Practical Farmers Clinic

Legacy and Flagship combine settings for small Grains

Legacy	Mid Range	Flagship
1420/1440/1460/1480	5088/6088/7088	7010/8010
1620/1640/1660/1680	5130/6130/7130	7120/8120/9120
1666/1688	5140/6140/7140	7230/8230/9230
2144/2166/2188		7240/8240/9240
2344/2366/2388		

CASE IH AGRICULTURE

10 Hour (Daily) Maintenance Checks

Checks and lubrication best performed on shutdown, along with combine cleaning:

1. Check all drive chain and belt tension
2. Check the feeder chain
3. Empty the rock trap
4. Re-lubricate feeder reverse chain
5. Check for debris accumulation and restricted air flows in the radiator and cooling elements
6. Inspect the rotary screen for damaged or missing screen segments
7. Grease the rotor drive cam drive bearings
8. Grease rotor driven pulley
9. Grease the tailings delivery auger bearings
10. Grease chaffer hangers (both sides)
11. Grease unloading tube pivot
12. Re-lubricate unloader drive and auger chains
13. Re-lubricate tailings elevator drive chain
14. Re-lubricate grain elevator drive chain
15. Confirm adequate tire inflation

Additional checks are recommended to be performed prior to starting, when the engine is cooled to ambient temperature.

16. Check the engine oil level
17. Check air filter restriction indicator
18. Clean alternator screen
19. Check coolant recovery tank level sight glass
20. Check hydraulic reservoir level sight glass
21. Drain water from the primary fuel filter water separator
22. Confirm audible alarms and indicator lamps function properly on startup

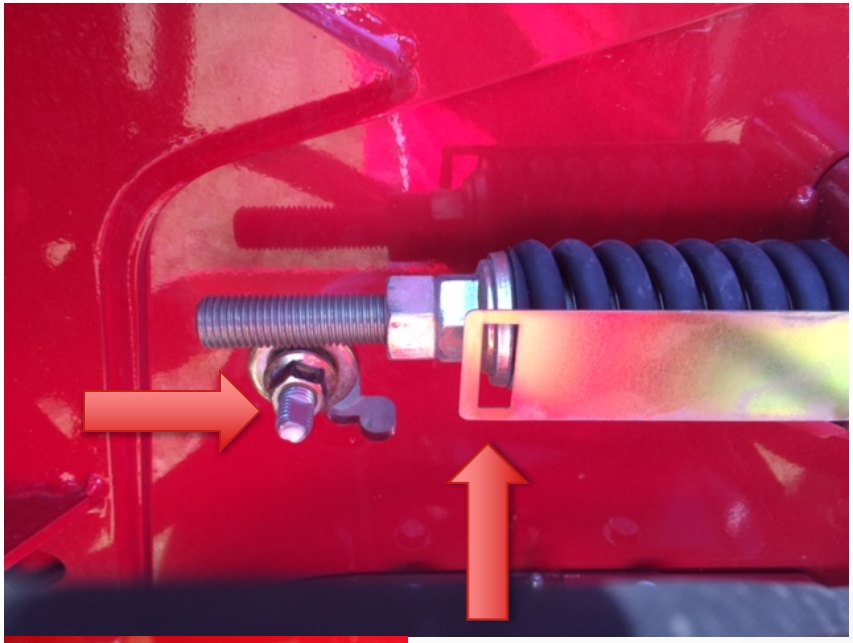
50 Hour (Weekly) Maintenance Checks

23. Use compressed air to clean the alternator
24. Inspect or clean the engine air filter canister and element
25. Grease auxiliary pump tensioner arm
26. Grease rotor drive pulley
27. Grease rotor speed control (front and rear)
28. Unloader drive tightener arm
29. Grease straw chopper idler arm
30. Grease cleaning fan pulley
31. Grease straw spreader idler arm
32. Grease cleaning fan belt idler arm
33. Grease fan driven pulley
34. Grease feeder engage idler arm
35. Grease fan drive belt tightener arm
36. Grease steering Axle front and rear pivots
37. Grease left and right tie rod ends
38. Grease right and left steering cylinder ball joints
39. Grease right and left steering knuckles (upper and lower)

Check Operator's Manual for additional items at every-other 50 hour (100 hour) interval

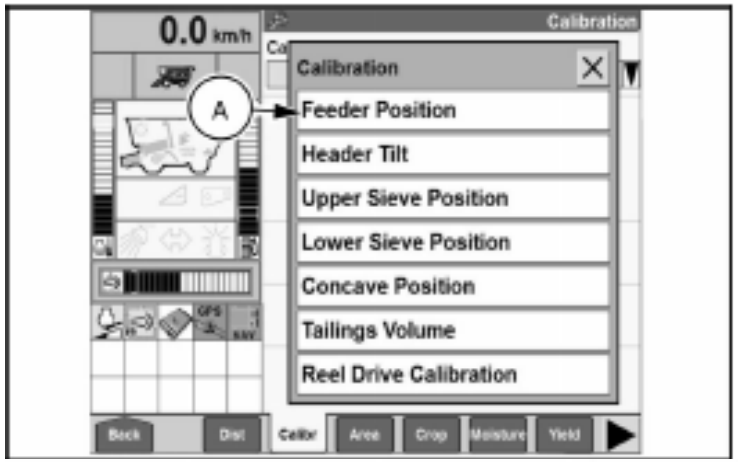
- Feeder Latch
- Latch should be adjusted so it has some preload in one of the notches when the head is attached.
- If the latch is loose in the notch the head will not be clamped good to the feeder
- A loose head may ride up when harvesting through a low spot creating a gap at the bottom of the feeder and crop loss.

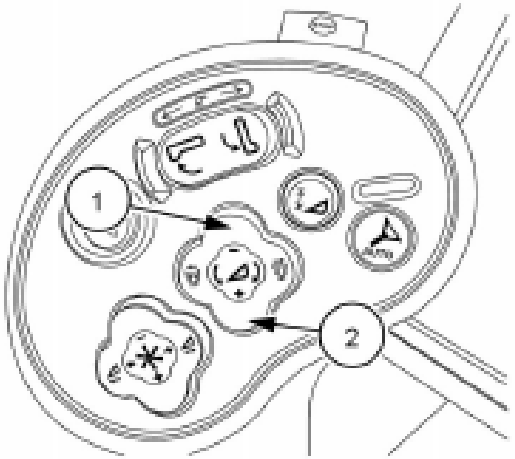
Header Connection and Feeder House



- Wipe off single point hydraulic connections when attaching to head to minimize hydraulic contamination
- Inspect electrical connection for heavy dust or bent/loose pins
- Feeder front drum stop run in high position for corn/beans low for wheat.
- Inspect feeder chain tension spring washer should align with the window tab.
- For older machines adjust chain off floor so it just clears a dime at lowest point, should hold a nickel.
- Newer machines have low friction plastic feeder pivot block this will retrofit back to model year 2009

