FEATURING
• Safety
• Service Inspections
• Baler Monitor Functions
• Baler Operation
• Maintenance
• Troubleshooting
• Updates and Kits
Introduction
Thank you for taking the time to participate in this Case IH square baler customer clinic. Our goal is to enhance your awareness of product features and function, as well as certain maintenance procedures and products that will prolong the life of your baler.

We have included information in this Productivity Guide that will be helpful in operating and maintaining your Case IH Baler. Your Operator’s Manual will include most of this information, however some helpful hints and operating suggestions in this Guide have been assembled by listening to the experiences of baler owners just like you. If your baler is operated or maintained by more than one person, be sure to share helpful hints in this Guide with all operators to keep your machine working at top efficiency. While this information will prove helpful in achieving top performance we remind you that it is not a replacement for your Operator’s Manual.

At Case IH, we want to see you achieve a level of performance and reliability that exceeds your expectations, and confirms the belief that you have purchased the best large square baler available.

What Makes a Case IH LBX baler so special? Let’s take a look—
SAFETY

We value our customers, and hope that each baling season is safe and productive. Sometimes, in the rush to beat the weather, start chores, or avoid missing the first inning of the softball game, safety vigilance fails—and the risk of an accident soars. Never attempt to save a moment by compromising safety—the result can cost more time than ever was saved—and sometimes the cost may be immeasurable. The Operator’s Manual contains a comprehensive list of safety rules for your LBX baler. Please take a few moments to review the entire list. We’ve listed some of the most important here.

General Safety Rules

➤ Read the Operator’s Manual thoroughly before starting, operating, servicing or carrying out any other operation on the machine. The time invested in reviewing the manual will pay off in terms of time saved later.

➤ Read all the safety decals on the machine and follow the instructions. Immediately replace any decals that are missing or damaged.

➤ The baler should be operated only by responsible individuals, who are familiar with the machine.

➤ Avoid fire hazards by keeping the baler clean. Inspect the unit daily for signs of hydraulic leaks, and have leaks repaired before further use.

➤ A fire extinguisher should be mounted on the baler, easily accessible from the ground and away from moving parts and areas where debris is likely to accumulate. The presence of hydraulic and lubricating oil dictate that an ABC extinguisher is the best choice.

➤ Though not directly related to baler operation—a word of caution about handling large bales. Every year, individuals are injured when using incorrect methods of handling that do not completely restrain and control the weight of large bales. Use the correct spear or grapple equipment to handle bales. Refer to loader or bale carrier Operator Manuals for correct bale handling methods.

Baler Hookup, Transport and Field Operation

➤ Before connecting the baler to the tractor, be sure the tractor meets minimum horsepower requirements and is ballasted to control the weight of the baler, especially when operating in hilly terrain.

➤ Do not enter the area between the tractor wheels and the baler when the tractor engine is running.

➤ Be sure the tractor drawbar capacity is sufficient for the baler tongue weight. The hitch pin must be securely cross pinned, and the safety chain properly connected to the tractor before road transport. Check warning lights before entering a public roadway.

➤ When transporting the baler on a public road, fully raise the pickup, and engage the flywheel brake. Raise the bale chute to close the bale chamber.

➤ Always use SMV sign, flashing warning lights, and turn signals when transporting the machine on public roads.

➤ Maintain a safe speed when transporting and maneuvering the baler in traffic. Be constantly aware of the size and weight of the towed baler. Allow for the added weight of bales that may be in the baler.

➤ Do not work around the baler wearing loose clothing that could get caught in the moving parts.

➤ Prior to operating the baler, assure that all guards and covers provided are properly installed, including PTO shaft shielding.

➤ Never allow anyone to ride on the baler or the tractor. Keep children away from and off the baler at all times.

➤ Prior to engaging the PTO, always make sure there are no bystanders nearby. Sound a warning with the tractor horn as an added precaution.
SAFETY

Baler Hookup, Transport and Field Operation (cont.)

➤ Always operate the baler at a safe speed, especially when on uneven ground or inclines. Use particular care when turning on hillsides or near embankments.

➤ Keep hands, feet and/or garments away from moving parts. ALWAYS DISENGAGE THE PTO AND STOP THE TRACTOR ENGINE before attempting service, adjustments or clearing the baler of crop or debris. Do not dismount the tractor until all machine rotation has stopped. Remove the ignition key from the tractor when leaving the equipment unattended.

➤ Apply the flywheel brake if working near any part of the baler that may move if the flywheel were to rotate (see figure 5.1).

➤ When engaging the flywheel brake, always pull the control lever firmly down to its bottom position to prevent it from jumping back after passing over-center. Make sure the brake is correctly adjusted.

➤ Always make sure the area behind the machine is clear before manually ejecting the bale.

➤ If the baler is equipped with a crop cutting system, use special care when working in the area near the cutter knives. Lower the knives out of the feeder area using the tractor hydraulic valve prior to servicing or removing crop from the feeder.

Machine Maintenance

➤ When adjusting, cleaning, lubricating or performing repairs, the baler must be completely stopped. Disengage the PTO, stop the tractor engine, engage the flywheel brake and lock the knotter tripping mechanism.

➤ Always block the baler wheels and set the tractor parking brake before working on or under the machine.

➤ Use extreme care when working on the plunger or the stationary knives.

➤ When working on the hydraulic system, always ensure that the system is not under pressure before disconnecting pipes and/or hoses.

➤ Oil escaping under pressure can be injected into the skin and cause serious injury. When searching for oil leaks, wear safety glasses and use a piece of wood or cardboard to locate high pressure leaks. NEVER use your hands to detect an oil leak.

➤ When servicing or repairs are complete, make sure that all guards are in place.

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BASIC CONFIGURATION SPECIFICATIONS

The LBX series of Large Square Balers are offered in two basic bale sizes. The bale chamber on LBX332 balers is 2.7’ X 2.9’, and LBX432 balers are 3.9’ X 2.9’.

The LBX332 is equipped with four knotters, while the LBX432 has six knotters.

Three feeder configurations are available on LBX332 balers. These are a standard packer tine, packer-cutter with up to six knives, or rotor-cutter, with up to 23 knives in the lower end of the pre-compression chamber.

Two feeder configurations are available with the LBX432. These are standard packer tine, and rotor-cutter with up to 33 crop cutting knives.

Other options include pan or roller bale chute, bale ejection system for roller chute, and steerable tandem axle.
Take Full Advantage of its Capabilities

Have you, or did someone you know purchase a new baler in the last few years and continued to use it in much the same way as the baler it replaced? Many times operators do not fully realize and take advantage of modern features. As a result of not fully utilizing the baler’s features, the owner may not be getting all the value from the money spent.

Many of the items suggested in this booklet can be completed by the owner when preparing for the season or the operator when starting a new field. Other adjustments, service procedures, or repairs might be more effectively completed by your dealer’s trained service technicians.

Maintenance Choices, Being Prepared for DEMANDING Conditions

Ask your Case IH dealer about Customized Maintenance Inspections. It is a proactive way to be sure your baler will operate at its best possible performance when you need it.

Customized Maintenance Inspections include a visual and functional inspection of your baler. They can be used as a pre-season or as a post-season tune-up. Benefits include:

- Increased productivity
- Less downtime during the season
- Lower operating costs
- Improved fuel economy
- Documented maintenance
- Service by Case IH-trained technicians
- Service with Genuine Case IH lubricants, kits, and parts

The combined advantages of CMI services should result in a lower cost of ownership and higher resale values.

Documented Service Promotes High Resale Value

When you schedule your equipment for annual maintenance inspection services, your Case IH dealership places annual UPTIME Action Maintenance decals on your equipment after each inspection (see figure 6.1), distinguishing your commitment to keep your machines running in top condition. Not only does annual maintenance support your productivity in the field, each decal symbolizes completed service—which may increase the resale value of your equipment.

