VOLVO CONSTRUCTION EQUIPMENT MATRIS REPORT

Machine model	SerialNo		Operating Hours		Reading Date
A45G	342065	5 4542.4			14/10/2019
Company name	•	Dealer		Report Issuer	
volvo arnold machine		ery			
Contact name Technician			Primary Ap	plication	
mike seifert CE Tech			Earth n	noving construction	
Site Workorder			Ground Co	ndition	

MATRIS Reading, Summary / Recommendation

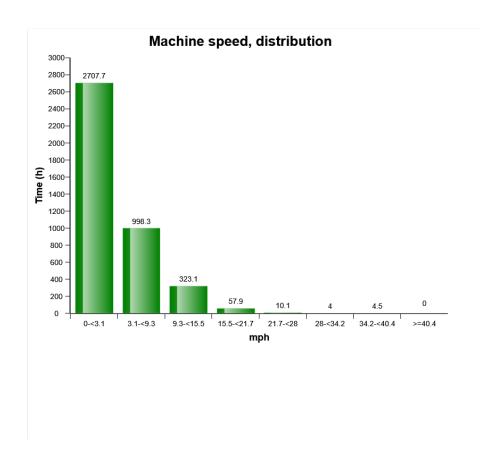


Machine model	SerialNo	Operating Hours	Reading Date
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Main equipment	Туре	Equipment
	Tyre size/class	Sold without tyres
	Body extensions	Not mounted
	Tail-gate	Not mounted
	Extra spillguard	
	Wear plates	Not mounted
	Pattern	None



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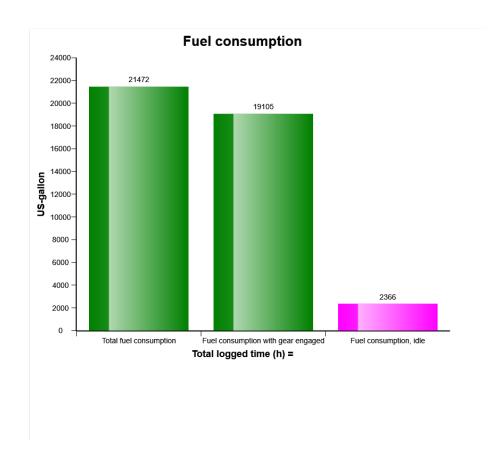


The presentation shows the time in hours in speed-intervals for the machine.

Note that the interval 0-3,1 mile/h includes machine not in motion. If the machine has been operated above 34,2 Mile/h there is a risk of engine over speed, check "Engine speed, over 2100 rpm"



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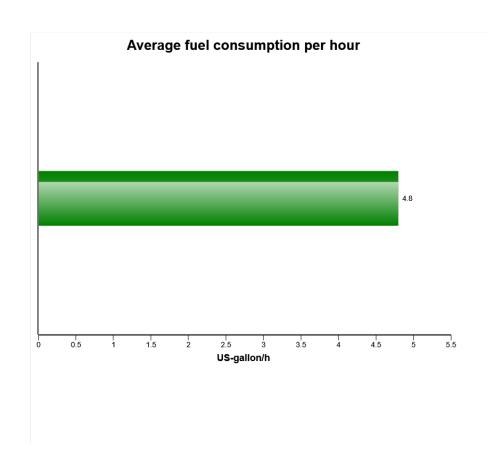


The diagram shows the total fuel consumption, fuel consumption with gear engaged and fuel consumption during idle.

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



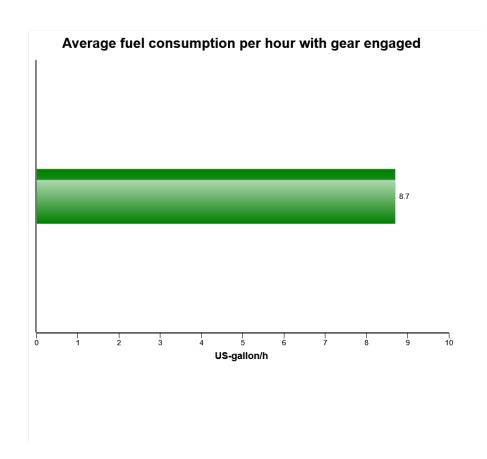
Machine model	SerialNo	Operating Hours	Reading Date
A45G	342065	4542.4	14/10/2019



