

# Farm King

## OPERATOR AND PARTS MANUAL

### Bale Wrapper

BW150



052016

R0001



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**Manufacturer’s Statement:** For technical reasons, Buhler Industries Inc. reserves the right to modify machinery design and specifications provided herein without any preliminary notice. Information provided herein is of descriptive nature. Performance quality may depend on bale structure, applied techniques, weather conditions and other factors.

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# Farm King



## WARRANTY REGISTRATION FORM

This form must be filled out by the dealer and signed by both the dealer and the customer at the time of delivery.

Customer Name:

Dealer Name:

Customer Address:

Dealer Address:

City:

Prov / State:

City:

Prov / State:

Postal / Zip Code:

Phone:

Postal / Zip Code:

Phone:

Equipment Name Model:

Serial Number:

Delivery Date:

I have thoroughly instructed the buyer on the above described equipment which review included the Operator's Manual content, equipment care, adjustments, safe operation and applicable warranty policy.

### Dealer Inspection Report

- Bearing Seals
- Lubricate Machine
- Wheel Bolt Torque
- Fasteners Tight
- Tire Pressure
- Hydraulic Hoses

### Safety

- All Lights And Reflectors Installed
- All Lights And Reflectors Cleaned And Working
- Safety Chain On Hitch
- All Decals Installed
- Guards And Shields Installed And Secure
- Review Operating And Safety Instructions
- General Adjustment And Set-up Procedures
- Transportation Requirements And Regulations

Date:

Dealer Rep. Signature:

The above equipment and Operator And Parts Manual have been received by me and I have been thoroughly instructed as to care, adjustments, safe operation and applicable warranty policy.

Date:

Customer / Owner's Signature:

Remove this Warranty Registration Form from the Operator And Parts Manual. Make two copies of the form. Send original Warranty Registration Form to Farm King. Give one copy to the customer and the dealer will keep one copy.

# Farm King



**INTRODUCTION**

This Operator And Parts Manual was written to give the owner / operator instructions on the safe operation, maintenance and part identification of the Farm King equipment. **READ AND UNDERSTAND THIS OPERATOR AND PARTS MANUAL BEFORE OPERATING YOUR FARM KING EQUIPMENT.** If you have any questions, see your Farm King dealer. This manual may illustrate options and accessories not installed on your Farm King equipment.

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**OWNER’S INFORMATION**

Thank you for your decision to purchase a Farm King Bale Wrapper. To ensure maximum performance of your equipment, it is mandatory that you thoroughly study the Operator And Parts Manual and follow the recommendations. Proper operation and maintenance are essential to maximize equipment life and prevent personal injury.

Operate and maintain this equipment in a safe manner and in accordance with all applicable local, state, and federal codes, regulations and / or laws. Follow all on-product labeling and instructions.

Make sure that all personnel have read this Operator and Parts Manual and thoroughly understand safe and correct operating, installation and maintenance procedures.

Farm King is continually working to improve its products. Farm King reserves the right to make any improvements or changes as deemed practical and possible without incurring any responsibility or obligation to make any changes or additions to equipment sold previously.

Although great care has been taken to ensure the accuracy of this publication, Farm King makes no warranty or guarantee of any kind, written or expressed, implied or otherwise with regard to the information contained within this manual. Farm King assumes no responsibility for any errors that may appear in this manual and shall not be liable under any circumstances for incidental, consequential or punitive damages in connection with, or arising from the use of this manual.

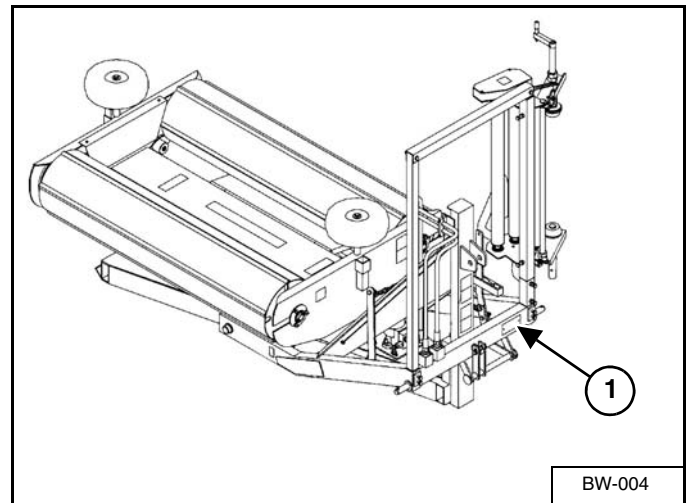
Keep this manual available for frequent reference. All new operators or owners must review the manual before using the equipment and annually thereafter. Contact your Farm King Dealer if you need assistance, information, or additional copies of the manual. Visit our website at [www.farm-king.com](http://www.farm-king.com) for a complete list of dealers in your area.

The directions left, right, front and rear, as mentioned throughout this manual, are as viewed from the rear of the equipment.

**Serial Number Location**

Please enter the model and serial number in the space provided for easy reference.

**Figure 1**



**Model Number:** \_\_\_\_\_

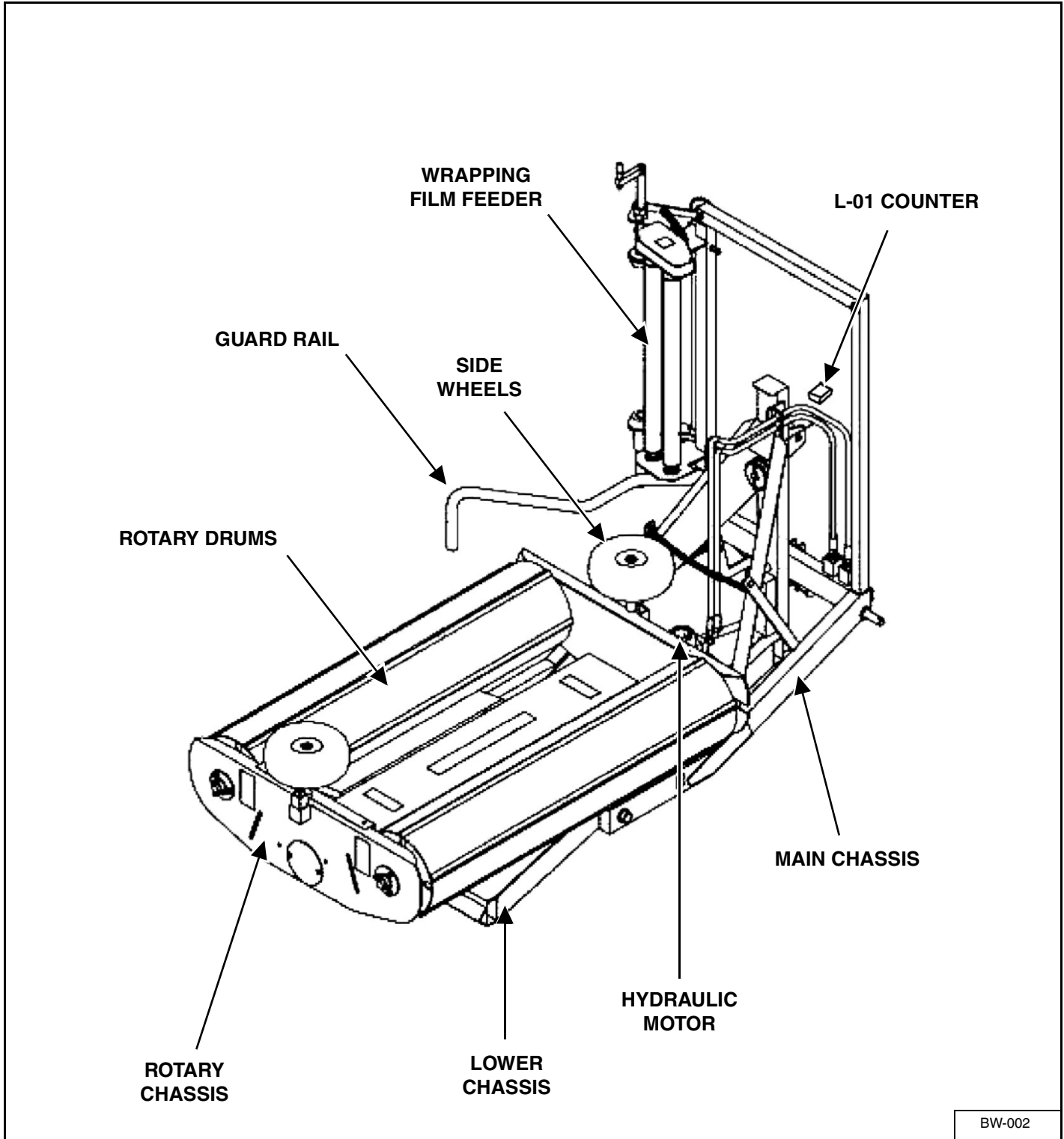
**Serial Number:** \_\_\_\_\_

The serial number plate (Item 1) [Figure 1] is located on the inside of the left frame forward of the jack.

Always use your serial number when requesting information or when ordering parts.

**EQUIPMENT IDENTIFICATION**

**Component Location**



**SAFETY**

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# Farm King



**SAFETY INSTRUCTIONS**

**Safe Operation Is The Operator’s Responsibility**

	<p><b>Safety Alert Symbol</b></p>
<p>This symbol with a warning statement means: “Warning, be alert! Your safety is involved!” Carefully read the message that follows.</p>	



The signal word **CAUTION** on the machine and in the manuals indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.



The signal word **DANGER** on the machine and in the manuals indicates a hazardous situation which, if not avoided, will result in death or serious injury.



The signal word **WARNING** on the machine and in the manuals indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



This notice identifies procedures which must be followed to avoid damage to the machine.

**Safe Operation Needs A Qualified Operator**



**Operators must have instructions before operating the machine. Untrained operators can cause injury or death.**

For an operator to be qualified, he or she must not use drugs or alcoholic drinks which impair alertness or coordination while working. An operator who is taking prescription drugs must get medical advice to determine if he or she can safely operate a machine and the equipment.

*A Qualified Operator Must Do The Following:*

*Understand the Written Instructions, Rules and Regulations*

- The written instructions from Farm King include the Warranty Registration, Dealer Inspection Report, Operator And Parts Manual and machine signs (decals).
- Check the rules and regulations at your location. The rules may include an employer’s work safety requirements. Regulations may apply to local driving requirements or use of a Slow Moving Vehicle (SMV) emblem. Regulations may identify a hazard such as a utility line.

*Have Training with Actual Operation*

- Operator training must consist of a demonstration and verbal instruction. This training is given by the machine owner prior to operation.
- The new operator must start in an area without bystanders and use all the controls until he or she can operate the machine safely under all conditions of the work area. Always fasten seat belt before operating.

*Know the Work Conditions*

- Clear working area of all bystanders, especially small children and all obstacles that might be hooked or snagged, causing injury or damage.
- Know the location of any overhead or underground power lines. Call local utilities and have all underground power lines marked prior to operation.
- Wear tight fitting clothing. Always wear safety glasses when doing maintenance or service.

**SAFETY INSTRUCTIONS (CONT'D)****Use Safety Rules**

- Read and follow instructions in this manual and the tractor's Operators Manual before operating.
- Under no circumstances should young children be allowed to work with this equipment.
- This equipment is dangerous to children and persons unfamiliar with its operation.
- If the elderly are assisting with work, their physical limitations need to be recognized and accommodated.
- Stay clear of overhead power lines. Electrocutation can occur without direct contact.
- Check for overhead and / or underground lines before operating equipment (if applicable).
- In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of equipment.
- Check that the equipment is securely fastened to the tractor / towing vehicle.
- Make sure all the machine controls are in the NEUTRAL position before starting the machine.
- Operate the equipment only from the operator's position.
- Operate the equipment according to the Operator And Parts Manual.
- When learning to operate the equipment, do it at a slow rate in an area clear of bystanders, especially small children.
- DO NOT permit personnel within 1 meter (3 feet) of the work area when operating the equipment.
- The equipment must be used ONLY on approved tractors / transport vehicles.
- DO NOT modify the equipment in any way. Unauthorized modification may impair the function and / or safety and could affect the life of the equipment.
- DO NOT make any adjustments or repairs on the equipment while the machine is running.
- Keep shields and guards in place. Replace if damaged.

- Exercise extreme caution when working on an inclined terrain. Bales may roll down slopes.

**Transport Safety**

- It is forbidden to transport the wrapping machine with a bale loaded on it.
- Place the rotary frame in transport position, so that the drums are locked parallel to the wrapping machine axle.
- Disconnect and properly secure the hydraulic hoses.
- DO NOT exceed 20 mph (32 kph). Reduce speed on rough roads and surfaces.
- Comply with state and local laws governing highway safety and movement of machinery on public roads.
- The use of flashing amber lights is acceptable in most localities. However, some localities prohibit their use. Local laws should be checked for all highway lighting and marking requirements.
- Always install transport locks, pins or brackets before transporting.
- Always yield to oncoming traffic in all situations and move to the side of the road so any following traffic may pass.
- Always enter curves or drive up or down hills at a low speed and at a gradual steering angle.
- Never allow riders on either tractor or equipment.
- Keep tractor / towing vehicle in a lower gear at all times when traveling down steep grades.
- Maintain proper brake settings at all times (if equipped).
- Stay away from overhead power lines. Electrocutation can occur without direct contact.

