CASE IH AGRICULTURE

7120/8120/9120 SERIES COMBINE PRODUCTIVITY GUIDE

FEATURING

- Safety
- Controls and Operations
- Service Inspections
- Maintenance
- Combine Adjustments
- Adavanced Farming Systems (AFS)
- Storage

GENERAL INFORMATION

CONTENTS

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 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.

2004 ushered in a new era with the introduction of the New AFX8010, Case IH's entry into the Class 8 combine market, followed by the Class 7, AFX7010. Now, in 2009, the New Case IH 20 Series Axial-Flow combines chart yet another course in combine history, covering the Class 7, Class 8 and Class 9 markets with the 7120, 8120 and 9120 Axial-Flow 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** that reduces maintenance cost and contributes to overall lower ownership costs. **GRAIN QUALITY** and **GRAIN SAVINGS** are a direct result of the single rotor design. Basic design and 30 years of history give the Axial-Flow **ADAPTABILITY** unlike any other combine, and the **MATCHED CAPACITY** of all combine systems means no productivity-robbing internal bottlenecks. All this adds up to **RESALE VALUE** that leads the industry.

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 new 20 Series, Case IH is writing the latest chapters in the Axial-Flow story. A full selection of headers including:

- Standard 8, 12 and 16 row, and residue-chopping 8 and 12 row corn heads
- Auger grain headers up to 35'
- Draper headers up to 45' in width

The all-gear Power Plus variable speed 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" wide feeder with new 4-strand, 3-slat feeder chain matches feeding and threshing capacity.

- Coined, or rolled, serrated slats aggressively move material up the feeder, while reducing grain damage
- The feeder floor was lowered to improve throughput in heavy crop conditions

The long, 94" 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 new spring-loaded feed chain tensioning system assures chain tension accuracy *(see figure 3.1).*

- Larger 3 or optional 3.5" lift cylinders eliminates the need for a third lift cylinder for large headers

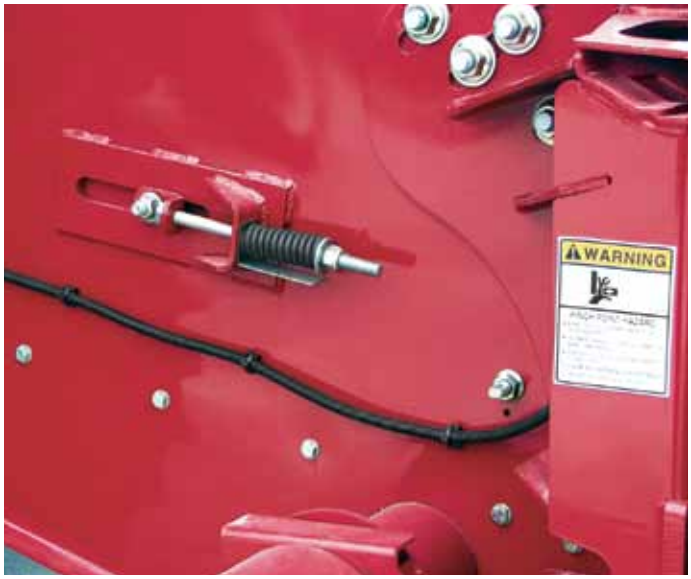


Figure 3.1

- 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)*.

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

The self-leveling cleaning system features a larger, hydraulically driven Cross-Flow fan and active grain pan that stratifies grain before reaching the pre-sieve *(see figure 3.3)*.

- The leveling system allows combine operation on slopes up to 12% (8120/9120) or 14% (7120) while maintaining a level cleaning system

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 40'

Grain tanks holding 315 bushels on the 7120, and 350 bushels for the 8120 and 9120, coupled with fast 3.2 bushels per second unloading keep productivity up in the highest yielding crops.

- Unloading augers discharge up to 21' from the combine, with extensions to 24'; 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 20 Series Axial-Flow combines *(see figure 4.1)*.

- 7120 boasts 360 rated hp, 420 rated hp in the 8120, and 483 rated horsepower in the 9120
- Operator-selectable Power Boost Mode on the 7120 gives an added edge when operations such as unloading-on-the-go demand extra power to keep up ground speed and harvest productivity
- With Power Rise, output jumps to 415, 463 and 523 maximum horsepower for the 7120, 8120 and 9120 respectively

Full authority electronic fuel delivery systems assure power, fuel 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 4-speed electronic shift transmission delivers high drive torque to heavy-duty final drives.

- 7120 is equipped with standard heavy-duty bull gear final drives, and can be outfitted with optional planetary final drives, the same as those on the 8120 and 9120

A heavy-duty non-power guide steering axle is standard equipment.

- Optional rugged power guide steering axle is available for when the going gets tough in wet or soft field conditions

To keep harvest on pace in the most demanding drive conditions, the 8120 and 9120 can float through the field on factory optional 36" tracks, the same as those on Quad-Track tractors *(see figure 4.2).*

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

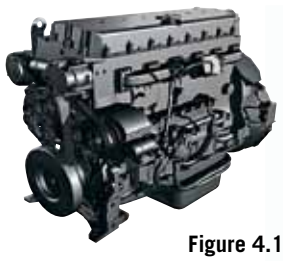


Figure 4.1

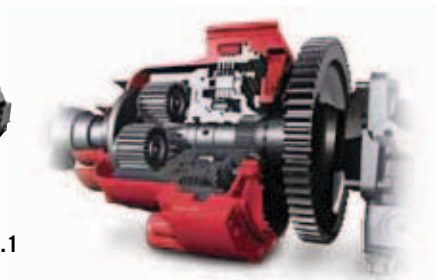


Figure 4.3

- 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 *(see figure 4.3)*

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 4.4)*

Standard yield and moisture sensors team up with the in-cab AFS Pro 600 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 AFS262 receiver supports the optional AccuGuide™ auto guidance system

Figure 4.2

Figure 4.4

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.

Figure 5.1

- 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
- 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.

Some additional "food for thought." 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

- Case IH 20 Series Axial-Flow combines use an AFS Pro 600 interactive touchscreen display to select and monitor combine functions, make certain adjustments, save and use Automatic Crop Settings, and to manage Advanced Farming Systems functions *(see figure 7.1)*.
- 20 Series Combine controls are located in the Multi-Function Hydro 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.

Hydro handle controls include *(see figure 7.2)*:

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

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 "row finder" 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.

Figure 7.1

Figure 7.2

Figure 7.3

CONTROLS AND OPERATION

Controls and Operation (cont.)

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.

Right hand console controls include *(see figure 7.3)*:

- 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

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
- 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 8.1)*

AFS Pro 600 Display

The enhanced color display of the Pro 600 is divided into three functional areas, and provides more information with easy selection and navigation *(see figure 8.2)*.

- Intuitive design allows new operators to quickly master the system

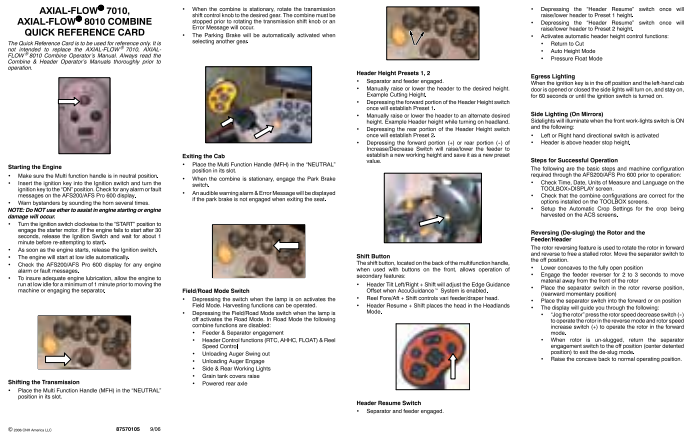
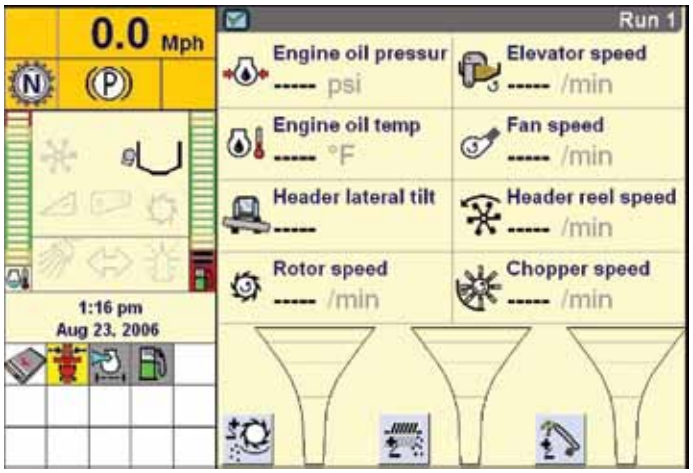

AXIAL-FLOW® 7010, AXIAL-FLOW® 8010 COMBINE QUICK REFERENCE CARD

Figure 8.1

Status Area



Alarm Status Area **Display Area**

Figure 8.2

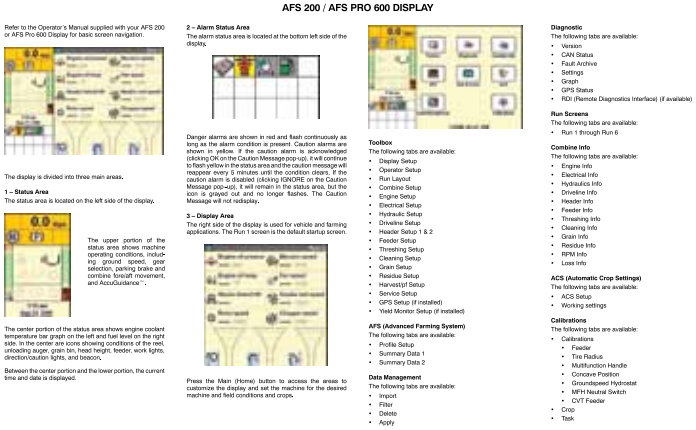

AFS 200 / AFS PRO 600 DISPLAY

Figure 8.3

AFS Pro 600 Display (cont.)

- Quick Start card included with the combine supplements the Operator's Manual, with most frequently used setup and operation information *(see figure 8.3)*

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

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

NOTE: System status lights displaying the information described above are located in the A-Post on pre-2007 7010 and 8010 combines with Universal Display Plus monitor.

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

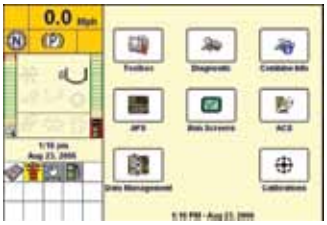
- The Run 1 screen is the default startup screen
- Press Main (Home) button to access the areas to customize the display and set the machine for the desired machine and field conditions and crops

A wide selection of information can be displayed in the Pro 600 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)*.

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 9.2)*.

- 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 *(see figure 9.3)*.
- The de-fog control switch is pressed to turn the de-fog function on. A de-fog icon is shown in the display when de-fog is enabled. Pressing the button again turns de-fog off.