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



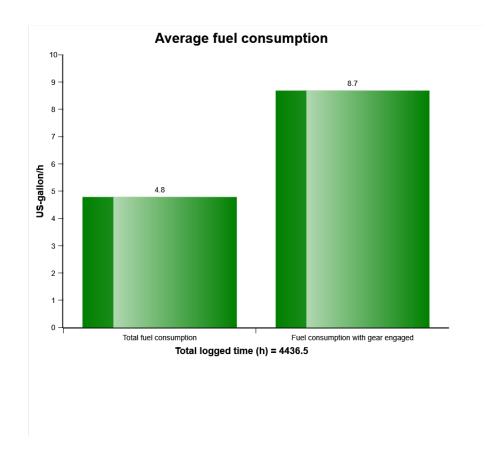
Machine model	SerialNo	Operating Hours	Reading Date
A45G	342065	4542.4	14/10/2019



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



Machine model	SerialNo	Operating Hours	Reading Date
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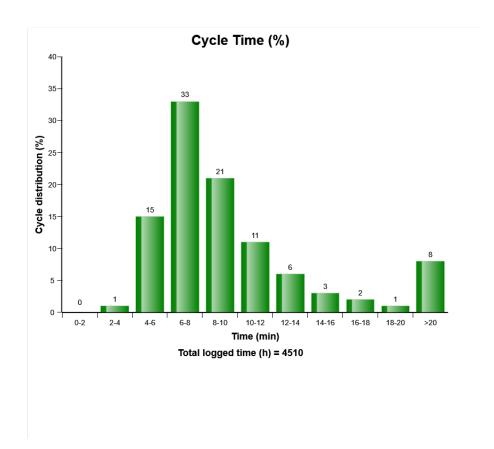


The diagram shows the total average fuel consumption versus average fuel consumption with gear engaged.

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



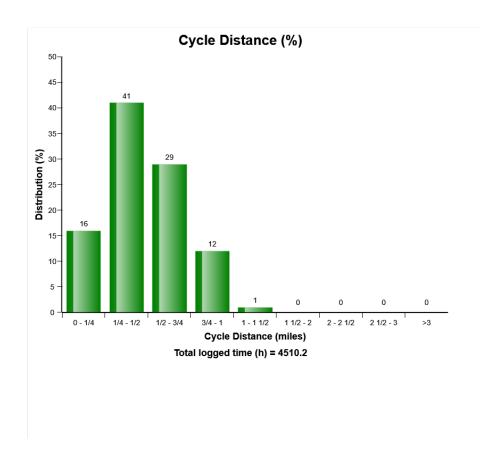
Machine model	SerialNo	Operating Hours	Reading Date
A45G	342065	4542.4	14/10/2019



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



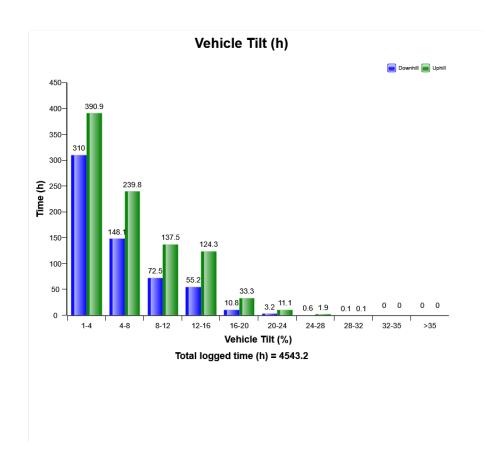
Machine model	SerialNo	Operating Hours	Reading Date
A45G	342065	4542.4	14/10/2019



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



Machine model	SerialNo	Operating Hours	Reading Date
A45G	342065	4542.4	14/10/2019



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



Machine model	SerialNo	Operating Hours	Reading Date
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Accumulated performance Total logged time (h) =