Because Case IH technicians use Customized Maintenance Inspection Checklists for each inspection, you can rest assured that the service is thorough and nothing is overlooked.

Figure 6.1
### Checklist For Your “Walk Around” Inspection

#### SAFETY EQUIPMENT
1. Safety decals
2. Safety railings condition
3. PTO Shields
4. Flasher lights
5. Safety chain
6. Fire extinguisher? Yes [ ] No [ ]

#### PICKUP AND STUFFER AREA
1. Pickup assembly, tines, cam track, cam bearings and augers
2. Pickup drive chain condition and tension
3. Pickup slip clutch/overrunning clutch function and adjustment
4. Pickup flotation adjustment
5. Packer/Rotor drive chain condition and tension
6. Packer finger crank and bearings
7. Packer finger slip clutch adjustment
8. Stuffer to plunger timing
9. Stuffer gearbox oil level (change if after specified number of bales)
10. Stuffer shear bolt condition; spare bolts on hand
11. Stuffer brake adjustment
12. Stuffer driveshaft/bushings condition
13. Stuffer clutch linkage
14. Stuffer/Knotter chain condition and tension
15. Stuffer drive gear cam lobe condition
17. Stuffer chamber
18. Packer/Rotor-cutters: knife sharpening/replacement

#### KNOTTER AND NEEDLE AREA
1. Knotter fans operation
2. Knotter gearbox oil level (change if after specified number of bales)
3. Knotter brake adjustment
4. Twine disc/disc cleaner adjustment
5. Stripper arm condition and adjustment
6. Twine knife condition
7. Bill hook (wear or burrs)
8. Knotter gear cam lobe condition
9. Knotter gears including main knotter gears (wear and condition)
10. Stripper arm cam lobe condition
11. Needle to bale chamber adjustment
12. Needle to twine disc adjustment
13. Needle penetration
14. Needle rollers
15. Slacker arm rollers

#### KNOTTER AND NEEDLE AREA (cont.)
16. Tucker arm rollers
17. Tucker arm adjustment
18. Twine finger adjustment
19. Twine tension
20. Knotter stack preload
21. Needle to plunger timing
22. Needle protection linkage adjustment

#### PLUNGER, BALE CHAMBER AND GEAR BOX
1. Gearbox mounting hardware
2. Gearbox oil level (change if after specified number of bales)
3. Gearbox breather
4. Hay dog clearances
5. Plunger rollers and plunger clearances in the bale chamber
6. Plunger knives: sharpening/replacement

#### PTO DRIVELINE
1. Bearing condition
2. CV joint condition
3. Flywheel clutch condition/adjustment
4. Flywheel brake adjustment
5. Flywheel shear bolt condition, spare bolts on hand

#### MISCELLANEOUS
1. Switches and inductive sensors (condition and proper clearance)
2. Electrical connections
3. Wheel bearings
4. Tires (condition and pressure)
5. Hydraulic lines, valving and cylinders (condition and leakage)
6. Hydraulic breathers
7. Operation of ejector
8. Load increase/decrease test
9. Sheet metal condition
10. Structure - cracks/welds
11. Missing and broken parts
12. Centralized grease lines and fittings
13. Automatic greaser operation (if equipped)
14. Auto oil pump and lines
15. Monitor function, fault codes (check, investigate and clear)
16. Hydraulic oil level (change oil and filter annually or every 10,000 bales)
17. Work lights
Baler Monitor

An LCD display monitor is provided as the operator control interface for LBX balers. The monitor is connected to a 12-volt power supply as instructed in the baler and tractor Operator’s Manuals. Navigation around the display is accomplished using the 9-key keypad below the display window (see figure 8.1).

Becoming familiar with the viewing areas will make operation of the monitor and baler much easier. A full explanation of monitor operation is included in the Operator’s Manual (see figure 8.2).

- Two-position “switches”, such as knotter fan on/off, are switched by selecting the function in the menu bar and pressing “Enter” to toggle between selections each time the Enter button is pressed.

- The selected Menu Bar item will remain in the center of the menu bar, and will flash while selected. If left inactive, the selection will stop flashing, but remain “inverted” until navigation resumes.

- A slash through the symbol indicates the system is enabled, however is currently on “standby” while some conditions are not satisfied that momentarily de-activate the function, such as PTO speed below 600 RPM.

- Some pairs of indicators can only be displayed one at a time, such as automatic or manual bale density setting, or automatic greasing and accessory.

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**Figure 8.1**

**Figure 8.2**

**Figure 8.3**
Baler Monitor

The Status Box is the lower right corner of the display. The Status Box displays the baler model number or the load and capacity bar graphs (see figure 9.1).

In addition to the screen display, audible signals accompany selected messages (see table 9.1). The audible alarm can be turned off by pressing the “ESC” key.

Audible Signals

<table>
<thead>
<tr>
<th>Operational</th>
<th>Warning</th>
<th>Alarm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knotter Cycle</td>
<td>Knotter Shield</td>
<td>Flywheel Brake</td>
</tr>
<tr>
<td>Grease</td>
<td>Flywheel (shearbolt)</td>
<td>System</td>
</tr>
<tr>
<td>System</td>
<td>Knotter (shearbolt)</td>
<td>Pickup Slip</td>
</tr>
<tr>
<td>Pickup Slip</td>
<td>Shearbolt</td>
<td>Mistie</td>
</tr>
<tr>
<td>Mistie</td>
<td>Flywheel/Knotter</td>
<td>Pickup Blocked</td>
</tr>
<tr>
<td>Feeder</td>
<td></td>
<td>Mistie</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Knottie Trip System</td>
</tr>
</tbody>
</table>

The monitor functions in one of four operating modes. These are the Start-Up, Operation, Memory, and Service Modes.

- The monitor enters the Start-Up mode when powered up, but with PTO speed below 600 RPM (see figure 9.2)
- The bale density value will be displayed, along with “Auto” or “Manual” below the indicator bar
- The monitor enters Operation Mode when the PTO speed exceeds 600 RPM, or “Operation” is selected in the Menu bar (see figure 9.3)
- In Operation Mode, the Status Box displays the “Load” and “Capacity” Indicators

![Figure 9.1](image)

![Figure 9.2](image)

![Figure 9.3](image)

![Figure 9.4](image)

![Figure 9.5](image)

Table 9.1
The chart below illustrates the navigation logic for the Baler Monitor. Note that each path begins with a Menu Bar selection. The Memory Mode and Service Mode each contain a sub-menu from which functions are accessed. Taking some time to learn the meaning of the various icons, using the Operator’s Manual, will make field operation easier and will promote using the many functions of the monitor.

**Figure 10.1**

- **Menu Bar**
  - Operational Mode
    - Load Indicator in Status Box
    - Capacity Indicator in Status Box
    - Performance Monitor Messages
  - Operational
    - Knotting Cycle
    - Bale Drop
  - Warning
    - Knotter Shield Open
    - Greasing System
    - Pickup Slip
    - Mistle
    - Bale Chute Closed
    - Maximum PTO Speed
    - Cutter Knives Out
  - Alarm
    - Flywheel Brake
    - Flywheel (shearbolt)
    - Knotter (shearbolt)
    - Shearbolt
    - Flywheel Knotter
    - Pickup Blocked
    - Feeder
    - Mistle
    - Knotter Trip
  - Error Messages
    - Operating Lights On/Off Toggle
    - Flashing Light On/Off Toggle
    - Knotter Fans On/Off Toggle
    - Automatic/Manual Density Toggle
  - Operation and Information Page
    - Actual PTO Speed
    - Density System Oil Pressure
    - Total Bale Count
    - Bale Count Uncut Since Last Cleared
    - Bale Count (Cut Bales)
    - Slices per Bale (average)
    - Operating Hours @ PTO Speed over 600 RPM

- **Memory Mode**
  - Memory Sub-Menu
    - Memory Clear—Clear, Edit and Store Bale Counts
    - Bale Count Memories
    - Current Date and Time
    - Date and Time When Count Stored
    - Job Name
    - Quantity of Uncut Bales
    - Quantity of Cut Bales

