



***-- OPERATOR'S MANUAL --***

**AXIAL-FLOW<sup>®</sup> 2577 and  
AXIAL-FLOW<sup>®</sup> 2588 Combine**

<b>PUBLICATION HISTORY</b>			
<b>MACHINE</b>	<b>PUBLICATION</b>	<b>ISSUE DATE</b>	<b>ISSUE</b>
AXIAL-FLOW® 2577 and AXIAL-FLOW® 2588 Combine	87549570	September, 2006	First Issue



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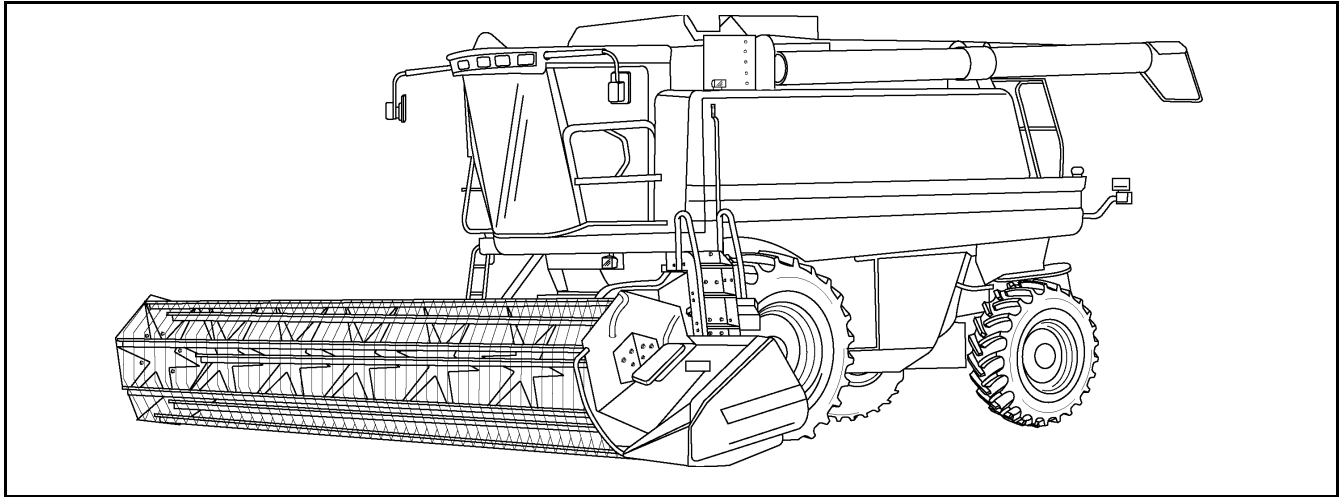
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1 - TO THE OWNER  
TO THE OWNER



RD02E239

**NOTE:** *When you are in the Combine seat looking forward, the right and left side of the Combine are the same as your right hand and left hand.*

Read this manual before you start the engine or operate the AXIAL-FLOW® Combine. Refer to the Detail Index at the end of this manual for locating specific items about your machine. If you need more information, see your dealer.

If your Combine is equipped with AFS Yield Monitor, refer to your CASE IH Yield Monitor Manual. If your Combine is equipped with a Global Positioning System, refer to your CASE IH GPS Operator's Manual for operating instructions.

DO NOT operate or permit anyone to operate or service this machine until you or the other persons have read this manual. Use only trained operators who have demonstrated the ability to operate and service this machine correctly and safely.

This Combine, with standard equipment and authorized attachments, is intended to be used for harvesting agricultural food grains such as corn, wheat, rice, soybeans, etc.

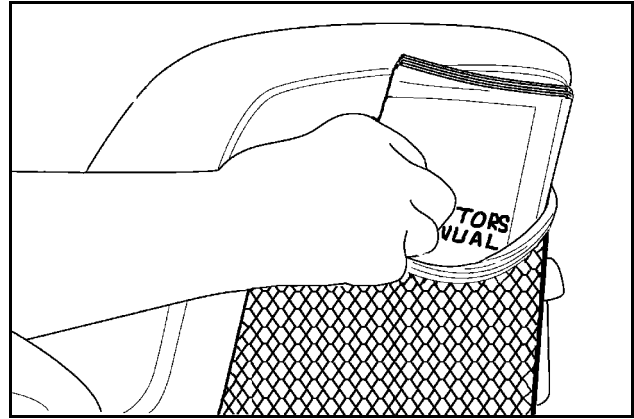
DO NOT use this machine for any application or purpose other than those described in this manual. Consult an authorized dealer or CNH America LLC on changes, additions or modifications that can be required for this machine to comply with various country regulations and safety requirements. Unauthorized modifications will cause serious injury or death. Anyone making such unauthorized modifications is responsible for the consequences.

Your dealer can give you assistance with CNH America LLC approved service and parts. Your dealer has technicians with special training that know the best methods of repair and maintenance for your machine.

Call your dealer if you need any assistance or information

## Manual Storage Compartment

Keep the Operator's Manual in the storage compartment located behind the operator's seat on the Combine. The Operator's Manual must be available for use by all operators.



20033351

## PRODUCT IDENTIFICATION AND SERIAL NUMBERS

Write your machine model number and Product Identification Number (P.I.N.) and Serial Numbers of major components on the lines provided. If needed, give these numbers to your dealer when you need parts or information for your machine.

**CASE IH** CNH America LLC  
Racine, WI 53404 U.S.A.  
Made In U.S.A.

Model Number

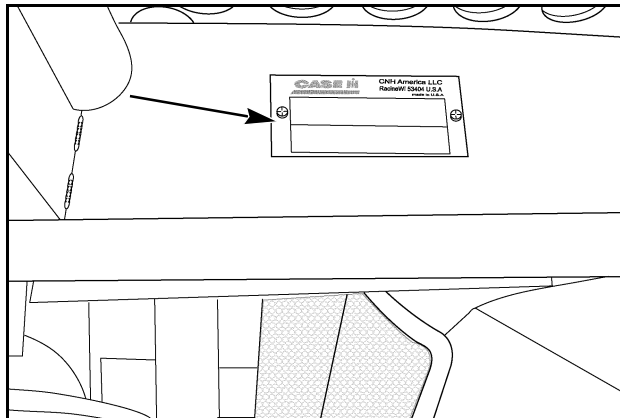
Product Identification Number

RH04E016

MODEL NUMBER AND PRODUCT IDENTIFICATION NUMBER PLATE

### Identification Number Locations

#### Product Identification Number



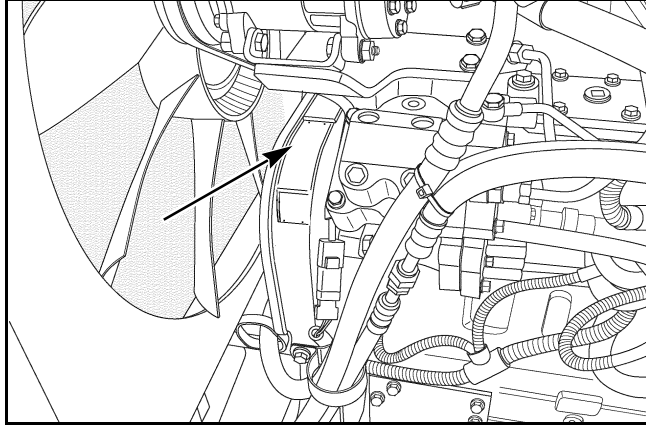
RD05F089

RIGHT FRONT OF COMBINE

## 2 - IDENTIFICATION NUMBERS

---

### Engine Serial Number



RD05D074

Combine Model Number \_\_\_\_\_

Product Identification Number \_\_\_\_\_

Engine Serial Number \_\_\_\_\_



## SAFETY

Understand that your safety and the safety of other persons is measured by how you operate and service this machine. Know the positions and operations of all controls before you try to operate them. **MAKE SURE YOU CHECK ALL CONTROLS IN A SAFE AREA BEFORE STARTING YOUR WORK.**

READ THIS MANUAL COMPLETELY and make sure you understand the controls. All equipment has a limit.

The safety information given in this manual does not replace safety codes, insurance needs, federal, state and local laws. Make sure your machine has the correct equipment needed as designated by the local laws and regulations.

The CNH America LLC is continuing to work for your safety by making Combines with better protection and by giving these rules for safe operation.



*THIS SAFETY ALERT SYMBOL INDICATES IMPORTANT SAFETY MESSAGES IN THIS MANUAL. WHEN YOU SEE THIS SYMBOL, CAREFULLY READ THE MESSAGE THAT FOLLOWS AND BE ALERT TO THE POSSIBILITY OF DEATH OR SERIOUS INJURY.*

M171C



### Safety Rules



- Operate controls only when seated in the operator's seat. R137A
- Never operate the machine with shields removed. R423
- Never refuel the machine when the engine is hot or running. Never smoke while refueling. R139C
- Hydraulic oil or diesel fuel leaking under pressure can penetrate the skin and cause infection or other injury. To Prevent Personal Injury:
  - Relieve all pressure, before disconnecting fluid lines or performing work on the hydraulic system.
  - Before applying pressure, make sure all connections are tight and components are in good condition.
  - NEVER use your hand to check for suspected leaks under pressure.
  - Use a piece of cardboard or wood for this purpose.
  - If injured by leaking fluid, see your doctor immediately. R149C
- The engine can start when the neutral or safety start switch is bypassed:
  1. Do not connect across terminals on starter.
  2. Attach a booster battery by connecting the positive terminal of the booster battery to the "positive terminal" provided at the left front of the machine or to the positive terminal of the machine battery. Connect the negative terminal of the booster battery to the chassis of the machine.
  3. When necessary, repair electrical system components promptly so that "jump starting" will not be attempted. Machine runaway can cause injury or death to operator and bystanders. R107D
- Travel speed should be such that complete control and machine stability is maintained at all times. Where possible, avoid operating near ditches, embankments and holes. Reduce speed when turning, crossing slopes, and on rough, slick, or muddy surfaces. R109B
- Collision of high speed road traffic and slow moving machines can cause personal injury or death. On roads, use flasher/lights according to local laws. Keep SMV emblem visible. Pull over to let faster traffic pass. Slow down and signal before turning off. R110E
- The Brake Latch is used to lock both Brake Pedals together. Brake pedals must be locked together for road travel. This will insure uniform brake application and maximum stopping ability. R112B

### 3 - SAFETY/DECALS

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- Never operate the engine in a closed building. Proper ventilation is required under all circumstances. R142A
- Check and service cooling system according to maintenance instructions. Hot coolant can spray out if deaeration tank cap is removed while system is hot. To remove deaeration tank cap, let system cool, turn to first notch, then wait until all pressure is released. Scalding can result from fast removal of deaeration tank cap. M513
- It is good practice to carry a fire extinguisher on the machine. Be sure that the extinguisher is properly maintained and be familiar with its proper use. R102B
- Due to the flammable nature of the crop materials encountered by Combines, fire risks are high. This risk can be minimized by frequent removal of accumulated crop material from the machine and checking for overheated machine components. If oil leaks appear, retorque bolts or replace gaskets if necessary. R363
- On narrow or hilly roads or blind curves - where motor vehicles can suddenly come upon slow moving traffic, extra caution should be exercised, such as having two vehicles proceed/follow the Combine to warn and/or removing the Header and transport separately. R751



#### Personal Safety






Throughout this manual and on the machine's safety decals, you will find precautionary statements: **DANGER, WARNING or CAUTION** followed by specific instructions or ISO two panel safety pictorial symbols. These precautions are intended for your personal safety.

Failure to follow the **DANGER, WARNING or CAUTION** instructions may result in serious bodily injury or death.

**DANGER, WARNING or CAUTION** are defined as follows:

- **DANGER:** Indicates an immediate hazardous situation that, if not avoided, will result in death or serious injury. The color associated with Danger is RED.
- **WARNING:** Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury. The color associated with Warning is ORANGE.
- **CAUTION:** Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices. The color associated with Caution is YELLOW.

ISO two panel **pictorial symbol decals** are defined as follows:

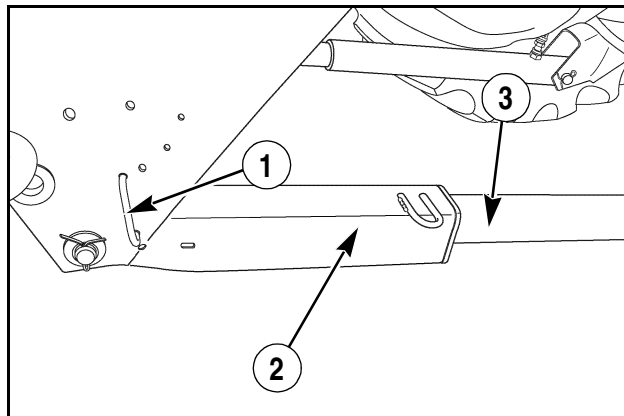
- The first panel indicates the nature of the hazard.
- The second panel indicates the appropriate avoidance of the hazard.
- Background color is YELLOW.
- Prohibition symbols such as   and  if used, are RED.

## Feeder Safety Lock

The left feeder lift cylinder is equipped with a safety lock. The safety lock is used to prevent accidental lowering of the feeder or header. ALWAYS engage the feeder safety lock before working under the feeder or header.

### TO ENGAGE THE FEEDER SAFETY LOCK:

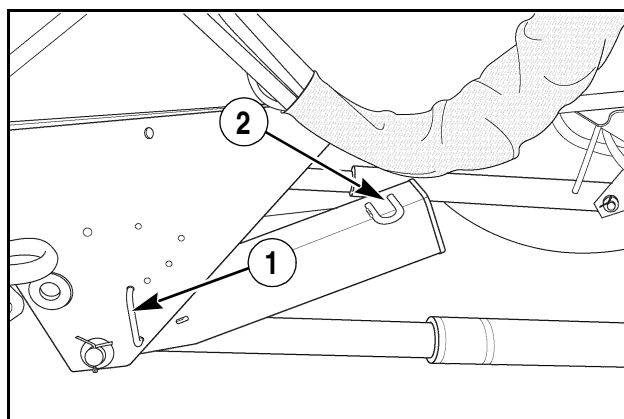
1. Raise the feeder to the maximum height.
2. Pull the latch pin (1) out to release the feeder safety lock(s) (2). Lower the feeder safety lock(s) over the Left lift cylinder rod (3).



RD01H174

### TO DISENGAGE THE FEEDER SAFETY LOCK:

Rotate the feeder safety lock (2) up and the latch pin (1) will engage.



RD01H175



**WARNING:** Always shut OFF engine, remove the key and engage feeder safety lock in position on lift cylinder before working under Header or feeder. Failure to engage feeder safety lock may cause injury or death.

M184D



## FIRE OR EXPLOSION PREVENTION



- Due to the flammable nature of the crop materials encountered by Combine, fire risks are high. This risk can be minimized by frequent removal of accumulated crop material from the machine and checking for overheated machine components. If oil leaks appear, retorque bolts or replace gaskets as necessary. M363
- Remove all trash or debris from the machine each day. Especially check the engine area and exhaust system.
- Sparks or flame can cause the hydrogen gas in a battery to explode. To prevent an explosion do the following:
  1. When disconnecting the battery cables, disconnect the negative (-) cable first; when connecting the battery cables, connect the negative (-) cable last.
  2. When connecting jumper cables to start the engine, use the procedure shown in this manual (see Auxiliary Battery connections in this manual).
  3. Do not short circuit the battery posts with metal items.
  4. Do not weld, grind or smoke near a battery.
- Sparks from the electrical system or engine exhaust can cause an explosion and fire. Before you operate this machine in an area with flammable dust or vapors, use good ventilation to remove the flammable dust or vapors.
- Use nonflammable cleaning solvent to clean parts.
- A fire can cause death or injury. Always have fire extinguisher near or on the machine. Make sure the fire extinguishers are serviced according to the manufacturers instructions.
- If a fire extinguisher has been used, always recharge or replace the fire extinguisher before operating the machine.
- Keep the cooling system clean and maintain the correct coolant level.
- Make sure that you DO NOT store oily rags or other flammable materials on the machine.
- Engine fuel can cause an explosion or fire. Do not fill the fuel tank with the engine running; if you are near an open fire; or if you are welding, smoking, etc.
- If the machine has an oil, fuel or hydraulic leak, always repair the leak and clean the area before operating.
- Check the electrical system for loose connections or frayed insulation. Repair or replace the loose or damaged parts.
- Before welding or using a torch on the machine, clean the area to be repaired.

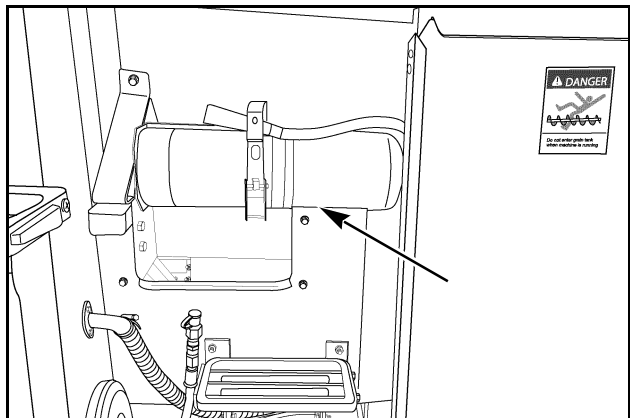


## LADDER SAFETY

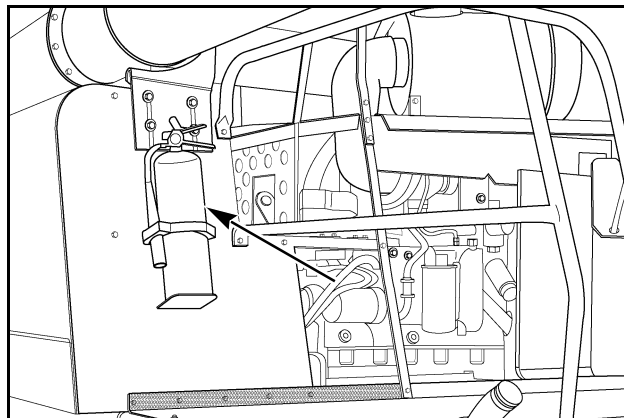


- Always use access ladder only after the Combine has come to a complete stop.
- Always face the Combine when using the access ladders.
- Always make sure ladder safety chains are properly connected.

## FIRE EXTINGUISHER



**CAB LEFT SERVICE DOOR**



**ENGINE COMPARTMENT**

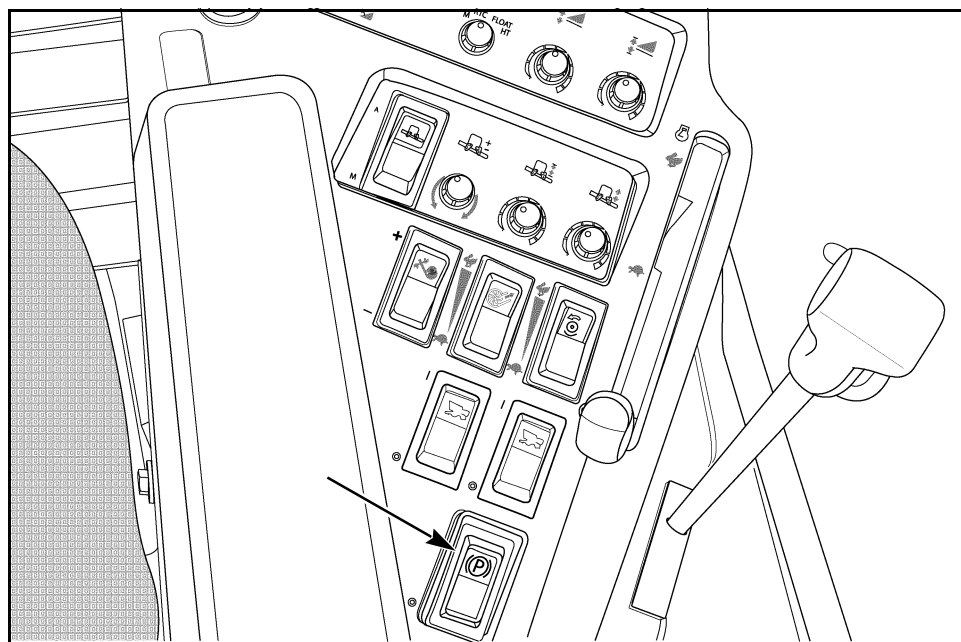
It is recommended that two fire extinguishers be maintained on the Combine when it is in operation to assist in the event of a fire. See your dealer for further information.



**WARNING:** *It is good practice to carry a fire extinguisher on the machine. Be sure that the extinguisher is properly maintained and be familiar with its proper use.*

M102B

## PARK BRAKE



**PARK BRAKE SWITCH** - To engage the Park Brake push front half of the switch. To disengage the Parking Brake push rear half of the switch.



## Battery Safety



- DO NOT make sparks or use an open flame near the battery.
- When disconnecting battery terminals, remove the Negative (-) cable first; then remove the Positive (+). When connecting cables, connect the Positive (+) first, then connect the Negative (-).
- Disconnect the battery (both terminals) before welding on any part of the machine. Failure to do so may cause damage to sensitive electrical components.
- BATTERY ACID CAUSES SEVERE BURNS. Batteries contain sulfuric acid. Avoid contact with skin, eyes or clothing. Antidote: EXTERNAL - flush with water. INTERNAL - Drink large quantities of water or milk. DO NOT induce vomiting. Seek medical attention immediately. EYES - Flush with water for 15 minutes and seek medical attention immediately. BATTERIES PRODUCE EXPLOSIVE GASES. Keep sparks, flame, cigars and cigarettes away. Ventilate when charging or using in enclosed area. Always wear eye protection when working near batteries. Wash hands after handling. KEEP OUT OF REACH OF CHILDREN.
- When working around storage batteries, remember that all of the exposed metal parts are “live”. Never lay a metal object across the terminals because a spark, short circuit, explosion or personal injury may result.
- Battery posts, terminals and related accessories contain lead and lead compounds. **Wash hands after handling.**

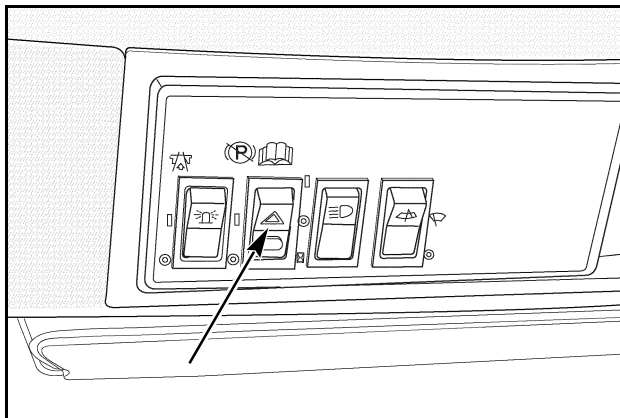


## Maintenance Safety



- Always keep safety and informational decals clean and visible. Replace decals that are damaged, lost, painted over or can not be read.
- When assembling, operating or servicing the machine, wear protective clothing and personal safety devices that are necessary for the particular procedure. Some personal safety devices that may be necessary are protective shoes, face and/or eye protection, hard hat, heavy gloves, filter mask and hearing protection.
- Do Not wear jewelry or loose fitting clothing that may get caught in moving parts. Always wear close fitting clothing. Keep hands, feet, clothing and hair away from moving parts.
- Never attempt to clear obstructions or objects from the machine while the engine is running.
- Always stop the engine and remove the key from the key switch when leaving the operator’s seat or the machine.
- When servicing the machine, always have the machine on a firm level surface.
- If shields or guards are removed or opened for service, always replace shields or guards before operating the machine. Never operate machine with missing or open shields or guards.
- Keep the area used for servicing the machine clean and dry. Wet or oily floors are slippery. Wet spots can be dangerous when working with electrical equipment. Be sure all electrical outlets and tools are properly grounded.

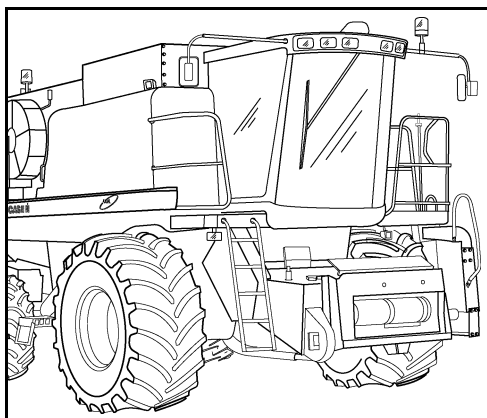
## HAZARD WARNING LAMP/PARK BRAKE DISABLE SWITCH



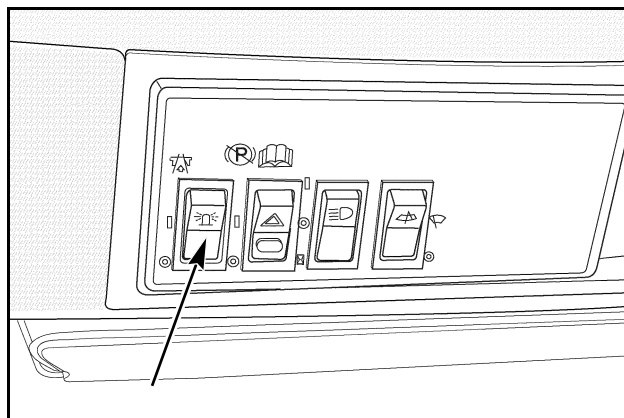
RD05D120

HAZARD WARNING LAMP/PARK BRAKE DISABLE SWITCH - Push the upper half of the switch to the CENTER position to activate the amber warning lamps. Push the bottom half of the switch to turn OFF the warning lamps. Refer to Towing in this manual for park brake disable.

## BEACON - IF EQUIPPED



RD05D130



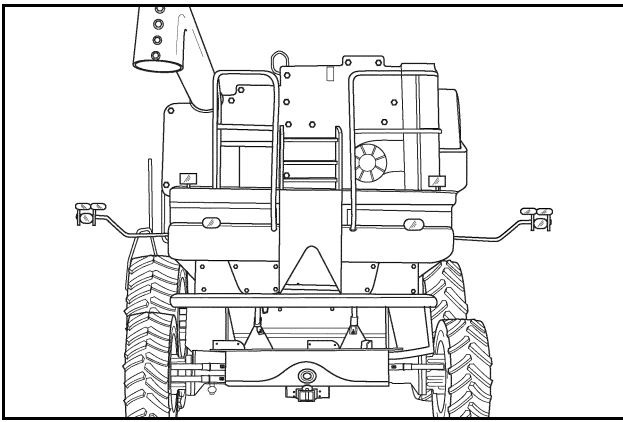
RD05D120

Your Combine may be equipped with a front and rear rotating beacon. Use the rotating beacons while operating the Combine on the road as required by local law.

## HIGHWAY OPERATION

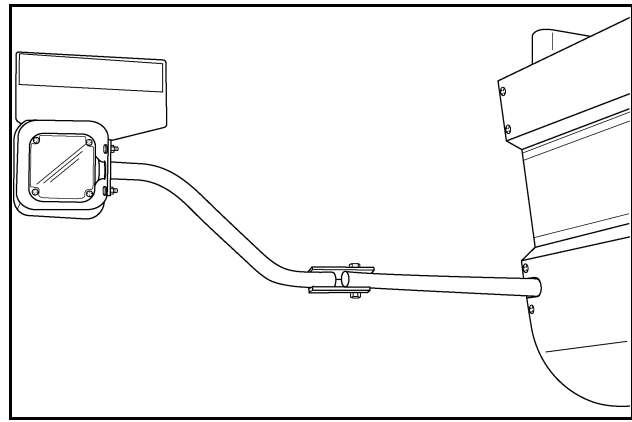
1. Comply with state and local laws governing highway safety regulations.
2. Maintain complete control of the Combine. DO NOT exceed 20 MPH (32 km/h).
3. Connect the brake pedals together with the brake latch. Make sure that the Combine brake pedal linkage is correctly adjusted. Make certain the latch is fully engaged.
4. Keep to the right as far as possible.
5. Turn the amber warning lamps on. Make sure that the SMV symbol can be seen.

### 3 - SAFETY/DECALS



RR02K026

6. Make sure extremity warning lamp assemblies are swung out to full width operating position. Extremity warning lamps must be positioned within 406 mm (16 inches) of outer edge of both sides of Combine when the header is removed.



RD00H041

7. For dual drive wheel configurations extremity warning lamp assemblies must be in the outer position (inner edge of warning lamp assembly tube flush with inner edge of mounting bracket tube). Warning lamps must be positioned within 406 mm (16 inches) of outer edge of both sides of Combine.
8. For flotation tires (76 x 50.00-32) drive wheel configuration, extremity warning lamp assemblies must be shifted an additional 127 mm (5 inches) outward per side (end of warning lamp assembly tube recessed 127 mm (5 inches) from end of mounting bracket tube). Warning lamps must be positioned within 406 mm (16 inches) of outer edge of both sides of Combine.
9. Check clearance before going under electric lines, bridges or entering buildings.
10. Make sure the ladder is in the full forward or transport position when in operation or traveling on a road

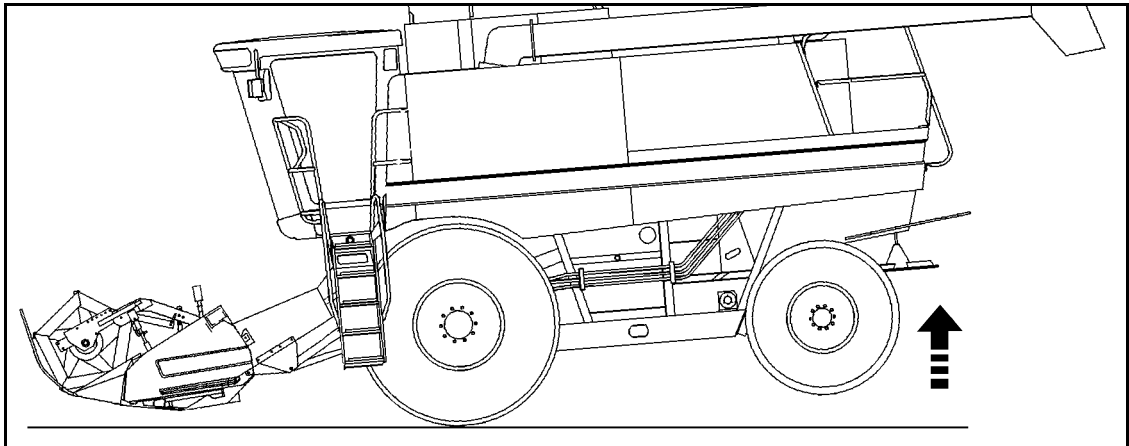


**WARNING:** *On narrow or hilly roads or blind curves - where motor vehicles can suddenly come upon slow moving traffic, extra caution should be exercised, such as having two vehicles proceed/follow the Combine to warn and/or removing the Header and transport separately.*

M751



## Combine BALLAST



RS00D050

Make sure your Combine has proper ballasting. Large and/or heavy Headers may alter the center of gravity of your machine. This will affect your operating, steering and braking performance.

Refer to the Tire/Wheel/Ballast Section of this manual for the correct ballast required for your application



### Instructional Seat Safety



- Extra riders, especially children, are not permitted on the machine.
- The Instructional Seat is used only when training a new operator or when a service technician is diagnosing a mechanical problem.
- A frequent cause of personal injury or death is persons falling off and being run over. DO NOT permit others to ride, except in designated instructional seat.
- When the Instructional Seat is occupied, the following precautions must be taken:
  - A. Machine must be driven at a slower speed and on level ground.
  - B. Avoid driving on highways or public roads.
  - C. Avoid quick starts or stops.
  - D. Avoid sharp turns.
  - E. Always wear seat belts.
  - F. Cab door must be closed at all times.



**WARNING:** Before starting the engine make sure seat belts are securely fastened. The seat belt can help insure your safety if it is used and properly maintained. Never wear a seat belt loosely or with slack in the belt system. Never wear the belt in a twisted condition or pinched between the seat structural members.

M422 B



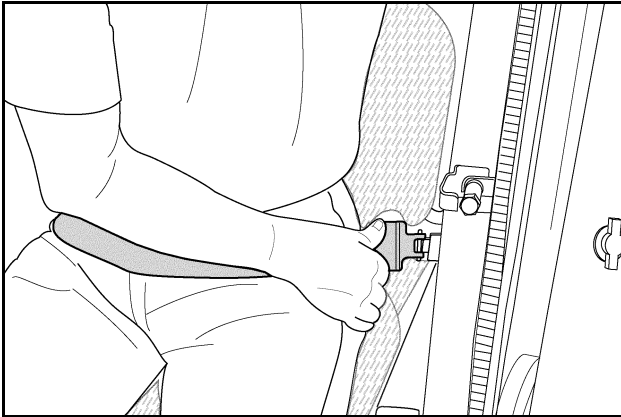
**WARNING:** A frequent cause of personal injury or death is persons falling off and being run over. DO NOT permit others to ride, except in designated instructional seat. Instructor must wear the instructional seat belt.

M488A

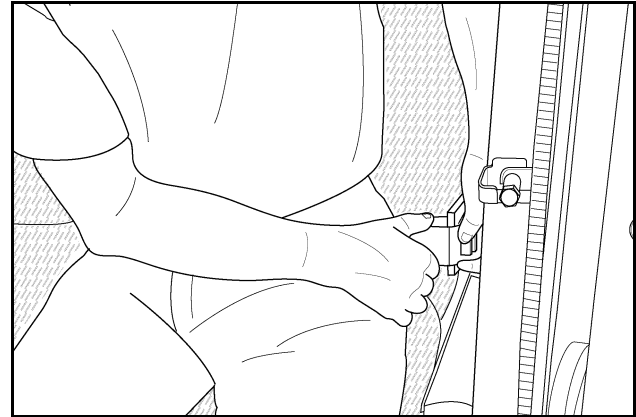
## SEAT BELTS

The Operator and Instructor should securely fasten the seat belts before the Combine is operated either in the field or on the road.

**NOTE:** The illustrations below show a Instructional Seat Belt, Operator Seat Belt is the same.



RP95J008



RP95J014

1. Pull the seat belt completely across your body. Push the metal eye into the buckle until it locks.
2. Adjust the position of the seat belt as low on your body as possible.

3. To release the seat belt, push the red button in the center of the buckle and separate the buckle and metal eye.



**WARNING:** Before starting the engine make sure seat belts are securely fastened. The seat belt can help insure your safety if it is used and properly maintained. Never wear a seat belt loosely or with slack in the belt system. Never wear the belt in a twisted condition or pinched between the seat structural members.

M422B

## Seat Belt Inspection and Maintenance

Keep the Operator and Instructional Seat Belts in good condition by doing the following:

1. Keep sharp edges and items that can cause damage, away from the belts.
2. From time to time, check belts, buckles, retractors, tethers, slack take-up system and mounting bolts for damage.
3. Replace all parts that have damage or wear.
4. Replace belts that have cuts that can make the belt weak.
5. Check that bolts are tight on the seat bracket or mounting.
6. If belt is attached to seat, make sure seat or seat brackets are mounted securely.
7. Keep seat belts clean and dry.
8. Clean belts only with a soap solution and warm water.
9. DO NOT use bleach or dye on the belts, because this can make the belts weak.

## NEUTRAL START SYSTEM

Make sure the Neutral Start System is operating properly by doing the following:

1. With the Propulsion handle in a position other than Neutral, the engine should not start.

2. If engine does start, Neutral Start System needs adjustment, see your dealer.

3. With the Separator System in the ON position, the engine should not start. If engine does start, Neutral Start System needs adjustment, see your dealer.

## OPERATOR'S PRESENCE SYSTEM

Make sure the Operator's Presence System is operating properly by doing the following:

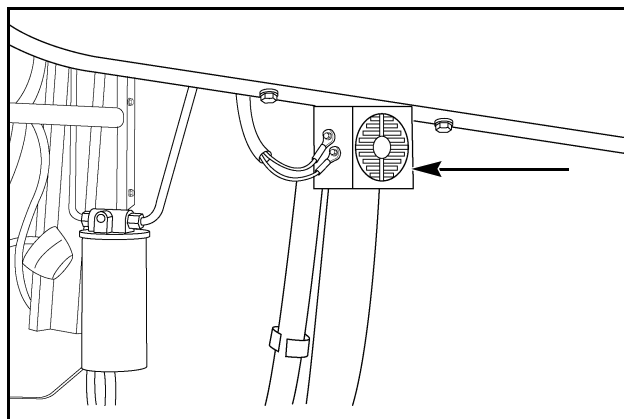
1. With the Combine running, place the Park Brake On and the transmission in Neutral.

2. With everyone clear of the machine engage separator and feeder switches.

3. After separator and feeder are running, stand up out of the seat. In approximately 7 seconds the feeder should shut OFF. If not, Operator Presence System needs repair, see your dealer.

## BACKUP ALARM

The machine is equipped with a backup alarm. When the machine is moving in reverse, the alarm will sound.

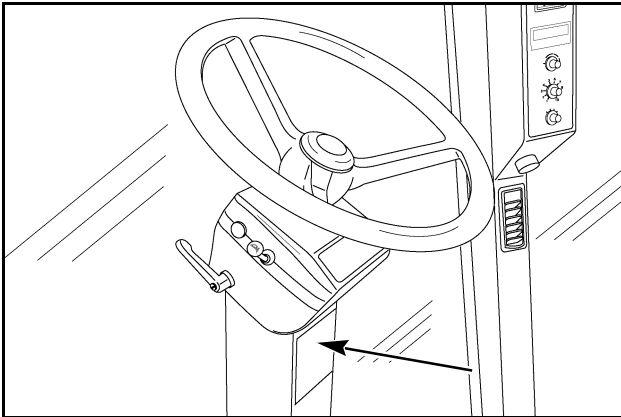


RR06E023

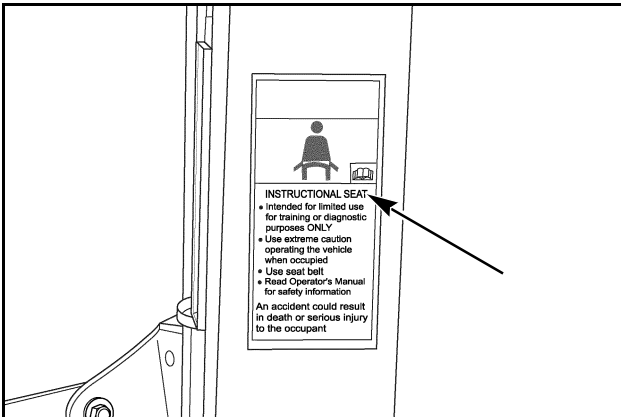
## SAFETY DECALS

**IMPORTANT:** Install new decals if the old decals are destroyed, lost, painted over or cannot be read. When parts are replaced that have decals make sure you install a new decal with each new part.

**NOTE:** New decals are available from your dealer.

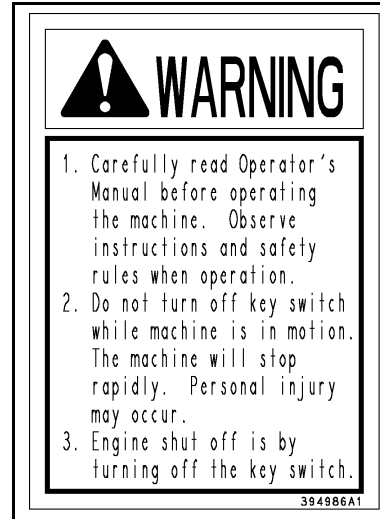


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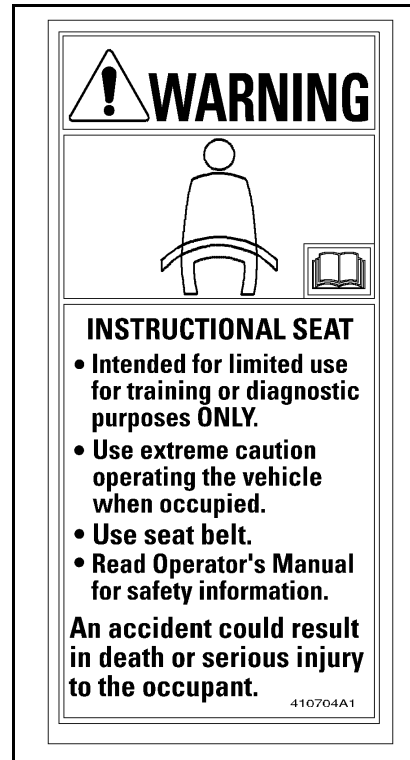


RD03B072

**LOCATED ON LEFT A-POST**

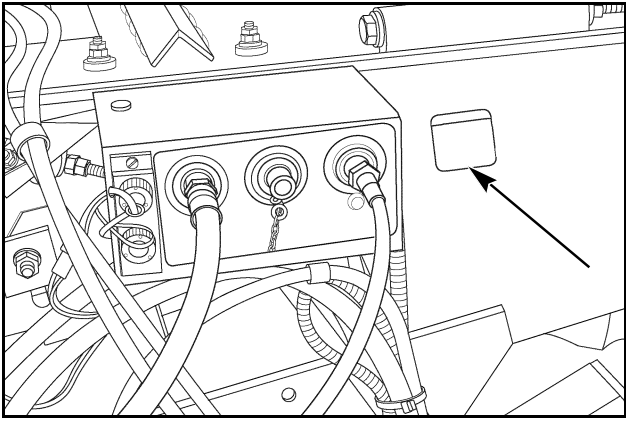


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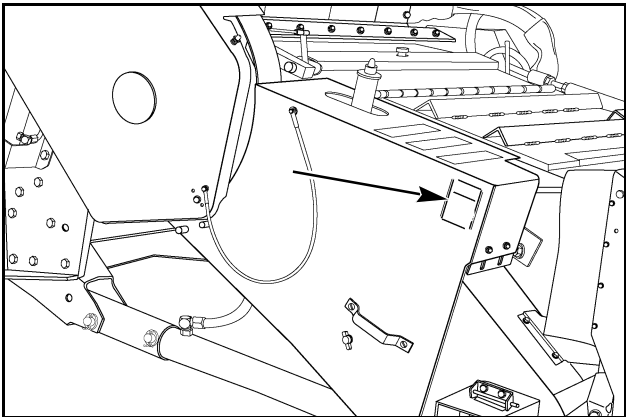


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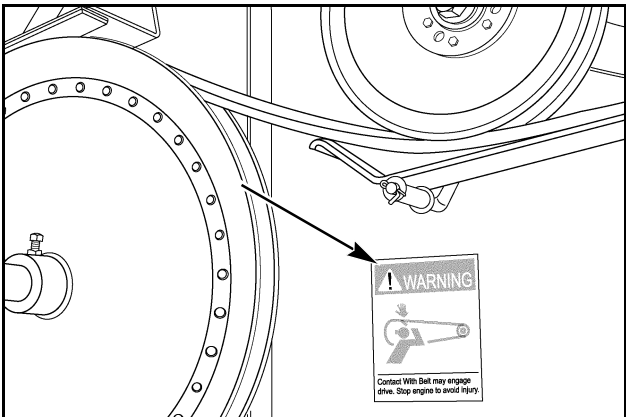
3 - SAFETY/DECALS



RD00F035



RD00H016



A24425

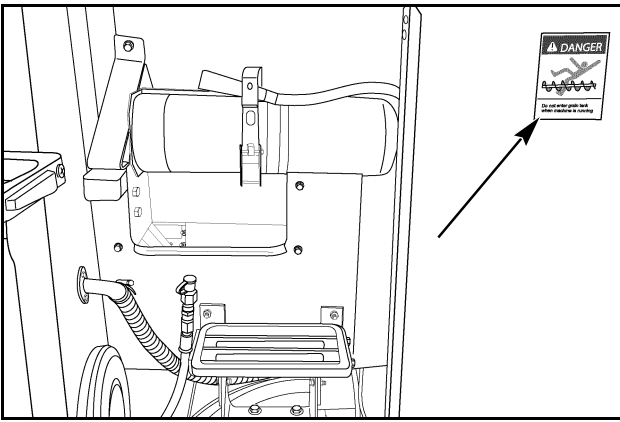


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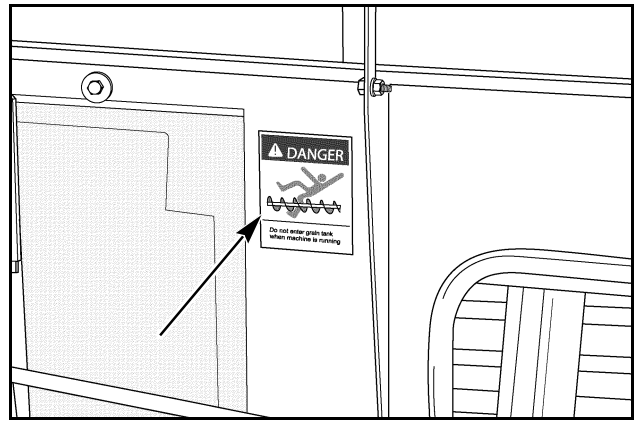


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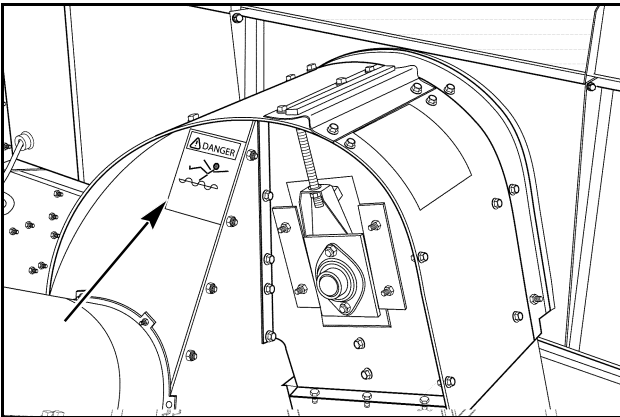
### 3 - SAFETY/DECALS



A23476



A24448

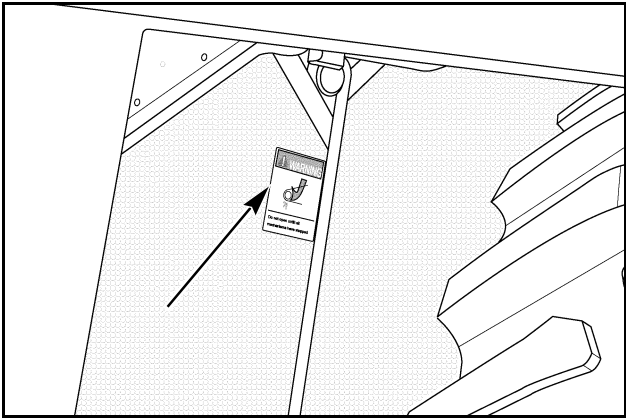


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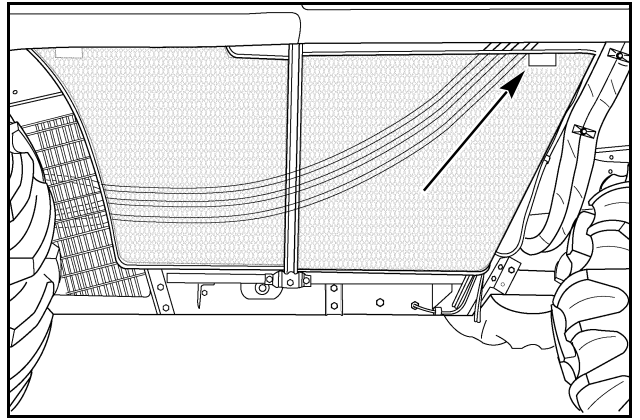


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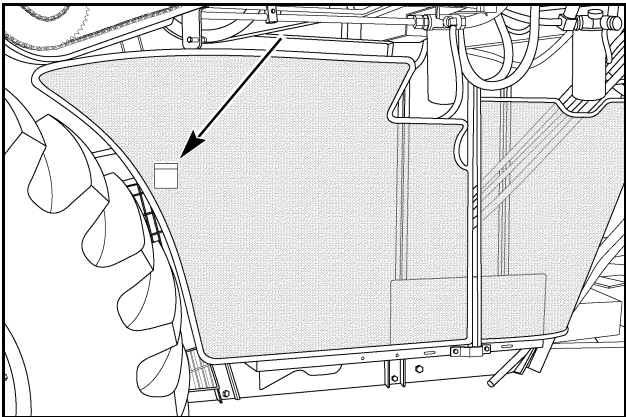
3 - SAFETY/DECALS



A24338



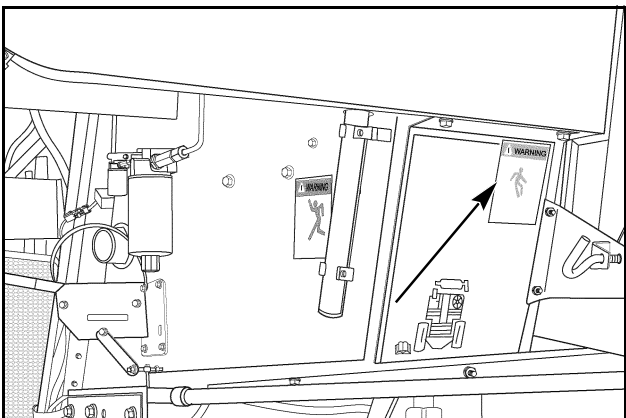
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A24359



181595A1

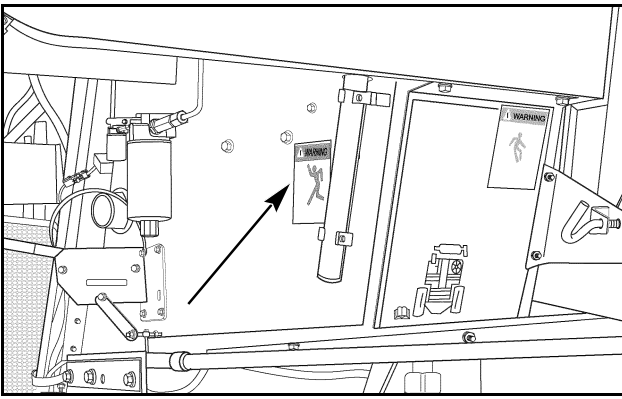


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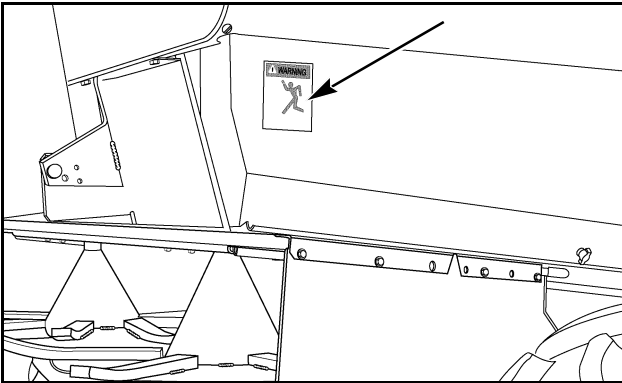


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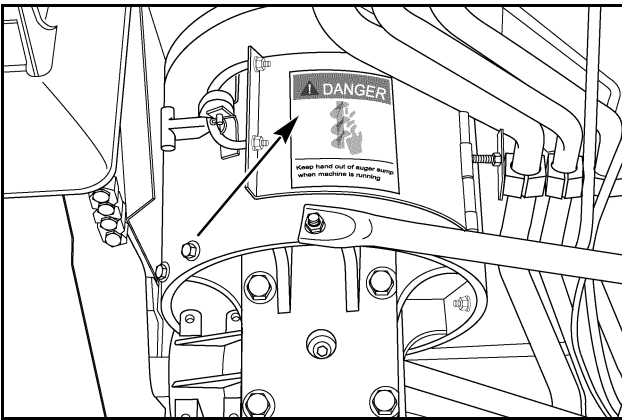
3 - SAFETY/DECALS



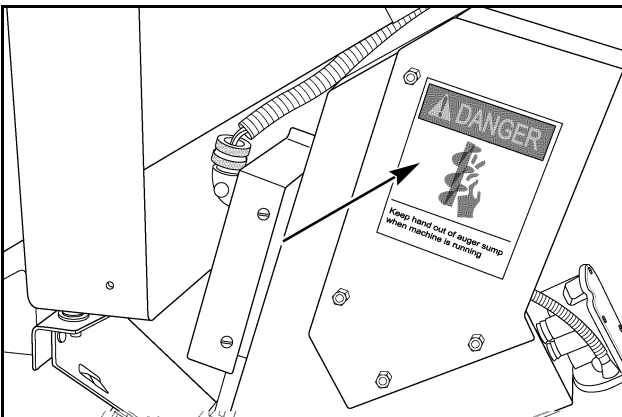
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RD00E031



A24344



RK99G122



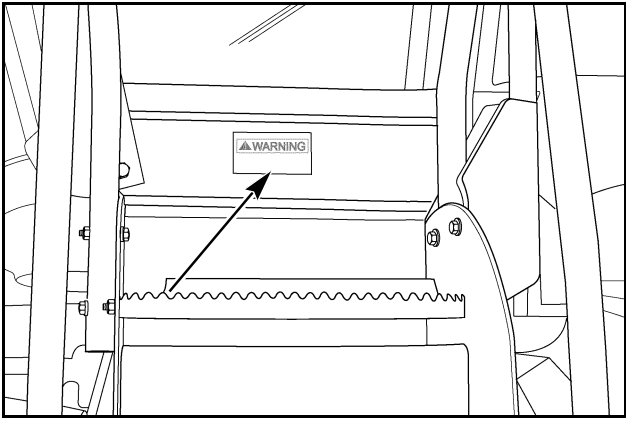
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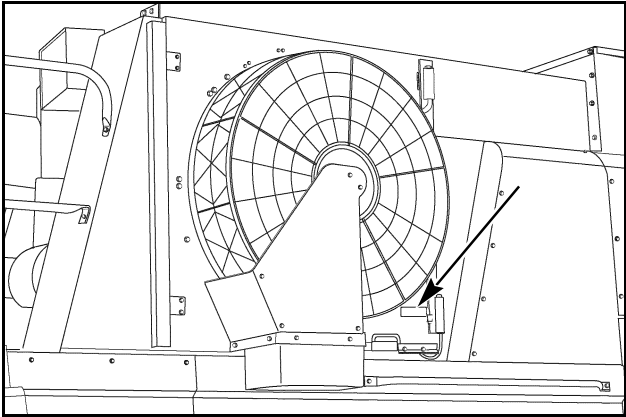
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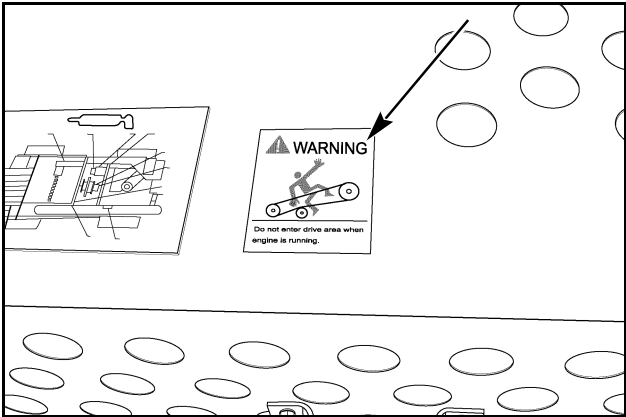
3 - SAFETY/DECALS



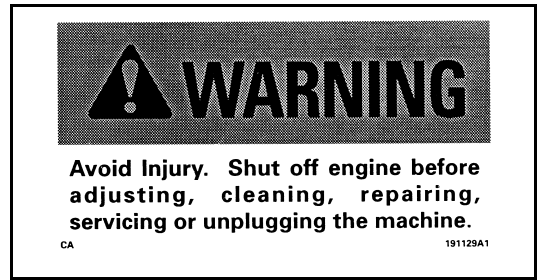
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RD05D113



RD02F015



191129A



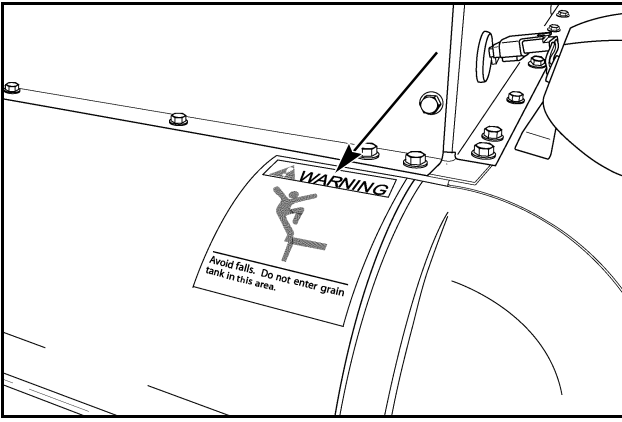
332512A

Decal located on fan housing behind Right panel.

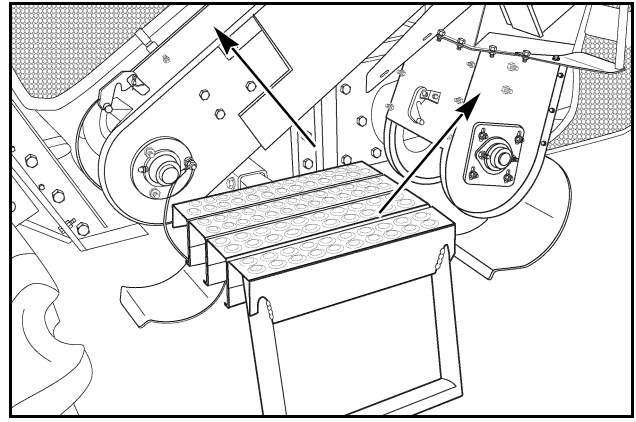


181597A1

### 3 - SAFETY/DECALS



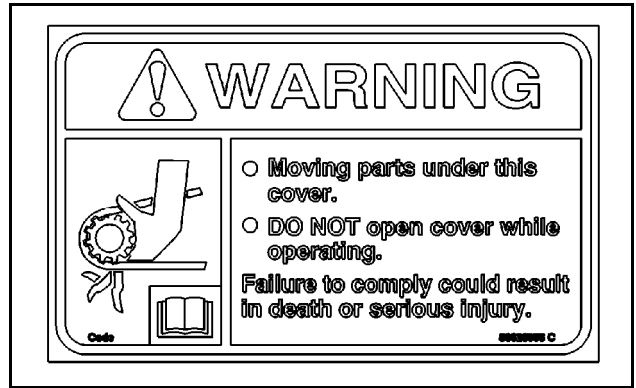
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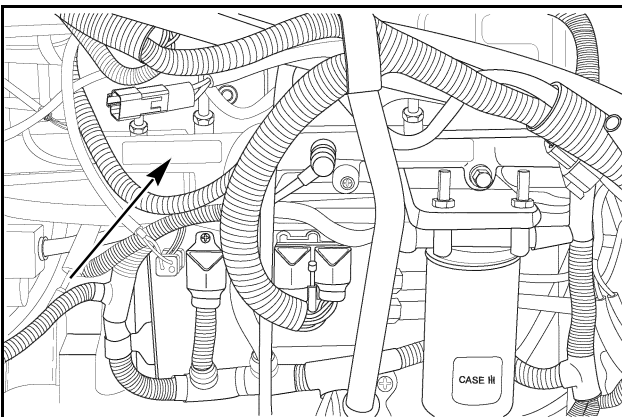
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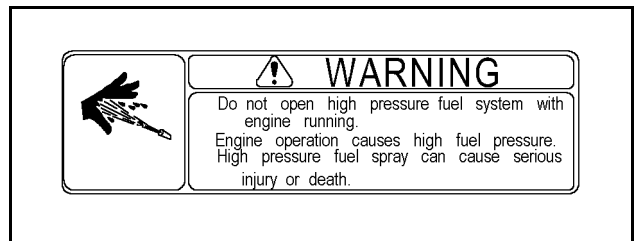
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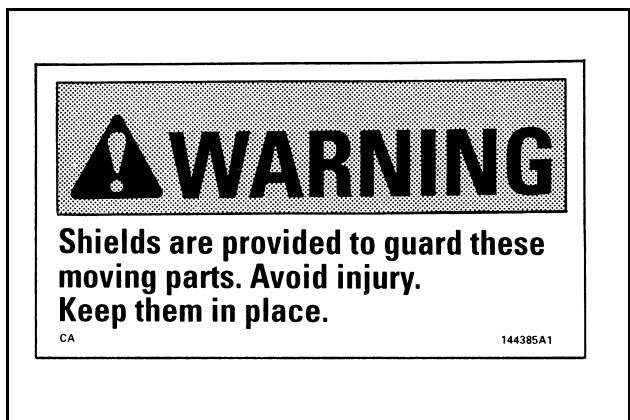
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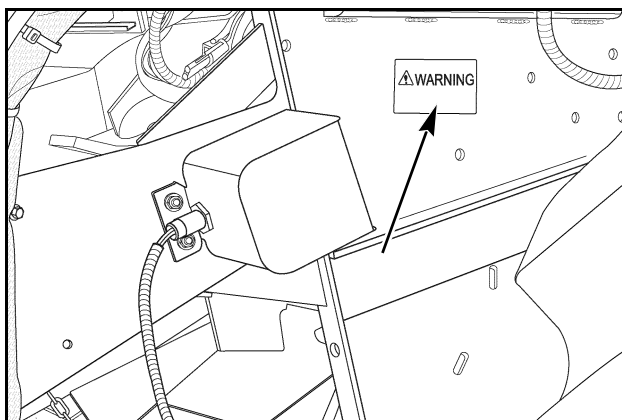
87347223

**WARNING:** High fuel pressure. DO NOT open pressure fuel system with engine running.

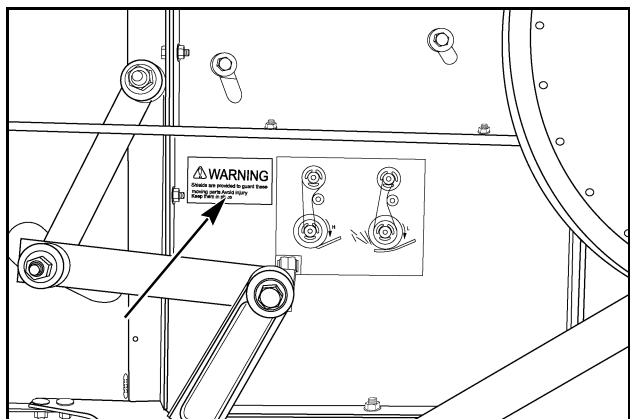
3 - SAFETY/DECALS



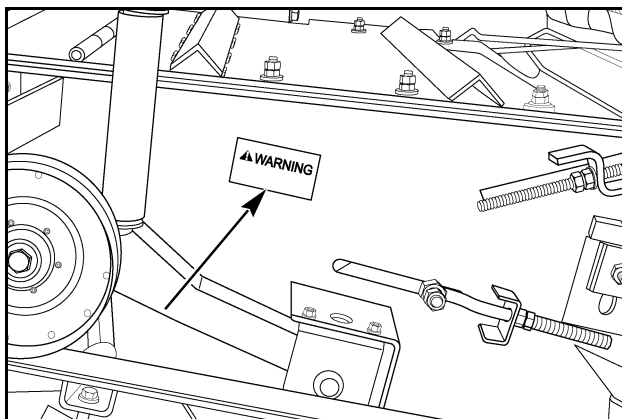
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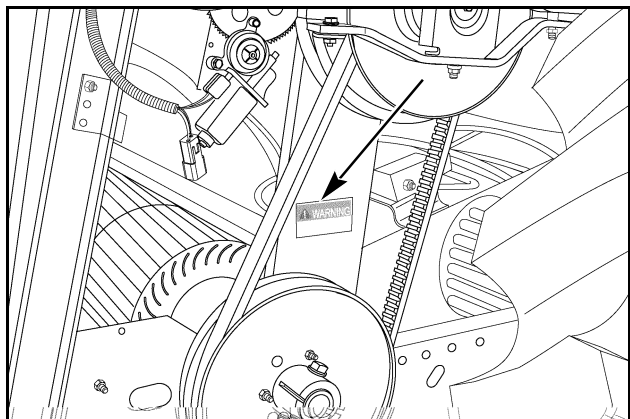
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A24339

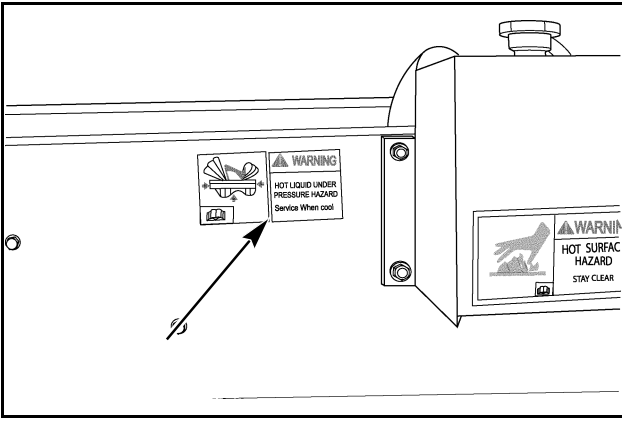


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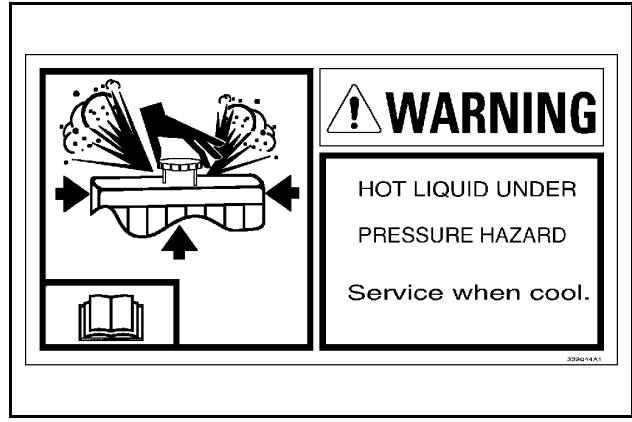


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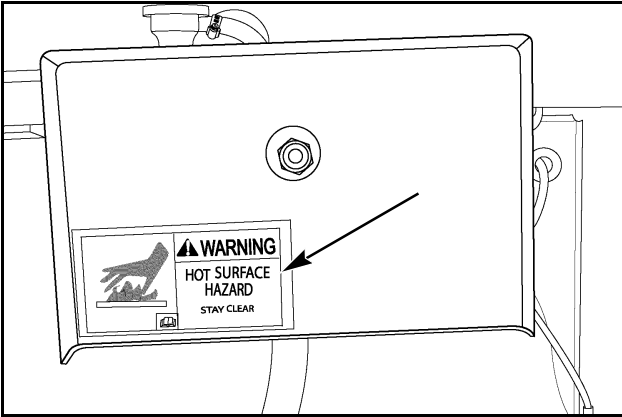
### 3 - SAFETY/DECALS



RD03J101



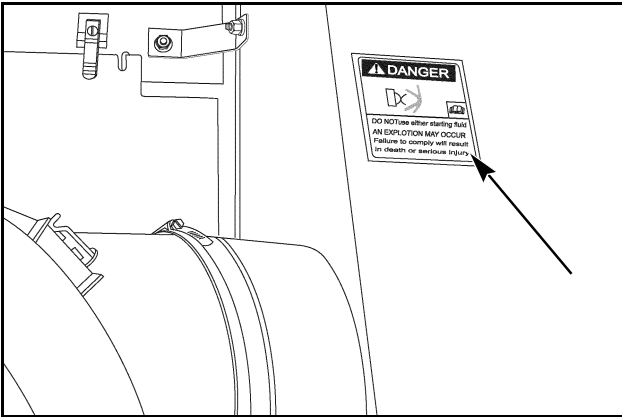
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RD03J102



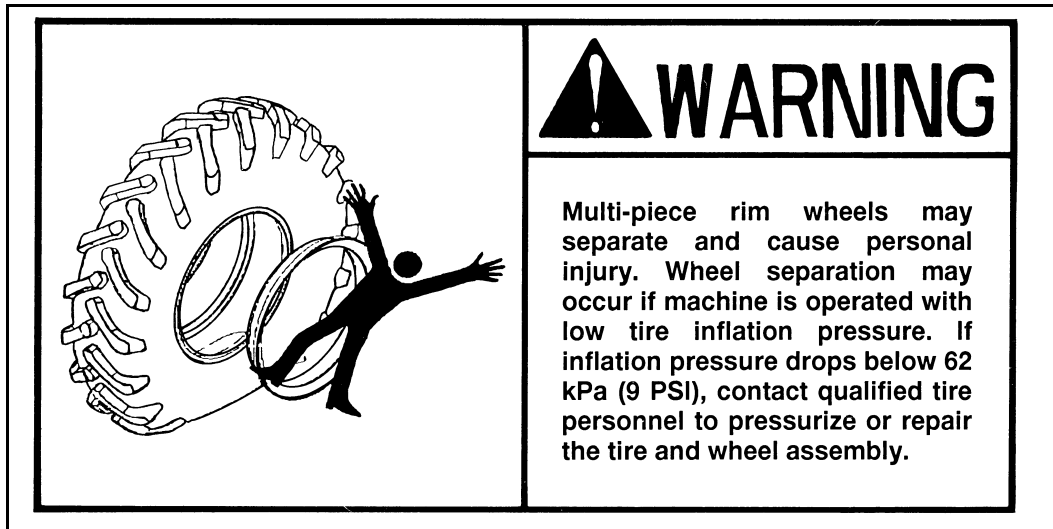
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RD05D112



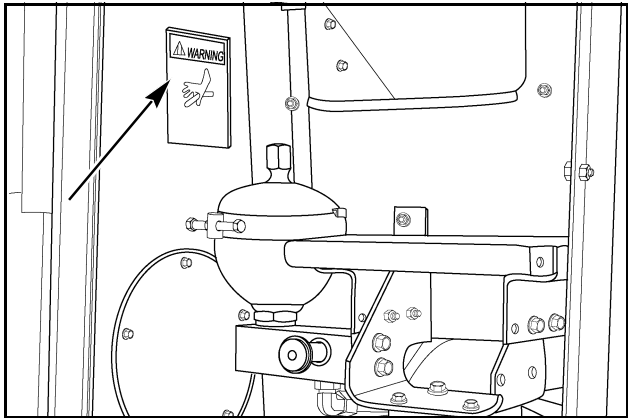
629086



**MULTI-PIECE RIM DECAL**

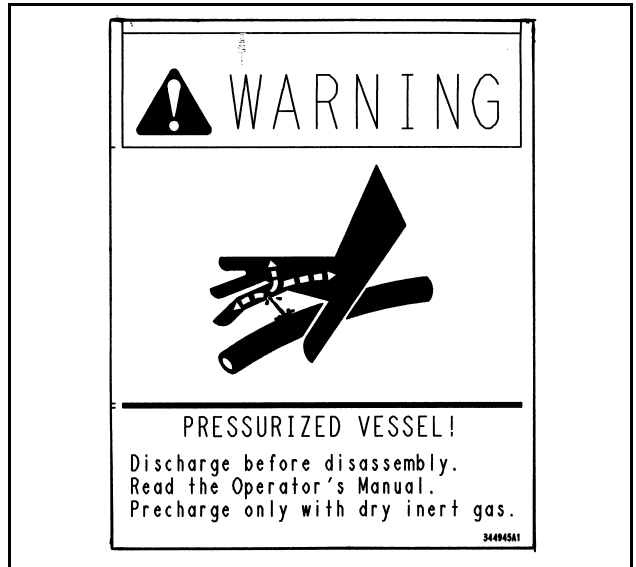
RB97H056

Safety decal for multi-piece rim wheels



RD00E068

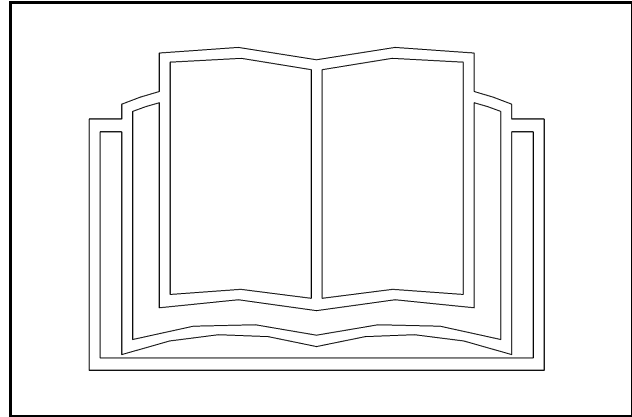
**ACCUMULATOR DECAL**



344945A

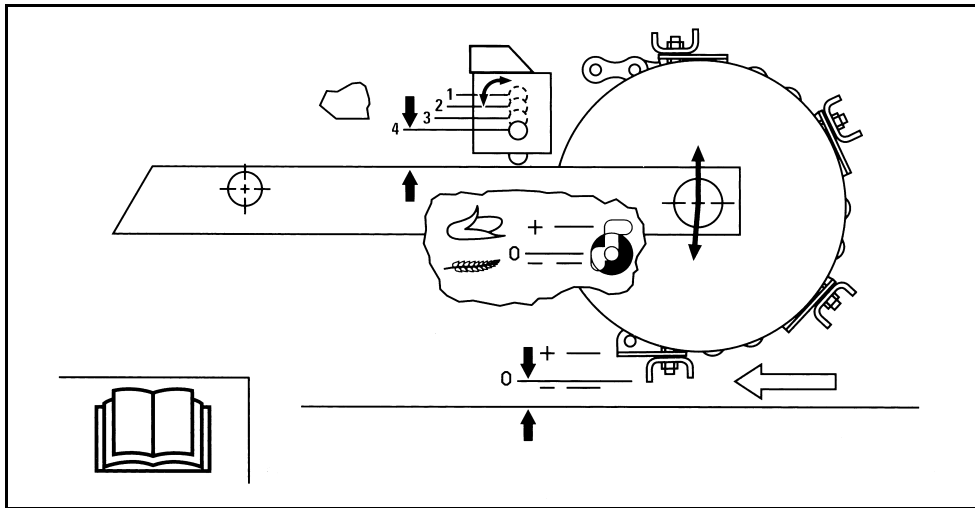
## INFORMATIONAL DECALS

Decal which display the “Read Operator’s Manual” symbol are intended to direct the operator to the Operator’s Manual for further information regarding maintenance, adjustments and/or procedures for particular areas of the Combine. When a decal displays this symbol refer to the appropriate page of the Operator’s Manual. Refer to the Information Decals section in this manual, located in front of the Specifications Section.



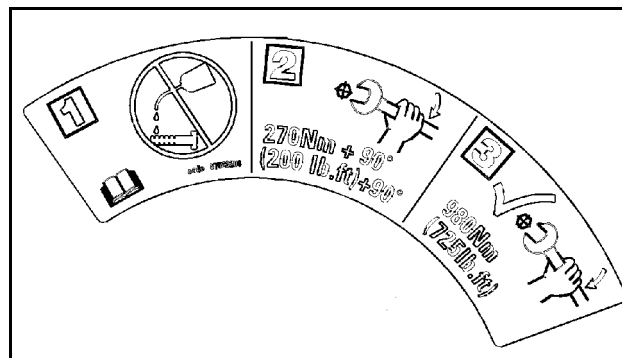
782L95

“READ OPERATOR’S MANUAL”



175783A1

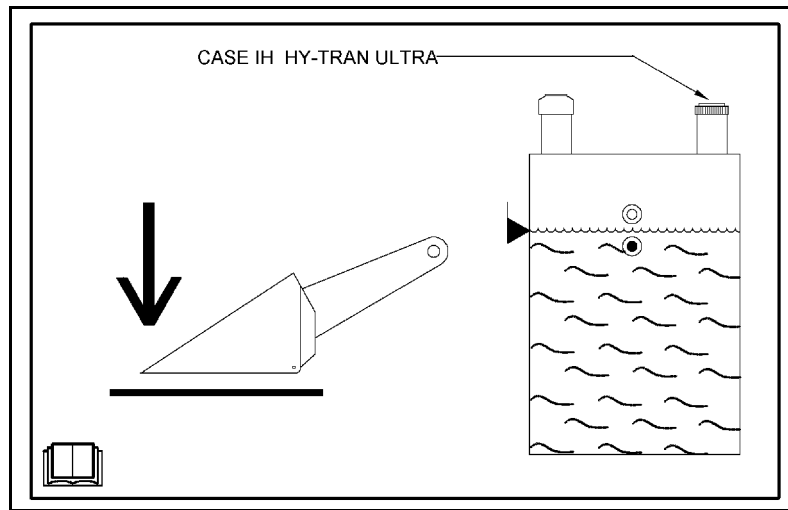
FEEDER DRUM ADJUSTMENT - WITH STONE RETARDER



87563204

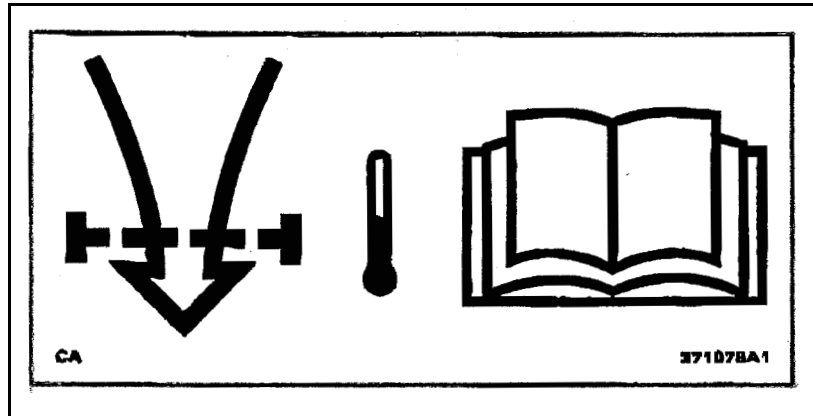
BOLT TORQUE

3 - SAFETY/DECALS



R100H088

HYDRAULIC FLUID LEVEL



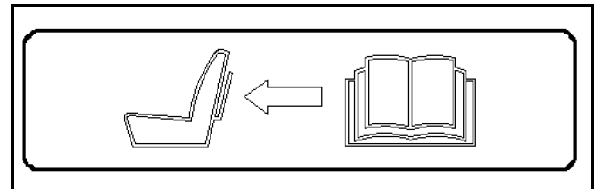
371078A

DO NOT BLOCK CAB RECIRCULATION AIR FILTER



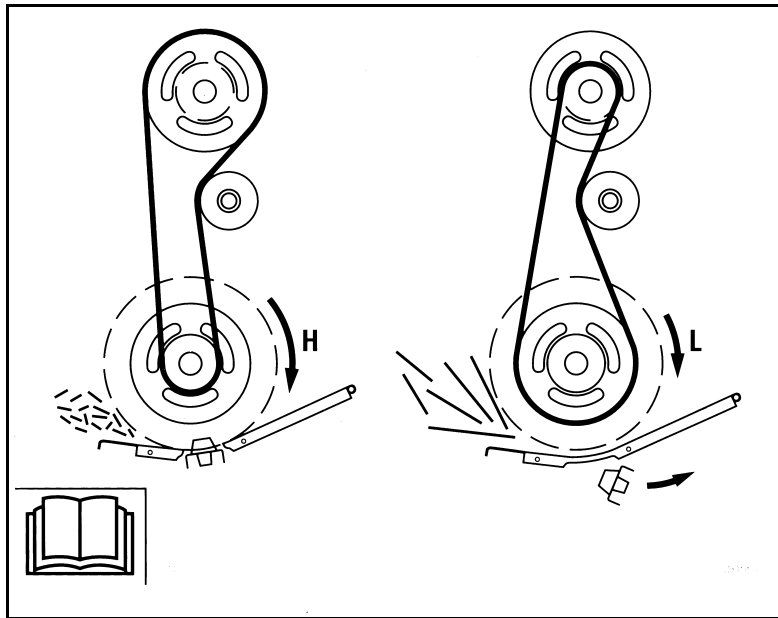
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NO STEP



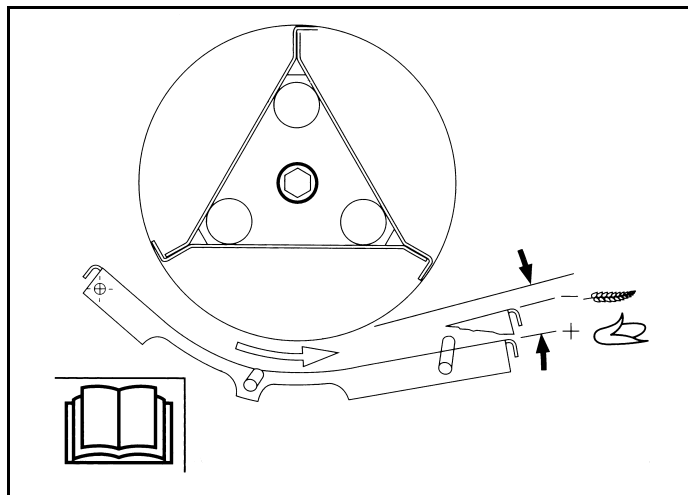
429497A

OPERATOR'S MANUAL LOCATION



175788A1

**STRAW CHOPPER ADJUSTMENT - WITHOUT BEATER**



175788A1

**BEATER BOTTOM ADJUSTMENT - WITHOUT STRAW CHOPPER**

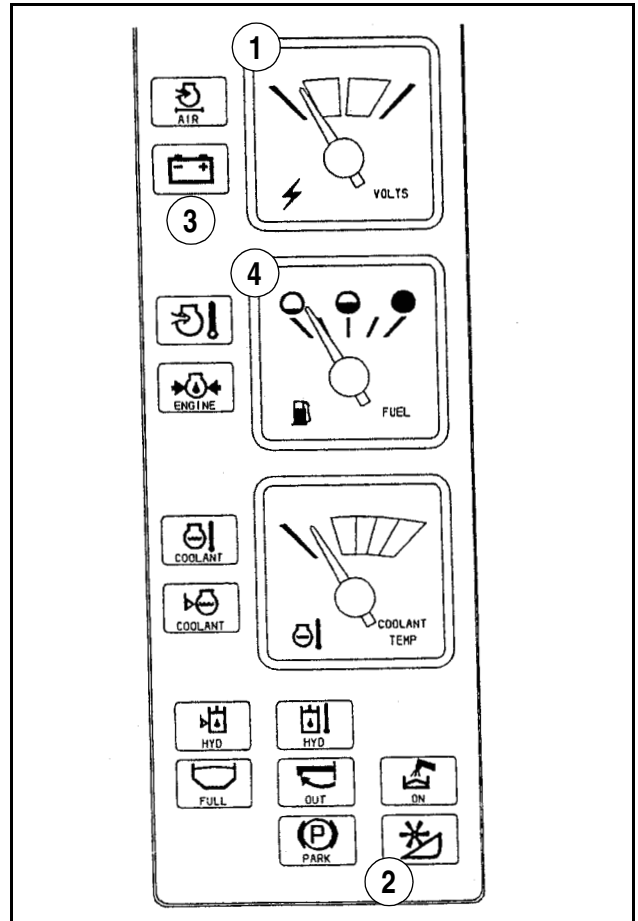


**INSTRUMENT PANEL**

1. **VOLTMETER** - A voltmeter is used as a charging system indicator to check the performance of the alternator and voltage regulator. Battery voltage is indicated by turning the key switch to the ON position with the engine stopped and observing the voltmeter reading. Check the alternator and voltage by allowing the engine to operate at low idle and observing the indicated voltage on the voltmeter. Voltage should be to the right, in the green zone, in all cases. If not, stop the engine and check for the cause.
  
2. **HEADER CONTROLLER INDICATOR** - The indicator will illuminate when an error is detected in the header lift or reel drive systems. The error code will be displayed on the tachometer display. A "S1" error code will initially appear when starting the machine if a header potentiometer is not present.
  
3. **CHARGING SYSTEM WARNING INDICATOR** - If this indicator illuminates during operation, stop the engine and check for the causes.
  
4. **FUEL GAUGE** - When the key switch is in the ON position the fuel gauge indicates the level of fuel in the fuel tank

**LOW FUEL WARNING** - When the fuel tank level averages less than a fuel level previously calibrated (see Instrument Calibration in this manual) for 5 minutes, the audible alarm will pulse ON and OFF for 4 seconds.

The lower tachometer display will also alternately flash "LO" and "FUEL" for 8 seconds. This will be repeated every 15 minutes as long as the low fuel condition exists.



RH97H011

**5. ENGINE OIL PRESSURE INDICATOR** - There are two levels of warning if the engine oil pressure should drop significantly below its normal pressure.

First level: Will illuminate indicator on tower and sound alarm on new display for 5 seconds and a continuous audible alarm will be sounded on the instrument tower.

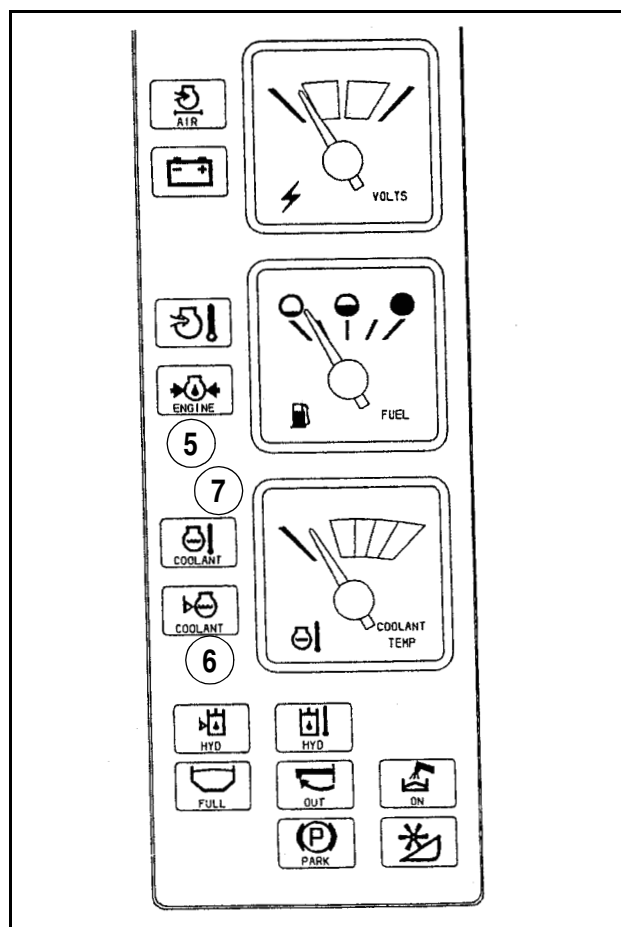
Second level: Will illuminate indicator on tower and a continuous audible alarm will be sounded on the new display and the stop engine indicator (17) will illuminate and the continuous audible alarm will sound on the instrument tower.

Turn off the engine and check the oil level in the crankcase. Add oil if necessary to bring it to the proper level. Turn OFF engine, remove key. Check coolant level, air filter and air screen. Start the engine. If the indicator still illuminates and the audible alarm sounds, DO NOT operate the engine. See your dealer.

**6. COOLANT LEVEL INDICATOR** - The indicator will illuminate and a continuous audible alarm will be sounded when the coolant level in the radiator is low. Stop the engine and check the coolant level in the radiator. Pressing the "ALARM OFF" touchswitch will cancel the audible alarm.

**7. COOLANT TEMPERATURE INDICATOR** - First level: Indicator will illuminate and a continuous audible alarms will sound when the coolant temperature is 220° F (104° C).

Second level: Indicator will illuminate and a continuous audible alarms will sound and the engine stop indicator will illuminate when the coolant temperature reaches 235° F (113° C).



RH97H011

8. **COOLANT TEMPERATURE GAUGE** - This gauge shows the temperature of the coolant circulating through the engine.

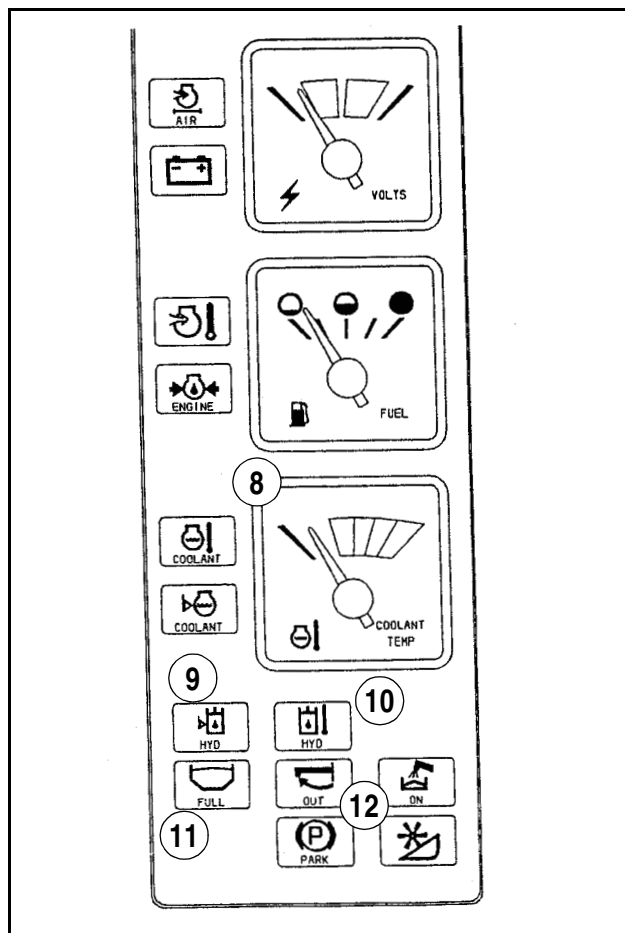
Under normal operation the pointer should be in the green band. Never operate the engine when the pointer is in the red band and/or the COOLANT TEMPERATURE INDICATOR illuminates and the audible alarm sounds. If the pointer fails to reach the green band during normal operation, check the thermostat.

9. **HYDRAULIC FLUID LEVEL INDICATOR** - The indicator will illuminate and a continuous audible alarm will sound when the level of the hydraulic fluid in the reservoir becomes low. Stop the engine and check the fluid level in the reservoir. Pressing the "ALARM OFF" touch switch will cancel the audible alarm.

10. **HYDRAULIC FLUID TEMPERATURE INDICATOR** - The indicator will illuminate and a continuous audible alarm will sound when the temperature of the hydraulic fluid becomes too high. Stop the engine and check for the cause.

11. **GRAIN TANK FULL INDICATOR** - This indicator will illuminate when separator is ON. This indicator will illuminate and a beep will sound for 4 seconds at 30 second intervals as long as the grain tank is full and the feeder is engaged. If Combine is equipped with rotating beacons, the beacons will be activated.

12. **UNLOADER OUT INDICATOR** - This indicator will illuminate when the unloader tube is swung out. It will remain illuminated until the unloader tube is returned to the saddle.



RH97H011

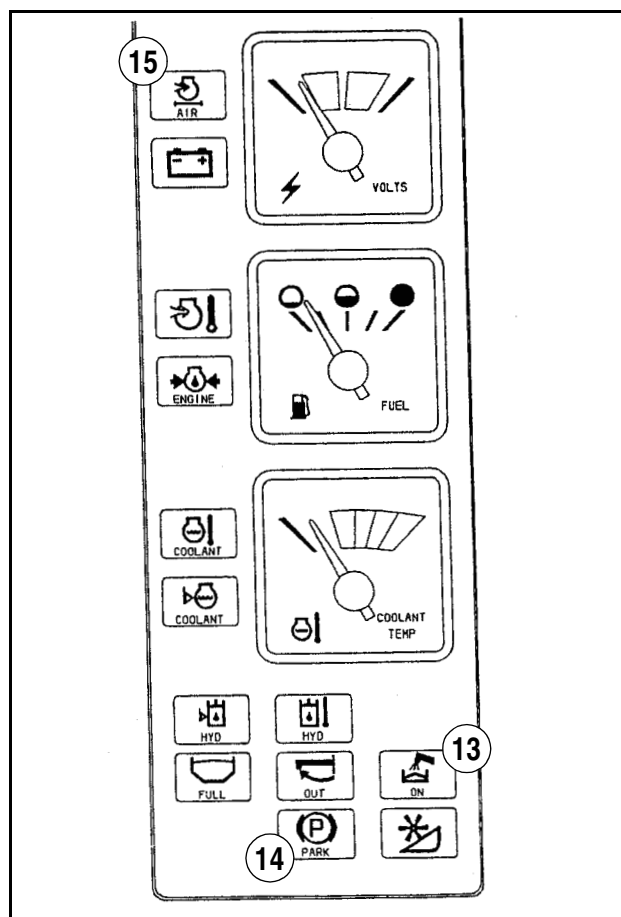
13. **UNLOADER ON INDICATOR** - This indicator will illuminate when the UNLOADER SWITCH is pressed and released to unload the grain tank.

If the unloader tube is returned to the saddle while the grain tank is being unloaded, the auger will shut off but the UNLOADER ON INDICATOR will remain illuminated until the UNLOADER ON/OFF switch is cycled. The auger will not engage while the tube is in the saddle.

If the unloader tube is swung outward from the saddle while the UNLOADER ON indicator is illuminated, the UNLOADER ON/OFF switch must be cycled once to shut off the UNLOADER ON indicator and once again to engage the auger

If the engine is shut off while the grain tank is being unloaded, the UNLOADER ON INDICATOR will be illuminated but the auger will not function when the engine is restarted. The UNLOADER ON/OFF switch must then be cycled once to shut off the UNLOADER ON indicator and once again to engage the auger.

Whenever the UNLOADER ON indicator is illuminated the lower tachometer display will alternately show "unld" and GROUND SPEED or ROTOR SPEED.



RH97H011

14. **PARKING BRAKE INDICATOR** - This indicator will illuminate and an audible alarm will sound for 2 seconds when the engine is started and the Parking Brake is engaged.

If the Parking Brake is engaged while the Combine is moving a continuous audible alarm will be sounded.

15. **AIR FILTER RESTRICTION INDICATOR** - will illuminate and a continuous alarm will sound when the engine air filter needs cleaning.

16. **ENGINE DIAGNOSTIC INDICATOR** -The indicator will illuminate when the electronic controller detects a non-critical fault condition.

17. **ENGINE STOP INDICATOR** - The indicator will illuminate when the electronic controller detects a critical fault condition telling the operator to stop. In addition an audible alarm will sound.

18. **INTAKE AIR MANIFOLD TEMPERATURE INDICATOR** - At high temperature there are two levels of warning.

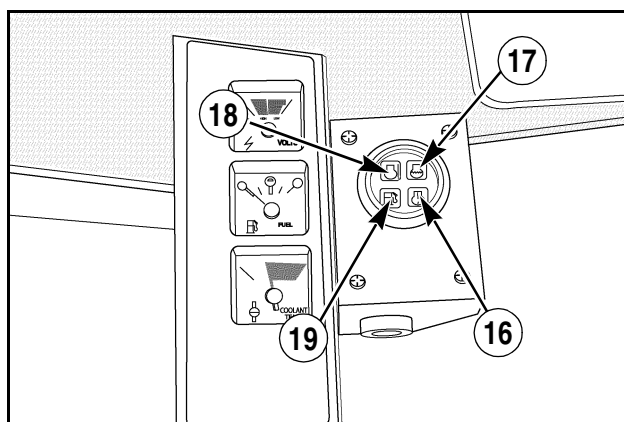
A. First level - 82°C (180° F) will illuminate indicator (18) and sound alarm for 5 seconds.

B. Second level - 88° C (190°) will illuminate indicator (18) and (17) and a continuous alarm will sound.

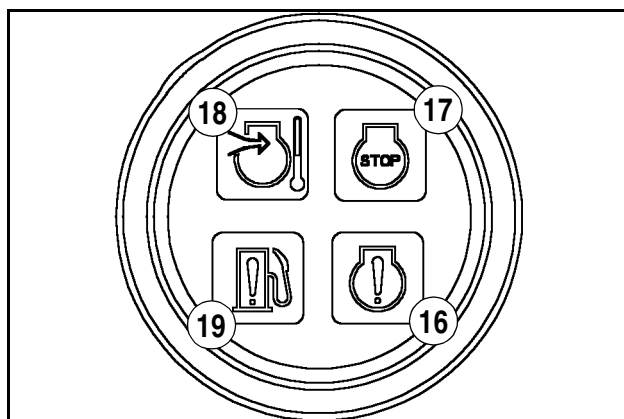
The intake manifold air temperature must decrease and maintain a level below 88° C (190° F) for 10 seconds to turn off the Stop Engine lamp, Alarm Enable. The intake manifold air temperature must decrease and maintain a level below 82° C (180° F) for 10 seconds to turn off the high air intake manifold indicator.

Turn OFF the engine and remove key. Check air filter and air screen. Start the engine. If the indicator still illuminates and the audible alarm sounds, DO NOT operate the engine. See your dealer.

19. **WATER IN PRIMARY FUEL FILTER INDICATOR** - Will illuminate when water needs to be drained from the primary fuel filter.



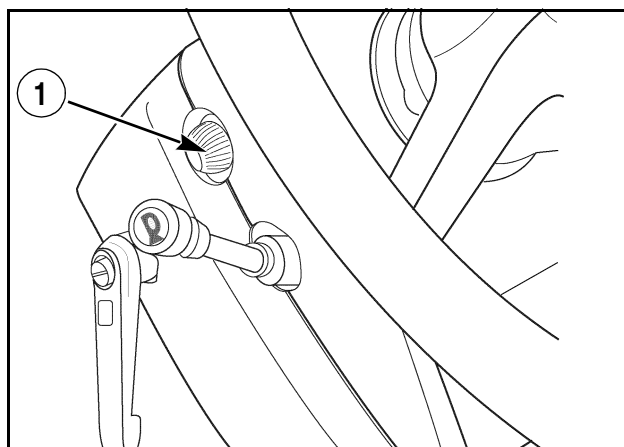
RH02H009



RH05F041

## ENGINE GRID HEATER

**Engine Grid Header** - Lamp (1) will illuminate at temperature of 19° C (66° F) or less. When intake air is heated and engine is ready to crank, lamp will go out. Lamp may flicker in colder conditions until engine warms up.



## DIGITAL TACHOMETER

1. **SHAFT SPEED MONITOR DISPLAY** - The Shaft Speed Monitor will monitor these speeds:

- Tailings Elevator
- Grain Elevator
- Cleaning Fan
- Straw Spreader
- Beater/Chopper
- Shoe Shaker
- Rotor
- Feeder

See Operating Instructions in this manual.

2. **TACHOMETER DISPLAY** - The tachometer functions will be displayed on two digital displays.

The upper display will show ENGINE (E) or FAN (F) speed.

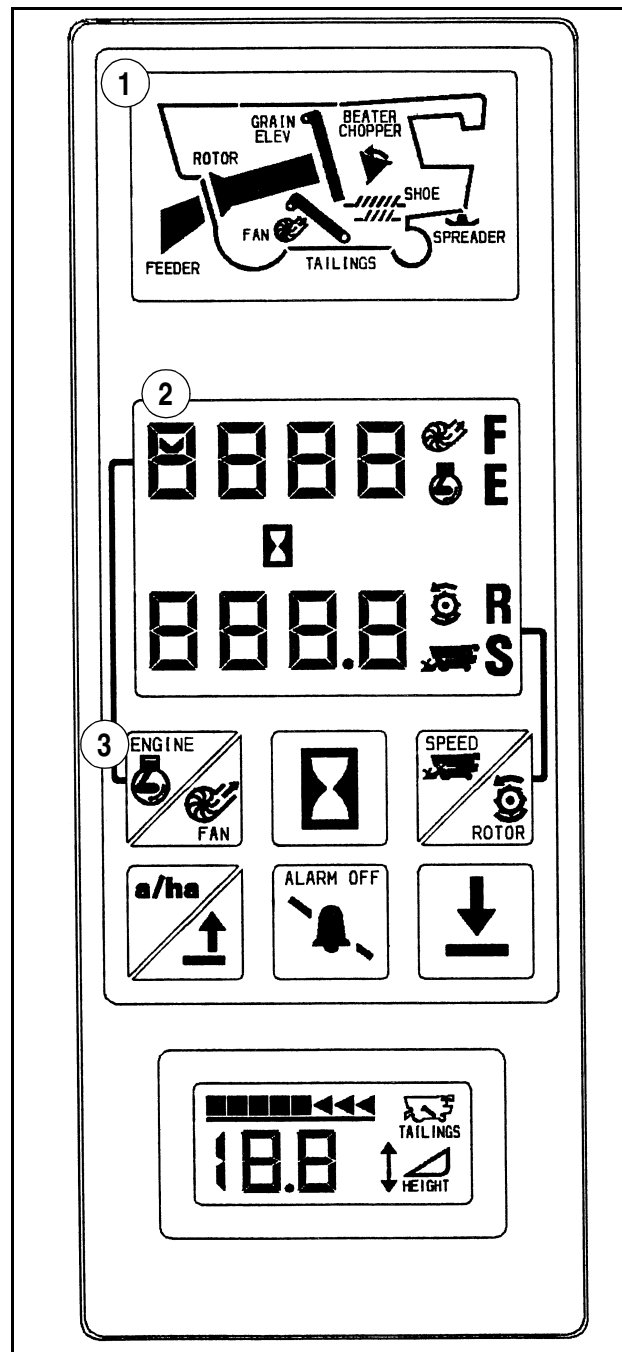
The lower display will show GROUND (S) or ROTOR (R) speed.

Depressing either the FAN or ROTOR SPEED CHANGE switches on the Right console will display the FAN speed or ROTOR speed. When the SPEED CHANGE switch is released, the display will continue to show the Fan Speed or Rotor Speed for 4 seconds, then return to the previously displayed information.

The tachometer display will also be used to flash various messages when the instrumentation or header controller detects errors (see Instrumentation and Calibration).

3. **ENGINE/FAN SPEED SWITCH** - To display the ENGINE SPEED (rpm) press the upper left switch.

To display the FAN SPEED press the upper left switch again.



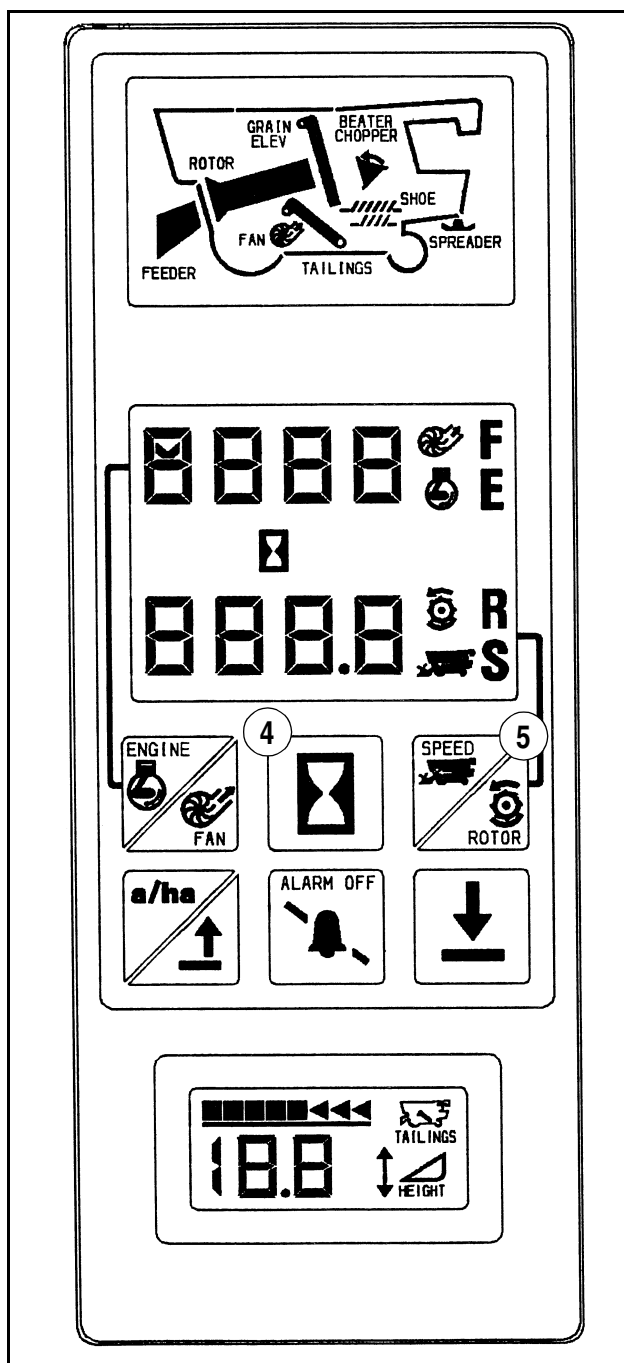
RH97H012

4. **HOURMETER SWITCH** - To display the ENGINE HOURS press the HOURMETER switch. The engine hours are displayed in the upper display and the SEPARATOR hours are shown in the lower display.

The HOURMETER switch will function even if the key switch is in the OFF position. Upon release of the HOURMETER switch, the display will continue to show the hours for 4 seconds and then return to the previously indicated information. If the HOURMETER switch is pressed again during this 4 seconds, the display will flash tenths of an hour.

5. **GROUND/ROTOR SPEED SWITCH** - To display the GROUND SPEED of the Combine press the upper right switch. The ground speed of the Combine will be shown in the lower display.

To display the ROTOR SPEED press the upper right switch again. The rotor speed will be shown in the lower display.



RH97H012

6. **AREA COUNTER SWITCH** - If the AREA COUNTER switch is pressed the area is shown in the upper display with an "A" for acres or an "hA" for hectares in the lower display. The Area Counter will accumulate acres or hectares only when the header width is more than zero (0); the feeder is running; the Combine ground speed is at least 0.8 mph (1.2 km/h) and the header is below a user selected position.

Upon release of the AREA COUNTER switch the display will continue to show the area for 4 seconds, then return to the previously indicated information.

If the AREA COUNTER switch is pressed again for at least 0.5 seconds during this 4 seconds the display will shown tenths of an acre or hectare.

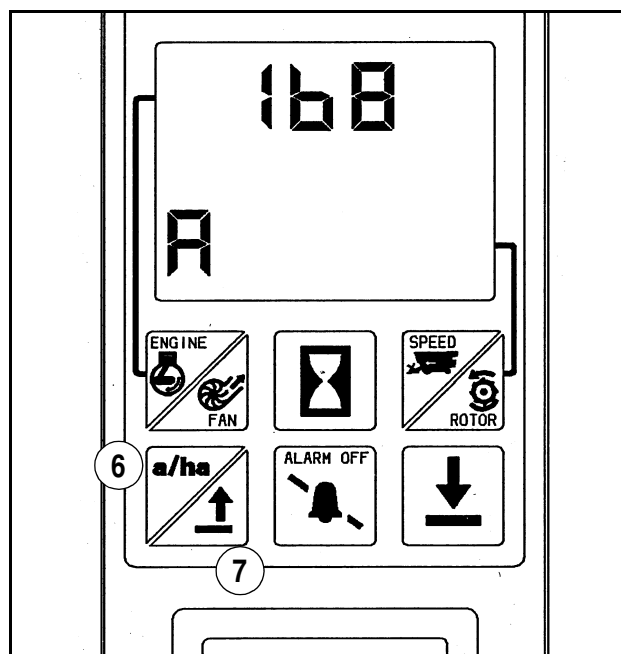
7. **INCREASE VALUE SWITCH** - This button is used during Combine instrumentation calibration to increase the numerical value or to cycle the calibration options (See Combine Instrumentation/Calibration/Diagnostics).

8. **ALARM OFF SWITCH** - This switch will deactivate the shaft speed monitor audible alarm.

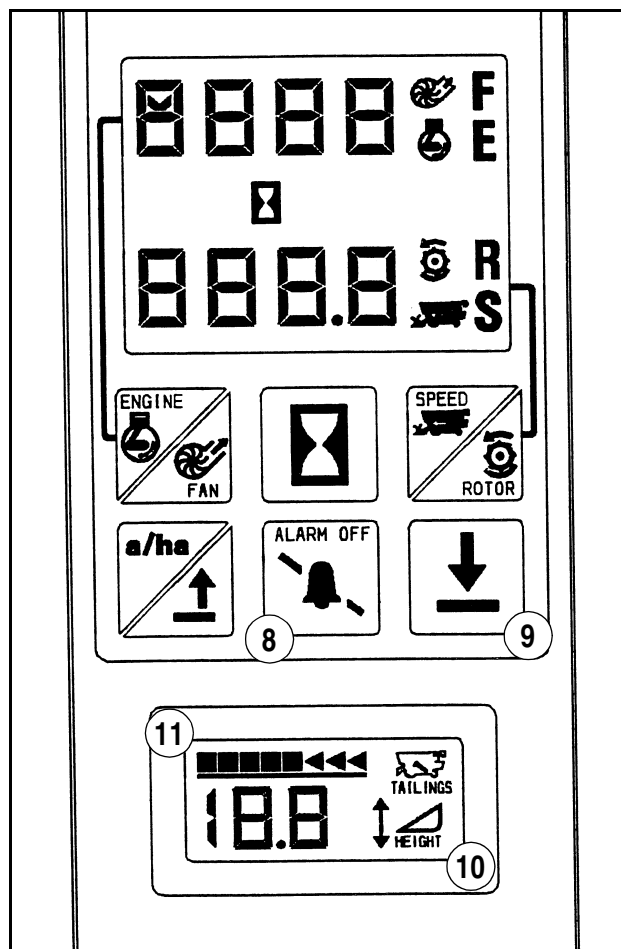
9. **DECREASE VALUE SWITCH** - This switch is used during Combine instrumentation calibration to decrease the numerical value or to cycle the calibration options (See Instrumentation/Calibration/Diagnostics).

10. **HEADER HEIGHT DISPLAY** - The Header Height Display consists of a height symbol and 2-1/2 digits to show the height in inches or centimeters for manual, return to cut and auto height modes or pressure in percent for float mode (See Header Controls in this manual).

11. **TAILINGS MONITOR** - Monitor is an eight segment bar graph that illuminates from Left to Right as volume of material in the tailings auger increases.



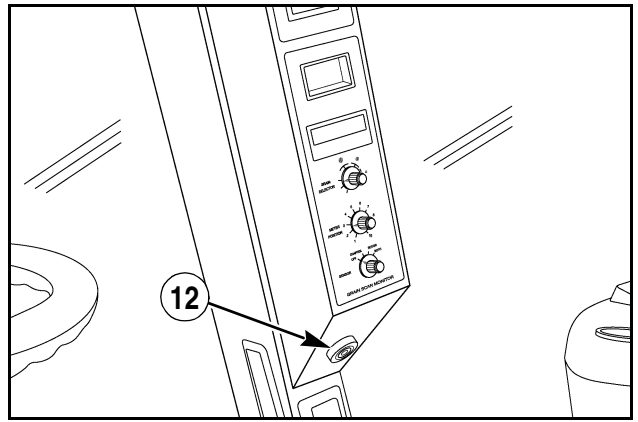
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RH97F037



12. **AUDIBLE ALARM ADJUSTMENT KNOB** - This knob will adjust the sound level of the audible alarm. To adjust the sound level turn the knob clockwise.



A24310

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## Grain Scan Monitor

The grain scan monitor consists of a control console and four grain sensors. Two grain sensors are mounted toward the rear of the rotor cage and two grain sensors are mounted on the rear corners of the chaffer sieve. The sensors indicate the amount of grain loss during the harvesting operation. This information is indicated on the console meter. The operator uses the grain loss information to operate the Combine at the most efficient speed with an acceptable amount of grain loss.

1. **SENSOR SWITCH** - The four position switch operates as follows:

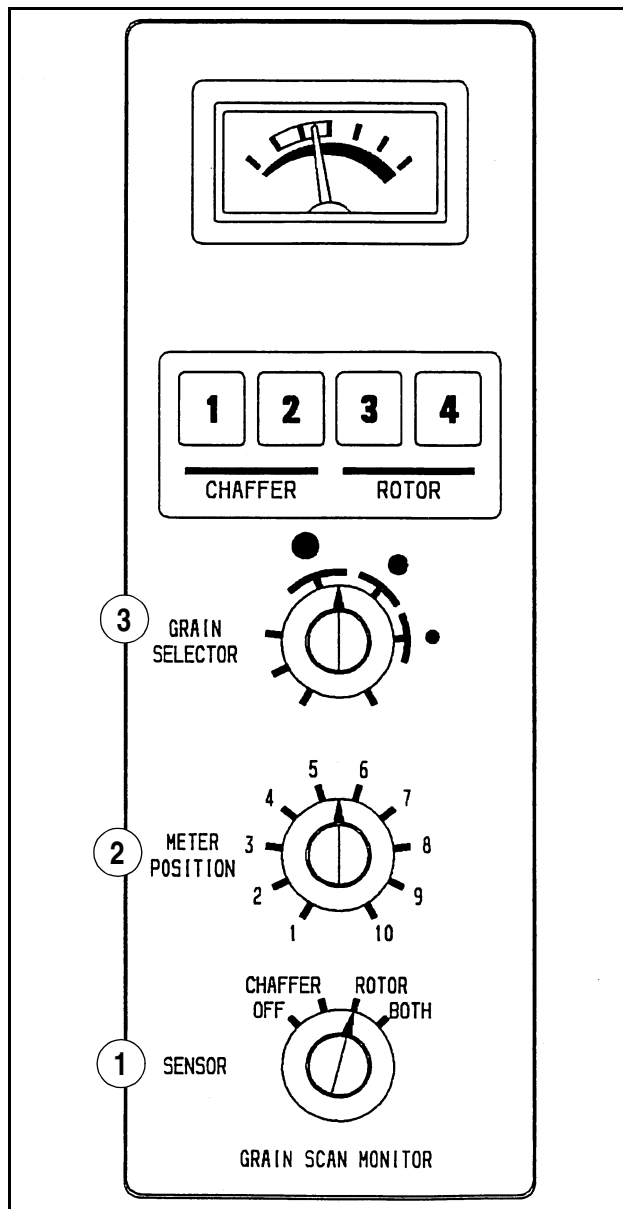
**OFF** - All power to the grain scan monitor is off.

**CHAFFER** - Only the chaffer sensors are connected to the monitor. Grain loss information from these two sensors is indicated on the meter.

**ROTOR** - Only the rotor cage sensors are connected to the monitor. Grain loss information from these two sensors is indicated on the meter.

**BOTH** - All four sensors are connected to the monitor. This is the normal operating position for the sensor switch.

2. **METER POSITION CONTROL** - Turn the control clockwise or counterclockwise to set the position of the meter needed on the meter scale for a given grain loss rate.
3. **GRAIN SCAN SELECTOR CONTROL** - Turn the control clockwise or counterclockwise to adjust the sensor sensitivity for the grain size. Small soft grains, such as clover and alfalfa, require a more sensitive setting (small dot) than the large hard grains such as wheat (medium dot) or corn (large dot).



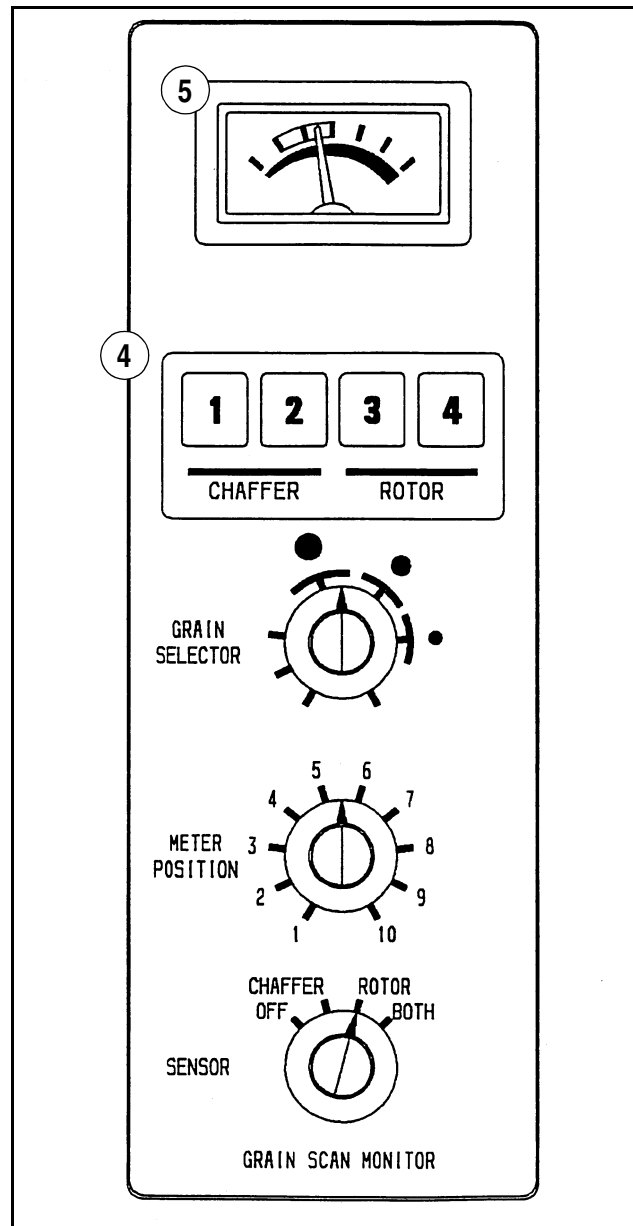
495L94

4. **SENSOR INDICATOR PANELS** - The sensor indicator panels have marks 1 through 4. The panels illuminate ON and OFF as material hits the sensors (this indicates the sensors are working). Panels 1 and 2 are for the chaffer sensors. Panels 3 and 4 are for the rotor cage sensors.

**NOTE:** The illumination of the panels must only be used as an indication that the sensors are working and not for the actual amount of loss.

5. **METER** - The meter pointer indicates an increase or decrease in grain loss from the acceptable level for which the monitor has been adjusted. The change in the meter indication is used by the operator as a guide on how to change the harvesting operation, i.e. to speed up, slow down or make adjustments.

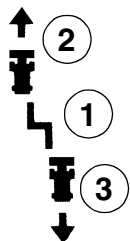
**NOTE:** The meter registers only kernels seen in a time mode at less than 0.5 mph (0.8047 km/h).



495L94

## OPERATING CONTROLS

### Propulsion Control Lever

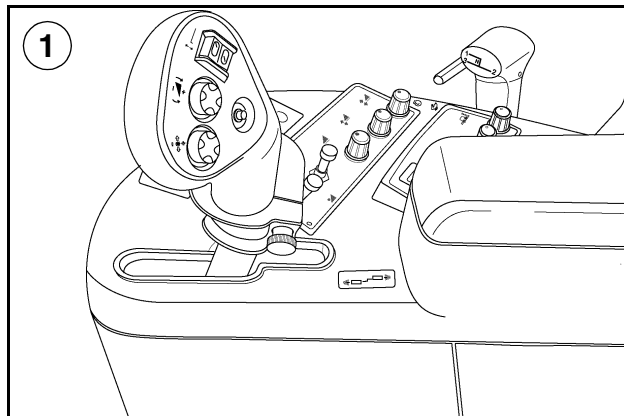


The propulsion control lever is used to control the direction of travel and the ground speed of the Combine.

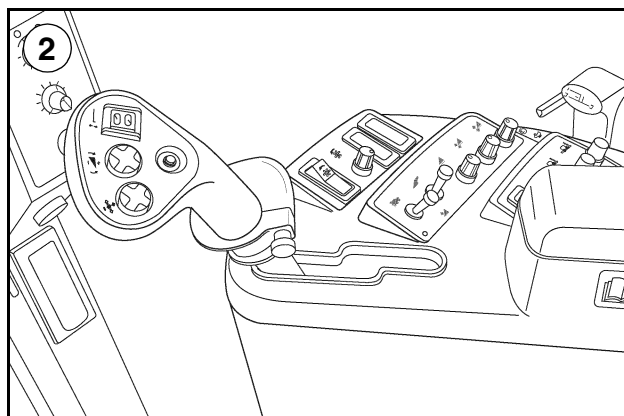
**NEUTRAL POSITION** - The neutral position is located in the center of the propulsion control lever slot. Moving the propulsion control lever toward the neutral position decreases the ground travel speed. Moving the propulsion control lever into the neutral position will stop all ground travel. The propulsion control lever must also be in the NEUTRAL position to start the engine.

**FORWARD TRAVEL** - Move the propulsion control lever forward from the NEUTRAL position to start forward ground travel. Moving the propulsion control lever farther forward in the slot increases the forward travel speed.

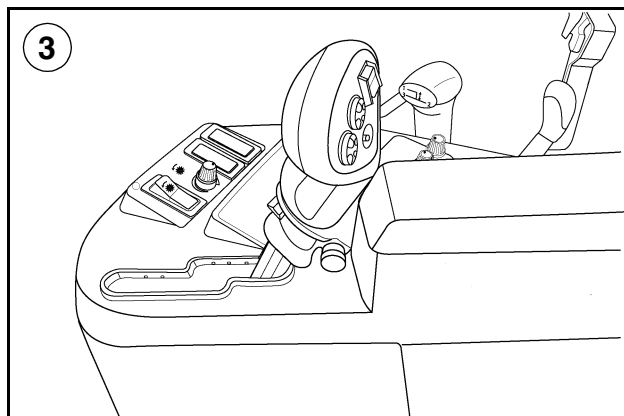
**REVERSE TRAVEL** - Move the propulsion control lever toward the right and then rearward from the neutral position to start reverse ground travel. Moving the propulsion lever farther rearward in the slot increases the reverse travel speed.



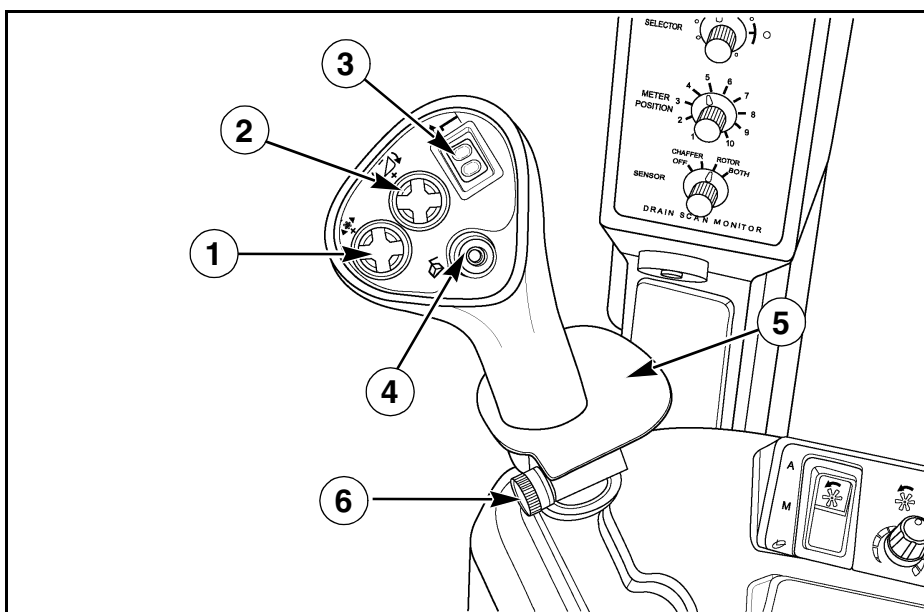
A24307







RR05E001



RR05E002



A24294

1.  **REEL POSITION SWITCH** - This is a four position switch which operates as follows:  
**Raise** - Push the bottom of the switch to raise the reel.  
**Lower** - Push the top of the switch to lower the reel.  
**Forward** - Push the switch to the Left to move the reel forward (if equipped with the reel fore/aft option).  
**Aft** - Push the switch to the Right to move the reel to the rear (if equipped with the reel fore/aft option).
  
2.  **HEADER CONTROL SWITCH** - This is a four position switch which operates as follows:  
**Raise** - Push the bottom of the switch to raise the header.  
**Lower** - Push the top of the switch to lower the header.  
**Tilt Left** - Push the switch to the left to tilt the header counterclockwise (Field Tracker® option).  
**Tilt Right** - Push the switch to the right to tilt the header clockwise (Field Tracker® option).
  
3.  **GRAIN TANK UNLOADER TUBE SWITCH** - Push the top of the switch to swing the unloader tube out. Push the bottom of the switch to swing the unloader tube in. The middle position of the switch is the Neutral position.
  
4.  **GRAIN TANK UNLOADER DRIVE SWITCH** - To start the unloader, press the switch and then release it. To stop the unloader press the switch.

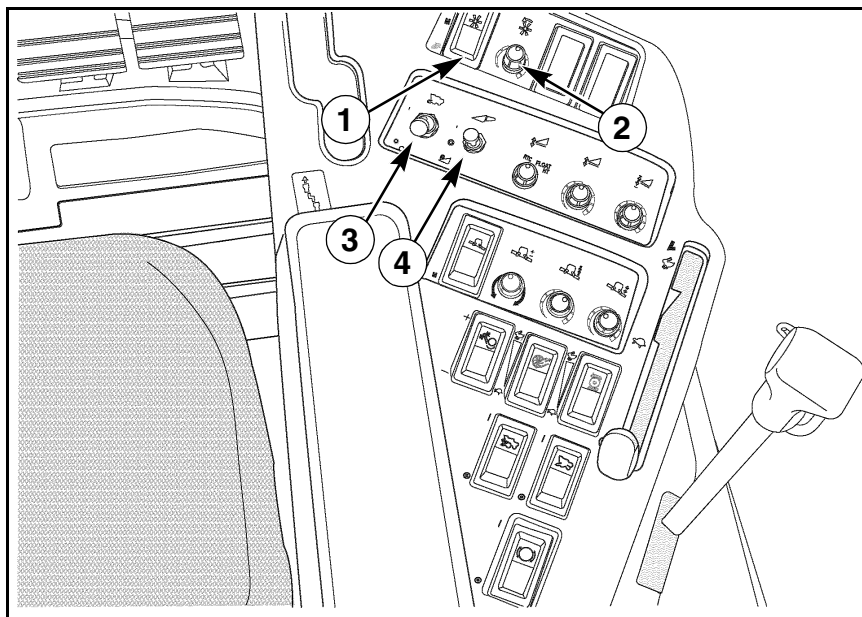
**NOTE:** Refer to Rear Ladder Sensor in this section of the manual for additional information.

#### 5. OPERATOR HAND REST


6. **HAND REST ADJUSTING KNOB** - The operator's hand rest can be adjusted using the adjusting knob. To loosen the adjusting knob turn it counterclockwise. Adjust the hand rest and retighten the adjusting knob.

**NOTE:** Field Tracker® is a registered trade mark of HCC, Inc.

## Right Console



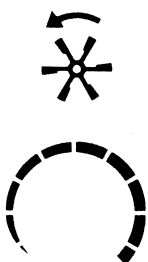
RR05D014

1. 


**REEL SPEED SELECTOR SWITCH** - This is a three position rocker switch used to select automatic or manual reel speed or corn head operation.

**Automatic Position** - Push the front of the switch to select automatic reel speed operation. The reel speed will automatically increase or decrease with the Combine ground speed. The ratio of reel speed to ground speed can be adjusted as needed.

**Manual Position** - To select manual reel speed operation, push the switch to the center position. The reel speed will not be affected by ground speed. The reel speed can be adjusted as needed.

**Corn Head Position** - Push the switch to the rear to select corn head operation. Reel speed functions are disabled in this position.
2. 

**REEL SPEED CONTROL** - When the Reel Speed Selector Switch is in the MANUAL position, it allows the operator to adjust the operating speed of the reel. The reel speed is adjustable from zero (0) RPM to full speed. Turn the control clockwise to increase reel speed or counterclockwise to decrease reel speed. The selected speed will remain constant.

When the Reel Speed Selector Switch is in the AUTOMATIC position, it allows the operator to set the ratio of reel speed to ground speed. Turn the control clockwise to increase the ratio or turn the control counterclockwise to decrease the ratio. The reel speed will automatically increase or decrease with the Combine ground speed.
3. 

**SEPARATOR CLUTCH SWITCH** - This is a two position switch. Lifting and pushing the switch forward to ON engages the separator drive. Pulling the switch rearward to OFF disengages the separator drive.

**NOTE:** Engine RPM must be between 1000 RPM to 2000 RPM for the separator to engage.

**NOTE:** The separator clutch switch must be in the OFF position and the propulsion control lever must be in the NEUTRAL position to start the engine.

4.



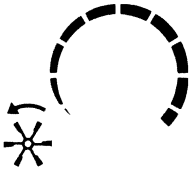
**FEEDER CLUTCH SWITCH** - To engage the feeder and header drive and automatic header controls, the operator must be seated. Lift and push the feeder clutch switch forward to the ON position to engage the feeder, header drives, automatic header controls and reel drive.

The feeder and header drives will not engage unless the SEPARATOR is also engaged.

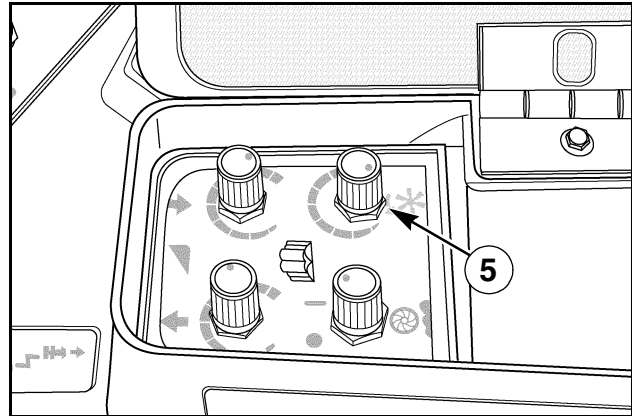
If the FEEDER CLUTCH SWITCH is left "ON" and the operator is seated, engaging the SEPARATOR will not engage the feeder and other functions as stated above. To engage the feeder, the feeder clutch switch must be cycled.

**NOTE:** Automatic header controls include RTC (Return to Cut), Float (if equipped), Auto Header Height (if equipped) and Field Tracker® Automatic Mode (if equipped).

**NOTE:** The operator's seat on the Combine is equipped with a switch that permits operation of the feeder and header drive only when the operator is seated. The feeder and header drive and the automatic header controls will disengage seven (7) seconds after the operator leaves the seat and will remain disengaged until reset. To reset, turn the FEEDER CLUTCH SWITCH off, then ON while the operator is seated.



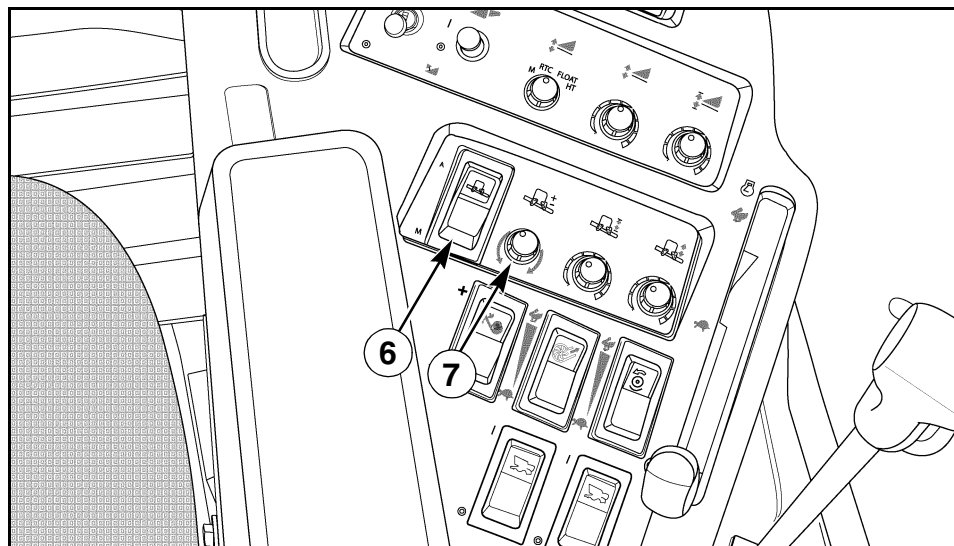
**5. MINIMUM REEL SPEED CONTROL** - This control is located under the right hand arm rest and is used to set the minimum reel speed when the REEL SPEED SELECTOR SWITCH is in AUTOMATIC. Fully counterclockwise is zero (0) reel speed.




