VOLVO CONSTRUCTION EQUIPMENT
MATRIS REPORT

Machine model	SerialNo	Operating Hours	Reading Date
EC480E	310483	4789	10/10/2019

Company name	Dealer	Report Issuer
Hoffman		

Contact name	Technician	Primary Application
	Edwin Cabrera	Civil engineering/Heavy construction

Site	Workorder	Ground Condition

MATRIS Reading, Summary / Recommendation

Machine model	SerialNo	Operating Hours	Reading Date
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Main equipment	Type	Equipment
	Track chain	
	X3 piping	
	Attachment Interface	
	Hydraulic Fluid	
	X1 Piping	
	Main Attachment	
	Hose Rupture Valve on Boom	
	Hose Rupture Valve on Arm	
	X1 return filter	

Machine model	SerialNo	Operating Hours	Reading Date
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Machine utilization (%)

Working No working

72.1

27.9

Total logged time (h) = 4779.1
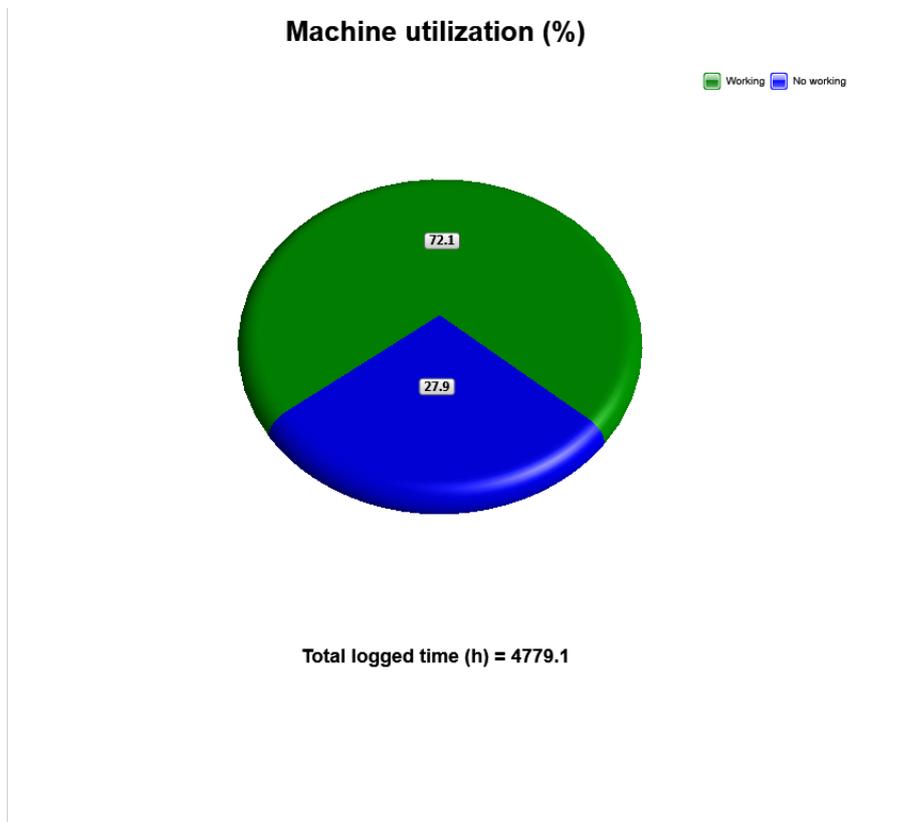
Definition:

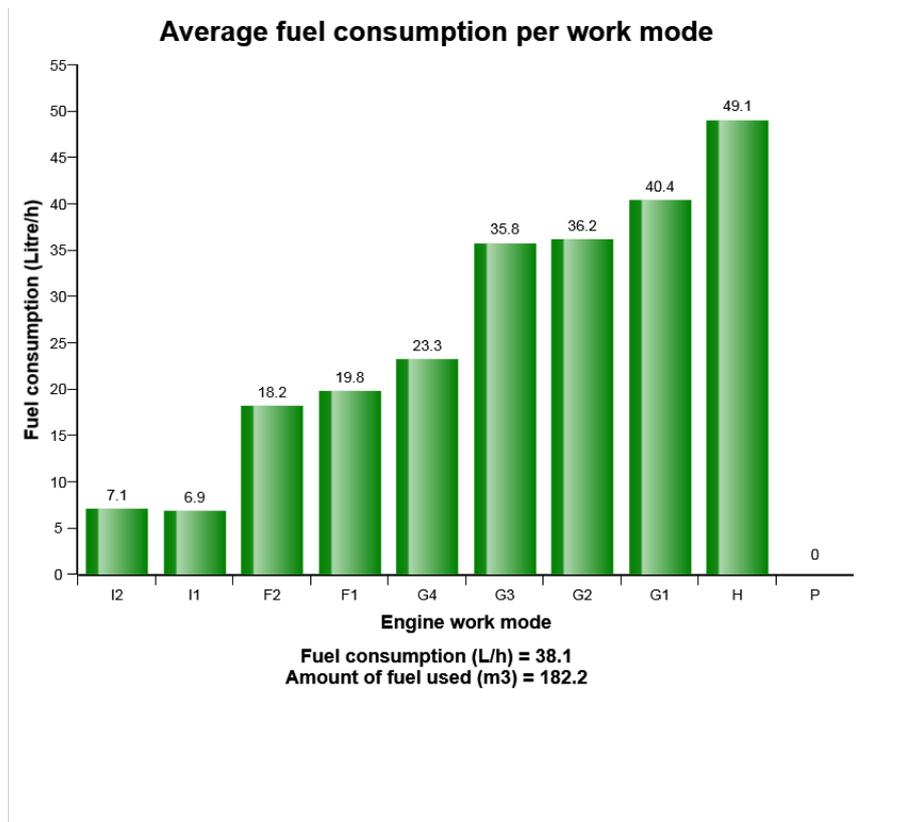The graph shows the distribution of the operating time for the machine. The operating time is defined as the time with engine on

Blue sector = Engine is running, but attachments and tracks are not moved

or operated .

Green sector = Machine in work with the move of attachments and tracks

Machine model	SerialNo	Operating Hours	Reading Date
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Average fuel consumption per work mode

Fuel consumption (L/h) = 38.1
Amount of fuel used (m3) = 182.2

Definition:

This diagram shows the fuel consumption distribution rate on each work mode.

Distribution of each work mode is shown on top of its column in rate

Explanation:

Y-axis: The rate of the fuel consumption on each work mode.

X-axis: The work mode (10 steps in total)

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Distribution of each work mode is shown on top of its column in rate

Average fuel consumption per hour is listed below the diagram

Machine model	SerialNo	Operating Hours	Reading Date
EC480E	310483	4789	10/10/2019

Fuel consumption distribution on work mode(m3)
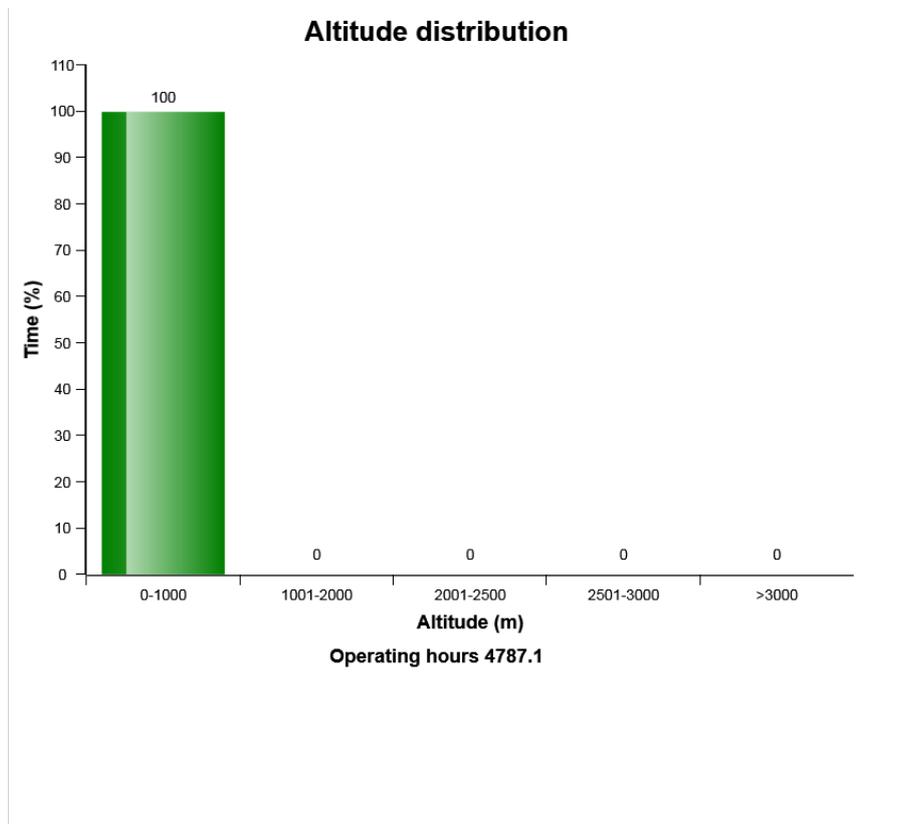

Total fuel (m3) = 182.2
Total time (h) = 4787.1
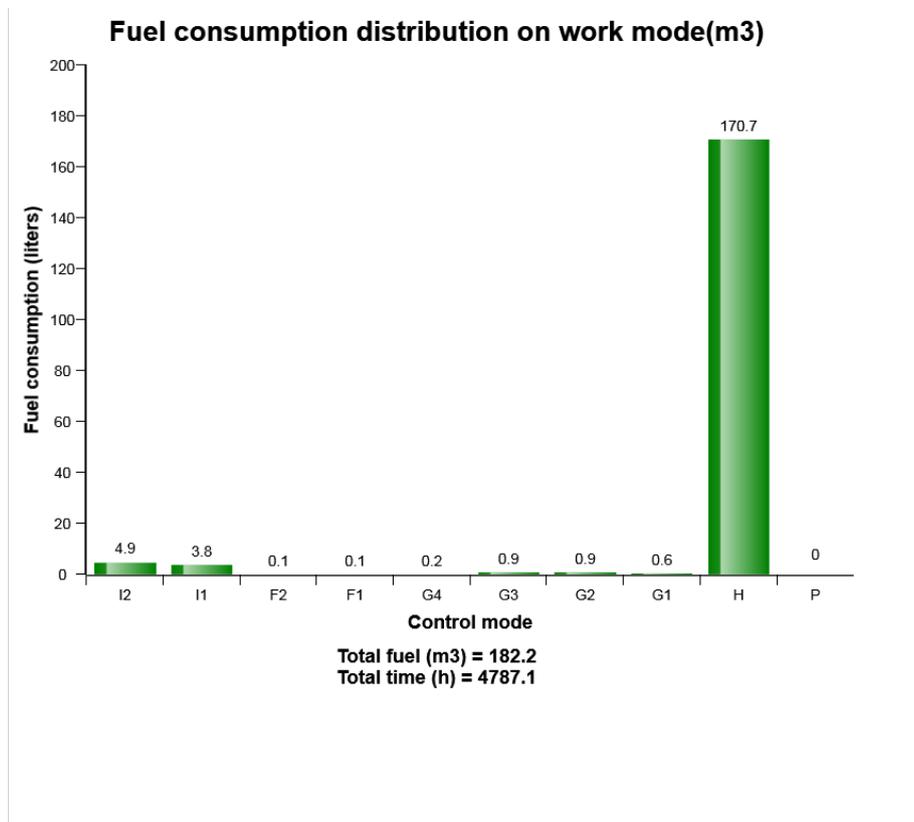
Definition:

The diagram describes the amount of fuel consumed per engine speed mode distribution.

