



# Barn Bale Conveyor



JOHN DEERE

## OPERATORS MANUAL

Barn Bale Conveyor

OMC45659 (01JUN59) English

OMC45659 (01JUN59)

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ENGLISH



## TO THE PURCHASER

This manual covers operation and assembly instructions for the John Deere Barn Bale Conveyor, "Series 1." The Bale Conveyor will lighten the task of handling baled hay when storing the bales in hay mows.

This conveyor will give years of satisfactory service provided it is installed and operated correctly. The first recommendation is that you read this manual carefully and follow the instructions. By so doing, you may save much time and expense during the haying season.

Pre-lubricated and sealed bearings are used at all bearing points in this conveyor. This eliminates the necessity of periodic greasing.

The motor end of the conveyor is designated as the head section and the other end of the conveyor is the tail section. Right-hand and left-hand reference is determined by facing the direction of bale travel from the tail section end of the conveyor.

When in need of parts, see your John Deere dealer. He is equipped to provide genuine John Deere parts and service.

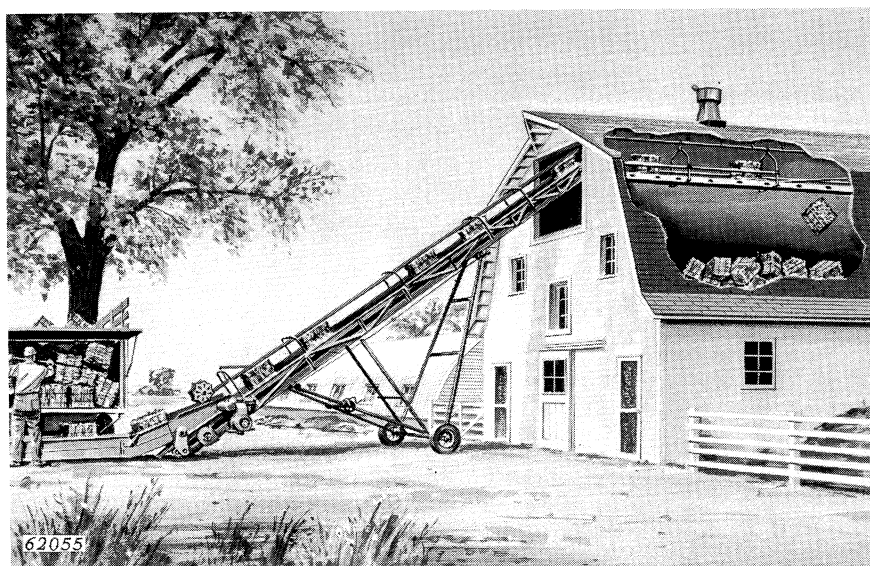
(The series number plate is attached to the underneath side of the bearing bracket for jackshaft in the head section.)

Before you forget, fill in the information below. It will help your dealer provide prompt parts service.

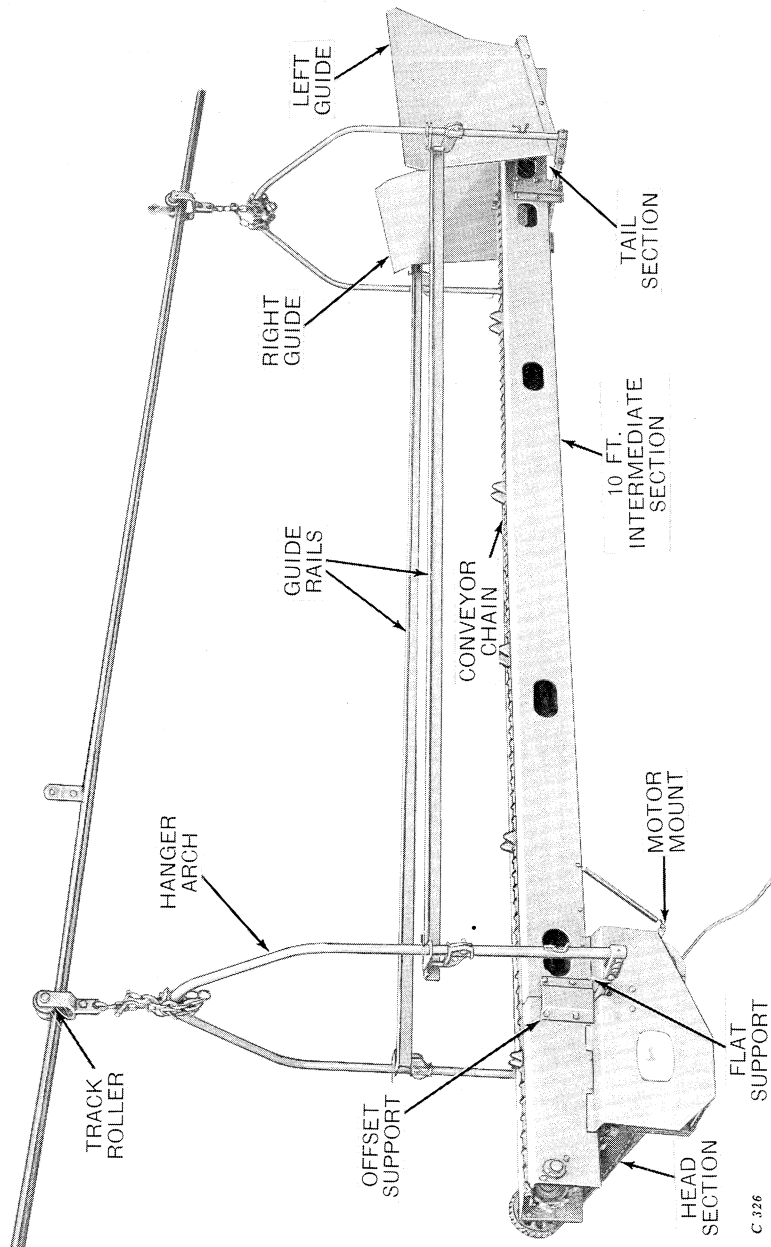
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*John Deere Portable Elevator and Barn Bale Conveyor*



*John Deere 14-Foot Barn Bale Conveyor*

## OPERATION

The John Deere Barn Bale Conveyor is made up of one tail section, one head section, and the number of 10-foot intermediate sections necessary to make up the length of conveyor required.

One hanger arch is required at each joint between sections. Do not attempt to operate the conveyor with less than the required number of hanger arches.



Be sure that the track, on which the conveyor is hung, is fastened securely to the roof of the barn.

The conveyor is designed to be driven by a 1725 rpm electric motor. This provides conveyor chain speed of 175 feet per minute. Use only a dust and explosion-proof motor with automatic thermal control.

