228 HAY CONDITIONER FOR THE 215A WINDROWER

JOHN DEERE

OPERATORS MANUAL

228 HAY CONDITIONER FOR THE
215A
WINDROWER

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INTRODUCTION

Your new John Deere 228 Hay Conditioner is a dependable machine. With proper care and operation you can expect to receive the service and long life designed and built into it. Like any precision machine, your conditioner will require some attention at regular intervals. Use your manual as a guide to service your conditioner the RIGHT WAY.

If you find yourself in need of additional information or special servicing not covered in this manual, see your John Deere dealer. He is capable of answering your questions and providing efficient service.

When in need of parts, either to replace worn parts or to make emergency repairs, see your dealer.

When ordering parts, give your dealer the serial number of your conditioner. This information will help him give you prompt and efficient service.

The serial number of your conditioner is located on the top right-hand, front corner of the main frame. Record it in the space provided below.

Serial No. . . . . .

Date Purchased . . . . . .

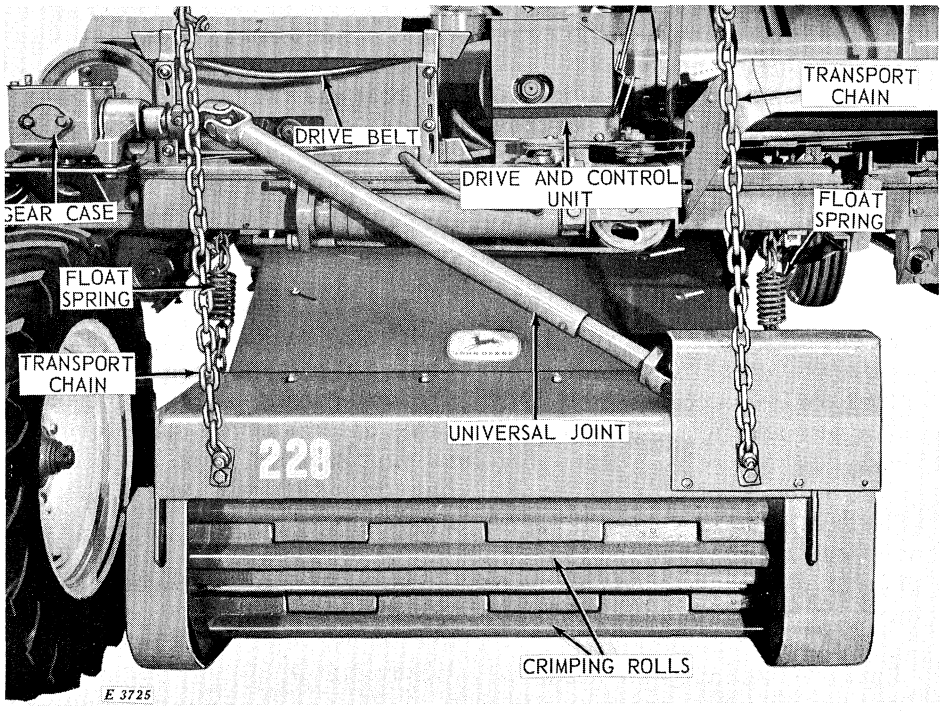
CONTENTS

NOTE: Right and left-hand sides referred to in this manual are determined from a position at the rear of the machine facing in the direction of travel.

SPECIFICATIONS

Rolls:	Width	42 in.
	Diameter	7-3/4 in.
	Speed	650 to 836 rpm
Weight (approx.) (less mounting parts)		687 lbs.
Height (in operation position)		30 in.
Width		49 in.
Length		50 in.
Bearings:		
	Gear case	Four tapered roller bearings
	Rolls	Four self-aligning ball bearings
	Drive shafts	Four sealed ball bearings
	Chain idlers	Two sealed ball and two needle bearings

(Specifications and design subject to change without notice.)



John Deere 228 Hay Conditioner

OPERATION

DESCRIPTION

After being cut by the windrower, the hay is picked up from the ground and passed between the surfaces of the two rolls which crimp the hay. The rolls effectively condition the heavier stems and stalks, and at the same time provide ample space for tender leaves and small stems to pass without damage.

Crimping permits the moisture to escape from the stems at the same rate as from the leaves, providing a fast, uniform curing of the crop.

Under some conditions, it will take an hour or two for the effect of the conditioning to be noticed. Keep this in mind when operating to avoid unnecessary adjustments.

BEFORE OPERATION

Do not start windrower until hay conditioner has been carefully checked for correct assembly. See that all nuts are tight and cotter pins spread.

Be sure all moving parts work freely and are properly lubricated. Check to see that the powershaft telescopes freely.

Start windrower engine and while idling, slowly engage hay conditioner. Let hay conditioner run slowly for a while and observe all moving parts to see that they operate freely and normally.

