

VOLVO CONSTRUCTION EQUIPMENT MATRIS REPORT

Machine model EC380E	SerialNo 310233	Operating Hours 7.3	Reading Date 17/09/2020
Company name Arnold Machinery	Dealer	Report Issuer	
Contact name	Technician CE Tech	Primary Application Civil engineering/Heavy construction	
Site	Workorder	Ground Condition	

MATRIS Reading, Summary / Recommendation

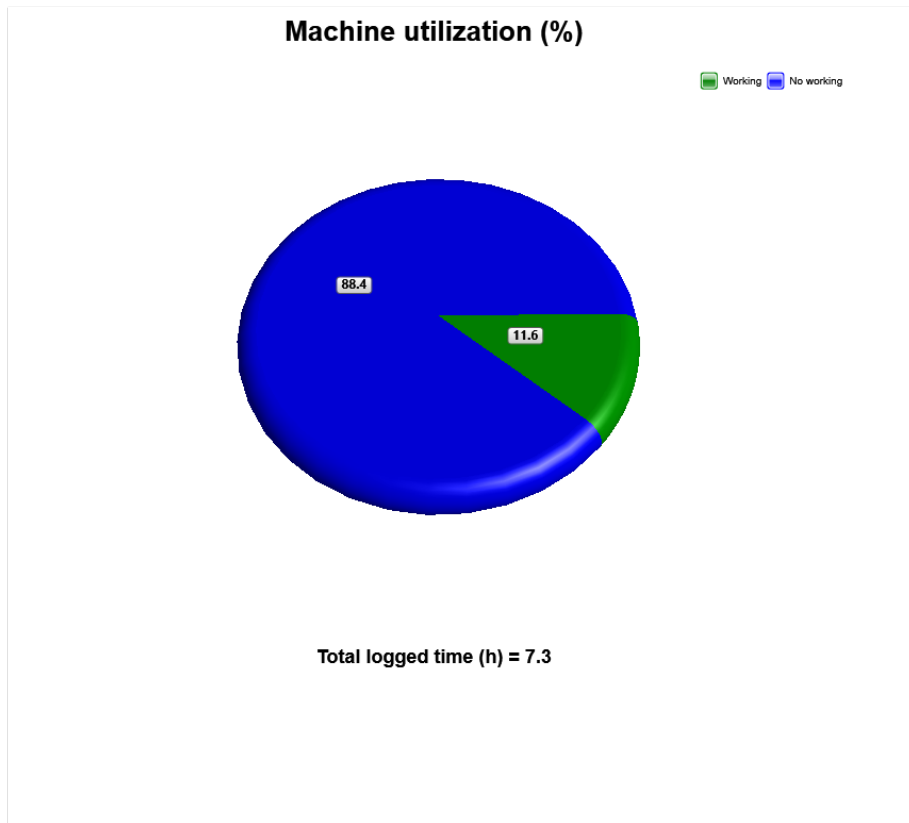


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Main equipment	Type	Equipment
	Track chain	
	Hydraulic Fluid	
	X1 Piping	
	X3 piping	
	Main Attachment	
	Attachment Interface	
	Hose Rupture Valve on Boom	
	Hose Rupture Valve on Arm	
	X1 return filter	



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Definition:

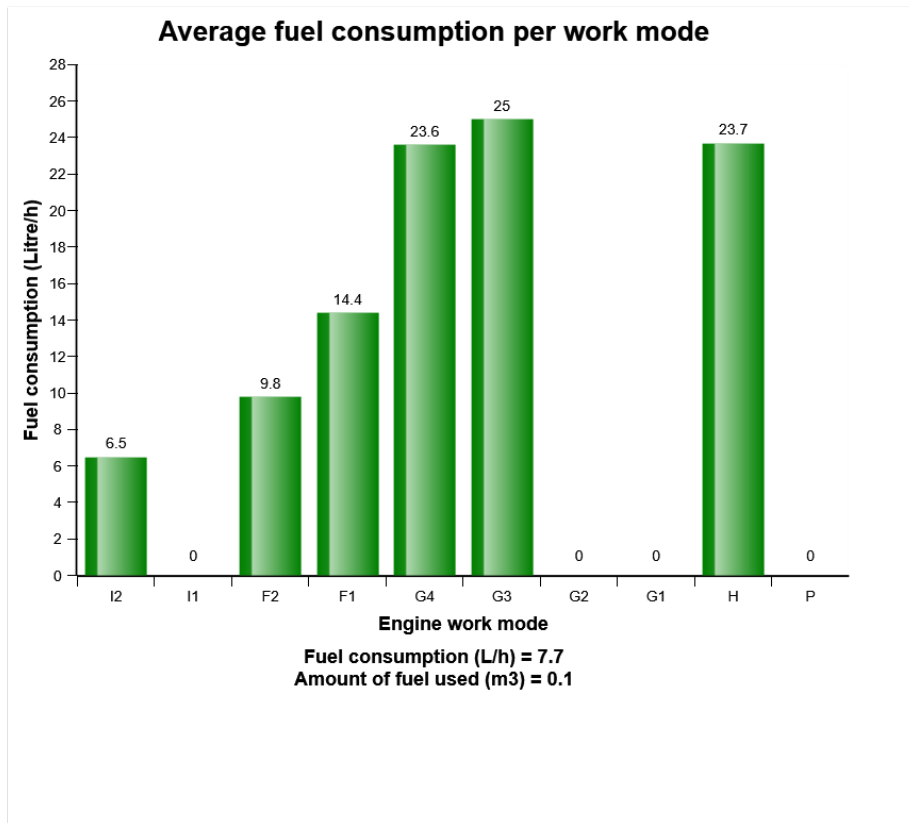
The graph shows the distribution of the operating time for the machine. The operating time is defined as the time with engine on

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

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



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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)

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

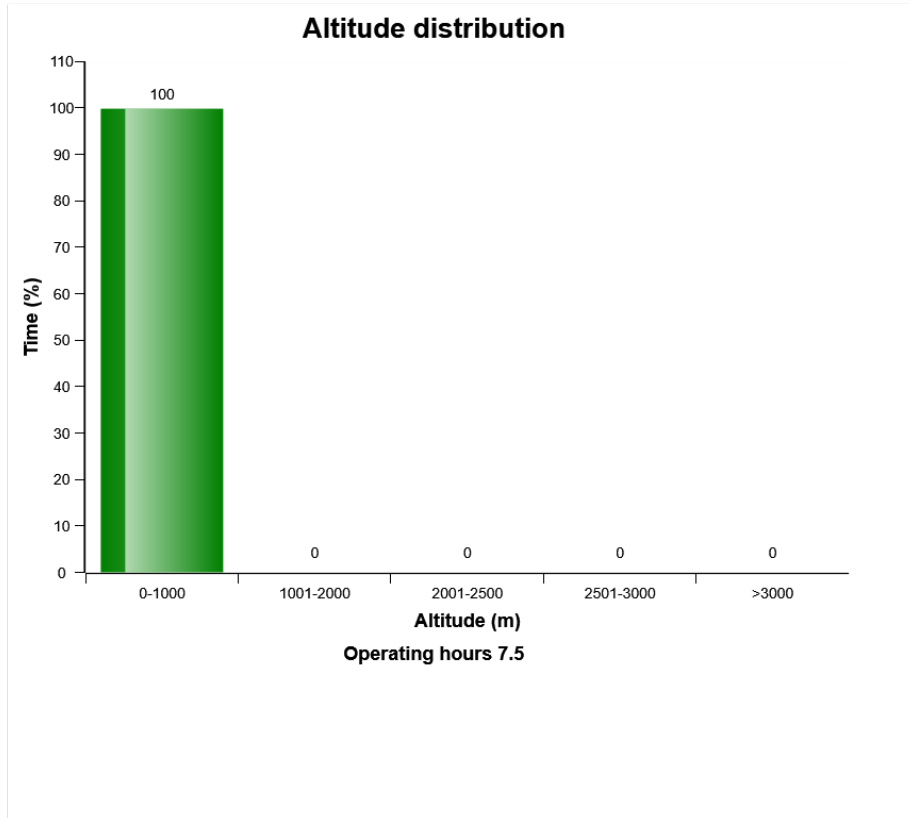


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Average fuel consumption per hour is listed below the diagram



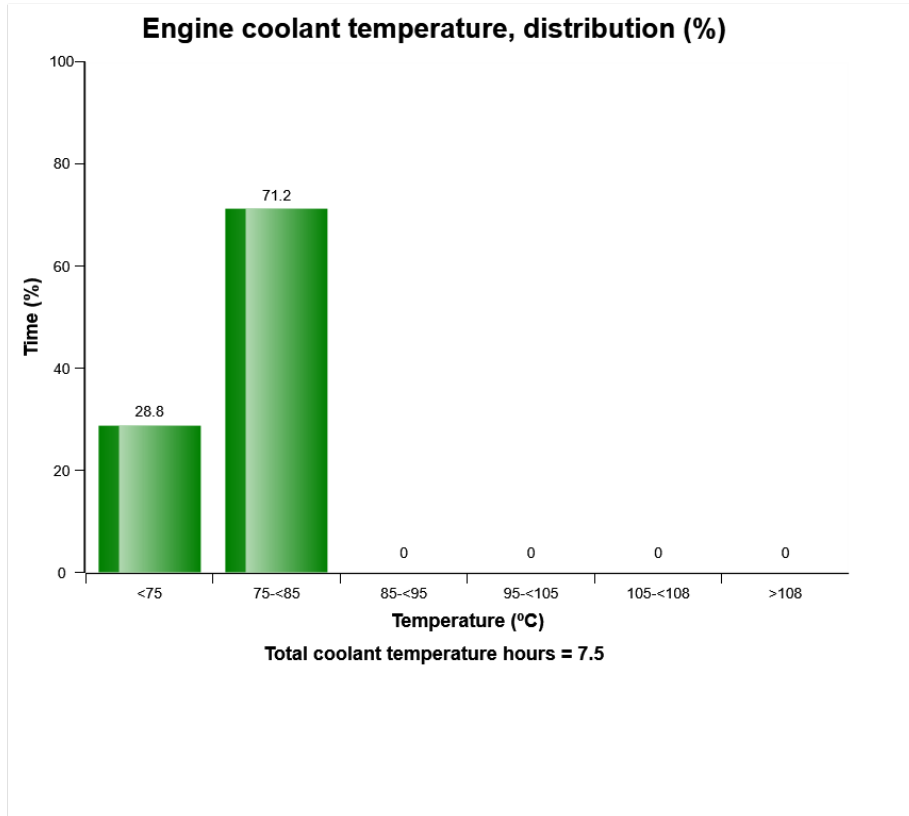
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 'WordSection1' is an unexpected token. The expected token is "" or "". Line 1, position 18.



