Trimble® Earthworks Release Notes

Version 2.20.x
Revision A
March 2025

Contents

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Installing the EC520 System Electronic Control Module Firmware

In this chapter:

1.1 Confirm before the install

1.1.1 Recommended TD520/TD540/TD510 firmware versions

The recommended firmware versions are:

- TD520 and TD510 - v4.31.2
- TD540:
  - Partitioned units - v002.000.015
  - Non-partitioned units - v002.001.015

The minimum firmware versions that are compatible with this release are:

- TD520 /TD510 - v4.31.1
- TD540:
  - Partitioned units- v002.000.015
  - Non-partitioned unites - v002.001.015

Refer to the TD5x0 release notes, available within the TD5x0 OS Release Packages on Partners, for more information.

1.1.2 System requirements

Supported third-party tablets

If using a third-party tablet, this release requires that the tablet meets the following requirements:

- OS: Android 6.0 - 14
- 3D graphics: OpenGL ES 3.0 or higher
- Display: 8 inches or larger

On start-up TrimbleEarthworks checks the display's screen zoom to ensure optimal viewing. If the screen zoom needs adjusting, you will be instructed on what to do.

1.2 Confirm after the install

1.2.1 Upgrade the MS9xx GNSS receiver with the minimum firmware

To use Trimble® Earthworks 2.20.x and later the following GNSS receivers must be upgraded with the minimum firmware:

- MS9x6 - firmware v5.56 or later
- MS9x5—firmware v5.45 or later
- MS9x2—firmware v5.31 or later

The latest required firmware is bundled in the software. After installing the software, in the Web Interface open MONITOR > Onboard Devices to confirm the minimum firmware is installed.

Minimum firmware and latest firmware available can be confirmed on Partners .

1.2.2 Upgrade the VM510 valve module and CAN Gateway

When upgrading a machine with a VM510, you must upgrade the firmware to match the minimum requirements below. The firmware is bundled with the software. To update:

1. Open the Web Interface > MONITOR > Onboard Devices
2. Select the available firmware for:
    a. Excavators —v1.03.00 or later
    b. Motor graders and dozers valve module— v1.02.10
    c. Motor graders and dozers CAN Gateway— v1.04.00 or later
3. Tap Apply Firmware

Note – Excavators only - If the system is downgraded to v1.6.0 or earlier, the VM510 firmware v1.03.00, which is available on Partners , must be re-applied.

1.3 For dozers—Complete Body Sensor Calibration and Sensor Correction Check if the body sensor is moved or replaced

The precise location of the body sensor contributes to the measure-up and system accuracy. For active body IMU dozers, if the body sensor is removed or replaced, complete the following sections of the Install Assistant again:

- Sensor Correction Check
- Body
- Measure-up
- Pass Match adjustment

2

Overview of this release

In this chapter:

2.1 User documentation

This release of Trimble® Earthworks version 2.20.x provides release notes and a full set of English user documentation.

Complete user documentation is available in the following places:

- Operator guides:
  - the help in the Trimble Earthworks app, click ⋮ in the upper right-hand corner
  - on Partners
  - Technician guides:
    - the help in the Web Interface, click ? in the upper right-hand corner
    - on Partners
  - EarthworksAssistant app available on the Play Store:

Earthworks Android

Earthworks iOS

2.2 New features

The 2.20.x release of Trimble Earthworks supports the following new features:

For	The system now supports	See
All machine types	MC Installer updates	Chapter 3, Common Features
	System snapshot file names now include EC520 serial numbers	Chapter 3, Common Features
	Stop horizontal guidance via the context menu	Chapter 3, Common Features
	Design linework is now available for guidance	Chapter 3, Common Features
	Job Setup opens when a design is remotely updated	Chapter 3, Common Features
	Consistent layout of details on the Job Setup tile	Chapter 3, Common Features
	New design and surface icons	Chapter 3, Common Features
	Increased 3D line guidance surface maximum	Chapter 3, Common Features
Excavators	Support for engcon attachments with integrated tilt encoders	Chapter 4, Excavator Features
	Improved tiltrotator Autos	Chapter 4, Excavator Features
	Attachments can now be renamed without recalibration	Chapter 4, Excavator Features
	Install Assistant measure-up sequence changes	Chapter 4, Excavator Features
	Tilt Valve Calibration progress indicator progresses	Chapter 4, Excavator Features
	Cat Next Gen Hex 2D machines now receive guidance in 3D	Chapter 4, Excavator Features

