

# Bale Pro<sup>®</sup>

Complete Feed Ration  
Feed Chopper<sup>™</sup> 651

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O p e r a t o r s M a n u a l



# **Feed Chopper for the BalePro<sup>®</sup> Complete Feed Ration 651**

## **Operator's Manual**

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Highline Manufacturing Ltd.

Feed Chopper on the CFR 651 (FC 651)

### **Highline Team Message**

***Congratulations on your purchase of the Feed Chopper for the Complete Feed Ration 651 (FC 651) manufactured by Highline Manufacturing Ltd.***

*This Operator's Manual has been prepared to provide information necessary for the safe and efficient operation of your Feed Chopper. In the manual you will find safety procedures, maintenance routines and detailed operational instructions.*

*If you find that you require information not covered in this manual, please feel free to consult your local dealer. Your dealer is always able to contact Highline for this technical information.*

*Highline Manufacturing Ltd. thanks and congratulates you for selecting a Feed Chopper for the Complete Feed Ration 651 as your machine of choice.*

*Highline Manufacturing Ltd.*

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## **GENERAL DESCRIPTION OF THE FEED CHOPPER**

The Feed Chopper (FC651) is an attachment to the Bale Pro® Complete Feed Ration 651. When the Feed Chopper is engaged, it uses power from the flail drum of the CFR 651 to run a belt drive for the Feed Chopper rotor.

When additional processing and chopping of feed material is desired, the Feed Chopper clutch is engaged and the Feed Chopper door is moved to direct material from the CFR 651 into the Feed Chopper. This further chops the material before discharging it. The CFR 651 must be turned off when the Feed Chopper drive clutch is engaged and the discharge door is positioned.

When the Feed Chopper clutch is not engaged and when the Feed Chopper door is in the by-pass position, the CFR 651 discharges material without any additional chopping.

The operator of the CFR 651/Feed Chopper is located in the tractor cab to control the speed of driving and the speed of operation of the CFR 651/Feed Chopper.

## **INTENDED USE OF THE FEED CHOPPER**

The Feed Chopper is designed to further process and chop animal feed materials that have been initially processed from a round bale by the CFR 651.

- The Feed Chopper is intended for use in farming applications.
- The Feed Chopper is intended for off road use only.
- The Feed Chopper is intended for use in locations away from people who could be harmed by the discharged materials.

Any uses of the Feed Chopper other than the above stated Intended Uses shall be considered misuse of the Feed Chopper. This misuse shall include (but not limited to):

- Using the Feed Chopper in non-farming applications
- Using the Feed Chopper on public roads
- Using the Feed Chopper around people or in public places
- Chopping materials other than animal feed materials
- Chopping materials that have not been initially processed by the CFR 651

Always use the Feed Chopper according to the instructions contained in this Operator's Manual and on the safety and instruction decals on the machine.

Perform regular maintenance and repair to ensure that the Feed Chopper operates safely and efficiently.

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## **^SERIAL NUMBER**

Your serial number is found on the serial number plate (1) attached to the right underside of the Feed Chopper.



Serial Plate Location

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It is important to record the serial number for proof of ownership and for any service or maintenance assistance.

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

**Owner** \_\_\_\_\_

**Model** \_\_\_\_\_

**Date of Purchase** \_\_\_\_\_

**SAFETY SIGN-OFF FORM**

Highline Manufacturing Ltd. follows the general Safety Standards specified by the American Society of Agricultural Engineers (ASAE) and the Occupational Safety and Health Administration (OSHA). Anyone who will be operating and/or maintaining the Feed Chopper 651 should read and clearly understand all Safety, Operating and Maintenance information presented in this manual.

Do not operate or allow someone to operate this equipment until this information has been reviewed. This information should be reviewed by all operator's before the season start-up.

This sign-off sheet is provided for record keeping to indicate that the person working with the equipment has read and understood the information in the Operator's Manual and has been instructed in the safe operation of the equipment.

<b>Date</b>	<b>Employee's Signature</b>	<b>Employer's Signature</b>

## SAFETY ALERT SYMBOL

The Safety Alert Symbol means . . .



**ATTENTION!  
BECOME ALERT!  
YOUR SAFETY IS INVOLVED!**

The Safety Alert Symbol combined with a Signal Word alert to the presence of a hazard and the degree of possible injury.



Indicates an imminently hazardous situation that, if not avoided, **WILL** result in **DEATH OR SERIOUS INJURY**. The color is Red with White lettering.



Indicates a potentially hazardous situation that, if not avoided, **COULD** result in **DEATH OR SERIOUS INJURY**, and includes hazards that are exposed when guards are removed or unsafe practices. The color is Orange with Black lettering.



Indicates a potentially hazardous situation that, if not avoided, **MAY** result in **MINOR INJURY**. The color is Yellow with Black lettering.

### **GENERAL SAFETY**

1. Ensure that anyone who is going to operate, maintain or work near the Feed Chopper 651 is familiar with the recommended operating, maintenance procedures and safety information contained in this manual and follows all the safety precautions.
2. In addition to the design and configuration of the equipment, hazard control and accident prevention are dependant upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of this equipment.  
(Adapted from ASAE S474.1 Feb 04 - 5.2.5.1)
3. The Feed Chopper 651 shall not be operated without all the guards in place.

### **SAFETY DECALS**

1. Keep the decals and signs clean and legible at all times.
2. Replace decals and signs that are damaged, missing or have become illegible.
3. Parts that have been replaced should display a current decal.
4. Decals are available from the Parts Department.
5. Be familiar with the decals, the type of warning and the area or function(s) related to the area(s) that requires your awareness.



### **DO NOT CONTACT THE ROTATING DRIVELINE**

Contact with rotating driveline will cause serious injury or death.  
Keep all driveline guards in place.  
Securely attach drivelines at both ends.  
Check that the driveline guards turn freely on driveline.



### **DO NOT CONTACT ROTATING BLADES**

Rotating blades will cause serious injury or death.  
Before servicing or adjusting, disengage power take off, shut of the tractor, remove key, set park brake.  
Before servicing or adjusting, wait for all parts to stop rotating.  
Keep guards in place and in good condition.



### **KEEP PEOPLE AND ANIMALS CLEAR OF THE DISCHARGE AREA**

Discharge material exits at a high speed.  
Discharged material will cause serious injury or death.  
Stand clear of Feed Chopper when it is engaged.



### **SHUTDOWN THE TRACTOR BEFORE DISMOUNTING TRACTOR**

Shut down the tractor and remove the key before repairing, servicing, lubricating or cleaning the Feed Chopper.



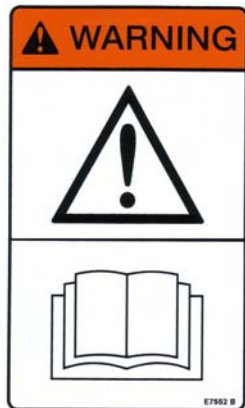
### DO NOT OPERATE WITH SHIELDS MISSING

Contact with the moving belt or sheaves may cause serious injury or death.

Keep shields fastened in place.

Keep away from moving parts.

Do not stand or climb on the machine when operating.



### READ, UNDERSTAND AND FOLLOW SAFETY INSTRUCTIONS

Read, understand and follow all instructions and safety messages included in this manual and on decals attached to the machine.

These instructions and safety messages contain important information.

Allow only responsible, properly instructed individuals to operate and service the machine.

Failure to follow the instructions and safety messages in this manual and on the decals attached to the machine could result in serious injury or death.

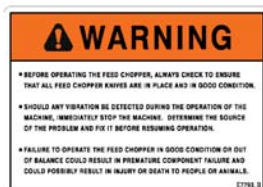
Keep all safety and instruction decals in good condition. Replace any missing or damaged decals.