RD97G033




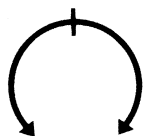
**Field Tracker® Controls (If Equipped)**




A24293

6. **A**  
**M**  **MANUAL/AUTOMATIC SWITCH** - Push the switch forward to operate the Field Tracker® in the Automatic Mode. Push the switch to the rear to operate the Field Tracker® in the Manual Mode.


7.  **BALANCE CONTROL** - Used to level the header when the Field Tracker® is in the automatic mode and the header is lowered. Turn the control clockwise to lower the right end of the header. Turn the control counterclockwise to lower the left end of the header.



8.  **SENSITIVITY CONTROL** - Used to adjust the rate at which the Field Tracker® will react to changes in terrain when the Field Tracker® is in the automatic mode and the header is lowered. Turn the control clockwise to increase sensitivity. Turn the control counterclockwise to decrease sensitivity.

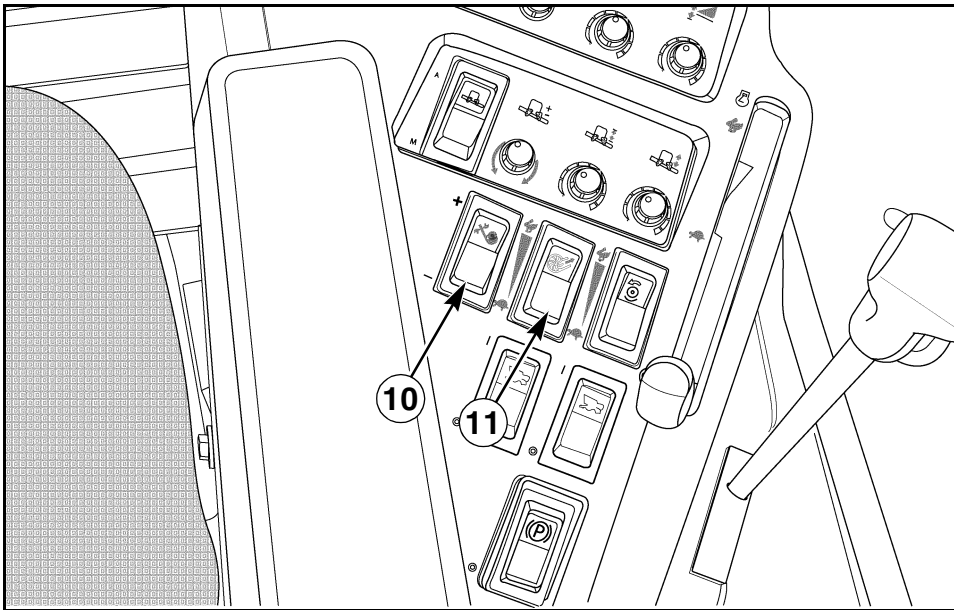



At maximum sensitivity the difference in height (relative to the ground) between each end of the header before the Field Tracker® will tilt, is small. At minimum sensitivity a larger difference in header height (from end to end) is required before tilting will occur.

9.  **RESPONSE CONTROL** - Used to adjust how quickly the Field Tracker® tilts the header when in the automatic mode and the header is lowered. Turn the control clockwise to increase response. Turn the control counterclockwise to decrease response.



**NOTE:** *Field Tracker® is a registered trademark of HCC, Inc.*



10.  **CONCAVE POSITION CONTROL SWITCH** - If depressed in either direction the concave position will be displayed in place of the Ground Speed or Rotor Speed indication on the Digital Tachometer. The concave position will be displayed momentarily after the switch is released. "Conc" and a relative number from 0.0 to 10.0 will be alternately displayed.

Depress front of the switch to increase concave clearance.

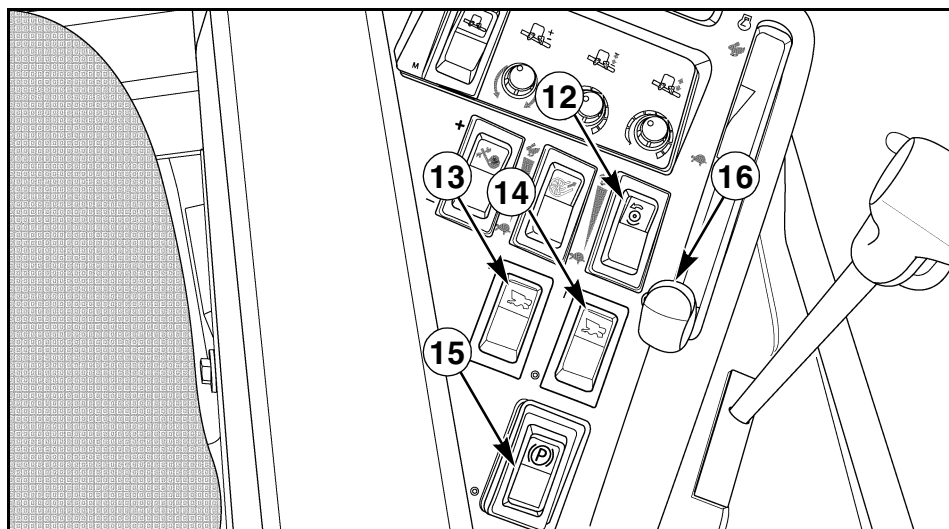
Depress rear of the switch to decrease concave clearance.

11.  **CLEANING FAN SPEED CONTROL SWITCH** - This is a rocker switch which operates as follows:

**Fast Position** - Depressing front half of the switch will increase the speed of the cleaning fan.

**Slow Position** - Depressing rear half of the switch will decrease the speed of the cleaning fan.

Depressing the switch in either direction will cause the fan speed and rotor speed to be displayed in place of the current tachometer display. Fan and rotor speeds will be displayed for 4 seconds after the switch is released, then the display will return to what was previously displayed.




A24293


12.  **ROTOR SPEED CONTROL SWITCH** - This is a rocker switch which operates as follows:

**Fast Position** - Depress front half of the switch to increase the rotor speed.


**Slow Position** - Depress rear half of the switch to decrease the rotor speed.

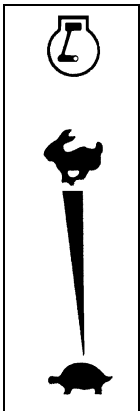
Depressing the switch in either direction will cause the fan speed and rotor speed to be displayed in place of the current display. Fan and rotor speeds will be displayed for 4 seconds after the switch is released, then the display will return to what was previously displayed.

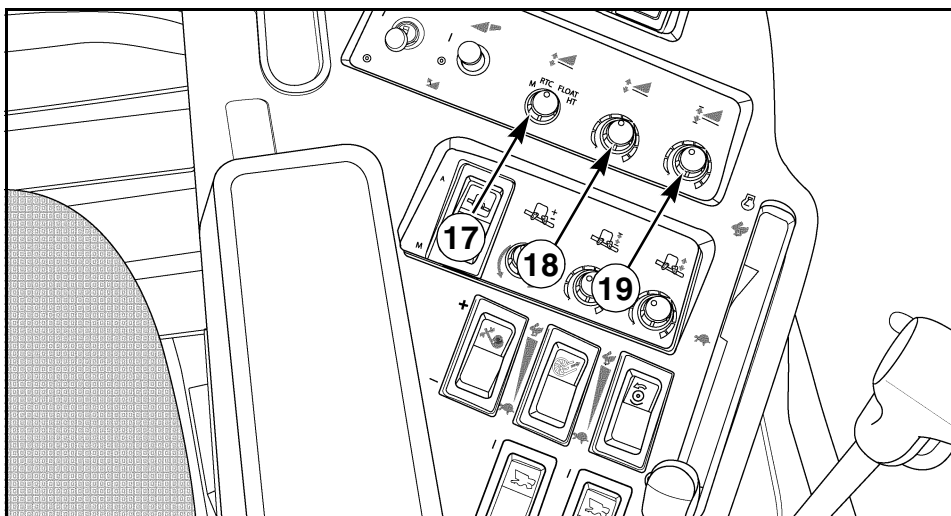
13.  **VARIABLE PROPULSION MOTOR SWITCH (If Equipped)** - Depress front half of the switch for high range and fast speeds. Depress rear half of the switch for low range and slow speeds.

14.  **POWER GUIDE AXLE SWITCH (If Equipped)** - Depress front half of the switch to ENGAGE the Power Guide Axle. Depress rear half of the switch to DISENGAGE the Power Guide Axle.

**NOTE:** *The Propulsion Motor will not operate in high and the Power Guide Axle will not engage when the gear shift lever is moved into third gear.*

15.  **PARKING BRAKE SWITCH** - To engage the Parking Brake depress front half of the switch. To disengage the Parking Brake depress rear half of the switch.

16.  **THROTTLE CONTROL LEVER** - Used to control the speed of the engine. To increase engine speed move the lever forward. To decrease engine speed, move the lever to the rear.



A24293

17.  **HEADER CONTROL MODE SWITCH** - This is a four (4) position rotary switch with the following functions:

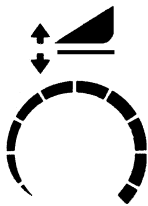
**M** **RTC** **HT** **FLOAT**

**MANUAL (M)** - Allows operator manual control of header lift and lower.

**RETURN TO CUT (RTC)** - The RTC mode can be entered if this switch is in this position and the feeder is ON and header LOWER SWITCH is momentarily pushed. If the switch is in this position the Position Control (Ref 18) will set the header operating height above the ground (cutting height).

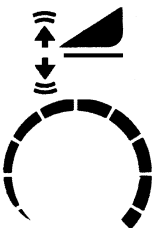
**FLOAT (If Equipped)** - In this position the Sensitivity Control (Ref 19) may be used to set the operating pressure. Float control is automatically entered if the feeder is ON and the header is lowered to the ground by momentarily pushing the header LOWER SWITCH.

**AUTOMATIC HEIGHT CONTROL (HT) (If Equipped)** - In this position, header height control is automatically entered if the feeder is ON and the header is lowered to the ground by momentarily pushing the header LOWER SWITCH.

18.  **HEADER POSITION CONTROL** - This control has two functions depending upon which header operation mode is being used:

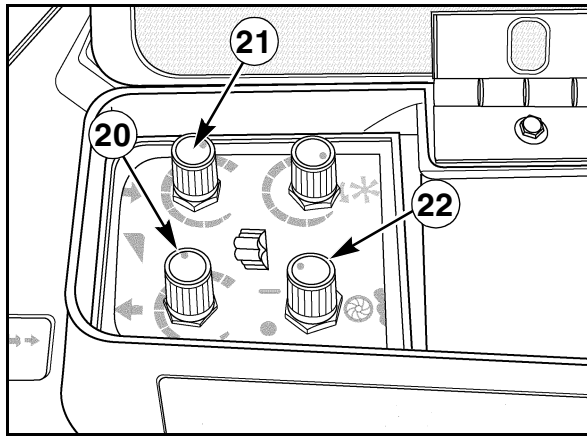
**RETURN TO CUT MODE (RTC)** - In this mode the Position Control sets the header height above the ground (cutting height).

**AUTOMATIC HEADER HEIGHT MODE (HT) (If Equipped)** - In this mode the Position Control sets the point at which the cutterbar runs within its 6 inch flotation range.

19.  **HEADER SENSITIVITY CONTROL** - This control has different functions depending upon which header mode is being used:

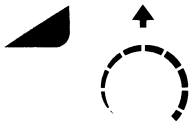
**FLOAT MODE** - In this mode the Sensitivity Control sets the cylinder pressure point which the hydraulic system is to maintain. This sets the amount of ground pressure by the header. A more sensitive setting will result in a lower maintained cylinder pressure and more ground contact pressure. A less sensitive setting will result in higher cylinder pressure and less ground contact pressure.

**AUTOMATIC HEADER HEIGHT MODE** - In this mode the Sensitivity Control sets how sensitive the header control is to changing ground conditions.

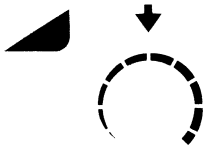


RD97G033

20. **HEADER RAISE RATE CONTROL** - Sets the rate at which the header raises. It functions in all modes of header operation.



21. **HEADER LOWER RATE CONTROL** - Sets the rate at which the header lowers. It functions in all modes of header operation.



22. **ACCUMULATOR SWITCH (If Equipped)** - The operator can enable or disable the accumulator system at any time.



**NOTE:** The position of the feeder no longer enables or disables the accumulator system.

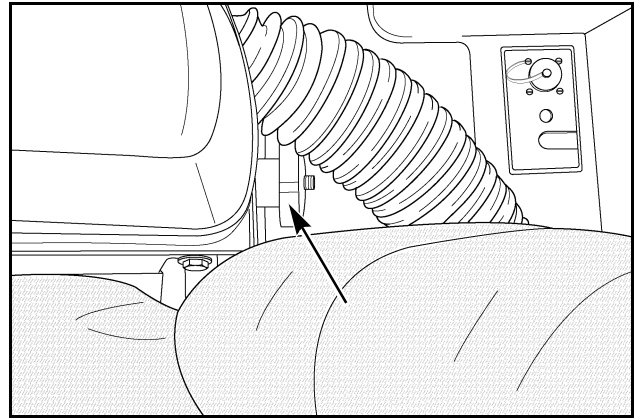
**NOTE:** The header raise and lower rate controls and minimum reel speed control are located under the right hand arm rest.

## Right Console Adjustment

The Right console moves with the seat and can be adjusted forward and back and/or up and down.

**UP/DOWN ADJUSTMENT** - There are four (4) positions to which the Right console can be adjusted. To adjust the console up or down do the following:

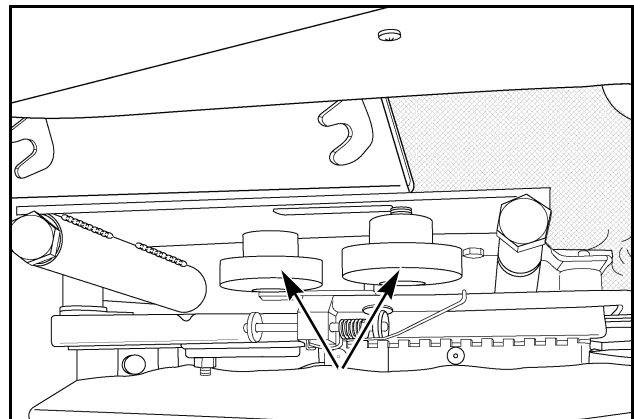
1. Loosen the adjusting knob at the rear of the Right console.
2. Move the Right console into the desired position.
3. Tighten the adjusting knob.



A24305

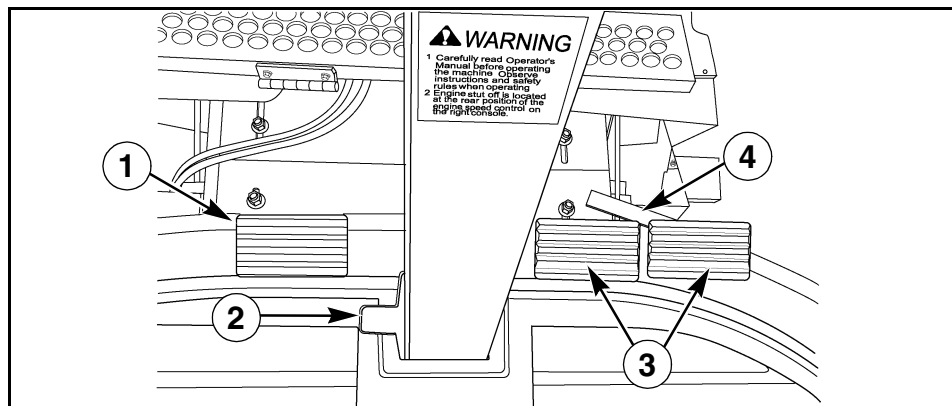
**FORWARD/BACK ADJUSTMENT** - To adjust the Right console forward or back do the following:

1. Loosen the two adjusting knobs located beneath the Right console.
2. Move the Right console to the desired position.
3. Tighten the adjusting knobs.



A24315

## Floor Controls



A24286

1. **FOOT-N-INCH PEDAL** - This pedal is used to engage the drive to the wheels (pedal fully up) or to disengage the drive to the wheels (pedal fully down).

**NOTE:** *The propulsion control lever must be in the forward or reverse slot in order for the Foot 'N Inch pedal to start the Combine in motion. If the propulsion control lever is in the NEUTRAL position, the Combine will not move.*

The Foot 'N Inch pedal can be used to control inching, very slight movement of the Combine, by raising the pedal a small amount from the full down position. When the Combine starts to move, pushing the Foot-N-Inch pedal fully down will disengage the drive to stop forward movement.

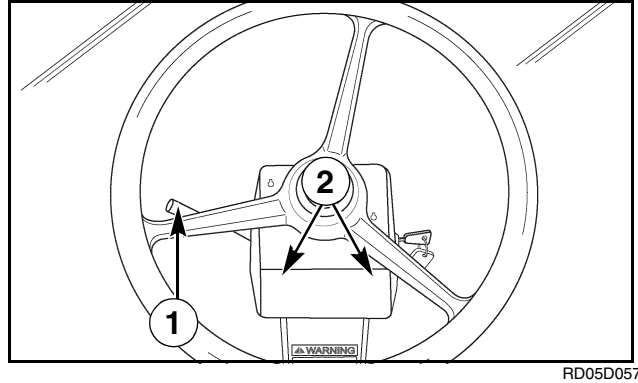
**NOTE:** *DO NOT use the Foot 'N Inch pedal to allow the Combine to coast downhill. DO NOT depress the pedal when at transport speed.*

2. **STEERING COLUMN TILT PEDAL** - To move the steering column to another position, push the tilt pedal and move the column. To lock the steering column in the selected position, release the tilt pedal.
3. **BRAKE PEDALS** - The Left pedal stops the Left drive wheel and the Right pedal stops the Right drive wheel. For Left or Right turning, use the pedals separately. For safe operation on roads the Brake latch (4) MUST be engaged.
4. **BRAKE LATCH** - The brake latch can be used to lock both brake pedals together so both pedals can be actuated easily at the same time. Make certain the latch is fully engaged in the slot provided when it is latched.

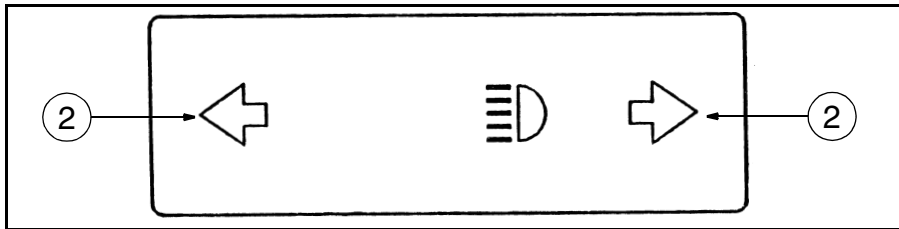


**WARNING:** *The Brake Latch is used to lock both Brake Pedals together. Brake Pedals must be locked together for road travel. This will insure uniform brake application and maximum stopping ability. M112B*


## Steering Column




RD05D057



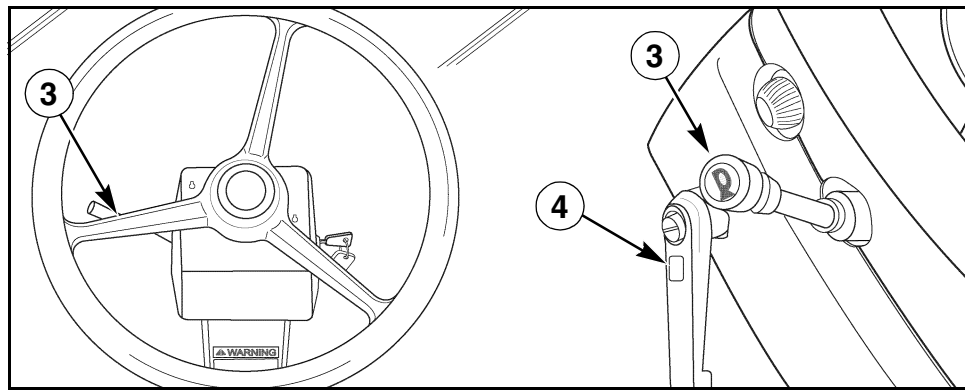
445L96

- 
**TURN INDICATOR CONTROL** - Move control FORWARD to indicate RIGHT turn. Move control REARWARD to indicate LEFT turn.

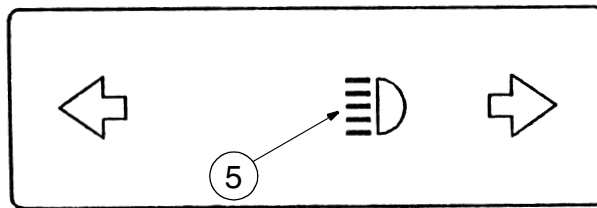
The turn indicator control can also be used with the flashing warning lamps to indicate a turn. When a turn is to be signaled the flashing warning lamp opposite the direction of the turn becomes steady burning until such time that the turn signal is cancelled. The flashing warning lamp in the direction of the turn maintains its flashing rate until the turn signal is cancelled. When the turn indicator control is moved to the forward position (Right turn) and the lamp switch is in the field work lamp position, the side flood lamps will illuminate. See lamp switch operation.

- 
**TURN INDICATOR LAMPS** - The turn indicator lamps behind the steering wheel (see illustration) will flash to indicate the direction of the turn. The turn indicator lamps do not flash with the hazard flashers.








RD05D057 / RD05D056



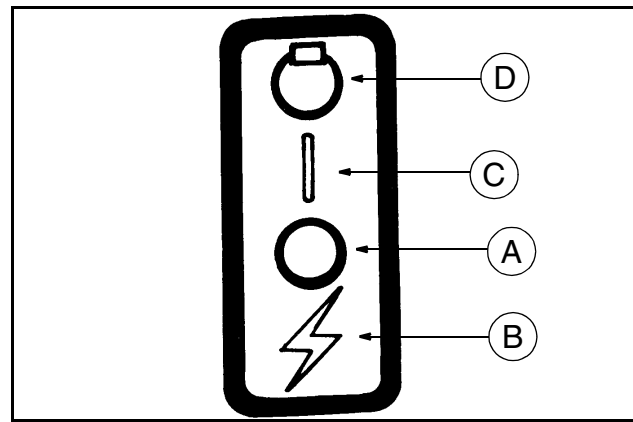
445L96

3.  **HORN BUTTON** - The horn button is located at the end of the TURN INDICATOR CONTROL. Push the button to sound the horn.
4.  **STEERING WHEEL TILT LEVER** - Allows tilt adjustment of steering wheel to most comfortable position. To tilt the steering wheel to another position, loosen the lever. When the steering wheel is in the desired position, tighten the lever.
5.  **HEAD LAMP HIGH BEAM INDICATOR** - Lamp will illuminate when head lamp high beam is ON.

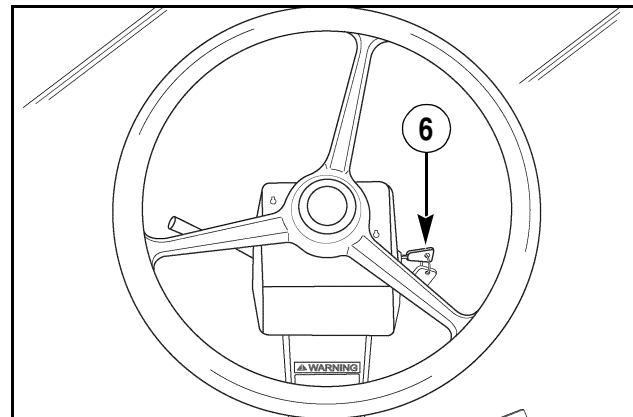
**NOTE:** The HAZARD WARNING LAMPS SWITCH is located on the front headliner. See Front Headliner in this manual.

6. **KEY SWITCH** - This switch has four positions:

- A. **OFF POSITION** - The key is in the vertical position. The Combine cannot be started without the key. The key can only be removed in the OFF position.
- B. **ACCESSORY POSITION** - Counterclockwise from the OFF position. Use this position to operate the radio, optional AFS system, etc. without engaging the instruments or starting the engine.
- C. **ON POSITION** - First position clockwise from OFF. All warning lamp indicators will illuminate for approximately two (2) seconds and the fuel level, voltmeter and coolant temperature gauges will indicate their present conditions. This position is also used for calibration of Combine instrumentation (See Combine Calibration in this manual).
- D. **START POSITION** - Second position clockwise from OFF. The starter motor will crank the engine if the separator switch is "OFF" and the propulsion control lever is in the NEUTRAL position. Release the key switch when the engine starts to run. After the engine has started, the indicator lamps will go OFF.



448L96

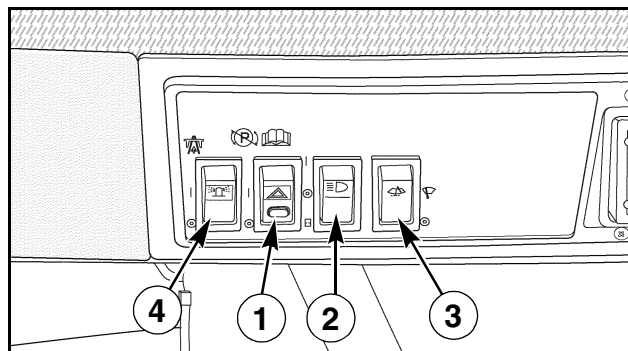


RD05D057


**KEY SWITCH POSITIONS**

**NOTE:** To prevent operation by persons not authorized to operate and to prevent excessive discharge of the batteries, remove the key when you leave the Combine.


## Front Headliner





RD05D107


1.  **HAZARD WARNING LAMPS/PARK BRAKE DISABLE SWITCH** - Press top part of switch to activate the amber warning lamps (2 lamps on the rear view mirrors and 2 lamps on the rear of the Combine). Indicator lamp in switch flashes to indicate the hazard lamps are flashing. Press bottom part of switch to turn OFF the hazard lamps. To activate Tow (Disable) circuit, lift detent lock and press switch into third position, See Disabled Machine in this manual.

**NOTE:** Activating the hazard warning lamps when the lights are on converts the machine from the Field Lighting Mode to the Road Lighting Mode (see 2.).


2.  **LAMP SWITCH** - Press this switch to activate the machine lamps as follows:  
**FIELD WORK LIGHTING MODE** (Light switch ON, hazard switch OFF): All four cab flood lamps, both cab distance lamps, tail lamps, unloader tube lamp, grain tank lamp, rear deck flood lamp (if equipped) and after cut lamps (if equipped) are activated. While in this lighting mode, moving the turn signal switch to the Right turn position will activate the side flood lamps (if equipped) located on either side of the grain tank.  
**ROAD TRANSPORT LIGHTING MODE** (Light switch ON, hazard switch ON or beacon ON): All four cab flood lamps and tail lamps will be activated. Both cab distance lamps will shift from high beam to low beam. All other flood lamps will remain OFF. The Right turn signals return to normal operation.

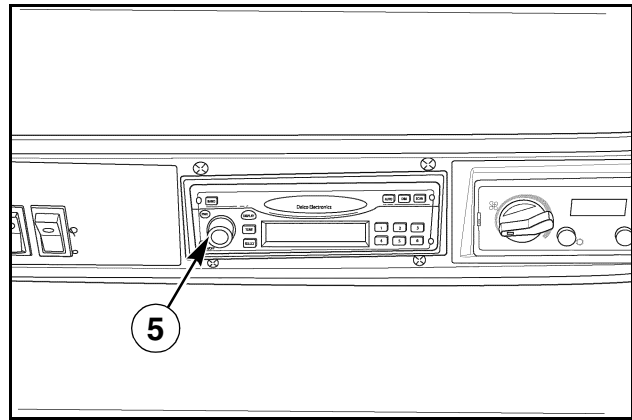
-  **EXIT LIGHTING MODE** (Lower portion of light switch is depressed momentarily): Both left and right grain tank lamps are activated for 30 seconds.

3.  **WINDSHIELD WIPER SWITCH (If equipped)** - To activate the windshield wiper, press the switch to the center position. To deactivate the windshield wiper, press the switch to the rear. To activate washer, press switch to the FORWARD position and hold. to deactivate the washer, let go of the switch.

4.  **ROTATING BEACON LAMP SWITCH (If equipped)** - Press this switch forward to the center position, to activate the rotating beacons. Press this switch all the way forward where it is a legal requirement for transporting the machine on the road.

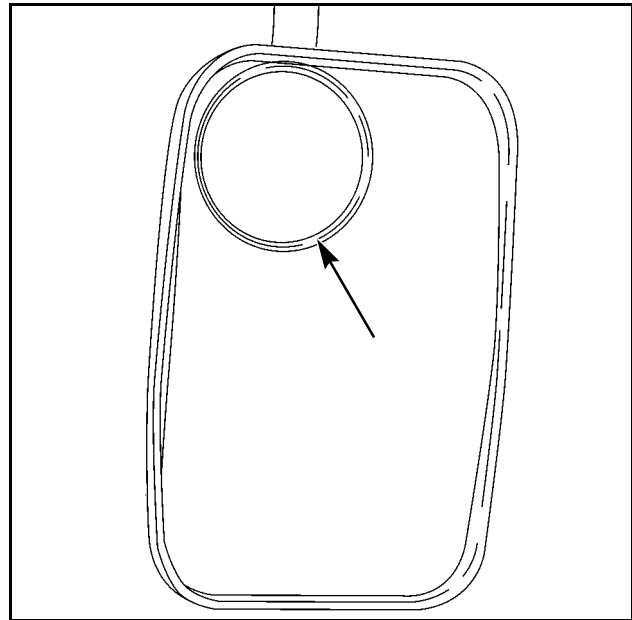
**NOTE:** Activating the beacon lamp switch in the completely forward position converts the machine from the field work lighting mode to the road transport lighting mode.

5.  **RADIO** - Radio equipment to fit the front headliner is available. If a radio is ordered as a manufacturer option, an Operator's Manual will be located in the cab Operator's Manual compartment.



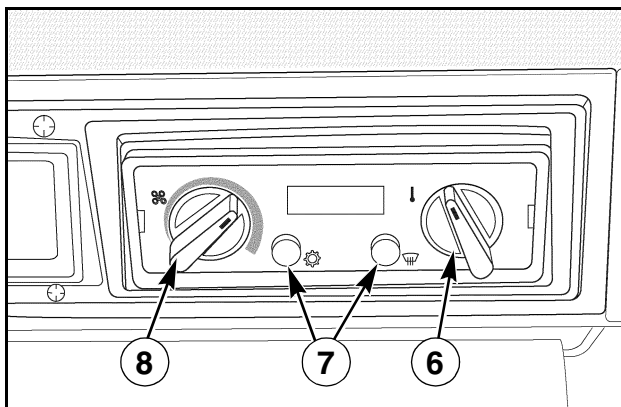
RD05D108

**BLIND SPOT MIRROR** - The round blind spot mirror attached to the Right cab exterior mirror provides the operator with a view of the top of the grain tank and extensions to visually determine the level of grain.






RI06F059

**Automatic Temperature Control (ATC)**



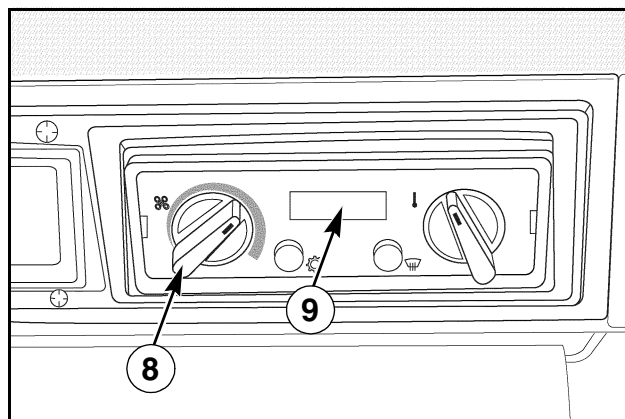
RD05D054

6.  **TEMPERATURE CONTROL** - Turn the dial clockwise to increase cabin temperature. Turn the dial counterclockwise to decrease cabin temperature. Automatic temperature control is achieved with the solid blue or red bands. When the control is turned fully clockwise or counterclockwise into the area with the bands of red or blue, the HVAC system will be in maximum mode and will provide maximum capacity regardless of the cab inside air temperature.

7.   **CLIMATE CONTROL SWITCH** - Press the switch to turn ON the automatic function of the climate control. Press the switch again to turn OFF the climate control. **DEFOG CONTROL SWITCH** - Press the switch to turn ON the window defog operation. Press the switch again to turn OFF the defog operation.



8. **BLOWER CONTROL** - To select the blower speed, turn the control clockwise from low to high. The blower speed is infinitely adjustable throughout its control range. In the automatic mode, the system will determine and adjust blower speed. If the blower speed is adjusted while in automatic mode, the blower speed will no longer be automatically controlled. The HVAC system will still attempt to control temperature, but may not be able to do so if the blower speed is set too low. To reset automatic blower speed, cycle the climate control switch (6) from auto to off and back to auto again.



RD05D054

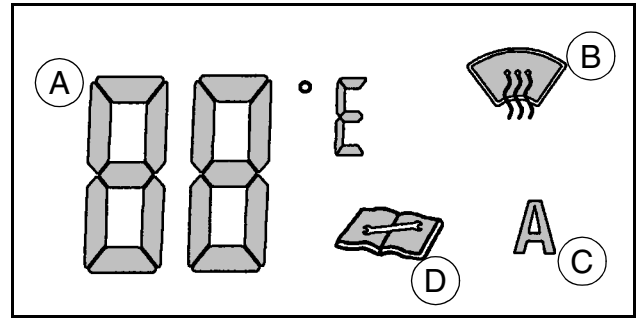
9. **DISPLAY** - Refer to next page for additional information.

## Automatic Climate Control Operation

The display provides the operator with information about the system's performance.

- It provides the desired cab temperature reading selected by the operator. The display reading may be in Fahrenheit or Celsius. To make the change between reading there is an in-line connection in the cab main harness under the instructional seat. Completing this connection provides for Celsius readings. This connection is set at the manufacturer for the appropriate country or region.
- It illuminates an icon "A" when the system is operating in the automatic climate mode.
- When the "A" is not illuminated the blower motor speed **MUST** be manually controlled and "Auto" mode will only control the water valve and compressor, while trying to maintain the set temperature.
- It illuminates the windshield icon when the system is in the Defog Mode.
- It illuminates the book icon when the system is not operating correctly. Along with the book icon a fault code will also be displayed to assist the technician making the correct repairs.

The range for the Automatic Temperature Control is from a set point of 16 to 30° C (61 to 89° F). The set point of 16 to 32° C (60 to 90° F) will be displayed and the "A" icon on the display will be ODD when the system is in maximum mode.



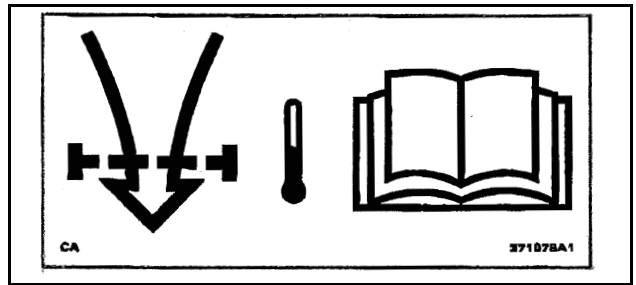
- |                                |                             |
|--------------------------------|-----------------------------|
| A. DIGITAL TEMPERATURE SETTING | C. AUTOMATIC MODE INDICATOR |
| B. DEFROG MODE INDICATOR       | D. SERVICE INDICATOR        |

### TEMPERATURE DISPLAY

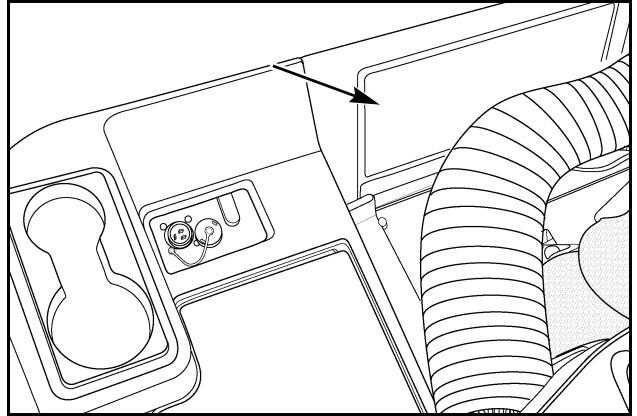
## 4 - INSTRUMENTS/CONTROLS

Do not block the cab recirculation air filter.

**NOTE:** *The area behind the seat must NOT be used for storage. If the recirculation air filter is blocked it will degrade HVAC performance.*



371078A1



A24302

## Right Panel

- 1. TRANSMISSION GEAR SHIFT LEVER** - Use this lever (1) to shift the gears in the transmission. The engine must be running to move the gear shift lever.

**N NEUTRAL** - The **NEUTRAL (N)** position is the center position. The **GEAR SHIFT HANDLE** can only be lifted when the gear shift lever is in **NEUTRAL**.

- To shift the Combine transmission into **First Gear (1)** put the gear shift lever in the **NEUTRAL** position and pull up on the **GEAR SHIFT HANDLE**. Move the gear shift lever fully forward.

- To shift the Combine transmission into **Second Gear (2)** return the shift lever to the **NEUTRAL** position, pull the gear shift lever to the rear.

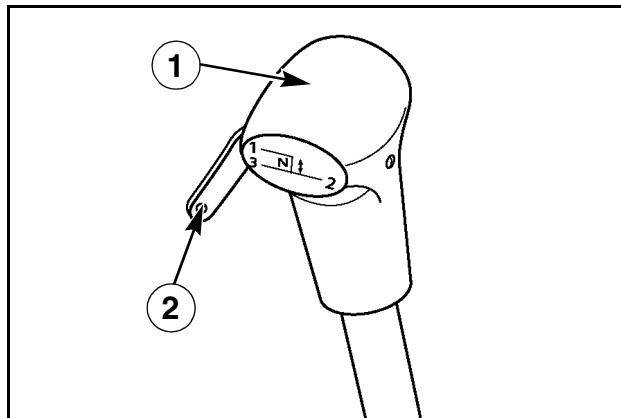
- To shift the Combine transmission into **Third Gear (3)** move the shift lever fully forward from the **NEUTRAL** or the **Second Gear** position.

- 2. GEAR SHIFT HANDLE (2)** - used **ONLY** to shift into First Gear.

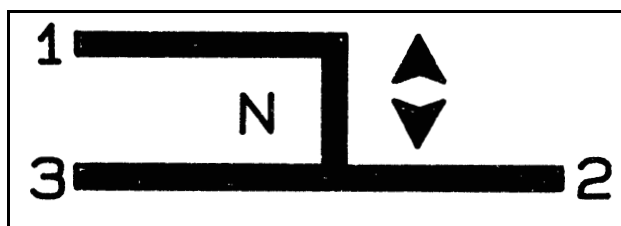
### 3. BEVERAGE HOLDER

- 4. ⚡ AUXILIARY ELECTRICAL OUTLET** - This outlet provides for connection of a CB radio, FM radio, etc. The outlet contains a B+ line (key in ACC or ON position); an unswitched B+ line and a ground line. Fuse No. 4 is for the unswitched B+ line and fuse No. 8 is for the switched B+ line. Auxiliary power lines can be fused as required up to 20 amps each. Use harness 187103A1 for connecting this terminal outlet to the CB radio, FM radio, etc.

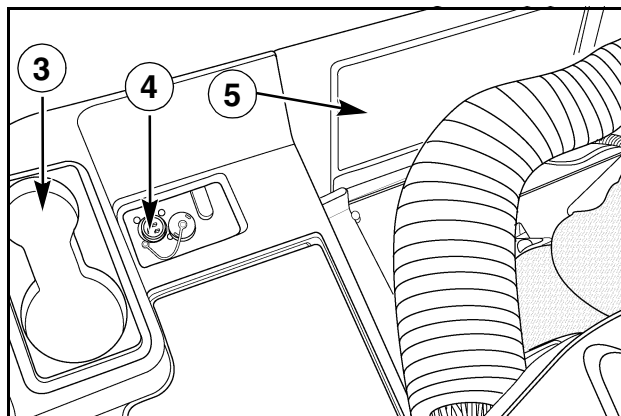
### 5. CAB AIR RECIRCULATION FILTER



A24299



660L94



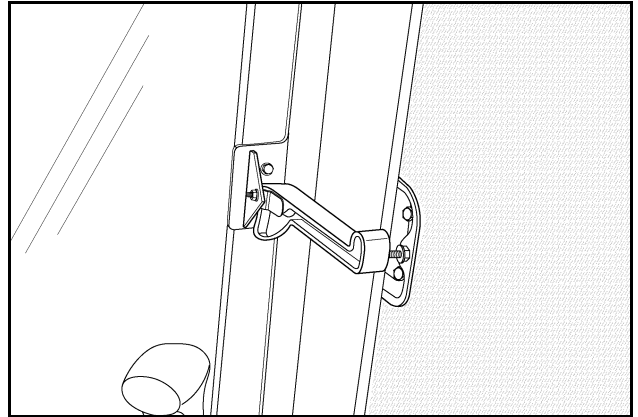
A24302



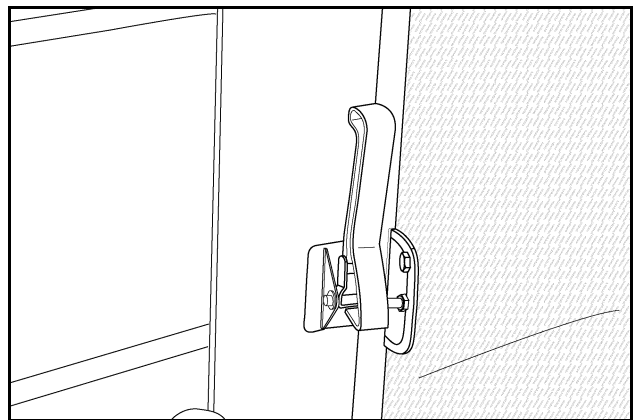
## Cab Right Window and Emergency Exit

The Right cab window can be opened to provide ventilation and access to the Right service area without dismounting from the Combine.

To open the window, pull the lever down and push the window open. The lever can be placed over the latch to provide additional ventilation or the window can be opened completely for emergency exit and to allow access to the Right service area.



RP95J001



RP95J002

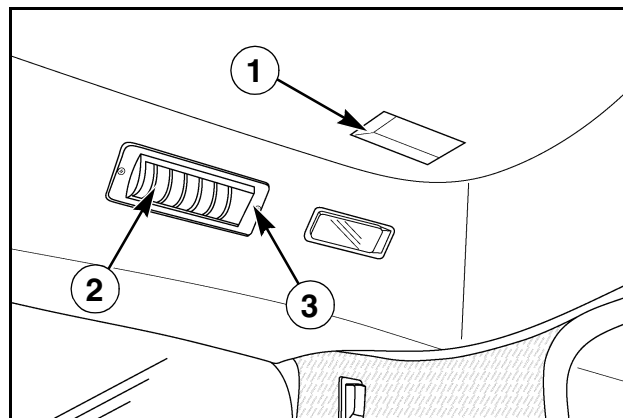
## Dome Lamps and Console Lamp

### Dome Lamps

The dome lamps (2) are located in the right rear and left rear of the cab headliner. Each lamp is controlled by a three position switch (3). The three position switch operates as follows:

- **UP POSITION** - The lamp will operate with the door switch. The lamp will be ON when the cab door is open and will be OFF when the cab door is closed.
- **CENTER POSITION** - The lamp will be OFF.
- **DOWN POSITION** - The lamp will be ON continuously until the switch is moved to the center (OFF) position or to the UP POSITION so that it functions with the door.

**NOTE:** To prevent discharging the batteries put the lamp switches in the up or center position when leaving the cab.



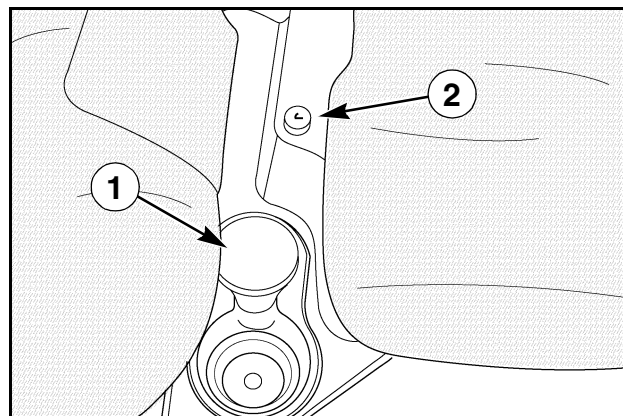
A24361

### Console Lamp

The console lamp (1) provides illumination of the Right operator's console. The lamp is activated with the HEADLAMP and FLOODLAMP SWITCH.

### Center Console

**NOTE:** The ash tray (1) and lighter (2) accessory kit 434227A\* is available from your dealer.



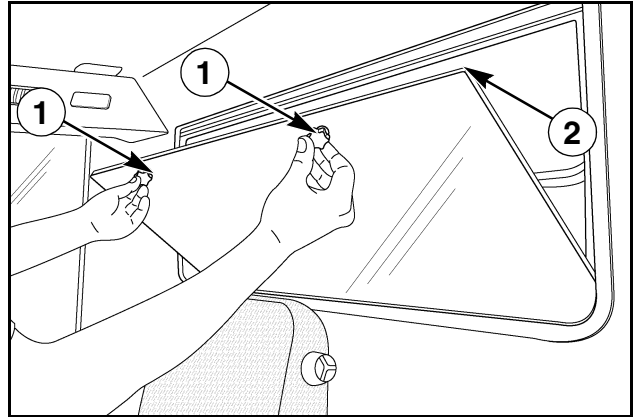
RD01F168

## Cab Rear Window

The cab rear window can be opened for easy cleaning and removal of debris.

To open the rear cab window turn the two quarter turn latches (1) and pivot the window down. It is recommended to open the window no more than 45 degrees (2) and hold window in that position until the dust can be cleaned from the exterior surface of the window. This position also helps keep material from front of grain tank window falling into cab when cleaning grain tank window.

It is also recommended that the rear window be opened only with cab doors closed to prevent a cross draft from blowing dust into cab.

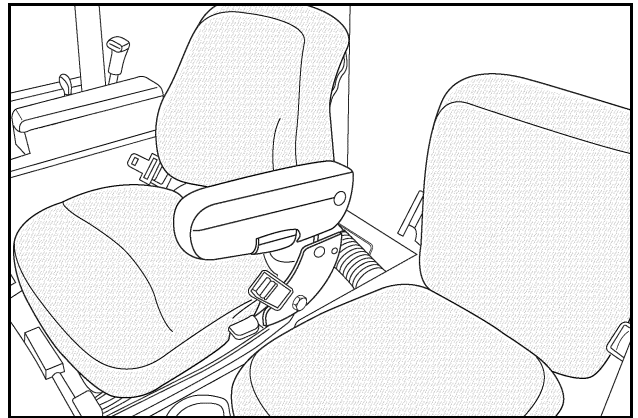


RP96G002

## Instructional Seat

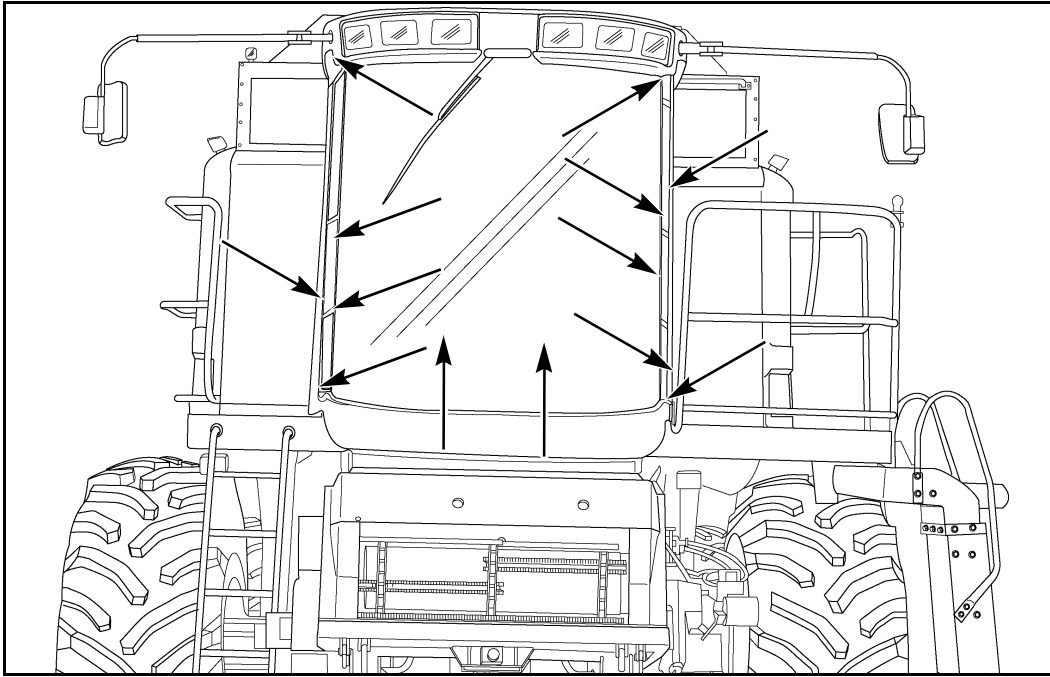
The instructional seat provides seating for an experienced operator when a new operator is being trained on the operation of the machine. Refer to Instructional Seat Safety in the Safety Section of this manual for additional information.

**NOTE:** *This seat is NOT intended as a passenger seat or for use by children.*



RD02E135

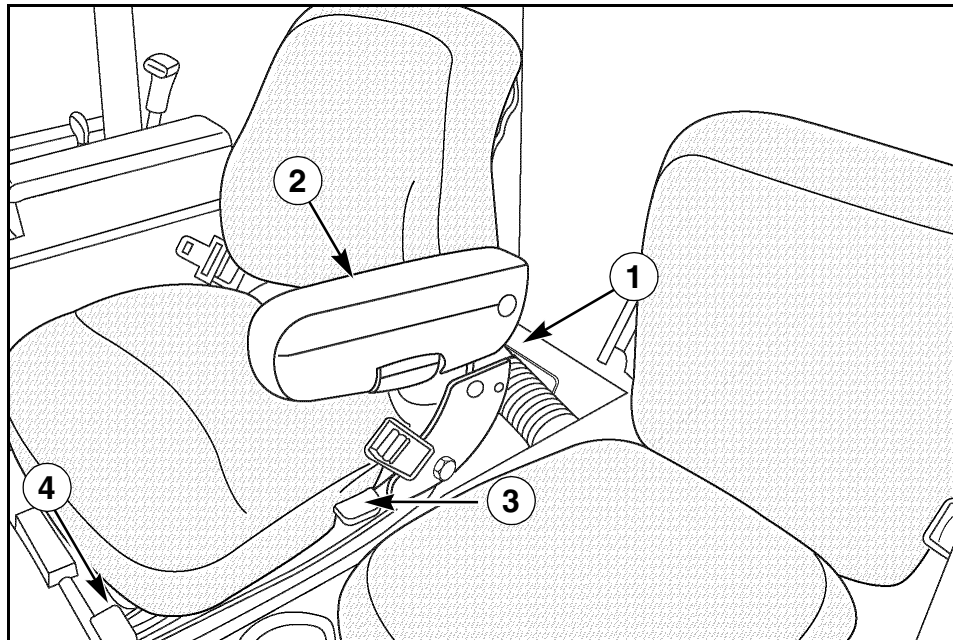
## Air Flow Control Louvers






RD00E011


The cab air is discharged through thirteen (13) vents located throughout the cab. The vents are adjustable up or down, to the left or right and can be closed to permit the operator to control the air flow in the direction desired.


## Deluxe Air Suspension Seat

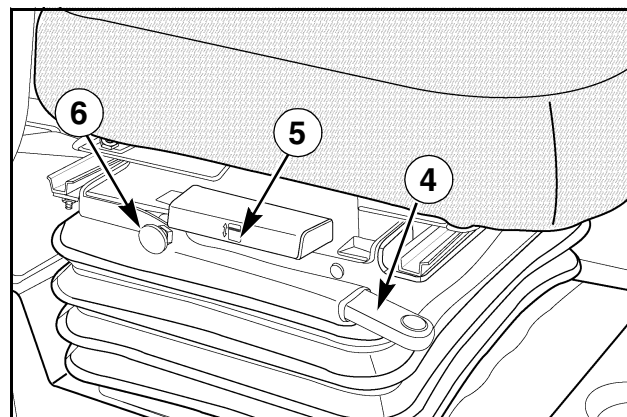


RD02E136

1.  **LUMBAR ADJUSTER** - Adjust the lumbar support for personal back comfort. Turn the knob clockwise to increase support. Turn the knob counterclockwise to decrease support.
2. **LEFT ARMREST** - The armrest can be tilted up until even with the backrest. The angle of the armrest is also adjustable up or down.
3.  **BACKREST** - To adjust the backrest, lift the control and tilt the backrest to the desired position. Release the control to hold the backrest in the selected position.
4.  **FORE/AFT ISOLATOR** - Move the isolator lever to the ON position. This will permit the seat to move forward or rearward a short distance with the operator to absorb shocks. This will reduce operator fatigue when operating over rough terrain.

5.  **FORE/AFT** - The operator's seat can be adjusted fore and aft for operator size. Pull up on the lever and slide the seat to the desired position. Release the lever to lock the seat in position.

6.  **HEIGHT ADJUSTMENT KNOB** - The seat can be raised or lowered by increasing or decreasing the air pressure in the seat. Push the knob IN to increase air pressure and raise the seat. Pull the knob OUT to decrease the air pressure and lower the seat. The key switch must be in the ON position to raise the seat.



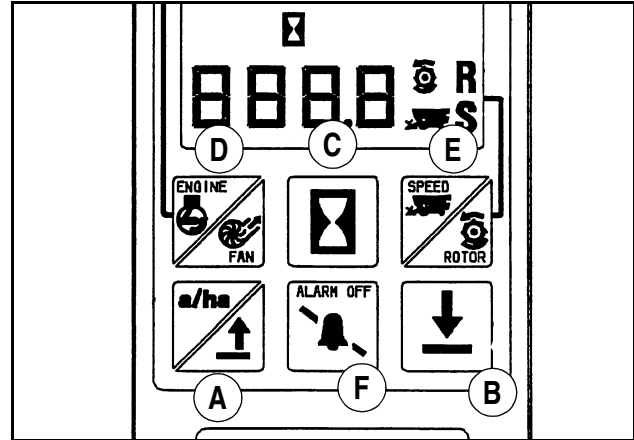
RD00F055

## COMBINE CALIBRATION

The following tables show the steps through the calibration areas of the Combine instrumentation. In each case use touch switches "A" to increase and "B" to decrease the numerical values or to cycle the options as needed.

























The following touch switches are used in the calibration of the Combine instrumentation:

- "A" ..... Increase Value Switch
- "B" ..... Decrease Value Switch
- "C" ..... Hourmeter Switch
- "D" ..... Engine/Fan Speed Switch
- "E" ..... Ground/Rotor Speed Switch
- "F" ..... Alarm Off Switch



497L94

#### 4 - INSTRUMENTS/CONTROLS

INITIAL DISPLAY	DESCRIPTION	ACTION
	Enter Calibrate Mode.	Push and hold  and  at the same time. Turn the key switch ON.
r 311	Software revision level.	Level momentarily displayed while holding arrow keys.
2300 E ALHr	Engine speed alarm set point. Range is 1900 to 2700 RPM.	Push  or  to increase or decrease the value.
	Advance to next area.	Push 
85 ALAR <sup>SR</sup>	Rotor speed alarm sensitivity. Range is 75 to 100.	Push  or  to increase or decrease the value by 5.
	Advance to next area.	Push 
E	Set English or Metric.	Push  or  to select "E" or "M".
	Advance to next area.	Push 
E 300 <sub>mi</sub>	Set tire size (if calibrated for English units) OR	Push  or  to increase or decrease the value (See Rolling Radius Calibration Chart in this manual).
M 762 <sub>mm</sub>	Set tire size (if calibrated for Metric units).	Push  or  to increase or decrease the value (See Rolling Radius Calibration Chart in this manual).
	Advance to next area.	Push 
FUEL - - - -	Set low fuel warning at current gauge position, OR	Push  and  at the same time. Bars stop flashing.
	To set representative numerical value of fuel level.	Push  and  at the same time.
FUEL 22	Set low fuel warning level. Range is 0 (minimum) to 52 (maximum.)	Push  or  to increase or decrease the value.
	Exit Calibrate mode at anytime.	Push  and  at the same time.















## 4 - INSTRUMENTS/CONTROLS

Combine TIRES	ROLLING RADIUS		Combine TIRES	ROLLING RADIUS	
	IN	CM		IN	CM
18.4R42 R1	34.5	87.6	30.5L-32 R3	32.2	81.7
20.8-38 R1	34.5	87.6	76x50.00-32 HF3	37.1	94.2
20.8-R42 R1	36.2	92.0	800/65R32 R1W	34.0	86.3
20.8-R42 R1W	36.6	92.9	900/60R32 R1	36.1	91.7
30.5L-32 R1	33.7	85.7	900/60R32 R1W	36.0	91.5
30.5L-32 R2	34.4	87.3	900/65R32 R2	37.7	95.7

### Change Mode












The change mode can be accessed during the normal operating mode. The following table shows the steps through the change mode areas of the Combine instrumentation.

**NOTE:** If both speed buttons are pushed again, the total area will be returned as long as the Change Mode has not been exited.

INITIAL DISPLAY	DESCRIPTION	ACTION
	Enter Change Mode.	Push and hold  and  at the same time.
- - - - - - - - - - - -		Dashes and HOURMETER icon displayed while holding arrow keys.
EA IL 1	Set tailings sensitivity (If equipped) 0 = Same as 1 but no alarm. 1 = Least sensitive. 4 = Most sensitive.	Push  or  to increase or decrease the value.
	Advance to the next area.	Push 
1234 A	A number between 0 and 9999 will be flashing representing acres covered (if calibrated for English units),  OR	To zero the acre counter, push  and  at the same time (See Note)
1234 HA	A number between 0 and 9999 will be flashing representing hectares covered (if calibrated for Metric units).	To zero the hectare counter, push  and  at the same time.  (See Note)
	Advance to the next area.	Push 
E 250	Set header width. Range is 8.0 to 40.0 feet (if calibrated for English units),  OR	Push  or  to increase or decrease the value.
M 762.0	Set header width. Range is 24.0 to 122.0 decimeters (if calibrated for metric units).	Push  or  to increase or decrease the value.



#### 4 - INSTRUMENTS/CONTROLS

INITIAL DISPLAY	DESCRIPTION	ACTION
	Advance to next area.	Push 
AREA OFF	Set header height to turn off area counter. Raise or lower header to desired height.	Push  and  at the same time. Display stops flashing.
	Advance to next area.	Push 
SPDR ON	Set spreader alarm. If "OFF" symbol will be constantly displayed on shaft speed monitor.	Push  or  to cycle "ON" or "OFF".
	Advance to next area.	Push 
AFC ON	Set Auto Feeder Cutoff. If "OFF", "AFC" and "OFF" will be momentarily displayed at start-up.	Push  or  to cycle "ON" or "OFF".
	Exit Change mode at anytime.	Push  and  at the same time.

## Calibrate Header Controller - Full Calibration

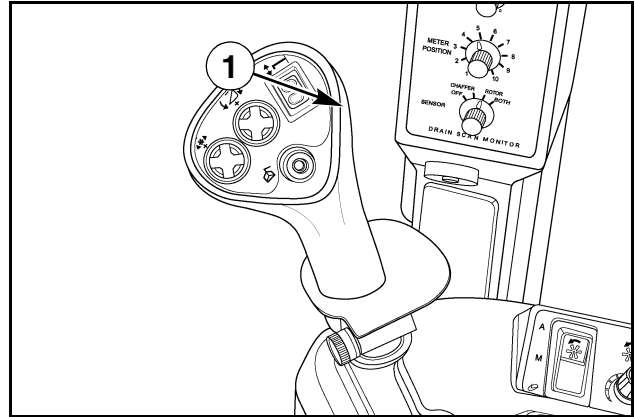
There are two types of calibration: Full Calibration and Ground Calibration. Full Calibration should only be required if the Header Controller, Feeder Position Sensor, Concave Sensor, Header Position Control or Header Raise/Lower valve is replaced.

**NOTE:** *If no engine speed is present the header cannot be calibrated.*

The following tables show the full calibration mode for the header controller. The lower tachometer area is used to show the calibration steps. The header RAISE switch (1) acts like a “yes” or “confirm” button and then advances to the next task.





The header LOWER switch (1) acts like a “no” or increment button. Follow the tables to calibrate the header controller.

**NOTE:** *The “2cyl” and “hd1” displays are default values and again may not be what was set previously. Therefore, going back into the full calibration mode to view the changes is not a viable check to determine which option was selected at calibration.*



A24294

#### 4 - INSTRUMENTS/CONTROLS

INITIAL DISPLAY	DESCRIPTION	COMMENTS
	Start engine while holding  and  switches at the same time	Calibrate without the header and over a ditch for maximum feeder travel. (See Note 1)
Hdr	Release  and  switches.	
r311	Software revision level.	Level momentarily displayed.
CAL	Push "RAISE" switch	Enter Calibrate Mode.
0	Push "RAISE" to select. (See System Configuration).	0 = Standard 1 = Auto Height 2 = Float 3, 4 and 5 = Future
2CYL	Push "RAISE" to select. Push "LOWER" for "3Cyl"	Select number of feeder lift cylinders. (See Note 2)
hd 1	Push "RAISE" to select. Push "LOWER" to increment.	Select header type. hd 1 = 1020 header, corn head hd 2 = See Note 4 hdE1 = European header.
Conc	Push "RAISE" to zero. Push "LOWER" to skip.	Concave must be closed to zero concave display (See Note 6)
dn	Turn "HEIGHT" knob fully counterclockwise. Push "RAISE" to continue.	After a few seconds FEEDER WILL LOWER FULLY. (See Note 3)
- - -	Wait (about 30 seconds)	Calculate raise current.
UP	Turn "HEIGHT" knob fully clockwise. Push "RAISE" to continue.	FEEDER WILL RAISE FULLY. (See Note 3)
- - -	Wait (about 30 seconds)	Calculate lower current.
CAL	Cycle Reel AUTO/MANUAL switch to exit.	Can exit anytime by cycling switch (See Note 5)

Note 1: When calibrating without a header, do so over a ditch to obtain maximum feeder travel.

Note 2: Select "3Cyl" if a third lift cylinder is added or 2 larger cylinders are installed.

Note 3: When the header is lowering or raising, if the RAISE or LOWER switch is pushed, calibration will be aborted and the header will stop.

Note 4: If the grain head is too sensitive, select "hd2".

Note 5: Must get to "Conc" display to save previously changed items before cycling Reel AUTO/MANUAL switch.

Note 6: If this step is bypassed, the controller did not detect concave position sensor.

## System Configuration

The controller will evaluate the various inputs to determine what options the system has and display the appropriate codes. The codes are as follows:

“0” - This is the standard option: Manual Header Position Control, Return to Cut and Auto/Manual Reel Speed Control. The Lower Rate, Raise Rate, Position, Minimum Reel Speed, Reel/Ratio Speed Control potentiometers and Feeder Position Sensor determine this option.

“1” - This is Option 1: Auto Height Control. The Sensitivity Control potentiometer and the standard configuration determine this option.

“2” - This is Option 2: Auto Header Float Control. The Float Pressure sensor, the standard configuration and Option 1 determine this option (must have Option 1 to have Option 2).

The code shown for the diagnostic display will be the appropriate number that has all the inputs accounted for. Momentary selection of the RAISE function will advance to the next calibration step.

## AFTER CONNECTING TO A HEADER - GROUND CALIBRATION

**NOTE:** Turn OFF Accumulator (If Equipped) before starting Ground Calibration.

### Grain Header Without Height Sensor

When connecting to a specific Grain Header for the first time, the height display needs to be calibrated. Make sure the Reel Switch is in the AUTO or MANUAL position and the Feeder Switch is OFF. Lower the Header to the ground and hold the Lower Switch in the ON position for 2 seconds after the Grain Header is stopped by the ground. The display will indicate “2” [“5” (Metric)].

### Grain Header With Height Sensor

When connecting to a specific Grain Header for the first time, the height display needs to be calibrated. Make sure the Reel Switch is in the AUTO or MANUAL position and the Feeder Switch is OFF. Lower the Header to the ground and hold the Lower Switch in the ON position for 2 seconds after the Grain Header is stopped by the ground. The display will indicate “2” [“5” (Metric)] and the Header height sensor minimum value (cutter bar fully up) will be calibrated. Raise the Header. The Header will stop 1 to 2 feet off the ground.

This calibrates the Header height sensor maximum value (cutter bar fully down). If the Header does not stop, the Header control module does not detect the height sensor.

**NOTE:** If a different Grain Header is connected, this procedure needs to be repeated for the different Header.

### 1020 Grain Header With Locked Cutter Bar

If the flex cutter bar is locked, do not connect the 1020 Header height sensor. **Performing a Calibration with this sensor connected will result in a “Hdr” “S1” error.**

### Corn Head Without Height Sensor

When connecting to a specific Corn Head for the first time, the height display needs to be calibrated. Make sure the Reel Switch is in the CORN position and the Feeder Switch is OFF. Lower the Corn Head to the ground and hold the Lower Switch in the ON position for 2 seconds after the Corn Head is stopped by the ground. The display will indicate “4” [“10” (Metric)].

### Corn Head With Height Sensor

When connecting to a specific Corn Head for the first time, the height display needs to be calibrated. Make sure the Reel Switch is in the CORN position and the Feeder Switch is OFF. Lower the Corn Head to the ground and hold the Lower Switch in the ON position for 2 seconds after the Corn Head is stopped by the ground. The display will indicate “4” [“10” (Metric)] and the Corn Head height sensor minimum value (cutter bar fully Up) will be calibrated. Raise the Corn Head. The Corn Head will stop 1 to 2 feet off the ground. This calibrates the Corn Head height sensor maximum value. If the Corn Head does not stop, the Header control module does not detect the height sensor.

### Disconnecting Grain Header or Corn Head With Height Sensor

When the height sensor is disconnected, the “Hdr” “S1” error will appear and auto height mode will be disabled. When the height sensor is reconnected, the error will go away and auto height mode will be available again.

By pushing the ALARM OFF push button, the error can be hidden.

## COMBINE DIAGNOSTICS

### Instrumentation Diagnostics

#### Stuck on Touch Switch

In normal operating mode, if one of the upper three (3) push buttons is seen continuously on for 8 seconds, the displayed icon relating to that touch switch will flash.

If an ARROW touch switch is detected stuck on at start-up, “Arro” and “uP” or “dn” will be flashed on the tachometer display for 8 seconds. This error will be ignored otherwise.

If the ALARM OFF push button is detected stuck on, “ALAr” and “OFF” will be flashed on the tachometer display for 8 seconds. This error will only be displayed at start-up or when a tach/shaft speed monitored function determines that the buzzer needs to be turned on.

If a stuck on touch switch error condition exists, the DOWN (right) ARROW touch switch will function as the stuck on push button.

#### Low Voltage

If low voltage (<9.8 volts) is detected, “LO” and “SYS” will be flashed on the tachometer display. The feeder and separator outputs and the shaft speed monitor will be disabled.

#### Memory Error

If a memory error is detected, “rEg” and “Err”, “CodE” and “Err” or “E2” and “Err” will be flashed on the tachometer display. The feeder and separator outputs and the shaft speed monitor will be disabled.

#### Feeder Coil Circuit

If an over current or open circuit condition exists, “Fdr” and “Err” will be flashed on the tachometer display. The feeder output will be turned off. The error will be cleared and not shown when the FEEDER ENABLE switch is OFF or turned OFF.

#### Separator Coil Circuit

If an over current or open circuit condition exists, “SEP” and “Err” will be flashed on the tachometer display. The separator and feeder output will be turned off. The error will be cleared and not shown when the SEPARATOR ENABLE switch is OFF or turn OFF.

#### Serial Communications Link

If the instrumentation does not receive data from the header controller, “SCL” and “Err” will flash.

**NOTE:** *If a system fault is displayed, contact your dealer for assistance.*

## Header Diagnostics

When a failure is detected, the header controller indicator lamp in the instrumentation flashes on and off and a Diagnostic Error Code is sent to the instrumentation. An error message will be displayed in place of the MPH or Rotor Speed. The letters “Hdr” and a 2 or 3 digit code are alternately displayed.

The following table explains the failures that exist in the Header Control System when the following codes are displayed. They are listed from the highest priority to the lowest priority. When more than one failure exists simultaneously, only the highest priority will be sent.

**NOTE:** *If no engine speed is present, the feeder cannot be raised or lowered.*

Inst. Shown Code	Cause	Fail Mode
HC0	Vehicle has never been calibrated.	Halt
HC1	Calibration did not succeed or memory storage is bad.	Halt
Hb0	All solenoid circuits open or short to ground or relay coil circuit failure or relay contacts failed open.	Halt
Hu0	Open/short to ground - raise solenoid circuit failure. (1)	Halt
Hu1	Short to 12v - raise solenoid circuit failure.	Halt
Hu2	Short to 12v - raise solenoid driver.	Halt
Hd0	Open/short to ground - lower solenoid circuit failure	Halt
Hd1	Short to 12v - lower solenoid circuit failure.	Halt
Hd2	Short to 12v - lower solenoid driver.	Halt
Hr0	Open/short to ground - reel solenoid circuit failure.	Halt
SCL	No serial communications link from instrumentation. (2)	Limp2
r1	Short to 12v - reel solenoid circuit failure.	LImp2
r2	Short to 12v - reel drive driver.	Limp2
E1	Loss of internal regulated voltage(s). Check height and float sensor wiring.	Limp2
C2	Watchdog circuit failure.	Limp2
E0	High battery supply voltage.	Limp2
b1	Relay contacts failed closed.	Limp2
S4	Open/Short - Air/Air Temperature circuit failure. Feeder disabled and buzzer on. (6 and 7)	Limp2
P0	Open/short - Position Control circuit failure.	Limp1
A0	Mode Select switch circuit failure.	Limp1
S0	Feeder sensor circuit failure.	Limp1
A1	Momentary Raise/Lower switch circuit failure	D3
S1	Header Height sensor circuit failure (3 and 5)	D2
S2	Float sensor circuit failure.	D2
P1	Open/short - Sensitivity Control circuit failure.	
	For Float - Sensitivity will be 25% of pressure range.	D1 (4)
	For Header Height - Sensitivity will be 75%.	D1 (4)
P2	Open/short - Reel/Ratio Speed Control circuit failure. Reel/Ratio Speed will be 33% for reel speed and 1:1 for ratio speed.	D1 (4)
P3	Open/short - Lower Rate Control circuit failure. Lower Rate will be 10%.	D1 (4)
P4	Open/short - Raise Rate Control circuit failure. Raise Rate will be 85%.	D1 (4)
P5	Open/short - Min. Reel Speed Control circuit failure. Min. Reel Speed will be 9%.	D1 (4)
S3	Concave Position Sensor circuit failure.	D1
L1	Open/Short to ground - Air/Air lamp circuit failure.	D1 (6)
L2	Short to 12v - Air/Air lamp circuit failure.	D1 (6)
L3	Short to 12v - Air/Air lamp driver.	D1 (6)
L0	Lamp circuit failure.	D1

- (1) In Calibration Mode, open relay circuit gives the same error.
- (2) If momentary failure, cycling feeder to “off” then “on” will recover operations requiring serial communication link information.
- (3) “Hdr” and “S1” are flashed momentarily at start-up if a header height sensor is not detected.
- (4) Default listed is used if failure occurred at start-up, otherwise last valid value will be used.
- (5) If sensor detected failed (not connected) at start-up, this error is self healing if detected O.K. (Connected) later. This is only valid from a failed condition at start-up.
- (6) Codes only fro Air/Air equipped machines (air screen alarm programmed OFF).
- (7) This error will only be recognized if it exists 30 seconds after start-up. The S4 Error may appear in very cold conditions but, after warming up the machine, the key switch can be cycled from ON to OFF and back ON again to clear the S4 Error.

**NOTE:** *Engine will shut off when key is turned off.*

The definition for the failure mode is as follows:

Halt = All solenoid coils are disabled. All header and reel drive controls are inoperable.

Limp2 = Manual Position Control only.

Limp1 = RTC, Header Height and Float Control default to Manual Position Control.

D3 = Degraded 3: Manual Position Control Disabled. To raise or lower the feeder, select RTC and adjust the POSITION CONTROL to capture the feeder. The feeder will now follow the POSITION CONTROL movement.

D2 = Degraded 2: That mode of operation the failure is associated with is disabled but can operate in other modes.

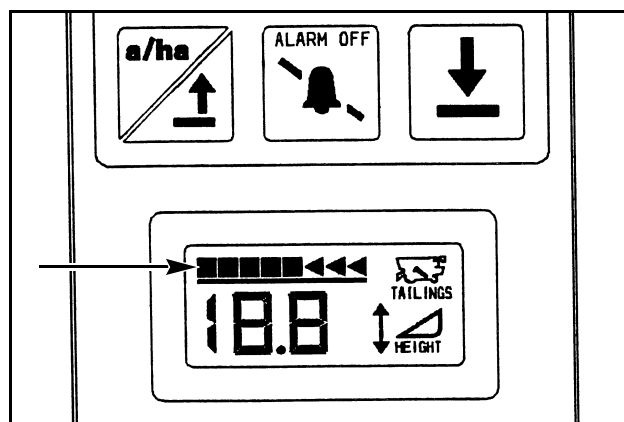
D1 = Degraded 1: System can continue to operate, however, the function that failed will be disabled.

Also, a Halt mode failure occurs if a Limp mode failure and a RAISE/LOWER switch failure occur at the same time. A three (3) digit code consisting of an “F” and the two (2) digit Limp mode failure code will be displayed.

If the ALARM OFF touch switch on the instrumentation is actuated while a Header error message is shown, the message will be hidden and MPH or Rotor Speed will be displayed again. If the ALARM OFF touch switch is pushed when a Header error message is hidden, the message will be displayed again. Also, if a higher priority error is sent, the new Header Error message will be displayed.

### Tailings Monitor Circuit Diagnostics

- If a short to ground condition exists, the tailings symbol and all segments of the bar graph will flash.
- If an open circuit condition exists before the key switch is turned ON, the tailings display will not appear.
- If an open circuit conditions appears after the key switch is turned ON, the display will show the auger is FULL.



RH97F037



---

## BEFORE STARTING THE ENGINE

Before starting the Combine for the first time and before each operating period after that, make these checks:

1. Make sure all persons that operate or do maintenance understand that clean fuel is important.
2. Check all lubrication points as shown in the Lubrication Charts.
3. Check the oil level in the engine crankcase. Check the fluid level in the hydraulic reservoir.
4. Check that the fuel tank is filled with clean fuel that meets the specifications given in this manual.

**NOTE:** *Clean around the fuel tank cap before you remove the cap.*

5. Check the fuel system, cooling system and engine oil pan for leaks.
6. Check the tension on all belts and chains.
7. Remove any water or sediment from the water separator filter.
8. Check the air pressure of the tires.
9. Check the coolant level in the coolant reservoir. Add water and Ethylene Glycol coolant as needed.
10. Check to make sure the audible alarm and indicator lamps operate correctly.
11. Check to see that all shields are correctly installed and latched.
12. Remove all accumulated crop material from the machine.



**WARNING:** *Before starting engine study Operator's Manual safety messages. Read all safety signs on machine. Clear the area of other persons. Learn and practice safe use of controls before operating. It is your responsibility to understand and follow manufacturers instructions on machine operation, service, and to observe pertinent laws and regulations. Operator and Repair Manuals may be obtained from your equipment dealer.*

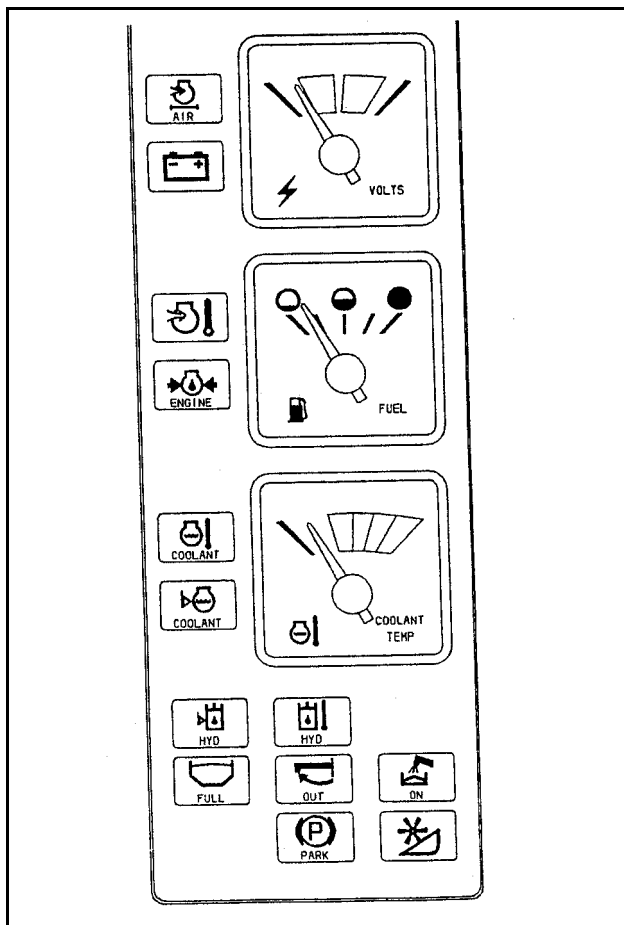
M103A

## INDICATOR LAMP AND ALARM TEST

The indicator lamps and alarm are used to alert the operator when attention is required at some unit of the Combine.

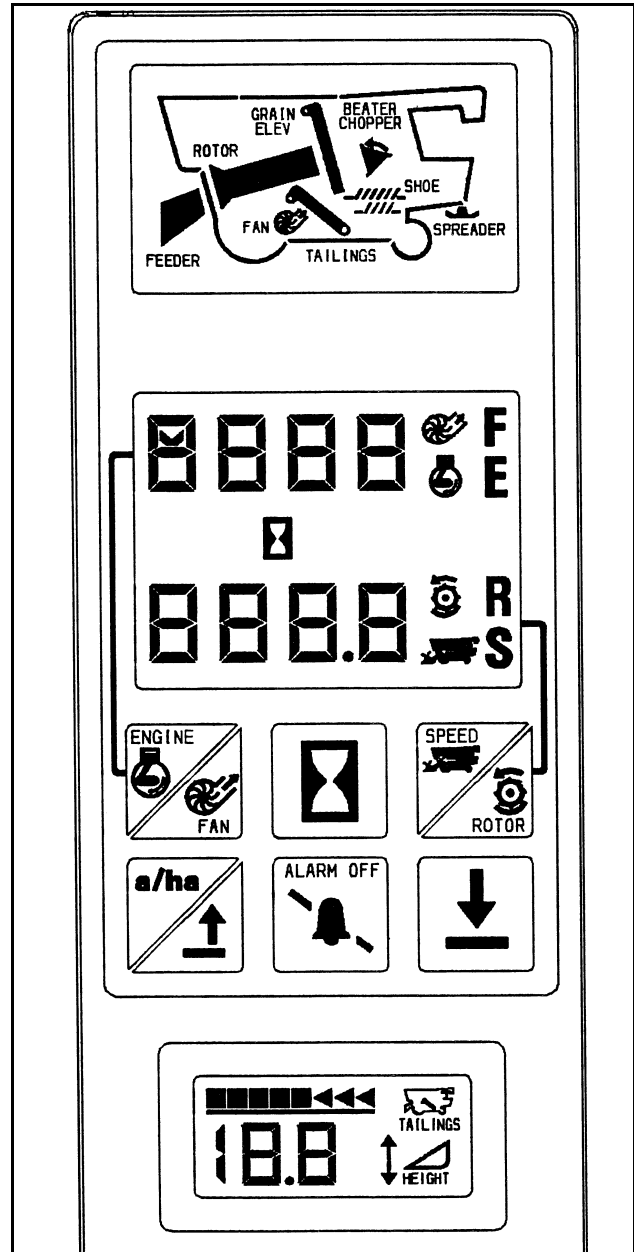
Upon start-up, the instrumentation will go through a self-test mode. This consists of lighting all warning indicators (Figure A) and all the LCD display segments of the Shaft Speed Monitor, tachometer and the Header Height Display (if equipped) (Figure B) simultaneously and sounding the alarm for a short time period. The display will then show an "E" or "M" for English or metric mode for a short time period. Finally, the tachometer display will show the speeds displayed when the Combine was last shut down.

**NOTE:** If the alarm sounds and/or an indicator lamp illuminates during operation, immediate corrective action must be taken. Stop the Combine engine and check the malfunction area.



RH97H011

FIGURE A



RH97H012

FIGURE B

## RUN-IN PROCEDURE

If the run-in instructions for a new engine are not followed, you can cause damage to piston rings and cylinder sleeves.

### Engine Warm Up

Before operating in the field, warm up the engine by running the engine for 10 to 15 minutes at 1/2 throttle.

**IMPORTANT:** *It is important that enough lubricant reaches the turbocharger bearings before operating the engine at rated speed.*

### Load

During the first eight (8) hours of operating in the field, operate in one gear lower than normal. During the next twelve (12) operating hours, do not “lug” the engine. A new engine must not be “lugged” below 2325 RPM.

### No Load

When operating the engine without a load, you can keep the correct engine operating temperature if you run the engine at approximately 1600 RPM.

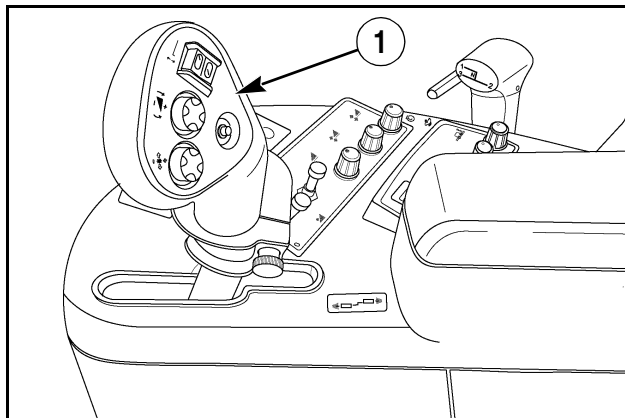
### Engine Oil

New Combines have SAE 15W-40 oil in the engine. This oil can be used in temperatures below 43° C (110° F). Add makeup oil following the recommendations in the LUBRICATION/FILTERS/FLUIDS section in this manual. DO NOT add kerosene for cold weather starting. If temperatures are not in the specified range, drain the oil and replace the oil with the correct viscosity.

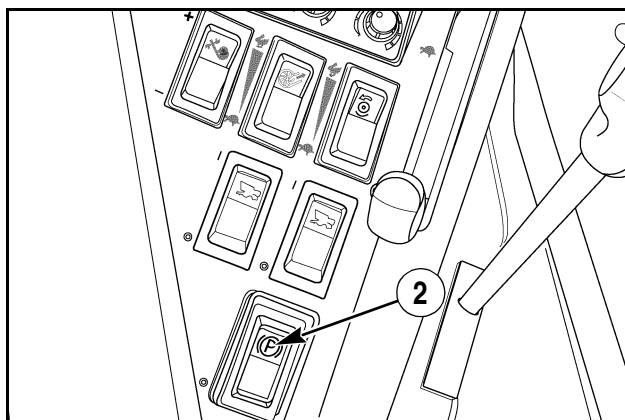
## NORMAL STARTING PROCEDURE

### STEP 1

Put the propulsion control lever (1) in the NEUTRAL position and engage the PARKING BRAKE switch (2).



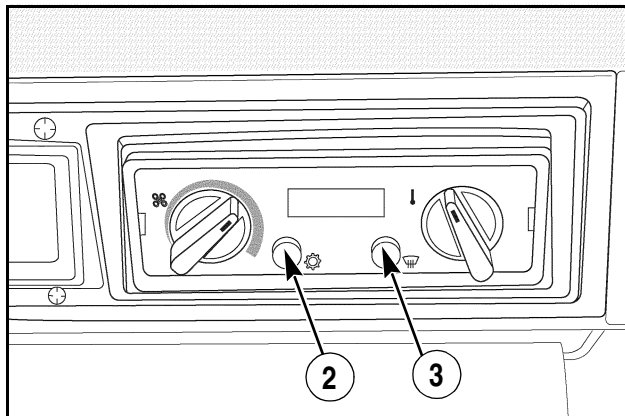
A24307



A24293

### STEP 2

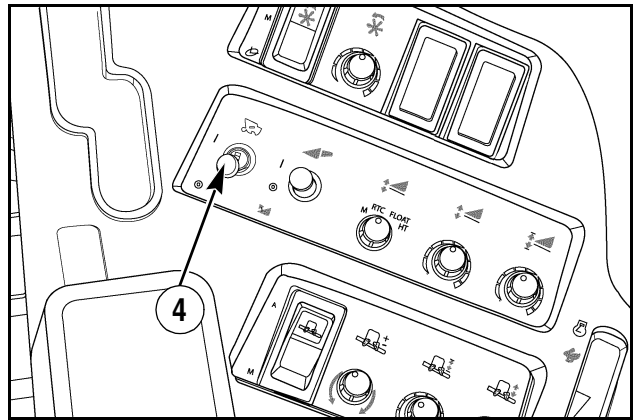
Press the climate control buttons (3) to the OFF position.



RD05D054

**STEP 3**

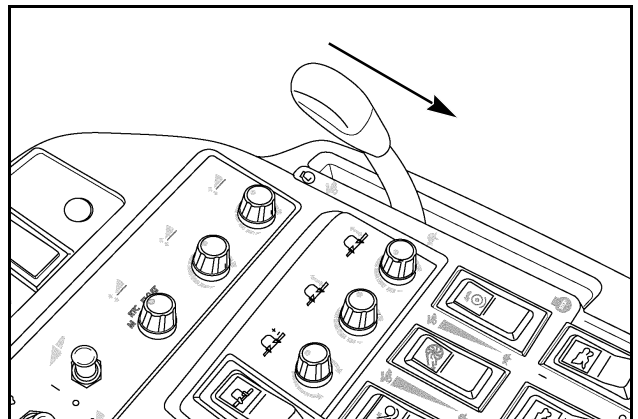
The separator drive switch (4) must be in the OFF position.



A24293

**STEP 4**

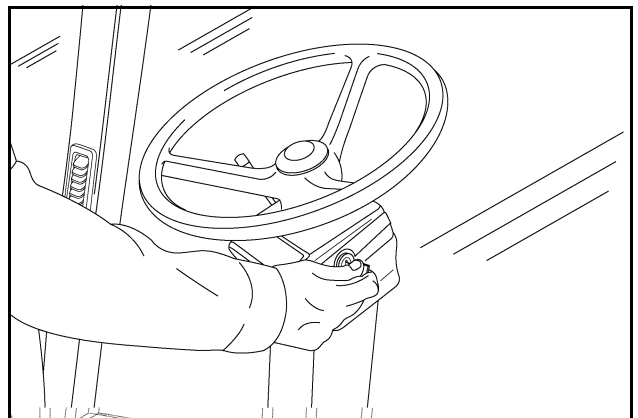
The throttle should be in the low idle position.



A24303

**STEP 5**

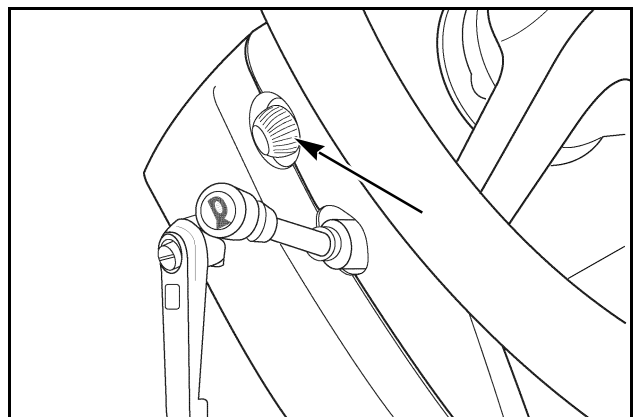
Turn the key switch to the ON position to check the indicator lamps and audible alarm.



A24284

**STEP 6**

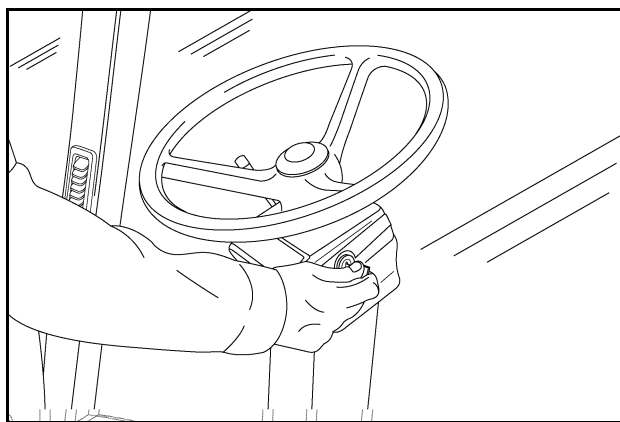
WAIT for start lamp to go out.



RD05D056

**STEP 7**

Turn the key switch to the START position until the engine starts, but no more than 30 seconds, then release the key.



A24284



**WARNING:** *DO NOT use ether starting fluid. Serious engine damage and death or serious personal injury may occur.*

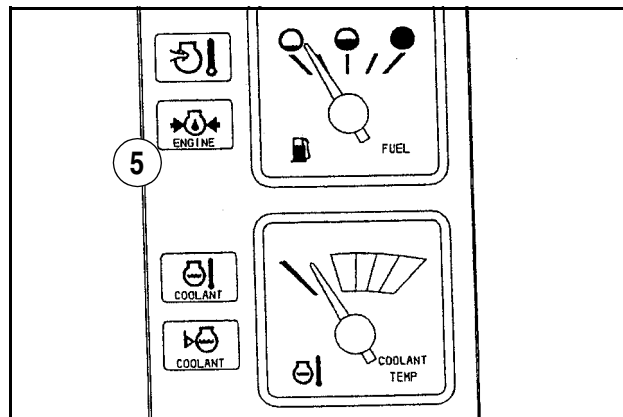
M1068

**STEP 8**

As soon as the engine starts, set the throttle hand lever at low idle position (1000 to 1200 RPM) to make sure oil reaches all areas in the engine. Check the oil pressure indicator (5). If there is low oil pressure STOP the engine and check for the cause.

**IMPORTANT**

1. If the engine starts and then stops, wait for the starting motor to stop turning before you turn the key switch to the START position again.
2. DO NOT use the starting motor for more than 30 seconds. Wait one minute between starts so the starting motor can cool.
3. If the engine stops when operating with a load, immediately start the engine again to prevent excessive heat buildup caused by stopping the flow of oil for cooling and lubrication.



RH97H011

## STOPPING THE ENGINE

**IMPORTANT:** When stopping the engine after operating under a heavy load, run the engine at low idle speed (1000 to 1200 RPM) for 3 to 5 minutes. This will permit the engine and turbocharger temperature to decrease gradually.

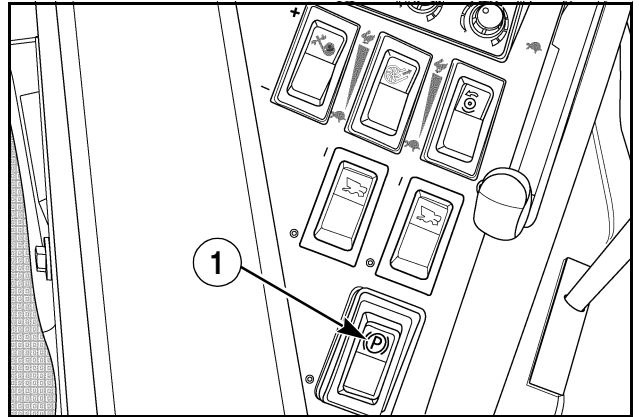


**WARNING:** Before leaving the machine, lower attachments, place all controls in neutral, set the parking brake, stop the engine, and remove the key from the switch.

M224C

### STEP 1

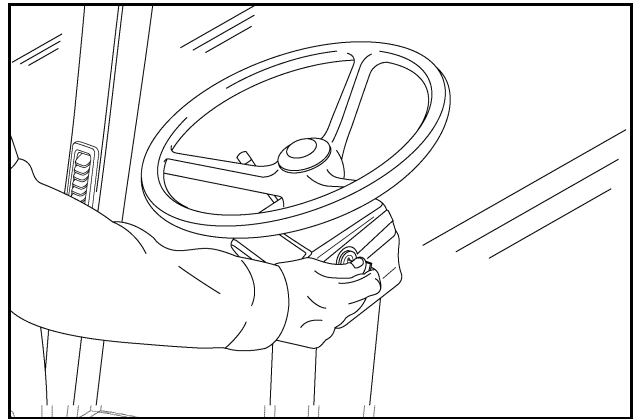
Stop the Combine and engage the PARKING BRAKE SWITCH (1).



A24293

### STEP 2

Turn the key switch to the OFF position. Remove the key.



A24284

## COLD TEMPERATURE OPERATION

**IMPORTANT:** *During cold ambient temperatures never run the engine at low idle speed for long periods of time. Never run the engine for long periods of time when the coolant temperature is below normal.*

To start and operate your Combine during cold ambient temperatures:

1. BATTERIES - Must have a full charge.
2. FUEL - Must be clean and with no water. See Fuel Specifications in this manual.
3. ENGINE OIL - Must have the correct viscosity for the ambient temperature range.
4. TRANSMISSION HYDRAULIC FLUID - Use Case IH HY-TRAN® ULTRA.

5. COOLING SYSTEM - Must have a minimum of 50 percent Ethylene Glycol solution for protection.
6. STOPPING THE ENGINE - Permit the engine temperature to decrease before stopping.
7. CONDENSATION IN FUEL TANK - To prevent condensation in the fuel tank and water entering the fuel system, fill the fuel tank after each operating day.
8. FUEL FILTER WATER TRAP - During cold ambient temperatures, make sure to remove water from the water trap each day or damage will occur.



**WARNING:** *DO NOT use ether starting fluid. Serious engine damage and death or serious personal injury may occur.*

M1068

During cold ambient temperatures, the engine will not heat to or keep the rated operating temperature at slow engine speeds. Slow engine speeds in cold temperatures can cause damage to the engine. Use the following procedures to warm the engine and hydraulic fluid and to keep the correct operating temperatures.

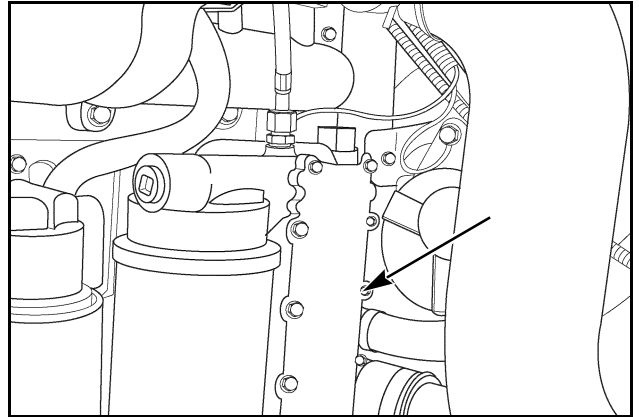
1. WARMING THE ENGINE AND HYDRAULIC FLUID
  - A. Start the engine using the procedure shown in this manual.
  - B. Warm the hydraulic fluid to operating temperature, run the engine at intermediate speed range for approximately five (5) minutes.
2. KEEP ENGINE AT CORRECT OPERATING TEMPERATURE - When the engine is operating in cold ambient temperatures without a load, keep the engine warm by running the engine at intermediate speed range.
3. STOPPING THE ENGINE - Run the engine at slow speed for 3 to 5 minutes. This will permit the engine temperature to decrease gradually before stopping the engine.

**IMPORTANT:** *Operating the Combine with cold hydraulic fluid can cause rough operation with possible injury to the operator.*



## Coolant Heater

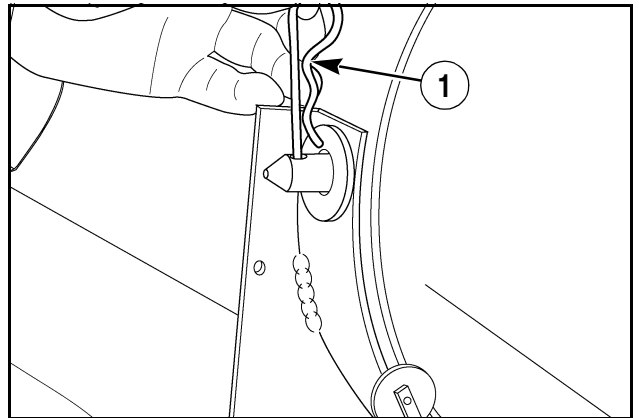
An Engine Block Coolant Heater is available from your dealer.



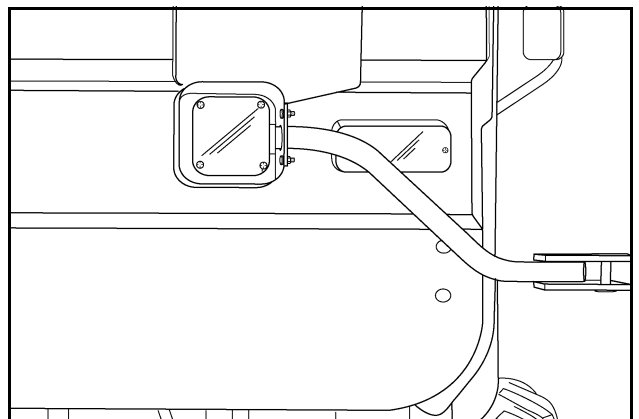
RD02E206

## TRANSPORTING PREPARATIONS

1. Empty the grain tank.
2. Swing the unloader tube into the transport position. If transporting long distances, 16 km (10 miles) or more, install the hairpin clip (1) to hold the unloader tube in place
3. Raise the header high enough for good ground clearance.
4. Pivot the Extremity Wide Clearance Lamps back toward back of machine as shown below. Lock in place with hair pin provided.



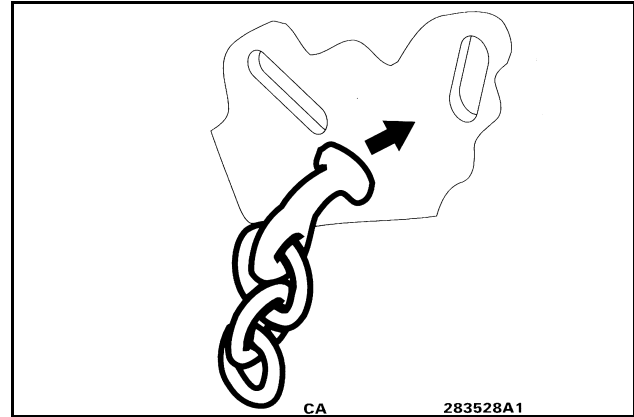
A1013S45



RD02G057

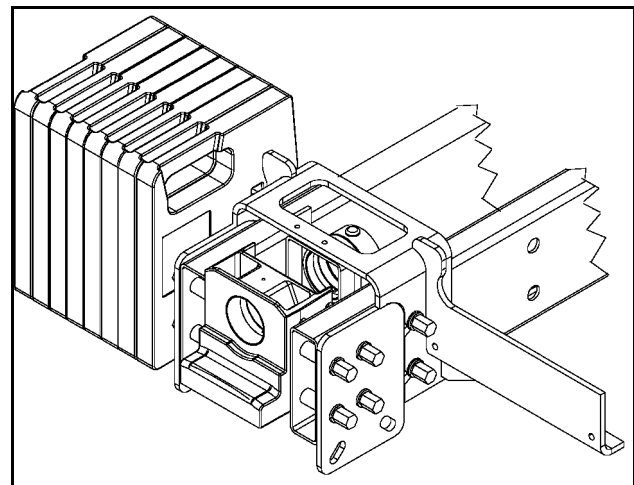
## TIE DOWN T-HOOKS

When Combine is to be hauled on a truck, trailer or flat car, it is recommended that T-hooks be used to chain the Combine down. See next page for locations.



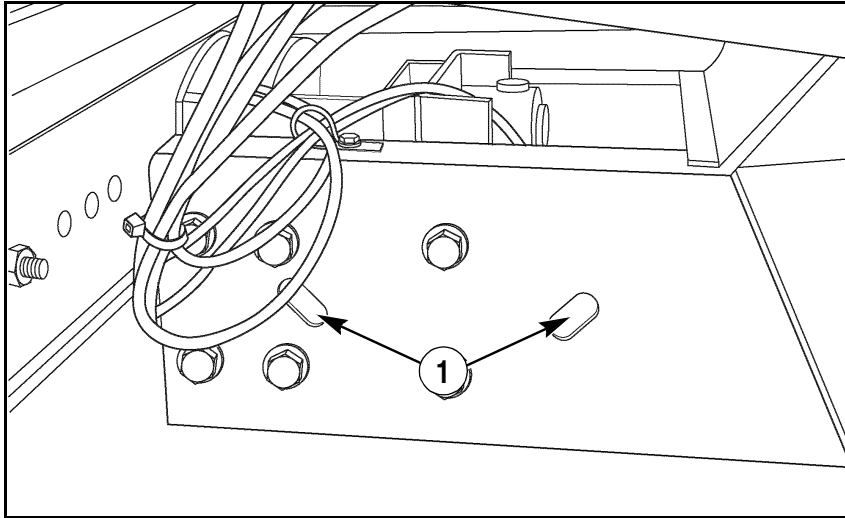
RD97G045

Tie down bracket when the weight bracket is used.



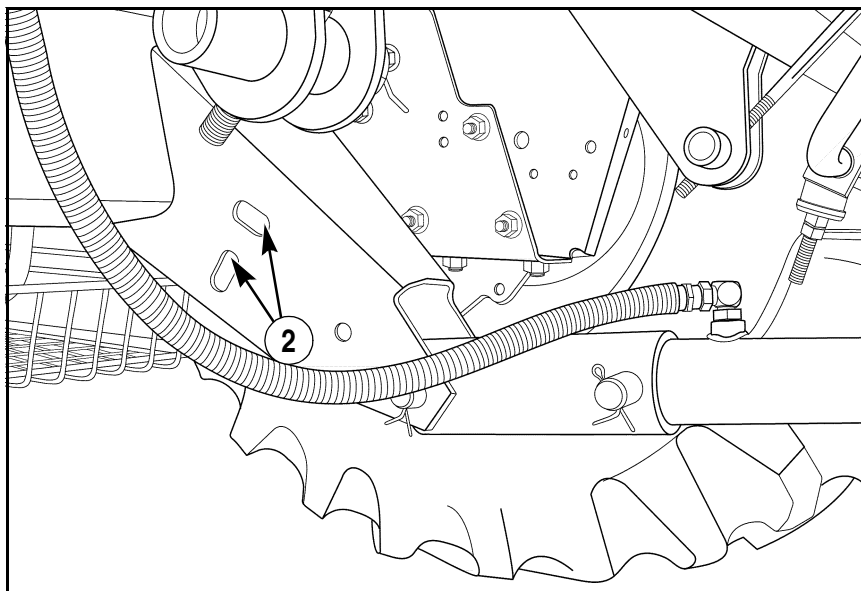
RI00J031

## TIE DOWN LOCATIONS



RD01H021

- Left and Right side of Steering Axle - Steering Axle Support (1).



RD00E029

- Left and Right side of Drive Axle - Feeder Lift Support (2).

## TOWING

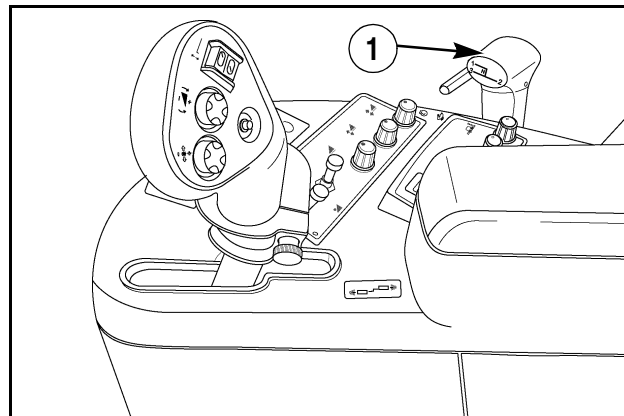
**IMPORTANT:** To prevent damage to the Combine the towing speed must not exceed 20 MPH (32 km/h).

The transmission gear shift lever (1) must be in the NEUTRAL position. Damage to the hydraulic system can be caused by not following this instruction.

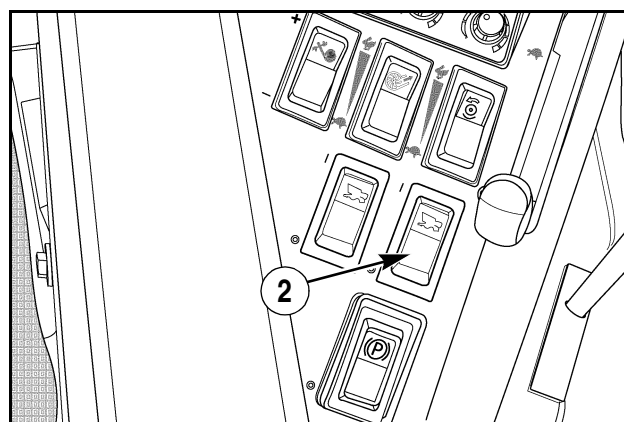
When towing Combines that have a turbocharged engine, make sure you put a cover on the exhaust opening to prevent air from entering. Air entering the exhaust opening can cause the turbine of the turbocharger to turn. The turning of the turbine will cause damage to the turbocharger bearings because of no lubrication.

**NOTE:** If the Combine is equipped with power guide axle, put the Power Guide Axle switch (2) in the OFF position.

**NOTE:** Before towing machine with dead engine, the Park Brake **MUST** be released by turning the key switch to the ON position, park brake released and activating the Hazard/Park Brake Disable Switch to the DISABLE position. See Disabled Machine in this section of the manual.



A24307



A24293



**WARNING:** Do not use nylon rope or wire cable to pull this machine. Failure of the hook, the nylon rope or wire cable will release tremendous energy and the recoil can cause bodily injury to anyone in the area. Use caution when pulling the machine from the mud.

M319D

## Disabled Machine

In the event that the engine stops running and cannot be restarted, the Combine park brake will lock the wheels. To free the wheels so that the Combine can be towed, do the following:

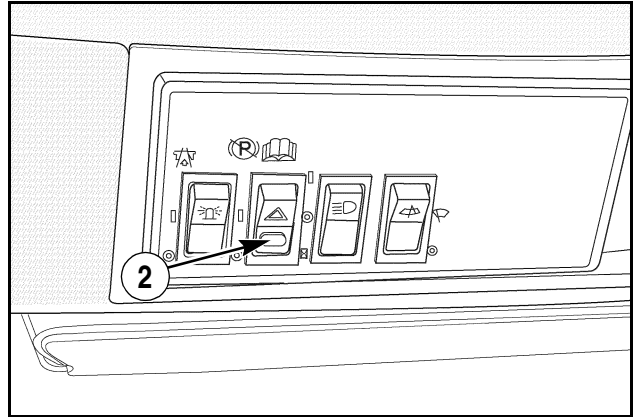
1. Turn the key switch to the ON position.
2. Make sure Park Brake is in the OFF Position.
3. Press the Hazard/Park Brake Disable Switch to the hazard Position.  
Lift detent lock latch (1) and press top part of switch to the Park Brake DISABLE Position.
4. Vigorously pump the Left service brake pedal through its full stroke until the Park Brake Light goes out

(It is suggested that you stand over the brake pedal when doing this procedure), while actuating the pedal approximately 12 to 15 times.

**NOTE:** If the Combine is to be towed for a period of time exceeding 30 minutes, the drive shaft couplings should be removed. **Combine will have NO Brake Function with coupling removed.**

**IMPORTANT:** The **Hazard/Park Brake Disable Switch MUST be in the Park Brake Disable Position while Combine is being towed.** Disengaging the switch will reengage the Park Brake and stop the machine.

**NOTE:** After towing is completed, move the Hazard/Park Brake Disable Switch to the OFF position.



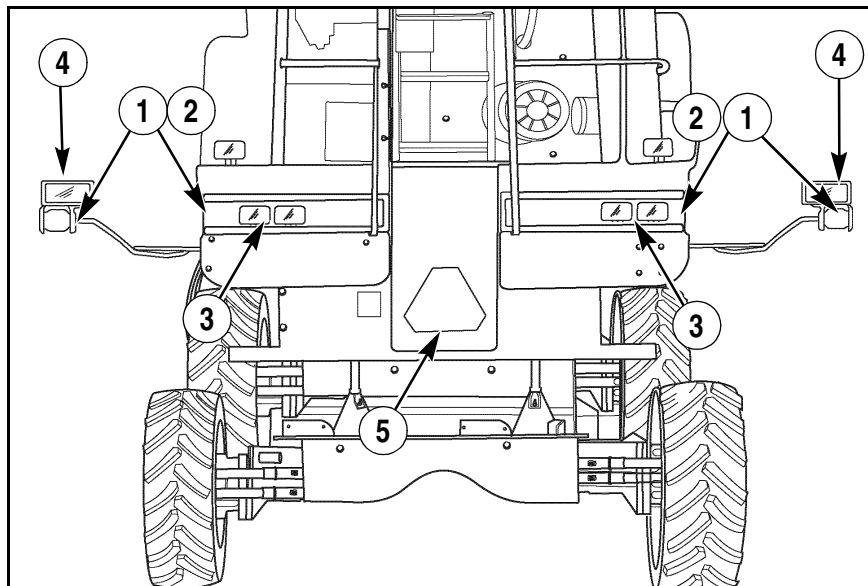
RD05D120



**WARNING:** If machine is on a slope and the above procedure is performed, the machine will roll. Perform the above procedure only when machine is on a flat surface or completely restrained by blocking the wheels.

M575

## WARNING LAMPS, TURN SIGNALS AND SMV EMBLEM



RR02K038



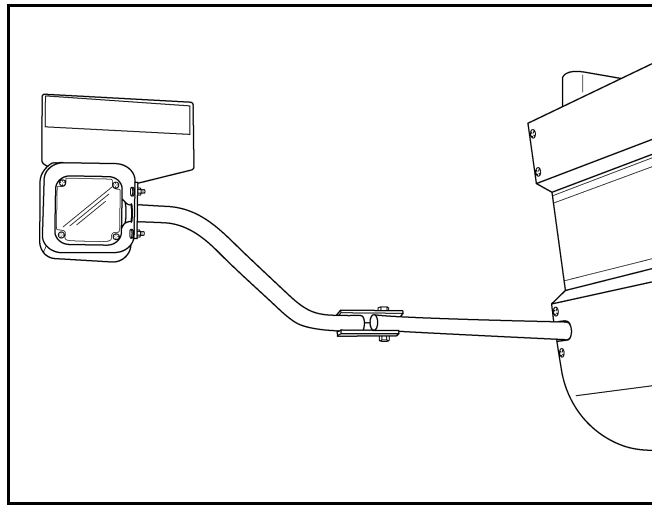
**WARNING:** Collision of high speed road traffic and slow moving machines can cause personal injury or death. On roads, use flasher/lights according to local laws. Keep SMV emblem visible. Pull over to let faster traffic pass. Slow down and signal before turning off.

M110E

Your Combine has flashing amber warning lamps (1), direction turn signals (2), tail lamps (3), reflectors (4) and a slow moving vehicle (SMV) emblem (5). Make sure to use these items correctly when operating the Combine on the road for the safety and protection of the operator and other vehicle operators. The flashing amber warning lamps must be operating when the Combine is operated on a road during the day or night. A vehicle operator that comes near the Combine must see the SMV emblem and the tail lamps from the rear and the flashing amber warning lamps from the front and rear.

The SMV emblem must be replaced when the bright orange, center triangle has noticeably faded to a pale orange color. This fading of the orange fluorescent center will occur due to long exposure to sunlight and reduces daytime identification by approaching vehicle drivers.

Extremity warning lamp assemblies must be swung out to full width when operating or traveling on a road.



RD00H0041

For dual drive wheel configurations extremity warning lamp assemblies must be in the outer position (inner edge of warning lamp assembly tube flush with inner edge of mounting bracket tube). Warning lamps must be positioned within 406 mm (16 inches) of outer edge of both sides of Combine when the header is removed.

For flotation tires (76 x 50.00-32) drive wheel configuration, extremity warning lamp assemblies must be shifted an additional 127 mm (5 inches) outward per side (end of warning lamp assembly tube recessed 127 mm (5 inches) from end of mounting bracket tube). Warning lamps must be positioned within 406 mm (16 inches) of outer edge of both sides of Combine.

## DIGITAL TACHOMETER

### High Idle Speed

At normal operating temperature engine RPM must be in the range of 2420 to 2510 RPM on the engine tachometer (1) for the best performance.

High Idle with separator engaged - 2410 RPM. High Idle with separator disengaged - 2510 RPM.

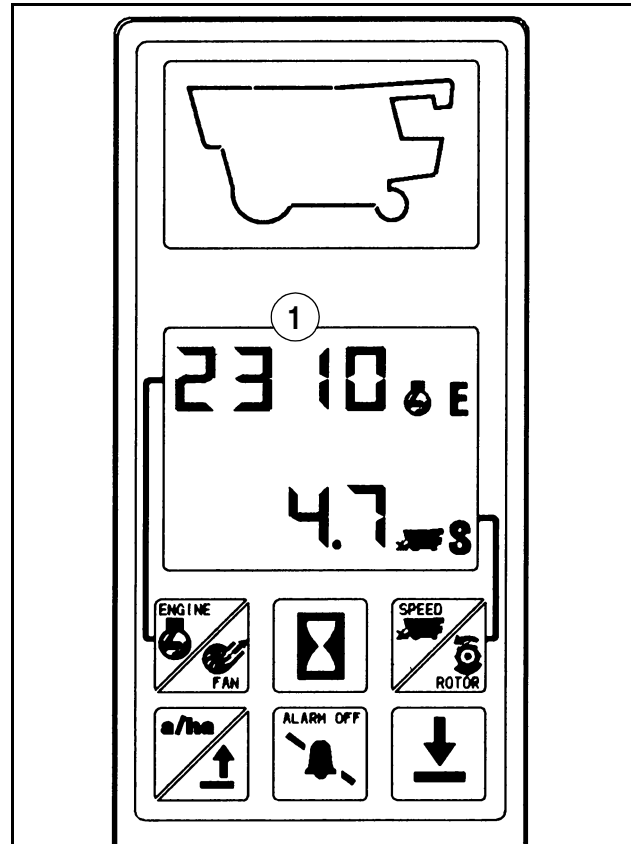
If the engine RPM falls below the engine alarm threshold set point and the Feeder or Rotor or Fan are ON, the audible alarm will be pulsed ON and OFF and the ENGINE SPEED shall flash. If the FEEDER ENABLE switch is OFF the Engine Speed Alarm function is disabled.

### Adjusting Engine Alarm

The engine alarm is set to sound when the engine RPM drops below a speed of 2300 RPM. The alarm can be adjusted to sound when the engine RPM drops to a speed as low as 1900.

### Adjusting Speed Calibration

The digital tachometer can be calibrated for the size of the drive wheels being used. This adjustment must be made for the digital tachometer to show the correct vehicle speed. See Instrument Calibration in this manual.



552L94



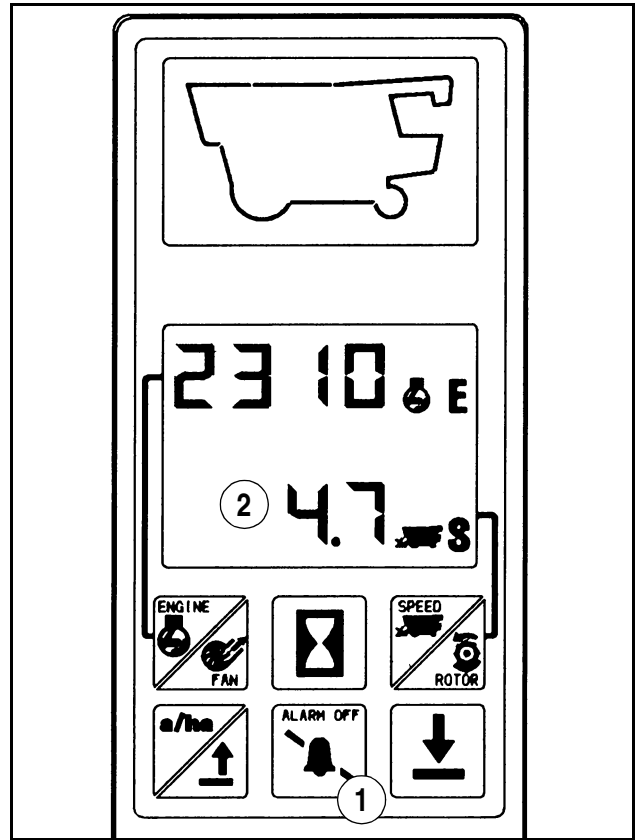
## COMBINE OPERATION

### Ground Travel Speed

Power is transferred from the engine to the three speed transmission by the hydrostatic drive unit. Different ground speeds are available in each transmission gear range. The ground travel speeds are shown under “Approximate Travel Speeds,” See Travel Speed Chart in Specifications Section of this manual. Press the ground speed touch switch (1) and use the digital tachometer to check the ground travel speed (2).

The correct ground speed is important. A ground speed which is too fast will cause an overload condition. A ground speed which is too slow will not give efficient operation. A ground speed that is too fast over rough terrain will cause early wear and possible damage to the Combine.

**NOTE:** *The hydrostatic pump on the Rice Combine only is equipped with a pressure override valve. This valve is to prevent an overload of the hydrostatic system. The valve is part of the pump assembly and is not adjustable. During normal operation the pressure override valve will cause the Combine to slow down or stop completely according to conditions. When this occurs put the propulsion control lever in the NEUTRAL position, shift the transmission to a lower gear and continue operation.*



552L94

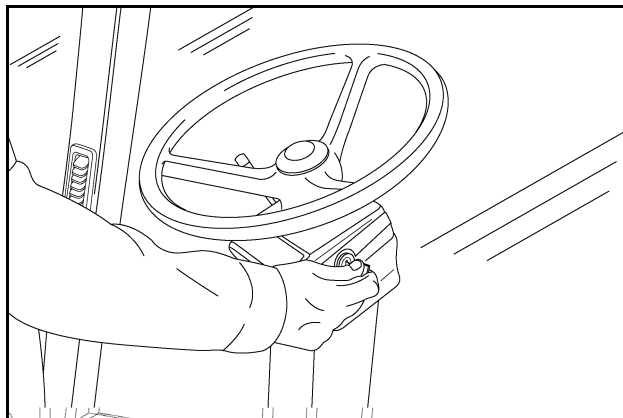


**WARNING:** *Travel speed should be such that complete control and machine stability is maintained at all times. Where possible, avoid operating near ditches, embankments and holes. Reduce speed when turning, crossing slopes, and on rough, slick, or muddy surfaces.*

M109B

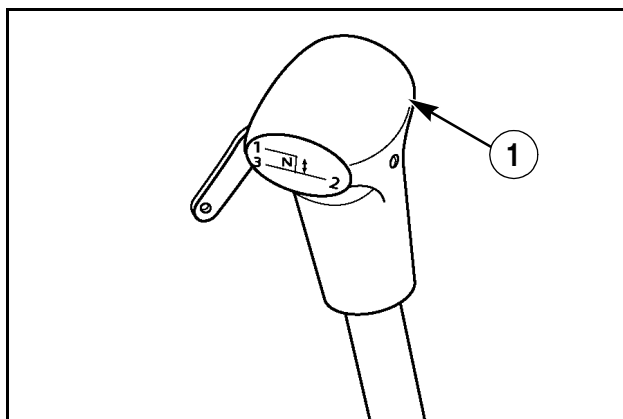
## Starting Ground Travel

1. Start the engine.



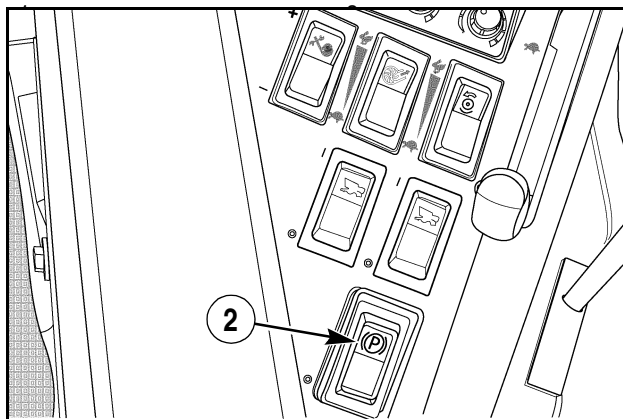
A24284

2. Press the Foot-N-Inch pedal fully down and move the transmission control lever (1) to the proper gear. Release the Foot-N-Inch pedal.



A24299

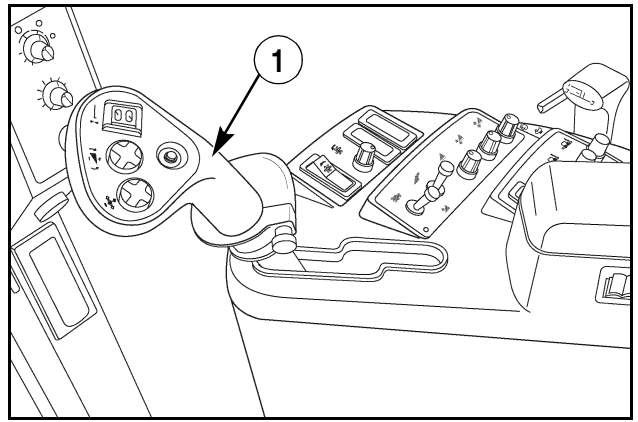
3. Release the PARK BRAKE SWITCH (2).



A24293

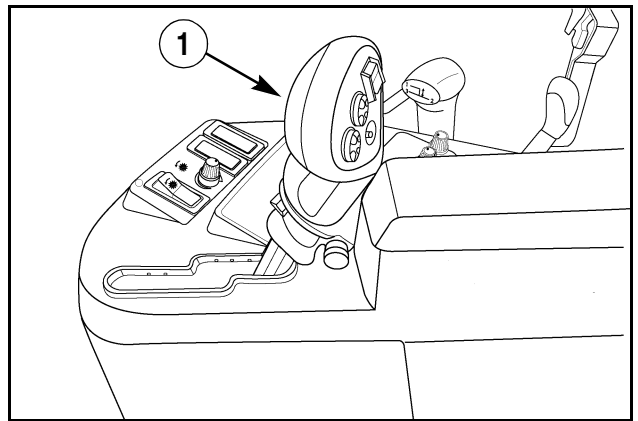
## 5 - OPERATING INSTRUCTIONS

4. Moving the propulsion control lever (1) forward will cause the Combine to move forward. Moving the lever farther forward will increase travel speed in that transmission gear.



RR05E001

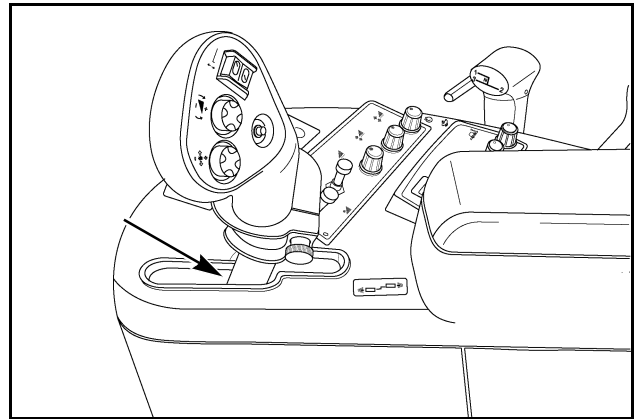
5. To reverse the direction of the Combine, move the propulsion control lever (1) to NEUTRAL then push the lever to the right and pull rearward.



RR05E002

## Stopping Ground Travel

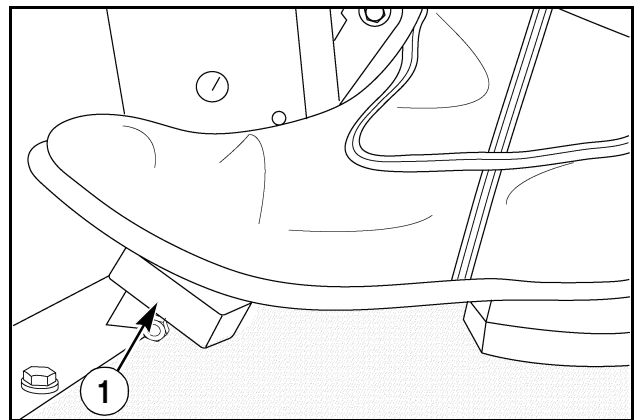
1. The Combine can be stopped by moving the propulsion control lever to the NEUTRAL position.



A24307

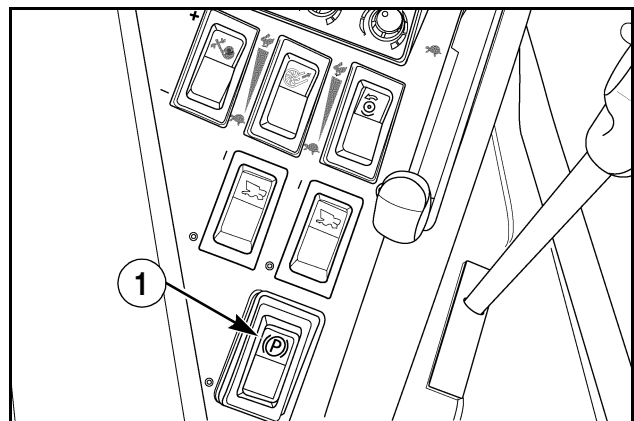
2. At low speeds the Combine can also be stopped by pressing the Foot-N-Inch pedal (1) fully down.

**IMPORTANT:** Do Not use the Foot-N-Inch pedal to stop the machine when traveling at highway speeds.



T85154

3. Engage the Park Brake switch (2).



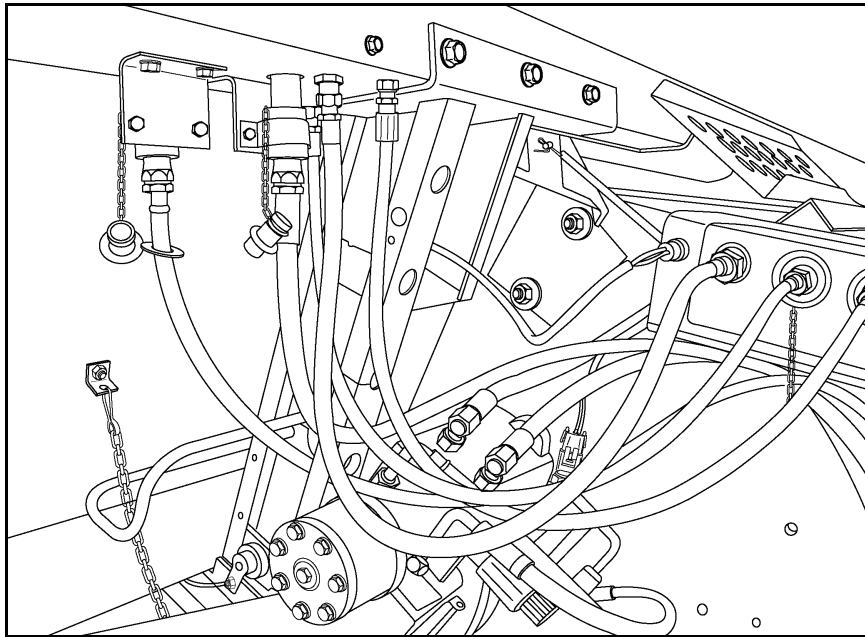
A24293



**WARNING:** When going downhill, do not rapidly move the propulsion control to neutral position. Do not push down on the foot-n-inch pedal. The engine and transmission will help control the machine speed. M178B

## HEADER AND COMBINE CONNECTIONS

### 1000 Series Header




RD01H002

**1000 SERIES HEADER SHOWN**

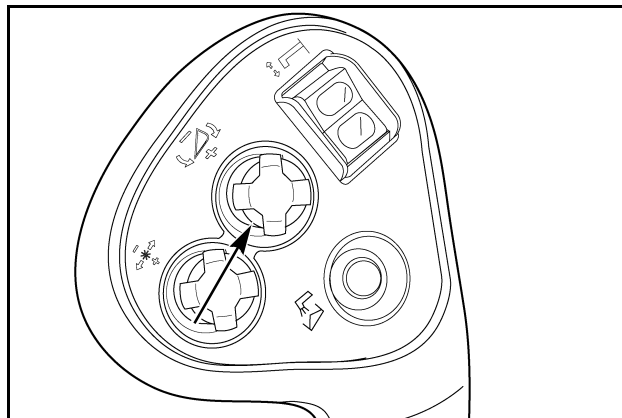
Connect the header to the Combine according to the following procedure.

**NOTE:** Make sure the stripper extensions are installed in the correct location for the Combine model being used. See Stripper Extension Location in the Header Operator's Manual for more information.

<p><b>WARNING:</b> Hydraulic oil or diesel fuel leaking under pressure can penetrate the skin and cause infection or other injury.</p> <p><i>To Prevent Personal Injury:</i></p> <p> Relieve all pressure, before disconnecting fluid lines.</p> <p>Before applying pressure, make sure all connections are tight and components are in good condition.</p> <p>Never use your hand to check for suspected leaks under pressure.</p> <p>Use a piece of cardboard or wood for this purpose.</p> <p>If injured by leaking fluid, see your doctor immediately.</p>	<p>M149B</p>
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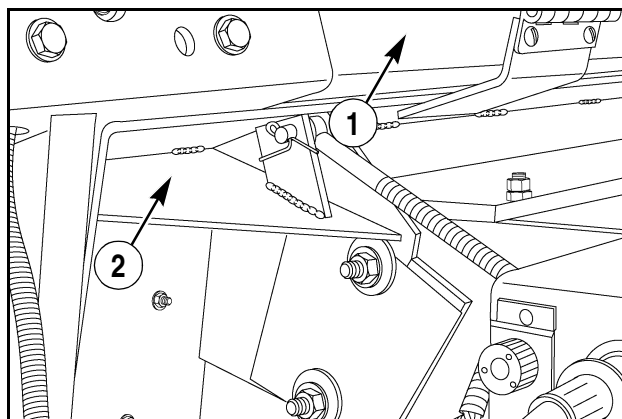
## Connecting the Header

1. Make sure the work area is clear from all persons, tools, pets, etc. Push the Header Control Switch and lower the feeder. Slowly move the Combine to the header.



RD00E065

2. Move the Combine into the header opening until the feeder saddle is aligned with the header beam. Slowly lift the header off the ground. Make sure the header beam is seated in the feeder saddle.



RD00H048

1. HEADER BEAM
2. FEEDER SADDLE



**WARNING:** Stay clear of the header when latching the header to the feeder. Reach under the feeder to engage the latches on the bottom of the feeder.