Total logged time (h) =
Fuel consumption (US-gallons)
Production (ton,US)
Гоп/h
Γon/gal
Fuel efficiency (US Gal/ton)
Number of cycles
Cycles overloaded (%)
Load utilisation / cycle (%)

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

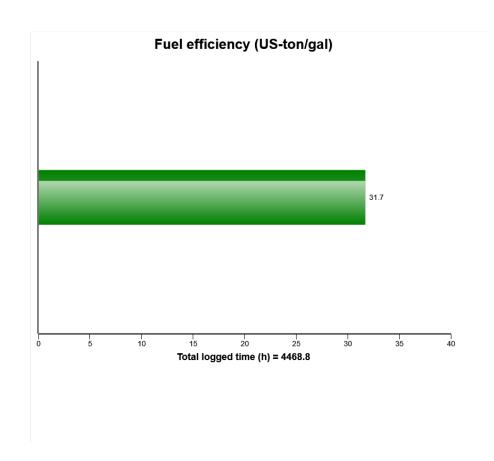
Values are saved over the life of the machine only when the engine is running.



68.8	
477	
1751	
52.6	
.7	
03	
709	



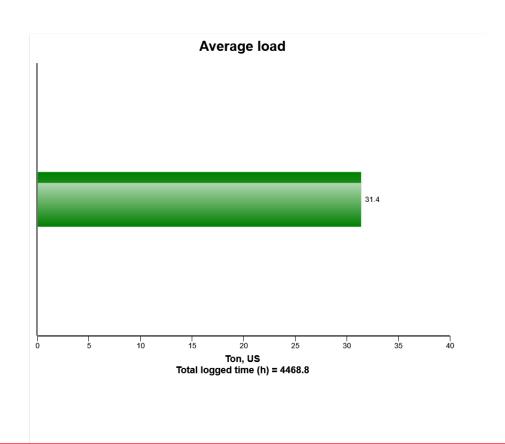
Machine model	SerialNo	Operating Hours	Reading Date
A45G	342065	4542.4	14/10/2019



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



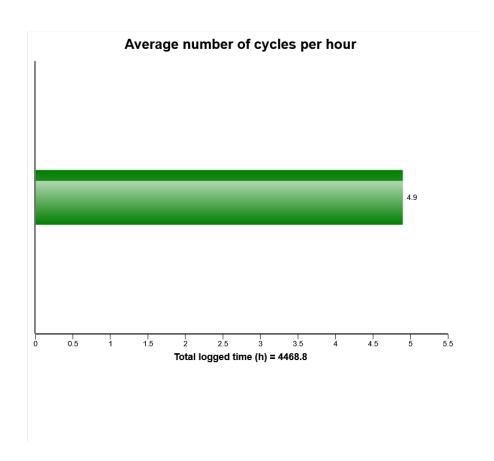
Machine model	SerialNo	Operating Hours	Reading Date
A45G	342065	4542.4	14/10/2019



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



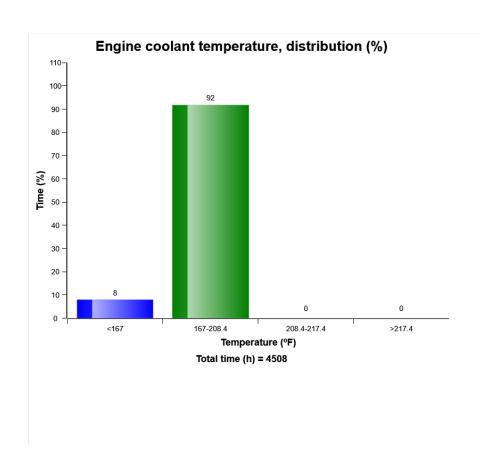
Machine model	SerialNo	Operating Hours	Reading Date
A45G	342065	4542.4	14/10/2019



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



Machine model	SerialNo	Operating Hours	Reading Date
A45G	342065	4542.4	14/10/2019



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.



