

214 SERIES BALERS



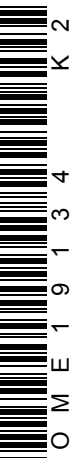
JOHN DEERE

OPERATORS MANUAL 214 SERIES BALERS

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introduction

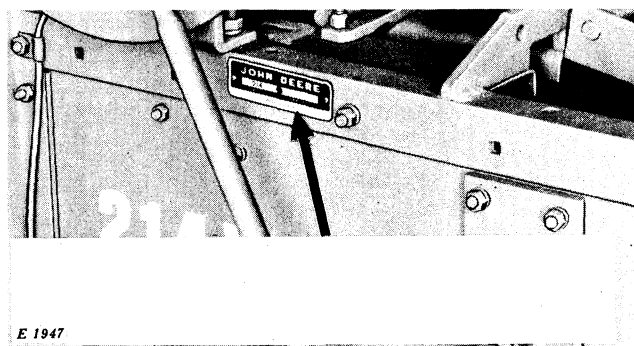
Your new John Deere Baler is a dependable machine. With proper care and operation, you can expect to receive the service and long life designed and built into it. Like any precision machine your baler will require some attention at regular intervals. When any questions arise regarding lubrication and 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.

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

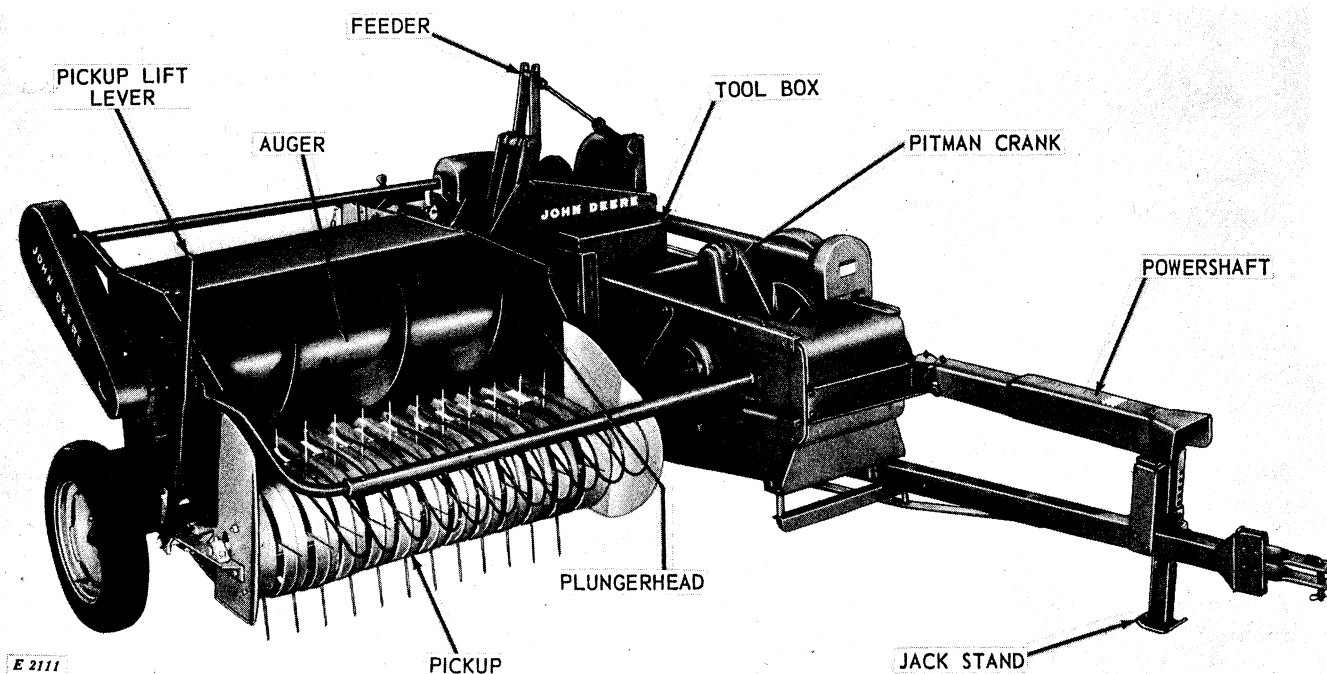
When ordering parts, give your dealer the model and serial number of your baler. This information will help him give you prompt and efficient service.

The serial number of your baler is located on the left-hand side of the bale case below the needle lift disk. (Record it in the space below.)

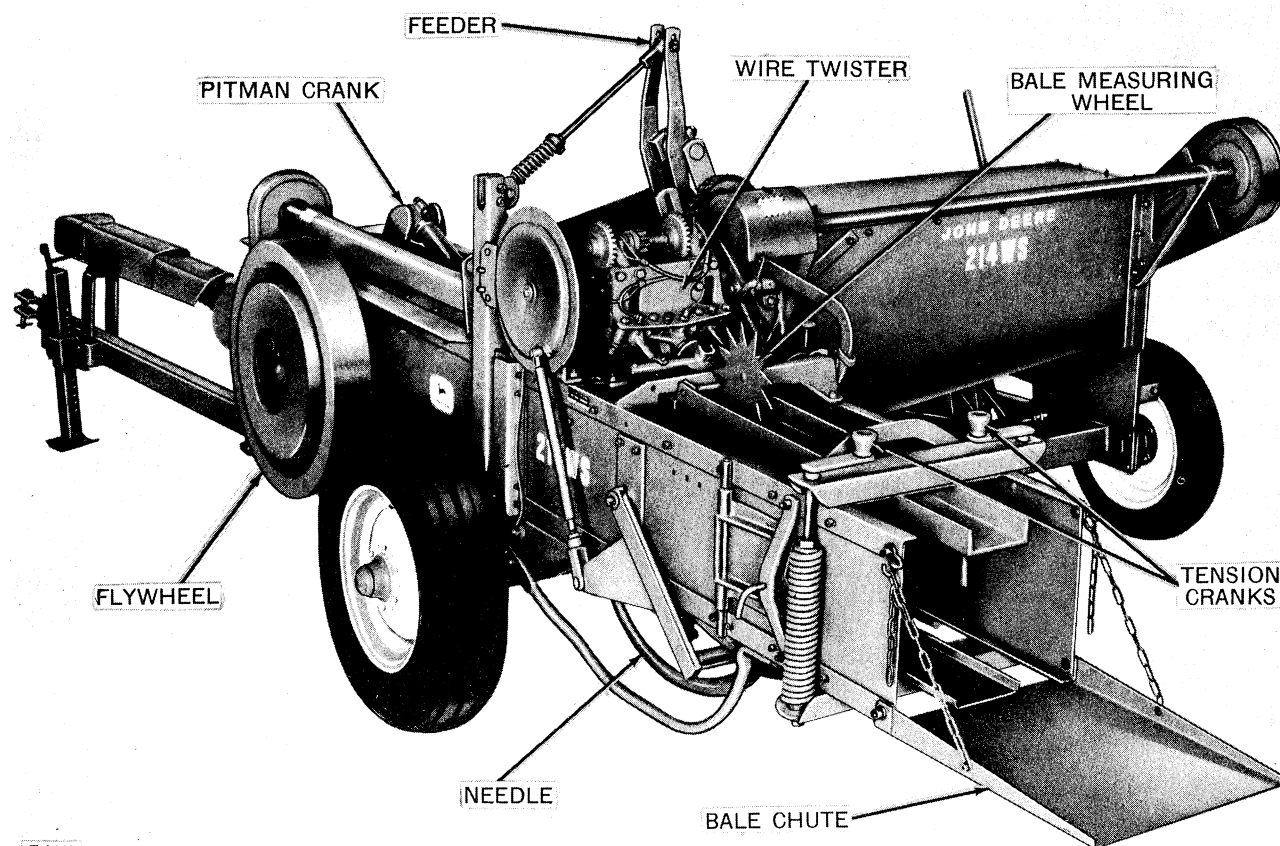


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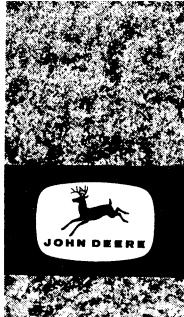
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Right front view—John Deere 214T power take-off baler



Left rear view—John Deere 214WS Power Take-Off Baler

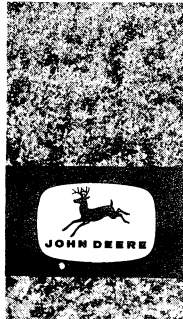


specifications

Auger: Diameter	16 in.
Length	50 in.
Bale: Cross-section	14 in. x 18 in.
Length	Adjustable 12 to 50 in.
Compression chamber length	40 in.
Engine, Wisconsin model VH4D	26.5 horsepower
Feeder opening dimensions	13 in. x 22 in.
Flywheel diameter	27 in.
Height (Maximum)	67 in.
Length: With engine	18 ft. 3 in.
With PTO	17 ft.
Pickup cylinder diameter	12 in.
Pickup height adjusting range	5 in.
Pickup width: Inside	53 in.
On flare	62 in.
Plungerhead: Stroke	28 in.
Speed	Normal (under load) 65 strokes per minute Maximum (no load) 72 strokes per minute
Power take-off shaft speed	ASAE-SAE standard—540 or 1000 rpm
Size of tractor recommended	3-Plow Tractor or larger
Tires: R.H. (27 lbs. pressure)	5.00 x 15—4-ply
L.H. (35 lbs. pressure)	7.50 x 16—6-ply
Transmission: Gears	Steel cut, enclosed
Weight (Approximate): With PTO (214T)	3030 lbs.
(214WS)	3120 lbs.
With engine (214T)	3450 lbs.
(214WS)	3540 lbs.
Width	8 ft. 11-1/2 in.
Wire (214WS)	14-1/2 gauge. Annealed oiled
Wire coil (214WS)	ASAE standard. 6500 ft. of wire
Wire carton size	13-1/2 in. sq., 6-1/2 in. wide

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

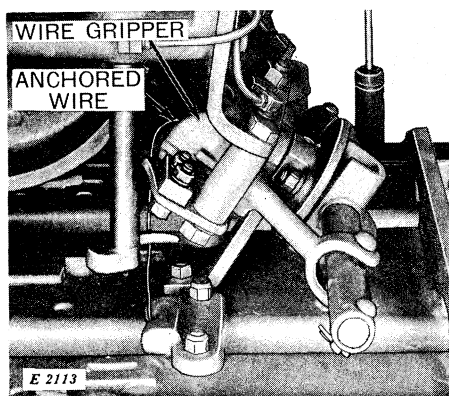
(Specifications and design subject to change without notice.)



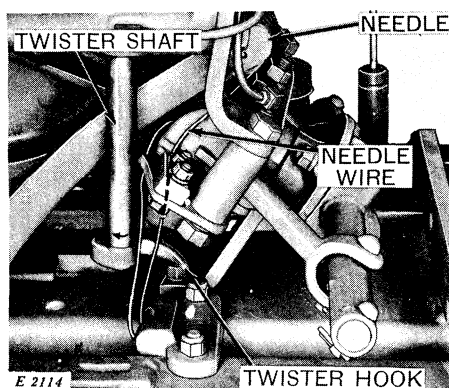
operation

How the wire is joined--wire baler

To get a better understanding of the operation and the importance of the various adjustments dealt with on your baler, an understanding of the tying cycle is important. The following steps illustrate and describe the action at various stages of one complete twist formation.

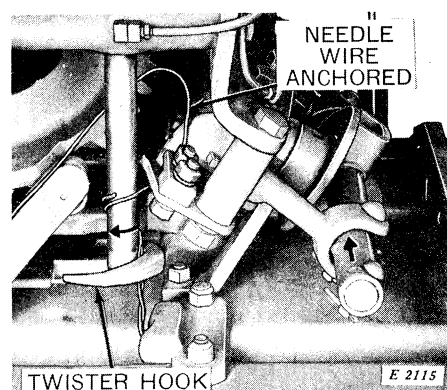


1. After the needle has been threaded, the end of the wire is anchored by the wire gripper. As the bale is formed, the needle wire is pulled from the wire box around the bale.

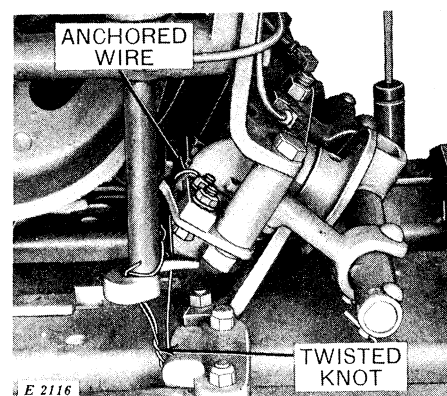


2. When the bale reaches its proper length, the measuring wheel trips the twisting mechanism. As the needle starts up, it catches the wire around the bottom of the bale and carries it up the front of the bale. The intermittent drive gear on the needle lift shaft engages the pinion on the bevel gear drive shaft which turns the pinions on the twister shafts. The needle con-

tinues to raise and locate the wire in the notch in the shear plate on the opposite side of the anchored wire, while the twister hook on the twister shaft is rotating in a clockwise direction. The twister hook completes one revolution and grasps both strands of wire.



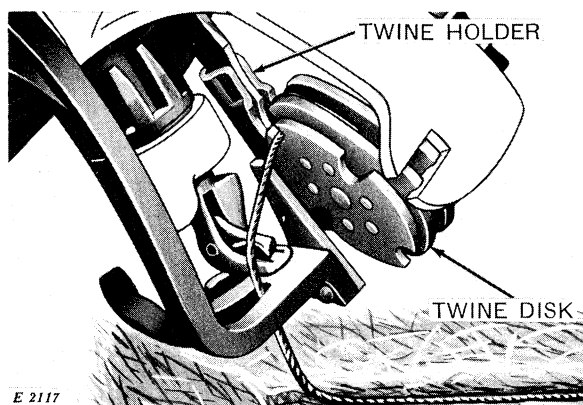
3. At this stage, the wire gripper drive pinion is engaged by the intermittent drive gear. This pinion drives the gripper shaft which actuates the arm of the gripper to release the anchored wire, also shearing and anchoring the needle wire as the gripper moves to the other side. At this time, the needle returns home, the twister hook makes five complete revolutions twisting the wire ends together.



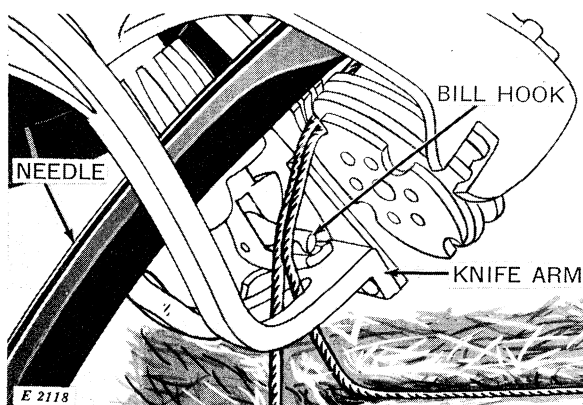
4. The completed bale coming out of the bale case pulls the twisted knot off the twister hook. The next bale pulls the anchored wire into position for the next twisting cycle.

How the knot is tied--twine baler

To get a better understanding of the operation of your baler and the importance of the various adjustments dealt with in this manual, an understanding of the tying cycle of the baler is important. This illustrates and describes the knoter action at various stages of one complete knot formation.

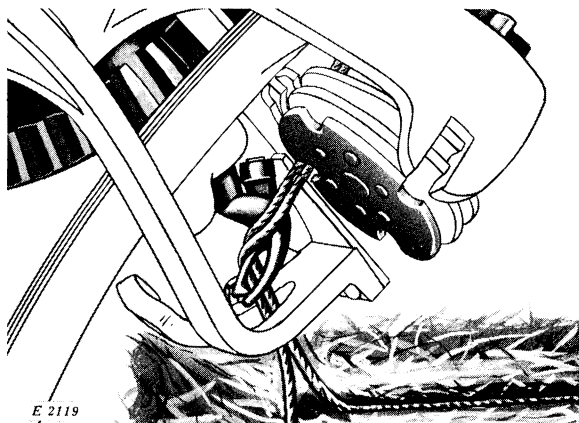


1. After the needle has been threaded, the end of the twine is held in the twine disk by the twine holder (see threading needles, page 7). As the bale is formed, the twine is pulled from the twine box around the bale.

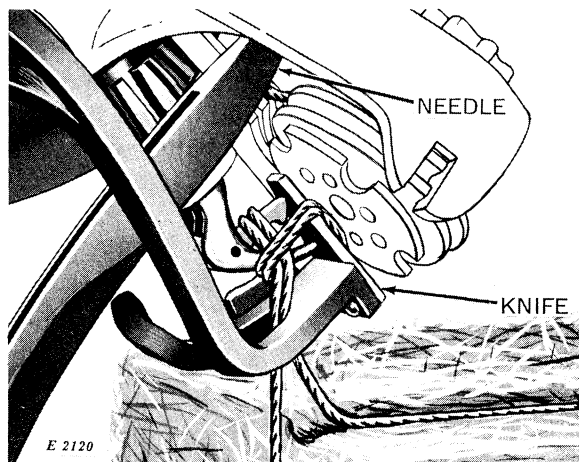


2. When the bale reaches its proper length, the measuring wheel trips the tying mechanism and the needle (with the help of the tucker finger)

brings the second strand of twine through the guide on the knife arm—across the billhook and into the twine disk.

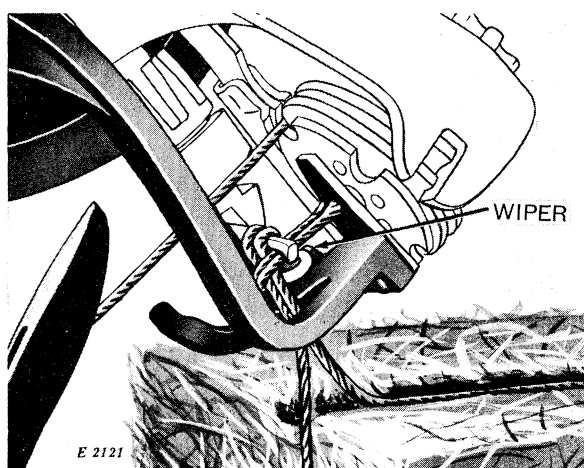


3. When the gear teeth on the intermittent knoter gear have operated the disk driving pinion and turned the disk sufficiently to permit the twine holder to secure both strands of twine in the disk, the billhook starts its revolution.

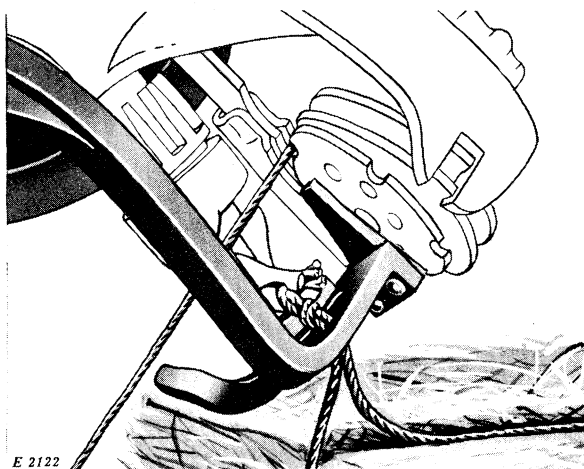


4. As the billhook turns, forming a loop of twine around the hook, the jaw opens to receive the twine. The knife advances ready to cut the twine between the billhook and the disk.

NOTE: At this stage, the needle begins to recede—leaving twine in the disk which will be held there for the next knot.



5. The billhook jaw has closed and now holds the ends of the twine tightly. The twine has been cut and the wiper on the knife arm advances to wipe the looped twine from the outside of the billhook — as the jaws hold the two cut ends of twine preparatory to completing the knot.



6. The knot is tied and drops from the billhook, which completes the tie around the bale.

The needles then return to the "home" position leaving the strand of twine in the disk and extending through the bale chamber ready to receive material for the next bale, at the end of which another tying cycle will be performed.

Before operation

The operator

The degree of satisfaction given by your baler is directly dependent upon the care given by the operator. Once the baler has been adjusted to meet the crop condition, the rest is up to the operator.

Understand the function of all working units

This baler is built to handle a wide range of conditions. Field conditions vary from year to year, from day to day, and even from hour to hour. Different varieties of crops present widely different baling problems. A careful study of the adjustments on your baler, and what they accomplish under different conditions, will allow you to reap the many benefits and economies that a baler can provide.

Before starting your baler in the field, be sure you are thoroughly familiar with the function of each working unit. Study the illustrations carefully and become familiar with the adjustments necessary to obtain best results.

Lubrication

Check to see that your baler has been lubricated according to lubricating instructions, pages 19 to 21.

Breaking in the new baler

After the baler has been completely assembled and connected to the tractor, inspect to be sure all bolts are tight. A loose bolt may cause wear and make premature replacement of parts necessary.

Inspect all chains for proper tension. Tighten chains only enough to prevent links from climbing sprocket teeth.

If your baler is equipped with an engine, see the operator's manual that accompanies the engine for engine operation and break-in instructions. Check the drive belt (see page 48) to be sure tension is adjusted just tight enough to eliminate slippage.

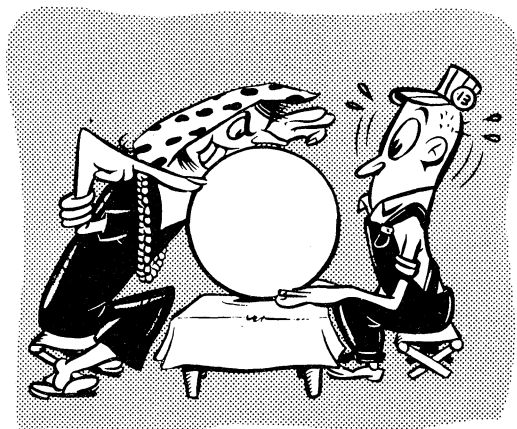
Breaking in the new baler—continued

NOTE: On twine balers, grease has been applied at the factory to the billhooks and twine disks to prevent paint and rust from collecting on these parts. Remove the grease and the paint before operating baler. Some misses in tying may occur in the first few bales due to this grease. Do not attempt to make adjustments until all knoter parts have had time to become thoroughly polished by the twine through operation.

The new machine should be given an empty running "breaking-in" period of at least one hour to allow the parts to work in gradually. After a short run at slow idling speed, stop machine and inspect completely, making a check for loose bolts, heated bearings, binding parts, chain tension, etc. Run the baler at slow idling speed for the first thirty minutes and increase to full speed for the rest of the period. Inspect baler frequently during the "breaking-in" period.

Adjust plungerhead after baling the first 1,000 bales (see page 42) and thereafter as necessary, depending upon operating conditions.

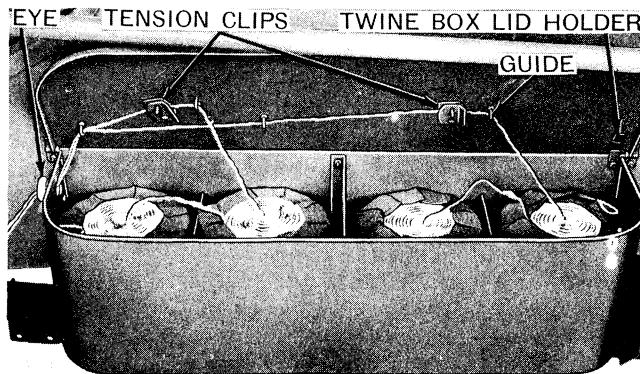
Remember, the breaking-in period is just as important with a new baler as it is with a new automobile.



**Your FUTURE
depends on your
safety TODAY!**

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Loading twine box—twine baler



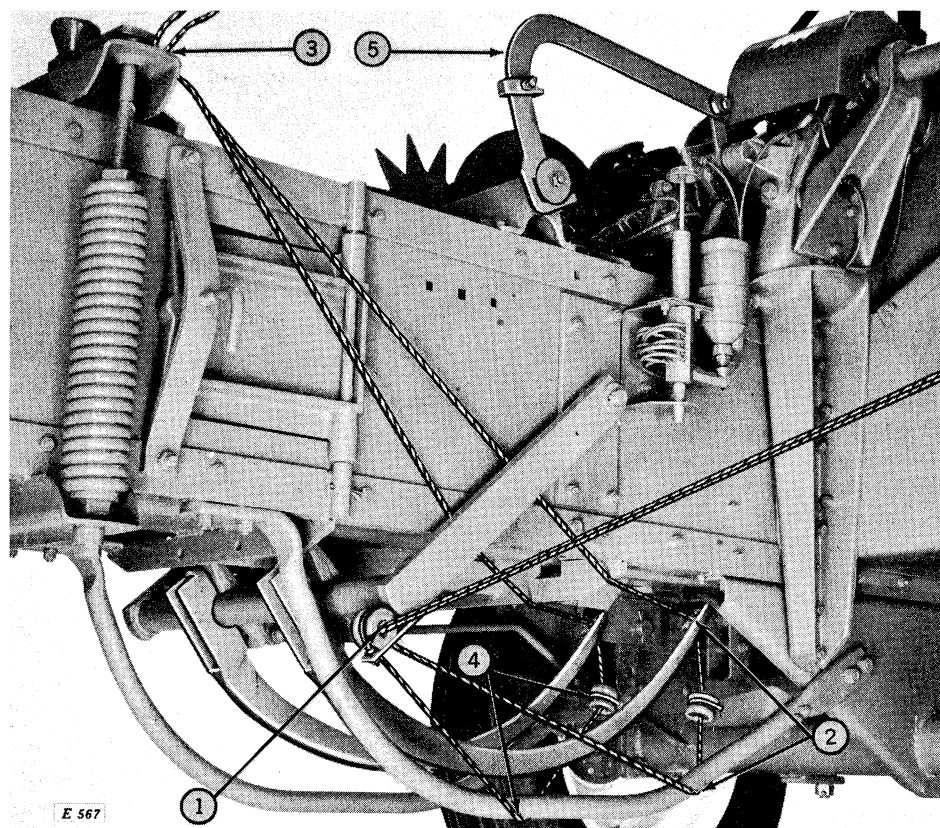
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When loading or unloading twine box, use the holder (located inside the twine box) to hold the lid out of the way.

Two balls of good quality twine should be placed in each compartment of the twine box.

NOTE: Be sure twine is pulled from the end of the ball marked top. The two balls in each section should be joined by tying the inside end of one ball to the outside end of the other ball. In joining the twine, use a secure square knot. The loose ends of the twine should be trimmed as close to the knot as possible. Thread the twine from the center of the ball through its respective guide in the box lid. Then thread both ends of twine through the eye on the side of the twine box.

Threading needles—twine baler



1. Thread both ends of twine through eye on needle frame.

2. With the needles in "home" position, run end of one strand of twine below needle guard, through eye at end of needle guard and through needle.