Total amount of fuel consumed (m3) in above means that the sum of the fuel while it consumed for engine ON. The values above distribution were calculated from theoretical calculation with logged data in V-ECU so it can be some different from actual performance in field.

Machine model	SerialNo	Operating Hours	Reading Date
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Altitude distribution

Operating hours 4787.1

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
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Engine coolant temperature, distribution (%)

Total coolant temperature hours = 4787.1

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

Engine coolant temperature, distribution (h)

Total coolant temperature hours = 4787.1

An error has occurred while processing HtmlTextBox 'htmlTextBox1':
'WordSection1' is an unexpected token. The expected token is '"' or '''. Line 1, position 18.
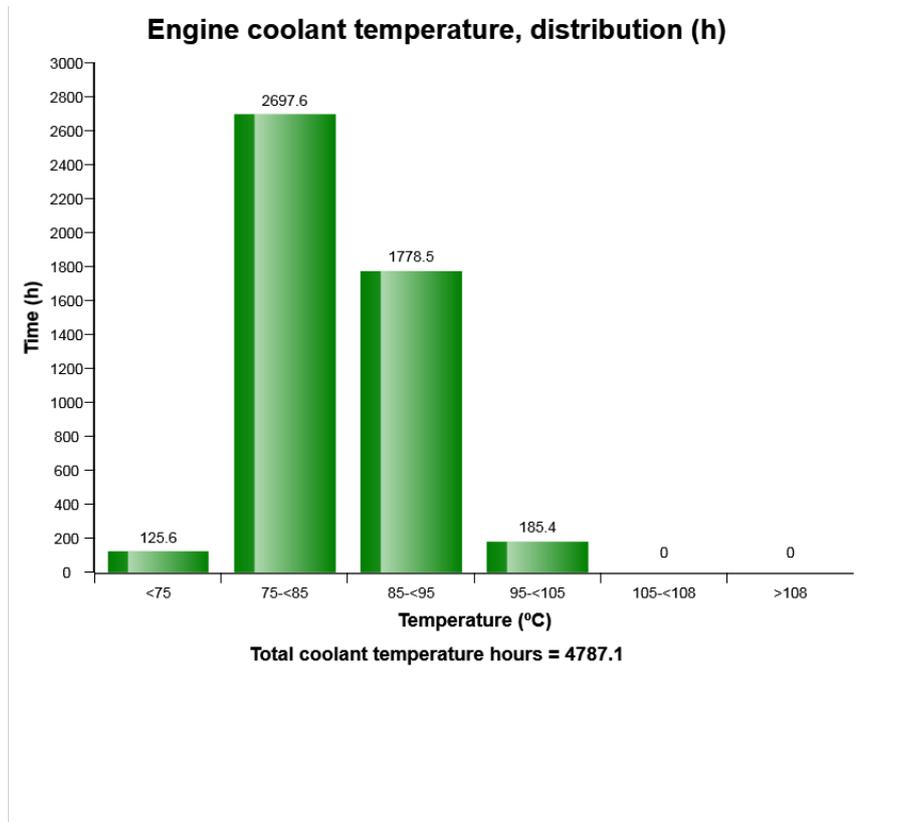
Machine model	SerialNo	Operating Hours	Reading Date
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Cooling Fan, speed control current distribution(%)

Bar chart — Time (%) vs Current (mA):
- <100: 0
- 100-150: 0
- 150-200: 0
- 200-250: 0
- 250-300: 0
- 300-350: 0
- 350-400: 49.7
- 400-450: 13.4
- 450-500: 6.7
- >500: 30.2

Total logged time (h) = 4779.1

Definition:

The diagram describes Hydraulic Cooling fan speed control, Current (mA) distribution, on fan speed Control..

Total time (hours) in above means the sum of the time for Hydraulic Cooling fan operation.

Machine model	SerialNo	Operating Hours	Reading Date
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Cooling Fan, speed control current distribution(h)

Bar chart — Time (h) vs Current (mA):
- <100: 0
- 100-150: 0
- 150-200: 0
- 200-250: 0
- 250-300: 0
- 300-350: 0
- 350-400: 2374.5
- 400-450: 640.5
- 450-500: 321.4
- >500: 1442.7

Total logged time (h) = 4779.1

Definition:

The diagram describes Hydraulic Cooling fan speed control, Current (mA) distribution, on fan speed Control..

Total time (hours) in above means the sum of the time for Hydraulic Cooling fan operation.

Machine model	SerialNo	Operating Hours	Reading Date
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Cooling fan, Normal-Reverse rotation distribution (%)

■ Normal rotation ■ Reverse rotation

100

0
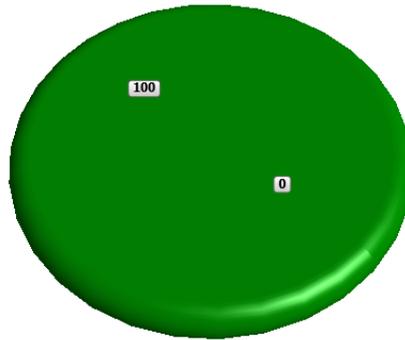
Total operating time (h) = 3694.0

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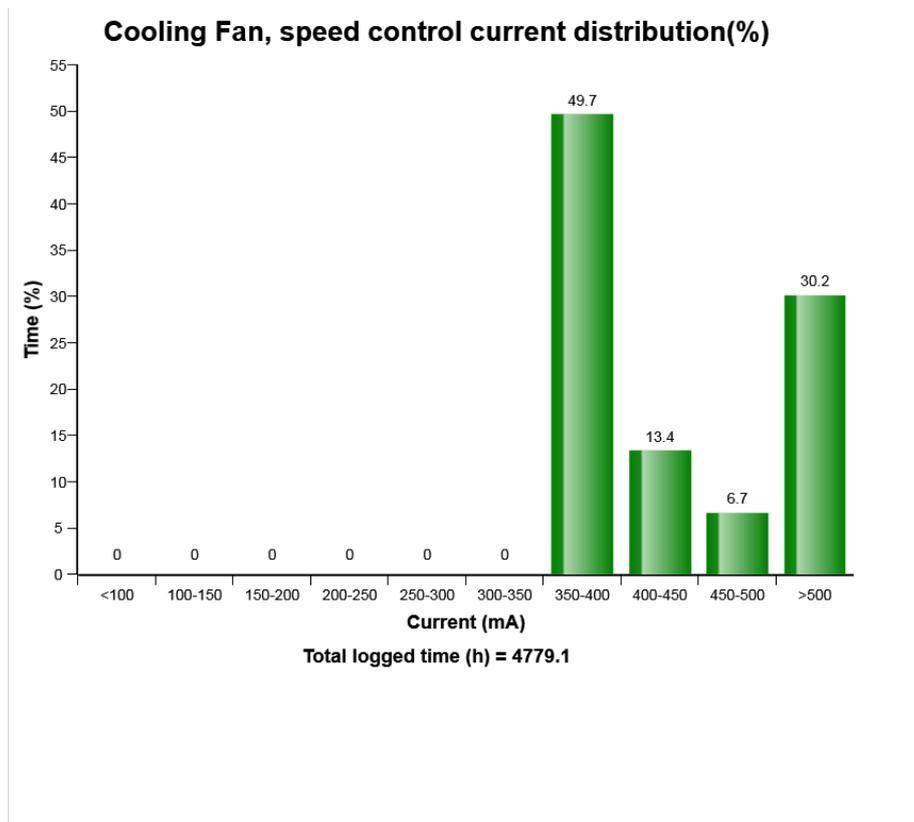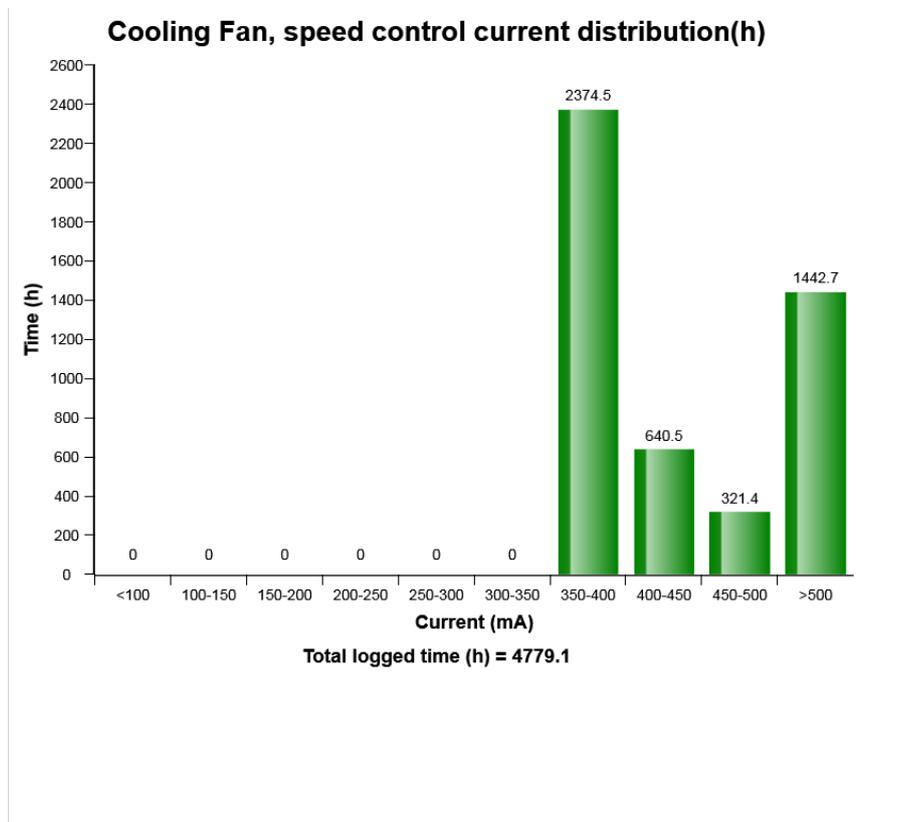'WordSection1' is an unexpected token. The expected token is '"' or '''. Line 1, position 18.