CAUTION: Never clean, oil, or adjust the hay conditioner while the windrower engine is running.

FIELD OPERATION

Operate windrower engine at full throttle to obtain the correct roll speed for the hay conditioner. Running the engine at slow speed reduces the roll speed and may cause the hay conditioner to clog where crop is heavy. Where difficult conditions make it necessary to slow down the travel speed of the windrower, reduce the speed with the variable ground speed control lever rather than reduce the engine speed. Doing this will enable the engine to maintain its rated speed, which will keep the rolls running at the proper speed for best results.

Do not engage conditioner with engine running at high speed. To do so may cause undue wear or possible breakage.

The 215A Windrower equipped with a 228 Hay Conditioner is a complete and balanced hay cutting-windrowing-conditioning unit; because three operations are being performed simultaneously, the functioning of one operation will affect the next operation.

In order that hay may be conditioned properly, the windrower should deliver the hay to the conditioner evenly.

Carry the lower conditioner roll four to seven inches above the ground.

When the windrower is equipped with the hay conditioner, a slower ground travel speed is necessary in order to condition the hay properly. Use a faster ground travel speed in a light crop than when operating in a heavy or rank crop.

ROLL HEIGHT

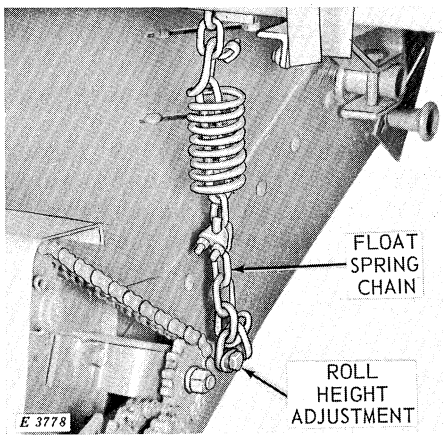
Set the rolls as high as possible (4 to 7 inches) but low enough so they will still pick up all the crop.

Operate rolls higher in heavy crops than in light scattered crops. Low roll height is one of the primary causes of material wrapping on rolls.

When transporting, raise the rolls by raising the platform.

IMPORTANT: Do not use the transport chains to adjust for roll operating height.

ADJUSTING HEIGHT



Adjust the height of the rolls by resetting the lower mounting bolt in each float spring chain to a lower or higher link in the chain.

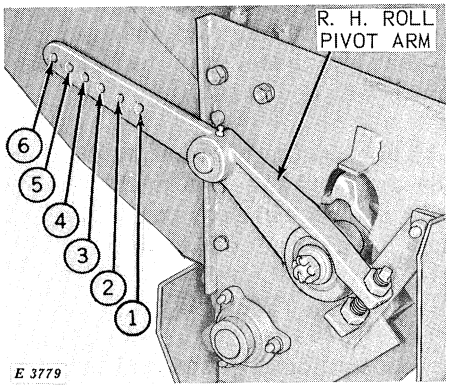
Both float spring chains must be set in the same relative link to maintain the conditioner in a level position.

TRANSPORT CHAINS

Do not adjust the chains so short that they will cause a bind between the conditioner and the windrower. On draper platforms, the end link will serve for most conditions. On auger platforms, use the fourth link from the end for most conditions.

ROLL PRESSURE

Roll pressure is provided by the weight of the hay conditioner. When the conditioner is being carried by the platform, the roll pressure is removed. Therefore, proper conditioning will not result when the conditioner is operated in this manner.



For proper conditioning, the weight of the conditioner must be supported by the float spring chains.

Excessive roll pressure results in unnecessary power requirements and over-conditioning of the hay.

For average conditions, hook the chains in the third hole from the front in the roll pivot arms.

For tender crops, such as first cuttings of clover or alfalfa, lower pressure may be desired. This is obtained by repositioning the chains in the first or second hole from the front in the pivot arms.

For touch crops, such as timothy, brome, etc., more pressure may be desired. Additional pressure

ROLL PRESSURE—Continued

is obtained by setting the chains in the fourth, fifth, or sixth holes from the front.

NOTE: Both chains must be set in the same relative holes in the pivot arms.

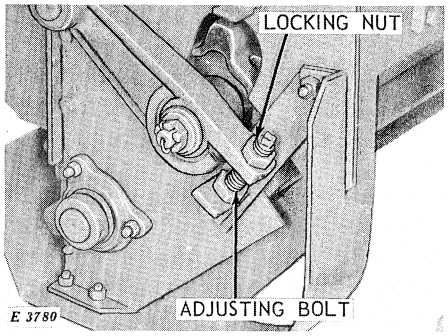
ROLL SPACING

When crimper rolls are too aggressive for tender crops, decrease space between rolls by turning the adjusting bolt on each side an equal number of turns. For tough crops, it may be necessary to decrease space between rolls.

