

# **114W and 116W Automatic Pickup Balers**



**JOHN DEERE**

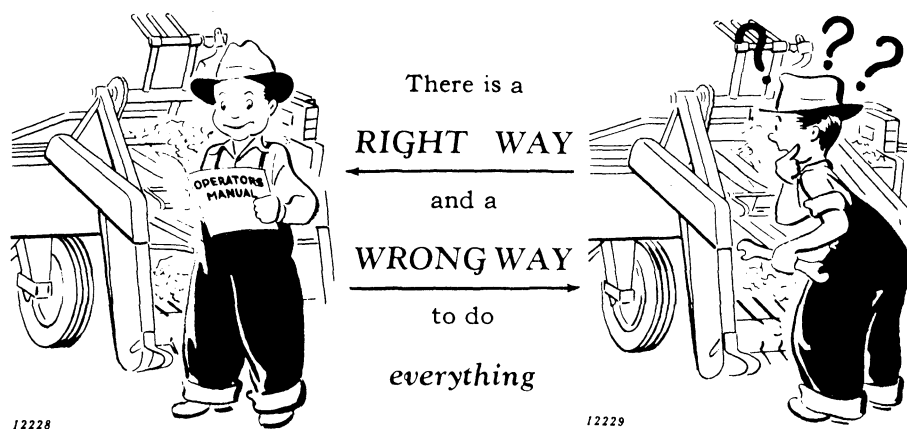
## **OPERATORS MANUAL** 114W and 116W Automatic Pickup Balers

OME1255 (01FEB55) English

**OME1255 (01FEB55)**

LITHO IN U.S.A.  
ENGLISH

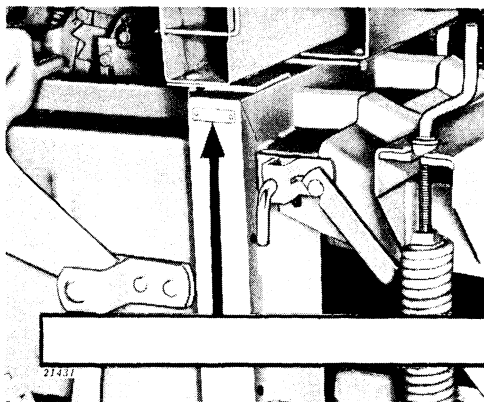




Your new John Deere Automatic Baler is a dependable machine, but only by proper care and operation can you expect to receive the service and long life designed and built into it. Like any precision machine, your baler will require a certain amount of attention at regular intervals. When any questions arise regarding lubrication and adjustments, etc., use your manual as a guide to service your machine 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 in a position to answer your questions for you, or to secure the correct information.

When in need of parts either to replace worn parts or to make emergency repairs, see your local John Deere dealer; he and the John Deere branch house behind him are equipped to render prompt service.



When ordering parts, give your dealer the model and serial number of your baler. This information will help him give you prompt and efficient service and should be recorded below.

The serial number of your baler is located on the front of the bale case below the wire boxes. (Record it in the space at the left.)

Baler Model No.....

Purchased.....19..

# TABLE OF CONTENTS

## SPECIFICATIONS AND DATA

- 2 Identification Views
- 4 Specifications and Data

## OPERATION

- 5 How the Baler Works
- 6 How the Wire Is Joined
- 8 Before Operation Adjustments
- 8 Preparation of Crops
- 8 Starting and Driving
- 9 Safety Slip Clutch
- 9 Capacity
- 10 Transporting Baler
- 12 Safety Precautions

## OPERATING ADJUSTMENTS

- 13 Hook-Up Instructions
- 14 Safety Arm
- 14 Timing Baler
- 15 Loading Wire Boxes
- 17 Threading Needles and Twister
- 17 Wire Run Out or Broken
- 17 Splicing Wire
- 18 Bale Case Tension, Chute and Guide Strap
- 19 Bale Measuring Wheel
- 20 Upper Feeder for Straight Bales
- 21 Pickup Balance
- 21 Position of Twist
- 22 Baling Difficulties

## LUBRICATION

- 28 Lubrication Charts and Symbols

## SERVICE

- 30 Storage, and Next Season's Preparation
- 31 Plungerhead
- 33 Pickup Cylinder Drive Chain
- 34 Timken Bearings
- 35 Needles in Bottom Needle Guide
- 36 Centering the Needles
- 37 Height of Needles
- 38 Rubber Bumpers
- 39 Twister Pinion Slots

## TABLE OF CONTENTS—Continued

### SERVICE—Continued

- 40 Timing Cut-Off Shafts with Gear Segment
- 41 Timing Twister Drive Gear and Twister Pinions
- 42 Intermittent Bevel Gear
- 43 Timing Upper Feeder with Plungerhead
- 44 Timing Lower Feeder with Upper Feeder
- 45 Timing Needles and Plungerhead
- 47 Drive Belt Tension

### ATTACHMENTS

- 48 Powr-Trol Remote Cylinder
- 48 Bale Counter
- 49 Wagon Hitch and Bale Chute
- 49 Twister Mechanism Chaff Cleaner
- 50 Wisconsin Engine
- 50 John Deere EA92 Engine
- 51 Sand Tires
- 51 Hook-Up

### ASSEMBLY INSTRUCTIONS

- 52 Extension Bale Case and Chute
- 54 Engine Mounted Balers

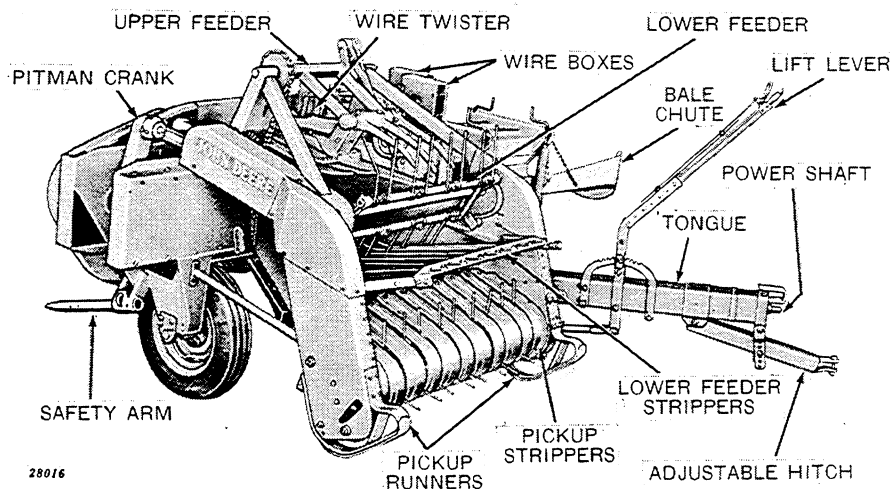
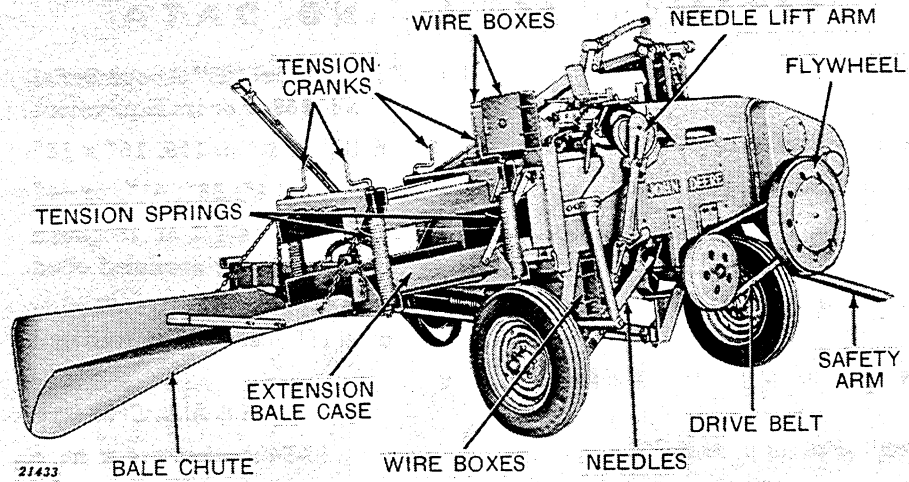
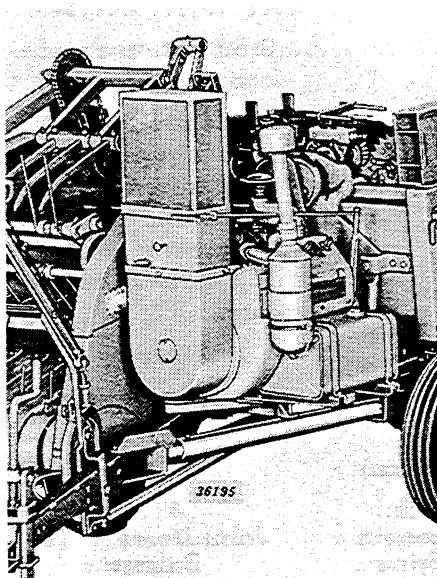


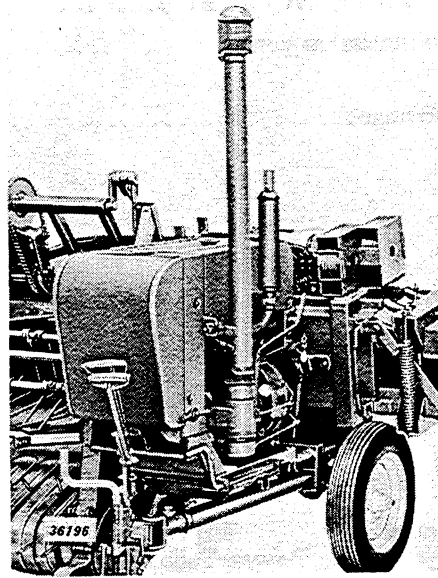
Figure 1—Front View of Power Take-Off Baler



**Figure 2—Rear View of Baler**



**Figure 3—Wisconsin VF-4D Engine**



**Figure 4—John Deere EA-92 Engine**

## SPECIFICATIONS AND DATA

|                                    |                                                                                                                                                                                                           |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power required.....                | John Deere Model "B" Above Serial<br>No. 96000 or its Equivalent                                                                                                                                          |
| Cross-section of bale.....         | No. 114, 14" x 18" and No. 116, 16" x 18"                                                                                                                                                                 |
| Length of bales.....               | 34", 38", 41", or 44"                                                                                                                                                                                     |
| Wire.....                          | 14-1/2 or 15 gauge<br>Bright annealed oiled                                                                                                                                                               |
| Wire coils.....                    | 40-45 lbs. each, 9-7/8" O.D., 3-3/4" wide<br>Approx. 3150 feet of wire each coil                                                                                                                          |
| Speed of power take-off shaft..... | 536 rpm<br>A.S.A.E. Standard                                                                                                                                                                              |
| Speed of plungerhead.....          | 50-54 strokes per minute                                                                                                                                                                                  |
| Approximate capacity.....          | 3 to 4 tons per hour<br>(average hay conditions)                                                                                                                                                          |
| Tires: R.H.....                    | 16 x 6.50—6-ply                                                                                                                                                                                           |
| L.H.....                           | 16 x 6.00—4-ply                                                                                                                                                                                           |
| Width of pickup (inside).....      | 51"                                                                                                                                                                                                       |
| Transmission gears.....            | Steel cut, enclosed<br>and fully lubricated                                                                                                                                                               |
| Bearings.....                      | Wheels, crank arm and pulley<br>shaft—Timken tapered-roller<br>bearings. Cam rollers—New<br>Departure ball bearings. Most<br>others—Replaceable bronze<br>bearings. Flywheel—Straight<br>needle bearings. |
| Main drive.....                    | Heavy V-belt                                                                                                                                                                                              |
| Transport width.....               | 8 feet (See Page 10)                                                                                                                                                                                      |

### WEIGHT (Approx.)

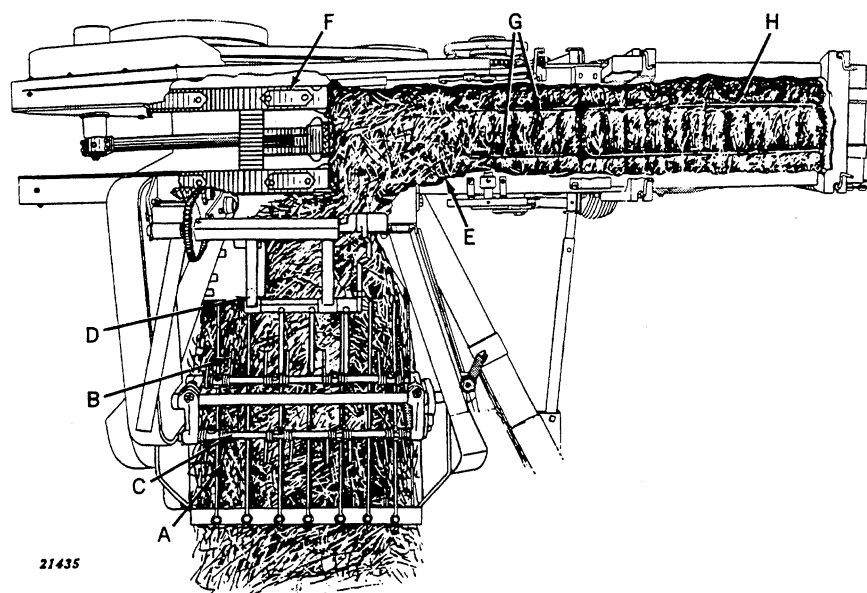
| Model<br>No. | With<br>Power Take-Off | With<br>Wisconsin<br>Engine | With<br>John Deere EA92<br>Engine |
|--------------|------------------------|-----------------------------|-----------------------------------|
| 114W         | 3390 lbs.              | 4050 lbs.                   | 4315 lbs.                         |
| 116W         | 3395 lbs.              | 4100 lbs.                   | 4365 lbs.                         |

*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.*

*(It is John Deere policy to improve our machines at every opportunity. Consequently it may be necessary to change design without notice.)*

## OPERATION

### HOW THE BALER WORKS



*Figure 5*

The John Deere Baler is a fully automatic wire-tying baler. Only one man, the tractor operator, is required to operate the machine. The only baler control necessary is the lifting lever, which raises and lowers the pickup. Because of the floating action of the pickup, this lever adjustment is seldom changed.

As the baler follows the windrow, the fingers on the pickup cylinder "A" lift the crop onto the pickup deck "B." The material is moved back by the lower feeder "C" to where the upper feeder "D" contacts and feeds it directly into the baling chamber "E". The upper feeder arms, timed with the plunger-head, strip out through slots in the top of the bale chamber.

As the feeder teeth clear the bale chamber, the plungerhead "F" moves forward, slices off the charge, compresses and moves it through the bale chamber. Hay dogs, or retainers, in top and bottom of the bale chamber, hold the sliced charges in position against the bale being formed while the plungerhead returns for the next charge.

As the material moves through the bale chamber it draws wire "G" out of the wire boxes. When the bale reaches the proper length, as determined by the bale measuring wheel, the bale is tied. Operation of the twister mechanism is described on the next page.

As more material is fed into the bale chamber, the completed bale "H" is forced out the end of the bale case and drops on the ground.

## HOW THE WIRE IS JOINED

To give a better understanding of the timing procedure and the importance of the various adjustments dealt with later on, an understanding of the tying cycle of the baler is necessary.

The twist produced by this baler is a twist with a double kink in it. This twist is as strong as the wire itself and will not pull apart if properly formed.

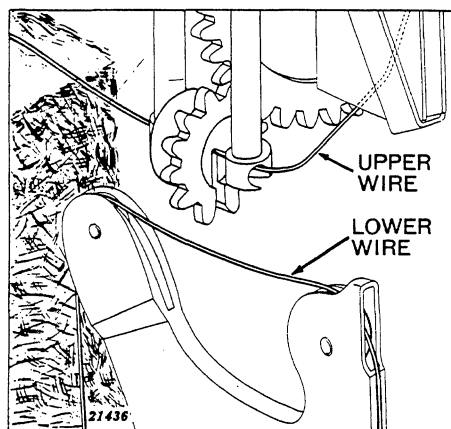


Figure 6

Four coils of wire are used simultaneously; two on top of the baler and two underneath. The upper wires are threaded through the twisting, kinking and cutting mechanism and the lower wires are threaded around the needles. The needles are used to carry the lower wires up into the twisting mechanism next to the upper wires (see Figure 6). The needles come up through the plungerhead slots so they do not contact the hay.

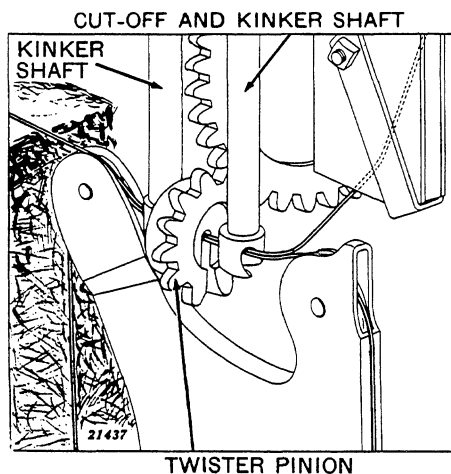


Figure 7

When the upper and lower wires are together in the twister pinion, they also pass through the slot in the cut-off and kinker shaft and the kinker shaft. See Figure 7.

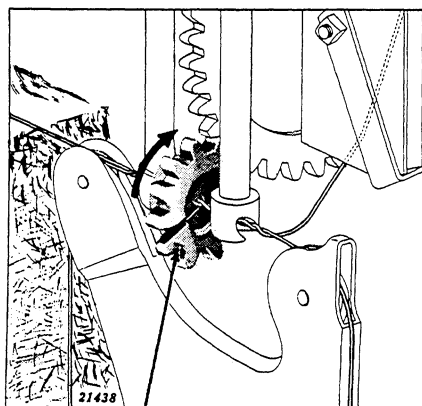
The twister pinions are now made to revolve four times which twists the upper and lower wires together. This twist is about 3 inches long. See Figure 8.

