

S-Series Combine and Front End Equipment Optimization

“Ready To Harvest” for Barley



John Deere Harvester Works

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Preface

The content of this material is intended to help you know how to choose the best configuration and set up an S-Series combine and platform, for any Barley crop and condition before going to the field.

Small Grain combine and field installed bundles are explained for attachments, to enhance performance and Grain Quality in specific Barley conditions.

Setup and Adjustment recommendations are intended as a starting point before harvest season. Additional adjustments and fine tuning will be necessary depending on crop moisture and harvest conditions.

Crop setting checklists and Grain Quality Tips are a quick reference for configurations and operating speeds to help optimize grain quality.

The following bundles are needed to mate older heads with newer combines and newer heads with older combines.

Hydraulic Valve Orifice Kits

See you John Deere Dealer and reference:

DTAC Solution Number: 103357 Single Point Multicoupler

Updates/ MY16 Compatibility: All Combines and Front End Equipment

9100 Enhanced Combine Single Point Latching

Required for use on Harvester Works [sourced S680 and S690 Combines prior to Model Year 2016 \(Up to PIN 785000\) and Zweibrucken sourced Model Year 2015 S680 and S690 Combines.](#)

Please refer to Ag Sales Manual for other compatibility information.

9101 Enhanced Combine Single Point Latching

Required for use on Harvester Works sourced [Model Year 2014 and 2015 S650, S660 and S670 Combines \(Up to PIN 765000 - 775999\) and Zweibrucken sourced Model Year 2016 S660 and S670 Combines.](#) All Model Year 2014 and 2015 T Series Combines.

9102 Enhanced Combine Single Point Latching

Required for use on [Model Year 2012 and 2013 \(PIN 745100 - 755999\) S550, S650, S660, S670 and T Series Combines and all Combines prior to Model Year 2012 \(PIN -740999\) with Single Point Latching system.](#)

The following bundles are needed to mate older heads with newer combines.

Hydraulic Valve Orifice Kits

See you John Deere Dealer and reference:

DTAC Solution Number: 103357 Single Point Multicoupler

Updates/ MY16 Compatibility: All Combines and Front End Equipment

9311 Enhanced Front End Equipment Single Point Latching

Required for use on 600F, 600R, 600D and 615P Platforms prior to Model Year 2016 (up to PIN 785000 Harvester/US built) and 900 Series Platforms with Single Point Latching System

9312 Enhanced Front End Equipment Single Point Latching

Required for use on 600C Corn Heads prior to Model Year 2016 (up to PIN 785000 Harvester/US built) and 90 Series Platforms with Single Point Latching System

9314 Enhanced Front End Equipment Single Point Latching

Required for use on 600FD prior to Model Year 2016 (up to PIN 785000 Harvester/US built)

Draper Inspection and Adjustments

The following adjustments are critical to insure that the Draper performs to its optimum:

- Sickle Sections
- Knife Guards
- Dual Knife Timing
- Reel Finger Timing

For Optimal performance and durability of cutting components:

Fine Tooth Sections recommended for Barley harvest!

- Inspect for broken or improperly adjusted hold downs, repair or replace as required.
- Inspect for dull or broken knife sections repair or replace as required.
- Inspect for dull or worn or broken guard cutting edges, repair or replace as required.

- Inspect for excessive binding between top of knife sections and top of guard slot. Binding can be caused by bent guards, bent cutter bar or improper position of guards, repair or replace as required.
- Inspect knife head and knife drive alignment with first guard slot to insure binding is not present in areas. Repair or replace as required.
- Verify that complete cutting system turns freely by rotating the drive by hand (drive shaft removed). Keep hands and fingers away from cutting components while rotating!

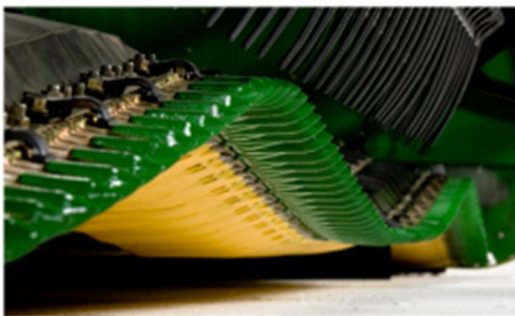
Dual Knife Drive Timing – To reduce header vibration and maximize cutter bar effectiveness make sure dual knife drive is timed so the knives cross over themselves in the center of the head.