The spacing between the tooth of one roll and the root of the mating roll should be approximately 3/8 inch for average conditions.

ADJUSTING SPACING

Loosen locking nuts and turn adjusting bolts on both sides an equal number of turns to maintain uniform spacing. Tighten locking nut.



FLUFFING BOARD

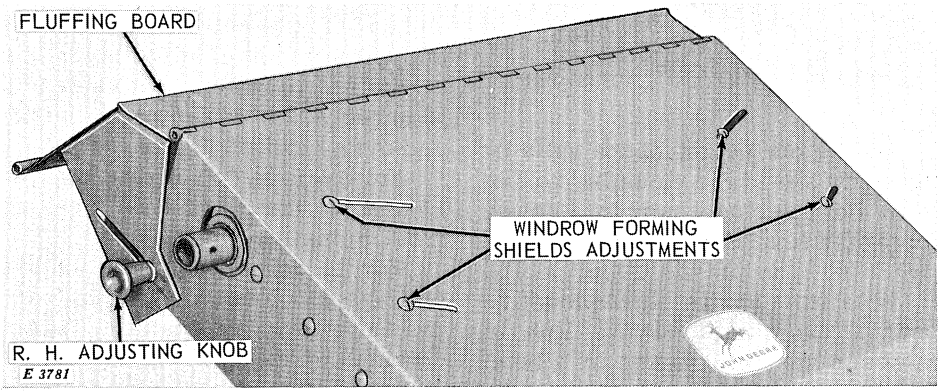
Adjust the hinged fluffing board to deflect the hay downward in fluffy, fast-curing swaths.

Use the two adjusting knobs and adjust the fluffing board downward until desired fluffing results without bunching. In heavy, rank crops, adjust the fluffing board upward to prevent back feeding.

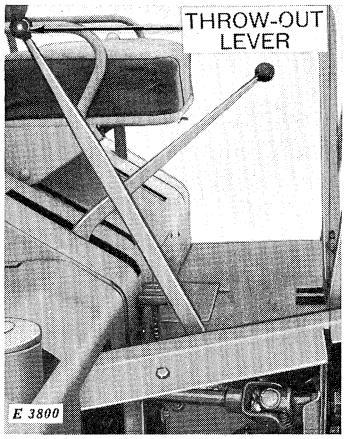
WINDROW FORMING SHIELDS

Adjustable windrow forming shields are provided to control the width and height of the windrow.

Adjust the shields inward for a high, narrow windrow, or outward for a wide windrow.



HAY CONDITIONER THROW-OUT LEVER



To operate the hay conditioner, move throw-out lever forward. Move lever rearward to disengage the hay conditioner drive.

CAUTION: Be certain the throw-out lever is in the disengaged position (rearward) before starting windrower engine.

CLEANING ROLLS

If the rolls clog, due to heavy congestion of material or a foreign object, stop the hay conditioner and raise the platform to its maximum height. (Doing this removes roll pressure.) Engage the conditioner. If the rolls do not free themselves, disengage the conditioner and stop the engine. Remove the material by hand.

PREVENTION OF MATERIAL WRAPPING ON ROLLS

If wrapping of material on the rolls is encountered, follow these recommendations:

Operate the windrower at full throttle. Reduce ground travel speed in a heavy crop.

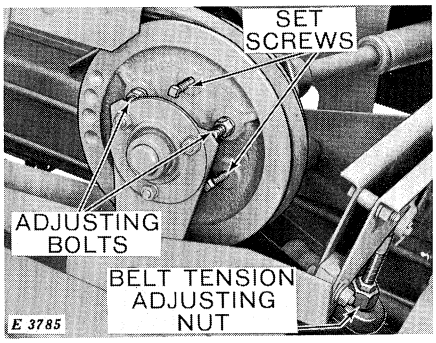
Set roll height as high as possible and still pick up the hay.

Raise the hinged fluffing board.

ROLL SPEED

For heavy crops, or if traveling very fast in lighter hay, a fast roll speed is recommended to allow the hay to be pulled—and not pushed—into the conditioner.

For light crops or young, tender hay, a slow roll speed is recommended to condition—but not clip—the hay.



ROLL SPEED ADJUSTMENT

Roll speed is adjusted by closing or spreading the two halves of the conditioner drive sheave. Closing the sheave increases the roll speed, whereas spreading decreases roll speed.

Adjust by loosening the three bolts and the set screws holding each sheave half to the shaft and turning the three set screws in or out. Tighten all lock nuts and set screws after aligning belt.

NOTE: Belt tension must be checked and adjusted after each roll speed adjustment. Do NOT overtighten drive belt, because the belt acts as a slip clutch for the hay conditioner.