As the twist is being completed, the cut-off and kinker shafts revolve 180 degrees, the cutting edge of the cut-off shaft cuts the twist in two against the face of the twister pinion and simultaneously double-kinks the right-

hand half of the twist. The kinker shaft is at the same time double kinking the left-hand half of the twist (Figure 9).

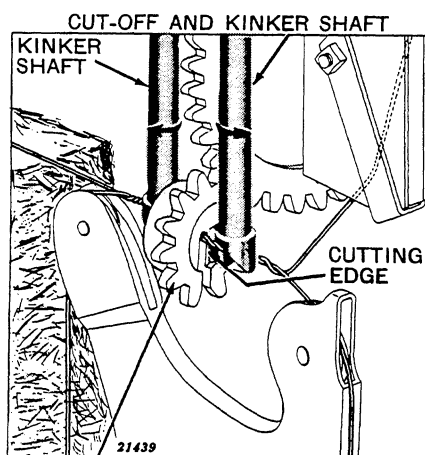
When the twist is cut and kinked, the wire that had been carried up along the end of the bale is joined with the upper wire to complete the tying of the bale. The wire on the other side of the needle is also joined with the upper wire and when the twist is cut it then forms a continuous strand with the upper wire. (Figure 10). Immediately after the wires are twisted and cut off, the needles are driven down out of the bale case.

As the plungerhead compresses the hay into the bale case, the joined wires are carried with the hay. Additional wire is pulled from the wire boxes to encircle the bale as it is formed. The length of the bale is determined by the measuring wheel (Figure 22). When the measuring wheel completes one revolution, the tying mechanism is tripped and the next tying cycle starts. After the tying mechanism is tripped, the needles are lifted into bale case through slots in plungerhead, bringing the lower wire up into the twisting, kinking, and cutting mechanism and completely encircling the bale with wire.



TWISTER PINION

Figure 8



TWISTER PINION

Figure 9

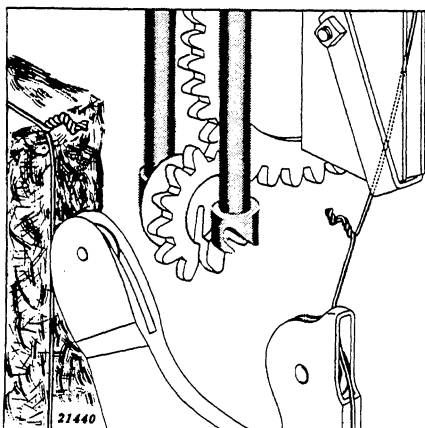


Figure 10

**Before-Operation, Check and Adjust the Following:**

**Adjust Safety Arm.** Adjust the safety arm so baler will not tip over backward if the tongue is raised too high. See page 14.

**Hitch Baler to Tractor.** See page 13 for detailed instructions. Adjust baler drawbar so power shaft is as straight as possible. Be sure to attach shield.

**CAUTION:** Unless power shaft is straight, there will be excessive vibration in the power shaft and knocking in the overrunning clutch.

**Engine-Mounted Balers.** If your baler is equipped with an engine, see the Operator's Manual that accompanies the engine for engine operating and break-in instructions.

**Tire Inflation.** Inflate the 6.50 x 16—6-ply tire on the right side of the baler to 40 pounds pressure, and the 6.00 x 16 tire on the left side to 28 pounds pressure on power take-off machines. Increase the pressure of the tire on the left to 32 pounds on engine-mounted machines.

For the tractor tires, follow the recommendations in the Tractor Operator's Manual for tire pressures.

**Time the Baler.** It is important to check the timing of a new baler, or one that has not been used for some time before starting in the field. See page 14 for procedure to follow when checking the timing.

**Adjust Belt.** Check belt adjustment before operating machine. Adjust if necessary as described on page 47.

Readjust belt after first 20 hours of operation to take up looseness in belt. All new belts are subject to stretching during the initial run-in period.

**Load Wire Boxes and Thread Wire.** See page 15 for instructions on loading the wire boxes and threading the wire.

**Preparation of Crops.**

The windrows should be of moderate size made by a side delivery rake. In material running from 1 to 1-1/2 tons per acre, do not place more than the width of the rake in the windrow. Heavier crops will require splitting the mower swaths in proportion.

**Starting and Driving.**

To start the baler, bring it up to its rated speed of 50 to 54 strokes per minute with the machine standing still. The overrunning clutch in the drive pulley allows the tractor gears to be shifted and the outfit started forward without stopping the baling mechanism. Start in low gear until you are sure baler is functioning properly and a few bales have been discharged. If hay does not fill opening in bale chamber, gradually increase ground speed up to about 3-1/2 miles per hour, or increase the size of the windrow, until good sized charges are fed into the compression chamber without straining the feeding and baling mechanisms. When the teeth on lower

feeder deflect and slip over the material, and/or the shear pin shears off in the upper feeder (Page 20), the baler is being crowded beyond its capacity, and serious damage may result. When the baler is taking about 4 or 5 pounds of material per charge, it is operating efficiently. See page 19 for size and weight of bales.

Rough ground conditions may require judgment on the part of the operator to adjust the size of the windrow and the speed of the machine to obtain the best performance.

When starting with an empty bale case, the first few bales will be light and their length will be irregular until the compression of the material has been built up sufficiently to turn the bale measuring wheel positively.

While the baler is in operation, watch the wires between the twister box and the wire boxes on top of the baler and around the needles underneath. These wires should move with each stroke of the plunger. If they stop moving, the wire has run out or has broken. Stop and correct trouble.

It is essential to periodically clean out accumulated chaff and trash from around the wire twisting mechanism. In most haying conditions this accumulation will not affect the operation of the machine. But if material is high in moisture content or gummy, or if the accumulation gets wet it may cause the trip device to function inaccurately, resulting in broken parts or long bales.

### **Safety Slip Clutch.**

A safety slip clutch is built into the flywheel and is set at the factory to help protect the baling parts from overloads resulting from excessive large charges; obstacles lodging between the knives, etc. Do not attempt to tighten this clutch unless it has been checked as described below and found to be too tight or too loose.

If baler has not been used for some time or has been stored for the winter season, the slip clutch must be checked for load. This can be done by applying a load of 60 pounds on a lever attached to flywheel, 10 feet from center of flywheel. If clutch does not slip, loosen clutch bolts. Be sure to tighten bolts after they are loosened until clutch slips at 600 foot-pounds of load.

### **Capacity.**

The capacity of the baler depends upon such factors as material characteristics, ground conditions, condition of tractor, and the judgment of the operator. Average capacity is from 3 to 4 tons per hour. Do not crowd your baler. You are primarily interested in tons per day, not bales per minute. See page 19 for size and weight of bales.

## TRANSPORTING BALER

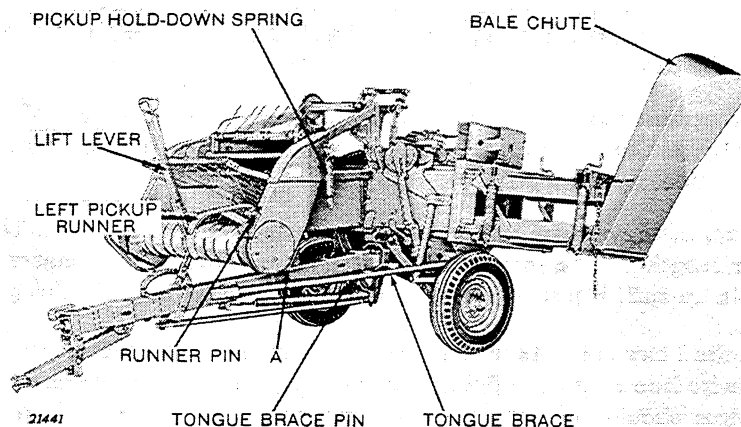


Figure 11

To transport baler, remove hold-down pin from tongue and pickup hold-down spring. Remove tongue brace pin. Remove runner pin from left pickup runner and pickup at "A" and swing runner forward. Attach runner as shown in Figure 11.

*NOTE: Revolve pickup teeth so they will not drag across tongue when swinging into transport position.*

Lift pickup and swing over tongue and replace tongue brace pin as shown above. Replace hold-down pin in tongue bracket and pickup support, as shown in Figure 12. Raise bale chute as shown in Figure 11. This will give a transport width of approximately eleven and one-half feet.

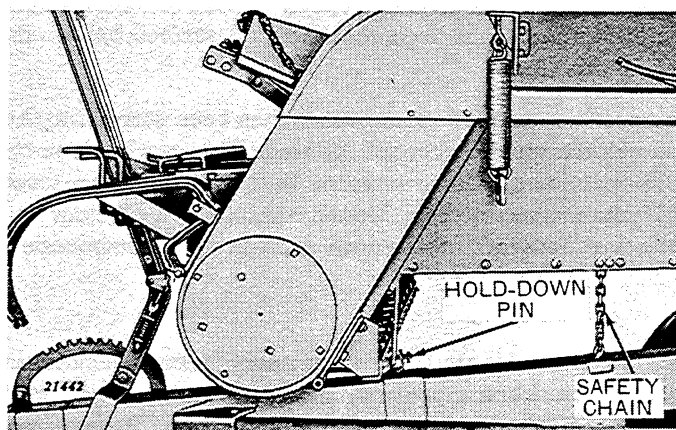


Figure 12

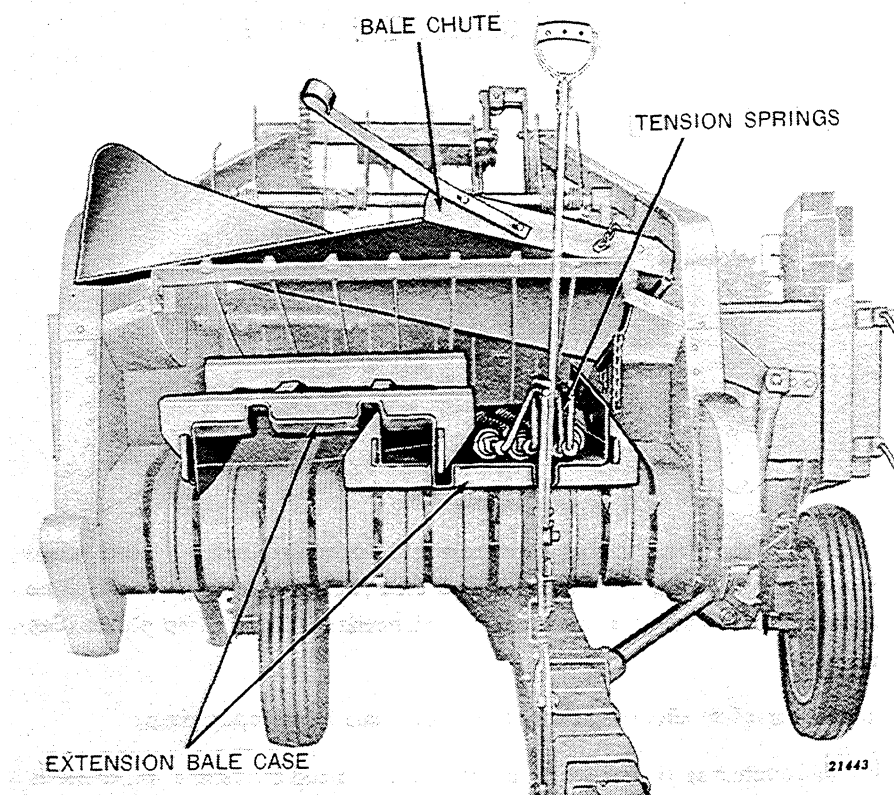


Figure 13

If an 8-foot transport width is desired, remove bale chute and tension springs and place in pickup as shown in Figure 13. Loosen the four pins on the bale case and remove the extension and place it in the pickup as shown in Figure 13.

*NOTE: Be sure to wire the extension securely in position to prevent loss of parts.*

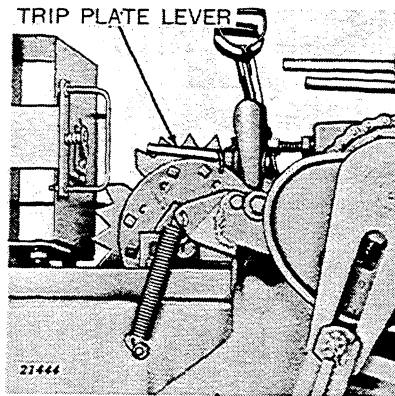
**Be Careful**



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

**NATIONAL SAFETY COUNCIL**

## SAFETY PRECAUTIONS



*Figure 14*

If at any time the tripping mechanism is to be tripped by hand when the machine is running, be sure to stand clear before tripping the machine by taking hold of the lever attached to the needle lift shaft trip plate. (See Figure 14.)

Stand clear of machine at all times when machine is operating.

Do not touch any of the tying mechanism or needle frame if machine is operating with the exception of the trip plate lever. See caution above.

Do not grease machine when operating.

Do not attempt to pull hay from pick-up when machine is running.

Be sure to keep all guards and shields in place.

Be sure to keep safety arm extended and that no one is standing at rear of baler when hitching or unhitching the baler. Keep safety arm extended when machine is not attached to the tractor.

Be sure tractor is shut off and power shaft is disengaged when working on the baler.

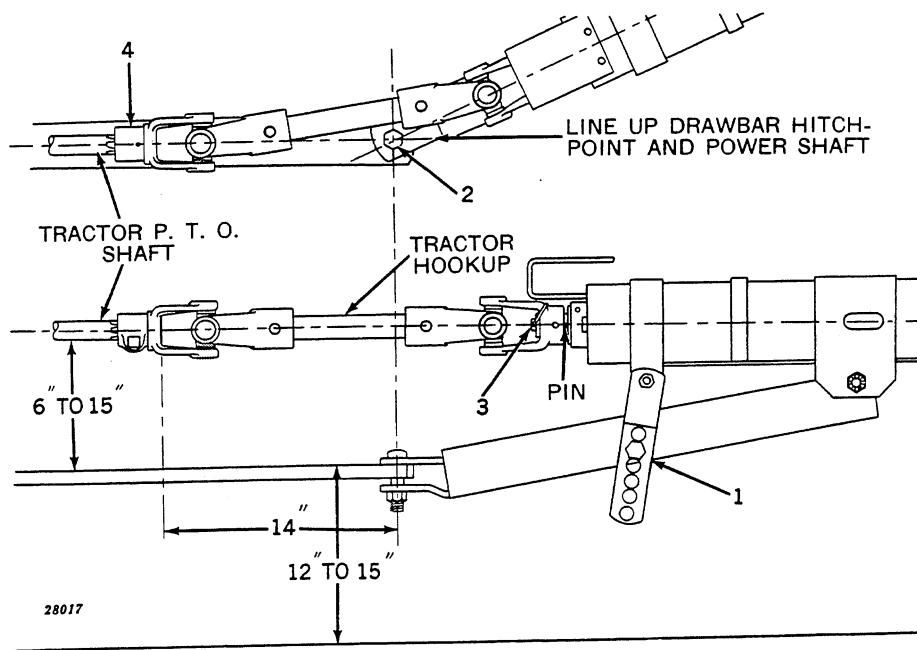
Be sure safety chains are fastened at all times.

Be sure flywheel is not moved when working on knives.

Do not try to remove or pull wire from bale case or twister mechanism if machine is operating.

## OPERATING ADJUSTMENTS

### HOOK-UP INSTRUCTIONS



*Figure 15*

When attaching this machine to any of the older model tractors, the tractor must first be converted to comply with A.S.A.E. standards. This can be done by purchasing the proper conversion bundle from the dealer who handles your make of tractor. Be sure tractor drawbar is adjusted to proper length of 14 inches from end of power shaft to center of hitch bolt.

1. See Figure 15, above, for means of attaching power take-off equipment. Adjust baler hitch so power shaft is as level as possible.
2. Adjust tractor drawbar so that the hitch point is directly under and in line with the power take-off shaft.
3. Attach universal joint to baler with cap screw and forged washer. The universal joint must be tight against the hardened pin in the power shaft. Attach wire through cap screw head and around the universal yoke.
4. Attach splined end of hook-up to tractor.

**CAUTION:** Unless power shaft is as straight as possible, there will be excessive vibration in the power shaft and knocking in the overrunning clutch. **BE SURE TO ATTACH SHIELD.**

## SAFETY ARM ADJUSTMENT

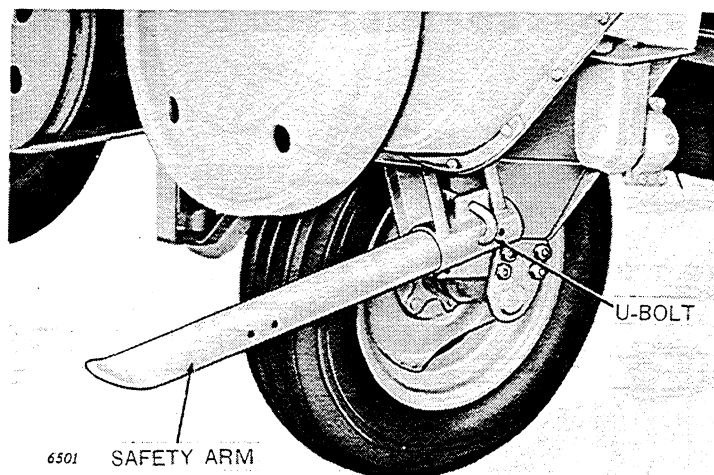


Figure 16

Whenever the baler is not attached to tractor be sure the safety arm is in the extended position as shown in Figure 16. It is held in position by the U-bolt.

