Bale Pro®

Top Gun® BP 663

Operator Manual

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Highline MANUFACTURING
A DIVISION OF BOURGAULT INDUSTRIES LTD.

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Bale Pro®
BP 663 TOP GUN®

Operator Manual

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Highline Team Message

Congratulations on your purchase of the *BP 663 TOP GUN® manufactured by Highline Manufacturing.*

This Operator Manual has been prepared to provide information necessary for the safe and efficient operation of your BP 663 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 BP 663 TOP GUN as your machine of choice.

Highline Manufacturing

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GENERAL DESCRIPTION OF THE BP 663 TOP GUN® (BP 663)

The BP 663 TOP GUN® is a machine to process round or large square bales of hay or other animal feed materials. When the BP 663 TOP GUN is engaged, it uses power from the tractor PTO to rotate a flail drum, a feed auger and a blower. 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 BP 663 TOP GUN. The flails strike the bale and process it into feed size materials or animal bedding sized materials.

The BP 663 TOP GUN moves the processed material through the auger into 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 BP 663 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 BP 663 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 BP 663 TOP GUN has adjustable forks on the rear of the machine that allows the BP 663 TOP GUN to pick up and self-load round and square bales into the processing tub. An additional bale may be carried on the forks while the bale in the tub is being processed.

The amount of processing and chopping of material in the processing tub is adjusted by setting the height of the guard rods. The height of the guard rods determine the level of aggression of the flails acting on the round bale. The bale is rotated by feed rollers while the flail drum turns to process the material. The rotation of the bale assists in the bale being processed in an even manner.

For animal feeding into a windrow or feed bunk the processed material is discharged from the BP 663 TOP GUN on the right side of the machine.

The operator of the BP 663 TOP GUN is located in the tractor cab to control the speed of driving and the speed of operation of the BP 663 TOP GUN the direction of the blower nozzle output.

INTENDED USE OF THE BP 663 TOP GUN®

The BP 663 TOP GUN is intended to process animal feed and bedding materials from a round or large square bale.
The BP 663 TOP GUN is intended to process and blow land reclamation materials.
The BP 663 TOP GUN is intended for use in farming applications.
The BP 663 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 BP 663 TOP GUN is intended for use in locations away from people who could be harmed by the discharged materials.

Any uses of the BP 663 TOP GUN other than the above stated Intended Uses shall be considered misuse of the BP 663 TOP GUN. This misuse shall included (but not limited to):

- Using the BP 663 TOP GUN on public roads (except for land reclamation uses).
- Using the BP 663 TOP GUN around people or in public places.
- Discharging materials other than for animal bedding, feed materials or land reclamation.

Always use the BP 663 TOP GUN according to the instructions contained in this Operator Manual and the safety and instruction decals on the machine.

Perform regular maintenance and repair to ensure that the BP 663 TOP GUN operates safely and efficiently.

SERIAL NUMBER

Your serial number is found on the serial number plate (1) attached to the BP 663 TOP GUN® on the top left hand side of the front tub wall.

Serial Plate Location 215068C

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 and Biological Engineers (ASABE) and the Occupational Safety and Health Administration (OSHA). Anyone who will be operating and/or maintaining this machine 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 this Operator 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 BP 663 TOP GUN® 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 BP 663 TOP GUN® shall not be operated without all the guards in place.

SAFETY DECALS

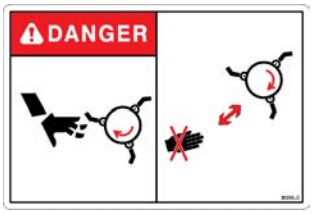
1. Keep decals and signs clean and legible at all times.
2. Replace decals and signs that are damaged, missing or have become illegible.
3. Replaced parts that displayed a decal should also display the current decal.
4. Decals are available from the Highline Parts Department.
5. Be familiar with the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

DO NOT OPERATE WITH SHIELDS MISSING

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



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.

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.

Stay out of the processor tub when the PTO is connected to the tractor.

Keep guards in place and in good condition.

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.

DO NOT CONTACT THE ROTATING AUGER

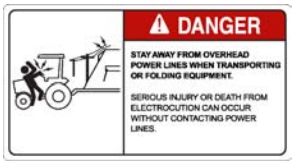
Keep fingers and hand out of the auger chamber.
Never attempt to manually remove debris while the auger is rotating.
Contact with the rotating auger will cause serious injury or death.
Keep all auger guards in place.

DO NOT ENTER TUB WHILE PARTS ARE ROTATING

- With a bale in the tub
- Without a bale in the tub

Before entering the tub
- Turn off the tractor and remove the key.
- Wait for rotating parts to stop

The bale is unstable and may cause entrapment.
Contact with the moving feed mechanism or rotating flail drum will cause serious injury or death.



STAY AWAY FROM OVERHEAD POWER LINES

Stay away from overhead power lines when transporting equipment.

Serious injury or death from electrocution can occur without contacting power lines.

STAY BACK FROM AN OPERATING MACHINE WHICH CAN DISCHARGE OBJECTS SEVERAL FEET

Stay clear when the PTO is engaged.
Stay clear of the nozzle when discharging.
Stay clear from auger side when discharging.

Thrown material or objects leaving the discharge area can cause serious injury or death.

Do not operate within 100 ft (30m) of any person.
Keep all shields and guards in place.

CHECK BLOWER BLADES FOR CRACKS AND THICKNESS

Blower 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 RIDE ON MACHINE

Falling from the moving machine can cause serious injury or death. Falling from the operating machine can cause being entangled under the machine or being injured by the machine.

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.

INSTALL CYLINDER LOCK BEFORE GOING UNDER RAISED BALE FORKS

Install and secure the cylinder lock before going under raised bale forks.

Install and secure cylinder lock before using the twine cutter.

USE PAPER OR CARDBOARD TO CHECK FOR HYDRAULIC LEAKS

To prevent serious injury or death:
Relieve pressure on hydraulic system before repairing, adjusting or disconnecting.
Wear proper hand and eye protection when searching for leaks.
Use wood or cardboard instead of hands.
Keep all components in good repair.

IMPLEMENT IS DESIGNED FOR OFF ROAD USE ONLY.

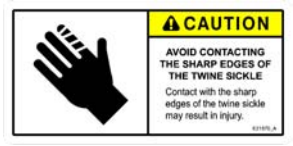
Do not transport with bales in the processor tub.
Do not transport with a bale loaded on the forks.

To transport on public roads consult with local traffic authorities.

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.



AVOID CONTACT WITH THE TWINE SICKLE

Contact with the sharp edges of the twine sickle may result in injury.

Do not contact the twine sickle when it is operating. Contact with the moving sickle may result in injury.

DO NOT EXCEED PTO SPEED

Do not operate at excess speeds or damage to the machine may result.

DO NOT EXCEED 80° TURNS IN OPERATION

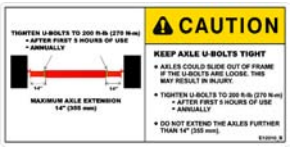
Do not operate the Constant Velocity (CV) driveline at greater than 80° to prevent damage to the driveline.

SHUT DOWN TRACTOR BEFORE USING TWINE CUTTER

Use the shutdown procedure to ensure no movement of the flail drum will occur while cutting twine or netwrap.

LOCK FORKS AND FLAIL DRUM BEFORE USING TWINE CUTTER

Lock forks in the upright position before going under the raised forks.
Lock the flail drum to ensure no movement of the flail drum will occur while cutting twine or netwrap.

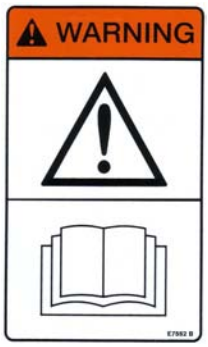


KEEP THE AXLE U-BOLTS TIGHT
Axles could slide out of the frame if the u-bolts are loose.
Tighten u-bolts after first 5 hours of use and then annually.

Do not extend the axles further than 14".

DO NOT ATTEMPT TO LIFT THE HITCH WITHOUT USING THE JACK

READ, UNDERSTAND, AND FOLLOW SAFETY INSTRUCTIONS



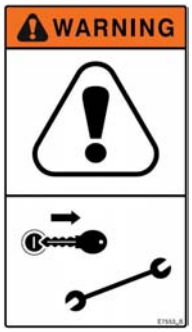
Read, understand and follow all instructions and safety messages included in this manual and on decals attached to the machine. These instructions and safety messages contain important information.

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.

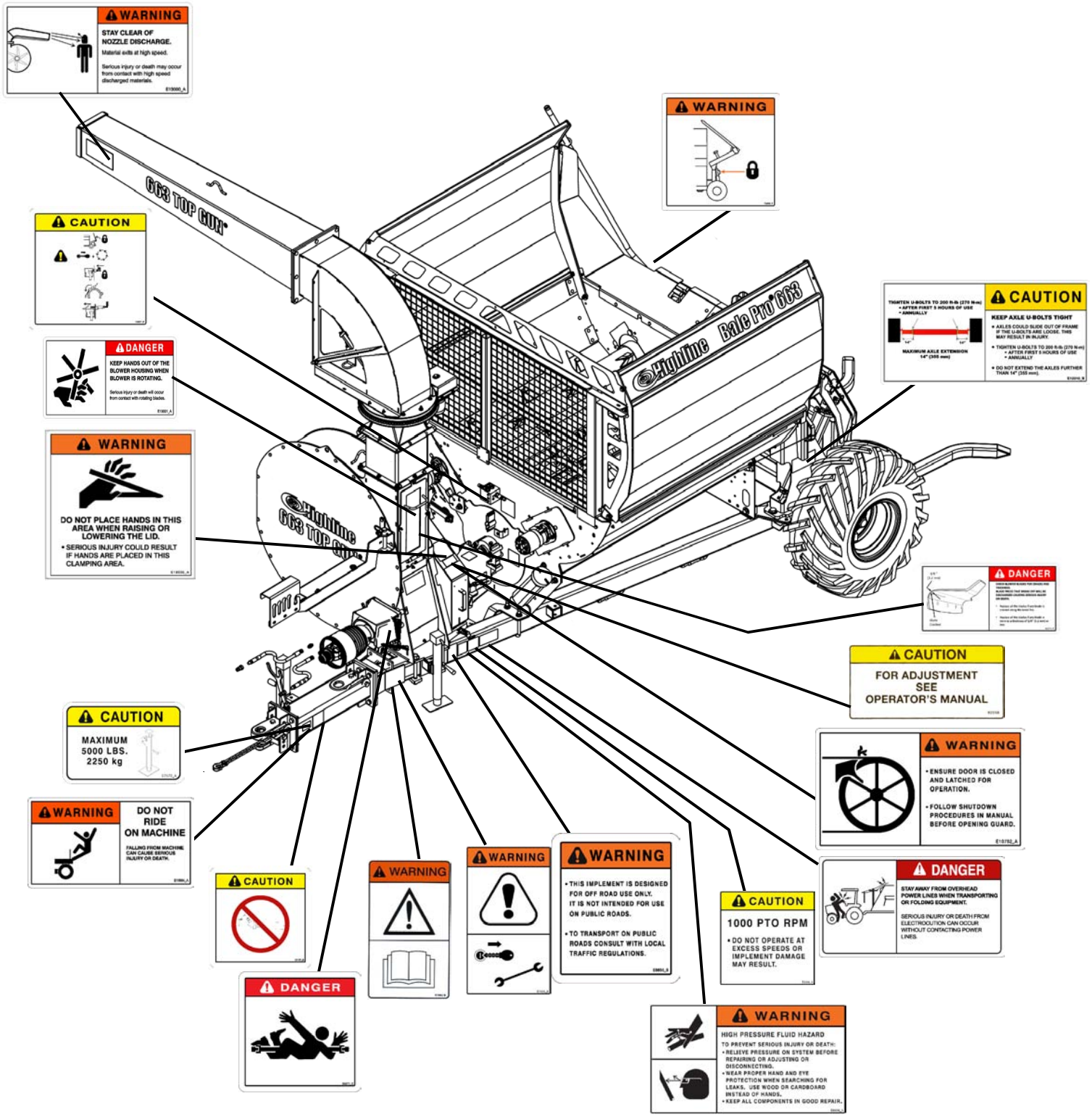
Relieve all hydraulic pressure in the hoses before going near the machine. Leave the hydraulics in the “float” position.

SHUTDOWN PROCEDURE

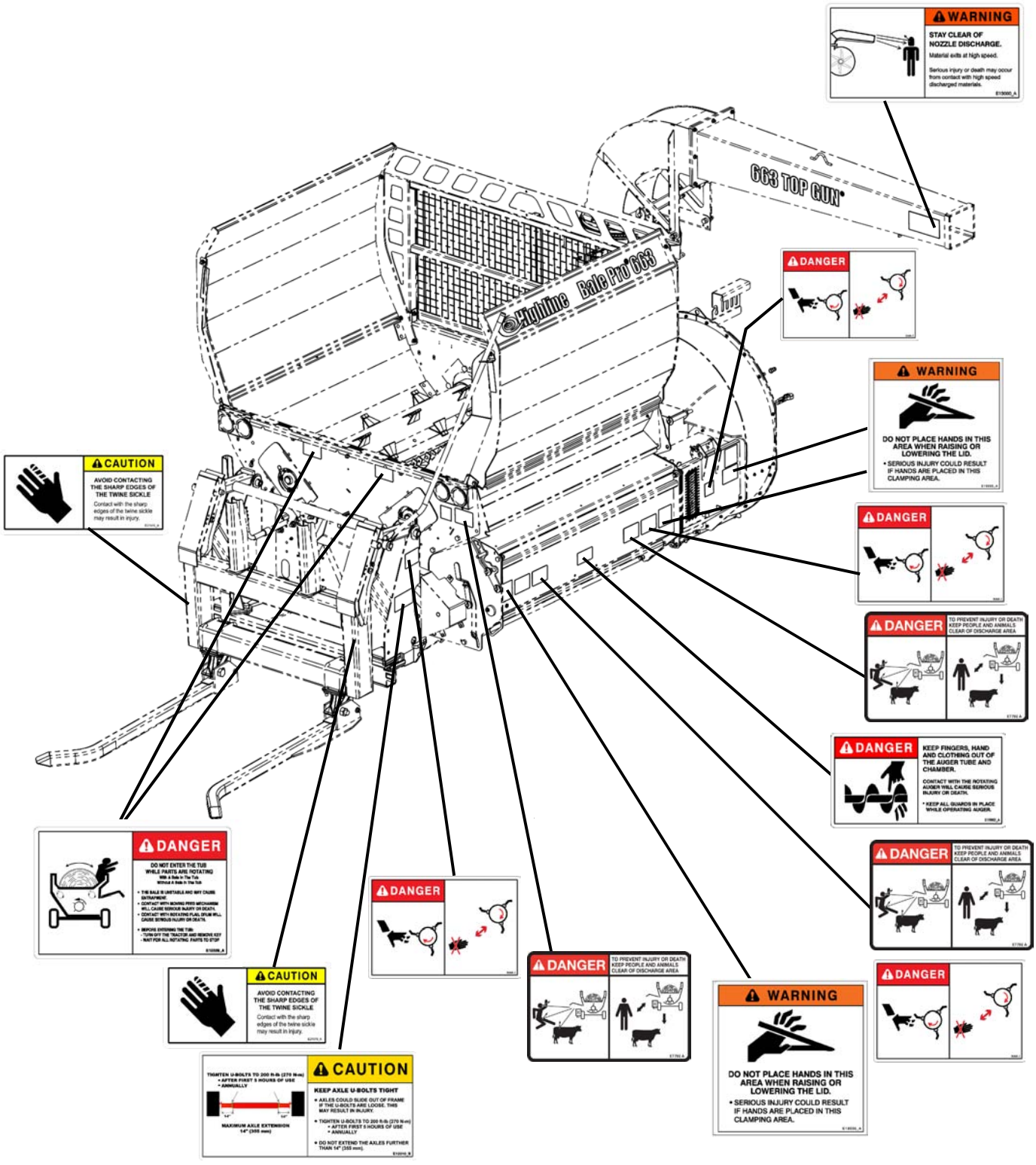
For your safety and the safety of others, this shutdown procedure must be followed before dismounting from the tractor for inspecting, repairing, servicing, cleaning, or lubricating the machine.

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 and blower to stop turning.

SAFETY DECAL LOCATIONS



SAFETY DECAL LOCATIONS



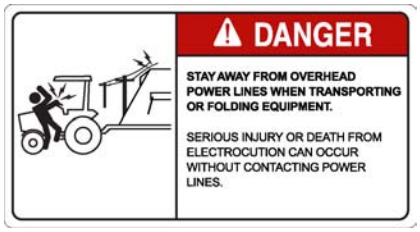
TRANSPORTING THE BP 663

Only tow the BP 663 behind a properly sized and equipped tractor which exceeds the loaded weight of the BP 663 by 50%. Do not tow behind a truck or other type of vehicle.

The BP 663 is designed for off road use only.

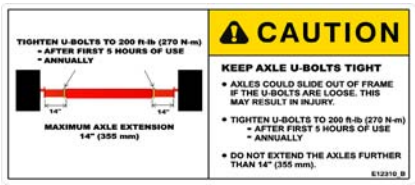
Do not transport on public roads with bales in the processor tub.
Do not transport on public roads with a bale loaded on the forks.
Check with local traffic regulations to transport on public roads.

Stay away from overhead power lines when transporting equipment. Electrocution can occur without contacting power lines.



Do not allow any person to ride on the tractor or BP 663. Falling off can result in serious injury or death.

Keep the Axle U-Bolts Tight. Injury could result if axles come out.
Torque the axle u-bolts to 200 lb-ft (270 Nm) to ensure the axles do not slide out of the frame. Maximum axle extension is 14" (355 mm).



1. Tractor Requirements
   - Roll Over Protection System (ROPS)
   - Working seatbelts
   - 1 3/8" 21 spline PTO
   - PTO requirement
     - refer to the “Specifications” Section for the PTO requirements.
   - 3 Spool Control Valves (SCV)
     - An optional solenoid valve is available for tractors with 2 SCV.