SAFETY SUGGESTIONS

The safety of the operator was one of the prime considerations of John Deere engineers when the hay conditioner was designed. Shielding, and other safety features were built into the hay conditioner wherever possible.

Investigation of thousands of farm machinery accidents shows the careless use of farm machinery causes nearly 1/3 of all farm accidents. You can make your farm a safer place to live and work if you observe the safety suggestions given on this page.

All machinery should be operated only by responsible persons who have been delegated to do so.

Never clean, oil, or adjust the hay conditioner with the windrower engine running.

Clothing worn by operator should be fairly tight and belted. Loose jackets, skirts, shirts, or sleeves should never be worn because of the danger of getting into moving parts.

A Careful Operator
IS THE BEST INSURANCE
AGAINST AN ACCIDENT
—National Safety Council

LUBRICATION

FITTINGS

Clean grease fittings before using grease gun. Replace any lost or broken fittings immediately.

CAUTION: Never attempt to lubricate the hay conditioner while the windrower engine is running.

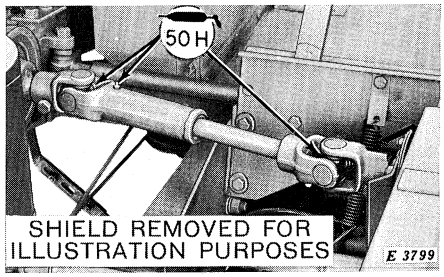
ROLLER DRIVE CHAINS

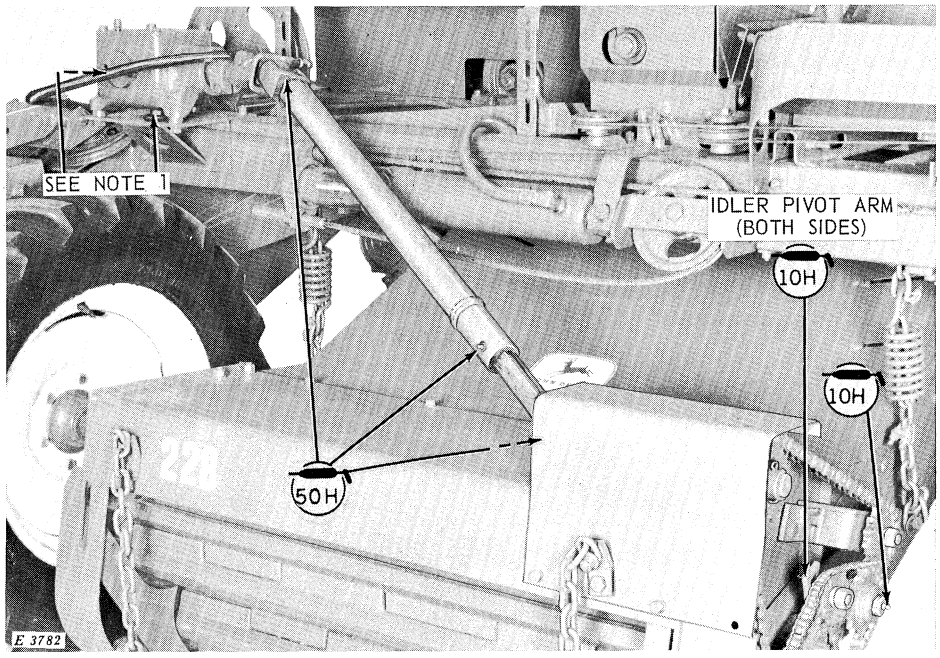
Roller drive chains should be lubricated at frequent intervals with SAE 10W oil.

CAUTION: Do not oil chains when operating in sandy conditions.

NOTE NO. 1: Check level of oil every 50 hours of operation. Fill to plug level (capacity 1 quart). Drain, flush, and refill once each season. Use SAE 80 or 90 regular-type gear oil.

Symbols	
10H	Grease every 10 hours of operation with SAE Multi-purpose Grease.
50H	Grease every 50 hours of operation with SAE Multi-purpose Grease.

