

# **AgGPS® FieldManager Software**

## **Release Notes**

- **Introduction**
- **New Features**
- **Minor Software Changes**
- **Upgrade Procedure**



**Version 6.20**  
**Revision A**  
**June 2005**

## **Agriculture Business Area**

Trimble Navigation Limited  
Agriculture Business Area  
9290 Bond Street, Suite 102  
Overland Park, KS 66214  
USA  
+1-913-495-2700 Phone  
precision\_ag@trimble.com  
www.trimble.com

## **Copyright and Trademarks**

© 1999–2005, Trimble Navigation Limited. All rights reserved. For STL support, the software uses the Moscow Center for SPARC Technology adaptation of the SGI Standard Template Library. Copyright © 1994 Hewlett-Packard Company. Copyright © 1996, 97 Silicon Graphics Computer Systems, Inc., Copyright © 1997 Moscow Center for SPARC Technology. Trimble, the Globe & Triangle logo, and AgGPS are trademarks of Trimble Navigation Limited, registered in the United States Patent and Trademark Office and in other countries. Autopilot is a trademark of Trimble Navigation Limited. Microsoft is either a registered trademark or trademark of Microsoft Corporation in the United States and/or other countries. All other trademarks are the property of their respective owners.

## **Release Notice**

This is the June 2005 release (Revision A) of the *AgGPS FieldManager Release Notes*. It applies to version 6.20 of the AgGPS FieldManager software.

## **Software License, Limited Warranty**

This Trimble software product, whether provided as a stand-alone computer software product, built into hardware circuitry as firmware, embedded in flash memory, or stored on magnetic or other media, (the "Software") is licensed and not sold, and its use is governed by the terms of the relevant End User License Agreement ("EULA") included with the Software. In the absence of a separate EULA included with the Software providing different limited warranty terms, exclusions and limitations, the following terms and conditions shall apply. Trimble warrants that this Trimble Software product will substantially conform to Trimble's applicable published specifications for the Software for a period of ninety (90) days, starting from the date of delivery.

## **Warranty Remedies**

Trimble's sole liability and your exclusive remedy under the warranties set forth above shall be, at Trimble's option, to repair or replace any Product or Software that fails to conform to such warranty ("Nonconforming Product") or refund the purchase price paid by you for any such Nonconforming Product, upon your return of any Nonconforming Product to Trimble in accordance with Trimble's standard return material authorization procedures.

## **Warranty Exclusions and Disclaimer**

These warranties shall be applied only in the event and to the extent that (i) the Products and Software are properly and correctly installed, configured, interfaced, maintained, stored, and operated in accordance with Trimble's relevant operator's manual and specifications, and; (ii) the Products and Software are not modified or misused. The preceding warranties shall not apply to, and Trimble shall not be responsible for defects or performance problems resulting from (i) the combination or utilization of the Product or Software with hardware or software products, information, data, systems, interfaces or devices not made, supplied or specified by Trimble; (ii) the operation of the Product or Software under any specification other than, or in addition

to, Trimble's standard specifications for its products; (iii) the unauthorized, installation, modification, or use of the Product or Software; (iv) damage caused by accident, lightning or other electrical discharge, fresh or salt water immersion or spray; or (v) normal wear and tear on consumable parts (e.g., batteries). Trimble does not warrant or guarantee the results obtained through the use of the Product.

THE WARRANTIES ABOVE STATE TRIMBLE'S ENTIRE LIABILITY, AND YOUR EXCLUSIVE REMEDIES, RELATING TO PERFORMANCE OF THE PRODUCTS AND SOFTWARE. EXCEPT AS OTHERWISE EXPRESSLY PROVIDED HEREIN, THE PRODUCTS, SOFTWARE, AND ACCOMPANYING DOCUMENTATION AND MATERIALS ARE PROVIDED "AS-IS" AND WITHOUT EXPRESS OR IMPLIED WARRANTY OF ANY KIND BY EITHER TRIMBLE NAVIGATION LIMITED OR ANYONE WHO HAS BEEN INVOLVED IN ITS CREATION, PRODUCTION, INSTALLATION, OR DISTRIBUTION INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, TITLE, AND NONINFRINGEMENT. THE STATED EXPRESS WARRANTIES ARE IN LIEU OF ALL OBLIGATIONS OR LIABILITIES ON THE PART OF TRIMBLE ARISING OUT OF, OR IN CONNECTION WITH, ANY PRODUCTS OR SOFTWARE. SOME STATES AND JURISDICTIONS DO NOT ALLOW LIMITATIONS ON DURATION OR THE EXCLUSION OF AN IMPLIED WARRANTY, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU. TRIMBLE NAVIGATION LIMITED IS NOT RESPONSIBLE FOR THE OPERATION OR FAILURE OF OPERATION OF GPS SATELLITES OR THE AVAILABILITY OF GPS SATELLITE SIGNALS.

