

Bale Pro[®] Complete Feed Ration

TOP GUN[®] 650

Operator Manual



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 **Highline**
MANUFACTURING
A DIVISION OF BOURGALT INDUSTRIES LTD.

E16223V1_B

TOP GUN[®]
on the
BalePro[®]
Complete Feed Ration 650

**Operator's
Manual**

Original Instructions

From Serial No: 20TG650000

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E16223V1_B

Highline Team Message

Congratulations on your purchase of the TOP GUN for the Complete Feed Ration 650 (TG650) manufactured by Highline Manufacturing.

This Operator's Manual has been prepared to provide information necessary for the safe and efficient operation of your TOP GUN. 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 thanks and congratulates you for selecting a TOP GUN for the Complete Feed Ration 650 as your machine of choice.

Highline Manufacturing.

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GENERAL DESCRIPTION OF THE TOP GUN 650

The TOP GUN is an attachment to the Complete Feed Ration 650 (CFR650).

The TOP GUN has animal bedding capabilities by moving processed material through the blower discharge nozzle. The direction and discharge height of the nozzle is adjustable through hydraulic controls to place the materials at the desired location.

The TOP GUN has animal feeding capabilities by placing processed material in a windrow or into a feeding bunk. The blower is disengaged and the auger housing is opened to allow material to be discharged from the side of the machine.

The TOP GUN has land reclamation capabilities by placing processed materials into the area requiring the reclamation. The direction and discharge height of the nozzle is adjustable through hydraulic controls to place the materials at the desired location.

The discharge blower takes power through a belt drive that is clutched to the main driveline. The auger is driven by a belt from the flail drum of the CFR650.

The CFR650 must be turned off when the TOP GUN blower clutch is engaged.
The CFR650 must be turned off when the auger housing is moved into the feeding position.

The operator of the CFR650/TOP GUN is located in the tractor cab to control the speed of driving, the speed of operation of the CFR650/TOP GUN, the direction of the blower nozzle output .

INTENDED USE OF THE TOP GUN

The TOP GUN is designed to blow animal bedding materials that have been initially processed from a bale by the CFR650.

The TOP GUN is designed to take animal feed materials that have been initially processed from a bale by the CFR650 and place them in a windrow or feed bunk.

The TOP GUN is designed to blow land reclamation materials that have been initially processed from a bale by the CFR650.

The TOP GUN is intended for use in farming applications and land reclamation applications. The TOP GUN is intended for off road use only unless used in land reclamation use. (Get appropriate permits from local authorities for land reclamation applications.)

The TOP GUN is intended for use in locations away from people who could be harmed by the discharged materials.

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

- Using the TOP GUN on public roads (except for land reclamation uses).
- Using the TOP GUN around people or in public places.
- Discharging materials other than for animal bedding, feed materials or land reclamation.
- Discharging materials that have not been initially processed by the CFR650.

Always use the TOP GUN 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 the TOP GUN operates safely and efficiently.

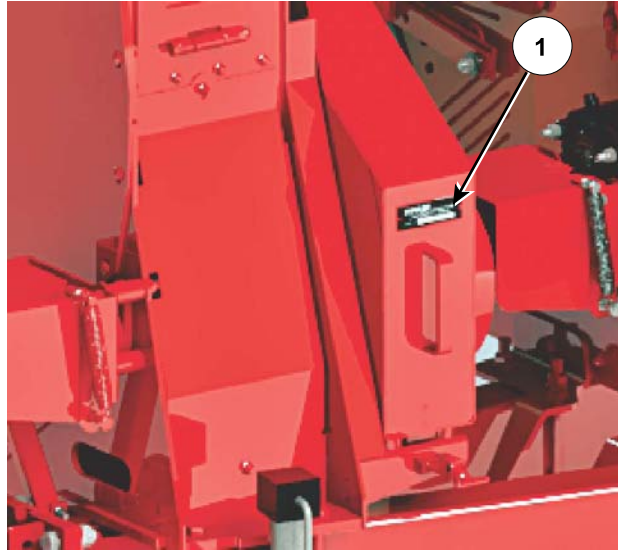
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SERIAL NUMBER

Your serial number is found on the serial number plate (1) attached drive shield of the TOP GUN 650.



Serial Plate Location

216101C

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 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 TOP GUN 650 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 operators 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.

Date	Employee's Signature	Employer's Signature

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 TOP GUN 650 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 dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of the machine.
3. The TOP GUN 650 shall not be operated without all the guards in place.

SAFETY DECALS

1. Keep decals and signs clean and legible at all times.
2. Replace decals and signs that are damaged, missing or have become illegible.
3. Replaced parts that displayed a decal should also display the current decal.
4. Decals are available from the Highline 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 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 the driveline.

DO NOT OPERATE WITH SHIELDS MISSING

Stop engine and ensure the PTO driveline is stopped before working on driveline



DO NOT CONTACT THE ROTATING BLOWER

Contact with rotating blower blades can cause serious injury or death.

Keep hands out of the blower chamber when the blower is rotating.

Always disengage power takeoff, set park brake, lower loader forks to the ground, shut off tractor engine, remove key, and wait for PTO to stop turning before unplugging by hand or servicing.

Keep guards in place and in good condition.



CHECK BLOWER BLADES FOR CRACKS AND THICKNESS

Blade pieces that break off will be discharged causing serious injury or death.

Replace all the blades if any blade is cracked along the bend line.

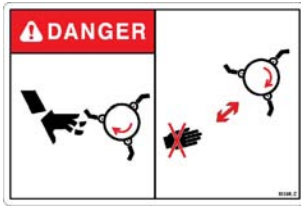
Replace all the blades if any blade is worn to a thickness of 1/8" (3.2 mm) or less.



DO NOT CONTACT THE ROTATING AUGER

Keep fingers and hand out of the auger tube and chamber.
Never attempt to manually remove debris while the auger is rotating.

Contact with the rotating auger will cause serious injury or death.
Keep all auger guards in place.



DO NOT CONTACT ROTATING FLAILS

Contact with moving parts can cause serious injury or death.

Keep hands out of the cutting area and processor tub when the flail drum is rotating.



STAY BACK FROM AN OPERATING MACHINE WHICH CAN DISCHARGE OBJECTS AT HIGH SPEED

Stay clear of the nozzle when discharging for bedding.

Stay clear from auger side when discharging for feeding.

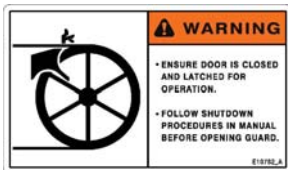


Thrown material or objects can cause serious injury or death.

Do not operate within 100 ft (30m) of any person.

Keep all shields and guards in place.

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 PLACE HAND IN THIS AREA WHEN RAISING OR LOWERING THE LID

Serious injury could result if hands are placed in this clamping area.

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



SHUT DOWN THE TRACTOR BEFORE DISMOUNTING TRACTOR

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

Relieve all hydraulic pressure in the hoses before going near the machine. Leave the hydraulics in the "float" position.



DO NOT EXCEED 80°F TURNS IN OPERATION

Do not operate the Constant Velocity (CV) driveline at greater than 80°F to prevent damage to the driveline.



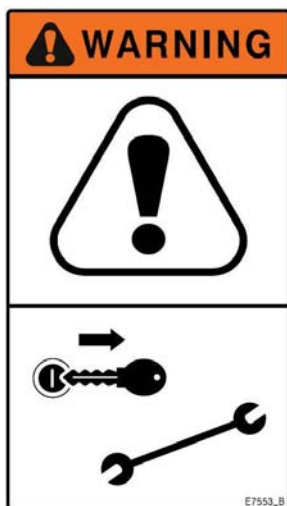
DO NOT ATTEMPT TO LIFT THE HITCH WITHOUT USING THE JACK



ENSURE SLOW MOVING VEHICLE SIGN IS IN PLACE

Ensure the Slow Moving Vehicle sign is in place, clean and easily visible.

Ensure the reflectors are in place, clean and easily visible.



SHUTDOWN PROCEDURE

For your safety and the safety of others, this shutdown procedure must be followed before dismounting from the tractor for inspecting, repairing, servicing, cleaning, or lubricating the machine.

- Step 1: Reduce the engine speed to idle.
- Step 2: Disengage tractor power takeoff.
- Step 3: Set tractor park brake.
- Step 4: Lower bale loader forks to the ground.
- Step 5: Shut off tractor engine and remove key.
- Step 6: Cycle tractor controls to relieve any residual circuit pressure.
- Step 7: Wait for drum to stop turning.

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2.0 TOP GUN 650 PREPARATION

General Preparation

1. Park the tractor and CFR650 on level ground.
 - Engage the tractor parking brake.
2. Shut off the tractor engine and remove the key.
3. Check the condition of the auger.



Disconnect the PTO driveline from the tractor.

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

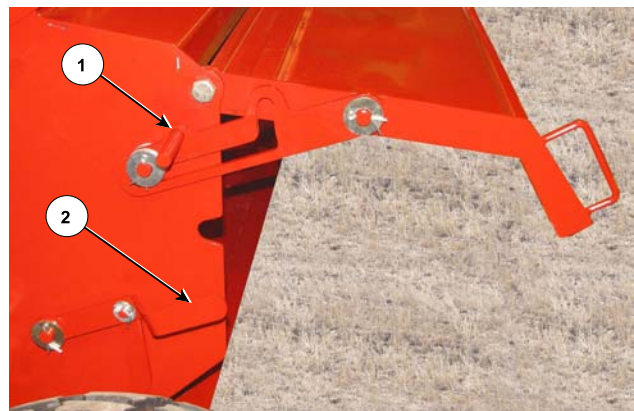
Do not move the auger housing doors while the flail drum is rotating as this will expose the rotating auger and the rotating blower.

- Raise the upper auger housing cover.
 - Release the handle (1).
 - Raise the cover.
 - Latch the handle in the slot.
- Lower the bottom auger housing cover.
 - Use the lower handle (2) to lower the bottom housing door.



Park On Level Ground (Optional Door Shown)

212123

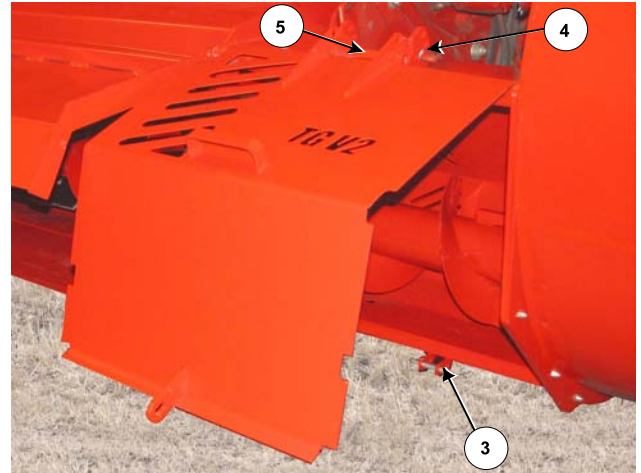


Raise Auger Housing Covers

212125C

Section 2 - TOP GUN 650 Preparation

4. Raise the transition housing cover.
 - Remove the pin from the bottom of the cover (3).
 - Place the pin back into the tabs.
 - Remove the hair pin (4) from the hinge pin (5) at the top of the cover.
 - Remove the hinge pin.
 - Rotate the cover to the open position.
 - Install the hinge pin (5).
 - Install the hair pin (4).



Raise the Transition Housing Cover

212129C

5. Clear the auger area of any material buildup.
 - Check the condition of the auger flighting.
 - Check the condition of the paddles.
 - If feeding with the auger it is recommended to install the rubber paddles.

Note: The auger will be imbalanced if paddles are missing or damaged. This will cause vibration and possible bearing damage.

Note: All the paddles must be replaced as a set if any of them are damaged. The paddles are manufactured to be the same weight to maintain rotational balance.

- Remove twine or other materials wrapped around the auger.

Note: Remove the twine from the auger and blower every 25 bales. Premature bearing failure can occur if twine is allowed to build up.



Check Condition of Flighting and Paddles

212124



Remove Twine From Auger

212126

Section 2 - TOP GUN 650 Preparation

6. Remove any material that has built up at the entrance to the blower housing.



Remove Material From Blower Entrance

212127

7. Remove any debris that has collected in the blower housing area.
 - Remove any twine that is wrapped around the blower blades.

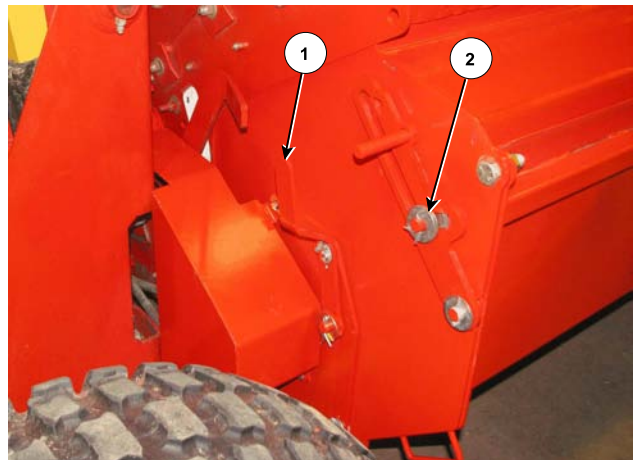
Note: Remove the twine from the auger and blower every 25 bales. Premature bearing failure can occur if twine is allowed to build up.



Remove Twine & Check Blades

212127

8. Close the lower auger housing cover.
 - Move the handle (1) to the closed position.
9. Close the upper auger housing cover.
 - Move the handle (2) to the closed position.
 - Place the pin firmly into the slot.