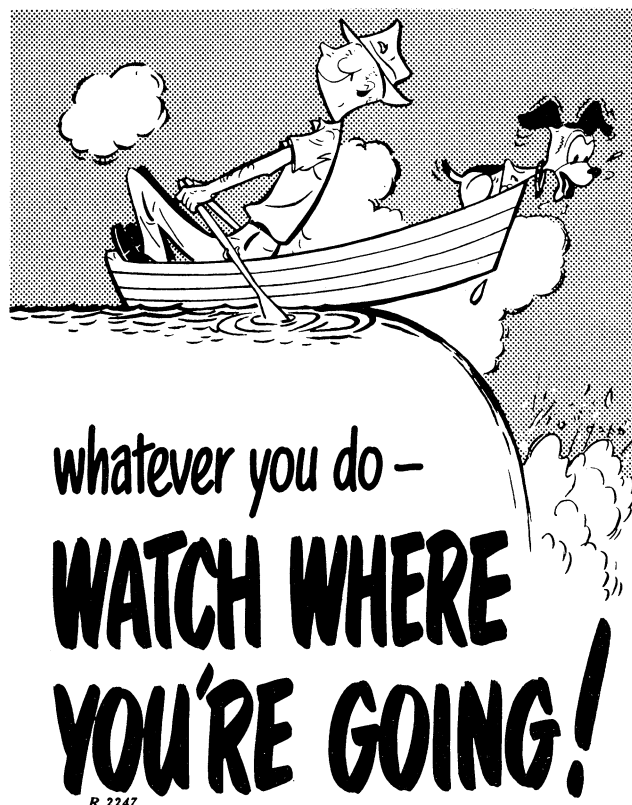
NOTE: Twine must be threaded OVER guide on end of needle.

3. Run twine between needle frame and bale case and fasten around bale case adjusting crank.

4. Repeat steps 2 and 3 with the other strand of twine. Thread through other needle and eye.

5. When both strands of twine have been properly threaded, trip the knotter mechanism and turn flywheel counter-clockwise by hand. Continue turning flywheel until needles are all the way up, twine is held in twine disk, and needles returned to the "home" position.

NOTE: Always remove the twine which was temporarily secured to the bale case adjusting crank. The twine is now ready for the baling operation.



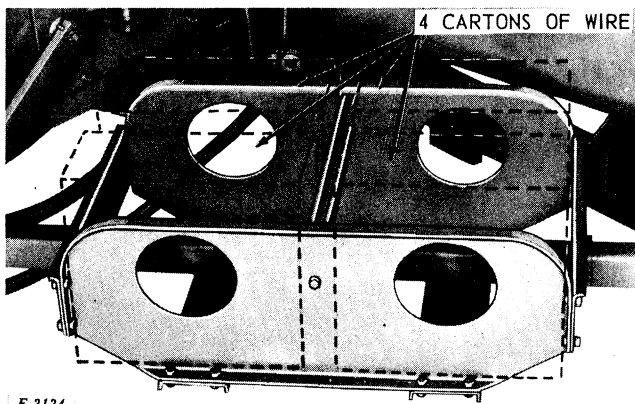
Loading the wire box—wire baler

Place four cartons of wire in the wire box.

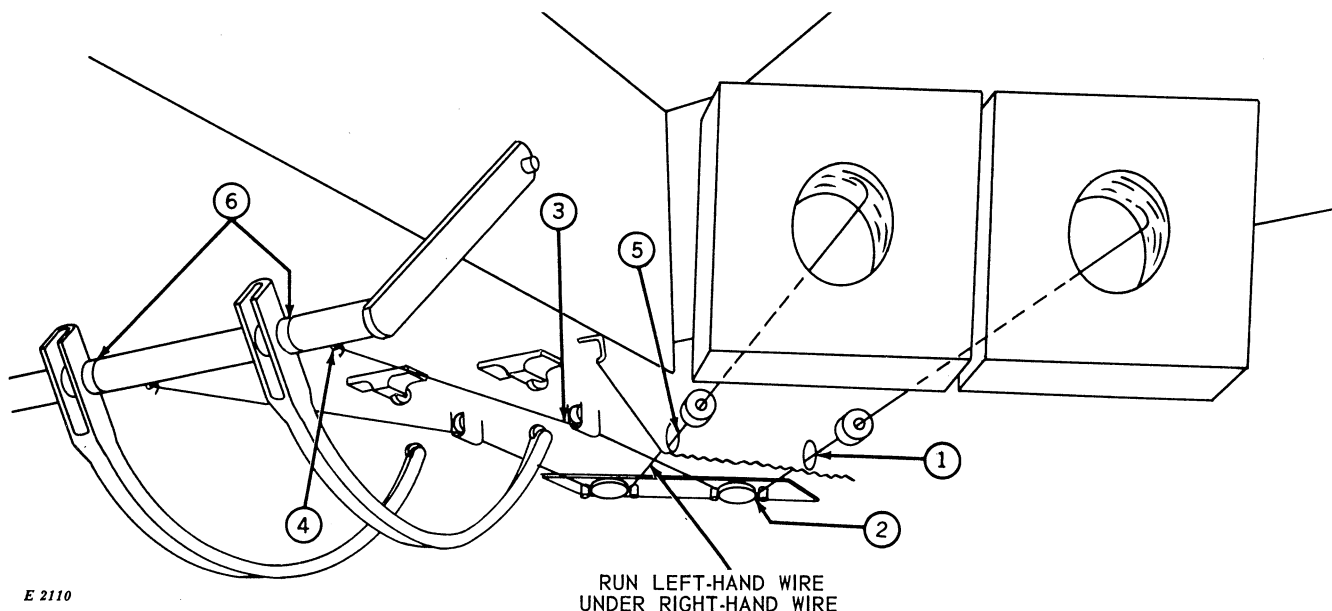
NOTE: Splice the center wire of each rear coil to the outside wire of its respective front coil of wire. Make a small tight splice so the wire will pull through the wire guides and needles without snagging.

When the front coils of wire have run out, place the rear coils forward and locate two new cartons of wire in the wire box and splice wires.

Thread the baler with the center wire from each front coil of wire as shown below.



Threading the wire—wire baler



1. Thread the wire from the right-hand coil through the front hole in the main frame.

2. Continue threading the wire around front right-hand wire pulley inside of guides.

3. With the needles in home position, thread the wire under the right-hand center wire pulley and over the right-hand needle pulley.

4. Pull wire back and loop around the needle frame and secure with a twist.

5. Thread the left-hand wire through rear

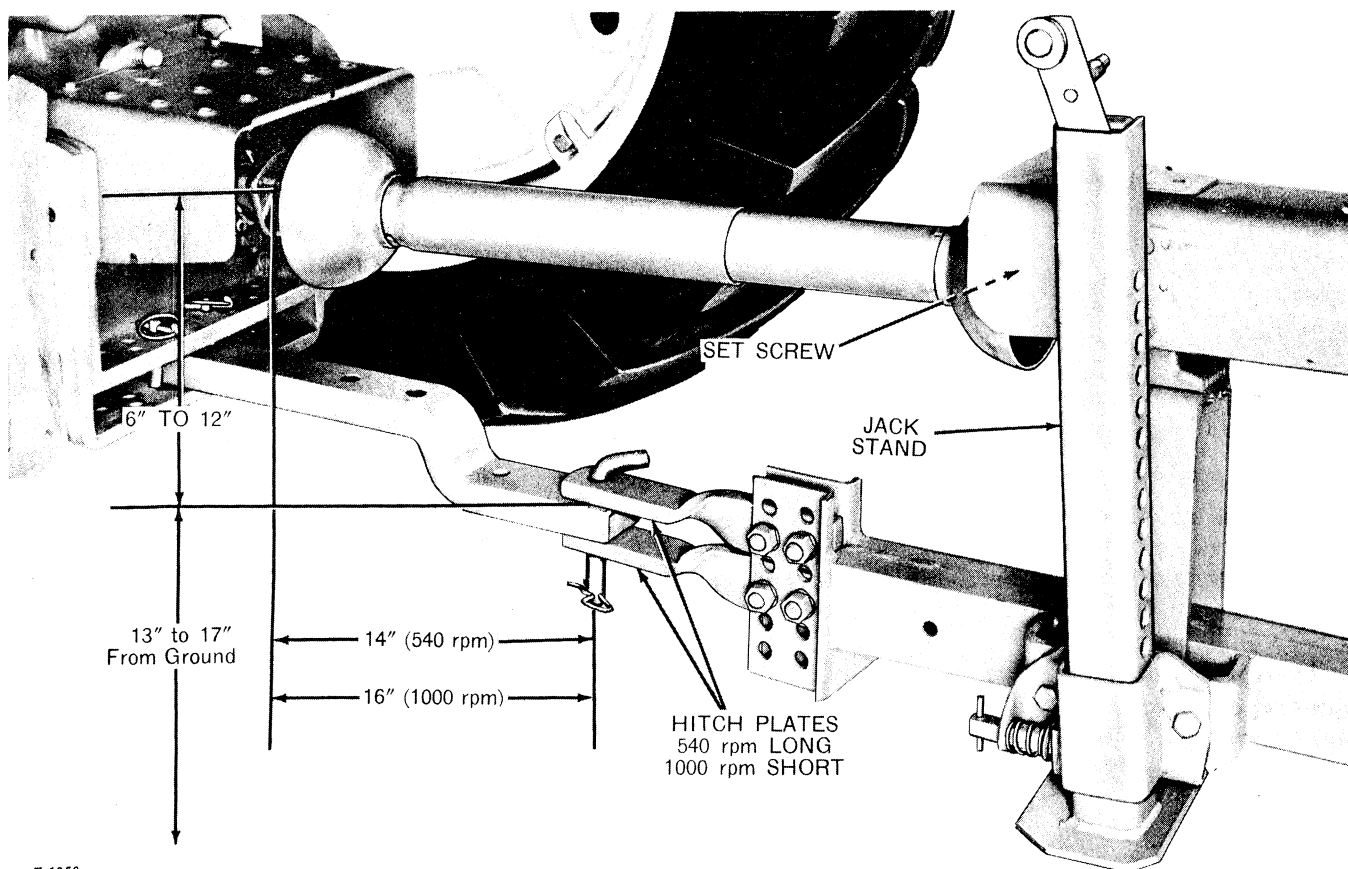
hole in the main frame and repeat steps 2, 3, and 4 through the left-hand pulleys and needle.

When both strands of wire have been properly threaded, trip the knoter mechanism and turn the flywheel counter-clockwise by hand. Continue turning the flywheel until the needles are all the way up—the wire is held by the grippers, and the needles returned to the "home" position.

6. Remove the loose wire from the needle frame.

NOTE: Check front wire pulleys frequently to make sure they turn freely.

Hookup instructions



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Your baler can be attached to any tractor having a drawbar and power take-off that conforms to ASAE-SAE standards and having a power take-off speed (540 or 1000 rpm) to match the power-shaft speed of your baler.

The tractor tire inflation pressures specified in the tractor operator's manual will apply.

Drawbar

Adjust the tractor drawbar so it measures 14 inches (for 540 rpm PTO) or 16 inches (for 1000 rpm PTO) from the end of the power take-off shaft to the hitch pin hole in the drawbar, and 6 to 12 inches from the center of the PTO shaft to the top of the drawbar. The top of the rear end of the drawbar should be 13 to 17 inches from the ground. The drawbar hitch pin hole must be aligned vertically with the center line of the tractor power take-off shaft.

Tongue

Hitch your baler to the tractor drawbar. The hitch plates may be mounted lower for more ground clearance. They should be set to keep the

power line as straight as possible. When using a 540 rpm baler and tractor, make sure the tongue is equipped with the long (11-inch) hitch plates. Use the short (9-1/2-inch) hitch plates for 1000 rpm operation.

Universal joints

Attach the rear end of the baler universal joint to the powershaft and secure it with a set screw and lock nut. Attach the front end of the universal joint to the tractor powershaft and secure it.

When hooking up to a tractor equipped for side-mounted mower operation, it may be necessary to cut off 1/4-inch from the front end of the universal joint.

NOTE: Never use a steel hammer when attaching or removing universal joints. Keep the universal joint splines clean.

Jack stand

After the baler has been properly hooked up, raise the jack stand.

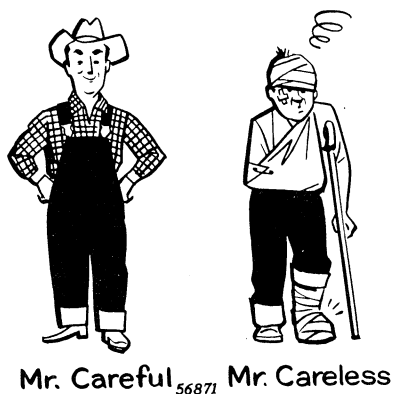
CAUTION: Never hook up a 540 rpm baler to a 1000 rpm tractor.

Safety precautions



The safety of the operator was one of the prime considerations in the minds of John Deere Engineers when this baler was designed. Shielding, simple adjustments, and other safety features were built into the baler wherever possible.

Investigation shows that careless use of machinery causes many accidents. You can make your operation safer if you observe the safety precautions given below and those included in your tractor manual. Study these precautions carefully and insist that they be followed by those working with you and for you.



Keep all shields in place.

Before servicing, adjusting or unclogging machine, always:

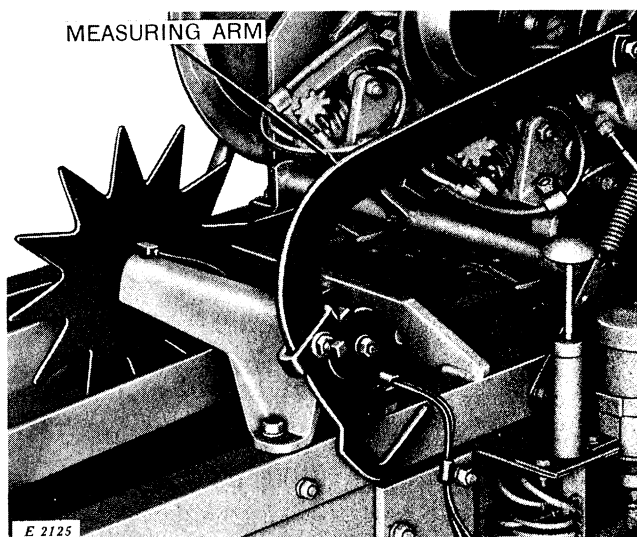
- (a) Disengage all power.
- (b) Shut off engine, and then
- (c) **WAIT UNTIL BALER FLYWHEEL HAS STOPPED ROTATING.**

Keep hands, feet and clothing away from power-driven parts.

Be sure flywheel is not moved when working on knives.

When equipment is transported on road or highway use accessory lights and devices for adequate warning (day and night) to other vehicles. In this regard check local governmental regulations.

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



The baler may be tripped by hand, by grasping the measuring arm and pulling back as necessary to allow the arm to be raised to tripped position.

When tripping mechanism by hand with the baler running, do not touch knottor or twister mechanism and stand clear of needle frame.

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

Always shut off the engine before refueling.

Do not smoke or use an oil lantern when refueling any engine.

Field operation

Inspect machine before starting

Improper setting-up may cause damage to the baler or make it do inferior work. Inspect the entire baler before starting in the field, being sure all braces, shields, chains, and different units are properly attached and adjustments made as illustrated and directed. Be sure all nuts, pins, keys, etc., are tight and that cotter pins are in place. Lubricate baler thoroughly according to Lubrication Charts on pages 19 to 21 inclusive. Operate slowly for some time, making sure all parts are moving freely (see "Breaking in the New Baler," page 5). If there is no binding or heating, then run at recommended speed for a few minutes. Next, go over the entire baler again to make sure all bolts are tight and that lubricant is reaching all bearings. Be sure to check tension of all chains.

Crop preparation

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.

Direction of travel

The driest hay should be baled first; therefore, you should start baling at the outside of the field, the same as the crop was cut and raked. By traveling in the direction that the rake traveled, the hay is picked up in a head-first position, thus enabling the baler pickup cylinder to do a thorough job of picking up all of the crop.

Starting and driving

When starting the baler, bring the tractor or engine up to recommended speed to obtain 540 or 1000 rpm on the baler powershaft (plunger-head should be up to normal 65 strokes per minute under load). Drive 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 the 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.

The capacity of the baler depends upon such factors as material characteristics, ground conditions, condition of tractor, and the judgment of the operator. Do not crowd your baler. You are primarily interested in tons per day, not bales per minute.

When the baler is taking from 12 to 18 charges per bale, it is operating efficiently.

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

Always operate the baler with tractor or engine at recommended speed to obtain 540 or 1000 rpm on the baler powershaft.

CAUTION: Disengage the tractor PTO shaft when making sharp turns at ends of the field to avoid excessive vibration.

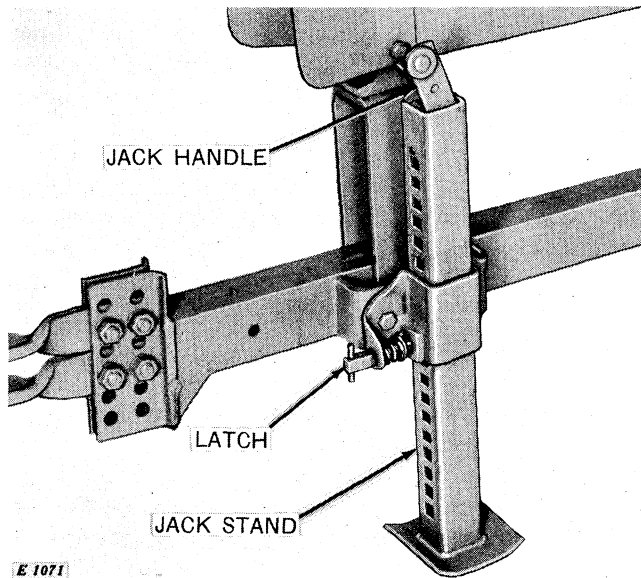
When starting with an empty bale case, the first few bales will be light and their length will be irregular until the compression of the material has been built up sufficiently to turn the bale measuring wheel positively.

The twine or wire coming out of the box should move with each stroke of the plunger. If it stops moving, the twine or wire has run out or has broken. Stop and correct the trouble.

It is essential to periodically clean out accumulated chaff and trash from around the twine or wire tying mechanism. In most haying conditions this accumulation will not affect the operation of the baler. 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, long bales, or untied bales.

Operating adjustments

Jack stand



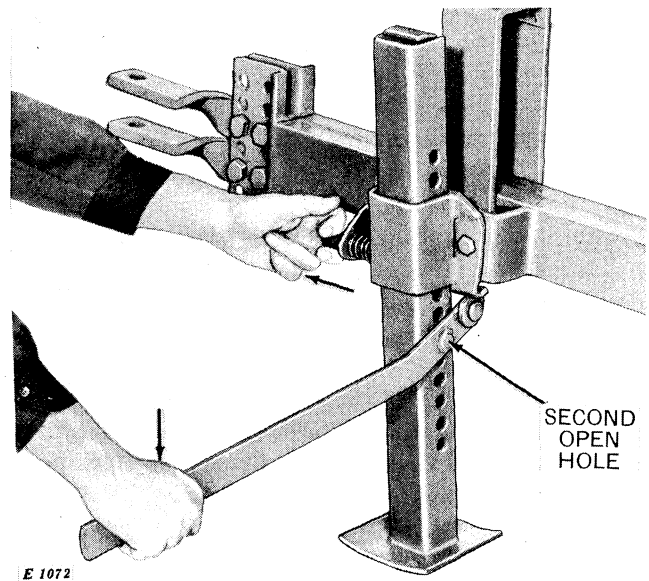
During operating or transporting, the jack stand (located on the side of the tongue) is held firmly out of the way by a spring-loaded latch.

NOTE: Seat the latch in one of the five bottom holes to lock the stand in raised position. Operate the jack stand as follows:

Raising tongue

1. Place the pin on the jack handle completely through the first open hole in the rear of the jack stand which is immediately under the jack stand mounting bracket.
2. Push down on the jack handle to raise the tongue.
3. Repeat Steps 1 and 2 to raise the tongue higher.

Lowering tongue



1. Place the pin on the jack handle completely through the second open hole below the jack mounting bracket in the rear of the jack.

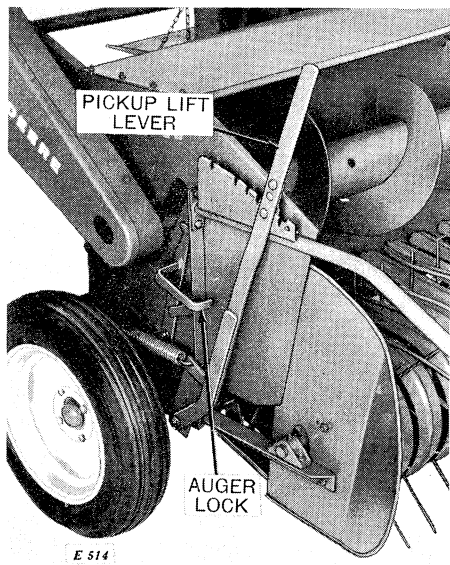
2. Push down on the jack handle, then pull out the latch in the front of the jack stand; relax the pressure on the jack handle and release the latch.

3. Repeat Steps 1 and 2 to drop the tongue lower.

Replace the jack handle in the top of the jack stand.

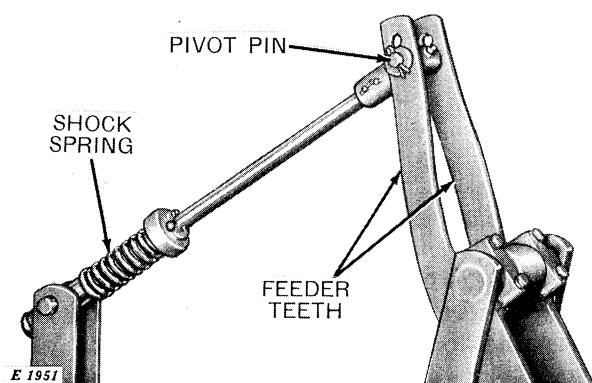
NOTE: It is not necessary to use the jack handle after weight of baler is removed from the jack. The jack may be raised by pulling the latch and lifting the jack by hand. The jack will lower itself to the ground by pulling the latch.

Pickup lift lever



The pickup lift lever is located on the right end of the auger housing and is used to control the working height of the pickup teeth. The lever may be adjusted to one of six positions, allowing the pickup to be raised to a maximum height of 9 inches. Set the pickup teeth as high as possible and still pick up all the crop. To lower the pickup, pull the lever out and forward. To raise the pickup, pull the lever out and push to the rear. When the pickup lift lever is in transport position, the auger lock holds the auger to prevent bouncing when transporting.

Adjustment of feeder teeth



Two feeder teeth feed hay from the auger into the bale chamber. The teeth are adjustable to produce bales of uniform density regardless of the condition of the hay. The teeth may be ad-

justed to increase or decrease their stroke, which alters the distance they move into the bale chamber.

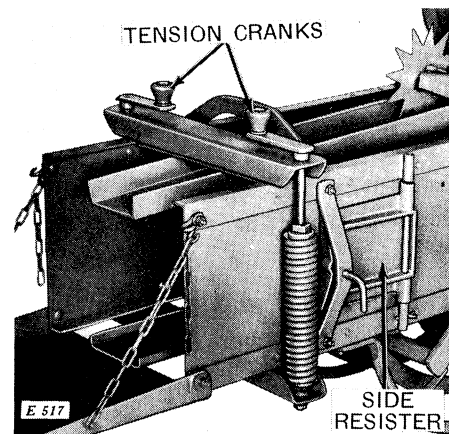
The stroke of the feeder teeth should be increased when material is not coming far enough into the bale chamber and decreased if it is coming in too far.

To increase the stroke of the teeth, move the pivot pin to the bottom hole on the ends of the feeder teeth; to decrease the stroke of the teeth, relocate pivot pin in the upper hole on the ends of the feeder teeth.

If the teeth are set for their longest stroke and the material is still not coming far enough into the bale chamber, the baler is probably being underfed. This happens when baling too slow or when picking up windrows which are too light.

A shock spring protects the teeth from damage as a result of oversize charges of hay, or striking solid objects.

Tension cranks and side resisters

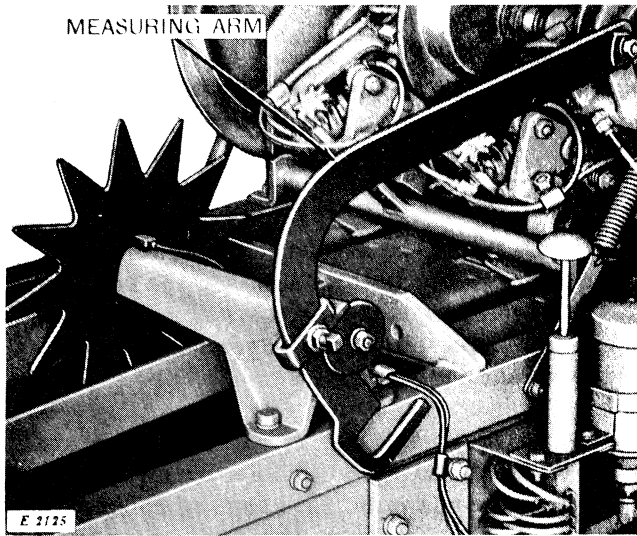


Bale weight is regulated by changing the tension on the bale chamber. Tension is changed by means of the adjustments of the two tension cranks on the rear of the bale chamber.

Bale weight is also affected by the size of windrows, moisture content, and the quality of the hay; therefore, the bale weight should be checked regularly during operation.

Bale case tension may be further increased when operating in unusually light windrows by tightening the side resisters.

Bale length control

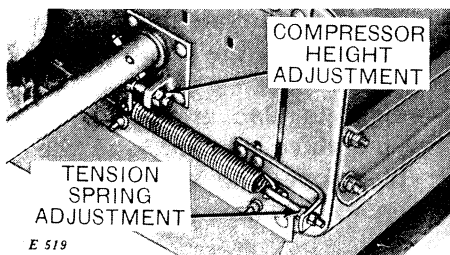


The bale measuring arm may be set for bale lengths of 12 to 50 inches. The setting shown is for maximum bale length. The length of the bale may be shortened by loosening the set screw and lowering the stop.

If bales are irregular in length, 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 the material is too light or because the baler is being driven too slowly to fill the baling chamber satisfactorily. Uneven bale length may be remedied by increasing the ground speed of baler, increasing the size of windrow, or tightening tension cranks.

CAUTION: If you make the bales too tight or too heavy, the excessive strain on your baler could cause breakage and undue wear of parts. Also, there will be a tendency to break the wire or twine.

Pickup compressors

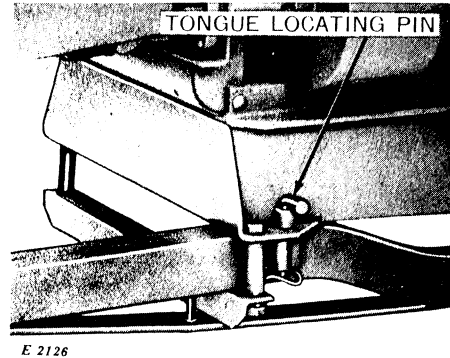


In normal conditions, adjust the compressors until their tips clear the strippers approximately 5 inches—with the pickup lift lever in its lowest

position. When operating in flattened windrows, or stemmy material, set the tips of the compressors approximately 3 inches above the strippers.

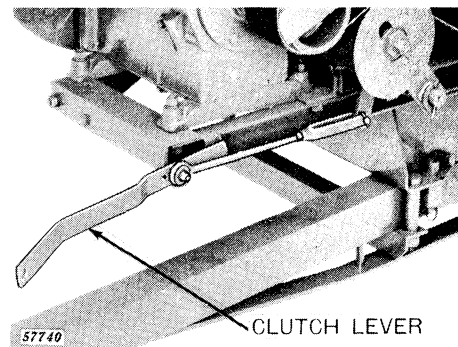
Adjust the tension spring to permit an unrestricted feeding of material beneath the auger.

