AXIAL-FLOW® COMBINE

7250/8250/9250 **COMBINES**

2019 CASE IH COMBINE PRODUCTIVITY GUIDE

www.caseih.com

CASE IH AGRICULTURE

GENERAL INFORMATION

INTRODUCTION

In 1977, the first single-rotor multi-crop combine was introduced, and the Axial-Flow combine quickly found its home in farm fields throughout North America, and around the world. The rest is history. Thirty- seven years and tens of thousands of combines later, the Case IH Axial-Flow is the harvesting benchmark, and an agricultural legend. More Case IH Axial-Flow combines have harvested crops than all other rotaries—combined.

The Case IH 250 Series Axial-Flow combines cover the Class 7, Class 8 and Class 9 markets with the 7250, 8250 and 9250 models.

Through all the evolution of the Case IH combine line; the core principles that were used to develop the original Case IH rotary combine design remain uncompromised. The single rotor Axial-Flow design boasts SIMPLICITY which reduces maintenance cost and contributes to overall lower ownership costs. GRAIN QUALITY and GRAIN SAVINGS area direct result of the single rotor design. Basic design and 38 years of history give the Axial-Flow combines ADAPTABILITY unlike any other combine, and the MATCHED CAPACITY of all combine systems means no productivity-robbing internal bottlenecks. All this adds up industry leading higher RESALE VALUE during harvest and after harvest.

CONTENTS

Axial-Flow 9250 Combine

Axial-Flow 8250 Combine

Axial-Flow 7250 Combine

GENERAL INFORMATION

Strong resale value depends not only on the integrity of the machine, but equally important is the solid support you get from your local Case IH dealers. Your dealers' investment in their stock of genuine Axial-Flow service parts, technician training, maintenance programs and credit support helps all your Case IH products retain resale value.

With the 250 series, Case IH is writing the latest chapters in the Axial-Flow story. A full selection of headers including:

- Standard 6-, 8-, 12- and 16-row, and residue-chopping 8- and 12-row corn heads
- Auger grain headers up to 41 ft.
- Draper headers up to 45 ft. in width

The Power Plus CVT drive feeder drive allows precise automatic feeder and header speed control, effortlessly adjusting to ground speed.

- A standard feature is an integral hydraulic feeder/header reverser with powerful 6-to-1 speed reduction

The large 49.5-inch wide feeder with a 4-strand, 3-slat feeder chain which matches feeding and threshing capacity.

- Cast slats aggressively move material up the feeder, while reducing grain damage
- The feeder floor is lower, improving throughput in heavy crop conditions

The long, 94-inch feeder improves visibility to the outer ends of large headers.

- Single lever header latch system quickly locks the header to the feeder
- Single point hydraulic and electrical connections, and easy to attach header drivelines

A spring-loaded feed chain tensioning system assures chain tension accuracy (*see figure 3.1*).

- Larger 3.5 and 3.74 in. (90 and 95 mm) lift cylinders eliminate the need for a third lift cylinder for large headers
- Optional Terrain Tracker™ helps even the largest headers follow the ground for optimal harvest efficiency

Perfection of the AFX rotor boosts threshing capacity with reduced power requirements, while maintaining superior grain quality and separation. The 180˚ concave wrap and multiple pass threshing and separating enhances capacity (*see figure 3.2*).

- Gentle grain-on-grain threshing assures minimal crop damage and the best possible sample
- Interchangeable rotor modules customize threshing and separating to specific crops and conditions
- Power Plus drive system gives operators precise speed control and efficient power transmission to the rotor, with no belts
- Power Plus drive makes the slug wrench obsolete, with the standard in-cab rotor reverser and rocking feature

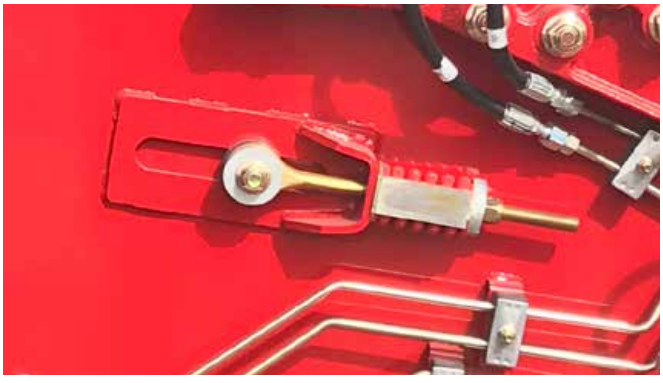


Figure 3.1

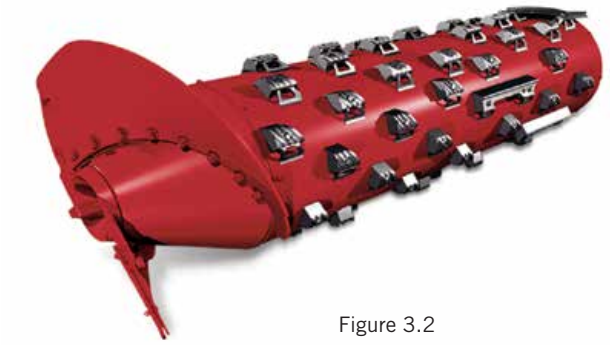


Figure 3.2

Figure 3.3

GENERAL INFORMATION

Tri-Sweep™ tailings processor efficiently re-threshes tailings, returning them to the grain pan for re-separation.

- Residue handling systems adjust spreading width to distribute discharge evenly behind headers as wide as 45 feet

Standard grain tanks holding 315 bushels on the 7250 (410 bushel optional), and 410 bushels for the 8250 and 9250, coupled with fast 4.0-4.5 bushels per second unloading keep productivity up in the highest yielding crops.

- Unloading augers discharge up to 24 feet from the combine, with extensions to 24 feet; to maintain a safe distance between trucks or grain carts and the widest headers

The highest yields, toughest crop and most demanding terrain and field conditions do not slow down the 250 Series Axial-Flow combines (see chart below).
Full authority electronic fuel delivery systems assure power, fuel

Case IH	Rated HP	Maximum HP	Power Rise HP	Engine Size	Grain Tank Capacity (Bu.)
7250	402	468	66	FPT 11.1L	315 std/ 410 opt.
8250	480	555	75	FPT 12.9L	410
9250	550	625	75	FPT 16.0L	410

economy and low emissions from these turbocharged and air-to-air after-cooled engines, which are kept running cool with in-line core radiators and de-aeration tanks.

A 2-speed electronic shift transmission delivers high drive torque to heavy-duty final drives.

- 7250 is equipped with standard heavy-duty bull gear final drives, and can be outfitted with optional planetary final drives, the same as those standard on the 8250 and 9250.
- Optional rugged power guide steering axle is available when the going gets tough in wet or soft field conditions

To keep harvest on pace in the most demanding drive conditions, the 7250, 8250 and 9250 combines can float through the field on factory optional 36-inch tracks, the same as those on Quadtrac® tractors (*see figure 4.1*).

Figure 4.1

Maintenance is made easy with large easy-opening side inspection doors with standard service lights.

- Easy access to the radiator and filters promotes regular service
- Sight gauges on the transmission and gear cases allows level checks at a glance
- Power Plus drive system drastically reduces the number of belts and chains, promoting reliable operation with reduced service demands

Operators work at maximum productivity on long harvest days in the climate controlled comfort of the Axial-Flow cab.

- Focalized cab mounting and air suspension seat take the vibration and shock out of cruising through the field
- User-friendly right hand controls move with the seat to keep them in comfortable reach for maximum comfort and efficiency
- Over 62 square feet of glass and superior lighting, including optional HID lights, allows operators to see every inch of the head and surrounding field conditions (*see figure 4.3*)

Figure 4.3

Standard yield and moisture sensors team up with the in-cab AFS Pro 700 monitor to give operators instant feedback on combine productivity and crop yield, and the ability to store data for summary display.

Add an optional GPS receiver, and accurate yield and moisture maps become the ultimate tool to fine-tune crop population, pest control and nutritional requirements in future years.

- Fully portable AFS372 receiver supports the optional AccuGuide™ auto guidance system

SAFETY

Harvest is the culmination of a full year of hard work and great investment. We know harvest "windows of opportunity"are not always as wide as you would like, with weather and crop conditions having the final say on when the crop gets into the bin. Make sure you spend every available day harvesting,not sidelined because poor judgment resulted in an accident. Observe all Safety Instructions in the combine Operator's Manual, and these specific safety rules, for a safe and profitable harvest season.

- Be sure you re-read the Operator's Manual to review all safety instructions.
- Be sure you read and understand the safety messages on all decals on your combine.
- Set the parking break, turn off the engine and remove the key before leaving the cab for cleaning, adjusting or lubricating.
- Solidly block the header up, or lower the feeder cylinder safety stand before working on or under the header (*see figure 5.1*).
- Never start or move the combine until you are sure everyone is out of the way.
- Never start the combine until the operator is familiar with all controls. This rule applies even if an experienced operator/trainer is present. Waiting until a quick decision is required to prevent an accident is not a good learning experience.
- Always place the transmission in neutral before attempting to start the engine.
- **DO NOT** allow riders (except during training).
- Never enter the grain tank or engine compartment when the engine is running.
- Many of the combine systems are electronically actuated. Unlike mechanical linkages that have a distinct and visible outcome when shifted or adjusted, activity such as unplugging an actuator may result in unexpected component movement. This accents the need to stop the combine engine before performing any service operation.
- Always stop the combine engine when refueling. **DO NOT** smoke while refilling the fuel tank.
- Keep ladders, steps and platforms free of trash and mud accumulations.

Figure 5.1

Always keep all guards and shields in place.

- Drive at moderate speeds in the field and on the road. Keep the combine in gear when going down hill.
- Use extreme caution when removing the radiator cap to avoid contact with hot pressurized coolant. Allow the engine to cool before opening the system. If the cap must be removed while the system is hot, protect hands with a thick layer of rags to absorb spilled coolant. **DO NOT** wear gloves that can become soaked with hot fluid and will burn skin before gloves can be removed.
- Be sure everyone is clear of the area before unloading grain. Grain entering a truck, trailer or grain cart at over 3 bushels per second can trap an adult in seconds.
- Dress appropriately when performing service work. **DO NOT** wear loose clothing that can become entangled with the machine.
- When transporting on the highway, double-check bridge and overhead power line clearances. Remove and transport wide headers lengthwise to promote the safest possible conditions.
- Engage the "Road Mode" switch to prevent accidental engagement of combine functions while in transport
- Take frequent breaks to maintain maximum attention.
- Be alert. If you're constantly alert, you'll be in a better position to handle emergencies.

SAFETY

FIRE PREVENTION

Few things could ruin an otherwise rewarding harvest more than a devastating combine fire. Spending some time each day keeping the combine clean and well-maintained is the best way to preserve harvest as a good memory, instead of something you would rather forget.

By nature, mature crops are dry and dirty, and are sources of considerable debris that can accumulate on harvesting equipment. During busy harvest-time, operators may not like taking the time to clean the combine daily. **The most appropriate cleaning time is at the end of the day. Any debris that may be near a hot surface, or is possibly already a smoldering pile, is removed before it becomes a problem.**

- Attempts to perform only major, time-consuming cleanings on a less-frequent basis will likely require **MORE TIME** in the course of the harvest season, than to make a proactive commitment to devote a few minutes to cleaning on a daily basis. Cleaning time is also a good time to perform a basic visual machine inspection.

Modern, high-productivity combines are powerful machines, and along with power comes heat. Fire cannot start without heat, and fuel. You cannot remove the heat from the engine, hydraulics and other hard-working systems, but you can remove the fuel source by keeping your combine clean.

Specific areas where high operating temperatures suggest extra cleaning effort are:

- The engine, specifically the exhaust manifold, turbocharger, muffler and exhaust pipe
- Hydrostatic pump, motor and hydraulic lines and tubes
- Brakes
- Electrical components
- Engine drives and all moving parts
- Batteries and battery cables

Equip your combine with at least two fire extinguishers – one near the cab and another where it can be reached from the ground.

- It's a good idea to have at least one water-charged extinguisher on your combine. However, use a water extinguisher only on crop debris. Water applied to an oil fire may tend to spread the flames.
- Watch for fuel or hydraulic fluid leaks. Correct any fuel or hydraulic fluid leak immediately. Clean the machine thoroughly after any hydraulic fluid or fuel leaks or spills. Residual hydraulic fluid or fuel mixed with trash creates a very combustible mixture. This can make an accidental machine fire much harder to control.

THINK SAFE.
WORK SAFE.
BE SAFE.

CONTROLS AND OPERATION

The Case IH 250 Series Axial-Flow combines use an AFS Pro 700 interactive touchscreen display to select and monitor combine functions, make certain adjustments, save and use Harvest Command system or Automatic Crop Settings, and to manage Advanced Farming Systems functions (*see figure 7.1*).

Figure 7.1

The 250 Series Combine controls are located in the Multi-Function control handle, right hand console and the touchscreen display. Cab environment and lighting controls are located in the overhead cab console.

Refer to the "Controls, Instruments and Operation" section of the Operator's Manual for complete details.

Multi-Function Handle (MFH) include (*see figure 7.2*):

- Ground speed
- Reel position
- Header lift and tilt
- Unloader swing and engage
- Automatic header position resume
- Emergency "all-stop"
- Feedrate engage

Figure 7.2

Shift button on the backside of the MFH provides additional functions:

- "Shift" plus header tilt right-left adjusts the edge offset of AccuGuide® assisted steering when enabled. "Nudges" a set distance each time button is pushed to adjust all guidance lines.
- "Shift" plus reel fore-and-aft controls Draper header fore-and-tilt
- "Shift" plus header Resume applies headland mode by raising the header, disabling the acre counter, self-centering Terrain Tracker® and turning on the side "rowfinder" lights.
- Auto Guidance Engagement - A quick double click of the shift key will engage auto guidance, once it had been activated on the RH counsel.

Example Headland Mode and Header Height Set Point in Corn Head Application

- Set Point 1 at normal header height for standing corn
- Set Point 2 for down corn at one end of field
- Header set points are saved using the 1-2 rocker switch.

  Set the header to the desired position, and press the desired "set" number. Use the "+"/"-" rocker to fine tune height while in each position.

  1. Enter row, press "Resume" to activate Set Point 2 for down corn.
  2. Press "Resume" when leaving down corn area, entering standing corn, operate at Set Point 1.
  3. Press "Shift + Resume" to enter Headland Mode at end of field. Header raises, acre counter stops, tilt centers, etc.
  4. Press "Resume" when re-entering row, header goes back to last active Set Point 1.
  5. Press "Resume" when entering down corn at opposite end, header lowers to Set Point 2.
  6. Press "Shift+Resume" to enter Headland Mode at end of field. Header raises, acre counter stops, tilt centers, etc.
  7. Press "Resume" when re-entering row, header goes back to last active Set Point 2.

Continue operation in same way at each headland to automatically raise, then return header to last-used height setting when re-entering field.

CONTROLS AND OPERATION

Automatic Climate Control

The Automatic Temperature Control system can be used in several ways to provide the operator with optimal cab environmental control (*see figure 10.1*).

- The climate control switch is pressed to turn on the automatic climate control function. A letter **(A)** is shown in the display when automatic climate control is enabled. If the switch is pressed a second time, the function is turned off.
- De-fog Mode Button – Pressing the de-fog mode button will:
  - If the LED is illuminated:
    - The HVAC compressor will be turned on regardless of temperature setting
    - The ATC system will control cab air temperature by use of the heater valve
  - If the LED is off:
    - The HVAC compressor will be controlled by the ATC system
- The temperature control knob is turned clockwise to increase temperature, and counter-clockwise to decrease temperature. Automatic temperature control is achieved when the dial is placed in the solid blue or red bands. The display indicates the desired cab temperature based on the adjustment of the temperature control.
- If the knob is turned completely in either direction, the system will operate in either maximum heat (red) or maximum cool (blue) mode, with no automatic control.
- The blower control is infinitely adjustable, and is turned clockwise to increase blower speed. When the automatic mode is enabled, the blower speed will increase and decrease as necessary to maintain consistent temperature. If the blower control is adjusted while in automatic mode, the blower speed will be constant, and the system will attempt to maintain constant temperature. However, the limited blower speed may prevent even temperature control.
- Cycling the climate control switch will return the blower to automatic control.
- A "Service Manual" symbol in the display indicates a system problem requiring attention.

Figure 10.1

Blower Control

Left: Climate Control Switch/ Right: De-Fog Switch

Temperature Control

CONTROLS AND OPERATION

Right hand console controls include (*see figure 8.1*):

- Engine speed
- Parking brake
- Header/feeder and separator on/off
- Sieve opening
- Concave clearance
- Rotor speed
- Fan speed
- Auto guidance engage switch
- Reel speed and automatic speed control offset
- Powered rear axle
- Header speed and automatic speed control offset
- Road mode
- Auto header set height

Figure 8.1

Productivity-enhancing features are adjusted using right hand console controls.

- Automatic header height set point control
- Automatic reel and feeder/header speed control
  - Considerable flexibility such as manual speed adjustment, or automatic speed adjustment offset relative to ground speed allow the operator to operate the combine at maximum efficiency when crop conditions require a wide range of ground speeds
- High/Low set point toggle
- Review the Operator's Manual detailed instructions, or consult your Case IH dealer to make the most of these features
- Use the convenient Quick Start card included with the combine Operator's Manual (*see figure 8.2*)

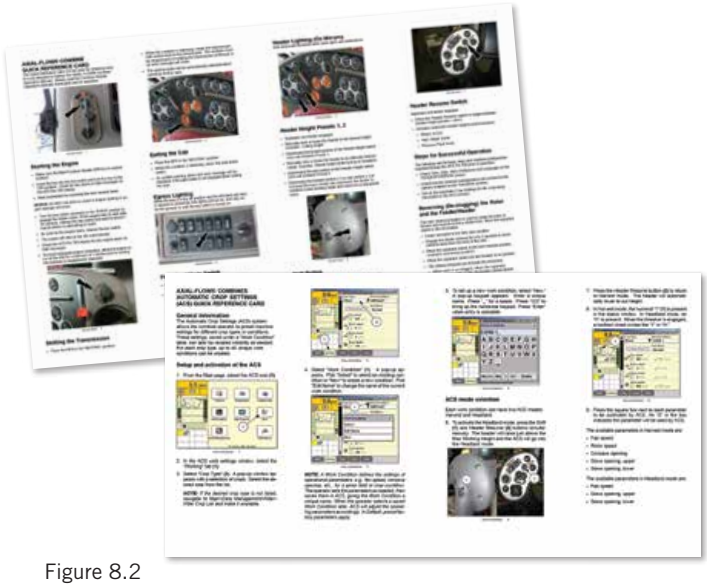


Figure 8.2

AFS PRO 700 DISPLAY

The enhanced color display of the AFS Pro 700 is divided into three functional areas, and provides more information with easy selection and navigation (*see figure 8.3*).

- Intuitive design allows new operators to quickly master the system
- Quick Start card included with the combine supplements the Operator's Manual, with most frequently used setup and operation information ((*see figure 8.2*)

The status area is located on the left side of the display.