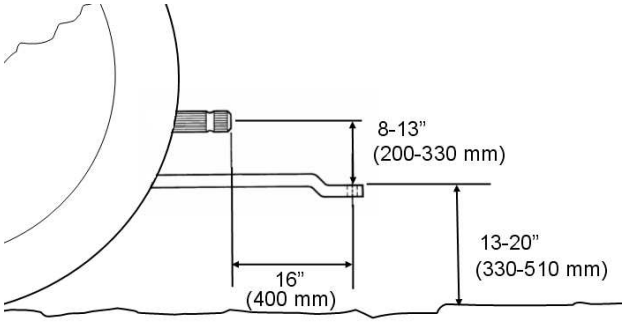
2. Ensure the correct PTO speed.
   - Ensure that the tractor PTO speed matches the BP 663’s gearbox speed of 1000 rpm.
   - Do not attempt to operate the BP 663 at a different PTO speed.

   Note: Do not use PTO adapters. PTO adapters will cause a driveline failure and possible tractor damage. Your BP 663 warranty will also be invalid.

3. Adjust the tractor drawbar length.

   - Set the drawbar length to 16" (406 mm) for a 1 3/8" 21 spline PTO.
   - This length is measured from the tip of the PTO shaft end to the center of the drawbar hole. (Refer to your tractor’s operator manual for drawbar adjustment procedures.)

   Note: To prevent damage to the tractor drawbar, avoid traveling at high speeds and over rough terrain.



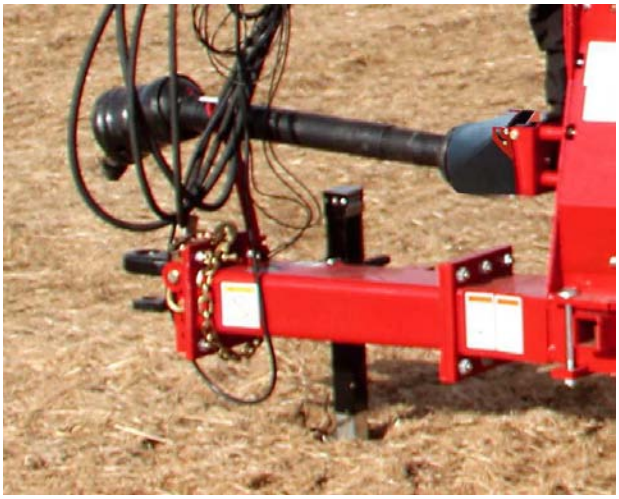
Tractor Drawbar Adjustment

PTO Dimensions

4. Lift the hitch.

    - Lift the hitch with the jack.

        - The hitch is heavy. Do not attempt to lift it without using the jack.



Lift Hitch with the Jack 221221

5. Connect the hitch to the tractor clevis drawbar.

    - Use a 1" (25 mm) pin.

    - Secure with a hitch pin clip.

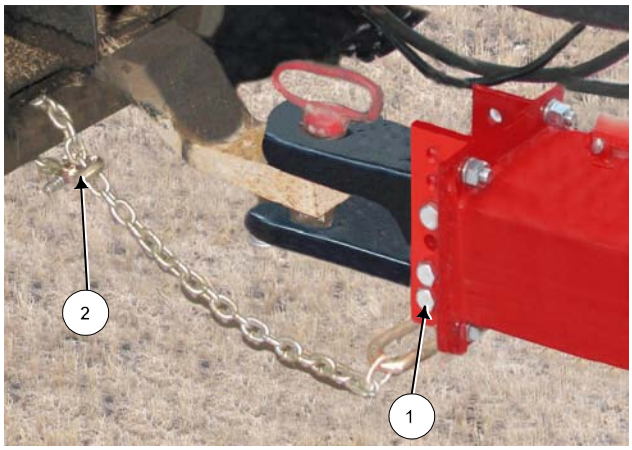
6. Connect the safety chain.

    - Ensure the safety chain rating is equal or greater than the gross weight of the BP 663.

    - Route the safety chain around the lower safety chain bolt (1).

    - Attach the chain to a secure location on the tractor.

    - Fasten the chain hook with the hook lock (2).



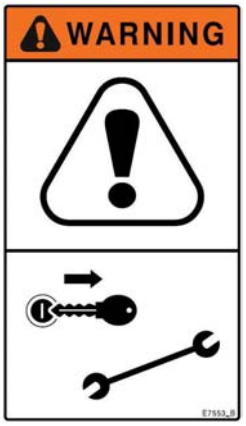
Connect Hitch to Tractor Drawbar
Connect the Safety Chain 221219-2C

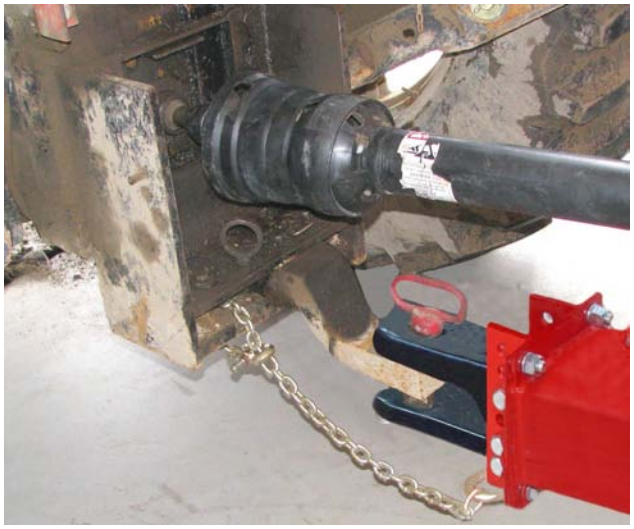
7. Attach the driveline to the PTO.

Shut off the tractor engine before attaching PTO driveline. Entanglement in the rotating driveline can cause serious injury or death.

The BP 663 shall not be operated without the driveline shields in place.

- Shut off the tractor engine and remove the key.
- Check that the driveline telescopes easily and that the shields are in good condition and rotate freely.
- Support the driveline, pull back on the yoke collar, align the splines by rotating the BP 663 driveline and push the driveline into the tractor PTO shaft until the collar snaps into place.
- Push and pull the yoke several times to ensure the driveline is locked. Do not pull on the collar as this will release the lock.
- Lower the tractor & hitch PTO shields into place.
- Connect the chains on the driveline guards to the driveline shield and the tractor.
- Fold down the PTO support holder.
  - Failure to fold down the support may result in damage to the driveline.





Connect the Driveline to the PTO 221220

8. Attach the hydraulics.

    - Clean the end of the hoses (1) and the connection.
    - Firmly push the hoses into the tractor receptacle according to user preference.
    - Route the hoses so they do not interfere with moving parts.

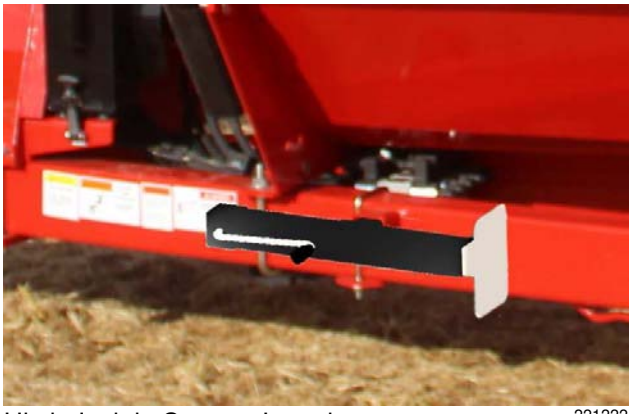
Attach Hydraulics and Electrical 108008

9. Connect the lights.

    - Connect the light plug into the appropriate tractor receptacle.

    - Ensure the light cable does not interfere with or contact moving parts.

10. Place the hitch jack in the storage location.



Hitch Jack in Storage Location 221222

11. Adjust wheel stance settings.

- Increase the rear wheel stance to maintain stability when working on hilly terrain or rough ground.

Note: Ensure the bale processing tub is empty before adjusting wheel stance.

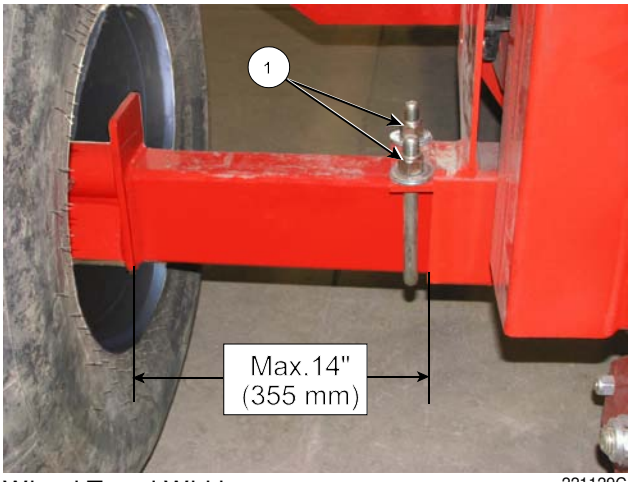
- Raise the main axle under the cylinder mount and support.

- Loosen the u-bolts (1) that hold the axle tubes in place.

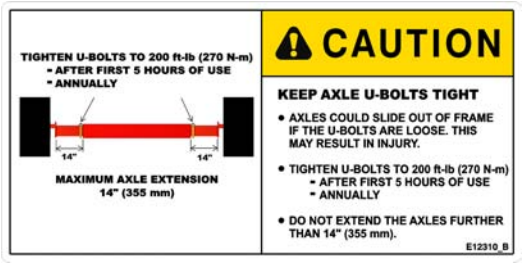
- Slide the axle to achieve the desired wheel stance setting.

Note: Maximum axle extension is 14" (355 mm). Axles may bend if extended beyond this amount.

- Tighten the u-bolts (1) that hold the axle tubes in place to 200 lb-ft (270 Nm).



Wheel Tread Width 221129C



12. Check the condition of the tires.

- Ensure that the lug nuts have the cone side of the lug nut against the wheel rim.

- Torque the lug nuts to 75 lb-ft (101 Nm).

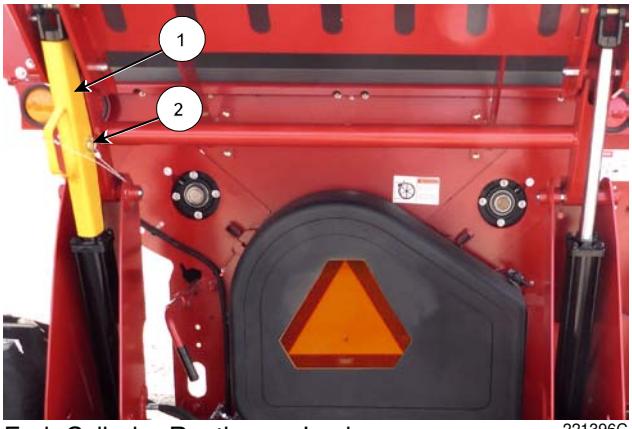
- Fill the tires to 24 psi (165 kPa).

Check the Tires 221128

13. Raise the bale loading forks to the highest position.

14. Install the cylinder lock (1) on the cylinder of the bale loading forks.

    - Fasten the cylinder lock in place with the pin (2).



Fork Cylinder Resting on Lock 221396C

15. Raise the optional discharge deflector door (if present) to the transport position.

    - The discharge deflector door is operated by a hydraulic cylinder.

    - Flip the rubber deflector onto the top of the door before raising the door. This will secure the rubber between the tub wall and the door.

Discharge Door Raised - Rubber Secured 221224

16. Install the discharge deflector door transport lock (if present).

    - Rotate the lock (1) toward the door.

    - Place the lock onto the pin on the door.

    - Secure with the clip pin (2).

Deflector Door Lock 221225C

17. Ensure that the Slow Moving Vehicle (SMV) sign is clean and visible.

Ensure SMV is Visible 221396

18. Transport

Do not transport on public roads with bales in the processor tub.

Do not transport on public roads with a bale loaded on the forks.

Do not transport on public roads with the forks in the lowered position.

19. Transport Speed
- Do not exceed 25 mph (40 km/h).

BP 663 PREPARATION

Check these items each time before using the machine.

1. Park the tractor and BP 663 on level ground.
   - Engage the tractor parking brake and shut down the tractor.

2. Ensure that all decals are clean and in place.

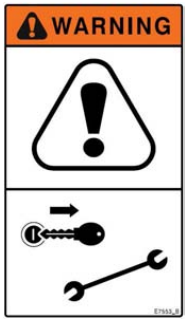
3. Ensure that the Slow Moving Vehicle (SMV) sign is clean and visible.

Park on Level Ground
(Optional Nozzle End Deflector Shown)
221227

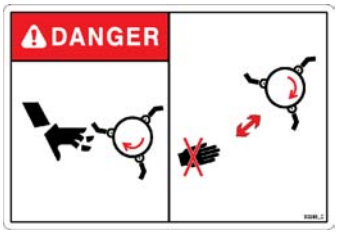
4. Check the condition of the flail drum and feed rollers.

Shut down the tractor completely and set the parking brake.

Disconnect the PTO from the tractor before doing any work near the flail drum.

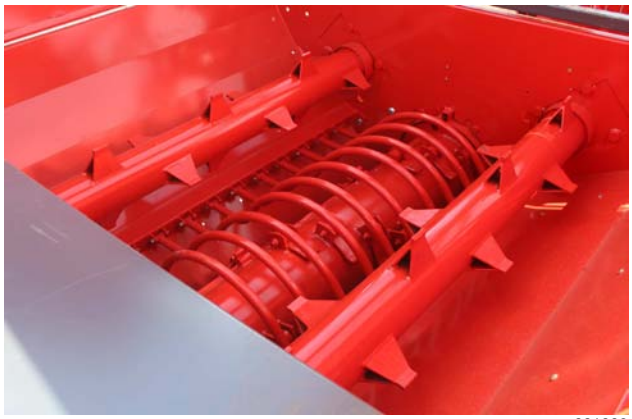


Do not place hands in the BP 663 when it is rotating. Contact with exposed rotating flails will cause serious injury or death.



5. Check for twine build up on the flail drum and feed rollers.

   See "Wrap or Twine Removal Procedure" at the end of this Section.



Check Flail Drum and Feed Rollers
221228

6. 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.

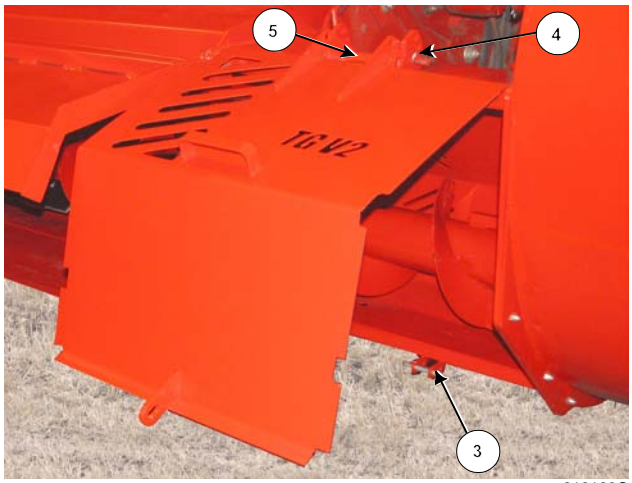
- Raise the upper auger housing cover.
  - Release the handle (1).
  - Raise the cover.
  - Latch the handle in the slot.

- Lower the bottom auger housing cover.
  - Use the lower handle (2) to lower the bottom housing door.

Raise the Auger Housing Cover 212125C

7. 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

8. Clear the auger area of any material buildup.

Do not contact the rotating auger. Never attempt to manually remove debris while the auger is rotating. Contact with the rotating auger will cause serious injury or death.

- Do not use the twine cutter tool to dislodge jammed material.

- Check the condition of the drum.
- Check the condition of the auger flighting.

- Check the condition of the optional rubber paddles (if present).
  - If feeding with the auger it is recommended to install the rubber paddles.

    Notes:
    - The auger will be imbalanced if some paddles are missing or damaged. This will cause vibration and possible bearing damage.
    - 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 builds up.

9. Look through the auger and clean debris and material buildup from the flail drum area and the processor tub.

Check Condition of Flighting and Paddles 212124

Remove Twine From Auger 212126

Check and Clean Flail Drum Area
(Auger Not Shown for Clarity) 201204

10. Look through the auger to check the condition of the flails.
    - Inspect the flails daily.

    Spin the flail drum by hand to check all the flails.
    - Check that the flails swing freely.
    - Check if they are broken or worn to the point that they would not process the material properly.
    - See the Section 5 - "Maintaining the BP 663" for flail replacement information.
        - Replace the flails in pairs.
            - Replace on opposite sides of the drum to maintain drum balance.

    - Check the condition of the flail mounting bolts. Ensure the mounting bolts are tight.

Check Flails
(Auger Not Shown for Clarity) 214082

11. Remove twine, wrap or other materials wrapped around the flail drum or drum bearings.

    Note: Remove the wrap or twine from the flail drum every 25 bales.
        - Premature bearing failure can occur if twine is allowed to build up on the flail drum.

    See "Wrap or Twine Removal Procedure" at the end of this Section.

Remove Wrap & Twine
(Auger Not Shown for Clarity) 214083

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

Remove Material From Blower Entrance 212127

13. 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

14. Close the lower auger housing cover.

    - Move the handle (1) to the closed position.

15. Close the upper auger housing cover.

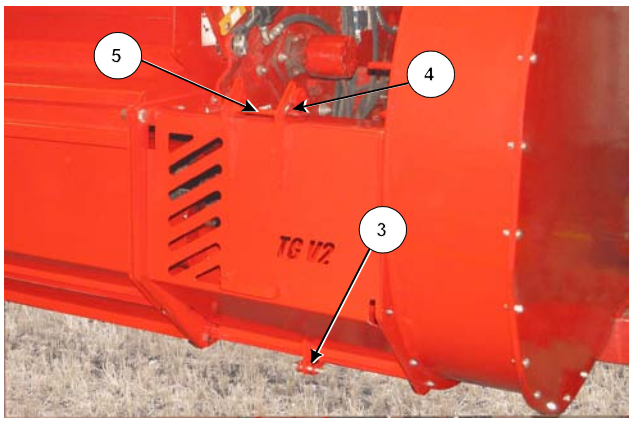
    - Move the handle (2) to the closed position.
    - Place the pin firmly into the slot.

