ConSite deciphers data

After more than a decade of development, telematics deliver huge volumes of data. Understanding all that information requires the right tool, and ConSite is that right tool.

Modern construction equipment plays host to electronic sensors — dozens of sensors harvesting megabits of data. That's a million bits of data. Per second. Modern telematics transmit all this information to someone, somewhere, and oftentimes multiple someones in multiple somewheres. The equipment OEM, the dealer who sold the machine and the fleet manager for the customer who bought the machine all get a torrent of data even if they're working thousands of miles apart from each other and even if each is thousands of miles distant from the machines in question. Whew!

It wasn't always this way. It was the introduction and subsequent evolution of electronic controls that eventually led to this flood of data.

In the early days, engines were the sole beneficiaries of electronic controls. The controller area network (CAN) bus was used to control fuel injection. The intent was to replace mechanical fuel injectors with more precise electronic fuel injection to clean up the combustion process in order to meet emerging emissions standards. Along the way someone realized operation data could be gathered and used to assess machine and operator performance, such things as fuel consumption, running hours and idle time. Although once gathered by connecting a laptop to the CAN bus, it wasn't long before telematics delivered this information wirelessly and remotely.

ConSite is a consolidated solution service that links you to your machines on the construction site.

KEY FEATURES

- Receive monthly operation reports with advice via e-mail
- Receive emergency notifi cations via e-mail

These two reports allow you to visualize the operation status of your machine, improve the efficiency of machine management, and work closer with us.

These days every part of a machine is a tributary to the data stream, and telematics distributes it all.

British science fiction author Arthur C. Clarke famously said, "Any sufficiently advanced technology is indistinguishable from magic," and telematics does indeed seem magical at first. But when a fleet manager sets out to make sense of all that data the magic can become a nightmare. That manager needs help, and ConSite provides it.

General and specific

ConSite provides information in both general overview and highly specific forms. The program issues reports which, if printed, would be 11 pages long.

Al Quinn,
Vice President Of Operations

❞❞ ConSite to me is an incremental improvement. But while there is some enhancement for sure, it is still doing business in much the same way. I don't think of it as a structural change; it's more of an incremental change. It's part of the fundamentals, the basics, like having pricing in line and striving to always improve product support. ❞❞

The reports are automatically generated and distributed on the sixth of each month and can also be retrieved on demand.

A report is generated for each machine and if the fleet has multiple KCM loaders, a summary report for all of them is included. The backbone of the system, Global eService, holds data from similar machines so comparisons can be made between the performance of a specific machine and the industry norm for that machine.

The first part of the report is a summary with basic information such as the number of operating days and hours, fuel consumption and idle time. Letter grades of A, B, C or D are assigned to performance categories so the fleet manager can quickly spot areas of concern and areas of high efficiency.

The reports become increasingly specific as the pages go on. There's a calendar view showing machine operation for each day of the month. Another page yields insights into factors that affect fuel consumption, such as idle time ratio and percentage of time running with power mode off. Each compartment reports operating temperatures and there's an overlay of

ambient temperature, as well. As the manager gets deeper into the report, insights into operating data get more and more exact.

What's the benefit? The manager can get as much or as little information as is required. "Of our three loaders, our 90Z7 had the highest hours last month," or "Operator Smith had the highest overall fuel efficiency and the lowest idle time of all our operators last month. Operator Smith's rear axle housing was in the upper range of operating temperature for several days, but on those days the air temperature was above 90 degrees; we will monitor that axle housing but there's no indication that immediate service is required."

The uh-oh view

In a perfect world we'd have perfect equipment, but those expectations are unrealistic. So what happens when a problem arises? ConSite notifies the appropriate parties.

Who are the appropriate parties? For emergency alarms, which include notifications for conditions that may have implications for safety or the risk of machine damage, both the dealer and the owner-operator are notified. Maintenance reports also go to both the dealer and the customer who can then work together to ensure scheduled maintenance occurs with minimal downtime.