For	The system now supports	See
Dozers	Steer Assist and Autos indicators change colors as expected	Chapter 5, Dozer Features
	Error 3423-14 no longer displays when no Infield license is present	Chapter 5, Dozer Features
	Autos remains available after restarting the system during a delayed shutdown	Chapter 5, Dozer Features
Motor Graders	2D Cross Slope+ available for enabling Cat E-Fence	Chapter 6, Motor Grader Features
	Blade remains attached to the machine in the work screen	Chapter 6, Motor Grader Features
	Blade pitch now accurately describes the angle in measure-up	Chapter 6, Motor Grader Features
	Coordinates HL and HR clarified in measure-up	Chapter 6, Motor Grader Features
	Cross slope calibration performs as expected	Chapter 6, Motor Grader Features
	New Sideshift PSC page in the Setup section of the Install Assistant	Chapter 6, Motor Grader Features
Wheel Loaders	NEEF references removed	Chapter 7, Wheel Loaders Features
	Attachment measure-up values save as expected	Chapter 7, Wheel Loaders Features

3

Common Features

In this chapter:

3.1 MC Installer updates

MC Installer updates are now available that simplify plugin management and improve TD5x0 speeds. Now when a TD5x0 plugin storage is full, a popup box lists all old plugins. Old plugins can be easily deleted all at once or selected individually for deletion. Deleting old plugins improves TD5x0 performance.

3.2 System snapshot file names now include EC520 serial numbers

System snapshots taken from within the Operator App and the Web Interface now automatically include the EC520 serial numbers in the file names. The serial numbers display in the system snap file name when viewed on the System Snapshot screen in the Web Interface. The serial numbers make identifying snapshots taken from individual machines much easier.

3.3 Stop horizontal guidance via the context menu

Horizontal guidance can now be stopped via the context menu.

3.4 Design linework is now available for guidance

Linework from a design can now be used for guidance on machines with a 3D Guidance license that are working with depth and slope mode or that are using an infield surface. Operators using either of these configurations can use features like Horizontal Guidance and Pass Shift.

3.5 Job setup screen opens when a design is remotely updated

When a is design remotely updated on the display, the operator is now taken directly to the Job Setup screen after tapping OK on the 'Design updated remotely' message. On the Job Setup screen, the Design File and Guidance Surfaces fields will be empty and tapping Apply opens a warning about the empty fields, which indicates that the updated design file needs to be selected. This new work flow stops operators from acknowledging the 'Design updated remotely' message and then entering the work screen with no design loaded.

3.6 Consistent layout of details on the Job Setup tile

When Design mode is selected in the Job Setup screen, the details on the Job Setup tile on the dashboard is now consistently ordered:

- Project
- Measured Data
- Design File
- Guidance Surface

3.7 New design and surface icons

New design and surface icons are now available on the guidance bar, the Job Setup tile and in the Position Source box on the Job Setup screen. These new icons visually identify the design and/or surface types selected without having to open the Job Setup screen. Details on what each icon represents are available in the Using Design Mode guide on the Job Setup i-query.

The selected guidance surface name now displays on the guidance bar alongside any design files that may be selected.

3.8 Increased 3D line guidance surface maximum

The maximum 3D line guidance surface is now increased to 600 m (1968.5 feet). This increased surface width gives operators more flexibility to create wider 3D line surfaces.

4

Excavator Features

In this chapter:

4.1 Support for engcon attachments with integrated tilt encoders

engcon attachments with integrated tilt sensors using ePS 2.0 communication protocols are now supported and do not require a GS5xx tilt sensor. This support provides:

- Reduced system cost from fewer components needed
- Simpler commissioning as the sensor orientation is no longer required
- Simpler support

After configuring the tiltrotator details in the Setup section, the integrated engcon tilt sensor and its status are now listed in the Onboard Devices screen in the Web Interface.

