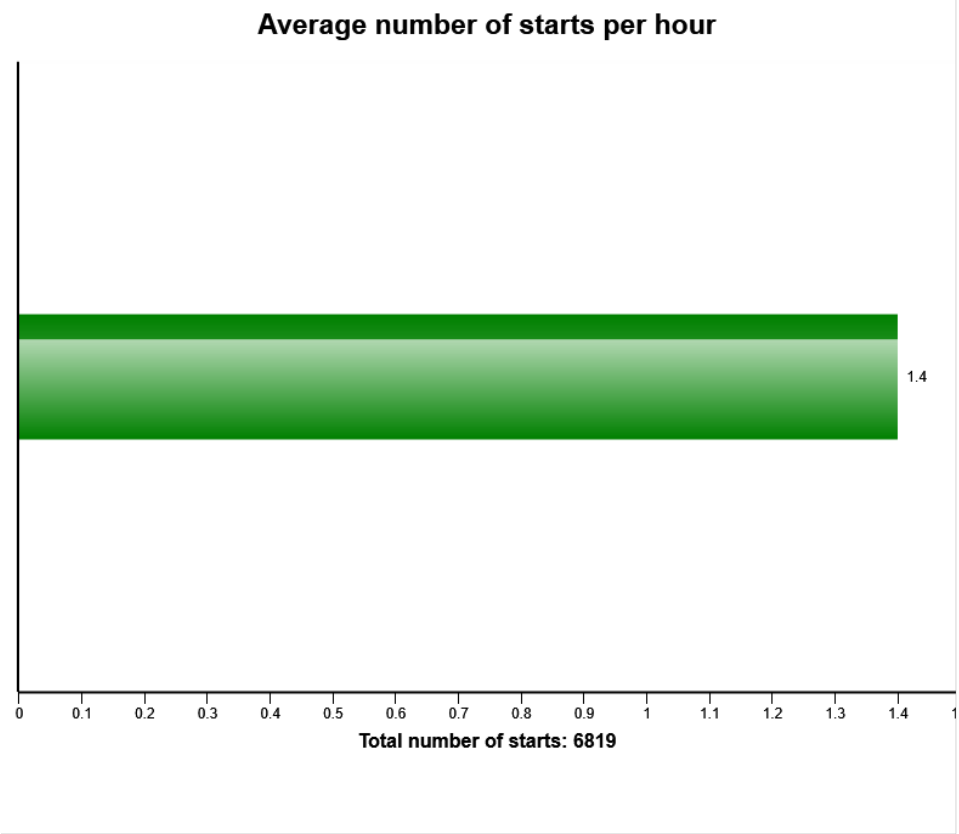

Definition:

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.

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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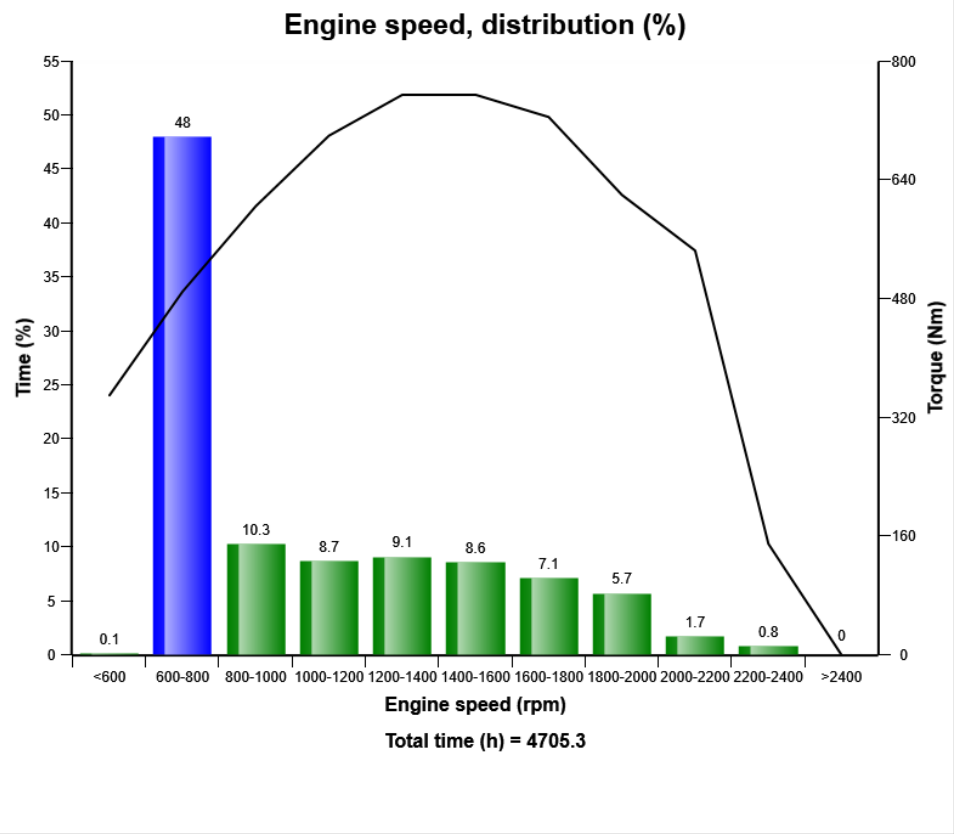

Definition:

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.

□

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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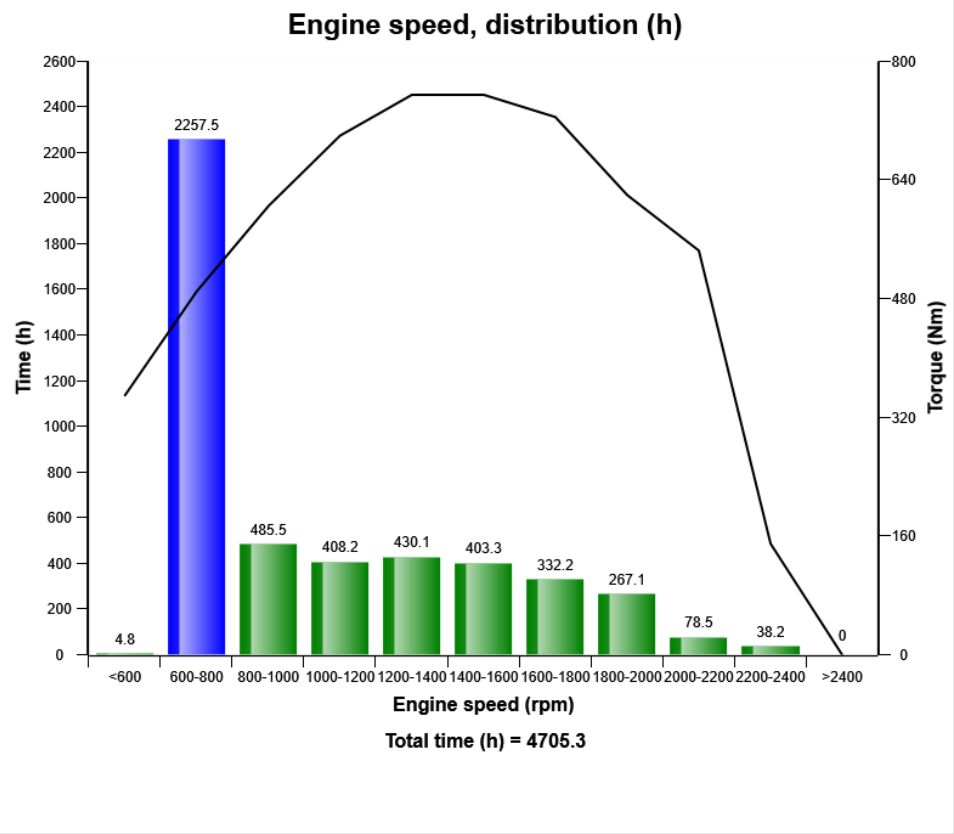

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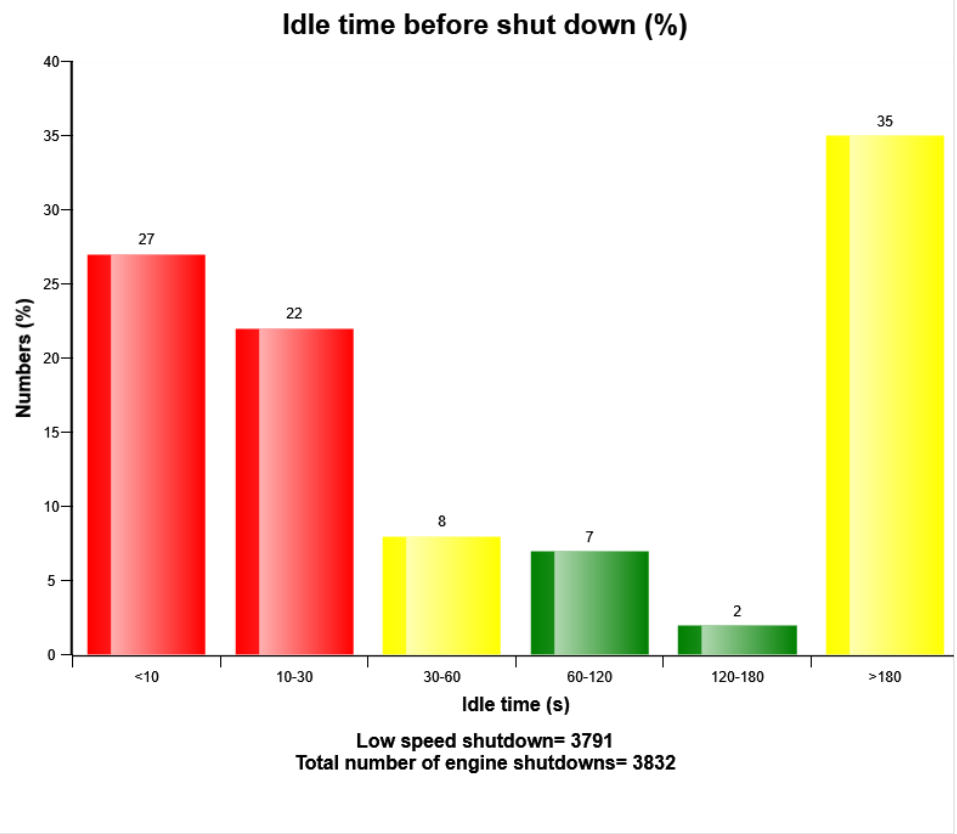


Definition:

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%.