M576

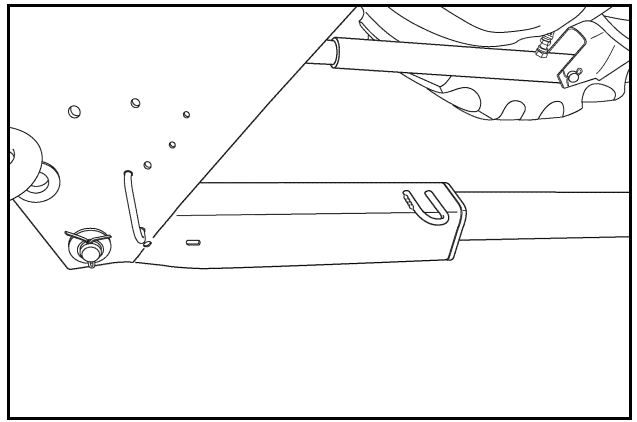


**WARNING:** Always shut OFF engine, remove the key and engage feeder safety lock in position on lift cylinder before working under Header or feeder. Failure to engage feeder safety lock may cause injury or death.

M184D

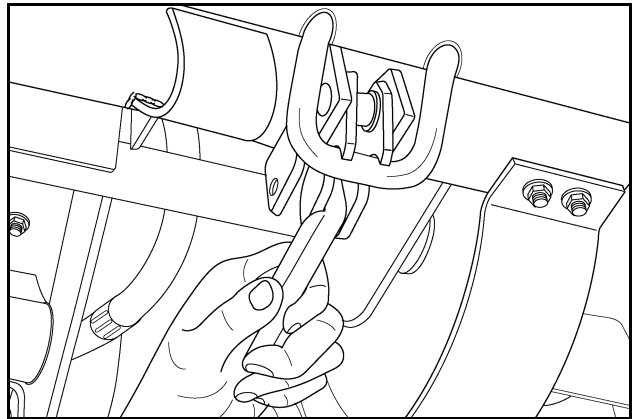
## 5 - OPERATING INSTRUCTIONS

3. Raise the header completely. Turn OFF the Combine engine and remove key. Engage the safety lock on the feeder lift cylinder.



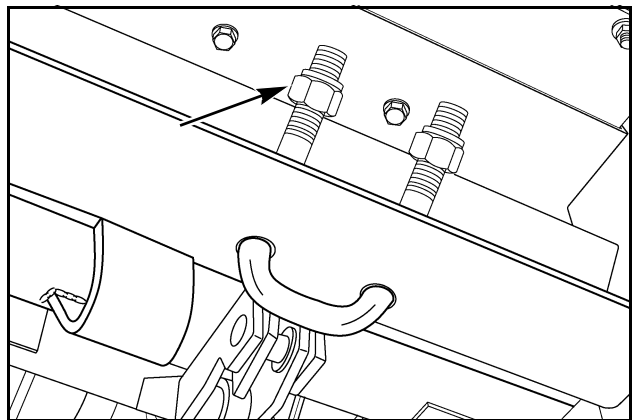
RD01H174

4. Reach under the feeder to engage the latches on the bottom of the feeder with the U-bolts on the header. It must require 18 to 23 kg (40 to 50 pound) of force to move the latches over center.



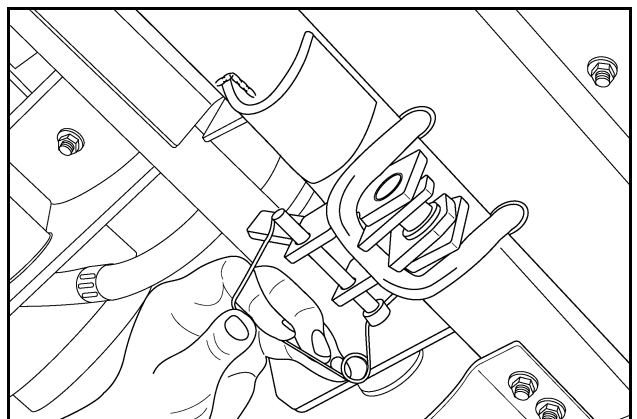
T85251

5. If necessary, adjust the nuts on the U-bolt to get the required force on the latches.



T85253

6. Install the lock pins in the latches.



T85252

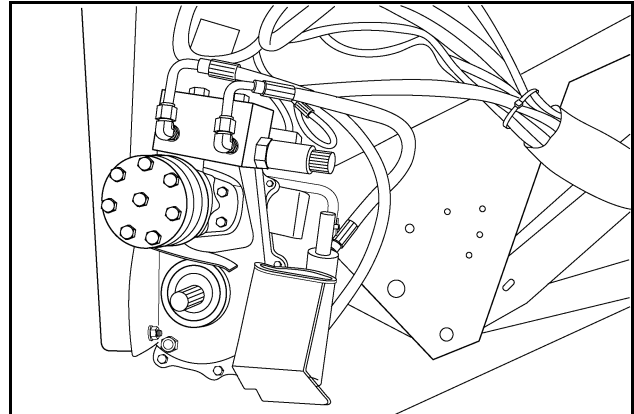
## 5 - OPERATING INSTRUCTIONS



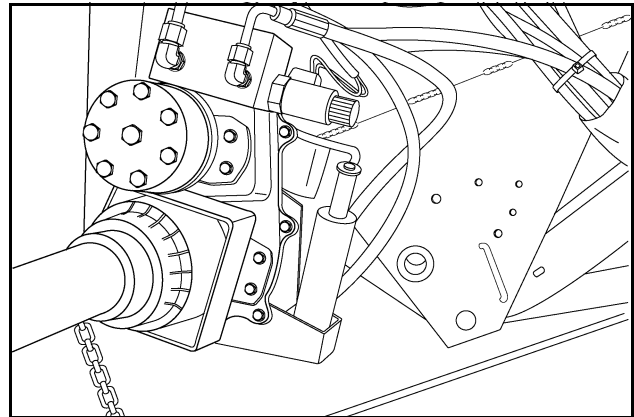
**WARNING:** *Stay clear of the header when latching the header to the feeder. Reach under the feeder to engage the latches on the bottom of the feeder.*

M576

7. Open the feeder jackshaft shield(s). Connect the header drive shaft(s) to the Combine drive. Close feeder jackshaft shield(s).



RR00J102



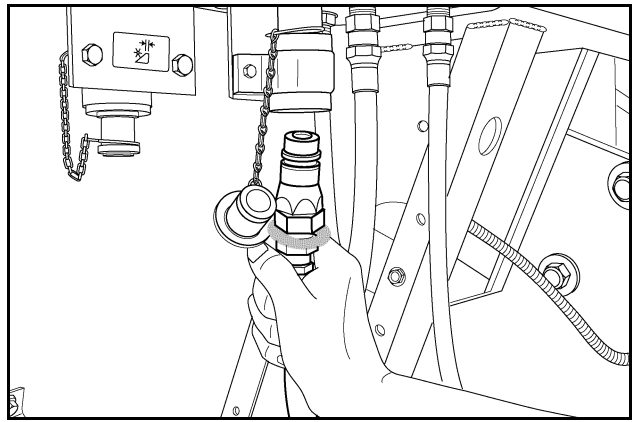
RR00J098



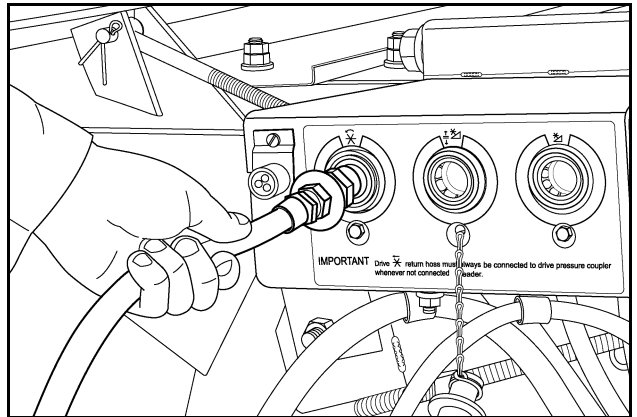
## 5 - OPERATING INSTRUCTIONS

- The supply and return hoses for the hydraulic reel drive are identified with white discs. Connect the hose from the Combine to the header coupler and from the header to the Combine coupler.

**NOTE:** Clean all hydraulic couplers from dust and dirt prior to connecting to prevent contamination of hydraulic system.

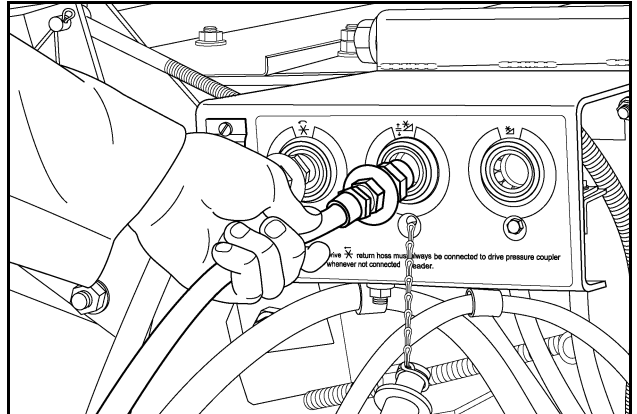


RD01H010



A16858

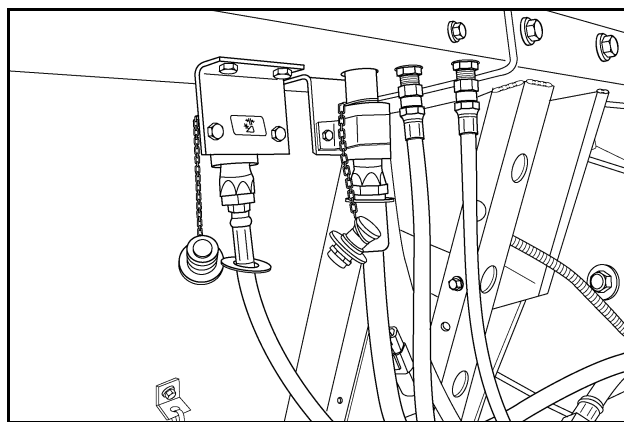
- The hose for the hydraulic reel lift is identified with a black disc. Connect the hose from the header to the Combine coupler.



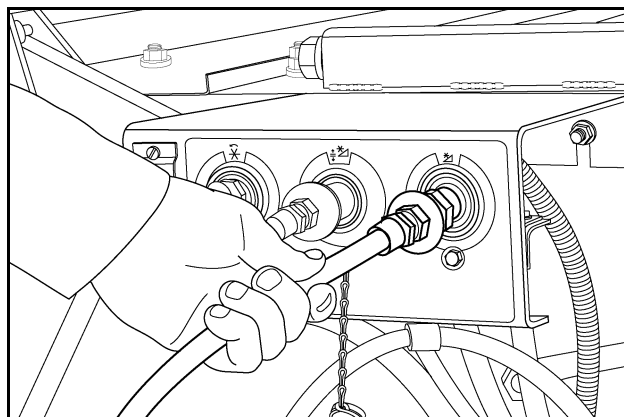
A16859

## 5 - OPERATING INSTRUCTIONS

10. The supply and return hoses for the hydraulic reel fore/aft adjustment (if equipped) are identified with red discs. Connect the hose from the Combine to the header coupler and from the header to the Combine coupler.

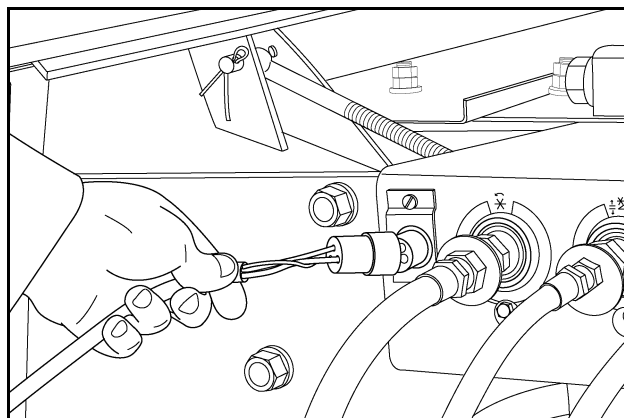


RD01H003



A16860

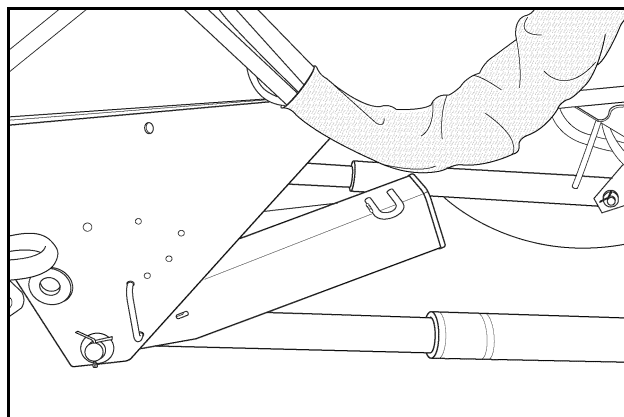
11. On Combines equipped with automatic header height control, connect the header harness to the Combine harness.
12. Connect safety lighting to Combine, Refer to Safety Lighting in this manual.



A16862

13. Raise the safety lock on the feeder lift cylinder and secure the safety lock(s) in the storage position. Lower the header to the ground.

**IMPORTANT:** Do not park the Combine with the header in raised position. This puts a load on the hydraulic system and will cause damage to the header lift cylinders.



RD01H175

**WARNING:** Hydraulic oil or diesel fuel leaking under pressure can penetrate the skin and cause infection or other injury.

To Prevent Personal Injury:



Relieve all pressure, before disconnecting fluid lines.

Before applying pressure, make sure all connections are tight and components are in good condition.

Never use your hand to check for suspected leaks under pressure.

Use a piece of cardboard or wood for this purpose.

If injured by leaking fluid, see your doctor immediately.

M149B

## Disconnecting the Header

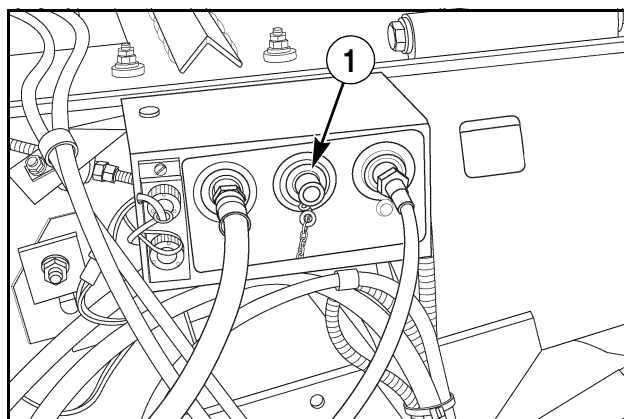
To disconnect the header from the Combine, reverse the connection procedure. Also do the following:



**WARNING:** Stay clear of the header when unlatching the header. Reach under the feeder to disengage the latches on the bottom of the feeder.

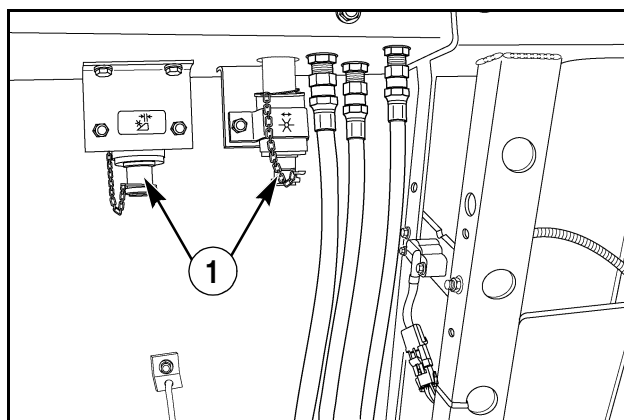
M582

The hoses on the Combine feeder housing are identified with white and red washers on the male couplers. Connect these hoses to the correct female couplers on the feeder as shown. Install a dust plug in the other coupler.



RD00F035

Install dust plugs in the female couplers on the header. DO NOT connect any of the hoses on the header to the couplers on the header. Keep the hydraulic connections clean. Keep the hoses away from the auger.



RD01H009

1. DUST PLUG

**NOTE:** Clean all hydraulic couplers from dust and dirt prior to connection.

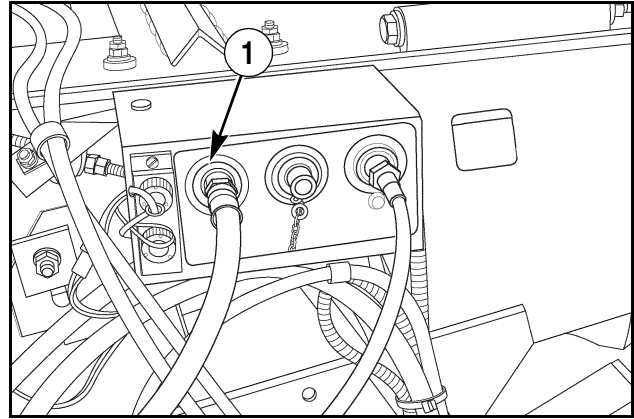


**WARNING:** Never connect the reel fore and aft hydraulic couplers on the header to each other. This would complete the circuit and allow the reel to slide unexpectedly.

M209B

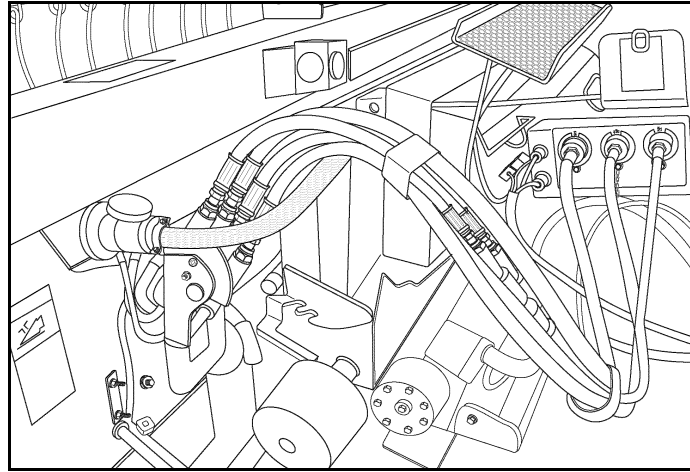
## Header Connection/Disconnection

When the header is removed from the Combine or when a corn head is mounted to the Combine, make sure that the reel drive hose (1) is reconnected to the Combine feeder housing. This will prevent the reel drive system from running on relief pressure during corn harvesting.



RD00F035

## 2000 Series Header



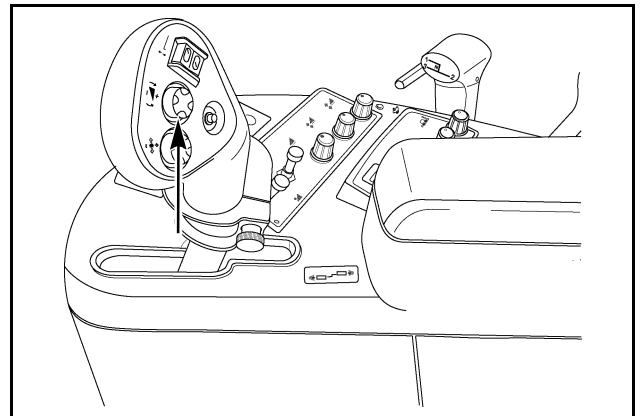
RR04F005

### Connecting the Grain Header

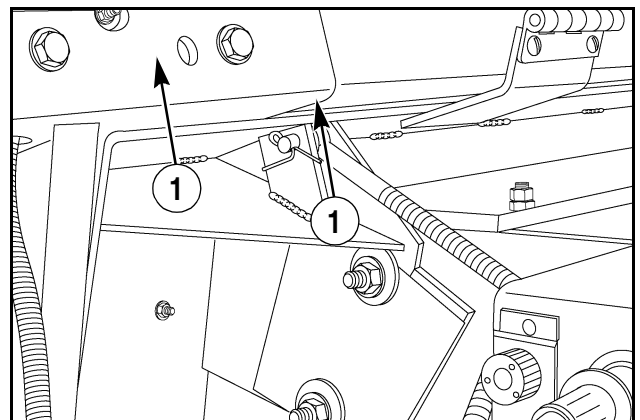
Connect the header to the Combine according to the following procedure.

**NOTE:** Make sure the stripper extensions are installed in the correct location for the Combine model being used. See *Stripper Extension Location* in the *Header Operator's Manual* for more information.

1. Make sure the work area is clear from all persons, tools, pets, etc. Push the Header Control Switch and lower the feeder. Slowly move the Combine to the header.
2. Move the Combine into the header opening until the feeder saddle is aligned with the header beam. Slowly lift the header off the ground. Make sure the header beam is seated in the feeder saddle.



A24307



RD00H048

1. HEADER BEAM
2. FEEDER SADDLE



**WARNING:** Stay clear of the header when latching the header to the feeder. Reach under the feeder to engage the latches on the bottom of the feeder.

M576

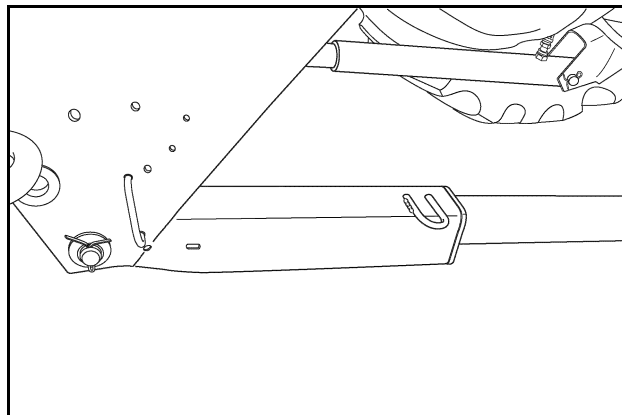
## 5 - OPERATING INSTRUCTIONS



**WARNING:** Always shut OFF engine, remove the key and engage feeder safety lock in position on lift cylinder before working under Header or feeder. Failure to engage feeder safety lock may cause injury or death.

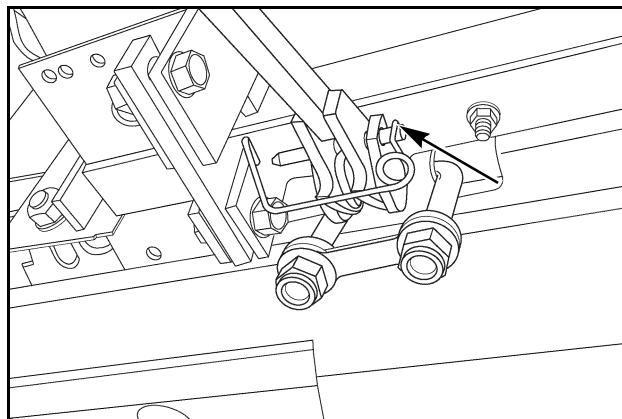
M184D

3. Raise the header completely. Turn OFF the Combine engine and remove key. Engage the safety lock on the feeder lift cylinder.



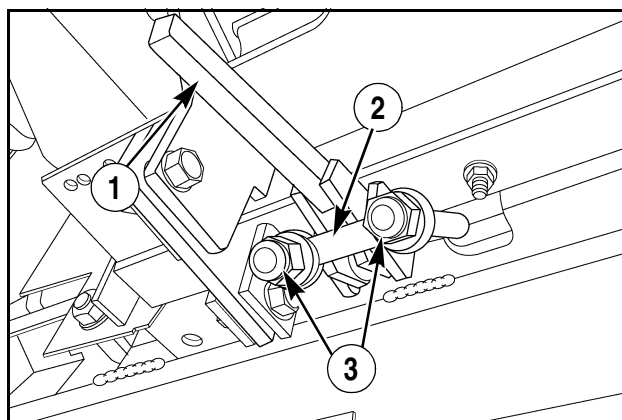
RD01H174

4. Remove the overcenter latch lock pin (right and left side), located at the bottom of the feeder.



RD04F024

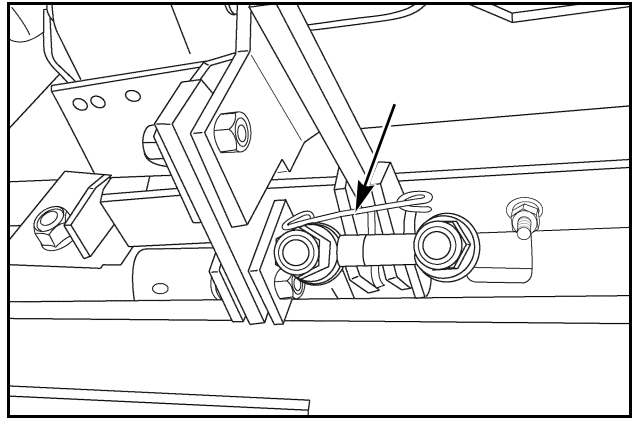
5. Engage the latches (1) into the header latch bar (2). It must require 18 to 23 kg (40 to 50 pounds) of force to move the latch(s) over center. If necessary, disengage the latch(s) and adjust nuts (3) to get the required force on the latches.



RD04F025

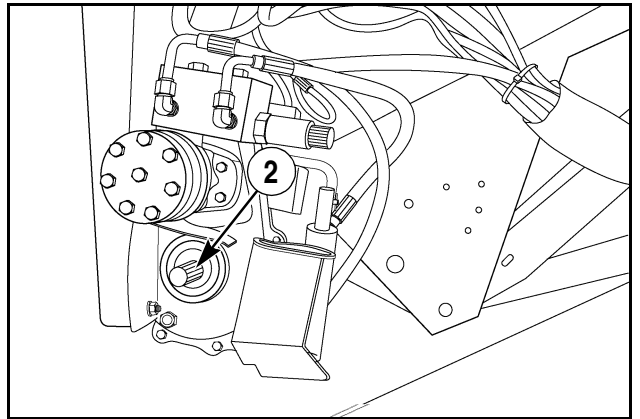
## 5 - OPERATING INSTRUCTIONS

6. Install the lock pins in the latches.

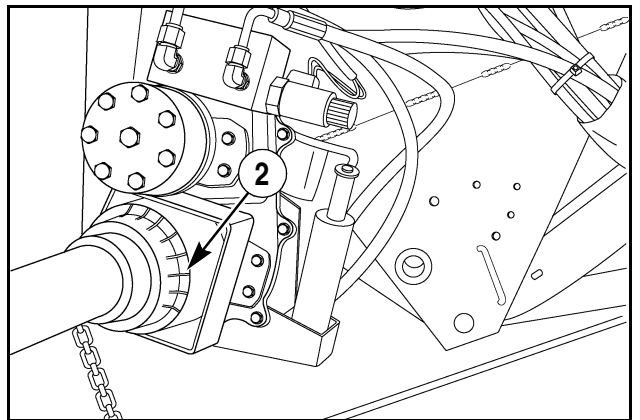


RD04F026

7. Open the left feeder jackshaft shield (1) and connect the drive shaft (2) to the feeder jackshaft drive. Repeat for the right side.



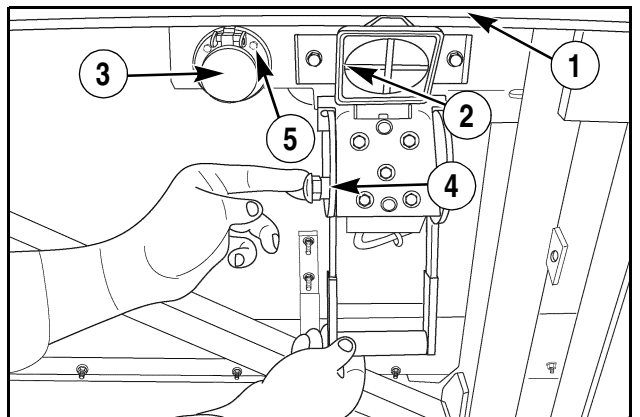
RR00J102



RR00J098

8. Open the dust cover (1) on the quick coupler (2), push the button (3) in and move the locking handle (4) upward so that the handle claws are open.

**IMPORTANT:** *With a clean cloth, clean the mounting surface (5) of the quick coupler of any accumulated dust.*

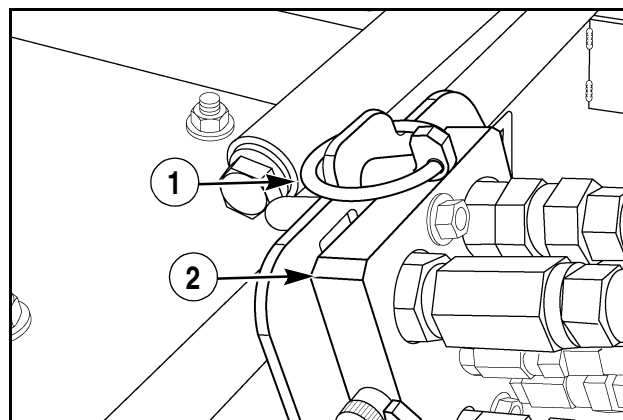


RD04K045

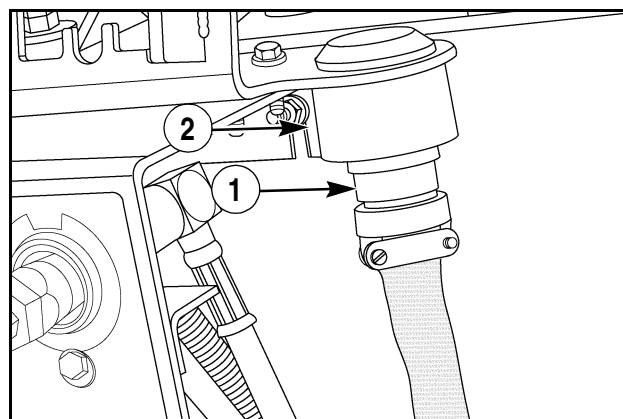
## 5 - OPERATING INSTRUCTIONS

9. Remove the Klik pin (1), then remove the coupling/hose assembly (2) from the bracket. Reinstall the Klik pin (1).

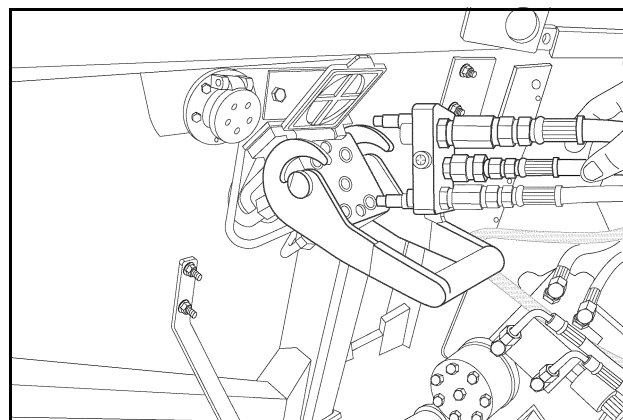
**IMPORTANT:** *With a clean cloth, clean the mounting surface of the quick coupler (2) of any accumulated dust.*



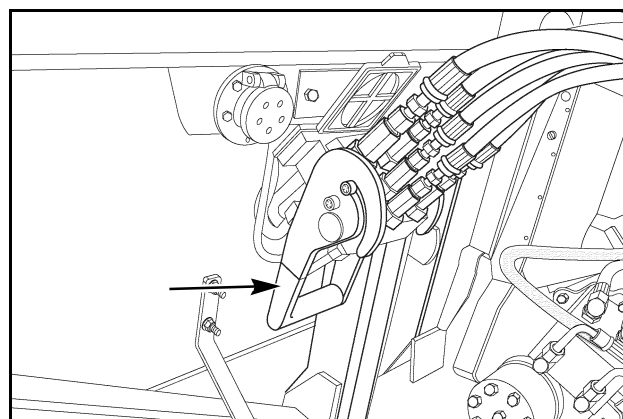
10. Remove the electrical harness (1) from the protection cap (2).



11. Install the feeder coupler into the Header coupler.



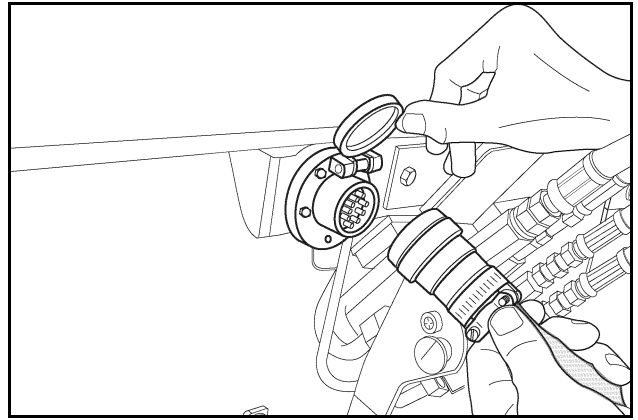
12. Lock coupler halves in place by moving the locking handle fully downward until the lock button “clicks”. This ensures that the handle is locked.





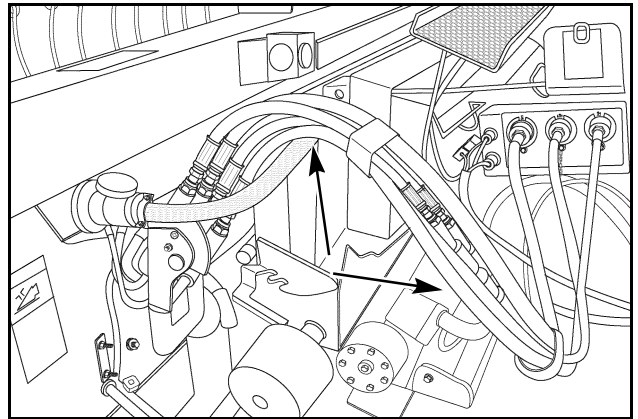
13. Install the harness to the connector on the header.

**IMPORTANT:** *When installing the harness, make sure the connectors are properly aligned. Do not force connectors together or damage to the pins may occur.*



RD04K050

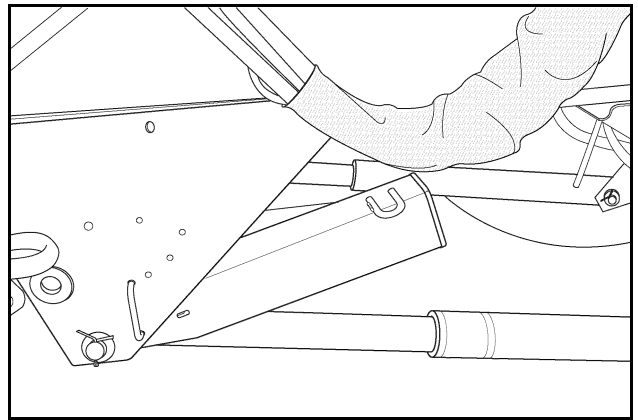
14. If necessary, reposition the hook and loop fastener as shown. This will hold the hose and wire harness assembly in a complete package, and help prevent them from becoming entangled or rubbing on any components.
15. When Header is installed during road transport, connect Safety Lighting to Combine as specified to satisfy individual country road regulations.



RR04F005

16. Raise the safety lock on the feeder lift cylinder and secure the safety lock in the storage position. Lower the header to the ground.

**IMPORTANT:** *Do not park the Combine with the header in raised position. This puts a load on the hydraulic system and will cause damage to the header lift cylinders.*



RD01H175

**WARNING:** *Hydraulic oil or diesel fuel leaking under pressure can penetrate the skin and cause infection or other injury.*

*To Prevent Personal Injury:*

*Relieve all pressure, before disconnecting fluid lines.*

*Before applying pressure, make sure all connections are tight and components are in good condition.*

*Never use your hand to check for suspected leaks under pressure.*

*Use a piece of cardboard or wood for this purpose.*

*If injured by leaking fluid, see your doctor immediately.*



M149B

## Disconnecting the Header

To disconnect the header from the Combine, reverse the connection procedure. Also do the following:



**WARNING:** *Stay clear of the header when unlatching the header. Reach under the feeder to disengage the latches on the bottom of the feeder.*

M582



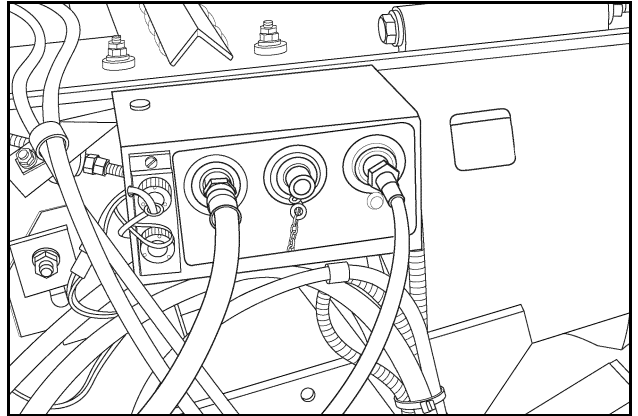
**WARNING:** *Always shut OFF engine, remove the key and engage feeder safety lock in position on lift cylinder before working under Header or feeder. Failure to engage feeder safety lock may cause injury or death.*

M184D

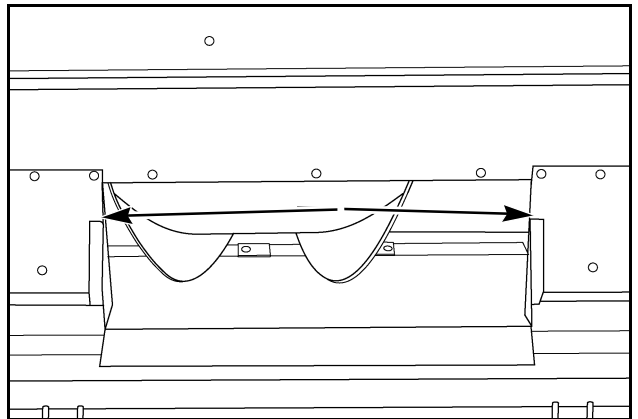
## CONNECTING THE CORN HEAD

Connect the Corn Head to the Combine according to the following procedure:

1. Make sure 1080 mm (42-1/2 Inch) filler adapter width is set. If the width is not correct, see Filler Adapter Adjustment in this Section of the Manual.

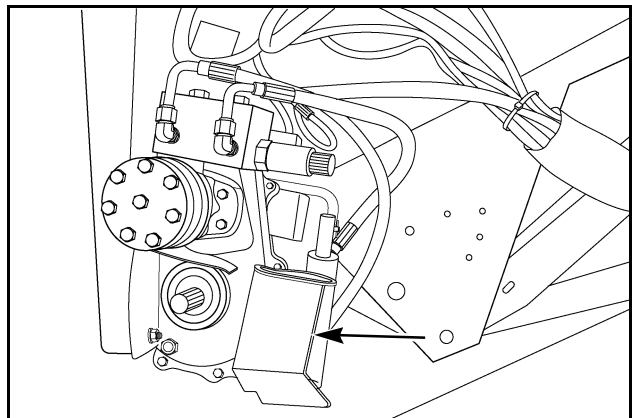


RD00F035



A5236

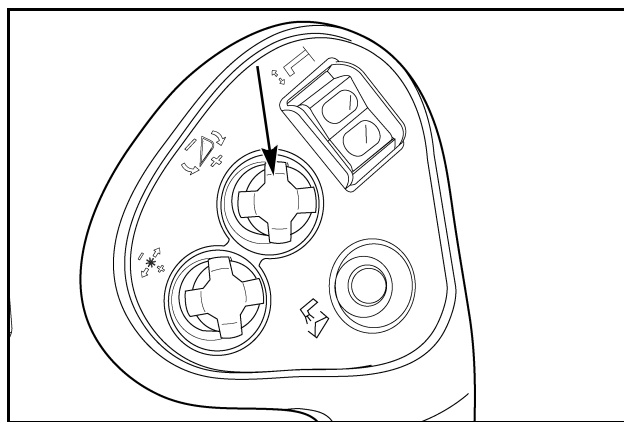
2. Open the feeder jackshaft shield.



RR00J102

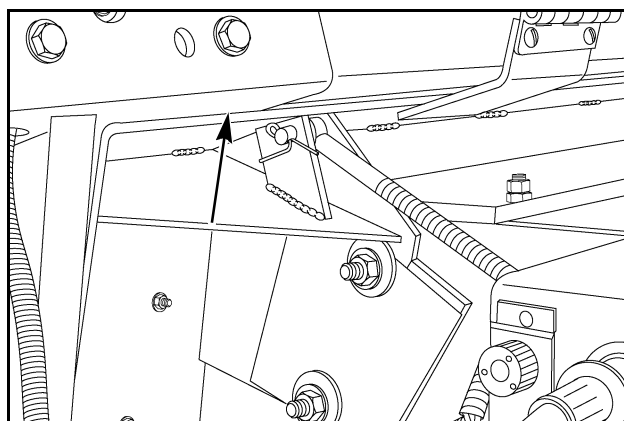
## 5 - OPERATING INSTRUCTIONS

3. Push the Header Down Switch and lower the feeder.



RD00E065

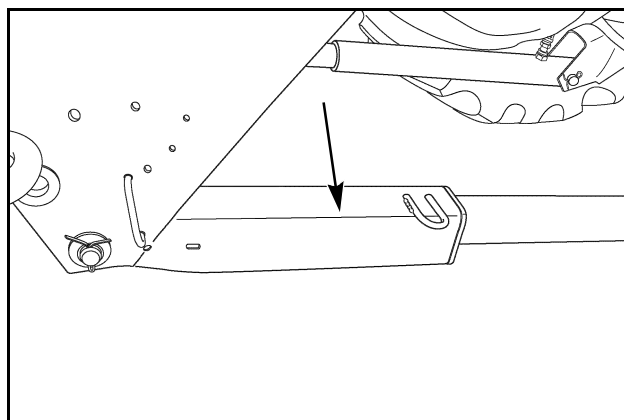
4. Move the Combine into the Corn Head opening until the feeder saddle is aligned with the Corn Head beam. Slowly raise the feeder until the beam is seated in the feeder saddle.



RD00H048

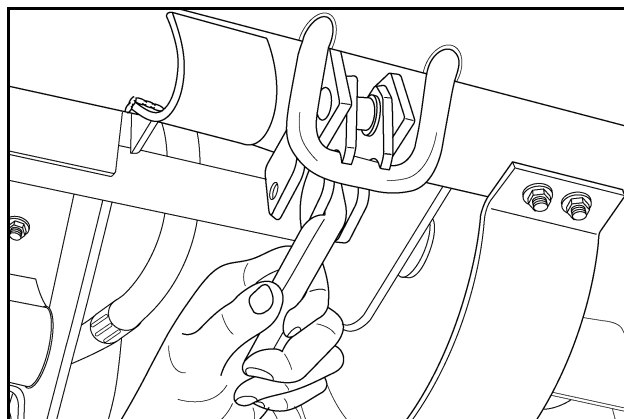
**NOTE:** Make sure the feeder saddle is free of foreign material.

5. Raise the Corn Head completely. Turn off Combine engine and remove key. Engage the safety lock on the feeder lift cylinder.



RD01H174

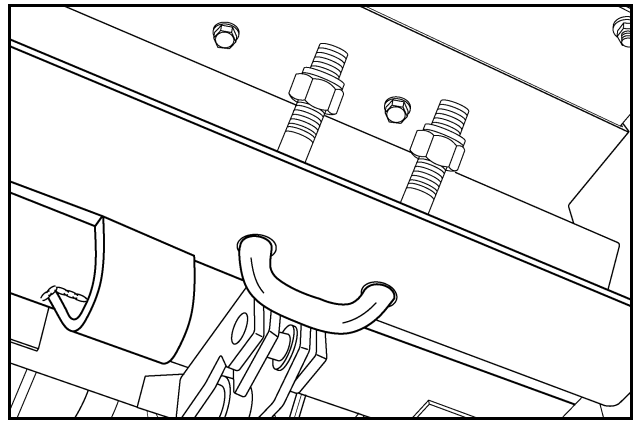
6. Engage the latches on the bottom of the feeder with the U-bolts on the Corn Head. It must require 18 to 23 kg (40 to 50 pounds) force to move the latches over center.



T85251

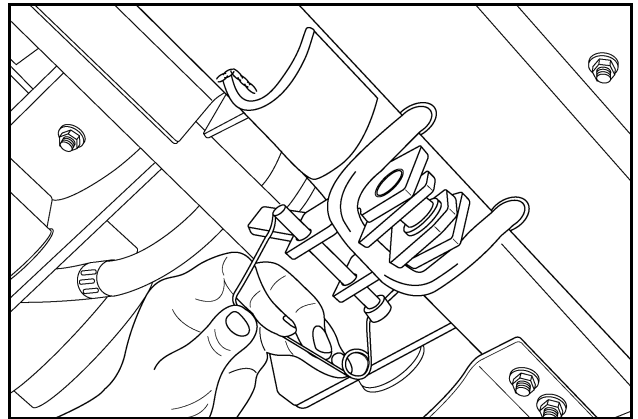
## 5 - OPERATING INSTRUCTIONS

7. If necessary, adjust the nuts on the U-bolts to get the required force on the latches.



T85253

8. Install the lock pins in the latches.



T85252



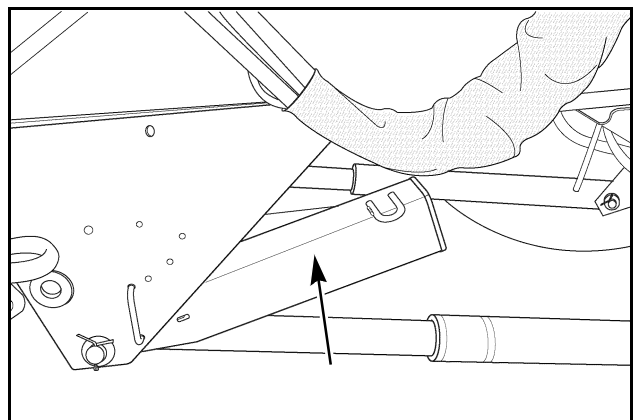
**WARNING:** Stay clear of the header when latching the header to the feeder. Reach under the feeder to engage the latches on the bottom of the feeder.

M576

9. Raise the safety lock on the feeder lift cylinder and secure the safety lock in the storage position. Lower the Corn Head to the ground.

**IMPORTANT:** DO NOT park the Combine with the Corn Head in the Raised Position. This puts a load on the hydraulic system and can cause damage to the header lift cylinders.

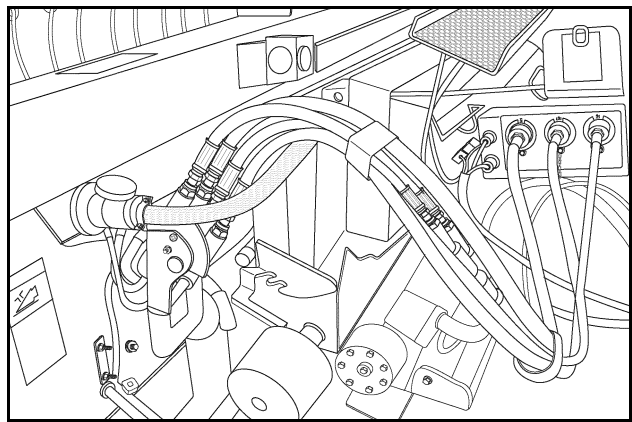
10. Connect Safety Lighting to Combine, Refer to Safety Lighting in Corn Head Operator's Manual.



RD01H175

11. Connect the U-joint for the Corn Head drive shaft to the feeder jackshaft.

Close feeder jackshaft shield.



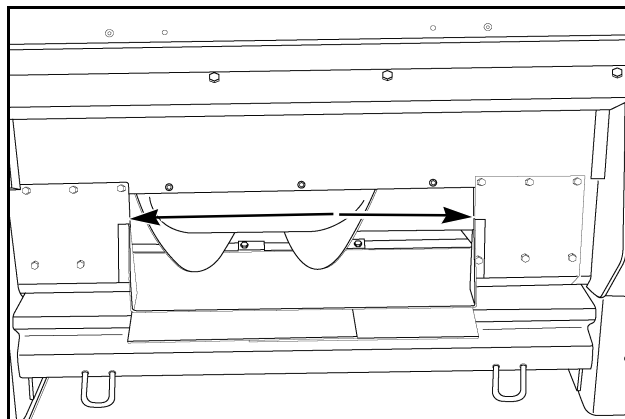
RR04F005

## Disconnecting the Corn Head

To disconnect the Corn Head from the Combine, reverse the connection procedure.

## Filler Adapter Adjustment

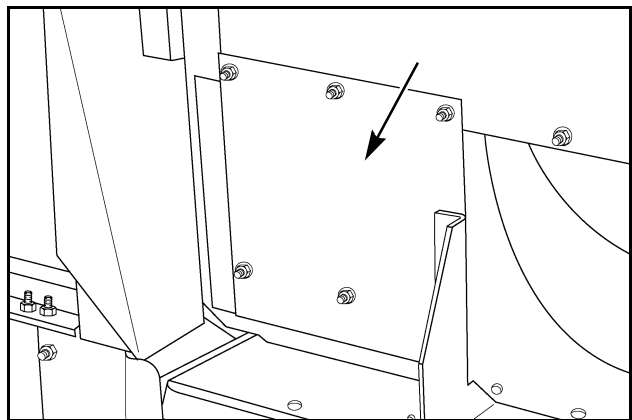
Adapter Setting for 1000 Series Corn Heads ..... 1080 mm (42-1/2 Inch)



A5236.55

Filler adapters are used to adjust the 1000 series Corn Head feeder opening width for the Combine being used. The opening can be set for 846 mm (33-5/16 Inch) or 1080 mm (42-1/2 Inch). To adjust the width remove the mounting bolts and move the filler adapters in or out to get the desired width.

**NOTE:** Set the adapter setting to 1080 mm (42-1/2 Inch) for this Combine application.

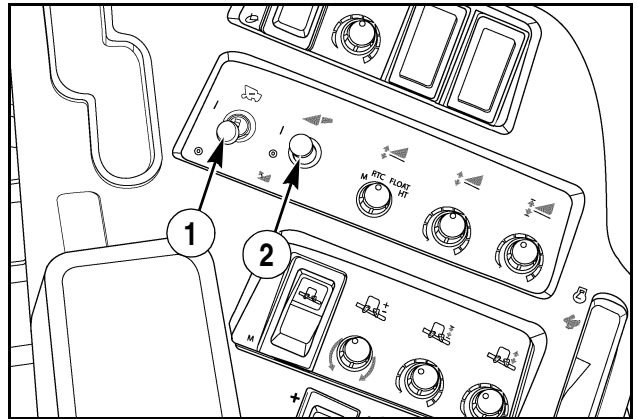


A5238

## Starting Combine Operation

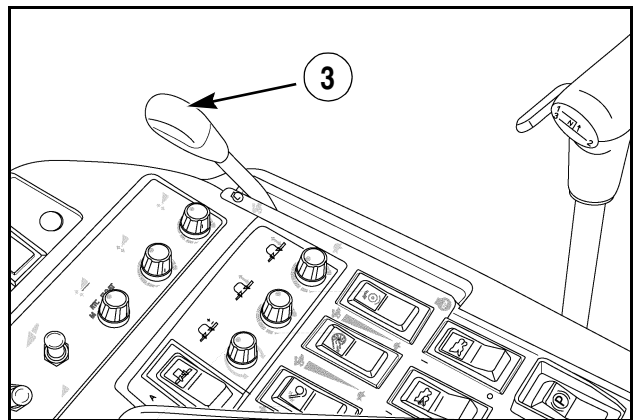
1. With the engine running and the throttle lever at the mid-idle position, engage the separator (1) and feeder clutch drive (2).

**NOTE:** *The separator will not engage if the engine speed is below 1000 RPM or above 2000 RPM.*



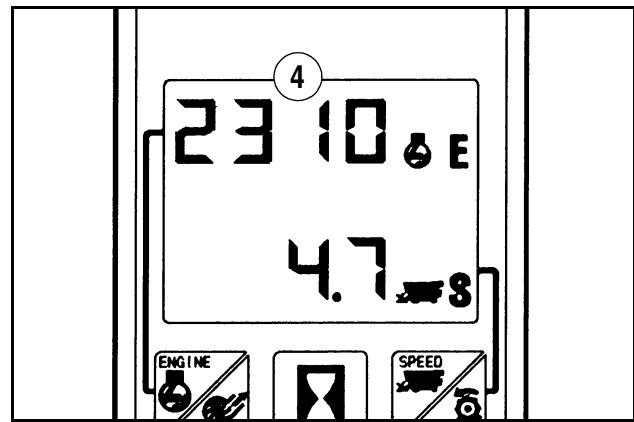
2. Run the engine at mid-idle for 15 to 30 seconds until the separator and feeder drive are up to speed. Then move the throttle hand lever to the full throttle position (3).

**NOTE:** *Set the Fan and Rotor speeds at High Idle.*

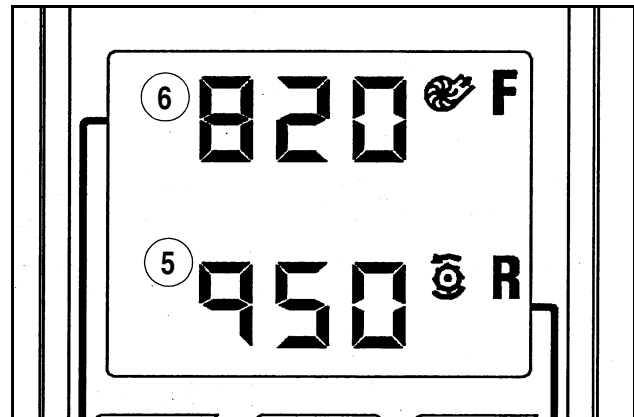


## 5 - OPERATING INSTRUCTIONS

- Use the digital tachometer to check the engine (4), rotor (5) and fan (6) speeds. Adjust the speeds as necessary (Refer to Initial Crop Settings in this manual).

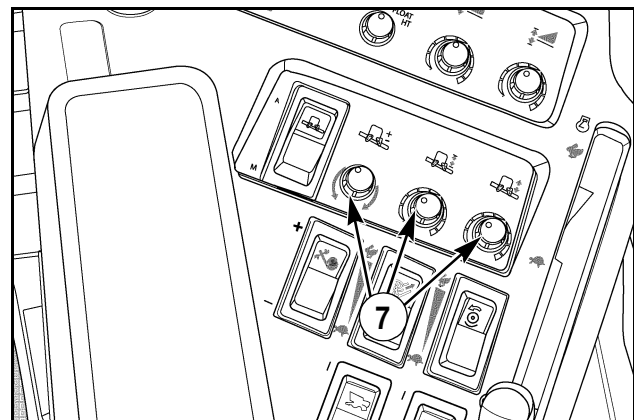


552L94



550L94

- When harvesting with a grain header, adjust the header controls (7). (Refer to Header Controls in this manual).

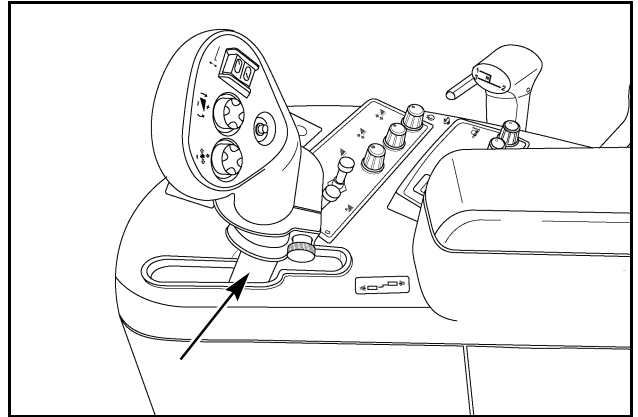


A24293



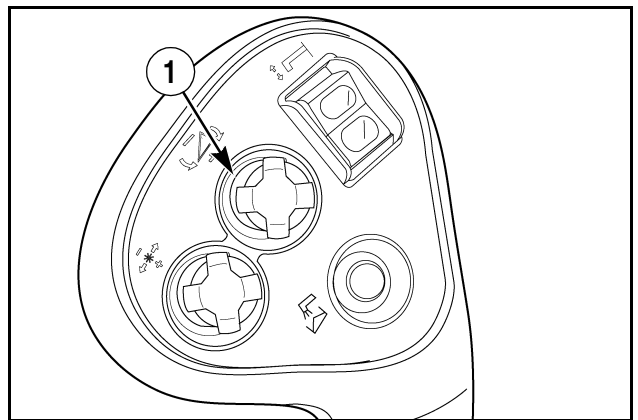
## Stopping Combine Operation

1. Move the propulsion control lever to the NEUTRAL position to stop the Combine ground travel.



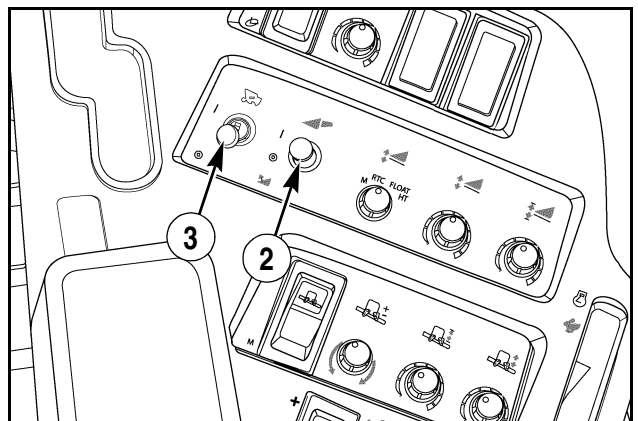
A24307

2. Raise the header using the header control switch (1).



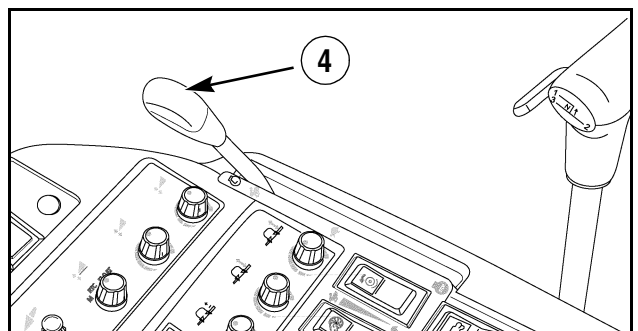
RD00E065

3. When the Combine has been cleared of all material, move the feeder clutch switch (2) to OFF. Move the separator drive switch (3) to OFF.



A24293

4. Move the throttle hand lever (4) rearward to the low idle speed position. Run the engine at low idle speed for 3 to 5 minutes to permit the engine and turbocharger temperature to decrease gradually before stopping the engine.



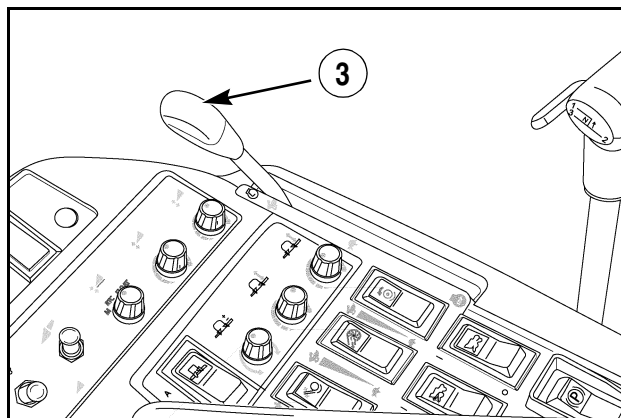
A24303

## Threshing Speed

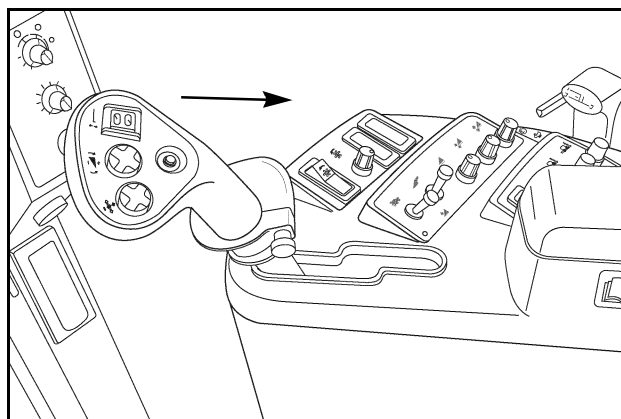
The throttle lever must be in the full throttle position (1) when threshing.

Do not use the throttle lever to slow the Combine through bad field conditions. This will slow the entire Combine and cause a reduction in threshing performance.

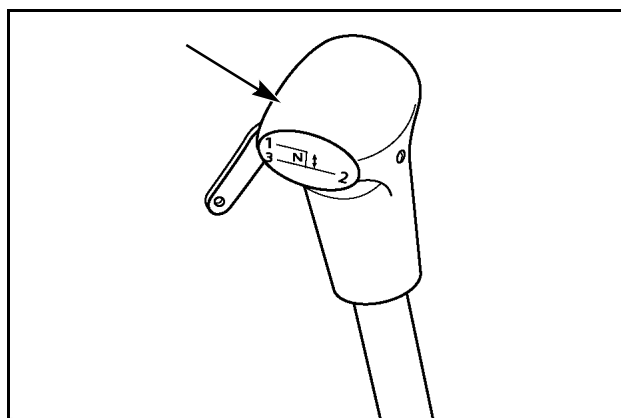
To slow the Combine travel speed move the propulsion control lever back or shift to the next lowest transmission gear.



A24304



RR05E001



A24299

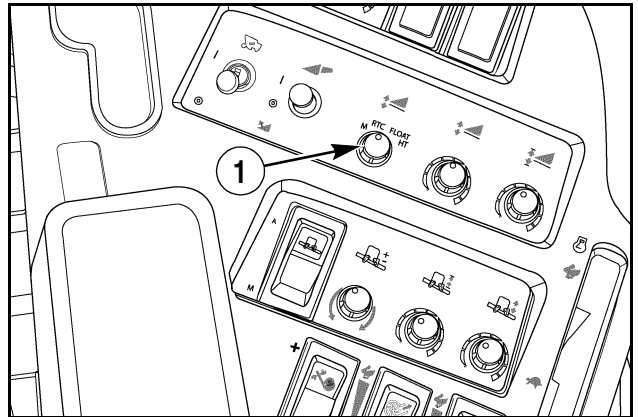
## HEADER CONTROLS

There are two modes to controlling the header height: (1) Manual and (2) Automatic. In the Automatic mode there are three types of control: (1) Return to Cut; (2) Auto Height and (3) Auto Float.

### Manual Position Control

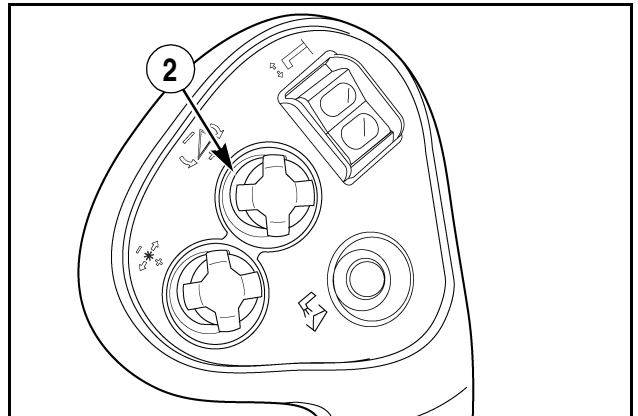
Positioning the Mode Select switch to MANUAL Mode ("M") will provide for manually raising/lowering the Header.

To operate the Combine in the MANUAL MODE select "M" (1).



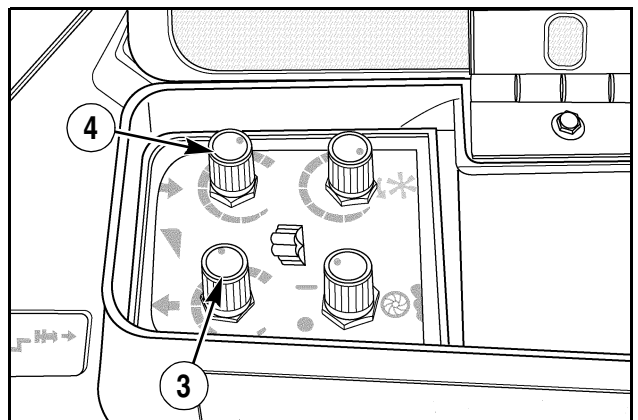
A24293

To raise or lower header use the HEADER CONTROL SWITCH (2) on the propulsion control lever.



RD00E065

The rate at which the header will raise is controlled by the HEADER RAISE RATE CONTROL (3). The rate at which the header will lower is controlled by the HEADER LOWER RATE CONTROL (4). To increase the rate at which the header raises or lowers, turn the HEADER RAISE RATE CONTROL and/or the HEADER LOWER RATE CONTROL to the right (clockwise). To decrease the rate at which the header raises or lowers, turn the HEADER RAISE RATE CONTROL and/or the HEADER LOWER RATE CONTROL to the left (counterclockwise).



RD97G033

## Automatic Header Control

**NOTE:** *The Automatic Header Height Controls will only function when the operator is seated and the feeder drive is engaged.*

### Return to Cut (RTC)

The RETURN TO CUT (RTC) (1) mode can be entered if the mode switch is in “RTC”, the header is ON, the header is above the POSITION CONTROL (2) setting and the header LOWER function is momentarily pushed. The header will lower to the position set with the POSITION CONTROL KNOB.

In this mode the header height can be controlled with the POSITION CONTROL knob (2). After raising the header at the end of the row, momentarily depressing the header lower switch will return the header to the selected cutting height.

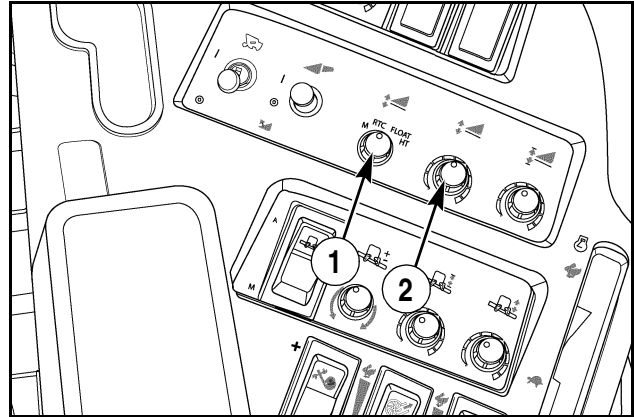
The rate at which the header is raised or lowered is controlled by the HEADER RAISE (3) and HEADER LOWER (4) controls.

If the POSITION CONTROL (2) is set for normal operation above the ground and a header height sensor is present and the header contacts high ground or an obstacle, the header will temporarily raise and then lower back to the position set point after passing over the obstruction.

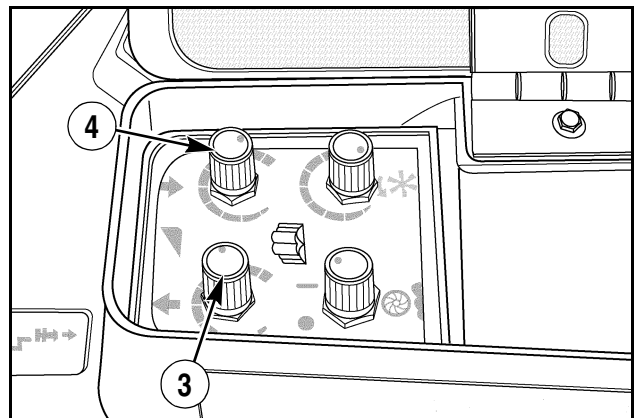
If a header height sensor is not present and the Combine is equipped with the FLOAT option, when the header comes into contact with the ground the system will automatically go into FLOAT control and the header will raise to maintain the SENSITIVITY CONTROL (5) setting.

After the header is no longer in contact with the ground the header will lower to the setting of the POSITION CONTROL.

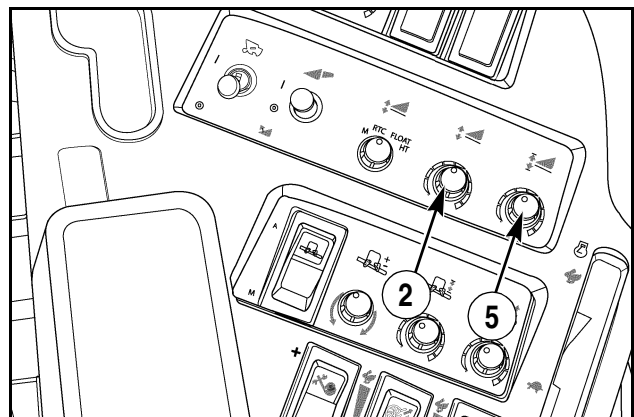
If the RAISE switch is selected, the system will go into MANUAL mode. To return to RETURN TO CUT (RTC) select the LOWER switch momentarily and the header will return to the height set by the POSITION CONTROL.



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RD97G033

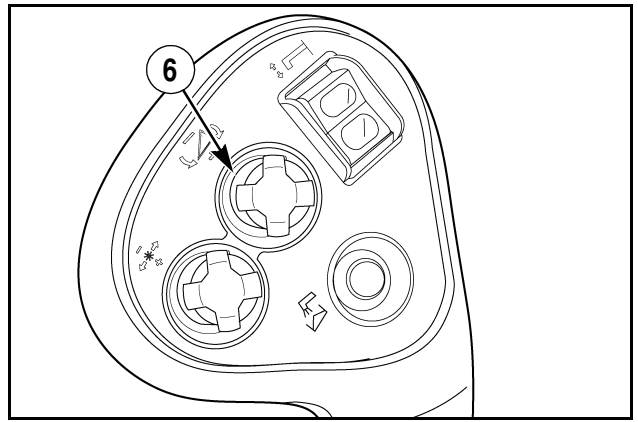


A24293

## 5 - OPERATING INSTRUCTIONS

If the LOWER switch is selected while the system is operating in RETURN TO CUT (RTC), the system will go into MANUAL mode. To return to Automatic Position Control do the following:

1. Return the header manually to the height set by the POSITION CONTROL, or:
2. With the HEADER RAISE/LOWER SWITCH (6) move the header manually above the setting of the POSITION CONTROL, then actuate the LOWER switch momentarily which will automatically return the header to the POSITION CONTROL setting.



RD00E065

**IMPORTANT:** *When using RTC and a 1020 Grain Header locked in the rigid operational mode, the Automatic Header Height Control (AHHC) Potentiometer, MUST be disconnected in order for the RTC function to operate properly.*

## Automatic Header Height Control (If Equipped)

The Automatic Header Height Control mode can be entered if the mode select switch (1) is in "HT", the feeder is ON and the header LOWER switch is momentarily pushed.

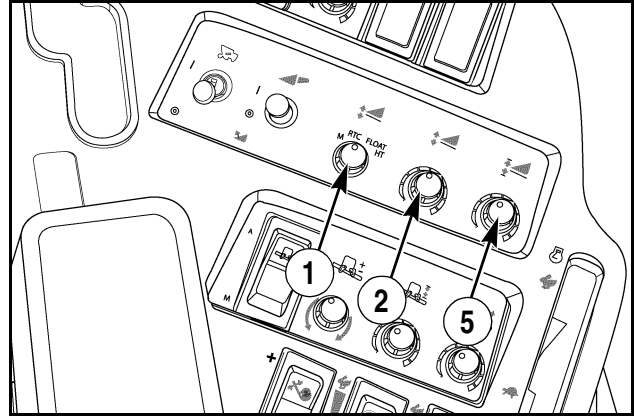
In Automatic Header Height Control, the system raises and lowers the header to maintain a fixed distance from the ground. The POSITION CONTROL (2) sets the height to maintain the header from the ground.

The rate at which the header raises or lowers to maintain the ground height is controlled by the HEADER RAISE RATE (3) and HEADER LOWER RATE (4) control settings.

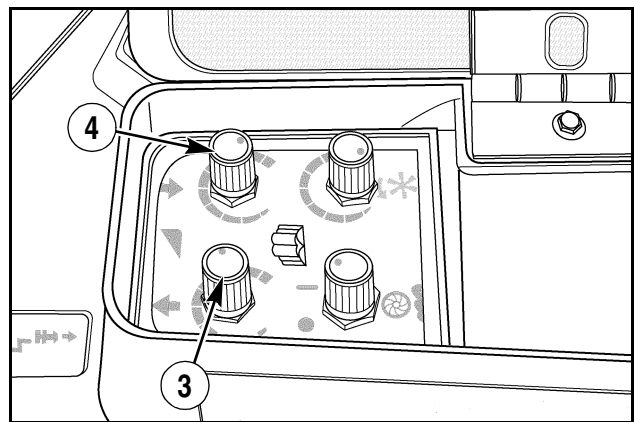
In this mode the SENSITIVITY CONTROL (5) sets how sensitive the header control is to changing ground conditions.

Once entered the header height control will remain in effect (excluding operator intervention) even if the header is above the active region of the header height sensor. This condition can occur if the ground falls away from the header faster than the system can respond due to hydraulic response or due to the system control settings.

If the RAISE switch is actuated, the system will go into MANUAL mode. To return to the automatic mode press the LOWER switch momentarily and the header will return to AUTO HEIGHT mode. While in Auto Height, the LOWER switch is actuated, Auto Height will be over ridden and the header will lower or try to lower until the switch is released. Then system will return to AUTO HEIGHT mode.



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### Automatic Float Control (If Equipped)

If the FLOAT mode (1) is selected the SENSITIVITY CONTROL (2) sets the operating pressure. Float control is automatically entered if the feeder is ON and the LOWER switch is momentarily selected.

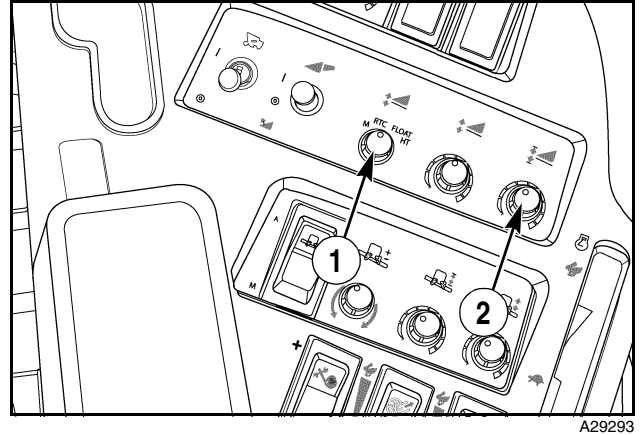
Once in the FLOAT mode, if float pressure decreases the header is raised to increase the pressure to the SENSITIVITY CONTROL setting. If the float pressure increases, the header is lowered to decrease the pressure to the SENSITIVITY CONTROL setting. The rate at which the header raises and lowers to maintain pressure is potentially limited by the RAISE and LOWER RATE CONTROLS.

If the RAISE switch is actuated, the system will go into MANUAL mode. To return to the FLOAT mode, select the LOWER switch momentarily and the header will return to the FLOAT mode.

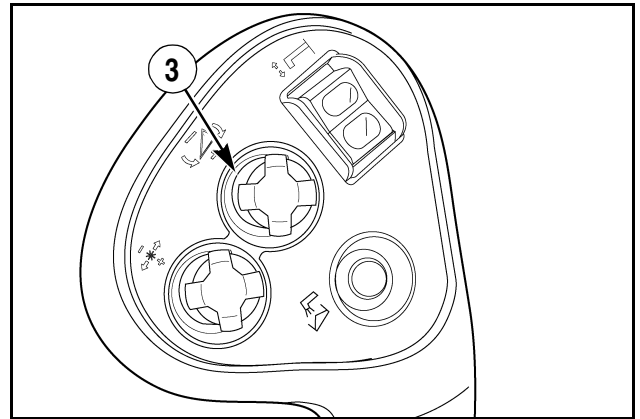
While in FLOAT Mode, if the LOWER switch is actuated, FLOAT will be over ridden and the header will lower or try to lower until the LOWER switch is deactivated. Then system will return to FLOAT mode and the header will return to the float pressure setting.

### Float Sensor Calibration

Whenever a header is put on the Combine, raise the header until it stops near the top. This will calibrate the Header Height Display and calibrate the SENSITIVITY CONTROL to the float sensor. If a height sensor is connected, the header will momentarily stop 1 to 2 feet above the ground.



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RD00E065

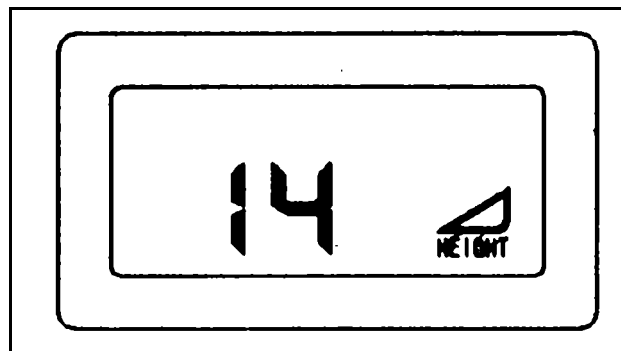
## Header Height Display

The LCD Header Height Display is located in the tachometer area below the touch switches.

The Header Height Display shows the height in inches (or centimeters) for MANUAL, RETURN TO CUT and AUTO HEIGHT modes or pressure in percent for FLOAT mode. Note that both arrows are "ON" in AUTO HEIGHT and RTC and the lower arrow is "ON" in FLOAT.

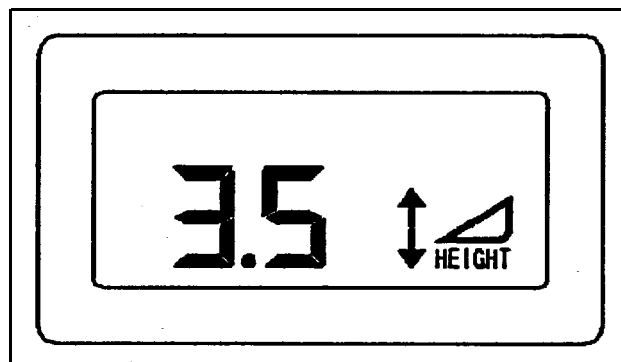
To calibrate the display (the FEEDER CLUTCH SWITCH must be in the "OFF" position), lower the header to the ground and hold the LOWER switch for two (2) seconds. After the display is calibrated and when the header is fully down in MANUAL mode, the display will show "2" if in English units or "5" if in Metric units for grain heads.

For Corn Heads (if the reel switch is set for "Corn"), the display will show "4" if in English units or "10" if in Metric units.



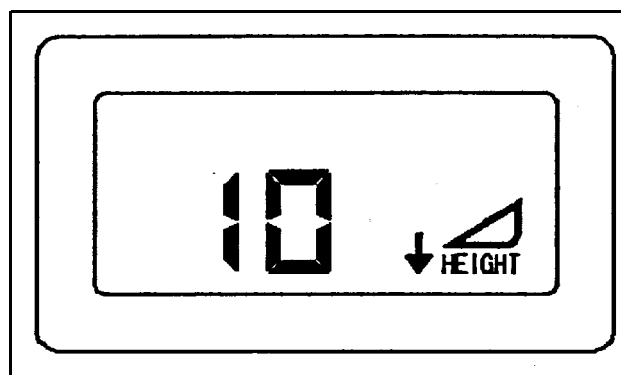
RH02F075

MANUAL



RH02F076

AUTO HEIGHT



RH02F077

FLOAT



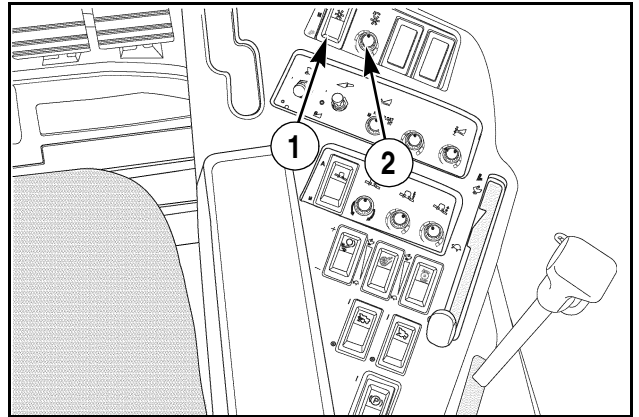
## Reel Speed Control Operation

MANUAL or AUTOMATIC reel speed control is only active when the feeder is ON and MAN or AUTO is selected. If Corn is selected, reel speed control operation is disabled and indicates to the controller that a corn head is attached.

### Manual Reel Speed Control

To operate the reel in the MANUAL mode press the REEL SPEED switch (1) to the middle ("M") position.

The REEL/RATIO SPEED CONTROL (2) sets the speed of a grain head reel. If the REEL/RATIO SPEED CONTROL is set fully counterclockwise the reel speed will be zero ("0").



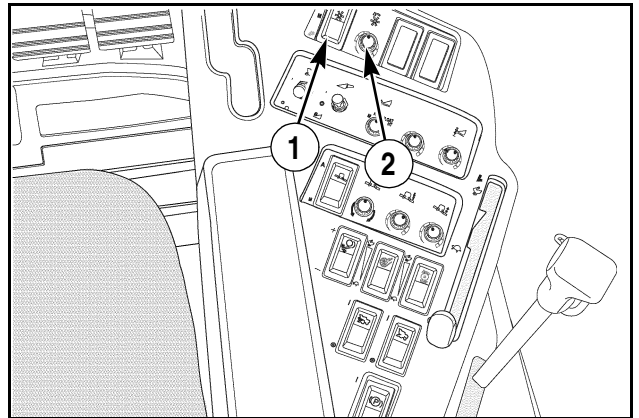
RR05E004

### Automatic Reel Speed Control

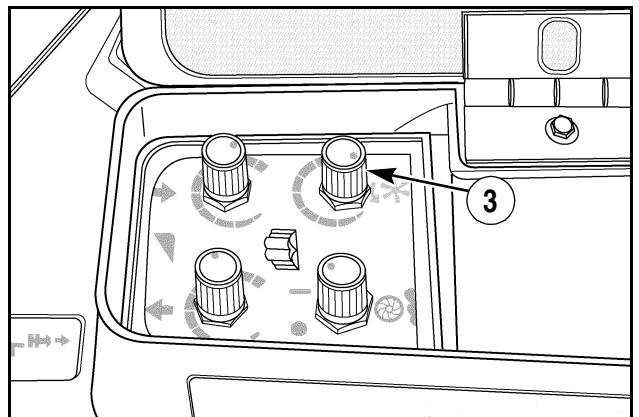
To operate the reel in the AUTOMATIC mode press the REEL SPEED CONTROL SWITCH (1) to the forward ("A") position.

The reel speed is now a function of the ground speed of the Combine. The REEL/RATIO CONTROL SWITCH (2) sets the ratio the grain head reel turns relative to the ground speed. The ratio range is 0.85:1 to 3.5:1.

The MINIMUM REEL SPEED CONTROL (3) sets the minimum speed at which the reel turns for low ground speeds.



RR05E004



RD97G033

## TAILINGS MONITOR

The LCD display is located in the tachometer area below the touch switches. The Tailings Monitor display will be present if the tailings sensor is detected. The display consists of a tailings symbol and an eight segment bar graph. The first five segments of the bar graph are rectangular and the last three are triangular.

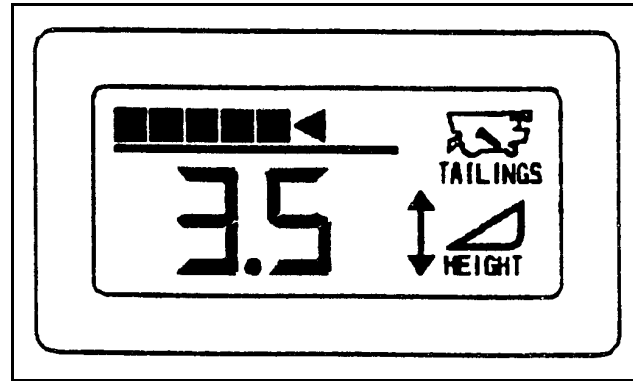
The Tailings Monitor displays the volume of material that is flowing in the lower tailings auger. As material volume in the lower tailings auger increases, a lever on the tailings sensor located behind the auger rotates and the segments in the tailings display appear from Left to Right. When the first triangular segment appears the bell will be activated (the Combine separator must be running and the engine speed must be above 1800 RPM) and the tailings symbol will flash. The bell will continue until the segment is OFF or the ALARM OFF push button is actuated.

The sensitivity of the Tailings Monitor can be adjusted to five settings. See the Change Mode section for adjusting the sensitivity. As the sensitivity is increased, the sensor arm does not raise as far to display the auger is nearly FULL. For most crops, sensitivity 1 is desired. Crops that have very fluid or chaffy tailings material can be set to higher sensitivities.

The Tailings Monitor purpose is to alert the Operator if the tailings volume is running high so adjustment can be made to optimize Combine performance. Ideally the Combine should operate with little tailings and the tailings should not be mostly clean grain. Running too much clean grain through the tailings elevator can increase rotor loss and crack grain. If the tailings are running high and consist mostly of clean grain, the steps that should be taken are:

1. Open the Shoe Sieve.
2. Close the rear of Chaffer Sieve.
3. Adjust the Cleaning Fan Speed.
4. Slow down on side hills.

If the tailings are running high and consist of many Unthreshed heads, improve the threshing by methods given under Troubleshooting the Threshing and Separating System.



RH97F043

## SHAFT SPEED MONITOR

### Monitor Operation

The Shaft Speed Monitor is enabled when the SEPARATOR and FEEDER switches are engaged for at least 4 seconds and the engine speed is 1800 RPM or above. The Shaft Speed Monitor is disabled when the SEPARATOR or FEEDER are disengaged or the engine speed is below 1800 RPM.

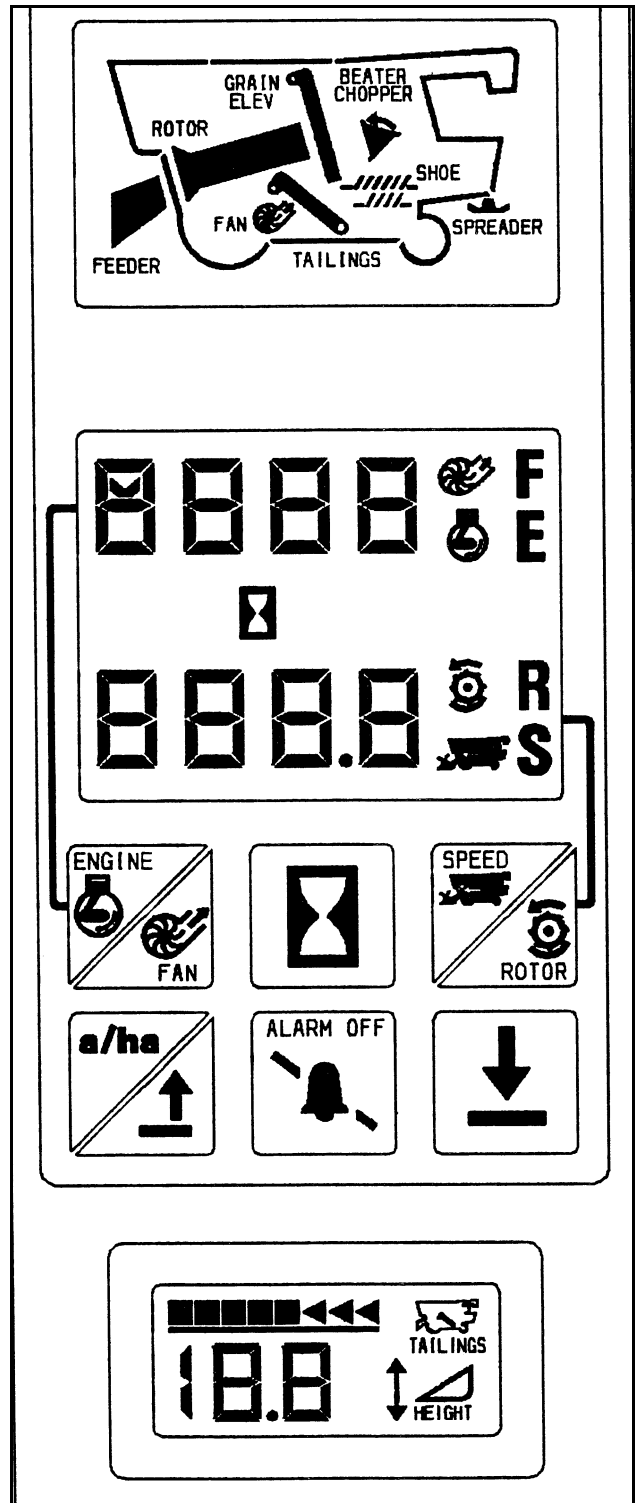
When the Shaft Speed Monitor is engaged any active monitored speed which is below the alarm set point will be indicated by flashing the appropriate indicator and activating the audible alarm continuously. All deactivated indicators will remain off.

The indicator(s) and audible alarm can be turned off by depressing the ALARM OFF switch. This temporarily deactivates all of the alarming functions. Pressing the ALARM OFF switch with no alarms will display all inactive functions. The appropriate indicator will remain on as long as the ALARM OFF switch is depressed and will remain on continuously for 4 seconds after the switch is released. If the speed of a deactivated function increases above the alarm set point, the function will be reset. The reset function will then be monitored normally.

If a fan or rotor speed alarm is indicated, the tachometer will also flash the fan or rotor RPM. The ALARM OFF touch switch will deactivate the flashing and return the tachometer to the displayed information prior to the alarm.

The monitored speeds are:

- Tailings Elevator
- Grain Elevator
- Cleaning Fan
- Straw Spreader
- Beater/Chopper
- Shoe Shaker
- Rotor
- Fan



RH97H012

Six of the monitored speed alarms are preset.

The instrumentation checks the Cleaning Fan and Rotor speeds four (4) seconds after the Shaft Speed Monitor is enabled to calculate the alarm points. The Cleaning Fan alarm point is set at 80% of the fan to engine RPM ratio. The Rotor alarm point is set at 75% to 100% of Rotor to Engine RPM Ratio. The 75% to 100% is set in the instrumentation calibration mode. See Combine CALIBRATION in this manual.

If the Cleaning Fan or Rotor speed is changed while the Shaft Speed Monitor is enabled, the alarm point will be recalculated two seconds after the change.

### Checking Monitor Operation

When one or more of the indicators show a slow speed condition when the Combine is operating normally, check for the cause as follows:

**CHECK CLEARANCE** - Check the clearance between each sensor switch assembly and the magnet or gear. The clearances should be as follows:

**CHECK SENSOR ADJUSTMENTS** - Check for damage to the shaft speed sensors and to the wiring harnesses. Make repairs and replace parts as necessary.

- 1. Straw Chopper, Shoe Shaker (If Equipped)..... 3 mm  
(0.125 inch)
- 2. Cleaning Fan, Rotor, Straw Spreader and Feeder Reluctance Pickup ..... 0.25 to 1.5 mm  
(0.010 to 0.060 inch)

**NOTE:** *Tailings Elevator, Grain Elevator and Beater sensors are nonadjustable.*

## GRAIN SCAN MONITOR

### Monitor Operation

1. Operate the Combine in the field. Adjust the Combine for an acceptable grain loss on the ground behind the Combine.
2. Set the sensor switch to BOTH.
3. Turn the grain selector control to the middle point for the size of grain being harvested.

**EXAMPLE:**

Corn and Beans..... Large Dot  
 Wheat and Barley ..... Medium Dot  
 Clover, Alfalfa or Rapeseed ..... Small Dot

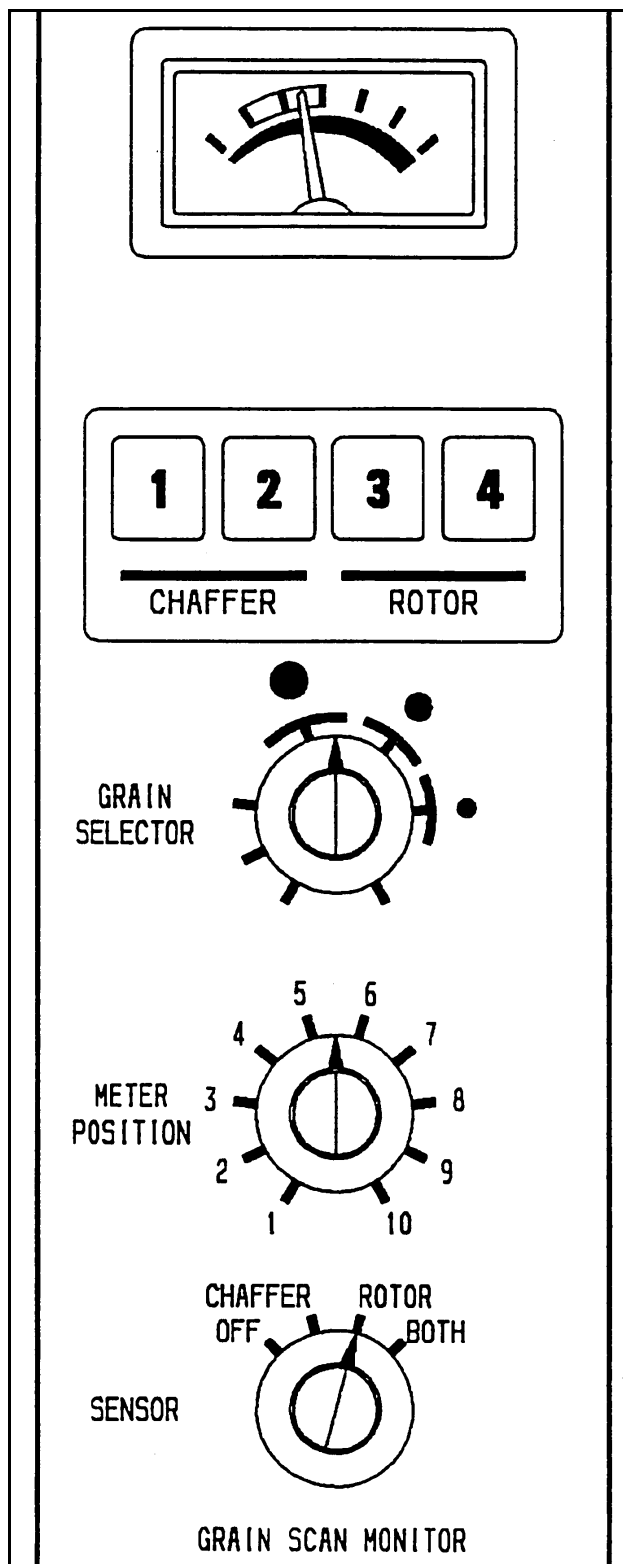
**NOTE:** The moisture content of the crop can require the sensitivity setting to be increased (clockwise) or decreased (counterclockwise).

4. Operate the Combine in the field under normal speed and load for the crop.

**NOTE:** The lights on the sensor indicator panel will flash as material hits the chaffer and rotor sensors. This does not indicate seed loss but only indicates that the sensor circuits are functioning.

5. The Combine must be adjusted to provide an acceptable level of grain loss before positioning the meter needle. As the Combine is operating, turn the meter position control until the meter needle is in the middle of the green scale.

6. Stop the Combine and check the ground behind the Combine. If the grain loss on the ground is acceptable, the grain loss monitor is adjusted correctly for the crop and conditions. If the grain loss is not acceptable, repeat Steps 1 through 6 until an acceptable grain loss is found.



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**NOTE:** Under normal operation, the meter needle can move up the scale for a short time before returning to the middle position. A correction in ground speed does not have to be made unless the meter needle stays in the up scale position. If this needle deflection occurs frequently:

- Grain Scan Monitor is set too SENSITIVE
- Check the grain loss behind the Combine
- Check the Combine and the monitor for possible problems.

The grain scan monitor will operate in the ground speed mode whenever the ground speed is greater than 1/2 MPH (0.8 km/h). In this mode the readings are independent of the ground speed and are based on seed loss per area.

The grain scan monitor will operate in the time based mode whenever the ground speed is less than 1/2 MPH (0.8 km/h) or when the Combine is stopped. This mode is used primarily to check stationary sensor operation, but will show time based loss rates at very slow speeds.

**NOTE:** If there is a sudden change in Ground Speed (**needle UP if you slow down - needle DOWN if you increase ground speed**), the monitor will stabilize to normal operation in approximately 90 seconds.

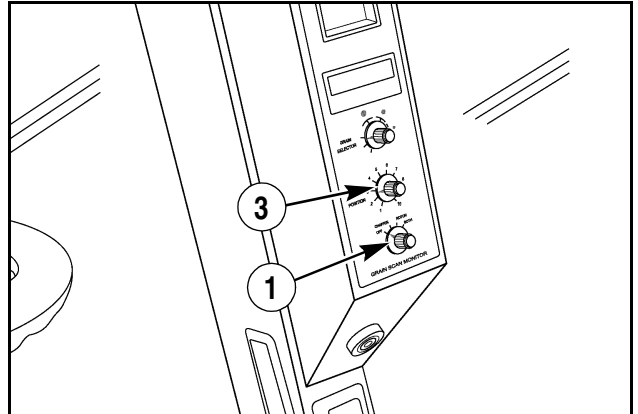
## Checking Sensor Operation

**ATTENTION:** When performing this sensor test, make sure engine is OFF and the key is ON.

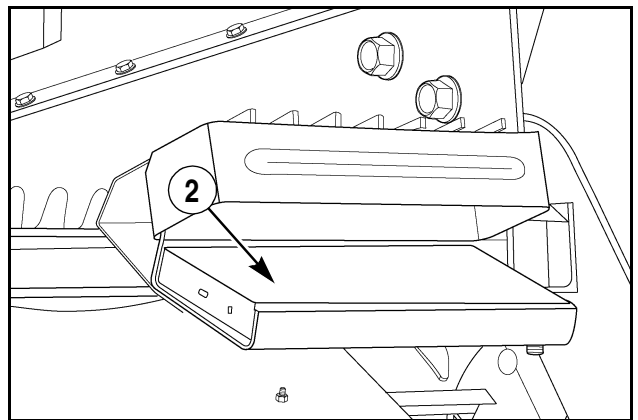
1. Turn the sensor switch (1) to chaffer.
2. Have another person lightly tap the chaffer sensor sounding board (2) with a pencil. The indicator lamp for that sensor must illuminate each time the sensor sounding board is hit. Check both chaffer sensors.
3. After the machine is set to acceptable seed loss, turn the meter position switch (3) until the needle is in the middle of the green area on the meter.
4. Repeat Steps 1 and 2 for the rotor cage sensors (4) and with the sensor switch turned to BOTH. If an indicator lamp does not illuminate, the sensor needs replacing or the wiring harness needs repair.

**NOTE:** The rotor cage sensors are located near the grain bed augers (5).

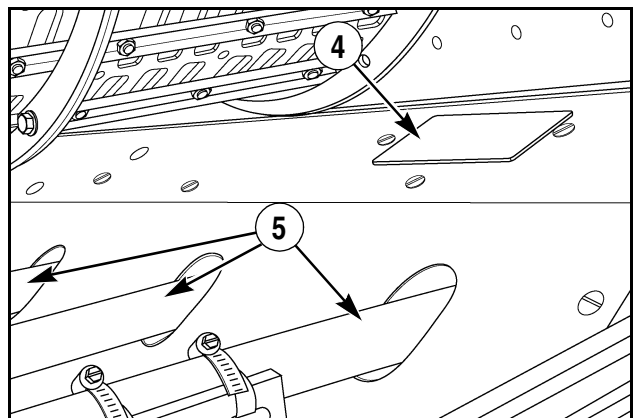
5. Have another person rapidly tap one of the sensors. Look at the meter on the monitor console. The meter needle must move to the right. Repeat this test for all four grain sensors. If the indicator lamps illuminate but the meter needle does not move to the right, the monitor console needs repair. See your dealer.
6. If the operation in Step 4 is correct, check the operation of the digital tachometer. The grain loss monitor is connected to the ground speed sensor. If the digital tachometer does not operate correctly, the ground speed sensor or the harness needs repair.



A24310



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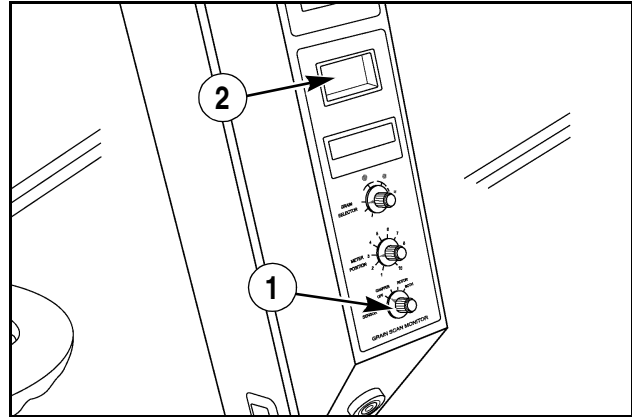
A1782

## Comparing Rotor/Chaffer Loss

To compare the rotor loss to the chaffer loss during the harvesting operation, turn the SENSOR switch (1) to ROTOR and to CHAFFER. Look at the meter (2) needle deflection for each position. If the rotor position indicates an increase in grain loss, the cause can be improper threshing. If the chaffer position indicates an increase in grain loss, the air flow or the sieves are not adjusted correctly.

**NOTE:** Variation in ground and crop conditions can affect losses in both the rotor and the chaffer.

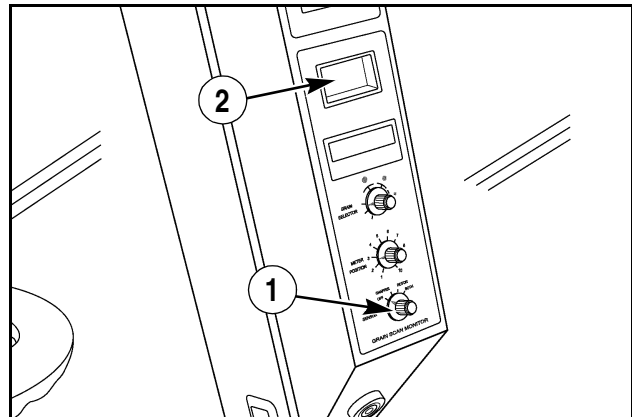
**NOTE:** If the chaffer sensor brackets fill with straw and chaff during Combine operation, remove the sensor seed combs.



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## Checking Monitor Operation

1. Turn the sensor switch (1) to OFF.
2. Turn the key switch to ON but do not start the engine.
3. Turn the sensor switch (1) to CHAFFER. All four sensor indicator panels will illuminate for approximately one second. The meter (2) needle will raise to the Right side of the scale and then drop back to the Left side. This sequence occurs as an indication that the monitor console is operating correctly. If this sequence does not occur, see your dealer.



A24310

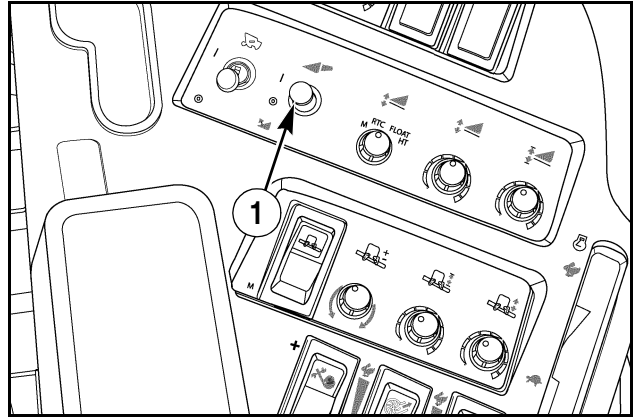


## FEEDER OPERATION

### Feeder Reverser

The Combine is equipped with a feeder reverser which is operable when the engine is running. The operator can move the feeder conveyor in a reverse direction from the inside of the cab. The feeder reverser operates as follows:

1. Raise the reel all the way up to lift the header auger off the auger bottom to provide clearance for the reverse crop flow.
2. Lift and pull the feeder clutch switch (1) rearward to the REVERSE position.
3. When the feeder or header is clear of material, return the feeder clutch switch to the OFF position.
4. Lower the header to the ground. Engage the PARKING BRAKE and stop the engine and remove the key. Remove any obstructions from the feeder or header.



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### Automatic Feeder Cutoff (AFC)

If the AFC control is programmed "ON" and the feeder drive is running, the instrumentation will monitor the feeder speed and deactivate the feeder drive if the feeder speed drops below 210 RPM.

If the AFC is programmed "OFF", at start-up, after the self-test, "AFC" and "OFF" will be flashed in the upper tachometer display for 4 seconds. This is a warning to the operator that if the feeder speed slows down below 210 RPM it will not disengage automatically.

## Manually Reversing the Feeder

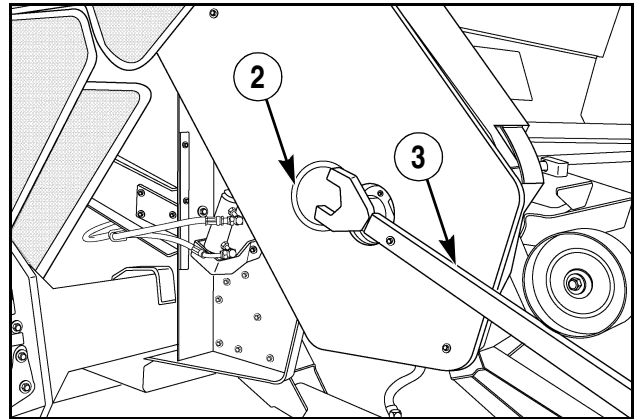
The feeder conveyor can be manually moved in a reverse direction to clear obstructions. Reverse the feeder conveyor as follows:

1. Move the feeder clutch switch and separator drive switch to the OFF position.
2. Lower the header to the ground. Engage the parking brake and stop the engine. Remove the key from the key switch.



**WARNING:** Before leaving the machine, lower attachments, place all controls in neutral, set the parking brake, stop the engine, and remove the key from the switch.

M224C



RD01H228

3. Get rotor wrench from inside the engine compartment.
4. Open the cover panel (2) on the feeder drive belt shield.
5. Put the socket of the rotor rocking wrench (3) over the end of the feeder pivot shaft.
6. Turn the wrench counterclockwise to move the feeder conveyor in the reverse direction.
7. When the feeder is clear, remove the wrench and close the cover panel.
8. Put the rotor rocking wrench in the storage position inside the engine compartment.
9. Remove any obstruction from the feeder or header.

## Rock Trap (If Equipped)

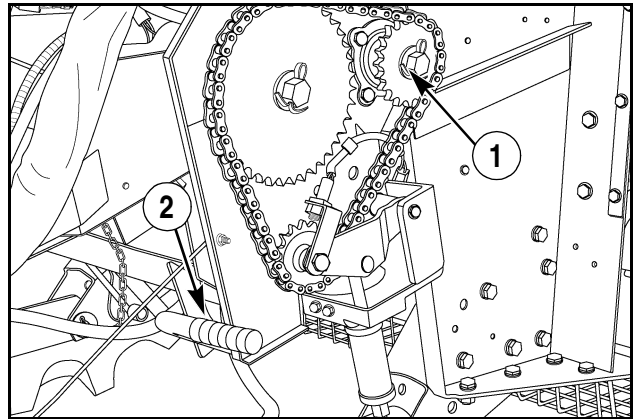
The rock trap uses a beater with three blades. Each blade has an adjustable blade extension. As the beater turns the blades and extensions drive the rocks into the trap, forcing out any material that has filled the trap. Empty the rock trap once a day. When threshing in areas with a large quantity of rocks, empty the rock trap more frequently.

**IMPORTANT:** *If the rock trap is allowed to fill with rocks, other rocks will pass into the Combine resulting in possible damage to the rock trap and/or the Combine.*

**NOTE:** *A 30 tooth driven sprocket, three extra chain links and connecting links are provided with the machine. If crop material is wrapping around the beater or excessive crop damage is being caused by the beater, or if feeding problems are experienced, install the 30 tooth driven sprocket to obtain a slower beater speed.*

Two sprockets are provided for the beater shaft:

- 20T for 800 RPM (manufacturer installed) - provides maximum rock protection and feeding capacity.
- 30T for 533 RPM (Shipped loose with machine) - used to prevent wrapping green, weedy crops (recommended for corn and beans).



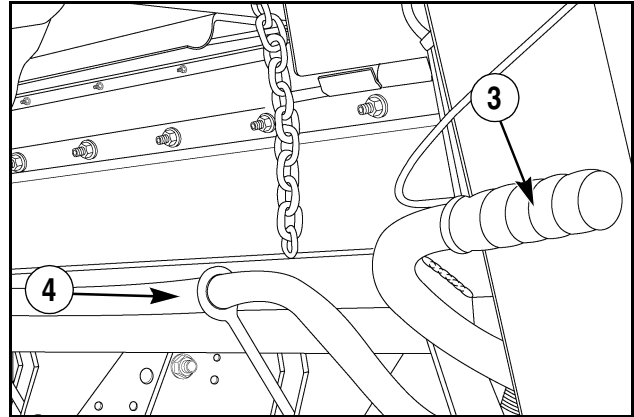
RD00E006

1. ROCK TRAP BEATER DRIVEN SPROCKET (20 TOOTH) - STANDARD EQUIPMENT
2. DOOR LATCH

## Emptying the Rock Trap

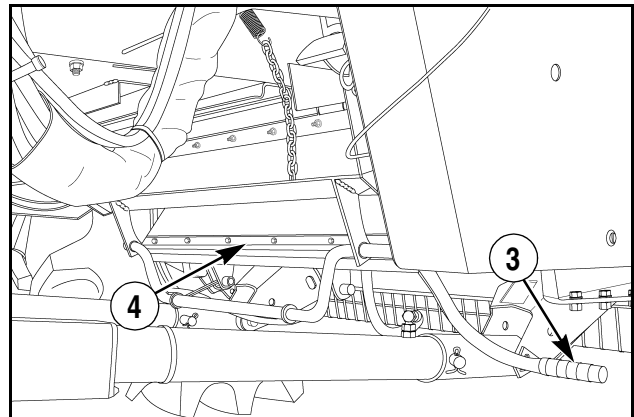
To empty the rock trap, do the following:

1. Raise the header fully. Set the parking brake and stop the engine.
2. Release the feeder safety lock from the storage position
3. Rotate the rock trap door latch (3) handle COUNTERCLOCKWISE to open the rock trap door (4). Empty the rock trap.
4. To close the rock trap door, rotate the handle CLOCKWISE.
5. Raise the feeder safety lock to the storage position.



RD00E073

**ROCK TRAP DOOR CLOSED**

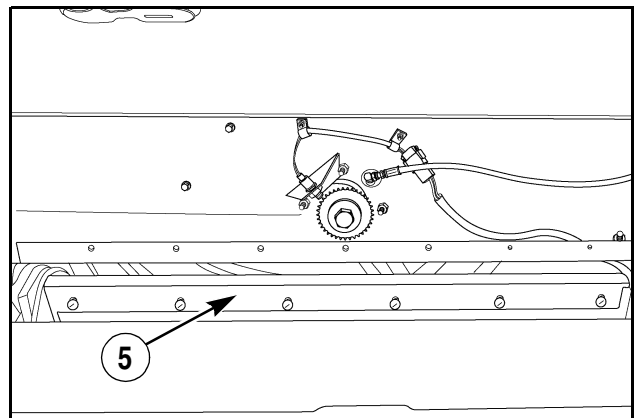


RD00E074

**ROCK TRAP DOOR OPEN**

## Operating Recommendations

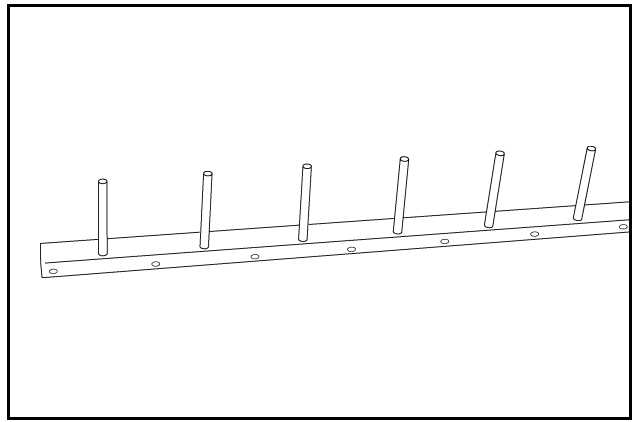
1. The blade extensions (5) have slotted holes for adjustment. Operate with blade extensions out for the best rock protection. Operate with the blade extensions in for increased feeder capacity.



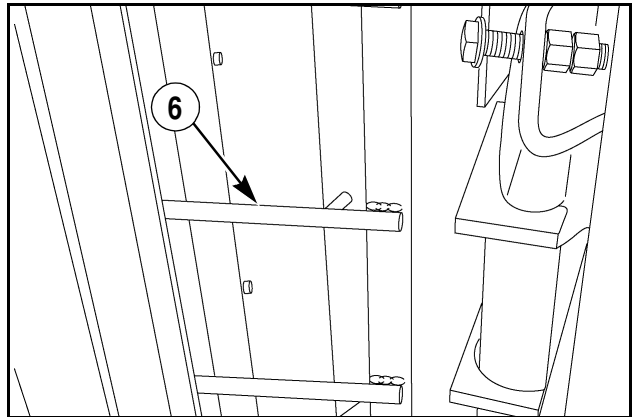
RD01H211

## 5 - OPERATING INSTRUCTIONS

2. Operate with the finger grate (6) installed in short green crop conditions to get a smooth flow of material from feeder to rotor. Remove the finger grate for better rock protection. See your dealer for the finger grate.

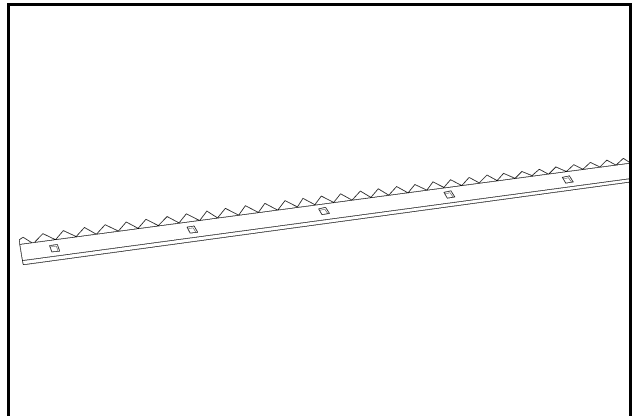


A2417

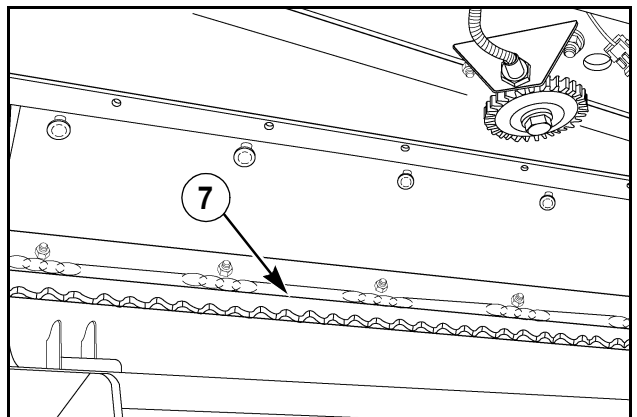


A2426

3. Operate with serrated blade extensions (7) in conditions where bunched feeding occurs or when a short crop does not feed evenly under the beater. See your dealer for the serrated blade extensions.

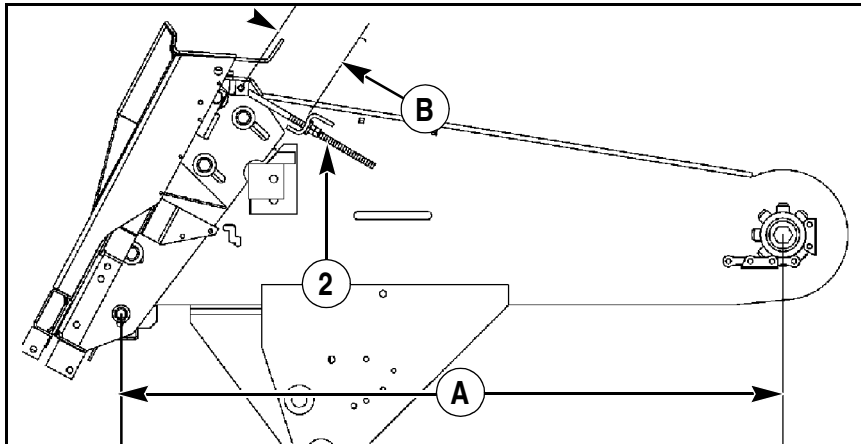


A2416



A2431

## Feeder Adjustment for Tire Size

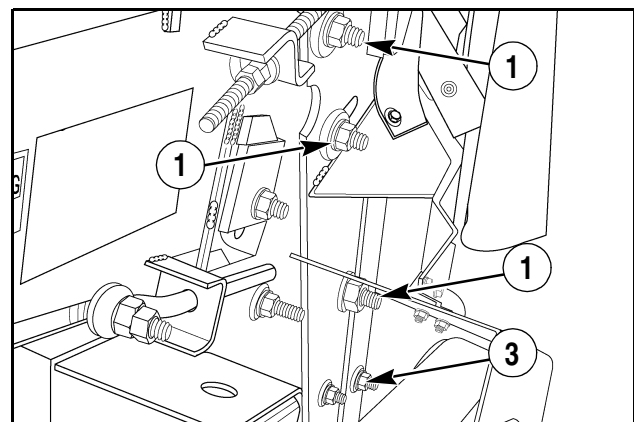


RI00G064

Your Combine was adjusted for the feeder length and tire size combination at the factory. If the tire size is changed the feeder adapter must be adjusted.

To adjust the feeder adapter to the tire size do the following:

1. Remove the header from the feeder.
2. Loosen the mounting bolts (1 and 3) for the feeder adapter. There are four bolts on each side.
3. Adjust the draw bolts (2) to the length shown in the chart on the next page and tighten the lock nut.
4. Tighten the top three 5/8 grade 8 mounting bolts (1) to a torque of 251 to 278 Nm (185 to 205 lb. ft.). Tighten the 1/2 grade 5 bolts (3) to 122 Nm (90 lb. ft.).



RD00H001

**NOTE:** After adjusting the feeder adapter check the clearance between the conveyor chain slats and the face of the feeder adapter. See *Conveyor Drum Fore/Aft Adjustment*.

**IMPORTANT:** Each time the feeder adapter is adjusted check the torque on the mounting bolts after the first 50 hours of operation.

**NOTE:** When using a 1020 Grain Header, the Header back sheet should be 10 degrees Forward when in the Operating Position. Refer to *Grain Header Operator's Manual*.

## Feeder Adjustment With Rock Trap

DRIVE TIRE SIZE	LOW GROUND CLEARANCE		HIGH GROUND CLEARANCE	
	A FEEDER LENGTH	B DRAW BOLT LENGTH	A FEEDER LENGTH	B DRAW BOLT LENGTH
30.5L-32 R1	54-1/2 inch	9.25 inch (235 mm)	54-1/2 inch	6.0625 inch (155 mm)
30.5L-32 R2	54-1/2 inch	9.25 inch (235 mm)	54-1/2 inch	6.0625 inch (155 mm)
30.5L-32 R3	54-1/2 inch	9.25 inch (235 mm)	54-1/2 inch	6.0625 inch (155 mm)
900/65R32 R2	54-1/2 inch	-----	54-1/2 inch	6.0625 inch (155 mm)
800/65 R32 R1W	54-1/2 inch	9.25 inch (235 mm)	54-1/2 inch	6.0625 inch (155 mm)
900/60 R32R1W	54-1/2 inch	9.25 inch (235mm)	54-1/2 inch	6.0625 inch (155mm)
900/60R32 R1	54-1/2 inch	9.25 inch (235 mm)	54-1/2 inch	6.0625 inch (155 mm)
76 x 50.00-32 HF3	54-1/2 inch	7.625 inch (195 mm)	54-1/2 inch	6.0625 inch (155 mm)
18.4R-42 R1	54-1/2 inch	9.25 inch (235 mm)	54-1/2 inch	6.0625 inch (155 mm)
20.8R-42 R1	54-1/2 inch	7.625 inch (195 mm)	54-1/2 inch	6.0625 inch (155 mm)
20.8-38 R1	54-1/2 inch	9.25 inch (235 mm)	54-1/2 inch	6.0625 inch (155 mm)

**NOTE:** When using a 1020 Grain Header, the Header back sheet should be 10 degrees Forward when in the Operating Position. See Grain Header Operator's Manual.

## Feeder Adjustment Without Rock Trap

DRIVE TIRE SIZE	LOW GROUND CLEARANCE		HIGH GROUND CLEARANCE	
	A FEEDER LENGTH	B DRAW BOLT LENGTH	A FEEDER LENGTH	B DRAW BOLT LENGTH
30.5L-32 R1	60 inch	9.25 inch (235 mm)	60 inch	7.625 inch (195 mm)
30.5L-32 R2	60 inch	9.25 inch (235 mm)	60 inch	7.625 inch (195 mm)
30.5L-32 R3	60 inch	7.625 inch (195 mm)	60 inch	7.625 inch (195 mm)
900/65R32 R2	60 inch	-----	60 inch	6.0625 inch (155 mm)
800/65 R32 R1W	60 inch	9.25 inch (235 mm)	60 inch	7.625 inch (195 mm)
900/60 R32R1W	60 inch	9.25 inch (235mm)	60 inch	7.625 inch (195mm)
900/60R32 R1	60 inch	9.25 inch (235mm)	60 inch	7.625 inch (195 mm)
76 x 50.00-32 HF3	60 inch	7.625 inch (195 mm)	60 inch	6.0625 inch (155 mm)
18.4R-42 R1	60 inch	9.25 inch (235 mm)	60 inch	7.625 inch (195 mm)
20.8R-42 R1	60 inch	7.625 inch (195 mm)	60 inch	6.0625 inch (155 mm)
20.8-38 R1	60 inch	9.25 inch (235 mm)	60 inch	7.625 inch (195 mm)

**NOTE:** When using a 1020 Grain Header, the Header back sheet should be 10 degrees Forward when in the Operating Position. See Grain Header Operator's Manual.

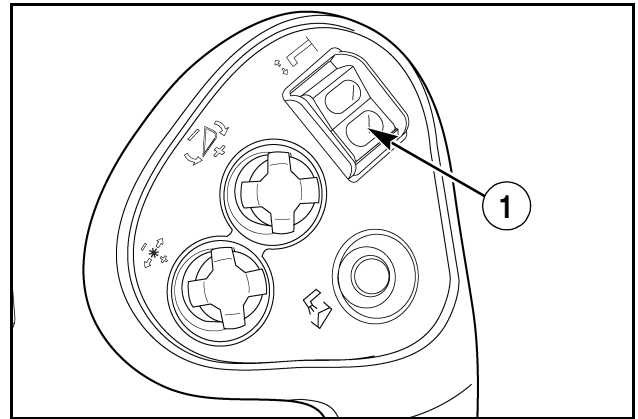


## UNLOADER OPERATION

UNLOADER TUBE SWING SWITCH (1). The unloader tube is controlled from the cab. The unloader tube swing switch is located on the propulsion control lever. This switch has three (3) positions:

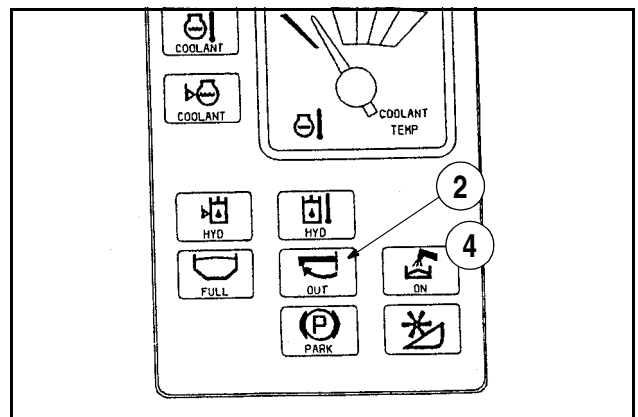
- IN
- NEUTRAL
- OUT

**NOTE:** After starting the engine, the unloader swing switch must be placed in its NEUTRAL position before the tube can be moved.



RD00E065

To swing the unloader tube out press the switch forward (OUT position). When the unloader tube is not in the transport bracket, the UNLOADER TUBE OUT light (2) on the instrument panel will be illuminated. To return the unloader tube press the switch to the rear (IN position). When the unloader tube is in the transport bracket, the UNLOADER TUBE OUT light on the instrument panel is not illuminated.



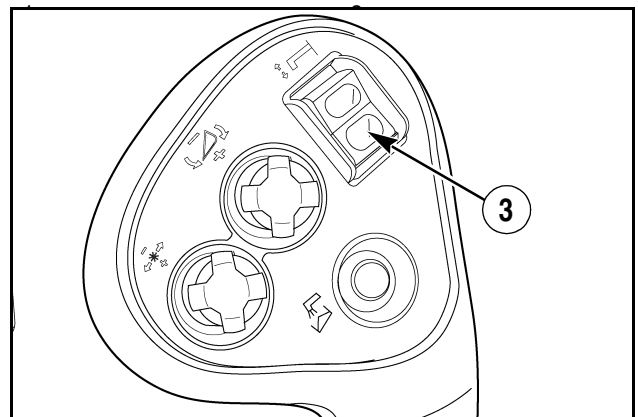
RH97H011

UNLOADER AUGER ON/OFF SWITCH (3). The unloader auger ON/OFF switch is also located on the propulsion control lever. To start the unloader, press and release the switch. To stop the unloader, press and release the switch again. The UNLOADER AUGER ON indicator lamp (4) (on the instrument panel) will light when the unloader is turned ON.

**NOTE:** If the switch is held and not released the auger will not start.

**NOTE:** The unloading auger will not function if the unloader tube is in the saddle.

**NOTE:** After starting the engine or moving the unloader tube out of the saddle, the unloading auger must be turned OFF (indicator lamp OFF) before it can then be engaged.



RD00E065



**WARNING:** DO NOT enter the grain tank when the Combine is running. The rotating augers in the bottom of the grain tank can cause severe injury including possible loss of limbs.

M192A

## OPERATOR'S LADDER

The operator's ladder can be adjusted to different positions depending upon harvesting conditions or transport requirements.

### Full Forward or Transport Position

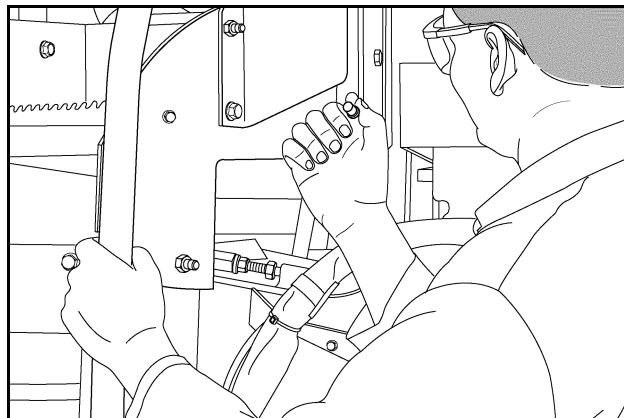
To pivot the ladder to the full forward or transport position do the following:

#### Using Lower Control Lever

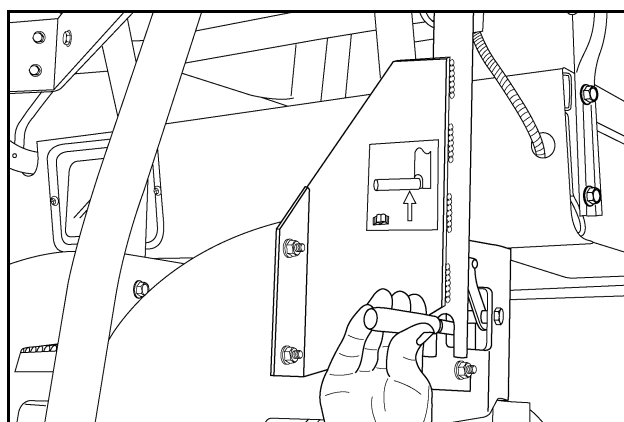
Push UP on the lower lever.

Pivot the ladder to the forward or transport position in front of the Left tire.

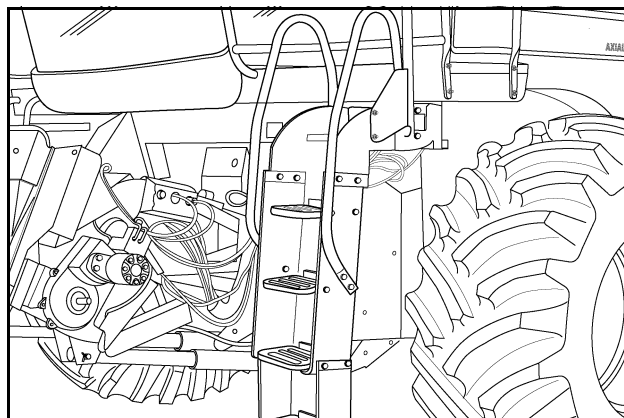
**IMPORTANT:** *Always make sure safety chains are properly connected.*



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RD00E013

## Using Upper Control Lever

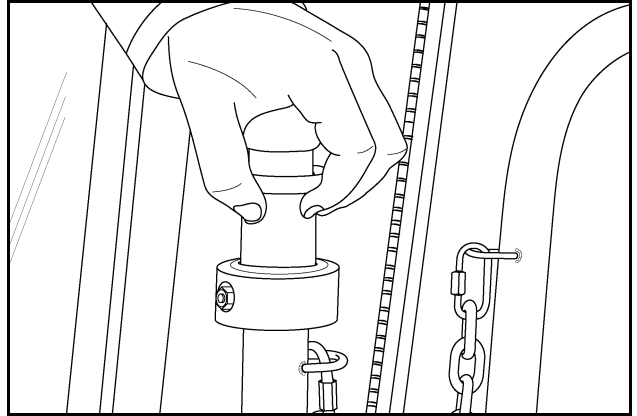
Pull UP on the upper lever.

Pivot the ladder to the forward or transport position in front of the Left tire.

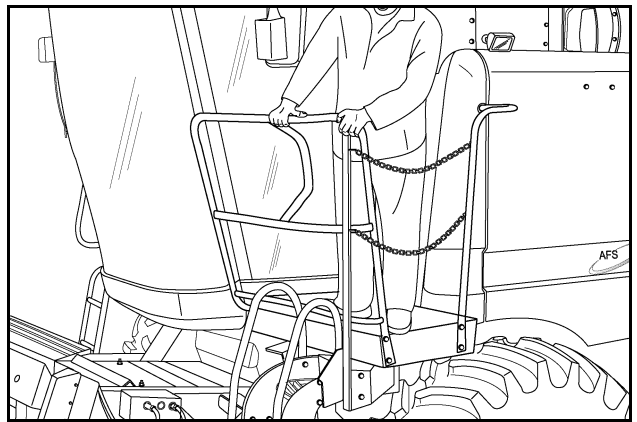
**IMPORTANT:** Always make sure ladder safety chains are properly connected.

 **WARNING:** Do Not operate in the field with the ladder in the forward position. Damage to the ladder and/or deck can occur. M505

**IMPORTANT:** Make sure that the ladder locks into place before ground travel or transporting.



RD98G094



RD98G096

## Full Side Position

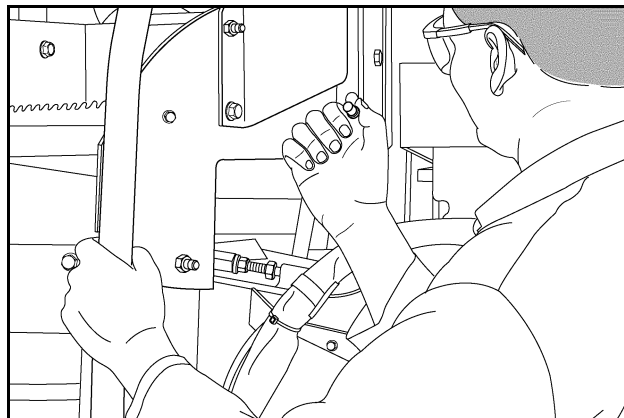
To pivot the ladder to the full side position, do the following.

### Using Lower Control Lever

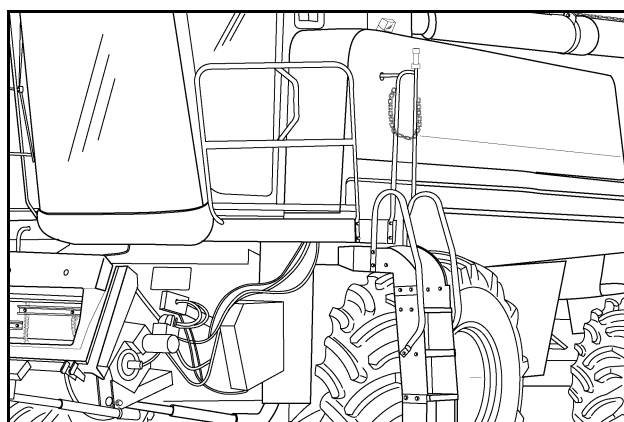
Push UP on the lower lever and pivot the ladder to the side position.