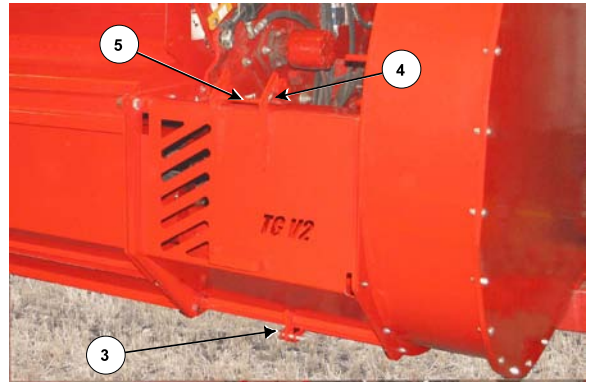
Close the Auger Housing Covers

212128C

Section 2 - TOP GUN 650 Preparation

10. Lower the transition housing access cover.

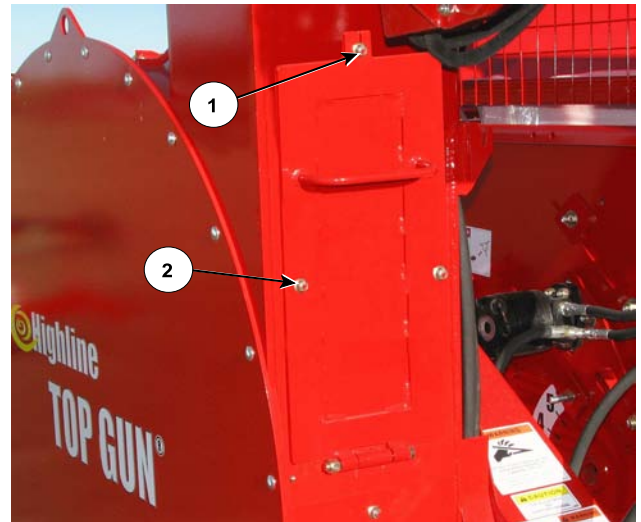
- Remove the pin from the bottom of the cover (3).
- Remove the hair pin (4) from the hinge pin (5).
- Remove the hinge pin.
- Rotate the cover to the closed position.
- Install the hinge pin (5).
- Install the hair pin (4).
- Install the bottom pin (3).



Lower the Transition Housing Access Cover 201033

11. Every week check the condition of the blower blades.

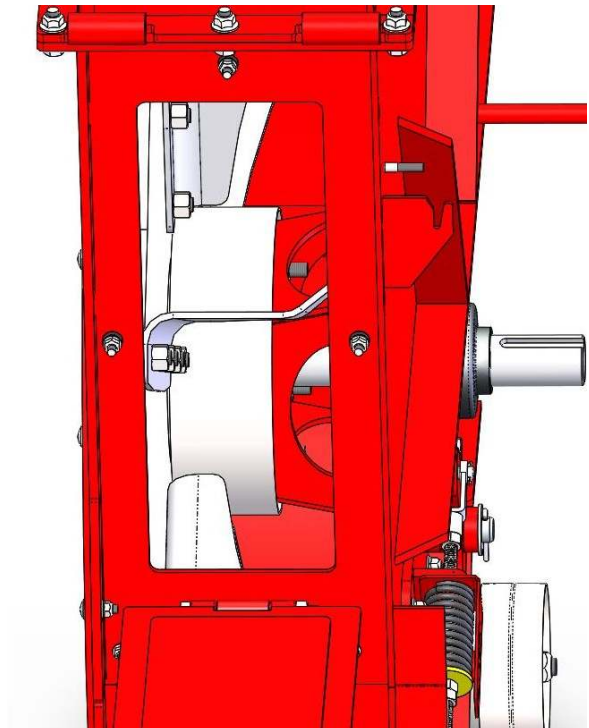
- Open the blower access panel by removing the top nut (1) and the 2 side nuts.
- Lower the panel.



Open the Blower Access Panel

220144C

- Inspect the blower blades through the blower housing access panel.
- Rotate the blower by hand to inspect all the blades.



Inspect the Blower Blades

220145

Section 2 - TOP GUN 650 Preparation

- Check for cracks (1) along the bend of the blades.

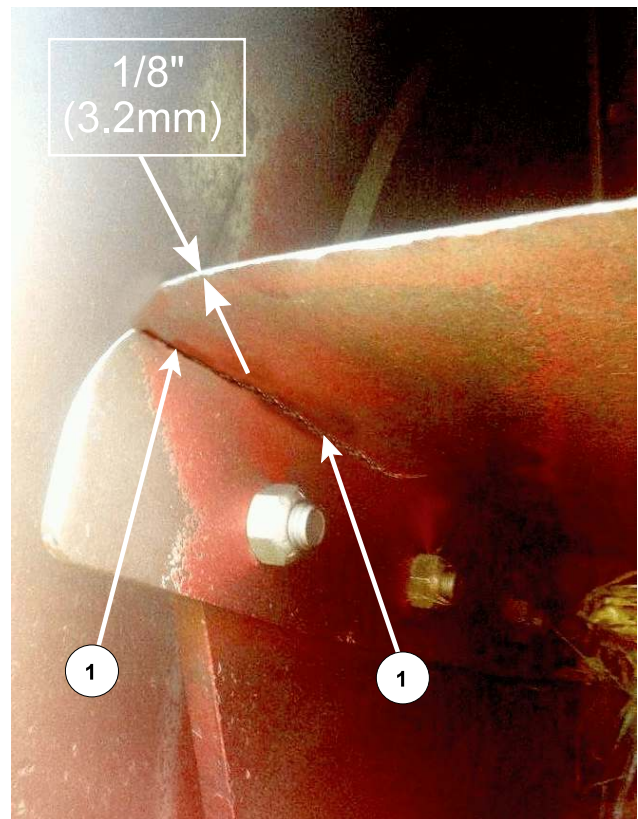


Blade pieces that break off will be discharged at high speeds causing serious injury or death. Replace all blades as a set.

- Replace all the blades if there is any cracking in a blade.
 - Replace all the blades to maintain rotational balance of the blower.
-
- Check the thickness of the blades.
 - Replace all the blades if the thickness of any blade is 1/8" (3.2 mm) or less.
 - Replace all the blades to maintain rotational balance of the blower.

See Section 4 - "Replacing the Blower Blades" for information on changing the blades.

12. Close the blower access panel and fasten with the nuts.



Check Blades for Cracking and Thickness

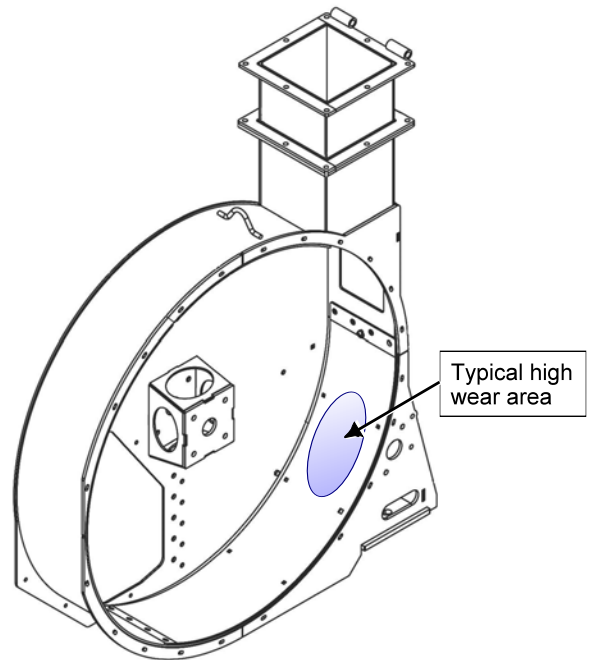
216062-1C

Section 2 - TOP GUN 650 Preparation

13. Check the condition of the blower housing wear plate.

- The blower housing wear plate is located inside the blower on the discharge side.
- The amount of wear plate is dependant on the amount of bales processed and the type of bales.
 - Abrasive bales such as corn bales cause the plate to wear out more quickly.
- The typical high wear area occurs just below the blower housing access panel. (See the diagram.)

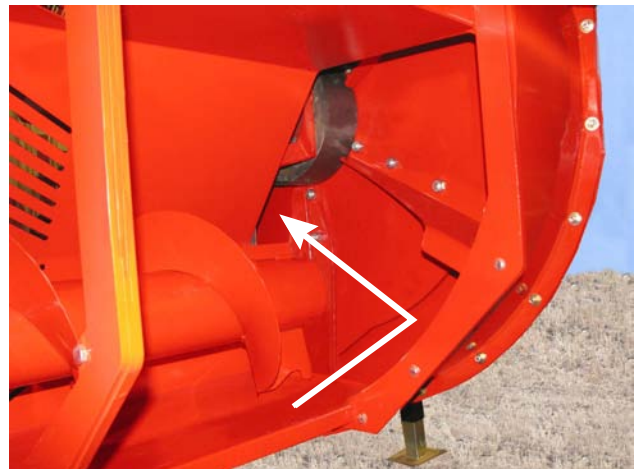
When the wear plate is worn through at the location shown (or any other area), replace the wear plate to avoid wearing out the blower housing structure.



Check Blower Wear Plate
(Impeller Shown Removed for Clarity)

41720_A1C

- There are 2 ways to check the wear plate:
 1. Look through the auger transition housing to inspect the blower wear plate.

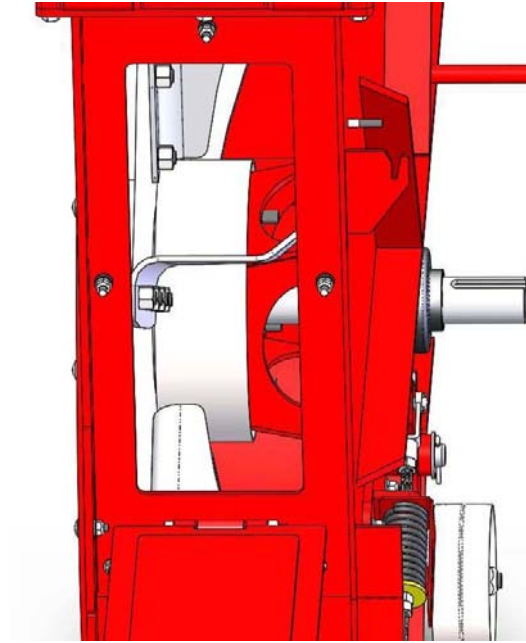


Check Wear Plate Through Transition Housing 212127C

Section 2 - TOP GUN 650 Preparation

2. Use a mirror held through the blower housing access panel to view the wear plate.

See Section 4 "Replacing the Blower Wear Plate" for information on replacing the wear plate.



Use a Mirror to Check the Blower Wear Plate

216098

14. Check the condition of the blower drive belt.
 - Lift the drive shield.
 - Rest the shield on the support tab located on the blower housing.
 - Check the blower drive belt.



Lift Drive Shield - Rest in Support Tab

212131

Section 2 - TOP GUN 650 Preparation

15. Check the blower belt tension.
 - The spring washer should be showing within the cutout window.
 - See the Section 4 - "Maintaining the TOP GUN" for Blower Belt Tension Adjustment.
- Lower the blower drive shield and fasten with the rubber holder.



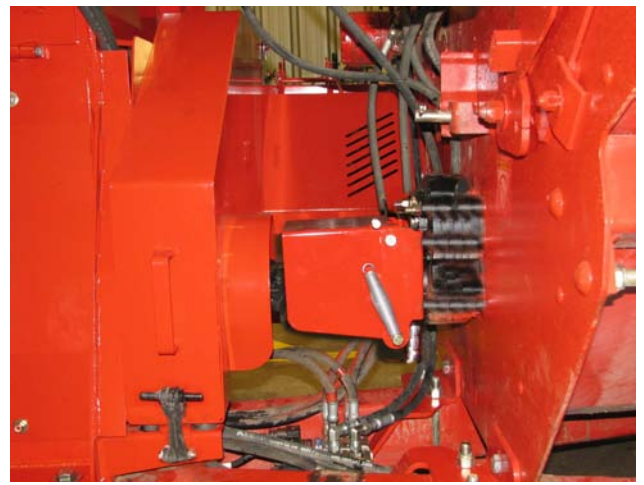
The TOP GUN shall not be operated without all the driveline shields in place.



Check Blower Drive Belt and Tension

219061

16. Lower the driveline shield.



Lower Drive Shields

212133

17. Open the rear drive shield.
 - Loosen the rubber holder (1) and swing the shield out of the way.
 - The bale forks may need to be raised to fully open the shield.



Open the Rear Drive Shield

215111C

Section 2 - TOP GUN 650 Preparation

18. Check the condition of the auger drive belt which is located on rear tub wall.

- Check the auger drive belt.
- Check the auger belt tension.
 - The spring washer should be showing within the cutout window.
- See Section 4 - Belt Tension Adjustment” for Auger Belt Tension Adjustment.



Check the Auger Belt and Tension

219062

19. Close the auger drive shield into place and fasten with the rubber holder (1).



The TOP GUN shall not be operated without all the driveline shields in place.



Close the Rear Drive Shield

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20. If the optional discharge door is present, remove the lock pin on the discharge deflector door to allow the door to be operated by the hydraulic cylinder.

Note: The cylinder may need to be moved with the hydraulics to remove the weight from the lock.

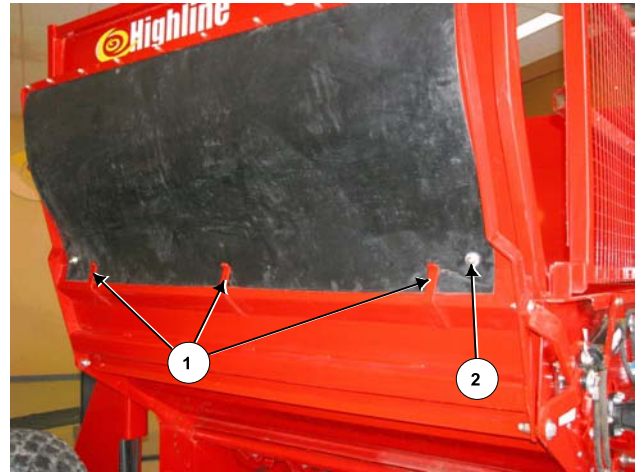


Remove Lock Pin on Deflector Door

201229

Section 2 - TOP GUN 650 Preparation

21. Remove the nut and washer (2) from the rubber deflector.
22. If the rubber deflector is going to be used in processing material, remove the rubber panel from the tabs (1) on the deflector door.



