

210 CORN ATTACHMENT 45, 55 AND 95 COMBINES (SERIAL NO. 210-14904)



OPERATORS MANUAL

210 CORN ATTACHMENT 45, 55 AND 95
COMBINES (SERIAL NO. 210-14904)

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ENGLISH



TO THE PURCHASER

This manual contains useful information on how to operate your new John Deere 210 Corn Attachment.

A corn attachment must be built to handle a wide range of conditions. Average conditions can be handled by the 210 Corn Attachment with regular equipment. Unusual conditions can be handled by installing special equipment.

Field conditions vary from year to year, from day to day, and even from hour to hour. Different varieties of corn present widely different picking problems. A careful study of adjustments on your corn attachment and what they accomplish under varying conditions will allow you to reap many benefits and economies that a corn attachment can provide.

Your new corn attachment will do quality work in direct proportion to the care you use in operating it. Operate, adjust and service the attachment according to the instructions in this manual.

If you need information not covered in this manual, see your John Deere dealer. He has the latest information on how to get the best service from your corn attachment and can give you prompt service in the field or in his shop.

When in need of parts, go to your John Deere dealer. He carries genuine John Deere parts for your 210 Corn Attachment.

Be prepared to give him the serial number of your corn attachment and the year purchased. This information should be recorded below on this page as soon as you have received your corn attachment.



Serial Number.....

Date Purchased

You will find the serial number plate on the left-hand auger housing as shown above.



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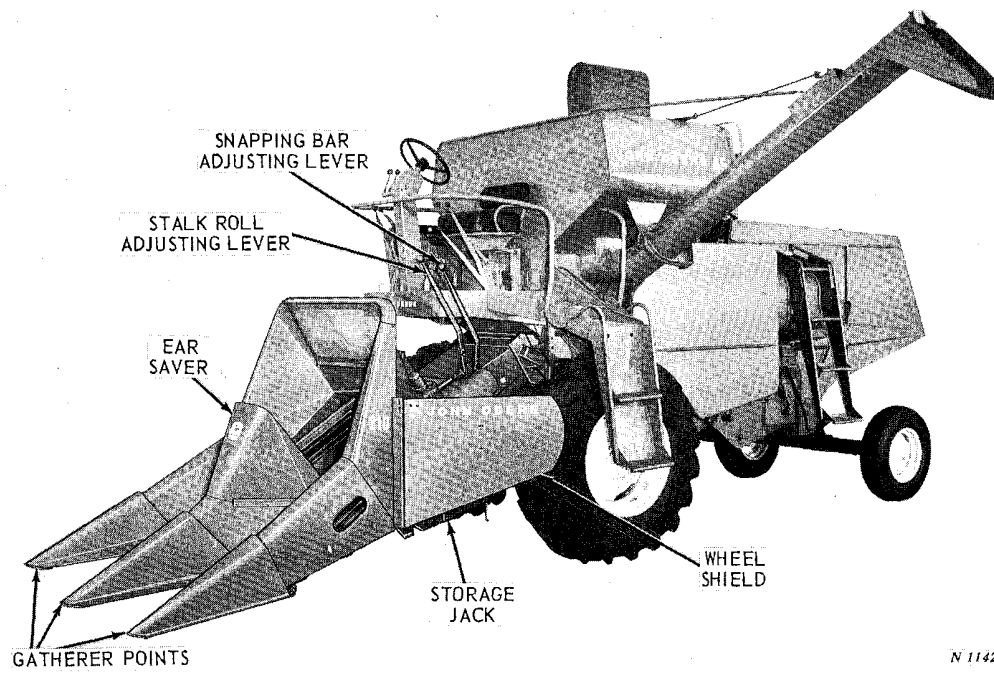
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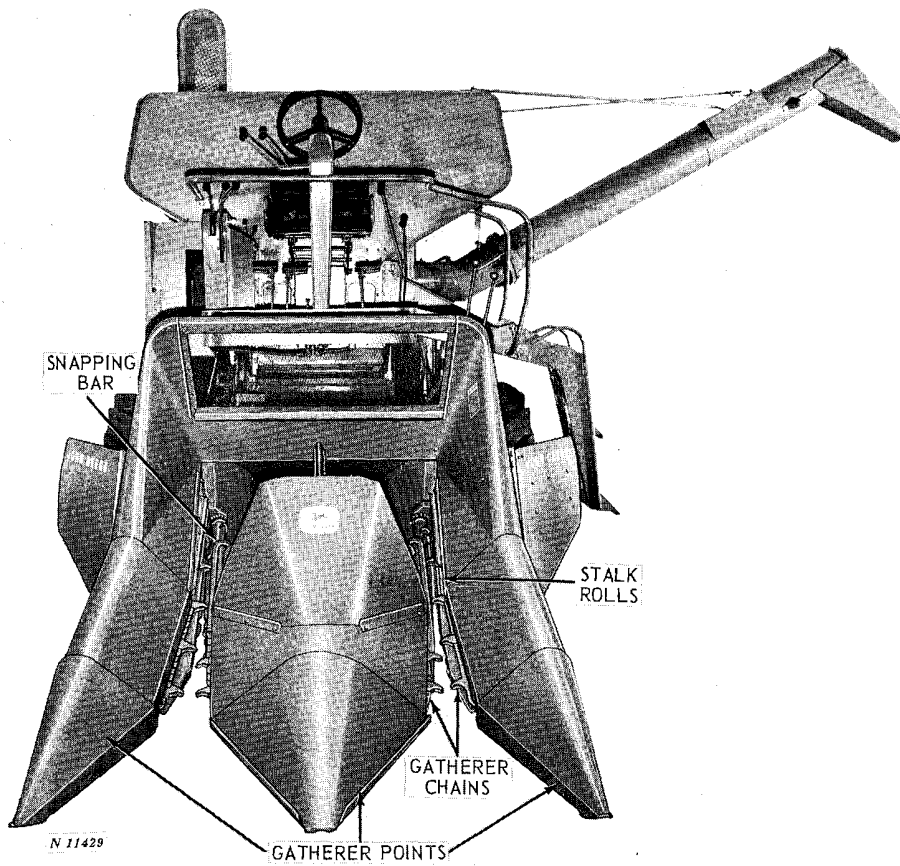
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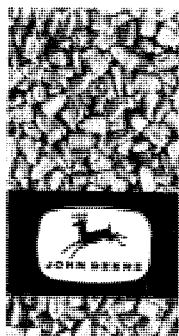
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John Deere 210 Corn Attachment on 45 Combine