- **Service Mode**
  - Service Sub-Menu
    - Screen Setup—Edit Sequence of Information Fields
    - Machine Setup
    - User Settings
    - Active Errors
    - Error Overview
    - Error Code
    - Error Description Cause
    - Error Code
    - Number of Occurrences
    - Date and Time of First Occurrence
    - Error Description Cause
    - Customer Name
    - Grease Pump
    - Oil Pump
    - Screen Contrast
    - Screen Brightness-Day
    - Screen Brightness-Night
    - Buzzer Volume
    - Date
    - Time
    - Printer
    - Error Handling
    - Units of Measure
    - Language
    - Accessory 1
    - Accessory 2
    - Operating Lights
    - Flashing Light
    - Bale Chute
    - Baler Type
    - Cutter Type
    - Serial Number
    - Performance Monitor Software
    - Controller Software
    - Software Compliance
    - Operating Hours
    - Total Bale Count

**Figure 10.1**
Connecting the Baler to the Tractor

Baler performance can be directly affected by certain tractor adjustments. Prior to connecting the baler to the tractor, take some time to assure tractor conditions meet the following standards. Specific details for each step are in the Operator’s Manual.

- Tractor meets minimum size requirements (see table 11.1). Consider rotor-cutter power requirements, if equipped; and assure the size and weight of the tractor is sufficient to control the weight of the baler, especially on grades and inclines.

- Adjust the tractor tread width so the wheels do not run over the windrow. Use a tractor with sufficient ground clearance to prevent crop from snagging and bunching on the underside of the tractor.

- Refer to the chart for measurements to assure the correct drawbar-to-PTO shaft dimensional relationship position prior to connecting the baler hitch and PTO shaft (see figure 11.1). Dimensions should be to the following standards:
  - $X_1 = 15"$
  - $X_2 = 3\frac{3}{16}"$ minimum
  - $Y_1 = 5\frac{7}{8}"$ to $11\frac{5}{16}"$ ($7\frac{7}{8}"$ recommended)
  - $Y_2 = 17\frac{11}{16}"$ to $19\frac{1}{16}"$

- Three-point hitch lower arms should be removed if at all possible to avoid the possibility of driveline damage due to contact with the hitch arms.

- Re-position the baler hitch if necessary to level the baler. Select from three settings so the twine boxes are basically level for standard packer feeder units (see figure 11.2). Adjust the front of rotor-cutter equipped balers slightly high to lower the pickup for more crop clearance as it passes into the rotor.

- Use the correct hitch pivot ball to match the drawbar pin diameter.

- Verify the correct PTO shaft length after the baler hitch is connected to the tractor drawbar. See instructions in the Operator’s Manual to assure adequate operating clearance (see figure 11.3).

<table>
<thead>
<tr>
<th>Model</th>
<th>Horsepower Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>LBX332 Standard</td>
<td>102 hp</td>
</tr>
<tr>
<td>LBX332 Packer-cutter</td>
<td>110 hp</td>
</tr>
<tr>
<td>LBX332 Rotor-cutter</td>
<td>130 hp</td>
</tr>
<tr>
<td>LBX432 Standard</td>
<td>122 hp</td>
</tr>
<tr>
<td>LBX432 Rotor-cutter</td>
<td>150 hp</td>
</tr>
</tbody>
</table>

Table 11.1
Connecting the Baler to the Tractor (cont.)

- Connect the hydraulic hoses to the tractor couplers. Up to three circuits may be required, depending on baler features. The hose connector covers are color-coded for ease of connection:

  **Green**—Single-acting pickup lift circuit
  **Red**—Double-acting crop cutting knife retraction circuit
  **Blue**—Double-acting bale chute, ejection and steering circuit. (Must have float function)

- Make necessary electrical connections for the baler monitor, as well as transport warning and turn signal lights (see figure 12.1)
- Refer to the Operator’s Manual for correct wiring connections for the monitor, depending on the type of tractor electrical system
- Newer tractors have a mating lighting connector, with wiring compatible with the baler circuits. Older tractors may require additional wiring connections for proper lighting operation.

![Figure 12.1](image)

Loading Twine

The knotter system on the LBX balers use a double knot system. Twine is fed to both the top and bottom of the bale (see figure 12.2).

- Twine is not held in the knotters during bale formation, does not pull around the end of the bale
- The knotters cycle once while the needles hold the twine ends above the knotter, tying the front knot on the last completed bale
- As the needles descend, a second knot is tied that connects the lower and upper twines, at the rear of the next bale
- Upper twine spans only the top of the bale, while the lower twine spans the bottom, in addition to both ends of the bale
- Twine usage to the bottom of the bale, fed through the needle, is approximately twice that of the top. Three balls of twine are connected to feed the needles, while two balls are connected to feed twine to the top of the bale.

![Figure 12.2](image)
Loading Twine (cont.)

Twine quality is of utmost importance in obtaining optimum knotter performance, as well as high quality knots that withstand the stress of high bale density and frequent handling.

- Minimum specifications are 350 lb. knot strength for the LBX332, and 400 lbs. for the LBX432.
- Higher strength twine is suggested in some baling conditions where bales are particularly high density, or crop is very springy, such as straw.

See the baler Operator’s Manual for specific instructions for loading twine in the baler (see figure 13.1).

- “Up” arrows indicate twine routed to the top of the bale, and “down” arrows indicate twine routed to the needles at the lower side of the bale.
- Connect the outer twine end of the leading ball with the center twine end of the successive ball.
- Route twine through twine guides and tensioners. Check guides for dirt or rust that would increase drag on the twine, and be sure twine is not twisted or tangled in the twine boxes.
Crop Feeding and Cutting for Proper Bale Formation

Several factors affect the overall bale shape and integrity, all related primarily to crop feeding and processing prior to being moved into the bale chamber.

Pickup

The pickup is equipped with both gauge wheels and an adjustable pickup cylinder to control pickup height and flotation weight.

- The gauge wheel is adjusted to be carried above the ground in most operating conditions, to momentarily lift the pickup clear of large obstacles or undulations in field terrain
- The cylinder assembly is adjustable to set both the lowest limit of pickup travel, and the degree of spring assist for pickup flotation
- The entire adjustment procedure is described in the Operator’s Manual. Adjustment collars determine the pickup low travel limit and degree of lift assist provided by the lift cylinder spring (see figure 14.1).

Crop centering augers on each side of the pickup are intended to move the edges of the windrow into the feeder area of the pickup.

- Augers are not intended to “re-position” the windrow to fill the edges of the feeder when baling narrow windrows
- Excessively wide windrows may overload and plug the pickup augers

The pickup windguard should be adjusted with about 6" clearance to the pickup bands. Higher volume windrows may require additional clearance (see figure 14.2).

Windrows and Driving Patterns

Bale shape is determined in the feeder and pre-compression chamber, while bale density is determined in the bale chamber. There is no provision to re-position crop once it enters the feeder.

- If crop is fed unevenly, the bale will likely be uneven and mis-shaped, as well.

Windrows, whenever possible, must be built to suit the baler for the best filled and shaped bales. “Adapting” the baler to the windrow will usually result in a less-than-desirable outcome.

The desired windrow width is slightly wider than the feeder at the packer or rotor.

- Crop centering augers will move just enough crop into the packer or rotor to fill the sides of the pre-compression chamber. The sides of the bale will then be well-filled and firm.

If windrows are not full feeder width and uniform, the operator must understand the crop flow into the baler and follow driving patterns to lessen the affect of the lower quality windrows.

Narrower windrows, approximately one-half the width of the feeder, are the next-best option.

- Observe the monitor for the knotting cycle signal, indicating the start of a new bale, and steer so the windrow is centered in the pickup
- Weave from side to side in six to eight second intervals to fill the sides of the bale (see figure 15.1 correct)
- The edges of the bale are filled, along with the center, as the windrow moves back and forth from side to side across the pickup
Windrows and Driving Patterns (cont.)

