

Service Manual

MF1844

Three String Baler



VISION INNOVATION LEADERSHIP QUALITY RELIABILITY SUPPORT PRIDE COMMITMENT



MASSEY FERGUSON

Massey Ferguson®

1844 Three String Baler

SERVICE MANUAL 4283475M2

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01 - General Information

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GENERAL INFORMATION

INTRODUCTION

For additional operation and maintenance information, see the operator manual included with the baler.

The operation and maintenance instructions in this manual come from much field testing and other data. Some information will be general because of varying conditions.

Right-hand and left-hand, as used in this manual, is determined by facing the direction the baler will travel when in use.

Units of Measurement

Measurements are given in metric units of measurement followed by the equivalent in U.S. units. Hardware sizes are given in millimeters for metric hardware and inches for U.S. hardware.

Replacement Parts

To receive quick and efficient service, always remember to give the dealer the following information:

- Correct part description or part number.
- Model number of your baler.
- Serial number of your baler.

Baler Identification

Machine Model No. _____

Machine Serial No. _____

Date of Delivery: _____

Dealer Information

Dealer Name and Address:

Dealer's Telephone No. _____

Dealer's Fax No. _____

General Information

Serial Number

FIG. 1: Each baler has a model and serial number on the serial number plate (1). The baler serial number plate is located on the left-hand side of the baler.

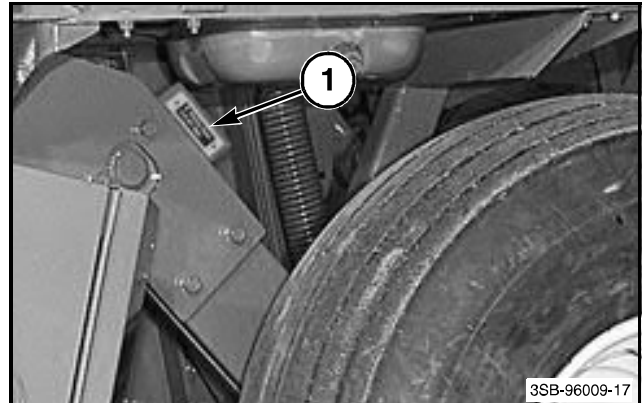


FIG. 1

Operator's Manual Container

FIG. 2: The Operator's Manual container (1) is located under the access panel on the right-hand side of the baler. Keep the Operator's Manual with the baler at all times. Put the maintenance manual in the Operator's Manual container.

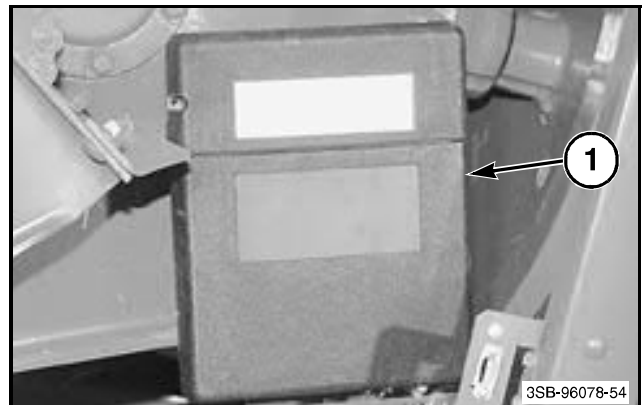


FIG. 2

Description

Drive Train

From the baler clutch, the power is sent through the flywheel and shearbolt. The shearbolt drives the gearbox, which operates the baler's mechanisms. A crank arm on each side of the gearbox drives the plunger. The right-hand crank arm drives an auxiliary shaft that drives the stuffer, the pickup, the knotters, and the needles.

Pickup Clutch

FIG. 3: The pickup clutch (1) protects the pickup assembly. The clutch is both an overrunning clutch and a slip clutch that can not be adjusted.