Remove Rubber Panel Fasteners

201198C

23. Inspect the motor, hydraulic cylinders and hoses.



Use a piece of cardboard or heavy paper to check for leaks. Do not use your hand. Wear proper hand and eye protection when searching for leaks.

Relieve pressure on hydraulic system before repairing, adjusting or disconnecting.



Note: If fluid is injected under the skin, it must be removed immediately by a surgeon familiar with this type of injury.

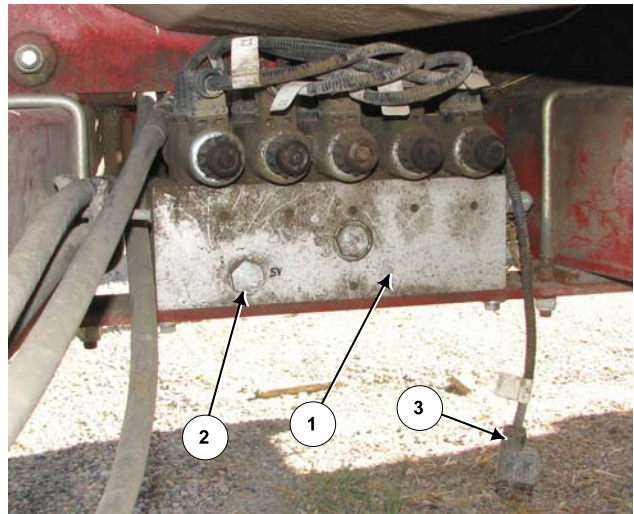
- Visually inspect all the hydraulic hoses and fittings.
 - See Section 4 "Maintaining the Top Gun 650" for conditions indicating that replacement is needed.
- Ensure the proper size cylinder pins are in place and secured.

Section 2 - TOP GUN 650 Preparation

24. Connect the electrical cable to a 10 amp fused circuit on the tractor.
- The optional 1 remote (joystick control) has it's own 15 amp fuse so it is not necessary to connect to a fused circuit.
25. If the optional 1 remote (joystick) control is being used on an open center tractor, ensure the On/Off solenoid valve that was supplied is installed in the back of the joystick hydraulic block.

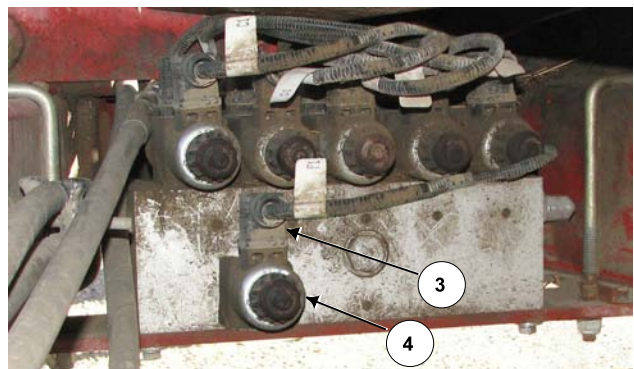
To install the solenoid valve:

- Locate the joystick hydraulic block (1) positioned between the inside of the frame members.
- Remove the plug on the port marked "SV" (2).
- Locate the cable labeled "F1" (3).
- Install the solenoid valve (4) into port "SV".
- Connect the cable labeled "F1" (3) to the solenoid valve (4).



Remove Plug, Locate Cable

42759SVC



Install the Solenoid Valve and Attach Cable

42759SV-1C

Low Height Discharge

The blower discharge can be lowered for low height discharge situations.

To modify the discharge for the low height position the nozzle and rotator must be lifted and the blower insert removed. The nozzle and rotator must be re-installed.

Note: In the low height discharge position the range of nozzle rotation will be more restricted by the tub panels.

The nozzle must be fully raised when moving the nozzle into the tub to avoid hitting the tub walls. To change to low height discharge:

1. Connect lifting straps to the nozzle to take the weight of the nozzle and the rotator.

- Connect straps at location 1 and 2.



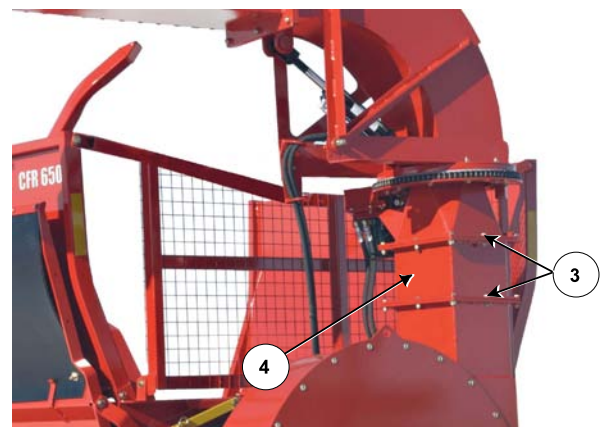
Attach Lifting Straps

216186C2

2. Remove all the fasteners from the upper and lower insert flange plates (3).

- Keep the fasteners to be used again.

3. Lift the nozzle and rotator enough to remove the insert (4).

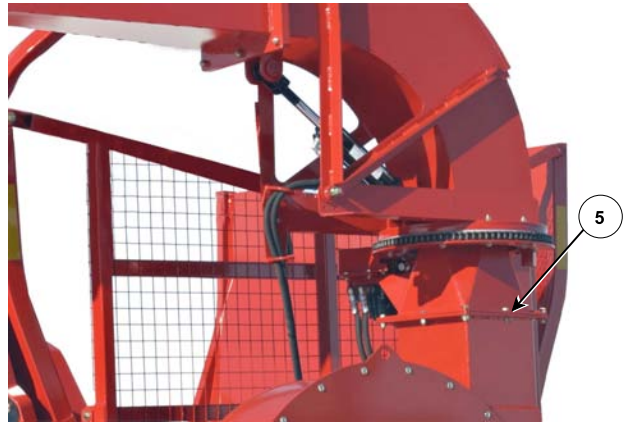


Remove All Fasteners and the Insert

216187C

Section 2 - TOP GUN 650 Preparation

4. Lower the nozzle and rotator onto the blower housing flange (5).
 - Tighten in place with the fasteners removed earlier.
5. Route the hydraulic hoses to ensure they will not be pinched during nozzle rotation.



Insert Removed, Rotator on Blower Flange

216188C

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3.0 OPERATING THE TOP GUN 650

Operating For Bedding - Using the Blower



Shut off the tractor engine and remove the key.



Wait for all components to stop rotating.

Do not place hands in the TOP GUN drive clutch area while the driveline is turning. Contact with the rotating drive line or pulley can cause serious injury.



Ensure all shields are in place and in good condition.



Section 3 - Operating the Top Gun 650

1. Close the lower auger housing cover.
 - Move the handle (1) to the closed position.



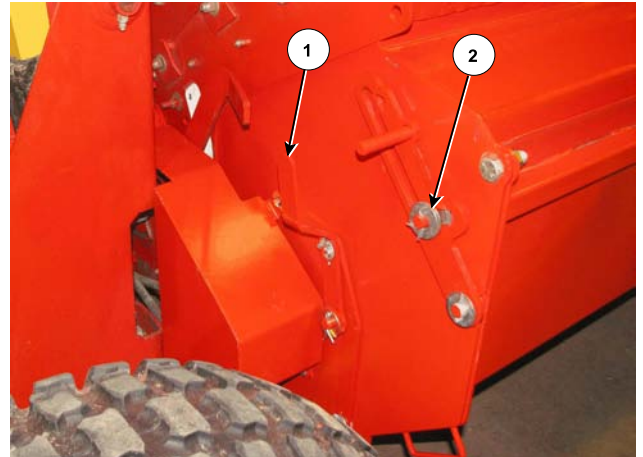
Do Not Contact the Rotating Auger.

Keep fingers and hands out of the auger chamber.

Never attempt to manually remove debris while the auger is rotating. Contact with the rotating auger will cause serious injury or death.



2. Close the upper auger housing cover.
 - Move the handle (2) to the closed position.
 - Place the pin firmly into the slot.



Close the Auger Housing Covers

212128C

3. Close and lock the auger transition housing door.

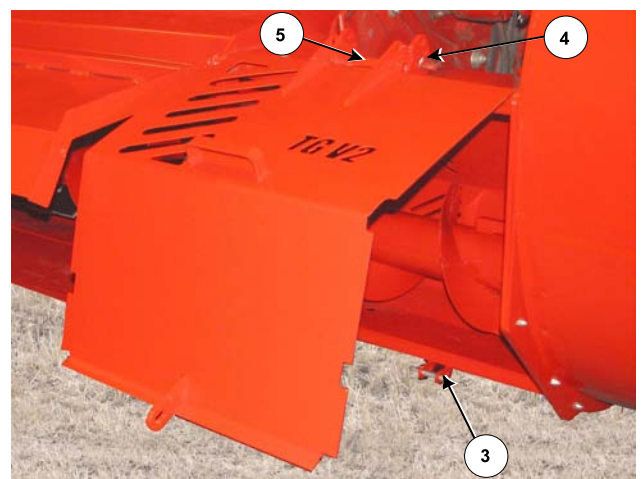


Do Not Contact the Rotating Blower.

Never attempt to manually remove debris while the blower is rotating. Contact with the rotating blower parts will cause serious injury or death.



- Remove the pin from the bottom of the cover (3).
- Remove the hair pin (4) from the hinge pin (5).
- Remove the hinge pin.

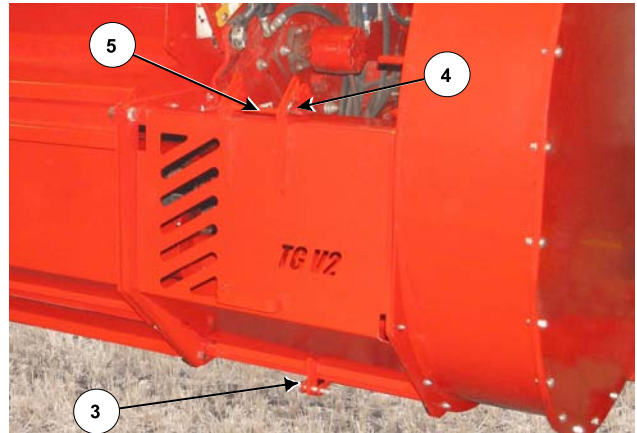


Close the Transition Housing Cover

212129C

Section 3 - Operating the Top Gun 650

- Rotate the cover to the closed position.
- Install the hinge pin (5).
- Install the hair pin (4).
- Install the bottom pin (3).



Lower the Transition Housing Access Cover

201033

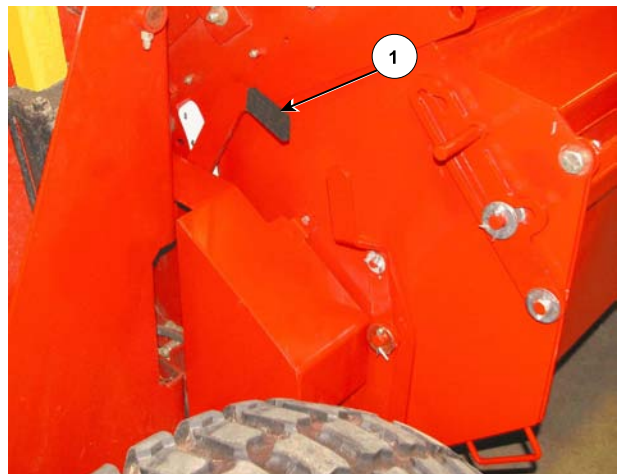
4. Set the aggression level of the flails.

The TOP GUN has the guard rod adjustment handle located on the back wall of the machine.

There are five guard rod settings that determine the level of aggression of the flails.

The decal under the handle gives a guide to the guard rod setting.

- Pull the handle (1) out of the handle lock.
- Raise or lower the handle to the desired discharge setting as indicated on the decal.
- Lock the handle in the notch.



Set the Aggression Level of the Flails

212136C

To avoid plugging, it is suggested to start with using an aggression setting of #2 or #3.

To Increase the discharge rate:

- Raise the handle to a higher number.

To Decrease the discharge rate:

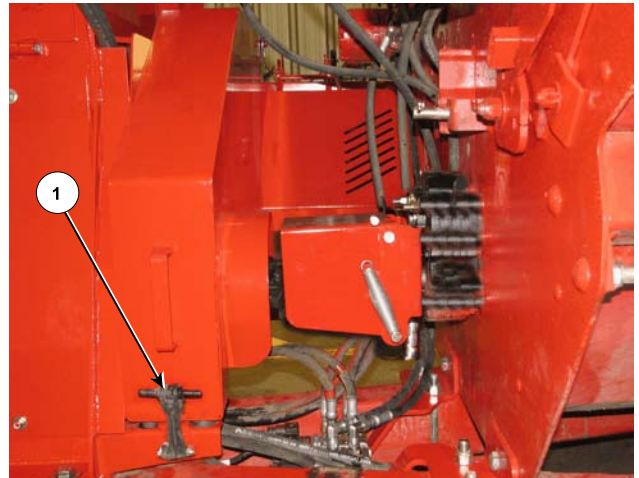
- Lower the handle to a lower number.

5. Release the shield rubber latch (1).



Wait for all components to stop rotating.

Do not place hands in the TOP GUN drive clutch area while the driveline is turning. Contact with the rotating clutch or pulley can cause serious injury.