4.2 Improved tiltrotator Autos

Tiltrotator Autos is improved to keep the cutting edge on design when operating with a tilt axis perpendicular to the design.

4.3 Attachments can now be renamed without recalibration

In the Web Interface, attachments can now be renamed and an attachment recalibration is no longer required.

4.4 Install Assistant measure-up sequence changes

The Mast Measure-Up can now be completed before the Machine Measure-Up in the Install Assistant, allowing the flexibility to complete the different measure-up sections in any order.

4.5 Tilt Valve Calibration progress indicator progresses

When performing a Tilt Valve Calibration, the progress bar now progresses as expected as steps are successfully completed.

4.6 Cat Next Gen Hex 2D machines now receive guidance in 3D

Cat Next Gen Hex machines with BX992 GNSS receivers now receive guidance as expected when working in 3D.

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Dozer Features

In this chapter:

5.1 Steer Assist and Autos indicators change colors as expected

On cab mount GNSS machines, when Steer Assist is used on the machine display, the machine display's Steer Assist indicator and the Earthworks Autos indicator now change colors as expected when guidance is switched between 2D and 3D. Autos also engages as expected when the Autos indicator is green.

5.2 Error 3423-14 no longer displays when no Infield license is present

Error 3423-14 no longer displays in the Cat Electronic Technician Active Diagnostic Codes when an Infield license is not present. This code also does not display when the Infield license is present.

5.3 Autos remains available after restarting the system during a delayed shutdown

On Cat dozers with a V3 ECM, when the system is turned off and then restarted during a delayed shutdown, Autos will be available for use.

6

Motor Grader Features

In this chapter:

6.1 2D Cross Slope+ available for enabling Cat E-Fence

2D Cross Slope + is now available on 2D 140_160-15B machines from the factory. The 2D Cross Slope+ feature enables the Cat E-Fence feature, which prevents the blade and linkbar from damaging other parts of the machine.

6.2 Blade remains attached to the machine in the work screen

The blade remains attached to the machine while grading in the work screen and no longer appears to jump away from the machine.

6.3 Blade pitch now accurately describes the angle in measure-up

The blade pitch wording on the Enter Coordinate screen in the measure-up sequence now accurately describes the forward and backward angle.

6.4 Coordinates HL and HR clarified in measure-up

The text and images for placing the HL and HR targets on the lift cylinder yoke axis is now clarified and advises different options for placing the targets.

6.5 Cross slope calibration performs as expected

When calibrating a blade cross slope calibration, the result in the Web Interface is the expected positive or negative surface and blade slope for all new and existing calibrations. If cross slope errors are noticed after upgrading, complete a new calibration.

6.6 New Sideshift PSC page in the Setup section of the Install Assistant

The Setup section of the Install Assistant now has a new Sideshift PSC page for enabling the Sideshift Position Sensing Cylinder. When SideShift PSC is enabled, 2D Cross Slope + can determine the blade position for the Cat E-Fence feature. The Sideshift PSC page is independent of the Sideshift Autos page.

7

Wheel Loaders Features

In this chapter:

7.1 NEEF references removed

All references to NEEF in the Web Interface and Operator App are removed and replaced with Front Sensor.

7.2 Attachment measure-up values save as expected

The wheel loader attachment measure-up values now save as expected after a new measure-up.

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Improvements and fixes

System improvements and fixes include:

- Improvement: Changes to the software and/or hardware to enhance existing features.
- Fixes: Changes to the software and/or hardware to correct known issues.

8.1 Improvements

8.1.1 Guidance bar icons re-ordered and scrolling is now available

The guidance bar icons are now re-ordered so that similar items appear together. Also a scroll button is now available when there are too many icons to display at the same time.

8.1.2 User Permissions now under Install Assistant

The User Permissions section in the Web Interface is now available in the Install Assistant. This change makes adding a user an easy and obvious step in the machine configuration process. This change also ensures that after a machine is configured, a user login is available for accessing the Operator App.