Tongue locating pin



The baler can be easily changed from operating to transport position by removing the locating pin, blocking behind the right-hand wheel and backing the tractor towards the right-hand side. Relocate the pin in the hole provided. Reverse this procedure to place the tongue in operating position.

Engine clutch lever

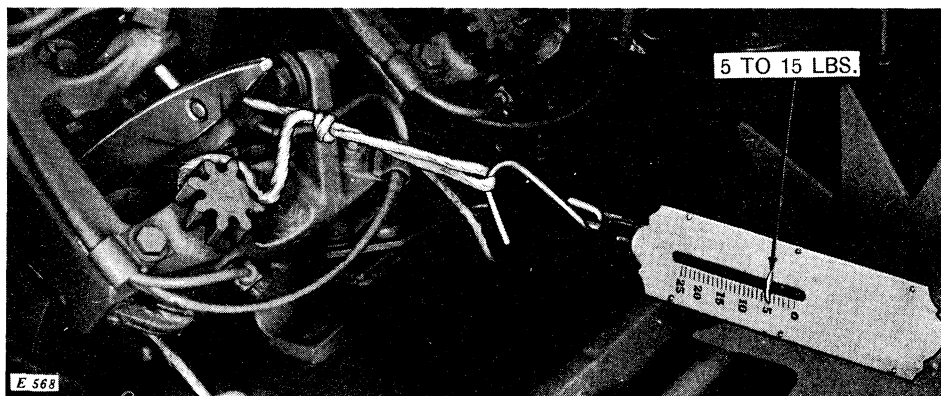


The lever located on the left-hand side of the engine, controls the transmission of power from the engine to the flywheel by means of a belt idler. Release tension on belt when starting the engine.

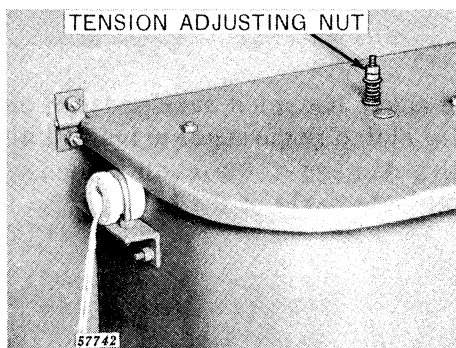
Engine controls

The controls and operation of the engine are described in the engine Operator's Manual.

Twine tension—twine baler



To test the twine tension, thread the twine through the needles, then turn the flywheel until the needles are at their uppermost point as they protrude through the top of the bale case. Connect the scale to the twine from the upper side of the needle pulley and apply tension. Twine should be fed from the twine box when a tension of 5 to 15 pounds is applied at this point. If twine is fed from the twine box with the application of less than 5 or more than 15 pounds pressure, adjust the twine tension by turning the nuts on the twine tension clips.



The twine tension is controlled by two identical tension devices inside the lid of the twine box. (See page 6.) The twine runs between the two pressure plates, the lower plate being spring-loaded.

Tension is released or applied by adjusting the nuts on the tops of the tension devices.

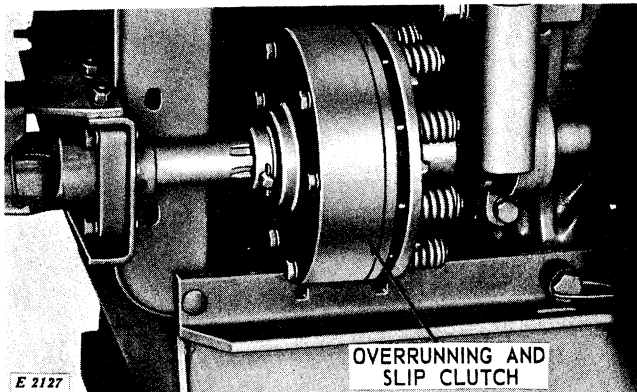
Knotter adjustments—twine baler

The knotter is carefully adjusted and tested at the factory and should give satisfactory performance with little or no adjustment. Make no adjustments until paint is worn off and all parts work smoothly. If trouble is then experienced, determine where it exists before making any adjustments. To correct the trouble, refer to the "Trouble Shooting" section of this manual or call your John Deere dealer. He is equipped to give you prompt "know-how" service in the field or in his shop.



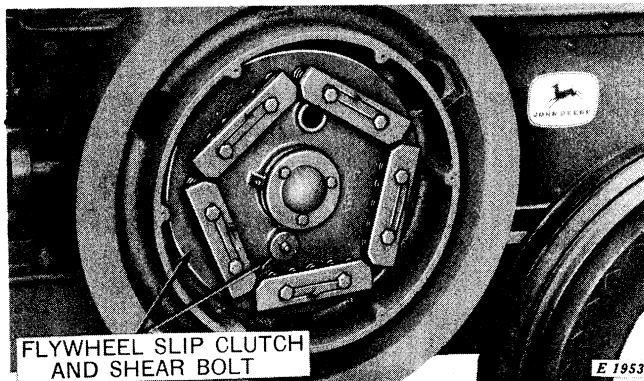
Machine protective devices

Overrunning and slip clutch



This slip clutch was built into the main drive to protect the baler and tractor from undue stress resulting from: high starting torques, material too heavy, and obstacles lodging between knives. (See page 45 for testing.)

Flywheel slip clutch and special shear bolt

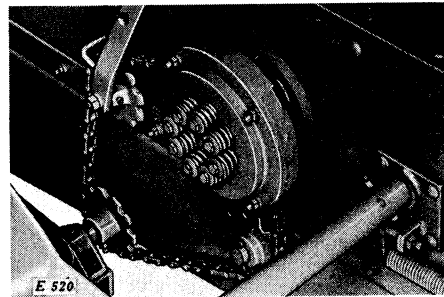


The slip clutch in the flywheel will help protect the baling mechanism from damage, or excessive strain, caused by overloading or crowding the baler.

The special shear bolt in the flywheel will shear if the plungerhead becomes blocked during operation. When the cause of shearing has been located and corrected, install a new shear bolt.

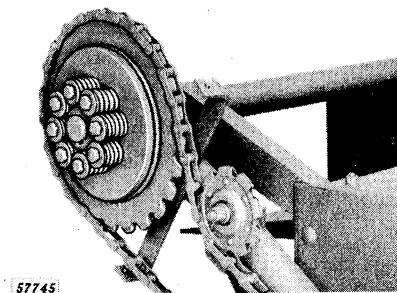
NOTE: If needles are in bale case when baler stops, return the needles to home position by hand before starting the baler.

Pickup slip clutch



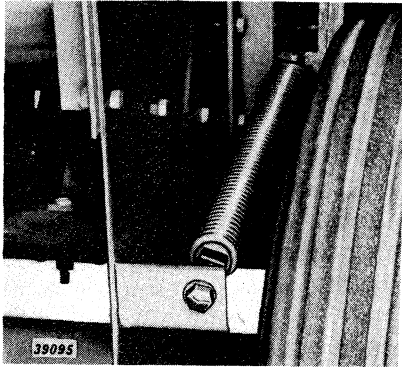
The slip clutch on the pickup drive sprocket protects pickup parts from overloads or field obstructions. (See page 45 for service.)

Auger slip clutch



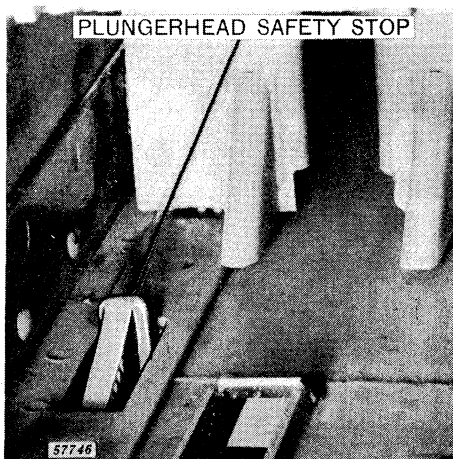
If the auger becomes overloaded or obstructed, a slip clutch in the auger drive will slip, thus preventing damage to the feeding mechanism and other intricate parts of the baler.

Pickup balancing spring

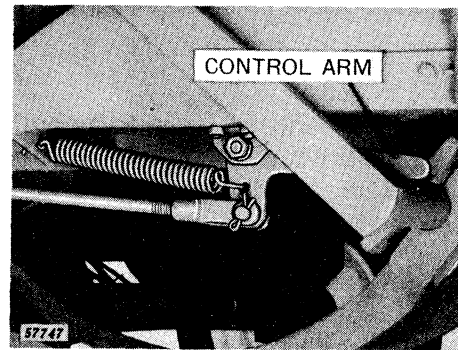


The pickup is protected from damage, which could result from striking objects in the field, by having a safety spring attached to the right-hand side of the pickup. This spring allows the pickup to raise and lower itself easily when coming in contact with immovable objects.

Plungerhead safety stop

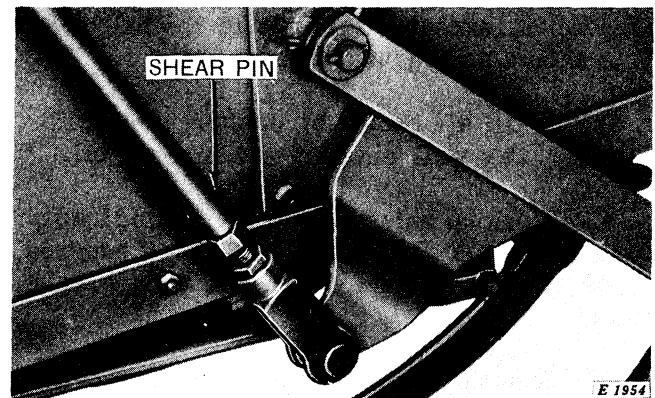


The plungerhead safety stop protects the needles from damage by the plungerhead if the needles enter the bale chamber too soon or remain there too long. The safety stop enters the bottom of the bale chamber at the same time as the needles. When the needles are withdrawn, a control arm on the stop assembly pulls a rod connected to the stop, thus, withdrawing it also from the bale chamber.



If the plungerhead strikes the stop in the bale chamber, it will cause the shear bolt in the fly-wheel to shear, thus it helps prevent damage to the baler and time-consuming break-downs. (See page 42 for adjustment.)

Needle lift shear pin



The needle lift special shear pin protects the needle assembly from damage if the needles are prevented from completing their cycle. When the pin shears, it allows the needle lift disk to complete the cycle without the needles. In completing the cycle, the lift assembly will contact the needles and push them from the bale case. The trouble can then be corrected and special shear pin replaced.

Storage

Your baler should be taken to an authorized John Deere dealer for a complete service check at the end of each season to assure the best of performance at the beginning of the next season.

Storage at the end of each season

1. Shelter the baler in a dry place.
2. Clean the baler thoroughly inside and out. Trash and dirt will draw moisture and cause rust.
3. Clean out the knotter or twister mechanism and apply a coating of grease.
4. Thoroughly grease the machine according to the lubrication charts.
5. Paint all parts from which the paint has been worn, except the inside of the bale case. This should be brushed with grease.
6. Clean all chains by washing them with a solvent. Dry well and coat with a heavy oil.
7. Block up baler under axle, 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—avoiding delays next baling season.
9. If your baler is engine-mounted, see the Engine Manual for storage instructions.

Preparation at the beginning of each season

1. Remove the grease from the knotter or twister mechanism.
2. Remove the heavy oil and grease from the bale case and chains.

3. Lubricate complete machine; this will force any collected moisture out of the bearings.

4. Check air pressure in tires.

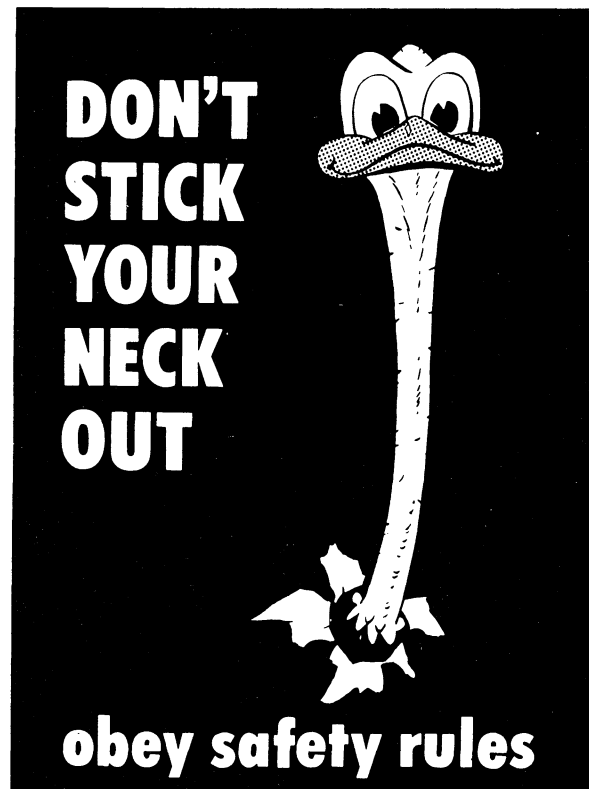
5. Drain and flush the gear case and refill to check-plug level with SAE 140 Regular-Type Gear Lubricant.

6. Tighten all bolts, nuts, and set screws.

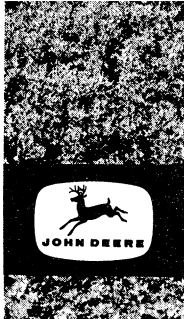
7. Adjust and check timing of entire baler as described in this manual.

8. If any major moving parts have been replaced, they should be run in.

9. If your baler is engine-mounted, see Engine Manual for instructions.



R 2250



lubrication

The economical and efficient operation of any machine is dependent upon regular and proper lubrication of all moving parts with a quality lubricant. Neglect leads to wear, break-down, and needless replacement of parts.

CAUTION: *Do not clean, lubricate, or adjust your machine while it is in motion.*

IMPORTANT: *Before operating machine, check oil in gear case. (See Note No. 5.)*

Fittings

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

Chains

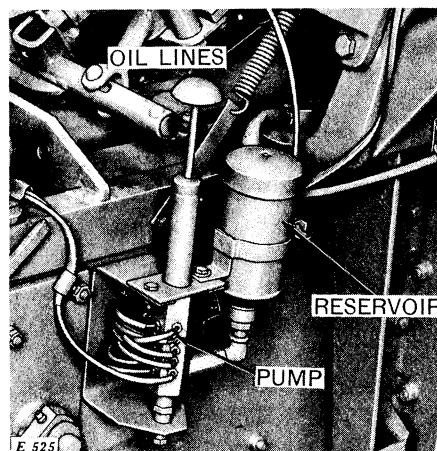
At varying intervals, depending on weather and field conditions, chains will become stiff or gummy. As necessary, remove chains and wash in a solvent, then dip the chains in oil. Allow the chains to drain and replace them on the machine.

SYMBOLS	
	Grease every 10 hours of operation with SAE Multipurpose-type grease.
	Grease every 5 hours of operation with SAE Multipurpose-type grease.
	Brush with grease periodically.

Jack stand

Grease jack stand fittings once each season or more often, as necessary, to insure easy operation.

Multi-luber system



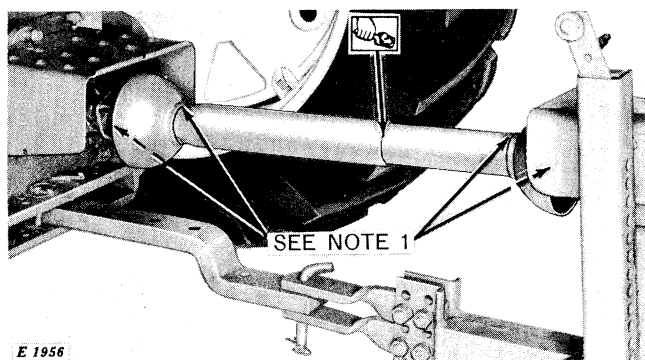
Pump Multi-Luber four times every four hours of operation.

Depress the pump handle manually through its full stroke to discharge lubricant from all outlet ports. The measuring chamber in the pump is filled as the plunger and handle returns to normal position. Refer to page 47 for the method used to detect and repair clogged or broken oil lines.

CAUTION: Excess grease in the knottor or twister area causes accumulation of chaff and dirt, which tends to cause undue wear and breakage.

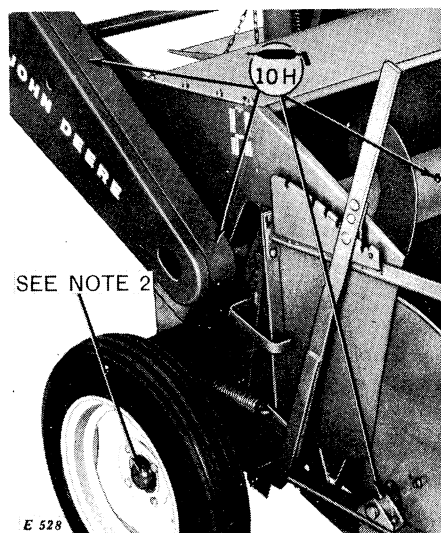
Use genuine John Deere Quik-Lube lubricant in the Multi-luber system. This lubricant is available from your John Deere dealer as part number AN11100N. Check reservoirs periodically to be sure lubricant is always available to system. A dip-stick in the top of the reservoir is provided for this purpose.

Hookup



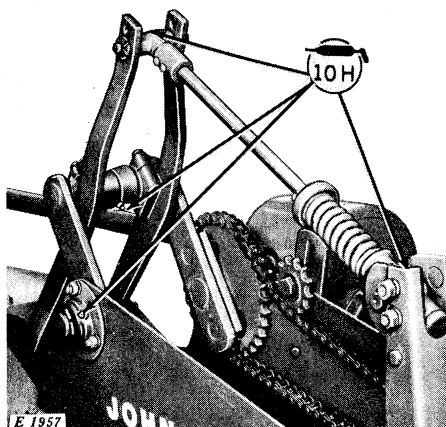
Note No. 1. Oil the nylon retainer bearings in the tractor hookup every 50 hours of operation. Grease tractor hookups, U-joints, and powershaft that are equipped with grease fittings with SAE multipurpose-type grease every 100 hours of operation. Be careful not to blow out the grease seals. One or two pumps of grease will be sufficient.

Auger and pickup

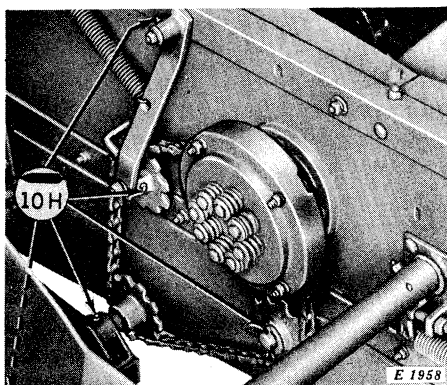


Note No. 2. Pack wheel bearings with SAE multipurpose-type or wheel bearing grease once a year.

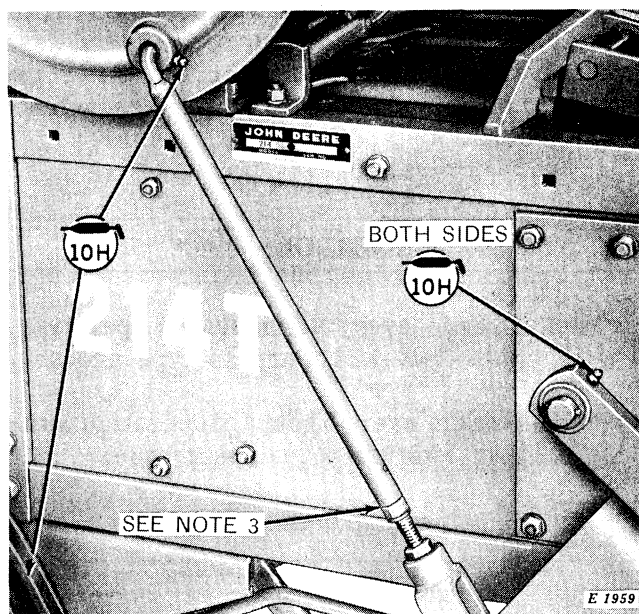
Feeder



Pickup drive

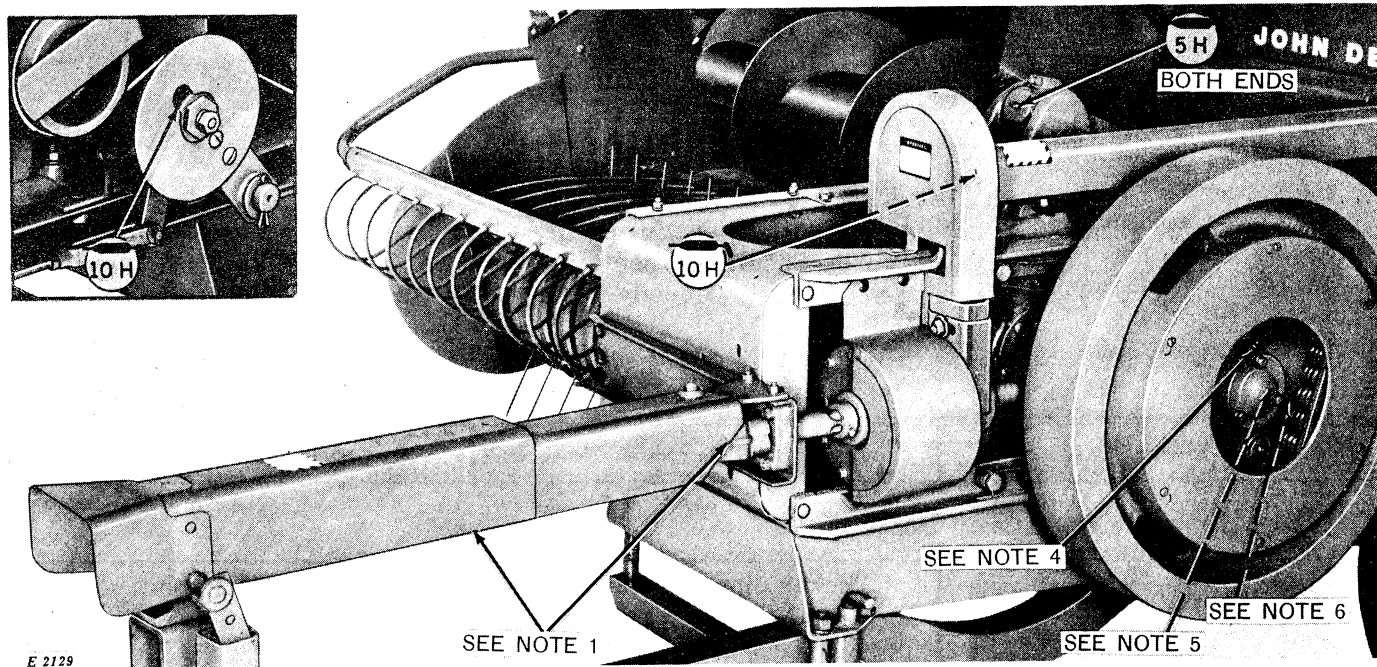


Needle lift



Note No. 3. Grease telescoping link once every season to prevent rust accumulations.

Gear case and drive

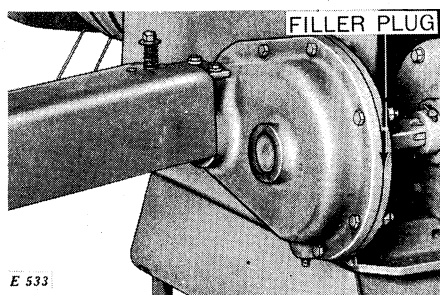


Note No. 4. Grease flywheel bearing when replacing flywheel shear bolt.

Note No. 5. Check level of oil in main gear case daily. (Check plug is just behind flywheel on rear of gear case.)

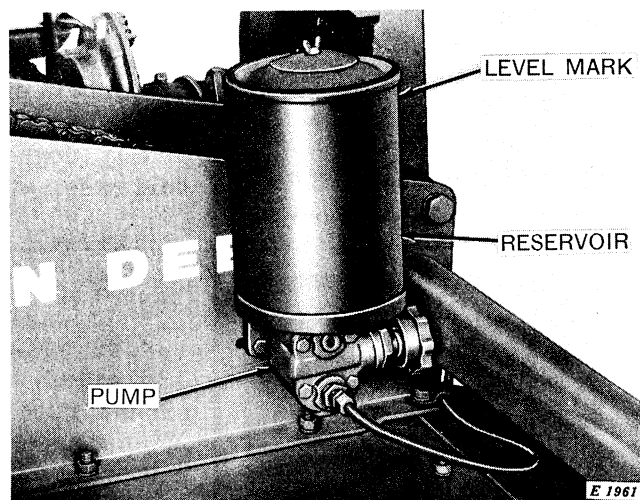
Note No. 6. Drain, flush, and refill prior to each baling season. Two drain plugs are located just below check plug. Fill to check plug level with SAE 140 Regular-Type Gear Lubricant. (Capacity 2-3/4 quarts.)

1000 rpm chain case

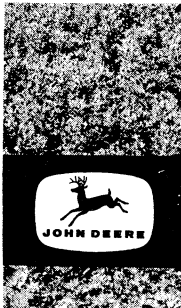


Check level of oil in chain case every day of operation. Keep filled to filler plug level with SAE 30, Service ML (Non-Detergent) Engine Oil. (Capacity—1/4 pint.)

Hydraulic bale tension control



Fill the reservoir to the level mark with SAE 10W-30 Engine Oil or John Deere Type 303 Special Purpose Oil or its equivalent. The hydraulic cylinder must be completely retracted before checking level. To retract the cylinder, loosen the hose at the cylinder. Bleed all air out of the cylinder then tighten the hose.



service

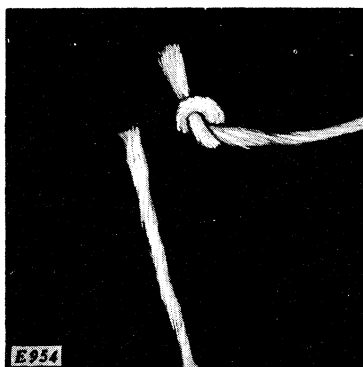
Trouble shooting

Improper adjustments account for most baling difficulties. If you are unable to solve difficulty after checking the following "Trouble Shooting" section, refer to page 32 and follow "Service Checking" as outlined. If you are unable to remedy trouble, call your local John Deere dealer.

NOTE: Faulty or poor quality twine can be a major cause of knotter difficulties on 214T Baler.

Trouble	Possible causes	Remedy
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Knотter difficulties—twine baler



Simple knot in twine over bale

Tucker fingers did not pick up needle twine or move it into position properly.

Needles did not place twine properly in disk.

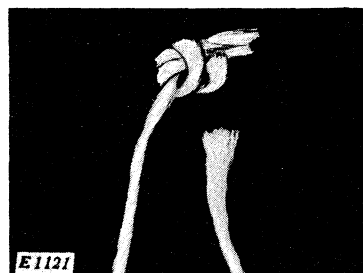
Hay dogs are not entering bale case.

Adjust tucker fingers as described on page 38.

Twine tension clips may need tightening if operating in short, light hay or straw.

Adjust needles and/or twine disk.

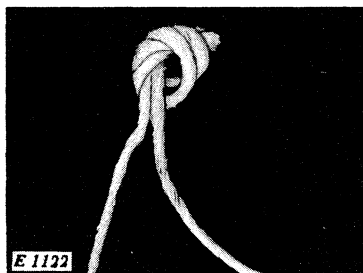
Clean out around hay dogs and examine for broken or unhooked springs.