## Machine Requirements And Capabilities

- Stop the machine and engage the parking brake. Install blocks in front of and behind the rear tires of the machine. Install blocks underneath and support the equipment securely before working under raised equipment.
- Keep bystanders clear of moving parts and the work area. Keep children away.
- Use increased caution on slopes and near banks and ditches to prevent overturn.
- Make certain that the Slow Moving Vehicle (SMV) emblem is installed so that it is visible and legible. When transporting the equipment, use the flashing warning lights (if equipped) and follow all local regulations.
- Operate this equipment with a machine equipped with an approved Roll-Over Protective Structure (ROPS). Always wear seat belt when the ROPS is up. Serious injury or death could result from falling off the machine.
- Before leaving the operator's position:
  1. Always park on a flat level surface.
  2. Place all controls in neutral.
  3. Engage the parking brake.
  4. Stop engine.
  5. Wait for all moving parts to stop.
- Carry passengers only in designated seating areas. Never allow riders on the machine or equipment. Falling off can result in serious injury or death.
- Start the equipment only when properly seated in the operator's seat. Starting a machine in gear can result in serious injury or death.
- Operate the machine and equipment from the operator's position only.
- The parking brake must be engaged before leaving the operator's seat. Rollaway can occur because the transmission may not prevent machine movement.

## FIRE PREVENTION



### Maintenance

The machine and some equipment have components that are at high temperatures under normal operating conditions. The primary source of high temperatures is the engine and exhaust system. The electrical system, if damaged or incorrectly maintained, can be a source of arcs or sparks.

Flammable debris (leaves, straw, etc.) must be removed regularly. If flammable debris is allowed to accumulate, it can cause a fire hazard. Clean often to avoid this accumulation.

All fuels, most lubricants and some coolant mixtures are flammable. Flammable fluids that are leaking or spilled onto hot surfaces or onto electrical components can cause a fire.

### Operation

The Farm King machine must be in good operating condition before use.

Check all of the items listed on the service schedule under the 8 hour column. (See "SERVICE SCHEDULE" on page 38.)

Do not use the machine where exhaust, arcs, sparks or hot components can contact flammable material, explosive dust or gases.

### Starting

Use the procedure in the tractor's operator's manual for connecting the battery and for jump starting.

## Electrical



Check all electrical wiring and connections for damage. Keep the battery terminals clean and tight. Repair or replace any damaged part or wires that are loose or frayed.

## Hydraulic System

Check hydraulic tubes, hoses and fittings for damage and leakage. Never use open flame or bare skin to check for leaks. Hydraulic tubes and hoses must be properly routed and have adequate support and secure clamps. Tighten or replace any parts that show leakage.

Always clean fluid spills. Do not use gasoline or diesel fuel for cleaning parts. Use commercial nonflammable solvents.

## Welding And Grinding

Always clean the machine and equipment, disconnect the battery, and disconnect the wiring from the machine controls before welding. Cover rubber hoses, battery and all other flammable parts. Keep a fire extinguisher near the machine when welding.

Have good ventilation when grinding or welding painted parts. Wear dust mask when grinding painted parts. Toxic dust or gas can be produced.

Dust generated from repairing nonmetallic parts such as hoods, fenders or covers can be flammable or explosive. Repair such components in a well ventilated area away from open flames or sparks.

## Fire Extinguishers



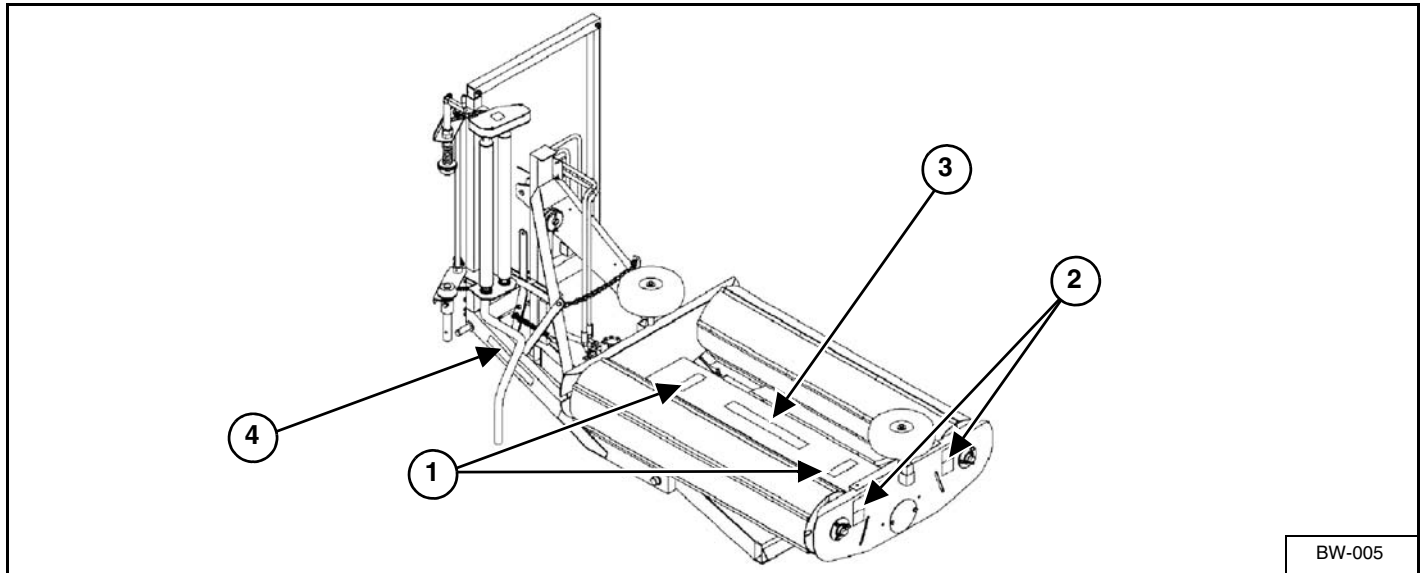
Know where fire extinguishers and first aid kits are located and how to use them. Inspect the fire extinguisher and service the fire extinguisher regularly. Obey the recommendations on the instructions plate.



**SAFETY SIGNS (DECALS)**

Follow the instructions on all the Signs (Decals) that are on the equipment. Replace any damaged signs (decals) and be sure they are in the correct locations. Equipment signs are available from your Farm King equipment dealer.

Right Hand Side



BW-005

1



**ROTATING COMPONENTS**

Proper rotation direction of the working elements.

2



**ENTANGLEMENT HAZARD**

Do not open or remove the safety covers during machine operation.

3

**WARNING ROTATING ELEMENTS**

**ENTANGLEMENT HAZARD**

Stay clear of rotating elements during machine operation.

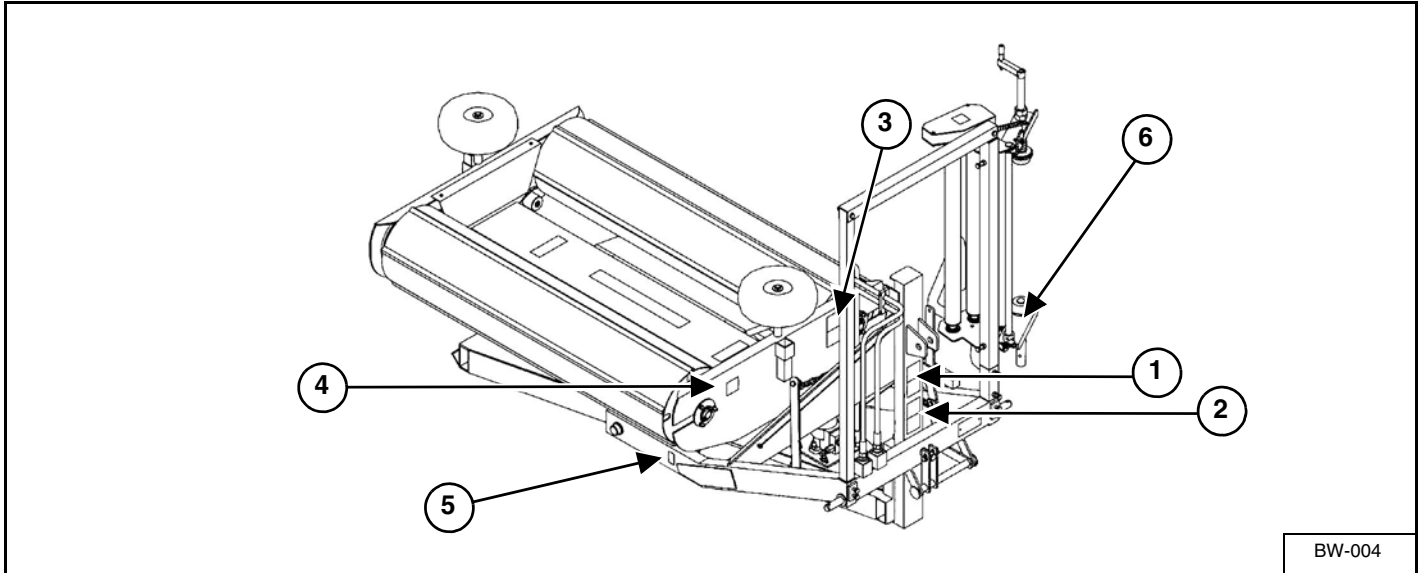
4

**KEEP A DISTANCE OF AT LEAST 1 M (3 FT) FROM OPERATING MACHINE**

**ENTANGLEMENT HAZARD**

Do not approach the working machine.

Left Hand Side



1



**WARNING**

Read the operator and parts manual.

2



**WARNING**

Switch off the engine and remove the ignition key before servicing or repairs.

3



**CRUSHING HAZARD**

Do not approach the lifting arms during the wrapping machine operation.

4



Keep a safe distance from the machine during operation.

5



Proper location of the bale counter sensor below the magnet.

6



Film wrapping directional diagram.



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# Farm King



**GENERAL INFORMATION**

**Pre - Operation Checklist**

Before operating the Bale Wrapper for the first time and each time thereafter, check the following items:



**MOVING PART HAZARD**

To prevent serious injury or death from moving parts:

- Keep hands, feet, hair and clothing away from moving parts.
- Disconnect and lockout power source before adjusting or servicing.
- Do not stand or climb on machine when operating.



**AVOID INJURY OR DEATH**

Wear safety glasses to prevent eye injury when any of the following conditions exist:

- When fluids are under pressure.
  - Flying debris or loose material is present.
  - Engine is running.
  - Tools are being used.
- 
1. Lubricate the equipment per the schedule outline in the Maintenance Section. (See “SERVICE SCHEDULE” on page 38.)
  2. Check the Bale Wrapper hitch for damaged, loose or missing parts. Repair as needed before operation.
  3. Check that tire pressure.
  4. Check that wheel bolt torque.
  5. Fully clean the equipment.
  6. Inspect all safety reflective decals, slow moving vehicle decals and lights where applicable.



Leaking fluids under pressure can enter the skin and cause serious injury or death. Immediate medical attention is required. Wear goggles. Use cardboard to check for leaks.

7. Check condition of all hydraulic components for leaks. Repair as required.

**NOTE: Do not operate with hydraulic leaks.**

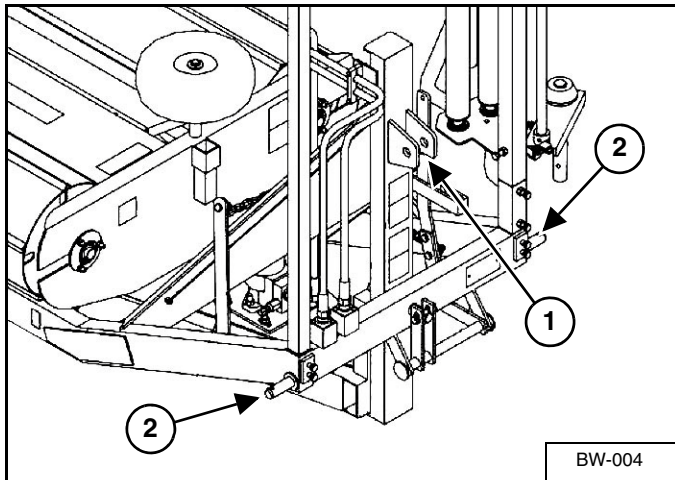
8. Verify that the mobile chassis lock has been removed.
9. Verify that the Bale Wrapper is properly connected to the tractor with the safety chain.

**Break - In Checklist**

Check the following mechanical items after 1 hour of operation and again after 10 hours of operation:

1. Check condition of all hydraulic components for leaks. Tighten fittings to correct leaks or replace components. Do not operate with hydraulic leaks.

**Figure 2**



2. Check the Bale Wrapper mounting frame connections (Items 1 & 2) [Figure 2] for damaged, loose or missing parts. Repair as needed before operation.
3. Check for loose fasteners and hardware. Tighten as required.
4. Check that tire pressure.
5. Check that wheel bolt torque.

**Tractor Requirements**



**AVOID SERIOUS INJURY OR DEATH**

The tractor must be equipped with an approved Roll Over Protection Structure (ROPS) and safety belts to help prevent personal injury or death caused by tractor roll over.



- Keep shields and all guards in place.
- Keep away from moving parts.
- Keep bystanders away.



**Towing Vehicle / Tractor must have adequate braking capacity to safely control GVW trailing load. Do not tow over 20 mph (32 km/h). Towing Vehicle / Tractor unit should weigh approximately 67% of GVW.**

The Bale Wrapper will require a tractor with minimum 40 hp (30 kw), three point hitch and one pair of remote outlets. Tractor must be capable of lifting 2205 lb. (1000 kg) and have the correct front ballast installed.

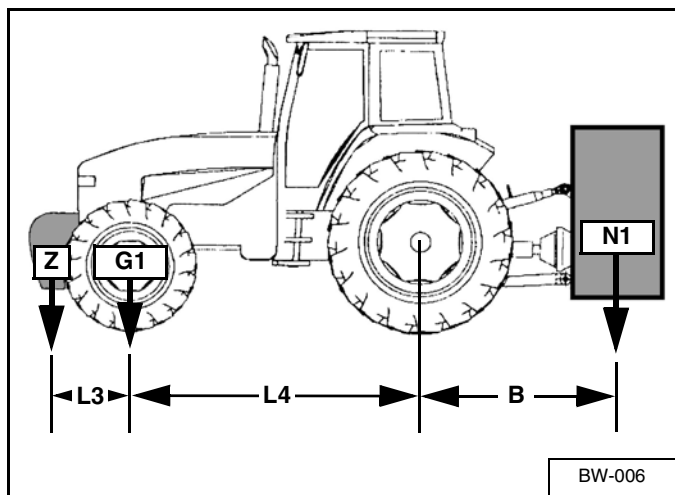


Front Ballast



See your tractor's operator's manual for front ballast information.