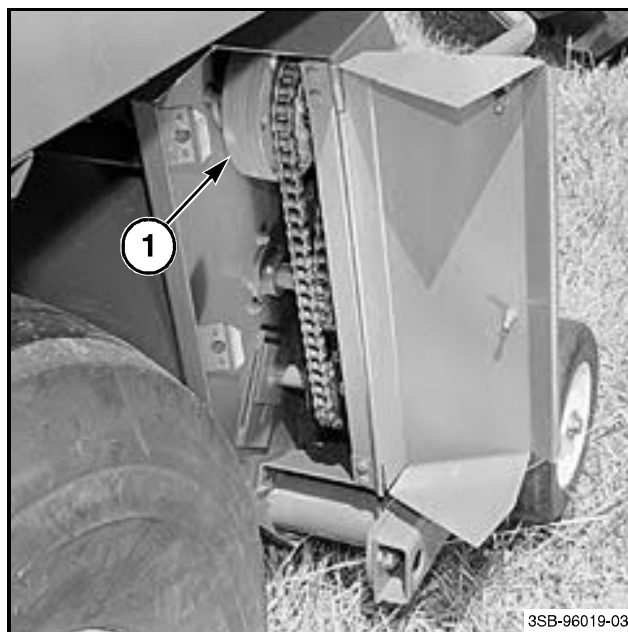


FIG. 3

Pickup and Feeding

The crop is picked up and fed into the baler continuously by a four bar pickup assembly. The height of the tines above the ground is set by the pickup height adjustment gauge plate. Flotation is supplied by a flotation spring that supports much of the weight of the pickup assembly. An adjustable flotation spring carries most of the weight of the pickup. Gauge wheels protect the pickup when baling on ground that is not even.

Two centering augers move material from the ends of the pickup into the center of the pickup. The stuffer fingers move the crop through the charge chamber into the bale chamber. The plunger then compresses the crop against the bale being formed in the bale chamber.

Hydraulic System

The hydraulic system is used to raise and lower the pickup, swing the baler, and to control the bale density. Power is supplied by a pump driven by a belt from the drive shaft connected to the PTO.

Bale Density System

The density and weight of the bale is determined by the amount of resistance to the material moving through the bale chamber. This resistance is determined by the amount of hydraulic pressure applied to the density control rails. Increasing the hydraulic pressure increases the density and the weight of the bale. Decreasing the hydraulic pressure decreases the density and the bale weight.

General Information

Electrical System

The baler's 12 volt electrical system supplies power for the baler control console, the working lamps, the flasher warning lamps, tail lamps, and turn signal lamps are controlled by, and receive power from, the towing vehicle's controls.

Baler Control Console

FIG. 4: The baler control console (1) is mounted in the towing vehicle and is used to monitor and control the functions of the baler.