A 1/2-horsepower electric motor will operate a conveyor up to 54 feet in length. A 3/4-horsepower motor is required for 64- to 74-foot conveyors. Longer conveyors require a one-horsepower motor.



Be sure the extension cord from the electrical outlet to the motor is in good condition and heavy enough to handle the electrical load imposed upon it.

## OPERATOR SAFETY



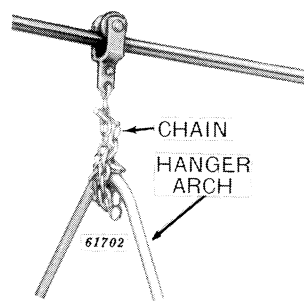
If the conveyor is installed correctly, it will safely support an operator when making adjustments. If a ladder is used to adjust the guide rails, be sure that it is supported properly so it will not slip.

Do not attempt to stack the bales at the same time that they are being elevated into the mow. A falling bale can cause serious bodily injury.

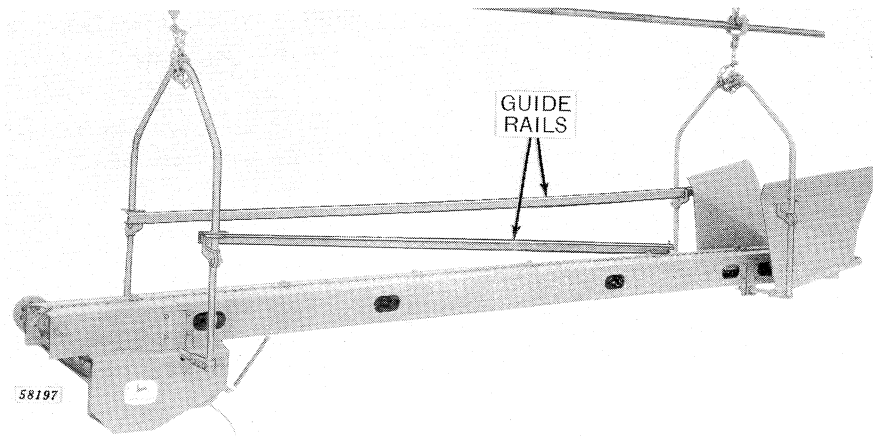
The extension cord between the electrical outlet and the motor should be heavy enough to carry the load and should be in good condition. Keep the cord out of the way of falling bales.

## ALIGNING CONVEYOR

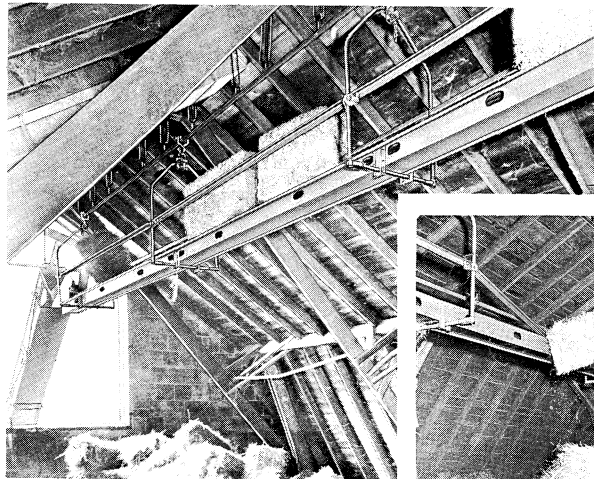
Keep the conveyor sections in line throughout the entire length of the conveyor at all times. Raise and lower the hanger arch by adjusting the chain.



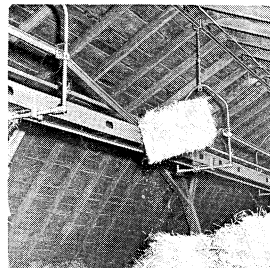
## GUIDE RAILS



The guide rails, one on each side of the hanger arches, prevent the bale from falling off the conveyor. After determining where the bales are to be dropped in the mow, unhook the end of one guide rail from the hanger arch at the tail end of the section, directly above the point where the bales are to be dropped. Swing the free end of the guide rail to the opposite side of the conveyor and attach it to the hanger pin on the side of the arch and secure with spring locking pin. The diagonal guide rail will then force the bales to drop where desired.



*The larger illustration at left shows bales received from the elevator being carried along the conveyor in a barn mow from left to right. Note that the guide rails are up.*

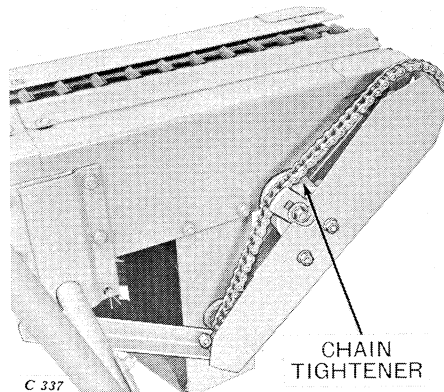


*In the inset illustration of another conveyor, the bales are coming from right to left. Note that the guide rail is crossed and the half-sized bale is tumbling to storage. To distribute the bales on the other side, you cross the other rail.*

## CONVEYOR CHAIN

Chain tension is permanently applied by tension springs in the head section. No adjustment is required unless chain becomes stretched to the point where the removal of one or more links is necessary.

## DRIVE CHAIN



Adjust chain tightener outward to remove the slack in drive chain. Tighten nut on takeup bolt.

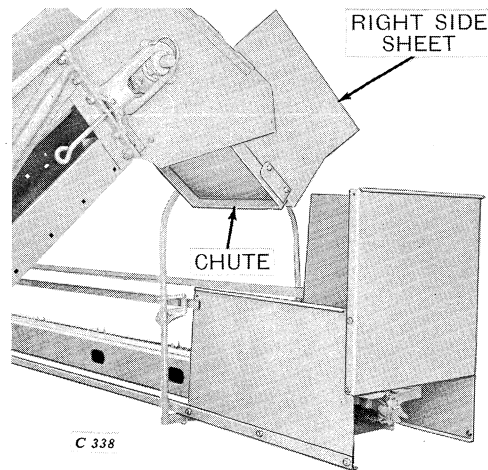
## ELEVATOR SPEED

To permit uninterrupted delivery of the bale from the elevator to the conveyor, the elevator must operate slower than the conveyor. Assuming that the bale conveyor is equipped with 1725 rpm electric motor and the recommended sheaves, the conveyor chain speed will be 175 feet per minute.

When the elevator is set in a direct line, parallel to the conveyor, the speed of the elevator conveyor chain should be approximately 150 feet per minute. This is equal to 92 rpm of the elevator bootshaft.

