

- The sensors installed on the machine, monitor oil continuously for 24/7 while the machine is being operated ①. If the sensors detect abnormal data such as sudden changes of oil condition, the data is to be judged by Global e-Service. Then, an emergency alarm report is to be automatically transmitted to the customer and the dealer. A countermeasure manual is to be transmitted to the dealer along with the emergency alarm report ②.
- A dealer mechanic is to inspect and repair the machine according to the countermeasure manual. In addition, the mechanic is to take oil samples if required ③.
- The oil samples are to be sent to a designated oil analysis company ④. Then, after oil analysis, the result data is to be transmitted ⑤.
- The transmitted data is to be automatically judged and diagnosed. An oil analysis report consisting of the diagnostic result is to be transmitted to the customer and the dealer on the same day. Countermeasure instructions are to be transmitted to the dealer at the same timing ⑥. Note: Oil analysis report will be transmitted on next day if data transmitting timing after 8 PM.
- The dealer mechanic is to inspect and repair the machine according to the countermeasure manual, which was transmitted along with the oil analysis report ⑦. Finally, the mechanic is to upload inspection and countermeasure results to Global e-Service, which are to be accumulated as deepened information ⑧.

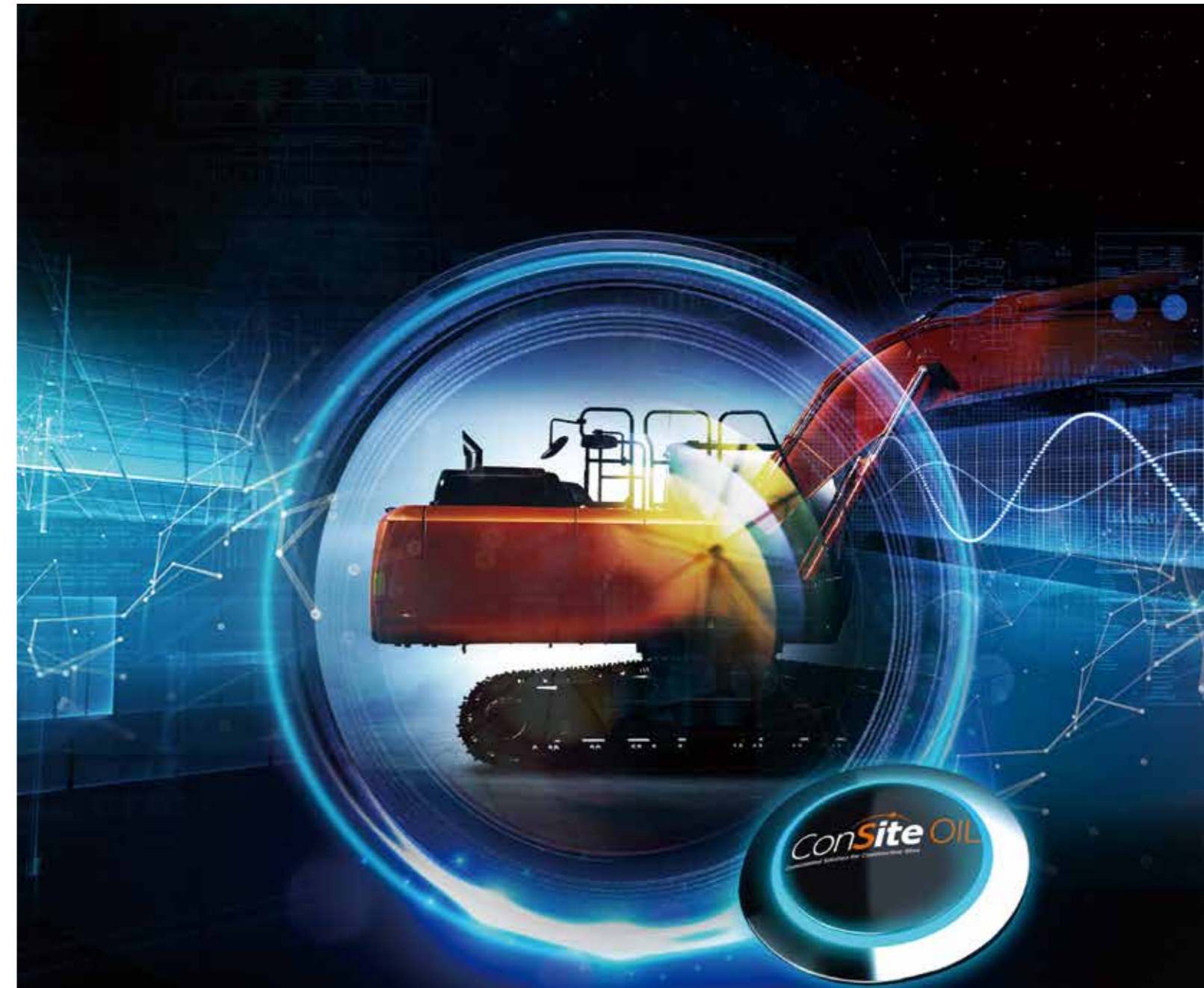
- The listed information is current as of April 1, 2019. This information may change without prior notice.
- ConSite is a registered trademark of Hitachi Construction Machinery Co., Ltd.