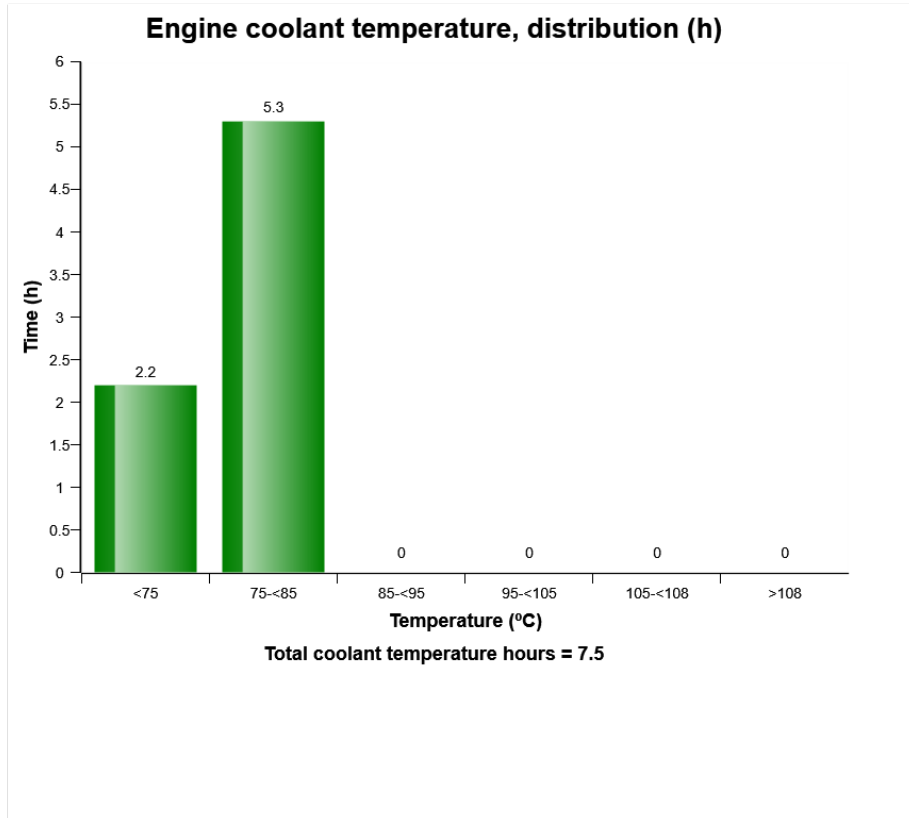
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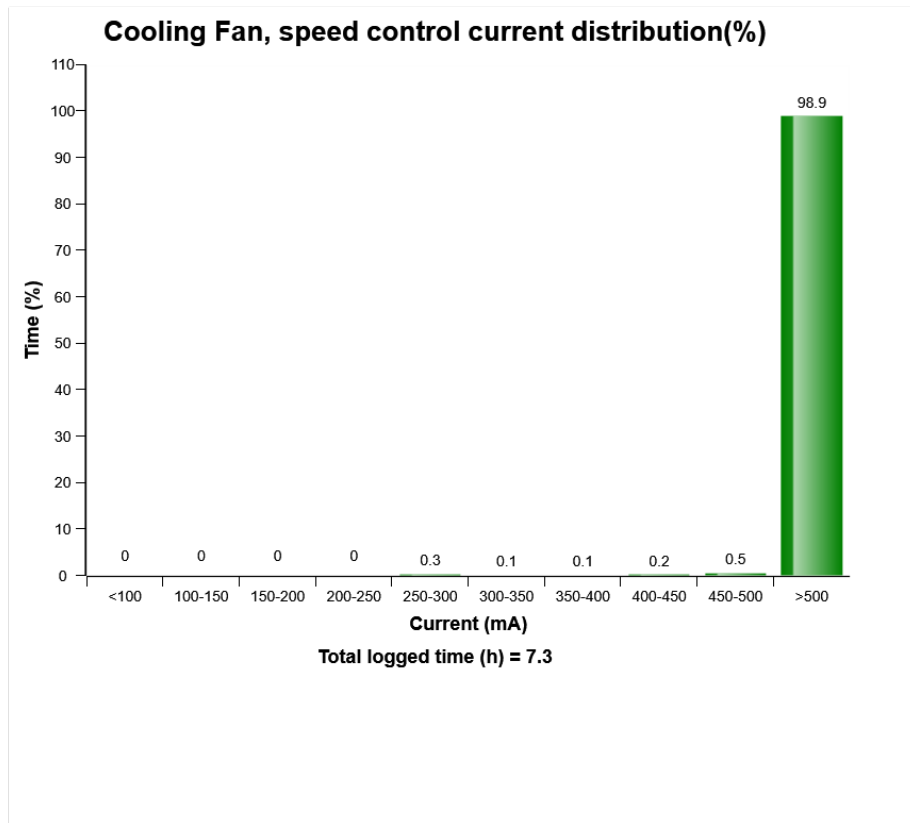
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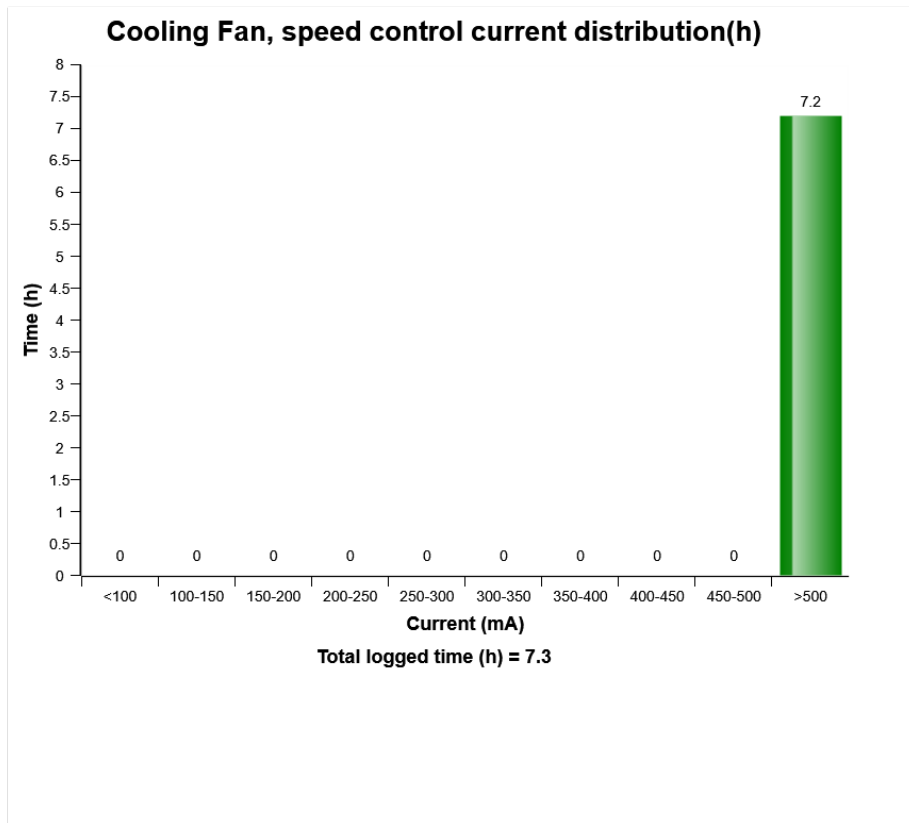
Definition:

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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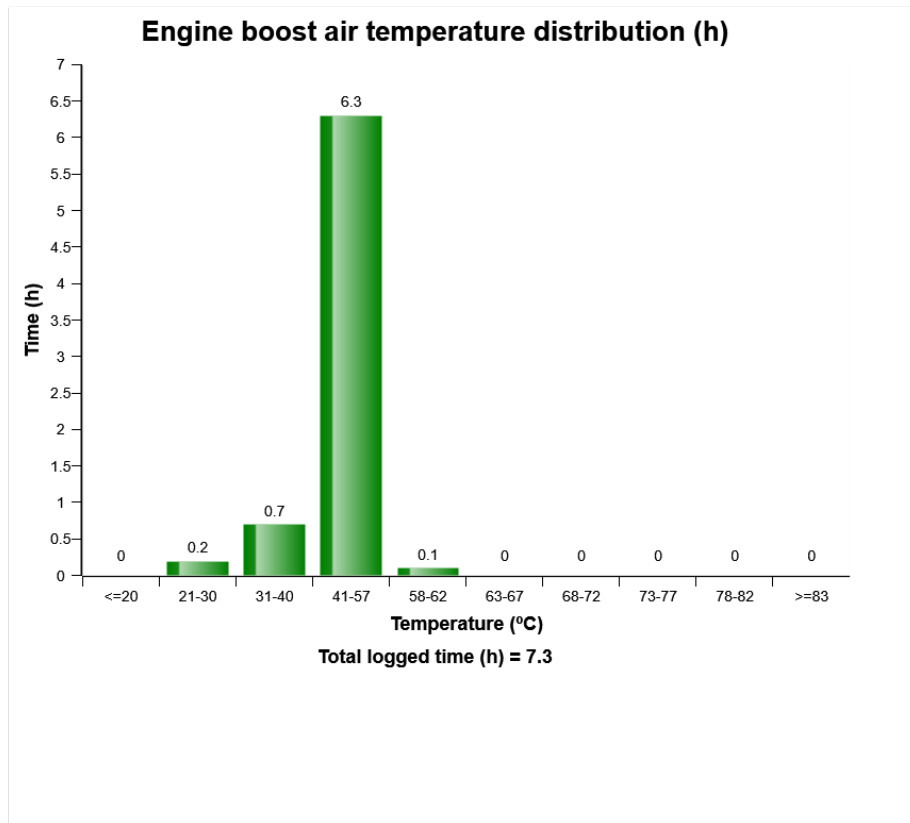
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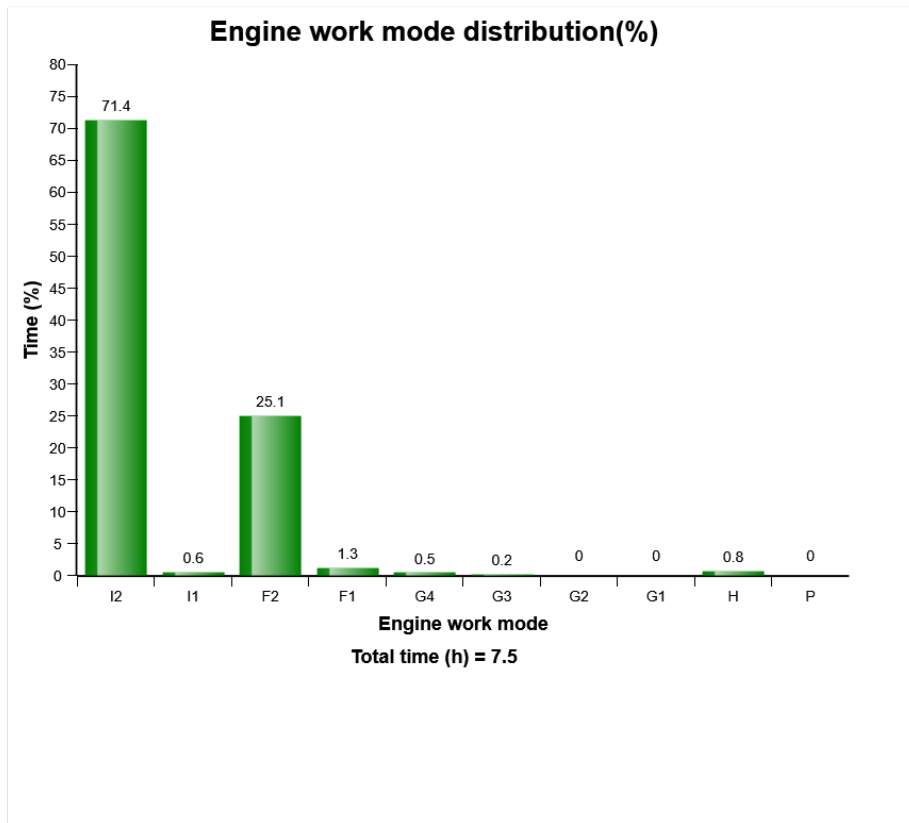


Definition:

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



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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)