### CHECK CONDITION OF THE KNIVES BEFORE OPERATING

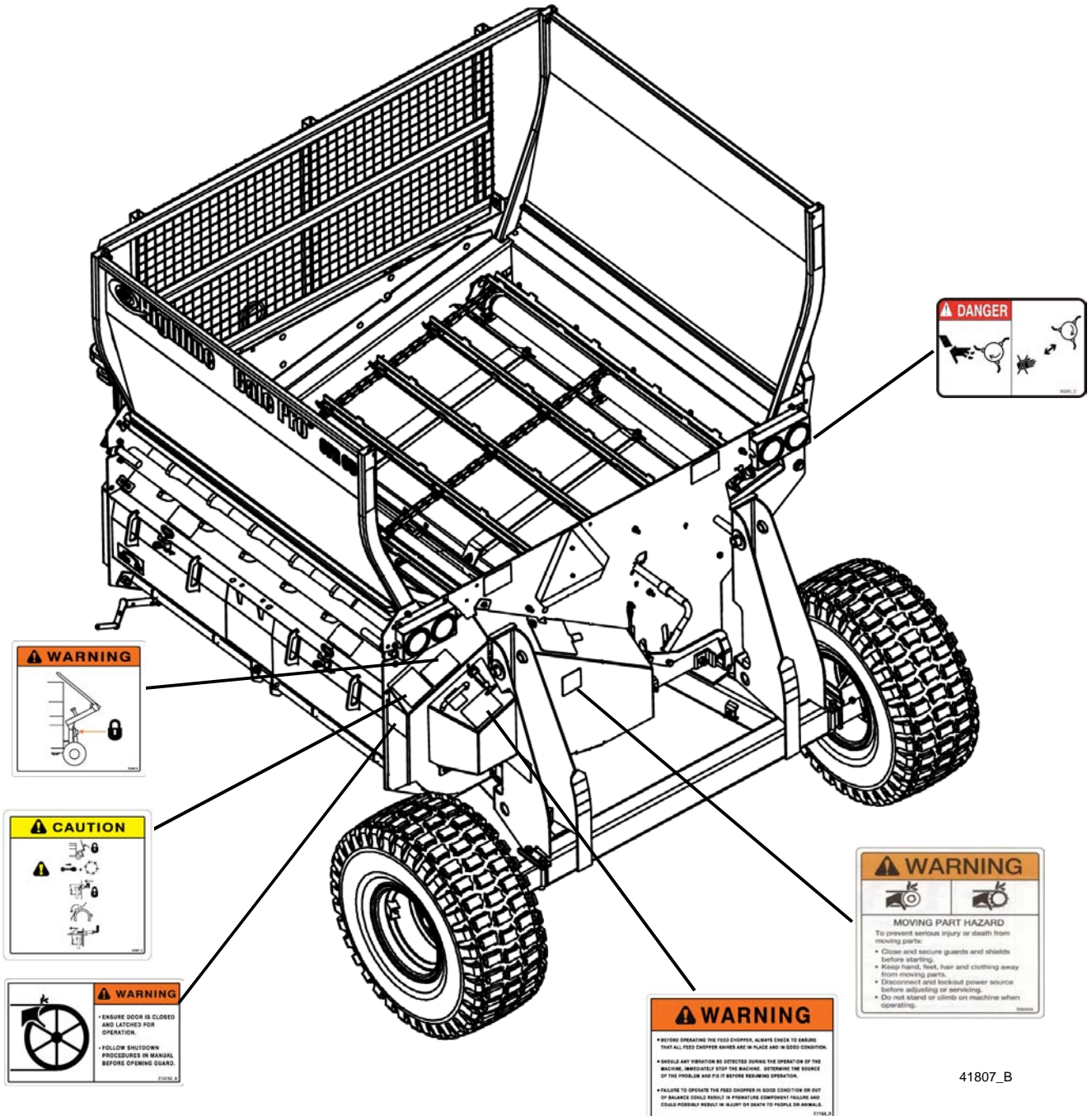
Check that all the knives are in place and in good condition.

If any vibration is detected during operation, immediately stop the machine and determine the source of the vibration before resuming.

Operating the Feed Chopper with knives missing or rotor out of balance could result in injury or death.



## SAFETY DECAL LOCATIONS



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### 2.0 FEED CHOPPER 651 PREPARATION

#### General Preparation

1. Park the tractor and CFR 651 on level ground.
  - Engage the tractor parking brake.



Park On Level Ground

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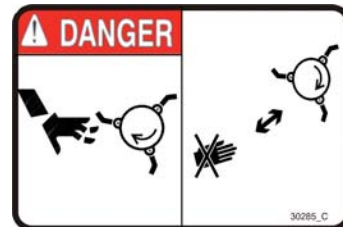
2. Shut off the tractor engine and remove the key.

3. Check the condition of the knives.



Disconnect the PTO driveline from the tractor.

Do not place hands in the chopper when it is rotating. Contact with exposed rotating blades will cause serious injury or death.



- Disengage the chopper clutch pin from the flail drum drive plate. (See Section 3 for procedures.)
- Spin the rotor by hand to check all the knives.
  - Check if they are broken or worn to the point that they would not process the material properly.
- For knife replacement information - see Section 4 - "Maintaining the Feed Chopper".



Check Condition of the Knives

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## Section 2 - Feed Chopper 651 Preparation

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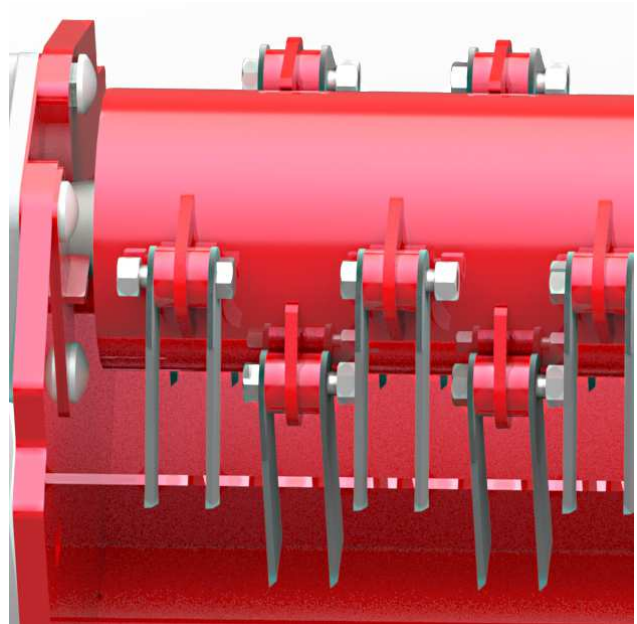
4. Clear the rotor area of any material buildup.

- Clear the chopping area and the knives.
- Check the condition of the rotor and the knife bolts.
- Remove twine or other materials that may be wrapped around the ends of the rotor shafts.



Clear Rotor Area of Buildup

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Remove Twine From Rotor Shaft

218162

## Section 2 - Feed Chopper 651 Preparation

5. Ensure the front drive shields are in good repair and securely closed with the rubber latch.



The Feed Chopper shall not be operated without all the driveline shields in place and secured.



Ensure Front Drive Shield Is Secured

213190

6. Ensure both rear drive shields are in good repair and securely closed with the rubber latches.



Ensure Rear Drive Shields Are Secured

217135

### Door Setup For Chopping Operation

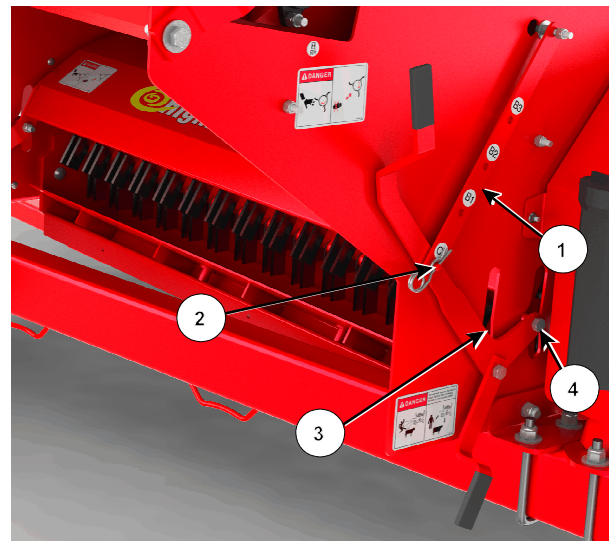
There are 2 doors to adjust for Chopping operation. These doors must be set to direct material into the Feed Chopper rotor.

**Note: The Feed Chopper drive clutch must be disengaged and all rotation of the chopper rotor stopped before moving the chopper door.**

**Serious damage to the Feed Chopper knives and Chopper door will result if the drive clutch is engaged with the Chopper door in the Bypass position. The rotating knives will hit the door.**

#### #1 - Adjust the Feed Chopper Door

1. Disconnect the front and rear hangers from the Chopper door handles.
  - Remove the clip pin and disconnect the hanger from the door handles.
2. Connect Handle At the Front Tub Wall:
  - Move the handle down until it rests in the bottom of the outer slot (3).
  - Continue to move the handle down until the inner bolt (4) is near the middle of the inner slot.
  - Place the handle pin into the C1 position (2) on the door hanger.
  - Fasten in place with the clip pin.



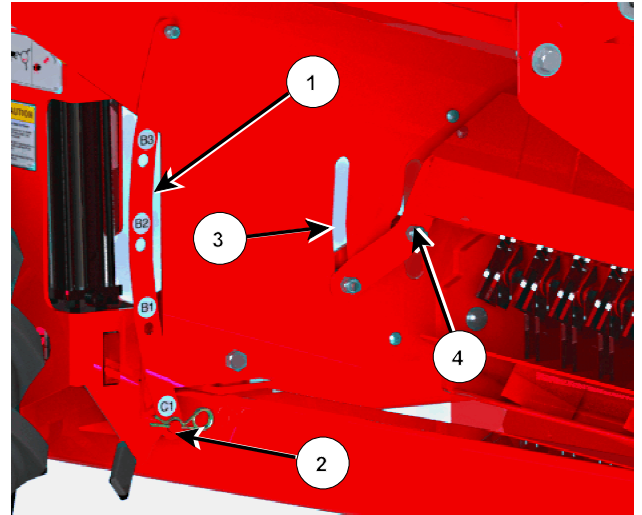
Connect the Front Handle to "C1" Position

213203C

## Section 2 - Feed Chopper 651 Preparation

### 3. Connect Handle At the Rear Tub Wall:

- Move the handle down until it rests in the bottom of the outer slot (3).
- Continue to move the handle down until the inner bolt (4) is near the middle of the inner slot.
- Place the handle pin into the C1 position (2) on the door hanger (1).
- Fasten in place with the clip pin.



Connect the Rear Handle To "C1" Position

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### 4. Visually check that the back of the chopper door is fully raised against the tub wall.



