

# EARLY RISER<sup>®</sup>

2000 SERIES PLANTER



## CASE IH PRODUCTIVITY GUIDE

[www.caseih.com](http://www.caseih.com)

**CASE IH**  
AGRICULTURE

# 2000 SERIES EARLY RISER® PLANTER



## CONTENTS

General Information .....	3-4
Planter Configurations .....	5
Product Support Kits .....	6-7
Precision Farming Options .....	8
Safety .....	9
Service Inspection .....	10-12
Operation .....	13-15
Maintenance .....	16-22
Adjustments .....	23-36
Planter Options .....	37
Monitors and Displays .....	38-52
Storage .....	53
Notes .....	54-55



# GENERAL INFORMATION

For years, successful growers have relied on Case IH to lead the way with the ultimate planters for their cropping operations. They have trusted their crop to the timeless design principles of the Early Riser Row Unit, while continuously implementing greater levels of precision and higher efficiency practices in their operations.

Case IH's 2000 series Early Riser Planter is designed with this progressive customer in mind, delivering a new level of efficiency to the agriculture industry. This is achieved through integrated industry-leading technologies, including many factory-fit Precision Planting components. These improvements allow growers to continue to reap the benefits of earlier emergence and higher net effective stands that they have achieved with Early Riser planters for years, all at the higher speeds needed to stay competitive in today's industry.

The planter row unit must consistently place the seed into direct contact with moist soil, at a uniform depth, with even in-row seed spacing. The 2000 series row unit maintains the agronomic design true to the Early Riser name, with a greater level of durability and ruggedness for higher planting speeds.

Equalizing gauge wheels are pulled, not pushed, by the row unit. Gauge wheels easily "walk" over residue and clods to minimize depth variation, and are more stable at faster ground speeds and adverse field conditions. Then, the Early Riser row unit uses offset double disk openers to slice a trench through heavy residue and hard soil. The low angle opener and specially-contoured gauge wheels produce a uniform trench, and retain moist soil next to the trench. A furrow forming point defines the seed trench and forms loose soil, creating the perfect seed delivery environment. Patented covering disks gently squeeze the trench closed, returning moist soil over the seed. Finally, a wide press wheel lightly firms soil on top of the furrow to eliminate air pockets, ensuring optimal seed-to-soil contact for quick germination. The unique chevron tread pattern scores the soil to encourage surface cracking for easier emergence in crust-prone soils. **The attention to seed placement accuracy delivered by the Early Riser is evidenced by proven emergence on average from one to three days faster than with other planter row units.**



The **vSet® 2 Vacuum Seed Meter** was co-developed with Case IH and Precision Planting engineers specifically for the Early Riser planter. This meter, combined with vDrive® electric drive, ensures precise per-row seed metering with simplicity and less maintenance. The mini-hopper's or on-row hopper's single air-intake screen is easy to access and clean. In fact, the entire seed meter offers fast, easy and, yes, tool-free maintenance and adjustments – even when switching between crops.



## SEED DELIVERY OPTIONS



The **Seed Tube** option (left) is optimized for accuracy at faster planting speeds, using DICKEY-john® Hy Rate Plus 10 LED self-calibrating seed sensors for accuracy in a range of seed sizes and field conditions.



The **Advanced Seed Delivery™ (ASD™)** (below) option delivers the highest level of seed placement accuracy. This includes the Precision Planting SpeedTube, which uses a flighted belt to control the delivery of the seed from the meter to the furrow, eliminating the drop and tumble variability of traditional gravity drop tubes at speeds up to 10 mph.

# 2000 SERIES EARLY RISER® PLANTER

## GENERAL INFORMATION

The 2000 series Early Riser Planter combines the industry's most accurate planter technologies with an all-new rugged row unit and toolbar for fast and uniform emergence. This next-generation technology, along with the ease of use you need to meet optimal planting windows, gives your crop the best opportunity to achieve its full yield potential.



Case IH offers a selection of planter designs to suit customer's transport needs, including fold configuration and transport width. The 2000 series Early Riser folds as narrow as 12 ft. 4 in. (12R30, 16R30) on 2150 models, and 15 ft. 4 in. (32R30, 36R30) on 2160 models. Quick moves from field to field to help you spend more time planting and less time moving between fields when conditions are right. Once again, Early Riser planter advantages get your crop in the ground and growing faster than other planters. Add total planter control and continuous planter performance feedback using the Case IH Advanced Farming Systems™ (AFS) Pro 700™ display. Add the Advance Seed Information (ASI) option for detailed seed placement information and/or AFS Connect™ for 2-way file transfer for the ultimate in modern planting accuracy and efficiency.



The best-in-class bulk fill option cuts seed fill time to a minimum with twin, easy-to-reach hoppers that cover more acres between fills. A simple high volume fan system efficiently moves seed from the bulk fill hoppers to row unit mini-hoppers to keep planting up to speed, and row unit weight consistent. This system also means simpler tank cleanout for less seed loss and quick change-over between seed types.

# PLANTER CONFIGURATIONS

Case IH Early Riser® 2000 Series Planters are available in multiple configurations to match any farming operation:

## 2160

- 32R30 Front Folding
- 36R20 Front Folding
- 36R22 Front Folding
- 36R30 Front Folding



## 2150

- 12R30 Front Folding
- 16R30 Front Folding
- 24R30 Front Folding



## 2140

- 23R15/12R30 Pivot Transport
- 24R15/12R30 Pivot Transport
- 31R15/16R30 Pivot Transport
- 32R15/16R30 Pivot Transport
- 24R20 Pivot Transport
- 24R22 Pivot Transport



## PRODUCT SUPPORT OFFERING

### LARGER, HEAVIER EARTH METAL BLADES FOR LONG-LASTING DURABILITY

When it comes to the productivity of your Case IH planter, only trust the best. Many product support kits are available to help you repair or replace worn parts. Talk to your Case IH dealer about getting the most out of this season.



- 15 in. diameter, 4.5 mm thick opener blades with bevels on both sides of blade are standard equipment on 2000 series planters
- Spring-tensioned opener disk scrapers maintain opener disk contact as scraper wears and can be serviced without tools
- Opener Disk Scraper Kits include leading and trailing disk scrapers and springs for LH or RH sides of row unit



PART NO.	DESCRIPTION
47592277	Opener Disk, LH or RH
48030825	LH Disk Opener Scraper Kit
48030826	RH Disk Opener Scraper Kit

### REAR LADDER EXTENSION (2150, 2160)

**Part No. 84493102**

- Bulk Fill configurations only
- Additional, flexible, ladder step makes access to the bulk fill platform in easier in plant and transport position

### FORMING POINT AND SHOE KIT

**Part No. 48030831**

- Includes forming point, seed shoe, and hardware



### CLOSING DISK KIT

**Part No. 48031218**

- Includes one closing disk and hardware



### INDUCTOR BOX SEED BAFFLE

#### SMALL BAFFLE

Recommended for milo, popcorn, sunflower, sugar beets, and onions. Small seed baffle not available factory-installed.\*

PART NO.	MODEL
47397652	12RN/16RN
47397656	24RN
47397660	32R/36R



#### LARGE BAFFLE

Replaces worn or broken large seed baffles. Recommended for field corn, soybean, sweet corn, and cotton. Large seed baffle is factory-installed.\*

PART NO.	MODEL
84594215	12RN/16RN
84594223	24RN
84594231	32R/36R

\* Refer to chart on pg. 26-29 for further detail.

### CARRIER WHEEL MUD SCRAPER (2150 ONLY)

Adjustable carrying wheel mud scraper brackets and hardware for center section tires only.

PART NO.	MODEL
47832716	2150



# PRODUCT SUPPORT OFFERING

## SEED FLOW LUBRICANT

- 50/50 Graphite/Talc mix available
- 50/50 Graphite/Talc blend improves seed flow when planting sticky coated seed
- Refer to Operator's Manual for recommended application rates
- Available in 1- or 8-lb. containers



PART NO.	DESCRIPTION
73340370	50/50 Graphite/Talc Seed Lube, 1 lb. bottle
73340734	50/50 Graphite/Talc Seed Lube, 8 lb. jug
73340918	Optional Dispensing Cap, 8 lb. jug (1/8 cup increments)

## PRECISION PLANTING CO-CONTROL OFFERING (OPTIONAL)

**Note:** To order full line of Precision Planting components from your dealer, they must be a certified Precision Planting dealer.

### 20/20 SEEDSENSE® DISPLAY

**Part No. 73368427**

- Control, monitoring, mapping, and diagnostics of row functions
- Planter performance with yield impact feedback
- Includes Gen 2 (iPad ready) 20/20 SeedSense display and associated mounting bracket and hardware
- Other kits are needed for full cab installation of 20/20 Display (power, GPS, radar, and iPad harnesses) – Consult your dealer to order



Shown are the AFS Pro 700, 20/20 SeedSense, and iPad with FieldView cab app

### 20/20 TO PLANTER CONNECTION KIT

- Required for 20/20 SeedSense display to co-control with AFS Pro 700 display
- Includes OEM harnessing and associated mounting hardware to connect planter to 20/20 SeedSense

PART NO.	MODEL
48075004	2140
47735005	2150 12R, 16R
47746506	2150 24R
48023698	2160

### FIELDVIEW CAB APP

App offers high-definition mapping for row-by-row performance feedback.

- Data delivered to cloud for access anywhere
- Scouting tool for planter feedback and yield impacts
- Connects planter data to harvest data (for combines equipped with YieldSense)
- Use for hi-definition as-applied mapping or for hi-definition mapping of 20/20 metrics
  - As-applied only - requires FieldView Drive hub
  - 20/20 metrics - requires 20/20 display



## PRECISION FARMING OPTIONS

### FULLY INTEGRATED TECHNOLOGY FOR EASIER OPERATION AND MAXIMUM EFFICIENCY



Case IH Advanced Farming Systems (AFS) and AFS Connect deliver an integrated precision farming solution that gives you more control over every operation than ever before.

#### AFS PRO 700

AFS Pro 700 control center is the common interface across all platforms of Case IH equipment, for simplified operation across various machines.



#### Key Features include:

- Single, integrated color touch screen display
- Monitor and control integrated Precision Planting component
- Monitor and control Case IH vehicles and implements
- Record important data and maps to use for future management decisions
- Operates six run screens that allow you to configure what you want to monitor and/or control
- Provides three video inputs to: monitor implements and seed tank level, ease vehicle back-up and increase safety
- Adjusts screen brightness for night visibility

#### ADVANCED SEED INFORMATION™ (ASI™)

Advanced Seed Information (ASI) option gives you detailed seed placement information, which monitors seed for planting performance feedback.

#### Key Features include:

- Shows readings for singulation, skips, multiples, Seed Release Index (SRI), and good spacing
- User sets row readings – set for all rows, high row, low row, or average

#### AFS CONNECT

AFS Connect allows for 2-way file transfer for easy sharing of planter data between your home computer and a trusted adviser.



#### Key Features include:

- Cellular RTK guidance (NTRIP)
- Fleet management
- Machine dashboard monitoring
- Vehicle and/or implement data monitoring
- 2-Way file transfer
- Graphic reports
- Custom alerts

#### PLANTER PERFORMANCE MAPPING

Planter performance metrics, including Advanced Seed Information (ASI), down force, alternator metrics, and others, are visible through the Pro 700 and Desktop Software. For full capabilities of the Pro 700 and Desktop Software, refer to pg. 39.



# SAFETY

At Case IH, we design and manufacture every piece of equipment with operator safety as a priority. As farm equipment has gotten larger, the size and weight of the equipment, coupled with the power of hydraulics and mechanical systems used to manipulate and control machines, makes a constant awareness of safety a foremost requirement of any operator. We also understand that planting time places added anxiety and stress on operators who know that the success of a full year is at stake every time they go to the field. However, hurrying never relieves the operator of their responsibility to operate the machine safely. Take a few minutes to review the Operator's Manual safety information before starting each year. The payback for your time should be a safer and more successful planting season.

**Do not take shortcuts, thinking that an accident takes time to happen. Accidents can happen in seconds, too often leaving someone plenty time to think about how the accident could have avoided—while they heal.**

## GENERAL SAFETY RULES

### TRANSPORT & OPERATION

- 1. Use the Operator's Manual.** This is the "go to" resource for questions on how to operate your machine. The following information is a generalized review of Safety rules. Refer to the Operator's Manual for complete information.
- 2. Know and obey local traffic laws.** One of the main features of large planting equipment is the ability to quickly move from one farm to another, using public roadways. Take time to become familiar with the traffic laws in your locality and how they apply to your large planting equipment.
- 3. Be visible.** When operating on public roads always use lights, flashers and turn signals for maximum visibility. Maintain a clean and visible Slow-Moving Vehicle sign on the rear of the machine.
- 4. Respect other drivers.** Be a good neighbor and pull over to let traffic pass if possible to avoid creating unnecessary delay and stress for other drivers.
- 5. Follow recommended weight limits.** For best field performance and the most secure road transport, make sure the weight of the implement does not exceed the recommended towing capacity of the tractor being used. This is especially important in areas with high traffic and hills that increase the braking and stopping demands necessary to maintain safe control. When transporting front-fold planters, empty seed and fertilizer boxes and tanks whenever possible to reduce tractor hitch load and total planter weight.
- 7. Maintain safe travel speeds.** When transporting equipment, maintain safe maximum travel speeds to assure complete control, and the ability to stop in case of emergency. Refer to tractor and planter Operator's Manual recommendations for maximum transport speed, loading and weight.
- 8. Use guards.** Removing guards for service work is no excuse to leave guards off during operation. Guards are intended to protect operators and any other persons, and must remain intact and installed as originally designed.
- 9. Know and use service locks.** Review the Operator's Manual to identify and understand the use of service locks prior to starting service operations. Engage service locks for all service operations. Use jackstands or secure blocking when working under or around raised equipment. Never work on the planter without securely setting and locking service and transport locks in position and removing machine weight from the hydraulics systems.

### MAINTENANCE SAFETY

- 10. Be careful of sharp components.** When servicing ground engaging components such as opening disks and forming points, use special care to avoid points and edges worn sharp during use.
- 11. Keep tires inflated.** The design of modern planters places significant load on tires. Always keep tires inflated to the specifications published in your planter Operator Manual. Service tires carefully, observing Operator's Manual instructions and rules.

### CHEMICAL HANDLING SAFETY

- 12. Know and practice safe chemical handling.** Chemical application is often an integral part of planting. Use the utmost care to protect yourself, other people, and the environment from the effects of overexposure to agricultural chemicals. Use the proper protective clothing and safety equipment when handling chemicals. Don't take chances—work safe.
- 13. Follow label instructions.** Follow label instructions for proper chemical mixing, handling and container disposal methods.
- 14. Have an emergency plan.** Be familiar with safety procedures for immediate first aid should you accidentally contact chemical substances. Chemicals are supplied with Material Safety Data Sheets (MSDS) that provide full information about the chemical, its effects on exposure, and first aid needs in the event of an emergency. Keep your MSDS file up-to-date and available for first responders in case of emergency.
- 15. Observe and inspect all warning decals.** Replace any decals that are damaged and unreadable.
- 16. Never raise or lower machine during service.** Never allow the machine to be raised or lowered while service is being performed. Numerous linkages are used to move and suspend components. Pinch points between linkage and other parts of the machine are inherent, and could cause injury.

## SERVICE INSPECTION

### TAKE FULL ADVANTAGE OF ITS CAPABILITIES

Have you, or did someone you know purchase a new planter in the last few years and continued to use it in much the same way as the planter it replaced? Many times operators do not fully realize and take advantage of modern features. As a result of not fully utilizing the planter's features, the owner may not be getting all the value from the money spent. Many of the items suggested in this booklet can be completed by the owner when preparing for the season or the operator when starting a new field. Other adjustments, service procedures, or repairs might be more effectively completed by your dealer's trained service technicians.

Ask your Case IH dealer about Customized Maintenance Inspections. It is a proactive way to be sure your planter will operate at its best possible performance when you need it. Customized Maintenance Inspections include a visual and functional inspection of your planter. They can be used as a pre-season or as a postseason tune-up.

Benefits include:

- Increased productivity
- Less downtime during the season
- Lower operating costs
- Improved fuel economy
- Documented maintenance
- Service by Case IH-trained technicians
- Service with Genuine Case IH lubricants, filters, and parts

The combined advantages of Customer Maintenance Inspection services should result in a lower cost of ownership and higher resale values.