- The upper portion of the status area shows machine operating conditions
- The center portion of the status area shows engine coolant temperature bar graph on the left and fuel level on the right
- Center icons showing conditions of the reel, unloading auger, grain bin, head height, feeder, work lights, direction/caution lights, and beacon
- Current time and date displayed at bottom

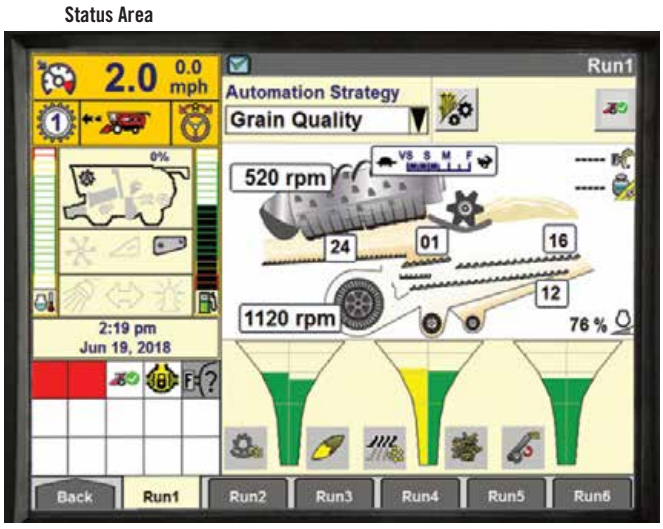


Figure 8.3

CONTROLS AND OPERATION

AFS PRO 700 DISPLAY continued

The alarm status area is located at the bottom left side of the display.

- Danger alarms are shown in red and flash continuously as long as the alarm condition is present
- Caution alarms are shown in yellow

The right side of the display is used for vehicle and Precision Farming applications.

- The Run 1 screen is the default startup screen
- Press Main (Home) button to access the areas to customize the display and set the machine for the desired machine and field conditions and crops

A wide selection of information can be displayed in the AFS Pro 700 Display Area. Refer to the Operator's Manual or Quick Start Card to determine information that is needed for the specific operation. The following chart is a part of the Quick Start Card, and illustrates which display buttons are used to access setup, calibration, diagnostic and operation functions (*see figure 9.1*).

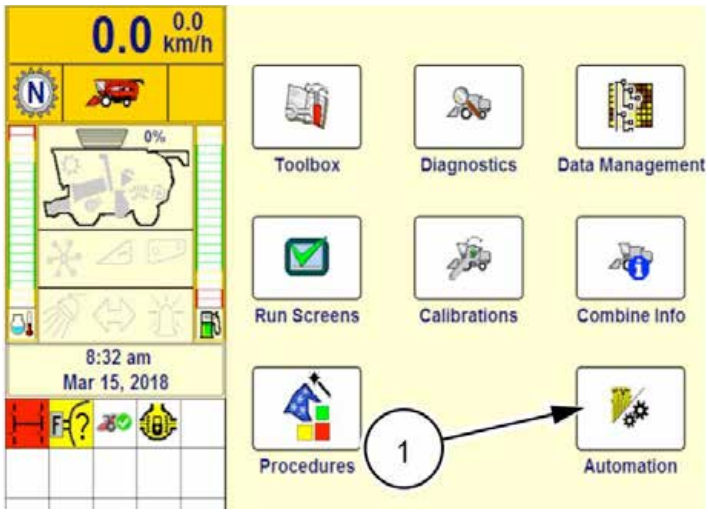


Figure 9.1

Toolbox
The following tabs are available:
- Display Setup
- Operator Setup
- Run screen layout
- Combine Setup
- Engine Setup
- Electrical Setup
- Hydraulic Setup
- Driveline Setup
- Header Setup 1 and 2
- Feeder Setup
- Threshing Setup
- Cleaning Setup
- Grain Setup
- Residue Setup
- Residue Distribution Control
- Service Setup
- GPS Setup (if installed)
- Precision Farming Setup
- Field Mark Setup
- Yield Setup (if installed)
- Navigation
- Row Guide
- Printer Settings
- Feature Activation
- Unload Setup

Performance
The following tabs are available:
- Profile Setup
- Summary Data 1
- Summary Data 2

Diagnostic
The following tabs are available:
- Version
- CAN Status
- Fault Archive
- Settings
- Graph
- Resource Status
- GPS Status
- Constellation Map (GPS2)
- GPS Receiver (RDI)
- Yield
- RowG
- Safety

Data Management
The following tabs are available:
- Import
- Filter List
- Delete
- Map Management
- Apply Calibration

Run Screens
The following tabs are available:
- Run 1 through Run 6

Combine Info
The following tabs are available:
- Combine Totals
- Engine Info
- Electrical Info
- Hydraulics Info
- Driveline Info
- Header Info
- Feeder Info
- Threshing Info
- Cleaning Info
- Grain Info
- Residue Info
- RPM Info
- Loss Info
- HVAC Info
- Unload Info

ACS (Automatic Crop Settings)
The following tabs are available:
- ACS work settings
- ACS crop settings
- ACS work summary
- ACS saved data

Calibrations
The following tabs are available:
- Calibration
- Header
- Tire Radius
- Multifunction Handle
- Concave Opening
- Upper Sieve
- Lower Sieve
- Self-leveling Sieve
- Groundspeed Hydrostat
- MFH Neutral Switch
- CVT Rotor
- CVT Feeder
- Rear Wheel Position
- Unload Spout
- Folding Unload Tube
- Chopper Counter Knives
- Distance Calibration
- Area Calibration
- Crop Setup
- Moisture Calibration
- Yield Calibration
- NAV Calibration

Automation
- Basic Screen
- Advances Screen
- Sensitivities
- Headland Offset
- Status Screen Information
- Information

ADVANCED FARMING SYSTEM (AFS)

The power of information that you gather with the AFS Pro 700 Display operating Case IH AFS Precision Farming systems can have a greater impact on your operation's profitability than many other factors that often get far greater attention. If not used correctly, a tool's full potential is seldom realized. With that thought in mind, some simple guidelines may help you make AFS operation simple and second nature, and ready to work for you (*see figure 13.1*).

Figure 13.1

Five basic components work together to capture harvest information as the combine moves through the field.

- The flow sensor measures grain volume
- The moisture sensor measures the grain moisture and temperature
- A ground speed sensor and programmed header width determine coverage area
- The yield monitor combines all crop and area data to populate the touch screen display
- Information is stored on a memory card that transfers data to desktop software

Add a DGPS receiver and record a data point every 1, 2 or 3 seconds as you travel through the field, to fully realize the power of information.

To record harvest data, four criteria must be met. Refer to the appropriate Operator's Manual for the software version running in your AFS system.

- A memory card must be inserted in the top slot of the display before turning the power ON
- The clean grain elevator must be running between 250 and 599 rpm
- Ground speed must be registered
- The header must be lowered below the header cut "stop height" position

When data is being recorded, the "Recording to Data Card"icon will be displayed in the Status/Warning area.

Figure 13.2

GRAIN MOISTURE AND WEIGHT SENSORS

The grain moisture sensor operates on the principle of an electrical current flowing from the sensor fin, through the grain, and to ground (*see figure 13.2*).

- The grain moisture sensor fin must be clean for proper function. A buildup of crop sap can reduce sensor accuracy.
- Remove any crop residue by scraping or using soap and water or solvent to clean the moisture fin and temperature sensors

ADVANCED FARMING SYSTEM (AFS)

GRAIN MOISTURE AND WEIGHT SENSORS continued

The bypass auger is controlled by a proximity switch that cycles the auger as required, to assure the sensor fin is always in contact with grain.

- The bypass auger should be removed and cleaned. Ensure that the auger has not seized to the plastic block that supports the non-drive end.

  Note: Operators should monitor instantaneous moisture values while harvesting to confirm the sensor is functioning. If moisture values do not show some fluctuation, a problem may exist with the moisture sensor that requires attention to assure accurate harvest data.
- If moisture readings are consistently very low, the auger may be operating constantly, preventing grain contact with the fin. (Likely to occur only in lower yield crop where the bypass auger removes grain from the bypass as quickly as it enters.)
- If moisture readings never change, and remain at a value likely to be representative of actual grain moisture, the auger may not be operating (the sensor is merely providing a moisture reading of a static sample that is in the bypass housing).
- The auger should operate for 30 seconds after the separator is disengaged, to clean grain from the bypass. Check by watching the end of the auger shaft during this30-second period, to see if the shaft is turning.
- If not, check to assure the moisture sensor bypass auger fuse is not blown. If problems persist, contact your Case IH dealer for assistance.

Prior to harvesting, inspect the flow sensor impact plate (*see figure 14.1*). Clean the plate if necessary to assure crop flows smoothly across the surface. If any holes are worn through the plate it should be replaced.

Figure 14.1

COMPONENT CALIBRATION

To understand the need for system calibration, consider that AFS operates using electronic components that translate ground speed, header position, grain moisture and grain volume data into electrical signals.

- Many variables make "set-at-the-factory" accuracy impossible
- The operator manually enters the actual moisture values and weight from calibration samples
- Calibration values can be selectively applied to past or future harvest data, allowing the system to accurately reflect the moisture and weight of the grain being harvested

System inputs that require calibration:

- Header stop height (turns counting on and off)
- Distance (used to calculate ground speed)
- Grain Moisture
- Grain Weight

Operators must also remember that adjustment or replacement of any component that affects calibration requires re-calibration.

- Refer to the Operator's Manual after re-calibration to use the correct Utility menu to apply calibration to harvest data collected after the component is replaced

In understanding the calibration process, the operator will realize the importance of maintaining an accurate record of load identification, calibration load weights and moisture test results.

- Make sure scale tickets are identified with the AFS farm, field, crop and task names to assure correct "actual" values are entered. **See the calibration record table included in the AFS Operator's Manual** (*see sample below*).

Crop Type				Date		
Combine				Operator		
Field	Load	Flow Bu/Hr	Estimated Weight	Actual Weight	Percent Error	Include? (Yes/No)
1	Cal 1 Hi					
2	Cal 2 Hi					
3	Cal 1 Med					
4	Cal 2 Med					
5	Cal 1 Low					
6	Cal 2 Low					

ADVANCED FARMING SYSTEM (AFS)

OTHER IMPORTANT STEPS TO ASSURE ACCURATE CALIBRATION

- Do not attempt to make the first load harvested a calibration load. Frequent stops and starts as harvest begins and the machine is adjusted will result in inaccurate calibration.
- Do not harvest calibration loads until headlands are harvested
- Prior to harvesting the calibration load, make sure the grain tank and truck, cart or trailer used to transport the calibration load is completely empty
- Attempt to harvest calibration loads of nearly the same size for best accuracy. Loads of 3,000-10,000 lbs. are suggested.
- Empty the load into the truck or trailer
- Do not unload-on-the-go when harvesting calibration loads
- Use a range of speeds and throughputs that are expected in normal operation. The objective is to "teach" the flow sensor how different flow rates "feel" to the sensor.
- The highest output flow rate should be near that which the operator would prefer to operate the machine
- Medium and low flow rates are also suggested since variations in yield throughout the field, or conditions that result in reduced ground speed, can periodically lower throughput during normal harvest. A medium flow rate is 30% less than the high flow rate. A low flow rate is 30% less than the medium flow rate. Reduced flow rates are achieved by driving slower or taking a reduced swath.
- The operator should attempt to maintain a consistent flow rate when harvesting each of the loads. Use the"Instantaneous Flow-Dry" display to monitor throughput.
- Use at least one load from each flow rate
- Take 4-5 moisture tests in each load, from different areas of the grain tank. Average readings for actual values.
- Apply calibration values according to procedures for the calibration method being used.

Calibration Wizards

The Case IH 250 Series Combines are equipped with the AFS Pro 700 display with software version 28 or greater (*see figure 15.1*).

- The AFS Yield Monitor is viewed in the Display Area of the AFS Pro 700 monitor.
- Calibration Wizards greatly aid operators in performing successful calibrations with ease.
- Once the operator is familiar with the basic navigation, the Wizards provide the necessary instructions to complete calibration.
- Operator's Manual used to acquaint users with basic Wizard navigation.

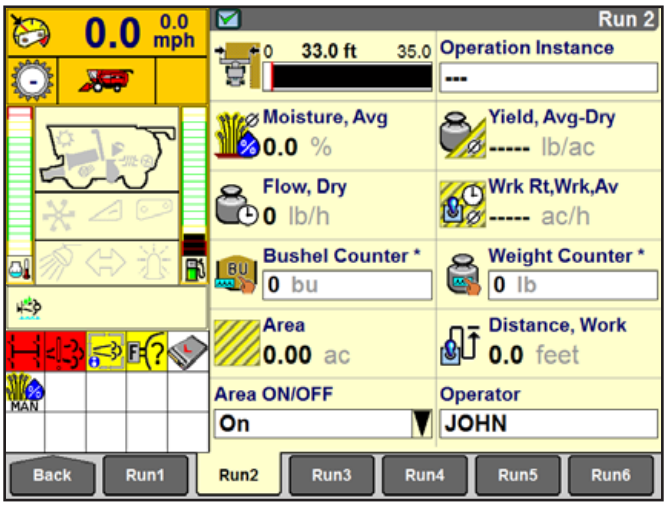
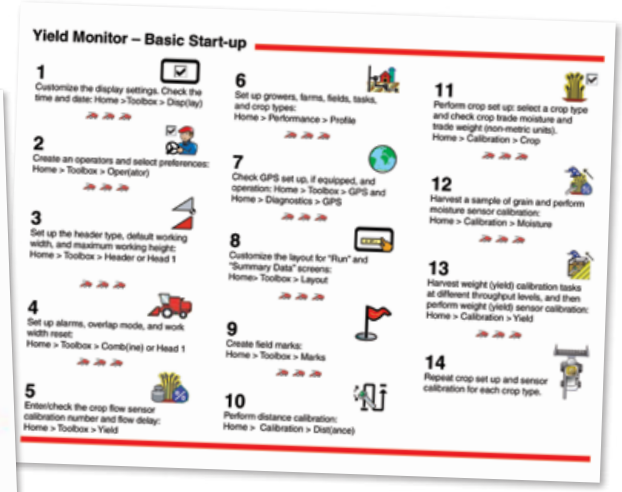


Figure 15.1



The Operator's Manual contains detailed instructions, along with helpful reference guides like this Yield Monitor Quick Reference Guide, Form No. 47426987.

ADVANCED FARMING SYSTEM (AFS)

Calibration Wizards (continued)

Three different crop calibration methods can be selected (*see figure 16.1 & 16.2*).

- Fast Calibration
- Moisture and weight calibration using the Wizard
- Advanced Calibration

Wizards automatically progress step-by-step through the process.

- First display calibration load identification input screens in order (Grower, Farm, Field, Crop, Task; *see figure 16.3a & 16.3b*)
- Task is equivalent to "Load" in prior systems. New task is assigned by system when "Stop" is pressed after harvesting previous load.
- On-screen instructions for harvesting, handling and measuring the necessary calibration loads (*see figure 17.1*)
- Intuitive screens allow operators to input actual crop moisture and weight values (*see figure 17.2*)
- Clearly displays options for saving and applying new calibration data

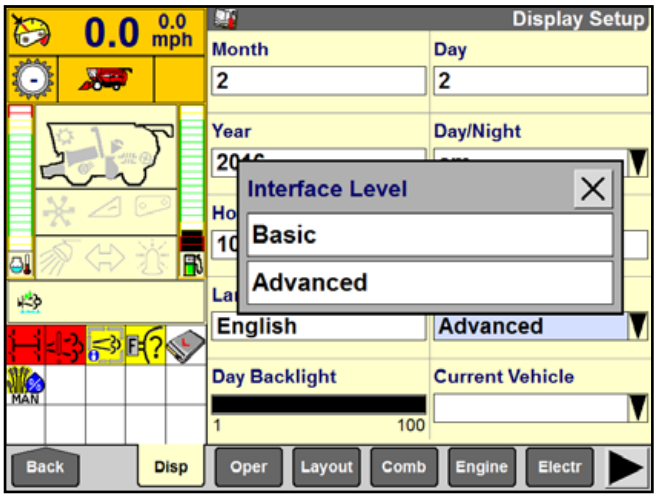


Figure 16.1

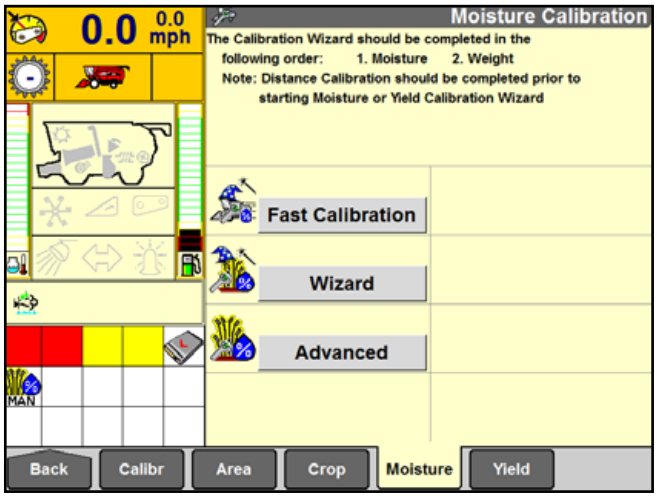


Figure 16.2

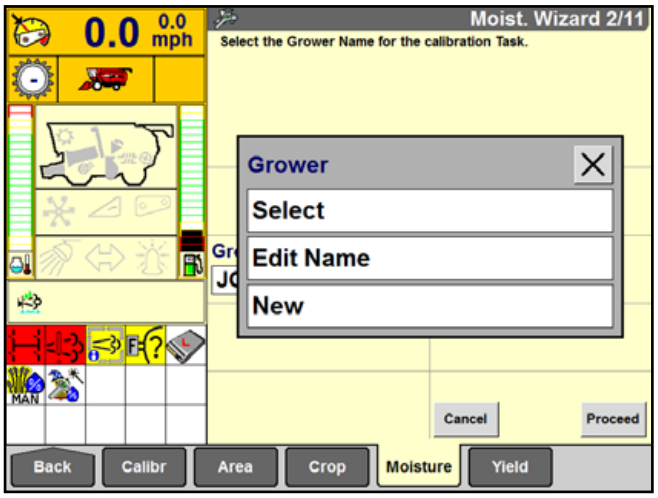


Figure 16.3a

Figure 16.3b

ADVANCED FARMING SYSTEM (AFS)

Three separate factors critical to Yield Monitor accuracy are the Distance, Crop Moisture and Crop Weight values. Calibration of these factors must be performed in this order to assure correct monitor software function.

Distance calibration is critical for speed and area calculations.

- Synchronizes the Yield Monitor with the actual distance the machine travels over a set course
- Wizard explains how to set up and drive the course, including Stop/Start commands
- Displays screens for the actual distance value input and updating the calibration (*see figure 17.3*)

Moisture and Weight Calibration

IMPORTANT: *Complete the Distance Calibration first to ensure accurate calibration of crop moisture and crop weight.*

- Fast Calibration uses averaged moisture value and scale weight (yield) for one load
- Wizard and Advanced calibration use multiple loads to update moisture and weight (yield) values

Moisture calibration fine-tunes the accuracy of the AFS moisture sensor by updating sensed values with moisture values of the same grain, measured in a known accurate moisture tester.