Release the Rubber Latch

212133C

6. Raise the blower drive shield and place on the rest tab located on the blower housing.



Raise the Blower Drive Shield

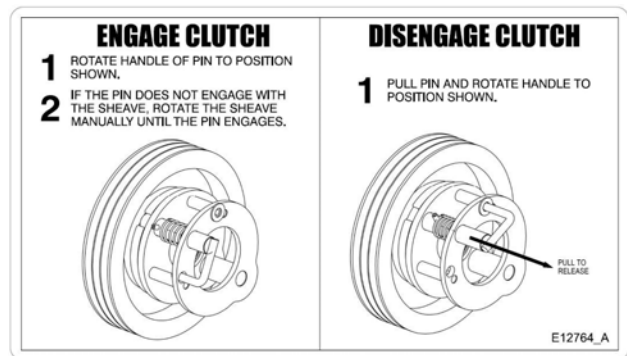
220147

7. Raise the gearbox shield.

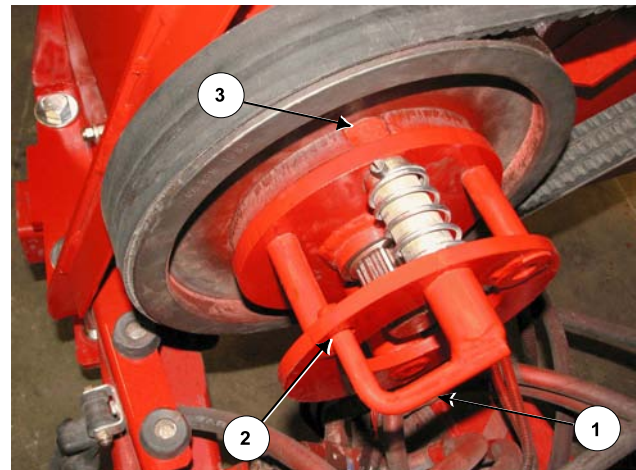
Section 3 - Operating the Top Gun 650

8. Engage the TOP GUN blower drive clutch.

- Rotate the pulley to have the clutch pin near the top.



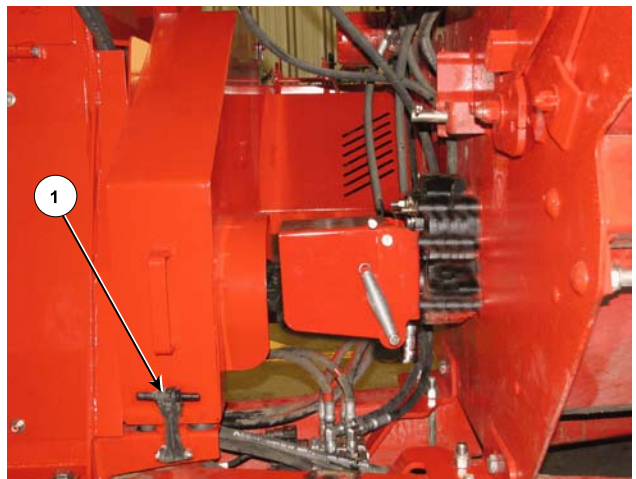
- Pull the handle (1) out and rotate into the hole (2) to engage the clutch pin into the sheave.
- The spring will pull the handle into the handle hole.
- The clutch pin (3) will move into one of the sheave plate cutouts.
- If the clutch pin does not engage into a sheave cutout, manually rotate the sheave until the pin snaps into a cutout (3).



Move Handle Into Engaged Position

9. Lower the blower drive shield and fasten with the rubber latch (1).

10. Lower the gearbox shield.



Lower the Drive Shields

Controlling the TOP GUN For Bedding

Control Box - 3 Remote

The turret and nozzle are controlled by the electric console and hydraulic controls in the tractor cab.

To swing the turret nozzle:

- On the control console, select Turret.
- Select Turret Swing.
- Operate the hydraulic lever which will engage the hydraulic motor (2) to rotate the turret.

To move the turret nozzle up/down:

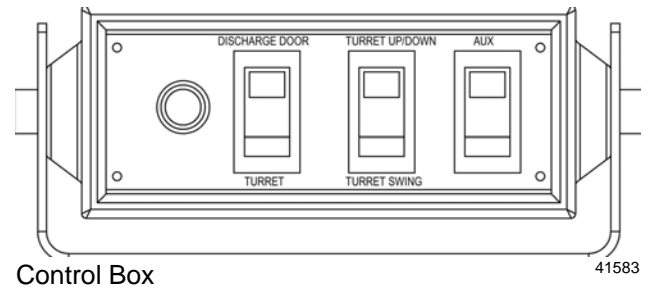
- On the control console, select Turret.
- Select Turret Up/Down
- Operate the hydraulic lever to move the hydraulic cylinder (1) which will raise or lower the turret nozzle.

Bale Forks

The bale forks used to load bales into the tub are controlled by the hydraulic remote located in the tractor cab.

Feed Rollers

The direction of the bale feed rollers rotation is controlled by the hydraulic remote located in the tractor cab.



1 Remote Joystick Control For Bedding

The joystick has multifunction ability. These functions are shown on the decal.

Nozzle Height

The joystick controls the angle of the discharge nozzle. The nozzle can be raised or lowered. Refer to the decal on the joystick for the desired height movement.

Nozzle Rotate

The joystick controls the rotation of the discharge nozzle. Refer to the decal on the joystick for the desired rotation.

Bale Forks

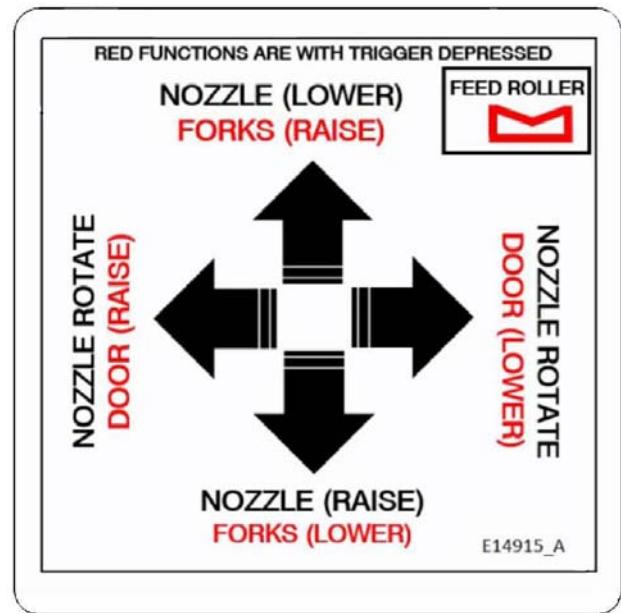
The joystick controls the bale forks for loading bales into the tub. Use the joystick with the trigger depressed to raise or lower the bale forks.

Feed Rollers

The joystick controls the direction of rotation of the bale feed rollers. Depress the rocker switch to rotate the rollers.

Discharge Door

The discharge door (if present) is not used when the TOP GUN is used for bedding.



Joystick Control

E14915_A

Using the Optional Nozzle End Deflector

4 Remote Configuration

The optional nozzle end deflector cylinder will be attached to a separate hydraulic lever.

Use the hydraulic lever to operate the cylinder which will raise or lower the end deflector.

- Raising or lowering the deflector will direct the material while the turret is being rotated and raised or lowered.



Optional Nozzle End Deflector

220146

1 Remote Configuration (Joystick)

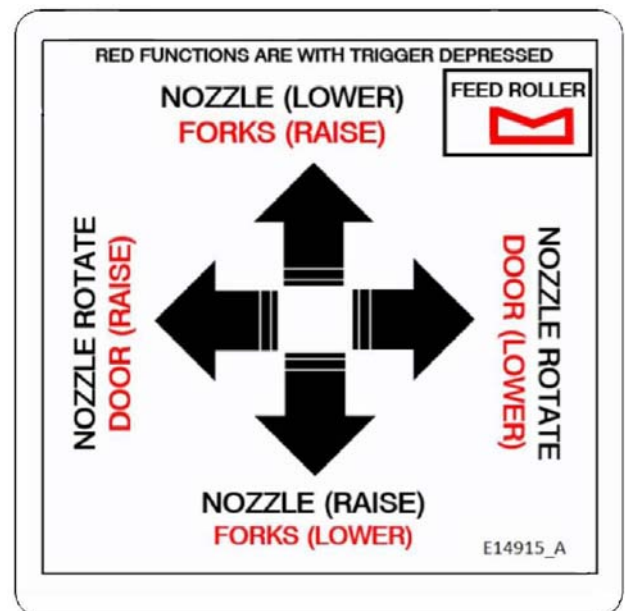
When the optional end deflector is installed with the 1 remote configuration (joystick) the joystick will control the operation of the end deflector cylinder.

- The optional discharge door will not be present.

The joystick function is changed from operating the discharge door to operating the end deflector cylinder.

The new joystick function is as follows:

- Door (Raise) = Deflector Raise
- Door (Lower) = Deflector Lower
- Use the joystick with the trigger depressed to raise or lower the end deflector.



Joystick for Raise/Lower the End Deflector
Door (Raise) = Deflector Raise
Door (Lower) = Deflector Lower

E14915_A

Section 3 - Operating the Top Gun 650

11. Rotate the nozzle to discharge the material to the desired area.
 - Rotate using the hydraulic motor (2).
 - The range of nozzle movement is shown in the diagram.

Note: In the low height discharge position the range of nozzle rotation will be more restricted by the tub panels.

12. Raise or lower the discharge nozzle for the amount of height and throw.
 - Use the hydraulic cylinder (1) to raise or lower the nozzle.

Note: When in the low height discharge position fully raise the nozzle before moving the nozzle into the tub to avoid hitting the tub walls.

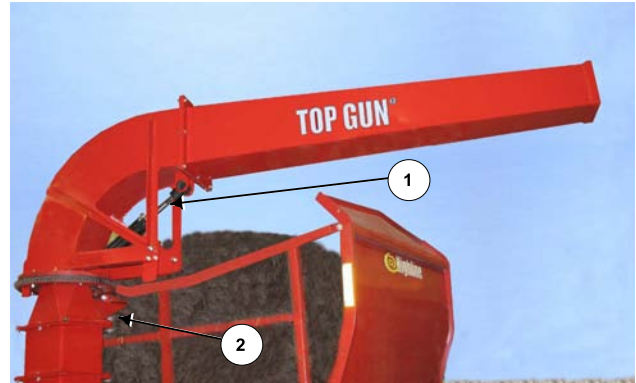
13. Engage the driveline to start the blower, processor and auger.
14. Set the speed of the feed rollers.
 - Refer to the CFR650 Operators Manual for instructions.
15. Begin to process a bale according to the instructions in the CFR650 Operators Manual.
 - The belt-driven auger will move the material into the blower.



Should any serious 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.

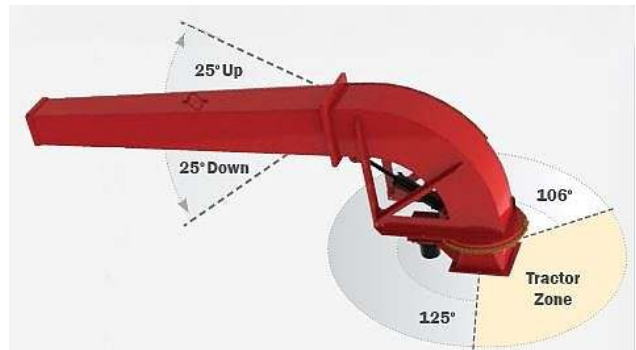


Avoid discharging material in the area of people and animals.



Position the Turret Nozzle for Discharge

212139-3C



Range of Nozzle Movement

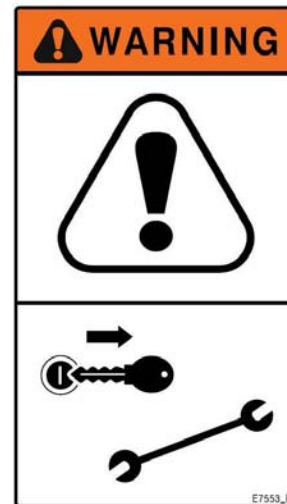
216101



Operating For Feeding - Not Using the Blower



Shut off the tractor engine and remove the key.



Wait for all components to stop rotating.

Do not place hands in the TOP GUN drive clutch area while the driveline is turning. Contact with the rotating drive line or pulley can cause serious injury.



Ensure all shields are in place and in good condition.



When feeding with the auger it is recommended to install the rubber paddles on the auger.

Note: If livestock is being fed, it is the operator's responsibility to ensure that the materials in the processed feed mix are suitable. Some of the wrapping material (twine, net wrap or other materials) may be discharged with the feed if the wrapping materials are not removed prior to processing.

1. Open the upper and lower auger housing doors to allow material to be discharged from the auger.



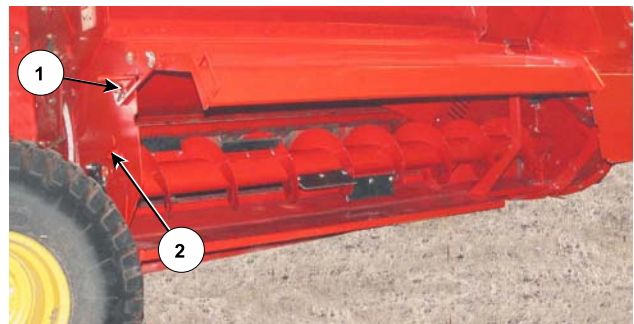
Do Not Contact Rotating Auger. Keep fingers and hands out of the auger chamber.

Never attempt to manually remove debris while the auger is rotating. Contact with the rotating auger will cause serious injury or death. Keep all auger guards in place.

- Raise the upper auger housing door.
- Lock the upper housing by placing the slot in the handle (1) over the pin.
- Lower the bottom auger housing door by moving the handle (2).