Machine model	SerialNo	Operating Hours	Reading Date
A45G	342065	4542.4	14/10/2019

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

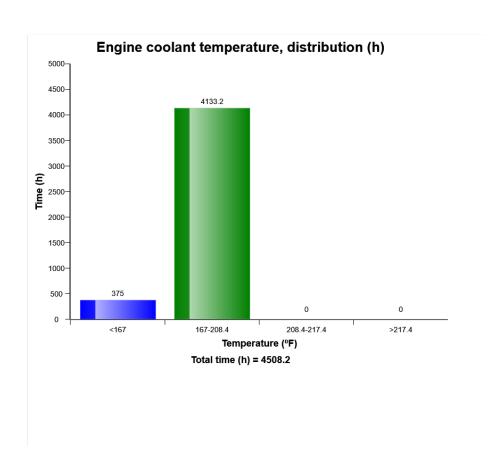
Yellow bar = High working temperature. It is normal to have some registrations in this region.

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
A45G	342065	4542.4	14/10/2019



Definition:

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

Explanation:

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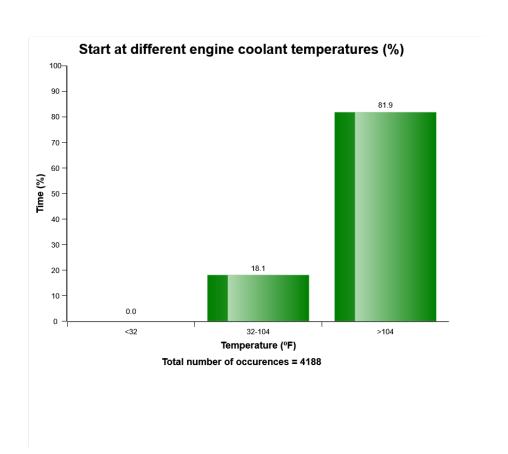
Yellow bar = High working temperature. It is normal to have some registrations in this region.

Red bar = Alarm.

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



Machine model	SerialNo	Operating Hours	Reading Date
A45G	342065	4542.4	14/10/2019



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.



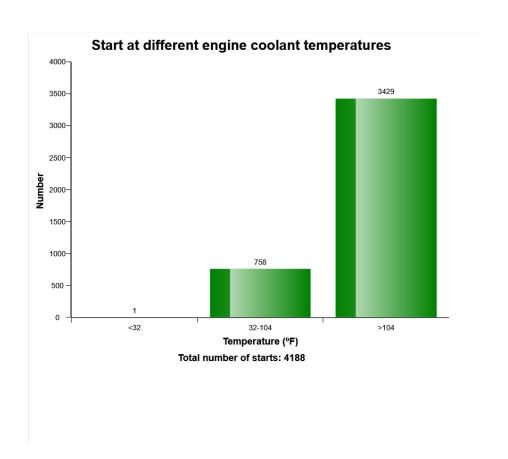
Machine model	SerialNo	Operating Hours	Reading Date
A45G	342065	4542.4	14/10/2019

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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A45G	342065	4542.4	14/10/2019



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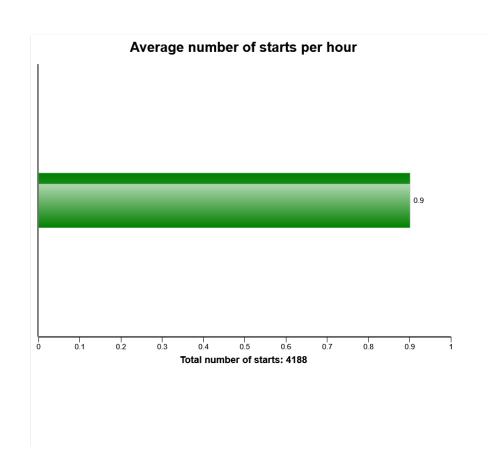
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Under the graph the total number of engine starts is displayed.

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



Machine model	SerialNo	Operating Hours	Reading Date
A45G	342065	4542.4	14/10/2019



Definition:

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

Explanation:

X-axis: Number of average starts per hour.

