

## Titan ELD 2.0 Device: Hours of Service Actions for Malfunctions & Data Diagnostics

This document describes potential malfunctions and diagnostic events related to the Titan ELD 2.0 device (ELD) and the actions both the driver and the carrier are responsible for.

### 1 Carrier Responsibilities Regarding Malfunctions and Data Diagnostic Events

#### 1.1 Carrier must provide the driver with the following:

- 1.1.1 Instruction sheet for the driver describing the measures to take in the event that the ELD malfunctions
- 1.1.2 Supply of at least 15 days of blank paper driver logs to allow the driver to record the information required under section 82, Commercial Vehicle Drivers Hours of Service Regulations (SOR/2005-313)
- 1.1.3 Repair, Replace or Service
  - 1.1.3.1 Motor carrier must correct the malfunction of the ELD within 14 days of discovery of the condition and before the CMV is dispatched, or
  - 1.1.3.2 A driver's notification to the motor carrier of the malfunction, whichever comes first.

#### 1.2 Carrier must also

- 1.2.1 Maintain a register of the malfunction, detailing prescribed information such as when it occurred, the nature of the malfunction and the actions taken by the motor carrier to repair or replace the ELD. The register must contain:
  - 1.2.1.1 Name of the driver who noticed the malfunction or data diagnostic code
  - 1.2.1.2 Name of each driver who used the commercial vehicle following the discovery of the malfunction or data diagnostic code until the ELD was repaired or replaced
  - 1.2.1.3 Make, model, and serial number of the ELD
  - 1.2.1.4 License plate of the commercial vehicle in which the ELD is installed or used, or the Vehicle Identification Number
  - 1.2.1.5 Date when the malfunction or data diagnostic code was noticed and the location of the commercial vehicle on that date, as well as the date when the motor carrier was notified or otherwise became aware of the code
  - 1.2.1.6 Date the ELD was replaced or repaired
  - 1.2.1.7 Concise description of the actions taken by the motor carrier to repair or replace the ELD
- 1.2.2 Maintain this register for a period of six months from the day on which the ELD is repaired or replaced. This register is subject to audit by provincial or territorial facility auditors.

### 2 Driver Responsibility for Record Keeping

- 2.1 Notify the motor carrier when the malfunction or data diagnostic occurs.

- 2.2 Record of duty status on the day he or she noticed the malfunction or data diagnostic code. The record must include the following:
  - 2.2.1 Malfunction or data diagnostic code as set out in Table 4 of Schedule 2 of the Technical Standard (see below)
  - 2.2.2 Date and time the malfunction or data diagnostic code was noticed
  - 2.2.3 Time when notification of the malfunction or data diagnostic code was transmitted to the motor carrier

<b>Malfunction and Data Diagnostic Code</b>	<b>Description</b>
P	Power compliance malfunction
E	Engine synchronization compliance malfunction
T	Timing compliance malfunction
L	Positioning compliance malfunction
R	Data recording compliance malfunction
S	Data transfer compliance malfunction
O	Other ELD detected malfunction
1	Power data diagnostic event
2	Engine synchronization data diagnostic event
3	Missing required data elements data diagnostic event
4	Data transfer data diagnostic event
5	Unidentified driving records data diagnostic event
6	Other ELD identified diagnostic event


- 2.3 Reconstruct driving event for the current 24-hour period and previous 14 consecutive days using paper logs (unless they can be retrieved from the ELD).
- 2.4 Continue to manually document records of duty status logs until ELD is serviced and brought back into compliance.
- 2.5 Provide paper logs during roadside inspections when a malfunction has occurred.
- 2.6 Follow the motor carrier’s and ELD provider’s resolution recommendations.

### 3 Clearing Malfunctions and Data Diagnostic Events

The ELD needs to capture when a malfunction or data diagnostic event has been cleared by the driver. Events can be cleared by the ELD when the driving time recorded for the current day and the previous 14 days drops to 15 minutes or less.

## 4 Data Diagnostic Button

**IMPORTANT:** Data diagnostic events acquired by the driver are displayed in the application's header (which is always visible across all screens in the ELD).