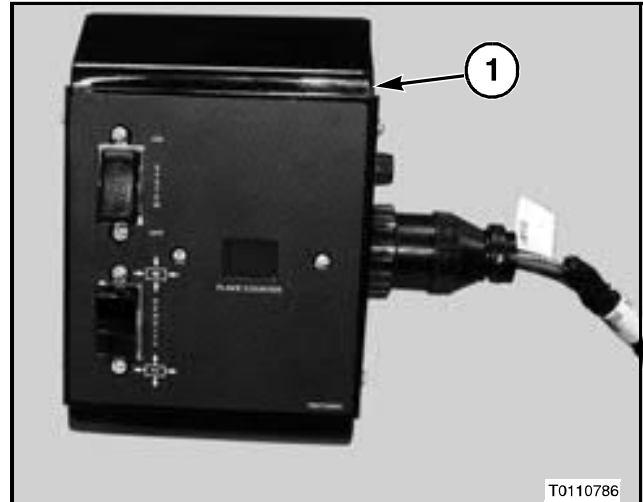


FIG. 4

MACHINE COMPONENTS

Left-hand Front View

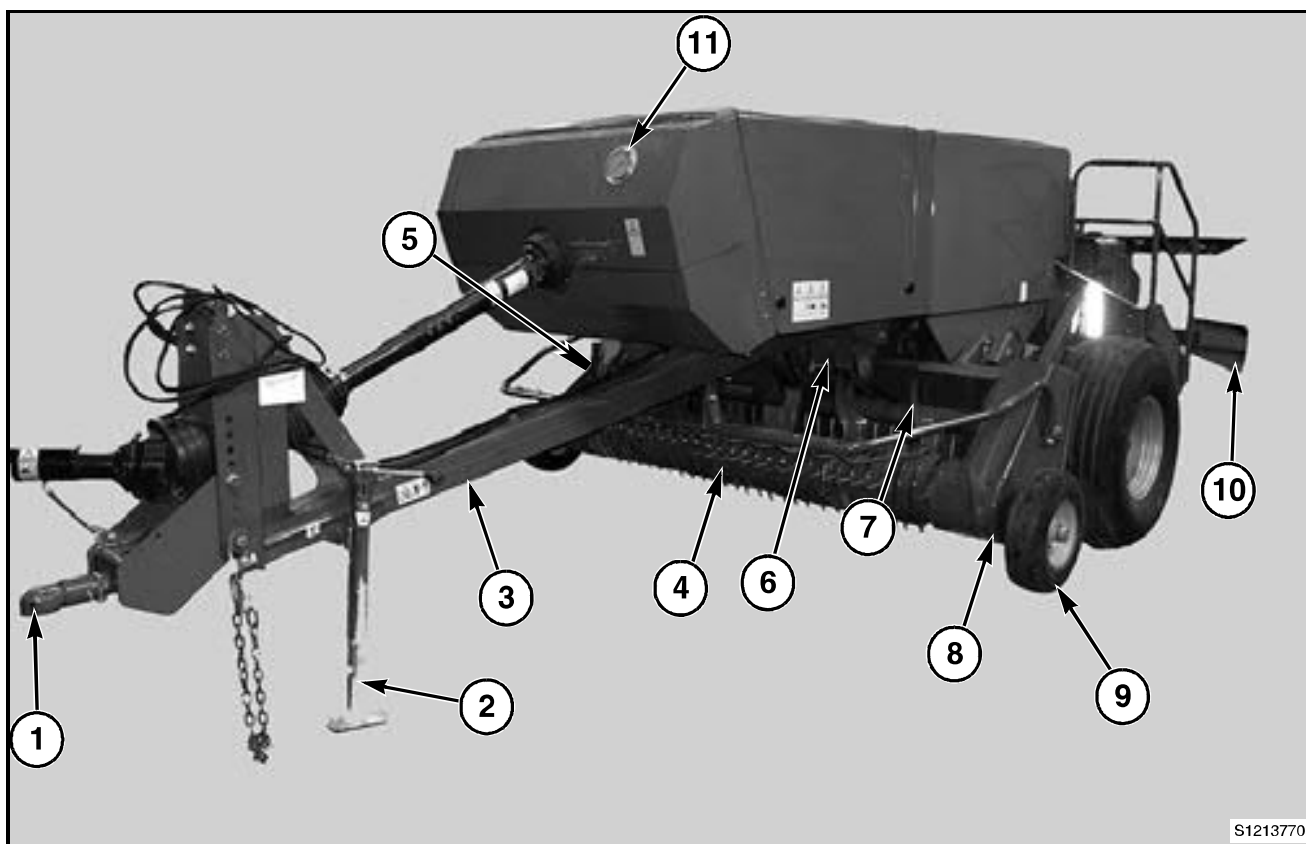


FIG. 5

FIG. 5: Front view

- (1) Hitch
- (2) Jack
- (3) Tongue
- (4) Pickup assembly
- (5) Right-hand auger and pickup drive chain cover
- (6) Charge chamber
- (7) Auger (one on each side)
- (8) Left-hand auger drive chain cover
- (9) Gauge wheel (one on each side)
- (10) Bale chute
- (11) Bale density gauge

