VOLVO CONSTRUCTION EQUIPMENT

MATRIS REPORT

Machine model	SerialNo	Operating Hours	Reading Date
L110H	631127	3295.4	1/16/2019

Company name	Dealer	Report Issuer
ASC Greenville, NC		
Contact name	**Technician**	**Primary Application**
	bduppstadt	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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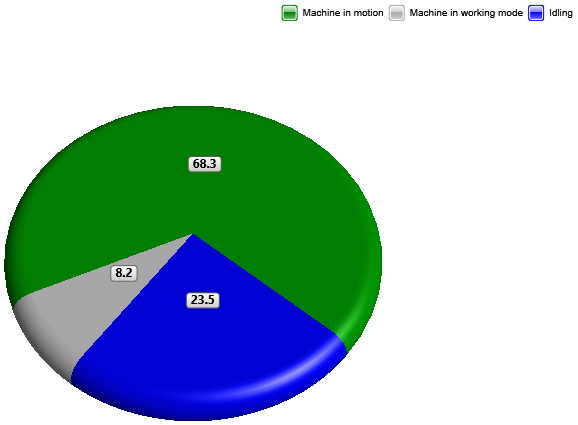
Machine utilization (%)



Total time (h) = 3292.8

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.

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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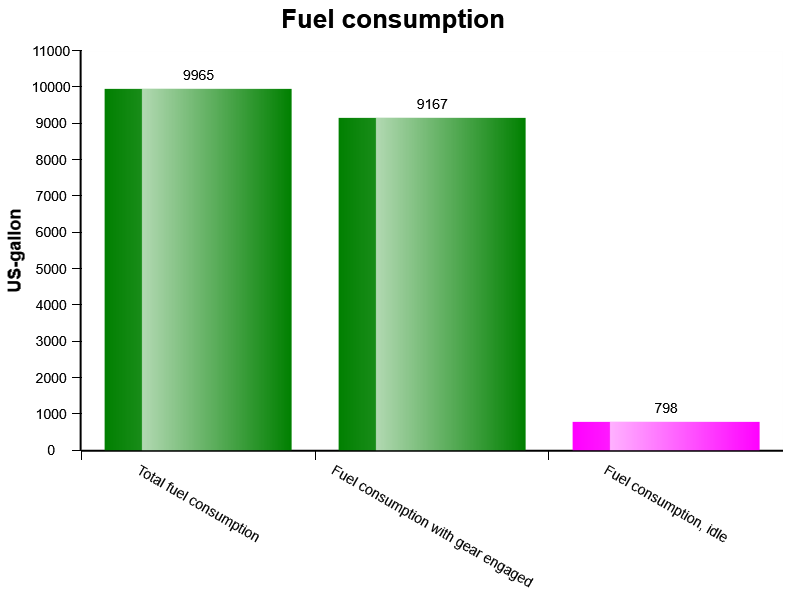

The diagram shows the total fuel consumption, fuel consumption with gear engaged and fuel consumption during idle.

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

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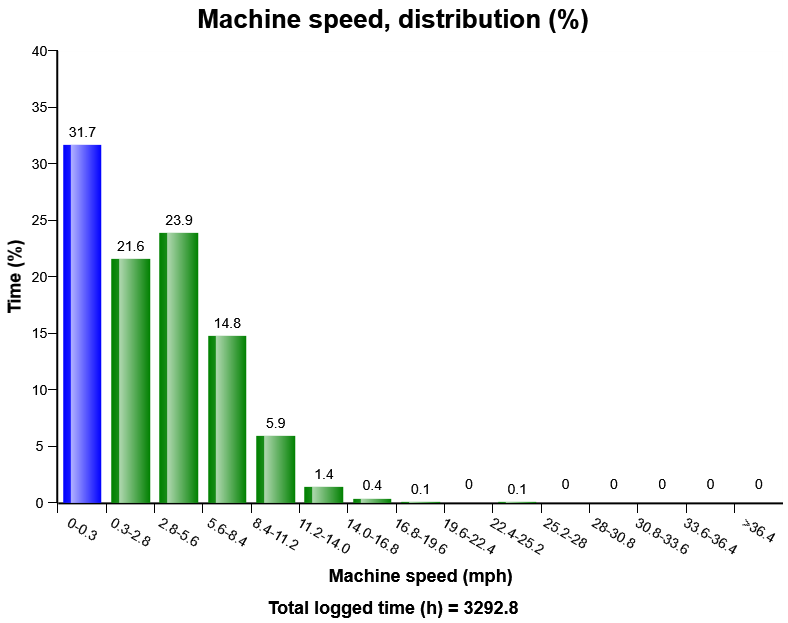

Definition:

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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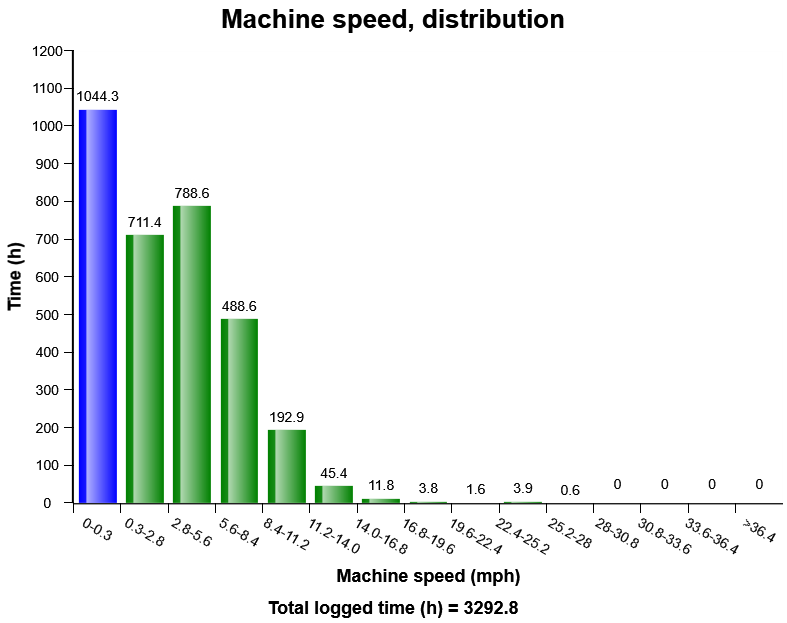

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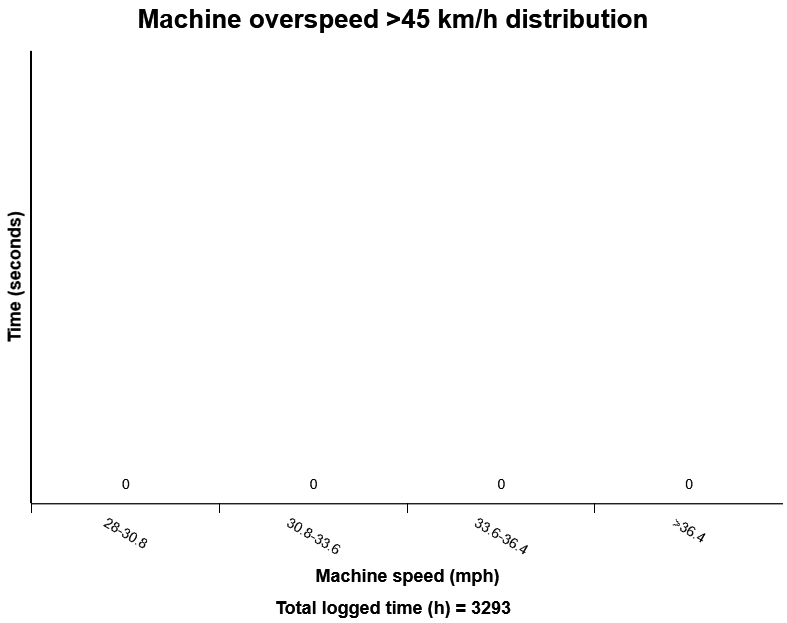

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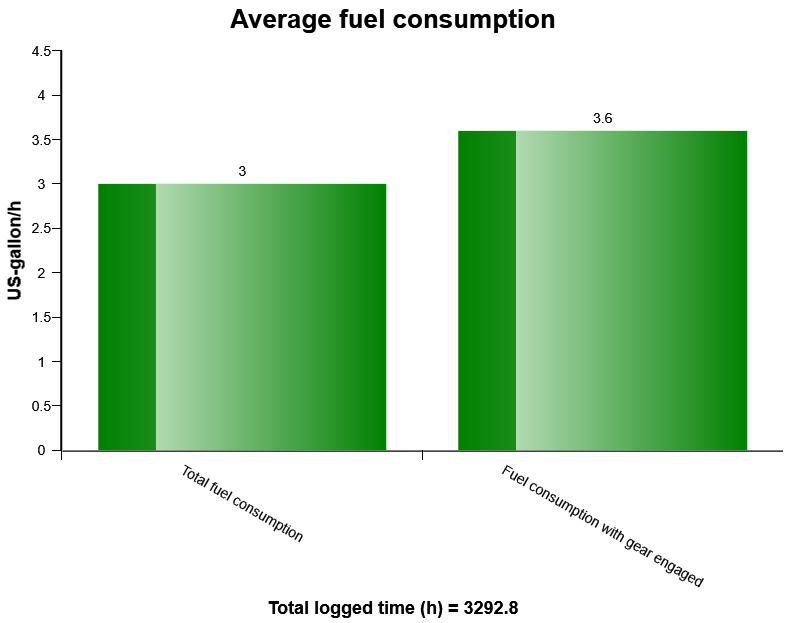

The diagram shows the total fuel consumption, fuel consumption with gear engaged and fuel consumption during idle.