Check That Door Is Fully Raised

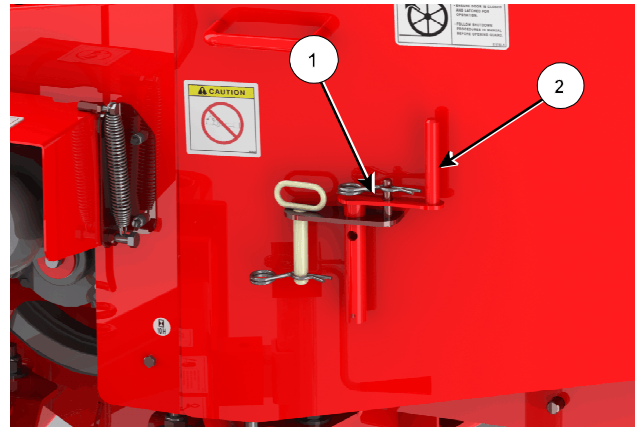
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## Section 2 - Feed Chopper 651 Preparation

### #2 - Adjust the CFR 651 Bottom Door

1. Remove the adjustment handle from the front drive shield.

- Remove the clip pin (1) from the handle.
- Remove the handle (2) from the storage bracket.



Remove the Bottom Door Handle

213195C

- Insert the handle onto the adjustment rod on the side of the processor.
- Turn the handle in the "CHOP" direction to lower the bottom door.
  - Turn the handle until the door is against the door stop.
  - This door will direct processed material into the Chopper.

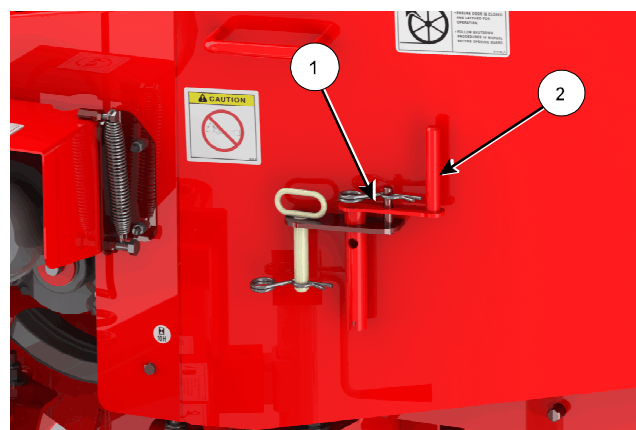


Lower the Bottom Door

213196

2. Place the adjustment handle (2) back into the storage bracket on the front drive shield.

- Fasten in place with the clip pin (1).



Replace Bottom Door Handle To Storage

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### Door Setup For Bypass Operation

Bypass operation allows processed material to bypass the chopper. No further chopping of material occurs. Bypass mode must be used when bedding or feeding material without chopping.

There are 2 doors to adjust for Bypass operation. Both of these doors must be set to direct material to pass over the Feed Chopper.

**Note: The Feed Chopper drive clutch must be disengaged and all rotation of the chopper rotor stopped before moving the chopper door.**

**Serious damage to the Feed Chopper knives and Chopper door will result if the drive clutch is engaged with the Chopper door in the Bypass position. The rotating knives will hit the door.**

- There are 3 Bypass positions.
  - Bypass 1 (B1) is often used for wet material or for a shorter throw distance.
  - Bypass 2 (B2) is often used for average material or medium throw distance.
  - Bypass 3 (B3) is often used for dry material, longer throw and also for bunk feeding (without chopping).



Bypass Positions

213205

## Section 2 - Feed Chopper 651 Preparation

### #1 - Adjust the Feed Chopper Door

1. Adjust the door handles and hangers for the desired Bypass Position as listed below.

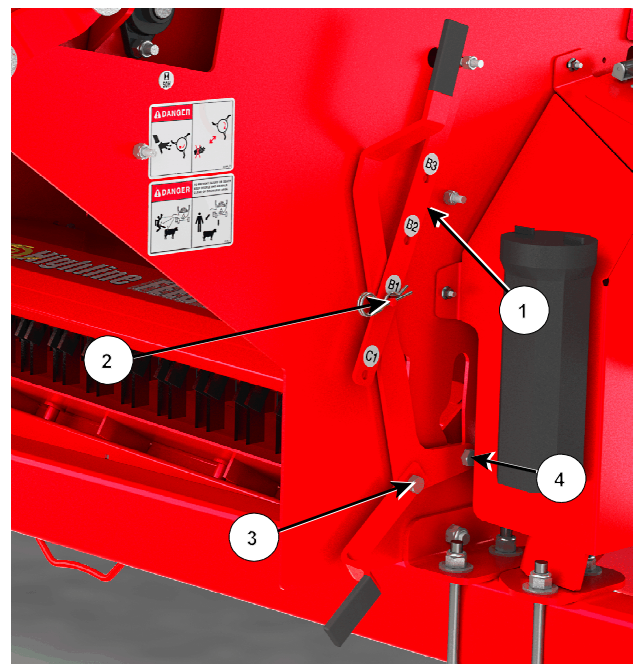
#### For Bypass Position 1 (B1):

(Often for wet material or a shorter throw distance.)

- Remove the front and rear handle clip pins (2) and disconnect the hangers (1).

At the Front Tub Wall:

- Move the handle up until it rests in the bottom of the outer slot (3) and the inner bolt (4) is at the bottom of the inner slot.
- Place the handle pin into the B1 position (2) on the door hanger (1).
- Fasten in place with the clip pin.

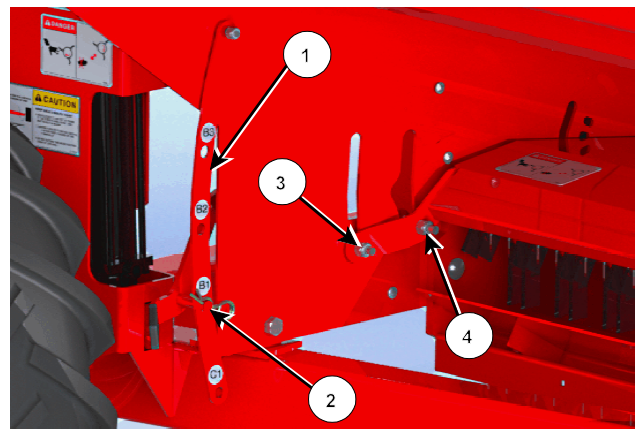


Front Handle - Bypass Position 1

213206C

At the Rear Tub Wall:

- Move the handle up until it rests in the bottom of the outer slot (3) and the inner bolt (4) is at the bottom of the inner slot.
- Place the handle pin into the B1 position (2) on the door hanger (1).
- Fasten in place with the clip pin.



Rear Handle - Bypass Position 1

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## Section 2 - Feed Chopper 651 Preparation

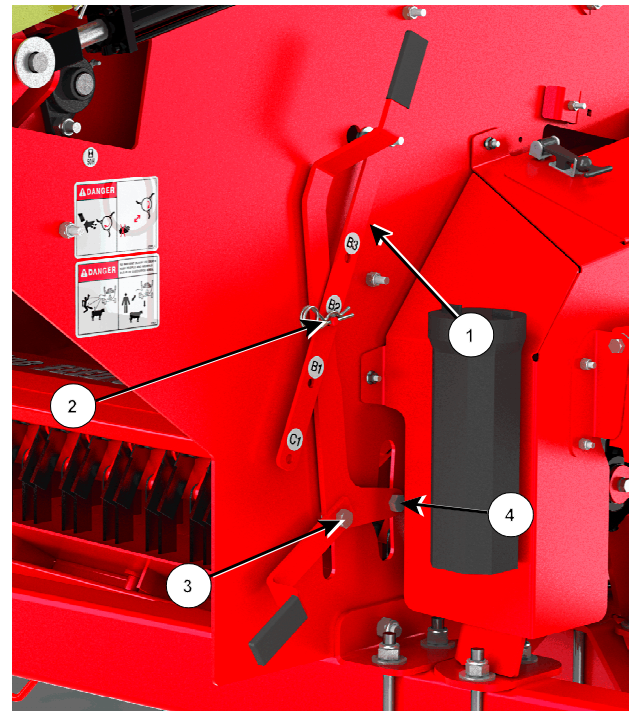
### For Bypass Position 2 (B2):

(Often for average material or medium throw distance.)

- Remove the front and rear handle clip pins (2) and disconnect the hangers (1).

#### At the Front Tub Wall:

- Move the handle up until it rests in the middle of the outer slot (3).
- Continue to move the handle up until the inner bolt (4) is at the middle of the inner slot.
- Place the handle pin into the B2 position (2) on the door hanger (1).
- Fasten in place with the clip pin.