### DOCUMENTED SERVICE PROMOTES HIGH RESALE VALUE

When you schedule your equipment for annual maintenance inspection services, your Case IH dealership places annual UPTIME Action Maintenance decals on your equipment after each inspection, distinguishing your commitment to keep your machines running in top condition. Not only does annual maintenance support your productivity in the field, each decal symbolizes completed service—which may increase the resale value of your equipment.

Because Case IH technicians use Customized Maintenance Inspection checklists for each inspection, you can rest assured the service is thorough and nothing is overlooked.



# SERVICE INSPECTION

## INSPECTION CHECKLIST FOR YOUR “WALK AROUND” INSPECTION

	OK	Replace/ Adjust		OK	Replace/ Adjust
<b>PRESS WHEEL</b>			<b>PNEUMATIC DOWN PRESSURE (IF EQUIPPED)</b>		
1. Splits, cracks	<input type="checkbox"/>	<input type="checkbox"/>	27. Air compressor filter (clean or replace)	<input type="checkbox"/>	<input type="checkbox"/>
2. Chevron bars/center rib	<input type="checkbox"/>	<input type="checkbox"/>	28. Air compressor oil level	<input type="checkbox"/>	<input type="checkbox"/>
3. Bearing	<input type="checkbox"/>	<input type="checkbox"/>	29. Air tank (drain, inspect)	<input type="checkbox"/>	<input type="checkbox"/>
4. Down pressure spring and cartridge condition	<input type="checkbox"/>	<input type="checkbox"/>	30. Air lines (leaks, damage, etc.)	<input type="checkbox"/>	<input type="checkbox"/>
<b>CLOSING DISC</b>			<b>ON-ROW SEED HOPPER (IF EQUIPPED)</b>		
5. Diameter (min. 8 in.)	<input type="checkbox"/>	<input type="checkbox"/>	31. Hopper condition	<input type="checkbox"/>	<input type="checkbox"/>
6. Bearing and cap condition	<input type="checkbox"/>	<input type="checkbox"/>	32. Hopper lid	<input type="checkbox"/>	<input type="checkbox"/>
7. Spring and cartridge condition, or air cylinder condition (if equipped)	<input type="checkbox"/>	<input type="checkbox"/>	<b>BULK FILL OPTION (IF EQUIPPED)</b>		
<b>RESIDUE MANAGERS</b>			33. Tank lid seal	<input type="checkbox"/>	<input type="checkbox"/>
8. Air cylinder and rod boot condition (if equipped)	<input type="checkbox"/>	<input type="checkbox"/>	34. Inductor box door seals	<input type="checkbox"/>	<input type="checkbox"/>
<b>OPENER DISC SCRAPER</b>			35. Hydraulic fan motor (oil leaks)	<input type="checkbox"/>	<input type="checkbox"/>
9. Cleans openers properly (replace as needed)	<input type="checkbox"/>	<input type="checkbox"/>	36. Air leaks – hoses, induction box	<input type="checkbox"/>	<input type="checkbox"/>
<b>OPENER DISCS</b>			<b>MARKER DISCS (IF EQUIPPED)</b>		
10. Diameter (min 14.5 in.)	<input type="checkbox"/>	<input type="checkbox"/>	37. Disc condition	<input type="checkbox"/>	<input type="checkbox"/>
11. Clearance between openers (3 shims behind lead opener, 4 shims behind trailing opener)	<input type="checkbox"/>	<input type="checkbox"/>	38. Bearing condition	<input type="checkbox"/>	<input type="checkbox"/>
<b>GAUGE WHEELS</b>			<b>GRANULAR CHEMICAL (IF EQUIPPED)</b>		
12. Rubber/rim condition	<input type="checkbox"/>	<input type="checkbox"/>	39. Discharge tube	<input type="checkbox"/>	<input type="checkbox"/>
13. Clearance to disc (0 - 1/8 in. max.)	<input type="checkbox"/>	<input type="checkbox"/>	<b>LIQUID FERTILIZER (IF EQUIPPED)</b>		
14. Wobble arm	<input type="checkbox"/>	<input type="checkbox"/>	40. Tank, filter, flow meter, and all lines clean	<input type="checkbox"/>	<input type="checkbox"/>
15. Pivot arm pins	<input type="checkbox"/>	<input type="checkbox"/>	41. Orifices installed and clean	<input type="checkbox"/>	<input type="checkbox"/>
<b>ROW UNIT PARALLEL LINKAGE</b>			42. Section valves and individual row shutoffs (if equipped) – clean and function	<input type="checkbox"/>	<input type="checkbox"/>
16. Linkage poly bushings – replace before worn completely through	<input type="checkbox"/>	<input type="checkbox"/>	43. Coulter wear/damaged (if equipped)	<input type="checkbox"/>	<input type="checkbox"/>
<b>SEED SHOE</b>			44. In-furrow nozzle condition, clean/not blocked (if equipped)	<input type="checkbox"/>	<input type="checkbox"/>
17. Excessive wear at bottom and side of shoes	<input type="checkbox"/>	<input type="checkbox"/>	45. Calibrate	<input type="checkbox"/>	<input type="checkbox"/>
<b>DEPTH CONTROL</b>			<b>ELECTRICAL</b>		
18. Row units zeroed (if parts were replaced)	<input type="checkbox"/>	<input type="checkbox"/>	46. Wire harnesses/tie straps	<input type="checkbox"/>	<input type="checkbox"/>
<b>SEED METERING SYSTEM</b>			47. Fuses	<input type="checkbox"/>	<input type="checkbox"/>
19. Seed meter cover seal (wear points visible, deformation)	<input type="checkbox"/>	<input type="checkbox"/>	48. Seed tube & SpeedTube sensor (function/LED), clean	<input type="checkbox"/>	<input type="checkbox"/>
20. Seed disc, seed holes	<input type="checkbox"/>	<input type="checkbox"/>	49. Hopper seed level sensor	<input type="checkbox"/>	<input type="checkbox"/>
21. Singulator	<input type="checkbox"/>	<input type="checkbox"/>	50. Wheel speed sensor (if equipped) (approx. 0.1 in. air gap)	<input type="checkbox"/>	<input type="checkbox"/>
22. Ejector wheel	<input type="checkbox"/>	<input type="checkbox"/>	51. Monitor (operation, functionality)	<input type="checkbox"/>	<input type="checkbox"/>
23. Brush condition	<input type="checkbox"/>	<input type="checkbox"/>	52. Battery fully charged, battery holding charge	<input type="checkbox"/>	<input type="checkbox"/>
24. Seed tube condition	<input type="checkbox"/>	<input type="checkbox"/>	<b>TRACKS (IF EQUIPPED)</b>		
25. SpeedTube belt, feeder wheel condition	<input type="checkbox"/>	<input type="checkbox"/>	53. Track and idler condition	<input type="checkbox"/>	<input type="checkbox"/>
26. Vacuum lines (condition, obstructions)	<input type="checkbox"/>	<input type="checkbox"/>	54. Idler oil level	<input type="checkbox"/>	<input type="checkbox"/>
			55. Track alignment	<input type="checkbox"/>	<input type="checkbox"/>
			<b>OTHER/ATTACHMENTS (IF EQUIPPED)</b>		
			56. Frames	<input type="checkbox"/>	<input type="checkbox"/>
			57. Welds	<input type="checkbox"/>	<input type="checkbox"/>
			58. Tire pressure/inflation	<input type="checkbox"/>	<input type="checkbox"/>
			59. Hydraulic hose routings	<input type="checkbox"/>	<input type="checkbox"/>
			60. Hydraulic oil reservoir level (PTO pump only)	<input type="checkbox"/>	<input type="checkbox"/>

## SERVICE INSPECTION

### REMOVING THE PLANTER FROM STORAGE

1. Clean hydraulic hose couplers before connecting to the tractor.
2. Make sure tires are properly inflated before moving the planter.
3. Remove protective grease and clean exposed cylinder rods.
4. Carefully raise the planter, making sure settling during storage, or other closely-parked equipment does not result in interference when raising and moving the planter.
5. Make sure seed disks are returned to matching meter housings when re-installed.
6. Inspect the entire planter for signs of rodent or other damage. Check hydraulic hoses and wiring harnesses for proper routing, and tie strap as needed.
7. Lubricate all grease fittings. Do not over-grease fittings lubricated when the unit was put in storage.
8. Cover bulk fill hopper bottom with 50/50 graphite/talc mix.
9. Clean seed tubes/SpeedTubes and seed sensors.
10. Close air compressor drain.
11. Read the Operator's Manual for both the planter and display operation.
12. Reconnect, charge, and test the planter battery.



# OPERATION

## TRACTOR/PLANTER HOOKUP

Several important factors must be considered when matching the tractor to the planter. The Tractor/Planter Preparation section of the Operator's Manual lists specific requirements for your planter configuration. General factors are:

- Minimum tractor PTO horsepower
- Minimum tractor weight and balance
- Minimal number of remote hydraulic valves
- PTO compatibility with planter hydraulic pump, if equipped
- Adequate 12 volt electrical system capacity
- 2-point hitch (if applicable) or drawbar (if applicable) requirements
- Tractor tread width adjustable to row spacing

Some specific details that apply to general tractor/planter compatibility requirements include:

- Horsepower and Weight Requirements must be met to maintain control of the planter in the field and transport situations. This is especially important when operating on hilly or unstable soil when additional control is required.
- Low Back Pressure Case Drains on all 2000 series planters. Low pressure is defined as less than 25 PSI under full-flow conditions. Refer to your tractor Operator's Manual for correct low-pressure return connections for your tractor.
  - A hydraulic case drain port is required for all 2000 series planters. A warning tag on the case drain hose reminds the operator that incorrect connection of the case drain may damage the vacuum fan motor. Motor failures due to improper case drain connection are not covered by warranty.
- Hydraulic PTO pump (if equipped) supplies various planter hydraulic circuits. Refer to specific tractor installation instructions for PTO pump torque restraint kits.
- Tractor 3-point hitch adjustments should be set according to planter Operator Manual instructions. For example, sway adjustment will vary between hitch-mounted toolbar planters, and a drawn planter using the 3-point hitch quick coupler connection to the tractor.
- Electrical system requirements include the standard seven-pin connector socket for safety lighting, a nine-pin connector for planter power and communications, and AFS system wiring.
- Tractor requirements vary widely depending upon the size of planter and type of hitch arrangement. Always refer to the Operator Manual for information pertaining specifically to your planter.

When hookup is complete, thoroughly inspect the routing of all hoses and electrical harnesses between the tractor and planter.

- Steer the tractor/planter combination through complete right and left turns, raise and lower the tractor or planter hitch while observing routing to assure no interference develops during operation and maneuvering.



## OPERATION

### LEVELING THE PLANTER

Planter row units must be set to operate level front-to-back when operating in the field.

#### 1. Measure

Distance between the ground and the front and rear of the toolbar should both equal 660 mm (26 in.).

If not, follow step 2.

#### 2. Adjust

- Planter should be in level field area prepared for planting
- Set planter row unit down-pressure adjustments according to planting conditions
- When the planter is lowered to the operating position, the toolbar will be parallel to ground
  - *Drawbar Hitch units – adjust the clevis to the correct position to achieve desired height*
  - *2 Point Hitch units – use tractor hitch controls achieve and set desired height*
  - *If hitch adjustment is inadequate, carrying wheel height is adjusted by changing mounting location on support arms*



### GENERAL PLANTING TIPS

Several important factors must be considered when planting.

General factors are:

- **Always be moving forward when lowering planter into planting position**
  - Lowering the planter to planting position while stationary may cause plugging at the seed shoe
- **Dig often** to check seed depth and seed spacing accuracy.
- **Operate with frame control remote valve in float** after lowering the planter, allowing markers (if equipped) to float
  - **2160 only** – operate with frame remote powered down to avoid raising of carrying cylinders
- **Check tractor hydraulic flow adjustments** for each planter function running direct from tractor after reaching operating temperature.

NOTE: It is recommended that flow levels be set just above the required amount for each circuit to reduce the potential for overheating and power consumption.

# OPERATION

## PLANTING WITH AN ELECTRIC DRIVE PLANTER

Electric variable drive planters require different operating techniques than ground drive planters. Follow these guidelines for consistent seed spacing and population across the field, especially at the start and end of each pass.

### MAINTAIN CONSISTENT ENGINE RPM

- 1800-1900 RPM recommended (see tractor ops manual for details)
- To decelerate the tractor, always downshift to a lower gear to maintain engine RPM
- Avoid throttling down, which can cause unwanted seed gaps from vacuum fan pressure drop

### AVOID SUDDEN CHANGES IN SPEED

- When shifting gears while planting, shift one gear at a time
- Sudden speed changes may cause unwanted seed gaps

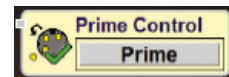
### PLANTER SYSTEMS (START)

- Starts all necessary systems with one button – vacuum, bulk fill (if equipped), alternator, wing down force (if equipped), plus prime the meters



### PRIME CONTROL

- Loads seed meters to prepare for planting



### JUMPSTART

- Allows product application drives to start early when accelerating from a complete stop
- Drives apply using a Jump Start speed until it is exceeded by actual ground speed



### 'STOP PLANT' FEATURE

- Operator raises the planter to pre-set height before slowing to a stopped position, disengaging product drives

### PLANTER SYSTEMS (STOP)

- Turns off all planter systems initiated with Planter Systems (Start).



## MAINTENANCE

### DAILY MAINTENANCE

Daily maintenance on Case IH planters is limited to a few simple lubrication and component checks.

#### Grease points

- Identify by reviewing the lubrication section of your planter Operator Manual
- Lubricate all frame pivots and driveshaft grease fittings (if equipped)

#### Air Compressor

- Drain air tank at least once daily
- Clean pneumatic air filter(s) daily, replacing as needed
- Check oil level, and add synthetic 15W-50 engine oil as needed

#### PTO Pump System (if equipped)

- Check fluid level in PTO pump reservoir, adding CASE IH AKCELA HY-TRAN® ULTRACTION as needed
- Check fins on PTO pump fluid cooler for plugging, cleaning with shop air or low pressure wash as needed



### VERIFYING PLANTER PERFORMANCE AND “AS REQUIRED” MAINTENANCE

Early Riser row unit maintenance is described in the Operator Manual as “as required” service functions. This means that units can be operated without need for specific maintenance checks as long as meter function is to standard, and seed placement and seed furrow opener performance is satisfactory.

Defining “as required” maintenance is quite simply to “get out and dig” behind the planter to check performance

- Recommended throughout the day on varying rows until a full planter inspection is completed at least once per day
- Maintain enough down pressure to prevent row unit bounce and potential poor seed placement
- This is especially important when starting each season; or when making planter changes or adjustments
- Turn off air pressure to closing systems (if equipped), lift closing disks with a strap, and lock press wheel in transport position to access closing system components.



**A** Check depth on seed trench opening disks (**A & B**). Seed depth should be checked from the press wheel impression to the seed. Do not measure from the gauge wheel impressions, or the surface of the soil between the row unit gauge wheel tracks.