Toolbox
The following tabs are available:
- Display Setup
- Operator Setup
- Run Layout
- Combine Setup
- Engine Setup
- Electrical Setup
- Hydraulic Setup
- Driveline Setup
- Header Setup 1 & 2
- Feeder Setup
- Threshing Setup
- Cleaning Setup
- Grain Setup
- Residue Setup
- Harvest/pf Setup
- Service Setup
- GPS Setup (if installed)
- Yield Monitor Setup (if installed)

AFS (Advanced Farming System)
The following tabs are available:
- Profile Setup
- Summary Data 1
- Summary Data 2

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

Diagnostic
The following tabs are available:
- Version
- CAN Status
- Fault Archive
- Settings
- Graph
- GPS Status
- RDI (Remote Diagnostics Interface) (if available)

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

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

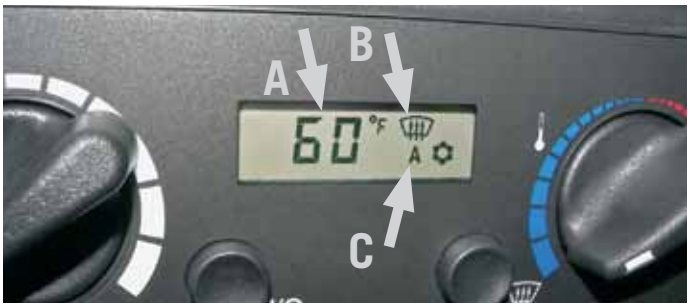
ACS (Automatic Crop Settings)
The following tabs are available:
- ACS Setup
- Working settings

Calibrations
The following tabs are available:
- Calibrations
  - Feeder
  - Tire Radius
  - Multifunction Handle
  - Concave Position
  - Groundspeed Hydrostat
  - MFH Neutral Switch
  - CVT Feeder
- Crop
- Task

Figure 9.1

A. Blower Control
B. Left Climate Control Switch - Right-De-Fog Switch
C. Temperature Control

Figure 9.2



A. Digital Temperature Setting
B. Defog Mode Indicator
C. Automatic Mode Indicator

Figure 9.3

Automatic Climate Control (cont.)

- 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

Automatic Crop Settings (ACS)

The Automatic Crop Settings feature, or ACS, is standard on all 20 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 *(see figure 10.1).*

- ACS work settings page will be displayed, press "Working"
- Go to the "Crop Type" window and select the desired crop
- Touch the "Work Condition" window, and a pop-up appears 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 10.2)*
- If re-naming or creating a Work Condition, a keypad appears on which text changes can be performed

Refer to the 20 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.

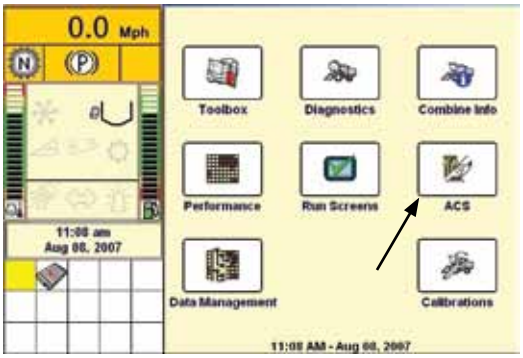


Figure 10.1

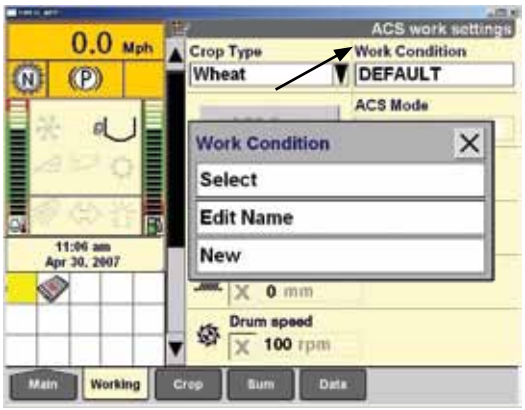


Figure 10.2

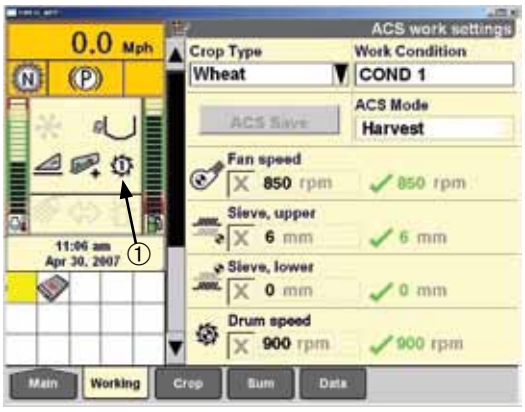


Figure 10.3

Automatic Crop Setttings (cont.)

Mode is indicated by an icon in the status window *(see figure 10.3)*:

- ① indicates Harvest mode *(shown)*
- Ⓗ 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.

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 11.1)*.

- When in Headland mode, values represent the difference between Harvest settings and the desired Headlands setting. (In figure 11.1, "-210" indicates a reduction of fan speed of 210 rpm when in Headlands mode.)

ACS stored value cells are displayed to the right of the parameter adjustment cells *(see figure 11.2)*.

- 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 Ⓗ icon in status window will blink

Indicates 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 11.3)*.

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 11.1

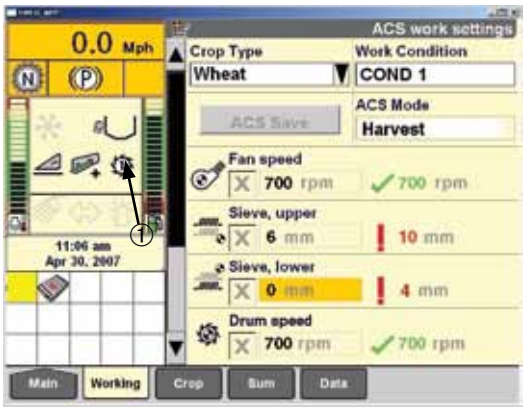


Figure 11.2

Figure 11.3

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.

MAINTENANCE CHOICES, BE PREPARED FOR DEMANDING CONDITIONS

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.

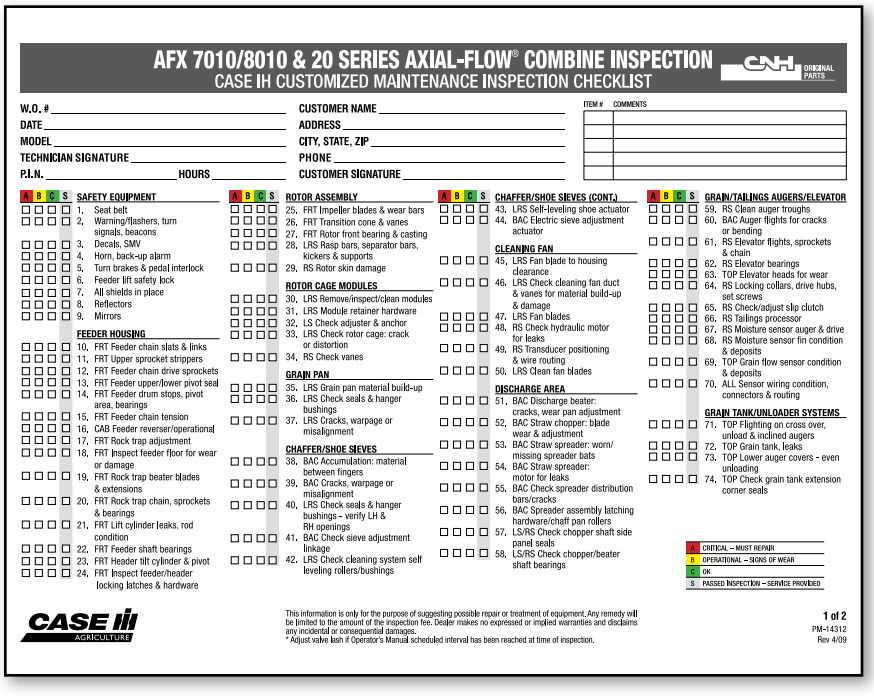
Customized Maintenance Inspections include a visual and functional inspection of your combine. They can be used as a pre-season or as a post-season tune-up.

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



AFX 7010/8010 & 20 SERIES AXIAL-FLOW® COMBINE INSPECTION
CASE IH CUSTOMIZED MAINTENANCE INSPECTION CHECKLIST

CNH ORIGINAL PARTS

W.O. # _____ CUSTOMER NAME _____
DATE _____ ADDRESS _____
MODEL _____ CITY, STATE, ZIP _____
TECHNICIAN SIGNATURE _____ PHONE _____
P.I.N. _____ HOURS _____ CUSTOMER SIGNATURE _____

ITEM # | COMMENTS

A	B	C	S	SAFETY EQUIPMENT
☐	☐	☐	☐	1. Seat belt
☐	☐	☐	☐	2. Warning/flashers, turn signals, beacons
☐	☐	☐	☐	3. Decals, SMV
☐	☐	☐	☐	4. Horn, back-up alarm
☐	☐	☐	☐	5. Turn brakes & pedal interlock
☐	☐	☐	☐	6. Feeder lift safety lock
☐	☐	☐	☐	7. All shields in place
☐	☐	☐	☐	8. Reflectors
☐	☐	☐	☐	9. Mirrors
				FEEDER HOUSING
☐	☐	☐	☐	10. FRT Feeder chain slats & links
☐	☐	☐	☐	11. FRT Upper sprocket strippers
☐	☐	☐	☐	12. FRT Feeder chain drive sprockets
☐	☐	☐	☐	13. FRT Feeder upper/lower pivot seal
☐	☐	☐	☐	14. FRT Feeder drum stops, pivot area, bearings
☐	☐	☐	☐	15. FRT Feeder chain tension
☐	☐	☐	☐	16. CAB Feeder reverser/operational
☐	☐	☐	☐	17. FRT Rock trap adjustment
☐	☐	☐	☐	18. FRT Inspect feeder floor for wear or damage
☐	☐	☐	☐	19. FRT Rock trap beater blades & extensions
☐	☐	☐	☐	20. FRT Rock trap chain, sprockets & bearings
☐	☐	☐	☐	21. FRT Lift cylinder leaks, rod condition
☐	☐	☐	☐	22. FRT Feeder shaft bearings
☐	☐	☐	☐	23. FRT Header tilt cylinder & pivot
☐	☐	☐	☐	24. FRT Inspect feeder/header locking latches & hardware

A	B	C	S	ROTOR ASSEMBLY
☐	☐	☐	☐	25. FRT Impeller blades & wear bars
☐	☐	☐	☐	26. FRT Transition cone & vanes
☐	☐	☐	☐	27. FRT Rotor front bearing & casting
☐	☐	☐	☐	28. LRS Rasp bars, separator bars, kickers & supports
☐	☐	☐	☐	29. RS Rotor skin damage
				ROTOR CAGE MODULES
☐	☐	☐	☐	30. LRS Remove/inspect/clean modules
☐	☐	☐	☐	31. LRS Module retainer hardware
☐	☐	☐	☐	32. LS Check adjuster & anchor
☐	☐	☐	☐	33. LRS Check rotor cage: crack or distortion
☐	☐	☐	☐	34. RS Check vanes
				GRAIN PAN
☐	☐	☐	☐	35. LRS Grain pan material build-up
☐	☐	☐	☐	36. LRS Check seals & hanger bushings
☐	☐	☐	☐	37. LRS Cracks, warpage or misalignment
				CHAFFER/SHOE SIEVES
☐	☐	☐	☐	38. BAC Accumulation: material between fingers
☐	☐	☐	☐	39. BAC Cracks, warpage or misalignment
☐	☐	☐	☐	40. LRS Check seals & hanger bushings - verify LH & RH openings
☐	☐	☐	☐	41. BAC Check sieve adjustment linkage
☐	☐	☐	☐	42. LRS Check cleaning system self leveling rollers/bushings