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



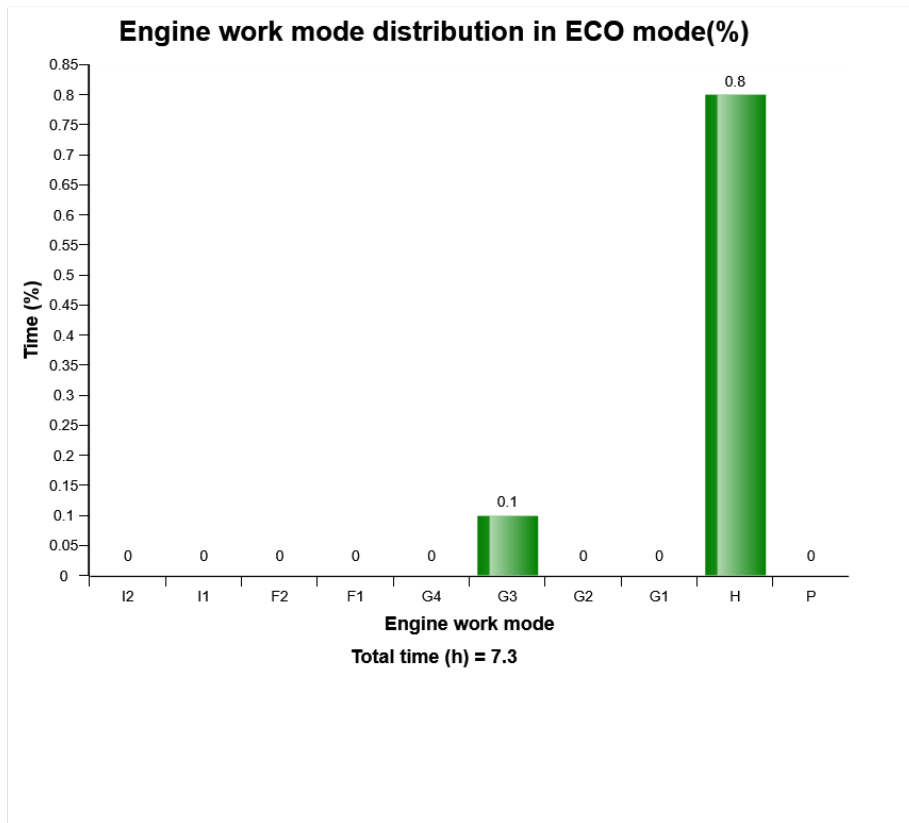
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The sum of time distribution in percentage is 100

Total time (h) is listed below the diagram



Machine model	SerialNo	Operating Hours	Reading Date
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Definition:

This diagram shows the distribution of the engine work mode in percentage of time when ECO mode is engaged.

Explanation:

Y-axis: The percentage of the operating hours on each work mode when ECO mode is engaged.

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

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

The sum of time distribution in percentage is 100%

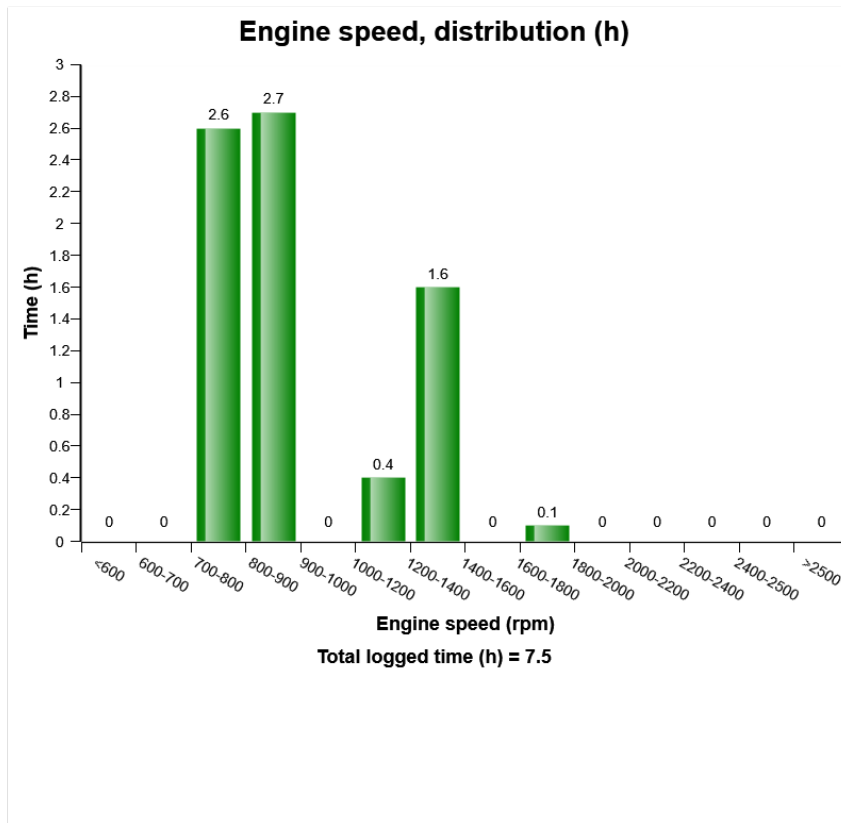


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Total time (h) is listed below the diagram.



Machine model	SerialNo	Operating Hours	Reading Date
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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.

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

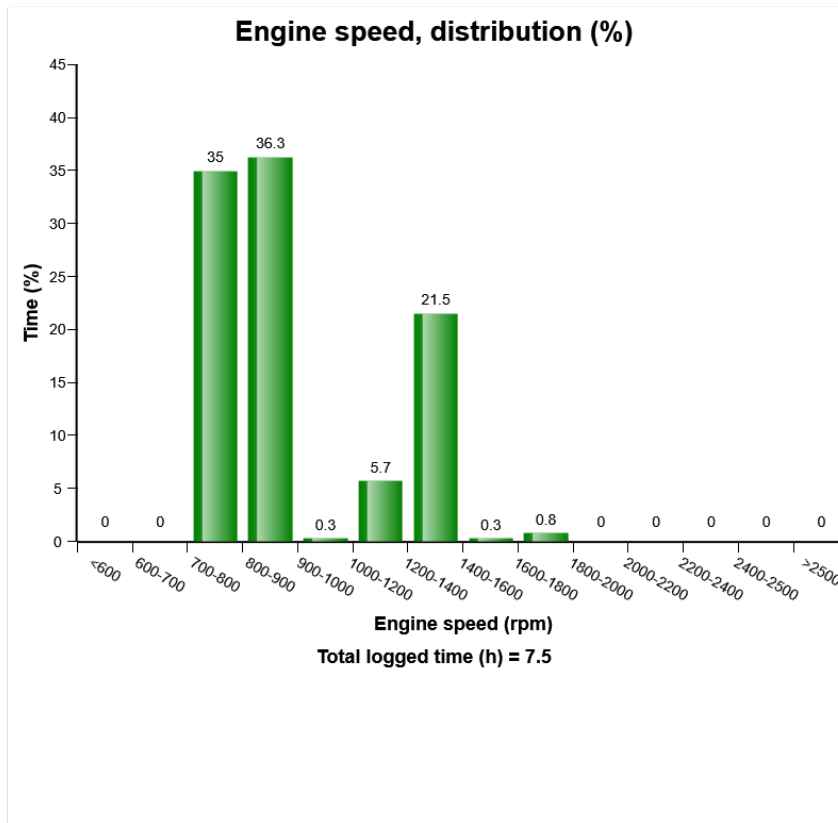


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Exceeding the maximum design speed may cause severe damage to the engine.



Machine model	SerialNo	Operating Hours	Reading Date
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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.



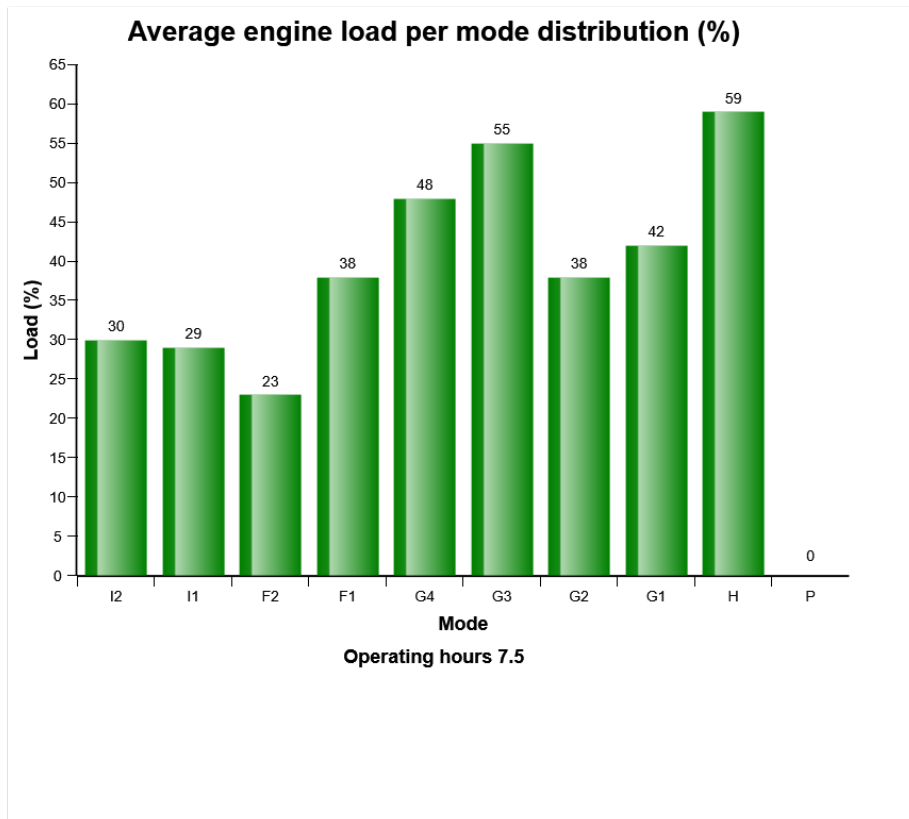
Machine model	SerialNo	Operating Hours	Reading Date
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Red bars =The engine speed has exceeded the maximum design speed.

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



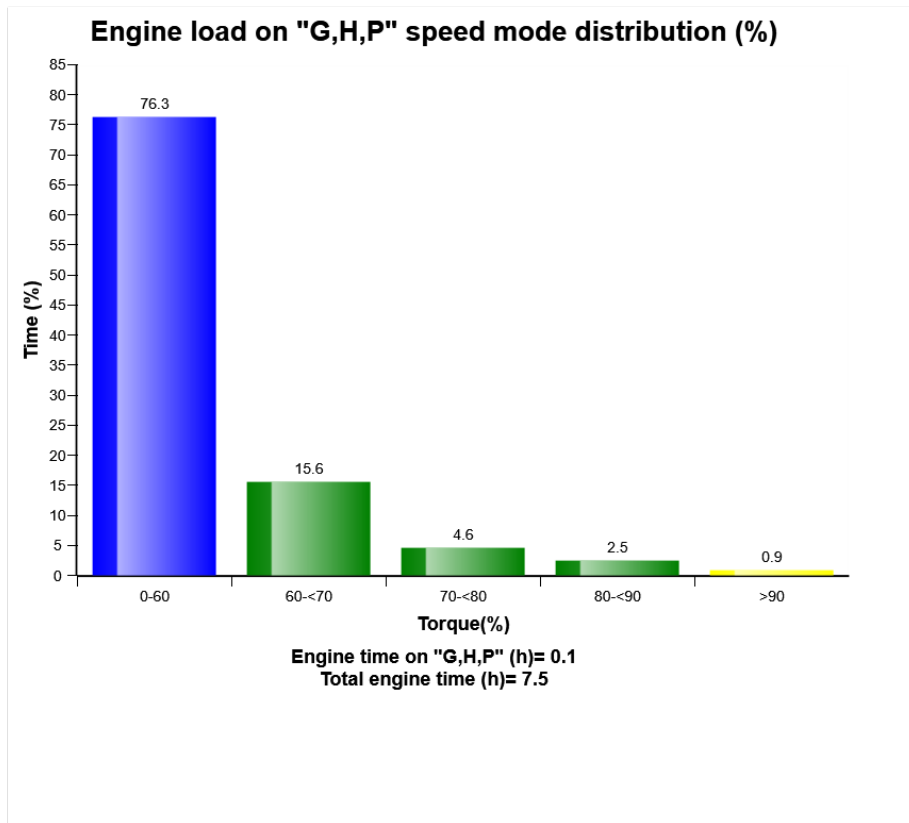
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This graph shows the distribution of the engine load.