## **Limitation of Liability**

TRIMBLE'S ENTIRE LIABILITY UNDER ANY PROVISION HEREIN SHALL BE LIMITED TO THE AMOUNT PAID BY YOU FOR THE PRODUCT OR SOFTWARE LICENSE. TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, IN NO EVENT SHALL TRIMBLE OR ITS SUPPLIERS BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES WHATSOEVER UNDER ANY CIRCUMSTANCE OR LEGAL THEORY RELATING IN ANY WAY TO THE PRODUCTS, SOFTWARE AND ACCOMPANYING DOCUMENTATION AND MATERIALS, (INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTION, LOSS OF BUSINESS INFORMATION, OR ANY OTHER PECUNIARY LOSS), REGARDLESS WHETHER TRIMBLE HAS BEEN ADVISED OF THE POSSIBILITY OF ANY SUCH LOSS AND REGARDLESS OF THE COURSE OF DEALING WHICH DEVELOPS OR HAS DEVELOPED BETWEEN YOU AND TRIMBLE. BECAUSE SOME STATES AND JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF LIABILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES, THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

NOTE: THE ABOVE LIMITED WARRANTY PROVISIONS MAY NOT APPLY TO PRODUCTS OR SOFTWARE PURCHASED IN THE EUROPEAN UNION. PLEASE CONTACT YOUR TRIMBLE DEALER FOR APPLICABLE WARRANTY INFORMATION.

## Introduction

These Release Notes describe the changes and new features in the AgGPS® FieldManager software version 6.20, which is available for the AgGPS 170 Field Computer. They also describe how to upgrade the software from previous versions.

*Note – The AgGPS FieldManager software version 6.20 is not available for the AgGPS 160 Portable Computer.*

Read these release notes in conjunction with the AgGPS FieldManager Quick Reference Guide version 6.00, and the AgGPS FieldManager Reference Manual version 6.00.

## Current firmware versions

The AgGPS FieldManager software version 6.20 runs best with the latest versions of AgGPS Receiver and AgGPS Autopilot™ Navigation Controller firmware. Trimble® recommends that you update to:

Device	Firmware version
AgGPS 114/124/132	1.75
AgGPS 214	1.55
AgGPS 252	2.15
AgGPS Autopilot Navigation Controller	3.4
AgGPS Autopilot NavController II	4.03

*Note – If your firmware version is older than the version listed here, the AgGPS FieldManager software advises you that there is newer firmware available.*

For no extra charge, you can download the latest firmware from the Trimble website (<http://www.trimble.com/>) or the Trimble Partners website (<http://agpartners.trimble.com>).

---

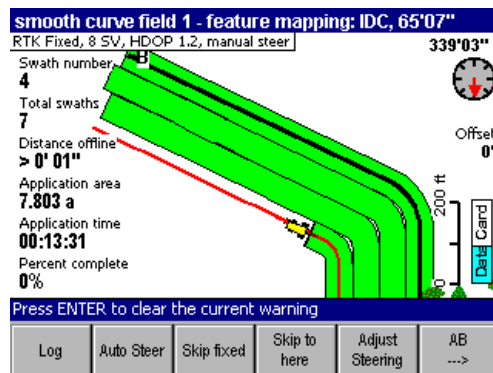
## New Features

The following software features are new in version 6.20:

- New Automap field definition for identical curve
- Multiple AB Lines in one field
- Automated guidance to line features
- External NMEA output
- Tight turn warning
- Raven 761 compatibility
- Clearing the End of Row warning
- Default Nudge setting











### New Automap field definition for identical curve

This new feature allows a combination of straight and curved patterns in a single AB Line:



---

To insert straight portions into an identical curve when defining the field:

1. Create a new field.
2. Either press the  softkey or the  softkey to start defining the AB Line.
3. Press the  softkey. The  softkey becomes active.  
The AgGPS FieldManager software logs position points to record the path you drove.
4. To insert a straight portion, press the  softkey again so the softkey becomes inactive. This causes the AgGPS FieldManager software to stop recording points and draw a straight line between the last point recorded and your current location.
5. When you have completed the straight portion, press the  softkey again to start recording points. The AgGPS FieldManager software fills in a straight line between the point where you released the  softkey and your current location.
6. To create multiple straight line portions in the AB Line, repeat Steps 4 and 5 as required.
7. When you have completed the AB Line, either press the  softkey, the  key, or the  softkey so that Logging is stopped.