The machine is so balanced that it will tip over backward if the tongue is raised too high, especially in the transport position, if the safety arm is not extended. **Be sure this arm is extended at all times when baler is not attached to tractor and just before baler is detached from tractor.**

## TIMING BALER

New machines are correctly timed at the factory. However, it is important that the timing be checked before any form of mechanical power is applied to run the machine. Such timing operations should be done by turning the flywheel in a clockwise direction by hand.

The first item of importance is the timing of the upper feeder with the plungerhead as shown on Page 43.

The second operation to be checked is the relation of the lower feeder to the upper feeder as described on Page 44.

The final check, which should be made most carefully, is that of the relationship of the needles to the plungerhead. This operation is clearly defined on Pages 45 and 46.

## LOADING WIRE BOXES

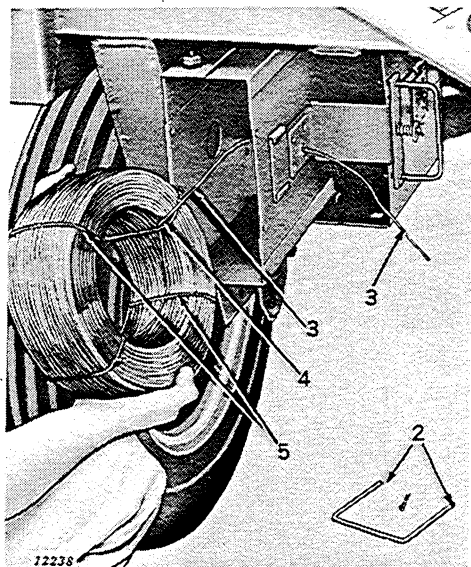


Figure 17

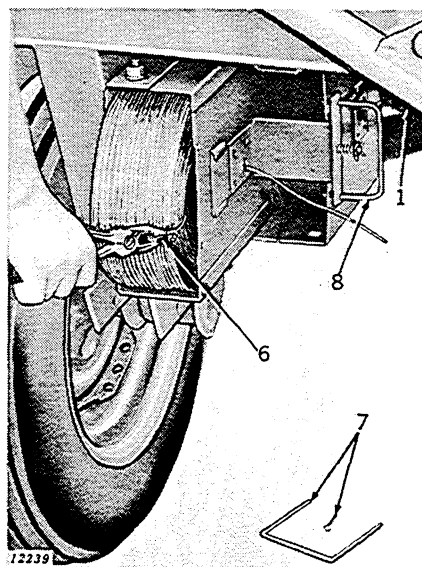


Figure 18

1. (Figure 18) To load the bottom wire boxes, it is necessary to raise the needle frame.

**CAUTION:** Be sure needles are in the down position **BEFORE** starting baler again.

2. (Figure 17) Remove wire box pin.
3. (Figure 17) Find the loose end from the center of the coil and pull out about one foot of wire, threading it through the large hole in the wire box and retaining clip.
4. (Figure 17) Hold coil in position and cut first banding wire. Insert coil into box about one third of the way.
5. (Figure 17) Cut top and bottom banding wires and insert coil over halfway. Pull gently on loose end, making sure wire is not kinked.
6. (Figure 18) Cut last banding wire and insert balance of coil.
7. (Figure 18) Replace wire box pin.
8. (Figure 18) All four boxes load the same except on engine-mounted balers, the bottom front wire box is loaded from the rear by removing the retaining clip. Pull handle to the right and slide clip to the rear; let hang on rear wire. Insert coil as described above and replace retaining clip.

*NOTE:* To thread wire, see pages 16 and 17.

## THREADING NEEDLES AND TWISTER MECHANISM

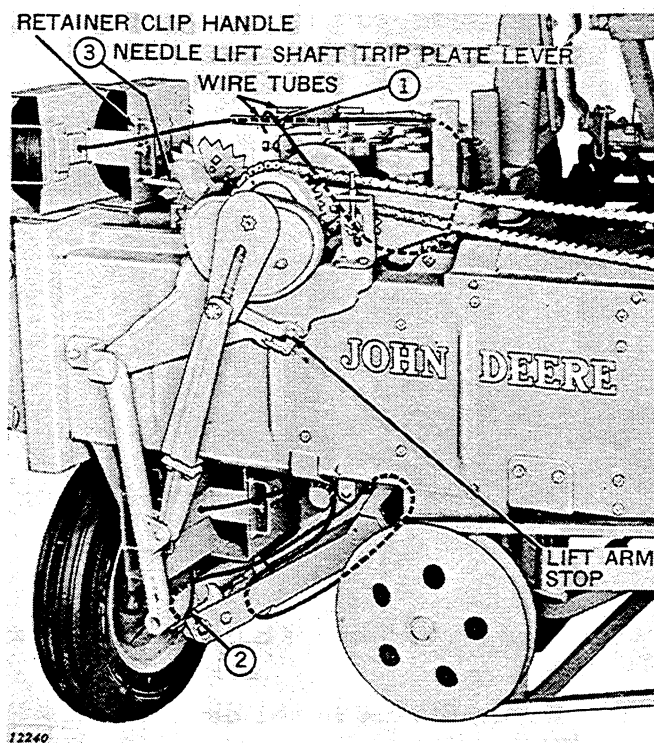


Figure 19

1. (Figure 19) Thread top wire through the wire tubes and between the pulley and the top of the pulley bracket, then down between the bottom pulley and twist control bracket, then through the twister pinion and pull enough wire so it can be hooked around wire tubes on top of baler.
2. (Figure 19) Thread bottom wire around pulley in pulley bracket on bottom of bale case, then around large pulley near lower end of needle, then around small pulley in right-hand top of needle and up over left-hand pulley, and pull enough wire so it can be looped around needle frame (2).
3. (Figure 20) When the two top wires and the two bottom wires have been threaded properly, raise the needle lift shaft trip plate lever (3) and turn flywheel clockwise by hand. Continue turning flywheel until needles are all the way up, wire is joined and needles returned to their down position.
4. (Figure 20) Always remove the wires, which were temporarily hooked around the wire tubes and the needle frame. The wires are now ready for the baling operation.

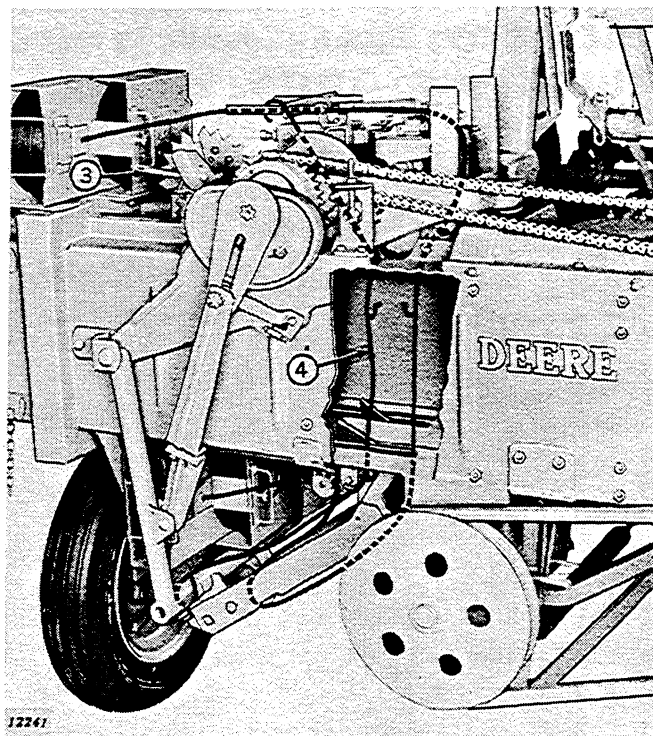


Figure 20

## IF WIRE HAS RUN OUT OR BROKEN

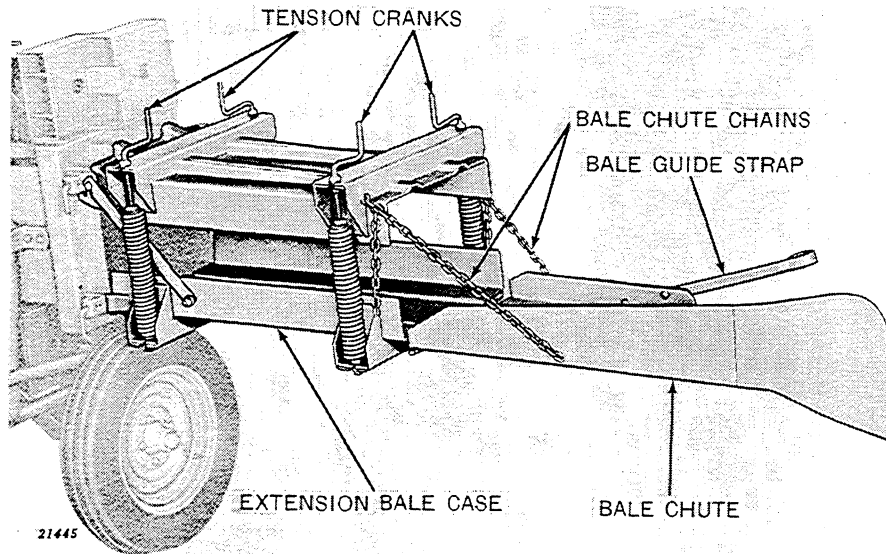
1. If the wire has broken or run out in any of the boxes it must be re-threaded as described on Pages 15 and 16. This has to be done with both the top and bottom wires on the side where wire has broken or run out.
2. If the wire runs out or is broken just after a bale has been tied, put in about three charges of hay before tripping needle lift clutch trip plate lever (3), Figure 20.

## SPLICING WIRE

1. If the operator watches and does not let the wire completely run out of the needles or wire twister, it is possible to insert new rolls in the wire boxes and thread as described above with the exception that the wire can be spliced to the end of the wire already around the bale. This splice may be made as follows: On top, splice the wire between the left side of wire twister box and bale. On the bottom, splice between the left-hand side of needle and the bale. **CAUTION: This must be a strong splice. Each time a new roll is inserted, be sure all wire pulleys are free to rotate. Twister Mechanism must not be ready to trip or bottom splice may be forced into twister pinion.**

When wire has run out of front bottom box on engine baler, the retainer clip can be removed and left hanging on the wire still threaded in the other box while a new coil is being inserted.

## ADJUSTMENT OF BALE CASE TENSIONS, CHUTE AND GUIDE STRAP



*Figure 21*

Your baler is equipped with a spring tension type of bale case extension shown in Figure 21. Tension for regulating bale weight is applied by adjusting the tension cranks. Turn crank until about 2 inches of threads on the tension rods are visible. This adjustment is only approximate and will have to be changed, after baling starts, to conform to conditions.

To level bale chute, take up or loosen chains on bale case extension sides.

Adjust bale guide strap, so that bales will lay parallel to the windrow after being discharged. This can be adjusted by loosening two bolts on the back of bale chute and adjusting bale guide strap to the right or left.

## ADJUSTMENT OF BALE MEASURING WHEEL

The bale measuring wheel (1), Figure 22, may be set for 34-, 38-, 41-, or 44-inch bales. The setting shown (2) is for 38-inch bales. For shorter bales, decrease the diameter of the wheel. For longer bales, increase the diameter of the wheel.

If bales are irregular in length, it is because the measuring wheel is not being turned uniformly by the movement of the material in the bale case. This is due to lack of density of the material either because of lightness of the material or because the baler is being driven too slow to take in sufficient material to fill the baling chamber satisfactorily. The measuring wheel may be lowered in the slots (3) to get the teeth farther into the material. If this does not remedy uneven bale length, increase the ground speed of baler, or increase size of windrow.

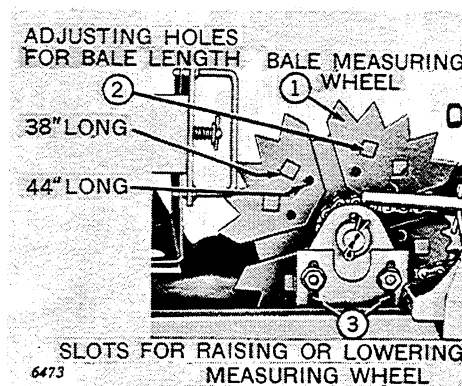


Figure 22

The Automatic Baler is built to make bales in four different lengths.

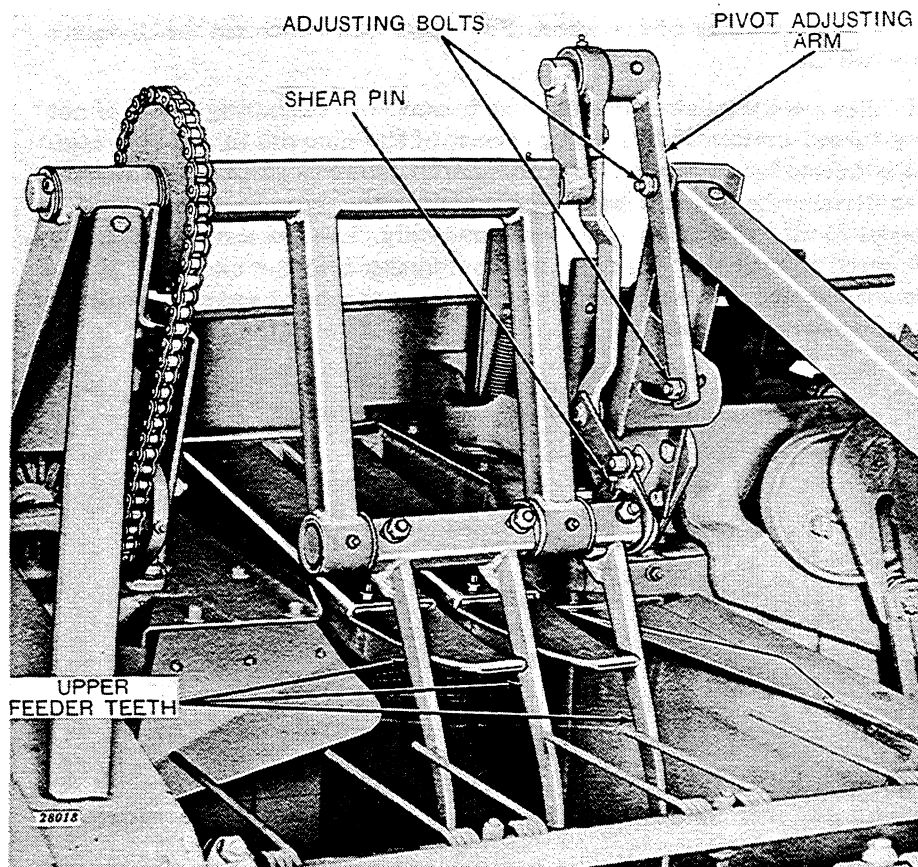
**CAUTION:** If you make the bales too tight or heavy, it will place excessive strain on your baler causing breakage and undue wear of parts, also there will be a tendency to break the wire.

The following chart shows recommended maximum weight per length of bale:

|                          | No. 114W  | No. 116W   |
|--------------------------|-----------|------------|
| 34" bales—maximum weight | 68 pounds | 78 pounds  |
| 38" bales—maximum weight | 74 pounds | 85 pounds  |
| 41" bales—maximum weight | 80 pounds | 92 pounds  |
| 44" bales—maximum weight | 88 pounds | 100 pounds |

The above weights apply generally to leguminous hay crops such as alfalfa, lespedeza, clover, soybeans, etc. When baling excessively dry materials, such as straw and timothy, the above weights may be as much as 25% less than shown and may be obtained by adjusting the bale case tensions (see Page 18).

## ADJUSTMENT OF UPPER FEEDER TO MAKE STRAIGHT BALES



*Figure 23*

If the bale is not straight it is because the hay is too loose at either the front or the rear of the bale. This condition may be corrected by changing the angle of the upper feeder teeth, Figure 23.

If front of bale is too loose, loosen adjusting bolts and move pivot adjusting arm toward front of baler.

If back of bale is too loose, move arm toward rear of baler. **Be sure to tighten bolts. CAUTION: After making this adjustment make sure upper feeder teeth do not hit the back of slots as they strip out of bale case.**

The upper feeder is protected against too heavy a charge by the shear pin. Shearing of the pin indicates that charges going into the machine are too large.

## ADJUSTMENT FOR PICKUP BALANCE

The lift springs, Figure 24, relieves the pickup skids of part of the weight of the machine. They should be adjusted so there is a minimum amount of weight carried on the skids to keep them in contact with the ground so the cylinder will not miss any hay. Approximately 30 to 40 pounds should be required to raise the pick-up, by lifting on the front of stripper frame. It may vary some depending on the roughness of the ground. Adjust by means of bolts.

A hold-down spring is provided to prevent the pickup from raising up and remaining in raised position when operating on rough ground or inclines. A threaded hand screw mounted on side of pickup can be adjusted to apply more tension on the spring if necessary.

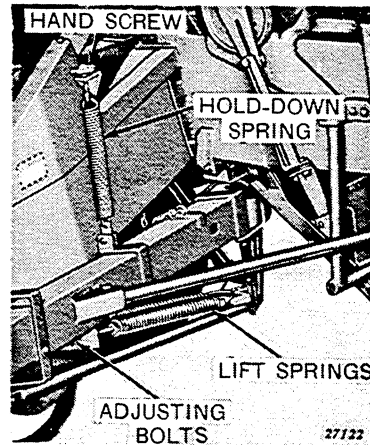


Figure 24

## ADJUSTMENT OF POSITION OF TWIST ON LEFT END OF BALE

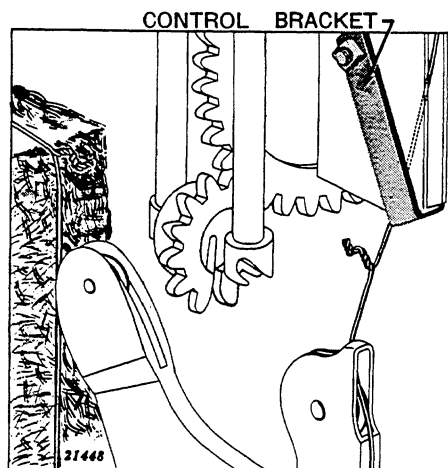


Figure 25

Twist should be anywhere on end of bale but not closer than 2 inches from the top or bottom edge of the bale. If twist is too high, move control bracket (Figure 25) to the right. If too low, move to left.