**C** Check furrow forming point depth (**C**).



**D** Check seed spacing and placement to confirm seed meter accuracy and setting (**D**).



**E** Closing Disks OR V-press wheel – Confirm covering disk action and seed trench closure (**E**).



**F** Verify press wheel (if equipped) function (**F**).



# MAINTENANCE

## vSet 2<sup>®</sup> SEED METER REMOVAL & INSPECTION

Refer to Ops Manual for further instructions

1. Remove the seed hopper and meter
  - Disconnect wiring harness connector, vacuum hose and bulk fill seed hose coupler (if equipped)  
**NOTE:** When removing the seed hose coupler, care should be exercised so that the sealing O-ring does not become dislodged from the coupler.
  - Disconnect the seed hopper by unlatching the hopper (mini hopper and on-row hopper) from the row unit
  - Remove the seed hopper by tilting the hopper up (mini hopper and on-row hopper) and lifting out of row unit assembly
  - Remove seed meter assembly from the seed hopper by unlatching spring latch and lifting out of seed hopper
2. Disassemble the seed meter
  - Disconnect the two seed meter retention springs from the locking tabs on the meter housing to remove the seed meter cover
  - Remove clip from seed disc shaft, and remove the seed disc
3. Inspect and clean meter and hopper components:
  - Mini Hopper or On-Row Hopper (if equipped)
    - Remove mesh vent to clear debris
  - Meter
    - Vacuum seal – inspect for wear and deformation, which may require replacement
    - Meter housing – clear debris, clean with soap and water
    - Meter cover – clear debris, clean with soap and water
    - Seed ejector wheel – inspect for excessive wear and to check for binding
    - Air vents – clear of debris, clean with soap and water
  - Singulator
    - Clear debris from behind singulator
    - Should be seated fully into the tabs on the singulator mounting spring
    - Inspect lobes for wear. If flat spots have developed, replace the singulator
    - Check radial spring for detent. Ensure the ends of the radial spring are seated in the holes of the seed cover wall and that the radial spring is retained behind the two tabs on the seed cover wall.
  - Brushes (upper and lower)
    - Clear debris, and replace brushes if seed leakage occurs.
  - Seed disc
    - Primary indicator is reduction in planting performance. Performance issues can be caused by:
      - Seed holes are not round
      - Agitator pockets are severely worn
      - Drive teeth are worn or damaged
      - Disc has become warped



## MAINTENANCE

### SEED TUBE & SPEEDTUBE™ MAINTENANCE

Refer to Ops Manual for further instructions

#### Seed Tube Inspection & Cleaning (if equipped)

- Remove seed hopper and meter from row unit, as formerly explained
- Use cleaning brush provided with your planter

**OPTION 1 (most thorough clean)** – Remove Seed Tube from housing by disconnecting connector and lifting. Clip cable ties, and wipe the seed sensor clean. Reinstall cable sensor with new cable ties. Clean the inside of the seed tube thoroughly using a cleaning brush and a clean cloth. Rinse with clear water. The seed tube must be completely dry prior to re-use.

**OPTION 2 (quick clean)** – With Seed Tube still in housing, run cleaning brush down seed tube or raise planter and run cleaning brush up from tube bottom.

#### SpeedTube™ Inspection & Cleaning (if equipped)

- Remove seed hopper and meter from row unit housing, as formerly explained
- Unplug the connector, remove SpeedTube™ from row unit mount, and unscrew optical sensor
- Open SpeedTube™ assembly by compressing the housing tab and rotating the side cover about the hinge as shown
- SpeedTube™ Inspections:
  - Feeder wheels: check for wear or damage
  - Soybean deflector (if applicable): check for wear or damage
  - Belt – check belt tension. If required, reset tension by loosening the idler pulley set screw to allow the spring to tension the belt, then re-tighten the set screw.
  - Rumble strip – check for wear or missing nubs
  - Sensor windows – clean, free of debris
  - Inspect pulleys, feeder wheels, belt, and belt track for dirt



# MAINTENANCE

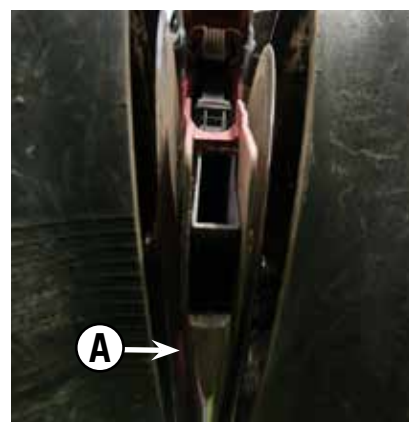
## 2000 SERIES EARLY RISER ROW UNIT INSPECTION

When servicing ground-engaging components, use care to avoid injury on parts worn sharp by contact with the soil.

- Refer to the Operator's Manual maintenance section for the proper procedures for replacing components.

A walking beam suspension between the two gauge wheels and the row unit opener frame allows one gauge wheel to pass over a rock or clod.

- From the factory, there are 3 shims behind leading opener disk, and 4 shims behind trailing opener disk. If opener plugging is experienced as opener disks wear, one shim may be removed from trailing opener disk.
  - Acceptable for disks to touch lightly at some points
- A furrow forming point **(A)** finishes the trench by shaping the soil at the bottom of the trench into a consistent flat bottom for optimum soil-to-seed contact and germination.
- Inspect seed shoe, and replace if it is worn through. Replace furrow forming point when seed shoe is replaced. Inspection gauge no longer needed for replacement of forming point.
- Opener disks should be replaced when they are worn to a 14-1/2 in. diameter.
- Inspect opener disk scrapers. Opener disk scrapers are not adjustable, and should be replaced when they are no longer able to keep disks clean in your soil and planting conditions.



## MAINTENANCE

### BULK FILL HOPPER INSPECTION

Some simple checks should be performed on bulk hopper systems to assure proper operation.

- Lid seal condition and integrity
- If the lid gasket does not appear to contact the lid evenly, adjustment of the hinges and latches may be helpful in maintaining a more airtight seal
- Remove debris from the bulk fill fan screen
- Clean bulk fill inductor box by opening clean-out doors
- Inspect inductor box seals for signs of air leaks
- Clean bulk fill bin level sensors for seed treatment and lubricant build up

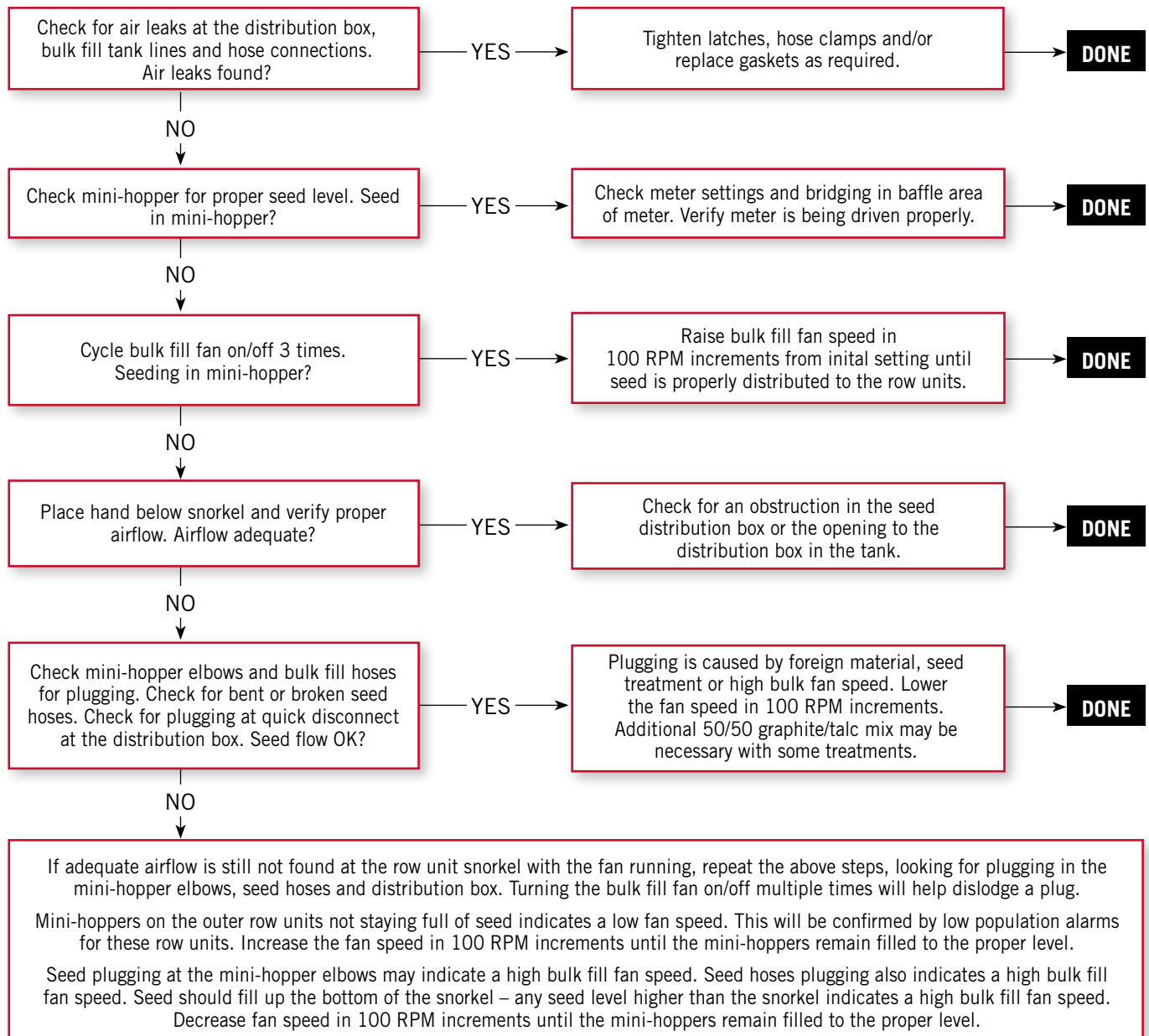


# MAINTENANCE

## BULK FILL SYSTEM TROUBLESHOOTING DIAGRAM

Seed not flowing or low seed flow to the mini-hopper

1. Turn the bulk fan OFF and verify seed is in the problematic mini-hopper.
2. Verify fan is operating at recommended speed. See charts on pg. 26-29.
3. Check that the inductor box blockoff plate is not in place.
4. Verify the correct inductor box air baffle is inserted into the distribution box. Refer to the 'Recommended settings chart' in the Operator's Manual for details or refer to chart on pg. 26-29.



**NOTE:** Additional seed flow lubricant may be necessary when using seed coated with treatments.

## MAINTENANCE

### LIQUID FERTILIZER (IF EQUIPPED)

The 2000 series liquid fertilizer system uses a variable flow rate centrifugal pump, inline filter, flowmeter (feedback), pressure sensor, agitation nozzle (in tank), 3 sectional control valves, applicator orifices, and nozzle body check valves to control the application rate.

The pump supplies sufficient flow (gpm, l/min) to supply the needs of the flowmeter and agitation circuit. Pump flow rate is controlled by the AFS Pro 700 system, based on the desired application rate input by the operator. These components require regular inspection and maintenance to assure accurate application rates throughout the entire planting season.

#### DAILY MAINTENANCE

- **Drain all liquid fertilizer from tanks.**  
Flush liquid fertilizer system with water after daily use.
- **Inspect all hoses for wear, twists, or cracks.**  
Repair or replace as necessary.
- **Inspect applicator orifice.**  
Flush or clean as required if flow is diminished.

**Note:** Do not run pump dry. Seal damage will occur.

**Note:** Do not allow water-diluted fertilizers to remain in the fertilizer system overnight or longer. Salts will separate from the dilution and clog the system.

#### SEASONAL MAINTENANCE

Prior to storing planter, prepare the Liquid Fertilizer system with the following:

1. Drain tanks and flush with water.
2. Disconnect supply hoses and check valve caps.
3. Clean orifices with soap and water and allow to dry before storing.
4. Disconnect flowmeter assembly and clean with soap and water. Reinstall flowmeter.

**Note:** Leave applicator lines and check valves open to aid in evaporating moisture from system.

### GRANULAR CHEMICAL SYSTEM (IF EQUIPPED)

#### SEASONAL MAINTENANCE

1. Remove all transfer containers
2. Clean material from base container thoroughly using protective gear
3. Install rain cover back onto same row unit from which it was removed



Agitation nozzle at tank bottom



# ADJUSTMENTS

## CASE IH IRON GARD 50/50 GRAPHITE/TALC MIX

Refer to the planter Operator's Manual for lubricant application rates for new planter hoppers and first fill.

- Talc may improve flow characteristics by bonding to the sticky coating.
- Excess talc can result in buildup on meter and seed contact components
- 50/50 ratio results in most uniform seed flow performance with minimal talc buildup.

Bayer CropScience Fluency Agent is also an acceptable seed flow lubricant that can be used in place of 50/50 graphite/talc.



PART NO.	DESCRIPTION
73340370	50/50 Graphite/Talc Seed Lube, 1 lb. bottle
73340734	50/50 Graphite/Talc Seed Lube, 8 lb. jug
73340918	Optional Dispensing Cap, 8 lb. jug (1/8 cup increments)

SEED LUBRICANT RATES	
SEED (BU.)	50/50 GRAPHITE/TALC BLEND(CUPS)
2	1/8
5	1/4
6	3/8
8	1/2
10	3/4
15	1
20	1-1/4
25	1-1/2
30	2
40	2-1/2
50	3
60	3-1/2

**Note:** 1 lb. of graphite/talc mixture = approx. 3 cups

## ADJUSTMENTS

### POPULATION ADJUSTMENTS

- All population adjustments for the electric drive system are made through the AFS Pro 700 display. Check the seed disc selection chart to be sure the proper disc is installed.
- Press "Seed Ctrl" to adjust the target seeding rate (shown).

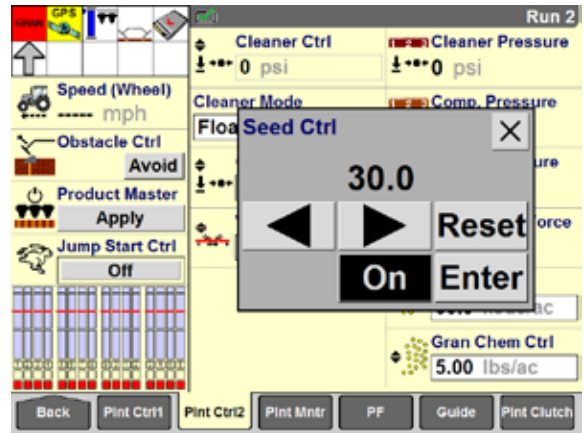
Verify seed meter performance by taking the time to open the trench and check seed placement and spacing, counting the seed population over a specified row length.

- The table below indicates the row length required to be opened to equal 1/1000th of an acre

### METER ADJUSTMENTS

- Adjust the baffle to the correct setting per the recommended settings chart on pg. 26-29 (Corn and Soybeans are both "2").
- Move the seed meter baffle adjustment handle to control the depth of seed in the meter housing that is exposed to the seed disc.

Row Width (in)	Row Length (ft) = 1/1000 ac.
15	34.8
20	26.2
22	23.8
30	17.4
36	14.5
38	13.8
40	13.1



### SOYBEAN DEFLECTOR (SPEEDTUBE UNITS ONLY)

- To switch to soybeans, installation of a Soybean Deflector (A) is required to prevent seeds jamming between feeder wheels.





# ADJUSTMENTS

## SEED POPULATION/SPACING CHART

SEED SPACING	SEED POPULATION		
	Seed/Acre 20 inch rows	Seed/Acre 22 inch rows	Seed/Acre 30 inch rows
6.4 mm (0.25 in)	1,254,528	1,140,480	836,352
12.7 mm (0.50 in)	627,264	570,240	418,176
19.0 mm (0.75 in)	418,176	380,160	278,784
25.4 mm (1.00 in)	313,632	285,120	209,088
31.8 mm (1.25 in)	250,906	228,096	167,270
38.1 mm (1.50 in)	209,088	190,080	139,392
44.5 mm (1.75 in)	179,218	162,926	119,479
50.8 mm (2.00 in)	156,816	142,560	104,544
57.2 mm (2.25 in)	139,392	126,720	92,928
63.5 mm (2.50 in)	125,453	114,048	83,635
69.9 mm (2.75 in)	114,048	103,680	76,032
76.2 mm (3.00 in)	104,544	95,040	69,696
82.6 mm (3.25 in)	96,502	87,729	64,335
88.9 mm (3.50 in)	89,609	81,463	59,739
95.3 mm (3.75 in)	83,635	76,032	55,757
101.6 mm (4.00 in)	78,408	71,280	52,272
107.0 mm (4.25 in)	73,796	67,087	49,197
114.3 mm (4.50 in)	69,696	63,360	46,464
120.7 mm (4.75 in)	66,028	60,025	44,019
127.0 mm (5.00 in)	62,726	57,024	41,818
133.4 mm (5.25 in)	59,739	54,309	39,826
139.7 mm (5.50 in)	57,024	51,840	38,016
146.1 mm (5.75 in)	54,545	49,586	36,363
152.4 mm (6.00 in)	52,272	47,520	34,848
158.8 mm (6.25 in)	50,181	45,619	33,454

SEED SPACING	SEED POPULATION		
	Seed/Acre 20 inch rows	Seed/Acre 22 inch rows	Seed/Acre 30 inch rows
165.1 mm (6.50 in)	48,251	43,865	32,167
171.5 mm (6.75 in)	46,464	42,240	30,976
177.8 mm (7.00 in)	44,805	40,731	29,870
184.2 mm (7.25 in)	43,260	39,327	28,840
190.5 mm (7.50 in)	41,818	38,016	27,878
196.9 mm (7.75 in)	40,469	36,790	26,979
203.2 mm (8.00 in)	39,204	35,640	26,136
209.6 mm (8.25 in)	38,016	34,560	25,344
215.9 mm (8.50 in)	36,898	33,544	24,599
222.3 mm (8.75 in)	35,844	32,585	23,896
228.6 mm (9.00 in)	34,848	31,680	23,232
235.0 mm (9.25 in)	33,906	30,824	22,604
241.3 mm (9.50 in)	33,014	30,013	22,009
247.7 mm (9.75 in)	32,167	29,243	21,445
254.0 mm (10.00 in)	31,363	28,512	20,909
260.4 mm (10.25 in)	30,598	27,817	20,399
266.7 mm (10.50 in)	29,870	27,154	19,913
273.1 mm (10.75 in)	29,175	26,523	19,450
279.4 mm (11.00 in)	28,512	25,920	19,008
285.8 mm (11.25 in)	27,878	25,344	18,586
292.1 mm (11.50 in)	27,272	24,793	18,182
298.5 mm (11.75 in)	26,692	24,266	17,795
304.8 mm (12.00 in)	26,136	23,760	17,424
311.2 mm (12.25 in)	25,603	23,275	17,068

# 2000 SERIES EARLY RISER® PLANTER

## ADJUSTMENTS

### SEED METER, VACUUM, AND BULK HOPPER RECOMMENDED SETTINGS

The vSet 2 Seed Meter will accurately plant most seeds. This chart is a guideline to help optimize performance. It provides the range setting for seed sizes best suited for respective disks.