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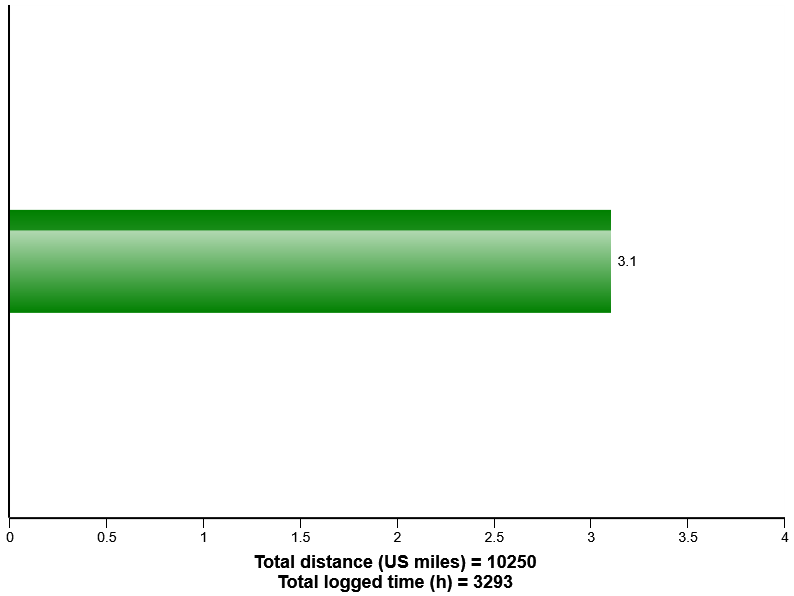
Average speed and distance



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

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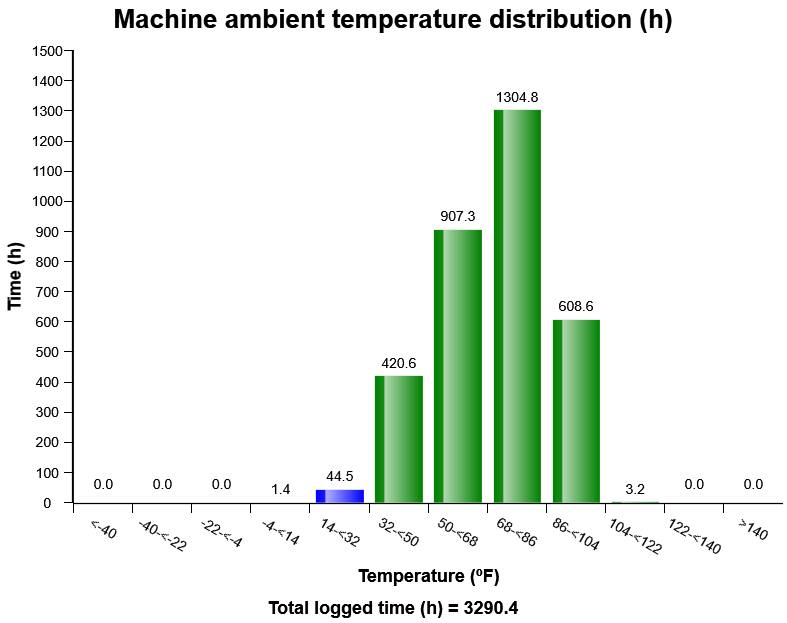
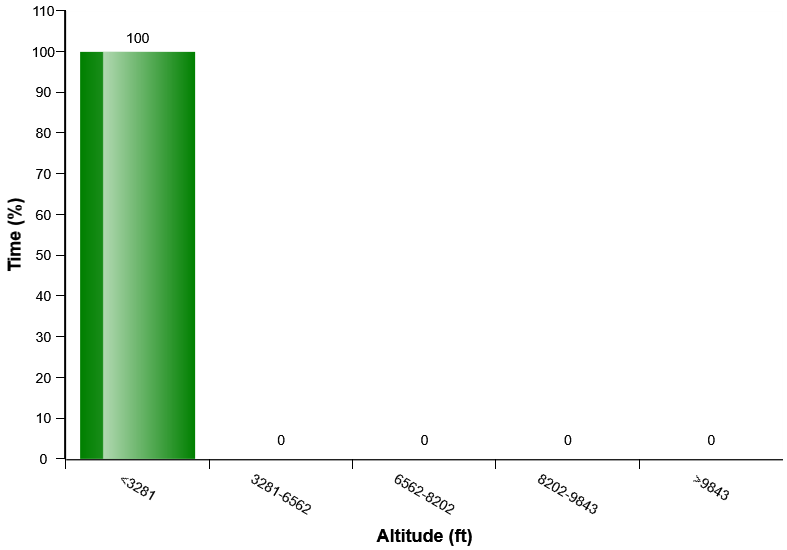


Definition:

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

Machine model	SerialNo	Operating Hours	Reading Date
L110H	631127	3295.4	1/16/2019

Altitude distribution



Operating hours 3292.8

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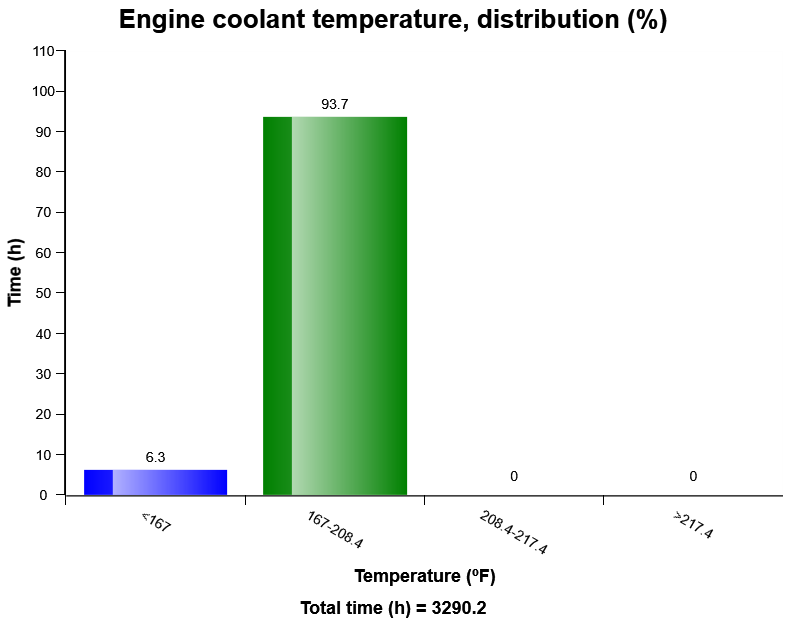

Definition:

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.

Machine model	SerialNo	Operating Hours	Reading Date
L110H	631127	3295.4	1/16/2019

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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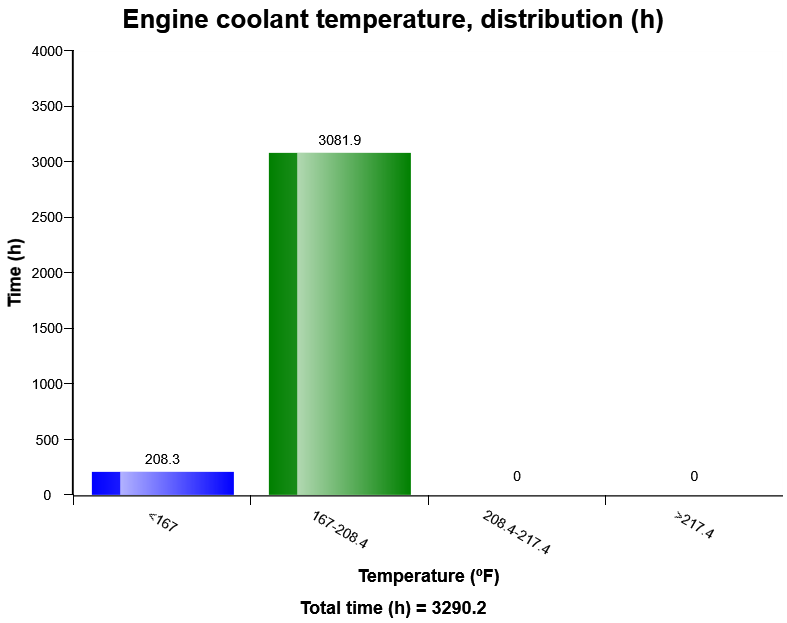

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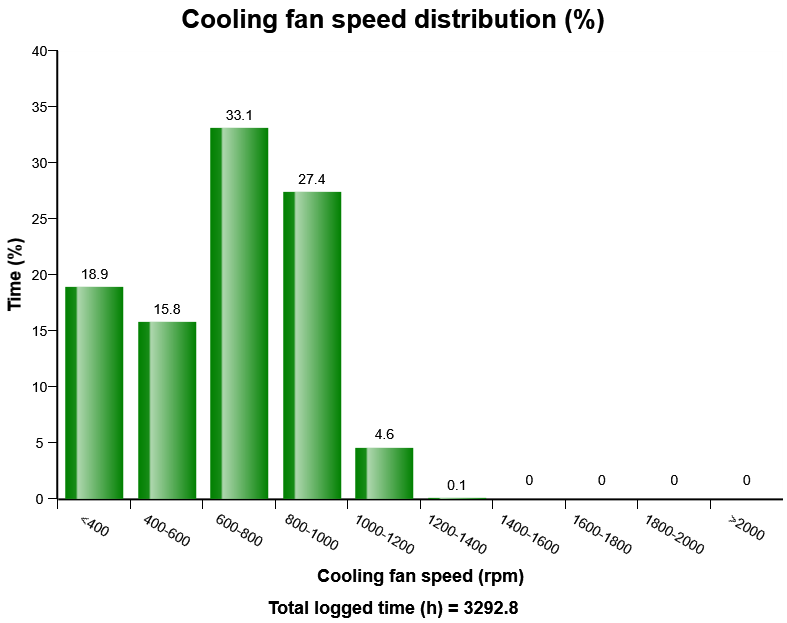

The diagram shows the time distribution for the cooling fan in different rpm ranges.