General Information

Main Drive View

FIG. 6: Left-hand side view

- (1) Drive shaft
- (2) Baler clutch
- (3) Flywheel
- (4) Gearbox
- (5) Hydraulic reservoir
- (5) Flywheel shearbolt

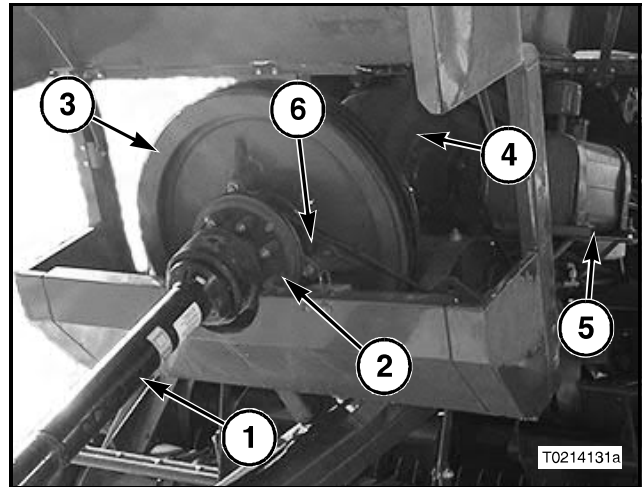


FIG. 6

Left-hand Rear View

FIG. 7: Left-hand rear view

- (1) Knotter lubrication reservoir
- (2) Needles
- (3) Needle carriage
- (4) Jack storage location
- (5) Hydraulic cylinder for top bale density door
- (6) Hydraulic cylinder for side bale density doors
- (7) Left-hand work lamp (right-hand work lamp not shown)
- (8) Left-hand red tail lamp (right-hand red tail lamp not shown)
- (9) Left-hand amber flashing warning lamp (right-hand amber flashing light not shown)
- (10) Knotters