Blue bar: Low load

Green bar: Normal load

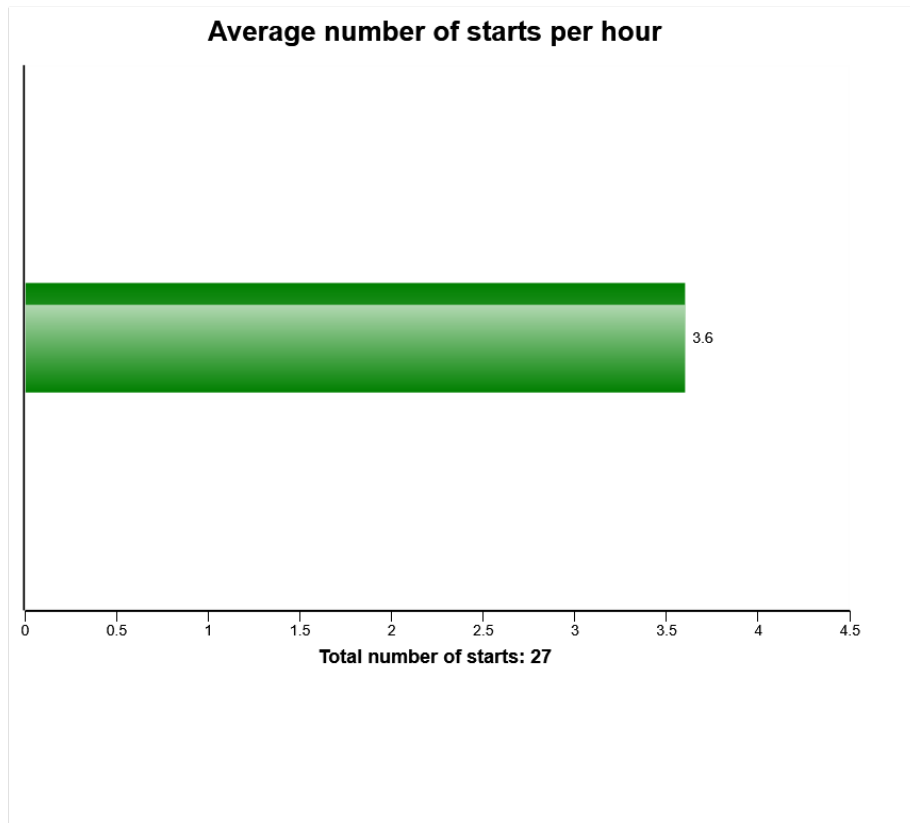
Yellow bar: Excessive load

Load distribution for each bar is shown on top of its column in percentage.

The sum of bars is 100%.



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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."

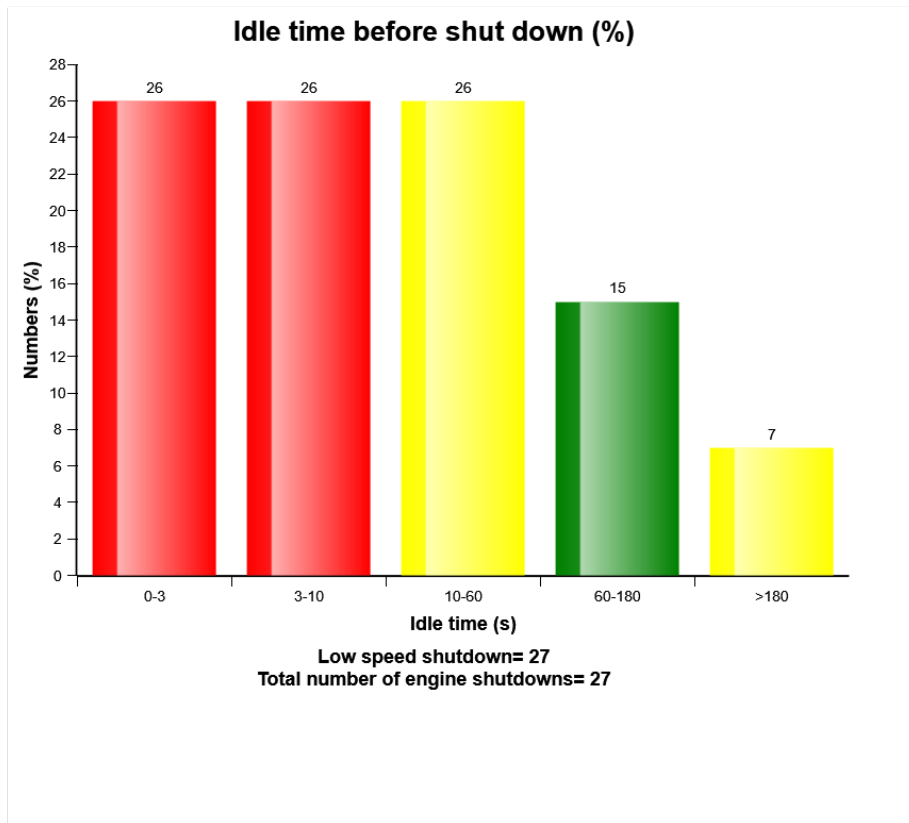


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Green bar = Number of average starts per hour



Machine model	SerialNo	Operating Hours	Reading Date
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Definition:

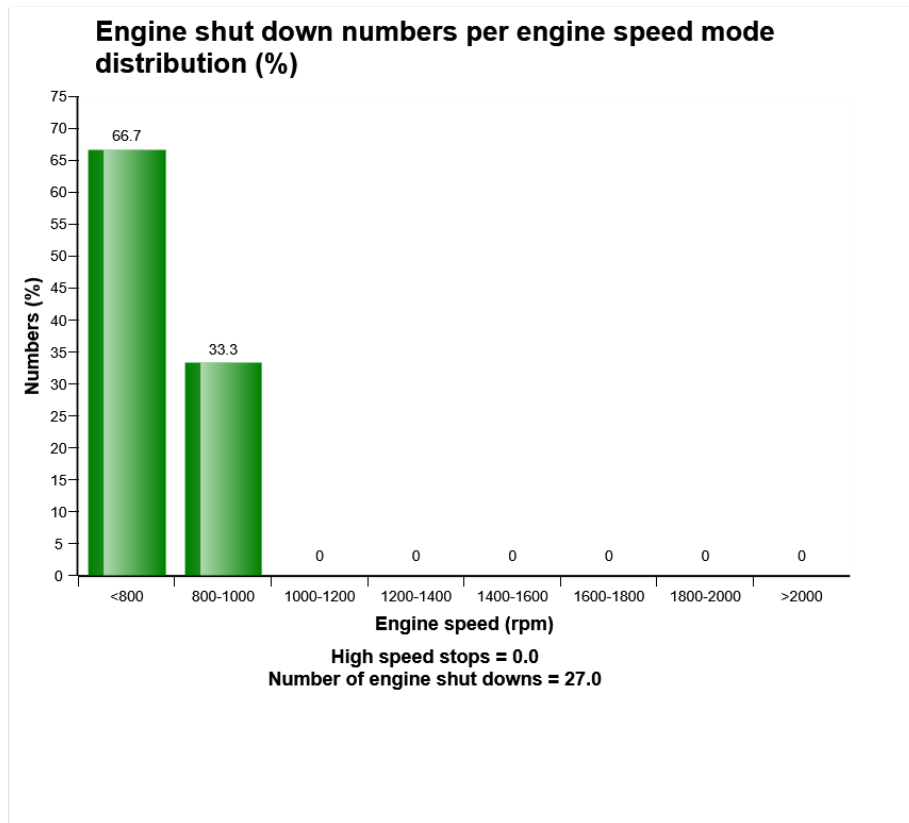
This graph shows the distribution of delayed time at low idle speed until the engine is turned off.

The delayed time distribution for each bar is shown on top of its column in percentage.

The sum of bars is 100%.



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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.

X-axle: Work mode.



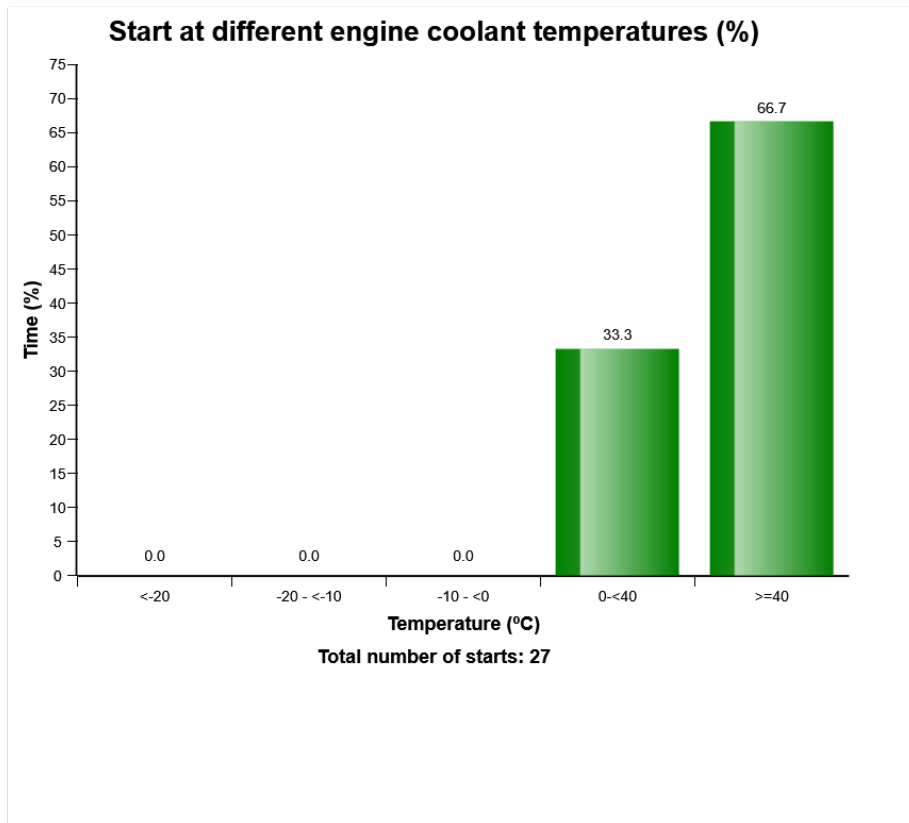
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Distribution of each work mode is shown on top of its column in number.

Total number of shut down is listed below the diagram.