Close the Auger Housing Covers 221397C

16. Lower the transition housing access cover.

    - Remove the pin from the bottom of the cover (3).

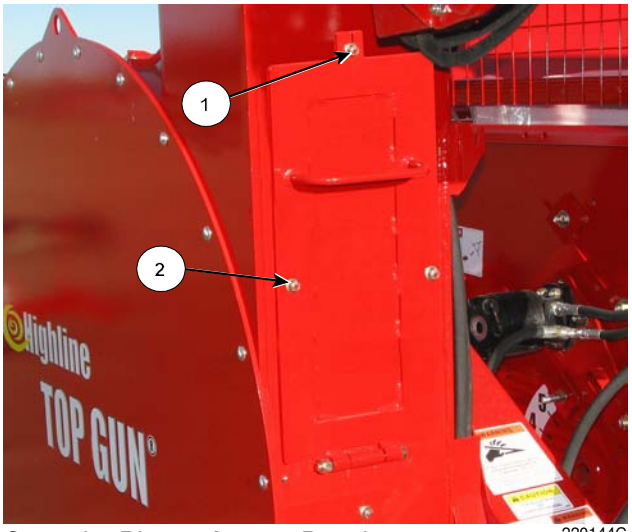
    - Remove the hair pin (4) from the hinge pin (5).
    - Remove the hinge pin.
    - Rotate the cover to the closed position.
    - Install the hinge pin (5).
    - Install the hair pin (4).
    - Install the bottom pin (3).



Lower the Transition Housing Access Cover 212130C

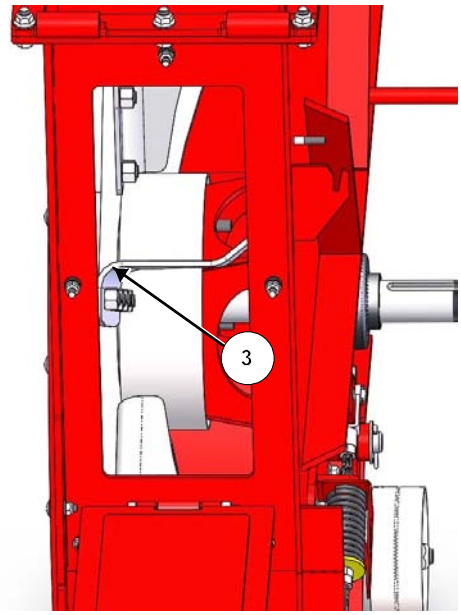
17. Every week check the condition of the blower blades.

- 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

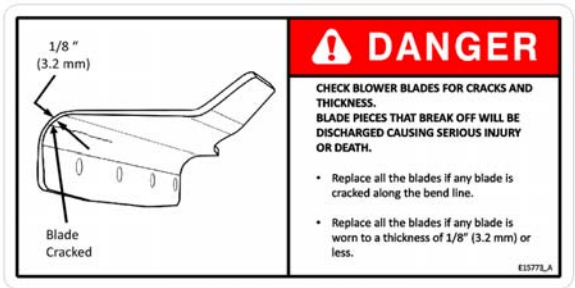
- Inspect the blower blades through the blower housing access panel.
  - Rotate the blower by hand to inspect all the blades.
- Check for cracks (3) along the bend of the blades.



Inspect the Blower Blades 220145C2

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.

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

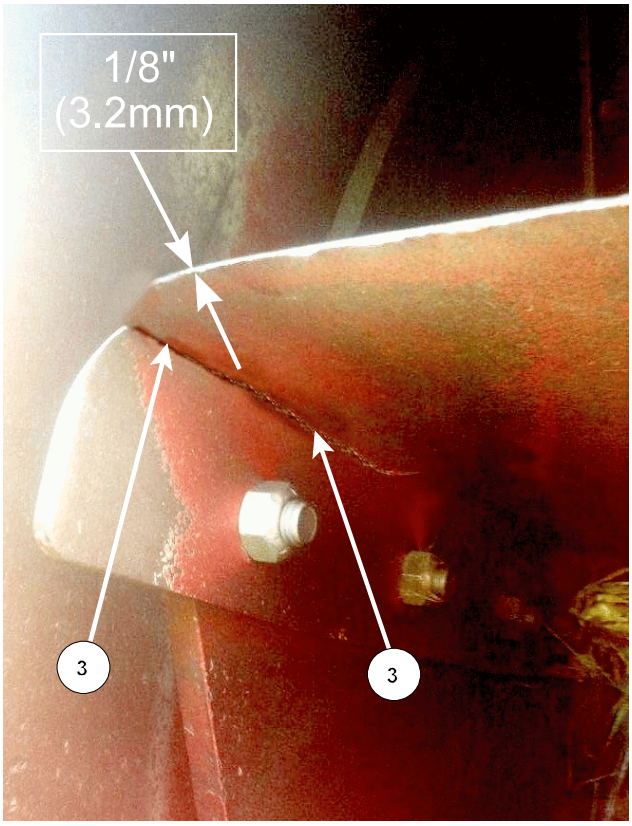
19. Check the condition of the blower housing wear plate.

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

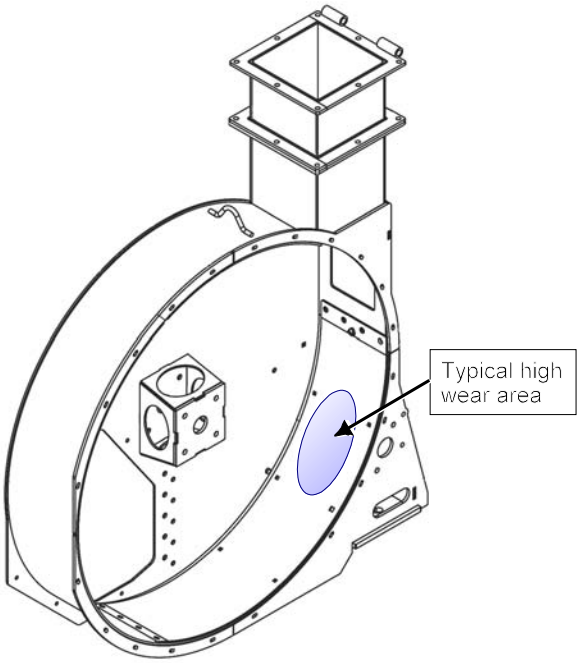
    - The amount of wear plate is dependant on the amount of bales processed and the type of bales.
        - Abrasive bales such as corn bales cause the plate to wear out more quickly.

    - 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.



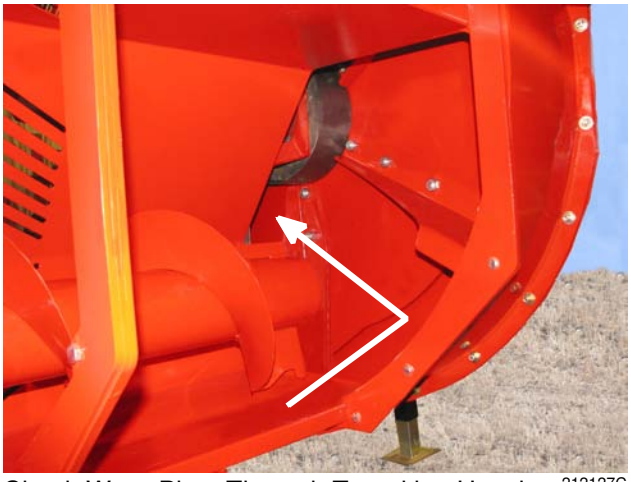
Check Blades for Cracking and Thickness 221398C



Check Blower Wear Plate
(Impeller Shown Removed for Clarity) 41720_A1C

- There are 2 ways to check the wear plate:

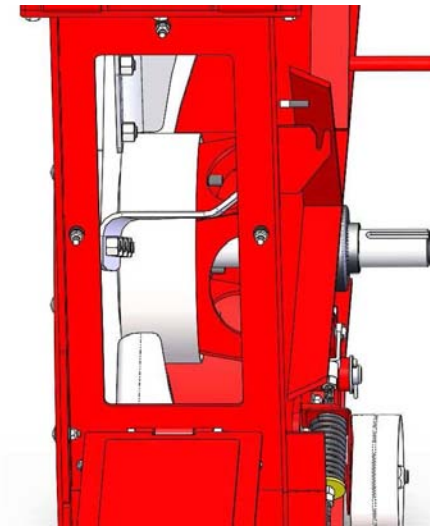
  1. Look through the auger transition housing to inspect the blower wear plate.



Check Wear Plate Through Transition Housing 212127C

  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

20. Check the condition of the blower drive belt.

- Lift the drive shield.
  - Rest the shield in the tab on the back of the blower housing.

- Check the blower drive belt.

Lift the Drive Shield 221399

21. 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 in place.

Check Blower Drive Belt and Tension 219061

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

22. Lower the driveline shield.

Lower Drive Shields 221400

23. Open the rear drive shield.

    - Loosen the rubber holder 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 221401

24. 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 221230

25. Close the auger drive shield into place and fasten with the rubber holder.

The BP 663 shall not be operated without all the driveline shields in place.


Close the Rear Drive Shield 221396

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

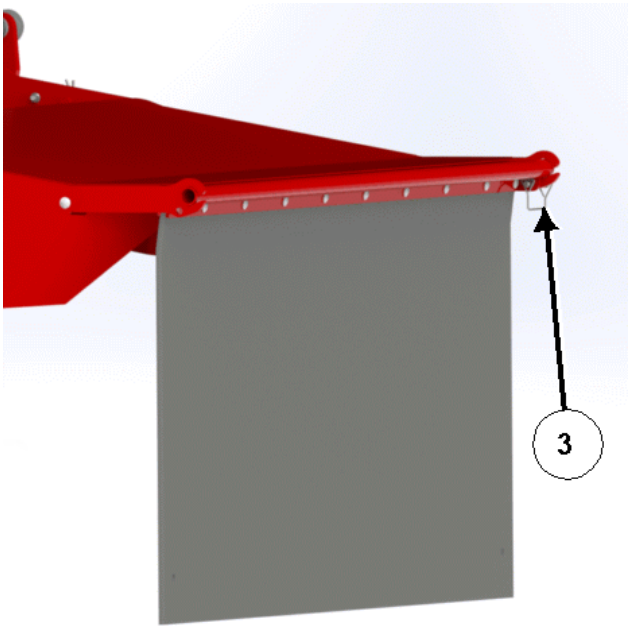
    Note: The cylinder may need to be moved with the hydraulics to remove the weight from the lock.

    - Remove the clip pin (2).
    - Remove the lock from the pin on the door.
    - Rotate the lock (1) away from the door.

27. Flip the rubber down for bunk or windrow feeding.

    - Pin (3) the rubber in place.
        - There are 3 possible pin positions to give adjustment to feed distribution.

Deflector Door Lock 221225C



Deflector Rubber Down for Windrow/Bunk 221231

28. Adjust the height of the hitch tongue if needed.

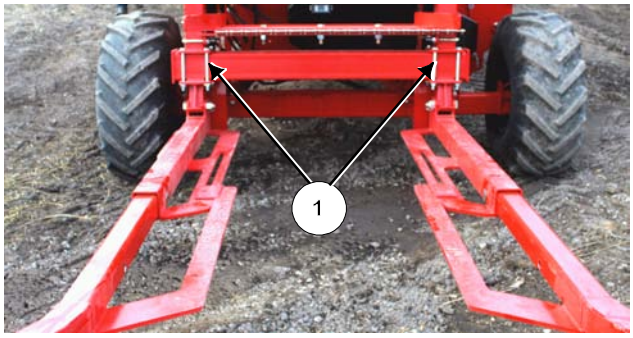
Note: Do this procedure on level ground.

- Level the frame of the BP 663 to ensure the bale forks can lower for loading a bale.
- Adjust the hitch tongue height to connect with the tractor drawbar while keeping the frame level.
- Fasten the tongue in place and torque the bolts to 210 ft-lbs (285 Nm).

Adjust the Height of Hitch Tongue 221219-2

29. Adjust the bale loader forks for the width of bale being processed.

- Loosen or remove the bolts (1) from the fork bolt plates that hold the forks to the bale lift.
- Move the forks to be the diameter of round bales or the width of the square bales to be processed.
- Center the forks on the bale lift.



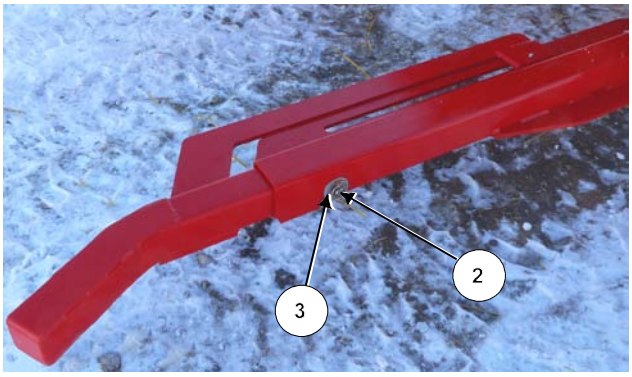
Adjust Fork Width to the Bales Being Loaded Center Forks on the Bale Lift 221232C

30. Adjust the length of the forks.

- The forks are adjustable in length for round or square bales.

For <u>round bales</u> move both forks inward:

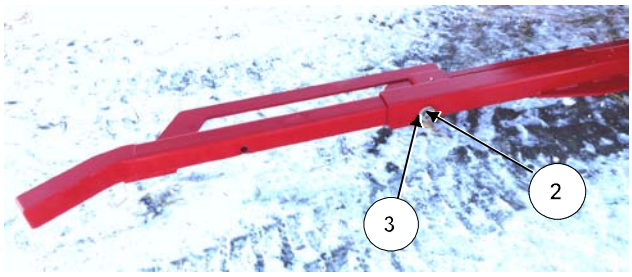
- Remove the spring pin (2) from the fork pin (3).
- Remove the washer.
- Remove the fork pin.
- Slide the forks in and align the hole.
- Install the fork pin (3).
- Install the washer.
- Install the spring pin into the fork pin.



Adjust Fork Length for Round Bales 221233C

For square bales move both forks outward:

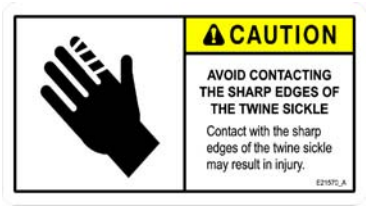
- Remove the spring pin (2) from the fork pin (3).
- Remove the washer.
- Remove the fork pin.
- Slide the forks out and align the hole.
- Install the fork pin (3).
- Install the washer.
- Install the spring pin into the fork pin.



Adjust Fork Length for Square Bales 221234C

31. If the optional Twine Sickle is on the machine, check that it moves back and forth through the operation of the tractor control lever.

Avoid contacting the sharp edges of the twine sickle.
Contact with the sharp edges of the sickle may result in injury.



Optional Twine Sickle 221243

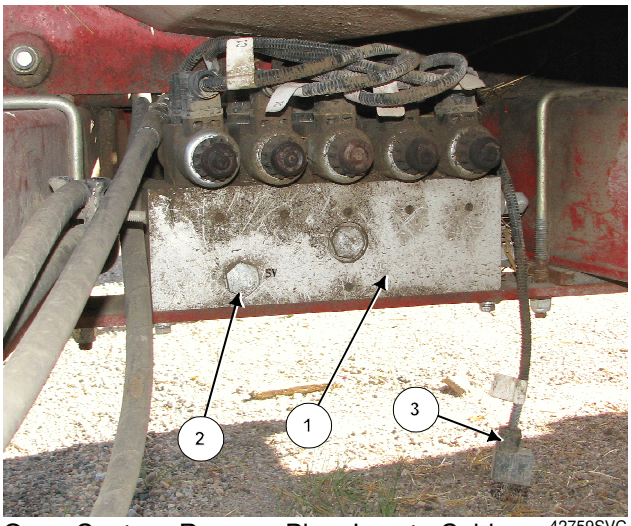
32. Connect the electrical cable to a 10 amp fused circuit on the tractor.

    - The optional 1 remote (joystick control) has it's own 15 amp fuse so it is not necessary to connect to a fused circuit.

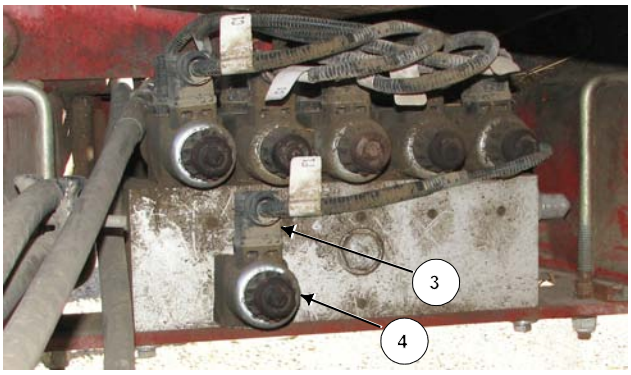
33. If the optional 1 remote (joystick) control is being used on an open center tractor, ensure the On/Off solenoid valve that was supplied is installed in the back of the joystick hydraulic block.

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).
- Install the solenoid valve (4) into port "SV".
- Locate the cable labeled "F1" (3).
- Connect the cable labeled "F1" (3) to the solenoid valve (4).



Open Center - Remove Plug, Locate Cable 42759SVC



Install the Solenoid Valve and Attach Cable 42759SV-1C

34. Inspect all the hydraulic motors, 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 the hydraulic system before repairing, adjusting or disconnecting.

- Visually inspect all the hydraulic hoses and fittings.
  - See Section 5 "Maintaining the BP 663" for conditions indicating that replacement is needed.
- Ensure the proper size cylinder pins are in place and secured.

Check All Hydraulics 221235

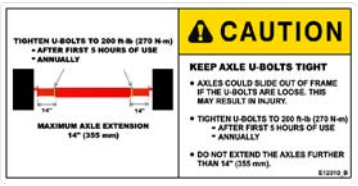
35. Inspect the wheels and tires for damage or foreign objects. Repair or replace as necessary.