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

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

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

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



Machine model	SerialNo	Operating Hours	Reading Date
A45G	342065	4542.4	14/10/2019

Green bar = Number of average starts per hour



Machine model	SerialNo	Operating Hours	Reading Date
A45G	342065	4542.4	14/10/2019

High engine coolant temperature Total number of occurences = 0

	Op hours	Year	Month	Day	Hour	Minute	Duration (sec)
A	0	2000	0	0	0	0	0
В	0	2000	0	0	0	0	0
С	0	2000	0	0	0	0	0
D	0	2000	0	0	0	0	0
E	0	2000	0	0	0	0	0
F	0	2000	0	0	0	0	0
G	0	2000	0	0	0	0	0
Н	0	2000	0	0	0	0	0
I	0	2000	0	0	0	0	0
J	0	2000	0	0	0	0	0

Definition

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

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

Only one event per minute is registered.

Over the table the total number of events is displayed.

Duration:

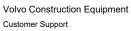
The duration of each event is shown after the timestamp of the event.

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

Extreme value:

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







Machine model	SerialNo	Operating Hours	Reading Date
A45G	342065	4542.4	14/10/2019

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
A45G	342065	4542.4	14/10/2019

High engine oil temperature Total number of occurences = 0

	Op hours	Year	Month	Day	Hour	Minute	Duration (sec)
A	0	2000	0	0	0	0	0
В	0	2000	0	0	0	0	0
С	0	2000	0	0	0	0	0
D	0	2000	0	0	0	0	0
E	0	2000	0	0	0	0	0
F	0	2000	0	0	0	0	0
G	0	2000	0	0	0	0	0
Н	0	2000	0	0	0	0	0
I	0	2000	0	0	0	0	0
J	0	2000	0	0	0	0	0

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Duration:

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Extreme value:

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



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A45G	342065	4542.4	14/10/2019

Criteria:

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





Machine model	SerialNo	Operating Hours	Reading Date
A45G	342065	4542.4	14/10/2019

Regeneration aborted Total number of occurences = 7

Op hours	Year	Month	Day	Hour	Minute	Reason
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
4329	2019	1	1	16	44	1
4329	2019	1	1	11	45	1
4480	2019	2	5	14	3	1
4480	2019	2	5	13	17	1
4481	2019	2	6	10	21	1
4481	2019	2	6	12	43	1
4481	2019	2	5	14	42	1

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



Machine model	SerialNo	Operating Hours	Reading Date
A45G	342065	4542.4	14/10/2019

Regeneration duration Total number of occurences = 67

Op hours	Year	Month	Day	Hour	Minute	Duration (min)
3695	2018	12	7	8	22	16
3696	2018	12	7	9	9	19
3696	2018	12	7	8	39	25
3698	2018	12	22	10	48	45
3698	2018	12	22	10	10	7
3698	2018	12	22	10	18	19
3918	2019	1	30	16	44	23
3919	2019	1	31	6	51	28
4194	2019	3	13	13	42	2
4213	2019	3	15	10	35	46
4311	2019	3	26	7	40	45
4328	2019	1	1	11	39	6
4329	2019	1	1	17	33	41
4329	2019	1	1	16	40	5
4479	2019	2	5	12	45	32
4480	2019	2	5	13	47	16
4481	2019	2	6	10	4	18
4481	2019	2	6	12	37	6
4481	2019	2	5	14	31	11
4481	2019	2	6	10	40	55

An error has occurred while processing HtmlTextBox 'ExplanationTxb': The 'span' start tag on line 1 position 43 does not match the end tag of 'BR'. Line 1, position 153.