**NOTE:** To prevent ladder damage, the bottom step can be removed for increased clearance when operating in muddy or soft conditions.

**IMPORTANT:** Make sure that the ladder locks into place before resuming Combine operations, ground travel or transporting.



RD98G095



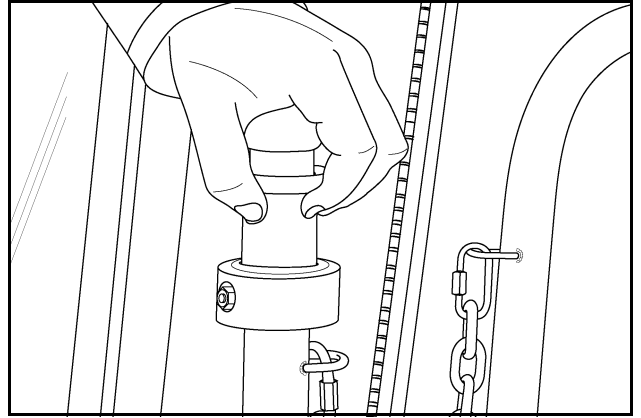
RD00E012

## Using Upper Control Lever

Pull UP on the upper lever and pivot the ladder to the side position.

**NOTE:** To prevent ladder damage, the bottom step can be removed for increased clearance when operating in muddy or soft conditions.

**IMPORTANT:** Make sure that the ladder locks into place before resuming Combine operations, ground travel or transporting.



RD98G094



RD98G097

## FIELD TRACKER® (If Equipped)

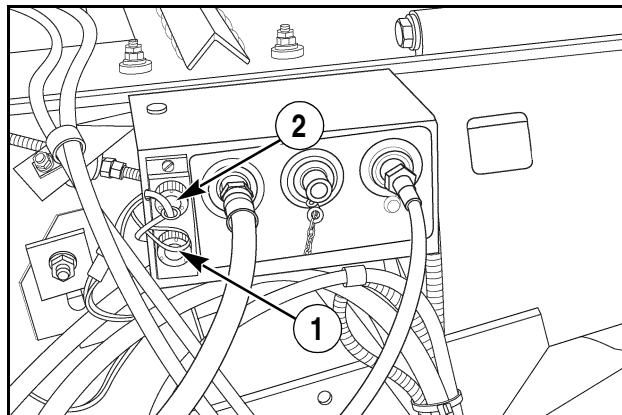
### Connecting the Field Tracker®

Refer to connecting the Grain Header or Corn Head to the Combine in this Section of the manual. Also follow the instructions below:

If your Grain Header or Corn Head is equipped with Field Tracker® ground sensor, connect the Field Tracker® harness on the grain header or corn head to the Combine Field Tracker® harness (1). Connect the Automatic Header Height Control sensor on the header to the Combine Automatic Header Height Control harness (2) (if equipped).

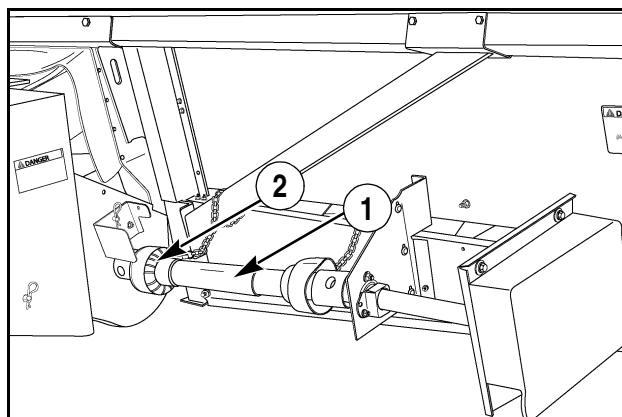
Raise the feeder jackshaft shield. Connect the Corn Head drive shaft(s) (3) to the feeder jackshaft(s) (4).

**NOTE:** 2212 Corn Head requires a AXIAL-FLOW® 2588 12 - Row Ready Combine.



RD00F035

**GRAIN HEADER AND CORN HEAD**



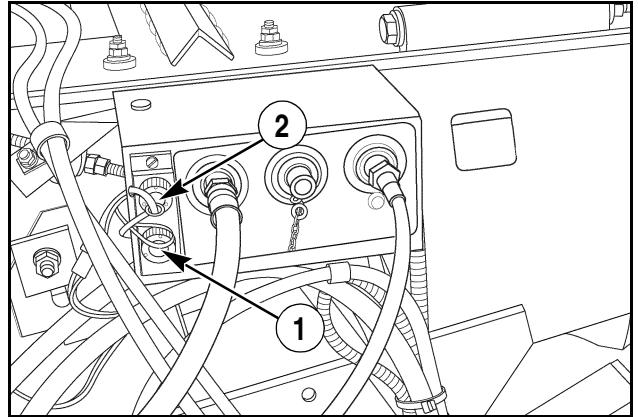
A14901

**1000 AND 2200 SERIES CORN HEAD**

## Disconnecting the Field Tracker®

Refer to disconnecting the Grain Header or Corn Head from the Combine in this Section of the manual. Also follow the instructions below:

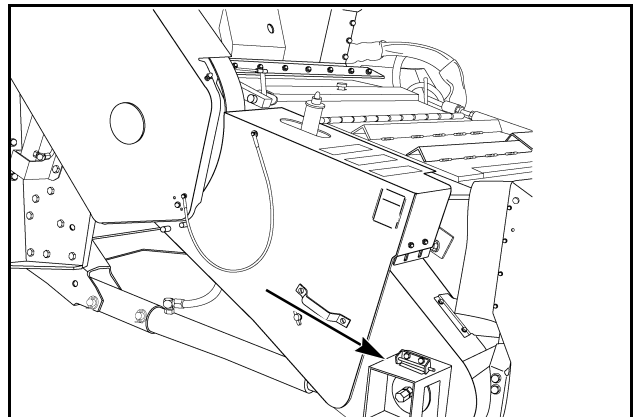
Disconnect the Field Tracker® harness on the Grain Header or Corn Head from the Combine Field Tracker® harness (1) (if equipped). Disconnect the Automatic Header Height Control sensor (2) (if equipped).



RD00F035R

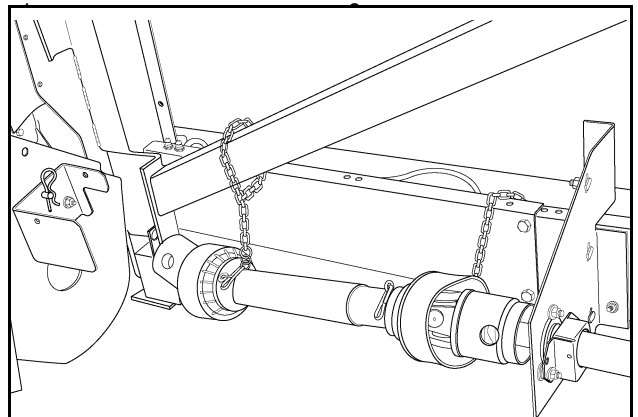
### GRAIN HEADER AND CORN HEAD

Lower the feeder jackshaft shield.



RD00H016

Disconnect the Corn Head drive shaft(s) from the feeder jackshaft (s) and store on bolt head on the Corn Head.



A14902

### 1044, 1063, 1064, 1083, 1084, 2206, 2208 AND 2212\* CORN HEAD

**NOTE:** \* 2212 Corn Head requires a AXIAL-FLOW® 2588 12-Row Ready Combine.

## Field Tracker® - Manual Operation

Before operating the Field Tracker® park the Combine on a level surface and ensure that the header and the Field Tracker® are properly connected.

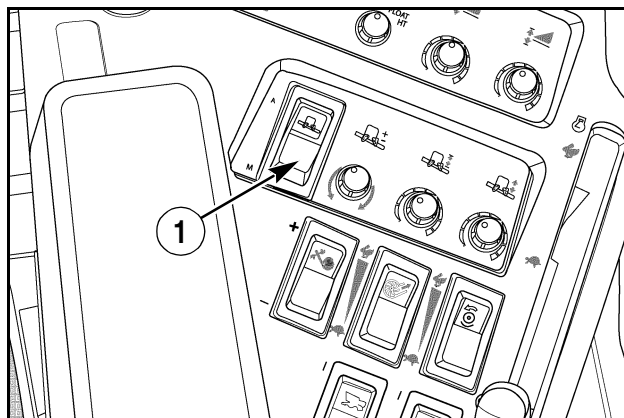
**NOTE:** Operate the 1010 Grain Header equipped with the Field Tracker® automatic/manual select switch (1) in the MANUAL mode only.

If your 1020 Grain Header or Corn Head is not equipped with optional ground sensors, the Field Tracker® can be operated in manual mode only.

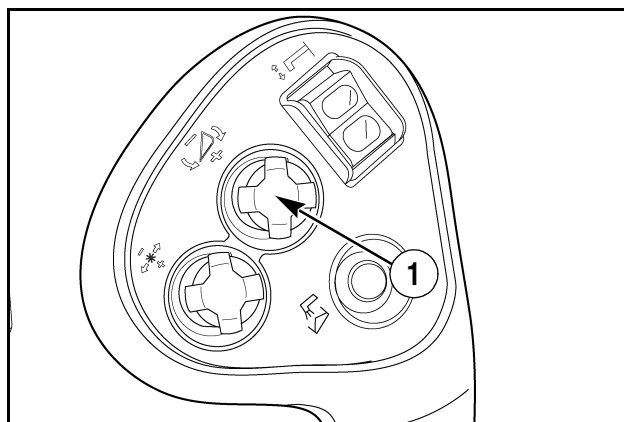
Raise the header with the header control switch (2).

Push the header control switch to the left to lower the left end of the header.

Push the header control switch to the right to lower the right end of the header.



A24293



RD00E065



## Field Tracker® - Automatic Operation

**NOTE:** To use the Automatic Mode of the Field Tracker® System, the header (1020 and 2010 Grain Header or 1000 and 2200 Series Corn Head) must be equipped with a Field Tracker® ground sensor attachment. See your dealer.

To operate the Field Tracker® in the automatic mode press the MANUAL/AUTOMATIC switch (1) forward.

Also move the header height selector (2) to the AUTO (“HT”) position, to activate the Auto Header Height Control system.

**NOTE:** The Field Tracker® will not operate in the automatic mode unless the feeder and the separator are engaged.

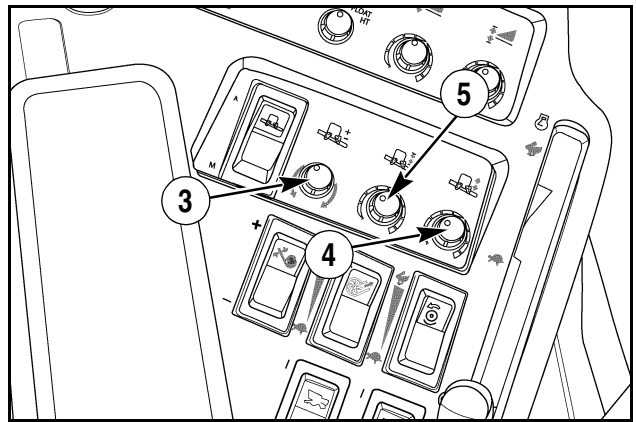
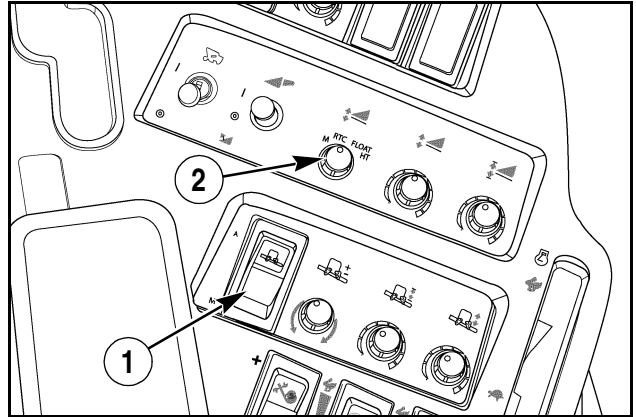
**NOTE:** The Field Tracker® can also be operated with the Header Height selector in the manual or return to cut modes also. Automatic operation of Field Tracker® must not be used with the Header Height Selector set to the FLOAT mode.

Lower the header to the ground. Refer to “Auto Header Height Control Operation” to activate the Automatic Header Height Control system.

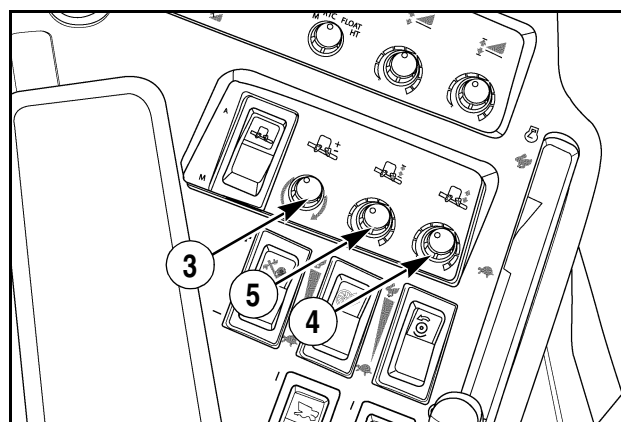
Turn the BALANCE CONTROL (3) to level the header in relation to the Combine. If the header tilts back and forth without stopping, gradually turn the RESPONSE CONTROL (4) counterclockwise to turn the response down until the tilting stops.

The best operating results occur when the RESPONSE CONTROL is set as close to maximum as possible. This will be when the RESPONSE CONTROL is in the 11 o'clock to 1 o'clock position.

**NOTE:** If the header continues to oscillate when the RESPONSE CONTROL is turned 3/4 of the way to the minimum position (approximately the 7 o'clock position) the SENSITIVITY CONTROL (5) must be turned counterclockwise to decrease sensitivity.



Final adjustments of the SENSITIVITY (5) and RESPONSE (4) controls must be done in the field while the Combine is operating at normal field speeds with the header and Combine drives engaged. The proper sensitivity and response settings stop the header from tilting continuously while still permitting the Field Tracker® to quickly react to ground changes. Ground speed and header width have an effect on proper sensitivity setting. Wider headers normally need to be operated at a lower sensitivity setting than narrower headers. Faster ground speed also makes it necessary to increase the sensitivity. DO NOT set the sensitivity so that the Field Tracker® is tilting continuously unless the ground contour is regulating the tilting due to very hilly and irregular land.



A24293

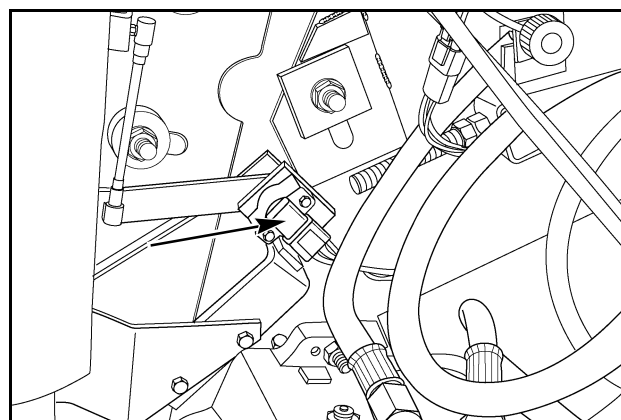
If one end of the header is pushing dirt, this can be partially corrected by adjusting the BALANCE CONTROL (3) to raise that end of the header a small amount.

**The Field Tracker® self-centering potentiometer is set at the manufacturer so that the header will automatically level when the feeder is raised.**

If the Header is not level when the Field Tracker® is in the AUTOMATIC mode and the feeder is raised, adjust the centering potentiometer.

**NOTE:** *The BALANCE CONTROL in the cab will not work when the feeder is raised and in the self centering mode.*

To adjust the centering potentiometer, loosen the mounting screws and rotate the potentiometer. The travel must not be exceeded through the full tilt range of the feeder housing. The length of the rod can also be adjusted as needed. If necessary remove the mounting screws and mount the sensor into the next set of holes in the sensor mounting bracket.

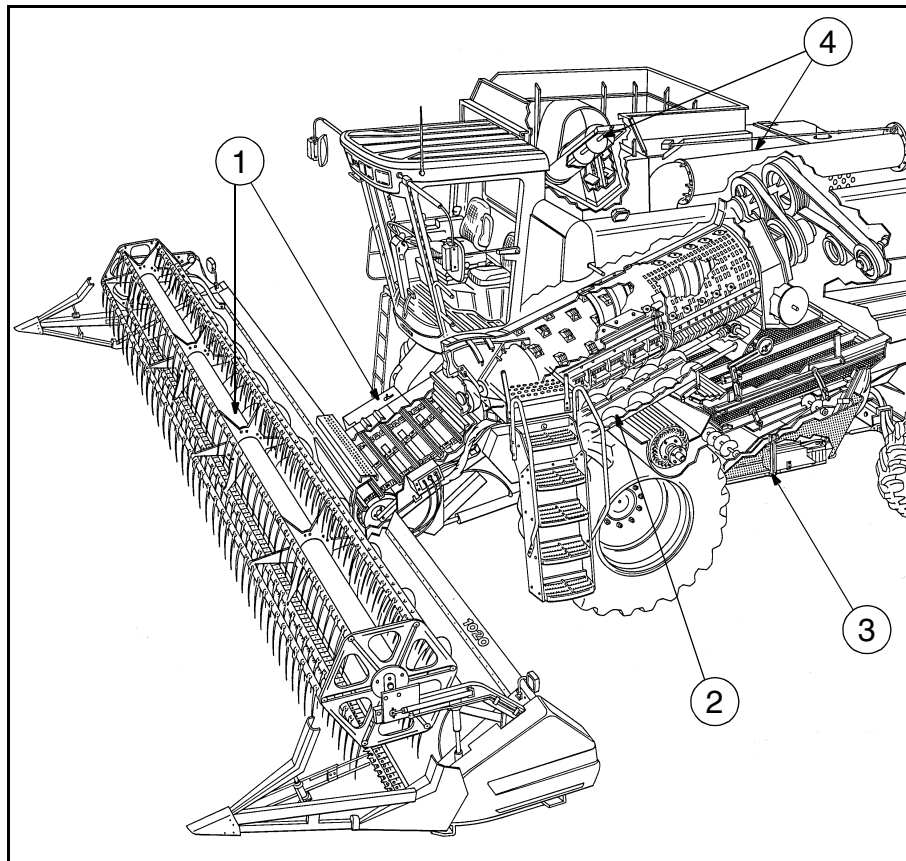


RD00F036

**NOTE:** *The sensor will only rotate through 90 degrees. DO NOT force the sensor beyond end points or the potentiometer will be damaged.*

## FIELD OPERATION

- Initial Crop Settings
- Troubleshooting
- Cutting and Feeding Components
- Threshing and Separating Components
- Grain Cleaning Components
- Grain Handling and Material Distribution Components



561L94

1. CUTTING AND FEEDING COMPONENTS  
2. THRESHING AND SEPARATING  
COMPONENTS

3. GRAIN CLEANING COMPONENTS  
4. GRAIN HANDLING AND MATERIAL  
DISTRIBUTION COMPONENTS

## AFX ROTOR - INITIAL CROP SETTINGS

The threshing, separating and cleaning settings in the table are furnished only as a guide and all settings shown are for average crop conditions. Different crop and field conditions may require deviations from shown settings. Use good threshing procedure and past experience to produce desired separation and cleaning results.

Crop	Rotor		Concave		Chaffer Setting (mm) (7)			Shoe Setting (mm)		Fan Speed (RPM)	Grate Type	
	Speed (RPM)	Gear Range	Indicator	(4)Type	Type (Inch)	Front	Middle	Rear	Type (Inch)			
Alfalfa	650	Middle	1	SW	1-1/8	6.4	9.5	9.5	1-1/8	Round Hole	500	Slot
Barley	700	High	2	SW	1-1/8	12.7	12.7	15.9	1-1/8	9.5	1000	Slot
Beans - Lentil	300	Low	2	LW	1-1/8	12.7	12.7	15.9	1-1/8	3.2	550	Slot
Pinto	300	Low	3	LW	1-1/8	12.7	12.7	12.7	1-1/8	9.5	850	Slot
Sunflower	300	Low	5	LW	1-1/8	9.5	12.7	15.9	1-1/8	7.9	770	Bar
Bent (5)	900	High	0	SW	1-1/8	6.4	9.5	9.5	1-1/8	1.6	450	Slot
Blue (5)	400	Low	1-1/2	SW	1-1/8	9.5	12.7	12.7	1-1/8	1.6	500	Slot
Brome (5)	500	Middle	3	SW	1-1/8	15.9	19.1	19.1	1-1/8	7.9	650	Slot
Rye (5)	650	Middle	4-5	SW	1-1/8	9.5	12.7	12.7	1-1/8	6.4	450	Slot
White Clover (5)	900	High	0	SW	1-1/8	9.5	12.7	12.7	1-1/8	1.6	500	Slot
Corn	400 500	Middle	3-5	LW	1-5/8 CLOZ 1-5/8 CORN	12.7 6.4	12.7 12.7	15.9 12.7	1-5/8 CLOZ	9.5 7.9	1000 1200	Bar
Corn (with straight separator bars) (1)(2)	300 450	Low Middle	3-5	LW	1-5/8 CLOZ 1-5/8 CORN	12.7 6.4	12.7 12.7	15.9 12.7	1-5/8 CLOZ	14.3 12.7	1000 1200	Bar
Edible Beans (Navy, Pinto.)	300 400	Low	3-5	LW/SL	1-1/8 1-5/8 CLOZ	12.7 3.2	12.7 9.5	12.7 9.5	1-1/8 1-5/8 CLOZ	9.5 7.9	900 1100	Bar
Flax	850	High	1	SW	1-1/8	6.4	6.4	12.7	1-1/8	3.2	500	Slot
Maize/Milo	450	Middle	3	LW	1-1/8 1-5/8 CLOZ	9.5 3.2	12.7 6.4	12.7 6.4	1-1/8 1-5/8 CLOZ	7.9 3.2	1100	Bar
Mustard	300	Low	4	SW	1-1/8	12.7	12.7	12.7	1-1/8	1.6	800	Slot
Oats	600	Middle	3	LW	1-1/8	12.7	12.7	15.9	1-1/8	9.5	780	Slot
Peas - Black Eye	300	Low	2	LW	1-1/8	12.7	12.7	12.7	1-1/8	9.5	700	Bar
Rape	400	Low	4	SW	1-1/8	6.4	9.5	12.7	1-1/8	1.6	600	Slot
Rice (3)(2)	850	High	2	LW	1-1/8	9.5	9.5	12.7	1-1/8	7.9	880	Bar
Wild Rice	600	Middle	1	LW	1-1/8	12.7	12.7	12.7	1-1/8	14.29	850	Bar

Continued on Next Page

## 6 - FIELD OPERATION

Crop	Rotor		Concave		Chaffer Setting (mm) (7)			Shoe Setting (mm)		Fan Speed (RPM)	Grate Type	
	Speed (RPM)	Gear Range	Indicator	(4)Type	Type (Inch)	Front	Middle	Rear	Type (Inch)			
Safflower	300	Low	4	LW	1-1/8	9.5	12.7	15.9	1-1/8	7.9	800	Bar
Soybeans (6)	350	Low Middle	3-4	LW	1-1/8	12.7	15.9	15.9	1-1/8	9.5	1050	Bar
	650				1-5/8 CLOZ / CORN	0	6.4	6.4	1-5/8 CLOZ	3.2	1150	
Wheat (1)	1050	High	2	SW	1-1/8	6.4	12.7	12.7	1-1/8	6.4	1050	Slot
Grass (5)	550	Middle	2-4	SW	1-1/8	6.4	9.5	9.5	1-1/8	6.4	450	Slot / Solid

- (1) Straight separator bars may be needed for harvesting corn yielding more than 150 bushels per acre (9400 kilograms per hectare) and in other crops during dry conditions. Increase fan speed to 1250 RPM in wet corn.
- (2) Once installed, straight separator bars need to be removed only for harvesting rice and edible beans and similar viney crops.
- (3) Tough rice requires the use of spiked rasp over the concave area and the grate area. Set concave indicator at Number 4 when spiked rasp bars are used in the concave area.
- (4) LW - Large Wire [6.4 mm (1/4 Inch) Diameter]; SW - Small Wire [4.76 mm (3/16 Inch) Diameter]
- (5) Use of non-spiked rasp bars in all positions is recommended for most grass seed harvest conditions. Spiked bars may be helpful in extremely damp crops. Rotate fan cutoff rearward to the vertical position to reduce air volume.
- (6) Some soybeans may require rotor speeds up to 700 RPM or more.
- (7) The front several millimeters of the chaffer sieve are, by design, set slightly more closed than the rest of the front section.

## TROUBLESHOOTING THRESHING AND SEPARATING SYSTEM

To correct the specific harvesting problems listed below, follow and complete only the adjustments described. The number indicates the sequence in which each adjustment should be made.

**IMPORTANT:** *The single most common misadjustment is setting rotor speed too slow. High moisture crops will require higher rotor speeds.*

### A. Damaged Grain or Corn in Sample

1. Decrease Rotor Speed
2. Open Shoe Sieve
3. Inspect Concaves for Plugging  
(unplug and set concave closer)
4. Open Concave
5. Remove Fillers from Right of First Concave  
(if installed)
6. Remove Some Wires from Concaves

### B. Kernels Left on Cob

1. Increase Rotor Speed
2. Close Concave

### C. Excess Cob Breakage

1. Decrease Rotor Speed
2. Open Concave
3. Remove Channels from Inside of Rear Grates.

### D. Unthreshed Heads or Pods - White Caps in Sample

1. Increase Rotor Speed
2. Close Concave
3. Close Shoe Sieve
4. Add Remaining Fillers to First Concave
5. Add Filler to Right of First Concave

### E. Loss of Kernels Out of Rotor

1. Inspect Concaves for Plugging (unplug and set concave closer)
2. Decrease Rotor Speed
3. Position Grate Vanes to Rear or Slow Position
4. Remove Fillers from Right of First Concave (if installed)
5. Remove Some Wires from the Concave
6. Move Concave Vanes to Rear Position

### F. Grain Loss Over Chaffer

1. Increase Air Blast
2. Open Chaffer Sieve
3. Decrease Rotor Speed
4. Cover Slots in Rear Portion of Cage
5. Decrease Forward Travel Speed

### G. Grain Blowing Over Chaffer

1. Reduce Air Blast
2. Open Chaffer Sieve
3. Inspect Concaves for Plugging  
(unplug and set concave closer)

### H. Shoe Sieve Overloading

1. Close Chaffer Sieve
2. Open Shoe Sieve
3. Increase Air Blast
4. Decrease Rotor Speed
5. Decrease Forward Travel speed

### I. Heavy Stems in Sample

1. Close Shoe Sieve
2. Close Chaffer Sieve
3. Increase Air Blast
4. Decrease Rotor speed
5. Open Concave

### J. Fines in Sample

1. Increase Air Blast
2. Close Shoe Sieve
3. Close Chaffer Sieve
4. Decrease Rotor Speed
5. Open Concave

### K. Small Bits of Cob in Sample

1. Close Chaffer Sieve
2. Decrease Rotor Speed
3. Close Shoe Sieve
4. Increase Air Blast
5. Open Concave

### L. Excessive Power Consumption

1. Increase Rotor Speed
2. Open Concave
3. Decrease Forward Travel speed
4. Remove Channels from Inside of Rear Grates

**M. Distribution Heavy on Right Side**

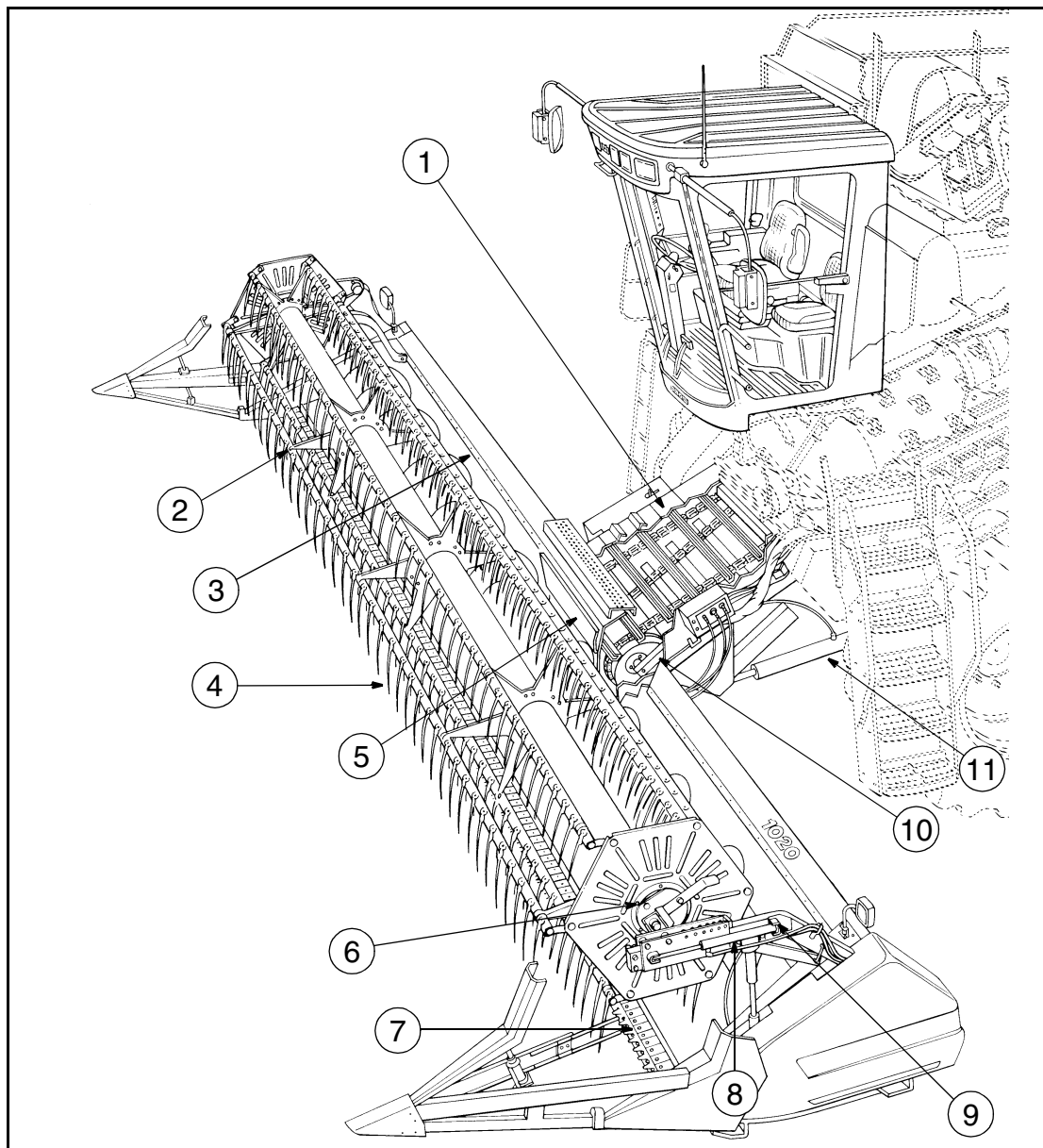
1. Add Filler to Right of First Concave
2. Add, Remove or Adjust Auger Bed Paddle
3. Decrease Rotor Speed
4. Close Concave
5. Decrease Forward Travel Speed

**N. Distribution Heavy on Left Side**

1. Remove Fillers from Right of First Concave  
(if installed)
2. Open Concave
3. Decrease Rotor Speed
4. Increase Rotor Speed
5. Add, Remove or Adjust Auger Bed Paddle
6. Remove Some Wires from Concaves
7. Decrease Forward Travel Speed
8. Inspect Concave for “zero” at 12th Bar of the  
Concave

## CUTTING AND FEEDING

### Controls and Adjustments



589L94

- 1. FEEDER CONVEYOR CHAIN
- 2. REEL
- 3. \*AUGER TO STRIPPER CLEARANCE
- 4. \*AUGER FINGERS
- 5. \*AUGER STRIPPER EXT.

- 6. \*ECCENTRIC ADJUSTMENT FOR TINE PITCH
- 7. \*KNIFE SECTIONS
- 8. \*REEL LIFT CYLINDER
- 9. \*REEL FORE/AFT ADJUSTMENT

- 10. FEEDER CONVEYOR DRUM
- 11. FEEDER LIFT CYLINDER  
\*SEE HEADER OPERATOR'S MANUAL



### Introduction

The function of the header is to cut the crop, gather it and feed it to the rotor in the most efficient manner. Crop loss and feeding performance are measurements of the header's performance.

There are two basic types of reels: the bat reel, primarily used in standing grain, and the pickup reel which is beneficial in down and tangled crops. There are three main reel adjustments: (1) speed; (2) height and (3) fore and aft position. Pickup reels also require an adjustment to properly set the pitch of the tines.

The reel's function is to hold the crop to be cut and assist in crop delivery to the header auger.

### Bat Reel

Reel speed RPM should normally be about 10 times the travel speed in MPH (slightly faster in down and lodged crops). Reel speed should be adjusted to divide the crop for gentle delivery to the cutterbar. It should not be so fast that it will shatter standing grain or so slow that it will push the grain away from the cutterbar.

Reel height should be just low enough to catch all the heads. If the reel is too low, heads will hang across it and be carried around. If the reel is too high, reel bats will shatter grain from the heads. Multiple cuts on stalks indicate that the reel is too high or too slow.

Fore and aft positioning of the reel is determined by ground speed and length of straw. As a general rule, with bat-type reels the longer the straw or the faster the ground speed, the further forward the reel should be positioned.

### Pickup Reel

A pickup reel is advantageous in down and lodged grain because it insures a clean, shear cut by actually lifting the crop and positioning it in front of the cutterbar. Tine angle should be adjusted so tines enter the grain to lift the crop and help in moving the crop to the header auger. If tines are adjusted too far rearward they will carry the crop around the reel. When making pickup reel adjustments, check to make sure the tines do not strike the cutterbar.

Fore and aft positioning of the pickup reel is determined by whether the grain is standing or laying down. The reel is generally up and back for standing crop and down and forward to lift crop which is laying down below the cutter bar cutting height.

### Cutting Parts

Proper maintenance and timely section replacement will increase cutter bar efficiency. 38.1 mm (1-1/2 inch) knife sections and 76.2 mm (3 inch) knife sections are available. A 38.1 mm (1-1/2 inch) knife system is recommended for use in rice and soybean harvest. A 76.2 mm (3 inch) knife system is recommended for use in all small grains, sunflowers, milo and safflower.

## Feeder Chain

Feeder chain tension should be adjusted so there is 0.8 to 3.2 mm (1/32 to 1/8 inch) clearance between the slat tips and feeder bottom with the feeder in the operating position. Measure the clearance at the middle of the feeder house.

The feeder chain slat tip should be running no further rearward of the feeder face than 38.1 mm (1-1/2 inches). In some cases it may be necessary to add links to the feeder chain. Maintain a clearance between the slat tip and the auger flights.

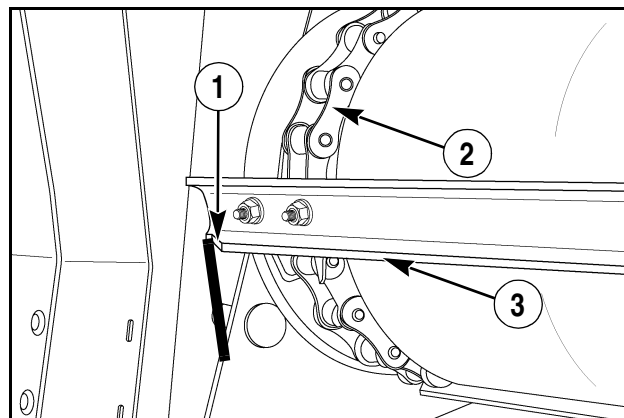
A 6 pitch feeder chain (slat every 6 links) is recommended for grain and corn Combines.

A 8 pitch feeder chain (slat every 8 links) with serrated slats is recommended for rice Combines.

Three lower-drum stop positions may be utilized to help achieve the desired feeding throughout. If your machine is equipped with a stone retarder drum, maximum rock protection is obtained with the upper stop of the drum in its lower position.

Most crops utilize the mid position, although heavier crops such as corn will require raising the drum to the upper position. A rock trap is available for most crops and offers maximum rock protection. See Conveyor Drum Adjustment in this section of the manual.

Feeder chain slats are bolted to the feeder chain. DO NOT reuse the mounting hardware. New hardware provided with the slat must be installed when the slat is replaced. Torque the feeder slat retaining bolts to 27 to 34 Nm (20 to 25 lb. ft.). DO NOT overtighten.



1. MAXIMUM 38.1 mm (1-1/2 INCH) CLEARANCE
2. FEEDER CHAIN
3. CHAIN SLAT

## Auger Adjustments

Header auger adjustments and optional auger RPM combinations are often overlooked when setting the header. Check for correct fore and aft auger position, retractable finger position, auger speed and auger stripper adjustment. Proper stripper clearance will reduce material feeding over the auger.

The auger should clear the strippers at closest point by not more than 3.2 mm (1/8 inch). The auger should clear the header bottom at closest point by not more than 12.7 mm (1/2 inch) for most conditions. If combining coarse crops, heavy down crops or windrows, a 25.4 mm (1 inch) or more clearance might be required to prevent plugging the auger.

Stripper extensions extend stripper length inward toward the feeder house opening. These extensions are used to fit different width feeder openings.

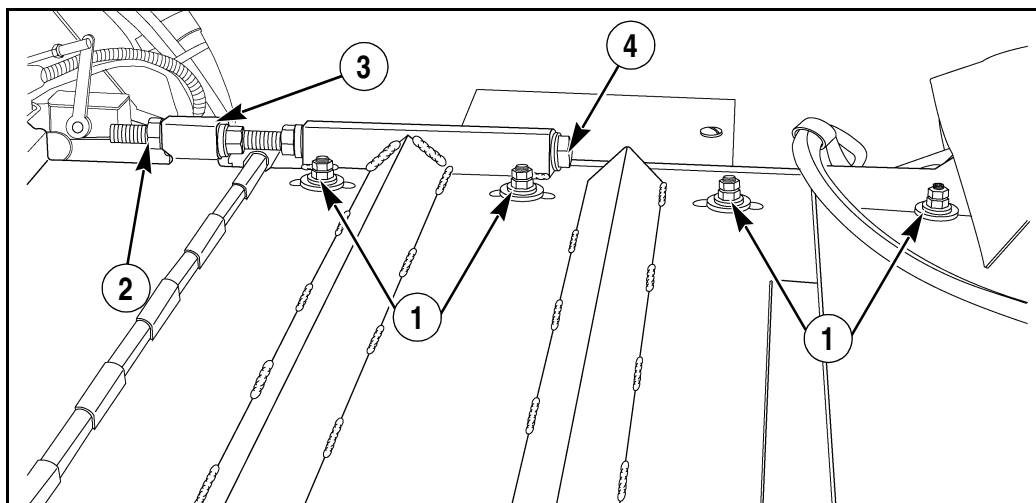
The retractable fingers should clear the header bottom by 3.2 to 9.5 mm (1/8 to 3/8 inch). If straw feeds into the header in a thick mass or windrow and in heavy crop conditions, better feeding may result if the fingers are adjusted away from the header bottom so the auger fingers are at a maximum extension at the 10 o'clock position (as viewed from the Left end of the header) on the front auger face.

Optional auger speed sprockets for 1000 Series grain heads are available for various crop conditions. They include:

- 152 RPM - 56 Tooth (Standard Sprocket)
- 170 RPM - 50 Tooth
- 189 RPM - 45 Tooth
- 213 RPM - 40 Tooth

Use slower speeds when shatter losses are high or wrapping occurs. Use higher speeds to match auger speed to highest ground speed or to improve feeding in heavy yielding crops.

## Leveling the Header



RD00E081

1. TOP COVER NUTS

2. REAR NUT

3. FRONT NUT

4. LEVELING BOLT

To level the header do the following:

1. Put the Combine on level ground.
2. Adjust both drive tires to equal pressure.
3. Loosen the top cover nuts on the top Left side of the feeder housing.
4. To raise the Left end of the header, loosen the rear nut (2) and tighten the front nut (3) on the header leveling bolts (4).
5. To raise the Right end of the header, loosen the front nut and tighten the rear nut on the header leveling bolt.
5. Tighten the feeder top cover nuts to a torque of 156 to 176 Nm (115 to 130 lb. ft.).

## Feeder Conveyor Adjustments

### Chain Adjustments

Keep the feeder conveyor chain adjusted correctly at all times. Inspect the chain for correct tension after the first 50 hours of operation and at regular intervals thereafter (see Feeder Conveyor Chain Adjustment in this manual).

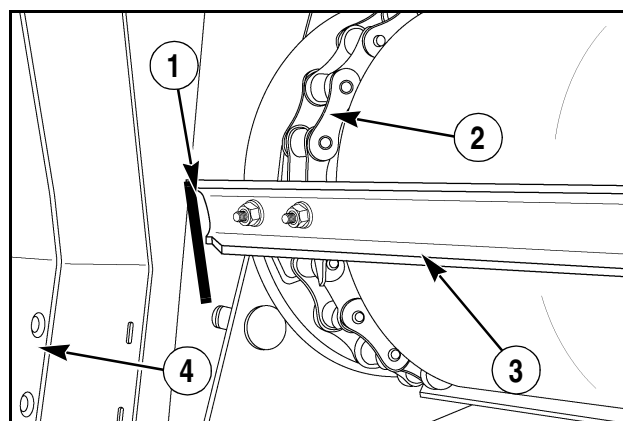
**IMPORTANT:** *Be sure to adjust the chain evenly on both sides to prevent excessive wear on both chains and sprockets.*

The conveyor chain tension is adjusted by moving the feeder drum forward or rearward.

### Conveyor Drum Fore/Aft Adjustment

The fore/aft position of the conveyor drum must be adjusted correctly to obtain correct feeding of material from the header auger to the feeder. The position of the drum must be adjusted for a maximum clearance (1) of 38 mm (1-1/2 inch) from the conveyor chain slat (3) to the feeder face (4).

**NOTE:** *In short crops the 38 mm (1-1/2 inch) maximum may need to be reduced.*



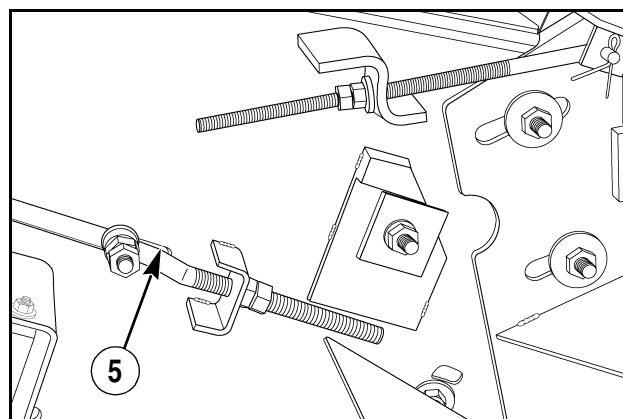
A25920

1. 3/8 mm (1-1/2 INCH) CLEARANCE
2. FEEDER CONVEYOR CHAIN
3. CHAIN SLAT
4. FEEDER FACE

The drum is adjusted fore and aft with the conveyor chain adjusting bolts (5) on each side of the feeder and by adding or removing chain links in the conveyor chain (2).

Before adding or removing chain links, check the feeder conveyor chain for correct tension (see Feeder Conveyor Chain Adjustment for complete instructions).

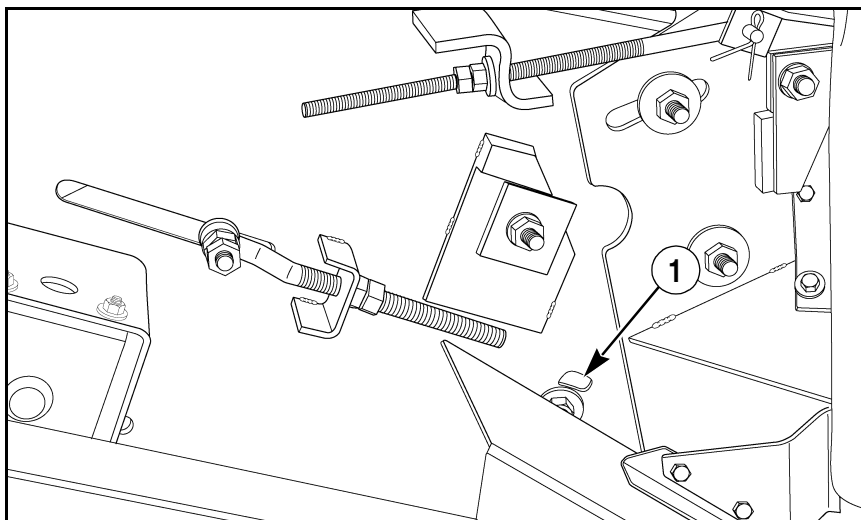
When the chain tension is correct, add or remove links from the conveyor chain as necessary to obtain the correct clearance. After adding or removing chain links, the chain tension must be adjusted again.



RD00F043

1. CONVEYOR CHAIN ADJUSTING BOLT

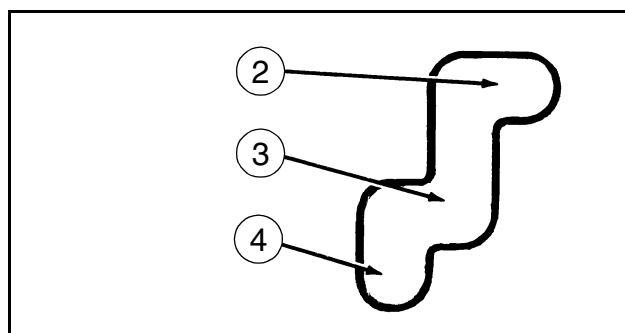
## Conveyor Drum Lower Stop Adjustment



RD00F043

The lower stops for the conveyor drum can be adjusted to keep the drum in a raised position. To adjust the lower stops, loosen the nuts on the stop bolts. Raise or lower the drum and slide the stop bolts in the slots to the desired position and tighten the nuts. The recommended settings are as follows:  
 For Heavy Crops (Corn) ..... Upper Position  
 For Average Crops..... Middle Position  
 For Crops Hard to Feed..... Lower Position

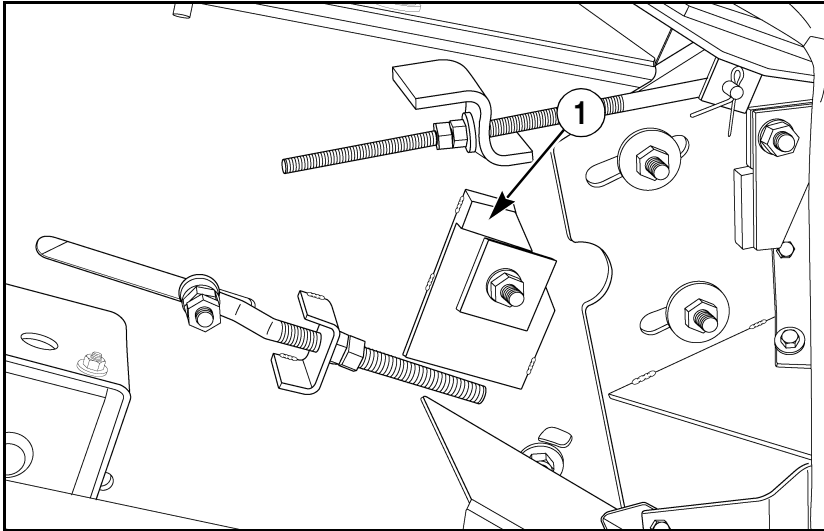
**NOTE:** *Always adjust the lower stops to the same position on both sides of the feeder.*



181L7

- 1. RIGHT HAND LOWER STOP SLOT
- 1. UPPER POSITION
- 2. MIDDLE POSITION
- 3. LOWER POSITION

## Stone Retarder Adjustment (If Equipped)

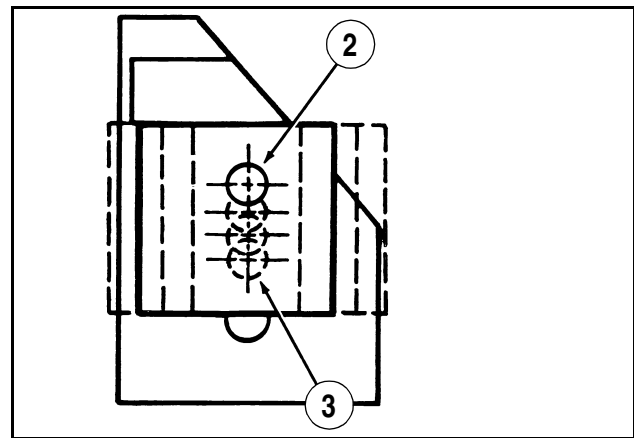


RD00F043

The stone retarder adjusting blocks (1) limit the upward movement of the conveyor drum to help keep stones out of the separator. The stone retarder has four positions from minimum to maximum protection. To adjust the stone retarder adjusting blocks, loosen the bolts and turn the blocks to move the bolts to the desired height. Tighten the bolts.

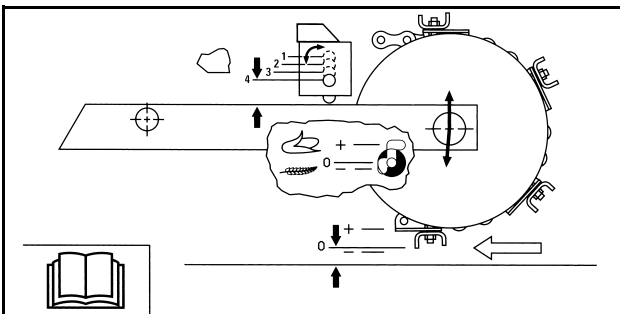
**NOTE:** Always adjust the stone retarder adjusting blocks on both sides of the feeder to the same position.

**NOTE:** If equipped with a stone retarder drum and a rock trap, the stone retarder block must be positioned to its full up position to allow rocks to enter the feeder and be exposed to the rock trap. Failure to do this may cause feeder chain damage.



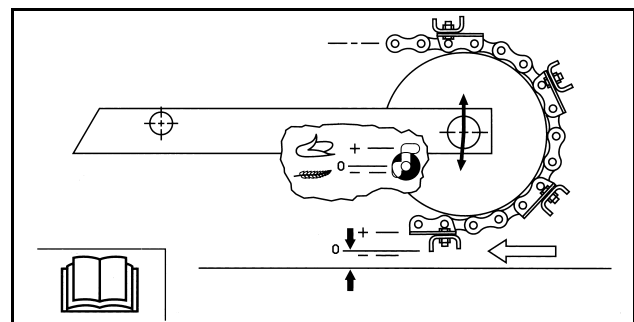
182L7

- 2. HIGHEST POSITION - MINIMUM PROTECTION
- 3. LOWEST POSITION - MAXIMUM PROTECTION



175783A1

**WITH STONE RETARDER**



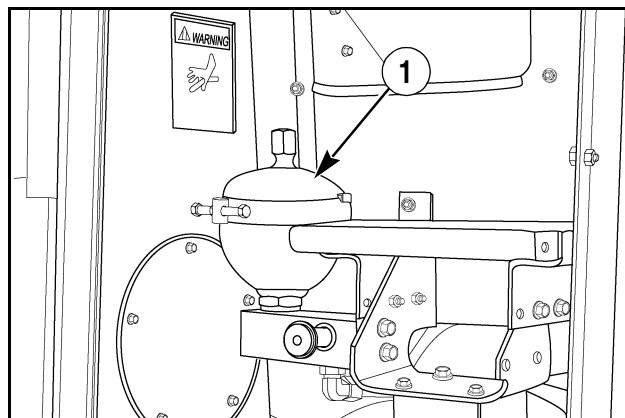
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**WITHOUT STONE RETARDER**

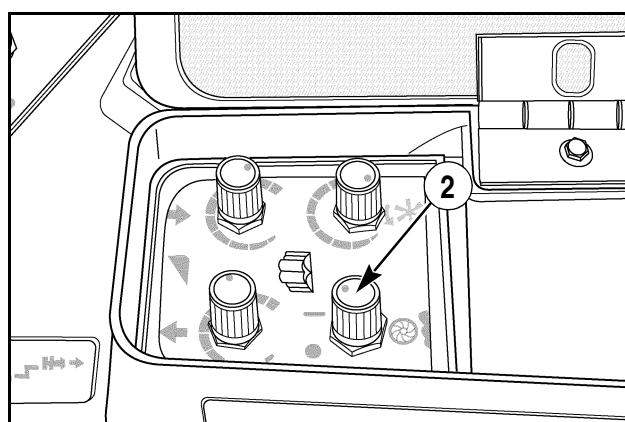
## RIDE CONTROL ACCUMULATOR (IF EQUIPPED)

The accumulator (1) has dry nitrogen gas on one side of a diaphragm and hydraulic oil on the other side. When hydraulic oil enters the accumulator, the diaphragm is pushed toward the nitrogen gas side. As the nitrogen gas is compressed the accumulator acts as a shock absorber between the Combine and the Header. The accumulator will cushion the bouncing motion of the Header when driving the Combine over rough ground.

The accumulator valve located behind the service access door on the Left side Operator's platform is turned ON and OFF electrically by a rotary switch (2) located under the Operator's Right arm rest and modulated manually by the needle valve adjustment knob located on the accumulator valve.



RD00E068



RD97G033

1. ACCUMULATOR
2. ACCUMULATOR SWITCH



**WARNING:** The accumulator contains a compressed gas. DO NOT drop the accumulator or expose the accumulator to temperatures above 300° F (149° C).

M183A

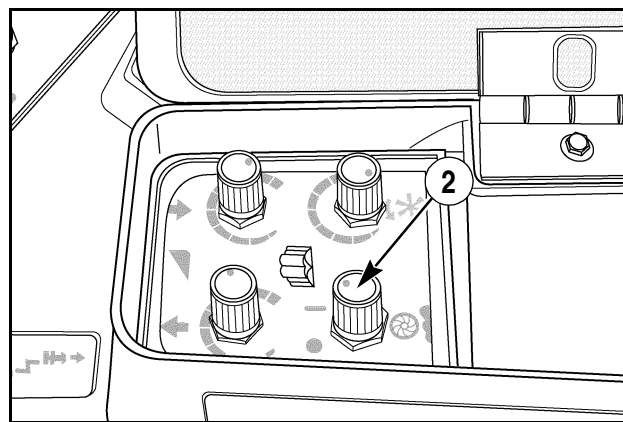


**WARNING:** The accumulator must be serviced by qualified service personnel only. DO NOT service the accumulator before referring to the Repair Manual. The accumulator contains compressed gas and must be discharged before servicing.

M424

The Ride Control Accumulator is energized by actuating the Accumulator Switch (1) found under the Right armrest to the ON position. The ride control can then be fine tuned by adjusting the needle valve integrated in the Accumulator Control Valve (2) mounted behind the service access door on the Left Operator's platform.

For the accumulator to work correctly, the pressure of the nitrogen gas must be lower than the normal feeder lift cylinder pressure. The accumulator is factory charged to 6895 kPa (1000 PSI) which should accommodate most Header applications.

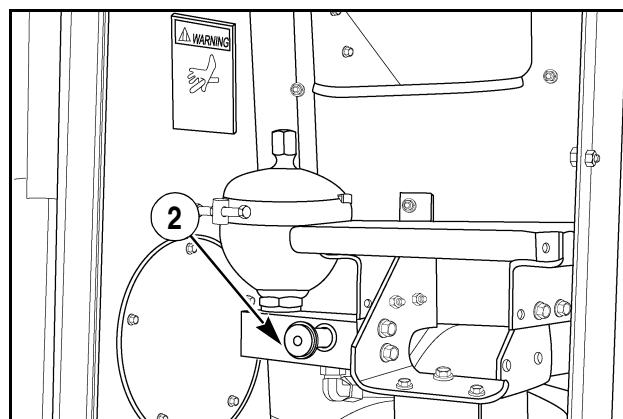


RD97G033

### Operational Check and Adjustments

To adjust the pressure, do the following:

1. Turn the Accumulator Switch to the ON position and open the Accumulator Needle Valve completely.
2. Lower the Corn Head, Grain or Pick-Up Header to the ground and then hold the Header lift switch in the DOWN position for 5 seconds. Turn the Accumulator Switch to the OFF position.
3. Raise the Header until the cutter bar or stalk rolls are 305 to 457 mm (12 to 18 inches) above the ground.
4. Measure the height of the cutter bar or stalk rolls.
5. Turn the Accumulator Switch to the ON position. The Header must drop a distance of 25 to 76 mm (1 to 3 inches). If the Header did not lower this amount, remove the accumulator valve guard cap and release a small amount of nitrogen gas until the Header drops the proper amount.



RD00E068

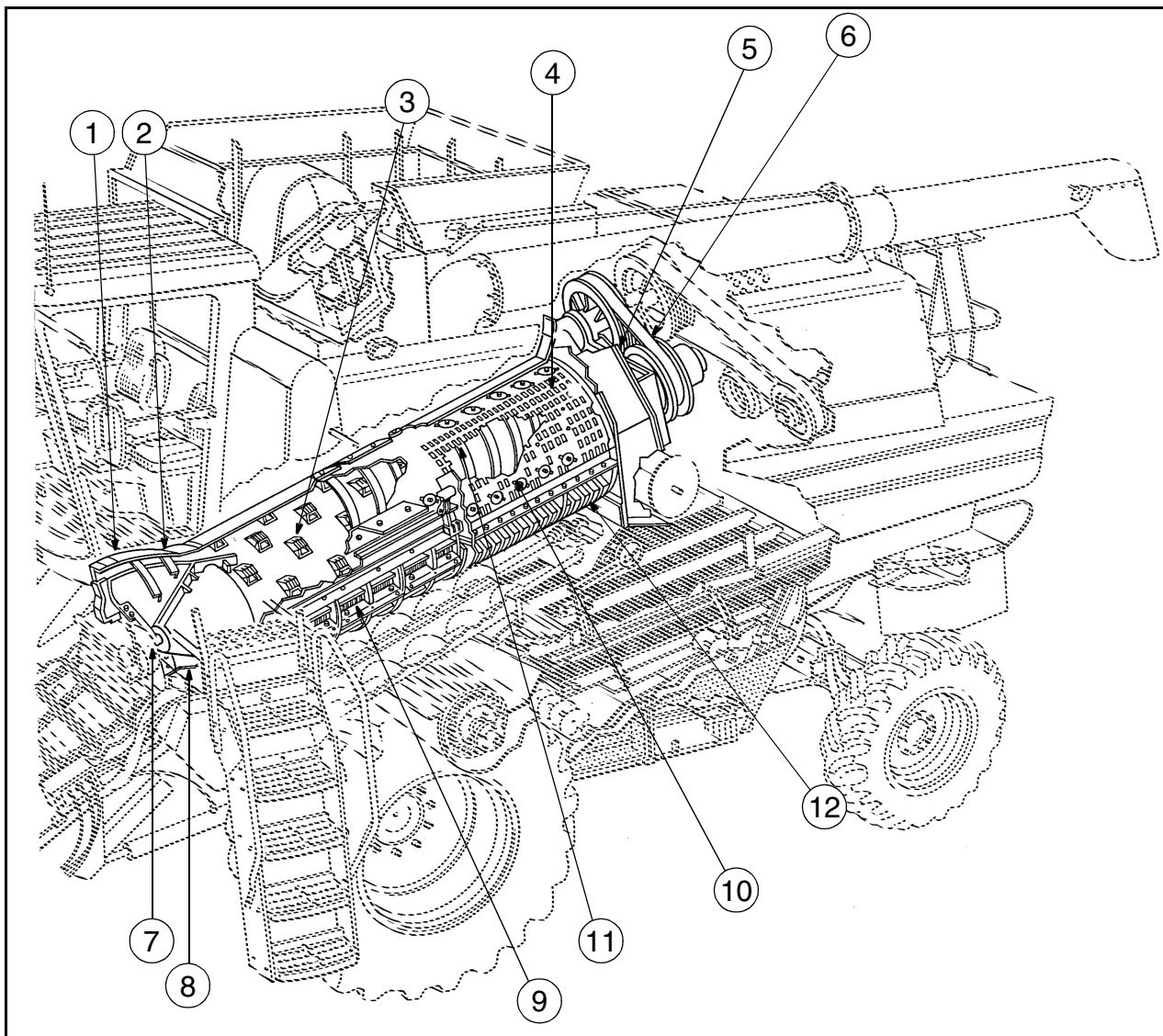
**NOTE:** 25 mm (1 inch) of drop is all that is necessary to achieve good ride control.

6. If the Header drops too much, have the accumulator serviced (recharged) by your dealer. DO NOT recharge the accumulator with oxygen, air or any other gas, except dry nitrogen gas. See your dealer!



## THRESHING AND SEPARATING

### Control and Adjustments



563L94R

- |  |  |
|--|--|
| 1. TRANSITION CONE                             | 7. ROTOR                                   |
| 2. TRANSITION CONE DIRECTIONAL TRANSPORT VANES | 8. ROTOR IMPELLER BLADES                   |
| 3. ROTOR RASP BARS                             | 9. CONCAVE                                 |
| 4. ROTOR CAGE                                  | 10. ROTOR CAGE DIRECTIONAL TRANSPORT VANES |
| 5. ROTOR DISCHARGE HOUSING                     | 11. SEPARATOR BARS                         |
| 6. ROTOR BELT DRIVE                            | 12. SEPARATOR GRATES                       |

### Introduction

The threshing and separating functions of AXIAL-FLOW® Combines are performed in the rotor cage area. Material is fed from the feeder to the impeller blade area of the rotor and flows rearward through the machine. The two most important components to the threshing and separating processes are the rotor and the concaves.

The rotor threshes the grain and assists in the rearward travel of the material through the machine. The sooner the grain is threshed out of the heads, the more opportunity the grain has to separate from the material.

The function of the three-section concave is twofold. First, the concaves must hold the material long enough to insure complete threshing. Second, the concaves must have enough capacity to permit the grain to separate into the cleaning system once the grain has been threshed.

Threshing area adjustments properly made will assist you in obtaining maximum machine performance. Rotor speed and concave clearance are the two most important adjustments.

Rotor speed is important to the control of material throughput in the rotor cage.

The two adjustments available to the concaves are their clearance from the rotor rasp bars and/or the removal or addition of wires, filler bars or interrupter bars.

Concave clearance is determined by the threshing difficulty of the crop. For harder threshing conditions a close setting is preferred and for easier threshing conditions, a wider setting is recommended. The concave indicator setting should never exceed setting Number 5. The wider selections should be used only as clean-cut positions. In hard threshing crops, the concave zero (0) adjustment should be checked.

Rotor speeds and concave clearances must be matched to crop and conditions for most efficient and productive operation. One common mistake is running the rotor too slow and concave set too open for the crop. This results in slow movement of the material, inefficient threshing and separation and a loss in machine capacity.

With the AXIAL-FLOW® concept kernel damage is greatly decreased and is not effected by rotor speed and concave setting nearly as much as conventional Combines are by cylinder speed and concave adjustment. There is a much broader acceptable range of settings with the AXIAL-FLOW® Combine.

Movement of material through the rotor cage area is controlled by transport cage vanes. Relocating the vanes by pivoting them into a more vertical position (rearward position) results in additional spiraling of crop material for increased threshing and separation. A more horizontal position (forward position) increases crop material flow rearward.

Separation is completed in the rear half of the cage area by using grates between the rotor and cleaning system. See Grates in this manual for a description of the available grates and their applications.

Operators should not hesitate to make adjustments when necessary but should make only one adjustment at a time. If no improvement is seen, reset to the original position and proceed to another adjustment.

## In the Field

After operating a distance in the field (at least 100 yards) check the threshed straw behind the Combine.

If all the grain has been completely threshed out of the straw and the straw appears to be mangled or overthreshed (generally in AXIAL-FLOW® Combine threshing you will find particularly in the drier straw, the straw will be more chopped up) do the following:

1. Slow the rotor rpm.
2. Open the concaves.
3. A combination of 1 and 2.

In corn, if cobs are broken, follow the same steps.

If cobs still have kernels attached and threshing does not appear to be complete, do the following:

1. Speed up rotor.
2. Tighten concave.
3. A combination of 1 and 2.

In grain, if the crop still appears not to be threshed and if not already installed, install a set of narrow spaced wire concaves (7/16 inch between center of wires).

Generally, high rotor speeds will complete the threshing. Closing the concave will improve threshing. If the concave is closed, check the quality of the sample in the grain tank. If skinning or cracking has occurred, open the concave slightly and slow the rotor rpm.

## Separating and Cleaning Losses

Before making unnecessary adjustments to the Combine, check for seed loss by using the method described under Seed Loss Tables. If, after checking, it is found that the loss is from the separator, then proceed as follows to determine if it is from the rotor or cleaning system:

### Separation

Most of the separation of the crop from the straw or husks occurs in the concave area during the threshing cycle. Crop not separated in either the concave area or the grate area will be lost out of the rear of the Combine. These losses are referred to as rotor losses.

### To Determine if Losses are from Rotor or Cleaning System

1. Remove the straw spreaders.
2. With a shovel, catch a short sample at the rear of the hood. Check kernel loss from rotor.
3. With a shovel, catch a short sample at the rear of the chaffer. Check kernel loss from the cleaning system.
4. Compare samples to determine where losses are occurring.

### To Correct for Rotor Losses

1. Check to see if the concave is plugged.
  - A. If plugged and packed with mud, this is generally caused by running header too close to the ground. Clean the concaves and raise the header height.
  - B. If plugged with crop material check concave to rotor clearance. Generally this type of plugging is caused by excessive concave opening.
2. Check rotor speed to setting as indicated in table for that particular crop.
  - A. Extremely high speeds or extremely low speeds can add to rotor losses.
3. In corn with slotted grates, channels should be on the inside of the grates between the slotted holes. Use of keystick grates is highly recommended.
4. In grain with slotted grates, the channels should be on the outside of the grates across the holes. In some cases, in grain, it will be necessary to move the channels to a position outside the grates and between the slotted holes. Use of keystick grates in grains is recommended if straw quality is not of great importance.
5. All machines in corn should have the wide wire spaced concaves (3/4 inch center distance of wires). In some grain crops use of the wide wire spaced concave will be beneficial in reducing rotor losses. Priority of installing large wire concaves should be 3rd, 2nd and 1st positions.
6. In some peculiar conditions, moving the concave vanes (6) to a less severe angle will help reduce rotor losses. Although moving the vanes to this less severe angle could cause increased use of horsepower and increase in cleaning system loads.
7. In some edible bean or soybean crops it will be necessary to increase the speed of the rotor. An indication of poor material flow is rotor rumble and possible slugging in more adverse conditions.
8. In very heavy crops or high yielding corn crops where large amounts of material other than grain are going through the machine it might be necessary to slow the ground speed to reduce the rotor losses.

Rotor losses should be kept as low as possible by doing what has been previously mentioned but you must remember that opening the concave by removing concave wires and excessive rotor speeds and/or too tight concave settings can overload the cleaning system. The incidence of cleaning overload has been greatly reduced with extended sieves and the Cross Flow® fan, so rotor loss reduction methods can be more aggressive.

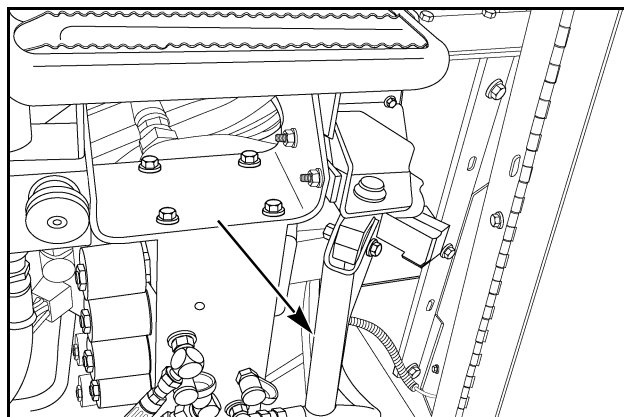
**NOTE:** *Concaves or grate varieties can be intermixed to obtain required results.*

## ROTOR

### Three Speed Gear Case

The three speed gear case is controlled by a lever at the Left front of the grain tank behind the service door. Pull the lever to the Right for L (low) gear. Push the lever to Left for H (high) gear. The neutral positions, N, are the detents between L, M and H. To change the gear case speed, stop the engine and move the lever to the selected position. If the gears do not engage, rotate the pulleys a small amount or start the engine and engage the separator for a moment to align the shift splines in the gear case. **Stop the engine before shifting the gears.**

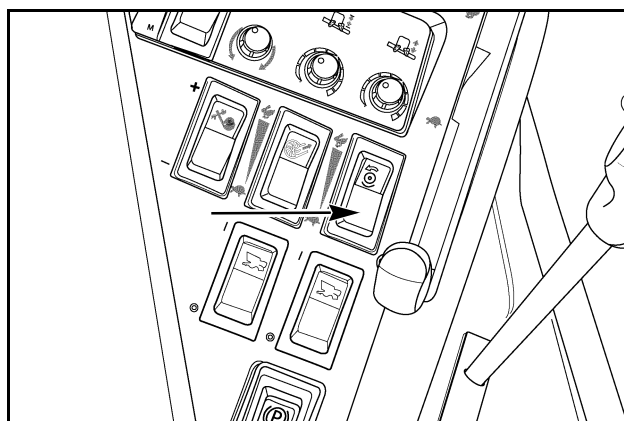
**NOTE:** *Be sure the gear case is fully engaged in the detent before operating.*



RD97G162

### Rotor Speed Setting

The rotor speed can be changed from the inside of the cab while the Combine is operating. Use the rotor speed control switch on the Right console to change the rotor speed. Push on the rear half of the switch to decrease the rotor speed. Push on the front half of the switch to increase the rotor speed (see Initial Crop Settings for the recommended starting speed). Adjust the speed further according to crop conditions.



A24293

## Clearing the Rotor



**WARNING:** When clearing the rotor, Do Not allow anyone near the rotor drive belt or inside the engine compartment when the engine is running. Serious injury or death may occur.

M507

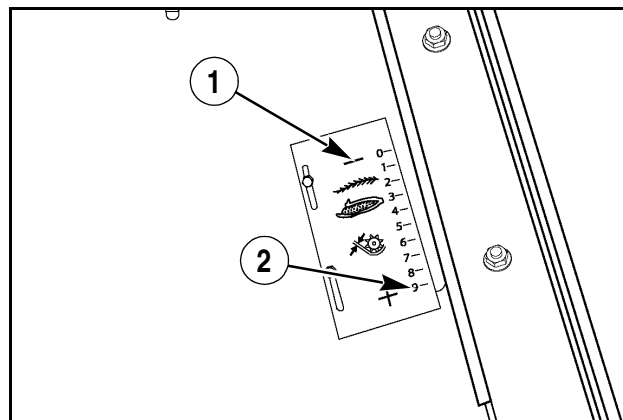
If a large amount of crop cannot be cleared from the rotor under normal operation, proceed as follows:

1. Disengage the separator and feeder. Stop the engine.
2. Lower the concave to the “+” or 9 position for clean out (it may be necessary to do this manually).
3. Shift the rotor gear case to NEUTRAL using the auxiliary shifter located between the rotor gear case and the engine. It may be necessary to remove pressure from gears inside gear case by moving the rotor with the rocking wrench. Adjust the rotor speed until the drive belt is in the mid range position on both the drive and driven pulleys.
4. Shift the rotor gear case to LO.
5. Start the engine and move the throttle lever to the half throttle position.
6. Engage the separator drive. If the rotor does not clear, immediately disengage the separator drive, stop the engine and remove the key from the key switch.

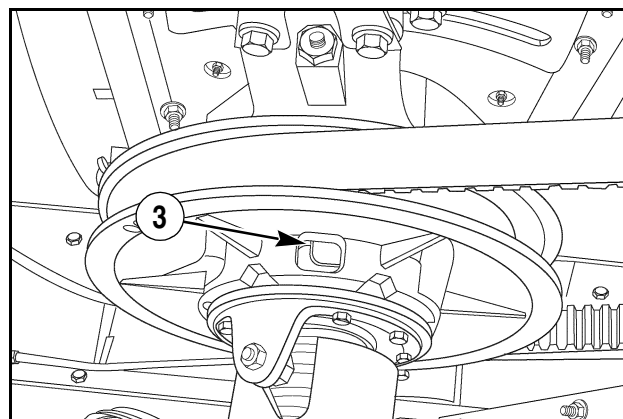
**IMPORTANT:** If the rotor does not clear immediately, failure to disengage the separator drive may damage the drive belt.

7. Use the rotor rocking wrench (3) to move the rotor back and forth.
8. If the rotor cannot be cleared, the concaves and grates will have to be removed and some of the straw must be removed by hand (see Concave Removal and Grate Removal).
9. Use the rotor rocking wrench again to move the rotor.
10. When the rotor is clear, install the concave and grates.
11. Put the rotor rocking wrench in the storage position.

**NOTE:** Be sure to adjust the concave to the correct position after clearing the rotor. Change the rotor gear ratio and rotor speed back to the original setting.



A24351



RD05D069

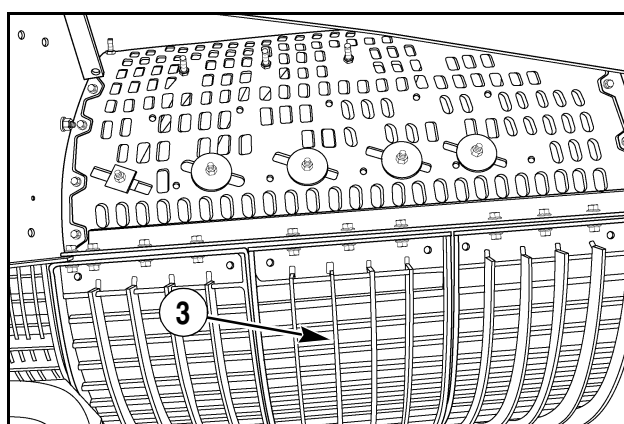
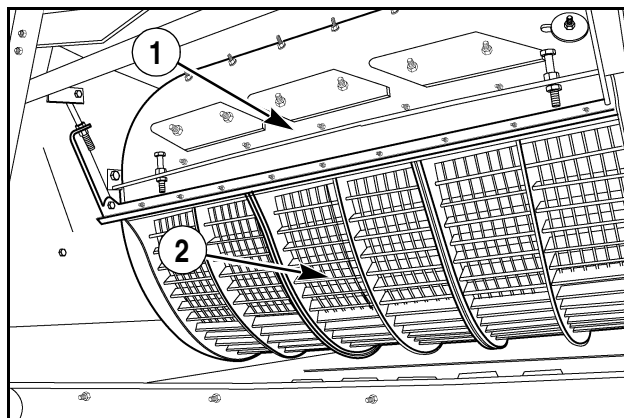
1. CONCAVE INDICATOR GAUGE PLATE
2. CLEANOUT POSITION
3. ROTOR ROCKING WRENCH LOCATION

## Cage Transport Vanes

The top of the rotor cage has transport vanes to help move the crop from the front to the rear of the rotor. The transport vanes are adjustable within slotted holes in the rotor cage to advance or retard the crop flow through the rotor cage. The initial factory setting for the transport vanes over the concave and grate areas is in the middle position for all Combines. To reduce rotor losses in certain conditions, adjust the transport vanes over the grate area, to the rear (retard) position, first. If the rotor loss must still be reduced, adjust the transport vanes over the concave area to the retarded position. Adjusting the lower end of the transport vanes rearward can increase horsepower and fuel requirements. Adjusting the transport vanes forward can increase material flow and ground speed and can also reduce horsepower and fuel requirements. For average crop conditions, adjust the transport vanes over both the concave area and the grate area to the middle position.

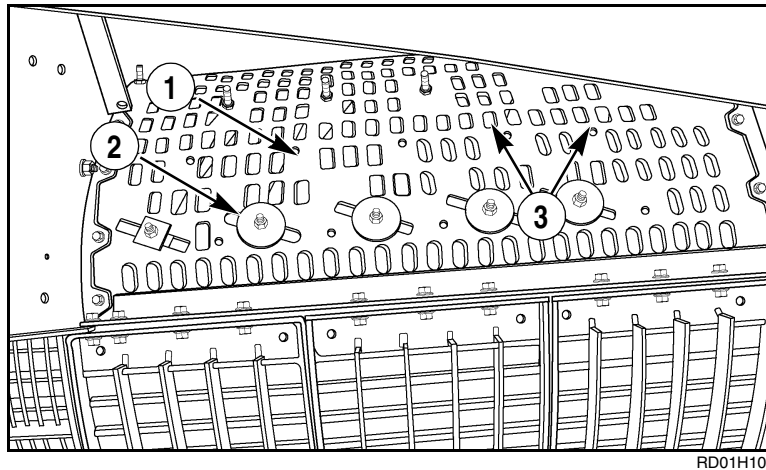
Adjust the transport vanes as follows:

1. Remove the Left separator side panels.
2. Loosen the three nuts, on each transport vane to be adjusted, to within 3 to 5 mm (1/8 to 3/16 inch) from the end of the bolts.



1. TIE PLATE
2. CONCAVE AREA
3. GRATE AREA

## 6 - FIELD OPERATION

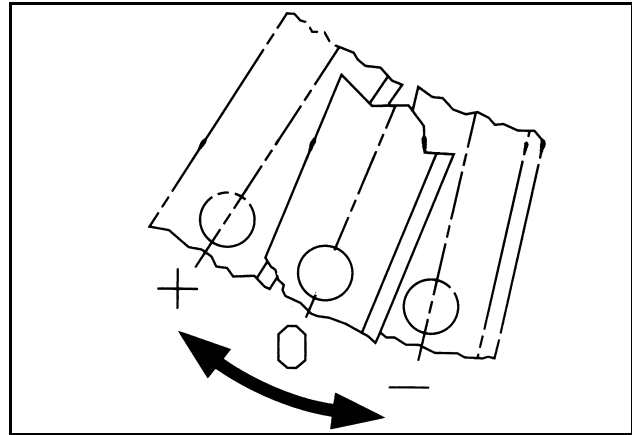


1. TRANSPORT VANE
2. LOWER END
3. POSITIONING HOLES FOR MIDDLE POSITION ONLY

3. Move the lower ends of the transport vanes forward or rearward as required. The transport vanes over the grate area can be moved individually. The transport vanes over the concave area are connected in pairs with tie plates.

Forward (Advance) Position.....Vane to front of hole  
Middle Position .....Vane centered under hole  
Rear (Retard) Position..... Vane to rear of hole

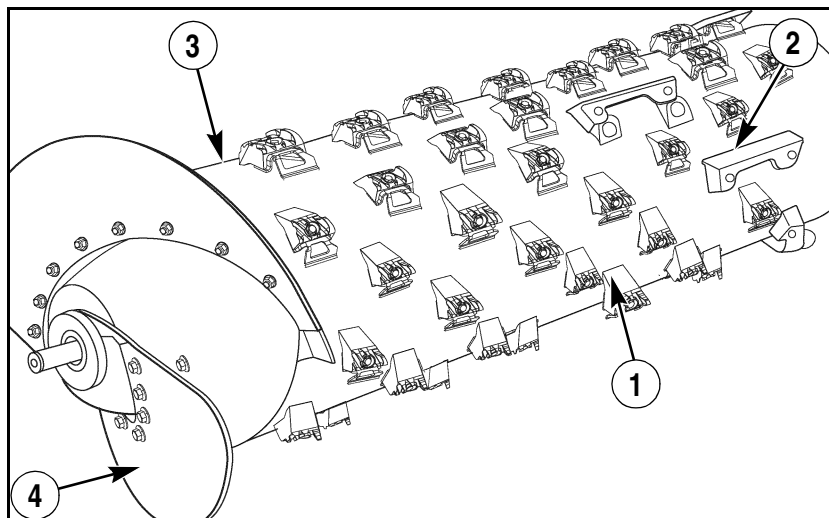
4. Put a punch through the vane positioning hole to check for middle position only.
5. Tighten the nuts on the transport vanes. Tighten the center nuts first. Tighten the nuts on the lower ends second and tighten the nuts on the upper ends last. Tighten the nuts to a torque of 47 to 54 Nm (35 to 40 lb. ft.).
6. Install the Left separator side panels.



175784A1



## AFX Rotor Assembly



RD02E265

1. RASP BAR EXTENDED WEAR CHROME ALLOY SHOWN
2. SEPARATOR BAR - EXTENDED WEAR SHOWN
3. EXTENDED WEAR ROTOR
4. IMPELLER (EXTENDED WEAR) SERVICE PACKAGE IS AVAILABLE THROUGH YOUR DEALER

The AFX Rotor is available for threshing and separating all crops. This rotor can greatly improve performance in any damp crop, such as edible beans, rice, damp windrowed crop and green stem soybeans.

**NOTE:** *The rice rotor is similar to the AFX rotor except there are spiked rasp bars on the entire length of the rotor.*

Rasp bars with spikes or without spikes can be used with the AFX rotor. For most conditions rasp bars without spikes are installed over the concave and separator grate areas. If material flow through the Combine becomes restricted due to wet/damp conditions, install rasp bars with spikes over the separator grate area and if material flow continues to be a problem, rasp bars with spikes can be installed over the concave area (the concave stop bolts will require adjustment. See Concave Adjustment in this manual). Tighten the mounting bolts for the rasp bars to a torque of 129 to 146 Nm (95 to 105 lb. ft.).

The AFX rotor can be used to harvest corn and grain. When the AFX rotor is installed in corn or grain Combines, straight separator bars will be substituted for horizontally aligned pairs of rasp bars. Eight straight separator bars are installed on the rotor for use in corn. Four straight separator bars are installed on the rotor for use in grain.

The position of the standard eight or twelve straight separator bars for a corn Combine equipped with the AFX Rotor is as shown below:

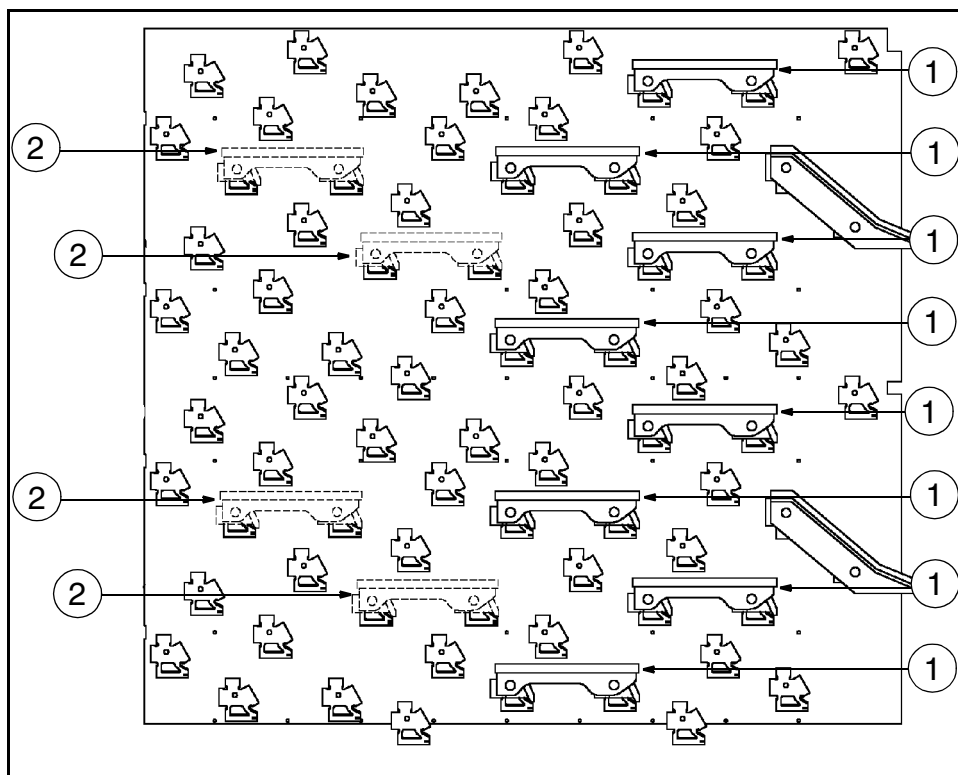
### Option:

It is possible to add two optional separator bars over the concave to enhance threshing and separation.

The bars reduce high moisture concave plugging.

The bars increase power consumption.

Expect to run more open concave to reduce the power requirement.



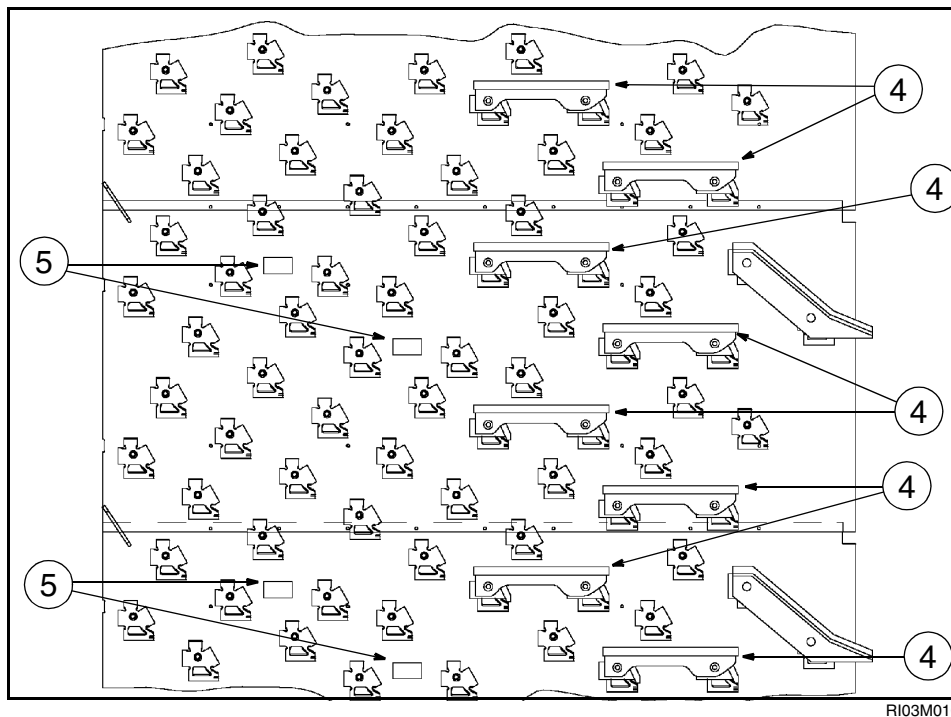
RI03K008

1. Corn Combine straight separator bar position in concave area are only necessary in high yielding corn when rotor loss is excessive.

2. Optional separator bar position.

## 6 - FIELD OPERATION

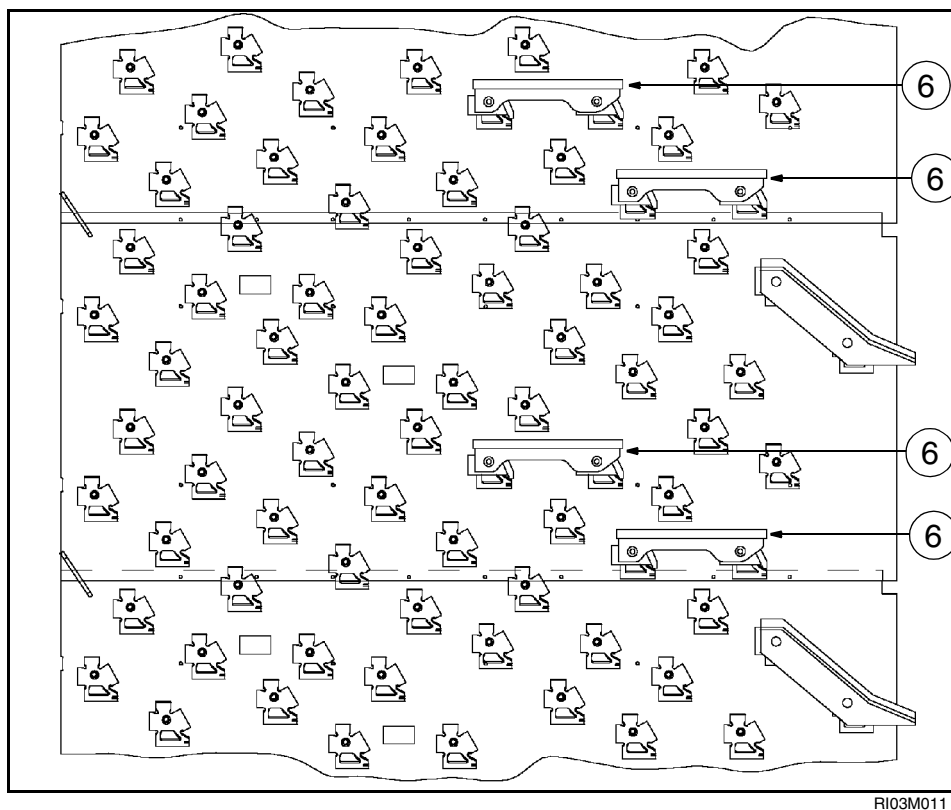
The position of the standard eight to twelve straight separator bars for a AXIAL-FLOW® 2588 Corn Combine equipped with the AFX rotor is as shown below:



4. AFX rotor straight separator bar position.

5. AFX rotor optional separator bar position (if required).

The position of the four straight separator bars in a Combine equipped for use in small grains with the AFX rotor is as shown below:



6. AFX rotor grain Combine straight separator bar position.

**NOTE:** *AFX Rotors have four leading rasp bars added in front of the original specialty bar placement. these bars are intended to disperse crop before the crop moves over the concaves. The leading rasp bar retaining bolts align with the transition cone flange. A special low profile socket wrench is required to remove the front rasp bars on the AFX Rotors. The special low profile socket wrenches are available from your dealer:*

- AFX rotor requiring U.S. standard socket - order 87417745
- AFX rotor requiring metric socket - order 87313396

## CONCAVE

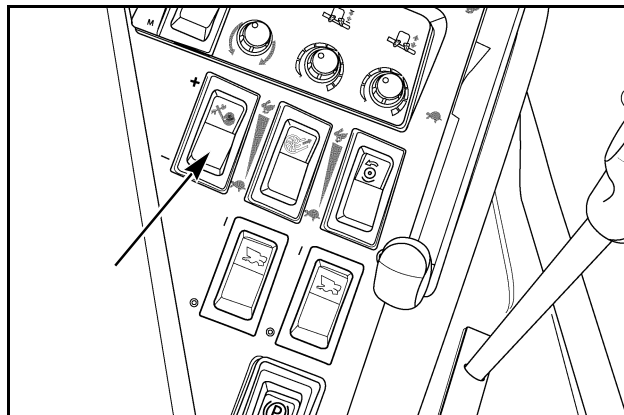
### Setting the Concave

The clearance between the rotor and the concave can be set electrically from the cab or manually from the Left side of the Combine.

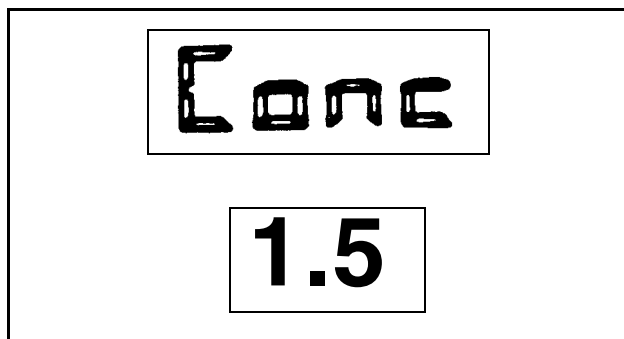
#### Electrical Setting

A switch on the Right console opens and closes the concaves. Plus (+) opens the concaves (increases clearance). Minus (-) closes the concaves (decreases clearance). While the switch is depressed a digital readout on the instrument panel will indicate alternating displays "Conc" and a number representing the relative position of the concaves as shown in the illustration. The number will vary from 0.0 to 10.0 with 0.0 being fully closed.

**NOTE:** When using smooth slotted concaves the relative position must not be less than 4 on the mechanical indicator.



A24293



568E

## Manual Setting

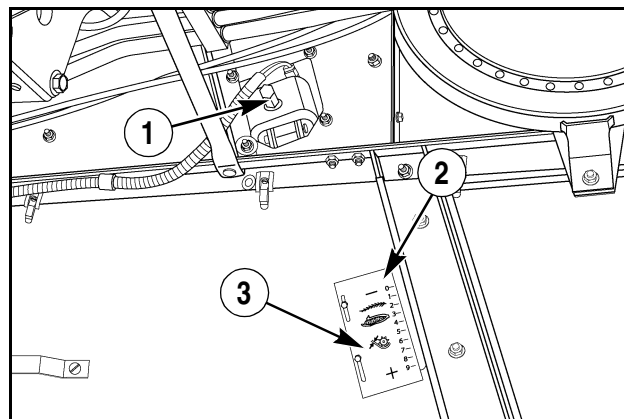
A 3/4 inch wrench or socket is required to manually adjust the concaves from the Left side of the separator by turning a hex shaft (1) in the desired direction. A pointer moves up and down in the gauge indicator (2) next to the indicator plate (3) to show the change in the concave setting.

Manual operation may be required to break the concave free in a slugged rotor condition before the electrical adjuster can move it.

Different crops and conditions require different settings. See Initial Crop Settings for a starting point. The number 9 (fully open) position is used only when additional clearance is needed to clear the rotor. Refer to Clearing the Rotor.

**NOTE:** When the concave is set to the CLOSED position, the rotor must not make contact with the concave throughout an entire revolution of the rotor.

**NOTE:** When using smooth slotted concaves the relative position must not be less than 4 on the mechanical indicator.



A24351

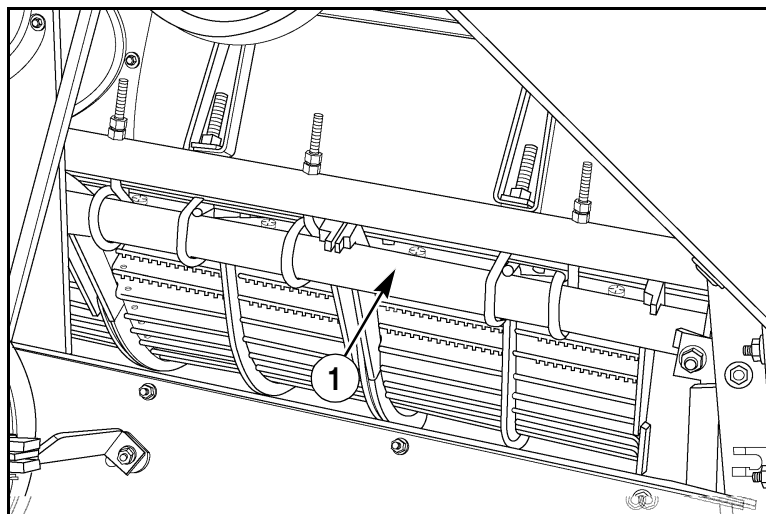
1. HEX SHAFT
2. GAUGE INDICATOR
3. CONCAVE INDICATOR GAUGE PLATE



**WARNING:** Unless instructed otherwise never service or make adjustments to the machine with the engine running. Before making adjustments, put the shift control lever in Neutral and set the park brake OR put the shift control lever in park position as equipped.

M147C

## Adjusting Concave Position

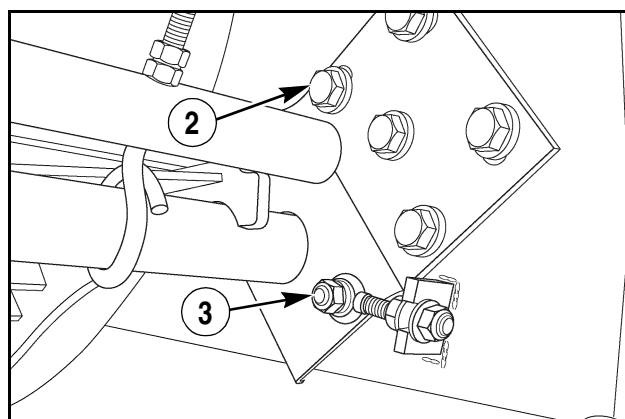


A1906.55

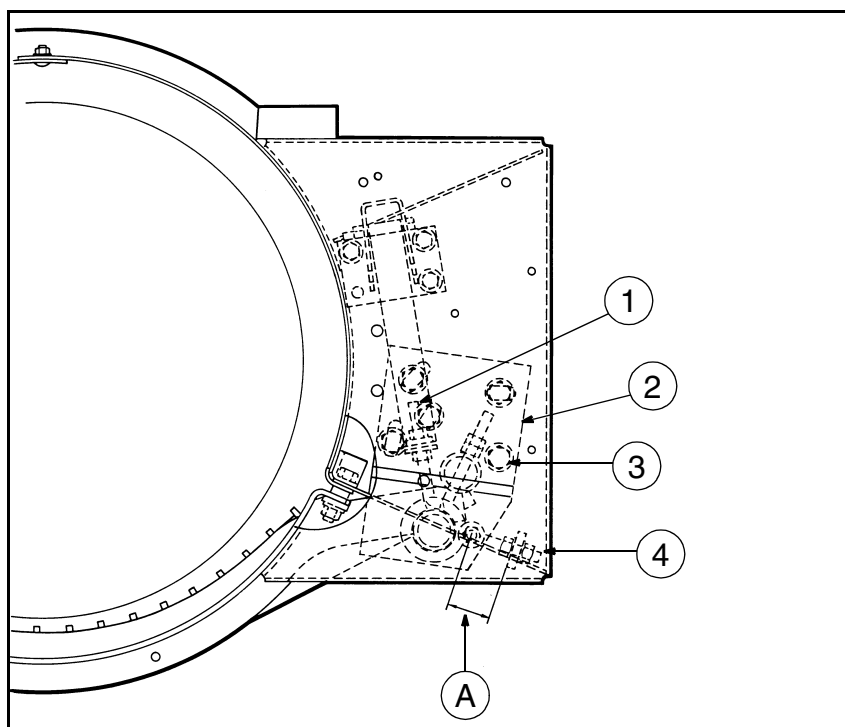
The right to left position of the concave under the rotor can affect the threshing results of the Combine. The concave support pipe (1) and plates are equipped with drawbolts to adjust the concave position. The initial position for the concave is with the 12th to 14th concave bar from the left closest to the rotor. When unthreshed heads become a problem, the concave position should be checked and adjusted so the 12th length concave bar makes contact with the rotor.

Adjust the concave position as follows:

1. Lower the concave to position 3.
2. Loosen the nuts on the Right concave support pipe eyebolts.
3. Loosen the five retaining bolts on both the front (2) and rear concave support pipe and plates.
4. Adjust the drawbolts (3) to move the concave. Adjusting the drawbolts so that dimension A is smaller will move the concave to the right. Adjusting the drawbolts so that dimension A is longer will move the concave to the left.



RD01H092



156L8

- |  |             |
|--|-------------|
| 1. RIGHT CONCAVE SUPPORT PIPE EYE BOLT | 3. BOLT     |
| 2. CONCAVE SUPPORT PIPE END PLATE      | 4. DRAWBOLT |

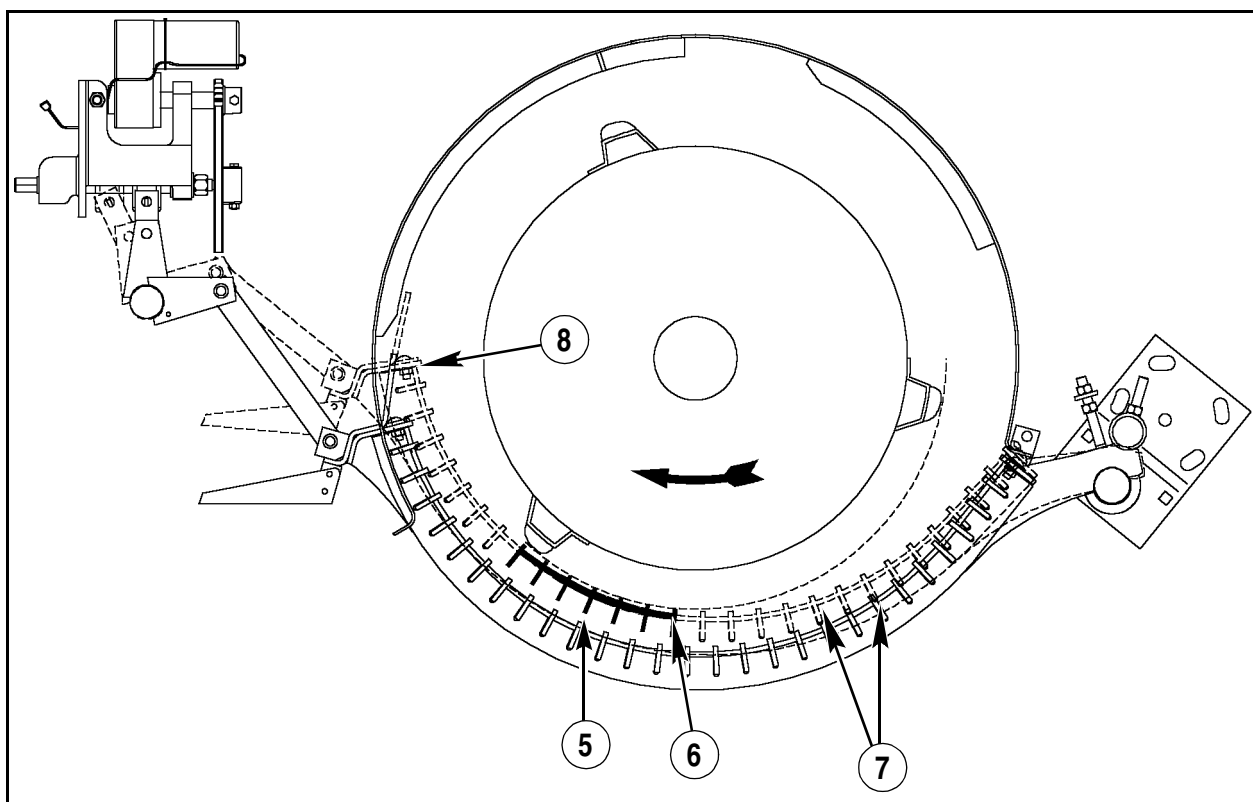
**Dimension "A"** [A= 54 mm (2-1/8 inch) 12th to 14th bar is zero position]

**NOTE:** Make adjustments in 3 to 6 mm (1/8 to 1/4 inch) increments. One full turn of the drawbolt nuts will move the concave, left or right, one concave bar position.

5. Tighten the lock nuts on the drawbolts.
6. Tighten the five retaining bolts on each concave support pipe end plate.
7. Tighten the nuts on the Right concave support pipe eyebolts.
8. Check the adjustment of the concave stop bolts and the gauge indicator position (see Concave Adjustment in this manual).
9. Set the concave clearance for the crop being harvested.
10. Adjust concave to rotor pinch point for optimum threshing, cleaning distribution and crop material flow.



## 6 - FIELD OPERATION



RI03M019

5. 11TH CONCAVE BAR  
6. 14TH CONCAVE BAR

7. CONCAVE  
8. FIRST BAR

**Solid Line** - Concave Open

**Dotted Line** - Concave Fully Closed

**Black Area (Pinch Point)** - The rotor should contact the concave at the 11th to 14th bar of concave section.

**NOTE:** Number 1 bar is the first bar after the hanger support plate.

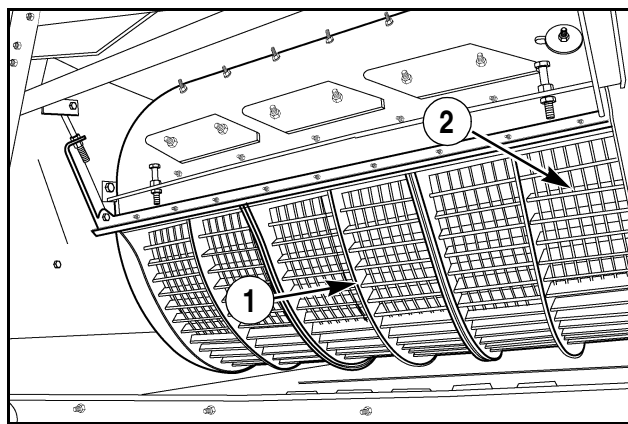
## Concave Wire Sizes

Concaves are available with large holes for 1/4 inch wires and small holes for 3/16 inch wires. Different wire sizes are recommended for different crops as follows:

3/16 Inch Wires..... Small Grains  
 1/4 Inch Wires..... Corn, Rice, Maize, Milo,  
 Edible Beans, Soybeans or Other Large Seeds  
 Smooth Slotted Concaves ..... Edible Beans  
 and other special conditions

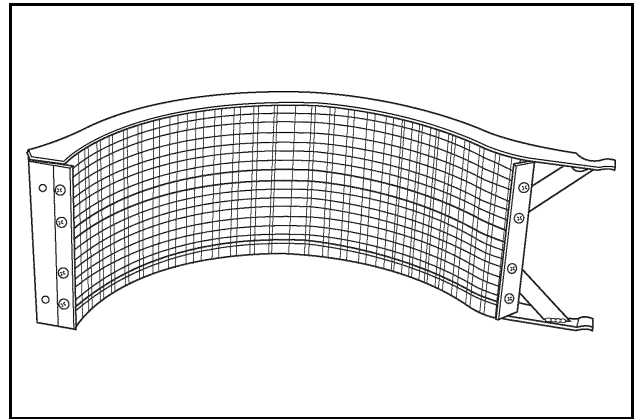
Concaves with 3/16 inch wires with every other wire removed can be used to harvest low acreage amounts of corn, edible beans or soybean type crops. The increased distance between wires helps to reduce rotor loss and crop damage.

Smooth slotted concaves are beneficial in edible beans and other crops to reduce damage and improve feeding.



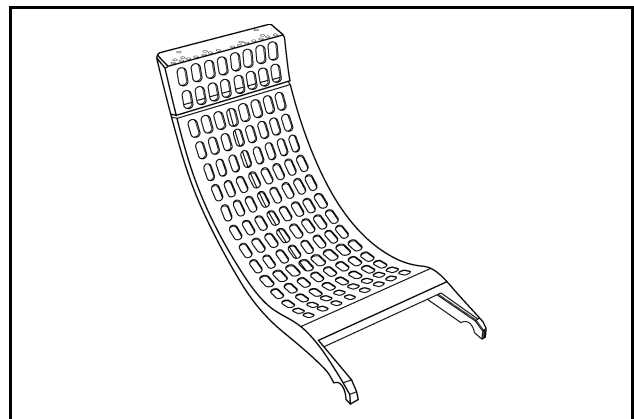
RD01H099

The concaves (1) will have to be removed to remove and install concave wires (2). The front, middle and rear concave sections are available separately to change the concave for different crops and crop conditions.



RD01H106

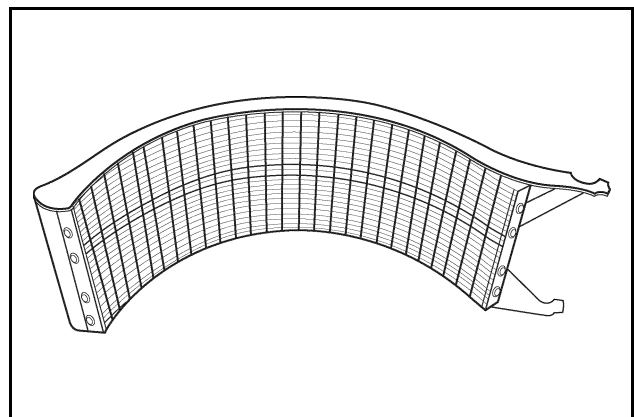
**1/4 INCH WIRE CONCAVES**



RK99G166

**SMOOTH SLOTTED CONCAVES**

**NOTE:** Photo for illustration purpose only.

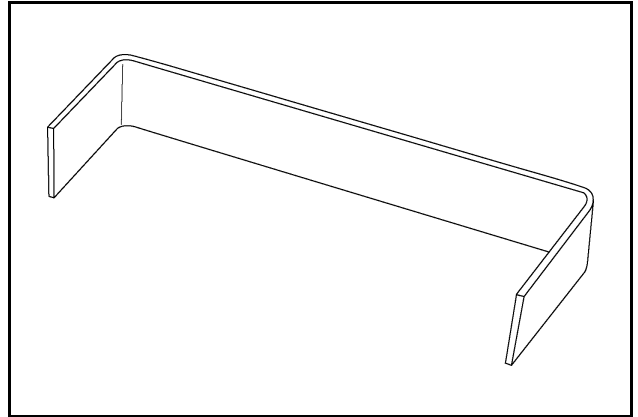


RD01H107

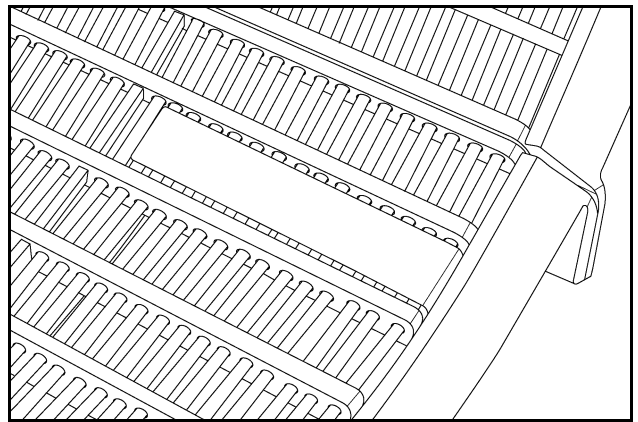
**3/16 INCH WIRE CONCAVES**

## Concave Filler Bars

Concave filler bars are available for both the 3/16 inch and 1/4 inch wire concaves. Filler bars are used to hold the crop over the concaves for a longer time to improve threshing. When the crop distribution to the cleaning system is too heavy on the Right side, filler bars can be installed on the Right side of the concave for better distribution. See your dealer.



A2419

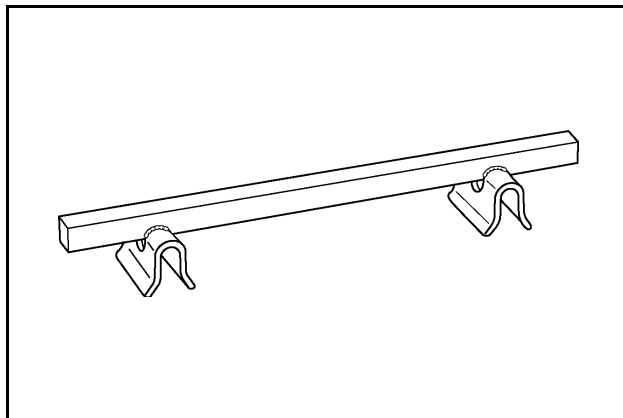


A2421

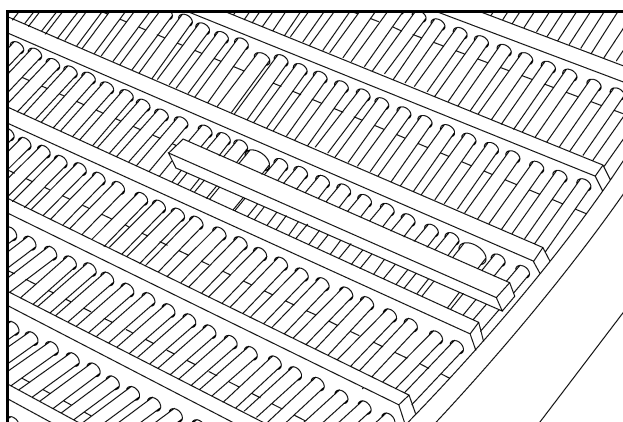
## Concave Interrupter Bars

Concave interrupter bars are available for the 3/16 inch wire concaves. Interrupter bars are used for additional threshing capacity and allow grain separation in hard threshing conditions. See your dealer.

**NOTE:** *ALL Number 1 Concave slots should be filled.*



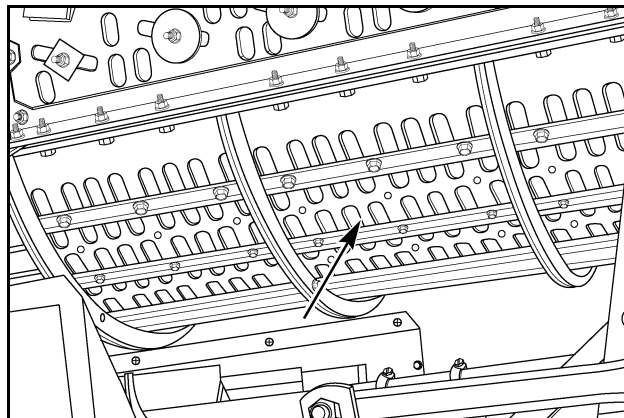
A16746



A16747

## GRATES

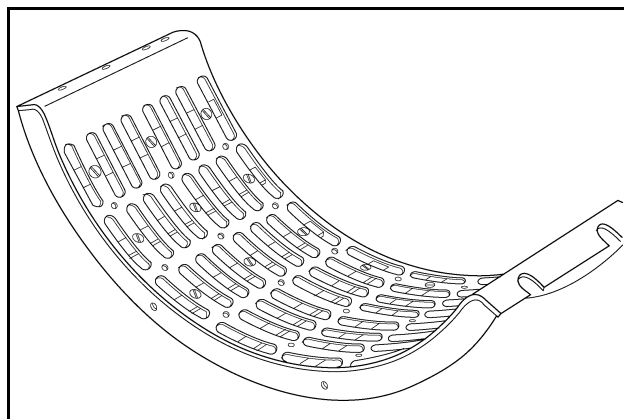
The grate area is at the rear of the rotor cage assembly. Access to the grates is through the opening behind the rear Left side panel. The grates are stationary and cannot be moved closer to or farther away from the rotor assembly. The grates are in three sections that are held together with retaining bolts. The grates are installed on the bottom of the rotor cage with mounting bolts on the Left side. Either slotted grates, 3/8 inch square bar grates or solid grates can be used.



A1895

### Slotted Grates

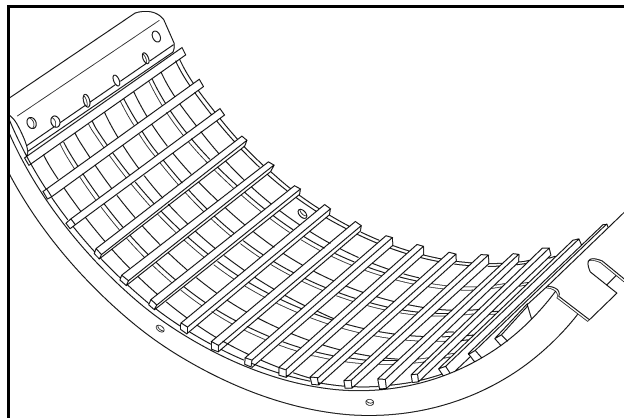
Slotted grates are recommended for edible beans, most small grain crops and can also be used for corn. To reduce the amount of chaff that goes through the grates to the cleaning system, up to seven channels can be installed on the outside of the grates. Installing the channels in the middle of the slots gives the minimum opening for grain. Up to seven channels can be installed on the inside of the grates for corn. Installing the channels between the slots gives the maximum opening for corn. The grates must be removed to add or remove channels on the slotted grates.



A1901

### 3/8 Inch Square Bar Grates

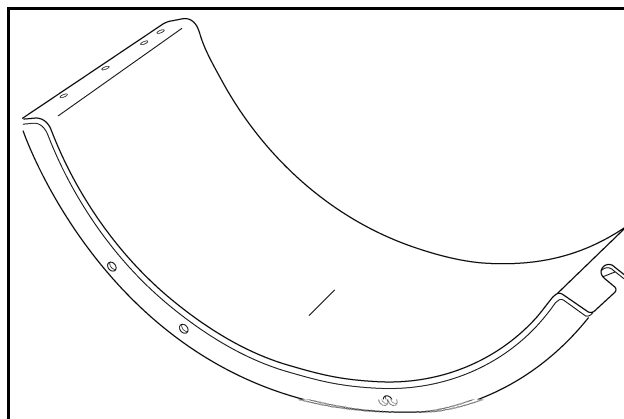
3/8 inch square bar grates are recommended for corn, milo/maize and rice. The square bar grates help to reduce rotor losses in high yield corn. The grates also help to reduce plugging in damp conditions in other crops. The grates are also very effective at reducing rotor loss in cereal grains as well and may be necessary in high yielding crops.



A1887

### Solid Grates

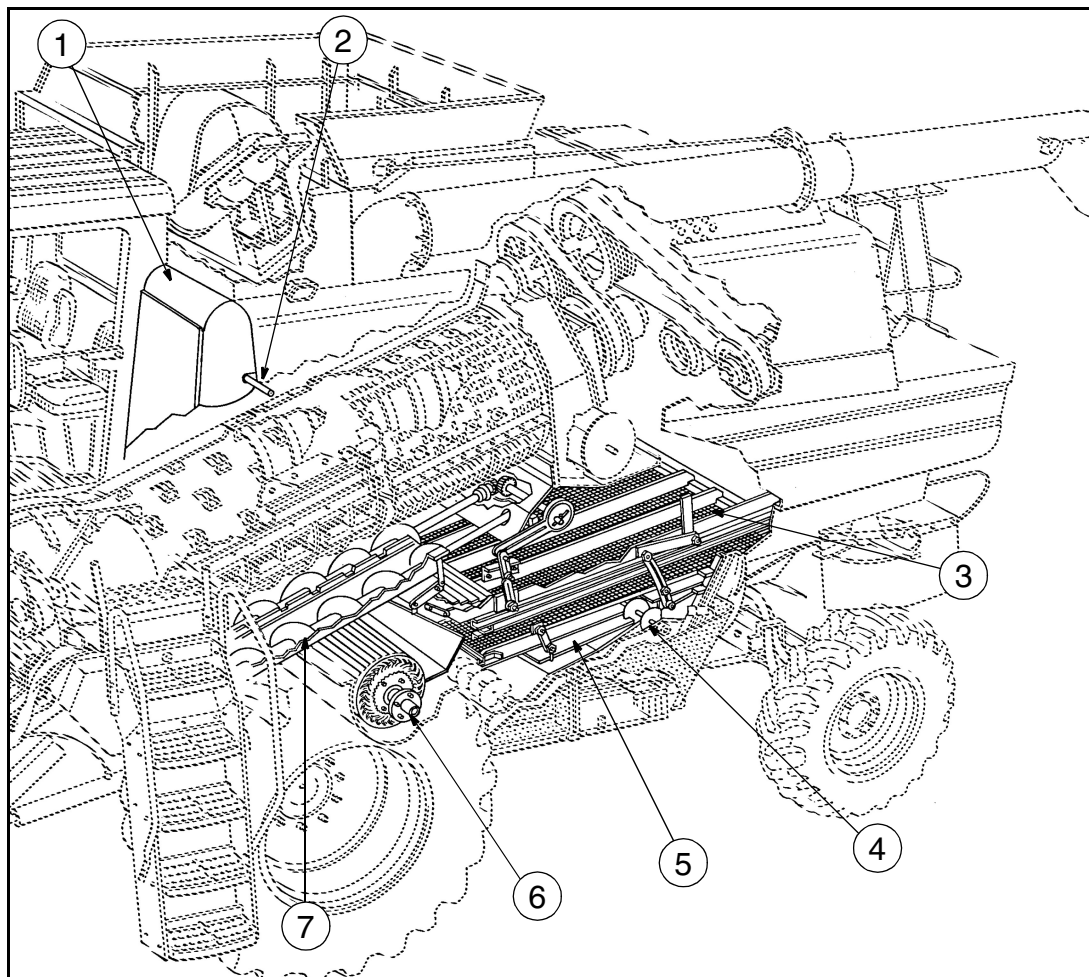
Solid grates are recommended for sunflowers and some grasses. The solid grate helps to keep stalks and large stem/straw particles out of the cleaning system.



A1886R

## GRAIN CLEANING

### Controls and Adjustments



564L94R

- |                          |                   |                    |
|--------------------------|-------------------|--------------------|
| 1. TAILINGS ELEVATOR     | 4. TAILINGS AUGER | 6. CLEANING FAN    |
| 2. TAILINGS RETURN AUGER | 5. SHOE SIEVE     | 7. GRAIN BED AUGER |
| 3. CHAFFER SIEVE         |                   |                    |

### Introduction

The cleaning activity of the AXIAL-FLOW® Combine is the final separation of grain from material that has been distributed through the concaves and separator grates. Material is separated by the chaffer and shoe sieves to remove unwanted foreign material. Chaff and other unwanted material is suspended by air and discharged out of the rear of the Combine. Adjustments required for this function are the RPM of the cleaning fan (controlling air velocity) and the adjustments of both chaffer and shoe sieves. Too much wind blast on light crops will contribute to cleaning system losses. For extremely light seeded crops, such as grass, the cleaning fan air volume must be reduced by adjusting the fan cutoff plate.

To ensure optimum efficiency of the cleaning system, the threshed material should be distributed evenly across the chaffer sieve. Uneven distribution will be improved by use of the auger bed paddles. Sidehill divider attachments will prevent the drift of material to the lower side of the chaffer in a sidehill grain operation.

Only through experimentation will an operator find the correct combination of chaffer and shoe sieve settings that yield the maximum grain savings, clean grain tank sample and reduced tailings return. A number of special configuration sieves are available for specialty crop applications.

### Troubleshooting Problems to Correct Cleaning System Losses

The first step toward solving any problem is accurately identifying that problem. This is especially important in Combine operation because the machine performs so many different functions.

Problems with internal components are more difficult to analyze. If you are experiencing loss of grain at the separator you may want to diagnose the problem through the “quick stop” procedure.

Functional problems such as poor cutting action and reel wrapping usually are obvious and will be uncovered readily when you use the Initial Crop Settings in this manual.

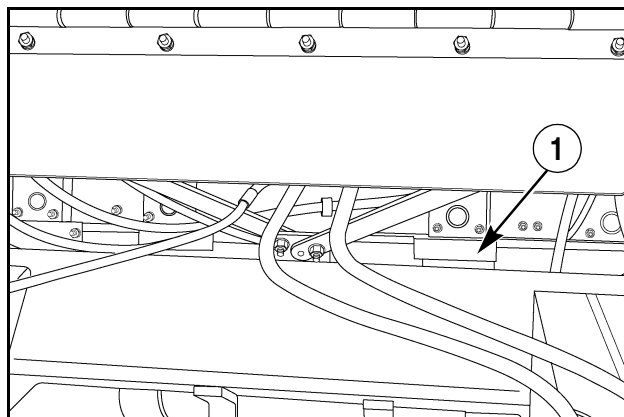


## AUGER BED

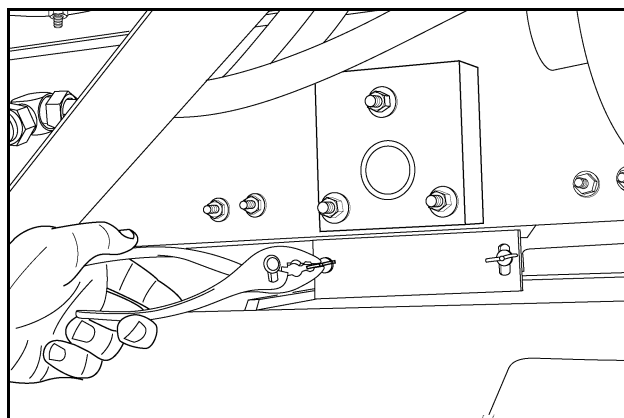
### Clean Out Door

The augers move the threshed grain to the rear of the auger bed grain pan, onto the chaffer sieve and cleaning system.

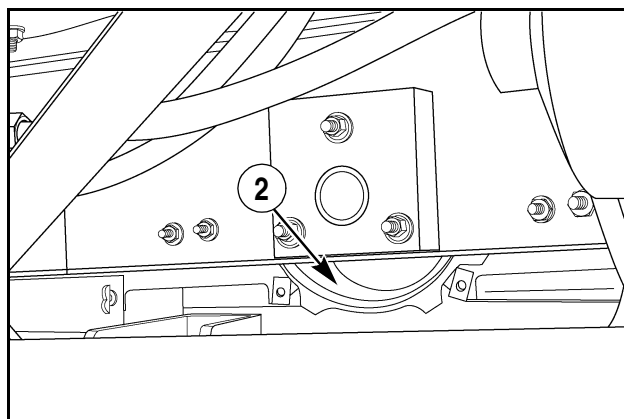
To clean out the auger bed, remove the two thumbscrews from each of the five auger clean out doors (1). Clean out the auger bed (2) when moving to a different field or changing crops. Clean out the auger bed at the end of the season.



A17273



A17276



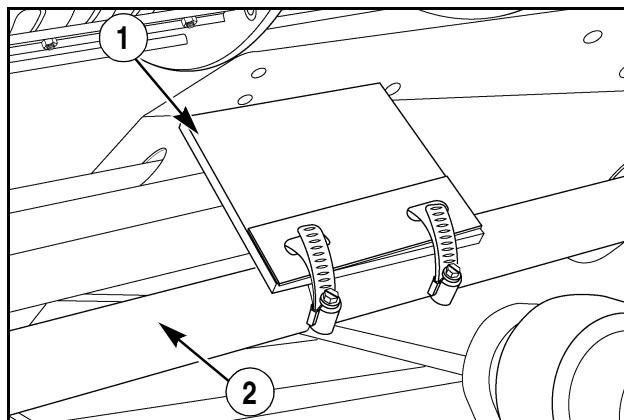
A17277

## Grain Auger Distribution Paddle

A grain auger distribution paddle (1) can be installed on the Left auger if straw build up is a problem.

Paddles are to be installed on the auger shaft, trailing 90 degrees, directly behind the rear edge of the auger flight.

When the Combine is equipped for operating in small grain, a grain auger distribution paddle can be installed toward the rear end of the Left auger shaft (2) to even grain pan load and help keep the rear cage area clear of straw buildup.



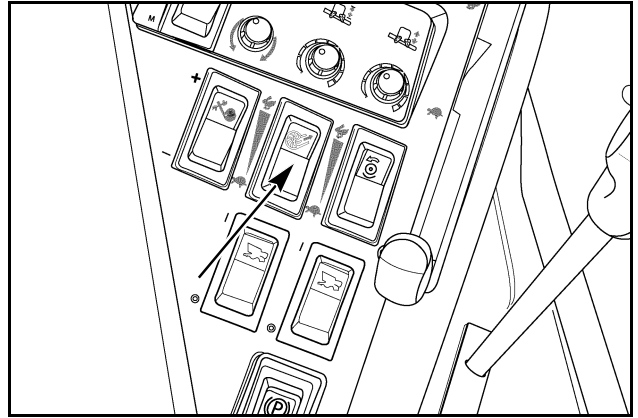
RD98G104

## CLEANING FAN

### Speed Adjustment

The speed of the cleaning fan can be adjusted from 450 to 1250 RPM. To adjust the fan speed, use the cleaning fan speed control switch on the Right console. Press down on the rear half of the switch to decrease the fan speed and on the front half of the switch to increase the fan speed. The separator switch must be in the ON position with the engine running to change the fan speed.

Operate with the cleaning fan at a speed fast enough to provide as much air as possible to the cleaning sieves without blowing clean grain out of the back of the machine (see Initial Crop Settings for the recommended starting fan speed for the type of crop being harvested). Adjust the fan speed higher or lower as needed for the crop conditions. Use the digital tachometer in the fan mode to indicate the fan speed.



A24293

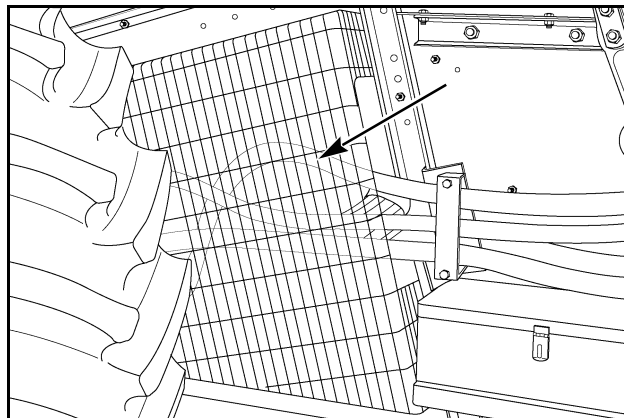
### Clearing Grain from the Fan

Grain can collect in the fan housing as a result of improper chaffer and shoe sieve adjustments, improper fan speed or from the use of grain cleaning troubleshooting procedures such as the “quick stop”. Remove grain from the fan housing as follows:

1. Disengage the separator and feeder. Stop the engine.
2. Check the chaffer and shoe sieves. Remove any plugged material.
3. Start the engine and engage the separator. Increase fan speed to a maximum.
4. Move the throttle hand lever to the full throttle position. Operate the separator until the grain is cleared from the fan.
5. Disengage the separator. Stop the engine.
6. Check chaffer and shoe sieve adjustment. If grain continues to collect in the fan, adjust the sieves as follows:
  - A. Open the shoe sieve slightly.
  - B. Close the chaffer sieve slightly.
7. Reset the fan speed to meet crop needs. If grain continues to collect in the fan, increase the fan operating speed.

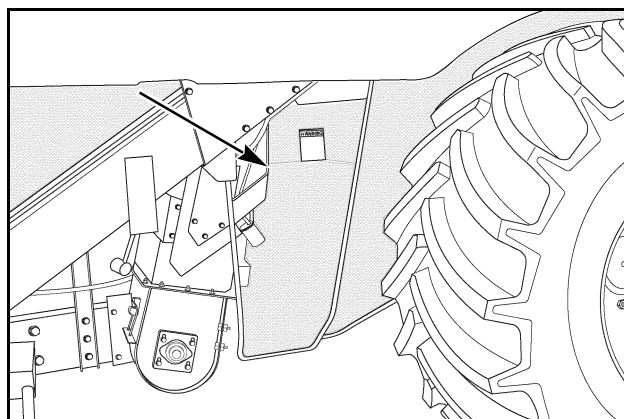
## Air Inlet Shields

Standard AXIAL-FLOW® safety shielding also serves to screen airborne leaves from the fan inlet. They must be left in place to prevent unwanted trash from entering the fan. See your dealer for optional bottom inlet shield.



RP96H089R

**LEFT AIR INLET SHIELD**

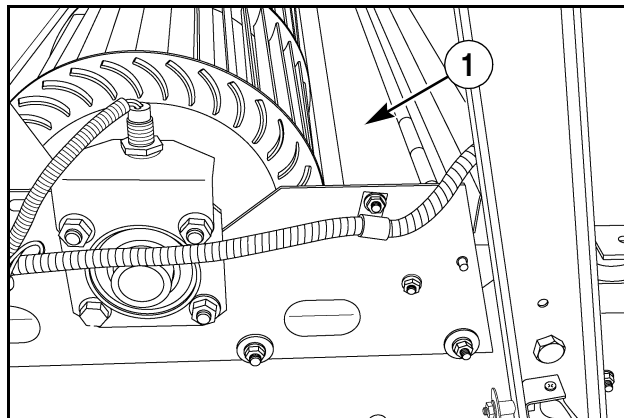


RD05D117

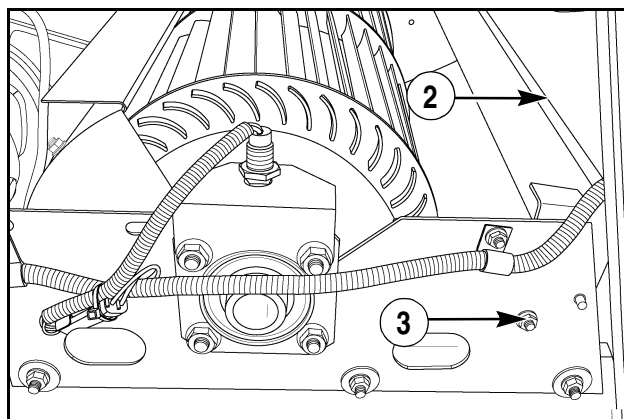
**RIGHT AIR INLET SHIELD**

## Cleaning Fan Air Volume

The maximum air volume for the cleaning fan is obtained when the fan cutoff plate (1) is positioned in the horizontal position.