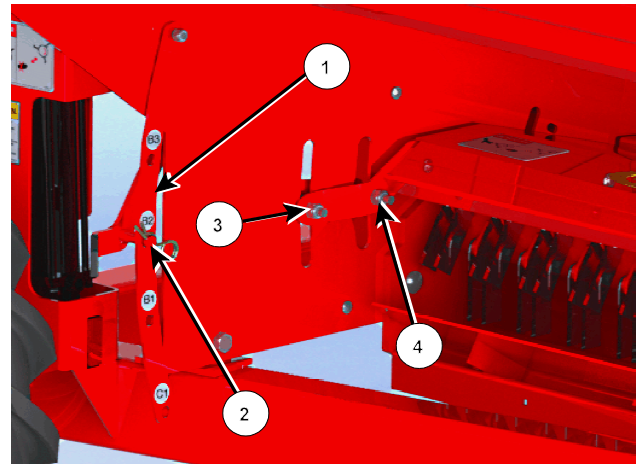


Front Handle - Bypass Position 2

213207C

#### At the Rear Tub Wall:

- Move the handle up until it rests in the middle of the outer slot (3).
- Continue to move the handle up until the inner bolt (4) is at the middle of the inner slot.
- Place the handle pin into the B2 position (2) on the door hanger (1).
- Fasten in place with the clip pin.



Rear Handle - Bypass Position 2

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## Section 2 - Feed Chopper 651 Preparation

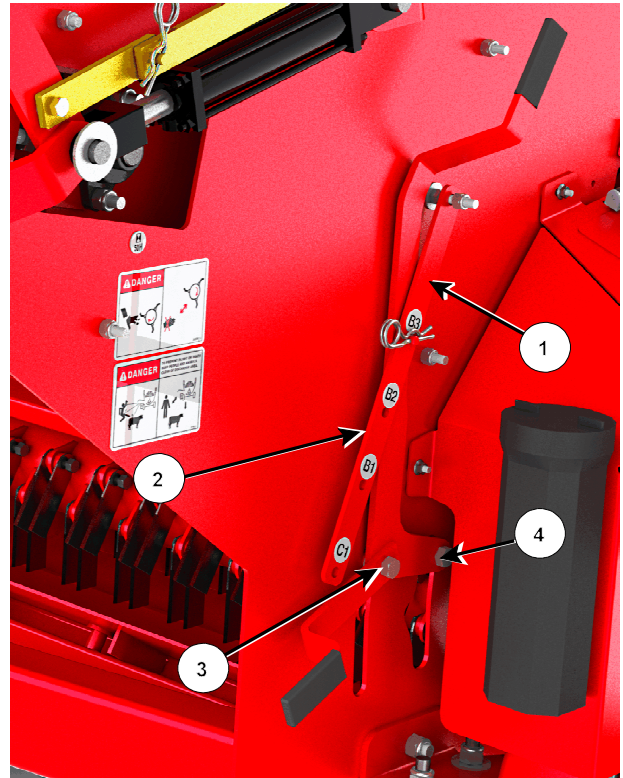
### For Bypass Position 3 (B3):

(Often for dry material, longer throw or bunk feeding without chopping.)

- Remove the front and rear handle clip pins (2) and disconnect the hangers (1).

#### At the Front Tub Wall:

- Move the handle up until it rests at the top of the outer slot (3).
- Continue to move the handle up until the inner bolt (4) is at the top of the inner slot.
- Place the handle pin into the B3 position (2) on the door hanger (1).
- Fasten in place with the clip pin.

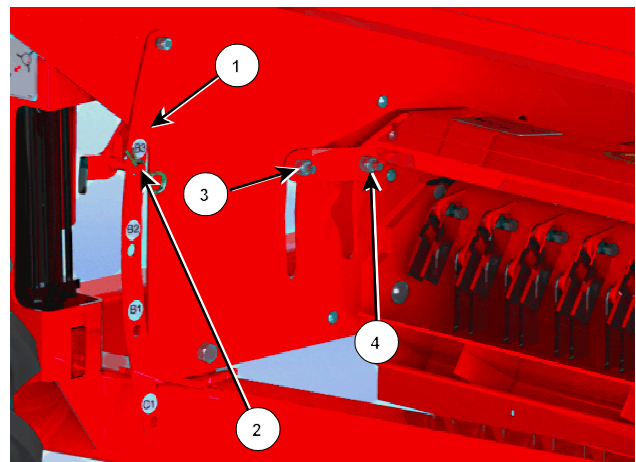


Front Handle - Bypass Position 3

213208C

#### At the Rear Tub Wall:

- Move the handle up until it rests at the top of the outer slot (3).
- Continue to move the handle up until the inner bolt (4) is at the top of the inner slot.
- Place the handle pin into the B3 position (2) on the door hanger (1).
- Fasten in place with the clip pin.



Rear Handle - Bypass Position 3

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## Section 2 - Feed Chopper 651 Preparation

2. Visually check that the chopper door is positioned to allow material to pass over the chopper.

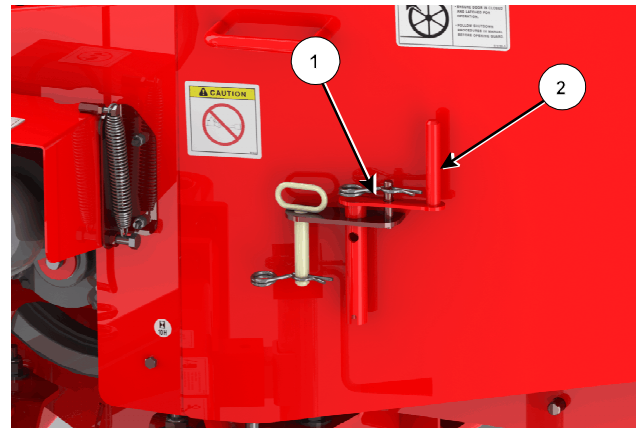


Check Chopper Door Position

212084

### #2 - Adjust the CFR 651 Bottom Door

1. Remove the adjustment handle from the front drive shield.
  - Remove the clip pin (1) from the handle.
  - Remove the handle (2) from the storage bracket.
- Insert the handle onto the adjustment rod on the side of the processor.
- Turn the handle in the "BYPASS" direction to raise the bottom door.
  - Turn the handle until the door is against the door stop.
  - This door will direct processed material over the Chopper.
- Visually check that the CFR 651 discharge door is fully raised.



Remove Bottom Door Handle

213195C



Raise the Bottom Door

213196



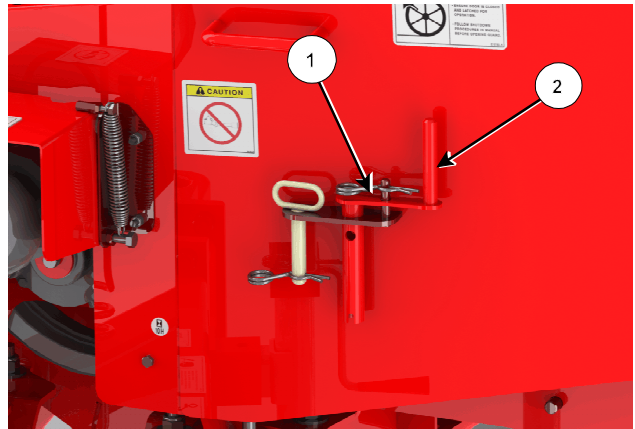
Check That the Bottom Door is Fully Raised

212084

## Section 2 - Feed Chopper 651 Preparation

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2. Place the adjustment handle (2) back into the storage bracket on the front drive shield.
  - Fasten in place with the clip pin (1).



Replace Bottom Door Handle To Storage

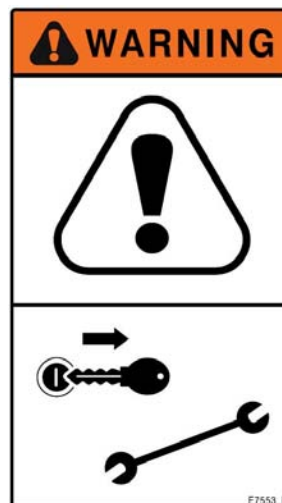
213195C

### 3.0 OPERATING THE FEED CHOPPER

#### Chopping Operation - Operating With the Feed Chopper

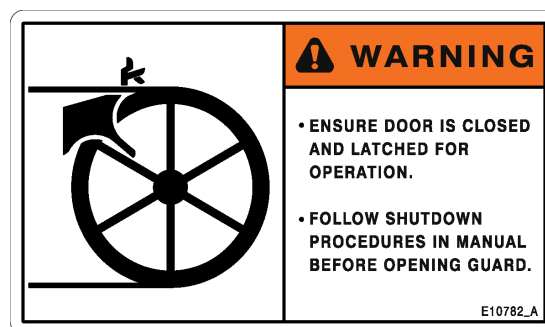


Shut off the tractor engine and remove the key.



Wait for all components to stop rotating.

Do not place hands in the Chopper drive clutch area while the flail drum is turning. Contact with the rotating pulley engaged to the flail drum can cause serious injury.



Do not place hands in the chopper when it is rotating. Contact with exposed rotating blades will cause serious injury or death.



### Section 3 - Operating the Feed Chopper

1. Ensure the Chopper door is positioned and locked in the “Chop” (C1) position.
  - Ensure the front door handle is locked into the front hanger.
  - See Section 2 - “Door Setup For Chopping Operation.”
2. Ensure the CFR 651 bottom door is fully lowered against the door stop.
  - See Section 2 - "Door Setup For Chopping Operation".