One of the great advantages of ConSite is that it facilitates the partnership between the dealer and the customer. Both have a vested interest in the customer's success, but each has different means for ensuring that success. The dealer can make

recommendations drawn from a nationwide database, relay information from the manufacturer that is specific to the customer's models of equipment, inform the customer of industry trends and help orchestrate service activity and PM tasks. The customer can share information and objectives specific to his or her operation. ConSite makes this two-way sharing far easier and more accurate.
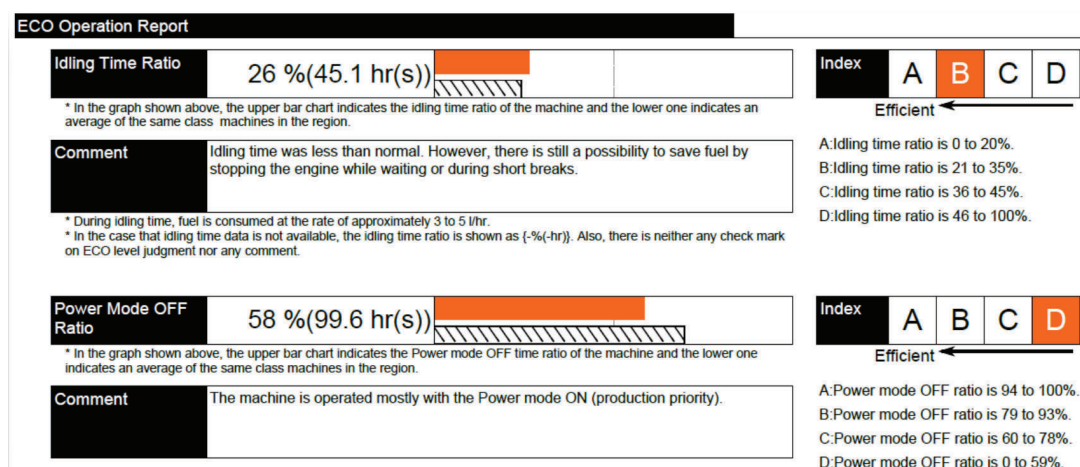
Data from mixed fleets

One huge issue with telematics has been the inability of different manufacturers' systems to play nice together. If a customer had a mixed fleet — and most do — information was sent via an API (application program interface) to third-party data integrators so that the information could be standardized. Customers had to gather data for each brand of equipment independently, known as portal hopping, and have the data manipulated by another firm before putting it to use.

The Association of Equipment Manufacturers and the Association of Equipment Management Professionals worked out a standard so that different brands of equipment could all report their data in the same way. In July 2016 this system was approved by the International Organization for Standardization (ISO; the acronym reflects the French name of the organization, which is headquartered in Switzerland). The standard, ISO 15143-3, was published late in 2016. ConSite complies with this standard.

Wayne Powell,
Advisor to the VP Operations

❝ ConSite has been in other markets since 2013 and its functionality has been well established. The key concept behind the system is that it is proactive. The whole FOF [fix on failure] mindset to equipment management went away a decade or more ago and ConSite supports customers' and dealers' efforts to be proactive in their asset management and in their relationships with each other. ❞

More features will be added to ConSite soon. ConSite Pocket will make reports available on mobile devices. ConSite Shot will make it easy to generate reports using a mobile device and data stored in ConSite. A little farther out is the release of ConSite OIL, a program for managing sampling and analysis results for both engine and hydraulic oil. ■

ECO Operation Report

Idling Time Ratio — 26 %(45.1 hr(s))

* In the graph shown above, the upper bar chart indicates the idling time ratio of the machine and the lower one indicates an average of the same class machines in the region.

Comment — Idling time was less than normal. However, there is still a possibility to save fuel by stopping the engine while waiting or during short breaks.

* During idling time, fuel is consumed at the rate of approximately 3 to 5 l/hr.
* In the case that idling time data is not available, the idling time ratio is shown as {-%(-hr)}. Also, there is neither any check mark on ECO level judgment nor any comment.

Index — A **B** C D — Efficient ←

A:Idling time ratio is 0 to 20%.
B:Idling time ratio is 21 to 35%.
C:Idling time ratio is 36 to 45%.
D:Idling time ratio is 46 to 100%.

Power Mode OFF Ratio — 58 %(99.6 hr(s))

* In the graph shown above, the upper bar chart indicates the Power mode OFF time ratio of the machine and the lower one indicates an average of the same class machines in the region.

Comment — The machine is operated mostly with the Power mode ON (production priority).

Index — A B C **D** — Efficient ←

A:Power mode OFF ratio is 94 to 100%.
B:Power mode OFF ratio is 79 to 93%.
C:Power mode OFF ratio is 60 to 78%.
D:Power mode OFF ratio is 0 to 59%.

The report has tremendous detail available, but is meant to be scanned and only the highlights acted upon. The machine performance is graded from "A" to "D" and compared to similar machines. For instance, the fuel economy can be graded a "C" and suggestions are made to improve the fuel economy to an "A." Reducing the use of the "Power Mode" can be considered as a way to cut fuel use.