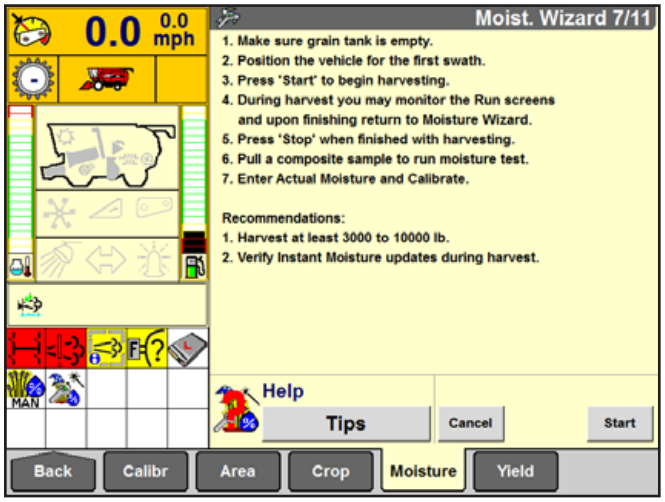


Figure 17.1

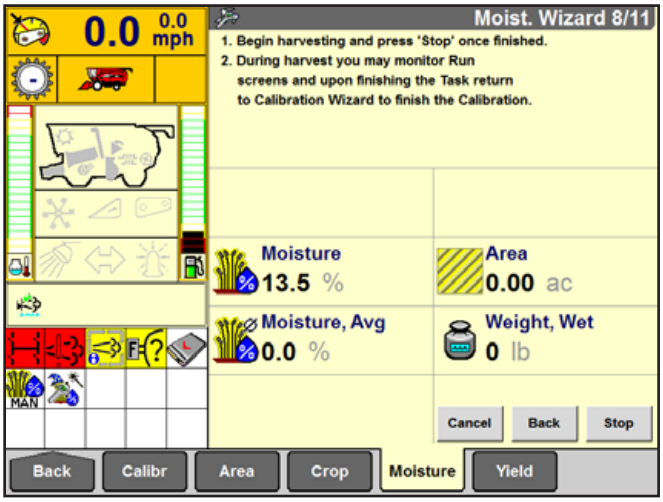


Figure 17.2

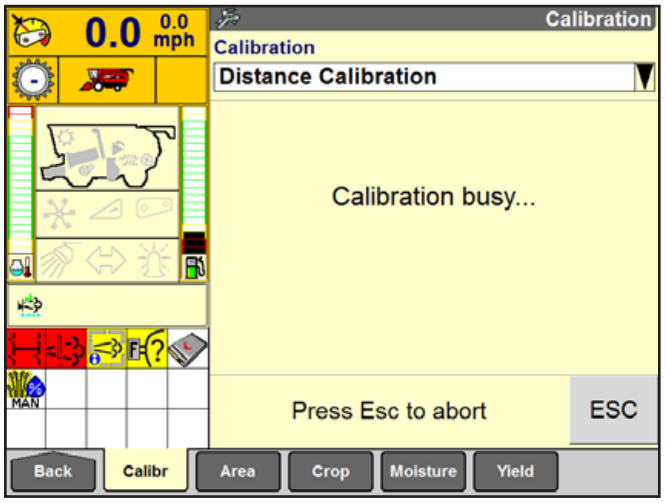


Figure 17.3

ADVANCED FARMING SYSTEM (AFS)

- Actual moisture values entered, percent error relative to sensed moisture calculated for each load (*see figure 18.1*)
- If you press the “Calibrate” button and the error percentage is acceptable, a pop-up message window displays. Press the “OK” button to apply this calibration value to current and future tasks for the crop type on the data device. Use the Apply screen (Home > Data Management > Apply) to apply the calibration to previous tasks. Fast moisture calibration is complete (*see figure 18.2*).
- Moisture calibration must be performed before Weight calibration.

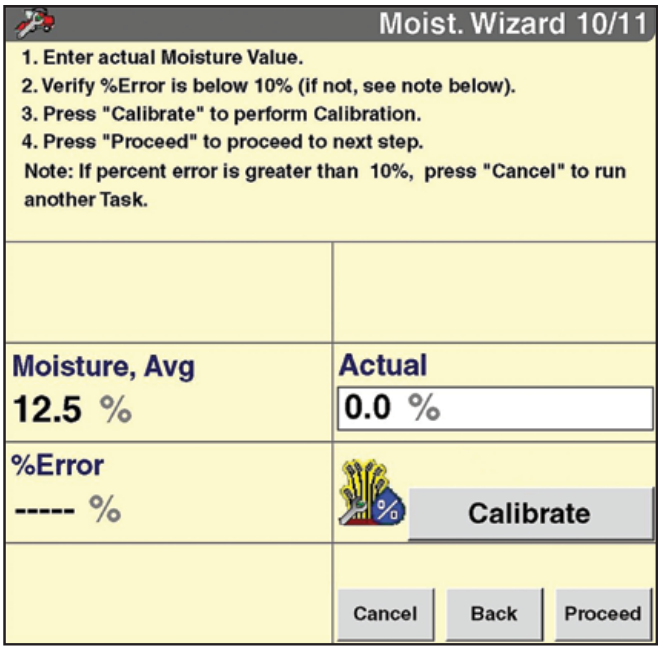


Figure 18.1

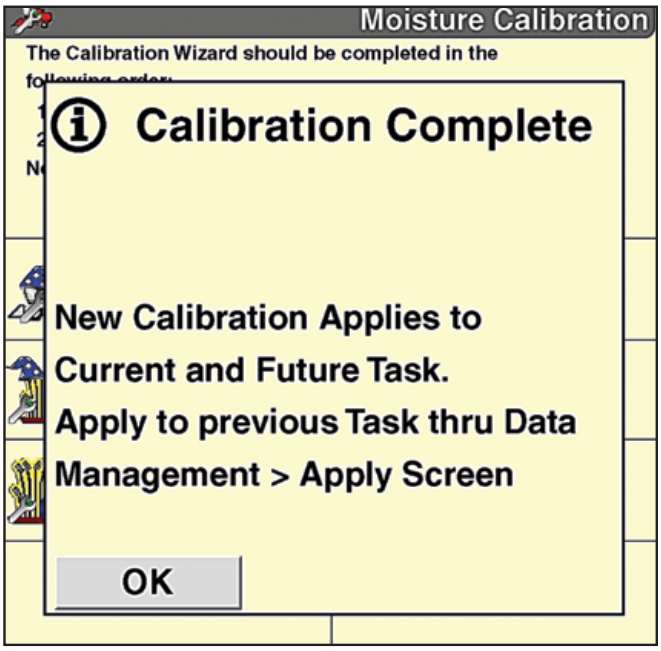


Figure 18.2

ADVANCED FARMING SYSTEM (AFS)

Weight calibration fine-tunes the accuracy of the AFS flow sensor by updating sensed values with weight values of the same grain, measured in a known accurate scale.

- Harvest separate loads at high, medium and low target throughput flow rates (*see figure 19.1*)
- Press "Start" and follow on-screen instructions (*see figure 19.2*)
- Actual weight entered, percent error relative to sensed weight calculated for each load (*see figure 18.1**)
- The wizard is a step-by-step calibration system that walks the operator through the necessary steps for highly accurate calibration using multiple loads (*see figure 19.3*). Press the "Wizard" button to start yield calibration
- Operator can choose to apply Actual values immediately, or at a later time (*see figure 19.4*)
- Operator can select up to 10 tasks (loads) to apply to calibration (*see figure 18.2**)

An understanding of these basics is essential in achieving accurate AFS data records. The AFS Pro 700 Yield Monitor Operator's Manual provides detailed step-by-step instructions for performing AFS operations, calibrations and managing the display information and harvest data.

* Yield Wizard screens closely resemble Moisture Wizard screens in figures 18.1 and 18.2.

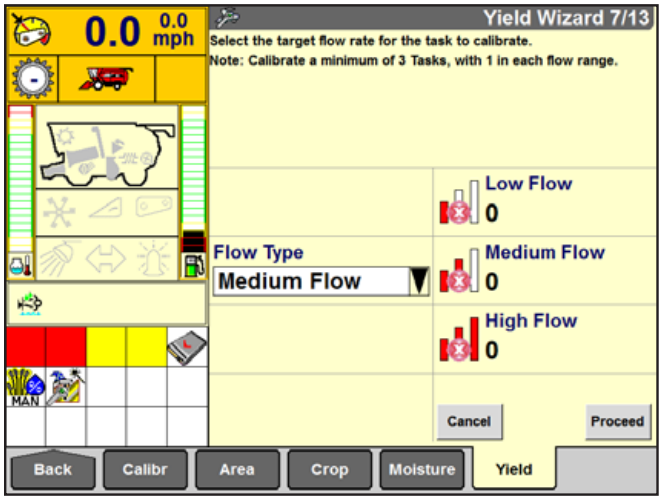


Figure 19.1

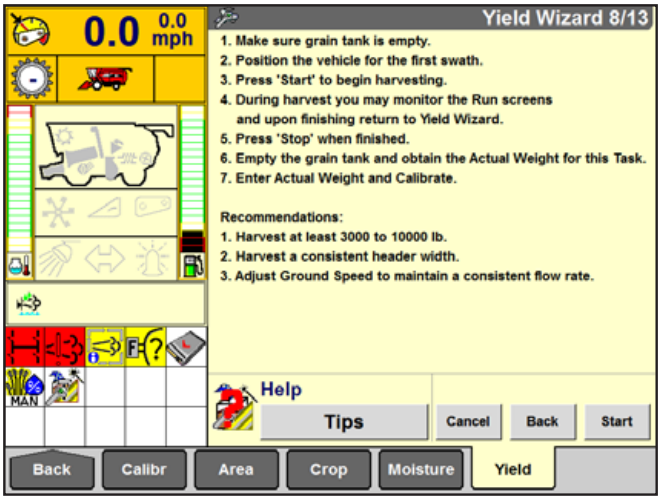


Figure 19.2

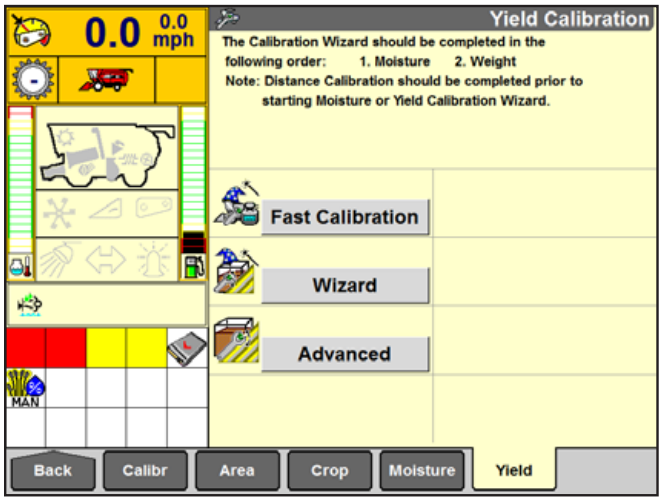


Figure 19.3

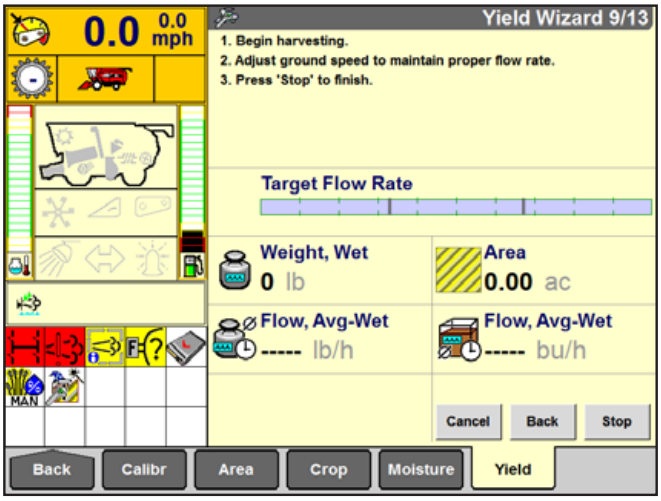


Figure 19.4

HARVEST COMMAND™

AUTOMATIC CROP SETTINGS (ACS)

The Automatic Crop Settings feature, or ACS, is standard on all 250 Series Axial-Flow combines. With ACS, working condition settings for various crops can be stored and recalled for later use. ACS provides automatic adjustment of:

- Cleaning fan speed
- Rotor speed
- Concave position
- Upper sieve opening
- Lower sieve opening

To start ACS, press the "ACS" tab in the display Main page

- ACS work settings page will be displayed, press "Working" (*see figure 11.1*)
- Go to the "Crop Type" window and select the desired crop which allows the operator to select an existing Work Condition, edit the name of an existing condition, or create a new Work Condition (*see figure 11.2*)
- Touch the "Work Condition" window, and a pop-up appears
- If re-naming or creating a Work Condition, a keypad appears on which text changes can be performed

Refer to the 250 Series Operator's Manual for specific screen navigation procedures.

Each Work Condition can have two ACS modes, determined by the "ACS Mode" selection.

- Harvest
- Headlands

Allows operator to automatically make momentary machine adjustment to **fan speed** and **sieve clearance** during headland turns to prevent cleaning system grain loss.

Mode is indicated by an icon in the status window (*see figure 11.3*)

- ① indicates Harvest mode (shown)
- H indicates Headland mode

A toothed wheel around the icon indicates the separator is engaged.

When the desired mode is selected, the operator can touch the individual parameter windows and activate an "X" for parameters to be used by ACS.

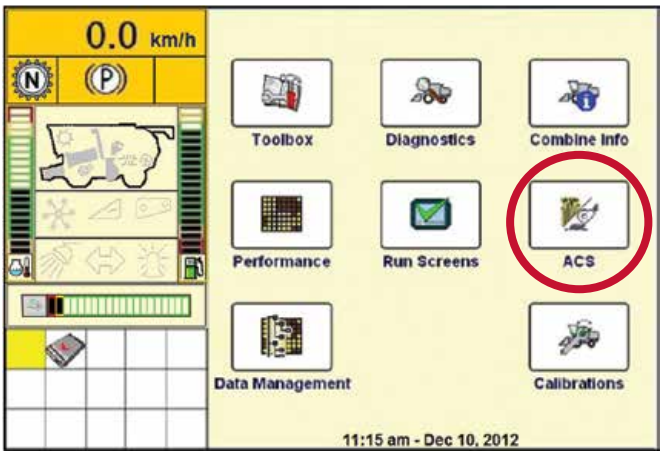


Figure 11.1

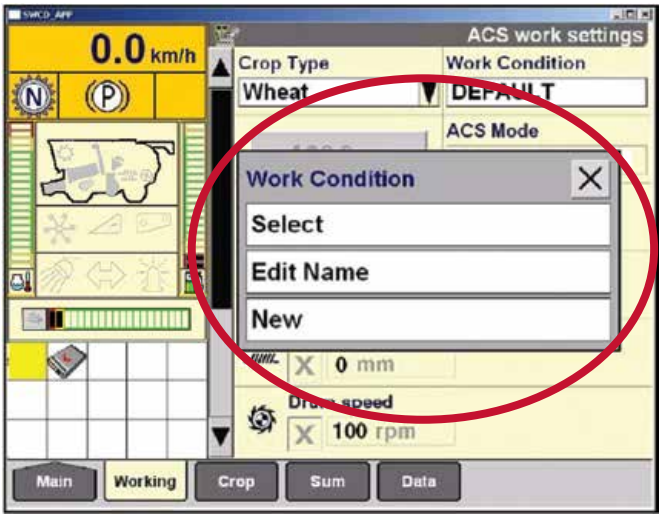


Figure 11.2

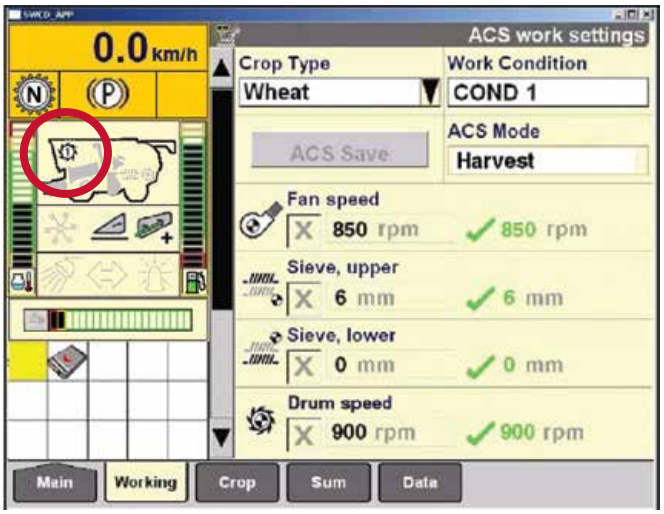


Figure 11.3

HARVEST COMMAND™

AUTOMATIC CROP SETTINGS (ACS) continued

Adjustments are made using switches on the right hand console. As adjustments are made, pop-up windows are displayed to indicate current settings to the operator (*see figure 12.1*).

- When in Headland mode, values represent the difference between Harvest settings and the desired Headlands setting. (In *figure 12.1*, "-210" indicates a reduction off a speed of 210 rpm when in Headlands mode.)

ACS stored value cells are displayed to the right of the parameter adjustment cells (*see figure 12.2*).

- Green check marks indicate stored values are the same as current parameter values
- Red "!" marks indicate stored values differ from current parameter values
- ① (shown) or H icon in status window will blink, indicating parameters have been changed, but not saved. If new values are satisfactory for the currently selected Work Condition, press "ACS Save."
- If it is desirable to keep the current Work Condition unchanged, but keep new parameters for later use, press "Work Condition" and create a New condition, then "ACS Save"

To check ACS stored values against parameters that may have been changed while operating in other screens, press Main>ACS>Working. Saved and current settings will be displayed along with applicable check marks or "!" marks. "ACS Save"can then be performed as described above if desired.

ACS controls may be placed on a Run screen. Follow normal procedures for screen setup in Main>Toolbox>Layout to include desired items on the display (*see figure 12.3*).

USING ACS

Up to 40 different Work Conditions for each Crop Type can be stored by the ACS system. Operators are encouraged to create new Work Conditions as necessary when harvest conditions that are likely to repeat are encountered, and saving machine settings for later use will be convenient and efficient.

Examples of harvest conditions in which new Work Conditions may be created are:

- Changing moisture conditions for crop maturity or time of day
- Changing settings due spot conditions such as weed infestations or wet areas
- Crop varieties with significantly different threshing or separating characteristics

Starting a new crop with default settings is a common method of machine set up. As the machine settings are fine-tuned, the operator should compare current settings to the default condition.

- If settings vary greatly from default, consider creating a new condition that may be treated as the starting condition or "default" for future use. Remember, factory default settings cannot be overwritten.

