Cat[®] MineStar[™] Health – Equipment Insights







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Machine health data is critical to helping you make the right maintenance decisions — decisions that allow you to improve the reliability of your mining equipment, reduce unplanned downtime and prevent failures that can lead to lost productivity and costly machine repairs.

But how useful is that data if you can't easily access it, view it, analyze it and obtain the insights you need to develop an appropriate maintenance strategy? Cat[®] MineStar[™] Health – Equipment Insights helps you gain that insight.

Health Equipment Insights is a cost-effective and user-friendly data visualization and reporting tool that you can access with a simple activation, using hardware already installed on your machine. It empowers you to efficiently view, manage and use machine data — so you can make informed maintenance decisions that will help maximize the availability of your equipment.



Get the insights you need to go from reactive to proactive

Health Equipment Insights provides quick and easy visualization and reporting of machine data in a structured yet interactive format, helping you turn insights into action. It is:

- Simple to activate, connecting through hardware already installed on your machine.*
- Interactive, allowing you to create custom data dashboards and reports to meet the needs of your mine site.
- Intuitive and user-friendly, with easy-to-use data drill-down functions.
- Interoperable, allowing you to view and analyze data from machines manufactured by Caterpillar and other Original Equipment Manufacturers (OEMs).
- Web-accessible, so you can use the application from any web-enabled device.
- Cloud-based, which allows regular application updates and seamless introduction of new features.
- Accessible by multiple users, so data can be viewed by different users in different locations at the same time.
- Efficient, providing the ability to view multiple dashboards simultaneously.
- Automated, so reports can be scheduled and distributed within the system.

By combining VIMS and Product Link[™] data with inspection and fluids data, Health Equipment Insights not only provides equipment health data but also gives you access to a variety of data sets that help you track production, fuel burn or overall machine performance.

*Most newer Cat machines come with Product Link Elite and Cat Cell Radio installed. Consult your local dealer for this or other connection options.

Features Enabling dynamic data management

Customizable, interactive data dashboards and intuitive drilldown functions allow you to efficiently navigate large volumes of machine data and help foster data analytics and data-driven decision-making.

Data dashboards are powered by widgets, which are uniquely designed elements of a graphic user interface displaying information.

You'll have access to about 40 widgets — based on data received — to help you create your custom dashboards:

- Events Displays both system events and operator-induced events that are used to identify root causes of poor machine health.
 - Total Event Count
 - Event Count for Selected Days
 - Top 10 Equipment
 - Top 10 Events
- Time Series Displays recorded samples of a parameter over time to help study root cause and/or decide what maintenance activities are needed.
 - Value Point Indicator
 - Trend
 - Snapshot
 - Standard DataLogger
 - Continuous Data Logger
- **Cumulative** Displays both the number of times something occurred as well as the accumulated totals to decide what maintenance activities are needed.

- Cumulative Data

- **Histogram** Displays the number of times a parameter was measured within defined limits and is used to decide what maintenance activities are needed.
 - 2D-Histogram
 - 3D-Histogram

- **Productivity** Displays application and production-related data to help track Key Performance Indicators (KPIs).
 - Application Time
 - Application Fuel
 - Application Payload
 - Application Cycle
 - Application Totals
 - Application Averages
 - Day Tracker
 - Daily Run
 - Truck Payload Summary
 - Material Summary
 - Segment Analysis
 - Productivity KPI
 - Productivity Time Series
 - Productivity Histogram
 - Payload Bell Curve
 - Load Count
 - Dump Load Tally
 - Cycle Time Comparison
- Utilization Displays fuel burn and service meter hours to help manage fuel consumption.
 - Total Fuel
 - Total Hours
 - Total Fuel/Hour
- Haul Road Conditions Provides information about the condition of roads
 - Severity index
 - Road conditions mapping
- Inspections Displays Cat Inspect results.
- Fluids Displays Cat SOS results.
- Map Displays asset as well as event location.