Machine model	SerialNo	Operating Hours	Reading Date
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Definition:

The graph shows the distribution of engine coolant temperature, at the starting moment.

Explanation:

Y-axis: Number of engine starts

X-axis: Engine coolant temperature.

A great proportion of engine wear is due to cold starts. Try to avoid extremely cold starts. Try using an electric coolant heater.



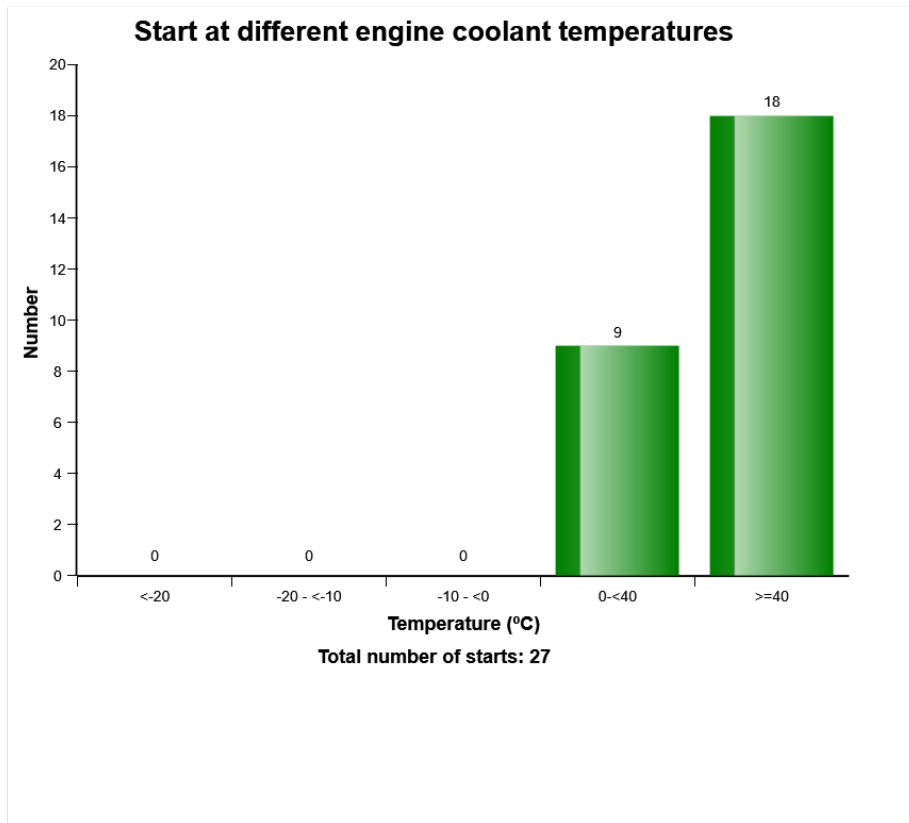
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Under the graph the total number of engine starts is displayed.

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



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Definition:

The graph shows the distribution of engine coolant temperature, at the starting moment.

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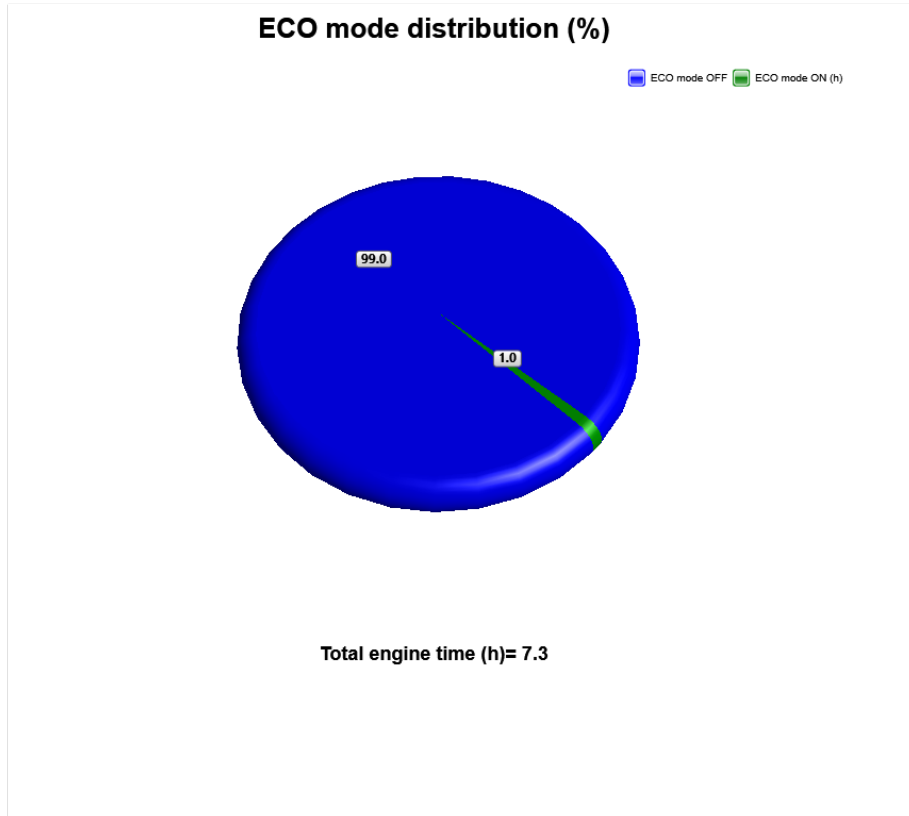
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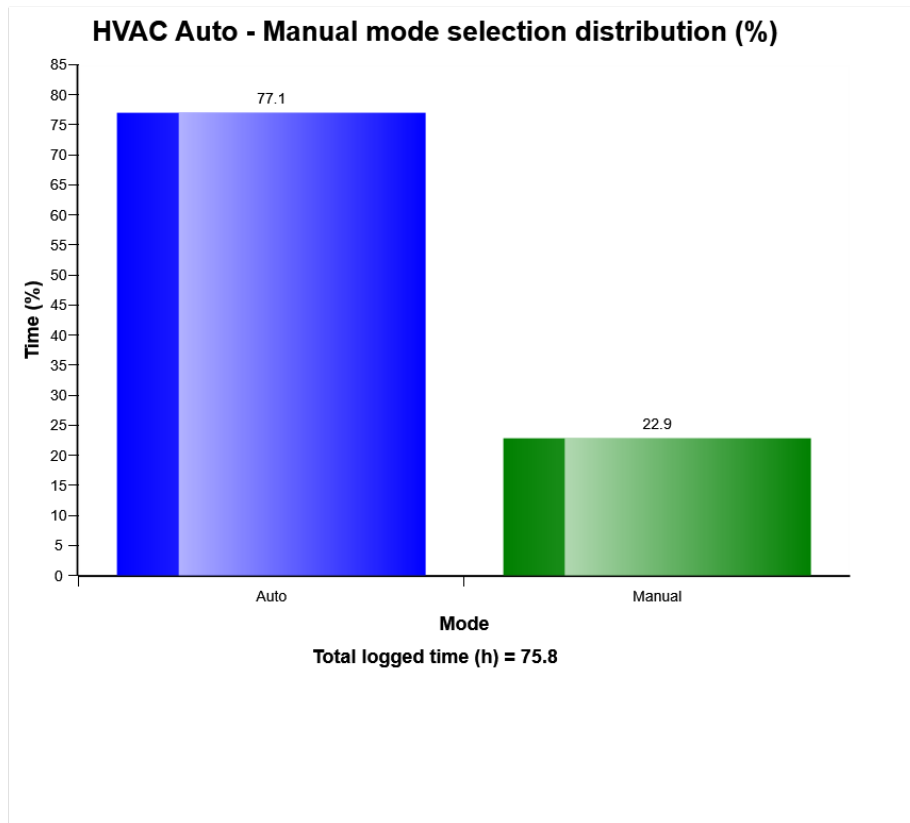
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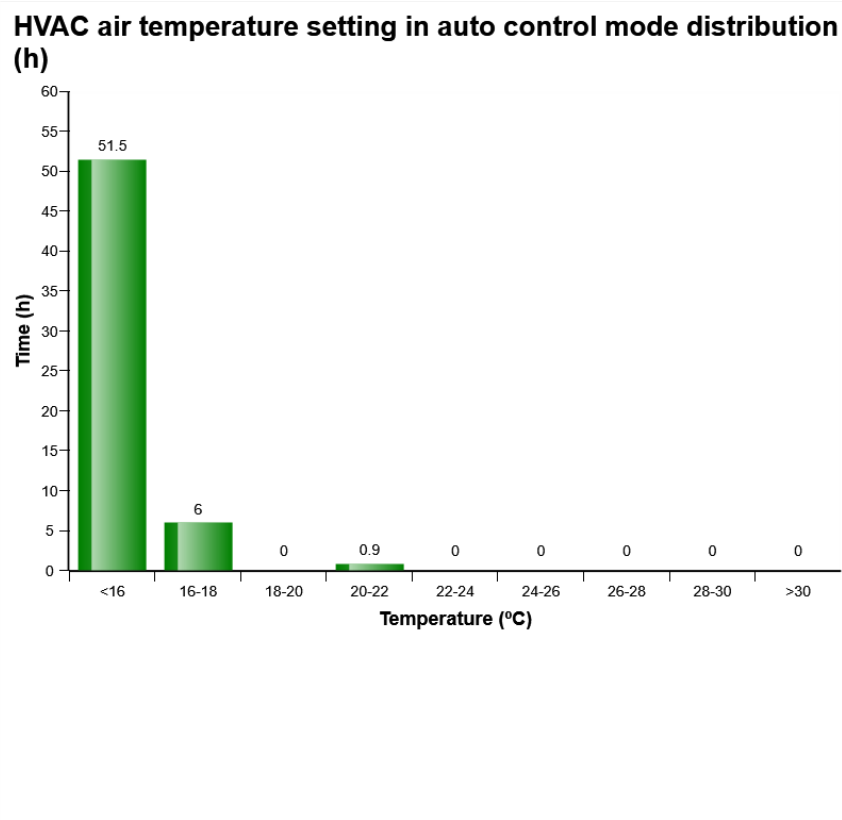


Definition:

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



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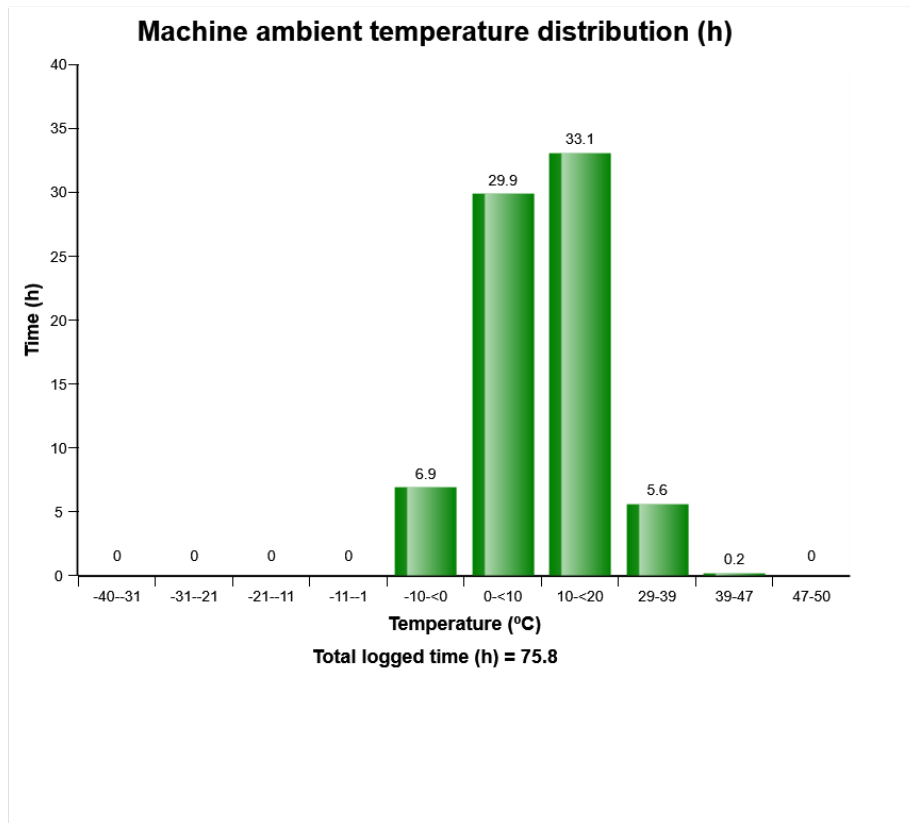