Crop	Seeds/lb	Seed Meter Settings									
		Crop Kit ‡ Part Number	Seed Disc				Singulator		Ejector		
			Name	# of Holes	Hole size (in)	Part Number	Name	Part Number	Name	Part Number	
<b>FIELD CORN</b>											
All	1,000-2,500	47779568‡	Corn	27	0.176	73368257	Corn	47779567	Corn	47779566	
	2,500-2,800 **		Specialty	27	0.155	73368283	Corn	47779567	Corn	4778000	
* Up to 25 in-H2O vacuum pressure may be required for best results with SpeedTube™.											
‡ Crop Kit 47779568 includes seed disc, singulator, and ejector.											
** If seeds/lb is greater than 2500, p/n 73368283, 0.155" specialty disk, may perform best. Test seed for final selection.											
<b>SOYBEAN</b>											
All	2,000-4,500	47779569‡	Soybean	80	0.155	73368263	Soybean	47852593	Soybean	47779570	
* Up to 30 in-H2O vacuum pressure may be required for best results with SpeedTube™.											
‡ Crop Kit 47779569 includes seed disc, singulator, and ejector.											
*** When running soybeans with a SpeedTube™, the soybean deflector must be installed.											
<b>SWEET CORN</b>											
Small	2,000-4,600		Specialty	27	0.125	73368280	Corn	47779567	Specialty	47780001	
Medium			Specialty	27	0.135	73368281	Corn	47779567	Specialty	47780001	
Large			Specialty	27	0.145	73368282	Corn	47779567	Specialty	47780001	
X-Large			Specialty	27	0.155	73368283	Corn	47779567	Specialty	47780001	
<b>POPCORN</b>											
Small	1,500-4,800		Specialty	27	0.115	73368279	Corn	47779567	Specialty	47780001	
Medium			Specialty	27	0.115	73368279	Corn	47779567	Specialty	47780001	
Large			Specialty	27	0.125	73368280	Corn	47779567	Specialty	47780001	
<b>SORGHUM/MILO</b>											
All	12,000-19,000	47818862‡	Large Sugar Beet	32	0.086	73368267	Corn	47779567	Sugar Beet	47780005	
‡ Crop Kit 47818862 includes seed disc and ejector.											
<b>COTTON</b>											
Singulated	4,200-6,300	73383183‡	Cotton	32	0.115	73383182	Corn	47779567	Sugar Beet	47780005	
2-Seed Hilldrop		47818855‡	2-Seed Hilldrop	40	0.115	73368275	Soybean	47852593	2-Seed Hilldrop	47780002	
3-Seed Hilldrop		47818857‡	3-Seed Hilldrop	39	0.115	47780047	Soybean	47852593	3-Seed Hilldrop	47780003	
‡ Crop Kits 47818855 and 47818857 include seed disc, ejector, and upper restrict brush. Crop kit 73383183 includes seed disc and ejector.											
<b>PUMPKIN</b>											
Canning			Specialty	27	0.125	73368280	Corn	47779567	Specialty	47780001	
Ornamental			Specialty	27	0.125	73368280	Corn	47779567	Specialty	47780001	

					Bulk-Fill Settings (if Equipped)								
				SpeedTube™ compatible	Inductor Box Air Baffle	Pivot Transport		Small Front Fold			Large Front Fold		
						23, 24, 31, 32 Row			12/16 Row	24 Row	32 and 36 Row		
Additional Components		Baffle Position	Vacuum Setting (in-H <sub>2</sub> O)			Bulk Fan Speed (RPM)	Baffle Part Number	Bulk Fan Speed (RPM)	Baffle Part Number	Baffle Part Number	Bulk Fan Speed (RPM)	Baffle Part Number	
Name	Part Number												
			2	20 *	Yes	Large Seed	3,600	84594220	3,500	84594215	84594223	3,000	84594231
			2	20 *	Yes								
	Soybean Deflector ***	47946742	2	20 *	Yes	Large Seed	3,600	84594220	3,300	84594215	84594223	3,000	84594231
			4	18-22	No	Large Seed	3,700	84594220	3,700	84594215	84594223	3,000	84594231
			4	18-22									
			4	18-22									
			4	18-22									
			2	20	No	Small Seed	3,500	47397652	3,700	47397652	47397656	3,000	47397660
			2	20									
			2	20									
			1	10-16	No	Small Seed	3,200	47397652	3,200	47397652	47397656	2,800	47397660
			1	20-22	No	Large Seed	3,500	84594220	3,000	84594215	84594223	2,700	84594231
	Up Restrict Brush	47819349	1	10-30									
	Up Restrict Brush	47819349	1	10-30									
			3	11-12	No	Not Recommended for Bulk Hopper Planters							
			3	12-14									

# 2000 SERIES EARLY RISER® PLANTER

## ADJUSTMENTS

### SEED METER, VACUUM, AND BULK HOPPER RECOMMENDED SETTINGS

Continued from previous page.

Crop	Seeds/lb	Seed Meter Settings									
		Crop Kit ‡ Part Number	Seed Disc				Singulator		Ejector		
			Name	# of Holes	Hole size (in)	Part Number	Name	Part Number	Name	Part Number	
<b>SUNFLOWER</b>											
Edible Large	2,000-4,000	47779568‡	Corn	27	0.176	73368257	Corn	47779567	Corn	47779566	
Edible Small	2,000-4,000	47779568‡	Corn	27	0.176	73368257	Corn	47779567	Corn	47779566	
#1	3,000-10,000		Specialty	27	0.155	73368283	Corn	47779567	Specialty	47780001	
#2	3,000-10,000		Specialty	27	0.135	73368281	Corn	47779567	Specialty	47780001	
#3	3,000-10,000		Specialty	27	0.115	73368279	Corn	47779567	Specialty	47780001	
#4	3,000-10,000		Specialty	27	0.115	73368279	Corn	47779567	Specialty	47780001	
‡ Crop Kit 47779568 includes seed disc, singulator, and ejector.											
<b>SUGAR BEETS / ONIONS<sup>Δ</sup></b>											
Small <9.5/64 in.	> 28,000	47818859‡	Small Sugar Beet	32	0.062	73368271	Corn	47779567	Sugar Beet	47780005	
Large >9.5/64 in.	< 28,000	47818862‡	Large Sugar Beet	32	0.086	73368267	Corn	47779567	Sugar Beet	47780005	
‡ Crop Kits 47818859 and 47818862 include seed disc and ejector.											
Δ If you experience very small seeds leaking out the bottom of the meter, consider adding 1-2 small ( 0.010 in) disk shims. Adding shims may increase vDrive® current draw and reduce stability, so only add shims as needed.											
<b>WHEAT<sup>Δ</sup></b>											
All		48186717	Wheat	164	0.070	4816718	Soybean	47852593	Wheat	48186724	
Δ If you experience very small seeds leaking out the bottom of the meter, consider adding 1-2 small ( 0.010 in) disk shims. Adding shims may increase vDrive® current draw and reduce stability, so only add shims as needed.											
<b>EDIBLE BEANS<sup>*</sup></b>											
Small	> 2,000	47779569‡	Soybean	80	0.155	73368263	Soybean	47852593	Soybean	47779570	
Medium	1,300-2,000	73343542‡	Med. Edible Bean	70	0.170	73379218	Med. Edible Bean	73379219	Soybean	47779570	
Large	< 1,300	47818851‡	Large Edible Bean	32	0.210	73368998	Large Edible Bean	47852593	Large Edible Bean	47780004	
‡ Crop Kit 47779569 includes seed disc, singulator, and ejector.											
‡ Crop Kit 73343542 includes seed disc, singulator, ejector, and large seed upper brush.											
‡ Crop Kit 47818851 includes seed disc, ejector, and large seed upper brush.											
• If within 200 seed/lb of the seed size range, test both of the disks.											
<b>CANOLA <sup>Δ</sup></b>											
	75,000-180,000	47818864‡	Canola	80	0.047	47902738	Corn	47779567			
‡ Crop Kit 47818864 includes seed disc and wiper kit.											
Δ If you experience very small seeds leaking out the bottom of the meter, consider adding 1-2 small ( 0.010 in) disk shims. Adding shims may increase vDrive® current draw and reduce stability, so only add shims as needed.											
<b>PEANUTS</b>											
Small/Medium	500-1,400	47931266‡	Peanut	32	0.23	47902636	Soybean *	47852593 *	Large Edible Bean	47780004	
Large	200-600	48186702‡	Large Peanut	29	0.250	48186707	NONE	NONE	Large Edible Bean	47780004	
‡ Crop Kit 47931266 includes seed disc, ejector, and large seed upper brush.											
† For some seed sizes it may be necessary to completely remove the baffle to prevent bridging.											
* For optimal performance with large, long seeds, the singulator may need to be removed.											

					Bulk-Fill Settings (if Equipped)								
					SpeedTube™ compatible	Inductor Box Air Baffle	Pivot Transport		Small Front Fold			Large Front Fold	
							23, 24, 31, 32 Row			12/16 Row	24 Row	32 and 36 Row	
Additional Components		Baffle Position	Vacuum Setting (in-H <sub>2</sub> O)				Bulk Fan Speed (RPM)	Baffle Part Number	Bulk Fan Speed (RPM)	Baffle Part Number	Baffle Part Number	Bulk Fan Speed (RPM)	Baffle Part Number
Name	Part Number												
	Large Seed Upper Brush	47902637	4	12-13	No	Small Seed	2,800	47397652	3,200	47397652	47397656	2,700	47397660
			4	11-12									
			4	11-12									
			4	11-12									
			3	7-8									
			2	6-7									
			1	10-20	No	Small Seed	3,200	47397652	3,200	47397652	47397656	2,500	47397660
			1	10-20									
necessary. These shims should be removed when converting to other crops. Factory shimming on vSet® 2 is recommended in most circumstances for least current draw, best stability, and best seed spacing performance.													
	Up Restrict Brush	47819349	1-2	10-16	No	N/A							
necessary. These shims should be removed when converting to other crops. Factory shimming on vSet® 2 is recommended in most circumstances for least current draw, best stability, and best seed spacing performance.													
			2	18-22	No	Not Recommended for Bulk Hopper Planters							
	Large Seed Upper Brush	47902637	3	18-24									
	Large Seed Upper Brush	47902637	4	18-26									
	Wiper Kit	47819357	1	22-26	No	Not Recommended for Bulk Hopper Planters							
necessary. These shims should be removed when converting to other crops. Factory shimming on vSet® 2 is recommended in most circumstances for least current draw, best stability, and best seed spacing performance.													
	Large Seed Upper Brush	47902637	4 †	20-30	No	Not Recommended for Bulk Hopper Planters							
	Large Seed Upper Brush	47902637	REMOVE BAFFLE	15-30	No								

## ADJUSTMENTS

### DOWN PRESSURE ADJUSTMENT

Both pneumatic down pressure and DeltaForce® Hydraulic Down Pressure are controlled with the AFS Pro 700.

#### PNEUMATIC DOWN PRESSURE (PDP) ADJUSTMENT (IF EQUIPPED)

- 1) Add “PDP” window to run screen
- 2) Set target down pressure through “PDP Control” window

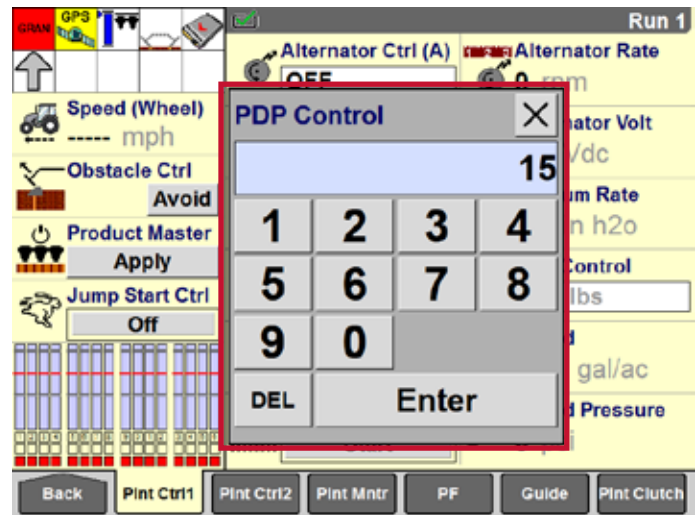
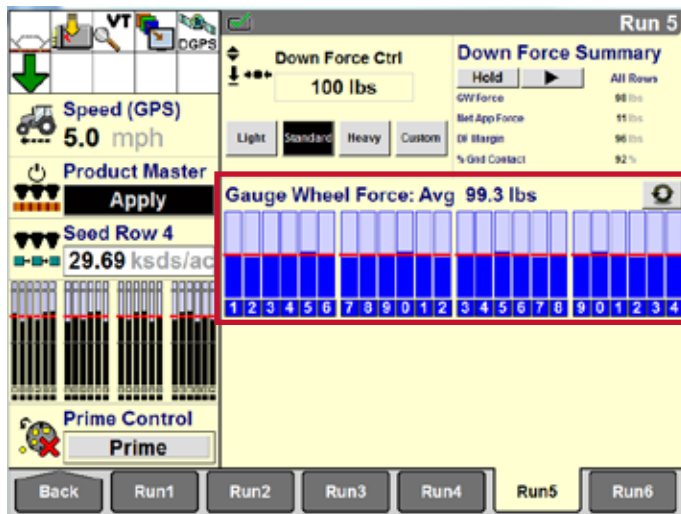
**NOTE:** Any pressure adjustment is always in addition to the down pressure provided by the weight of the row unit assembly and the product in the hopper(s).