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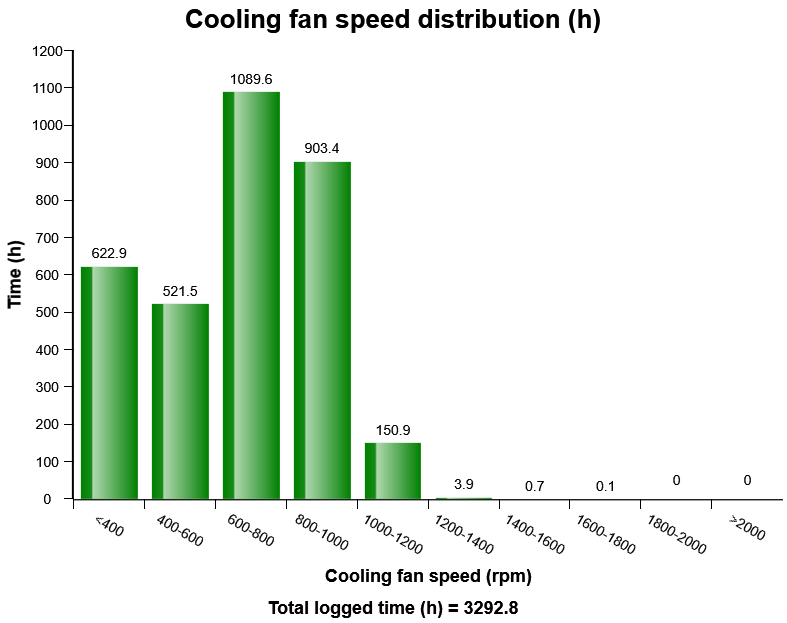

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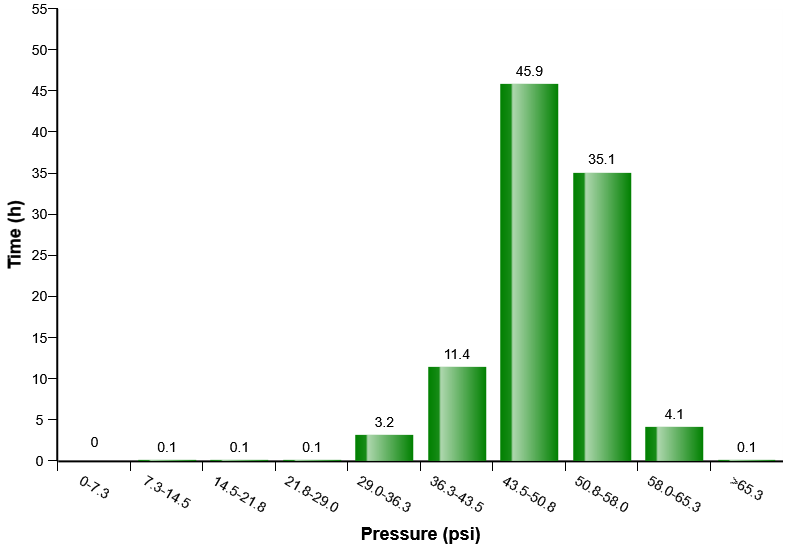
Engine oil pressure (%)



Total logged time (h) = 3292.2

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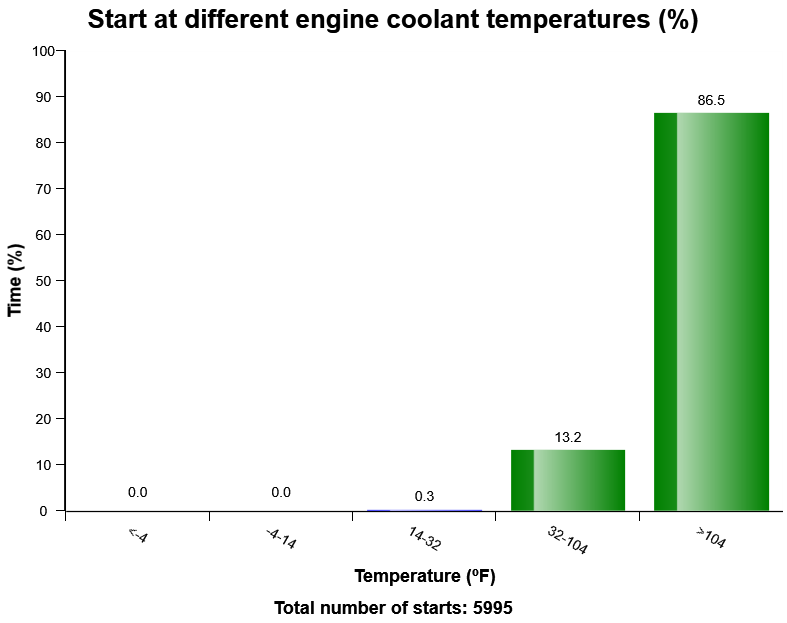
L110H	631127	3295.4	1/16/2019



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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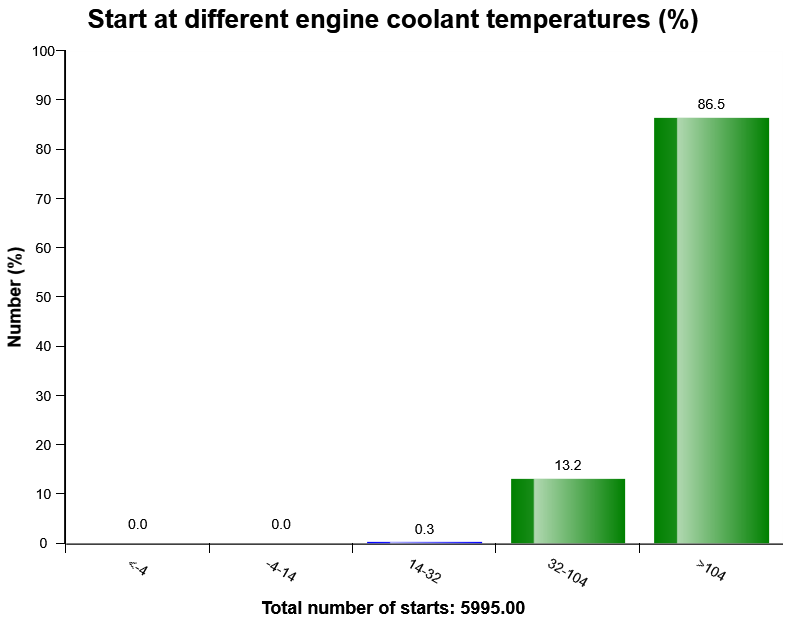

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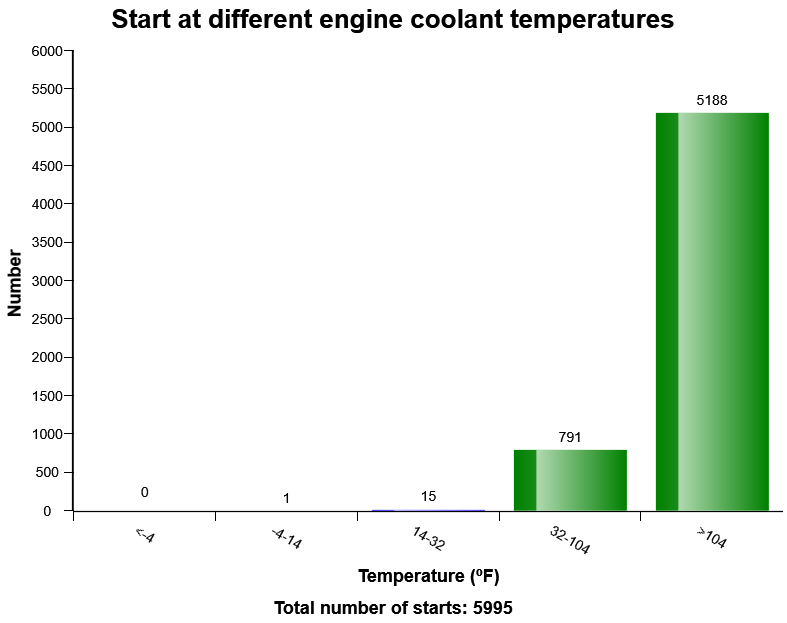

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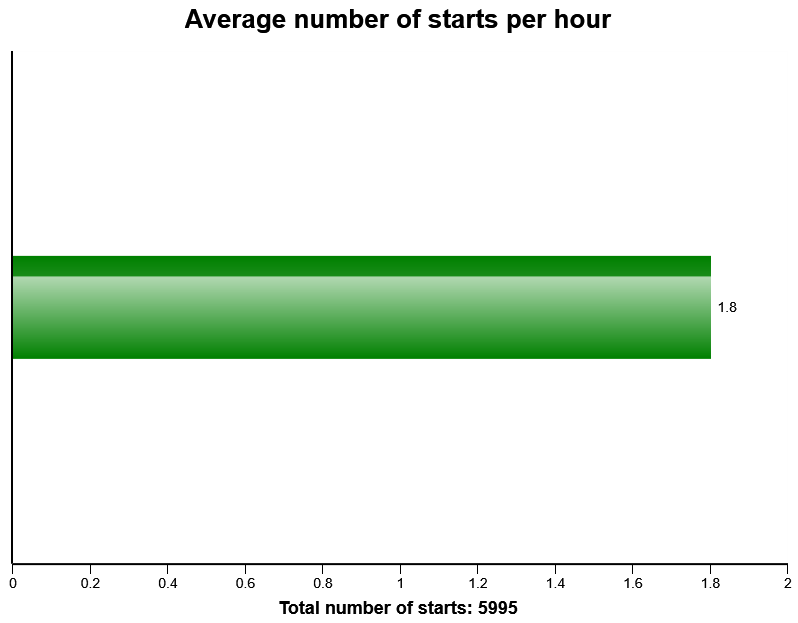

Definition:

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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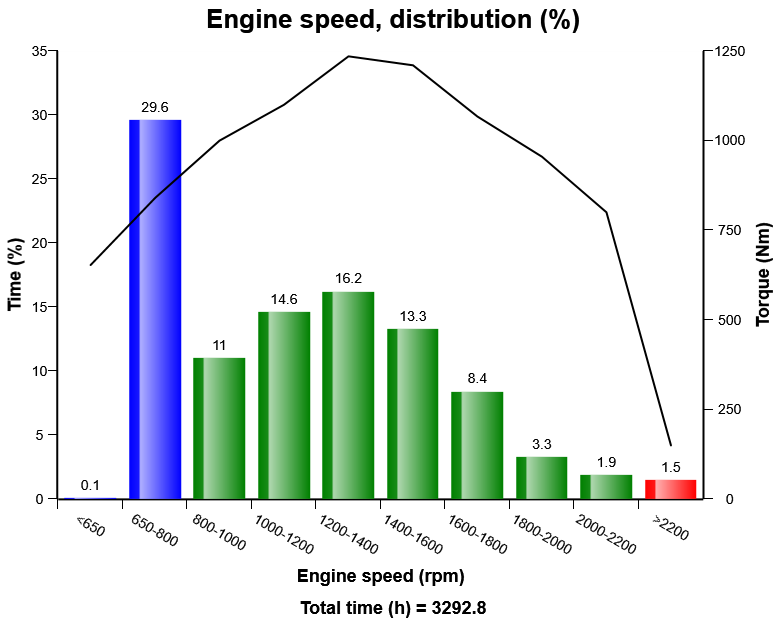

Definition:

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.