Figure 3



Measure and record the distances at each location shown [Figure 3].

Use the following to determine if front ballast is required:

$$\text{N1} \times \text{B} \leq 0.66 \times (\text{G1} \times \text{L4})$$

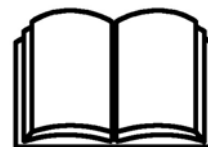
FIRST TERM                      SECOND TERM

**Ballast Not Required** - If the first term is lower or equal to the second term, it is not necessary to use ballast.

**Ballast Required** - If the first term is higher than the second term, use the following formula for calculating the ballast Z:

$$\text{Ballast (kg)} = (\text{N1} \times \text{B} : 0.66 - \text{G1} \times \text{L4}) : (\text{L3} + \text{L4})$$

Entering And Leaving The Operator's Position



Follow the instructions in your tractor's operation manual for the correct procedure.

Entering The Operator's Position

Move to the operator's position, start the engine and release the parking brake.

Leaving The Operator's Position



**WARNING**

**AVOID INJURY OR DEATH**

Before you leave the operator's position:

- Always park on a flat level surface.
- Place all controls in NEUTRAL.
- Engage the park brake.
- Stop the engine and remove the key.
- Wait for all moving parts to stop.

Park the tractor / equipment on a flat level surface.

Place all controls in neutral, engage the park brake, stop the engine and wait for all moving parts to stop. Leave the operator's position.

**INITIAL SET-UP**

**Connecting The Bale Wrapper To The Tractor**

Always inspect the tractor’s three point hitch and Bale Wrapper mounting frame before connecting. See the tractor’s owner’s manual.

Enter the operator’s position. (See “Entering The Operator’s Position” on page 25.)

Move the tractor into position in front of the Bale Wrapper.



**AVOID INJURY OR DEATH**

**Before moving the tractor, look in all directions and make sure no bystanders, especially small children are in the work area. Do not allow anyone between the tractor and the equipment when backing up to the equipment for connecting.**

Move the tractor backwards, aligning the tractor’s three point hitch with the Bale Wrapper mounting frame.

Stop the tractor when the tractor’s three point hitch is aligned with the Bale Wrapper mounting frame.

Leave the operator’s position. (See “Leaving The Operator’s Position” on page 25.)

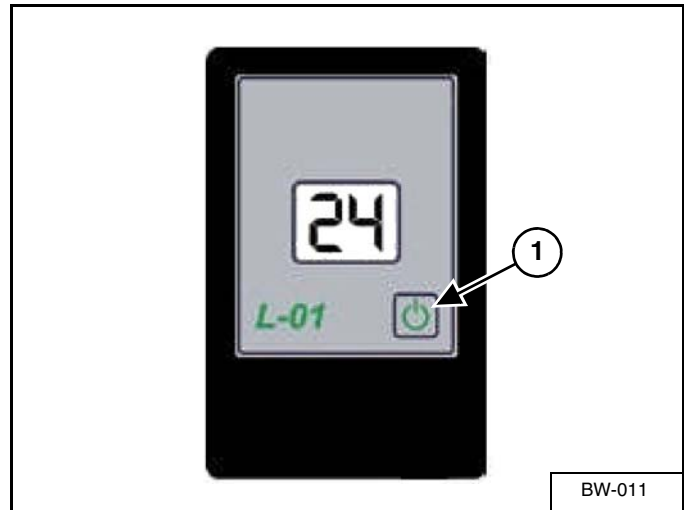
Secure the tractor’s three point hitch to the Bale Wrapper mounting frame according to the tractor’s operator’s manual.

**Wrap Counter Operation**

Install the battery into the wrap counter.

Connect the counter to the revolution sensor by using the attached cables.

**Figure 4**



Lightly press and hold the C button (for about 4 seconds).

When turned on, the counter indicates “0”.

Lightly press and hold the ON button (Item 1) [Figure 4] (for no longer than 3 seconds). The number 16 will appear, denoting the number of bale wraps. Release the button. The indication stops blinking.

Press the button again (hold for not longer than 3 seconds) to change the number of wraps. Holding the button longer with the set number of wraps until the display shows “0” will result in recording the set number of wraps by the counter.

Lightly press and hold (for about 4 seconds) the C button. The counter will be turned off. The counter will automatically turn off after about 6 minutes of inactivity, i.e. when it no longer receives impulses from the sensor and any signals from the C button.

*Wrap Counter Placement*

The wrap counter should be installed in the tractor cabin in a place where it is visible and accessible to the operator.



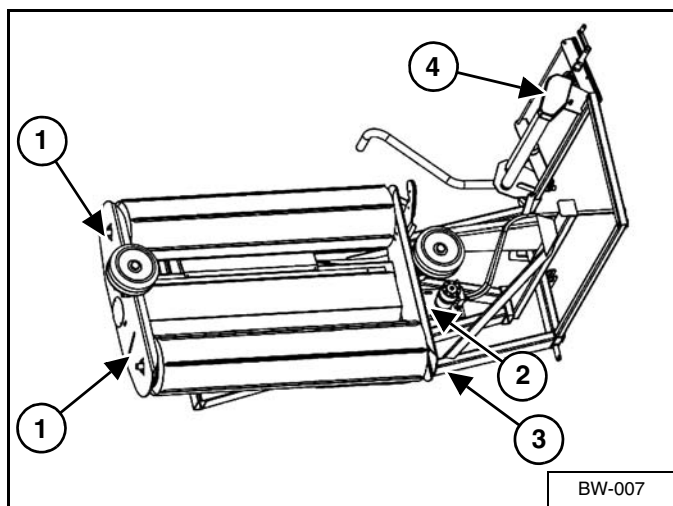
Protect the counter from water, chemical agents, direct atmospheric precipitation, frost, high temperature in excess of 50°C and direct exposure to sunlight.



Protect the counter against humidity, excessive vibration and hitting the cabin elements, and especially against falling on a hard surface. The counter can be fixed by using its back surface catch.

*Controls And Adjustment Points*

**Figure 5**



Drum chain tightening (Item 1), drive chain tightening (Item 2), revolutions sensor (Item 3) and foil pressure element (Item 4) [Figure 5].

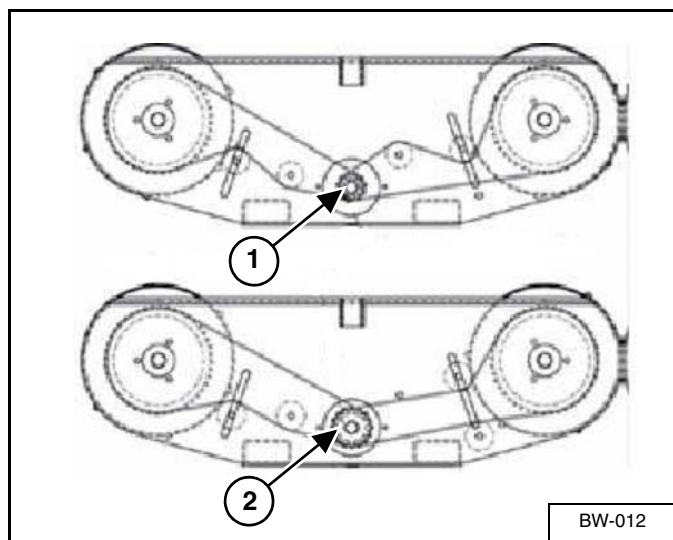
*Revolution Sensor Placement*

The revolution sensor attached to an unmoving part of the wrapping machine operates in conjunction with a magnet attached to the rotary chassis which sends impulses to the revolution counter. Each rotation of the bale is counted and displayed on the revolution counter display. When the programmed number of revolutions is performed, the counter signals the completion of the wrapping process with a blinking light and sound signal. The counter may be programmed to a required number of revolutions between 16 and 24.

**Adjusting Film Roll Size**

**NOTE:** The wrapping machine is pre-set to use 500 mm film. To use 750 mm film, the chain wheel must be replaced.

**Figure 6**



Remove the two bolts and cover to expose the main shaft.

Remove the chain from the Z-11 chain wheel (Item 1) [Figure 6].

Remove the Z-11 chain wheel (Item 1) [Figure 6] from the shaft.

Replace it with a Z-16 chain wheel (Item 2) [Figure 6].

Secure the Z-16 wheel repeating the above procedure in the reverse order.

Connecting Hydraulic Lines



**HIGH PRESSURE FLUID HAZARD**

To prevent serious injury or death from high pressure fluid:

- Relieve pressure on system before repairing or adjusting.
- Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands.
- Keep all components in good repair.

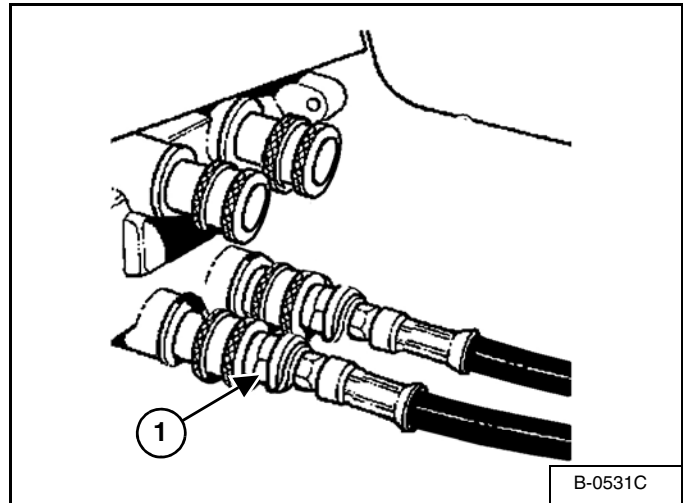


- Contain and dispose of any oil leakage in an environmentally safe manner.
- Thoroughly clean the quick couplers before making connections. Dirt can quickly damage the system.

**NOTE:** Make sure the quick couplers are fully engaged. If the quick couplers do not fully engage, check to see that the couplers are the same size and type.

To Connect:

Figure 7



Connect the two hydraulic lines to the tractor [Figure 7].

1. Supply Line.

To Disconnect:



**AVOID BURNS**

Hydraulic fluid, tubes, fittings and quick couplers can get hot when running equipment. Be careful when connecting and disconnecting quick couplers.

Pull on the hydraulic lines to disconnect.

WRAPPER OPERATION

Installing Film

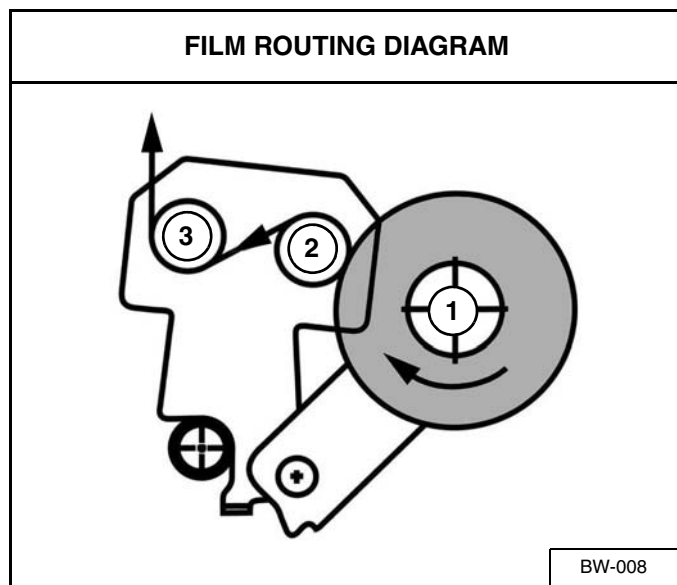


**ENTANGLEMENT HAZARD**

- Clear the work area of all bystanders, especially small children and animals.
- Disconnect hydraulic hose before working on the machine.
- Keep shields and all guards in place.
- Keep away from moving parts.

**NOTE:** With each revolution of the rotating frame, the bale and film rotate by a certain angle around the horizontal axis, which causes the consecutive layers of film to be wrapped tightly around the bale.

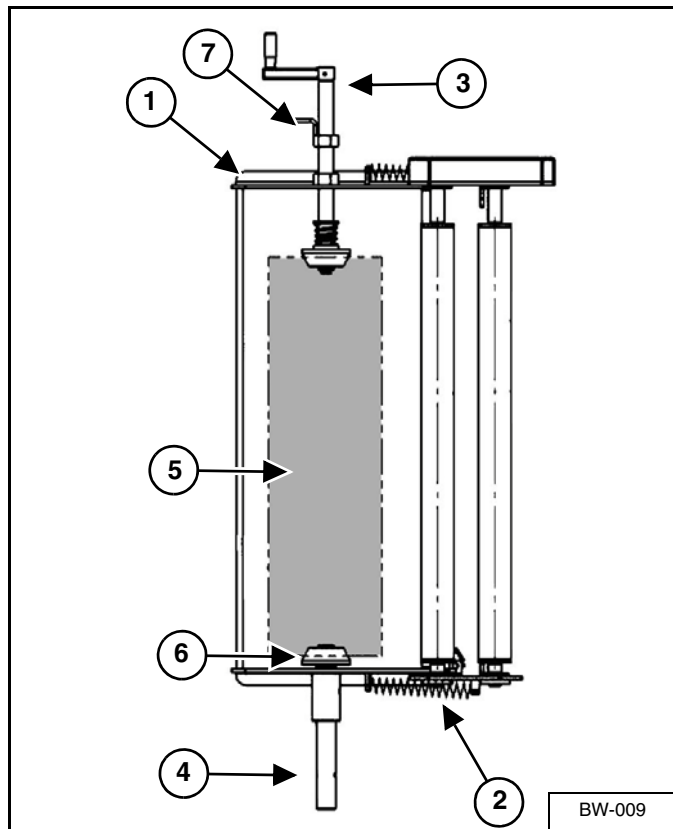
Figure 8



**NOTE:** When installing the roll of film, place its internal, sticky side towards the bale axis.

Route the film (Item 1) over roller pin (Item 2) and under roller pin (Item 3) [Figure 8].