Machine model	SerialNo	Operating Hours	Reading Date
L90G	617610	4729.8	5/11/2018

Low Engine Oil Pressure
Total number of occurences = 0

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

Machine model	SerialNo	Operating Hours	Reading Date
L90G	617610	4729.8	5/11/2018

Low engine oil level at start
Total number of occurences = 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 :

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

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

Machine model	SerialNo	Operating Hours	Reading Date
L90G	617610	4729.8	5/11/2018

High engine coolant temperature
Total number of occurences = 0

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

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.

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
L90G	617610	4729.8	5/11/2018

Low Air filter pressure
Total number of occurences = 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

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.

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
L90G	617610	4729.8	5/11/2018

Starter overheating
Total number of occurences = 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

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

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
L90G	617610	4729.8	5/11/2018

Water level warning in water separator
Total number of occurences = 6

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
2429	2016	1	19	14	54	52
2579	2016	2	17	12	5	26
3440	2009	8	17	1	41	23
3531	2009	9	4	7	49	96
4326	2010	5	5	13	5	0
4401	2010	6	7	10	33	89

Machine model	SerialNo	Operating Hours	Reading Date
L90G	617610	4729.8	5/11/2018

Low voltage
Total number of occurences = 0

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

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.

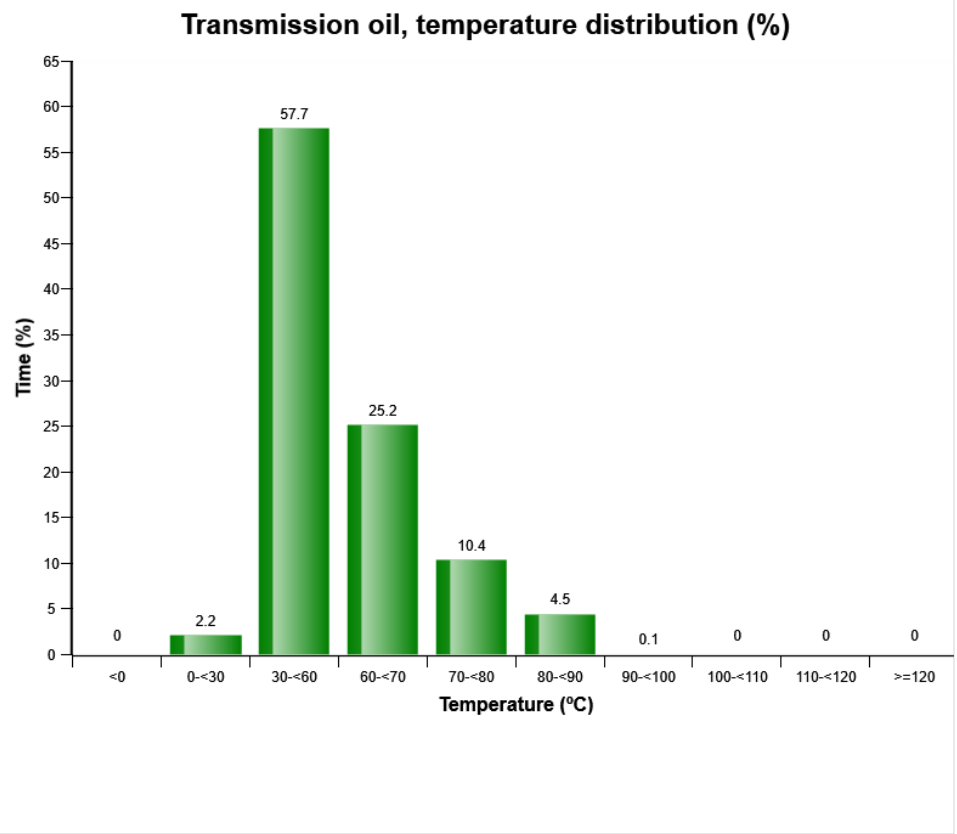
Extreme value :

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
L90G	617610	4729.8	5/11/2018



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

<0ºC Temperatures below 0ºC

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

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

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

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

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

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

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

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

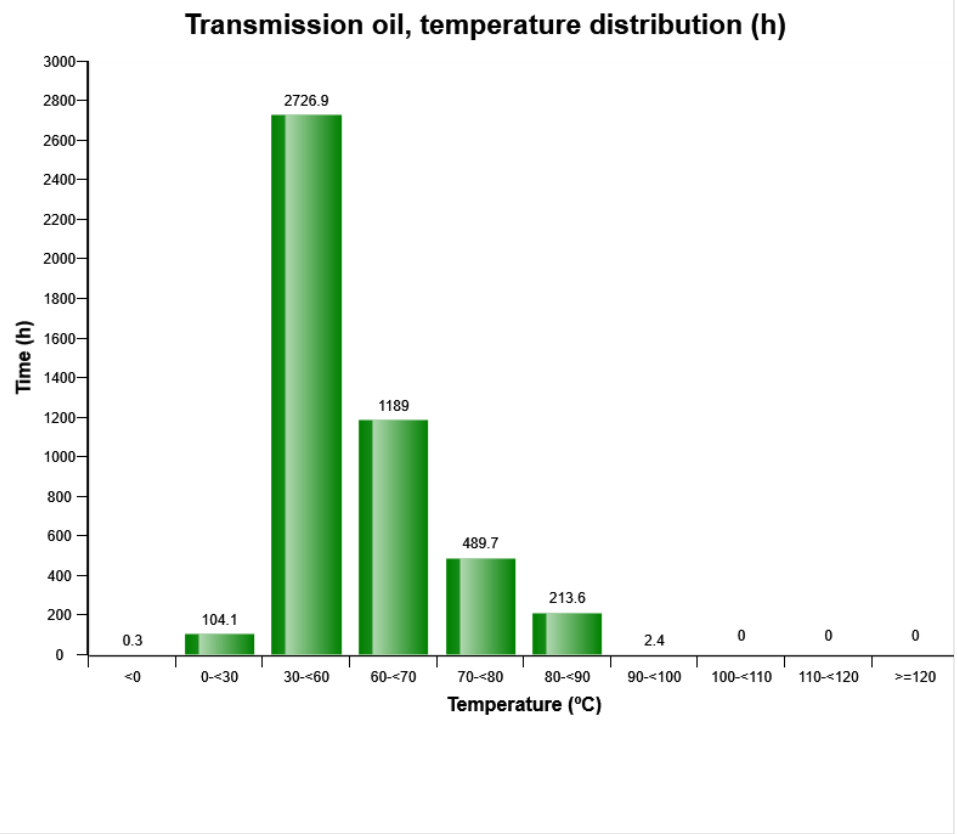
≥120°C Temperatures over 120ºC

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

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

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

Machine model	SerialNo	Operating Hours	Reading Date
L90G	617610	4729.8	5/11/2018



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

<0ºC Temperatures below 0ºC

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

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

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

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

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

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

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

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

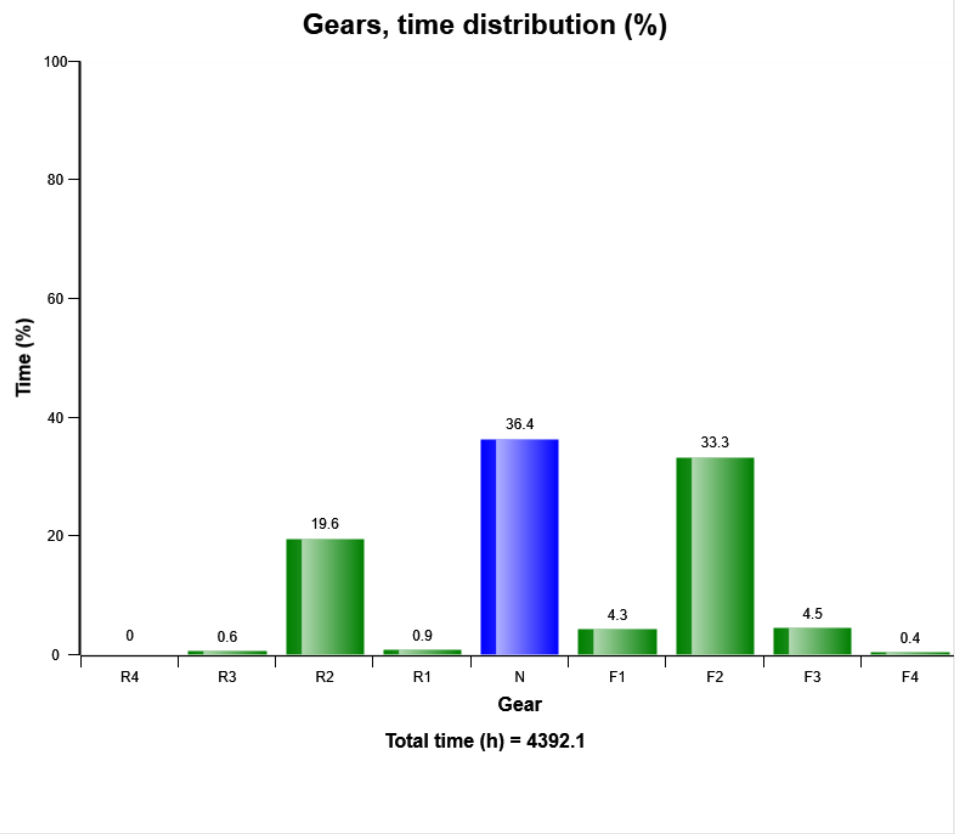
≥120°C Temperatures over 120ºC

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

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

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

Machine model	SerialNo	Operating Hours	Reading Date
L90G	617610	4729.8	5/11/2018



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.