The volume of air must be reduced for light crops such as grasses. Loosen the fan cutoff lock plate bolt (3) on each side of the Combine. Rotate fan cutoff plate (2) rearward to the vertical position to reduce the air volume. Tighten the lock plate bolts. Air volume at given fan RPM will be roughly halved.

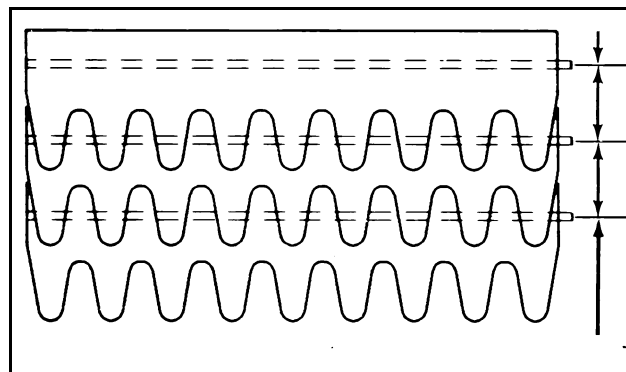


Return the fan to maximum air volume by loosening the lock plate bolts, pivoting cutoff plate to the horizontal position and tightening the bolts.

## CHAFFER SIEVE

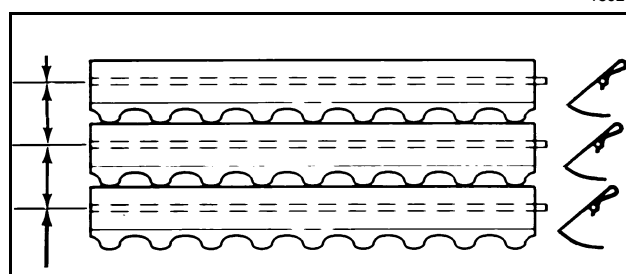
### Chaffer Sieve Types

**28.6 mm (1-1/8 INCH) CLOSZ SLAT WITH PIANO WIRE** - This sieve is recommended for small grains, rice, flax or small seed. The sieve opening can be adjusted for cleaning in low volume small crops and trashy conditions. Because of the smaller total opening, this sieve has a lower capacity than other sieves.



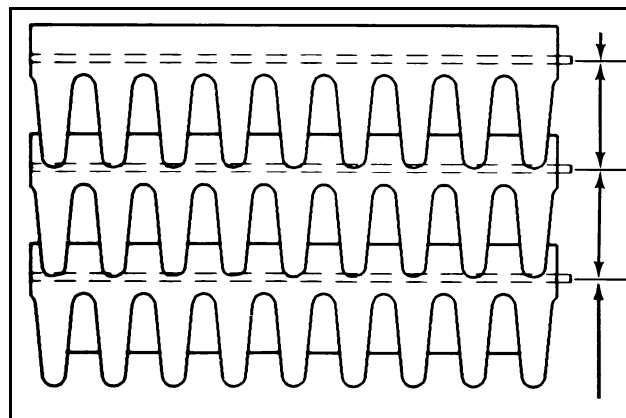
186L7

**28.6 mm (1-1/8 INCH) - PETERSON SLAT WITH PIANO WIRE** - This sieve is recommended for grasses and various small seeds. The sieve uses a fin and hole design for air draft control. The sieve helps to remove straw and stems.



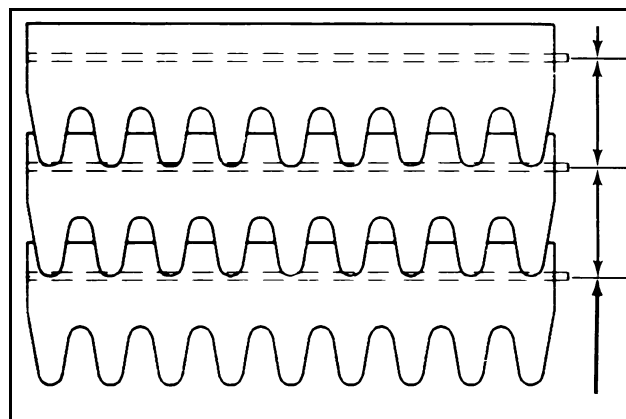
183L7

**41.3 mm (1-5/8 INCH) CORN SLAT WITH PIANO WIRE** - This sieve is recommended for corn and most other large seed crops. The sieve uses more air and has a greater opening, even when closed, than other sieves for increased capacity. Because of the increased opening, the sieve opening does not have to be adjusted as wide as on other sieves. Less plugging with cobs and trash will occur with this sieve. To clear the sieve, move the adjusting lever to the full open position, then back to the adjustment setting.



185L7

**41.3 mm (1-5/8 INCH) CLOSZ SLAT WITH PIANO WIRE** - This sieve has a high capacity in beans and most small grains. Use of this sieve requires more opening and less air than the deep tooth sieve but the capacity is greater than the 28.6 mm (1-1/8 inch) regular tooth sieve.

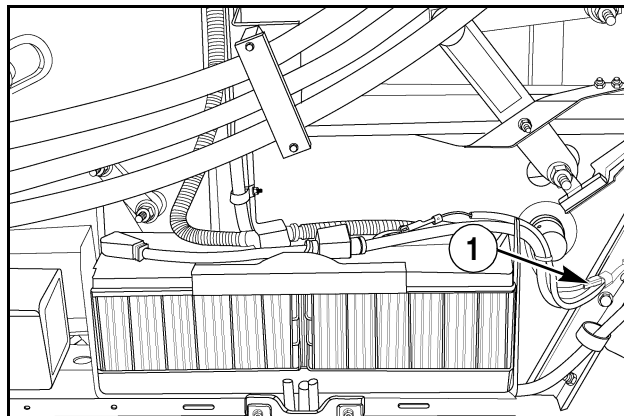


184L7

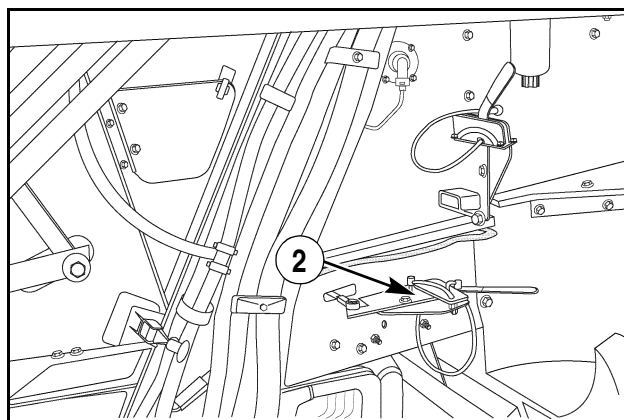
## Chaffer Sieve Removal

Remove the chaffer sieve as follows:

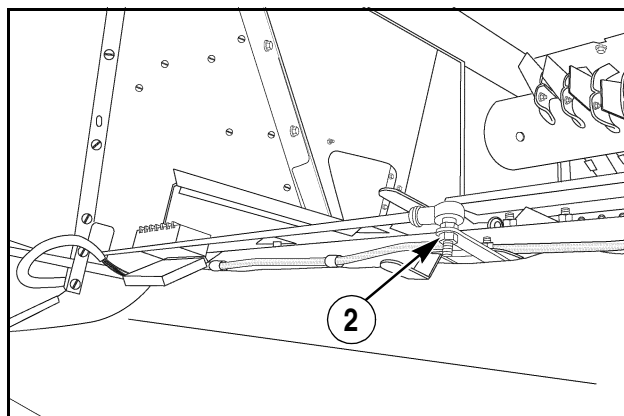
1. Turn the separator drive pulley using the rotor rocking wrench until the chaffer sieve is at the extreme rear position that it will travel. This will give the maximum clearance for removal.
2. Disconnect the grain scan harness connector on the left hand side of the machine. Remove the clip (1) that holds the grain scan harness to the side shield.
3. Remove the straw spreaders.
4. Remove the external chaffer sieve adjustment rod from the external and internal levers (2).



RD97G066



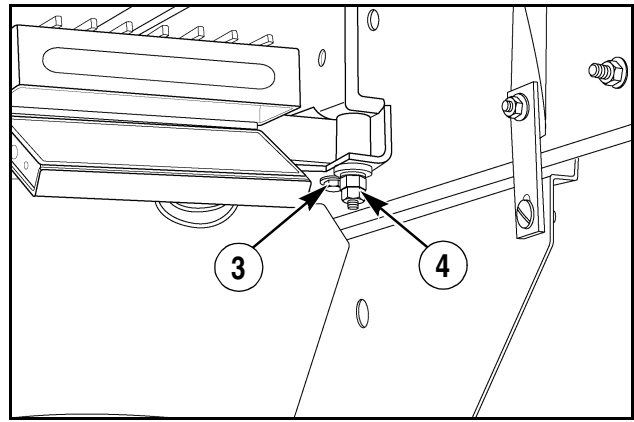
RD01H316



RD05D124

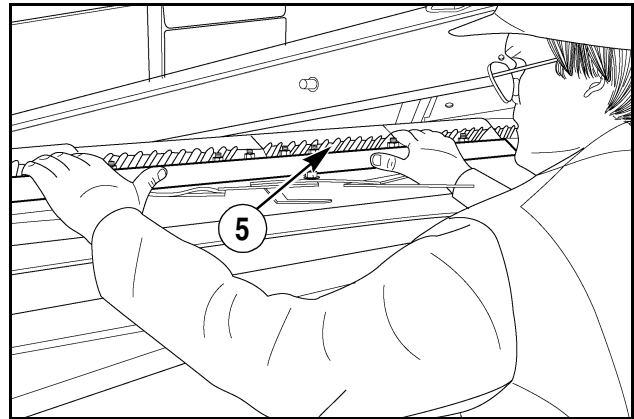
## 6 - FIELD OPERATION

5. Remove the chaffer sieve mounting bolt (3) and (4) on each side of the sieve and lower the support angles and the sieve.



A9852

6. Remove the chaffer sieve (5).



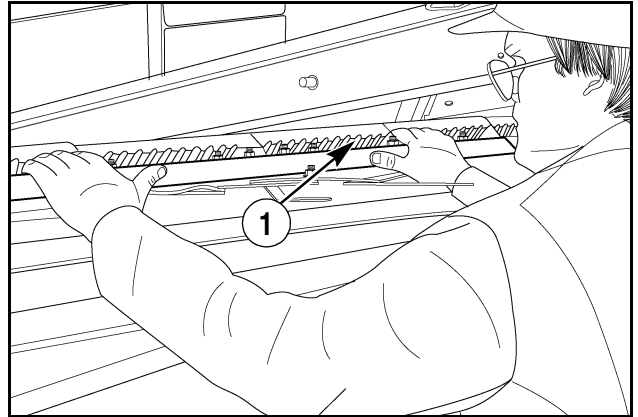
A9854



## Chaffer Sieve Installation

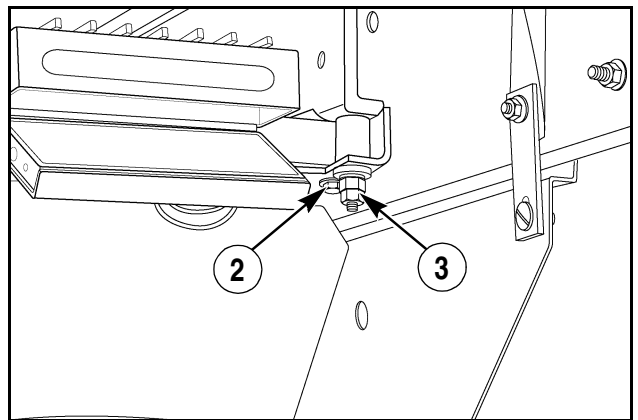
Install the chaffer sieve as follows:

1. Install the chaffer sieve (1).



A9854

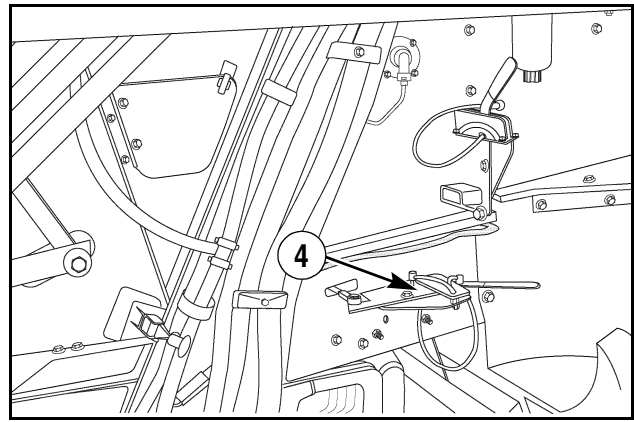
2. Raise the sieve and the support angles. Install the support angle mounting bolt (3) and the chaffer sieve mounting bolt (2) on each side of the sieve.



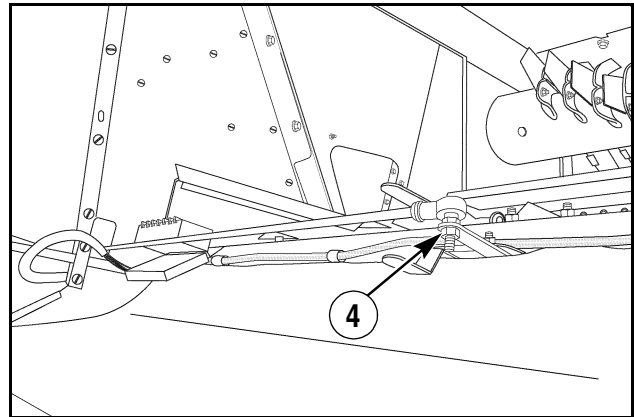
A9852

## 6 - FIELD OPERATION

3. Install the external chaffer sieve adjustment rod to the external and internal levers (4).
4. Connect the grain scan harness connector on the left hand side of the machine. Install the clip that holds the grain scan harness to the side shield.
5. Install the straw spreaders.



RD01H316



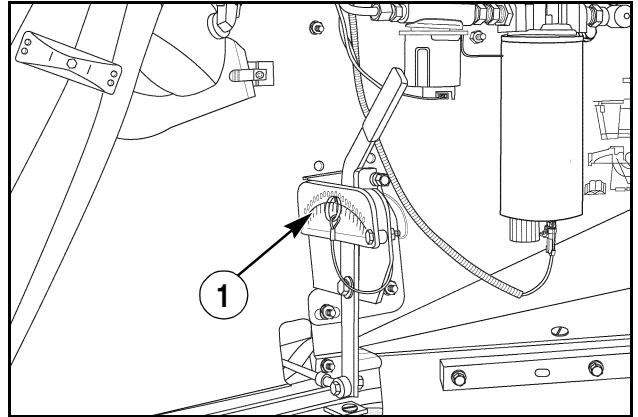
RD05D124

## External Chaffer Sieve Adjustment

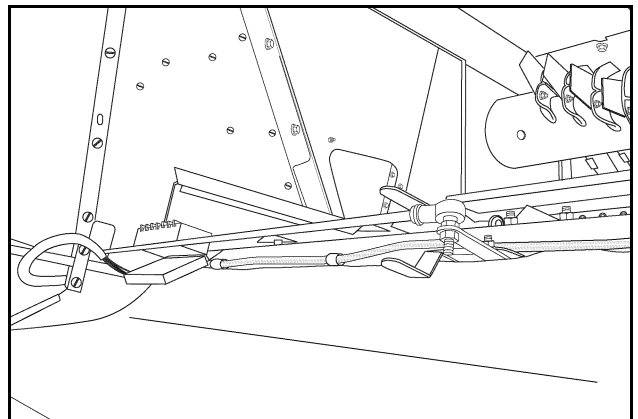
The center section of the chaffer sieve can be adjusted from the left side of the separator side sheet.

To adjust the chaffer sieve center section:

1. Remove the retaining pin (1).
2. Adjust the lever to the setting required for your crop. Pushing the handle toward the machine opens the sieve.
3. Reinstall the retaining pin.



RD05D078



RD05D124

## Chaffer Sieve Internal Adjustment

The front and rear chaffer sieve sections can be adjusted from the rear of the Combine. The adjusting lever adjusts the chaffer sieve as shown above. Push the lever to the right to close the sieve. Push the lever to the left to open the sieve (Refer to Initial Crop Settings for the recommended starting setting).

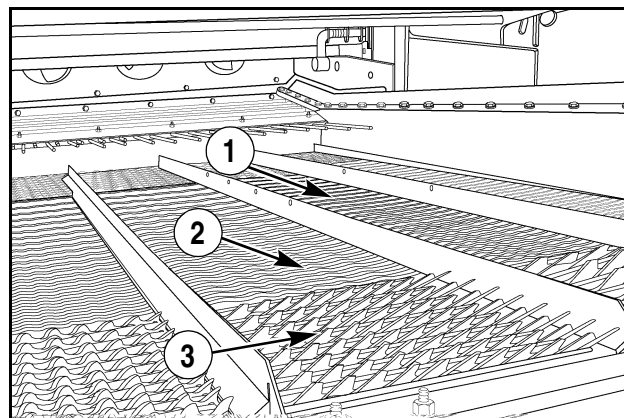
The chaffer sieve adjustment is measured from the top of one vane to the tip of the next forward vane. Loosen the wing nut on the sieve adjusting lever. Slide the adjusting lever in the slot until the correct setting is obtained and tighten the wing nut.

**DO NOT** open the front section of the chaffer sieve more than 13 mm (1/2 inch). Excessive separation at the front section can cause overloading of the front shoe sieve. This can cause air to go out the rear of the machine and cause grain to fall into the Cross Flow® fan.

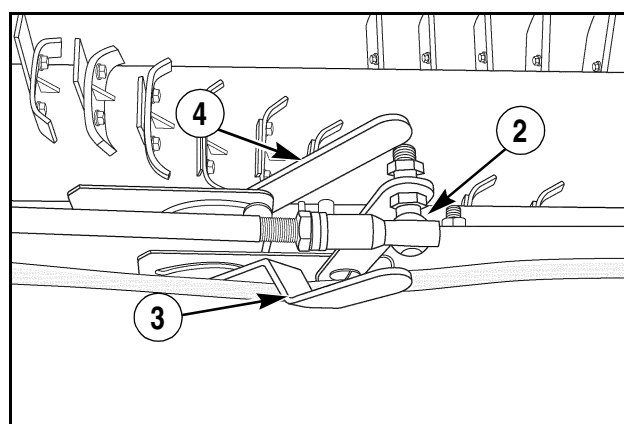


**WARNING:** Unless instructed otherwise never service or make adjustments to the machine with the engine running. Before making adjustments, put the shift control lever in Neutral and set the park brake OR put the shift control lever in park position as equipped.

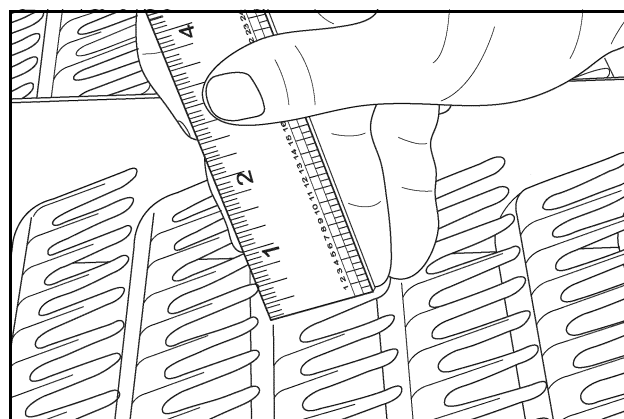
M147C



A9849



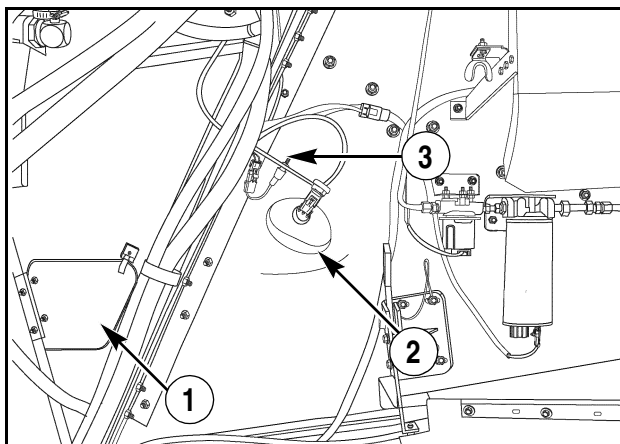
RD01H016



T85246

1. CHAFFER FRONT SECTION
2. CHAFFER MIDDLE SECTION IS ADJUSTED FROM LEFT SIDE OF SEPARATOR SIDE SHEET
3. CHAFFER REAR SECTION
4. FRONT CHAFFER SIEVE ADJUSTING LEVER
5. MIDDLE CHAFFER SIEVE ADJUSTING ROD ASSEMBLY
6. REAR CHAFFER SIEVE ADJUSTING LEVER

## Sieve Viewing Door And Lamp



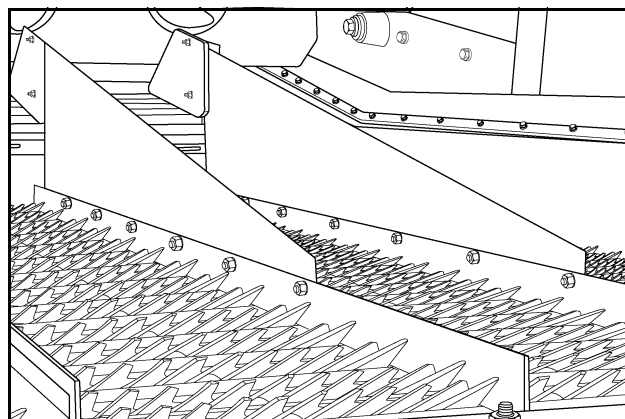
RD05D063

The sieve viewing door (1) and lamp (2) are located such that inspection of the chaffer sieve can be made from outside of the left hand separator side. The lamp switch (3) must be turned OFF after each use to avoid draining the batteries.

**NOTE:** For best lighting keep the lamp lens clear of dust and debris.

## Grain Pan Side Hill Dividers (If Equipped)

When operating on a hillside, grain will slide to the down hill side of the Combine. Grain pan side hill dividers (Tall dividers shown) are available for installation on the chaffer sieve and on TOP of the grain pan. See your dealer.



A1850

## SHOE SIEVES

### Sieve Types

Using the correct shoe sieve for the crops will give a cleaner sample in the grain tank. Using another shoe sieve can reduce the cleaning system capacity or cause a dirtier sample. Shoe sieve recommendations are as follows:

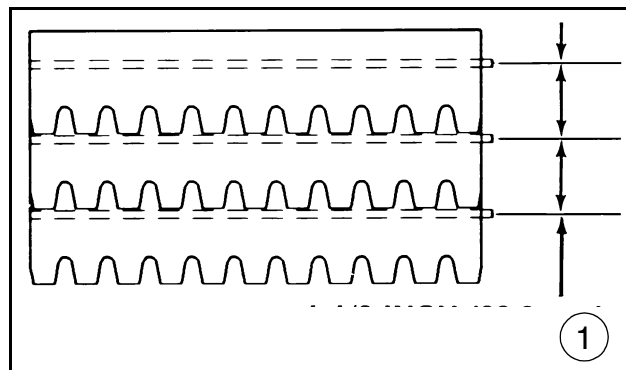
**28.6 mm (1-1/8 INCH) GRAIN SLAT (1).** This is an adjustable sieve with piano wire and can be used for most crops.

**41.3 mm (1-5/8 INCH) CLOSZ SLAT (2).** This is an adjustable sieve with piano wire and is recommended for corn.

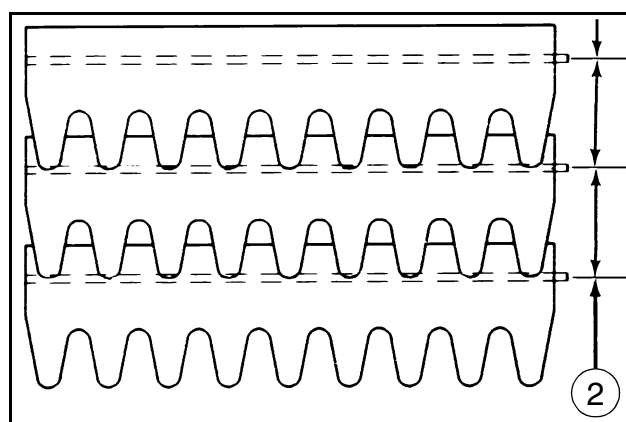
**“D” LIPPED 25.4 mm (1 INCH) HOLE -** Recommended for wheat barley and safflower and soybeans if a very clean sample is required.

Special round hole shoe sieves include:

- 1/10 Inch Diameter
- 7/32 Inch Diameter
- 3/8 Inch Diameter
- 7/8 Inch Diameter



188L7

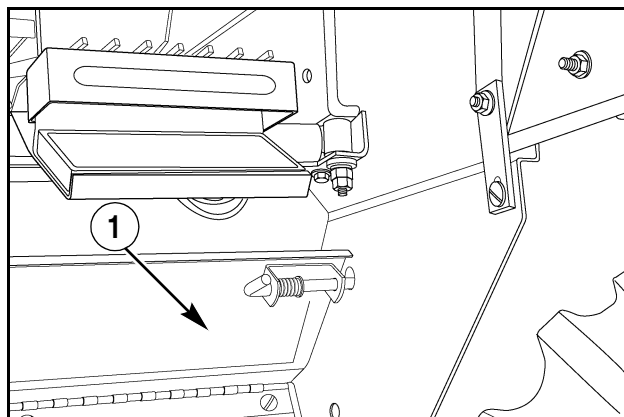


187L7

## Shoe Sieve Removal

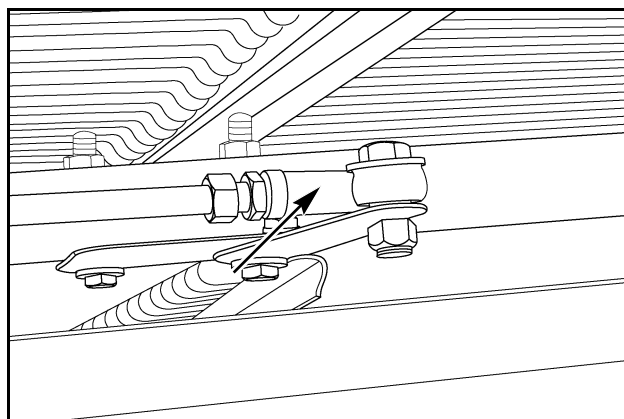
### With Straw Spreaders

1. Remove the straw spreaders. Remove the rear axle shield and open and lower the tailings auger trough door (1).



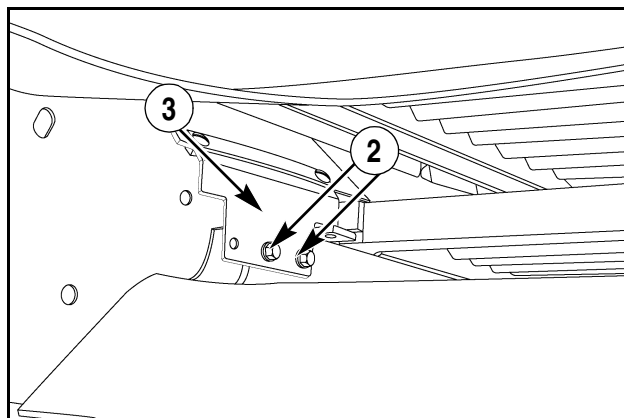
A9848

2. Remove the adjustment rod from the shoe sieve external and internal adjustment levers.



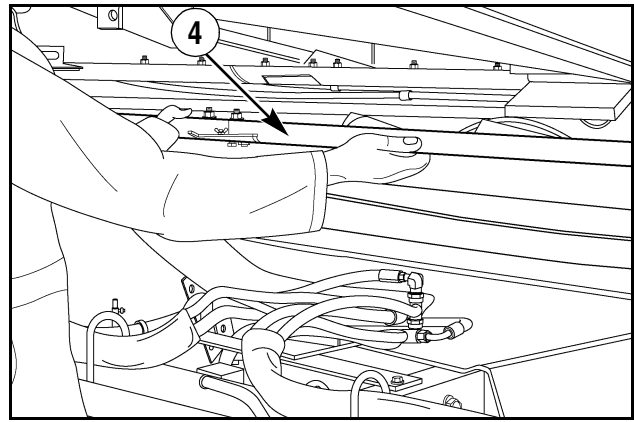
RD01E108

3. Remove the two bolts (2) holding the shoe rail plate (3) on each side. Place the plate on the shoe sieve.



RP95K133

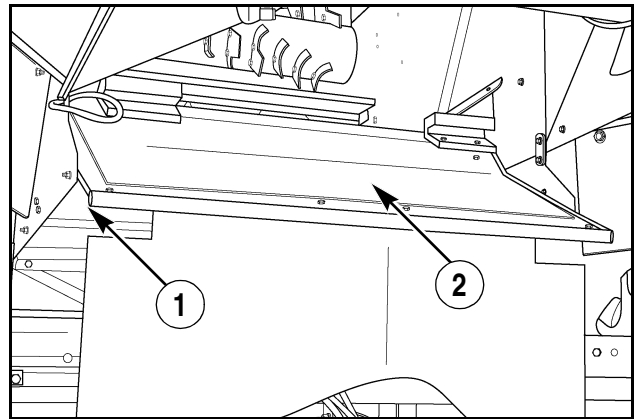
4. Remove the shoe sieve (4).



A9851

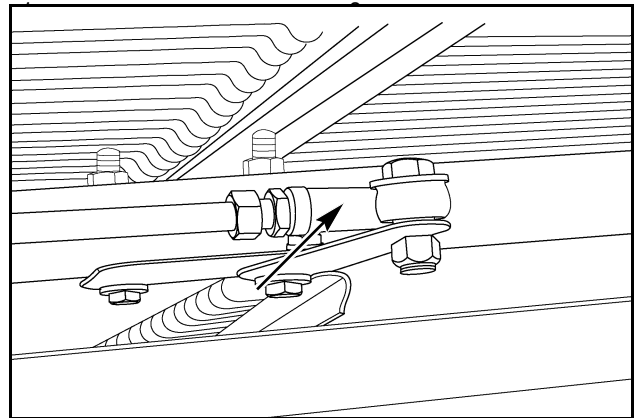
### With Straw/Chaff Spreaders

1. Remove the straw/chaff spreaders. Remove the cleaning shoe door by removing the quick attach pins (1) and lifting up on the front of the door (2).



A24464

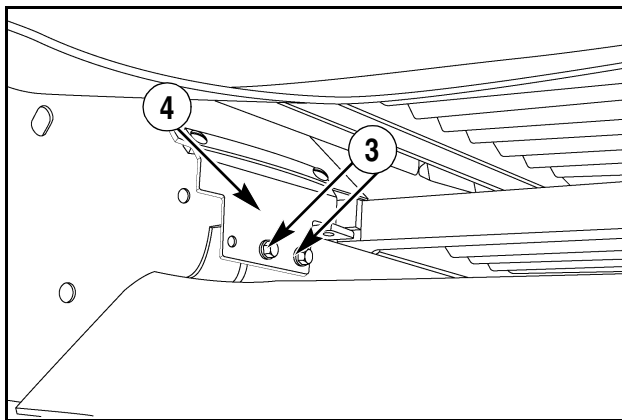
2. Remove the adjustment rod from the shoe sieve external and internal adjustment levers.



RD01E108

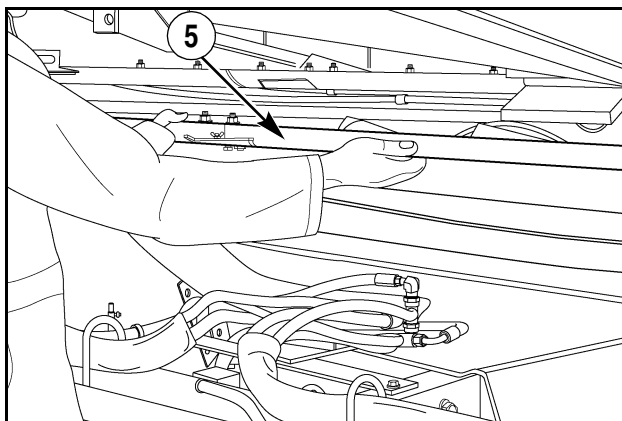


3. Remove the two bolts (3) holding the shoe rail plate (4) on each side. Place the plate on the shoe sieve.



RP95K133

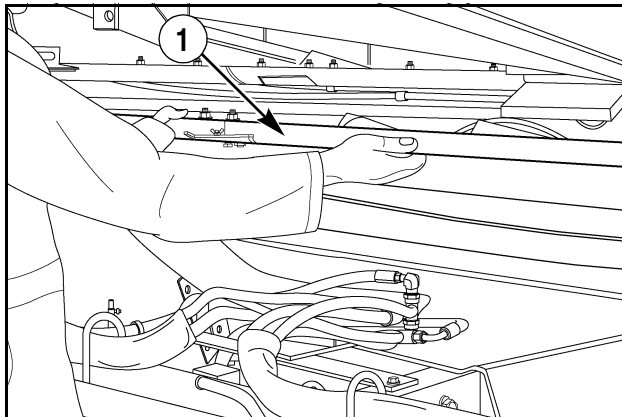
4. Remove the shoe sieve (5).



A9851

## Shoe Sieve Installation

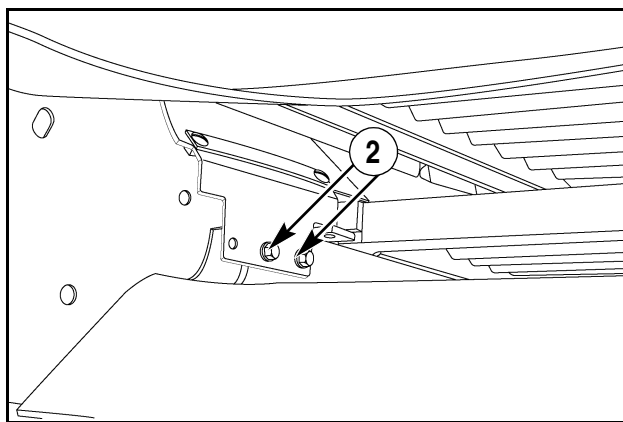
1. Install the shoe sieve (1).



A9851

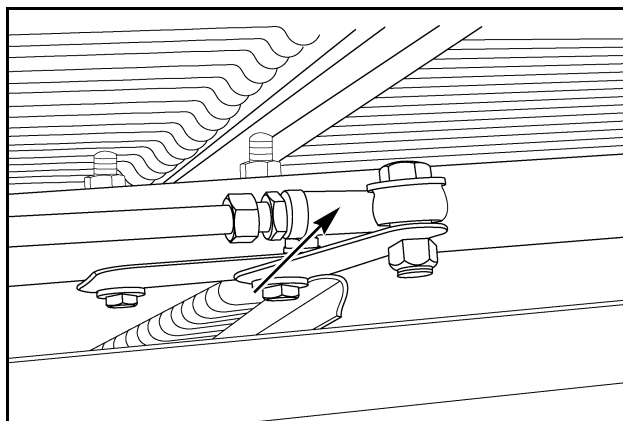
## 6 - FIELD OPERATION

2. Replace the two bolts (2) holding the shoe rail plate.



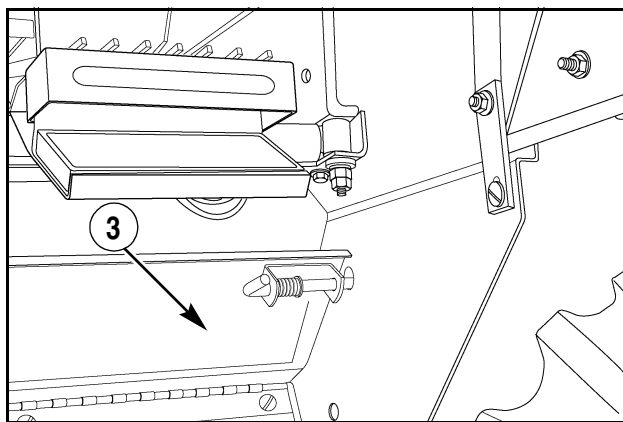
RP95K133

3. Connect the external adjustment rod to the internal and external levers.



RD01E108

4. Raise and close the tailings auger trough door (3) and install the rear axle shield. Install the straw spreaders.



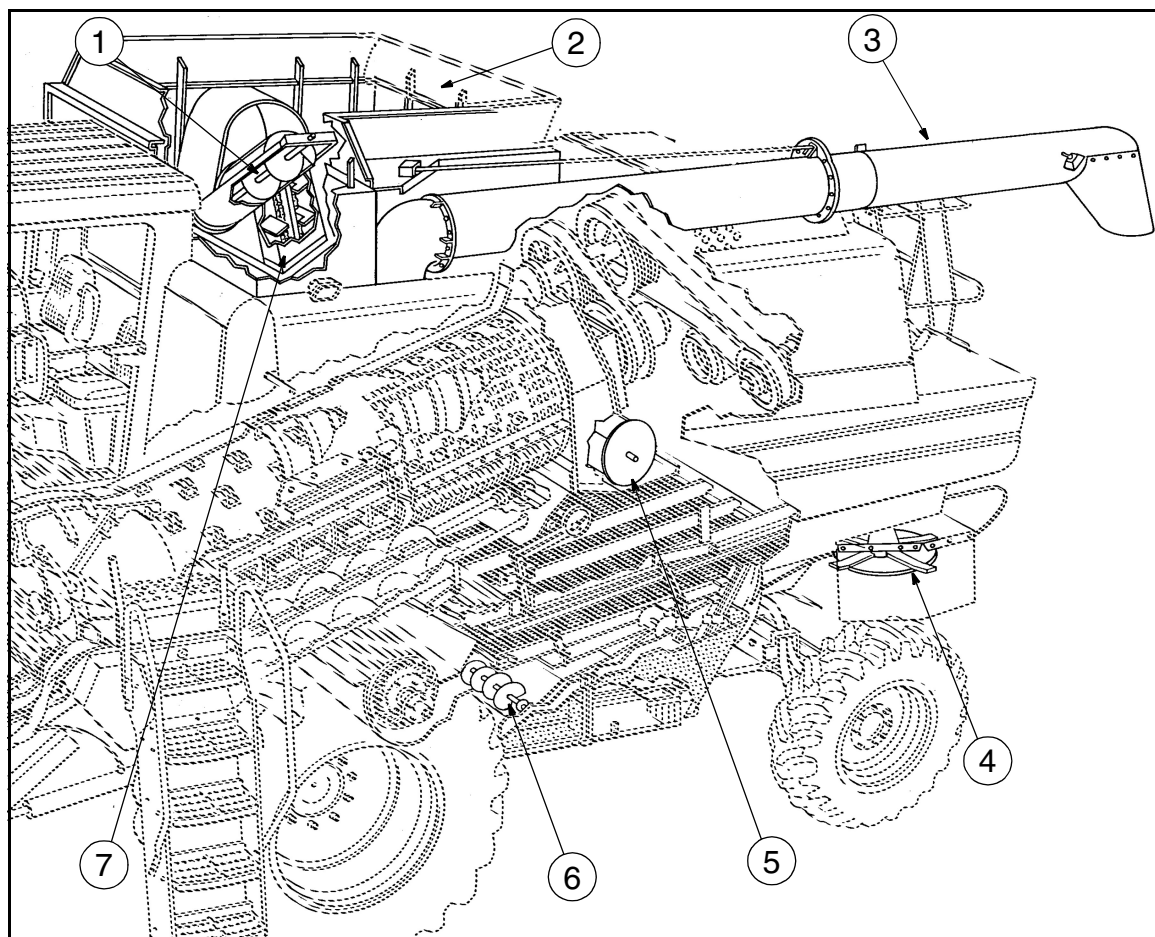
A9848

## Shoe Sieve Adjustment

The shoe sieve can be adjusted from the left separator side sheet (Refer to Initial Crop Settings for the recommended opening).

To adjust the shoe sieve, remove the lever retaining pin. Move the adjusting lever to the required setting. Pushing the handle toward the machine opens the sieve. Reinstall the lever retaining pin.

## GRAIN HANDLING AND MATERIAL DISTRIBUTION



565L94

- |                        |   |                            |
|------------------------|---|----------------------------|
| 1. INCLINED AUGER      | 4. STRAW SPREADER                                     | 6. CLEAN GRAIN AUGER       |
| 2. GRAIN BIN           | 5. DISCHARGE BEATER OR STRAW<br>CHOPPER (IF EQUIPPED) | 7. CLEAN GRAIN<br>ELEVATOR |
| 3. UNLOADER AUGER TUBE |   |                            |

### Introduction

The final functions of the balanced Combine are conveying cleaned grain and discharging threshed crop residue. Cleaned grain from the AXIAL-FLOW® Combine is elevated from the clean grain auger to the grain tank. Crop residue is discharged from the rear of the rotor by a discharge beater and over the rear axle to straw spreaders.

Elevator capacity may be improved by using steel elevator flights when green or juicy crop conditions are experienced. Steel elevator flights help clean sides of the elevator walls. Two to a maximum of four flights can be installed, equally spaced, on the elevator chain.

If additional grain cleaning at the elevator is desired, perforated elevator troughs, doors and unloader tube assemblies are available.

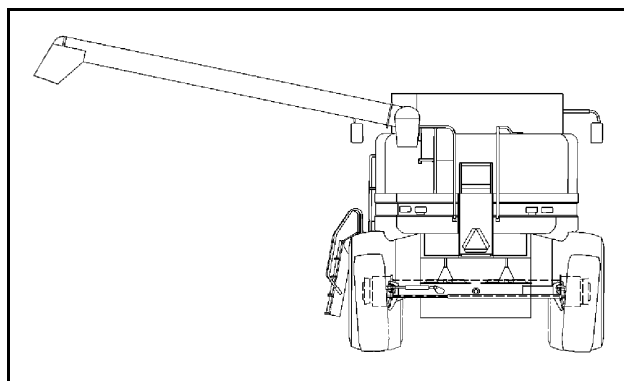
Additional checks include proper slip clutch adjustment, tension of drive chain and proper elevator chain tightness.

For the increasing number of farmers utilizing some method of reduced tillage, the AXIAL-FLOW® Combine straw material distribution design offers unique advantages.

The straw chopper attachment breaks up crop residues to assist in tillage and pest control. The straw chopper attachment effectively shreds material for more even field distribution by the straw spreaders. The chopper is installed in place of the standard discharge beater. The chopper rotor is dynamically balanced to provide smooth vibration free operation. When straw or stem conditions dictate the utilization of a straw chopper, the straw spreaders or straw/chaff spreaders can also be utilized to ensure thorough and even distribution of residue.

The design improves soil condition by evenly redistributing plant food material.

The spreader bats on the straw spreader and the angles on the straw/chaff spreaders can be adjusted to several positions depending on the pattern and aggressiveness of residue distribution desired by the operator. Positioning the bats angled in the direction of their rotation, will result in the widest, most aggressive distribution pattern. The spreader bat speed can be changed also.



RH04E103

## ELEVATORS

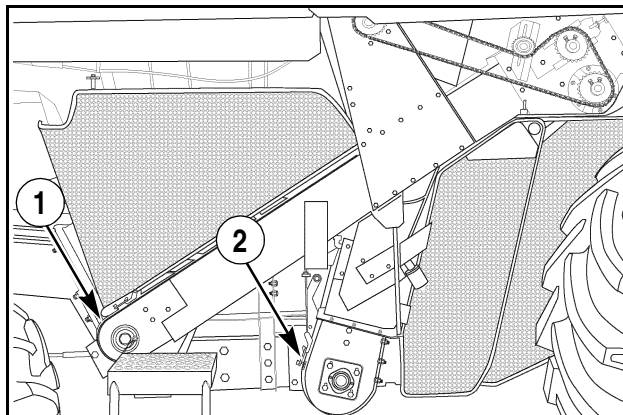
### Clean Out Doors

Both the tailings (1) and the clean grain (2) elevators have a clean out door for inspecting the conveyor chains and for cleaning out the elevator.

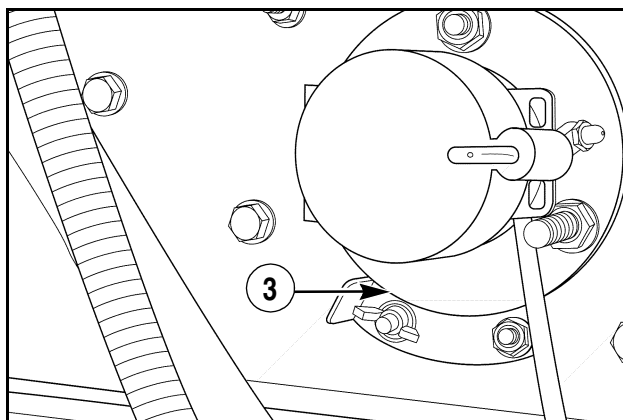
Open the doors and clean out the elevators before harvesting a different crop. Clean out the elevators at the end of each day. Leave the doors open when the Combine is not in use to prevent plugging or freezing.

Clean out slots are provided on the left hand side of the tailings (3) and clean grain (4) auger troughs to blow out material left in the troughs.

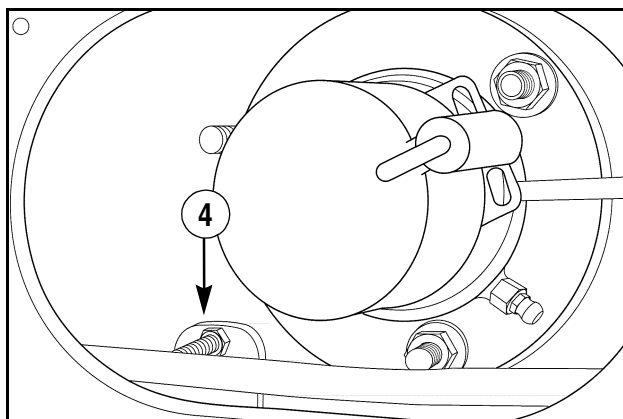
Check the tension of the elevator chains weekly.



RD05D119



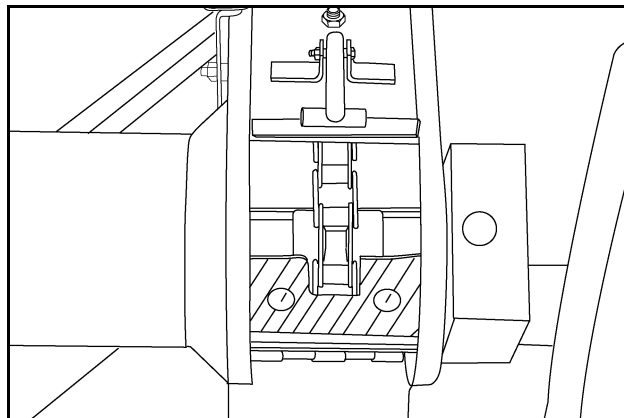
RD01H033



RD01H035

## Steel Flights for Conveyor Chains

Steel flight assemblies can be installed on the conveyor chains. The steel flight assemblies are recommended for heavy crops such as corn and for operation in wet and muddy conditions. The steel flight assemblies help to keep dirt from caking in the grain and tailings elevators. Two steel flight assemblies per chain, equally spaced, are recommended for best results.

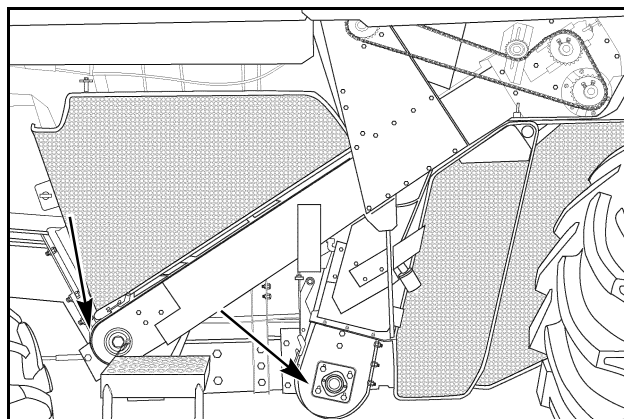


RD97G153

## Perforated Screens (If Equipped)

Perforated screens for the grain auger trough, auger trough extensions and elevator clean out doors can be installed to help remove fines and foreign material during the grain handling process. See your dealer.

**NOTE:** *Perforated screens are not recommended for edible beans, edible corn or popcorn.*



RD05D119

## High Speed Sprocket for Corn

When harvesting high yielding corn, the clean grain elevator can be converted to a higher speed to increase elevator capacity.

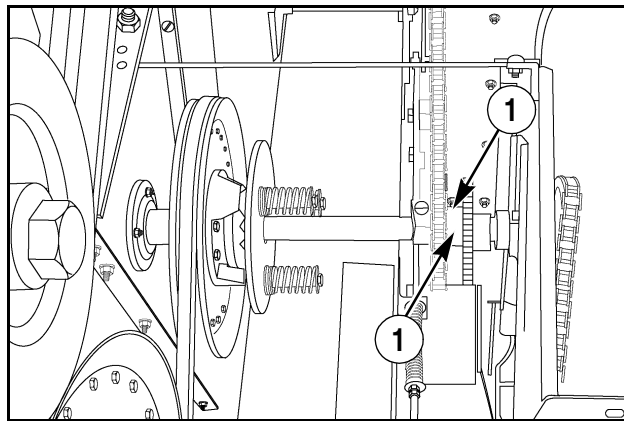
To increase the elevator speed on the clean grain elevator do the following:

1. Remove the grain elevator shield.
2. Release the tension on the clean grain elevator drive chain.
3. Loosen the shaft clamps on both sides of the dual sprocket assembly. Loosen the set screws (1).
4. Slide the dual sprocket assembly over, tighten the shaft clamps and set screws.
5. Add 1 Roller Link and 1 Connecting Link to the drive chain and Install on the larger sprocket.
6. Tighten the clean grain elevator drive chain.
7. Install the grain elevator shield.

**NOTE:** *Combines equipped with Yield Monitor, Yield Monitor must be recalibrated for elevator speed. Refer to Yield Monitor Operator's Manual.*

## Optional Low Speed Sprocket for Edible Beans

When harvesting edible beans, a dual sprocket offering the standard speed and a slower to speed to reduce crop damage may be used. See your dealer.



RP95K009



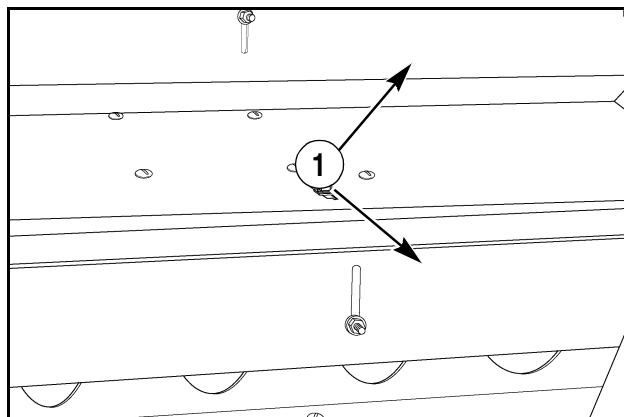
## GRAIN TANK AND UNLOADER

### Unloader Auger Cover Adjustment

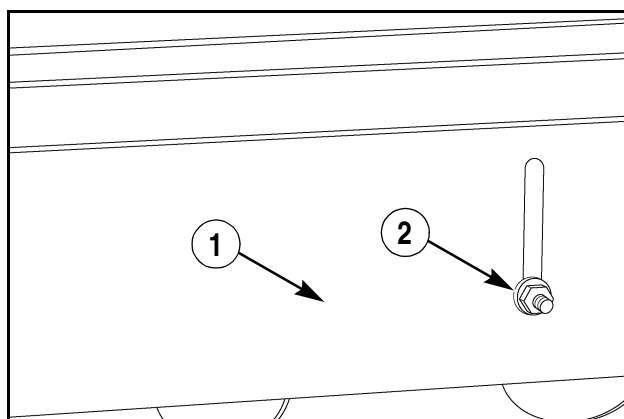
The covers (1) on the unloader augers can be adjusted to maintain even unloading of the grain tank. The covers can also be used to adjust the volume of material being unloaded, to vary unloading times and to prevent overloading the unloader drive and shearing the drive shear pin in heavy crop conditions.

To adjust the covers, loosen the cover mounting bolts (2) and move the cover up or down as required. Tighten the cover mounting bolts. If possible, operate with the covers all the way down to reduce starting and running torque requirements of the unloading system.

In certain crop conditions, such as grass seeds, it can be necessary to remove the covers completely to improve the unloading of the grain tank. These crop conditions can also cause the material to hesitate during the unloading process. If agitation of the material is necessary it must be done from the operator's platform using a pole or broom. If it becomes necessary to agitate the material at the rear of the grain tank it must be done by a second person from the engine service area using a pole or broom. One person must remain in the operator's cab to stop the engine if necessary.



A1114.45



A1114.100

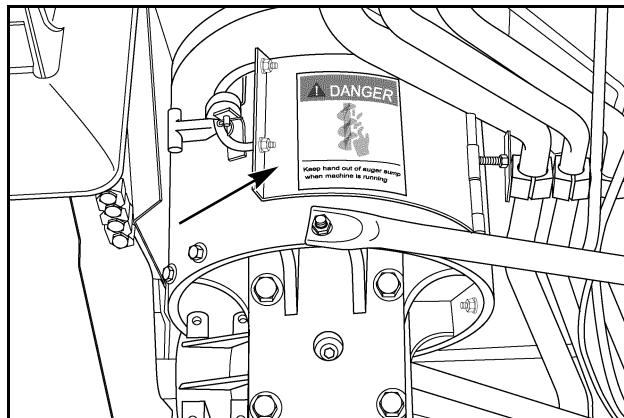


**WARNING:** *DO NOT* enter the grain tank when the Combine is running. The rotating augers in the bottom of the grain tank can cause severe injury including possible loss of limbs.

M192A

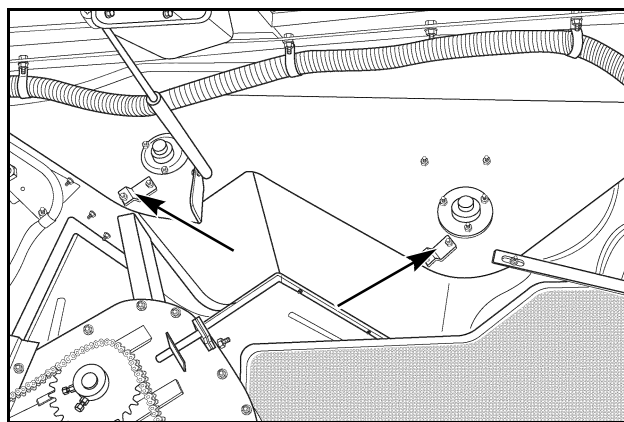
## Clean Out Door

A clean out door is provided at the lower end of the vertical unloader tube. Keep the area clean when the Combine is not in use to prevent damage to the unloader mechanism. Be especially careful during freezing temperatures.



A24344

Right hand clean out doors are provided to blow out material from the grain tank unloader augers.



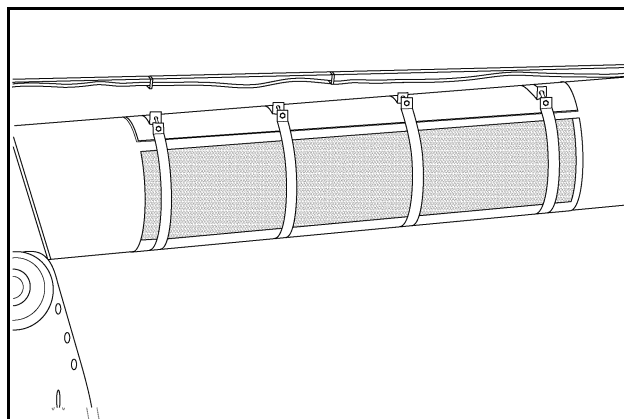
RD01H024

## Perforated Unloader Tube (If Equipped)

The perforated unloader tube can be used when operating in corn or bean crops to remove cracks and fines while unloading the crop into the transport vehicle.

To uncover the perforated tube, loosen the four clamps on the unloader tube and rotate the cover one half turn. Tighten the four clamps.

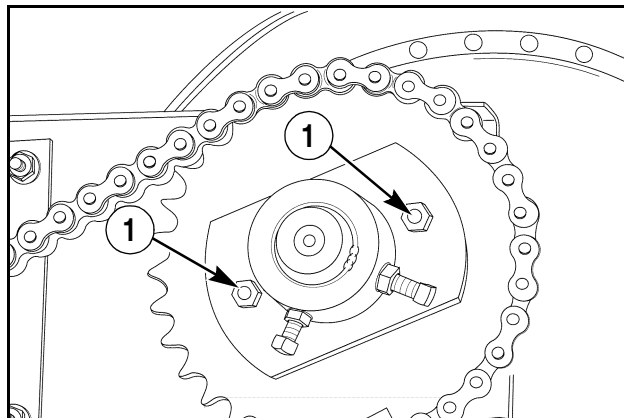
**NOTE:** *The perforated unloader tube is not recommended for edible beans, edible corn or popcorn.*



T88693

## Unloader Drive Shear Bolt

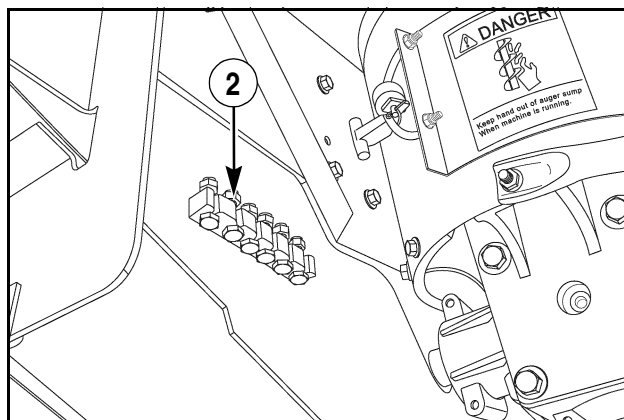
The unloader drive shear bolts (1) are designed to protect the drive and gear housing if plugging occurs during grain tank unloading.



A13963

Replacement shear bolts are in a holder (2) to the left of the unloader clean out door.

**NOTE:** *If additional shear bolts are required, see your dealer. The shear bolts used are unique to insure the unloading auger is protected. Do not use hardware other than specified in this location or unloading auger damage may result.*

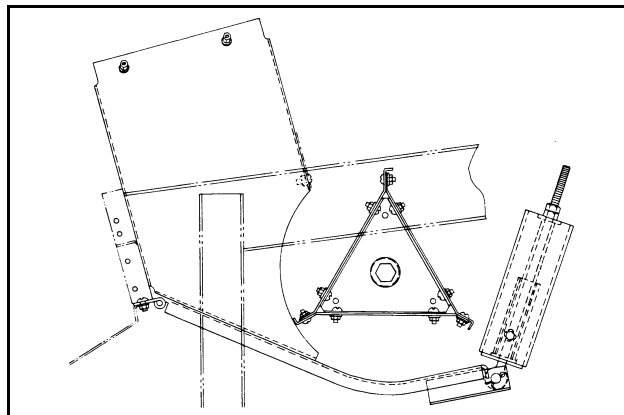


A24345

## DISCHARGE BEATER

### Bottom Adjustment

A spring loaded beater bottom is available and necessary for rice. It does not have adjustable slot settings on each side of the Combine.



157L8

## STRAW SPREADERS AND STRAW/CHAFF SPREADERS

### Cone Removal


The straw spreaders and straw/chaff spreaders distribute the straw from the beater evenly over the ground. This helps to prevent bunching and windrowing, making plowing and tillage operations easier.

For better windrowing when the straw is to be baled, remove the spreaders (Refer to Baling Straw in this section of the manual).

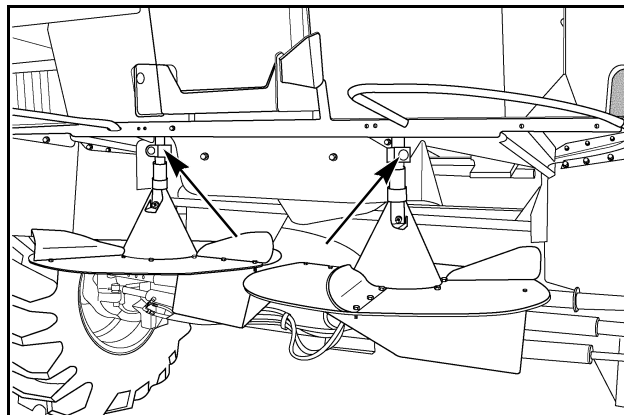
**NOTE:** Always clean the shafts and apply a dry lubricant (*Slip Plate*) on the shafts before installing the cones.

To remove the curved bat straw/chaff spreaders, depress large button and drop spreader off of shaft.

To remove the straw/chaff spreaders, depress large button and drop spreader off of shaft.

	<p><b>WARNING:</b> Avoid injury from rotating spreader or thrown material. Do not stand behind Combine when the spreader is turning.</p>	<p>M191A</p>
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**NOTE:** DO NOT lubricate couplings. Oil and grease accumulate dust which causes binding.



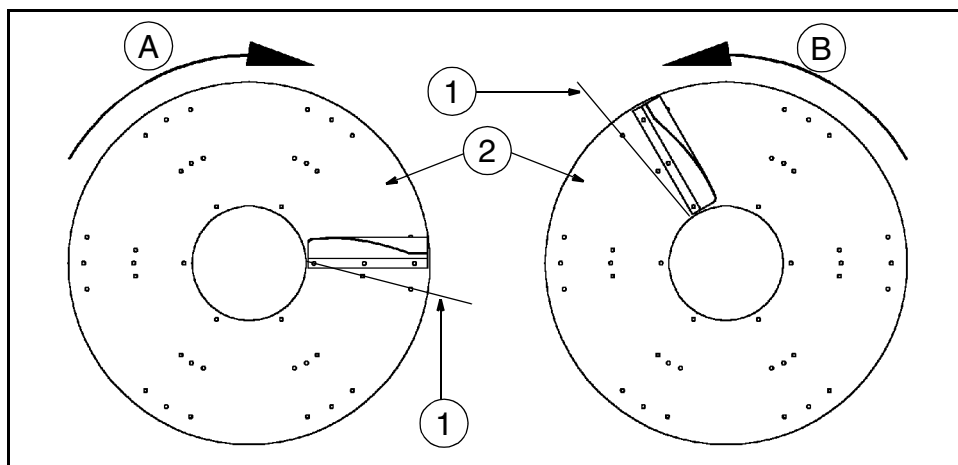
RD01D200

**CURVED BAT STRAW/CHAFF SPREADER**

## Bat Adjustment

### Curved Straw/Chaff Spreader

The curved bats on the straw spreader cones are adjustable to increase or decrease the spreading effect. The bats give the most spreading effect in the No. 1 position. Use the other two positions to decrease the spreading. Install the bats with concave surface facing to the rear when bats are positioned to the inside of the discs.

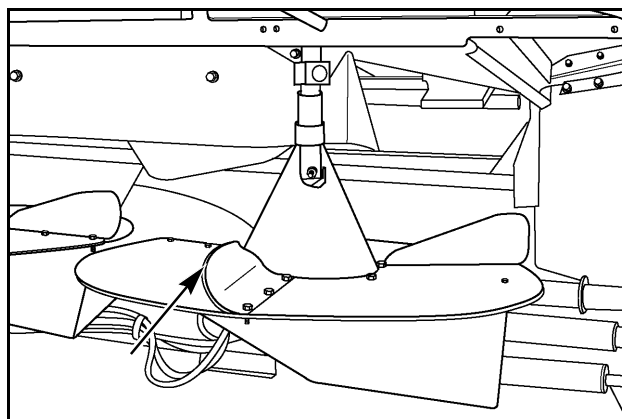


RI01H061

1. NUMBER 1 POSITION  
A. LEFT SIDE

2. BLADE SUPPORTS  
B. RIGHT SIDE

1. Remove mounting bolts.
2. Install in bat and bolt in desired position.



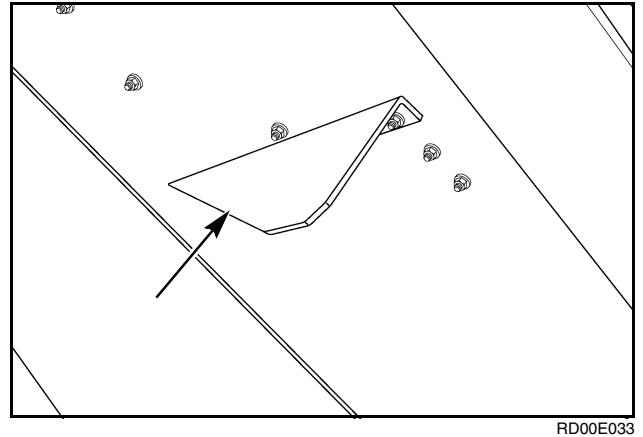
RD01H200

## Straw Directional Vane

The straw directional vane is standard with the straw/chaff spreader. The straw directional vane controls the amount of straw directed to each straw/chaff spreader disc.

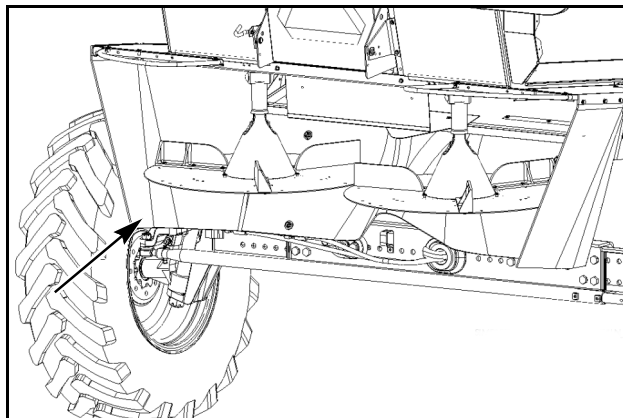
For more left side discharge of straw, move the vane to the left hole.

For more right side discharge of straw, move the vane to the right hole.



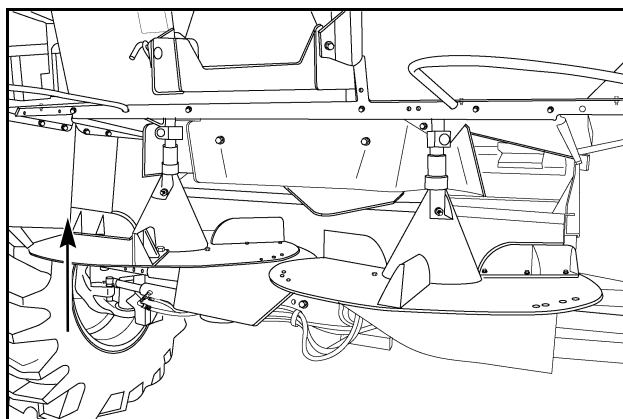
## Spreader Hoop Deflector Shields

Shields deflect material thrown forward by the spreaders.



RH06G013

**CURVED STRAW/CHAFF SPREADER SHIELDS**

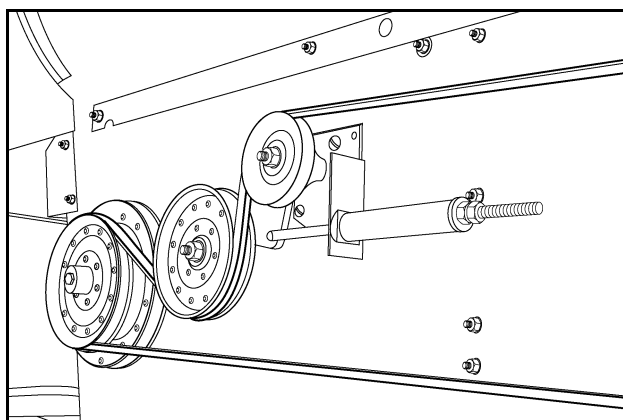


RD01H201

**STRAW/CHAFF SPREADER SHIELDS**

## Straw Spreader Speed Adjustment

The position of the straw spreader pulleys can be switched to change the speed of the straw spreader. The smaller pulley will provide a faster speed and the larger pulley will provide a slower speed. See Straw Spreader Drive Belt in the maintenance and adjustment section for instructions on switching the pulleys.



RD01H135



## STRAW CHOPPER (If Equipped)

### Speed Adjustment

To change the straw chopper speed, proceed as follows:

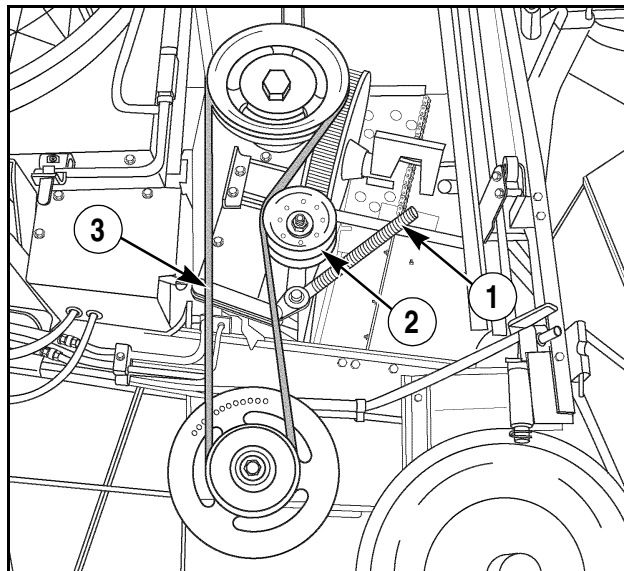
1. Lift the channel stop off the spring. Move the idler pulley handle (1) down to release the idler pulley (2).
2. Position the belt (3) over the desired set of pulleys:

#### (H) High Speed

- Large Driven Pulley (Upper Pulley)
- Small Driven Pulley (Lower Pulley)

#### (L) Low Speed

- Small Drive Pulley (Upper Pulley)
- Large Driven Pulley (Lower Pulley)

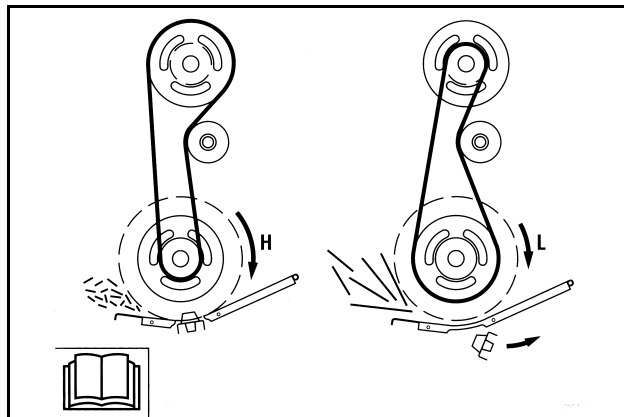


RD02E198

1. IDLER PULLEY HANDLE
2. IDLER PULLEY
3. STRAW CHOPPER BELT

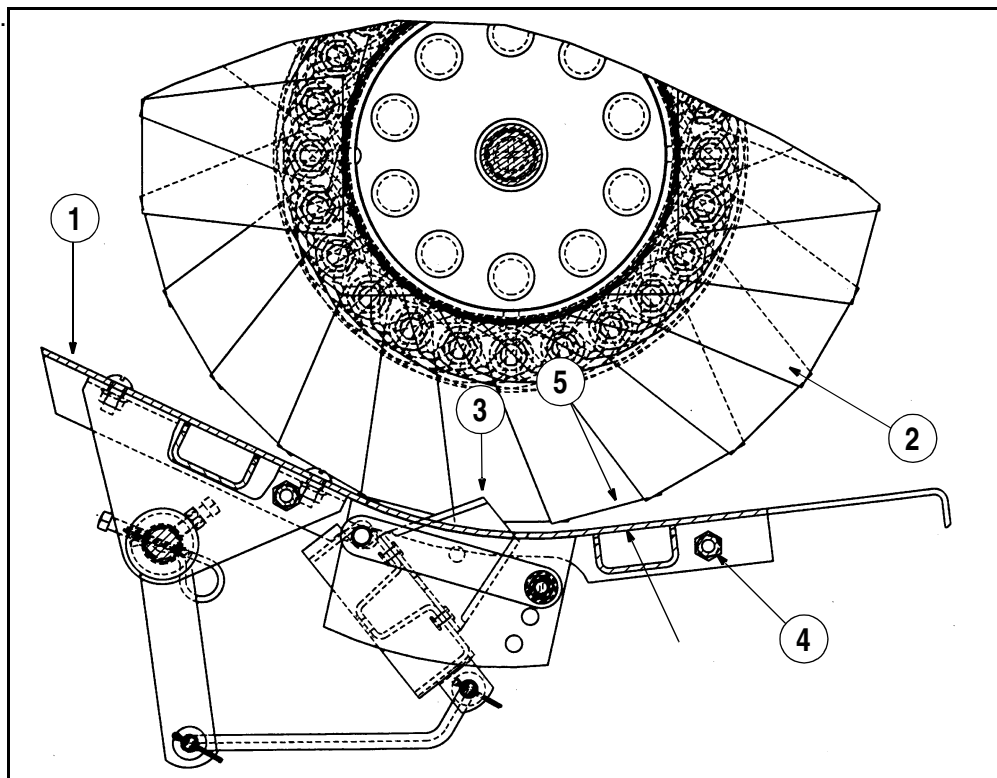
Engage the idler pulley by moving the idler pulley handle up until the channel stop drops into place over the spring.

**NOTE:** *Be sure to adjust the straw chopper concave and concave blades after changing the straw chopper speed.*



175788A1

## Straw Chopper Concave Adjustment



RH00J016

- |                  |  |
|------------------|--|
| 1. CONCAVE       | 4. CONCAVE ADJUSTING BOLTS                       |
| 2. ROTOR BLADE   | 5. DISTANCE OF 1.6 TO 4.8 mm (1/16 TO 3/16 INCH) |
| 3. CONCAVE BLADE | BETWEEN CONCAVE AND TIP OF ROTOR BLADE           |

The straw chopper operates at a speed of approximately 2 771 RPM with the drive belt in the high speed position and at a speed of approximately 694 RPM with the drive belt in the low speed position.

Loosen the concave adjusting bolts on each side of the Combine and move the concave up or down for the correct clearance. The correct concave to rotor tip clearance is 1.6 to 4.8 mm (1/16 to 3/16 inch).



**WARNING:** The straw chopper rotor is running at all times when the separator is engaged. Be sure the shielding is in place before operating the chopper.

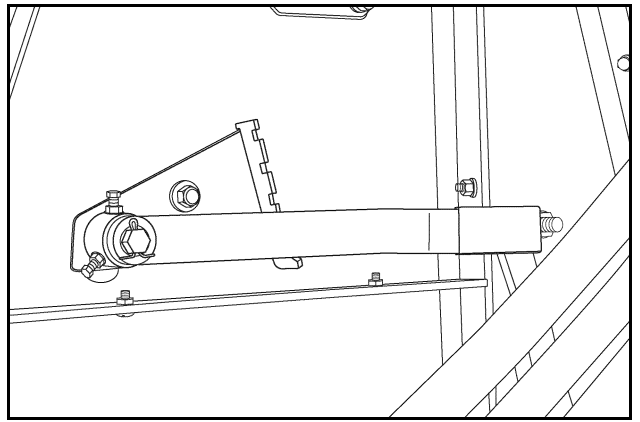
M180A



**WARNING:** The straw chopper rotor operates whenever the separator is in operation. Be sure to disengage the separator, shut off the engine, remove the key from the key switch and make sure the rotor has stopped spinning before reaching into or working in the separator area.

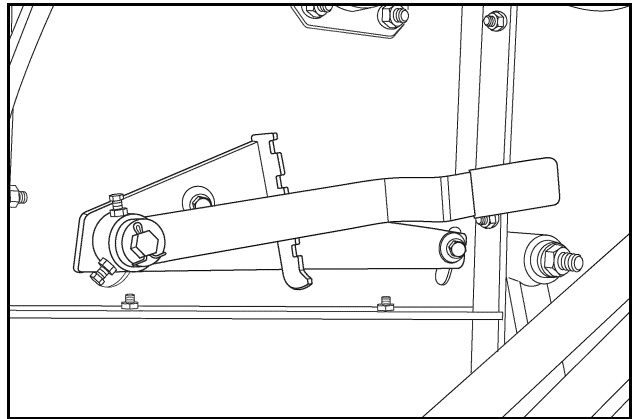
M181A

No cut position.



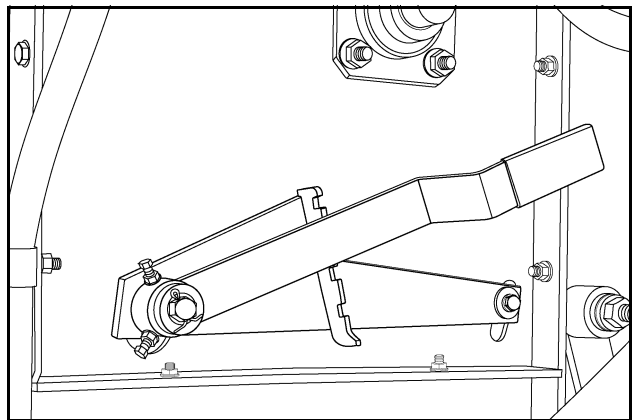
RD01H070

Coarse cut position.



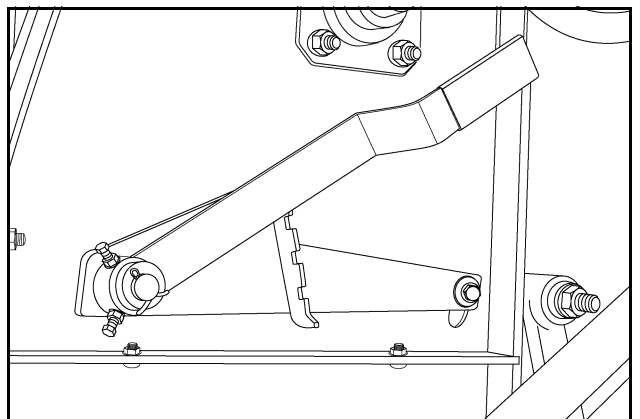
RD01H073

Medium cut position.

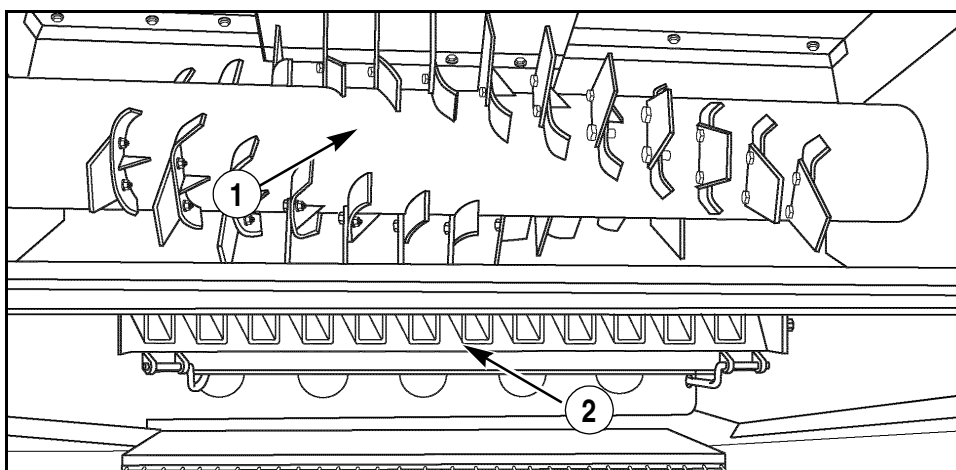


RD01H074

Fine cut position.



RD01H077



RD01H143

1. ROTOR    2. CONCAVE BLADE ASSEMBLY

### To Chop and Spread Straw

Operate the straw chopper at the high speed. Set the concave to rotor tip distance at 1.6 to 4.8 mm (1/16 to 3/16 inch).

The concave blade assembly can be inserted into or retracted from the concave for the desired cut length, coarse, medium or fine (see Baling Straw in this manual).

**NOTE:** When the straw is to be baled, operate the straw chopper at the low speed (L) setting. With the low speed setting the straw chopper will not chop the straw too fine and windrowing will be better.

### To Chop and Spread Corn

- Operate the straw chopper at the slow speed.
- Lower the concave blade assembly.
- Adjust the concave bottom to the middle of the adjusting slot.

## BALING STRAW

### Guidelines for Optimizing Straw Quality

Due to the threshing and separating nature of the AXIAL-FLOW® Combine, machine settings and operating conditions can affect the quality of baling straw. The following guidelines are to help you obtain the best straw possible from your AXIAL-FLOW® Combine. Each field condition must be looked at in particular to identify which options will give view satisfactory results.

### Recommended Equipment Options

#### AFX Rotor

- Remove the straight separator bars and install rasp bars.
- Do not use spiked rasp bars, except in Damp, weedy conditions.

#### Other Equipment

- Use small wire concaves or at least one at the No. 1 position.
- Use slotted grates with the channels on the outside in the 1/2 hole position.
- Solid separator grates in the Nos. 2 and 3 positions may be used if grain loss is not an issue.
- If possible, use a machine equipped with a discharge beater instead of a straw chopper.

### Operating Conditions

- Harvest during damp, tough conditions such as early morning or late evening.
- Cut more of the stem than usual.
- Remove the spreaders or, if impacting in stubble is a problem, leave the spreader discs attached and **remove the bats and/or angles.**

### Machine Settings

- Use slower than normal rotor speeds.
- Relax the concave setting while maintaining threshing and separating.
- Lower chopper, beater pan to the CORN position.
- Adjust the vanes over the grates to the fast or forward position.
- Adjust the vanes over the concaves in the mid to fast position.
- Retract the straw chopper concave and/or slow speed of chopper/beater.
- Use a slower speed on the rock trap beater (if equipped).

**NOTE:** *Care should be exercised to avoid compromising acceptable grain loss and machine performance.*

## SEED LOSS

New standards have been written for reduced field losses, improved grain quality and simplified machine operation. The AXIAL-FLOW® Combine has performed in harvesting conditions previously thought to be too adverse for successful Combine operation. With minimal field losses as his goal, the AXIAL-FLOW® operator has more latitude to adjust for maximum Combine efficiency. Understanding crop flow and functions previously discussed makes adjustment for field losses easier. A spontaneous adjustment, without thorough analysis and diagnosis of specific reason for crop loss could lead the operator away from the correct machine adjustment. A universal harvesting rule is to set your Combine to manual specifications first, then adjust. See Initial Crop Settings in this manual. Make only one adjustment at a time, then reevaluate.

When adjusting a Combine, it is important to note that no Combine will save every seed. Combines can be operated at speeds and settings which range from almost zero loss to extremely heavy losses. Each operator must determine what loss to accept for the field condition and time available for harvest. He must adjust the Combine and travel speed accordingly. Losses should be checked in several spots and averaged to eliminate the effects of any uneven feeding.

### Minimize Your Pre-Harvest Losses

This is loss that is present before you harvest the crop. This loss is kernels or seeds on the ground due to weather, insect damage and other adversity. These losses cannot be recovered no matter how efficient the Combine is.

When checking loss it is important to determine the source of the loss before making adjustments. Checking losses where the separator empties without considering whether they originate from preharvest causes, header causes or the separator can lead to unnecessary or erroneous adjustments.

The formula below has three major areas of loss:

Preharvest Loss + Header Loss + Separator Loss = Total Loss

When measuring losses, take a full cut with the header at your regular operating speed without using the spreaders. Stop the Combine in an area of the field that represents an average of the field. Do not use rows that are near the edges of the field and do not make your measurements near the end of the field. Allow the Combine to clear after stopping and back up a distance equal to its length. You can then check all loss points without starting and stopping again.

**IMPORTANT:** *Be sure machine is shut down and all moving components completely stopped before starting evaluation.*

To determine the amount of preharvest losses, look in the unharvested crop for kernels, seeds, seed heads, ears of corn, etc. on the ground that the header would be unable to gather. To measure the amount of loss in bushels, refer to the Seed Loss Tables.

## “Quick Stop” Problem Diagnosis

This procedure allows you to inspect the inside of your Combine as if it was in operation. Because the machine must be stopped for inspection, there will be some major differences between the conditions inspected and those that exist during operation. Even with these obvious limitations the procedure can be an extremely useful diagnostic tool. To perform a “quick stop” follow this procedure:

1. Select a relatively level area of the field where the crop is reasonably uniform and representative. Use the highest transmission gear in which you can achieve the normal operating speed, i.e. use second gear if possible.
2. While operating the Combine in a normal, steady manner, execute Steps A, B and C in rapid sequence.
  - A. With your right hand, move the engine speed control to the slow idle position.
  - B. With your left hand, move the propulsion control lever to the fastest forward position.
  - C. Apply both brake pedals with the pedals locked together.

Do not turn off the key switch until after the “quick stop”.

**NOTE:** *Although this may appear to be abusive to the Combine, it really only uses the brakes to stop the separator quickly. Without the external braking effort, the momentum of the rotor would continue to drive the separator to a coasting stop. In a successful “quick stop” the Combine must stop within ten feet.*

**IMPORTANT:** *Never use the “quick stop” procedure when operating conditions are such that restarting the rotor might be difficult.*

3. Immediately after making the “quick stop”, move the separator drive and feeder clutch switches to the OFF position. Return the propulsion control lever to the stop position, restart the engine and allow it to cool to a safe shutdown temperature. Then stop the engine, set the parking brakes and remove the key from the switch.
4. Open the Left front trim doors and remove the Left side shields from the concave and grate areas.
5. Inspect the concaves for indications of plugging or other problems.
6. Check the material in the auger bed for signs of incomplete threshing, kernel damage or other abnormal conditions.
7. Agitate the crop material inside the rotor in the grate area. If there are loose kernels near the rear of the grate area, this probably indicates excessive rotor losses. On the other hand, relatively few kernels near the front of the grate area would suggest a reserve of separating capacity.
8. Check the distribution of material on the grain pan and chaffer sieve. The load distribution on the chaffer sieve should be inspected from the rear as well as the left hand inspection area.
9. Lower the tailings auger trough door. Inspect the load and load distribution on the shoe sieve. Check the type and amount of material in the tailings auger trough.
10. Make sure crop material flow is proper in the header, feeder house and elevators.
11. Using all the information available, proceed with adjustments or corrections as listed in the troubleshooting charts.
12. Replace shields, close the tailings auger trough door, close the trim doors and recheck to be sure the machine is ready to be restarted safely.

## 6 - FIELD OPERATION

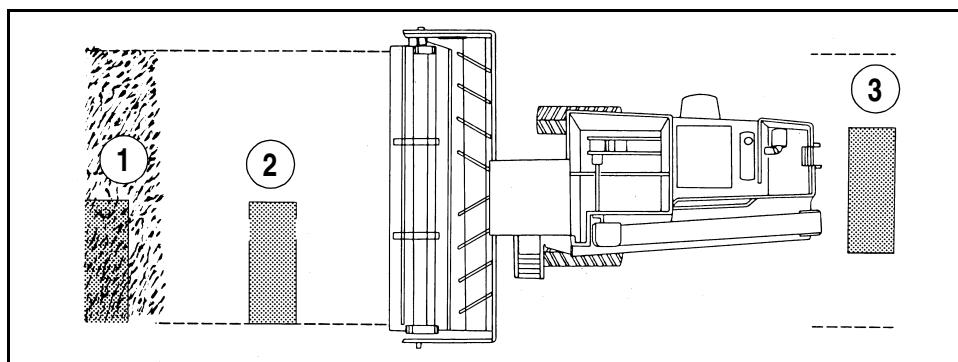
13. To restart a Combine after a “quick stop”, start the engine and allow it to warm up enough to run normally and evenly. Move the engine speed control to the low idle position. Execute Step A and then Step B as quickly as possible in sequence:

- A. Move the separator switch to the ON position.
- B. Move the engine speed control to the forward or full-speed position to get all components up to speed and then reduce engine speed to 1/2 throttle so machine can clean itself out.

14. If the rotor is choked you will have to use the appropriate procedure to clear it.

15. When the separator has operated long enough to be cleared, return the engine speed control to the low idle position, activate the feeder clutch switch and immediately return the engine to full speed.

Be sure to use the uniform spread column and select the crop you are harvesting. The number shown in this column is the number of seeds per square foot to equal one bushel per acre loss. This number is divided into the number of kernels you found to come up with the bushel per acre preharvest loss.



1. AREA "A"

2. AREA "B"

3. AREA "C"

### Header Losses

Header loss is due to cutting too high, reel shatter, snapping roll loss, etc. This can be measured by comparing the kernels on the ground in Area "B" to Area "A". The difference would be due to header losses. If a more precise measurement is required, refer to the seed loss tables and determine seed loss the same as you did for preharvest losses, then subtract the preharvest loss to obtain the header loss.

Loss in Area "B" - Loss in Area "A" = Header Loss

To reduce header losses, make sure the header is adjusted properly as explained in the Header Operator's Manual.



## Separator Losses

This is loss from the rotor and cleaning system such as unthreshed heads, etc. which are a result of improper adjustments or lack of proper attachments. To obtain this loss, check Area "C" which is windrowed directly behind the separator. The grain in this area would be all losses. Subtract the preharvest (Area "A") and the header losses (Area "B") from this measurement to determine the separator loss. For a more precise measurement, refer to the Seed Loss Tables to obtain the amount of loss in bushels or pounds per acre for your machine.

Before making adjustments, make sure there are no grain leaks due to missing bolts, clean out doors open, etc. If separator loss is high, it is necessary to determine whether the loss is from the rotor or cleaning system.

To determine whether the separator loss is due to the rotor or cleaning system, fully open the shoe and chaffer sieve.

**NOTE:** *This procedure will cause a poor sample due to excessive trash in the grain sample during the test. If separator loss remains high it is due to rotor losses. If separator loss decreases the loss is due to improper cleaning system adjustments.*

Sieve settings are essentially the same with an AXIAL-FLOW® Combine as in the past with conventional Combines. Too heavy tailings could result in rotor losses.

There are three basic adjustments for the cleaning system. These are (1) opening and closing the chaffer; (2) opening and closing the shoe and (3) cleaning fan rpm changes. The main air blast is directed to the front part of the chaffer. Air speed should be sufficient to lift material and suspend it in the air, letting heavier particles (grain) down. If underblown, material will ride on the chaffer and grain will be sloughed off the end of the chaffer. If overblown grain will be picked up and blown beyond the end of the chaffer.

The need for cleaning shoe adjustments can be easily determined by monitoring grain tank samples, tailings and losses on the ground. If tailings are excessive, open the shoe slightly. If grain tank sample is trashy, close the shoe and/or increase the fan speed. Too wide of a chaffer sieve opening can add to excessive tailings. Tailings can be monitored with the Tailings Monitor, **Watch Your Monitor**.

An overloaded shoe sieve and high tailings can also be the result of too low fan speed setting instead of too open chaffer setting. It is important to remember that the air velocity through the chaffer sieve will change by changing the sieve opening (with constant fan speed). Therefore the more the chaffer sieve is opened the faster the fan speed should be set in order to continue to lift the lighter chaff material and blow it out the rear. This is handy to remember when more capacity is desired from the cleaning system.

With the introduction of the Cross Flow® fan to the cleaning system, improved air flow uniformity has allowed the fan to be operated at higher speeds without concern for blowing grain out the back. Consult the tables for suggested fan speeds.

For side hill operations, chaffer dividers are available.

## Seed Loss Table

SEEDS LOST PER SQUARE FOOT TO EQUAL ONE BUSHEL PER ACRE (1) GATHERED DIRECTLY BEHIND SEPARATOR (2)									
CROP	CUTTING WIDTH								UNIFORM SPREAD LOSS (3)
	15 FT (4.6 m)	16.5 FT (5.0 m)	17.5 FT (5.3 m)	20 FT (6.1 m)	22.5 FT (6.9 m)	25 FT (7.6 m)	30 FT (9.1 m)	36 FT (11.0 m)	
OATS	27	30	32	36	41	45	54	65	9.3
BARLEY	51	55	59	68	76	85	102	121	17.4
WHEAT	56	62	65	74	84	93	111	132	19.2
RYE	108	119	126	143	161	179	214	251	37
FLAX	302	332	353	403	453	503	604	708	103.8
MAIZE	56	62	66	75	85	94	113	135	19.4
SOYBEAN	11	11	12	14	16	16	21	26	3.6
RED KIDNEY BEANS	4	5	5	5	6	7	8	9	1.2
RICE	49	54	57	66	74	82	99	117	17
WHITE PEA BEANS	6	7	8	9	10	11	13	15	3.7

SEEDS LOST PER SQUARE FOOT TO EQUAL ONE POUND PER ACRE (1) GATHERED DIRECTLY BEHIND SEPARATOR (2)									
CROP	CUTTING WIDTH								UNIFORM SPREAD LOSS (4)
	15 FT (4.6 m)	16.5 FT (5.0 m)	17.5 FT (5.3 m)	20 FT (6.1 m)	22.5 FT (6.9 m)	25 FT (7.6 m)	30 FT (9.1 m)	36 FT (11.0 m)	
RED CLOVER	18	20	22	24	27	30	36	43	6.2
RYE GRASS	19	21	23	25	28	31	37	44	6.4

(1) The figures are approximate and can vary with seed size and seed variety.

(2) Seeds are gathered directly behind the separator. No spreading device, such as a straw spreader is used.

(3) The number of seeds per square foot that can be spread evenly over an acre to equal a loss of one bushel per acre.

(4) The number of seeds per square foot that can be spread evenly over an acre to equal a loss of one pound per acre.

## Corn Loss Table

CORN HEAD MODEL	ROW SPACING	SEPARATOR LOSS IN KERNELS PER FT <sup>2</sup> (1)	UNIFORM SPREAD LOSS (2)
1044 (4 ROW)	36 INCH (914 mm)	4.3	1.84
	38 INCH (965 mm)	4.5	1.84
	40 INCH (1016 mm)	4.7	1.84
1054 (5 ROW)	36 INCH (914 mm)	5.3	1.84
	38 INCH (965 mm)	5.6	1.84
	40 INCH (1016 mm)	5.9	1.84
1063 (6 ROW)	28 INCH (711 mm)	5.0	1.84
	30 INCH (762 mm)	5.3	1.84
1064 (6 ROW)	36 INCH (914 mm)	6.5	1.84
	38 INCH (965 mm)	6.8	1.84
	40 INCH (1016 mm)	7.1	1.84
1083 (8 ROW)	28 INCH (711 mm)	6.7	1.84
	30 INCH (762 mm)	7.1	1.84
1084 (8 ROW)	36 INCH (914 mm)	8.8	1.84
	38 INCH (965 mm)	9.3	1.84
	40 INCH (1016 mm)	9.8	1.84

(1) The figures are approximate and can vary with kernel size and seed corn variety. Kernels were gathered directly behind separator and do not include row loss due to corn head and no spreading device such as straw spreader was used.

(2) Uniform loss in number of kernels per square foot that can be spread evenly over an acre to equal loss of one bushel per acre at 80,000 kernels per bushel.

See Next Page for 2200 series Corn Heads

## 6 - FIELD OPERATION

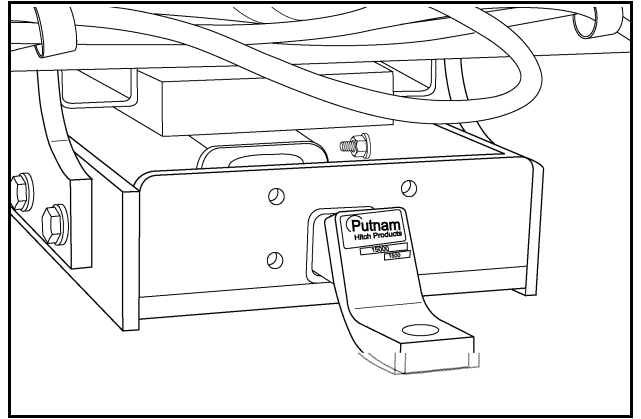
CORN HEAD MODEL	ROW SPACING	SEPARATOR LOSS IN KERNELS PER FT <sup>2</sup> (1)	UNIFORM SPREAD LOSS (2)
	28 INCH	5.0	1.84
2206	(711 mm)		
(6 ROW NARROW)	30 INCH	5.3	1.84
	(762 mm)		
	36 INCH	6.5	1.84
2206	(914 mm)		
(6 ROW WIDE)	38 INCH	6.8	1.84
	(965 mm)		
	22 INCH	5.2	1.84
2208	(559 mm)		
(8 ROW NARROW)	30 INCH	7.1	1.84
	(762 mm)		
	36 INCH	8.8	1.84
2208	(914 mm)		
(8 ROW WIDE)	38 INCH	9.3	1.84
	(965 mm)		
	20 INCH	7.1	1.84
	(508 mm)		
2212	22 INCH	7.9	1.84
(12 ROW NARROW)	(559 mm)		
	30 INCH	10.7	1.84
	(762 mm)		

1) The figures are approximate and can vary with kernel size and seed corn variety. Kernels were gathered directly behind separator and do not include row loss due to corn head and no spreading device such as straw spreader was used.

(2) Uniform loss in number of kernels per square foot that can be spread evenly over an acre to equal loss of one bushel per acre at 80,000 kernels per bushel

## Rear Trailer Hitch - If Equipped

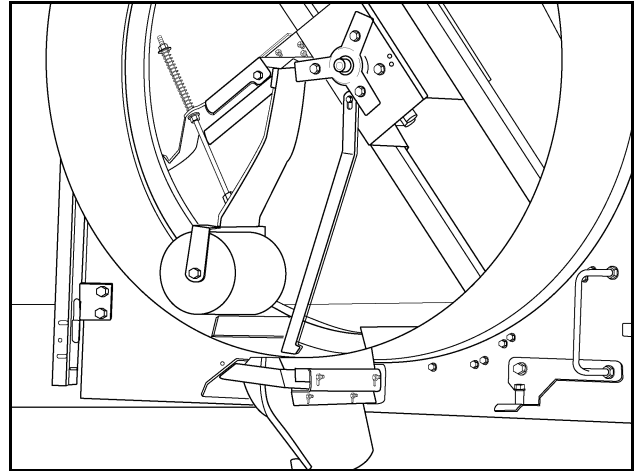
Rear trailer hitch used for towing Header cart to and from the field.



RD04E024

## Rotary Air Screen Brush (If Equipped)

Your Combine may be equipped with a rotary air screen brush to clean debris from the rotary air screen. The rotary brush should be in the **storage position** anytime harvesting conditions do not require the use of the brush. Refer to Brush Storage in the Storage Section of this manual for correct storage position.



RR06B013

## TIRE INFLATION

**NOTE:** Upon receiving your Combine immediately adjust the air pressure in the tires as indicated in the table.

Keep the tires properly inflated to the pressure shown in the inflation pressure tables for the front and rear tires. Both under inflation and over inflation are detrimental to tire life. Don't reinflate a tire that has been run flat or when there is obvious or suspected damage to the tire or wheel components. Check the tire pressure weekly or after 50 hours of operation.

When Combines are transported on a carrier, such as a railroad car or trailer, the tires are inflated to 207 kPa (30 PSI) to make possible rigid blocking and to prevent bouncing. Pressure must be decreased to operating pressure before the Combine is put into service.

Make sure that the tire valve caps are in place and are tightened securely to prevent loss of air and protect the valve core and stem.

Never weld or heat a wheel and tire assembly. The heat can cause an increase in air pressure resulting in a tire explosion. Welding can structurally weaken or deform the wheel.

Never introduce a flammable substance into a tire BEFORE, DURING OR AFTER MOUNTING. This may result in internal tire damage or fire, rim damage or a potentially dangerous vapor remaining in the tire. Any of these conditions could cause serious personal injury during the mounting and inflating procedure.

76 x 50-32 HF3 drive flotation tires are shipped loose on trailer to dealer. They are shipped with 207 kPa (30 PSI) inflation to avoid any handling damage. After installing on Combine, deflate tires to the operating inflation pressure of 110 kPa (16 PSI). Field operation of 110 kPa (16 PSI) is required for optimum performance.



**WARNING:** Explosive separation of the tire and/or rim parts can cause injury or death. When tire service is necessary, have a qualified tire mechanic service the tires.

M328B



**WARNING:** When inflating tires, use a clip on air chuck and extension hose long enough to allow you to stand to one side and NOT in front or over the tire assembly. Use a safety cage if available.

M371



**WARNING:** A tire can explode during inflation and cause serious injury or death. Never increase air pressure beyond 35 PSI (2.4 bar) to seat the bead on the rim. Replace a tire if it has a defect. Replace a wheel rim which has cracks, wear or severe rust. Make sure that all the air is removed from a tire before removing the tire from the rim. Never use force on an inflated or partially inflated tire. Make sure the tire is correctly seated before inflating.

M170B



**WARNING:** Multi-piece rim wheels may separate and cause personal injury. Wheel separation may occur if machine is operated with low tire inflation pressure. If inflation pressure drops below 62 kPa (9 PSI), contact qualified tire personnel to pressurize or repair the tire and wheel assembly.



**WARNING:** DO NOT weld to wheel or rim until the tire is completely removed. Inflated tires can generate a gas mixture with the air that can be ignited by high temperatures from welding procedures performed on the wheel or rim. This condition can exist whether tires are inflated or deflated. Removing the air or loosening the tire on the rim (breaking the bead) will NOT eliminate the hazard. The tire MUST be completely removed from the wheel or rim prior to welding the wheel or rim.

SC134



**WARNING:** Do not remove, install or make repairs to a tire on a rim. If required, the tire and wheel rim should be removed from the machine by a qualified field technician with the proper equipment. If required, the field technician should take the tire and wheel rim to a tire shop where persons with special training and special safety tools are available. If the tire is not in correct position on the rim, or if too full of air, the tire bead can loosen on one side and cause air to leak at high speed and with large force. Because the air leak can thrust the tire in any direction, and with much force, you will be in danger of injury.

M169C



## TIRE PRESSURE CHART

Tire Size	Ply Rating	Tread Type	Tire Pressure	
			PSI	(kPa)
14.9-24	8	R4	30	(210)
19.5L24	10	R4	28	(193)
500/70 R24		R4	26	(179)
16.9R26	LI 135	R1W	30	(210)
18.4-26	10	R1,R2	34	(234)
600/65-R28	LI 147	R1W	29	(200)
18.4-30	6	R2	20	(138)
20.8-38	10	R1	28	(193)
18.4R42	2 Star	R1W,R2	30	(210)
20.8R42	2 Star	R1	30	(210)
30.5L-32	12	R1	26	(179)
30.5L-32	14	R1, R2 R3	28	(193)
30.5LR32	LI170	R1	36	(250)
800/65 R32	LI 172	R1W	41	(282)
900/60-R32	LI 176	R1, R1W	41	(282)
900/65R32 R2	LI 178	R2	41	(282)
76 X 50.0-32	16	HF3	16	(110)

**NOTE:** Inflation pressures listed are for maximum load carrying capacity. Inflation pressures can be safely lowered if the Combine has a small header. Contact tire manufacturer regarding lower inflation pressures.

## DRIVE WHEELS

### Tread Positions

TIRE SIZE	CENTER TO CENTER WHEEL TREAD					
	WHEELS			WHEELS (with 6 inch [152.4 mm] Axle Extension)		
	DISHED IN	DISHED IN w/SPACER*	DISHED OUT	DISHED IN	DISHED IN w/SPACER*	DISHED OUT
	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)
24.5-32 **	120 (3048)	126 (3200)	132 (3353)	132 (3353)	138 (3505)	144 (3658)
30.5L-32	120 (3048)	126 (3200)	132 (3353)	132 (3353)	138 (3505)	144 (3658)
76 X 50.0-32 #	N.A.	N.A.	N.A.	144 (3658)	N.A.	N.A.
800/65 R32	120 (3048)	126 (3200)	132 (3353)	132 (3353)	138 (3505)	144 (3658)
900/65R32 R2	NA	NA	132 (1353)	132 (1353)	NA	144 (3658)
900/60R32 R1, R1W			132 (1353)	132 (1353)		144 (3658)

\* Dimensions given are the wheel tread with 3 inch (76 mm) wheel spacers.

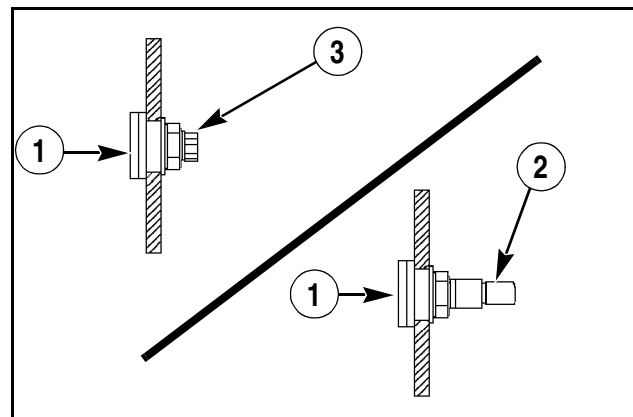
\*\* AXIAL-FLOW® 2577 only

# With 12 inch (304.8 mm) axle extensions.

### Drive Wheel Tire Valves

To improve access to tire valve, the valve can be located to the outside of the wheel.

Tire valve and valve hole plug have common spud base (1), so dismounting tire from wheel is not required. If wheel is mounted on Combine, raise Combine until tire clear ground and block up Combine with jack and blocks as required. Deflate air from the tire. Unscrew core housing (2) from the tire valve spud base and unscrew plug (3) from base on other side of wheel. reinstall core housing on outside of wheel and plug on inside of wheel. Inflate tire to correct inflation pressure. Remove blocks and jack.



RH06E301

## Dual Wheels

TIRE SIZE	CENTER TO CENTER WHEEL TREAD **	
	INNER WHEELS	OUTER WHEELS
	DISHED IN	DISHED OUT
	Inch (mm)	Inch (mm)
20.8-38	120.4 (3057)	180.4 (4581)
18.4R42	120.4 (3057)	180.4 (4581)
20.8R42	120.4 (3057)	180.4 (4581)

\*\* Dimensions given are with the long axle extensions for dual wheels (11-3/4 inches) installed.

### Maximum Header Size for Single Drive Wheels

Minimum Drive Tire Size	Tire Rating	Maximum Header Size Feet (m)					Maximum Corn Head Size
		1010	1020	2042	2052	2062	
30.5L-32	14 Ply	30 (9.14)	25 (7.62)	NA	NA	NA	NA
30.5LR32	LI170	30 (9.14)	30 (9.14)	36 (10.97)	30 (9.14)	30 (9.14)	1084 2208
900/65R32	1LI 178	30 (9.14)	30 (9.14)	36 (10.97)	36 (10.97)	36 (10.97)	1084 2212
76 X 50.0-32	16 Ply	30 (9.14)	30 (9.14)	36 (10.97)	39 (11.88)	36 (10.97)	1084 2212
800/65 R32	LI 172	30 (9.14)	30 (9.14)	36 (10.97)	36 (10.97)	30 (9.14)	1084 2208
900/60 R32	LI 176	30 (9.14)	30 (9.14)	36 (10.97)	39 (11.88)	36 (10.97)	1084 2212

### Maximum Header Size for Dual Drive Wheels

Minimum Drive Tire Size	Tire Rating	Maximum Header Size Feet (m)					Maximum Corn Head Size
		1010	1020	2042	2052	2062	
18.4R42	2 Star	30 (9.14)	30 (9.14)	36 (10.97)	39 (11.88)	36 (10.97)	1084 2212
20.8-38	10 Ply	30 (9.14)	30 (9.14)	36 (10.97)	36 (10.97)	30 (9.14)	1084 2208
20.8R42	2 Star	30 (9.14)	30 (9.14)	36 (10.97)	39 (11.88)	36 (10.97)	1084 2212

## Drive Wheel Hub Bolt Torque

**DO NOT LUBRICATE BOLTS OR FINAL DRIVE HUB THREADS.** Wheel bolts should be turned in at least three full turns by hand before using power tools to prevent thread damage. Use a Torque Multiplier (6) and Torque Wrench (8) to tighten bolts.

### New Delivered Machine - Wheels Installed

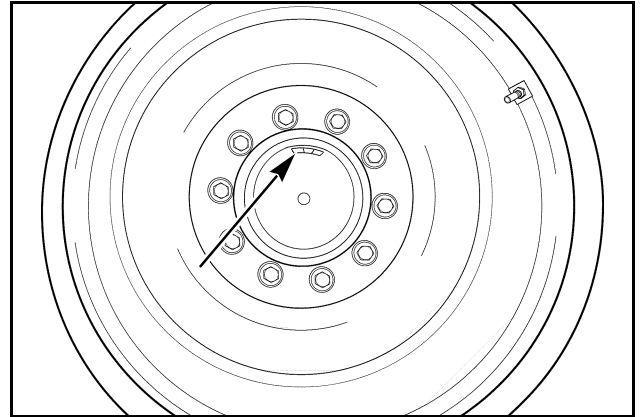
Torque wheel bolts after 10 hours of operation. Use a Torque Multiplier (6) and Torque Wrench (8) capable of delivering at least 980Nm (725 foot pounds).

**IMPORTANT:** *The wheels and wheel hardware “seat” relative to each other during the first 10 hours of operation. This retorquing procedure is critical to the structural integrity of the wheels and wheel bolts.*

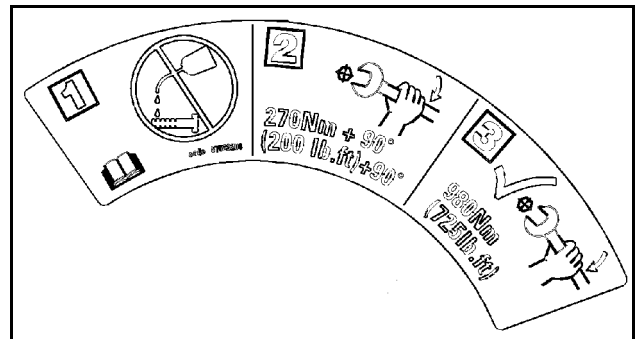
### New Delivered Machine - Wheels Not Installed or When Changing Wheels

Install wheels and hardware per the Installation diagrams shown on Next Page. Torque wheel bolts to 270 Nm (200 foot pounds), mark bolt head relative to wheel. Tighten each bolt an additional 90 degrees. Drive the Combine to a large firm level surface and perform 10 “Figure 8’s”. Retorque all bolts to 980 Nm (725 foot pounds). Retorque again after 10 hours of operation.

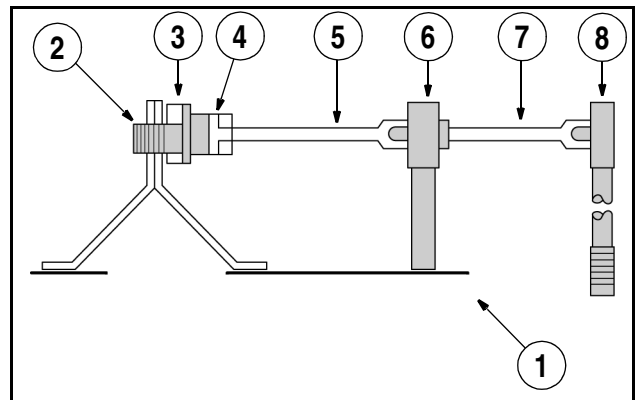
**IMPORTANT:** *Final drives use a special locking (not straight) thread design. DO NOT use a standard M22 tap to repair threads damaged during installation. To repair damaged threads - use a M22 locking thread tap available from your dealer.*



RD02E132R



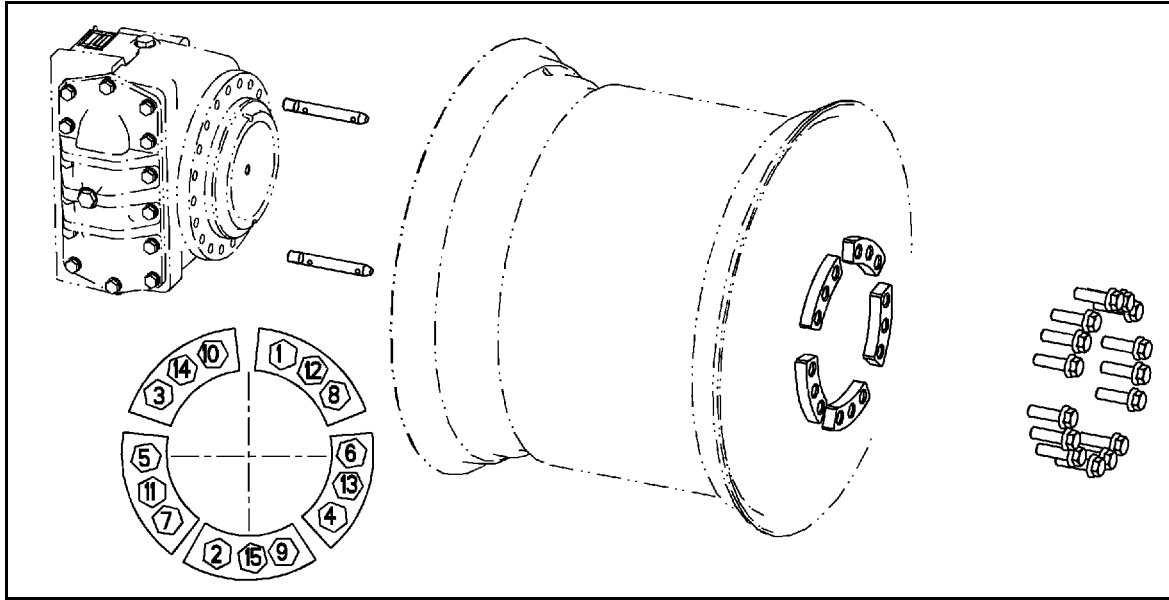
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RI06G100

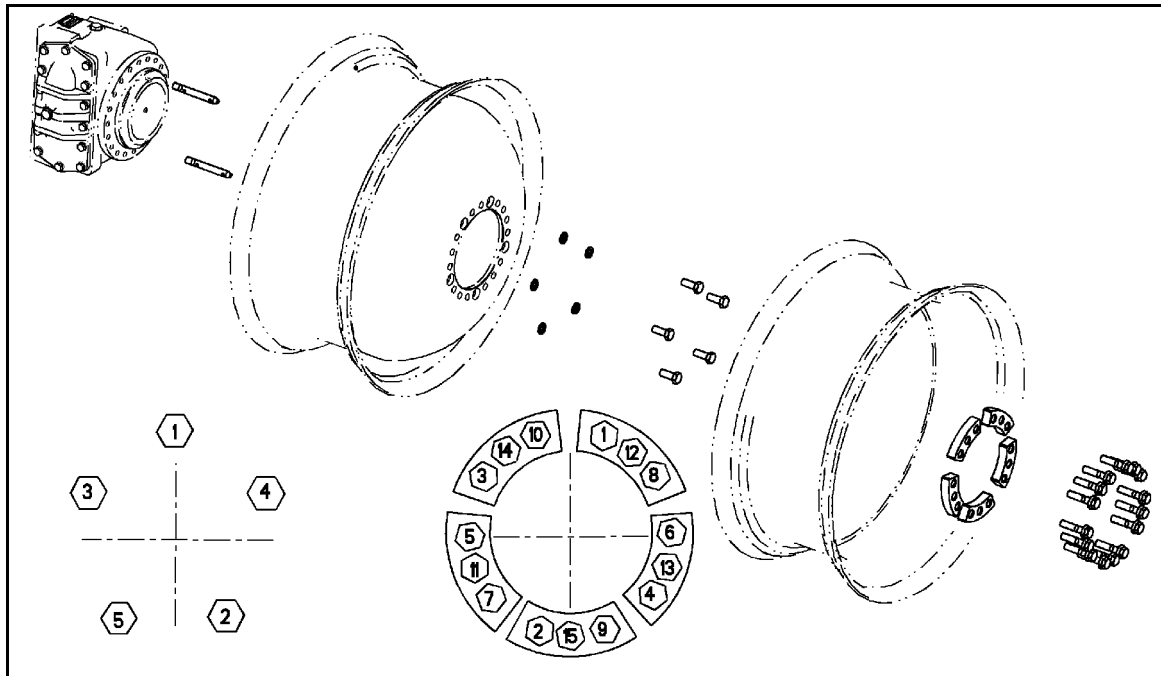
1. OUTSIDE DUAL WHEEL (IF EQUIPPED)
2. WHEEL BOLT
3. BOLT SPACER (IF EQUIPPED)
4. 3/4 INCH DRIVE SOCKET
5. SOCKET EXTENSION - DUAL WHEEL ONLY
6. TORQUE MULTIPLIER
7. SOCKET EXTENSION - 3/4 INCH DRIVE
8. TORQUE WRENCH

## Wheel Installation



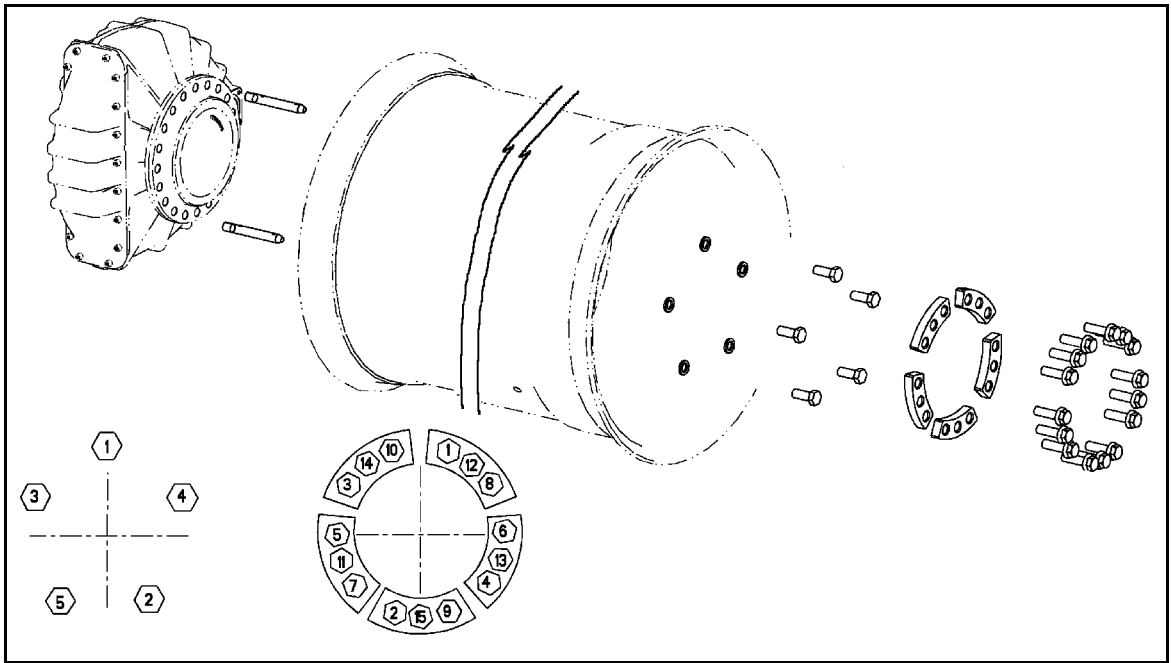
RH06G016

**SINGLE WHEEL INSTALLATION**



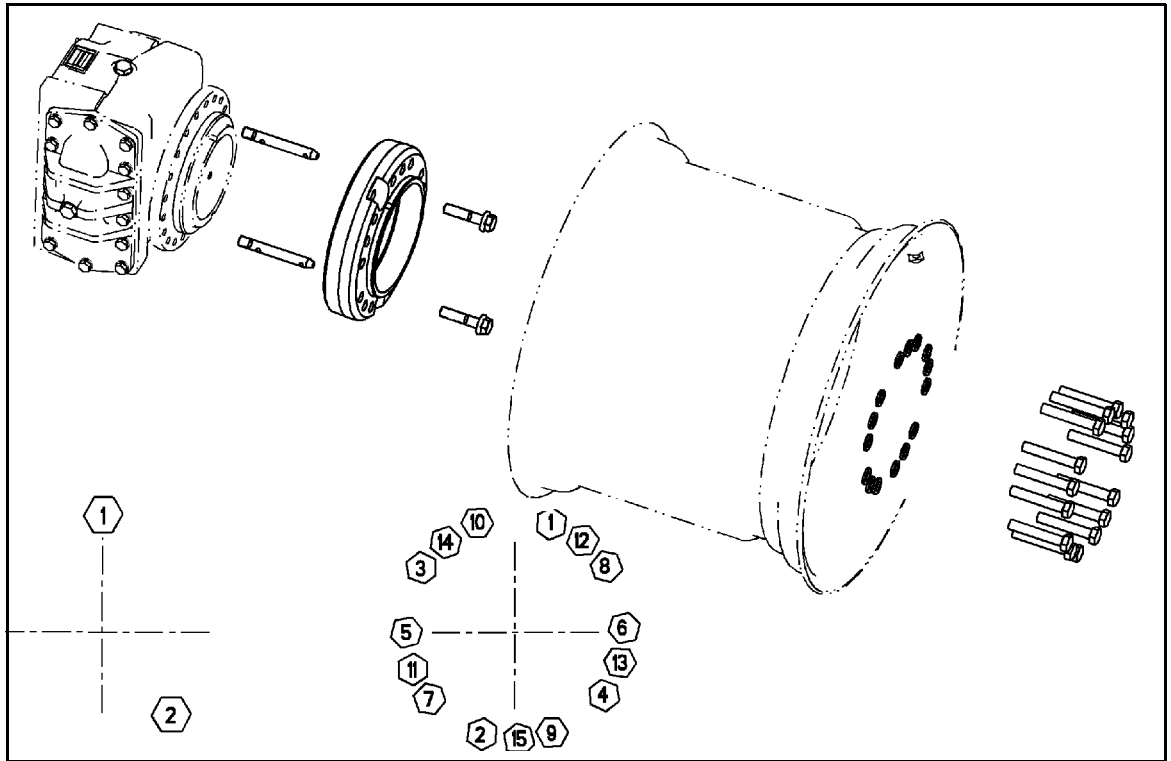
RH06G015

**DUAL WHEEL INSTALLATION**



RH06G014

FLOTATION WHEEL INSTALLATION



RH06G017

WHEEL SPACER INSTALLATION

## Removal of Outer Dual Wheels

To reduce overall machine width it may be necessary to remove the outer dual wheels for road transport or storage.

**IMPORTANT:** *Before moving the Combine with outer dual wheels removed the header must be removed and the grain tank must be empty. Only approved with 18.4R42 L1153 and 20.8R42 L1155 tires with 2.0 bar (30 PSI) inflation for a distance of 90 m (300 feet) maximum.*

To remove the outer dual wheels do the following:

1. Drive the Combine inner dual wheels up on two 2 x 10 inch boards.

2. Remove the fifteen long flange headed bolts and spacers from the outer dual wheels.
3. Remove the outer dual wheels.
4. Torque per single bolts.

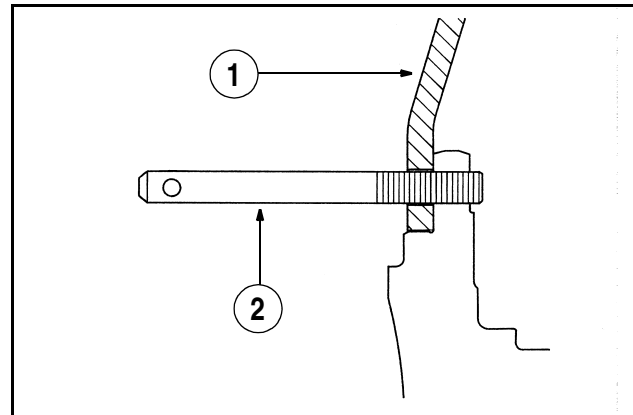
**NOTE:** *Make sure all twenty wheel bolts are assembled prior to moving machine with the outer dual wheels removed.*

5. Retorque the five short wheel bolts which attach the dual inner wheel.

## Wheel Mounting

To assist in mounting the wheels two long wheel mounting studs are supplied with every Combine.

Screw the studs into the final drive shaft prior to installing wheels to aid in installation.



611L94

1. WHEEL
2. STUD



## STEERING WHEELS

### Tread Width

#### Combines with Adjustable Steering Axle

WIDTH ADJUSTMENTS - INCREMENTS OF 4 INCH (102 mm)	
TIRE SIZE	WIDE ADJUSTABLE TREAD INCH (mm)
14.9-24 R4 **	104 * to 120 (2641 * to 3048)
19.5L-24R4 **	120 to 144 (3048 to 3658)
500/70R24 R4 **	120 to 144 (3048 to 3658)

N.R. = Not Recommended

\* Minimum Usable Tread Setting

\*\* For tires mounted "dish in"

**NOTE:** *Rear tires should be mounted "dish in" only.*

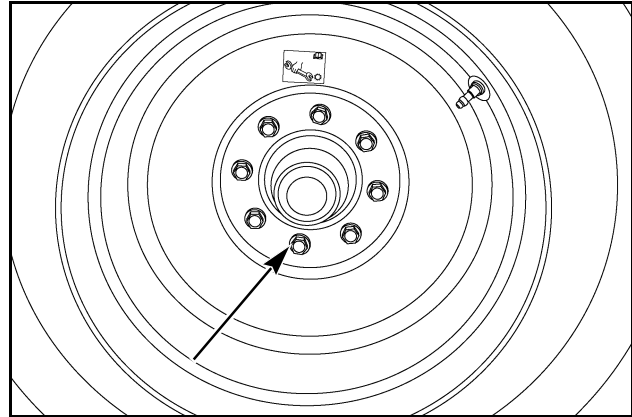
#### Combines with Power Guide Axle

POWER GUIDE WHEEL TREAD	
TIRE SIZE	INCH (mm)
16.9-26 R1	120 to 144 (3048 to 3658)
18.4-26 R1	120 to 144 (3048 to 3658)
18.4-26 R2	120 to 144 (3048 to 3658)
18.4-30 R2	144 (3658) ONLY
600/65-R28 R1W	144 (3658) ONLY

**NOTE:** *Machines with 18.4-30 R2 or 600/65-R28 R1W tires will be shipped from the factory with 120 inch tread width steering axle and tires shipped loose on truck. Before mounting the tires, extend steering axle to 144 inch tread width. If this is not done, tires will damage the Combine elevator shields.*

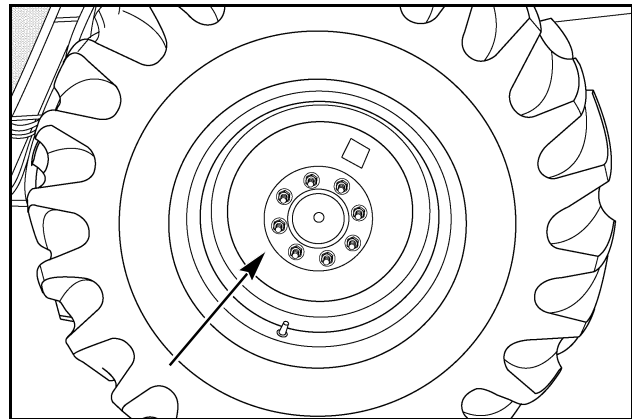
## Steering Wheel Hub Bolt Torque

On new machines or after changing wheels, check the hub nuts on the steering wheels. Check after the first hour of operation, then every 10 hours of operation for the first week. These nuts must be kept tight at all times. Tighten the steering wheel hub nuts to a torque of 170 Nm (125 pound foot). Tighten the power guide wheel hub nuts to a torque of 475 Nm (350 pound foot).



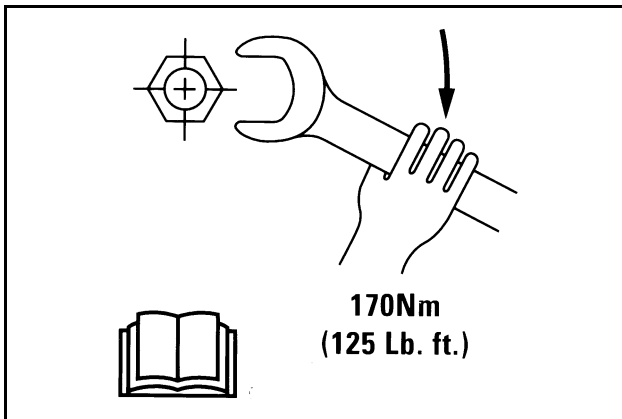
RD00H038

**HEAVY DUTY STANDARD WHEEL**

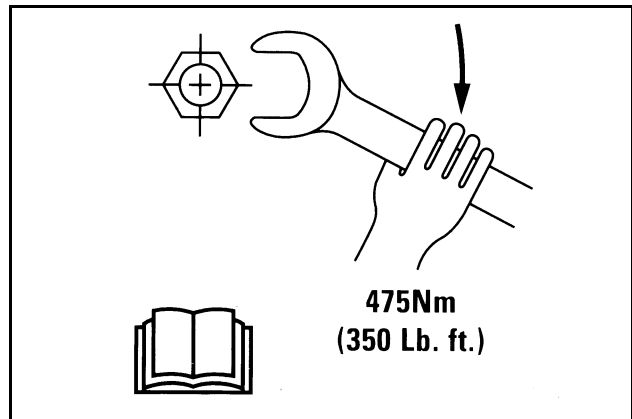


RD00E015

**POWER GUIDE WHEEL**



181992A1



181917A1

## DRIVE AXLE

### Drive Wheels

Operate the Combine with the drive wheels turned out for maximum tread. The wide tread will help the stability of the Combine. Operate the Combine with the drive wheels turned in to the minimum tread when harvesting on level ground or in certain row crop conditions.



**WARNING:** When operating the Combine with the wheels turned in for minimum tread, extreme care must be used to prevent the Combine from tipping over.

M179A

### Axle Extensions

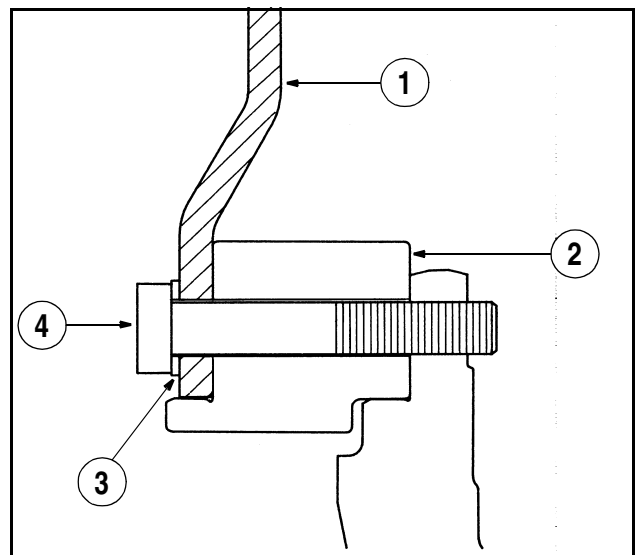
For row crop use, axle extensions can be installed on the Combine. The axle extensions will increase the wheel tread by 305 mm (12 inches) (see Drive Wheel Tread Positions for the wheel treads with axle extensions installed).

### Wheel Spacers

A wheel spacer is available in a 76 mm (3 inch) width and will be required on some tire sizes when the wheels are dished in (see Drive Wheel Tread Positions for wheel treads with wheels spacers installed).