Definition:

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



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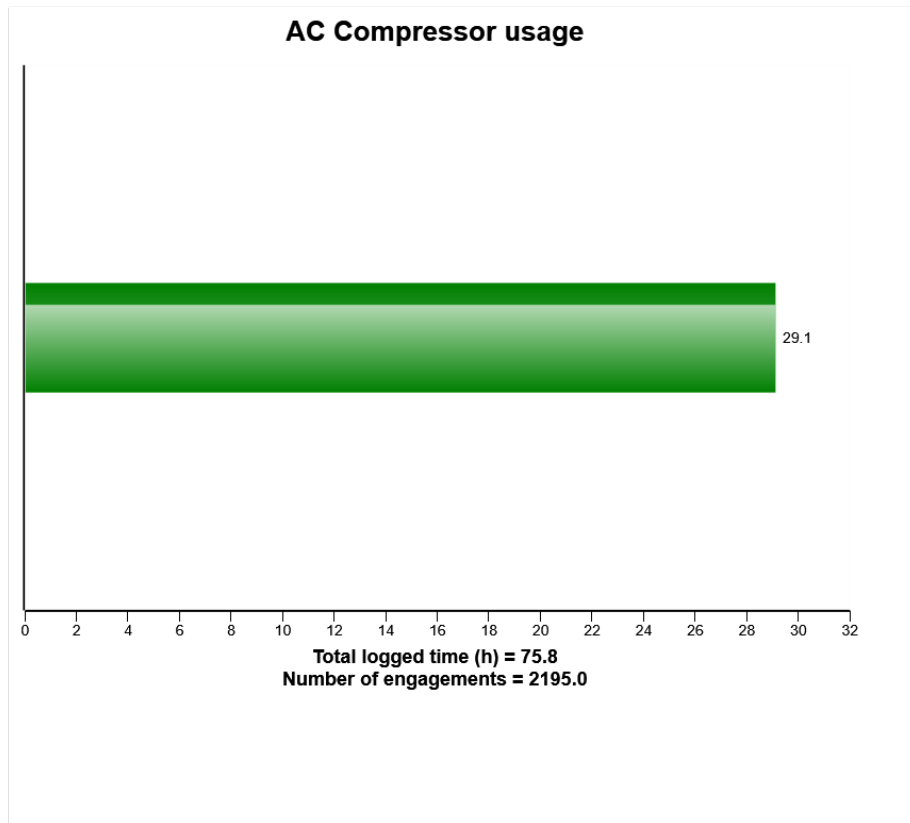


Definition:

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



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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.

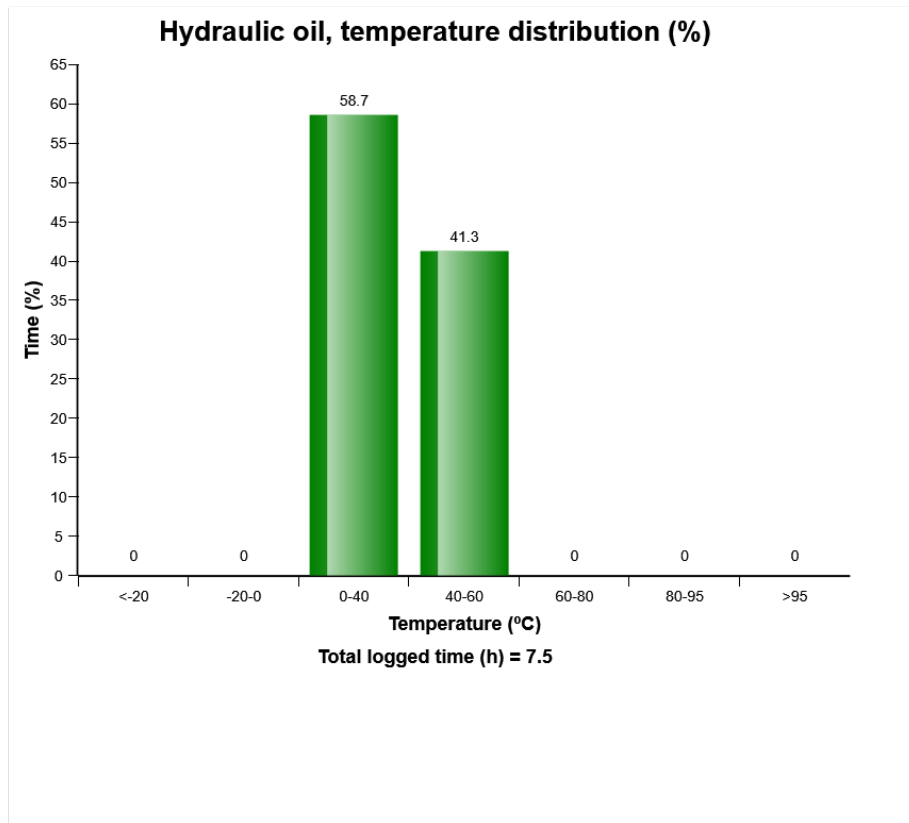
Total number of AC compressor activations is also displayed.



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Machine model	SerialNo	Operating Hours	Reading Date
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Definition:

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

Explanation:

Y-axis: Time

X-axis: Temperature distribution in classes.

Blue bar = Warm-up phase.

During the engine warm-up phase, this temperature region is passed.

It is normal to have registrations in this region.



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

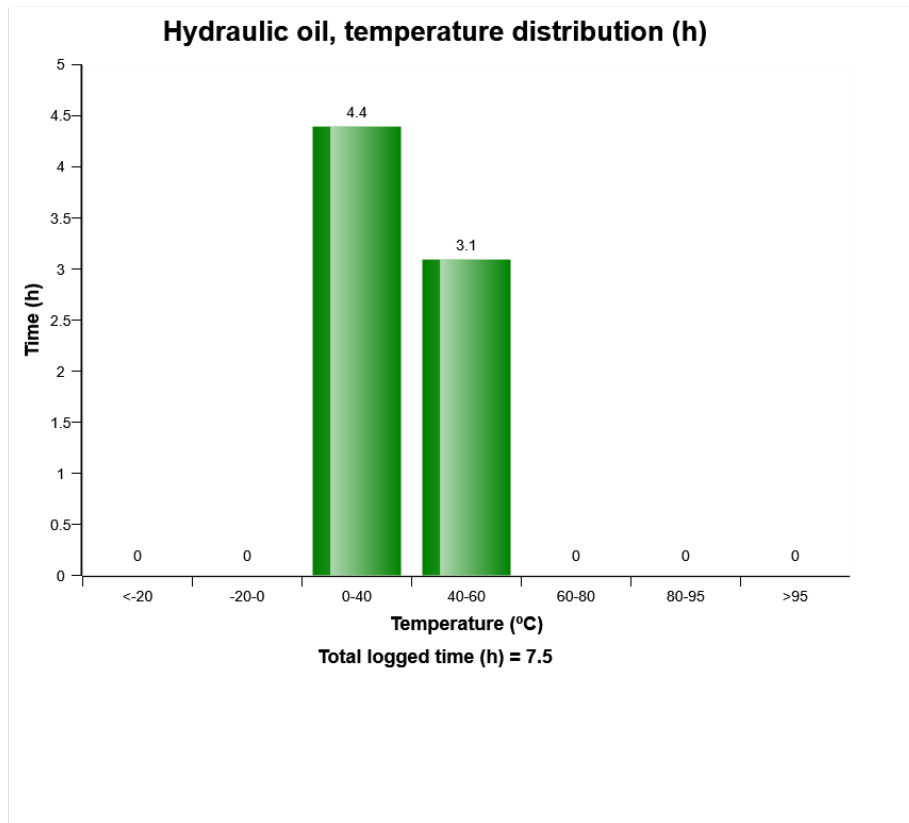
Yellow bar = High working temperature. It is normal to have some registrations in this region.

Red bar = Alarm.

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



Machine model	SerialNo	Operating Hours	Reading Date
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Definition:

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

Explanation:

Y-axis: Time

X-axis: Temperature distribution in classes.

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

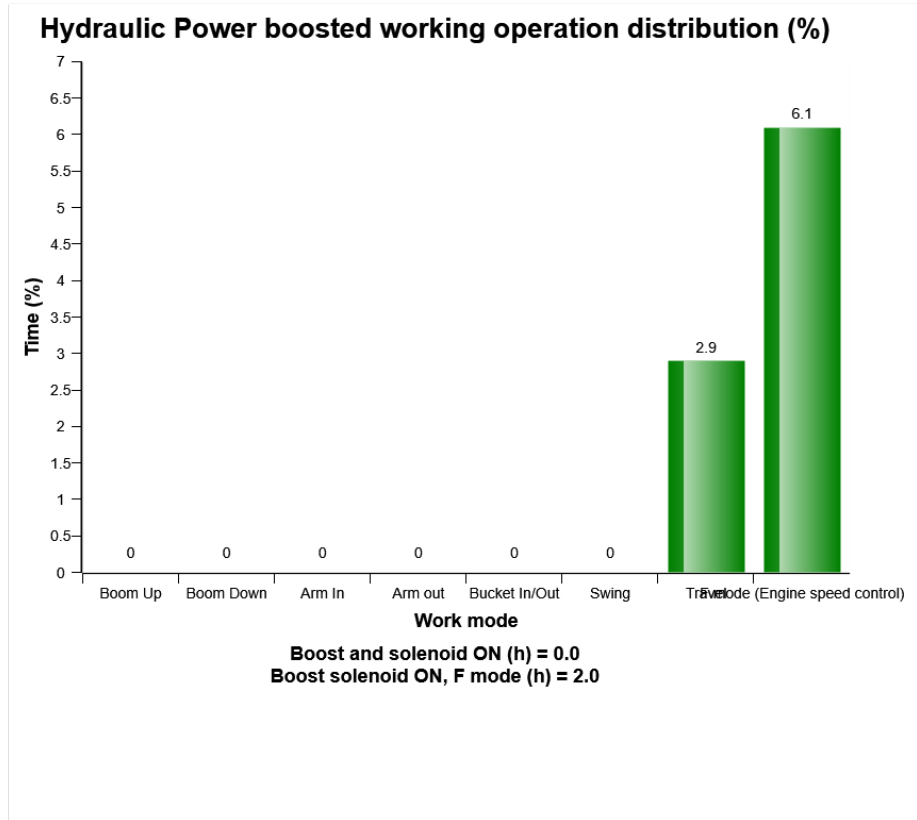
Yellow bar = High working temperature. It is normal to have some registrations in this region.