Machine model	SerialNo	Operating Hours	Reading Date
L110H	631127	3295.4	1/16/2019

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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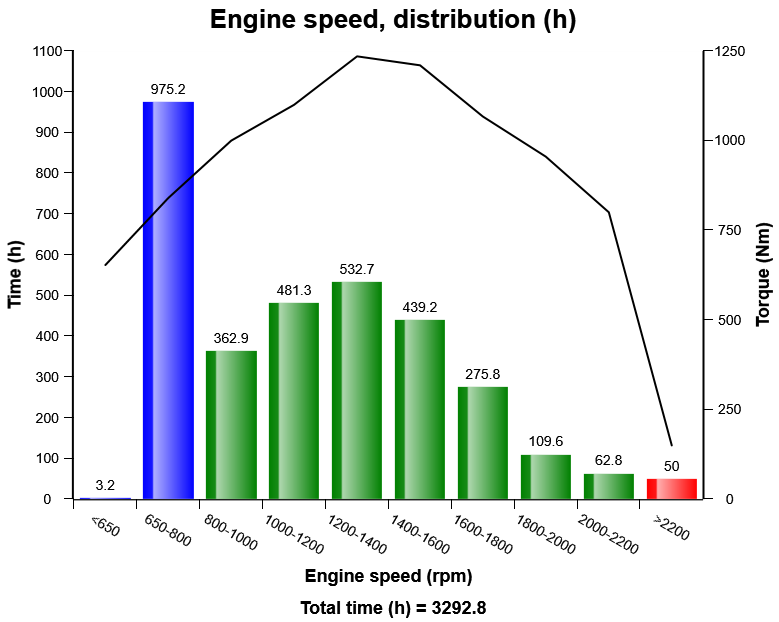

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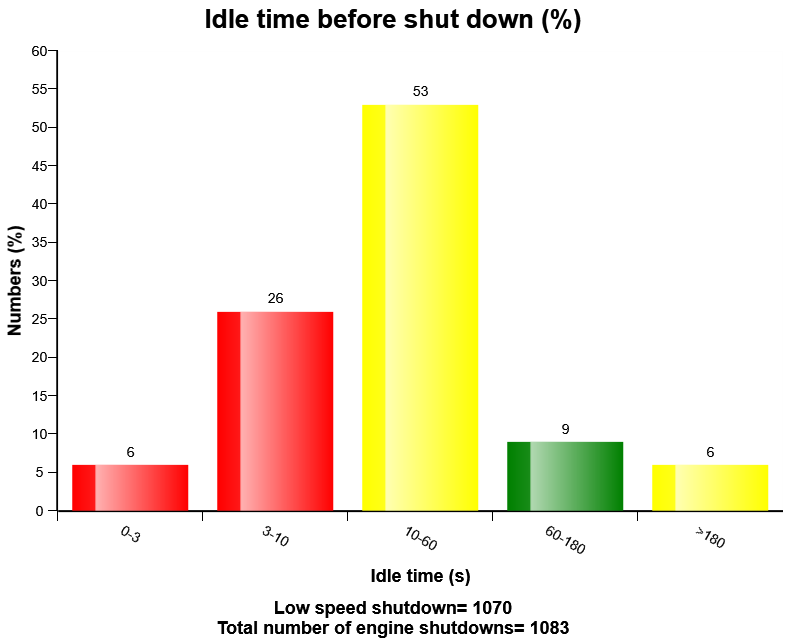

Definition:

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
L110H	631127	3295.4	1/16/2019

Starter overheating
Total number of occurences = 3

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
2683	2018	5	18	9	33
2683	2018	5	18	9	30
2683	2018	5	18	9	30

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
L110H	631127	3295.4	1/16/2019

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

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
L110H	631127	3295.4	1/16/2019

Low Engine Oil Pressure
Total number of occurences = 0

	Op hours	Year	Month	Day	Hour	Minute	Duration (seconds)	Extreme (psi)
*	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

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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.”

Machine model	SerialNo	Operating Hours	Reading Date
L110H	631127	3295.4	1/16/2019

Low Air filter pressure
Total number of occurences = 259

Op hours	Year	Month	Day	Hour	Minute	Duration (seconds)
1365	2017	9	1	16	44	932
1365	2017	9	1	16	9	3
1365	2017	9	5	7	41	3
1369	2017	9	5	14	3	9
1371	2017	9	5	15	56	3038
1372	2017	9	5	16	52	3
1372	2017	9	6	7	50	1692
1372	2017	9	6	8	41	0
1374	2017	9	6	11	42	3861
1375	2017	9	6	12	48	2
1376	2017	9	6	12	53	78
1381	2017	9	8	12	48	690
1382	2017	9	8	13	10	3
1383	2017	9	8	15	27	2115
1384	2017	9	8	16	37	3
1385	2017	9	9	14	19	673
1386	2017	9	9	14	56	9
1388	2017	9	10	6	54	295
1395	2017	9	10	14	24	2060
1395	2017	9	10	15	1	3

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Only one event per minute is registered.

Over the table the total number of events is displayed.

Duration :

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

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
L110H	631127	3295.4	1/16/2019

Engine overspeed, duration
Total number of occurences = 0

Op hours	Year	Month	Day	Hour	Minute	Duration (seconds)	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

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
L110H	631127	3295.4	1/16/2019

Regeneration aborted
Total number of occurences = 17287

	Op hours	Year	Month	Day	Hour	Minute	Reason
*	3077	2018	9	27	10	7	0
*	3077	2018	9	27	10	7	0
*	3077	2018	9	27	10	7	0
*	3077	2018	9	27	10	7	0
*	3077	2018	9	27	10	7	0
*	3077	2018	9	27	10	7	0
*	3077	2018	9	27	10	7	0
*	3077	2018	9	27	10	7	0
*	3077	2018	9	27	10	7	0
*	3077	2018	9	27	10	7	0
*	3077	2018	9	27	10	7	0
*	3077	2018	9	27	10	7	0
*	3077	2018	9	27	10	7	0
*	3077	2018	9	27	10	7	0
*	3077	2018	9	27	10	7	0
*	3077	2018	9	27	10	7	0
*	3077	2018	9	27	10	7	0
*	3077	2018	9	27	10	7	0
*	3077	2018	9	27	10	7	0
*	3077	2018	9	27	10	7	0
*	3077	2018	9	27	10	7	0

Machine model	SerialNo	Operating Hours	Reading Date
L110H	631127	3295.4	1/16/2019

Regeneration ignored
Total number of occurences = 21

	Op hours	Year	Month	Day	Hour	Minute	Duration (min)
*	557	2017	3	24	9	14	68
*	1117	2017	7	4	9	51	23
*	1117	2017	7	4	10	16	45
*	1676	2017	10	20	16	10	114
*	1678	2017	10	20	18	6	24
*	1679	2017	10	21	7	1	52
*	1956	2017	12	8	6	40	14
*	1956	2017	12	8	6	22	15
*	1957	2017	12	11	6	29	62
*	1957	2017	12	8	7	2	4
*	1958	2017	12	12	6	33	3
*	1958	2017	12	11	7	41	2
*	1958	2017	12	11	14	49	5
*	1958	2017	12	11	14	57	1
*	1958	2017	12	11	15	49	2
*	1958	2017	12	12	6	9	8
*	1958	2017	12	12	6	42	50
*	2518	2018	4	19	6	52	65
*	3075	2018	9	27	8	1	64
*	3077	2018	9	27	9	21	45

Machine model	SerialNo	Operating Hours	Reading Date
L110H	631127	3295.4	1/16/2019

Regeneration duration
Total number of occurences = 13

	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
*	557	2017	3	24	8	31	0
*	557	2017	3	24	9	15	6
*	558	2017	3	24	9	37	45
*	1117	2017	7	4	10	17	44
*	1117	2017	7	4	9	53	0
*	1677	2017	10	20	16	58	0
*	1679	2017	10	21	7	9	45
*	1956	2017	12	8	6	42	13
*	1956	2017	12	8	6	24	0
*	1957	2017	12	8	7	3	0
*	1958	2017	12	12	6	46	46
*	2518	2018	4	19	7	13	45
*	3077	2018	9	27	9	22	45

Machine model	SerialNo	Operating Hours	Reading Date
L110H	631127	3295.4	1/16/2019

High engine coolant temperature
Total number of occurences = 0

Op hours	Year	Month	Day	Hour	Minute	Duration (seconds)	Extreme (° F)
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32

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
L110H	631127	3295.4	1/16/2019

Water level warning in water separator
Total number of occurences = 0

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

Machine model	SerialNo	Operating Hours	Reading Date
L110H	631127	3295.4	1/16/2019

High voltage
Total number of occurences = 0

Op hours	Year	Month	Day	Hour	Minute	Duration (seconds)	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

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 system voltage , is active.

Machine model	SerialNo	Operating Hours	Reading Date
L110H	631127	3295.4	1/16/2019

Low voltage
Total number of occurences = 0

Op hours	Year	Month	Day	Hour	Minute	Duration (seconds)	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

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.

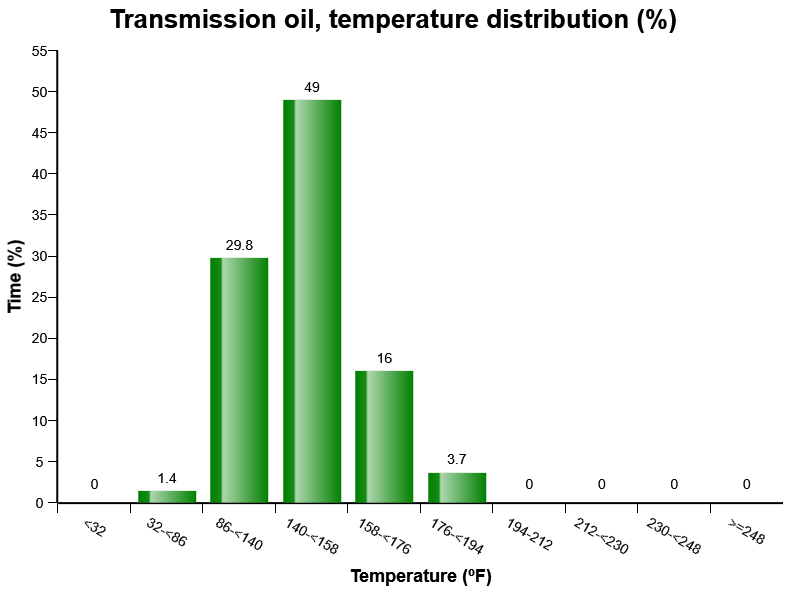
Extreme value：

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
L110H	631127	3295.4	1/16/2019