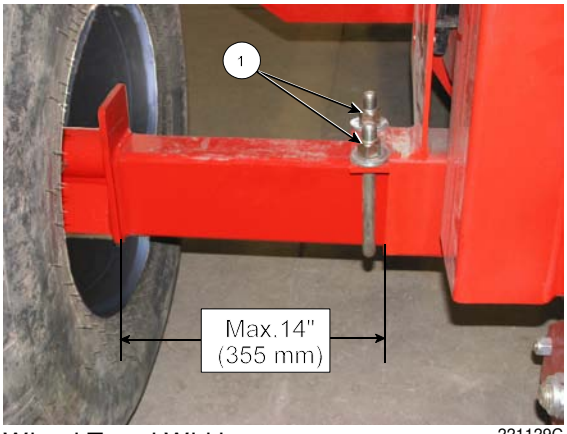
Check the Tires 221128

36. Check that the axle u-bolts (1) are tight.

- Torque the axle u-bolts (1) to 200 lb-ft (270 Nm) to ensure the axles do not slide out of the frame.

- Maximum axle extension is 14" (355 mm) from the main tube edge to the inside face of the spindle plate.





Wheel Tread Width 221129C

37. Remove any twine that is built up around the axle spindle and hub.

- Be careful to not damage the bearing grease seal while removing twine.

Remove Twine from the Spindle and Hub 221130

38. Ensure the driveline shields are lowered into place and are in good repair to prevent injuries.

The BP 663 shall not be operated without the driveline shields in place.

Note: If chains are on the driveline guard connect them to the processor and the tractor.

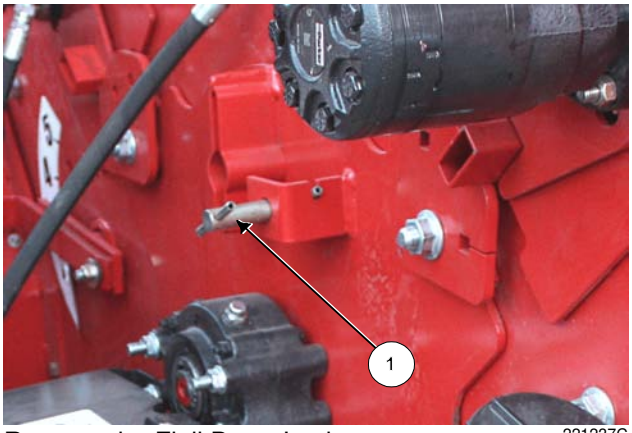
Ensure Driveline Shields Are in Place 221400-2

39. Remove the flail drum lock.

    - Disengage the drum clutch pin (1) from the flail drum drive plate.

        - Pull the spring loaded pin (1) out and rotate to lock in the disengaged position.

    - Failure to unlock the flail drum will result in damage to the machine during start up.



Remove the Flail Drum Lock 221237C

40. Remove the fork lock from the hydraulic cylinder and store on the storage tab.

    Note: The forks may need to be raised with the hydraulics to remove the weight from the lock.


Remove Fork Lock 201228

41. Lubricate all grease fittings and check the fluid level in all gear boxes. See the Maintenance Section.

42. Ensure all fasteners are tightened.

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.

<u>To change to low height discharge</u>:

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

   - Connect straps at location 1 and 2.

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

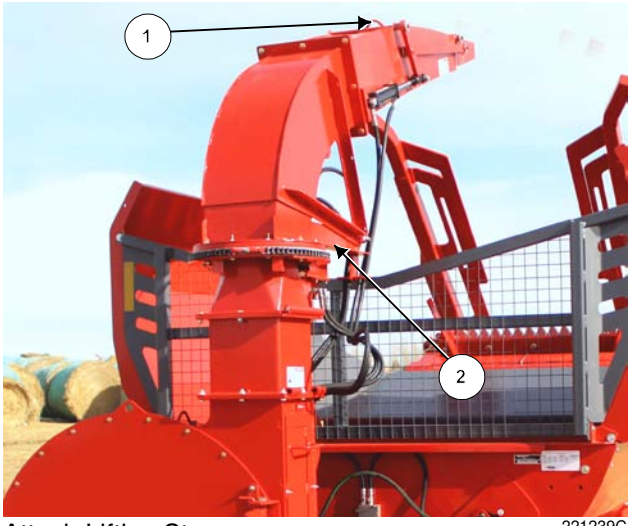
   - Keep the fasteners to be used again.

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

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.



Attach Lifting Straps
(Optional Nozzle End Deflector Shown)
221239C

Remove All Fasteners and the Insert
221239C2

Insert Removed, Rotator on Blower Flange
221240C

Wrap or Twine Removal Procedure

Remove wrap or twine that is around the flail drum.

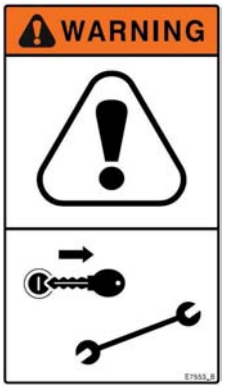
Note: Remove the twine from the flail drum and feed rollers every 25 bales. Premature bearing failure can occur if twine is allowed to build up.

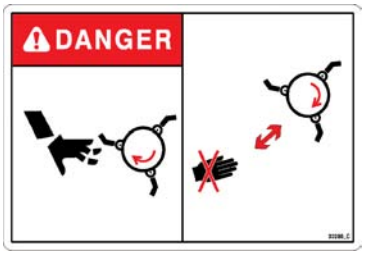
Shutdown the tractor completely and set the parking brake.

Disconnect the PTO from the tractor before doing any work near the flail drum.

Do not place hands in the BP 663 when it is rotating. Contact with exposed rotating flails will cause serious injury or death.

1. Raise the forks to fully raised position.





Raise Forks and Lock 221396

2. Install the cylinder locks onto the fork cylinders.

Install and secure the cylinder locks before going under raised bale forks.

3. Move the flail guard rod adjustment lever (1) to a number between 1 and 4.

Note: Having the lever at position 5 will result in damage to the twine cutter blade.

Move Flail Guard Rod Lever
(to less than 5) 221400C

4. Align the flail drum knife path with the tub opening on the rear wall.
   - Use the driveline to turn the flail drum to align the knife path.

5. Engage the flail drum lock.

   - Turn the lock pin to release the roll pin from the slot.

   - Allow the spring to push the lock pin into the processing chamber.

   - Manually rotate the driveline until the lock pin snaps into place locking the flail drum.

Engage Flail Drum Lock 221364

6. Move flails blocking the knife path.

   - Failure to do so will result in damage to the twine cutter blade.

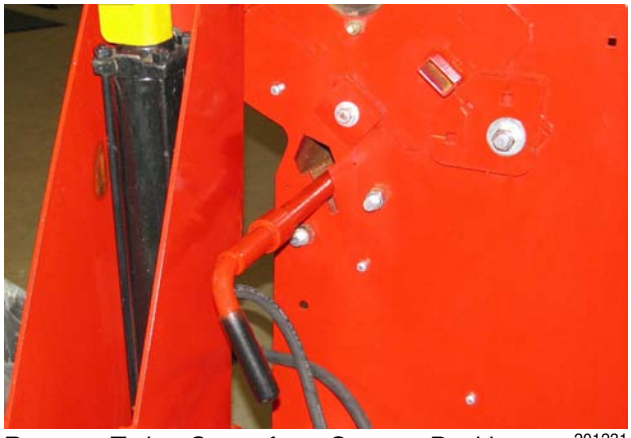
Move Flails Blocking the Knife Path 201230

7. Open the auger drive shield on the rear tub wall.

Open the Rear Drive Shield 221401

8. Remove the twine cutter from the storage position.

   - The twine cutter is located on the non-discharge side of the rear bale tub wall.



Remove Twine Cutter from Storage Position 201231

9. Insert the twine cutter with the blade up.

   - Insert the twine cutter into the guide at the back of the processor tub.

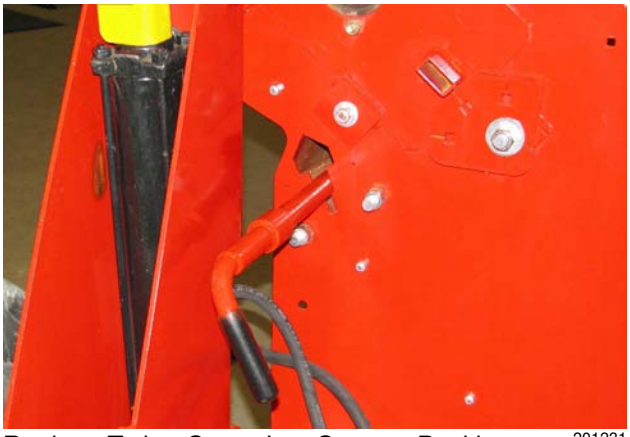
10. Cut through the wrap or twine.

    - Use a “saw” like action along the entire length of the drum.

Insert Twine Cutter with Blade Up 201232

11. Place the twine cutter back into the storage position.

    - Ensure the handle is facing down and is locked into the key hole slot.



Replace Twine Cutter Into Storage Position 201231

12. Close the auger drive shield and fasten with the rubber latch.

Close the Rear Drive Shield 221396

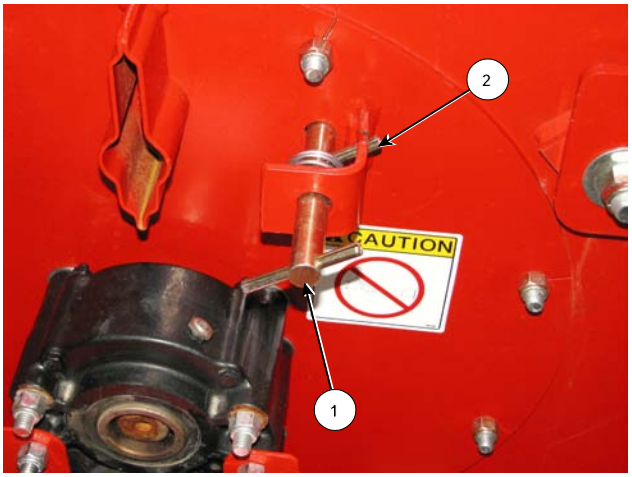
13. Unlock the flail drum.

    - Disengage the drum clutch pin from the flail drum drive plate.

    - Pull the spring loaded pin (1) out from the processing chamber located at the front of the machine.

    - Rotate to place the lock pin into the slot (2).

    - Failure to unlock the flail drum will result in damage to the machine during start up.



Unlock the Flail Drum 201213

14. Remove the cut wrap or twine from the flail drum.

Remove Wrap & Twine
(Auger Not Shown for Clarity)
214083

15. Remove the fork lock from the hydraulic cylinder and place in the storage location.

Remove Fork Lock
201228

16. Remove any twine/wrap from around the feed rollers.

    - Cut the twine from the rollers.
        - Do not score the paint on the rollers while cutting. Scoring the paint may result in rusting.

Remove Twine/Wrap from the Feed Rollers
221228

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OPERATING THE BP 663

Do not allow anyone to ride on the BP 663.

- Falling from the machine can cause injury

Do Not Enter the Tub While Parts Are Rotating

- With Bale in Tub
- Without Bale in Tub

The Bale is unstable and may cause entrapment.

Contact with the moving feed mechanism will cause serious injury or death.

Contact with the rotating flail drum will cause serious injury or death.

Note: Use caution if entering the tub with a bale in it - even after all rotation has stopped. The bale is unstable.

Stay back from an operating machine which can discharge objects several feet.

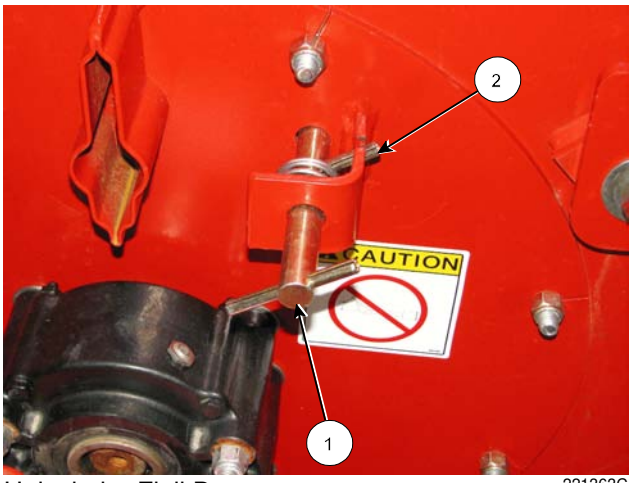
Thrown material or objects leaving the discharge area can cause serious injury or death.

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

1. Unlock the flail drum .

   Pull the spring loaded pin (1) out from the processing chamber located at the front of the machine.

   Rotate to place the lock pin into the slot (2).



Unlock the Flail Drum 221363C

Discharge Rate Settings

There are 2 settings that determine the discharge rate of material:

- The aggression level of the flails acting on the bale.
- The speed of the feed rollers which feed the bale into the flail drum.

1. Set the aggression level of the flails.

   Adjusting the aggression level is done with the guard rod adjustment handle (1).

   The bale rests on the guard rods. The amount of contact between the bale and the flails is determined by the guard rod setting.

   There are five guard rod settings.
   - Pull the upper handle (1) out of the handle lock.
   - Raise or lower the handle (1) to the desired discharge setting.
   - Lock the handle (1) in the notch.

   To Increase the discharge rate:
   - Raise the handle to a higher number.

   To Decrease the discharge rate:
   - Lower the handle to a lower number.

Move Flail Guard Rod Lever 221400C

   If the Optional Hydraulic Aggression Control is installed:
   - Activate the hydraulic cylinder to change the position of the guard rods.
   - Use the aggression level rod and the decal for a reference point.

   - On the joystick use the "Accessory" function to adjust the aggression.

   To Increase the discharge rate:
   - Raise the pointer to a higher number.

   To Decrease the discharge rate:
   - Lower the pointer to a lower number.

Optional Hydraulic Aggression Control 221406

2. Set the speed of the feed rollers.

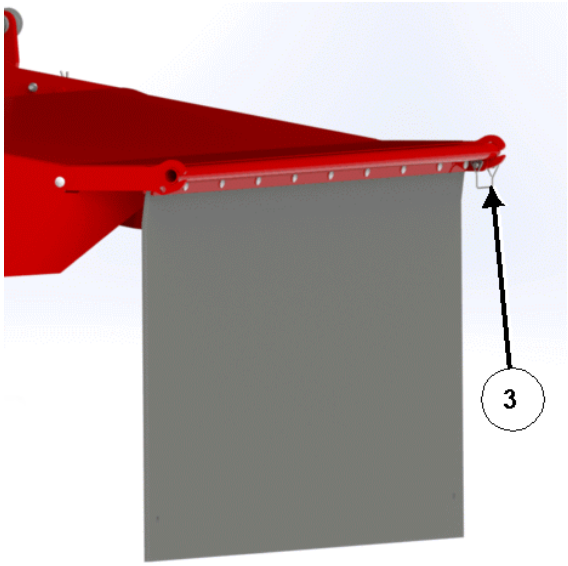
   Adjust the feed roller speed to a maximum of 40 rpm.
   - Adjust using the tractor flow control settings.
   - Faster feed roller speeds will result in a faster discharge of material.

   Note: Running the feed rollers too fast may cause the feed rollers to dig into the bale to the point where the bale will no longer be turned.

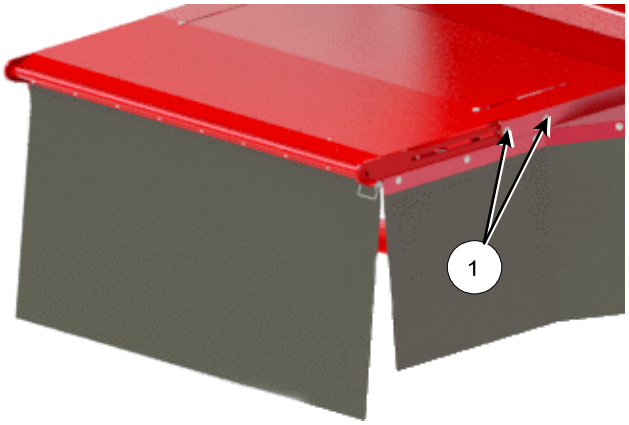
   - Slower feed roller speeds will result in a slower discharge of material.

Set Feed Roller Speed 221228

3. Set the optional upper deflector door (if present).
   - Raise or lower the upper deflector door to adjust the amount of spreading of material.
     - Use the hydraulic cylinder to adjust the door.
     - On the joystick use the "Accessory" function of the joystick.
   - Flip the rubber down for bunk or windrow feeding.
     - Pin (3) the rubber in place.
       - There are 3 possible pin positions to give adjustment to feed distribution.
   - The door can be extended 15” outwards from the machine to allow for the width of feed bunks or windrow drop positions.
     - Loosen the fasteners (1) on the side of the door.
     - Pull the door out.
     - Tighten the fasteners (1).



Set the Upper Deflector Door 201216



Door Can Be Extended 221244C

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

- Allow the rubber deflector to hang down.

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

4. Load the bale into the processor tub.

- The dump fork indicator rod (1) gives a visual indication if the forks are raised or are lowered to the ground.

- Lower the forks completely.

Ensure people are not near the machine when lowering the forks and backing up to bales.

- Slowly back up to the bale until the forks are completely under the bale.

Note: If the optional twine sickle is present load square bales "on string" (twine on the ground). This will enable the sickle to cut the twine.

- Raise the forks enough to lift the bale off the ground.

- If the optional twine sickle is present, operate the sickle with the tractor remote to cut the twine.

- If the joystick is present, use the "Accessory" function to operate the twine sickle.

Note: The twine sickle does not retain the cut twine and does not keep the twine out of the processing tub.

Windrow Feeding 201215

Dump Fork Indicator Rod 221144C

Back Up to the Bale 221245

Note: If a bale is frozen to the ground, dislodge it by rocking the machine to impact the bale and loosen it.

Note: Ensure flail drum and feed rollers are not turning while loading a bale.

- Raise the lift forks until the bale falls into the processor.

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.

Raise Bale into Processor Tub 221246

5. Load a second bale on the forks (optional) while a bale is in the processor tub.

Note: If the twine sickle is present load the bales "on string" (twine on the ground). This will enable the sickle to cut the twine.