When the right angle feed attachment is used (see next page), the maximum speed of the elevator conveyor chain should be 90 to 110 feet per minute. This is equal to approximately 60 to 70 rpm of the elevator bootshaft. This reduction in speed may be accomplished by throttling down the tractor or drive attachment speed. If the elevator is being operated with electric motor, the slow speed attachment will reduce the elevator speed sufficiently.

## RIGHT ANGLE FEED ATTACHMENT



In barns or mows where it is impossible to set the elevator in a direct line with the bale conveyor, the elevator may be set to deliver into the side of the conveyor by using the right angle feed attachment. This attachment permits setting the elevator at a perpendicular angle to the conveyor. The permissible angle for satisfactory operation may vary from 30 to 90 degrees from directly in line with the bale conveyor, depending on the nature of the installation.

The elevator must be raised high enough to permit the bales to change direction without catching on the chute. This distance will vary depending on the size of the bale. In some cases where head space is limited, it may be necessary to lower the entire bale conveyor in the mow to obtain this clearance. It is usually advisable to remove either the right or left side sheet of the chute, depending on the angle of the elevator and conveyor.

## LUBRICATION

Lubrication is unnecessary as all the bearings are pre-lubricated and permanently sealed against accumulation of dirt and loss of lubricant.

## SHIPPING BUNDLES

### HEAD AND TAIL SECTIONS WITH DRIVE PARTS (4-Foot)

- 1—J 20130 C Hanger Arch
- 1—J 20156 C R.H. and L.H. Guide
- 1—AC 10910 C Head Section (Includes L2210C Sheave for 5/8-Inch Motor Shaft)
- 1—AC 10911 C Tail Section

### EXTRA EQUIPMENT

- C 10331 C 2-1/2-Inch V-Belt Sheave for 3/4-Inch Motor Shaft (Optional)

### 10-FOOT INTERMEDIATE SECTION (As Required, Depending on Length of Conveyor)

- 1—J 20130 C Hanger Arch
- 1—AC 10607 C Chain
- 1—AC 10913 C 10-Foot Intermediate Section

### RIGHT ANGLE FEED ATTACHMENT

- AC 10908 C Bundle of Sheets and Hardware
- AC 10909 C Bundle of Angle Supports

## **ASSEMBLY**

The bale conveyor is hung from the hay carrier track in the barn. Inspect the carrier track, on which the bale conveyor is to operate, for weak or insufficient hangers. Reinforce if necessary.

It is necessary to determine the length of conveyor to be installed in the barn. The basic conveyor consists of one head section, 21 inches long, one tail section, 28 inches long, and one intermediate section, 120 inches long. This makes up a conveyor approximately 14 feet in length. Additional 10-foot sections must be added to obtain the full length of conveyor required.

### **METHOD OF ASSEMBLY**

The conveyor can be assembled and attached to the carrier track by several methods. Two different methods are described, either one of which can be used depending on the length of conveyor to be installed and the facilities available for assembly.

Whichever method is used, the order of assembly will be nearly identical.

Lock washers are used under all nuts unless otherwise specified.

Unless otherwise instructed, tighten all nuts at time of assembly.

#### **METHOD No. 1**

This method is to assemble the conveyor completely, or in sections, on the barn floor and hoist it to the carrier track with rope hoists attached to the track. One rope hoist must be used for each hanger arch.

#### **METHOD No. 2**

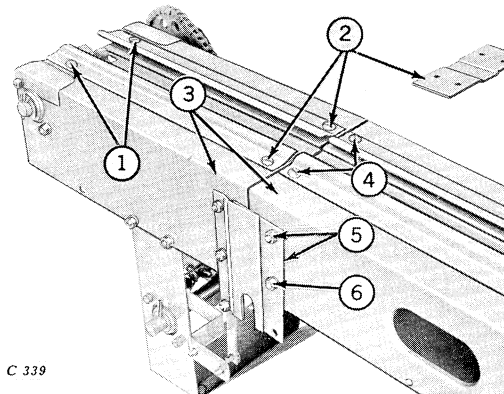
This method is to position a grain and hay elevator on the outside of the barn so it will elevate one bale conveyor section at a time to the peak of the barn. Each succeeding section can be assembled to the previous section at the top of the elevator. As each section is assembled to the conveyor, the entire unit is rolled forward on the carrier track.

## INITIAL ASSEMBLY

(Methods No. 1 and No. 2)

### HEAD AND INTERMEDIATE SECTIONS

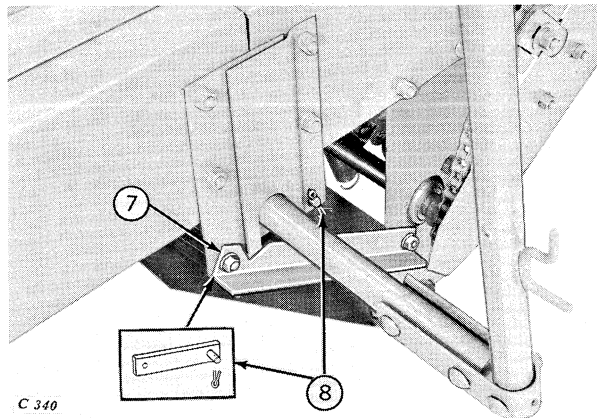
Remove the track rollers and hanger chain assemblies from the hanger arch assemblies.



C 339

1. Bolt the right and left chain guides to head with two 5/16 x 1/2-inch pan head machine screws with lock washers under heads.
2. Bolt the right and left chain guides to head and splice plate with two 5/16 x 3/4-inch pan head machine screws with lock washers under heads.
3. Lay the head section and one intermediate section end to end.
4. Bolt the right and left chain guides to intermediate section and splice plate with two 5/16 x 3/4-inch pan head machine screws with lock washers under heads.
5. Insert flat inner support under offset outer support and attach to intermediate section with one 5/16 x 1/2-inch carriage bolt in top hole on both sides.
6. Bolt inner support to intermediate section with one 5/16 x 5/8-inch carriage bolt on both sides.

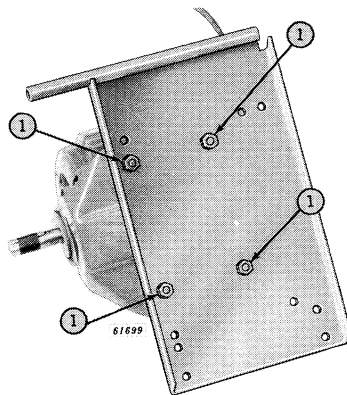
### HEAD AND INTERMEDIATE SECTIONS—Continued



7. Bolt the angle brace for jackshaft and hanger lock to inner support on intermediate section with one 5/16 x 3/4-inch carriage bolt already in brace.