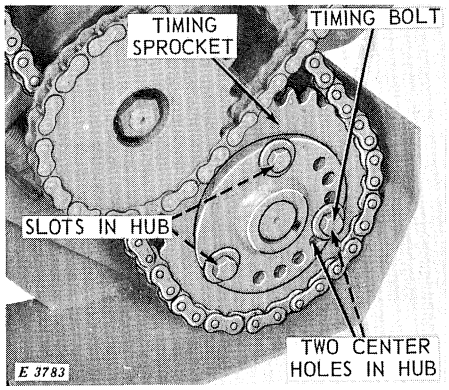




SERVICE

TIMING ROLLS

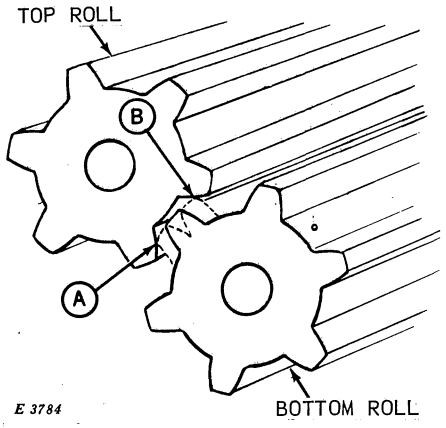
Whenever the drive chain is removed or if the teeth on the rolls are not meshing properly, time the rolls as follows:



1. Assemble the timing sprocket with a bolt through either of the two center holes in the hub.

2. Time the rolls as close as possible by hand so that the teeth on one roll are midway between the teeth on the other roll.

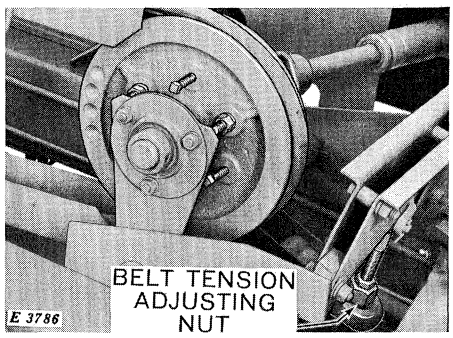
3. Replace the drive chain—taking care to keep the rolls from turning as little as possible. Tighten the chain idler.



4. Remove the timing bolt from the sprocket; then hold the top roll stationary and rotate the bottom roll until the tooth strikes the upper roll at "A." Mark the sprocket and the hub position. Rotate the bottom roll in the opposite direction until the tooth strikes the upper roll at "B." Mark the sprocket position opposite the mark on the hub.

5. Set the mark on the hub halfway between the two marks on the sprocket; then replace the timing bolt in the hole which is most nearly aligned. Replace the two bolts through the slots in the hub. Tighten all three bolts to 50 ft-lbs torque.

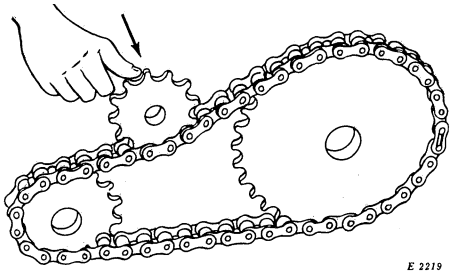
BELT TENSION



The drive belt is properly adjusted when it will slip only under adverse conditions.

To adjust the belt, move the hay conditioner throw-out lever to the engaged position; then thread the belt tension adjusting nut up or down, as necessary.

DRIVE CHAINS



Keep the drive chains tight enough so they do not slap or climb sprockets.

To adjust each chain, loosen the idler mounting bolt and apply thumb pressure to the idler. Retighten the idler mounting bolt.

ASSEMBLY

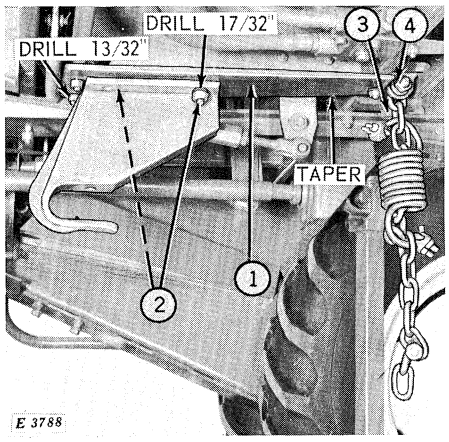
SHIPPING BUNDLES

Bundle No.	Description
Code 2201	228 Hay Conditioner for 215A Windrower equipped with 228 drive parts and 12, 14, or 16-foot platform. (Includes BE20169 Basic 228 Conditioner, BE20185 Mountings, and BE20186 Mounting Brackets.)
Code 2202	228 Hay Conditioner for 215A Windrower equipped with 228 drive parts and 10-foot platform. (Includes BE20169 Basic 228 Conditioner, BE20185 Mountings, and BE-20187 Mounting Brackets.)
Code 2203	228 Hay Conditioner for 215 or 215A Windrower equipped with 10-foot platform, but not equipped with 218 or 228 drive parts. (Includes BE20169 Basic 228 Conditioner, BE20128 Drive Parts, BE20185 Mountings, and BE-20186 Mounting Brackets.)
Code 2194	228 Hay Conditioner for 215 or 215A Windrower equipped with 12, 14, or 16-foot platform, but not equipped with 218 or 228 drive parts. (Includes BE20169 Basic 228 Conditioner, BE20128 Drive Parts, BE20185 Mountings, and BE20187 Mounting Brackets.)

