# **UK Forks**

# JCB LiveLink Alerts - An Overview













Your JCB telehandler produces multiple subject and data alerts based on machine operation. The data is collected during machine operation and stored and reported on using the JCB Live-Link system. This tool box talk presentation explains each alert, why it occurs and how it can, where applicable, be reduced or avoided. The alerts covered are as follows.

- Water in Fuel
- Machine Overspeed
- DPF Status and Override
- Reverse Time (incl %)
- LLMC Recovery
- Movement with High Boom Angle
- Parking Brake Warning
- Seat Belt Alerts



UK Forks provide a monthly fleet summary report. It is set out in two parts. The first section, below, presents base machine operational information covering utilisation, operating hours, machine movement and fuel use data, including consumption and emission statistics. A fleet average is also presented to permit machine comparisons.

Vol LIK Forks				Utilication			**				Fuel							
	Materials	s Handling Specialists					100	12	Machina	e woveniei	IL HUUIS				Fuel			
Company Name Reporting period: 01/07/2021 to 31/07/2021			torking Days	ank	tilisation	sgine On	Brill	oving Hours	eversë Hours	everse %	otal Litres	stal Cost	le Litres	le Cost	le rcentage	R	erage Fuel nsumption	
code Size Reg	glon	Location	Customer Order		~			4	2	*	æ	F	F	-	-	- 5	č	< 3
/12345 14m Cor	mpany Name	Site Name 1	Your ref	24.50	1	77.14%	151.20	40.27	82.18	17.90	21.78%	1,003.00	£732.19	80.53	£58.79	8.03%	2,667.98	6.6
/12346 17m Cor	mpany Name	Site Name 2	Your ref	24.50	2	62.09%	121.70	65.53	31.17	9.75	31.28%	436.00	£318.28	131.07	£95.68	30.06%	1,159.76	3.5
/12347 14m Cor	тралу Name	Site Name 3	Your ref	24.50		11.33%	22.20	6.79	11.16	2.22	19.89%	110.00	£80.30	13.58	£9.91	12.35%	292.60	4.9
Term		Description										1					2	1
Working Days		Working days in the period						-	£	3	38						- se	÷
Rank		Utilisation rank					ŝ	4) Bu	) BL	05.X0	ž		ş	2	tä		, in the second se	- 5
Utilisation		Percentage of time in use against time available (includes Idling)				×		- <b>1</b>	Â,	Per	Rev	5	8	e Lit	S	dle	2 Er	Flee
		Below average utilisation				rage tion	aller _	rage	BEI	age	age	1		11d	1PI I	1980	100	of the second
		Above average utilisation				Ave		Ave	Ave	Ave	Åre	lota	t d	Tota	Tota	Ave	fota	Ave
Engine On		Actual in use the over the period				5				200				140				
Idling		Actual time spent idling over the period				50.19%	98.37	37.53	41.50	9.96	24.32%	1,549.00	£1,130.77	225.18	£164.38	15.81%	4,120.34	5.0
Moving Hours		Total moving hours (not all machines provide this data)				hanning and												
Reverse Hours		Total moving hours in reverse (not all machines provide this data)																
Reverse %		Percentage of moving tine spent in reverse (not all machines provide this date	a)															
		Reversing time > 25%																
		Reversing time > 30%																
Fotal Litres		Fuel Used in litres over the period																
Total Cost		Cost of fuel used over the period - See Fuel Cost																
Idle Litres		Fuel Used whilst Idling in litres over the period																
Idle Cost		Cost of fuel used whilst idling over the period - See Fuel Cost																
Idle		Percentage of Usage where machine is Idling																
		Idling percentage above 68.0																
CO2		CO2 Emmission in Kg based on Fuel used - See CO2 Cales																
Average fuel consu	mption	Average fuel consumption expressed as litres / hour																
Fuel Cost		73																
CO2 per litre of Die	esel	2.66																



The second section summarises all safety events and alerts captured during the month for each machine on hire. This data can be used to further understand machine operation information, driving and operational behaviour and alerts and events that could result in machine downtime if ignored.

UK Forks Waterials Handling Specialists UK Forks Fleet Summary Report Company Name Reporting period: 01/07/2021 to 31/07/2021 Interior Size Reion Location					Aler	rts	Events			
					Water In Fuel (P2269-00)	DPF number of incomplete	Seat belt warning	Movement with high boom a	LLMC override mode activa	Park broke worning
V12345 14m Company Nam	e Site Name 1	Your ref	2	21.78%	0	0	356	104	120	32
V12346 17m Company Nam	e Site Name 2	Your ref	14	31.28%	0	0	1	23	87	4
V12347 14m Company Nam	e Site Name 3	Your ref	0	19.89%	0	0	0	2	21	0
Term	Description (Instances reported in the reporting period)									
Speed > 18.0kph	No. of speed > 18.0kph instances									
Reverse %	Percentage of moving the spent in reverse (not all machines provide this data)									
	Reversing tme > 25%									
	Reversing the > 30%									
Water In Fuel (P2269-00)	Water In Fuel (P2269-00)									
DPF number of incomplete	DPF number of incomplete regenerations - (Severe warning Manual Regen Required) (P2459-85)									
Seat belt warning	Seat belt warning									
Movement with high boom a	Movement with high boom angle									
LLMC override mode actvia	LLMC override mode activated									



#### Water in Fuel

This is presented as a count of events during the month representing each time the machine has alerted the driver to a water in fuel condition.