If a bale is loaded onto the forks, raise the forks as high as possible.

- Make sure the bale on the forks does not interfere with the bale already in the tub.

- Raising the forks will reduce the pressure on the hydraulic lift assembly.

Second Bale Loaded on Forks 221247

6. Start the PTO to engage the flail drum.

Stay clear from discharge side when PTO is engaged.

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

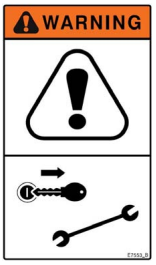
Discharged material or objects leaving the discharge area can cause serious injury or death.

The BP 663 shall not be operated without the guards in place or in good condition.

- Engage the tractor PTO at an idle.
- Increase the tractor RPM until 1000 PTO speed is reached.

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 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.

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.

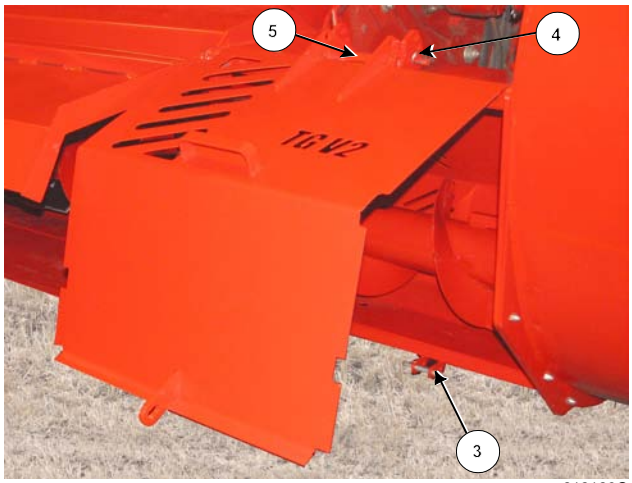
2. Close the upper auger housing cover.
   - Move the handle (2) to the closed position.
   - Place the pin firmly into the slot.

Close the Auger Housing Covers 221397C

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 spring pin (4) from the hinge pin (5).
- Remove the hinge pin.



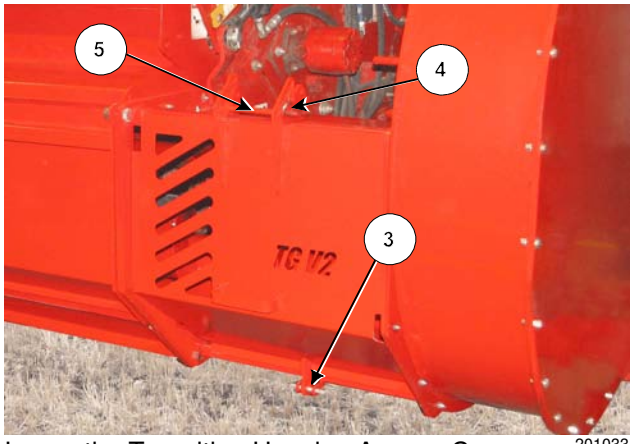
Close the Transition Housing Cover 212129C

- Rotate the cover to the closed position.

- Install the hinge pin (5).

- Install the spring pin (4).

- Install the bottom pin (3).



Lower the Transition Housing Access Cover 201033

4. Set the aggression level of the flails.

   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.

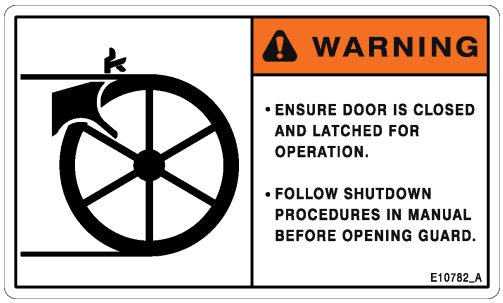
   To Increase the discharge rate:
   - Raise the handle to a higher number.

   To Decrease the discharge rate:
   - Lower the handle to a lower number.

   If the optional hydraulic aggression control is present, refer to "1 Remote Joystick Control For Bedding" or "1 Remote Joystick Control For Feeding - Not Using the Blower" for more information.

Set the Aggression Level of the Flails 221248C

5. Release the shield rubber latch on the blower drive shield.



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.

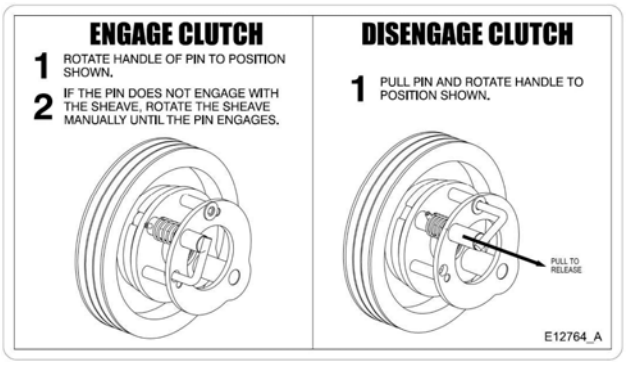
6. Raise the blower drive shield.

   - Rest the shield in the tab on the back of the blower housing.

Lift the Drive Shield 221241

7. Engage the blower drive clutch.

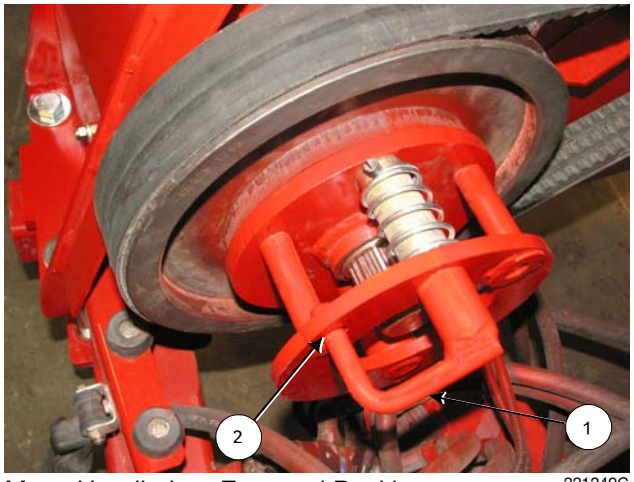
   - Rotate the pulley to have the clutch pin near the top.



- 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 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 place.



Move Handle Into Engaged Position 221249C

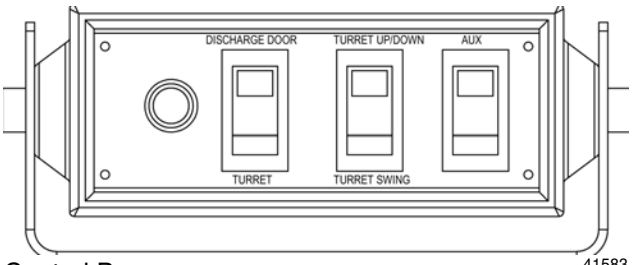
8. Lower the blower drive shield and fasten with the rubber latch.

9. Lower the gearbox shield.

Lower Drive Shields 221400-2

Controlling the TOP GUN For Bedding

Control Box - 3 Remote



Control Box

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 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 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 thumb operated 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. Move the rocker switch to rotate the rollers.

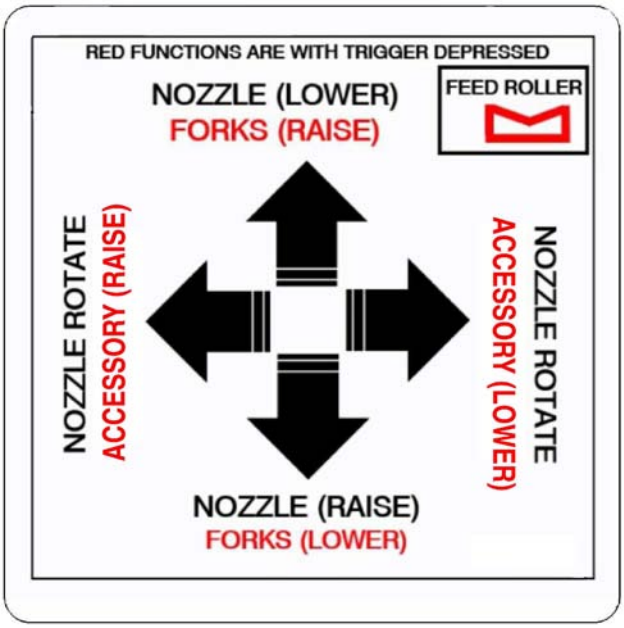
Optional Discharge Door (if present)
The discharge door is <u>not</u> used when bedding.

Optional End Deflector (if present)
The end deflector is controlled using the "Accessory" function on the joystick.

- See "Using the Optional Nozzle End Deflector" in this section for more information.

Optional Aggression Control (if present)
The aggression level is controlled using the "Accessory" function on the joystick.

Optional Twine Sickle (if present)
The twine sickle is controlled using the "Accessory" function on the joystick.



Joystick Control

Joystick Decal

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.

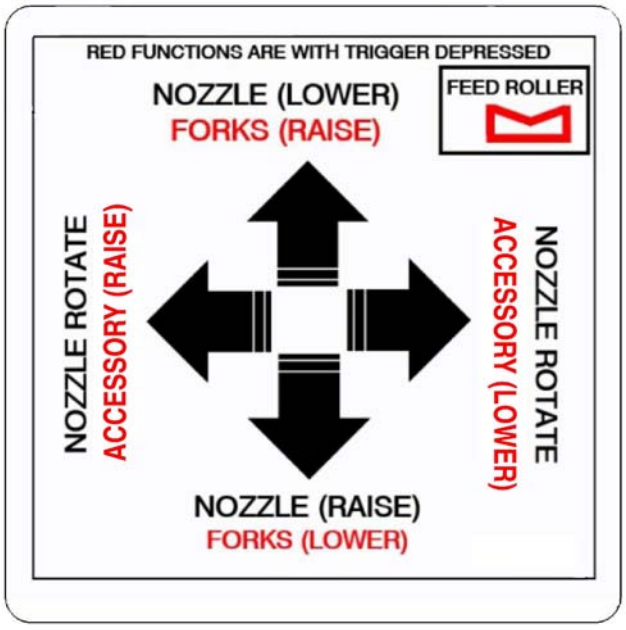
- Raising or lowering the deflector will direct the material while the turret is being rotated and raised or lowered.

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.

- Use the joystick "Accessory" function with the trigger depressed to raise or lower the end deflector.



Joystick Accessory Function to Raise/Lower the End Deflector Joystick Decal

10. Rotate the nozzle to discharge the material to the desired area.
    - Rotate using the hydraulic motor.
    - 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.

11. Raise or lower the discharge nozzle for the amount of height and throw.
    - Use the hydraulic cylinder 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.

12. Engage the driveline to start the blower, processor and auger.

13. Set the speed of the feed rollers.

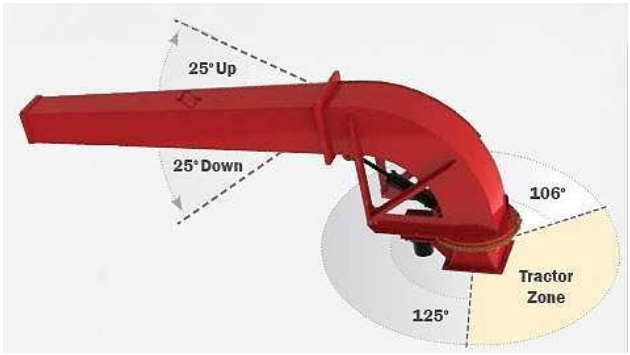
14. Begin to process a bale.

    - The belt-driven auger will move the material into the blower.

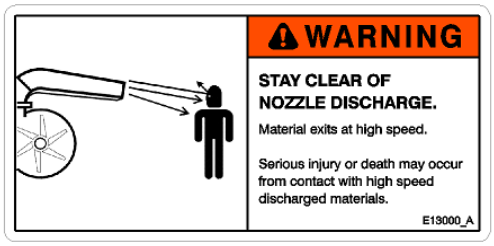
Avoid discharging material in the area of people and animals.

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.

Position the Turret Nozzle for Discharge 221254-2



Range of Nozzle Movement 216101

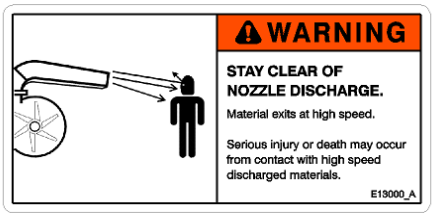


- Slowly start rotating the bale with the feed rollers.

    - Bring the feed rollers up to a speed where the material is being fully processed.

Begin Processing the Bale 221250

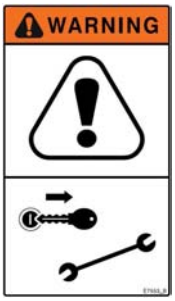
Material or objects leaving the discharge area can cause serious injury or death. Do not operate within 100 ft (30m) of any person.



Note: If the feed rollers are rotating to fast they may dig into the bale. This may cause grooves which may result in the bale not being able to be turned.

Note: If the processor vibrates excessively, immediately disengage PTO and stop the tractor.

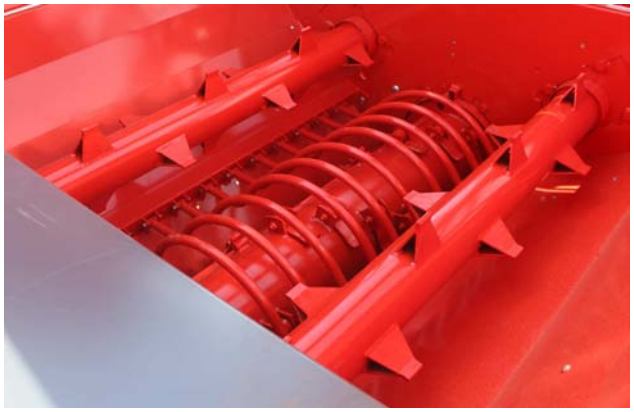
Wait for all flail drum rotation to stop before approaching the processor.



Inspect for blockages, missing flails or other causes of the vibration.

15. Adjust the direction of bale rotation.

- Rotate the bale with the feed rollers so that the top of the bale moves toward the discharge side of the processor.
- If material begins to bunch up near the top of the bale, reverse the direction of bale rotation.
- If the bale stops rotating, reverse the direction of the feed rollers.



Adjust Direction of Bale Rotation 221228

16. Re-adjust the discharge rate lever (1) if needed.

- If a different rate of material discharge is desired:
  - Stop the tractor and remove the key.
  - Wait until all flail drum rotation has stopped.
  - Move the discharge rate lever (1):
    - Higher Number = more material discharged
    - Lower Number = less material discharged

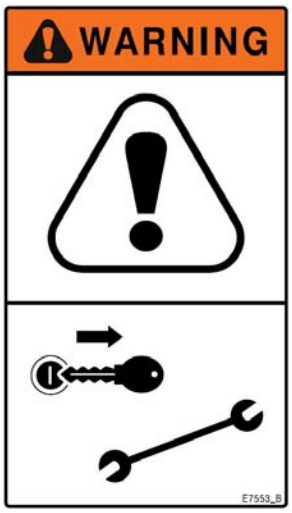
Re-Adjust Discharge Rate (If needed) 221400C

17. Stop the feed rollers before loading another bale into the processor.

Shut Down Flail Drum When Loading Tub 221246

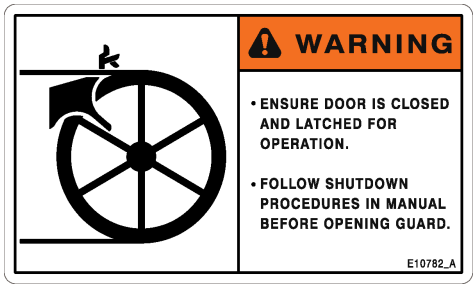
Operating For Feeding - Not Using the Blower

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.

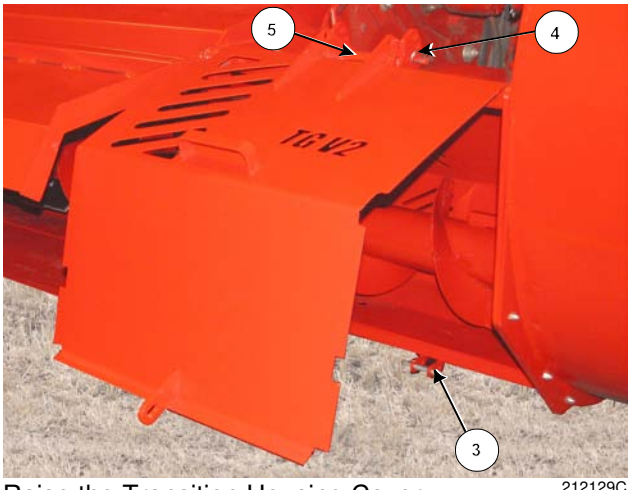
- Raise the upper auger housing door.
  - Lock the upper housing by placing the slot in the handle (1) over the pin.

- 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 spring 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 spring pin (4).

Open the Auger Housing Doors 221251C



Raise the Transition Housing Cover 212129C

3. Set the aggression level of the flails.

   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.

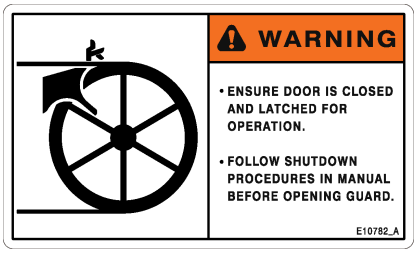
   To Decrease the discharge rate:
   - Lower the handle to a lower number.

Set the Aggression Level of the Flails 221400C

4. Release the shield rubber latch on the drive shield

   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.



5. Raise the blower drive shield.

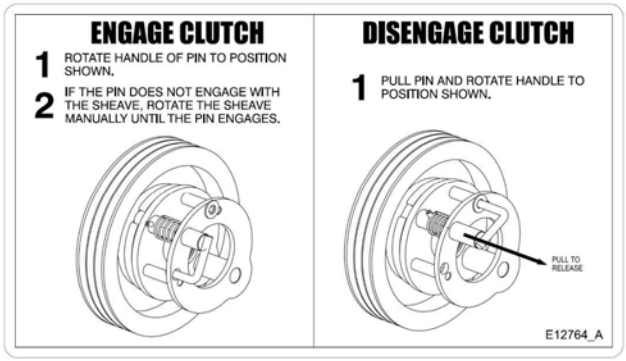
6. Raise the gearbox shield.