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Machine model	SerialNo	Operating Hours	Reading Date
EC480E	310483	4789	10/10/2019

Engine boost air temperature distribution (h)

Total logged time (h) = 4779.1
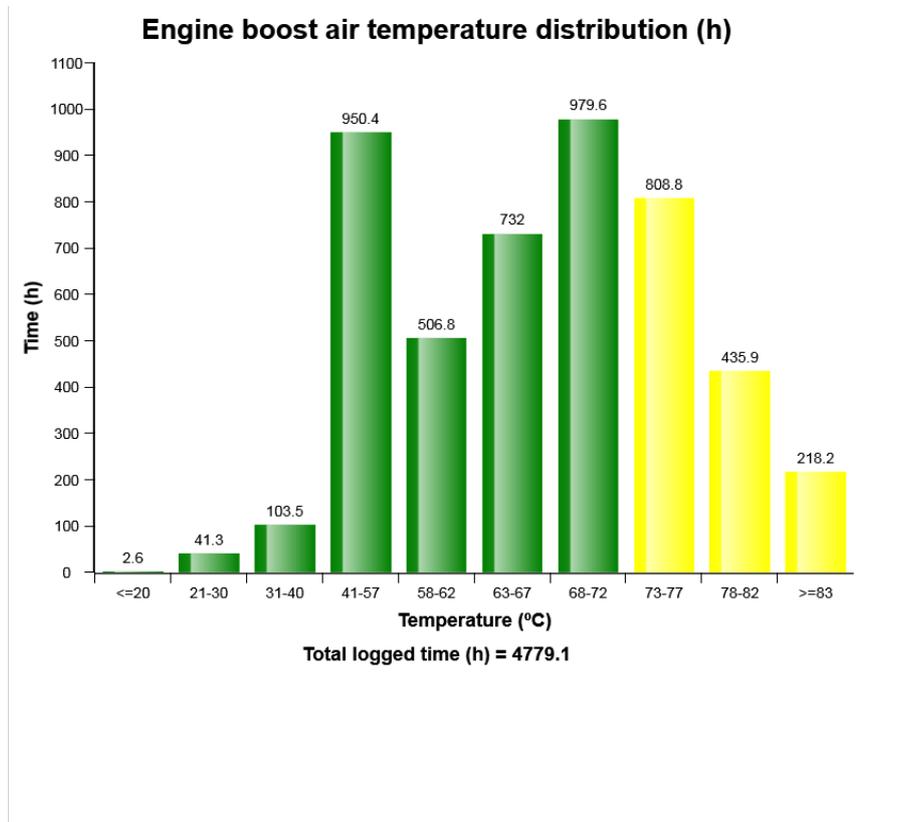
Definition:

The diagram describes Engine boost air temperature distribution of the machine when the engine is on.

Machine model	SerialNo	Operating Hours	Reading Date
EC480E	310483	4789	10/10/2019

Engine work mode distribution(%)
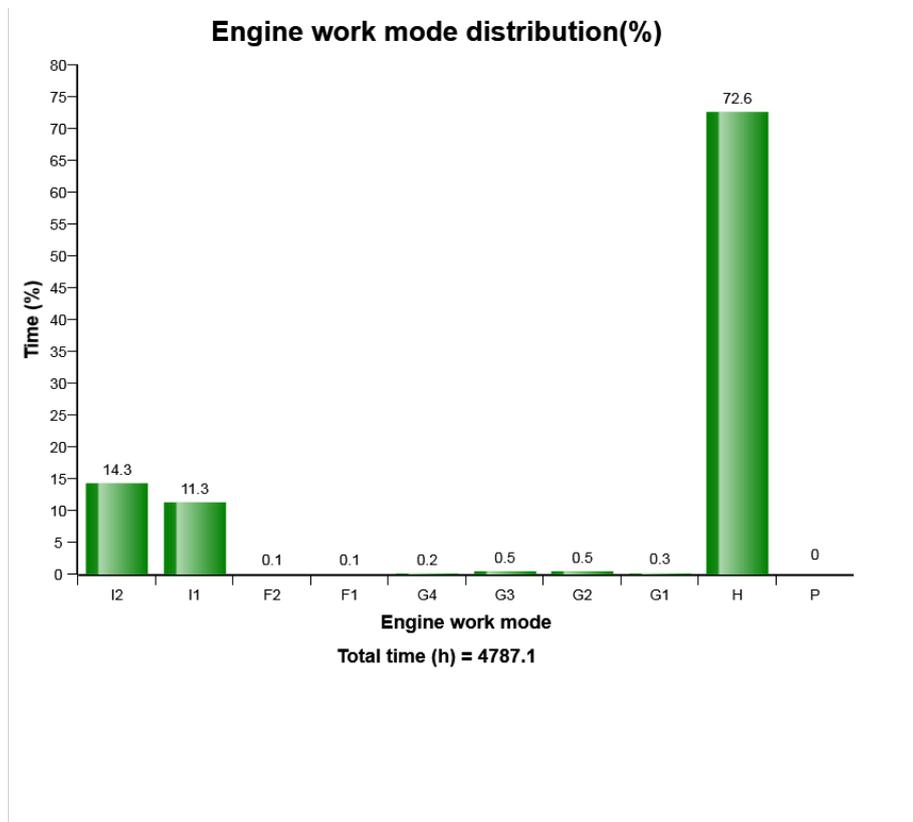
Definition:

This diagram shows the distribution of the engine work mode in time percent.

Distribution of each work mode is shown on top of the column in percentage.

Explanation:

Y-axis: The percentage of the operating hours on each work mode.

X-axis: The engine work mode (10 step in total)

Machine model	SerialNo	Operating Hours	Reading Date
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Distribution of each work mode is shown on top of the column in percentage.

The sum of time distribution in percentage is 100

Total time (h) is listed below the diagram

Machine model	SerialNo	Operating Hours	Reading Date
EC480E	310483	4789	10/10/2019

Engine speed, distribution (h)

Total logged time (h) = 4787.1
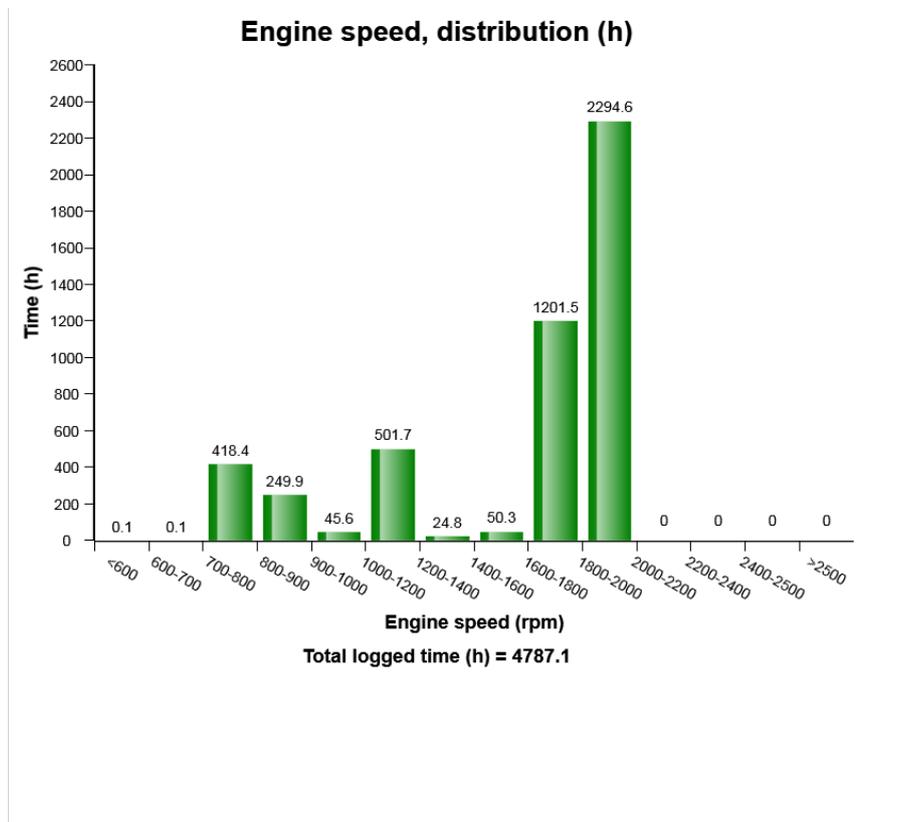
Definition:

The graph describes the engine speed distribution, in hours.

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

Explanation:

Y-axis: Engine running time in hours.

X-axis: Engine speed in rpm.

Green bars = Normal engine speed range.

Machine model	SerialNo	Operating Hours	Reading Date
EC480E	310483	4789	10/10/2019

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

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

Machine model	SerialNo	Operating Hours	Reading Date
EC480E	310483	4789	10/10/2019

Engine speed, distribution (%)

Total logged time (h) = 4787.1
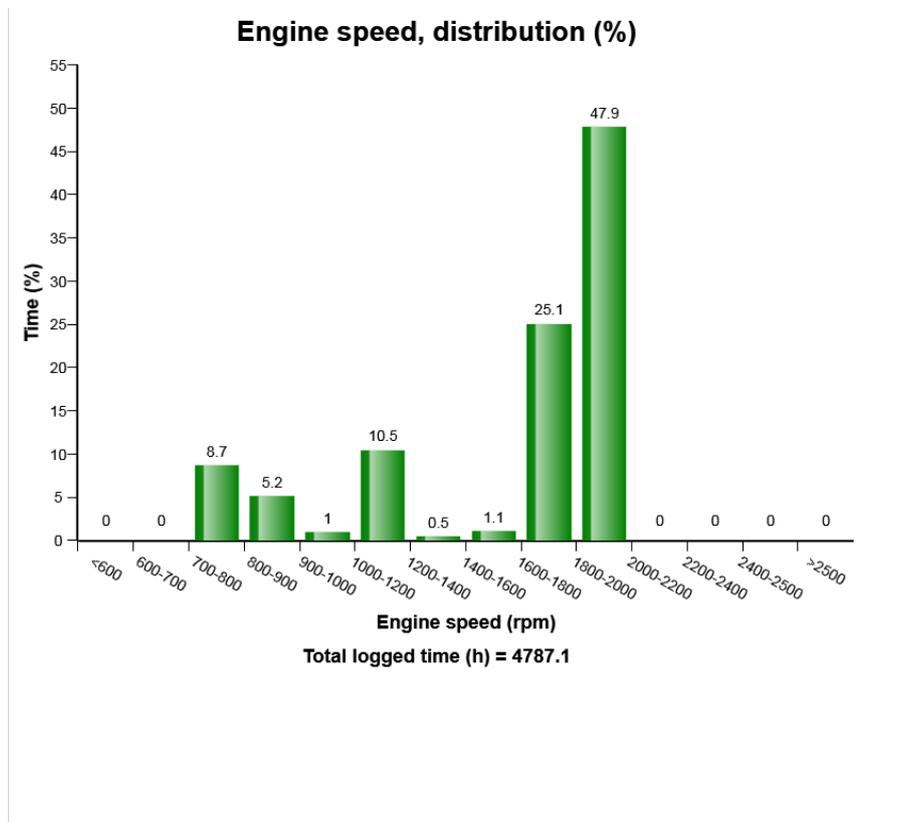
Definition:

The graph describes the engine speed distribution in percent of time.

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

Explanation:

Y-axis: Engine running time in percent.

X-axis: Engine speed in rpm.

Green bars = Normal engine speed range

Blue bar = Idling interval.