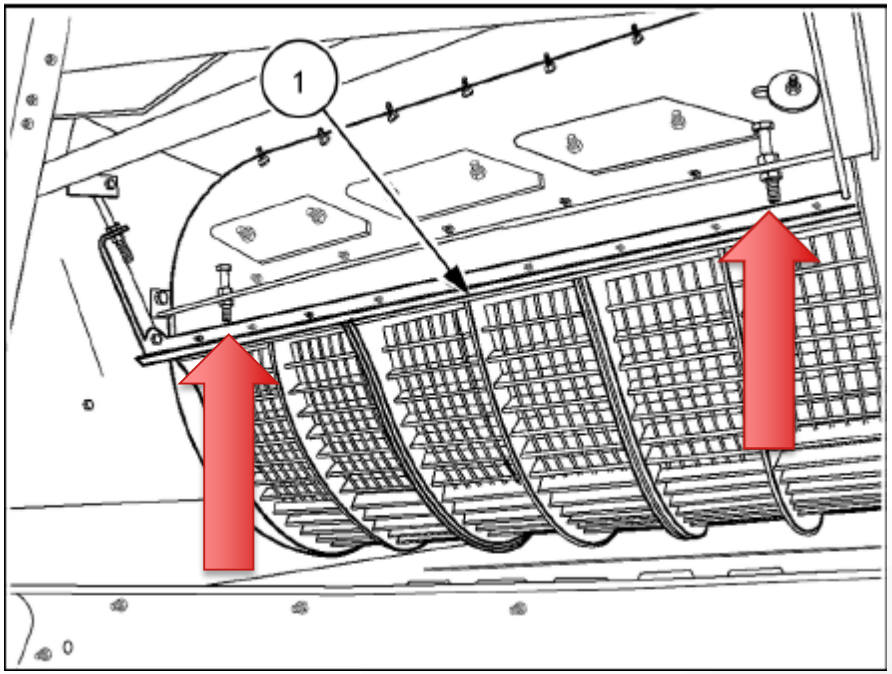
Header/ Feeder Calibration





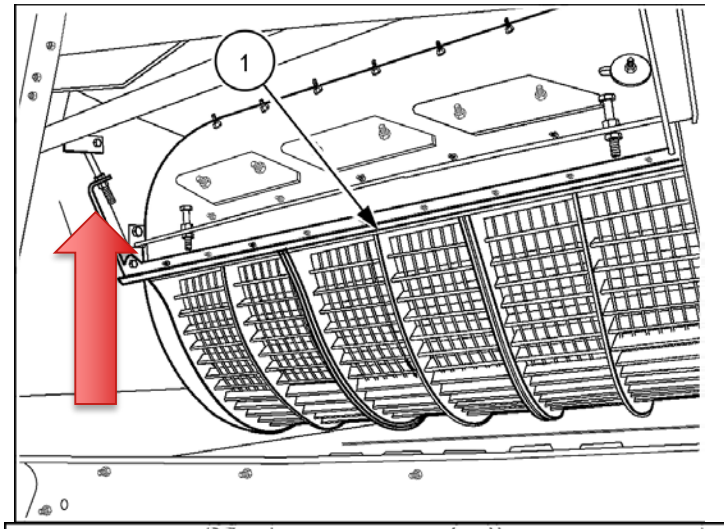
- For optimal performance perform feeder and tilt calibration yearly. Can be found in the calibration tab of 130 and 140 series and in the A-post of 21XX through 88 series.
- Each time you connect a new header perform the Quick calibration
- Fully lower head to the ground and hold lower switch for 3 seconds
- Press and hold the raise switch
- Header should raise until the sensors are off the ground, pause and then fully raise
- If the header does not pause the calibration is not valid

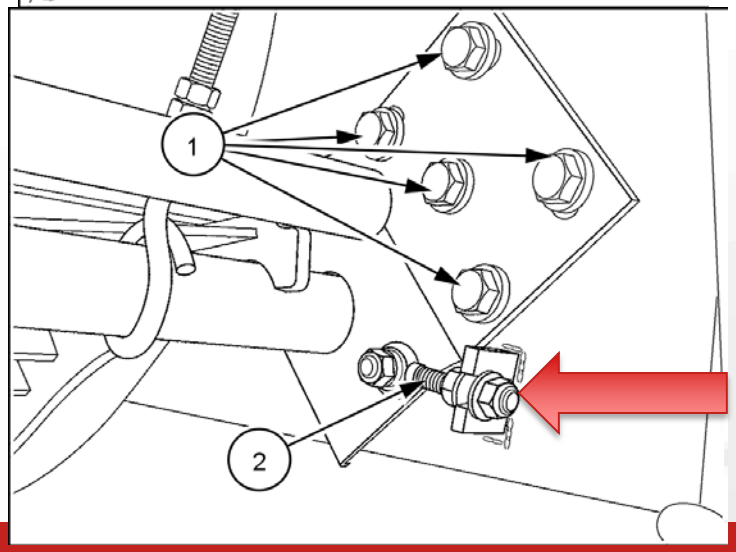
Concave Calibration



- Recommended on yearly basis to ensure the clearance shown on the monitor is the actual clearance
- Place rotor gearbox in Neutral, remove one of the separator grates, back off stop bolts 4 turns
- Slowly rotate rotor by hand while another person bumps the concave clearance down, stop closing when the rasp bar is just ticking on the concave.
- Turn stop bolts out until they just touch, mark the flats, open concaves, turn bolts out (towards concaves) two full turns and lock jam nuts.
- Close concaves until they are on the bolts, rotate to rotor to ensure it is not ticking on concaves, use calibration screen to calibrate.

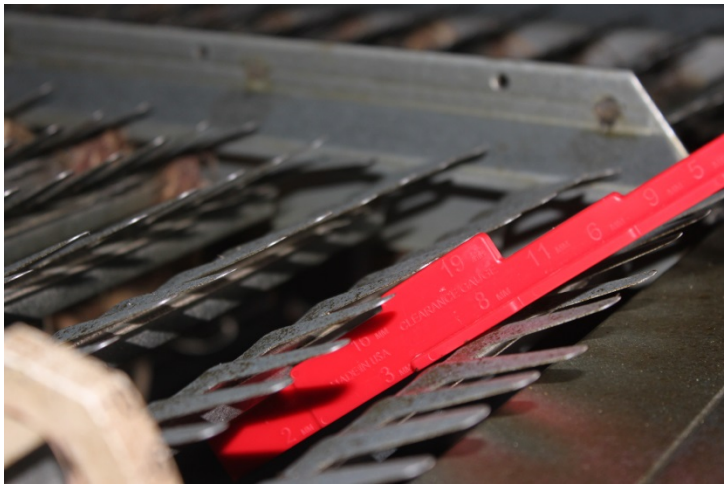
Pinch Point and Level

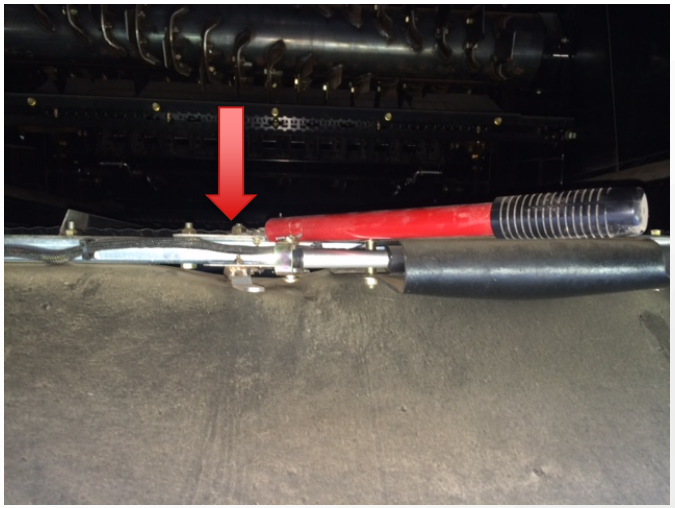




- Level Concaves and Adjust Pinch point
- While doing concave calibration check to ensure concaves are level with rotor. You should have a rasp bar ticking at the front and back as you rotate by hand.
- Adjust nuts on front hanger to raise or lower the front as needed.
- Pinch point on Midrange for small wire and large wire should be at the 12th bar from top.
- To adjust loosen hinge clamp on right hand side and turn jack bolts to adjust. One turn of adjustment bolt will shift pinch point 1 bar.

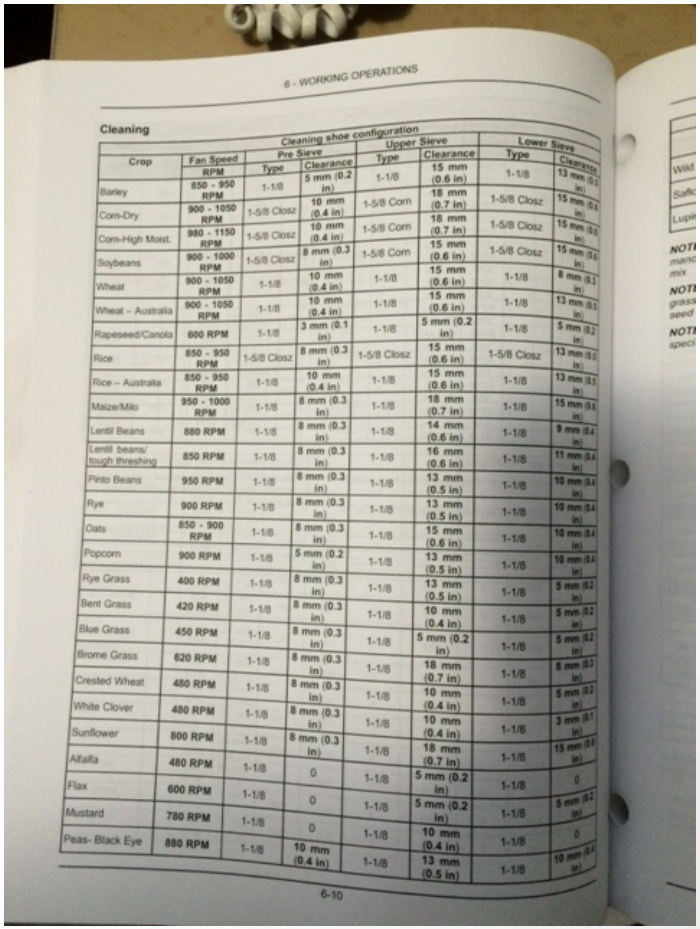
Calibrating Sieves





- Sieve Calibration is recommended on yearly basis to ensure clearance shown on screen is actual clearance.
- For upper and lower sieve use calibration tabs in monitor.
- Close sieves fully with rear adjustment buttons, open to 6mm, check in several spots with sieve gage, monitor to complete calibration.
- If you overshoot 6mm fully close and bump button to reopen this ensures slack is out of linkage.
- Ensure bolts on the two manual adjustments are snug if loose adjustments may move. Snug bolt until adjustment has a slight resistance when using the handle extension.
- Presieve should be adjusted to book setting remove left-hand rear rotor access door and reach in with sieve gage to check opening.