Figure 9



Move the support (Item 1) away from the metal rollers and secure it by using the hook (Item 2) [Figure 9] attached to the wrapping assembly.

Turn lever (Item 3) [Figure 9] counterclockwise until there is adequate space to install the film roll.

Adjust the height of the lower pin (Item 4) [Figure 9] in position appropriate for the desired film roll width (500 mm or 750 mm).

Place the film roll (Item 5) on the lower conic pin (Item 6) [Figure 9].

Turn lever (Item 3) [Figure 9] clockwise until the roll is securely held in the vertical position.

Prevent the film roll from unscrewing by tightening the nut (Item 7) [Figure 9] on the crank screw.

Pull the film through the rollers as shown on the diagram [Figure 8].

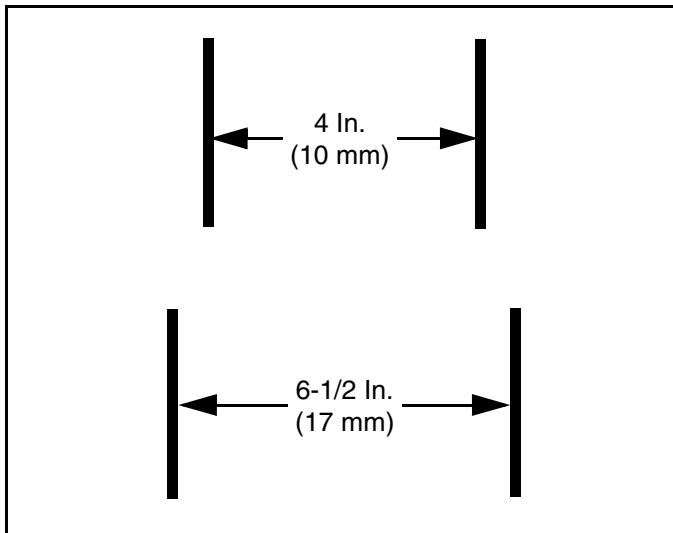
**NOTE:** Pull the end of the film so that it may be easily handled in the machine.

Adjusting Film Tension



A worn or poorly lubricated tensioning mechanism may cause the film to be wrapped too tightly. The film tensioning level must not exceed 70%.

Figure 10



Mark two vertical lines on the film roll approximately 4 in. (10 cm) from each other [Figure 8].

Adjust tension until the distance between the lines is approximately 6-1/2 in. (17 cm) [Figure 8] (70% initial film tension).



The width of the film measured at the end of the bale may not be lower than 400 mm when using 500 mm film and not lower than 600 mm when using 750 mm film.

Bale Loading



Before operating the equipment:

- Clear the work area of all bystanders, especially small children and animals.
- Clear the work area of all obstacles.
- Keep shields and all guards in place.
- Keep away from moving parts.



To load the bales, only use lifting devices with lifting capacity appropriate to the weight of the rolled material.

Place the frame with the drums along the tractor - wrapping machine axis placing the white roller on the right side. Load the bale through the white roller. Adjust the bale placement in relation to the side wheels. Place the roller catch so that the centers of the rollers and the bale were at the same height.

## Wrapping Bale

### WARNING



#### Before operating the equipment:

- Clear the work area of all bystanders, especially small children and animals.
- Clear the work area of all obstacles.
- Keep shields and all guards in place.
- Keep away from moving parts.
- Verify wrapping machine is properly attached to the tractor three point hitch.
- Verify wrapping machine is properly lifted by the tractor three point hitch.
- Check for smooth operation and direction of the rotary frame and drums movement (the rotary frame should rotate counterclockwise).

### IMPORTANT

#### WRAPPING BALES

- Verify wrapping machine is well lubricated and operating correctly.
- The bales should be wrapped only in positive temperatures.
- The bales should be wrapped in their storage area.
- Avoid unnecessary transport of bales, to minimize damage to wrapping film.

Pull the film at the first bale as far as possible from the feeder and attach it using the string binding the bale. Smoothly turn on the hydraulic motor of the wrapping machine. Maintain the engine revolutions at 1500 RPM while wrapping.

**NOTE: Wrap at least four layers of film so that each of them is overlapped in 50%.**

Finish bale wrapping after about 24 revolutions of the frame while using 500 mm film or 16 revolutions while using 750 mm film.

**NOTE: A properly wrapped bale has four layers of the wrapping film around it.**

### IMPORTANT

#### FILM TENSION

If the bale is wrapped too tightly, halt the wrapping process. Establish the cause of excessive film tension. Set the proper film tension. Resume the wrapping process.

### IMPORTANT

Use the bales within 12 months from their wrapping date.

#### Unloading Wrapped Bale

Stop the rotary frame placing the drum axes perpendicular to the tractor-machine axis with the white roller in the rear.

Pull the handle to release the locking pin and unlock the lower frame (to unlock the lower frame, the operator must use the pin).

Release handle (which is available as a part of the optional equipment).

By using the three point hitch, lift the wrapping machine causing the tilting of the lower frame and unload the bale at the same time tightening the film.

Lower the wrapping machine to its working position and lock the frame.

Load another bale on the wrapping machine with the film tightened. Start the wrapping process.

#### *Finishing Bale Wrapping*

After the work is complete, disconnect the revolution counter and secure the revolution sensor against humidity.

Vertical Positioning System (Optional)

 **WARNING**

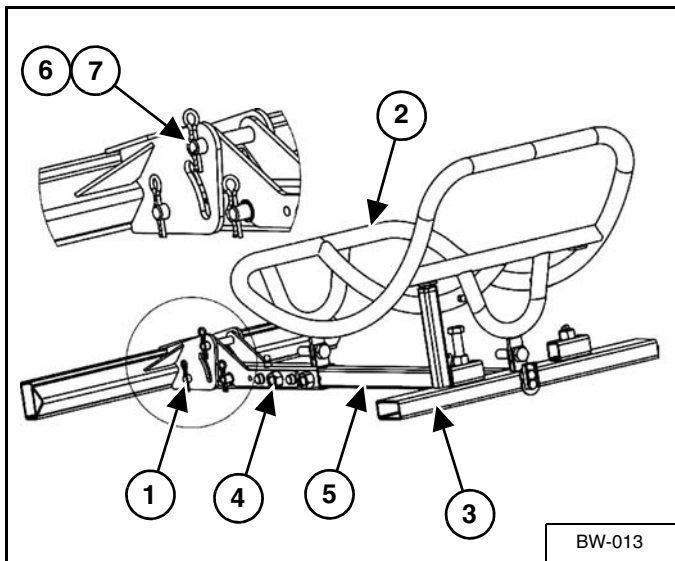


Before operating the equipment:

- Clear the work area of all bystanders, especially small children and animals.
- Clear the work area of all obstacles.
- Keep shields and all guards in place.
- Keep away from moving parts.

**NOTE:** The bale vertical positioning system allows to place the rolled bale vertically during the unloading, limiting the risk of damaging the wrapping film.

Figure 11



The vertical positioning system should be attached to the tilting frame as shown in [Figure 11].

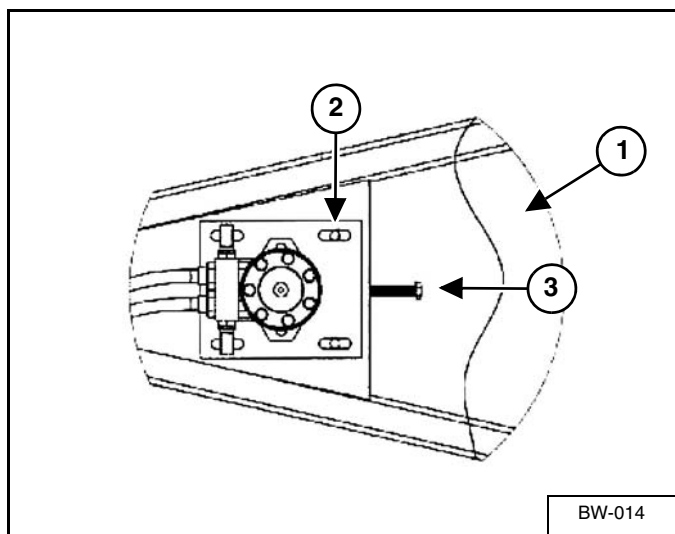


Adjusting Drive Chain

**! IMPORTANT**

After wrapping the first 10 bales, adjust drive chain tension.

Figure 12



Remove the chain cover (Item 1), loosen the four nuts (Item 2) [Figure 12].

Tighten bolt (Item 3) [Figure 12] until the chain has approximately 1/2 in. (20 mm) slack.

Tighten the four screws (Item 2) [Figure 12]. Install the chain cover.

Remove retaining pin and pin (Item 2) [Figure 12].

**! IMPORTANT**

Check the tightening and the chain condition periodically after wrapping every 120 bales.

TRANSPORTING

Requirements

Comply with federal, state, local and provincial laws regarding the transport of farm equipment on public roadways.

**! WARNING**

AVOID SERIOUS INJURY OR DEATH

Use of an unapproved hitch or tractor / tow vehicle can result in loss of control, leading to serious injury or death.

Tractor / tow vehicle and hitch must have the rated capacity to tow equipment.

**! WARNING**

AVOID SERIOUS INJURY OR DEATH

Do Not transport the wrapping machine with a bale loaded on it.

**! IMPORTANT**

Towing Vehicle / Tractor must have adequate braking capacity to safely control GVW trailing load. Do not tow over 20 mph (32 km/h). Towing Vehicle / Tractor unit should weigh approximately 67% of GVW.

Verify that the tractor / tow vehicle is approved for transporting the equipment and that the equipment is securely attached to the tractor / tow vehicle.

Verify the wrapping machine is in the transport position.

# Farm King



**MAINTENANCE**

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SERVICE SCHEDULE .....38  
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LUBRICATION .....39  
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SAFETY SIGN (DECAL) INSTALLATION .....40  
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STORAGE AND RETURN TO SERVICE .....41  
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# Farm King



**TROUBLESHOOTING**

**General Chart**



Instructions are necessary before operating or servicing equipment. Read and understand the Operator And Parts Manual and safety signs (decals) on equipment. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Check for correct function after adjustments, repairs or service. Untrained operators and failure to follow instructions can cause injury or death.

**NOTE:** If a problem is encountered that is difficult to solve, even after having read through this troubleshooting section, please call your local distributor or dealer. Before you call, please have this Operator And Parts Manual and the serial number of your machine at hand.

PROBLEM	CAUSE	CORRECTION
Wrapping machine works slowly.	Hydraulic oil level low.	Check hydraulic oil level. Fill hydraulic oil as needed.
	Damaged hydraulic hose or loose connection.	Check all hoses and connections. Repair or replace as needed.
	Hydraulic pump damaged.	Check tractor's hydraulic system.
	Hydraulic oil filter plugged.	Clean or replace hydraulic oil filter.
Oil leaks from the control unit.	Worn seal rings.	Replace the seal rings.
Hydraulic cylinders not holding position.	Worn hydraulic seals in cylinders.	Replace seals.
The rotary chassis does not rotate.	Broken or loose chain.	Replace or tighten chain.
	Hydraulic motor damaged.	Check the engine condition. Contact the service agent.
The bale does not revolve around its axis.	Broken or loose chain.	Replace or tighten chain.

**SERVICE SCHEDULE**

**Maintenance Intervals**

Maintenance work must be done at regular intervals. Failure to do so will result in excessive wear and early failures. The service schedule is a guide for correct maintenance of the Bale Wrapper.



Instructions are necessary before operating or servicing equipment. Read and understand the Operator and Parts Manual and safety signs (decals) on equipment. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Check for correct function after adjustments, repairs or service. Untrained operators and failure to follow instructions can cause injury or death.

#	DESCRIPTION	SERVICE PROCEDURES						
		Check	Clean	Lube	Change	Adjust	Drain	Locations
<b>Daily Maintenance (or every 8 hours)</b>								
1	Tire Pressure	•						
2	Wheel Bolts	•						
3	Hydraulic Hoses And Connections	•		•				
4	Rotary Frame Drive Chain	•		•				
5	Rotary Drum Drive Chains	•		•				
<b>Weekly (or every 50 hours)</b>								
6	Hydraulic Hoses And Connections	•						
7	Check All Hardware And Safety Devices.	•						
8	Bale Wrapper Condition	•	•					

## LUBRICATION

### Recommendations

Always use a good quality multi-purpose / lithium base grease when lubricating the equipment.

## ! IMPORTANT

**Do not over-grease. Greasing too often can lead to premature component failure.**

- Always use a hand-held grease gun.
- Clean fitting before greasing, to avoid injecting dirt and grit.
- Replace and repair broken fittings immediately.
- If fittings will not take grease, remove and clean thoroughly. Replace fitting if necessary.

## Locations

## ! IMPORTANT

**Fluid such as engine oil, hydraulic fluid, coolants, grease, etc. must be disposed of in an environmentally safe manner. Some regulations require that certain spills and leaks on the ground must be cleaned in a specific manner. See local, state and federal regulations for the correct disposal.**

Lubricate the following grease locations EVERY 8 HOURS:

Apply two - three pumps of grease to all locations on the wrapping machine.

Lubricate the rotary frame drive chain.

Lubricate the rotary drum drive chains.

## SAFETY SIGN (DECAL) INSTALLATION

### Procedure



**When replacing safety signs (decals), the temperature must be above 10° C (50° F).**

---

- Remove all portions of the damaged safety sign (decal).
- Thoroughly clean the area with glass cleaner. Remove all adhesive residue.
- Allow the area to dry completely before installing the new safety sign (decal).
- Position the safety sign (decal) in the correct location. Remove a small portion of the backing paper on the safety sign (decal).
- Press on the safety sign (decal) where the backing paper has been removed.
- Slowly remove the remaining backing paper, pressing on the safety sign (decal) as the backing paper is removed.
- Using the backing paper, pressing firmly, move the backing paper over the entire safety sign (decal) area.