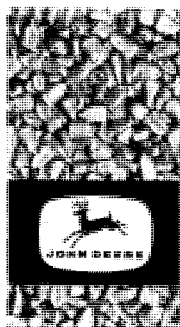
John Deere 210 Corn Attachment on 45 Combine



SPECIFICATIONS

John Deere Combine required . . . 45, 55, or 95	Snapping bar adjustment By operator from combine platform
Number of rows 2	Conveyor from gatherers to combine Augers
Center-to-center distance between snapping units 40 inches	Approximate overall width for storage 6 feet 1-1/2 inches
Row widths handled 38 to 42 inches	Approximate overall length for storage 10 feet 4 inches
Gatherer points Hinged above gatherer chains	Approximate Overall width (55 and 95 Combines) 8 feet 11 inches
Number of gatherer chains per snapping unit 2	Approximate overall width (45 Combine) 8 feet 5 inches
Type of gatherer chains . . . Steel roller chain	Approximate overall length (45 Combine) 23 feet 6 inches
Minimum clearance between gatherer chains and ground 0 inches and up	Approximate overall length (55 and 95 Combines) 25 feet 2 inches
Distance gatherer chains ahead of fluted stalk rolls 10 inches	Attachments and Special Equip- ment See pages 18 to 21
Length of fluted stalk rolls 38 inches	
Fluted stalk roll adjustment By operator from combine platform	

(Specifications and design subject to change without notice.)



OPERATION

PROPER INSTALLATION

Be sure the corn attachment is properly installed on the combine. Improper installation can cause inferior work and damage to the corn attachment and combine. After corn attachment is completely installed, check over the entire machine, being sure shields, sprockets, chains, and all other parts are properly attached, and adjustments made as illustrated. Be sure all nuts, pins, and keys are tight and cotter pins are spread.

BEFORE OPERATION

Before putting the corn attachment in the field for the first time, lubricate it thoroughly and operate at slow speed for ten minutes, making sure that all parts are working freely. If there is no binding or heating, run at fast idle speed for approximately 30 minutes, if this has not already been done by the dealer. Next, go over the entire machine to be sure that all bolts are tight, and that lubricant is reaching all bearings. Be sure to check the tension of all chains.

IN THE FIELD

Take pride in doing the best work possible under all conditions. Follow the rows carefully; set gatherer points and tilt machine to pick up the down and leaning stalks; set stalk rolls so corn is not mutilated or shelled excessively; and adjust for damp or dry corn. Adjustments are provided on the machine to meet these conditions.

ADJUST MACHINE PROPERLY

Successful operation, quality of work, and length of life of the Corn Attachment depend greatly upon adjusting the corn attachment and combine to meet your specific field conditions, and on proper lubrication.

After several rounds, check the adjustments to be sure you are getting the best possible sample of corn in the grain tank.

HARVEST EARLY

Early harvesting, before corn gets too dry, is one way to keep field losses low. Agricultural engineers suggest that when early maturing corn reaches 26 to 27 percent moisture, farmers with dryers can start harvesting. If you're set up to store high moisture corn, harvesting can start when corn is at 30 percent moisture.

Early harvesting will also eliminate the troubles and disagreeable features that accompany frozen ground, extremely cold weather, and dried out, frozen, and rotten corn stalks.

DRIVE CAREFULLY

The combine should travel in the same direction that the field was last cultivated.

Listen for slipping clutches and watch for deep furrows, rocks, or other obstructions which the gatherer points may strike.

Drive the combine carefully so the corn attachment will stay on the rows. Raise the corn attachment when crossing the end of the field.

If the unit begins to plug, do not slow down the combine engine. Keep the engine at operating speed and decrease the ground speed with the variable speed control or by disengaging the foot clutch until the unit has cleared itself.