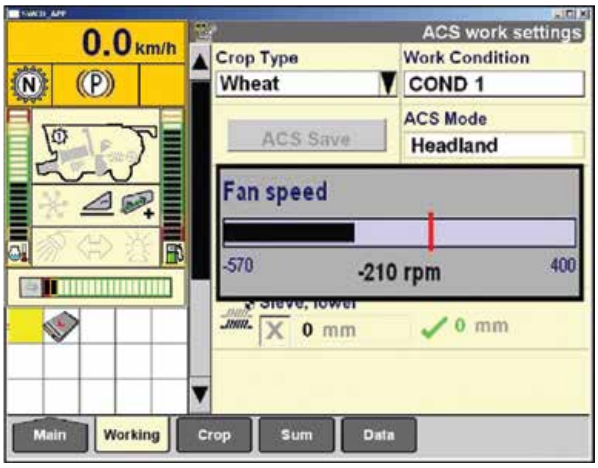


Figure 12.1

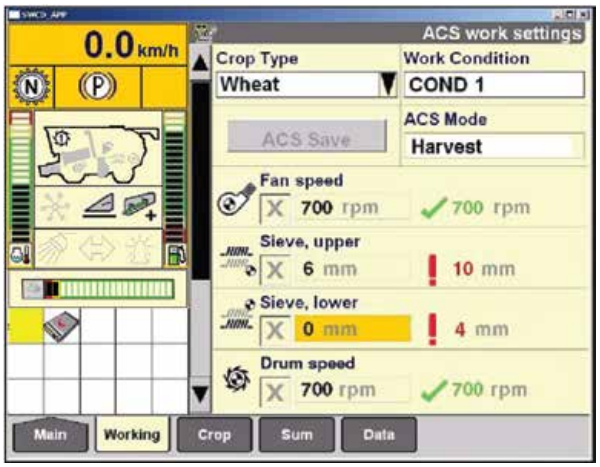


Figure 12.2

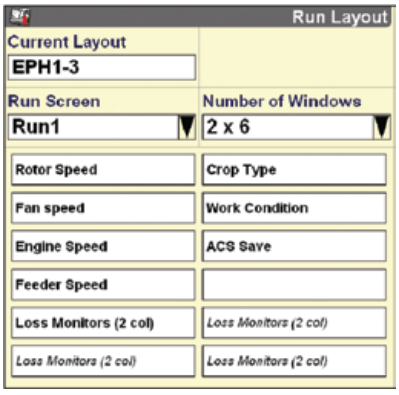


Figure 12.3

HARVEST COMMAND™

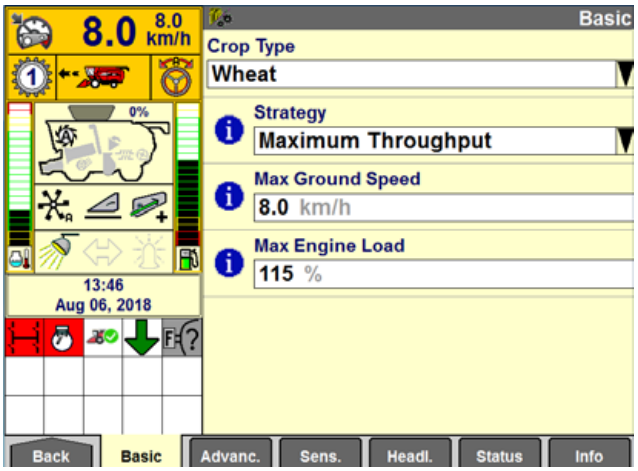
AUTOMATION SETUP AND TUNING

STEP 1: BASIC TAB SETUP

1. Select the Crop type to be harvested
2. Select the strategy to be used
3. Select the Max Ground Speed.
4. Select the Max Engine Load

Note 1: More information can be found about each selection made by pressing the blue info button next to the drop down menu.

Note 2: The operator can enter crop after just these 4 selections. The operator can also visit the advanced tab if desired to familiarize themselves with the advanced settings if it becomes necessary to use them.



STEP 2: ADVANCED TAB

Initial settings: Auto settings are recommended

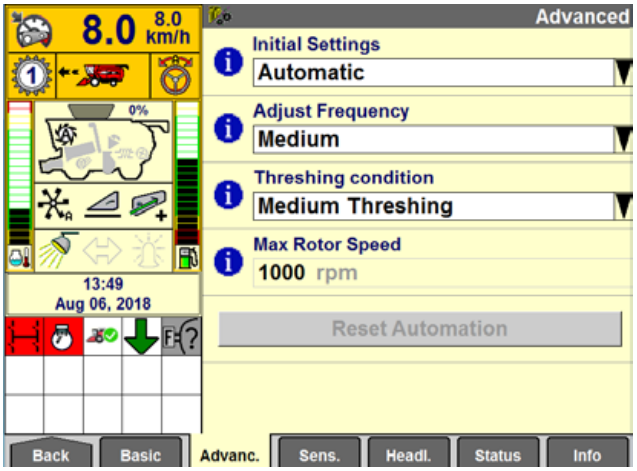
Adjustment Frequency: Medium is recommended to start.

Threshing Condition: Medium is recommended to start.

Max Rotor Speed: If grain or straw quality is critical and you know the max rotor speed, enter if desired.

Note 1: More information can be found about each selection made by pressing the blue info button next to the drop down menu.

Note 2: Default sensitivities will populate in the display. There are also sensitivity recommendations per crop type available on the following pages.



STEP 3: AFTER AUTOMATION SET-UP IS COMPLETE, BEGIN TO HARVEST.

Fundamental: Automation will attempt to control funnel fill to the 75% level as seen in the image to the right.

Control: Sensitivity settings may be adjusted for each of the loss/grain quality funnels. A lower sensitivity allows automation to run in a wider range of conditions before taking action, while a higher sensitivity will make adjustments more frequently. Lower sensitivities will generally provide greater throughput and higher sensitivities will achieve a lower loss level and/or better grain sample.

How To: The best way to control sensitivity and tune automation is using the new sensitivity setting pop up window and following the **3 Commandments of Sensitivity Setting.**

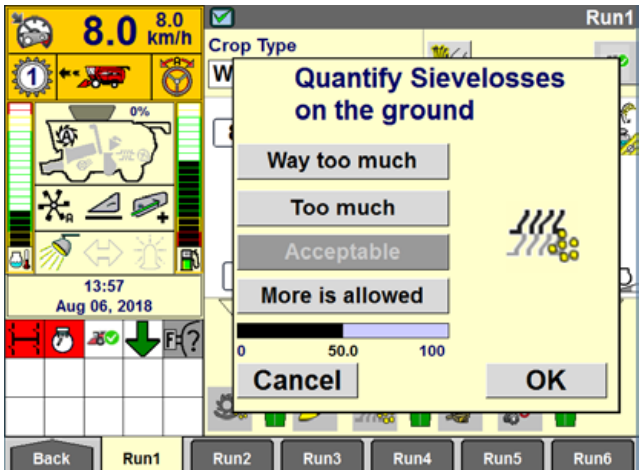
HARVEST COMMAND™

AUTOMATION SETUP AND TUNING (continued)

Understanding Sensitivity & Automation: The sensitivity pop up window will have 4 different selections for sensitivity setting. Think of the 4 selections as describing kernels per square foot you see in a loss check when adjusting loss sensitivity. When setting sensitivity for MOG or broken grain the 4 phrases can be understood as the amount of MOG or broken grain in the sample.

Available selections:
- Way too much
- Too much
- Acceptable
- More is allowed

The pop up can be activated by touching the funnel or icon of the sensitivity you like to change on the new Run 1 screen. Setting sensitivity using this method is very accurate but requires that you set it under specific circumstances.



3 Commandments for Sensitivity Setting

1. **Adjust the sensitivity while the machine is under similar crop load as when the loss or sample check was made.**
   Note: Do not adjust sensitivity while using the pop up window while the machine is stationary or not in crop.
2. **Adjust sensitivity using the pop up while passing through the same or similar area of the field that the loss or grain sample check was made if possible.**
3. **Adjust one sensitivity at a time for the most accurate results.**

RECOMMENDED SENSITIVITIES

	Wheat	Corn	Soybeans	Canola
Rotor Loss	70	35	55	40
Sieve Loss	55	40	50	60
Grain/Quality	35	30	40	30
MOG	40	55	35	20
Tailings Volume	35	50	50	40

LOSS REDUCTION

STEP 1 – Quantify Losses: The first step in tuning automation is to check the actual loss on the ground. Consider the level of acceptable loss for your current situation. Do this loss check in an area that you feel is representative of the majority of the field. If your loss check indicates you need to make a change move to Step 2.

HARVEST COMMAND™

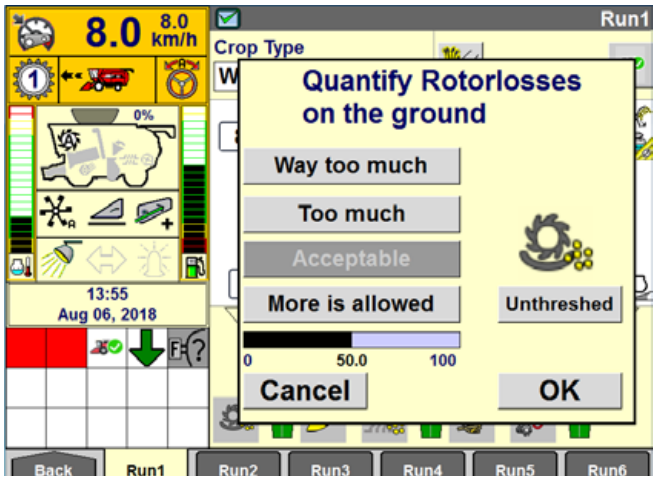
AUTOMATION SETUP AND TUNING (continued)

LOSS REDUCTION (continued)

STEP 2 – Set the Sensitivity: While following the 3 Commandments for Sensitivity Setting make your selection using the pop up window. **Rotor loss should be set first.** The selection you make will automatically adjust your sensitivity value.

Note: The unthreshed selection can be made anytime if unthreshed crop is seen behind the machine or in the grain tank.

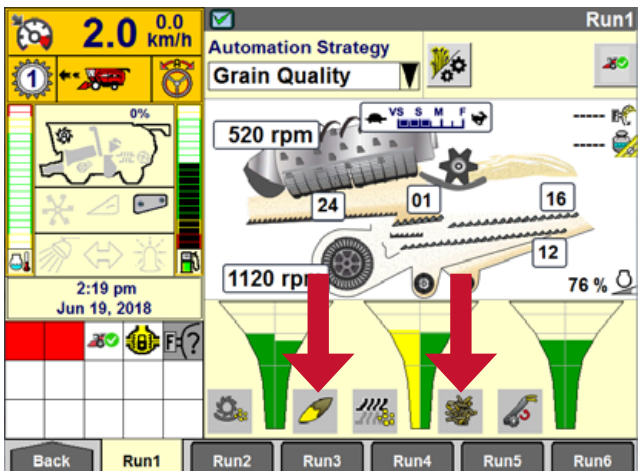
Note: Recommended loss sensitivity setting order is Rotor Loss Sensitivity followed by Sieve Loss sensitivity.



STEP 3 – Checking Results of the Change: Once a sensitivity is changed it is important to understand how much loss may have been reduced by doing a second loss check. If very little change in loss is seen it may be necessary to again repeat step 2. After a reduction is seen that you consider acceptable or if you feel that rotor loss is not a concern move on to the sieve loss sensitivity and repeat steps 2 and 3. After losses are to an acceptable level move on to sample quality setting.

SAMPLE QUALITY

STEP 1 – Observe the Grain Sample: Using the grain tank window or by taking a manual sample, observe the sample quality.

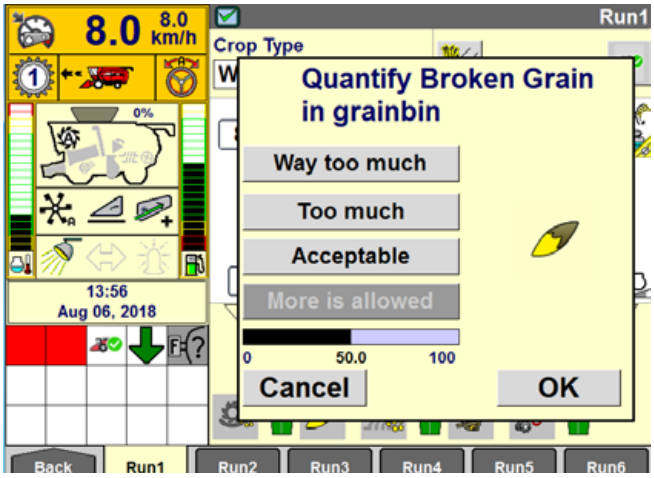


HARVEST COMMAND™

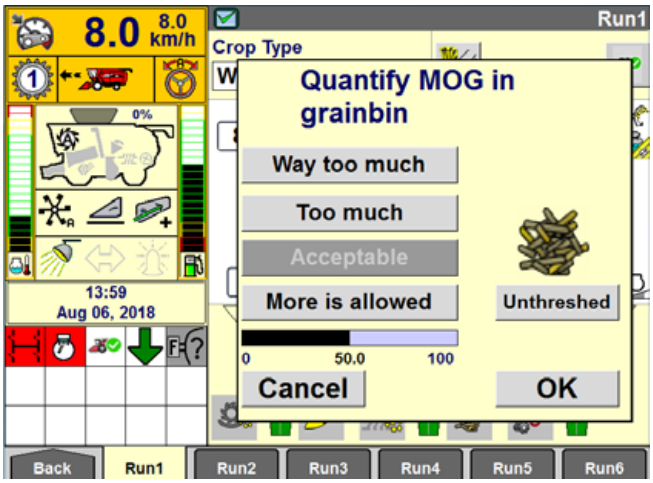
AUTOMATION SETUP AND TUNING (continued)

SAMPLE QUALITY (continued)

STEP 2 – Set the Sensitivity: While following the 3 Commandments for Sensitivity Setting make your selection using the pop up window for MOG or Broken Grain. The order these are adjusted in is not important.



STEP 3 – Checking Results of the Change: Once a sensitivity is changed its important to understand how the sample was affected, so again observe the sample in the grain tank window or take a sample from the grain tank. After a reduction in mog or broken grain is seen that you consider acceptable move on to which ever was not adjusted and repeat steps 2 and 3.



HARVEST COMMAND™

FEEDRATE CONTROL (IF EQUIPPED)

A feature referred to as, "Feedrate Control" will hold the machine at a requested material throughput. As the crop varies in the field, so does the load on the machine. This feature will help to reduce operator fatigue as the machine takes over the travel speeds to maintain throughput, mirroring what an operator currently does as conditions change throughout the field.

To use this system, check first if "Feedrate" is selected on the display, (Toolbox>Drive>feedrate).

NOTE: If feedrate is not active or not installed, the machines is controlled only by the operator.

The system may be operated in three different modes:

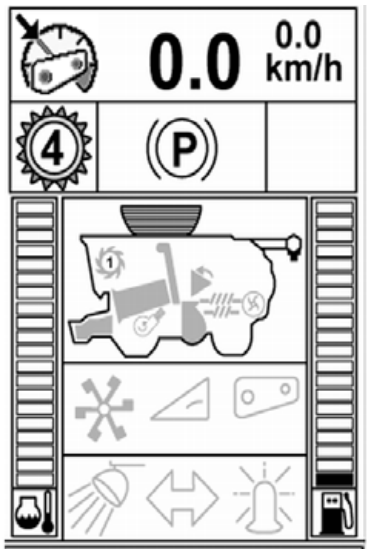
- **Fixed throughput:** Fixed throughput mode will attempt to maintain a constant throughput without monitoring grain loss.
- **Performance:** Performance mode will attempt to maintain a constant throughput while monitoring the rotor and sieve loss sensors to maintain threshing and cleaning efficiency. The machine will maintain the requested throughput until sieve/rotor loss cab display indicator increases into the yellow zone, which will be resolved by reducing the throughput until the loss is reduced.
- **Maximum Throughput:** Maximum throughput mode will attempt to push the machine continuously against the maximum engine load and not exceeding maximum groundspeed (both set by the operator). This mode ignores sieve and rotor loss.

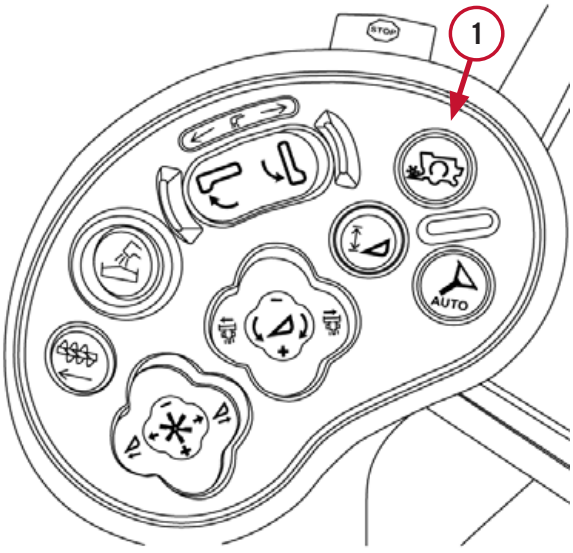
Generally in the 3 above feedrate strategies, the system will try to not exceed maximum engine load and maximum groundspeed (both set by the operator). When the engine speed starts to drop, a mechanism will be activated to reduce throughput quickly to let the machine recover from this overloaded situation and to prevent plugging the machine. Refer to the table for an overview of the parameters being considered for each mode.

When the feedrate system is set to installed, it is enabled by default if the machine is in field mode. This will be indicated to the operator with a grayed feedrate icon (2) in the status area of the display monitor.

NOTE: *In this mode, the system is still driving in manual mode and no control action is generated. The system is waiting for the following events in order to change the state accordingly.*

	MODE		
Limitation Parameters	Fixed Throughput	Performance	Maximum Throughput
Maximum ground speed	✔	✔	✔
Maximum engine load	✔	✔	✔
Engine speed	✔	✔	✔
Sieve loss		✔	
Rotor loss		✔	





ACTIVATED (OPERATION) MODE:

In activated mode, the system is driving in automatic mode. The feedrate system becomes active and will increase or decrease the combine ground speed based on the crop load. Press and release the feedrate button **(1)**.

The mode can only be activated if the combine moves forward with a minimum speed of **0.62 mph (1 km/h).** The feeder/header drive is engaged and is not in headland or unloading mode. The engine is at high idle **(2100 RPM)** and the operator must be seated.

If the feedrate symbol **(1)** in the status area on the monitor is in color, this means the feedrate system is activated (operational). Once in the activated mode, the multi-function handle should be pushed to maximum forward so automatic control is not limited.

HARVEST COMMAND™

The feedrate system can be put in standby mode. This is done by pulling the MFH back to slow the combine ground speed below the "automatic" speed. Push the field/road mode tumbler switch into road mode and then push the quick stop button.

The feedrate system is limited by the ground speed limitation in the automatic system. The minimum of the ground speed is indicated by the position of the multifunction handle. The maximum ground speed is set by the operator and also the maximum engine load (set by the operator). A drop in engine speed is caused by overload situations and the loss in the performance mode.

The feedrate system is frozen (means driving with a constant ground speed) when the machine is in headland mode or unloading is active during automatic mode.

NOTE: After headland or unloading is finished, then press and release the feedrate button to return in the automatic mode.