A	B	C	S	CHAFFER/SHOE SIEVES (CONT.)
☐	☐	☐	☐	43. LRS Self-leveling shoe actuator
☐	☐	☐	☐	44. BAC Electric sieve adjustment actuator
				CLEANING FAN
☐	☐	☐	☐	45. LRS Fan blade to housing clearance
☐	☐	☐	☐	46. LRS Check cleaning fan duct & vanes for material build-up & damage
☐	☐	☐	☐	47. LRS Fan blades
☐	☐	☐	☐	48. RS Check hydraulic motor for leaks
☐	☐	☐	☐	49. RS Transducer positioning & wire routing
☐	☐	☐	☐	50. LRS Clean fan blades
				DISCHARGE AREA
☐	☐	☐	☐	51. BAC Discharge beater: cracks, wear pan adjustment
☐	☐	☐	☐	52. BAC Straw chopper: blade wear & adjustment
☐	☐	☐	☐	53. BAC Straw spreader: worn/ missing spreader bats
☐	☐	☐	☐	54. BAC Straw spreader: motor for leaks
☐	☐	☐	☐	55. BAC Check spreader distribution bars/cracks
☐	☐	☐	☐	56. BAC Spreader assembly latching hardware/chaff pan rollers
☐	☐	☐	☐	57. LS/RS Check chopper shaft side panel seals
☐	☐	☐	☐	58. LS/RS Check chopper/beater shaft bearings

A	B	C	S	GRAIN/TAILINGS AUGERS/ELEVATOR
☐	☐	☐	☐	59. RS Clean auger troughs
☐	☐	☐	☐	60. BAC Auger flights for cracks or bending
☐	☐	☐	☐	61. RS Elevator flights, sprockets & chain
☐	☐	☐	☐	62. RS Elevator bearings
☐	☐	☐	☐	63. TOP Elevator heads for wear
☐	☐	☐	☐	64. RS Locking collars, drive hubs, set screws
☐	☐	☐	☐	65. RS Check/adjust slip clutch
☐	☐	☐	☐	66. RS Tailings processor
☐	☐	☐	☐	67. RS Moisture sensor auger & drive
☐	☐	☐	☐	68. RS Moisture sensor fin condition & deposits
☐	☐	☐	☐	69. TOP Grain flow sensor condition & deposits
☐	☐	☐	☐	70. ALL Sensor wiring condition, connectors & routing
				GRAIN TANK/UNLOADER SYSTEMS
☐	☐	☐	☐	71. TOP Flighting on cross over, unload & inclined augers
☐	☐	☐	☐	72. TOP Grain tank, leaks
☐	☐	☐	☐	73. TOP Lower auger covers - even unloading
☐	☐	☐	☐	74. TOP Check grain tank extension corner seals

A CRITICAL – MUST REPAIR
B OPERATIONAL – SIGNS OF WEAR
C OK
S PASSED INSPECTION – SERVICE PROVIDED

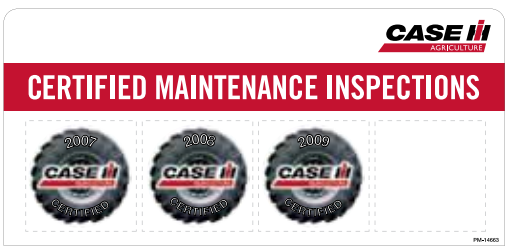
CASE AGRICULTURE

This information is only for the purpose of suggesting possible repair or treatment of equipment. Any remedy will be limited to the amount of the inspection fee. Dealer makes no expressed or implied warranties and disclaims any incidental or consequential damages.
* Adjust valve lash if Operator's Manual scheduled interval has been reached at time of inspection.

1 of 2
PM-14312
Rev 4/09

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

During harvest time, it is easy to get in a hurry and perhaps neglect some "minor" maintenance items *(see figures 13.2, 14.1 & 14.2; tables 15.1 & 16.1)*. Before long, more items may start to seem "minor," in an effort to get to the field a few minutes sooner. Then, a breakdown may be a reminder that no maintenance item is "minor." Not only will the repair be more costly than maintenance, it will be much more time-consuming. **Be sure to follow all the maintenance recommendations in your Operator's Manual, and enhance your combine productivity all season long.**