Green bars:

R1 = First reverse gear

R2 = Second reverse gear

R3 = Third reverse gear

R4 =Fourth reverse gear

N = Neutral position

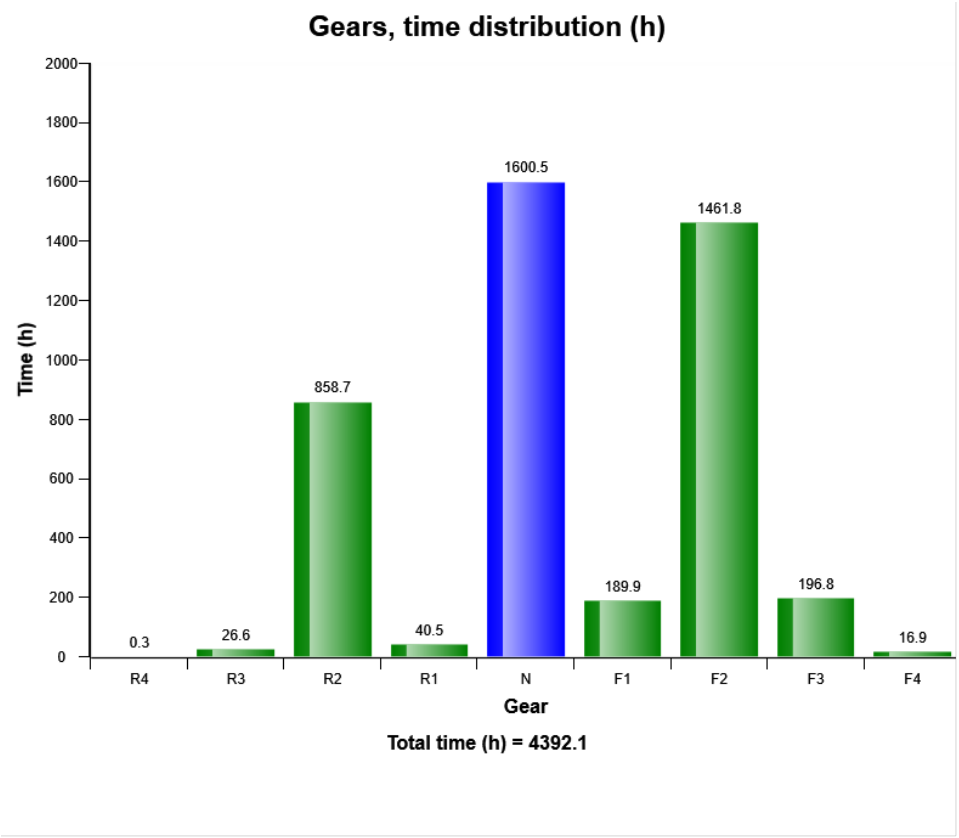
F1=First forward gear

F2=Second forward gear

F3=Third forward gear

F4=Fourth forward gear

Machine model	SerialNo	Operating Hours	Reading Date
L90G	617610	4729.8	5/11/2018



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.

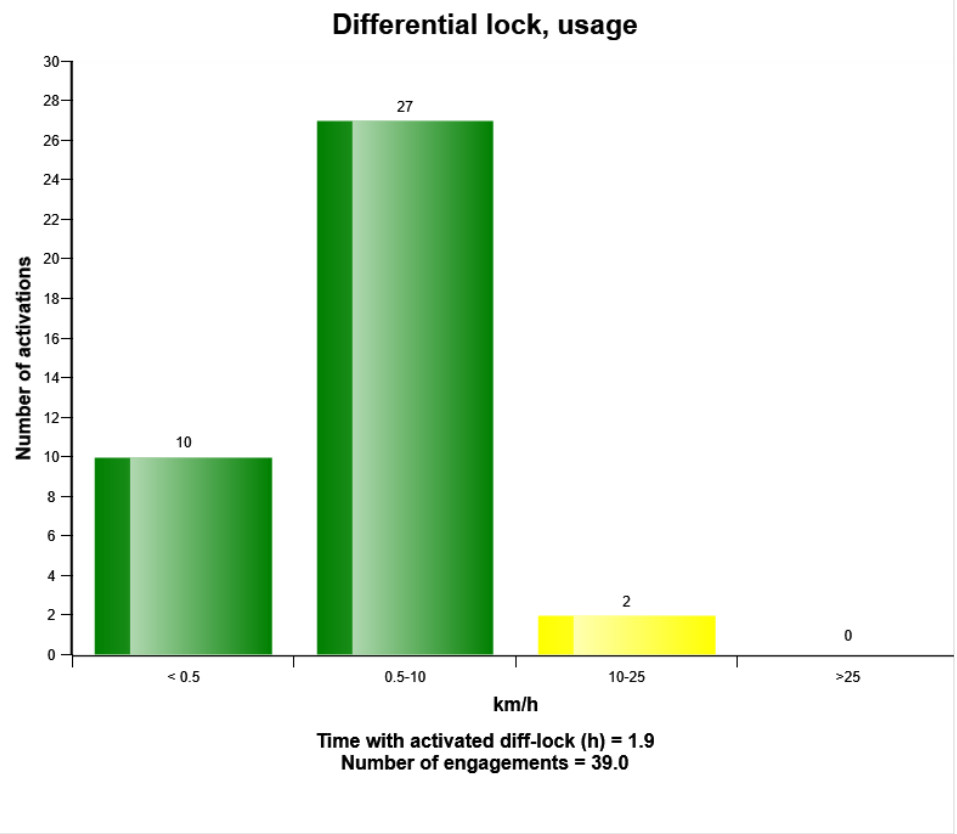
Under the graph the total engine running time (in hours) is displayed.

Explanation:

Y-axis: Engine running time, in hours.

X-axis: Active gear.

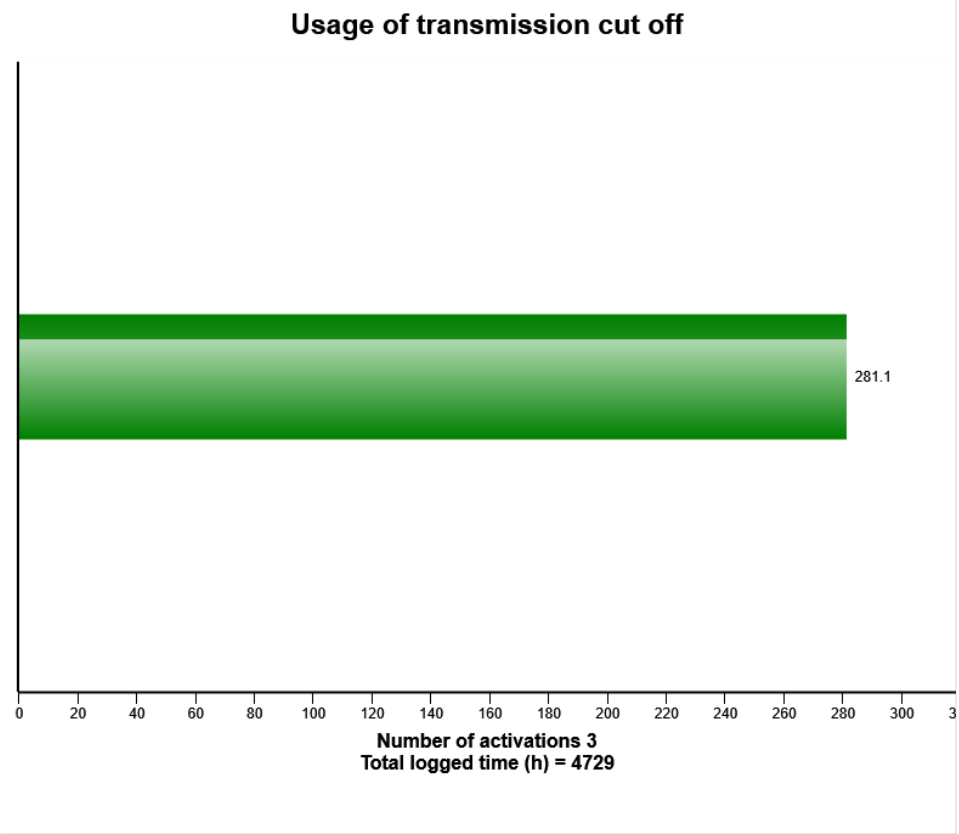
Machine model	SerialNo	Operating Hours	Reading Date
L90G	617610	4729.8	5/11/2018



Definition:

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

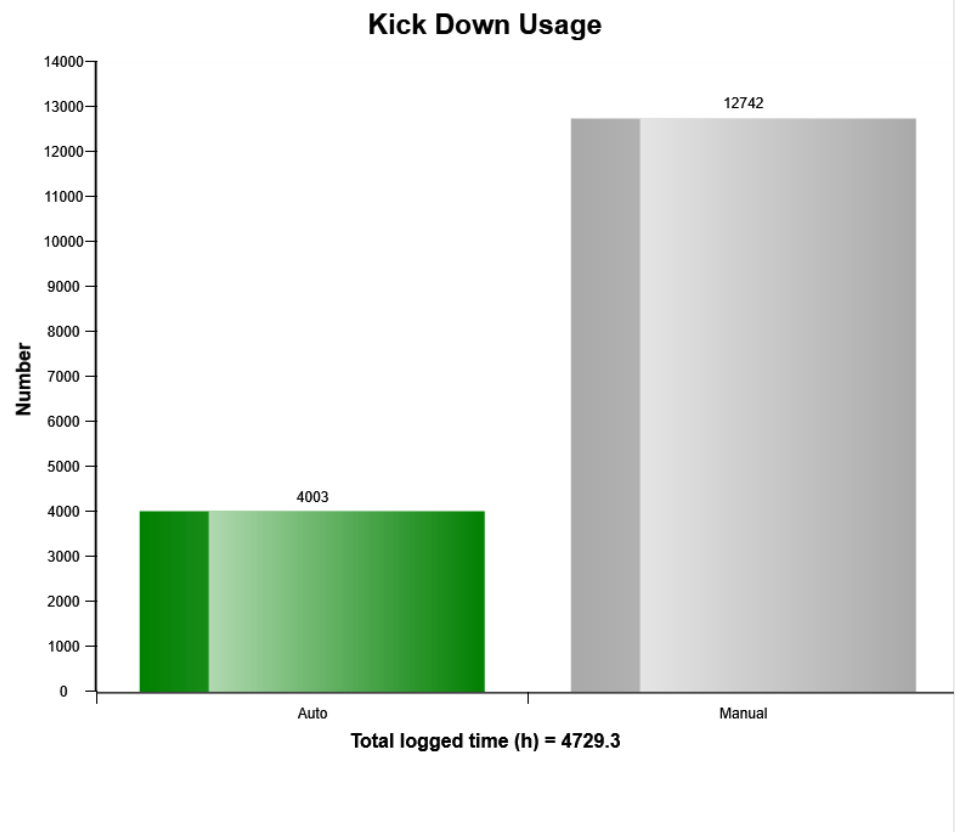
Machine model	SerialNo	Operating Hours	Reading Date
L90G	617610	4729.8	5/11/2018



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

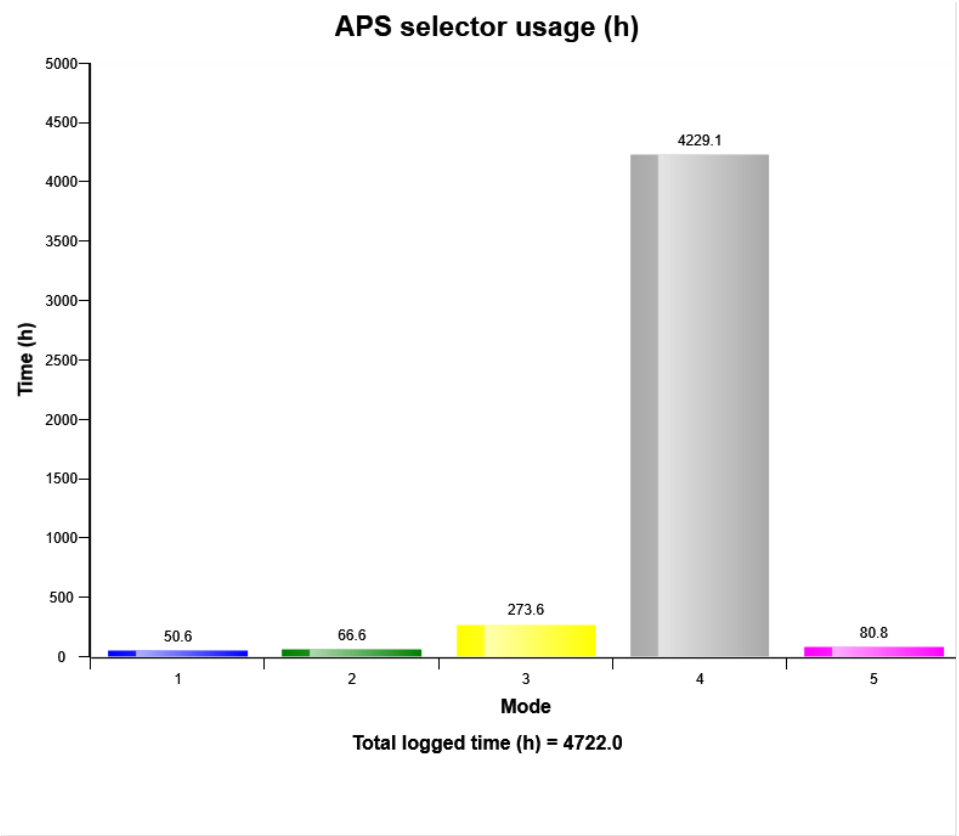
Below the diagram total number of activations is presented.

Machine model	SerialNo	Operating Hours	Reading Date
L90G	617610	4729.8	5/11/2018



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

Machine model	SerialNo	Operating Hours	Reading Date
L90G	617610	4729.8	5/11/2018



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

For WLO :

Mode1 = Light

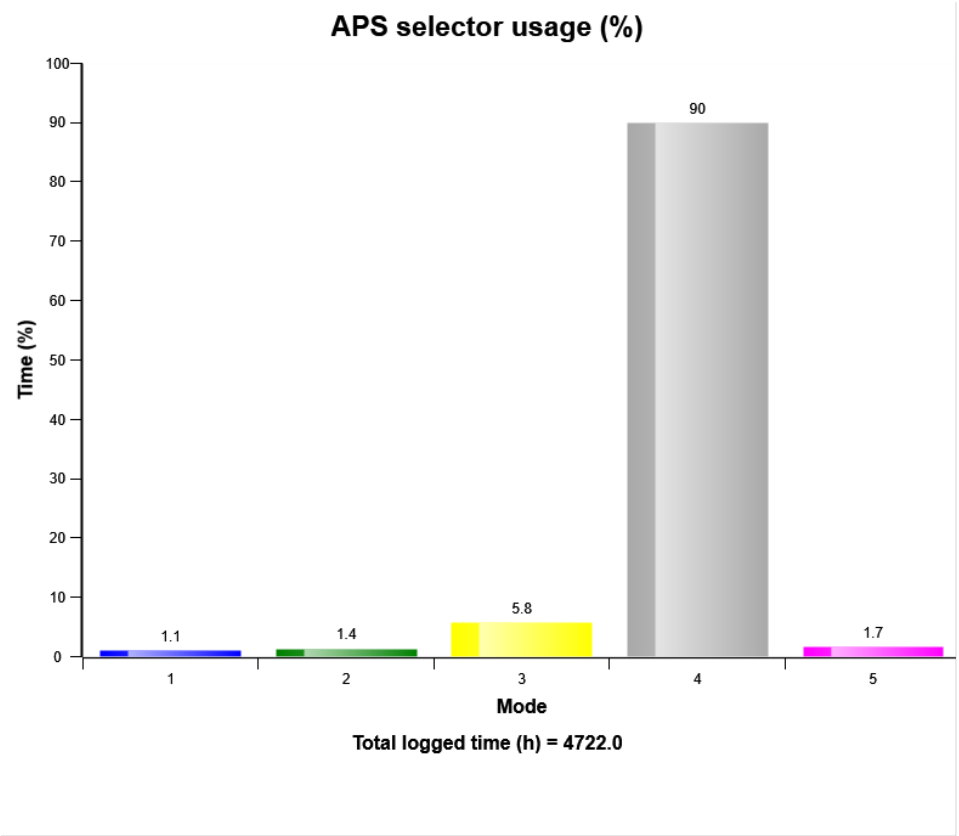
Mode2 = Normal

Mode3 = Heavy

Mode4 = Auto

Mode5 = Service.

Machine model	SerialNo	Operating Hours	Reading Date
L90G	617610	4729.8	5/11/2018



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	617610	4729.8	5/11/2018

Transmission oil temperature high
Total number of occurences = 0

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

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.

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	617610	4729.8	5/11/2018

Transmission oil pressure low
Total number of occurences = 9

Op hours	Year	Month	Day	Hour	Minute	Duration (sec)	Extreme (bar)
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
4712	2010	9	21	15	23	0	1
4715	2010	9	22	11	0	0	1
4715	2010	9	22	10	58	0	1
4715	2010	9	22	10	55	0	1
4715	2010	9	22	10	51	46	1
4715	2010	9	22	10	49	47	1
4715	2010	9	22	10	44	0	0
4715	2010	9	22	10	42	0	1
4716	2010	9	22	11	29	2	1

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.

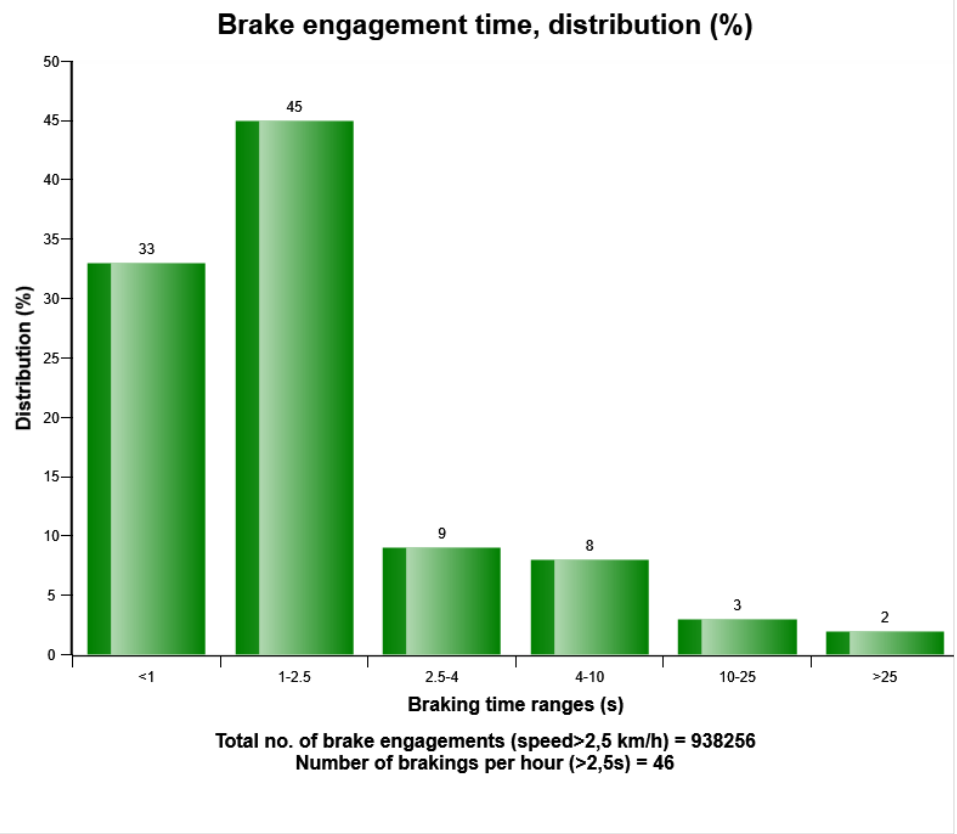
Extreme value :

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

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	617610	4729.8	5/11/2018



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.