Setting the Machine



6 - WORKING OPERATIONS

Cleaning

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

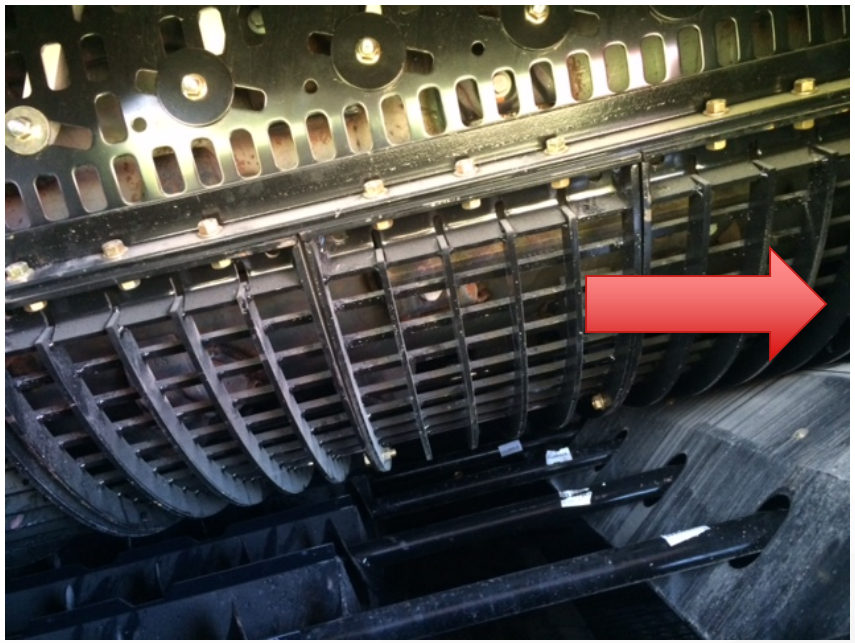
6-10

- Once concaves and sieves have been calibrated the book settings should get you pretty close
- Set to book settings, run machine at normal operating speed and perform a kill stall
- To do the kill stall place left hand on hydro handle, place right hand on throttle, pull throttle back and push hydro handle full ahead while pressing the brakes.
- As soon as throttle is back use that hand to turn ignition off.
- This is like pressing the pause button and allows you to open machine up and see what is happening inside.
- For higher horsepower 140 and 130 series machines do not perform kill stall running at max power (75%-85% is best) open concaves to re-engage separator.

Kill Stall Threshing Evaluation

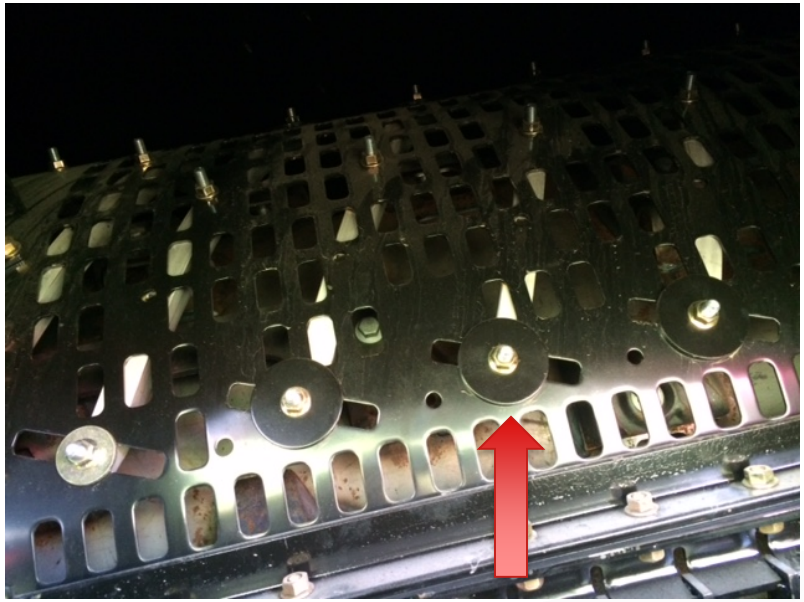
- First three concaves are threshing concaves 100% of threshing is done here and 90% of separation
- Inspect crop as it comes out of threshing Concaves and into separation grates. Look for corn still on cob or unthreshed bean pods or heads of wheat.
- If threshing is incomplete try tightening concaves slightly reducing rotor speed will slow movement of crop through machine
- Vanes over threshing area can be moved to slow for hard thresh conditions.
- There is a spot to put two straight bars over number 3 concave this may help in hard thresh corn.

Separation Evaluation



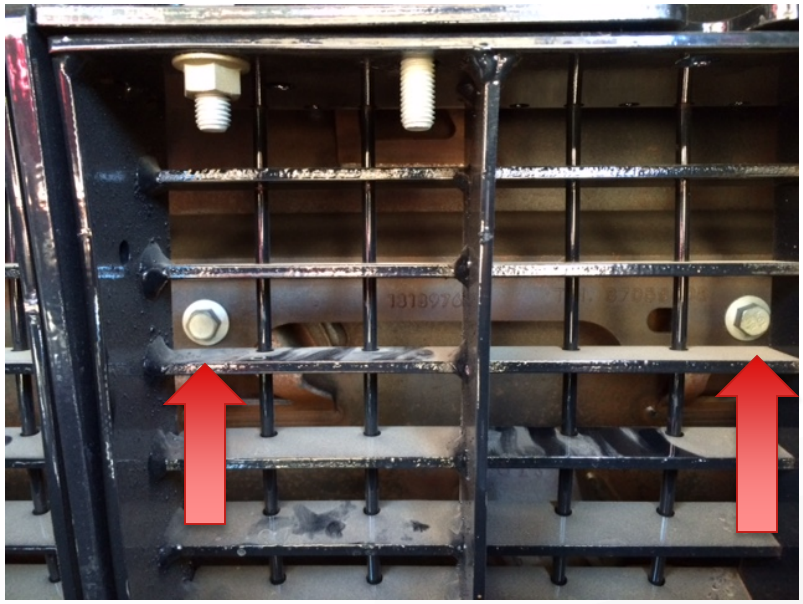
- With engine off reach through separation modules right before chopper shake the crop mat and look for loose kernels in mat before it flows in to chopper
- Loose kernels at this point will not get separated and will go out the back
- Speeding the rotor in heavy wet crop may increase separation by agitating the crop mat more and applying more centrifugal force to throw more grain out the upper cage separation holes. Adding additional spike rasp in rear may also help agitate the crop in heavy wet conditions.
- In dry crop conditions slowing rotor speed will slow down crop flow and may help reduce separation loss.

Vane Adjustments



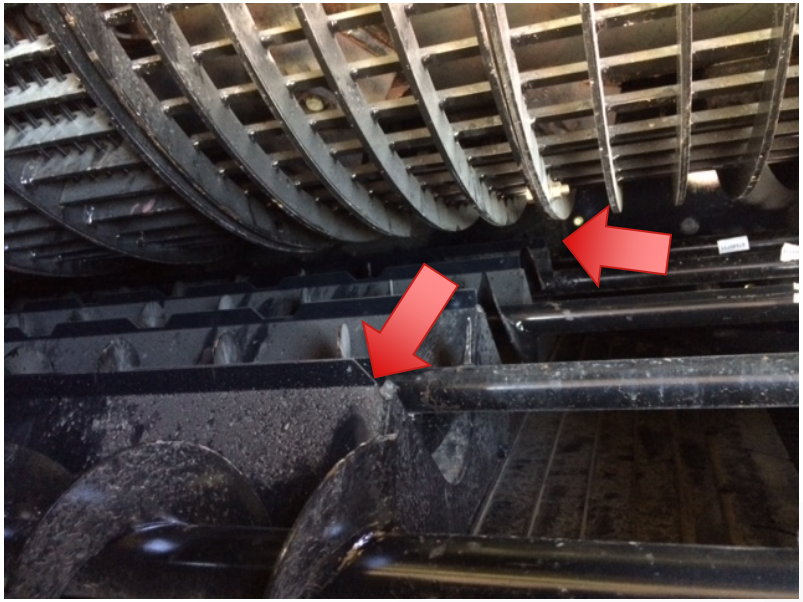
- Separation area has 5 adjustable vanes
- Vane are factory set to mid position
- Moving the bottom bolt to the rear of the machine will reduce pitch and slow crop material allowing extra passes for separation
- Moving bottom bolt towards front of machine will increase pitch speeding up flow of material reducing power consumption and wear as well as grinding less material and reducing sieve loads.
- Slow position helps with separation in high yielding corn. Fast position in beans provides faster ground speeds and cleaner sample. Fast position in wheat will increase straw length.