    - Rest the shield in the tab on the back of the blower housing.

Lift the Drive Shield 221399

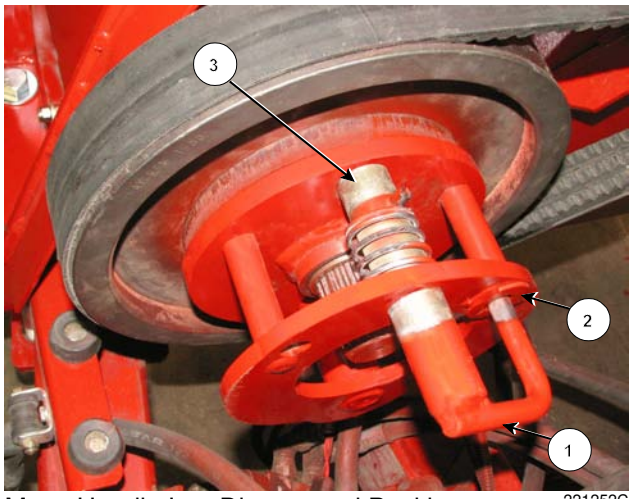
7. Disengage the blower drive clutch.

    - 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 221252C

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

9. Lower the gearbox shield.

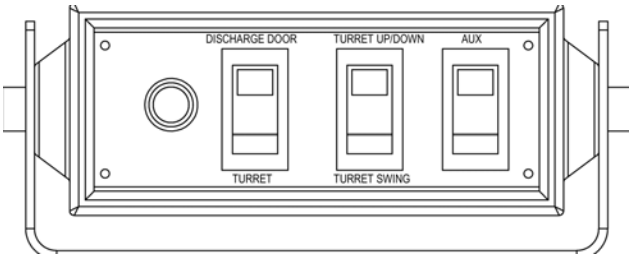
Lower the Drive Shields 221400-2

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.

1 Remote Joystick Control For Feeding - Not Using the Blower

The thumb operated 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.

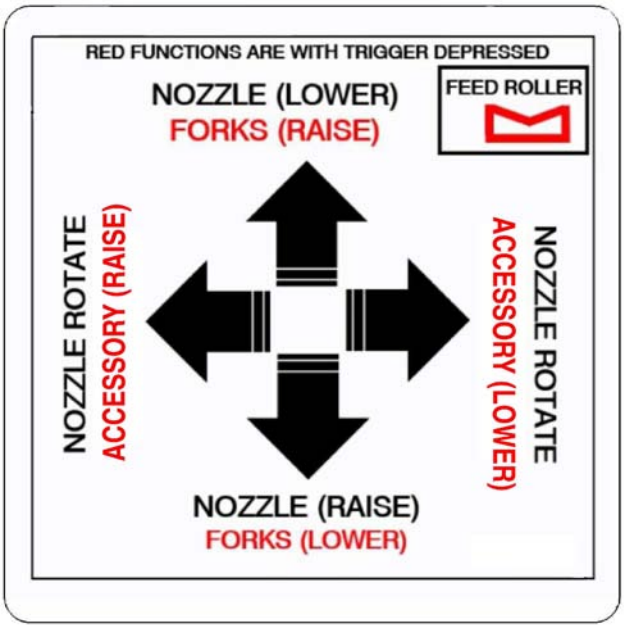
Feed Rollers
The joystick controls the direction of rotation of the bale feed rollers. Depress the rocker switch to rotate the rollers.

Optional Discharge Door (if present)
The discharge door is controlled using the "Accessory" function on the joystick.

Optional End Deflector (if present)
The end deflector is not used for feeding.

Optional Aggression Control (if present)
The aggression level is controlled using the "Accessory" function on the joystick.

Optional Twine Sickle (if present)
The twine sickle is controlled using the "Accessory" function on the joystick.



Joystick Control

Joystick Decal

10. Lower the BP 663 upper discharge door (if present) to adjust the amount of spreading of material.

    - Adjust using the hydraulic cylinder.

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

    Lowered - the material will be left in a windrow or directed into a feed bunk.
    - Allow the rubber deflector to hang down.

Lower the Upper Discharge Door 221253

11. Engage the driveline to start the processor and auger.

12. Set the speed of the feed rollers.

13. Begin to process the bale.

    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.

14. The 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.

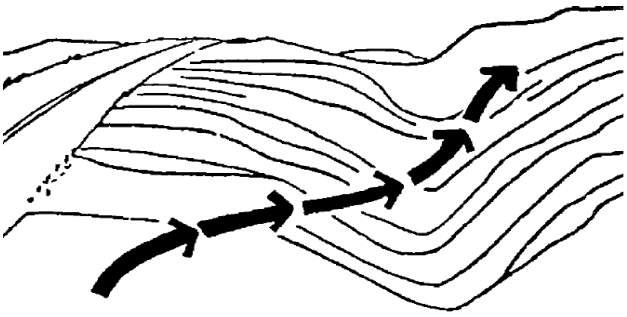
Should any vibration be detected during the operation of the machine, immediately stop the machine. Determine the source of the problem and fix it before resuming operation.

15. Drive ahead while operating the BP 663.

Avoid discharging material in the area of people and animals.

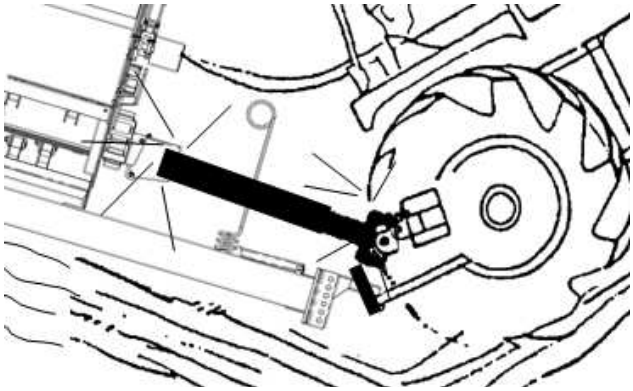
16. Crossing ditches and steep inclines.

- Cross ditches or inclines at about a 30° approach angle.



Cross Ditch at 30° Angle 107072

- Do not approach a ditch or steep incline straight on as this may collapse the driveline to its shortest length, causing damage by pushing the PTO into the tractor or into the drivebox or downward onto the PTO shaft, breaking it off.

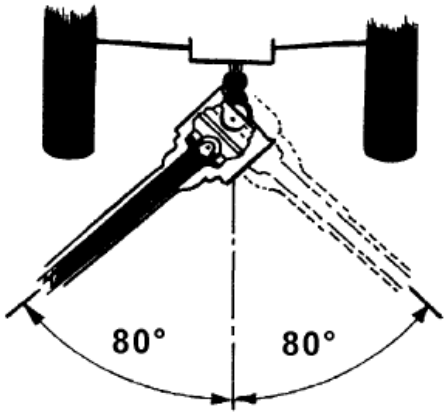


Driveline Collapsed in Steep Ditch 201221

17. Making turns.

- Do not make turns sharper than 80°.
- Angles greater than 80° can result in damage to the constant velocity joint and other driveline components.

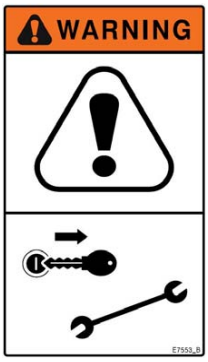
- Ensure that the tractor tire does not contact the BP 663 deck or tongue.



Turn Less Than 80° 109040

Unplugging the BP 663 TOP GUN

1. Reduce the engine speed to idle.
2. Disengage the 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.

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. Release the shield rubber latch on the drive shield.

5. Raise the blower drive shield.

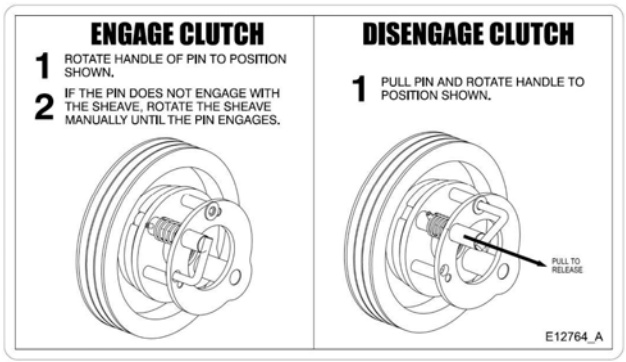
   - Rest the shield in the tab on the back of the blower housing.


Raise the bower Drive Shield

6. Raise the gearbox shield.

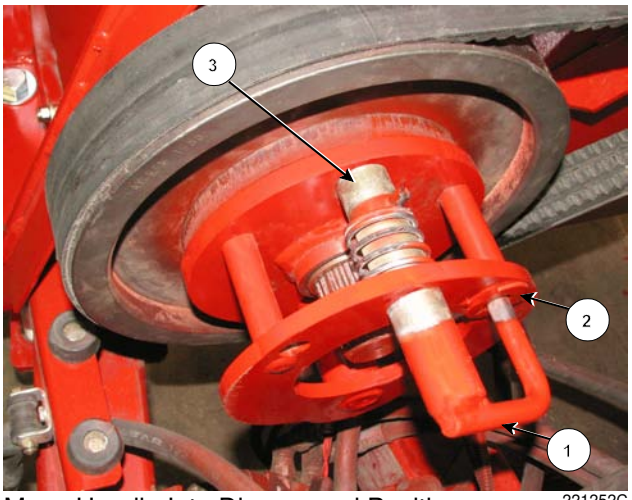
7. Disengage the blower drive clutch.

   - 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 221252C

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.

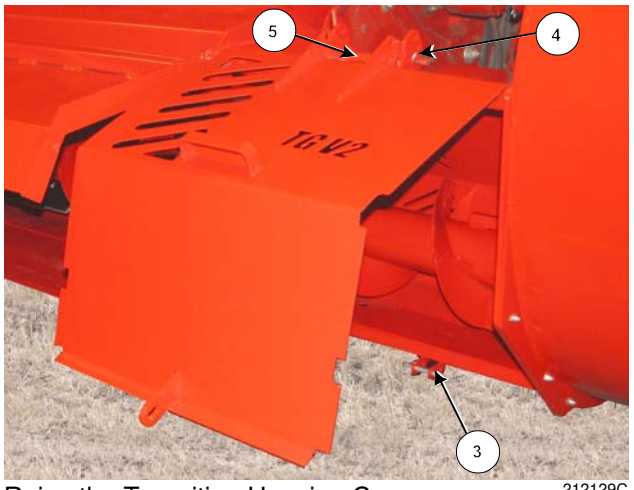
- Raise the upper auger housing door.
  - Lock the upper housing by placing the slot in the handle (1) over the pin.

- Lower the bottom auger housing door by moving the handle (2).

Open the Auger Housing Doors 221251C

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 spring 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 spring pin (4).



Raise the Transition Housing Cover 212129C

10. Clear the auger area.

Clear the Auger Area 221251

11. Clear the blower blade area.

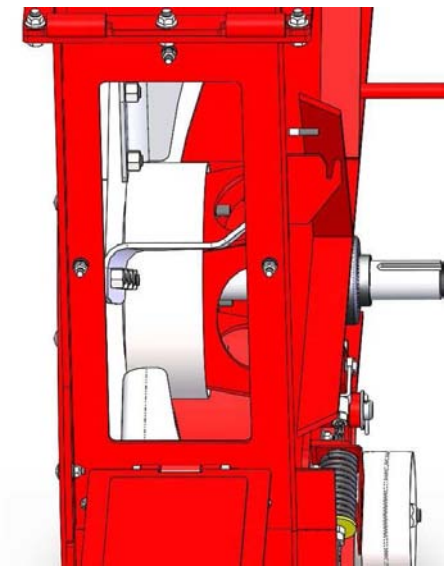
Do Not Contact Rotating Blower. Keep fingers and hands out of the blower chamber when blower is rotating.
Never attempt to manually remove debris while the blower is turning. Contact with the rotating blower blades will cause serious injury or death.

Clear the Blower Area 212127

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.

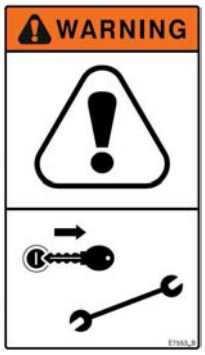


Open Hatch
Clear Blower Housing 213003

MAINTAINING THE BP 663

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.

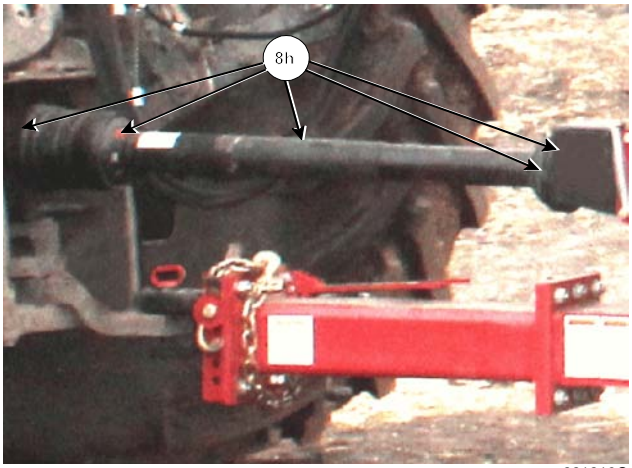


Lubrication

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.

Every 8 Hours

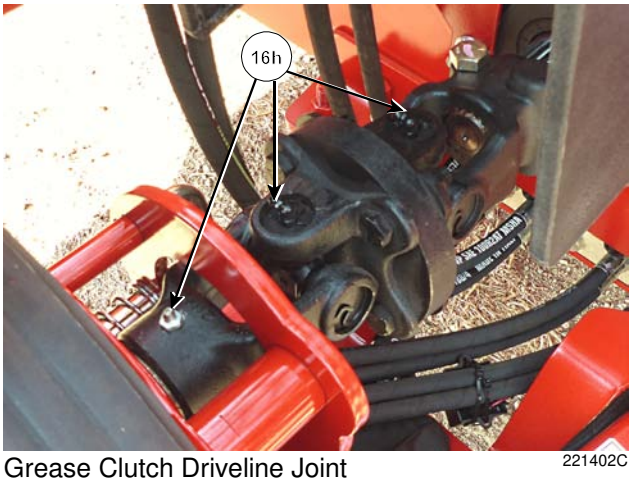
- PTO - Lubricate 5 points on the PTO every 8 hours.
  - 1 point each constant velocity joint. *Continued angled operation will require lubrication every 4 hours.
  - 1 point on each joint collar
  - 1 point at the telescoping section



Grease Points on PTO 221219C

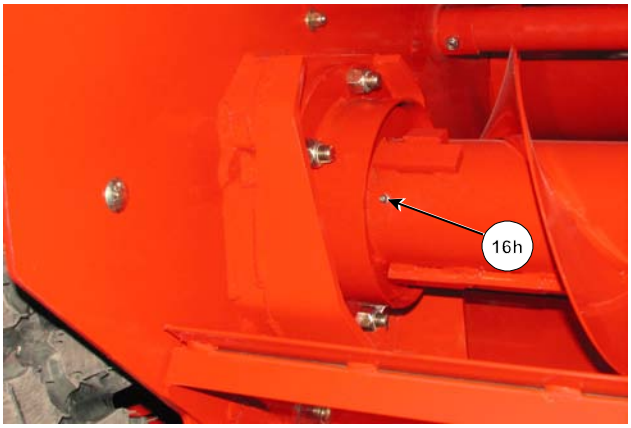
Every 16 Hours

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



Grease Clutch Driveline Joint 221402C

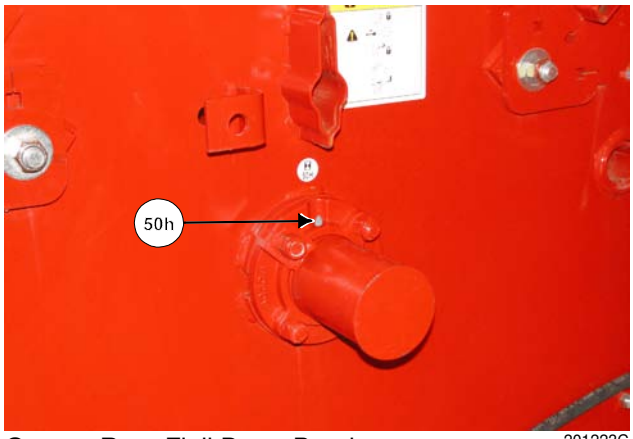
- Lubricate 1 point on the auger at the rear of the machine.



Grease Auger Bearing 216223C

Every 50 Hours

- Lubricate 1 point on the rear flail drum bearing at the back of the machine.



Grease Rear Flail Drum Bearing 201223C

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

Grease the Over Running Clutch 221256C

- Lubricate 2 points on the blower clutch shaft.

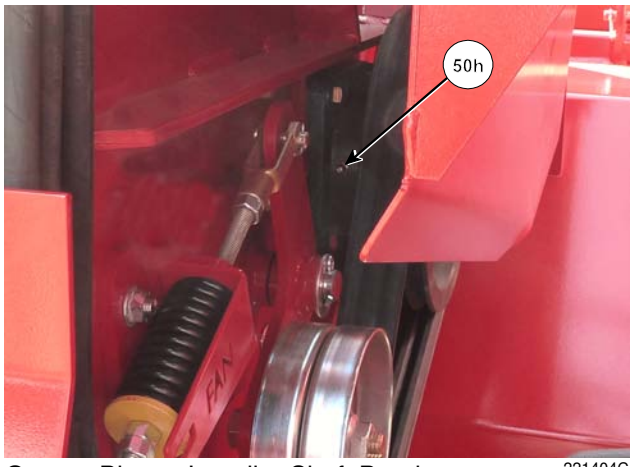
    - Raise the clutch drive shield.
    - Lubricate the front bearing.
    - Lubricate the rear bearing.

Grease Blower Clutch Shaft
(Panel Shown Removed) 221403C

- Lubricate 1 point on the blower impeller shaft bearing.