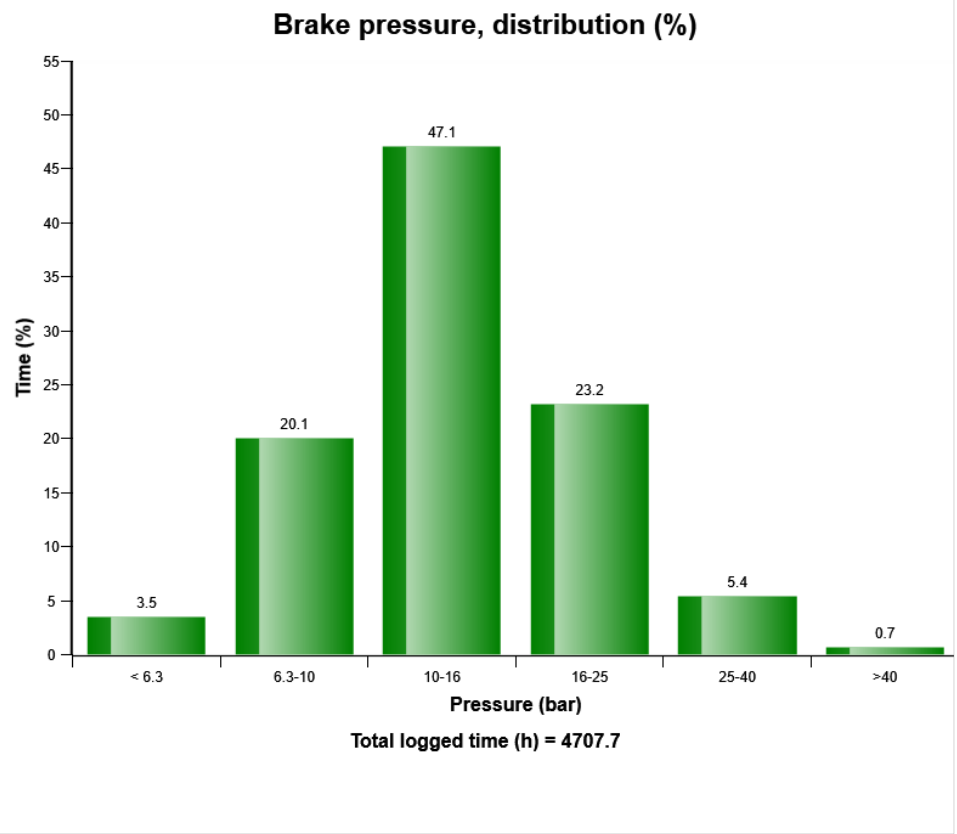
The distribution of the bars throughout the ranges reflects the operator's way of handling the machine.

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	617610	4729.8	5/11/2018



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.

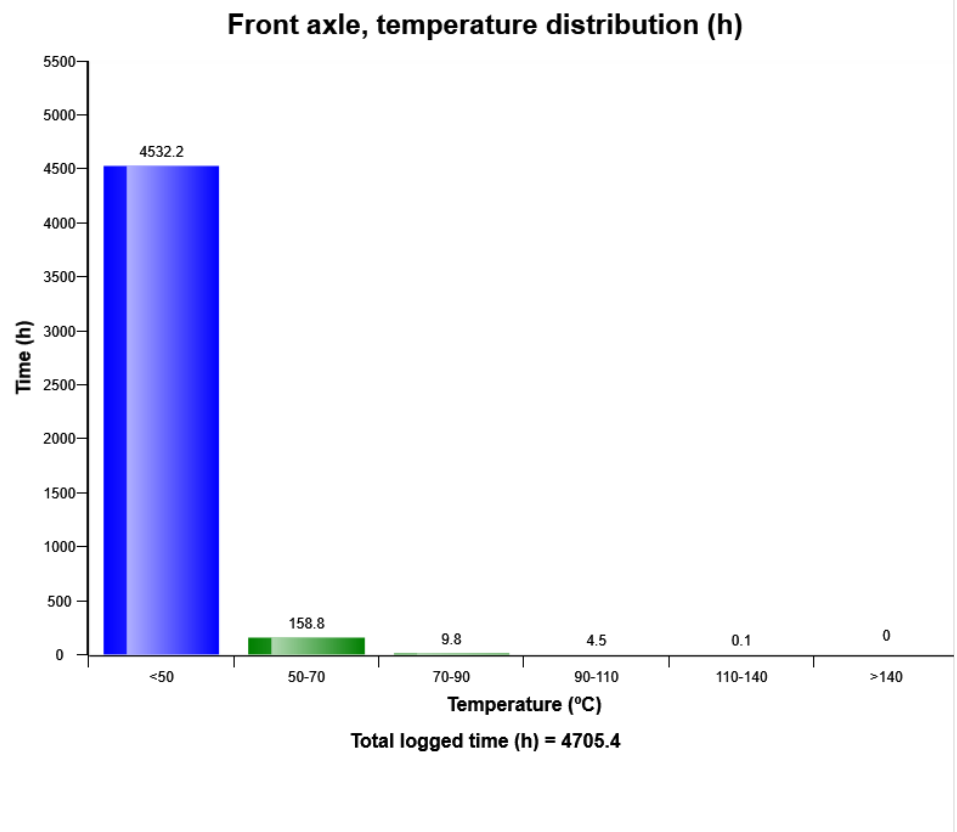
A concentration in the highest range indicates that the machine is operated hard and in an inefficient manner.

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	617610	4729.8	5/11/2018



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.

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

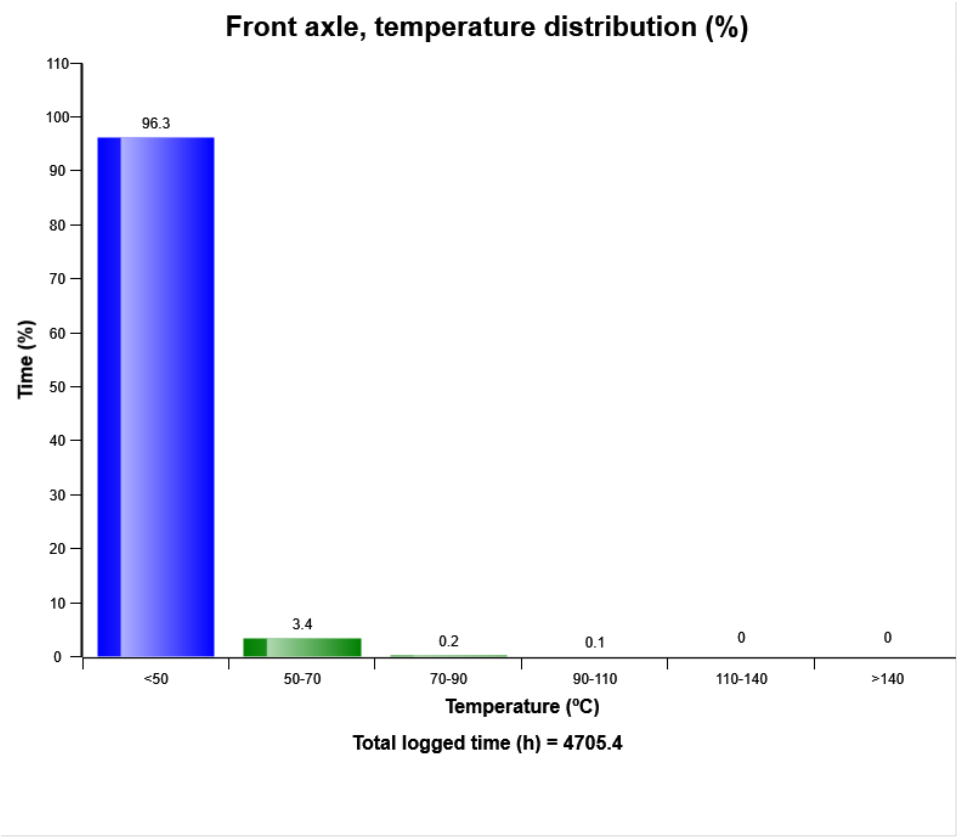
Machine model	SerialNo	Operating Hours	Reading Date
L90G	617610	4729.8	5/11/2018

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	617610	4729.8	5/11/2018



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.