Machine model	SerialNo	Operating Hours	Reading Date
EC480E	310483	4789	10/10/2019

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

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

Machine model	SerialNo	Operating Hours	Reading Date
EC480E	310483	4789	10/10/2019

Average engine load per mode distribution (%)

Bar chart — Load (%) on vertical axis (0 to 70), Mode on horizontal axis:
- I2: 31
- I1: 22
- F2: 41
- F1: 38
- G4: 45
- G3: 52
- G2: 57
- G1: 57
- H: 63
- P: 0

Operating hours 4787.1

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Machine model	SerialNo	Operating Hours	Reading Date
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Engine load on "G,H,P" speed mode distribution (%)

Engine time on "G,H,P" (h)= 3551.7
Total engine time (h)= 4787.1
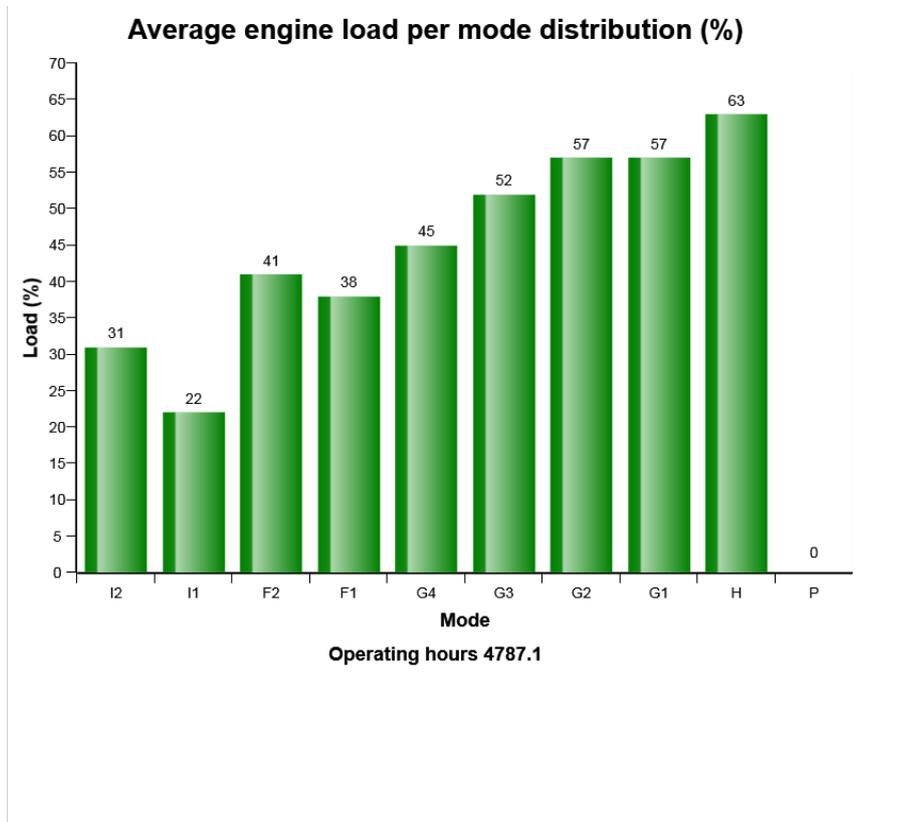
This graph shows the distribution of the engine load.

Blue bar: Low load

Green bar: Normal load

Yellow ba   r: Excessive load

Load 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
EC480E	310483	4789	10/10/2019

Average number of starts per hour

Total number of starts: 1373
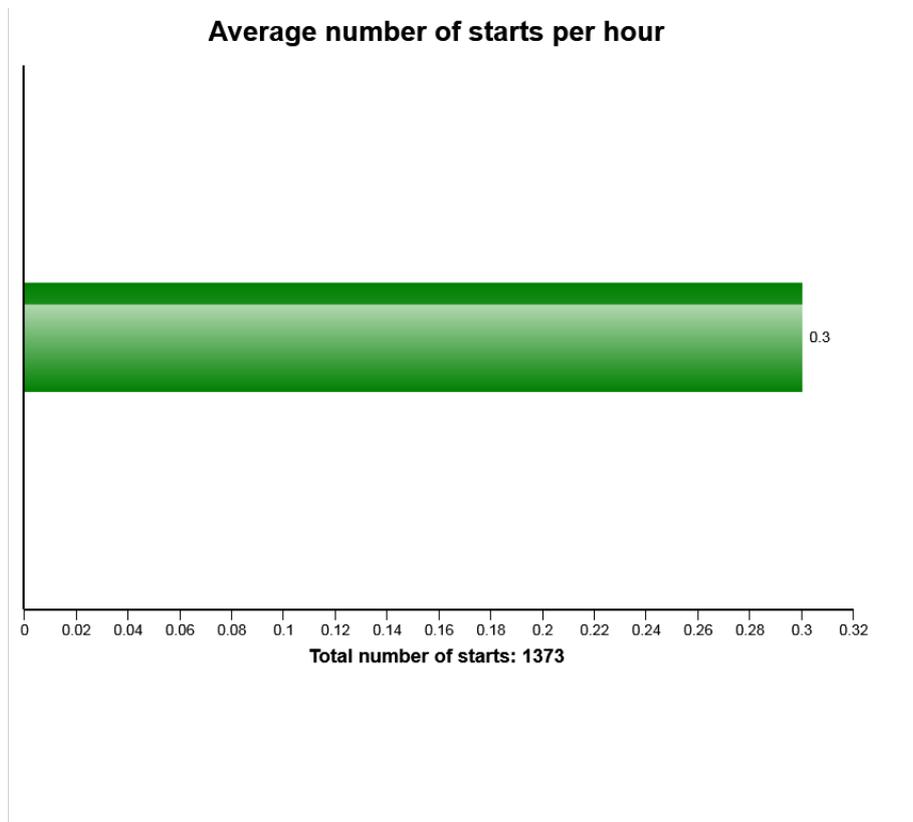
Definition:

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.

Machine model	SerialNo	Operating Hours	Reading Date
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To see at which different temperatures engine is started see" Start at different engine temperatures."

Green bar = Number of average starts per hour

Machine model	SerialNo	Operating Hours	Reading Date
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Idle time before shut down (%)

Low speed shutdown= 1191
Total number of engine shutdowns= 1231
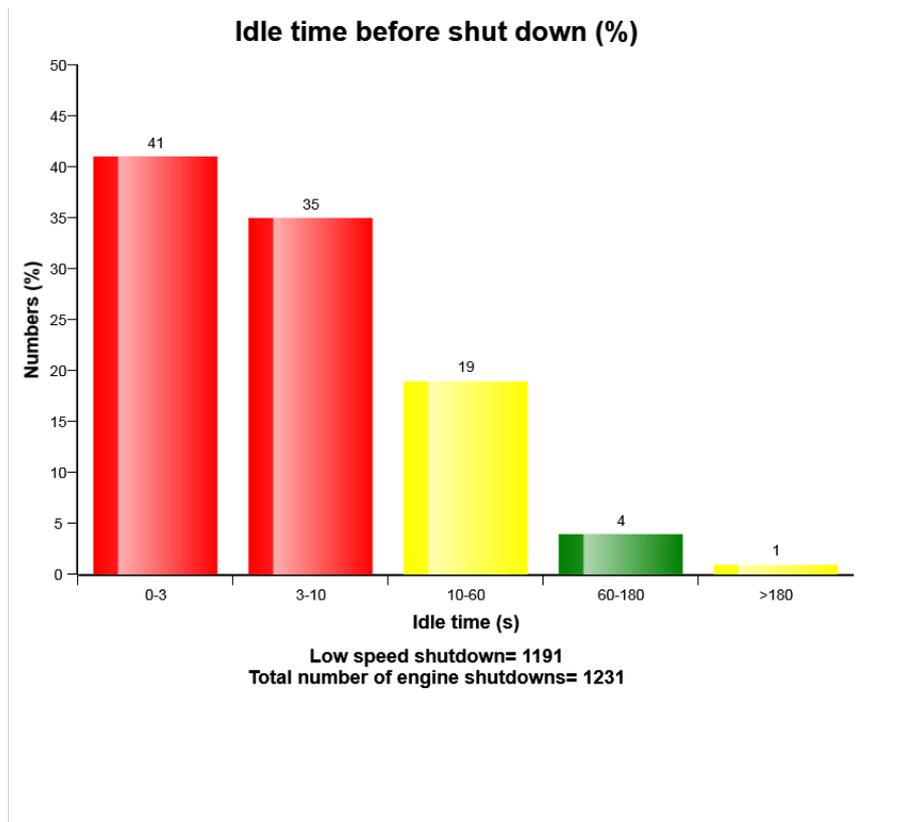
Definition:

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
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Engine shut down numbers per engine speed mode distribution (%)

High speed stops = 40.0
Number of engine shut downs = 1231.0
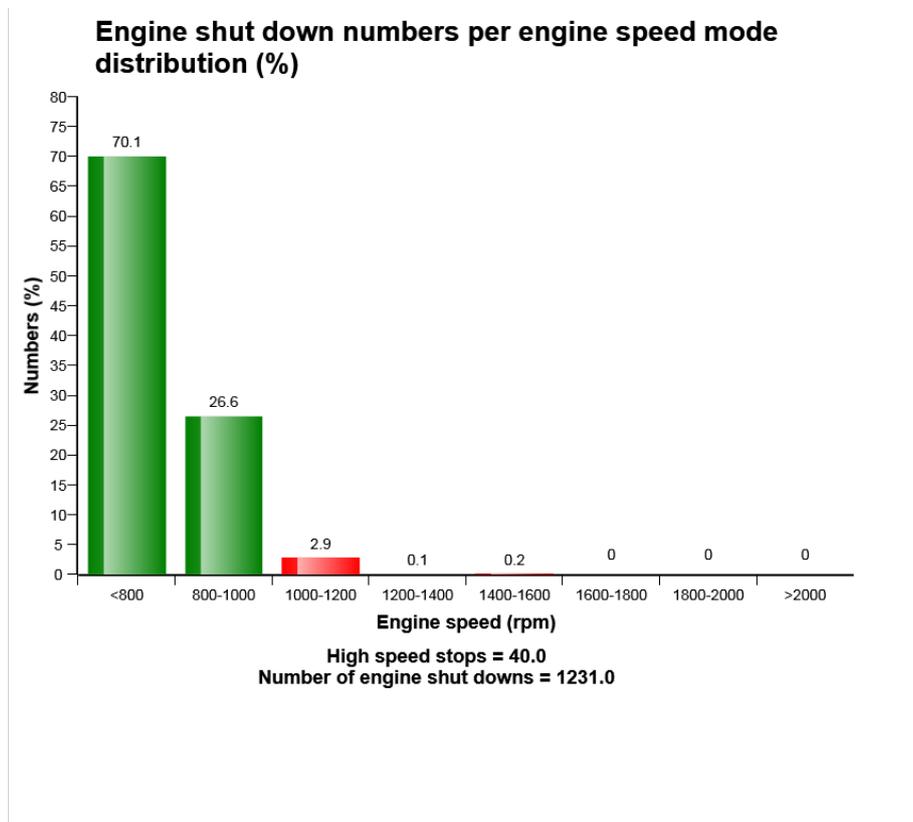
Definition:

The diagram shows the number of stops at high idle (I1 ~ P mode).

Green bars = Normal engine stop

Red bars = Abnormal engine stop

Engine stops at a high idle can cause server damage to the turbo charger due to shortage of the oil lubrication. The engine should be stopped at low idle(I2 mode).

Explanation:

Y-axle: Number of engine stop at each work mode.

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X-axle: Work mode.

Distribution of each work mode is shown on top of its column in number.

Total number of shut down is listed below the diagram.

Machine model	SerialNo	Operating Hours	Reading Date
EC480E	310483	4789	10/10/2019

Start at different engine coolant temperatures (%)

Total number of starts: 1373

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
EC480E	310483	4789	10/10/2019

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.

Machine model	SerialNo	Operating Hours	Reading Date
EC480E	310483	4789	10/10/2019

Start at different engine coolant temperatures

Total number of starts: 1373

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
EC480E	310483	4789	10/10/2019

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.

Machine model	SerialNo	Operating Hours	Reading Date
EC480E	310483	4789	10/10/2019

ECO mode distribution (%)

ECO mode OFF   ECO mode ON (h)

86.4

13.6
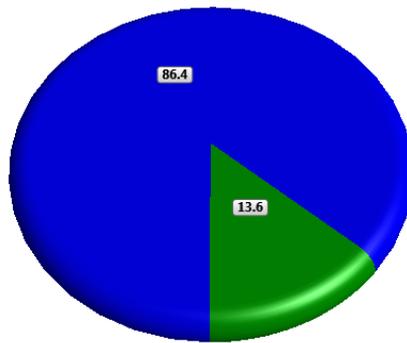
Total engine time (h)= 4779.1

An error has occurred while processing HtmlTextBox 'htmlTextBox1':
The 'font' start tag on line 1 position 114 does not match the end tag of 'BR'. Line 1, position 145.

