Ag Leader Technology
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# SeedCommand™ Clutch Control Quick Reference Sheet

## Section 1: Configuration Procedure

The following procedure describes how to configure a Clutch Control Module, which is a function of SeedCommand. This procedure includes several sub-tasks, including configuring an implement, configuring the clutch modules, and creating a planting configuration.

**Note:** In order for you to use this configuration at the Run screen, you must also configure a vehicle, implement, controller and product(s). For more information on how to configure these, consult the InSight User Manual.

| Clutch Control Configuration | | |
|---|---|---|
| **STEPS** | | **ACTION** |
| **1** | | **Set Implement Attachment Wizard**<br>On the **Implement** Tab, press the **Add** button. The Implement Setup Wizard appears. Select the Implement Attachment Method, and press **Next**. |
| **2** | | **Select Planter/Seeder Type**<br>Use the drop-down menu to select the planter or seeder type, and press **Next**.<br>**Note:** The **Planter Section Clutch Control** check box must be checked in order to use Clutch Control functionality. |
| **3** | | **Enter Number of Rows and Spacing**<br>Use the up and down arrows to enter the number of rows and spacing, and press **Next**. |
| **4** | | **Enter Number of Implement Section(s)**<br>Use the up and down arrows to enter the number of clutch sections, and press **Next**.<br>**Note:** Do not enter the number of individual rows. Enter the number of swath sections that can be independently turned on and off. |

# Clutch Control Configuration (continued)

| STEPS | | ACTION |
|---|---|---|
| 5 | | **Enter Section Widths from Left to Right**<br>The Enter Section Widths from Left to Right window appears. This window shows the number of sections and number of rows in your configuration. From here you can:<br>▪ Press **Next**, or<br>▪ Highlight the section number, and use the numeric keypad to change the section row numbers; then press **Next**.<br>**Note:** The implement is divided up into equal section sizes by default. To modify the sections, press the keypad button for each section that needs to be changed. |
| 6 | | **Enter Distance from Hitch to Application Point**<br>Use the numeric keypad to enter the distance from the implement hitch to the application point (from front to back). When finished, press **Next**. |
| 7 | | **Enter Implement Name**<br>Use the numeric keypad to enter a name for the implement, and press **Finish**. |
| 8 | | **Enable Seed Clutch Control**<br>On the **Implement** Tab, first highlight the desired implement from the Implement List, then check the **Enable Seed Clutch Control** check box. Next, press the **Configure Clutch Modules** button.<br>**Note:** You must have the **Enable Clutch Control Module** check box selected in order to have the **Configure Clutch Control** button enabled. |
| 9 | | **Enter number of clutch sections**<br>Once you have pressed the **Configure Clutch Modules** button, the Clutch Module Configuration box appears. Enter the same number of clutch sections that you specified in Step 4; then press **Accept**.<br>**Note:** The Clutch Module Configuration must match the actual number of clutches on the planter. Otherwise, you will see a message stating that "The number of detected module outputs does not equal the number of planter sections." (This message may also appear if you have not connected the clutches to the module). |
| 10 | | **Configuration complete**<br>A message window appears, stating "Configuration Complete." Press **OK**. |

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# Clutch Control Configuration (continued)

| STEPS | | ACTION |
|---|---|---|
| **11** | | **Create an Operating Configuration**<br>Now that you have completed the Clutch Control Configuration, you must now create an operating configuration. Go to the **Configuration** Tab, and press the **Add** button. The Operating Configuration Wizard appears. Select a vehicle, and press **Next**. |
| **12** | | **Select Implement**<br>Use the drop-down menu to select a planting implement, and press **Next**. |
| **13** | | **Select Area Logging (Site Verification)**<br>The Select Operation Type window appears. The window gives you the choice of Rate Logging/Control or Area Logging (Site Verification).<br>Choose Area Logging (Site Verification) and press **Next**.<br><br>**Note:** If you are using a Rawson with clutch control, choose the Rate Logging/Control option. |
| **14** | | **Select Planting Method**<br>The Select Planting Method window appears. Choose either **Single Variety**, **Two-Variety Split**, or **Three Variety**; then press Next.<br><br>**Note:** Single Variety records only one variety for the entire planter/seeder. Split Planting allows two or three varieties to be recorded and mapped simultaneously. However, the Split Planter Configuration cannot be used for Single Variety planting. If you are planting a single variety, you must create a Single Variety configuration. |
| **Auxiliary Step** | | **Assign Sections to Splits on Planter (if split planter)**<br>If you have chosen a Split Planter, then a window appears where you may assign sections to splits on the planter. Use the numeric keypad to enter in a different number of sections.<br><br>**Note:** The number of hybrids logged must be mathematically compatible with the number of sections on the planter. |