Do not use a corn stalk or stick to clean stalk rolls of an ear or trash while corn attachment is operating. If for any reason the corn attachment should become clogged, stop the combine engine and then remove obstacle. Keep hands completely away from stalk rolls while machine is in motion.

Never clean, lubricate, or adjust corn attachment or combine while either is in motion. Be sure to stop the combine engine. Too much care cannot be taken keeping hands and clothing away from moving parts.

CHECK GROUND SPEED

In average conditions, the corn attachment will do best work when traveling at a moderate rate of speed.

In well standing corn, the forward movement of the machine should be a little slower than the rearward movement of the gatherer chain flights, so the flights can help pull the stalks into the stalk rolls.

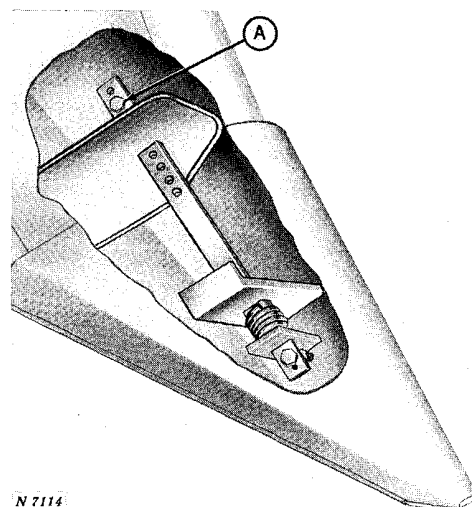
If the ground speed is too fast, the chains push stalks forward and knock off the ears. If the ground speed is too slow, the chains jerk the stalks back into the unit, possibly breaking the stalks or knocking off the ears.

GATHERERS

EAR SAVER

The ear saver is designed for picking in corn that is standing well. It can be removed for picking in down corn by taking out ten bolts.

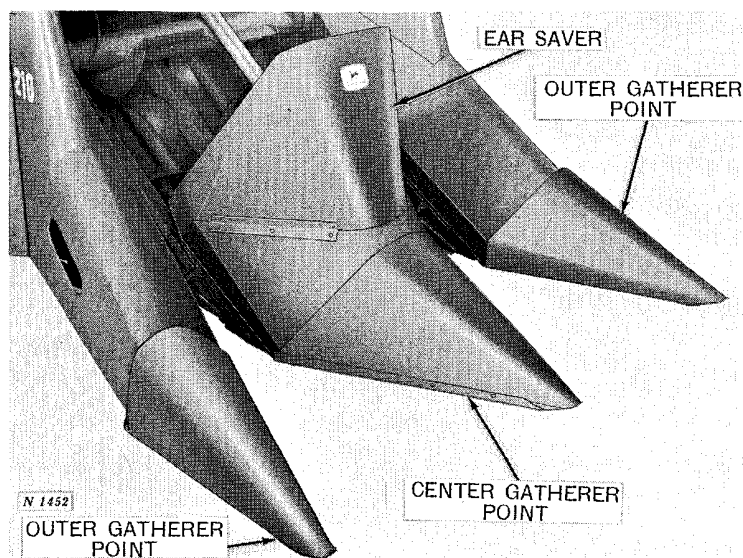
GATHERER POINTS



The gatherer points are hinged to follow the contour of the ground. They can also be raised and locked in any one of a number of positions by repositioning bolt "A."

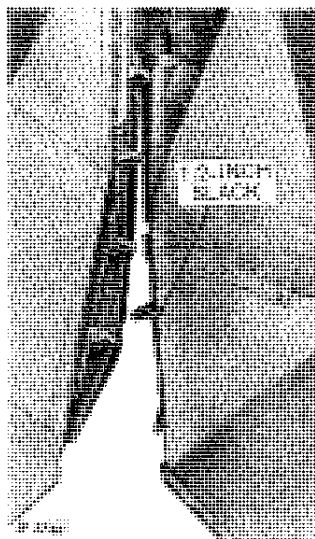
When operating, have the gatherer points just touching the ground.

In muddy conditions or in snow, raise and lock gatherer points high enough to prevent the points from scooping material into the throat opening, thereby clogging the opening.



6 Operation

GATHERER CHAINS



The gatherer chains run well beyond the points of the fluted stalk rolls. The chains can be run touching the ground if necessary to bring low hanging ears and down stalks into the stalk rolls.

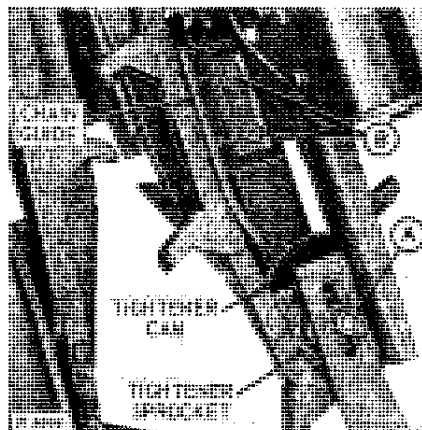
CAUTION: Be careful to avoid rocks and other obstructions in the row when running gatherers close to the ground.