8. Position hanger lock and secure with one 1/8 x 1-inch cotter pin.

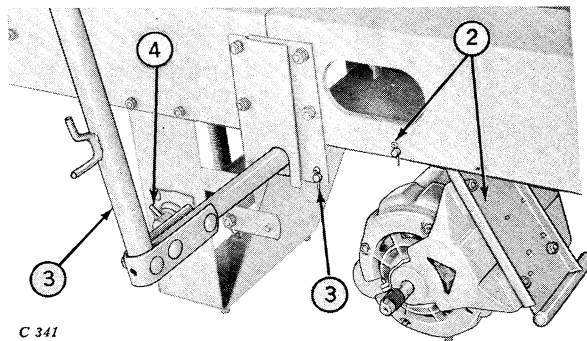
### MOTOR DRIVE AND HANGER ARCH



1. Attach the motor mount to motor with four 5/16 x 3/4-inch carriage bolts.

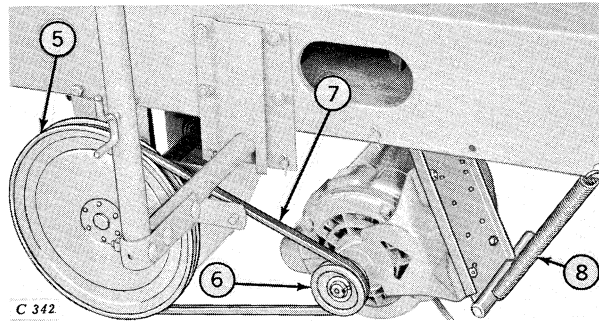
2. Assemble the motor and mount to intermediate section in forward holes with pivot rod and two 1/8 x 3/4-inch cotter pins.

3. Install one hanger arch in slots in supports and fasten by swinging the two locks under cross shaft. Fasten locks with two 1/8 x 1-inch cotter pins.



4. Remove rollpin from jackshaft.

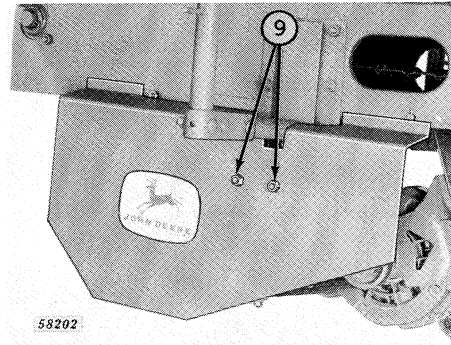
### MOTOR DRIVE AND HANGER ARCH—Continued



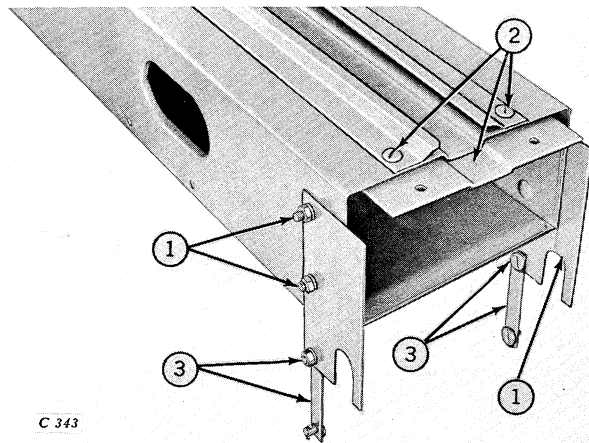
5. Install the 10-inch diameter driven sheave with hub to inside. Replace rollpin in hub.

6. Install the 2-1/2-inch diameter drive sheave on motor drive shaft. Fasten with one 5/16 x 3/8-inch Allen head set screw in hub.

7. Install drive belt on sheaves.
8. Attach tension spring to motor mount and intermediate section.
9. Attach guard to guard bracket with two 5/16-inch hex. nuts.



### INTERMEDIATE SECTIONS



1. Attach two flat inner supports to intermediate section with four 5/16 x 5/8-inch carriage bolts.

2. Assemble splice plate and chain guides to intermediate section, with two 5/16 x 3/4-inch pan head machine screws with lock washers under heads.

3. Bolt hanger locks to the flat supports on each side of section with two 5/16 x 3/4-inch carriage bolts.

## ASSEMBLY OF CONVEYOR ON FLOOR

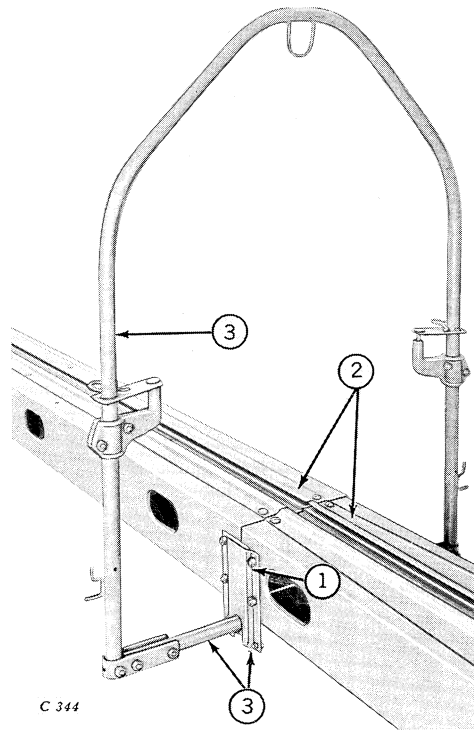
(Method No. 1)

1. Attach offset support plates to the next intermediate section with four  $5/16 \times 5/8$ -inch carriage bolts.

2. Join this section to the first section by bolting it and its chain guides to splice plate with two  $5/16 \times 3/4$ -inch special pan head machine screws with lock washers under heads.

3. Install the hanger arch in supports and fasten with hanger locks and two  $1/8 \times 1$ -inch cotter pins.

Attach the remaining 10-foot intermediate sections and hanger arches in the same manner as instructed above.



The conveyor chain may be installed as each conveyor section is assembled. It also may be installed after the complete bale conveyor is assembled.

If the chain is not installed as the sections are put together, it will be easier if a rope is threaded through and left in each conveyor section as it is installed. By doing this, the entire chain assembly can be hooked up and pulled through the conveyor with the rope after the conveyor is assembled. For complete chain installation see page 19.

*NOTE: Complete the assembly of the conveyor as instructed on pages 16 through 22.*

## INSTALLING CONVEYOR FROM TOP OF ELEVATOR

(Method No. 2)

**CAUTION:** The elevator must be amply supported at head end to avoid the possibility of it tipping forward while the operator is assembling sections in the roof of the barn. It is preferable to allow the elevator head to rest on the cross sill at the bottom of the opening for hay mow door.

