Hesston®

945 / 946 / 956 autotie Round Baler

SERVICE MANUAL

79027366 A Rev.

CONTENTS

Part Number 79027366 A Rev. (English)

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September 2007

FIG. 11: Securely fasten your seat belt before operating the machine. Always remain seated when operating the machine.

Always operate the baler with the control console turned on.

Never start the tractor with PTO engaged or control console turned on.

Always slide the hitch pin lock plate over the hitch pin and install the Klik pin when connecting the baler to the tractor.

Always install the safety transport chain between the baler and tractor drawbar.

- Use a chain with a strength rating equal to or more than the gross weight of the towed machine.
- Supply only enough slack in the chain to permit turning.
- Do not use the safety transport chain as a tow chain for towing.

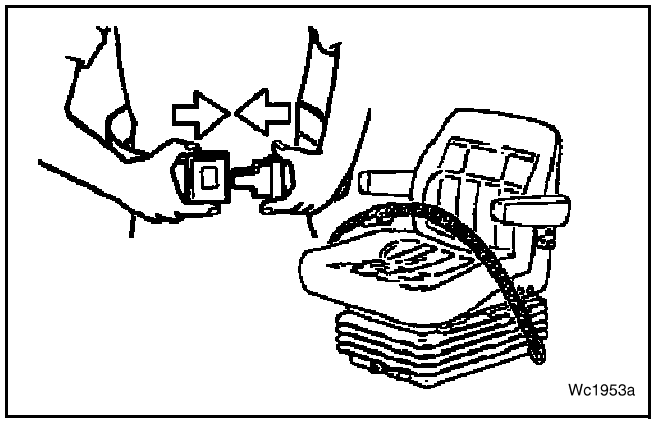


FIG. 11

FIG. 12: Always put the tractor transmission in park and apply the parking brake and remove the tractor key when parking the machine and take the key with you.

DO NOT allow children or unqualified persons to operate your machine.

DO NOT permit others to ride on the machine. Keep others away from your area of work.

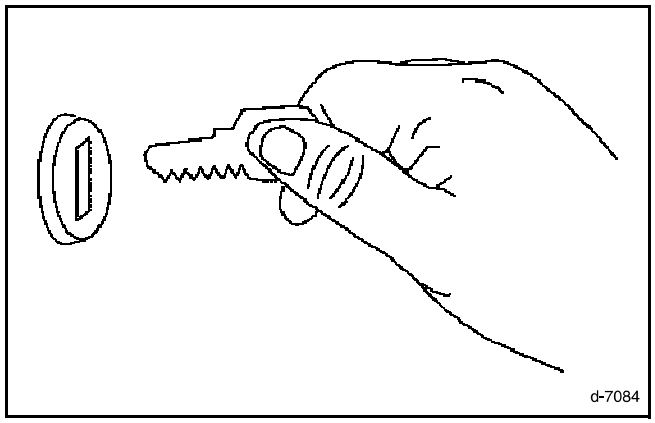


FIG. 12

FIG. 13: Because of the flammable nature of many hay crops, a water fire extinguisher must be placed within easy reach.

Keep a first aid kit handy for treatment for minor cuts and scratches.

Keep fingers clear of the feed roll pinch point when threading the mesh wrap.

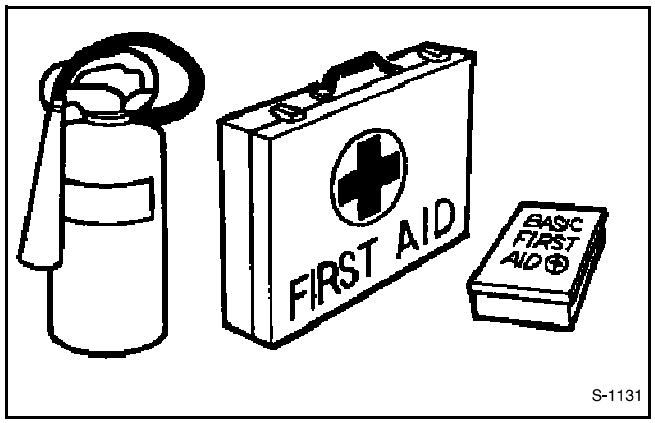


FIG. 13

FIG. 38: Rear of the baler with mesh wrap.

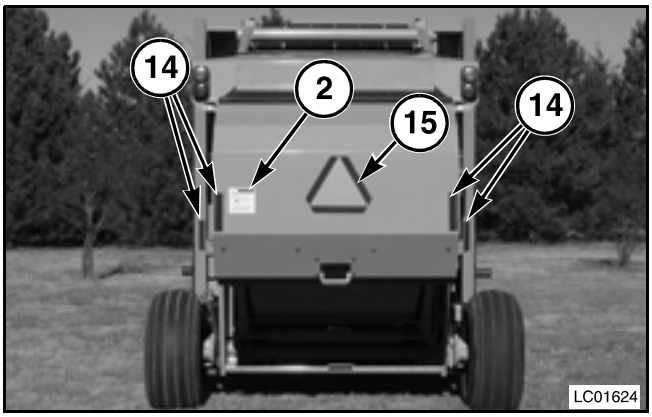


FIG. 38

FIG. 39: Rear of the baler without mesh wrap.

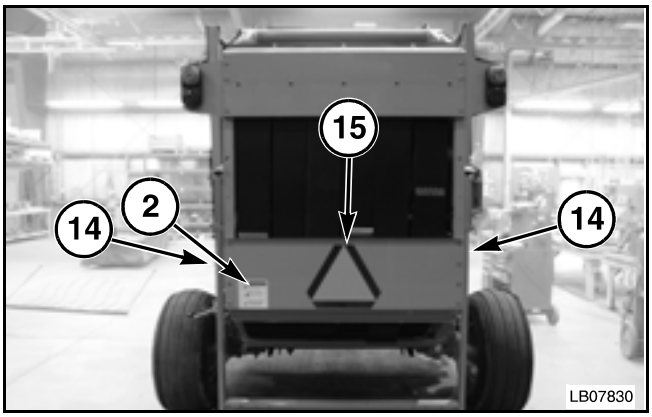


FIG. 39

FIG. 40: Red reflector (14) - Located on both sides of the baler. Also indicated in Fig. 28, Fig. 38, and Fig. 39.

SMV sign (15) - Located on the back of the baler. Also indicated in Fig. 28, Fig. 38, and Fig. 39.

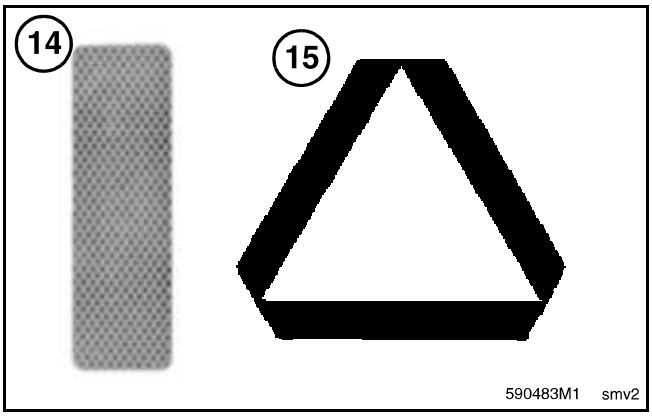


FIG. 40

FIG. 41: Tailgate and bale warning (2) - Located on both sides and back. Also indicated in Fig. 28, Fig. 38, and Fig. 39.

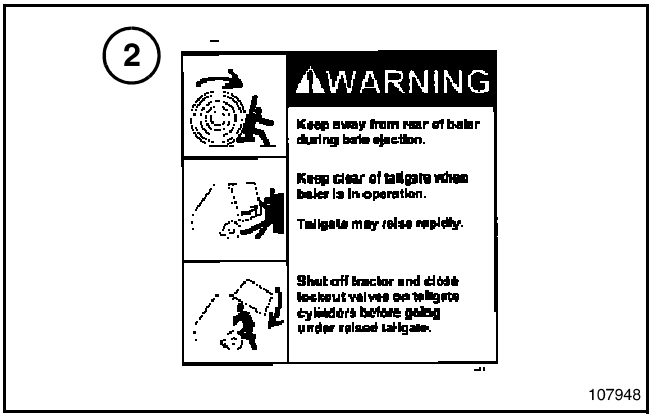


FIG. 41

Specifications

Lighting

Red tail lamps and flashing amber warning lamps with turn signals

Power and Control ..... tractor 12 Vdc by using SAE 7-pin connector

Electronic Controls

Compatibility ..... ISO 11783

Voltage

- Minimum ..... 8 Vdc
- Maximum ..... 16 Vdc

Temperature

- Minimum ..... -10 degrees C (14 degrees F)
- Maximum ..... 65 degrees C (149 degrees F)

Tires

Baler

- tire size ..... 14L x 16.1
- pressure ..... 241 kPa (35 psi)
- wheel hardware size 9/16-18
- wheel hardware torque ..... 165 Nm (120 lbf ft)

Pickup

- tire size ..... 16 x 4 Chevron
- pressure ..... semi-pneumatic

Drives

PTO speed ..... 540 or 1000 rev/min

Pickup ..... chain driven

Forming belts ..... chain driven

Gearbox ..... 540 or 1000 rev/min

Input driveline ..... CV U-joint

Overload protection

- pickup and stuffer ..... radial pin clutch
- forming belt drives ..... slip clutch

MESH WRAP SYSTEM

Sealed bearings are used in the mesh wrap system to provide problem free operation with a minimum of maintenance.

Sealed bearings are lubricated for life and sealed at the factory. Because of the sealed design, the operator cannot lubricate sealed bearings.

If a seal is damaged, the sealed bearing must be replaced.

SEALED BEARINGS

Sealed bearings are lubricated for life and because of the type of seal, lubricant cannot be added. If a seal is damaged, the sealed bearing must be replaced.

WHEEL BEARINGS

The wheel bearings must be cleaned and lubricated yearly. See the Specifications section for the correct lubricant. See the Mainframe and Wheels section for the procedure to lubricate or replace the wheel bearings.

Components

FIG. 4: Main Drive Clutch

(1) 5/16-18 x 2-1/2 cap screws (six).

(2) Hardened plain washers (twenty-four)

(3) Compression plate

(4) Disc spring

(5) Pressure plate

(6) Puller plate

(7) Friction disc

(8) Clutch housing

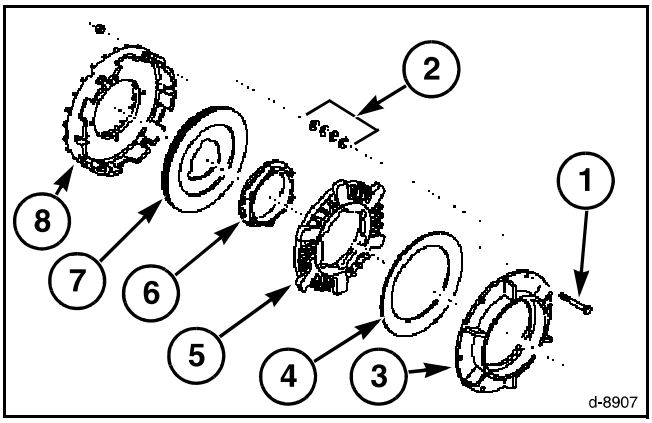


FIG. 4

Disassembly

FIG. 5: Remove the rotary union (1) from the hydraulic cylinder. There is a brass washer between the rotary union and the hydraulic cylinder.

NOTE: The rotary union is has left-hand threads.

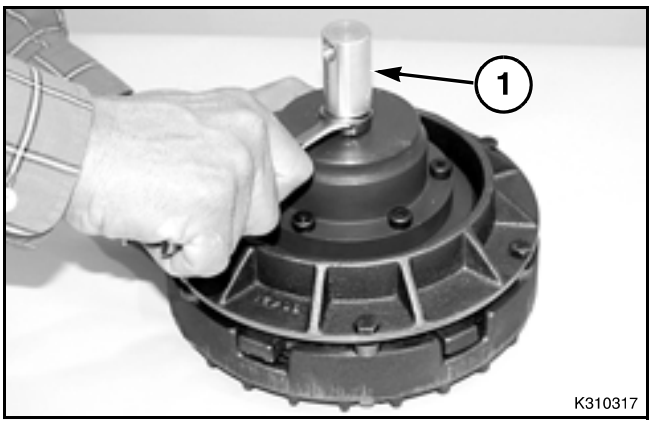


FIG. 5

FIG. 6: Remove the six hex socket head shoulder screws (1) from the hydraulic cylinder (2). Remove the hydraulic cylinder.

Loosen the six 5/16-18 x 2-1/2 cap screws (3) alternately and evenly. Remove the six cap screws and 24 hardened plain washers (4).

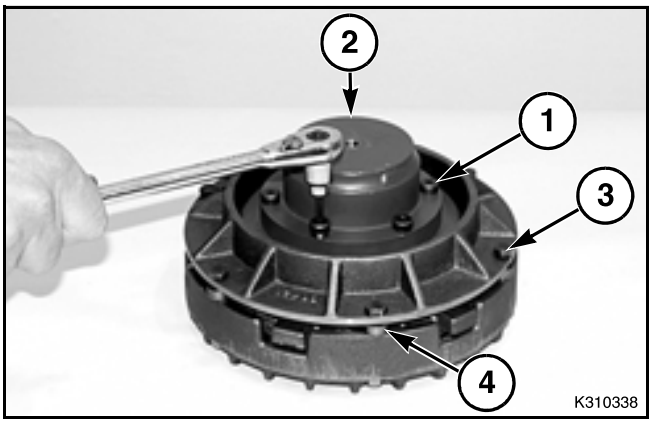


FIG. 6

FIG. 7: Remove the compression plate (1).

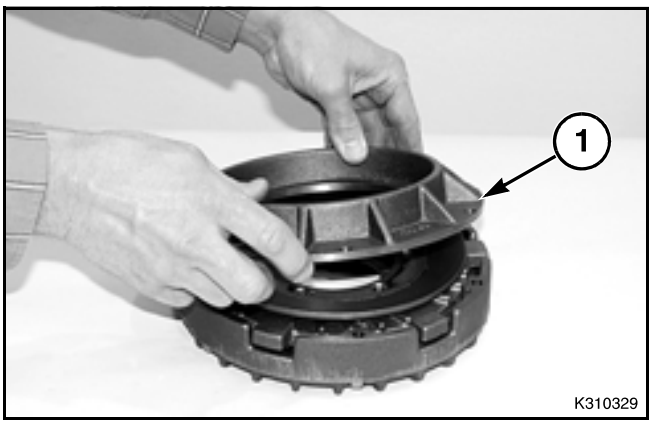


FIG. 7

FIG. 35: Press the hub out of the clutch housing until half of the second row of pins (1) is seen.

Loosen the hose clamp. Remove the hose clamp and all of the pins and springs. Make note of the location for each set of springs. The pins may have one or two springs.

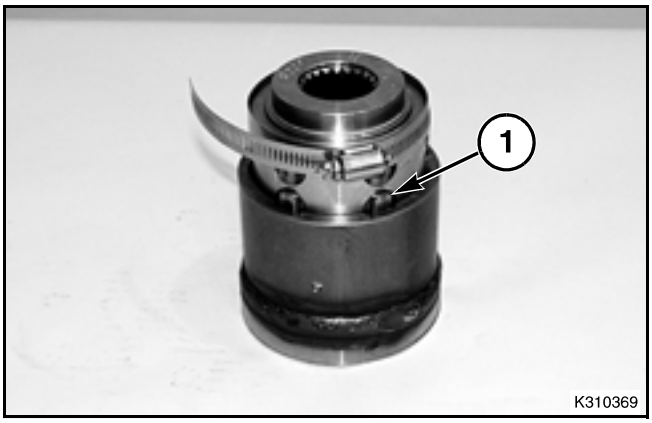


FIG. 35

FIG. 36: Put a hose clamp (1) around the pins and tighten the hose clamp.

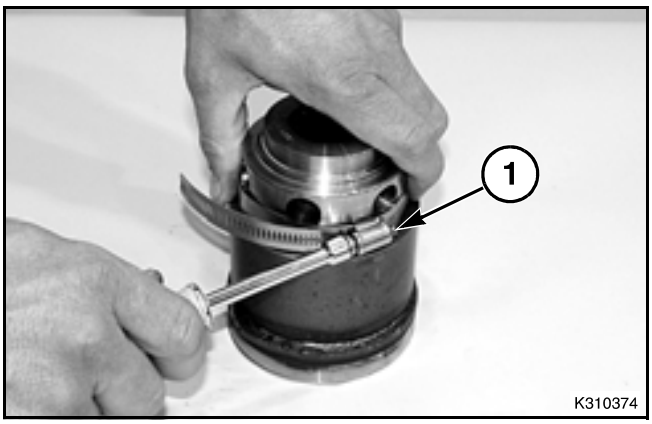


FIG. 36

FIG. 37: Press the hub out of the clutch housing. Loosen the hose clamp. Remove the hose clamp and all of the pins and springs. Make note of the location for each set of springs. The pins may have one or two springs.

FIG. 37

Inspection

Check the clutch housing and bushing in the clutch housing for wear. Replace the clutch housing if necessary.

Replace any broken springs.

The springs with the diameter of 12.5 mm (0.492 in) have a new height of 21.3 mm (0.839 in).

The springs with the diameter of 7.2 mm (0.283 in) have a new height of 23.3 mm (0.917 in).

Replace any pins that are worn or broken.

Replace the plastic and metal rings if worn or broken.

OVERRUNNING CLUTCH

Description

FIG. 62: In most conditions, the forming belts are driven only by the upper drive roll. The overrunning clutch (1) allows the lower drive roll to rotate faster than the drive sprocket.

If the forming belts slip more than four percent, the pawls in the overrunning clutch on the lower drive roll will catch. The forming belts are then driven by both the upper and lower drive rolls.

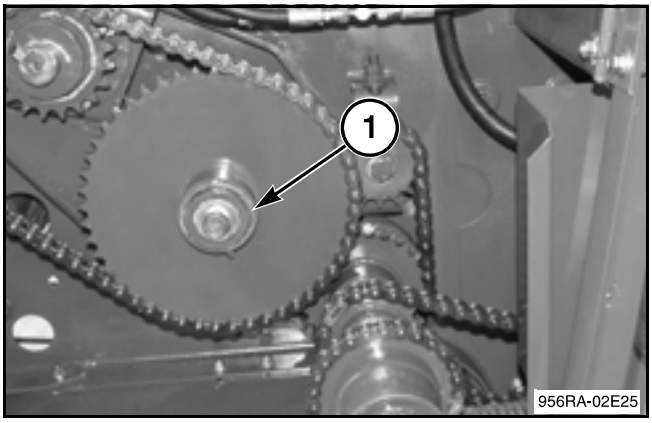


FIG. 62

Removal

FIG. 63: Remove the lower drive roll chain (1).

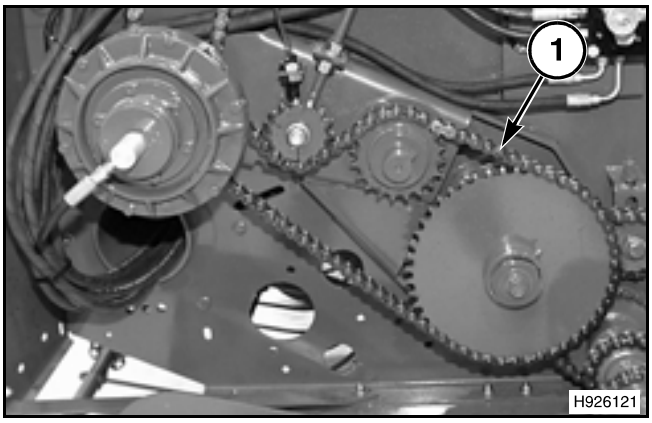


FIG. 63

FIG. 64: Remove the 5/8-11 x 1-1/2 flange screw (1), hardened wide plain washer (2), special washer (3), and 15 mm (0.591 in) long spacer (4).

Remove the sprocket assembly (5) from the lower drive roll shaft.

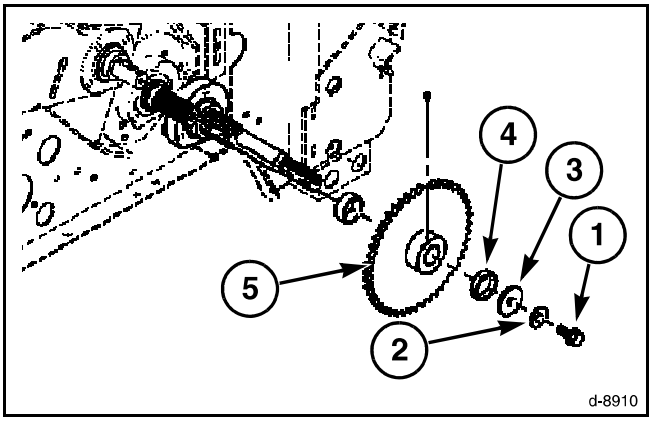


FIG. 64

Components

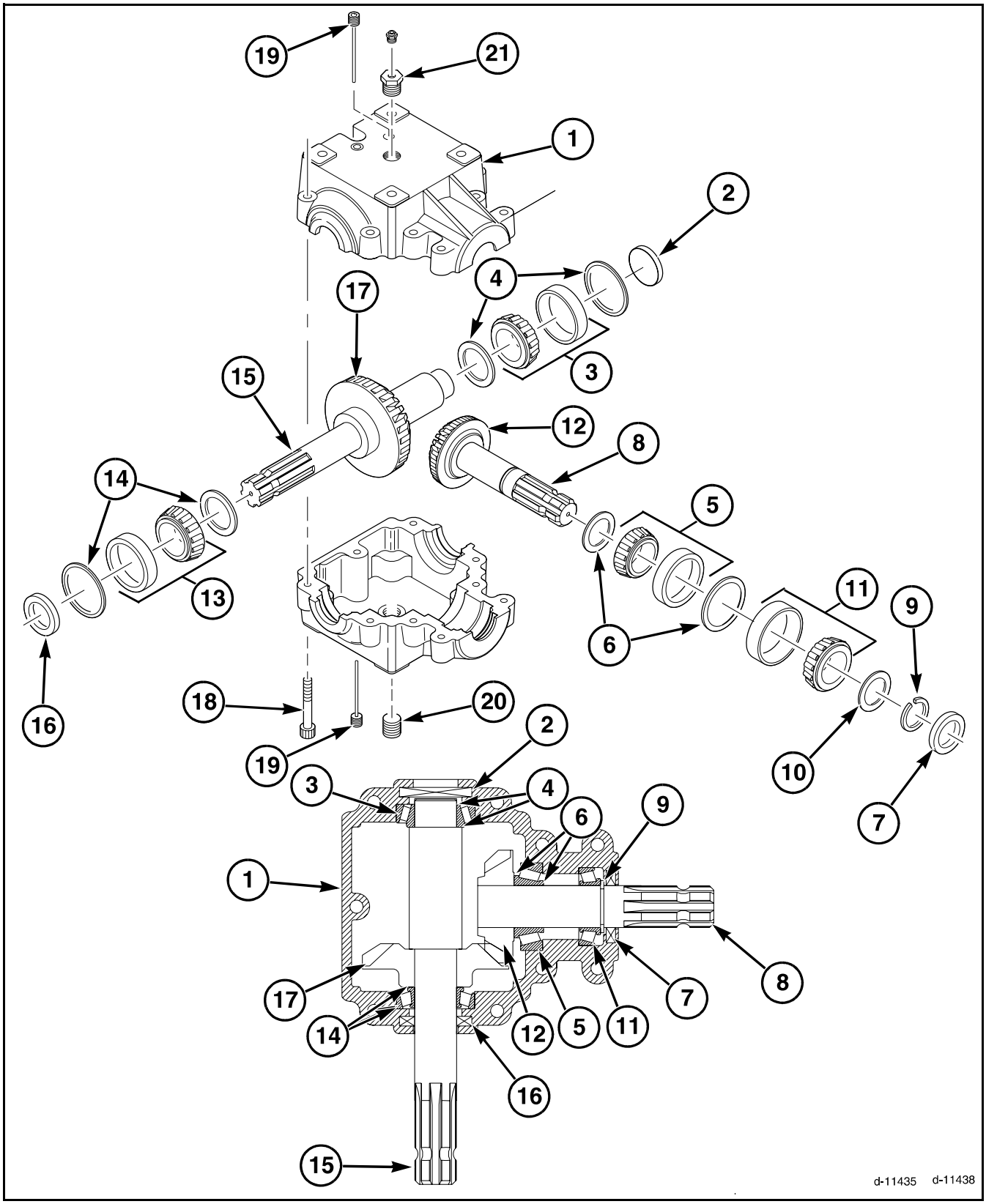


FIG. 85

FIG. 85: Gearbox components

FIG. 102: Set the quick disconnect yoke on the vise so the ears are supported by the jaws of the vise. Hit the center housing to force the bearing cap (1) out of the center housing. The bearing cap will only be forced part way out of the center housing.

NOTE: When hitting the center housing NEVER hit the machined surface of the center housing. If the machined area is damaged, the guard will not rotate freely. NEVER hit the area around the hole for the bearing cap. Distortion of the hole will make removal of the bearing cap difficult.

Repeat the procedure to push the other bearing cap part way out of the center housing.

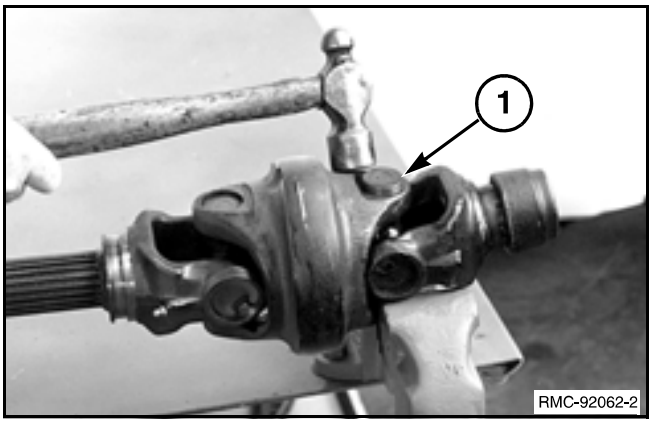


FIG. 102

FIG. 103: Fasten one of the bearing caps in the vise. Make sure the jaws of the vise are as close to the center housing as possible. Hit the center housing to drive the center housing up off the bearing cap. Be careful not to hit the machined surface of the center housing. Do not remove the other bearing cap from the center housing at this time.

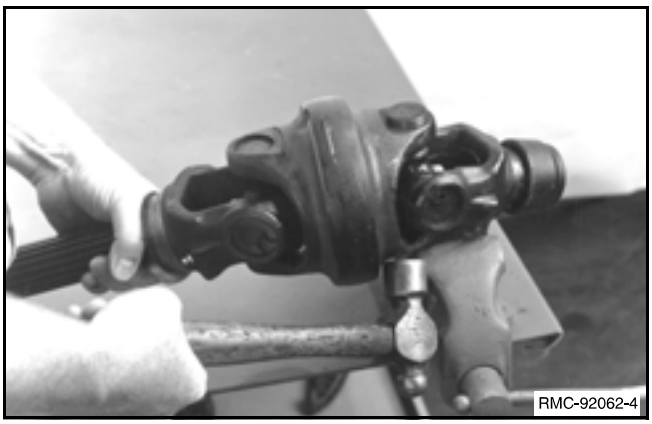


FIG. 103

FIG. 104: Remove the quick disconnect yoke from the center housing.

Repeat the procedure to remove the shaft yoke and cross from the center housing.

FIG. 104

FIG. 105: Use the hammer and the driver to remove the bearing caps from the center housing.

FIG. 105

FIG. 134: Use the trunnion as a pilot. Start the new bearing cap on the cross and into the opening in the center housing. Push the cross into the bearing cap while driving the bearing cap to keep the needles in the bearing cap. Keep the trunnions of the cross parallel with the openings for the bearing caps. Hit the bearing cap lightly with a hammer. Drive the bearing cap into the yoke until the bearing cap is flush with the ear.

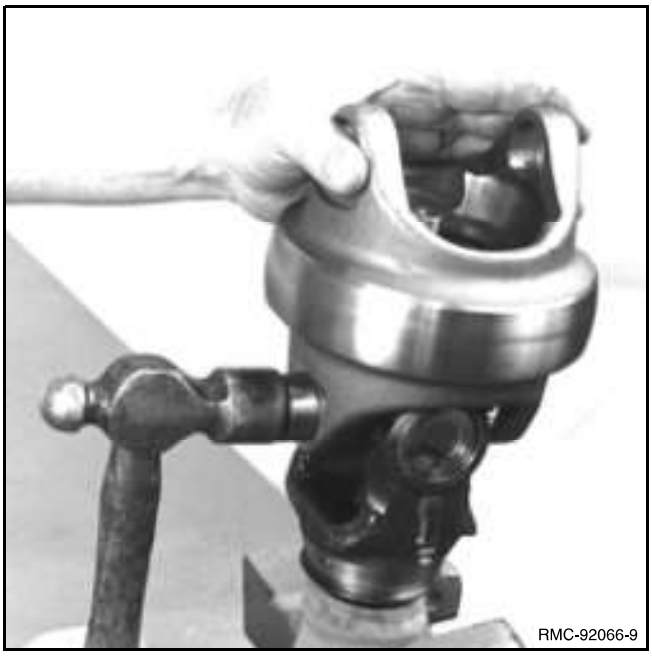


FIG. 134

FIG. 135: Keep the cross in the bearing cap and start the other bearing cap into the center housing. Use a hammer to drive the bearing cap into the yoke just far enough to make sure the bearing cap is straight.

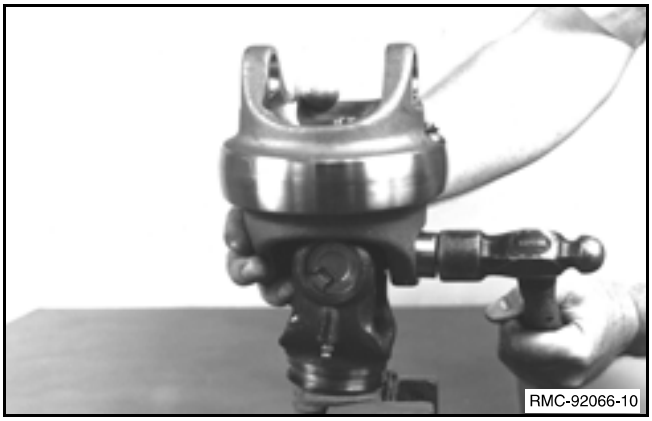


FIG. 135

FIG. 136: Put the center housing into the vise so the bearing caps are square with the jaws of the vise. Make sure the trunnions are aligned with the bearing caps. Tighten the vise until both bearing caps are flush with the ears. Make sure the needle rollers do not fall out of the bearing caps.

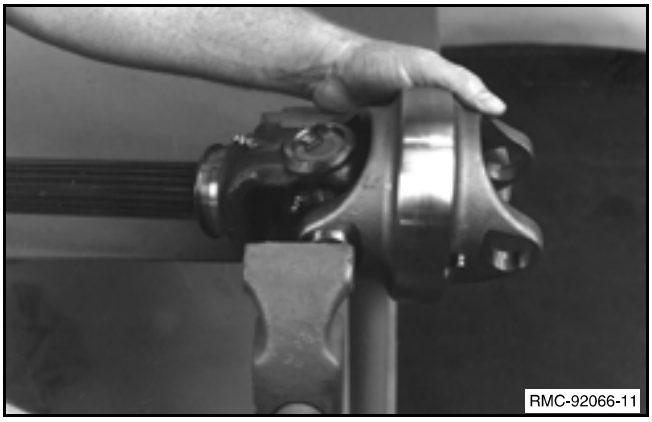


FIG. 136

FIG. 166: Drive one of the bearing caps into the yoke until the groove for the snap ring can be seen.

Make sure the groove for the snap ring is clean. Push the new snap ring into the groove. Make sure the snap ring is seated in the groove.

Drive the other bearing cap into the yoke until the groove for the snap ring can be seen. Make sure the groove for the snap ring is clean. Push the new snap ring into the groove. Make sure the snap ring is seated in the groove.

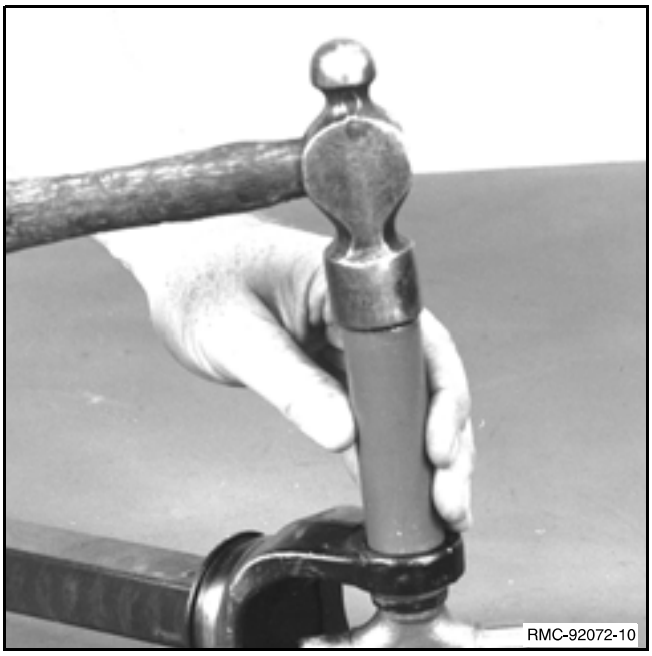


FIG. 166

FIG. 167: Make sure the trunnions of the new cross are clean. Install the clamp yoke on the cross.

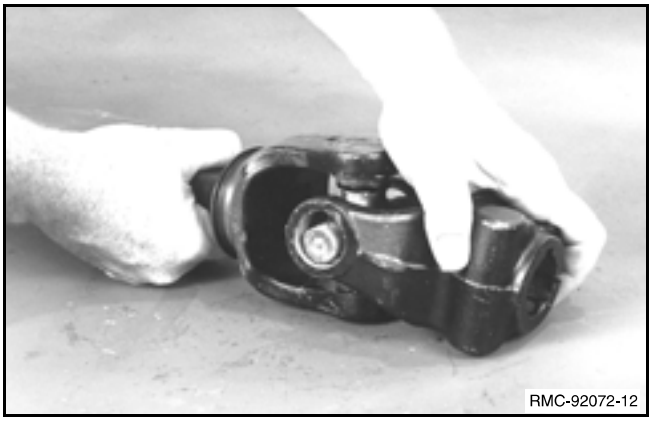


FIG. 167

FIG. 168: Push the cross to one side of the clamp yoke. Use the trunnion as a pilot and push the new bearing cap onto the cross and into the opening in the ear.

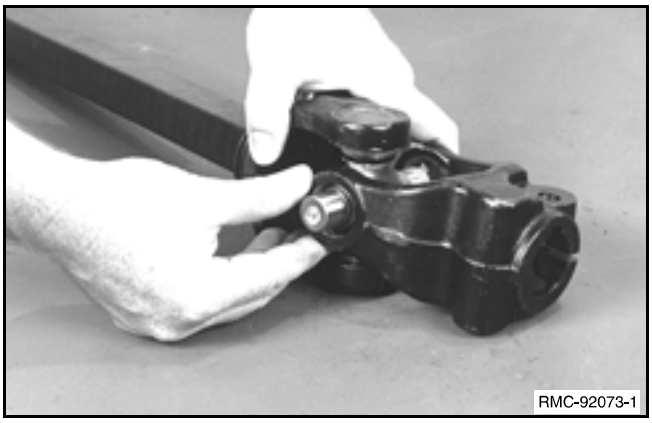


FIG. 168

Sprocket Wear

FIG. 186: A worn roller chain must never be used with new sprockets since the chain no longer fits the sprocket teeth properly. A worn roller chain rides high on the outer tips of the sprocket teeth, causing rapid wear on the outer tips of the sprocket teeth.

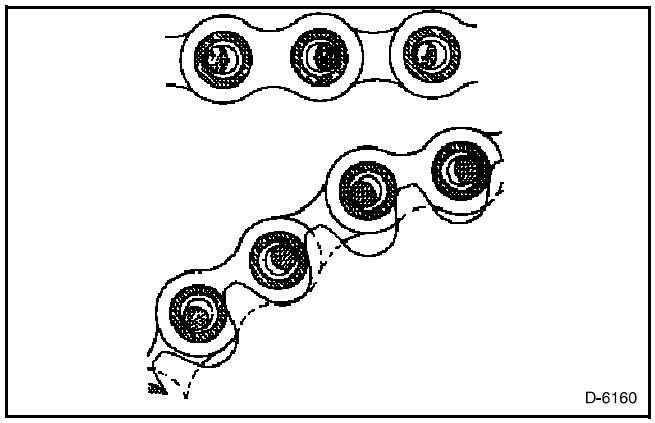


FIG. 186

FIG. 187: Chain tension that is not correct can cause wear that is not normal on the outer tips of the sprocket teeth.

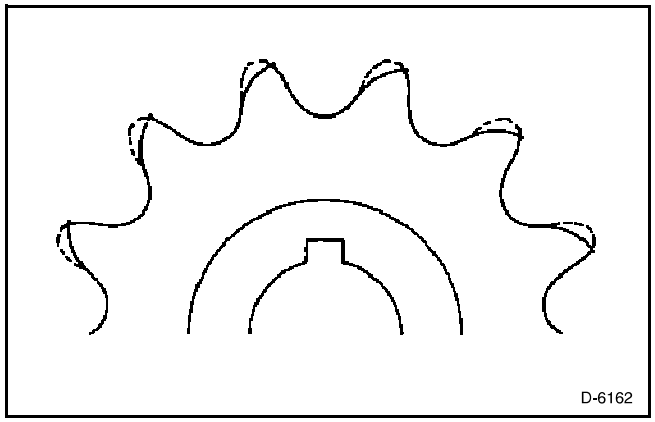


FIG. 187

FIG. 188: This figure shows normal tooth wear.

Not enough lubrication can cause sprocket tooth wear that is not normal.

Worn sprockets must never be used with new roller chain. Worn roller chain must never be used with new sprockets.

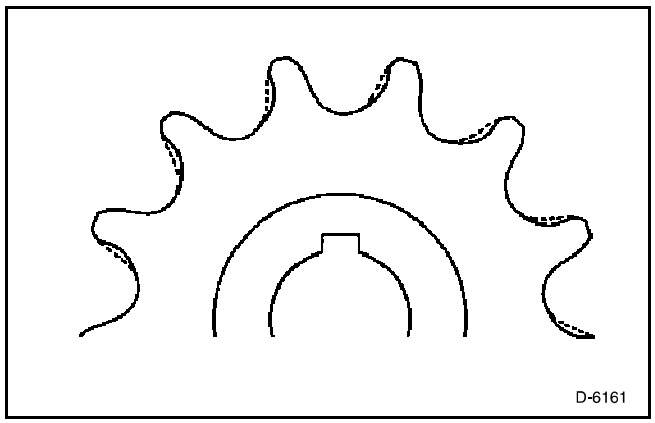


FIG. 188

GAUGE WHEEL ADJUSTMENT

NOTE: Adjust the gauge wheels before adjusting the pickup height.

Park the baler on a solid level surface.

Adjust the pickup so the bottom row of tines is approximately 25 mm (1 in) above the ground. See the Pickup Height Adjustment in this section.

FIG. 1: Loosen the mounting bolt (1) for the gauge wheel (2). Slide the gauge wheel, until the gauge wheel is on the ground or just slightly above the ground. Tighten the mounting bolt. Repeat the procedure for the gauge wheel on the opposite side of the baler.

NOTE: The gauge wheels must not support all the weight of the pickup. The gauge wheels must work with the flotation springs to keep the pickup from running into the ground.

Adjust the pickup height. See Pickup Height Adjustment on page 2 in this section.

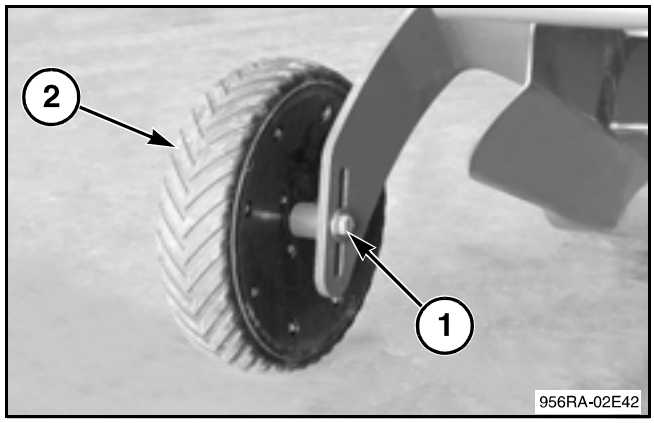


FIG. 1

PICKUP HEIGHT ADJUSTMENT

NOTE: Adjust the gauge wheels before adjusting the pickup height. See Gauge Wheel Adjustment on page 2 in this section.

WARNING: Small stones or other foreign material can be thrown toward the operator if there is not enough clearance between the pickup tines and the ground. Wear protective eye wear whenever this situation exists.

During operation, keep the tines approximately 25 to 38 mm (1 to 1-1/2 in) above the ground for most field conditions. Operate the pickup tines as high as possible to still make a clean pickup of the windrow. Windrows of light crop will require a lower pickup height than windrows of heavy crop.

Pickup Crank

FIG. 2: The pickup crank (1) controls the minimum pickup height.

To adjust the minimum pickup height, do the following:

- Park the baler on a solid level surface.
- Rotate the pickup crank counterclockwise to lower the pickup so the bottom row of tines is approximately 25 mm (1 in) above the ground.

IMPORTANT: Make sure the tines on the pickup assembly are not touching the ground during operation. If the pickup is adjusted too low, the tines can pick up dirt and rocks with the crop. This will cause excessive wear and mechanical damage to the pickup assembly.

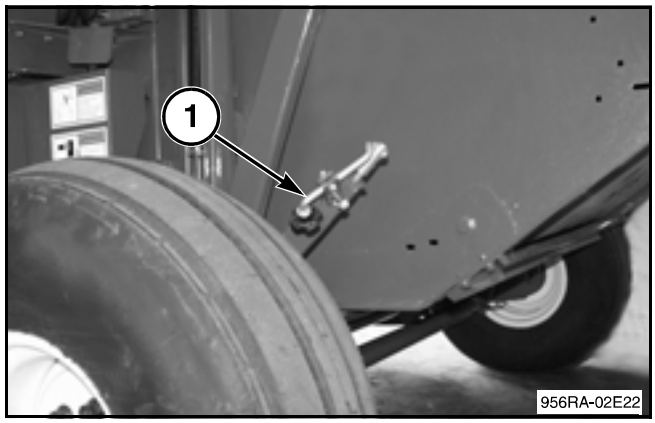


FIG. 2

OUTSIDE TINE BAR BEARINGS

NOTE: See Rotor Shaft on page 13 for replacement of the middle tine bar bearing.

Removal

FIG. 22: Follow the procedure in Camtrack and Rotor Bearing Removal and Installation on page 10 to remove the camtrack (1).

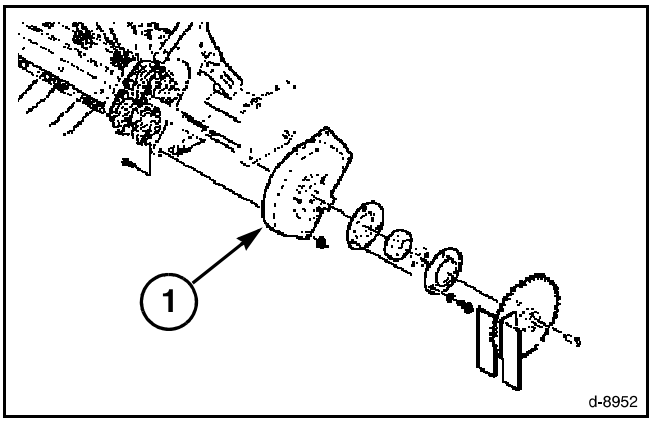


FIG. 22

FIG. 23: Loosen the set screw on the end tine bar bearing locking collars. Use a punch to loosen the locking collar.

- If working on the left-hand side, drive the collar in a counterclockwise direction when facing the bearing from the left-hand end of the tine bar.
- If working on the right-hand side, drive the collar in a clockwise direction when facing the bearing from the right-hand end of the tine bar.

Remove the two 3/8-16 x 3/4 washer head machine screws (2) that hold the tine bar bearing (3) onto the rotor shaft (4).

Remove the 7/16 - 14 x 2-1/4 socket head cap screw (5) and nut that connect the tine bar crank (6) to the tine bar (7).

Remove the tine bar crank, bearing and flanges from the tine bar.

Remove the bearing, collar, and flanges from the tine bar crank.

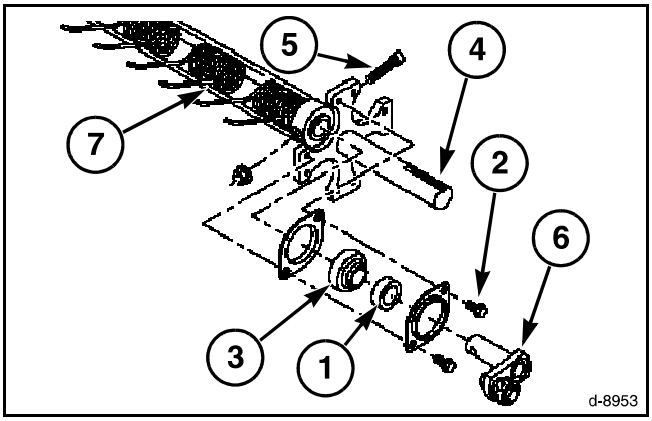


FIG. 23

Right-Hand Auger

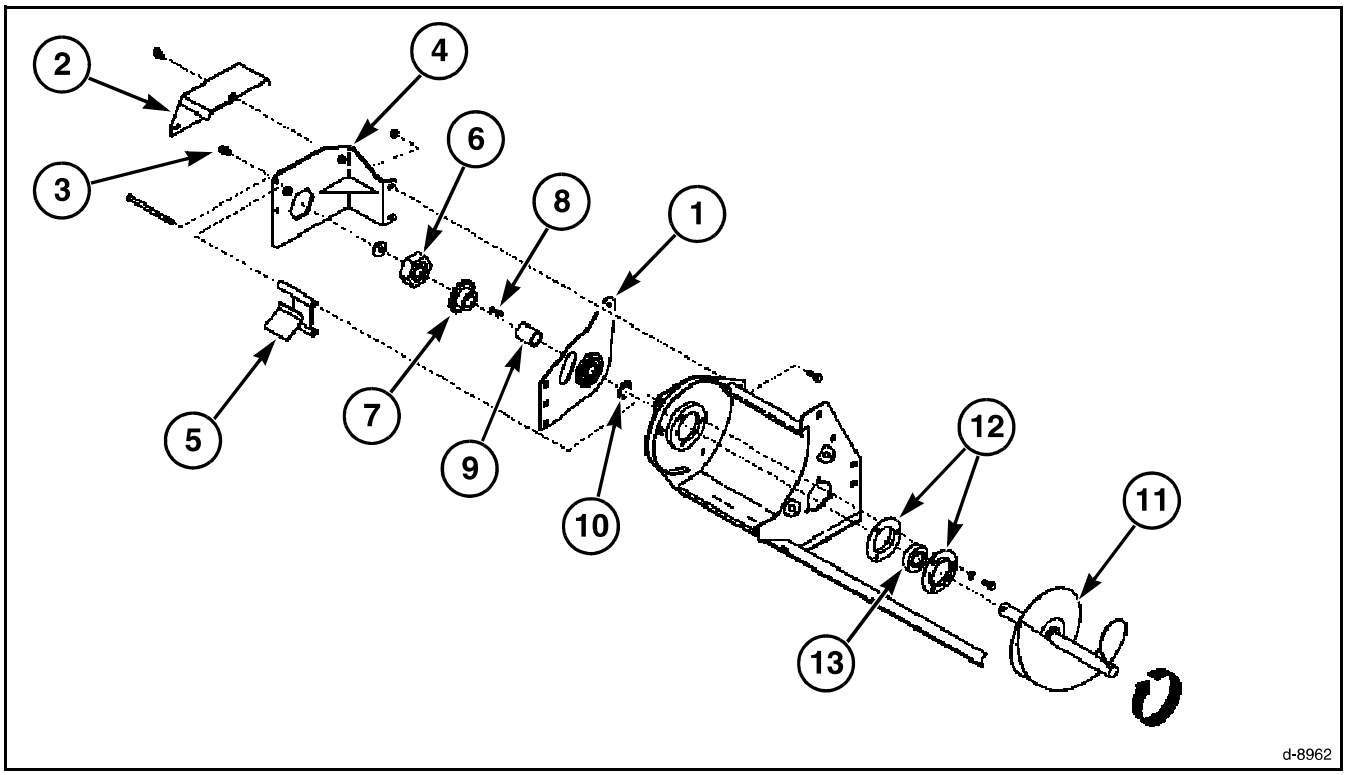


FIG. 36

Removal

FIG. 36: Remove the pickup. See Pickup Removal and Installation on page 9.

Loosen the tension on the pickup spring. Remove the 5/8-11 x 1-1/2 cap screw that connects the pickup spring to the pickup support assembly (1).

Remove the auger chain shield (2).

Remove the 1/2-13 x 1-1/4 flange screw (3) and special washer. There is Loctite® 243 on the flange screw.

Remove the auger chain.

Remove two 3/8-16 x 6 cap screws and two 3/8-16 x 1-1/4 flange screws and top lock nuts from the support weld assembly (4). Remove support weld assembly and spacer assembly (5).

Remove the hub assembly (6).

NOTE: The bearing in the hub assembly is held with a snap ring. Replace the bearing if necessary.

Remove the auger sprocket (7), key (8), and spacer (9).

Remove the pickup support assembly.

NOTE: The bearing in the pickup support assembly is held with a snap ring. Replace the bearing if necessary.

Some balers have a machinery bushing (10) after the pickup support assembly. If equipped, remove the machinery bushing.

Remove the auger (11) from the baler.

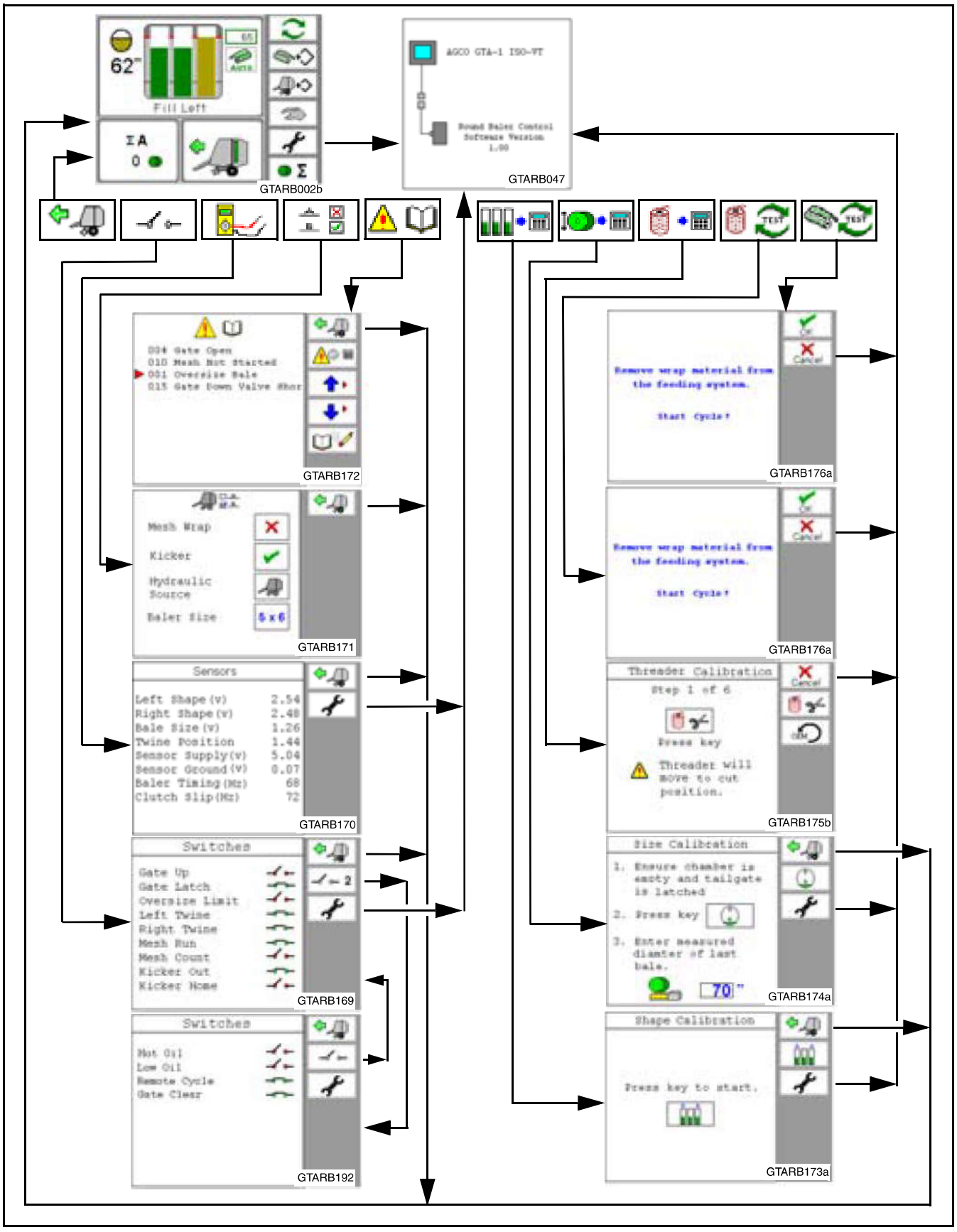
Remove the three 3/8-16 x 1 3/8-16 x 1 washer head machine screws from the bearing flanges (12). Remove the bearing (13) and flanges from the baler.

Wire Color

The electrical schematic uses three letter abbreviations for the wire colors. The following table gives a description of the abbreviations.

Abbreviation	Wire Color
BLK	Black
BLK/ORG	Black with orange stripe
BLU	Blue
BLU/WHT	Blue with white stripe
BRN	Brown
BRN/BLU	Brown with blue stripe
BRN/RED	Brown with red stripe
BRN/WHT	Brown with white stripe
BRN/YEL	Brown with yellow stripe
DK GRN	Dark Green
GRN	Green
GRN/YEL	Green with yellow stripe
GRY	Gray
LT BLU	Light Blue
ORG	Orange
ORG/BLU	Orange with blue stripe
PNK/BRN	Pink with brown stripe
RED	Red
RED/BLU	Red with blue stripe
RED/GRN	Red with green stripe
RED/GRY	Red with gray stripe
RED/ORG	Red with orange stripe
RED/PNK	Red with pink stripe
RED/PUR	Red with purple stripe
TAN	Tan
WHT	White
WHT/BLK	White with black stripe
WHT/BRN	White with brown stripe
WHT/BLU	White with blue stripe
WHT/GRN	White with green stripe
WHT/GRY	White with gray stripe
WHT/ORG	White with orange stripe
WHT/PNK	White with pink stripe
WHT/RED	White with red stripe
WHT/YEL	White with yellow stripe
YEL	Yellow
YEL/GRN	Yellow with green stripe
YEL/GRY	Yellow with gray stripe
YEL/ORG	Yellow with orange stripe

Service Screen



Display Description

FIG. 10: Manual mode screen display description.
(1) Manual Mode Icon

(2) Bale Size - The current bale size is displayed.

(3) Baler Side View - The baler side view shows the condition of the tailgate and kicker.


Tailgate closed and latched
Kicker home


Tailgate not latched or completely up.
Kicker home


Tailgate completely up
Kicker home


Tailgate completely open
Kicker not home or completely out


Tailgate completely open
Kicker completely out


Tailgate not latched or completely up
Kicker completely out


Tailgate closed and latched
Kicker completely out


Tailgate closed and latched
Kicker not home or completely out

(4) Bale Counter - The bale counter displays the current bale counter and the number of bales.

(5) Stop Icon

Stop the tractor.

(6) Text Display Area

(7) Wrap Type Icon


Twine


Mesh

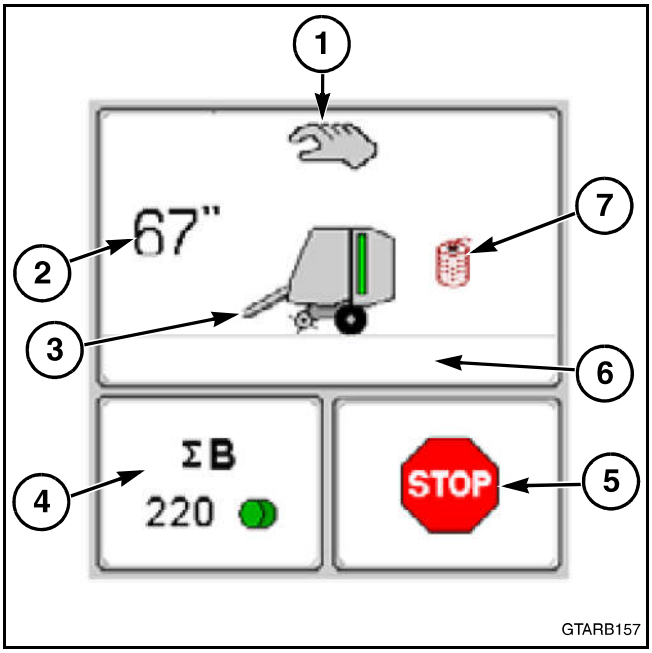


FIG. 10

Clear a Counter

To clear a counter:

Use the ↑ or ↓ key to select the desired counter.

Press the Σ→0 key.

FIG. 27: The Set Counter to Zero confirmation screen will display.

Press the OK key to clear the counter and go back to the Bale Counter screen.

Press the Cancel key to go back to the Bale Counter screen without clearing the counter.

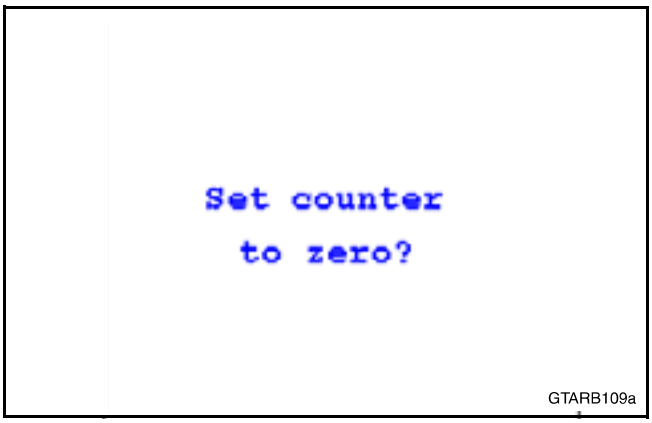


FIG. 27

Editing a Counter

FIG. 28: If necessary, the number of bales in a counter can be increased or decreased.

NOTE: The number of bales in the lifetime counter cannot be changed.

To change the number of bales in a bale counter:

Balers with twine only

- Press the + key to increase the bale count.
- Press the − key to decrease the bale count.

Current wrap type is twine

- Press the + key to increase the bale count.
- Press the − key to decrease the bale count.

Current wrap type is mesh

- Press the + key to increase the bale count.
- Press the − key to decrease the bale count.

NOTE: If the wrap type that is not current needs to be changed, go back to the Main Work screen and change the current wrap type. Then go to the Bale Count screen and change the number of bales.

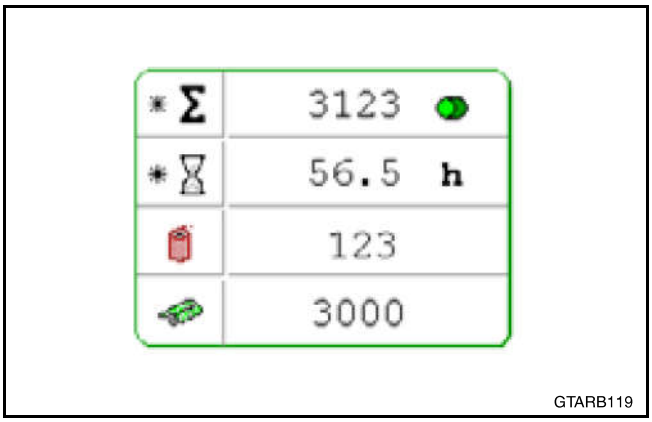


FIG. 28

Increasing Bale Count

Two events must occur for the baler to increase the bale count by one:

- The bale size sensor indicates a bale greater than 813 mm (32 in) in diameter.
- The gate latch switches change condition from closed to open.

When both of these evens occur in order, a bale is added to the total bale count and to the correct wrap type count.

If power down occurs after the bale is larger than 813 mm (32 in) but before the gate latch switches open, the bale will be counted when the gate latch switches open after the next power up.

The bale size must move from below the minimum to above the minimum to count a bale.

Gate Clear Switch Did Not Open

Alarm Number:	043
Priority:	
Audible Alarm:	Low
Baler	All
Problem Summary:	The gate clear switch did not open.

Check:

- Make sure the tailgate operates correctly.
- Check the adjustment of the switch.
- Use the Switch Service Screen to test the tailgate clear switch and wiring.

Gate Up Timeout

Alarm Number:	044
Priority:	
Audible Alarm:	Low
Baler	Automatic only
Problem Summary:	The gate up switch does not close within 10 seconds after the gate up output is activated during the auto unload cycle.

Check:

- Make sure the PTO is running.
- Make sure the tailgate operates correctly.
- Check the adjustment of the switch.
- Use the Switch Service Screen to test the tailgate up switch and wiring.
- On standard balers, make sure that the baler is configured for tractor hydraulics. See baler configuration screen.

Gate Latch Timeout

Alarm Number:	045
Priority:	
Audible Alarm:	Low
Baler	Automatic Only
Problem Summary:	The gate latch switch does not close within 10 seconds after the gate down output is activated during the auto unload cycle.

NOTE: There are two tailgate latch switches and both must close to indicate that the tailgate is latched.

Check:

- On standard balers, make sure that the baler is configured for tractor hydraulics. See baler configuration screen.
- Make sure the PTO is running.
- Make sure the tailgate operates correctly.
- Check the adjustment of the switch.
- Use the Switch Service Screen to test the tailgate latch switches and wiring.

Kicker Out TImeout

Alarm Number:	046
Priority:	
Audible Alarm:	Low
Baler	All
Problem Summary:	The kicker out switch does not close within 10 seconds after the kicker out output is activated.

Check:

- Make sure that the kicker operates correctly.
- On automatic balers, make sure the PTO is running.
- On standard balers, hold the tractor remote handle until the kicker is out.
- Check the adjustment of the switches.
- Use the Switch Service Screen to test the kicker out switch and wiring.
- Make sure that the hydraulic system operates correctly.

A continuity check is used to test a circuit that is not connected to a power supply. To check a circuit that is connected to a power supply, do a voltage check or disconnect the circuit from the power supply and do a continuity check. Connecting an instrument for checking continuity to a circuit that is connected to a power supply can damage the instrument.

If a voltage test and a continuity test are both specified, do the voltage test first. If the voltage test is correct, the continuity test is not necessary.

A simple continuity tester has two test leads, a lamp, and a battery. The two test leads are connected to the two ends of a circuit. If the circuit is complete, current from the battery in the continuity tester will flow through the circuit and cause the lamp on the continuity tester to illuminate. If a circuit is not complete, the lamp on the continuity tester will not illuminate. If the continuity tester has an alarm, the alarm will sound when the lamp is illuminated.

An ohmmeter can also be used to check for continuity. The ohmmeter measures the amount of resistance to the flow of electricity in a circuit. When electricity is forced through a small diameter wire, there will be a larger amount of resistance. If the same amount of electricity is forced through a larger diameter wire, there will be less resistance. Any complete circuit will have some resistance. When the two test leads of an ohmmeter are connected to the two ends of a circuit, the ohmmeter will indicate the amount of resistance for the circuit.

If the ohmmeter has a needle, the needle will indicate the maximum amount of resistance when the test leads are not connected to the circuit. When the test leads are connected to a complete circuit, the needle will move toward zero and stop at the position to indicate the amount of resistance for the circuit. If the circuit is not complete, the needle of the ohmmeter will not move. To check a circuit for continuity, connect the two test leads of an ohmmeter to the two ends of the circuit. If the needle of the ohmmeter moves, the circuit is complete. If the needle of the ohmmeter does not move, the circuit is not complete.

If the ohmmeter has a digital readout, the readout will change to indicate the amount of resistance when the test leads are connected to a complete circuit. If the circuit is not complete, the readout will not change. To check a circuit for continuity, connect the two test leads of an ohmmeter to the two ends of the circuit. If the digital readout changes to a small value, the circuit is complete. If the digital readout does not change, the circuit is not complete.

Most digital multimeters have a setting for checking continuity. This setting includes an alarm on most multimeters. When the circuit being tested has continuity (is complete) the indication will be 0 (zero) and the alarm will sound. If the multimeter has this type of setting, it is best to use this setting for checking continuity. On most digital multimeters, the resistance value will not be correct when using this setting. To check resistance you must use the ohms setting.

Voltage Check

A voltage check is used to test a circuit that is connected to a power supply.

NOTE: To check a circuit that is not connected to a power supply, do a continuity check. See Continuity and Resistance Check in this section.

The voltage check measures the amount of voltage in the circuit. The voltage check also determines if a circuit has continuity. The circuit can be a single wire, a single component, or two or more wires and components. A circuit that has continuity is complete and current can flow through the circuit. A circuit that does not have continuity has a break in the circuit that will not let current flow through the circuit. The break is called an open and the circuit is called an open circuit. An open can be caused by a broken wire, a loose connection, dirty contacts in a switch or connector, or any other condition that keeps the circuit from being complete. Visually check for these conditions before doing a voltage test.

An open that comes in contact with a ground connection such as the mainframe is called a short circuit to ground.

Adjust the multimeter to indicate volts DC and, if necessary, the correct range. Connect the multimeter leads to the two terminals that need to be checked. The multimeter will read the amount of voltage between the two terminals

If the multimeter does not indicate any voltage, there is an open in the circuit or the tractor battery is completely discharged.

If the multimeter indicates a negative (-) reading, make sure the test leads are not reversed. Also make sure the wires in the circuit being tested are connected correctly.

If the multimeter indicates voltage, compare the reading to the voltage specified in the test.

If the test requires a reading of system voltage, the multimeter must indicate 10 to 16 volts. System voltage is the amount of voltage in the tractor battery, which is normally 12 volts.

NOTE: The system voltage can be several volts different with the tractor engine running or tractor engine not running. Unless specified, use the system voltage for tractor engine not running.

If the voltage reading is not correct, check the condition of the batteries and the charging system.

FIG. 42: The next screen will be displayed.

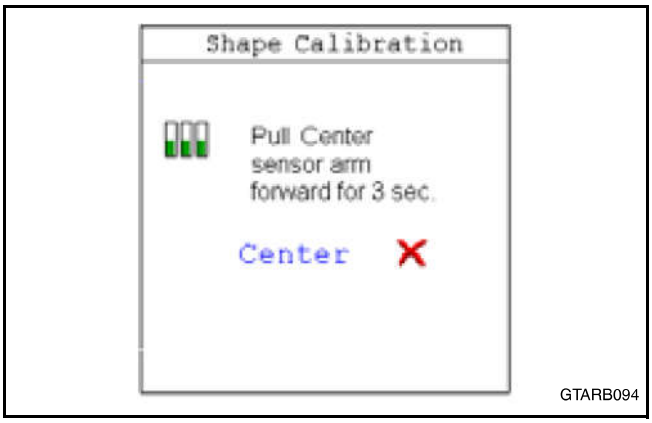


FIG. 42

FIG. 43: Pull the center sensor arm (1) forward until the left and right-hand sensor arms bottom out in the slot and the outside wheels move slightly. Hold the sensor arm in this position for three seconds.

When the sensors are calibrated:

- The console will sound for one second
- The ✗ icon will change to a ✓ icon.
- The console will go to the next calibration step.

The left-hand sensor is now calibrated.

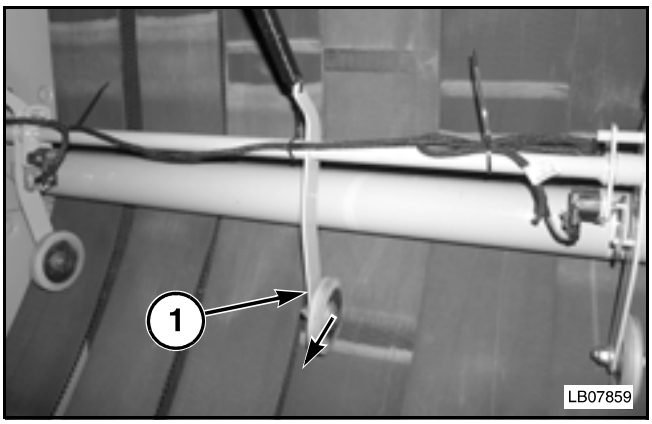


FIG. 43

FIG. 44: The next screen will be displayed.

NOTE: It is possible that the bale shape bars will not be the same length after calibrating the bale shape sensors. The bale shape bars will be the same length after the first bale is made.

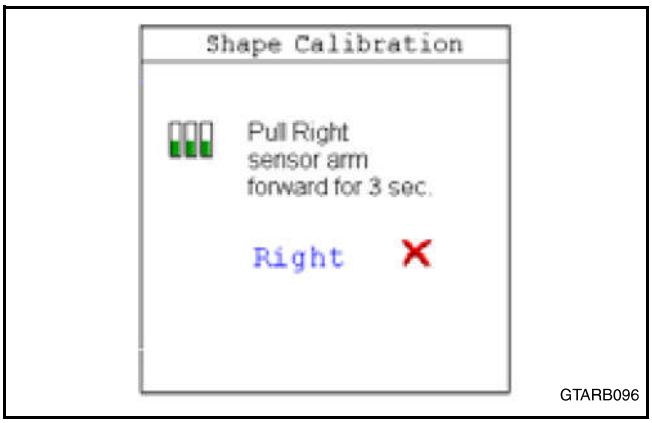


FIG. 44

FIG. 45: Pull the right-hand sensor arm (1) forward until the sensor arm pin (2) bottoms out in the slot and moves the center arm slightly. Hold the sensor arm in this position for three seconds.

When the sensor is calibrated:

- The console will sound for one second
- The ✗ icon will change to a ✓ icon.
- The console will go to the Calibration Complete screen.

The right-hand sensor is now calibrated.

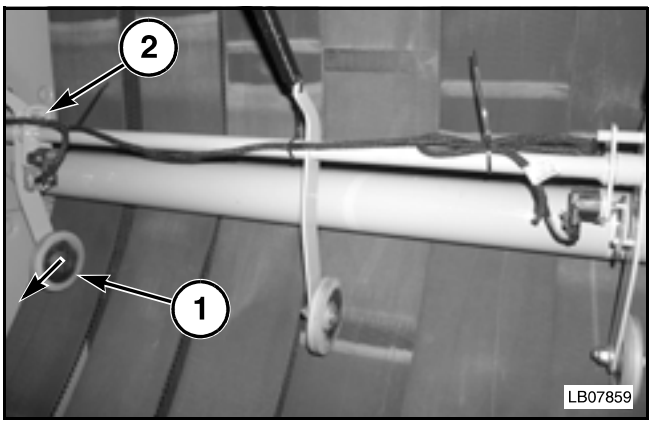


FIG. 45

BALE SIZE SENSOR

Location

FIG. 60: The bale size sensor (1) is located above the twine box on the right-hand side of the baler.

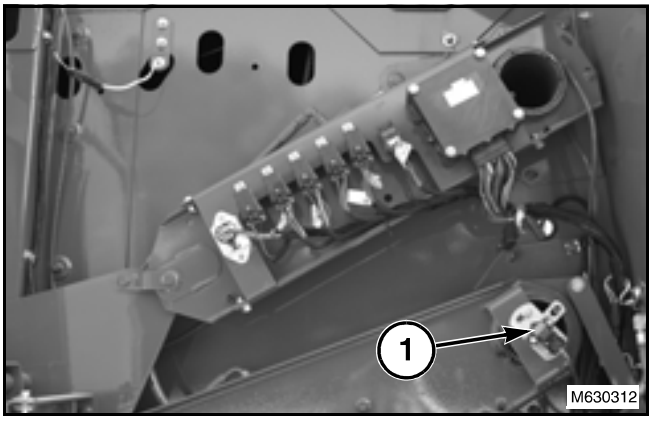


FIG. 60

Description

FIG. 61: The bale size sensor is a hall effect sensor. The hall effect sensors used on this machine can be identified by the sealant (1) on the top of the sensor.

NOTE: The twine arm sensor is a different type of sensor.

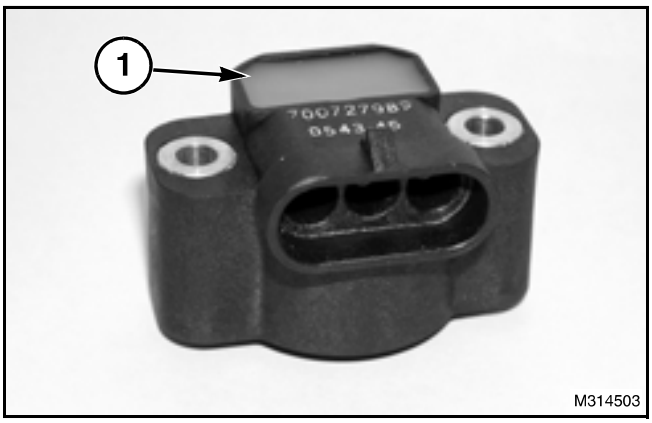


FIG. 61

Test Using the Console

Press the key on the console to enter the Service Screen.

Press the key on the Service Screen to enter the Sensor Service Screen.

FIG. 62: The sensor service screen shows the name of the sensor and supply voltage or frequency. When the sensor changes condition, the indication for that sensor will also change.

The bale size sensor voltage will be within the range of 0.5 to 4.5 volts.

To test the size shape sensor, remove the bale size sensor assembly from the baler. Watch the screen while another person turns the bale size sensor. The voltage must increase and decrease smoothly. Install the bale size assembly. Put the bolts in the center of the slots. It will be necessary to calibrate the bale size sensor.

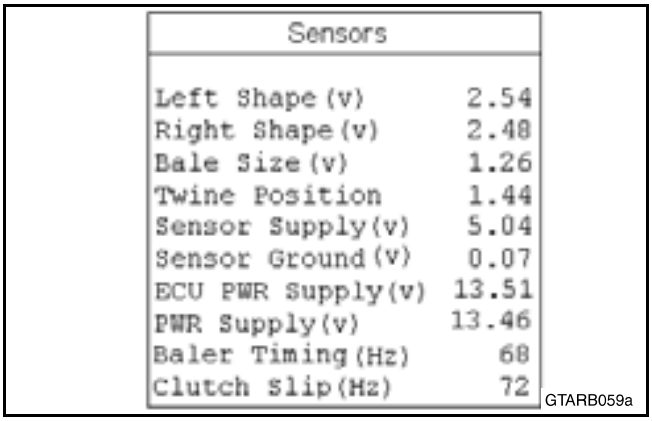


FIG. 62

FIG. 86: The Threader Calibration Complete screen will be shown.

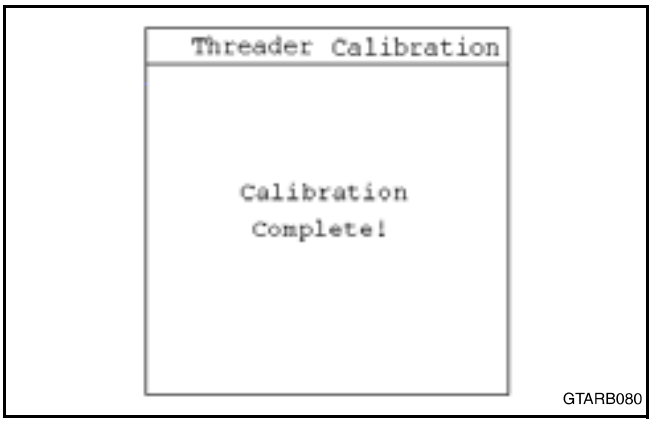


FIG. 86

Restore Factory Default

This key is only availble for later software versions. If it is necessary to restore factory defaults on early software versions, see your dealer.

Restore the factory defaults when:

- The twine arm sensor has been replaced.
- A twine arms sensor calibration does not give the desired threader control.

Press the key to restore the factory default settings for the twine arm sensor calibration.

FIG. 87: A confirmation screen will be displayed.

Press the key to restore the factory default settings and return to the threader calibration screen.

Press the key to cancel and return to the threader calibration screen.

FIG. 87

RELAYS

Location

FIG. 102: The relays are located on the right-hand side of the baler.

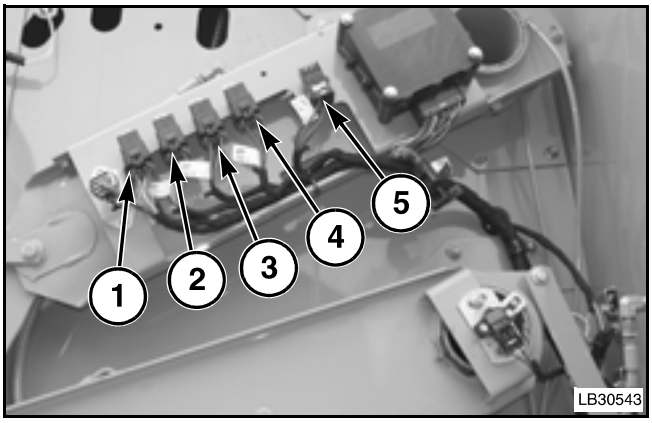


FIG. 102

Ref.	Function	Wire Colors	Notes
1	Mesh Wrap Select 2	Red/Purple Black Tan Red/Orange Yellow/Gray	
2	Mesh Wrap Select 1	Red/Pink Black Pink/Brown Black Red/Orange	
3	Mesh Wrap Feed 2	Red/Purple Black Pink/Brown Red/Orange Black	
4	Mesh Wrap Feed 1	Red/Pink Black Pink/Brown Black Red/Orange	
5	Wrap On/Off	Red Black Black/Orange Red/Orange	Solid State Relay

Can Terminator on the Baler Harness

FIG. 118: CAN terminators (1) are necessary for proper communications between each component of the system. One CAN terminator is located on the end of the baler harness.

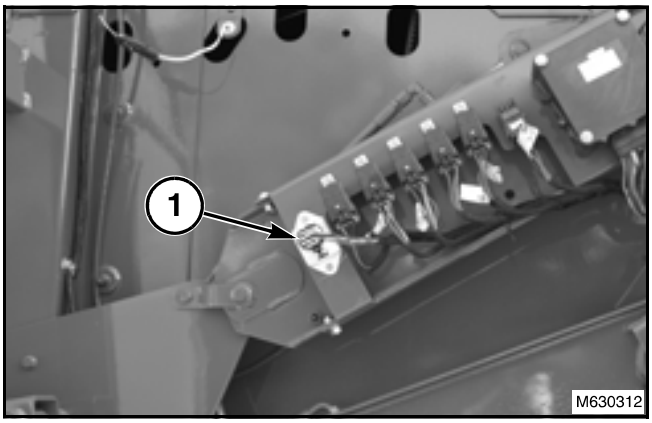


FIG. 118

Implement Controller

FIG. 119: The implement controller (1) is mounted on the implement. The implement controller contains the implement software, parameters, constants, and memory.

The implement controller directs the functions of the baler and collects inputs from the sensors and switches on the baler.

An implement controller can also be called a ECU or Working Set Master (WSM)

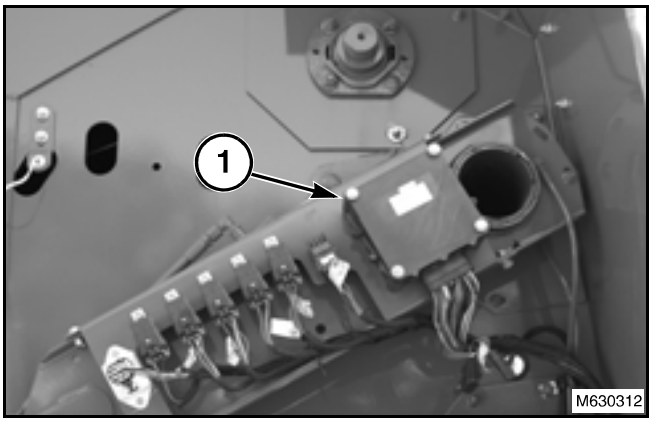


FIG. 119

FORMING BELT TENSION RELEASE

Release the tension on the forming belts before doing the following:

- Replacing a forming belt.
- Repairing or installing a splice in a forming belt. For easy access, stop the forming belt so the splice is either at the front or rear of the baler.
- Storing the baler.
- Servicing rolls or roll bearings.

FIGS. 1–2: To release the forming belt tension:

Disengage the PTO.

Stop the tractor engine, and take the key with you.

Turn the knob on the pressure release valve (1) counterclockwise until the pressure on the pressure gauge (2) is 0 kPa (0 psi).

Close the pressure release valve before baling.

Move the tractor remote lever for the tailgate to apply tension to the forming belts.

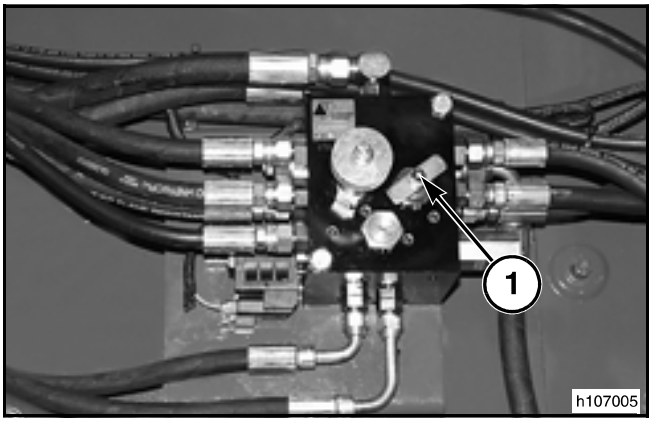


FIG. 1

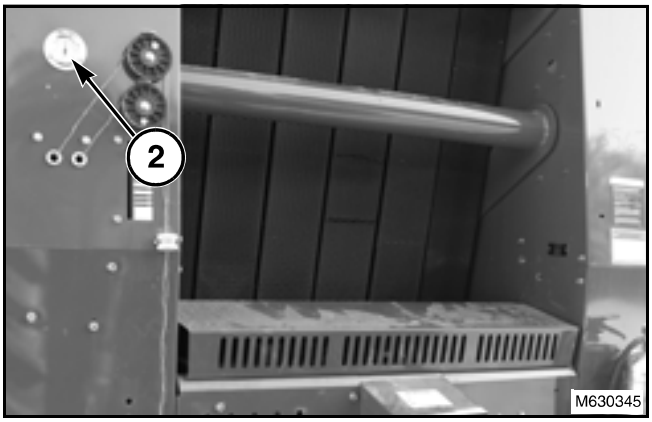


FIG. 2

NOTES

Removal

Raise the tailgate all the way.

Disengage the tractor PTO and shut off the tractor engine. Turn off the control console. Take the key with you.

FIG. 44: Put the tailgate lockout valve (1) in to the LOCKED position.

WARNING: When the tailgate is raised for any maintenance or service work, push the tailgate lockout valve into the LOCKED position.

Open the side shield doors on both sides of the machine.

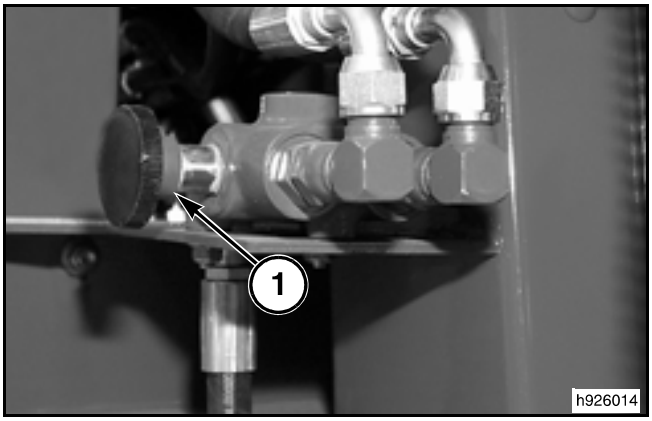


FIG. 44

FIG. 45: Release the tension on the forming belts and the bale density arm by turning the belt density release valve (1) counterclockwise.

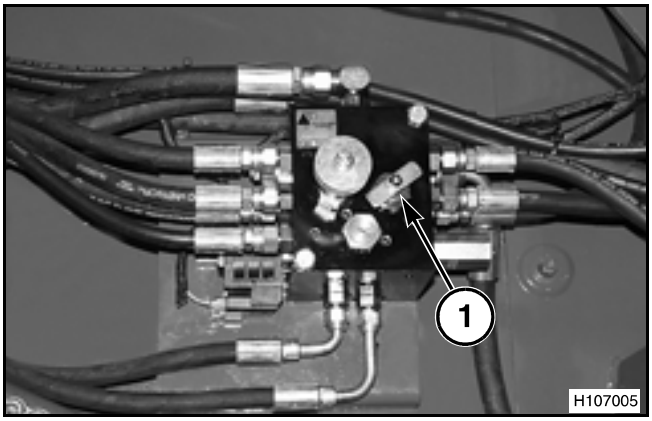


FIG. 45

FIG. 46: Remove the sixteen 3/8-16 x 3/4 washer head machine screws and flange top lock nuts from the top shield (1). Remove the top shield.

Remove everything that is attached to the left-hand and right-hand front shields (2). Remove the left-hand and right-hand front shields.

FIG. 46

Installation

Put the roll into position in the baler. Use the rear holes.

Install the cap screws.

Turn the belt tension release valve fully clockwise. Apply tension to the forming belts.

Run the baler and check the tracking of the forming belts. To adjust the tracking see the Forming Belt section.

TAILGATE IDLER ROLLS

NOTE: Six foot diameter balers have three tailgate idler rolls. Five foot diameter balers have two tailgate idler rolls.

Removal

If tailgate idler roll is being removed is used to adjust belt tracking, mark the position of the roll in the slot. This will give a starting place for adjusting the belt tracking.

FIG. 67: Release the belt tension by turning the belt tension release valve (1) fully counterclockwise.

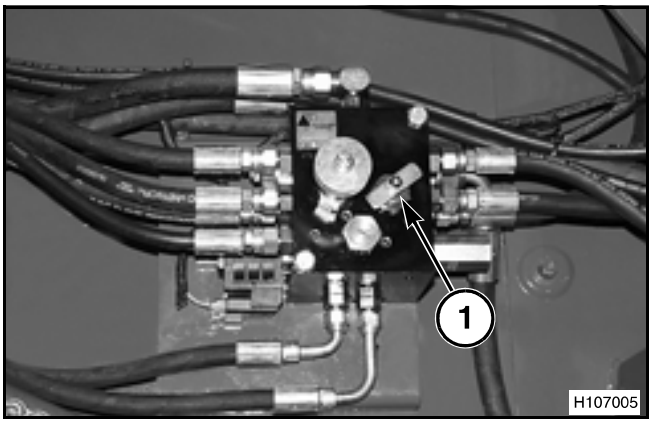


FIG. 67

FIG. 68: Support both ends of the roll. Remove the cap screw (1) at each end. It can be necessary to use a drive punch to hold or rotate the hub when removing the cap screws.

Remove the roll from the baler.

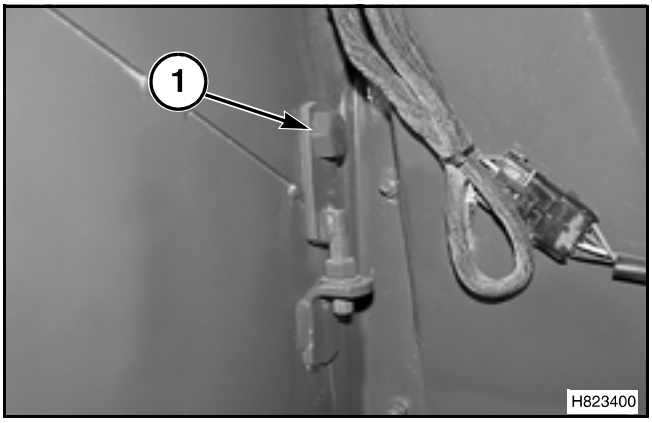


FIG. 68

NOTES

TWINE ARM CHAIN INSTALLATION AND TIMING

FIG. 12: To install the twine arm chain on a five foot wide baler:

- Completely retract the actuator (1).
- Put a bolt into the timing hole (2) in the sensor sprocket.
- Put a bolt into the timing hole (3) in the twine arm.
- Install the twine arm chain.
- Remove the timing bolts.
- Adjust the chain tension.
- Calibrate the twine arm. See the Electrical division.

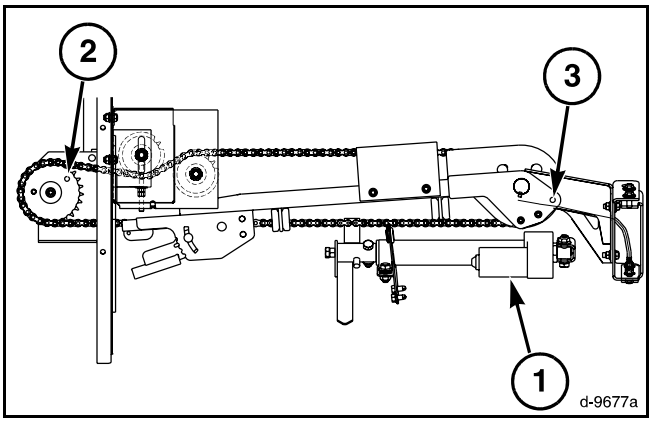


FIG. 12

FIG. 13: To install the twine arm chain on a four foot wide baler:

- Completely retract the actuator (1)
- Put a bolt into the timing hole (2) in the sensor sprocket
- Put a bolt into the timing hole (3) in the twine arm
- Install the twine arm chain
- Remove the timing bolts
- Adjust the chain tension.
- Calibrate the twine arm. See the Electrical division.

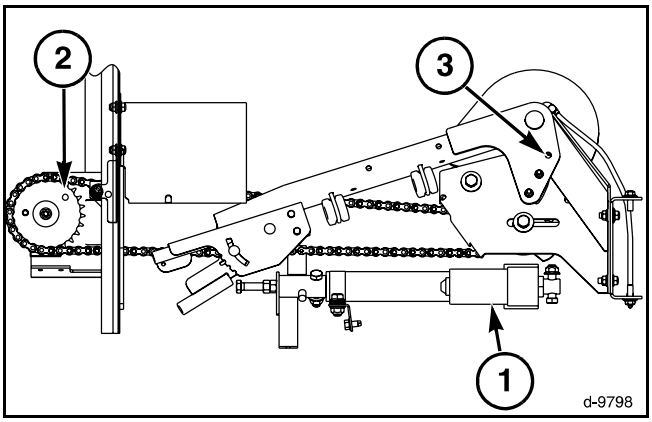


FIG. 13

MESH FEED ROLL TENSION

WARNING: The cutoff arm for the mesh wrap can move rapidly without warning. Lock the cutoff arm into the up position before servicing or loading mesh wrap.

FIG. 26: If the mesh wrap can be pulled through the rolls without turning the feed rolls, the tension between the feed rolls must be increased.

The rolls must be adjusted for equal tension on both ends so the mesh wrap starts evenly.

The tension is correct when the rolls turn without tearing the mesh wrap.

To adjust the tension between the feed rolls, loosen the bolts (1) on the ends of the front feed roll (2). Adjust the eccentric cam (3) behind the bolt until the mesh wrap will not slip between the feed rolls. Do not adjust the feed rolls too tight.

Tighten the bolts when the correct tension between the feed rolls is reached.

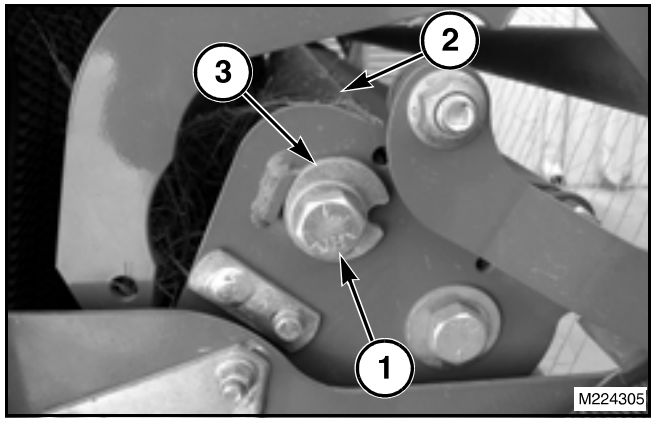


FIG. 26

MESH FEED ROLL BRAKE

FIG. 27: The feed roll brake (1) must be adjusted to apply tension to the mesh wrap as the mesh wrap contacts the knife.

Make sure the feed roll is away from the brake pad. There must be a gap (A) of 42 to 44 mm (1-21/32 to 1-47/64 in) between the bottom edge of the brake arm (2) and the top edge of the spring support (3).

To get the correct gap, turn the adjusting bolt (4).

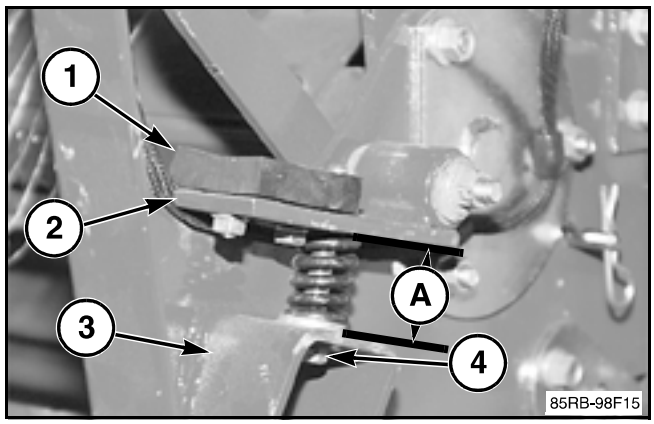


FIG. 27

NOTES

Contents

Tailgate Will Not Lower

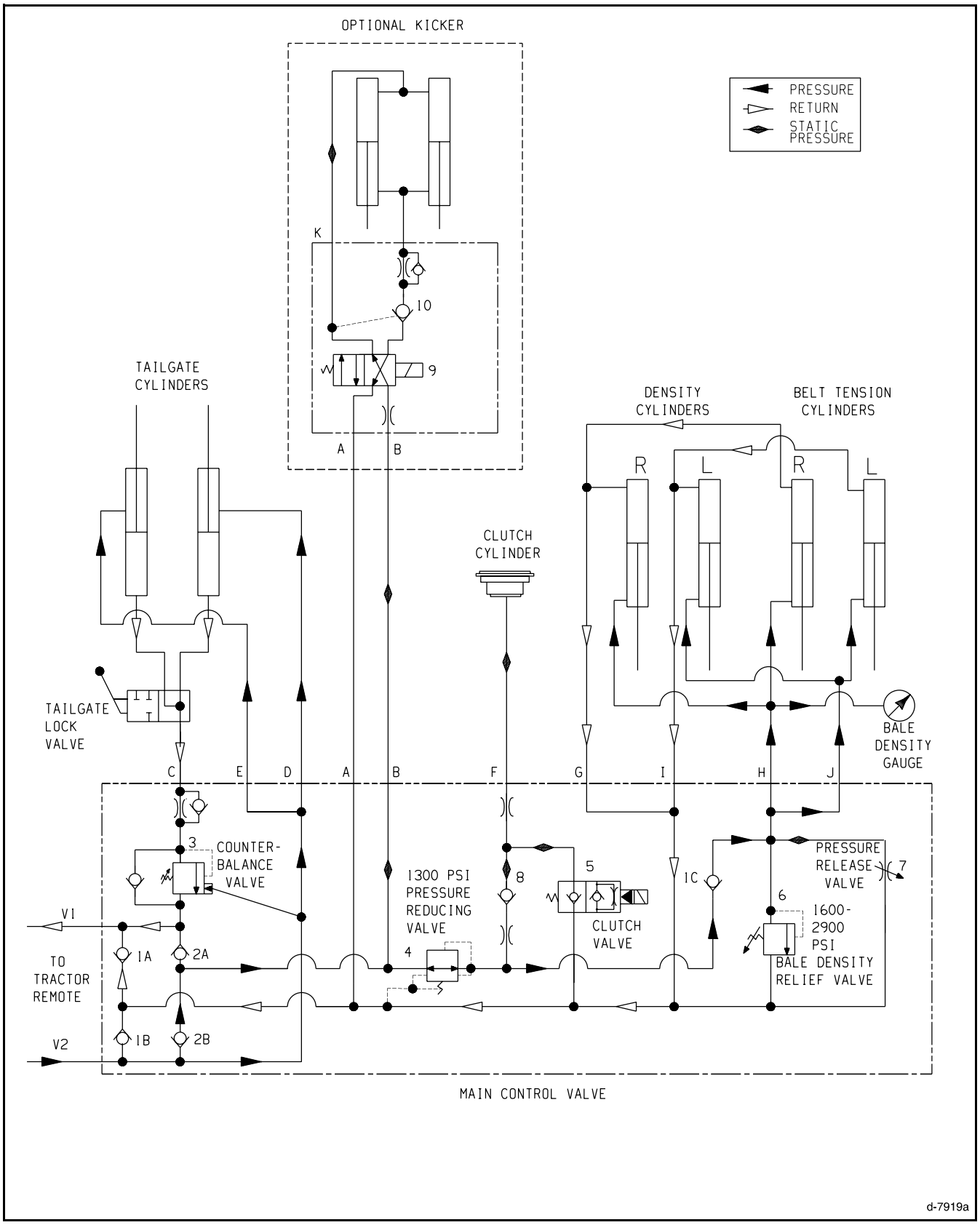


FIG. 8

FIG. 8: Tailgate closing, kicker held out

8. The problem can be caused by a faulty bale density pressure gauge.

   a. Open the pressure release valve and move the tractor remote to both power positions to relieve the pressure in the circuit to the pickup. Put the tractor remote valve in the NEUTRAL position.

   b. Remove the hydraulic hose on the back of the bale density pressure gauge.

   c. Install a test gauge on the hydraulic hose for the bale density pressure gauge.

   d. Close the pressure release valve. Start the tractor and move the remote handle to the position to close the tailgate. Check the pressure. If the pressure reading is correct on the test gauge, then the bale density pressure gauge must be replaced. If the pressure reading is the same, then the original bale density pressure gauge is working correctly.

Removal

Make sure the tailgate is all the way down.

Use a detergent solution and a low pressure spray washer to clean the valve area.

NOTE: It is important to keep the parts of the baler control valve clean. Small particles of dirt or lint can prevent the baler control valve from working correctly.

FIG. 18: Relieve the pressure in the belt tension and bale density circuits by turning the pressure release valve (1) counterclockwise.

Move the hydraulic remote handle to both positions with the tractor engine off to releave pressure in the system. Return the handle to the center position.

Check the pressure on the pressure gauge. The gauge must read 0 kPa (0 psi).

Fasten identification tags on the hoses connected to the main control valve. Use the port numbers stamped on the valve body to mark the hoses.

Carefully disconnect the hoses from the control valve. Some circuits may still be under pressure. Install caps on all of the hoses.

Fasten identification tags on the wiring harness. Disconnect the wiring harness from the clutch coil.

FIG. 19: Hold the control valve (1) and remove the two bolts (2) and the two top lock nuts from the mounting plate (3). Remove the mounting plate and the control valve from the side of the baler.

Remove the two cap screws (4) and top lock nuts to remove the mounting plate from the rear of the control valve.

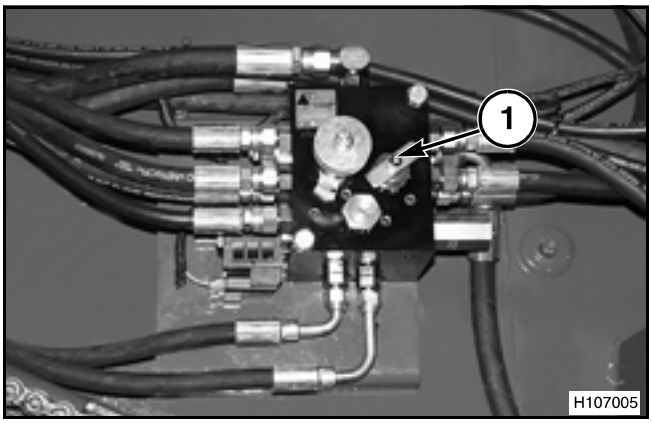


FIG. 18

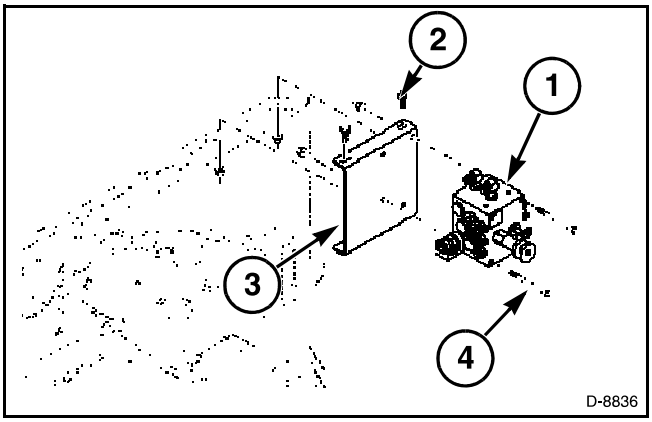


FIG. 19

KICKER CONTROL VALVE (OPTIONAL)

Description

The kicker control valve is located on the left-hand side of the baler behind the side shield. The kicker control valve controls the operation of the kicker and is only on balers with kickers.

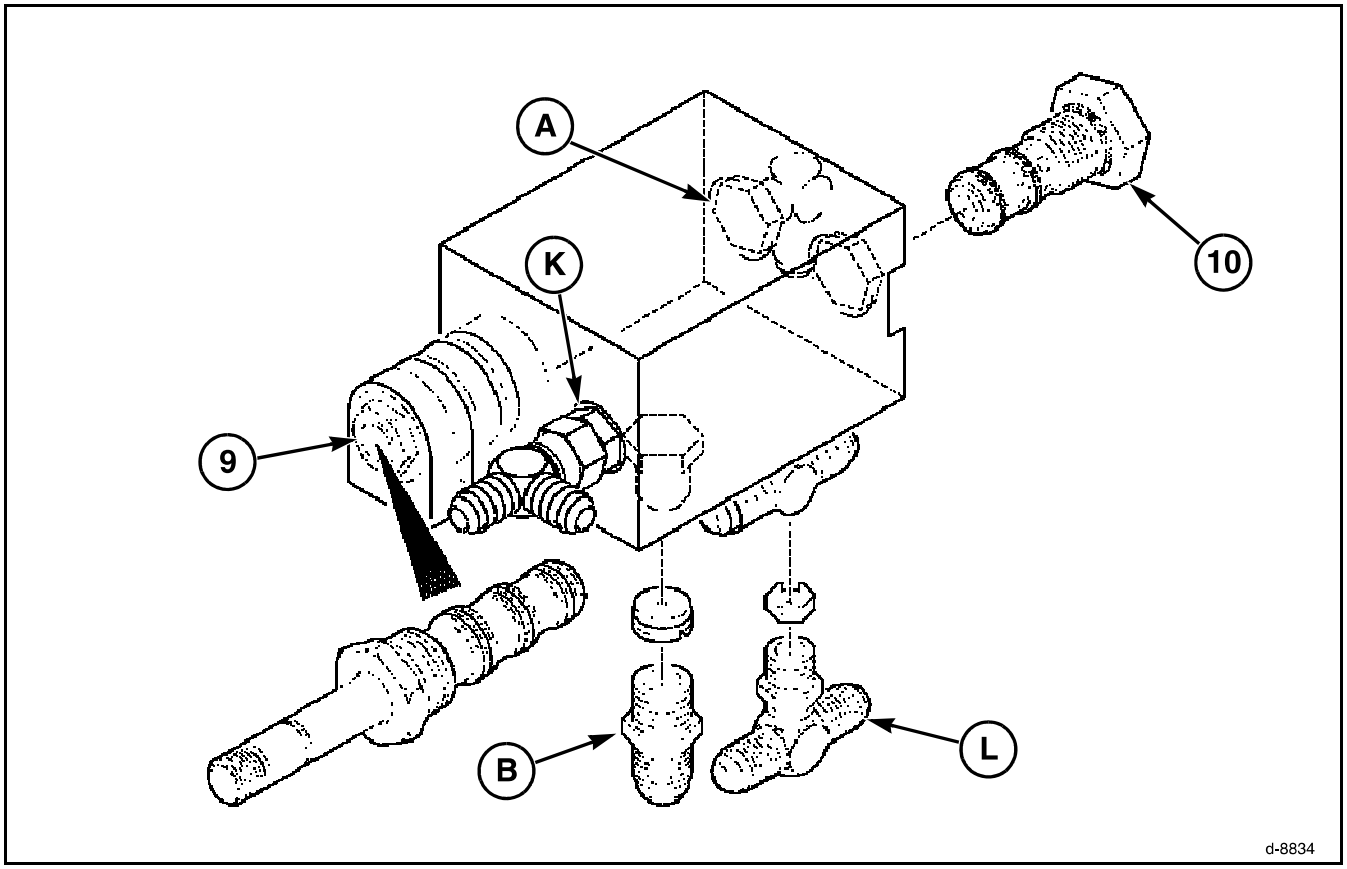


FIG. 39

FIG. 39: Threader Control Valve.

Port	Description	Notes
A	Pressure from Port A of the main control valve	
B	Return to Port B of the main control valve	There is a 0.078 threaded orifice plug in the port
K	To base end of kicker cylinders	
L	To rod end of kicker cylinders	There is a 0.059 floating orifice plate in the port. The groove is facing toward the valve.
9	Kicker valve and coil	
10	Pilot operated check valve	

CYLINDERS

Kicker, Belt Tension, Bale Density, and Pickup Lift

Disassembly

Fasten the tube in a vise or other holding equipment. Be careful not to damage the tube.

Use a hammer and a punch to drive the guide into the tube just enough to remove the internal retaining ring. Remove the internal retaining ring from the inside of the tube.

Pull the piston and rod straight out of the tube to prevent damage to the tube.

Fasten the piston rod eye in a vise and put a support under the piston rod near the piston. Put a shop cloth between the support and the rod to prevent damage to the rod.

Remove the hex nut from the rod.

Remove the piston from the rod.

Remove the guide from the rod. Slide the guide off of the threaded end of the rod.

Remove and discard the O-ring from the rod.

Remove the O-ring, the backup ring, and the O-ring from the outside of the guide.

Remove the lip seal and the wiper ring from the inside of the guide.

Inspection

Clean all parts in cleaning solvent.

Check to make sure the rod is straight. If the rod is not straight, install a new rod. Do not try to straighten the rod.

Remove any marks and sharp edges on the chamfer at the piston end of the piston rod.

Illuminate the inside of the tube. Inspect the inside of the tube for deep grooves and other damage. If there is any damage to the tube, a new tube must be used.

Inspect the guide end of the tube for sharp edges that will damage the O-rings on the piston and the guide. Remove any sharp edges.

Inspect the piston for damage and wear. If the piston is damaged or worn, replace the piston.

Assembly

Apply clean hydraulic oil to all of the components and seals before assembly. Apply clean hydraulic oil to the bore of the tube and the rod before installing the components.

Install a new lip seal in the inside of the guide. The lip of the seal must be toward the small end of the guide.

Install a new wiper ring in the inside of the guide. The lip of the wiper must be toward the large end of the guide.

Install the new O-ring and backup ring in the groove on the outside of the guide. The O-ring must be toward the small end of the guide.

Fasten the piston rod eye in the vise.

Push the guide onto the threaded end of the rod. Be careful not damage the wiper ring and lip seal.

Put a support below and near the end of the rod. Use a shop cloth between the support and the rod to prevent damage to the rod.

Install a new O-ring on the rod.

Put the piston on the piston rod.

Clean the threads of the hex nut and the rod with cleaning solvent.

Apply a thread locker to the threads of the rod.

Install the nut on the rod.

Install a new the new backup ring, the new O-ring, and the new backup ring in the groove on the outside of the piston. The O-ring must be between the two backup rings.

Fasten the tube in a vise or other holding equipment. Be careful not to damage the tube.

Lubricate the piston, the guide, and the inside of the tube with clean oil.

Push the piston straight into the tube. Push the guide into the tube enough to see the groove on the inside of the tube.

Install the internal retaining ring in the groove on the inside of the tube.

Contents

Language and Units

FIG. 13: Press the key to enter the language and units setup screen.

Press the key to go back to the console home screen.

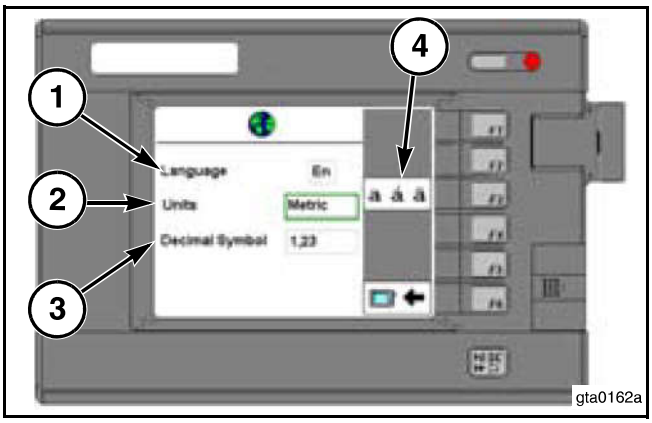


FIG. 13

Console Language (1)

NOTE: Both the console language and the implement language must be set.

To change the console language:

1. Rotate the knob to highlight the Language indicator (1). A rectangle will indicate the current item.
2. Press the knob in to select language.
3. Rotate the knob to change the language.
4. Press the key to accept the new language.
   Press the key to keep the previous language.

Measurement Units (2)

To change the measurement units:

1. Rotate the knob to highlight the Units indicator (2). A rectangle will indicate the current item.
2. Press the knob in to select units.
3. Rotate the knob to change the units.
4. Press the key to accept the new units.
   Press the key to keep the previous units.

Decimal Symbol (3)

To change the decimal symbol:

1. Rotate the knob to highlight the Decimal Symbol indicator (3). A rectangle will indicate the current item.
2. Press the knob in to select decimal symbol.
3. Rotate the knob to change the decimal symbol.
4. Press the key to accept the new decimal symbol.
   Press the key to keep the previous decimal symbol.

Implement Language (4)

NOTE: Both the console language and the implement language must be set.

To change the implement language, press the key. The console will display the implement language screen.

CONSOLE HARNESS WITH POWERED RADAR CONNECTION

FIG. 26: The console harness with a powered radar connection has a small black CAN terminator (1).

FIG. 26

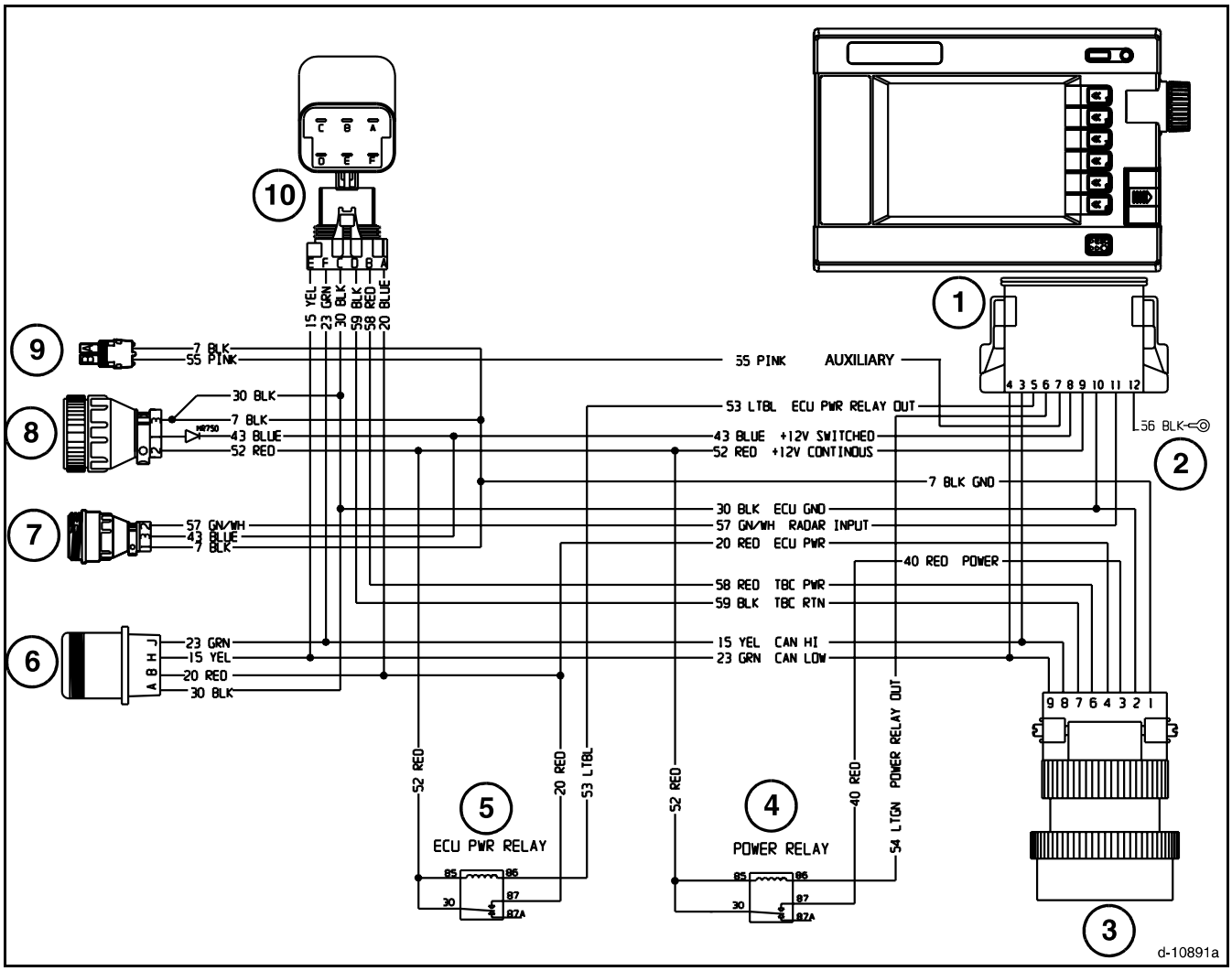


FIG. 27

FIG. 27: Console Harness Electrical Schematic Components

FIG. 43: If the tractor has a European type of power socket, a power adapter harness is available.

(1) Terminal 1 is a 12 VDC Switched power

(2) Terminal 2 is a 12 VDC unswitched power

(3) Terminal 3 is a ground

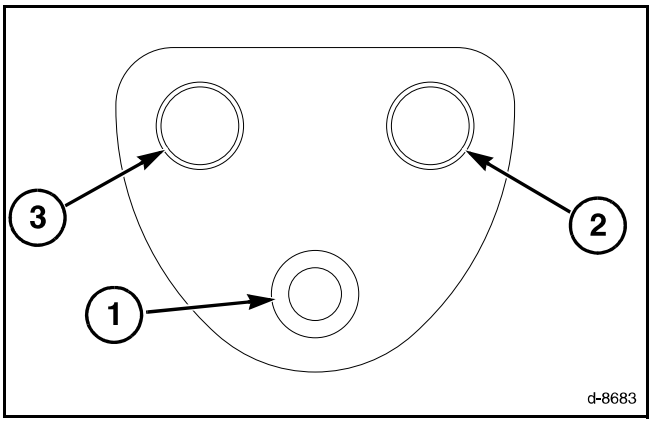


FIG. 43

FIG. 44: Connect the console harness (1).

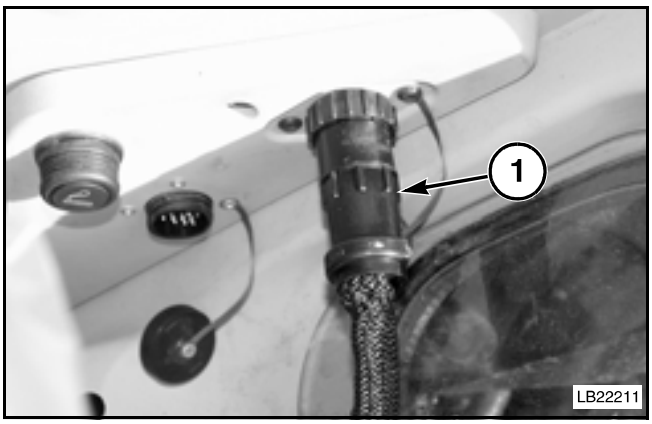


FIG. 44

FIG. 45: Connect the console harness ground (1) to a good ground location on the tractor.

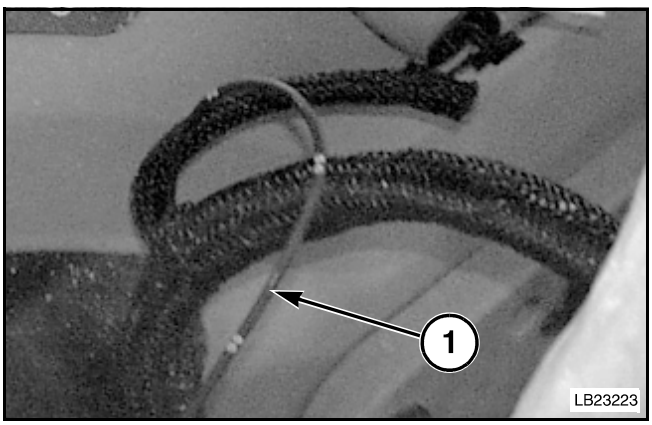


FIG. 45

FIG. 46: Route the implement connector on the console harness out of the cab and to the rear of the tractor.

FIG. 46