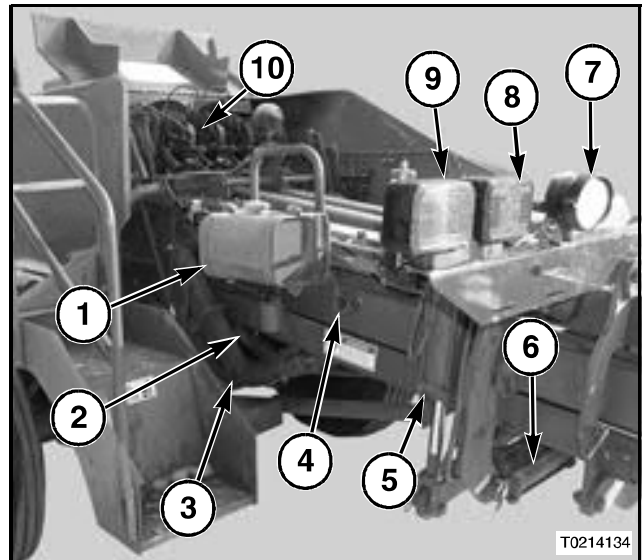


FIG. 7

Right-hand Rear View

FIG. 8: Right-hand rear view

- (1) Knotter blower fan
- (2) Knotter trip linkage
- (3) Knotter brake

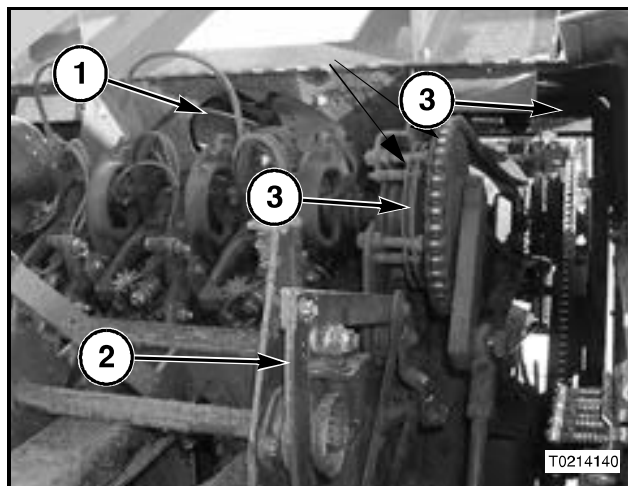


FIG. 8

Right-hand Auxiliary Drive View

FIG. 9: Right-hand auxiliary drive

- (1) Stuffer and pickup shearbolt
- (2) Knotter shearbolt (not shown)
- (3) Knotter clutch assembly
- (4) Knotter drive chain
- (5) Stuffer and pickup drive chain

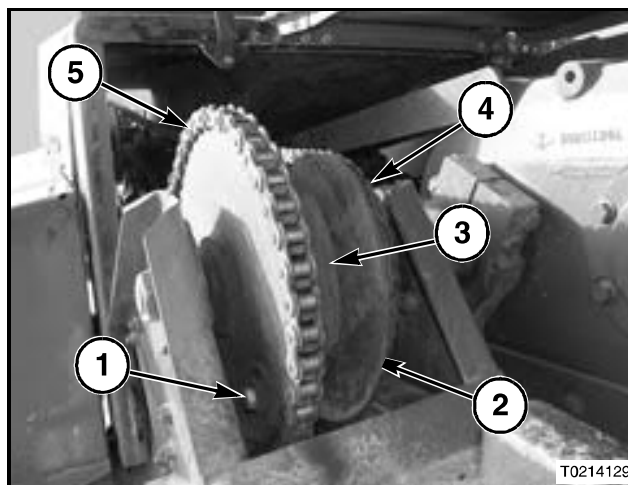


FIG. 9

GENERAL MAINTENANCE 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.




Bolt Torque Values

All bolts used on this baler are Grade 5 plated bolts unless specified. Always replace with Grade 5 hardware except where higher grades are specified. All Grade 5 bolts have three radial marks on the bolt head. Tighten all hardware according to the following charts unless specified differently in the manual.

See the Specifications division for wheel hardware torque.

General Information

Bolt Size	Grade 2		Grade 5		Grade 8	
	Nm	Lbf ft	Nm	Lbf ft	Nm	Lbf ft
5/16-18	15	11	24	17	33	25
3/8-16	27	20	42	31	59	44
7/16-14	43	32	67	49	95	70
1/2-13	66	49	105	76	145	105
9/16-12	95	70	150	110	210	155
5/8-11	130	97	205	150	285	210
3/4-10	235	170	360	265	510	375
7/8-9	225	165	585	430	820	605
1-8	340	250	875	645	1230	910

Standard Bolt Identification		
		
Grade 2 No Marks	Grade 5 3 Marks	Grade 8 6 Marks

Bolt Size	Class 5.8		Class 8.8		Class 10.9	
	Nm	Lbf ft	Nm	Lbf ft	Nm	Lbf ft
M 5 x 0.8	4	3	6	5	9	7
M 6 x 1	7	5	11	8	15	11
M 8 x 1.25	17	12	26	19	36	27
M 10 x 1.5	33	24	52	39	72	53
M 12 x 1.75	58	42	91	67	125	93
M 14 x 2	92	68	145	105	200	150
M 16 x 2	145	105	225	165	315	230
M 18 x 2.5	195	145	310	230	405	300
M 20 x 2.5	280	205	440	325	610	450
M 24 x 3	480	355	760	560	1050	780

Identify metric bolts by the class number stamped on the bolt head or nut. Higher numbers indicate higher strength.

Service Chart

The following service chart lists all components and grease fittings that can be serviced, in order of frequency in hours, according to normal operating conditions. Each of the service points in this list are shown in the photos in this division. See Lubrication section in the Specifications Division for the correct type and quantity of lubricant.