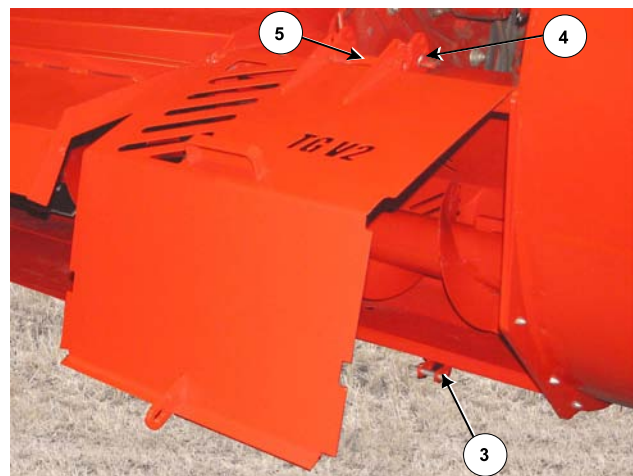
2. Raise the transition housing cover.

- Remove the pin from the bottom of the cover (3).
- Place the pin back into the tabs.
- Remove the hair pin (4) from the hinge pin (5) at the top of the cover.
- Remove the hinge pin.
- Rotate the cover to the open position.
- Install the hinge pin (5).
- Install the hair pin (4).



Open the Auger Housing Doors

212124C



Raise the Transition Housing Cover

212129C

Section 3 - Operating the Top Gun 650

3. Set the aggression level of the flails.

The TOP GUN has the guard rod adjustment handle located on the back wall of the machine.

There are five guard rod settings that determine the level of aggression of the flails.

The decal under the handle gives a guide to the guard rod setting.

- Pull the handle (1) out of the handle lock.
- Raise or lower the handle to the desired discharge setting as indicated on the decal.
- Lock the handle in the notch.

To avoid plugging, it is suggested to start with using an aggression setting of #2 or #3.

To Increase the discharge rate:

- Raise the handle to a higher number.

To Decrease the discharge rate:

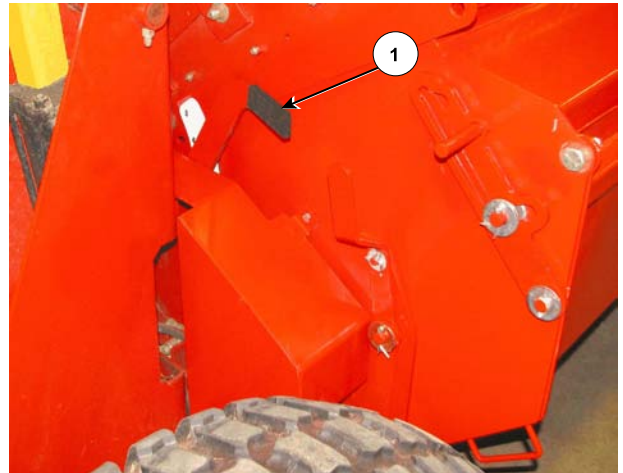
- Lower the handle to a lower number.

4. Remove the shield rubber latch (1).



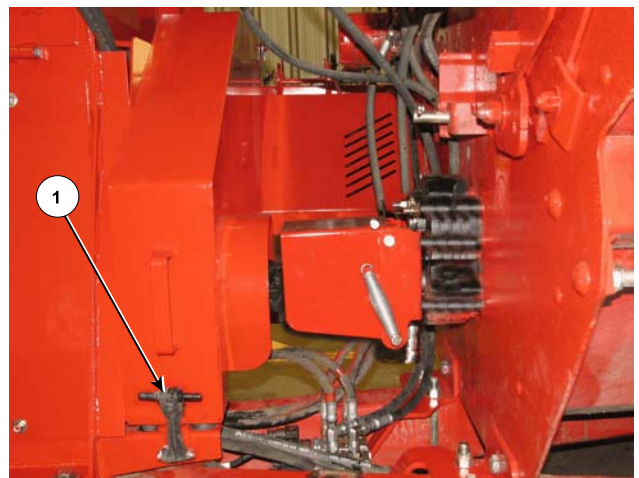
Wait for all components to stop rotating.

Do not place hands in the TOP GUN drive clutch area while the driveline is turning. Contact with the rotating clutch or pulley can cause serious injury.



Set the Aggression Level of the Flails

212136C



Release the Rubber Latch

212133C

Section 3 - Operating the Top Gun 650

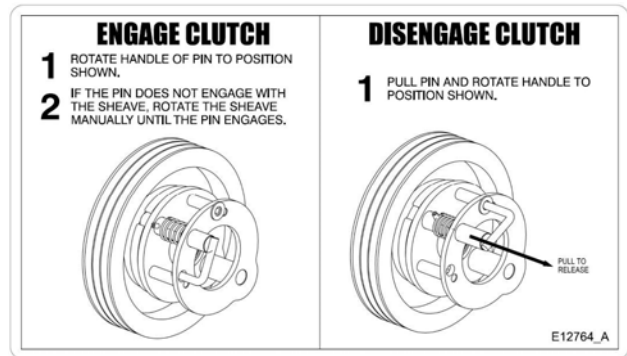
5. Raise the blower drive shield and place on the rest tab located on the blower housing.
6. Raise the gearbox shield.



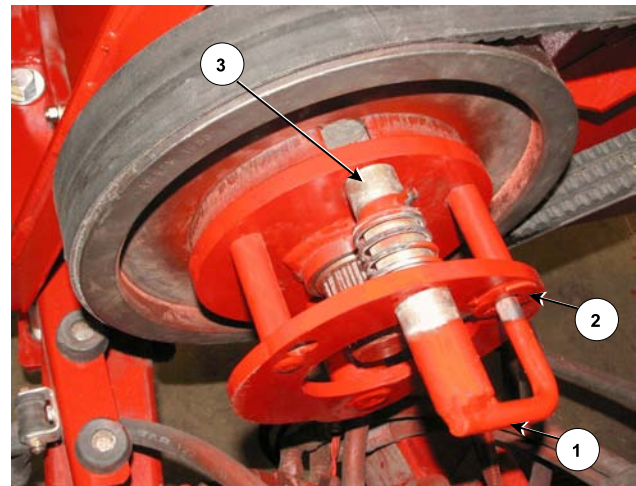
Raise the Blower Drive Shield

220147

7. Disengage the TOP GUN blower drive clutch.
 - Rotate the pulley to have the clutch pin near the top.



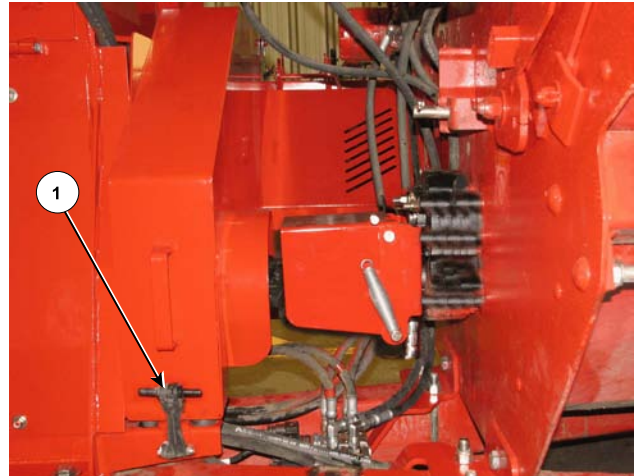
- Pull the handle (1) out and rotate into the washer (2) to disengage the clutch pin from the sheave.
- The spring will pull the handle into the washer.
- The clutch pin (3) will move out of the sheave plate cutouts.



Move Handle Into Disengaged Position

213002C

8. Lower the blower drive shield and fasten with the rubber latch.
9. Lower the gearbox shield.



Lower the Drive Shields

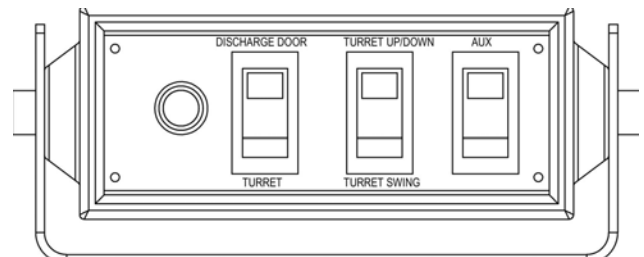
212133C

Controlling the TOP GUN For Feeding - Not Using the Blower

Control Box - 3 Remote

Feeding is done with the auger.
The turret is not used for feeding when the
auger doors are open.

The Optional Discharge Door is controlled by
the Control Box and hydraulic controls in the
tractor cab.



Control Box

41583

To raise or lower the Optional Discharge
Door:

- On the control box, select Discharge Door.
- Operate the hydraulic lever to move the hydraulic cylinder which will raise or lower the discharge door.

Optional 1 Remote Joystick Control For Feeding - Not Using the Blower

The joystick has multifunction ability. These functions are shown on the decal.

Nozzle Height

The nozzle is not used for feeding when the auger doors are open.

Nozzle Rotate

The nozzle is not used for feeding when the auger doors are open.

Bale Forks

The joystick controls the bale forks for loading bales into the tub. Use the joystick with the trigger depressed to raise or lower the bale forks.

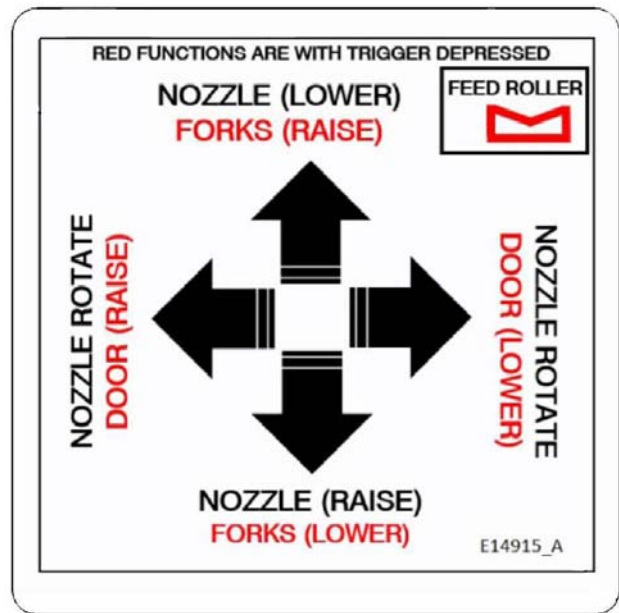
Feed Rollers

The joystick controls the direction of rotation of the bale feed rollers. Depress the rocker switch to rotate the rollers.

Discharge Door

The discharge door (if present) can be raised or lowered when the TOP GUN is used for feeding with the auger doors open.

- Use the joystick with the trigger depressed to raise or lower the discharge door.



Joystick Control

E14915_A

Section 3 - Operating the Top Gun 650

10. Lower the CFR650 upper discharge door (if present).
 - Raise or lower the upper discharge door to adjust the amount of spreading of material.
 - Adjust using the hydraulic cylinder.

Raised - material will be spread out over a wide area.

- Place the rubber deflector into the tabs on the door.

Midway - the deflector door will control the height and distance of discharged material.

- Place the rubber deflector into the tabs on the door.

Lowered - the material will be left in a windrow or directed into a feed bunk.

- Allow the rubber deflector to hang down.

11. Engage the driveline to start the processor and auger.
12. Set the speed of the feed rollers.
 - Refer to the CFR650 Operators Manual for instructions.
13. Begin to process a bale according to the instructions in the CFR650 Operators Manual.

Note: If livestock is being fed, it is the operator's responsibility to ensure that the materials in the processed feed mix are suitable. Some of the wrapping material (twine, net wrap or other materials) may be discharged with the feed if the wrapping materials are not removed prior to processing.



Lower the Upper Discharge Door

213001

14. The TOP GUN auger is driven by the belt drive from the rear of the flail drum. The auger will discharge material out the side of the machine.



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.

15. Drive ahead while operating the CFR 650 /TOP GUN.



Avoid discharging material in the area of people and animals.



Unplugging the TOP GUN

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



Shut off tractor engine and remove key.



Wait for all components to stop rotating.



Do Not Contact Rotating Auger. Keep fingers and hands out of the auger chamber. Never attempt to manually remove debris while the auger is rotating. Contact with the rotating auger will cause serious injury or death.



Section 3 - Operating the Top Gun 650

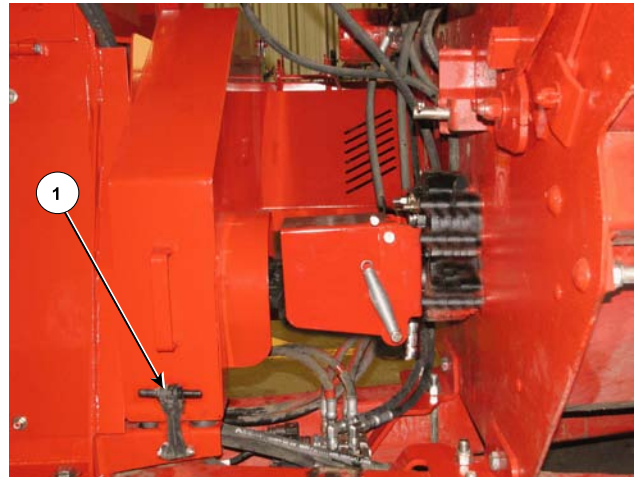


Do Not Contact Rotating Blower. Keep fingers and hands out of the blower chamber when blower is rotating.

Never attempt to manually remove debris while the blower is turning. Contact with the rotating blower blades will cause serious injury or death.