**NOTE:** Drive wheels must not be installed dished out when wheel spacers are installed on the Combine.

**NOTE:** Make sure to use a hardened washer under the head of the wheel bolts.



610L94

- |           |           |
|-----------|-----------|
| 1. WHEEL  | 3. WASHER |
| 2. SPACER | 4. BOLT   |

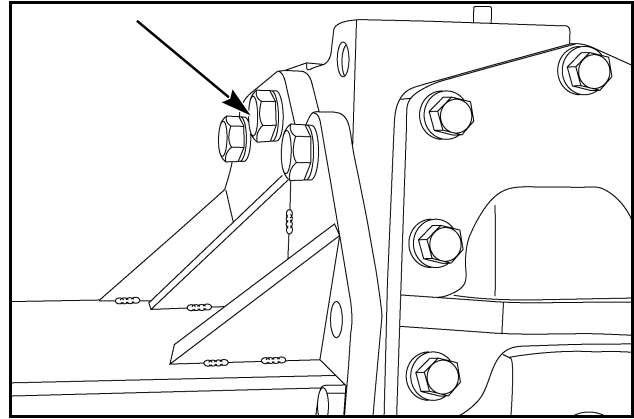
## High and Low Ground Clearance

All corn/grain Combines are assembled in the LOW clearance position. All rice Combines are assembled in the HIGH clearance position.

The final drive housing can be adjusted to give an additional 89 mm (3-1/2 inch) of clearance. To keep the Combine level see Steering Axle Pivot Support in this manual for steering axle adjustments.

To adjust the feeder face adapter when changing from the low to the high clearance position, see Feeder Adjustments for Tire Size in this manual.

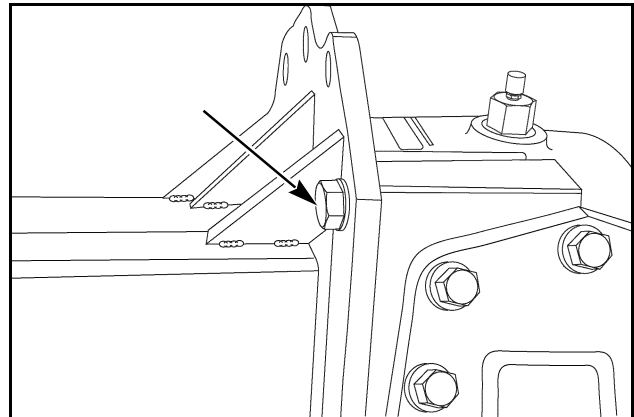
**NOTE:** *Steering axle weights may be required for safe operation in the high ground clearance position. See Steering Axle Weights in this manual.*



RP97G002

**LOW GROUND CLEARANCE**

**NOTE:** *Align bolt as shown in illustration*



RP97G001

**HIGH GROUND CLEARANCE**

**NOTE:** *Align bolt as shown in illustration.*

## STEERING AXLE

Steering axles with tension rods must have a 6 mm (1/4 inch) clearance between the axle pivot washers and the pivot support. When the steering axle is level, connect and adjust the axle tension rods. Be sure that the steering tires clear the tension rods at full turn.

Refer to Steering Wheel Tread Positions in this manual for steering axle width adjustment.

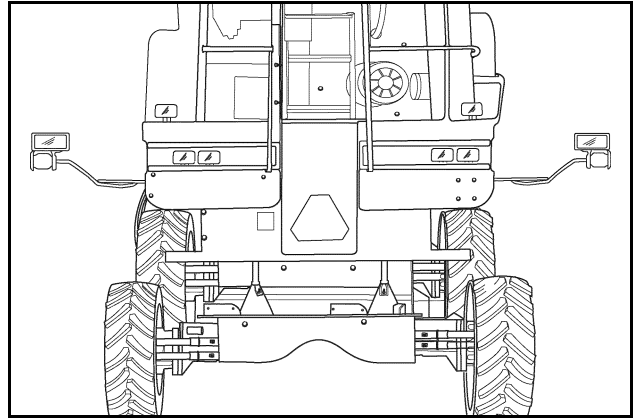
### Toe In

Check the TOE IN with the Combine on level ground and the steering wheels in the straight position.

1. Measure from the ground to the center of the wheel hub (A).
2. Mark the front and rear of each rim with chalk at the same height as measurement (A). Be sure to mark on the inner side of each rim. (See chalk mark locations X).
3. Make sure the wheels are in the neutral steer position. Measure the distance between chalk marks on the front of the rims (measurement B) and rear of the rims (measurement C). C should be larger than B. Subtract B from C to get the TOE IN.
4. Rotate the wheels so that the marks at the rear are now in the front. Repeat Step 3.

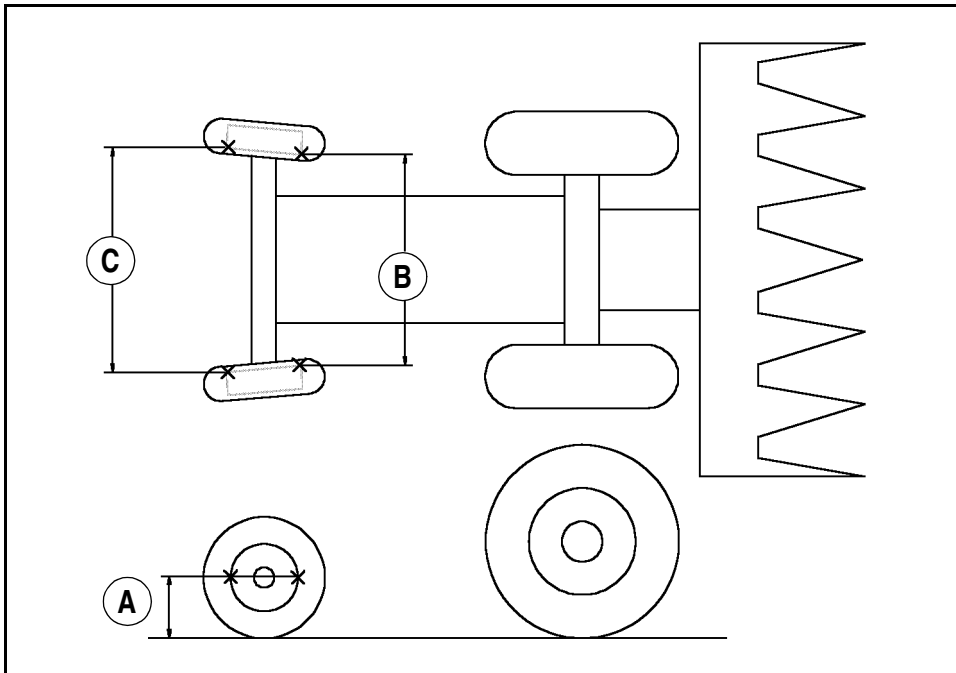
**NOTE:** *The wheels can be rotated by raising the rear axle off the ground or by moving the machine forward or rearward on smooth, level ground. Make measurements with the wheels on the ground.*

5. Calculate an average TOE IN from the two TOE IN values compiled. Compare this average to the recommended TOE IN.
6. (If necessary) if the TOE IN is not in the recommended range, adjust the tie rod length until the correct TOE IN is achieved.



RR02K038

MACHINE TOP VIEW



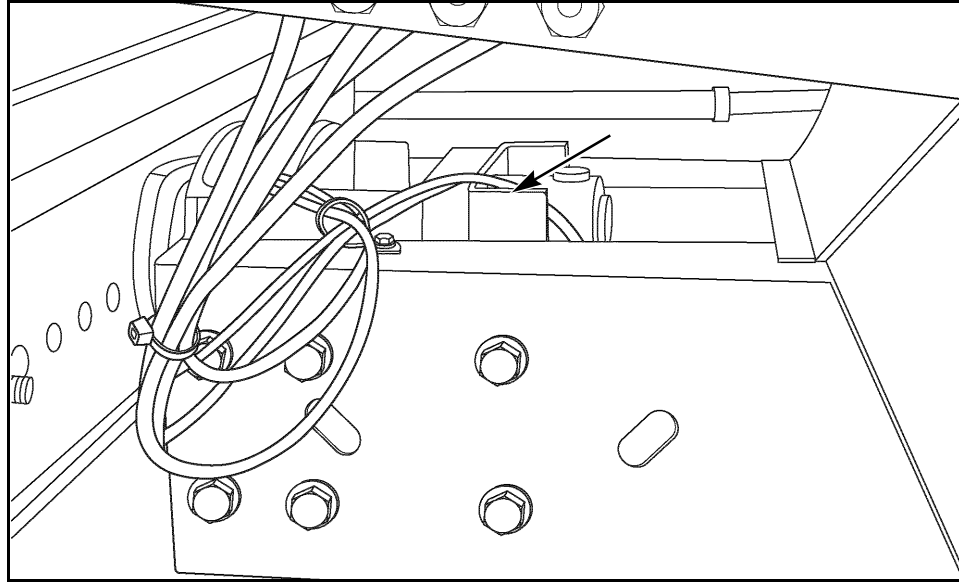
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MACHINE SIDE VIEW

RECOMMENDED TOE IN

REAR AXLE TYPE	TOE IN RANGE
NON POWER GUIDE	6 TO 16 mm (0.25 TO 0.625 INCH)
POWER GUIDE	2 TO 13 mm (0.0625 TO 0.5 INCH)

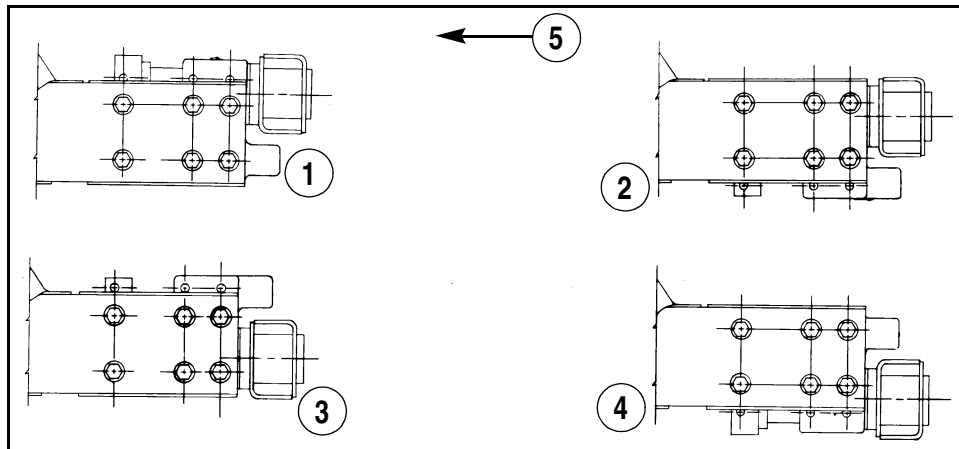
## Pivot Support Positions



RD01H022

The Combine steering axle pivot support is adjusted for the tire and axle combination installed at the factory. The axle pivot support must be changed to level the Combine when the tire size combination or the drive axle clearance has been changed.

The steering axle pivot support can be installed in four different positions. The four positions are as follows:



160L8

1. POSITION 1  
2. POSITION 2

3. POSITION 3  
4. POSITION 4

5. FRONT OF Combine

Change the position of the pivot support for the drive tire and steering tire combinations as listed in the charts on the next page.

**NOTE:** For non-powered guide axle, the axle center section must be oriented as shown in the illustration.

## 7 - TIRES/WHEELS/TRACKS/SPACING/BALLAST

**NOTE:** All Rice Combines are built in high clearance. All Corn/Grain Combines are built in low clearance.

STEERING WHEEL TIRE SIZE	DRIVE WHEEL SIZE/AXLE CLEARANCE				
	18.4-R38 LOW	18.4-R38 HIGH	24.5-32 LOW	24.5-32 HIGH	900/65R32 HIGH
	R1,R2	R1,R2	R1	R1	R2
14.9-24 R4	1	2	1	2	4
19.5L-24 R4	1	2	1	2	4
500/70R24 R4	1	2	1	2	4
16.9-26 R1	2	4	2	4	NR
18.4-26 R1	2	3	2	3	4
18.4-26 R2	2	3	2	3	4
600/65-R28 R1W	2	3	2	3	4
18.4-30 R2	2	2	2	3	4

STEERING WHEEL TIRE SIZE	DRIVE WHEEL SIZE/AXLE CLEARANCE									
	30.5L-32 LOW			30.5L-32 HIGH			18.4-R42 LOW	18.4-R42 HIGH	900/60-R32	
	R1	R2	R3	R1	R2	R3	R1	R1	LOW R1W	HIGH R1W
14.9-24 R4	1	1	1	2	2	2	1	2	1	3
19.5L-24 R4	1	1	1	2	2	1	1	2	1	3
500/70R24 R4	1	1	1	2	2	1	1	2	1	3
16.9-26 R1	2	2	2	4	4	4	2	4	3	4
18.4-26 R1	2	2	2	4	4	3	2	3	2	4
18.4-26 R2	2	2	2	4	4	3	2	3	2	4
600/65-R28 R1W	2	2	2	3	3	3	2	3	2	4
18.4-30 R2	2	2	2	3	3	2	2	3	2	3

NR = Not Recommended



## 7 - TIRES/WHEELS/TRACKS/SPACING/BALLAST

STEERING WHEEL TIRE SIZE	DRIVE WHEEL SIZE/AXLE CLEARANCE	
	20.8-R42 LOW	20.8-R42 HIGH
	R1	R1
14.9-24 R4	2	3
19.5L-24 R4	2	3
500/70R24 R4	2	3
16.9-26 R1	4	NR
18.4-26 R1	3	4
18.4-26 R2	3	4
600/65-R28 R1W	3	4
18.4-30 R2	2	4

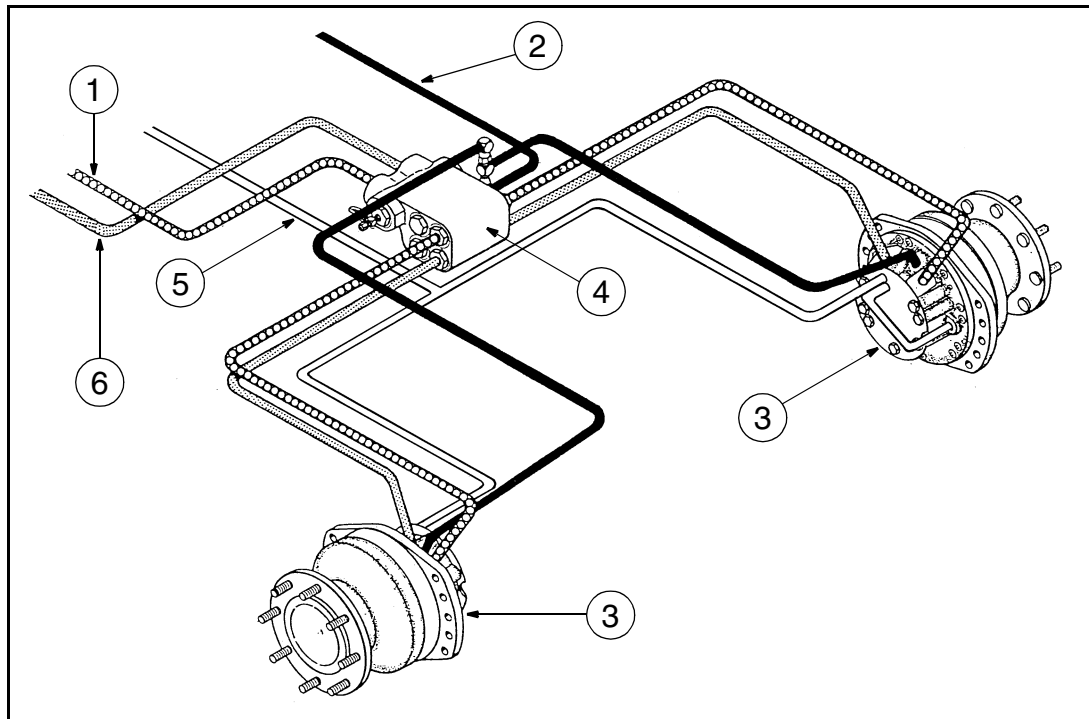
STEERING WHEEL TIRE SIZE	DRIVE WHEEL SIZE/AXLE CLEARANCE							
	20.8-38 LOW		20.8-38 HIGH		76 x 50.00-32 LOW	76 x 50.00-32 HIGH	800/65 R32 LOW	800/65 R32 HIGH
	R1	R2	R1	R2	HF3	HF3	R1W	R1W
14.9-24 R4	1	1	3	3	2	4	1	2
19.5L-24 R4	1	1	3	3	2	4	1	2
500/70R24 R4	1	1	3	3	2	4	1	2
16.9R26 R1W	2	2	NR	NR	4	NR	2	3
18.4-26 R1	2	2	4	4	4	NR	2	3
18.4-26 R2	2	2	4	4	4	NR	2	3
600/65-R28 R1W	2	2	4	4	4	NR	2	3
18.4-30 R2	2	2	3	3	3	4	2	2

**NOTE:** All Rice Combines are built in high clearance. All Corn/Grain Combines are built in low clearance.

NR = Not Recommended

## POWER GUIDE WHEEL DRIVE (If Equipped)

The hydraulic rear wheel drive provides additional propulsion for extreme operating conditions (mud) and assistance to steering. This is accomplished by directing oil flow from the hydrostatic drive high pressure tubes through a directional control valve to a hydraulic motor in each rear wheel. The control valve provides a positraction effect in both forward and reverse.



536L9

1. REVERSE HIGH PRESSURE  
2. RETURN FLUID

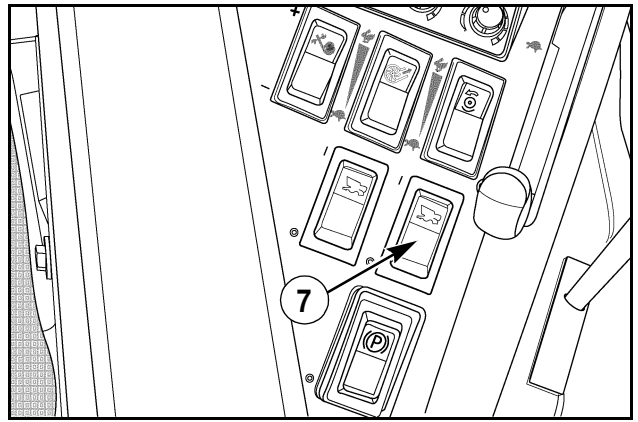
3. WHEEL MOTORS  
4. SELECTOR VALVE

5. CASE DRAIN  
6. FORWARD HIGH PRESSURE

When the Power Guide Wheel Drive is engaged the amount of wheel torque obtained is strictly a function of hydrostatic pressure. The higher gear selection you have the higher your hydrostatic system pressure will be. For this reason you will actually get a higher percentage of power assist from the Power Guide Wheel Drive in higher gear ranges.

It is best to use the Power Guide Wheel Drive at all times when working in the field. These advantages are gained: first, you will be operating at lower system pressure, extending the life of the main hydrostatic transmission and gear train; second, you will have improved steering obtained through powering the rear steerable wheels; and finally, running at lower systems pressure will normally lower the hydrostatic oil temperature.

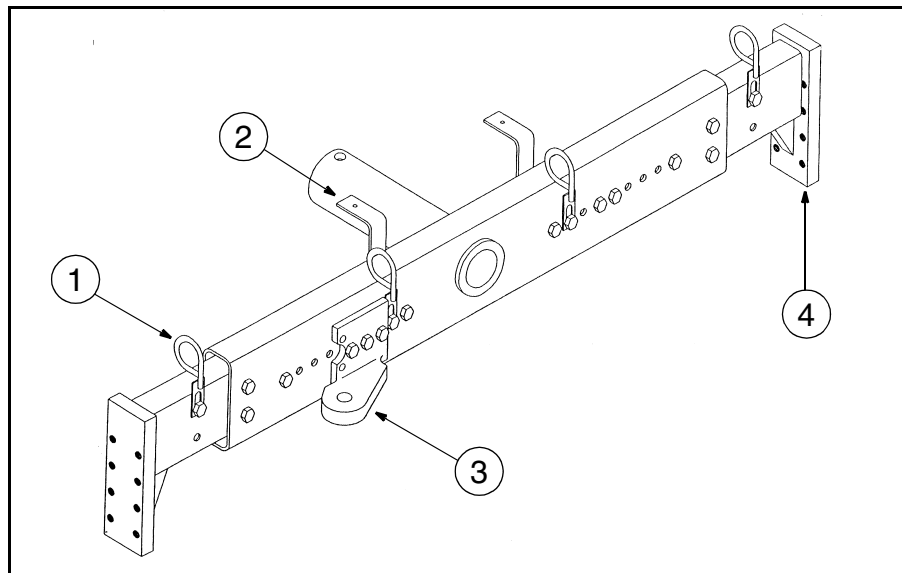
The Power Guide Wheel Drive is engaged by a switch (7) on the console that energizes the solenoid to activate the valve. The drive may be engaged or disengaged at any time. When engaged the ground speed will decrease.



A24293

For operating the Combine on roads switch the Power Guide Wheel Drive to OFF to obtain high road speeds. The wheel motors automatically free wheel when the Power Guide Wheel Drive is turned OFF. There is no limit to the distance the machine can be operated on the road.

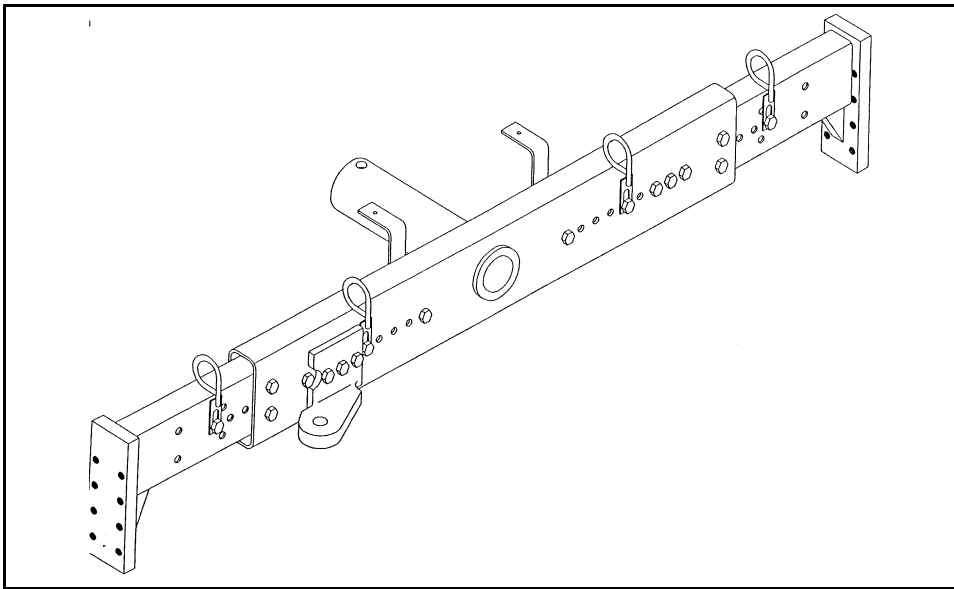
The Case installed attachment is built at 3 048 mm (120 inch) tread center. If a larger tread center is desired see the following illustrations:



RH97G017

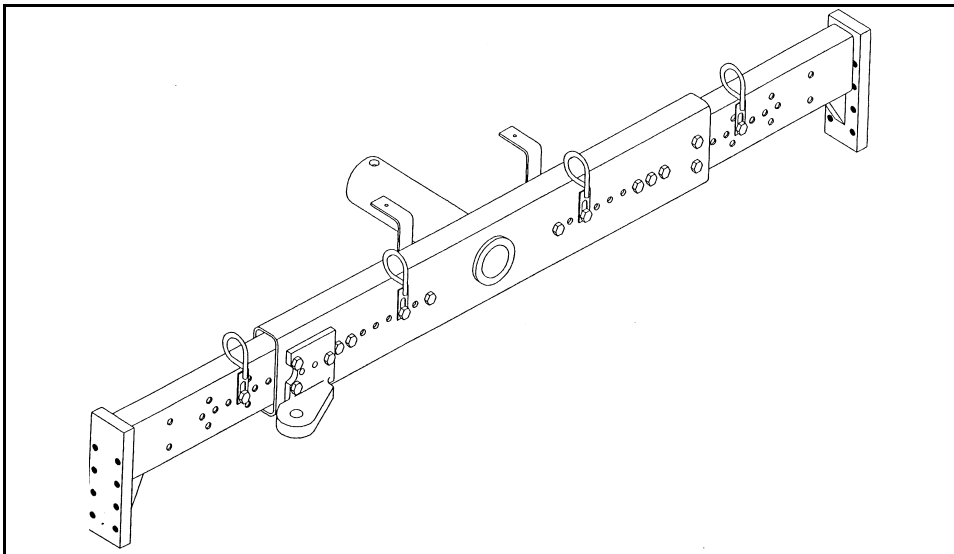
- |                           |                              |
|---------------------------|------------------------------|
| 1. HOSE GUIDES            | 3. STEERING CYLINDER BRACKET |
| 2. VALVE SUPPORT BRACKETS | 4. AXLE STUB                 |

**3048 mm (120 INCH) TREAD CENTER**



RH97G018

**3353 mm (132 INCH) TREAD CENTER**

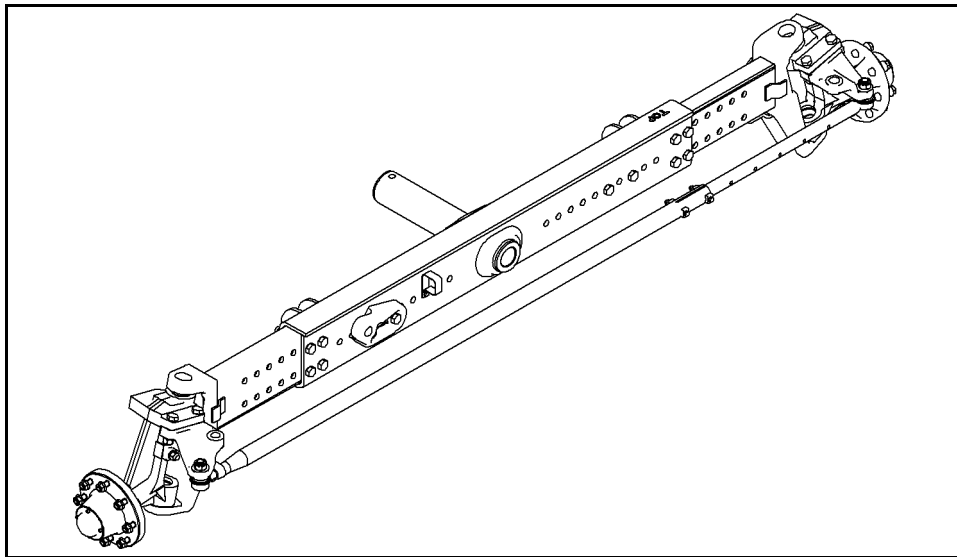


RH97G019

**3658 mm (144 INCH) TREAD CENTER**

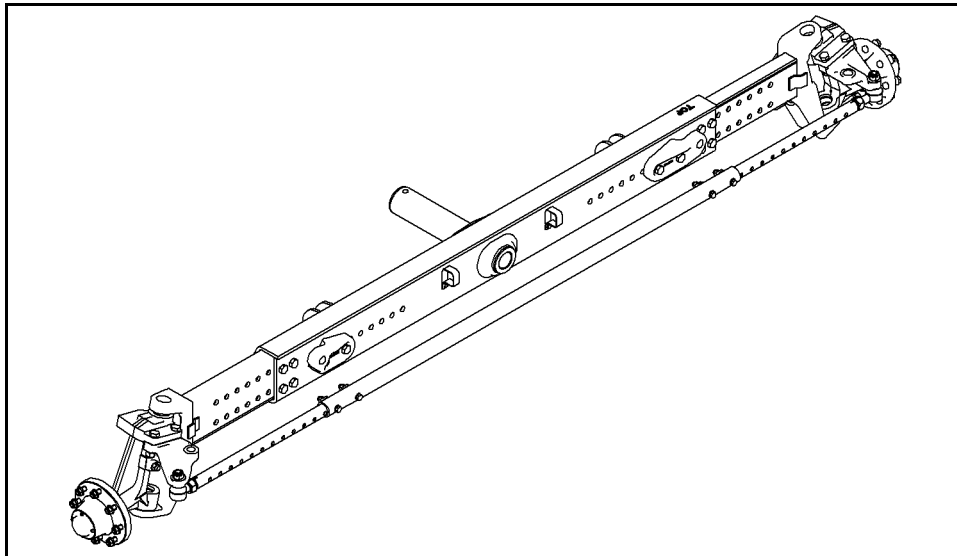
Move the stub axles, hose guides and steering cylinder bracket to the positions shown for tread center required.

**NOTE:** *Machines with 18.4-30 R2 tires or 600/65-R28 RIW tires will be shipped from the manufacturer with 120 inch tread width steering axle and tires shipped loose on truck. Before mounting the tires, extend steering axle to 144 inch tread width. If this is not done, tires will damage the Combine elevator shields.*



RI06E073

**104 TO 120 INCH ADJUSTABLE NON POWER GUIDE AXLE**  
**3048 mm (120 INCH) TREAD CENTER SHOWN**



RI06E072

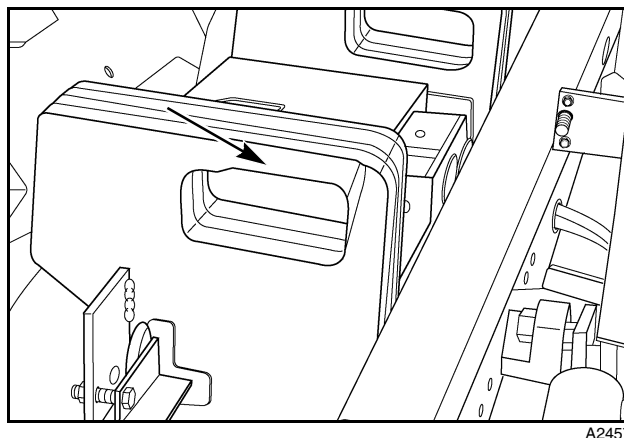
**120 TO 144 INCH ADJUSTABLE NON POWER GUIDE AXLE**  
**3658 mm (144 INCH) TREAD CENTER SHOWN**

Torque 3/4 inch axle clamping bolts to 450 Nm (330 pound foot) after adjusting rear axle tread width. Check the bolt torque after the first hour of operation, then every 10 hours of operation for the first week.

## STEERING AXLE WEIGHTS - BALLAST

### Combines without Power Guide Wheels

With some grain headers and corn heads, additional weight on the steering axle is required for safe operation. The steering axle weight bracket and 100 pound weights are available from your dealer. A maximum of 16 weights, 727 kg (1600 pounds) can be used.



HEADER TYPE	HEADER SIZE Ft (m)	POUNDS (kg) REQUIRED
1010 GRAIN HEADER	15.0 (4.57)	0
	17.5 (5.33)	0
	20.0 (6.10)	0
	22.5 (6.86)	0
	25.0 (7.62)	400 (182)
	30.0 (9.14)	1000 (454)
1020 GRAIN HEADER	15.0 (4.57)	0
	16.5 (5.03)	0
	17.5 (5.33)	0
	20.0 (6.10)	0
	22.5 (6.86)	600 (272)
	25.0 (7.62)	800 (364)
	30.0 (9.14)	*1400 (545)

HEADER TYPE	HEADER SIZE Ft (m)	POUNDS (kg) REQUIRED
2042 DRAPER HEADER	30.0 (9.14)	1000 (454) (NOTE 2)
	36.0 (10.97)	*1400 (545) (NOTE 2)
2052 DRAPER HEADER	21.0 (6.40)	800 (364)
	25.0 (7.62)	1000 (454)
	30.0 (9.14)	*1400 (545) (NOTE 2)
	36.0 (11.0)	*1800 (818) ** (NOTE 1 and 2)
	39.0 (11.9)	*2000 (909)** (NOTE 1 and 2)
2062 DRAPER HEADER	30.0 (9.14)	*1800 (818) ** (NOTE 1 and 2)
	36.0 (11.0)	*2200 (998) ** (NOTE 1 and 2)

Chart based on Combines with standard tires and axle in low position.

\* Use steering axle weights or wheel weights plus a calcium chloride solution of 3.5 lb. (1.6 kg) per 1 gallon (3.8 L) of water to the steering tires. 75% fill in 14.9-24R4 tires equals 215 kg (474 pounds) each. 75% fill in 19.5L-24 R4 or 500/70 R24 tires equals 318 kg (700 pounds) each.

\*\* 14.9-24 R48PR tires not recommended for this application.

**NOTE 1** - Requires Combine equipped with 3 feeder lift cylinders and 2 steering cylinders.

**NOTE 2** - Weights are for gauge wheels and plastic tine reel, add 181.4 kg (400 pounds) for steel tine reel and add 126.1 kg (300 pounds) for transport wheel package.

## 7 - TIRES/WHEELS/TRACKS/SPACING/BALLAST

CORN HEAD MODEL	CORN HEAD ROW SIZE INCHES (mm)	POUNDS (kg) REQUIRED
1044	36, 38 AND 40 INCH (914, 965 AND 1016 mm)	0
1054	36, 38 AND 40 INCH (914, 965 AND 1016 mm)	0
1063	28 AND 30 INCH (711 AND 762 mm)	0
1064	36, 38 AND 40 INCH (914, 965 AND 1016 mm)	400 (181)
1083	28 AND 30 INCH (711 AND 762 mm)	800 (364)
1084	36, 38 AND 40 INCH (914, 965 AND 1016 mm)	*1400 (635)
2206	30 INCH (762 mm)	400 (181)
2206	36 AND 38 INCH (914 AND 965 mm)	800 (363)
2208	22 INCH (559 mm)	1000 (454)
2208	30 INCH (762 mm)	*1600 (748)
2208	36 AND 38 INCH (914 AND 965 mm)	*2000 (907) **

Chart based on Combines with standard tires and axle in low position.

\* Use steering axle weights or wheel weights plus a calcium chloride solution of 3.5 lb. (1.6 kg) per 1 gallon (3.8 L) of water to the steering tires. 75% fill in 14.9-24R4 tires equals 215 kg (474 pounds) each. 75% fill in 19.5L-24 R4 or 500/70R24 R4 tires equals 318 kg (700 pounds) each.

\*\* 14.9-24 R4 8PR tires not recommended for this application.



**WARNING:** *Mixing solution and changing tires can be dangerous and should be done by trained personnel. See your dealer for this service.*

M196A

### Liquid Ballast in Tires

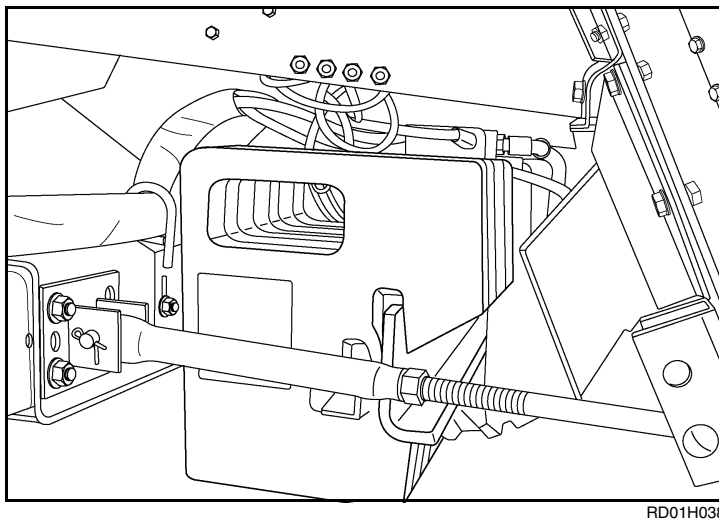
#### Combines with Power Guide Wheels

If the Combine is equipped with power guide wheel drive, steering axle weights can be used. Subtract 181 kg (400 lb.) from the weights shown in the charts for Combines without power guide wheels and add calcium chloride solution to the steering axle tires to obtain proper Combine balance. If additional traction is desired 75% fill of 3.5 lb./gal calcium chloride in each 16.9 x 26 tire will provide 301 kg (663 pounds), 365 kg (805 pounds) in each 18.4 x 26 tire, 414 kg (912 pounds) in each 18.4 x 30 tire and 462 kg (1018 pounds) in each 600/65-R28 Tire. **DO NOT exceed the 75% fill.**

**NOTE:** *The above paragraph is for Combines without the 12 Row Ready Package. For Combines with the 12 Row Ready Package refer to next page.*

## Ballast Requirements For 2212 Corn Head

**NOTE:** 12-ROW READY Combine **REQUIRED**



**STEERING AXLE SUITCASE WEIGHTS**

The 12 Row Ready Combine is equipped with heavy duty power guide axle with dual steering cylinders, 1,600 pounds (726 kg) of suitcase weights and a third feeder lift cylinder.

**NOTE:** Chart for Power Guide Axle Combines

CORN HEAD MODEL	CORN HEAD ROW SIZE INCHES (mm)	AMOUNT OF CALCIUM CHLORIDE SOLUTION REQUIRED IN STEERING TIRES
2212	20 INCH (508 mm)	400 POUNDS (181 kg)
2212	22 INCH (559 mm)	400 POUNDS (181 kg)
2212	30 INCH (762 mm)	1000 POUNDS (454 kg)

**NOTE:** Requires 18.4-26 10 PR or 600/65R28L1, 600/65R28 LI 147 Power Guide axle steering tires or 19.5L24 R4 or 500/70R24 R4 Non Power Guide axle steering tires. Refer to tires, maximum header size for drive tire requirements.

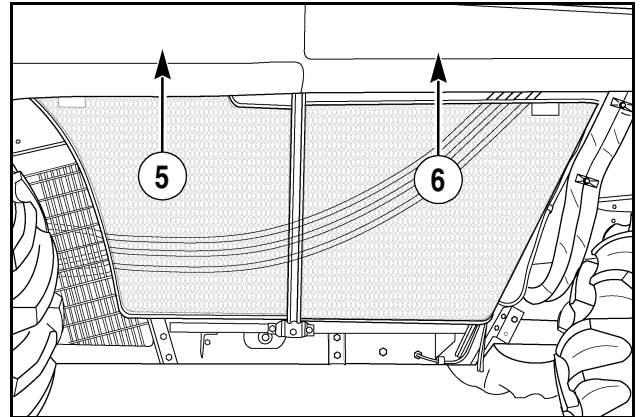
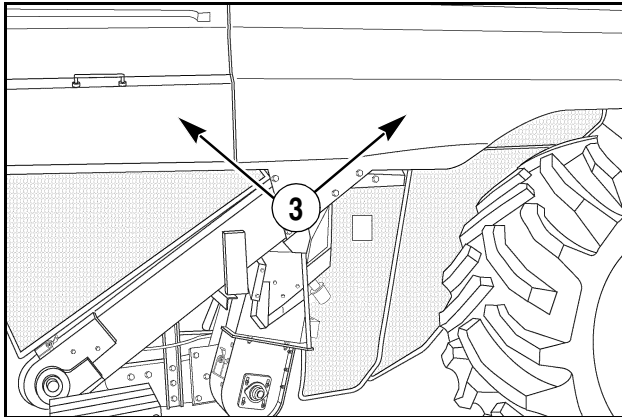
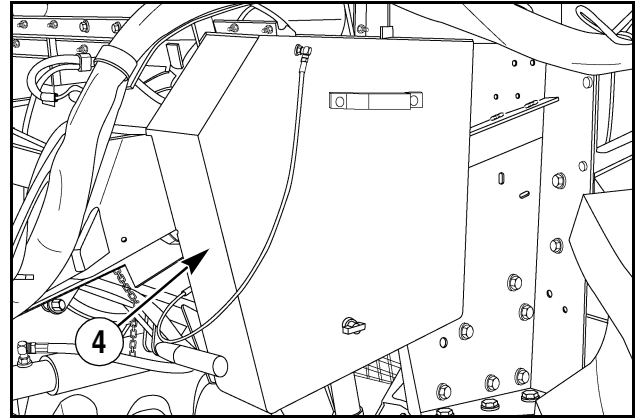
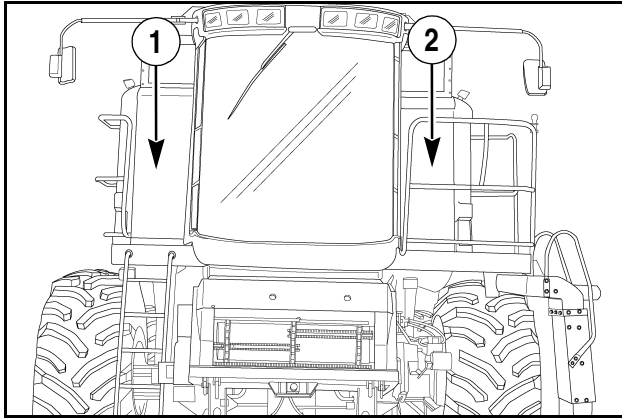
**NOTE:** Increase above weights by 400 pounds (182 kg) or use wheel weights for Combines without Power Guide axles.



## SHIELDS AND SIDE PANELS

To do maintenance on the different Combine systems the shields and side panels may have to be opened or removed.

**ATTENTION:** ALWAYS close or install shields and side panels to field operation position before operating the machine in the field.

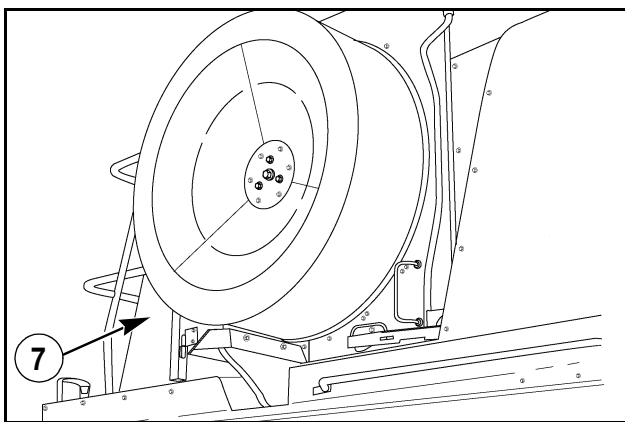


- 1. RIGHT SERVICE DOOR
- 2. LEFT SERVICE DOOR

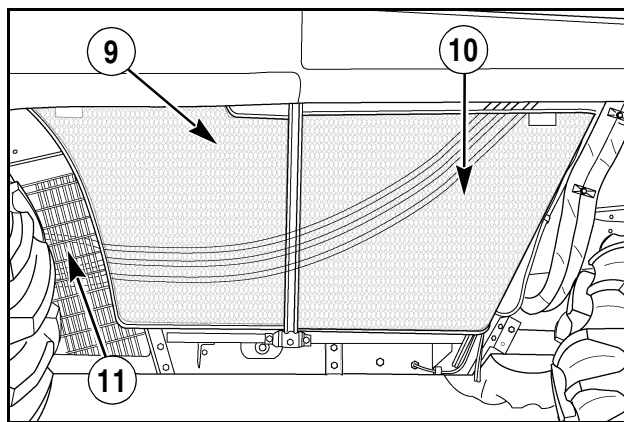
- 3. RIGHT FRONT AND REAR SIDE PANEL
- 4. ROCKTRAP SHIELD

- 5. LEFT FRONT SIDE PANEL
- 6. LEFT REAR SIDE PANEL

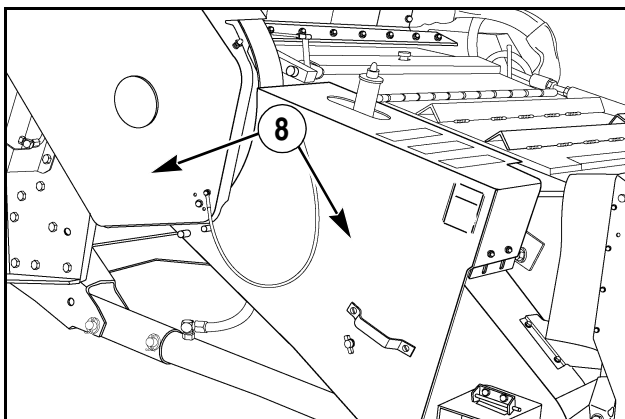
## 8 - LUBRICATION/FILTERS/FLUIDS



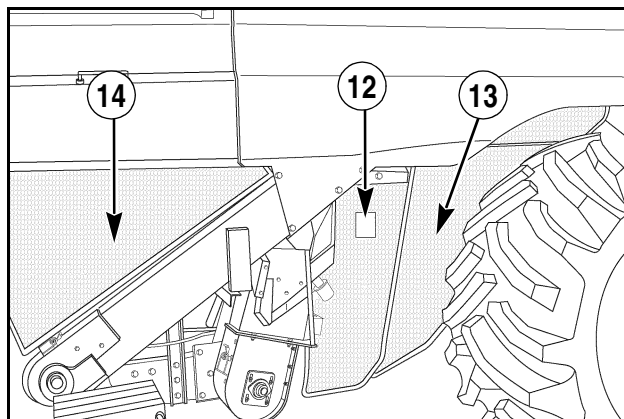
RD06C044



RD00E023



RD00H016



RD04E023

- 7. ROTARY AIR SCREEN SIDE PANEL
- 8. FEEDER DRIVE SHIELDS
- 9. LEFT SIDE FRONT SCREEN

- 10. LEFT SIDE REAR SCREEN
- 11. CLEANING FAN SCREEN
- 12. RIGHT SIDE MIDDLE SCREEN

- 13. RIGHT SIDE FRONT SCREEN
- 14. RIGHT SIDE REAR SCREEN



**WARNING:** Rotating machine parts, stay clear, keep shields installed to help protect from clothing entanglement and injury. Wear close-fitted clothing.

M124A

## ENGINE HOURMETER

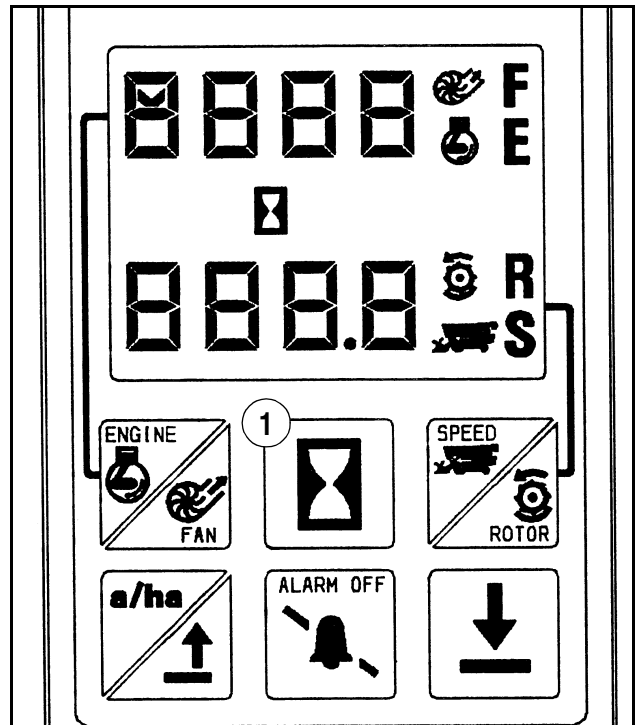
Service the Combine at the intervals and locations given on the Lubrication Charts. Use only high quality lubricants when servicing the Combine.

The engine HOURMETER will display the total hours that the Combine engine has been operated.

To display engine hours press the HOURMETER switch (1). The engine hours will be displayed on the upper display of the digital tachometer. To determine tenths of an hour, press the HOURMETER switch again within 4 seconds. The display will flash tenths of an hour.

Use the HOURMETER with the lubrication charts to service the Combine at the correct service intervals.

**NOTE:** The HOURMETER switch will function even if the key switch is in the OFF position.



RH97H012

## ENVIRONMENT

Before you service this machine and before you dispose of the old fluids and lubricants, always remember the environment. DO NOT put oil or fluids into the ground or into containers that leak.

Check with your local environmental or recycling center or your dealer for correct disposal information.

## PLASTIC AND RESIN PARTS

Avoid using gasoline, kerosene, paint thinner, etc., when cleaning the instrument cluster, gauges, console, plastic windows, etc. Use ONLY water, mild soap and a soft cloth when you clean these parts.

Using gasoline, kerosene, thinners, etc., will cause discoloration, cracking or deformation of the part being cleaned.

## LUBRICATION/MAINTENANCE CHART

SERVICE POINTS	FREQUENCY IN HOURS				
	C L E A N	C H A N G E	C H E C K	G R E A S E	D R A I N
Grease Fittings (Note 1)				10	
Engine Oil Level			10		
Coolant Reservoir Level			10		
Hydraulic Reservoir Fluid Level			10		
Wheel Bolt Torques (Note 2)			10		
Alternator Screen	10				
Unloader Drive Chain (Note 3)				10	
Horizontal Auger Chain (Note 3)				10	
Tailings Elevator Chain (Note 3)				10	
Grain Elevator Chain (Note 3)				10	
Grease Fittings (Note 1)				50	
Water Separator Filter (Note 4)		AR			50
Tire Pressures (Note 5)			50		
PTO Fluid Level			100		
Cleaning Fan and Feeder Oil Level			100		
Lower Unloader Gear Case Oil Level			100		
Rotor Gear Case Oil Level			100		
Straw Chopper Fluid Level (If Equipped)			100		
Grease Fittings (Note 1)				100	
Transmission Oil Level			100		
Final Drive Fluid Level			100		
Battery Water Level (Note 6)			100		
Track Pivot (If Equipped) (Note 1)				100	
Feeder Reverser Gear Case			100		
Hydraulic Reservoir Breather	100				
Radiator Coolant Level			250		
Coolant System Hose Clamps			250		
Coolant Filter		250			
Engine Oil and Oil Filter		300			
PTO Fluid		500			
Engine Fuel Filter (Note 7)		500			
Grease Fittings (Note 1)				500	
Feeder and Cleaning Fan Gear Case Oil		500			

## 8 - LUBRICATION/FILTERS/FLUIDS

SERVICE POINTS	FREQUENCY IN HOURS				
	C L E A N	C H A N G E	C H E C K	G R E A S E	D R A I N
Feeder Reverser Gear Case)		500			
Lower Unloader Gear Case Oil		500			
Rotor Gear Case Oil		500			
Straw Chopper Fluid (If Equipped)		500			
Hydraulic Oil and Filters		1000			
Engine Valve Adjustment (See Your Dealer)			1000		
Coolant System Fluid		2000			
Coolant Conditioner		2000			
Fuel Injection Nozzles (Note 10)		2000			
Steering Wheel Bearings (Note 1)				AN	
Transmission Fluid		AN			
Final Drive Fluid		AN			
Primary Air Filter Element (Note 8)	AR	AN			
Secondary Air Filter Element (Note 9)		AN			
Cab Air Filter	AR				
Cab Recirculation Air Filter	AR				
Radiator and Oil Cooler	AR				
Accumulator (Note 10)	AR				

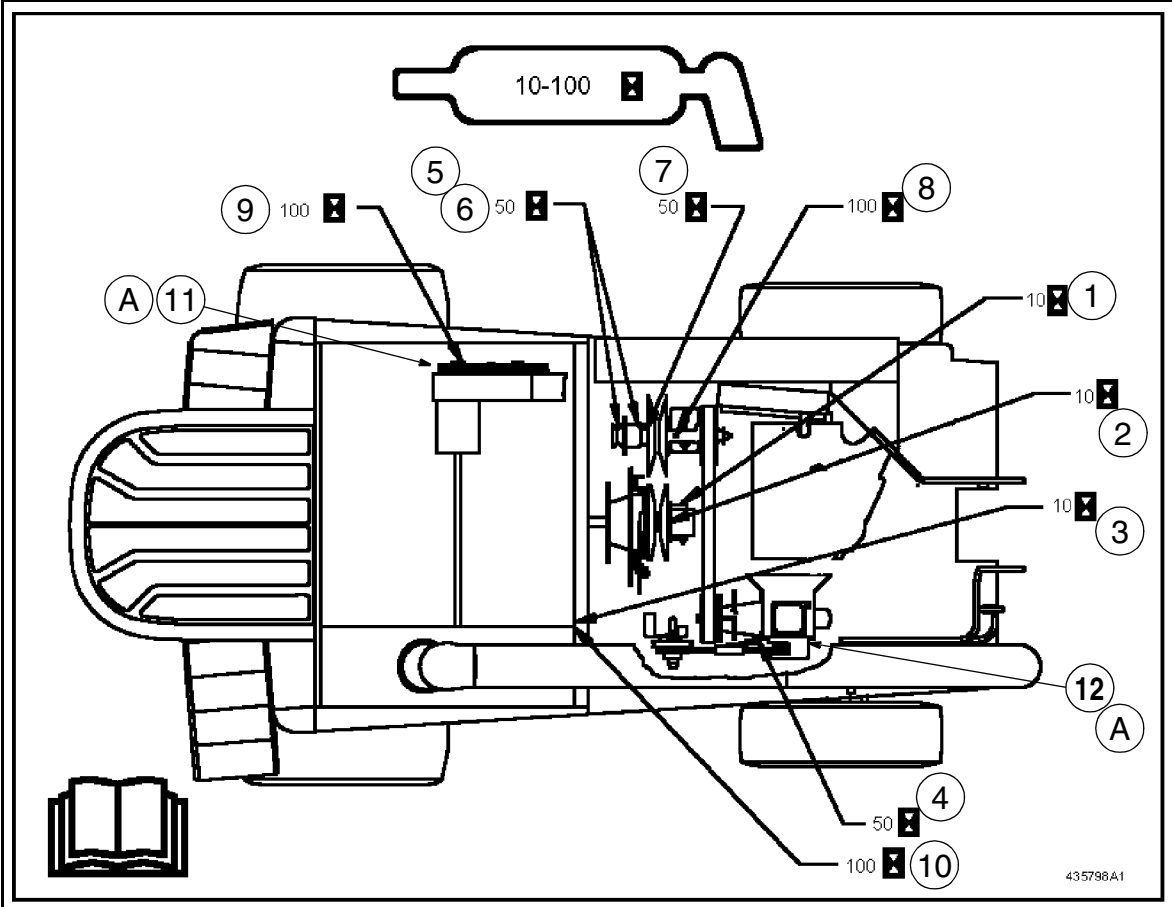
### Notes:

1. Use CASE IH 251H EP grease or equivalent NLGI No. 2 Multi-Purpose Lithium Grease.
2. Check the wheel bolts and nuts after the first hour of operation, then every 10 hours during the first week of operation, then every 100 hours thereafter.
3. Use CASE IH Chain and Cable Lube (M20832).
4. Replace if a loss of horsepower occurs.
5. Check the tire pressures weekly or every 50 hours.
6. Check the water level every 100 hours or every 3 months.
7. Replace the filter when a loss of horsepower occurs or every 500 hours.
8. Clean the element when the air filter restriction indicator is ON. Replace the element after 3 cleanings or annually.
9. Change the secondary element whenever the primary element is changed. DO NOT clean the secondary element.
10. See your dealer to have this service performed.

AR = As Required

AN = Annually

GREASE FITTINGS - TOP

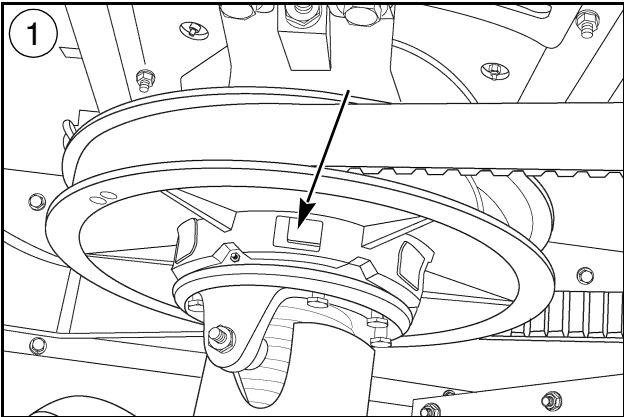


A. 500 HOURS

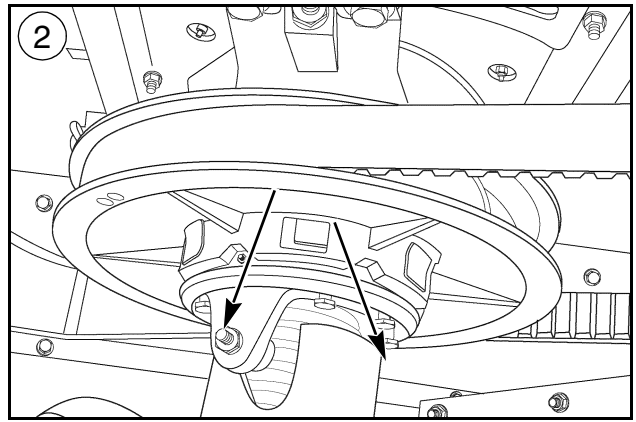
435798A1

10 Hours

Rotor Driven Pulley (1) - Use CASE IH 251H EP.  
Pump until grease comes out of rear seal.

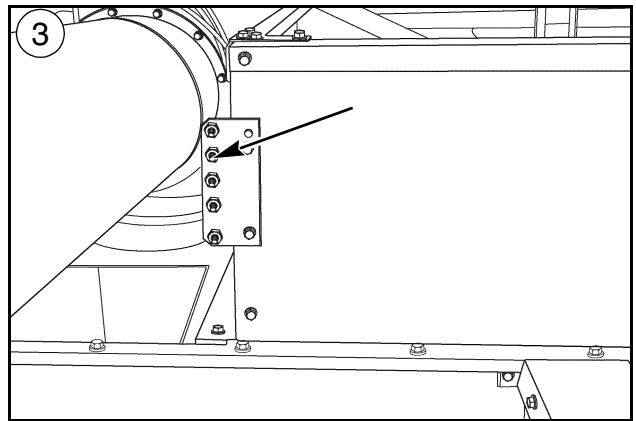


Rotor Drive Cam Bearings (2)



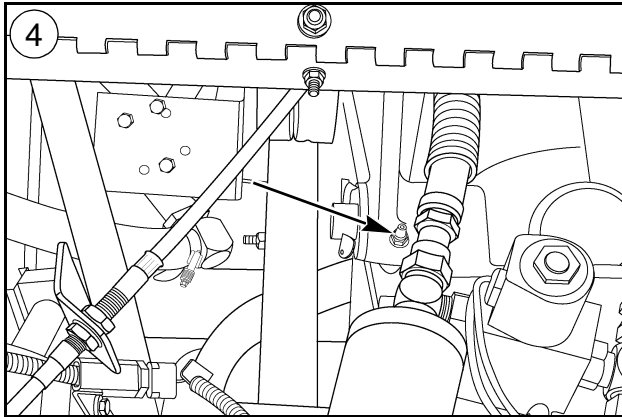
RD05F091

Unloader Tube Pivot Lube Bank Top (4)



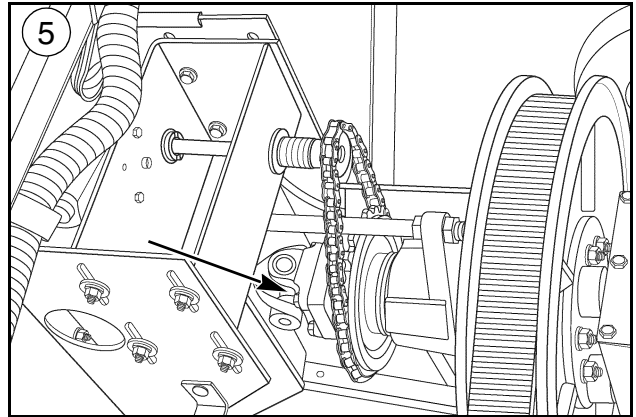
RD02E159

**50 Hours**



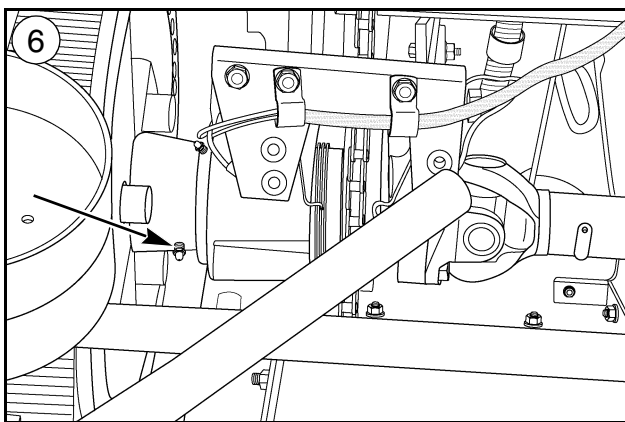
RD00H036

Auxiliary Pump Tensioner Arm

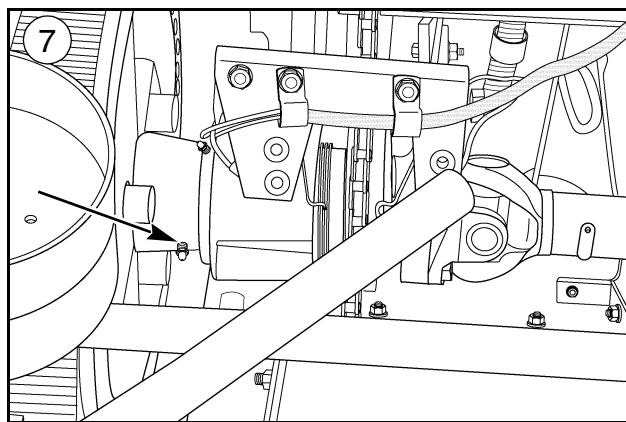


RD02E216

Rotor Speed Control - Front (1)

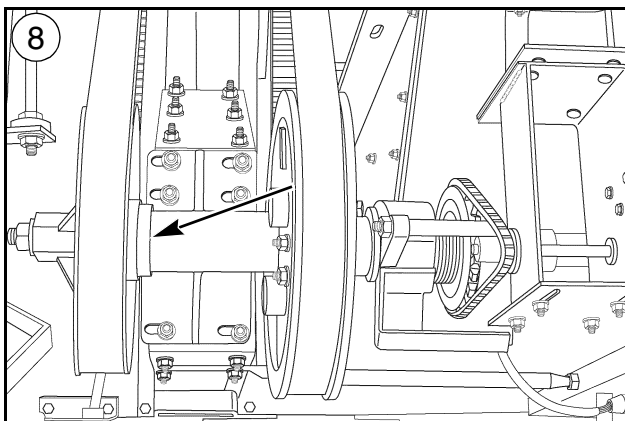


Rotor Drive Pulley (1)

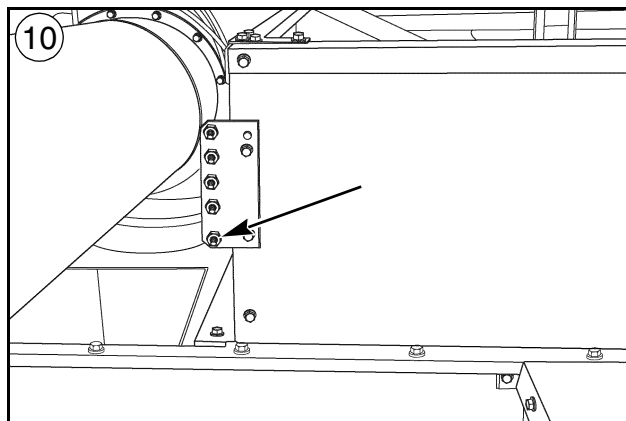


Rotor Speed Control - Rear (1), two pumps only

**100 Hours**



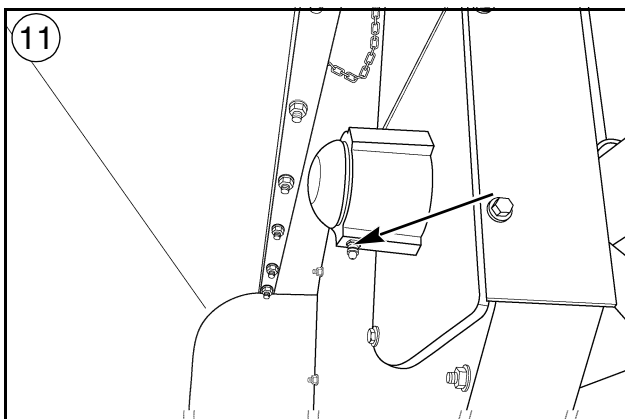
Separator Jackshaft (1)



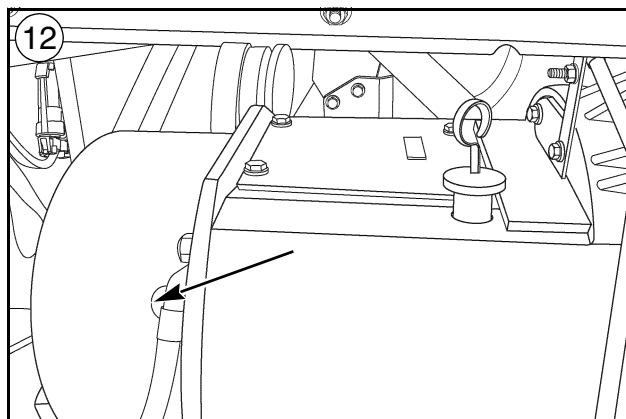
Unloader Auger Upper Elbow Gearbox On Lube Bank Bottom (1)

**NUMBER 9** - Not used in this application.

**500 Hours**



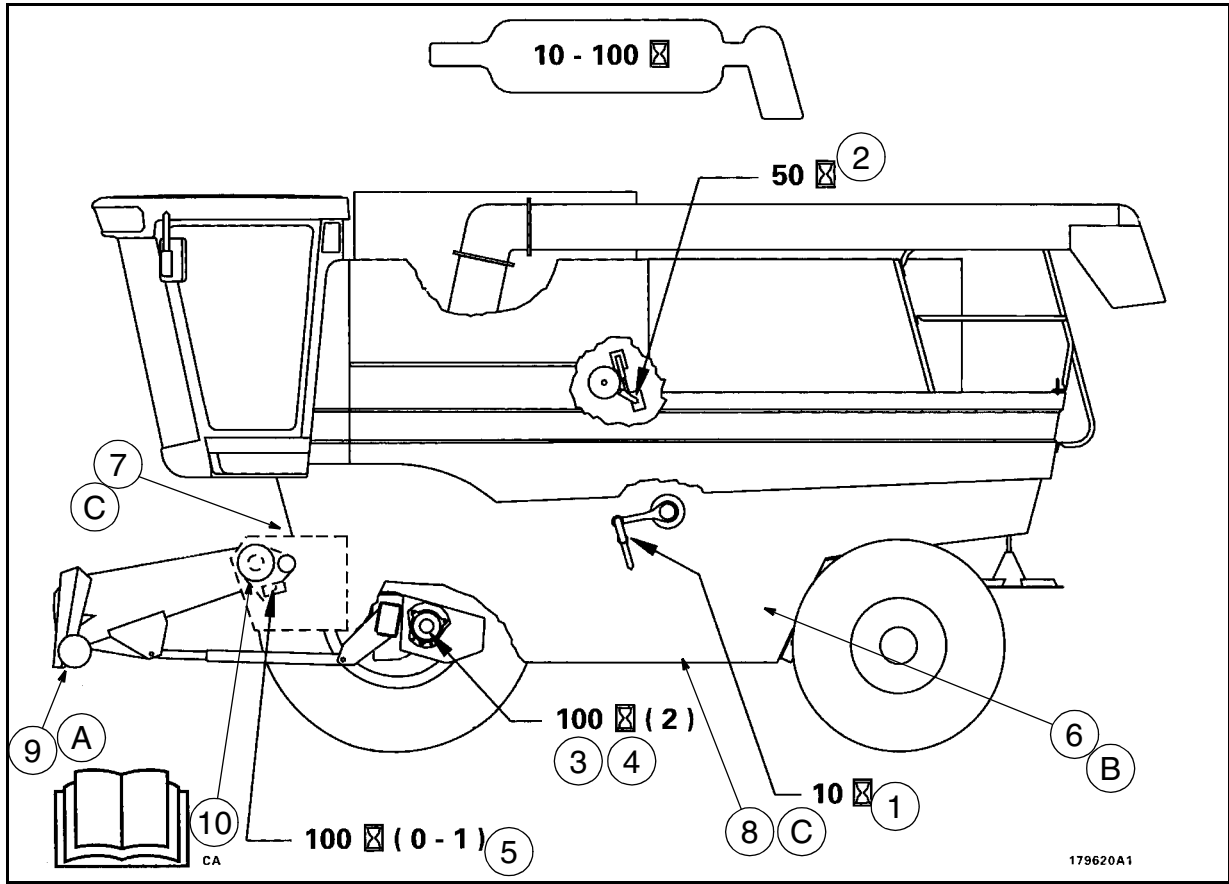
Inclined Auger Lower Bearing (1)



Auxiliary Pump Pulley Hub (1)



**GREASE FITTINGS - LEFT SIDE**



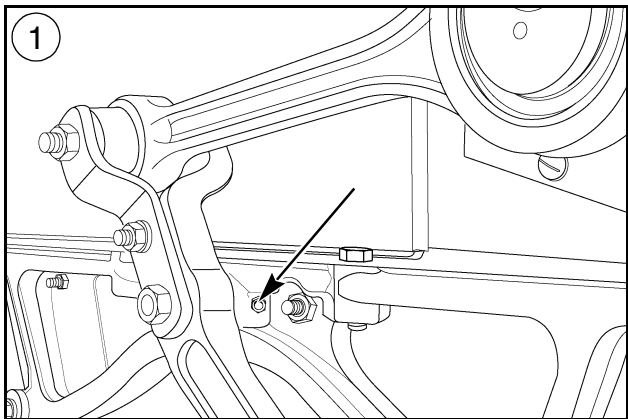
A. ANNUALLY

B. 100 HOURS

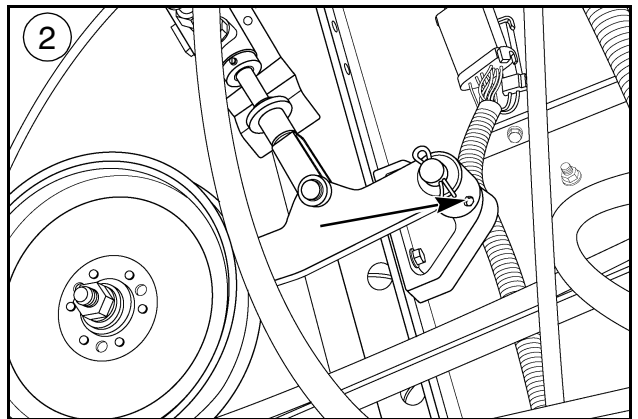
C. 500 HOURS

**10 Hours**

**50 Hours**

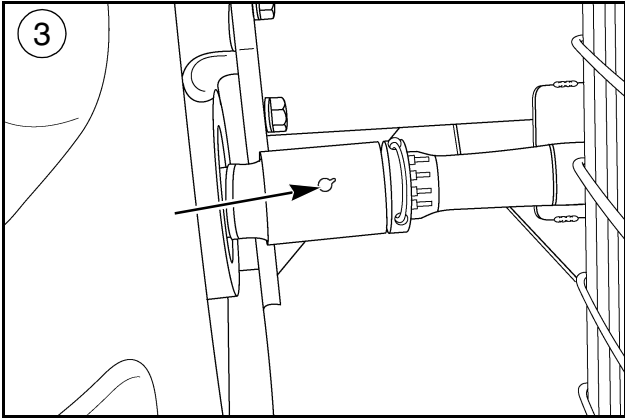


Chaffer Hanger (1)

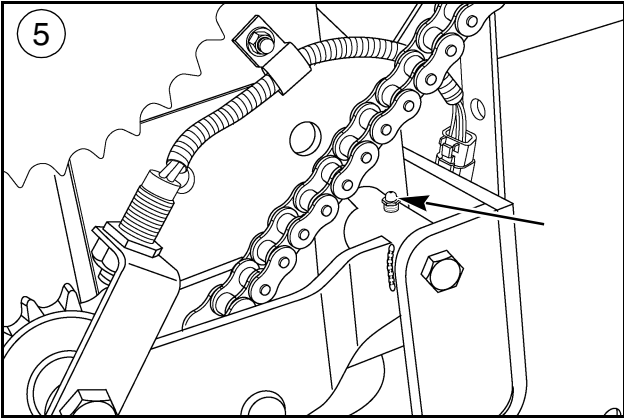


Unloader Drive Tightener Arm

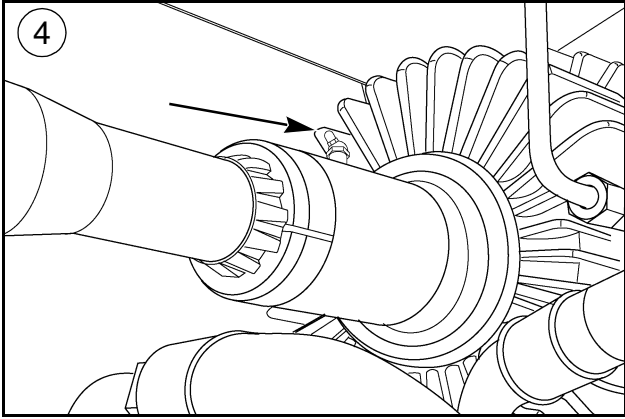
100 Hours



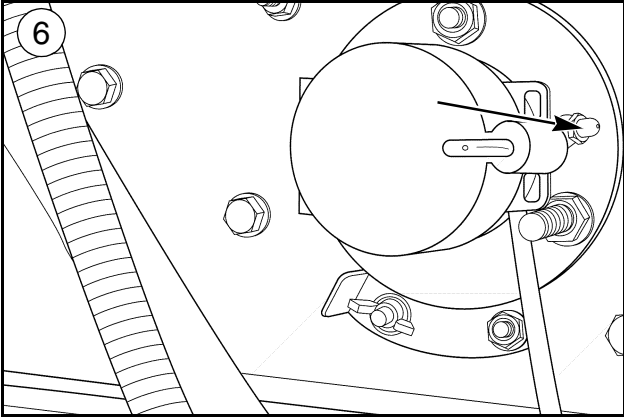
Drive Wheel Coupling - Outer (1)



Rock Trap Idler Arm (1).

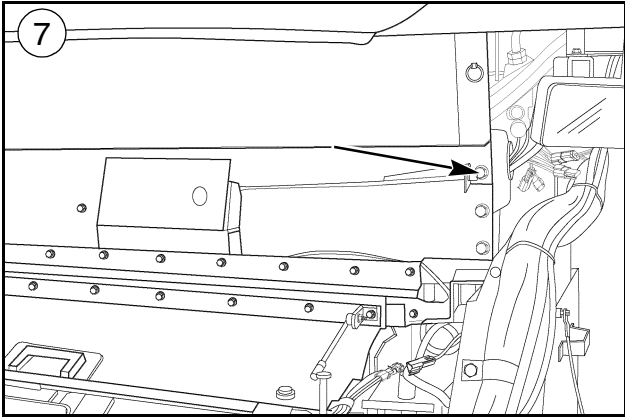


Drive Wheel Coupling - Inner (1)

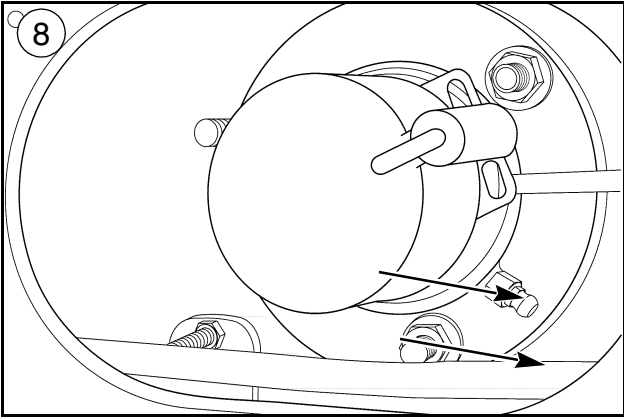


Tailings Lower Auger Shaft (1)

500 Hours

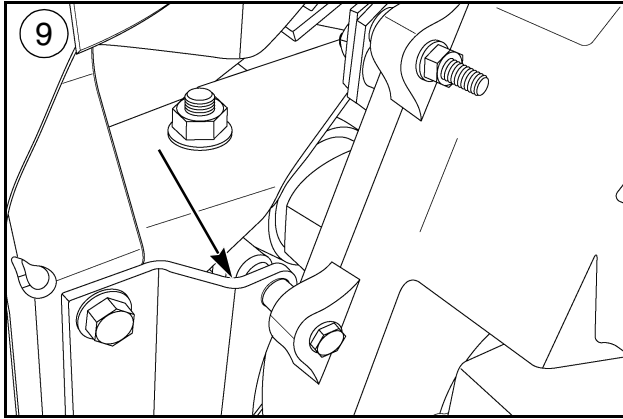


Rotor Front Bearing (1)



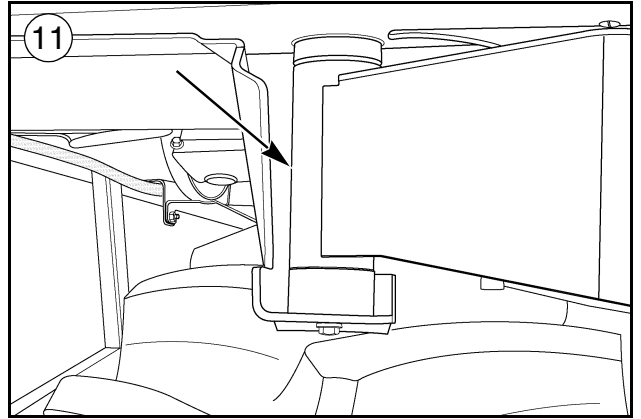
Clean Grain Auger Shaft (1)

## Annually



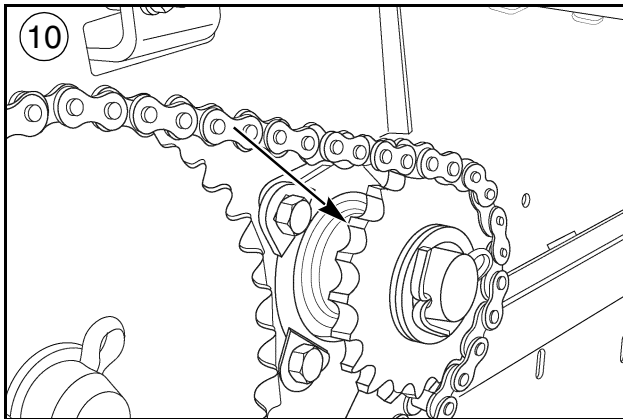
RD00F034

Feeder Shaft Bearing - Grease Annually (1).



RD98G103

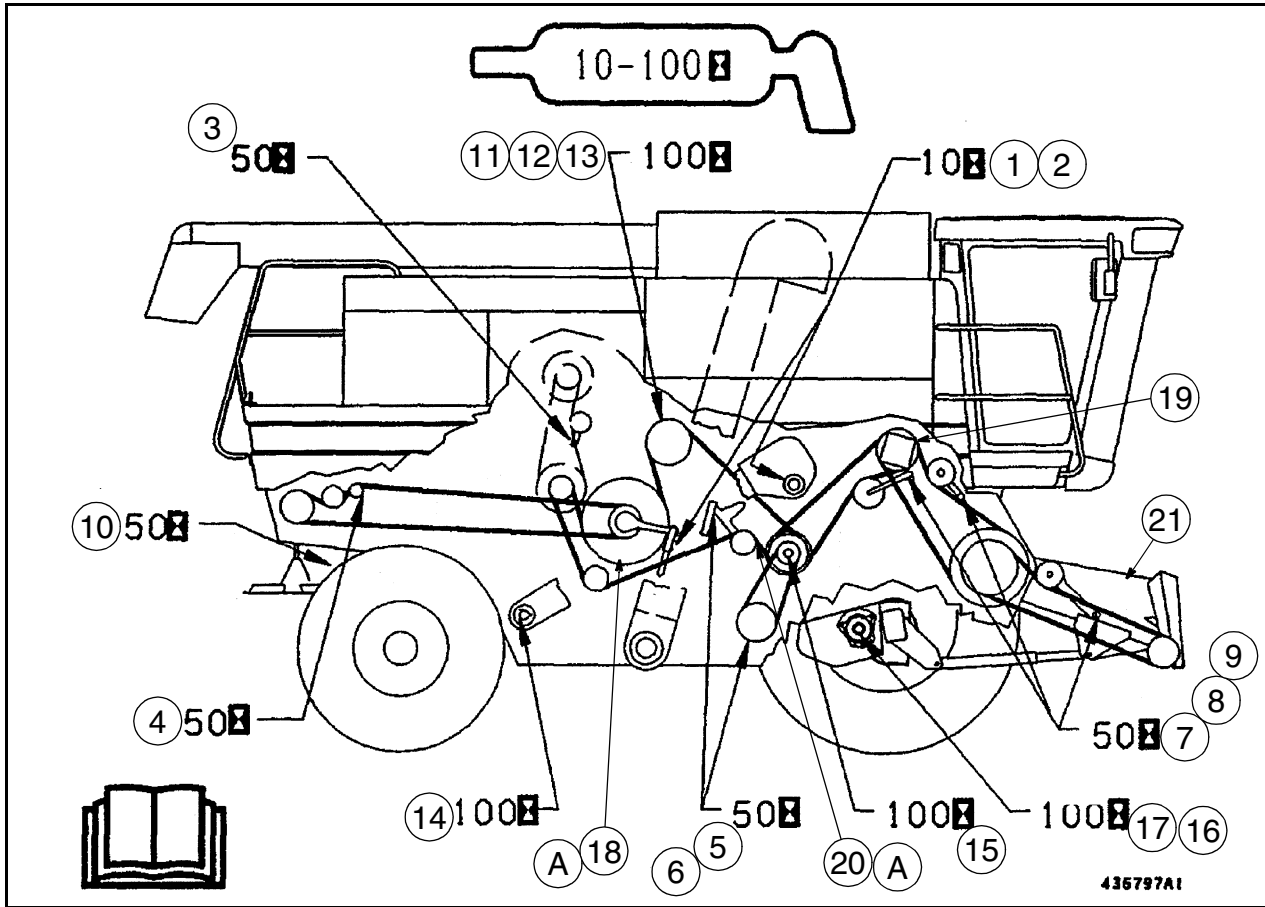
Operator's Access Ladder Pivot (1)



RD00E008

Rock Trap Drive (1). Grease Annually.

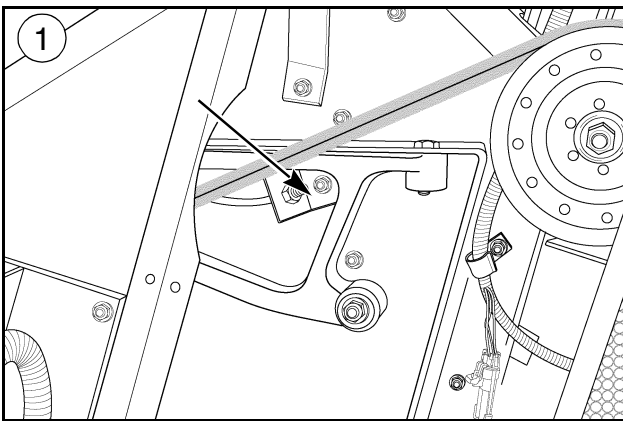
**GREASE FITTINGS - RIGHT SIDE**



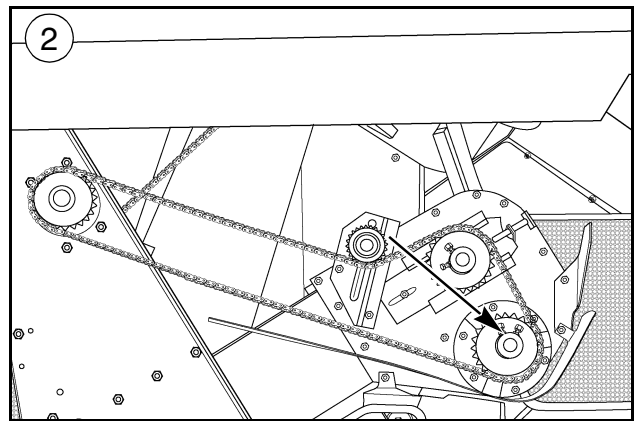
435797A1

A. 500 HOURS

**10 Hours**

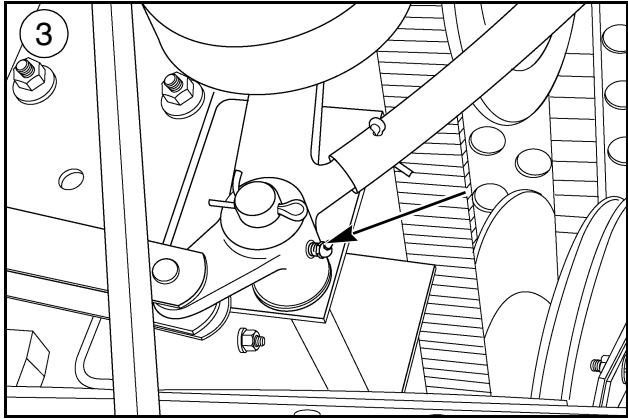


Chaffer Hanger (1)



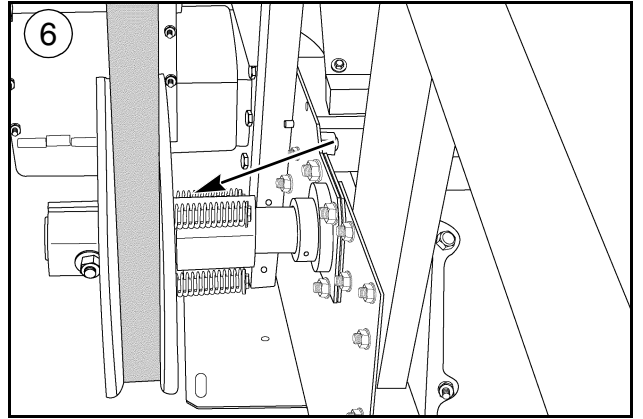
Tailings Delivery Auger Bearing (1)

50 Hours



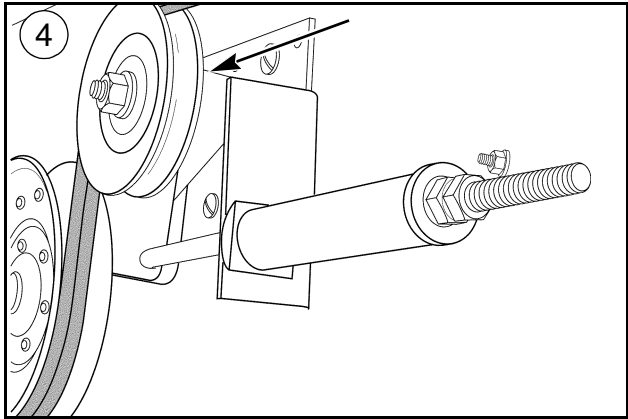
RD02E200

Straw Chopper Idler Arm (1)



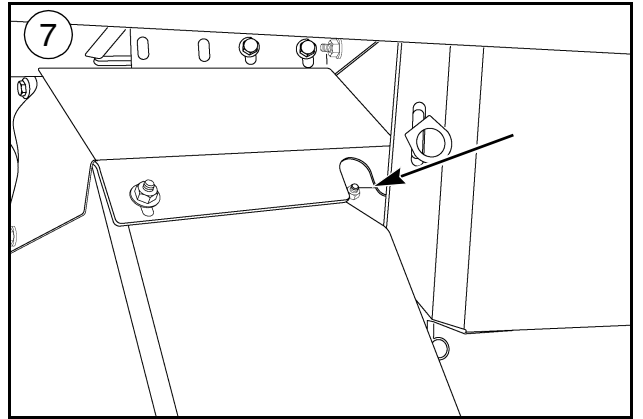
A24495

Cleaning Fan Pulley (1)



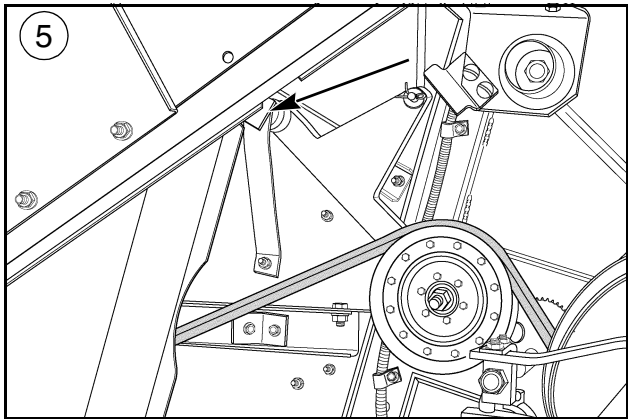
RD01H138

Straw Spreader Idler Arm (1)



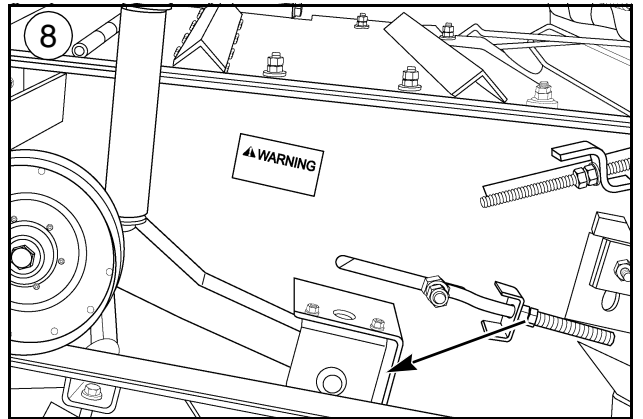
RD00F046

Feeder Engage Idler Arm (1)



A24489

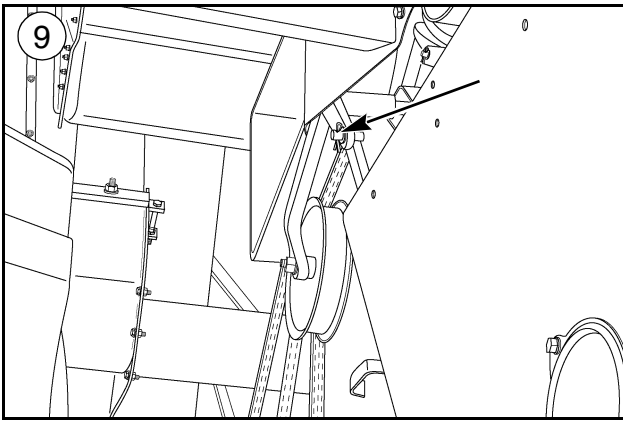
Cleaning Unit Idler Arm (1)



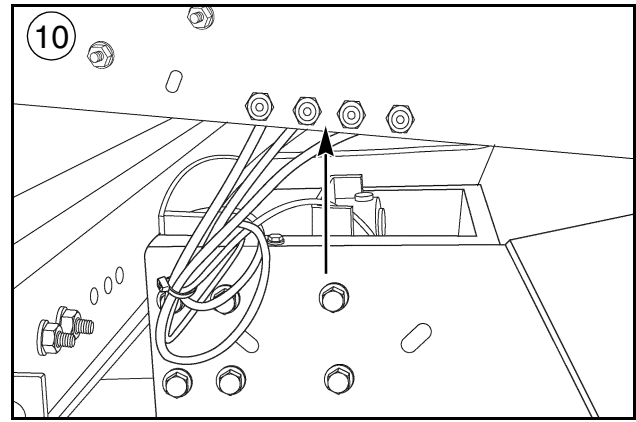
RD00F044

Header Jackshaft Belt Idler Arm (1)

## 8 - LUBRICATION/FILTERS/FLUIDS

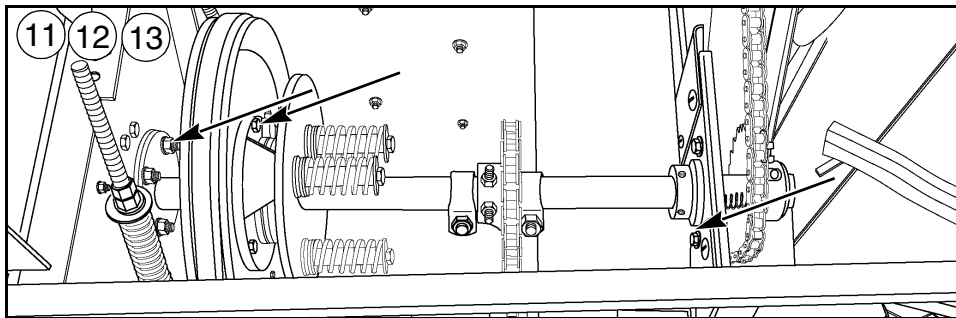


Fan Drive Belt Tightener Arm (1)



Power Guide Steering Axle - Pivot Lube Bank for Front and Rear Pivots Top and Bottom (4).

### 100 and 500 Hours

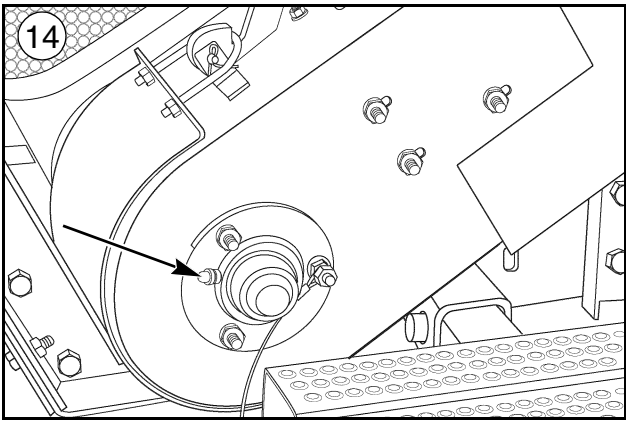


Elevator Drive Slip Clutch (1) - 500 Hours

Elevator Inner Shaft Bearing (1) - 100 Hours

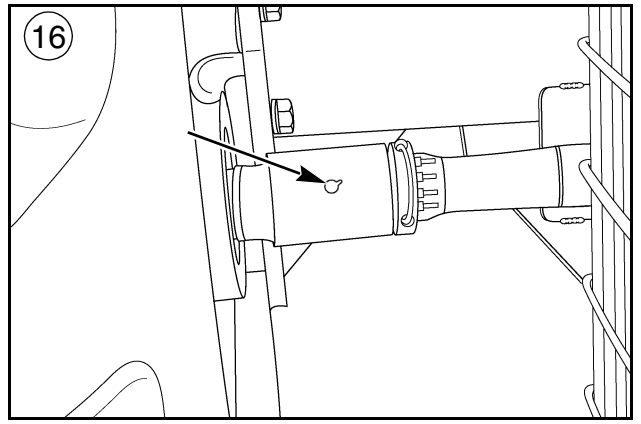
Elevator Outer Shaft Bearing (1) - 100 Hours

8 - LUBRICATION/FILTERS/FLUIDS



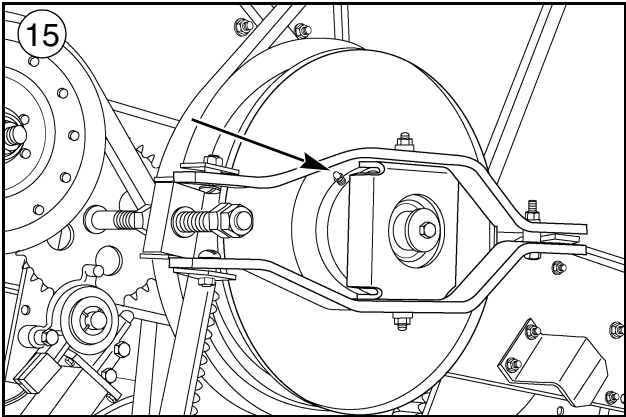
RD05D118

Tailings Auger Shaft Bearing (1)



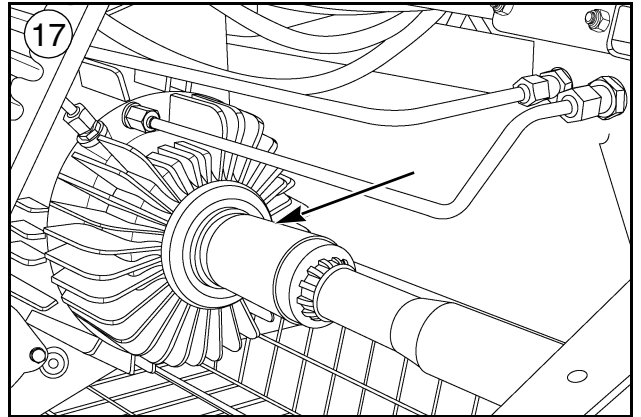
RD97G057

Drive Wheel Coupling - Outer (1)



RD00H053

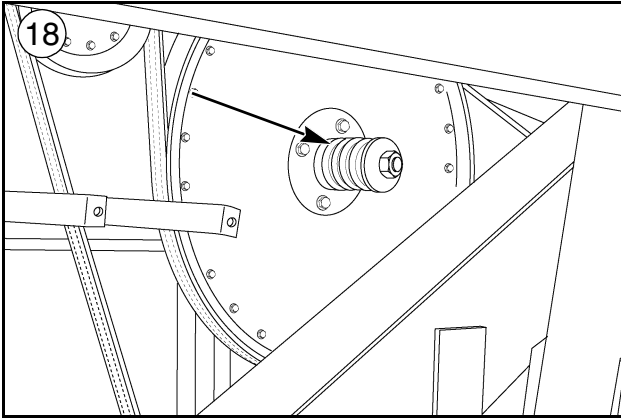
Fan Drive Thrust Bearing (1)



RD00E096

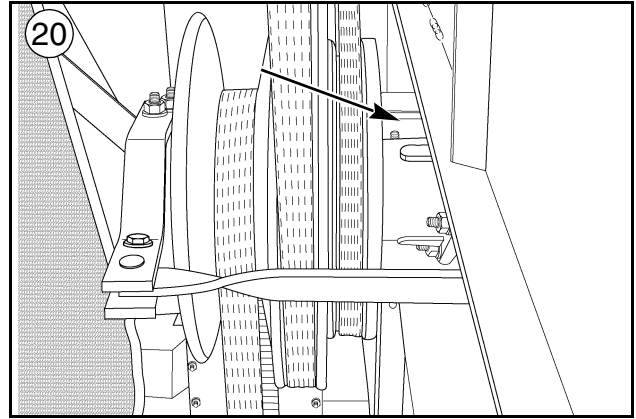
Drive Wheel Coupling - Inner (1)

500 Hours



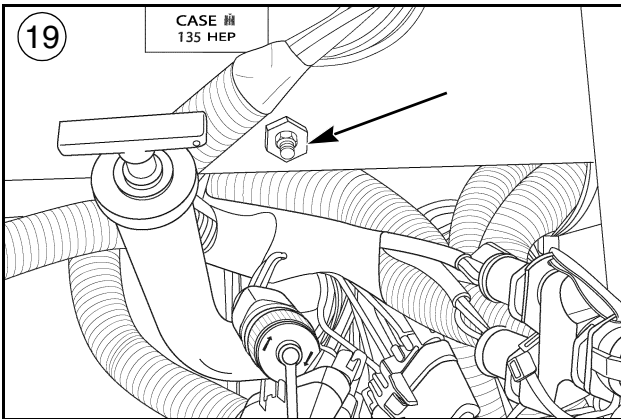
A1413.35

Shaker Shaft Drive Slip Clutch (1)



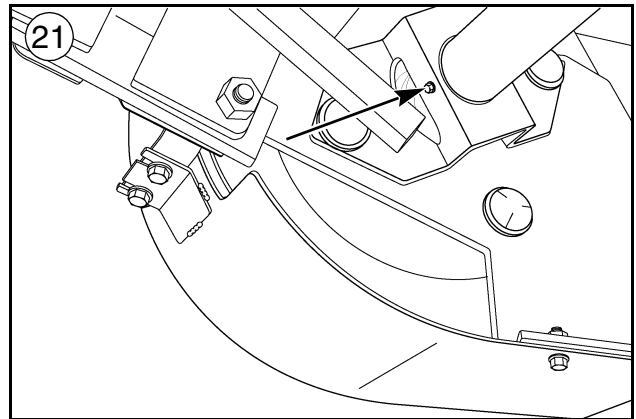
A24494

Fan Variable Pulley (1)



RD00E001

Feeder and Cleaning Fan Gear Case (1)

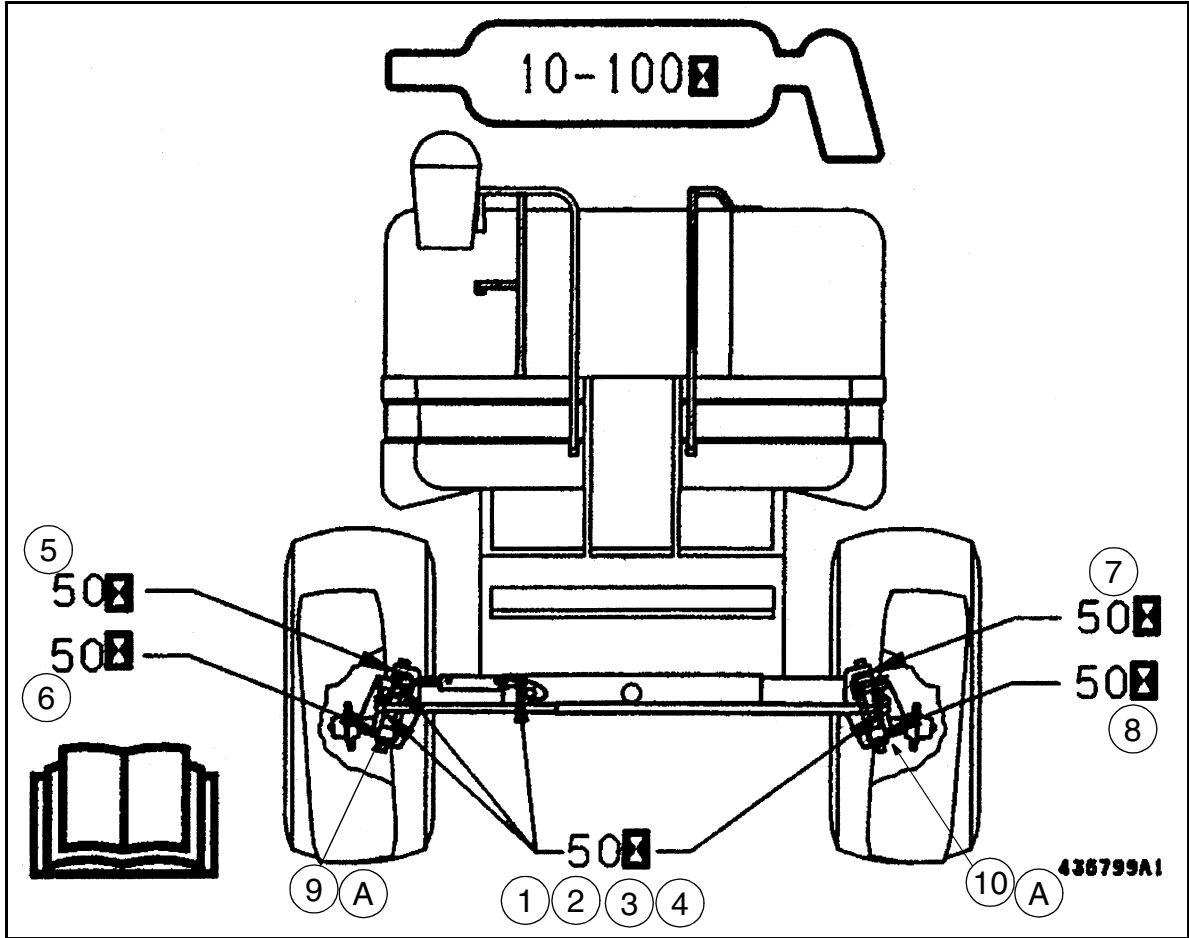


RP96H091

Feeder Shaft Grease Annually (1)



**GREASE FITTINGS - REAR AXLE**

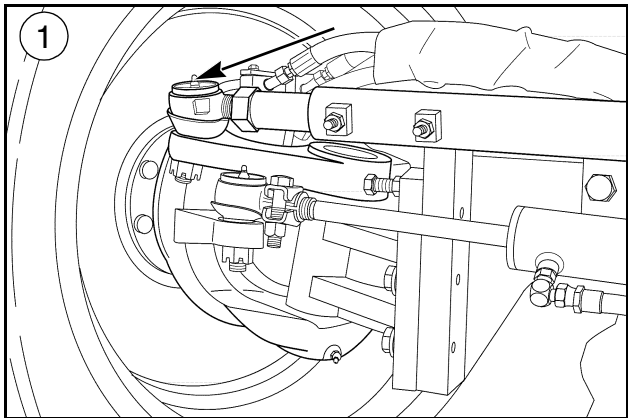


435799A1

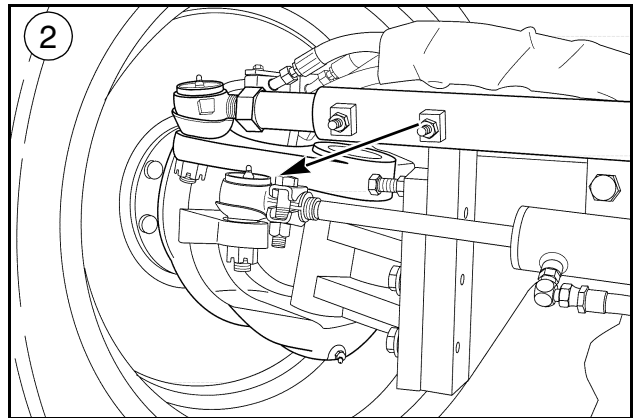
A. ANNUALLY

**50 Hours**

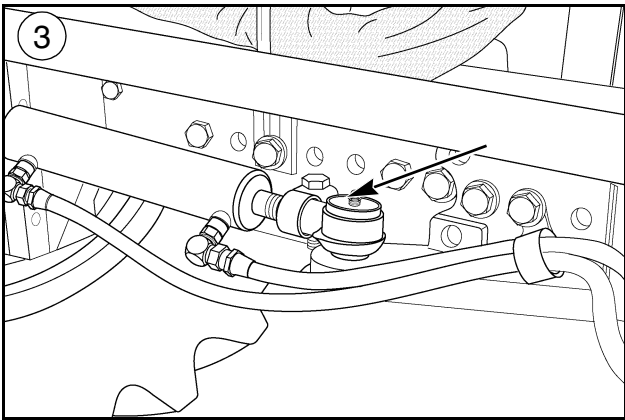
**Power Guide Axle**



Tie Rod End - Left (1)

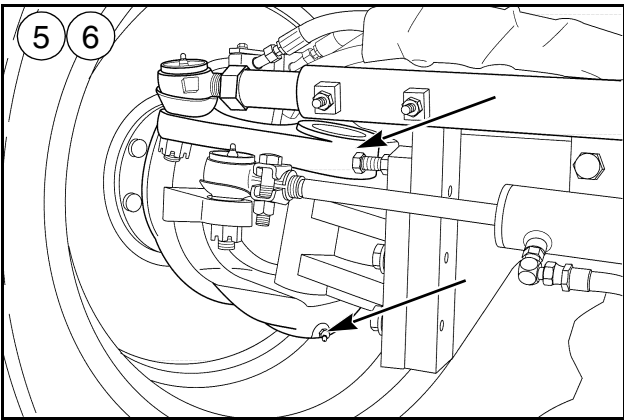


Steering Cylinder Ball Joint Rod End - Left (1)



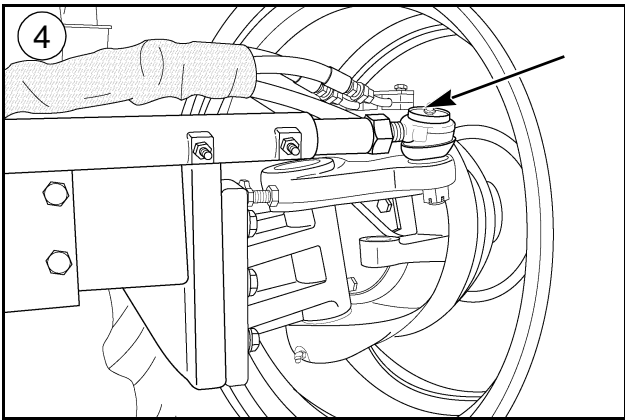
A24334

Steering Cylinder Ball Joint Cylinder End - Left (1)



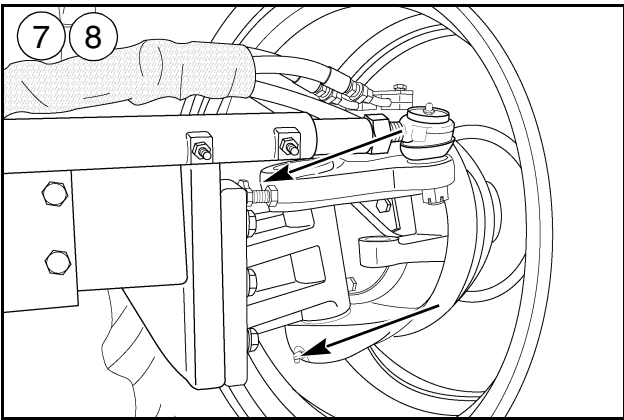
A24333

Steering Knuckle - Left Upper (1) and Left Lower (1)



A24335

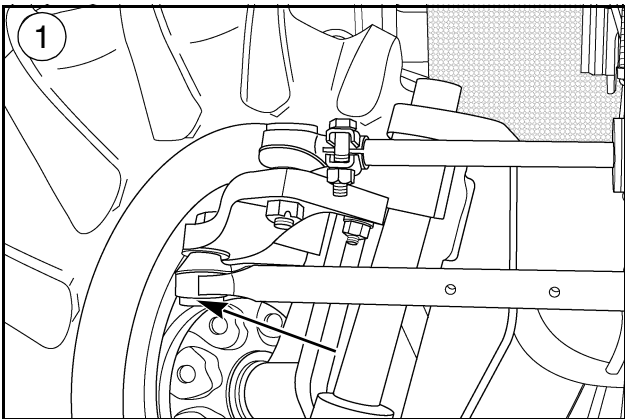
Tie Rod End - Right (1)



A24335

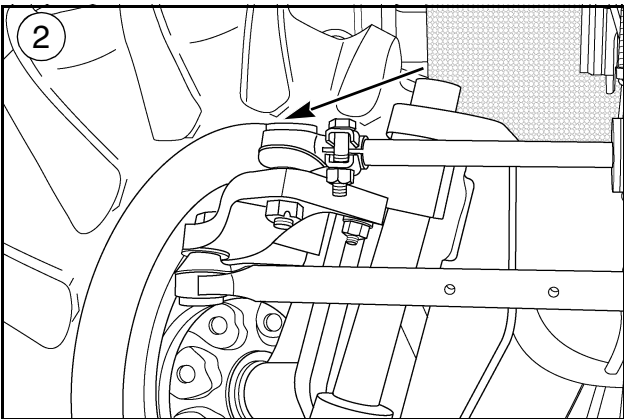
Steering Knuckle - Right Upper (1) and Right Lower (1)

**Adjustable Steering Axle**



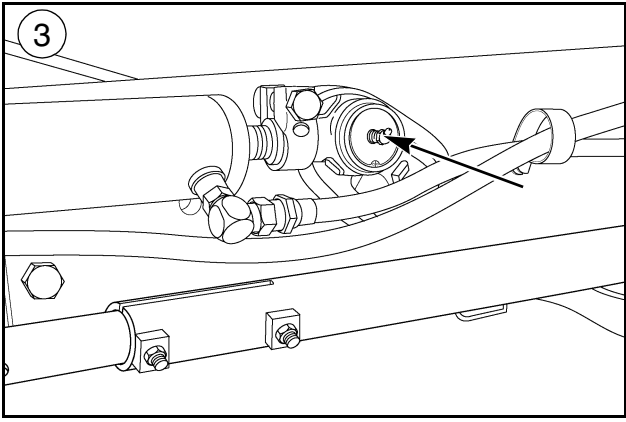
A24437

Tie Rod End - Left (1)



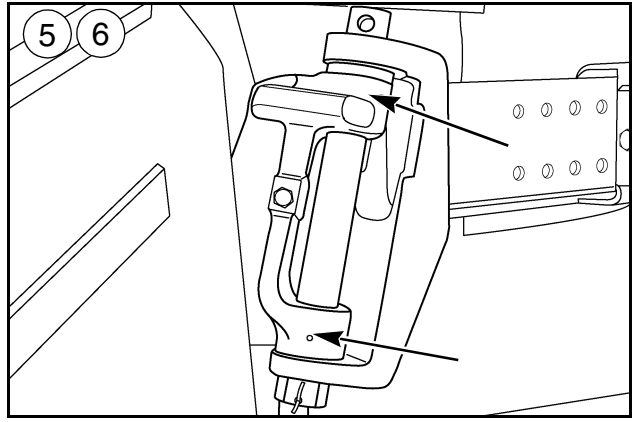
A24437

Steering Cylinder Ball Joint (Rod End) - Left (1)



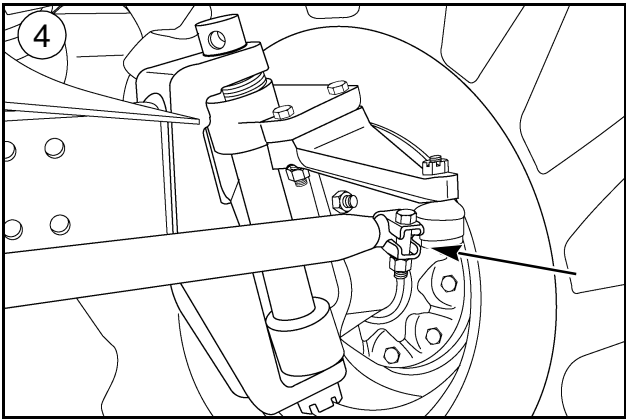
A24438

Steering Cylinder Ball Joint [Cylinder End, Left] - Anchor (1)



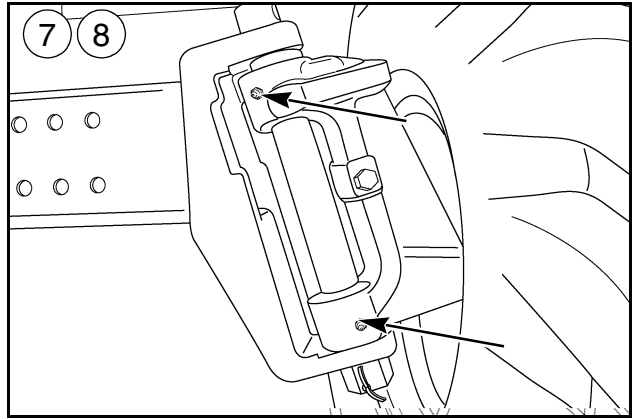
A24436

Steering Knuckle - Left (2)



A24440

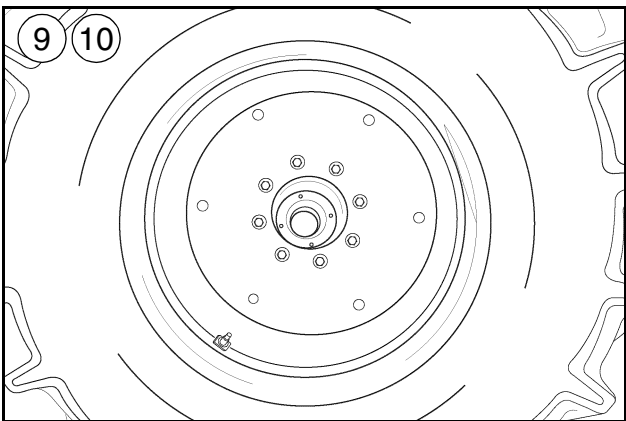
Tie Rod End - Right (1)



A24439

Steering Knuckle - Right (2)

**Annually**



RD05D066

Wheel Bearing - Left (1) and Right (1)

## AUTOMATIC GREASING SYSTEM (If Equipped)

### How the System Works

The system has been designed to increase the component life and overall productivity of your machine, while reducing time related to the traditional method of point-by-point manual lubrication. The system consists of progressive metering valves that positively displace and meter precise amounts of grease down to -25° C (-13° F) temperature. Grease is distributed to each connected point through a high-pressure tube and hose.

Grease is dispensed from the reservoir by an electrically powered motor and pump. The pump pushes grease through the high pressure lines to the divider valves which are connected in series. The grease flow moves the pistons back and forth inside the divider valve which creates a metered effect at the valve output. Grease flows, in pre-measured pulses, through the grease line and to the final distribution point.

Each primary divider valve has an indicator pin. The pin moves slowly in and out as grease flows through the valve providing an indication of proper grease movement in the system. The movement of the indicator pin confirms a valve has completed a full cycle. The pin can be used as a diagnostic tool if a blockage should occur.

An electrical harness connects the pump assembly to the machine. Electrical power is supplied to the pump assembly whenever the cleaning fan is engaged. This controlled pump operation automatically provides the proper amount of grease to each lubrication point on an hourly basis throughout the work day.

**IMPORTANT: DO NOT CHANGE PUMP OPERATION TIME. UNAUTHORIZED PUMP OPERATION CAN DAMAGE THE MACHINE.**

A grease agitation paddle is in the reservoir and rotates only when the pump operates, that is 4 minutes ON every hour, while the cleaning fan is engaged.

The grease reservoir can be filled using a standard grease gun or air powered grease gun. The fitting is located on the pump housing.

An optional cartridge type, one push, grease gun (Part Number - B96092) is available from your dealer. A steel adapter fitting must be screwed into the front of the pump housing in place of the plastic hex plug to use this tool.

Due to the precision of the components contamination cannot be tolerated in the system. To reduce the possibility of contamination, fill reservoir only through the pump assembly fittings.

**IMPORTANT:** *Wear full face protection when using compressed air.*

Fill the reservoir with CASE 251H EP Grease or equivalent NLGI Number 2 Multi-Purpose Lithium Grease. Fill the reservoir up to the "MAX" indication mark located on the reservoir.

**IMPORTANT:** *FILL RESERVOIR ONLY THROUGH THE FITTING ON THE PUMP ASSEMBLY. DO NOT REMOVE RESERVOIR OR RESERVOIR CAP.*

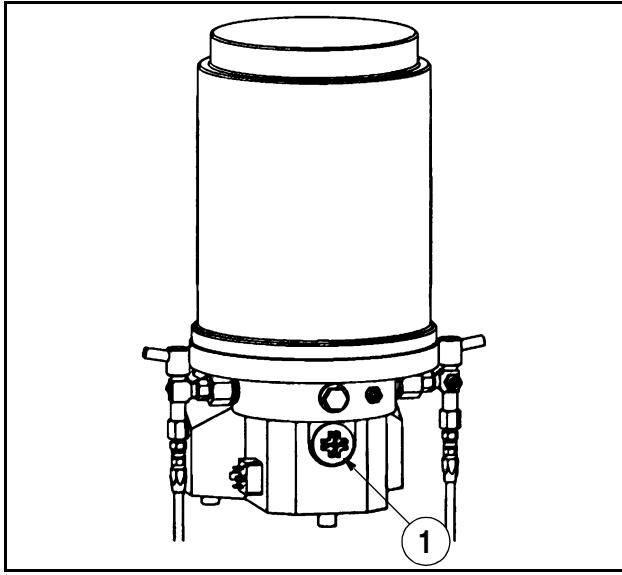
Because the system is a pressure feed system, the grease distribution lines can be of random lengths. However, when installing or replacing a grease line, it is important that the installed line be pre-charged with grease. This will prevent an interruption of regular grease delivery to the lubrication point.

**IMPORTANT:** *USE ONLY PRE-FILLED GREASE LINES WHEN INSTALLING OR SERVICING THE AUTOMATIC GREASING SYSTEM.*

The pump assembly is equipped with high pressure relief valves at each outlet hose connection. If a system blockage occurs, grease will purge out of this valve. This is the indication to the operator that the lube system is not operating properly.

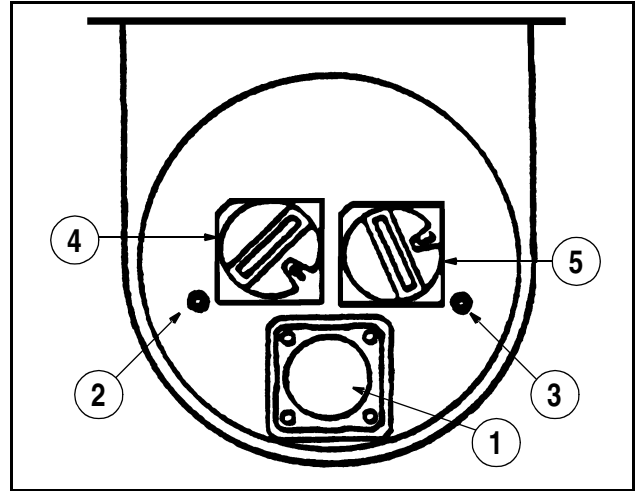
**IMPORTANT:** *IF GREASE PURGES FROM HIGH PRESSURE RELIEF VALVE, STOP THE MACHINE AND IDENTIFY THE CAUSE OF THE BLOCKAGE. CORRECT THE CAUSE OF THE BLOCKAGE BEFORE RESUMING MACHINE OPERATION. REFER TO TROUBLESHOOTING IN THIS SECTION.*

## Manual Start Switch and System Indicator Lamps



RH01C149

The sealing plug (1) must be removed from the base of the pump assembly to access the manual start switch and the system indicator lamps.



RH00N126

1. **Manual Start Switch** - Depress for two seconds to start a lubrication cycle.
2. **Battery Indicator Lamp** - Illuminates when electrical power is supplied to the pump assembly.
3. **Motor Indicator Lamp** - Illuminates when pumping lubricant, while the fan is engaged.
4. **OFF Pump Timer Adjustment Knob** - Can be adjusted to 15 values. Refer to Pump Run Chart on Next Page.
5. **ON Pump Timer Adjustment Knob** - Can be adjusted to 15 values. Refer to Pump Run Chart on Next Page.

## Timer Operation

The OFF timer begins accumulating time when the ignition switch closes. When the OFF timer reaches the preset value, the pump will turn ON. The pump remains activated for the period of time that is preset on the ON timer.

When the ignition switch opens the OFF timer will retain its accumulated time for a period of five (5) days. When the ignition switch closes during the five day period, the OFF timer will resume timing from the accumulated time it reached prior to the ignition switch opening. If ignition switch is not closed before the end of the five day period, timer will begin with an ON period.

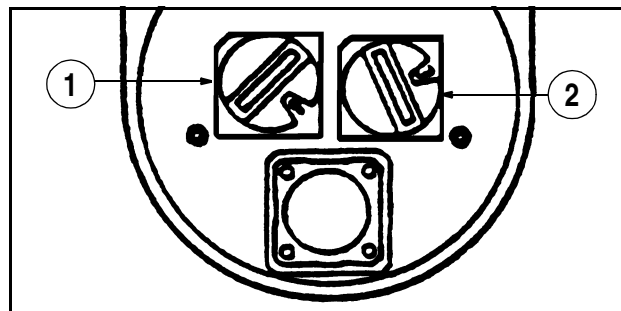
## Pump Run Chart

**IMPORTANT:** *DO NOT* use the Zero (0) position located on the OFF time and ON time switches.

OFF-TIME ROTARY SWITCH SETTING	INTERVAL BETWEEN LUBRICATION CYCLES	ON-TIME ROTARY SWITCH SETTING	PUMP RUN TIME
0	Will Not Run	0	Will Not Run
1	1 Hour	1	2 Minutes
2	2 Hours	2	4 Minutes
3	3 Hours	3	6 Minutes
4	4 Hours	4	8 Minutes
5	5 Hours	5	10 Minutes
6	6 Hours	6	12 Minutes
7	7 Hours	7	14 Minutes
8	8 Hours	8	16 Minutes
9	9 Hours	9	18 Minutes
A	10 Hours	A	20 Minutes
B	11 Hours	B	22 Minutes
C	12 Hours	C	24 Minutes
D	13 Hours	D	26 Minutes
E	14 Hours	E	28 Minutes
F	15 Hours	F	30 Minutes

**EXAMPLE:** Adjust the pump to operate four (4) minutes of run time every hour of ON time

- A. Adjust the OFF time switch (1) to Setting 1. This indicates the interval between lubrication cycles will be one hour.
- B. Adjust the ON time switch (2) to Setting 2. This indicates the pump will run for four minutes after every OFF time interval of one hour.



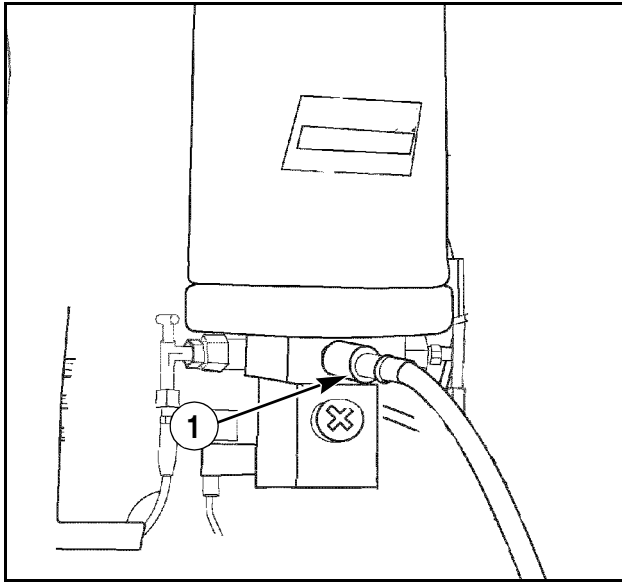
RH00N126

## Filling Reservoir

The Automatic Greasing System is designed as a fully automatic system with minimum maintenance required. To ensure long life and a maximum satisfaction it is recommended that the operation of the system should be checked periodically per the schedule below.

### 50 Hours

Observe grease level in reservoir. Fill reservoir up to the "MAX" indication mark located on the reservoir.



RR01D001R

Fill the reservoir with CASE 251H EP Grease or equivalent NLGI No. 2 Multi-Purpose Grease. Use the reservoir fill fitting (1) on the pump assembly to fill the reservoir. Fill the reservoir up to the "MAX" indication mark located on the reservoir.

**IMPORTANT:** FILL RESERVOIR ONLY THROUGH THE FITTING ON THE PUMP ASSEMBLY. DO NOT REMOVE RESERVOIR CAP.

Inspect high pressure relief valve on the pump assembly for grease. If external grease accumulation is observed, investigate the cause and correct before continuing machine operation. Refer to Troubleshooting in this section.

Observe the operation of pump assembly (as indicated by the CLOCKWISE rotation of the grease agitation paddle in the reservoir) to make sure there is no disruption of electrical power to the pump assembly.

Inspect all valves, lines, and connection points for evidence of grease leakage.

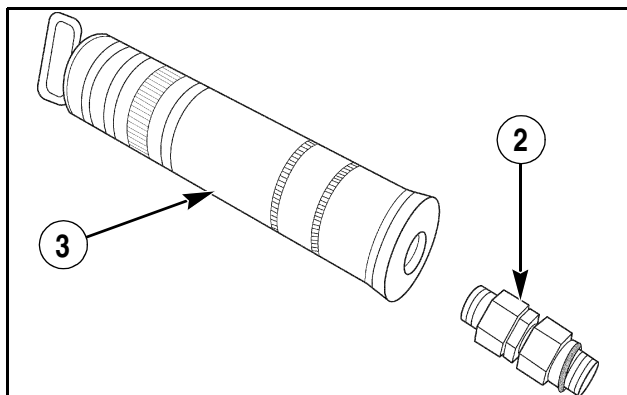
Inspect all lines for evidence of abrasion, punctures, or cuts.

Inspect all lubrication points for indications of fresh grease.

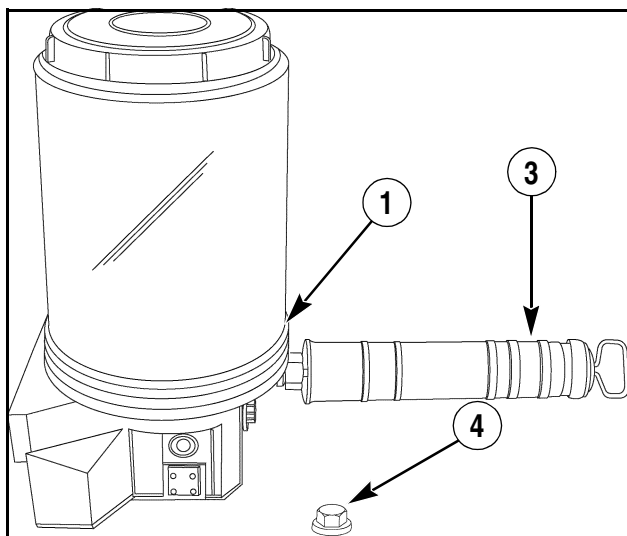
Make any necessary repairs prior to resuming harvesting operation.

**NOTE:** USE ONLY PRE-FILLED GREASE LINES WHEN INSTALLING OR SERVICING THE SYSTEM.

## Reservoir Manual Fill



RR02A002



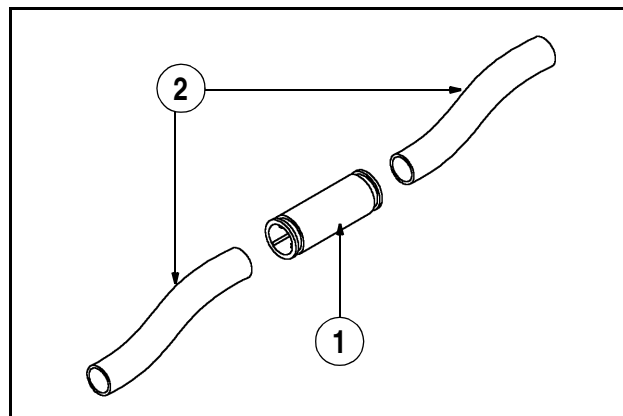
RR02A003

To manually fill the lubrication reservoir do the following:

1. Remove the plug from the reservoir pump assembly (1).
2. Install a grease cartridge into the filler (3).
3. Screw the filler (3) onto the adaptor fitting (2) and fill the lubrication reservoir (1) to the "MAX" indication mark located on the reservoir.
4. Remove the filler (3) from the adapter fitting (2) and install the cap (4) to the adapter fitting (2).

**IMPORTANT:** DO NOT REMOVE RESERVOIR OR RESERVOIR CAP TO FILL RESERVOIR.

## Splicing Broken Lubricating Lines



RI02D002

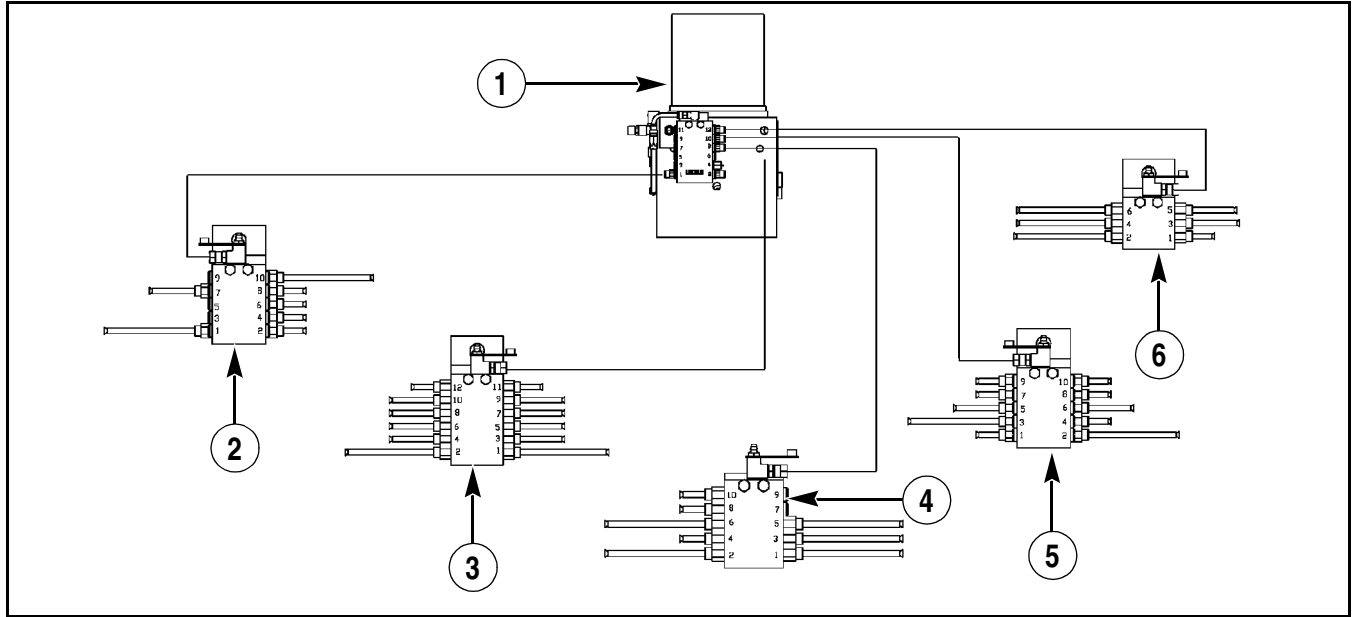
If you have a broken lubrication line (2), splice the line (2) together with the push in style 1/4 inch tube x 1/4 inch tube splicer union (1) as shown.