Engine Access

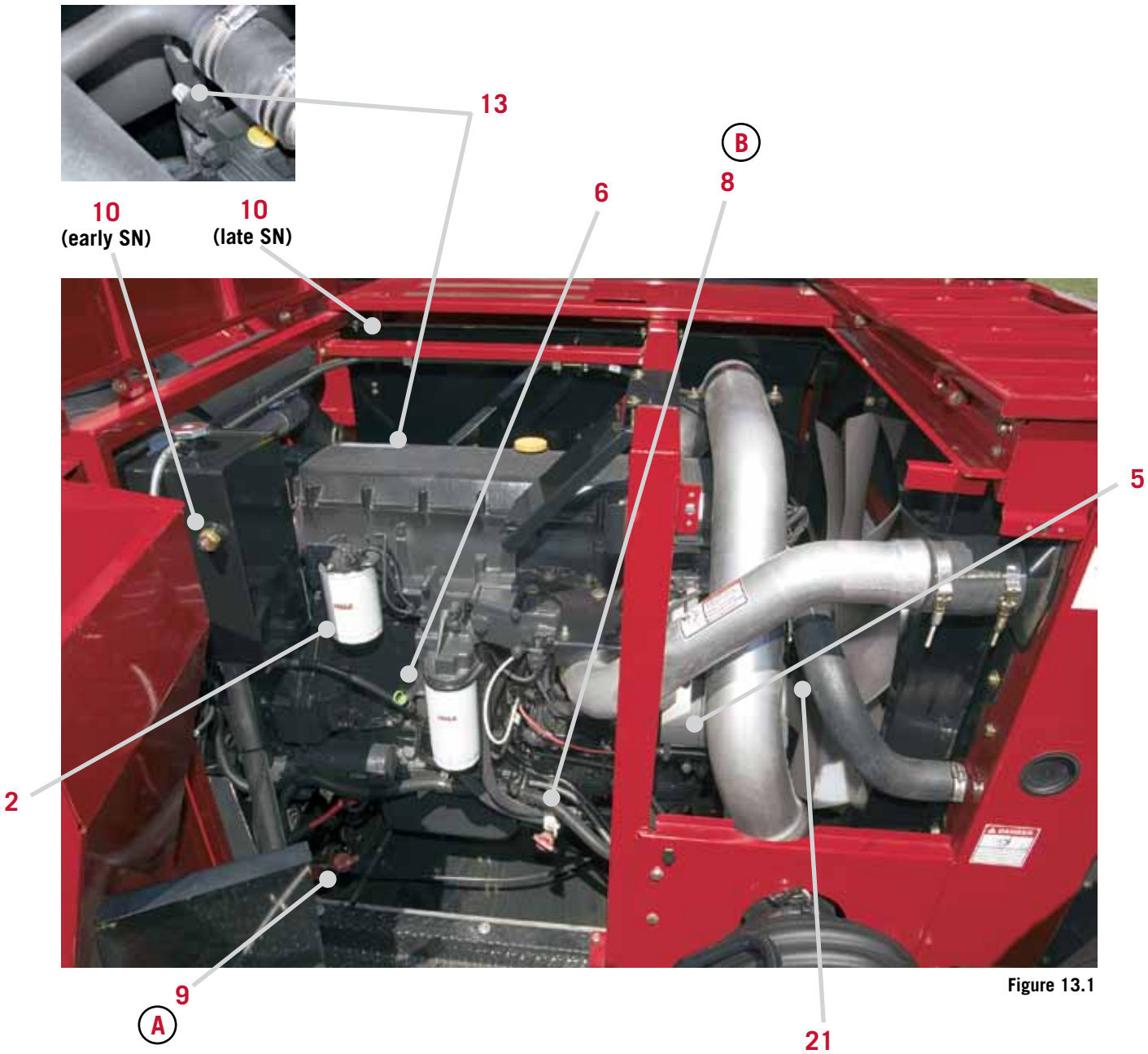


Figure 13.1

Refer to Table 15.1 & 16.1

MAINTENANCE

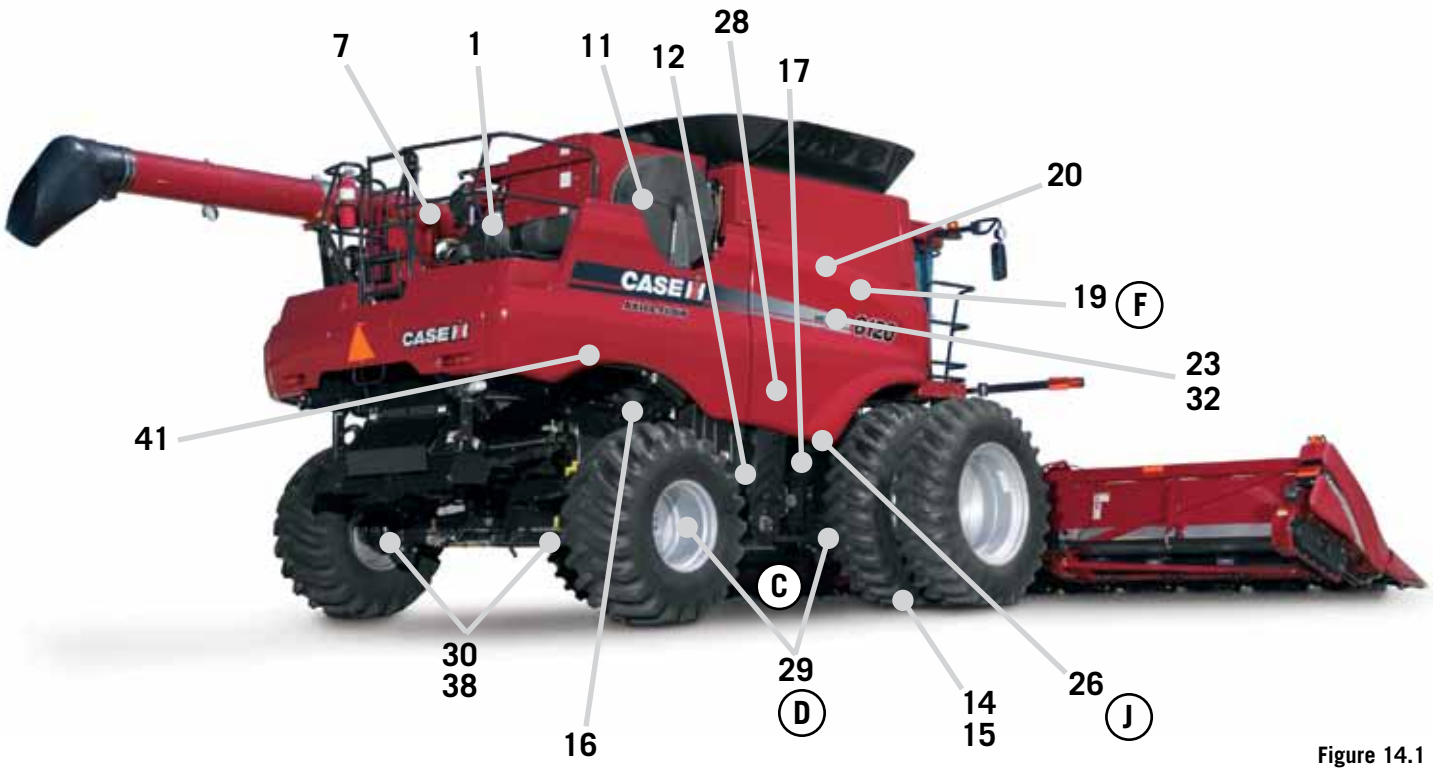
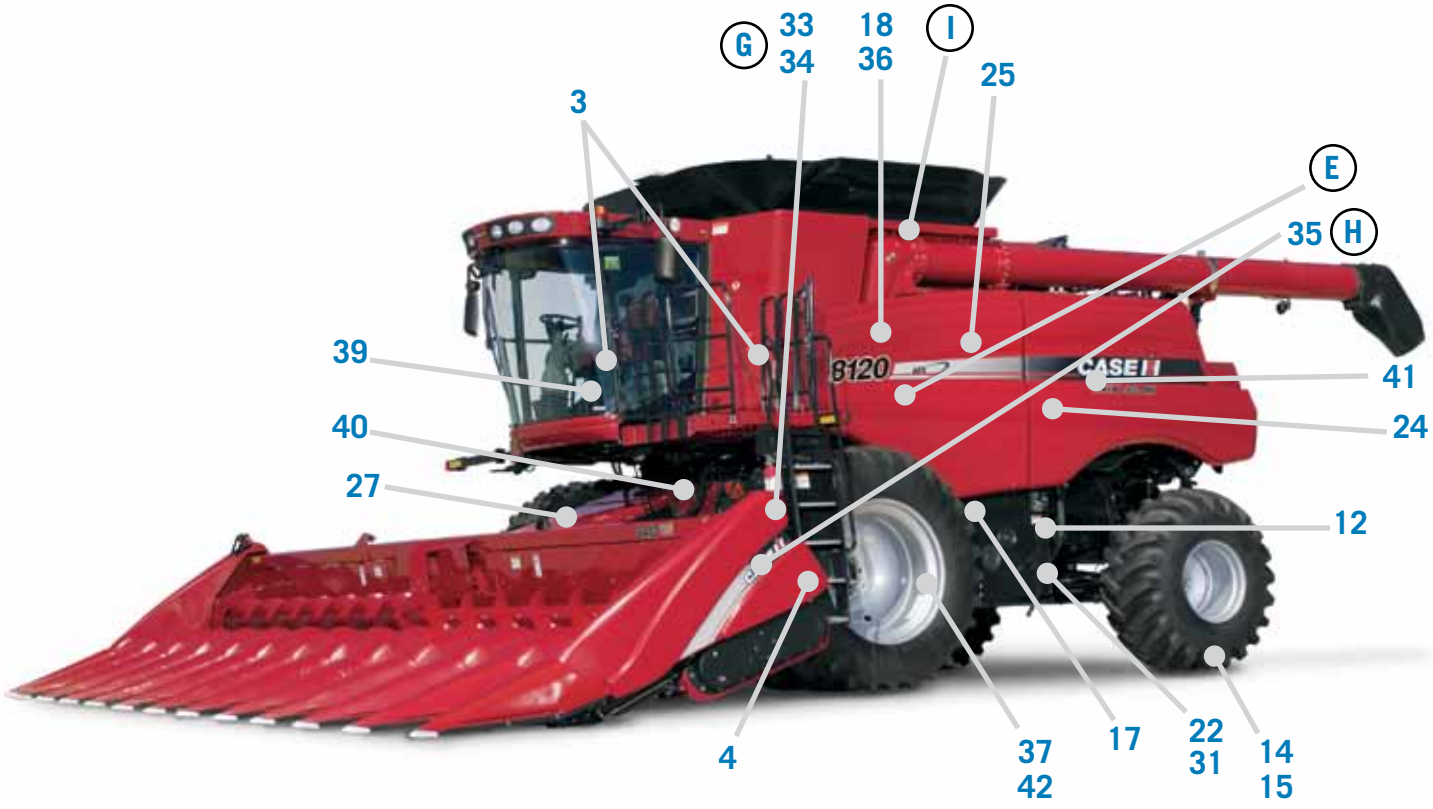


Figure 14.1



Refer to Table 15.1 & 16.1

Figure 14.2

SERVICE INTERVAL		REF	DESCRIPTION	LUBRICANT
CHECK	LUBE/CHANGE			
AR=AS REQUIRED				
AR ④	AR	1	Air Filter	
AR	600 ⑩	2	Fuel Filter, Fuel Tank Vent Filter	
AR		3	Cab Fresh Air & Re-circulation Filters	
10		4	Empty Rock Trap (if equipped)	
10		5	Alternator Screen, Remove Debris	
10	300	6	Engine Oil Level	AKCELA No.1 Engine Oil ②
10 ①	1200	7	Hydraulic Reservoir Level	AKCELA Hy-Tran ULTRA
10	600	8	Rotor Gearbox	AKCELA Hy-Tran ULTRA
10	600	9	PTO Gearbox/Hydrostatic (Power Plus)	AKCELA Hy-Tran ULTRA
10	1200	10	Coolant Level	XHD Heavy-duty Coolant/Fleetguard® Compleat™ ③
10 ⑪		11	Rotary Dust Screen/Cooling Package	
10		12	Upper Sieve Hanger Bearings (RH & LH)	AKCELA 251H EP
50	1200	13	Crankcase Breather (Sight Glass)	
50 ⑨		14	Tire Pressure	
50 ⑧		15	Wheel Nut & Bolt Torque	
50 ⑩		16	Drain Fuel System Water Separator	
	50 ⑫	17	Cleaning System Eccentric Hubs (RH & LH)	AKCELA 251H EP
50	100	18	Unloading Drive Chain	AKCELA 135H EP SAE 80W-90
50	100	19	Bubble-up Drive Chain	AKCELA 135H EP SAE 80W-90
50	100	20	Grain Elevator Drive Chain	AKCELA 135H EP SAE 80W-90
50		21	Engine Belts	
50		22	Cleaning System Drive Belt Tension	
50		23	Clean Grain System Drive Belt Tension	
50		24	Beater/Chopper Drive Belt Tension	
50		25	Unloading Auger Drive Belt Tension	
50		26	Tailings Processor Drive Belt Tension	
100		27	Feeder Conveyor Chain Tension ⑮	
100		28	Clean Grain Elevator Tension	
	100	29	Final Drive Half-Shaft Couplers	AKCELA 251H EP
	100	30	Powered Rear Axle Upper & Lower Kingpin Bushings	AKCELA 251H EP
	100 ⑬	31	Cleaning System Drive Idler Arm	AKCELA 251H EP

Figure 13.1 Engine Access Figure 14.1 Figure 14.2

Table 15.1

MAINTENANCE

SERVICE INTERVAL		REF	DESCRIPTION	LUBRICANT
CHECK	LUBE/CHANGE			
AR=AS REQUIRED				
	300	32	Grain Elevator Slip Clutch	AKCELA 251H EP
	300	33	Header Driveshaft Pillow Block (two pumps) & Shaft Splines	AKCELA 251H EP
	300	34	Header Driveshaft Upper Spline	AKCELA 251H EP
	300 ⑫	35	Header Drive Gearbox	AKCELA 251H EP
	300	36	Unloader Chain Idler Support	AKCELA 251H EP
300		37	Clean Brake Linings	
	300	38	Steering Axle Ball Joints/Wheel Spindles, etc.	AKCELA 251H EP
300 ⑭	1200	39	Brake Fluid Reservoir	DOT3 or DOT4 Fluid
	600	40	Rotor Front Bearing (five pumps)	AKCELA 251H EP
	600	41	Beater/Chopper Bearings ⑤	AKCELA 251H EP
600		42	Parking Brake Disc Clearance	

GEARBOX SERVICE

SERVICE INTERVAL		REF	DESCRIPTION	LUBRICANT
CHECK	LUBE/CHANGE			
10	600	A	PTO Gearbox & Hydrostatic (Power Plus)	AKCELA Hy-Tran ULTRA
10	600	B	Rotor Gearbox	AKCELA Hy-Tran ULTRA
50	600	C	Transmission	AKCELA 135H EP SAE 80W-90
300 ⑯	600	D	Final Drives (7120 Std. & Planetary)	AKCELA 135H Gear Lube 90
300	600	E	Unloading Drive Gearbox	AKCELA 135H EP SAE 80W-90
300	600	F	Bubble-up Gearbox	AKCELA Hy-Tran ULTRA
300	600	G	Feeder Conveyor Gearbox	AKCELA Hy-Tran ULTRA
300	600	H	Header Conveyor Gearbox	AKCELA Hy-Tran ULTRA
600	NA	I	Unloading Tube Gearbox	AKCELA 135H EP SAE 80W-90
600	NA	J	Tailings Gearbox	AKCELA Hy-Tran ULTRA

① Machine must be parked on level ground, with header lowered when checking hydraulic oil level.
② Engine oil must meet or exceed API Service category CF, CG-4, CH-4/SL. Refer to Operator's Manual for the correct viscosity for local temperature and operating conditions.
③ Use only heavy-duty, low silicate coolant. Automotive anti-freeze may not be low silicate, and should **NOT** be used. Mix ethylene glycol and clean water in 50/50 ratio for best protection.
④ The air filter should be serviced when the "Air Filter Blocked" warning is displayed. Frequently perform a visual inspection of joints, clamps and gaskets in the air induction system. Follow Operator's Manual filter service procedures to assure reliable air filtration.
⑤ Apply **ONLY** five pumps of grease.
⑥ Lubricate chains with Case IH chain and cable lube (M20832) or SAE 30 or heavier engine oil. Avoid excessive lubrication in severe dirty conditions. Lubricate chains after operation while chains are warm, allowing lubricant to freely flow into the chain joints and bushings. Do not lubricate tailings, feeder or clean grain elevator chains that run in grain.
⑦ Pump until grease comes out of rear seal.
⑧ Check daily for the first week of initial use. Re-torque front wheels to 525-580 ft lb, rear wheels to 302-363 ft lb (non-powered) or 406-450 ft lb (powered). See specific instructions in Operator's Manual for initial tightening procedure when wheels are re-mounted.
⑨ Refer to tire inflation/header size chart in Operator's Manual.
⑩ Change/service fuel filters at specified interval, or when power loss is observed.
⑪ Check the rotary screen daily, or if engine or hydraulic system heat warnings are displayed. Clean as necessary, depending on conditions.
⑫ 7010 and 8010 only.
⑬ 20 Series only.
⑭ Check brake fluid level if brake icon appears on operator display.
⑮ Check feeder chain after first 50 hours of operation, 100 hour intervals thereafter.
⑯ 8010 Only - Change after the first 100 hours, every 600 hours thereafter.