Machine model	SerialNo	Operating Hours	Reading Date
EC480E	310483	4789	10/10/2019

Low coolant level
Total number of occurences = 632

	Op hours	Year	Month	Day	Hour	Minute	Duration (minutes)
*	3617	2018	11	1	15	42	0
*	3617	2018	11	1	15	31	10
*	3617	2018	11	1	15	23	1
*	3617	2018	11	1	15	9	8
*	3617	2018	11	1	15	6	0
*	3617	2018	11	1	15	5	0
*	3618	2018	11	1	16	27	17
*	3618	2018	11	1	15	45	1
*	3618	2018	11	1	15	47	5
*	3619	2018	11	1	17	43	12
*	3619	2018	11	1	17	17	15
*	3619	2018	11	1	17	8	0
*	3619	2018	11	1	16	44	21
*	3620	2018	11	1	18	11	1
*	3620	2018	11	1	18	6	0
*	3620	2018	11	1	17	57	2
*	3620	2018	11	1	18	20	0
*	3620	2018	11	1	18	32	5
*	3718	2018	11	26	8	15	0
*	3771	2018	12	3	11	21	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

Machine model	SerialNo	Operating Hours	Reading Date
EC480E	310483	4789	10/10/2019

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 coolant level to be recorded in a data point, the count to increment by 1 the engine coolant level state must change from "normal" to "low."

Machine model	SerialNo	Operating Hours	Reading Date
EC480E	310483	4789	10/10/2019

Low engine oil level at start
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
*	1733	2018	1	19	14	1
*	1733	2018	1	19	13	50
*	1878	2018	2	9	6	20

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
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Fuel Filter Clogging
Total number Fuel filter clogging = 3

	Op hours	Year	Month	Day	Hour	Minute	Duration (minutes)
*	1260	2017	10	11	6	36	0
*	1280	2017	10	13	6	44	0
*	1286	2017	10	14	7	9	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

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
EC480E	310483	4789	10/10/2019

Regeneration aborted
Total number of occurences = 1

	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
*	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
*	567	2017	5	31	7	10	2

An error has occurred while processing HtmlTextBox 'ExplanationTxb':
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Machine model	SerialNo	Operating Hours	Reading Date
EC480E	310483	4789	10/10/2019

Regeneration ignored
Total number of occurences = 9

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
* 567	2017	5	31	6	37	68
* 567	2017	5	30	16	2	10
* 782	2017	7	25	8	27	50
* 970	2017	8	23	6	27	66
* 1135	2017	9	23	14	10	63
* 1701	2018	1	17	0	38	58
* 2612	2018	5	16	14	46	16
* 2613	2018	5	17	6	19	53
* 3861	2018	12	13	17	6	35

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.

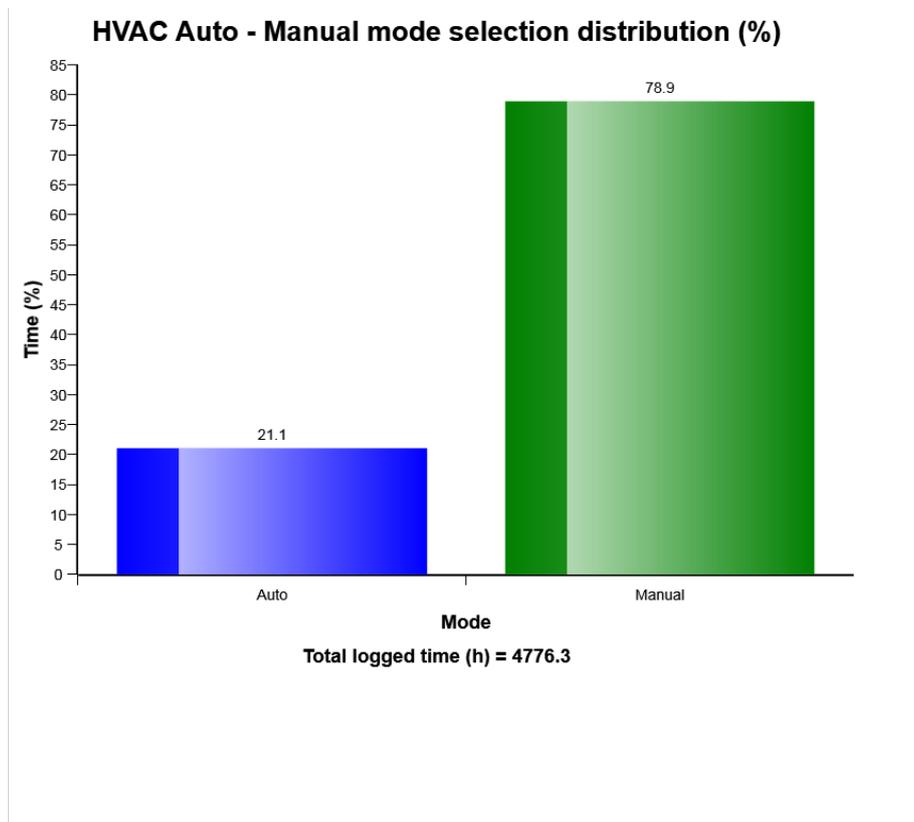| Machine model	SerialNo	Operating Hours	Reading Date
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Regeneration duration
Total number of occurences = 7

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
* 567	2017	5	31	6	37	68
* 782	2017	7	25	8	28	49
* 970	2017	8	23	6	44	49
* 1135	2017	9	23	14	23	51
* 1701	2018	1	17	0	47	49
* 2613	2018	5	17	6	19	53
* 3862	2018	12	13	17	41	50

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
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HVAC Auto - Manual mode selection distribution (%)

Time (%)

- 85
- 80
- 75
- 70
- 65
- 60
- 55
- 50
- 45
- 40
- 35
- 30
- 25
- 20
- 15
- 10
- 5
- 0

21.1 (Auto)

78.9 (Manual)

Mode

Total logged time (h) = 4776.3

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
EC480E	310483	4789	10/10/2019

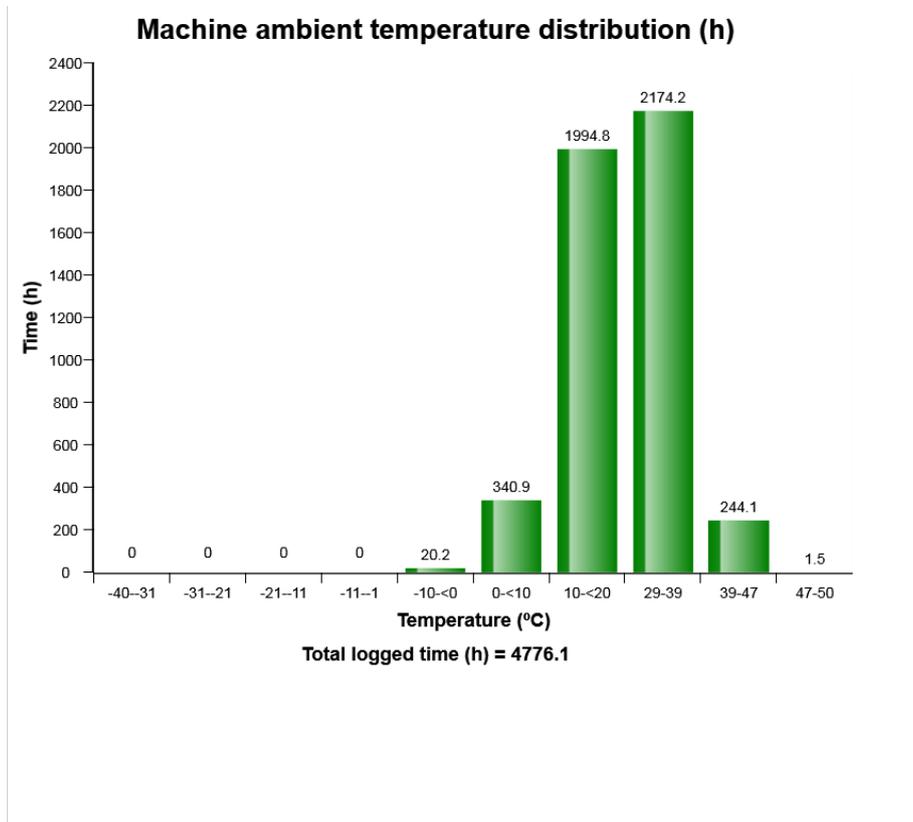**HVAC air temperature setting in auto control mode distribution (h)**
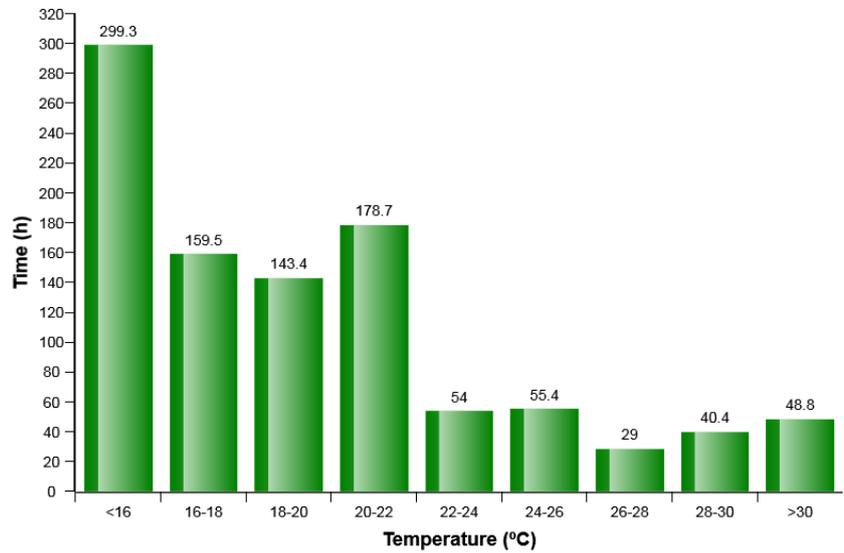
Definition:

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

Machine ambient temperature distribution (h)

Time (h) vs Temperature (°C)

| Temperature (°C)	Time (h)
-40–31	0
-31–21	0
-21–11	0
-11–1	0
-10-<0	20.2
0-<10	340.9
10-<20	1994.8
29-39	2174.2
39-47	244.1
47-50	1.5

Total logged time (h) = 4776.1

Definition:

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

Machine model	SerialNo	Operating Hours	Reading Date
EC480E	310483	4789	10/10/2019

AC Compressor usage

3611.6

Total logged time (h) = 4776.3
Number of engagements = 89010.0
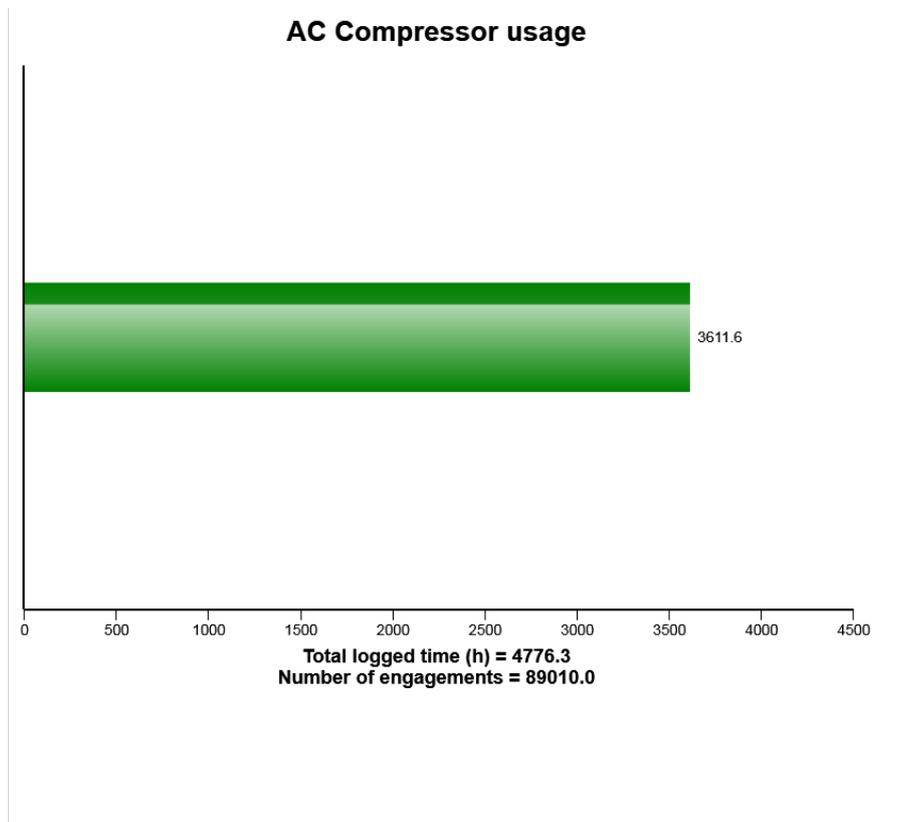
Definition:

 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.