Confirm Position of Doors for Chopping

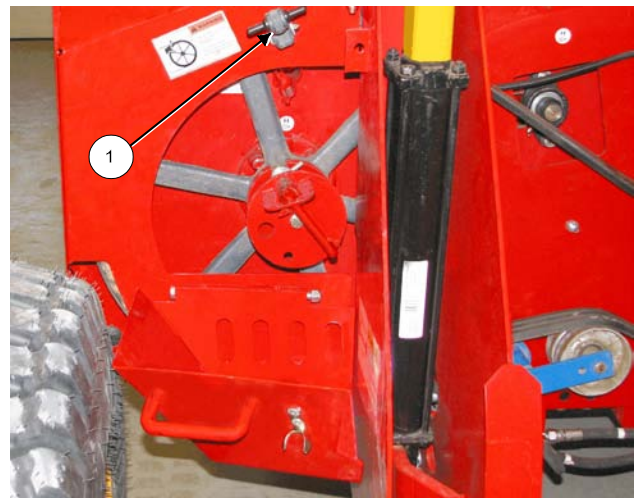
212075

**Note:** Before engaging the Feed Chopper drive clutch, the Chopper door front and rear door handles must be positioned and locked in the “Chop” position .

Serious damage to the Feed Chopper knives and Chopper door will result if the drive clutch is engaged with the chopper door in one of the Bypass positions. The rotating knives will hit the door.



3. Open the drive clutch guard.
  - Release the rubber door latch (1).



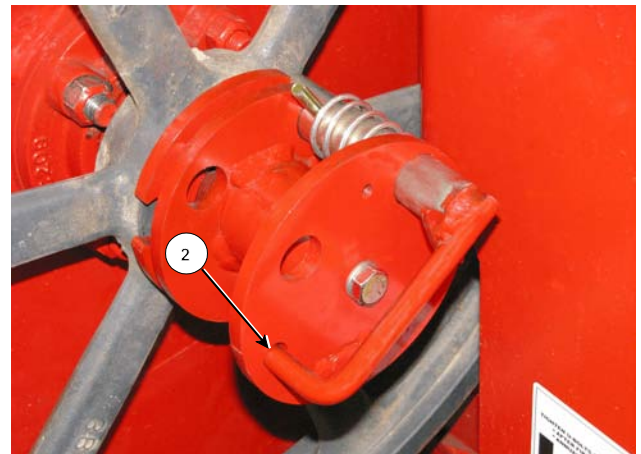
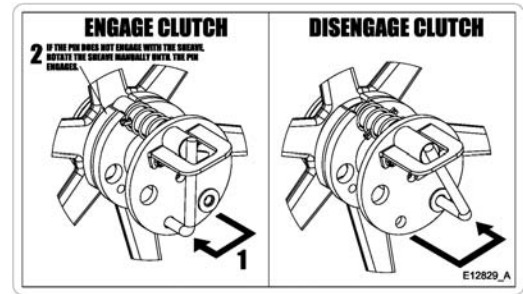
Open the Drive Clutch Guard

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### Section 3 - Operating the Feed Chopper

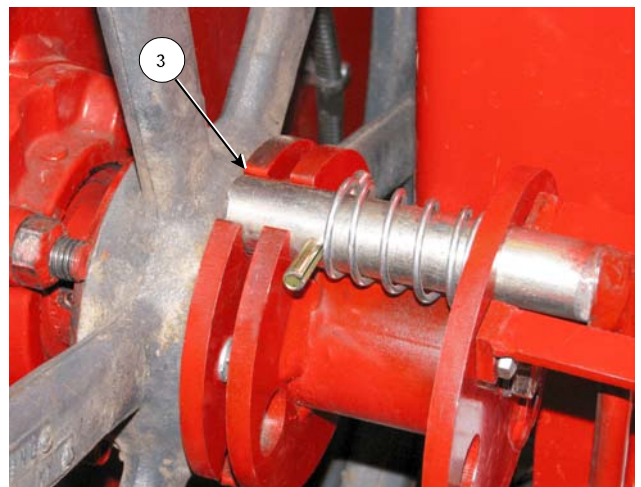
#### 4. Engage the chopper drive clutch.

- Rotate the large pulley to have the clutch pin at the top.
- Pull the handle out and rotate into the hole (2) to the left to engage the clutch pin into the sheave.
- The spring will pull the handle in and the clutch pin against the sheave plate.
- If the clutch pin does not engage with the sheave, manually rotate the sheave until the pin snaps into a connecting cutout (3).



Move Handle Into the Engaged Position

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Engaged Clutch Drive Pin

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### Section 3 - Operating the Feed Chopper

5. Close the drive clutch guard and fasten with the rubber latch.



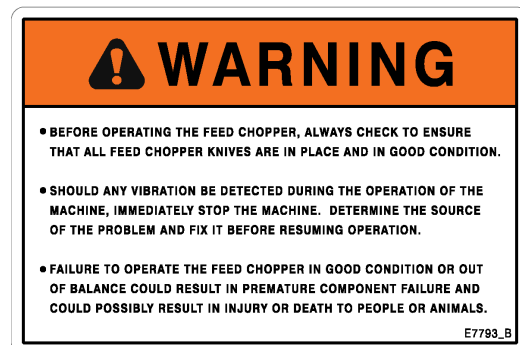
Close and Fasten the Drive Clutch Guard

212087

6. Begin to process a bale in the CFR 651.
7. The Feed Chopper will be driven by the belt drive and chop the processed material.



Should any vibration be detected during the operation of the machine, immediately stop the machine. Determine the source of the problem and fix it before resuming operation.



8. Drive ahead slowly while operating the CFR 651/Feed Chopper.



Avoid discharging material in the area of people and animals.



#### Bypass Operation - Operating Without the Feed Chopper

The CFR 651 can be operated without additional chopping of material. Material will pass over the Chopper.

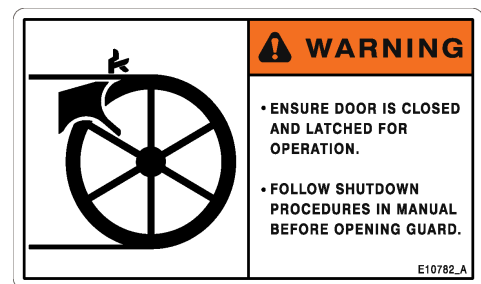


Shut off the tractor engine and remove the key.

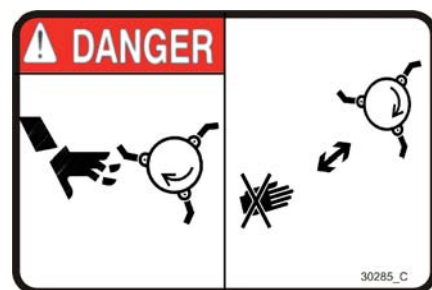


Wait for all components to stop rotating.

Do not place hands in the Feed Chopper drive clutch area while the flail drum is turning. Contact with the rotating large pulley engaged to the flail drum can cause serious injury.



Do not place hands in the chopper when it is rotating. Contact with exposed rotating blades will cause serious injury or death.



### Section 3 - Operating the Feed Chopper

1. Ensure the Chopper door is positioned and locked in one of the "Bypass" positions.

- Ensure the door handles are locked into the hangers.

Note: The rear hanger is not used for Bypass Position 1 (B1).

- See Section 2 - "Door Setup For Bypass Operation".

2. Ensure the CFR 651 bottom door is fully raised against the door stop.

- See Section 2 - "Door Setup For Bypass Operation".

3. Open the drive clutch guard.

- Release the rubber door latch (1).

4. Disengage the Chopper drive clutch.

- Rotate the large pulley to have the clutch pin at the top.

- Pull the handle out and rotate into the washer (2) to the right to disengage the clutch pin from the sheave.

- The spring will pull the handle in and into the washer.



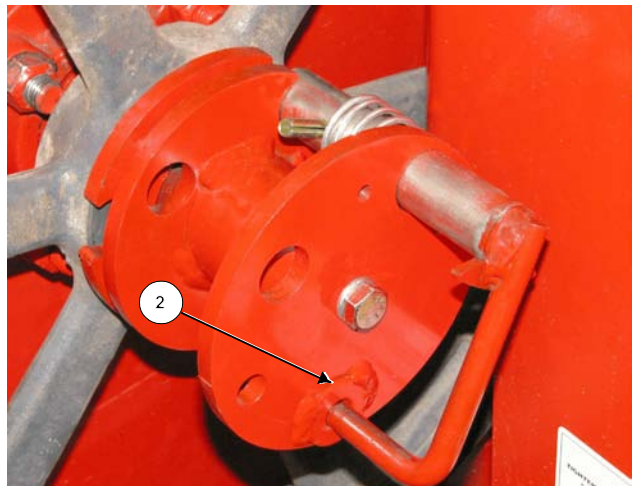
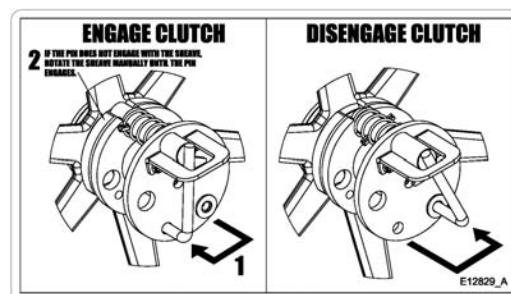
Confirm Position of Doors for Bypass

212084



Open the Drive Clutch Guard

212085C

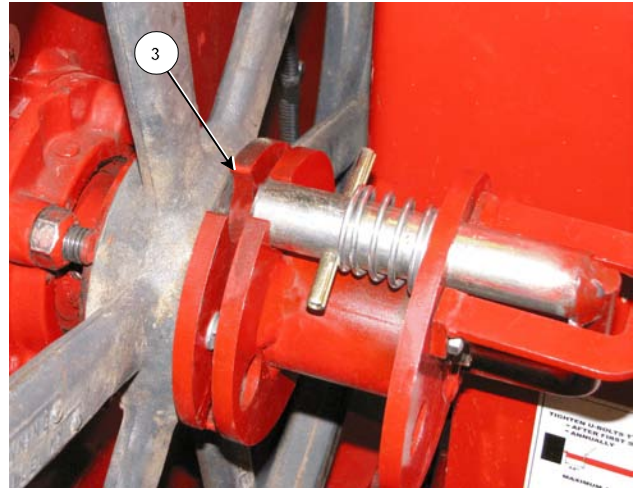


Move Handle Into Disengaged Position

212089C

### Section 3 - Operating the Feed Chopper

5. Ensure the clutch pin is disengaged from the sheave plate connecting cutout (3).



Ensure the Clutch Pin is Disengaged

212090C

6. Adjust the CFR 651 upper discharge door according to the amount of spreading desired.

7. Drive ahead slowly while operating the CFR 651.



Avoid discharging material in the area of people and animals.