Frequency	Maintenance Point	Maintenance
Frequently	Roller chain	Lubricate
Daily or every 10 hours	Hydraulic oil	Check oil level and add if necessary
	Air inlet screen	Inspect and clean
	ARI (Air Restriction Indicator) if equipped	Clean or replace air filter when indicator shows a red bar.
	Tires	Check condition and pressure
10 hours	Stuffer crank	Lubricate
20 hours	Pickup overrunning clutch	Lubricate
	Needle carriage tie rods	Lubricate
	Gearbox	Check oil level
	Knotter Lubrication System	Check oil level and add if necessary
After the first 50 hours	Hydraulic oil filter	Change
	Bale density hydraulic filter	Change
50 hours	Baler drive belt tension bracket	Lubricate
	U-joint and slip tube in rear of drive shaft	Lubricate
	Tongue pivot	Lubricate
	Flywheel	Lubricate
	Pickup drive shaft U-joints	Lubricate
	Knotter clutch arm pivot	Lubricate
	Plunger connecting rods	Lubricate
	Knotter trip arm pivot	Lubricate
200 hours	Gearbox	Lubricate
250 hours	Pump drive belt	Check tension
	Hydraulic oil filter	Change
500 hours	Hydraulic breather filter	Change
	Bale density hydraulic filter	Change
Each season	Wheel bearings	Clean and lubricate
	Gearbox breather	Clean or replace
	Knotter lubrication system	Replace filter
	Hydraulic breather filter	Change

General Information

Wheel Assembly

Wheel Bearings

The wheel bearings for the baler must be cleaned and lubricated at the beginning of each season. See the Specifications division for the correct lubricant.

Sealed Bearings

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

Wheel Bolts

Tighten the wheel bolts after every 50 hours of operation. See the Specifications division for the correct torque.

The wheels are fastened to the hubs with wheel bolts installed in threaded holes in the hub flange. When installing a wheel, clean the threads of the wheel bolts with a steel brush and oil lightly to retard corrosion.

Wheel Bearing Replacement

FIG. 10: Jack the tire clear off the ground. Remove the wheel (1). Tire has removed from the wheel for illustration purposes only.

Carefully remove the hub cap (2) from the hub (3).

Remove the cotter pin (4), axle nut (5) and washer (6).

Slide the hub from the axle (7). Use a hub puller if necessary.

Remove the seal (8).

Remove the bearings (9).

Remove the bearing cups (10) and discard. Clean and dry the hub.

Press in new bearing cups with the thickest edges facing in.

Pack the bearing cones by machine or hand. Completely fill the rollers, cone, and cage. See the Specifications division for the correct grease.

Fill the space between the bearing cups in the hub with grease to the inside diameter of the cups.

Put the largest bearing cone in location. Press in a new grease seal with the lip towards the bearing.

Clean the axle and install the hub.

Install the smaller bearing cone washer and axle nut.

Tighten nut to 27.1- to 40.7 Nm (20 to 30 lbf ft) while rotating hub. Loosen two turns and retighten finger tight as hub is rotated in the same direction. Then tighten to nearest slot and insert cotter pin.

Fill the hub cap 3/4-full of wheel bearing grease and install in the hub.

Install the wheel and remove the jack. See the Specifications division for wheel hardware torque.

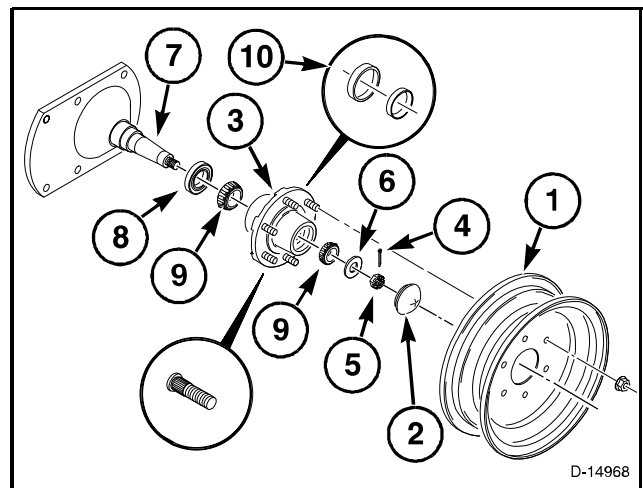


FIG. 10

Shearbolts

The shearbolts are used in three different locations for the protection of the components.