CALIBRATIONS

There are two different calibrations that must be done:

- Zero load calibration
- Set-point calibration

ZERO LOAD CALIBRATION

This is an automatic calibration and is necessary in order to guarantee the measured signal is a clean zero-load signal. The calibration must done prior to any setpoint calibration or activation of the system.

NOTE: Zero load must be recalibrated when header type has changed.

To perform the Zero load calibration, proceed as follows:

1. The machine should be warmed up to operating temperature.
2. Select or Create a Task, Crop Type and Work Condition.
3. Engage the threshing and feeder/header drives.
4. Set the engine speed to high idle **2100 RPM.**
5. Lift the header upwards above the maximum work height. This should be done with the combine groundspeed is less then 1 km/h (0.62 mph).
6. Zero calibration will take place automatically after 5 seconds. The system should be left in headlands mode for at least 15 seconds. The header can then be lowered to harvesting position and set point calibration can be started.

NOTE: During this calibration, the feedrate symbol in the status area on the display monitor is grayed.

SET-POINT CALIBRATION

This is the status where the operator "shows" the controller, its "Set-point" which has to be followed. The set-point is actually the throughput level the controller has to follow in order to guarantee the optimal machine performance.

NOTE: This calibration is only necessary for fixed throughput and performance strategy.

The "Set-point" calibration is as follows:

1. Start harvesting crop, the system will be in the enabled state.
2. Set the ground speed and machine load based on what the operator desires.
3. Harvest for a minimum of twenty seconds after the machine is performing as expected. The operator only needs enough time to stabilize the throughput of the machine.
4. Press the feedrate button for two seconds to lock in the current settings. The icon on the display will change into an hourglass. The hourglass will change back to the normal feedrate symbol (solid colored) once feedrate is engaged.
5. Ground speed will be limited to the current MFH position, so the MFH should be moved forward so ground speed is not limited.

Set-point calibrations can be re-done at any time during harvesting. When moving to different fields of the same crop, the previous calibration will persist and can be reused throughout power cycles. However when harvesting conditions change significantly, the set-point calibration will have to be performed. The set-point will be cleared by the system when changing to a different crop or header type, requiring a new set-point calibration.

NOTE: Due to the fact the sieve loss sensor tends to record higher losses when driving through areas with significant reduction of crop density, the feedrate system will decelerate instead of accelerate only in the performance mode. In this example, it is advised to reduce the sieve loss sensor sensitivity, resulting in higher forward speed.

NOTE: The set point can be changed while operating the machine, without recalibrating. This is done by holding the shift button and pressing the feeder lift button to increase the load or by hitting the shift button and pressing the feeder lower button to decrease the load changing the desired load. When a set-point change is made, a tone along with a pop-up window on the screen will show, noting the change.

CALIBRATIONS

UPPER AND LOWER SIEVES CALIBRATION

NOTE: Equipment moves automatically during calibration. **ALWAYS** make sure work area is clear of other persons and sound the horn before calibrating the equipment.

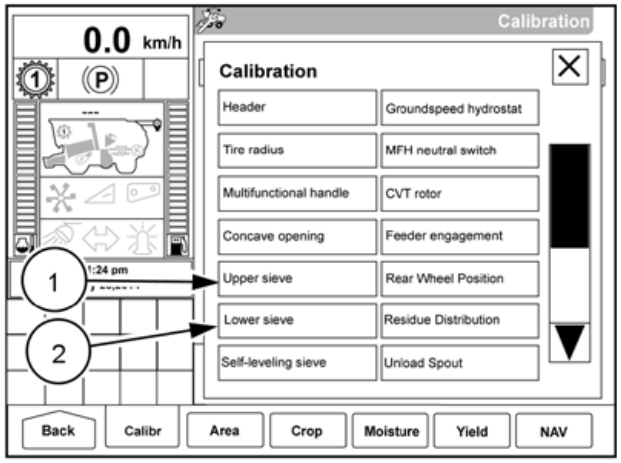
At any time, press the Escape key to terminate the calibration. The sieve halves must be open equally before calibrating. The engine does not need to be running to perform this calibration.

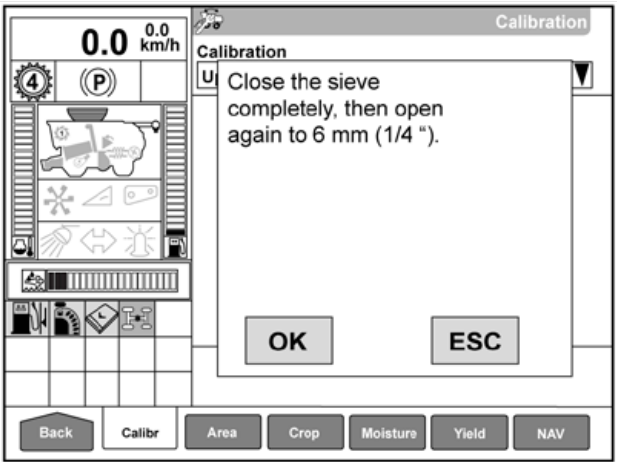
To calibrate, proceed as follows:

1. Select the Upper Sieve **(1)** or the Lower Sieve **(2)** calibration window.
2. Exit the cab and walk to the back of the machine.

   NOTICE: Make sure the sieve is clean before closing.
3. Close the selected sieve completely.
4. Open the sieve to **1/4 in. (6 mm)** as measured at the sieve.

   NOTE: Make sure the **1/4 in. (6 mm)** clearance is achieved on the up stroke.
5. Enter the cab and press OK.
6. A message will appear when the calibration is complete.





CALIBRATIONS

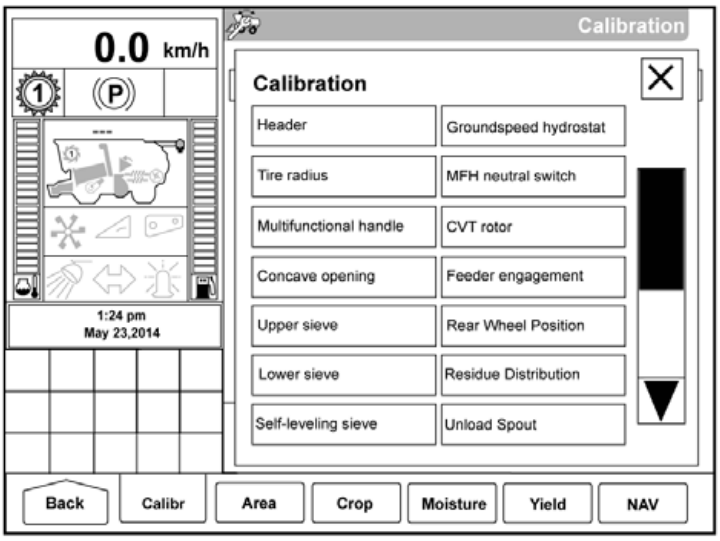
SELF-LEVELING SHOE CALIBRATION

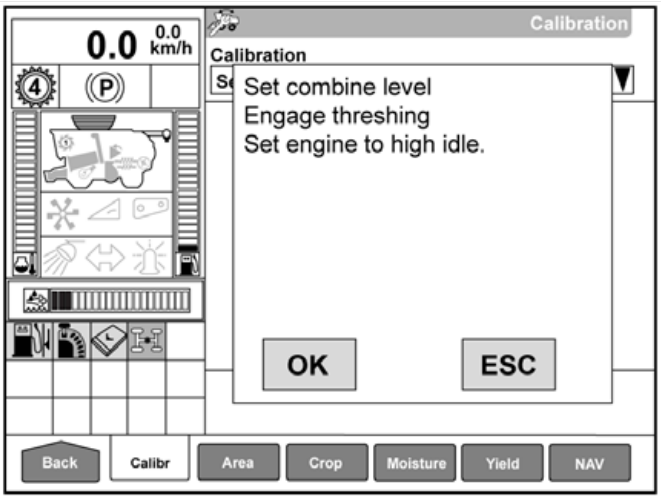
At any time, press the Escape key to terminate the calibration.

To calibrate, proceed as follows:

1. Select the Self-leveling Shoe calibration window.
2. Park the combine on a level surface;
   A. Engage the threshing system.
   B. Set engine to high idle
   C. Press OK

A message will appear indicating the calibration is complete.





SERVICE INSPECTIONS

TAKE FULL ADVANTAGE OF ITS CAPABILITIES

Have you, or did someone you know, purchase a new combine in the last few years and continue to use it in much the same way as the machine it replaced? Many times operators do not fully realize and take advantage of modern features. As a result of not fully utilizing new features, the owner may not be receiving 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 combine and header will operate with the best possible performance when you need it.

Customized Maintenance Inspections include a visual and functional inspection of your combine. They can be used as a pre-season or as a post-season 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 Customized 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 an annual Certified Maintenance decal 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.

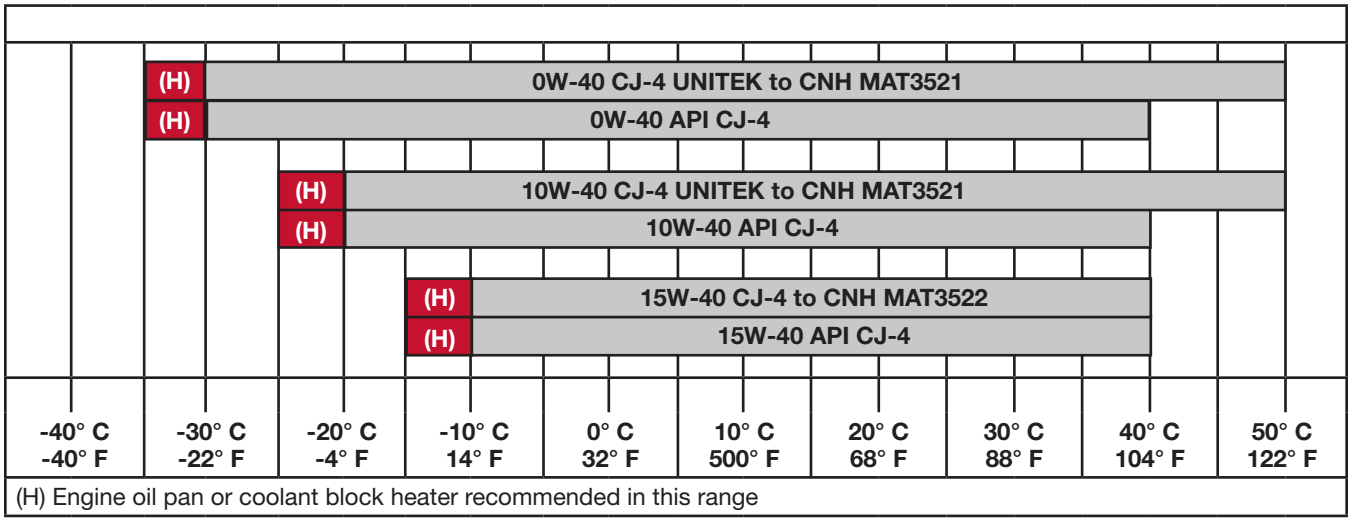
Because Case IH technicians use Customized Maintenance Inspection checklists for each inspection, you can rest assured the service is thorough and nothing is overlooked.

MAINTENANCE

ENGINE OIL

CASE IH prefers the use of **CASE IH AKCELA UNITEK NO. 1™ SBL CJ-4** engine oil in your engine. You may also use **CASE IH AKCELA NO. 1™ ENGINE OIL** in your engine. You may use other engine oils if the engine oils meet **API CJ-4** performance requirements. CASE IH engine oils exceed **API CJ-4** performance requirements. See the following chart for recommended viscosity at varying ambient air temperature ranges.

NOTE: *Do not put performance additives or other oil additive products in the engine crankcase. See dealer for approved engine oil additives, engine oil analysis test package information.*



(H) Engine oil pan or coolant block heater recommended in this range

ENGINE OIL AND FILTER SERVICE INTERVALS

CASE IH develops the oil/filter change intervals given in this manual from tests with CASE IH lubricants/filters.
Engine oil and filter service interval recommendations are based on type of engine oil, oil filter used, sulfur, bio-diesel content of diesel fuel. See diesel fuel recommendations for the approved Diesel fuel sulfur content, Bio-Diesel blends, and fuel specification information.
Always change engine oil and oil filter at the below service intervals or annually whichever comes first.

SERVICE INTERVALS	HOURS
Engine Oil which meets MAT3521 specification CASE IH AKCELA UNITEK NO. 1™ SBL CJ-4	600 hours
Engine Oil which meets MAT3521 specification with Extended drain oil filters CASE IH AKCELA UNITEK NO. 1™ SBL CJ-4	750 hours
Engine Oil which meets MAT3522 specification CASE IH AKCELA NO. 1™ ENGINE OIL	500 hours
Other oils which meet API CJ-4 specifications	300 hours

MAINTENANCE

MAINTENANCE CHART

MAINTENANCE ACTION	Check	Cleaning	Adjust	Grease	Change Fluid	Level Make Up	Replace	Page No.
EVERY 10 HOURS OR DAILY DURING THE FIRST WEEK								
Wheel bolt torque	•							7-34
EVERY 10 HOURS OR DAILY								
Stationary air screen		•						7-35
Check the engine oil level	•							7-37
Power Take Off (PTO) gearbox oil level	•							7-38
Hydraulic oil tank – Oil level	•							7-39
Rock trap	•							7-39
Chain maintenance	•							7-40
Deaeration tank coolant level	•							7-41
Axial trac - inspection	•							7-41
Hood mounted chopper – Cleaning		•						7-42
Hood mounted chopper – Straw chopper blades	•							7-42
Hood mounted chopper – Counter knife blades	•							7-42
EVERY 50 HOURS								
Tire pressure – Check	•							7-43
Cab fresh air filter		•						7-44
Cab air recirculation filter	•							7-46
Feeder conveyor chain			•					7-48
Chain tension			•					7-49
Axial trac – Oil level	•							7-53
Axial trac – Alignment			•					7-54
Hood mounted chopper – Drive system inspection	•							7-55
Hood mounted chopper – Drive belt tension			•					7-56
EVERY 100 HOURS								
100-hour grease points				•				7-58
Feeder chain drive				•				7-63
EVERY 300 HOURS								
300-hour grease points				•				7-64
Bubble up gear box – Oil level check	•							7-68
Transmission oil level	•							7-69
Final drive oil level	•							7-70
Lower unloading gearbox – Oil level	•							7-72
Feeder conveyor gearbox – Oil level	•							7-73
Header drive gearbox oil – Oil level	•							7-74
Rotor gearbox oil	•							7-76

MAINTENANCE

MAINTENANCE CHART

MAINTENANCE ACTION	Check	Cleaning	Adjust	Grease	Change Fluid	Level Make Up	Replace	Page No.
EVERY 600 HOURS								
600-hour grease points				•				7-77
Header drive gearbox oil					•			7-78
Feeder conveyor gearbox					•			7-80
Transmission – Change oil					•			7-82
Final drive oil – Change oil					•			7-83
Lower unloading gearbox – Change oil					•			7-85
Unloading elbow oil level						•		7-87
Tailings gearbox	•							7-88
Bubble up gear box – Change oil					•			7-89
Rotor gearbox oil					•			7-90
Self-leveling cleaning shoe pivot	•							7-91
Power Take Off (PTO) gearbox						•		7-92
Engine oil and filter						•		7-94
Fuel prefilter/water separator							•	7-96
Engine mounted fuel filter							•	7-98
Engine crankcase breather filter							•	7-101
Hood mounted chopper – Drive bushing service	•							7-103
Fuel tank breather							•	7-105
EVERY 600 HOURS OR BEGINNING OF SEASON								
Diesel Exhaust Fluid (DEF)/AdBlue® tank vent filter							•	7-106
Diesel Exhaust Fluid (DEF)/AdBlue® in-line filter – if equipped							•	7-107
Tailings sensor – Lens inspection	•							7-108
EVERY 1200 HOURS OR TWO YEARS								
Diesel Exhaust Fluid (DEF)/AdBlue® in tank filter							•	7-109
EVERY 1200 HOURS								
Hydraulic reservoir, oil, and filters							•	7-109
EVERY 1500 HOURS								
Axial Trac – Oil change							•	7-112
EVERY 2400 HOURS								
Engine valve adjustment			•					7-114
EVERY 3600 HOURS OR EVERY TWO YEARS								
Diesel Exhaust Fluid (DEF)/AdBlue® supply module filter							•	7-114
EVERY 4000 HOURS OR EVERY FOUR YEARS								
Diesel Exhaust Fluid (DEF)/AdBlue® supply module filter							•	7-116