Weaving continuously, in intervals less than six to eight seconds, will likely overfill the center of the bale. Loose edge twines will be likely (see figure 15.1 incorrect).

Medium windrows, approximately three-fourths the width of the feeder, are the most difficult to bale and maintain well-shaped bales.

- Even with weaving, the center of the bale tends to be over-filled. The edge twines will likely be loose, and eventual difficulty in handling is a possibility.

Stuffer Sensitivity

How the Stuffer Works:

The stuffer sensitivity setting is the final factor in making well-shaped bales. Adjustment spring tension is changed with the lever at the left side of the baler, to the rear of the pickup (see figure 15.2).

1. Pressure is exerted by the crop charge against stuffer trip sensors at the lower front portion of the pre-compression chamber (see figure 15.3).
2. The adjustment spring tension opposes the pressure exerted on the sensors by the crop charge.
3. The chamber fills, and the set value is reached, the linkage trips.
4. Crop holding fingers are retracted, and the stuffer moves the crop charge into the bale chamber.

“Sensitivity” refers to the degree of pressure exerted on the sensor paddles necessary to trip the stuffer.

- Sensitivity setting determines the size of the pre-compression chamber charge, and the thickness and shape of each bale flake
- Spring tension setting should be increased just to the point of fully filling the upper, outer corners of the bale. Thinner flakes compress better in the bale chamber, resulting in denser, well-shaped bales.
- Excessive sensor trip pressure results in over-filling of the pre-compression chamber, thicker flakes, and undue loading and stress on the stuffer mechanism
- A good starting point for the stuffer sensitivity setting is the fourth notch from the rear of the quadrant
Crop Cutting

Crop is moved from the pickup into the pre-compression chamber by the packer fingers or rotor lobes. Incorporated into the bottom of the feeder/pre-compression chamber of cutter-equipped units are crop cutter knives that extend into the packer or rotor area. Crop material is cut as it moves across the knives.

- Knives are individually mounted, and spring-loaded to provide breakaway protection
- Packer-cutter systems, available on LBX 332 balers, have six knives mounted in the feeder bottom (see figure 16.1). With all six knives installed, the packer-cutter has a theoretical cutting length of approximately 5”.

Cutting crop increases bale density, yet bales are easier to break apart when feeding, or for mixing in TMR equipment.

- Fermentation of silage bales is improved as bales pack tighter, with a greater degree of air removal
- Knives can be retracted hydraulically if crop conditions vary and cutting is undesirable, or if a heavy windrow slug would present the possibility of feeder plugging if the knives are inserted.
- Balers are shipped with standard knives, hard-surfaced knives are available as service part replacements
- Different knife position combinations can be selected to change the cut length, or to leave longer crop at the bale edges for greater bale integrity
- Knife blanks must be installed in unused knife slots to prevent plugging
- Rotor-cutter knives are mounted in a removable knife drawer for ease of service. Hydraulics are also used to lower the drawer. The drawer moves out the side of the baler on slides and rollers (see figure 16.3).

Packer-cutter System - Figure 16.1

- The rotor-cutter system is available on both LBX332 and LBX432 balers (see figure 16.2). A total of 23 knives on three-foot units, and 33 knives on four-foot balers, can be used to cut material to a theoretical length as short as 1\(\frac{17}{32}\)”.

Rotor-cutter System - Figure 16.2

Figure 16.3
Density Control

Bale density is hydraulically controlled with a self-contained system utilizing two cylinders acting on density control doors in the bale chamber. The entire system, including pump, filter, reservoir, cooler and control valve are part of, and powered by the baler. Density control is operated in one of three modes: Automatic, Manual, and Manual Override.

Automatic Mode

Plunger load is directly determined by the effort required to push the bale through the density control doors in the bale chamber. The tighter the bale is held by the density system—the higher the plunger load—and the denser the bale. The plunger load value corresponds directly to bale density.

While baling in Automatic mode, plunger load values are used to command adjustments to the density system pressure as crop conditions change, keeping bale density consistent. For example, as crop dries, it moves more easily through the bale chamber, so plunger load decreases, as does density. The system reacts to the reduced load by increasing density system pressure, maintaining bale density and plunger load at set values. The pressure gauge on the baler will fluctuate as pressure is adjusted to maintain consistent density.

To adjust density, the Monitor is placed in the Operational Mode. The Indicator bar will display “Auto” and a number from 0 to 100 that corresponds to the plunger load. Pressing the “+” or “-” button will increase or decrease the plunger load set value, and thus the bale density (see figure 17.1).

Manual Mode

When operating in Manual mode, the pressure will remain constant. However, the plunger load, and therefore density, will vary according to crop conditions. Selecting the “Manual” mode on the baler monitor changes the Indicator Bar to “Manual”, with a bar graph that corresponds to density system pressure. Pressing the “+” or “-” button will increase or decrease the density system oil pressure, and thus the bale density (see figure 17.1).

Manual Override Mode

In “Override” mode, the operator turns the adjustment knob on the density control valve clockwise to manually increase baling pressure (see figure 17.1). The pressure gauge on the baler is used as a reference, and will maintain a pressure reading based on the valve setting. As crop conditions change, bale density will change, and repeated manual pressure adjustment will be necessary.

Bale Ejector

Pressure must be relieved from the bale density system by opening the bale release lockout valve before attempting to eject the last bale from the bale chamber, using the hydraulic bale ejector. The bale cannot be pulled from the chamber with the density system pressurized. The ejector will tear grooves in the bottom of the bale, and will not sufficiently engage the bale for removal, even if bale chamber pressure is later removed.

<table>
<thead>
<tr>
<th>Monitor Display</th>
<th>Method of Density Adjustment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density Control Mode - Auto</td>
<td>IN MONITOR OPERATIONAL MODE: Use “+” and “-” buttons to increase or decrease plunger load value</td>
</tr>
<tr>
<td>Density Control Mode - Manual</td>
<td>IN MONITOR OPERATIONAL MODE: Use “+” and “-” buttons to increase or decrease density system oil pressure value</td>
</tr>
<tr>
<td>Density Control Mode - Manual Override</td>
<td>NO MONITOR DISPLAY Turn density control valve knob to increase or decrease density system oil pressure, monitor pressure on gauge</td>
</tr>
</tbody>
</table>

Figure 17.1
Load and Capacity Indicators

While baling in Automatic mode, the baler monitor provides the operator with baler “LOAD” and “CAP” (Capacity) indicators that can be used to optimize the baler feed rate and performance (see figure 18.1).

The Load Indicator shows the operator a graphic and numeric display of the measured plunger load. The Load Indicator allows the operator to monitor bale density.

The Capacity Indicator simply displays the number of plunger strokes per stuffer cycle, taking an average of the last five stuffer cycles.

- Capacity is affected most by the windrow size and feed rate, and the stuffer trip sensitivity
- The baler should be fed so the Capacity Indicator stabilizes at a point slightly above a whole number. An even feed rate at this level translates into equal slices, and consistent bale length.
- Capacity Indicator numbers are inversely related to feed rate. Highest feed rates result in a stuffer cycle with each plunger stroke, or a capacity indication of “1”. Lower feed rates require more time to fill the pre-compression chamber. As unloaded plunger strokes continue, with less frequent stuffer cycles, a higher capacity indication will register.
- Maintaining higher capacity levels, approaching “1”, with narrow, lighter windrows will require excessive ground speed. Likewise, feeding the baler evenly side-to-side to maintain bale shape will be difficult. Reducing feed rate, and allowing the Capacity Indicator to increase to “2” or “3” will result in improved bale density and shape.

The chart is an easy reference for initial baler settings for a variety of crops and each feeder type (see table 18.1). Deviations from these starting points may be necessary to fine-tune baler adjustments to varying crop conditions.