---

## Multiple AB Lines in one field

The AgGPS 170 Field Computer can create and work with multiple AB Lines in both bounded and unbounded fields.

When there are multiple AB Lines in the current field, the index number of any inactive AB Line will be displayed at the B point of that line. This helps you to identify the AB Line that you require.

*Note – In any field, you can create AB Lines only of pattern types that are available in that field. For example, you cannot create a pivot AB Line in a bounded field, because the pivot pattern is not a valid pattern for a bounded field.*

Although it is sometimes possible to import lines of different pattern types into the same field, Trimble do not recommend doing so in order to ensure correct guidance operation.


### Working with multiple AB Lines


1. Select an existing field, or create a new field.

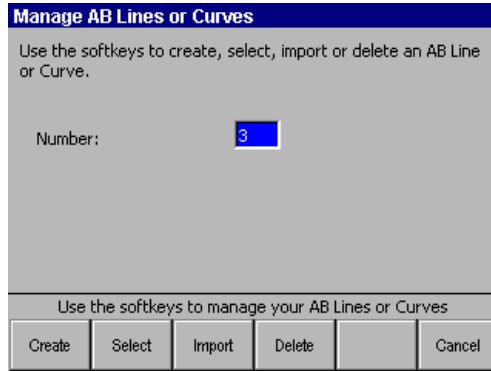
If the field already contains multiple AB Lines, you are prompted to select the AB Line you require.

The screenshot shows a screen titled "Select AB Line by index". The text on the screen reads: "The field has 3 AB Lines. Enter the index of the AB Line you wish to select". Below this text is a "Number:" label followed by a small blue box containing the number "3". At the bottom of the screen, there is a row of six empty rectangular boxes, and the title "Select AB Line by index" is repeated above them.


The number field displays the highest index number by default.

2. Select the AB Line you require. Enter its index number and then select .

- 
3. You can now create, select, or delete AB Lines by pressing  and then selecting *AB Line* from the *Field* menu.



### Creating a new AB Line


- Press the  softkey.
  - If the field is an unbounded field, you can drive the AB Line as if creating a new field. Once the AB Line is created, it is added to the AB Lines for that field. The new line is automatically selected.
  - If the field is a bounded field, you can choose whether to use boundary points or GPS positions to define the AB Line.

If you choose to use GPS positions, use the process described above.

If you choose to use boundary points, the process is similar to the process for changing swath direction described in previous versions of the software. However, instead of changing the direction of an existing AB Line, the process creates a new AB Line and adds it to the set of available AB Lines. The new AB Line is automatically selected.



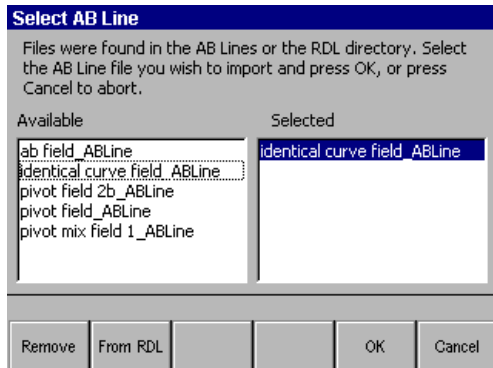
---




**Tip** – The A+ function with the straight AB swath pattern can save skips within a field. (For example, place an A+ line either side of a roadway if you want to skip over the roadway every time you return to the field.) To use the A+ function in this way, manually steer to the appropriate spot in the field. Create a new AB Line as above and press  instead of setting the B point. This creates a new AB Line parallel to the last AB Line, with an A point at your current location.

---

## Importing a new AB Line

1. Press the  softkey.



2. Do one of the following:
  - From the Available list, select the AB Line you wish to import and then select .
  - To select from the RDL list, press the  softkey, locate the field to import, and then select .