### Unplugging the Feed Chopper

1. Reduce the engine speed to idle.
2. Disengage tractor power take off (PTO).
3. Set the tractor park brake.

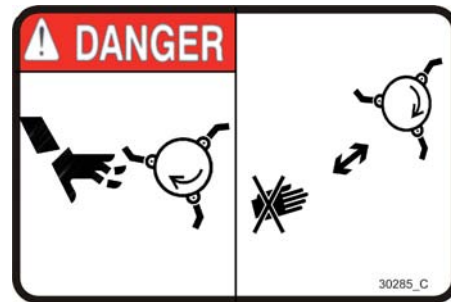


Shut off tractor engine and remove the key.



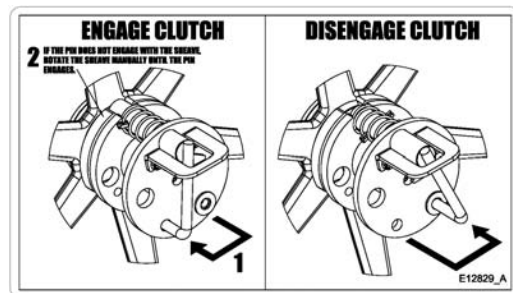
Wait for all components to stop rotating.

Do not place hands in the Feed Chopper while the rotor is turning. Contact with the rotating knives will cause serious injury.

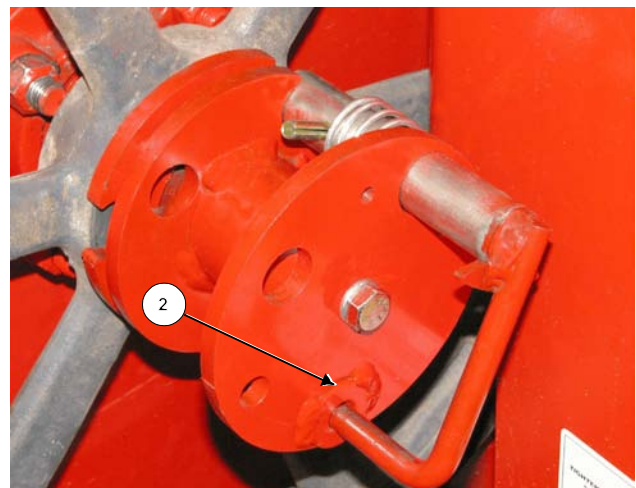


4. Disengage the Chopper drive clutch.

- Rotate the large pulley to have the clutch pin at the top.
- Pull the handle out and rotate into the washer (2) to the right to disengage the clutch pin from the sheave.
- The spring will pull the handle in and into the washer.



Do not place hands in the Feed Chopper drive clutch area while the flail drum is turning. Contact with the rotating pulley engaged to the flail drum can cause serious injury.



Move Handle Into Disengaged Position

### Section 3 - Operating the Feed Chopper

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5. Ensure the chopper door is positioned and locked in the "Chop" position.

-See Section 2 - "Door Setup For Chopping Operation".

6. Clear the chopping area and the knives.



Clear Chopping Area and Knives

212075

7. Clear the flail drum side.

- Remove the flail drum access doors.
- Reach through to remove any materials that are built up in the flail drum area or in the Feed Chopper area.
- Replace the flail drum access doors.
  - Fasten with the hairpins.



Clean Flail Drum and Feed Chopper Area

212043

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### 4.0 MAINTAINING THE FEED CHOPPER



Shut down the tractor and remove the key before repairing, servicing, lubricating or cleaning the machine.

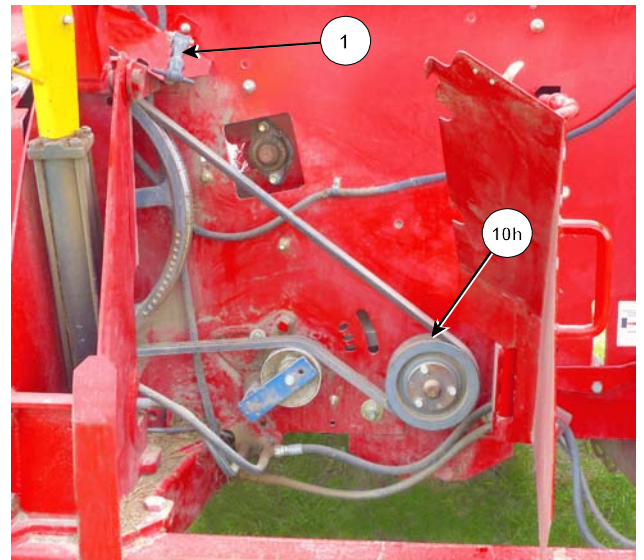
Relieve all hydraulic pressure in the hoses. Disconnect the hydraulic hoses from the tractor before going near the machine.

#### Lubrication

Lubricate all grease fittings with a quality lithium complex, extreme pressure NLGI Grade 2 grease.

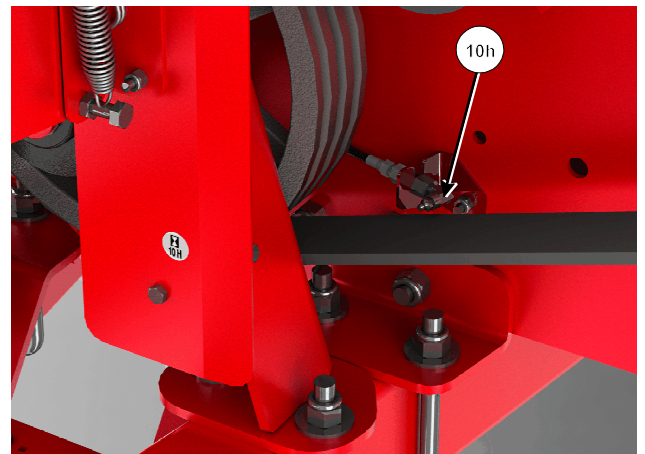
#### Every 10 Hours

- Lubricate rear rotor bearing.
  - Open the rear door by releasing the rubber latch (1) and swinging the door open.
  - Grease the rear bearing.
  
- Lubricate the front rotor bearing through the remote grease point.
  - Open the flail drive guard at the front of the machine.
  - Grease the bearing using the remote grease point located near the sheave.



Grease Rear Rotor Bearing

217136C



Grease Front Rotor Bearing (Remote Point)

213200C

### Greasing the CFR 651 Rear Flail Drum Bearing (Every 50 hours)

- To access the CFR 651 rear flail drum bearing:
  - Open the Chopper drive guard.
  - Rotate the sheave to access the grease zerk on the bearing.

### Twine Cutter Access

- To access the twine cutter opening:
  - Open the Chopper drive guard.
  - Insert the twine cutter into the twine cutter opening (1).

### Greasing the Lower Feeder Chain Bearing (Every 50 hours)

- To access the CFR 651 lower feeder chain bearing:
  - Open the rear door by releasing the rubber latch (2).
  - Grease the feeder chain bearing.

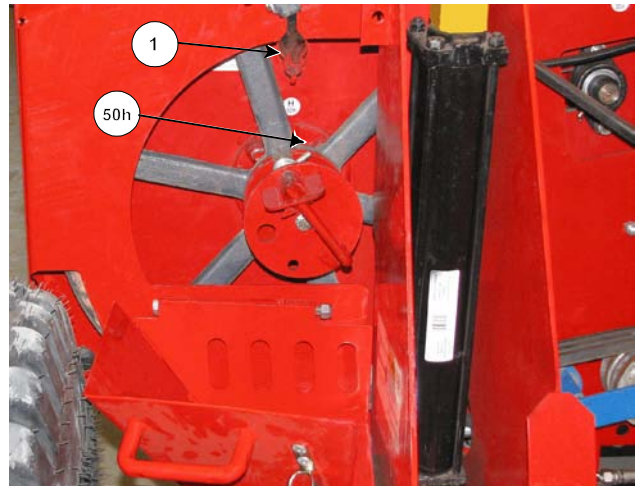
### Rotor Knife Replacement

Replace knives that are broken or worn to the point that they will not process material properly.