NOTE 1: If the hay conditioner attachment has been purchased with the windrower, disregard all assembly up to "Attaching the Conditioner."

NOTE 2: It is necessary that dual wheels be installed on the windrower when the windrower is equipped with the hay conditioner.

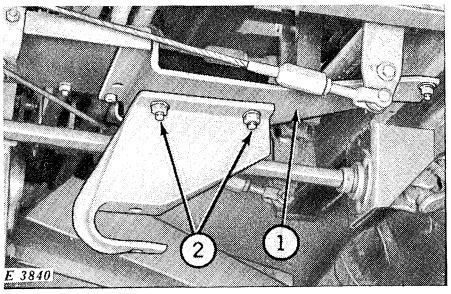
LEFT-HAND FLOAT SPRINGS AND MOUNTINGS



1. Attach the left-hand mounting plate with the tapered side to the front left-hand side using three 3/8-inch x 1-inch hex. bolts.

NOTE: On windrowers Serial No. 16000 and below, use the plate as a template to drill the third 13/32-inch mounting hole.

10-Foot Platforms: Attach the left-hand mounting plate to the cross frame channels with three 3/8-inch x 1-inch hex. bolts.



Left-Hand Mounting for 10-Foot Platform

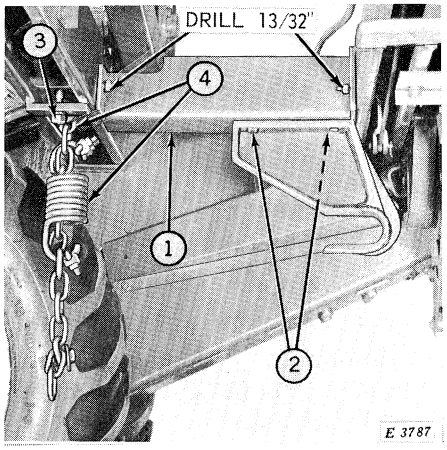
2. Attach a pivot mounting bracket to the plate with 1/2-inch x 1-1/4-inch hex. bolts.

NOTE: On windrowers Serial No. 16000 and below, use the mounting as a template to drill the front 17/32-inch mounting hole.

3. Position a hanger directly in front of the mounting; then secure the hanger with a clamp and a 1/2-inch x 2-1/2-inch hex. bolt.

4. Assemble a float spring, 15 link chain, and clamps as shown. The top of the spring mounts through the second link from the top and the bottom of the spring mounts in the ninth link from the top. Attach the float spring assembly to the hanger with a 1/2-inch x 1-1/2-inch hex. bolt and flat washer.

RIGHT-HAND FLOAT SPRINGS AND MOUNTINGS

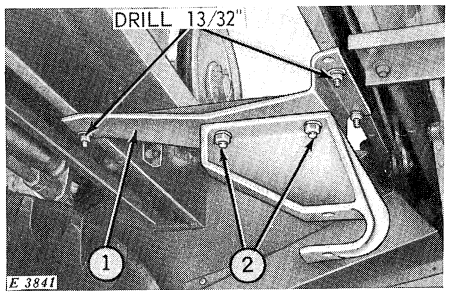


1. Attach right-hand mounting channel with five 3/8-inch x 1-inch hex. bolts.

NOTE: On windrowers Serial No. 16000 and below, use the channel as a template to drill the two 13/32-inch holes necessary to attach channel.

10-Foot Platforms: Attach right-hand mounting plate with three 3/8-inch x 1-inch hex. bolts.

NOTE: On windrowers Serial No. 16000 and below, bolt the plate to the second hole from the right-hand side in the rear cross frame channel; then use the plate as a template to drill two 13/32-inch holes to complete mounting the plate.



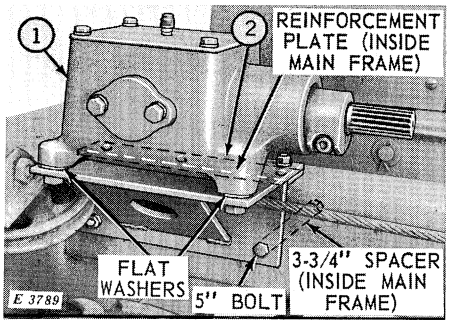
Right-Hand Mounting for 10-Foot Platform

2. Attach a pivot mounting bracket with 1/2-inch x 1-1/4-inch hex. bolts.

3. Position a hanger directly in front of the mounting; then secure the hanger with a clamp and a 1/2-inch x 2-1/2-inch hex. bolt.