## BALING DIFFICULTIES

### 1. BALE NOT OF PROPER WEIGHT

| <i>Difficulty</i>                               | <i>Possible Cause or Remedy</i>                                                                                           |
|-------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| Bale too light in weight.                       | Tighten tension cranks until desired weight is obtained.                                                                  |
| Bale too heavy in weight.                       | Loosen tension until desired weight is obtained.                                                                          |
| Bale too heavy with tensions screwed clear out. | Hay too wet or too green.                                                                                                 |
| Bale too long.                                  | Not enough material in top of bale or not enough tension. Measuring wheel not set down properly in contact with material. |

### 2. BALE NOT UNIFORM.

Material must be windrowed with side-delivery rake. Be sure all material has been turned.)

|                                     |                                                                                           |
|-------------------------------------|-------------------------------------------------------------------------------------------|
| Back of bale is loose.              | Adjust feeder tooth (see page 20).                                                        |
| Front of bale is loose.             | Adjust feeder tooth (see page 20).                                                        |
| Not enough material in top of bale. | Take in larger charges by traveling faster along windrow or make a little larger windrow. |
| Bale ragged on front side.          | Sharpen knives or adjust plunger-head (see page 31).                                      |

### 3. PICK-UP DIFFICULTIES.

| <i>Difficulty</i>                     | <i>Possible Cause or Remedy</i>                                                                       |
|---------------------------------------|-------------------------------------------------------------------------------------------------------|
| Pickup skids digging in ground.       | Tighten lift spring (see page 21).                                                                    |
| Not picking up hay clean.             | Lower pickup with hand lever. Hay has not been all raked or forward speed is faster than 3-1/2 M.P.H. |
| Pickup teeth not revolving.           | Pickup ratchet dog not engaging.                                                                      |
| Pickup stays up in floating position. | Loosen lift spring. Tighten hand screw on hold-down spring (see page 21).                             |
| Upper feeder teeth hit lower feeder.  | Retime lower feeder (see page 44).                                                                    |

### 4. FEEDING DIFFICULTIES.

|                                                                                                 |                                                                                                                                                                  |
|-------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Plungerhead hitting feeder teeth at top of case.                                                | Timing too slow. Retime upper feeder (see page 43).                                                                                                              |
| Bunching of hay in front of plungerhead and bending of right-hand feeder tooth or shearing pin. | Timing too fast. Retime upper feeder (see page 43).                                                                                                              |
| Baler seems to stall when plungerhead is even with left-hand side of feed opening.              | Sharpen knives, or adjust plungerhead (see page 31).<br>Check belt adjustment (see page 47).                                                                     |
| Baler stalls on compression stroke.                                                             | Baling too heavy; loosen tensions (see page 18).<br>Check for obstruction in front of plungerhead.<br>If stalling continues check belt adjustment (see page 47). |
| Baler is stalled on compression stroke.                                                         | Turn flywheel in counter-clockwise direction for two or three revolutions, then engage clutch on tractor or engine.                                              |
|                                                                                                 | <b>CAUTION: Be sure that needles are in down position before turning flywheel by hand.</b>                                                                       |
| Feeder teeth become disconnected and do not push hay into bale case.                            | Check shear pin (see page 20), and check for obstructions or reduce ground speed.                                                                                |

**5. POWER DRIVE DIFFICULTIES.**

| <i>Difficulty</i>                                                            | <i>Possible Cause or Remedy</i>                                            |
|------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| Belt slips to the extent that it does not drive flywheel at proper speed.    | Tighten belt (see page 47).                                                |
| Drive pulley does not rotate with power shaft.                               | Check dog in drive pulley.                                                 |
| Too much lost motion in the drive to the long upper feeder bevel gear shaft. | Tighten chain inside of gear box. Adjustment is made through service door. |
| Baler not operating smoothly, causing ratchet to work in drive pulley.       | Check hitch position. (See page 13).                                       |
| Belt wearing more on one side than the other.                                | Pulleys not in line (See page 47).                                         |

**6. WIRE TWISTING MECHANISM DIFFICULTIES.**

*NOTE: These conditions may apply to either one or both needles.*

|                                                               |                                                                                                             |
|---------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| Needles binding in needle guide casting at bottom of case.    | Adjust bottom needle guides (see page 35).                                                                  |
| Needles hitting side of plungerhead.                          | Adjust plungerhead so that slots in face line up with slots in case that needles go through. (See page 31). |
| Needles hit wire twister box.                                 | Adjust needles (see pages 36 and 37).                                                                       |
| Needles push material up into twister pinions.                | Needles timed too slow or too fast. Retime (see page 45).                                                   |
| Needles are pushed out of time toward left-hand end of case.  | Needles timed too slow or too fast in relation to plungerhead (see page 45).                                |
| Needles are pushed out of time toward right-hand end of case. | Hay dogs not working properly. Check to see if springs are in place and that hay dogs are working freely.   |

**6. WIRE TWISTING MECHANISM DIFFICULTIES—Continued**

| <i>Difficulty</i>                                             | <i>Possible Cause or Remedy</i>                                                                                                                                                                                                                                             |
|---------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mechanism works more than one revolution after it is tripped. | Make sure trip spring does not bind on trip plate.<br>Check the trip dog lever spring's ability to return the trip lever to position.<br>Raise position of trip lever on trip dog.                                                                                          |
| Needles lift and twisting gears do not revolve.               | Check shear bolts in intermittent bevel gear (see page 42).                                                                                                                                                                                                                 |
| Needles do not force wire into the twister pinion.            | Slots in twister pinions are not lined up. Adjust (see page 39). Material has been forced into the pinions by the needles. Retime needles (page 45).                                                                                                                        |
| Top wire is cut and bottom wire is not cut.                   | Wire has slipped off side of needle because there is too much space between the needle and the guide, or needle is being held in a high position in relation to the bottom of the bale case, or needle is not raising wire high enough into twister pinions. (See page 37.) |
| Bottom wire is cut and top wire is not cut.                   | Pulley bracket on wire twister box is out of line, or top wire has slipped off to one side of twister box. Adjust pulley bracket so that bottom pulley will line up with center of slot in the twister pinion.                                                              |
| Wires are twisted together and are not cut.                   | Drive pin in cut-off kinker shaft may be sheared off. Push rod and yoke assembly does not actuate the cut-off and kinkers. Cut-off and kinker not timed properly. Retime (see page 40).                                                                                     |

**6. WIRE TWISTING MECHANISM DIFFICULTIES—Continued**

| <i>Difficulty</i>                                                                                                                       | <i>Possible Cause or Remedy</i>                                                                                                                                                                                                        |
|-----------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Top wire is broken and twist is caught on pulley bracket side of twister pinions.                                                       | Twist is not being pulled down in the bale case far enough. Adjust control bracket (see page 21 for adjustments). Make sure that all pulleys in pulley bracket are free to rotate.                                                     |
| Top wire is broken and twist is caught on point of needles.                                                                             | Twist is being pulled down too far in bale case. Adjust control bracket (see page 21 for adjustments).                                                                                                                                 |
| Wire is kinked and cut off on end of bale that comes out first, and wire is not kinked on end of bale that comes out of bale case last. | Shear pin in kinker shaft is sheared off. Take wire twister box apart and install new pin in kinker shaft and gear.                                                                                                                    |
| Twist and kink is not uniform on both ends of the bale.                                                                                 | Adjust needles to the right or left (see page 36).                                                                                                                                                                                     |
| Ends are not cut off square in twist on both ends of the bale.                                                                          | Either the cut-off shaft or the twister pinion may be chipped or dull. Install new parts.<br>Cut-off may be turned at 180 degrees. Retime.                                                                                             |
| Needle at the top right-hand roller shows signs of being notched by the cut-off shaft.                                                  | Needle is adjusted too close to the wire twister box. Readjust (see page 36).                                                                                                                                                          |
| Slot in the twister pinion does not line up with slot in bottom of wire twister box so that wire can be lifted into slot.               | Twister pinion out of adjustment. For adjustment, see page 39. Check clearance between flat surfaces of the intermittent bevel gear and pinion. These two surfaces should be together at both ends of the flat surface of pinion gear. |
| Shear bolts in the intermittent bevel gear are sheared off.                                                                             | Take cover off twister box and clean dirt or other foreign material out of box. Replace shear bolts.                                                                                                                                   |

**6. WIRE TWISTING MECHANISM DIFFICULTIES—Continued**

| <i>Difficulty</i>                                                                 | <i>Possible Cause or Remedy</i>                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Push rod and yoke fail to work.                                                   | Check shear bolts in pushrod lever arm.                                                                                                                                                                                                                                                                                                                                                                                   |
| Needles fail to return to down position. Disengage tractor power shaft or engine. | Trip dog broken.<br>Shear bolts in clutch ring sheared.<br>Driving shoulder of the clutch ring worn out.<br>Wire twister drive chain broken.<br>(In any of the above cases, replace parts and retime.)                                                                                                                                                                                                                    |
| <b>CAUTION: Do not operate baler until above parts are replaced.</b>              |                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Bolts sheared in clutch ring.                                                     | Needles are too tight in bottom of case.<br>Needles are hitting side of plunger-head.<br>Needles are out of adjustment and hit wire twister box (see page 36).<br>Needles are bent. Replace and adjust.<br>Needle out of time. Retime (See pages 35, 36, and 37). Improper bolts in intermittent bevel gear. Replace with correct bolts shown in parts list.<br>Needle striking hay dog shaft. Check cotter pin in shaft. |
| Pulleys in needles or pulley brackets bind so that they will not turn.            | Needle is bent or dirt has wedged in between side of pulley and pulley bracket or needle. Replace needle or clean dirt from side of pulley.                                                                                                                                                                                                                                                                               |

# LUBRICATION

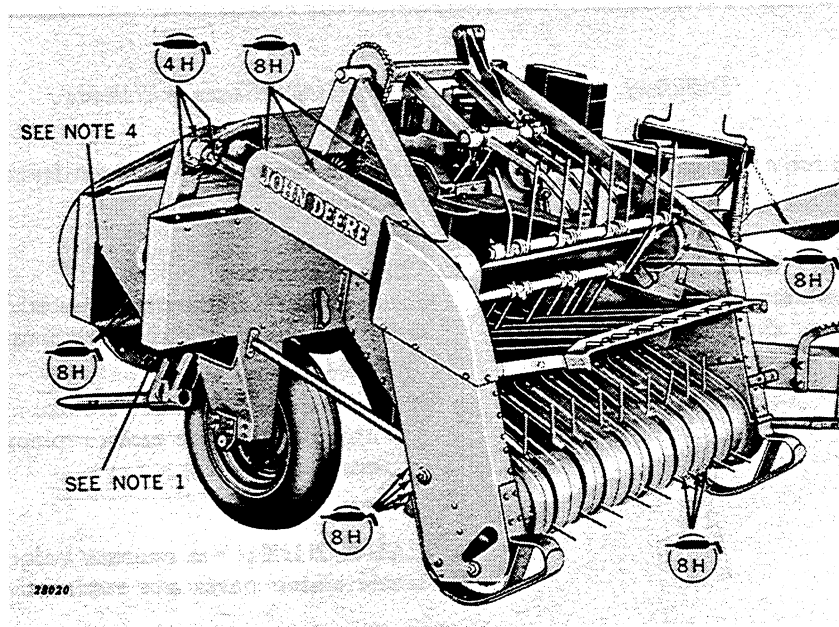


Figure 26

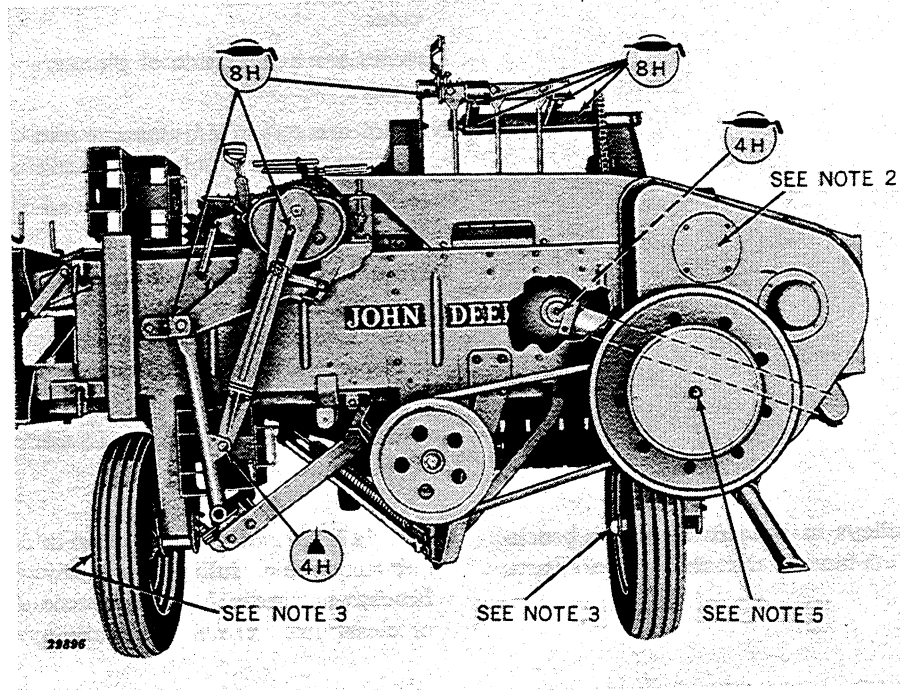


Figure 27

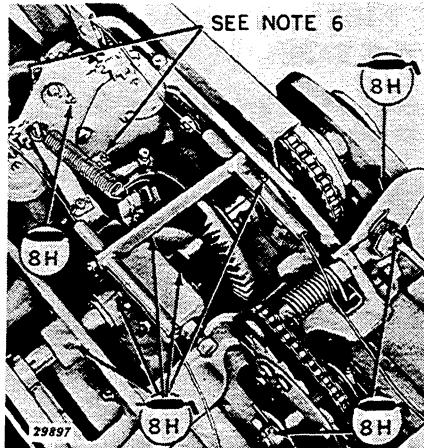


Figure 28

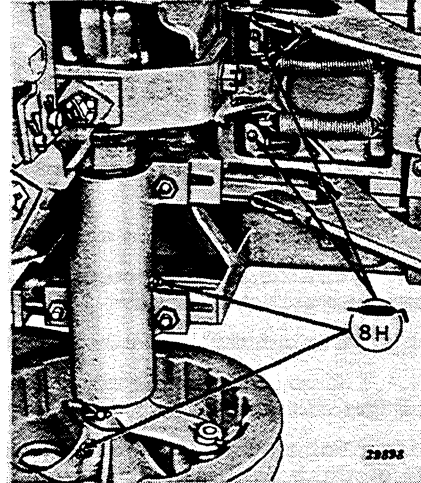


Figure 29

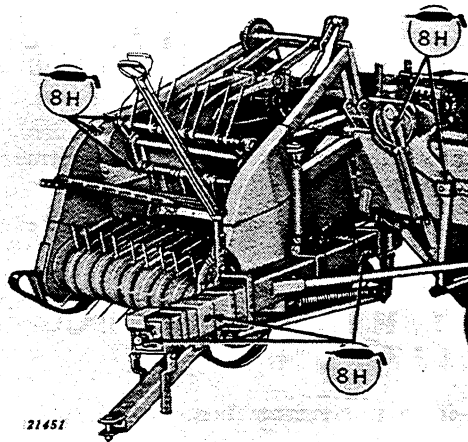


Figure 30

## SYMBOLS

- |  |                                     |
|--|-------------------------------------|
|  | —Grease every 8 hours of operation. |
|  | —Grease every 4 hours of operation. |
|  | —Oil every 4 hours of operation.    |

**Note No. 1.** Check level of grease in main gear case daily. (Level plug is just above safety arm on front of gear case.)

**Note No. 2.** Fill to check level plug with SAE 90 oil. (Capacity—1 pint.) Drain and refill once a year. Drain plug is just below check level plug. See Note 1.

**Note No. 3.** Pack wheel bearing with wheel bearing grease once a year.

**Note No. 4.** 1-1/2 pounds of grease required to fill crankshaft bearing housing. Add grease every 8 hours of operation to keep filled.

**Note No. 5.** 1/5-pound of grease required to fill flywheel shaft and bearings. GREASE DAILY.

**Note No. 6.** One shot of grease every 8 hours of operation.

## **SERVICE**

### **STORAGE AT THE END OF THE SEASON**

Your baler should be taken to an authorized John Deere dealer for an annual season overhaul to assure the best of performance at the beginning of the next season.

1. Shelter the baler in a dry place.
2. Clean the baler thoroughly inside and out. Trash and dirt will draw moisture and rust the steel.
3. Clean out the twister box and apply a rust preventive.
4. Thoroughly grease the machine according to the lubrication charts on Pages 28 and 29.
5. Paint all parts from which the paint has been worn except the inside of the bale case. This should be brushed with grease or heavy oil.
6. Remove and clean all chains by washing them in a solvent. Dry well and coat with a heavy oil.
7. Block up baler under stub axles, taking load off tires. **DO NOT DEFLATE TIRES.** If exposed, cover tires to protect them from light, grease and oil.
8. List the replacement parts that will be needed and order them early. The dealer at this time can expedite delivery of parts and install them during slack periods—no delay next baling season.
9. If your baler is engine-mounted, see the preparation portion of the Engine Manual for storage instructions.