8.2 Fixes

8.2.1 Gray guidance line remains steady when the compass icon in plan view is set to machine heading

When using lane guidance in plan view, the gray guidance line that runs perpendicular to the master alignment now remains steady when the compass icon (top-left hand corner) is set to focus on the machine heading. Guidance continues to be accurate and the gray guidance line is still for reference only.

8.2.2 Cloud projects synched to the display overwrite existing projects with the same name

When a project in the cloud synchs to the display and a project on the display has the same name as the cloud project, the cloud project now replaces the project on the display and adds a cloud icon to the project.

8.2.3 WorksOS surface download status changes to Connected after toggle on

In the Web Interface under Network > Cloud Services, the WorksOS Surface Download status now changes to Connected when the toggle is enabled and WorksOS Download is the selected Ground Surface in the Operator App.

8.2.4 Licenses now displaying after cloud synchronization

After completing the license cloud synchronization for the first time in the Operator App, the downloaded licenses now display as expected.

8.2.5 The blade sensor calibration now calibrates as expected on 2D graders

When calibrating a blade sensor on a non-level surface for a 2D motor grader, the calibration now calibrates as expected with no cross slope error.

9

Known Issues

In this chapter:

9.1 Introduction

Known issues include:

- Unresolved errors in the software
- Unexpected behavior of the system as a whole, or of a device

Future product releases may resolve these issues. When an issue is resolved it is removed from this chapter and listed as an improvement.

For the most recent known issues, contact customer support. The following known issues cover releases for the past five years. For known issues that apply to releases more than five years old, refer to release notes on Partners.

9.2 Web Interface issues

9.2.1 Input field validation delay when adding a radio correction source

Adding a radio in the Web Interface GNSS Correction Source has an unexpected behavior. Each field in the interface is dependent on values entered in previous fields and field validation takes about 30 seconds after a value is entered. To ensure field validation, enter a value into a field and then wait about 30 seconds before populating the next field.

If all fields are populated without waiting 30 seconds in between each field, the values appear to be valid but will be marked invalid when submitted, even when the values are valid.

9.3 Operator App issues

9.3.1 Newly created infield surfaces may not display

A newly created surface may not immediately display on the Surface Manager screen. Open a different screen and then return to the Surface Manager screen and the surface should be listed.

9.3.2 Mapping and production reporting unavailable after upgrading

After upgrading, the cut/fill mapping icon in the shortcut bar may be missing and production data may not display. Contact your dealer to resolve.

9.3.3 Large or complex .vcl designs may cause reboot

.vcl designs may cause the Operator App to reboot when a design is greater than the 130 mb design size limit or when a smaller design is complex. First delete the design that causes a reboot and reduce the size or complexity. Then import the design and select it again.

9.3.4 .vcl designs not displaying on the work screen

Occasionally when a .vcl design is selected on the Job Setup screen, the design does not display on the work screen and the 'Unable to read design file' message displays. Return to the Job Setup screen and apply a different design file. Then open the work screen and return to the Job Setup screen again and select the desired .vcl file. The design will then display on the work screen.

9.3.5 Pass Shift lines blend into areas with no mapping data

Pass Shift lines can blend into gray shaded areas where there is no mapping data when the display is in light background mode. Either temporarily turn off mapping data or change the display to dark background mode to make the Pass Shift lines more visible.

9.3.6 Horizontal alignments may be difficult to see against certain background colors

Horizontal alignments may be difficult to see when they are viewed against a background of a similar color, for example if they are drawn over a mapped area.

9.3.7 System licenses may appear as missing after upgrading

When upgrading from v2.3 and earlier to v2.4 and later version, the License Service may cause the Earthworks System Licenses to appear as missing. Power cycle the display, re-open Earthworks and the System Licenses should appear. If the System Licenses are still missing, re-install the system license files.

9.3.8 The last selected point in Infield Designs is always the point you edit

In Infield Designs, when you select a point and then change views, the selected point is not highlighted in the current view, but still selected in the previous view. Edits made on the current view are applied to the point selected, which may be highlighted in another view. To edit a point on the current view, select it before editing.

