

50A Series Row-Crop Heads



JOHN DEERE

OPERATORS MANUAL

50A Series
Row-Crop Heads

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Harvester Works
OMH114166 Issue I2

LITHO IN U.S.A.
ENGLISH



INTRODUCTION



This safety alert symbol identifies important safety messages in this manual. When you see this symbol, be alert to the possibility of personal injury and carefully read the message that follows.

NOTE: If this row-crop head is attached to any combine, other than a John Deere, be certain all exposed drives are adequately shielded.

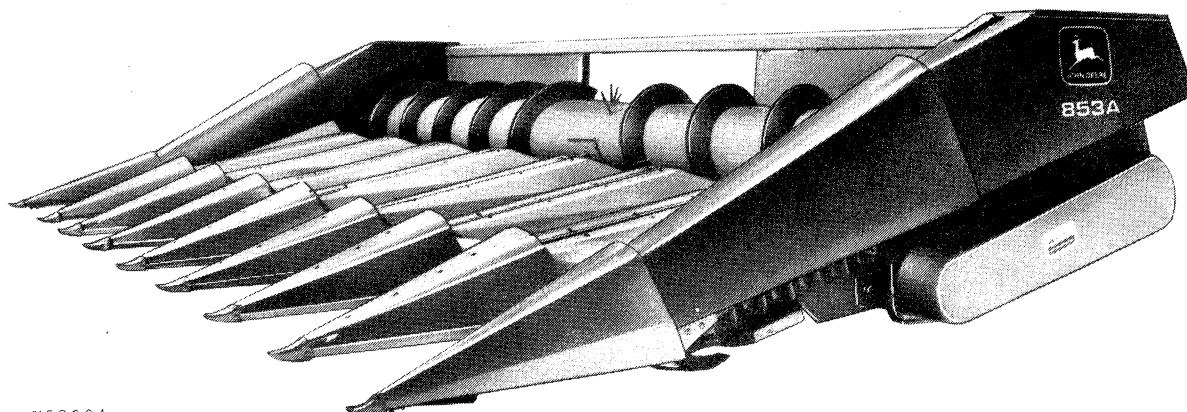
Your operator's manual contains SI Metric equivalents which follow immediately after the U.S. customary units of measure.

"Right-hand" and "left-hand" sides are determined by facing in the direction the row-crop head will travel.

Record your row-crop head serial number in the space provided on page 71.

The warranty on this row-crop head appears on your copy of the purchase order which you should have received from your dealer when making your purchase. This warranty provides you the assurance that John Deere will back its products where defects appear within the warranty period. In some circumstances, John Deere also provides field improvements, often without charge to the customer, even if the product is out of warranty.

Warranty and field improvements are a part of John Deere's product support program for customers who operate and maintain their equipment as described in this manual. Should the equipment be abused, or modified to change its performance beyond the original factory specifications, the warranty will become void and field improvements may be denied.





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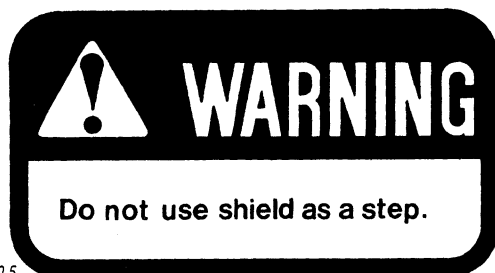
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Safety

 Unauthorized modifications to the row-crop head may impair the function and or safety and affect machine life.

SAFETY DECALS



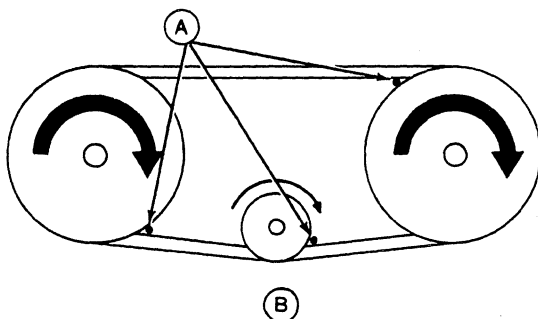
H33905

 **CAUTION OR WARNING:** Decals with these headings and symbol indicate the possibility of personal injury.

IMPORTANT: Decals with this heading indicate the possibility of damage to the machine.

Decals are located in areas where they apply.

AVOID CONTACT WITH MOVING PARTS



H31200

Keep hands, feet, and clothing away from power-driven parts. Be particularly careful of pinch points on belt and chain drives.

Never clean, lubricate, or adjust the row-crop head when it is running.

Never attempt to clear obstructions off the row-crop head unless the separator is disengaged and the power is shut off.

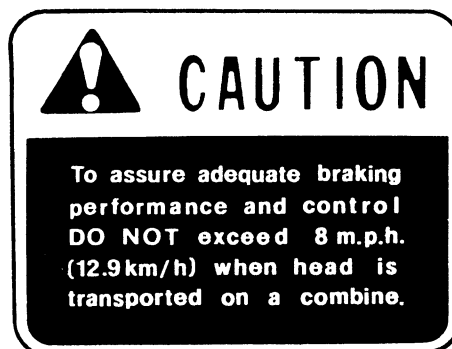
A—Pinch Points
B—Belt Drive

LEAVING COMBINE UNATTENDED

Before leaving the combine unattended, turn off engine and remove keys. Support the row-crop head with the hydraulic cylinder safety stop or lower it to the ground. Place the gearshift lever in neutral and engage the parking brake. Lock cab doors on 6620, SideHill 6620, 7720 and 8820 Combines.

TRANSPORTING

Never transport on road with 1253A Row-Crop Header attached to combine faster than 8 mph. It is recommended that you use a Model 25 Transport Frame for these 50A Series Headers.

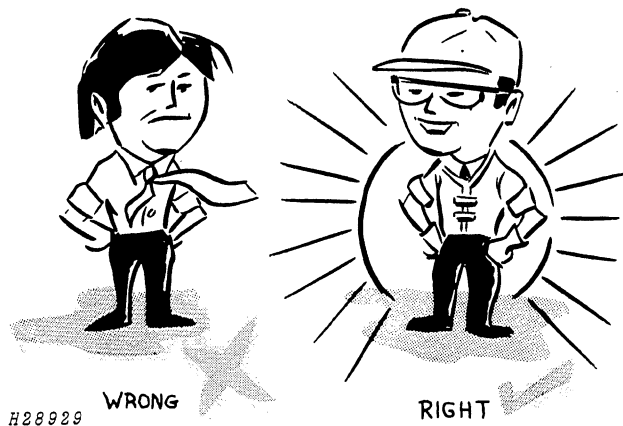


H37374

OPERATE SAFELY

Clothing worn by operator must be fairly tight and belted. Loose jackets, shirts, or sleeves must never be worn.

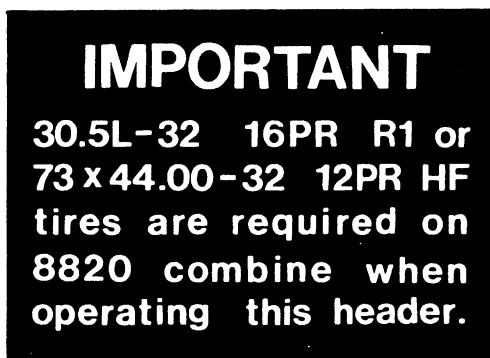
Any time work is being done under row-crop head, the hydraulic cylinder safety stop must be placed in the safety position. Refer to page 17.



H28929

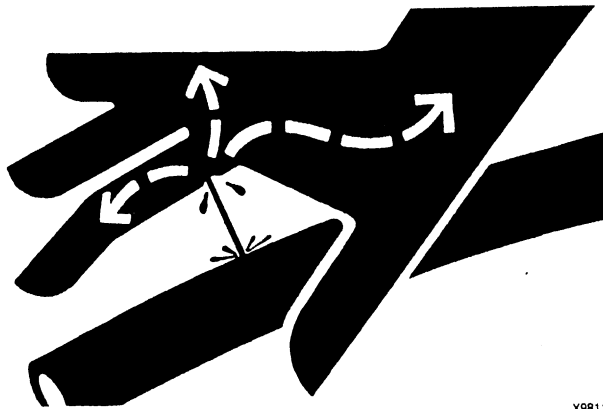
H28929

When an 8820 Combine is equipped with a 1253A Row-Crop Head, 30.5L-32 16 PR or 73 x 44.00-32 high flotation tires are required.



H37375

AVOID HIGH PRESSURE FLUIDS



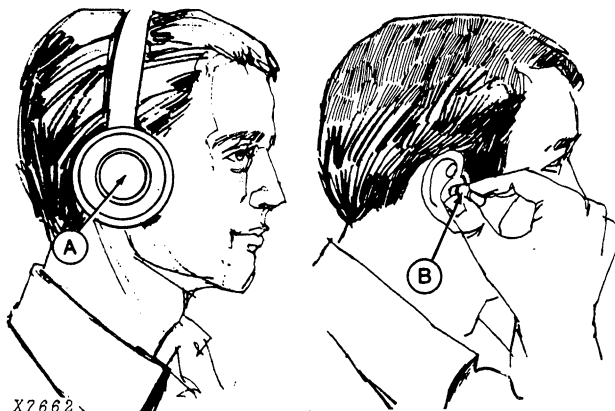
X9811

Escaping fluid under pressure can penetrate the skin causing serious injury. Relieve pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Keep hands and body away from pinholes and nozzles which eject fluids under high pressure. Use a piece of cardboard or paper to search for leaks. Do not use your hand.

If ANY fluid is injected into the skin, it must be surgically removed within a few hours by a doctor familiar with this type injury or gangrene may result.

Cracking hydraulic line fittings to lower the feeder house will result in an instantaneous dropping of feeder house or feeder house and header.

PROTECT AGAINST NOISE



X7662

X7662

Prolonged exposure to loud noise can cause impairment or loss of hearing.

Wear a suitable hearing protective device as earmuffs (A) or earplugs (B) to protect against objectionable or uncomfortable loud noises.

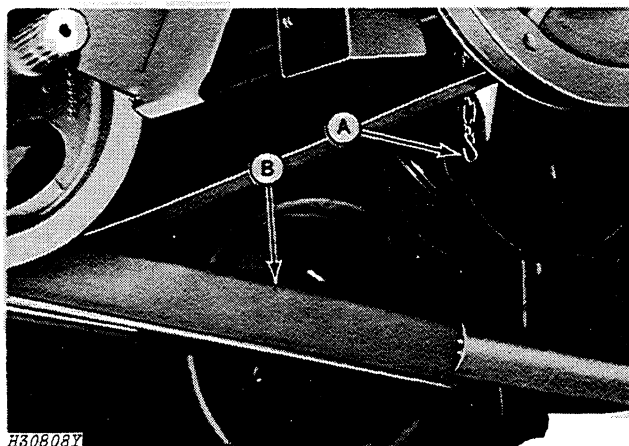
A—Earmuffs
B—Earplugs



Attaching and Detaching

ATTACHING ROW-CROP HEAD TO 4400 (-350000), 6600, 7700, AND 7701 COMBINES

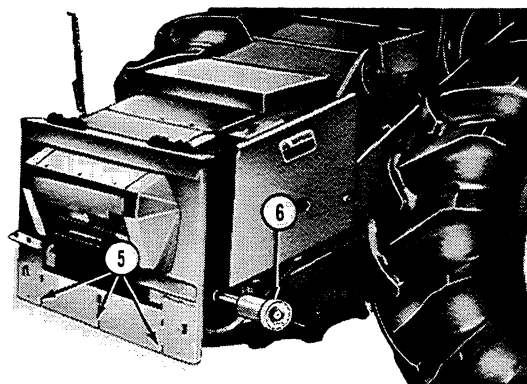
1. Install coupler on lower feeder house shaft.
2. Start engine and lower feeder house.
3. Move combine slowly forward until feeder house is centered in row-crop head opening. Raise feeder house lifting row-crop all the way up.
4. Disconnect chain (A) and lower hydraulic cylinder safety stop (B) on lift cylinder.



A—Chain
B—Safety Stop

H30808Y

5. Secure row-crop head to feeder house with three 1/2 x 1-1/2-inch round head bolts and 17/32 x 1-1/4 x .180-inch flat washers in bottom holes.
6. Place roller chain around sprockets, slide coupler over sprockets and chain. Repeat procedure on other side.
7. Connect Automatic Header Height Control harness if so equipped.



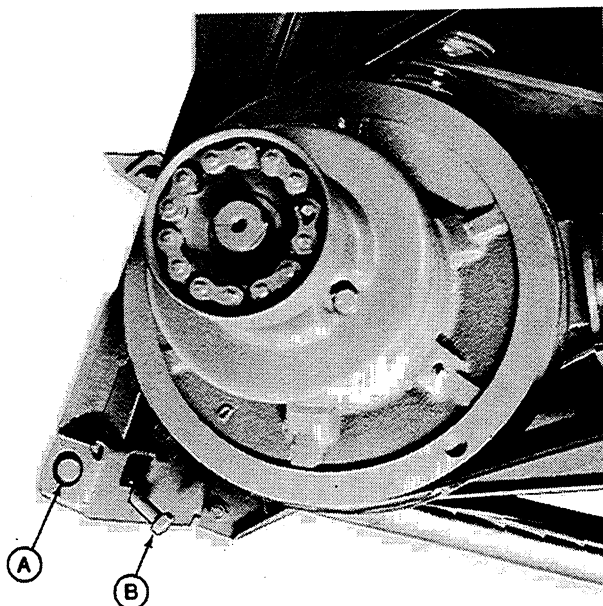
H33906Y

H33906Y

DETACHING ROW-CROP HEAD FROM 4400 (-350000), 6600, 7700 AND 7701 COMBINES

1. Start engine and raise row-crop head all the way up. Shut off engine.
2. Disconnect chain and lower hydraulic cylinder safety stop on lift cylinder.
3. Slide coupler off sprockets and chain, and remove coupler chain. Repeat procedure on other side.
4. Disconnect Automatic Header Height Control harness if so equipped.
5. Remove three 1/2 x 1-1/2-inch round head bolts and 17/32 x 1-1/4 x .180-inch flat washers.
6. Raise hydraulic cylinder safety stop and hook chain.
7. Start engine and lower feeder house until row-crop head is on ground and attaching blocks are free.
8. Move combine slowly rearward until feeder house is clear of row-crop head.

ATTACHING ROW CROP HEAD TO 4400 (350001-) 4420, 6620, 7720, 7721 and 8820 COMBINES



H31012Y

H31012Y

IMPORTANT: Lock pin (A) (both sides) must be positioned in before attaching header. Position pin by sliding stop bolt (B) in and then pivoting it down. If pins are left in the out position, damage to the feeder house will result when mounting a header.

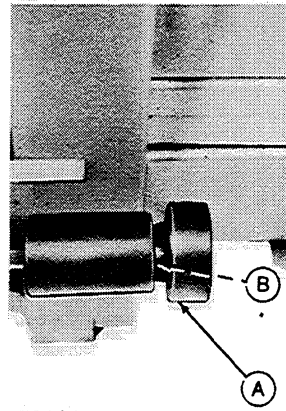
NOTE: If belt pickup or cutting platform was used prior to using row-crop head, the pressure line and return line for belt pickup or reel drive must be connected together.

A—Lock Pin
B—Stop Pin

1. Install coupler on lower feeder house shaft.

NOTE: Two couplers, shipped with the feeder house are used on the 653A, 654A, 655A, 853A, 854A and 1253A Row-Crop heads. An extra coupler is shipped with the 8820 Combine and must be installed on the left-hand row-crop shaft as follows:

1. (Not illustrated) Remove snap ring on left-hand drive shaft. Save snap ring.
2. Slide off coupler sprocket and shield.
3. Install Quik-Coupler (A) with shield.
4. Secure with snap ring (B).

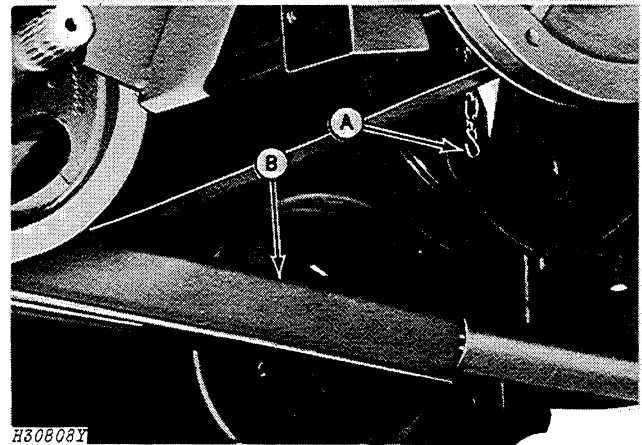


H33907

H33907

A—Quik Coupler
B—Snap Ring

2. Start engine and lower feeder house.
3. Move combine slowly forward until feeder house is centered in row-crop head opening. Raise feeder house, lifting row-crop head, all the way up. Shut off engine.
4. Disconnect chain (A) and lower hydraulic cylinder safety stop (B) on lift cylinder.

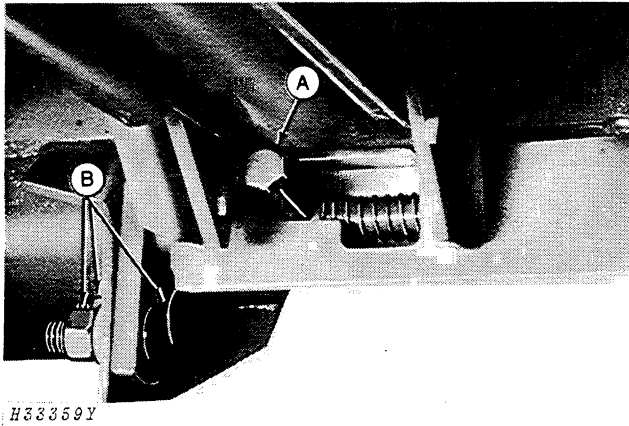


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A—Chain
B—Safety Stop

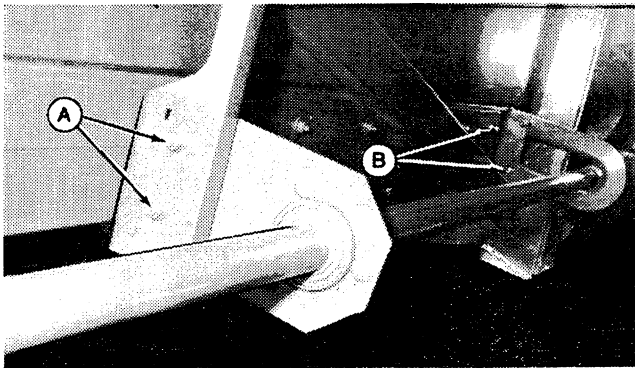
8 Attaching and Detaching



5. Pivot stop bolt (A) up allowing lock pin to lock into header. Repeat procedure for other side.

NOTE: Loosen mating lock plate (B) on the row-crop head, to allow the lock pin to center. Retighten lock plate.

A—Stop Bolt
B—Mating Lock Plate

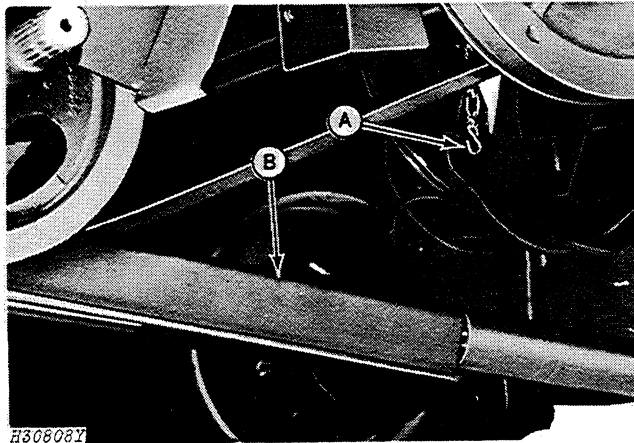


6. (854A and 1253A Row-Crop Heads only) Loosen two bolts in bearing retaining bracket (A), and in shaft support bracket (B). Both brackets must be loose. Repeat procedure on other side.
7. (854A and 1253A Row-Crop Heads only) Place roller chain around sprockets, slide coupler over sprockets and chain, and position shield over coupler. Repeat procedure on other side.
8. (854A and 1253A Row-Crop Heads only) Start combine engine and engage header with engine at slow idle. Allow drive shafts to align, and bearing bracket to find its center. Disengage header and shut off engine.
9. (854A and 1253A Row-Crop Heads only) Secure two bolts in bearing retaining bracket (A), and in shaft support bracket (B) so bracket does not rub on shaft. Repeat procedure on other side. Head and combine shafts are now aligned.
10. Connect header height control harness if so equipped.