Twine broken in knot

Extreme tension on twine around billhook during tying cycle causes twine to shear or pull apart.

Loosen twine disk holder spring. Smooth off all rough surfaces and edges on billhook.



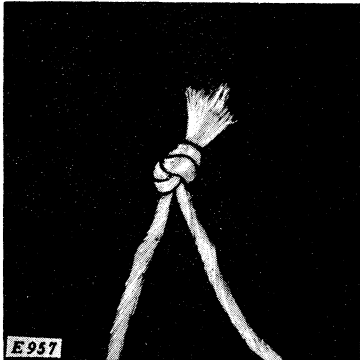
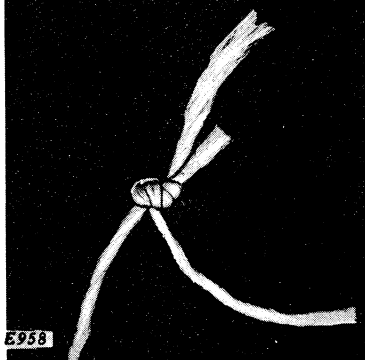
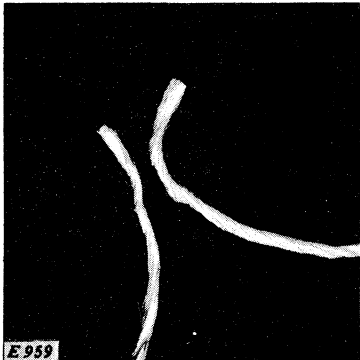
Knot too loose

Worn or damaged billhook tongue.

Bale density too low.

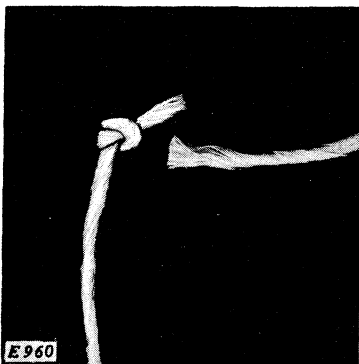
Replace billhook.

Tighten bale case extension springs.

Trouble	Possible causes	Remedy
 Twine ends frayed	Dull twine knife.	Sharpen cutting edge on twine knife.
 Twine ends uneven	Insufficient tension on twine disk holder. Dull or chipped knife.	Tighten twine disk holder spring. Sharpen cutting edge on twine knife.
 No knot in either twine	Twine sheared in twine disks. Billhook not revolving. Billhook tongue fails to open.	Loosen twine holder spring and/or remove all sharp edges and burs on twine holder and disks. Check for lost or sheared pin in billhook pinion. Check for lost billhook tongue roller, excessive wear on roller and cam face, or damaged billhook tongue.

Trouble	Possible causes	Remedy
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Knotter difficulties—twine baler—continued



Simple knot in needle twine

Twine over bale pulled out of twine disk. (Can be detected by square cut end which has been flattened in disks. This twine will usually be shorter than mating twine tied on opposite side of bale.)

Increase tension on twine holder disk spring and/or decrease tension on bale case extension springs.

Twine over bale sheared out of twine disks. (Distinguished from above in that twine end will be frayed and torn—not cut squarely by knife.)

Decrease tension on twine holder disk spring. Decrease tension on bale case extension springs.

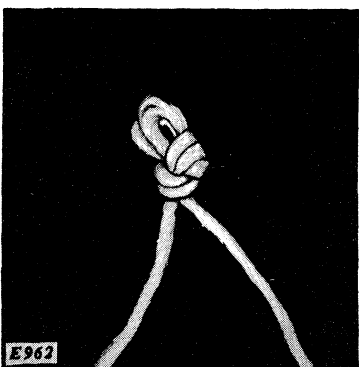


Strands of one twine doubled back through knot

Billhook tongue is closing on top of twine.

Bend upper (or roller) end of knife arm so that groove in knife arm will hold twine over billhook tongue farther to the right.

Adjust timing of twine disks as described on page 34.



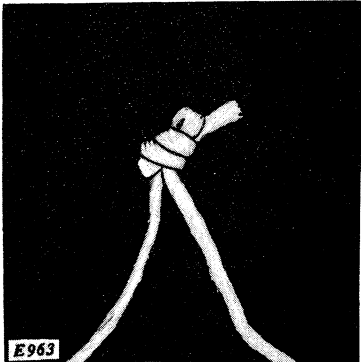
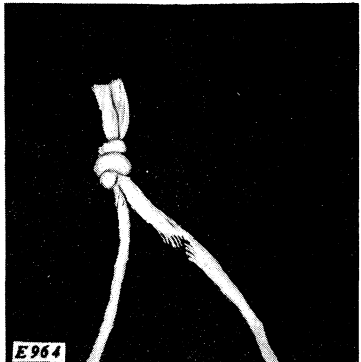
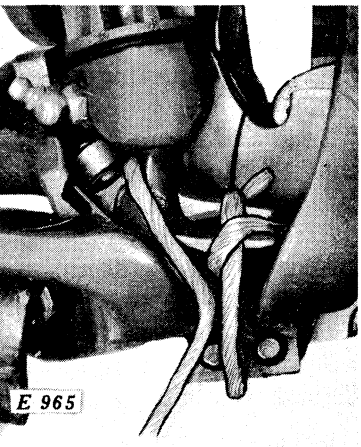
Full or double twine bow knot

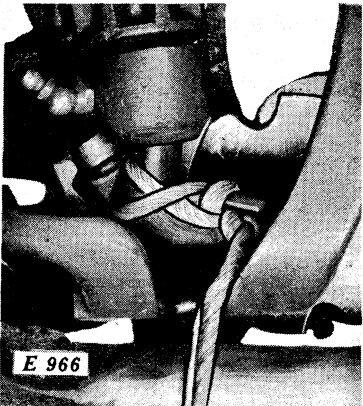
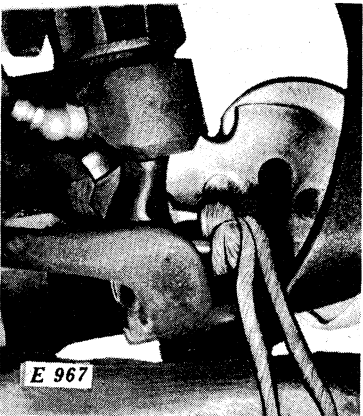
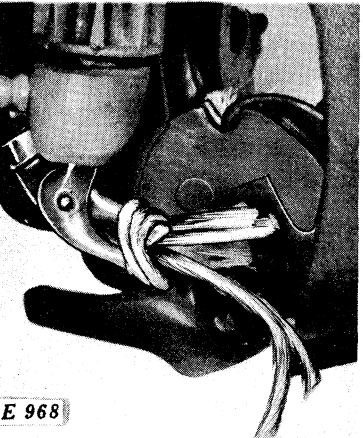
Insufficient travel of knife arm past billhook.

Bend upper (or roller) end of knife arm to obtain more travel past billhook.

Billhook pressure arm spring too loose.

Tighten adjusting nut on billhook pressure arm spring.

Trouble	Possible cause	Remedy
 E 963 Single twine bow knot	Insufficient travel of knife arm past billhook. Billhook pressure arm spring too loose.	Bend upper (or roller) end of knife arm to obtain more travel past billhook. Tighten adjusting nut on billhook pressure arm spring.
 E 964 Twine cut and/or frayed behind knot	As billhook revolves, the twine is pinched between billhook and knife arm and twine is damaged 1/2 to 1 inch from knot. Rough knife arm which cuts twine 3/4 to 1-1/4 inches from knot. Sharp edge or burs on rear lower cross member of tying mechanism support. Extremely high top twine tension.	Bend knife arm so that billhook revolves freely. However, make certain that wiper ledge on the knife arm contacts backface of billhook. Smooth off rough edge in twine notch of knife arm. Smooth rough edges in this area. Reduce bale weight by loosening tension cranks and/or check twine tension. (See page 15.)
 E 965 Needle twine over billhook tongue roller	Needle twine did not enter twine disk.	Adjust needles as shown on page 37 and/or adjust twine disk timing as shown on page 34. Check for sheared or lost pin in twine disk pinion or in disk worm gear. Make certain twine coming from box is going under twine tension devices on twine box.

Trouble	Possible causes	Remedy
Knotter difficulties—twine baler—continued		
 E 966 Needle twine over billhook tongue roller and second knot tied on billhook	Same as preceding picture; however, operator will usually find this condition rather than the condition described therein.	Make corrections as noted before and examine complete knotter for broken or damaged parts.
 E 967 Needle twine goes under billhook tongue during first quarter of billhook travel	Tucker finger not carrying twine back to tying position.	Adjust tucker fingers as shown on page 38.
 E 968 Knot did not strip off billhook	Excessive billhook tongue tension. Knife arm wiper is not contacting back face of billhook. Knife arm lift (or rise) is not sufficient. Rough billhook. Worn or bent billhook. Bale density too low.	Loosen billhook pressure arm spring adjusting nut. Bend knife arm so that wiper contacts back face of billhook. Bend upper (or roller) end of knife arm to increase movement past end of billhook. Smooth off all rough edges on billhook with emery cloth. Replace billhook. Tighten bale case extension springs.

Trouble	Possible cause	Remedy
Twister mechanism difficulties—wire baler		
Wire not holding properly.	Loose bolts in twister assembly.	Tighten all bolts.
	Foreign material in twister assembly.	Clean out twister assembly.
	Springs frozen in gripper drive tube assembly.	Clean out gripper drive tube.
	Shear blade mounting screw loose or broken.	Tighten or replace screw.
Wire not cutting clean.	Gripper and shear blade assembly not adjusted properly.	Place shims between top of gripper arm and mounting plate. (See page 39.)
	Worn or broken parts.	Replace worn or broken parts.
Wires not twisted together.	Foreign material in twister assembly.	Clean out twister assembly.
	Springs frozen in gripper drive tube assembly.	Clean out gripper drive tube.
Wire broken.	Wire threaded wrong.	Thread wire as described on page 8.
	Foreign material in wire pulleys.	Clean and free wire pulleys.
	Bale too heavy.	Loosen tension cranks and/or side hay resisters.
	Twister hook worn.	Replace with new twister hook.
	Worn upper wire guide.	Replace with new upper wire guide.
	Hook advanced too far.	Retard twister hook. (See page 39.)
	Wire guide pulleys not turning.	Free pulleys.
	Rusty wire.	Keep wire oiled.

Trouble	Possible cause	Remedy
Bale not of proper weight		
Bale too light in weight.	Tension cranks too loose. Side resisters too loose.	Tighten tension cranks until desired weight is obtained. Tighten resisters.
Bale too heavy in weight.	Tension cranks too tight. Side resisters too tight.	Loosen tension cranks until desired weight is obtained. Loosen side resisters.
Bale too heavy with cranks screwed out.	Hay too wet or too green.	Let hay dry or cure before baling.
Bale too long.	Not enough material in top of bale and/or measuring wheel not contacting material properly.	Tighten tension cranks.
Bale too short.	Measuring arm not dropping home.	Adjust (page 44).

Bale not uniform

Back of bale is loose.	Feeder teeth out of adjustment.	Adjust (page 13.)
Front of bale is loose.	Feeder teeth out of adjustment.	Adjust (page 13.)
Not enough material in top of bale.	Ground speed of baler too slow and/or windrow too small. Tension cranks too loose. Baling extremely light hay. Pickup compressors set too high and/or tension spring set too loose.	Increase ground speed and/or make larger windrows. Tighten tension cranks. Place feeder teeth in bottom hole and/or make larger windrows. Lower compressors and/or tighten the tension spring.
Ragged bale.	Dull knives. Plungerhead out of adjustment.	Sharpen knives. Adjust (page 42.)

Needles not raising

Trip dog not functioning.	Broken release arm spring or trip dog spring lost. Trip dog too tight.	Replace broken or lost spring. Loosen trip dog.
Sheared needle lift pin.	(See "Shear bolt difficulties," page 31.)	(See "Shear bolt difficulties," page 31.)

Trouble	Possible causes	Remedy
Pickup difficulties		
Pickup teeth digging in ground.	Lift lever set too low.	Raise lift lever.
Not picking up hay clean.	Pickup stays up in floating position. Pickup teeth set too high. Ground speed too fast. Hay not all raked. Pickup teeth bent or broken. Windrows too light.	Loosen lift spring (see page 44.) Lower pickup lift lever. Slow down to 3-1/2 mph. Turn all hay onto clean stubble. Repair or replace teeth. Rake heavier windrows.
Hay build-up under compressors.	Compressor rods set too low and/or tension spring too tight.	Adjust compressor height and/or tension spring (see page 14.)
Pickup teeth do not revolve.	Slip clutch out of adjustment. Pickup drive chain off or broken.	Adjust (page 45). Replace chain.

Feeding difficulties

Plungerhead hitting feeder teeth at top of case.	Out of time.	Retime baler (see page 32.)
Baler stalls when plungerhead is even with rear side of feed opening.	Dull knives and/or plungerhead out of adjustment.	Sharpen knives and/or adjust plungerhead (see page 42).
Baler stalls on compression stroke.	Baling too heavy. Plungerhead obstructed.	Loosen tension cranks (see page 13.) Remove obstruction.
Baler fails to start after being stalled on compression stroke.	Plungerhead obstructed.	Turn flywheel in clockwise direction for two or three revolutions, then engage clutch on tractor or engine. CAUTION: Be sure that needles are in down position before turning flywheel by hand.
Hay not feeding under auger.	Pickup compressors set too high and/or tension spring too loose.	Set compressors lower and/or adjust tension spring (see page 14.)

Trouble	Possible causes	Remedy
Power drive difficulties		
Engine belt slips to the extent that it does not drive flywheel at proper speed.	Clutch lever out of adjustment.	Adjust clutch lever and belt tension (page 48).
Engine belt wearing more on one side than the other.	Pulleys not in alignment.	Align (page 48).
PTO slip clutch slips during normal operation.	Shear bolt sheared in flywheel.	Replace with special shear bolt.
	Slip clutch spring adjusting bolts loose.	Tighten spring bolts (see page 45).
Slip clutch difficulties		
Slipping flywheel slip clutch.	Dull knives.	Sharpen knives.
	Too much clearance between knives.	Adjust plungerhead. (See page 42.)
	Baling too heavy.	Loosen tension cranks.
	Slip clutch adjustment bolts too loose.	Adjust (page 46).
Slipping auger slip clutch.	Baling heavy windrows at excessive speed.	Decrease speed.
	Hay too wet.	Allow hay to cure.
	Slip clutch adjusting bolts too loose.	Adjust (page 46).
Slipping pickup slip clutch.	Pickup overloaded or restricted.	Remove all obstructions.
	Pickup set too low.	Set pickup higher.
	Slip clutch adjusting bolts too loose.	Adjust (page 45).

Trouble	Possible causes	Remedy
Shear bolt difficulties		
Sheared flywheel special shear bolt.	Dull knives.	Sharpen knives.
	Obstruction in bale chamber.	Remove all obstructions.
	Too much clearance between knives.	Adjust plungerhead. (See page 42.)
	Plungerhead safety stop improperly adjusted.	Adjust (page 42).
	Worn clutch ring.	Replace.
	Trip dog too tight.	Loosen trip dog.
	Baling too heavy.	Loosen tension cranks.
Sheared needle lift pin.	Needles in bale case.	Place needles in home position.
	Needles out of time.	Retime needles (see page 32.)
	Needles hitting obstruction.	Remove all obstructions.
	Obstruction in knotter or twister mechanism.	Remove all obstructions.
Hydraulic pump difficulties	Needles out of adjustment.	Adjust needles (see page 37.)
	Pump not delivering oil.	Clogged filter.
		Remove, flush, clean filter thoroughly.
	Not enough oil in tank.	Add oil as necessary.
Pump not developing sufficient pressure.	Valving surfaces scored by abrasive matter.	Replace all scored or worn parts.
	Leak in hydraulic system connections and cylinders.	Eliminate all leaks.
	Oil not of correct weight.	Use correct weight oil.
External leakage.	Shaft oil seal.	Replace shaft oil seal.

Service adjustments

Service checking

To remedy most tying troubles not solved in the "Trouble Shooting" section, pages 22-31, perform the following related major service checks in the order listed.

Follow this same procedure for pre-season service.

Twine baler

1. Timing the baler (pages 32-33).
2. Billhook (page 34).
3. Twine disk (page 34).
4. Knife (wiper) arm (page 35).
5. Twine holder (page 36).
6. Needle travel (page 36).
7. Needle adjustment and timing (page 37).
8. Tucker fingers (page 38).
9. Needle lift brake (page 41).
10. Plungerhead safety stop (page 42).

Wire baler

1. Timing the baler (pages 32-33).
2. Bevel gear and pinion (page 38).
3. Intermittent drive gear (page 39).
4. Shear adjustment (page 39).
5. Twister hooks (page 39).
6. Needle link (page 40).
7. Needle adjustment and timing (page 40).
8. Wire guides (page 41).
9. Needle lift brake (page 41).
10. Plungerhead safety stop (page 42).

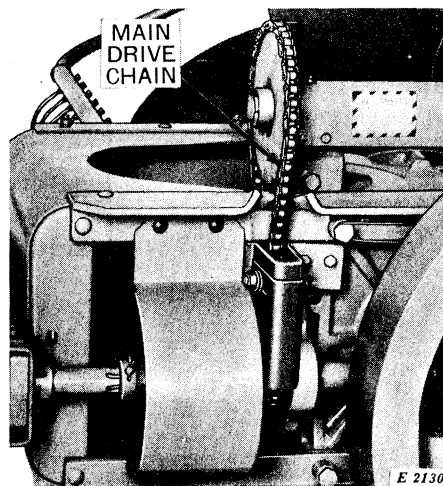
Service information pertaining to parts or adjustments not listed above is covered on pages 43 through 48.

Timing the baler

Timing is controlled by the main drive chain, feeder drive chain, and the bevel driven gear. If any of the chains are uncoupled or parts are removed for servicing, all timing operations will have to be checked before operating baler. Each of the following checks or adjustments should be made as the baler is run (by hand) through one complete tying cycle.

1. Place feeder pivot pin in bottom hole of feeder teeth.

2. Adjust the feeder drive chain idler snugly against the chain with thumb pressure, and tighten the idler mounting bolt.

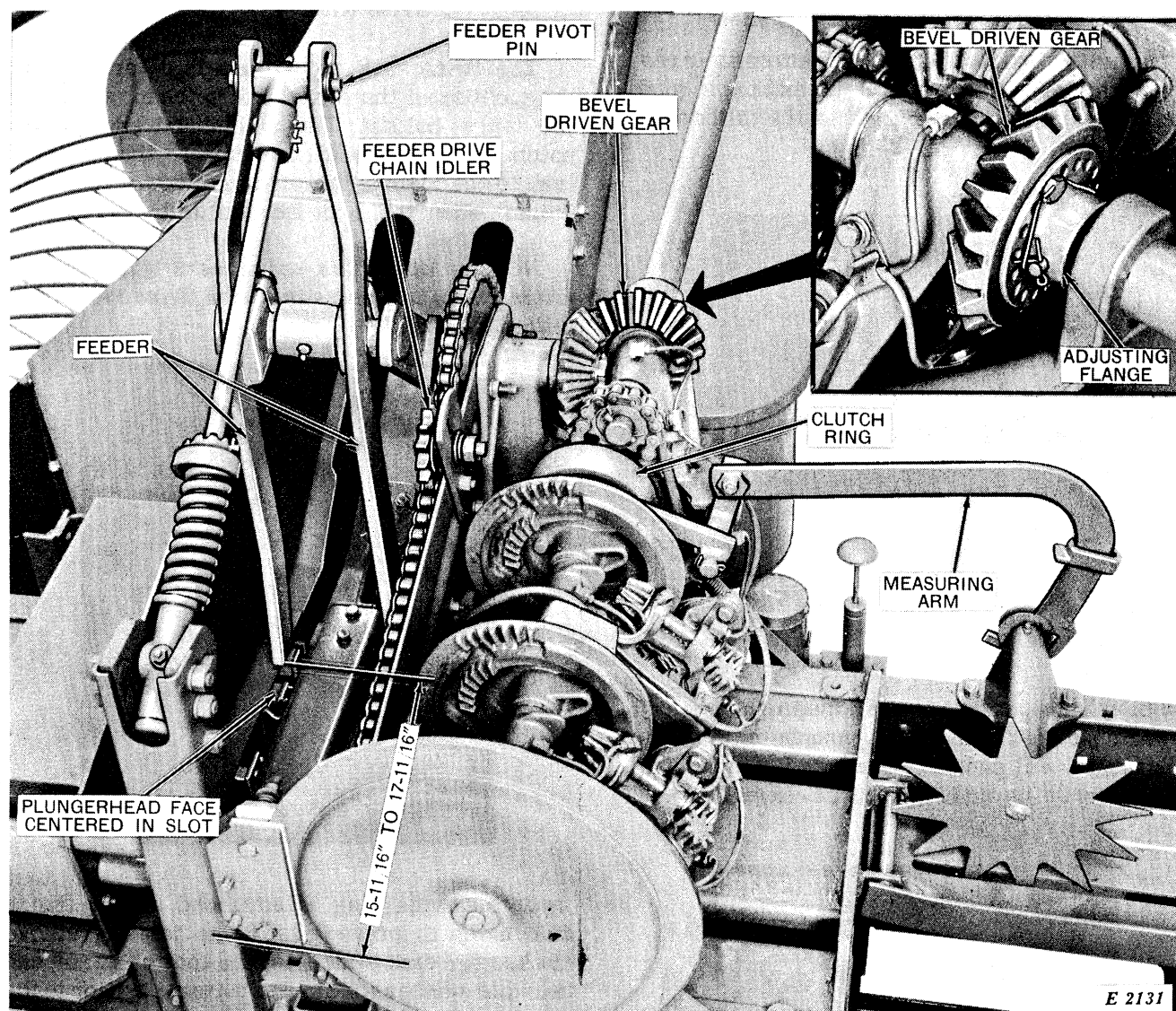


3. Turn flywheel (by hand) in a counter-clockwise direction until the face of plungerhead is centered in the front feeder slot. The bottom left edge of the feeder teeth must measure 15-11/16 to 17-11/16 inches from the left side of the feeder support. If the feeder teeth do not fall within this range, remove the main drive chain shield and disconnect the main drive chain. Set the left-hand bottom edge of the feeder teeth 16-11/16 inches (measured horizontally) from the extreme left-hand side of the feeder support. A block may be used to hold the teeth in this position until the chain has been connected.

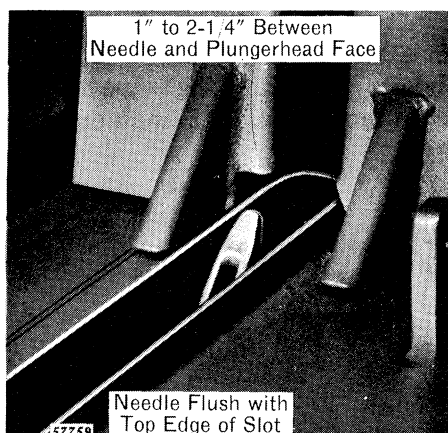
4. Connect the main drive chain. Turn the flywheel clockwise as necessary to install the chain with the drive side tight. Tighten the idler against the chain with thumb pressure and replace the drive shield.

5. Remove the bevel gear shield; then remove the wire and the bolts from the bevel driven gear.

6. Move the plungerhead (on a compression stroke) to the rear of the safety stop; then trip the measuring arm. Move the needle frame (by hand) to get the tip of the highest needle flush with the top edge of the bale case bottom groove flanges. Move the plungerhead until there is approximately 1-5/8 inches between the face of the plungerhead and the tip of the needle. Turn the auger (by hand) until the clutch ring lobe contacts the trip dog roller. Replace the drilled bolts in the bevel driven gear by aligning the holes in the bevel driven gear adjusting flange to the nearest set of holes in the bevel driven gear.



NOTE: This may change the 1-5/8 inch dimension when checked through a complete cycle. The plungerhead and needles will still be in time if the final dimension is between 1 to 2-1/4 inches.

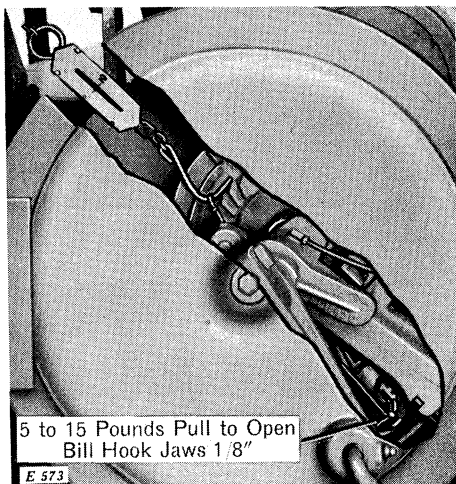


7. Move the plungerhead through one complete cycle to make certain that the feeder teeth and the plungerhead clear each other when checked with the feeder pivot pin in both top and bottom holes of the feeder teeth, and that the needles enter the bale case properly. Rewire the heads of the bolts in the bevel driven gear and replace the shield.

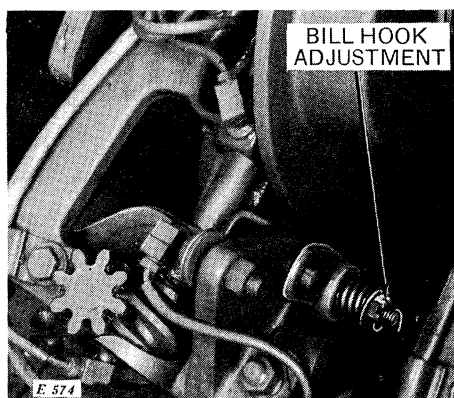
CAUTION: Do not operate baler without all safety shields in place.

Billhook—twine baler

The adjustment of the billhook tongue pressure is extremely important in making a good knot. Make all adjustments when the billhook is free of twine.



The billhook is in proper adjustment when an outward pull of from 5 to 15 pounds on the billhook tongue will separate the jaws $1/8$ inch. The tongue should be tight when it is closed.



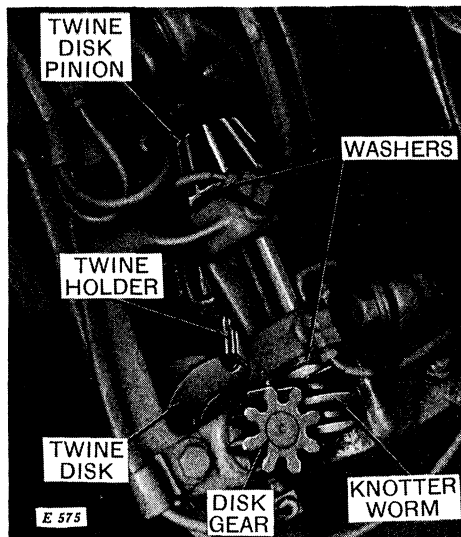
To increase the pressure on the billhook tongue, tighten the nut on the billhook adjusting stud. Loosen the nut to reduce pressure.

Excessive tension on the billhook tongue may cause knots to remain on the billhook, thus breaking the twine. Incomplete knots may be the result of insufficient pressure on the billhook tongue.