MAINTENANCE

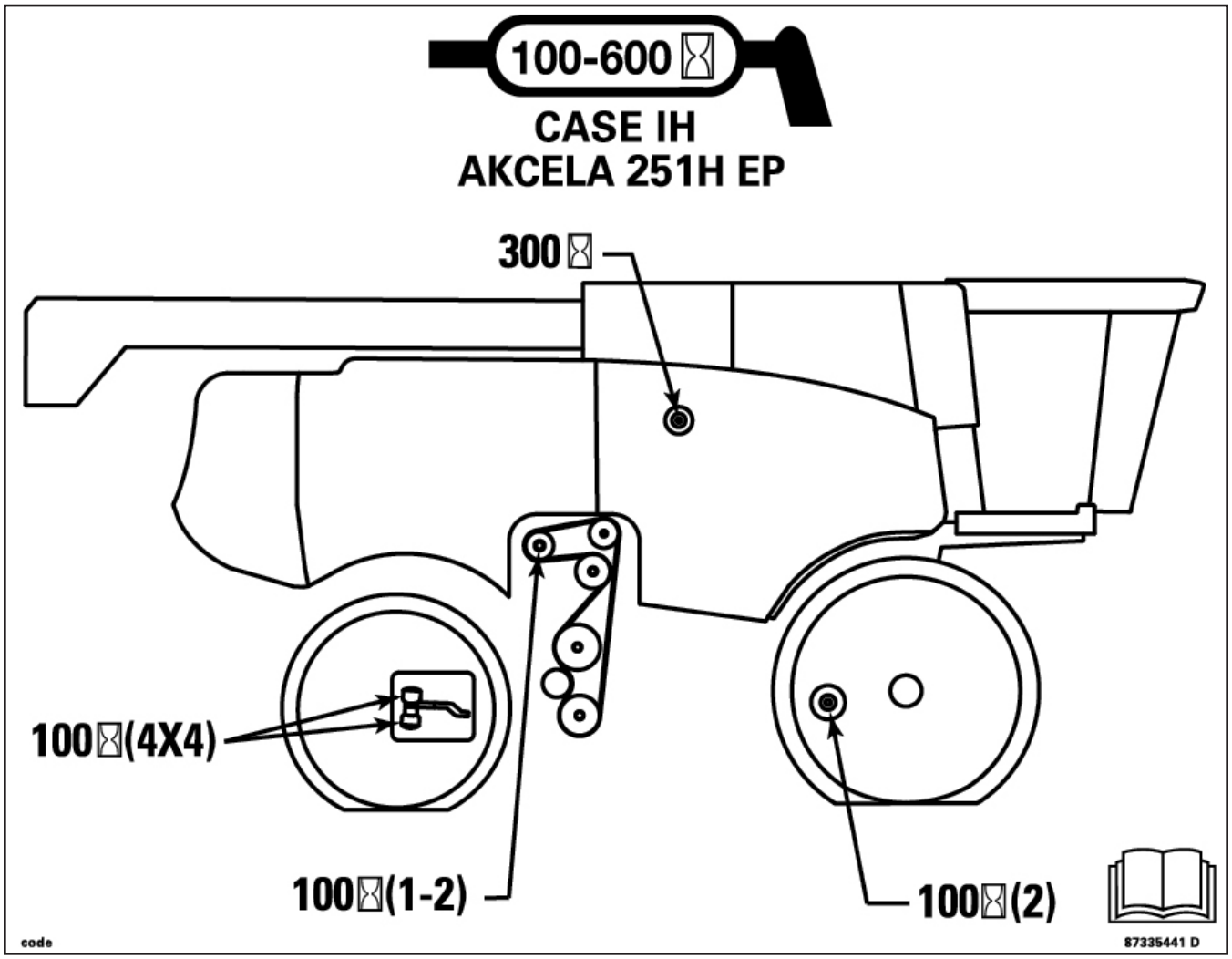
CAPACITIES

UNIT	FLUID TYPE (RECOMMENDED)	CAPACITY
ENGINE		
CPT Cursor 11	Engine Oil (CASE IH AKCELA NO. 1™ ENGINE OIL SAE 15W-40)	26 L (6.9 U.S. gal.)
	CASE IH AKCELA ACTIFULL™ OT EXTENDED LIFDE COOLABT	62 L (16.4 U.S. gal.)
CPT Cursor 13	Engine oil (CASE IH AKCELA NO. 1™ ENGINE OIL SAE 15W-40)	28 L (7.4 U.S. gal.)
	CASE IH AKCELA ACTIFULL™ OT EXTENDED LIFDE COOLABT	69 L (18 U.S. gal.)
CPT Cursor 15	Engine Oil (CASE IH AKCELA NO. 1™ ENGINE OIL SAE 15W-40)	32 L (8.5 U.S. gal.)
	CASE IH AKCELA ACTIFULL™ OT EXTENDED LIFDE COOLABT	74 L (19.5 U.S. gal.)
GROUND DRIVE		
Traction gearbox	Gear lubed (CASE IH AKCELA GEAR 135 H EP 80W-90)	19 L (5 U.S. gal.)
11:111 FInal drive	Gear lubed (CASE IH AKCELA GEAR 135 H EP 80W-90)	7.85 L (2.1 U.S. gal.)
1:13.09 Final Drvie	Gear lubed (CASE IH AKCELA GEAR 135 H EP 80W-90)	6.7 L (1.8 U.S. gal.)
TRACKS		
Idler hub: **24 in.** Axial Trac	SAE 50W Engine Oil	285 ml (9 U.S. fl. oz.)
Idler hub: **30 in.** Axial Trac		850 ml (22 U.S. fl. oz.)
Idler hub: Axial Trac suspended tracks	CASE IH AKCELA NO. 1 ENGINE OIL 30	360 ml (12 U.S. fl. oz.)
Roller: **24 in.** Axial Trac	CASE IH AKCELA NO. 1 ENGINE OIL 30	155 ml (5.2 U.S. fl. oz.)
Roller: **30 in.** Axial Trac		270 ml (9 U.S. fl. oz.)
Roller: **24 in.** Axial Trac suspended tracks	CASE IH AKCELA NO. 1 ENGINE OIL 30	225 ml (8 U.S. fl. oz.)
Roller: **30 in.** Axial Trac suspended tracks		325 ml (11 U.S. fl. oz.)
Final drive	CASE IH AKCELA GEAR 135 H EP 80W-90	6.7 L (1.8 U.S. gal.)
MAIN HYDRAULIC SYSTEM		
7250, 8250	Hydraulic fluid (CASE IH AKCELA HY-TRAN® ULTRACTION)	65.2 L (17.2 U.S. gal.)
9250	Hydraulic fluid (CASE IH AKCELA HY-TRAN® ULTRACTION)	68.2 L (18 U.S. gal.)
Unloading lower gearbox	Standard – Gear lubed (CASE IH AKCELA GEAR 135 H EP 80W-90)	0.6 L (0.6 U.S. qt.)
	High capacity – Gear lubed (CASE IH AKCELA GEAR 135 H EP 80W-90)	0.75 L (0.79 U.S. qt.)
Unloading elbow gearbox	Standard – Gear lubed (CASE IH AKCELA GEAR 135 H EP 80W-90)	0.4 L (0.5 U.S. qt.)
	High capacity – Gear lubed (CASE IH AKCELA GEAR 135 H EP 80W-90)	0.6 L (0.6 U.S. qt.)
PTO gearbox/hydrostatic system without Powered Rear Axle (PRA)	Hydraulic fluid (CASE IH AKCELA HY-TRAN® ULTRACTION)	54.5 L (14.4 U.S. gal.)
PTO gearbox/hydrostatic system with Powered Rear Axle (PRA)	Hydraulic fluid (CASE IH AKCELA HY-TRAN® ULTRACTION)	66 L (17.4 U.S. gal.)
Tailings gearbox	Hydraulic fluid (CASE IH AKCELA HY-TRAN® ULTRACTION)	0.15 L (0.2 U.S. qt.)
Bubble up gearbox (front)	Hydraulic fluid (CASE IH AKCELA HY-TRAN® ULTRACTION)	0.5 L (0.5 U.S. qt.)
Bubble up gearbox (rear)	Hydraulic fluid (CASE IH AKCELA HY-TRAN® ULTRACTION)	0.5 L (0.5 U.S. qt.)

MAINTENANCE

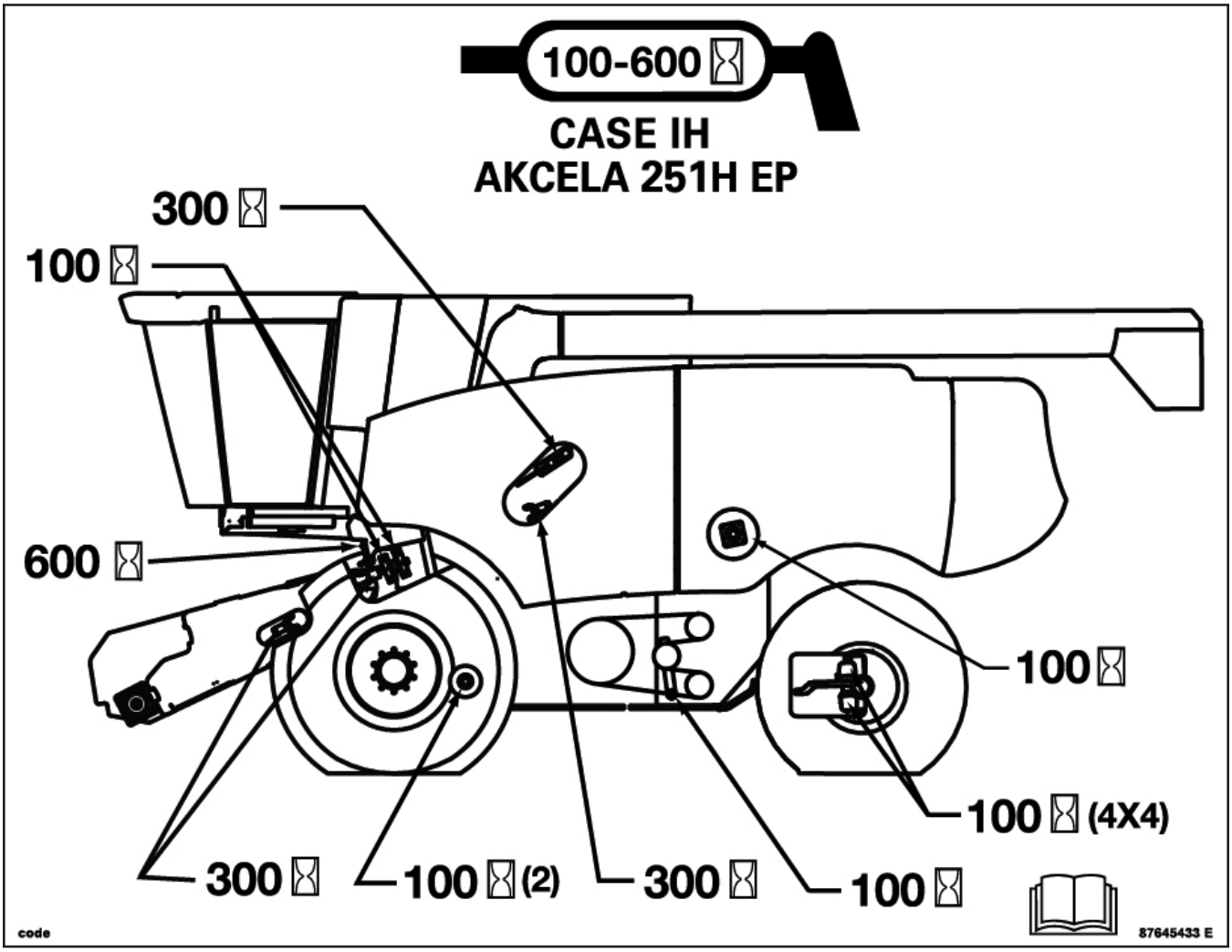
CAPACITIES

UNIT	FLUID TYPE (RECOMMENDED)	CAPACITY
MAIN HYDRAULIC SYSTEM		
Rotor gearbox	Hydraulic fluid (CASE IH AKCELA HY-TRAN® ULTRACTION)	7 L (1.8 U.S. gal.)
Feeder conveyor gearbox	Hydraulic fluid (CASE IH AKCELA HY-TRAN® ULTRACTION)	2.8 L (3.0 U.S. qt.)
Header gearbox	Hydraulic fluid (CASE IH AKCELA HY-TRAN® ULTRACTION)	2.9 L (3.1 U.S. qt.)



MAINTENANCE

CAPACITIES



MAINTENANCE

PRE-CONDITIONING OF RUBBER TRACKS

New rubber tracks must be preconditioned BEFORE initial use and before they are operated on the road to reduce accelerated belt scuffing.

New tracks should be preconditioned with dirt or other non-caustic particulate material. The best way to condition tracks is to drive the combine in a field with loose soil for at least 15 minutes. If this is not possible, new tracks can be temporarily conditioned with dirt, oil-dry, talc powder, or some other non-caustic particulate material. This is done by spreading a thin layer of the material over the entire undercarriage engaging surface of the tracks and driving the tractor slowly for a brief time. The silica present in dirt or similar material will act as a lubricant and help the track conditioning process.

The conditioning may need to be done more than once if the combine is operated on the road for extended distances. Conditioning may also need to be repeated if the Combine is operated in clean wet conditions.

After initial conditioning, the combine should be operated in normal field operations to further condition the tracks. The track conditioning process should be closely monitored for the first 150 hours of service. After a reasonable amount of field time the drive lug contact areas will “surface–harden” and become more resistant to heat and scuffing.

For more information on pre-conditioning of rubber tracks, please consult the proper Operator’s Manual.

INSPECTION OF TRACKS AND UNDERCARRIAGE

The rubber tracks and undercarriage should be visually inspected daily for damage or fluid leaks.

Occasionally strands of wire may separate from the cables and protrude through the rubber. This is not cause for alarm. Any exposed cable wire strand should be repaired as soon as possible to prevent further damage to the cable or belt. Repair cables by clipping or grinding the wire strand so that the wire is below the surface of the belt.

Cuts, gouges and minor scuffing and wear on the drive lugs will not cause operational problems. However, a track that is missing two or more consecutive drive lugs may cause the track to come off of the drive wheel. This could damage other components on the combine.

Parts of traction lugs that separate from the belt will not significantly reduce traction.

TRACK ROTATION

If your combine is operating in special applications such as side hill, or anytime accelerated drive lug wear is noticed, it may be beneficial to rotate the belts from side to side to distribute the wear pattern evenly and extend track life. Rotate the tracks from side to side for side wear on the drive lugs. Contact your dealer for this service.

COMBINE ADJUSTMENTS

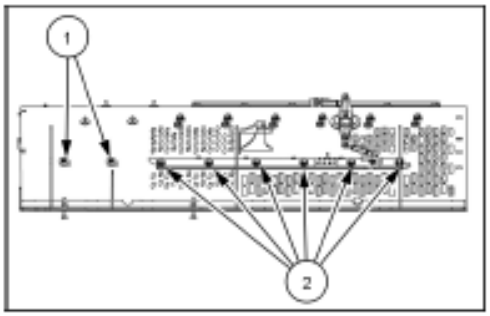
INITIAL CROP SETTINGS – AFX Rotor with adjustable threshing cage

Crop	Rotor		Module Configuration			Rotor Configuration				
			Clearance	Front	Rear	Spiked Rasp Bar	Non Spiked Rasp Bar	Straight Separator Bar	Vane Setting	
	Gear	Speed		Type	Type				Front	Rear
Barley	2	**750 RPM**	0.8 in. (20 mm)	SW/LW	LSW	8	56	4	Slow	Slow
Corn										
Dry (<20%)	1	**350 RPM**	1 in. (25 mm)	LW**	LSW	8	56	4	Slow	Slow
High Moisture (>20%)	1	**400 RPM**	1 in. (25 mm)	RB***	LSW	8	56	4	Slow	Slow
Soybeans	2	**650 RPM**	0.8 in. (20 mm)	LW	LSW	8	64	0	Slow	Mid
Wheat	3	**950 RPM**	0.6 in. (15 mm)	SW	LW/LSW	8	56	4*	Slow	Slow
Hard Thresh	3	**1050 RPM**	0.2 in. (5 mm)	SW[1]	LW	8	56	4	Slow	Slow
Australia	3	**950 RPM**	0.6 in. (15 mm)	SW	LSW	8	64	0	Slow	Mid
Rapeseed/ Canola	2	**600 RPM**	0.8 in. (20 mm)	SW	LW/SL	8	64	0	Slow	Mid
Rice										
California	3	**850 RPM**	1.25 in. (32 mm)	LW/RB	LSW	72	0	0	Slow	Mid
Delta	3	**850 RPM**	1.25 in. (32 mm)	LW/RB	LSW	72	0	0	Slow	Mid
Stripper	3	**950 RPM**	1.25 in. (32 mm)	RB	RB	72	0	0	Slow	Mid
Australia	3	**950 RPM**	1.25 in. (32 mm)	LW	LSW	72	0	0	Slow	Mid
Maize/Milo Sorghum	2	**700 RPM**	0.7 in. (18 mm)	LW	LSW	8	64	0	Slow	Mid
Lentil Beans	1	**420 RPM**	1 in. (25 mm)	SW	LSW	8	64	0	Slow	Mid
Lentil Beans – Tough Threshing	2	**650 RPM**	1 in. (25 mm)	LW	SL	8	64	0	Slow	Mid
Pinto Beans	1	**300 RPM**	1.2 in. (30 mm)	LW	LSW/SL	8	64	0	Slow	Mid
Rye	3	**850 RPM**	1.2 in. (30 mm)	LW	LSW	8	64	0	Slow	Mid
Oats	2	**750 RPM**	1.2 in. (30 mm)	LW	LSW	8	56	4	Slow	Mid
Popcorn	1	**380 RPM**	0.8 in. (20 mm)	RB	LSW	8	56	4	Slow	Slow
Rye Grass	2	**500 RPM**	0.7 in. (18 mm)	SW	LSW	8	64	0	Slow	Mid
Bent Grass	3	**950 RPM**	0.2 in. (5 mm)	SW	LSW	8	64	0	Slow	Mid
Blue Grass	2	**500 RPM**	0.7 in. (18 mm)	SW	LSW	8	64	0	Slow	Mid
Brome Grass	2	**500 RPM**	0.7 in. (18 mm)	SW	LSW	8	64	0	Slow	Mid
Crested Wheat	2	**700 RPM**	0.7 in. (18 mm)	SW	LSW	8	64	0	Slow	Mid
White/Red Clover	3	**1150 RPM**	0 in. (0 mm)	SW[1]	LW	8	64	0	Slow	Mid
Sunflower	1	**300 RPM**	1.8 in. (45 mm)	SL	SL/SD	8	64	0	Slow	Mid
Alfalfa	2	**650 RPM**	0.2 in. (5 mm)	SW	SL/LW	8	64	0	Slow	Mid
Flax	3	**900 RPM**	0.2 in. (5 mm)	SW[1]	SL/SW	8	64	0	Slow	Mid
Mustard	1	**300 RPM**	0.8 in. (20 mm)	SW	SL	8	64	0	Slow	Mid
Peas –Black Eyed	1	**350 RPM**	0.6 in. (15 mm)	LW/	LSW/SL	8	64	0	Slow	Mid
Wild Rice	2	**650 RPM**	1 in. (25 mm)	LW	LSW	8	64	0	Slow	Mid
Safflower	1	**500 RPM**	1.2 in. (30 mm)	LW	LSW/SL	8	64	0	Slow	Fast
Lupins	3	**950 RPM**	0.8 in. (20 mm)	LW	LSW	8	64	0	Slow	Mid

[1] Hard thresh kit, see your Case IH dealer. **Note**: The hard thresh kit is used in the front module position.
* Not suggested for dry/brittle straw consitions or for baling straw.
** RB modules can also be applied in dry corn.
*** The standard factory fit round bar configuration for corn contains one LW module in the first right-hand side module position.