Users are also able to customize:

- Upper and lower thresholds for quick identification of anomalies.
- Productivity KPI targets for easy comparison to actuals.

Features Intuitive and user-friendly functionality

Health Equipment Insights provides:

- Data visualization and reporting by asset group or individual machine.
- Intuitive single-click data drill-down and instant data viewing by hovering over charts and graphs.
- Direct download of data into PDF or Excel.

- Report scheduling for automated email distribution on a daily, weekly or monthly basis.
- Metric and U.S. Standard units of measurement.
- Embedded user manual.
- Caterpillar technical support.

Examples of functionality

| Add Widget | | | | | | X |
|---------------------|-------------------|-----------------|-----------------------|---------------|-----------------|-------------------|
| 1 Select Widget | 4 | (| 2 Configure Widget | | | Confirm and Apply |
| Events | | | | | | |
| | 0 | <u>th</u> | | | | |
| C Equipment Summary | Total Event Count | Event Count for | Top 10 Equipment | Top 10 Events | Events Table by | |
| 🚊 Time Series | | Selected days | | | Count | |
| Cumulative | | | | | | |
| 🚊 Histogram | | | | | | |
| 2 Productivity | | | | | | |
| Q Inspections | | | | | | |
| Q Fluids | | | | | | |
| A Map | | | | | | |
| | | | | | | Cancel Next |

Figure 1: Widgets

| MineStar™ HEALTH EQUIPMENT INSIGHTS | REPORTS V FILE MANAGEMENT V | SCHEDULE REPORT 🗸 | SETTINGS 🗸 | | | | | | C | י ג | Ç | ß | |
|---|---|-----------------------|--------------------------|---|-------|--------------------------------------|---|-------------------------|---------------|--------|---|----|----|
| board Maintenance V Demo Mo | ode | | | Equipment group | Group | 1 ~ | 08/16/2020 - 09/14/2 | 020 | | 8 | Ō | ¥ | |
| otal Event Count | C1 I | Event Count for Selec | ted days | 13 | | Top 10 Event | ts | | | | | 53 | : |
| Total : 40 | ● High - 3 (5) ● Medium - 2 (10) ● Low - 1 (25) | 10 | Group1 (3 o | f5) | | e2126(2) e119(2) | Grou Payload Overload Limit excedded Low Fuel Level Negative High Peak Frame Rack | p1 (3 of 5) | | | | | |
| | | 0 09/08/2020 | 0 09/10/2020 | 09/04/2020 08/30/2020 2 High - 3 | • | 0 | | 4 5 Medium - 2 | 6 ● High - | 7 3 | 8 | 9 | 10 |
| rends - Fleet Summary Data Group1 | | 0 09/08/2020 | | | - | o Snapshot Da | 🔴 Low-1 🌘 | | 6 ● High - | 7 3 | 8 | 9 | |
| rends - Fleet Summary Data Group1 Channel Name - Unit | t Channel Group | 0 09/08/2020 | | 2 🔴 High - 3 | • | Snapshot Da | 🔴 Low-1 🌘 | Medium - 2 | 6 High - | | 8 | | |
| Channel Name Unit | t Channel Group 36 - Engine | | Low-1 Medium- | 2 • High-3 Detail Deshboard | 1 | Snapshot Da Event De | € Low-1 ● ta Group1 | Medium - 2 | | | 8 | | 10 |
| Channel Name Unit Air Filter #4 Restriction - max - Engine Run., kPa | 36 - Engine | Min | • Low-1 • Medium- Max | 2 • High-3 Detail Dashboard [] Avg | : | Snapshot Da Event De Hoist Ger | Low-1 ta Group1 scription | Medium - 2 Snap 1 | | | 8 | | |
| | 36 - Engine | Min | Low-1 Medium- | 2 • High-3 Detail Dashboard [] Avg 299.65 | | Snapshot Da Event De Hoist Ger | Low-1 ta Group1 sscription arcase OII Pump Motor Fault ip Motor Overload Warning (CDAD) | Medium - 2 Snap 1 | | | 8 | | |