# Clutch Control Configuration (continued)

| STEPS | | ACTION |
|---|---|---|
| 15 | | **Add Additional Application Equipment (Optional)**<br>The Add Additional Application Equipment window appears. From here, you may add additional equipment or controllers to your planting configuration so that you may record liquid or dry products. For example, if you are using DirectCommand to spray a liquid application, or if you are using a serial controller for a liquid application, you should add this equipment to your configuration at this window.<br><br>Add equipment by pressing the **Add** button and following the Equipment Configuration Wizard; or press **Next** to continue.<br><br>**Note:** If you choose to add additional equipment, add them in the same order as the implements are attached. |
| 16 | | **Select Implement Switch (None)**<br>The Select Implement Switch window appears. Choose **None** and press **Next**. |
| 17 | | **Select Ground Speed Source**<br>Select your ground speed source. If you will be using GPS as the primary source, you will need to select a secondary source. Press **Next** to continue.<br><br>**Note:** The ground speed sensor input must be calibrated for accurate speed and area calculations. |
| 18 | | **Enter Configuration Name**<br>A window appears, asking you to enter a suggested configuration name. Use the keypad to enter a name, then press **Finish**. |
| 19 | | Your Clutch Control Configuration is now complete. |

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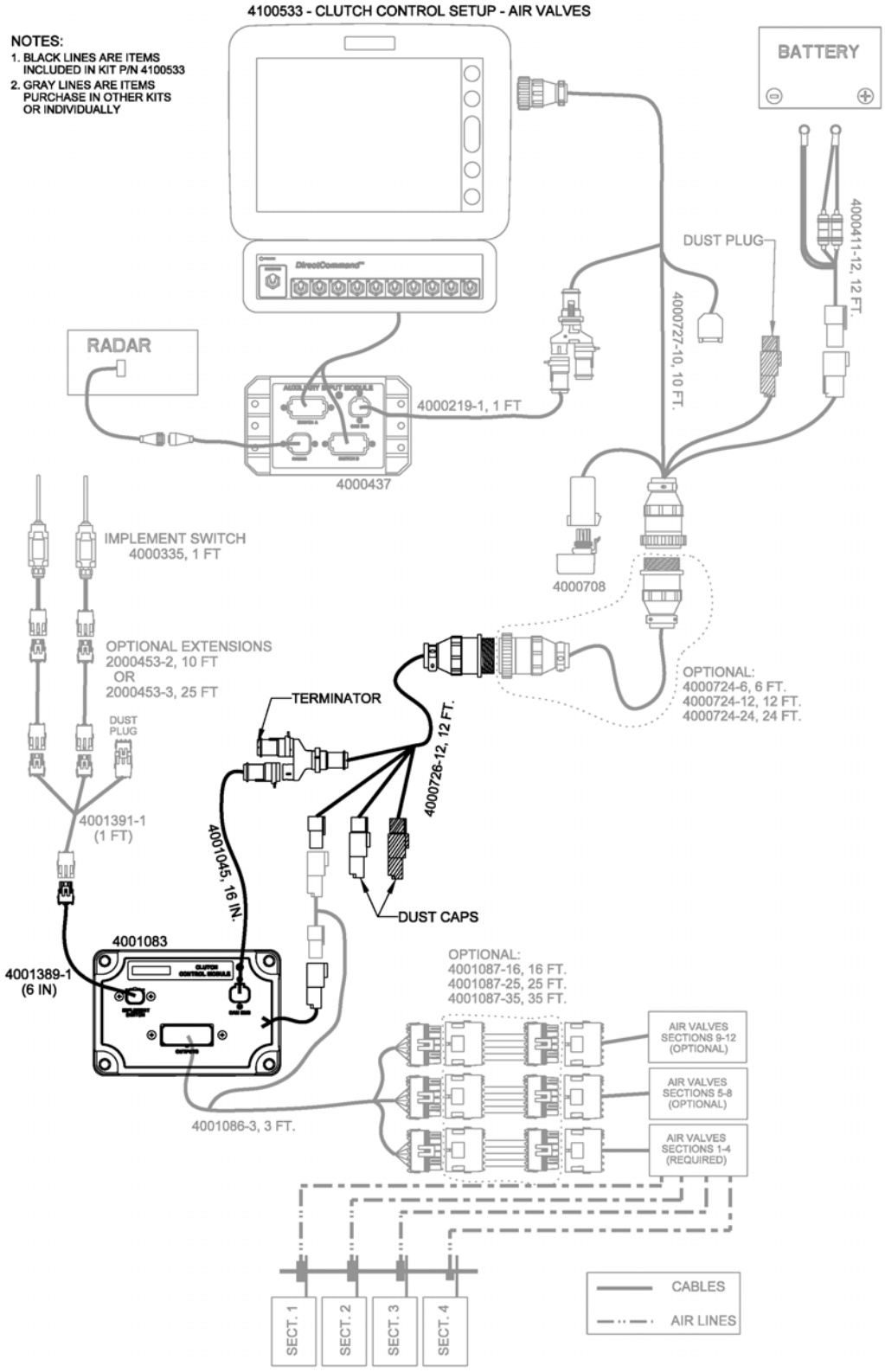
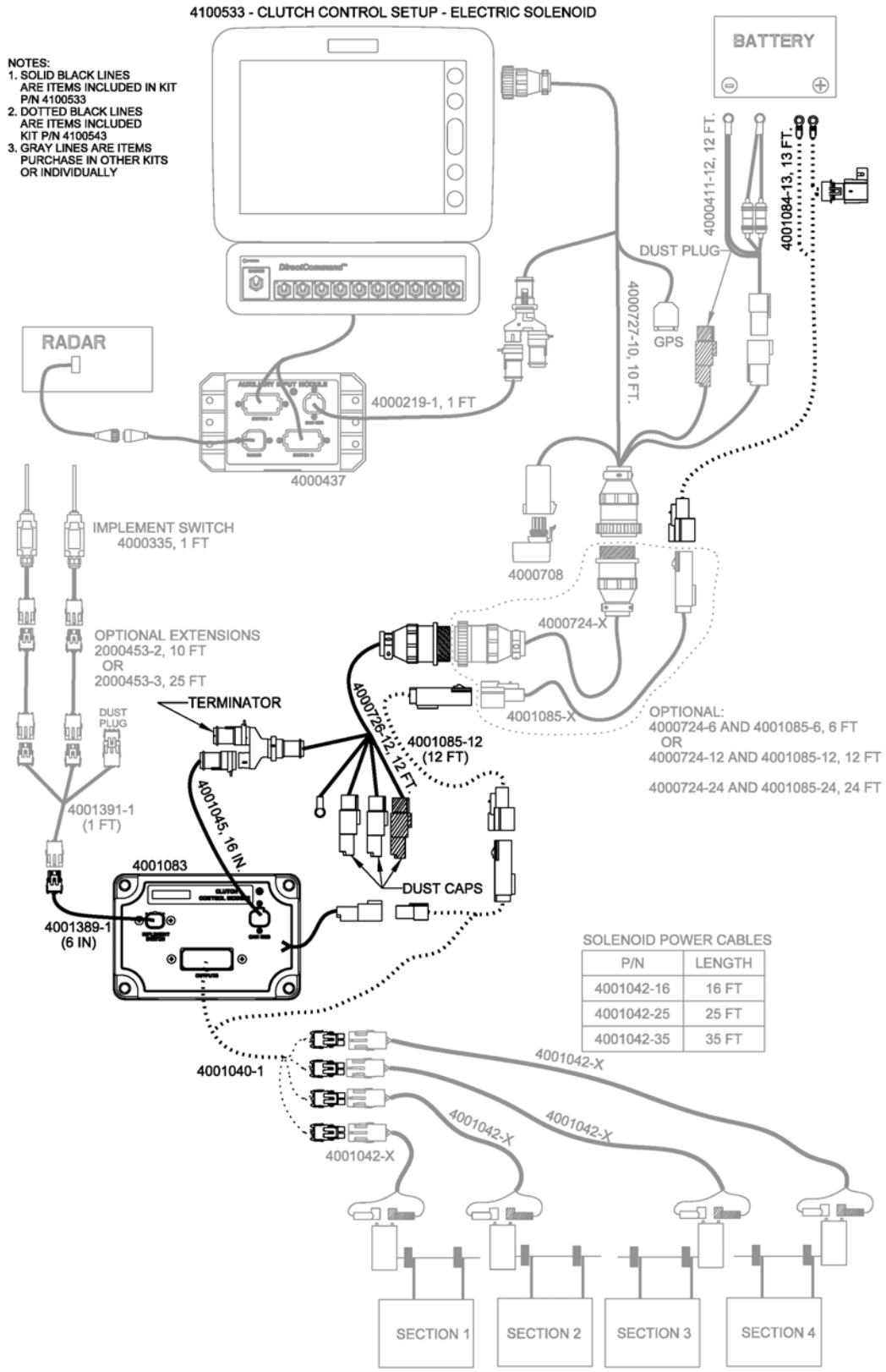
# Section 2: Air Clutch Setup