Twine disk—twine baler

The twine disk adjustment is determined by the position of the twine disk notch in relation to the twine holder. The right-hand edge of the notch in the twine disk should be flush to $1/16$ inch to the right of the left-hand edge of the twine holder when twine is located in the twine disk.

NOTE: Make this adjustment after tying a minimum of two bales and with twine remaining in the twine disk.



If the twine disk is advanced too far (twine disk notch is located past twine holder) remove the knotter disk pinion and the knotter worm, and relocate washers from the bottom position to the top position on the worm shaft.

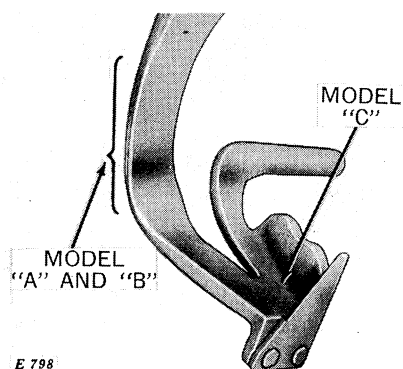
If the twine disk is not advanced far enough (twine disk notch is located ahead of twine holder) remove the knotter disk pinion and the knotter worm, and relocate washers from the top position to the bottom position on the worm shaft.

Do not allow the right-hand edge of the notch to protrude to the left of the twine holder. There must not be more than .015-inch end play in the worm shaft.

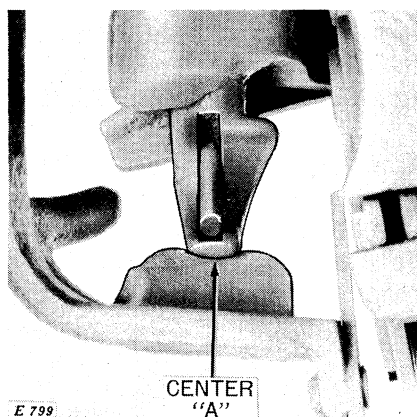
Knife arm—twine baler

Proper knife (wiper) arm adjustment is essential because the stripping of the knot from the billhook, once it has been tied, is accomplished by a wiper on the knife arm.

Remove knife arms and sharpen knives when they become dull and make a ragged cut.



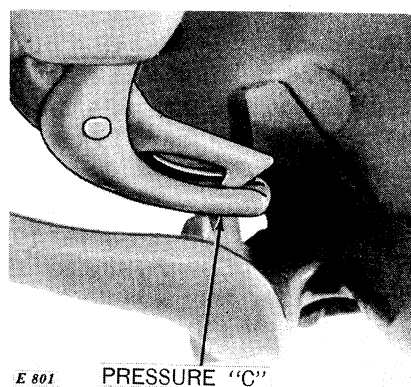
The wiper arm is adjusted to the billhook by modeling or bending the arm in the areas shown. It is seldom necessary to remove the wiper arm to model the arm. Three modeling operations may be necessary to align the wiper arm properly with the billhook:



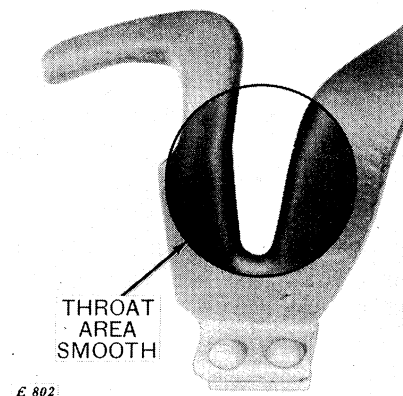
A. The wiper arm ledge must be centered with the billhook heel.



B. The billhook tongue must just clear the wiping ledge on the wiper arm by a maximum of not more than $\frac{3}{32}$ inch, as the billhook tongue passes the wiper arm. Rotate the billhook 180 degrees and move the tongue by hand, up and down, to check clearance at the closest point between the tongue and ledge.

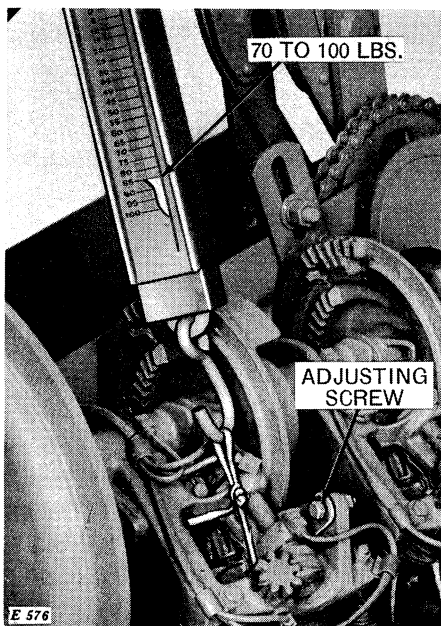


C. Between 5 and 10 pounds of pressure is required to pull the wiper arm ledge across the heel of the billhook.



The wiper arm must have well rounded and smooth surfaces at all portions that contact the twine or knots (particularly in the throat area) to prevent twine fracture.

Twine holder—twine baler



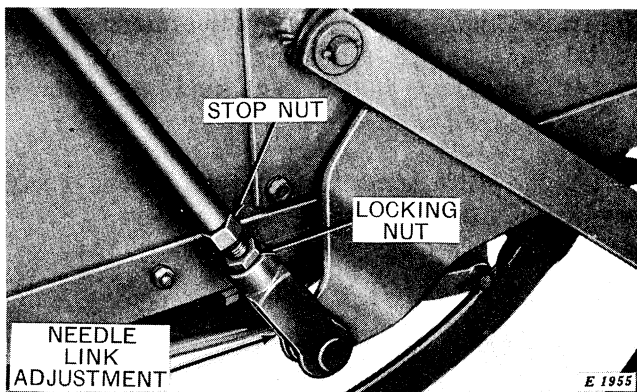
The twine holder holds the twine in the twine disk (while the bale is being formed and the knot is being tied) by the application of pressure on the twine holder. The pressure is regulated by a pressure spring with adjusting screw.

In most baling conditions, an upward pressure of from 70 to 100 pounds—pulling parallel with twine disk, should be required to pull the remaining twine out of the holder after a knot has been tied. If the twine pulls free at less than 70 pounds pressure, loosen the lock nut and tighten the adjusting screw. If the twine pulls free with more than a 100 pound application of pressure, loosen the lock nut and loosen the adjusting screw. Retighten the lock nut.

NOTE: Adjust the twine holder only as tight as necessary to prevent the twine from pulling out of the twine disk—resulting in a missed tie. The greater the twine tension the more likely twine fracture will occur.

Various hay conditions and moisture content may require greater or lesser twine holder tension—as conditions change.

Needle travel—twine baler



The needle travel is governed by the position of the clevis on the lower end of the needle lift link. The travel of the needles may vary but they should rise far enough to seat the twine firmly in the bottom of twine disk groove and continue to rise for at least 1/2-inch after seating the twine.

Adjust the length of the lift link as short as possible, but do not allow the needle frame to come any closer than 1/2-inch from the axle gusset on the right-hand side of the bale case. After adjusting the length of the needle lift link, tighten the locking nut against the clevis, and tighten the stop nut just snug against the upper lift link.

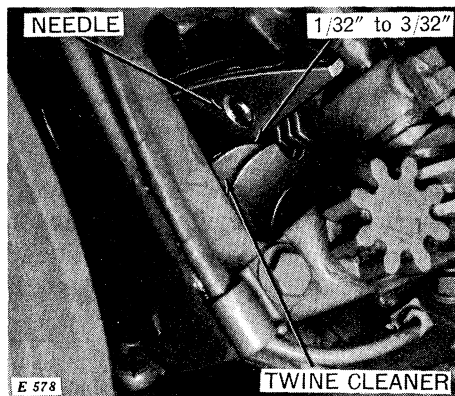
The plungerhead and needle timing, and the plungerhead stop, must be checked after making any adjustments with the needle lift link.

CAUTION: When needles are in "home" position, their tips must be at least 1/2 inch below the top of the bottom bale case groove flanges—also needle clamp bolts must have at least 1/2 inch clearance from bale case bottom.



be careful.....
avoid accidents

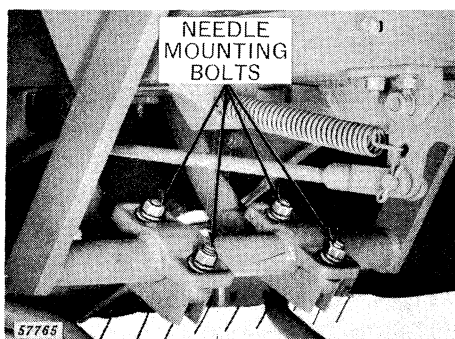
Needle adjustment—twine baler



As the needles pass through the knotting mechanism, the closest point should clear the twine cleaner or the twine disk $1/32$ to $3/32$ inch and there should be 5 to 15 pounds side pressure against the knotter frame.

NOTE: The twine cleaner should move freely through the twine disk and must be in its extreme left position when measuring needle clearance.

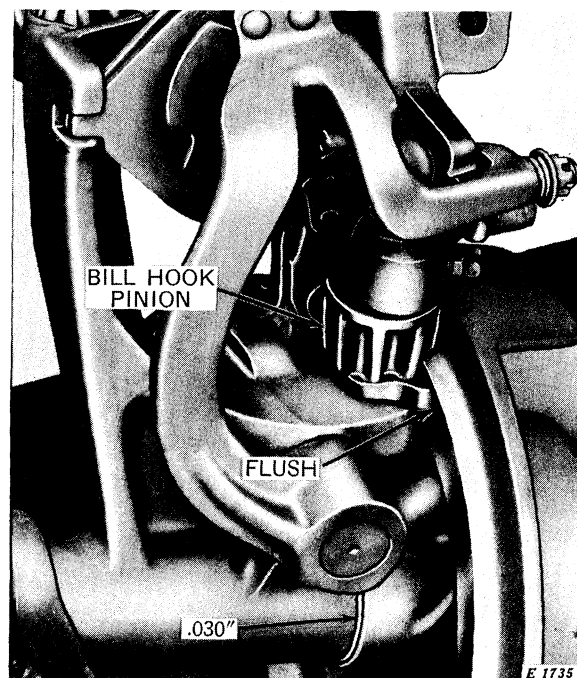
To adjust the position of the needles in relation to the twine cleaner; release trip dog roller with measuring arm, rotate needle lift arm counter-clockwise and raise the needles to a point where the head is closest to the twine disk cleaner. Loosen the four needle mounting bolts slightly. Move the needles sideways until their right-hand sides exert a pressure of from 5 to 15 pounds against the knotter frame. Adjust the four needle mounting bolts until the desired clearance is obtained. Tighten the needle mounting bolts to 50 to 80 foot-pounds of torque.



To increase the distance between the needles and the twine cleaners, loosen the front needle mounting bolts slightly and tighten the rear bolts. Reverse this procedure to reduce the distance.

When the needles are properly adjusted, tighten all bolts and again check needles through their cycle.

Knotter gears—twine baler



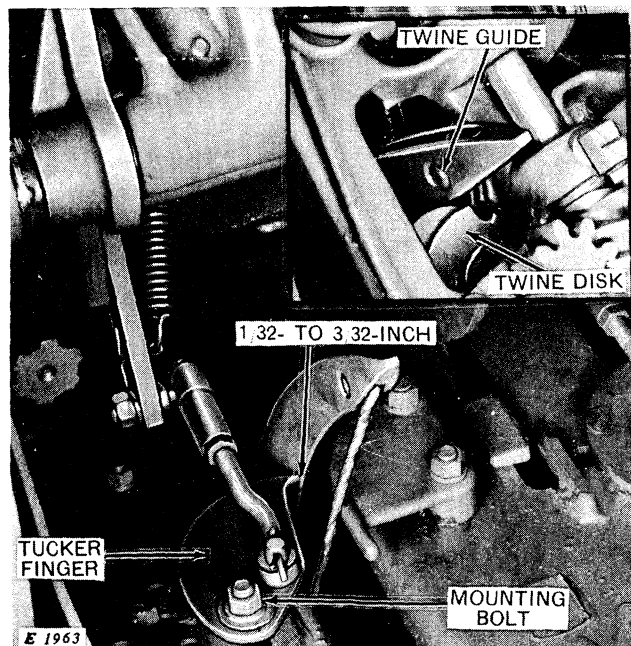
To eliminate tooth breakage and to insure proper meshing, the flat side of the billhook pinion should ride flush with the smooth face of the intermittent knotter gear.



The intermittent knotter gears should be adjusted flush against the billhook pinion by removing cotter pins and shifting washers on the knotter shaft (between the intermittent knotter gears) until proper distribution of washers has been made. Replace the cotter pins.

NOTE: Add or remove washers as necessary to maintain a clearance of .030\"

Tucker fingers—twine baler



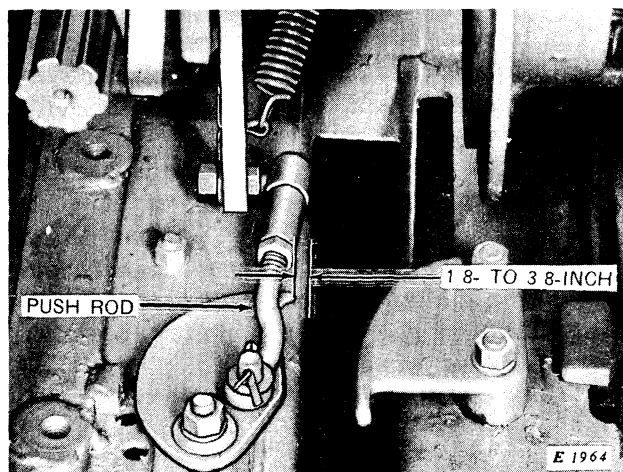
The tucker fingers "catch" the twine as it is brought to the knotter mechanism by the needles, and they hold the twine in position for the bill-hooks to engage it properly.

Adjust the tucker fingers as follows:

NOTE: Make sure the needles are in proper adjustment. (See page 37.)

Raise the needles until the center of the twine guide in the needle is approximately 1/2-inch above the top of the twine disk.

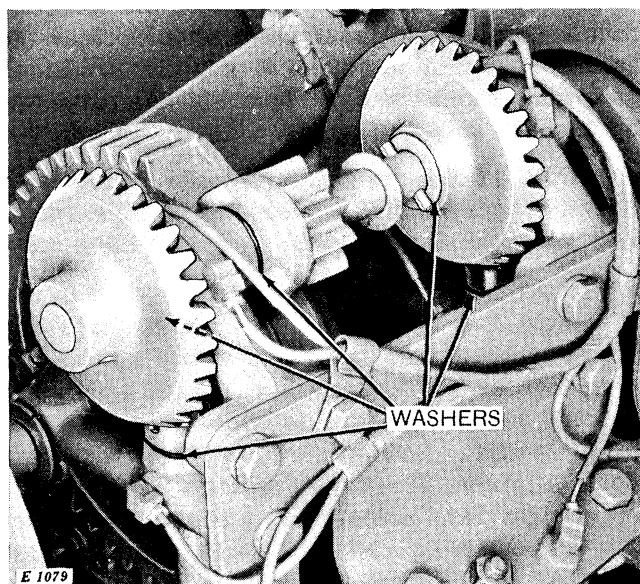
Loosen the tucker finger mounting bolt and position the tip of the finger 1/32 to 3/32-inch from the needle while holding up on the finger with hand pressure. Tighten the mounting bolt.



Return the needles to "home" position, then adjust the tucker finger push rod one turn at a time to position the tip of the finger, 1/8 to 3/8-inch to the left of the slot in the bale case top.

Recheck the tucker fingers and needles through one complete cycle to be sure the tucker fingers clear the needles properly and "catch" the twine. There must not be any binding in the tucker finger drive.

Bevel gear and pinion adjustment—wire baler



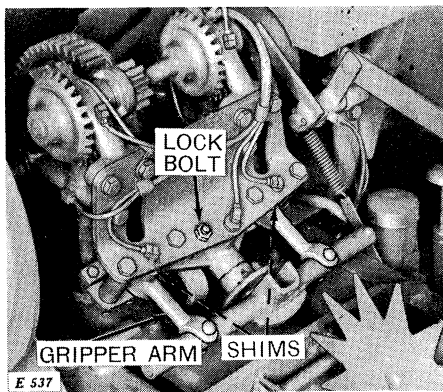
The bevel gears must be adjusted to mesh properly and have even heel alignment with the pinions on the twister shafts.

The bevel gears may be adjusted to the right by removing washers between the left-hand bevel gear and twister frame, and relocating them between the left-hand twister frame and the bevel gear shaft drive pinion. The right-hand bevel gear may be individually adjusted by adding or removing washers behind the roll pin.

CAUTION: Check twister hook adjustment after replacing bevel gears.

The twister pinions may be adjusted higher by adding washers between the pinions and the twister frames.

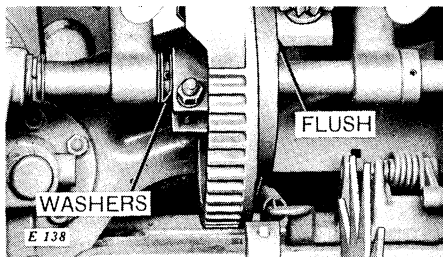
Shear adjustment—wire baler



To provide a positive shearing action on the wire, adjust the grippers with shims. To shim a gripper, pivot the knotter assemblies up by loosening the lock bolt, then remove the lock nut from the bottom of the gripper pivot pin. Remove the pivot pin, then insert the necessary shims between the gripper arm and the knotter mounting plate, and replace the pivot pin. Tighten the pivot pin and secure with the lock nut.

Replace the knotter assemblies to their original position and secure with the lock bolt.

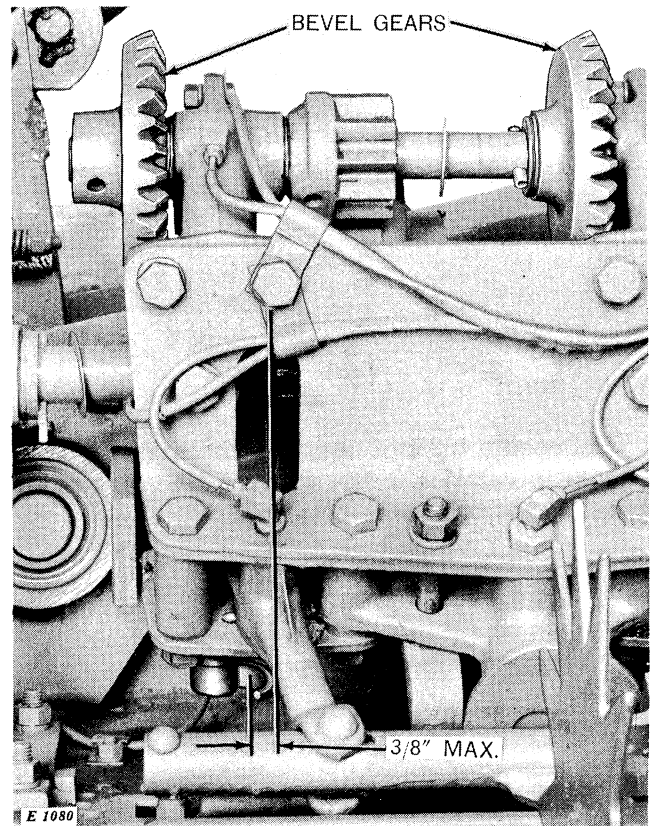
Intermittent drive gear adjustment—wire baler



To eliminate tooth breakage and insure proper mesh, the flat side of the gripper drive pinion must ride flush on the smooth surface of the intermittent drive gear.

Adjust gears by removing pin in needle lift shaft and locating washers on shaft as necessary to get proper mesh. Replace the pin in the shaft.

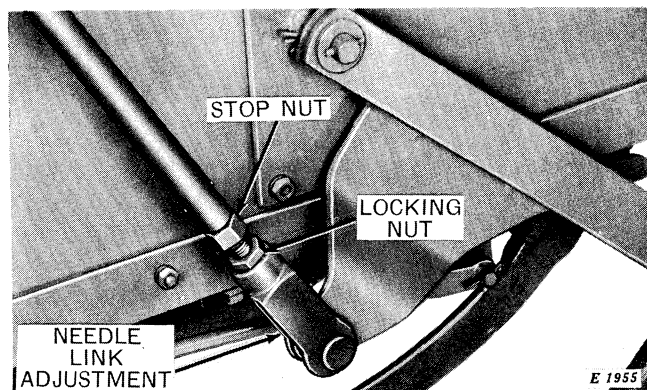
Twister hook adjustment—wire baler



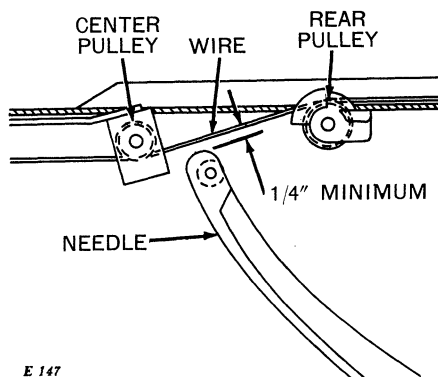
With the needles in home position, the twister hook is properly adjusted when the inside of the point of the hook is within 3/8-inch either side of the center of the notch in the shear plate or the center of the gripper pivot pin, when finger pressure is applied to retard the twister hook.

Adjust the left-hand twister hook by removing its respective bevel gear from the drive shaft, and rotating the twister shaft and pinion one tooth at a time, as necessary, for correct aligning of the hook. Remove the rollpin securing the right-hand bevel gear and slide the bevel gear to the left and adjust the right-hand twister hook in the same manner as the left-hand twister hook. Relocate the bevel gear on the shaft and secure it with the rollpin.

Needle link adjustment—wire baler



The needle lift link controls the height of the needles in relation to the wire and the wire pulleys, and the bale case bottom.



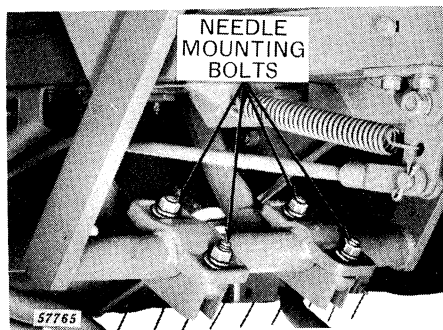
With the needles in the home position, each needle pulley must be 1/4-inch minimum below the wire which passes under the center wire pulley and over the rear wire pulley.

The rear end of the needle assembly must clear the bale case bottom by at least 1/2 inch.

Raise or lower the needles by adjusting the lift link. Loosen the lock nut on the threaded end of the link, remove the pin in the yoke, and turn the yoke as necessary. Replace yoke on needle frame and tighten lock nut against the yoke. Tighten the stop nut just snug against the upper lift link.

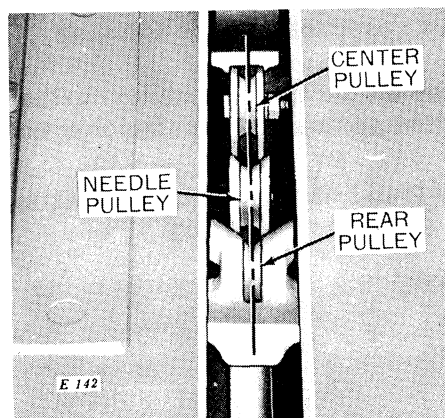
The plungerhead and needle timing, and the plungerhead stop, must be checked after making any adjustments with the needle lift link.

Needle adjustment—wire baler

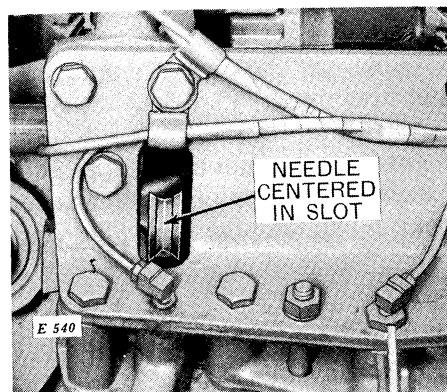


The needle mounting bolts control the position of the needles in relation to the center and rear wire guides, the slots in the twister mounting plate, and the wire grippers.

Each needle may be adjusted forward or rearward by loosening one of the needle mounting bolts and tightening the other, or it may be shifted sideways by loosening both mounting bolts.

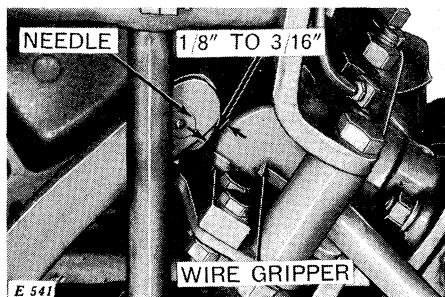


The center of each needle pulley must be aligned within 1/16-inch of the center and the rear wire guide pulleys.



Each needle must be within 1/16-inch of being centered in the slot in the twister mounting plate when the needle is in its highest position.

To align each needle with the wire guide pulleys, and the slot in the twister mounting plate, loosen both needle mounting bolts and move the needle sideways until it is aligned. (See "center wire guides")



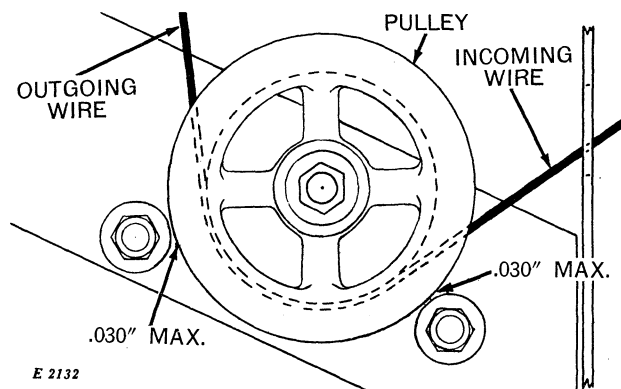
As the needles pass through the knotting mechanism, the closest point of each needle should clear the front of each wire gripper by 1/8 to 3/16 inch.

To increase the distance between the needles and the grippers, loosen the front needle mounting bolts slightly and tighten the rear bolts. Reverse this procedure to reduce the distance.

When the needles are properly adjusted, tighten all bolts to 50 to 80 foot-pounds of torque and again check needles through their cycle.

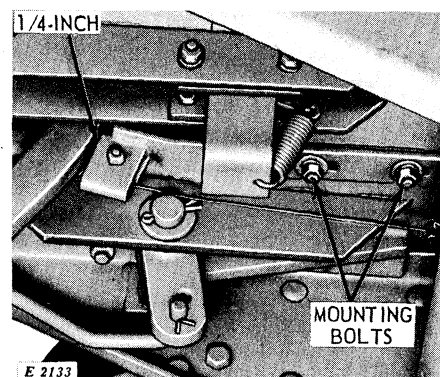
Wire guide adjustments—wire baler

Front wire guides



Adjust the front wire guides to clear the pulleys a maximum of .030-inch. Each pulley must turn freely.