### INITIAL BALER SETTINGS

<table>
<thead>
<tr>
<th>LBX332</th>
<th>CROP</th>
<th>PICK UP</th>
<th>KNIVES to use by quantity</th>
<th>STUFFER</th>
<th>DENSITY</th>
<th>PLunger</th>
<th>TRIP ARM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Setting</td>
<td>Setting</td>
<td>Height</td>
<td>Setting</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(Use lowest setting if baler’s empty)</td>
<td>Load</td>
<td>Setting</td>
<td></td>
</tr>
<tr>
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<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>mooce content</td>
<td>Wheels to ground clearance</td>
<td>Times to ground clearance (min)</td>
<td>Down force setting to ground</td>
<td>Wind guard height to tines</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Standard</td>
<td>25mm</td>
<td>25mm</td>
<td>12.0 in.</td>
<td>304mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hay 40-60%</td>
<td>20-30 kgs</td>
<td>25mm</td>
<td>1.0 in.</td>
<td>304mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hay 10-30%</td>
<td>20-30 kgs</td>
<td>25mm</td>
<td>1.0 in.</td>
<td>304mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Straw 10-30%</td>
<td>20-30 kgs</td>
<td>25mm</td>
<td>1.0 in.</td>
<td>304mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Packer-cutter</td>
<td>25mm</td>
<td>25mm</td>
<td>12.0 in.</td>
<td>304mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hay 40-60%</td>
<td>20-30 kgs</td>
<td>25mm</td>
<td>1.0 in.</td>
<td>304mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hay 10-30%</td>
<td>20-30 kgs</td>
<td>25mm</td>
<td>1.0 in.</td>
<td>304mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Straw 10-30%</td>
<td>20-30 kgs</td>
<td>25mm</td>
<td>1.0 in.</td>
<td>304mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Rotor-cutter</td>
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<td>12.0 in.</td>
<td>304mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hay 40-60%</td>
<td>20-30 kgs</td>
<td>25mm</td>
<td>1.0 in.</td>
<td>304mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hay 10-30%</td>
<td>20-30 kgs</td>
<td>25mm</td>
<td>1.0 in.</td>
<td>304mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Straw 10-30%</td>
<td>20-30 kgs</td>
<td>25mm</td>
<td>1.0 in.</td>
<td>304mm</td>
</tr>
</tbody>
</table>

Table 18.1

Figure 18.1
Bale Inspection and Evaluation

After baling the first bales, stop and inspect bales for shape, density, fill and knot quality. Refer to the basic controls and adjustments Troubleshooting Chart in this Guide. If the symptom is not included in the following chart, or the possible cause is not listed, refer to the “Finding Faults” pages in Section 6 of the Operator’s Manual. Make adjustments or seek dealer assistance as required to correct deficiencies.

Inspecting knots on finished bales may provide clues to occasional misties, or early warning of a potential knotter issue.

- A tight knot with cleanly cut twine tails approximately 1” in length indicates the knotters are functioning properly (see figure 19.1)
- Uneven or frayed tails, extra loops in the knot, short tails or slipped knots are the most common symptoms requiring attention
- Twine that fails just below the knot, in the area where the twine makes the tight bend from the bale span and enters the knot, is most likely the result of insufficient twine strength. Evaluate the twine quality, in addition to the demand placed on the twine by high-density bales or springy crop conditions.

While bailing, the knotter flags give the operator a good indication of knotter operation. Flags monitor the twine slack during bale formation, before, during and after the knotting cycles.

- The flags will move up and down, and should all move together; a basic indication that the knotters are functioning properly
- If one flag begins to behave different from the others, note the variation in movement
- Refer to basic troubleshooting in the Operator’s Manual for the noted flag symptom. Relay information to a trained technician who can more easily translate the flag characteristics into a problem diagnosis.

Problems that arise from normally reliable knotters often are the result of issues with twine routing.

- Make sure the twine paths are clean, and frayed or tangled twine is removed and sources of fraying are corrected
- Keep the knotter area clean for most reliable knotter operation
10 Hrs./Daily or 400 Bales
1. Grease Main Drive Overrunning Clutch (LBX332)
2. Check Automatic Chain Oiler System
3. Clean Entire Baler
4. Grease Knotter Clutch Housing
5. Grease Knotter Clutch Pawl
6. Grease Ball Ring Hitch
7. Check or Sharpen Crop Cutting Knives
8. Grease Stuffer Clutch Housing
9. Grease Stuffer Clutch Pawl
10. Check Automatic Greasing System

50 Hrs./Weekly or 2000 Bales
11. Check Roller Chain Tension
12. Grease PTO Drive Line, Joints, Shaft, and Shields
13. Grease Midship Bearing
14. Check Knotter Drive Gearbox
15. Check Main Drive Gearbox
16. Check Main Drive Slipclutch
17. Grease Knotter Drive PTO U-joints
18. Check Density System Oil Level
19. Check Stuffer Drive Gearbox
20. Grease Tandem Steerable Axle
Scheduled maintenance is an essential part of keeping your LBX Baler working at top performance, with the highest level of reliability and minimal downtime.

We know it can be very easy to sidestep the time necessary for some routine maintenance. The people who designed your baler have taken your hectic schedule into consideration and have included centralized or automatic lubrication to save time. Operators must still make some time to assure all necessary maintenance is performed in a timely and conscientious manner.

In addition to prioritizing the time necessary to perform normal maintenance operations, using top quality Case IH replacement parts and lubricants will go far in assuring your efforts will be rewarded with trouble-free and productive baling.

Cleaning

Prior to performing regular inspections, adjustments and lubrication, the baler should be cleaned following use.

- Use special care to assure the many small, finely finished knotter components are cleaned regularly. This is especially critical if the baler is stored outdoors where it is exposed to rain and high moisture.
- The area between the twine boxes and frame are prone to accumulation of debris. Using the time while cleaning to visually check the unit is a good way to perform a basic baler inspection.
- Compressed air is most effective for removing chaff and debris from the many cracks, crevices and corners on the baler. Also highly effective and very portable is the high velocity, high volume air blast from a gas- or electric-powered leaf blower. Remember to wear eye protection any time air is used to clean the baler (see figure 21.1).
- **Do not use water to clean the baler.** Any debris that inadvertently remains after cleaning, but is soaked with water, may become the source of accelerated rust and corrosion damage.
Use the following maintenance guides as a reference of prescribed service points and intervals. These guides are part of the baler Operator’s Manual (Form No. 87043194). The Page No. column refers to Operator’s Manual pages where detailed service procedures are found.

**Lubrication and Maintenance Quick Reference**

This section is designed to give a quick and easy way of locating all the grease fittings and carrying out lubrication and maintenance operations per interval.