**NOTE: Small air pockets can be pierced with a pin and smoothed out using the piece of the backing paper.**



## STORAGE AND RETURN TO SERVICE

### Storage

Sometimes it may be necessary to store your Farm King Bale Wrapper for an extended period of time. Below is a list of items to perform before storage.



**DO NOT permit children to play on or around the stored machine.**

---

- The wrap counter should be stored in a dry place with the electrical connections protected against damage and humidity.
- Thoroughly clean the equipment.
- Lubricate the equipment.
- Inspect the hitch and all welds on the equipment for wear and damage.
- Check for loose hardware, missing guards, or damaged parts.
- Check for damaged or missing safety signs (decals). Replace if necessary.
- Replace worn or damaged parts.
- Touch up all paint nicks and scratches to prevent rusting.
- Store the Bale Wrapper in a clean, dry, sheltered area.
- Place the equipment flat on blocks.
- Place the equipment flat on the ground.

### Return To Service

After the Farm King Bale Wrapper has been in storage, it is necessary to follow a list of items to return the equipment to service.

- Be sure all shields and guards are in place.
- Lubricate the equipment.
- Clean and inspect pusher chain for excessive wear or stiffness. Check for proper adjustment and alignment.
- Inspect and repack wheel bearings with a SAE multi purpose type grease.
- Check that tires are properly inflated.
- Connect to a tractor and operate equipment, verify all functions operate correctly.
- Check for leaks. Repair as needed.
- Review the Operator's Manual.

# Farm King



**PARTS IDENTIFICATION**

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MAIN FRAME .....46

WRAPPING FILM FEEDER .....50

LOWER FRAME W / HYDRAULICS .....54

ROTARY FRAME .....56

VERTICAL BALE POSITIONING DEVICE .....60

STRETCHER ROLL SET .....61

# Farm King

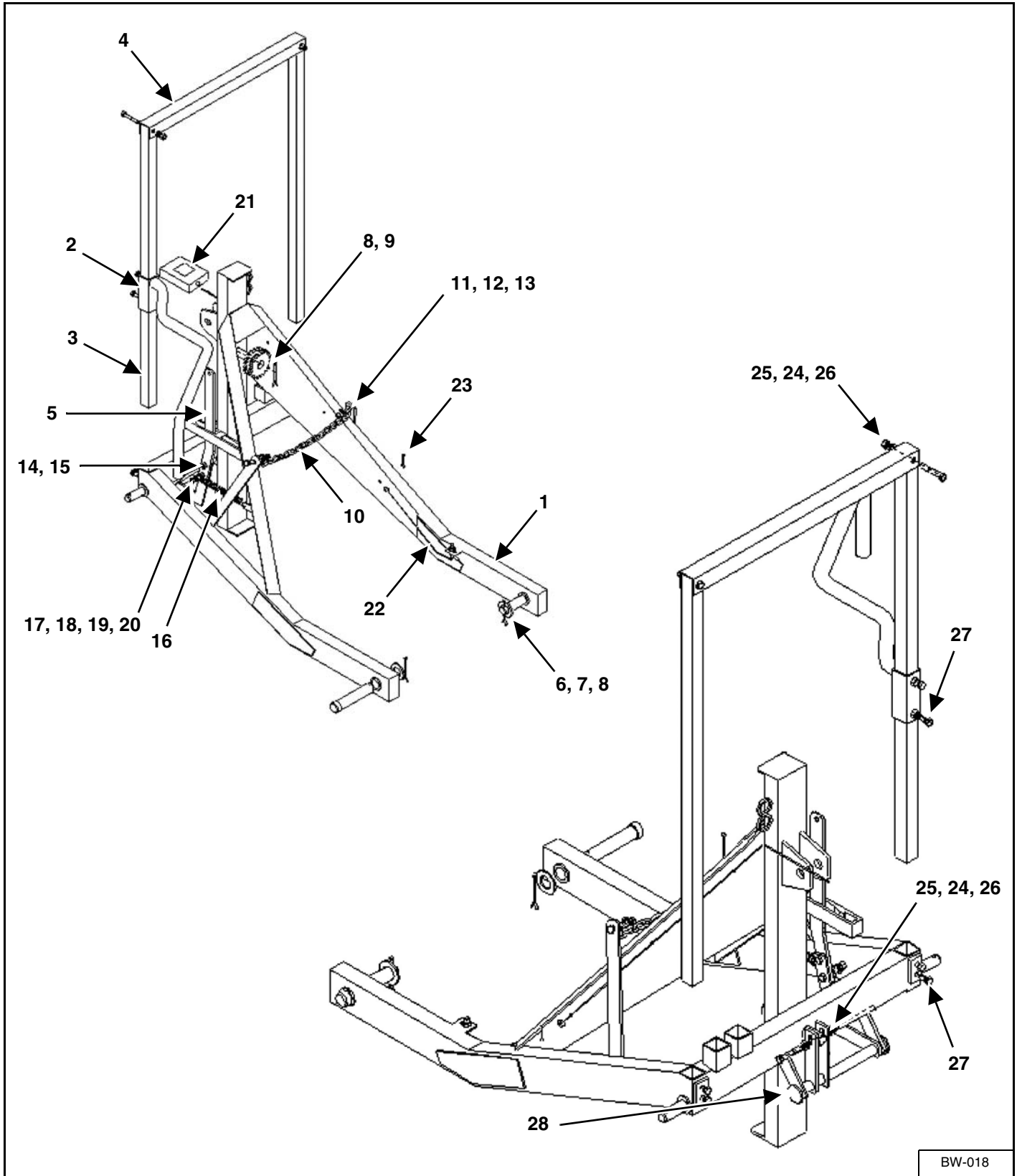


**GENERAL INFORMATION**

The parts identification section lists descriptions, part numbers and quantities for the Bale Wrapper. Contact your Farm King dealer for additional Bale Wrapper parts information.



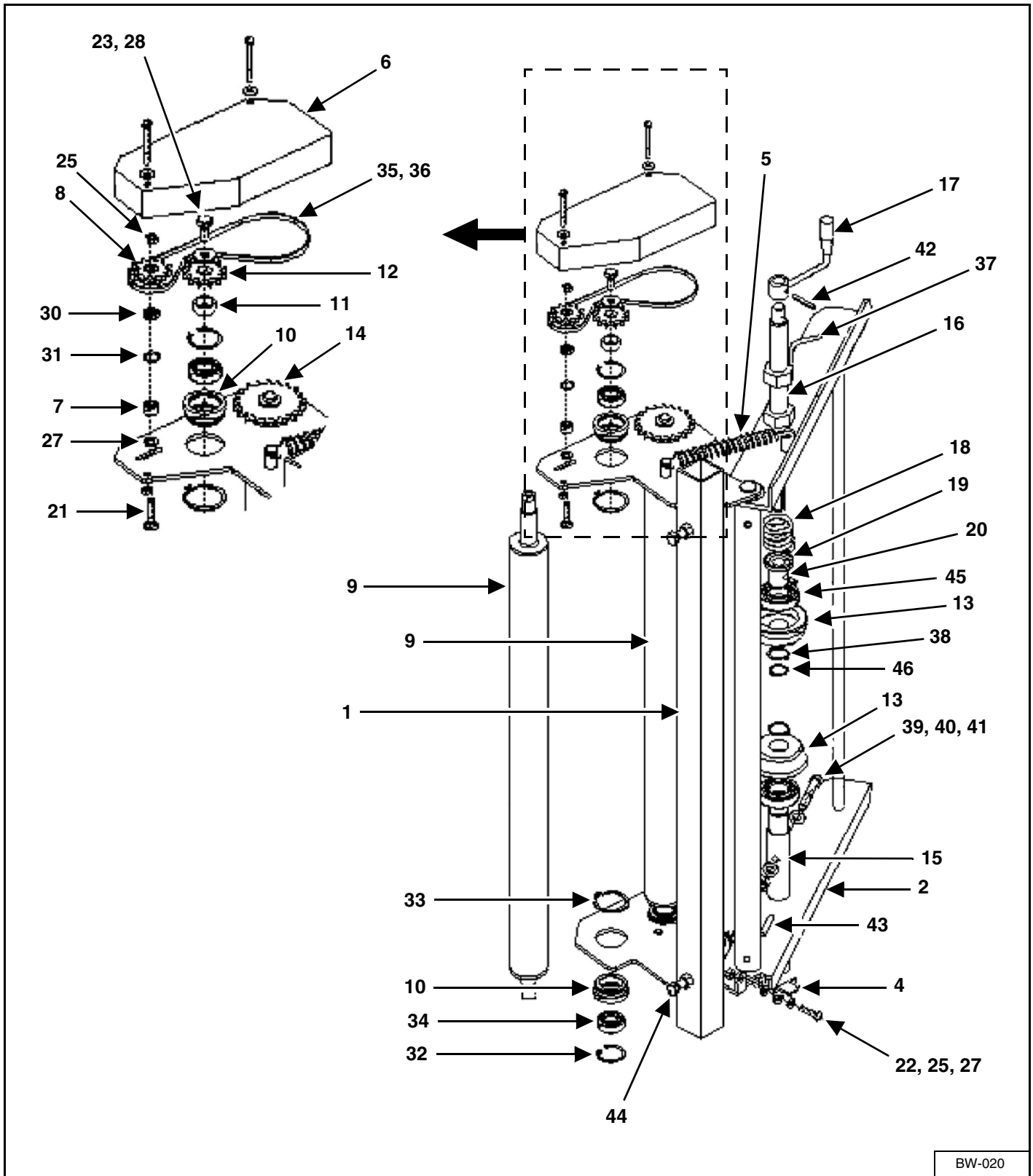
MAIN FRAME



BW-018

ITEM	PART NUMBER	DESCRIPTION	QTY
1	R58000755	WELDED FRAME	*
2	R58000756	RAILING SET	*
3	R58000757	BRACKET	*
4	R58000758	CROSS BAR	*
5	R58000759	LEVER	*
6	R58000760	MAIN PIN	*
7	R58000761	PLAIN WASHER, 37	*
8	R58000762	COTTER PIN, 6.3 x 71 S -ZN	*
9	R58000763	Z16 WHEEL, 5/8"	*
10	R58000764	FARMINGCHAIN	*
11	R58000765	BOLT, M12 x 35 5.8 - B	*
12	R58000766	PLAIN WASHER, 13	*
13	R58000767	NUT, M12 5 - B	*
14	R58000768	BOLT, M12 x 30 5.8 - B	*
15	R58000769	NUT, M12 5 - B	*
16	R58000770	SPRING	*
17	R58000771	BOLT, M12 x 45 5.8 - B	*
18	R58000772	NUT, M12 5 - B	*
19	R58000766	PLAIN WASHER, 13	*
20	R58000772	NUT, M12 5 - B	*
21	R58000606	IMPULSE COUNTER	*
22	R58000607	COUNTER CABLE W / SENSOR	*
23	R58000773	COTTER PIN, 2.5 x 25 S - ZN	*
24	R58000774	BOLT, M12 x 70 5.8 - B	*
25	R58000772	NUT, M12 5 - B	*
26	R58000766	PLAIN WASHER, 13	*
27	R58000768	BOLT, M12 x 30 5.8 - B	*
28	R58000775	LEVER PIN	*