Straight Separator Bars



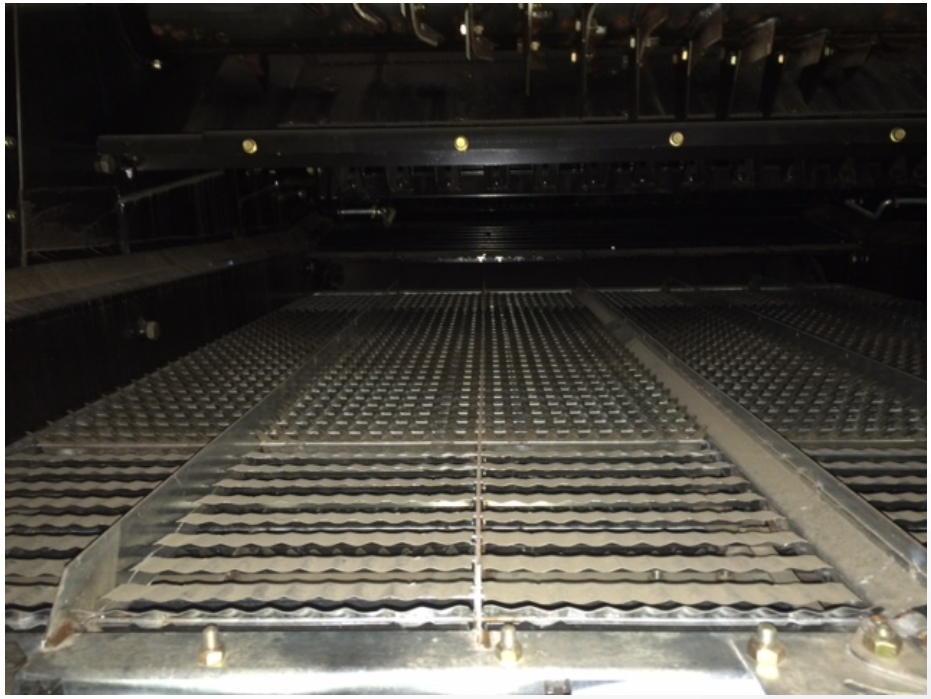
- Standard Rasp bars have a wedge that acts as a auger flighting moving material to rear of machine
- Straight bars remove wedges and act as a dam slowing the flow of material.
- Corn bean machines come with 4 bars factory installed. If installing extras relocate any spike teeth that are removed.
- Straight bars help with separation in high yielding corn by slowing crop flow and providing extra passes over separation grates. Uses sparingly slowing material flow takes horsepower and increases wear.
- Removing for soybeans and wheat will increase material flow providing increased ground speed and reduced fuel consumption and wear.
- When changing rasp bars always keep matching bars 180 degrees apart to maintain balance. For example if one spike tooth is installed another should be installed 180 degrees from it.

Bed Auger Distribution



- Check the distribution of grain in the bed augers after the kill stall. Use sieve gage as a measuring stick to compare depth on left and right.
- Even distribution will feed sieves better and provide higher capacity from machine.
- If distribution is heavy on right closing concaves will push more out left.
- If distribution is heavy on left opening concaves will push more grain out right hand side.
- Shifting concaves with hinge adjustment will change distribution. Rule of thumb adjust concaves towards deep side. Mark jack bolts and go two turns at a time and recheck with kill stall.

Kill Stall Sieve Evaluation



- Look for mat of material on sieves
- If mat is even all the way across and has grain in it near rear of machine upper sieve and/or presieve may be too tight.
- If mat of grain is thick on one side and walking grain over it may be caused by poor distribution on grain pan.

Initial Settings for Rotors

Every experienced operator knows crop and harvesting conditions vary from season-to-season, and field-to-field. Taking advantage of years of experience, the following tables have been assembled as recommendations for initial settings as harvest begins, in average harvesting conditions. Fine-tuning as harvest progresses will allow you and your combine to maximize performance.

STANDARD ROTOR

Crop	Rotor Speed			Concave Setting		Grate	Cleaning System Type										
							Short (1620, 1640, 1660, 1680)				Long (1644, 1666, 2144, 2166, 2344, 2366)			Long (1680, 1688, 2188, 2388)			
	1620	1640 1644 1660 1666	1680 1688	Indicator Setting	Type	Type	Chaffer Setting	Shoe Setting	Fan RPM Paddle Blade	Fan RPM Cross Flow	Chaffer Setting Frt.– Mid.– Rear	Shoe Setting	Fan RPM Cross Flow	Chaffer Setting ⑥ Frt.-Mid.-Rear (3 lever)	Shoe Setting	Fan RPM Paddle Blade	Fan RPM Cross Flow
Barley	750	850	750	2	SW1, LW 2 & 3	1 Slot/2 Bar	1/2	1/4	750	1000	1/2-1/2-5/8	3/8	1000	1/2-1/2-5/8	3/8	1000	1000
Corn	500	500	450	Corn	LW	Bar ①	1/2	9/16	1000	1100	1/2-1/2-5/8	1/2	1100	1/2-1/2-5/8	1/2	1100	1100
Milo/ Maize	720	600	450	3	LW	Bar	1/2	3/8	900	1100	3/8-1/2-1/2	5/16	1100	3/8-1/2-1/2	5/16	1100	1100
Rye Grass	900	750	700	4 or 5	SW	Slotted	1/2	1/4	450	450 ⑤	3/8-1/2-1/2	1/4	450 ⑤	3/8-1/2-1/2	1/4	450 ⑤	450 ⑤
Soybeans	600 ②	500 ②	400 ②	4	LW	Bar/ Slot	5/8	3/8	1000	1100	1/2-5/8-5/8	3/8	1050	1/2-5/8-5/8	3/8	1100	1100
Sunflower	420	350	300	5	SW1, LW2, & 3	Slot/ Solid ③	5/8	7/16	700	770	3/8-1/2-5/8	7/16	770	3/8-1/2-5/8	7/16	770	770
Wheat	1080	900	800	2	SW	Slotted	5/8	3/8	850	1050	3/8-1/2-5/8	1/4	1050	3/8-1/2-5/8	1/4	1050	1050

Table 14.1

① With notched separator bars.
② Some soybean varieties may require rotor speeds up to 700 RPM or more.
③ 1st Slotted, 2nd and 3rd solid.
④ Helical kickers to enhance material flow: two suggested for 1680: three additional suggested for 1660, 1666, 2144, and 2166.
⑤ Air volume may be regulated while harvesting light grasses by rotating the fan cut-off plate to a vertical position.
⑥ Do not open front of chaff sieve more then center section.

CASE IH AGRICULTURE

SPECIALTY/AFX ROTOR

Crop	Rotor Speed			Concave Setting		Grate	Cleaning System Type										
							Short (1620, 1640, 1660, 1680)				Long (1644, 1666, 2144, 2166, 2344, 2366)			Long (1680, 1688, 2188, 2388)			
	1620	1640 1644 1660 1666	1680 1688	Indicator Setting	Type	Type	Chaffer Setting	Shoe Setting	Fan RPM Paddle Blade	Fan RPM Cross Flow	Chaffer Setting Frt.-Mid.-Rear	Shoe Set-ting	Fan RPM Cross Flow	Chaffer Setting Frt.-Mid.-Rear (three lever)	Shoe Setting	Fan RPM Paddle Blade	Fan RPM Cross Flow
Barley	750	800	750	2	SW	Slotted	1/2	1/4	750	1000	1/2-1/2-5/8	3/8	1000	1/2-1/2-5-8	3/8	1000	1000
Corn	450	400	350	3-5	LW	Bar	1/2	3/8	1000	1100	1/2-1/2-5/8	3/8	1100	1/2-1/2-5/8	1/2	1100	1100
Edible Bean	550	600	400	3-5	LW/ Slotted 2388	Bar	5/8	1/2	900	1050	1/2-1/2-1/2	3/8	1050	1/2-1/2-1/2	5/16	1100	1100
Grass	650	600	550	2-4		Slot/ Solid ②	3/8	1/4	400	450 ④	1/4-3/8-3/8	1/4	450 ④	3/8-1/2-1/2	1/4	450 ④	450 ④
Milo/ Maize	700	600	450	3	LW	Bar	1/2	3/8	900	1100	3/8-1/2-1/2	5/16	1100	3/8-1/2-1/2	3/8	1050	1050
Rice	1050	850	900	2	LW	Bar	1/2	5/16	750	800	3/8-3/8-1/2	5/16	880	3/8-3/8-1/2	5/16	880	880
Soybeans	700 ①	700 ①	700 ①	3-4	LW	Bar	5/8	3/8	1000	1100	1/2-5/8-5/8	3/8	1050	1/2-5/8-5/8	1/4	1100	1100
Sunflower	420	350	300	5	LW Slotted 2388	Slot/ Solid ② ③	5/8	7/16	700	770	3/8-1/2-5/8	7/16	770	3/8-1/2-5/8	7/16	770	770
Wheat	1050	1000	750	2	SW	Slotted	1/2	1/4	850	1050	1/2-1/2-5/8	1/4	1050	1/4-1/2-1/2	1/4	1050	1050

OPERA

CNH INDUSTRIAL

1. Some soybean varieties may require rotor speeds up to 700 RPM or more.
2. 1st Slotted, 2nd and 3rd solid.
3. Helical kickers to enhance material flow: two additional suggested for 1680; two additional suggested for 1660, 1666, 2144, and 2166.
4. Air volume may be regulated while harvesting light grasses by rotating the fan cut-off plate to a vertical position (Cross Flow Fan).
5. Do not open front of chaff sieve more then center section.