### **PREPARATION AT THE BEGINNING OF THE SEASON**

1. Remove the rust preventive from the twister box.
2. Remove the heavy oil and grease from the bale case, upper feeder chain, and needle lift shaft drive chain.
3. Grease complete machine; this will force any collected moisture out of the bearings.
4. Check air pressure in tires.
5. Flush the gear case and refill with S.A.E. 90 oil.
6. Tighten all bolts, nuts, and set screws.
7. Adjust and check timing of entire baler as described in this manual.
8. If any major moving parts have been replaced, these should be run in.
9. If your baler is engine-mounted, see preparation portion of Engine Manual for instructions.

## PLUNGERHEAD ADJUSTMENT

The plungerhead is in proper adjustment when there is a uniform clearance of  $1/32$ - to  $3/32$ -inch between the plungerhead knife and the stationary knife, with  $1/16$ - to  $1/8$ -inch clearance between the wear plates and the top of the bale case.

**CAUTION:** Always adjust the knife clearance **BEFORE** setting wear plate clearance.

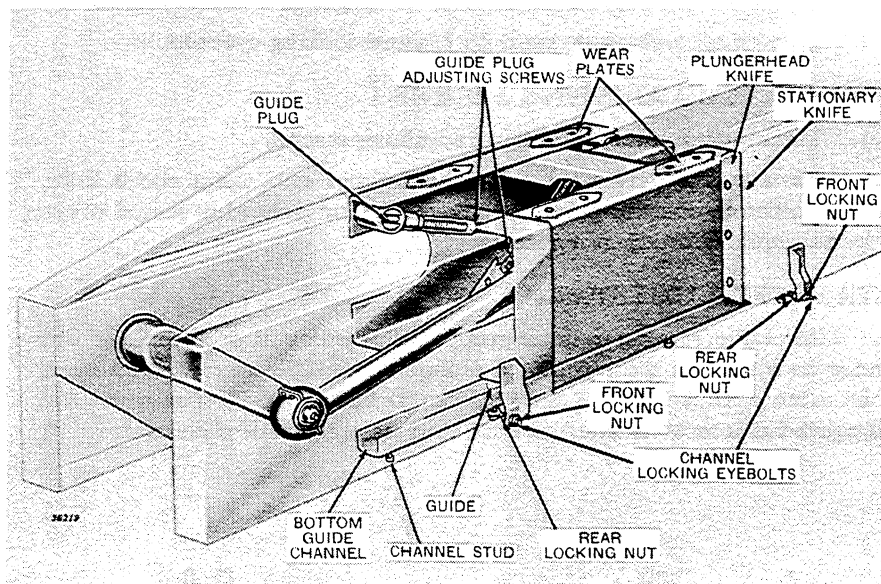


Figure 31

### LOOSEN BOTTOM CHANNEL

1. Turn flywheel by hand to register knives on compression stroke.
2. Loosen nuts on four bottom channel studs.
3. Loosen nuts on channel locking eyebolts. This will allow the bottom of the plungerhead and channel to move freely in the bale case.

### ADJUST UPPER GUIDE PLUGS

1. Loosen lock nuts on both plug adjusting screws.
2. Tighten the plug adjusting screws until the proper knife clearance of  $1/32$ - to  $3/32$ -inch is obtained at the upper end between the plungerhead knife and the stationary knife.

### ADJUST BOTTOM CHANNEL

1. Remove chaff and dirt from around channel to allow the bottom of the plungerhead and channel to move freely in the bale case.
2. Turn flywheel until plungerhead has traveled two complete strokes to allow the channel to align itself in the bottom of the bale case. If for some reason the channel does not align itself to the correct  $1/32$ - to  $3/32$ -inch, pry it into position. Again turn flywheel until plungerhead has traveled two complete strokes to allow the channel to align itself.
3. Tighten the four nuts on the channel studs under the bale case.
4. Tighten all locking nuts on both channel locking eyebolts.

### LOCKING PLUG ADJUSTING SCREWS

1. Tighten lock nuts on both plug adjusting screws.
2. Turn flywheel over by hand several times and again check knife clearance before operating baler to make sure plungerhead is seated properly in the guide. Readjust if necessary.

### WEAR PLATE ADJUSTMENT

1. After knife register is in proper adjustment add or remove shims under wear plates on the top of the plungerhead. These wear plates must not be more than  $1/16$ - to  $1/8$ -inch from the top of bale case when the plungerhead is located where there is the least amount of clearance.

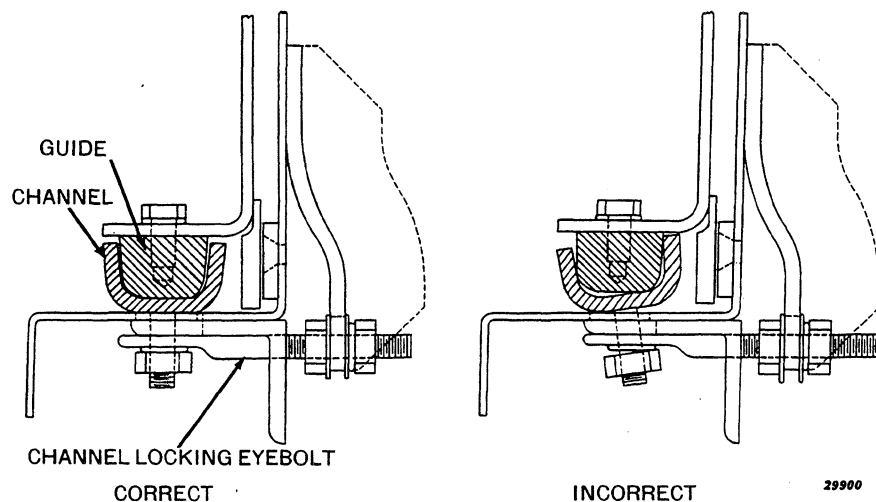
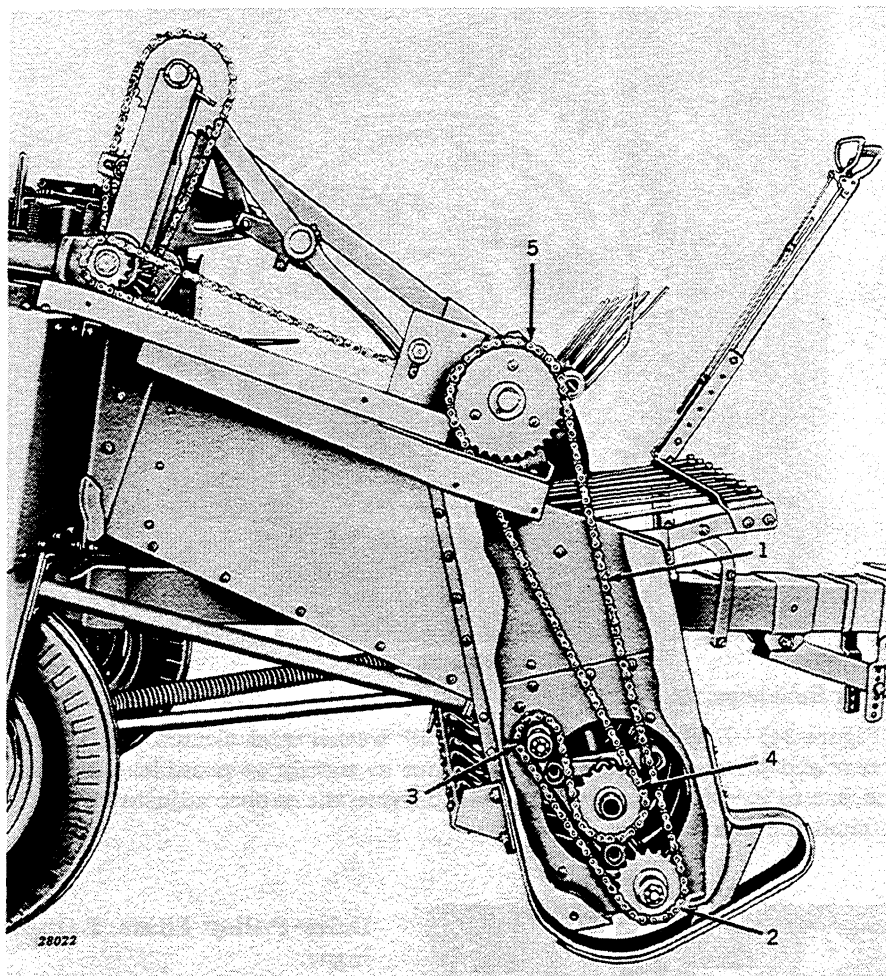


Figure 32

## PICKUP CYLINDER DRIVE CHAIN ADJUSTMENT



*Figure 33*

If the pickup cylinder drive chain has been disconnected for any reason, be sure to reinstall it as shown in Figure 33. The front section of chain (1) must be tight and pass around adjustable idler sprocket as shown at (2) and also around small idler sprocket (3). Chain then goes around front side of pickup cylinder sprocket as shown at (4) and up around drive sprocket (5), where it is connected.

After chain has been connected, tighten adjustable idler sprocket (2) so front section of chain does not drag on chain around main drive sprocket.

## ADJUSTMENT OF TIMKEN BEARINGS

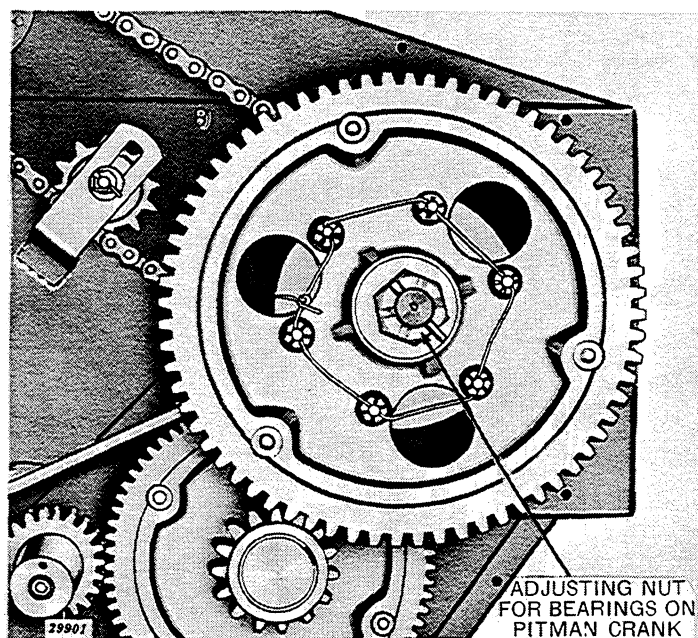


Figure 34

### Crank Bearings.

(Figure 34) Disconnect pitman. Install washer and slotted hex. nut on rear end pitman crank, and tighten nut as tightly as possible. Do not back nut to insert cotter pin. This will provide the proper adjustment on the pitman crank bearings.

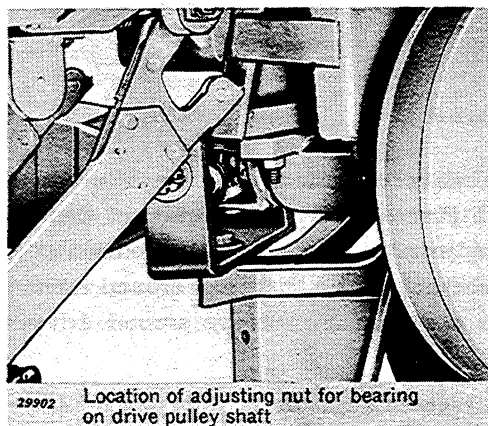


Figure 35

### Drive Pulley Shaft Bearings.

(Figure 35) Tighten nut inside universal joint fork until bearings drag. Back nut up until next nut castellation lines up with hole in shaft. Replace cotter.

### Wheel Bearings.

Tighten nut on stub axle until bearings drag. Back up until next nut castellation lines up with hole in axle. Replace cotter.

## ADJUSTMENT OF NEEDLES IN BOTTOM NEEDLE GUIDE

The needle guide located in the bottom of baler has a fixed position which requires the needles to be adjusted accordingly.

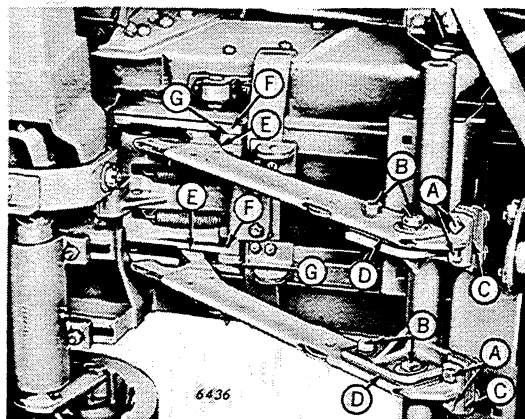


Figure 36

1. Loosen bolts at "B," Figure 36.
2. Loosen bolts at "A," and remove shims "C".

*NOTE: Be sure to replace shims in the same location after needles have been adjusted.*

3. Add or remove shims "D" between needle and side frame so that side of upper end of needle lays parallel to and against the needle guide shown at "E", Figure 36. *NOTE: There should be no binding of the needles in the guide.*

4. Replace shims, tighten bolts "A" first, tighten other bolts.

*NOTE: For adjusting needles to right or left, see Page 36.*

5. If it is necessary to change the width of the needle slot openings in the needle guide, first remove the needles and needle frame. Then remove entire needle guide assembly. Take out cap screws at "F" and add or remove shims "G" until clearance between needle and needle guide on the outside is not more than 1/64-inch. Replace cap screws and then re-install entire assembly in bottom of baler. Replace needles on needle frame and adjust as described above.

*NOTE: It is important that needles are adjusted to operate freely in needle guide openings and the needles should rise vertically without being deflected by the needle guide when being raised into bale case.*

(Needle frame can be shifted slightly to the front or rear by washer adjustment at needle frame pivot bearing on the bale case, Figure 38.)

## CENTERING THE NEEDLES

The right-hand needle pulleys on top of both needles should be set at a distance of not less than 1/8-inch from the cut-off and kinker shaft, "A," Figure 37. The pulleys in the needles should also be lined up with the wire slots in the twister box. The needle head can be twisted slightly to the front or rear by using half-shims between the needles and the needle frames at "A," Figure 38. Check needle adjustment and bottom needle guide, page 35, after making this adjustment.

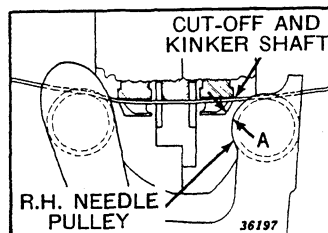


Figure 37

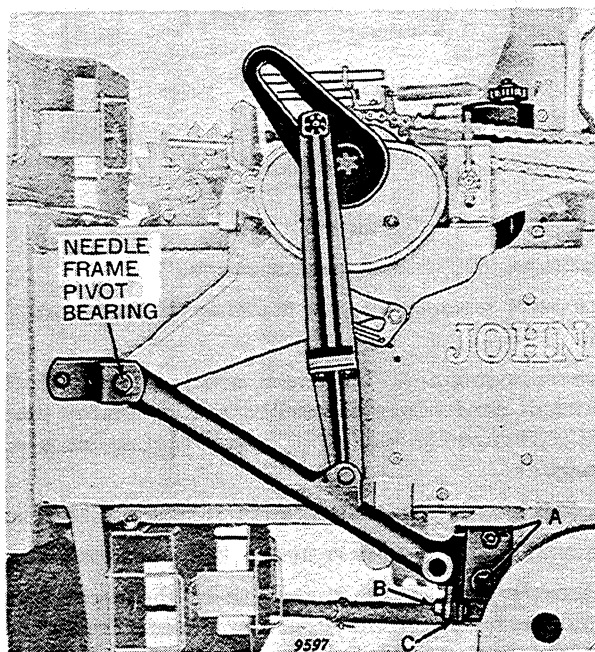


Figure 38

1. Loosen the nuts on bolts "A" at lower end of needles, Figure 38.
2. Loosen the nuts on bolts "B" at lower end of needles.
3. Add or remove shims at "C" to move needles to right or left to obtain 1/8-inch distance between needle rollers at top of needles and cutoff and kinker shafts, Figure 37. In some cases it may be necessary to vary this adjustment in order to get good knots on both the right- and left-hand sides of the twister box.
4. Tighten nuts at "B" first, then "A."

## HEIGHT OF NEEDLES

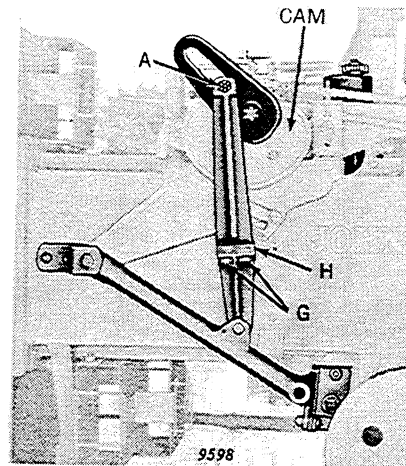


Figure 39

The height to which the needles are raised is limited by the location of the twister box. As the location of the twister box is fixed in one position it is necessary to adjust the lift links to raise the needles to the proper height.

1. Turn flywheel by hand and raise needles until cam rollers "A", Figure 39, are on top of highest position on cam.

2. Check height of needle pulleys "B." Needles are at the correct height when a straight piece of wire "C", Figure 40, becomes slightly bowed when inserted over the top of pulleys and through kinker and cut-off shafts "D", "E", and twister gear "F".