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

<32ºF Temperatures below 32ºF

32-<86ºF Temperatures from 32ºF until 86ºF

86-<140ºF Temperatures from 86ºF until 140ºF

140-<158ºF Temperatures from 140ºF until 158ºF

158-<176ºF Temperatures from 158ºF until 176ºF

176-<194ºF Temperatures from 176ºF until 194ºF

194-<212ºF Temperatures from 194ºF until 212ºF

212-<230ºF Temperatures from 212ºF until 230ºF

230-<248ºF Temperatures from 230ºF until 248ºF

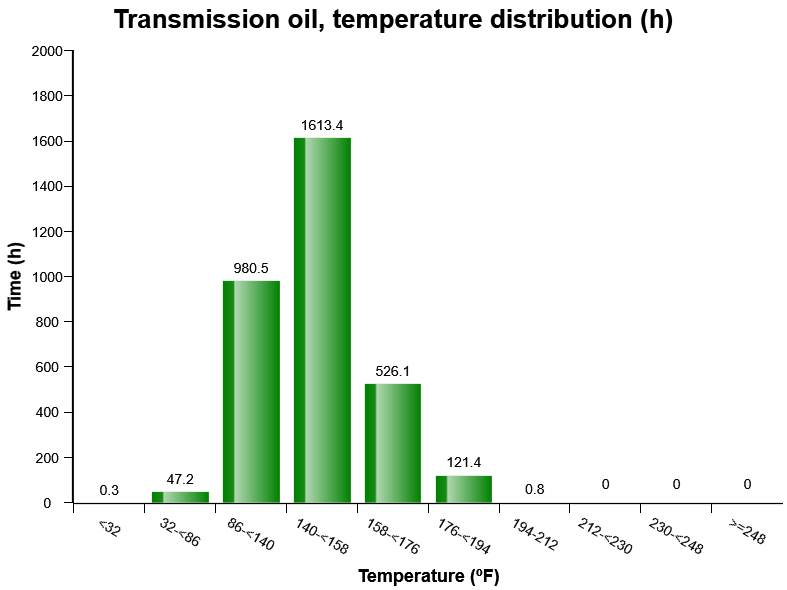
>248ºF Temperatures over 248ºF

The bar that describes temperatures from 230ºF until 248ºF is yellow and means that the oil has began to be overheated. Driver has been given orange central warning

The bar that describes >248ºF is red and means that the oil has been overheated. Driver has been given red central warning.

Oil temperatures exceeding 230ºF must be avoided since the properties of the oil are degraded

Machine model	SerialNo	Operating Hours	Reading Date
L110H	631127	3295.4	1/16/2019



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

<32ºF Temperatures below 32ºF

32-<86ºF Temperatures from 32ºF until 86ºF

86-<140ºF Temperatures from 86ºF until 140ºF

140-<158ºF Temperatures from 140ºF until 158ºF

158-<176ºF Temperatures from 158ºF until 176ºF

176-<194ºF Temperatures from 176ºF until 194ºF

194-<212ºF Temperatures from 194ºF until 212ºF

212-<230ºF Temperatures from 212ºF until 230ºF

230-<248ºF Temperatures from 230ºF until 248ºF

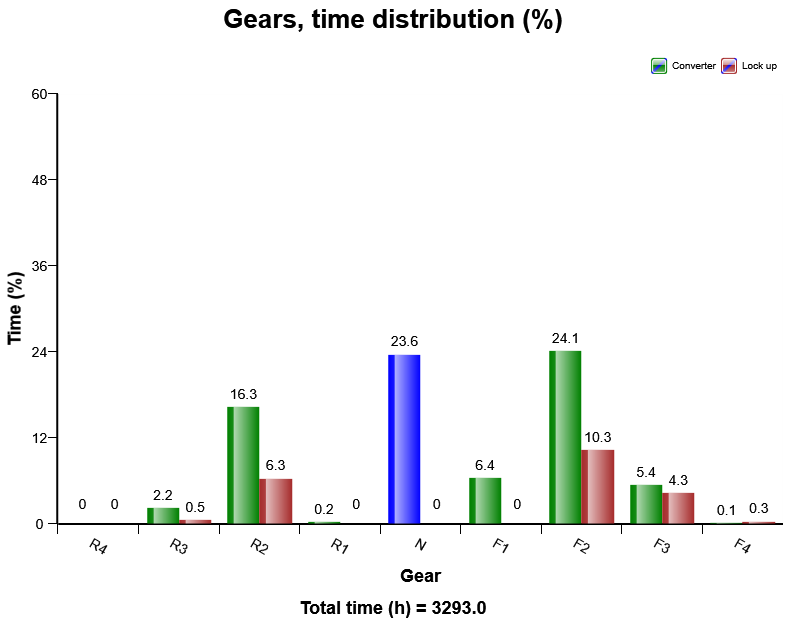
>248ºF Temperatures over 248ºF

The bar that describes temperatures from 230ºF until 248ºF is yellow and means that the oil has began to be overheated. Driver has been given orange central warning

The bar that describes >248ºF is red and means that the oil has been overheated. Driver has been given red central warning.

Oil temperatures exceeding 230ºF must be avoided since the properties of the oil are degraded

Machine model	SerialNo	Operating Hours	Reading Date
L110H	631127	3295.4	1/16/2019



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
L110H	631127	3295.4	1/16/2019

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

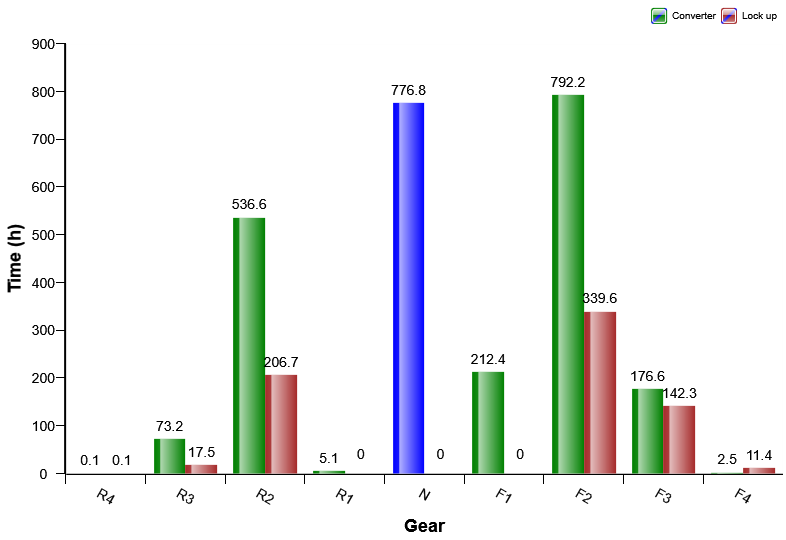
F2=Second forward gear

F3=Third forward gear

F4=Fourth forward gear

Machine model	SerialNo	Operating Hours	Reading Date
L110H	631127	3295.4	1/16/2019

Gears, time distribution (h)



Total time (h) = 3293.0

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.

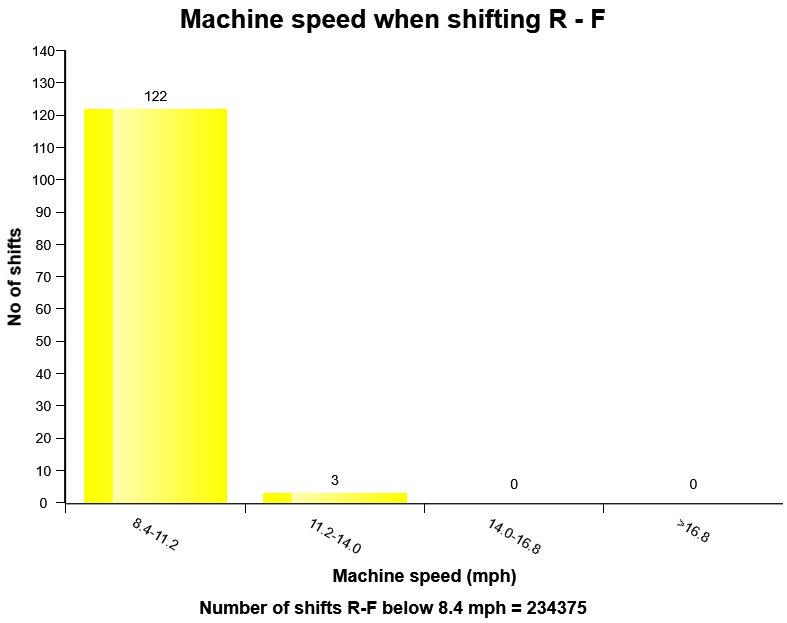
Under the graph the total engine running time (in hours) is displayed.

Explanation:

Y-axis: Engine running time, in hours.

X-axis: Active gear.

Machine model	SerialNo	Operating Hours	Reading Date
L110H	631127	3295.4	1/16/2019



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 mph.

Under the graph the total number of directional gear shifts R-F below 8,4 mph is displayed. Below the diagram the total number of gearshifts is displayed.

Transmission wear depends on current speed when shifting direction. Less machine speed when

shifting direction generally causes less wear on the transmission.

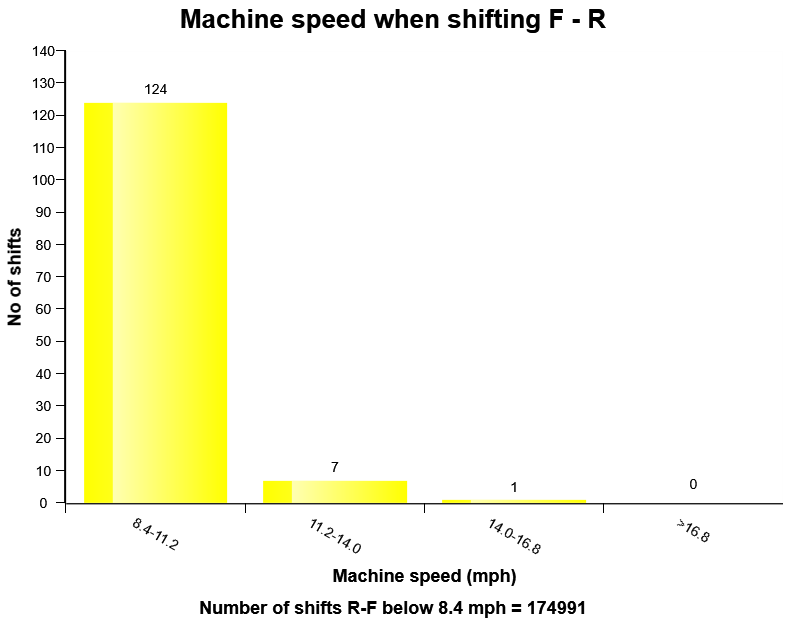
Yellow bar = From 8.4 mph to 11.2 mph

Red bar = From 11.2 mph to 14.0 mph

Red bar = From 14.0 mph to16.8 mph

Red bar = Over 16.8 mph

Machine model	SerialNo	Operating Hours	Reading Date
L110H	631127	3295.4	1/16/2019



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 mph.

Under the graph the total number of directional gear shifts R-F below 8,4 mph is displayed. Below the diagram the total number of gearshifts is displayed.