DETACHING ROW-CROP HEAD FROM 4400 (350001-), 4420, 6620, 7720, 7721 and 8820 Combines

1. Start engine and raise row-crop head all the way up. Shut off engine.
2. Disconnect chain and lower hydraulic cylinder safety stop on lift cylinder.
3. Slide coupler off sprockets and chain and remove coupler chain. Repeat procedure on other side.
4. Disconnect header height control harness if so equipped.
5. Slide and pivot stop bolt down, allowing lock pin to unlock row-crop head. Repeat procedure on other side.
6. Raise hydraulic cylinder safety stop and hook chain.
7. Start engine and lower feeder house until row-crop head is on ground and attaching blocks are free.
8. Move combine slowly rearward until feeder house is clear of row-crop head.

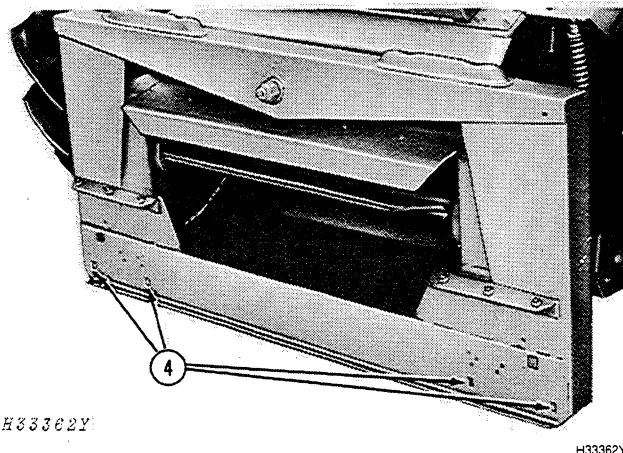
ATTACHING ROW-CROP HEAD TO SIDEHILL 6600 AND SIDEHILL 6620 (-358900)



NOTE: Only 454A and 653A Row-Crop Heads are used on SideHill 6620 Combines.

1. Start engine and lower feeder house.
2. Move combine slowly forward until feeder house is centered in row-crop head opening. Raise feeder house lifting row-crop head, all the way up. Shut off engine.
3. Disconnect chain (A) and lower hydraulic cylinder safety stop (B) on lift cylinder.

A—Chain
B—Safety Stop



4. Secure row-crop head to feeder house with four 1/2 x 1-1/2-inch round head bolts and 17/32 x 1-1/4 x .180-inch flat washers.
5. Install telescoping drive shaft between row-crop head and feeder house.
6. Install 5/16 x 2-1/2-inch cap screw then tighten clamp on inner end of telescoping drive shaft.
7. Connect Automatic Header Height Control harness if so equipped.

DETACHING ROW-CROP HEAD FROM SIDEHILL 6600 AND SIDEHILL 6620 (-358900) COMBINES

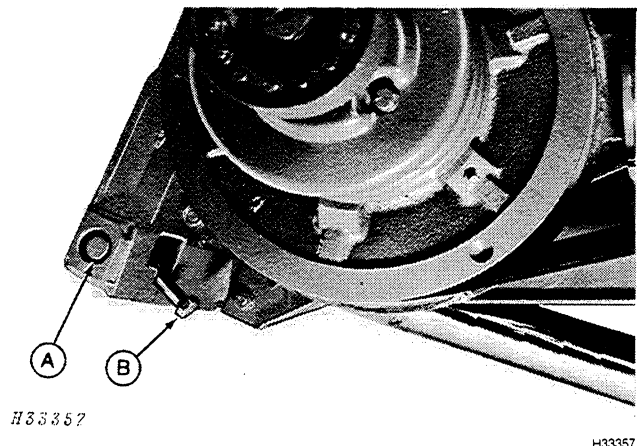
1. Start engine and raise row-crop head all the way up. Shut off engine.
2. Disconnect chain and lower hydraulic cylinder safety stop on lift cylinder.
3. Remove 5/8 x 2-1/2-in. cap screw; then loosen cap screw in clamp and disconnect telescoping drive shaft. Repeat procedure on other side.
4. Disconnect Automatic Header Height Control harness if so equipped.
5. Remove four 1/2 x 1-1/2-inch round head bolts and 17/32 x 1-1/4 x .180-inch flat washers.
6. Raise hydraulic cylinder safety stop and hook chain.
7. Start engine and lower feeder house until row-crop head is on ground and attaching blocks are free.
8. Move combine slowly rearward until feeder house is clear of row-crop head.

ATTACHING ROW-CROP HEAD TO SIDEHILL 6620 (403301-) COMBINES

IMPORTANT: Lock pin (A) (both sides) must be positioned in before attaching header. Position pin by sliding stop bolt (B) in and then pivoting it down. If pins are left in the out position, damage to the feeder house will result when mounting a header.

NOTE: If belt pickup or cutting platform was used prior to using row-crop head, the pressure line and return line for belt pickup or reel drive must be connected together.

A—Lock Pin
B—Stop Bolt

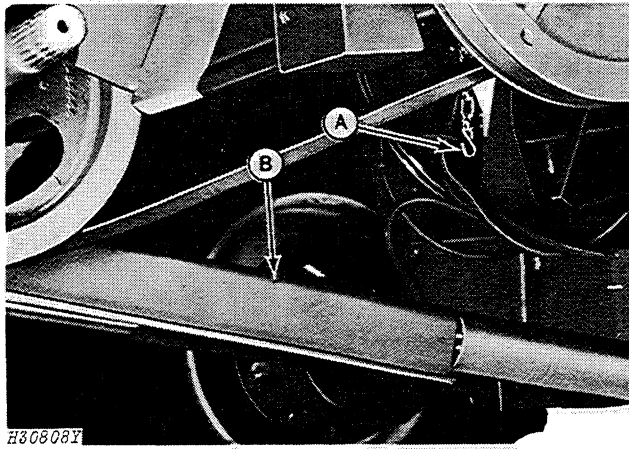


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NOTE: Only 454A and 653A Row-Crop Heads are used on SideHill 6620 Combines.

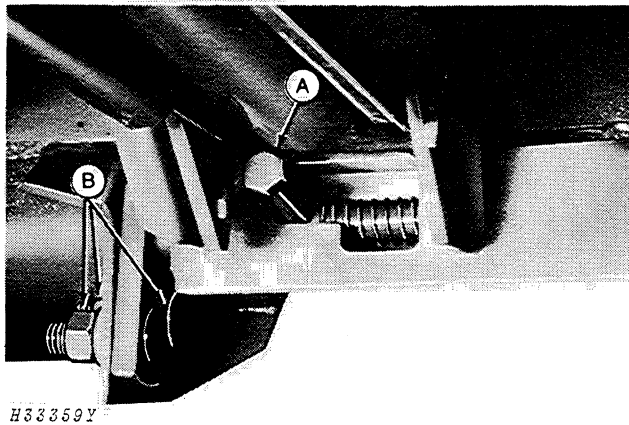
1. Start engine and lower feeder house.
2. Move combine slowly forward until feeder house is centered in row-crop head opening. Raise feeder house, lifting row-crop head, all the way up. Shut off engine.

12 Attaching and Detaching



3. Disconnect chain (A) and lower hydraulic cylinder safety stop (B) on lift cylinder.

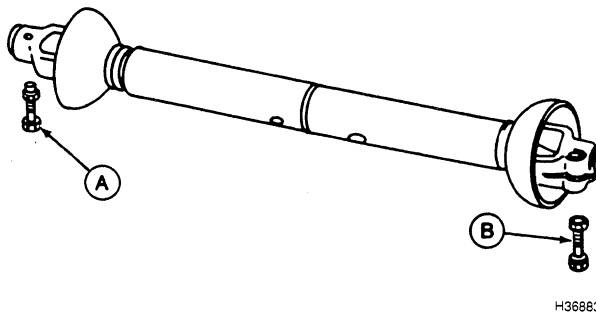
A—Chain
B—Safety Stop



4. Pivot stop bolt (A) up, allowing lock pin to lock into row-crop head. Repeat procedure for other side.

NOTE: Loosen mating lock plate (B) on the row-crop head, to allow the lock pin to center. Retighten lock plate.

A—Stop Bolt
B—Mating Lock Plate



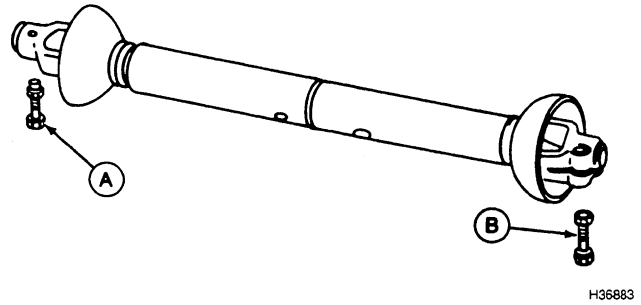
Left-Hand Drive Shaft Illustrated

A—Clamp
B—Cap Screw

5. Install telescoping drive shaft between row-crop head and feeder house.
6. Tighten clamp (A) on inner end of telescoping drive shaft and install 5/16 x 2-1/2-inch cap screw (B), lock washer and nut thru outer end.
7. Repeat steps 5 and 6 on other side if necessary.
8. Connect header height control harness if so equipped.

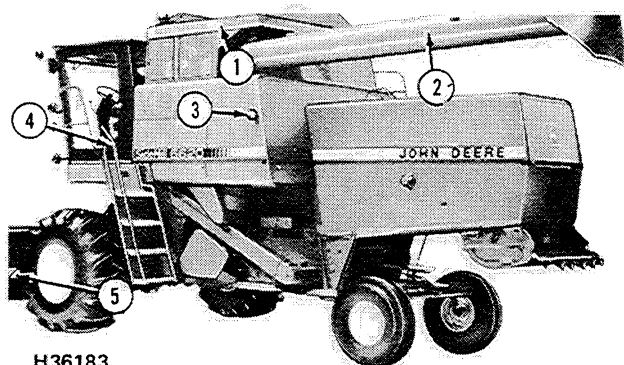
DETACHING ROW-CROP HEAD FROM SIDEHILL 6620 (403301-) COMBINES

1. Start engine and raise row-crop head all the way up. Shut off engine.
2. Disconnect chain and lower hydraulic cylinder safety stop on lift cylinder.
3. Loosen clamp (A) on inner end and remove cap screw (B) then disconnect telescoping drive shaft. Repeat procedure on other side if necessary.
4. Disconnect header height control harness if so equipped.
5. Slide and pivot stop bolt down, allowing lock pin to unlock row-crop head. Repeat procedure on other side.
6. Raise hydraulic cylinder safety stop and hook chain.
7. Start engine and lower feeder house until row-crop head is on ground and attaching blocks are free.
8. Move combine slowly rearward until feeder house is clear of row-crop head.



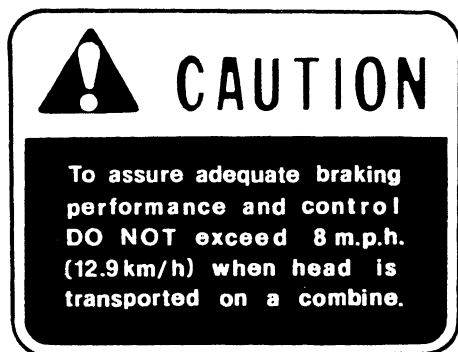


Transporting



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H36183



H37374

Check local width laws before transporting.

The row-crop head can be transported by leaving it attached to the combine.



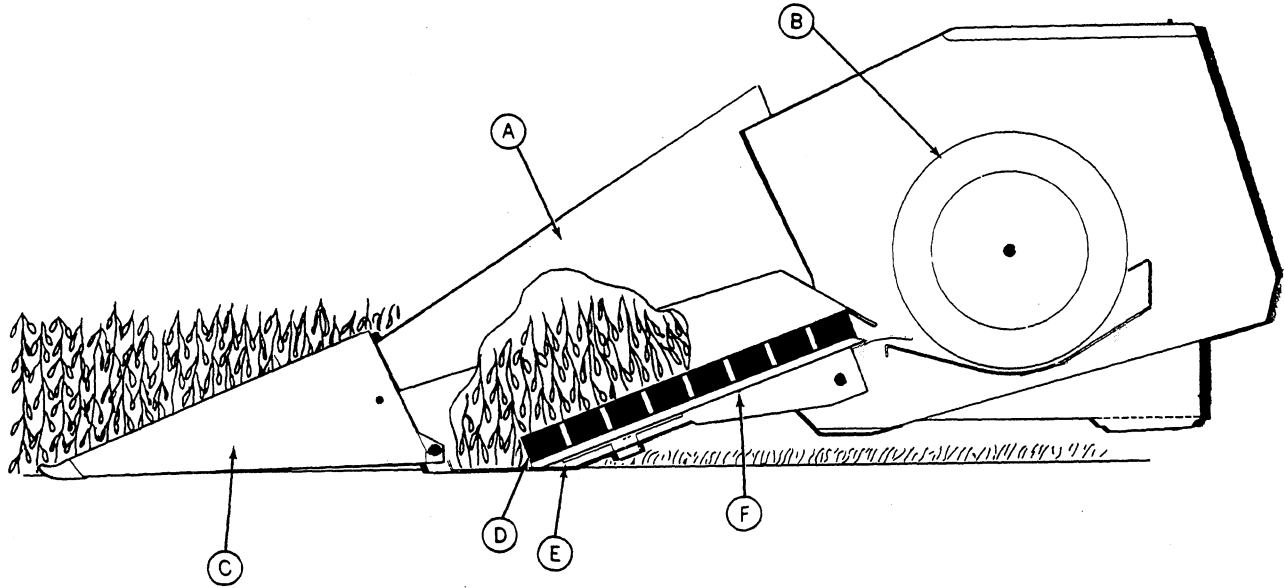
CAUTION: Never transport on road with 1253A Row-Crop Head attached to Combine faster than 8 mph. It is recommended that you use a model 25 Transport Frame for these 50 Series Headers.

1. Empty grain tank.
2. Swing unloading auger back.
3. Turn on combine flashing warning light, unless prohibited by local law.
4. Couple combine brake pedals together.
5. Raise row-crop head to a position that will keep it off the ground but still allow good visibility.
6. If transporting over rough terrain or extended distance, lock the row units in rigid position and a lower safety stop on lift cylinder.



Operating the Row-Crop Head

GENERAL INFORMATION



H26051

A—Outer Gatherer Sheet
B—Auger

C—Outer Gatherer Point
D—Gathering Belts

E—Rotary Knife
F—Trough

The 50A Series Row-Crop Head is designed for harvesting soybeans, maize, and other row crops such as millet and sunflowers.

As the combine moves through the field, the row crop head gatherer points are positioned between the rows. Gatherer points lift and guide crop into the gathering belts.

The gathering belts extend forward of the rotary knife to grip each stalk before it is cut. After the rotary knives have cut the stalks, the gathering belts then convey them to the sump type auger. A trough, located under the gathering belts, reduces crop loss due to shatter. The auger conveys the crop to the feeder house which delivers it to the threshing cylinder.

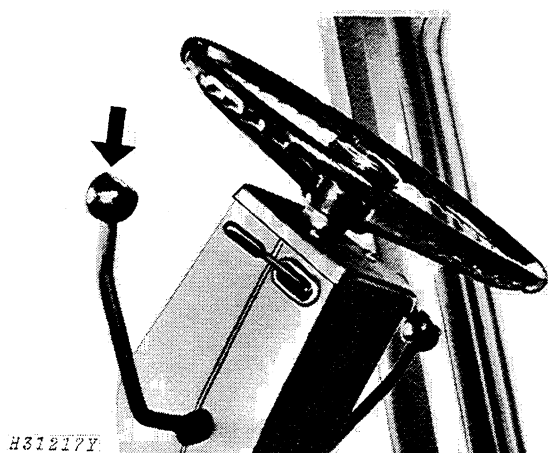
It is important that gather belt speed be approximately the same as combine ground speed.

DRIVE AND OPERATE CAREFULLY

When starting in the field, operate the combine or tractor in a lower gear until you become familiar with the row-crop head. Drive carefully, harvesting the crop rows as they were planted so it will not be necessary to cut odd or guess rows. Never force the row-crop head or combine to the point of overloading. Machine overloading can result in breakdowns.

After making several rounds, stop the row-crop head and shut off engine. Check all bearings for heating. All bolts must be tight and chains properly adjusted. Listen for slipping clutches or other unusual noises. If the row-crop head becomes plugged, clean it out. Do not decrease engine speed. Keep the engine operating speed and decrease the ground speed until the row-crop head has been cleared.

ROW-CROP HEAD DRIVE SPEEDS



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To prevent plugging or running over crop, the forward ground speed of the combine must be approximately the same as the rearward movement of the gathering belts. Row-crop head drive speed is varied by changing the speed of the lower feeder house shaft.

Adjust as follows:

1. On combines equipped with variable speed feeder houses, shaft speed ranges from approximately 460 to 700 rpm. Speed is controlled with the variable speed control lever.
2. On chain driven feeder houses, use one of three sprockets located on the lower left-hand side of the feeder house to vary the speed to one of three fixed speeds of 468, 618 and 755 rpm.

The following table may be used as a guide to match header speed to combine travel speed.

Combine travel speed	Approximate lower feeder house shaft speed
less than: 2.5 mph (4.0 km/h)	460 rpm
3. mph (4.8 km/h)	530 rpm
3.5 mph (5.6 km/h)	600 rpm
4. mph (6.4 km/h)	670 rpm
greater than: 4.5 mph (7.2 km/h)	700 rpm

If speeds are mostly above 4.5 mph (7.2 km/h) use a high speed 18-tooth drive sprocket AH89636 that gives a 38 percent faster belt speed.

NOTE: It is not recommended to run belts faster than speeds shown above. Higher speeds take extra engine power and can cause knife plugging in grassy conditions.

ADJUST ROW-CROP HEAD

Successful operation, quality of work, and length of life of any machine depends greatly upon proper adjustments to meet specific field conditions.

After making several rounds, check adjustments on the row-crop head and combine to see that you are getting the best possible crop sample in the grain tank.

HYDRAULIC CYLINDER SAFETY STOP

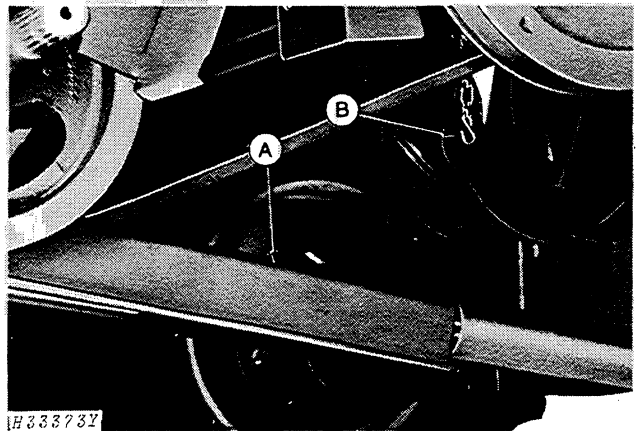
1.  **CAUTION: When working under the row-crop head always place the hydraulic cylinder safety stop in safety position to prevent header from lowering.**

Start engine, raise feeder house and fully extend hydraulic cylinder to place safety stop (A) in safety position.

2. Disconnect chain (B) from safety stop.
3. Position safety stop on piston rod.

After completing work on the row-crop head, attach safety stop to chain for storage.

A—Safety Stop
B—Chain



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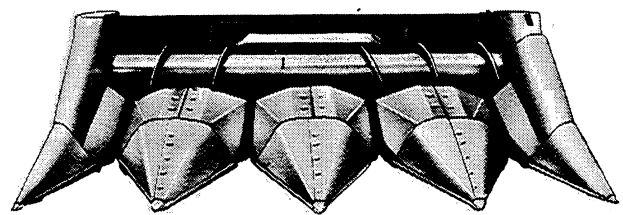
GATHERERS

General Information

Adjust point height clearance to prevent points from scooping dirt into gathering belts.