3. To change adjustment remove cotter pins and bolts "G", Figure 39, and add or remove shims "H", Figure 39. Remove the same number of shims on each needle lift link so that an equal amount of weight is distributed on each.

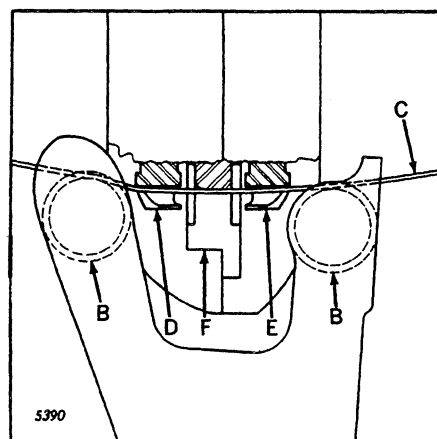
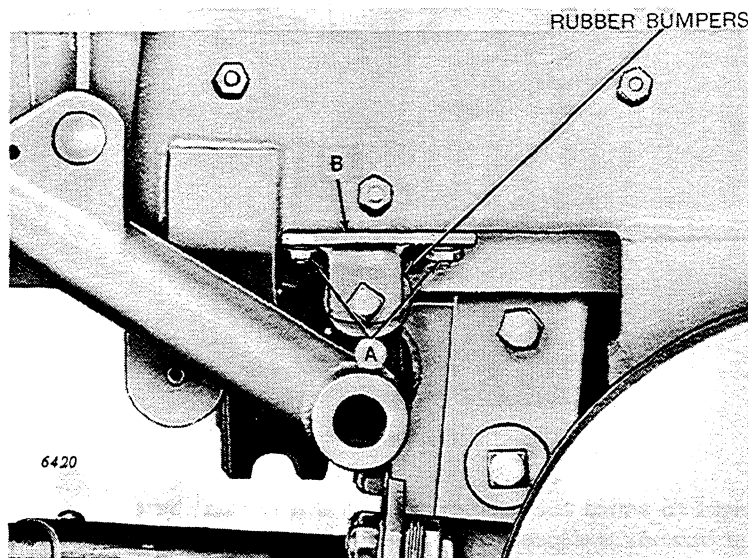


Figure 40

4. Replace bolts, nuts and cotter pins. Make sure nuts are tight.

## ADJUSTING RUBBER BUMPERS



*Figure 41*

The rubber bumpers are used to absorb the shock of raising the needles and to prevent overthrow which would allow the needles to raise higher than necessary. It is important that the rubber bumpers are adjusted properly after a definite height of the needle has been set, as the inertia of the needle frame assembly, when operating at full speed, may change the height of the needle adjustment made when machine was not operating.

1. Turn flywheel by hand and raise needles until cam rollers "A", Figure 39, are on top of highest position on cam.
2. Loosen nuts "A", Figure 41, and add or remove shims "B" to set rubber bumpers at proper height so the needle frame compresses rubber at least 1/8-inch.
3. Tighten nuts.

## ADJUSTMENT OF TWISTER PINION SLOTS

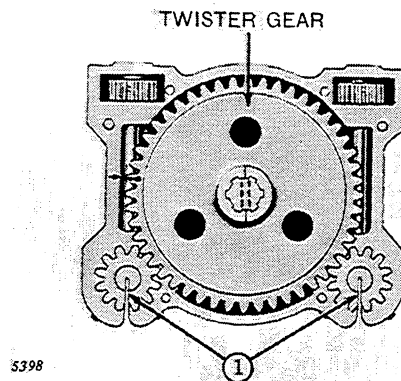


Figure 42

1. The slot in twister pinions must be in a vertical position at the start of the tying cycle as shown at (1), Figure 42. If slots are not in a vertical position, loosen the cap screws (2), Figure 43, in the side of twister gear adjusting plate and turn down one or the other cap screw (3), on top of twister gear adjusting plate. This adjustment rotates the twister gear slightly which turns the twister pinions to right or left. When twister pinion slots are vertical, tighten the lock nut on both cap screws on top of adjusting plate and tighten cap screws in side of adjusting plate.

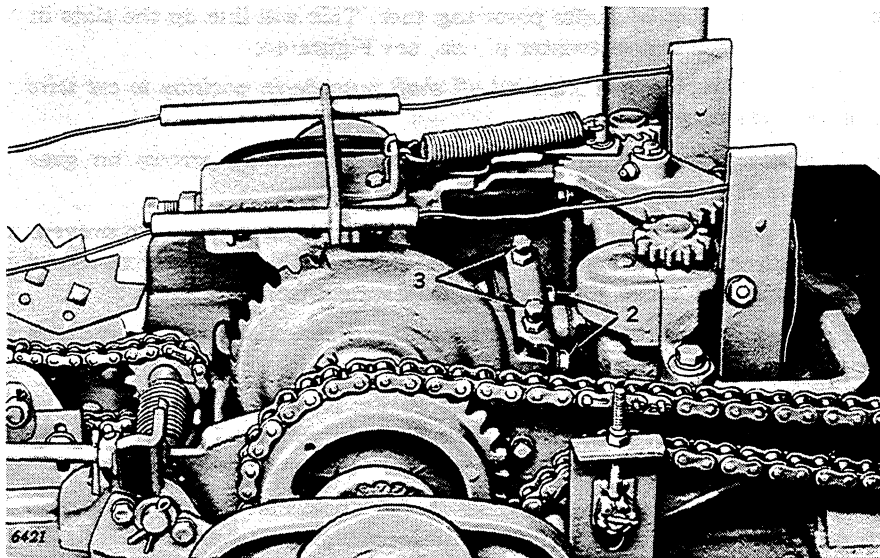


Figure 43

## TIMING CUT-OFF SHAFTS WITH GEAR SEGMENT

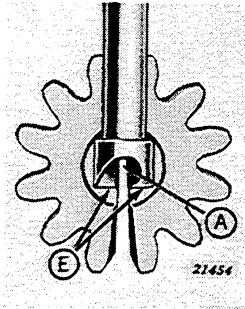


Figure 44

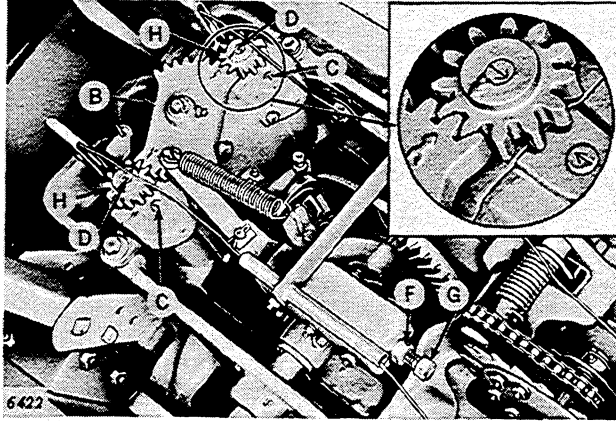


Figure 45

1. Remove cut-off shaft driving gear segment "B", Figure 45, from its shaft.
2. Turn both the kinker shaft "C" and cut-off and kinker shafts "D" so the arrows on ends of shafts point together. This will line up the slots in the shafts with the slot in twister pinion, see Figure 44.

*NOTE: The knife edge on the cut-off shaft must be in position to cut wire soon after it starts turning.*

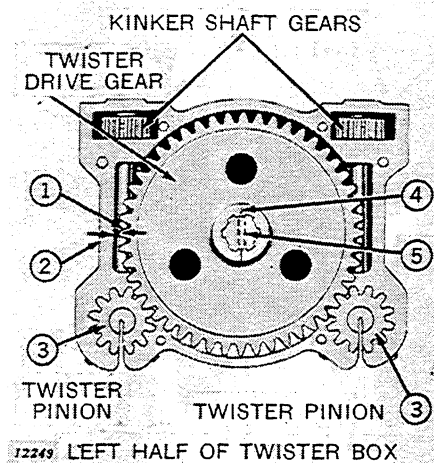
3. Replace gear segment "B", Figure 45, so timing arrows on gear segment and cut-off shaft pinions "H" point together.

For close adjustment of the cut-off and kinker shafts, in order to prevent wire from catching on points of these shafts, it may be necessary to retard their position even though the preceding adjustment has been made.

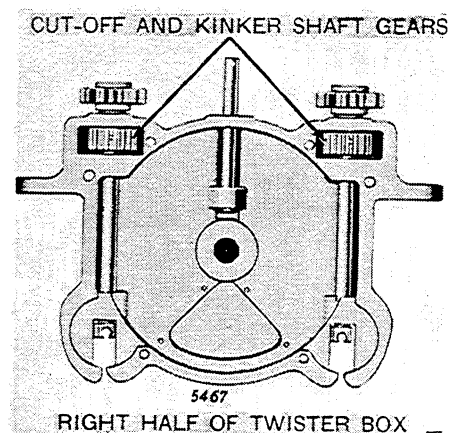
The slots in cut-off and kinker shafts must line up with slot in twister pinions so wire may enter, see "A", Figure 44.

1. Check the sharp points "E", Figure 44, on the ends of the cut-off and kinker shafts and make sure the shafts are rotated back far enough so wire will not fracture causing wire to break behind the knot.
2. To change position of points "E", loosen lock nut "F", Figure 45, and turn set screw "G" in or out. This will force the gear segment "B" to turn the cut-off shaft pinions "H", Figure 45, which will retard or advance the cut-off and kinker shafts.

## TIMING TWISTER DRIVE GEAR AND TWISTER PINIONS



**Figure 46**



**Figure 47**

Make sure twister drive gear is properly installed on splined shaft. Marks on gear hub (4) should line up with drilled hole (5) in splined shaft (Figure 46).

Line up timing arrow (1), Figure 46, on twister drive gear with timing mark (2) on left of twister box.

Place twister pinions in position as shown at (3), with slot in the pinions in vertical position.

If slots in twister pinions do not line up exactly with slots in twister box, rotate the twister gear slightly as described on Page 39.

**NOTE:** When assembling the two halves of the twister box be sure the arrows on the end of the kinker shafts and cutoff and kinker shafts are pointing towards each other.

## ADJUSTMENT OF INTERMITTENT BEVEL GEAR

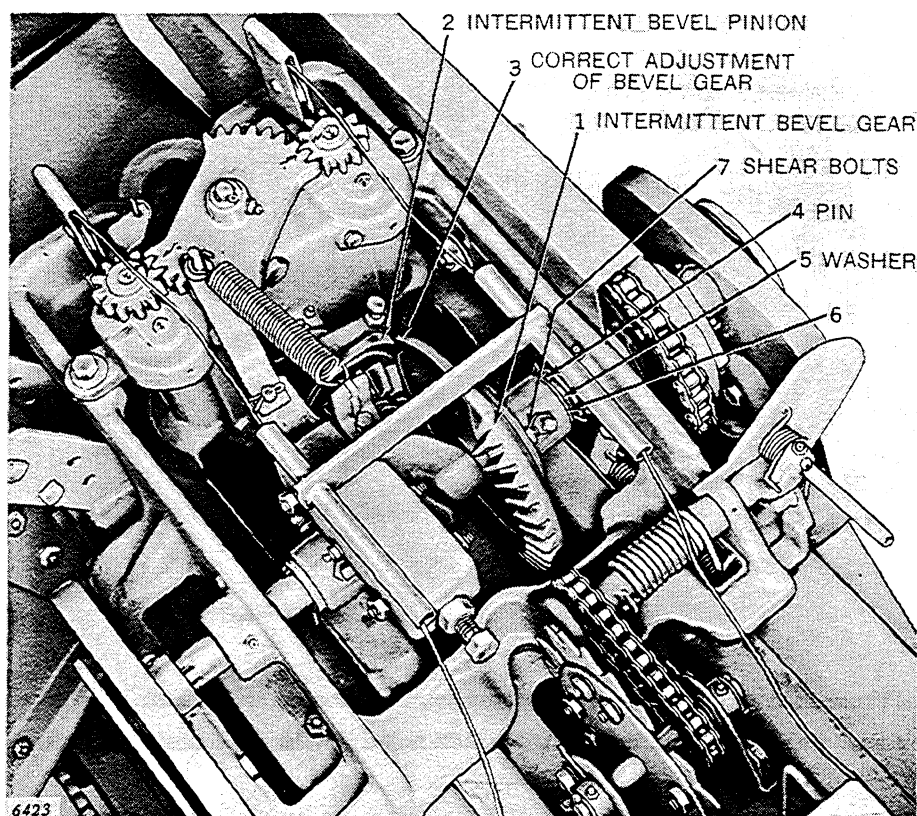


Figure 48

Close adjustment must be maintained between the intermittent bevel gear (1), Figure 48, and the intermittent bevel pinion (2). This is necessary in order to have the twister pinion slots, Figure 42, stop in a vertical position so the wire may enter.

The correct adjustment is shown at (3), Figure 48. The flat surfaces of the gear and pinion are in contact. If they are not in contact, remove pin (4) in needle lift shaft, move one or more of the washers (5) over against bevel gear hub at (6) and replace pin (4).

The intermittent bevel gear (1) is attached to its hub by three shear bolts, one of which is shown at (7). An overload on the gears will cause these bolts to shear. When three new bolts are installed, the bevel gear will always be in its correct position on the shaft because the bolt holes in the gear and the hub are unevenly spaced so they line up in their correct relation only.

## TIMING UPPER FEEDER WITH PLUNGERHEAD

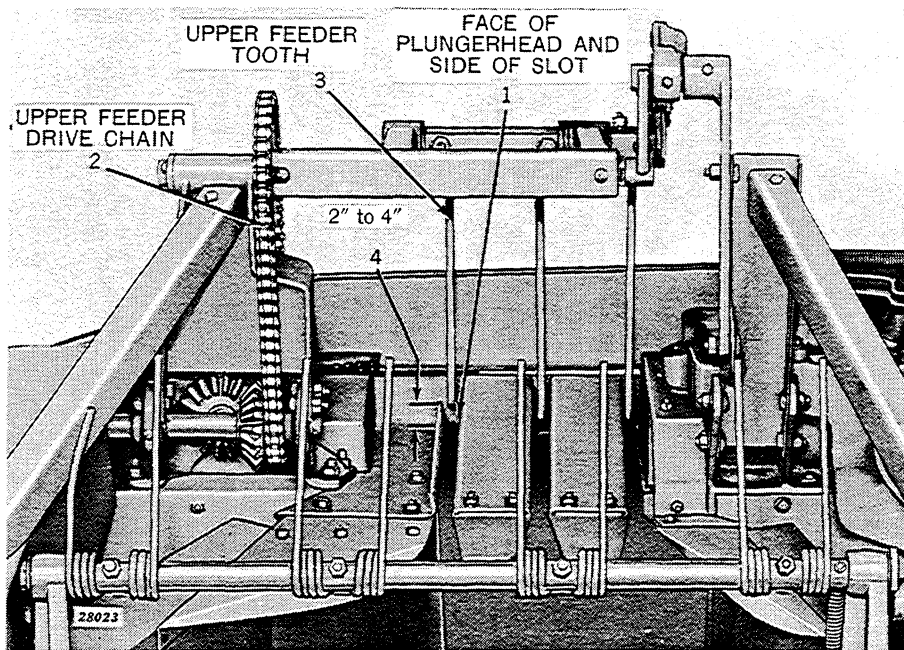
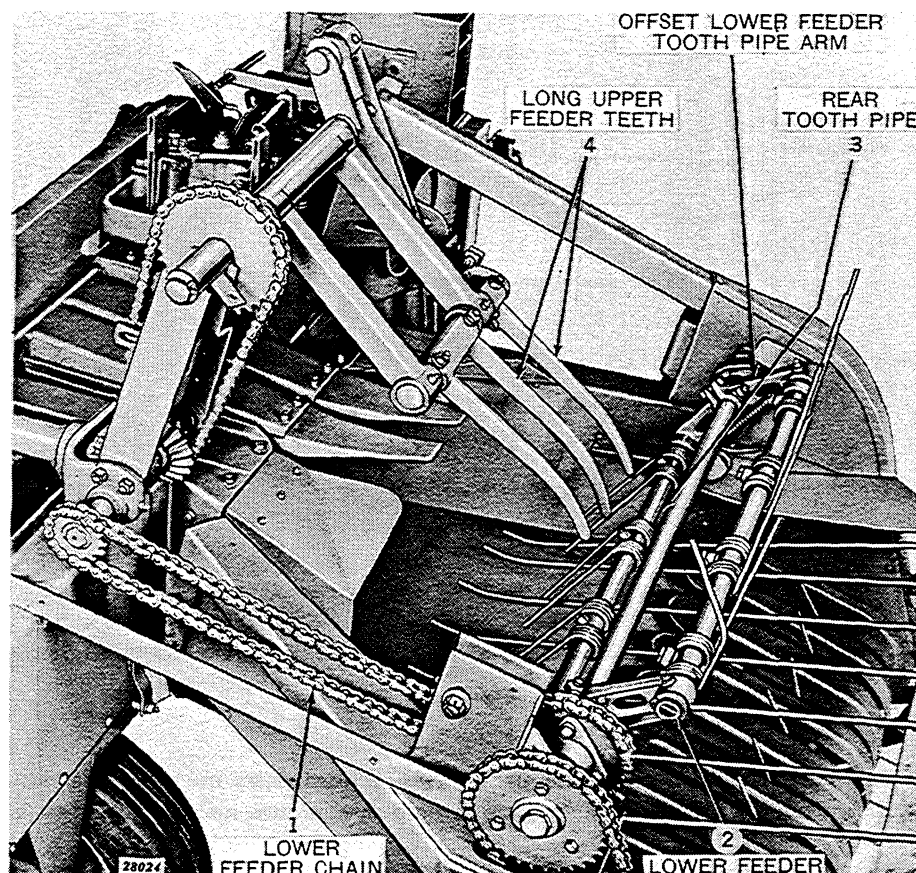


Figure 49

1. Turn flywheel clockwise until face of plungerhead on compression stroke is even with side of slot in top of bale case as shown at (1), Figure 49.
2. Disconnect upper feeder drive chain (2).
3. Place upper feeder tooth (3) between 2 and 4 inches above top of baling chamber as shown by dimension at (4). Connect upper feeder chain (2). Be sure ends of teeth maintain this position when chain is tightened by the idler sprocket.