9.3.9 Incorrect TD5x0 date and time may cause license loading issues

If the TD5x0 date and time are incorrect there may be issues with loading licenses. Confirm the TD5x0 date and time are correct before loading licenses.

9.3.10 UTS remains in a configuring state

If your UTS is in a configuring state for two minutes or longer on the UTS Management screen of the Operator App, power cycle the system to make the UTS available for use.

9.4 General system issues

9.4.1 Voltage drop may report inaccurate body pitch/roll values

Machines with a single 12V battery may report inaccurate body pitch/roll values if the voltage drops too low when starting the engine. To resolve the issue, let the machine idle or power cycle the EC520.

9.5 Excavator system issues

9.5.1 Unexpected behavior when using Autos on Hitachi machines

When a Hitachi excavator is running in Autos and the hydraulic oil temperature is below the optimum temperature, the message Machine Control System Error may display and the Autos state may change from green to orange. Wait for the machine's hydraulic oil to reach its normal operating temperature before engaging Autos.

9.5.2 GS520 tilt sensor may continuously connect and disconnect

On Cat Advanced Assist machines running old ECM firmware, the GS520 tilt sensor might continuously change status from connected to configuring or disappear from the list. Upgrade the ECM firmware to the latest available on SIS.

9.5.3 Guidance on a Cat NGH Standard/XE - Grade Assist machines can freeze

In some situations, the front linkage of NGH Grade Assist machines can freeze or jump in the Operator App without a warning nor alarm. Check the machine display for errors.

9.6 Dozer system issues

9.6.1 Sensor IDs may be incorrect when model, series or build selection is incorrect

The lift arm or C-frame sensor may appear as a blade sensor on the Onboard Devices page of the Web Interface for some Cat dozer models. This can occur if an incorrect model, series or build is selected on the Machine Description page of the Setup section in the Install Assistant. To check the sensor ID, in the Web Interface open the Machine Diagnostics page and the Current Machine Angles section, change the blade tilt and confirm that the Blade Roll angle updates. If the incorrect sensor angle updates, open the Advanced menu, Reset to Default and then redo the Setup section of the Install Assistant, being sure to select the correct model, series and build.

9.7 Motor grader system issues

9.7.1 GNSS error message displays when starting a measure-up and blade mount receivers are connected

If the 'Device Status Error - GNSS Receiver' message displays when starting a cab mount measure-up, disconnect any blade mounted receivers and restart the measure-up section. When the measure-up is complete, reconnect the blade mounted receivers.

9.7.2 Keyboard obscures images on Input Method - Horizontal and Vertical screen

The keyboard partially obscures the images that provide instructions on how to take the measurements on the Blade Manager > Cutting Edge Length > Input Method - Horizontal and Vertical screen. You can minimize the keyboard by tapping the down arrow in the Android action bar at the bottom of the screen.

9.7.3 Incorrectly connected inc/dec switches cause valve tests to fail on motor graders with aftermarket installed lever-style switches

Valve tests performed in the Web Interface on motor graders with aftermarket installed lever-style switches, such as Case motor grader, may fail. Check in the following order:

1. Inc/Dec switches are connected correctly
2. Valves are wired correctly
3. Hydraulics are installed and working properly

Check the electrics first (easiest) before checking the hydraulic install (hardest).

9.8 Compact loader system issues

9.8.1 ATI grader blade rotary dial switch Autos left and right buttons do not engage Autos

On the ATI grader blade rotary dial switch, the left and right Autos buttons do not engage left and right Autos. Use the center combined button to engage Autos.

9.8.2 Guidance Lost messages may display on systems using a Wi-Fi connection between the display and EC520

Systems using a Wi-Fi connection between the display and the EC520 may experience Guidance Lost messages. Either change to a different Wi-Fi channel in the Web Interface under Configure > Wi-Fi Network or use a wired connection between the display and the EC520.