# Section 3: Electric Clutch Setup


4100533 - CLUTCH CONTROL SETUP - ELECTRIC SOLENOID
NOTES:
1. SOLID BLACK LINES ARE ITEMS INCLUDED IN KIT P/N 4100533
2. DOTTED BLACK LINES ARE ITEMS INCLUDED KIT P/N 4100543
3. GRAY LINES ARE ITEMS PURCHASE IN OTHER KITS OR INDIVIDUALLY
BATTERY
4000411-12, 12 FT.
4001084-13, 13 FT.
DUST PLUG
4000727-10, 10 FT.
GPS
RADAR
4000219-1, 1 FT
4000437
IMPLEMENT SWITCH
4000335, 1 FT
4000708
4000724-X
OPTIONAL EXTENSIONS
2000453-2, 10 FT
OR
2000453-3, 25 FT
TERMINATOR
DUST PLUG
4001085-X
OPTIONAL:
4000724-6 AND 4001085-6, 6 FT
OR
4000724-12 AND 4001085-12, 12 FT
4000724-24 AND 4001085-24, 24 FT
4000726-12, 12 FT.
4001085-12
(12 FT)
4001045, 16 IN.
4001391-1
(1 FT)
4001083
DUST CAPS
4001389-1
(6 IN)
SOLENOID POWER CABLES
P/N
LENGTH
4001042-16
16 FT
4001042-25
25 FT
4001042-35
35 FT
4001040-1
4001042-X
4001042-X
4001042-X
4001042-X
SECTION 1
SECTION 2
SECTION 3
SECTION 4