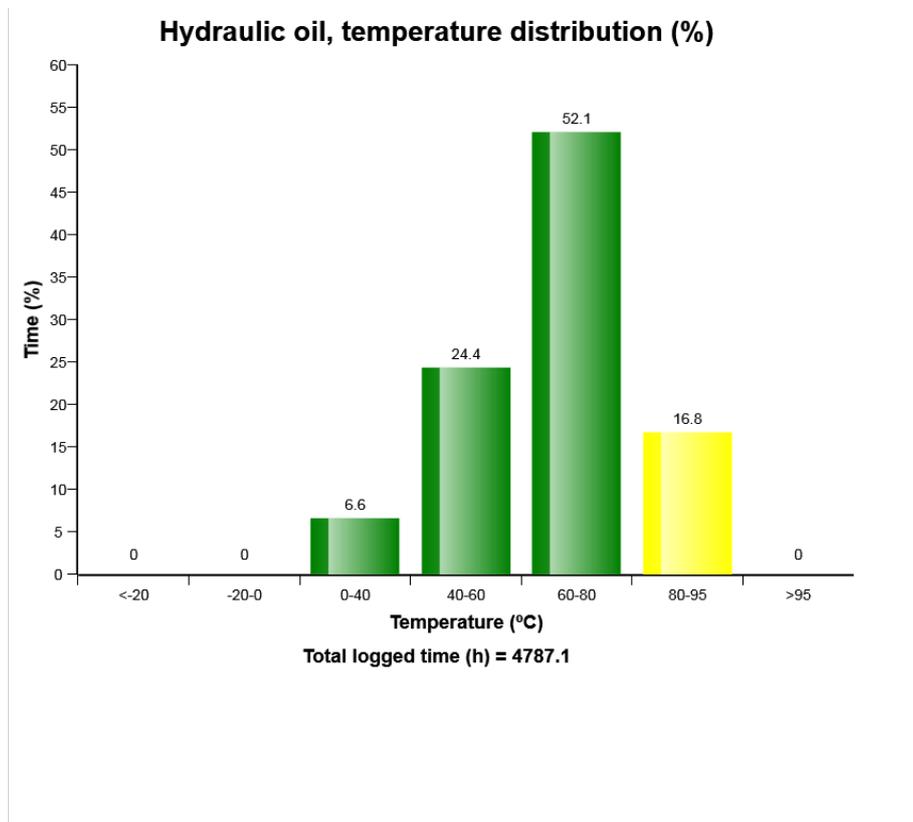Total number of AC compressor activations is also displayed.

Machine model	SerialNo	Operating Hours	Reading Date
EC480E	310483	4789	10/10/2019

-

Machine model	SerialNo	Operating Hours	Reading Date
EC480E	310483	4789	10/10/2019

Hydraulic oil, temperature distribution (%)

Total logged time (h) = 4787.1

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
EC480E	310483	4789	10/10/2019

It is normal to have registrations in this region.

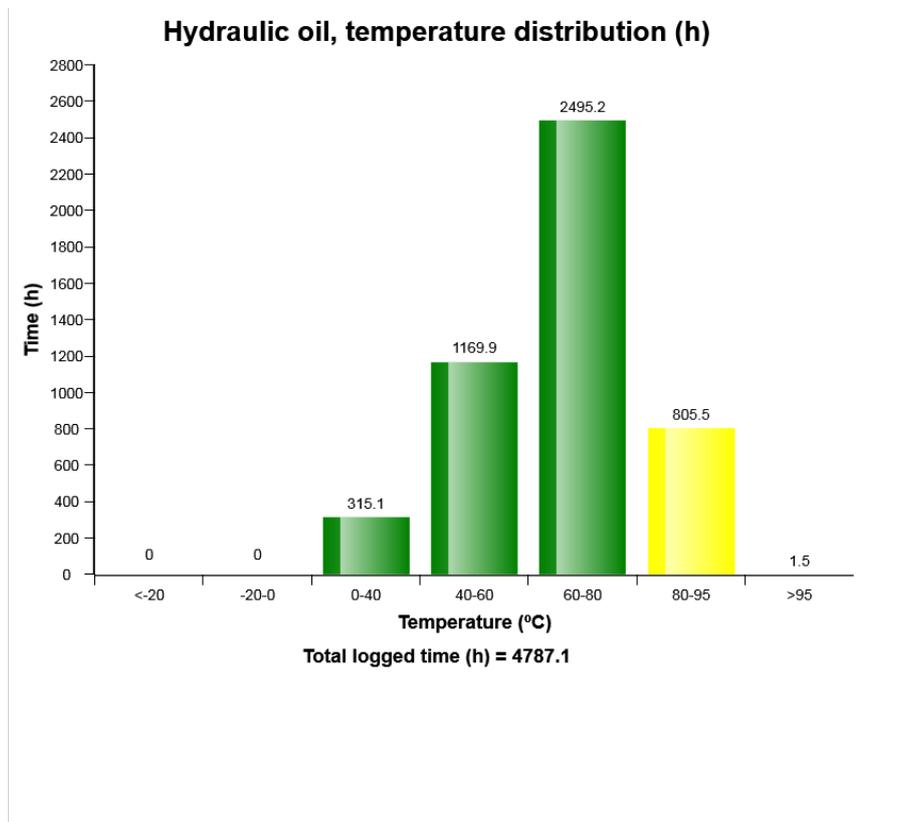Green bar = Normal working temperature. The Major part of the registrations shall be in this region.

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.

Hydraulic oil, temperature distribution (h)

Time (h) — Y-axis

	<-20	-20-0	0-40	40-60	60-80	80-95	>95
	0	0	315.1	1169.9	2495.2	805.5	1.5

Temperature (ºC)

Total logged time (h) = 4787.1

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
EC480E	310483	4789	10/10/2019

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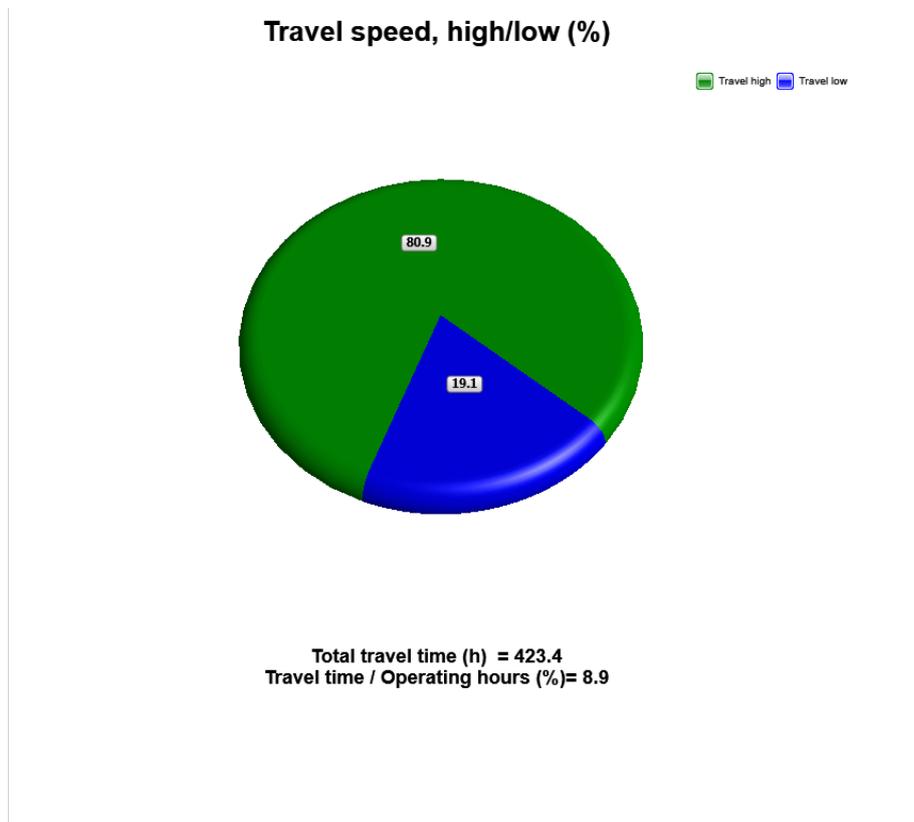
Yellow bar = High working temperature. It is normal to have some registrations in this region.

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
EC480E	310483	4789	10/10/2019

Travel speed, high/low (%)

Travel high Travel low

80.9

19.1

Total travel time (h) = 423.4
Travel time / Operating hours (%)= 8.9

Definition:

This graph shows operating hour distributions on each travel speed for total travel time.