<table>
<thead>
<tr>
<th>SERVICE INTERVALS AND ITEMS</th>
<th>Check</th>
<th>Clean</th>
<th>Lube</th>
<th>Change</th>
<th>Adjust</th>
<th>Drain</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>10 HOURS OR 400 BALES OR DAILY</strong></td>
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<td></td>
<td></td>
<td></td>
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<td></td>
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<td>Centralized greasing system (if your machine is not equipped with the automatic greasing system, grease all five grease banks)</td>
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<td></td>
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<td>4-14</td>
</tr>
<tr>
<td>Ball ring hitch (if fitted)</td>
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<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td>4-16</td>
</tr>
<tr>
<td>Stuffer clutch pawl</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td>4-16</td>
</tr>
<tr>
<td>Stuffer clutch housing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>4-16</td>
</tr>
<tr>
<td>Knotter clutch pawl</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>4-16</td>
</tr>
<tr>
<td>Main drive overrun clutch (LBX332 models only)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>4-17</td>
</tr>
<tr>
<td>Knotter clutch housing</td>
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<td></td>
<td></td>
<td></td>
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<td></td>
<td>4-17</td>
</tr>
<tr>
<td>Automatic oiler system</td>
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<td></td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
<td>4-21</td>
</tr>
<tr>
<td>Crop cutting knife sharpening</td>
<td>X</td>
<td></td>
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<td></td>
<td></td>
<td>X</td>
<td>4-42</td>
</tr>
<tr>
<td>Baler</td>
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<td></td>
<td></td>
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<td></td>
<td>X</td>
<td>4-84</td>
</tr>
<tr>
<td>PTO drive line (protective plastic shields only)</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>4-18</td>
</tr>
<tr>
<td><strong>Previous +50 HOURS OR 2000 BALES OR WEEKLY</strong></td>
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<tr>
<td>PTO drive line (CV joint, U-joints, shields and shaft)</td>
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<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td>4-18</td>
</tr>
<tr>
<td>PTO mid ship bearing</td>
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<td></td>
<td></td>
<td>X</td>
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<td>4-20</td>
</tr>
<tr>
<td>Knotter drive PTO (upper and lower)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
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</tr>
<tr>
<td>Rear wheel spindles (on units with tandem auto-steer axle only)</td>
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<td></td>
<td></td>
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<td>4-21</td>
</tr>
<tr>
<td>Main drive gearbox</td>
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<td>4-24</td>
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<td>Stuffer drive gearbox</td>
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<td></td>
<td></td>
<td>X</td>
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<td>Knotter drive gearbox</td>
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<td></td>
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</tr>
<tr>
<td>Bale density hydraulic circuit</td>
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<td>X</td>
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<tr>
<td>Chain tension</td>
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<td></td>
<td>X</td>
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<td>Main PTO drive slip clutch</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>4-33</td>
</tr>
<tr>
<td><strong>Previous +100 HOURS OR 4000 BALES OR MONTHLY</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>Knotter drive shear hub</td>
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<td>Linkages, threaded rods and pivots</td>
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<td>4-23</td>
</tr>
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<td>Flywheel brake</td>
<td>X</td>
<td></td>
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<td>4-34</td>
</tr>
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*Table 22.1*
<table>
<thead>
<tr>
<th>SERVICE INTERVALS AND ITEMS</th>
<th>Check</th>
<th>Clean</th>
<th>Lube</th>
<th>Change</th>
<th>Adjust</th>
<th>Drain</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Previous +100 HOURS OR 4000 BALES OR MONTHLY</strong></td>
<td></td>
<td></td>
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<td>4-34</td>
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<td>Pick-up overrun clutch</td>
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<td>X</td>
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<td>4-35</td>
</tr>
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<td>Jack</td>
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<td></td>
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<td>Shearbolts (Knotter, Flywheel, Stuffer) after 4000 Bales</td>
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<td>4-22</td>
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</tr>
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<td>Bale density hydraulic circuit (filter and oil)</td>
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<td>Flywheel brake</td>
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<td>Burnishing packer slip clutch</td>
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<td></td>
<td></td>
<td>X</td>
<td>4-39</td>
</tr>
<tr>
<td>Stuffer brake</td>
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<td>Crop holding fingers</td>
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<td>Plunger top and side rollers</td>
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</tr>
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<td>Hay dogs</td>
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<td>Twine tension</td>
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<td>Knotter adjustments</td>
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<tr>
<td>Needle adjustments</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4-62</td>
</tr>
<tr>
<td>Maximum needle penetration</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4-63</td>
</tr>
<tr>
<td>Tucker arm alignment</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4-66</td>
</tr>
<tr>
<td>Needle brake</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4-67</td>
</tr>
<tr>
<td>Needle protection linkage</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4-69</td>
</tr>
<tr>
<td>Twine fingers</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4-70</td>
</tr>
<tr>
<td>Brake drum linings and adjustments</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4-81</td>
</tr>
<tr>
<td><strong>GENERAL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuses and relays</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4-73</td>
</tr>
<tr>
<td>Light bulb replacement</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4-77</td>
</tr>
</tbody>
</table>

*Table 23.1*
Greasing and Chain Oiling

All LBX balers are equipped with a centralized greasing system (see figure 24.1).

- Six different grease dividers are fed by a master divider, and supply grease to as many as 73 different points.
- Dividers should be greased a minimum of every 8 hours to ensure grease is supplied to all points. Grease should be applied until grease is observed at grease points connected to each divider.
- Dividers are designed so blockage to one grease point will not allow any grease to be pumped into the entire divider.

The automatic greasing system, if equipped, supplies grease to the dividers from an electric pump-driven central grease reservoir. The reservoir is mounted on the front of the left-side twine box (see figure 24.2).

- Greasing frequency and rate is set in the monitor “Service” mode. Three levels of output can be selected depending on operating conditions.
- Any one plugged line will affect the entire system, and display a warning on the monitor.

The original grease fittings remain on each of the divider blocks when an automatic grease system is installed.

- Grease fittings can be greased with a gun occasionally to verify delivery by the automatic system to each divider, as well as individual grease points.
- Fittings can be used in the event of a problem with the automatic grease unit.

Normally, grade 2 multi-purpose grease is used in the automatic grease system.

- Cold weather operation, such as baling corn stalks in late fall, can “stiffen” the grease to the point where the electric pump does not deliver grease properly.
- Use lower viscosity grease, such as grade 0, to improve flow in cold ambient temperatures.

The centralized system does not supply grease to all grease service points.

- Components that move during operation, such as the PTO driveline, cannot be connected to grease tubes.
- Refer to the Operator’s Manual and service decals to identify these service points that require manual lubrication (see figure 24.3).

All LBX balers are equipped with an automatic roller chain oiler system. The pump and reservoir is mounted on the front of the right-side twine box (see figure 24.4).

- Electric oil pump is controlled by the baler monitor, and dispenses oil through tubes to small manifolds, then through small tubes and brushes to the chains.
- Configured to deliver oil at three different rates, depending on working conditions.
**Greasing and Chain Oiling (cont.)**

- Use a biodegradable oil to prevent environmental contamination and pollution
- Do not allow the system to run dry, pump damage may occur
- See the Operator’s Manual for annual oiling system service requirements, such as filter replacement

It is generally accepted that if roller chains are oiled once, they must then be oiled regularly to continually flush contaminants from the internal bearing areas of the chain.

**Gearboxes**

Three gearboxes require daily lubricant level checks on the LBX baler. All three gearboxes have lubricant level sight glass indicators for ease of maintenance. Park the baler on a level surface when checking gearbox lubricant levels (see figure 25.1).

- The main gearbox is viewed by opening the flywheel safety guard on the front of the baler
- The stuffer gearbox is accessible after opening the left side safety cover
- The knotter gearbox is accessed from the service ladder, after opening the knotter safety cover

All three gearboxes are serviced annually, or every 10,000 bales by draining and replacing the lubricant, as specified and described in the Operator’s Manual.

**Bale Density Reservoir**

The bale density system is a totally self-contained hydraulic system (see figure 25.2).

- Reservoir is mounted in the baler hitch, and is accessed by opening the flywheel guard. The oil level should be confirmed daily to be at the center of the sight glass on the reservoir. A small breather filter is installed in the top of the reservoir.
- System filter is mounted under the baler hitch. If the filter condition indicator in the filter base turns red, the filter is restricted and must be replaced.

System service is performed annually, or every 10,000 bales. The service routine includes oil filter, breather filter and oil change. See the Operator’s Manual for service procedures.

**Cutter Knives**

Crop cutter knives must be kept sharp to maintain optimal performance. Operating with dull knives:

- Adversely affects the quality of cutting
- Reduces baler capacity
- Increases horsepower requirements and fuel consumption

To promote maintaining sharp cutter knives, consider having a spare set that can be sharpened when time permits, allowing the baler cutter to be serviced quickly with minimal downtime.

Standard and hard-surfaced knives can be sharpened with a powered grinder.

- Clamp knives with the serrated front edge of the knife down
- Grind on the flat, back side of the knife
**Driveline Protection**

Driveline protection on the LBX balers takes the form of shearbolts, slip clutches, or in the case of the rotor-cutter, a “cut-out” clutch.