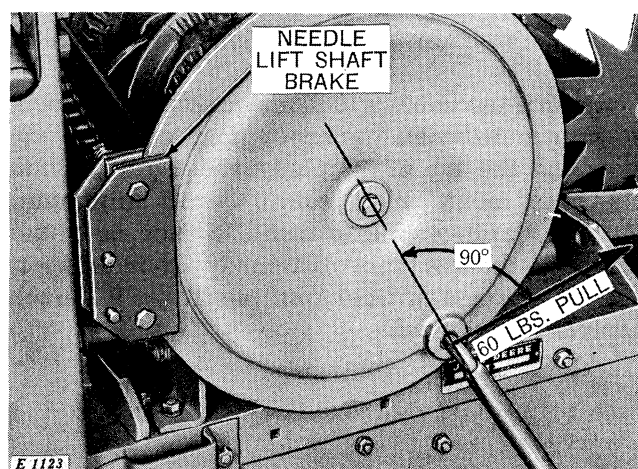
Center wire guides—wire baler



The center wire guides must be 1/4 inch forward of the closest point of the needles when the needles are in their highest position, and the wire guides are aligned with the needle pulley.

Adjust the guides by loosening the two mounting bolts in each guide. Shift the guides to the left or right for alignment. Shift them forward or to the rear for the desired clearance. After setting the guides, tighten the mounting bolts.

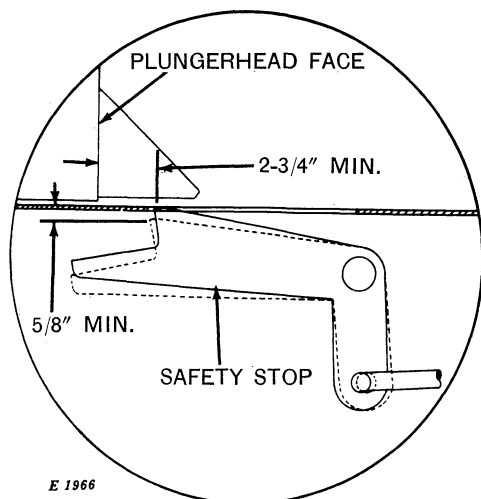
Needle lift shaft brake



When properly adjusted, the needle lift shaft brake maintains a constant drag on the needle lift drive to eliminate erratic action.

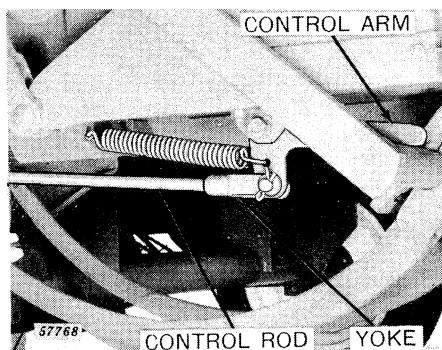
To adjust the brake, place the needles in home position and trip the measuring arm. Disconnect the lift link from the disk and apply pressure at the link mounting hole in the disk until 60 pounds pull will move the disk. Pull at a 90-degree rearward angle to a center line of the lift shaft and the hole.

Plungerhead safety stop



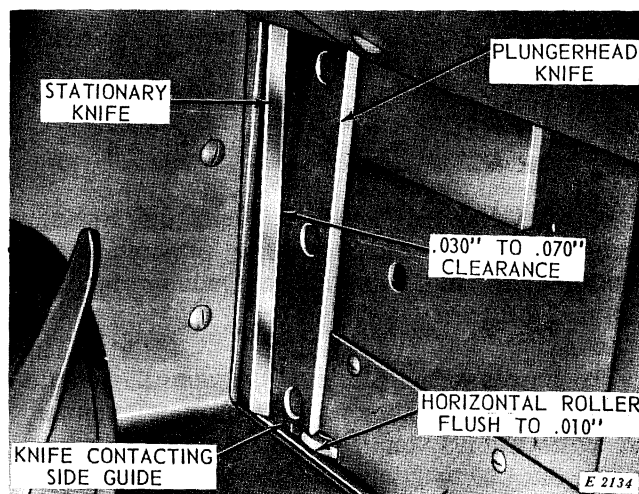
Trip the needles (by hand) and turn the flywheel until the needles retract toward the home position and the plungerhead safety stop is flush with the top of the plungerhead guide in the bottom of the bale case. Then the plungerhead, on compression stroke, must be 2-3/4 inches minimum from the safety stop. If this clearance is not correct, disconnect the control rod from the control arm and adjust the yoke half of a turn at a time (180°) until the stop is as close as possible to 2-3/4 inches from the plungerhead, but no closer.

Return the needles to home position and check clearance between the upper point of the safety stop and the top of the plungerhead guide. This clearance must be at least 5/8-inch minimum. If the clearance is less than 5/8-inch, readjust the yoke on the control arm by shortening it half of a turn at a time (180°) until the 5/8-inch clearance is gained.



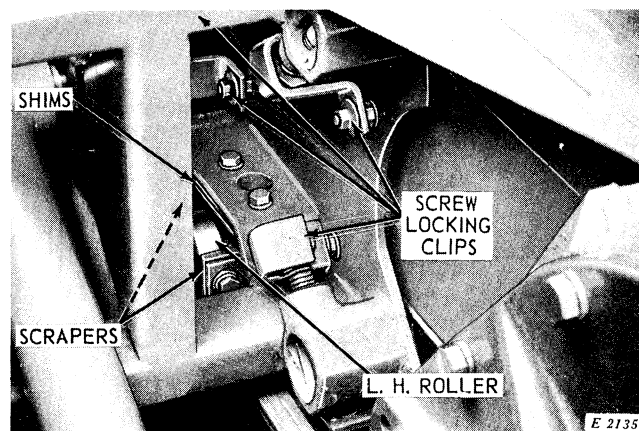
Plungerhead and knife adjustment

The plungerhead and knives are in proper adjustment when the plungerhead fits snug, yet moves freely. There must be a clearance of .030- to .070-inch between the plungerhead knife and the stationary knife. The clearance between the top right-hand wear plate and the top of the bale case must be .060-inch or less at the closest point. The top left-hand wear plate must be .040-inch or less at the closest point. The knife must be adjusted (with shims) flush to .010-inch out from the horizontal roller.



NOTE: Failure to keep knives sharpened and to maintain correct clearance will result in excessive slipping of flywheel clutch.

To adjust plungerhead



1. Turn flywheel by hand to move plungerhead into front end of the bale case.

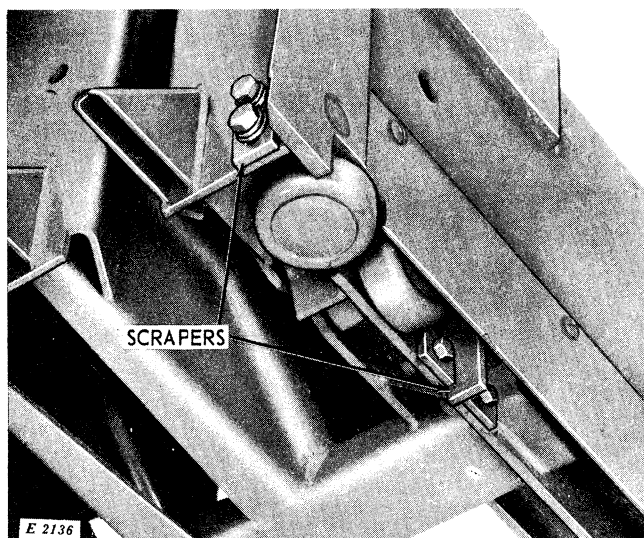
2. Add or remove slotted shims from under left-hand roller mounting on plungerhead to obtain knife clearance from top to bottom.

3. Remove locking clips from the four plug adjusting screws.

4. Adjust all four plug adjusting screws until plungerhead fits snug.

CAUTION: Move plungerhead through a complete cycle. There must not be any bind between the four adjusting plugs and the plungerhead guides. Excessive wear will result from plug binding which may cause the knives to lock.

5. Replace locking clips on adjusting screws.



Scrapers

To prevent material build-up on guides, adjust each scraper to barely clear its respective guide at the closest point.

To adjust knives

1. Turn flywheel by hand until knives are opposite as shown.

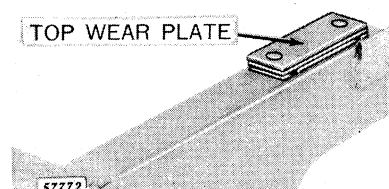
2. Use shims behind the plungerhead knife to set the knife flush to .010 inch to the right of the horizontal roller. The knife must contact the lower guide when making this adjustment.

CAUTION: Knife adjusted too far to right of roller may cause locking of knives. Knife adjusted to left of roller may not allow proper knife register.

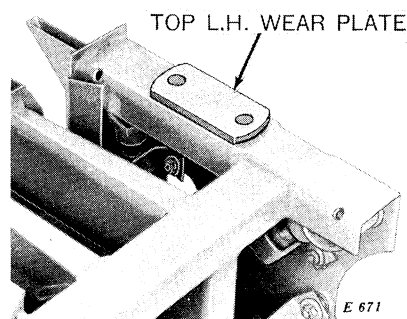
3. Adjust knives to .030 to .070 inch clearance by adding or removing shims behind the stationary knife. The clearance at the top of the knives must be greater than at the bottom.

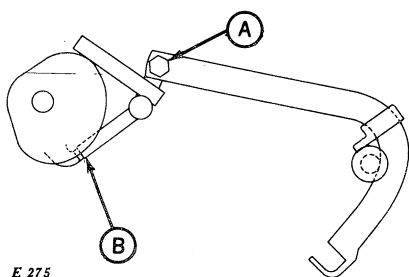
CAUTION: The stationary knife must be set at least .030 inch to the right or behind the plungerhead guides to prevent locking of knives.

To adjust top wear plates



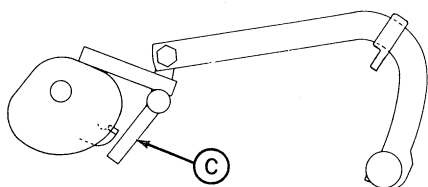
After knife register is in proper adjustment, add or remove slotted shims under the wear plate on the top of the plungerhead. The top right-hand wear plate (shown above) must not be more than .060 inch from the top of the bale case, and the top left-hand wear plate must not be more than .040 inch from the top of the bale case, when the plungerhead is located where there is the least amount of clearance.



Bale length control

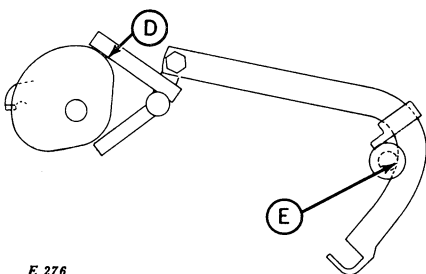
E 275

Locate the needles in the home position, then adjust the measuring arm eccentric 'A' so the face of the trip dog 'B' does not project more than 1/16-inch above or below the end of the release lever as the measuring arm is raised or lowered before tripping.



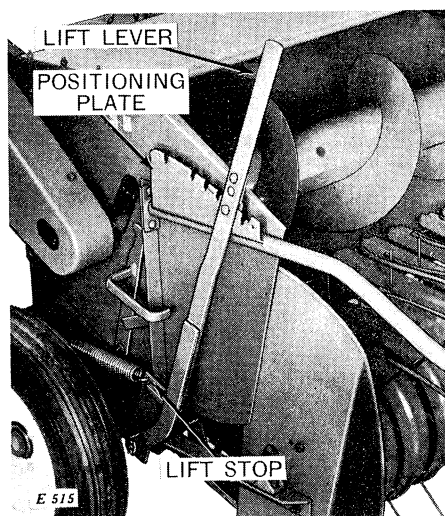
E 544

With the needles in home position, trip the measuring arm. The trip release lever 'C' must not interfere with the rotation of the trip dog.



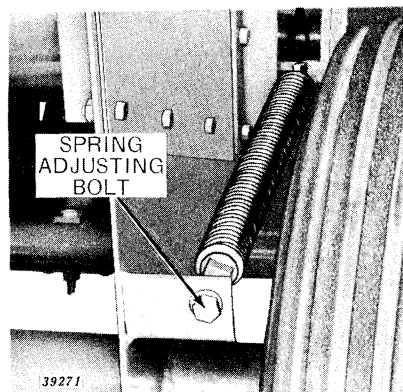
E 276

Raise the needles until the release lever cam arm is on the high point of the cam 'D,' the serrated measuring arm must clear the serrated measuring wheel roller 'E' by at least 1/16 inch.

Pickup lift spring

E 515

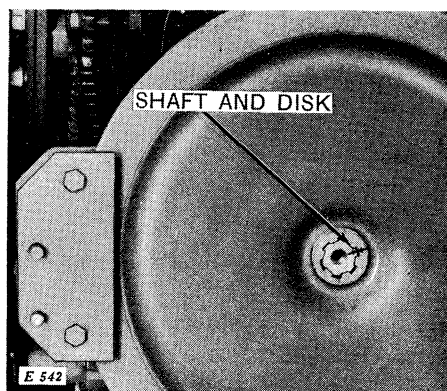
With the pickup lift lever seated in the lowest notch in the positioning plate, the pickup should be adjusted to permit the lift stop on the pickup frame to rest lightly against the lift lever.



39271

To adjust the pickup for the setting described, tighten or loosen the spring adjusting bolt at the rear of the pickup lift spring.

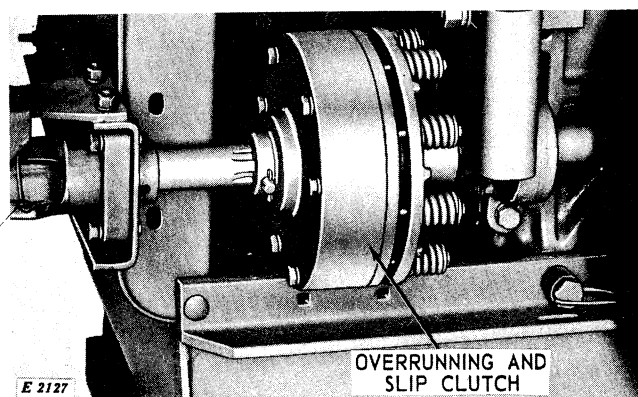
Timing needle lift



When replacing the needle lift disk, be sure the timing arrow on the disk aligns with the timing arrow on the shaft.

Safety slip clutch

The slip clutch should be tested prior to each baling season or (if excessive slippage is noted) during normal operation, for a static slip torque of from 375 foot-pounds to 500 foot-pounds.



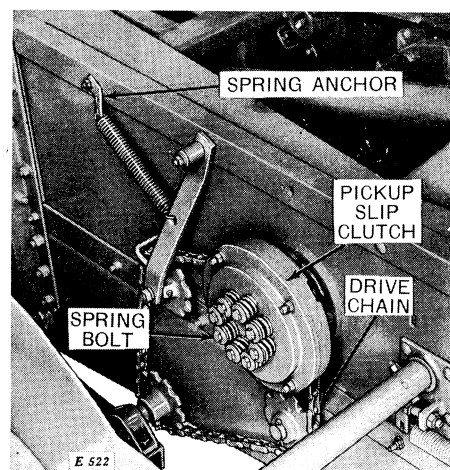
The clutch may be tested by blocking movement of plungerhead and applying a load of from 74 to 100 pounds on a lever, attached to clutch shaft, 5 feet from center of clutch. If the clutch does not slip within this range, adjust clutch by loosening or tightening spring bolts. Loosen or tighten all bolts equally.

Pickup slip clutch and idler

The slip clutch should be tested prior to each baling season or (if excessive slippage is noted) during normal operation for a static slip torque of 150 to 180 foot-pounds.

The clutch may be tested by blocking movement of plungerhead and applying a load of from 30 to 36 pounds on a lever, attached to the clutch sprocket, 5 feet from center of clutch. If the clutch does not slip within this range, adjust the clutch by loosening or tightening spring bolts. Adjust all bolts equally.

The pickup drive chain should be kept tight to prevent the drive chain from jumping sprockets.



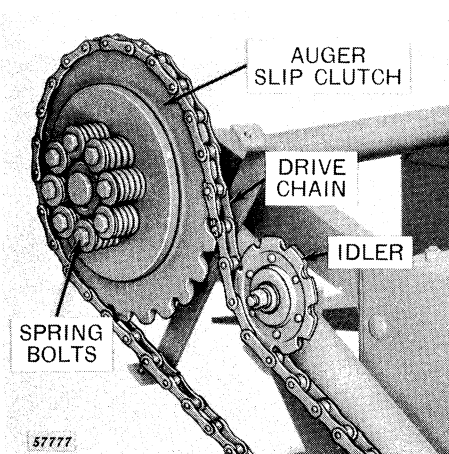
Tension is applied by the idler spring which may be adjusted for greater tension by remounting the anchor bolt in the extra hole in the spring anchor. Remove a chain link if necessary to take up slack in chain.

Auger slip clutch and idler

The slip clutch should be tested prior to each baling season or (if excessive slippage is noted) during normal operation for a static slip torque of 250 to 300 foot-pounds.

The clutch may be tested by blocking movement of plungerhead and applying a load of from 50 to 60 pounds on a lever, attached to clutch sprocket, 5 feet from center of clutch. If the clutch does not slip within this range, adjust clutch by loosening or tightening spring bolts. Adjust all bolts equally.

The auger drive chain should be checked periodically for looseness.

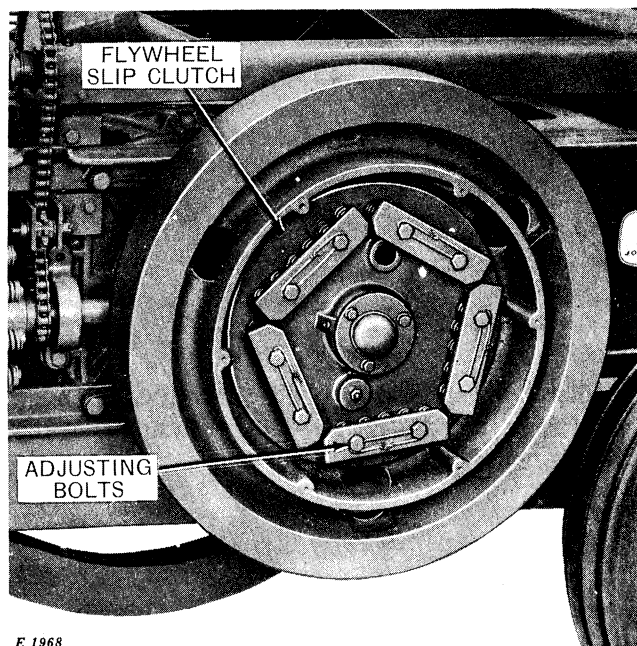


If the chain is loose or jumps the sprockets, adjust chain idler to tighten chain. As chain and sprockets become worn it may become necessary to remove chain links to take up looseness.

Flywheel slip clutch

The flywheel slip clutch should be tested prior to each baling season or (if excessive slippage is noted) during normal operation. PTO balers

should be tested for a static slip torque of 1400 to 1750 foot-pounds and engine balers 2100 to 2400 foot-pounds.



The clutch may be tested by blocking movement of plungerhead and applying a load (140 to 175 pounds on PTO balers and 210 to 240 pounds on engine balers) on a lever attached to flywheel, 10 feet from center of flywheel. If the clutch does not slip within this range, adjust clutch by loosening or tightening spring bolts. Adjust all bolts equally.

Gear case

The gear case should require no servicing or adjustments if kept lubricated as per instructions. (See "Lubrication," page 19.)

If the gear case requires servicing, consult your local John Deere dealer.

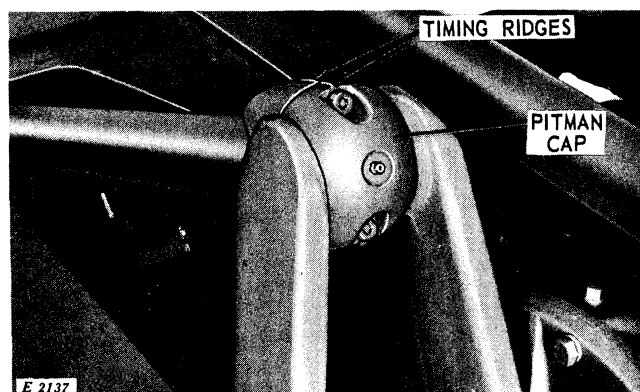
Feeder bearings

As the feeder teeth bearing halves are machined together, it should be noted that the lugs on the outside of the bearings should be mated when assembling the feeder.

Pitman

Pitman bearing inserts should be replaced when they become loose and worn.

NOTE: Install replacement bearing inserts in pairs. Never use a new insert with an old one. When fitting these inserts, do not file the pitman or the cap to obtain desired bearing clearance.



When installing new bearing inserts, make certain that all foreign matter is removed from bearings and the inside surfaces of the pitman and the pitman cap. Failure to do this may result in a false indication of bearing clearance.

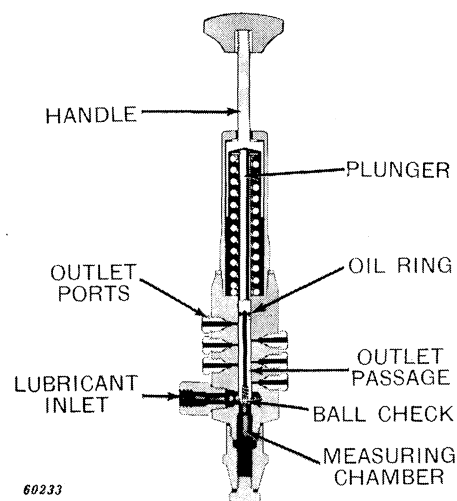
The ears on the bearing inserts should be seated in the machined notches in pitman and pitman cap.

When replacing the pitman cap, be sure the timing ridge on the cap matches with the timing ridge on the pitman. Tighten the cap front mounting bolts to 65 foot-pounds minimum torque.

Multi-luber system

Plugged oil lines and bearings

When operating properly, the plunger will move through its full stroke without difficulty. If an oil line or bearing becomes clogged, the normal stroke of the plunger will be interrupted when it reaches the outlet port of the clogged line. Clear the obstruction in the following way:



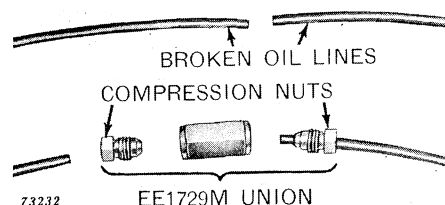
1. Determine which line is clogged by estimating how far the plunger has moved. Check to make sure by disconnecting the suspected oil line and moving the plunger.

2. After disconnecting the clogged line, move the plunger to determine if the clogging is in the bearing or in the oil line.

3. Clean bearing if clogged and refill with grease before attaching Multi-Luber feed line. If oil line is clogged, operate the pump until lubricant is forced through the line.

CAUTION: Do not force oil through oil line with a pressure grease gun. Burst pressure of the oil line is 3000 psi.

Broken oil lines



Whenever an oil line has been damaged and broken, the action of the plunger will speed up as it passes the outlet port having a broken or punctured oil line.

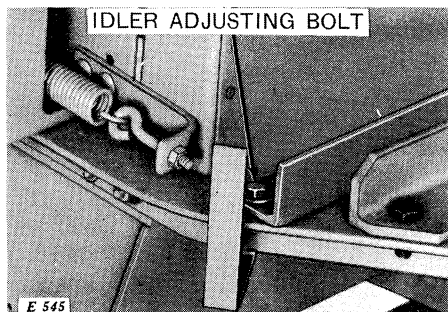
Determine the location of the break in the oil line. Cut broken ends of oil lines square and insert them into compression nuts and union as shown above. Tighten nuts firmly.

NOTE: Compression nuts can be used only once.

Engine and belt alignment

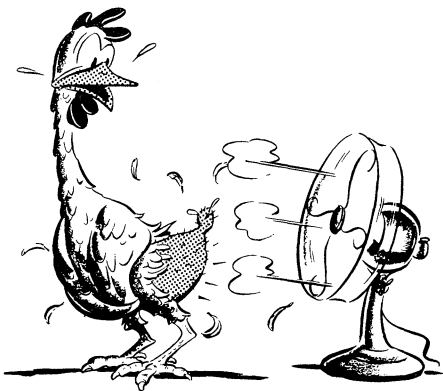
Slippage of the main drive belt or movement to one side or the other on the pulleys may be remedied by one or more of the following adjustments:

Idler pulley alignment



The idler pulley may be adjusted to increase or decrease the tension on either side of the belt. The pulley should be adjusted until the belt runs centered on the drive pulley and the flywheel.

Adjust the idler by loosening the idler adjusting bolt on the right-hand end of the idler mounting, and shifting the mounting forward or to the rear. Tighten the idler mounting bolt.

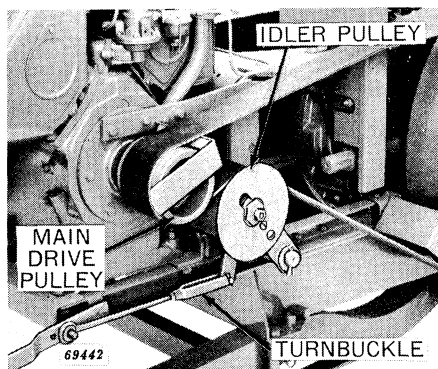


Be Extra Cautious
around Moving Machinery!

R 2330

Drive pulley alignment

The center of the drive pulley must be aligned with the center of the flywheel. To adjust, loosen the set screws in drive pulley, place pulley in alignment with flywheel and retighten set screws.



Engine alignment

The engine must be aligned on the mounting frame with the flywheel. This is done by loosening the engine mounting bolts and shifting the engine until the engine drive pulley shaft is parallel with the flywheel shaft. Tighten mounting bolts.

Belt tension

If the engine drive belt is slipping, it may be the result of inadequate tension on the belt. Adjust turnbuckle for desired belt tension. If more adjustment is needed, move rod to second hole in clutch lever.



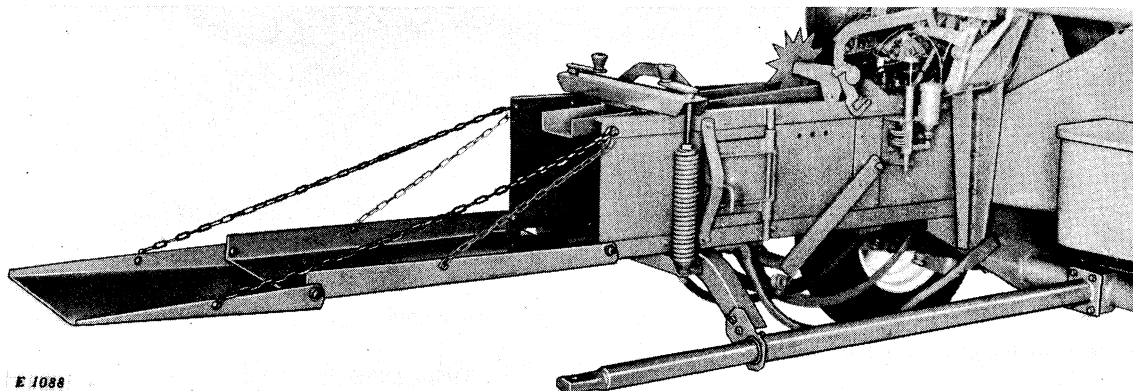
be careful.....
avoid accidents

65173



attachments

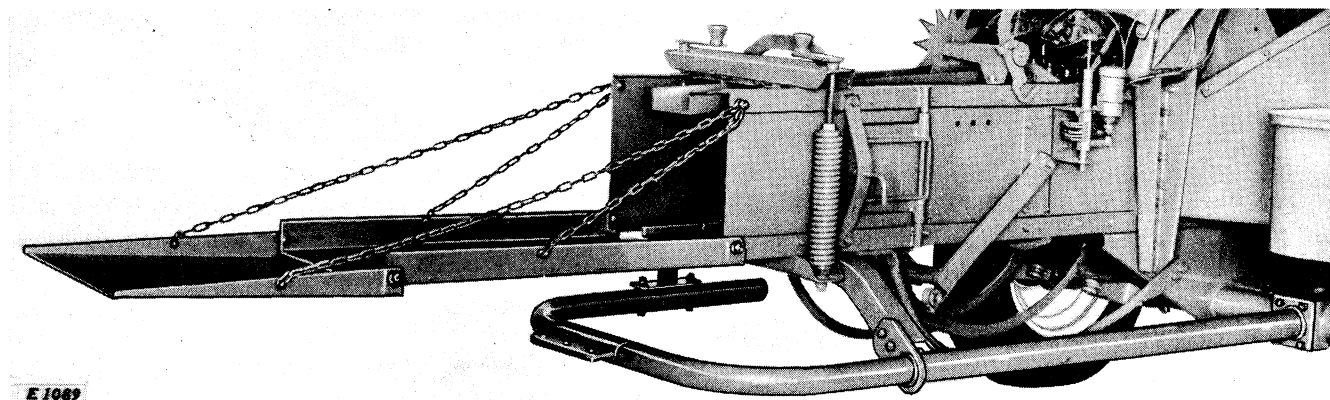
Side wagon hitch



This attachment consists of a Wagon Hitch Axle Connection, a Side Wagon Hitch Extension, and a Bale Chute Extension. The use of the wagon hitch makes it possible to hitch a wagon or trailer to the baler, and load bales directly from the bale chute onto the front end of the wagon or trailer.

This chute attaches in the same manner as the regular chute and is supported by four chains. The hitch is bolted to the frame and bale case and is adjustable for wagons or trailers having tongues of varying lengths.

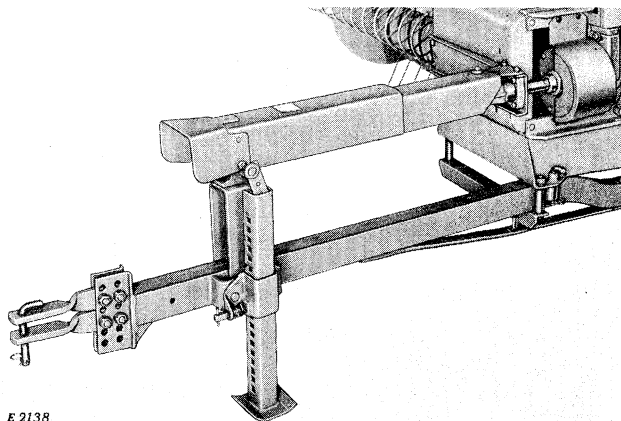
Center wagon hitch



The center wagon hitch consists of a wagon hitch axle connection, a center wagon hitch extension, and a bale chute extension.

The center hitch allows the wagon to be pulled directly behind the bale chute.

Power take-off unit

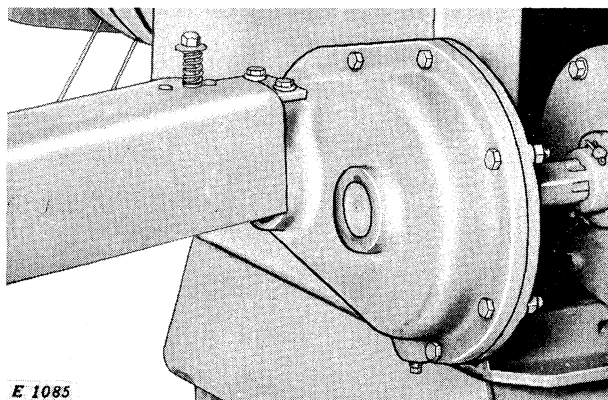


E 2138

This attachment is available for converting an engine-mounted baler to power take-off. It may be purchased as either a 540 or a 1000 rpm unit.

A tractor hookup attachment is also necessary when using the power take-off.

1000 rpm conversion parts



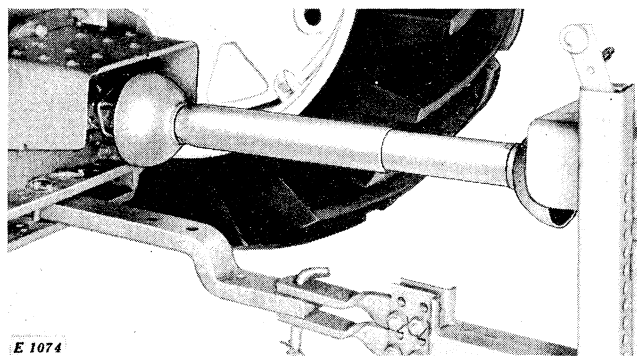
E 1085

The installation of these parts will convert a 540 rpm baler for operation with a 1000 rpm tractor.

CAUTION: Never hook up a 540 rpm baler to a 1000 rpm tractor.

See your John Deere Dealer for special information on ordering 1000 rpm conversion.

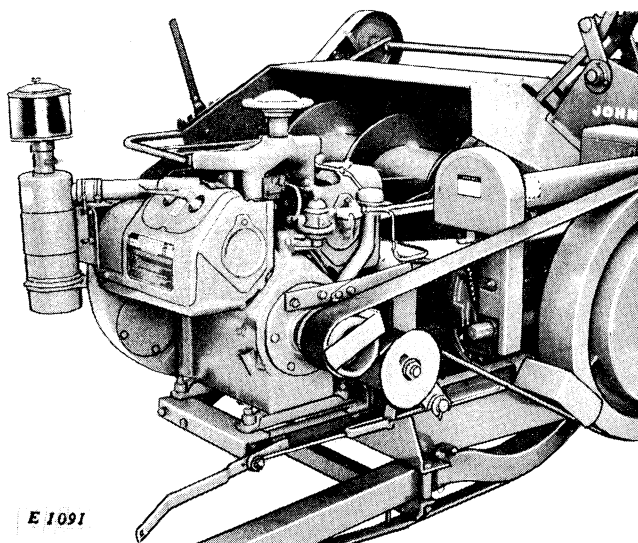
Tractor hookup



E 1074

This bundle is available for use when the baler is used as a power take-off machine. It may be purchased as either a 540 or 1000 rpm unit. Both accommodate the 1-3/8-inch tractor spline.

Wisconsin engine and mounting



E 1091

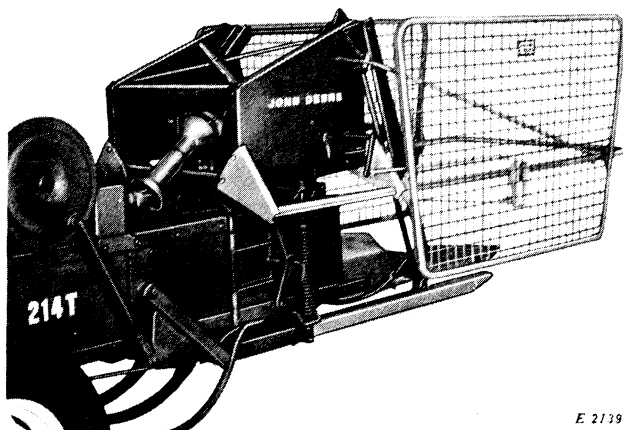
If your tractor is too small to operate the baler as a power take-off machine, if you pull a trailer, or operate the baler in hilly conditions, a self-starting 26.5 h.p. Wisconsin "VH4D" engine is available.

To increase operating efficiency in altitudes above 4,000 feet, a Wisconsin Engine with a high altitude head should be purchased.

CAUTION: Engines with high altitude heads are not to be used under altitudes of 4,000 feet or serious damage to the engine will result.

NOTE: Special cables will have to be ordered with engines which are to be started from John Deere 1010, 2010, 3010, and 4010 Tractors. (See Bundle List.)

No. 2 bale ejector

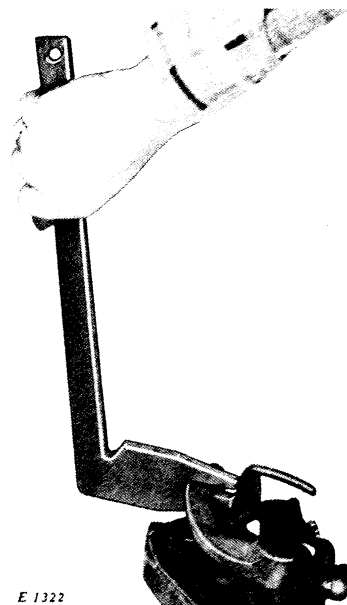


E 2139

The Bale Ejector provides a "one man way" of automatically loading half-to-full size bales into a wagon with high sideboards direct from the baler—thus eliminating the man on the wagon.

The low-cost Bale Ejector attachment for John Deere balers is extremely simple and attaches directly onto the bale case. The Ejector is entirely mechanical in operation and works on either PTO or engine-driven balers.

Wiper arm modeling tool—twine baler

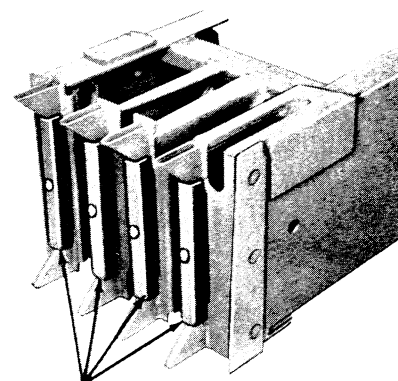


E 1322

The wiper arm modeling tool will make it easier and faster to obtain proper adjustment of the twine knotter wiper arm.

The wiper arm modeling tool allows ample leverage and at the same time complete control of the modeling operation.

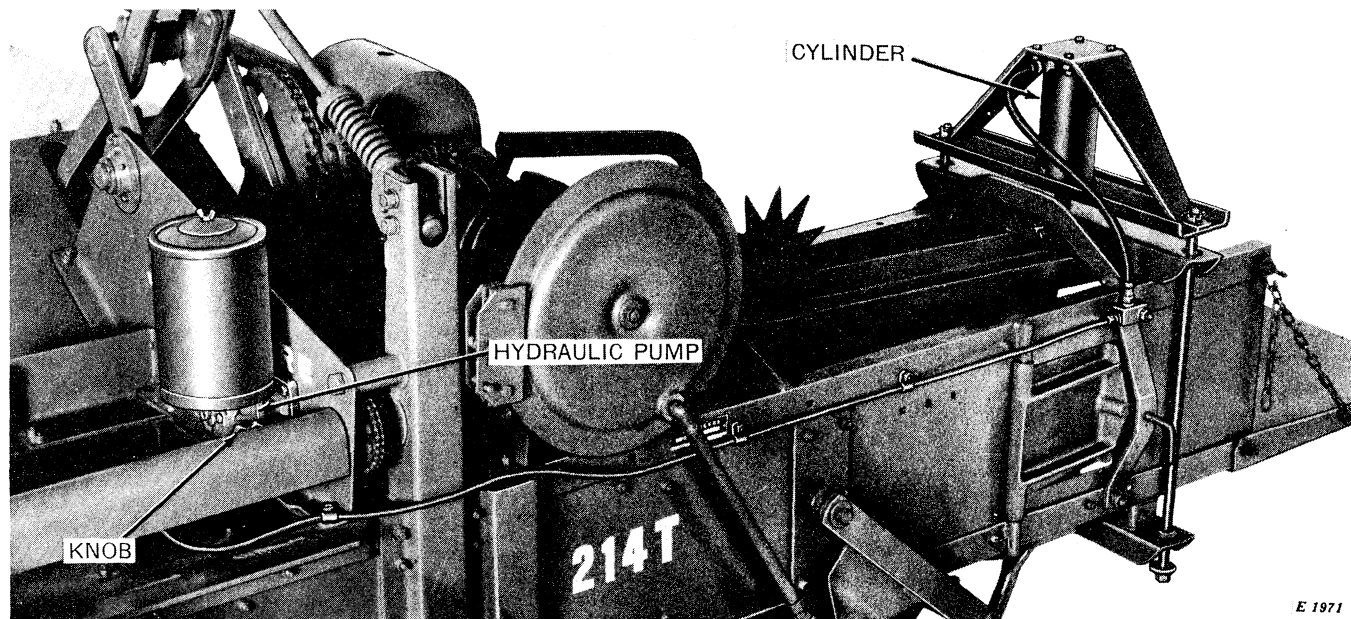
Plungerhead extensions—twine baler



PLUNGERHEAD EXTENSIONS E 1298

Plungerhead extensions provide the extra compression necessary to produce bales of the desired weight when baling unusually dry or fluffy material.

Hydraulic bale tension control



E 1971

The use of this attachment eliminates the need for the hand-cranked tension springs.

This unit has only a knob to control the tension applied to the bale. Once the knob has been set to accommodate the type or condition of the crop, more uniform bales will be obtained without continual readjustment.

Servicing hydraulic compression system

Bale density is controlled by adjusting the knob on the side of the pump. Tightening the knob increases bale compression, and loosening the knob lessens bale compression.

The oil level in the reservoir must be checked periodically and kept at the proper level for maximum compression control. The oil must be at level of mark on reservoir when the hydraulic cylinder is completely retracted.

Fill with SAE 10W-30 engine oil or John Deere Type 303 Special Purpose Oil or its equivalent to the filler hole. Bleed the system by loosening the rear end of the hydraulic hose at the cylinder; then tighten the hose.

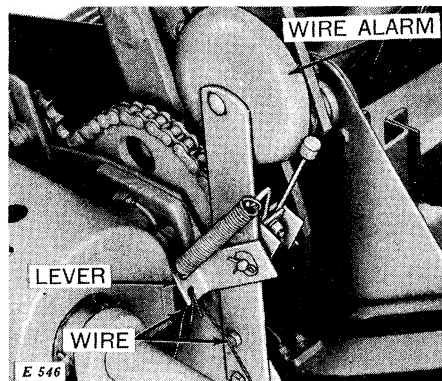
CAUTION: Keep oil clean, free of dust, water, sealing compound, etc. Do not use hydraulic brake fluid.

Wire alarm—wire baler

The wire alarm will signal when either of the wire boxes becomes empty.

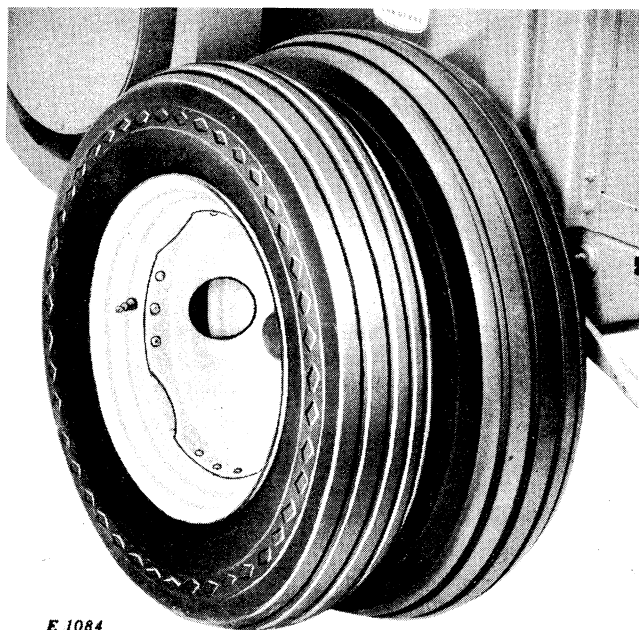
The alarm mounts on the rear of the rear feeder support bracket with two bolts.

To set the alarm, pull the lever to the left, then run the outer end of each wire coil out the top of the wire box and loosely loop each end through the hole in the lever.



E 546

Dual wheels (less tires)

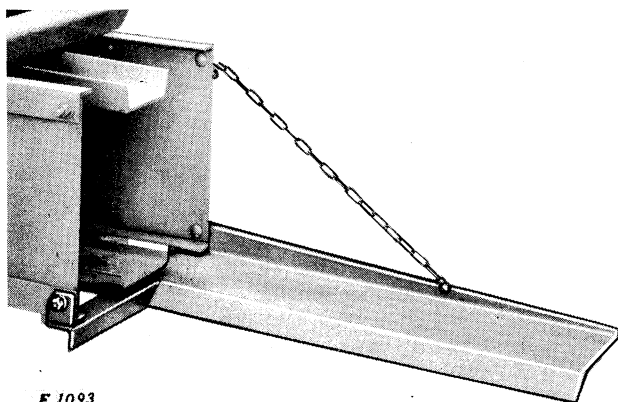


E 1084

A dual wheel is available for either the left-hand or the right-hand side of your baler. (Specify which side.)

The dual wheels are intended for added flotation when operating in soft or sandy soil. The dual tire should never be of larger size than the inside tire, and preferably smaller.

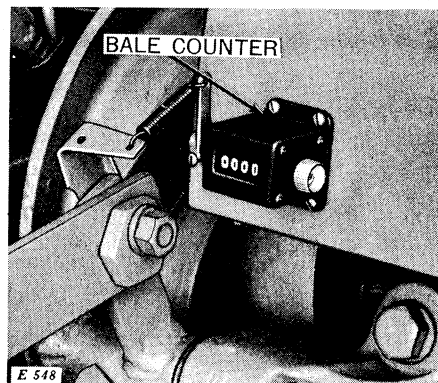
Side-drop bale chute



E 1093

The side-drop bale chute drops bales to the left of the baler, thus allowing adequate clearance for the tractor's left wheel on succeeding rounds of the field—when operating in closely spaced windrows.

Bale counter



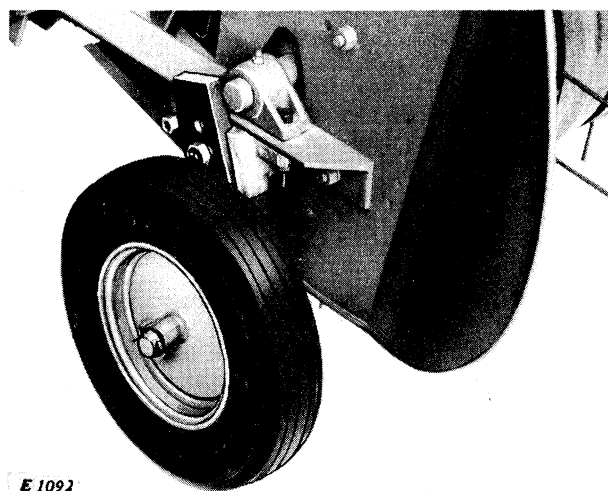
E 548

The bale counter keeps an exact record of the number of bales baled.

Mount the counter on the bevel gear shield. Attach the counter lever to the trip arm, then attach the spring to the counter arm and to the lever.

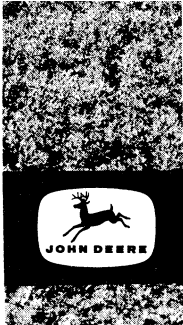
The bale counter may be purchased as either a reset or a non-reset type.

Pickup gauge wheel



E 1092

The pickup gauge wheel will allow the pickup to follow ground contour more evenly when operating in irrigated fields or in rough or irregular conditions.



assembly

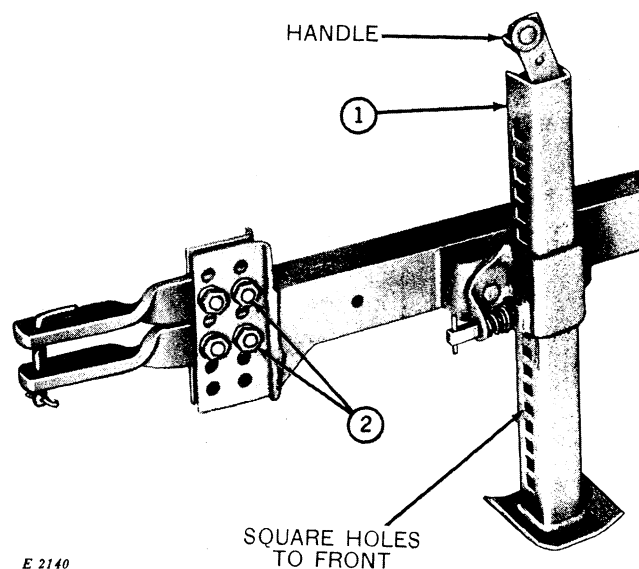
Shipping bundles

Bundle no.	Description	Bundle no.	Description
Code 1011	214WS Baler—basic unit consisting of:	Code 1017	Center wagon hitch and brace
AM 2811 E	Bale chute	BE 10123 E	Center wagon hitch
BE 10402 E	Baler	BE 10409 E	Wagon hitch brace
Code 1012	214T Baler—basic unit consisting of:	Code 1053	PTO unit, 540 rpm
AM 2811 E	Bale chute	BE 10325 E	Slip clutch
BE 10403 E	Baler	BE 10326 E	Tongue
Code 1051	214T Baler with dual wheels (less tires)— basic unit consisting of:	BE 10327 E	Powershaft and shields
3642 E	L.H. dual wheel	Code 1054	PTO unit, 1000 rpm
AM 2811 E	Bale chute	BE 10325 E	Slip clutch
BE 10297 E	Baler with R.H. inside dual wheel, hub, and spindle	BE 10326 E	Tongue
JD 679 E	R.H. dual wheel	BE 10328 E	Powershaft and shields
Code 1052	214WS Baler with dual wheels (less tires)— basic unit consisting of:	BE 10329 B	Chain case
3642 E	L.H. dual wheel	Code 1059	Hydraulic tension control
AM 2811 E	Bale chute	BE 10424 E	Pump and miscellaneous parts
BE 10298 E	Baler with R.H. inside dual wheel, hub, and spindle	BE 10426 E	Cylinder and miscellaneous parts
JD 679 E	R.H. dual wheel	Code 1060	No. 2 Bale Ejector
Code 1013	Engine unit (electric-start)	AE 13139 E	Telescoping hookup
AM 3503 E	Engine	BE 10447 E	Shield supports and trip arm
BE 10386 E	Cables and brackets	BE 10448 E	Throwing arm shields
BE 10404 E	Fuel tank	BE 10449 E	Throwing pan
BE 10405 E	Engine mounting	BE 10454 E	Bale Ejector
BE 10406 E	Tongue	Code 1064	Adapting parts for No. 2 Ejector
Code 1014	Engine unit—high altitude head (electric- start)	BE 10451 E	Adapting parts
AM 3505 E	Engine—high altitude head	BE 10493 E	L.H. wheel extension
BE 10386 E	Cables and brackets	3642 E	L.H. dual wheel
BE 10404 E	Fuel tank	6015 E	Side-drop bale chute
BE 10405 E	Engine mounting	AE 13005 E	Plungerhead extensions (214T Baler)
BE 10406 E	Tongue	AE 13260 E	Wiper arm modeling tool (214T Baler)
Code 1015	Side wagon hitch and bale chute	AM 2980 E	Bale counter, reset type
BE 10031 E	Wagon hitch axle connection	AM 3190 E	Bale counter, non-reset type
BE 10407 E	Bale chute extension	BE 10103 E	Pickup gauge wheel
BE 10408 E	Hitch extension	BE 10169 E	Hose support for engine baler with Ejector and aiming control
Code 1016	Center wagon hitch and bale chute	BE 10193 E	Tractor hookup, 540 rpm
BE 10031 E	Wagon hitch axle connection	BE 10194 E	Tractor hookup, 1000 rpm
BE 10123 E	Center wagon hitch	BE 10201 E	Wire alarm (214WS Baler)
BE 10407 E	Bale chute extension	BE 10357 E	Electric starting cables for John Deere 1010, 2010, 3010, and 4010 Tractors
BE 10409 E	Wagon hitch brace	BE 10452 E	Wagon hitch support for Ejector
		BE 10481 E	Hydraulic supports for Ejector with aiming control
		BE 10518 E	R.H. dual wheel

Assemble the baler as illustrated in the following pages. The illustrations show clearly the parts to be assembled and attached in their proper order. Where there are two different methods of setting up the machine, we have shown both methods, and you should use only the sections pertaining to the way you will use the machine. That is, if you are assembling a power take-off machine, disregard any instructions pertaining to an engine-mounted machine.

After unpacking and placing all parts where they will be handy, follow all the instructions carefully. Practically all trouble with new machines is due to improper assembly and lack of lubrication.

Jack stand and hitch plates

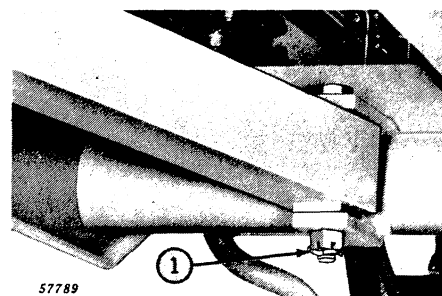


1. Insert the jack stand in the jack holder on the tongue.

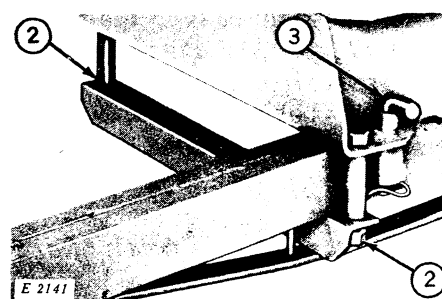
NOTE: The square holes in the jack stand must be to the front. Place the jack handle in the top of the jack stand when not in use. (See page 12 for operating the jack stand.)

2. Attach hitch plates to tongue.

Tongue



1. Attach the rear end of the tongue to the frame brackets with a bolt, slotted nut, and cotter pin.

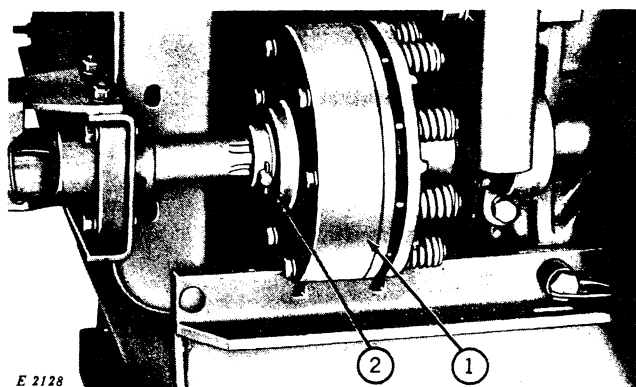


2. Assemble the tongue support under the tongue with two bolts and spacers.

3. Install the tongue locating pin in the frame and tongue. Secure the locating pin with the spring-locking pin.

Power take-off unit

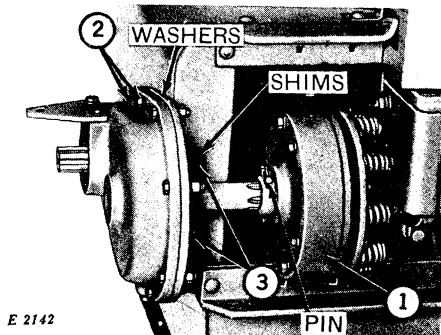
Slip clutch (540 rpm)



1. Locate slip clutch on the main drive shaft.
2. Attach short drive shaft to clutch and secure with drilled pin and cotter pins.

56 assembly

Slip clutch and chain case (1000 rpm)



1. Place the slip clutch on the main drive shaft and slide it back as far as possible.

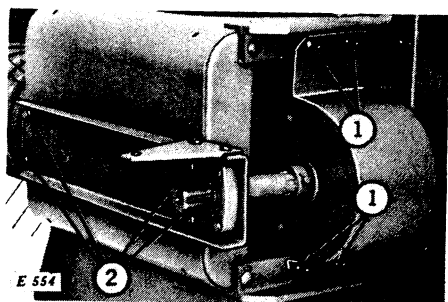
2. Attach the chain case to the slip clutch and to the front of the bale case end cap with four bolts. Use washers on each bolt if necessary to take up the gap between the chain case and the end cap, and to eliminate bind in the shafts.

NOTE: Shafts must turn freely after bolts are tightened.

3. Attach the chain case to the side of the cap with two bolts. Use shims to take up the gap and to eliminate bind in the shafts.

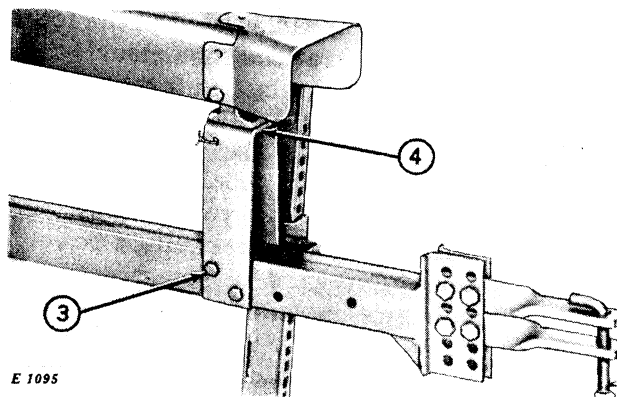
NOTE: Shafts must turn freely after bolts are tightened.

Slip clutch shield and powershaft



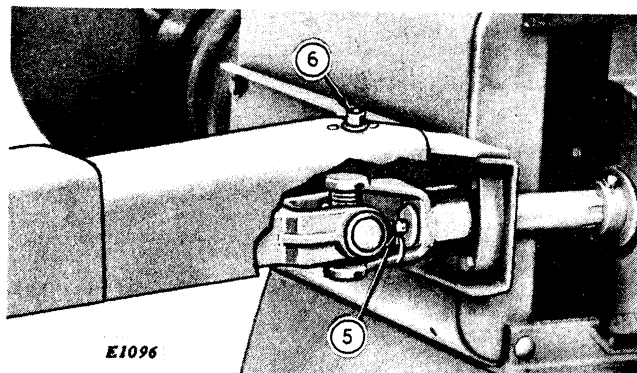
1. Bolt the slip clutch shield to the bale case side with four bolts.

2. On 540 rpm balers, bolt the rear shaft support to the front of the bale case with four bolts.



3. Assemble powershaft support bracket to the tongue with two long bolts.

4. Assemble front end of powershaft and shield assembly to the support bracket using spacer, drilled bolt, and heavy washer. Secure drilled bolt to the support bracket with wire.

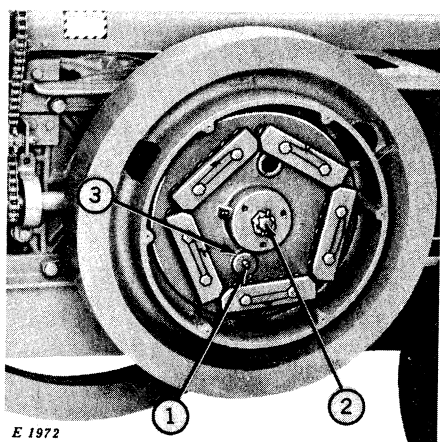


5. Attach powershaft universal joint to clutch shaft with cap screw and washer. Secure universal joint with wire through screw and around joint yoke.

6. Attach rear shield to bearing bracket with bolt, rubber washer (under shield), and nut.

Engine unit

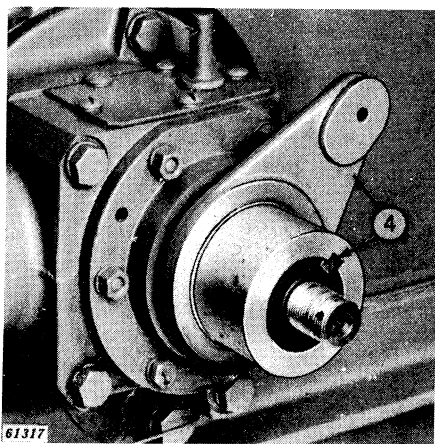
Slip clutch and shear bolt



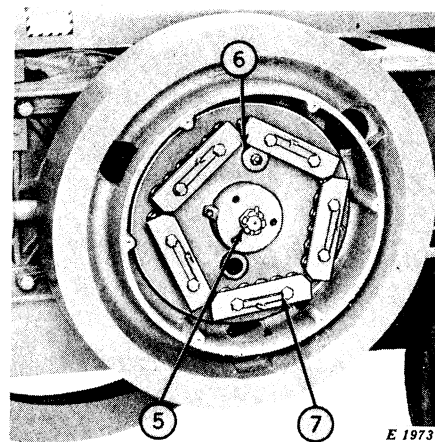
1. Remove the cover from the flywheel, then remove the 1/4-inch special flywheel shear bolt.

2. Remove the flywheel cap; then remove the cotter pin, nut, and pinion cover from the crank pinion. Remove the flywheel (with the aid of a hoist).

3. Remove PTO shear bolt sleeve from flywheel.



4. Remove the PTO shear arm from the crank pinion and replace with the engine shear arm. Make sure drive key has been inserted in keyway.



5. Replace the flywheel on the crank pinion, and secure with the pinion cover, nut, and cotter pin. Replace the flywheel cap.

6. Locate engine shear sleeve in other hole in flywheel, then align the hole in the flywheel shear sleeve with the hole in the shear arm. Locate the 5/16-inch special engine shear bolt through the arm and the sleeve.

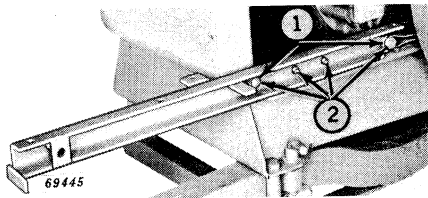
7. Remove the wires securing the bolts in the slip clutch and reset clutch to slip at 2100 to 2400 foot-pounds of pressure (see flywheel slip clutch, page 46.) Replace flywheel cover.

PLAN AHEAD

—prevent accidents



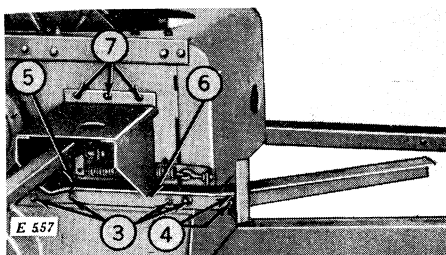
Engine frame



1. Remove the two bolts from the bale case bottom as shown.

2. Bolt left-hand engine frame to bale case.

NOTE: Remove spacer from gear case bolt and replace locking wire.



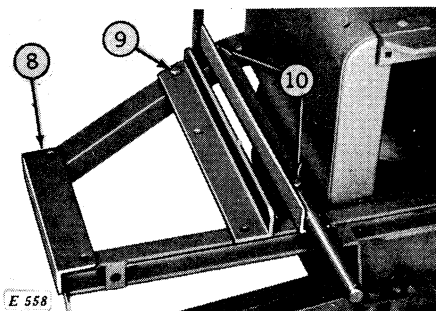
3. Bolt the right-hand engine frame to the bale case with four bolts.

4. Bolt the crank-holder strap to the inside of the right-hand engine frame with two bolts.

5. Bolt the rear gas tank support plate to the right-hand engine frame with one bolt.

6. Bolt the front gas tank support plate to the right-hand engine frame with one bolt.

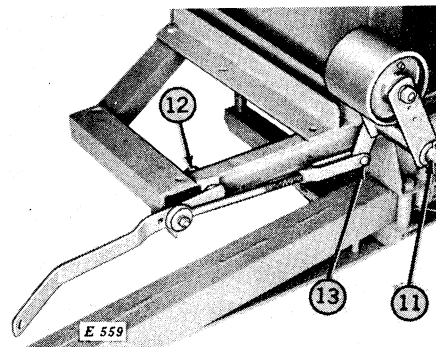
7. Bolt the bottom support plate to the bale case side. Align the holes to the front and rear plates, then tighten the bolts.



8. Locate the front cross frame on the engine frames.

9. Bolt the rear cross frame to the right-hand engine frame.

10. Attach the idler mounting to the engine frames. Use a hex. bolt and a flat washer on the right-hand end.

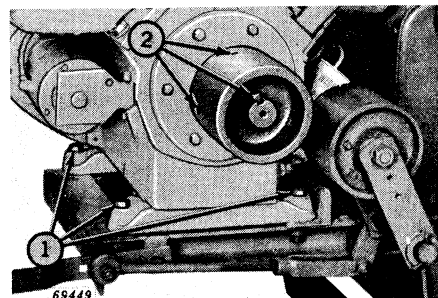


11. Attach belt idler and support to idler shaft. Secure with washers and cotter pin.

12. Attach clutch lever to engine frame with washers and cotter pin.

13. Attach clutch lever turnbuckle to idler arm with pin and cotter pin.

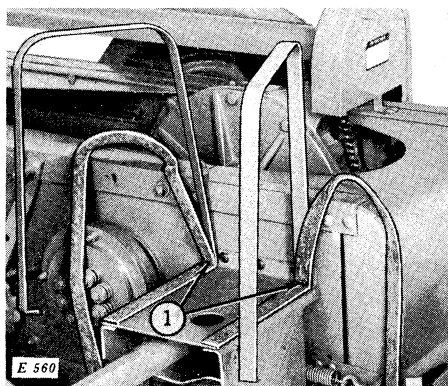
Engine



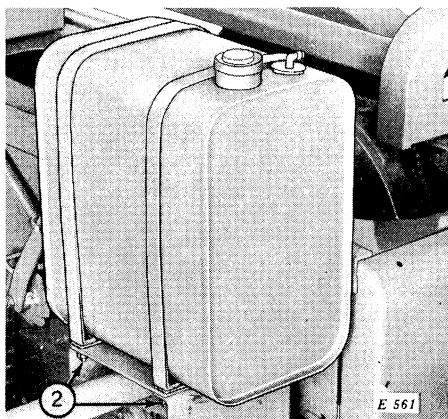
1. Locate engine on engine frame and cross members and attach with four bolts. Do not tighten bolts.

2. Locate square key in keyway of engine drive shaft. Place drive pulley on drive shaft and align the center of the drive pulley with the center of the flywheel. Insert and tighten the pulley set screws. Tighten the engine mounting bolts.

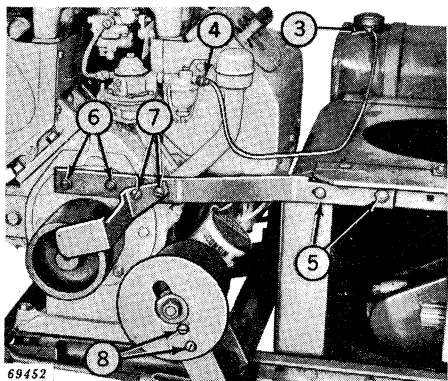
Gas tank, support, and shields



1. Locate short felt pad, gas tank strap and long felt pad on rear of gas tank support, then secure with carriage bolt. Repeat procedure with remaining pads and strap on the front of gas tank support.



2. Place gas tank on support and align felt pads and gas tank straps around the tank, then bolt to the left-hand end of the support with two carriage bolts. Tighten all bolts.



3. Attach fuel line to gas tank.

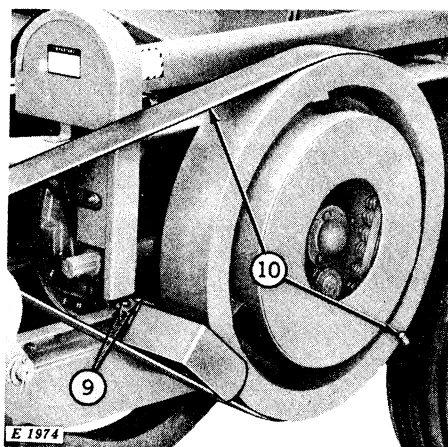
4. Attach fuel line to engine fuel pump.

5. Remove carriage bolt from bale case and end cap, then attach the left-hand engine support to the bale case with two carriage bolts.

6. Remove the two cap screws from the engine end cap, then attach the front of the engine support to the engine with two longer cap screws. Tighten all bolts.

7. Bolt drive pulley shield to support strap with two machine screws.

8. Attach idler pulley shield to idler support with two machine screws.

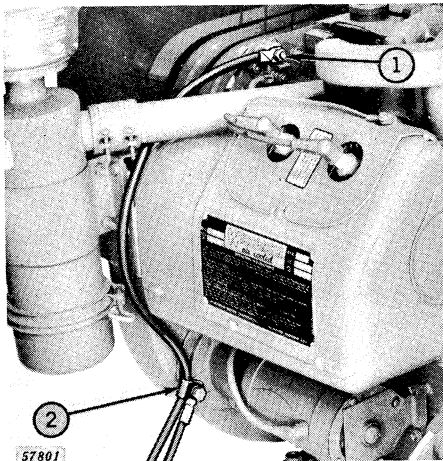


9. Bolt flywheel shield to the bracket, and bolt bracket to frame channel.

10. Loosen the belt guide. Place the belt around the drive pulley and the flywheel. Tighten the belt guide.

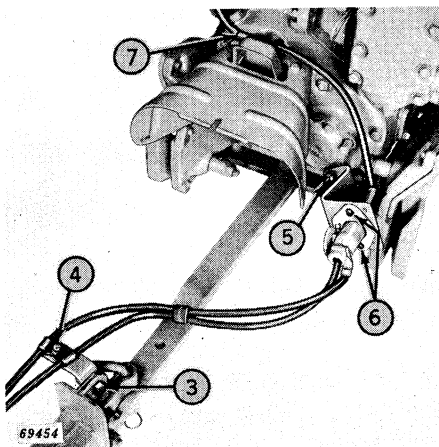
NOTE: For final belt and pulley adjustment, refer to "Engine and belt alignment," page 48.

Electric starting equipment



1. Attach connector cable to starter button.

2. Secure connector cable, clamp, and ground cable to starter mounting bolt.



3. Bolt bracket to tongue.

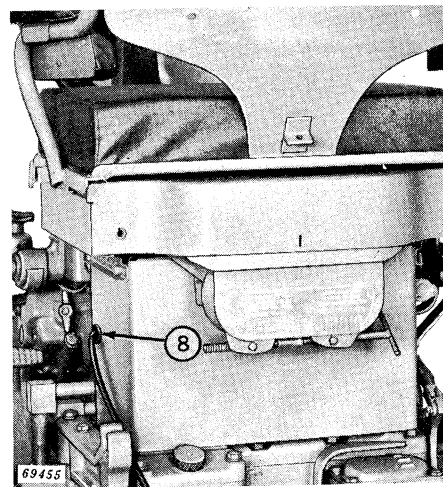
4. Secure cables to bracket with clamps.

(On John Deere tractors series 530, 630, 730, 520, 620, 720, 50, 60, and 70 continue assembling the receptacle and bracket as follows:)

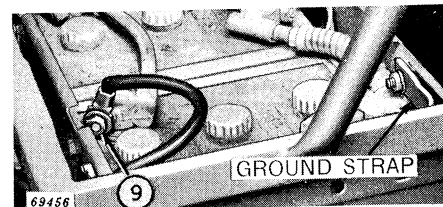
5. Remove bolt and replace with stud, nut, and lock washer. Attach bracket to stud with flat washer, lock washer, and nut.

6. Bolt receptacle to bracket with three bolts.

7. Attach cable with clamp to shield.



8. Drill a 7/8 inch hole in battery box. Insert cable into battery box. Set grommet.

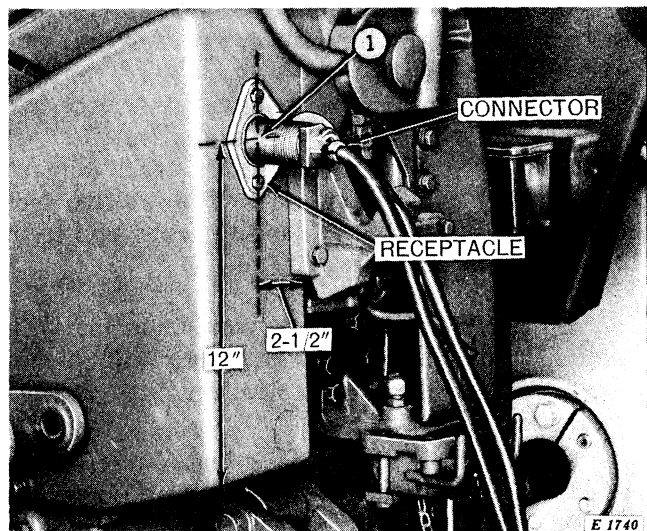


9. Connect cable to battery terminal as shown.

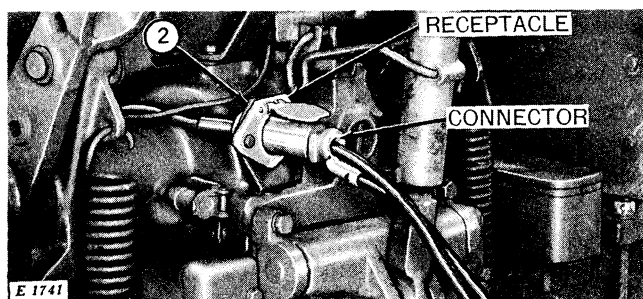
NOTE: On tractors having 12-volt systems, connect cable to terminal of battery opposite ground strap.



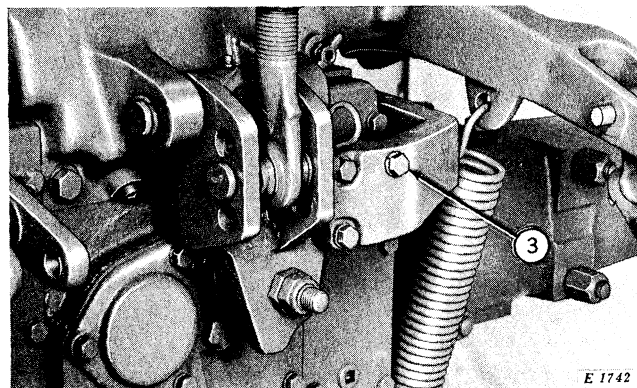
(On John Deere 1010, 2010, 3010, and 4010 Tractors, connect the receptacle and cable as follows:)



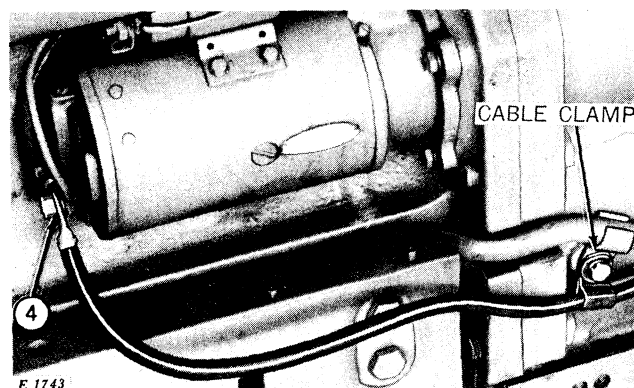
1. On 3010 and 4010 Tractors, use the receptacle as a template and drill the necessary holes to mount the receptacle in the left-hand rockshaft housing cover as shown. Attach the receptacle to the housing cover.



2. On 2010 Tractors, attach the receptacle bracket to the left-hand side of the rockshaft housing as shown. Attach the receptacle to the bracket.



3. On 1010 Row-Crop Tractors, attach a mounting bracket to the upper, right-hand mounting hole in the load and depth control arm. On 1010 Utility Tractors attach mounting bracket to the lower, right-hand mounting hole in the load and depth control spring housing. On all 1010 Tractors attach the receptacle bracket to the mounting bracket; then attach the receptacle.



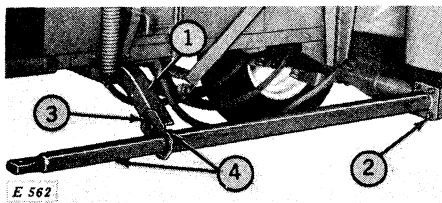
4. On all tractors, run the cable along the left-hand side of the tractor—using cable clamps where necessary, and attach the cable to the battery cable terminal on the starter.

CAUTION: Do not allow the cable to interfere with any moving parts on the tractor. All excess cable must be secured in a safe area on the tractor.

NOTE: On 3010 and 4010 Tractors, the cable must run between the battery case and the transmission housing. On 2010 Tractors, run the cable under the foot platform and inside the cowl.

CAUTION: Damage to baler engine 6-volt starter, may result if engine starter is used continuously and engine does not start in a normal length of time.

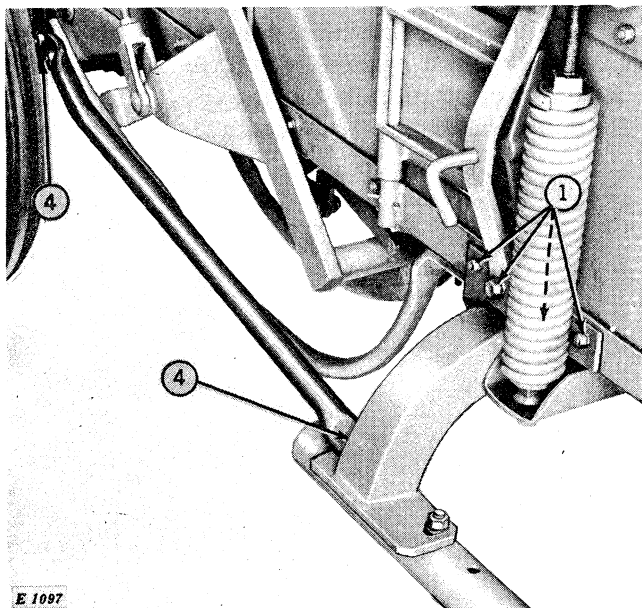
Wagon hitch and bale chute



1. Bolt hitch support to bale case bottom with three plow bolts.

Center wagon hitch only: Bolt hitch support to left-hand side of bale case with four additional bolts.

2. Bolt wagon hitch axle connection to axle.



Center wagon hitch

3. Bolt hitch axle connection to hitch support.

4. Insert wagon hitch extension into the hitch and secure with drilled pin and cotter pin.

Center wagon hitch only: Attach the right-hand end the same as the regular hitch. Bolt the left-hand end to the rear hole in the hitch support; then attach the front end of the brace to the front end of the needle guard, and the rear end to the hitch support and center hitch.

5. Remove bale chute from bale case and attach chute extension to bale case bottom with two carriage bolts, two spacers, and two flat washers.

6. Bolt the two short extension chains from the original chute to the chute extension.

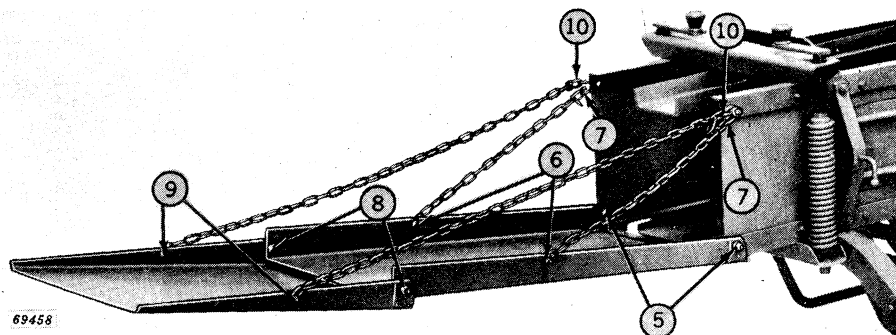
7. Hold the extension chute at desired height, then attach the two short chains to the lower chain hooks.

8. Bolt original bale chute to extension bale chute with new square washers, same bolts, and spacers removed with chute.

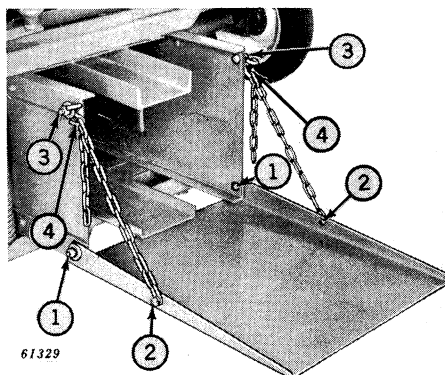
9. Bolt the two long extension chains to the bale chute.

10. Position the bale chute at the desired height, then secure by placing the extension chains on the upper chain hooks.

Remove drilled pin and cotter pin and adjust the wagon hitch extension to the position desired. Replace drilled pin and cotter pin.



Bale chute



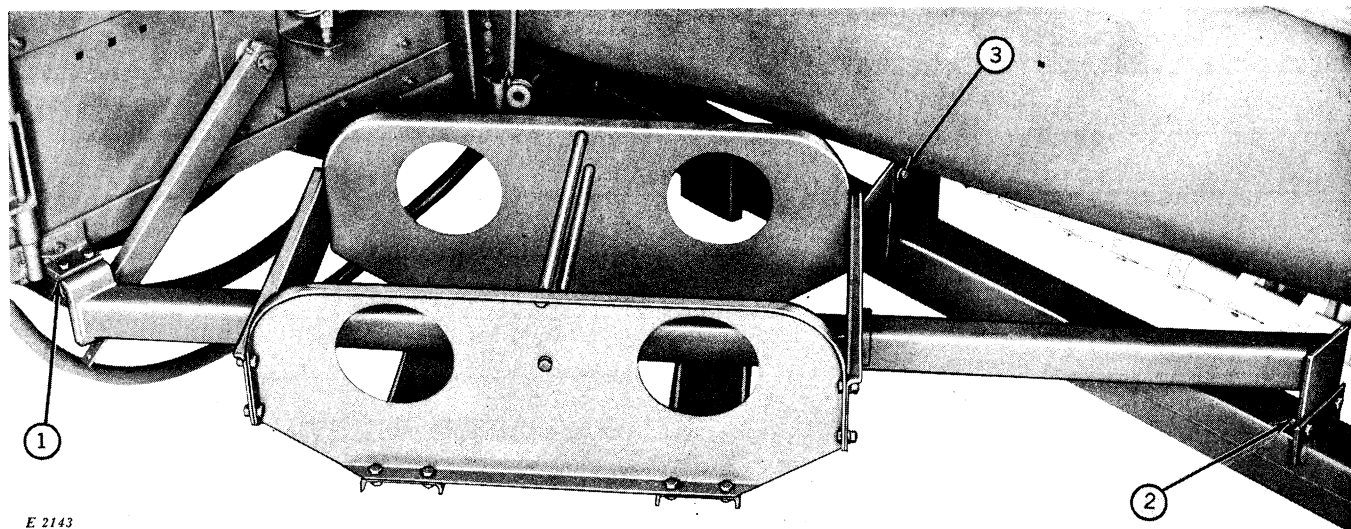
1. Bolt each side of bale chute to bale case bottom with carriage bolt, spacer, washer, lock washer, and nut.

2. Bolt the chains to the bale chute with two carriage bolts.

3. Bolt the two chain hooks to the bale case top with two carriage bolts.

4. Set the bale chute at the desired height, then secure by attaching chains to the chain hooks.

Wire box—wire baler



1. Position right-hand end of wire box on the axle; then bolt the left-hand end of the box to the clip on the bale case.

2. Bolt right-hand end of box to the clip on the axle.

3. Bolt box support to auger housing support.



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.



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.