Blue sector: Travel switch in low position

Green sector: Travel switch in high position

Explanation:

Distribution of each travel time is shown on right of its sector in percentage
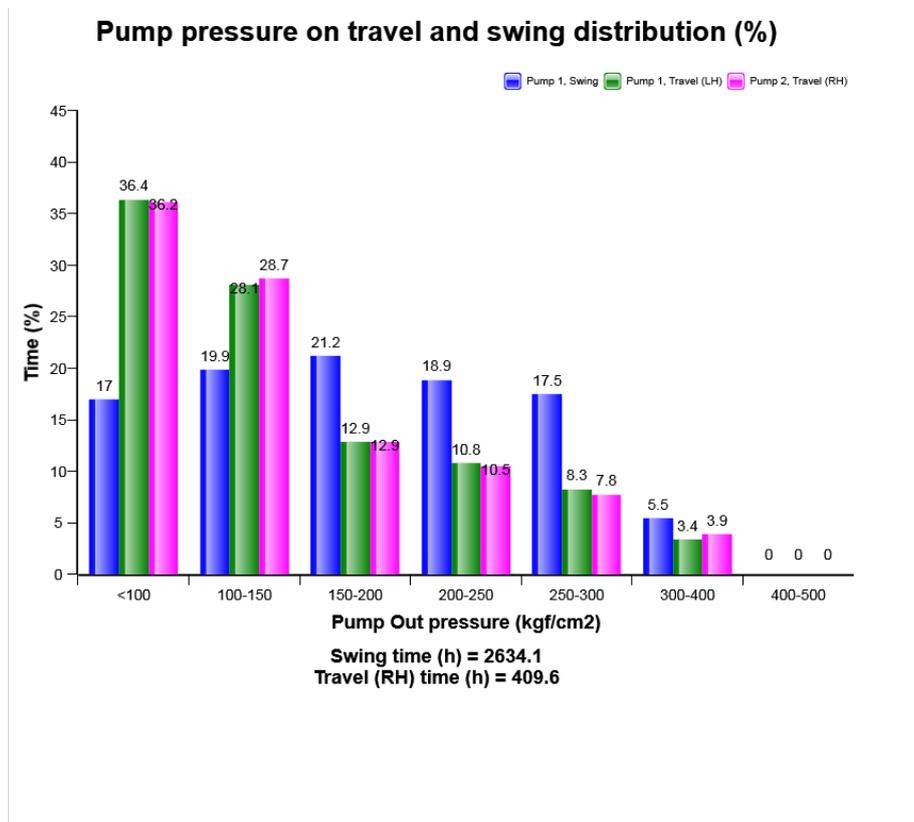
The sum of travel time in percentage is 100

Machine model	SerialNo	Operating Hours	Reading Date
EC480E	310483	4789	10/10/2019

Total travel time is listed below the diagram

Machine model	SerialNo	Operating Hours	Reading Date
EC480E	310483	4789	10/10/2019

Pump pressure on travel and swing distribution (%)

Legend: Pump 1, Swing | Pump 1, Travel (LH) | Pump 2, Travel (RH)

Chart data:

Pump Out pressure (kgf/cm2)	Pump 1, Swing	Pump 1, Travel (LH)	Pump 2, Travel (RH)
<100	17	36.4	36.2
100-150	19.9	28.1	28.7
150-200	21.2	12.9	12.9
200-250	18.9	10.8	10.5
250-300	17.5	8.3	7.8
300-400	5.5	3.4	3.9
400-500	0	0	0

**Swing time (h) = 2634.1**
Travel (RH) time (h) = 409.6

Definition:

The diagram describes Pump outlet pressure of 2 Pumps for travel and swing operation distribution. In case operator use several operations at the same time, this pressure distribution for travel and swing operation can be different from actual operating pressure distribution for travel and swing operation in field.

Machine model	SerialNo	Operating Hours	Reading Date
EC480E	310483	4789	10/10/2019

Pump pressure overall distribution (%)
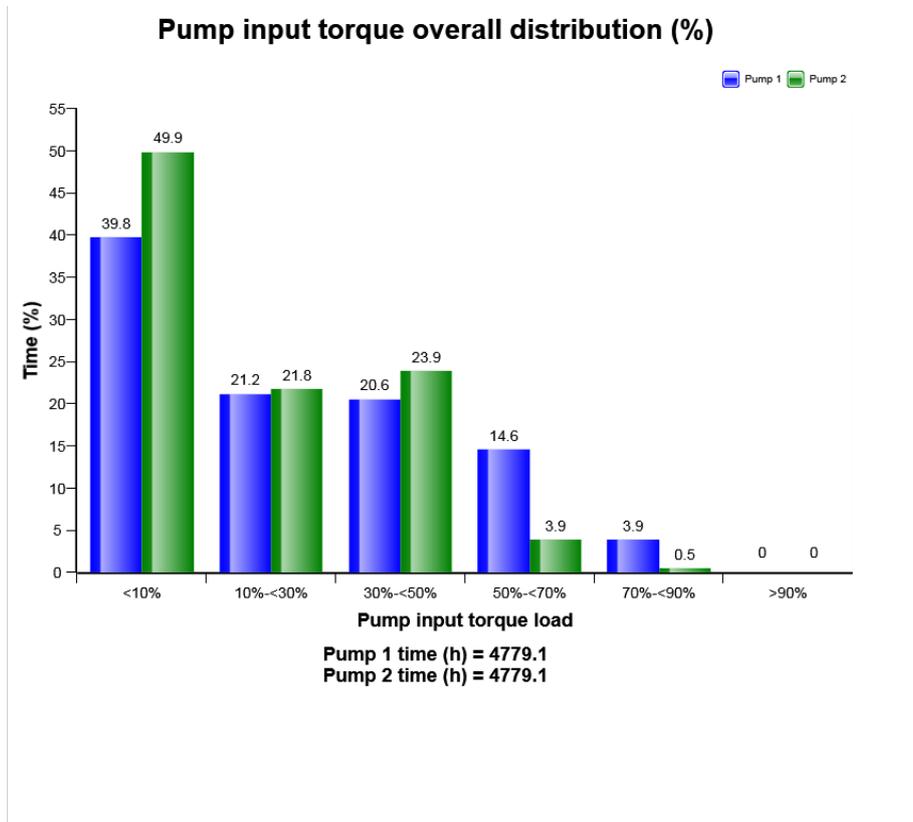

Pump 1 time (h) = 4779.1
Pump 2 time (h) = 4779.1
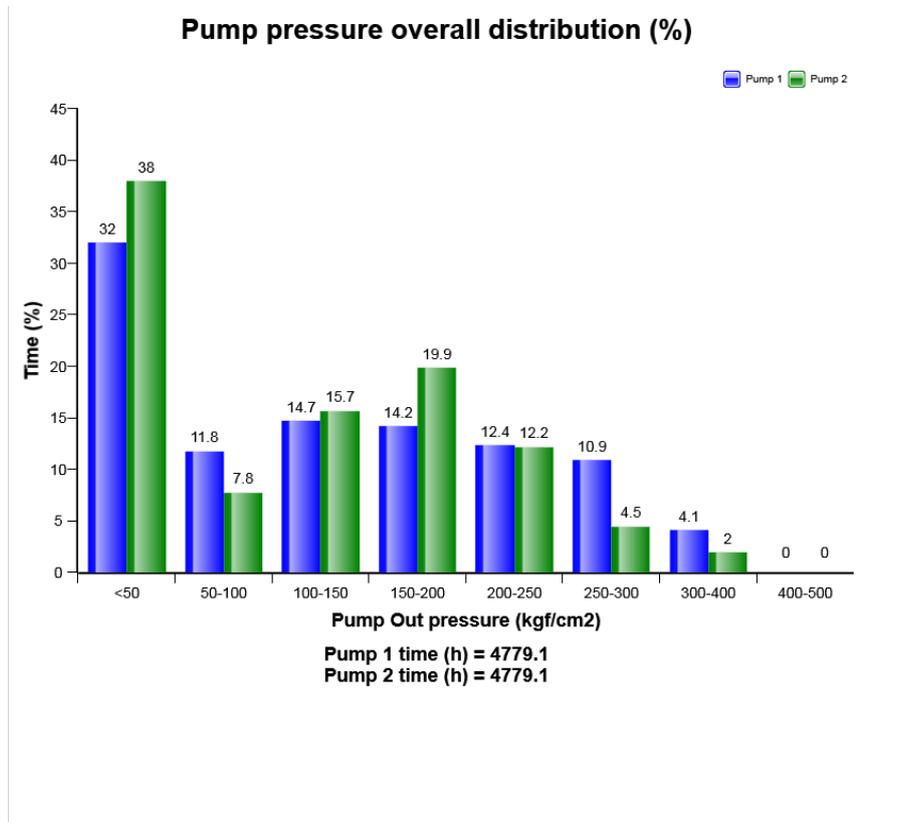
Definition:

The diagram describes Pump outlet pressure of 2 Pumps distribution.

Machine model	SerialNo	Operating Hours	Reading Date
EC480E	310483	4789	10/10/2019

Pump input torque overall distribution (%)

Pump 1   Pump 2

Time (%) vs Pump input torque load

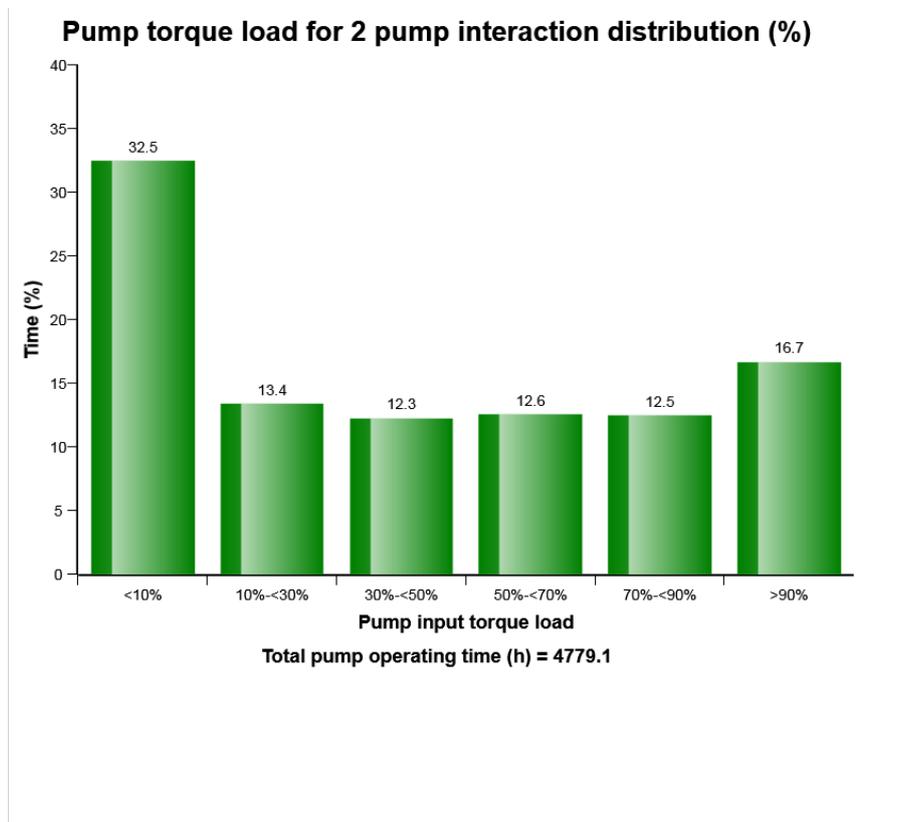|	<10%	10%-<30%	30%-<50%	50%-<70%	70%-<90%	>90%
Pump 1	39.8	21.2	20.6	14.6	3.9	0
Pump 2	49.9	21.8	23.9	3.9	0.5	0

Pump 1 time (h) = 4779.1
Pump 2 time (h) = 4779.1

Definition:

The diagram describes Pump torque load of 2 Pumps distribution.