9.9 Soil compactor system issues

9.9.1 The system disconnects after 3 minutes of inactivity on some Hamm compactors with ECO mode enabled

The ECO mode on some Hamm compactors powers off the machine after 3 minutes of inactivity on low revs. The machine power off disconnects the machine ECM, which causes the Operator App to exit the work screen and display the System Status tile as disconnected. Power cycle the system to restore full working order.

9.9.2 Licenses - On GNSS panel of the Factory End of Line Validation web page may show a missing Precision license

For systems using GNSS receivers intended to operate with SBAS corrections only, and with no RTK license installed, the Licenses - On GNSS panel of the Factory End of Line Validation web page shows a missing Precision license. For this system configuration, this warning can be ignored.

9.9.3 Incorrect value may intermittently display on Frequency text item

If unrealistically high values intermittently display on the Frequency text item, the Dynapac ECM firmware needs updating. Contact your Dynapac dealer.

9.9.4 New compaction data does not record to an existing tds file after a configuration change

When you change the system configuration, compaction data from the newly configured sensor does not display in the VETA software and it does not record onto the existing tds file. Create a new Measured Data display the compaction data in the VETA software and to record the compaction data in the new tds file.

10

Known Limitations

In this chapter:

10.1 Introduction

Known limitations include:

- Unresolved errors in the software
- Unexpected behavior of the system as a whole, or of a device

Future releases probably will not resolve these limitations.

For the most recent known limitations, contact customer support. The following known limitations cover releases for the past five years. For known limitations that apply to releases more than five years old, refer to release notes on Partners.

10.2 Web Interface limitations

10.2.1 Issues with Web Interface file transfers on Apple iOS devices

The iOS file system management limits the ability to download multiple files from the Web Interface.

10.2.2 Canceling a GS510 update displays the device as missing in the Web Interface

When a GS510 automatic update is canceled during the update, the device displays as missing in the Web Interface and a new unknown device with the same serial number

displays. Power cycle and allow the automatic upgrade to complete, or manually upgrade the device, to display the GS510 as expected.

10.3 Operator App limitations

10.3.1 Upgrades may not occur when using multiple user profiles on Android devices

The Android operating system allows for multiple user profiles. If Earthworks is installed on multiple profiles, the latest Earthworks version may not update for each profile. Use the default Android user profile (Owner) to ensure apps install, update and launch as expected.

10.3.2 Cannot export a .tsd file from BC to Trimble® Earthworks

Exporting a .tsd file from Business Center to Trimble® Earthworks as a .dsz design is unsupported. To use data from a .tsd, export the file as .vcl from Business Center and import the .vcl file into Trimble® Earthworks.

10.3.3 Start button may take a few minutes to become available

Within the Operator App, the Start button may take a few minutes to become available. This may occur when the SNM94x needs to configure when starting up.

10.3.4 Decimal indicator may be incorrect for some languages

When using Trimble® Earthworks in non-English languages, the decimal indicator may be incorrect on fields where numbers are entered. The decimal indicator may be a dot instead of a comma.

10.3.5 Points cannot overlap in Infield Designs

Infield Designs created with overlapping surfaces may fail to get guidance to the overlapping portion. To get guidance in these areas you may need to rework the design to eliminate or minimize the overlapping areas.

10.4 General system limitations

10.4.1 Incorrect machine settings when switching between Roadworks and Earthworks on the same EC520

When switching between Roadworks and Earthworks on the same EC520 without resetting to defaults, incorrect machine settings persist. After installing the Roadworks .sg6 on an EC520 that was previously running Earthworks, or vice versa, reset the system to defaults in the Web Interface by going to Advanced > Reset to defaults.

10.4.2 TD5x0 OS v4.31.2 is not backwards compatible with v2.4 or earlier

Displays that are running OS firmware v4.31.2 or later will not be backwards compatible with Earthworks v2.4 or earlier. Licenses will not be recognized. Update the EC520 to v2.5

or later before upgrading the display OS. This applies to all EC520s if using one display on multiple machines.

10.4.3 900MHz radios could be configured wrong after upgrading

When upgrading from v2.4.x or v2.5.x while using a 900MHz radio for corrections, you may experience guidance solution issues if the radio is configured with the wrong network. Edit and resave the 900MHz radio correction source to resolve the issue.