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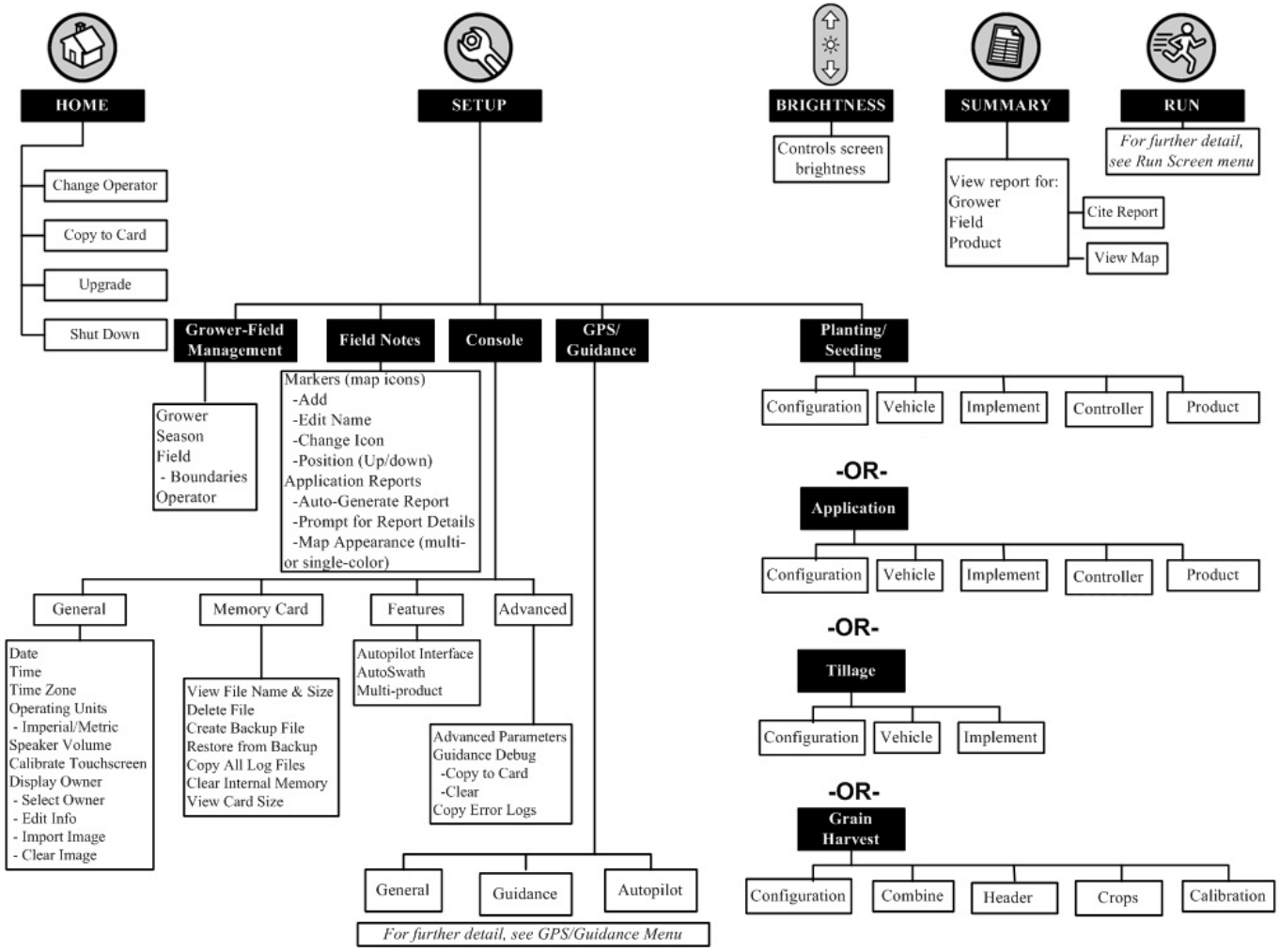
# Section 3: Setup Menu