4. Remove the shield rubber latch (1).



Remove the Rubber Latch

212133C

5. Raise the blower drive shield and place on the rest tab located on the blower housing.



Raise the Blower Drive Shield

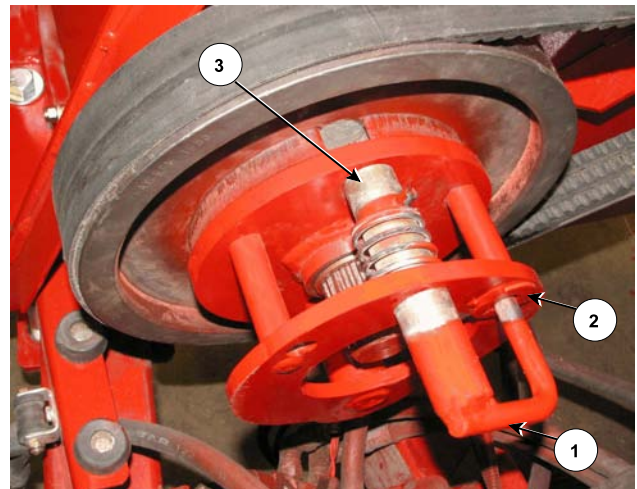
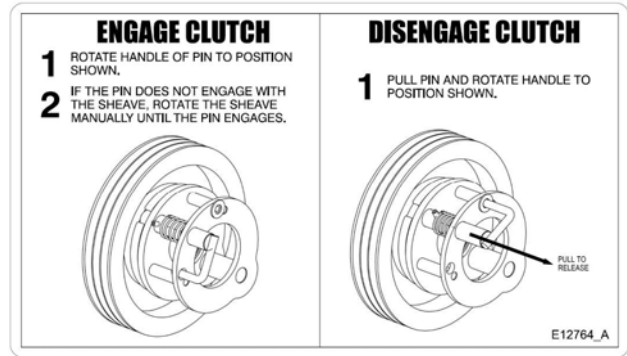
220147

6. Raise the gearbox shield.

Section 3 - Operating the Top Gun 650

7. Disengage the TOP GUN blower drive clutch.

- Rotate the pulley to have the clutch pin near the top.
- Pull the handle (1) out and rotate into the washer (2) to disengage the clutch pin from the sheave.
- The spring will pull the handle into the washer.
- The clutch pin (3) will move out of the sheave plate cutouts.



Move Handle Into Disengaged Position

8. Open the upper and lower auger housing doors.



Do Not Contact the Rotating Auger.

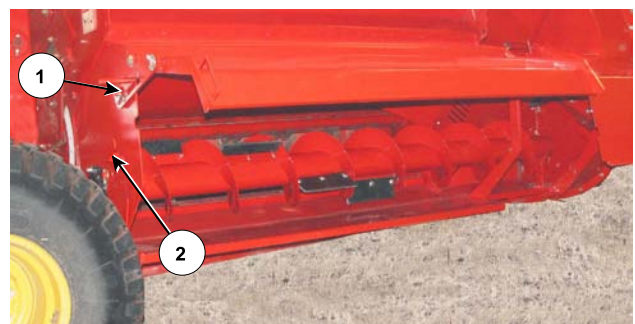
Keep fingers and hands out of the auger chamber.

Never attempt to manually remove debris while the auger is rotating.

Contact with the rotating auger will cause serious injury or death.

Keep all auger guards in place.

- Raise the upper auger housing door.
 - Lock the upper housing by placing the slot in the handle (1) over the pin.
- Lower the bottom auger housing door by moving the handle (2).

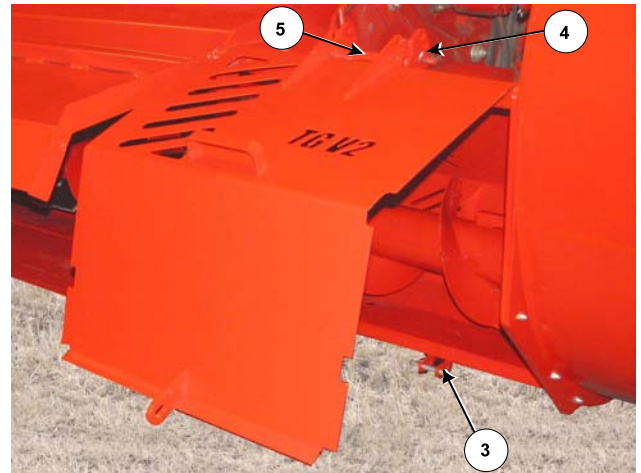


Open the Upper Auger Housing Door

Section 3 - Operating the Top Gun 650

9. Raise the transition housing cover.

- Remove the pin from the bottom of the cover (3).
- Place the pin back into the tabs.
- Remove the hair pin (4) from the hinge pin (5) at the top of the cover.
- Remove the hinge pin.
- Rotate the cover to the open position.
- Install the hinge pin (5).
- Install the hair pin (4).



Raise the Transition Housing Cover

212129C

10. Clear the auger area.



Clear the Auger Area

212124

11. Clear the blower blade area.



Do Not Contact Rotating Blower. Keep fingers and hands out of the blower chamber when blower is rotating.

Never attempt to manually remove debris while the blower is turning. Contact with the rotating blower blades will cause serious injury or death.

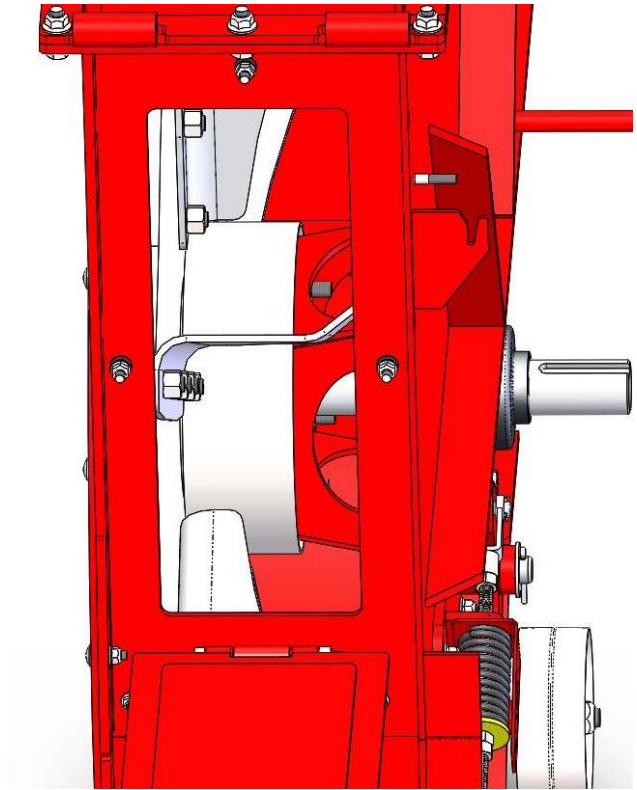


Clear the Blower Area

212127

Section 3 - Operating the Top Gun 650

12. Open the access hatch on the blower housing.
 - Remove any material inside the housing.
 - Replace the hatch onto the housing and fasten.
13. Clear the nozzle of any material.
14. Replace the access hatch cover and fasten in place.



Open Hatch - Clear Blower Housing

213003

Table of Contents for Section 4 - Maintaining the TOP GUN 650

Lubrication.....	2
Greasing the CFR650 Rear Flail Drum Bearing	4
Twine Cutter Access.....	4
Lubricate the Turret Chain	4
Visually Inspect Hydraulic Hoses/Fittings.....	4
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Replacing the Optional Rubber Auger Paddles.....	9
Replacing the Blower Wear Plate.....	10
Adjusting the Hydraulic Motor Gear Into the Turret Chain.....	12

4.0 MAINTAINING THE TOP GUN 650



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.

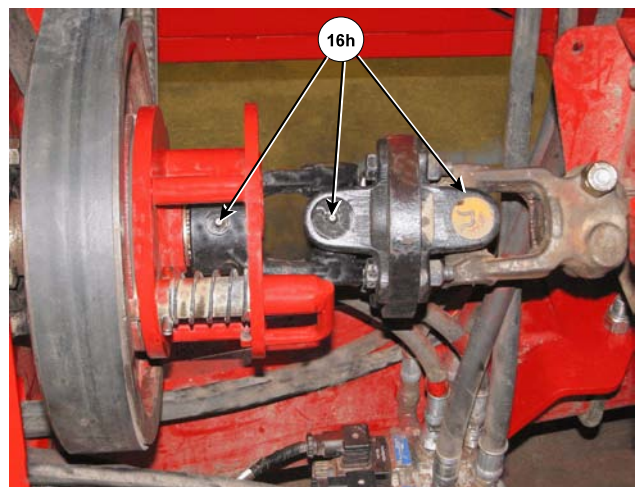
Lubrication

Lubricate all grease fittings with a quality lithium soap compatible E.P. grease meeting the N.L.G.I. #2 specifications and containing no more than 1% molybdenum disulfide.

- These grease points are in addition to the greasing outlined in the CFR650 Operator's Manual

Every 16 Hours

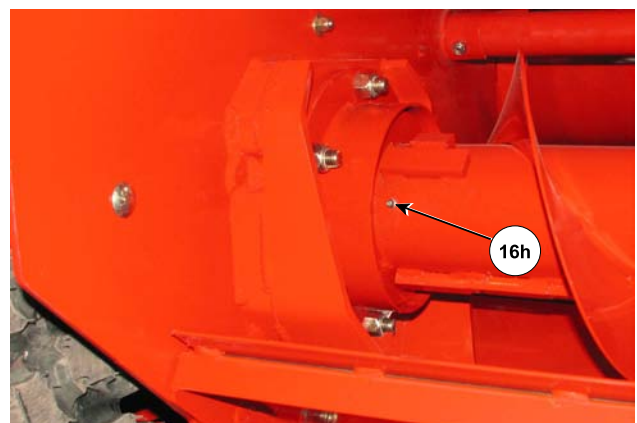
- ! Lubricate 3 points on the driveline joint connecting the clutch to the flail drum gearbox.



Grease Clutch Driveline Joint

213005C

- ! Lubricate 1 point on the auger at the rear of the machine.

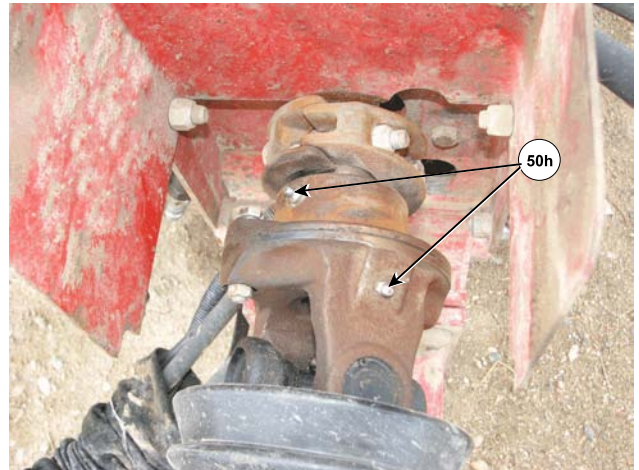


Grease Auger Bearing

216223C

Every 50 Hours

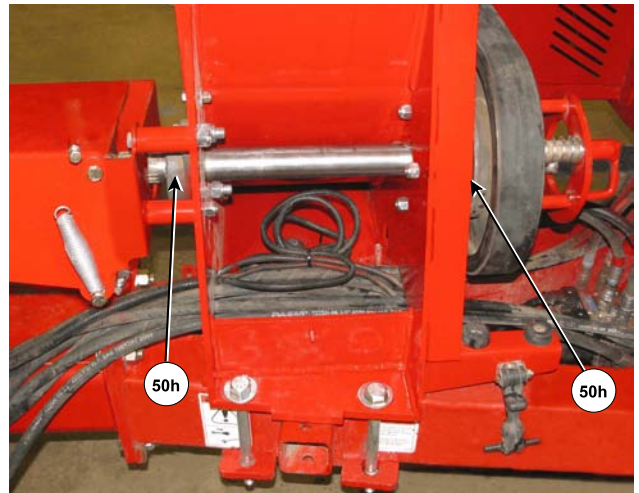
- ! Lubricate 2 points on the over running clutch located on the driveline going to the front of the blower.



Grease the Over Running Clutch

215121

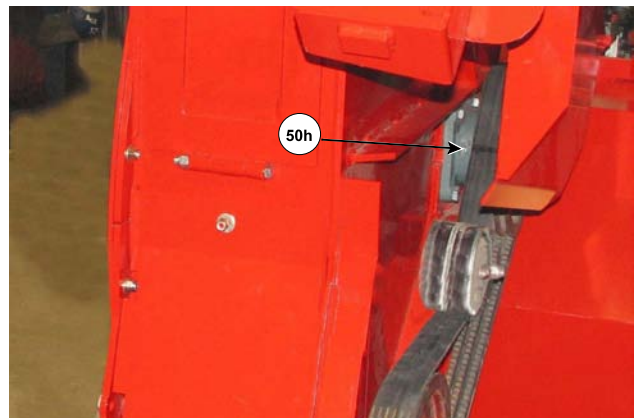
- ! Lubricate 2 points on the blower clutch shaft.
 - Raise the clutch drive shield and rest on the tab.
 - Lubricate the front bearing.
 - Lubricate the rear bearing.



Grease Blower Clutch Shaft

213004C

- ! Lubricate 1 point on the blower impeller shaft bearing.
 - Raise the blower drive shield and place in the holder tab.
 - Lubricate the blower bearing.



Grease Blower Impeller Shaft Bearing

220148C

Greasing the CFR650 Rear Flail Drum Bearing (Every 50 hours)

! To access the CFR650 rear flail drum bearing:

- Open the auger drive shield.
- The bearing grease zerk is behind the sheave on the flail drum shaft.

Twine Cutter Access

! To access the twine cutter opening (1), open the rear drive guard door.

Every Season

! Lubricate the turret chain (2) once every season.

- Use a quality chain oil.

