Ag Leader Technology
2202 South Riverside Drive, P.O. Box 2348, Ames, IA 50010
Phone: 515-232-5363 Fax:232-3595 Internet: http://www.agleader.com

InSight™ Display with Autopilot Quick Reference Guide

Section 1: Initial startup notes

The InSight Autopilot interface is compatible with the Trimble Autopilot™ system. For the Autopilot Tab and Lightbar to appear, you must:

1. **Connect the Autopilot system in your vehicle**. An Ag Leader null-modem cable (PN 2000819) is required to establish communication between the InSight display and the Navigation Controller. Also required is a Trimble display cable (PN 54612) for the Navigation Controller to connect to the Ag Leader null modem cable.

2. **Set up a configuration on the InSight display.** For more information on setting up a configuration (for example, Planting, Application, Tillage, Grain Harvest or Cotton Harvest) consult either the InSight manual or the Quick Reference Guide pertaining to your configuration. The Autopilot system uses the swath width setting specified in this configuration.

3. **Verify that InSight Guidance Controls have been checked.** To do this, press the Setup (wrench tool) button located at the right-hand side of the display, then press the GPS button. At the GPS General window, press the **Guidance** Tab. Underneath the Guidance Controls box on the left side of this window, verify that the **Enable Guidance on RUN** check box has been checked; and that the **Autopilot Guidance** button has been selected.

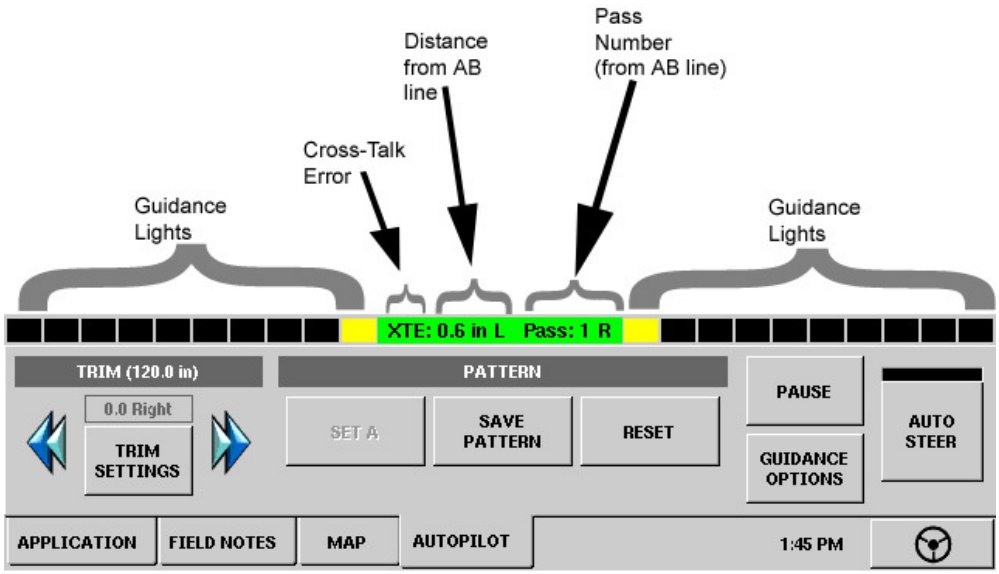
4. **Set a Guidance Pattern at the Run Screen.** The rest of the information in this Quick Reference Guide details how to do this; in the meantime you can set an initial A-B line with the following steps:
   - Press the Run button located at the bottom right-hand side of the display. At the Run Screen, press the **Autopilot** Tab at the bottom of the screen.
   - Press the **New Pattern** button. When the **New Pattern** button appears, you can choose between five different pattern types: **Straight AB Line**, **A+ Pattern**, **Pivot**, **Adaptive Curve** and **Identical Curve**.
   - Set the A point and drive the vehicle for a distance of at least 100 feet.
   - Set the B point. You have now created an AB line.
   - After the lightbar becomes active and the **XTE** (Cross-Track Error) message is displayed, engage the AutoSteer (either on the current line or the next pass).

Ag Leader Technology
2202 South Riverside Drive, P.O. Box 2348, Ames, IA 50010
Phone: 515-232-5363 Fax:232-3595 Internet: http://www.agleader.com

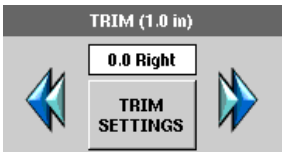
Section 2: Autopilot Functions

When an active configuration is selected at the Run screen and the system is communicating with an Autopilot navigation controller, the Autopilot tab and lightbar will be present.

Autopilot Tab with Lightbar



Buttons	Description
Guidance Lights	The guidance lights indicate directional changes as you steer the vehicle right or left. You can specify the distance each guidance light indicates (for example, 6 inches or 1 foot).
Cross-Track Error (XTE) and Distance from AB Line.	The Cross-Track Error indicates your vehicle's distance from the AB line. This Distance from AB number, located to the right of the XTE acronym, shows the length between the location of your vehicle's GPS antenna and the guidance line of that vehicle's pass.
Pass Number	The number of passes (either right or left) from the AB Line.
New Pattern	The **New Pattern** button allows you to select a new pattern type. Use the drop-down list to select the pattern type.
Load Pattern	The **Load Pattern** button will appear when there is not an active pattern. It allows you to load an existing pattern. Highlight the pattern in the list and press **Accept**.
Save Pattern	The **Save Pattern** button will appear when there is an active pattern. It allows you to save the current guidance pattern. Use the keyboard button to enter in a pattern name and then press **Accept**.