The gatherer chains should be cleaned regularly with kerosene. Dry the chains and oil them thoroughly before using. See page 23.

Both the inner and outer gatherer chains are adjustable to permit spacing with the rows in the field.

The outer gatherer chain is designed to run slightly above the path of the inner gatherer chain to prevent the flights of the one chain from striking the flights of the other.

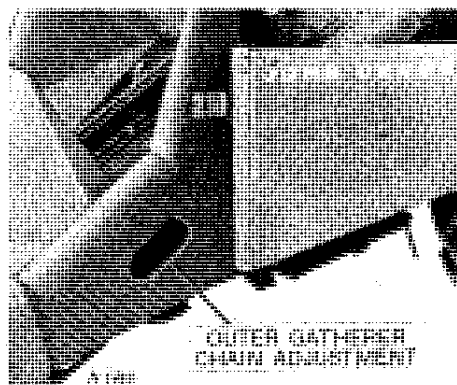
Adjusting Inner Gatherer Chain



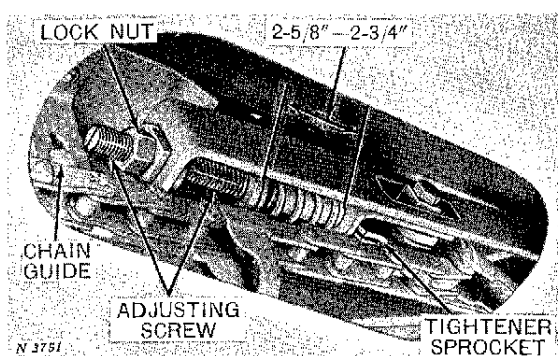
To adjust the inner gatherer chain, raise the gatherers and loosen nut "A" on the bolt through the tightener sprocket and nuts "B" on the chain guide attaching bracket. Slide the front of the chain guide and chain out to the desired position and tighten two nuts "B." Move the tightener cam until proper chain tension is obtained and tighten nut "A." Proper tension is 1/2-inch slack in the chain midway along the chain guide as shown at left. If chains are too loose, they may climb the sprockets, break the links, and wear the chains and sprockets rapidly.

NOTE: Do not attempt to set the chain tension by adjusting the chain guide.

Adjusting Outer Gatherer Chain and Chain Guide



A hole is provided in the outer gatherer sheet for access to the outer gatherer chain tightener.



To adjust the outer gatherer chain, loosen lock nut and turn adjusting screw until spring length is 2-5/8 inches to 2-3/4 inches. Tighten lock nut to maintain setting. The chain will then have the proper tension.

Adjust the outer gatherer chain guide so the chain flights will extend about 1/2-inch past the deck plate, measured where the chain guide is attached to bracket.

If the gatherer throat is clogging, the guide may be adjusted to move the chain closer to the row.



It is important that the outer gatherer chain be positioned above the inner gatherer chain. If

the lower idler bracket is not properly adjusted, the flights of the one chain may strike the flights of the other.

If the flights on the outer gatherer chain strike the flights on the inner gatherer chain, loosen the tension on the outer gatherer chain and loosen the four outer gatherer adjusting bolts. Add washers on the two bottom bolts between the idler bracket and the main frame. Then tighten all four of these outer gatherer adjusting bolts.

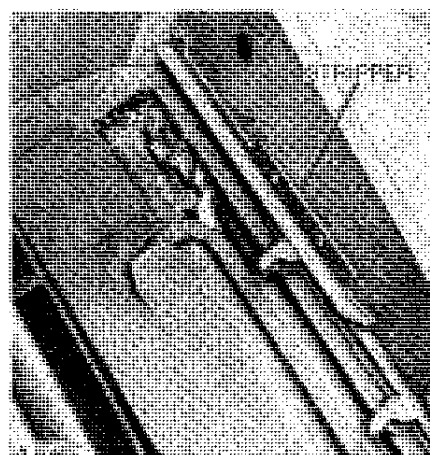
This will raise the lower chain idler and the outer gatherer chain so the flights will not strike each other.

If necessary, the lower idler bracket can be tilted on the four bolts so the tips of the outer gatherer chain flights do not strike the flights of the inner gatherer chain.

Be sure to reset the outer gatherer chain tension.

NOTE: Check to see if the stalk rolls are parallel after making the above adjustment. See page 9.

Adjusting Outer Gatherer Chain Stripper

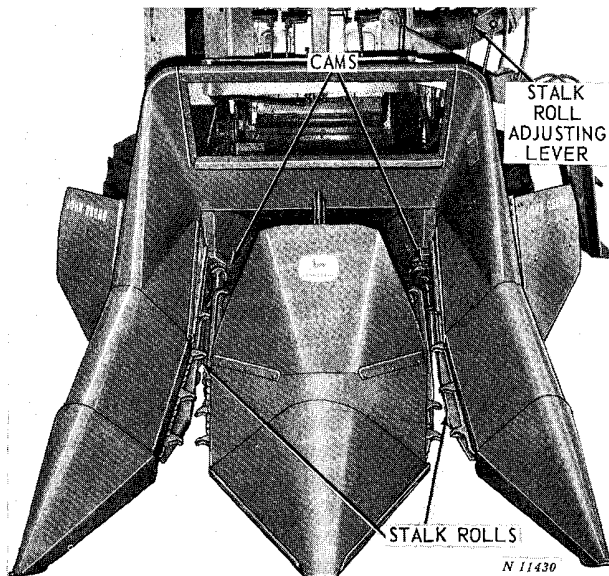


The stripper is used to strip material from the gatherer chain and to hold the chain down.