1. Tap the  icon to display the data diagnostic event(s) dialog.
2. Tap the Data Diagnostics button.
3. Tap the Clear button on the right side of the event information.

ELD data diagnostic status affects only the authenticated user unless it is unaccepted, unidentified driving. The ELD event status will be applicable to the active driver logged in.

For unidentified driving data diagnostics, the unidentified driving time must be accepted by the correct user to clear the data diagnostic event. This unidentified driving must fall below 15 minutes for the current day and previous 14 days.

Once data diagnostic events are clear, the flashing D in the ELD header will stop. Each time a data diagnostic event is detected or cleared by the ELD, the ELD will record the event in the driver's logs.

## 5 Malfunction Events

Malfunction events show up in the application header bar as a capital M. The M will flash red when activated. Malfunctions should be cleared, and any associated action required must be done as soon as possible.

Individual malfunctions must be cleared separately and recorded by the carrier.

Below are descriptions of malfunctions and their remedies taken from the *CCMTA Standards for Electronic Logging Devices*. All sections and provisions mentioned can be found in that standards document.

- 5.1 Event: Power Malfunction (Provision 4.6.1.1)
  - 5.1.1 An ELD must set a power compliance malfunction if the power data diagnostics event described in provision 4.6.1.1(a) of this Standard indicates an aggregated driving time understatement of 30 minutes or more on the ELD over a 24-hour period across all driver profiles, including the unidentified driver profile.
  - 5.1.2 DRIVER ACTION NEEDED: Ensure the tablet or device is receiving power. If not, plug device in and ensure a charging connection is made.
- 5.2 Event: Engine – Synchronization (Provision 4.6.1.2)
  - 5.2.1 An ELD must set an engine synchronization compliance malfunction if connectivity to any of the required data sources specified in provision 4.3.1 of this Standard is lost for more than 30 minutes during a 24-hour period aggregated across all driver profiles, including the unidentified driver profile.
  - 5.2.2 DRIVER ACTION NEEDED: Ensure the mobile/tablet device is Bluetooth connected to the VBUS/GPS device. Ensure that the VBUS/GPS device is securely mounted.
  - 5.2.3 OTHER ACTION:
    - 5.2.3.1 Ensure the device’s firmware is up to date from the manufacture.
    - 5.2.3.2 Update the app to the most current release.
- 5.3 Event: Timing Malfunction (Provision 4.6.1.3)
  - 5.3.1 The ELD must periodically cross-check its compliance with the requirement specified in provision 4.3.1.5 of this Standard with respect to an accurate external UTC source and must record a timing compliance malfunction when it can no longer meet the underlying compliance requirement.
  - 5.3.2 DRIVER ACTION NEEDED: Ensure the tablet/mobile device is set to use network time and date instead of being manually set.
- 5.4 Event: Positioning Malfunction (Provision 4.6.1.4)
  - 5.4.1 An ELD must continually monitor the availability of valid position measurements meeting the listed accuracy requirements in provision 4.3.1.6 of this Standard and must track the distance and elapsed time from the last valid measurement point.
  - 5.4.2 ELD records requiring location information must use the last valid position measurement and include the latitude/longitude coordinates and distance traveled, in kilometers, since the last valid position measurement.
  - 5.4.3 An ELD must monitor elapsed time during periods when the ELD fails to acquire a valid position measurement within 8 kilometers of the CMV’s movement. When such elapsed time exceeds a cumulative 60 minutes over a 24-hour period, the ELD must set and record a positioning compliance malfunction.
  - 5.4.4 If a new ELD event must be recorded at an instance when the ELD has set a positioning compliance malfunction, the ELD must record the character “E” in both the latitude and longitude fields regardless of whether the driver is prompted and manually enters location information.
  - 5.4.5 DRIVER ACTION NEEDED:
    - 5.4.5.1 Ensure the tablet/mobile device allows All the Time location permissions is selected in the settings on the device.
    - 5.4.5.2 Make sure the device is updated to the most current version.