Figure 2: Dashboards

| ld More × | < | | | | | 09/11/2020 - 09/11/2020 | Chart | Detail |
|--------------------|-------------------|---------------------|------------------|----------|---------------------------------|-------------------------|-------------|------------------|
| Event (10) Reset > | | | | Event | Count for Selected Date Range | | | Embed URL |
| | | | | | | | | Download |
| | Equipment | Occurence Timestamp | SMH | Event ID | Description | System Code | Event Level | = |
| | DSN1-Demo SN1 | 04/07/2019 23:58:40 | 4912.72 | e699(1) | Negative High Peak Frame Rack | MID 162 - EID 699 | 1 | |
| | DSN1-Demo SN1 | 04/07/2019 23:58:40 | 4912.72 | e699(2) | Negative High Peak Frame Rack | MID 162 - EID 699 | 2 | |
| | DSN1-Demo SN1 | 04/07/2019 23:49:13 | 4912.56 | e2126(1) | Payload Overload Limit Exceeded | MID 162 - EID 2126 | 1 | |
| | DSN3-Demo SN3 | 04/07/2019 23:23:34 | 4912.14 | e2126(1) | Payload Overload Limit Exceeded | MID 162 - EID 2126 | 3 | |
| | DSN2-Demo SN2 | 04/07/2019 22:49:04 | 37293.33 | e119(1) | Low Fuel Level | MID 87 - EID 119 | 1 | |
| | DSN2-Demo SN2 | 04/07/2019 21:40:12 | 37292.18 | e700(1) | Negative High Peak Frame Pitch | MID 162 - EID 700 | 1 | _ |
| | DSN2-Demo SN2 | 04/07/2019 21:34:28 | 37292.09 | e2126(2) | Payload Overload Limit Exceeded | MID 162 - EID 2126 | 2 | |
| | DSN2-Demo SN2 | 04/07/2019 10:42:20 | 37284.15 | e334(2) | Low Auto Lube Pressure | MID 87 - EID 334 | 2 | _ |
| | | | | | | | | |
| | | | | | | | | |
| | Constant Constant | | | | | | | |
| Cancel Apply | I4 4 1 | /1 ▶ ▶ 15 | ✓ items per page | | | | 1 - 1 | 15 of 15 records |

Figure 3: Data Drill Down

| Email Report (Maintenance) | | | | | |
|----------------------------|--|----------------|----------------------|---------------------------|---|
| | | | | | |
| Report Title* | Maintenance | | Report Generated By* | | |
| Report Frequency* | Weekly | ¥ | Report Day* | Monday | ~ |
| Report Time* | 15 ~ 45 ~ | | Report Time Zone | US Mountain Standard Time | ~ |
| Report Start Date* | 09/14/2020 | | Report End Date* | 10/15/2020 | |
| Chart as PDF | O Table as CSV | O Table as XLS | Include Drill Downs | | |
| Recipients* | Enter email Addresses Separated by comma | | | | |
| Subject* | | | | | |
| Message | | | | | |
| Top Left Logo 🚺 | Choose Logo File | | Top Right Logo 🌒 | Choose Logo File | |
| Legal Privacy Cookies | | | | | Caterpillar © 2020 All Rights Reserved. |

Figure 4: Scheduled Reports

| CAT | MineStar TM HEALTH EQUIPMENT INSIGHTS | | | | | |
|-----|--|-----------------|-----------------------------------|------------|---------|---|
| | | | | | | D |
| | | | Welcome to ou What can we help | | | |
| | | -Search- | | | ۹ | |
| | | | Glos | sary | | |
| | | | E Stri | | | |
| | | Getting Started | What's New? | Home Page | Widgets | |
| | | | Release Notes | Contact Us | | |

Figure 5: User Help Center

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Materials and specifications are subject to change without notice. Featured machines in photos may include additional equipment. See your Cat dealer for available options.

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