It should be adjusted so there is about 1/8-inch clearance between the stripper and the chain. Make the adjustment by loosening the nuts and moving the stripper in the slots.

FLUTED STALK ROLLS

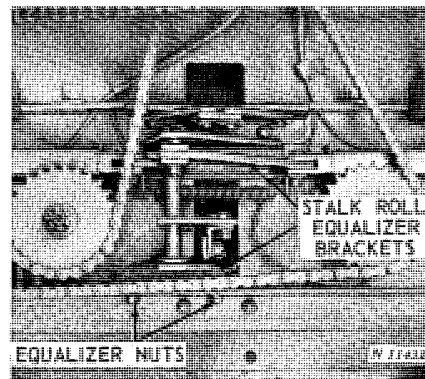
The fluted stalk rolls pull the corn stalks down so the ears will be snapped on the snapping bar. Tangled or delayed stalks are forced through the upper end of the rolls by a pair of aggressive cams. The spiral ribbed points of the rolls are carried close to the ground. They assist in augering the stalks safely into the rolls.



STALK ROLL SPACING

The stalk rolls should be run as close together as possible without breaking off the stalks. However, as the stalks dry out, more efficient operation may be obtained by operating the stalk rolls in a more open position.

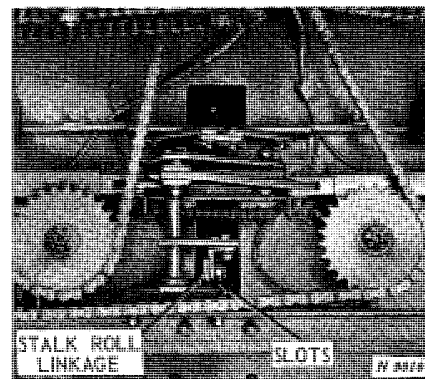
The spacing is easily changed by moving the adjusting lever that can be reached from the combine operator's platform. Move the adjusting lever to the rear to open the rolls and forward to close the rolls.



The opening between the lower stalk roll bearings on the right-hand row unit should be the same as the opening between the stalk roll bearings on the left-hand unit.

To equalize the openings between the stalk rolls, loosen the nuts holding the two stalk roll equalizer brackets to the corn attachment. Move both brackets to the right or left, as necessary, until both sets of stalk rolls are spaced the same.

Tighten the nuts after the roll spacing is set correctly.

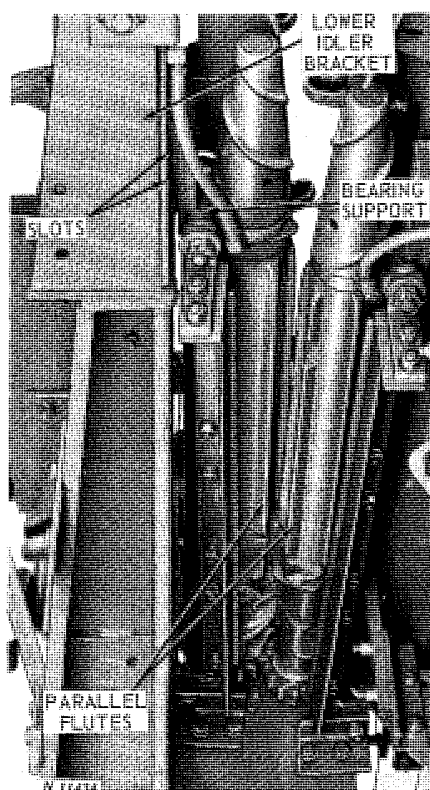


The stalk roll adjusting lever should not move beyond the notches in the quadrant. The linkage can be moved forward or rearward at the slotted connection for any necessary adjustment.

If the lever goes beyond the notches, loosen the bolts in the slots and reposition the linkage. Tighten the nuts after the desired position is obtained.

When properly adjusted the stalk roll adjusting lever will set in the first notch of the quadrant when the stalk rolls are closed.

ADJUSTING FLUTES ON STALK ROLLS



The flutes on the outer stalk roll should be parallel with the flutes on the inner stalk roll on both the right- and left-hand row units. With the stalk rolls closed, sight along the rolls to see if the flutes are parallel.

If the flutes are not parallel, loosen the two bolts holding the stalk roll bearing support to the lower idler bracket. Slide the bearing support up or down in the slots until the flutes on the outside roll are parallel with the flutes on the inner roll. Tighten the bolts after adjusting.

NOTE: Be sure the outer gatherer is adjusted properly before adjusting the stalk rolls. See page 7.