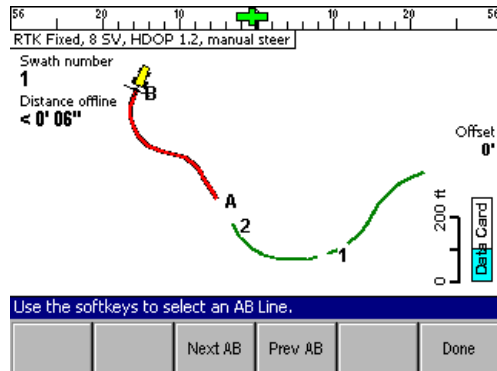
**Note** – The Available list shows shape files that are in the \AB Lines\ directory on the data card. Use an office computer to copy the required .shp and corresponding .shx files from the field directory to the \AB Lines\ directory.



3. If the AB Line is not within 5 km (or 3 miles, depending on which units you use) of your position, a warning appears. To continue with the import, select . To choose a different AB Line, select .
4. From the list of AB Lines available for the current field, select the line you want. The Number field changes to the imported AB Line's index number. Press  to continue, or enter the required AB Line's index number in the Number field and then press .

### Selecting a different AB Line

- To select the index number of the required AB Line, use the ▲ or ▼ keys. Press  or  to start using the AB Line.
- To select the previous or next AB Line, from the Plan View Map press  and then press the  or  softkeys. Press  to accept and continue working.

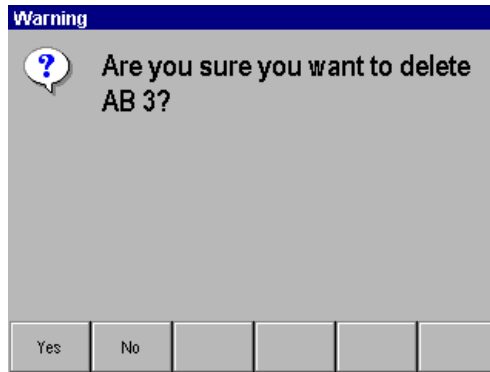


---

## Deleting an AB Line

*Note* – You cannot delete an AB Line if it is the only one in the field.

1. To select the index number of the AB Line to be deleted, use the ▲ or ▼ keys.
2. Press the  softkey.





3. Select  to delete the AB Line, or  to keep it.

## Automated guidance to line features

You can now use the AgGPS 170 Field Computer Guidance to line features with an AgGPS Autopilot controller.



### Using Guidance to line features




1. Do one of the following:
  - Create a new line feature in a new or existing field. This process is described below.
  - Select a field that has existing line features.
2. Press  and then select *Setup*.
3. Select *Guidance*.
4. Select the line feature:



- 
- a. Press  and then select the type of line feature that you require guidance to. This must be a line feature type that is present in the current field. The line feature type (for example, “Track”) was selected when the line feature was created.
  - b. Locate the required type and then press .
5. The Plan View map appears and you can start working with line guidance.

### Creating a new line feature

There are three ways to create a new line feature:





- To record a line feature using the  softkey:
  - a. Press the  softkey.

*Note – If there are multiple AB Lines in the field, press the  softkey to reveal the  softkey.*
  - b. To scroll through the available feature types, press the  softkey.

These features are configured in *Setup / Features*.
  - c. To start recording the line, drive to the starting point and then press the softkey that corresponds to the required feature.
  - d. Drive the line. The line is recorded at the offset from the boom position set in *Setup / Feature Offsets*. The default Feature Offset setting is 0.
  - e. To finish recording the line feature, drive to the end point and then press the softkey that you pressed in step c again.
- To record a line feature using the  softkey:
  - a. Go to *Setup / Logging* and select Map Line Feature.
  - b. Choose the line feature type. This defaults to 18 track.
  - c. To record the line, press the  softkey.



- 
- To create and import a feature using GIS software:
    - a. Create the file.
    - b. Name the file “Line\_XXXX”, where XXXX is the name of the feature type. For example, a line track should be named “Line\_Track”.
    - c. Save the file to the appropriate directory:
      - If the file is to be available to all fields, save it to the \AgGPS\Field Layers\ directory.
      - If the file is to be available to a specific field, save it to the \AgGPS\Data\Client\Farm\Field\ directory of that field.

### Switching between guidance to different line features

1. Press the  softkey.
2. Use the  or  softkeys to select the required feature or press the  softkey to have the line automatically selected.