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

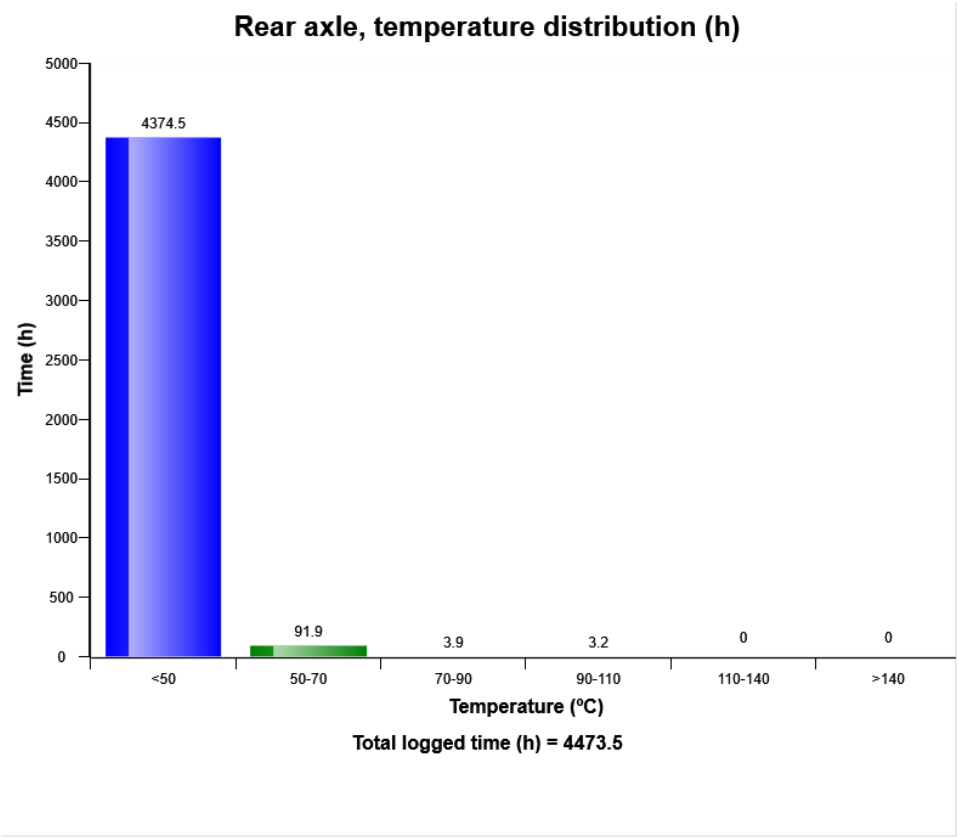
Machine model	SerialNo	Operating Hours	Reading Date
L90G	617610	4729.8	5/11/2018

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	617610	4729.8	5/11/2018



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.

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

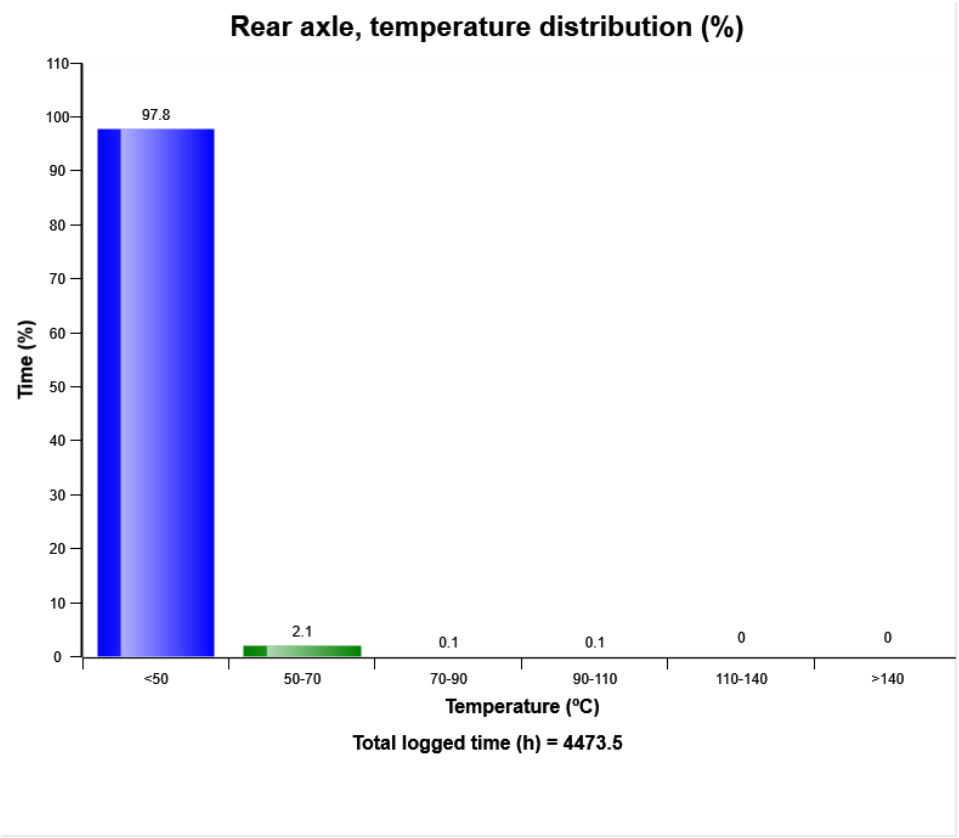
Machine model	SerialNo	Operating Hours	Reading Date
L90G	617610	4729.8	5/11/2018

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	617610	4729.8	5/11/2018



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.

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

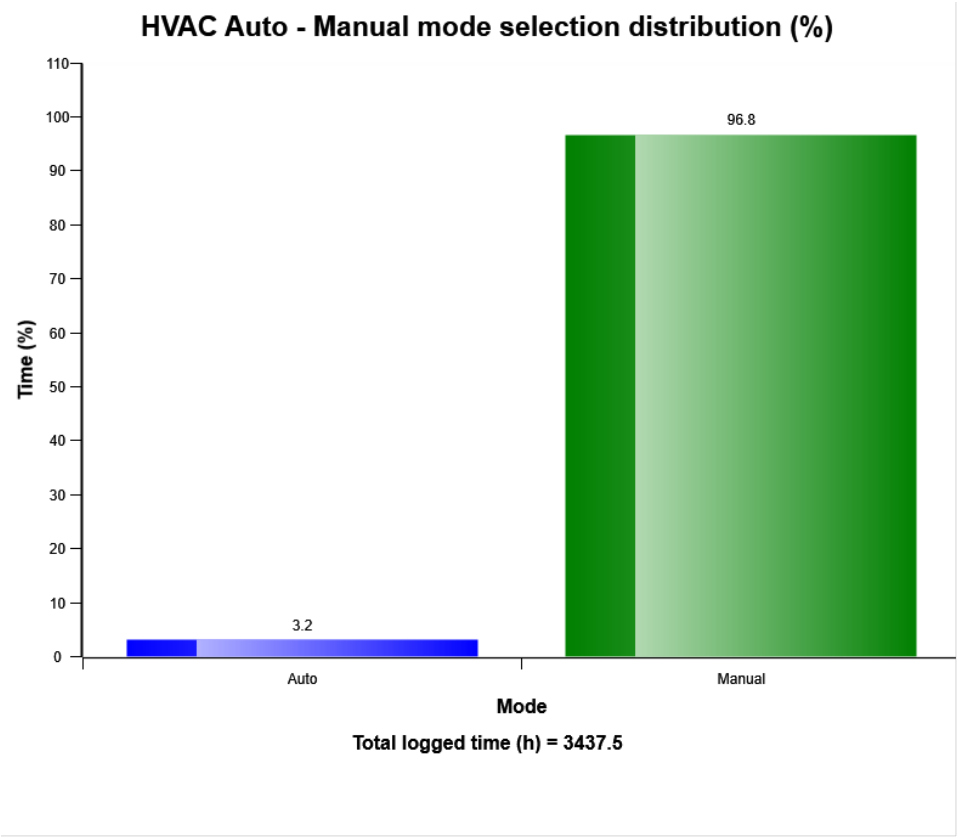
Machine model	SerialNo	Operating Hours	Reading Date
L90G	617610	4729.8	5/11/2018

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.

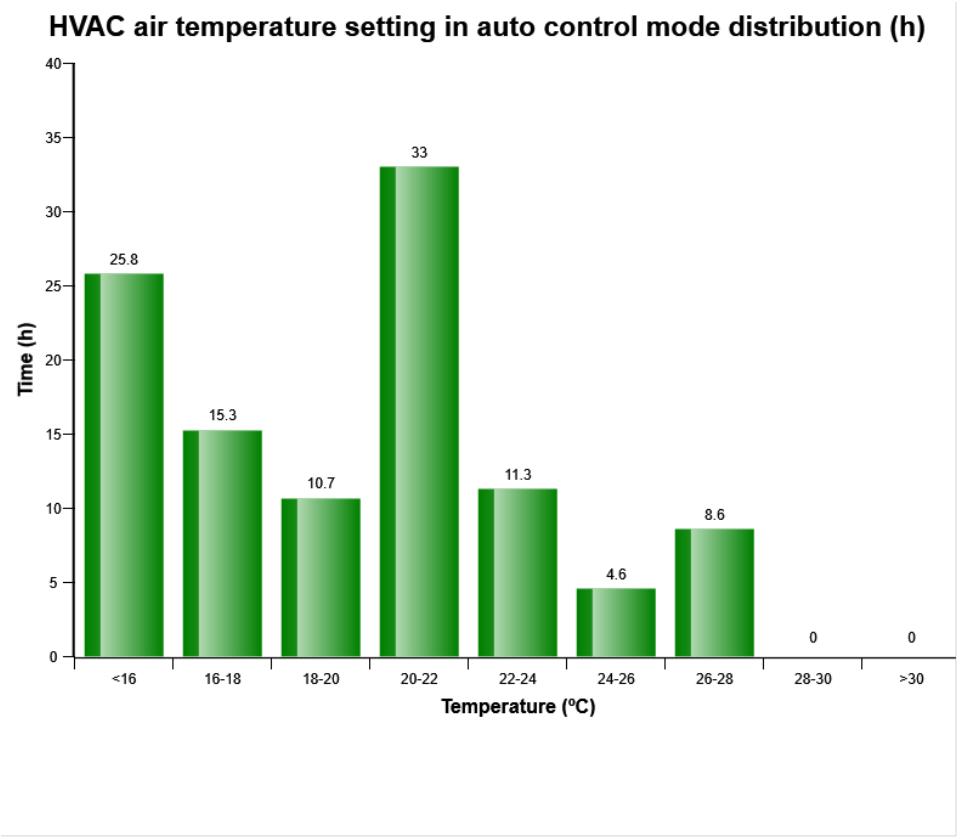
Machine model	SerialNo	Operating Hours	Reading Date
L90G	617610	4729.8	5/11/2018