Transmission wear depends on current speed when shifting direction. Less machine speed when

shifting direction generally causes less wear on the transmission.

Yellow bar = From 8.4 mph to 11.2 mph

Red bar = From 11.2 mph to 14.0 mph

Red bar = From 14.0 mph to16.8 mph

Red bar = Over 16.8 mph

Machine model	SerialNo	Operating Hours	Reading Date
L110H	631127	3295.4	1/16/2019

Transmission oil temperature high
Total number of occurences = 0

Op hours	Year	Month	Day	Hour	Minute	Duration (seconds)	Extreme (° F)
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32

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.

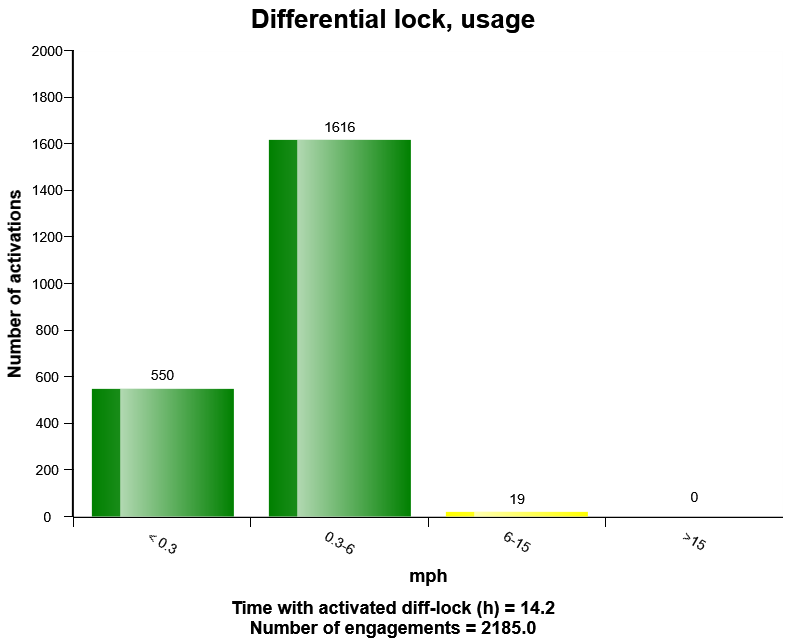
Extreme value :

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.”

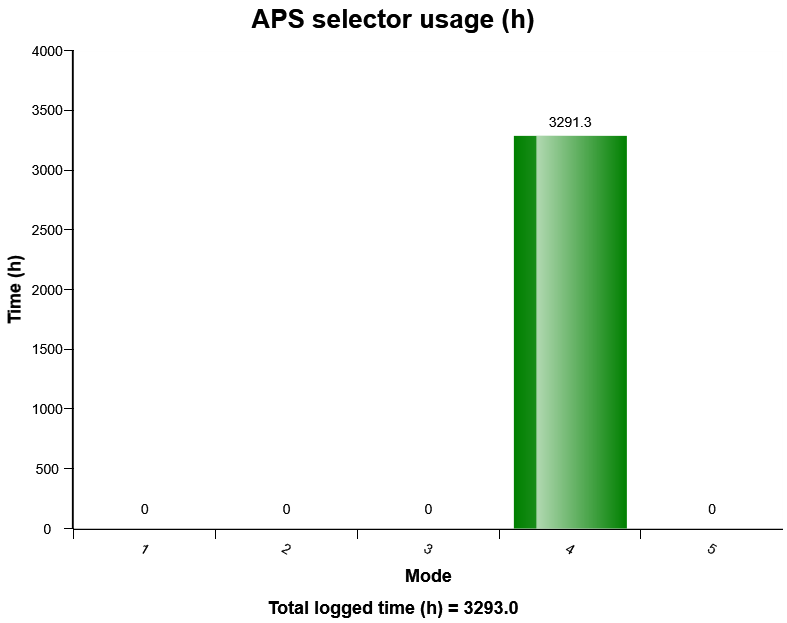
Machine model	SerialNo	Operating Hours	Reading Date
L110H	631127	3295.4	1/16/2019



Definition:

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

Machine model	SerialNo	Operating Hours	Reading Date
L110H	631127	3295.4	1/16/2019



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

For WLO :

Mode1 = Light

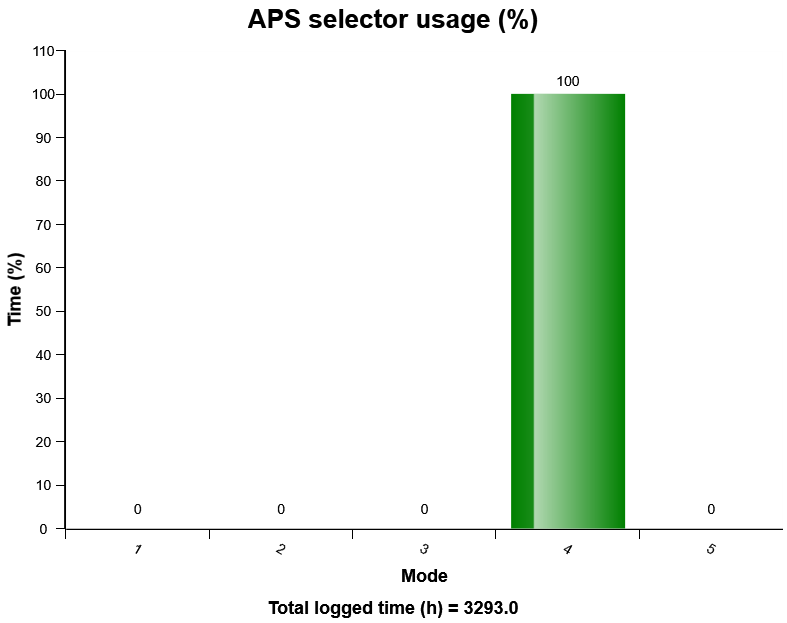
Mode2 = Normal

Mode3 = Heavy

Mode4 = Auto

Mode5 = Service.

Machine model	SerialNo	Operating Hours	Reading Date
L110H	631127	3295.4	1/16/2019



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
L110H	631127	3295.4	1/16/2019

Transmission oil pressure low
Total number of occurences = 0

0	Year	Month	Day	Hour	Minute	Duration (seconds)	Extreme (psi)
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.

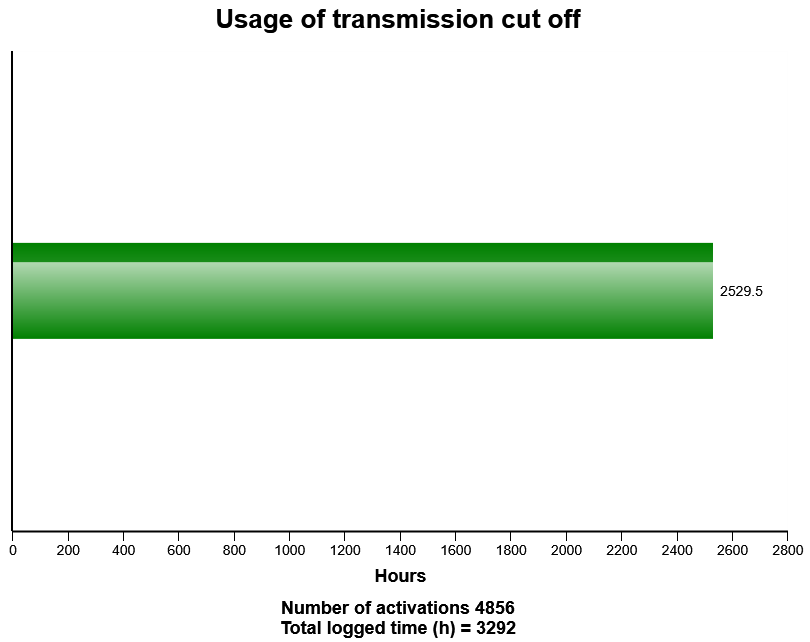
Extreme value :

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

Criteria :

In order for an occurrence of 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.”

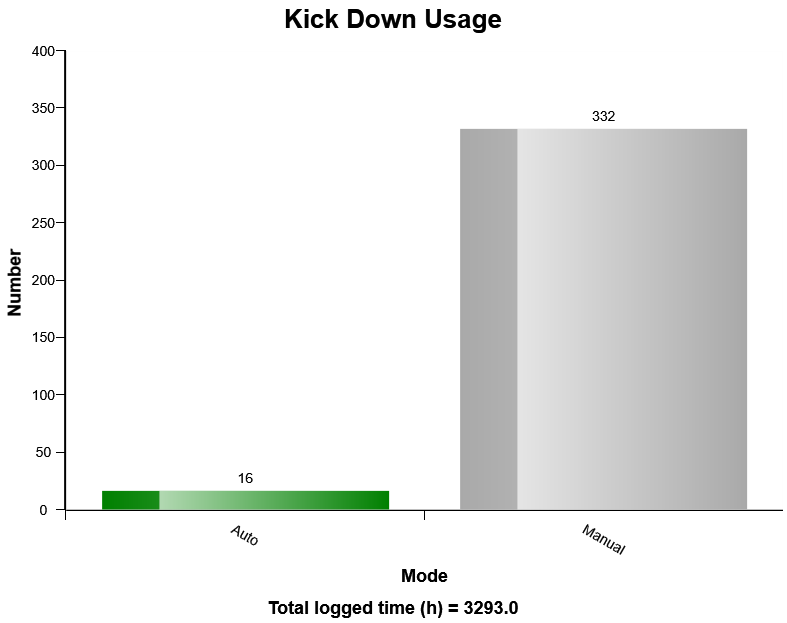
Machine model	SerialNo	Operating Hours	Reading Date
L110H	631127	3295.4	1/16/2019



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

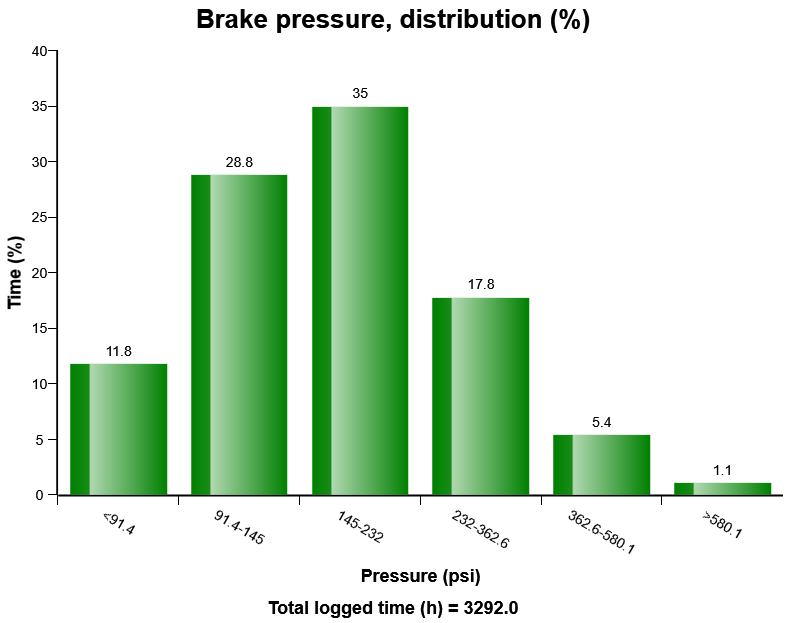
Below the diagram total number of activations is presented.