- Diesel fuel is hydroscopic and therefore absorbs small amounts of water in its normal state. The water trap is located beneath the fuel filter in the engine bay and should be checked and drained at least once per week. As the operator is required to check oil and coolant status daily a simple visual check can be made of the water trap each day.
- If the water trap sensor (circled opposite) detects the presence of water it will warn the driver with an audible alert and the message 'WIF' displayed on the screen. Ignoring this warning risks serious damage to the fuel injection system which will eventually lead to the machine entering limp mode followed by fuel system and engine failure.
- The water in fuel alert can also be used to warn of potential contamination in the site diesel storage tank.



# **Diesel Particulate Filter**





#### Machine Overspeed

If a machine exceeds 11.8mph or 18kph an overspeed condition is recorded. It is common practice for telehandler users to request the removal of 4<sup>th</sup> gear selection. Removal of 4<sup>th</sup> gear will limit the machine to 9.8mph during normal operation

#### **Reverse Hours & Percentage**

Whilst reversing operations cannot be avoided, time and attention spent planning site layout, material storage and traffic layout can assist in reduce the amount of time a machine is required to travel in reverse.

Reversing operations introduce the highest degree of blind spots and subsequent risk of injury to persons and damage to property. Reviewing the percentage of time machines spend in reverse gear may assist in identifying site layout or material storage practices that have the potential to be improved.



#### Longitudinal Load Moment Control (LLMC) Override

#### What is LLMC?

This is the machines stability monitoring system required under EN1549 and designed to minimise 'forward tip'. It can override or lock out several hydraulic functions. It is always on when the ignition is on but will only alert when the machine speed is below <1kph

Under normal conditions the hydraulic boom extension will slow down and reach a controlled stop when the safe working load envelope limit is reached. At this point the operator could deploy the machine stabilisers to improve stability. The operator can utilise the lift or retract functions to recover the stability envelope. An override option exists to assist in recovery. It is common for operators to override the Load Management Indicator (LMI), not necessarily for recovery purposes, taking the machine beyond its safe working envelope.

The override function should only be used to recover from a position in which the machine has been locked out by the LLMC system and to bring the machine back to within the safe working envelope. This alert will highlight the operators who continually override the system and who are potentially operating in a dangerous way.





#### **Movement with High Boom Angle**

This alert is triggered when the machine at a speed above 3.11mph/5kph with the boom angle above 30-degrees.

Events are added up monthly and present the customer with an indication of driving behaviour, lift types and training needs. Driving with a high boom angle, particularly when loaded, is often the main cause attributed to machine rollovers. Narrow routes, ditches, raised chambers, potholes or kerbs significantly increase the risk when travelling with a raised boom.



# The stability triangle



## **Forward stability**





When a load is picked up the centre of gravity moves forwards



# Forward stability



- If the load is extended forwards the centre of gravity also moves forwards
- The machine remains stable whilst the centre of gravity remains behind the front axle (within the triangle)



## **Forward stability**





- After this point the rear wheels will start to lift off the ground
- In normal operations this is prevented by the LLMI



# **Backward stability**



- For a machine on level ground, without load WITH THE BOOM FULLY elevated the centre of gravity moves backwards.
- The machine remains stable as long as the centre of gravity remains within the triangle

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# Lateral stability



- On uneven ground, across a slope the centre of gravity moves sideways
- Stabilisers and/or sway control can be used to level machine and increase lateral stability
- The operator uses the inclinometer to level the machine on uneven ground.

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# Lateral stability





- Naturally most operators are cautious when using high lift telehandlers
- If the machine is not on level ground the lateral stability is reduced, when the load is removed the centre of gravity moves backwards and this is when the machine is most likely to tip over



### Parking Brake Events

The parking brake condition is triggered when the driver leaves the machine seat with the machine in the following, potential roll-away state –

- Handbrake Off
- Engine Running

#### Seat Belt Events

There are three conditions which will trigger a seat belt event. These are added up through the month providing the customer with an indication of operator driving behaviour or training needs.

- The operator has attempted to start the machine without the seatbelt fastened.
- The operator has removed the seatbelt whilst the engine is running.
- The operator has got off the seat with the seatbelt still connected (i.e. fastened behind them).
- Machine in motion seatbelt not connected (machine speed above 3.1 Mph) Green beacon status will be off.

# Changing Behaviours