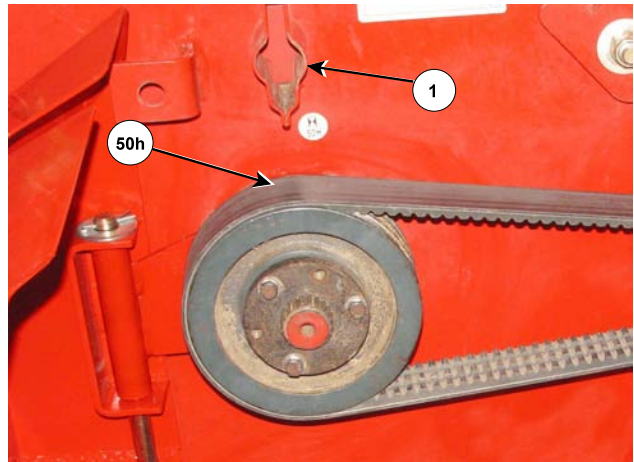
! When storing for the season:

- Oil the turret chain with a rust inhibiting oil or coating to prevent weathering.

Visually Inspect Hydraulic Hoses/Fittings

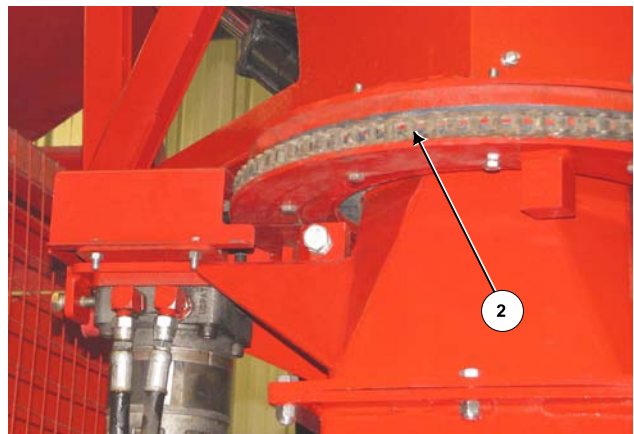
Shut down the machine and replace the hydraulic hose assembly if any of the following conditions exist:

- Fitting slippage on hose.
- Damaged, cracked, cut or abraded cover (any reinforcement exposed).
- Hard, stiff, heat cracked or charred hose.
- Cracked, damaged or badly corroded fittings.
- Leaks at fitting or in hose.
- Kinked, crushed, flattened or twisted hose.
- Blistered, soft, degraded or loose cover



Grease Flail Bearing - Twine Cutter Access

215118C



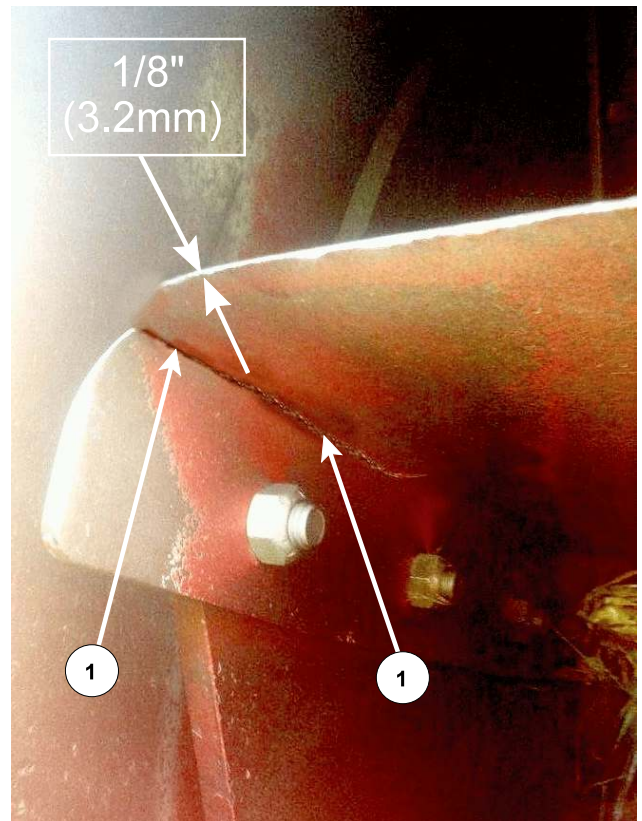
Lubricate the Turret Chain

213010C

Replacing the Blower Blades

Replace all the blower blades if:

- Any blade is cracked (1) at the bend.
- Any blade thickness is 1/8" (3.2mm) or less.
- Replace all the blades as a set to maintain rotational balance of the blower.
- Use only genuine Highline parts.



Replace Worn or Cracked Blades

216062-1C

To Replace the Blades -

1. Fasten a lifting strap in the top cut out (1) on the front plate of the blower.
 - Tighten the lifting strap with a lifting device to take the weight of the front plate.
2. Remove all the nuts and bolts (2) from the blower housing front plate.
 - Keep these fasteners as they will be used when replacing the front plate.

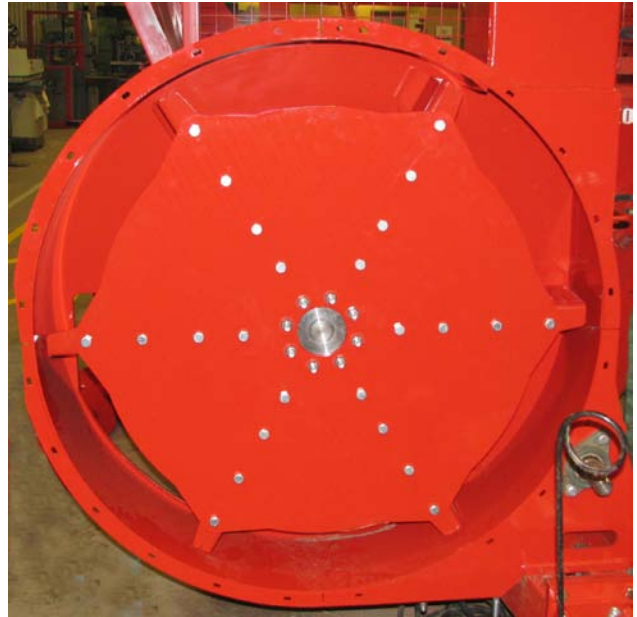


Remove the Blower Front Plate

216220C

3. Remove the front plate with the lifting device.

Note: It is not necessary to remove the blower impeller to replace the blades.

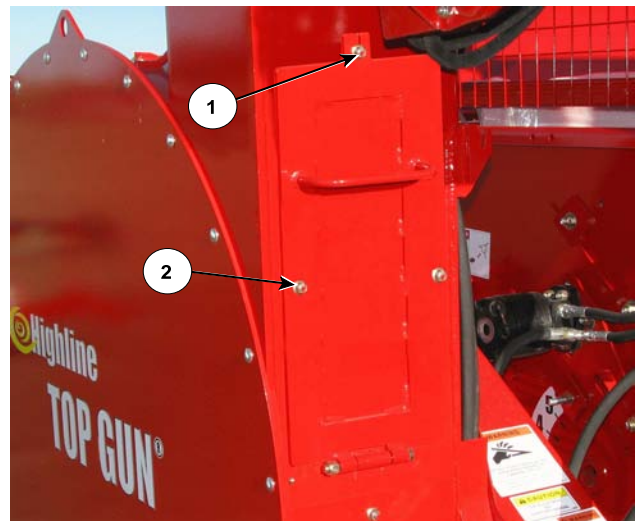


Remove the Front Blower Plate

216066

4. Open the blower access panel by removing the top nut (1) and the 2 side nuts.

- Lower the panel.

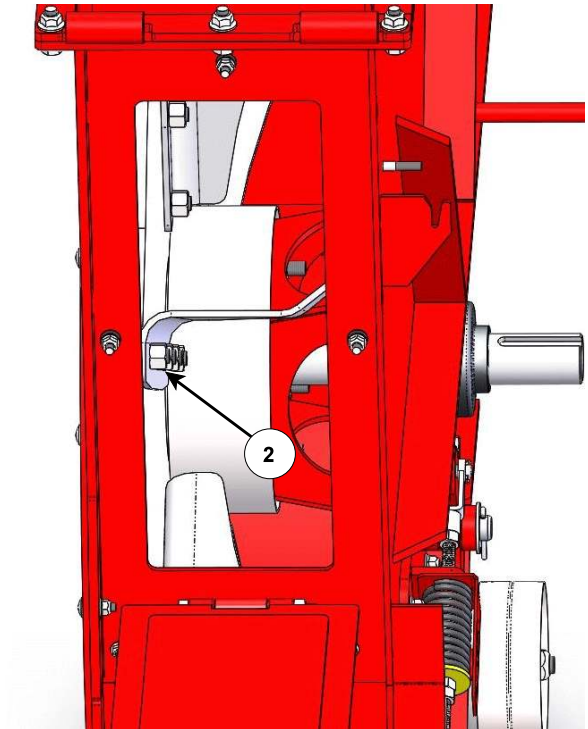


Open the Blower Access Panel

220144C

Section 4 - Maintaining the TOP GUN 650

5. Reach through the access opening to place a wrench onto the nuts (2) on the blade.
6. From the blower backing plate, remove the bolts from the blade.
7. Fasten the new blade onto the backing plate with the bolts and nuts.
 - Use only Highline replacement parts.
 - Torque bolts to 170 lbsft (230 Nm)
8. Rotate the blower by hand and replace all the blades to maintain rotational balance.



Remove Bolts/Nuts to Replace the Blade

220145C

9. Lift the blower front plate back into place.
 - Fasten the plate with the bolts and nuts.
 - Torque bolts to 35 lbsft (47 Nm).



Replace the Front Blower Plate

216220

Blower Belt Tension Adjustment

The blower belt tension adjuster has a spring to keep the tension.

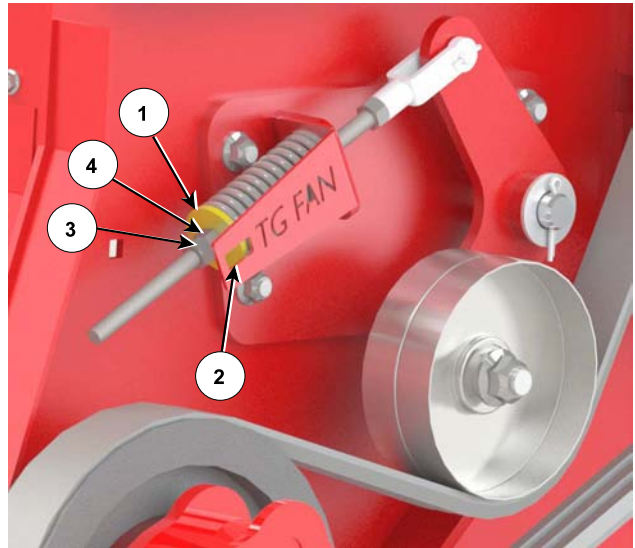
- The belt is tensioned from the factory.

To confirm adequate belt tension:

- Check if the spring washer (1) is showing in the cut out window (2).
 - If it is showing in the window then the belt tension is in the acceptable range.

To adjust belt tension:

- If the spring washer (1) is not showing in the cut out window (2) then adjust the belt tension by:
 - Loosening the jam nut (3) on the threaded rod.
 - Turn the nut (4) next to the spring washer to adjust the spring so it shows in the cut out window (2).
 - Tighten the jam nut (3).



Blower Belt Tension Adjustment

219061C

Auger Belt Tension Adjustment

The auger belt tension adjuster has a spring to keep the tension.

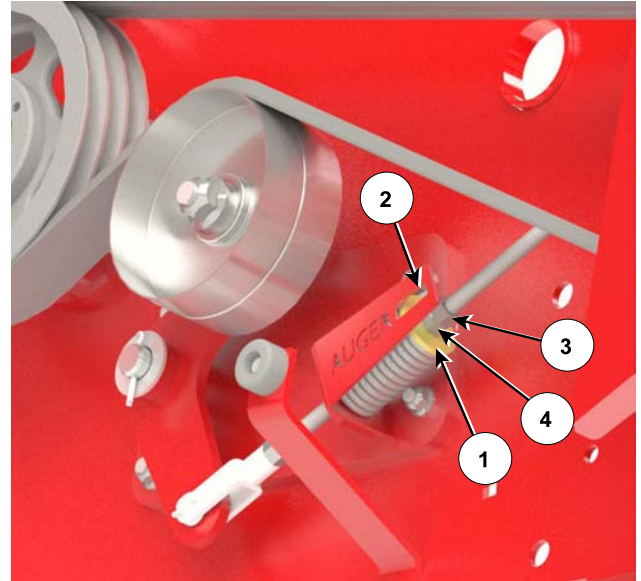
- The belt is tensioned from the factory.

To confirm adequate belt tension:

- Check if the spring washer (1) is showing in the cut out window (2).
 - If it is showing in the window then the belt tension is in the acceptable range.

To adjust belt tension:

- If the spring washer (1) is not showing in the cut out window (2) then adjust the belt tension by:
 - Loosening the jam nut (3) on the threaded rod.
 - Turn the nut (4) next to the spring washer to adjust the spring so it shows in the cut out window (2).
- Tighten the jam nut (3).



Auger Belt Tension Adjustment

219062C

Replacing the Optional Rubber Auger Paddles

The optional rubber auger paddles are manufactured to a tight weight tolerance to maintain rotational balance of the auger.

If a paddle is damaged, replace all 5 paddles as a set to maintain the rotational balance of the auger.

Replace only with Highline replacement parts.



Replace All Auger Paddles As A Set

213082

Replacing the Blower Wear Plate

The blower housing wear plate is located inside the blower on the discharge side.

The amount of wear plate will be depending on the amount of bales processed and the type of bales.

- Abrasive bales such as corn bales cause the plate to wear out more quickly.