    - Raise the blower drive shield.

    - Lubricate the blower bearing.



Grease Blower Impeller Shaft Bearing 221404C

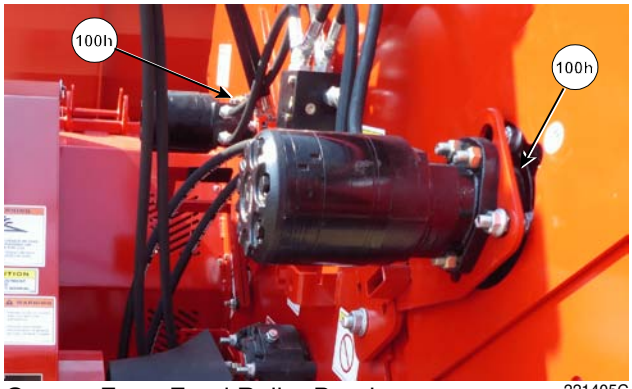
- Lubricate the rear flail drum bearing.

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

Grease Rear Flail Drum Bearing 221401C

Every 100 Hours

- Lubricate 1 point at the front for each feed roller.



Grease Front Feed Roller Bearings 221405C

- Lubricate 1 point at the rear for each feed roller.

Grease Rear Feed Roller Bearings 221396C2

- Hubs on spindles - Lubricate all the hubs every 100 hours.

Grease the Hub on Both Spindles 221151C

- If the optional twine sickle is installed, grease it every 100 hours.

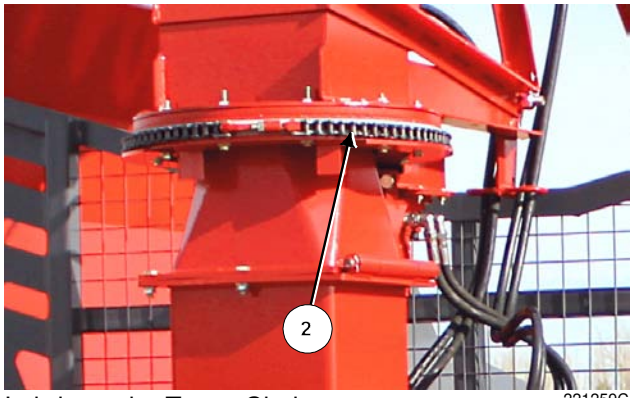
  - Grease one point on the top of the sickle.

Grease the Twine Sickle 221243C

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.



Lubricate the Turret Chain 221259C

Visually Inspect Hydraulic Hoses/Fittings

Shut down the machine and disconnect the hoses from the tractor. Relieve pressure from the hoses.

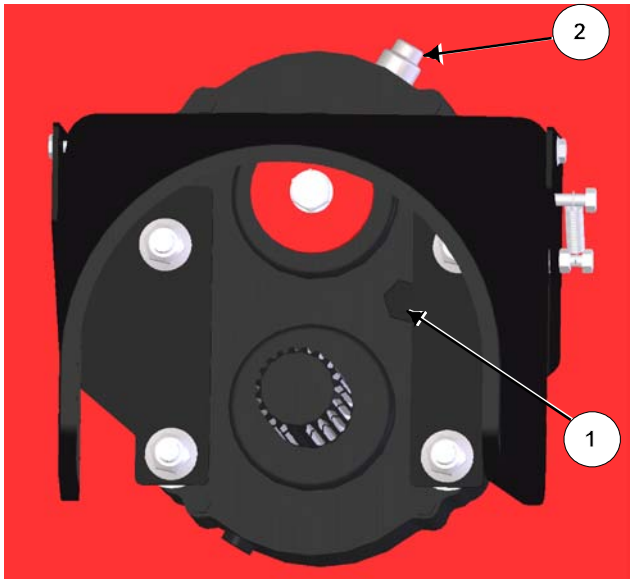
Replace the hydraulic hose assembly if any of the following conditions exist:

- 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.


Inspect Hydraulic Hoses 108008-1

Check the Fluid Level in the Flail Gearbox

- Check the oil fluid level by removing the oil level plug (1) in the center of the gearbox.
    - The oil should be at the level of the plug.
    - If oil needs to be added, add through the breather (2) on the top of the gearbox.
        - Use gear oil Grade 80W90 that meets or exceeds API service classification GL-4.
    - Annually change the oil in the gearbox. (See Gearbox Oil Changing Procedures)



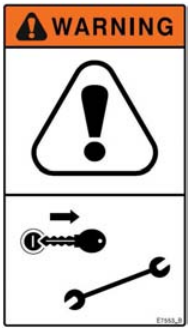
Check Gearbox Oil Level
(Driveline Shown Removed for Clarity) 221359C

Flail Gearbox Oil Changing Procedure

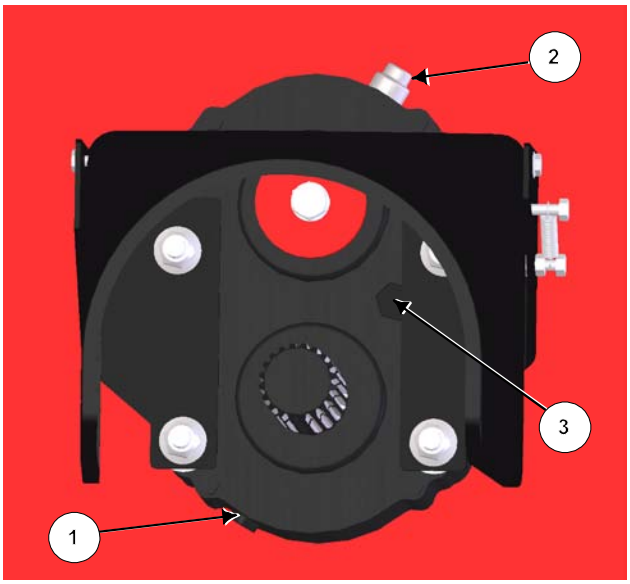
Change the oil annually and before storing the BP 663 for the season.

Before beginning, make sure the tractor is off and the PTO is disengaged. Disconnect the driveline from the tractor before doing any work.

Securely block the BP 663 before any work is done to prevent the BP 663 from moving during servicing.



1. Drain the oil from the gearbox.
    - Remove the drain plug (1) on the bottom of the gearbox.
    - Allow the oil to drain completely from the gearbox.
    - Catch the oil in a container.



Changing the Gearbox Oil
(Driveline Shown Removed for Clarity) 221359C2

2. Replace the drain plug and tighten.

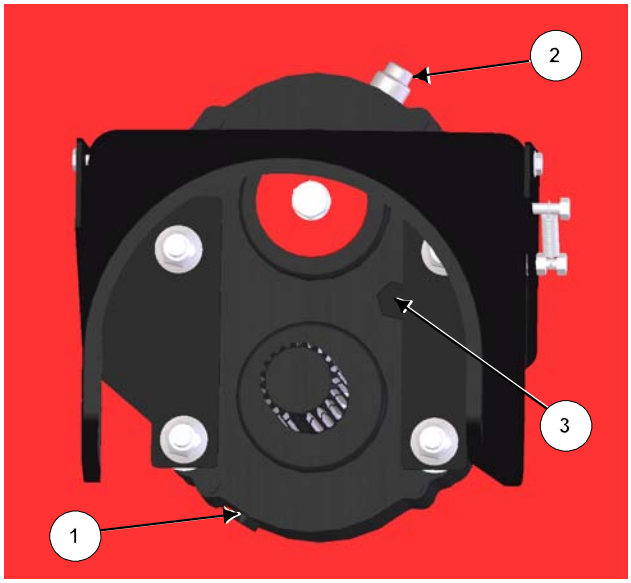
3. Fill the Gearbox.

   - Remove the top breather plug (2).

   - Fill with 300 ml of 80W90 gear oil that meets or exceeds API service classification GL-4.

4. Check the oil level in the gearbox.

   - Removing the oil level plug (3) in the center of the gearbox.
   - The oil should be at the level of the plug.
   - If oil needs to be added, add through the plug on the top of the gearbox.



Changing the Gearbox Oil
(Driveline Shown Removed for Clarity)

221359C2

Flail Replacement Procedure

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

Before beginning, make sure the tractor is off and the PTO is disengaged. Disconnect the driveline from the tractor before doing any work.

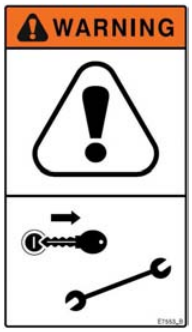
Securely block the BP 663 before any work is done to prevent the BP 663 from moving during servicing.

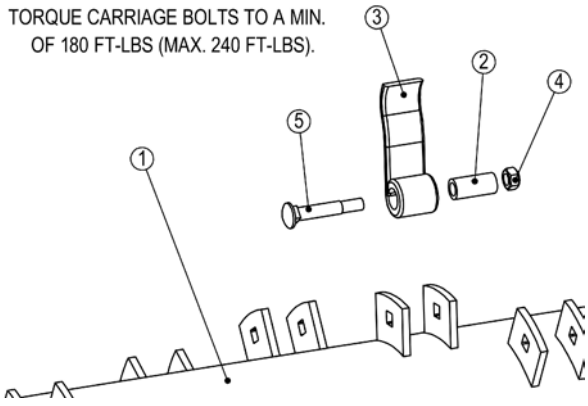
1. Remove the flail to be replaced.

   - Remove the nut (4) and bolt (5) that holds the flail (3) to the drum (1).

2. Remove the pipe (2) inside the flail.

   - This pipe will be used again.





Flail Replacement

40524_B

3. Remove the flail that is on the opposite side of the flail drum.

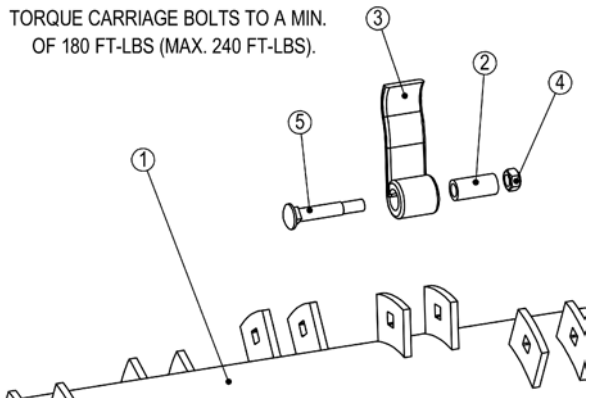
   Note: To maintain rotary balance, the flail on the opposite side of the drum must be replaced at the same time.

4. Install the 2 new flails with the pipe, bolt and nut between the tabs on the drum.

   - Ensure that the bent portion of the flail leads into the rotation of the drum.

5. Torque the nuts to minimum of 180 ft-lb (244 Nm) - maximum of 240 ft-lb (325 Nm).

6. Check that the flail freely moves between the tabs on the drum.



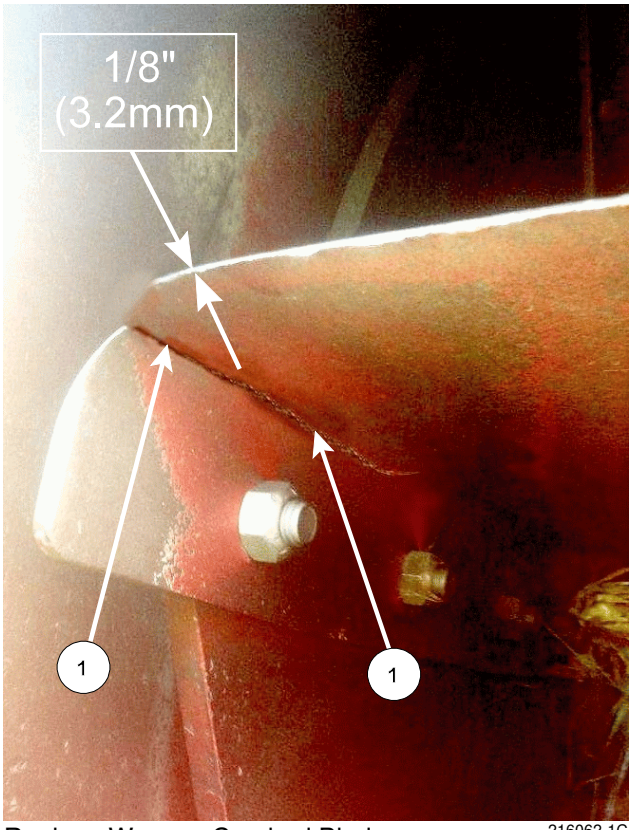
Flail Replacement 40524_B

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 lifting tab (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 221262C

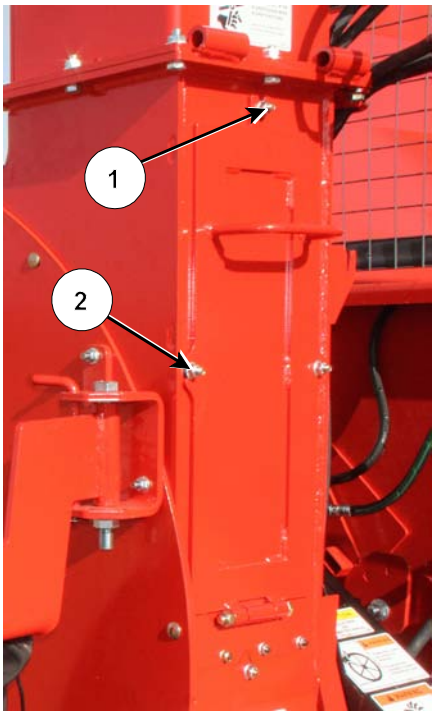
3. Remove the front plate with the lifting device.

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

Remove the Front Blower Plate 221263

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 221264C

5. Reach through the access opening to place a wrench onto the nuts (2) on the blade.

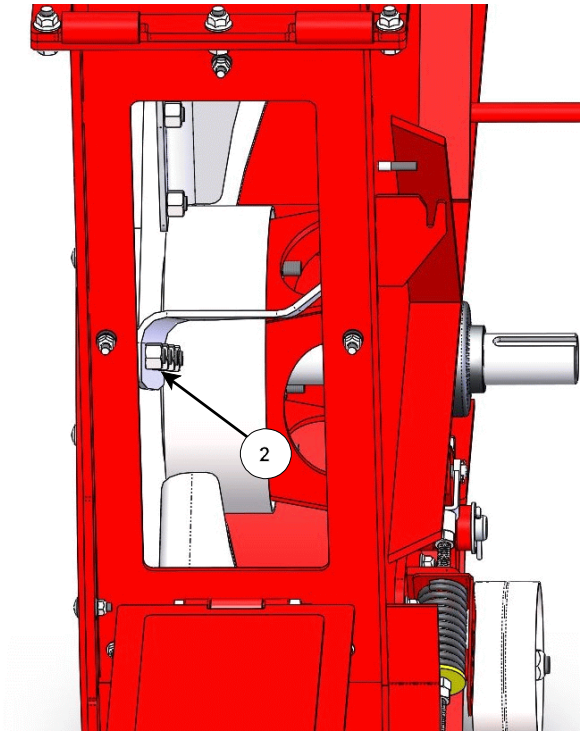
6. From the blower backing plate, remove the bolts from the blade.

7. Fasten the new blade onto the backing plate with the bolts and nuts.

   - Use only Highline replacement parts.

     - Torque bolts to 170 lbft (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 lbft (47 Nm).

Replace the Front Blower Plate 221262

Replacing the Blower Wear Plate

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

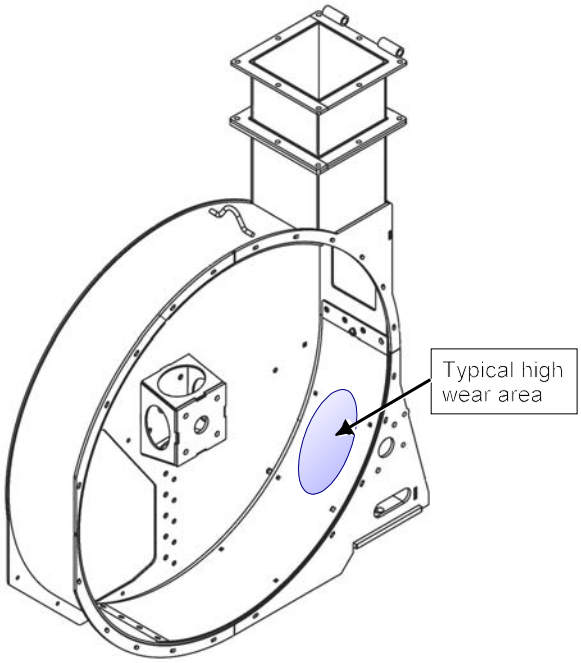
The amount of wear plate will depend on the amount of bales processed and the type of bales.

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

See Section 2 - "BP 663 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.



Check Blower Wear Plate
(Impeller Shown Removed for Clarity)

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To Replace the Wear Plate:

1. Fasten a lifting strap in the lifting tab (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

221262C

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.

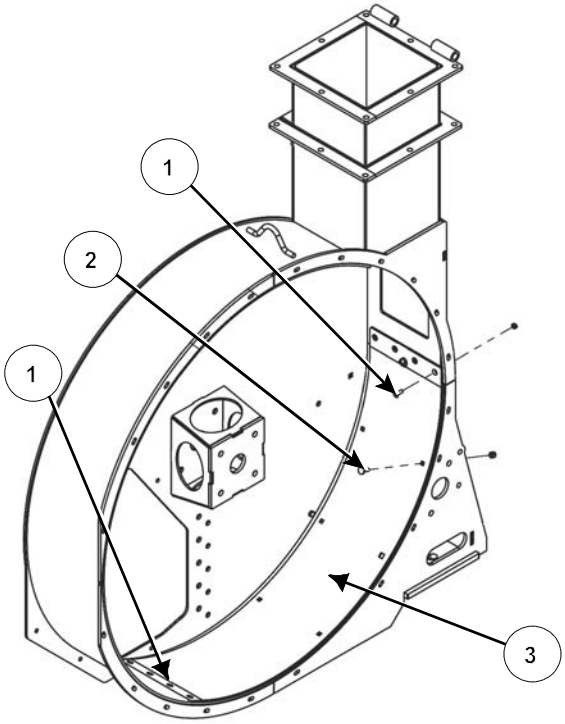
7. Place the new wear plate (3) into the blower housing.
   - The top of the wear plate has a notch on one side of the plate. This notch is to be facing toward the blower cover.