STALK ROLL SPEED

The speed of the stalk rolls with the regular sprocket is 1200 rpm. This speed can be reduced to 1000 rpm to reduce stalk breakage, by replacing the 12-tooth stalk roll drive sprocket with N13235N 14-tooth drive sprocket.

TIMING STALK ROLLS

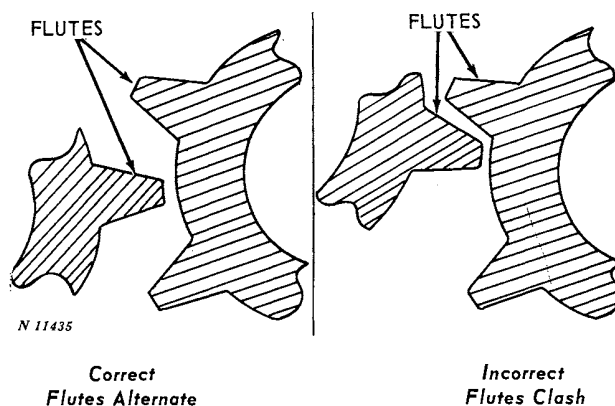


If the stalk rolls are not in time, the flutes may break off the stalks. When timed properly, the S-shaped cams at the upper end of the rolls will be 180 degrees apart. The flutes on the rolls will alternate smoothly and there will be no clashing when the rolls are turned.

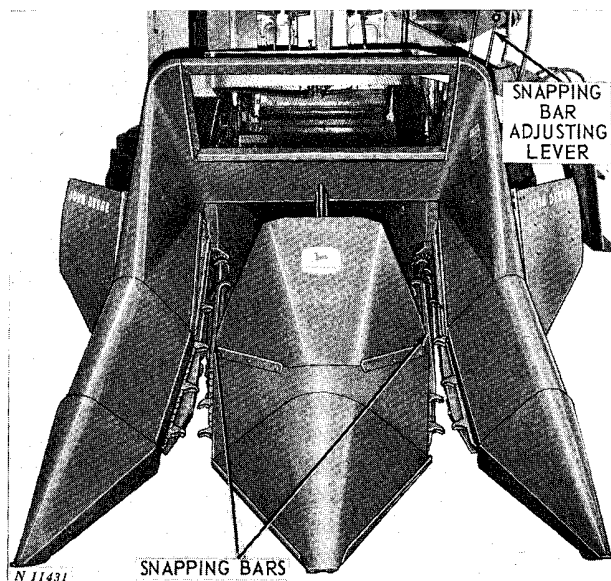
NOTE: The stalk rolls must be adjusted with the flutes on the inner stalk roll parallel to the flutes on the outer stalk rolls so the flutes will alternate smoothly.

To time the stalk rolls, remove the chain, slotted nuts, sprocket, bearing retainer, and bearings from the rear of the rolls. Move the rolls apart until the gears are out of mesh. Turn the outer roll until the cams on the two rolls are 180 degrees apart. At the same time the flutes on the outer roll should alternate with the flutes on the inner roll as shown below.

When rolls are positioned properly, with gears in mesh, replace bearings, bearing retainer, sprocket, nuts, and chain. Tighten all nuts and bolts.



SNAPPING BARS



The snapping bars snap ears from the stalks as the stalks are pulled down by the stalk rolls. The snapping bar spacing is adjustable to meet varying crop conditions by moving a lever from the combine operator's platform.

Move the adjusting lever rearward to open the snapping bars and forward to close the bars.

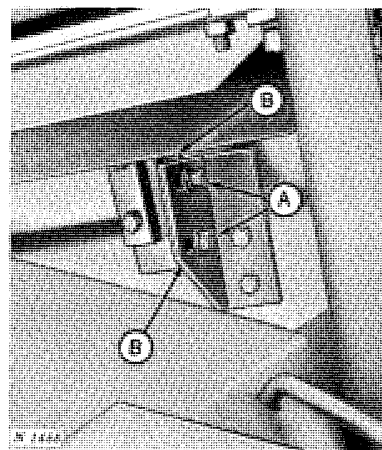
When operating in the field, adjust the snapping bar adjusting lever so the opening at the front of the snapping bars is just slightly larger than the diameter of the cornstalks.

ADJUSTING SNAPPING BARS

When properly adjusted, the opening between the snapping bar and the outer deck plate will be 1-3/4 inches, front and rear, when the snapping bar adjusting lever is in the seventh notch from the front of the quadrant. This spacing should be the same for both row units.

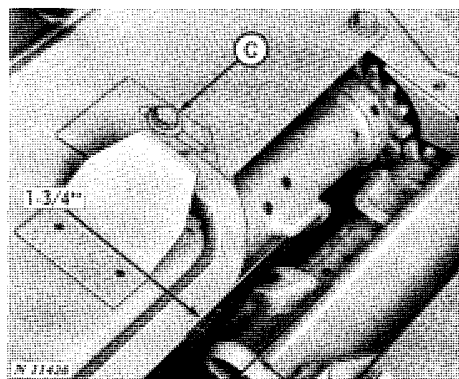
To adjust the snapping bars properly, first set the adjusting lever in the seventh notch in the quadrant.