WRAPPING FILM FEEDER



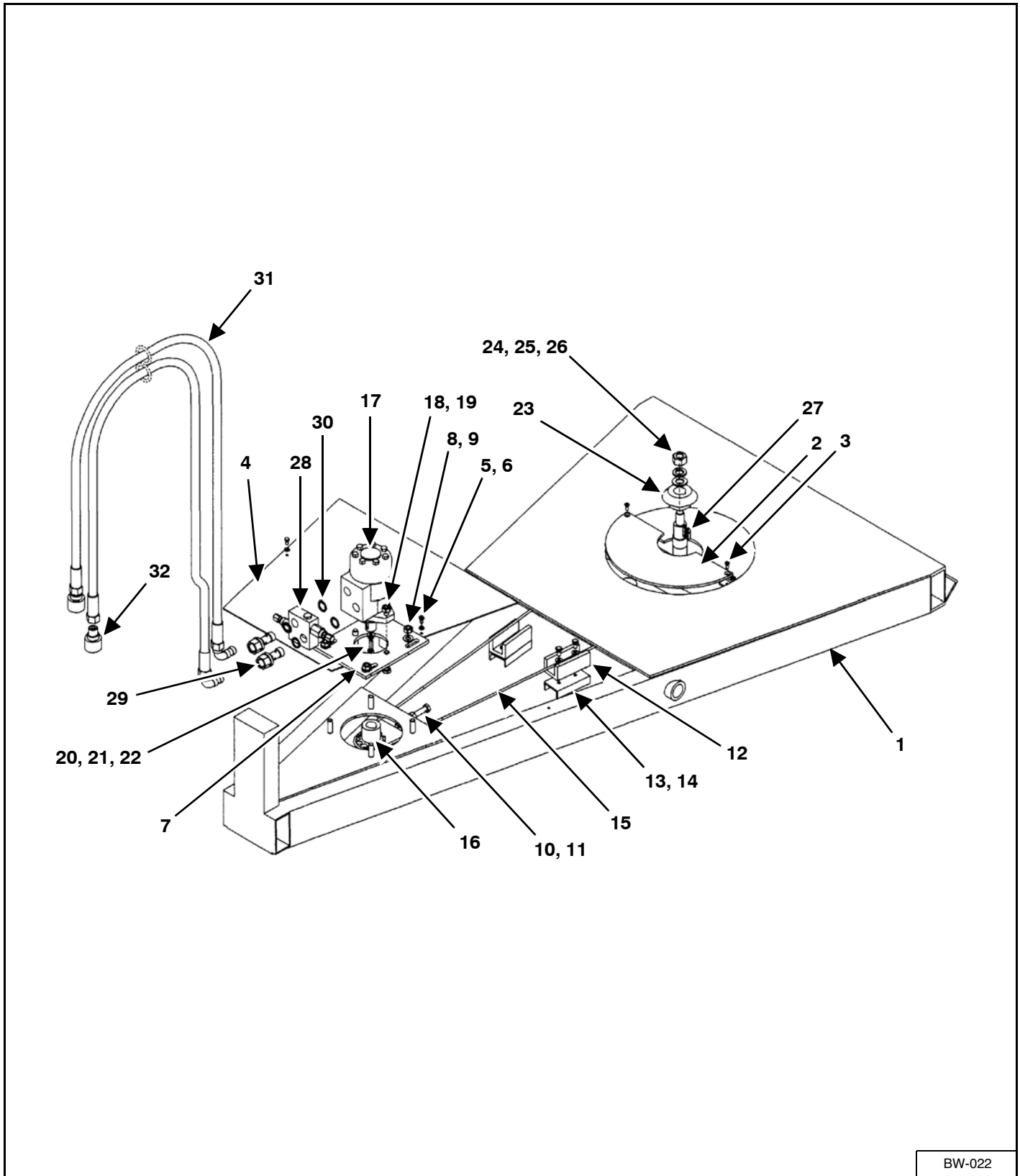


ITEM	PART NUMBER	DESCRIPTION	QTY
1	R58000776	MOUNTING BRACKET	*
2	R58000777	WRAPPING FILM BRACKET SET	*
3	-	-	-
4	R58000778	LOCK	*
5	R58000779	SPRING I	*
6	R58000780	COVER	*
7	R58000781	SPACING BUSHING II	*
8	R58000782	CHAIN WHEEL Z-11	*
9	R58000783	STRATCHER ROLL SET	*
10	R58000784	ROLL HOLDER	*
11	R58000785	SPACING BUSHING III	*
12	R58000786	CHAIN WHEEL Z-12	*
13	R58000787	CONIC FILM PRESSURE ELEMENT	*
14	R58000788	CHAIN WHEEL Z-21	*
15	R58000789	LOWER ROLL	*
16	R58000790	ADJUSTING SCREW	*
17	R58000791	HANDLE SET	*
18	R58000792	SPRING II	*
19	R58000793	BUSHING	*
20	R58000794	LOCK	*
21	R58000795	BOLT, M8 x 40 5.8 - B	*
22	R58000796	BOLT, M8 x 30 5.8 - B	*
23	R58000797	BOLT, M10 x 25 5.8 - B	*



ITEM	PART NUMBER	DESCRIPTION	QTY
24	R58000798	BOLT, M6 x 70 5.8 - B	*
25	R58000799	NUT, M8 5-B	*
26	R58000800	NUT M6 5-B	*
27	R3030156	PLAIN WASHER, 8.4	*
28	R3030159	PLAIN WASHER, 10.5	*
29	R3030158	PLAIN WASHER, 6.5	*
30	R58000801	BEARING, 608Z	*
31	R58000802	SPRING RING, W-22	*
32	R58000803	SPRING RING, W-42	*
33	R58000804	SPRING RING, Z-50	*
34	R12240125	BEARING, 6004 RS	*
35	R58000805	ROLLER CHAIN, 08B 1/2"	*
36	R58000806	FASTENING LINK, 08B	*
37	R58000807	LOCK NUT, M27	*
38	R58000808	SPRING RING, Z-30	*
39	R58000774	BOLT, M12 x 70 5.8 - B	*
40	R58000772	NUT, M12 5 - B	*
41	R58000776	PLAIN WASHER, 13	*
42	R3080120	SPRING PIN, 6 x 45	*
43	R3080105	SPRING PIN, 8 x 50	*
44	R58000768	BOLT, M12 x 30 5.8 - B	*
45	R12240108	BEARING, 6206 RS	*
46	R58000809	SPRING RING, Z-20	*

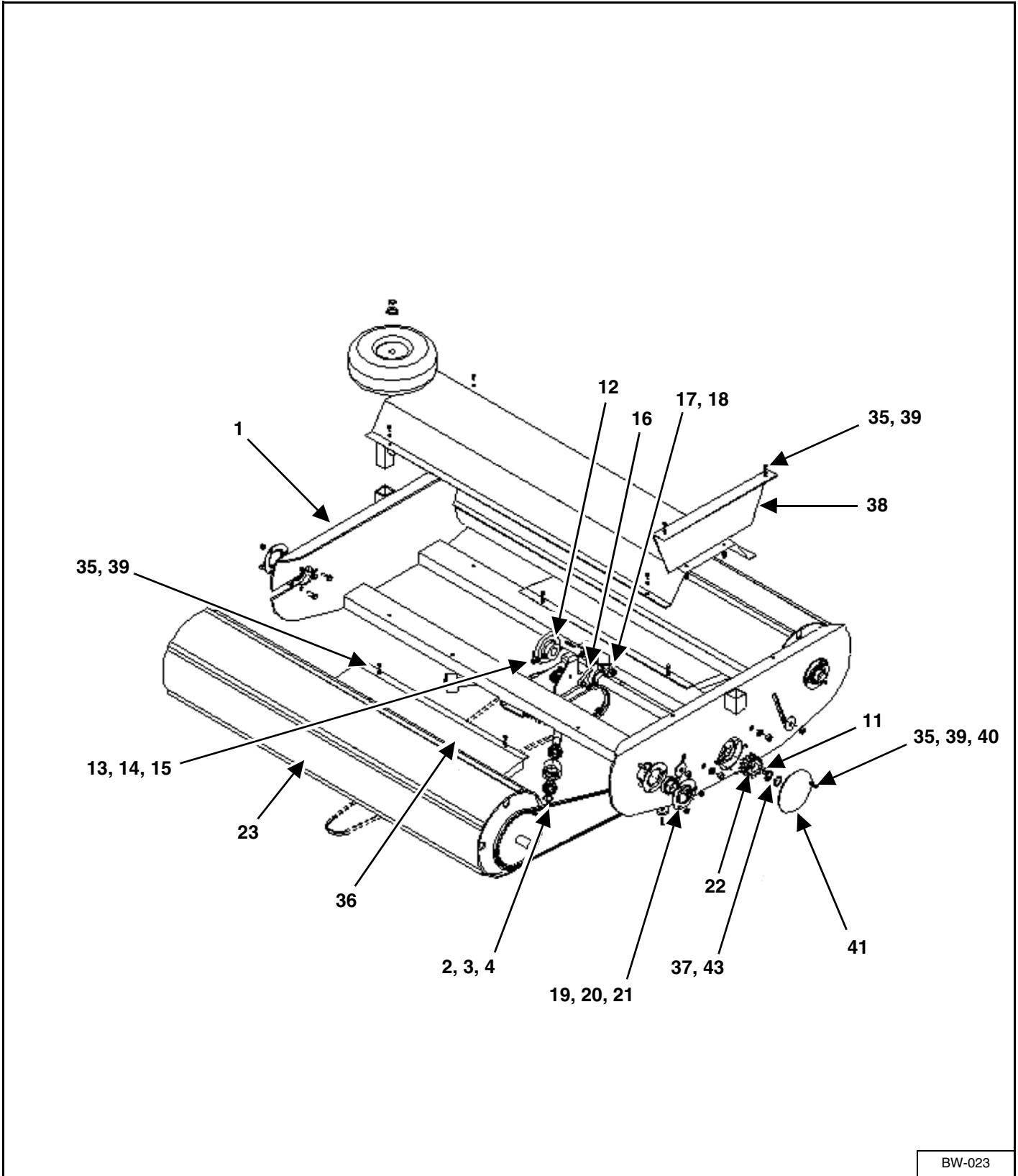
LOWER FRAME W / HYDRAULICS



BW-022

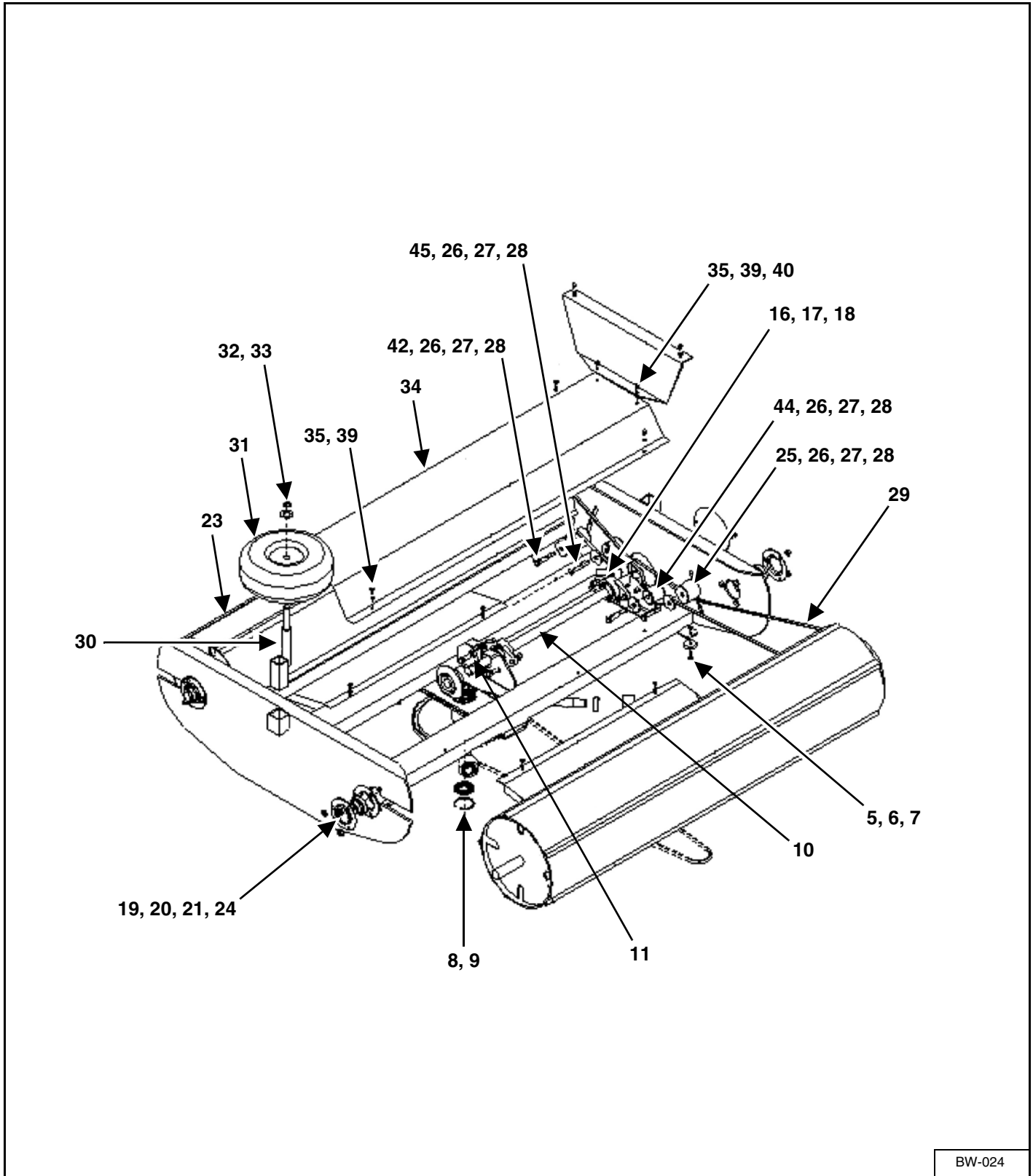
ITEM	PART NUMBER	DESCRIPTION	QTY
1	R58000815	CHASSIS FRAME	*
2	R58000816	CHAIN WHEEL GUARD	*
3	R58000817	SCREW, M6 x 16 8.8 - B	*
4	R58000818	MIDDLE GUARD	*
5	R58000819	BOLT, M6 x 16 5.8 - B	*
6	R3030158	SPRING WASHER, 6.1	*
7	R58000820	ENGINE BASE	*
8	R58000776	PLAIN WASHER, 13	*
9	R58000772	NUT, M12 5 - B	*
10	R58000821	BOLT, M12 x 100 5.8 - B	*
11	R58000772	NUT, M12 5 - B	*
12	R58000822	CHAIN GUIDE	*
13	R58000823	SCREW, M8 x 20 8.8 - B	*
14	R3030156	PLAIN WASHER, 8.4	*
15	R58000824	CHAIN, 10 - B	*
16	R58000838	GEAR WHEEL, Z-12	*
17	R58000825	HYDRAULIC HOSE	*
18	R58000826	BOLT, M8 x 30 8.8 - B	*
19	R58000772	NUT M12 5-B	*
20	R58000796	BOLT M8X30 8.8-B	*
21	R58000827	SPRING WASHER 8.2	*
22	R3030159	PLAIN WASHER 10.5	*
23	R58000828	BEVEL GEAR Z-17	*
24	R3030134	PLAIN WASHER 21	*
25	R58000829	SPRING WASHER 20.5	*
26	R58000830	NUT M20 5-B	*
27	R58000831	PARALLEL KEY A8X7X36	*
28	R58000832	HYDRAULIC BLOCK	*
29	R58000833	HYDRAULIC SCREW	*
30	R58000834	PLAIN WASHER 20.5 CU HYDRAULIC	*
31	R58000836	HYDRAULIC HOSE	*
32	R58000837	VALVE- PLUG QUICK-RELEASE COUPLING, M22 x 1.5	*