Machine model	SerialNo	Operating Hours	Reading Date
L110H	631127	3295.4	1/16/2019



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

Machine model	SerialNo	Operating Hours	Reading Date
L110H	631127	3295.4	1/16/2019



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.

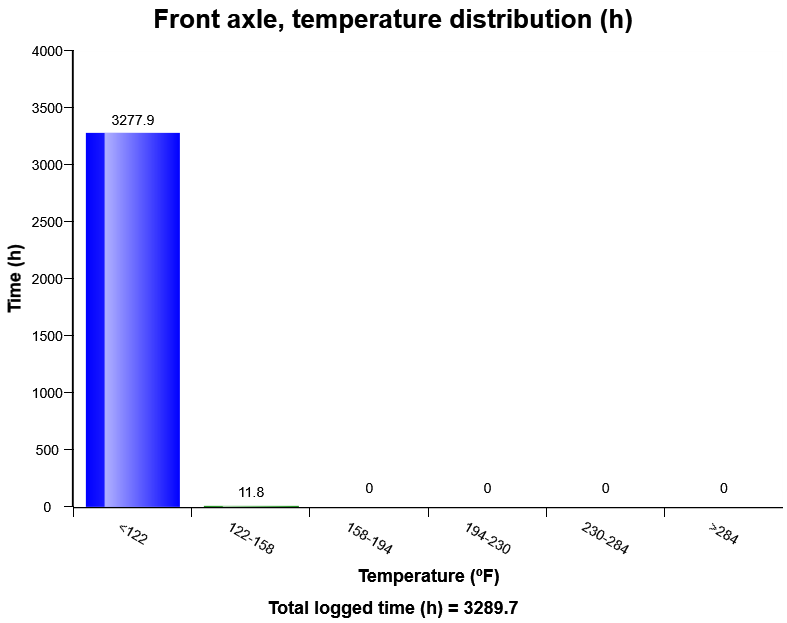
The distribution of the bars throughout the ranges reflects the operator's way of handling the machine. A concentration in the lower ranges indicates that the machine is being operated correctly.

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
L110H	631127	3295.4	1/16/2019



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.

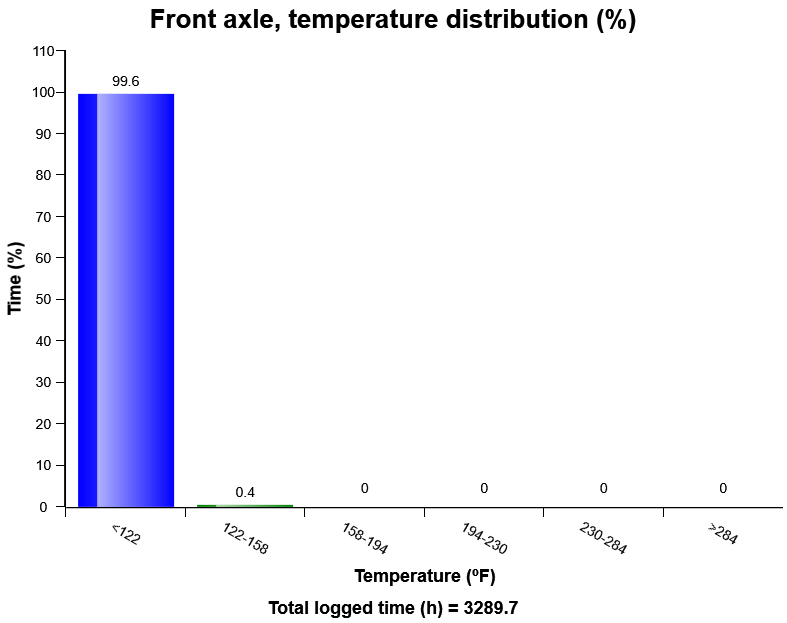
Green bar = Normal working temperature. The Major part of the registrations shall be in this region.

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
L110H	631127	3295.4	1/16/2019



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
L110H	631127	3295.4	1/16/2019

It is normal to have registrations in this region.

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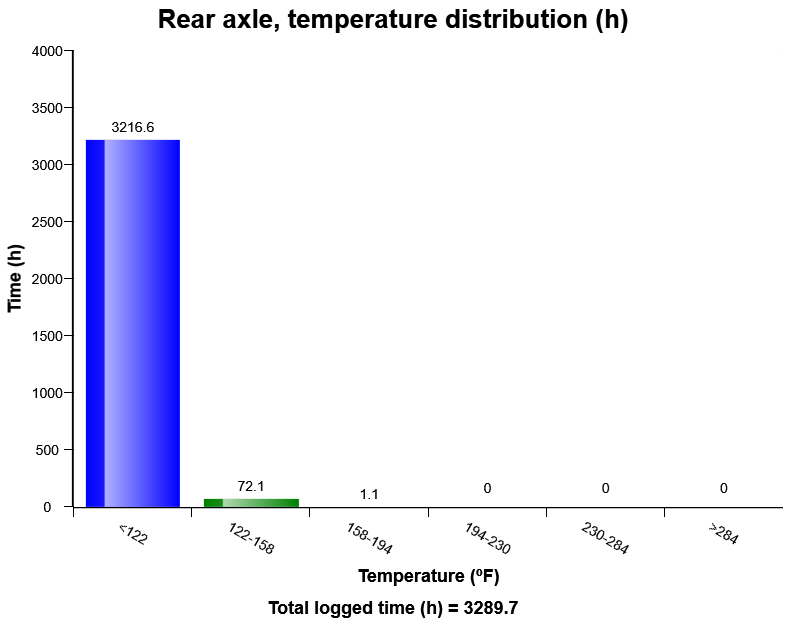
Machine model	SerialNo	Operating Hours	Reading Date
L110H	631127	3295.4	1/16/2019



Definition:

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X-axis: Temperature distribution in classes.

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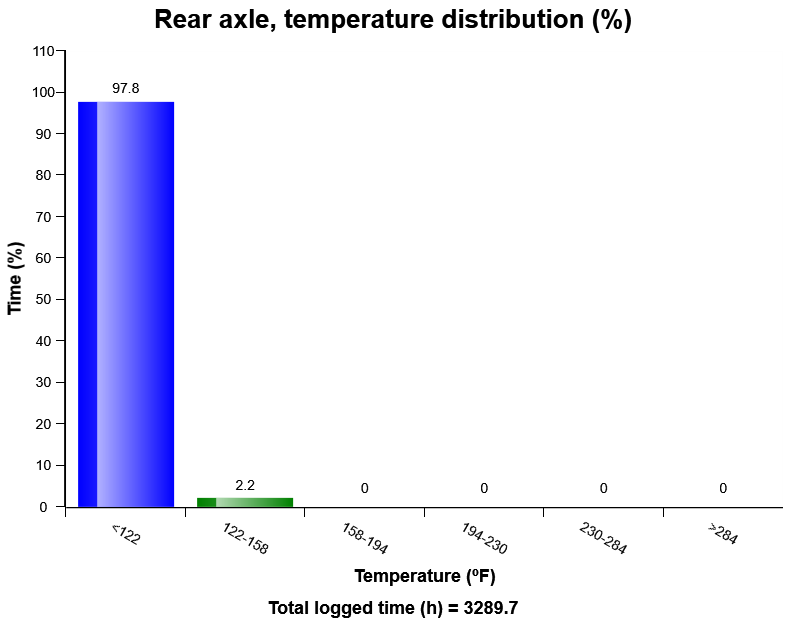
Machine model	SerialNo	Operating Hours	Reading Date
L110H	631127	3295.4	1/16/2019



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.

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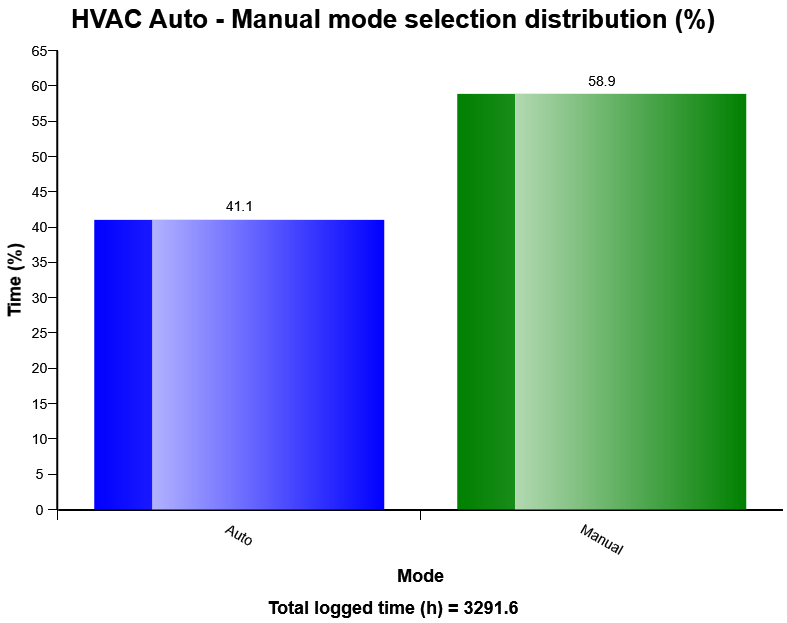
Red bar = Alarm.