10.4.4 Earthworks app icons may not display on the home screen after install or upgrade

After installing or upgrading Earthworks, the Web Interface or Operator app icons may not display on the home screen. Add the missing icons to the home screen via the app drawer.

10.4.5 TD520 may display two, one or no Web Interface icons

When upgrading Earthworks, the TD520 desktop may display two, one or no Web Interface icons. All icons will open the Web Interface, regardless of the branding. To put a Web Interface icon on the desktop, get a generic Web Interface icon from the app drawer.

10.4.6 Downgrading v2.3.x to v2.0.x or earlier may fail

Downgrading Earthworks from v2.3.x to v2.0.x or earlier may fail. To ensure a successful downgrade, downgrade to a minor version such as v2.1.x or v2.2.x.

10.4.7 Back up on BYOD may fail

When doing a Backup All on a BYOD, the download may fail. Backup from a laptop or TD5x0.

10.4.8 System Snap Causes Autos to Stop

When a machine is in Autos and a system snap is captured from within the Web Interface or Operator App, Autos will stop. Turn Autos back on to continue using.

10.5 Excavator system limitations

10.5.1 Transitioning between UTSs may cause guidance errors

When transitioning between connected UTSs, horizontal and vertical errors may occur. Stop the current UTS and then start the next UTS to maintain accurate horizontal and vertical guidance.

10.5.2 Disconnecting the laser catcher early during a measure-up may cause an error

When performing a GNSS mast measure-up on a Cat 07 series excavator with a laser catcher, disconnecting the laser catcher from the harness early may result in failed horizontal and vertical precision values. Keep the laser catcher connected during the measure-up and disconnect only when prompted.

10.5.3 Operator Plus cannot add a new attachment if no attachment already exists

If no attachments exist in the Web Interface, Operator Plus operators will be unable to access the Web Interface. Have a technician add an attachment in the Web Interface to enable the Web Interface access for an Operator Plus.

10.6 Dozer system limitations

10.6.1 Sensor section may not complete for some dual tilt Cat D8T configurations

After changing a single tilt D8T to a dual tilt D8T in the Setup section, the Sensor section shows 'Start' on the Install Assistant page and the section may not complete. Reset to defaults and redo the Install Assistant sections to make the Sensor section complete successfully.

10.6.2 Sensor section may not complete for some dual tilt Cat D8T configurations

After changing a single tilt D8T to a dual tilt D8T in the Setup section, the Sensor section shows 'Start' on the Install Assistant page and the section may not complete. Reset to defaults and redo the Install Assistant sections to make the Sensor section complete successfully.

10.6.3 System may display Calculating Positions message

In Earthworks v2.5, enhancements were made to use additional ECM outputs to improve blade rotation calculations on CAT VPAT dozers. To get the correct data from the machine ECM, software part number 585-6633 or later is required on some K2 model dozers. If running a previous version of machine ECM software, the Earthworks/GRADE system will get stuck at the dashboard screen showing “Calculating Positions”.

Affected Machines:

- D3K2 – S/N: KF27000-UP; KL27000-UP; JPJ7000-UP
- D4K2 – S/N: KM27000-UP; KR27000-UP; MT37000-UP; RT37000-UP
- D5K2 – S/N: KW27000-UP; KY27000-UP; WT37000-UP; YT37000-UP; RRE7000-UP

Resolution:

When updating to v2.5 on the affected machines, ensure the machine ECM software is updated to 585-6633 or later. This software may not be linked to the machine serial number when searching for the latest files in SIS, but the file is available for download using filename search.

10.6.4 Upgrading to v2.1.x and later requires the machine setup section to be done again

When upgrading to Earthworks v2.1.x or later on Cat D8T dozers with single tilt blade linkage, the Setup Section of the Install Assistant needs to be completed again. This will apply the latest default machine measurement information to the machine and ensure optimal future accuracy.