Four knives must be replaced at the same time.

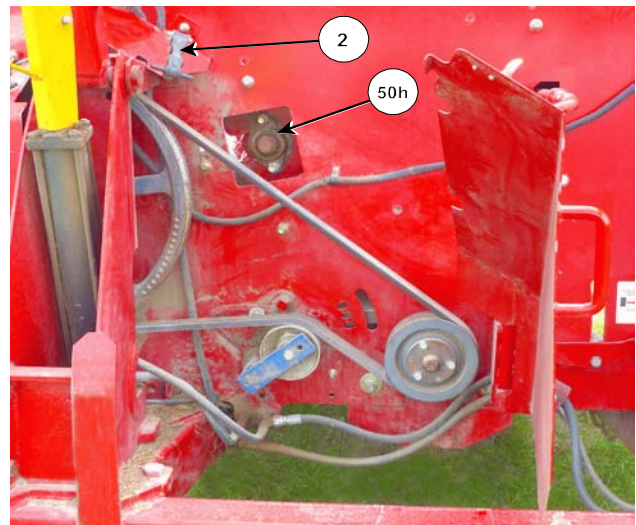
Note: To maintain rotary balance, the set of knives on the opposite side of the rotor must be replaced at the same time. (3)

- Remove the nut and bolt holding the set of knives.
- Discard the set of old knives, the bolt and nut.
- Install the set of new knives using the new bolt and nut.



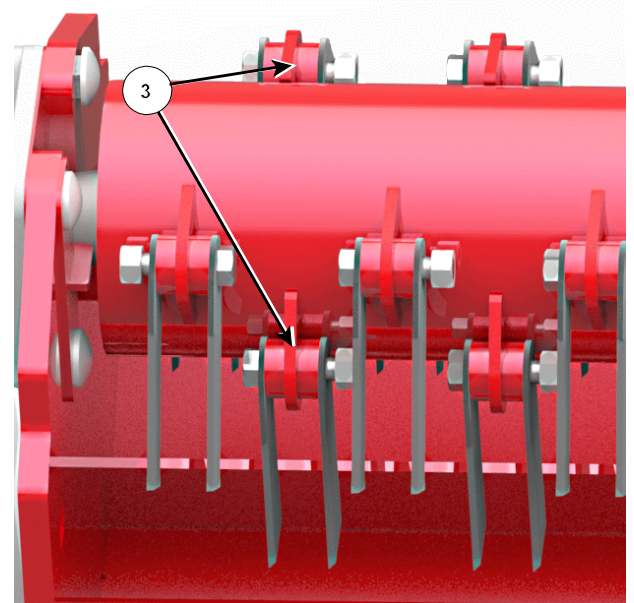
Grease Flail Drum - Twine Cutter Access

212093C



Grease the Lower Feeder Chain Bearing

217136C2



Replace Knife Set & Opposite Set

218162C

### Rotor Twine Scraper Adjustment

Adjust the twine scrapers on both ends of the rotor shaft.

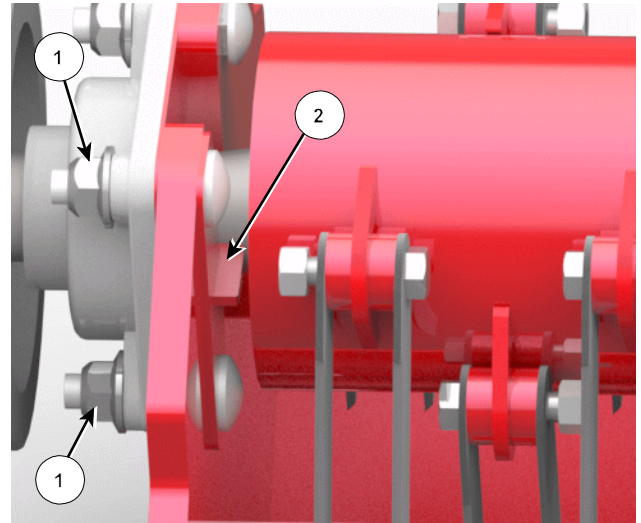
#### Rear of the Shaft

- For the rear shaft scraper adjustment open the sheave shield to get access to the bearing bolts.
- Loosen the bearing bolt nuts (1) that have the twine scraper on it to allow the bearing bolts to be loose.
- Slide the twine scraper (2) on the bearing bolts until it is almost touching the rotor shaft.
  - Do not have the scraper touching the rotor shaft.
- To ensure clearance use a flashlight to check for a visible sliver of light between the edge of the twine scraper and the rotor shaft.
- Tighten the bearing bolt nuts (4) to fasten the scraper in place.
- Torque to 65 lb-ft (88 Nm).



Open Rear Shield to Adjust Scraper

217136



Adjust Twine Scrapers on Rotor Shaft

218163C

#### Front of the Shaft

- The front bearing nuts are accessed through the opening between the front shield and the tub wall (3).
  - Use an open end wrench placed in the opening to loosen the bearing nuts.
- Follow the same scraper adjustment procedures as the rear of the shaft.
- When finished adjusting the scraper, torque the bearing nuts to about 65 lb-ft (88 Nm).



Access To Front Bearing Nuts for Scraper Adjustment

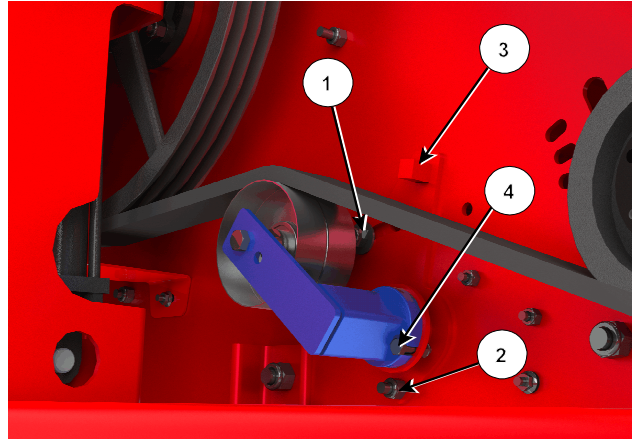
218164C

### Belt Tension Adjustment

The belt tension adjuster will adjust to keep the belt tight.

To Adjust the Belt Tension:

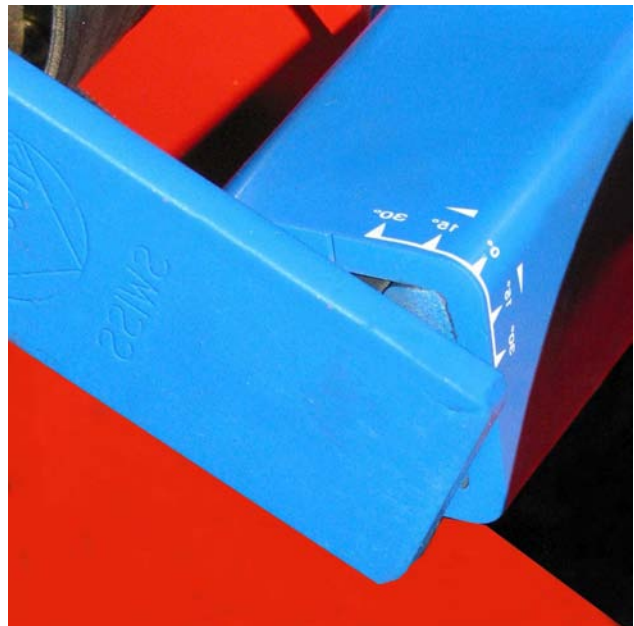
- Loosen the top nut (1).
- Loosen the lower nut (2).
- Place a wrench onto the square post (3) on the tension adjustment arm.



Belt Tension Adjustment

212095C

- Move the wrench to set the belt tension to 30 degrees.
- Tighten the lower nut (2).
- Tighten the upper nut (1).



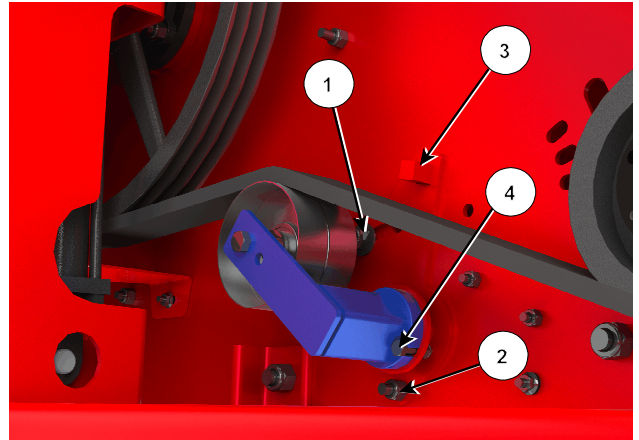
Set Tension to 30 Degrees

213202

## Section 4 - Maintaining the Feed Chopper

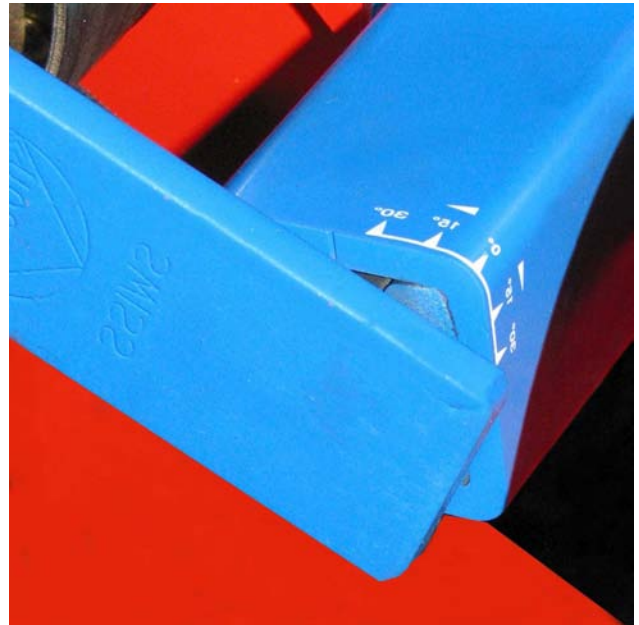
To get more adjustability from the tensioner, move the anti-rotation bolt.