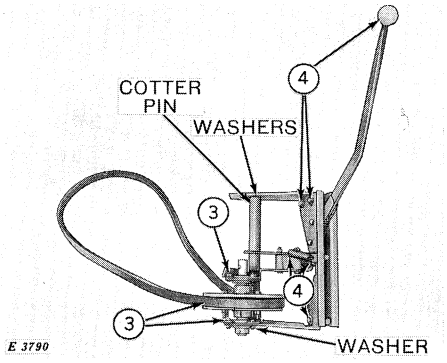
4. Assemble a float spring, 15-link chain, and clamps as shown. The top of the spring mounts through the second link from the top and the bottom of the spring mounts in the ninth link from the top. Attach the float spring assembly to the hanger with a 1/2-inch x 1-1/2-inch hex. bolt and flat washer.

GEAR CASE AND DRIVE ASSEMBLY



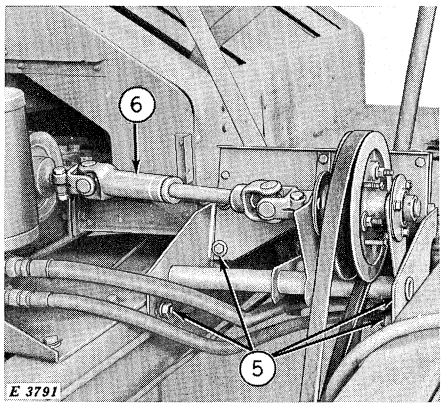
1. Install mounting bracket and gear case. Use two 1/16-inch thick flat washers under each front pad of gear case so that gear case will be level with windrower main frame. Use 3-3/4-inch spacer inside of tube and 5-inch bolt in left-hand leg of gear case mounting bracket.

2. Install reinforcement plate inside of main frame tube to reinforce top of gear case support.



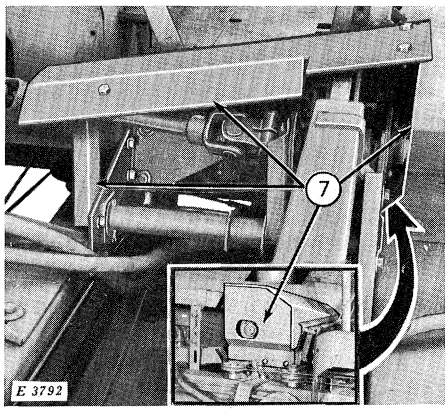
3. Remove sheave with shaft and bearings and install drive belt.

4. Assemble end plates loosely to control lever assembly. Insert sheave mounting tube in holes in outer ends of end plates. Use one flat washer between front end plate and sheave front mounting bracket. Use remaining washers between hole in rear of tube and rear end plate. Insert cotter pin and attach hand lever ball.



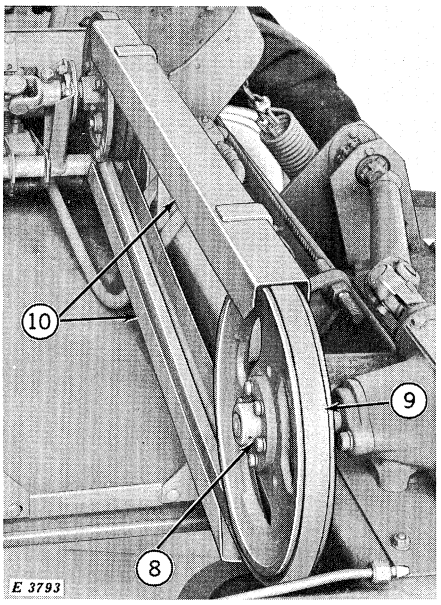
5. Install drive sheave and control lever assembly. Remove washers at rear end of assembly as necessary for proper fit of end plates between frame members.

6. Install telescoping shaft. Be certain yoke halves are in time.



7. Install hay conditioner drive shield.

GEAR CASE AND DRIVE ASSEMBLY—Continued



8. Install driven sheave on gear case.

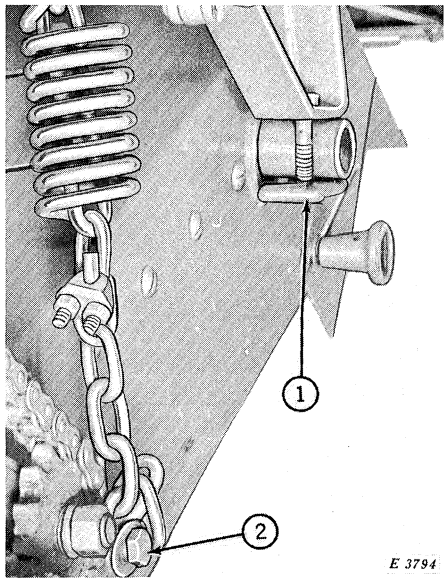
9. Install drive belt.