Machine model	SerialNo	Operating Hours	Reading Date
A45G	342065	4542.4	14/10/2019

High voltage Total number of occurences = 1

Op hours	Year	Month	Day	Hour	Minute	Duration (sec)	Extreme value
3967	2019	2	6	14	18	1	30.6
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0
0	2000	0	0	0	0	0	0.0

Definition:

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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 :

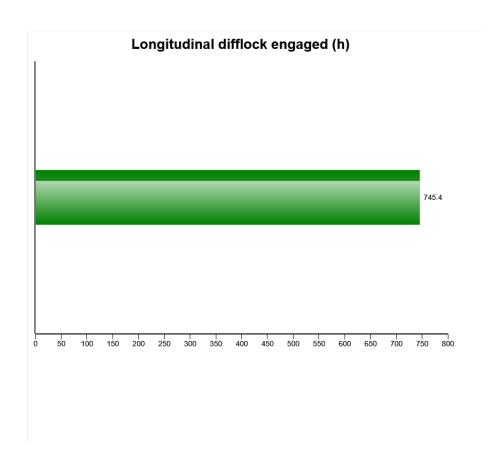
The extreme value column displays the most extreme value during the event.

Criteria:

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



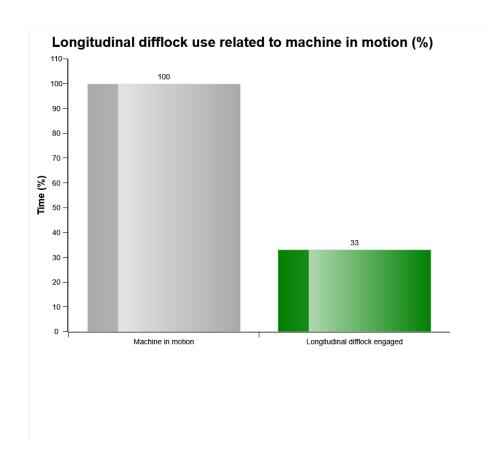
Machine model	SerialNo	Operating Hours	Reading Date
A45G	342065	4542.4	14/10/2019



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



Machine model	SerialNo	Operating Hours	Reading Date
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The diagram shows the percentage of engaged longitudinal difflock in relation to machine in motion.

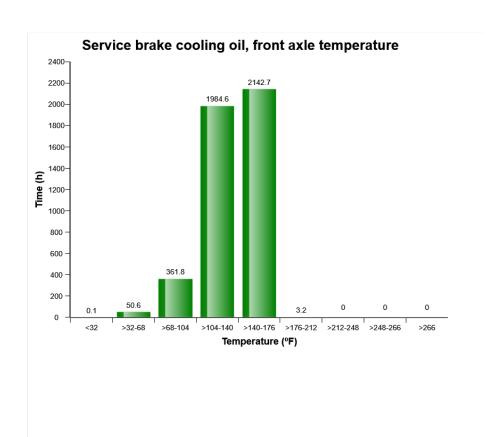
The longitudinal difflock should always be disengaged when not needed to reduce wear.

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

Also check "Longitudinal difflock engaged (h)"



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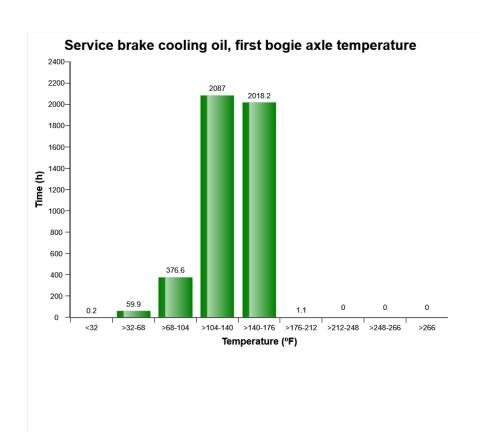


The diagram shows the front axle brake cooling oil temperature. The temperatures are divided into ranges, yellow bar ($>248-266^{\circ}F$) and red bar ($>266^{\circ}F$) shows abnormal temperatures. The temperature is registered in the line from the front axle to the oil cooler, that is, the warmest oil in the circuit.