When a shearbolt shears, the towing vehicle and the baler must be stopped immediately and the problem corrected before baling.

FIG. 11: The flywheel shearbolt (1) connects the flywheel to the drive train. When the flywheel shearbolt shears, the flywheel cannot drive the baler.

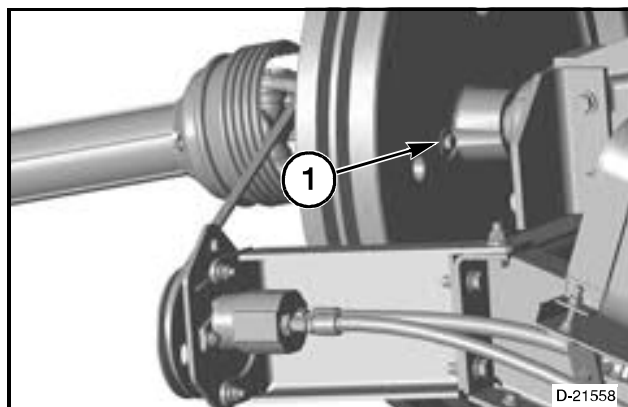


FIG. 11

FIG. 12: The stuffer shearbolt (1) connects the drive hub to the stuffer sprocket. When the stuffer shearbolt shears, the stuffer and pickup assembly will not run.

The knotter shearbolt (2) connects the knotter drive clutch to the knotter drive sprocket. When the knotter shearbolt shears, the knotters and needles will not operate.

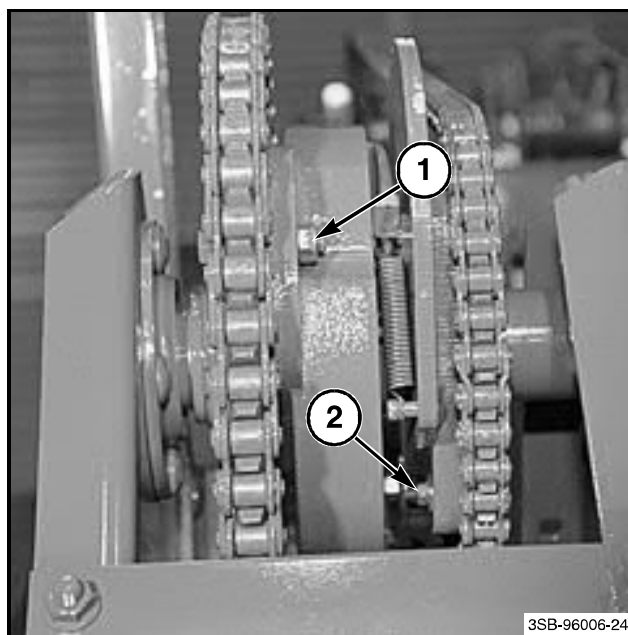


FIG. 12

Roller Chains

Lubricate roller chains frequently with clean engine oil to keep high efficiency and give long, problem free service. Operating conditions, dirt and temperature, amount of power made, speed of roller chain, and lubrication can change the life of a roller chain. Severe conditions normally require more frequent maintenance.

Make sure oil goes into the spaces between the side bars on the chain joints. A layer of oil must be kept between the roller and bushings to keep a free and flexible roller chain.

General Information

For a stiff roller chain, soak and wash in solvent to loosen and remove dirt and corrosion from the joints. Soak at least eight hours in oil so the lubricant can go between the rollers and bushings.