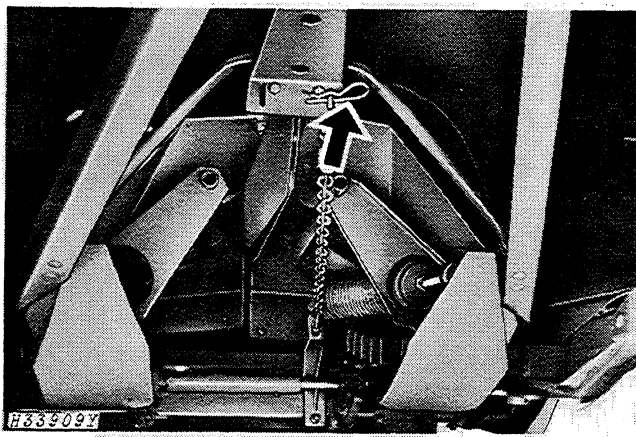
In standing soybeans, adjust gatherer point height for approximately 2-in. (51 mm) clearance from ground when skid shoe is on the ground. In down crop conditions adjust point height for 1/2 to 1-in. (13 to 25 mm) clearance from ground.

Adjust all gatherer points level with one another. On uneven terrain and with longer heads, it is often desirable to carry the end points slightly higher than others.



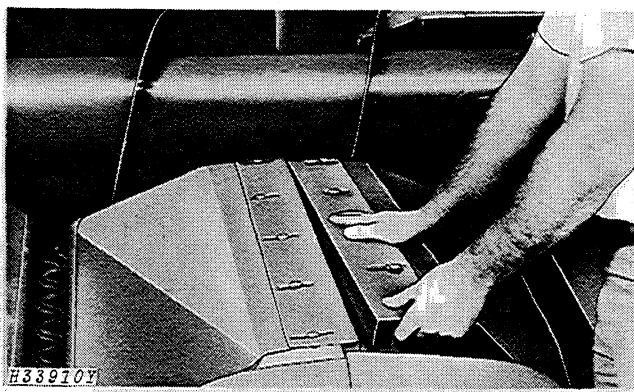
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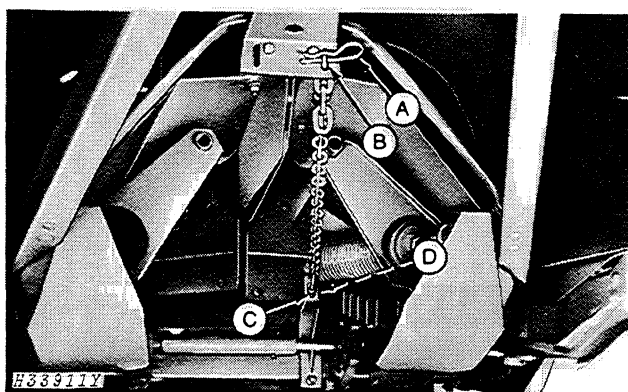


Opening Inner Gatherer Sheets

1. Raise row-crop head to maximum height and lower hydraulic cylinder safety stop.
2. Pull spring locking pin attaching chain to point and lower point to ground. Store pin in same chain link to prevent loss and to retain adjustment location.



3. To open, pull up on inner gatherer sheets.
4. To close, push down on sheet until you hear it snap.



A—Spring Locking Pin
B—Slot
C—Nut
D—Adjusting Bolt

Adjusting Inner Gatherer Points Up Or Down

1. Raise row-crop head to maximum height and lower hydraulic cylinder safety stop.
2. Remove spring locking pin (A).
3. Position desired link of chain in slot (B).
4. Insert spring locking pin (A).

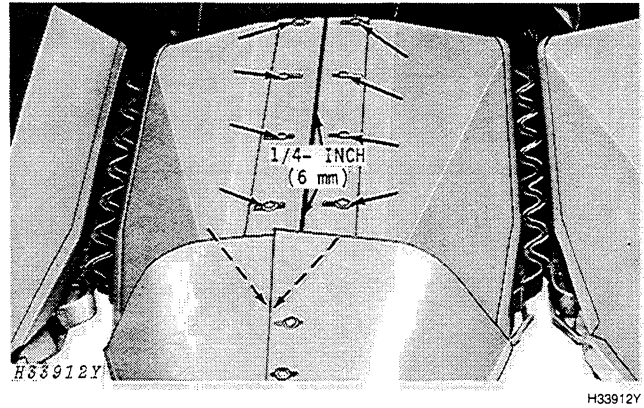
If further adjustment is required to level gatherer points adjust as follows:

1. Loosen nut (C).
2. Turn adjusting bolt (D) until desired height is obtained.
3. Tighten nut (C).

Adjusting Gatherer Sheet Clearance

1. Maintain a 1/4-inch (6 mm) clearance between gatherer sheets to provide independent float of each row unit.
2. Loosen ten screws.
3. Slide gatherer sheets to left or right to obtain correct clearance.
4. Tighten ten screws.

IMPORTANT: Measure for minimum clearance at upper and lower ends of gatherer sheets.

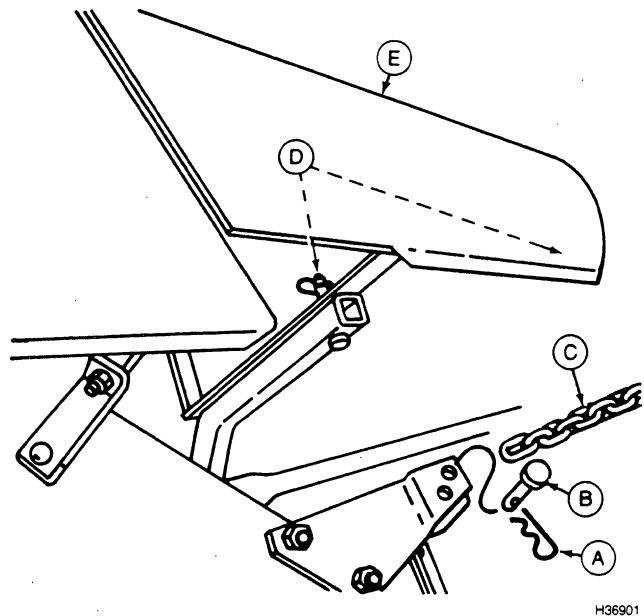


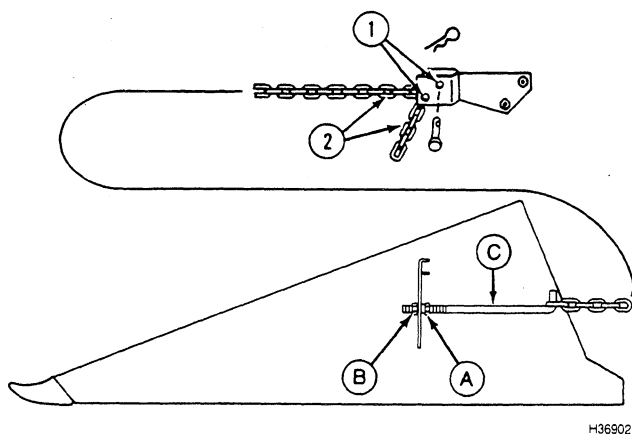
Opening Outer Gatherer Sheets

1. Raise row-crop head to maximum height and lower hydraulic cylinder safety stop.
2. Pull out spring locking pin (A) and drilled pin (B) at rear of gatherer to lower outer gatherer point to ground.
3. Pull two spring locking pins (D), one at rear sheet and one at front of sheet.
4. Swing up gatherer sheet (E).

NOTE: Row units must be in floating position before opening outer gatherer sheets.

A—Spring Locking Pins
B—Drilled Pin
C—Chain
D—Spring Locking Pins
E—Outer Gatherer Sheet





Adjusting Outer Gatherer Points Up or Down

To obtain desired point height there are three possible adjustments.

Start with first adjustment, proceeding to second or third, if necessary, to obtain correct height.

Raise row-crop head to maximum height and lower hydraulic cylinder safety stop.

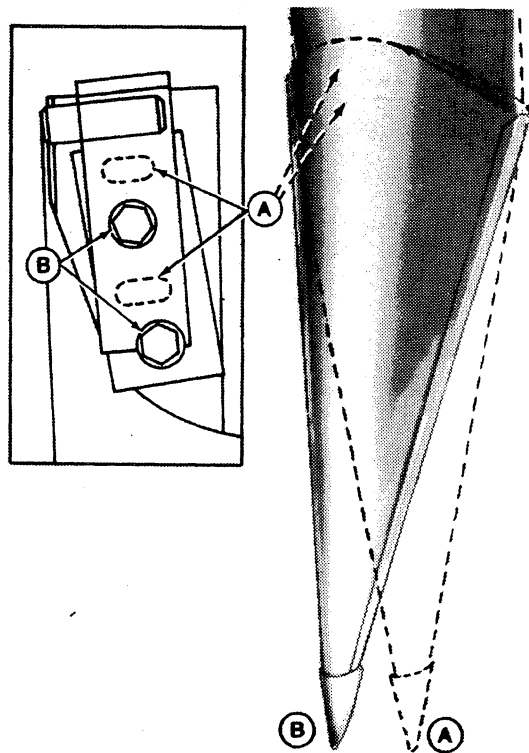
Adjust with one or more of following three methods.

1. At rear outer gatherer sheet, remove spring locking pin, and reposition drilled pin in hole of support chain bracket. Secure with spring locking pin.
2. At rear of outer gatherer sheet, reposition support chain using different link.
3. Loosen nut (A) and turn nut (B) for desired operating height. Tighten nut (A).

A—Nut

B—Nut

C—Adjusting Bolt



Adjusting Outer Gatherer Points In Or Out

Outer gatherer points may be adjusted to an "in" or "out" position.

Attach points to hinge pins at holes (A) for "in" position and at (B) for "out" position.

NOTE: In down crop conditions or when changing row spacing, it may be necessary to move gatherer points in.

A—Slots (In Position)

B—Slots (Out Position)

ROW UNITS

Adjusting Row Units for Floating or Rigid Operation

Raise row-crop head to maximum height, lower hydraulic cylinder safety stop.

Floating Operation

NOTE: Soybeans require row units to be in the floating position.

Adjust as follows:

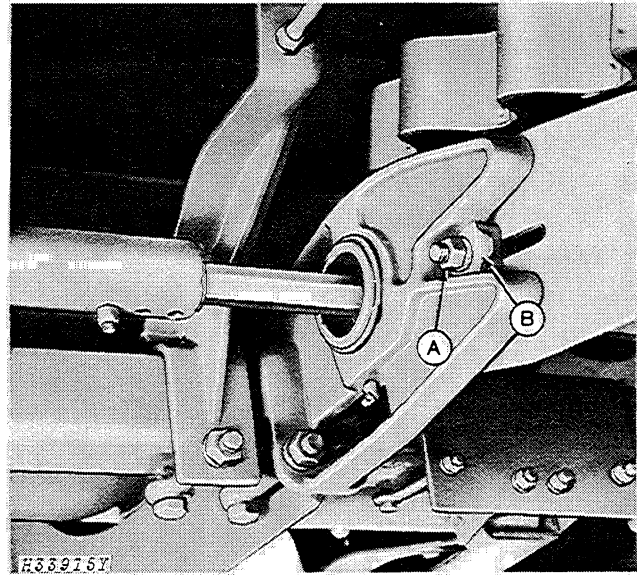
1. Loosen nut (A), drive wedge (B) forward (on both sides of row unit).
2. Tighten nut (A).
3. Repeat for each row unit.

Rigid Operation

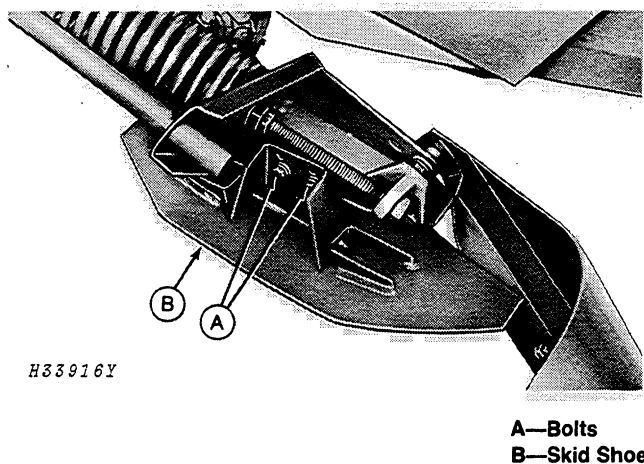
NOTE: Standing maize and sunflowers require row units to be in the rigid position.

Adjust as follows:

1. Loosen nut (A), drive wedge (B) rearward (on both sides of row unit).
2. Tighten nut (A).
3. Repeat for each row unit.



A—Nut
B—Wedge



Adjusting Row Unit Skid Shoes

Proper position of skid shoes depends on the shape of row hill and the height of crop to be cut.

Adjust skid shoes up to cut stalks short.

Adjust skid shoes down to cut stalks long.

1. Raise row-crop head to maximum height and lower hydraulic cylinder safety stop.
2. Remove bolts (A).
3. Move skid shoe (B) to desired position.
4. Replace and tighten bolts (A).
5. Repeat for each row unit.

Cleaning Skid Shoes

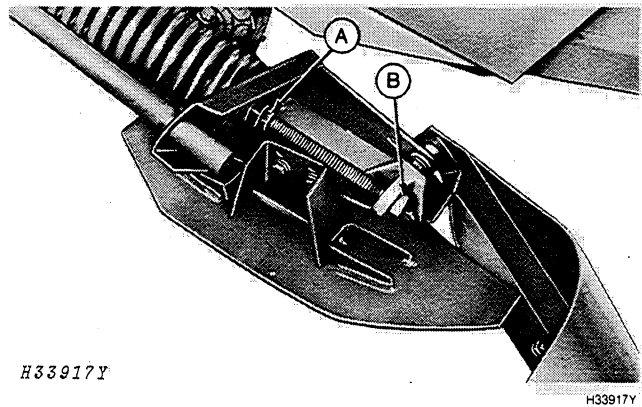
1. Remove all dirt from bottom side of skid shoes.
2. Paint bottom side of skid shoe with soft black paint to keep shoe sliding on top of ground and not digging in. See your John Deere dealer.

Adjusting Row Unit Float Spring Tension

Adjust row unit springs to existing ground conditions to achieve minimum ground pressure on skid shoes.

Adjust as follows:

1. Raise row-crop head to maximum height, lower hydraulic cylinder stop.
2. Loosen lock nut (A).
3. Turn adjusting bolt (B) until row unit begins to raise from lower stop or can be pushed upward easily. Row unit must return freely to lower stop.
4. Tighten lock nut (A).
5. Repeat for each row unit.



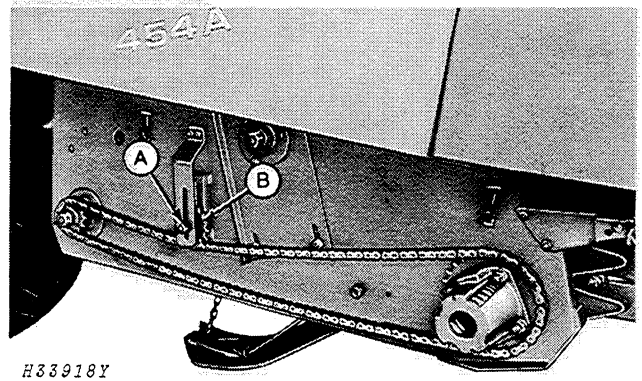
A—Lock Nut
B—Adjusting Bolt

Adjusting Row Unit Drive Chains

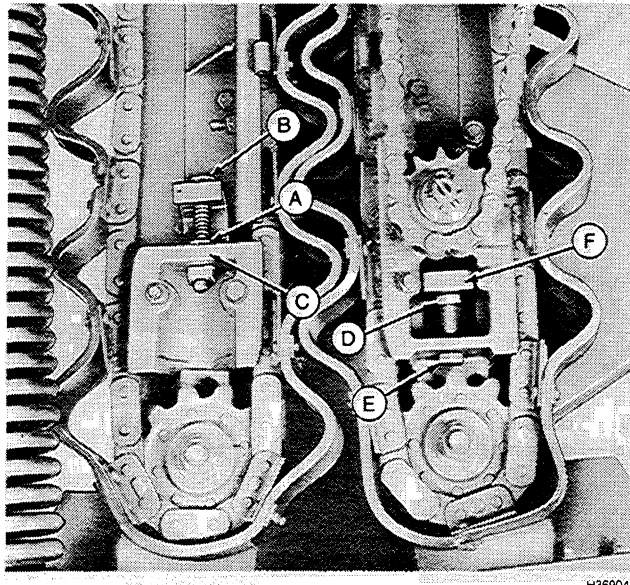
1. Loosen nut (A).
2. Move tightener sprocket (B) up or down until chain will operate without climbing or jumping sprockets.
3. Tighten nut (A).

Idler can be positioned on either top or bottom of chain to compensate for chain wear except on 1253A Header where it must be positioned on bottom only.

Repeat for left-hand drive chain. A—Nut
B—Tightener Sprocket



H33918Y



A—Jam Nut
B—Adjusting Bolt
C—Casting
D—Jam Nut
E—Adjusting Bolt
F—Idler Strap

Adjusting Gathering Belt Tension

1. Loosen jam nut (A) and tighten adjusting bolt (B) until a 20 lb. (88 N) force applied midway between the drives and idler sprockets will deflect the belt 1/2 to 1-inch (13 to 25 mm).
2. Tighten jam nut (A) against casting (C).
3. Loosen jam nut (D) and tighten adjusting bolt (E) until a 20 lb. (88 N) force applied midway between the drive and idler sprockets will deflect the belt 1/2 to 1-inch (13 to 25 mm).
4. Tighten jam nut (D) against idler strap (F).

IMPORTANT: When operating in rocky conditions, set skid shoes for a high cut and frequently check gathering belts and chains for damage. Installation of rock deflectors is recommended. See your John Deere dealer.

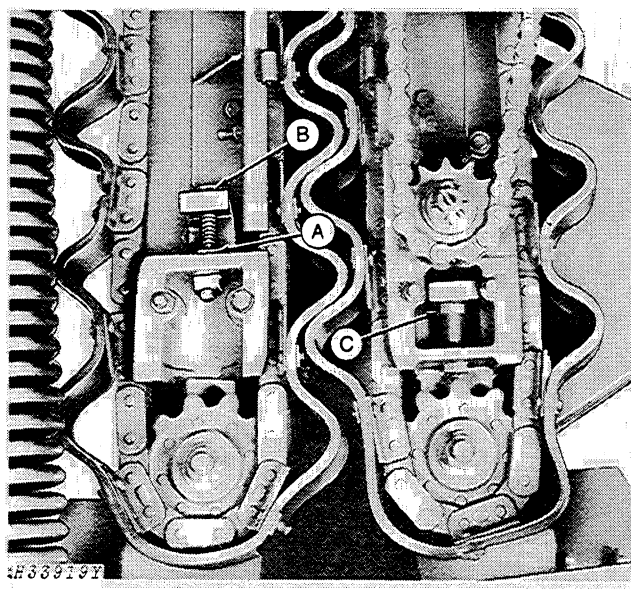
Timing Gathering Belts

To properly grip crop stalks, the gathering belts must be kept in time.

Whenever an obstruction is encountered, causing the slip clutch to slip, check gathering belt timing.

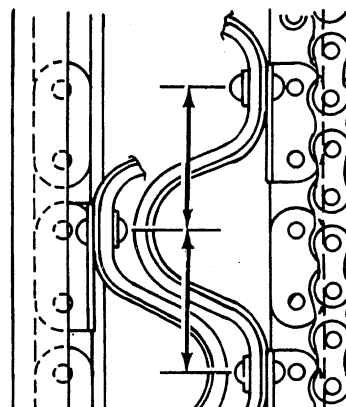
1. Loosen nut (A) and back off bolt (B) to loosen gathering belt.