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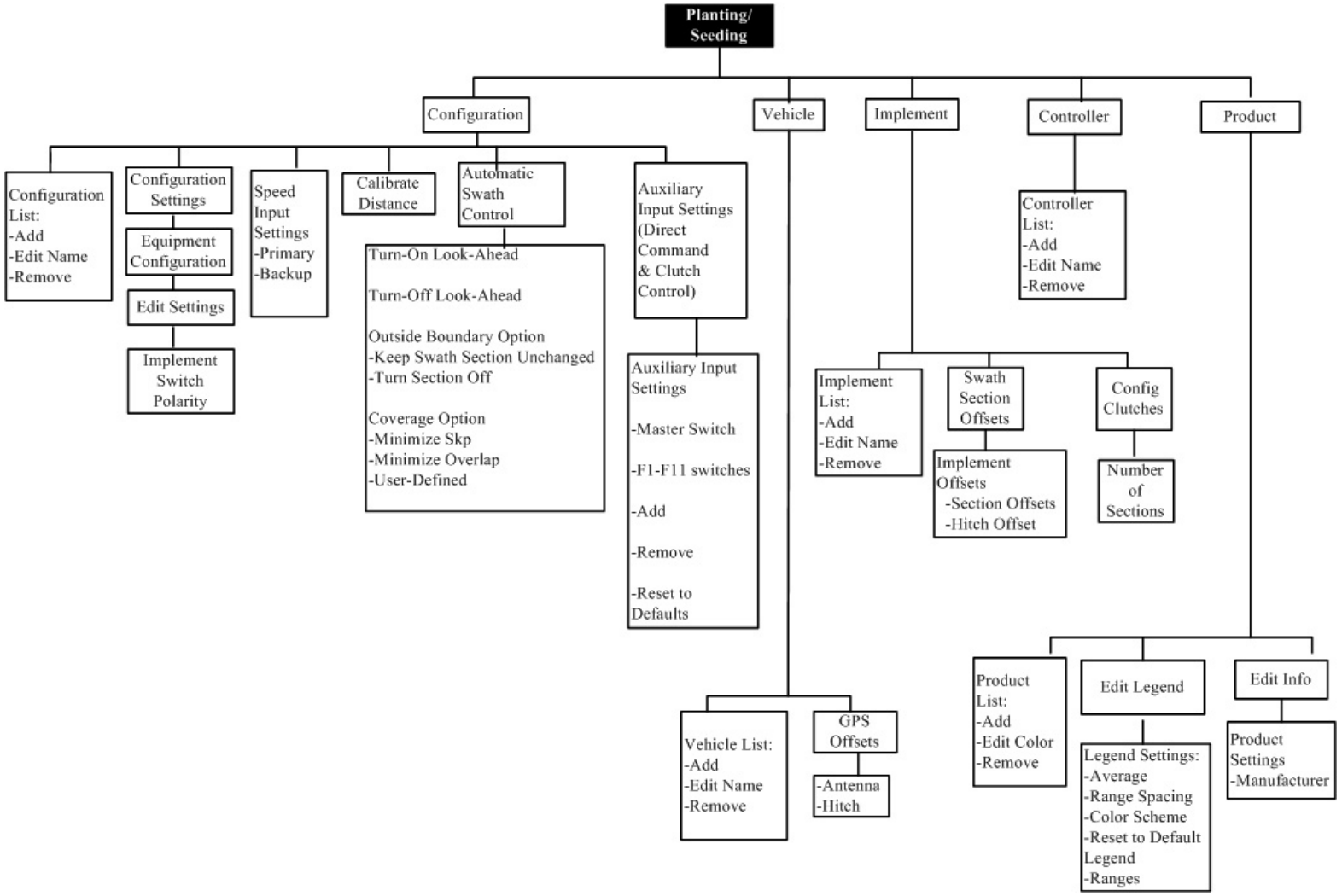
# Section 3: SeedCommand Menu Tree