Figure 13.1 Engine Access Figure 14.1 Figure 14.2

Table 16.1

Additional Service Recommendations

Engine Air Filter

- If the filter is cleaned, use extreme care, directing low-pressure air from the inside to dislodge dirt. **DO NOT** strike the inside of the element with the air wand to avoid damage.
- **NEVER** tap or pound the element on a hard surface to dislodge dirt, as damage is likely to occur
- Check the filter element with a light inside the element after cleaning to assure the element paper and the connection of the pleats to the element end plates has not been damaged
- Remove the inner safety element only if it is to be replaced *(see figure 17.1)*

Figure 17.1

Power Plus Drive System

The PTO gearbox serves as the reservoir for the Power Plus drive hydrostatic system. The oil level should be checked daily, following a specific procedure *(see figure 17.3)*.

- The best time to perform the procedure is at the end of the day. If the oil is not warm, operate the engine at least 10 minutes to warm the oil, then with the separator and feeder engaged for 5 minutes.
- If the oil is warm, but the drives have not been operated in at least 30 minutes, operate for 5 minutes with the separator and feeder engaged
- Stop the engine, and allow the unit to set 15 minutes before checking oil level
- Use a "double-dip" method to check oil level. Pull the dipstick out, wipe clean and fully re-insert. Then remove and check oil level on the dipstick.
- Must be between minimum and maximum marks
- Use AKCELA Hy-Tran ULTRA® oil

Hydraulic System

The hydraulic system works hard propelling, lifting, turning and controlling functions on your combine.

- Use only AKCELA Hy-Tran ULTRA hydraulic transmission fluid
- When checking the oil level, make sure the combine is parked on a level area, and all cylinders are retracted
- The hydraulic oil level is checked by viewing a sight glass on the oil reservoir *(see figure 17.2)*. Add oil should the level decrease to the bottom of the sight glass. **DO NOT** fill above the top of the sight glass.
- Wipe dust and dirt from the header hydraulic hose connection block before disconnection and connection of the head to reduce dirt entry into the hydraulic system

Figure 17.2

PTO Gear Case Dipstick **Rotor Gear Case Dipstick**

Figure 17.3

MAINTENANCE

Roller Chain and Belt Tension

Drive chains and belts work hard on a combine, and proper maintenance is crucial for reliable operation.

- Insufficient tension allows chains and belts to whip during operation, placing shock loads on the chain, belt, sprockets, sheaves, shafts and bearings
- Power is not transmitted at a consistent speed, and in extreme cases can slip or jump off sprockets or sheaves
- Excessive tension places added load on the chains, belts, sprockets, sheaves, bearings, shafts and associated parts
- Make sure chains or belts are properly aligned, especially after performing repairs
- Drive chains and belts use spring tension gauges for at-a-glance tension checks, and ease of adjustment *(see figure 18.1)*
- Follow Operator's Manual instructions for the adjustment of crop carrying chains such as the feeder and clean grain elevator

Figure 18.1

Brakes

The brake fluid reservoir is located on the cab floor, to the right side of the seat. The parking brake indicator light will flash if the fluid level is low *(see figure 18.2)*.

Figure 18.2

- Check and clean brake linings if the warning light illuminates, or every 300 hours in normal use. Check brakes more frequently if used often in hilly conditions or when using the brakes for turning.

Air Intake Rotary Screen

Turn the rotary screen to assure screen sections are not damaged, out of place, or missing.

- Open the rotary screen and assure that debris is not accumulated on radiator fins, restricting airflow *(see figure 18.3)*
- Check for debris on other cooling elements, including intercooler, PTO gearbox oil cooler, hydraulic oil cooler, air conditioning condenser (8120 & 9120)
- Check cutoff plate brushes for light contact with the screen. Adjustment may be necessary as the brushes wear *(see figure 18.4)*. See the Operator's Manual for adjustment procedures, which are different between combine models.

Figure 18.3

Figure 18.4

Fuel System

The most reliable way to prevent fuel-related performance issues is the purchase only high quality, low sulphur fuel from a reputable supplier. Refer to the Operator's Manual for detailed fuel quality specifications.

- Refill with fuel at the end of the day if possible to minimize moisture condensation in the tank
- Check the pre-filter/water separator daily and drain accumulated water if necessary *(see figure 19.1)*
- Replace the pre-filter every 600 hours, or sooner if engine performance reduction is observed
- Replace the final fuel filter every 600 hours *(see figure 19.2)*

Biodiesel Fuel

The use of biodiesel fuel is on the rise. A biofuel blend, up to a maximum of 20% B20 has been approved for use in Case IH diesel engines. While biodiesel has distinct advantages such as its clean burning characteristics, users of biodiesel should be aware of some specific conditions.

- Biodiesel blends attract more moisture, and may require more frequent water separator draining
- Biodiesel should **NOT** be left in engines that are stored more that 4 months
- A lower cloud point may contribute to harder cold weather starting, making biodiesel less attractive than conventional diesel fuel for winter use
- Depending on fuel quality, more frequent filter changes may be required

In addition to low-emissions, other biodiesel advantages include:

- Biodiesel mixes well with conventional diesel fuel
- Oil change intervals are not affected with biodiesel use

As with all other fuels, purchase high quality biodiesel fuel from known reputable suppliers to assure trouble-free combine operation.

Welding on Combines

Microcomputers and solid-state electrical components have become a way of life, and today's combines are no exception. This makes it essential that special precautions be taken prior to welding **ANYWHERE** on the combine. Solid-state components have little tolerance for errant voltage. The high current flow during the welding process can damage sensitive controllers and components on the combine, with disastrous consequences.

- Disconnect **ALL** battery cables prior to welding. This includes positive **AND** negative cables. (The electrical system uses two 12 volt batteries connected in parallel. This means that both positive cables connect to the electrical system, and both negative cables connect to ground.)
- Follow Operator's Manual safety instructions for cable removal, disconnecting negative cables first, and re-connecting negative cables last

Figure 19.1

Figure 19.2

7120/8120/9120 Initial Adjustments Table

Table 20.1 includes initial threshing and separating adjustments for common crops when harvested with 20 Series Axial-Flow combines. Settings for prior 7010 and 8010 combines are included in applicable Operator's Manual, and in Combine Adjustment Slide Rules, available at your Case IH dealer.

CROP	ROTOR		ROTOR CONCAVE			PRE-SIEVE				UPPER SIEVE				LOWER SIEVE				FAN SPEED
			FRONT		REAR													
	RPM	RANGE	INDICATOR ①	TYPE	TYPE	TYPE	NOTCH	INCHES	MM	TYPE	INDICATOR	INCHES	MM	TYPE	INDICATOR	INCHES	MM	
Barley	750	2	6	LW	LSW	1 1/8	3	3/16	5	1 1/8	16	5/8	16	1 1/8	13	1/2	13	850-950
Corn-dry	350-380	1	3.6-4.6	LW	LSW	1 5/8 Corn/Closz	5	25/64	10	1 5/8 Corn/Closz	17	21/32	17	1 5/8 Corn/Closz	15	19/32	15	900-1050
Corn-Hi Moisture	370-400	1	3.6-4.6	LW	LSW	1 5/8 Corn/Closz	4	25/64	7	1 5/8 Corn/Closz	18	11/16	18	1 5/8 Corn/Closz	15	19/32	15	980-1150
Soybeans	650	2	6	LW	LSW	1 5/8 Corn/Closz	4	17/64	7	1 5/8 Corn/Closz	16	5/8	16	1 5/8 Corn/Closz	12	15/32	12	900-1000
Wheat	750-1050	3	1-2	SW	LSW	1 1/8	5	25/64	10	1 1/8	14	9/16	14	1 1/8	9	11/32	9	900-1050
Rapeseed/ Canola	600	2	6	SW	Slotted	1 1/8	2		2	1 1/8	6	15/64	6	1 1/8	6	15/64	6	600
Rice	850-1000	3	5 w/spikes	LW	LSW	1 5/8 Corn/Closz 1 1/8	4	17/64	7	1 5/8 Corn/Closz 1 1/8	15	19/32	15	1 1/8	12	15/32	12	850-950
Maize/Milo-Dry	700	2	7	LW	LSW	1 1/8	4	17/64	7	1 1/8	17	21/32	17	1 1/8	15	19/32	15	950-1000
Maize/Milo-Wet	700	2	5	LW	LSW	1 1/8	4	17/64	7	1 1/8	17	21/32	17	1 1/8	15	19/32	15	950-1000
Lentil Beans	300	1	8	LW	LSW/Slot	1 1/8	4	17/64	7	1 1/8	13	1/2	13	1 1/8	10	25/64	10	850-900
Pinto/ Edible Beans	300	1	8	LW	LSW/Slot	1 1/8	4	17/64	7	1 1/8	13	1/2	13	1 1/8	10	25/64	10	950
Rye	850	3	6	LW	LSW	1 1/8	4	17/64	7	1 1/8	12	15/32	12	1 1/8	10	25/64	10	900
Oats	750	2	8	LW	LSW	1 1/8	4	17/64	7	1 1/8	15	19/32	15	1 1/8	10	25/64	10	850-900
Popcorn	350-400	1	5	LW	LSW	1 1/8	3	3/16	5	1 1/8	12	15/32	12	1 1/8	10	25/64	10	900
Rye Grass	680	2	3	SW	LSW	1 1/8	4	17/64	7	1 1/8	12	15/32	12	1 1/8	6	15/64	6	400
Bent Grass	950	3	0	SW	LSW	1 1/8	4	17/64	7	1 1/8	10	25/64	10	1 1/8	6	15/64	6	420
Blue Grass	530	2	2	SW	LSW	1 1/8	4	17/64	7	1 1/8	6	15/64	6	1 1/8	6	15/64	6	450
Brome Grass	500	2	5	SW	LSW	1 1/8	4	17/64	7	1 1/8	17	21/32	17	1 1/8	8	5/16	8	620
Crested Wheat	700	2	3	SW	LSW	1 1/8	4	17/64	7	1 1/8	10	25/64	10	1 1/8	5	3/16	5	480
White Clover	950-980	3	0	SW	Slotted	1 1/8	4	17/64	7	1 1/8	11	7/16	11	1 1/8	2	5/64	2	480
Sunflower	300	1	9	Slotted	Slot/Solid	1 1/8	4	17/64	7	1 1/8	17	21/32	17	1 1/8	15	19/32	15	800
Alfalfa	600-650	2	1	SW	Slotted	1 1/8	0	0	0	1 1/8	4	5/32	4	1 1/8	0	0	0	480
Flax	800-900	3	1	SW	Slotted	1 1/8	0	0	0	1 1/8	4	5/32	4	1 1/8	6	25/64	6	600
Mustard	300	1	6	SW	Slotted	1 1/8	0	0	0	1 1/8	11	7/16	11	1 1/8	0	0	0	780
Pea-Black Eye	300	1	8	LW/ LSW	LSW/Slot	1 1/8	5	25/64	10	1 1/8	12	15/32	12	1 1/8	10	25/64	10	880
Wild Rice	500	2	5	SW	LSW	1 1/8	4	17/64	7	1 1/8	10	25/64	10	1 1/8	8	5/16	8	850
Safflower	380	1	8	LW	LSW	1 1/8	4	17/64	7	1 1/8	12	15/32	12	1 1/8	10	25/64	10	800

NOTES: Multiple sieve listings indicates suitable performance with either type. Choose based upon your crop mix.
1 1/8 Petersen top sieves can be used for grasses, various small seeds or for harvesting hybrid seed which requires an exceptionally clean sample
2.5 mm round hole bottom sieves can be used for specialty crops such as alfalfa
0 mm round hole bottom sieves can be used for milo/maize/sorghum and some small beans
16 mm round hole bottom sieves can be used for soybeans, milo, popcorn and other similar sized seeds
18 mm round hole bottom sieves can be used for large beans and some commercial corn
① Concave Position Indicator is displayed in millimeters. Multiply by five to get approximate inch setting for 20 Series.