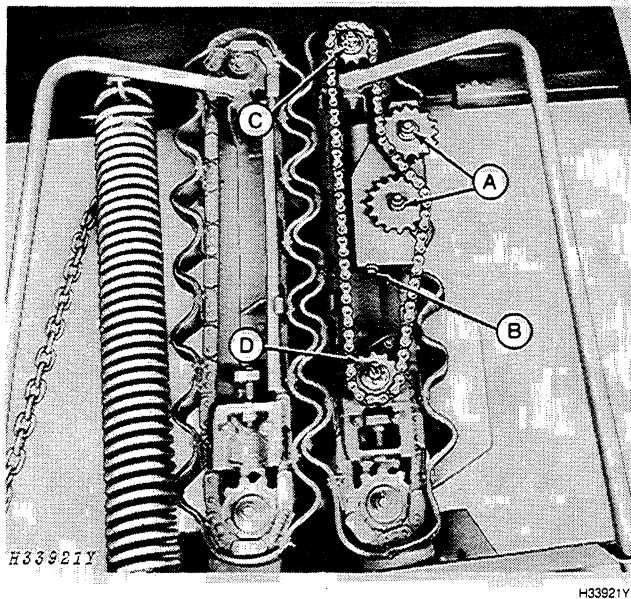
A—Nut
B—Bolt



2. Reposition belt on sprockets so the lug attachment links of the chain are centered between the attachment link of the mating chain within 3/8-inch (9.6 mm). Bold arrows show equal distance.
3. Tighten bolt (B) until a 20 lb (88 N) force applied midway between the drive and idler sprockets will deflect the belt 1/2 to 1-inch (13 to 25 mm).
4. Tighten nut (A).

H33920.



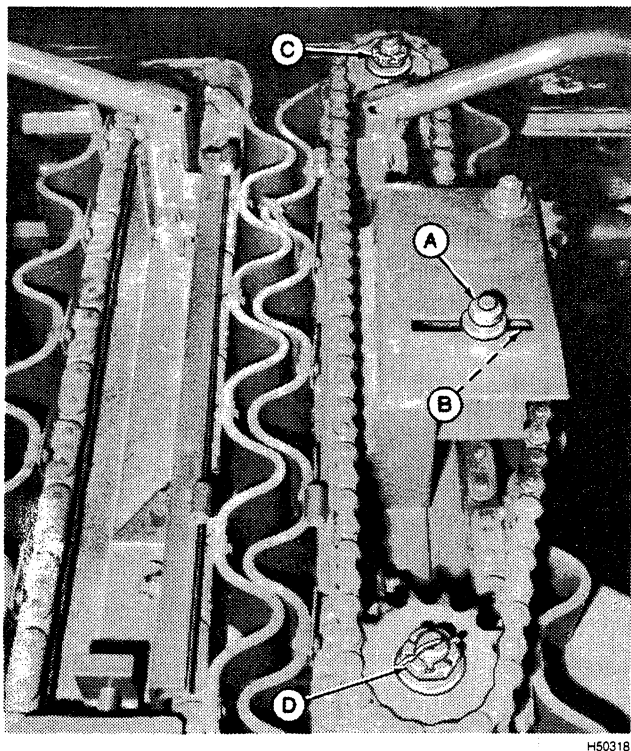


Adjusting Rotary Knife Chain

453A, 454A, 653A, 654A, 655A, 853A Row-Crop Heads

1. Loosen nuts (A).
2. Tighten adjusting bolt (B) until a 20 lb. (88 N) force applied midway between sprockets (C) and (D) will deflect the chain $\frac{3}{32}$ to $\frac{9}{32}$ -inches (2.37 to 7.11 mm).
3. Torque nuts (A) to 85 lb-ft (115 N·m).

A—Nuts
B—Adjusting Bolt
C—Sprocket
D—Sprocket



854A and 1253A Row-Crop Heads

1. Loosen nut (A) and slide sprocket (B) in slot until roller chain is tight. A 20 lb. (88 N) force applied midway between sprockets (C) and (D) must deflect chain about $\frac{3}{32}$ - $\frac{9}{32}$ in. (2 - 7 mm).
2. Torque nut (A) to 85 lb-ft (115 N·m).

A—Nut
B—Sprocket
C—Sprocket
D—Sprocket

1253A Row-Crop Head Illustrated

Adjusting Rotary Knives

To insure a good sharp shearing action of the rotary knives in adverse crop conditions, remove and thoroughly clean them prior to making adjustments. See Page 62 for removal of rotary knife.

Adjust rotary knife as follows:

1. To loosen chain and remove rotary knife drive, slide tightener in and remove rotary knife drive chain (B) (453A, 454A, 653A, 654A, 655A, 853A Row-Crop Heads). Slide sprocket in slot until chain can be removed from knife sprocket (854A and 1253A Row-Crop Heads).
2. Remove cotter pin (C).
3. Turn slotted nut (D) until rotary knife can be turned by hand.
4. Adjust rotary knife until a slight drag or shearing action is felt as rotary knife passes across stationary knife.
5. Replace cotter pin (C).

NOTE: Properly adjusted knives may become warm to touch after operation, but never hot.

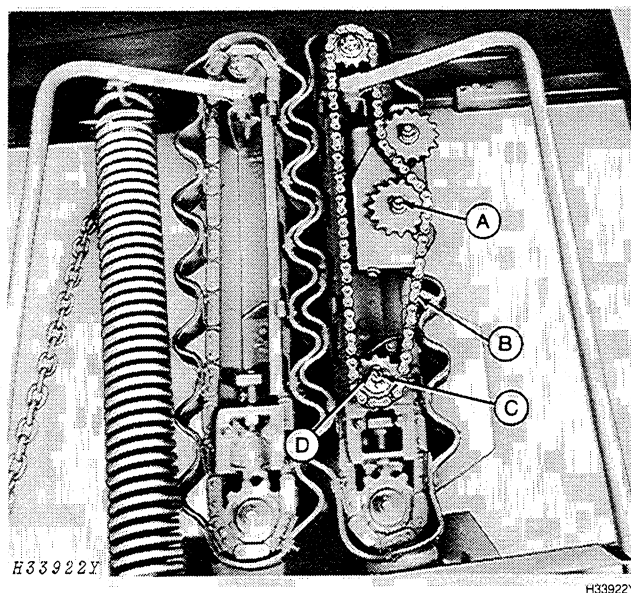
6. Replace rotary knife chain and tighten.

453A, 454A, 653A, 654A, 655A, and 853A Row-Crop Heads

Tighten adjusting bolt until 20 lb. (88 N) force applied midway between sprockets will deflect chain $\frac{3}{32}$ - $\frac{9}{32}$ in. (2 - 7 mm). Torque nuts to 85 lb-ft (115 N·m).

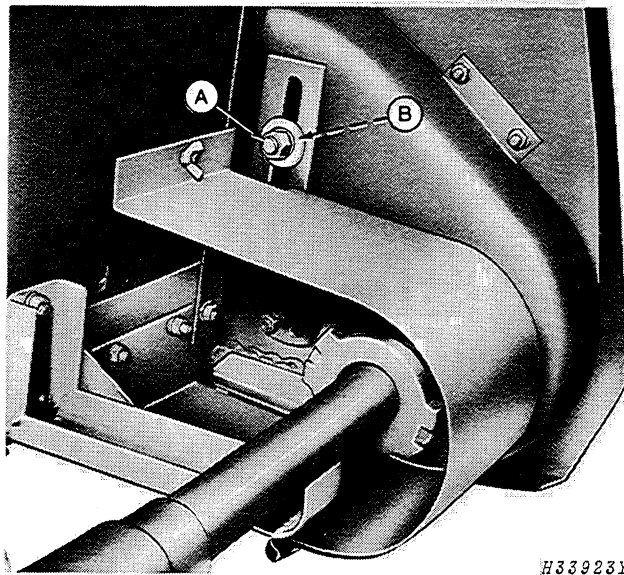
854A and 1253A Row-Crop Heads

Loosen nut and slide sprocket in slot until roller chain is tight. A 20 lb. (88 N) force applied midway between sprockets must deflect chain about $\frac{3}{32}$ - $\frac{9}{32}$ in. (2 - 7 mm). Torque nut to 85 lb-ft (115 N·m).



A—Nut
B—Chain
C—Cotter Pin
D—Slotted Nut

AUGER



Adjusting Auger Drive Chain

1. Loosen nut (A).
2. Move tightener sprocket (B) until chain will operate without climbing or jumping sprockets.
3. Tighten nut (A).

A—Nut
B—Tightener Sprocket

Adjusting Auger Height

A 1/4 to 1/2-inch (6.4 to 12.7 mm) clearance between auger flights and the bottom of the auger sump is required for most crops and conditions. Sunflowers and grain sorghum require up to 1-inch (25 mm) more clearance.

Adjust as follows:

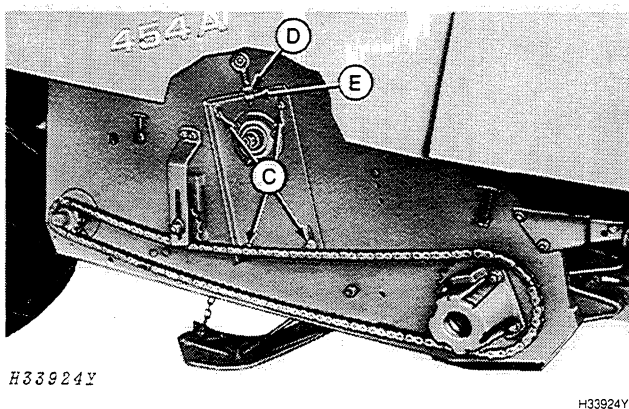
1. Loosen nut (A) and move auger drive chain tightener (B) up.

To raise auger, make the following adjustments on both sides of row-crop head:

2. Loosen nuts (C) and (D).
3. Tighten nut (E).
4. Tighten nuts (C) and (D).

To lower auger, make the following adjustments on both sides of row-crop head.

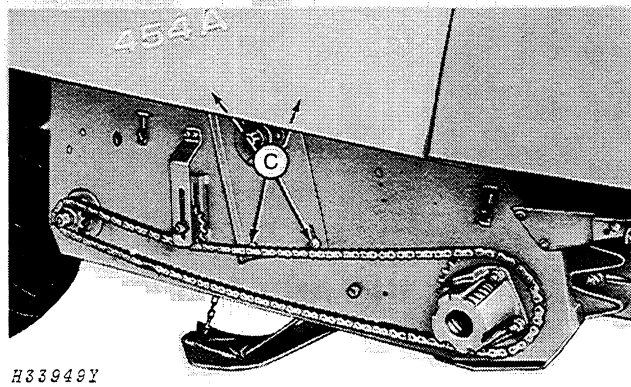
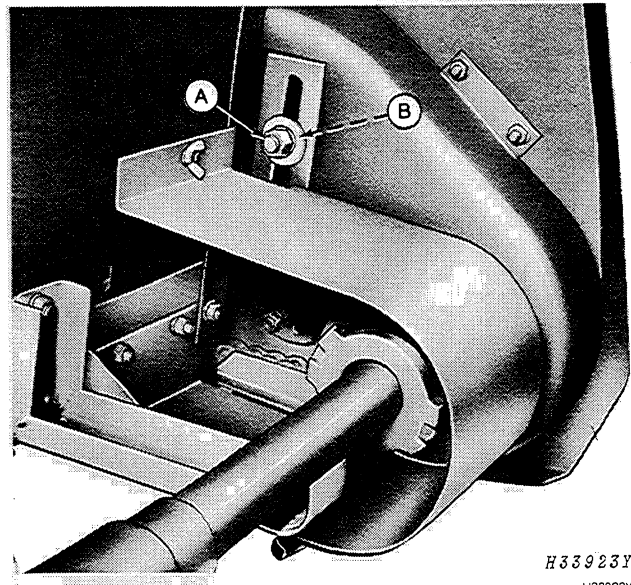
1. Loosen nuts (C) and (E).
2. Tighten nut (D).
3. Tighten nuts (C) and (E).
4. Adjust auger drive chain tightener (B) so chain will operate without climbing or jumping sprockets.
5. Tighten nut (A).



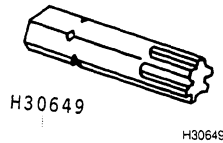
Adjusting Auger Forward and Rearward

A 1/8-inch (3 mm) clearance between the auger flights and the auger stripper is required for most crops and conditions.

1. Loosen nut (A) and move auger drive chain tightener (B) up.
2. Loosen nuts (C) and position auger (on both sides) for desired stripper clearance.
3. Tighten nuts (C).
4. Adjust auger drive chain tightener (B) so chain will operate without climbing or jumping sprockets.
5. Tighten nut (A).



A—Nut
B—Auger Drive Chain Tightener
C—Nut



Auger Fingers

A special fluted driver (Part number JDC-3) is available to remove and install the special six point 5/16-inch screws in the auger finger guides. Order from your John Deere dealer.

Auger Finger Guides

1. Use JDG-3 Driver to remove two finger guide screws and remove and replace guide.

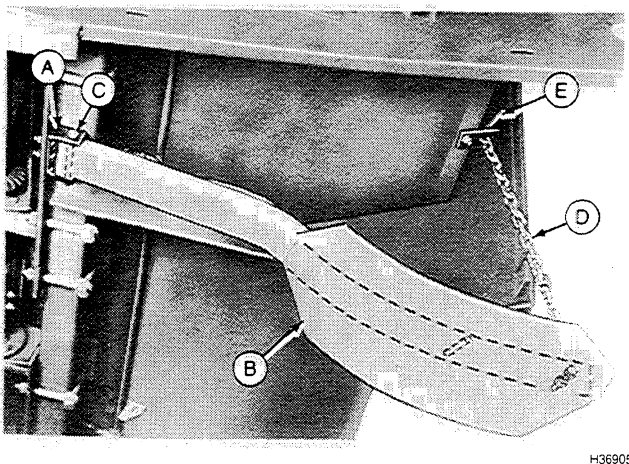
NOTE: Use driver with a 1/4 to 3/8-in. adapter.

Auger Fingers

1. Remove access hole covers in auger.
2. Remove broken parts and install new parts. Pull out on finger when installing nut on cap screw, to keep cap screw from turning. Torque cap screw to 20 lb-ft (2.3 N·m). Replace guide.



SECURING AND ADJUSTING STUBBLE SHOES (Attachment)



Secure stubble shoes as follows:

1. Raise row-crop head to maximum height, lower hydraulic cylinder safety stop.
2. Attach stubble shoe mounting brackets (A) to tool bar and position them behind the row units which run directly in front of front tires.
3. Attach stubble shoe (B) to mounting at pivot point (C) with spacer and cap screw.
4. Raise hydraulic cylinder safety stop, lower row crop head to ground.
5. Secure each shoe (B) with chain (D) and spring locking pin (E).



CAUTION: A stubble shoe is under approximately 110 lb (50 kg) tension when secured in inoperative position.

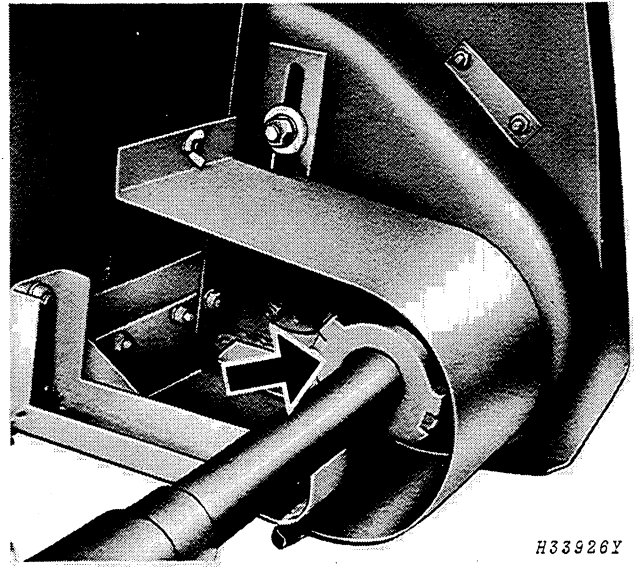
SLIP CLUTCHES

All drives on the row-crop head are protected by either two or three slip clutches.

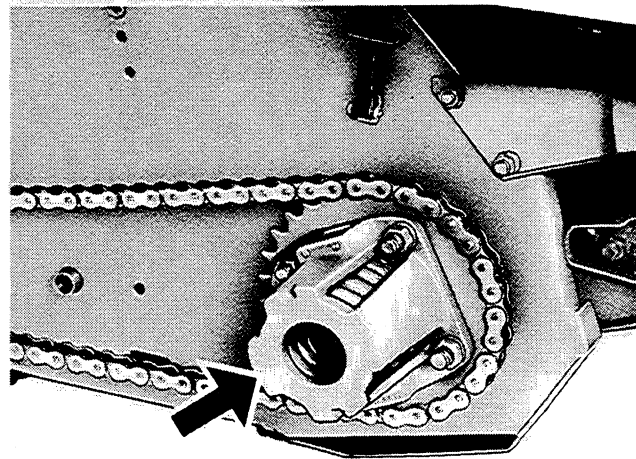
453A and 454A Row-Crop Heads are equipped with two slip clutches. The auger slip clutch is located on the drive shaft on the right-hand side of the header. The row-unit clutch is located on the right-hand end of the row unit drive shaft.

653A, 654A, 655A, 853A, 854A and 1253A Row-Crop Heads are equipped with three slip clutches. The auger slip clutch is located on the main drive shaft on the right-hand side of the header. The row-unit clutches are located on the right-hand end and left-hand end of each row unit drive shaft, outside the respective end sheets.

When replacing slip clutch springs or jaws, the four bolts used to compress the spring must be tight. Tighten nuts in the auger clutch to 35 ft-lbs (45 N·m) torque and the row unit clutch to 80 ft-lbs (108.5 N·m).

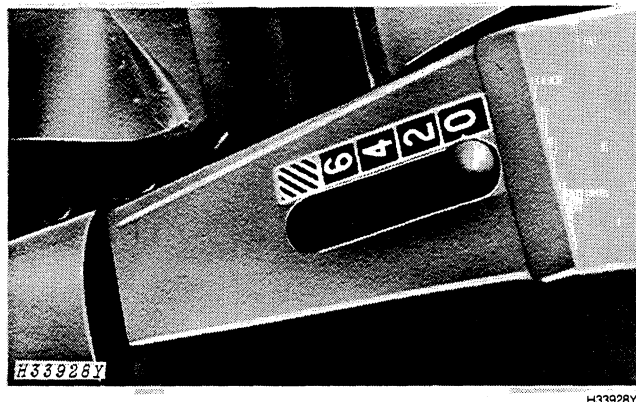


(Auger Drive Slip Clutch)



(Row Unit Drive Slip Clutch)

RANGE INDICATOR



The range indicator, located on the left-hand side of the row-crop head, lets the operator know at a glance where the row units are within their 6-inch (152 mm) float range. The numbers, located to the right of the red range indicator ball, indicate in inches the position of the **highest** row unit.

For example, if the indicator ball is on "6," the highest row unit is also at the bottom of the 6-inch (152 mm) float range. This would indicate to the operator to lower the header if the combine is not equipped with Dial-A-Matic® header height control.

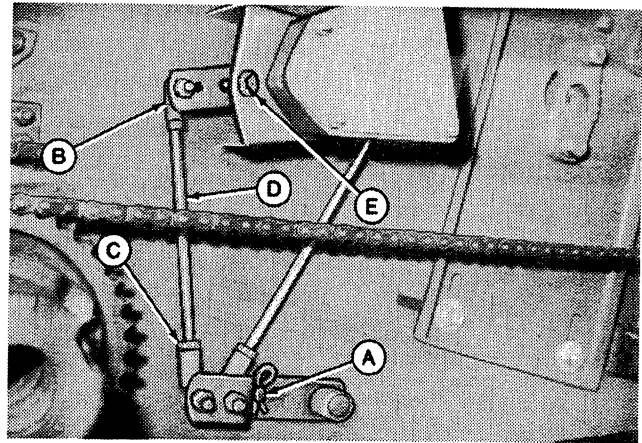
If the indicator ball is on "0," the highest of all the row units is at the top of the 6-inch (152 mm) float range. This would indicate to the operator to raise the header if the combine is not equipped with Dial-A-Matic header height control.

Normally, the red indicator ball should be positioned approximately on number "2," to achieve a low and consistent cutting height, with respect to the ground. For loose soil conditions or mud the "4" position may give better performance.

To adjust range indicator, raise row-crop head to maximum height and lower hydraulic cylinder safety stop.