Shearbolts are the most simple form of driveline protection.

- When a shearbolt is overloaded and fails, all or a portion of the baler stops functioning
- Replacement shearbolts can only be installed with the parts aligned to a specific position

Slip clutches offer protection to components that may be momentarily overloaded.

- A clutch may slip without the operator being aware of the condition, as the overload passes and the machine continues to function normally
- Specifications vary for the different clutches on the baler
- Consult the Operator’s Manual if clutches do not function correctly

**Clutch Burnishing**

The Operator’s Manual refers to a slip clutch service procedure called “burnishing”. When the baler has been in storage, it is possible for slip clutch discs to stick. The clutch may not slip as designed, hindering the protective effect of the clutch.

- Burnishing is a way of “polishing” the clutch components to relieve sticking
- Procedures vary somewhat from one clutch to another. The basic process is to reduce the clutch spring pressure, and slip the clutch momentarily to relieve seizure and wear away contamination.
- Reset the clutch pressure springs as specified in the Operator’s Manual, in reference to the specific slip clutch

The rotor-cutter drive is protected by a cut-out type torque-limiting clutch. The cut-out clutch is designed to disengage at a pre-set torque limit.

- The cut-out clutch interrupts power, but does not re-set until the PTO is turned off, and the machine coasts to a stop and automatically re-sets
- The rotor must be cleared of the obstruction or crop accumulation that caused the torque overload before attempting to re-start the PTO

No service, maintenance or adjustment is required for the cut-out clutch.

- Unit is sealed and lubricated, requiring only a visual check for signs of oil leakage. Refer clutch repairs to your authorized Dealer.

It is highly recommended that this procedure be included in your dealer’s pre-season maintenance inspection.
<table>
<thead>
<tr>
<th>BALE QUALITY OR BALING CONDITION</th>
<th>SYMPTOM</th>
<th>SUGGESTED ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knotters/Tying</td>
<td>Strands of one or both twines doubles back into knot</td>
<td>Knotter adjustment is necessary, contact dealer</td>
</tr>
<tr>
<td></td>
<td>Frayed twine ends</td>
<td>Dull twine knife</td>
</tr>
<tr>
<td></td>
<td>Frayed knot</td>
<td>Excessive twine tension</td>
</tr>
<tr>
<td></td>
<td>Short knot free ends (pigtails). Knot sometimes pulls apart, generally second knot</td>
<td>Incorrect twine tension</td>
</tr>
<tr>
<td></td>
<td>Twine hanging on bill hook</td>
<td>Insufficient bottom twine tension, Dull twine knife, rough bill hook</td>
</tr>
<tr>
<td></td>
<td>1st knot-knot in top twine only</td>
<td>Hay dogs not entering bale chamber, debris buildup or failed spring restricting hay dog</td>
</tr>
<tr>
<td></td>
<td>2nd knot-knot in top twine only</td>
<td>Twine slacker not moving freely, Inadequate bottom twine tension, Twine hanging on twine finger or cut by knife ledger plate, contact dealer</td>
</tr>
<tr>
<td></td>
<td>2nd knot-knot in bottom twine only</td>
<td>Top twine slacker spring broken or disconnected</td>
</tr>
<tr>
<td></td>
<td>2nd-twine wrapped on top of bill hook</td>
<td>Bottom twine slackers not operating properly, Inadequate bottom twine tension</td>
</tr>
<tr>
<td></td>
<td>No knot in either twine</td>
<td>Contact dealer for knotter evaluation</td>
</tr>
<tr>
<td></td>
<td>Incorrect twine tension</td>
<td>Re-adjust twine tension rollers, Debris in tension rollers, Groove worn in tension rollers, Debris in twine path, twine tangled in twine box</td>
</tr>
<tr>
<td></td>
<td>Knotters and needles do not operate</td>
<td>Needle/knotter drive shearbolt sheared, Knotter clutch not engaging properly, contact dealer</td>
</tr>
<tr>
<td>BALE QUALITY OR BALING CONDITION</td>
<td>SYMPTOM</td>
<td>SUGGESTED ACTION</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>----------------------------------------------</td>
<td>-----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Bale Shape</td>
<td>Bale not filled at top</td>
<td>• Increase stuffer trip sensitivity setting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Rust or paint in pre-compression chamber</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Crop moisture is very high</td>
</tr>
<tr>
<td></td>
<td>Bale overfilled at top</td>
<td>• Decrease stuffer trip sensitivity setting</td>
</tr>
<tr>
<td></td>
<td>Bales loose at edges</td>
<td>• Inadequate edge fill due to narrow windrows.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Revise driving weave pattern to increase volume of crop to edges of pre-compression chamber.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Merge windrows to slightly wider than pickup if necessary</td>
</tr>
<tr>
<td>Bale Length</td>
<td>Irregular bale length</td>
<td>• Feed rate not matched to stuffer sensitivity setting resulting in thick bale flakes (Capacity Indicator running just below whole number)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Wear or binding of metering wheel and arm, knotter clutch arm and related components</td>
</tr>
<tr>
<td></td>
<td>Bales consistent but too long or short</td>
<td>• Adjust metering wheel trip arm stop position</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Needle brake out of adjustment if bales are too long</td>
</tr>
<tr>
<td>Bale Density</td>
<td>Pressure gauge does not register pressure, bales are loose</td>
<td>• Baler monitor not turned on</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Bale release lockout valve open</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Oil level in density system reservoir low</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Bale density system filter restricted</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Bale density system pump, valve or gauge malfunction</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Plunger load sensor or baler monitor malfunction</td>
</tr>
<tr>
<td></td>
<td>Pressure gauge reading very high</td>
<td>• Normal condition when baling slick, dry, brittle or springy material and bale density is acceptable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Excessive density system pressure if system setting is too high and bales are excessively tight</td>
</tr>
<tr>
<td></td>
<td>Pressure gauge reading very low</td>
<td>• Normal condition when baling heavy wet or sticky material and bale density is acceptable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Inadequate density system pressure if system setting is too low and bales are loose</td>
</tr>
<tr>
<td></td>
<td>Pressure reading varies widely while baling, bale density is acceptable</td>
<td>• Normal gauge reading if crop conditions, moisture, ground speed or windrow size vary widely. The automatic density system must constantly vary baling pressure to maintain consistent bale density</td>
</tr>
<tr>
<td>BALE QUALITY OR BANDING CONDITION</td>
<td>SYMPTOM</td>
<td>SUGGESTED ACTION</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>----------------------------------</td>
<td>-----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Crop Pickup and Feeding</td>
<td>Crop left in the field</td>
<td>• Pickup set too high</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Travel in wrong direction in unraked crop</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Excessive ground speed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Light windrows</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Missing pickup tines</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Pickup slip clutch slipping</td>
</tr>
<tr>
<td>Pickup tine breakage</td>
<td></td>
<td>• Insufficient flotation, pickup too “heavy”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Decrease ground speed and feed rate</td>
</tr>
<tr>
<td>Packer slip clutch slippage</td>
<td></td>
<td>• Damp, uneven windrows</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Excessive feed rate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Stuffer not functioning properly</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Foreign object or debris in feeder</td>
</tr>
<tr>
<td>Packer or Rotor-cutter</td>
<td>Poorly cut crop</td>
<td>• Dull or worn out knives</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Overfeeding</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Knives not fully engaged</td>
</tr>
<tr>
<td>Knives not retracting or extending</td>
<td></td>
<td>• Blanks not used when knives removed, knife slots plugged with debris</td>
</tr>
<tr>
<td>High power requirement</td>
<td></td>
<td>• Dull or worn out knives</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Overfeeding</td>
</tr>
<tr>
<td>Unstable or poorly shaped bales</td>
<td></td>
<td>• Over-cutting short or light crops</td>
</tr>
<tr>
<td>Steerable Tandem Axle</td>
<td>Tire scuffing in reverse</td>
<td>• Place tractor hydraulic control valve in neutral to lock steerable axle before moving in reverse</td>
</tr>
<tr>
<td></td>
<td>Baler wanders downhill on sidehills</td>
<td>• Place tractor hydraulic control valve in neutral on sidehills for improved baler tracking</td>
</tr>
</tbody>
</table>
Heavy-Duty Square Baler Twine

Case IH plastic twine is a popular choice, thanks to its ability to secure good, tight bales and its uniformity and strength throughout the entire ball. Case IH plastic twine will work with any properly adjusted twine baler and is available in a variety of strengths for different size bales.