*Note – If the field contains multiple lines, the “Snap to line” feature selects the line that was created directly before or after the current one. If the lines were created out of order, the next required path may not be selected. If you wish to use the “Snap to Line” feature, it is important to create the lines in order.*

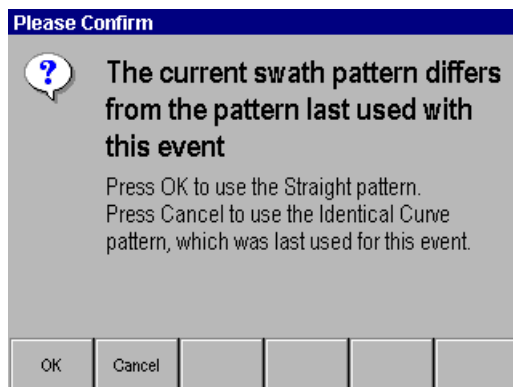
### Changing back to swath guidance

1. Press .
2. Select Setup.
3. Select Guidance and then press .

---

## Confirming which swath pattern to use

A new dialog appears when you select a swath pattern that differs from the previous pattern used with the current field. The new dialog lists the name of the pattern that you have just selected and the name of the last pattern that was used.




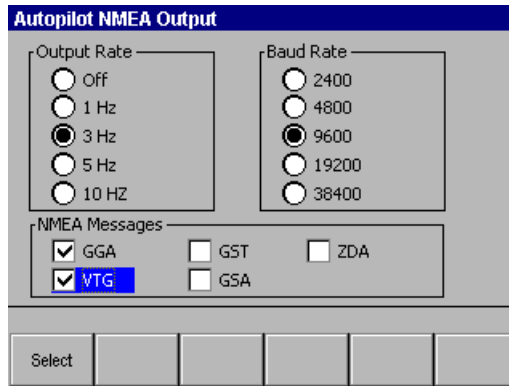
## External NMEA output

The AgGPS FieldManager software enables you to set the AgGPS Autopilot controller to output roll-corrected NMEA data. This data can be used for external devices, such as variable rate controllers and yield monitors.

To select an NMEA output:

1. From the *Equipment* menu, select *AgGPS Autopilot*. The *AgGPS Autopilot* dialog appears.
2. Press . The *Autopilot setup* dialog appears.

- 
3. Press the  softkey.



**Autopilot NMEA Output**

Output Rate

Off

1 Hz

3 Hz

5 Hz

10 HZ

Baud Rate

2400

4800

9600

19200

38400

NMEA Messages

GGA



GST

ZDA

VTG

GSA

Select

4. To select an option, use the ▲ or ▼ key.
5. To jump to the next group, press .
6. To save and exit, press .

The output is available on the Autopilot navigation controller at the RDL port and on the Autopilot NavController II navigation controller at the computer port.

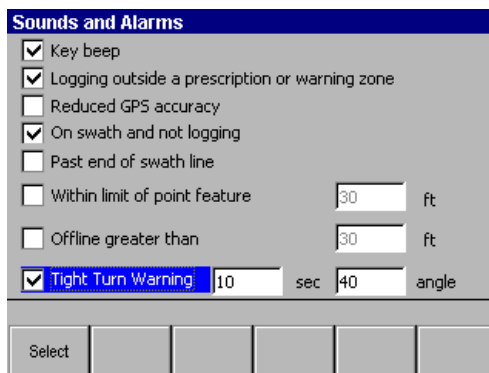
---

## Tight turn warning

A Tight Turn warning is now available. It warns you that you are approaching a tight corner.

To configure the Tight Turn warning:

1. Go to *Setup / Sounds and Alarms*.



Sounds and Alarms			
<input checked="" type="checkbox"/>	Key beep		
<input checked="" type="checkbox"/>	Logging outside a prescription or warning zone		
<input type="checkbox"/>	Reduced GPS accuracy		
<input checked="" type="checkbox"/>	On swath and not logging		
<input type="checkbox"/>	Past end of swath line		
<input type="checkbox"/>	Within limit of point feature	30	ft
<input type="checkbox"/>	Offline greater than	30	ft
<input checked="" type="checkbox"/>	Tight Turn Warning	10	sec 40 angle
Select			

2. Make sure that the *Tight Turn Warning* checkbox is selected.
3. Set the *sec* field to the number of seconds in advance of reaching the turn that you want the warning to appear (for example, a value of 10 causes the warning to appear 10 seconds before you reach the turn).
4. Set the *angle* field to the minimum angle of turn that will cause a warning to appear.