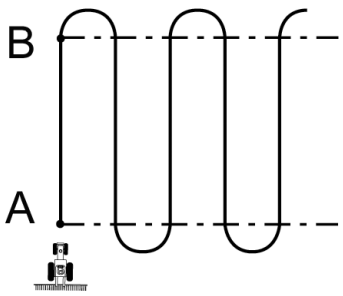
Autopilot Tab with Lightbar (continued)	
Buttons	**Description**
Reset	The **Reset** button clears out the current guidance pattern. It will allow saving the pattern prior to clearing it. If you save the pattern, you must press the **Reset** button again.
Set A	The **Set A** button appears after a new guidance pattern has been accepted. Press **Set A** to set the A point for this new pattern.
Set B	The **Set B** pattern appears after the A point has been set. Press **Set B** to set the B point for the pattern.
Remark A	The **Remark A** button appears after the Remark A option is selected under the **Guidance Options** button. This will move the A point to the current position while maintaining the same heading. For more information, see Section 4 "Pattern Files" on page 6.
Pause	The **Pause** button allows your InSight display to stop logging points along an AB Line. Once this button is pressed, a **Resume** button will take its place until you press this button and **Pause** reappears.
Guidance Options	The **Guidance Options** button has four settings in it that allow you to Remark A, Shift, Trim/Nudge, and Adjust Steering. For more information, see Section 4 "Pattern Files" on page 6.
 	The **Nudge Settings** button will appear if WAAS or OmniSTAR is selected as the differential GPS source. The **Nudge Settings** button allows you to adjust the swath by a specified distance while leaving the AB line in its original location. Otherwise, the **Trim Settings** button will appear if RTK is selected as the differential GPS source. The **Trim Settings** button allows you to adjust the swaths by a specified distance while leaving the AB line in its original spot.
Auto Steer	Press the **Auto Steer** button to engage the Autopilot System. ▪ When the system is engaged the button displays green. ▪ If the system is not engaged (but still able to be engaged) the button displays black. ▪ If the system cannot be engaged, the Auto Steer button is grayed out.

Autopilot Tab with Lightbar (continued)	
Buttons	**Description**
Engage 	The **Engage** button (shaped like a wheel with two hands on its sides) displays the Autopilot status, and also allows you to engage the Autopilot system. ▪ If the system is engaged, it shows two hands next to the steering wheel. ▪ When disengaged, the steering wheel is shown minus the two hands. If conditions don't permit engaging the Autopilot, the steering wheel will be grey and the control button is disabled until the condition is no longer present.

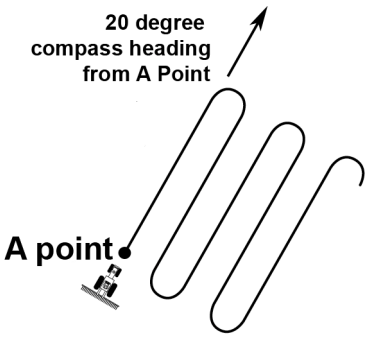
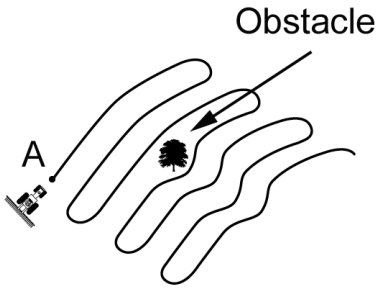
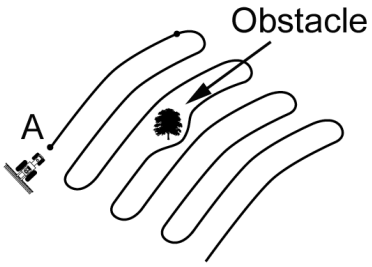
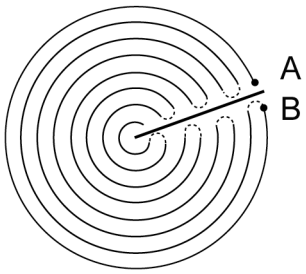
Section 3: Guidance Patterns

Available Guidance Patterns for the InSight are shown on here and the following page. For more information, consult the General section of the InSight User Manual.

Note: The AB Line is a line that runs between Point A and Point B, although you may not always set a Point B. In most cases, the AB Line is the reference line for subsequent swaths.
When you press the **Set A** button on your InSight display, the "A" point will appear on your display's screen. When you press the **Set B** button, the "B" point will also appear on the screen, and the line between the two points serves as your AB Line.

Available Autopilot Guidance Patterns	
Pattern	**Description**
AB Pattern 	Use the AB line pattern when no headlands are required and you drive the field in parallel straight lines.