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

Machine model	SerialNo	Operating Hours	Reading Date
L110H	631127	3295.4	1/16/2019

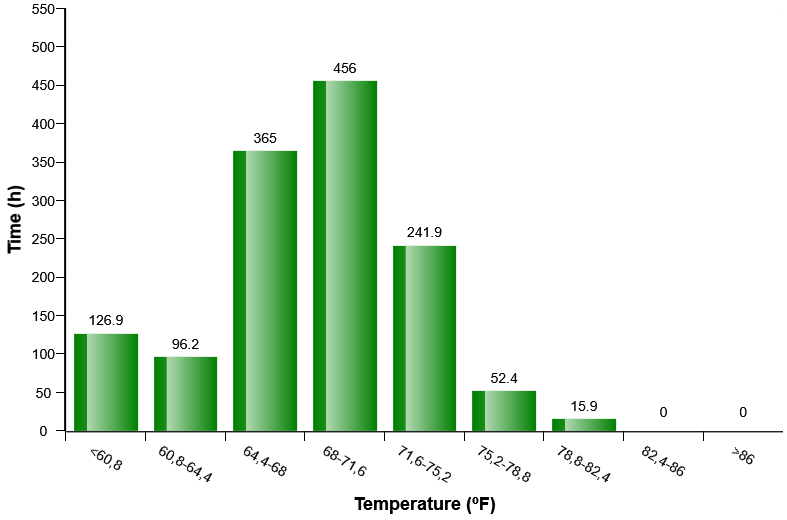


Definition:

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
L110H	631127	3295.4	1/16/2019

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

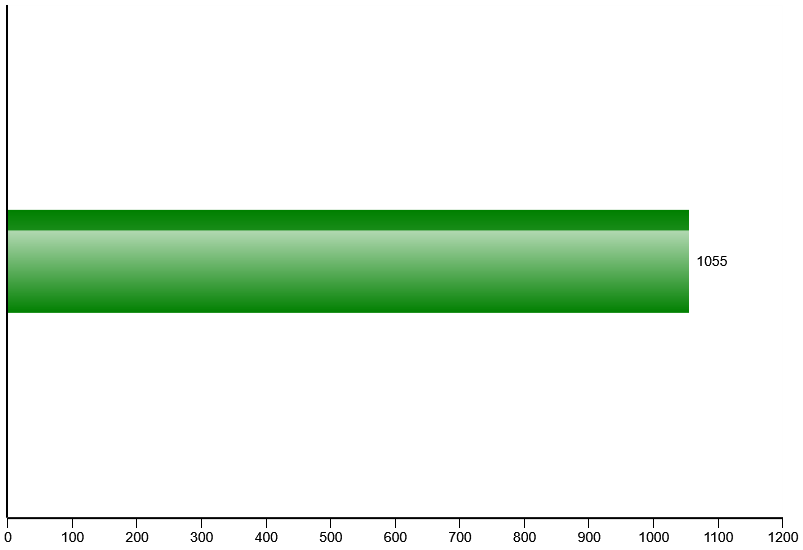


Definition:

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

Machine model	SerialNo	Operating Hours	Reading Date
L110H	631127	3295.4	1/16/2019

AC Compressor usage



Total logged time (h) = 3291.7
Number of engagements = 119882.0

Definition:

The graph shows the total time of AC compressor engagement.

Explanation:

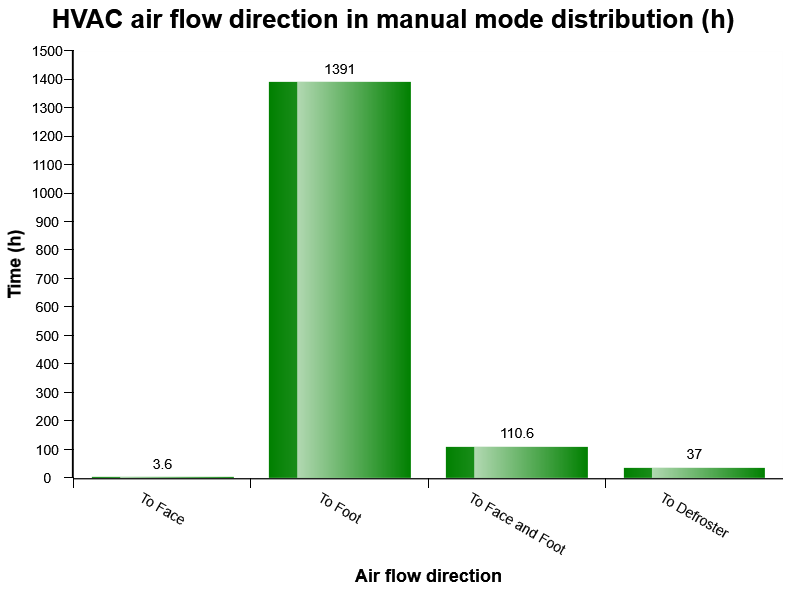
Green bar: Total time in hours, AC compressor has been engaged.

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
L110H	631127	3295.4	1/16/2019

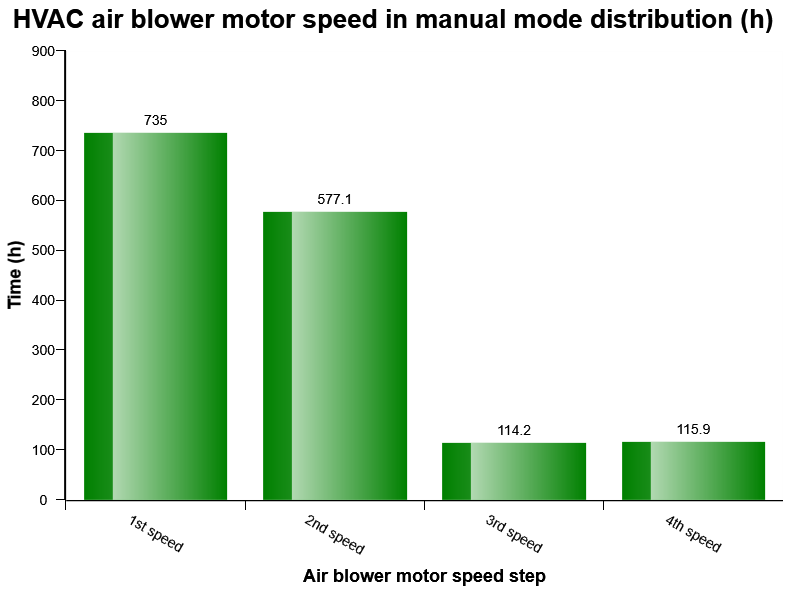
Machine model	SerialNo	Operating Hours	Reading Date
L110H	631127	3295.4	1/16/2019



Definition:

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

Machine model	SerialNo	Operating Hours	Reading Date
L110H	631127	3295.4	1/16/2019



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
L110H	631127	3295.4	1/16/2019

AC High Pressure
Total number of occurences = 0

Op hours	Year	Month	Day	Hour	Minute	Duration (seconds)	Ambient temperature (°F)
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32

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.

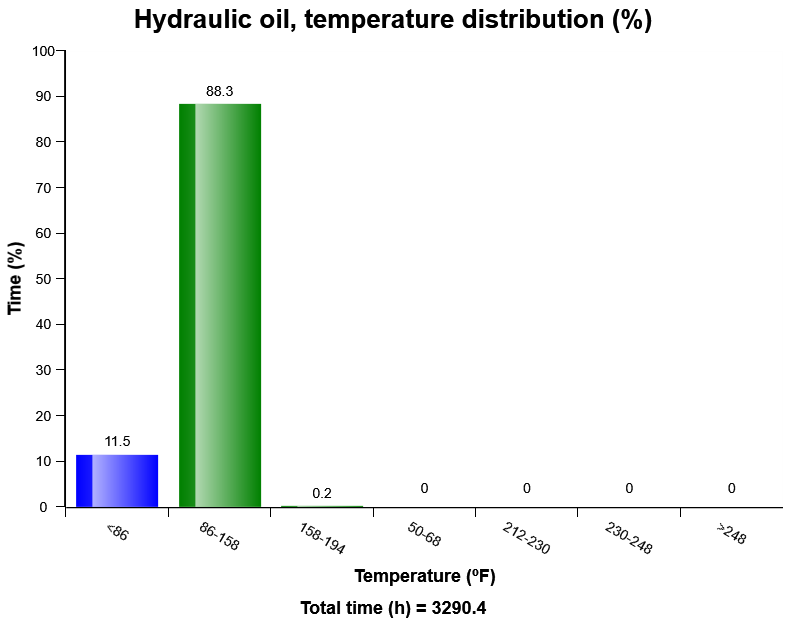
Extreme value：

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
L110H	631127	3295.4	1/16/2019



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
L110H	631127	3295.4	1/16/2019

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
L110H	631127	3295.4	1/16/2019

High hydraulic oil temperature
Total number of occurences = 0

Op hours	Year	Month	Day	Hour	Minute	Duration (seconds)	Extreme (° F)
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32
0	2000	0	0	0	0	0	32

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
L110H	631127	3295.4	1/16/2019

Low Hydraulic Oil Level
Total number of occurences = 4

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
2870	2018	7	16	16	33	9
2870	2018	7	16	15	33	15
2870	2018	7	16	15	9	30
2870	2018	7	16	13	41	14

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 ：

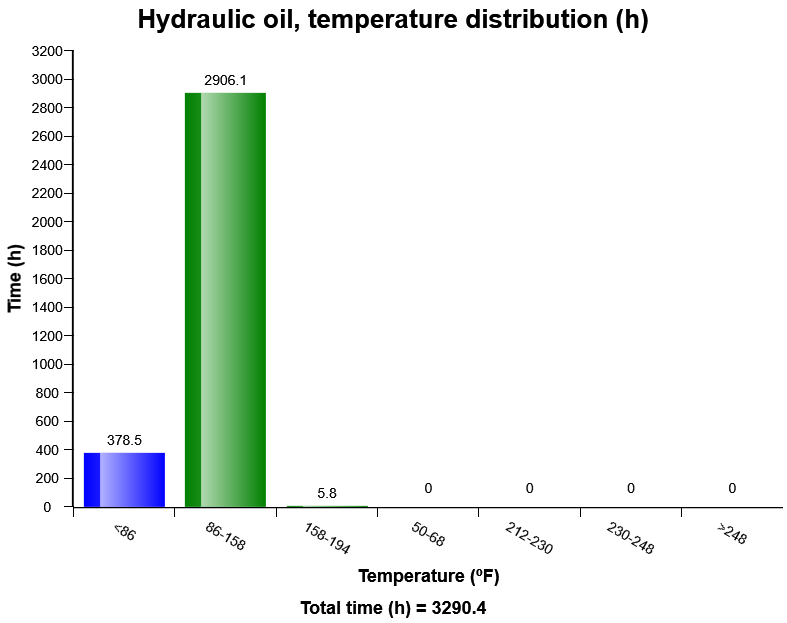
The duration of each event is shown after the timestamp of the event.

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
L110H	631127	3295.4	1/16/2019



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
L110H	631127	3295.4	1/16/2019

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.