Reel Finger Timing – Proper setting of minimum reel height will protect against

unexpected reel movements that can place reel fingers in contact with cutterbar.

Set reel fingers above the cutter bar 65mm(625D-635D) and 40mm(640D). See Draper OM for proper reel height and reel leveling.

Automatic Header Height Sensing – Needs to be calibrated before harvest begins to ensure a good clean cut.



Draper Back shaft Speed Feederhouse

- Operate the draper at the recommended speed 510RPM.
- The back shaft speed will default to slowest speed as soon as multi-coupler is connected and header is recognized. This is for both variable and 5-speed.
- **DO NOT ATTEMPT TO OVERSPEED THE BACKSHAFT AS DAMAGE MAY OCCUR TO HEADER DRIVES.**



Combine Setup and Inspection

Feederhouse Drum Height and Chain Speed

- Front Drum position - Handle Down for Barley
- Conveyor chain speed - slow 26T or 32T for Tough Barley.



Feed Accelerator Speed High speed



Concaves

Small Wire is the recommended concave in all three positions for grain harvesting since its overall performance is very good in all moisture conditions. Refer to your Operators Manual for how to Level Concaves (front to rear) and calibrated to "Zero" on clearance to the threshing elements.



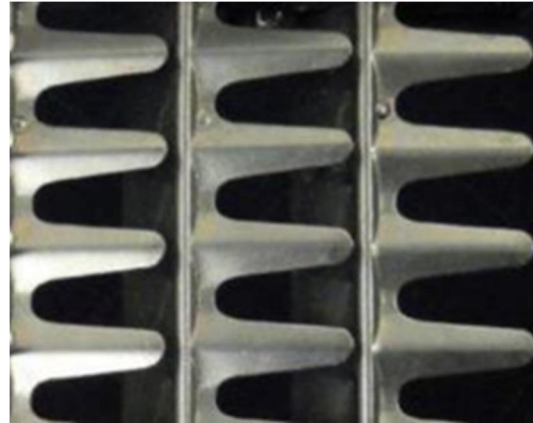
Separator Grates

Be sure separator grate spacers are on top of rail for Barley. This will raise the grates and keep crop material flowing through the separator. Grate covers are installed 3 on the right and 2 on the left from the factory as base in the small grain machines.



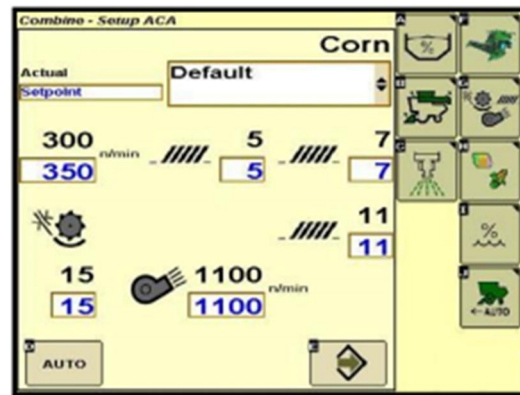
Cleaning Shoe

General Purpose chaffer (AXE60614) and general purpose sieve (AXE60449) should be used.

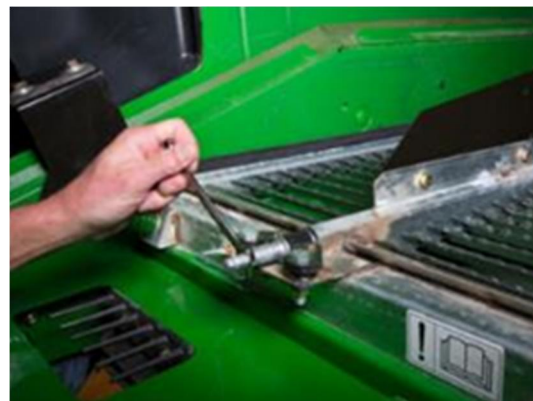


Be sure chaffer and sieve are calibrated so the opening exactly matches the cab display setting.