LW – Large Wire
LSW – Large Skip Wire
RB – Round Bar
SD – Solid
SL – Slotted Hole
SW – Small Wire

1 – Front Vanes
2 – Rear Vanes



CLEANING SHOE CONFIGURATION

Crop	Fan Speed	Pre-Sieve		Upper Sieve		Lower Sieve	
	RPM	Type	Clearance	Type	Clearance	Type	Clearance
Barley	**850-950**	1-1/8 grain	0.2 in. (5 mm)	1-1/8 Closz	0.6 in. (15 mm)	1-1/8 grain	0.5 in. (13 mm)
Corn-dry	**900-1050**	1-5/8 Closz	0.4 in. (10 mm)	1-5/8 Corn	0.7 in. (18 mm)	1-5/8 Closz	0.6 in. (15 mm)
Corn-High Moisture	**980-1150**	1-5/8 Closz	0.4 in. (10 mm)	1-5/8 Corn	0.7 in. (18 mm)	1-5/8 Closz	0.6 in. (15 mm)
Soybeans	**900-1000**	1-5/8 Closz	0.3 in. (8 mm)	1-5/8 Corn	0.6 in. (15 mm)	1-5/8 Closz	0.6 in. (15 mm)
Wheat	**900-1050**	1-1/8 grain	0.4 in. (10 mm)	1-1/8 Closz	0.6 in. (15 mm)	1-1/8 grain	0.3 in. (8 mm)
Wheat – Australia	**900-1050**	1-1/8 grain	0.4 in. (10 mm)	1-1/8 Closz	0.6 in. (15 mm)	1-1/8 grain	0.5 in. (13 mm)
Rapeseed/ Canola	**600**	1-1/8 grain	0.1 in. (3 mm)	1-1/8 Closz	0.2 in. (5 mm)	1-1/8 grain	0.2 in. (5 mm)
Rice	**850-950**		0.3 in. (8 mm)	1-5/8 Closz	0.6 in. (15 mm)	1-5/8 Closz	0.5 in. (13 mm)
Rice – Australia	**850-950**	1-1/8 grain	0.4 in. (10 mm)	1-1/8 Closz	0.6 in. (15 mm)	1-1/8 grain	0.5 in. (13 mm)
Maize/Milo	**950-1000**	1-1/8 grain	0.3 in. (8 mm)	1-1/8 Closz	0.7 in. (18 mm)	1-1/8 grain	0.6 in. (15 mm)
Lentil Beans	**880**	1-1/8 grain	0.3 in. (8 mm)	1-1/8 Closz	0.6 in. (14 mm)	1-1/8 grain	0.4 in. (9 mm)
Lentil Beans – Tough threshing	**850**	1-1/8 grain	0.3 in. (8 mm)	1-1/8 Closz	0.6 in. (16 mm)	1-1/8 grain	0.4 in. (11 mm)
Pinto Beans	**950**	1-1/8 grain	0.3 in. (8 mm)	1-1/8 Closz	0.5 in. (13 mm)	1-1/8 grain	0.4 in. (10 mm)
Rye	**900**	1-1/8 grain	0.3 in. (8 mm)	1-1/8 Closz	0.5 in. (13 mm)	1-1/8 grain	0.4 in. (10 mm)
Oats	**850-900**	1-1/8 grain	0.3 in. (8 mm)	1-1/8 Closz	0.6 in. (15 mm)	1-1/8 grain	0.4 in. (10 mm)
Popcorn	**900**	1-1/8 grain	0.2 in. (5 mm)	1-1/8 Closz	0.5 in. (13 mm)	1-1/8 grain	0.4 in. (10 mm)
Rye Grass	**400**	1-1/8 grain	0.3 in. (8 mm)	1-1/8 Closz	0.5 in. (13 mm)	1-1/8 grain	0.2 in. (5 mm)
Bent Grass	**420**	1-1/8 grain	0.3 in. (8 mm)	1-1/8 Closz	0.4 in. (10 mm)	1-1/8 grain	0.2 in. (5 mm)
Blue Grass	**450**	1-1/8 grain	0.3 in. (8 mm)	1-1/8 Closz	0.2 in. (5 mm)	1-1/8 grain	0.2 in. (5 mm)
Brome Grass	**620**	1-1/8 grain	0.3 in. (8 mm)	1-1/8 Closz	0.7 in. (18 mm)	1-1/8 grain	0.3 in. (8 mm)
Crested Wheat	**480**	1-1/8 grain	0.3 in. (8 mm)	1-1/8 Closz	0.4 in. (10 mm)	1-1/8 grain	0.2 in. (5 mm)
White Clover	**480**	1-1/8 grain	0.3 in. (8 mm)	1-1/8 Closz	0.4 in. (10 mm)	1-1/8 grain	0.1 in. (3 mm)
Sunflower	**800**	1-1/8 grain	0.3 in. (8 mm)	1-1/8 Closz	0.7 in. (18 mm)	1-1/8 grain	0.6 in. (15 mm)
Alfalfa	**480**	1-1/8 grain	0	1-1/8 Closz	0.2 in. (5 mm)	1-1/8 grain	0
Flax	**600**	1-1/8 grain	0	1-1/8 Closz	0.2 in. (5 mm)	1-1/8 grain	0.2 in. (5 mm)
Mustard	**780**	1-1/8 grain	0	1-1/8 Closz	0.4 in. (10 mm)	1-1/8 grain	0
Pea-Black Eye	**880**	1-1/8 grain	0.4 in. (10 mm)	1-1/8 Closz	0.5 in. (13 mm)	1-1/8 grain	0.4 in. (10 mm)
Wild Rice	**850**	1-1/8 grain	0.3 in. (8 mm)	1-1/8 Closz	0.4 in. (10 mm)	1-1/8 grain	0.3 in. (8 mm)
Safflower	**800**	1-1/8 grain	0.3 in. (8 mm)	1-1/8 Closz	0.5 in. (13 mm)	1-1/8 grain	0.4 in. (10 mm)
Lupins	**1000-1150**	1-1/8 grain	0.4 in. (10 mm)	1-1/8 Closz	0.6 in. (15 mm)	1-1/8 grain	0.5 in. (13 mm)

NOTE: Multiple sieve listings indicate suitable performance with either type. Choose based upon your crop mix.

NOTE: 1-1/8 Perteren top sieves can be used for grasses, various small seeds, or for harvesting hybrid seed which require an exceptionally clean sample.

NOTE: 2.5 mm round hole bottom sieves can be used for specialty crops such as alfalfa.

NOTE: 10 mm round hole bottom sieves can be used for milo/maize/sorghum and some small beans.

NOTE: 16 mm round hole bottom sieves can be used for soybeans, milo, popcorn and other similar size seeds.

NOTE: 18 mm round hole bottom sieves can be used for large beans and some commercial corn.

COMBINE ADJUSTMENTS

ROTOR SETUP

Every experienced operator knows crop and harvesting conditions vary from season-to-season and field-to-field. Fine-tuning as harvest progresses will allow you and your combine to maximize performance. Several optional rotor elements are available to customize the rotor to best fit specific threshing and separating needs. The Operator's Manual provides complete mounting and setup details, and common startup configuration for most crops.

Non-spiked rasp bars are the primary threshing element (*see figure 28.1*). In addition to providing threshing action, they also provide positive crop movement through the rotor cage.

Figure 28.1

Spiked rasp bars are primary material movers (*see figure 28.2*). The aggressive nature of the spiked bar tears the crop mat apart, allowing grain to effectively separate from the straw.

- In conditions where crop material is tough and may tend to wrap, spiked bars chop the material sufficiently to prevent roping
- Spiked rasp bars must always be installed in pairs 180˚ apart to maintain rotor balance
- Generally used on the rear half of the rotor

Figure 28.2

Standard rotor has non-spiked rasp bars in the front, and eight spiked rasp bars in the rear separator area (*see figure 28.3*).

Straight separator bars are used as a primary separating element. Tend to thin out the crop mat to allow improved separation (*see figure 28.4*).

- Separator bars are installed across two rasp bar mounting pads, and must always be installed in pairs 180˚ apart to maintain rotor balance
- Used often in high-yielding corn
- Not recommended for green crops
- May be removed if rotor is consuming excess power

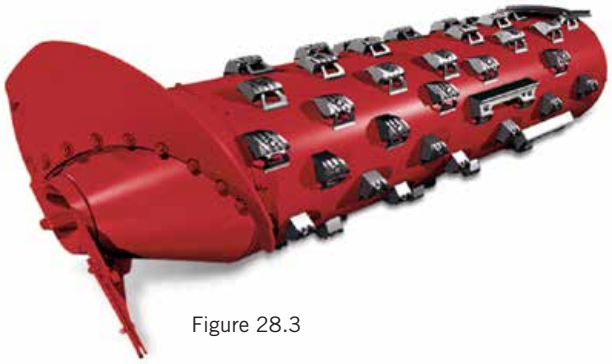


Figure 28.3

Helical kicker bars are used as a primary crop moving element (*see figure 28.5*)

- Used at the rear of the rotor, conforms to helical pattern of rasp bars
- Helical kickers are installed across two rasp bar mounting pads, and must always be installed in pairs 180˚ apart to maintain rotor balance
- Two kickers at the rear of the rotor should NOT be removed

Figure 28.4

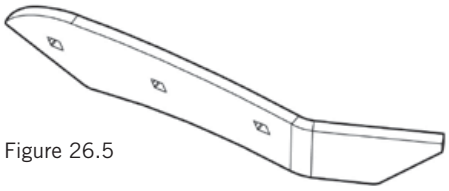


Figure 26.5

COMBINE ADJUSTMENTS

ROTOR MODULES

The rotor cage is made up on several fixed and removable elements. The rotor modules from the lower 180˚ wrap round the rotor, above the grain pan. Eight modules, in four pairs, can be "mixed and matched" as necessary to precisely adapt the threshing and separation effect of the AFX combine to virtually any operating condition. When properly configured, approximately 100% of threshing and 90% of separation should occur in the front half of the rotor cage area.

- Modules are identified by their position, such as "1R" for the right front, and "4L" for the left rear module (*see figure 29.1*)
- Left-hand modules measure 21¾ inches, and are marked with an "L" at point 1
- Right-hand modules measure 22½ inches, and are marked with an "R" at point 1
- Modules must be leveled relative to the rotor. See specific instructions in the Operator's Manual, or contact your Case IH dealer.

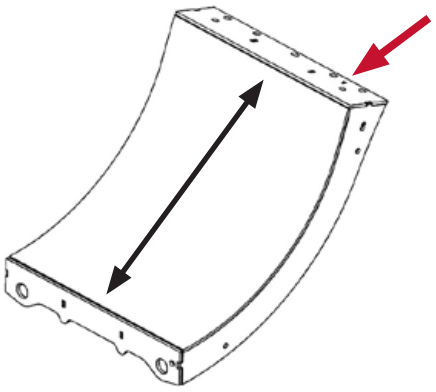


Figure 29.1

MODULE TYPES

Small Wire (*see figure 29.2*)

- 3/16-inch wire spaced 3/16-inch apart
- Used for small grain crops

Figure 29.2

Large Wire (*see figure 29.3*)

- ¼-inch wire spaced ½-inch apart
- Used for corn, soybeans and rice

Figure 29.3

Slotted (*see figure 29.4*)

- Has slots approximately 1 inch X 1½ inch instead of wires
- Used mainly for edible beans and sunflowers

Figure 29.4

Round Bar (*see figure 29.5*)

- 16 mm round bars spaced 16 mm apart, oriented parallel to axis of the rotor
- Used primarily to reduce "hairpinning" of material in crops such as high-moisture corn and rice

Figure 29.5

Large Skip Wire (*see figure 29.6*)

- Every other wire removed from standard large wire module
- Mainly used in separator area
- Can remove all wire to make a "keystock" module
- In corn, no fewer than every-other wire should be used, to prevent cobs from being thrown down and damaging upper sieve

Figure 29.6

Solid Module (*see figure 29.7*)

- Can be used in very easy threshing and separating crop
- Prevents excess trash from overloading cleaning system

Figure 29.7

COMBINE ADJUSTMENTS

ROTOR MODULES continued

A **"Hard Thresh" concave** is available for very hard threshing wheat, commonly found in the Northern Plains or Canada (*see figure 30.1*). The concave nearly doubles the number of crossbars to increase aggressiveness when difficult threshing is encountered.

- Additional crossbars also hold material above concave to extend threshing time
- Can also be fitted with a backing plate to close off concave, to increase re-threshing
- Reduced grain flow through concave at front of rotor means additional separating must be accomplished further back. Adjust accordingly.
- DO NOT use the Hard Thresh concave unless necessary

Figure 30.1

FINE-TUNING SEPARATION

Once the crop is threshed, approximately 10% of the grain normally remains mixed in with the straw material mat that moves through the rotor cage.

- Separation is controlled primarily by the selection of rotor modules that are used, and the speed at which material moves through the cage
- Refer to suggested module orientation and material speed factors in the Operator's Manual for typical crop setup

Crop speed is determined by four basic factors:

- Rotor speed
- Concave clearance
- Cage transport vane position
- Number of straight separator bars

The angle of cage transport vanes can be adjusted to control the rearward movement of crop material.

- Moving the bottom of the vane rearward slows up crop flow
- Moving the bottom of the vane forward speeds up crop flow

OPTIMIZING STRAW QUALITY

The grain-on-grain and rubbing nature of the Axial-Flow combine threshing and separating system can inherently reduce straw length, making baling straw challenging in some conditions. Some specific settings, and harvesting conditions can be implemented to help produce longer length and quality straw. Special settings will tend to reduce threshing and separating performance, so a balance of straw value and grain loss must be determined when making adjustments.

Reduce aggressiveness of rotor, and move material through the rotor cage quickly:

- Rotor – **DO NOT** use spiked rasp bars unless absolutely necessary for separation
- Increase rotor speed and reduce concave clearance to move straw out of the rotor more quickly with less repeat contact with the rotor
- Adjust transport vanes over separator grates to the fast position
- Adjust transport vanes over the concave to the mid or fast position
- Remove straight bars if equipped

Configure rotor cage for smoother material flow:

- Use small wire concaves, or at a minimum, in the No.1 left and No.1 right concave positions
- If grain loss is not an issue, use solid separator grates in the second and third positions

Other machine settings:

- Use a combine with discharge beater instead of straw chopper
- Retract the straw chopper concave and/or reduce chopper/ beater speed

Harvesting conditions:

- Harvest when straw is tough during damp, tough conditions such as early morning or late evening
- Cut stubble lower for more stem than normal

COMBINE ADJUSTMENTS

EVALUATING GRAIN LOSS AND COMBINE PERFORMANCE

It's harvest time, and the return on a season's investment in labor, land, fertilizer, herbicide and pesticides all lies with the combine's ability to put every kernel in the grain tank. A tall order, and in reality impossible. But the Axial-Flow combines from Case IH will get you closer to perfection than any other combine.

Some simple steps should be taken as the combine is adjusted to match each crop and season, to check the cutting, threshing and separating performance of the combine, and isolate where adjustment may be necessary to get the best possible sample in the tank, with minimal loss.

A structured method of determining the source of loss is essential prior to making any adjustment to reduce loss. The illustration demonstrates how to make an accurate assessment of the source of harvest loss (*see figure 31.1*).

The number of seeds counted in each area indicated represents loss in various stages of harvest:

Area A: Pre-harvest loss in standing crop, prior to contact with the header.

Area B: Pre-harvest + Header loss. (Header loss = **B** – **A**) Loss occurring at the header due to shatter, dropped ears.

Area C: Pre-harvest + Header + Separator Loss. (Separator loss = **C** – **B** – **A**) Separator loss will not be isolated to the rotor or cleaning system.

Swing the straw spreader up into the windrow mode. Enter an average area of the field, away from edges. Harvest a full swath, at normal operating speed. Travel a minimum of approximately two combine lengths into the field after the machine is full and delivering grain to the grain tank. Stop ground travel and the separator.

Back up approximately one combine length. Safely stop the combine, and perform seed loss evaluation.

Figure 31.1

COMBINE ADJUSTMENTS

ISOLATING LOSS

Combine loss can be isolated to rotor or cleaning system loss in either of two ways.

1. Note the current upper and lower settings. Open upper and lower sieves fully, and repeat the test as illustrated. If observed separator loss is unchanged, loss is coming from the rotor. If loss decreases, observed loss from first test was from the cleaning system.
2. Perform the initial test with straw spreaders installed. Make sure the separator has stopped before backing away from cut crop. Observed loss in Area "C" is from the sieves (cleaning system). Observed loss in Area "D" is rotor loss that was spread across the width of the machine by the straw spreaders.

Determine the Amount of Loss at Each Source

The next step is to count the grains lost on the ground in each "counting area." The amount of grain lost depends on whether the collection is from windrowing or spreading. If collection is taken when windrowing the entire width of the cleaning system needs to be collected. If collection is taken when spreading, assuming even distribution, count the seeds within the area.

To convert the amount of loss you find at any point to bushels, refer to the seed loss tables in your Operator's Manual. Losses should be checked in several areas and averaged to eliminate the effects of any uneven feeding.

Make the Proper Adjustments

Once the loss counts have been performed as described, required areas of attention will be identified.

- To reduce header losses, make sure header is adjusted properly as explained in the Operator's Manual
- Before making adjustments for separator losses, be sure there are no grain leaks due to missing bolts, open clean out doors, or other obvious causes
- For adjustments to the rotor and cleaning system, see your Operator's Manual
- **The most important detail in combine adjustment is to MAKE ONE ADJUSTMENT, THEN TEST THE OUTCOME. This allows only the effect of that adjustment to be analyzed. Making multiple adjustments between tests does not give a clear indication of which adjustments are positive, and others that may have negative results.**

"Power-Stall" Problem Diagnosis (Quick Stop)

Problems with internal components are difficult to analyze. If you're losing grain at the separator, you may want to use the "power-stall" diagnostic method.

- The "power-stall" uses an approved method of stopping the separator quickly while harvesting
- By preventing the separator from emptying, as would be the case in a normal shutdown, the procedure allows inspection of the inside of the combine as if it were in operation (*see figure 32.1*)

Figure 32.1

- There will be some major differences between the conditions observed and those that exist during operation. Even with these obvious limitations, the procedure can be an extremely useful diagnostic "tool."
- See the Operator's Manual under the heading "Quick Stop" Problem Diagnosis for a description of the procedure

COMBINE ADJUSTMENTS

CROP SETTING VALUES – Crop condition adjustment

Condition	Adjustment
Damaged grain or corn sample	1. Inspect modules for plugging, unplug if neccesary
	2. Increase module clearance
	3. Decrease rotor speed
	4. Open lower sieve to reduce tailings
Kernels left on the cob	1. Reduce module clearance
	2. Increase rotor speed
	3. Adjust the cage vanes to the slow position or very slow position if your machine is equipped with the adjustable threshing cage
	4. Incorrect module type allowing insufficient threshing. Change module to one more suitable for crop conditions
Excess cob breakage	1. Decrease rotor speed
	2. Increase module clearance
	3. Install a less aggressive module
	4. Install a beater/chopper grate cover
Unthreshed heads or pods – White caps in sample	1. Increase rotor speed
	2. Reduce module clearance
	3. Adjust the cage vanes to the slow position or very slow position if your machine is equipped with the adjustable threshing cage
	4. Install hard threshing kit (i.e., Hard thresh modules or filler bars into modules)
Loss of threshed grain out of rotor	1. Inspect modules for plugging or incomplete threshing (if either condition is present, reduce module clearance). If modules are plugging in corn, it is recommended to use round bar modules
	2. Add straight separator bars to rotor
	3. Adjust the cage vanes to the slow position or very slow position if your machine is equipped with the adjustable threshing cage
Grain loss over upper sieve	1. Perform kill stall to inspect distribution; if uneven, correct using distribution adjustments (**Distriution heavy on right side** or **Distriution heavy on left side**) on next page
	2. Decrease cleaning fan speed
	3. Open upper sieve
	4. Open lower sieve
	5. Decrease forward travel speed
Sieve overloading	1. Increase cleaning fan speed
	2. Open lower sieve, close upper sieve
	3. Decrease rotor speed
	4. Increase module clearance to reduce separation
	5. Incorrect module type allowing excess separation. Change module to one more suitable for crop or conditions