- Controlled by the air pressure contained in the air springs on each row unit



#### GAUGE WHEEL LOAD CELL FEEDBACK (IF EQUIPPED)

- Load cells in row unit depth control linkage provide feedback on load carried by gauge wheels, usable to set a proper downforce target
- Customize down force reading shown on run screen
  - Press the run screen window and use arrows to switch between average, high row, and low row



AIR PRESSURE	APPLIED DOWNFORCE (Planting Position)
69 kPa (10 psi)	133 N (30 lb)
138 kPa (20 psi)	267 N (60 lb)
207 kPa (30 psi)	489 N (110 lb)
276 kPa (40 psi)	712 N (160 lb)
345 kPa (50 psi)	934 N (210 lb)
414 kPa (60 psi)	1 157 N (260 lb)
483 kPa (70 psi)	1 423 N (320 lb)
552 kPa (80 psi)	1 690 N (380 lb)
586 kPa (90 psi)	1 779 N (400 lb)

# ADJUSTMENTS

## DOWN PRESSURE ADJUSTMENT (continued)

### DELTAFORCE® HYDRAULIC DOWN PRESSURE ADJUSTMENT (IF EQUIPPED)

- 1) Use the “Down Force Control” window to set the target down force across the entire planter
  - Automatically controls row unit downforce and lift force by row to maintain a target load on gauge wheels
- 2) Choose down force setting from pre-set options

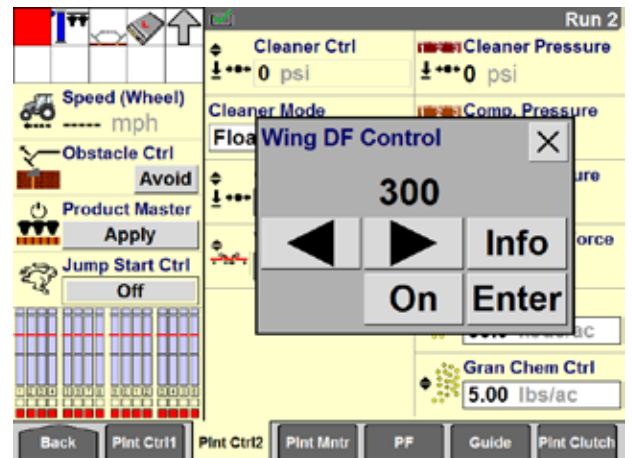
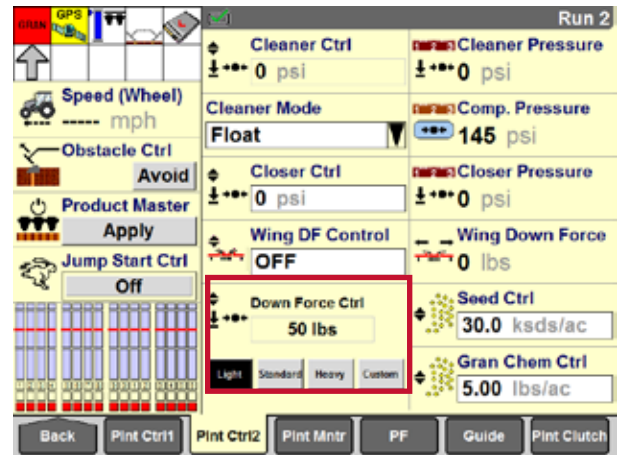


SETTING	GAUGE WHEEL LOAD
Light	23 kg (50 lb)
Standard	45 kg (100 lb)
Heavy	68 kg (150 lb)
Custom	0-227 kg (0-500 lb)

### WING DOWNFORCE (IF EQUIPPED)

- Provides additional weight to planter wings, which is used for reactionary load against higher levels of row unit down force.
- Set through AFS Pro 700 display to target based on expected row unit downforce requirements
  - Settings charts provided on AFS Pro 700
- System maintains desired wing downforce while in plant position (below “Start Plant”)
- Wing downforce removed when planter is raised (above “Stop Plant”)

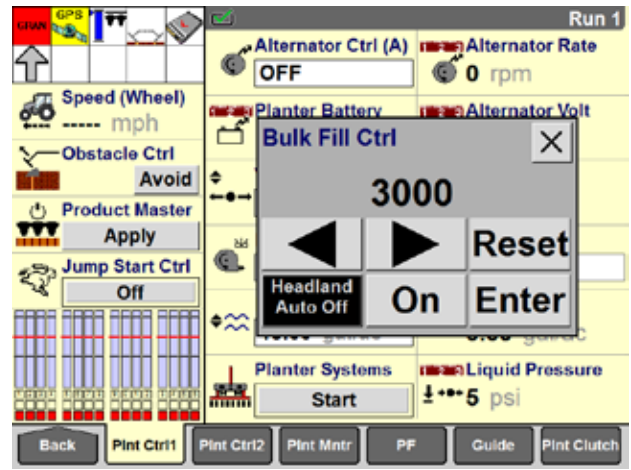
**Note:** The target setting is a vertical load applied to each wing at the wing wheel position.



## ADJUSTMENTS

### BULK FILL HOPPER FILLING AND FAN ADJUSTMENT (IF EQUIPPED)

1. Open bulk fill hopper lid and fill hopper with seed.
2. Add seed flow lubricant as perscribed on pg. 23, with each hopper fill.
3. Close lid before operation.
4. Use the AFS Pro 700 controls to set bulk fill fan speed for seed type being planted. Refer to the recommended settings chart on pg. 26-29.
5. Engage remote valve to supply hydraulic flow to the bulk fill fan.
6. Turn bulk fill fan on, and verify that system is delivering seed to the mini-hoppers. Allow mini hoppers to fill to the bottom of the hopper's seed decelerator (snorkel).



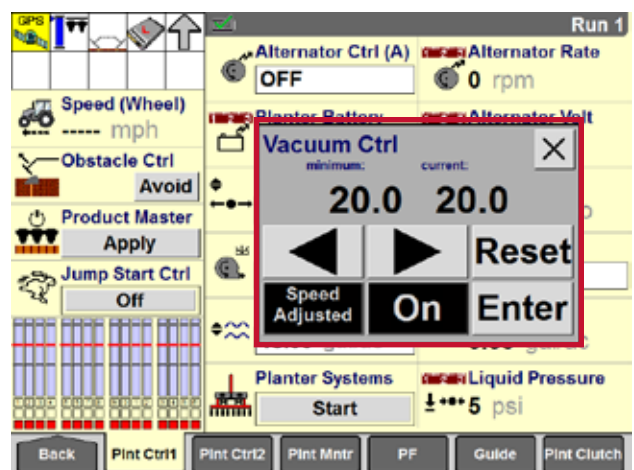
### ON-ROW UNIT HOPPER FILLING (IF EQUIPPED)

1. Remove hopper cover and place it on the hopper edge.
2. Fill hopper with seed. Add seed flow lubricant as perscribed on pg. 23, both initially, and every time hopper is filled.
3. Secure hopper lid on hopper.

### VACUUM ADJUSTMENT

Vacuum fans automatically regulate vacuum level to a target specified by the operator. Vacuum levels can be set to automatically compensate for increased ground speed to maintain seed meter performance.

- **Set tractor flow control or PTO control** to provide sufficient hydraulic flow to maintain vacuum level at desired planting speed. Refer to your Operator's Manual and Recommended Settings chart on pg. 26-29 for further instructions.
- **Use AFS Pro 700 to control vacuum default rate** by selecting Work Condition>Control>Controller>Vacuum. Then select "Default Rate" to use keypad to enter recommended setting for your crop type. Use "Delta Rate" and "Alarm Limit" to further control the vacuum operation. Refer to your Software Operation guide for more details.





# ADJUSTMENTS

## ROW CLEANERS

- Adjust the residue managers to an appropriate depth to move residue, not engage with soil.
- For air cylinder-equipped floating configurations, recommended initial settings are:
  - 15 lb. down force in no-till
  - 50 lb. lift force in conventional



## DEPTH CONTROL

The depth adjustment on the row unit has been adjusted to zero at the factory. With all row units properly zeroed, seeds are planted at a uniform depth across all rows.

Check the zero setting when any of the following occur:

- New parts are installed on the gauge wheel and adjustment system
- Gauge wheel and arms are moved from one row unit to another
- Row unit not planting at same depth as another when set at the same setting
- During preseason preparation

### DEPTH CONTROL ZERO VERIFICATION

1. Place the planter on a hard, level surface
2. Depth control handle on the row unit should be in the true zero position (A1), with bevels facing downward (shown at right).
3. Lower the planter into planting position
4. Check that the planter toolbar is level
5. Check that the bottom of the opener disks are within the 0-3 mm distance above the hard, level surface
  - If accurate, no further adjustment necessary
  - If opener disk clearance is zero:
    - Make sure tension exists within depth control linkage
    - Gauge wheels should rotate by hand. If gauge wheels don't rotate, use the depth control adjustment procedure on the next page.



## ADJUSTMENTS

### PLANTING DEPTH ADJUSTMENTS

Before adjusting the planting depth or starting to plant:

- With the planter raised, ensure wobble bracket at the front of each row unit can move freely. This allows each gauge wheel to operate independently over uneven soil conditions to maintain uniform planting depth.

Planting depth is determined by the gauge wheels on each side of the staggered double disk openers on each row unit. The planting depth can be adjusted from 0-3.75 inches. Planting depth is adjusted with the control handle on the rear of each row unit. All row unit depth control systems have been zeroed from the factory to allow for consistent depth across all rows when in consistent setting. Example: Row 1, E5 setting = Row 2, E5 setting.

The depth adjustment scales on either side of the control handle are marked with letters (A to H) and numbers (1 to 8). **Note:** Always field verify depth after initial settings.

#### To adjust planting depth:

1. **Raise the row unit** to remove weight from the gauge wheels
2. **To adjust by 0.25 inch increments:**
  - Depress the handle and move to the desired position, while maintaining bevel orientation.  
Example 1: E4 is approximately 0.25 inches deeper than D4.  
Example 2: E5 is approximately 0.25 inches deeper than E4 (shown)

#### To adjust by 0.125 inch increments:

- Rotate the depth adjustment handle.
  - Deeper: Rotate 180 degrees within same slot to point bevel forward
  - Shallower: Rotate 180 degrees within same slot to point bevel rearward.
3. **Repeat for all row units.** If a row unit is not planting at the same depth as another when set at the same setting, contact your dealer for information regarding row unit zeroing.



# ADJUSTMENTS

## CLOSING SYSTEM ADJUSTMENTS

### TWO-STAGE CLOSING SYSTEM (IF EQUIPPED)

#### Closing Disk Adjustment

The closing disk down pressure can be adjusted as needed to operate in various soil conditions. Install the pin in one of the following locations as needed. Multiple positions are available for various soil types.

Positions shown at right:

- A** – Pneumatic cylinder (if equipped) for in-cab disk adjustment (all soil conditions)
- B** – Light spring downforce (if equipped)
- C** – Normal spring downforce (if equipped)
- D** – Heavy spring downforce (if equipped)

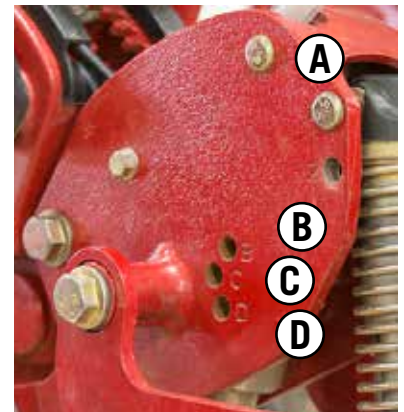
A travel stop pin prevents excessive closing disk depth. This prevents ‘plowing’ of closing disks in soft areas of the field and prevents damage to the air cylinder (if equipped).

#### Press Wheel Adjustment

The press wheel spring can be adjusted to operate in various soil conditions by installing the upper spring pin in the proper position.

- 1** – Light press wheel force
- 2** – Heavy press wheel force

MAX. FORCES AT 2 IN. DEPTH	AIR	SPRING
2-Stage Closing Discs	150 lbs.	47 lbs
2-Stage Press Wheel	N/A	40 lbs.
V-Press Wheel	135 lbs.	110 lbs.



## ADJUSTMENTS

### CLOSING SYSTEM ADJUSTMENTS (continued)

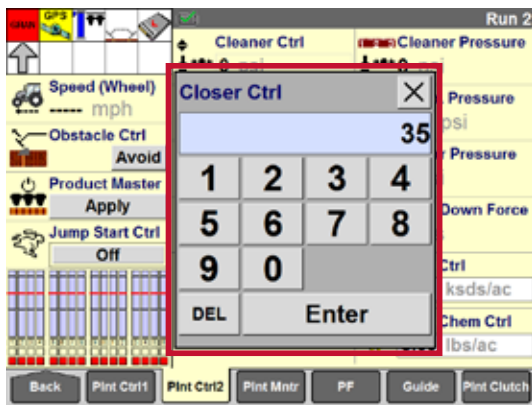
#### V-PRESS WHEEL CLOSING SYSTEM (IF EQUIPPED)

The V-Press Wheel Closing system can be equipped with manual (spring-loaded) or in-cab (pneumatic) down pressure.

The v-closing wheels are staggered to improve residue flow. Closing wheel shims can be relocated to adjust wheel spacing for shallow planting depths if required.

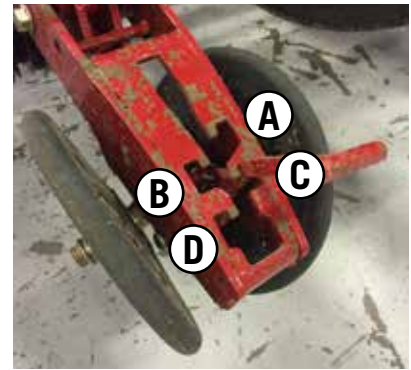
#### In-Cab Pneumatic

- Use the “Closer Control” window to set the target down pressure. Use the keypad to enter the target down pressure (0-75 PSI).



#### Manual (Spring-Loaded)

- Four pressure settings (shown) range from lightest (A) to heaviest (D) pressure

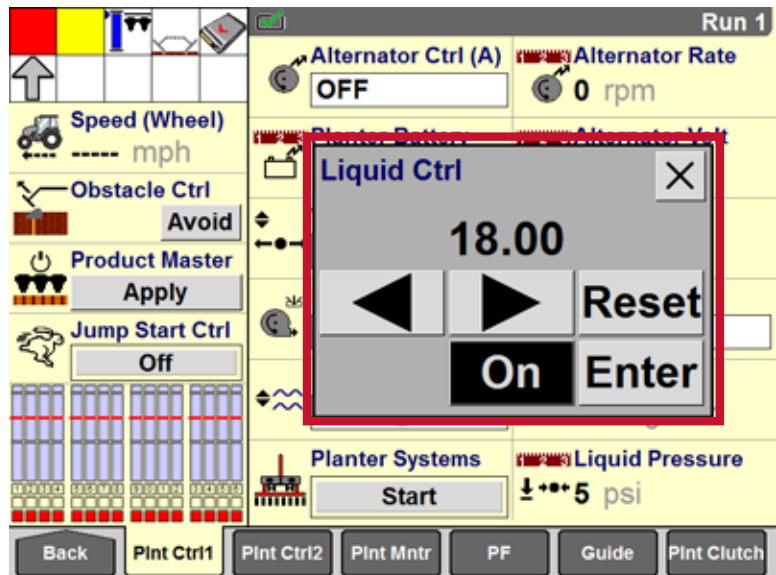


### CONVERSION BETWEEN 2-STAGE AND V-PRESS WHEEL CLOSING SYSTEMS

Due to the modular row unit design, only 3 bolts need to be removed to convert between 2-Stage and V-Press Wheel Closing Systems.

### LIQUID FERTILIZER

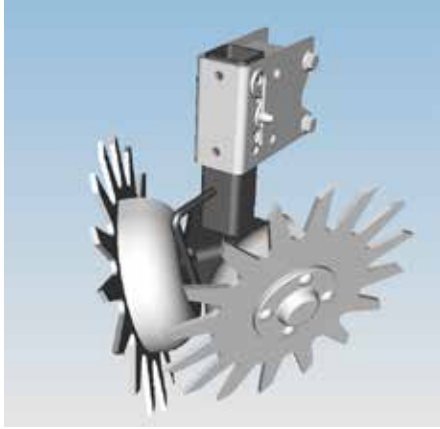
Liquid fertilizer application rates are controlled through the AFS Pro 700. Select “Liquid Ctrl” through a run screen to adjust the gal/ac rate.



# PLANTER OPTIONS

Shown are a few options for your 2000 series Early Riser planter. For full list of options, see your local Case IH dealer.