The upper end of each snapping bar can be adjusted up or down and in or out.

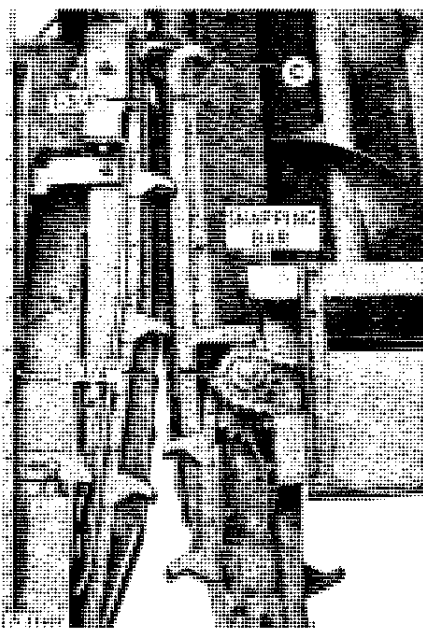


Set the snapping bar down as close to the inner roll cover as possible. This will make it easier for trash to fall through the stalk rolls and make it easier for corn to roll into the augers.

To adjust, loosen nuts "A," and move the angle with slots "B" until the flutes on the stalk roll just clear the snapping bar.

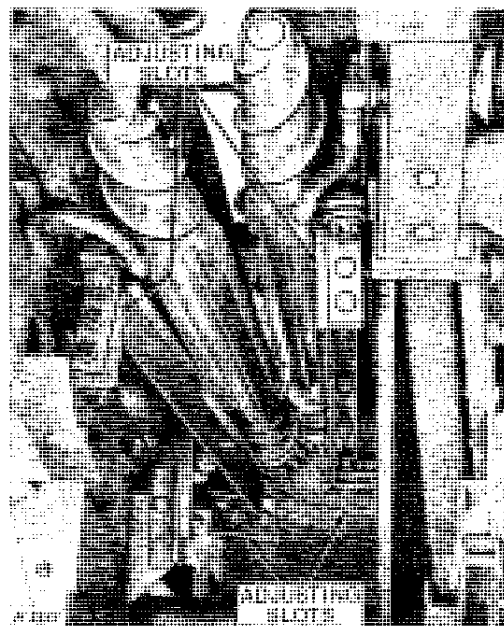
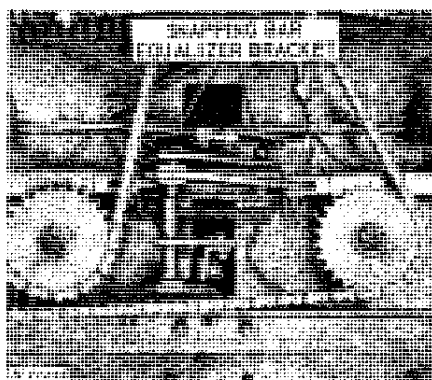


To move the rear of the snapping bar in or out, loosen nuts "A," loosen bolt "C," and move bolts "A" in the slots until the proper setting is attained. Set the distance between the snapping bar and outer deck plate at 1-3/4 inches (or just slightly less than the diameter of smallest ear of corn), on both row units.



To adjust, loosen both nuts and move the upper end of the point guard so the corn stalks can pass smoothly around the point. Tighten the nuts.

TRASH KNIVES



If the snapping bars are not parallel with the outer deck plate, loosen the bolts holding the snapping bar equalizer bracket, and move the equalizer bracket to the right or left, as necessary, until the spacing at the front of the snapping bars is the same for both row units, and the snapping bars are parallel with the deck plate.

Tighten all nuts and bolts.

STALK ROLL POINT GUARD

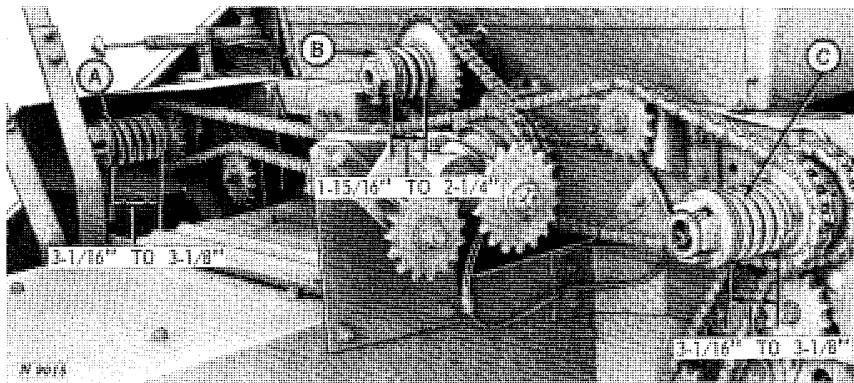
After adjusting the snapping bars and stalk rolls properly, set the inner stalk roll point guard to direct the material around the stalk roll point.

Trash knives prevent weeds and trash from wrapping around the stalk rolls.

The knives should be set as close as possible to the rolls without striking the flutes. Adjusting slots are provided in the brackets at the ends of the knife supports.

To adjust, loosen the bolts and move the brackets and knives to the desired position.