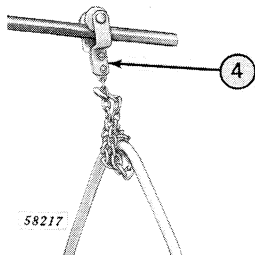


It would be well to build a platform on which to stand while assembling the sections. Any additional safety precautions should be taken to prevent an accident.

1. Install one hanger roller on track.

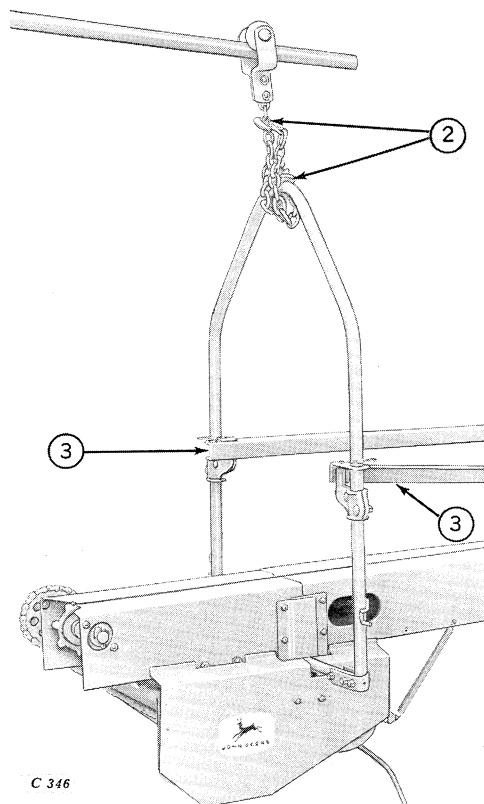
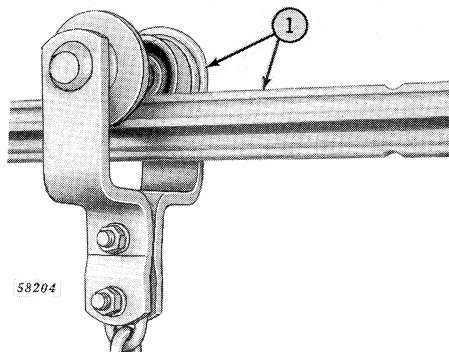
Elevate head and intermediate section to top of elevator.

2. Fasten hanger arch to rollers with chain. Be sure chain is threaded through eye at top of hanger arch.



3. Assemble forward end of guide rails to hanger arch. Allow the rear ends of rails to rest on section.

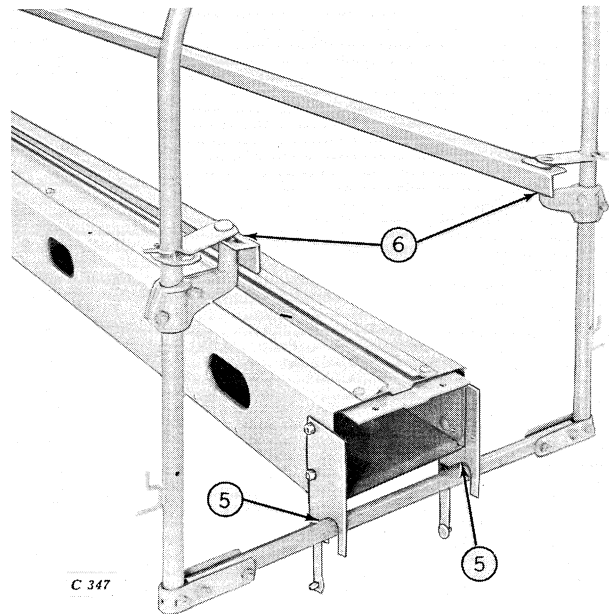
4. Install the second roller on track. Fasten the second hanger arch to roller. The second arch must be the same height as the first arch installed.



### INSTALLING CONVEYOR FROM TOP OF ELEVATOR —Continued

5. Push section forward on track and set rear end of section on cross shaft of second hanger arch.

6. Place rear ends of guide rails in supports on second hanger arch.



The conveyor chain may be installed as each conveyor section is installed on the track. It may also be installed after the complete bale conveyor is installed in the barn.

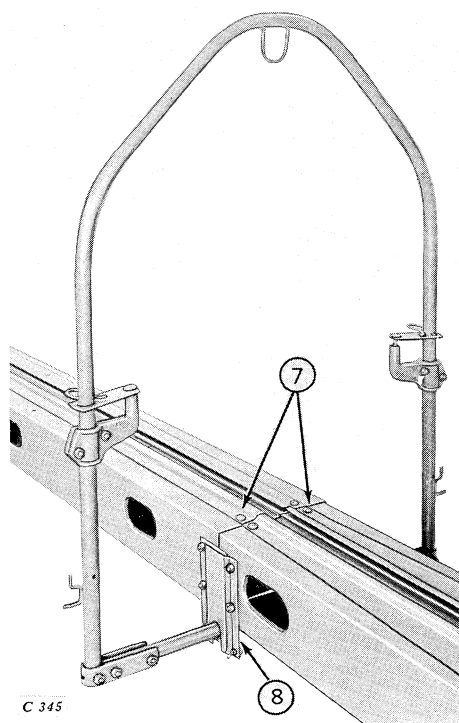
If the chain is not installed as the sections are put together, it will be easier if a rope is threaded through and left in each conveyor section when the section is installed on the track. By doing this, the entire chain assembly can be hooked up and pulled through the conveyor with the rope after the conveyor is installed. For complete chain installation see page 19.

7. Elevate the second 10-foot intermediate section. Fasten the second 10-foot section with chain guides to the first section with two 5/16 x 3/4-inch pan head machine screws with lock washers under heads.

8. Fasten the hanger arch to supports by swinging locks under cross pipe. Install two 1/8 x 1-inch cotter pins in locks.

Assemble second pair of guide rails with the forward ends on top of the first rails.