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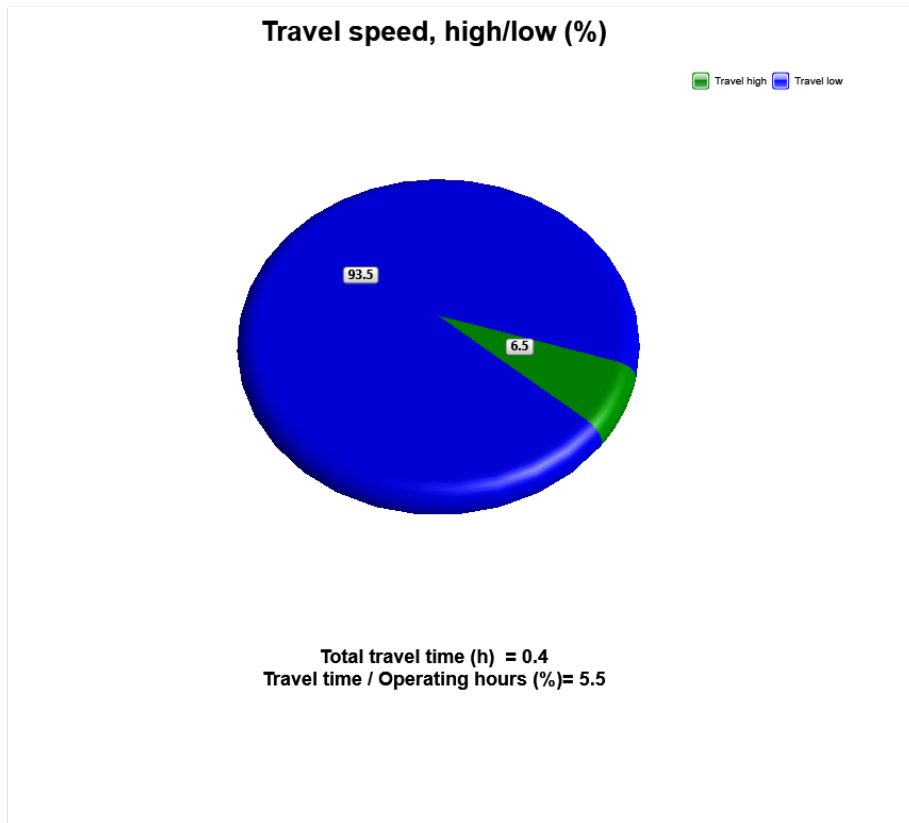
Definition:

The diagram describes Power boosted operating time distribution, when main relief pressure increases on working operation modes. In this diagram, the sum of time (%) of each working operation mode can exceed 100%. It means that customer has been operated several working operations at the same time.

Total operating time with power boosted (hours) in above means sum of the time for Hydraulic Power boosted operation. The base for the percentage calculation is Total operating time with power boost. Time(%) on each working operation mode except travel and F mode above is the time, after the operator press power boost button on the joystick and until main relief pressure is recovered to default pressure.



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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:

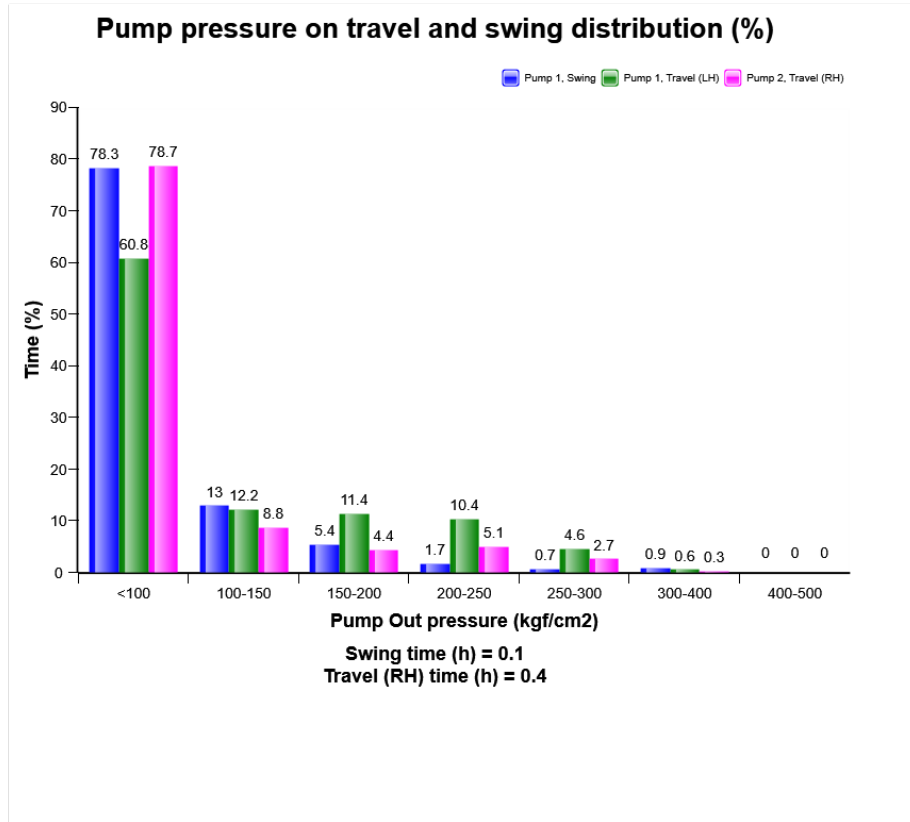
Distribution of each travel time is shown on right of its sector in percentage

The sum of travel time in percentage is 100

Total travel time is listed below the diagram



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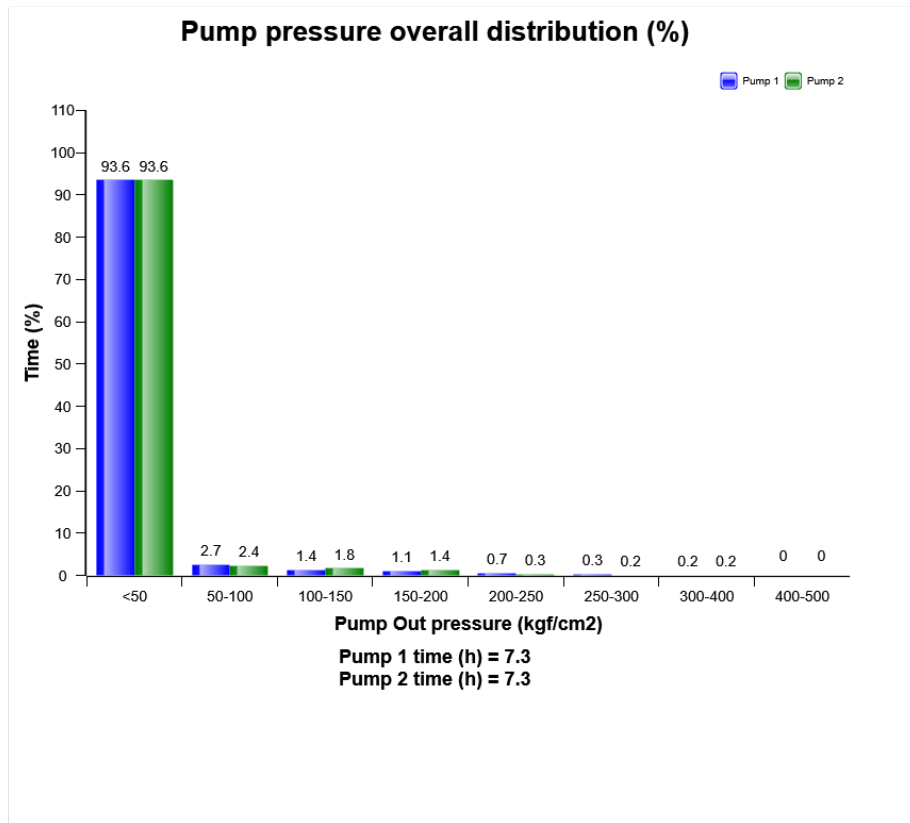


Definition:

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.



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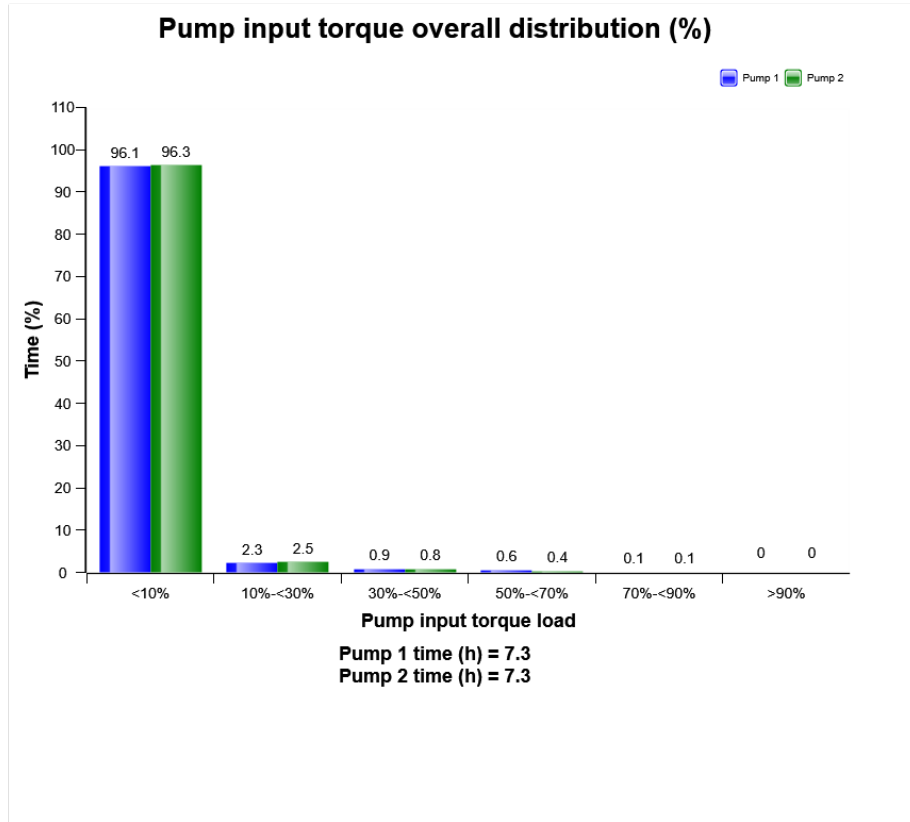


Definition:

The diagram describes Pump outlet pressure of 2 Pumps distribution.