CASE IH AGRICULTURE

Specialty Rotor, AFX Rotor - Initial Crop Settings 1688/2188, 2377/2388 and Upgrades of Other Models

Crop	Rotor		Concave		Chaffer Setting (Inch) ⑦			Shoe Setting (Inch)	Fan Speed	Grate Type	Transport Vane Position
	Speed	Gear Range	Indicator	Type ⑥	Front	Middle	Rear				
Alfalfa	650	Middle	1	SW	1/4	3/8	3/8	Round Hole	500	Slot	Middle
Barley	700	High	2	SW	1/2	1/2	5/8	3/8	1000	Slot	Middle
Lentil Beans	300	Low	2	LW/SL	1/2	1/2	5/8	1/8	550	Slot	Fast
Pinto Beans	300	Low	3	LS/SL	1/2	1/2	1/2	3/8	850	Slot	Fast
Sunflower ③	300	Low	5	LW	3/8	1/2	5/8	5/16	770	Bar	Fast
Bentgrass ⑤	900	High	0	SW	1/4	3/8	3/8	1/16	450	Slot	Middle
Bluegrass ⑤	400	Low	1-1/2	SW	3/8	1/2	1/2	1/16	500	Slot	Middle
Brome ⑤ ⑧	500	Middle	3	SW	5/8	3/4	3/4	5/16	650	Slot	Fast
Rye ⑤	650	Middle	4-5	SW	3/8	1/2	1/2	1/4	450	Slot	Fast
White Clover ⑤	900	High	0	SW	3/8	1/2	1/2	1/16	500	Slot	Middle
Corn	400-500	Middle	3-5	LW	1/2	1/2	5/8	3/8	1100	Bar	Rear
Corn (w/straight separator bars) ① ②	300-450	Low-Middle	3-5	LW	1/2	1/2	5/8	9/16	1000	Bar	Rear
Edible Beans (Navy, Pinto)	300-400	Low	3-5	LW/SL	1/2	1/2	1/2	3/8	900	Bar	Middle
Flax	850	High	1	SW	1/4	1/4	1/2	1/8	500	Slot	Middle
Maize/Milo	450	Middle	3	LW	3/8	1/2	1/2	5/16	1100	Bar	Middle
Mustard	300	Low	4	SW	1/2	1/2	1/2	1/16	800	Slot	Fast
Oats	600	Middle	3	LW	1/2	1/2	5/8	3/8	780	Slot	Middle
Peas - Black	300	Low	2	LW/SL	1/2	1/2	1/2	3/8	700	Bar	Fast
Rape	400	Low	4	SW	1/4	3/8	1/2	1/16	600	Slot	Fast
Rice ③ ②	850	High	2	LW	3/8	3/8	1/2	5/16	880	Bar	Middle
Wild Rice	600	Middle	1	LW	1/2	1/2	1/2	9/16	850	Bar	Middle
Safflower ③	300	Low	4	LW	3/8	1/2	5/8	5/16	800	Bar	Fast
Soybeans ⑤	350-650	Low Middle	3-4	LW	1/2	5/8	5/8	3/8	1050	Bar	Middle
Wheat ①	1050	High	2	SW	1/4	1/2	1/2	1/4	1050	Slot	Middle
Grass ⑤ ⑧	550	Middle	2-4	SW	1/4	3/8	3/8	1/4	450	Slot/ Solid	Middle

CNH INDUSTRIAL

① Straight separator bars may be needed for harvesting corn yielding more than 150 bushels per acre (9400 kg/ha) and in other crops during dry conditions. Increase fan speed to 1250 RPM in wet corn.

② Once installed, straight separator bars need to be removed only for harvesting rice, edible beans, and similar viney crops.

③ Tough rice requires the use of spiked rasp bars over the concave area and the grate area. Set concave indicators at Number 4 when spiked rasp bars are used in the concave area.

④ LW - Large Wire (1/4" Diameter); SW - Small Wire (3/16" Diameter); SL - Smooth Slotted.

⑤ Use of non-spiked rasp bars in all positions is recommended for most grass seed harvest conditions. Spiked bars may be helpful in extremely damp crops. Rotate fan cutoff rearward to the vertical position to reduce air volume.

⑥ Some soybeans may require rotor speeds up to 700 RPM or more.

⑦ The front several inches of the chaffer sieve are, by design, set slightly more closed than the rest of the front section.

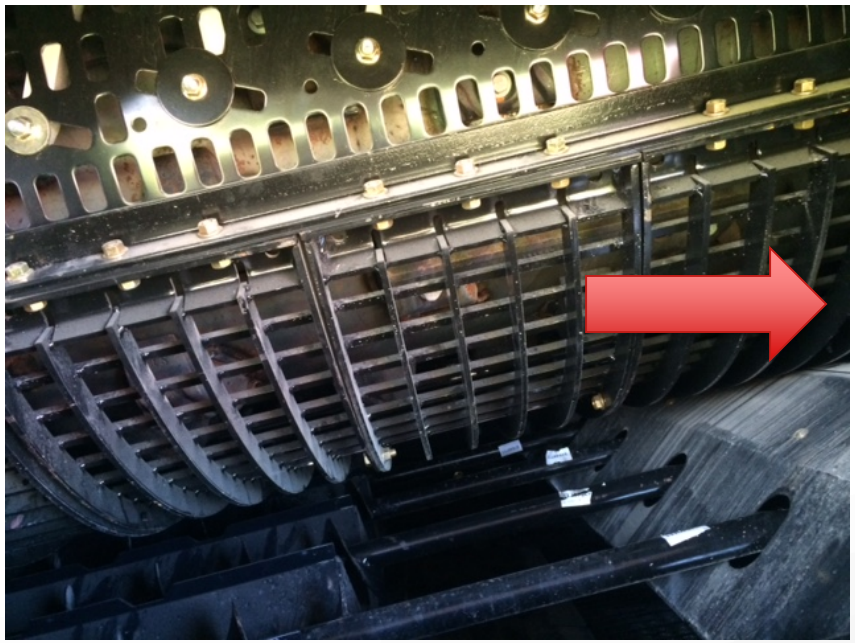
⑧ Slotted concave use may be beneficial to reduce damage to threshed material.

⑨ A common mis-adjustment is setting rotor speed too low. High moisture crops will require higher rotor speeds. The AFX Rotor may require an additional 50 to 100 RPM Rotor Speed and a slightly tighter concave in some.

Kill Stall Threshing Evaluation

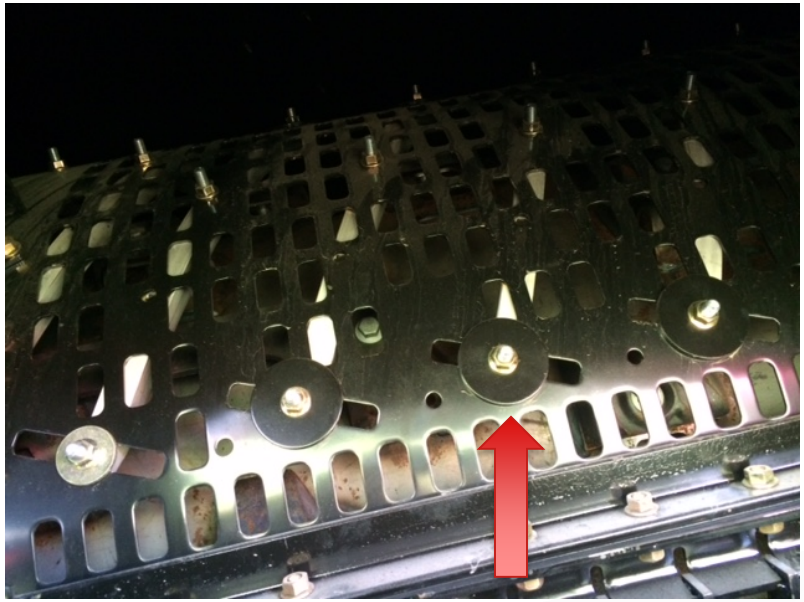
- First three concaves are threshing concaves 100% of threshing is done here and 90% of separation
- Inspect crop as it comes out of threshing Concaves and into separation grates. Look for corn still on cob or unthreshed bean pods or heads of wheat.
- If threshing is incomplete try tightening concaves slightly reducing rotor speed will slow movement of crop through machine
- Vanes over threshing area can be moved to slow for hard thresh conditions.
- There is a spot to put two straight bars over number 3 concave this may help in hard thresh corn.