**NOTE:** The 1/4 inch tube is located inside the picking drum cabinet.

**ATTENTION:** The external hoses are larger than 1/4 inch O.D. and have crimped on end fittings. Broken external lines need to be replaced. they are not repairable with push-in style connectors.



# Greasing System



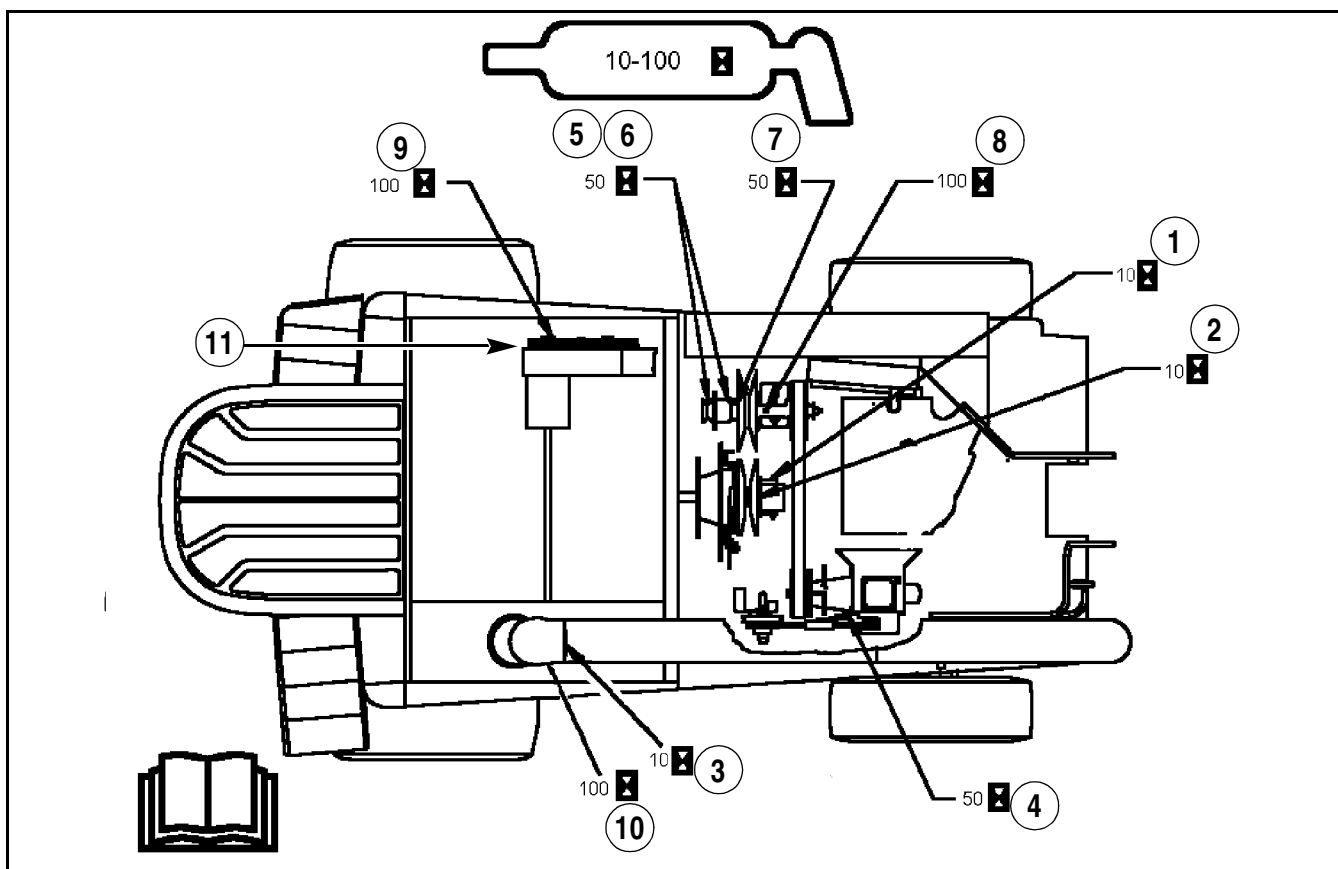
RH06F260

1. PUMP AND PRIMARY VALVE  
2. TOP SECONDARY VALVE

3. REAR AXLE SECONDARY VALVE  
4. LEFT SIDE SECONDARY VALVE

5. RIGHT REAR SECONDARY VALVE  
6. RIGHT FRONT SECONDARY VALVE

## COMPLETE GREASING SYSTEM



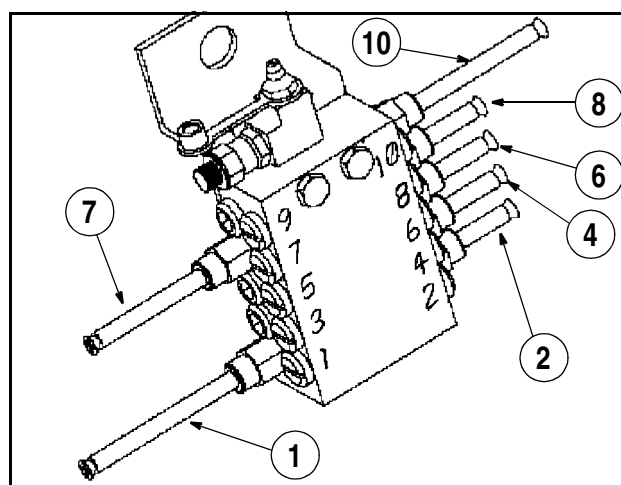
RH06F256

- |                                 |                          |  |
|---------------------------------|--------------------------|--|
| 1. ROTOR DRIVEN PULLEY *        | 5. ROTOR SPEED CONTROL   | 9. NOT USED IN THIS APPLICATION        |
| 2. ROTOR DRIVE CAM BEARING *    | 6. ROTOR DRIVE PULLEY *  | 10. UNLOADER AUGER UPPER ELBOW GEARBOX |
| 3. UNLOADER TUBE PIVOT          | 7. ROTOR SPEED CONTROL * |  |
| 4. AUXILIARY PUMP TENSIONER ARM | 8. SEPARATOR JACKSHAFT * | 11. AUGER LOWER GEARBOX                |

**GREASE FITTINGS SERVICE POINTS - TOP**

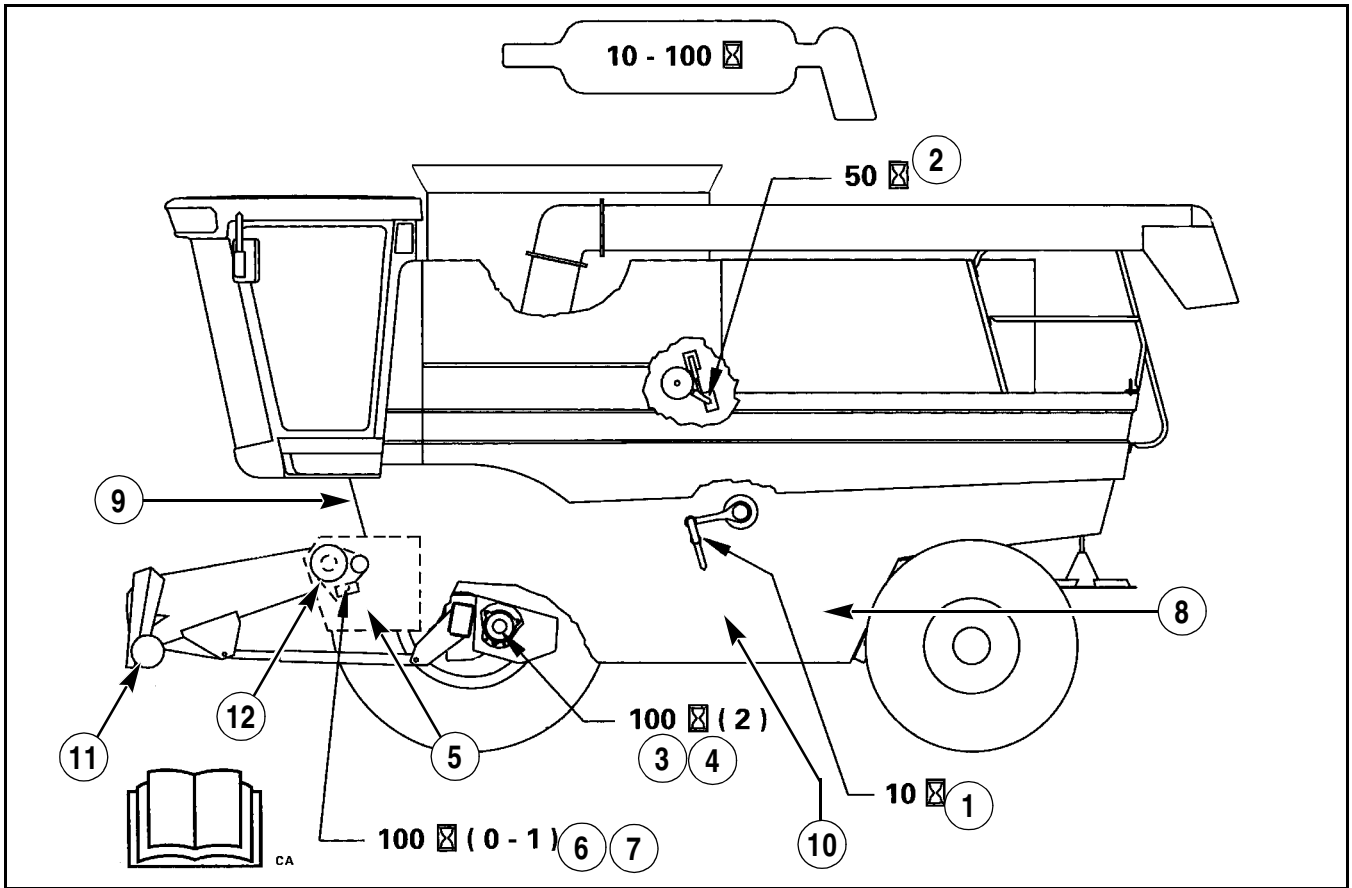
\* = Cannot be serviced by the automatic system

REF	DESCRIPTION
1	AUGER LOWER GEARBOX
2	UNLOADER TUBE PIVOT
4	UNLOADER TUBE PIVOT
6	UNLOADER TUBE PIVOT
7	PUMP TENSIONER ARM
8	UNLOADER TUBE PIVOT
10	UNLOADER AUGER UPPER ELBOW GEARBOX



RH06F261

**TOP SECONDARY VALVE**



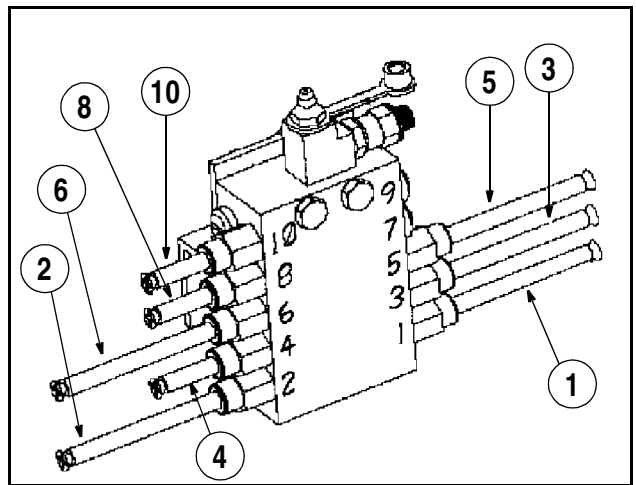
RH06F257

- |                                   |                                       |                             |
|-----------------------------------|---------------------------------------|-----------------------------|
| 1. CHAFFER HANGER                 | 5. FEEDER REVERSER SHAFT              | 9. ROTOR FRONT BEARING      |
| 2. UNLOADER DRIVE TIGHTENER ARM   | 6. REVERSER IDLER SPROCKET, ROCK TRAP | 10. CLEAN GRAIN AUGER SHAFT |
| 3. DRIVE WHEEL COUPLING - OUTER * | 7. REVERSER IDLER GEAR WITH ROCK TRAP | 11. FEEDER SHAFT BEARING    |
| 4. DRIVE WHEEL COUPLING - INNER * | 8. TAILINGS LOWER AUGER SHAFT         | 12. ROCK TRAP DRIVE         |

**GREASE FITTINGS SERVICE POINTS - LEFT SIDE**

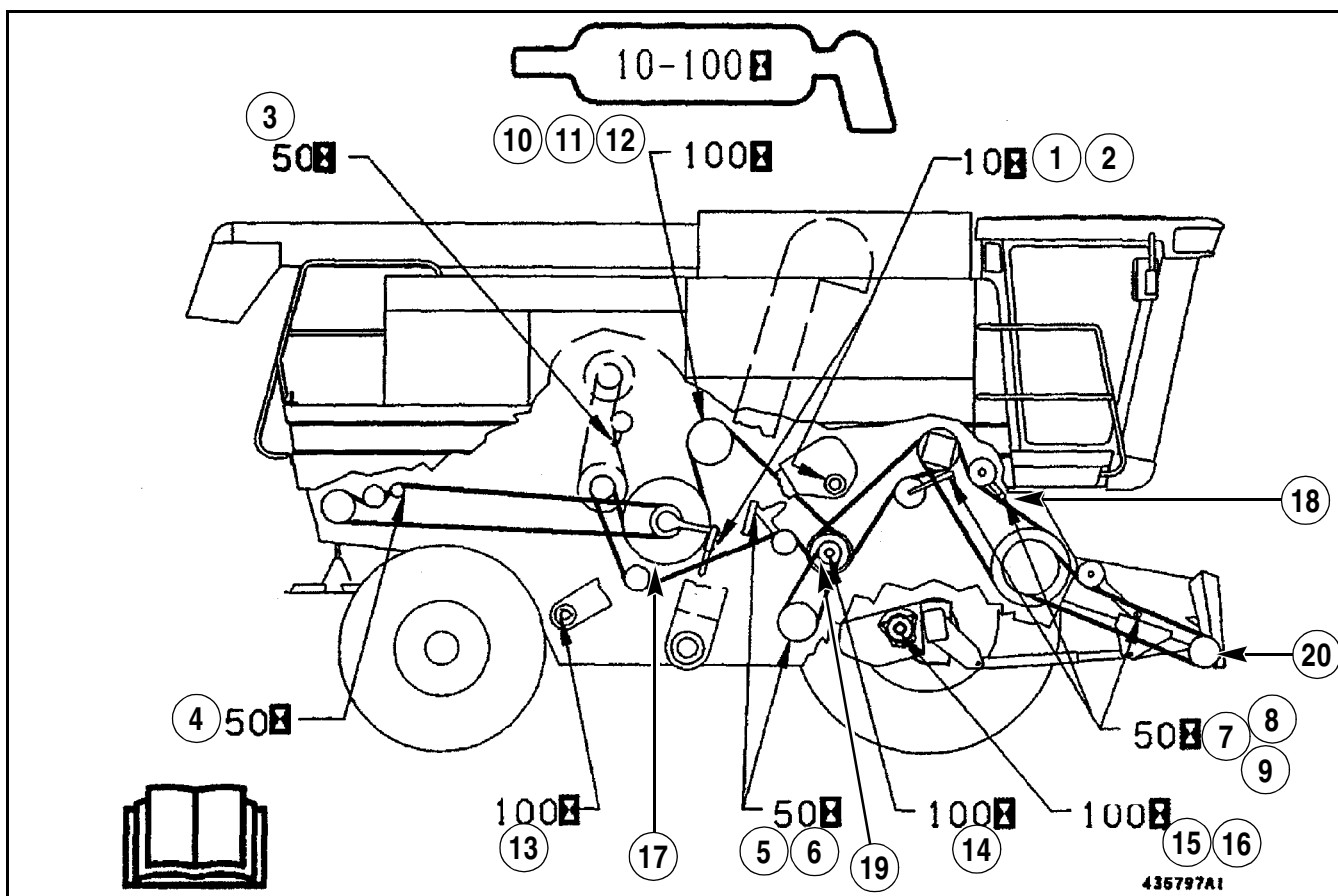
\* = Cannot be serviced by the automatic system

REF	DESCRIPTION
1	UNLOADER DRIVE TIGHTENER
2	TAILING LOWER AUGER SHAFT
3	CLEAN GRAIN AUGER SHAFT
4	ROTOR FRONT BEARING
5	CHAFFER HANGER
6	FEEDER SHAFT BEARING
8	ROCK TRAP DRIVE
10	ROCK TRAP



RH06F262

**LEFT SIDE SECONDARY VALVE**



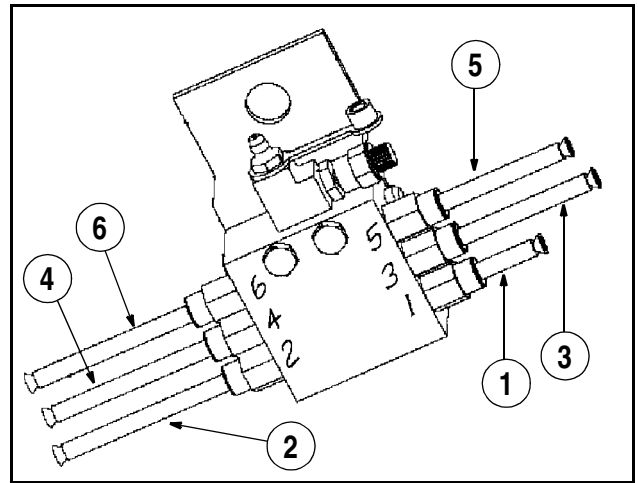
RH06F258

- |                                |                                  |  |
|--------------------------------|----------------------------------|--|
| 1. CHAFFER HANGER              | 8. FEEDER ENGAGED IDLER ARM      | 15. DRIVE WHEEL COUPLING                   |
| 2. TAILINGS DELIVERY AUGER     | 9. FAN DRIVE BELT IDLER ARM      | 16. DRIVE WHEEL COUPLING                   |
| 3. STRAW CHOPPER IDLER ARM     | 10. ELEVATOR INNER SHAFT BEARING | 17. SHAKER SHAFT DRIVE SLIP CLUTCH         |
| 4. STRAW SPREADER IDLER ARM    | 11. ELEVATOR DRIVE SLIP CLUTCH   | 18. FEEDER AND CLEANING FAN GREASE HOUSING |
| 5. FAN DRIVEN PULLEY           | 12. ELEVATOR OUTER SHAFT BEARING | 19. FAN VARIABLE PULLEY                    |
| 6. CLEAN FAN PULLEY            | 13. TAILINGS AUGER SHAFT BEARING | 20. FEEDER JACKSHAFT BEARING               |
| 7. CLEANING FAN BELT IDLER ARM | 14. FAN DRIVE TRUST BEARING      |  |

**GREASE FITTINGS SERVICE POINTS - RIGHT SIDE**

8 - LUBRICATION/FILTERS/FLUIDS

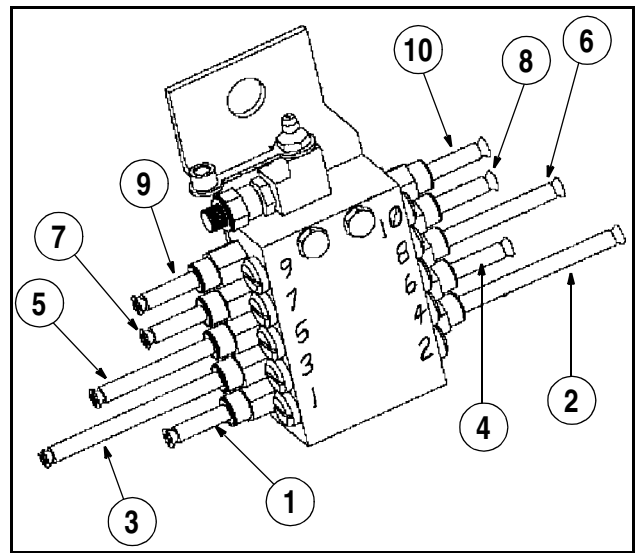
REF	DESCRIPTION
1	TAILINGS DELIVERY AUGER
2	FAN DRIVE BELT TIGHTENER ARM
3	FEEDER GREASE HOUSING
4	FEEDER JACKSHAFT BEARING
5	FEEDER DRIVE IDLER ARM
6	FEEDER ENGAGED IDLER ARM



RH06F263

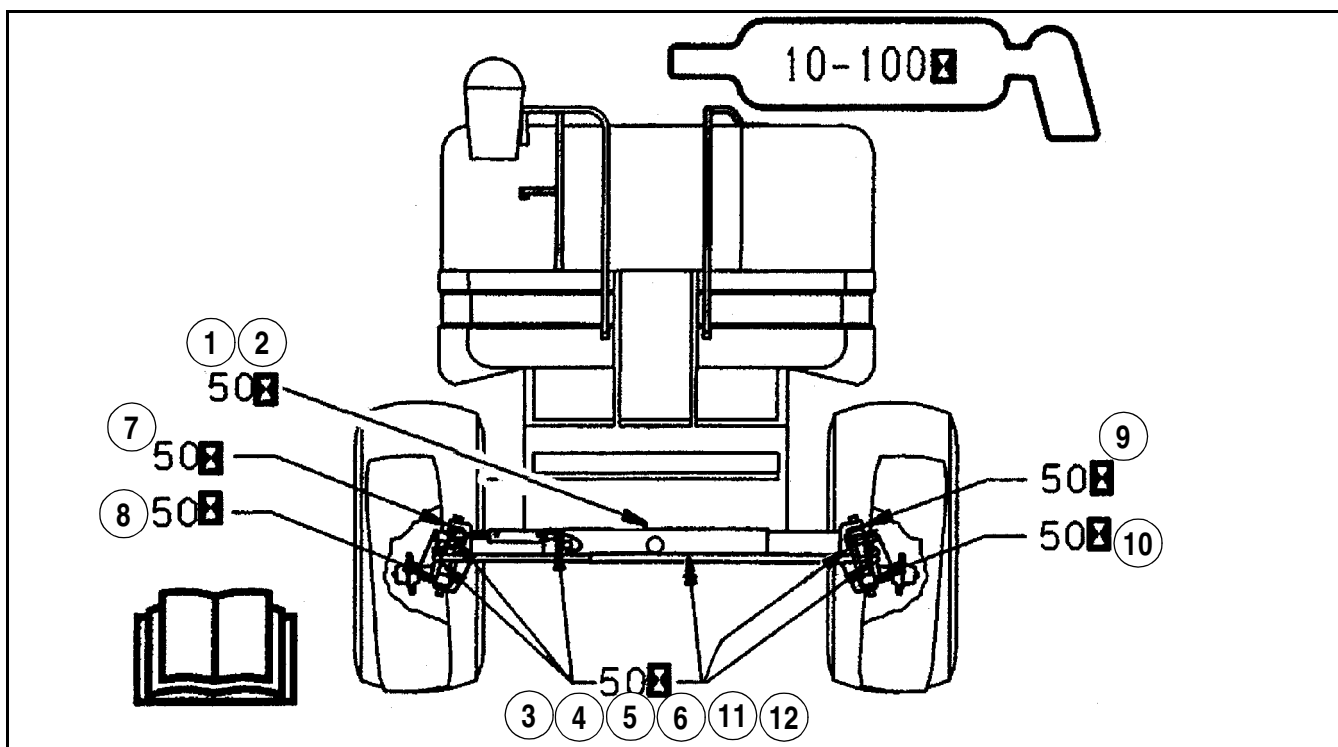
RIGHT FRONT SECONDARY VALVE

REF	DESCRIPTION
1	STEERING AXLE PIVOT, UPPER REAR
2	ELEVATOR OUTER SHAFT BEARING
3	STEERING AXLE PIVOT LOWER REAR
4	ELEVATOR INNER SHAFT BEARING
5	STRAW SPREADER IDLER ARM
6	FAN VARIABLE PULLEY
7	TAILINGS AUGER SHAFT BEARING
8	CHAFFER HANGER
9	STRAW CHOPPER IDLER ARM
10	FAN DRIVEN PULLEY



RH06F264

RIGHT REAR SECONDARY VALVE

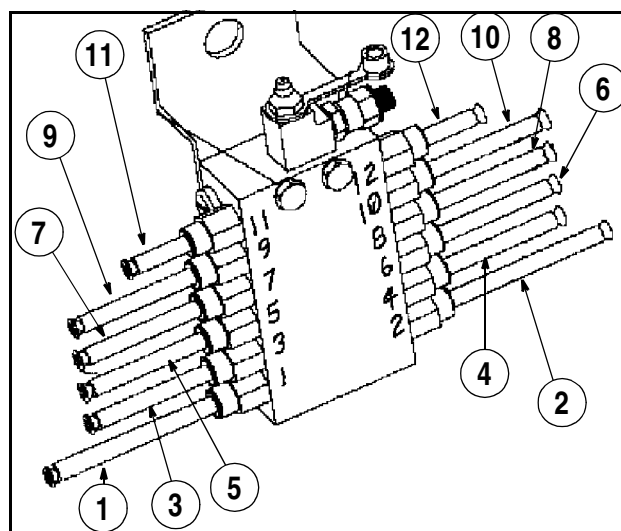


RH06F259

- |  |                                      |  |
|--|--------------------------------------|--|
| 1. STEERING AXLE PIVOT - LOWER               | 5. LEFT STEERING CYLINDER BALL JOINT | 9. STEERING KNUCKLE - UPPER RIGHT              |
| 2. STEERING AXLE PIVOT - UPPER               | 6. RIGHT TIE ROD END                 | 10. STEERING KNUCKLE - LOWER RIGHT             |
| 3. LEFT TIE ROD END                          | 7. STEERING KNUCKLE - UPPER LEFT     | 11. RIGHT STEERING CYLINDER BALL JOINT ROD END |
| 4. LEFT STEERING CYLINDER BALL JOINT ROD END | 8. STEERING KNUCKLE - LOWER LEFT     | 12. RIGHT STEERING CYLINDER BALL JOINT         |

**GREASE FITTINGS SERVICE POINTS - REAR AXLE**

REF	DESCRIPTION
1	STEERING AXLE PIVOT - LOWER FRONT
2	STEERING AXLE PIVOT - UPPER FRONT
3	STEERING KNUCKLE - UPPER LEFT
4	STEERING KNUCKLE - UPPER RIGHT
5	STEERING KNUCKLE - LOWER LEFT
6	STEERING KNUCKLE - LOWER RIGHT
7	STEERING CYLINDER LEFT ROD END
8	STEERING CYLINDER BALLJOINT ROD END
9	STEERING CYLINDER - LEFT
10	STEERING CYLINDER - RIGHT
11	TIE ROD END - LEFT
12	TIE ROD END - RIGHT



RH06F265

**REAR AXLE SECONDARY VALVE**

## Check List

The check list below should be followed after servicing the system or before starting field operation:

**NOTE:** *Before adding grease to system make sure grease gun nozzle and grease fittings are clean to prevent contaminants into the system.*

- Add grease to grease fitting located on the primary and each secondary valve inlet using a grease gun (manual or pneumatic). While pumping grease through the system, cycle the indicator pin on the primary metering valve a minimum of 15 times.
- Inspect primary valve supply and outlets for grease discharge. If leakage is detected, tighten the fittings.
- Continue to cycle the system until fresh grease appears at each lubrication point.
- Inspect each lubrication point fitting for leaks. Correct any leaks by firmly pushing tube into the fitting until seating occurs or tighten the threaded fittings for components connected with hose.

- Operate the equipment through its complete range of motion, inspecting for unrestricted movement of tube and hose. Correct any problems of rubbing, chaffing or kinking.
- Inspect all hose and tube that is not covered with some type of protective wrap. Wrap any tube or hose that would be susceptible to damage from rubbing or chaffing.
- Inspect all hose and tube connected to moving components. Make sure that adequate hose or tube is provided to allow unrestricted movement to these moving lubrication points.
- Verify proper pump operation and verify time setting by activating pump with the Green activation button located on the face of the pump control panel. Activate the pump at least three times in make sure of proper operation.
- After the machine is in operation for a period of time (approximately 80 hours), timing adjustments may be required to shorter or longer periods based on the operating conditions.
- Fill the reservoir with proper grease by filling at the grease fitting located on the face of the pump reservoir.

## Daily Walk-Around Inspection

The Automatic Greasing System design requires little maintenance, however to make sure maximum service life occurs, it is highly recommended that a daily walk-around inspection be performed during the harvesting season. The inspection should included the following:

**NOTE:** *Operator to confirm operation of electric pump while machine is in service.*

- Observe lubricant level in reservoir. Fill reservoir if it is low.

- Inspect the relief valve for excess purge of grease. Refer to troubleshooting on Next Page.
- Inspect all valves and lubrication point connections to verify that no leaks are occurring.
- Inspect supply lines to make sure there are no damage or leaking lines.
- Inspect lubrication points so that all lubrication points have a “fresh grease appearance”.

## Troubleshooting

### Locating Blockage in System

#### Description

In the system, free flow of lubricant from the pump through the transmission system and the bearings is necessary. If any portion of this transmission system (divider valve, line fitting or bearing) does not freely accept and pass its portion of the lubricant a blockage has occurred.

This blockage will cause a higher than normal pumping pressure to be developed by the pump. Depending on the application or system design, this blockage with its resultant high pump pressure will usually cause a complete loss of lubricant flow into the total system and no bearing will be receiving lubricant.

#### Divider Valve

System divider valve is a proportioning device consisting of a minimum of three pistons. A primary divider valve is the first divider valve downstream from the lubrication pump. A secondary divider valve is any divider valve receiving lubricant from the primary divider valve.

#### Outlets

Each outlet on the divider valve dispenses 0.012 inch<sup>3</sup> per cycle. If an outlet is plugged, the lubricant will be diverted to the next outlet down allowing proper proportioning of lubricant to all lubrication points.

#### Locating Blockage

If a blockage exists in the greasing system it is caused by one of the following:

- Crushed transmission line in the system
- Blocked bearing in the system
- Improperly drilled fitting in the system
- Blocked divider valve in the system

The loss of flow due to a blockage is first indicated with the higher than normal system pressure that is developed by the pump as it attempts to overcome this blockage.

This abnormally higher pressure that is a result of a blockage is limited, isolated and signalled through the use of various performance indicators incorporated into the system design.

**ATTENTION:** *NEVER* block lubrication outlets Numbered one and two.

All servicing and disassembling should be carried out under the cleanest conditions possible. A blockage in the system will be indicated by the fault lamp and by the pump element relief indicator, exhausting lubricant to atmosphere. Before proceeding as outlined, make a visual inspection of the system and check for crushed lines or improper divider valve installation. Verify that each divider valve outlet required to discharge lubricant can do so and that no plugs have been installed in an outlets one and two of any valve.



### Greasing Procedure

**ATTENTION:** Use filtered lubricant only. Dirt and foreign material will contaminate the system.

1. Use a manual pump with a gauge. Fill the pump with clean filtered CASE 251H EP Grease or equivalent NLGI No. 2 Multi-Purpose Grease common to the system. Connect the manual pump into the inlet of the primary divider valve and slowly operate pump. If system will not cycle freely below 103.4214 bar [10342.14 kPa] (1500 PSI), refer to Step 2.
2. With pressure on the primary as outlined in Step 1, remove one at a time each supply line (if the supply lines cannot be removed, remove outlet fittings starting from the bottom and working towards the valve inlet) and attempt to operate manual pump after each line is removed DO NOT exceed 137.8951 bar [13789.51 kPa] (2000 PSI). If pressure drops and primary cycles freely after a line is removed then blockage is downstream in the area that is being served from that outlet. Refer to Step 3. If all supply lines are removed and primary will not cycle, blockage is in this divider valve.

### Contamination

If dirt, foreign material or any other form of contamination is found as the source of the blockage, clearing the blockage will only temporarily solve contamination blockage problems. **The source of the contamination must be eliminated for satisfactory service.** The reservoir must be inspected and cleaned if necessary. The reservoir filling method should be reviewed to eliminate any chance of foreign material entering the reservoir during filling. All lubricating systems require filtered lubricant.

### Grease Separation Blockage

If a hard wax or soap like material is found in the valve outlets, grease separation is occurring. This means that the oil is being squeezed from the grease at normal system operating pressure and the grease thickener is being deposited in the divider valve. Cleaning the divider valve will usually result in only temporarily solving the problem. Consult your dealer or lubricant supplier for recommendations on alternate lubricants and to verify compatibility with centralized lubricating systems.

**NOTE:** When a supply line of blocked area is removed a small shot of trapped lubricant will usually surge out of this outlet as the inlet pressure on the divider valve drops. If testing in Step 2 indicates a blockage in the primary divider valve, this divider valve must be replaced.

3. Test accomplished in Step 2 has indicated the lockage is downstream of the primary divider valve. Reinstall the supply line into the primary valve and proceed to downstream secondary divider valve and repeat Step 2 on the secondary valve. If lubricant can be discharged freely through the secondary valve, the blockage is in the supply line between the primary and secondary valve.
4. If high pressure exists on one of the secondary outlets, blockage has been located. Look for crushed line, tight bearing, improperly drilled fittings and/or lubrication inlet port. Correct as necessary.

CONDITION/PROBABLE CAUSE	CORRECTION
<b>Condition 1. Lubrication point not receiving grease.</b>	
A. Cut tubing or hose.	<p>A. Correct as Follows:</p> <ol style="list-style-type: none"> <li>1. Replace complete hose or tube.</li> </ol>
B. Lubrication point not receiving any grease.	<p><b>NOTE:</b> <i>Use only pre-filled grease lines when installing or servicing the automatic lube system.</i></p> <p>B. Correct as Follows:</p> <ol style="list-style-type: none"> <li>1. Check all lubrication points to determine extent of problem. Refer to grease circuit schematics on previous pages. <ul style="list-style-type: none"> <li>A. Starting at the problem lubrication point, disconnect the supply hose from the metering valve and check metering valve output. Use manual start switch to start lube cycle or apply external grease source at circuit grease fitting next to circuit pressure relief valve. If grease output is OK, inspect supply hose for leakage or blockage.</li> <li>B. If metering valve output is not OK, disconnect supply hose to metering valve and check hose output. If supply hose output is not OK continue flow checks rearward through circuit to determine source of blockage.</li> <li>C. If supply hose output is OK, blockage is in metering valve. Refer to metering valve blockage, Probable Cause "C".</li> </ul> </li> </ol> <p><b>NOTE:</b> <i>Use only pre-filled grease hoses when servicing the automatic lube system.</i></p> <p><b>NOTE:</b> <i>High pressure hoses (with crimped fittings) between the metering valves cannot be repaired. Replace entire hose if necessary.</i></p> <p><b>NOTE:</b> <i>Low pressure hoses (1/4 inch OD) can be spliced with part 448990A*</i></p>
C. Metering valve has grease flow blockage	<p>C. Correct as Follows:</p> <ol style="list-style-type: none"> <li>1. Valve body is distorted. Loosen 1/4 inch mounting bolts and retighten to 9 Nm (6.5 pound foot). Reconnect supply hose and check valve output. If output is not OK, replace metering valve.</li> </ol>
D. Hose or tubing is cut or has chaffed through	<p>D. Correct as Follows:</p> <ol style="list-style-type: none"> <li>1. Replace the complete hose or tube. - OR - If tube is broken, cut tube at break and repair using the tube union (available from your dealer). If hose is broken, cut ends at the break and install new reusable hose ends and screw into a 1/8 inch NPT female connector.</li> </ol>

CONDITION/PROBABLE CAUSE	CORRECTION
<b>Condition 2. Pump will not operate.</b>	
<p>A. Not Receiving 12 Volts</p> <p>B. Blocked pump cam.</p>	<p>A. Correct as Follows:</p> <ol style="list-style-type: none"> <li>1. Check fuses, timer and electrical supply. Check the electrical supply to the pump and the circuit board. If no current is received by the pump, trace to the electrical source and repair. If pump is receiving current and not turning, check for blockage and repair.</li> </ol> <p>B. Correct as Follows:</p> <ol style="list-style-type: none"> <li>1. Replace the pump motor if no blockage is found.</li> </ol>
<b>Condition 3. The pump motor is running but there is no grease being discharged.</b>	
<p>A. Air pocket at pump element inlet.</p> <p>B. Blocked pump inlet.</p>	<p>A. Correct as Follows:</p> <ol style="list-style-type: none"> <li>1. Disconnect the main delivery hose from the pump outlet. Run the pump until solid grease (no bubbles) flows from the outlet. If solid grease does not discharge after 20 minutes of operation, the pump inlet is blocked.</li> </ol> <p><b>NOTE:</b> <i>Depending on operating temperatures and types of grease, it may require 10 minutes to achieve full volume at the outlet.</i></p> <p>B. Correct as Follows:</p> <ol style="list-style-type: none"> <li>1. Remove the pump element from the pump body and inspect the suction inlet port for foreign particles. Remove an particles found. Reassemble the pump and element and cycle the pump. If the pump element does not discharge grease, replace the pump element.</li> </ol>
<b>Condition 4. Pump was operated with an empty reservoir.</b>	
<p>A. No grease.</p>	<p>A. Correct as Follows:</p> <ol style="list-style-type: none"> <li>1. Fill the reservoir to the “max” level and press the manual rest button. Disconnect the main delivery hose from the pump and watch grease flow until solid grease (no air bubbles) is discharged. Reconnect the main delivery hose to the pump outlet.</li> </ol>

**CONDITION/PROBABLE CAUSE****CORRECTION****Condition 5. Grease is discharged at the relief valve.**

A. Blockage in the metering valves, hose, tube or connected component.

A. Correct as Follows:

1. Switch the pump ON and loosen each outlet in the primary valve one at a time. The blocked outlet will start discharging grease and the indicator pin will index. Retighten all of the outlets on the primary valve. Trace the hose that discharged grease to its secondary valve. repeat the process of loosening each outlet one at a time until the blocked supply line is detected. Retighten all outlets. Repair the component blockage if found. If a metering valve is creating the blockage, replace the metering valve.

**NOTE:** *Use only pre-filled grease lines when installing or servicing the Automatic Greasing System.*

B. If no grease flows from the primary divider valve, or the indicator pin does not index.

B. Correct as Follows:

1. Refer to Condition Number 5.

**Condition 6. Divider valve cycles slowly or fails to cycle.**

A. Build-up in the internal parts of the divider valve.

A. Correct as Follows:

1. Remove the pistons and clean the primary divider valve block in solvent.

**IMPORTANT:** *Upon assembly, each piston must be replaced in the original bore from which it was removed. If the blockage is too hard, replace the primary divider valve.*

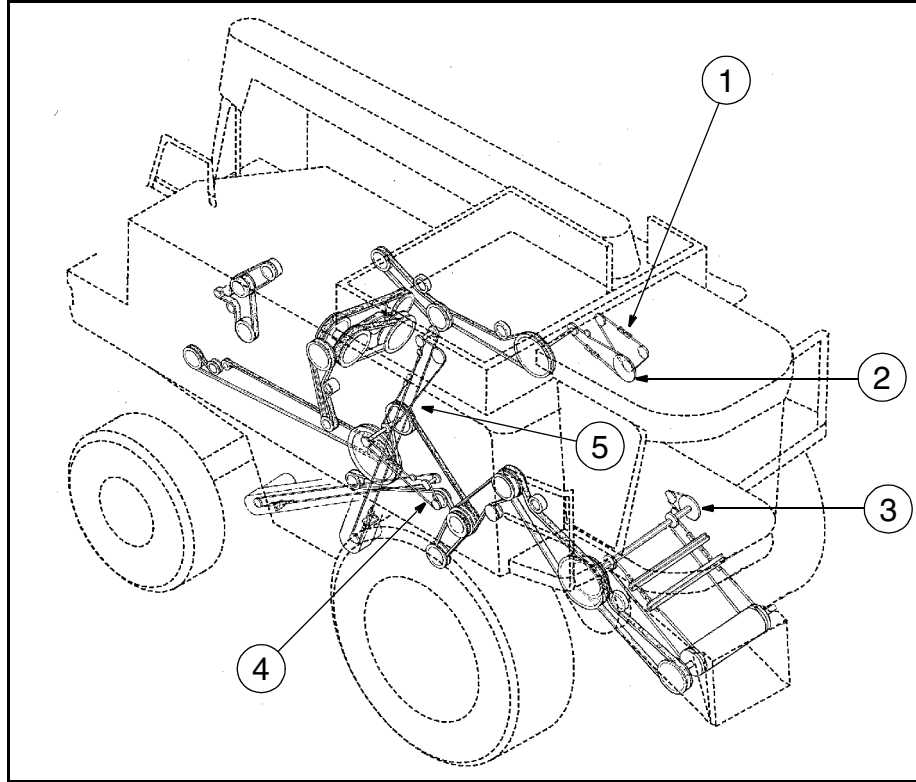
**Condition 7. Indicator pin on the primary valve does not move.**

A. Pin is blocked.

A. Correct as Follows:

1. Refer to Condition Number 4.

## CHAIN AND TRACK LUBRICATION

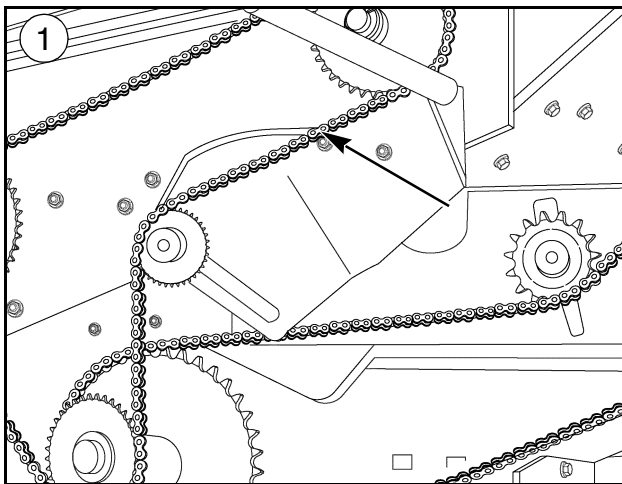


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**NOTE:** Use Case IH Chain and Cable Lube (M20832) or SAE 30 or heavier engine oil. Lubricate the chain after running the Combine. Oils penetrate better between pins and bushings on a warm chain.

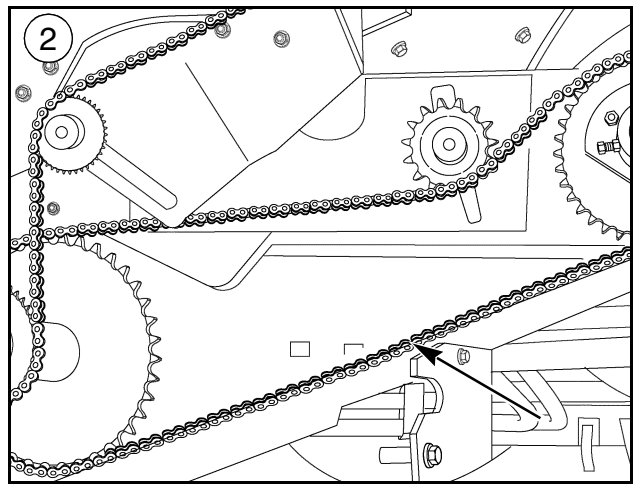
**NOTE:** Avoid excessive chain lubrication in severe dust or sandy conditions. Sand or dust buildup can accelerate chain and sprocket wear. **DO NOT** lubricate the clean grain elevator chain, tailings elevator chain or the feeder conveyor chain which run in crop.

### 10 Hours



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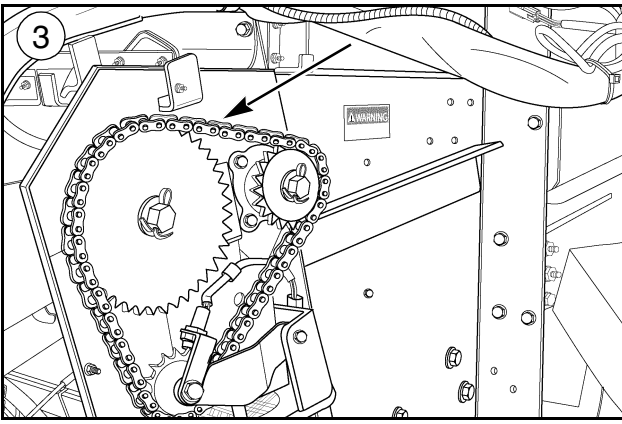
Grain Tank Auger Drive Chain



RR06E021

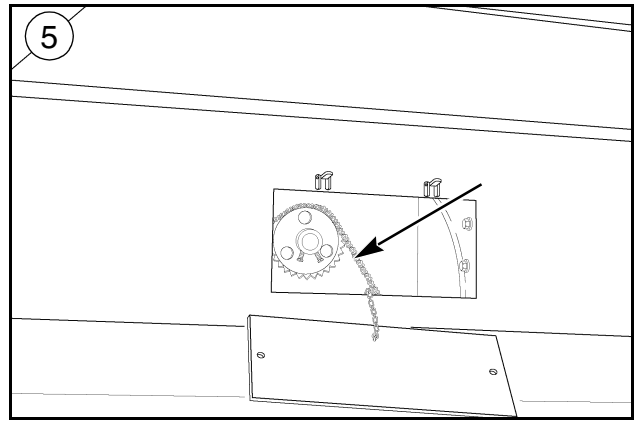
Unloader Drive Chain

## 8 - LUBRICATION/FILTERS/FLUIDS



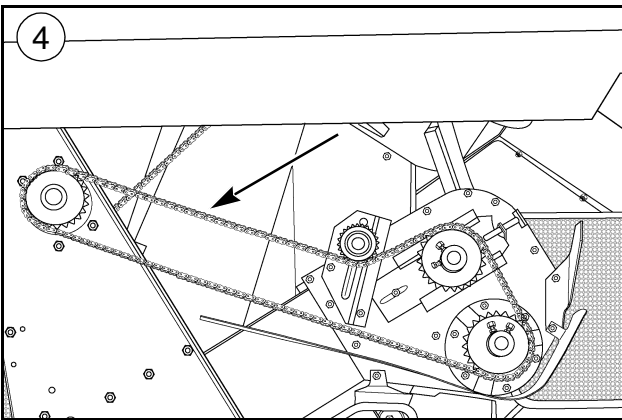
RD00E007

Rock Trap Chain



A1339.35

Grain Elevator Chain



A24428

Tailings Elevator Chain

## COMBINE SERVICE SPECIFICATIONS

### Engine Lubrication

Oil Level Check Interval .....	Daily
Oil Change Interval .....	Every 300 Hours
Oil Capacity - Without Filter Change .....	19 Litres (20 U.S. Quarts)
Oil Capacity - With Filter Change .....	21 Litres (22 U.S. Quarts)
Oil Type.....	CASE Number 1 Engine Oil

### Engine Oil Filter

Filter Change Interval .....	Every 300 Hours or Once a Year
------------------------------	--------------------------------

### Cooling System

Coolant Level Check Interval .....	Every 10 Hours
Check and Tighten Coolant Hose Clamps .....	Every 250 Hours
Coolant Filter Change Interval .....	Every 250 Hours
Coolant System Change Interval.....	Every 2000 Hours (or Once Every 2 Years)
Coolant Conditioner Change Interval .....	Every 2000 Hours (or Anytime Coolant is Changed)
Coolant Capacity .....	37.1 Litres (39.2 U.S. Quarts)
Thermostat .....	83° to 95° C (181° F to 203° F)
Deaeration Tank Cap .....	.69 kPa (10 PSI)

### Fuel System

Water Separator Filter .....	Drain Water Every 50 Hours. Replace when a loss of horsepower occurs.
Primary Engine Filter .....	Replace Every 500 Hours or when a loss of horsepower occurs
Fuel Tank Vent Filter .....	Replace Every 500 Hours or if a vacuum is noticed in the fuel tank
Fuel Type .....	Number Two Diesel

### Air Filter

Filter Service Interval.....	Clean When Air Filter Restriction Indicator is ON
Primary Filter Replacement Interval .....	Once a Year or After Three Cleanings
Secondary Filter Replacement Interval .....	Replace when Primary Filter is Replaced - DO NOT Clean

### Transmission

Oil Level Check Interval.....	Every 100 Hours
Oil Change Interval.....	Once a Year
Oil Capacity .....	16.2 Litres (4.3 U.S. Gallons)
Oil Type.....	CASE IH HY-TRAN® ULTRA

### Final Drive

Fluid Level Check Interval .....	Every 100 Hours
Fluid Change Interval .....	Every 500 Hours
Fluid Type .....	CASE IH HY-TRAN® ULTRA
Fluid Capacity (Each) .....	12.3 Liters (13 U.S. Quarts)

**Hydraulic Oil Reservoir and Filters**

Oil Level Check Interval.....	Every 10 Hours or Daily
Clean Reservoir Breather.....	Every 100 Hours
Reservoir Capacity.....	38 Litres (10 U.S. Gallons)
Hydraulic Oil Type.....	CASE IH HY-TRAN® ULTRA
Hydraulic Oil Filter Change Interval.....	Every 1000 Hours
Hydraulic Oil Change Interval.....	Every 1000 Hours

**PTO Housing**

Fluid Level Check Interval.....	Every 100 Hours
Fluid Change Interval.....	Every 500 Hours
Oil Type.....	CASE IH HY-TRAN® ULTRA
Oil Capacity.....	13.2 Litres (14 U.S. Quarts)

**Feeder and Cleaning Fan Gear Case**

Oil Level Check Interval.....	Every 100 Hours
Oil Change Interval.....	Every 500 Hours
Oil Capacity.....	6.4 Litres (6-3/4 U.S. Quarts)
Oil Type.....	CASE IH 135H EP 85W-140 Gear Lubricant

**Feeder Reverser Gear Case**

Fluid Level Check Interval.....	Every 100 Hours
Fluid Change Interval.....	Every 500 Hours
Fluid Capacity.....	0.4732 Litres (0.5 U.S. Quarts)
Fluid Type.....	CASE IH HY-TRAN® ULTRA

**Lower Unloader Gear Case**

Oil Level Check Interval.....	Every 100 Hours
Oil Change Interval.....	Every 500 Hours
Oil Capacity.....	0.83 to 0.89 Litres (7/8 to 15/16 U.S. Quarts)
Oil Type.....	CASE IH 135 H EP 85W-140 Gear Lubricant

**Rotor Gear Case**

Fluid Level Check Interval.....	Every 100 Hours
Fluid Change Interval.....	Every 500 Hours
Fluid Capacity.....	7.5 Liters (7.9 U.S. Quarts)
Fluid Type.....	CASE IH 135 H EP 85W-140 Gear Lubricant

**Straw Chopper Gear Case (If Equipped)**

Fluid Level Check Interval.....	Every 100 Hours
Fluid Change Interval.....	Every 500 Hours
Fluid Capacity.....	3.1 Litres (3.3 U.S. Quarts)
Fluid Type.....	CASE IH HY-TRAN® ULTRA

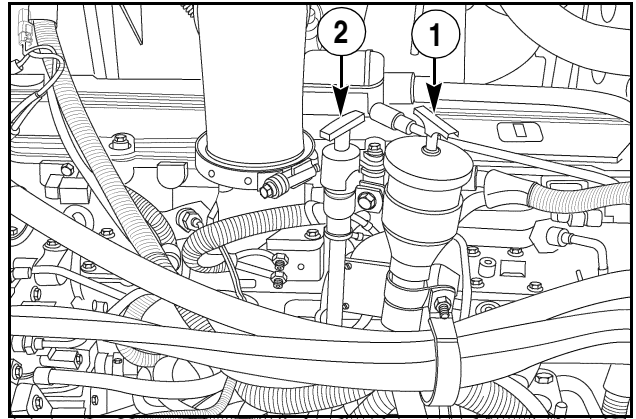


## ENGINE LUBRICATION

### Engine Oil Level

To check the engine oil level, put the Combine on level ground and stop the engine. It is best to check oil before engine is started. This allows the oil time to flow into the sump to ensure an accurate reading. Turn the dipstick handle counterclockwise to remove the dipstick. If the oil level is below the cross hatched mark, add oil to raise the oil level to within the safe range. Do not raise the oil level above the FULL mark.

Install the dipstick and turn the handle clockwise to secure the dipstick in the tube.



RD05D071

1. OIL FILLER

2. DIPSTICK

### Engine Oil Selection

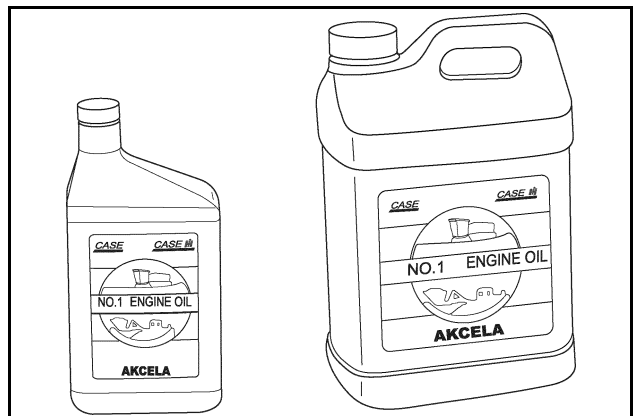
CASE IH Number 1 Engine Oil is recommended for use in your CASE Engine. CASE IH Engine Oil will lubricate your engine correctly under all operating conditions.

If CASE IH Number 1 Multi-Viscosity Engine Oil is not available, only use oil meeting API engine oil service category CI-4.

**NOTE:** *DO NOT put Performance Additives or other oil additive products in the engine crankcase. The oil change intervals given in this manual are according to tests with Case lubricants.*



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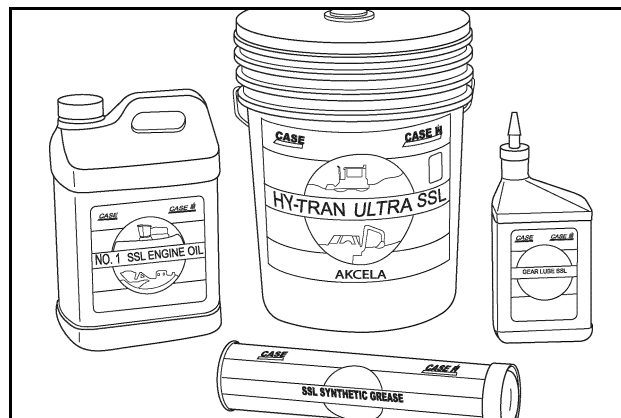


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## Synthetic Lubricants

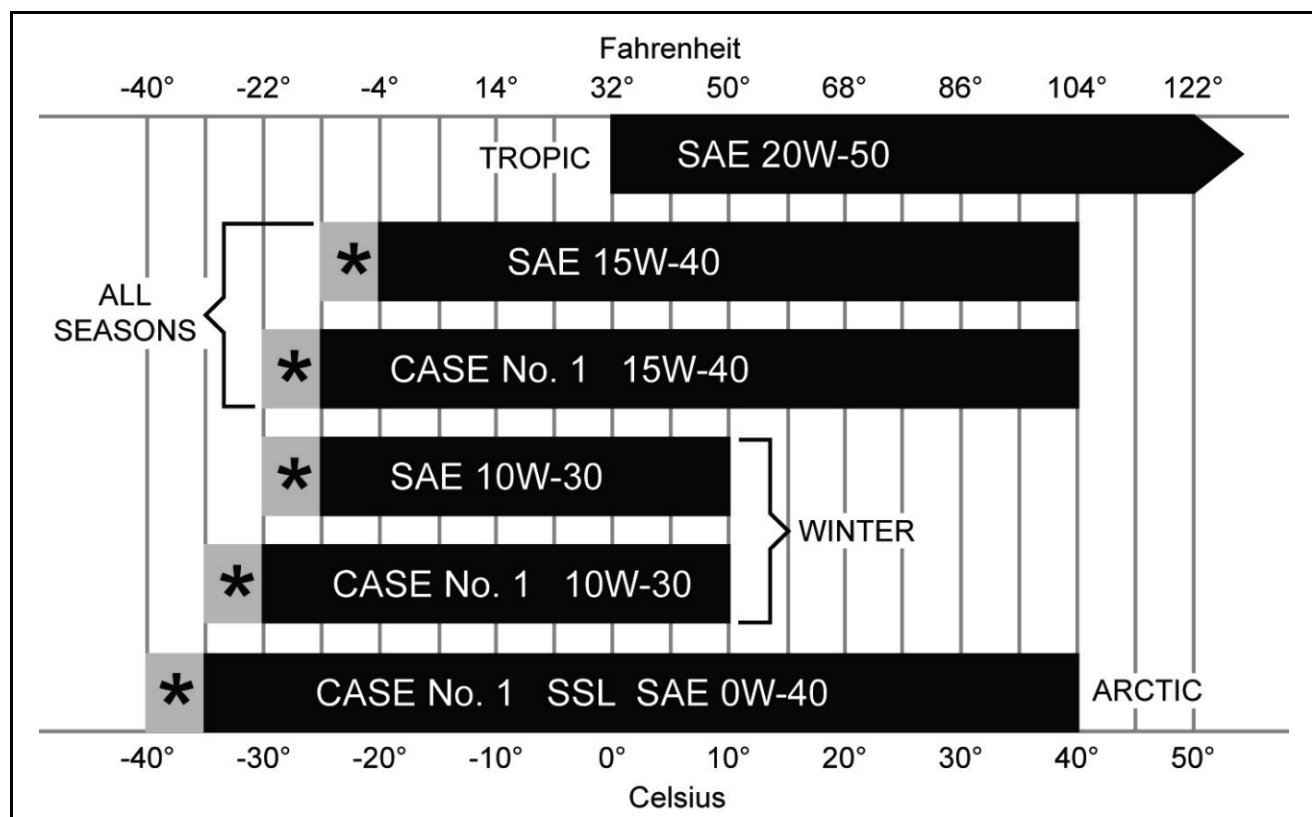
Synthetic lubricants are available from your dealer for your machine. Synthetics are used just as you would use mineral-based lubricants.

**IMPORTANT:** *The use of synthetic lubricants does NOT permit extension of recommended service intervals. All synthetic oils must meet or exceed the API service requirements.*



RR4F001

## Oil Viscosity/Temperature Usage Recommendation



RR05N002

\* Use of an engine oil heater, or an engine coolant heater, is required in shaded area.

## Engine Oil Change

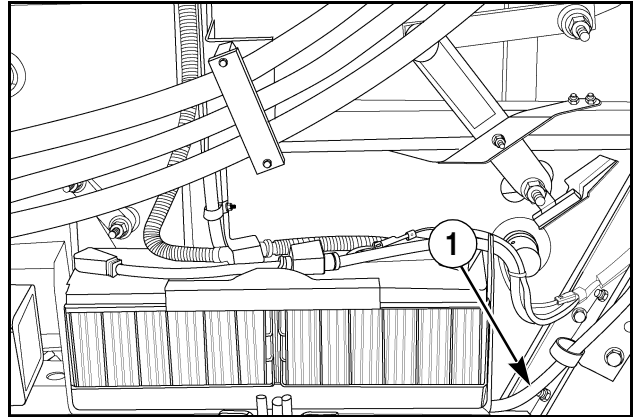
To change the engine oil put the Combine on level ground and stop the engine. Change the engine oil as follows:

**NOTE:** For best results change the oil while the engine is still warm from operation.

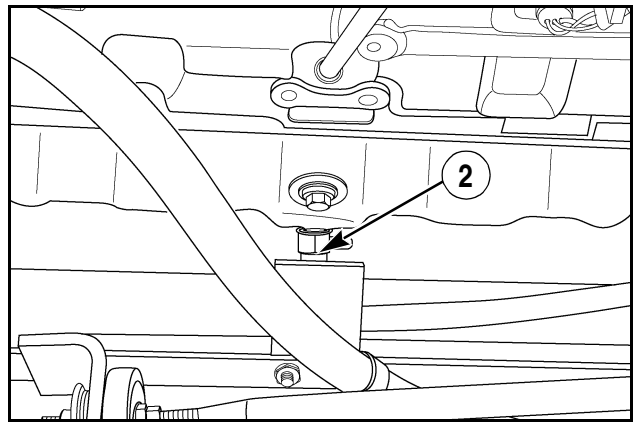
1. Place the end of the engine oil drain hose (1) in a container. Loosen the oil filler cap to vent the engine.

**NOTE:** Shields removed for clarity. NEVER operate Combine with shields removed.

2. Open the oil pan drain valve (2) and drain the oil from the engine.
3. Close the oil pan drain valve.
4. See ENGINE OIL FILTER if the oil filter is to be changed.
5. Put the correct type and amount of new oil into the engine. Remove the dipstick and check the engine oil level. (See Engine Oil Level in this manual).
6. Start the engine and check to make sure the lubricating oil is pressurized.
7. Inspect the engine oil filter for leaks.



RD97G066



RD97G121

## Engine Oil Filter

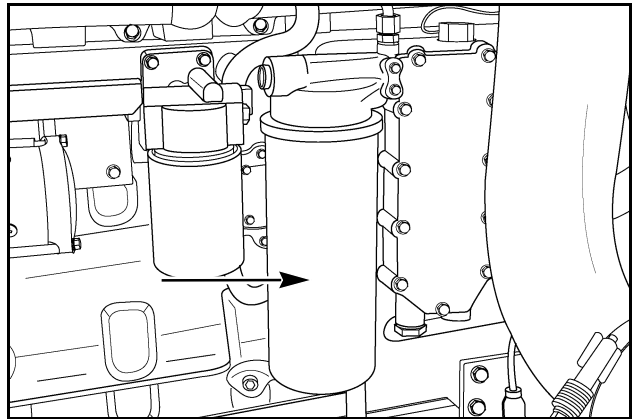
**IMPORTANT:** *Change the oil filter at the recommended time interval. Your dealer has approved filters. Do not use other type filters.*

Change the engine oil filter as follows:

1. Drain the oil from the engine.
2. Turn the oil filter counterclockwise to remove. Use a filter wrench if necessary.
3. Apply clean oil to the gasket on the new filter.
4. Install the filter. Turn the filter until the gasket comes in contact with the filter head. Tighten the filter an additional one half turn by hand.
5. Loosen the filter approximately one turn. Turn the filter again until the gasket comes in contact with the filter head. Tighten the filter an additional one half to three-fourths of a turn by hand.

**IMPORTANT:** *DO NOT use a filter wrench to install the oil filter. When the filter is too tight damage to the gasket and filter may occur.*

6. Close the oil pan drain valve.
7. Install new oil in the engine.



RD02E207

## COOLING SYSTEM

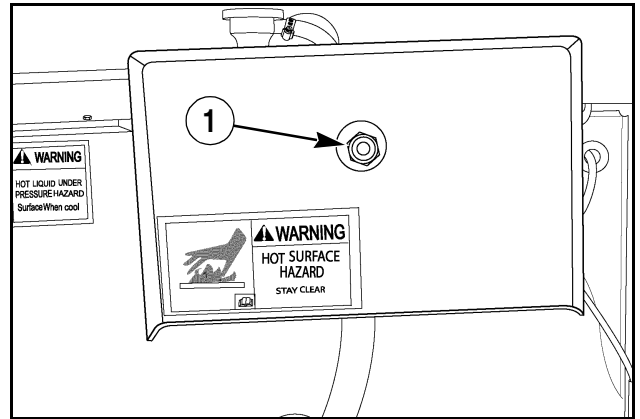
### Pressure Cooling System



**WARNING:** Check and service cooling system according to maintenance instructions. Hot coolant can spray out if deaeration tank cap is removed while system is hot. To remove deaeration tank cap, let system cool, turn to first notch, then wait until all pressure is released. Scalding can result from fast removal of the deaeration tank cap.

M513

1. The pressure cap on a pressure cooling system has a control valve that operates as a SAFETY RELIEF VALVE to keep the pressure within the system operating range. Operating the engine without a pressure cap or with a pressure cap that has a control valve that is not set to operate at the correct pressure, can cause damage.
2. A pressure cooling system decreases the loss of coolant caused by evaporation or boiling. The system must have good seals at the deaeration tank pressure cap, hoses and hose connections. It is important that you stop ALL LEAKS OF ANY SIZE as soon as the leaks are found. A small leak can become a large flow when pressure is increased in the cooling system. While the Combine is in operation, a weak hose can break and cause injury or damage. Check all hoses and hose connections with frequency. KEEP HOSES, HOSE CONNECTIONS AND PRESSURE CAP IN GOOD CONDITION.
3. Check the coolant level of the deaeration tank every 10 hours of operation. The cold coolant level must cover the deaeration tank sight glass (1).



RD03J102

### Thermostat

**NOTE:** Do not operate the Combine without a thermostat or with a defective thermostat. The engine can run too hot or too cold causing possible engine damage.

## Coolant Solutions

Combine is shipped with the cooling systems filled with a 50 percent mixture of distilled water and Ethylene Glycol solution for freeze and corrosion protection.

You may need to add small amounts of coolant to the cooling system to keep the system full (See Cooling System Filling in this manual). The engine on this machine requires a Supplemental Coolant Additive (SCA) for protection against corrosion of the cylinder liners. Your engine has a special coolant filter which maintains the level of SCA in the cooling system and which must be replaced at specified intervals listed in this manual. When adding to the cooling system, it is recommended that a 50:50 mixture of low silicate heavy duty Ethylene Glycol/water coolant solution, containing SCA (Available at your dealer), be added. This will give your system maximum protection.

**IMPORTANT:** *Change the coolant solution every two years as recommended in this manual. The heat generated by the diesel engine causes a natural change in the coolant which results in loss of corrosion protection. The loss of the inhibitors may cause water pump cavitation and cylinder block erosion.*

When draining system and refilling with new coolant at the intervals specified in this manual, remember that a mixture of 50% Ethylene Glycol and 50% good quality water must be used. A 50:50 mixture is used if the lowest outside temperature is above -37°C (-34°F). If the temperature is lower, adjust the mixture to get a lower freeze point using the freeze point concentration chart on the label of your antifreeze concentrate container. **NEVER use a coolant solution containing more than 60% Ethylene Glycol.** It is recommended that Ethylene Glycol and water be used in your machine at all times.

When filling the system, you may use a premixed 50:50 Ethylene Glycol/water solution or mix Ethylene Glycol concentrate with water. **Always use a good quality Ethylene Glycol coolant that Does Not have any additives to stop leaks.** The coolant must contain less than 0.1 percent silicate and must meet ASTM specification D-4985 or D-5345.

**IMPORTANT:** *Use only heavy duty low silicate coolant. Automotive antifreeze purchased at local supply store outlets most likely is NOT low silicate and MUST NOT be used in Case heavy duty diesel engine.*

Do Not install any rust inhibitors that are not approved. It is possible that the rust inhibitors and coolant will not mix and will work against each other to decrease corrosion protection, form deposits in the cooling system and cause damage to the cooling system and the radiator.

Do Not use a low boiling point, alcohol type coolant solution. The boiling point of alcohol is below the Combine minimum operating temperature, loss of coolant from evaporation will cause overheating.

When refilling with a 50:50 mix of **fully formulated (Containing SCA)** low silicate heavy duty coolant, always replace the coolant filter conditioner using a maintenance size filter.

When refilling with a 50:50 mix of **regular (Without containing SCA)** heavy duty coolant, always replace the coolant filter conditioner using a precharge size filter. If a maintenance size filter is used, you **MUST** add CASE Cooling System Treatment (Available from your dealer) to the system for maximum protection.

Fill the deaeration tank and radiator using the procedure specified in this manual (See Cooling System Filling in this manual).

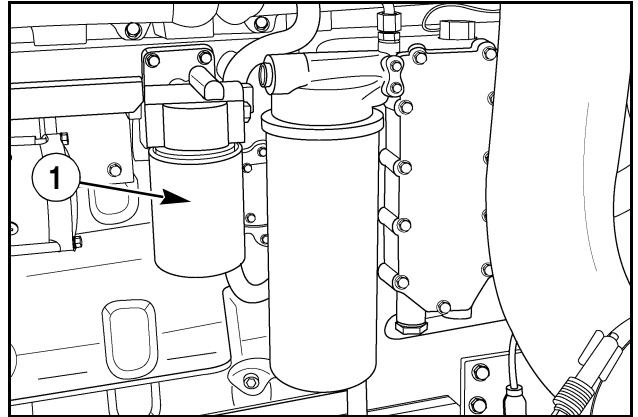
## Coolant System Filter Conditioner

The cooling system filter (1) contains an element which filters the coolant and provides chemicals to condition the coolant.

To maintain protection of the cooling system from corrosion, deposit formations, chemical attack and cavitation erosion of cylinder sleeves. The coolant filter conditioner must be changed every 250 hours of operation.

Whenever the cooling system is drained and refilled, the coolant must be treated with CASE Cooling System Treatment (Available from your dealer). The coolant filter must also be replaced. This will assure that the chemical concentration is returned to the same level as before draining the system. Changing only the filter will not provide adequate chemical additives.

The coolant filter shutoff valve must be closed before changing the coolant filter.



RD02E207

### TO REMOVE THE FILTER:

1. Close the shutoff valve.
2. Use a strap type wrench or filter wrench to remove the filter.

### TO INSTALL THE FILTER:

1. Lubricate the gasket on the new filter.
2. Turn the filter on the threads of the adapter until the gasket makes contact.
3. Tighten the filter 1/2 to 3/4 turn after the gasket makes contact with the adapter. DO NOT tighten too much. DO NOT use a filter wrench to tighten the filter.
4. Open the shutoff valve.

**NOTE:** Adding coolant "Stop Leak" to the cooling system will cause premature plugging of the filter.



**WARNING:** Hot coolant can spray under pressure. Close valves before removing filter.

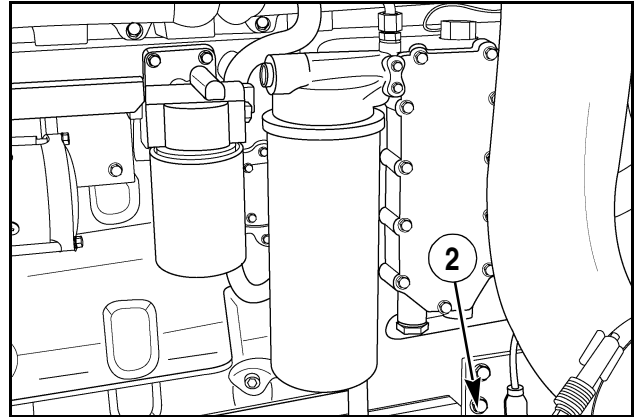
M153A

## Draining the Cooling System

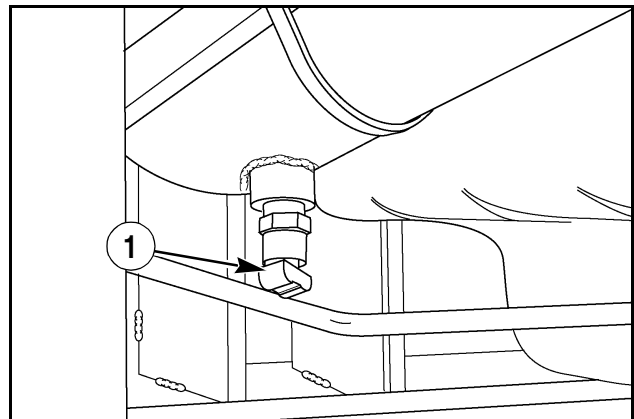
Clean the cooling system each time the coolant is changed. Clean the system as follows:

1. When the coolant is hot, open the radiator drain valve (1) and the block drain valve (2). Close the drain valves after the system is empty.
2. Install a good type of radiator cleaner and fill the system with clean water. Follow the instructions given with the radiator cleaner.
3. Remove the radiator cleaner solution. Flush the system with clean water.

**IMPORTANT:** *Never put coolant in a hot engine because the difference in temperature between the metal and the coolant can cause cracks.*



RD02E207



RD02E218



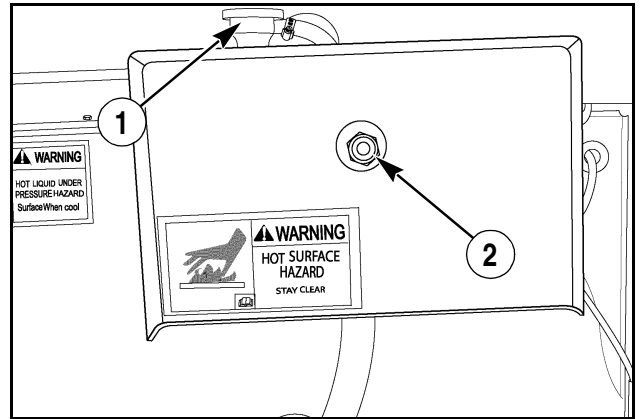
## Filling the Cooling System

Any time the radiator is drained or if the coolant level in the deaeration tank is below the sight glass on the deaeration tank, the following procedure must be used to install coolant in the deaeration tank and radiator:

**IMPORTANT:** NEVER PUT COOLANT IN A HOT ENGINE: THE ENGINE BLOCK OR CYLINDER HEADS CAN GET CRACKS BECAUSE OF THE DIFFERENCE IN TEMPERATURE BETWEEN THE METAL AND THE COOLANT.

Before filling the cooling system make sure all drains are closed.

1. Fill the cooling system with the coolant solution specified in this manual.
2. Remove the deaeration tank cap (1). Fill the deaeration tank and radiator slowly (which permits air to escape). Fill the deaeration tank to the top of the sight glass (2).
3. Check the hoses, radiator, pump and water manifold for leaks.
4. Install the deaeration tank cap (1).
5. Start the engine and run at low idle for one minute. Refill the deaeration tank to the top of the sight glass (2).
6. Start the engine and increase the coolant temperature to normal operating temperature.
7. Stop the engine to permit the coolant to cool.
8. Make sure you can see fluid in the deaeration tank sight glass (2). If necessary add coolant solution to the deaeration tank to fill the sight glass (2).



RD03J102

## Air-to-Air Intercooling

This Combine is equipped with an air-to-air intercooler to increase power (denser air) and improve emissions. The engine intake air in this cooler, tubes, and hoses are pressurized to turbo boost pressure. It is very important that all hose, gasket, and O-ring joints in this system are leakproof. If not, engine power will be reduced.

## FUEL SYSTEM

The fuel system on the Combine has a 690 liter (180 U.S. Gallon) fuel tank, water separator filter, fuel filters and fuel injection parts. To prevent dirt and water from reaching the injection parts, which will cause damage and decrease performance, use clean fuel, drain the water separator filter at regular intervals and service the fuel filters.

FOR THE PROTECTION OF YOUR FUEL SYSTEM,  
GET CLEAN FUEL AND KEEP THE FUEL CLEAN.

### Diesel Fuel Specifications

Use a Number 2 Diesel fuel in your engine. Do not use other types or grades of fuel. The use of other fuels will result in loss of engine power and high fuel consumption.

**NOTE:** *When the temperature is very cold, the use of a mixture of Number one and Number 2 Diesel fuel is permitted for a short period of time. See your fuel dealer for winter fuel requirements in your area.*

### Fuel Conditioner

Diesel Fuel Conditioner is available from your dealer. Instructions for the use of the fuel conditioner are on the container.

The use of Diesel Fuel Conditioner will:

1. Clean fuel injectors, valves and manifolds for increased service life.
2. Disperse insoluble gummy deposits that can form in the fuel system.
3. Separate moisture from the fuel.
4. Stabilize fuel in storage.

### Biodiesel Fuel

The use of biodiesel blends meeting Specification Standards ASTM 6751 or EN14214 is approved for your engine up to B5 (5% blend ratio). It is highly recommended that you use biodiesel fuel from accredited suppliers to maintain the quality and consistency of the fuel.

Biodiesel does not have a long term stability and should not be left in engines or stored for more than four months. Prior to storing your machine for more than 4 months, the engine should be flushed by running for a minimum of 30 minutes with conventional diesel fuel.

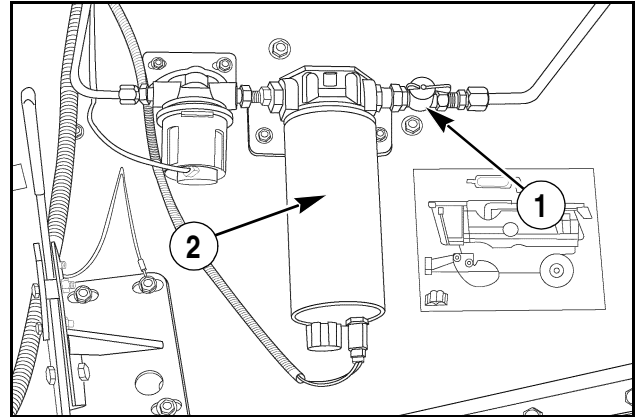
Biodiesel fuel has a higher cloud point than conventional diesel fuels and is not recommended for use in winter months. Consult your fuel dealer for winter fuel requirements for your area.

Biodiesel fuel attracts moisture and may contain a higher water content than conventional diesel fuel. It may be necessary to drain the fuel filter water trap more frequently.

## Water Separator Filter Replacement

Close the fuel tank shutoff valve (1). Remove the water separator filter (2) with a clamp type filter wrench. Lubricate the new filter gasket with a small amount of clean oil or grease. Install the filter. Open the fuel tank shutoff valve. To remove air from the system, refer to Air Removal in this manual.

**IMPORTANT:** Turn the filter clockwise until the filter gasket comes in contact with the filter head. Use your hand to tighten 1/2 of a turn. To obtain the correct seal, loosen the filter and again tighten 1/2 to 3/4 of a turn after the gasket comes in contact with the filter head. When the filter is too tight, damage can occur to the gasket and filter.



RD05D065

## Fuel Filter Replacement

1. Turn the fuel shutoff valve clockwise to stop the fuel.
2. Clean the filter and engine area next to the filter.
3. Turn the filter counterclockwise to remove. Use a clamp wrench if required.
4. Remove and discard the gasket from the adapter. Install a new gasket on the adapter.
5. Apply clean oil or grease to the gasket on the new filters.

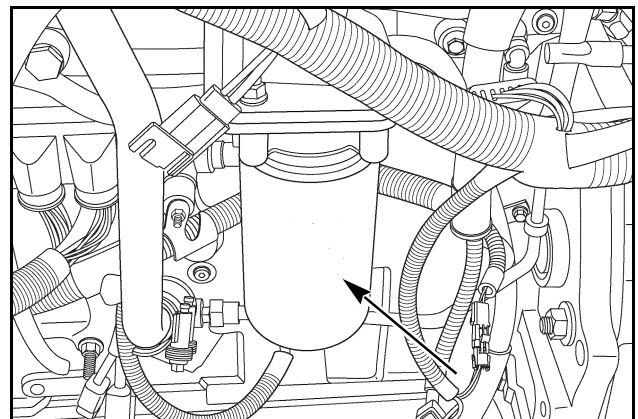
**NOTE:** Do not fill the new filters with fuel before installation.

6. Install the new filter.

**IMPORTANT:** Turn the filter clockwise until the gasket contacts the filter head. Use your hand to tighten 1/2 of a turn. To obtain the correct seal, loosen the filter and again tighten 1/2 to 3/4 of a turn after the gasket contacts the filter head. When the filter is too tight damage can occur to the gasket and filter.

7. Fill the fuel tank and remove air from the fuel system.

**NOTE:** If the engine does not have power with a full load after you have removed the air from the system, see your dealer.

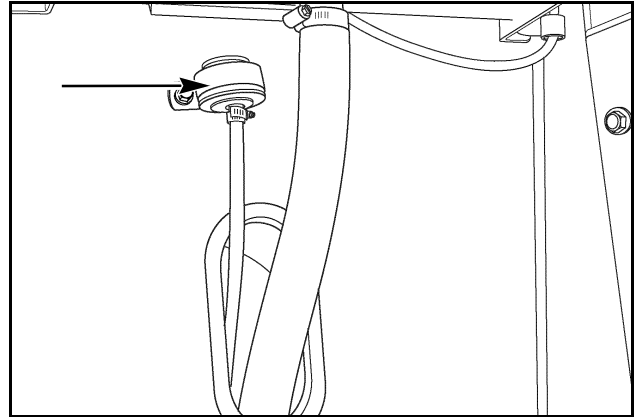


RD05D072

## Fuel Tank Vent Filter

1. Loosen clamp holding filter in place.
2. Remove vent line.
3. Replace filter in clamp and install vent line.

**NOTE:** Filter must be replaced if a vacuum is noticed in the tank. A hissing sound as the fuel cap is being removed is an indication that the fuel tank vent filter is plugged.



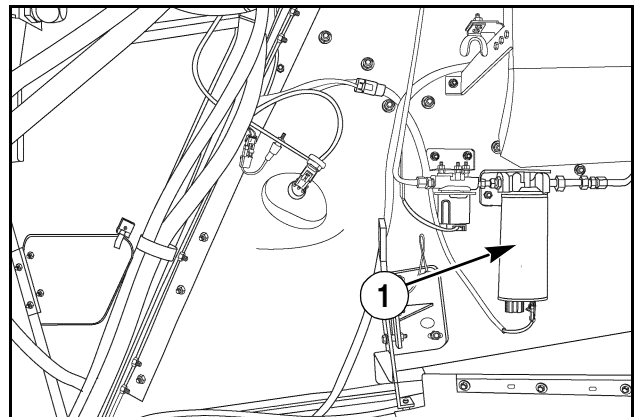
RD05D077

## Fuel System Air Removal

Air must be removed from the fuel system. Air can enter the fuel system under the following conditions:

1. The fuel tank has no fuel.
2. Fuel system part are removed for service or repairs.
3. The Combine is in storage for a long period of time.

**NOTE:** If the Combine has no fuel it is possible to put fuel in the tank and start the engine without doing the air removal procedure. However, a small amount of air can be in the filters and injection pump. Air in the system will cause loss of power and engine stall when a load is applied.

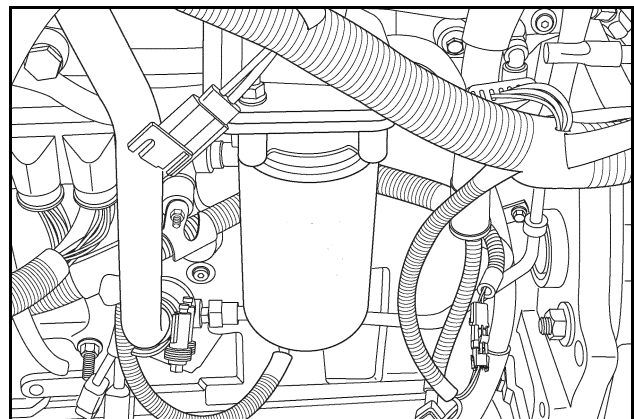


RD05D063



**WARNING:** Never refuel the machine when the engine is hot or running. Never smoke while refueling. M139C

1. Make sure there is fuel in the fuel tank.
2. Fill water separator filter (1) with fuel.
3. Turn key On and wait approximately 35 seconds to allow the fuel system to prime. Turn the ignition key to the **OFF** position.



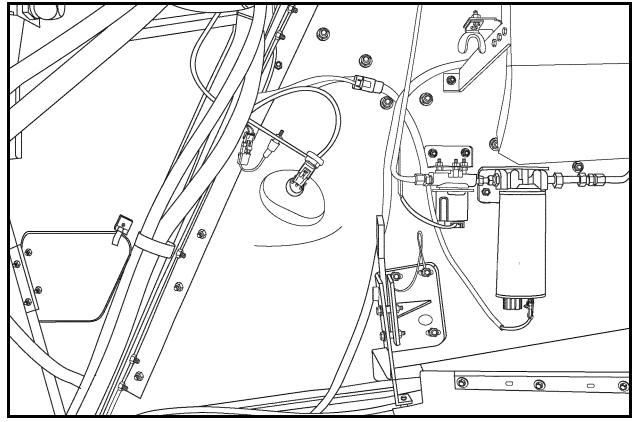
RD05D072

4. Repeat Step 3 two more times (Total of three cycles).

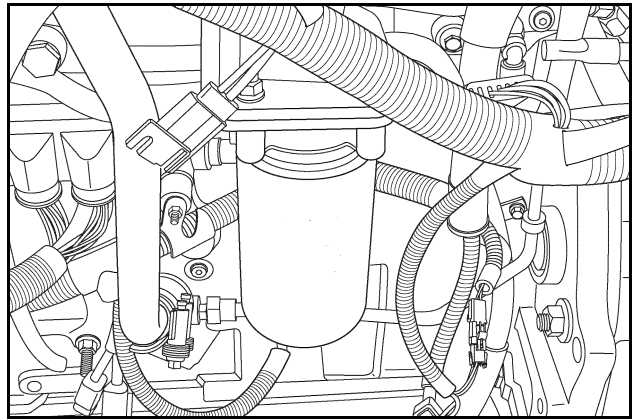
5. Start engine.

**NOTE:** *If the engine will not start, repeat Steps 3 and 4.*

**NOTE:** *Diminished engine performance can occur if the fuel supply system is not bled properly.*



RD05D063

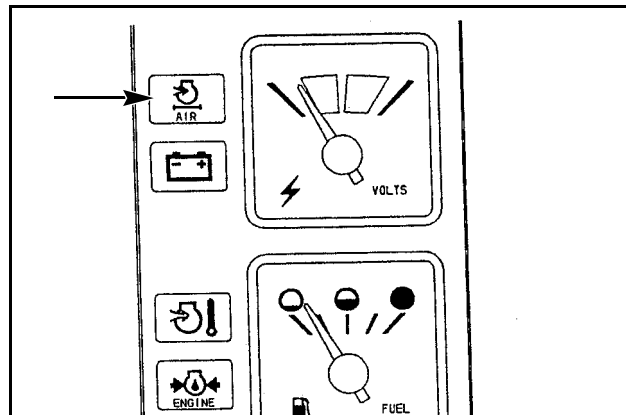


RD05D072

## AIR INDUCTION SYSTEM

### Air Filter Restriction Indicator

When the Air Filter Restriction Indicator is ON and the audible alarm is ON, the primary air filter element needs service. The indicator is turned on by an air restriction switch. This switch is activated at an air restriction of 6.20 kPa (25 inches) of water. Refer to Air Filter Service for more information.



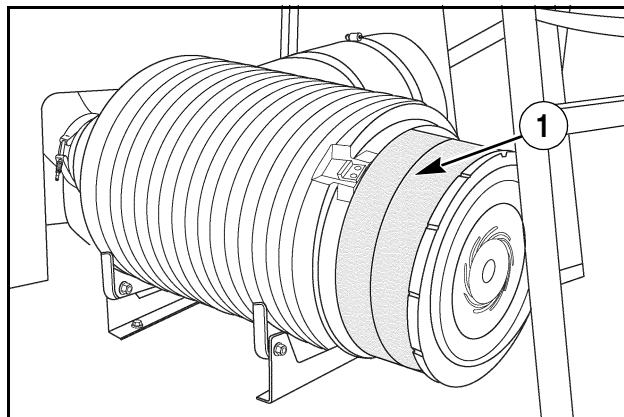
RH97H011

### Air Filter

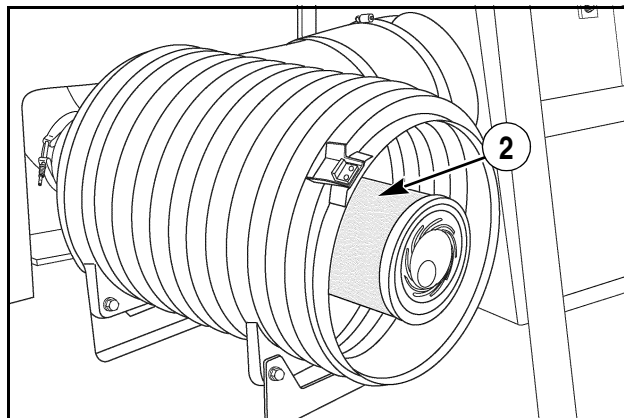
The Combine is equipped with a two-stage air filter system consisting of a primary (1) (outer) filter and a secondary (2) (inner) filter.

The primary filter is a high capacity filter designed to provide optimum protection to the engine. The primary filter can be cleaned or washed as required between filter changes (Refer to Air Filter Service for more information).

The secondary (inner) filter gives extra protection to the engine if there is damage to the primary filter. The secondary filter cannot be cleaned or washed. Replace the filter if the filter has damage or is dirty. This filter might look clean but is in fact very dirty. It collects very small dirt particles that cannot be seen with the naked eye.



RD02E151



RD02E152

## Inspection

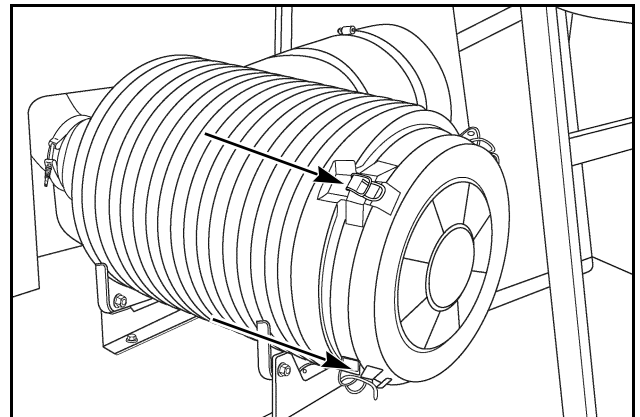
To prevent the entrance of dirt into the engine, it is absolutely essential that frequent inspection of the flexible rubber connections from air cleaner to intake manifold be made. Hoses or flexible connections must be replaced before they deteriorate. To eliminate any undue strain on the connections, make sure the pipes line up. See that all joints between the air cleaner and intake manifold are tight; this includes hose connections, manifold joints and gaskets.

All gaskets must be in good condition and all clamps drawn up tight.

Maintenance and care of the air cleaning system which includes the filter elements is the responsibility of the owner.

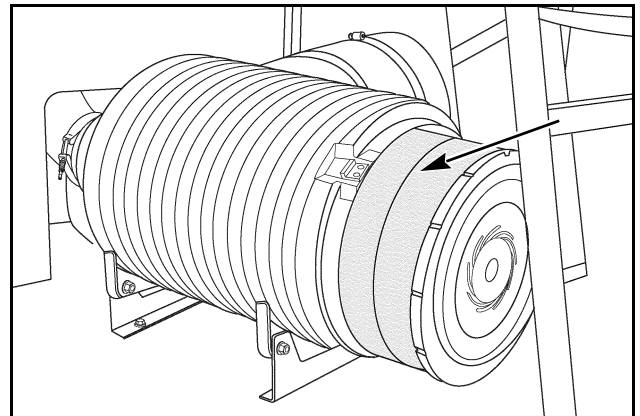
## Air Filter Removal and Service

1. Release the four clips on the air cleaner cover and remove the air cleaner cover from the air cleaner housing.



RD02E150

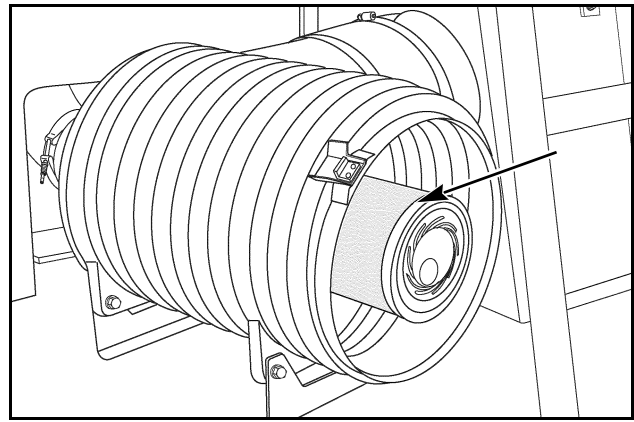
2. Remove the primary filter from the housing. Do not let dirt fall on the secondary filter element.



RD02E151

3. Remove and discard the secondary filter element from the air cleaner housing.

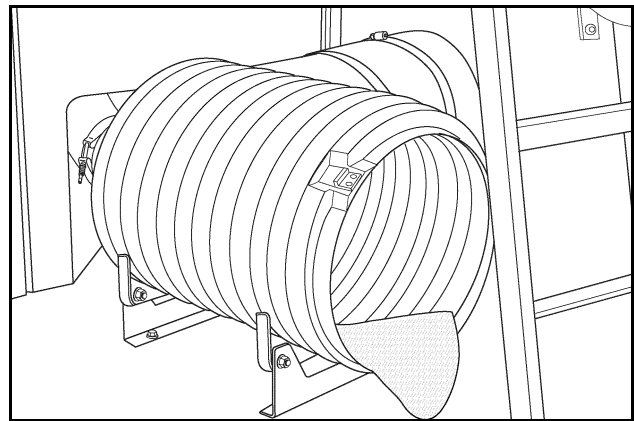
**NOTE:** Do not remove the secondary (inner) element unless the secondary element is to be replaced.



RD02E152

### Cleaning Primary Air Filter

4. Clean the inside of the air cleaner body.

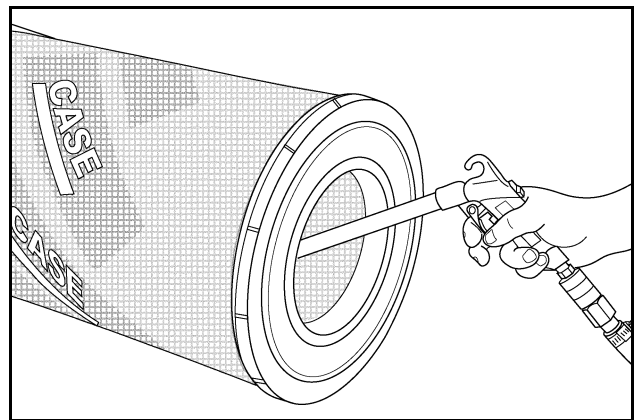


RD02E153

5. If most of the dirt is dry, clean the element with compressed air (**Be sure to wear face protection when using compressed air**). Keep the air nozzle about 127 mm (5 inches) from the element and move the nozzle up and down while turning the element.

**IMPORTANT:** The nozzle pressure must not exceed 241 kPa (35 PSI).

**NOTE:** Do not use the compressed air method of element cleaning if the dirt has oil or soot.

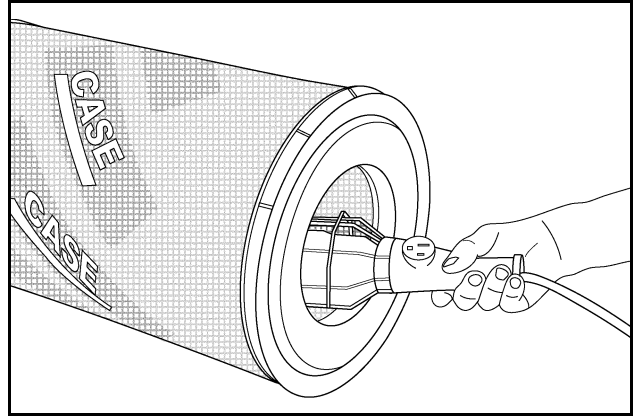


RK99G165



## Primary Air Filter Inspection

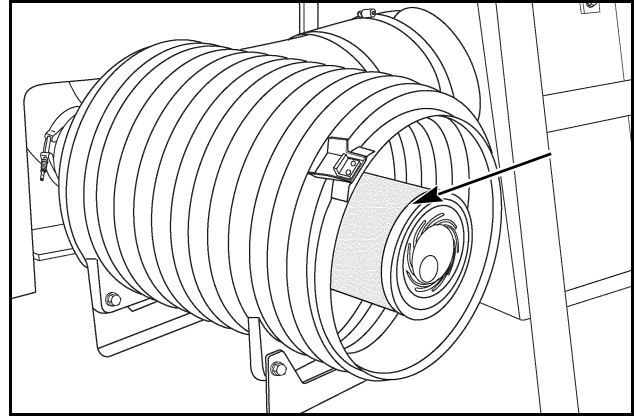
6. To check the clean element for damage or holes, put a lamp inside the element and turn the lamp. Visually check the rubber gasket for damage. Check the metal cover and filter material for damage. Replace an element that is damaged.



RK99G164

## Air Filter Installation

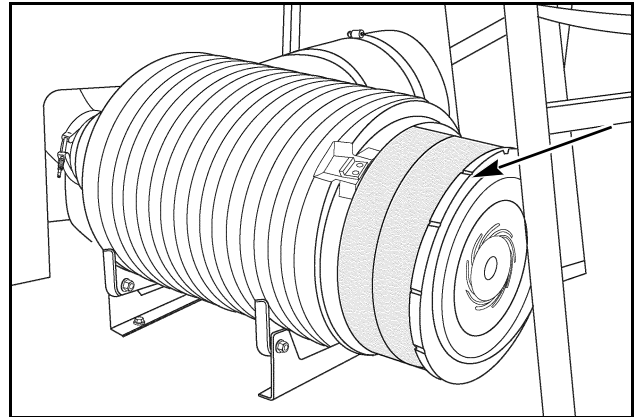
7. Do not clean the element. Install a new secondary element if the primary element is to be replaced.



RD02E152

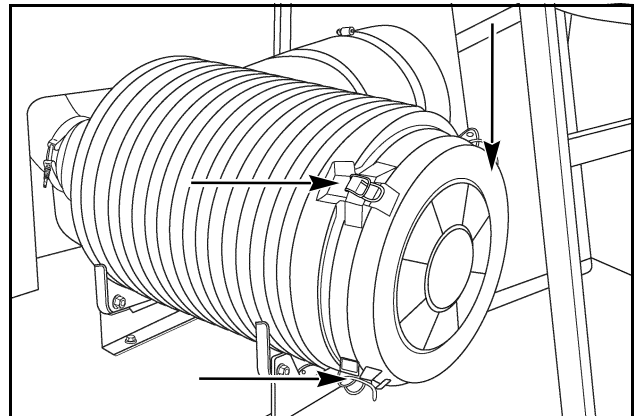
8. Install the air cleaner primary filter element.

**NOTE:** Apply a thin coat of talcum or baby powder to the seal area of the element, before installing. NEVER use a petroleum based lubricant on the seal area. Petroleum lubricant could “glue” the cover to the element seal and damage the element.



RD02E151

9. Install the air cleaner cover on the air cleaner housing and secure the four retaining clips to the housing.



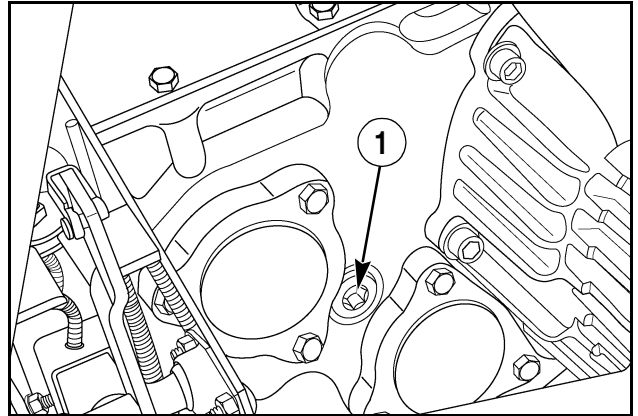
RD02E150

## TRANSMISSION

### Transmission Oil Level

To check the transmission fluid level, put the Combine on level ground. Remove the fill plug (1) and check the fluid level. If the fluid level is low, add the recommended type fluid through the fill hole until the fluid level is even with the bottom of the hole. Install the plug.

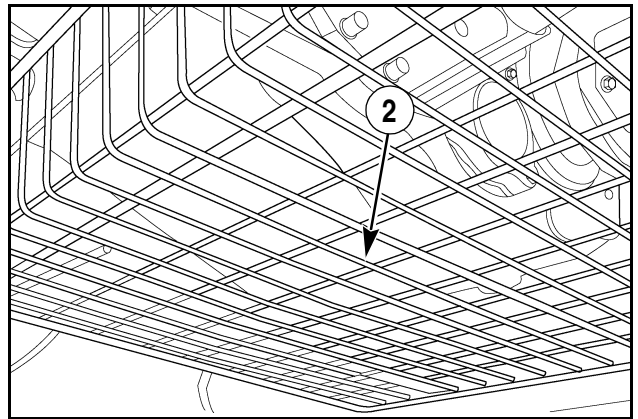
**IMPORTANT:** *To avoid excessive heating, never overfill the transmission. Any excess oil above the bottom of the fill plug should be drained. Caution: oil may be hot.*



A24378

### Transmission Oil Change

To change the transmission fluid, put the Combine on level ground. Remove the drain plug (2) located on the bottom of the transmission housing. For best results, drain the fluid when the fluid is warm. Install the drain plug. Add the recommended fluid type through the fill hole until the fluid level is even with the bottom edge of the hole. Wait approximately 5 minutes. Check the fluid level again and add fluid as necessary. Install the fill plug.



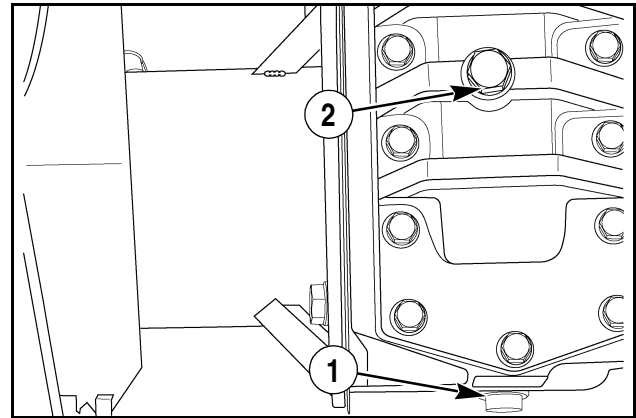
A24403

## FINAL DRIVE

### Fluid Check and Change

To check the final drive fluid level, put the Combine on level ground. Remove the fill and level plug located on the front of each final drive housing. If the fluid level is low, add the recommended fluid to raise the fluid level to the bottom edge of the fill hole. Install the plug.

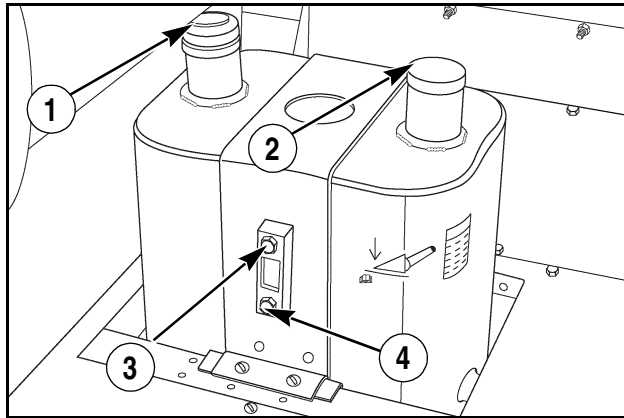
To change the final drive fluid, put the Combine on level ground. Remove the drain plug (1) located on the bottom of each final drive housing and drain the fluid. For best results, drain the fluid when the fluid is warm. Install the drain plugs. Add the recommended fluid through the fill hole (2) until the fluid level is even with the bottom edge of the hole. Install the fill and level plugs.



RD97D009

## HYDRAULIC OIL RESERVOIR AND FILTERS

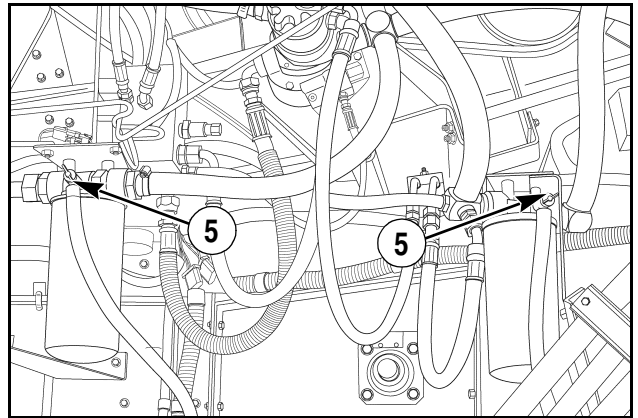
## Hydraulic Oil Reservoir



RD05D083

1. BREATHER
2. FILLER CAP

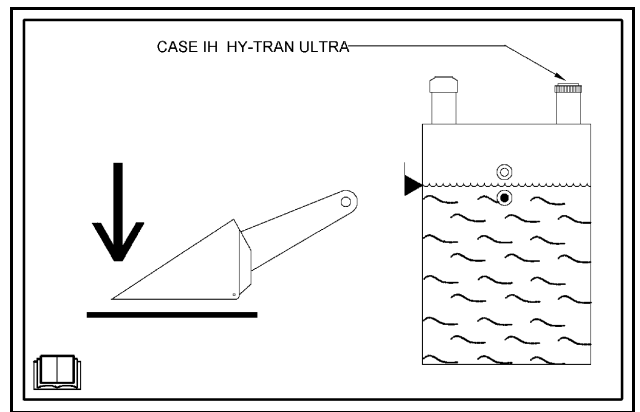
3. HYDRAULIC RESERVOIR
4. SIGHT GLASS



RD00E037

5. DRAIN VALVE

To check the hydraulic fluid level, put the Combine on level ground with the header down. If the sight gauge window shows oil, the reservoir has enough fluid. If more fluid is needed, remove the filler cap and add oil until the oil is visible in the sight gauge window. To drain the reservoir open the drain valves at the hydraulic filters.



RI00H088



**WARNING:** Hydraulic oil or diesel fuel leaking under pressure can penetrate the skin and cause infection or other injury. To Prevent Personal Injury: Relieve all pressure, before disconnecting fluid lines or performing work on the hydraulic system. Before applying pressure, make sure all connections are tight and components are in good condition. NEVER use your hand to check for suspected leaks under pressure. Use a piece of cardboard or wood for this purpose. If injured by leaking fluid, see your doctor immediately.

M149C

## Hydraulic Oil Filters

The Combine is equipped with two (2) hydraulic oil filters. The filter located to the front of the Combine on the left hand side is in the return side of the auxiliary hydraulic pump circuit. The filter located to the rear of the Combine on the left hand side is in the suction side of the hydrostatic propulsion system.

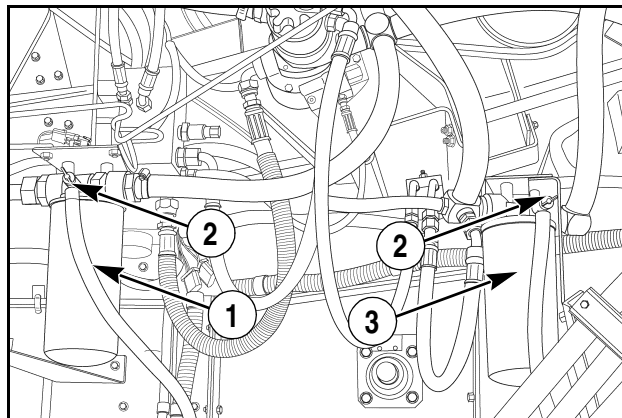
**NOTE:** Prior to doing any work, remove the key from the key switch to prevent anyone from starting the engine.

1. Put the end of the drain hose in a container.
2. Drain the reservoir by opening the drain valves located at the filter manifolds.
3. Use a filter wrench to loosen the two (2) filters. Remove the filters by rotating counterclockwise.
4. Close the drain valves at the filter manifolds.

**NOTE:** Service filters kits will include round and square cross section gaskets. The round cross section gaskets are used in the Combine.

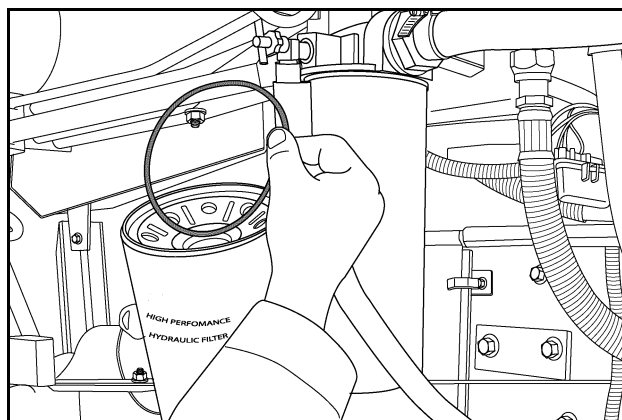
5. Lubricate the new filter gaskets with CASE IH HY-TRAN® ULTRA fluid.
6. Install the new gasket in the top of the oil filter. The gasket must fit tight in the mouth of the filter. Install filter to head by turning clockwise by hand to make firm metal to metal contact with filter head. This will require up to three additional turns after initial contact.
7. Add 38 Litres (10 U.S. Gallons) of CASE IH HY-TRAN® ULTRA to the reservoir.

Inspect the fluid level in the reservoir.



RD00E037

1. AUXILIARY RETURN FILTER
2. DRAIN VALVE
3. HYDROSTATIC PROPULSION SYSTEM SUCTION FILTER



RD00H054

## Reservoir Fluid Level

After any service that requires draining the hydraulic reservoir, the following procedure must be followed:

1. Put the transmission shift lever in NEUTRAL and set the Park Brake.
2. Start the engine and set the engine speed at 1800 RPM.
3. If propulsion system was drained, follow propulsion system air removal procedure.
4. Cycle affected auxiliary circuits four times.
5. Stop the engine. Check the fluid level in the hydraulic reservoir. Add fluid as required.

6. Check the hydraulic system for leaks.

After servicing the hydraulic system where hydraulic components or hydraulic lines were replaced, see Propulsion System Air Removal in this manual.

**IMPORTANT:** *Operating the Combine with the hydraulic cylinders at full stroke or in an overload condition will cause pressure relief valves to open and raise the hydraulic fluid temperature above normal. Do not overload the hydraulic system or the hydrostatic propulsion system for more than 10 seconds.*

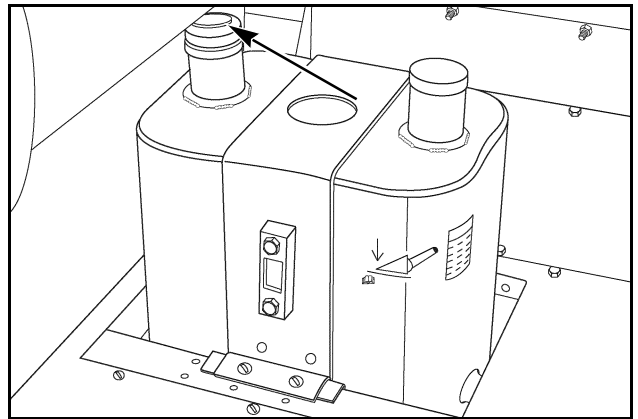
## Hydraulic Breather

The Combine is equipped with a breather cap and a closed cap. Clean the breather every 100 hours of operation.

The breather cap can be rinsed in clean mineral spirits. Rinse from the inside through the air holes to the outside with running fluid.

The breather cap can also be soaked and blown dry from the inside through the air holes with low air pressure.

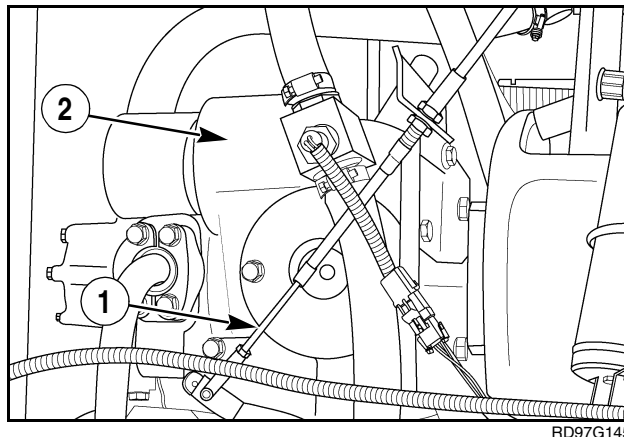
**IMPORTANT:** *The breather must be DRY before reusing.*



RD05D083

## PROPULSION SYSTEM AIR REMOVAL

Any servicing of the propulsion system that has removed or replaced hydraulic system components or lines will require removing air from the system. Use the following procedure:



RD97G145

1. PROPULSION CONTROL CABLE
2. HYDROSTATIC PUMP

### Combines without Power Guide Wheels

Block the drive wheels and engage the Park Brake to prevent machine movement. Keep the hydraulic reservoir fluid at the correct level. Oil must be visible in sight gauge window. Stop the engine when adding hydraulic fluid.



**WARNING:** Never operate the engine in a closed building. Proper ventilation is required under all circumstances.

M142A



**WARNING:** Operate controls only when seated in the operator's seat.

M137A

COMBINE SERVICE BRAKE	ENGINE RPM	TRANSMISSION GEAR SHIFT POSITION	PROPULSION CONTROL LEVER POSITION/ACTION	LENGTH OF TIME
RELEASED	1800	NEUTRAL	NEUTRAL POSITION	2 MINUTES
RELEASED	2400	NEUTRAL	MOVE LEVER 1/2 INCH FORWARD	2 MINUTES
RELEASED	2400	NEUTRAL	MOVE LEVER 1/2 INCH IN REVERSE	2 MINUTES
RELEASED	2400	NEUTRAL	SLOWLY MOVE LEVER FULL FORWARD TO FULL REVERSE	REPEAT 3 TIMES



## Combines with Power Guide Wheels

Block the drive tires to prevent machine movement. Raise and block the power guide wheels so that the wheels will rotate freely. Keep the hydraulic reservoir fluid at the correct level. Oil must be visible in sight gauge window. Stop the engine when adding hydraulic fluid.

The bearings of each wheel motor are lubricated by the hydraulic oil in the motor case so no maintenance is required for either bearing.

COMBINE SERVICE BRAKE	ENGINE RPM	TRANSMISSION GEAR SHIFT POSITION	PROPULSION CONTROL LEVER POSITION/ACTION	POWER GUIDE WHEEL SWITCH POSITION	LENGTH OF TIME
RELEASED	1800	NEUTRAL	NEUTRAL POSITION	ON	3 MINUTES
RELEASED	2400	NEUTRAL	MOVE LEVER 1/2 INCH FORWARD	OFF	2 MINUTES
RELEASED	2400	NEUTRAL	MOVE CONTROL LEVER 1/2 INCH IN REVERSE	OFF	2 MINUTES
RELEASED SEE NOTES 1 AND 2	2400	NEUTRAL	MOVE CONTROL LEVER 1/2 INCH IN REVERSE	ON	30* SECONDS MAXIMUM
APPLIED** SEE NOTES 2 AND 3	1100	3RD GEAR***	MOVE CONTROL LEVER 1/2 INCH IN REVERSE	ON	15* SECONDS MAXIMUM
APPLIED**	2400	3RD GEAR***	MOVE CONTROL LEVER 1/2 INCH IN FORWARD	ON	4 MINUTES
APPLIED**	2400	3RD GEAR***	MOVE CONTROL LEVER 1/2 INCH IN REVERSE	ON	4 MINUTES
APPLIED**	1800	3RD GEAR***	1/4 INCH IN FORWARD	ON	15 SECONDS
APPLIED**	1800	3RD GEAR***	1/4 INCH IN REVERSE	ON	15 SECONDS

\* Check guide wheels for rotation and direction of rotation

\*\* Combine will move if brakes do not hold.

\*\*\* Check guide wheels for correct direction of rotation.

**Note 1** Continue if the guide wheels do not rotate or if the guide wheels rotate in the reverse direction.

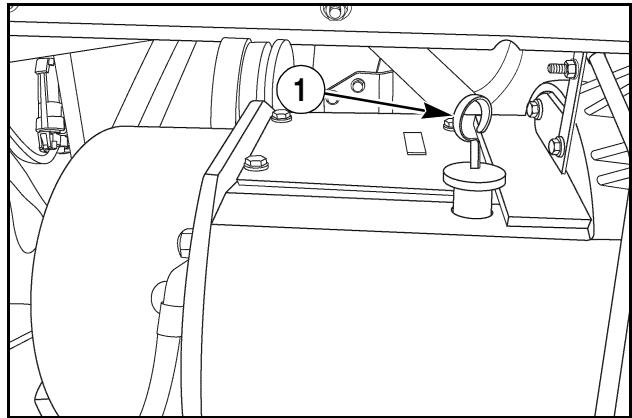
**Note 2** If the guide wheels rotate in the forward direction see your dealer for repair of the hydraulic system.

**Note 3** If the guide wheels rotate in the reverse direction, continue the procedure. If the guide wheels rotate in the forward direction see your dealer for repair of the hydraulic system.

## PTO HOUSING

### PTO Oil Level

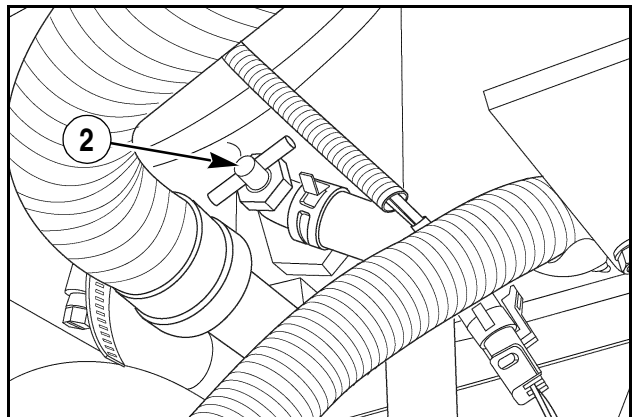
To check the PTO housing oil level, put the Combine on level ground. Check the fluid level on the PTO dipstick (1). If the fluid level is at or below the ADD mark on the dipstick, add the recommended fluid to the PTO to raise the fluid level to the FULL mark. Add fluid through the fill tube.



RD01H114

### PTO Oil Drain

A drain valve (2) for the PTO oil is located on the bottom of PTO assembly.

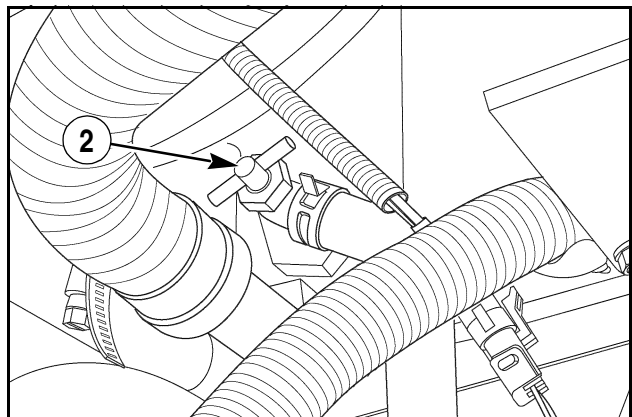


RD01H243

### PTO Oil Change

To change the PTO fluid, put the Combine on level ground. Place the end of the drain hose in a container. Open the PTO fluid drain valve (2) and drain the fluid from the PTO. For best results, drain the fluid when the fluid is warm.

Close the drain valve and fill the PTO housing to the FULL mark on the dipstick with the recommended fluid.

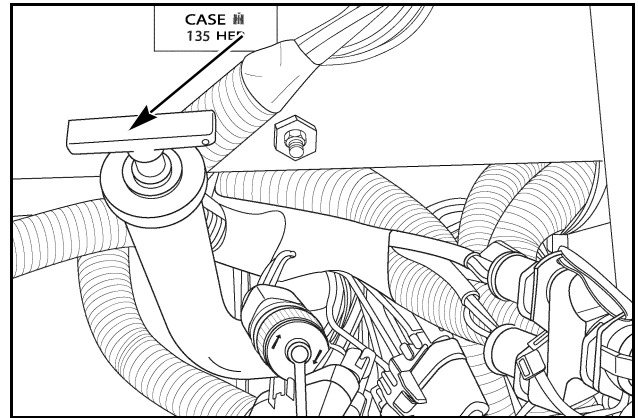


RD01H243

## FEEDER AND CLEANING FAN GEAR CASE

### Check Oil Level

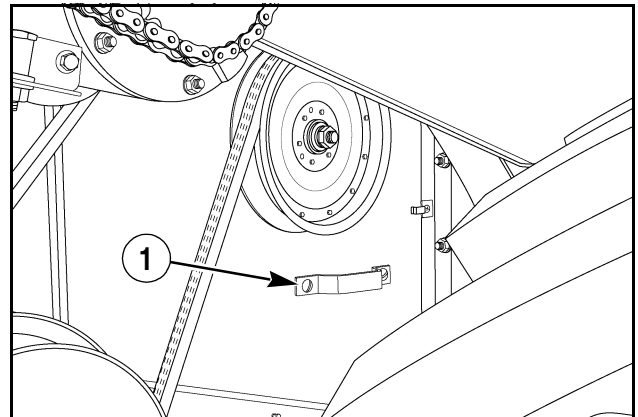
To check the feeder and cleaning fan gear case oil level, the Combine must be on level ground. The dipstick is located in the right front service door next to the cab. If the oil level is at or below the ADD mark on the dipstick, add the recommended oil to raise the level to the FULL mark.



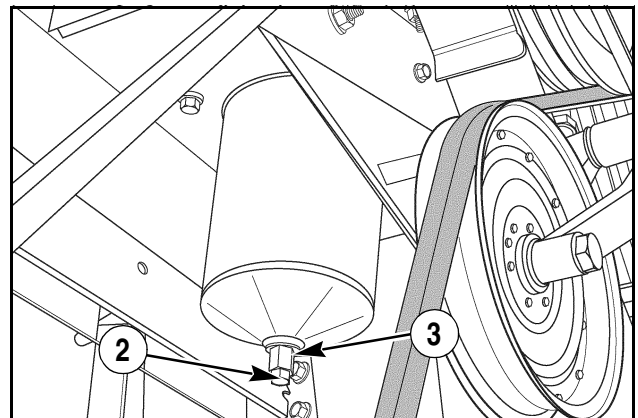
RD00E001

### Oil Change

To change the oil, put the Combine on level ground. Remove right hand separator side panel (1). Remove drain plug (2) from canister bolt (3). For best results drain the oil when the oil is warm. Install the drain plug (2) into the canister bolt (3) and fill the gear case through the dipstick tube.



A24379

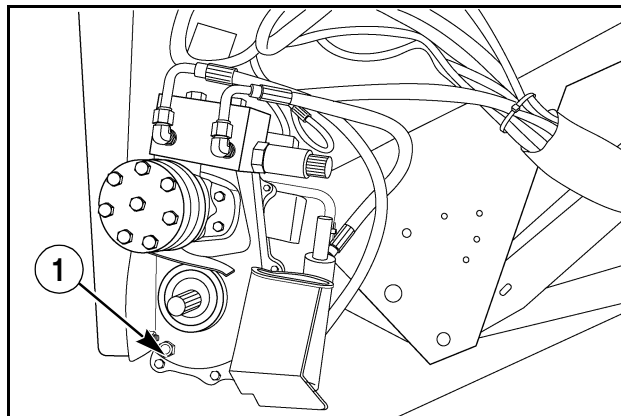


RD00H009

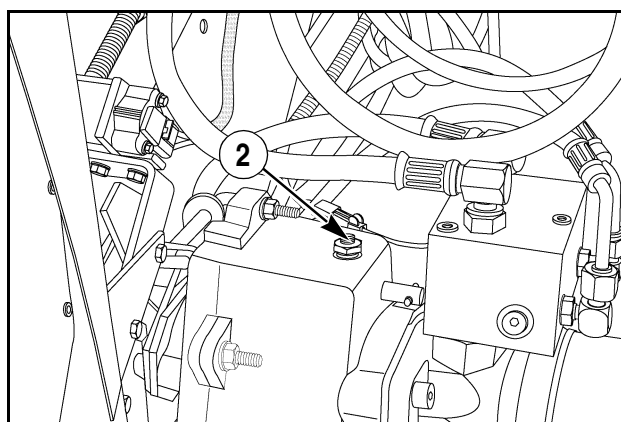
## FEEDER REVERSER GEAR CASE

To check the feeder reverser gear case oil level, the Combine must be on level ground. Raise or lower the feeder housing until the top flat surface of feeder reverser gear case housing (the surface the vent fill plug (2) is on) is level. The level plug (1) is located on the lower left side of the gear case. Remove the level plug (1) from the gear case.

If the fluid level is low, remove vent fill plug (2) and add the recommended fluid type to raise the fluid level to the bottom edge of the level plug hole.



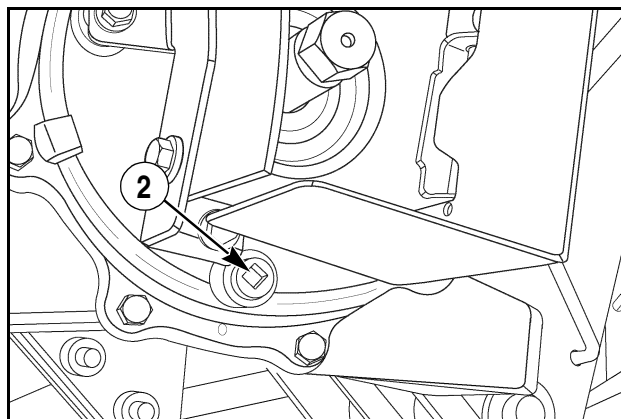
RR00J102



RD00F040

## Oil Change

To change the oil, raise or lower the feeder housing until top flat surface of the feeder reverser gear case housing is level. Remove drain plug (3). For best results drain the oil when the oil is warm. Install the drain plug (3). Remove fill plug (2) and add the recommended fluid type to raise the fluid level to the bottom edge of the level plug (1) hole.

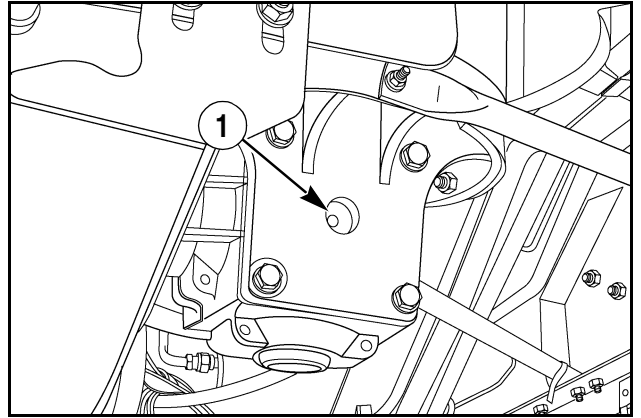


RD01H036

## LOWER UNLOADER GEAR CASE

### Check Oil Level

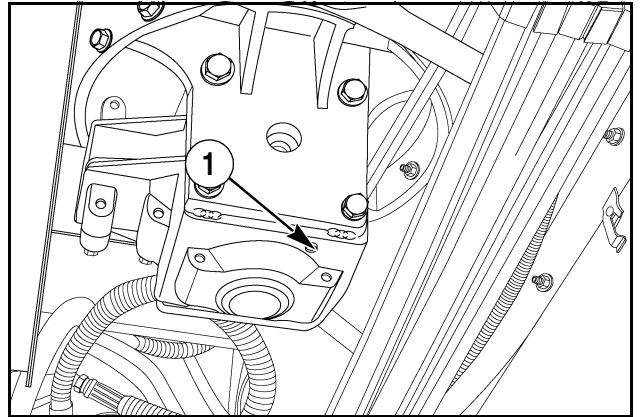
To check the lower unloader gear case oil level, the Combine must be on level ground. The plug is located on the rear of the gear case. Remove the level plug (1) from the rear of the gear case. If the fluid level is low, add the recommended fluid to raise the fluid level to the bottom edge of the level plug hole.



RP95J003

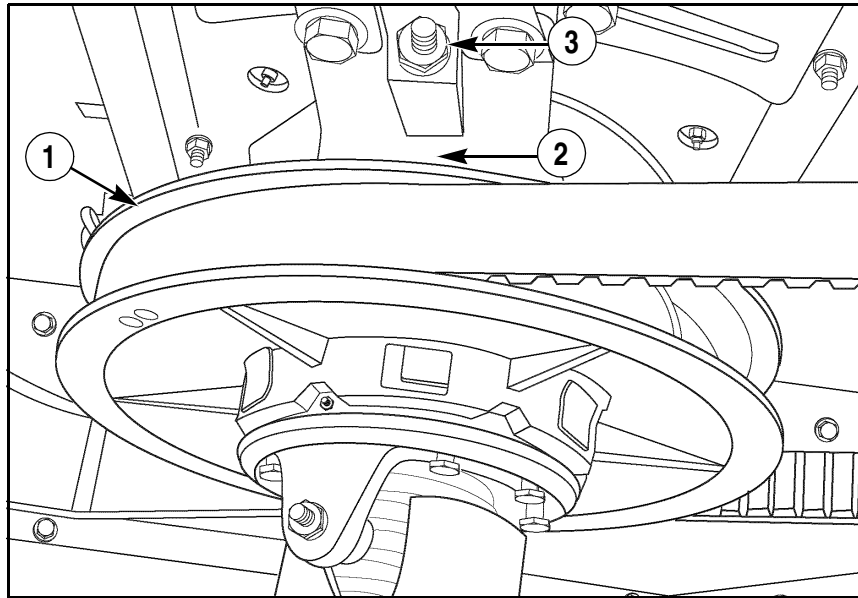
### Oil Change

To change the oil, put the Combine on level ground. Remove the drain plug (2) on the bottom of the gear case. For best results drain the oil when the oil is warm. Install the drain plug and fill the gear case through the oil level plug on the front side of the gear case.



A24411

## ROTOR GEAR CASE



RD05F091

1. FLUID LEVEL CHECK, DRAIN

2. VENT PLUG

3. BREATHER ADAPTER FITTING

### Fluid Level

To check the fluid level put the Combine on level ground. Check the fluid level on the dipstick (1). If the fluid level is at or below the ADD mark on the dipstick, add the recommended fluid to the gear case to raise the fluid level to the FULL mark. Install the fluid through the fill passage by removing the breather adapter fitting (3). Loosen vent plug (2) to bleed air from the system.

### Fluid Change

To change the fluid, put the Combine on level ground. Remove the screws that hold the dipstick tube in place. Loosen the dipstick tube and drain the gear case fluid. Install the dipstick tube in its proper location. Fill the gear case to the FULL mark on the dipstick with the recommended fluid.

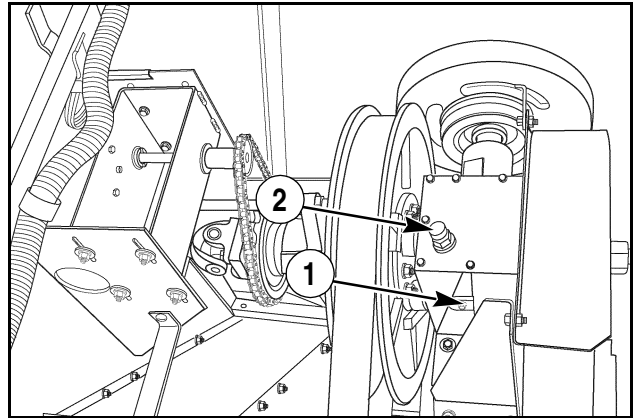
## STRAW CHOPPER (If Equipped)

### Gear Case Fluid Level

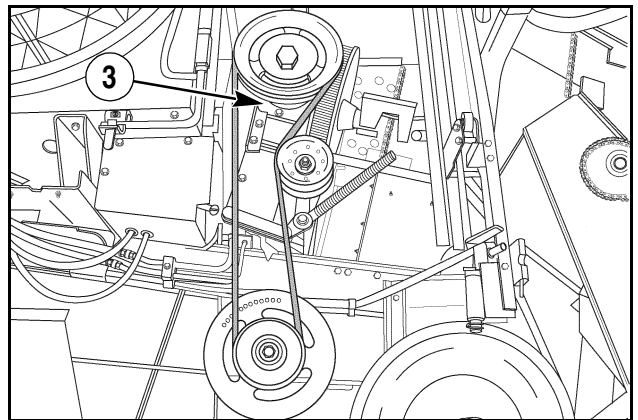
To check the chopper gear case oil level, put the Combine on level ground. Remove the level plug (1) from the side of the gear case. If the fluid level is low, remove fill plug (2) and add the recommended fluid type to raise the fluid level to the bottom edge of the level plug.