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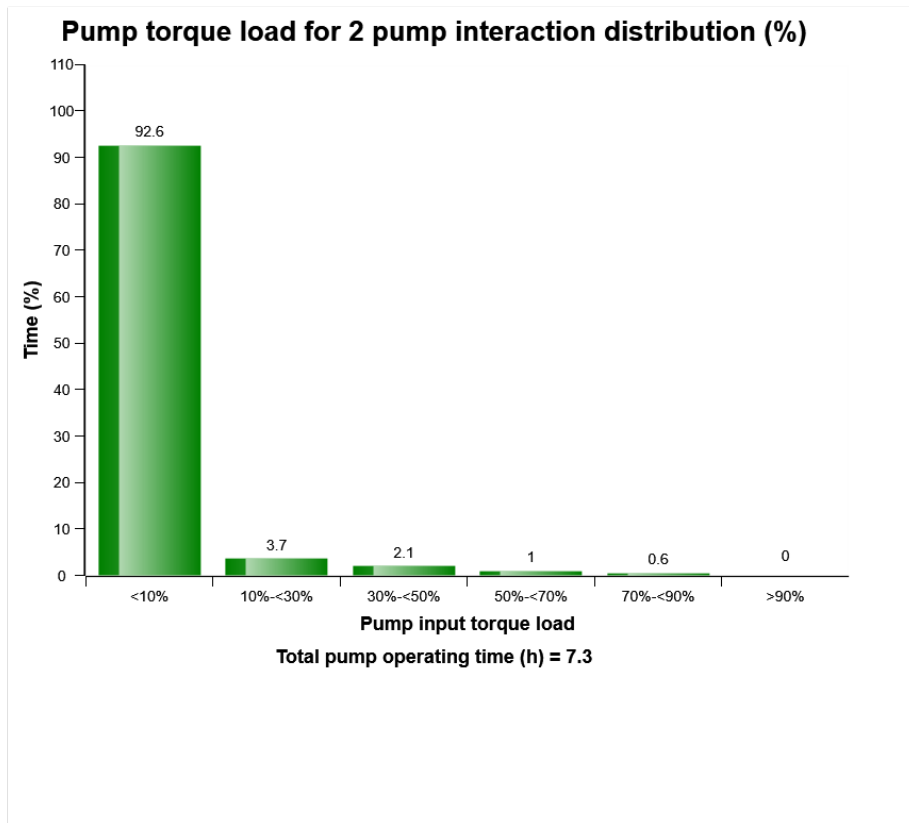


Definition:

The diagram describes Pump torque load of 2 Pumps distribution.



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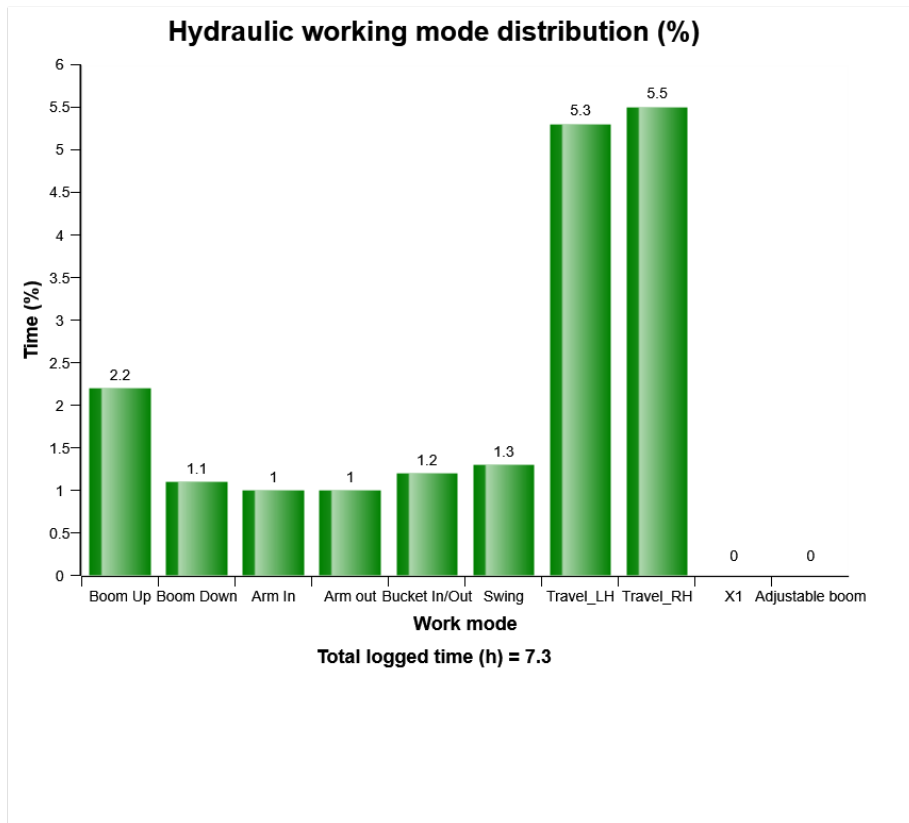
Definition:

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



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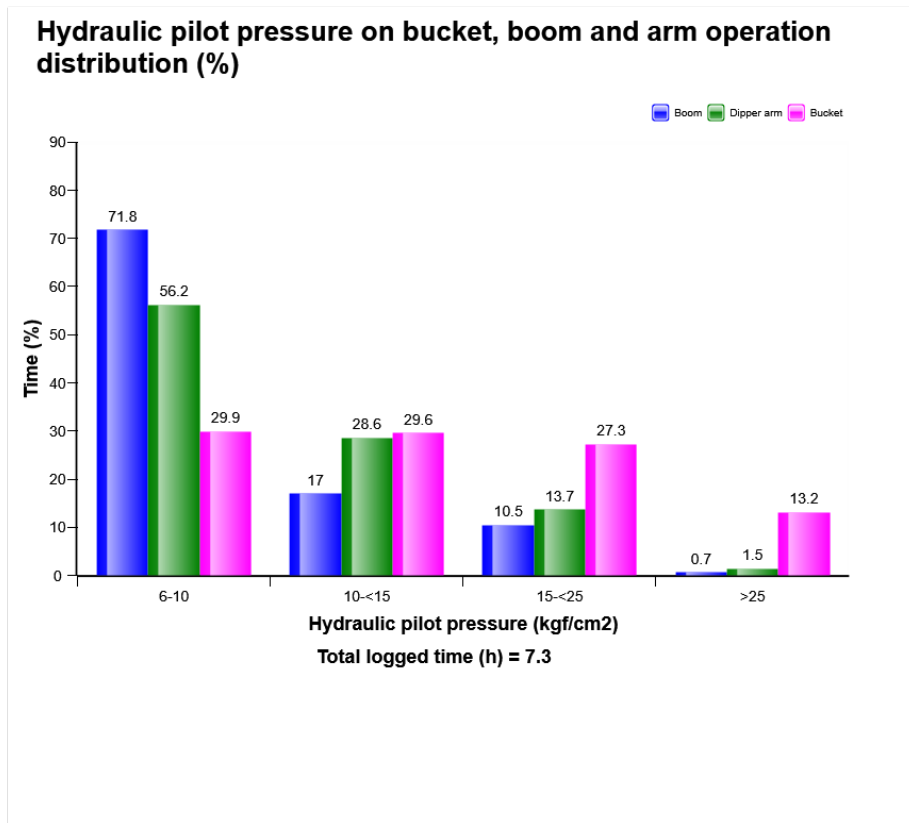


Definition:

The diagram describes hydraulic working operation mode distribution.



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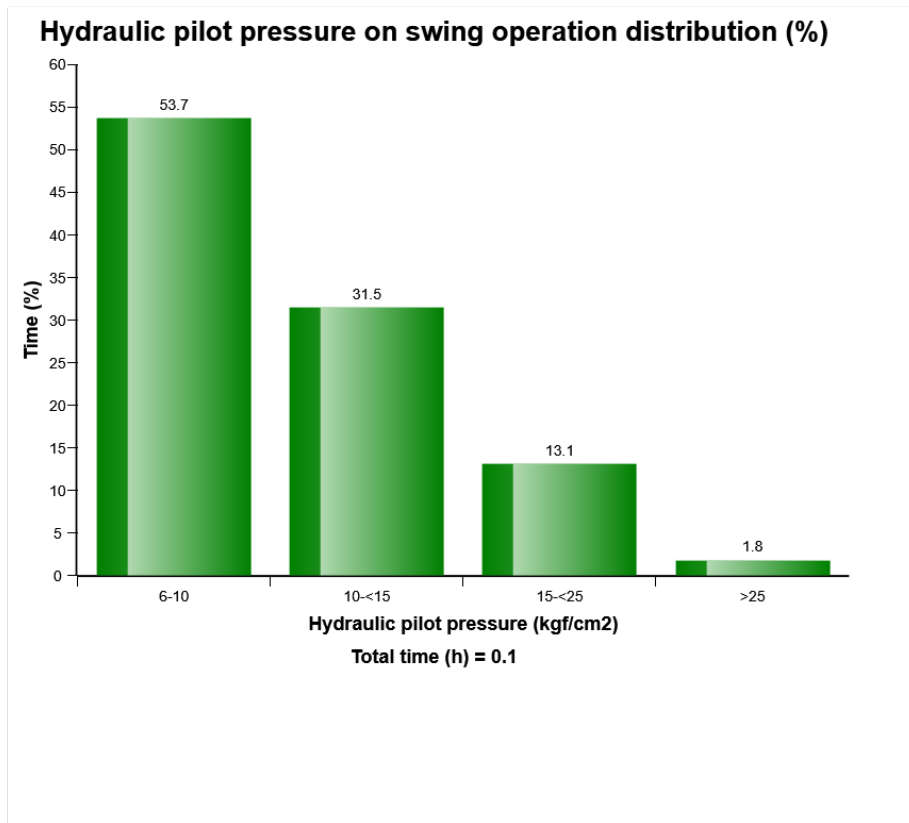


Definition:

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



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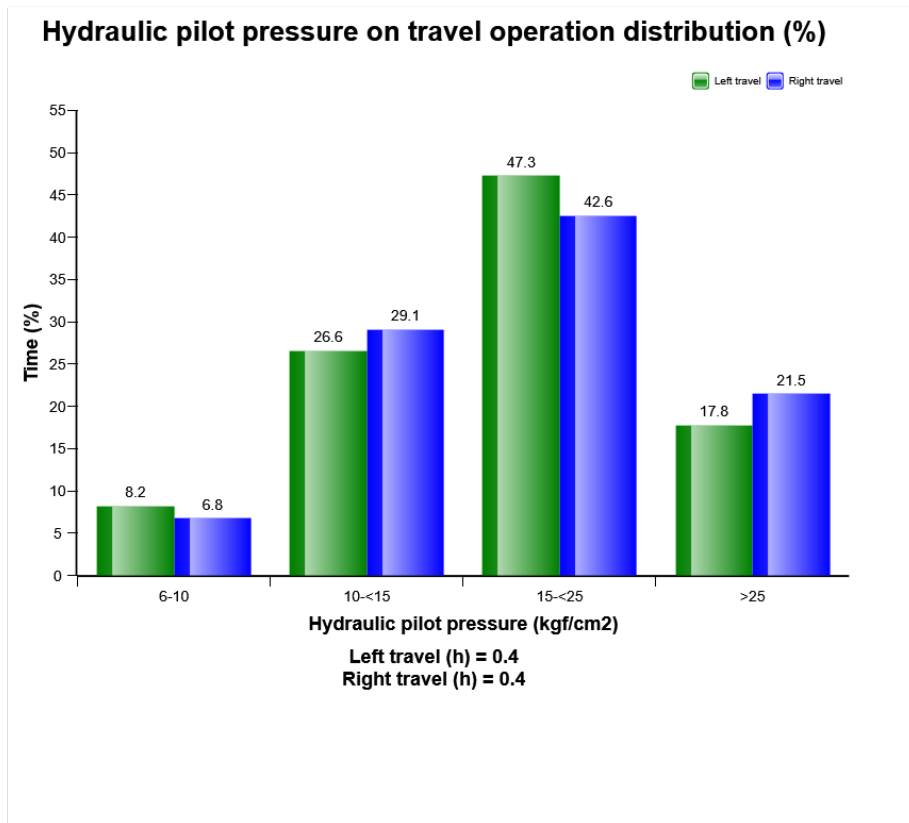


Definition:

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



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