Before using a machine with a telematics communication system, please make sure that the satellite communication system complies with local regulations, safety standards and legal requirements. If not so, please make modifications accordingly.

These specifications are subject to change without notice. Illustrations and photos show the standard models, and may or may not include optional equipment, accessories, and all standard equipment with some differences in color and features. Before use, read and understand the Operator's Manual for proper operation.

## ConSite OIL

Oil monitoring sensor



OIL CONDITION MONITORING SYSTEM



For preventive maintenance and extending the life of the machine

# Industry first\* monitoring solution on a continuous basis for 24/7\*\* by oil monitoring sensors

## < Oil monitoring sensors by Hitachi Construction Machinery >

\*Regarding oil monitoring solution for hydraulic excavators as of April, 2018. According to our own research.  
\*\*A system which monitors conditions of engine oil and hydraulic oil on a continuous basis during operation and periodically transmits data.

Oil for a hydraulic system is like blood for a human body. Oil monitoring sensors, each of which is installed in the engine and the hydraulic system, monitor oil conditions during operating of the machine. They contribute to preventive maintenance and extending the life of the machine by detecting abnormalities of oil.



### Function of ConSite OIL

Condition of oil, which is difficult to judge, is now monitored and judged by oil monitoring sensors for each individual machine.

Oil sensors monitor two types of oil, engine oil and hydraulic oil.

Engine oil  
Hydraulic oil

If deterioration or contamination of oil is detected, it's to be reported on the following day.



Preventive maintenance can be properly carried out since oil replacement timings and abnormal values of oil condition are notified of.

Detection of sudden changes of oil condition

Even after expiration of the warranty periods, monitoring continues until the machine will be scrapped.

Contribution to reduction of the life cycle cost of the machine

### Oil properties which ConSite OIL monitors

Levels of deterioration and contamination are automatically judged based on four kinds of properties which the oil monitoring sensors watch.



Auto-diagnosis by oil monitoring sensors



### Case study

#### Report Service by ConSite OIL

Users who are registered for ConSite data (monthly) reports are provided with oil monitoring sensor alarm reports by ConSite OIL without additional registration for them.  
When oil samples are analyzed, oil analysis auto-diagnostic reports can be provided.

#### Visualizing operating conditions of the machine

Periodic (monthly) report  
(Emergency) Alarm report  
Proposal report

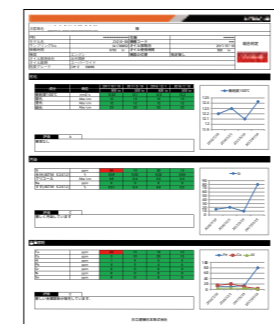
#### Visualizing oil condition

Alarm report by oil monitoring sensors  
Auto-diagnostic report  
\*Only when an oil sample is analyzed.

#### Contents of the oil monitoring sensor alarm report

- Notifying of maintenance timings
- Notifying of replacement timings of certain consumables
- Notifying of replacement timings of certain parts
- Preventive maintenance
- Failure and its countermeasures

#### Auto-diagnostic report of oil analysis results



## Benefits gained by implementing ConSite OIL

### 1 Detection of sudden changes of oil condition

< Case study >

In case a lot of water suddenly gets mixed with the engine oil



The machine is operated as usual.  
It is difficult to notice a minor change.



An abnormality of the machine is realized during a periodic inspection or operation of the machine.  
The customer notifies the dealer.