COMBINE ADJUSTMENTS

CROP SETTING VALUES – Crop condition adjustment continued

Condition	Adjustment
Stems/small bits of cob in sample	1. Close lower sieve
	2. Decrease rotor speed
	3. Close upper sieve
	4. Increase fan speed
	5. Increase module clearance
Excessive rotor power consupmtion	1. Increase rotor speed
	2. Increase module clearance
	3. Remove straight separator bars
	4. Adjust cage vanes to a faster position
	5. Decrease forward travel speed
Distriution heavy on right side	1. Verify cleaning system is level; adjust sieve offset or recalibrate cleaning system, if necessary
	2. Reduce module clearance and rotor speed
	3. Adjust the module to rotor pinch point toward the pile of grain (will thresh more on the left)
	4. Add filler to right front module or install less open module on number one right-hand position
Distriution heavy on left side	1. Verify cleaning system is level; adjust sieve offset or recalibrate cleaning system, if necessary
	2. Increase module clearance and rotor speed
	3. Add filler to left front module or install less open module on number one left-hand position
	4. Adjust the module to rotor pinch point toward the pile of grain (will thresh more on the right)
Rotor blockages	1. Increase rotor speed
	2. Adjust head and feeder for optimum feeding
	3. Beater/chopper drive belt slipping – check belt tension and tighten if necessary
	4. Adjust cage vanes to faster position
Excessive tailings	1. Indentify whether tailings are clean grain or unthreshed grain. If unthreshed grain, refer to **Unthreshed heads or pods – White caps in sample** on previous page
	2. Open lower sieve slightly and clean throughly if blocked
	3. Reduce cleaning fan speed

COMBINE ADJUSTMENTS

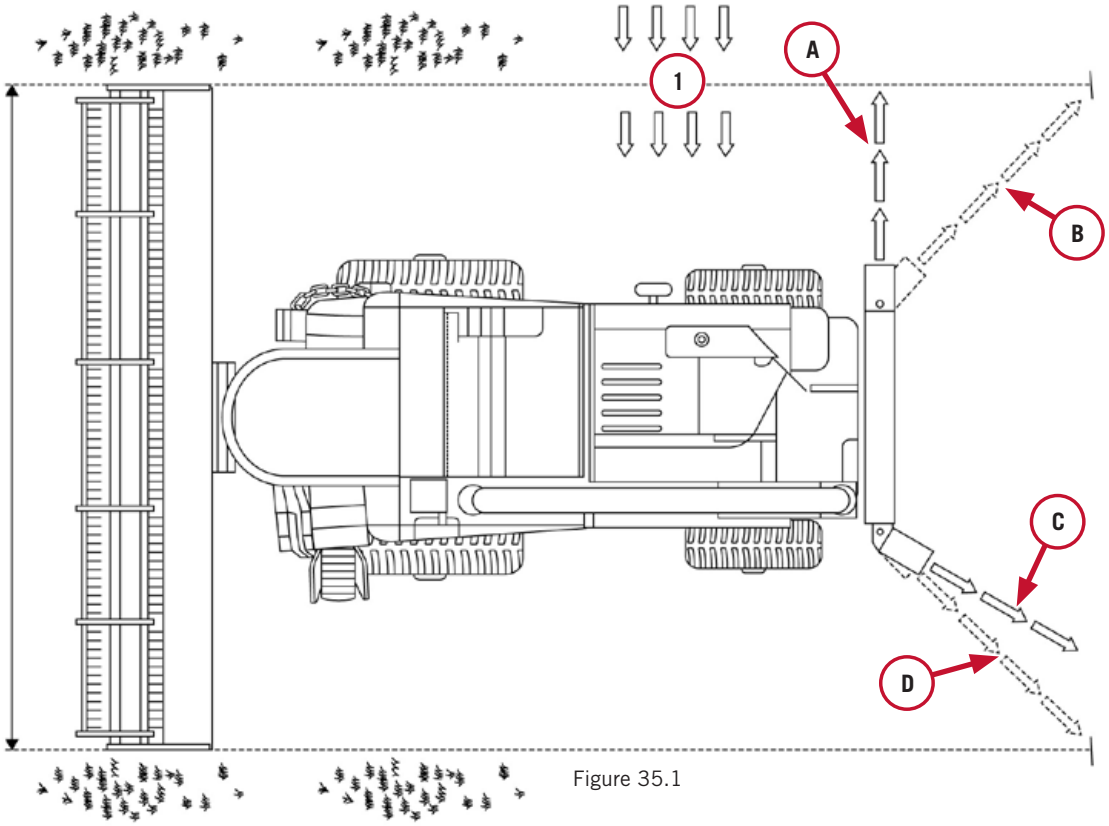


Figure 35.1

NOTE: Starting with model year 2016 and forward, the Axial-Flow combines will utilize adjustable distribution panels for spread control. The 3-sided chutes will serve as wind protection. For more information consult the proper operators manual.

If you are harvesting in a cross wind the chutes may be set at different angles to obtain the desired spread width (*see figure 35.1*).

The wind direction **(1)** in the above example is blowing from the right-hand side of the combine to the left-hand side.

The dashed arrows **(B)** and **(D)** indicate the normal direction of the chutes to spread the straw the width of the header.

The solid arrows **(A)** and **(C)** indicate the adjusted direction of the chutes to compensate for the cross wind.

To compensate for the cross wind in the above example, adjust the chutes into the wind by;

- Right-hand side — Move the chute forward, from **(B)** towards **(A)**, to increase spreading distance into the cross wind.
- Left-hand side — Move the chute farther towards the center of the combine, from **(D)** towards **(C)** to decrease spreading distance with the cross wind.

Stationary "counter" knives can be added to assist in chopping straw.
IMPORTANT: DO NOT have stationary knives engaged with chopper in slow speed. Drive damage may occur.

- Adjustment handle changes aggressiveness of cutting (*see figure 35.2*)
- Adjustment handle must be moved up to remove the knives when operating in corn
- Shred bar used for very fine residue reduction
- Counter knives are designed to retract if a solid object passes through the chopper. See Operator's Manual for procedure to re-set counter knives.

Adjustable discharge deflector distributes material evenly from beater/chopper to spreader.

- Adjustment lever located behind clean grain elevator
- See Operator's Manual for suggested settings

Figure 35.2

STORAGE

COMBINE STORAGE

When harvest is done, and you've worked long hours for weeks on end, it is real easy to want to take some time off, or if the conditions are right, get out and do some fall tillage before the snow flies. But, just make sure to give your combine some end-of-season and pre-storage attention before the shed doors close, and it's forgotten until next harvest season. Off-season neglect can cost big in terms of corrosive damage, rust and deterioration, all avoidable with a little thought to prevention and maintenance.

The combine should be stored in a dry, protected location. Outside storage, subject to weather and elements will shorten the life of the machine.

The following procedure should be used to prepare the combine for storage periods of up to 6 months.

1. Remove the header to make cleaning and inspection easier and more thorough.
2. The combine should be thoroughly cleaned before storage to remove chaff and debris that can collect moisture or attract rodents during storage.
   - A high volume and velocity air blower like a leaf blower or industrial compressor works best when debris is dry.
   - Washing the unit will provide the most complete cleaning, removing debris that may be stuck to grease or oily accumulations that cannot be removed with just compressed air or mechanical cleaning; as well as removing the grease and oil as well.
   - High-pressure spray should **NOT** exceed 870 PSI and 140˚F. Keep the spray wand at least 11 inches away from the combine surfaces.
   - If the unit is washed, care must be exercised to assure **COMPLETE** removal of chaff and debris, especially from inconspicuous areas where it will result in accelerated rust and corrosion over an extended period of time.
   - Avoid directing a high-pressure water stream toward bearings, seals, oil reservoirs, gearboxes, fuel tank fill, electrical equipment, engine exhaust, air filters and the cab interior.
   - **DO NOT** direct a high-pressure water stream directly perpendicular to bearings and seals. Angling the stream reduces the possibility of water infiltration through seals. The Operator's Manual lists complete precautions for cleaning with high-pressure water.
   - Open removable covers, doors or plugs that allow water to drain from the transition cone or grain tank.
3. Clean the inside of the machine including the concave and separator grate, chaffer and shoe sieves, cleaning fan, clean grain and tailings auger troughs.
   - Open the clean grain and tailings elevator doors
   - Spray the sieves with a rust preventive
4. Clean the inside of the cab and instrument panel. Clean the cab air and recirculation filters.
5. Rodents can damage a combine while in storage. Rodents will eat plastic, insulation or rubber materials, especially when coated with grain dust.
   - Clean the areas where rodents may nest.
   - Leave access panels and doors open to remove convenient nesting pockets. In some conditions, leaving mothballs will help discourage rats and mice.
6. After thoroughly cleaning the combine and allowing it to dry, lubricate the machine as specified in the "Lubrication/Filters/Fluids section of the Operator's Manual.
7. Check coolant anti-freeze protection. Use only low silicate, heavy-duty coolant in the cooling system.
   - Add cooling system conditioner and change the coolant filter conditioner.
8. Run the engine long enough to completely warm the oil in the crankcase before draining the oil.
   - Remove and replace the oil filter as instructed.
   - Fill the crankcase with fresh oil and run the engine for two to five minutes.
9. Open the drain on the water separator fuel filter and drain water and sediment.
   - Fill the fuel tank with a premium grade diesel fuel. If this fuel grade has not been used regularly, drain the fuel tank and fill with premium diesel fuel. **DO NOT store the combine with biodiesel fuel in the tank or fuel system.**
   - Run the engine for five minutes to circulate the fuel through the fuel injection system.
   - Close the fuel shut off valve between the water separator filter and fuel tank to prevent fuel draining from fuel injection system into the fuel tank.

STORAGE

COMBINE STORAGE continued

10. Clean the air cleaner filter and body.

11. Use compressed air or water under pressure to thoroughly clean the radiator and other cooling elements. **DO NOT** direct high-pressure water at an angle to cooling fins, as fins may be bent and damaged.

12. Cover the engine breather pipe and exhaust pipe.

13. Batteries can remain in the combine, but must be fully charged to prevent freezing in cold temperatures.

- Remove the battery ground cables to prevent slow discharge

14. Store the combine out of direct sunlight. Clean tires before storage, and support the combine on blocking if possible to remove load from the tires.

- If the combine is not blocked, check tires frequently and maintain inflation during storage
- Lower the head to remove weight from tires

15. Lubricate chains with light oil or chain lubricant.

16. Lower the head to remove load from the hydraulic system.

- Retract all hydraulic cylinders if possible. Coat exposed cylinder rods with grease to prevent rust and corrosion (clean grease from rods when removing the combine from storage).

17. Remove tension from belts.

18. On combines equipped with Moisture Sensor, remove the bypass auger and remove grain from the housing. Make sure the auger turns freely in the plastic bearing block. Use the retaining pins to reach through the bearing block to align and hold the auger in place while re-installing the block.

Removing the Combine from Storage

Consult the Operator's Manual. In addition to confirming fluid levels and closing clean out doors, several other inspections are suggested when preparing the combine for use.

ACCESSORIES

OPTIONAL EQUIPMENT

Feeder

- Perforated Feeder House Floor Section:
- This replaces a solid feeder house floor. The perforated bottom is used to evacuate dirt and soil when operating in peas, soybeans, beans, etc.
- Feeder Rock Trap Kit
- This kit is available to add a gear driven rock trap system to the combine.
- Feeder Non-Rock Trap Kit
- This kit will convert a feeder with a rock trap to a non-rock trap configuration
- Smooth Slat Feeder Chain
- When working with crops such as edible beans smooth slat feeder chain is available to reduce crop damage.
- Feeder Lateral Tilt Kit
- This kit will convert a non-tilting adapter to hydraulic lateral tilt to allow the header to follow uneven ground
- 2200 Corn Header Conversion Kits
- To adapt 8 row and 12 row 3200 Corn Headers to mount to Axial-Flow combines.

Threshing and Separating

- Smooth Rasp Bars
  - When working with crops such as edible beans, smooth rasp bars are available to reduce crop damage.
- Rotor Concaves
  - Various types of rotor concaves that can be mounted in either the threshing or separating area of the rotor are available to fine tune the combine for any crop condition.
- Large 1/4 in. Wire
- Slotted Hole
- Small 3/16 in. Wire
- Large Skip Wire
- Solid
- Round Bar
- Rotor Cage Filler Plates
  - Filler plates are used to hold the crop over the concave for a longer time to improve threshing in tough conditions. Filler plates can also be used to even crop distribution onto the grain pan.

Cleaning System and Lower Frame

Pre-Sieve

- 1-1/8 in Grain slat
- 1-5/8 in Closz slat
- 1-5/8 in Corn slat

Upper sieve

- 1-1/8 in Grain slat
- 1-5/8 in Closz slat
- 1-5/8 in Corn slat
- 1-1/8 in Peterson slat

Lower sieve

- 1-1/8 in Grain slat
- 1-5/8 in Closz slat
- Round hole sieve 2.5 mm
- Round hole sieve 10 mm
- Round hole sieve 16 mm
- Round hole sieve 18 mm

Hard Thresh Tailings Kit

- A rough surface tailings auger cleanout door and Tri-Sweep housing door can be obtained for hard threshing small grains to increase tailings threshing.

Clean Grain Elevator and Grain Tank

- Perforated Covers: Round
- Perforated covers under the clean grain and return cross auger and the grain elevator can be installed when threshing beans and peas to obtain a cleaner grain sample.
- Extended Wear Clean Grain Elevator and Delivery Auger
- When operating in abrasive crops such as rice, the combine can be equipped with an extended wear clean grain elevator and delivery auger.
- Two speed clean grain elevator drive
- Two speed drive comes from factory set on low speed; only need to move to high speed in high yielding corn, or when elevator plugging is a concern.
- Clean Grain Elevator and Grain Tank Cross Auger Slow Speed Kit for standard grain tank and unload system
- When operating in delicate crops, such as edible beans, a slowdown kit is available for the clean grain elevator, bubble-up auger and front grain tank trough auger.

ACCESSORIES

OPTIONAL EQUIPMENT continued

Residue Handling

Straw Handling

- Straw Chopper – This equipment can be fitted on the machine to cut the straw residue
- Standard cut
- Fine cut
- Magnacut
- Remote adjustable shear bar
- In cab spreader controls
- Beater or Chopper Concave Cover
- Cover slots in the beater or chopper concave to prevent material from passing through slots, reducing cleaning system load.

Windrow Chute *(see figure 39.1)*

- Improve windrow formation.

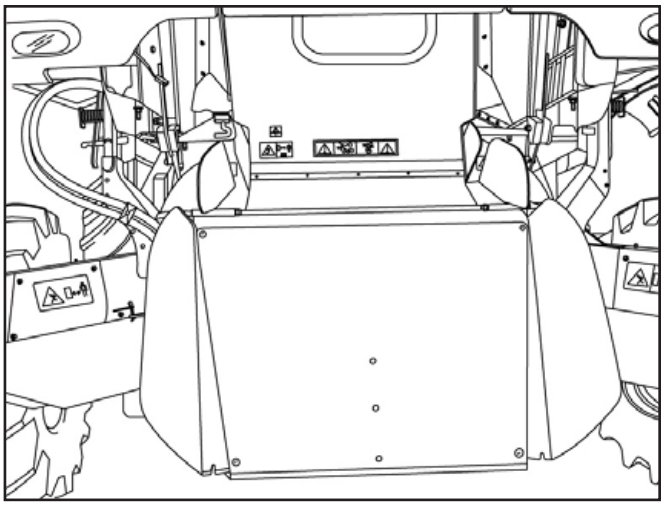


Figure 39.1

Traction and Tires

- 2 Speed Powered Rear Axle (wheel motors)
- Hydrostatic wheel motors can be installed in place of the wheel hubs if additional traction is required in muddy conditions
- Dual Wheels and Axle Extensions
- Dual Wheels and Flotation Tires are available to give more flotation in soft ground conditions. Various axle extensions are available for a variety of row spacings
- Front axle rubber tracks are available to give more flotation in soft ground or muddy conditions *(see figure 39.2)*

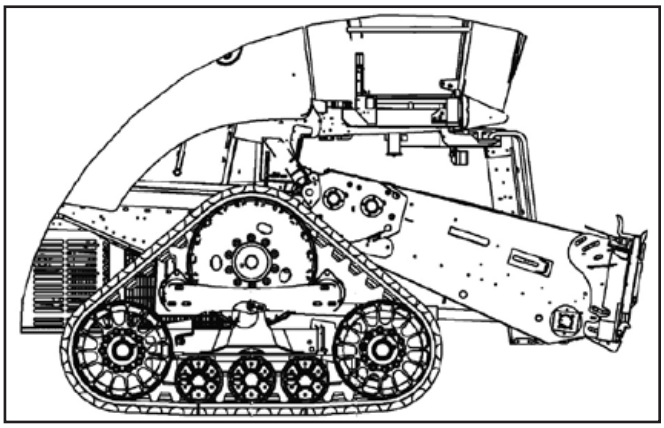


Figure 39.2

ACCESSORIES

OPTIONAL EQUIPMENT continued

Rechargeable Work Light

The luxury cab option will have as standard a rechargeable work light which will be factory installed starting with model year 2020. For ease of storage the customer can have the dealer mount a plate on top of the UCM cover, or the light can be stored in one of the storage compartments in the cab. The kit number:

- Cab Luxury – **425358**
- Rechargeable work light DIA Kit – **51538882**

Engine

- Block Heater – A block heater can be installed to aid the engine in cold weather.

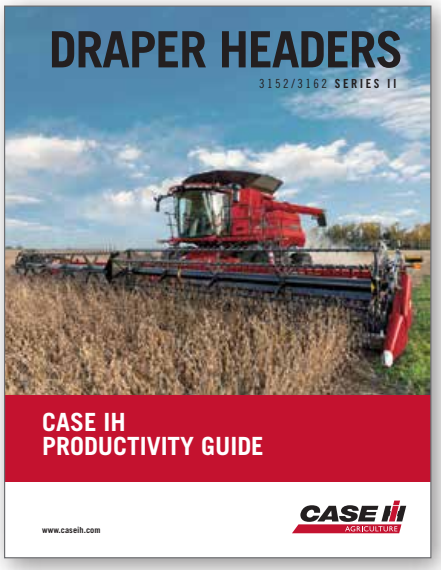
Other

- Header Trailer Hitch – Two types of trailer hitches are available for towing a header trailer:
  - Fixed trailer hitch
  - Automatic rotation trailer hitch
- Fire Extinguisher – A fire extinguisher is available
  - It is recommended one be mounted on the engine deck and one on the front ladder

OTHER RESOURCES

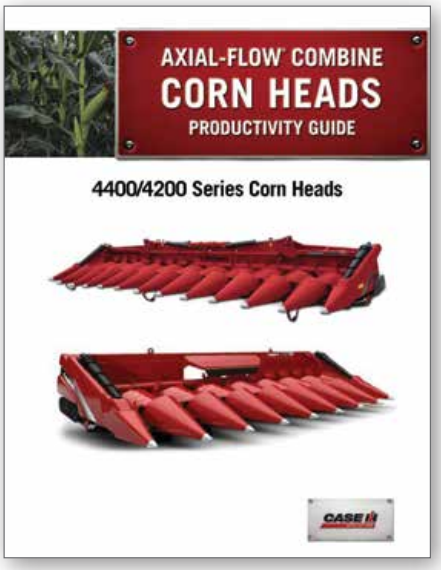
HEADER PRODUCTIVITY GUIDES

Case IH also has Productivity Guides available on Axial-Flow combine headers:



- GH-2255-19
  Series II Draper Headers

- GH-2261-19
  Auger Heads



- GH-2200-15
  Corn Heads

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Printed in U.S.A. **www.caseih.com** GH-2265-19 *Replaces: GH-2208-16*