**Note** – When the warning appears, press the  softkey within half the time specified in the *sec* field, or the system will disengage.

---

## Minor Software Changes

### Raven 761 compatibility

The AgGPS FieldManager software version 6.20 supports the latest version of the Raven 761 variable rate controller.

### Turning off Autopilot support

When you select *Setup / Select Application* and clear the *Connect to AgGPS Autopilot* checkbox, a warning appears and then the Field Computer turns off. To resume operation, press .

### Unsuitable AB Lines with Pivot patterns

When you load a potentially incompatible AB Line from the *Select AB Line by index* dialog onto the pivot pattern in a multiple AB Line field, a warning dialog appears. To stop loading this AB Line and return to the *Select AB Line by index* dialog press , or to continue press . If you continue, the field may not load correctly.

### Partial pivots

The following changes have been made with regard to partial pivots:

- You can now engage and autosteer while outside the pivot arm area.
- You can now continue to autosteer the full circle, even when only a partial pivot has been defined.



---

## Clearing the End of Row warning

If the tip bar displays the text Press enter to clear the warning, you can clear the AgGPS Autopilot End of Row warning without starting or stopping logging or disengaging autosteering. Otherwise, it will clear after five seconds.

## Default Nudge setting

When you upgrade the AgGPS FieldManager software to version 6.20, the Trim or Nudge increment is reset to 0. The increment is set to this value to disable the Trim or Nudge softkeys and prevent their accidental use.

To re-enable the Trim/Nudge softkeys, increase the Trim/Nudge increment:

1. Select *Equipment / AgGPS Autopilot*.
2. Use the ▲ key to increase the *Nudge offset distance* or *Trim offset distance* value (depending on which mode is available).

*Note – This value is saved for the next startup.*

## GPS receiver firmware version

The GPS firmware version can be seen at *Equipment / GPS / Correction Type*. However, this depends on the Autopilot system settings. If the *Configure GPS Receiver on Startup* option is disabled, the firmware version is not reported.

## RTK Field Level

To increase consistency, the AgGPS FieldManager software now takes the average of the last three positions when benchmarking with RTK systems.

---

## Sampling

In version 6.2 of the AgGPS FieldManager software, the *Sampling* checkbox has been disabled for all non-straight swath patterns.

## Dynamic AB Line length

As you work across a field, the length of a projected AB Line is now based on the length of the previous AB Line. This enables you to lengthen or shorten the lines you drive, to compensate for changes in field size.


## End of Swath warning

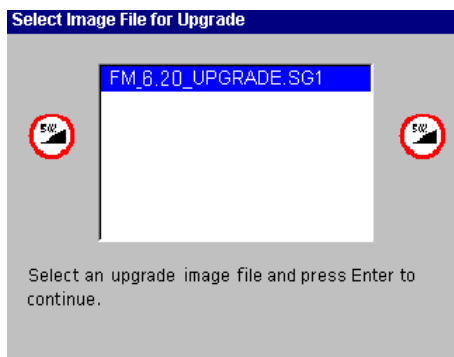
The End of Swath warning that appears when you have completed a circular pattern and returned to the start point now only appears during the *Headlands* pattern. Press  to clear the warning.



---

## Upgrade Procedure

To upgrade to AgGPS FieldManager software version 6.20 on an AgGPS 170 Field Computer:

1. From <http://agpartners.trimble.com/>, select *Products A-Z / AgGPS 170 Field Computer System / Technical Support / AgGPS 170/Trimflight 3 System Downloads /* and then download the upgrade file.
2. Copy the file to the root directory on a CompactFlash data card.
3. Insert the CompactFlash data card into the card slot on the front panel of the AgGPS 170 Field Computer.
4. To turn on the AgGPS 170 Field Computer, press 



5. Make sure that the downloaded file is selected and then press . A confirmation dialog appears.
6. To continue, press .
7. When the upgrade is finished, turn off the source of main power to the AgGPS 170 Field Computer.  
*Note – Do not use the power key on the AgGPS 170 Field Computer.*
8. Turn on the Field Computer.



---

**Tip** – If the display turns off during the upgrade process, press the power key. The upgrade will then continue.

---