Adjust range indicator as follows:

1. Align hole in lower actuator arm with matching hole in bulkhead.
2. Secure arm in this position with drilled pin (A).
3. Align hole in wiper arm (B) with matching holes in bulkhead and bulkhead mounting, by loosening jam nut (C) and turning rod (D) in or out to lengthen or shorten. Insert 3/8-in. cap screw (E) through wiper arm (B) to ensure correct positioning. This gives a pivot-to-pivot length of 8-7/8-in. (226 mm) on rod (D).



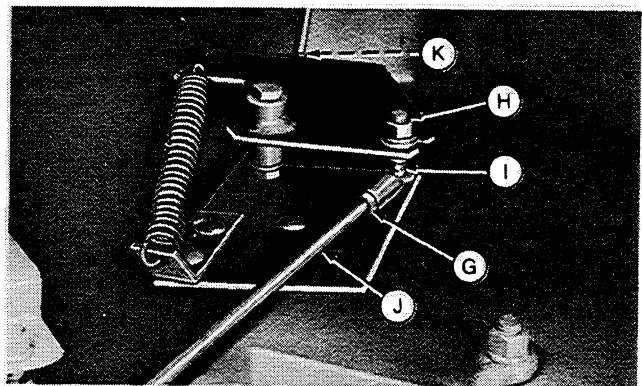
H50319

- A—Drilled Pin with Safety Pin
B—Wiper Arm
C—Jam Nut
D—Rod
E—3/8-Inch Cap Screw

4. Loosen jam nut (G) and nut (H).
5. Slip ball joint (I) out of slot.
6. Turn ball joint up or down on push rod (J) for adjustment.
7. Slide ball joint back into slot. Red range indicator ball must be centered on "0" tab (zero) of decal.
8. Tighten nut (H) and jam nut (G) after indicator ball is correctly centered.
9. Remove pin (A) from lower actuator arm and 3/8-inch cap screw (E) and retain for future use.
10. Loosen nut (K) on ball shaft and position so ball is centered in slot. Tighten nut.

IMPORTANT: Bell crank under nut (K) must not bind against side sheet.

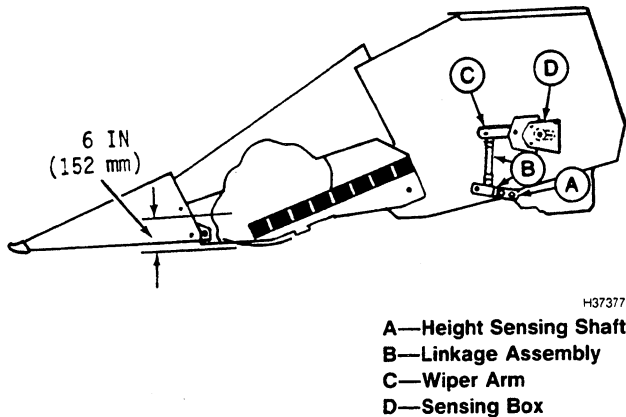
Raise hydraulic cylinder safety stop and lower row-crop head to ground.



H36906

- G—Jam Nut
H—Nut
I—Ball Joint
J—Push Rod
K—Nut

DIAL-A-MATIC™ HEADER HEIGHT CONTROL



DIAL-A-MATIC header height control maintains correct position of header frame by sensing position of each individual row unit. Individual row units are designed to pivot independently about the common drive shaft and have a 6 inch (152 mm) float range measured at skid shoe.

IMPORTANT: For DIAL-A-MATIC header height control to perform correctly, row units must be in floating position and correct row unit float spring tension and gatherer sheet clearance must be maintained. Row unit skid shoes must be adjusted for correct cutting height.

DIAL-A-MATIC header height control works as follows:

1. When one or more row units deflect up to follow ground contour, height sensing shaft (A) turns linkage assembly (B) which in turn moves wiper arm (C) in sensing box (D).
2. Movement of wiper arm (C) contacts one of five printed circuit pads in sensing box (D).
3. A pad that is contacted activates the system for raising or lowering the row crop header.
4. When wiper arm contacts "raise" pad, row crop header raises.
5. When wiper arm contracts "lower" pad, row crop header lowers.
6. To increase or decrease cutting height, loosen lock nut and remove ball joint from arm. Shorten rod for raising and lengthen rod for lowering. Replace ball joint in arm and tighten lock nut.
7. The sensing box activates electrical circuit which sends electrical current thru the amplifier to solenoids on auto header valve.
8. The auto header valve, directs hydraulic oil under pressure to the two header lift cylinders to raise header and allows return oil to flow back to hydraulic reservoir for lowering header.
9. An actuating switch, located under operator's station shuts off DIAL-A-MATIC header height control when header is raised approximately 18 inches (457 mm) above ground.

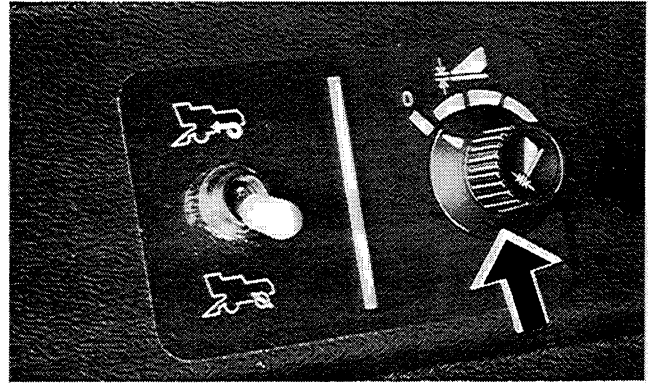
Electrical System

The electrical system consists of a four position control switch located on the instrument panel and a actuating arm riding on a printed circuit in the control box. The electrical system actuates the hydraulic system.

Control Switch

By operating control switch the DIAL-A-MATIC header height control is turned off or on and set to one of three positions.

IMPORTANT: Turn off DIAL-A-MATIC header height control when transporting combine.



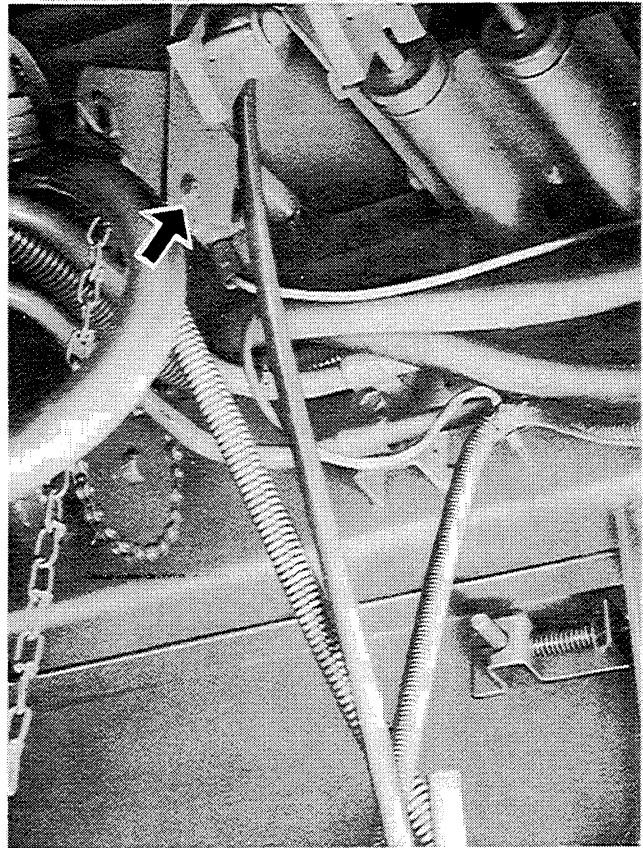
H50117

Actuating Switch

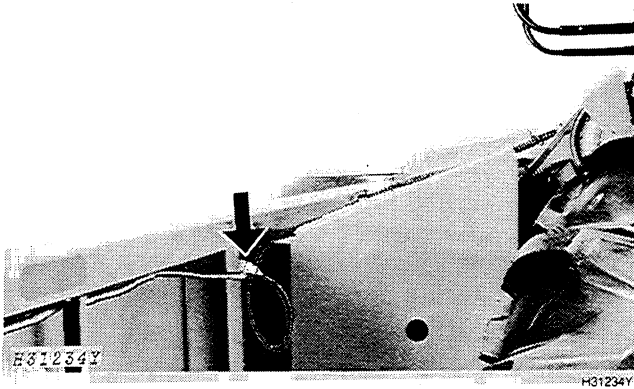
Actuating switch located under operator's platform shuts off automatic header height control when header is raised approximately 18 inches (457 mm) above ground.

A chain, attached to switch, holds the switch closed when header is lowered.

See page 41 for adjusting.



H36912

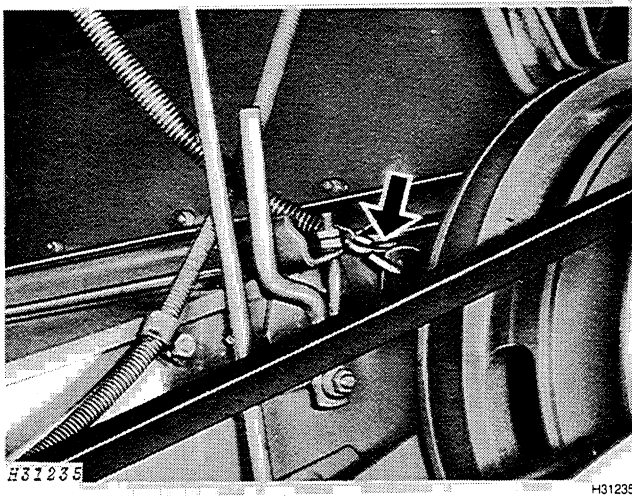


Disconnecting DIAL-A-MATIC Header Height Control

Disconnect wiring harness for DIAL-A-MATIC header height control whenever header is removed from combine as follows:

1. Pull connectors apart.
2. Lay harness on feeder house.

When removing feeder house from separator, disconnect wiring harness as illustrated and remove harness from clamps on feeder house. Coil harness and store under operator's platform for future use.



(Upper Shield Removed for
Illustrative Purposes)

Disconnect switch chain by slipping "S" hook out of bracket.

Hydraulic System

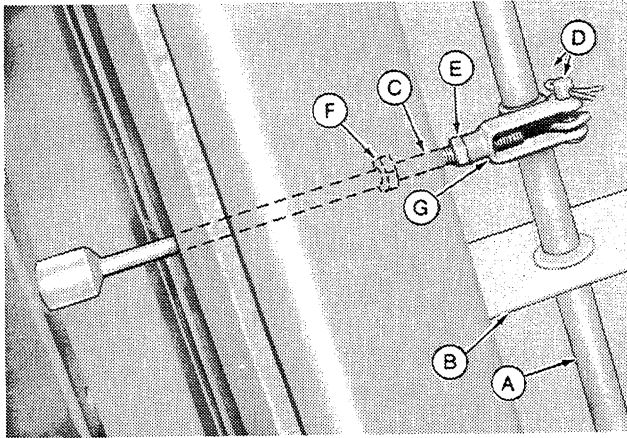
The hydraulic system supplies hydraulic oil to header lift cylinders to raise or lower header. The system consists of header lift cylinders, a drop rate valve, and an auto header valve. Hydraulic system is activated by electrical system.

Auto Header Valve

The auto header valve obtains oil from unloading auger control valve on 4420, 6600, SideHill 6600 and 7700, 6620, SideHill 6620, 7720 and 8820 Combines and from main hydraulic control valve on 4400 Combines. Oil flowing between auto header valve and header lift cylinders is directed through drop rate valve. Return oil is directed back to main hydraulic reservoir. When DIAL-A-MATIC header height control is not activated, a check valve in auto header valve and a lockout poppet in main hydraulic system control valve, trap oil to support header.

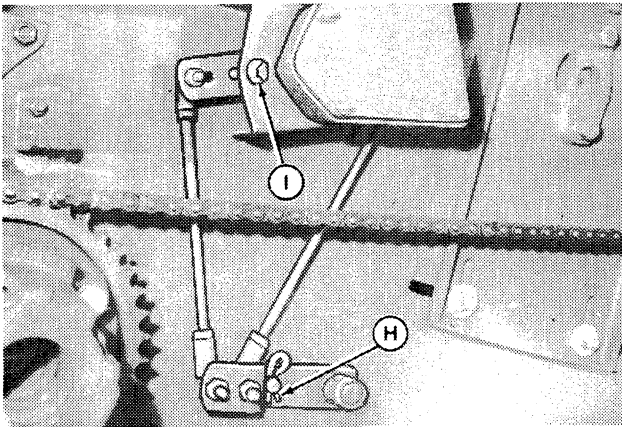
Drop Rate Valve

The drop rate valve allows pressure oil to header lift cylinders and controls rate of drop of header. Two small orifices in drop rate valve poppet meter oil returning to reservoir. An adjusting screw varies size of this orifice, permitting drop rate adjustment for varying ground conditions.



H37378

A—Sensing Rod
B—Bracket
C—Actuating Rod
D—Spring Pin
E—Lock Nut
F—Adjusting Nut
G—Yoke



H50320

H—Pin
I —Cap Screw

Adjusting Height Sensing Actuating Rods

IMPORTANT: For optional DIAL-A-MATIC header height control to perform satisfactorily, the following adjustments must be made **BEFORE** height sensing switches on row-crop head are adjusted.

Adjust each row unit for floating operation (Page 21).
Check adjustment of inner and outer gatherer sheet clearance (Page 19).

Adjust row unit float spring tension for floating operation (Page 23).

Adjust row unit skid shoes for the needed height of cut (Page 22).

1. Raise header to maximum height and lower hydraulic cylinder safety stop.
2. Check to see that sensing rod (A) rotates freely. If sensing rod will not rotate freely, adjust brackets (B).
3. Remove pin from storage then secure arm in locked position with pin (H) and cap screw (I).

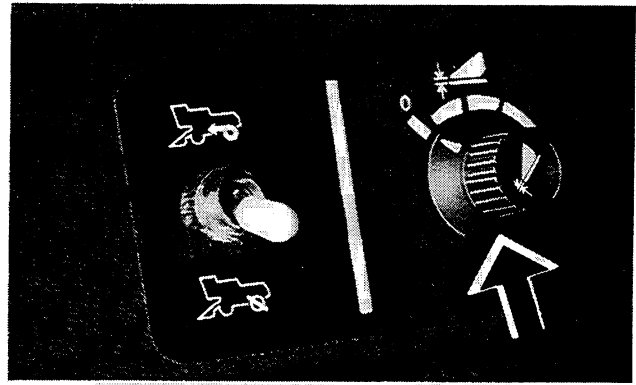
4. Loosen lock nut (E) on actuating rod (C).
5. Raise row unit to maximum height and hold or brace with safety stand. Turn adjusting nut (F) in quarter turns at a time until yoke (G) is snug. Back off adjusting nut until yoke has a slight amount of movement side-to-side. Overlengthening of actuating rod (C) will cause bowing of actuating rod and/or sensing rod.
6. Tighten lock nut (E) and lower row unit. Repeat Steps 4, 5, and 6 for each row unit.
7. Remove pin installed in Step 3 and retain for future use. Failure to remove the pin will result in bending of actuating rod.

Switch Positioning for Ground Conditions

Dry ground conditions allow a heavier ground force for a close cut. The header must be operated with the rotary switch in 1st position. Soft ground conditions require the rotary switch to be in 2nd position. Wet ground conditions require the rotary switch to be in 3rd position. Additional adjustment is made by loosening lock nut on a ball joint and removing ball joint from arm. Shorten rod to raise or lengthen rod to lower. Replace ball joint in arm and tighten lock nut.

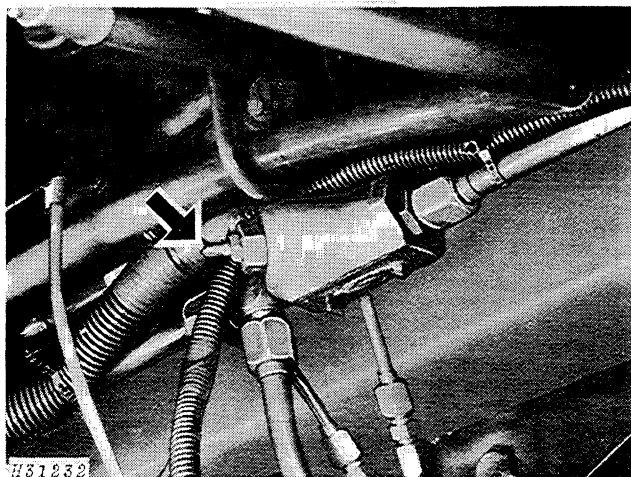
A float spring supports each row unit. As row unit is raised, spring tension is relieved causing skid shoe ground force to increase. The actual value of pounds of ground force is dependent on the float spring tension adjustment. However, the ground force will increase by approximately 90 lbs (50.8 kg) when the row unit is raised from the lower mechanical stop to the upper mechanical stop.

1. Check adjustment of inner gatherer sheet clearance (page 18).
2. Turn drop rate valve adjusting screw (page 40) until header "hunts" or cycles up and down.



H50117

7720 Combine Illustrated



Adjusting Drop Rate Valve (Header Drop Rate)

The drop rate valve controls the rate of drop of the header.

NOTE: The initial setting of the drop rate valve adjusting screw is eight complete turns out.

1. Turn the drop rate valve adjusting screw *out* until the header "hunts" or cycles up and down.
2. Turn adjusting screw *in* until the header stops "hunting."
3. Turn adjusting screw *in* an additional 1/2 turn.

Adjusting Actuating Switch

When the platform is over 18 inches (457 mm) above the ground, the actuating switch is opened, turning off DIAL-A-MATIC header height control system.

Shutting off the system in this manner allows the operator to turn around into new rows or to unload, without turning off the control switch on the instrument panel.

When the operator drives the combine into new rows, he lowers the platform within 18 inches (457 mm) of the ground. This causes the actuating switch to close and DIAL-A-MATIC header height control system is turned on.

One end of chain (B) is attached to the feeder house; the other end is attached to an actuator arm. When the feeder house and platform are lowered, chain (B) pulls the actuator arm away from actuator switch, causing it to close. Chain (B) is adjustable in length so that the switch closes when the header is within 18 inches (457 mm) of the ground.

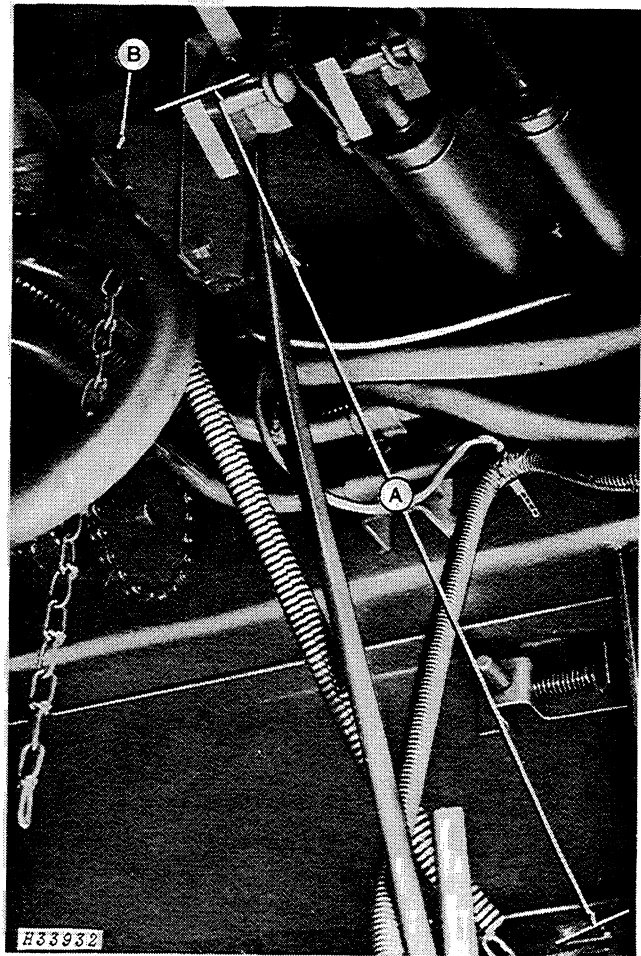
If the chain is adjusted too long, it will not release the actuating switch and DIAL-A-MATIC header height control will not operate.

If the chain is adjusted too short, the header can be raised manually, but will continue to lower when the lever is released. Also, if the chain is adjusted too short, the system will not shut off unless the control switch is turned to the "OFF" position.