Rotor Ranges:
1=220-450 rpm
2=420-780 rpm
3=730-1180 rpm
LW=Large Wire
LSW=Large Skip Wire
SW=Small Wire

Table 20.1

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.

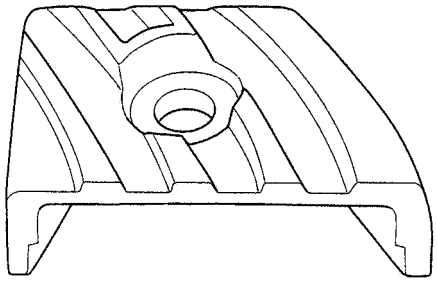


Figure 21.1

Non-spiked rasp bars are the primary threshing element *(see figure 21.1)*. In addition to providing threshing action, they also provide positive crop movement through the rotor cage.

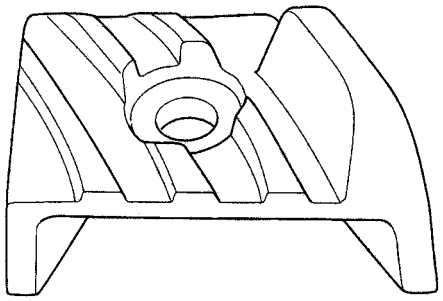


Figure 21.2

Spiked rasp bars are primary material movers *(see figure 21.2)*. 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

Standard rotor has non-spiked rasp bars in the front, and eight spiked rasp bars in the rear separator area *(see figure 21.3)*.

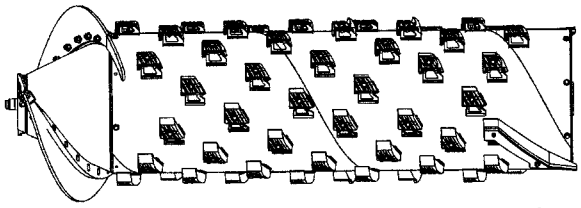


Figure 21.3

Straight separator bars are used as a primary separating element. Tend to thin out the crop mat to allow improved separation *(see figure 21.4)*.

- 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

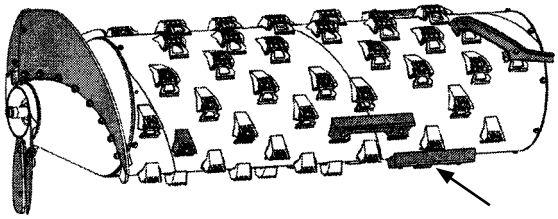


Figure 21.4

Helical kicker bars are used as a primary crop moving element *(see figure 21.5)*

- 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

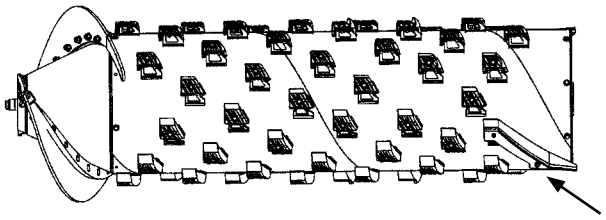


Figure 21.5

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 22.1)*
- Left-hand modules measure 21 ¾", and are marked with an "L" at point 1
- Right-hand modules measure 22 ½", 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.

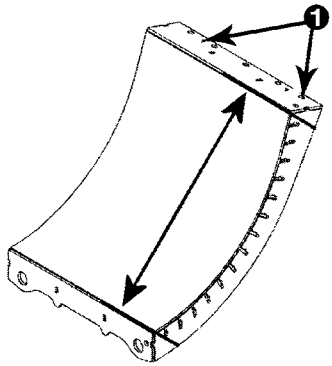


Figure 22.1

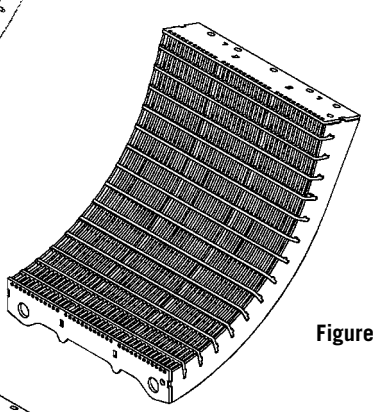


Figure 22.2

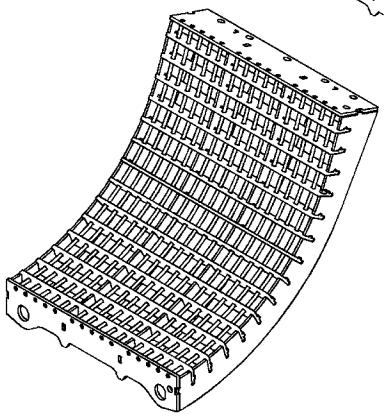


Figure 22.3

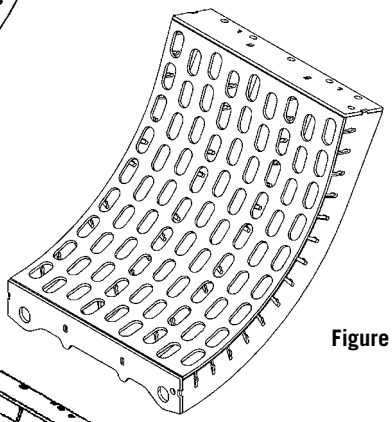


Figure 22.4

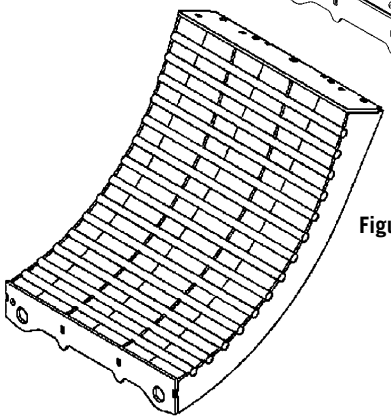


Figure 22.5

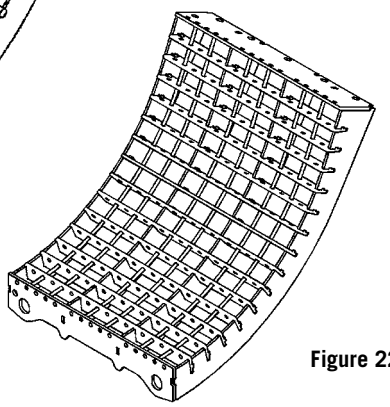


Figure 22.6

Module Types

Small Wire *(see figure 22.2)*

- $^{3}/_{16}$" wire spaced $^{3}/_{16}$" apart
- Used for small grain crops

Large Wire *(see figure 22.3)*

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

Slotted *(see figure 22.4)*

- Has slots approximately 1" X 1 ½" instead of wires
- Used mainly for edible beans and sunflowers

Round Bar *(see figure 22.5)*

- 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

Large Skip Wire *(see figure 22.6)*

- 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

Rotor Modules (cont.)

Solid Module *(see figure 23.1)*

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

A "Hard Thresh" concave is available for very hard threshing wheat, commonly found in the Northern Plains or Canada *(see figure 23.2)*. 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

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.

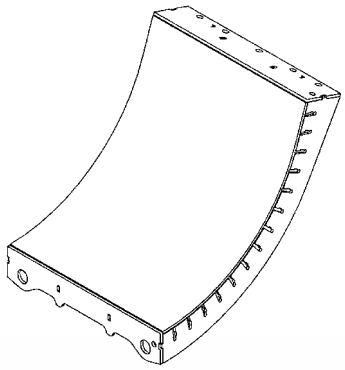


Figure 23.1

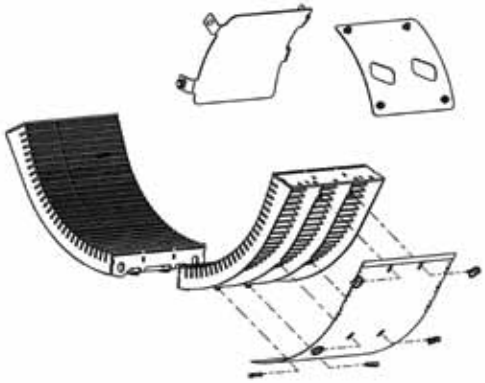


Figure 23.2

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 24.1)*.

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.

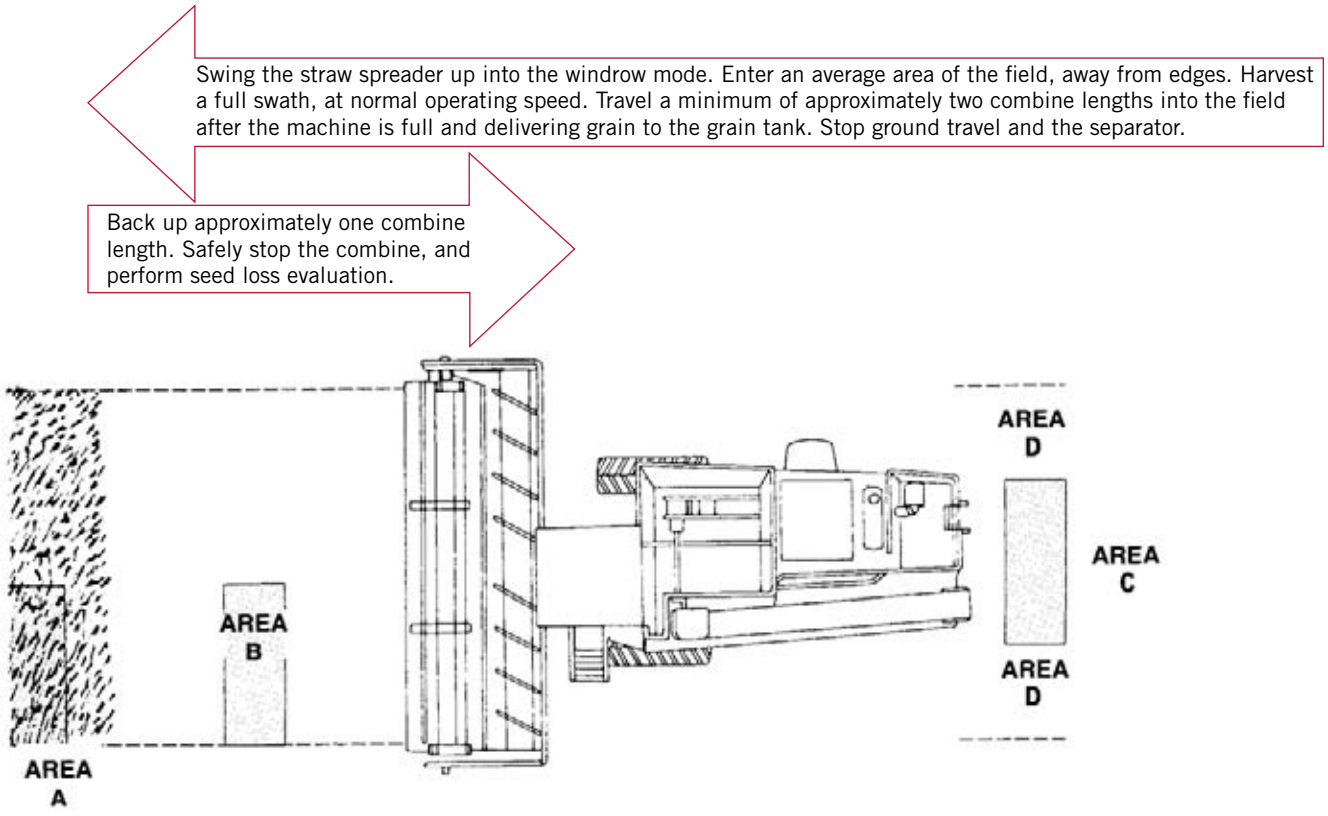


Figure 24.1

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 25.1)*
- 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