*NOTE: This adjustment is very important because it assures teeth stripping out of bale case before plungerhead can strike them and allows the correct time interval for hay to enter compression chamber.*

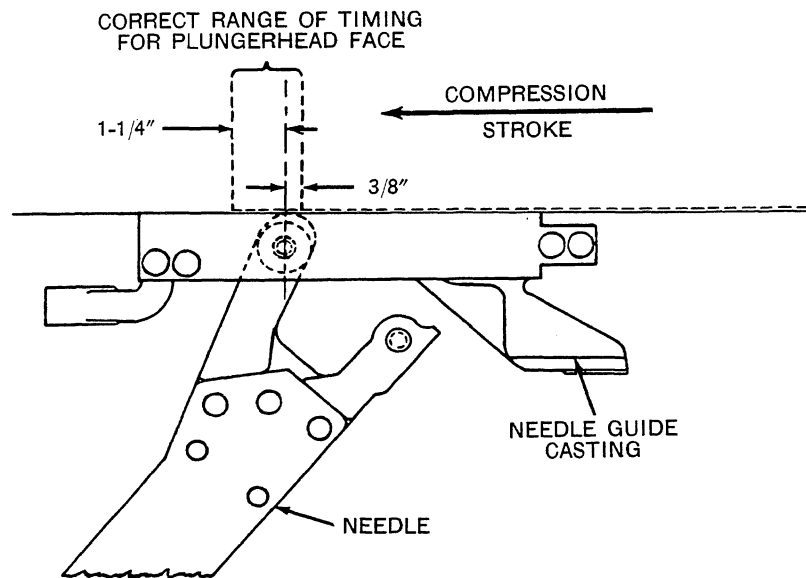
## TIMING LOWER FEEDER WITH UPPER FEEDER



*Figure 50*

1. Disconnect lower feeder chain (1), Figure 50.
2. Turn lower feeder to approximate position shown at (2) with rear tooth pipe (3) below level of center tooth pipe.
3. Turn flywheel until long upper feeder teeth are in position shown at (4) so they clear lower feeder tooth pipe by 1 inch. **CAUTION: The lower feeder tooth pipe arms are offset to obtain proper clearance. It is possible to get the upper and lower feeders 180 degrees out of time. Be sure the offset arms are in the position shown in Figure 50. This is the clearance wanted when the upper feeder teeth and the lower feeder tooth pipe pass each other as they revolve.**
4. Connect chain with all slack out of the bottom or driving side of the chain as shown at (1). Tighten idler.

## TIMING NEEDLES AND PLUNGERHEAD



36198

Figure 51

### CORRECT TIMING

When the needles have raised to the position where the uppermost point of the needle pulleys are flush with the top of the needle guide casting, the plungerhead face (traveling on a compression stroke) should be within 3/8-inch to the right—to 1-1/4 inches to the left of the vertical center line of the left needle pulleys. (See Figure 51.)

### HOW TO INSTALL THE NEEDLE LIFT SHAFT DRIVE CHAIN

If the needle lift shaft drive chain is off, place the needles in extreme down position; rotate flywheel until face of plungerhead is in line with right-hand side of twister box. (Be sure plungerhead is on compression stroke.) Raise the trip plate lever to release the trip dog so the clutch dog roller contacts the drive shoulder of the clutch casting. (See Figure 52.) Install drive chain. (This is just a starting point. Check timing as described on page 46.)

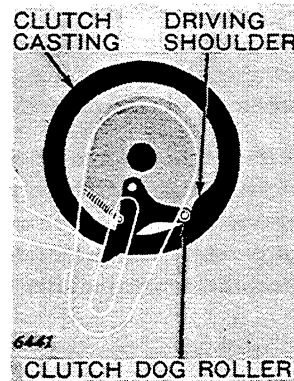


Figure 52

## TO CHECK TIMING

With the drive chain installed, rotate flywheel clockwise until the needles start to rise and the needle points are flush with the top of the needle guide casting in the bottom of the bale case.

If the face of the plungerhead is more than 3/8-inch to the right, or behind the center of the left needle pulleys when the needles are flush with the top of the needle guide casting, the needles are timed too fast. If the face of the plungerhead is more than 1-1/4 inches to the left, or ahead of the center of the left needle pulleys when the needles are flush with the top of the needle guide casting, the needles are timed too slow.

(Check this by looking through the slots in top of case at left of twister box. If timing is not correct, proceed as described below.)

## TIMING

Place the needles in extreme down position. Remove the needle lift shaft chain guard. Remove the cotter pins in the idler shaft and loosen nuts. Loosen idler lock nut on support bracket. Push idler shaft and sprocket to the bottom of the slots. This will loosen the chain.

If the needles are timed too fast and the face of the plungerhead is not advancing to within 3/8-inch of the center of the left needle pulleys when the needles are flush with the top of the needle guide casting, work the top of the roller chain to the left around the right-hand drive sprocket one tooth in a counter-clockwise direction. This will cause the driving shoulder on the clutch casting to rotate farther away from the trip dog roller; thus, the needles will rise later.

If the needles are timed too slow and the face of the plungerhead advances more than 1-1/4 inches beyond the center of the left needle pulleys when the needles are flush with the top of the needle guide casting, work the top of the roller chain to the right, around the right-hand drive sprocket, one tooth in a clockwise direction. This will cause the driving shoulder on the clutch casting to rotate nearer to the trip dog roller; thus, the needles will rise sooner.

Raise the idler and tighten idler shaft nut until all visible slack is out of drive chain. Check to be sure the idler shaft is level and that the idler sprocket is running true with the chain, otherwise, undue wear and damage may result. After idler is in proper position, replace idler shaft cotter pins and reset the idler lock nut tight on the rear bracket.

## ADJUSTMENT OF DRIVE BELT TENSION

To take up belt tension, loosen the four drive pulley bearing support bolts (Figure 53). Loosen locking nut and adjusting nut and tighten adjusting screw. Align pulley by tightening or loosening adjusting nut on front drive adjusting bracket.

A 100-pound downward pull on the belt, halfway between the pulleys, should deflect the belt one inch.

Tighten the four drive pulley bearing support bolts. Tighten locking nut. Tighten adjusting nut.

*NOTE: After adjusting the belt tension on an engine-mounted baler, align the driven sprocket bearing support with the drive sprocket bearing support. If these are out of line, it will cause excessive wear of the universal joint.*

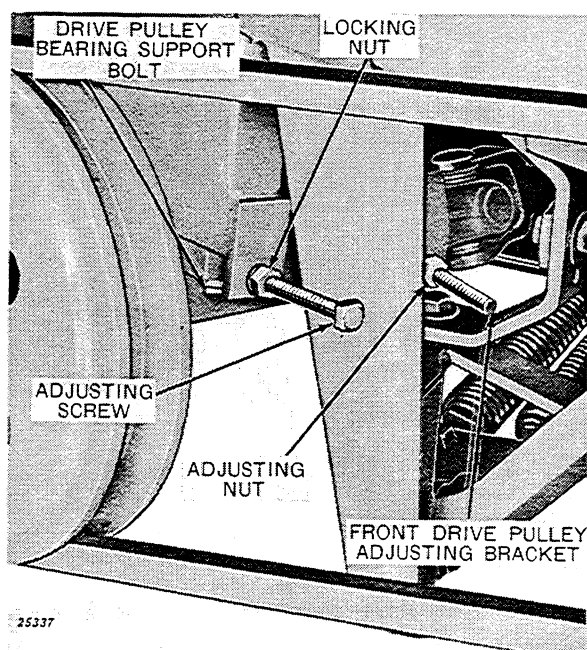


Figure 53

## ATTACHMENTS

### POWR-TROL REMOTE CYLINDER ATTACHMENT

FOR POWER TAKE-OFF BALERS

Bundle No. 2921E

FOR ENGINE-MOUNTED BALERS

Bundle No. 2920E

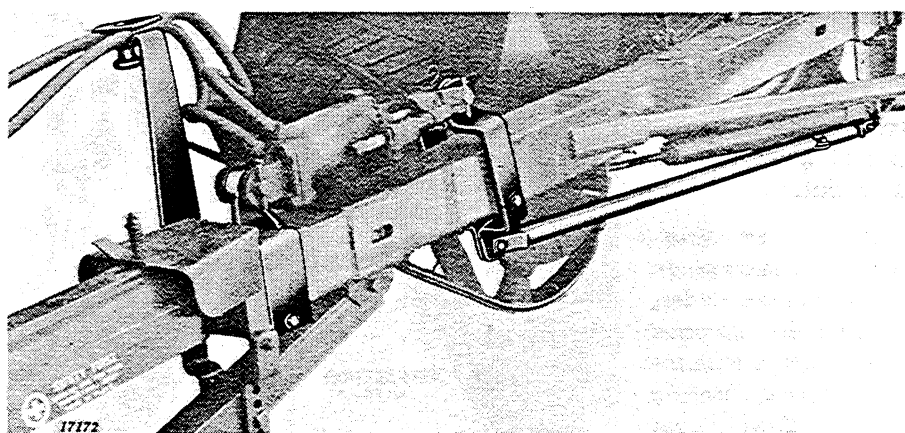


Figure 54

Remove lift lever, connecting arms, and lever rack, and attach hydraulic cylinder support and lift levers to tongue as shown in Figure 54. Adjust lift spring as described on Page 21. See instructions with Tractor Powr-Trol remote cylinder for adjusting so the pickup drops to the correct running position when lift control lever is pulled back.

### BALE COUNTER ATTACHMENT

Non-Reset Type—Bundle No. 2894E

Reset Type—Bundle No. 2953E

Attach parts to the front needle lift arm frame bracket as shown.

*NOTE: Keep covered to protect counter from weather. The reset type counter is weatherproof and does not require a cover.*

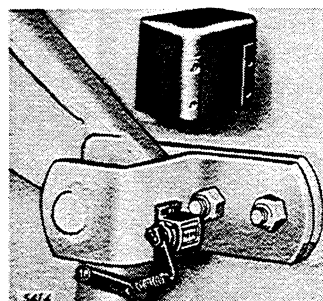


Figure 55

## WAGON HITCH AND BALE CHUTE Bundle No. 2952E

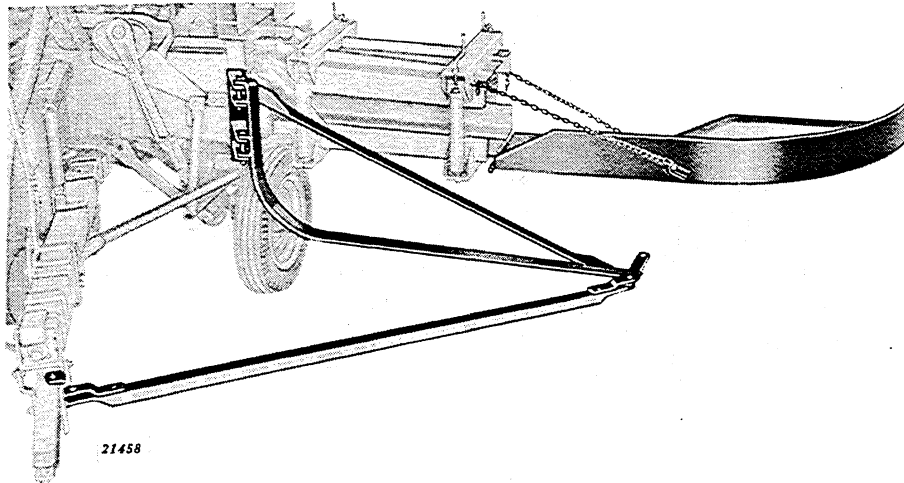


Figure 56

This attachment provides a means of hitching a wagon in conjunction with the baler, making it possible to load bales directly from the bale chute onto the front end of a wagon or trailer.

This chute attaches in the same manner as the regular chute. The hitch is bolted to the adjusting hitch tube in front and is pinned to the bale case at two points. Complete assembly details are provided with the hitch and chute bundle.

## TWISTER MECHANISM CHAFF CLEANER (For Wisconsin Engine Mounted Balers) Bundle No. 2944E

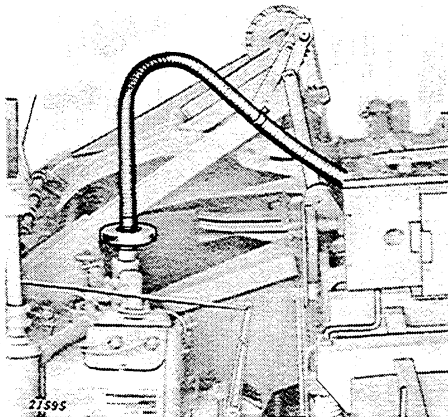


Figure 57

The chaff cleaner may be used under unusually dusty conditions to prevent the accumulation of chaff and dirt around the twister mechanism. Attach to engine exhaust manifold and upper feeder support as shown in Figure 57. Adjust flexible tube as necessary to keep twister mechanism clean for more efficient operation.

### WISCONSIN ENGINE ATTACHMENT BUNDLE No. 2963E

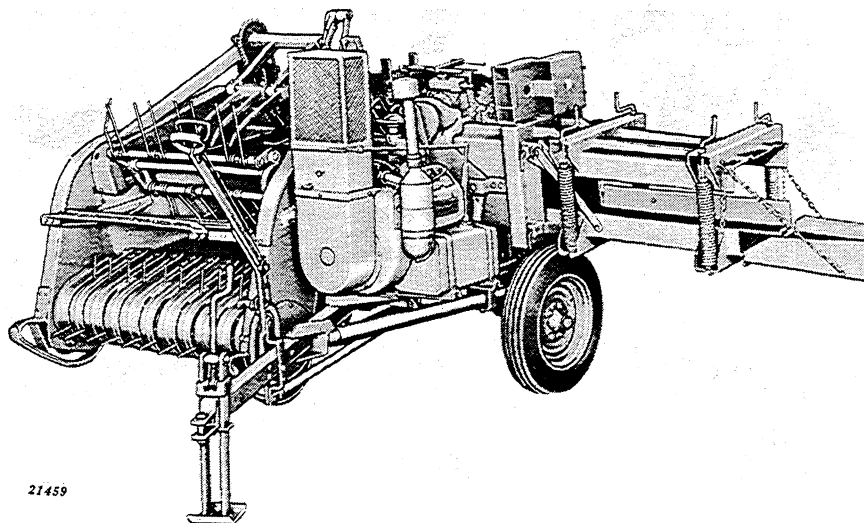


Figure 58

### JOHN DEERE EA-92 ENGINE ATTACHMENT BUNDLE No. 2966E

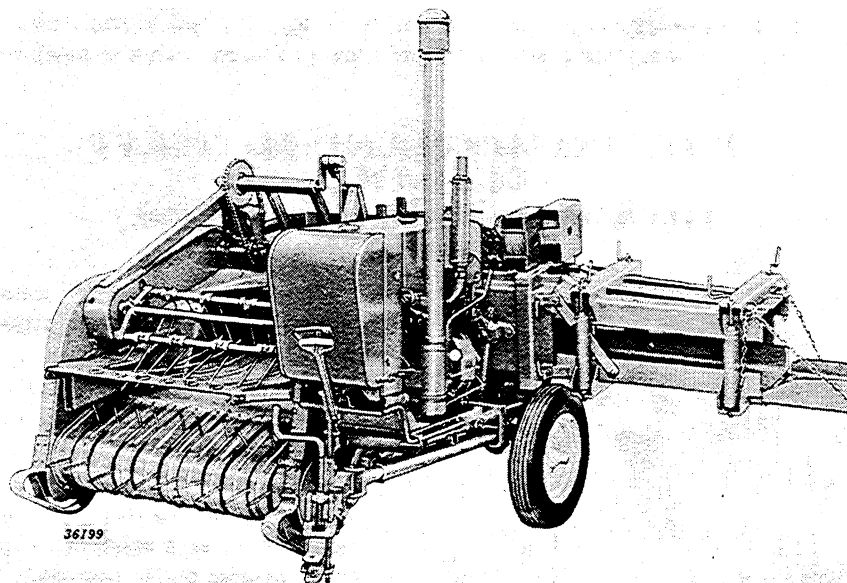


Figure 59

The above attachments are available for converting power take-off balers to engine-mounted balers.

## SAND TIRES AND WHEELS

BUNDLE No. 2969E

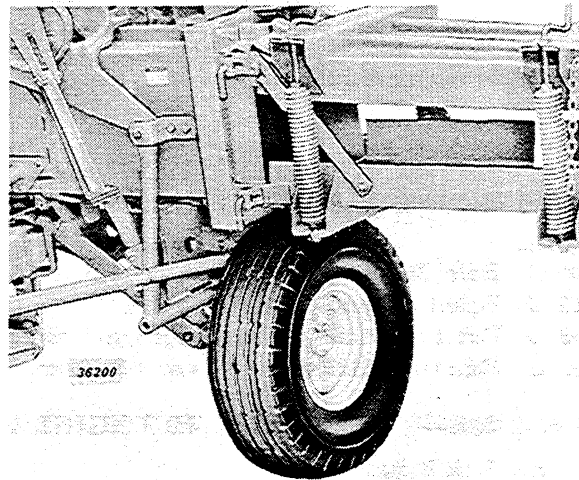


Figure 60

The sand tires offer additional support for balers operating in irrigated or terraced territories, and in sandy, muddy and loose soil conditions.