Separation Evaluation



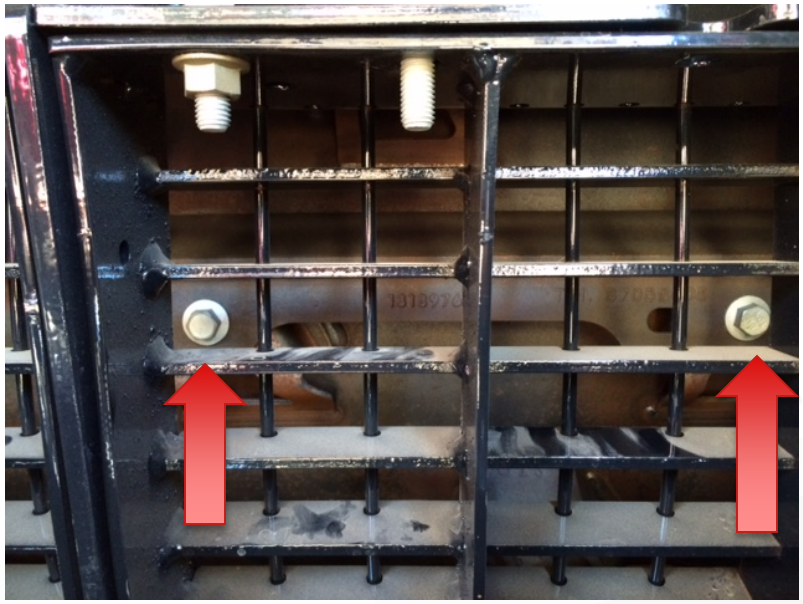
- With engine off reach through separation modules right before chopper shake the crop mat and look for loose kernels in mat before it flows in to chopper
- Loose kernels at this point will not get separated and will go out the back
- Speeding the rotor in heavy wet crop may increase separation by agitating the crop mat more and applying more centrifugal force to throw more grain out the upper cage separation holes. Adding additional spike rasp in rear may also help agitate the crop in heavy wet conditions.
- In dry crop conditions slowing rotor speed will slow down crop flow and may help reduce separation loss.

Vane Adjustments



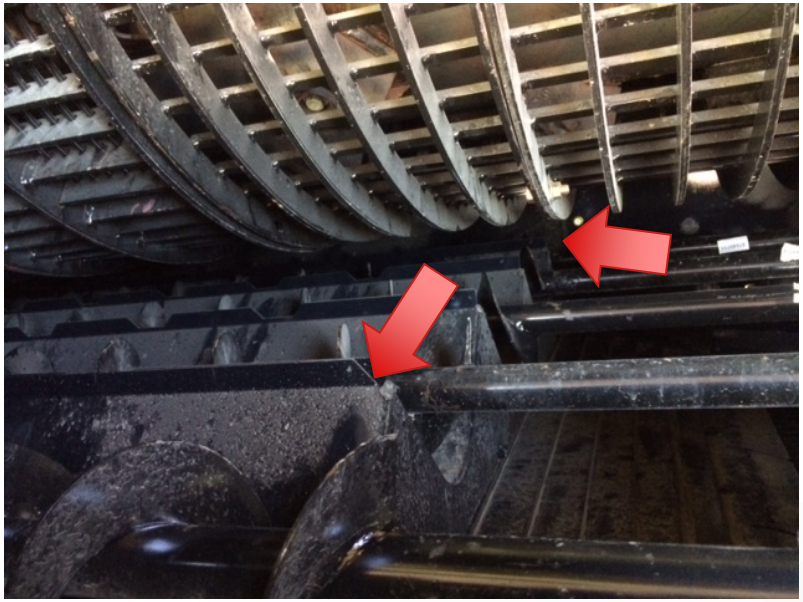
- Separation area has 5 adjustable vanes
- Vane are factory set to mid position
- Moving the bottom bolt to the rear of the machine will reduce pitch and slow crop material allowing extra passes for separation
- Moving bottom bolt towards front of machine will increase pitch speeding up flow of material reducing power consumption and wear as well as grinding less material and reducing sieve loads.
- Slow position helps with separation in high yielding corn. Fast position in beans provides faster ground speeds and cleaner sample. Fast position in wheat will increase straw length.

Straight Separator Bars



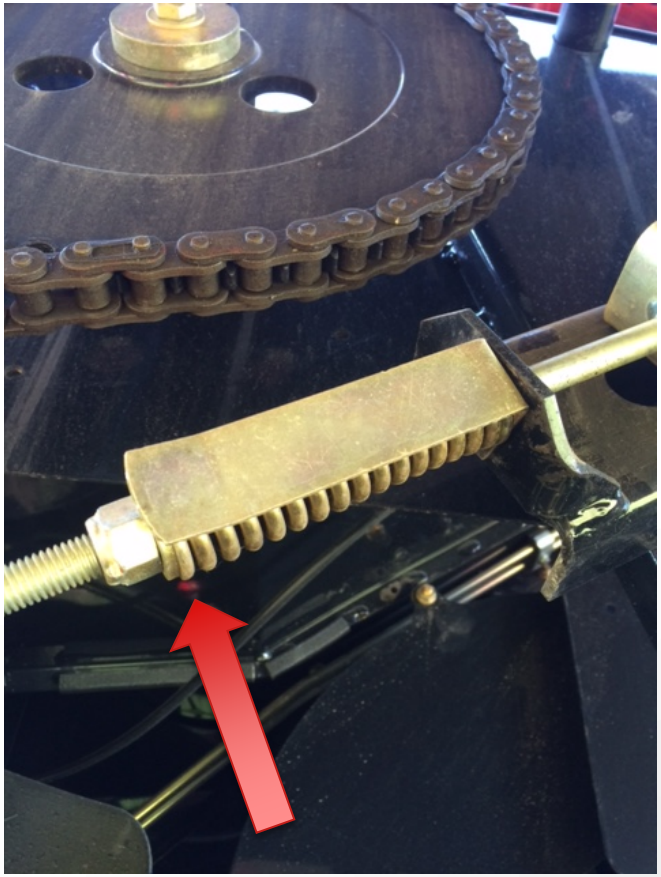
- Standard Rasp bars have a wedge that acts as a auger flighting moving material to rear of machine
- Straight bars remove wedges and act as a dam slowing the flow of material.
- Corn bean machines come with 4 bars factory installed. If installing extras relocate any spike teeth that are removed.
- Straight bars help with separation in high yielding corn by slowing crop flow and providing extra passes over separation grates. Uses sparingly slowing material flow takes horsepower and increases wear.
- Removing for soybeans and wheat will increase material flow providing increased ground speed and reduced fuel consumption and wear.
- When changing rasp bars always keep matching bars 180 degrees apart to maintain balance. For example if one spike tooth is installed another should be installed 180 degrees from it.

Bed Auger Distribution



- Check the distribution of grain in the bed augers after the kill stall. Use sieve gage as a measuring stick to compare depth on left and right.
- Even distribution will feed sieves better and provide higher capacity from machine.
- If distribution is heavy on right closing concaves will push more out left.
- If distribution is heavy on left opening concaves will push more grain out right hand side.
- Shifting concaves with hinge adjustment will change distribution. Rule of thumb adjust concaves towards deep side. Mark jack bolts and go two turns at a time and recheck with kill stall.

Drives



- While on the Left Hand side point out the chain tensioner on the unloader drive.

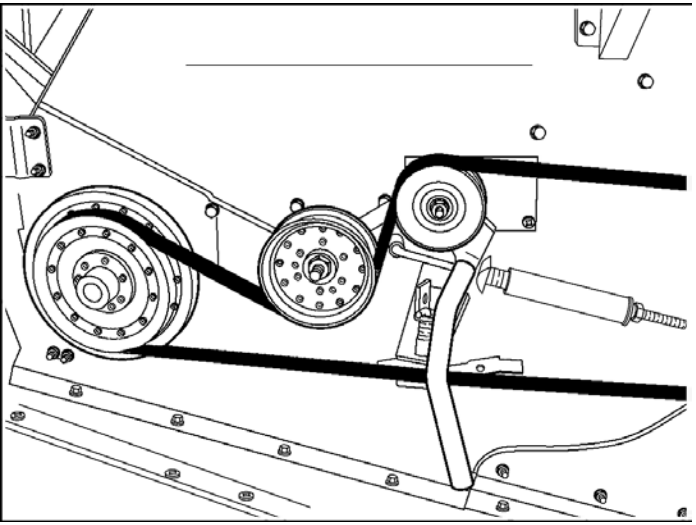
- All spring loaded tensioner idlers for chain and belt drives have a similar window for easy viewing of adjustment, end of spring should line up with end of tab.