Figure 25.1

COMBINE ADJUSTMENTS

Threshing and Separating Troubleshooting

Complete combine troubleshooting tables are included in the Operator's Manual. Troubleshooting issues associated specifically with threshing and separating are included here for reference relative to the previous information. Identify the applicable Issue or Concern based on symptoms, then refer to the Possible Cause and Corrective action most likely to resolve the situation *(see tables 26.1 & 27.1).*

PROBLEM	PROBABLE CAUSE	CORRECTION
Material back fed by the feeder chain	1. Feeder chain misadjusted 2. Rotor lugs worn, too far from feeder 3. Rotor speed slow	1. Adjust feeder chain 2. Replace rotor lugs 3. Increase rotor speed
Grain not properly threshed from heads	1. Rotor speed too slow 2. Clearance between rotor and concave too wide 3. Not enough material entering combine for proper threshing 4. Crop not ripe 5. Difficult threshing crop 6. Rasp bars or concave damaged, bent or worn excessively 7. Losing rpm because of sluggish or malfunctioning engine governor	1. Increase rotor speed 2. Reduce concave clearance 3. Lower head and/or increase ground speed 4. Wait until crop is ready for harvest 5. Re-install concave wires if removed. Move cage vanes to slower position. 6. Inspect all rasp bars and concave for excessive wear or damage 7. Check or change fuel filters • Have engine performance evaluated by dealer technician
Rotor blockage	1. Rotor speed too slow 2. Irregular feeding 3. Crop too wet or not ripe 4. Beater/chopper drive belt slipping	1. Increase rotor speed 2. Adjust head and feeder for optimum feeding 3. Wait until crop is ready for harvest 4. Check belt tension and tighten, if necessary
Excessive cracked grain in tank	1. Clearance between rotor and concave too small 2. Rotor speed too high 3. Not enough material entering combine 4. Excessive tailings 5. Concave clogged 6. Grain being cracked in elevator 7. Uneven feeding, wads entering rotor	1. Increase concave clearance 2. Reduce rotor speed and/or open concaves slightly 3. Lower head and/or increase ground speed 4. See "Excessive tailings" section 5. Clean concave 6. Adjust grain elevator chain tension 7. Adjust feeder chain. Check feed auger height and retractable finger adjustment.
Grain loss over rotor	1. Rotor speed too slow. Crop bunching in rotor. 2. Incomplete threshing 3. Concave blocked allowing excessive grain to be passed to separator sections of the rotor 4. Crop too wet, contains excessive green material	1. Increase rotor speed 2. Decrease concave clearance 3. Clean concave and separator grates thoroughly 4. Wait until crop is ready for harvest

Figure 26.1

COMBINE ADJUSTMENTS

PROBLEM	PROBABLE CAUSE	CORRECTION
Grain is not properly cleaned	1. Insufficient air flow from cleaning fan	1. Increase fan speed to the point grain is being cleaned properly, but not blown over the rear of the sieves
	2. Rotor speed too high, and/or insufficient concave clearance, resulting in broken crop debris (trash) overloading the sieves	2. Re-adjust rotor speed and concave clearance so threshing is complete without excess trash
	3. Pre-sieve and/or top sieve opened too wide, allowing excessive trash to fall onto bottom sieve	3. Close top sieve so that only the clean gain falls onto the bottom sieve and most of the trash is discharged from the machine from the rear of the top sieve. Grain will also be thrown over with trash if the sieve is closed too far.
	4. Incorrect concave or grate module type for crop or condition	4. Change to more suitable module(s)
	5. Bottom sieve opening too wide, allowing trash to enter clean grain	5. Reduce bottom sieve opening
	6. Bottom sieve overloaded or blocked	6. Clean sieves if necessary
Grain loss over the sieves	1. Too much air flow from the cleaning fan	1. Reduce air flow with variable speed fan control
	2. Concave too tight	2. Lower concave
	3. Rotor speed too high	3. Decrease rotor speed
	4. Top sieve not opened wide enough or blocked	4. Open the top sieve so that all clean grain moves to the bottom sieve
	5. Bottom sieve not opened wide enough or blocked, causing excessive grain to enter tailings and be re-threshed	5. Open the bottom sieve and clean sieve if blocked
	6. Cleaning shoe drive belt slipping	6. Adjust cleaning shoe belt tension
	7. Cleaning shoe not level	7. Re-calibrate self-leveling shoe. Check electric control. Contact Case IH dealer for assistance.
	8. Incorrect concave or grate module, especially in #1 or #2 positions	8. Change to more suitable module(s) for crop being harvested
Excessive tailings	1. Insufficient air flow from cleaning fan (excessive material falling through top sieve)	1. Increase air flow with variable speed fan control
	2. Bottom sieve closed too much, or blocked	2. Open bottom sieve slightly and clean thoroughly if blocked
	3. Over threshing	3. Increase rotor speed and/or decrease concave clearance to prevent straw from being broken excessively
	4. Incomplete tailings processing of unthreshed crop	4. Install special tailings auger doors
	5. Excessive air flow from cleaning fan (grain blown from bottom sieve into tailings)	5. Reduce air flow with variable speed fan control
	6. Cleaning shoe drive belt slipping	6. Check cleaning shoe drive belt tension
Sieves overloaded	1. Insufficient air flow from cleaning fan	1. Increase fan speed
	2. Over threshing	2. Increase rotor speed and/or decrease concave clearance to reduce amount of short straw on top sieve
	3. Top sieve open too wide, or blocked	3. Close sieve slightly and clean thoroughly, if blocked
	4. Cleaning shoe drive belt slipping	4. Check all drive belts and adjust tension as required
	5. Incorrect concave or grate module type, allowing excess separation	5. Change to more suitable module(s) for crop being harvested

Figure 27.1

COMBINE ADJUSTMENTS

Residue Management

Larger combines, bigger headers and higher yielding crops mean a high volume of material is flowing from the back of your combine. The need to distribute residue evenly is crucial. Uneven soil drying and warming, and excess residue cover can restrict the emergence of the next crop *(see figure 28.1)*.

The straw chopper can be operated in two speeds to achieve the desired level of residue size reduction.

- High speed for fine residue chopping
- Low speed for windrowing and corn
- If operated in the same speed range, shift to the opposite range and operate at low speed, no load for 10 minutes every 50 hours to prolong bearing life

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 28.2)*
- 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

The residue management (spreader) can be operated in three different modes:

- Standard—spreads chaff and straw
- Windrow straw, spread chaff
- Windrow straw and chaff

See the Operator's Manual for the configuration of the spreader, straw deflector door and chaff pan for each of the operating modes.

- A hydraulic control valve is used to vary the spreader speed to match header width and residue volume for the best spreading performance
- Deflectors and spreader fingers can be adjusted to vary distribution pattern

Figure 28.1

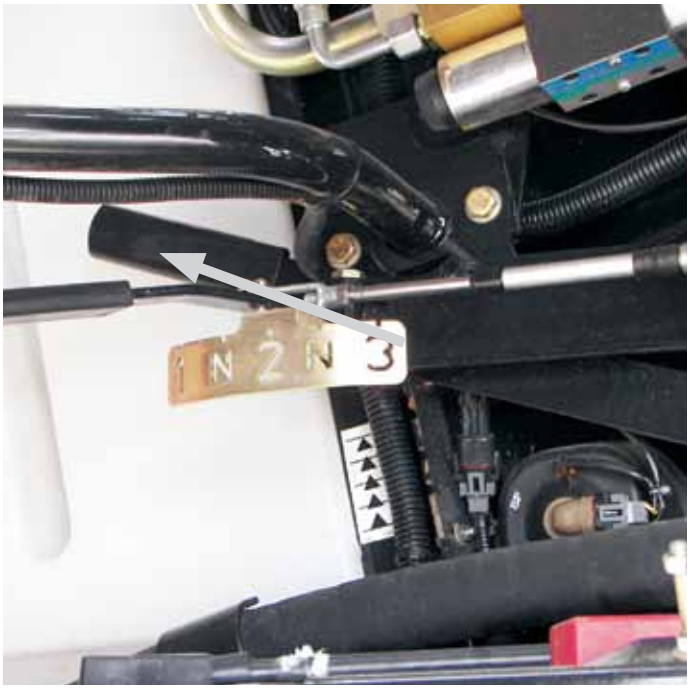


Figure 28.2

ADVANCED FARMING SYSTEMS (AFS)

AFS

The power of information that you gather with the Pro 600 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 29.1)*.

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.

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 29.2)*.

- 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

Figure 29.1

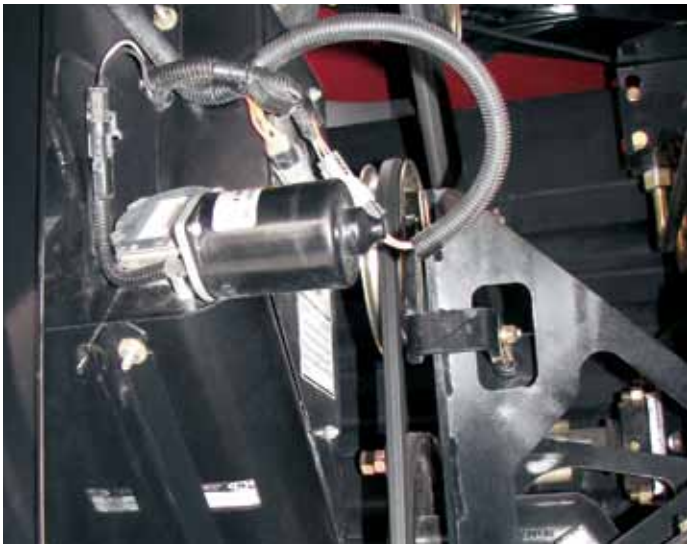


Figure 29.2

Figure 29.3

ADVANCED FARMING SYSTEMS (AFS)

Grain Moisture and Weight Sensors (cont.)

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 *(see figure 29.3)*.

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 this 30-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 30.1)*. 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.

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 figure 30.2)*.

Figure 30.1

CROP TYPE:				DATE:		
COMBINE:				OPERATOR		
FIELD	LOAD	FLOW BU./HR.	ESTIMATED WEIGHT	ACTUAL WEIGHT	% ERROR	INCLUDE? (Y/N)
1	Cal 1 Hi					
2	Cal 2 Hi					
3	Cal 1 Med					
4	Cal 2 Med					
5	Cal 1 Lo					
6	Cal 2 Lo					
7						

Figure 30.2

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

New Case IH 20 Series Combines are equipped with the AFS Pro 600 display with software version 21 *(see figure 31.1)*.

- The AFS Yield Monitor is viewed in the Display Area of the Pro 600 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

Three different crop calibration methods can be selected *(see figure 31.2 & 31.3)*.