## ROW UNIT ATTACHMENTS



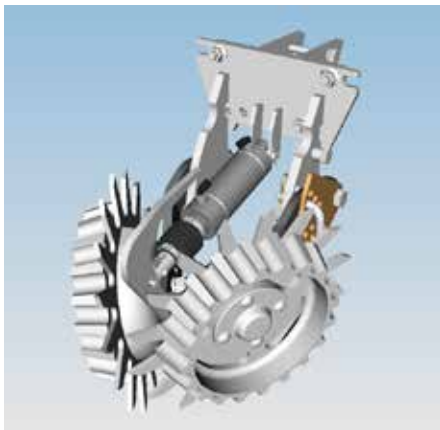
Fixed Tine Wheel Residue Managers



Fixed No-Till Residue Managers



Floating No-Till Residue Managers with Depth Band (with or without air cylinder)



Floating Tine-Wheel Residue Managers (with or without air cylinder)



Row Unit Coulter

## BULK-FILL SCALE



Tank fill level measurement for higher productivity with bulk seed

# MONITORS AND DISPLAYS



# MONITORS AND DISPLAYS

	Numeric value visible within AFS Pro 700	Map visible within AFS Pro 700	Map visible within Desktop Software
<b>Planter Data Type</b>			
<b>Seed</b>			
Target Rate	•		•
Measured Rate (Population)	•	•	•
<b>ASI</b>			
% singulation	•	•	•
% skips	•	•	•
% multiples	•	•	•
Seed Release Index (SRI)	•	•	•
% good spacing	•		
<b>Liquid</b>			
Target Rate	•		•
Measured Rate	•	•	•
Measured Flow	•		
Measured Pressure	•		
<b>Granular</b>			
Target Rate	•		•
Measured Rate	•	•	•
<b>Hydraulic Down Force</b>			
Target Down Force	•		
Measured Down Force	•		•
Net Applied Down Force	•		•
% Ground Contact	•		•
% Good Ride			•
<b>Pneumatic Down Force</b>			
Target Down Force	•		
Measured Down Force	•		
Measured Pressure	•		
Gauge Wheel Down Force	•		
% Ground Contact	•		
<b>Pneumatic Cleaner</b>			
Target Pressure	•		
Measured Pressure	•		
<b>Pneumatic Closer</b>			
Target Pressure	•		
Measured Pressure	•		
<b>Compressor</b>			
Tank Pressure	•		
<b>Wing Down Force</b>			
Target Down Force	•		
Measured Down Force	•		
Measured Pressure	•		
<b>Alternator</b>			
Target Rate (RPM)	•		
Measured Rate (RPM)	•		
Measured Voltage	•		
Planter Battery Voltage	•		
<b>Large/Medium Tractor (Trip Computer) Data Type</b>			
Wheel slip	•		•
Engine load	•		•
Engine power			•
Engine speed	•		•
Fuel economy	•	•	•
Fuel used	•		•
Speed	•		•
<b>General Precision Farming Data Type</b>			
Elevation (altitude)	•		•
PDOP	•		
HDOP	•		
GPS quality (signal type)	•		•
Heading	•		•

Note: Case IH Early Riser series planters are not compatible with ISO11783 displays.  
All AFS 2000 series planters must be operated with the AFS Pro 700 display.

## MONITORS AND DISPLAYS

### AFS PRO 700 DISPLAY

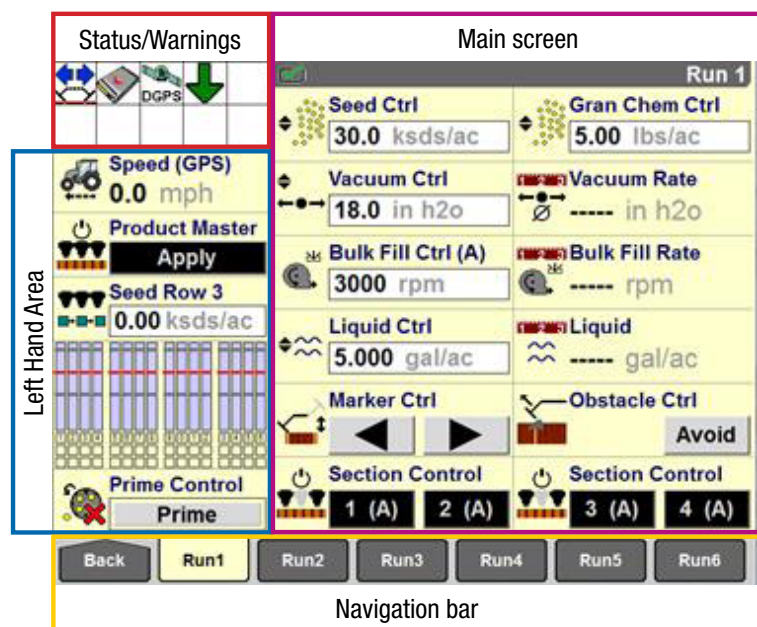
#### INTRODUCTION

The AFS Pro 700 display from Case IH AFS is an integral part of the operation of the 2000 series Early Riser series planters. AFS Pro 700 display controls numerous planter operations and provides the operator with the ability to integrate a multitude of AFS Precision Farming features. GPS-driven planting and nutrition prescriptions can be used to fine-tune inputs to maximize profitability. Row-by-row control through Overlap Control and Curve Compensation is similar to having individual planters along the toolbar delivering accuracy in all types of fields. Optional Advanced Seed Information (ASI) gives detailed seed placement information for utmost planting confidence.

#### Requirements:

- The display should always have a data card (P/N 84398840) installed before turning on the display. If no card is installed, any data recorded while the display has no data card will be lost.

#### GENERAL NAVIGATION



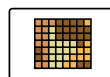
#### Main Screen



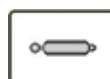
**Toolbox** – Display preferences and operator preferences, customizing run screens, GPS set-up, vehicle and implement set-up, etc.



**Run** – Access six customizable user screens for all applications.



**Performance** – View Summaries & Assign Prescriptions (Rx).



**Remote Valve** – Fold/Unfold & adjust remote valve flows, timers, locks.



**Calibration** – Radar, Area, Distance, Navigation, Frame, Row Unit Load Cells, and Turn Compensation Gyro Calibration.



**Wizards** – Step-by-step planter set-up.



**Work Condition** – Store a group of vehicle or implement settings that could be based on crop type, products, weather conditions, or field conditions.

#### SET-UP

There are two methods to performing seasonal and day-to-day settings

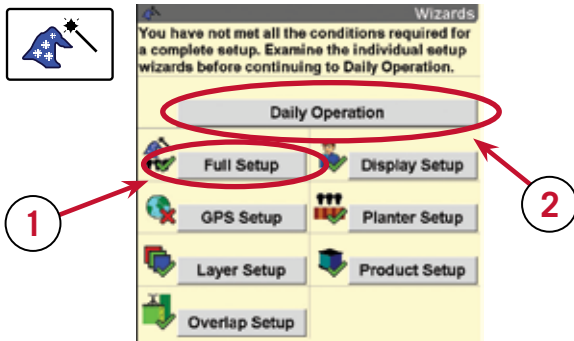
1. Using Wizards (Recommended - Guides the user step-by-step through set-up)
2. Selecting each screen separately to set-up



# AFS PRO 700 DISPLAY (continued)

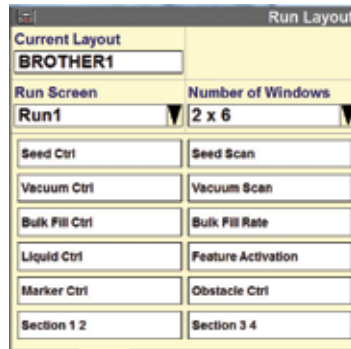
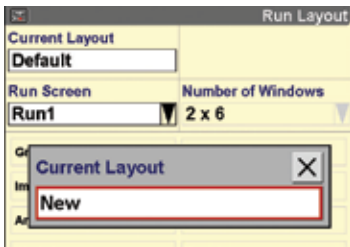
## WIZARDS

The “Full Setup” wizard provides a guided, step-by-step process for setting up the current planter with a focus on the operator’s specific operating requirements. The wizard greatly reduces the time and effort associated with planter setup by prompting the operator for information that would otherwise require navigating to numerous setup screens independently.



1. Select Wizards Button on Main/Home Screen (Back>Wizards).
2. Select “Full Setup” (1) to begin set-up process for the first time or if a crop type has been changed.
3. Adjustments after first time full set-up is completed can be done by selecting the other set-up buttons available on the ‘Main’ screen (GPS Setup, etc.).
4. Utilize the Daily Operation Wizard (2) to begin work each day (Fold, Unfold, begin planting & check basic set-up).

## RUN SCREEN LAYOUT



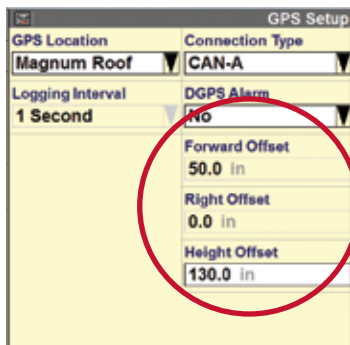
### Toolbox > Layout

Adjust Run Screen Layout – Toolbox > Layout.

Create your own customized layout. Everyone on the farm can have their own layout, if desired.

## GPS SET-UP

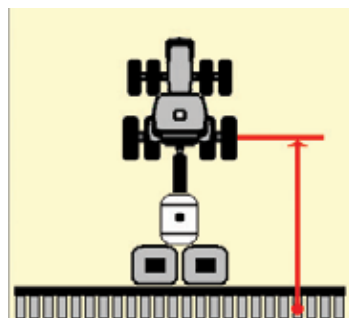
**Note:** The following steps are also found in the Wizard based set-up.



### Toolbox>GPS>Forward Offset/Right OffSet/Height Offset

Measure/Check reference Point on Tractor – Verify GPS receiver position.

- MFWD - Rear Axle
- 4WD – Front Axle



### Toolbox>Config

Bar Distance – Position of Planter must be measured in relationship to a reference point on the tractor.

Do not adjust Bar Distance to adjust Overlap Control – Adjust Product Delay

## MONITORS AND DISPLAYS

### AFS PRO 700 DISPLAY (continued)

#### AS-APPLIED MAPPING & VARIETY TRACKING

**Note:** The following steps are also found in the Wizard based set-up.

Product Setup	
Product Name	Form
BRANDX	Seed
Crop	
Corn	
Default App Rate	Delta App Rate
34.0 kds/ac Units	1.0 kds/ac
Min App Rate	Max App Rate
0.0 kds/ac	34.0 kds/ac
Package Size	RX Scale Factor
56.00 lb Units	1 : 1.0000
Product Density	Unit Density
0.00 lb/gal Units	1428.57 sds/l Units

As-Applied Mapping allows the operator to map the application rate of the variety or product being applied as well as the placement of the variety in the field to reference during harvest. Up to 7 products can be mapped at one time.

#### (Toolbox>Product)



1. Create a Product (Variety or Fertilizer, etc) Note: Products can be created and exported using AFS software

#### (Work Condition>Layer)



2. Create a Work Condition, if needed (ex. Corn Planting)
3. Choose layer type (Seed, Seed Left, Seed Right, Liquid, etc.); Seed Left/Seed Right for split hybrid planting
4. Assign the Product to a Mapping Layer.
5. Assign additional products
6. Change the Product when changing the seed variety being planted.

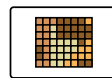
Work Condition	
CORN-HIGH POPUL	
Layer 1	
Seed	
Product 1	Container 1
BRANDX	None
Layer 2	
Liquid	
Product 2	Container 2
10-34-0	None

#### PRESCRIPTION ASSIGNMENT

Prescription Setup	
Auto Reload Rx	Grower
Enabled	Case IH Farms
Farm	Field
Hempen Farm	North Field
Layer 1	Product 1
Seed	E1602SS
Prescription 1	Out Of Zone Rate 1
HEMPENS - Seed	34.0 kds/ac
Layer 2	Product 2
No Control	
Prescription 2	Out Of Zone Rate 2
	*****

Check Layer/Product set-up is complete (Work Condition>Layer)

#### (Performance>Rx Setup)



1. Select Grower>Farm>Field
2. Assign Prescription (1) (If Prescription is not available verify Grower>Farm>Field and/or the prescription was exported properly (AFS Pro 700 requires Voyager 2 and shapefile formats only!)

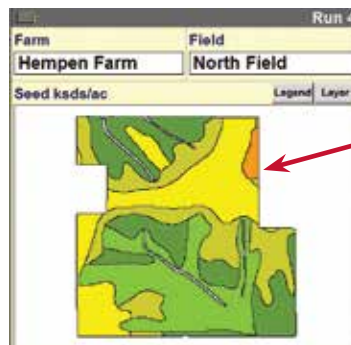
Run 2

Cleaner Ctrl: Cleaner Pressure 0 psi

Cleaner Mode: Compo. Pressure

Floa Seed Ctrl: 30.0

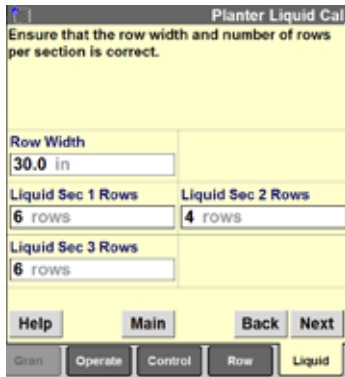
Gran Chem Ctrl: 5.00 lbs/ac



3. Verify 'Out of Prescription Zone Rate'
4. Prescription map (2) is available on the Run Screen Map (Note: Adjustment to the Legend and Layer menus may be needed to view zones)
5. Prescription is active during planting if (A) is next to 'Seed Ctrl' on the Run Screen.
6. Press 'Auto' button to Grey for manual rate control if prescription control is not desired.

## AFS PRO 700 DISPLAY (continued)

### LIQUID CALIBRATION

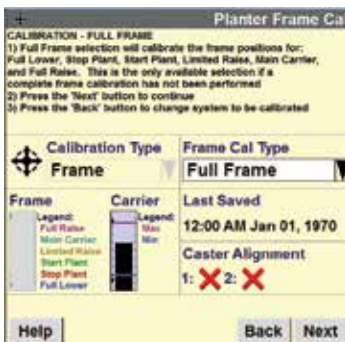


#### Work Condition > Liquid

Calibration of the Liquid Fertilizer system is critical for accurate application rates. Follow the steps in the Wizard for calibration. Tips for use:

1. Verify target application rate.
2. Verify target planting speed.
3. Verify Cal value (L) on flowmeter (Liquid Only) using Teejet calibration number.
4. Press Run to arm the system.
5. Place measuring containers under fertilizer tubes.
6. Press and hold button switch on remote tether to run Cal. (1-2 min.).
7. (Liquid only) Enter in Actual Flow measured amount (lpm/gpm).
8. (Liquid Only) Press Cal button, repeat 3 times.

### FRAME CALIBRATION



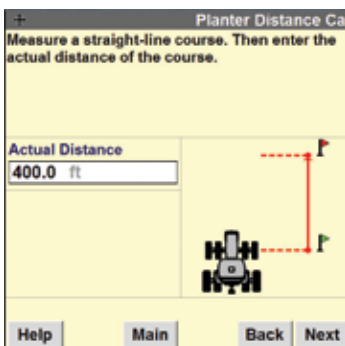
#### Calibration>Sensors>Frame Cal Type

Frame Calibration is critical for proper operation.

Calibrate each height position by raising or lowering planter to desired position and press 'Cal'. Individual positions can be recalibration at a later time, by selecting 'Frame Cal Type'

**Note:** On 2160 units, rows equipped with row unit lift must be raised prior to performing complete frame calibration.

### SPEED/DISTANCE CALIBRATION



#### Calibration>Distance

The Speed/Distance Calibration calibrates the planter speed (wheel) sensors and is critical for applying/recording proper application rates and acres. Follow the steps in the Wizard for calibration.

**Note:** Needed for units with wheel speed sensors only.

Some helpful tips:

1. Perform with Seed Tanks ½ full & in field conditions
2. Mark out course at least 400 ft long.
3. Press start button at start of course.
4. Press stop button at end of course.
5. Press 'Cal'.
6. Repeat 4 times, average the Cal numbers and manually enter the Cal #.

## MONITORS AND DISPLAYS

### AFS PRO 700 DISPLAY (continued)

#### GRANULAR CHEMICAL CALIBRATION



Work Condition > Gran

**Note:** AMVAC provides free calibration service. Contact 888-762-7826 for assistance.

Each granular product meter in the AMVAC SmartBox® system can store one calibration value at a time. Use the “Granular Chemical Calibration” screen to perform a catch test and update the stored calibration values as required.

1. Press “Work Condition” to create or select a work condition
2. Press “New product name” for meters with no previous calibration for the specific product. Otherwise, press “Next.”
3. Enter intended application rate, distance for simulation, and simulation speed.
4. Use “Starting with Row” window and “Ending with Row” window to select meters for calibration.
5. Press “Run” to ready system for calibration.
6. For each granular product drive, weigh components of catch bottle, use arrows to select row of sample collection, and enter measured weight in “Actual” window.
7. After calibration value is displayed, press “Next” to complete.