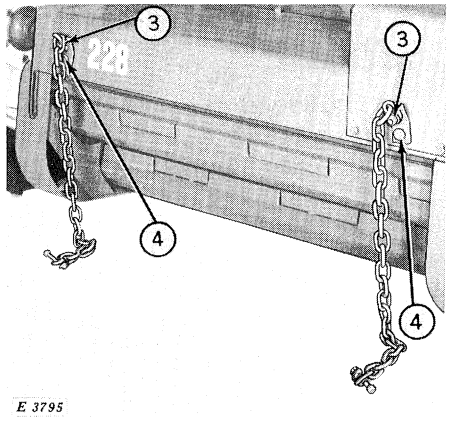
10. Install upper and lower belt shields.

ATTACHING CONDITIONER

1. Position the conditioner with the fluffing board resting on the floor; then drive the windrower over the conditioner. Raise the conditioner and secure each pivot point with a 1/2 x 3-inch hex. bolt.

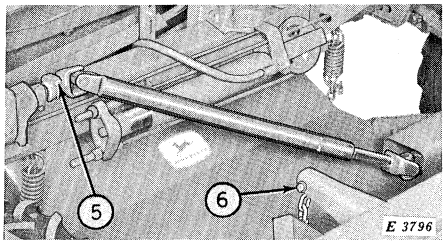
2. Attach each float spring to its respective pivot arm with a 1/2 x 1-1/2-inch hex. bolt, flat washer, and lock nut. (See page 3 for proper hole to use in arm and for correct link in chain.)





3. Attach each transport chain (23 links) to its respective clip with a 3/8 x 1-1/2-inch hex. bolt and flat washer.

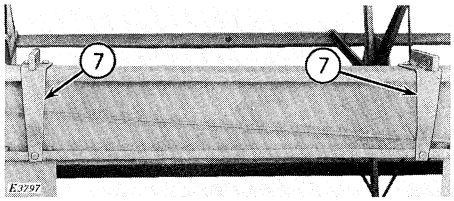
4. Attach each transport chain and mounting clip to the conditioner with a 1/2 x 1-1/2-inch hex. bolt.



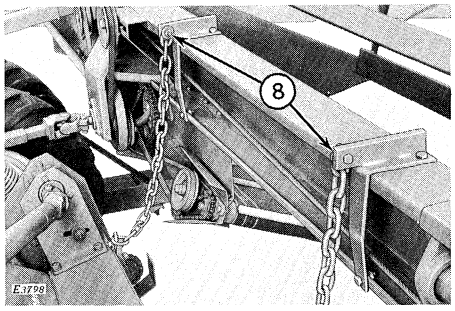
5. Attach telescoping drive shaft to gear case shaft.

NOTE: Complete the following assembly steps after installing the platform.

6. On auger platform, attach the free end of each transport chain to its respective mounting bracket on the platform with a 3/8-inch x 1-1/2-inch hex. bolt and flat washer. (See note following Step No. 8.)



7. On draper platform, attach mounting brackets to platform with three 3/8-inch x 1-inch hex. bolts.



8. On draper platform, attach the free end of each transport chain to its respective mounting bracket on the platform with a 3/8-inch x 1-1/2-inch hex. bolt and flat washer.

NOTE: Be certain hay conditioner is carried by float spring chains when platform is on the ground, thus making transport chains slack.

FINAL INSPECTION

After the hay conditioner has been completely assembled, installed, and lubricated, make the following checks and adjustments.

Check and tighten all loose bolts and nuts. Be certain all cotter pins are in place.

Check roll height. Bottom roll should be 4 to 7 inches from the ground.

Check roll pressure. Make certain it is equal on both ends.

Make certain roll spacing is correct and is the same on both ends.

Make certain hay conditioner rolls are in time.

Start windrower and engage hay conditioner drive. Make certain all parts of hay conditioner and hay conditioner drive are running properly.

Run hay conditioner for a short time, then shut off windrower engine and check hay conditioner for heated bearings, loose bolts, loose belts, and chains. Make adjustments where necessary.

MEMORANDA

nobody can fill them like you can!

That's what the owner of this pair of work shoes is finding out—the hard way. Through a careless action, he has become the victim of an accident. It's a mighty tough way to find out that nobody else can wear your shoes or practice safety for you. And a needless, costly lesson to learn that safety is an everyday need.

Put safety into each of your workdays; read the operator's manual thoroughly; know how to operate each machine properly and safely; take the safety precautions specified; think before you act.

Make sure you wear your "shoes" everyday. Outfit yourself with a safety program now.

As a member of the National Safety Council, we are privileged to use the Green Cross for Safety to designate not only our interest in Safety, but to emphasize and call attention to the safety precautions in this manual.

GREEN CROSS FOR SAFETY®