SLIP CLUTCHES



Slip clutches act as safety devices to reduce breakage. The springs controlling the clutches should have enough tension to hold the clutch to its normal work.

Should a clutch slip when the corn attachment is in operation, stop immediately, determine the cause, and correct it. Do not set the clutch under greater tension to correct the difficulty. Slip clutches should be set tight enough for ordinary work without slipping, but loose enough to slip easily if there is clogging. If slip clutches do not slip easily, take them apart and clean them. Clutches should be disassembled and cleaned at least once each season.

ADJUSTING SLIP CLUTCHES

Slip clutches are provided on the following drives as illustrated above.

- "A" - Left-hand stalk rolls and outer gatherer chain.
- "B" - Inner gatherer chains and corn conveyor auger.
- "C" - Right-hand stalk rolls, right-hand outer gatherer chain, and trash mover.

Adjust slip clutch by turning the adjusting nut to increase or decrease clutch spring tension. The normal length of each clutch spring is shown on the illustration above. Measure the length of the spring only.

IMPORTANT: Do not tighten nut to the point where the clutch will not slip.

ROLLER CHAINS

When removing chain links from roller chains be sure to reassemble chain with closed end of spring clip in the same direction the chain is traveling.

Chains should be cleaned regularly. Remove the chain and clean it by soaking in a safe solvent. Dry and oil it with SAE 10 or 20 engine oil before installing. Before storing the machine, clean and oil the chains. Oil the chains again before using.

Chains should be lubricated at frequent intervals with a good grade of SAE 10 or 20 engine oil. In dusty or sandy conditions, mix equal portions of SAE 10 engine oil with fuel oil and use as a lubricant.

CHAIN ADJUSTMENT

Adjust the tightener sprockets until the desired chain tension is obtained.

Do not run the chains too tight; however, they should not be loose enough to slap. Extra offset or half links are furnished in each chain to permit shortening as chains wear or stretch.



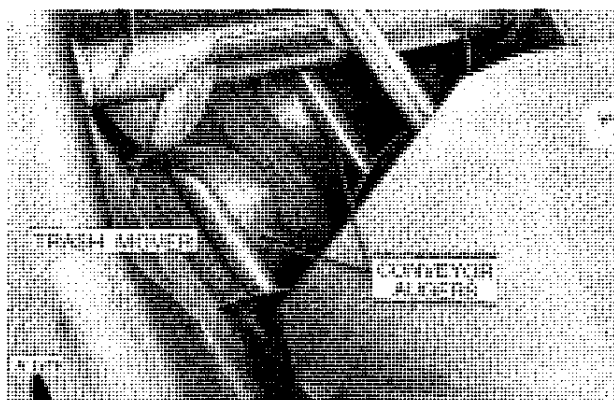
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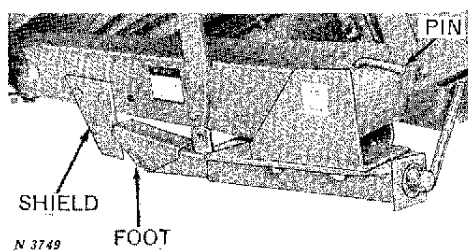
CONVEYOR AUGERS



Two large diameter augers convey the corn from the stalk rolls directly to the combine cylinder.

IMPORTANT: During freezing weather, at the end of each day's operation, run the corn attachment slowly for a few minutes to clean out the auger housing. In rainy seasons, clean material away from drain holes so water will not collect in the auger housing.

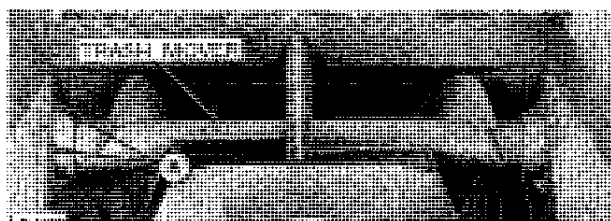
STORAGE STANDS



When each storage stand has been raised and pinned in place, screw the foot of the jack against the jack shield to hold it rigid against the bottom of the machine.

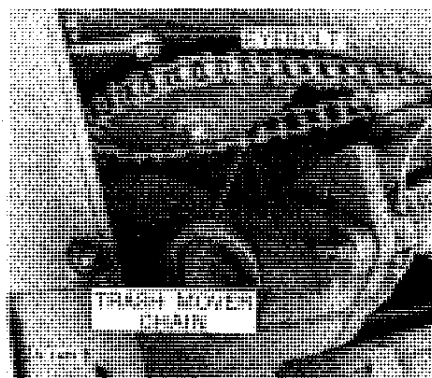
If the jack is not raised and secured against the shield, it can drop down and become damaged when the corn attachment is operating.

TRASH MOVER



The trash mover (special equipment) is located directly above the corn conveyor augers. It starts trash and broken stalks into the conveyor housing.

To adjust tension of the trash mover chain, loosen four bolts "A" so they will slide freely in the slots.



Tighten or loosen nut on the rear of the eye-bolt until chain tension is such that the chain will not slap.

Tighten nuts on bolts "A" after chain is adjusted.

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