Machine model	SerialNo	Operating Hours	Reading Date
EC480E	310483	4789	10/10/2019

Pump torque load for 2 pump interaction distribution (%)

Time (%) vs Pump input torque load

- <10% : 32.5
- 10%-<30% : 13.4
- 30%-<50% : 12.3
- 50%-<70% : 12.6
- 70%-<90% : 12.5
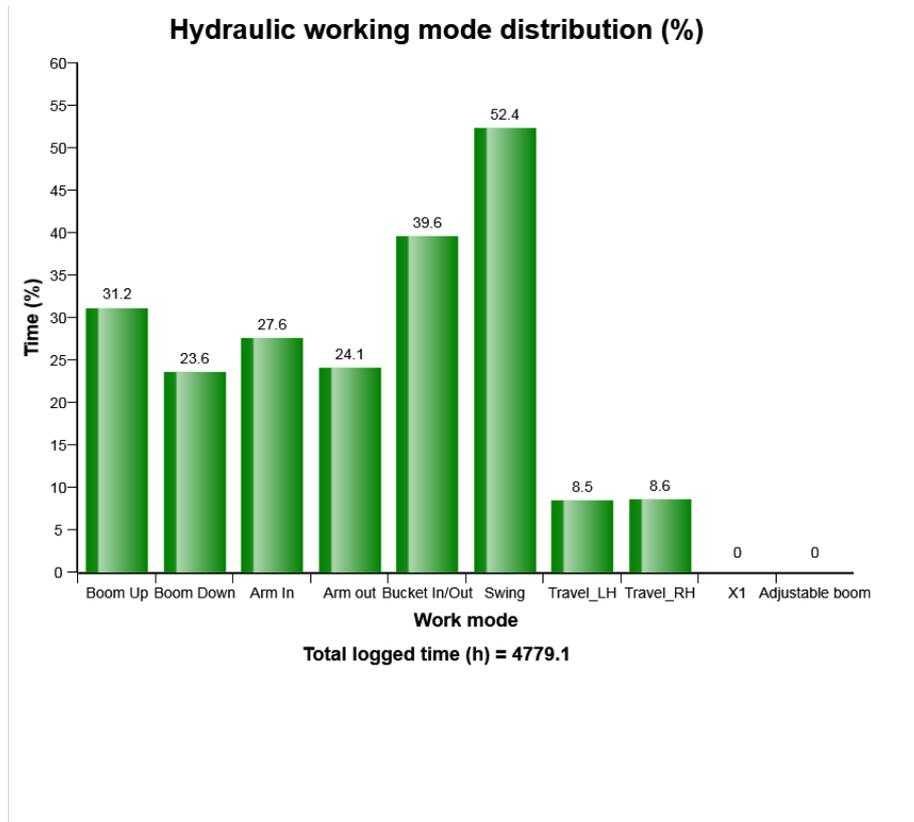- >90% : 16.7

Total pump operating time (h) = 4779.1

Definition:

 This is to see total torque load distribution of 2 pumps when it operates 2 pumps at the same time.

The diagram describes total Pump torque load for 2 Pump's interaction distribution

Machine model	SerialNo	Operating Hours	Reading Date
EC480E	310483	4789	10/10/2019

Hydraulic working mode distribution (%)

Bar chart — Y-axis: Time (%), X-axis: Work mode. Values: Boom Up 31.2, Boom Down 23.6, Arm In 27.6, Arm out 24.1, Bucket In/Out 39.6, Swing 52.4, Travel_LH 8.5, Travel_RH 8.6, X1 0, Adjustable boom 0
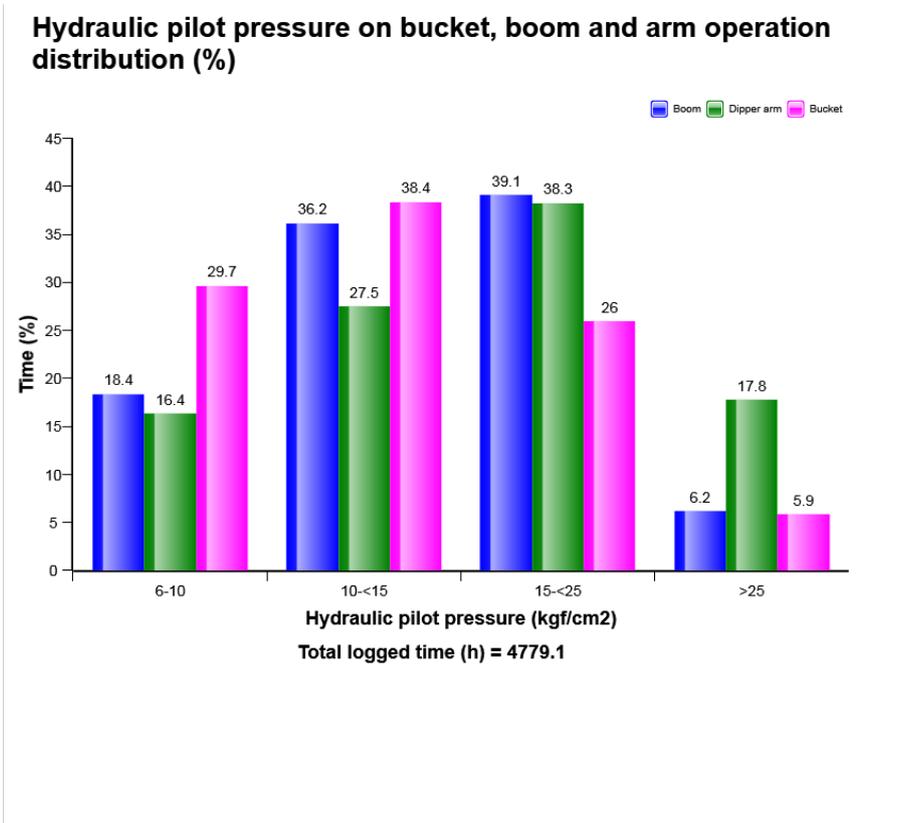
Total logged time (h) = 4779.1

Definition:

 The diagram describes hydraulic working operation mode distribution.

Machine model	SerialNo	Operating Hours	Reading Date
EC480E	310483	4789	10/10/2019

Hydraulic pilot pressure on bucket, boom and arm operation distribution (%)

Legend: ■ Boom ■ Dipper arm ■ Bucket

Hydraulic pilot pressure (kgf/cm2)	Boom	Dipper arm	Bucket
6-10	18.4	16.4	29.7
10-<15	36.2	27.5	38.4
15-<25	39.1	38.3	26
>25	6.2	17.8	5.9

Y-axis: Time (%)

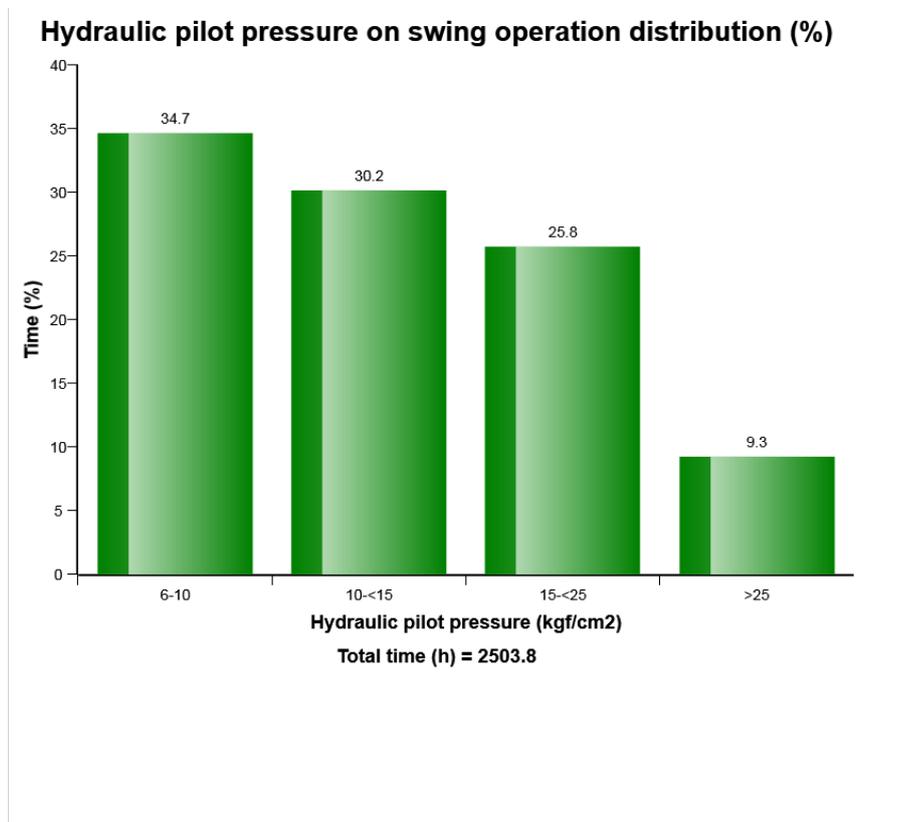**Total logged time (h) = 4779.1**

Definition:

 The diagram describes the distribution of hydraulic pilot pressure in specified operation

Machine model	SerialNo	Operating Hours	Reading Date
EC480E	310483	4789	10/10/2019

Hydraulic pilot pressure on swing operation distribution (%)

Bar chart — Time (%) vs Hydraulic pilot pressure (kgf/cm2):
- 6-10: 34.7
- 10-<15: 30.2
- 15-<25: 25.8
- >25: 9.3

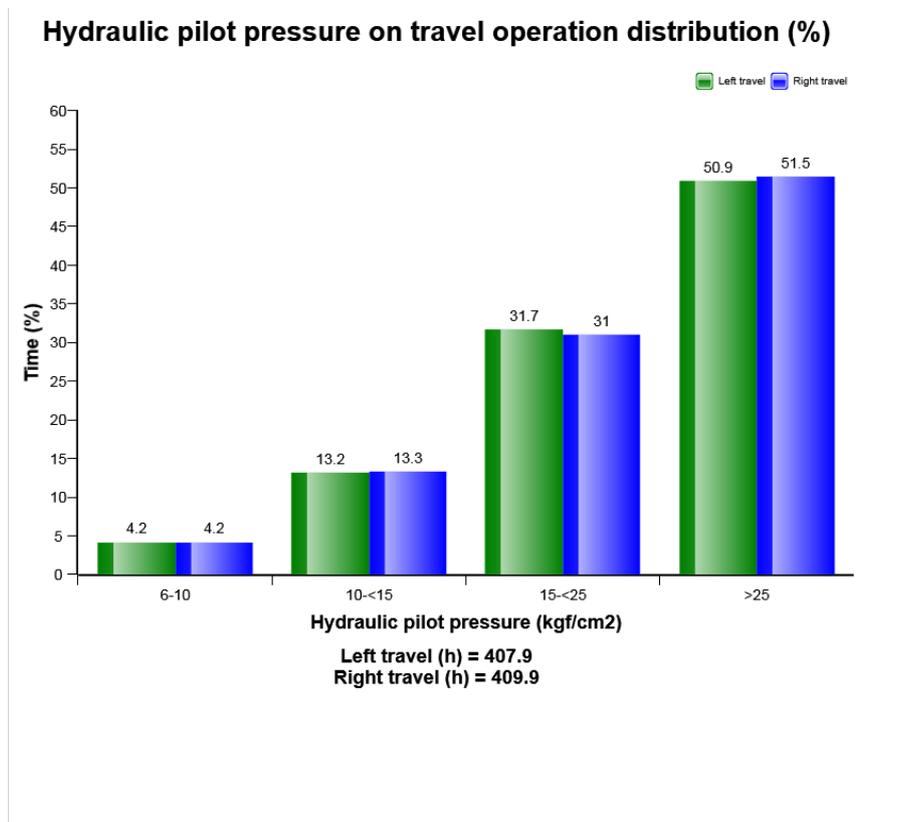**Hydraulic pilot pressure (kgf/cm2)**

Total time (h) = 2503.8

Definition:

The diagram describes the distribution of hydraulic pilot pressure in specified operation

Machine model	SerialNo	Operating Hours	Reading Date
EC480E	310483	4789	10/10/2019

Hydraulic pilot pressure on travel operation distribution (%)

Left travel (h) = 407.9
Right travel (h) = 409.9

Definition:

The diagram describes the distribution of hydraulic pilot pressure in specified operation