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

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

- First display calibration load identification input screens in order (Grower, Farm, Field, Crop, Task; *see figure 32.1*)
- Task is equivalent to "Load" in prior systems. New task is assigned by system when "Stop" is pressed after harvesting previous load.

Figure 31.1

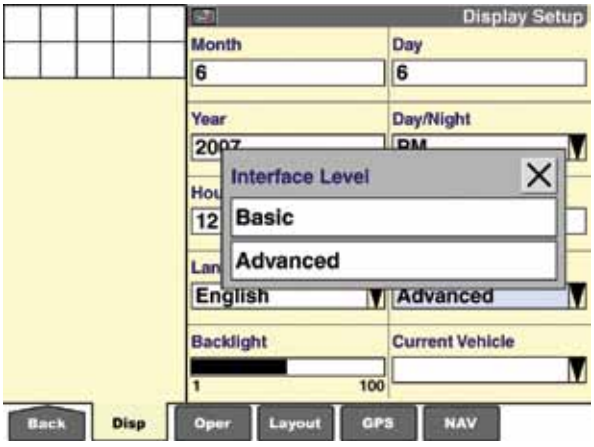


Figure 31.2

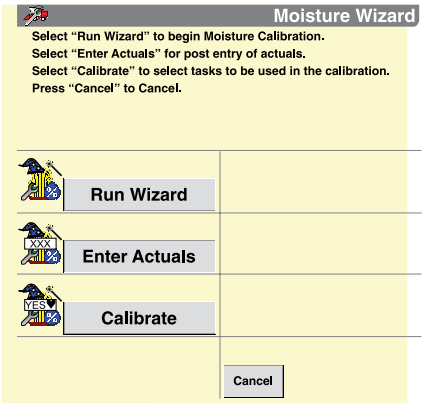


Figure 31.3

ADVANCED FARMING SYSTEMS (AFS)

- On-screen instructions for harvesting, handling and measuring the necessary calibration loads *(see figure 32.2)*
- Intuitive screens allow operators to input actual crop moisture and weight values *(see figure 32.3)*
- Clearly displays options for saving and applying new calibration data

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 32.4)*

Moisture and weight calibration

- 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.

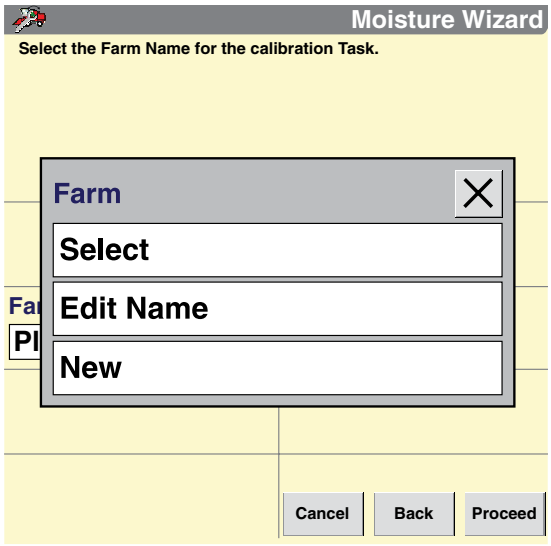


Figure 32.1

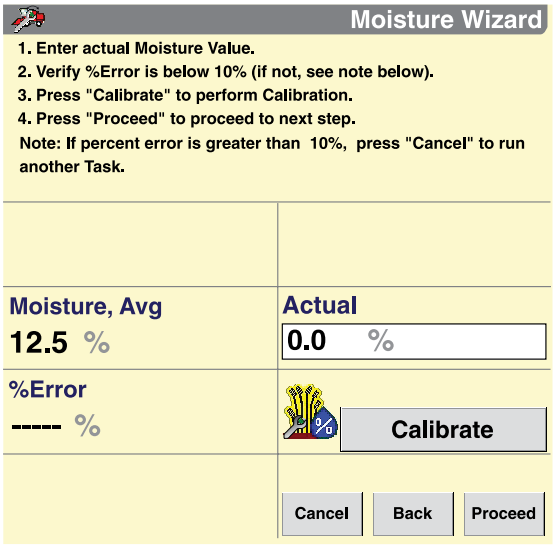


Figure 32.3

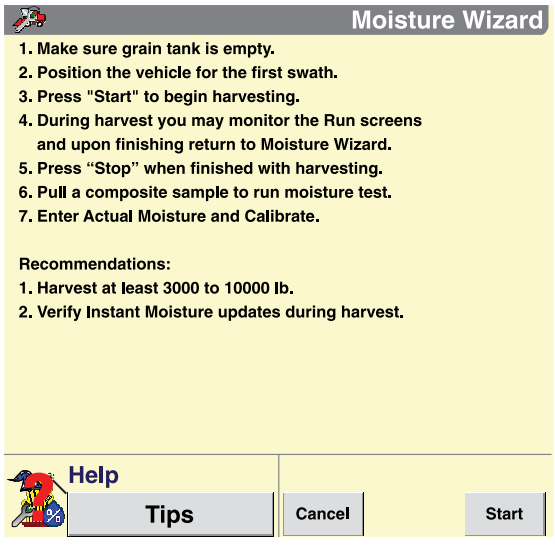


Figure 32.2

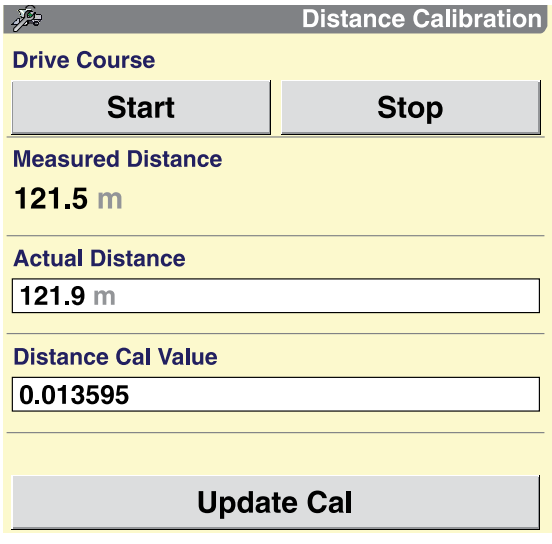


Figure 32.4

- Actual moisture values entered, percent error relative to sensed moisture calculated for each load *(see figure 33.1)*
- Operator can select up to 10 tasks (loads) to apply to calibration *(see figure 33.2)*
- Moisture calibration must be performed before Weight calibration

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 33.3)*
- Press "Start" and follow on-screen instructions *(see figure 33.4)*
- Actual weight entered, percent error relative to sensed weight calculated for each load *(see figure 33.1*)*
- Operator can choose to apply Actual values immediately, or at a later time *(see figure 33.5)*
- Operator can select up to 10 tasks (loads) to apply to calibration *(see figure 33.2*)*

An understanding of these basics is essential in achieving accurate AFS data records. The AFS Pro 600 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 33.1 and 33.2.*

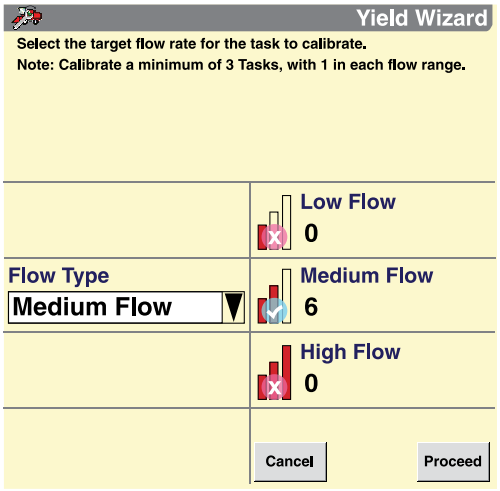


Figure 33.3

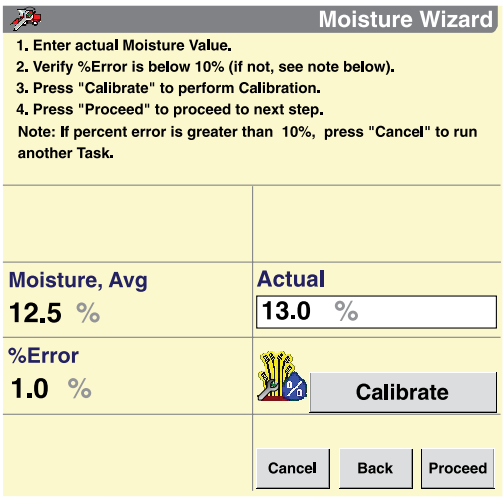


Figure 33.1

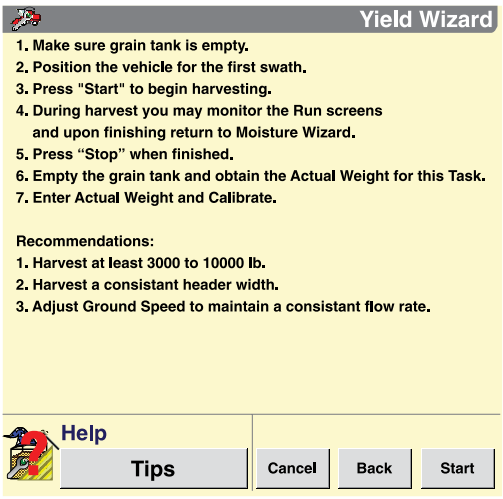


Figure 33.4

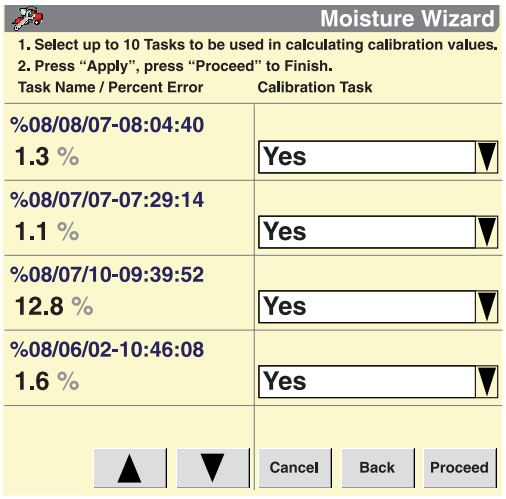


Figure 33.2

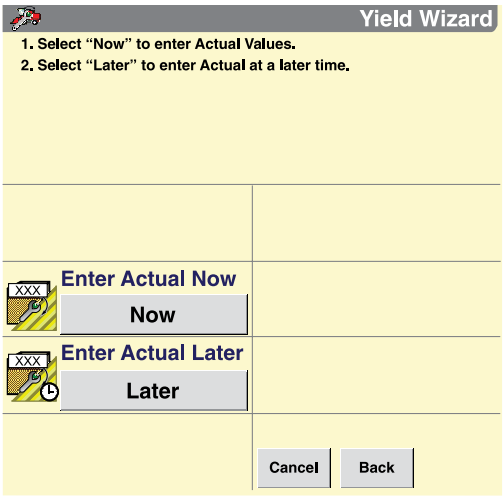


Figure 33.5

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

Combine Storage (cont.)

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.

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Safety Never Hurts!™ Always read the Operator's Manual before operating any equipment. Inspect equipment before using it, and be sure it is operating properly. Follow the product safety signs, and use any safety features provided.

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