*NOTE: Assemble the remainder of the 10-foot intermediate sections and hanger arches required as instructed above.*



# Be Careful



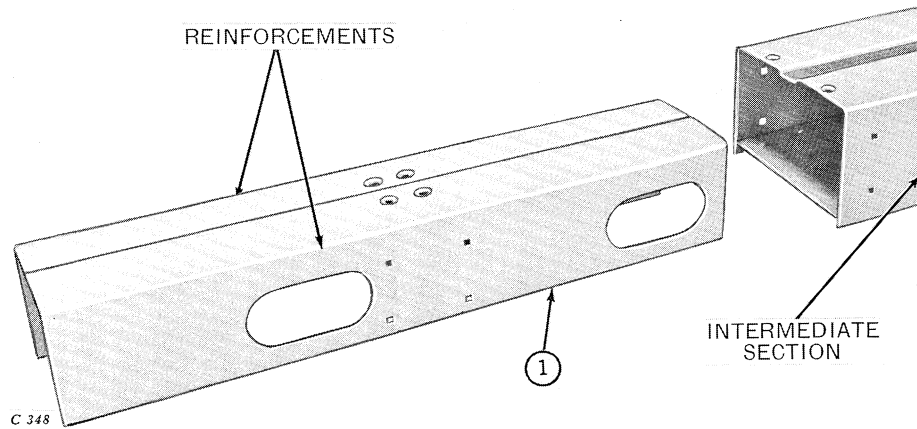
**THE LIFE YOU SAVE MAY BE YOUR OWN...**

**NATIONAL SAFETY COUNCIL**

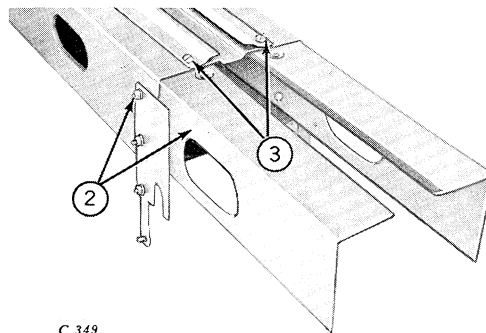
## FINAL ASSEMBLY

(Methods No. 1 and No. 2)

### TAIL SECTION

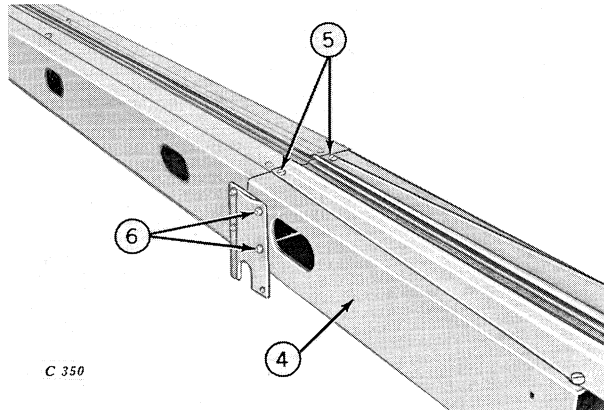


1. When attaching the tail section to the last intermediate section, use two right angle reinforcements instead of the splice plate.



2. Insert the reinforcements into the intermediate section. Bolt two flat supports to section and reinforcements with four  $5/16 \times 3/4$ -inch carriage bolts.
3. Bolt the chain guides and reinforcements to section with two  $5/16 \times 1/2$ -inch pan head machine screws.

## TAIL SECTION—Continued

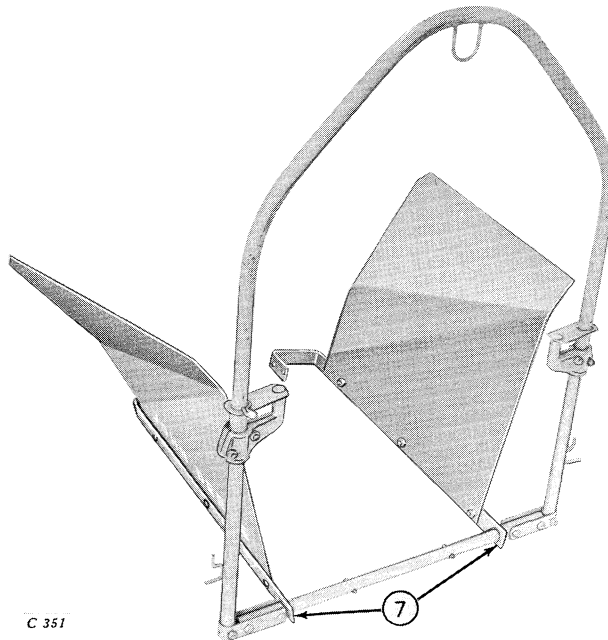


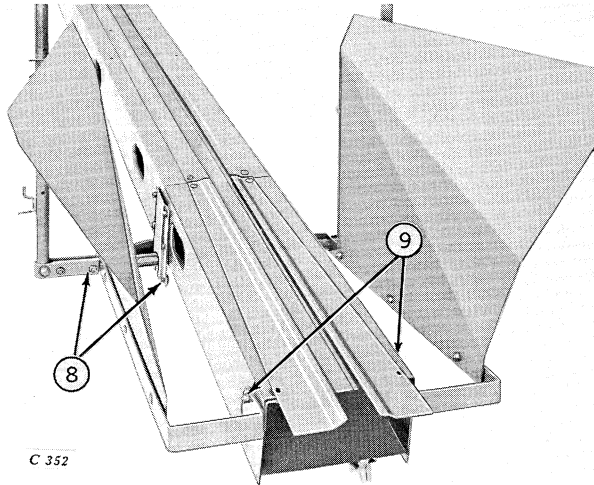
4. Install the tail section on reinforcements.

5. Bolt the right and left rear chain guides and tail section to reinforcements with two 5/16 x 3/4-inch pan head machine screws.

6. Bolt two offset outer supports to tail section with four 5/16 x 3/4-inch carriage bolts.

7. Install the right and left bale guide assemblies on cross shaft of hanger arch before installing hanger on conveyor.

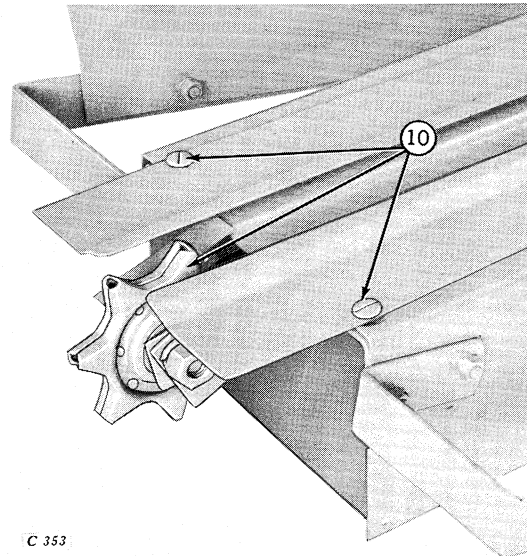


**TAIL SECTION—Continued**

8. Assemble the hanger arch with bale guide assemblies in supports on conveyor and fasten with hanger locks and two  $\frac{1}{8}$  x 1-inch cotter pins.