Definition:

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

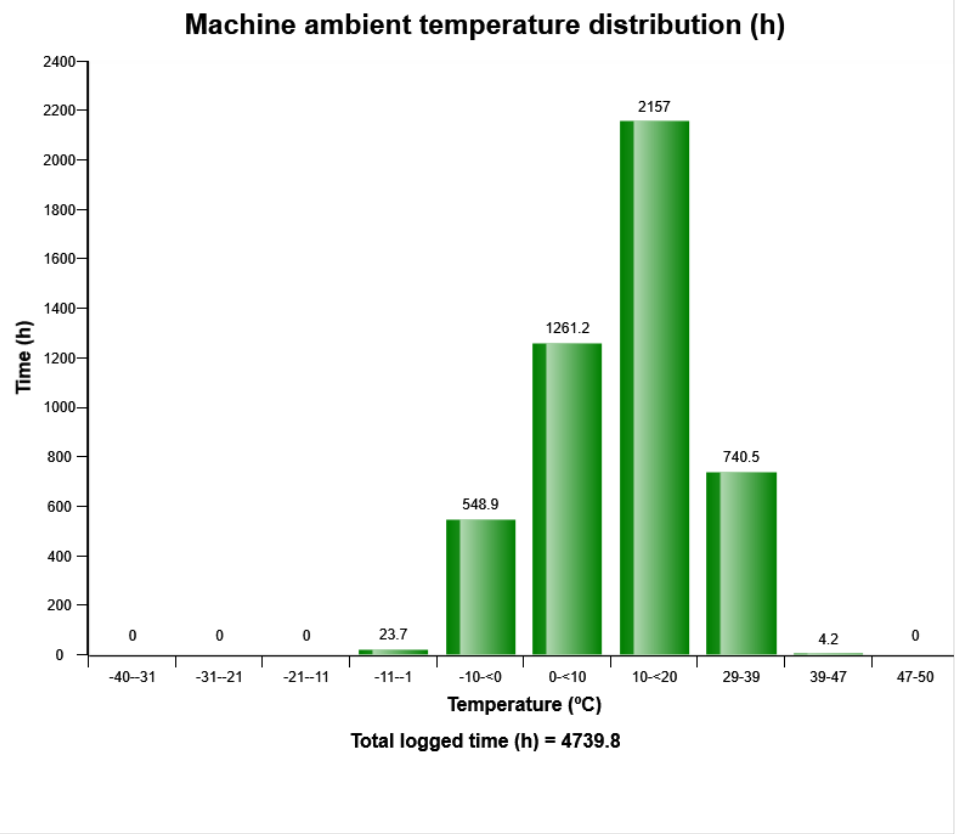
Machine model	SerialNo	Operating Hours	Reading Date
L90G	617610	4729.8	5/11/2018



Definition:

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

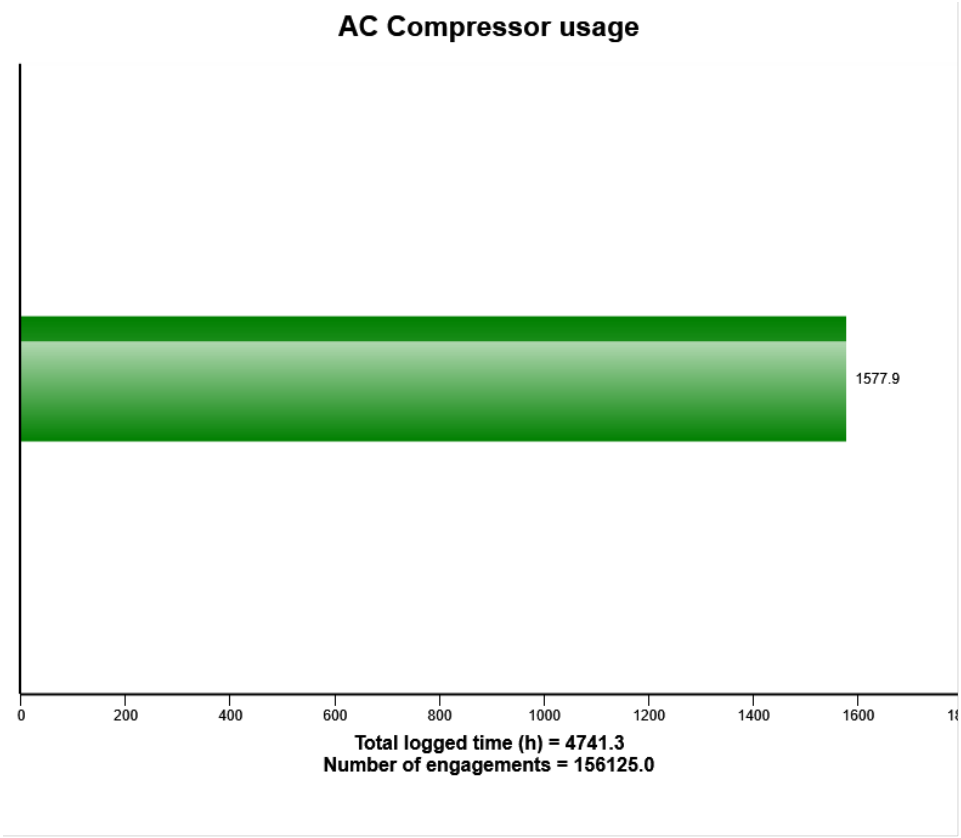
Machine model	SerialNo	Operating Hours	Reading Date
L90G	617610	4729.8	5/11/2018



Definition:

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

Machine model	SerialNo	Operating Hours	Reading Date
L90G	617610	4729.8	5/11/2018



Definition:

The graph shows the total time of AC compressor engagement.

Explanation:

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

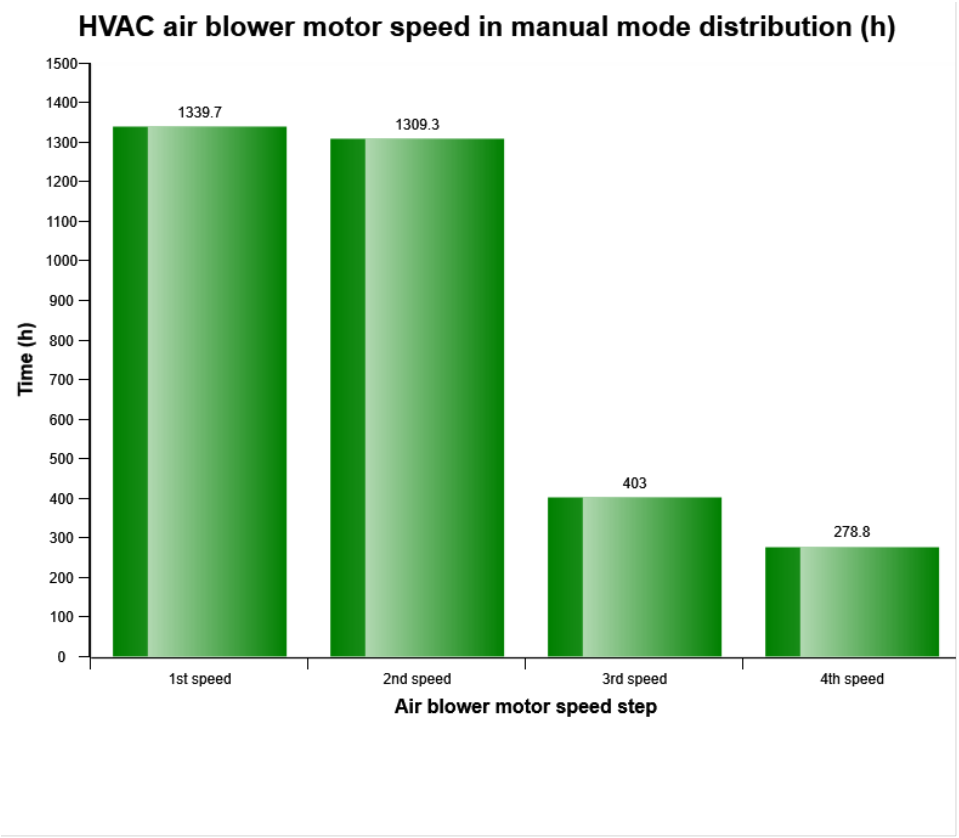
Under the graph the total engine running time (in hours) is displayed.

Total number of AC compressor activations is also displayed.