A dealer service mechanic visits the job site.  
The mechanic inspects the machine and take oil samples.  
The cause of the abnormality is identified.



The mechanic repairs the machine.

In the case of no oil monitoring sensor

Approx. 2 to 5 days

Approx. 4 to 6 days\*1

In the case of oil monitoring sensors being provided

Approx. 2 days till repair completion.\*1



The oil monitoring sensor detects a sudden increase of water in the engine oil.  
It is possible that an abnormality occurs with the machine.



The oil monitoring sensor alarm contents are reported by mail in the morning of the following day!



The cause of the alarm is deduced from the contents.  
A dealer mechanic rushes to the job site and take countermeasures.

#### Point 1

The abnormality is reported by ConSite alarm report services in the morning of the following day!

#### Point 2

The process from identification of the cause to repair completion is shortened and speeded up!

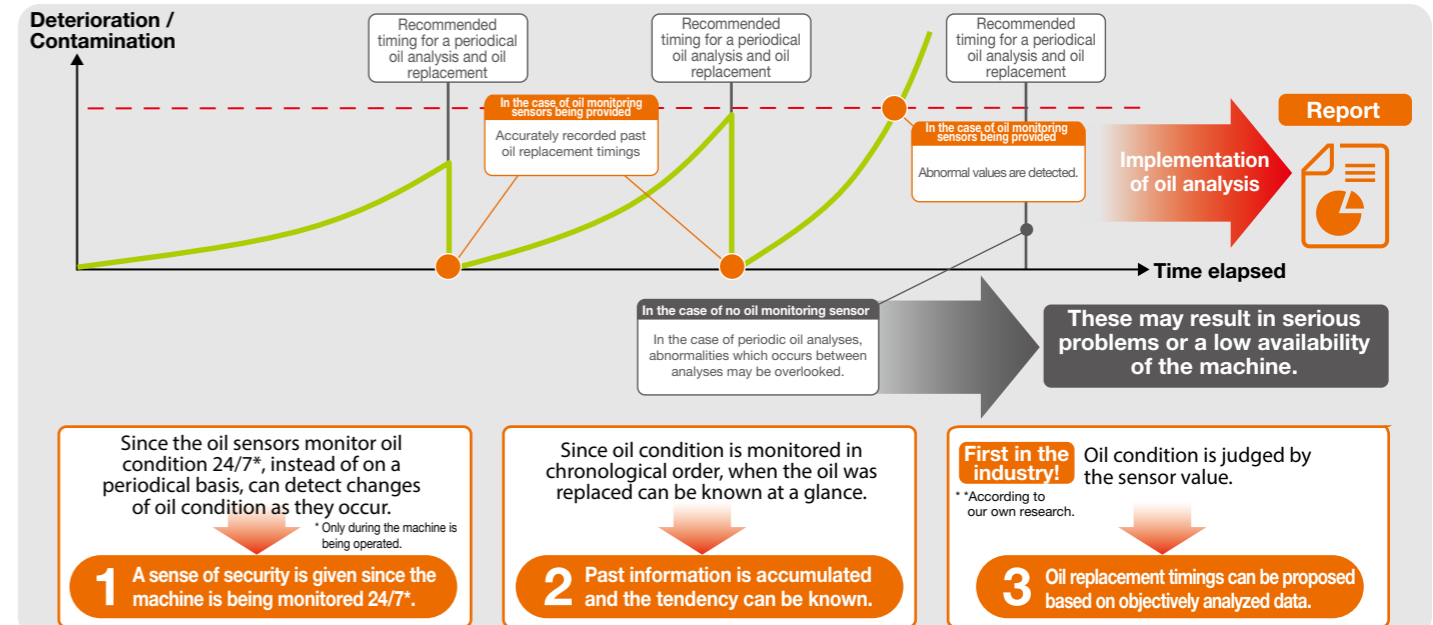
#### Point 3

Due to early detection and repair, owning cost is reduced!

\*1 Repair process and the number of days vary according to each failure.

### 2 A sudden change of oil condition can be detected due to continuous monitoring

Sudden changes of oil condition, which cannot be timely detected by periodical oil analyses, become to be detected by continuous oil monitoring.



### 3 ConSite OIL contributes to reduction of the life cycle cost of the machine

- Increase of the machine availability due to planned maintenance
- Detection of predictive signs of failures by monitoring
- Life of the machine can be extended by keeping oil in a good condition by continuously monitoring it.