If openings do not match, follow the Factory Cal procedures.



Dual Zone adjust should measure 5mm in level land conditions and 10mm in hills.



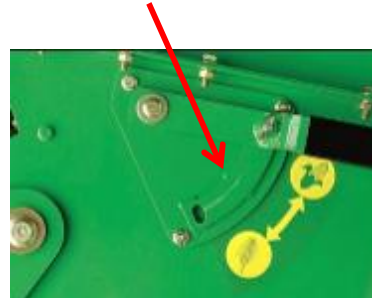
Active Tailings System (S680, S690)

Set the lever DOWN to the closed position to tighten the concave for Barley.



Cob Deflector

Move the cob Deflector handle to the Barley position.

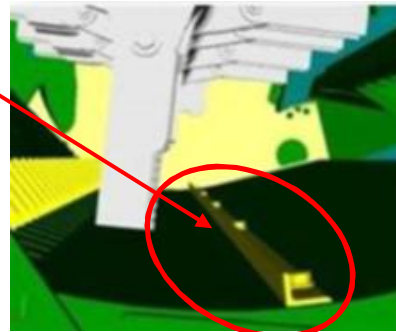


Chopper speed on high (pull knob out). Also engage knife bank depending on preferred residue size.

Additional Smaller Residue Sizing Option

Adding the straw chopper controller bar (available through ServiceParts) reduces the stem cut length when desired. The controller bar is installed to the chopper floor. Smaller sizing of the residue, for No Till residue.

Risk: Controller bar increases horsepower.



Barley Adjustment Checklist

1. Feederhouse Chain Speed – 26T or 32T sprocket (Tough Barley)
2. Feederhouse Drum Down
3. Feed Accelerator on High Speed
4. Serrated Feed Accelerator Wear Strips are recommended.
5. Backshaft Speed - 510RPM / 1st Gear 5 Speed
6. Cleaning Fan speed - 850-1100 RPM
10. Rotor Speed – 700
11. Concave Clearance – 20
12. General Purpose Chaffer - Front 13-18
If Adj. Front Chaffer is installed then open chaffer to 24
13. Dual Zone Chaffer manual adjust - 5mm LL/10mm Hills
14. General Purpose Sieve – 6-9
15. Install separator covers as needed to even out shoe load.
16. Top Cover vanes in the standard position unless straw is being bailed then advance them (Variable Stream rotor only).

Grain Tank Cleanliness for Barley

- Problem
 - *White Caps/Unthreshed grain*
- Solution
 - Ensure concaves are level and zeroed.
 - Make sure Active Tailings is set on the Small Grain side (tightest concave setting)
 - Tighten concaves in 2mm increments till unthreshed issues are resolved or grain damage occurs then back off 2mm.
 - Add concave covers to the first concave to increase threshing
 - Increase threshing speed in 50rpm increments
- Problem
 - *Sticks and stalk pieces in grain tank*
- Solution
 - Increase fan in 20RPM increments without throwing grain out the back.
 - Tighten sieve opening by 2mm to help remove sticks and pieces.

Harvesting Malt Barley

Maltsters will pay premiums for malting barley that has been harvested in good stored properly. Bright barley with good germination, sound kernels and intact required for malting and brewing.

Configuration changes for Malting Barley that focus on grain quality are:

1. Large Wire concaves in position 2 and 3
2. Sieve openings further open than initial
3. FAST set to slow speed
4. Feederhouse speed can be reduced to 22 tooth
5. Active Tailings opening can be set to “Corn”

6. Harvest barley when the grain moisture content is lower than 18% only with adequate drying capabilities.
7. Regular checks should be made for skinned and broken kernels
8. High threshing speeds are mainly responsible for skinned and broken barley kernels. Slower speeds, concaves can be adjusted close enough to thresh the grain without excessive skinned and broken kernels.
9. The fan should be high enough to “float out” most chaff but low enough to permit the grain to fall through. Many machines use more wind for barley than other small grains.
10. Shoe elements and air should be adjusted for minimum material other than grain in the return.

Notes