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



Machine model	SerialNo	Operating Hours	Reading Date
A45G	342065	4542.4	14/10/2019

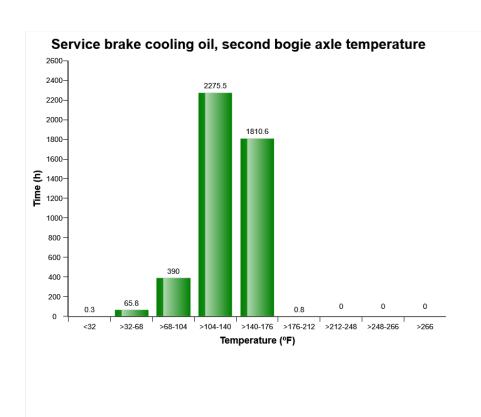


The diagram shows the first bogie axle brake cooling oil temperature. The temperatures are divided into ranges, yellow bar ($>248-266^{\circ}F$) and red bar ($>266^{\circ}F$) shows abnormal temperatures. The temperature is registered in the line from the first bogie axle to the oil cooler, that is, the warmest oil in the circuit.

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



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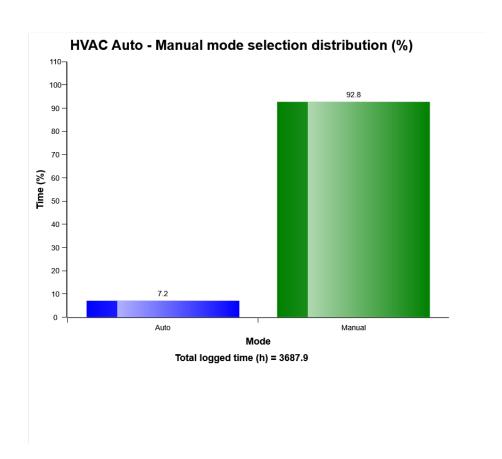


The diagram shows the front axle brake cooling oil temperature. The temperatures are divided into ranges, yellow bar (>248-266°F) and red bar (>266°F) shows abnormal temperatures. The temperature is registered in the line from the second bogie axle to the oil cooler, that is, the warmest oil in the circuit.

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



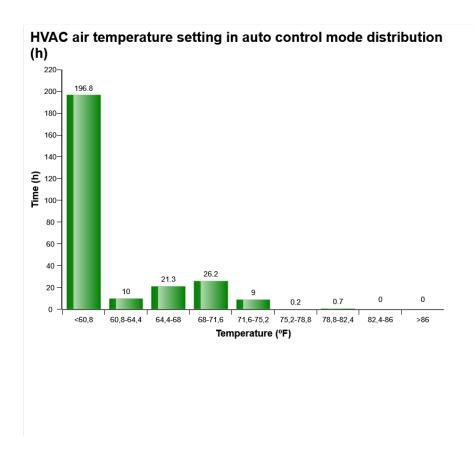
Machine model	SerialNo	Operating Hours	Reading Date
A45G	342065	4542.4	14/10/2019



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.



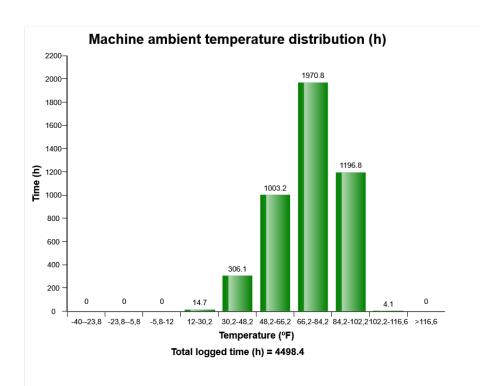
Machine model	SerialNo	Operating Hours	Reading Date
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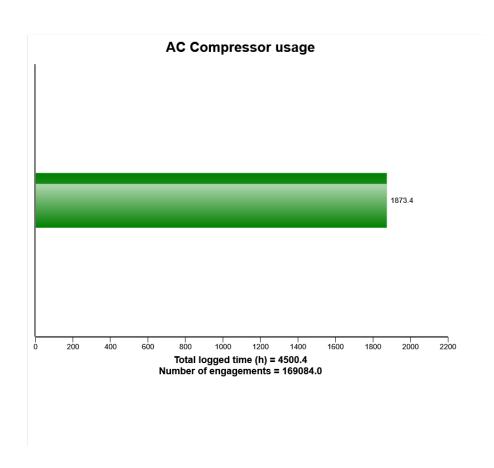
The diagram describes air temperature setting distribution for HVAC auto control mode established by operator in Cabin



Machine model	SerialNo	Operating Hours	Reading Date
A45G	342065	4542.4	14/10/2019



Machine model	SerialNo	Operating Hours	Reading Date
A45G	342065	4542.4	14/10/2019



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.