10.6.5 Valve speeds may require adjusting when using a Positioning Source other than Dual GNSS

Users may need to adjust valve speeds for expected performance when using Laser, UTS or blade mounted GNSS. This can be done via the Auto Mode Work Settings dialog in Trimble®Earthworks and valve speed memories can be saved and restored as required. For details, refer to the Using Autos guide in the Trimble®Earthworks overflow menu.

10.6.6 Center-mounted mast support

Some Active Body IMU push arm dozer models do not support masts mounted in the center of the blade. This means that single 3D, (GNSS, UTS) and single 2D (laser)+ cross slope are unsupported sensor configurations on these machine models. For confirmation of which models are supported for center mast, contact customer support.

10.6.7 UTS guidance supported on center blade mounted mast only

On Active Body IMU dozers, UTS guidance is supported on center blade mounted masts only. Use the following connection requirements:

- Fixed mast - plug the MT900 into the 'left' nose connector
- Electric mast - connect the MT900 into the electric mast and plug the electric mast into the 'left' nose connector

10.6.8 Joystick commands may suspend Cross Slope Autos

When running Cross Slope, if joystick commands on your machine suspend tilt Autos, the Autos indicator in the Work Screen will change from green to gray while Autos are suspended. Stop joystick commands to resume Autos.

10.6.9 Cat® GRADE Slope Assist and Earthworks 3D Autos operation

Cat® GRADE Slope Assist and Earthworks 3D Autos modes interact in the following ways:

- If the Slope Assist screen is active on the machine display, then you cannot activate Autos in the Cat® GRADE app on the TD5x0 or Web Interface.
- To allow Autos to be activated, return the machine's display to the Home screen.
- If Cat® GRADE on the TD5x0 is in the Auto Engaged state and the operator enters the Slope Assist screen on the machine display, then Cat® GRADE goes to the Manual Interlock state, preventing automatic controls operation. When the operator returns to the machine display's Home screen, then Cat® GRADE on the TD5x0 goes to the

Manual state and Autos are available by pressing the auto button on the blade control lever.

10.7 Motor grader system limitations

10.7.1 Steep grade changes may cause quick jumps on the work screen

When the Vertical Guidance Point passes over a steep grade change in the design surface (like the face of a kerb or the edge of the trench) the blade drawing in cross section view may momentarily appear to move when the machine and blade are stationary. This has no impact on guidance and the cut / fill text item values are still correct.

10.7.2 Cross slope may not work without base station corrections

On a motor grader with mastless GRADE 3D, when GNSS receivers are not receiving base station corrections, Cross Slope in the machine display may not show values.

To use the Cross Slope system when base station corrections are not available, either: confirm that the latest version of ECM firmware is installed on the machine and upgrade if required, or configure the Cat GRADE system to a 2D mode by selecting 2D as the positioning source in the Machine Setup screen in the Operator App.

10.7.3 Enabled E-Fence interferes with calibrations

On some Cat graders, when E-Fence is enabled in the integrated machine display settings, some calibrations performed in the Web Interface will not progress. Disable E-Fence in the integrated machine display settings before performing any calibrations.

10.8 Soil compactor system limitations

10.8.1 Incorrect value may intermittently display on Frequency text item

If unrealistically high values intermittently display on the Frequency text item, the Dynapac ECM firmware needs updating. Contact your Dynapac dealer.

10.8.2 Mapping stops updating in the Operator App when the machine is off design

When machines using either compaction mapping or cut/fill mapping go off design mapping may stop updating. Mapping data is still being recorded, it is just not updated in the workscreen.

To resolve for compaction mapping, try either:

- Exiting to the dashboard and tap the Start button to re-enter the work screen. Map rendering will update.
- Selecting Compaction Mapping in the Job Setup screen. Compaction Mapping mode does not require a design to be loaded.

To resolve for cut/fill mapping, try either:

- Moving the machine closer to the design
- Loading a design that is closer to the machine's current position

10.8.3 Compaction Mapping Mode Design surface in Cross Section and Profile View

When Compaction Mapping is the mode selected in the Job Setup screen a “temporary” design surface is created to enable mapping data to display in the plan view. This surface displays some distance below the machine if the user configures a cross section or profile view. Ignore this surface.

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