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 lbft (47Nm).

Remove the Front Blower Plate 221263



Remove and Replace Blower Wear Plate 216099-2C
(Impeller Shown Removed for Clarity)

11. Lift the blower front plate back into place.

    - Fasten the plate with the bolts and nuts to 35 lbft (47Nm).

Replace the Front Blower Plate 221262

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

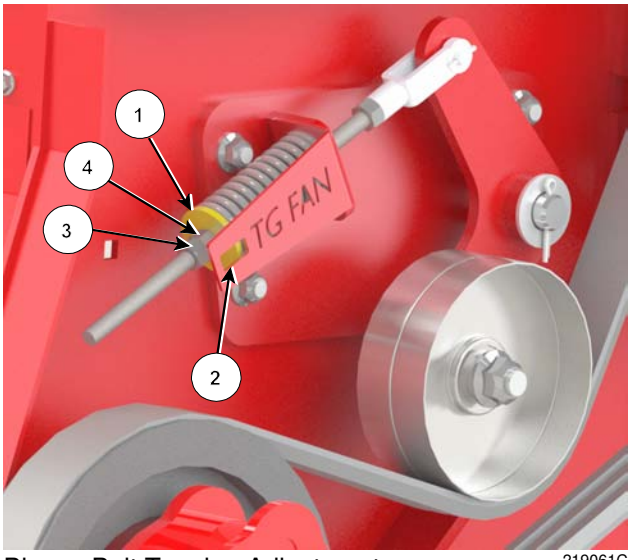
To adjust belt tension:

- 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.

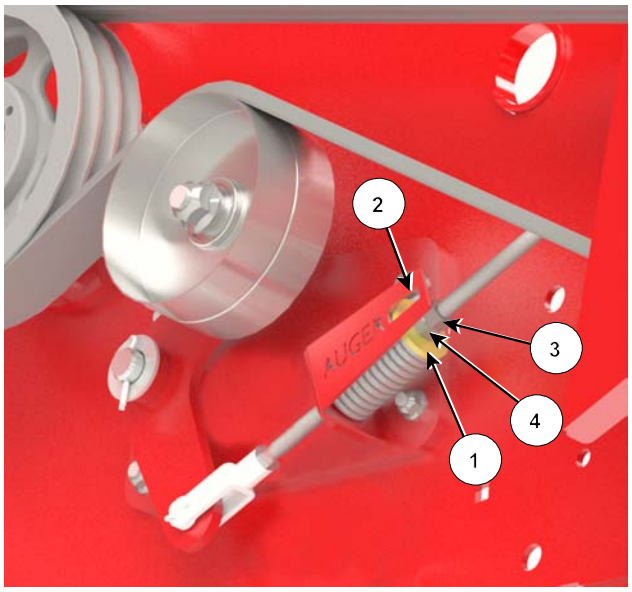
- The belt is tensioned from the factory.

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).



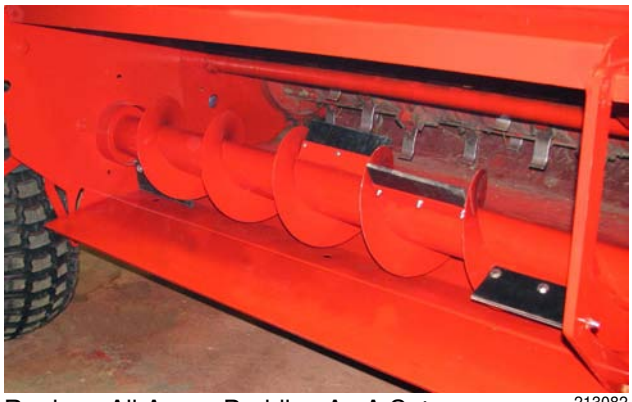
Auger Belt Tension Adjustment 221230C

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.

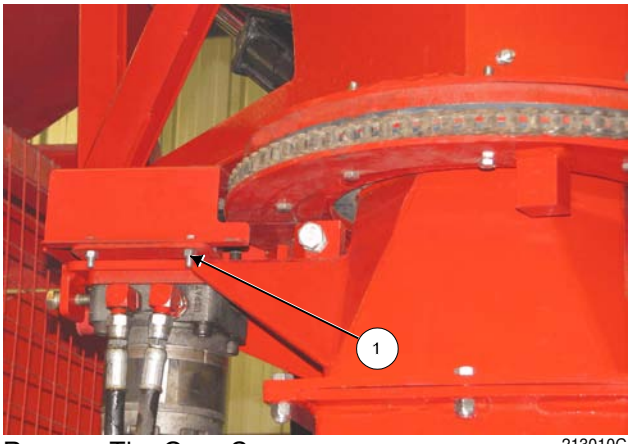

Replace All Auger Paddles As A Set 213082

Adjusting the Hydraulic Motor Gear Into the Turret Chain

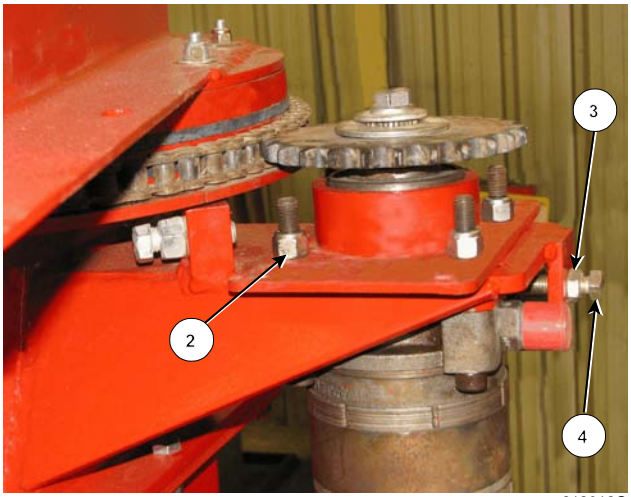
The gear on the turret motor should be fully engaged into the chain on the turret.

To adjust the gear engagement:

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



Remove The Gear Cover 213010C



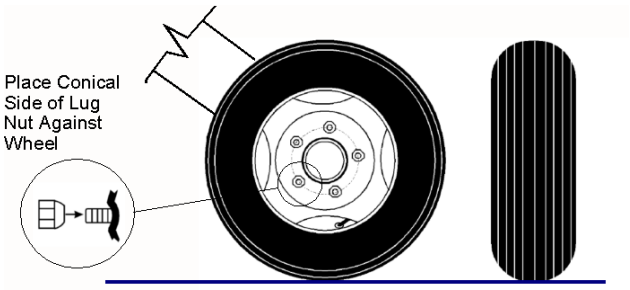
Adjust Gear Engagement 213012C

Tires

Note: It is recommended to have the tires mounted by a tire technician.

- Check the condition of the tires.
- Mount the rim so that the air valve will be facing outward when mounted on the BP 663.
- Place the cone side of the lug nut against the wheel rim. Torque to 75 lb-ft (101 Nm).
- Tire Pressure - Fill the tires to 24 psi (165 Kpa).
- When replacing the tires, refer to the Specification Section for the size and type of tires.
- Transport speed for should not exceed 25 mph (40 kmh).

Tires 221128



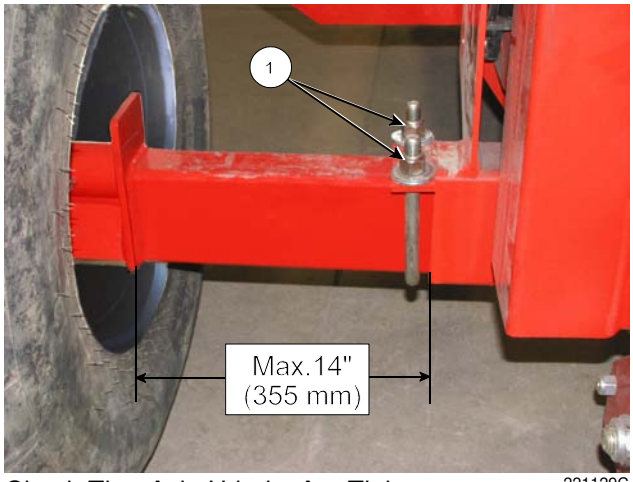
Tire Mounting 107094CC

Axles

- Check that the axle u-bolts are tight.

- Torque the axle u-bolts (1) to 200 lb-ft (270 Nm) to ensure the axles do not slide out of the frame.

- Maximum axle extension is 14" (355 mm) from the main tube edge to the inside face of the spindle plate.



Check That Axle U-bolts Are Tight 221129C

- Remove any twine that is built up around the axle spindle and hub.

  - Be careful to not damage the grease seal on the bearing while removing twine.


Remove Twine From the Spindle and Hub 221130

STORING THE BP 663

1. Clean all the debris from the tub area and off the BP 663.

2. Park the BP 663 on level ground.

3. Lubricate all BP 663 grease points (See Section 5).

4. Tighten all the bolts to the recommended torque.

5. Check the BP 663 for worn and damaged parts. Replace as needed.

Clean Debris from the BP 663 221254

6. Lock the BP 663 flail drum.

   - Turn the lock pin to release the roll pin from the slot.

   - Allow the spring to push the lock pin into the processing chamber.

   - Manually rotate the driveline until the lock pin snaps into place locking the flail drum.

Lock the Flail Drum 221364

7. Lower the forks to the ground.

   - Fasten the fork lock in the storage position.

Lower Forks to the Ground 221232

8. Raise the optional discharge deflector door (if present) to the transport position.

   - The discharge deflector door is operated by a hydraulic cylinder.

   - Flip the rubber deflector onto the top of the door before raising the door. This will secure the rubber between the tub wall and the door.

Discharge Door Raised - Rubber Secured 221224

9. Install the discharge deflector door transport lock (if present).

   - Rotate the lock (1) toward the door.

   - Place the lock onto the pin on the door.

   - Secure with the clip pin (2).

Deflector Door Lock 221225C

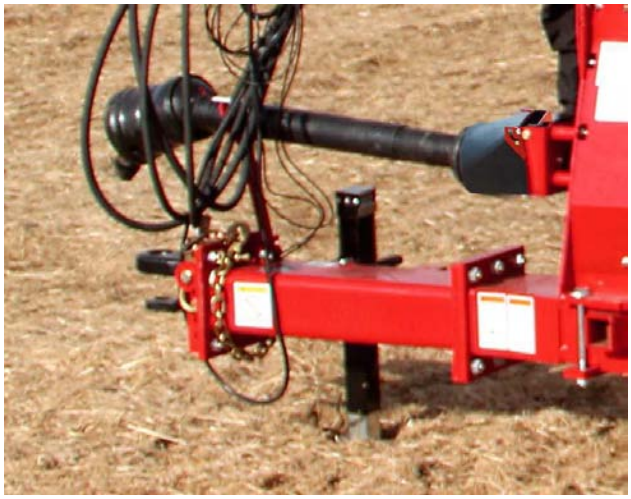
10. Place the jack onto the hitch

    - Remove the jack from the storage position.

    - Pin the jack in place on the hitch.

    - Ensure that the jack is resting on solid level ground or resting on a wood block.

    - Raise the hitch until the weight is supported by the jack.



Jack on Hitch - Raise Hitch 221221

11. Remove the driveline from the tractor PTO shaft.
    - Support it in the PTO holder.

    - Disconnect the chain on the driveline guard from the tractor.

12. Disconnect the safety chain from the tractor.

Remove Driveline and Safety Chain 221220

13. Disconnect the hitch from the tractor.

    - Remove the hitch pin.

14. Relieve the pressure on the hydraulic hoses and disconnect them.

15. Disconnect the electrical connection.

Disconnect Hydraulic Hoses & Electrical 108008

16. Secure the hydraulic hoses and electrical connector to the hose holder to keep them off the ground and clean.

Hoses and Driveline in Supports 221265

17. Change the oil in the gearbox. See the Maintenance Section for procedures.

    - Fill the gearbox to the oil level as outlined in the Maintenance Section.

18. Check the BP 663 for worn and damaged parts. Replace as needed.

19. Touch-up the paint to prevent rusting.

7.0 TROUBLESHOOTING

Symptom	Problem	Solution
Bale lifting problems	Forks do not raise	Check hydraulic connections and lines
	Electric solenoid valve (if present)	Check the electrical connection to the solenoid
		Check that hydraulic fluid passes through the solenoid valve
	Not responding to joystick (if present)	Check cable and connector
		Measure voltage at the connector
		Refer to manifold layout
		Manually push/pull the rod of the valve. Avoid being harmed by sudden movements of the machine. Replace solenoid
	Bale tips off back of forks	Narrow forks for a better lift on bale
		Extend the forks
	Bale hung up on forks - not going into the tub	Cycle feed rollers left to right to pull bale into tub
Material builds up on one side of bale in tub	Bale unwrapping in tub	Reverse direction of feed rollers to consume material buildup
Difficult to rotate bale in tub	Feed rollers not fully engaging bale	Increase aggression of flails to help rotate bale
		Roll bale into the direction of the auger
	Bale on forks contacting bale in tub	Lower the bale on the forks
	Twine buildup on rollers	Remove twine from rollers

Symptom	Problem	Solution
Bale Not Rotating	Feed rollers not engaged	Slowly engage the feed rollers to get the bale rotating
	Grooves cutting into bale	Slowly engage the feed rollers. Slow down the rotating speed of the rollers
Feed rollers not turning	SCV not supplying enough hydraulic flow	Increase the flow rate at the SCV
	Not responding to joystick (if present)	Check cable and connector
		Measure voltage at the connector
		Refer to manifold layout
		Manually push/pull the rod of the valve. Avoid being harmed by sudden movements of the machine. Replace solenoid
PTO and flail drum not turning	Flail drum lock engaged	Disengage drum lock
	Driveline shear bolt	Replace shear bolt on drive line
Upper deflector door not operating (if present)	Hydraulic cylinder	Check hydraulic connections
		Check electric solenoid (if present)
	Discharge door transport lock	Remove door transport lock

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.
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.

Symptom	Problem	Solution
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.
Drive Belt Loose	Belt Tension	See Section 5 "Blower Belt Tension Adjustment" for instructions on adjusting belt tension.
	Belt has stretched.	Replace the belt.
		See Section 5 "Blower 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.

Symptom	Problem	Solution
	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.
	Hydraulic motor.	Check hydraulic connections.
		Replace hydraulic motor.
	Not responding to joystick (if present)	Check cable and connector
		Measure voltage at the connector.
		Refer to manifold layout
		Manually push/pull the rod of the valve. Avoid being harmed by sudden movements of the machine. Replace solenoid.

Nozzle does not lift or lower	Hydraulic cylinder.	Check hydraulic connections.
	Cylinder pin missing.	Replace cylinder pin.
	Material lodged in joint.	Remove material.
	Not responding to joystick (if present)	Check cable and connector
		Measure voltage at the connector.
		Refer to manifold layout .

		Manually push/pull the rod of the valve. Avoid being harmed by sudden movements of the machine. Replace solenoid.

Auger

Symptom	Problem	Solution
Excessive Auger Vibration	Broken flighting.	Replace auger.
	Missing or damaged rubber 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.
	Belt has stretched.	Replace the belt.
		See Section 5 "Auger Belt Tension Adjustment" for instructions on adjusting belt tension.
	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.

Symptom	Problem	Solution
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 5 "Auger Belt Tension Adjustment" for instructions on adjusting belt tension.
	Belt has stretched.	Replace the belt.
		See Section 5 "Auger Belt Tension Adjustment" for instructions on adjusting belt tension.

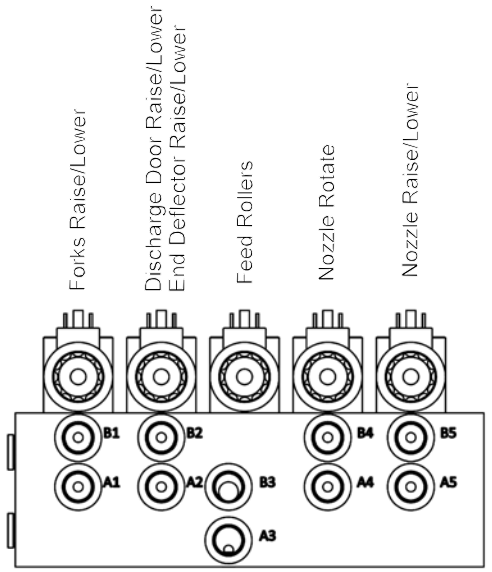
Hydraulic Manifold - Joystick Option

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



Manifold Connections

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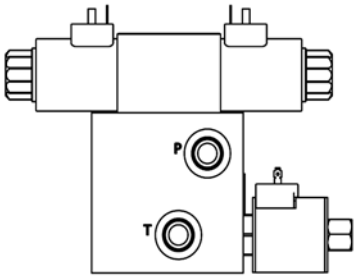

On/Off Open Center Tractor

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8.0 BP663 TOP GUN® SPECIFICATIONS

Width

Transport Width	110" (2794 mm)

Height

Transport Height	133 ½" (3391 mm)
Working Height Maximum (Forks Extended)	190" (4826 mm)

Length

Length To End of Tires	203 1/2" (5169 mm)
To End of Forks Down (Extended)	305" (7747 mm)

Weight

Machine Weight	8230 lb (3704 kg)
Tongue weight (Unloaded)	2857 lb (1286 kg)

PTO

Recommended PTO	165 HP (124 kW)
	1000 PTO -1 3/8" 21 Spline with over-running clutch
	Cat.8/1000 rpm
Constant Velocity Turning Range	Maximum 80 degrees

Gearbox rating	180 hp rating (134 kilowatt)
Gearbox Oil Capacity	300 ml

Bale Size	
Maximum Size of Round Bale	6 feet (1.8 m) diameter
Maximum Size of Square Bale	4' x 4' x 8' (1.2 x 1.2 x 2.4 m)

Tires	16.5LX 16.1 ANS Inflate to 24 psi (165 kPa)

Note: Right/Left hand is determined by sitting in the tractor looking forward.

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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.