#### ROW UNIT LOAD CELL CALIBRATION



Calibration>Sensors

1. Raise planter above limited raise height so no force is applied to gauge wheels.
2. Press “Calibration Type” window to access options window.
3. Press “Row Unit Load Cells” to select load cell calibration.
4. Press row number buttons to calibrate individual row unit cells or press “Zero All” button to calibrate all load cells, then press “Done” to complete.

#### TURN COMPENSATING GYRO CALIBRATION



Calibration>Sensors

**Note:** Planter cannot be moving for correct calibration.

1. Unfold planter, and lower to height typical of in-field turns.
2. Press “Calibration Type” window, then press “Turn Compensation Gyro.”
3. Press “Zero” button to begin, then press “Done” to complete.

# AFS PRO 700 DISPLAY (continued)

## GROUND SPEED SELECTION

Ground speed source selection is available in v30.\* and after Large Tractor (Magnum 250 & larger and Steiger) software. The sources available will be listed and can be chosen as a ground speed source by any planter model. If the desired source is not available it is likely that source is either not turned on or available at that time.

**Note:** The planter drives will not turn while traveling at under 1 mph.

## LARGE TRACTOR SOFTWARE



**Toolbox>Speed>Speed Source**  
(available on a run screen as well)



- Tractor Wheel Speed



- Planter Wheel Speed (if available)



- Radar (if available)



- GPS (If available)

- Default Work Condition>Operate>Speed Priority)



Speed Source Selection (GPS not shown)



**Note!** The tractor wheel speed sensors must always be available/valid, no matter the Speed Priority. If no tractor wheel speed sensor is available, no planting will occur. Tractor wheel speed is used when traveling one (1) mph or under.

## MEDIUM TRACTOR SOFTWARE

(Puma, Magnum 180-240 & Optum)



**Toolbox>Speed>Speed Source**

- Tractor Wheel Speed



- Planter Wheel Speed (if available)



- Radar (if available)



- GPS (If available)



- Default Work Condition>Operate>Speed Priority)

**Note!** The tractor wheel speed sensors must always be available/valid, no matter the Speed Priority. If no tractor wheel speed sensor is available, no planting will occur. Tractor wheel speed is used when traveling one (1) mph or under.

## GENERIC TRACTOR SOFTWARE

(Prior to 2006 MX Magnum or STX Steiger & Competitive Tractors)

- Utilizes Speed Priority Set in **Work Condition>Operate >Speed Priority**

**Note!** The planter wheel speed sensors must always be available/valid, no matter the Speed Priority. If no planter wheel speed sensors are available, no planting will occur. Planter wheel speed is used when traveling one (1) mph or under.

If Default is chosen, the 2150 and 2160 planters have an option to choose different ground speed priorities. Use Toolbox>Speed to choose the speed source



**Work Condition>Operate**

Priority if “Planter/Tractor” selected, the software uses speed sources in this order of priority:

1. Planter or Tractor Wheel speed sensors if input is valid
2. Tractor radar if input is valid
3. GPS speed if input is valid

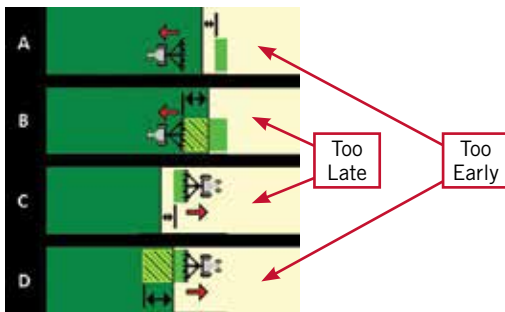
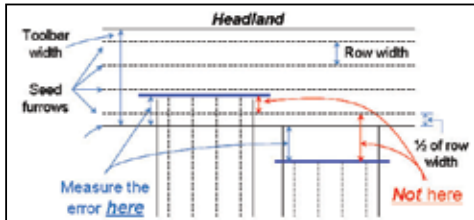
Priority if “Tractor/Planter” selected:

1. Tractor radar if input is valid
2. GPS speed if input is valid
3. Planter or Tractor Wheel speed if input is valid

## MONITORS AND DISPLAYS

### AFS PRO 700 DISPLAY (continued)

#### OVERLAP/BOUNDARY CONTROL SETTINGS (SECTIONS AND ROW CONTROL)



#### (Work Condition>Control>Seed)

Too Early = DECREASE PD by calculated amount

Too Late = INCREASE PD by calculated amount

- Once Product Delay is set, adjustments can now be made to the Start Early/Stop Late Distances (1) if intentional overlap is desired. **(Toolbox>Overlap)**

**Note:** Start Early/Stop Late does not affect Boundary Control. Adjust Product Delay.

Recommended! All Boundary and Overlap Control settings can be adjusted and calculated using the Wizard. Information below is for reference.

Before making any adjustments to the Product Delay, make sure GPS offsets & Bar Distance, is entered correctly, Product are assigned to layer and a data card is in the display.

To check performance:

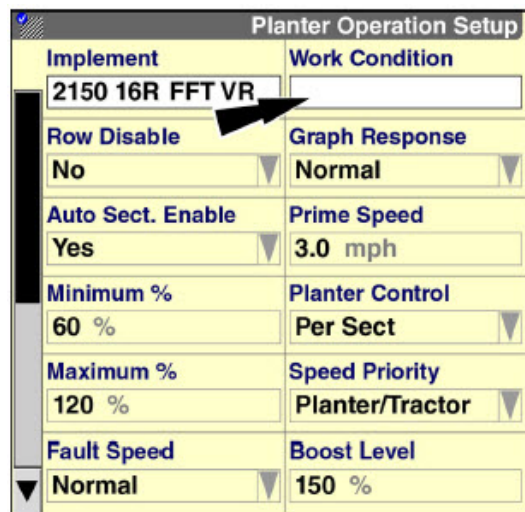
- Test Overlap Performance at headland (keep a consistent speed!)
- Measure the error (Distance between where seed SHOULD have been and where seed ACTUALLY is.)

**Note!** Final product delay adjustment should result in a gap from the first headland row (approx. 1/2 the row width)

- Calculate the change in existing Product Delay (PD):

$$\text{change in PD (sec)} = \frac{\text{In. of error}}{\text{mph} \times 17.60}$$

#### WORK CONDITION



Quickly change multiple settings with one key based on planting condition.

- Change by crop type, product characteristics, weather conditions, or field conditions
- Includes all selections in windows on "Layer Assignment," "Planter Operation Setup," "Planter Calibration Setup," "Row Setup," and "Liquid Calibration," and all calibration values for selected products.
- Recommendation – start with a vague work condition name, and create new work conditions as needed.

## AFS PRO 700 DISPLAY (continued)

### AFS & ASI (ADVANCED SEED INFORMATION): UNLOCK REQUIRED

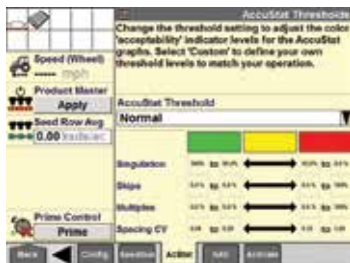


**Note:** ASI activation utilizes the same unlock code as AFS AccuStat. Code is transerable from one system to the other (P/N: 47464425 + Transfer P/N: 47464425T).



#### Toolbox>ASI

1. Adjustable Color coded quality thresholds
  1. Green = Good
  2. Yellow = Average
  3. Red = Poor



### Troubleshooting Planter Performance

Refer to your Operator's Manual or your dealer for additional troubleshooting.

A **single row** is problematic:

- Singulator Adjustment/Failure
- Knockout Wheel/Failure
- Seed Disc Selection/Issue
- Seed Meter Baffle Setting
- Seed Meter Drive (vDrive)

An **entire section** is problematic:

- Hydraulic Component Issue/Failure
- Vacuum Distribution Issue

**All rows/sections** are problematic:

- Seed disc selection issue (ex. holes to close together and seed touching)
- Moist/sticky seed treatments
- Seed Flow Lubricant needed
- Incorrect Vacuum Level (use minimum setting)
- Residue manager settings (not plowing)
- Toolbar height (26 in.)
- Display settings (cells/disc setting)

## EARLY RISER 2160 STEERABLE AXLE OPERATION (IF EQUIPPED)

The 2160 features a unique rear steering axle that allows the operator to control the position of the planter when turning a tight corner in transport mode only. The result is faster roading between fields and more time planting.

To use the rear steering axle:

- Assure Steering Axle Calibration has been performed (**Calibration>Sensors>Impl Steering>Last Saved**).

If it has not been calibrated or the axle is not centered after returning to center, use the calibration wizard to calibrate the steering axle (left/right/center positions).



Activate the steering axle by choosing:

**Remote Valves>Planter Frame Operation>Steering** and pressing **Manual**.

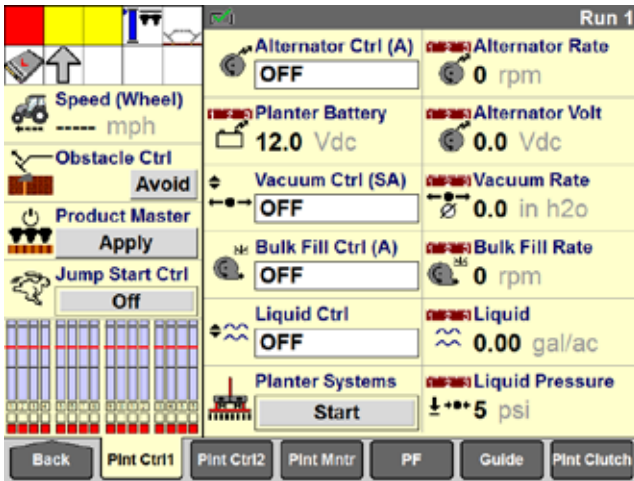
- Use the lift/lower/fold remote valve to steer the rear axle.  
**Note:** The axle will be disabled above 9 mph.
- To recenter, activate the remote valve and press the **Reset** button.

**Note:** Auto-centering of the steering wheels or tracks will also take place when the planter is in "Plant" mode and the planter is raised at the headland turn.

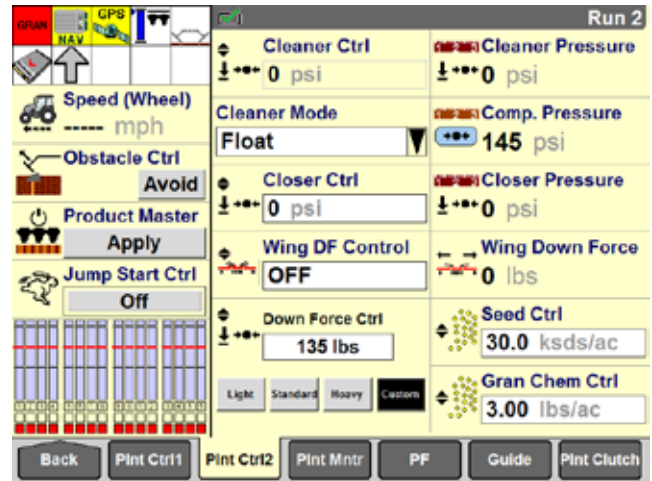
## MONITORS AND DISPLAYS

### RUN SCREEN LAYOUT EXAMPLES

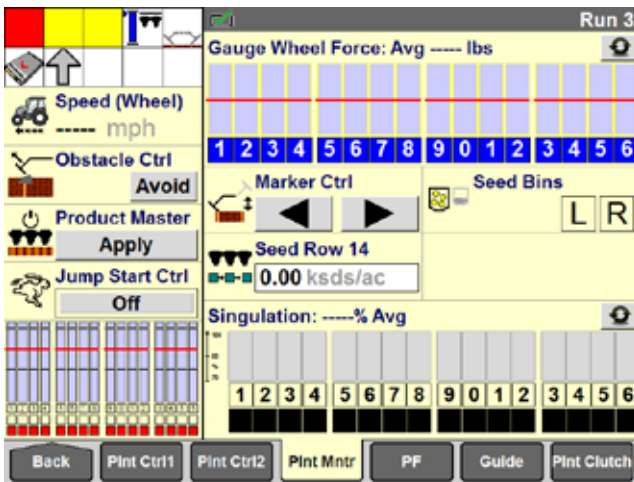
Run screen layout examples shown below. Available functions will vary by planter configuration.



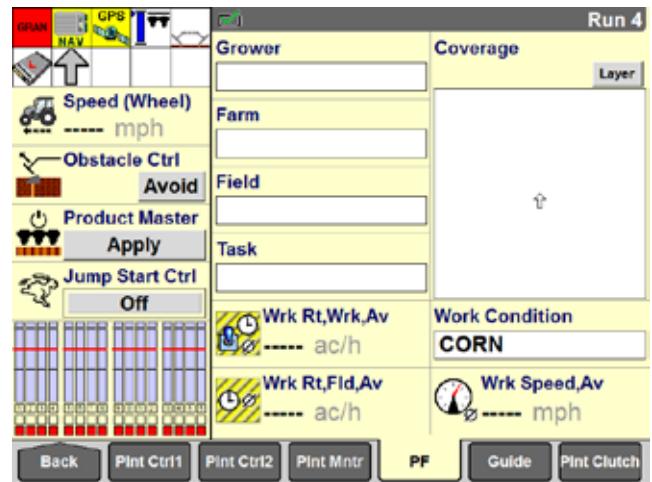
Run Screen 1



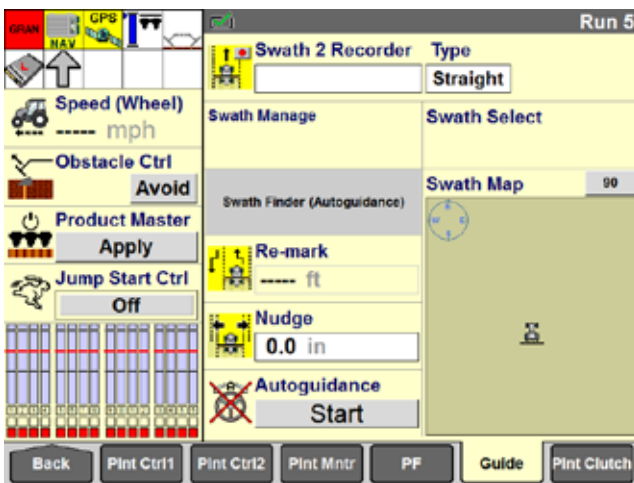
Run Screen 2



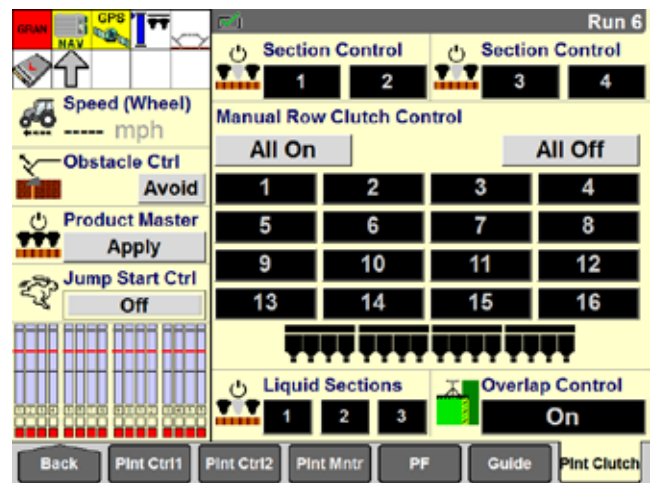
Run Screen 3



Run Screen 4



Run Screen 5



Run Screen 6



















# MONITORS AND DISPLAYS







## ICON LEGEND

### STATUS AND WARNING ICONS












#### Status icons

Icon	Meaning	Icon	Meaning
	A seed section is turned OFF.		A row seed sensor is faulty.
	The toolbar is in the fully raised position.		Distance calibration is in progress.
	A container level is low, or a container is empty.		A container event is in progress for filling, refilling, or flushing. Time, location, and fill amount are being recorded.
	A seed bin level is low.		A granular chemical bin level is low.
	No marker is deployed.		Both markers are deployed
	The left marker is deployed.		The right marker is deployed.
	The "Avoid" button or "Inner" button in the "Obstacle" window has been pressed to avoid an obstacle to a marker.		"As Applied" data logging is in progress.
	Automatic overlap control has turned product application OFF on one or more planter rows or sections.		A row clutch is in "Manual" control mode. Any row clutch in "Manual" mode will not respond to automatic overlap control.