FIG. 13: Spring clip connectors (1) must always be installed with the open end of the clip trailing the direction of travel (A). Installing the spring clip in that direction helps to prevent the loss of the spring clip while the baler is running.



WARNING: Never service, adjust, or lubricate, chains, or belts, while the baler is running.

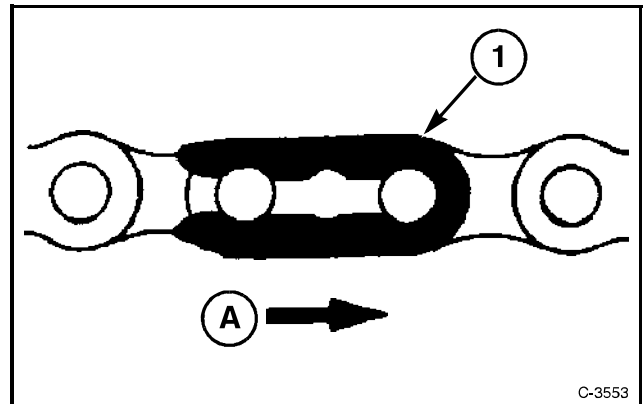


FIG. 13

C-3553

Electrical

Make sure to cover all wiring harness connectors that are disconnected. Use the sealing caps and plugs to keep dirt and moisture out of the connectors.

Bearing Replacement (Eccentric Self-Locking Collar)

Bearings with eccentric self-locking collars are used on several shafts and are held in position on the structure with bearing flanges.

FIG. 14: The bearing (1) is held in position on the shaft by a locking collar (2). The locking collar has an eccentric counterbore. This counterbore engages the eccentric end of the bearing inner race (3) when the bearing is assembled. The locking collar is rotated on the bearing to lock the assembly on the shaft. The assembly grips the shaft tightly with a positive locking action that increases with use. A set screw (4) in the locking collar applies additional locking pressure. A drift pin hole (5) is used to rotate the locking collar.

To replace a bearing:

- Loosen the set screw.
- Use a drift punch inserted in the drift pin hole (5) to rotate and loosen the locking collar. Rotate the locking collar opposite the direction of normal shaft rotation. Remove the locking collar.
- Support the shaft. Remove the bolts for the bearing flanges.
- Slide the bearing and the bearing flanges from the shaft.

NOTE: Removing paint and corrosion from the shaft will make removal easier.

- Put the bearing and bearing flanges on the shaft. Make sure the bearing inner race is turned in the correct direction.

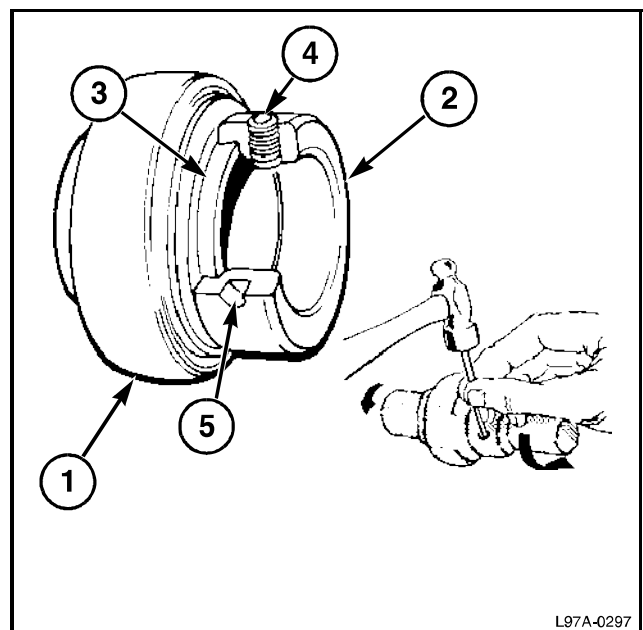


FIG. 14

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