## HOOK-UP EQUIPMENT

BUNDLE No. 2977E

This attachment is a 1-3/8-inch spline hookup for use when the baler is used as a power take-off machine. See page 13 for Hookup Instructions.



**CAUTION:** Do not operate this machine without proper shielding over power line and universal joint.

## **ASSEMBLY INSTRUCTIONS**

John Deere Balers are set up as illustrated on the following pages. The progressive illustrations show clearly the parts to be assembled in their proper order. Where the instructions or the connecting points are numbered, follow closely the order in which they are numbered. The balers are made up of the following shipping assemblies:

### **No. 114W**

#### **BUNDLE No. 2959E—POWER TAKE-OFF BALER**

| Assembly No. | Description                            |
|--------------|----------------------------------------|
| AM 1896 E    | Bale Chute                             |
| AM 2515 E    | Bale Case and Pickup                   |
| AM 2663 E    | Extension Bale Case Springs and Braces |
| AM 2664 E    | Extension Bale Case Top and Bottom     |

#### **BUNDLE No. 2958E—WISCONSIN VF4D ENGINE BALER**

|           |                                        |
|-----------|----------------------------------------|
| 3621 E    | Jack Stand                             |
| AM 1812 E | Wisconsin VF4D Engine                  |
| AM 1896 E | Bale Chute                             |
| AM 2500 E | Bale Case and Pickup                   |
| AM 2663 E | Extension Bale Case Springs and Braces |
| AM 2664 E | Extension Bale Case Top and Bottom     |

#### **BUNDLE No. 2970E—JOHN DEERE EA-92 ENGINE BALER**

|           |                                           |
|-----------|-------------------------------------------|
| 3621 E    | Jack Stand                                |
| AM 2663 E | Extension Bale Case Springs and Braces    |
| AM 2664 E | Extension Bale Case Top and Bottom        |
| AM 2694 E | John Deere EA-92 Engine with Self-Starter |
| AM 2716 E | Bale Case and Wide Pickup                 |
| AM 1896 E | Bale Chute                                |

### **No. 116W**

#### **BUNDLE No. 2955E—POWER TAKE-OFF BALER**

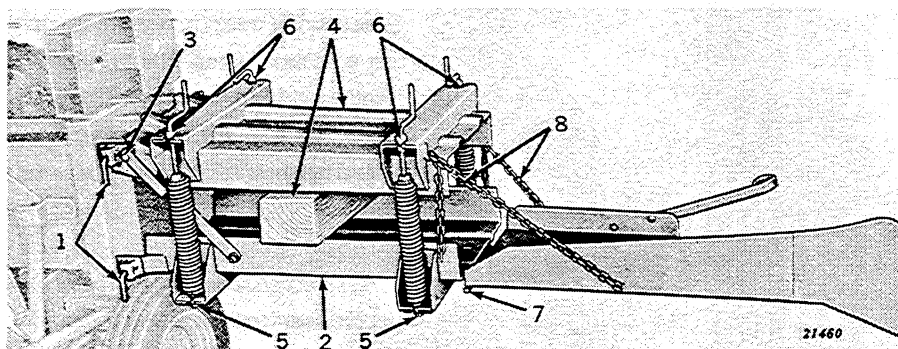
|           |                                        |
|-----------|----------------------------------------|
| AM 1896 E | Bale Chute                             |
| AM 2476 E | Bale Case and Pickup                   |
| AM 2662 E | Extension Bale Case Springs and Braces |
| AM 2664 E | Extension Bale Case Top and Bottom     |

**No. 116W—Continued****BUNDLE No. 2954E—WISCONSIN VF4D ENGINE BALER**

| Assembly No. | Description                            |
|--------------|----------------------------------------|
| 3621 E       | Jack Stand                             |
| AM 1812 E    | Wisconsin VF4D Engine                  |
| AM 1896 E    | Bale Chute                             |
| AM 2491 E    | Bale Case and Pickup                   |
| AM 2662 E    | Extension Bale Case Springs and Braces |
| AM 2664 E    | Extension Bale Case Top and Bottom     |

**BUNDLE No. 2967E—JOHN DEERE EA-92 ENGINE BALER**

|           |                                           |
|-----------|-------------------------------------------|
| 3621 E    | Jack Stand                                |
| AM 1896 E | Bale Chute                                |
| AM 2662 E | Extension Bale Case Springs and Braces    |
| AM 2664 E | Extension Bale Case Top and Bottom        |
| AM 2694 E | John Deere EA-92 Engine with Self-Starter |
| AM 2699 E | Bale Case and Wide Pickup                 |

**EXTENSION BALE CASE AND CHUTE****Power Take-Off or Engine Balers***Figure 61*

1. Pull out four pins, Figure 61, and turn to lock in the "out" position.
2. Place the lower half of the extension in place and release two bottom pins to lock the extension in place.
3. Hook two straps from the lower half of the extension over rivets in top bracket.
4. With a block supporting the upper half of the extension, position it on the bale case and secure by releasing two upper pins.
5. Connect four lower spring bolts to bottom extension and tighten.
6. Place four cranks in top extension and tighten until snug.
7. Connect chute with rod through bottom extension.
8. Connect chains to hooks in top of extension bale case.

## INSTRUCTIONS FOR ENGINE-MOUNTED BALER

### MOUNTING WISCONSIN ENGINE

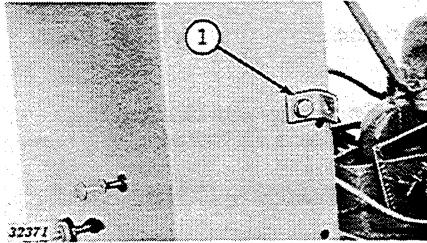


Figure 62

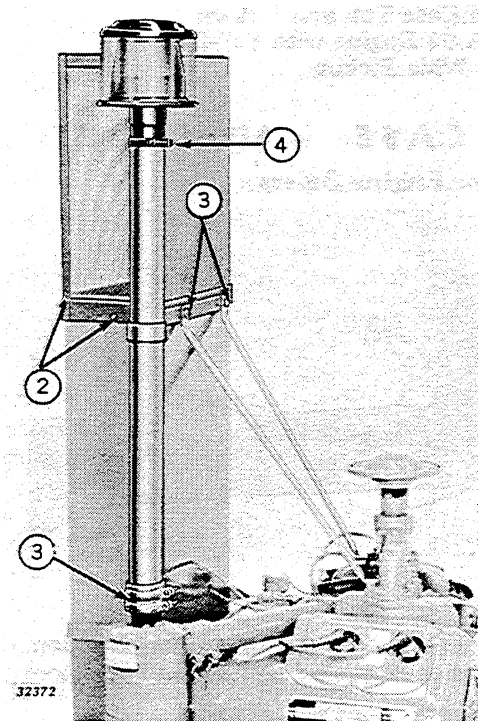


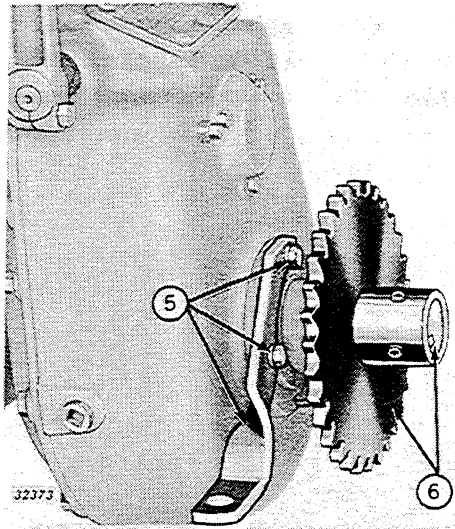
Figure 63

1. (Figure 62) Carefully uncrate engine and bolt clutch rod clip to air stack.

2. (Figure 63) Place the air screen on the air stack with the solid portion toward the rear. Secure this assembly with four truss head machine screws at the front and both sides.

3. (Figure 63) Insert the air filter tube into the top of the air filter and align tube brace with rear screen attaching screws. Install the two truss head machine screws to secure the screen, the tube brace, and the support rods to the air stack.

4. (Figure 63) Place the precleaner on top of the air filter tube and secure with pipe clamp.

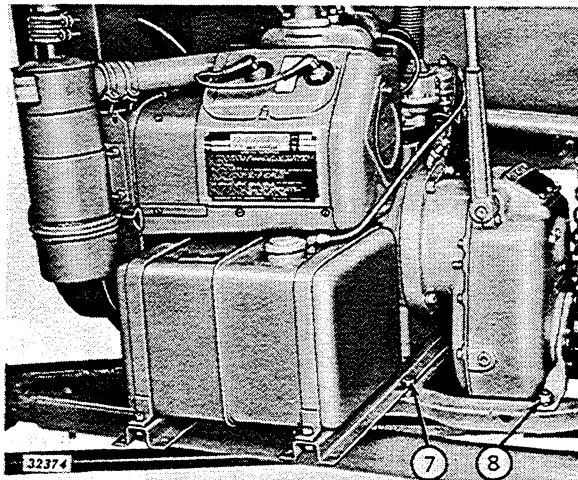
*Figure 64*

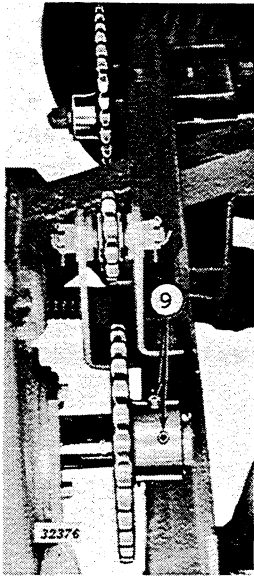
5. (Figure 64) With the the two long cap screws contained in the bag of parts supplied with the engine, secure the motor clamp frame brace to the clutch housing.

6. (Figure 64) Install the engine drive sprocket and key on the gear reduction shaft. Do not tighten set screws until sprockets are aligned.

7. (Figure 65) Mount the engine to the engine frame. Align the eight attaching holes and secure with the bolts provided.

8. (Figure 65) Bolt the motor clamp frame brace to the engine mounting.

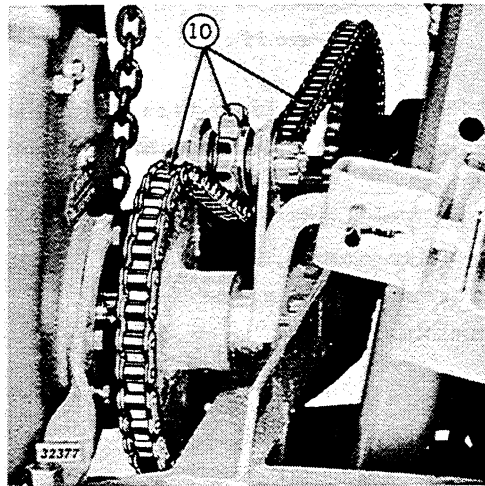
*Figure 65*



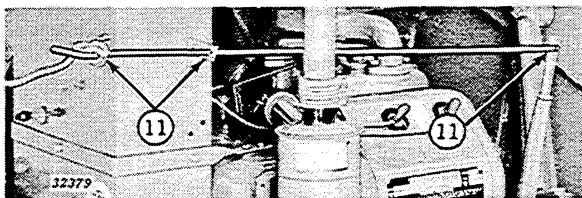
*Figure 66*

10. (Figure 67) Loosen the idler sprocket and install the drive chain by looping it around the drive and driven sprocket.

Align the idler sprocket and retighten its adjustment.



*Figure 67*



*Figure 68*

11. (Figure 68) Insert the clutch rod through the clutch rod clip and secure to the clutch shifter lever. Attach the clutch rod rope to the rod.

## MOUNTING JOHN DEERE EA-92 ENGINE.

1. (Figure 69) Remove crate and wrappings from engine with care.
2. (Figure 69) Attach intake pipe to air cleaner and secure to engine with two screws.

3. (Figure 69) Attach pre-screener and hood to intake pipe.

4. (Figure 69) Attach muffler.

5. (Figure 69) Remove sprocket and set screws from box of parts and attach to the reduction shaft. Do not tighten set screws.

6. (Figure 69) Place battery in battery box and connect cables. Secure with cover.

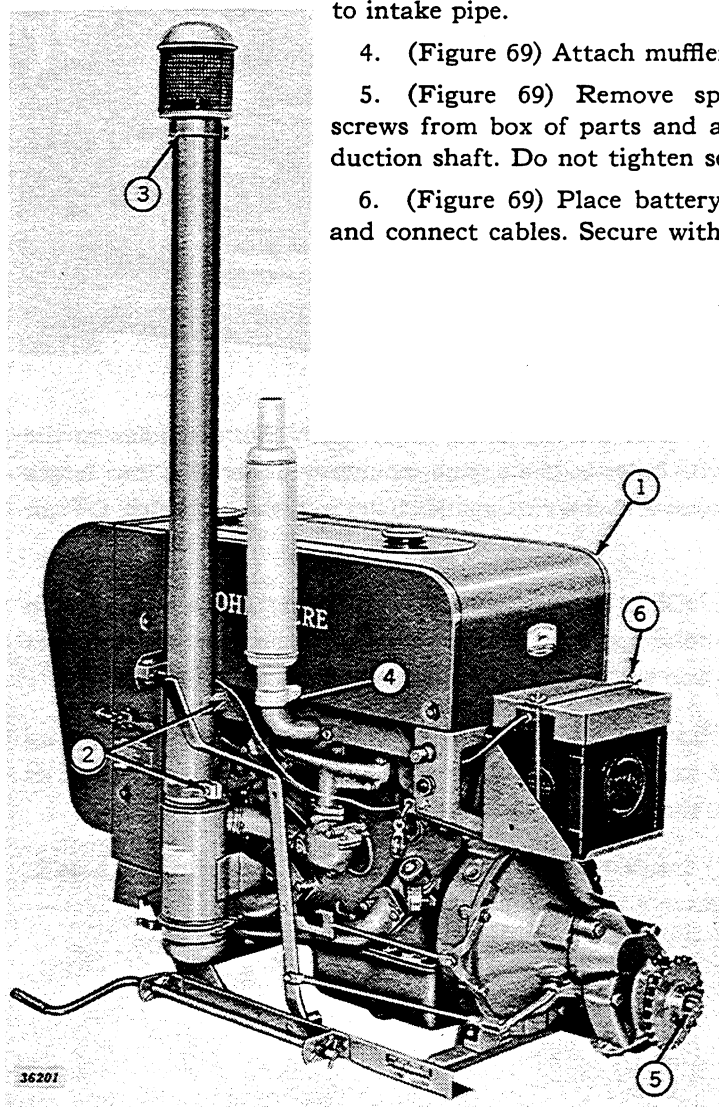
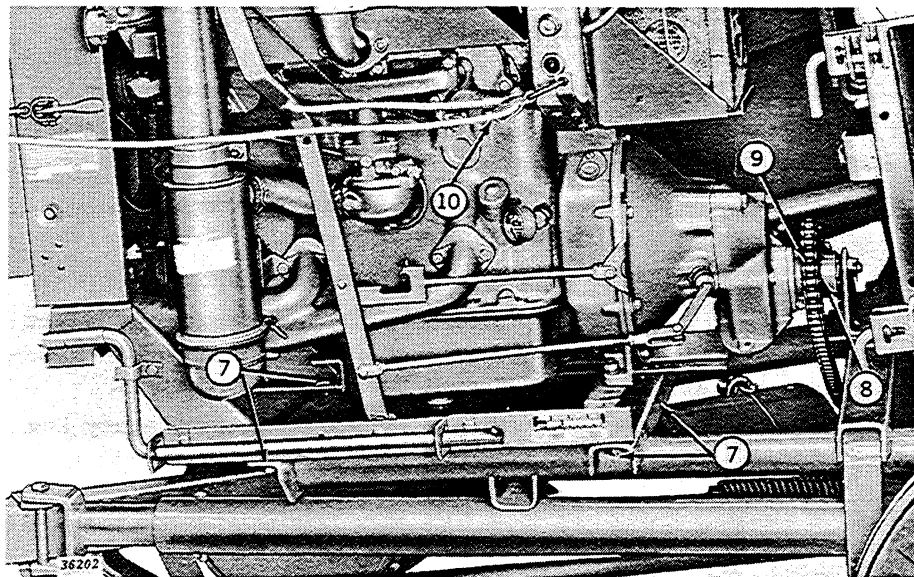


Figure 69



*Figure 70*

7. (Figure 70) Mount the engine on the frame. Align the holes on the engine channels with holes in the engine mounting. Insert the two larger bolts in the rear holes and the two smaller bolts in the front holes. Do not tighten.

8. (Figure 70) Align the engine drive sprocket, the engine driven sprocket, and the idler sprocket. When aligned, secure the drive sprocket to the shaft with two set screws. Tighten the four bolts in step No. 7.

9. (Figure 70) Loosen the idler sprocket and install the drive chain by looping it around the drive and driven sprockets, and under the idler sprocket. Tighten the idler sprocket against the chain.

10. (Figure 70) Insert the clutch throw-out lever rope through hole in clutch throw-out lever and loop around pulley.

# MEMORANDA

This image shows a single sheet 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.

# MEMORANDA

This image shows a single page of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page, leaving small margins at the top and bottom. There is no handwriting or printed text on the page.

# MEMORANDA

This image shows a single sheet of white paper with horizontal blue or grey 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.

# MEMORANDA

This image shows a single page of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page, leaving small margins at the top and bottom. There is no handwriting or printed text on the page.

# MEMORANDA

This image shows a single sheet 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.

# MEMORANDA

This image shows a single page of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page, typical of notebook paper. There is no handwriting or other markings on the page.



# 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.