- Loosen the top nut (1).
- Loosen the lower nut (2).
- Place a wrench on the square post (3) to loosen the belt tension.
- Remove the drive belt from the tensioner pulley.
- Move the anti-rotation bolt (4) into one of the other holes in the mount bracket. Tighten in place.
- Replace the drive belt onto the tensioner pulley.
- Move the wrench to set the belt tension to 30 degrees.
- Tighten the lower nut (2).
- Tighten the upper nut (1).



Belt Tension Adjustment

212095C



Set Tension to 30 Degrees

213202

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## 5.0 TROUBLESHOOTING

### Operation

Symptom	Problem	Solution
Excessive Rotor Vibration	Broken knife.	Replace knives in pairs. Also replace knife pair on opposite side of the rotor to maintain rotational balance.
	Missing knives.	Replace knives in pairs. Also replace knife pair on opposite side of the rotor to maintain rotational balance.
	Foreign material lodged in chopper housing.	Remove foreign material.
		Check condition of knives. Replace knives as pairs and also replace knife pair on opposite side of rotor to maintain rotational balance.
		Check for damage to the rotor. Contact Highline for proper repair procedure.
	Failed rotor end bearing.	Check if rotor rotation feels rough. Replace failed bearing.
		Check for rotor side play. Replace failed bearing.
		Visually inspect bearing. Replace failed bearing.

Chopper Door Does Not Fully Lower For Bedding Operation	Material buildup on the rotor shaft ends.	Remove material from the ends of the rotor shaft.
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## Section 5 - Troubleshooting

Symptom	Problem	Solution
Rotor Does Not Spin	Drive clutch is not engaged.	Twist the clutch engage handle to move to the Engaged Position. Rotate the sheave until the drive pin snaps into a connecting hole in the flail drum plate. Ensure the drive pin is fully forward into the drum plate.
	Broken Drive Belt.	Replace the belt.
	Foreign material lodged in housing.	Remove foreign material to allow rotor to spin freely. Check condition of knives. Replace knives as pairs and also replace knife pair on opposite side of rotor to maintain rotational balance.
	Rotor bearing has seized.	Check bearings or replace.
Rotor Stops Spinning	Drive clutch pin has moved out and no longer is engaged with the flail drum plate.	Twist the clutch engage handle to move to the Engaged Position. Rotate the sheave until the drive pin snaps into a connecting hole in the flail drum plate. Ensure the drive pin is fully forward into the drum plate.
	Belt has come off the sheaves or tensioner.	Place the belt on the sheaves and the tensioner. Check the alignment of the sheaves and tensioner. Adjust if needed.
	Broken belt.	Replace the belt.
Drive Belt Loose	Tension bracket has allowed idler to move.	Check that the anti-rotation bolt on the tension bracket is in place. Replace the bolt.
	Belt has stretched.	Replace the belt.
		Move the tensioner bolt.

# Highline New Equipment Limited Warranty Policy

One (1) Year / 12 Months - Parts and Labour

Highline Mfg. Ltd. (hereinafter "Highline") warrants this new product of Highline's manufacturer to be free from defects in material and workmanship, under normal use and service for one (1) full year after initial purchase/retail sale. Highline will warrant its product for one (1) year parts and labour, if performed by a qualified Dealer. This Limited Warranty shall apply only to complete machines of Highline's manufacture. Parts are covered by a separate Limited Warranty.

**EQUIPMENT AND ACCESSORIES NOT OF HIGHLINE'S MANUFACTURE ARE WARRANTED ONLY TO THE EXTENT OF THE ORIGINAL MANUFACTURER'S WARRANTY AND SUBJECT TO THEIR ALLOWANCE TO HIGHLINE ONLY IF FOUND DEFECTIVE BY SUCH MANUFACTURER.**

During the Limited Warranty period specified above, any defect in material or workmanship in any warranted item of Highline Equipment not excluded below shall be repaired or replaced at Highline's option without charge by any authorized independent Highline Dealer. An authorized Dealer must make the warranty repair or replacement. Labour in accordance with Highline's labour reimbursement policy. Highline reserves the right to supply remanufactured replacement parts as it deems appropriate.

## **RETAIL PURCHASER RESPONSIBILITY**

This Limited Warranty requires proper maintenance and periodic inspections of the Equipment as indicated in the Operator's Manual furnished with each new Equipment. The cost of routine or required maintenance and services is the responsibility of the retail purchaser. The retail purchaser is required to keep documented evidence that these services were performed. This Highline New Equipment Limited Warranty may be subject to cancellation if the above requirements are not performed.

## **EXCLUSIONS AND LIMITATIONS**

The warranties contained herein shall NOT APPLY TO:

1. Any defect which was caused (in Highline's sole judgement) by other than normal use and service of the Equipment, or by any of the following:
  - a. accident
  - b. misuse or negligence
  - c. overloading
  - d. of reasonable and proper maintenance
  - e. improper repair or installation
  - f. unsuitable storage
  - g. non-Highline approved alteration or modification
  - h. natural calamities
  - i. vandalism
  - j. parts or accessories installed on Equipment which were not manufactured or installed by Highline authorized Dealers
  - k. the elements
  - l. collision or other accident.
2. Any Equipment whose identification numbers or marks have been altered or removed.
3. Any Equipment which any of the required or recommended periodic inspection or services have been performed using parts not manufactured or supplied by Highline or meeting Highline Specifications including, but without limitation, lubricants (oil, grease), belt lacings, and hydraulic fluids.
4. Any Equipment used in demonstrations not performed by a Highline Dealer. Warranty will be at the discretion of Highline for all other demonstration warranty.
5. New Equipment delivered to the retail purchaser in which the warranty registration has not been completed and returned to Highline within thirty (30) days from the date of purchase.
6. Any defect that was caused (in Highline's sole judgement) by operation of the Equipment not abiding by standard operating procedures outlined in the Operator's Manual.
7. Tire Limited Warranties and support are the responsibility of the respective product's manufacturer.
8. Transportation costs, if any, of transporting to the Highline Dealer.
9. In no event shall Highline's liability exceed the purchase price of the product.
10. Highline shall not be liable to any person under any circumstances for any incidental or consequential damages (including but not limited to, loss of profits, out of service time and damage to equipment which this equipment may be attached) occurring for any reason at any time.
11. Diagnostic and overtime labour premiums are not covered under this Limited Warranty Policy.

12. Depreciation damage caused by normal wear, lack of reasonable and proper maintenance, failure to follow operating instructions, misuse, and/or lack of proper protection during storage.
13. Accessory systems and electronics not of Highline's manufacture are warranted only to the extent of such manufacturer's respective Limited Warranty if any.
14. Wear items which are listed by product group below:

#### **COMMON WEAR ITEMS**

Roller chain, sprockets, clutches, shear bolts, clutch components, chains, gearbox housings bolts/torqued parts, flails, feed roller belting, coupler chain, DRV couplers, bogie wheels, apron tines and hoses, blades and blade pans, blade bolts and nuts, skid shoes, chain guards, clutches and clutch components.

#### **PARTS WARRANTY**

Parts replaced in the warranty period will receive the balance of the one year New Equipment Limited Warranty. Replacement parts after the original machine warranty are warranted to be free from defects of material for ninety (90) days or the part will be repaired or replaced, without labour coverage for removal and reinstallation.

#### **EXCLUSION OF WARRANTIES**

UNLESS OTHERWISE REQUIRED BY LAW, AND EXCEPT FOR THE WARRANTIES EXPRESSLY AND SPECIFICALLY MADE HEREIN, HIGHLINE MAKES NO OTHER WARRANTIES, AND ANY POSSIBLE LIABILITY OF HIGHLINE HEREIN UNDER IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, IMPLIED, OR STATUTORY, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANT ABILITY OR FITNESS FOR A PARTICULAR PURPOSE. HIGHLINE RESERVES THE RIGHT TO MODIFY, ALTER AND IMPROVE ANY PRODUCT WITHOUT INCURRING ANY OBLIGATION TO REPLACE ANY PRODUCT PREVIOUSLY SOLD WITH SUCH MODIFICATION. NO PERSON IS AUTHORIZED TO GIVE ANY OTHER WARRANTY, OR TO ASSUME ANY ADDITIONAL OBLIGATION ON HIGHLINE'S BEHALF.