- Operators manual recommends lubricating chains with Case IH 80W90 gear lube

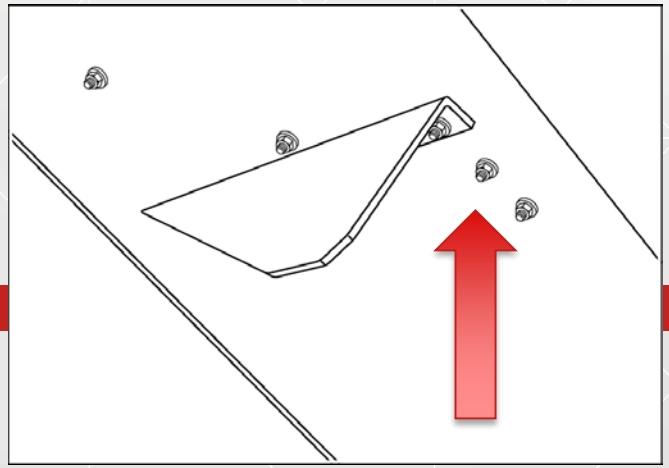
Loss Check

- University research indicates total machine loss for head and combine should be 1.8% of total Yield.
- Properly set axial flows can get total loss below 1%.
- Loss tables in manual give uniform loss for different crops. 1.8 corn kernels per square foot is 1 bu/ac. 3.6 soybeans per sqft is a bu/ac.
- To do a loss check harvest at a normal speed, pull hydro handle to neutral to stop machine fairly quick. Allow machine to clean out. Back machine up 30-40 foot.
- Look in area where residue was not spread for header loss. Look for piles of grain which could indicate cleanout door left open.
- Look for loss behind machine in residue subtract header loss to determine combine loss.
- Most accurate count will be to look at a 1 foot wide strip full machine width. Count all kernals and divide by header width for kernels per square foot.

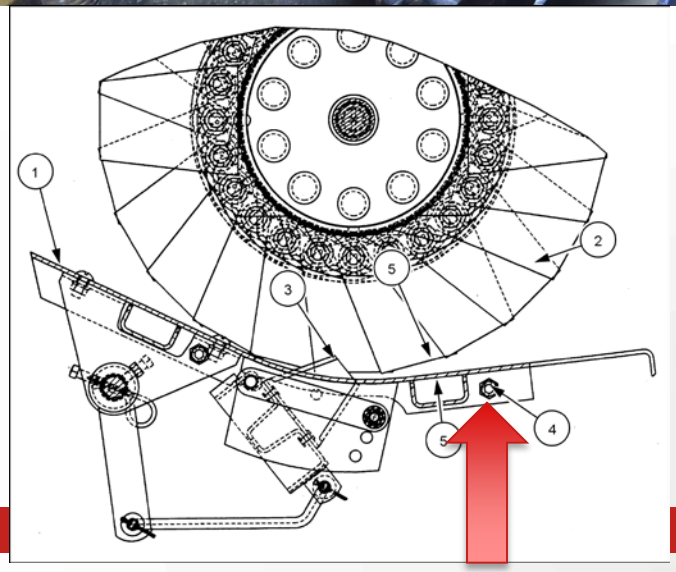
Residue Distribution



- Straw spreader has two speed pulley for high and low speed.
- Spreader paddles can be set the 3 positions advanced position shown in picture will increase spread width. Retarded position (bolt hole not shown under paddle) will reduce spread width.
- For thick damp bean trash run spreaders in fast speed and advance or retard paddle position to change spread width. This will keep material moving away at rear of machine and decrease possibility of plugging at discharge.
- To change distribution if it is heavy on one side adjust the vane on the straw hood.



Chopper Adjustments

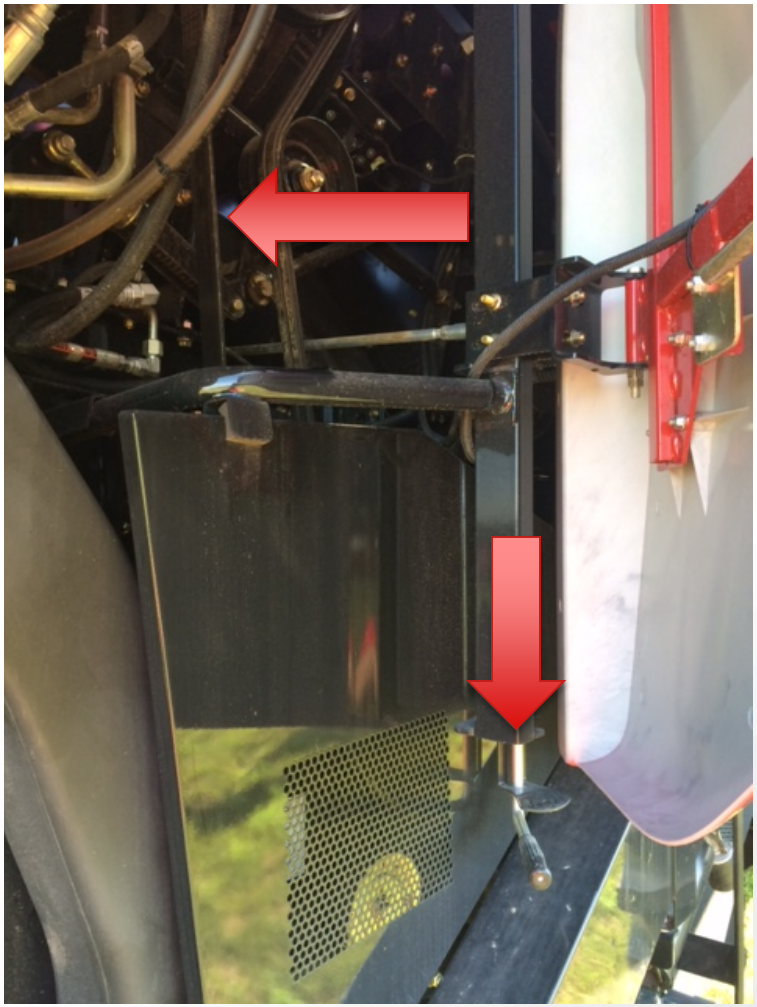


- Chopper Knives- lower position disengaged for corn. Upper position engaged for fine cut in soybeans and wheat.
- For dry soybean trash that does not spread good start disengaging knives to leave trash in longer pieces that will spread better.
- Lower chopper concave in corn this will reduce damage to sieves by cobs bouncing off rear hood.

Two Speed Clean Grain Elevator

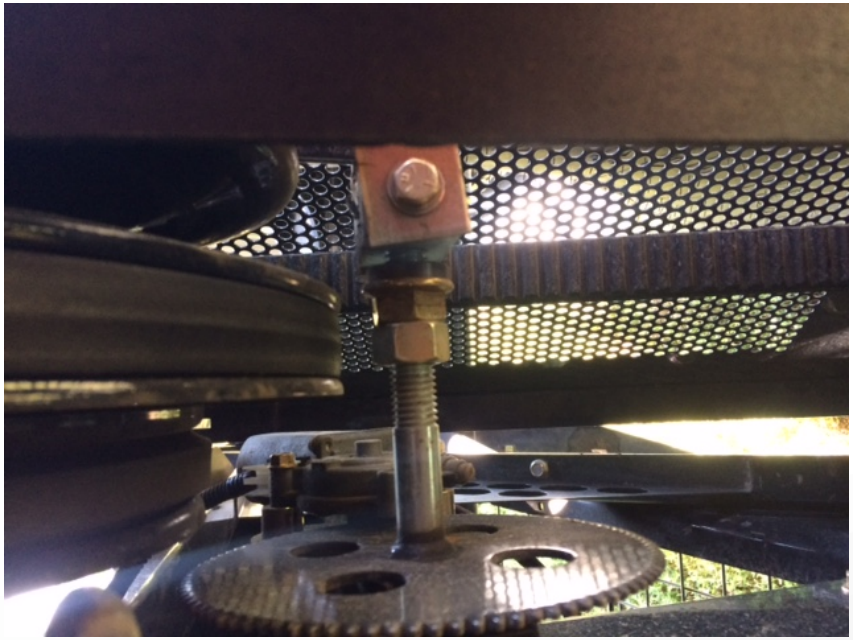
- Midrange machines have a two speed elevator.
- In high speed elevator capacity is around 4000 bu/hr
- Machines come set on low speed sprocket as shown in picture.
- For high yield corn set to high speed.
- Loosen Chain, loosen set screws, loosen side clamps, clean shaft with emery cloth and lubricate to slide.

Rotor Gearbox



- Shift rotor gearbox only with separator off after rotor has come to a stop.
- Gearbox may be hard to shift if shift splines are not lined up. Lightly apply pressure to handle while pulling on chopper belt to rotate machine. This will line splines up.
- For older 23XX and 25XX machines it is advisable to shift the gearbox from the engine compartment using the handle next to the gearbox. Turn variable speed pulley to get splines to line up.
- **NEVER** turn separator on and try to shift this can break shift collars.

Fan Speed Adjustment



- Midrange machines have long sieves and can take advantage of a lot of air flow to clean crop.
- For corn beans we can typically go up to 1250 RPM without blowing grain out.
- As belt wears the fan may not reach max RPM.
- The stop nuts on the fan speed adjustment can be adjusted to get back to 1250 RPM.
- Do not adjust past the point where the belt is even with the top of the pulley.
- 1300 rpm max speed

Normal Wheat Settings for Flagship 40 Series, 30 Series 20 Series and 10 Series Axial Flows

Concaves: Small Wire modules in concave area. For best threshing, make sure the concaves have been zero adjusted and the concaves are level to the rotor front to back.