-

Machine model	SerialNo	Operating Hours	Reading Date
L90G	617610	4729.8	5/11/2018

Machine model	SerialNo	Operating Hours	Reading Date
L90G	617610	4729.8	5/11/2018



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
L90G	617610	4729.8	5/11/2018

AC High Pressure
Total number of occurences = 1024

Op hours	Year	Month	Day	Hour	Minute	Duration (sec)	Extreme (° C)
4696	2010	9	16	14	9	29	35
4696	2010	9	16	14	16	391	35
4696	2010	9	16	14	24	45	34
4697	2010	9	16	15	3	520	35
4697	2010	9	16	14	45	93	34
4697	2010	9	16	14	48	174	35
4697	2010	9	16	14	57	63	35
4697	2010	9	16	15	21	2222	36
4698	2010	9	16	16	2	974	35
4698	2010	9	16	16	32	66	36
4702	2010	9	17	14	0	55	33
4708	2010	9	20	15	7	11	32
4708	2010	9	20	15	1	286	32
4708	2010	9	20	14	53	201	33
4708	2010	9	20	14	27	144	31
4709	2010	9	20	16	2	66	33
4709	2010	9	20	15	15	27	32
4715	2010	9	22	10	58	31	27
4716	2010	9	22	11	56	59	31
4716	2010	9	22	11	49	43	30

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.

Criteria :

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

Machine model	SerialNo	Operating Hours	Reading Date
L90G	617610	4729.8	5/11/2018

AC Boiling Protection
Number of engagements = 0

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

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.

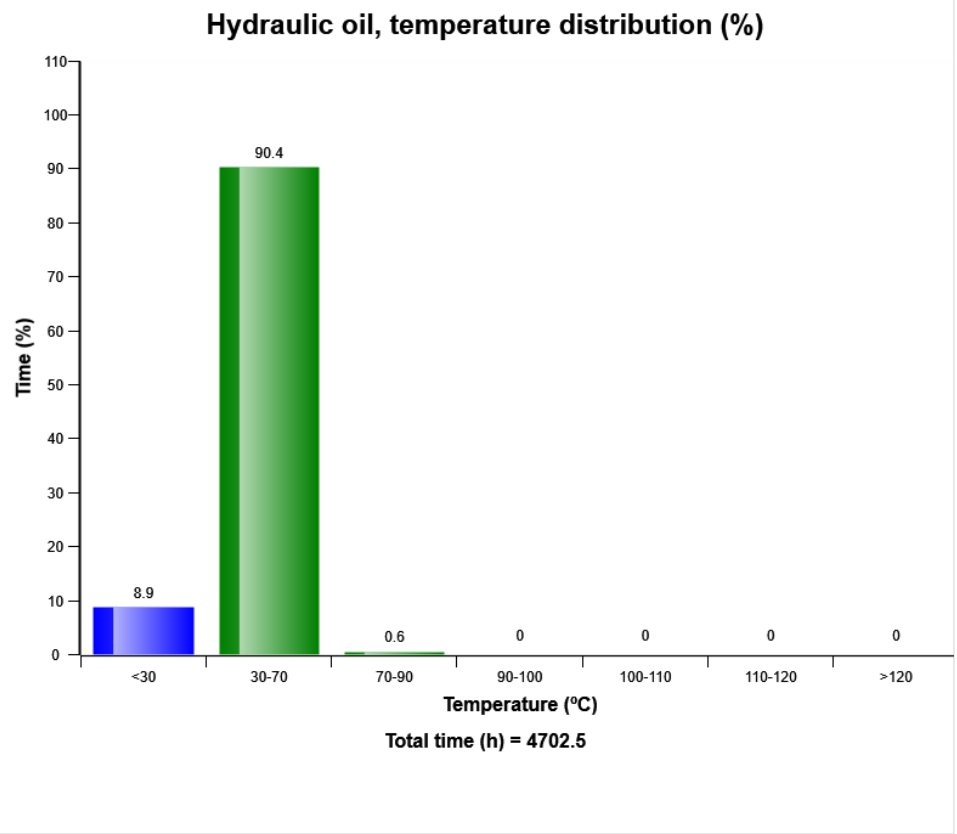
Extreme value :

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

Criteria :

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

Machine model	SerialNo	Operating Hours	Reading Date
L90G	617610	4729.8	5/11/2018



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.

X-axis: Oil temperature distribution in °C.

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

Machine model	SerialNo	Operating Hours	Reading Date
L90G	617610	4729.8	5/11/2018

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

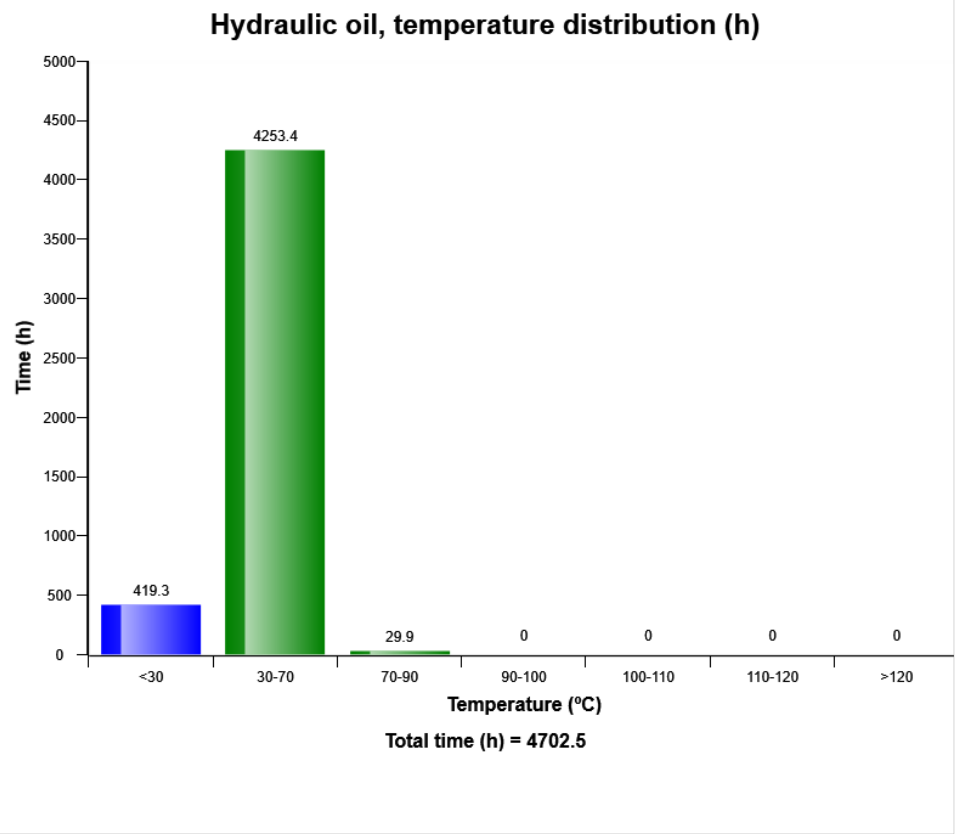
Red bar = From 110°C to 120°, To high temperature

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	617610	4729.8	5/11/2018



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.

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

Machine model	SerialNo	Operating Hours	Reading Date
L90G	617610	4729.8	5/11/2018

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	617610	4729.8	5/11/2018

High hydraulic oil temperature
Total number of occurences = 0

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

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.

Criteria :

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

Machine model	SerialNo	Operating Hours	Reading Date
L90G	617610	4729.8	5/11/2018

Low Hydraulic Oil Level
Total number of occurences = 0

Op hours	Year	Month	Day	Hour	Minute	Duration (seconds)
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

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 :

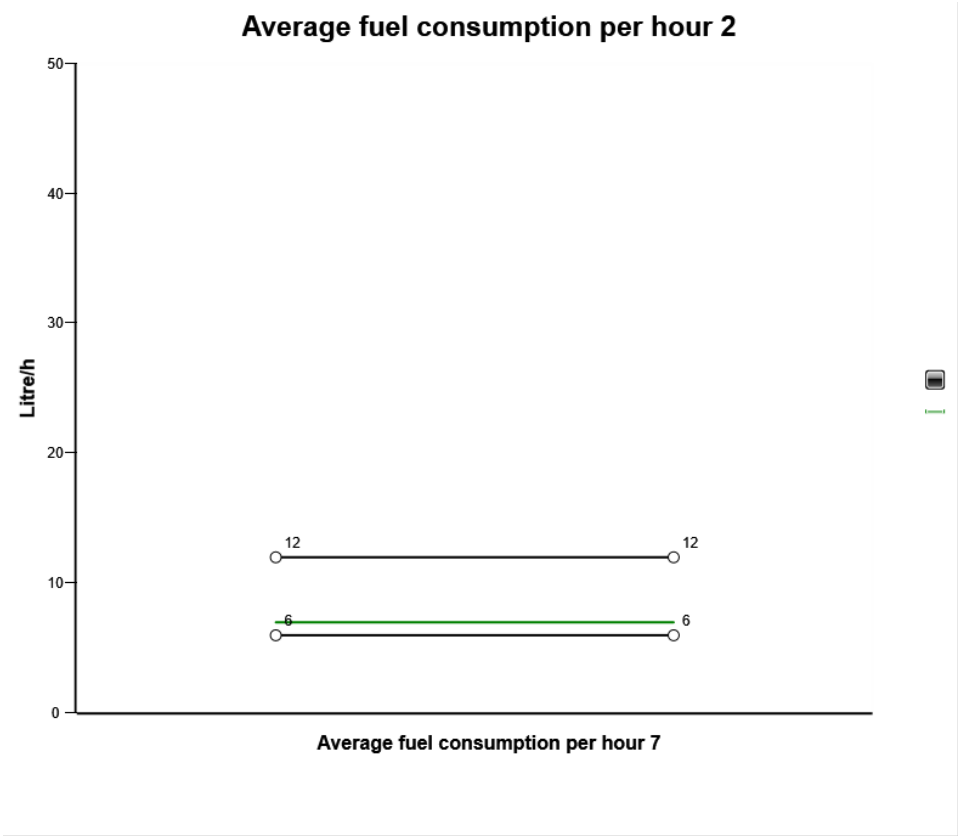
The duration of each event is shown after the timestamp of the event.

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

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	617610	4729.8	5/11/2018



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