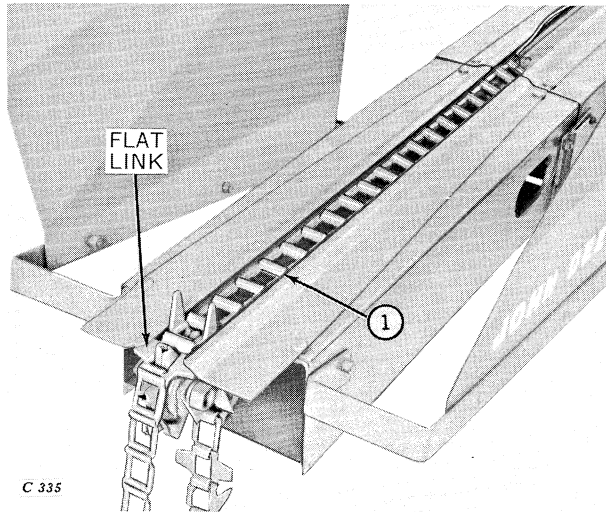
9. Bolt bale guides to tail section with four  $\frac{5}{16}$  x  $\frac{3}{4}$ -inch carriage bolts.

10. Bolt the idler support bracket with sprocket to tail section and chain guides with two  $\frac{5}{16}$  x 1-inch pan head machine screws.



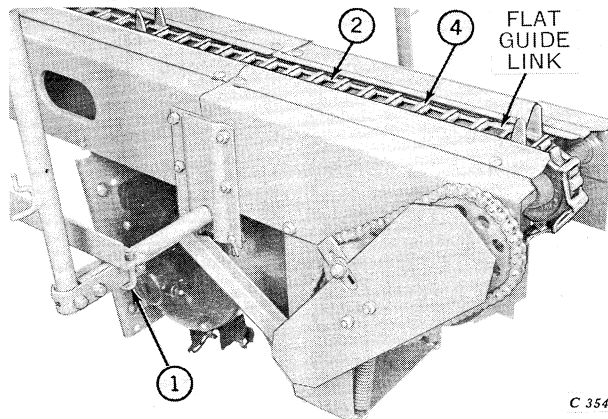
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## CONVEYOR CHAIN

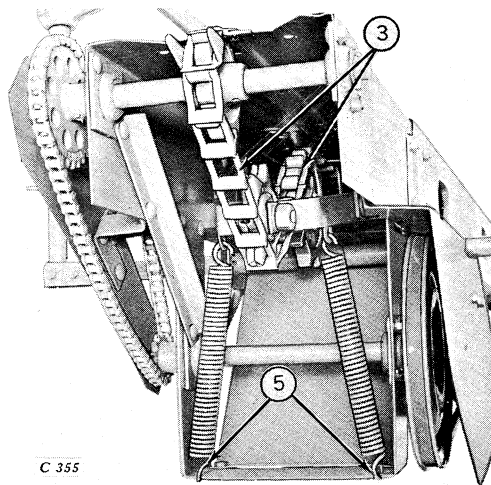


C 335

2. Pull the chain along the conveyor with the flat guide links under the chain guides.



C 354



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1. Insert the chain into the lower trough with the open end of barrel towards the tail section and with the pusher links pointing downward. Pull the chain through the trough. Insert the opposite end of chain under chain guides.

3. When installing the conveyor chain, it must pass under the tightener sprocket and over the idler sprocket. Be sure to install the chain with the open end of barrel towards head of conveyor.

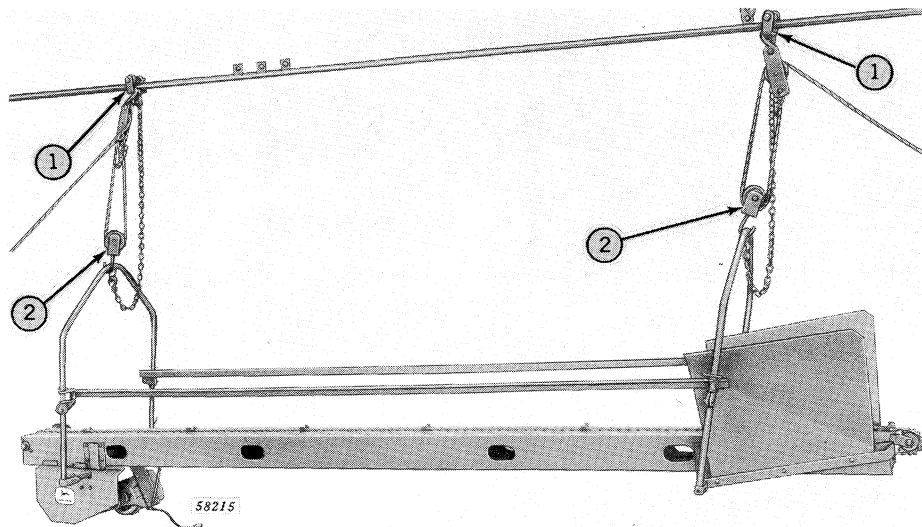
4. Connect ends of chain.

5. Hook the two tightener springs to bottom of support bracket.

Install the two remaining guide rails on last hanger arch. The rear ends of rails must be located on the outside of the guide sheets.

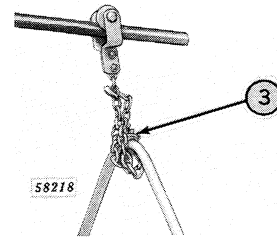
## RAISING BALE CONVEYOR TO TOP OF BARN

(Method No. 1)



1. The required number of roller assemblies must be installed on the carrier track. One roller assembly spaced at intervals of 10 feet for each hanger arch.

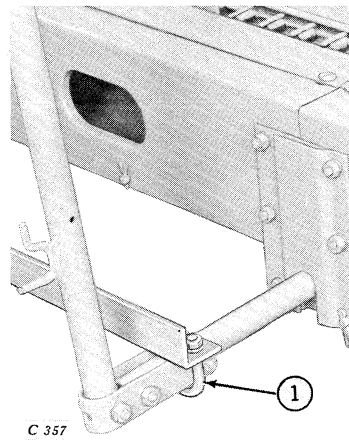
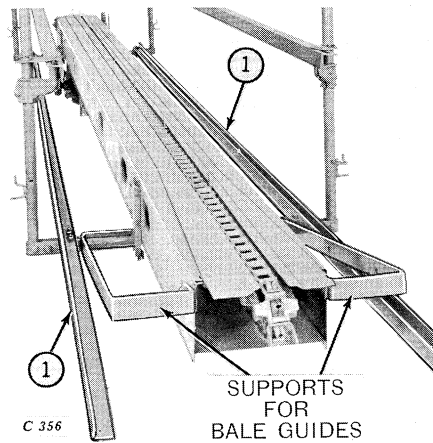
2. Attach a rope block to each roller assembly on the carrier track. There must be as many rope blocks as there are hanger arches for raising the conveyor to the top of the barn.