The length (A) of the actuating switch chain should be adjusted to approximately 16-inches $\pm$ 1/2-inch (406 mm $\pm$ 13 mm). This chain length opens the actuating switch approximately 18-inches (457 mm) above the ground. Remember, this chain length is only a starting point and may require adjustment.

To adjust actuating switch chain length:

1. Note existing position of chain.
2. Remove hook and insert it in the desired link.



H33932

A—Chain Length
B—Chain

ROW SPACING

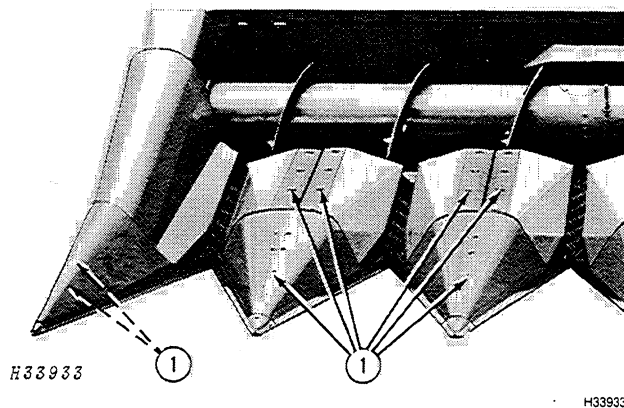
ROW SPACING

Row-Crop Head Model	Inches	(Millimetres)
453A	28, 30*	(711, 762)
454A	36, 38*, 40	(914, 965, 1016)
653A	28, 30*	(711, 762)
654A	36, 38*	(914, 965)
655A	40*	(1016)
853A	28, 30*	(711, 762)
854A	36, 38*	(914, 965)
1253A	30	(762)

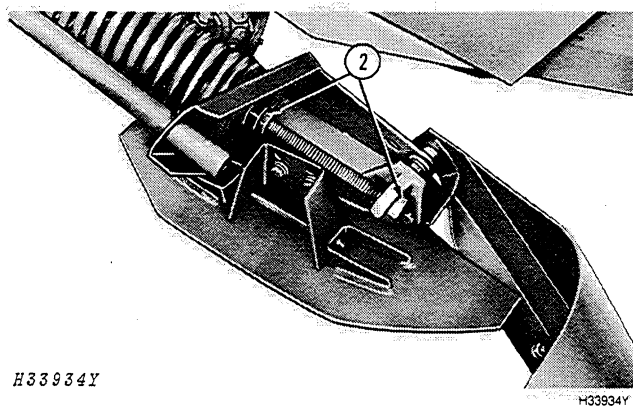
**Factory Settings*

Changing Row Spacing

1. Loosen all outer gathering sheet and inner gathering sheet adjusting bolts.



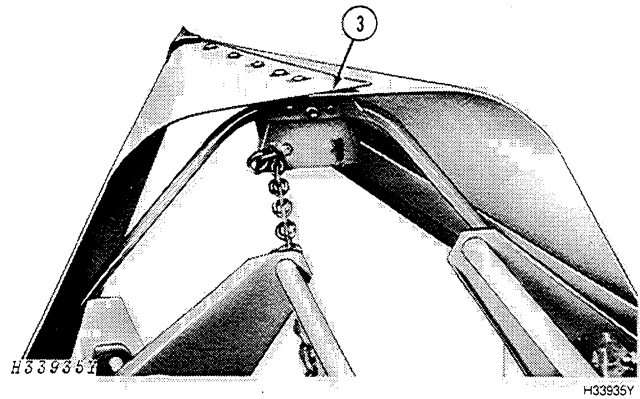
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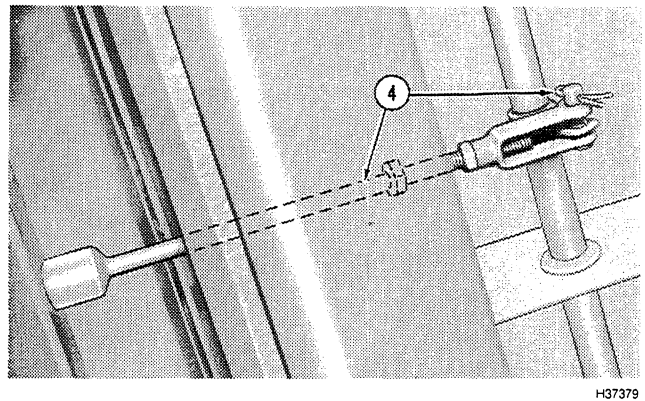
H33934Y

2. Open gatherer sheets and release tension on each row unit float spring.

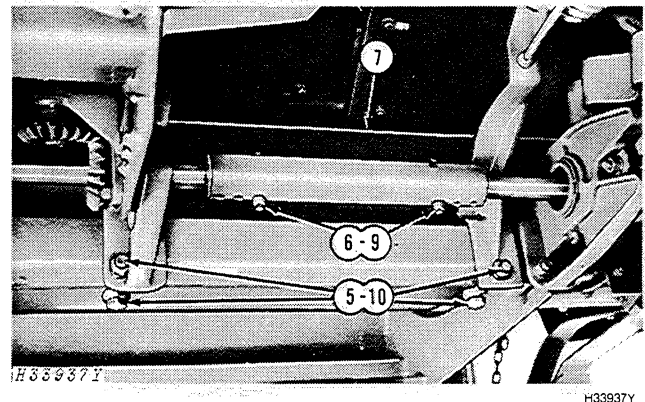
3. Remove bolts securing center gatherer point supports together.



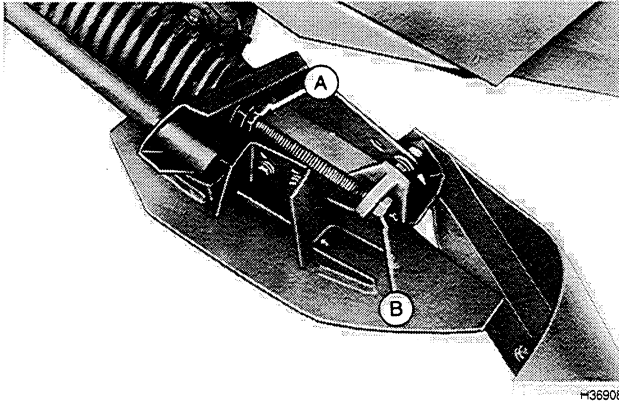
4. Pull cotter pins and remove all height sensing actuating rods.



5. Loosen nuts on row unit and clamping bolts.
6. Remove two cap screws from each drive shaft coupler.
7. Remove bolts in rubber seal.
8. (Not Illustrated) Working from the center out, slide each row unit to desired row spacing. Do not tighten nuts on clamping bolts at this time.
9. Align holes in each coupler with holes in drive shaft. Insert and tighten cap screws.
10. Torque nuts on row unit and clamping bolts to 115-lb-ft (155 N·m).
11. Replace bolts in rubber seal.



ROW SPACING—Continued

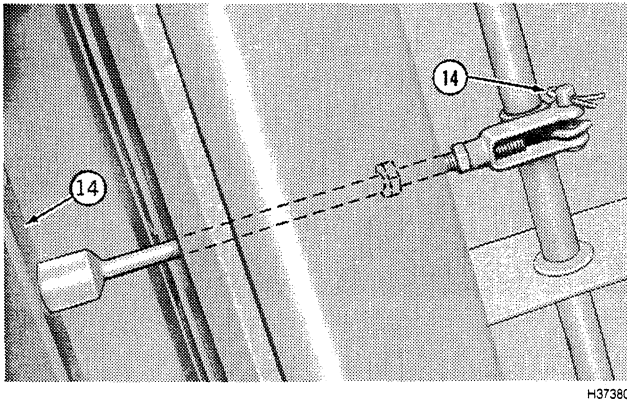


12. Adjust each row unit float spring as follows:
Loosen lock nut (A).

Turn adjusting bolt (B) until row unit begins to raise from lower stop or can be pushed upward easily. Row unit should return freely to lower stop.

Tighten lock nut (A).

A—Lock Nut
B—Adjusting Bolt



13. (Not Illustrated) Close gatherer sheets.

14. Align actuating rods with correct hole for row spacing being used. Install automatic header height control actuating rods with cotter pins.

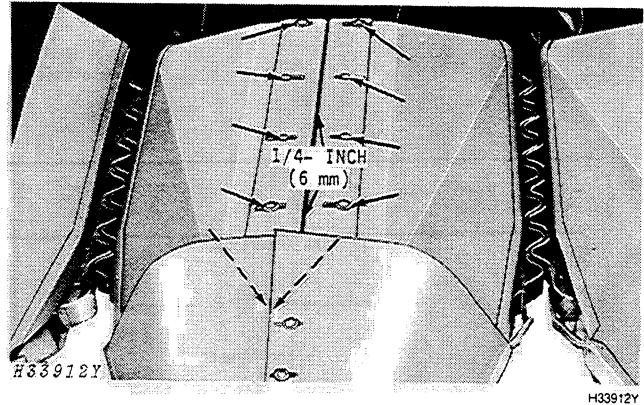
15. Readjust automatic header height control linkages. (See page 38.)

16. Adjust clearance between inner gatherer sheets to 1/4-inch (6 mm).

Loosen ten screws.

Slide sheets to left or right to obtain correct clearance. Use appropriate hardware at front and rear to assure desired clearance.

Tighten ten screws.



17. Adjust outer gatherer sheets for desired row spacing and tighten hardware.

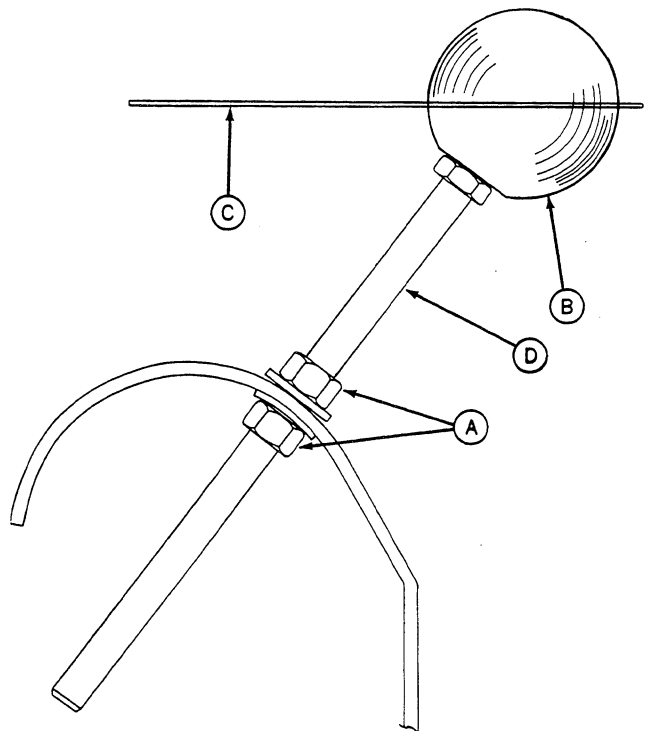
18. Readjust center gatherer point supports. Adjust point sheets at adjusting slots as wide as possible without stressing sheets. (See page 18.)

19. Adjust position of range indicator ball as follows:

Loosen jam nuts (A) and move red indicator ball (B) to center it in slot in gatherer sheet (C).

Turn indicator ball rod (D) up or down to allow half of indicator ball (B) to show above top edge of outer gatherer sheet (C).

Tighten jam nuts (A) after making both these adjustments.

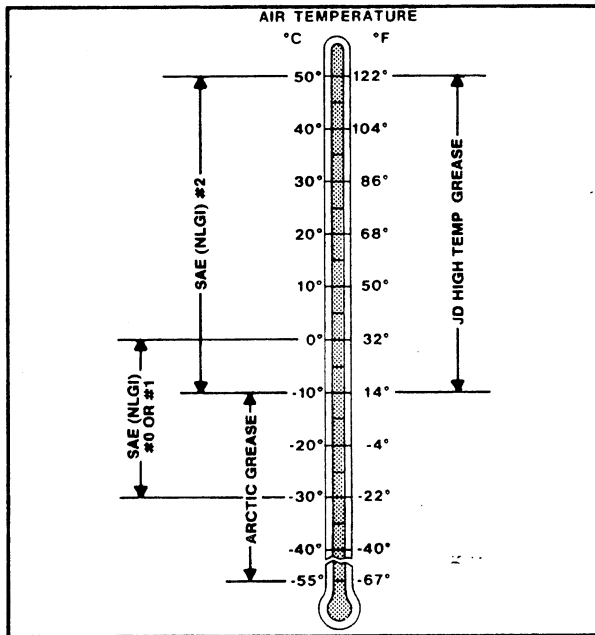


H27538

H27538



Lubricants



X9327

Greases

The following greases are recommended for John Deere Row Crop Headers:

- John Deere High Temperature/Extreme Pressure Grease
- SAE Multipurpose High Temperature Grease with Extreme Pressure (EP) Performance

IMPORTANT: If grease fitting is missing, replace immediately. Clean fittings thoroughly before using grease gun.

NOTE: Multipurpose grease may still be used if so desired.

Storing Lubricants

Your combine can operate at top efficiency only if clean lubricants are used. Use clean containers to handle all lubricants. Store them in an area protected from dust, moisture, and other contamination.

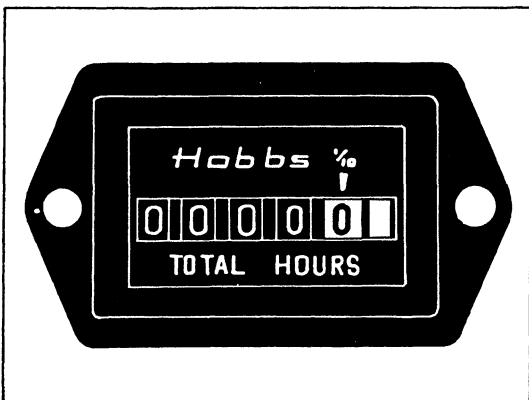
Alternative Lubricants

Conditions in certain geographical areas outside the United States and Canada may require different lubricant recommendations than those printed in the operator's manual. Consult your John Deere dealer to obtain alternative lubricant recommendations.



Lubrication and Maintenance

SERVICE INTERVALS



H33695

H33695

Using hour meter as a guide, perform all services at the hourly intervals indicated on following pages.

IMPORTANT: Recommended service intervals are for average conditions. Service **MORE OFTEN** if row-crop head is operated under adverse conditions.



CAUTION: Never lubricate or service row-crop head while engine is running.

SYMBOLS



Lubricate with John Deere High Temperature/Extreme Pressure lubricant or an equivalent SAE Multipurpose High Temperature Grease with Extreme Pressure (EP) performance at hourly intervals indicated on the symbols.

NOTE: Multipurpose grease may be still used.

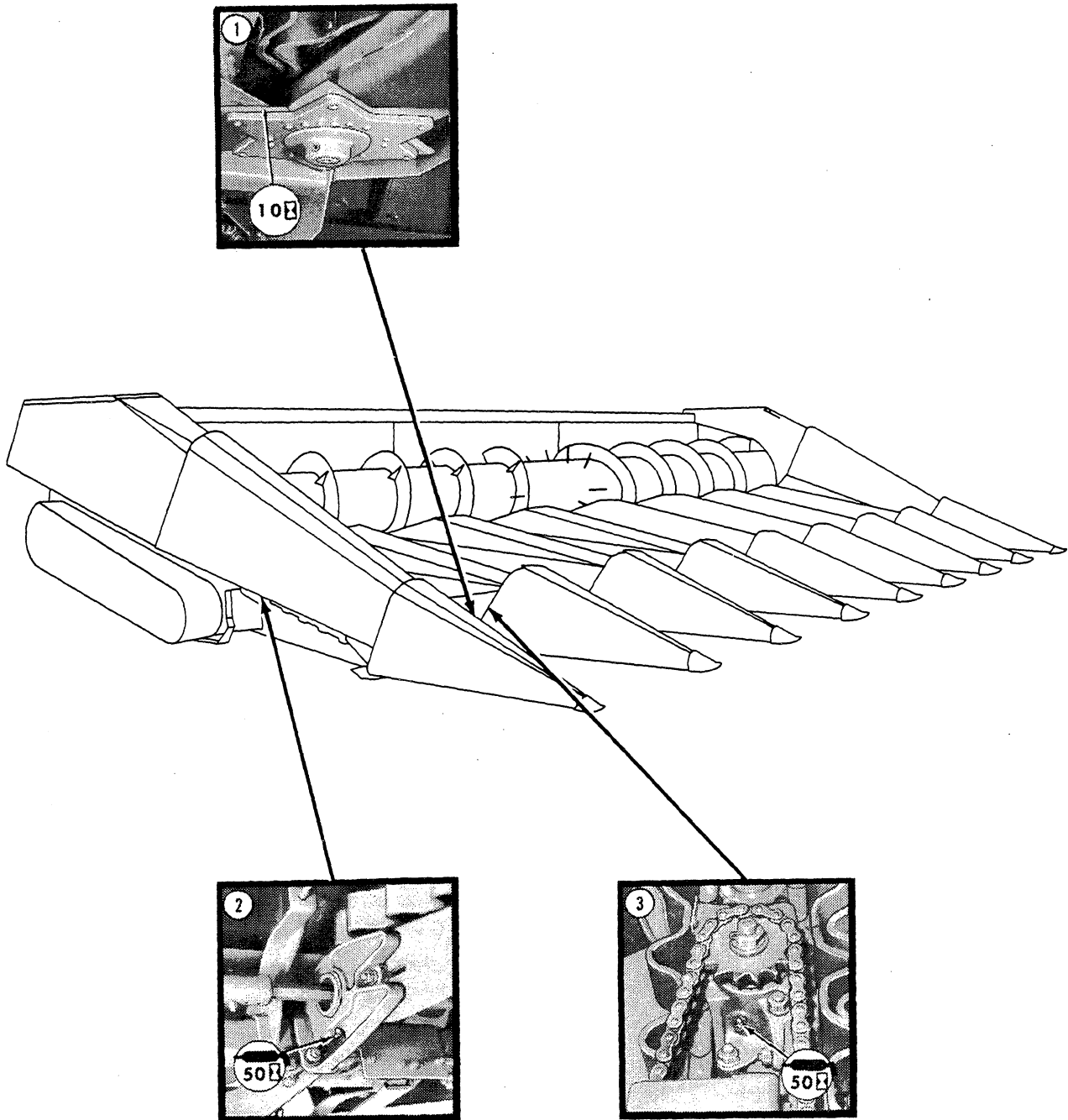
EVERY 10 HOURS OF OPERATION



CAUTION: Never lubricate chains with the engine running.

Lubricate auger row unit drive and knife drive chains every 10 hours of operation with SAE 30 or heavier oil. Run chain for a few minutes before lubricating. A warm chain increases the penetration of oil between pins and bushings. Shut off engine and lubricate chains. Do not lubricate gatherer belt chains.

NOTE: Genuine John Deere Chain Lube in an aerosol can (part number PT508), can be obtained from your dealer.



H37381

1. Check rotary knives for proper adjustment. See page 62.
2. Lubricate row unit pivots.
3. Lubricate rotary knife bearing.



Trouble Shooting

The majority of row-crop head operating problems can be traced to improper adjustment. The trouble shooting chart which follows will help you when problems develop by suggesting a probable cause and the recommended remedy. Make certain when you are trying to solve a problem, that the source does not come from some place other than where the problem exists.