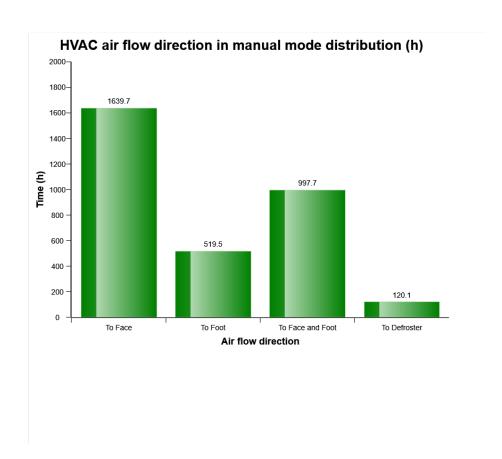


Machine model	SerialNo	Operating Hours	Reading Date
A45G	342065	4542.4	14/10/2019

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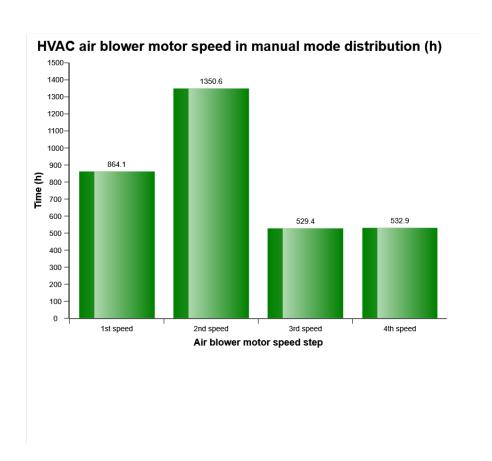
Machine model	SerialNo	Operating Hours	Reading Date
A45G	342065	4542.4	14/10/2019



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



Machine model	SerialNo	Operating Hours	Reading Date
A45G	342065	4542.4	14/10/2019



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
A45G	342065	4542.4	14/10/2019

AC High Pressure Total number of occurences = 410

Op hours	Year	Month	Day	Hours	Minute	Duration (sec)	Extreme (° F)
4393	2019	1	10	16	58	-511296243	95
4400	2002	10	29	3	18	18	95
4400	2002	10	29	3	12	17	95
4402	2002	10	29	4	31	5	95
4410	2002	10	30	4	10	7	95
4418	2002	11	2	2	32	511296262	95
4420	2019	1	15	16	58	-511296235	95
4420	2002	11	2	3	44	17	93
4421	2002	11	2	4	51	16	99
4428	2002	11	3	2	47	37	97
4428	2002	11	3	3	21	48	99
4428	2002	11	3	3	5	53	99
4428	2002	11	3	2	13	9	97
4428	2002	11	3	2	33	10	99
4429	2002	11	3	3	57	60	100
4429	2002	11	3	3	27	29	99
4430	2002	11	3	4	25	30	100
4449	2002	11	10	5	8	399	108
4450	2019	1	23	18	24	-511296241	108
4459	2002	11	11	4	49	13	99

Definition:

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



Machine model	SerialNo	Operating Hours	Reading Date
A45G	342065	4542.4	14/10/2019

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
A45G	342065	4542.4	14/10/2019

AC Boiling Protection Number of engagements = 0

Op hours	Year	Month	Day	Hour	Minute	Duration (sec)	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



Machine model	SerialNo	Operating Hours	Reading Date
A45G	342065	4542.4	14/10/2019

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
A45G	342065	4542.4	14/10/2019

AC System Cut Out Pressure Total number of occurences = 0

Op hours	Year	Month	Day	Hour	Minute	Duration (sec)	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



Machine model	SerialNo	Operating Hours	Reading Date
A45G	342065	4542.4	14/10/2019

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