<table>
<thead>
<tr>
<th>Feet Per Box</th>
<th>Knot Strength (lbs.)</th>
<th>End Use Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,000</td>
<td>350</td>
<td>500-2,000 lb. Sq. Bales</td>
</tr>
<tr>
<td>4,000</td>
<td>400</td>
<td>500-2,000 lb. Sq. Bales</td>
</tr>
<tr>
<td>4,000</td>
<td>425</td>
<td>500-2,000 lb. Sq. Bales</td>
</tr>
<tr>
<td>4,000</td>
<td>450</td>
<td>500-2,000 lb. Sq. Bales</td>
</tr>
</tbody>
</table>

Thirty Plus™ Preservative and Applicators for Baled Hay

Case IH continues a tradition of leadership with a powerful advancement which will ensure increased hay quality. Thirty Plus is a chemically buffered form of propionic acid formulated to inhibit spoilage of your valuable hay crop. Pound-for-pound, it does what straight propionic acid does, yet it’s gentle on your baler, with a pH of 6.0 that is as neutral as rainwater. Thirty Plus enables you to maximize the number of acres baled per day at moisture levels up to 30%. It works on all types of hay, including alfalfa, grass, and other crops susceptible to spoilage at higher moistures. Just as important, Thirty Plus maintains the green color and sweet smell of your hay. Make Thirty Plus an essential addition to your hay management plan.
Case IH High Performance Knotter Assembly

Reliable, heavy-duty double knotters—four on the LBX332 (shown) and six on the LBX432—are shaft and gearbox driven for long, dependable service. Knotter fans keep the area clear of dust and chaff. Fans are controlled from the tractor cab using the electronic baler-control system. The system also registers the movement of each individual twine to provide you with earliest possible warning of a mistie.

Automatic Lube Systems

Extend service time and reduce downtime with the standard automatic greasing system. The system automatically sends grease from the pump to six grease divider blocks (which lubricate individual grease points) so you can spend your time baling, not greasing. Greasing pivot points on the go not only saves you time, but also ensures that grease is dispensed to the entire pivoting surface, greatly improving component life.

Lincoln PowerLuber®

Lincoln’s new, heavy-duty 14.4 Volt PowerLuber gives you the power to lubricate just about anything, anytime, anywhere.

- Two-speed switch for high-pressure or high-volume delivery
- Cycle indicator pin to monitor grease output
- “Smart” charging system delivers reliable power

All the features you need, including comfortable grip and balanced design; hook for shoulder strap; built-in hose and coupler holder; and a slim, compact carrying case.

Model 1442 - Part No. 87298560 - one battery
Model 1444 - Part No. 87298561 - two batteries

Powerluber is a registered trademark of Lincoln Industrial Corp.
Moisture Testers – Hay

DHT-1 Portable Hay Tester

Features
- Direct readout for % moisture and temperature (°F std.–°C opt.)
- Separate electronics module from probe
- Extra-rugged probe shaft made from aircraft aluminum
- Sturdy pistol-grip handle
- 3 Models available: 18"(std.), 24" and 32" probe lengths
- Padded carrying case included

Specifications
- Accurate throughout the normal range of stored, baled Alfalfa, Timothy and Clover Hay
- Testing range: 14.4%–44% moisture, 33°–250°F temperature
- 1 year warranty

Accessories
Probe Only: B500819 (18"), B505230 (24"), B500820 (32")

HMT-2 Portable Hay Tester

Features
- Expanded low moisture range down to 8%
- Backlit display for night use
- Built-in calibration button
- Extra-rugged 20" probe for testing square or round bales
- Direct readout for % moisture and temperature (°F/°C)
- Above and below moisture limit indication

Specifications
- Accurate throughout the normal range of stored, baled Alfalfa, Timothy and Clover Hay
- Testing range: 8%–44% moisture, 32°–225°F (0°–107°C) temperature
- 1 year warranty

HMT-3 Portable Hay Tester

Features
- Direct readout of temperature in °F/°C
- Multi-language
- Adjustable for: Density of bale, Hay cutting, Hay type
- Displays running average
- Backlit display for night use
- Sturdy pistol grip handle
- Extra-rugged 18" probe
- Includes a 3" x 36 yd. roll of white baleage wrap patch tape reorder – Part No. B94847

Specifications
- Testing range: 35%–75% moisture
- 1 year warranty

BHT-1 Baler Mounted Hay Tester

Features
- Direct readout for % moisture – while baling hay
- Average of readings updated and displayed every 3 to 5 seconds
- Backlit display for night use
- Built-in calibration button
- Above and below moisture limit indicator
- Sturdy display module mounting bracket with adjusting knobs
- Includes sensor kit
- Long-lasting sensor pad and stainless steel hardware
- Fits square or round balers

Specifications
- Testing range: 8%–44% moisture
- 1 year warranty

Accessories
Sensor Pad Kit (B505533)
- Sensor pad and bolts
Extension Sensor Cable (B505459)
- 10' cable
- Weather-proof connectors
Complete Sensor Kit (B505460)
- Sensor pad and bolts
- 25' sensor cable
- Display module mounting bracket
- 8' power cable
Rotor-cutter Knives

- Manufactured from high strength steel
- Heat treated for maximum strength and wear life
- Regular-duty or hard surfaced for extended wear life

"XTRA-VISION" Vehicle Observation System

Part No. ZAEVOSHDCL1B
Single camera 7" color flat screen LCD monitor observation system (shown)

Features

- Complete color observation system - nothing else required
- Includes 7" flat-panel LCD color monitor
- Monitor has built in speaker and volume, contrast and camera 1, 2 or 3 selector
- 12 Volt negative ground (use with ZAECE2412 for 24 Volt electrical systems)

Dual Camera 7" Color Flat Screen LCD Observation System — Part No. ZAEVOSHDCL2B
High Resolution 1/3" CCD Color Camera — Part No. ZAEVCCS130B
Zero Lux-Night Visions 1/3" CCD Color Camera — Part No. ZAEVCCS130XB
Add-On 25′ Camera Cable — Part No. ZAECEC25
Dual-Camera Capable Quick-Disconnect Bulkhead (Tractor/Trailer) Cable — Part No. ZAEVOSBHC3
Replacement 4" LCD Monitor Mounting Pedestal — Part No. ZAE4PANA
Case IH dealers are the standard for expert sales, service and support of the most technologically advanced equipment in the world. They’re committed to understanding your business and providing unique solutions to maximize your productivity.

From tractors to implements that meet the specific needs of your operation, Case IH dealers offer a complete agricultural system aimed at increasing your productivity and profitability. Coupled with timely parts and service, and flexible financial solutions through CNH Capital, Case IH dealers provide a total package to ensure you’re always performing at your best.

But most importantly, Case IH dealers offer planning for the long-term growth of your business. By staying at the forefront of agronomic issues and the cutting edge of technology, they help prepare you for tomorrow.

Whatever it takes, Case IH dealers are dedicated to helping your operation achieve success season after season. Visit your Case IH dealer today to see the advantages of worldwide leadership.

SEE YOUR LOCAL CASE IH DEALER

Safety Never Hurts™ Always read the Operator’s Manual before operating any equipment. Inspect equipment before using it, and be sure it is operating properly. Follow the product safety signs, and use any safety features provided.

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