Grate Area: Use Large Skip Wire in grate area. (Note: Large wire or Slotted modules can be used in grate area if the straw is brittle to help prevent broken straw on sieves.)

Rotor Configuration: Recommend standard rotor rasp bar configuration. Normal AFX Rotor with 8 spike bars on rear half. (Note: There should no straight separator bars on the rotor, only exception is in very hard thresh conditions.)

Cage Vanes: **All (9 vanes) in Slow position**, front to back. Reduces rotor loss, especially important with higher yields.

Rotor Speed: Base line is **750-1050 RPM**. Use 3rd gear for rotor gear box.

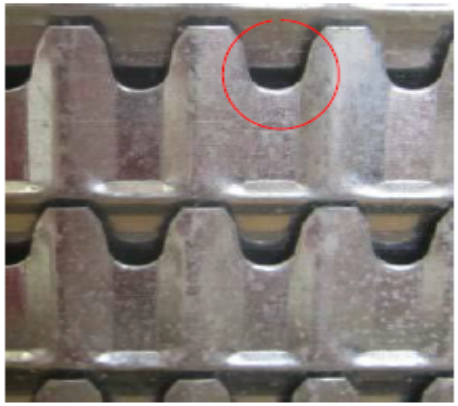
Concave Clearance: Base line is **10 mm**. Too tight can cause higher Horsepower requirements.

Pre Sieve: 6 mm – 3rd notch. (If you ever get grain in the cleaning fan, chances are you have the pre-sieve too wide.) We only want 15% of the grain to go through the pre sieve. (1 1/8" Grain Sieve used)

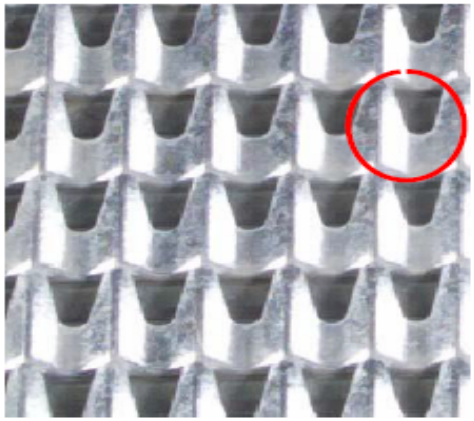
Chaffer Sieve: Baselines setting is **15 mm**. (1 1/8" grain sieves). The **1 5/8" Closz sieves can also be used, especially in higher yielding wheat. See below picture.**

Shoe Sieve: Base line setting is **9 mm**. **The 1 1/8" Sieve used for small grains.**

1 1/8" Sieve Grain



1 5/8" Sieve closz



Fan Speed: Base line is **900- 1050 RPM**

Chopper: High Speed (stationary knives in the up position). If windrowing, chopper in low speed and the stationary knives all the way down.

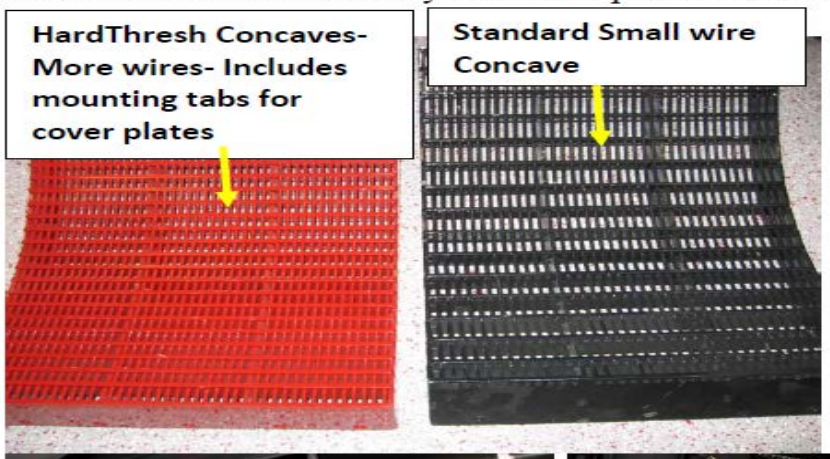
Residue Spreaders: Adjust speed on residue spreader paddles for an even spread across the width of the head.

Elevator Speed: **Low speed**.

****

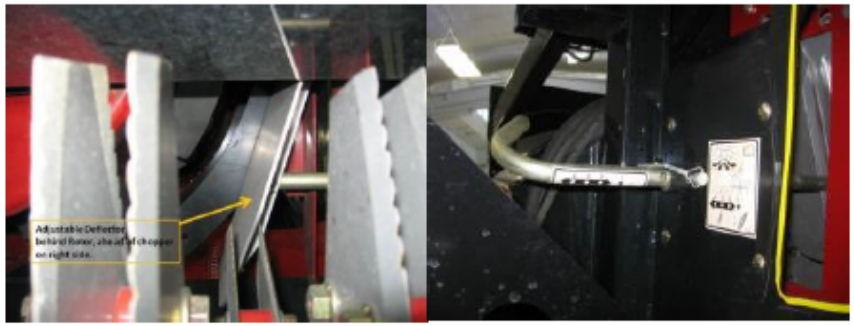
Harvesting Kits to consider-

Hard threshing kit- Part # 84293304. Includes a LH & RH small wire concave, cover plates, rotor cage filler plates. Below is a picture of the difference between the hard thresh small wire concave and standard small wire concave. Can start with a RH hard thresh SW concave first in a hard thresh condition. Only use cover plates if absolutely needed.

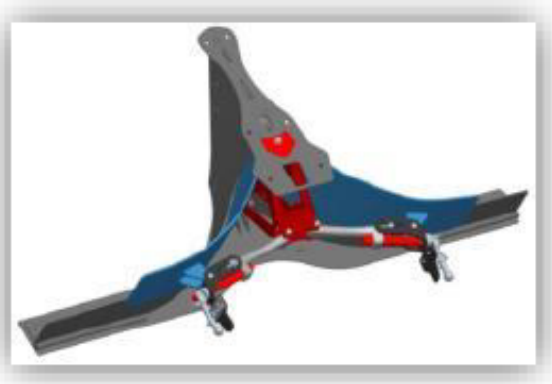


Location for filler cage plates would go above the #2 Module section.

-20 Series Combine- **The adjustable deflector is available as a DIA kit (part number 87328003). The DIA kit is available for machines at or after serial number HAJ202001. Purpose is to have more spread pattern. Standard option on all 30 Series and 40 Series combines.**



-10/20/230 Series Combine Residue kits- Part # is **47829420**. This is latest divider currently used on 240 Series. Provides a better residue spread.



Kit includes:

- **Divider Assembly:**
- **QTY 2 Manual Adjusters**
- **Screw w/ handle for fore/aft adjustment**
- **Hardware**

Manual Adjust-Fits all vertical spreader options -Tool free

Notes…

Draper Headers

As combine capacity has increased in recent years, a challenge facing designers and operators was how to satisfy the appetite of these machines with a grain platform. Sure, heads could be made wider, but then they really need to "bend" to follow variations in ground contour. The answer has been the return of the draper *(see figure 12.1)*.

- In addition, drapers offer exceptionally gentle, smooth crop flow to the feeder, and efficient "heads-first" feeding into the rotor. This all adds up to 20% more capacity and productivity *(see figure 12.2)*.
- Case IH offers rigid drapers for applications (such as rice) where the head will not be run on the ground, and flex-drapers (for small grains and soybeans) where the head frequently is operated at to near ground level.
- Flex-drapers are made up of three independently floating header sections that allow 13" of vertical float at the ends of the header, and 4.8 degrees of lateral float (12" at the end of a 30' header)
- Split two-section reel follows header flex to maintain consistent reel-to-knife adjustment for best crop feeding

- The header suspension allows complete adjustment. Refer to specific adjustments found in the Operator's Manual Tests can be performed to confirm flotation settings prior to entering the field.
- Cutter Bar Straightness
- Float (vertical) setting
- Wing Balance (smile/frown, right/left wing)
- Float Optimizer

During operation, the operator can make control adjustments:

- Float optimizer (controls ground pressure using automatic height control)
- Hydraulic Guard Angle (controls stubble height and clearance over rocks and ground trash)
- Combine Auto Header Height Setting (Float Optimizer)
- Decrease ground pressure if skid shoes are riding heavy, pushing trash
- Increase ground pressure if header is riding up on stubble
- Optimizer gauge indicates the amount of ground pressure

For optimum performance, reel and draper adjustments are critical:

- Reel position and speed should be set so the reel lightly flicks the crop onto the drapers, while not impeding crop flow across the header. This typically works out to a reel speed about 10% faster than ground speed.

- Draper speed is not dependent on ground speed. Draper speed should be set for a consistent windrow formation entering the combine. Increased draper speed does not equal increased capacity *(see figure 12.3)*.

Questions???

Notes: