

Electrical Circuits

Baler Lamp Wiring

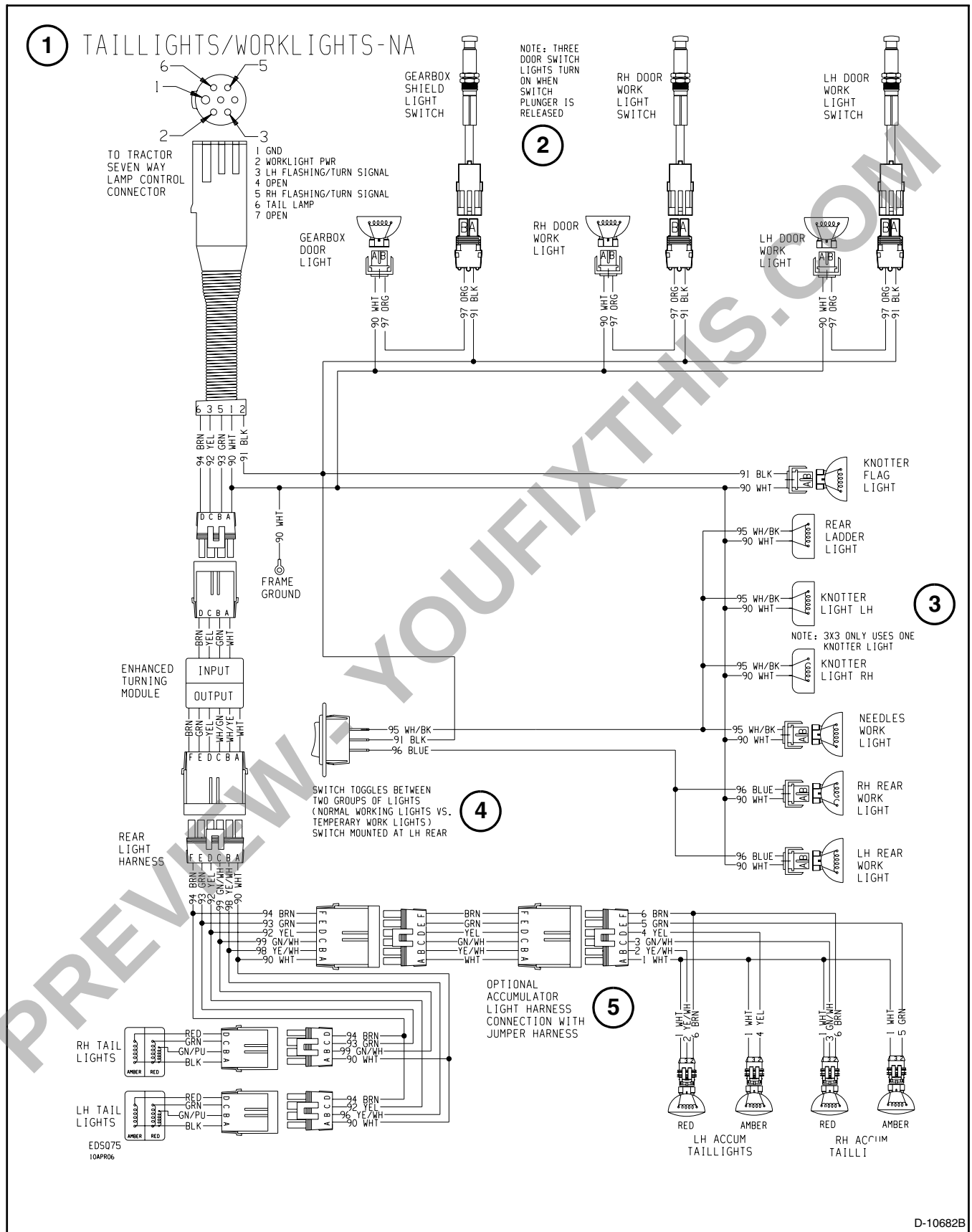


FIG. 21

Normal Operation Hydraulic Schematic

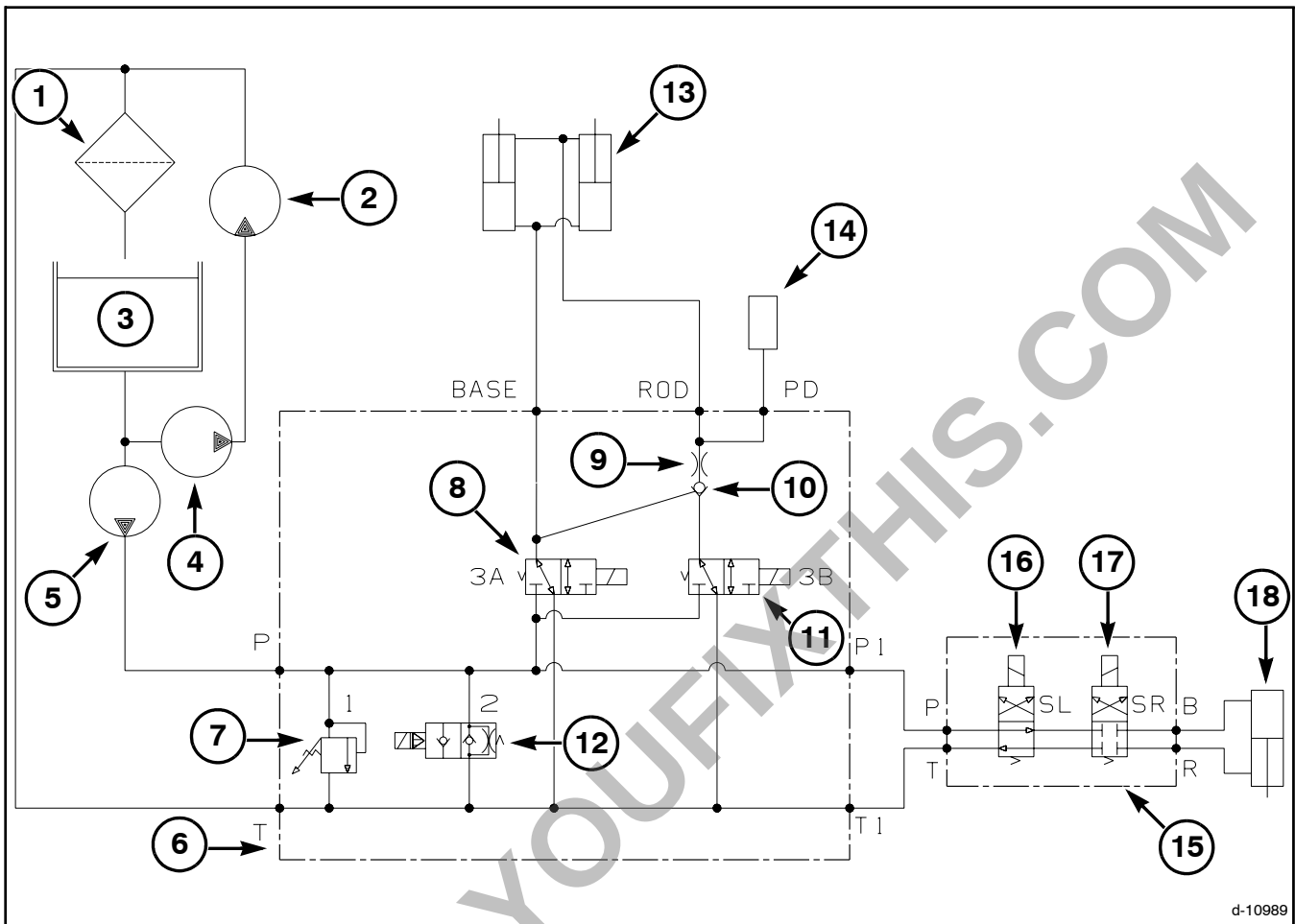


FIG. 5

FIG. 5: Hydraulic Schematic

- | | |
|--|---|
| (1) Filter | (11) Increase Valve |
| (2) Knotter Blower Motor (Optional) | (12) Open Center Valve |
| (3) Reservoir | (13) Density Cylinders |
| (4) Knotter Blower Pump (Optional) | (14) Pressure Transducer |
| (5) Baler Pump - Mounted to Gearbox | (15) Accumulator Control valve (Optional) |
| (6) Baler Control Valve | (16) Shift Left Valve (Optional) |
| (7) Pressure Relief Valve - 200 bar (2900 psi) | (17) Shift Right Valve (Optional) |
| (8) Decrease Valve | (18) Accumulator Bale Shift Cylinder (Optional) |
| (9) Orifice - 1.0 mm (0.040 in) | |

TROUBLESHOOTING

TROUBLESHOOTING

General Information

The baler control console controls several major functions of the baler.

- Baler load control
- Baler monitoring system
- Electronic checking

If there is a problem in the electrical system, do the following checks before starting the troubleshooting.

- Make sure all of the wiring harnesses are connected correctly.
- Make sure all of the terminals are inserted in the connectors correctly.
- Check for broken or shorted wires.
- Make sure the power supply and the ground wires are connected correctly.
- Make sure the correct voltage is being supplied to the baler control console.
- Check the reset button in the circuit breaker on the rear of the baler control console. The face of the reset button must be even with the outer ring.

NOTE: Always disconnect the power supply harness before resetting the circuit breaker.

- Make sure all inductive sensors are adjusted correctly.
- Make sure all switches are adjusted correctly.

AGCO®**7423 / 7424 / 7433 / 7434 / 7444
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79026363 D Rev.****09 - Specifications****Contents****4X4 BALER**

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Electrical Circuits

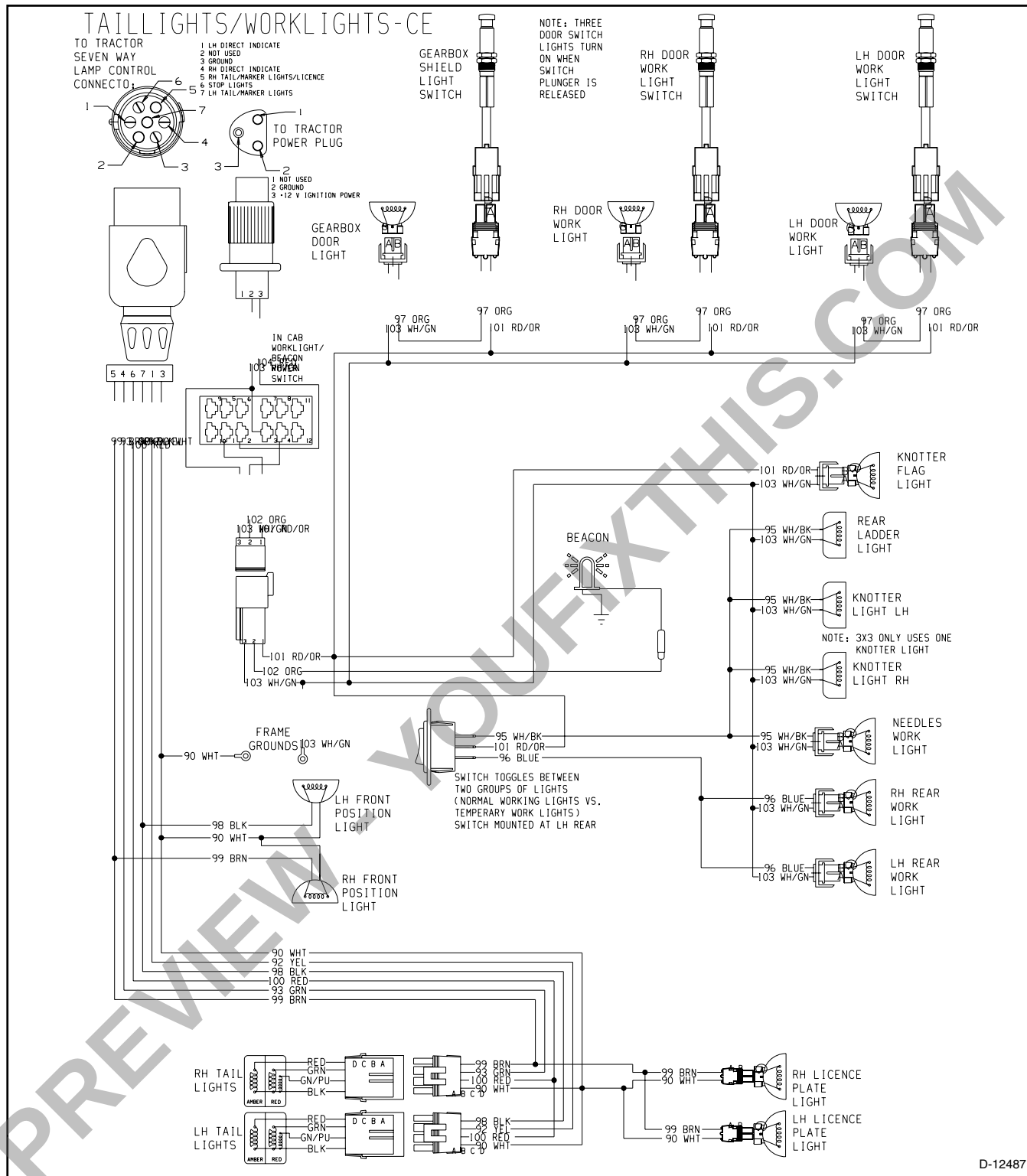


FIG. 22

FIG. 22: Baler lamp wiring schematic CE

Bale Density Circuit

FIG. 11: If your machine is equipped with a bale ejector and an accumulator, a selector valve must be used. The selector valve sends the flow of the oil to the bale ejector cylinder or to the bale shift cylinder. The selector valve is located on the bottom right rear of the bale chamber. Make sure the hoses are connected as shown.

- (1) From CYL 2 Port on the Auxiliary Valve
- (2) From CYL 1 Port on the Auxiliary Valve
- (3) From Rod End of Bale Shift Cylinder
- (4) From Base End of Bale Shift Cylinder
- (5) From Base End of Bale Ejector Cylinder - long hose
- (6) From Rod End of Bale Ejector Cylinder - short hose

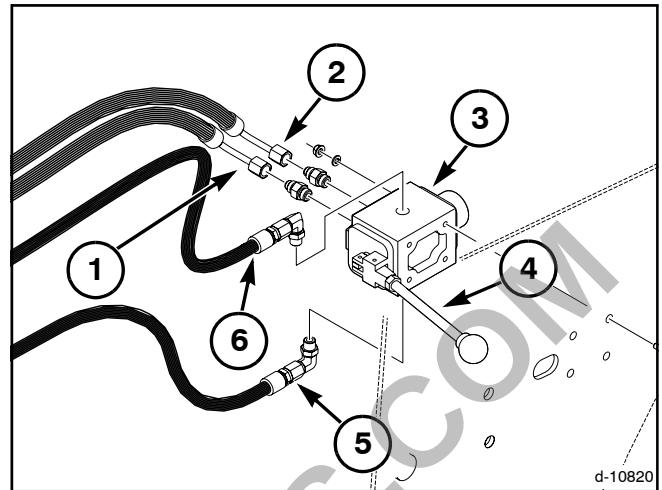


FIG. 11

Troubleshooting

Basic Troubleshooting Procedures

In troubleshooting electrical circuits, the first step is to familiarize yourself with the components, wire routing and connections of the circuit. This can be aided by studying the wiring diagrams in the operator's manual or service manual. Each electrical circuit on the baler is isolated to show the wire connections and components used. Most diagrams give a visual approximation of the components to aid in identifying unfamiliar parts.

If a module or other electrical component is completely dead, first check the diagram for the correct condition, i.e., clutches engaged, flywheel sensor on, etc. Check for obvious failure areas like unhooked connectors or broken wires. The ground circuit can also become defective because of a broken wire or poor connection too the frame. Most voltmeter probes are small enough to insert the back side of the electrical connector so the supply voltage to a module can be checked without disconnecting it from the harness.

The greatest percentage of defective connections occur at or near the connectors themselves. Visually check to see that terminals are completely inserted into the housing (no terminal should be exposed above the surface of the connector). This is difficult in some connectors that are positioned behind shields. If a locking tang on the terminal is damaged and will not retain the terminal in the connector, a new terminal from the electrical service kit will need to be installed. Some terminals may just require a locking tang on the terminal to be reformed so it will catch the appropriate step in the housing.

Immediately behind the connectors is another potential failure area. This is increased if the wires are flexed or sharply kinked. Moving the wires from side to side may produce intermittent contact and locate the general area of failure.

Corrosion of the terminals is possible as the baler ages. In some cases simply disconnecting and remating a connector will solve a poor connection problem. Heavy corrosion of terminals can occur if the baler is exposed to or stored with fertilizer or near concentrated feedlot operations. This will require replacement of the affected terminals to provide reliable connections over a long period of time.

In troubleshooting a new baler or an electrical system that has never functioned correctly, check for the possibility that wires in the connector may be crossed or that wires in the connector may be inserted in an incorrect terminal where no continuity between harnesses exists. Wire colors, functions and terminal numbers (on numbered connectors) are listed in the operator's service manual. Wires that have been exposed to oil or sunlight may require some of the harness covering to be removed to aid in identifying the correct color.

4X4 BALER

GENERAL INFORMATION

Periodically inspect all bolts, sprockets, roller chains, and bearing lock collars. Tighten any components that are loose. When tightening bolts, check the procedure for the required torque values. DO NOT over tighten bolts as this can cause a bolt to fail during operation.

BALER DIMENSIONS AND WEIGHTS

Length

Type 3 IDL without bale chute	7750 mm (305 in)
Type 2 IDL without bale chute	7650 mm (301 in)
Type 3 IDL with pan bale chute	9400 mm (370 in)

Height

Top of knotter shielding.....	3215 mm (126.5 in)
Top of hand railing.....	3582 mm (141 in)

Width (overall)

Shipping, less tires.....	2615 mm (103 in)
Operating	3280 mm (129 in)

Weight (approximate)

Single axle baler	9942 kg (21919 lb)
Tongue (empty).....	1690 kg (3726 lb)
Tandem axle baler	10315 kg (22741 lb)
Tongue (empty).....	1753 kg (3866 lb)

Bale Chamber

Width	1200 mm (47.2 in)
Height.....	1275 mm (50 in)

Bale Length

Adjustable	up to 2743 mm (108 in)
------------------	------------------------

Tires

Single Axle Baler

Tire size.....	28 L X 26, 16 ply
Wheel nut size	M22 X 1.5
Torque	450 to 500 Nm (300 to 370 lbf ft)
Tire pressure.....	2.2 bar (32 psi)

Tandem Axle Baler

Tire size.....	500/45 X 22.5, 16 ply
Wheel nut size	M18 X 1.5
Torque	270 Nm (200 lbf ft)
Tire pressure.....	2.2 bar (32 psi)

Tools

FIG. 1: The following photo shows tools that can be of help in troubleshooting and repairing the electrical system.

- (1) Pocket Digital Multimeter with Continuity Beeper
- (2) Pin and Socket Removal Tool – Packard Flat Connectors
- (3) Pin and Socket Removal Tool – Amp Circular Connectors
- (4) Pin and Socket Removal Tool – Baler Unload Connectors
- (5) Test Wire with Pin and Socket

Multimeter

A multimeter is an instrument that can be used as a voltmeter, an ohmmeter, and a continuity checker. An analog multimeter uses a needle and a scale to indicate the reading. A digital multimeter uses a digital readout and is more accurate. Either type of multimeter can be used for the troubleshooting procedures in this section.

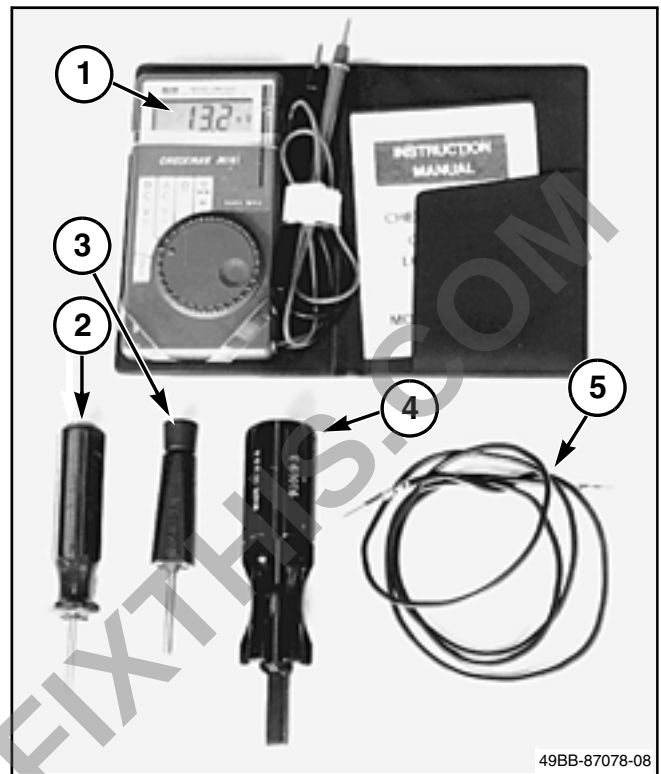


FIG. 1

Continuity Check

A continuity check is a test used to find whether a circuit is complete. The circuit can be a single wire, a single component, or a combination of wires and components. A circuit that has continuity is complete and current can 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, 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 continuity check.

NOTE: *The most common causes of open circuits are loose or dirty connections and broken wires.*

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

A continuity check is best used to test a circuit that is not connected to the 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.

NOTE: *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 will not be required.

3X4 BALER

BALER DIMENSIONS AND WEIGHTS

Length

Type 3 IDL without bale chute	7750 mm (305 in)
Type 2 IDL without bale chute	7650 mm (301 in)
Type 3 IDL with pan bale chute	9400 mm (370 in)

Height

Top of knotter shielding.....	2835 mm (111.6 in)
Top of hand railing.....	3310 mm (130.3 in)

Width (overall)

Shipping, less tires.....	2615 mm (103 in)
Operating	3280 mm (129 in)

Weight (approximate)

Single axle baler	8482 kg (18700 lbs)
Tongue (empty).....	1442 kg (3180 lbs)
Tandem axle baler	9098 kg (20057 lbs)
Tongue (empty).....	1547 kg (3410 lbs)

Bale Chamber

Width	1200 mm (47.2 in)
Height.....	875 mm (34.4 in)

Bale Length

Adjustable	up to 2743 mm (108 in)
------------------	------------------------

Tires

Single Axle Baler

Tire size.....	700/50 x 22.5, 12 ply
Wheel nut size	M22 X 1.5
Torque	450 to 500 Nm (300 to 370 lbf ft)
Tire pressure.....	2.2 bar (32 psi)

Tandem Axle Baler

Tire size.....	500/45 X 22.5, 16 ply
Wheel nut size	M18 X 1.5
Torque	270 Nm (200 lbf ft)
Tire pressure.....	2.2 bar (32 psi)

Pickup

Tire size.....	4.8 X 8.0, 8 ply
Tire pressure.....	2.76 bar (40 psi)

AGCO®

Large Rectangular Baler

SERVICE MANUAL

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Electrical Circuits

The following legend refers to Fig. 23

Abbreviation	Description
72 RD/YE ECU PWR	Wire 72 - red/yellow, SBC (ECU) power
74 YEL CAN HI	Wire 74 - yellow, CAN bus high
75 RED PWR	Wire 75 - red, power
76 BLK GND	Wire 76 - black, ground
77 GRN CAN LOW	Wire 77 - green, CAN bus low
79 BLK ECU GND	Wire 79 - black, SBC ground
81 RD/YE ECU PWR FUSED	Wire 81 - red/yellow, SBC fused power
82 RED POWER FUSED	Wire 82 - red, fused power
ECU PWR FUSE	Fuse for SBC power. 5 A
POWER FUSE	Power fuse. 15 A
TERMINATOR MODULE	Terminator module
TRACTOR TO BALER CONNECTION	Tractor to baler connection

Console

Cutter Calibration Screen (if equipped)

FIG. 76: Press the  key on the Service Screen to enter the Cutter Calibration Screen.

NOTE: This key will not be shown if the baler is not equipped with a cutter.

Make sure that the cutter bed is latched.

With the tractor running, use the hydraulic selector valve to retract the cutter bed cylinders and move the knives in the fully engaged position.

Press the  key.

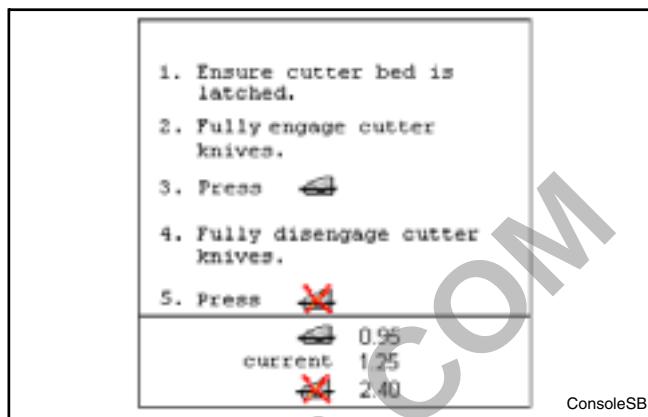


FIG. 76

FIG. 77: Use the tractor hydraulic remote valve to extend the cutter bed cylinders and locate the knives in the fully disengaged position.

Press the  key.

A  shows that the sensor is calibrated in the disengaged position.

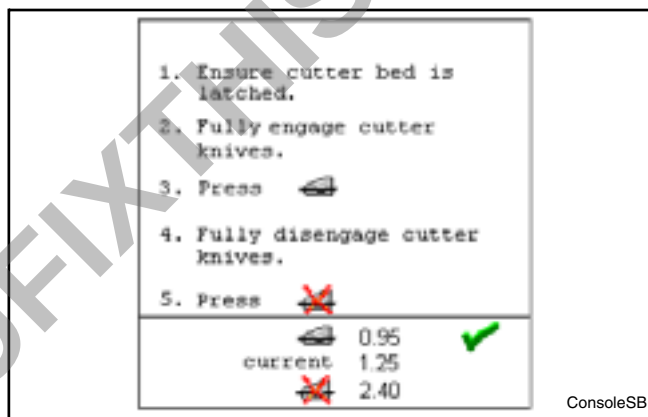


FIG. 77

FIG. 78: Calibration is complete.

NOTE: The cutter bed sensor must rotate through the correct range to be calibrated. If the calibration cycle does not complete, adjust the sensor and run the calibration cycle again.

A  shows that the sensor is calibrated in the engaged position.

Press the  key to return to the Main Work Screen

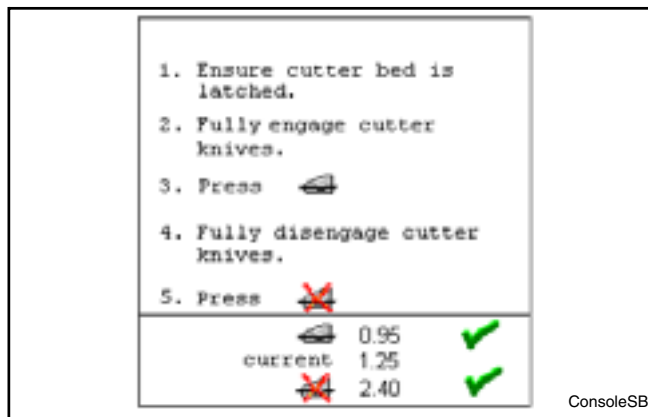


FIG. 78

BALE DENSITY CYLINDERS

REMOVAL AND INSTALLATION

Removal

See the safety warnings at the beginning of this section and follow the procedures.

When removing the bale density cylinders, you must first relieve the pressure in the hydraulic system.

FIG. 26: Clean the area around the fitting in the bale density cylinder.

Slowly loosen the hoses (1) on the fitting in the bale density cylinder to relieve any pressure. Disconnect the hoses and install a plug in the hoses.

NOTE: If there is a bale in the chamber, the bale can continue to expand after the baler has stopped. The pressure on the bale chamber doors will increase the pressure in the bale density cylinders.

Connect lifting equipment to the bale density cylinder.

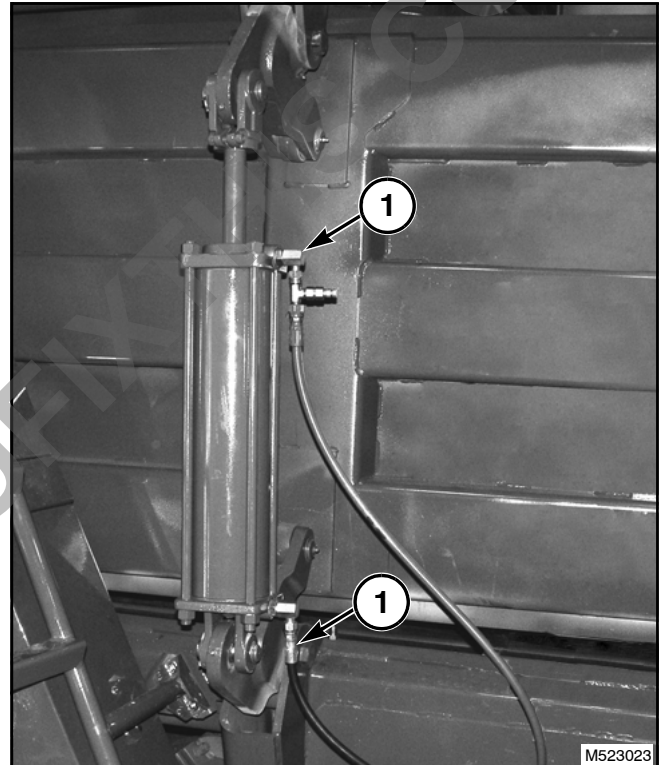


FIG. 26

FIG. 27: Remove the hair pins and the clevis pins (1) from both ends of the bale density cylinder and remove the bale density cylinder.

Installation

Use lifting equipment to put the bale density cylinder in position on the baler. Install the clevis pins and the hair pins at both ends of the bale density cylinder.

Remove the lifting equipment.

Connect the hose to the fitting on the bale density cylinder.

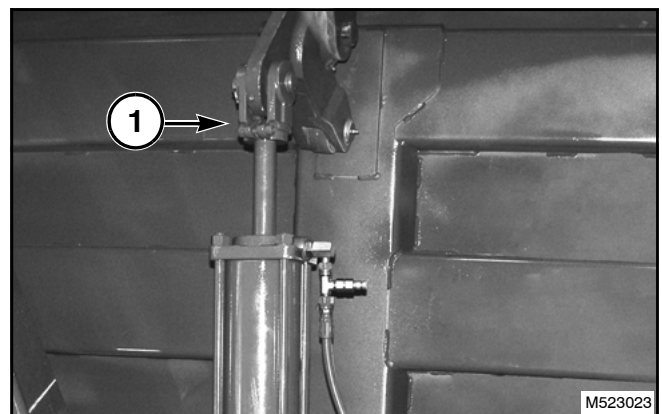


FIG. 27

FIG. 66: Press the bearing caps into the yoke.

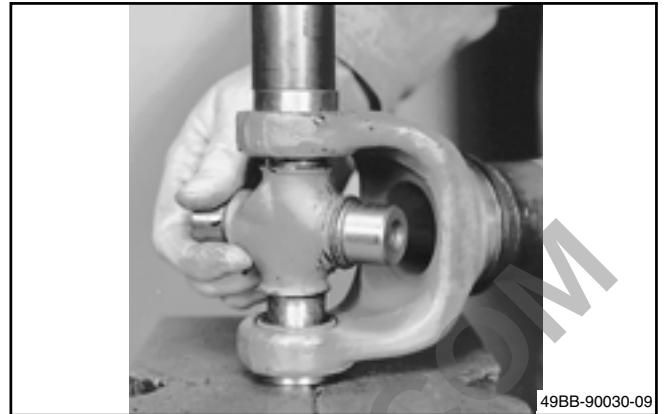


FIG. 66

FIG. 67: Press a bearing cap into the yoke until the groove for the lock ring can be seen and install the lock ring. Make sure the lock ring is seated in the groove.

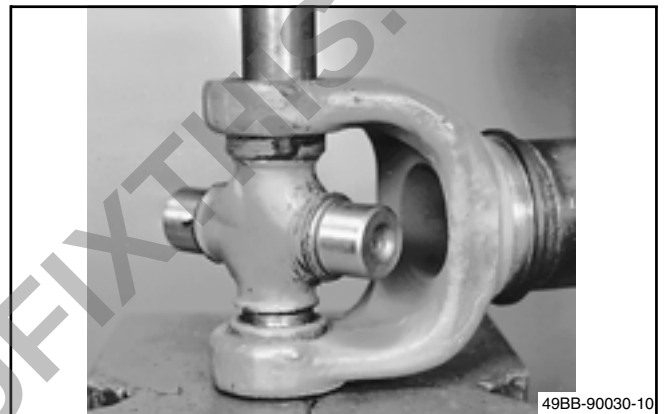


FIG. 67

FIG. 68: Press the opposite bearing cap into the yoke until the groove for the lock ring can be seen and install the lock ring. Make sure the lock ring is seated in the groove.

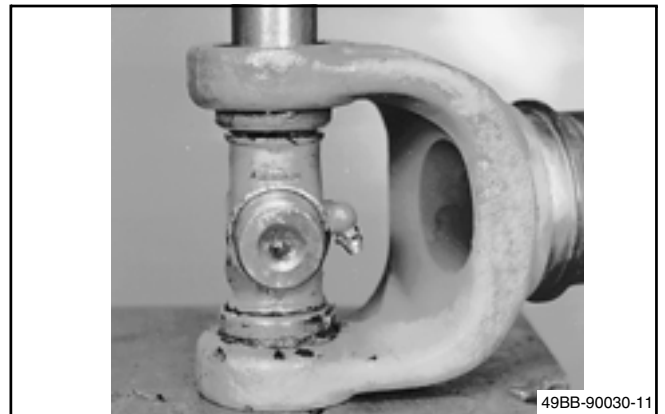


FIG. 68

FIG. 69: Press a bearing cap into the yoke approximately half the length of the bearing cap.



FIG. 69

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Augers

FIG. 26: Remove the 3/8-16 x 1-1/2 in countersunk cap screw (1). Remove and keep the 3/8 in wide plain washer (2) and the 3/8-16 hex flange top lock nut (3) from the bottom end of the upper chain guide support (4) and chain guide (5).

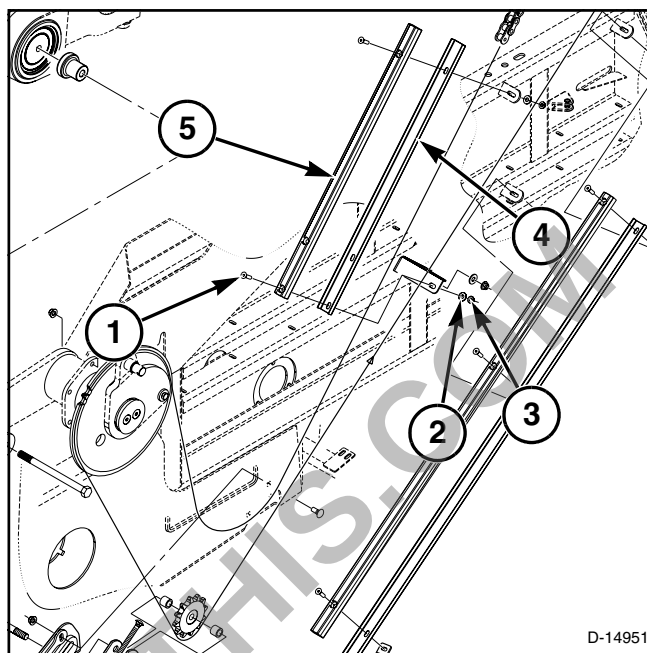


FIG. 26

FIG. 27: Install chain guide (1). Install the 3/8-16 x 1-3/4 in countersunk cap screw (2) through the upper end of the chain guide and the lower hole in the existing chain guide and chain guide support. Install the 3/8 in wide plain washer (3) and the 3/8-16 hex flange top lock nut (4) that you removed.

Install the 3/8-16 x 1-1/2 in hex flange head cap screw (5), 3/8 in wide plain washer (6) and the 3/8-16 hex flange top lock nut (7).

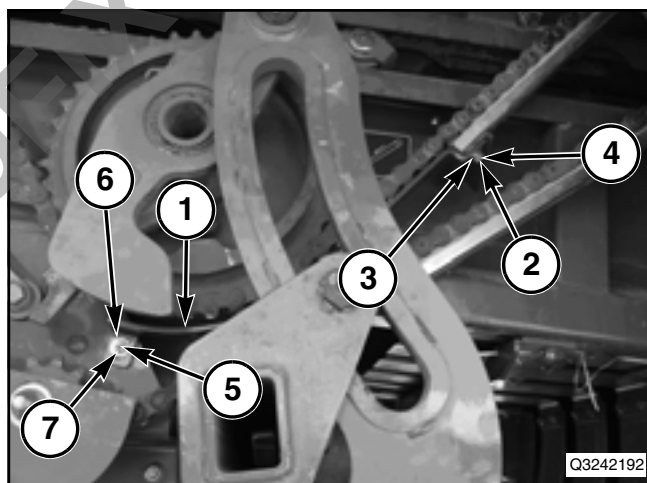


FIG. 27

Packer

FIG. 7: Push the packer finger link all the way to one side. Use a feeler gauge to check the gap between the other side of the packer finger and the wear ring on the packer crank. If the gap is more than 3 mm (1/8), replace the wear rings at both ends of the journal during this procedure.

Remove the four bolts (1) and remove the packer finger arms (2) and the packer finger (3).

Remove the packer finger arms and packer fingers from the packer crank hub (4).

Inspect the bushing bearing between the link assembly and the control arms.

Inspect the hub for cracks or wear if cracks or wear are present the hub must be replaced.

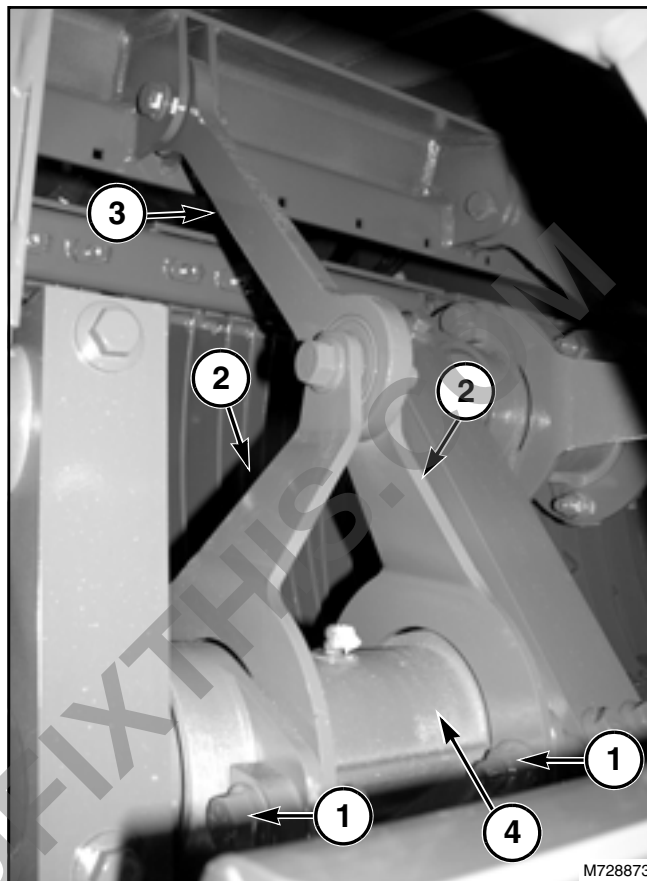


FIG. 7

FIG. 89: Use paint to make a temporary alignment mark on the stuffer drive sprocket and the mainframe.

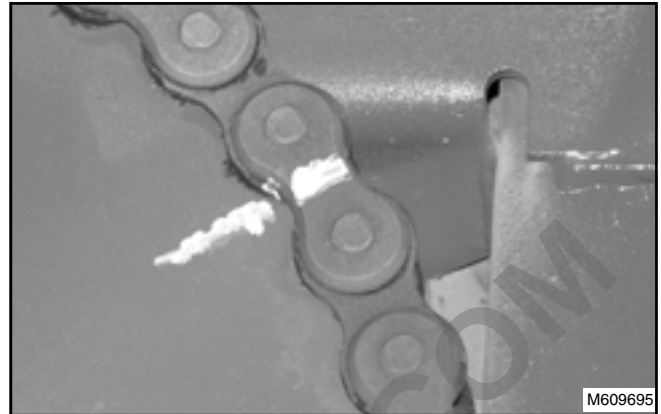


FIG. 89

FIG. 90: Loosen the tension on the stuffer/knotter drive chain.

Remove the stuffer/knotter drive chain from the stuffer drive sprocket.

Wire the chain so it will not move.



FIG. 90

FIG. 91: Remove the retaining ring from the end of the shaft.

Pull the stuffer clutch assembly from the shaft.

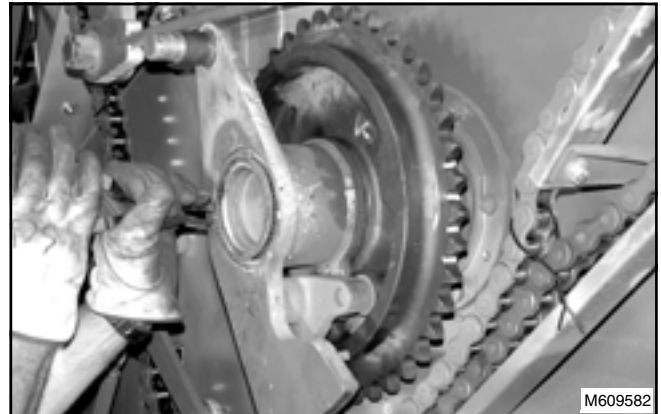


FIG. 91

FIG. 92: Remove the washer.

Remove the stuffer drive sprocket and washers from the shaft.

Support the shaft to prevent the shaft from dropping and damaging the right bearing assembly.

Remove the bolts that fasten the bearing assembly to the mainframe.



FIG. 92

TWINE INSTALLATION 3X3 AND 70X80

TWINE INSTALLATION

Twine Specifications

Plastic Twine

Use only high quality twine specifically made for use on high density large square bales. The twine must have a minimum knot strength of 1330 N (300 lb). There are many characteristics required of twine for correct operation of the knotters and for handling and storage of the large bales. Correct twine for baling must be strong, flexible and not easily damaged by the sun. Twine that is not made for use in large square balers will not work correctly in the knotters.

Sisal Twine

The double knotter has been made to tie sisal twine made for use on high density large square bales. This type of sisal twine must only be used when plastic contamination will damage the final product, such as when agricultural fibers are used in paper. The sisal twine must have a minimum knot strength of 1330 N (300 lb). Sisal twine has similar knot strength as plastic twine, but other characteristics make sisal a poor twine for general use.

Twine Storage Boxes

FIG. 15: The baler has two twine storage boxes, one mounted on each side of the baler. Each twine storage box holds 15 balls of twine, each in a separate compartment. Fifteen of the twine balls in a storage box are threaded into the baler and the remaining fifteen are used for backup. Approximately 1220 m (4000 ft) of twine is required to make 25 bales.

Two twine balls are needed for each twine on a bale. One twine ball feeds twine up to a knotter, supplying twine for the top strand on the bale. The other twine ball feeds twine down to a needle, supplying twine for the bottom and end strands on the bale.

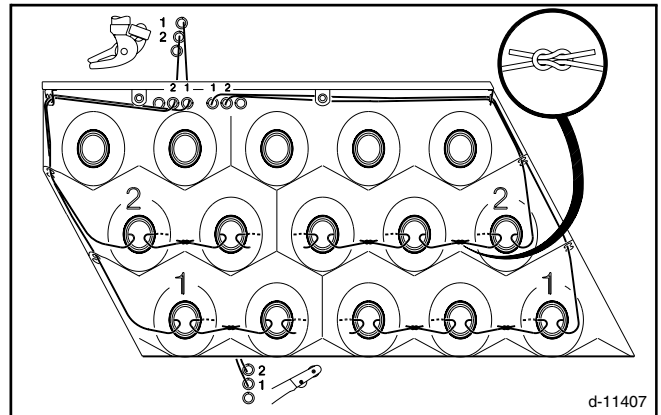


FIG. 15

General Maintenance

FIG. 91: When timing the twine disc, the adjustment must be made with twine in the twine holder (3) after at least two knots. To change the position of the notch in the twine disc (1), remove the clevis pin and swing the knotter head up. Loosen the worm gear nut (4). Tap the nut end of the worm gear shaft lightly to loosen the worm gear (5) from the taper on the worm gear shaft. Turn the twine disc to the position shown in the photo. When properly adjusted, 3 to 5 mm (.118 to .197 in) of the disc cleaner (2) will be seen past the edge of the notch on the twine disc. Make sure the disc cleaner is pushed toward the cam gear. Hold the twine disc so the twine disc will not move. Turn the worm gear (9) so the worm gear is against the machinery bushing located between the knotter head frame and worm gear. Tighten the nut on the end of the worm gear shaft. Check the adjustment before baling.

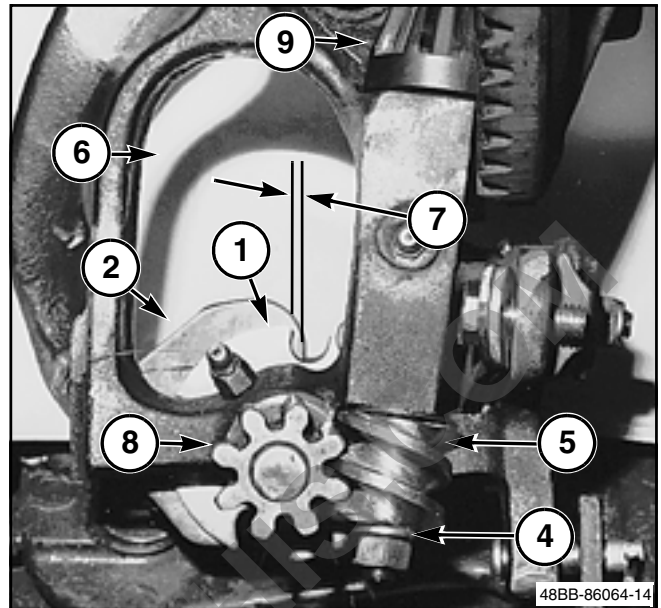


FIG. 91

FIG. 92: Knotter Head

NOTE: The shims between the knotter head frame and the worm gear are used to remove some of the end play from the worm gear shaft. Too many shims will prevent the worm gear from making complete contact on the taper of the worm gear shaft. Maximum permitted end play in worm gear shaft is .2 to .45 (.008 to .018 in).

- (1) Worm Pinion Gear
- (2) Knotter Head Frame
- (3) End Play .2 to .45 mm (.08 to .018 in)

NOTE: When the worm gear is installed, make sure the end of the bore in the gear is the same as the tapered section of the worm gear shaft. The larger end of the taper in the worm gear must be toward the knotter frame and away from the nut. If the worm gear is not installed correctly, the worm gear will not seat against the shaft taper. This can cause the worm gear to split along one side when the nut is tightened.

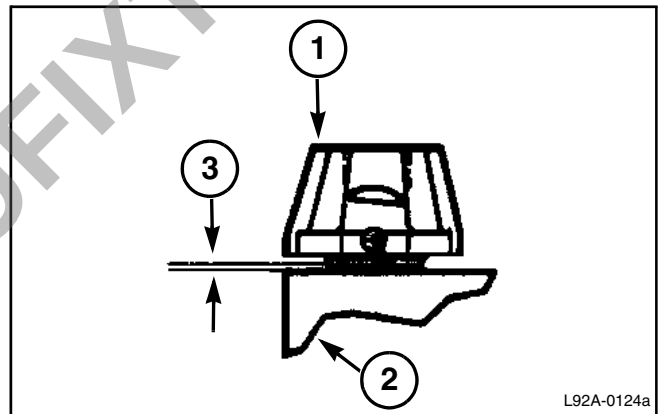


FIG. 92

Knotter Assembly

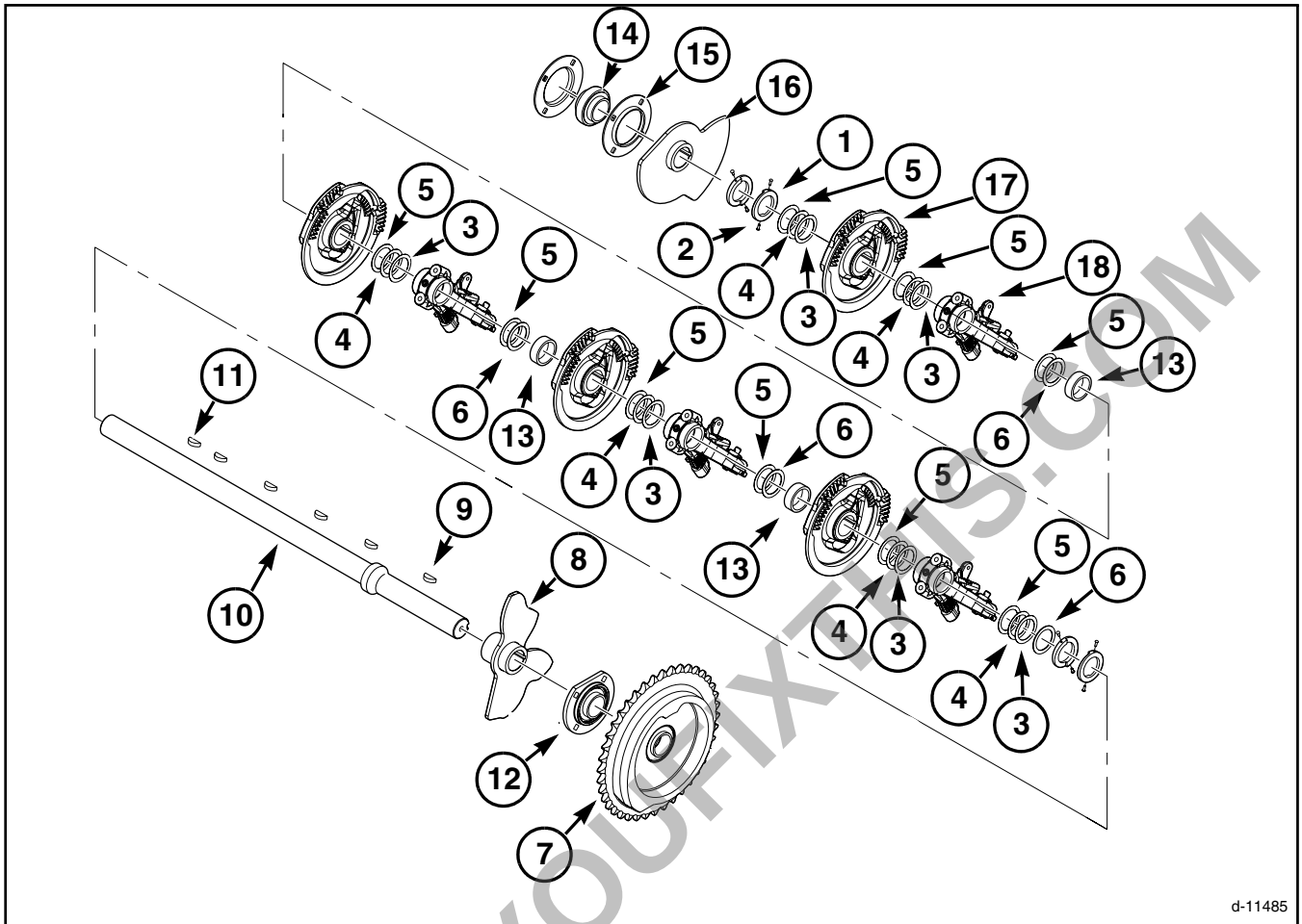


FIG. 175

FIG. 175: Remove the bearing flanges and the bearing.

Remove the tucker cam and the key.

Remove the adjustable shims and standard shims.

Remove the knotter cam gear and the key.

Remove the shims.

Remove the knotter head assembly.

Remove the shim, bushing, and spacer.

Remove the knotter cam gear and the key.

Remove the shims.

Remove the knotter head assembly.

Remove the shim, bushing, and spacer.

Remove the knotter cam gear and the key.

Remove the shims.

Remove the knotter head assembly.

Remove the shim, bushing, and spacer.

Remove the knotter cam gear and the key.

Remove the shims.

Remove the knotter head assembly.

Remove the shim, bushing, and spacer.

Remove the adjustable shims.

Installation

See the safety warnings at the beginning of this section and follow the procedures.

Install a clutch disc and a pressure plate on the right-hand needle arm.

FIG. 289: Put the other clutch disc and pressure plate in position and install the bolts, springs, flat washers, and self-locking nuts. Install the bolts so the self-locking nuts will be toward the outside of the baler. Tighten the self-locking nuts to get a spring length (1) of 36 mm (1.42 in) at each spring.

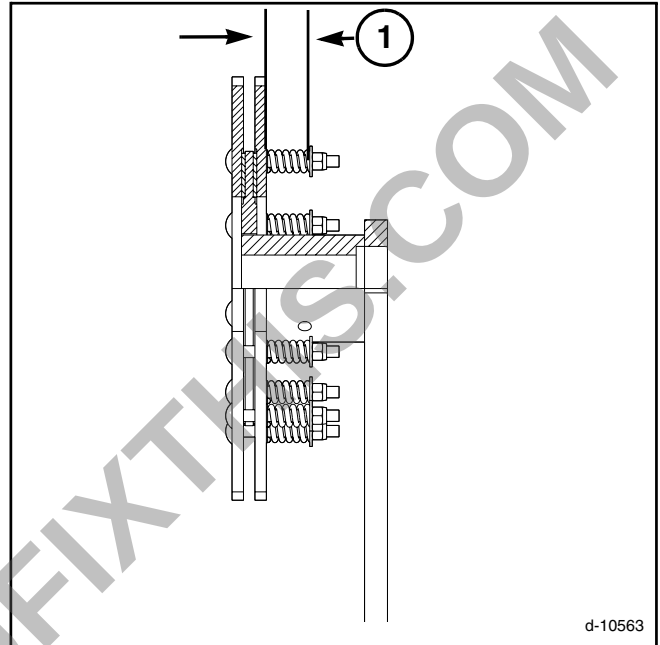


FIG. 289

FIG. 290: Install the knotter brake assembly on the drive shaft.



FIG. 290

FIG. 291: Rotate the right-hand needle arm to align the keyways in the right-hand needle arm and the drive shaft. Install the key. Do not tighten the set screws in the right-hand needle arm at this time.



FIG. 291

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