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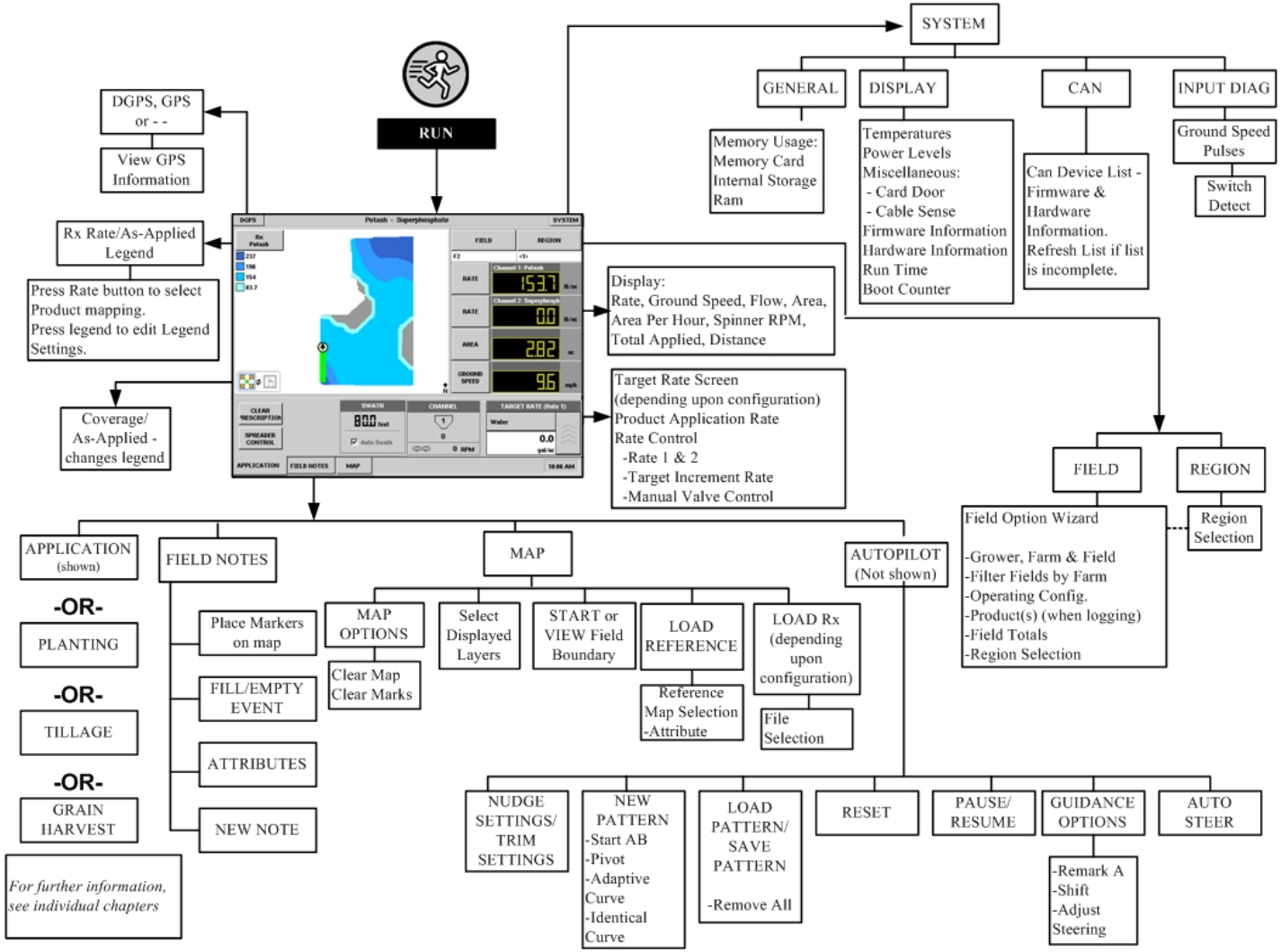
# Section 4: Run Screen Functionality



# Section 5: Autoswath Settings

The Automatic Swath Control feature turns swath sections off and on automatically based upon the following conditions:

- Entering and exiting internal and outer field boundaries.
- Entering and exiting mapped product recommendation areas.
- Entering and exiting previously applied areas within a field.

To access the Automatic Swath Control settings, select the Configuration tab, and press the Automatic Swath Control button to access the related settings. These settings affect the automatic swath control operation and are specific to that combination of Vehicle, Implement, and Controller.

**Note:** The Automatic Swath Control functionality is an optional feature of both the InSight DirectCommand and SeedCommand Systems. An unlock code must be purchased and installed to enable this feature. Call your local Ag Leader dealer for details and pricing.

| Automatic Swath Control settings | |
|---|---|
| **Turn-On Look-Ahead** | This setting determines how far ahead the system looks to turn the swath sections back on. This setting compensates for delay in the product control system when the implement sections are turned on. To see what these numbers should look like for Clutch Control Modules, see Section 6 on the following page. |
| **Turn-Off Look-Ahead** | This setting determines how far ahead the system looks to turn the swath sections off. This setting compensates for delay in the product control system when the implement sections are turned off. To see what these numbers should look like for Clutch Control Modules, see Section 6 on the following page. |
| **Outside Boundary Option** | Select one of the two options to determine system behavior when a swath section exits a field boundary or prescription-mapped area. |
| **Coverage Option** | In the Coverage Option area, you must choose between three options:<br>▪ The **Minimize Skip** option turns off the boom section after the entire implement section is fully inside your coverage area. This prevents the possibility of skips.<br>▪ The **Minimize Overlap** option turns off the boom section when that implement section first enters your coverage area. This prevents the possibility of overlaps.<br>▪ The **User Defined** option allows you to choose what percentage of the implement section is within the coverage area before that implement section turns off. For example, if you choose 50%, then the implement section will switch off when half of it is within your coverage area. |

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# Section 6: Clutch Control Turn-On and Turn-Off Look-Ahead Numbers

This table references the Turn-On Look-Ahead and Turn-Off Look-Ahead numbers for both Electric Clutch and Air Clutch Control Modules.