ROTARY FRAME



ITEM	PART NUMBER	DESCRIPTION	QTY
1	R58000839	ROTARY FRAME	*
2	R12240101	BEARING, 6005 RS	*
3	R58000610	BEARING HOLDER ROLL	*
4	R58000840	SPRING RING, Z-25	*
5	R58000081	REVOLUTION SENSOR MAGNET	*
6	R58000841	SCREW, M6 x 25 5.8 - B	*
7	R58000800	NUT, M6 5 - B	*
8	R12240112	BEARING, 6007 2RS	*
9	R58000842	SPRING RING, W-62	*
10	R58000843	DRIVE SHAFT	*
11	R58000831	PARALLEL KEY, A8 x 7 x 36	*
12	R58000844	BEVEL GEAR, Z-25	*
13	R58000796	BOLT, M8 x 30 8.8 - B	*
14	R58000827	SPRING WASHER, 8.2	*
15	R58000799	NUT, M8 5 - B	*
16	R58000845	BEARING ASSEMBLY, UCFL206	*
17	R58000765	BOLT, M12 x 35 8.8 - B	*
18	R58000772	NUT, M12 5 - B	*
19	R58000846	BEARING, S A 206 RS	*
20	R58000847	SHEET METAL FLANGED HOLDER, P-206	*
21	R58000830	NUT, M10 5 - B	*
22	R58000848	CHAIN WHEEL, Z-11	*
23	R58000849	DRUM SET	*
24	R58000850	BOLT, M10 x 30 5.8 - B	*
25	R58000851	CHAIN TENSIONER ROLL	*

ROTARY FRAME (CONT'D)

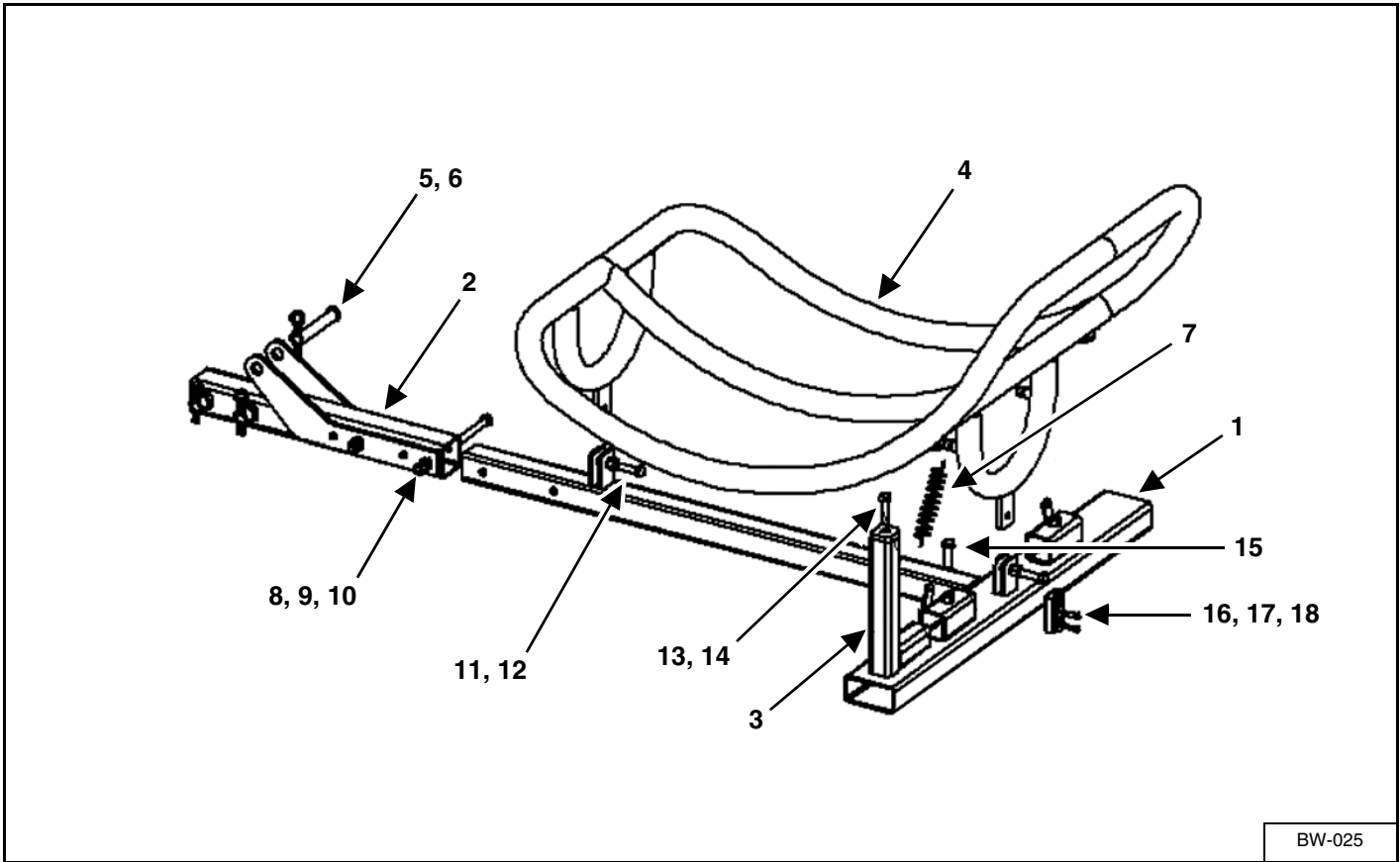


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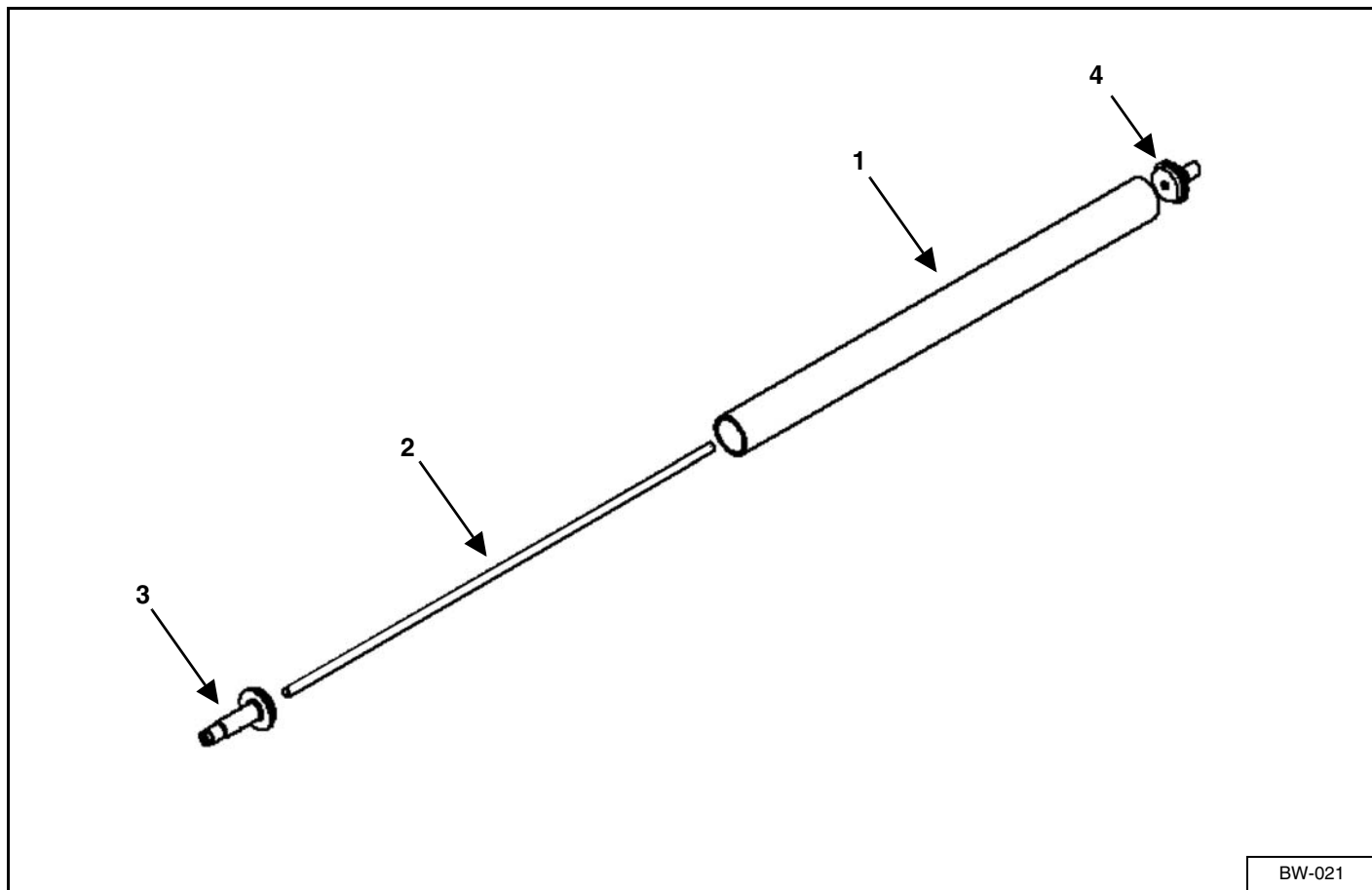
ITEM	PART NUMBER	DESCRIPTION	QTY
26	R58000852	BOLT, M12 x 90 5.8 - B	*
27	R58000772	NUT, M12 5 - B	*
28	R58000853	PLAIN WASHER	*
29	R58000854	CHAIN, 10 B	*
30	R58000855	WHEEL BRACKET	*
31	R58000856	WHEEL WITH HUB, 400 x 4	*
32	R3030168	PLAIN WASHER, 21	*
33	R58000857	SPRING RING, Z-20	*
34	R58000858	MIDDLE GUARD	*
35	R58000819	BOLT, M6 x 16 5.8 - B	*
36	R58000859	BEARING GUARD	*
37	R58000860	SPRING RING, Z-25	*
38	R58000861	DRIVE GUARD	*
39	R58000862	SPRING WASHER, 6.1	*
40	R58000800	NUT, M6 5 - B	*
41	R58000863	COVER	*
42	R58000864	CHAIN TENSIONER ROLL II	*
43	R58000865	PLAIN WASHER	*
44	R58000866	CHAIN TENSIONER ROLL III	*
45	R58000867	CHAIN TENSIONER ROLL IV	*

VERTICAL BALE POSITIONING DEVICE



ITEM	PART NUMBER	DESCRIPTION	QTY
1	R58000868	CHASSIS FRAME	*
2	R58000869	SUSPENSION	*
3	R58000870	BUMPER	*
4	R58000871	CRADLE	*
5	R58000741	PIN	*
6	R58000872	COTTER PIN, 6	*
7	R58000873	SPRING I	*
8	R58000874	BOLT, M12 x 100 8.8 - B	*
9	R58000772	NUT, M12 - 8	*
10	R58000875	SPRING WASHER, 12.2	*
11	R58000826	BOLT, M12 x 45 8.8 - B	*
12	R58000772	NUT, M12 - 8	*
13	R58000768	BOLT, M12 x 30 8.8 - B	*
14	R58000772	NUT, M12 - 8	*
15	R58000876	BOLT, M12 x 25 8.8 - B	*
16	R58000877	TRIANGLE HITCH	*
17	R58000819	BOLT, M6 x 16 5.8 - B	*
18	R3030158	PLAIN WASHER, 6.4	*

**STRETCHER ROLL SET**



BW-021

ITEM	PART NUMBER	DESCRIPTION	QTY
1	R58000015	STRETCHER TUBE	1
2	R58000810	CONNECTING ROD	1
3	R58000811	HOLDER I	1
4	R58000812	HOLDER II	1

# Farm King



**SPECIFICATIONS**

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# Farm King



**SPECIFICATIONS**

**Dimensions**

DESCRIPTION	BW150
Overall Transport Length	104 in. (2650 mm)
Overall Transport Width	56 in. (1430 mm)
Overall Transport Height	65 in. (1660 mm)

**Performance**

DESCRIPTION	BW150
Weight	992 lb. (450 kg)
Hitch Mounting Frame	Universal 3-point hitch
Required Hydraulic Pressure	2030 psi (14 MPa)
Hydraulic Flow	6 gal (22 l/min)
Wrapping Machine Drive	Hydraulic
Rotary Drive	Hydraulic Motor
Maximum Speed Of Rotary Frame	35 RPM
Tractor HP	40 hp (30kw)
Bale Unloading	Automatic
Film Roll Width	20 & 30 in. (500 mm & 750 mm)
Wraps Per Bale 20 in. (500 mm)	24
Wraps Per Bale 30 in. (750 mm)	16
Bale Wrapping Time	Approximately 2 min.
Wrap Counter	Electronic, Type L-01
Electrical System Voltage	12 V

**HARDWARE TORQUE VALUES**

**Metric Chart**

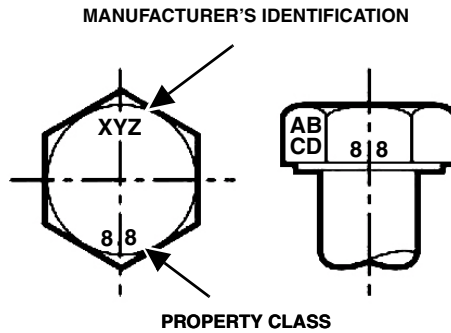
**NOTE: Do not use the values listed in the charts if a different torque value or tightening procedure is specified in this manual for a specific application. Torque values listed are for general use only.**

Use the following charts to determine the correct torque when checking, adjusting or replacing hardware. **Torque values are listed in newton-meters (inch\* or foot pounds) for normal assembly applications.**