Hoist the conveyor evenly with the rope blocks until it is in position under the carrier track.

3. Thread each roller chain through the eye of the hanger arch. Wrap the surplus chain around the hanger arch and hook the chain securely. Be sure the conveyor sections are in line throughout the entire length.

## RIGHT ANGLE FEED ATTACHMENT

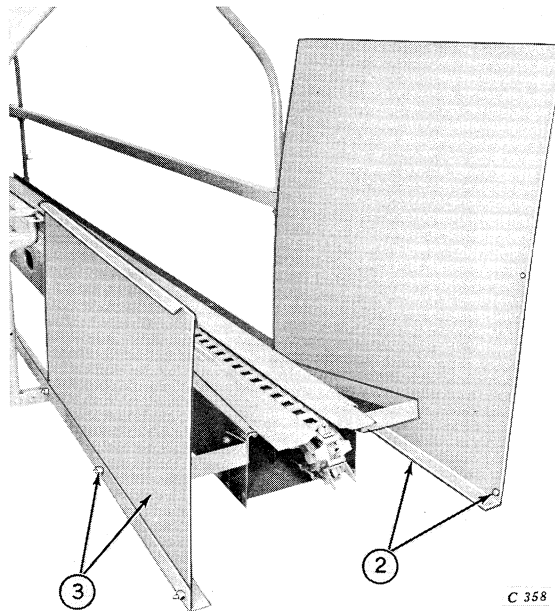


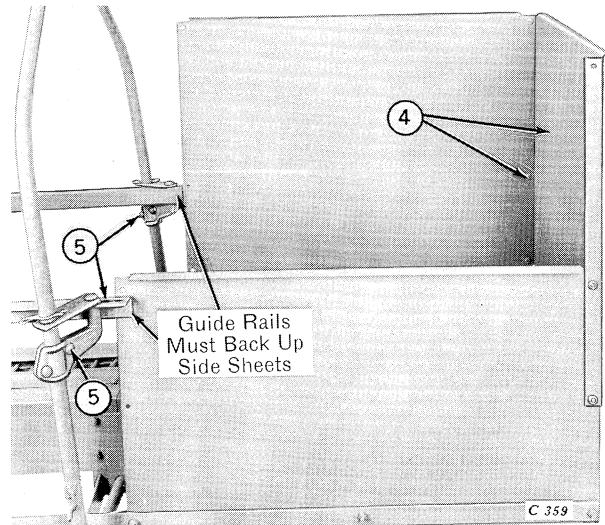
It is necessary to remove the sides for bale guide assembly. Leave the supports for bale guides in place.

1. Assemble the two support angles to cross shafts for hanger arches with four U-bolts and eight 5/16-inch nuts.

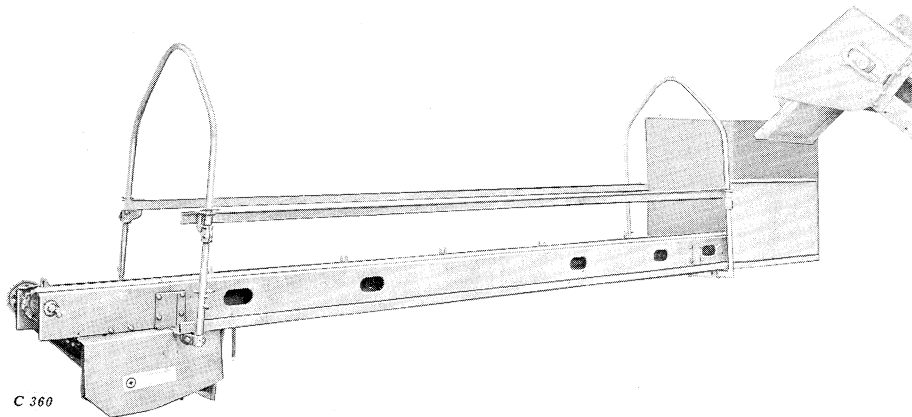
2. Bolt the long guide sheet to support with three carriage bolts previously removed.

3. Bolt the short guide sheet to support with three carriage bolts previously removed.





4. Bolt the back sheet to sides with six 5/16 x 1/2-inch machine bolts.
5. Loosen the bolts in guide rail supports and position guide rails to back up the side sheets. Retighten bolts in supports.



***John Deere Barn Bale Conveyor with  
Right Angle Feed Attachment***

## FINAL CHECK

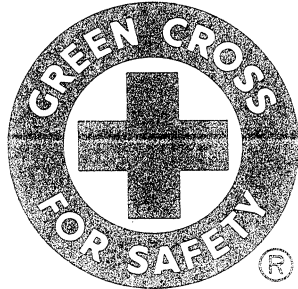
After the bale conveyor has been completely assembled and installed in the barn, inspect to be sure it is in good running order. The following check list is a reminder of points to inspect. Check off each item as it is found satisfactory or after proper adjustment.

- ☐ Inspect the carrier track and hangers in the barn for safe operation. (See page 8.)
- ☐ Check to see that the hanger chains on the rollers have been fastened securely and conveyor sections are in line. (See pages 13 and 20.)
- ☐ See that the electric motor used is of the correct type and has sufficient horsepower to operate the conveyor satisfactorily. (See page 3.)
- ☐ Operate the bale conveyor to be sure it has been assembled and installed correctly.



# MEMORANDA

This image shows a single page of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



*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 Farm Safety, but to point out more clearly the safety precautions in this manual.*

## **Farm Accidents Can Be Prevented** *with Your Help*

**N**O accident prevention program can be successful without the whole-hearted cooperation of the person who is directly responsible for the operation of equipment.

To read accident reports from all over the Country is to be convinced that a large number of accidents can be prevented only by the operator anticipating the result before the accident is caused and doing something about it. No power-driven equipment, whether it be transportation or processing, whether it be on the highway, in the harvest field, or in the industrial plant, can be safer than the man who is at the controls. If farm accidents are to be prevented—and they can be prevented—it will be done by the operators who accept a full measure of their responsibility.

It is true that the designer, the manufacturer, the safety engineer can help; and they will help, but their combined efforts can be wiped out by a single careless act of the operator.

It is said that “*the best kind of a safety device is a careful operator.*” We ask you to be that kind of an operator.

**NATIONAL SAFETY COUNCIL**