CONTENTS

Row Crop Head.....	50	DIAL-A-MATIC Header Height Control	56
		Row Crop Head.....	57
		Electrical System	58, 59
		Hydraulic System	60, 61

ROW-CROP HEAD

Problem	Cause	Remedy	Page
Plugging Row Unit at Knife	Belt speed too high.	Slow down header speed.	16
	Gatherer points set too high.	Adjust gatherer points lower to ground to pick up lodged or down crop.	18, 20
Loss of Crop in the Field	Ground speed too fast or too slow.	Operate at a ground speed to meet field and ground conditions.	----
		Use variable speed feeder house control to adjust speed of gathering belts. Crop stalks should move smoothly and evenly up gathering belts to cross auger.	16
	Not harvesting planter rows.	Harvest rows as they were planted. It will be easier to follow rows and reduce crop loss.	----
	Row units are not centered on rows.	Adjust row unit row spacing to match row spacing of crop.	42-45
	Speed of gathering belts too fast or too slow.	Use variable speed feeder house control to adjust speed of gathering belts.	----

Problem	Cause	Remedy	Page
Loss of Crop in the Field— Continued	Skid shoes set to cut crop too high.	Adjust skid shoes for lower crop cut.	22
	Trough under gathering belts is full of mud.	Clean out trough; adjust skid shoes for higher crop cut.	22
		Adjust automatic header height control for faster sensing.	34
		Slow down belt speed.	----
Soybean Pods Left on Stubble	Skid shoes set to cut crop too high.	Adjust skid shoes for lower crop cut.	22
	Excessive row unit float spring tension.	Adjust row unit float springs.	23
	DIAL-A-MATIC header height control improperly adjusted.	See DIAL-A-MATIC header height control.	34
	Gatherer points are not properly positioned between rows.	Carefully operate row-crop head on rows; reduce ground speed if necessary.	----
Down and Tangled Maize Poor Cutting Action (Ragged and Uneven Cutting of Crop)	Cutting too low in order to get all of crop.	Reposition gatherer point adjusting bolts to lower gatherer points.	18, 20
	Excessive gatherer belt speed.	Use variable speed feeder house control to reduce gatherer belt speed.	----
	Incorrectly adjusted rotary knife.	Adjust rotary knife for proper cutting action.	27
	Worn or broken rotary knife sections.	Replace rotary knife sections.	62
	Rotary knife sections are bent down.	Straighten rotary knife sections.	
	Worn or broken stationary knife.	Reverse or replace stationary knife.	63
Excessive Wear or Damage to Rotary Knife	Rocky field conditions.	Adjust skid shoes for higher crop cut.	22
		Be alert for obstructions during field operation.	----
	Rotary knife is adjusted too close to stationary knife.	Adjust rotary knife for proper cutting action.	27
	Knife speed too high.	Reduce rpm to match ground speed.	----

Problem	Cause	Remedy	Page
Excessive Wear of Stationary Knife Blades	Speed of gathering belts is too fast.	Slow speed of gathering belts to match ground speed or increase ground speed.	16
	Excessive gap between rotary and stationary knife blades.	Before adjusting rotary knives, as described on Page 27, check the following three items: 1. Inspect plow bolts in stationary knife. If bolt heads are not flush with, or are above knife contact surface, replace plow bolts. 2. Row unit frame and/or stationary knife must not be bowed. Check mounting surface for stationary knife, to be certain it is free of weld spatter, paint, mud, and crop residue. 3. All six knife sections on each rotary knife must contact the stationary knife evenly. 4. Tap top end of rotary knife drive shaft with a brass or lead hammer to check that bearings are fully seated.	----
	Dirt is forced into rotary knives by the skid shoes and gatherer belts.	Increase row unit float spring tension.	23
		Adjust skid shoes for a higher cut position.	22
		Adjust DIAL-A-MATIC header height control to raise sooner.	34
		Adjust gather points upward so they do not "funnel" dirt clods over onto bean ridge.	18, 20

NOTE: Normal wear of stationary knife is often incorrectly blamed for poor cutting performance (rather than any of the above causes). Inspect each stationary knife for wear. A stationary knife can be worn back 5/16-inch (8 mm) in one area, before efficiency is greatly reduced. Do not reverse or replace stationary knife unless its cutting edge is very dull.

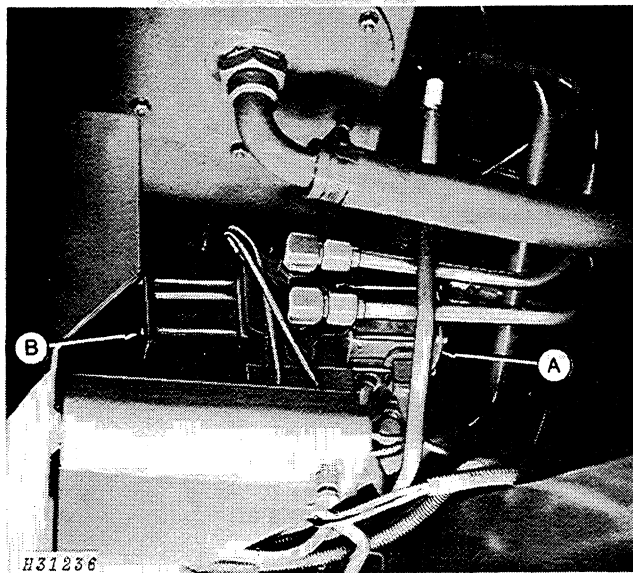
Problem	Cause	Remedy	Page
Worn or Damaged Gathering Belts or Gathering Belts Jumping Out of Time	Inadequate gathering belt chain tension.	Adjust gathering belt chain tension.	24
	Gathering belts tear off grass, weeds, or crop before they can be cut.	Reduce speed of gathering belts to match ground speed or increase ground speed.	16
	Rocky field conditions.	Install rock deflectors.	67
	Poor cutting by rotary knives.	Adjust rotary knives for proper cutting action.	27
		Slow speed of gathering belts.	16
	Trough under gathering belts fills with dirt and cut stalks.	Increase row unit float spring tension.	23
		Adjust skid shoes for the highest cut position.	22
		Adjust DIAL-A-MATIC header height control to raise sooner.	34
		Adjust gather points so dirt is not funneled into bean ridge.	18,20
	Inadequate gatherer belt chain lubrication.	Lubricate gatherer belt chains.	48

Problem	Cause	Remedy	Page
*Dirt in Grain Tank or Dirt Plugs Trough Under Gathering Belts	Excessive pressure on skid shoes cause them to push dirt.	Increase row unit float spring tension.	23
		Operate row-crop head as high as possible so skid shoes just touch the ground.	----
		Adjust DIAL-A-MATIC header height control to raise sooner.	34
	Gathering belts pull grass, weeds, or crop out of the ground so dirt is brought in with the roots.	Adjust gather points so dirt clods are not funneled into bean ridge.	18, 20
		Slow speed of gathering belts to match ground speed or increase ground speed.	----
		Adjust rotary knives for proper cutting action.	27
	Rows are ridged high enough to allow gathering belts or rotary knives to contact dirt.	Adjust skid shoes for the highest possible cut position.	22

**Use of perforated elevator doors, auger connections, and feeder house bottom insert is recommended when combining soybeans, edible beans, and other crops, to help remove dirt and weed seed.*

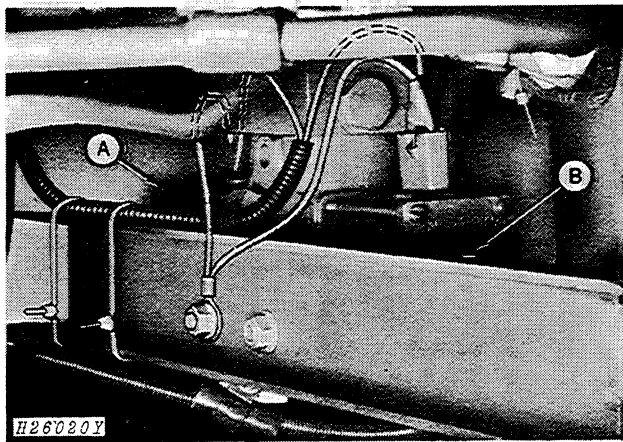
Problem	Cause	Remedy	Page
Skid Shoes Dig into Ground	Insufficient float spring tension.	Increase row unit float spring tension.	23
	Individual row unit does not raise for change in ground contour.	Adjust actuator rod for individual row unit. Check all row units for proper actuation.	38
Skid Shoes Will Not Float Properly	Excessive skid shoe pressure on ground.	Increase row unit float spring tension.	23
		Adjust DIAL-A-MATIC header height control to operate in lower part of range.	----
Row Units Do Not Move Freely Through Float Range	Insufficient clearance or binding between gatherer sheets.	Adjust gatherer sheet clearance.	19
	Row units do not move freely on pivots.	Lubricate row unit pivots at grease fittings provided.	47
	Trash collects at row unit	Clean around row unit pivots.	----
Row-Crop Head Is Too Slow To Return To Operating Level After Encountering Irregular Ground	Excessive float spring tension.	Adjust row unit float spring tension.	23
	Insufficient clearance or binding between gatherer sheets.	Adjust gatherer sheet clearance.	19
	Readjustment of drop rate valve slowed drop rate more than needed.	Readjust drop rate valve.	40

DIAL-A-MATIC HEADER HEIGHT CONTROL



A—Manual Push Pin
"Lower" Solenoid
B—Manual Push Pin
"Raise" Solenoid

(7720 Combine Illustrated)



A—Manual Push Pin
"Lower" Solenoid
B—Manual Push Pin
"Raise" Solenoid

(4400 Combine Illustrated)

The manual header lift control has priority over DIAL-A-MATIC header height control. When the header height control switch is in the "OFF" position, the manual header lift control is not affected. When the header height control switch is in the "ON" position, the header can be raised or lowered manually, overriding DIAL-A-MATIC header height control.

DIAL-A-MATIC header height control will function with the release of the manual header lift control lever, unless the actuating switch is incorrectly adjusted, or if the header is out of DIAL-A-MATIC header height control range.

The first step in trouble shooting is to determine if the problem is in the electrical system or the hydraulic system.

The auto header valve is equipped with two manual push pins, one located in each end of the solenoids. By depressing either push pin, the auto header valve can be manually operated.

To determine if the problem is electrical or hydraulic, place DIAL-A-MATIC header height control switch in the "OFF" position, start engine, and move throttle lever to the fast idle position. Depress the manual push pin (A) in the "LOWER" solenoid. The header must lower to the ground. Next, depress the manual push pin (B) in the "RAISE" solenoid. The header must raise. If after depressing both push pins the header raises and lowers correctly, the problem is electrical.

ROW-CROP HEAD

Problem	Cause	Remedy	Page
Skid Shoes Will Not Float Properly Skid Shoes Dig Into Ground	Excessive skid shoe pressure.	Increase float spring tension.	23
	Insufficient float spring tension.	Increase float spring tension.	23
	An individual row unit does not raise for a change in ground contour.	Adjust actuator rod for the individual row unit. Check all row units for proper actuation of switches.	38
Row Units Do Not Move Freely Through Float Range	Insufficient clearance or binding between gatherer sheets.	Adjust gatherer sheet clearance.	19
	Row units do not move freely on pivots.	Lubricate row unit pivots at grease fittings provided.	49
	Trash collects at row unit	Clean around row unit pivots.	----
Head Is Too Slow To Return To Operating Level After Encountering Irregular Ground	Excessive float spring tension.	Adjust float spring tension.	23
	Insufficient clearance or binding between gatherer sheets.	Adjust gatherer sheet clearance.	19
	Readjustment of drop rate valve slowed drop rate more than needed.	Readjust drop rate valve.	40

ELECTRICAL SYSTEM

Problem	Cause	Remedy	Page
DIAL-A-MATIC Header Height Control Will Not Operate	Defective control switch.	Replace control switch.	----
	Rubber boot is not correctly positioned on actuating switch.	Position rubber boot in groove in actuating switch plunger.	41
	Defective actuating switch.	Replace actuating switch.	----
	Loose connection on ignition switch.	Tighten connection.	----
	Loose connections on actuating switch.	Tighten connections.	----
	Actuating switch chain is adjusted too long and will not release switch.	Adjust actuating switch chain.	41
	Loose connection on auto header valve ground wire.	Tighten connection.	----
	Main wiring harness on feeder house loose or disconnected.	Connect harness.	----
DIAL-A-MATIC Header Height Control Lowers But Will Not Raise	Loose connections on auto header valve.	Tighten connections.	----
	No signal at wiper arm.	Check and/or adjust row unit push rods and linkage.	----

ELECTRICAL SYSTEM—Continued

Problem	Cause	Remedy	Page
DIAL-A-MATIC Header Height Control Raises But Will Not Lower	Loose connections on auto header valve.	Tighten connections.	----
	Movement of control shaft under header is restricted.	Check shaft for restrictions.	----
	Linkage rod not adjusted to proper length.	Adjust rod.	----
	Linkage tension spring loose or broken.	Replace linkage tension spring.	----
System Cycles Excessively or "Hunts"	Incorrect adjustment of drop rate valve.	Adjust drop rate valve.	40
Header Was Raised Manually But Continues To Lower When Lever Is Released.	Actuating switch chain is adjusted too short and will not actuate switch.	Adjust actuating switch chain.	41
	Defective actuating switch.	Replace actuating switch.	----
System Will Not Shut Off Unless Control Switch Is Turned "OFF."	Linkage tension spring loose or broken.	Replace linkage tension spring.	----
	Actuating switch chain is adjusted too short and will not actuate switch.	Adjust actuating switch chain.	41
	Defective actuating switch.	Replace actuating switch.	----

HYDRAULIC SYSTEM

Problem	Cause	Remedy	Page
DIAL-A-MATIC Header Height Control Will Not Operate	Defective auto header valve.	See your John Deere dealer.	----
	Electrical problem.	See ELECTRICAL SYSTEM trouble shooting.	56
DIAL-A-MATIC Header Height Control Lowers But Will Not Raise	Defective "RAISE" solenoid on auto header valve.	See your John Deere dealer.	----
	Electrical problem.	See ELECTRICAL SYSTEM trouble shooting.	56
DIAL-A-MATIC Header Height Control Raises But Will Not Lower	Insufficient supply of hydraulic oil to auto header valve.	Increase engine speed to fast idle.	----
	Defective "LOWER" solenoid on auto header valve.	See your John Deere dealer.	----
	Electrical problem.	See ELECTRICAL SYSTEM trouble shooting.	56
Header Raises Slowly Or Not At All	Insufficient supply of hydraulic oil to solenoid control valve.	Increase engine speed to fast idle.	----
	Insufficient hydraulic oil pressure from main hydraulic system.	See your John Deere dealer.	----
	Defective relief valve in main hydraulic system control valve.	See your John Deere dealer.	----
	Defective flow control plug in main valve.	See your John Deere dealer.	----
Header Lowers Too Fast Or Too Slow	Incorrect adjustment of drop rate valve.	Adjust drop rate valve.	40

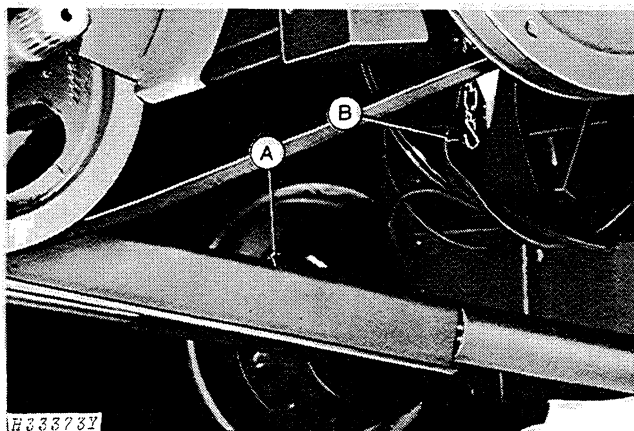
HYDRAULIC SYSTEM—Continued

Problem	Cause	Remedy	Page
Header Is Too Slow To Return To Operating Level After Encountering Irregular Ground	Readjustment of drop rate valve slowed drop rate more than desired.	Readjust drop rate valve.	40
Header Lowers With Control Switch In "OFF" Position	Defective solenoid control valve.	See your John Deere dealer.	----
Solenoid Control Valve Does Not Function When Manually Operated	Defective auto header valve.	See your John Deere dealer.	----
Solenoids On Control Valve Do Not Make An Audible "Click" When Energized	Loose connections on solenoids.	Tighten connections.	----
	Defective auto header valve solenoids.	See your John Deere dealer.	----
	Defective auto header valve.	See your John Deere dealer.	----
DIAL-A-MATIC Header Height Control System Leaks Hydraulic Oil	Loose hydraulic connections.	Tighten hydraulic connections.	----
	Defective auto header valve.	See your John Deere dealer.	----
System Overheats	Defective flow control plug in main valve.	See your John Deere dealer.	----
	System cycles excessively or "HUNTS".	See ELECTRICAL SYSTEM trouble shooting.	58, 59
	Defective main hydraulic system relief valve.	See your John Deere dealer.	----
	Hydraulic return line is restricted.	See your John Deere dealer.	----



Service

HYDRAULIC CYLINDER SAFETY STOP



H3373Y

1. **CAUTION:** When working under the row-crop head, always place the hydraulic cylinder safety stop in safety position to prevent header from lowering.

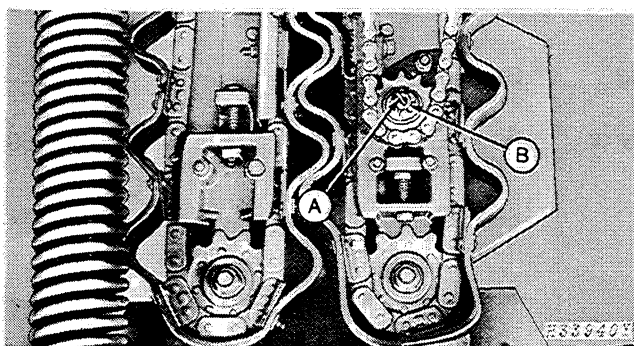
Start engine, raise feeder house and fully extend cylinder to place safety stop (A) in safety position.

2. Disconnect chain (B) from safety stop.
3. Position safety stop on piston rod.

After completing work, attach safety stop to chain for storage.

A—Safety Stop
B—Chain

ROTARY KNIVES



H33940Y

A—Cotter Pin
B—Slotted Nut

Replacing Rotary Knife Sections

Remove rotary knife to replace knife section as follows:

NOTE: See page 27 for removal of knife chain before removing knife.

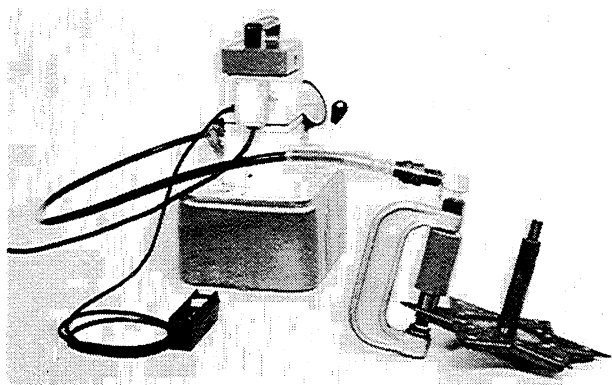
1. Remove cotter pin (A), slotted nut (B) and washer.

CAUTION: Rotary knife with shaft may drop down when castellated nut is removed.

2. Remove spring and spacer from base of shaft. Clamp shaft in vise to inspect or replace all worn or broken knife sections.

IMPORTANT: Replace knife sections with special high carbon steel sections having hard surface treatment on bevel edges.

3. Use D-01170AA Press to remove and install rivets when replacing knife sections. Instructions are included with press. See your John Deere dealer.



H50061

- For good knife section and stationary knife contact, remove all burrs from attaching rivets with a file or electric sander.

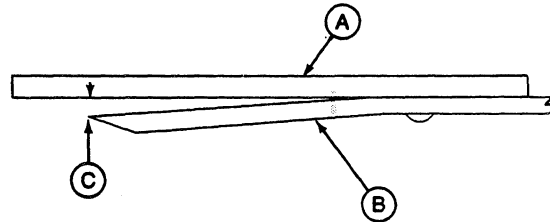


CAUTION: Wear suitable eye protection when using sander to remove burrs.

Straightening Rotary Knife Sections

- To insure good cut and to keep wear of stationary knife blade (A) and rotary knife (B) sections to a minimum, all six rotary knife sections must contact the stationary knife evenly.
- Check cutting surfaces of each of the rotary knife sections. Clearance between the knife section and the stationary knife must not be more than .008-inch (0.20 mm) (C).
- If too much clearance exists, shim stationary knife with H100293 as required to bring clearance to 0.008-inch (0.20 mm). See your John Deere dealer for purchase of H100293.

IMPORTANT: When knife sections are replaced, there must be 0.008-inch (0.20 mm) clearance at each knife section. The riveting process may cause knife sections to deflect.