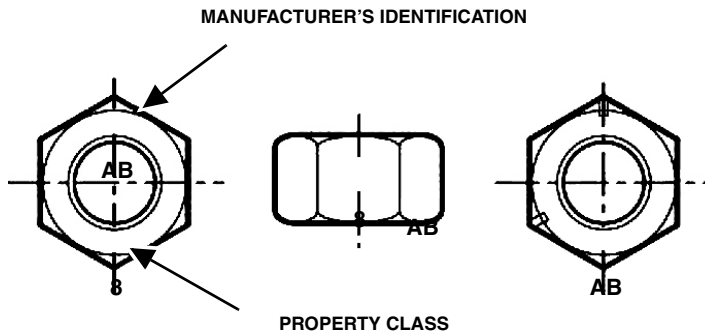
Nominal Size	Class 5.8		Class 8.8		Class 10.9		Lock nuts
	Unplated	Plated W / ZnCr	Unplated	Plated W / ZnCr	Unplated	Plated W / ZnCr	CL.8 w/ CL. 8.8 Bolt
M4	1.7 (15*)	2.2 (19*)	2.6 (23*)	3.4 (30*)	3.7 (33*)	4.8 (42*)	1.8 (16*)
M6	5.8 (51*)	7.6 (67*)	8.9 (79*)	12 (102*)	13 (115*)	17 (150*)	6.3 (56*)
M8	14 (124*)	18 (159*)	22 (195*)	28 (248*)	31 (274*)	40 (354*)	15 (133*)
M10	28 (21)	36 (27)	43 (32)	56 (41)	61 (45)	79 (58)	30 (22)
M12	49 (36)	63 (46)	75 (55)	97 (72)	107 (79)	138 (102)	53 (39)
M16	121 (89)	158 (117)	186 (137)	240 (177)	266 (196)	344 (254)	131 (97)
M20	237 (175)	307 (226)	375 (277)	485 (358)	519 (383)	671 (495)	265 (195)
M24	411 (303)	531 (392)	648 (478)	839 (619)	897 (662)	1160 (855)	458 (338)

**NOTE: Torque values shown with \* are inch pounds.**

**Identification of Hex Cap Screws and Carriage Bolts - Classes 5 and up**



**Identification of Hex Nuts and Lock Nuts - Classes 5 and up**





**HARDWARE TORQUE VALUES (CONT'D)**

**Imperial Chart**

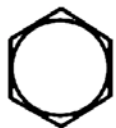
**NOTE: Do not use the values listed in the charts if a different torque value or tightening procedure is specified in this manual for a specific application. Torque values listed are for general use only.**

Use the following charts to determine the correct torque when checking, adjusting or replacing hardware. **Torque values are listed in newton-meters (inch\* or foot pounds) for normal assembly applications.**

Nominal Size	SAE Grade 5		SAE Grade 8		LOCK NUTS			
	Unplated or Plated Silver	Plated W / ZnCr Gold	Unplated or Plated Silver	Plated W / ZnCr Gold	Unplated or Plated Silver	Plated W / ZnCr Gold	Grade W / Gr. 5 Bolt	Grade W / Gr. 8 Bolt
1/4	6.2 (55*)	8.1 (72*)	9.7 (86*)	12.6 (112*)	13.6 (121*)	17.7 (157*)	6.9 (61*)	9.8 (86*)
5/16	13 (115*)	17 (149*)	20 (178*)	26 (229*)	28 (250*)	37 (324*)	14 (125*)	20 (176*)
3/8	23 (17)	30 (22)	35 (26)	46 (34)	50 (37)	65 (48)	26 (19)	35 (26)
7/16	37 (27)	47 (35)	57 (42)	73 (54)	80 (59)	104 (77)	41 (30)	57 (42)
1/2	57 (42)	73 (54)	87 (64)	113 (83)	123 (91)	159 (117)	61 (45)	88 (64)
9/16	81 (60)	104 (77)	125 (92)	163 (120)	176 (130)	229 (169)	88 (65)	125 (92)
5/8	112 (83)	145 (107)	174 (128)	224 (165)	244 (180)	316 (233)	122 (90)	172 (127)
3/4	198 (146)	256 (189)	306 (226)	397 (293)	432 (319)	560 (413)	217 (160)	306 (226)
7/8	193 (142)	248 (183)	495 (365)	641 (473)	698 (515)	904 (667)	350 (258)	494 (364)
1	289 (213)	373 (275)	742 (547)	960 (708)	1048 (773)	1356 (1000)	523 (386)	739 (545)

**NOTE: Torque values shown with \* are inch pounds.**

**Identification of Hex Cap Screws and Carriage Bolts**



SAE GRADE 2 BOLTS



SAE GRADE 5 BOLTS



SAE GRADE 8 BOLTS



SAE GRADE 2 NUTS

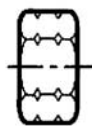


SAE GRADE 5 NUTS



SAE GRADE 8 NUTS

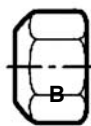
**Identification of Hex Nuts and Lock Nuts**



Grade A - No Notches

Grade B - One Circumferential Notch

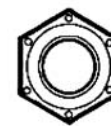
Grade C - Two Circumferential Notches



Grade A - No Mark

Grade B - Letter B

Grade C - Letter C



Grade A - No Marks

Grade B - Three Marks

Grade C - Six Marks

(Marks not always located at corners)

**HYDRAULIC CONNECTION SPECIFICATIONS**

**O-Ring Fitting (Straight Thread)**

Lubricate the O-ring before installing the fitting. Loosen the jam nut and install the fitting. Tighten the jam nut until the washer is tight against the surface.

**O-ring Face Seal Connection**

**Figure 13**

O-ring Face Seal Tightening Torque		
Tubeline O.D.	Thread Size	N•m (ft-lb)
1/4"	9/16" - 18	13 (18)
3/8"	11/16" - 16	22 (30)
1/2"	13/16" - 16	40 (54)
5/8"	1" - 14	60 (81)
3/4"	1-3/16" - 12	84 (114)
7/8"	1-3/16" - 12	98 (133)
1"	1-7/16" - 12	118 (160)
1-1/4"	1-11/16" - 12	154 (209)
1-1/2"	2" - 12	163 (221)

When the fitting is tightened, you can feel when the fitting is tight to eliminate leakage caused by under or over torqued fittings. Use petroleum jelly to hold the O-ring in position until the fittings are assembled.

**Flare Fitting**

**Figure 14**

Flare Fitting Tightening Torque		
Tubeline O.D.	Thread Size	N•m (ft-lb)
1/4"	7/16" - 20	13 (18)
5/16"	1/2" - 20	17 (23)
3/8"	9/16" - 18	22 (30)
1/2"	3/4" - 16	40 (54)
5/8"	7/8" - 14	60 (81)
3/4"	1-1/16" - 12	84 (114)
7/8"	1-3/16" - 12	98 (133)
1"	1-5/16" - 12	118 (160)
1-1/4"	1-5/8" - 12	154 (209)
1-1/2"	1-7/8" - 12	163 (221)
2"	2-1/2" - 12	252 (342)

Tighten until the nut makes contact with the seat. Use the chart [Figure 14] to find the correct tightness needed.

**NOTE: If the fitting leaks, disconnect and inspect the seat area for damage.**

**Port Seal (O-ring Boss) Fitting**

**Figure 15**

Port Seal And O-ring Boss Tightening Torque		
Tubeline O.D.	Thread Size	N•m (ft-lb)
1/4"	7/16" - 20	13 (18)
3/8"	9/16" - 18	22 (30)
1/2"	3/4" - 16	40 (54)
5/8"	7/8" - 14	60 (81)
3/4"	1-1/16" - 12	84 (114)
7/8"	1-3/16" - 12	98 (133)
1"	1-5/16" - 12	118 (160)
1-1/8"	1-7/16" - 12	154 (209)
1-1/4"	1-5/8" - 12	163 (221)

**NOTE: Port seal and nut, washer and O-ring (O-ring Boss) fittings use the same tightening torque valve chart.**

If a torque wrench cannot be used, use the following method.

Tighten the nut until it just makes metal to metal contact, you can feel the resistance.

Tighten the nut with a wrench no more than one hex flat maximum.

Do not over tighten the port seal fitting.

**NOTE: If a torque wrench cannot be used, use the hex flat tightening method as an approximate guideline.**

**NOTE: Port seal fittings are not recommended in all applications. Use O-ring boss fittings in these applications.**

**Tubelines And Hoses**

Replace any tubelines that are bent or flattened. They will restrict flow, which will slow hydraulic action and cause heat.

Replace hoses which show signs of wear, damage or weather cracked rubber.

Always use two wrenches when loosening and tightening hose or tubeline fittings.

**WARRANTY**

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# Farm King



**WARRANTY**

# **Farm King**

## **Limited Warranty**

**BASE LIMITED WARRANTY**

Farm King provides this warranty only to original retail purchasers of its products. Farm King warrants to such purchasers that all Farm King manufactured parts and components used and serviced as provided for in the Operator's Manual shall be free from defects in materials and workmanship for a period following delivery to the original retail purchaser of one (1) year. This limited warranty applies only to those parts and components manufactured by Farm King. Parts and components manufactured by others are subject to their manufacturer's warranties, if any.

Farm King will fulfill this limited warranty by, at its option, repairing or replacing any covered part that is defective or is the result of improper workmanship, provided that the part is returned to Farm King within thirty (30) days of the date that such defect or improper workmanship is, or should have been, discovered. Parts must be returned through the selling representative and the buyer must prepay transportation charges.

Farm King will not be responsible for repairs or replacements that are necessitated, in whole or part, by the use of parts not manufactured by or obtained from Farm King. Under no circumstances are component parts warranted against normal wear and tear. There is no warranty on product pump seals, product pump bearings, rubber product hoses, pressure gauges, or other components that require replacement as part of normal maintenance.

**REPAIR PARTS LIMITED WARRANTY**

Farm King warrants genuine Farm King replacement parts purchased after the expiration of the Farm King Limited Warranty, and used and serviced as provided for in the Operator's Manual, to be free from defects in materials or workmanship for a period of thirty (30) days from the invoice date for the parts. Farm King will fulfill this limited warranty by, at its option, repairing or replacing any covered part that is defective or is the result of improper workmanship, provided that the part is returned to Farm King within thirty (30) days of the date that such defect or improper workmanship is, or should have been, discovered. Such parts must be shipped to the Farm King factory at the purchaser's expense.

**WHAT IS NOT COVERED**

Under no circumstances does this limited warranty cover any components or parts that have been subject to the following: negligence; alteration or modification not approved by Farm King; misuse; improper storage; lack of reasonable and proper maintenance, service, or repair; normal wear; damage from failure to follow operating instructions; accident; and/or repairs that have been made with parts other than those manufactured, supplied, and / or authorized by Farm King.

**AUTHORIZED DEALER AND LABOR COSTS**

Repairs eligible for labor under this limited warranty must be made by Farm King or an authorized Farm King dealer. Farm King retains the exclusive discretion to determine whether it will pay labor costs for warranty repairs or replacements, and the amount of such costs that it will pay and the time in which the repairs will be made. If Farm King determines that it will pay labor costs for warranty work, it will do so by issuing a credit to the dealer's or distributor's account. Farm King will not approve or pay invoices sent for repairs that Farm King has not previously approved. Warranty service does not extend the original term of this limited warranty.

# **Farm King**

## **Limited Warranty**

### **WARRANTY REQUIREMENTS**

To be covered by warranty, each new product must be registered with Farm King within thirty (30) days of delivery to original retail purchaser. If the customer decides to purchase replacement components before the warranty disposition of such components is determined, Farm King will bill the customer for such components and then credit the replacement invoice for those components later determined to be covered by this limited warranty. Any such replacement components that are determined not be covered by this limited warranty will be subject to the terms of the invoice and shall be paid for by the purchaser.

### **EXCLUSIVE EFFECT OF WARRANTY AND LIMITATION OF LIABILITY**

TO THE EXTENT PERMITTED BY LAW, FARM KING DISCLAIMS ANY WARRANTIES, REPRESENTATIONS, OR PROMISES, EXPRESS OR IMPLIED, AS TO THE QUALITY, PERFORMANCE, OR FREEDOM FROM DEFECT OF THE COMPONENTS AND PARTS COVERED BY THIS WARRANTY AND NOT SPECIFICALLY PROVIDED FOR HEREIN.

TO THE EXTENT PERMITTED BY LAW, FARM KING DISCLAIMS ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ON ITS PRODUCTS COVERED HEREIN, AND DISCLAIMS ANY RELIANCE BY THE PURCHASER ON FARM KING'S SKILL OR JUDGMENT TO SELECT OR FURNISH GOODS FOR ANY PARTICULAR PURPOSE. THE PURCHASER'S ONLY AND EXCLUSIVE REMEDIES IN CONNECTION WITH THE BREACH OR PERFORMANCE OF ANY WARRANTY ON FARM KING'S PRODUCTS ARE THOSE SET FORTH HEREIN. IN NO EVENT SHALL FARM KING BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING, BY WAY OF EXAMPLE ONLY AND NOT LIMITATION, LOSS OF CROPS, LOSS OF PROFITS OR REVENUE, OTHER COMMERCIAL LOSSES, INCONVENIENCE, OR COST OF REPLACEMENT OF RENTAL EQUIPMENT). IN NO EVENT SHALL FARM KING'S CONTRACT OR WARRANTY LIABILITY EXCEED THE PURCHASE PRICE OF THE PRODUCT. (Note that some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusion may not apply to you.) This warranty gives you specific legal rights and you may also have other rights, which vary from state to state.

Farm King neither assumes nor authorizes any person or entity, including its selling representatives, to assume any other obligations or liability in connections with the sale of covered equipment, or to make any other warranties, representations, or promises, express or implied, as to the quality, performance, or freedom from defect of the components and parts covered herein. No one is authorized to alter, modify, or enlarge this limited warranty, or its exclusions, limitations and reservations.

Corrections of defects and improper workmanship in the manner, and for the applicable time periods, provided for herein shall constitute fulfillment of all responsibilities of Farm King to the purchaser, and Farm King shall not be liable in negligence, contract, or on any other basis with respect to the subject equipment.

This limited warranty is subject to any existing conditions of supply which may directly affect Farm King's ability to obtain materials or manufacturer replacement parts.

Buhler Industries Inc. reserves the right to make improvements in design or changes in specifications to its products at anytime, without incurring any obligation to owners of units previously sold.

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# Farm King







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