#### Vehicle status icons

Icon	Meaning
	The implement is raised.
	Area control is turned OFF. No area, distance, or time information is accumulated for planting.
	Radar calibration is in progress.
	The implement is lowered.
	The planter is roading. Area, distance, and time information is accumulating for roading.
	Simulated speed is enabled.

#### Warning icons

Icon	Meaning	Icon	Meaning
	The planter Universal Control Module (UCM) is disabled.		The granular controller is disabled.
	A product controller – seed, fertilizer, etc. – is at maximum duty.		A product controller – seed, fertilizer, etc. – is at minimum duty.
	A vacuum controller fault is active		A seed controller fault is active.
	A bulk fill controller fault is active		A liquid fertilizer controller fault is active.
	An error (ERR) is present on the "Layer Assignment" screen or an "As Applied" application fault is active. Data logging is not possible until the problem is corrected.		Vacuum fan and/or bulk fill fans are driven by a PTO pump. Engage the PTO before turning fans ON.
	A high case drain pressure fault is active. All hydraulic motors are disabled by the case drain sensor. Check the tractor low pressure return connection. Check the normally closed pressure switch for proper function.		

## MONITORS AND DISPLAYS

### “RUN LAYOUT” SCREEN WINDOW SELECTION

#### PLANTING WINDOWS

The following table provides a quick overview of the various planting windows to simplify window selection when customizing the left-hand area and “Run” screens on the “Run Layout” screen (Home > Toolbox > Layout). Refer to your 2000 series Software Operating Guide for further detail.

Placement label	“Run” screen window	Description
Alternator Control		Use this window to set the alternator speed or to enable the “Auto Headland” feature which turns the alternator hydraulic motor OFF at headlands to allow faster frame lifting.
Alternator Rate		This window reports the measured alternator speed in rpm.
Area		This window reports the accumulated acres or hectares planted for the current task.
Area, Total Field		This window reports the accumulated acres or hectares planted for the current field, operation, and instance.
Area Farm		This window reports the accumulated acres or hectares planted for the farm since the counter was last reset.
Area Field		This window reports the accumulated acres or hectares planted for the field since the counter was last reset.
Area Life		This window reports the accumulated acres or hectares planted since the counter was last reset. The counter should remain active as long as the display is in service.
Area Season		This window reports the accumulated acres or hectares planted for the season or since the counter was last reset.
Bins, Granular		This window reports when the product level is low in the on-row granular chemical hoppers when the planter is equipped with two sensors.
Bins, Seed		This window reports when the product level is low in the on-row or bulk seed hoppers when the planter is equipped with two sensors.
		This window reports when the product level is low in the on-row seed hoppers when the planter is equipped with one sensor.
Boundary Control		Use this control window to temporarily turn boundary control OFF or ON.
Bulk Ctrl		This window controls the target fan speed used to deliver seed from the bulk hoppers to the minihoppers on the row units.
Bulk Fill Weight (Gross)		For planters that are equipped with bulk fill scales, this window reports the gross weight of the bulk fill tanks.
Bulk Fill Weight (Net)		For planters that are equipped with bulk fill scales, this window reports the net weight of the bulk fill tanks – the gross weight minus the tare weight.
Bulk Fill Rate		This window reports the current speed of the bulk fill fan in rpm.
Cleaner Control		Use this window to control the pressure to the pneumatic cleaners when the “Cleaner Mode” window is set to “Lift” or “Down.”
Cleaner Mode		Use this window to select the operating mode of the cleaners: “Float,” “Lift,” “Down,” or “Full Lift.”

Placement label	“Run” screen window	Description
Cleaner Pressure		This window displays the measured pressure at the cleaners.
Cleaner Down Pin		The arrow icons in this window pulse to indicate the valves opening to reach and/or maintain the set down pressure for the pneumatic cleaners.
Cleaner Lift Pin		The arrow icons in this window pulse to indicate the valves opening to reach and/or maintain the set lift pressure for the pneumatic cleaners.
Closer Control		Use this window to control the pressure to the pneumatic closers.
Closer Down Pin		The arrow icons in this window pulse to indicate the valves opening to reach and/or maintain the set down pressure for the pneumatic closers.
Clutch Ctrl, Manual, 2x4		Use this 2x4 window to manually control the ON/OFF state of each row unit. The icons below the numbered buttons indicate the section and row unit ON/OFF state. <b>NOTE:</b> If a row is configured to be in an outer group on the “Planter Configuration Screen,” pressing the button for that row automatically toggles the ON/OFF state of all rows in the outer group.
Clutch Ctrl, Manual, 2x6		Use this 2x6 window to manually control the ON/OFF state of each row unit. The icons below the numbered buttons indicate the section and row unit ON/OFF state. <b>NOTE:</b> If a row is configured to be in an outer group on the “Planter Configuration Screen,” pressing the button for that row automatically toggles the ON/OFF state of all rows in the outer group.
Compressor Pressure		This window reports the total compressor pressure available to the software-controlled cleaner and closer systems in kPa or psi.
Down Force Bar Graph		This window displays a bar graph for each row on the planter to report three measurements of hydraulic down force performance: gauge wheel force, net applied force, and ground contact percentage.
Down Force Control		Use this window to select the operating mode of the hydraulic down force system. <ul style="list-style-type: none"> <li>• “Light” - 22.7 kg (50.0 lb)</li> <li>• “Standard” - 45.4 kg (100.0 lb)</li> <li>• “Heavy” - 68.0 kg (150.0 lb)</li> <li>• “Custom” - Enter a custom value.</li> </ul>
Down Force Summary		This window reports four measurements of hydraulic down force performance: gauge wheel force, net applied force, down force margin, and ground contact percentage.
Frame Control		This window controls planter frame operation (plant, fold, unfold and off), toolbar operation, and marker operation. The window duplicates the functionality of the “Frame Control” screen (Home > Remote Valves > Frame), but can be placed on the “Run” screens.
Granular Ctrl		This window controls the granular application rate for any variable drive planter using “All Section” planter control.
Granular Ctrl 1		This window controls the granular application rate for section 1 of any variable drive planter that is using “Per Section” planter control.
Granular Ctrl 2		This window controls the granular application rate for section 2 of any variable drive planter with two or more sections that is using “Per Section” planter control.

Placement label	"Run" screen window	Description
Granular Ctrl 3		This window controls the granular application rate for section 3 of any variable drive planter with two or more sections that is using "Per Section" planter control.
Granular Ctrl 4		This window controls the granular application rate for section 4 of any variable drive planter with two or more sections that is using "Per Section" planter control.
Granular Ctrl L		This window controls the granular application rate for the left side of any variable drive planter with four sections that is using "Per Side" planter control.
Granular Ctrl R		This window controls the granular application rate for the right side of any variable drive planter with four sections that is using "Per Side" planter control.
Liquid		This window reports the actual applied rate for liquid product.
Liquid Ctrl		This window controls the liquid fertilizer application rate.
Liquid Flow		This window reports the flow of liquid product through the flow meter in terms of volume over time.
Liquid Pressure		This window reports the liquid application pressure from the liquid system pressure transducer.
Liquid Sections		This window controls all product application for liquid section 1 (left wing), section 2 (center), and section 3 (right wing). Liquid section control is completely independent of seed section control.
Marker Ctrl		In "Manual" mode, use this window to select the next marker to deploy when the planter toolbar is lowered. In "Automatic" mode, use this window to select the first marker to deploy for automatic marker alternating. This window also reports the current mode of operation: (M) for "Manual" and (A) for "Automatic."
Markers		This window controls operation mode – "Automatic" or "Manual" – for the markers.
Master		This window controls all product application for the entire planter – seed, liquid fertilizer, and granular chemical.
Obstacle Ctrl		This window controls marker operation when avoiding a field obstacle.
Overlap Control		Use this control window to temporarily turn overlap control OFF or ON.
PDP Control		This window controls the set point for the software-based Pneumatic Down Pressure (PDP) system.
PDP Dn Valve		For planters that are equipped with the Pneumatic Down Pressure (PDP) system, the arrow icons in this window pulse to indicate the valves opening to reach and/or maintain the set down pressure.
PDP Down Force		For planters that are equipped with the Pneumatic Down Pressure (PDP) system, this window reports the total down force achieved by the PDP system.
PDP Force Scan		For planters that are equipped with the Pneumatic Down Pressure (PDP) system, this window reports the gauge wheel force on the high row (greatest force), the gauge wheel force on the low row (least force), and the average gauge wheel force across all rows that are equipped with load cells. <b>NOTE: This window applies only to row units that are equipped with load cells.</b>
PDP GW Force Graph 2x2		For planters that are equipped with the Pneumatic Down Pressure (PDP) system, this window reports the gauge wheel force average for the entire planter and displays a graph of individual row unit performance. <b>NOTE: This window applies only to row units that are equipped with load cells. An empty bar graph displays for any row unit that is not equipped with a load cell.</b>
PDP Pressure		For planters that are equipped with the Pneumatic Down Pressure (PDP) system, this window reports the pneumatic pressure needed to achieve the set point in kPa or psi.

Placement label	"Run" screen window	Description
Planter Systems		Once hydraulics are enabled, the "Start" button automatically turns on vacuum, bulk fill fan, product master, and primes the planter.
Prime Ctrl		Use this control window to prime the seed meters, the granular chemical drives, and liquid fertilizer applicators, as equipped.
Row Scan		This window reports the applied rate from each seed sensor, one row at a time, followed by the average applied rate (depending on the selected planter control).
Section 1 2		This window controls all product application for section 1 and section 2 of the planter.
Section 3 4		This window controls all product application for section 3 and section 4 of the planter.
Seed Ctrl		This window controls the seed application rate for any variable drive planter using "All Section" seed control.
Seed Ctrl 1		This window controls the seed application rate for section 1 of any variable drive planter with two or more sections that is using "Per Section" seed control.
Seed Ctrl 2		This window controls the seed application rate for section 2 of any variable drive planter with two or more sections that is using "Per Section" seed control.
Seed Ctrl 3		This window controls the seed application rate for section 3 of any variable drive planter with two or more sections that is using "Per Section" seed control.
Seed Ctrl 4		This window controls the seed application rate for section 4 of any variable drive planter with two or more sections that is using "Per Section" seed control.
Seed Ctrl L		This window controls the seed application rate for the left side of any variable drive planter with four sections that is using "Per Side" seed control.
Seed Ctrl R		This window controls the seed application rate for the right side of any variable drive planter with four sections that is using "Per Side" seed control.
Seed Graph 1 x 1		This window displays a bar graph of current planting performance for each row unit relative to the target population rate in a one column by one row format.
Seed Graph 1 x 2		This window displays a bar graph of current planting performance for each row unit relative to the target population rate in a one column by two row format.
Seed Graph 2 x 2		This window displays a bar graph of current planting performance for each row unit relative to the target population rate in a two column by two row format.
Signal Watch, Planter		This window reports user selected signals for the planter frame and ECU's as set up on the "Planter Signal Monitoring" screen (Home > Diagnostics > Signals).
Spacing Scan		This window reports the spacing between seeds for each row unit, cycling through all rows one row at a time, and then reports averages.
Vacuum 1		This window reports the current vacuum rate for vacuum fan 1 in inches of H <sub>2</sub> O.

# 2000 SERIES EARLY RISER® PLANTER

## MONITORS AND DISPLAYS

### “RUN LAYOUT” SCREEN WINDOW SELECTION (continued)

#### PLANTING WINDOWS

Placement label	“Run” screen window	Description
Vacuum 2		This window reports the current vacuum rate for vacuum fan 2 in inches of H <sub>2</sub> O.
Vacuum Ctrl		This window controls the target vacuum rate used for all vacuum fans on the planter to hold seed on the seed disks while planting.
Vacuum Rate		This window reports the current average vacuum rate for all fans on the planter in inches of H <sub>2</sub> O.
Vacuum Scan		This window continuously reports the current average vacuum rate for vacuum fan 1, vacuum fan 2, and then the entire planter in inches of H <sub>2</sub> O.
Wing Down Force		This window displays the calculated weight transferred to the wings by the wing down force system.
Wing DF Control		Use this window to set the amount of weight that the wing down force system transfers from the planter center to the wings.
Wing DF Pressure		This window reports the measured pressure to the wing down force system.

#### ADVANCED SEED INFORMATION (ASI) WINDOWS

The following table provides a quick overview of the additional windows that are available when Advanced Seed Information (ASI) has been activated.

**NOTE:** The following windows are not available until ASI has been activated. Contact your dealer for an activation code. See the AFS Pro 700 display software operating guide for information about the “Feature Activation” screen.

Placement label	“Run” screen window	Description
ASI Graph 2x2		This window reports the ASI averages for the entire planter and displays a graph of individual row unit performance. For the applicable crop types, the graphs' colors are determined by the ASI threshold settings. See 3-40.
ASI Multiples Avg		This window reports the average multiples percentage for the entire planter.
ASI Multiples Scan		This window reports the percentage of multiples for each seed meter, one row at a time, followed by the percentage for each section and the average for the entire planter.
ASI SRI Avg		This window reports the Seed Release Index (SRI) for the entire planter.
ASI SRI Scan		This window reports the Seed Release Index (SRI) for each seed meter, one row at a time, followed by the average for the entire planter.

Placement label	“Run” screen window	Description
ASI Singul. Grph 1x1		This window displays the singulation percentage for each row in bar graph form. For the applicable crop types, the graphs' colors are determined by the ASI threshold settings.
ASI Singulation Avg		This window reports the average singulation percentage for all planter rows.
ASI Singulation Scan		This window reports the current singulation percentage for each seed meter, one row at a time, followed by the average percentage for each planter section, the percentage for the rows currently reporting the high and low values, and the average percentage for the entire planter.
ASI Skips Avg		This window reports the average skip percentage for the entire planter.
ASI Skips Scan		This window reports the percentage of skips for each seed meter, one row at a time, followed by the percentage for each section and the average for the entire planter.

# PREPARING FOR STORAGE

Proper planter storage practices are a key element in maintaining your planter's accuracy and efficiency. Refer to the planter Operator's Manual for specific steps to secure your machine for storage.

1. Fold planter markers. Install storage locks on carrying wheel hydraulic cylinders and drawbar hitch cylinders (if applicable).
2. Make sure tires are properly inflated.
3. Disconnect hydraulic and electrical lines. Cover connectors to prevent dirt contamination during storage.
4. Remove and clean seed meters. Inspect parts for wear. Reassemble meter covers to meter housings.
5. Store seed disks on a flat surface to prevent damage. Disks may also be stored by hanging them through the center hole. Identify seed disks to assure they are returned to the same meter housings when placed back into service.
6. Completely empty and clean bulk hoppers and seed boxes. *SpeedTube units only* – Remove belt and clean out all debris. Inspect components for wear and ensure belt moves freely. Clean optical sensors, and reinstall SpeedTube components before reinstalling into row unit.
7. Liquid Fertilizer system (if equipped) – Drain and flush out liquid fertilizer tanks as specified in the Operator's Manual. Disconnect and clean components for storage. If freezing is expected over winter, fill the system with 50/50 mixture of water and non-toxic, non-corrosive antifreeze (propylene-glycol).
8. Coat exposed hydraulic cylinder rods with grease to prevent rust.
9. Clean ground-engaging parts, and coat with grease or Case IH TILCOAT to prevent rust during storage. (Purchase TILCOAT from your Case IH dealer in aerosol, part number 1132221N, or in larger bulk containers)
10. Following proper procedures for handling farm chemicals, clean granular chemical hoppers. Re-install hoppers to their original row units.
11. Clean and lubricate the planter. Use touch-up paint as necessary.
12. Check ground engaging components for wear, and replace as needed
13. Inspect electrical harnesses and hydraulic hoses. Make necessary repairs to worn or damaged areas.
14. Clean and inspect the vacuum system.
15. Check and re-tighten hardware.
16. Remove and charge battery. Store indoors and off ground.









**SAFETY NEVER HURTS!™** Always read the Operator's Manual before operating any equipment. Inspect equipment before using it, and be sure it is operating properly. Follow the product safety signs, and use any safety features provided. CNH America LLC reserves the right to make improvements in design and changes in specifications at any time without notice and without incurring any obligation to install them on units previously sold. Specifications, descriptions and illustrative material herein are as accurate as known at time of publication, but are subject to change without notice. Availability of some models and equipment builds varies according to the country in which the equipment is used.