| Planter Unit Seed Meter Type | On/off | Electric Clutch | | Air Clutch |
|---|---|---|---|---|
| Finger Units | Turn On | 0.9 | | 1.1 |
| | Turn Off | 0.3 | | 0.3 |
| Vacuum | Turn On | 0.9 | | 1.1 |
| | Turn Off | 0.4 | | 0.4 |

## *Caution*

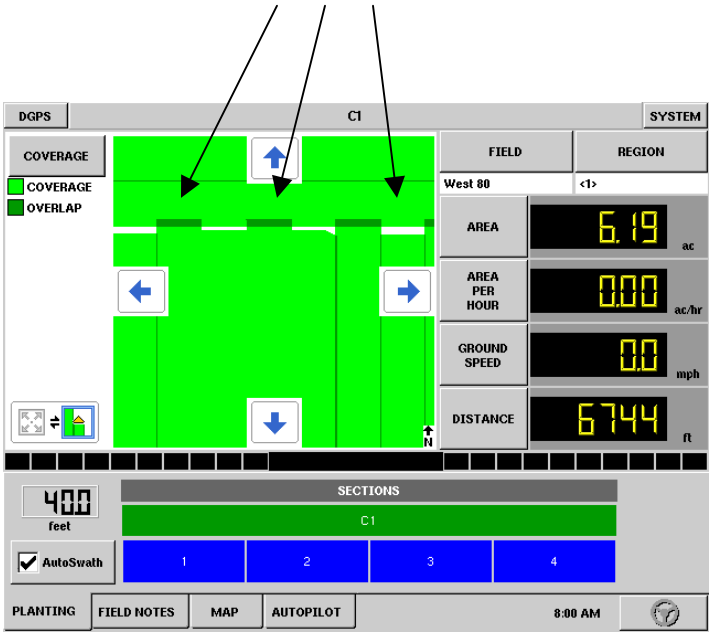
When operating Auto Swath, do not make changes to the look-ahead settings based on data from the on-screen map.

The look-ahead settings in the Planter Unit Seed Meter Type table were created from field testing and machine observations to determine the appropriate settings for each combination of clutch and seed meter. These should be accurate settings unless your planter has been modified.

Small skips and overlaps in the map may be expected but should not require you to adjust settings without first observing your machine's performance.

To determine if a setting change is necessary, perform the procedure detailed in Section 7 "Checking Auto Swath Performance for Clutch Control" to observe the actual machine performance. Following this procedure will give you additional data to use with that already received from the on-screen map.

**Note:** Using the above settings will produce accurate field results. However, small gaps may appear on the display, as in the example below. These gaps do not reflect actual machine performance or log data.




**Typical Example of Seed Command coverage map**

# Section 7: Checking AutoSwath Performance for Clutch Control

The settings given in the above Auto Swath look-ahead table have been tested with each clutch and seed meter combination to work for your planter. However, if you are looking for a method to verify the performance of SeedCommand, then Ag Leader suggests the following procedure:

**1.** Stop the planter within 20 feet of the planted headland.
**2.** Select one row unit from each planter swath section to observe.
**3.** Remove the down pressure from the closing wheel of each selected row unit.
**4**. Hold the closing wheels off the ground by attaching a chain or strap from the hopper support panel to the closing wheel arm. (This prevents the closing wheels from closing the seed trench).

**Note:** Securing these closing wheels up allows you to observe the planted seed in the trench so that you can observe when the InSight monitor is turned off and on during the seed application.

**5.** Resume planting in your normal fashion, then stop when you are 20 feet out of the headland of the next pass.
**6.** Stop the planter and observe the AutoSwath shutting off and turning on to see if the results are acceptable.

- If the results are correct, then return the closing wheels to their previous operational state. Close the seed trench on the observed rows and return to planting.
- If you suspect the results are incorrect, then adjust the appropriate look-ahead setting one-tenth (.1) second per trial. When making changes to the look-ahead settings, make sure to adjust these settings only one-tenth ( .1) second per trial. Larger adjustments can cause unintentional large changes in the AutoSwath's performance.

**Note:** When adjusting the look-ahead numbers from the suggested settings, Ag Leader recommends that you observe multiple trials to confirm the operations' accuracy.