- 5.5 Event: Data Recording Malfunction (Provision 4.6.1.5)
  - 5.5.1 An ELD must monitor its storage capacity and integrity and must detect a data recording compliance malfunction if it can no longer record or retain required events or retrieve records that are not otherwise catalogued remotely by the motor carrier.
  - 5.5.2 An ELD must monitor the completeness of the ELD event record information in relation to the required data elements for each event type and must record a missing data elements data diagnostics event for the driver if any required field is missing at the time of recording.
  - 5.5.3 DRIVER ACTION NEEDED: A data recording malfunction means the tablet/device is running out of storage space. The required action from user would be to try and free up space on the device.
- 5.6 Event: Data Transfer Malfunction (Provision 4.6.1.6)
  - 5.6.1 An ELD must implement in-service monitoring functions to verify that the data transfer mechanism(s) described in provision 4.9.1 of this Standard are continuing to function properly. An ELD must verify this functionality at least once every 7 days. These monitoring functions may be automatic or may involve manual steps for a driver.
  - 5.6.2 If the monitoring mechanism fails to confirm proper in-service operation of the data transfer mechanism(s), an ELD must record a data transfer data diagnostic event and enter an unconfirmed data transfer mode.
  - 5.6.3 After an ELD records a data transfer data diagnostic event, the ELD must increase the frequency of the monitoring function to check at least once every 24-hour period. If the ELD stays in the unconfirmed data transfer mode following the next three consecutive monitoring checks, the ELD must record a data transfer compliance malfunction.
  - 5.6.4 DRIVER ACTION NEEDED: This type of malfunction is usually the result of the tablet/mobile device being out of network coverage. This could be due to cellular coverage or driver is using a WIFI-only device. To correct this malfunction, driver can perform a manual sync when back in cellular coverage or when WIFI is available.

## 6 Data Diagnostic Events

Data Diagnostic events show up in the application's header bar as a capital D. The D will flash red when activated.

Data diagnostic events are less formal than malfunctions and do not require the same urgency. However, it is ideal to clear all data diagnostics at the end of the day (multiple data diagnostics can be cleared at the same time). There is no need to record the data diagnostic unless the same one is recurring. Recurring data diagnostics may indicate an issue that can trigger a malfunction.

Below are descriptions of data diagnostics events taken from the *CCMTA Standards for Electronic Logging Devices*. All sections and provisions mentioned can be found in that standards document.

- 6.1 Event: Power Compliance Data Diagnostic (Provision 4.6.1.1)
  - 6.1.1 An ELD must monitor data it receives from the engine ECM or alternative sources as allowed in sections 4.3.1.1 to 4.3.1.4 of this Standard, its onboard sensors, and data record history to identify instances when it may not have complied with the power requirements specified in provision 4.3.1.1, in which case, the ELD must record a power data diagnostics event for the corresponding driver(s), or under the unidentified driver profile if no drivers were authenticated at the time of detection.
- 6.2 Event: Engine Synchronization Data Diagnostic (Provision 4.6.1.2)
  - 6.2.1 An ELD must monitor the data it receives from the engine ECM or alternative sources as allowed in sections 4.3.1.1 to 4.3.1.4 of the Standard, its onboard sensors, and data record history to identify instances and durations of its non-compliance with the ELD engine synchronization requirement specified in provision 4.2, in which case, the ELD must record an engine-synchronization data diagnostics event.
  - 6.2.2 An ELD is required to establish a link to the engine ECM as described in provision 4.2 and must monitor its connectivity to the engine ECM and its ability to retrieve the vehicle parameters described under provision 4.3.1 of this Standard. The ELD must record an Engine Synchronization data diagnostics event when it can no longer acquire updated values for the ELD parameters required for records within 60 seconds of the need.
- 6.3 Event: Unidentified Driving (Provision 4.6.1.6)
  - 6.3.1 If more than 30 minutes of driving in a 24-hour period show an unidentified driver on the ELD, the ELD must detect and record an unidentified driving records data diagnostic event, and the data diagnostic indicator must be turned on for all drivers authenticated into that ELD for the current day and the following 14 days.
  - 6.3.2 An unidentified driving records data diagnostic event can be cleared by the ELD when driving time recorded under the unidentified driver profile for the current day and the required previous days specified in current HOS regulations drops to 15 minutes or less.