Available Autopilot Guidance Patterns (continued)

Pattern	Description
A+ Pattern 	An A+ line is also a straight line. It is defined by a single point on the line (the A point) and the degree heading of the line. Use this pattern when you wish to make a straight line based on a compass heading. The A+ line extends 1 mile (1.6 kilometers) before and after the A point.
Adaptive Curve 	Use the Adaptive curve pattern to follow gentle contours in the field, or when you need to avoid obstacles. This pattern provides guidance based on the last curve driven.
Identical Curve 	Use the Identical curve pattern when you want to work the field with gentle curves. This pattern provides guidance based on the initial curve. It ignores any deviation around an obstacle.
Center Pivot 	Use the Center-pivot pattern for a field that is irrigated using a center-pivot. With this pattern, you can drive concentric circles around the center pivot. The InSight display will calculate the center point based on where you have driven. Otherwise, you can enter in the latitude and longitude of the center point, if known.

Ag Leader Technology
2202 South Riverside Drive, P.O. Box 2348, Ames, IA 50010
Phone: 515-232-5363 Fax:232-3595 Internet: http://www.agleader.com

Section 4: Pattern Files

You can change the settings of your InSight .pat (pattern) files by using the following setting changes. More detailed instructions on how to perform these pattern file setting changes can be found in the General section of the InSight User Manual.

Pattern Files	
Pattern File Setting Change	**Description**
Remark A	Moves the AB line to a new position. This function is performed from the **Remark A** button that appears on the Guidance Option window.
Shift Pattern	Shifts the guidance pattern by one of two means: **Either Shift By Distance**, or **Shift By Rows**. This function is performed from the **Shift** button that appears on the Guidance Option window.
Pattern Import/Export	Imports a .pat (pattern) file to and from the InSight display. This function is performed from either the **Import** or **Export** buttons that appear on the GPS window's Guidance Tab.
Set New Pattern	Creates a new pattern for the field. This function is performed from the New Pattern window, which appears after you press the **New Pattern** button on the Run screen. Choices include **Straight AB Line**, **Pivot**, **Adaptive Curve** and **Identical Curve**.
Pause and Resume a Pattern	Pauses the InSight display's logging activity. When paused, the InSight display will continue to give the distance back to the original pause point position. This function is performed by pressing the **Pause** button on the Run screen's **Autopilot** Tab.
Save Pattern	Saves a .pat (pattern) file. To do this, press the **Save Pattern** button on the Run screen's **Autopilot** Tab. At the **Save Pattern** window, press the keyboard button and enter a unique pattern name; then press **Accept**.
Load Patterns	Loads a pattern from the InSight display's internal memory to the current field. To do this, press the **Load Pattern** button on the Run screen's **Autopilot** Tab.
Reset Existing Pattern	Allows you to switch over from an existing pattern to a different pattern while staying within the same field. To do this, press the **Reset Pattern** button on the Run screen's **Autopilot** Tab.
Reset New Pattern	Allows you to switch over from a recently-created pattern to a different pattern while staying within the same field. To do this, press the **Reset Pattern** button on the Run screen's **Autopilot** Tab.
Remove Patterns	Removes one or all pattern files from the InSight display's internal memory. To do this, press the **Load Pattern** button on the Run screen's **Autopilot** Tab. Select and highlight the pattern you wish to remove and press either the **Remove** or **Remove All** buttons.

Section 5: Autopilot Diagnostics

The Autopilot tab under the DGPS button displays diagnostic information about the Autopilot system.

Autopilot Diagnostic Tab Information	
Item	**Description**
General Information	The General Information frame shows diagnostic information about the Autopilot system.
Autopilot State	Displays either Select A or B Point, or AB Point Set.
System State	Displays either Engaged or Standby.
Controller Version	Firmware version of the Autopilot's Nav Controller.
Receiver Version	Firmware version of the GPS receiver.
API Version	Version of the Application Programming Interface.
Position Fix Quality	Lists your specific source for differential correction (DGPS, RTK Fixed, RTK Float, OmniSTAR HP/XP Unconverged, or OmniSTAR HP/XP Converged).
Vehicle Information	The Vehicle Information frame displays Autopilot vehicle settings.
Max Fwd Engage Speed	Maximum forward speed limit for engaging the Autopilot.
Max Rev Engage Speed	Maximum reverse speed limit for engaging the Autopilot.
Max Forward Speed	Maximum forward speed allowed for the Autopilot to remain engaged.
Max Reverse Speed	Maximum reverse speed allowed for the Autopilot to remain engaged.
Antenna Height	Measured height of the antenna as it is placed on the vehicle.
Swath Information	The Swath Information frame shows swath width and offset settings.
Swath Width	Width of the implement's swath.
Swath Offset	The swath distance right or left of the antenna.
RTK Information	If RTK is used, the RTK Information frame shows the quality of the signal from the RTK base station by displaying the CMR percentage value. **Note:** Trimble RTK stations transmit data in a dual-frequency format called CMR (Compact Measurement Record).
View Faults	If a system fault has occurred, it can be viewed and cleared under the **View Faults** button.