H30736

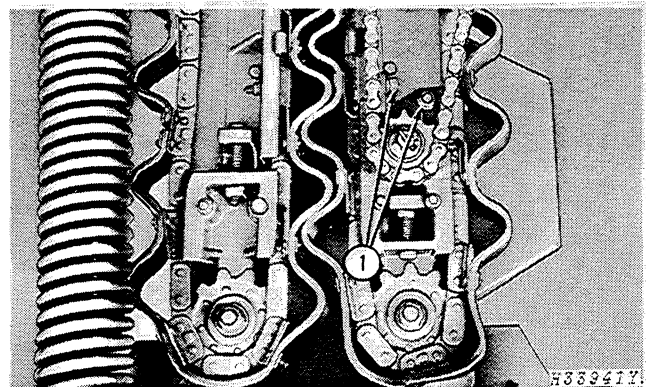
H30736

A—Stationary Knife Blade
B—Rotary Knife Section
C—0.008-inch (0.20 mm)
Maximum

Removing Stationary Knife

Raise row-crop head to maximum height and lower hydraulic cylinder safety stop.

- Remove nuts from two 1/2-inch plow bolts attaching bearing housing to the row unit frame.

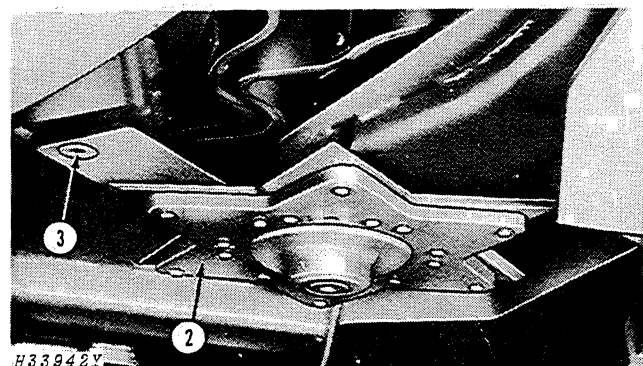


H33941Y

H33941Y

- Remove rotary knife. See page 62.
- Remove socket head plow bolt and remove stationary knife.

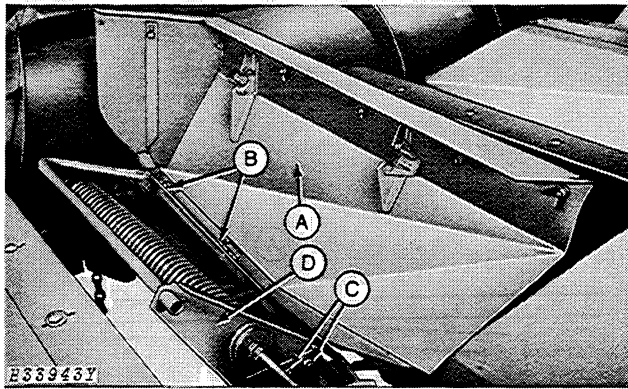
NOTE: When stationary knife becomes worn, it can be reversed to prolong its usefulness. Do not turn stationary knife over or cutting edge will not match the rotary knife.



H33942Y

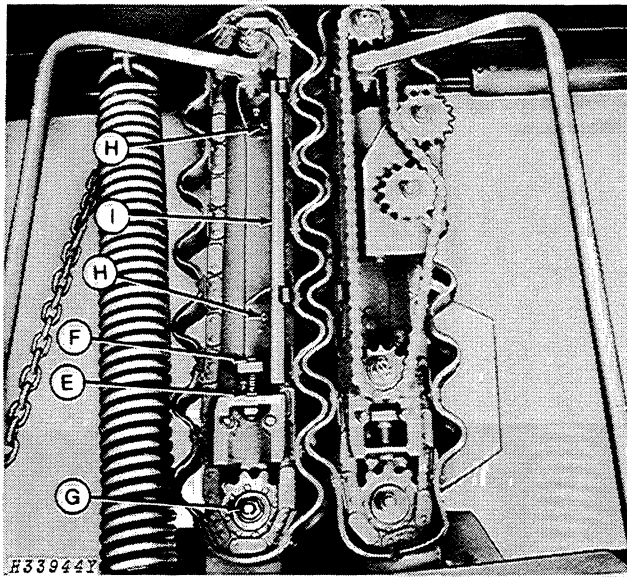
H33942Y

REMOVING AND REPAIRING GATHERING BELTS



1. After lowering gather point, swing up sheet (A), remove two cotter pins (B) and lift off sheet. Do not mix sheets. They have been adjusted for each row unit.
2. Remove two round head bolts (C) and remove bracket (D).

A—Gatherer Sheet
B—Cotter Pins
C—Round Head Bolts
D—Bracket



3. Loosen jam nut (E) and back off bolt (F) to loosen belt.
 4. Remove nut and washer on idler (G).
 5. Remove two cap screws (H) and remove chain guide (I).
- NOTE:** Remove only the right-hand chain guide to remove either belt. "Right-hand" and "left-hand" sides are determined by facing in the direction the row-crop head will travel when in use.
6. Lift off gathering belt with idler. Set idler aside.

E—Jam Nut
F—Bolt
G—Idler
H—Cap Screws
I—Chain Guide

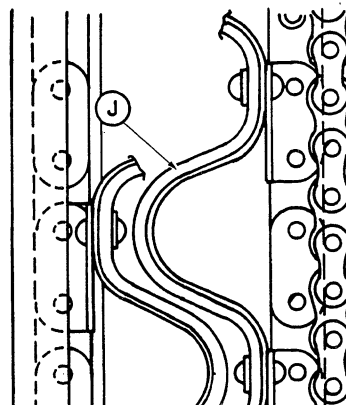
NOTE: A gatherer chain can be repaired by replacing the 2-ply rubber fabric. One of the fabric plies is thicker than the other. Install the **THICKER** ply (J) so it contacts the crop.

7. Install gathering belt, idler, and chain guide.

NOTE: A new gatherer belt and chain from service parts will be stiff and chain rollers will not turn freely. This condition is normal for new parts. Chain will wear and loosen during operation.

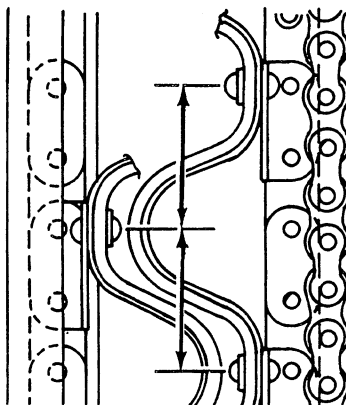
J—Thicker Ply

H33945



8. Position belt on sprockets so the lug attachment links of the chain are centered between the attachment link of the mating chain within 3/8-inch (9.6 mm). Bold arrows show equal distance.
9. Tighten bolt (F) until a 20 lb (88 N) force applied midway between the drive and idler sprockets will deflect the belt 1/2 to 1-inch (13 to 25 mm).
10. Tighten jam nut (E).
11. Attach bracket (D) with round head bolts (C).
12. Attach gatherer sheet (A) with two cotter pins (B).

H33920





Storage

END OF SEASON SERVICE

1. Clean the head thoroughly. Chaff and dirt will draw moisture and cause rust.
2. Lubricate head. Grease threads on adjusting bolts.
3. Paint all parts from which paint has worn.
4. If possible, shelter head in a dry place.
5.  **CAUTION: Support head with either the hydraulic cylinder safety stop or with blocks, or lower it to ground level.**
6. Order repair parts needed for next season.

BEGINNING OF SEASON SERVICE

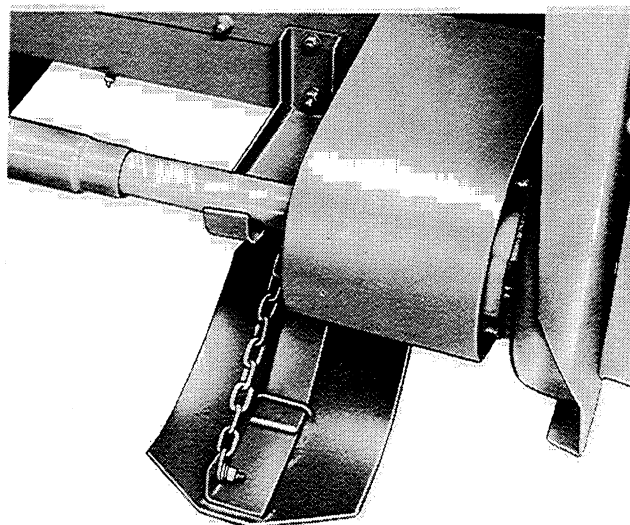
1. Clean head thoroughly.
2. Adjust gathering belts and check tension.
3. Adjust chains to proper tension.
4. Lubricate head completely.
5. Go over complete head and see that all bolts are tight and cotter pins are spread.
6. Run head at half-speed for a few minutes. Check bearings for overheating or excessive looseness.
7. Review your operator's manual.



Attachments

STUBBLE SHOES

Stubble shoes are recommended for use in field conditions where the combine drive tires must run on sharp, upright soybean stubble. These shoes mash down stubble, reducing tire wear. See page 30 for installation.

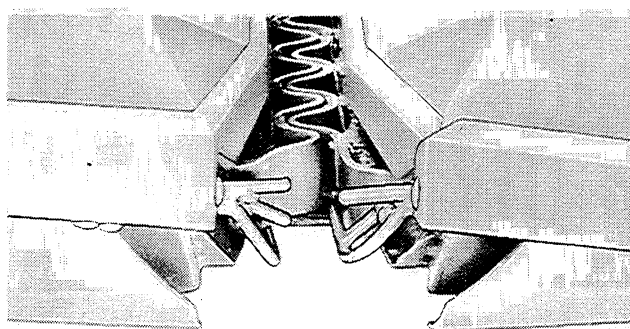


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H33946Y

ROCK DEFLECTORS

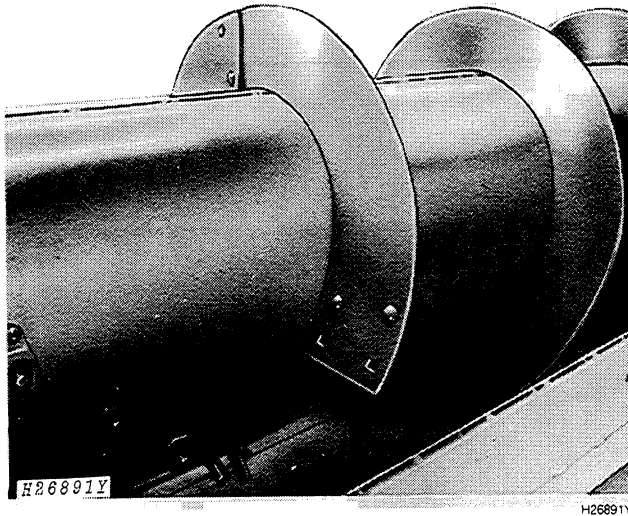
Rock deflectors are recommended for use in rocky field conditions. They deflect rocks down and away from the gathering belts and rotary knives.



H33947Y

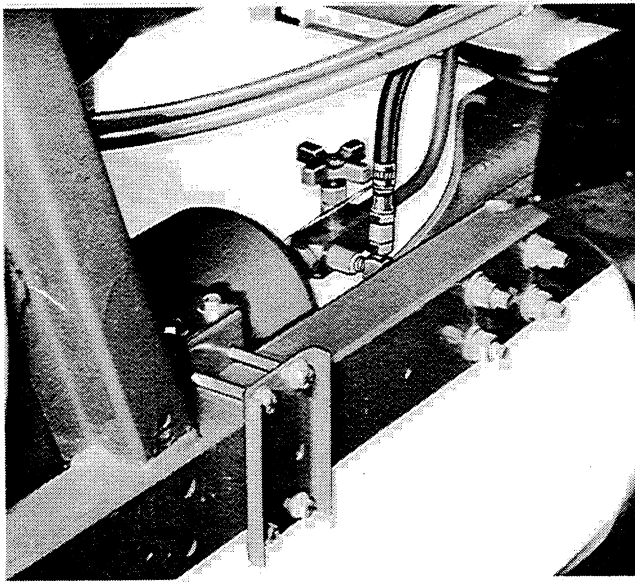
H33947Y

AUGER FLIGHT EXTENSIONS



Auger flight extensions are recommended for use in short, slick feeding conditions. The extensions help convey material closer to the center of the feeder house for even feeding to the cylinder.

ACCUMULATOR



Illustrated on 7720 Combine

The accumulator float system works as a protective device for the row-crop head when it receives ground contact. It can complement the DIAL-A-MATIC header height control, by absorbing shock loads and allowing smoother performance. A 1/2 gallon accumulator is used with DIAL-A-MATIC header height control. A 1 gallon accumulator is used without DIAL-A-MATIC header height control.

SUNFLOWER ATTACHMENTS

These attachments tailor the row-crop head for use in sunflowers. The three attachments may be used together or separately. Operating instructions are included with the attachments.

Outer end shields (A) divide and gather in leaning heads while deflecting uncut heads in adjacent rows. They also prevent the escape of any airborne loose heads or seeds.

A high-back screen (B) helps prevent airborne heads and seeds from escaping over the back of the header. It is perforated for vision.

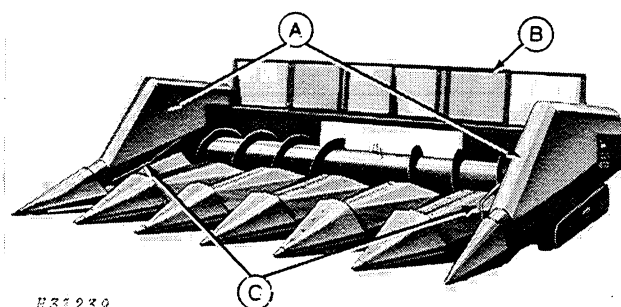
Deflector rods (C) help guide the stalks to the center of the head and away from the end shields.

When harvesting sunflowers, the row-crop head should be in the "locked-out" or "rigid" position for standing crop conditions. Operate the combine with the header as high as possible to avoid taking in too much stalk. In down crop conditions, the outer end shields (A) must be removed to allow the header to "float." This will allow the operation of the combine with the header in the "float" position.

The cross auger should be adjusted to 1 in. (25 mm) above the bottom sheet for even material flow. In the event that "flipping" of heads occur, the three outside auger fingers on both sides should be removed and replaced with a set of auger flight extensions.

The recommended separator adjustments for sunflower harvesting are:

Cylinder rpm	375-600
Concave	1/2 - 1 in. (12-25 mm)
Chaffer	1/2 - 1 in. (12-19 mm)
Sieve	1/2 - 5/8 in. (12-16 mm)



A—Outer End Shields
B—Back Screen
C—Deflector Rods

H31239



Specifications

(Specifications and design subject to change without notice)

Specifications given in this manual are intended for service only and do not include normal factory manufacturing tolerances.

ROW-CROP HEAD MODEL	COMBINE MODEL	NUMBER OF ROWS
453A	4400, 4420, 6600, 6620	4
454A	4400, 4420, 6600, SideHill 6600, 6620, SideHill 6620, 7700, 7720, 7701, 7721	4
653A	4400, 4420, 6600, SideHill 6600, 6620, SideHill 6620, 7700, 7720, 8820	6
654A	6600, 6620, 7700, 7720, 8820	6
655A	7720, 8820	6
853A	7700, 7720, 8820	8
854A	8820	8
1253A	8820	12

Auger

(Retractable Finger Feeding)

Diameter 24 inches (610 mm)

Speed 100 to 165 rpm

Torque to seat fingers 20 ft-lbs (27 N-m)

Crop Gatherer

Type Belted Chains

Gatherer belt speed 215 to 352 fpm

Drive Chain

Gatherer points Adjustable and floating

Row unit sheets Swing-out

Rotary Knives

Type Rotary 6 blade with adjustable shear

Speed 202 to 331 rpm

Cuts per minute 1212 to 1986

Blade material High-carbon steel,
heat treated cutting edge

Stationary Knives

Type Fixed

Knife material Heat-treated cutting edge

Skid Shoes

Type Self-aligning,
adjustable to three
positions

Float range 6 inches (152 mm)

Approximate Overall Width

453A	11 feet 2 inches	(3.4 m)
454A	13 feet	(4 m)
653A	15 feet 6 inches	(4.7 m)
654A	20 feet 8 inches	(6.3 m)
655A	21 feet	(6.4 m)
853A	21 feet 2 inches	(6.5 m)
854A	26 feet	(7.9 m)
1253A	31 feet	(9.6 m)

Approximate Overall Length

(All row-crop heads)..... 11 feet (3.3 m)

Approximate Shipping Weight

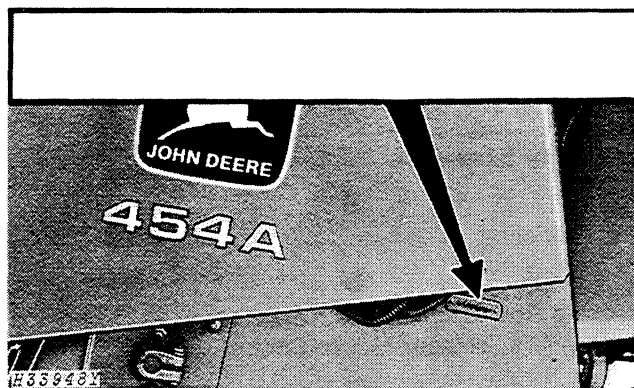
453A	2490 lbs. (1 050 kg)
454A	2880 lbs. (1 220 kg)
653A	3570 lbs. (1 530 kg)
654A	4420 lbs. (1 905 kg)
655A	4550 lbs. (2 063 kg)
853A	5000 lbs. (2 155 kg)
854A	5590 lbs. (2 535 kg)
1253A	7400 lbs. (3 358 kg)

(Specifications and design subject to change without notice)

Serial Number

The serial number is on a plate located on the left-hand end of the row-crop head.

Record your row-crop head serial number in the space provided on the illustration. Provide this serial number to your dealer when ordering parts.



H33948Y



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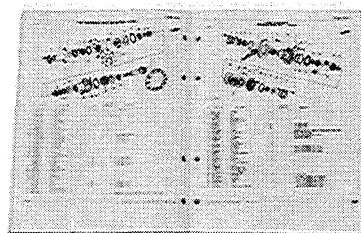
Title	Order No.	Qty.	Price Each
Parts Catalog			
50A Series Row-Crop Heads	PC-1747		
Operator's Manual			
50A Series Row-Crop Heads	OM-H114166		
Technical Manual			
6620, SideHill 6620, 7720, 8820 Combines	TM-1202B		

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FMO Manual - Preventive Maintenance	FMO-16102B	
FMO Manual - Machinery Management	FMO-17102B	
FMO Manual - Machine Safety	FMO-181B	
FMO Set of 9 Manuals above	FMO-394 Set	
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PARTS CATALOG



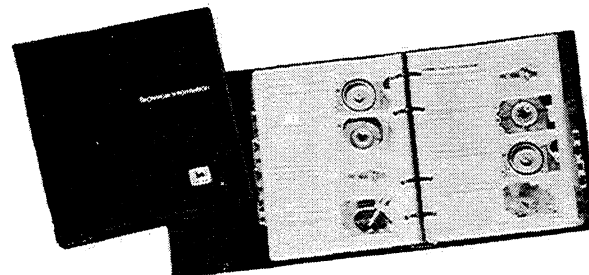
A parts catalog containing exploded view illustrations and lists of all parts is useful when purchasing service parts. Helps identify the correct parts. Useful in assembling and disassembling.

OPERATOR'S MANUAL



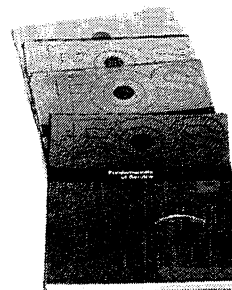
An extra copy of the operator's manual may be important if the copy furnished with your machine is misplaced.

TECHNICAL MANUAL



The technical manual is a service guide for your machine. Included in the manual are specifications, diagnosis and adjustments, illustrations of special assembly and disassembly procedures, hydraulic oil flows, and wiring diagrams.

FMO AND FOS MANUALS



These are basic manuals covering most all types and makes of agricultural machinery. FMO manuals tell you how to *operate* machines; FOS manuals tell you how to *service* machines. Each manual starts with basic theory and is fully illustrated with colorful diagrams and photographs. Both the "whys" and "hows" of adjustments and repairs are covered in this reference library.

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