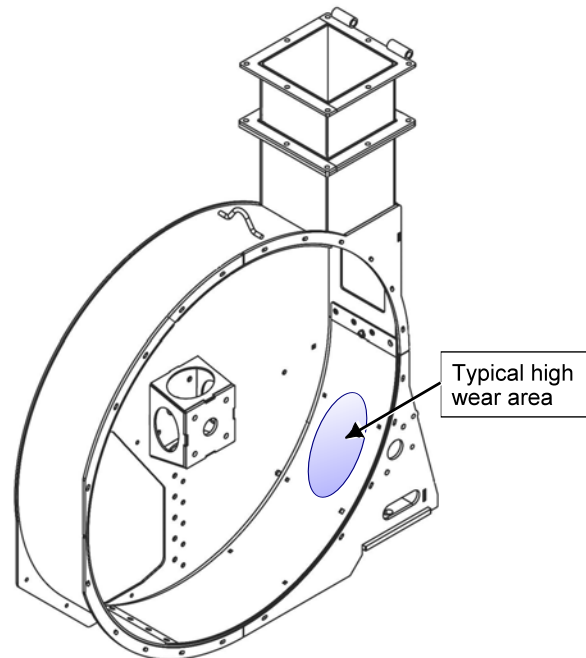
See Section 2 - "TOP GUN 650 Preparation" for instructions on how to check the condition of the blower housing wear plate.

The typical high wear area occurs just below the blower housing access panel. (See the diagram.)

- When the wear plate is worn through at the location shown (or any other area), replace the plate to avoid wearing out the blower housing structure.

To Replace the Wear Plate:

1. Fasten a lifting strap in the top cut out (1) on the front plate of the blower.
 - Tighten the lifting strap with a lifting device to take the weight of the front plate.
2. Remove all the nuts and bolts (2) from the blower housing front plate.
 - Keep these fasteners as they will be used when replacing the front plate.



Check Blower Wear Plate
(Impeller Shown Removed for Clarity)

41720_A1C



Remove the Blower Front Plate

216220C

Section 4 - Maintaining the TOP GUN 650

3. Remove the front plate with the lifting device.

Note: The impeller does not need to be removed to change the wear plate.

- The following diagrams show the impeller removed only to make the instructions clear.

4. Remove 8 of 5/16" x 1" flat head socket screws (1) and locknuts at the top and bottom of the wear plate.

- Keep these fasteners to be used to install the new wear plate.

5. Remove 10 of 3/8" x 1" carriage bolts (2) and locknuts from the wear plate.

- Keep these fasteners to be used to install the new wear plate.

6. Remove the wear plate (3).

- Discard this plate.

7. Place the new wear plate (3) into the blower housing.

- The top of the wear plate has a notch on one side of the plate. This notch is to be facing toward the blower cover.

8. Place 8 of 5/16" x 1" flat head socket screws (1) and locknuts into the top and bottom of the wear plate and the blower housing.

- Do not tighten at this time.

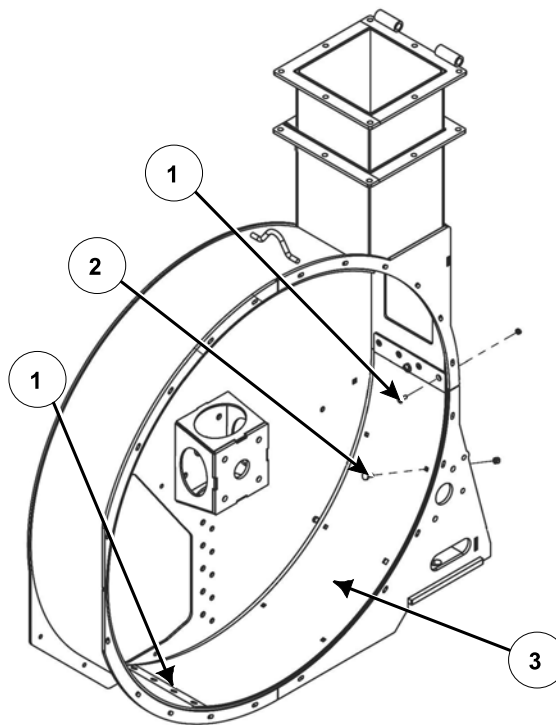
9. Place 10 of 3/8" x 1" carriage bolts (2) and locknuts into the wear plate and the blower housing.

10. Tighten all the wear plate fasteners to 35 lbsft (47Nm)..



Remove the Front Blower Plate

216066



Remove and Replace Blower Wear Plate
(Impeller Shown Removed for Clarity)

216099-2C

11. Lift the blower front plate back into place.
 - Fasten the plate with the bolts and nuts to 35 lbsft (47Nm).



Replace the Front Blower Plate

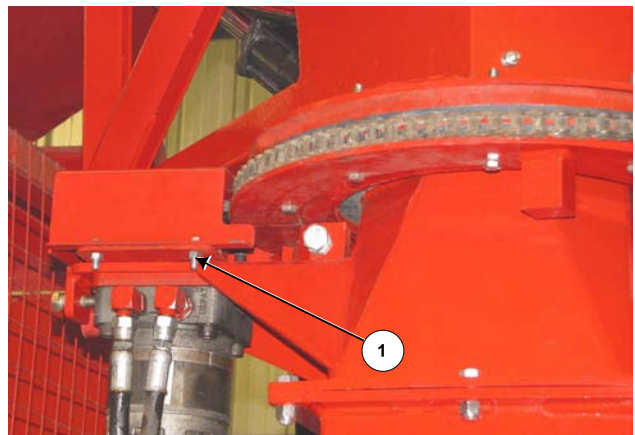
216220

Adjusting the Hydraulic Motor Gear Into the Turret Chain

The gear on the turret motor should be fully engaged into the chain on the turret.

To adjust gear engagement:

- Remove the fasteners (1) from the gear cover.
- Remove the gear cover.

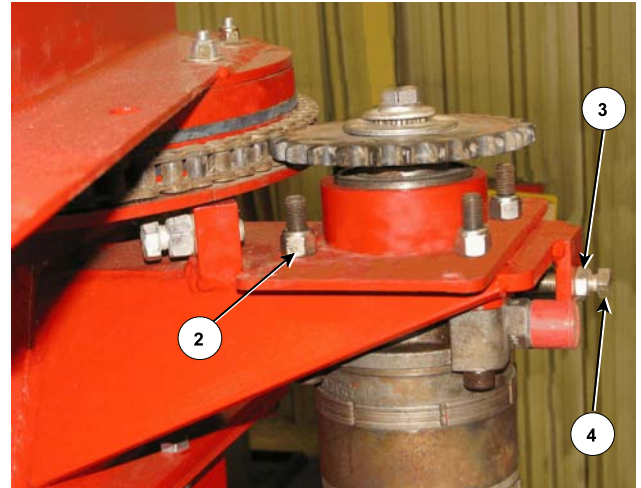


Remove The Gear Cover

213010C

Section 4 - Maintaining the TOP GUN 650

- Loosen the motor mount bolts (2) to allow the motor mount plate to slide.
- Loosen the engagement adjustment jamnut (3).
- Turn the adjustment bolt (4) to move the motor plate along the slots until the gear is fully engaged into the chain.
- Tighten the motor mount bolts (2).
- Tighten the adjustment jamnut (3).
- Replace the gear cover and fasten.



Adjust Gear Engagement

213012C

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5.0 TROUBLESHOOTING

Operation

Blower

Symptom	Problem	Solution
Excessive Blower Vibration	Broken blade.	Replace blade. Replace all the blades of the blower to maintain rotational balance.
	Missing blade.	Replace blade. Replace all the blades of the blower to maintain rotational balance.
	Foreign material lodged in blower.	Remove foreign material.
		Check for damage to the rotor. Contact Highline for proper repair procedure.
	Failed bearing.	Check if rotation feels rough. Replace failed bearing.
		Check for bearing side play and end play. Replace failed bearing.
		Visually inspect bearing. Replace failed bearing.
		Check condition of the grease seal.

Section 5 - Troubleshooting

Symptom	Problem	Solution
Blower 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 drive plate. Ensure the drive pin is fully forward into the drive plate.
	Broken Belt.	Replace the belt.
	Foreign material lodged in housing.	Remove foreign material to allow blower to spin freely. Check condition of blades. Replace all the blades of the blower to maintain rotational balance.
	Blower bearing has seized.	Check bearings or replace.
Blower Stops Spinning	Blower drive clutch pin has moved out and no longer is engaged with the drive 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 drive plate. Ensure the drive pin is fully forward into the drive 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.

Section 5 - Troubleshooting

Drive Belt Loose	Belt Tension	See Section 4 "Blower Belt Tension Adjustment" for instructions on adjusting belt tension.
	Belt has stretched.	Replace the belt.
		See Section 4 "Blower Belt Tension Adjustment" for instructions on adjusting belt tension.

Auger

Symptom	Problem	Solution
Excessive Auger Vibration	Broken flighting.	Replace auger.
	Missing or damaged paddle.	Replace all the paddles as a set to maintain rotational balance.
	Foreign material lodged in auger.	Remove foreign material.
	Failed bearings.	Check if rotation feels rough. Replace failed bearing.
		Check for side and end play. Replace failed bearing.
		Visually inspect bearings. Replace failed bearings.
	Bent Auger Tube.	Replace auger.

Auger Does Not Spin	Broken Belt.	Replace the belt.
	Foreign material lodged in auger chamber.	Remove foreign material to allow auger to spin freely. Check condition of flighting and paddles. Replace paddles.
	Auger bearing has seized.	Check bearings or replace.

Section 5 - Troubleshooting

Auger Stops Spinning	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	Belt Tension	See Section 4 "Auger Belt Tension Adjustment" for instructions on adjusting belt tension.
	Belt has stretched.	Replace the belt.
		See Section 4 "Auger Belt Tension Adjustment" for instructions on adjusting belt tension.

Blower Turret

Symptom	Problem	Solution
Blower Turret Does Not Turn	Turret chain has come loose or is broken.	Tighten chain. Replace chain.
	Hydraulic motor sprocket not engaged in chain.	Adjust the hydraulic motor position so the gear is fully engaged into the chain. Tighten the motor mount.
	Foreign material lodged in rotational plates.	Remove foreign material to allow turret to move freely.
	Diverter Valve.	Confirm operation of the hydraulic diverter valve.
		Check that there is 12 volts at the solenoid connection when the turret swing switch is activated.
		Check that the solenoid is working - "clicks" when activated.

Section 5 - Troubleshooting

Symptom	Problem	Solution
	Hydraulic motor.	Check hydraulic connections.
		Replace hydraulic motor.
Nozzle does not lift or lower	Hydraulic cylinder.	Check hydraulic connections.
	Cylinder pin missing.	Replace cylinder pin.
	Material lodged in joint.	Remove material.

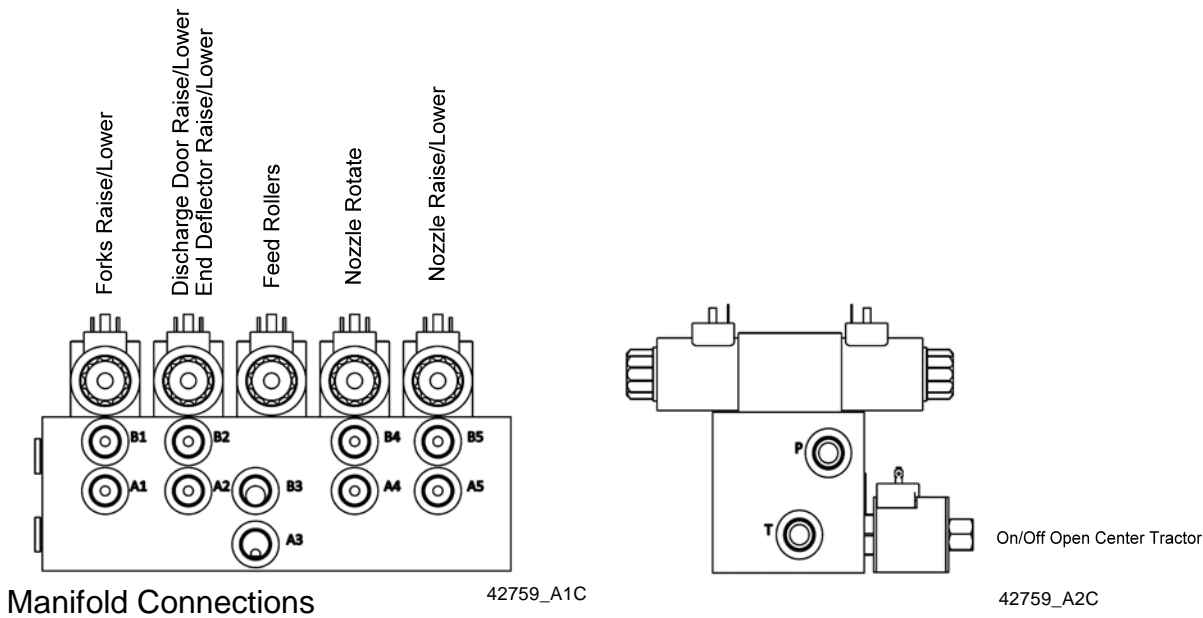
Hydraulic Manifold - Joystick Option

Symptom	Problem	Solution
Solenoid valve	Electrical fault	Check cable and connector
		Measure voltage at the connector
	Not responding to joystick	Manually push/pull the rod of the valve. Avoid being harmed by sudden movements of the machine. Replace solenoid
		Refer to manifold layout

End Deflector Option

Symptom	Problem	Solution
Solenoid valve	Hydraulic	Check the hydraulic connection to the cylinder
	Electrical fault (Joystick)	Check cable and connector
		Measure voltage at the connector
	Not responding to joystick	Manually push/pull the rod of the valve. Avoid being harmed by sudden movements of the machine. Replace solenoid
		Refer to manifold layout

Joystick Hydraulic Manifold Layout



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Highline New Equipment Limited Warranty Policy

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

Highline Mfg. (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.