### Gear Case Fluid Change

To change the fluid, put the Combine on level ground. Remove the drain plug (3) on the lower pulley side of the gear case. Install the drain plug (3). Add the recommended fluid type through the fill plug (2) on the top of the gear case to bring the fluid level up to the bottom of the level plug (1) hole.



RD05F097

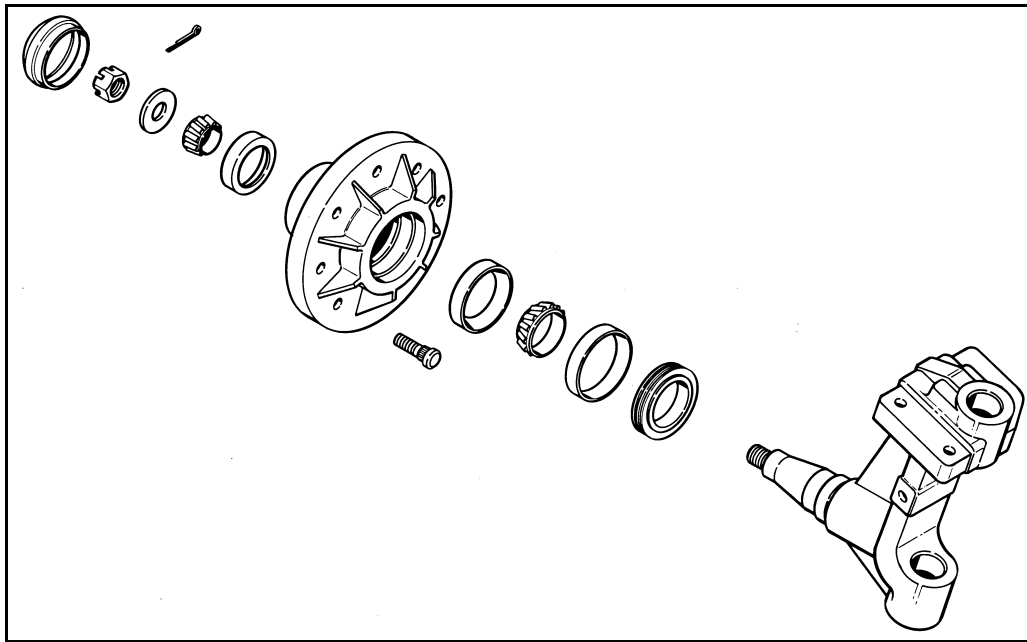


RD02E198

1. LEVEL PLUG
2. FILL PLUG
3. GEAR CASE DRAIN

**STEERING WHEEL BEARING LUBRICATION**

Lubrication Interval ..... Once a Year



622L8

1. Put the gear shift lever in NEUTRAL position and engage the park brake. Lift the rear end of the Combine until the steering wheels are above the ground. Put a support under the steering axle. Remove the wheel.
2. Remove the hub cap, cotter pin, slotted adjusting nut and thrust washer.
3. Remove the outer bearing cone and pull the wheel hub from the spindle. The bearing cups, cone, oil seal wear ring and the seal are in the wheel hub.
4. Remove the seal, seal wear ring and the inner bearing cone from the hub.
5. Check the bearing cups, cones and seal. Replace bearings or seals that have wear or damage. Clean the bearings, inside of the hub and the spindle.
6. Pack the bearing cones with CASE IH 251H EP grease. Fill the hub with grease. Install the hub seal on the spindle with the metal face toward the inner bearing cone. Install the inner bearing cone and oil seal wear ring into the hub.
7. Install the outer cone in the hub. Install the hub assembly on the spindle.
8. Install the thrust washer and slotted adjusting nut. Carefully torque nut to 27.12 Nm (20 lb. ft.), spin the wheel hub, and retorque to 27.12 Nm (20 lb. ft.). Loosen the nut until the next slot in the nut aligns with the hole in the spindle. Check for lateral movement of the hub. If there is movement tighten the nut until there is no lateral movement.
9. Keep the slotted adjusting nut in position with a new cotter pin. Fill the hub cap with grease and install the hub cap. Install the wheel and lower the Combine.



## OPERATOR'S CAB

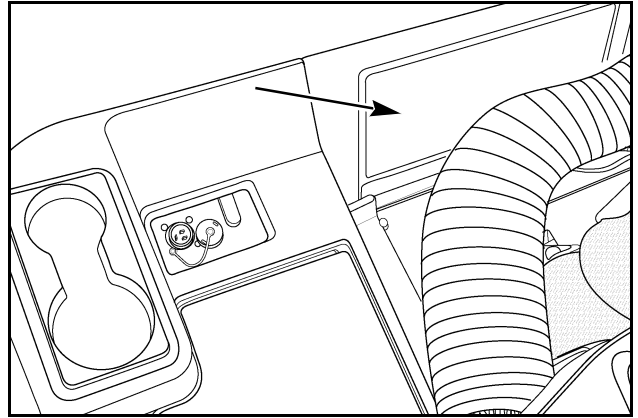
### Recirculation Air Filter

The cab recirculation air filter is located behind the operator's seat.

Clean the filter as required by operating conditions or once every year. Use mild soap and water. Rinse with clear water and squeeze out the excess.

Reinstall the filter.

**NOTE:** Make sure the area behind the seat is not used for storage. If the filter is blocked it will degrade the A/C performance.



A24302

### Outside Air Filter

The outside air filter must be cleaned as required by operating conditions to assure a full flow of fresh air.

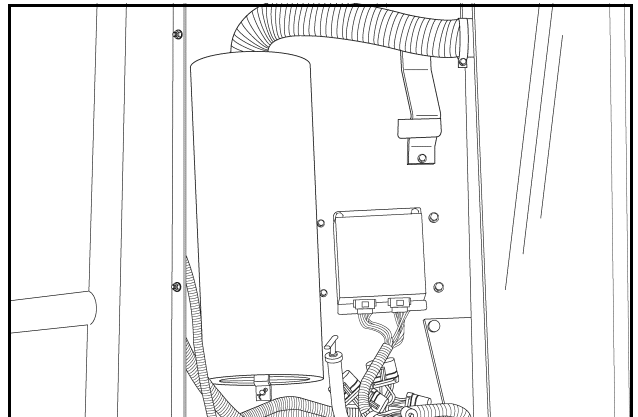
Conditions of high humidity and extreme dust require a more frequent cleaning of the filter. Clean the filter every 200 hours.

The filter is located behind the right hand service door to the right of the operator's cab. It is covered by a metal shield.

Either one of two methods can be used in cleaning the filter:

**Compressed Air:** Direct compressed air at 241 kPa (35 PSI) maximum pressure, through the filter. **When using compressed air always wear face protection.**

**Water Washing:** The filter can also be washed by soaking it in water and a mild nonsudsing detergent. Rinse until clean with water. Water pressure must not exceed 241 kPa (35 PSI).



RD00H039



**WARNING:** Cab air filters remove dust in the air, but are not capable of removing chemicals used in spraying crops or in weed control. Many chemicals used for these purposes are toxic when improperly used, and can be hazardous to operators and others in the area. Follow the instructions of manufacturers of both the equipment and the chemicals regarding prohibitions against inhalation of dust or spray, personal hygiene practices, and other precautions noted by the manufacturers.

M108A

## FIRE PREVENTION - ENGINE AREA

Check the engine compartment every 10 hours for fire hazard crop materials.

Keep the engine, exhaust manifold and turbocharger areas clean. Remove all trash, oil and dust accumulation from inside the engine compartment.

Due to the flammable nature of the crop materials encountered by Combines, fire risks are high. This risk can be minimized by frequent removal of accumulated crop material from the machine. If oil leaks appear, retorque bolt or replace gaskets if necessary.

### Fire Prevention - All Areas

Clean all areas of debris accumulation daily. This includes but is not limited to:

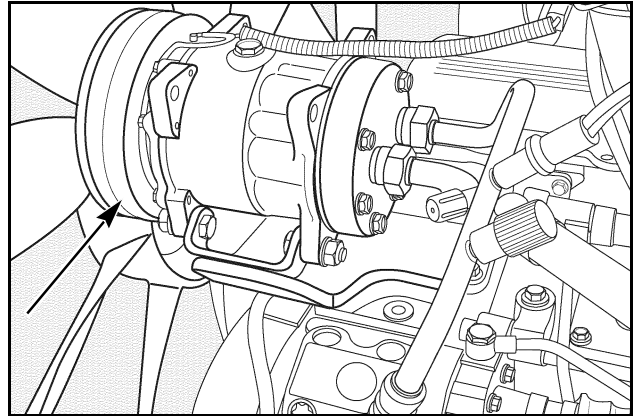
- Transmission and Cleaning Fan
- Straw Spreader Drive Gears
- Feeder Reverser Drive and Motor
- Rotor Drive and PTO Drive
- Battery Tray
- Feeder Drives

Debris accumulation remains the Number One cause for Combine fires. Daily cleaning will reduce the risk of fires.

## ENGINE FAN AND ALTERNATOR BELT

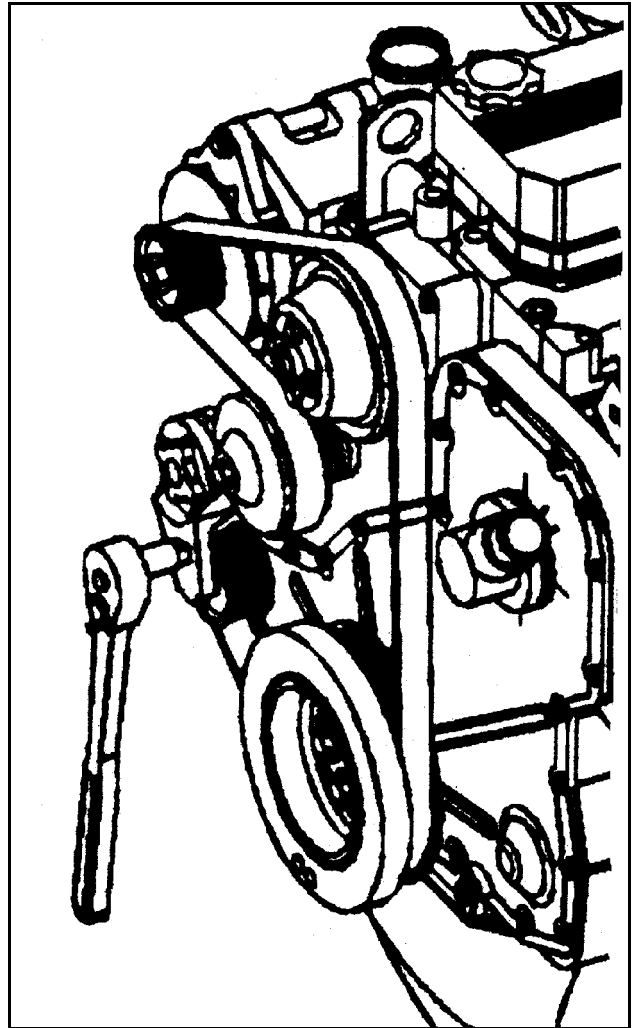
### Belt Removal and Installation

1. Loosen the air conditioner compressor belt and remove from the compressor pulley. (Refer to Air Conditioner belt removal).



RD05D070

2. Use a 1/2 inch square drive ratchet wrench to lift the belt tensioner pulley and remove the fan belt.



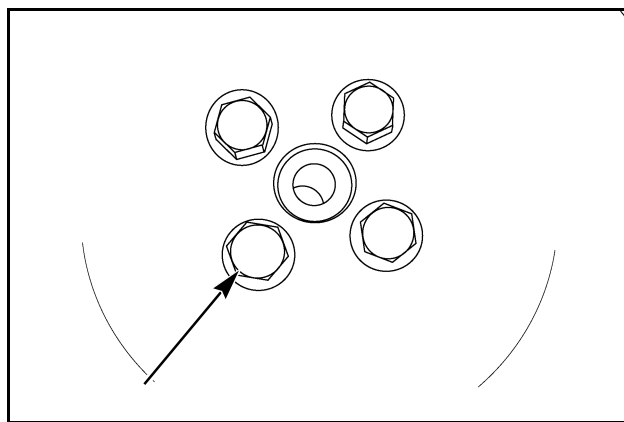
RH99K057

3. Remove the fan belt by working the belt between the fan blades. If difficulty is encountered the fan can be removed by removing the four retaining bolts.

4. Loosely install new fan belt and reinstall fan if it was removed. Use a 1/2 inch square drive ratchet wrench to lift the belt tensioner pulley and install the fan belt.

**Service Tip:** If difficulty is experienced installing the fan belt (the belt seems too short), position the belt over the grooved pulleys first then while holding the tensioner up, slide the belt over the water pump pulley.

5. Install and adjust the air conditioning compressor belt. (Refer to Air Conditioner Belt Installation and Adjustment).

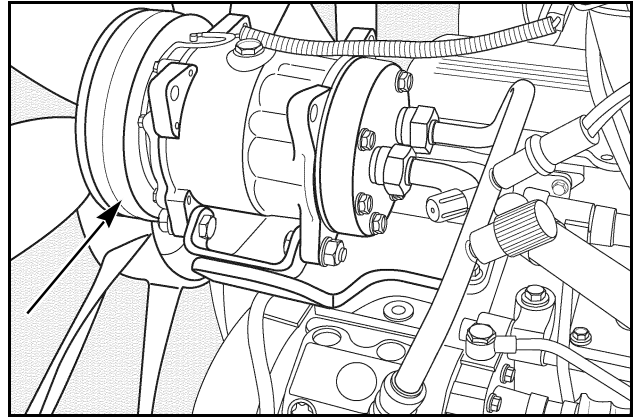


RD02F020

## AIR CONDITIONING COMPRESSOR BELT

### Belt Removal, Installation and Adjustment

1. Loosen the adjusting bolts (1) and pivot bolt for the compressor. Push the compressor down to loosen the belt. Remove belt from compressor pulley.



RD05D070

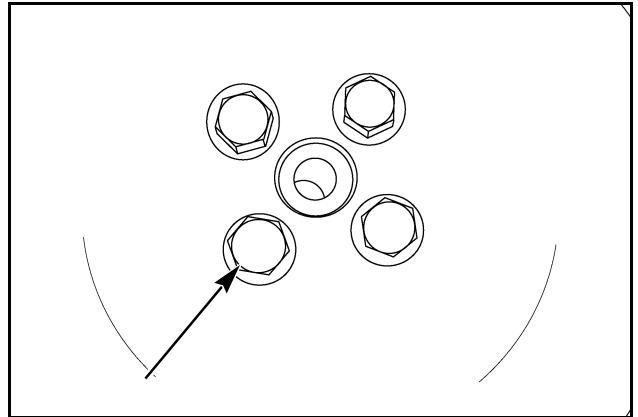
2. Remove the four bolts and remove the fan in order to remove the air conditioner compressor belt.

3. Remove the compressor drive belt (2). Install a new drive belt.

4. Install the fan using the four retaining bolts.

5. Push the compressor up until correct tension for the belt is reached (Refer to Step 6). Tighten the adjusting bolts and pivot bolt.

6. Measure the compressor belt for correct tension using a belt tension gauge. Belt tension must be 423 to 512 N (95 to 115 pounds) for a new belt. After ten minutes run-in time on the belt, adjust tension for 400 to 529 N (90 to 119 pounds). (Adjust as required).

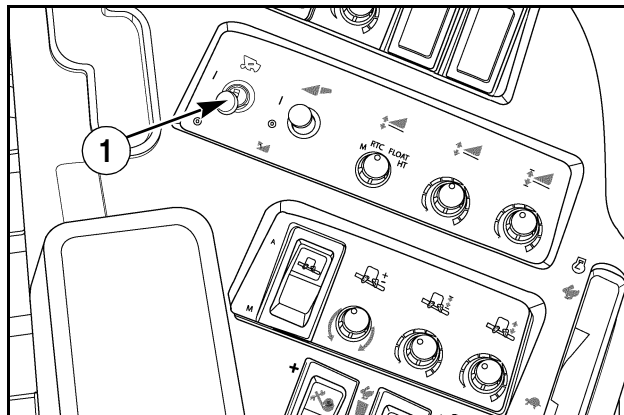


RD02F020

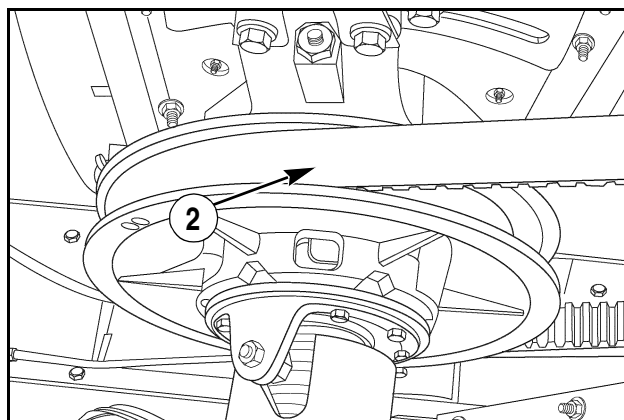
## ROTOR DRIVE BELT

### Belt Removal

1. Start the engine. Move the separator drive switch (1) to ON. Push the rotor switch to the high speed position. This will move the belt (2) to the outer edge of the drive pulley and force the driven pulley apart.
2. Stop the engine. Remove the key from the key switch.

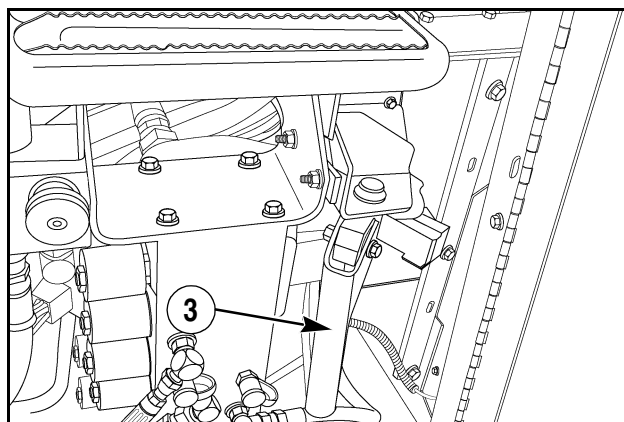


A24293



RD05D069

3. Shift the gear case (3) to the neutral position.



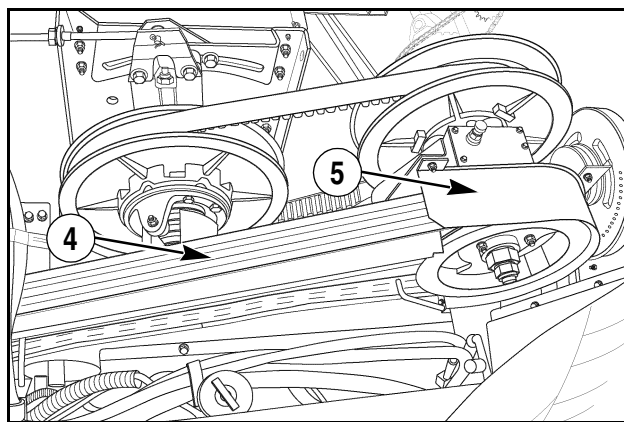
RD97G162

4. Remove the separator drive belt (4) guards and shields (5). Refer to separator drive belt in this section.



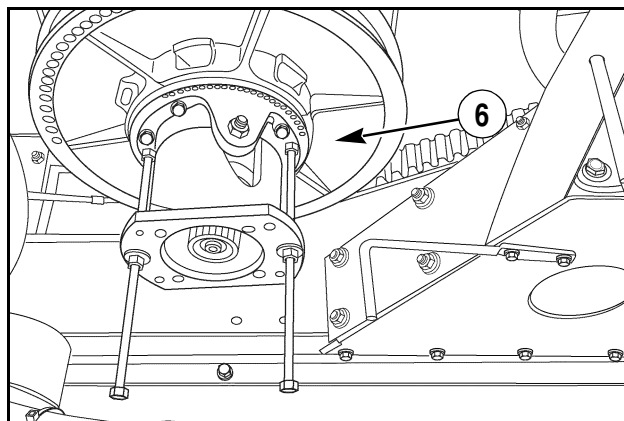
**WARNING:** *DO NOT* disassemble the torque sensing unit. Special tools are required to prevent the torque sensing unit from coming apart under tension and causing personal injury. See your dealer.

M190A



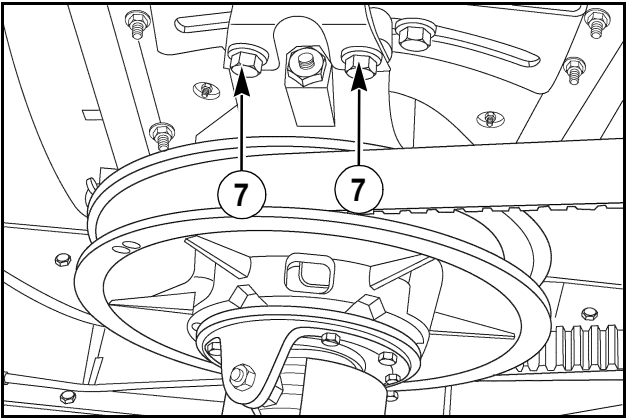
RD05D076

5. Assemble the compressor plate to the torque sensing unit with undercut on plate against end of cam. Tighten the compressor plate nuts evenly to remove all slack. This will hold the driven pulley half (6) open. Turn the key to the ON position but **DO NOT** start the engine. Push the rotor switch to the low speed position. This will move the drive pulley apart. Remove the key from the key switch.

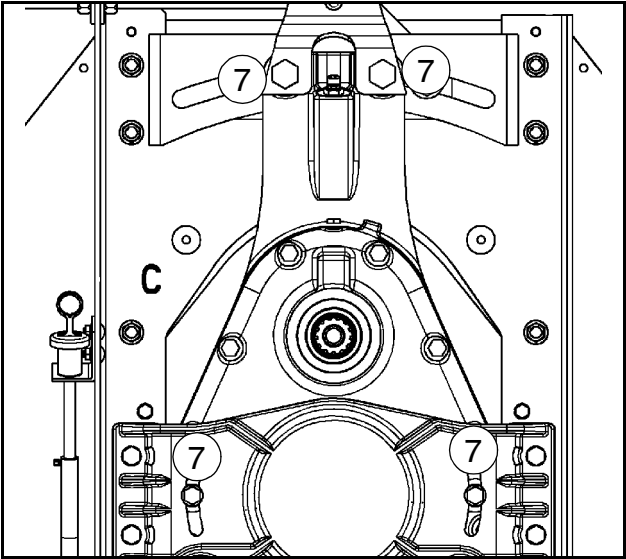


RD02F022

6. Loosen the five retaining bolts (7) from the three speed gearbox.

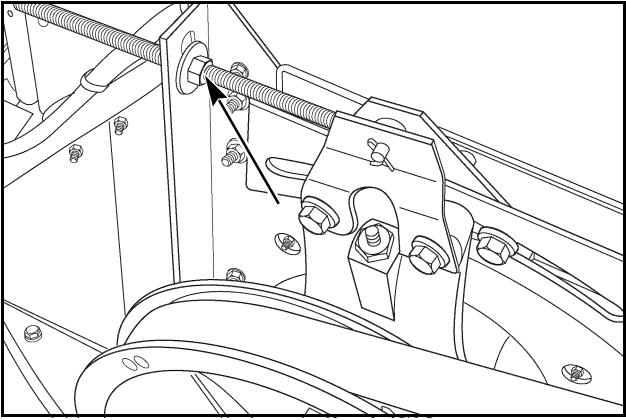


RD05D069



87301398

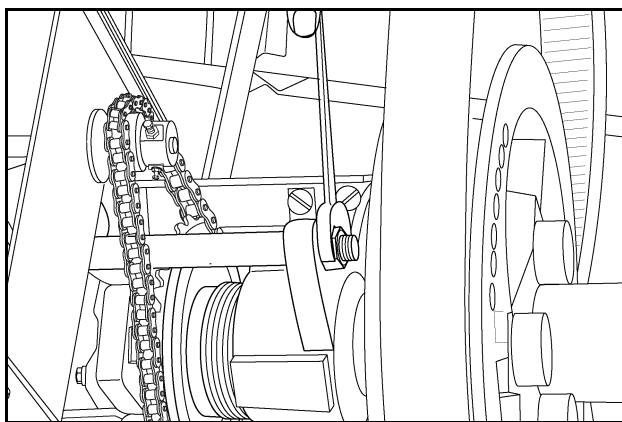
7. Loosen the gearbox adjusting nuts. Move the gearbox all the way to the right.



RD05D068

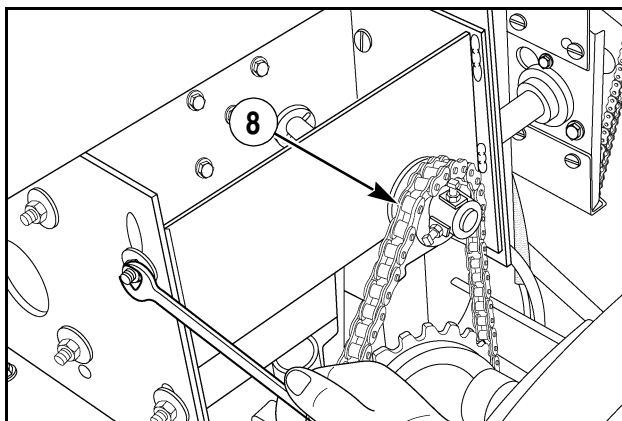


8. Remove the variable stop stud.



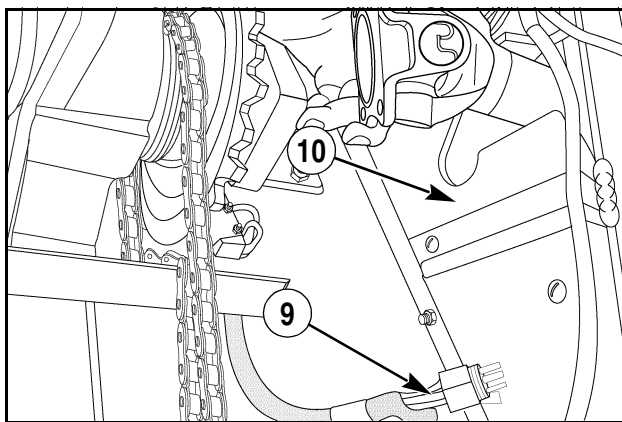
T89910

9. Loosen the adjusting bolts and slide the mounting bracket down. Remove the rotor speed adjustment chain (8) from the sprockets.



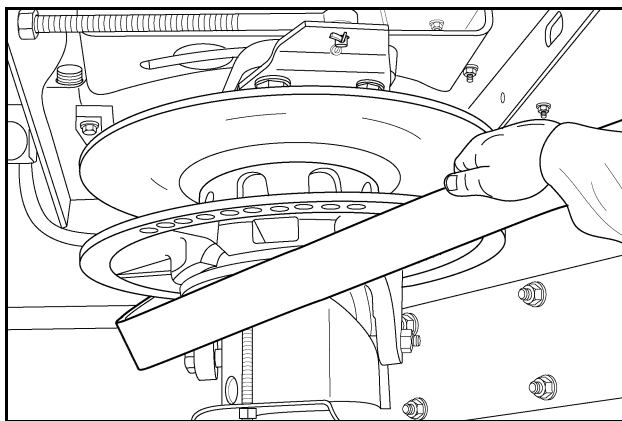
T89912

10. Disconnect the wire harness (9). Remove the four retaining bolts and separate the universal joint from the drive coupling. Move the drive shaft to the right in the slot (10).



T89919

11. Turn the rotor drive pulley by hand. At the same time roll the belt over and off the front half of the drive pulley. Roll the belt over and off the rear of the driven pulley. Move the belt around the torque sensing unit. Move the gear box to the left and move the belt between the pulleys.

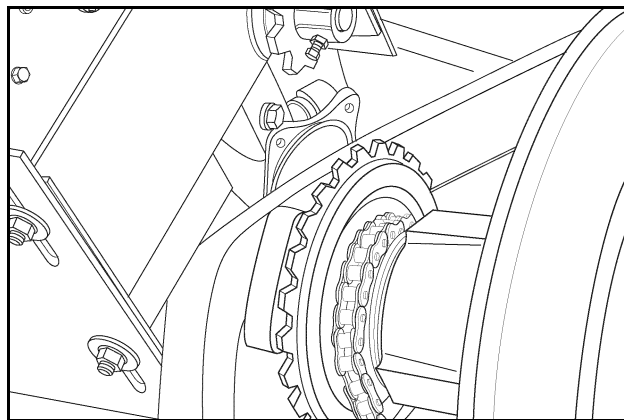


RD05F093

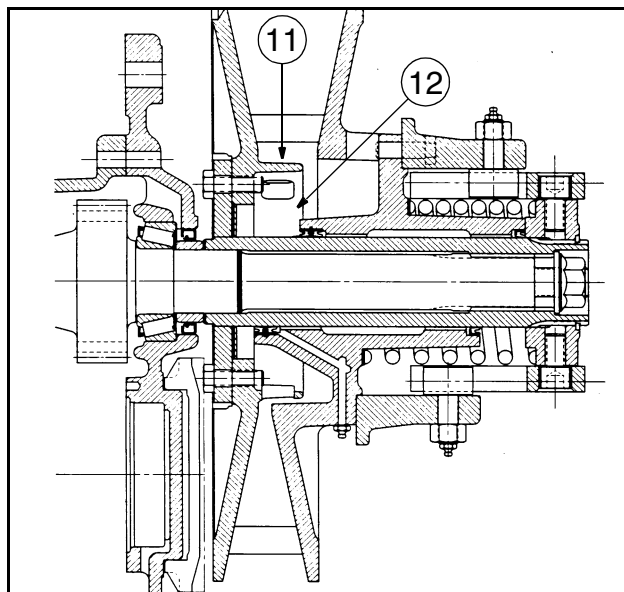
12. Remove the rotor drive belt through the opening between the drive coupling and the motor mounting bracket.

## Belt Installation

13. Check the torque sensing unit for foreign material between the pulley halves and clean if necessary. Foreign material will retard the adjustable pulley half, resulting in rotor belt slippage.



RD05F094

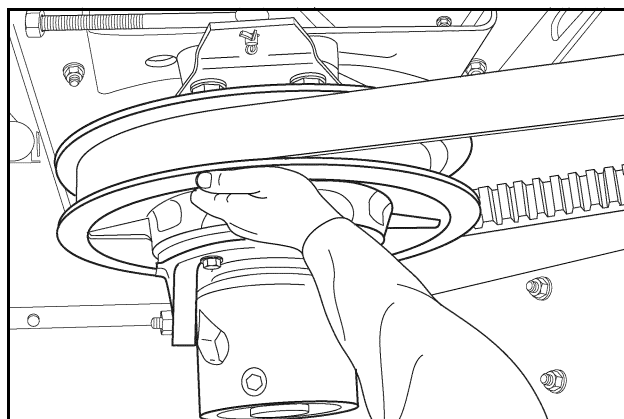


870L92

11. WHEEL
12. SPACER

14. Install a new belt following the above procedure in the reverse order. Close the rear driven pulley half by loosening the compressor plate nuts. Make sure the bolts do not loosen. Remove the compressor plate and bolts. Rotate the pulleys by hand to permit the belt to take a set in the pulley groove. Install the separator drive belt.

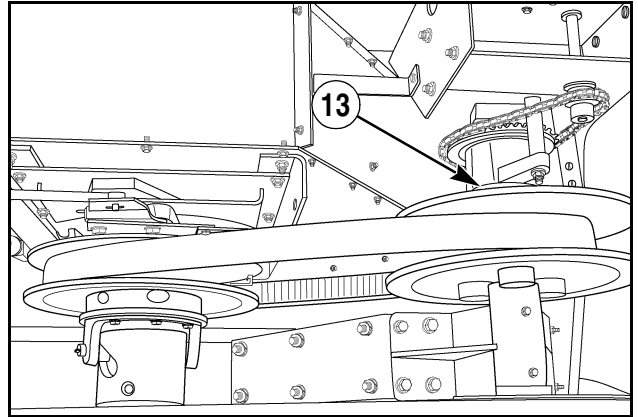
### TORQUE SENSING UNIT



RD05F095

## Belt Adjustment

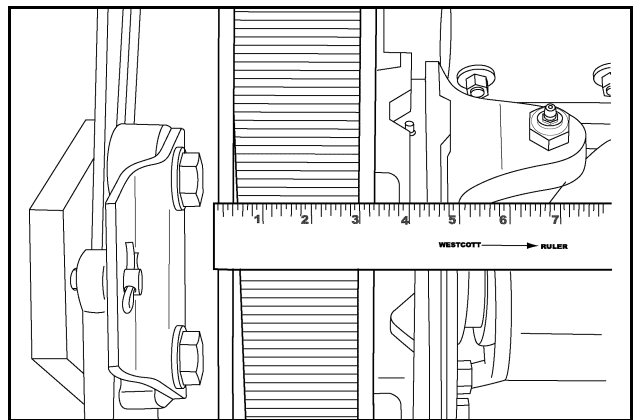
- Check the position of the variable drive pulley. The drive pulley must be in the open position (13). Start the engine and move the separator drive switch to ON. Use the rotor speed control switch to adjust the rotor to the slowest speed. Move the separator drive switch to OFF and stop the engine. Remove the key from the key switch.



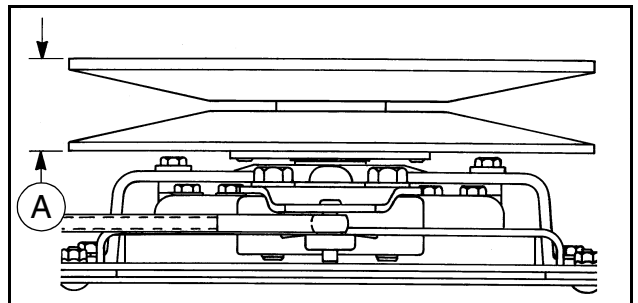
T93313.75

- Measure the distance (A) across the outside of the driven pulleys. The correct distance is 80.6 mm (3.17 inch). To change the distance, shift the rotor gear case to neutral (Step 3).

**NOTE:** As the belt stretches and wears, readjustment is necessary when the distance measures 72 mm (2-27/32 inches) or less.



RD05F096

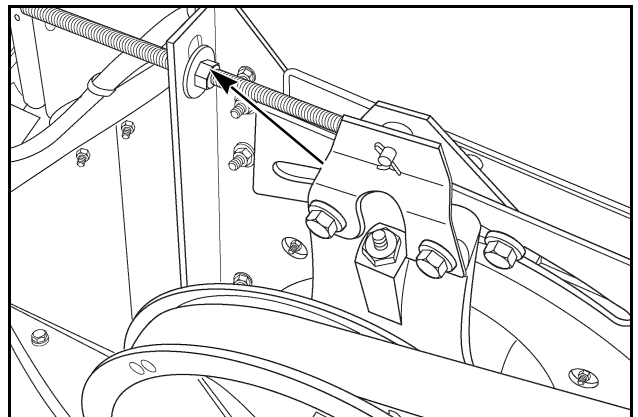


398L92

- Loosen the gear case retaining bolts (Step 6). Move the gear case to the left using the drawbolt. At the same time rotate the pulleys by hand until the distance across the outside of the driven pulleys is 80.6 mm (3.17 inch). Tighten the gear case retaining bolts. The 3/4 inch bolts should be torqued from the head side of the bolts to 407 Nm (300 lb. ft.). Tighten the inner nut on the draw bolt.

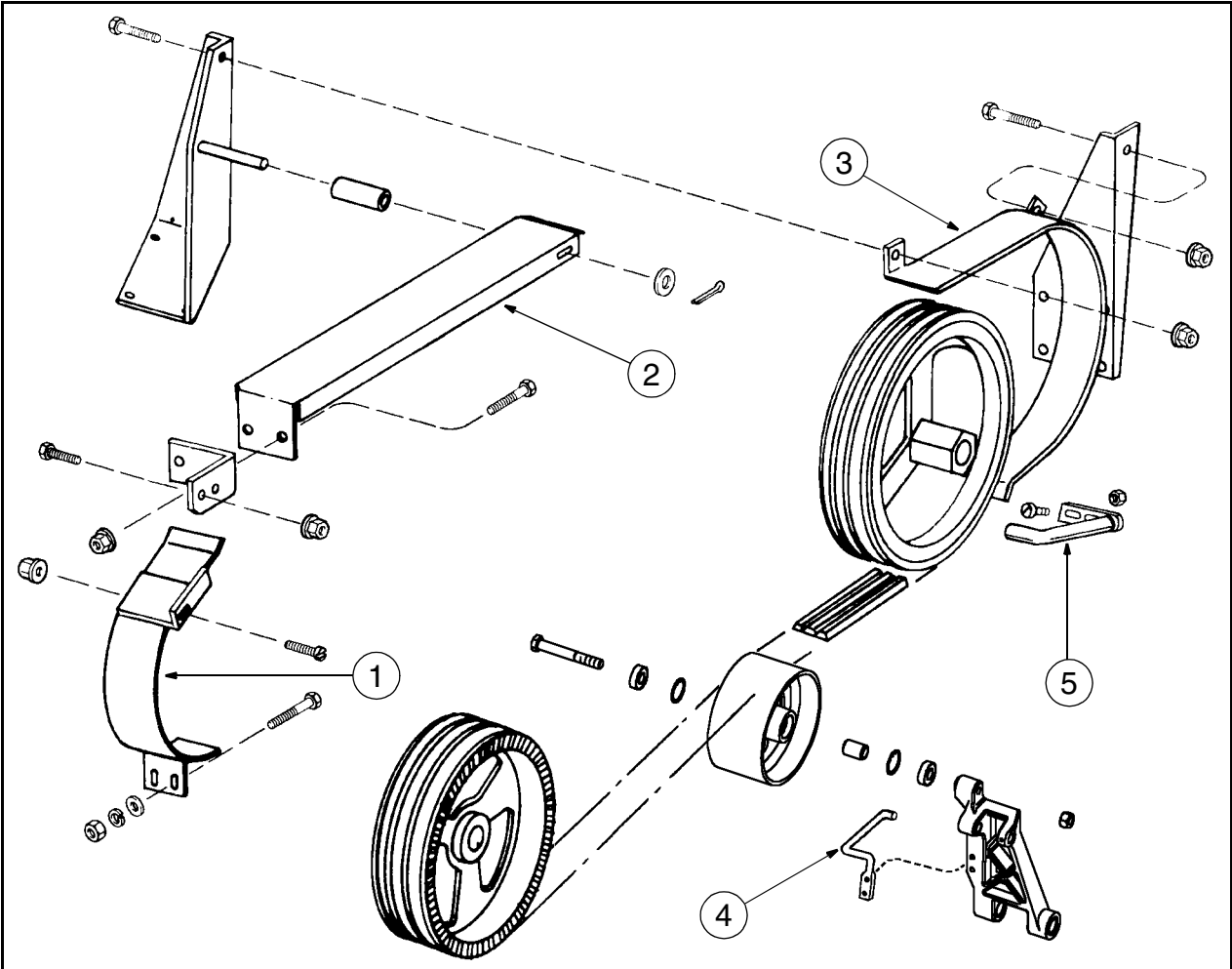
Shift the rotor gear case to the correct gear range.

Check the jackshaft limit switch positions. Adjust as needed. Refer to Jackshaft Limit Switch Adjustment.



RD05D068

### SEPARATOR DRIVE BELT

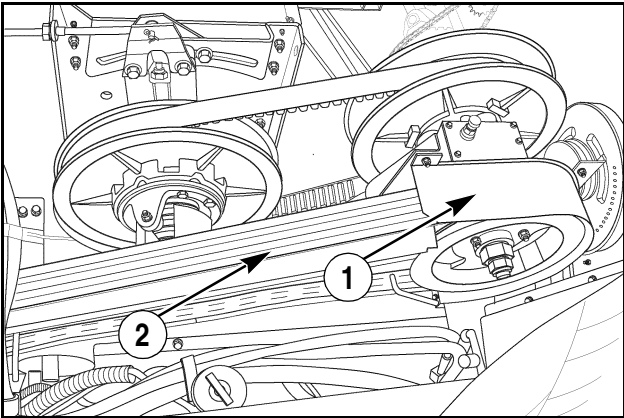


RH01J029

- 1. DRIVE PULLEY SHIELD
- 2. TOP BELT SUPPORT
- 3. PULLEY SHIELD
- 4. IDLER BELT GUIDE
- 5. DRIVEN BELT GUIDE

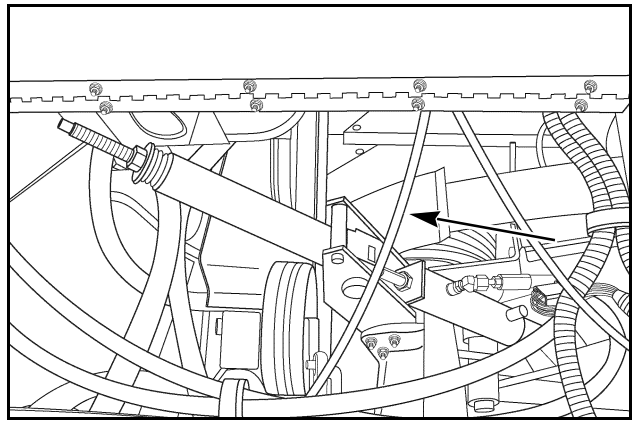
### Belt Removal

- 1. Remove the driven pulley shield (1) and the top belt support (2).



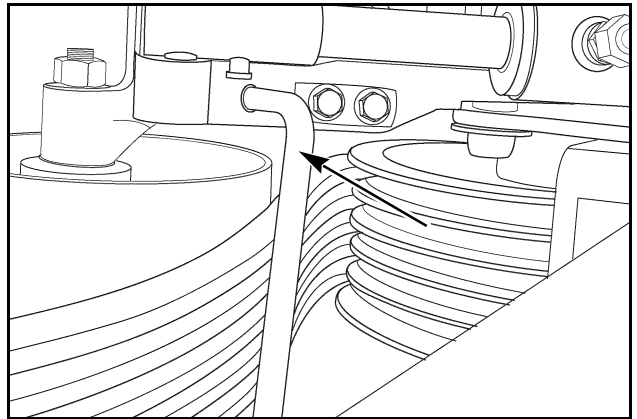
RD05D076

2. Remove the drive pulley shield.



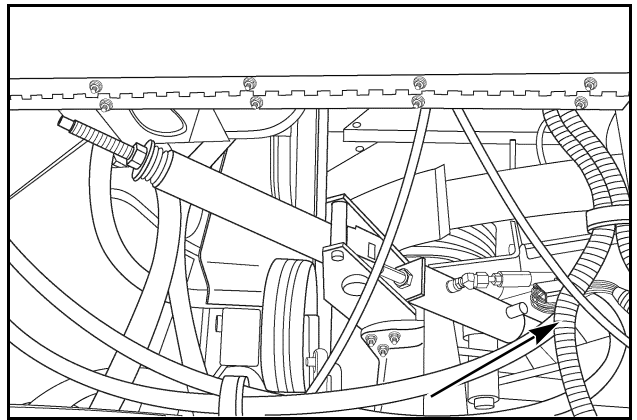
RD01H116

3. Remove the belt guides.



RD01H124

4. Remove the cotter and retaining pin from the cylinder extension tube.

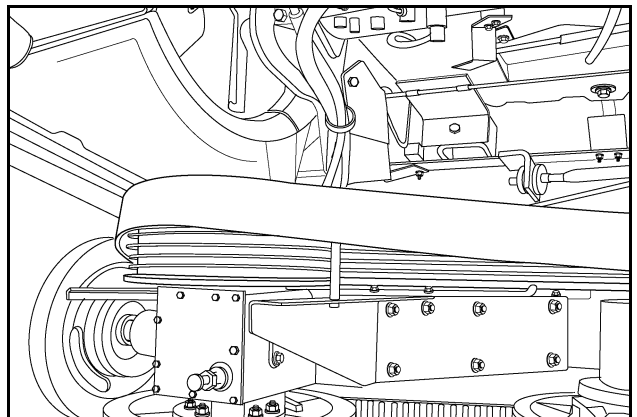


RD01H116

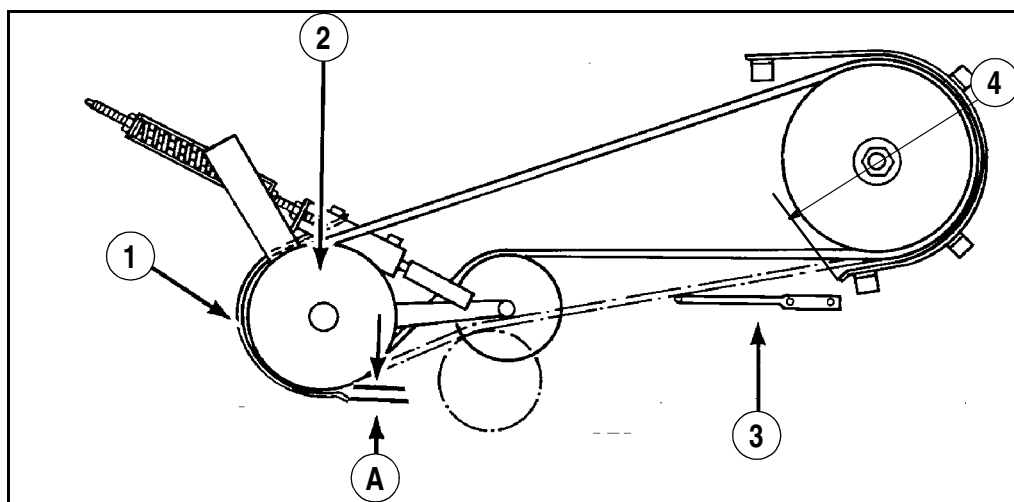
5. Remove the belt starting with the driven pulley first.

6. To install the belt, do Steps 1 through 5 in reverse.

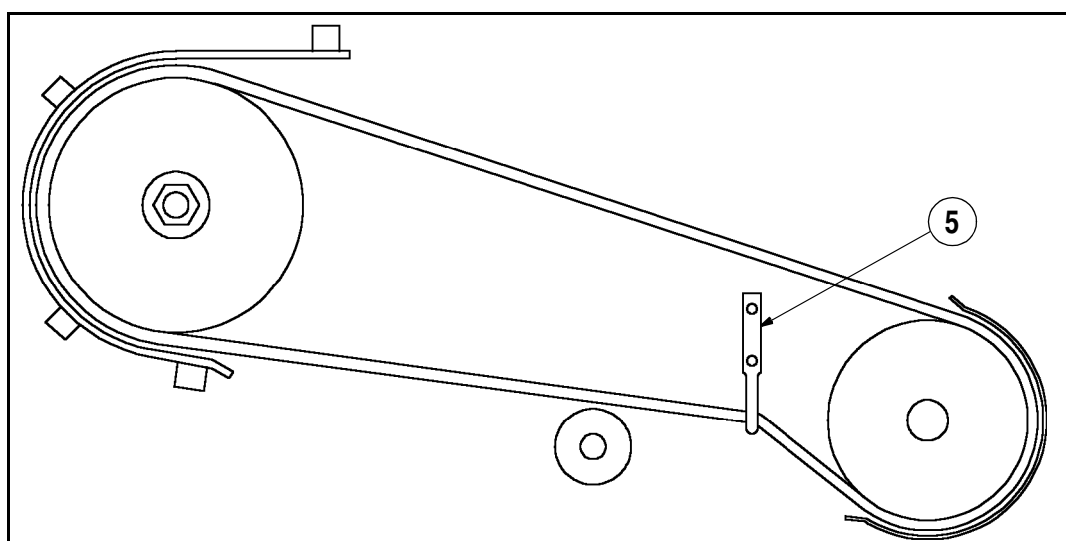
**NOTE:** *Install Driven Belt Guide, if removed. Maintain a 4 to 6 mm gap between the outside of belt and inside of rod.*



RD01H125



215L7



RI01J012

- 1. DRIVE PULLEY TRAP
- 2. SEPARATOR DRIVE PULLEY

- 3. SEPARATOR BELT SUPPORT ROD

7. Set the drive pulley shield, so that a clearance of 1/8 inch (3 to 6 mm) is between the shield and the drive pulley (A).

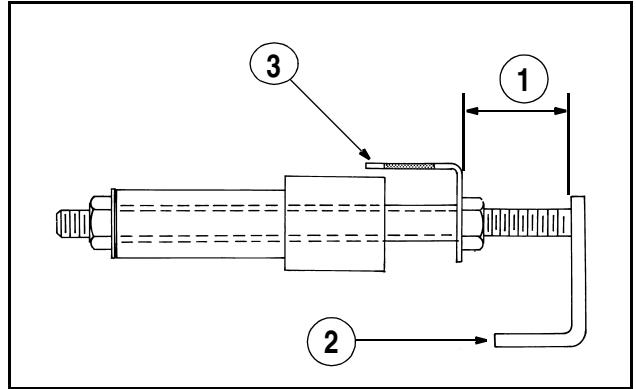
Set separator belt support rod (3) so that belt is supported and lifted 2 to 4 mm (1/16 to 1/8 inch) off the driven pulley trap entrance in the disengaged belt position.

Set separator belt guide rod (4) so that the clearance is 4 to 6 mm (3/16 to 1/4 inch) from the rear side of the belt in the disengaged belt position.

Set separator belt lift rod (5) so that it lifts the separator belt 3 to 6 mm off the idler pulley, in the disengaged belt position.

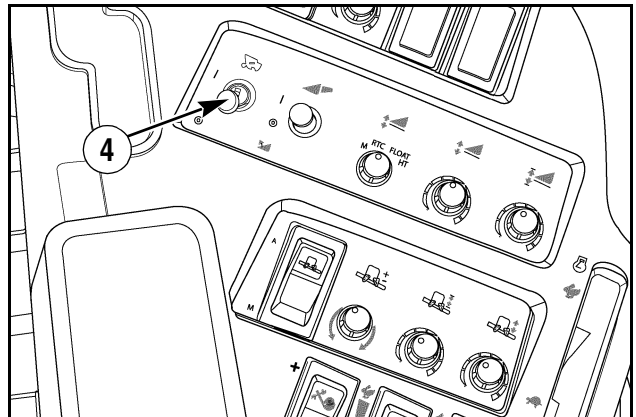
## Belt Adjustment

8. The initial setting of the drive belt adjusting rod must be 65 to 70 mm (1) from the lower cylinder anchor (2) to the gauge window angle (3).



218L7

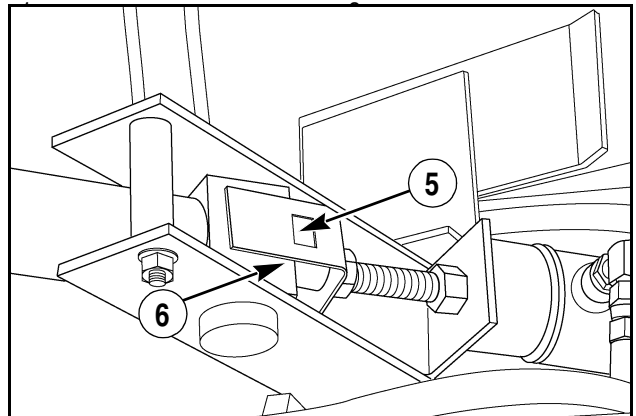
9. Start the engine and move the separator switch (1) to ON.



A24293

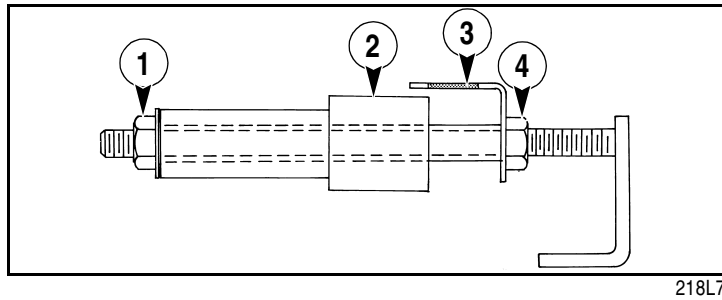
10. Look through the window gauge (5) to see the position of the block (6).

**IMPORTANT:** It is recommended that new belts be adjusted as shown in diagram A (Next page). Full window plus two turns on the nut (1). New belts must be checked and adjusted every 10 hours for the first 50 hours of operation to allow for initial belt stretch. It is recommended that belt tension be kept between full window and 1/2 window opening. (Diagram A and Diagram B - Next Page).



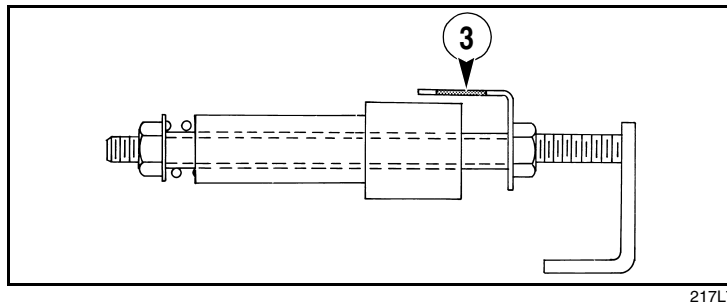
T87664

**DIAGRAM A**



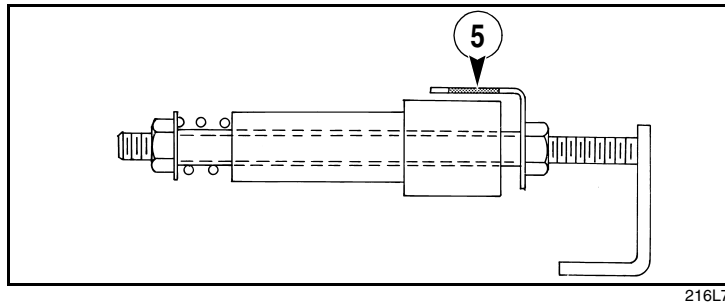
**NOTE:** Initial or correct adjustment. Edge of window opening is even with edge of block. Spacer should rotate freely after the initial setting. Maximum tension shown.

**DIAGRAM B**



**NOTE:** The minimum adjustment shown. 1/2 window opening.

**DIAGRAM C**



- |              |                   |                            |
|--------------|-------------------|----------------------------|
| 1. UPPER NUT | 3. WINDOW OPENING | 5. WINDOW OPENING (CLOSED) |
| 2. BLOCK     | 4. LOWER NUT      |                            |

**NOTE:** Incorrect adjustment. Adjust to condition A or B.

If adjustment is necessary, do the following:

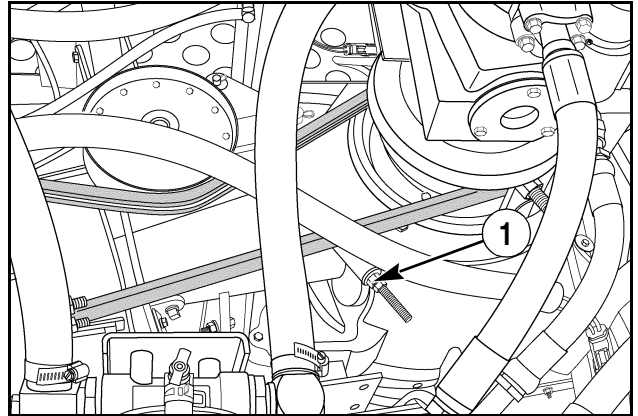
1. Move the separator switch to OFF.
2. Stop the engine and remove the key.
3. Loosen the lower nut on the adjusting rod 13 mm (1/2 inch).
4. Tighten the upper nut 13 mm (1/2 inch).
5. Readjust the belt guides from Step 7.
6. Repeat Steps 9 and 10 on previous page and all of the procedures until the adjustment is correct.



## AUXILIARY PUMP DRIVE BELT

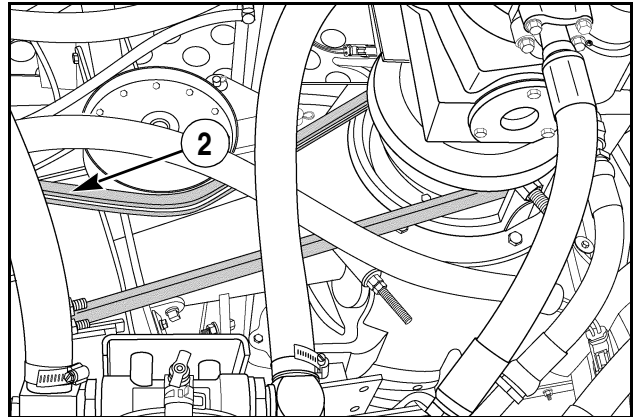
### Belt Removal

1. Remove the grain tank unloader drive belt from the unloader drive pulley.
2. Loosen the nuts (1) on the tension adjuster for the drive belt on the auxiliary hydraulic pump jackshaft.



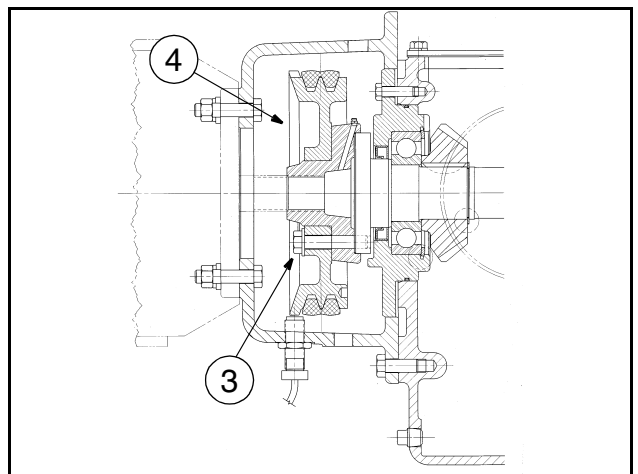
A24479

3. Remove the auxiliary hydraulic pump jackshaft drive belt (2) from the jackshaft driven pulley.



A24479

4. Remove the three mounting bolts (3) holding the pump drive pulley (4) to the PTO shaft.



563L92

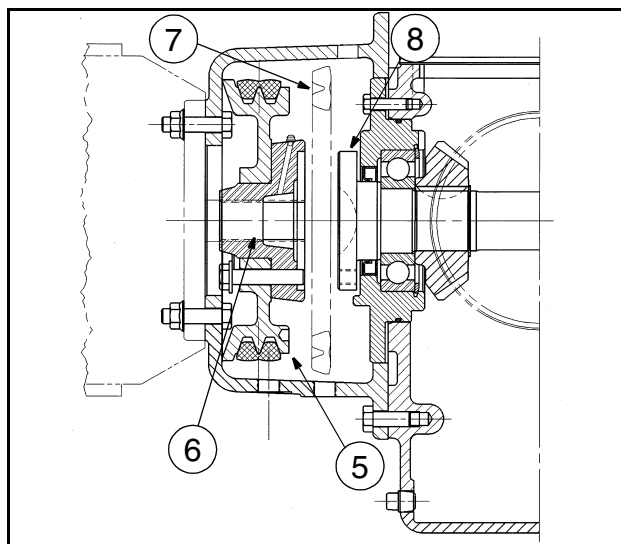
5. Move the pump drive pulley (5) outward on the hydrostatic pump drive shaft (6).

Remove the belt (7) between the pump drive pulley (5) and the PTO shaft (8).

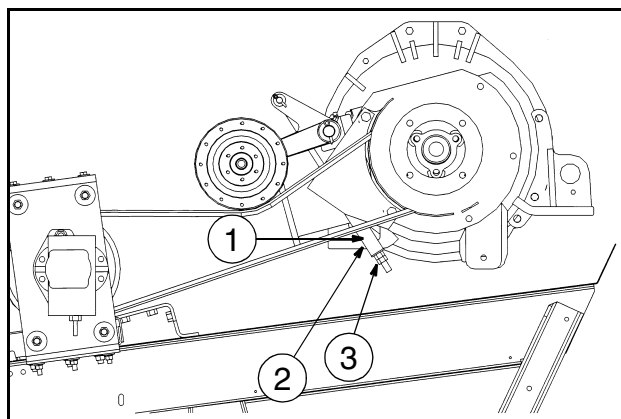
### Belt Installation and Adjustment

6. Install the belt (4) between the pump drive pulley and the PTO shaft.

Move the pump drive pulley inward on the hydrostatic pump drive shaft.

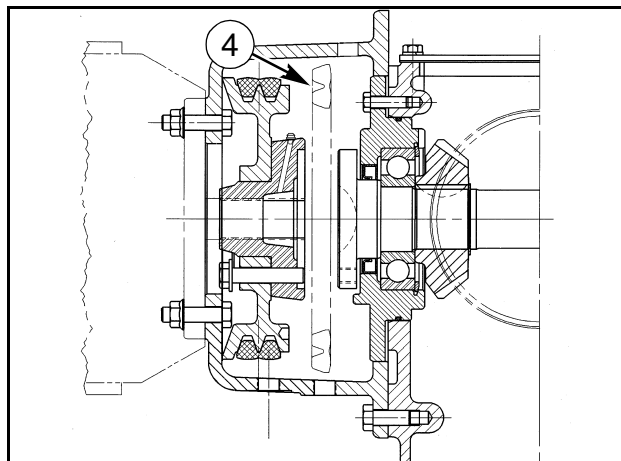


562L92



565L92

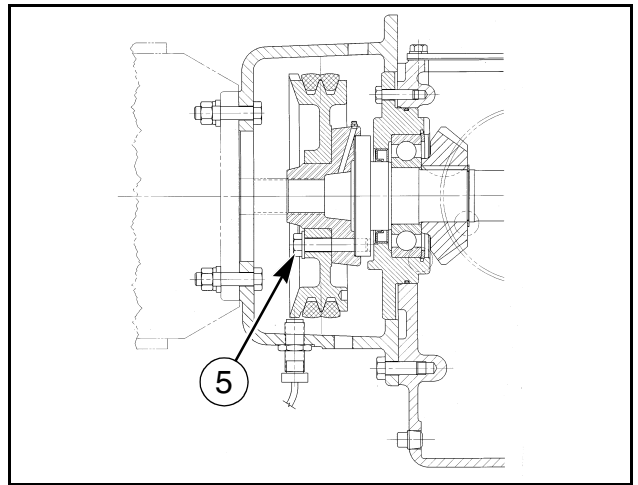
- 1. TENSION SPRING
- 2. TUBE
- 3. NUT



562L92

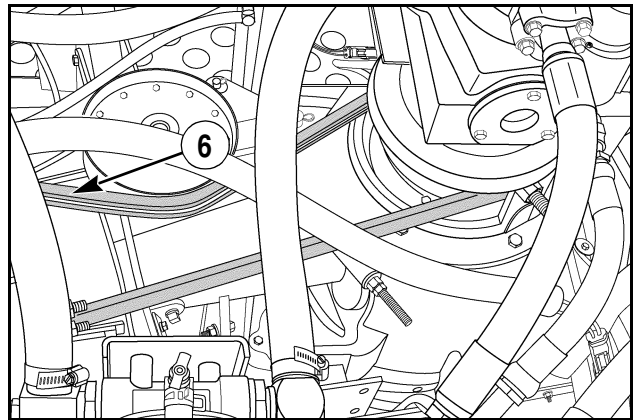
## 9 - MAINTENANCE/ADJUSTMENTS

7. Install and tighten the three mounting bolts (5) holding the pump drive pulley to the PTO shaft.



563L92

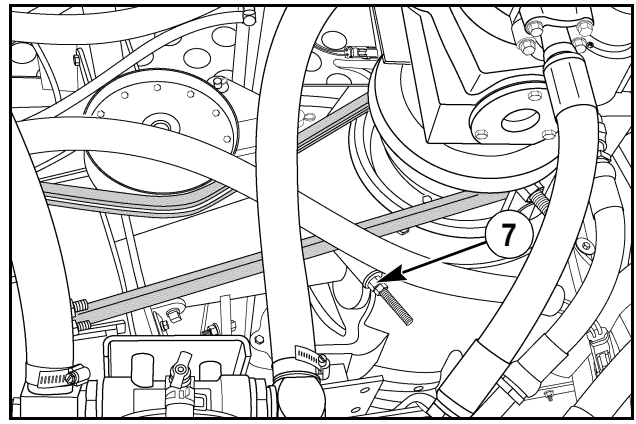
8. Install the auxiliary pump jackshaft drive belt (6) on the driven pulley on the pump.



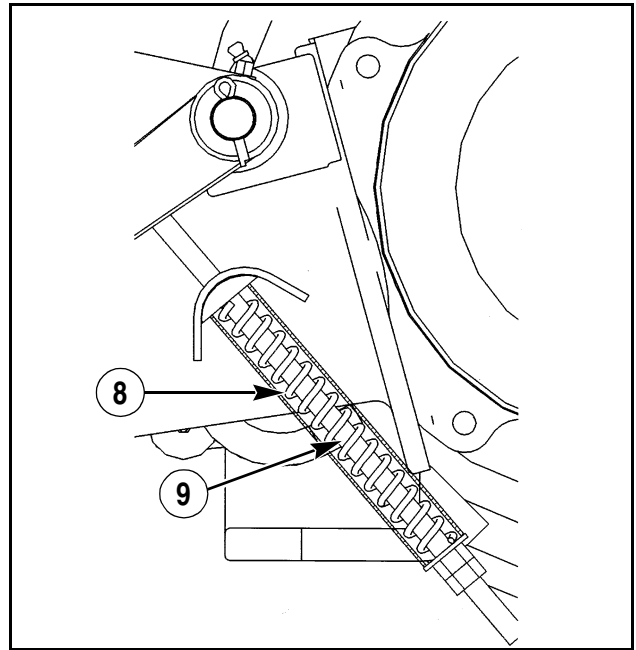
A24479

## 9 - MAINTENANCE/ADJUSTMENTS

9. Tighten the adjusting nuts (7) on the auxiliary pump drive belt tension pulley until the tension spring (8) is the same length as the tube (9) around the tension spring. Then tighten the nut an additional turn. Adjust tension any time the tube is free to turn.
10. Install the grain tank unloader belt on the unloader drive pulley.



A24479

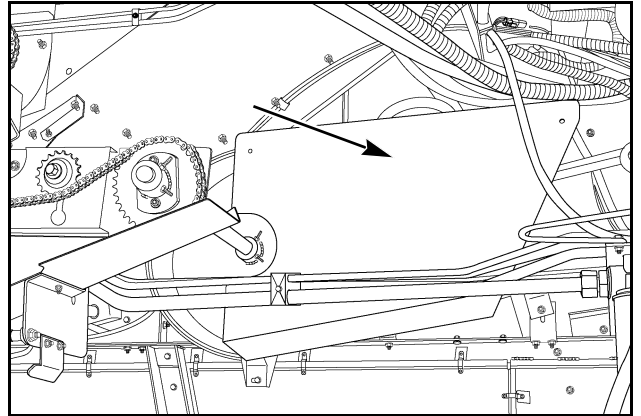


566L92

## GRAIN TANK UNLOADER DRIVE BELT

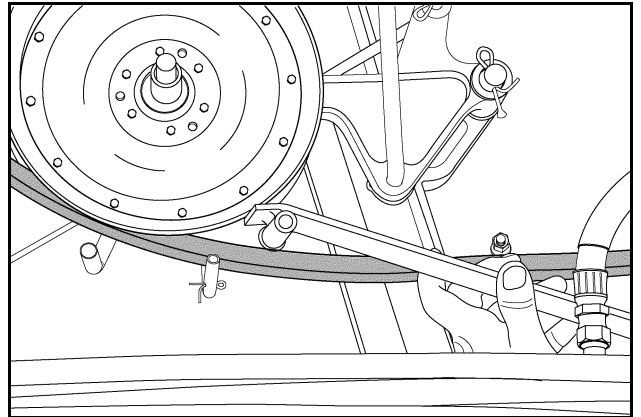
### Belt Removal

1. Remove shield.



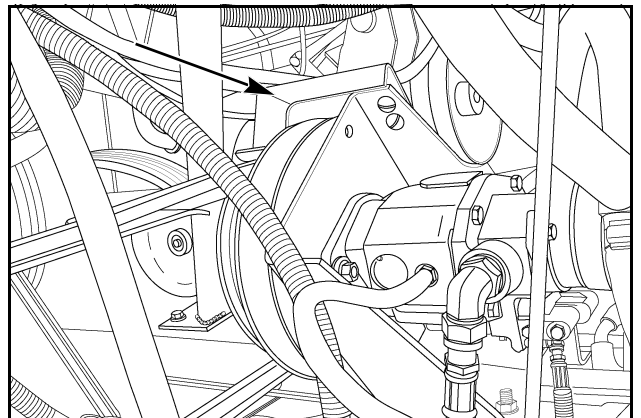
A24472

2. Remove the upper belt guide from the unloader belt.



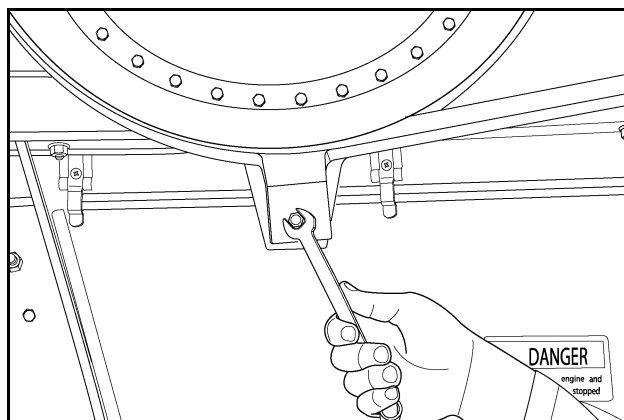
T92003

3. Remove the unloader belt trap support from the hydraulic pump mounting bracket.



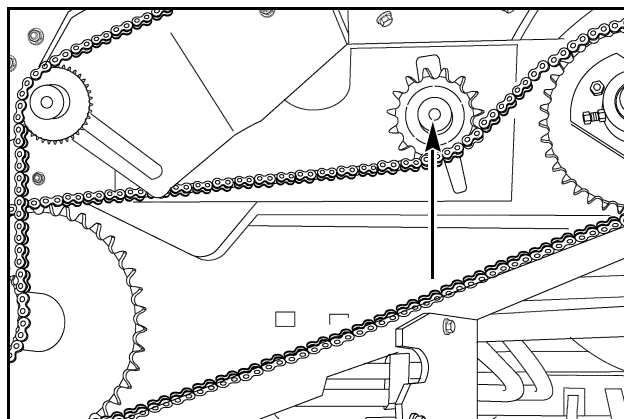
A24477

4. Remove the lower unloader belt guide from the Combine.



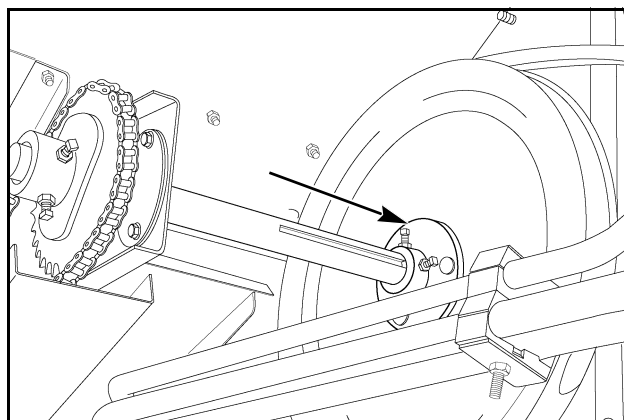
T92009

5. Loosen the chain tension sprocket for the unloader drive chain.



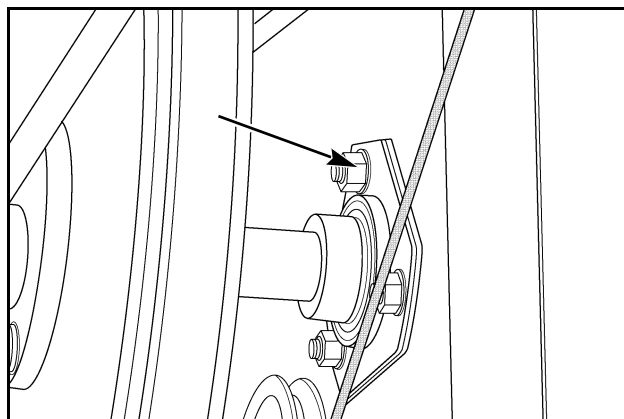
RR06E021

6. Loosen the set screws on the unloader drive pulley. Move the pulley away from the Combine.



A14005

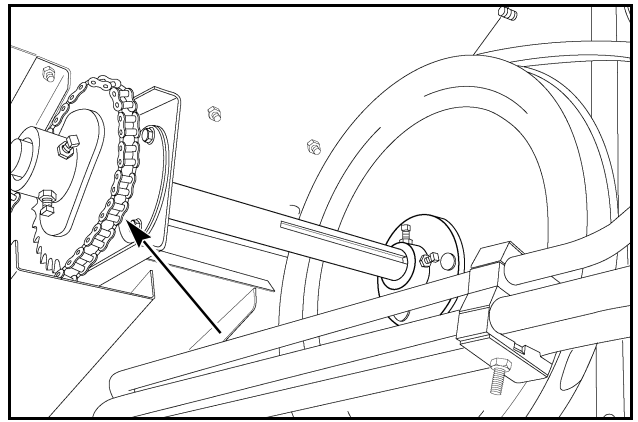
7. Remove the mounting bolts for the unloader jackshaft bearing flanges behind the unloader drive pulley.



A2440.45

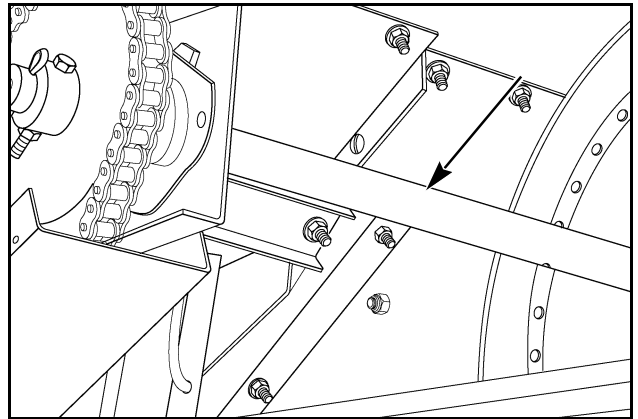
## 9 - MAINTENANCE/ADJUSTMENTS

8. Remove the bearing flange bolts for the unloader jackshaft at the sprocket.



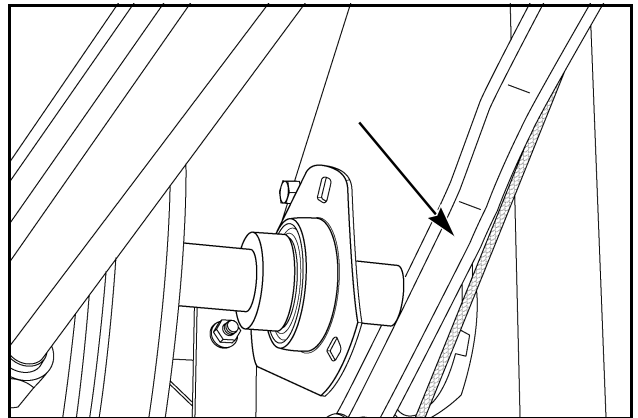
A14005

9. Move the jackshaft assembly away from the Combine.



A2438s.45

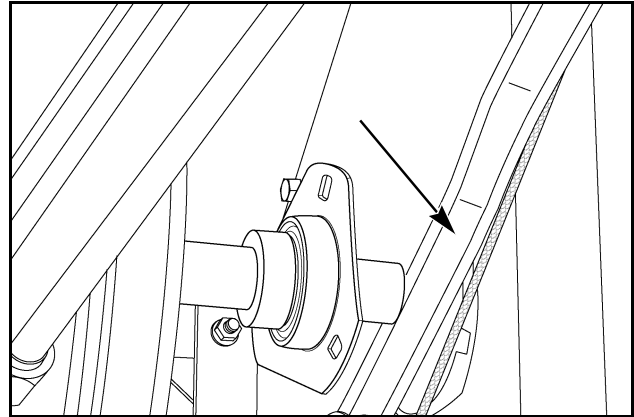
10. Remove one end of the unloader drive belt between the jackshaft and the Combine frame. Remove the other end of the belt from the pulley on the hydraulic pump.



A2437.45

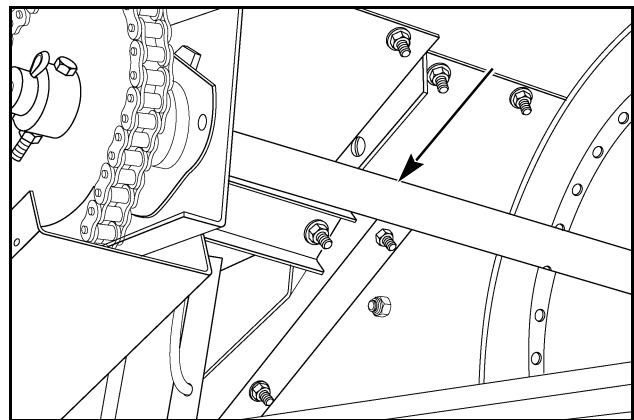
## Belt Installation and Adjustment

11. Install one end of the unloader drive belt between the Combine frame and the jackshaft. Install the other end of the belt over the pulley on the pump.



A2437.45

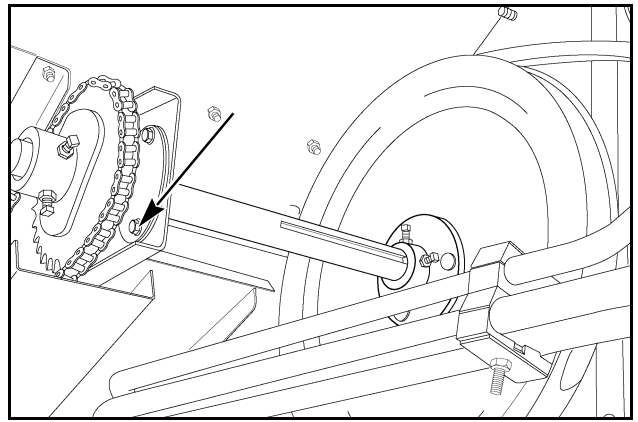
12. Move the unloader jackshaft assembly into place at the support and Combine frame.



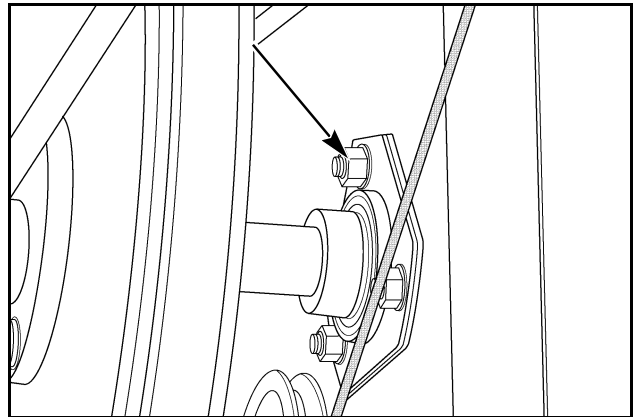
A2438.45



13. Install the bearing flanges on the support and Combine frame.

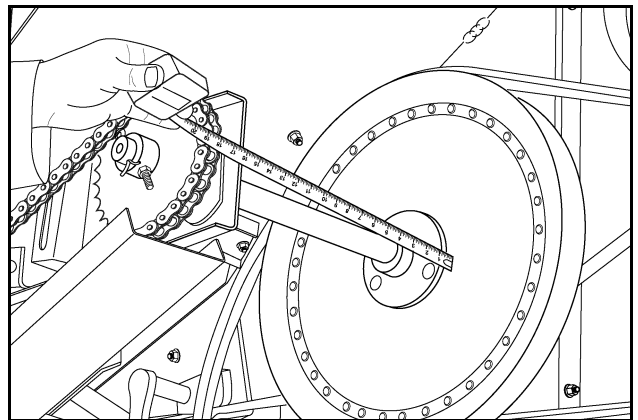


A14005



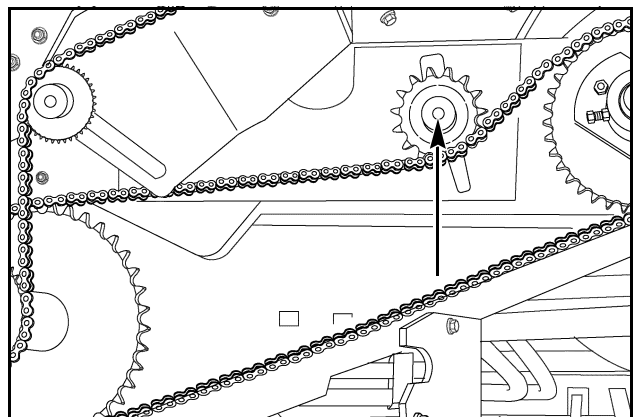
A2440.45

14. Move the unloader drive pulley toward the Combine. Position the outer surface of the pulley 403 mm (15-7/8 inches) from the center of the sprocket and tighten set screws.



A4502

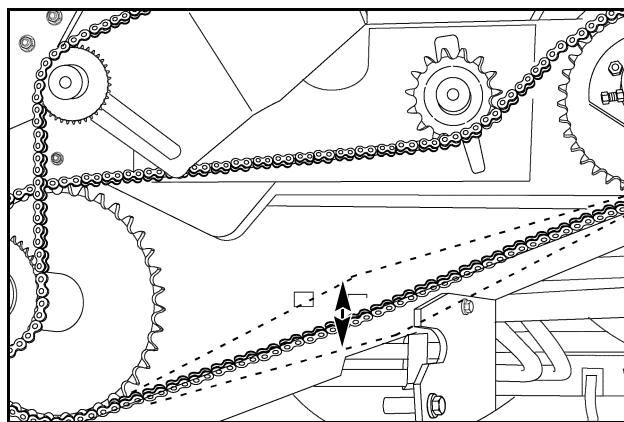
15. Move the tension adjusting sprocket against the chain.



RR06E021

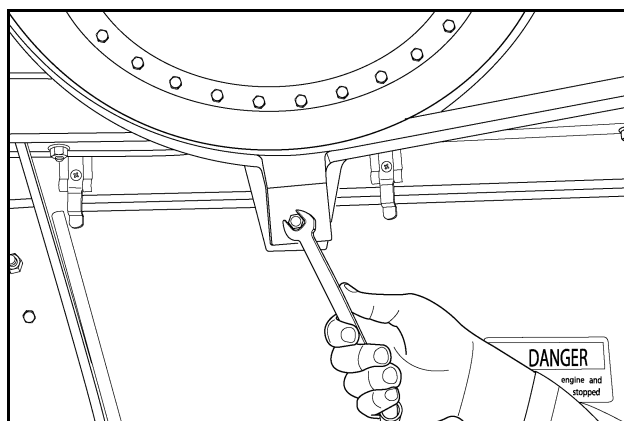
## 9 - MAINTENANCE/ADJUSTMENTS

16. Adjust the tension sprocket so that the deflection of the chain when measured at the center of the bottom strand is 25.4 mm (1 inch).



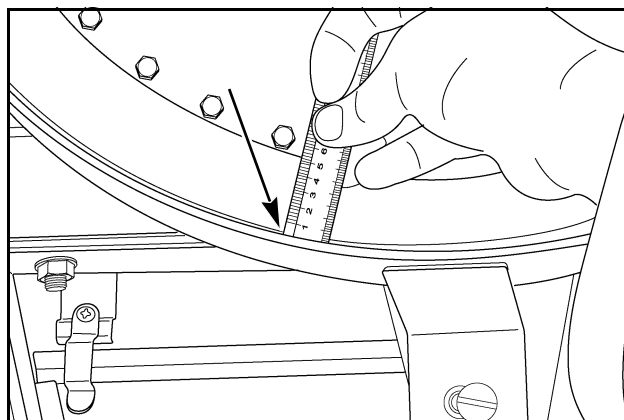
RR06E021R

17. Install the unloader belt guide into position around the unloader drive belt.

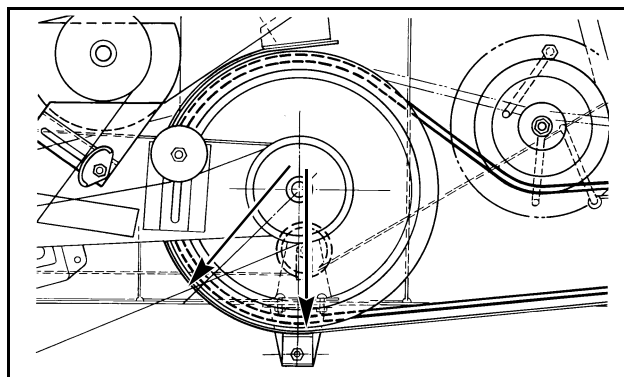


T92009

18. Measure the gap between the unloader belt guide and the unloader jackshaft driven pulley. Adjust the unloader belt guide so that the gap measures 2.3 to 5.3 mm (3/32 to 7/32 inch) between the arrows.

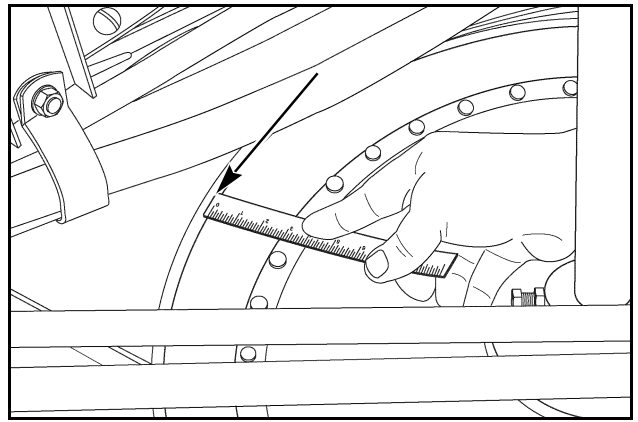


T92032.45

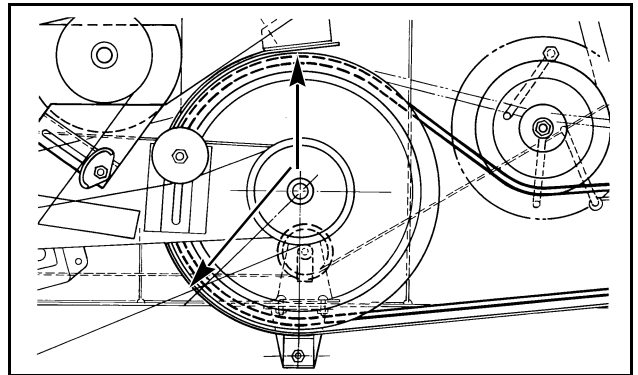


231L8

19. Measure the gap between the unloader belt guide and the unloader jackshaft driven pulley area. Adjust the belt guide so that the gap measures 3.0 to 6.8 mm (1/8 to 17/64 inch) in the area between the arrows.

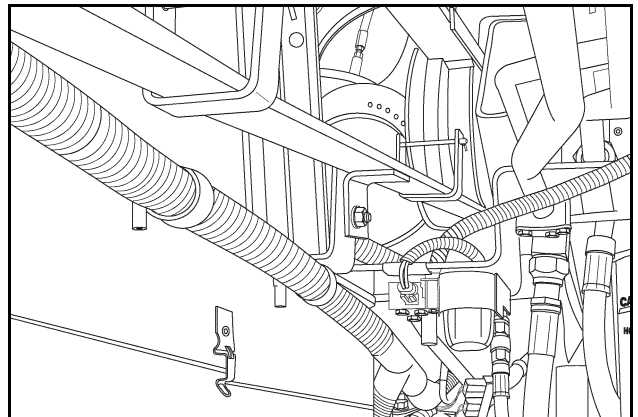


T92033.45



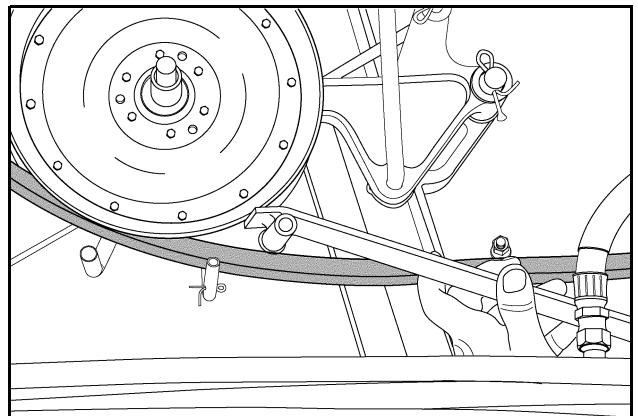
231L8

20. Measure the gap between the unloader belt guide and the unloader jackshaft drive pulley. Adjust the belt guide so that the gap measures 2.2 to 3.8 mm (3/32 to 5/32 inch). After the gap has been correctly adjusted at all points along the unloader belt guide, tighten all of the bolts that hold the unloader belt guide.



RD05D067

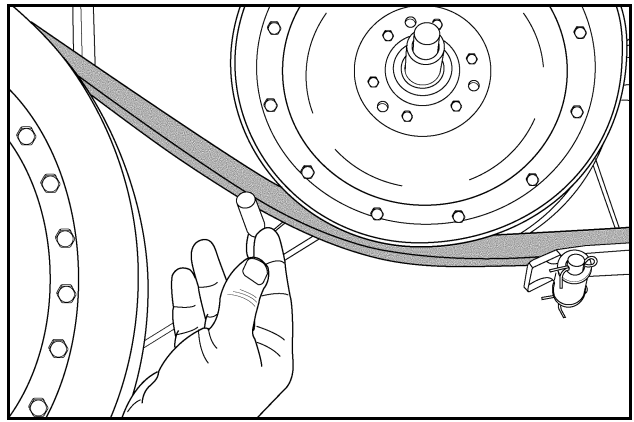
21. Install the upper belt guide on the support rod.



T92003

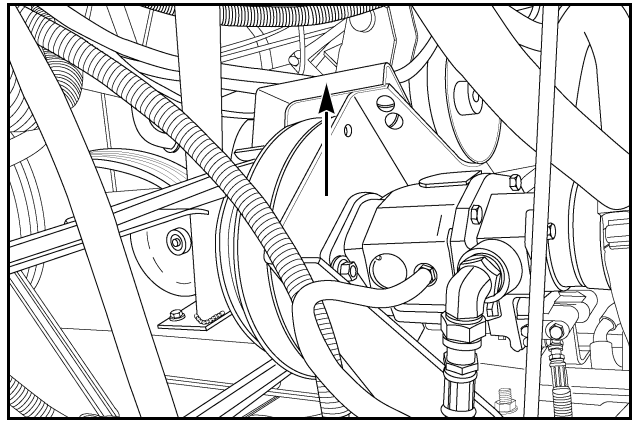
## 9 - MAINTENANCE/ADJUSTMENTS

22. Adjust the unloader belt upper rod so that it just touches the inside of the unloader drive belt.



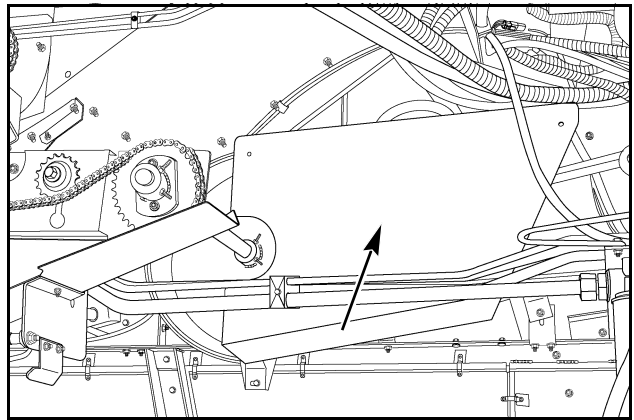
T92027

23. Install the unloader belt trap support on the hydraulic pump mounting bracket.



A24477

24. Install shield.

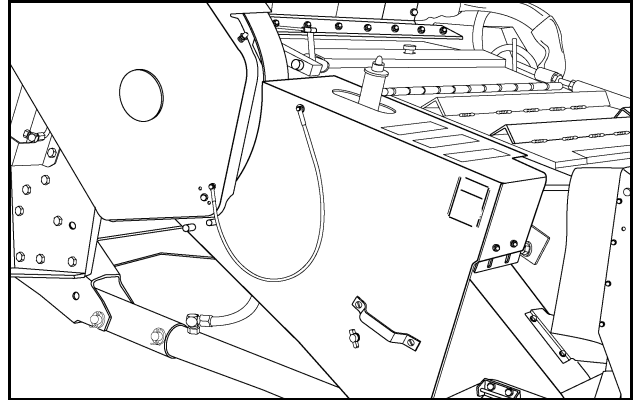


A24472

## FEEDER JACKSHAFT DRIVE BELT

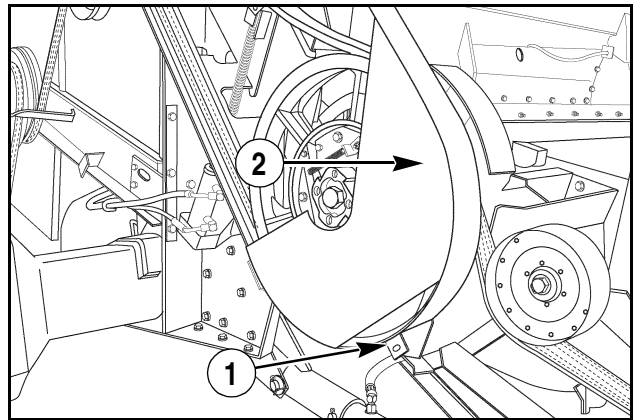
### Belt Removal

1. Start the engine. Disengage the separator and feeder drive. Turn the engine OFF and remove the key. Remove the three shields.



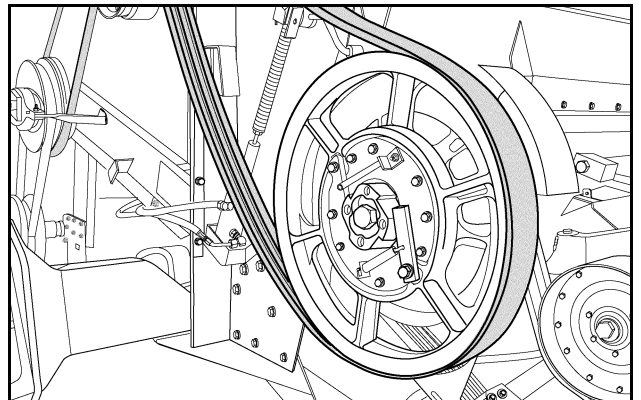
RD00H016

2. Remove belt trap (1) and loosen the bolts that secure the shield (2).



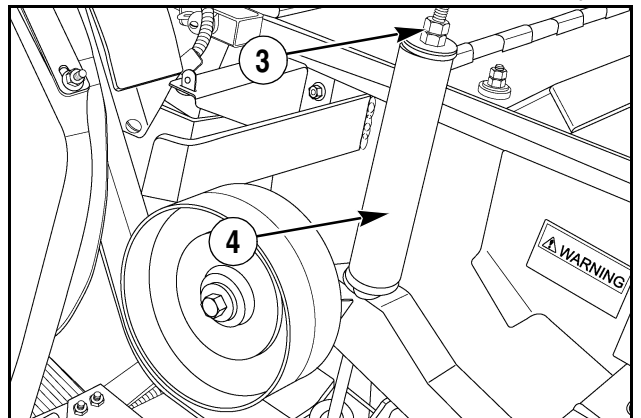
RD01H215

3. Remove the feeder drive belt.



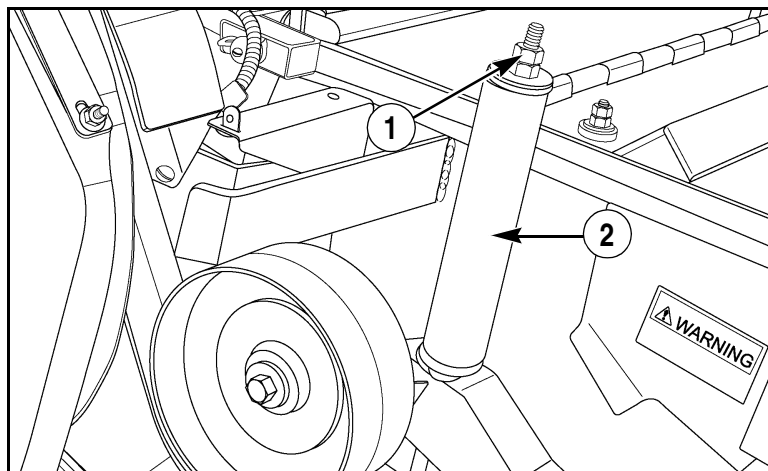
RD01H217

4. Remove the lock nut (3) and loosen the belt tension spring assembly (4) to remove tension on the feeder jackshaft drive belt. Remove the feeder jackshaft drive belt.



RD00F045

## Belt Installation and Adjustment



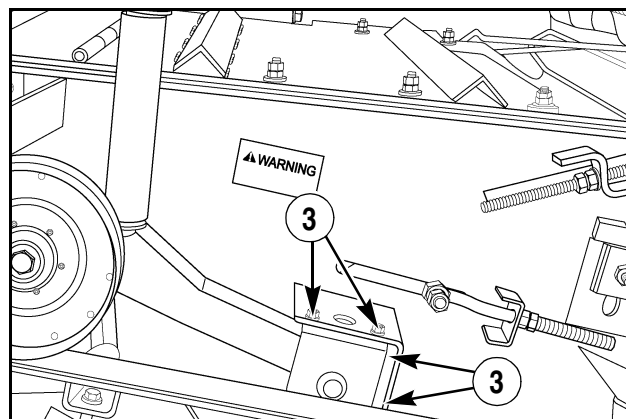
RD00F045

1. Install the feeder jackshaft drive belt.
2. Adjust the belt tension. Turn the belt tension spring assembly (2) to adjust the spring length.
3. Compress the spring to the length of the spacer on the outside of the spring. The spacer must be free to turn after adjustment. Then install and tighten the lock nut.
4. Keep the spring length adjusted to the length of the spacer at all times.
5. Install the belt and adjust the feeder drive belt idler mount.

## Forward Path Alignment

To adjust the forward path alignment of the idler arm do the following:

1. Slide the vertical (3) inside mount up until the slant of the pulley is correct with the belt.
2. Slide the horizontal (4) outside mount to position the pulley until it is centered on the belt in forward operation.

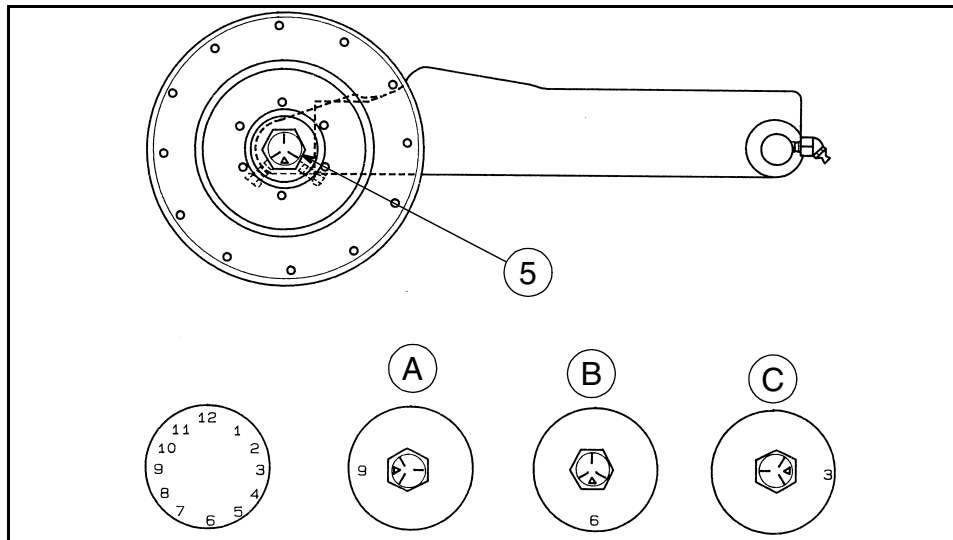


RD00F044

## Reverse Path - Fine Tune

The feeder jackshaft drive belt path can also be adjusted in or out. The idler arm assembly will come assembled from the factory with the triangle on the bolt head indexed to the six o'clock position.

Adjust the position of the bolt head on the idler pulley to change the feeder jackshaft drive belt path.

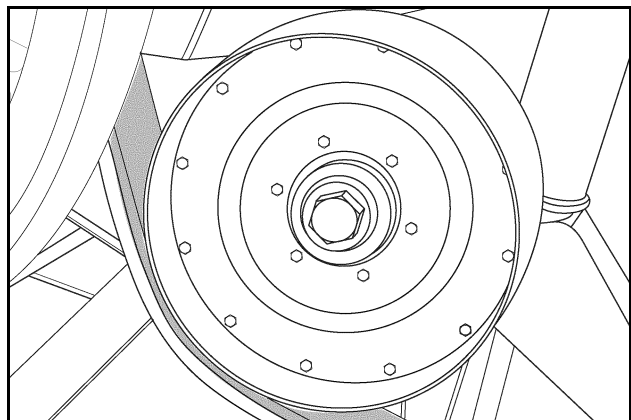


5. BOLT HEAD

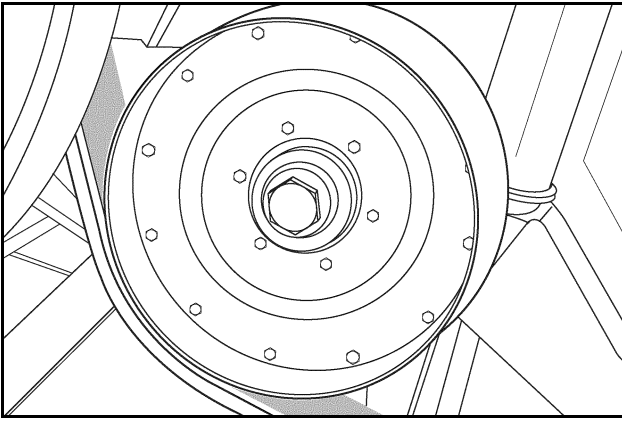
A. OUT

B. MIDDLE

C. IN



To adjust the belt path outward from the feeder, turn the bolt so that the triangle on the bolt is in the 9 o'clock position. Adjust only as far as needed to track the belt properly.



RD00H008

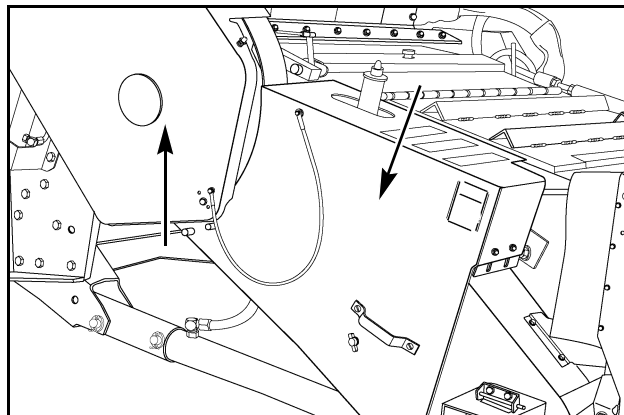
To adjust the belt path in toward the feeder, turn the bolt so that the triangle on the bolt is in the 3 o'clock position. Adjust only as far as needed to track the belt properly.



## FEEDER DRIVE BELT

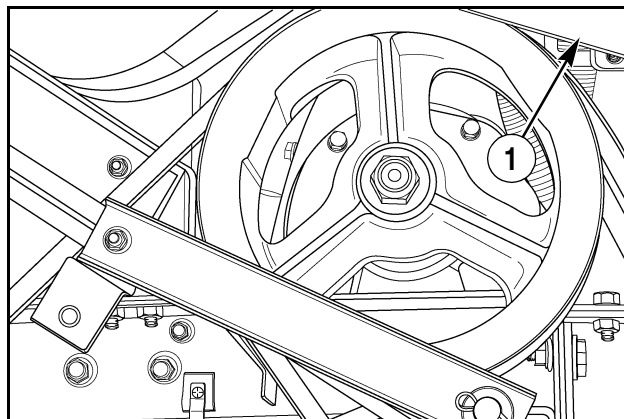
### Belt Removal

1. Start the engine. Disengage the separator and feeder drive. Turn the engine OFF and remove the key. Remove the three shields.



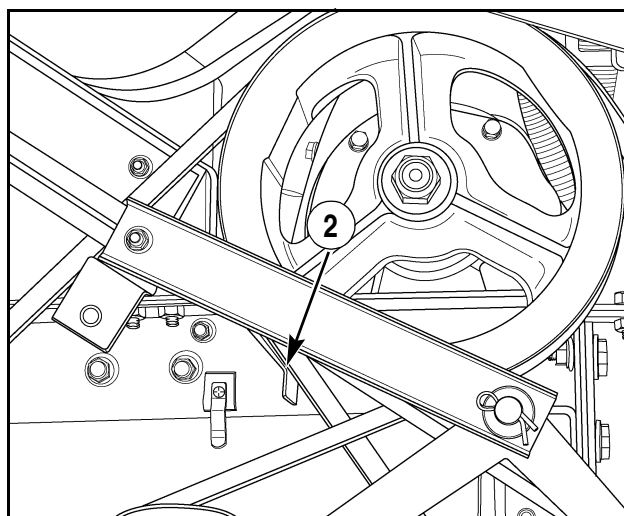
RD00H016

2. Remove the cleaning fan jackshaft drive belt. Refer to Cleaning Fan Jackshaft Belt in this manual.



RD00H015

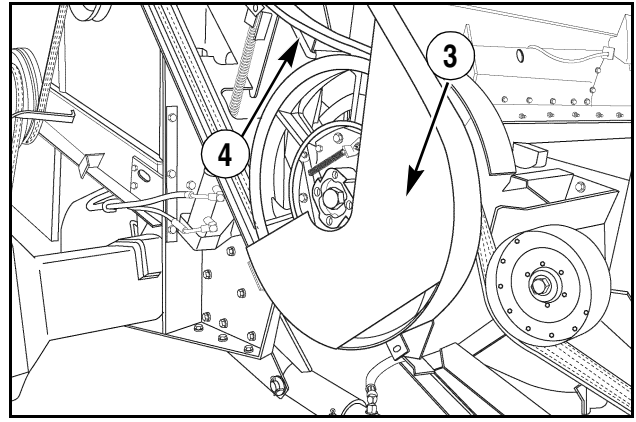
3. Loosen the mounting bolts for the upper (1) and lower (2) guides. Move the guides away from the drive pulley.



RD00H011

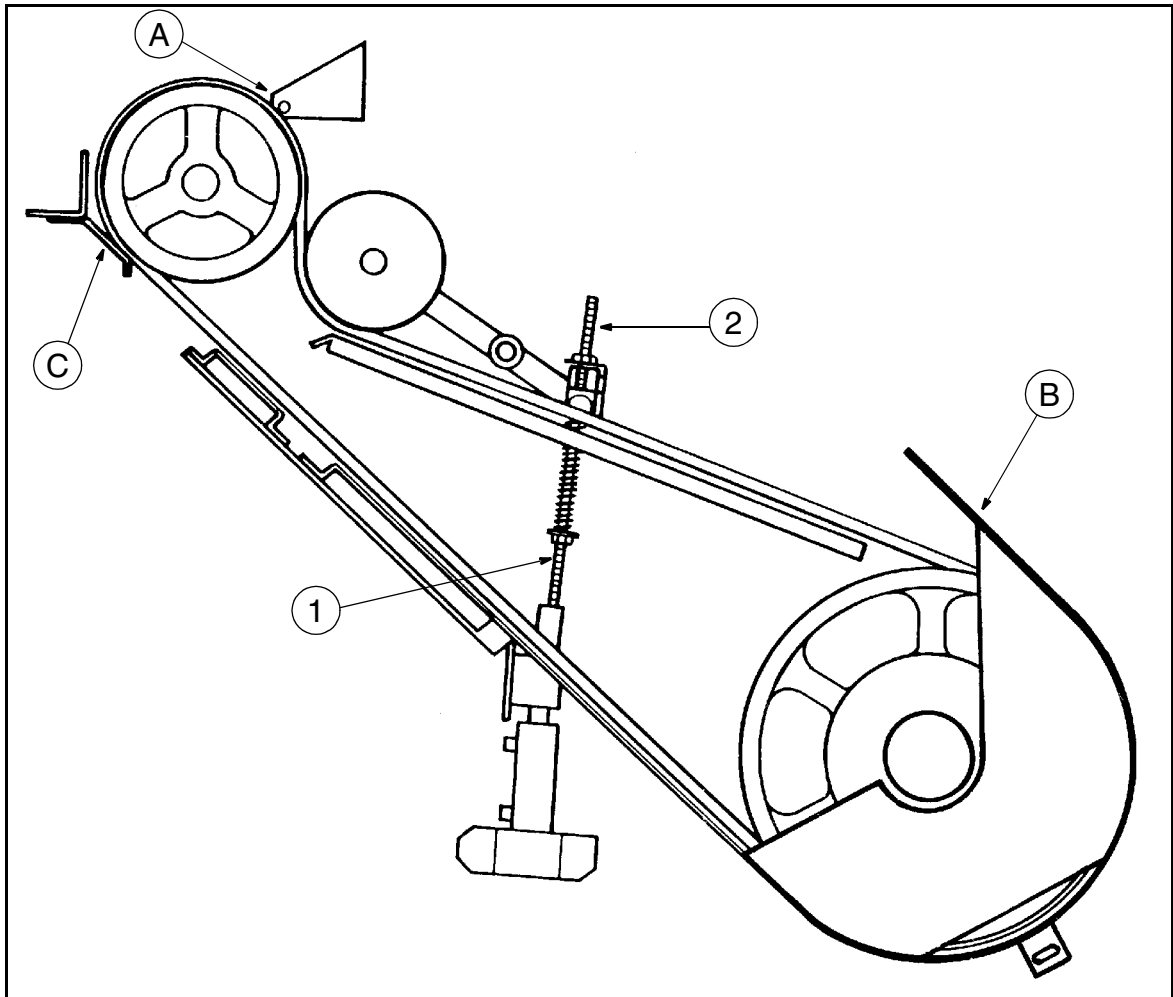
## 9 - MAINTENANCE/ADJUSTMENTS

4. Remove the belt trap (3). Loosen the tension rod (4) and remove the belt.



RD01H215

## Belt Installation and Adjustment



RH02F043

1. Install the drive belt.
2. Adjust the belt tension rod (1) to 80 mm (3-5/32 inches) above the top nut (2).
3. Adjust the lower nut upward until the nut is tight against the inner spacer.
4. Adjust the upper and lower guides to give a clearance (A and B) of 4 mm (5/32 inch) between the belt and the guides.
5. Adjust the belt trap to give a clearance (C) of 4 mm (5/32 inch) between the belt and the belt trap.
6. Install the cleaning fan jackshaft belt.
7. Install all feeder drive shields except the small front shield

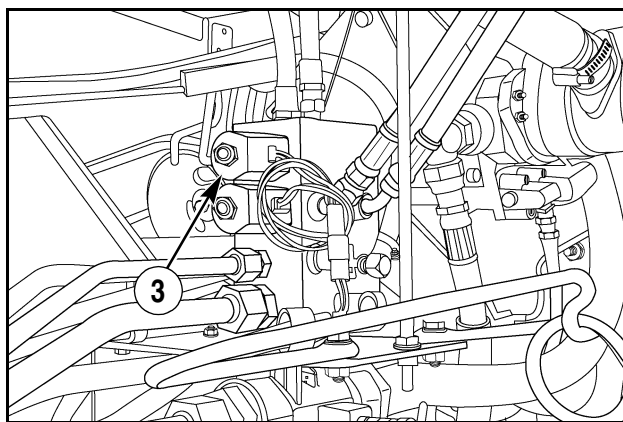
## 9 - MAINTENANCE/ADJUSTMENTS

8. The feeder clutch will not engage without the separator engaged. For this reason the coil (3) on the separator valve must be removed from the valve. This allows the machines electronics to think the separator is running even though it is not. Set the Auto Feeder Cutoff to the OFF position, so that the feeder clutch will engage and stay engaged, even though the feeder will not be operating.

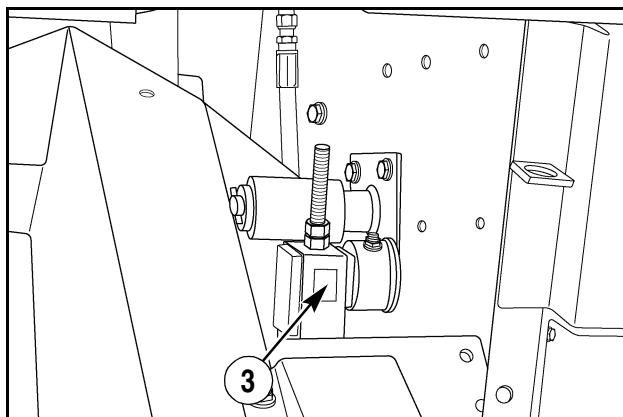
**NOTE:** *This procedure requires that an operator remains in the operator's seat, or the feeder will automatically shut off.*

9. Start the engine. Engage both the separator and feeder. Neither will turn, but the feeder clutch will engage.

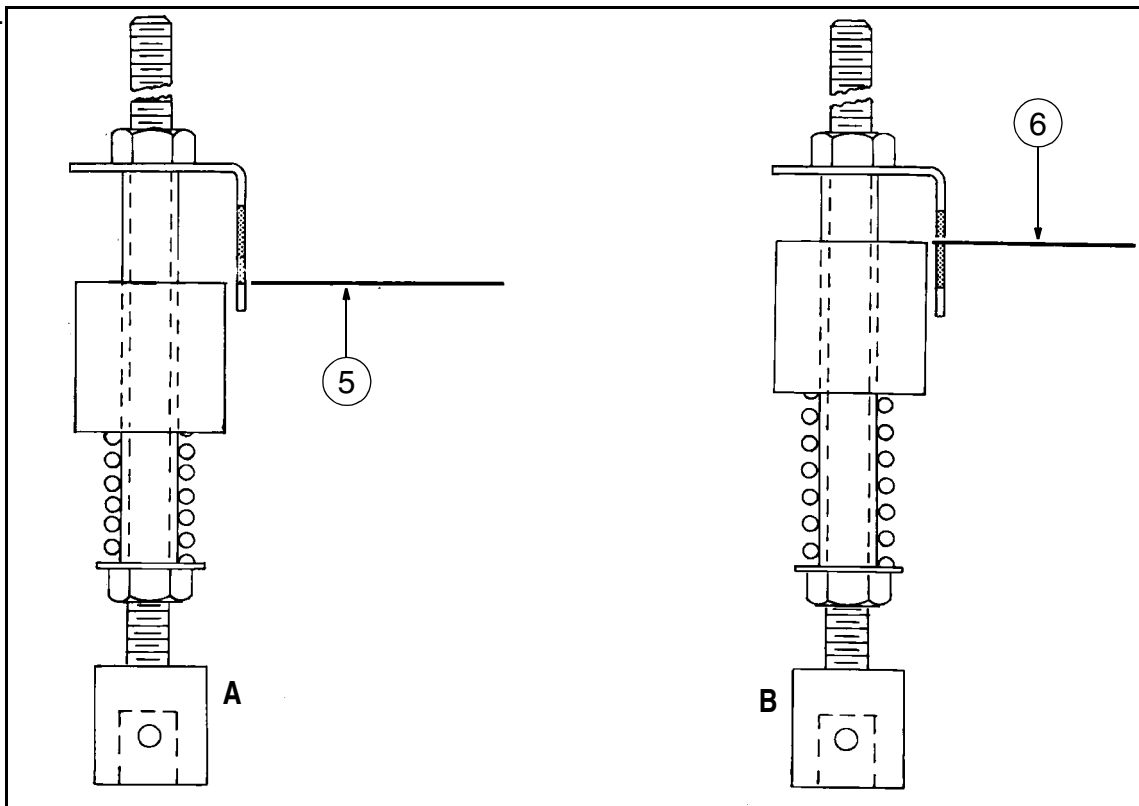
10. The second person should look through the front shield opening and visually check the position of the gauge block in relation to the gauge window (4). The gauge block position must be between the range shown in diagrams A and B.



RD01H213



T85901



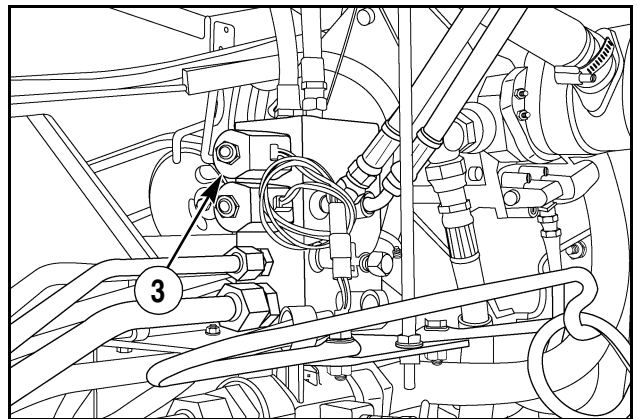
RH02F002

- 5. TOP OF BLOCK AT BOTTOM OF GAUGE WINDOW
- 6. TOP OF BLOCK AT CENTER OF GAUGE WINDOW

11. If necessary, adjust the belt tension as follows:

- A. Stop the engine and remove the key.
- B. Adjust the upper and lower nuts as required to get the gauge block in the correct window position.
- C. Make sure the nuts are tight, then install the front shield.

12. Install the separator valve coil (3) back on the valve and tighten finger tight. DO NOT overtighten, this may cause the valve to not function properly.



RD01H213

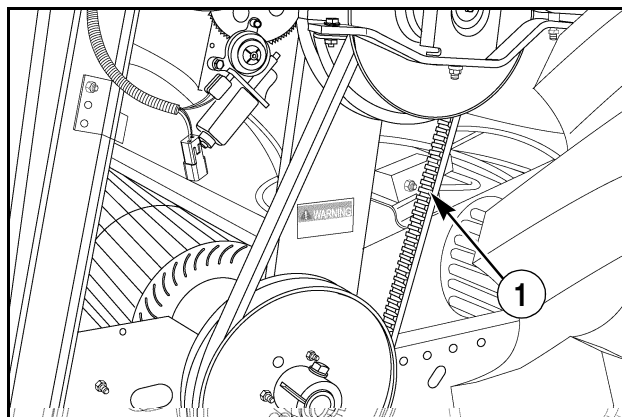
13. Turn Auto Feeder Cutoff back on.

14. Test the operation of the separator drive and feeder drive. If necessary repeat Steps 7 through 13.

## CLEANING FAN DRIVE BELT

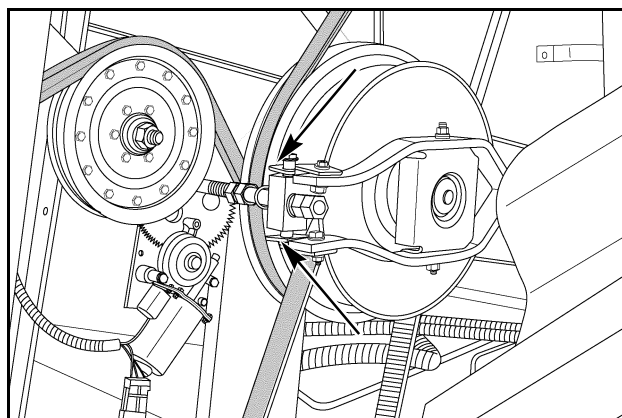
### Belt Removal

1. Start the Combine engine and place the separator switch in the ON position. Adjust the fan speed to the slowest speed. Disengage the separator drive and turn the Combine engine OFF and remove key. Remove all shields for the fan drive belt (1).



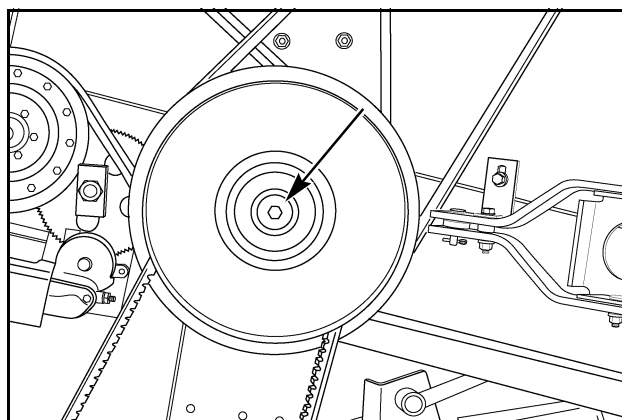
A24340

2. Remove the upper and lower pivot bolts from the speed control box.



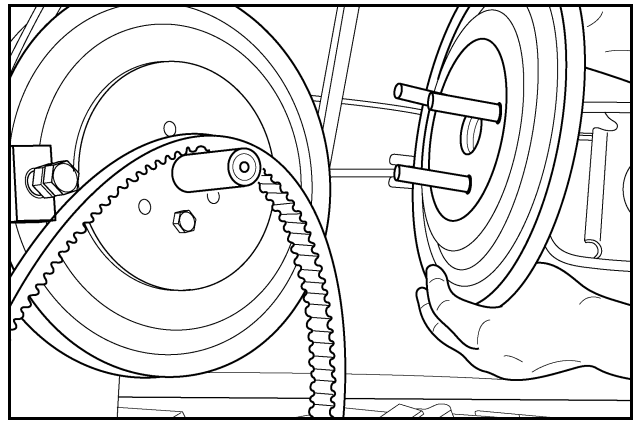
A25928

3. Swing the control arm away from the pulley. Remove the stop bolt and washer from the end of the shaft.



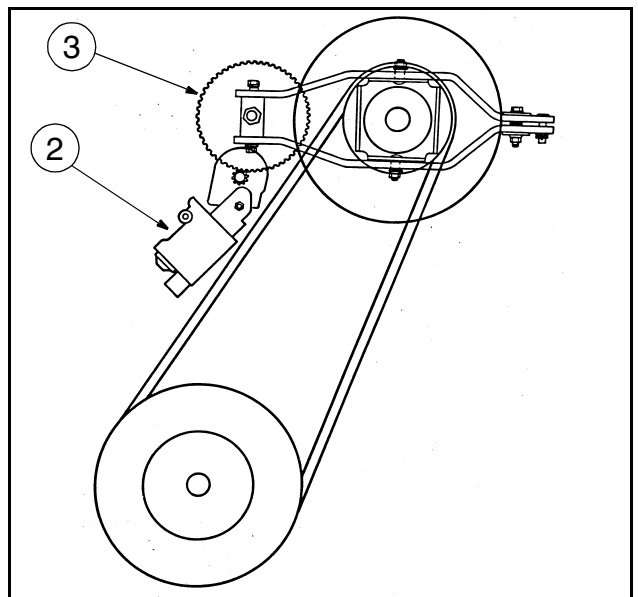
A17288

4. Remove the outer pulley half, then the drive belt.



## Belt Installation

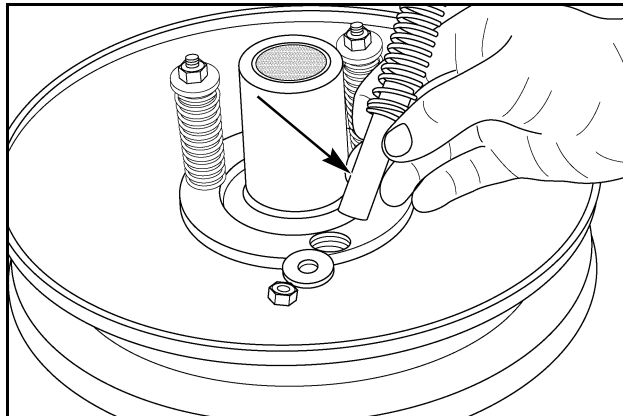
5. Install the drive belt in the reverse order of Steps 1 through 4.



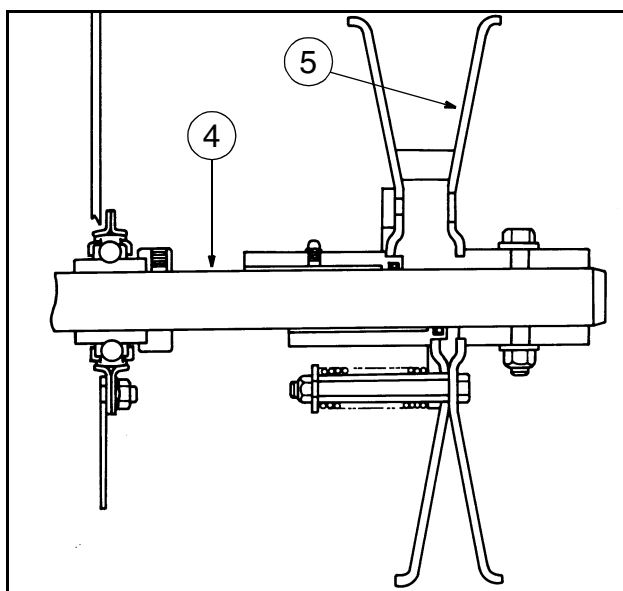
2. FAN SPEED CONTROL MOTOR
3. DRIVE GEAR

## Belt Adjustments

6. Belt tension is applied by springs on the driven pulley. Tighten the spring mounting bolts to compress the spring until the spacer inside the spring is tight.



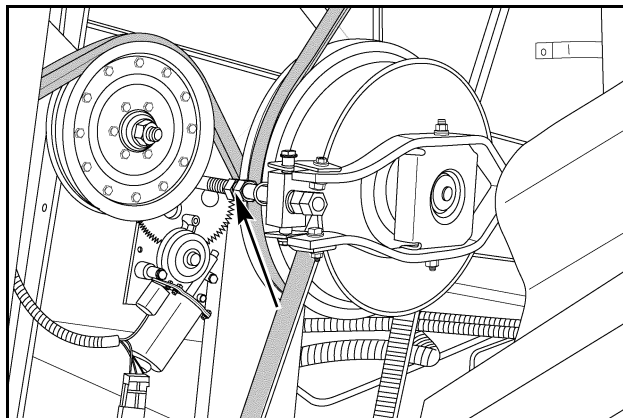
T87483



383L8

4. FAN DRIVE SHAFT  
5. FAN DRIVE PULLEY

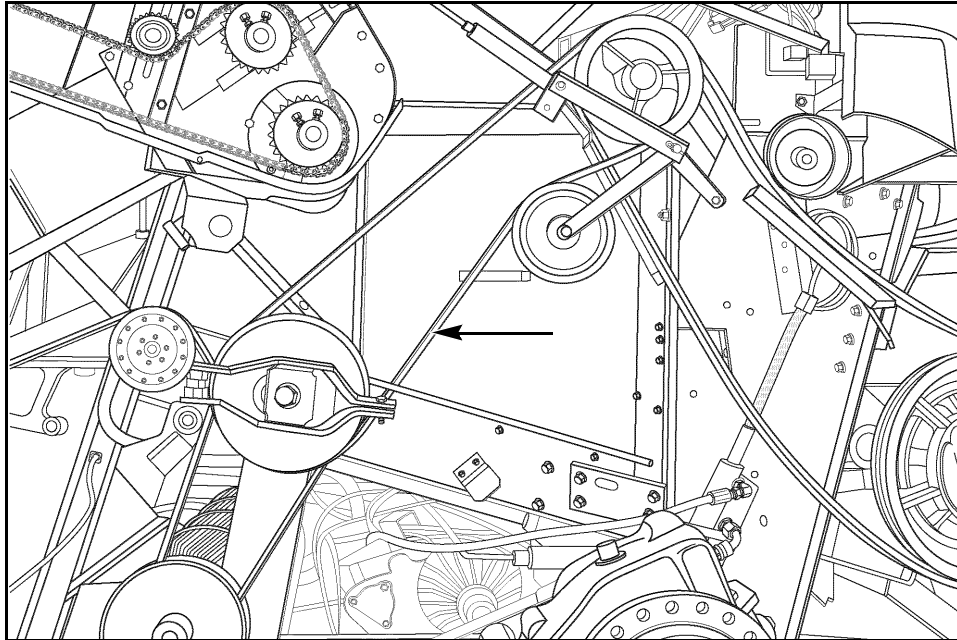
7. Adjust the inner nuts on the control block rod for fan speed so that the belt never runs above the outside diameter of either pulley.



A25928



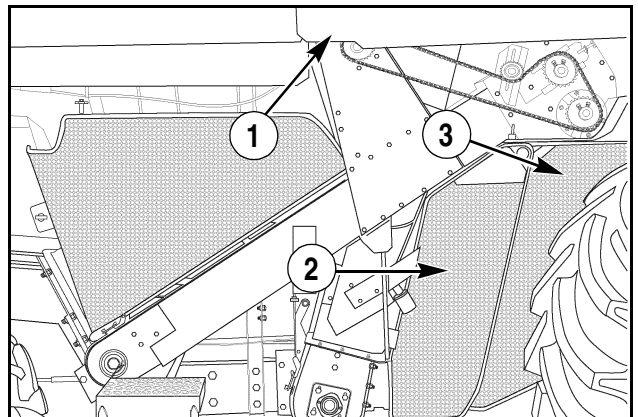
## CLEANING FAN JACKSHAFT BELT



RD01H227

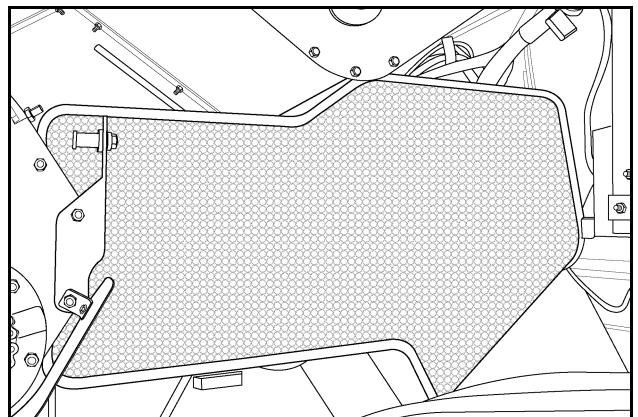
### Belt Removal

1. Open the right front panel (1) and open the middle shield (2) and remove the right front shield (3).



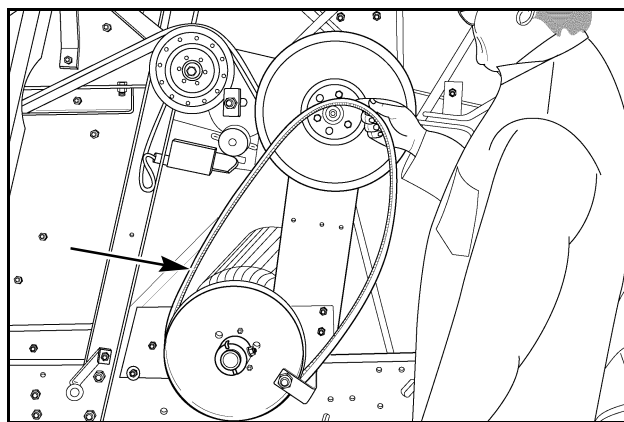
RD05D119

2. Remove the feeder drive shield.



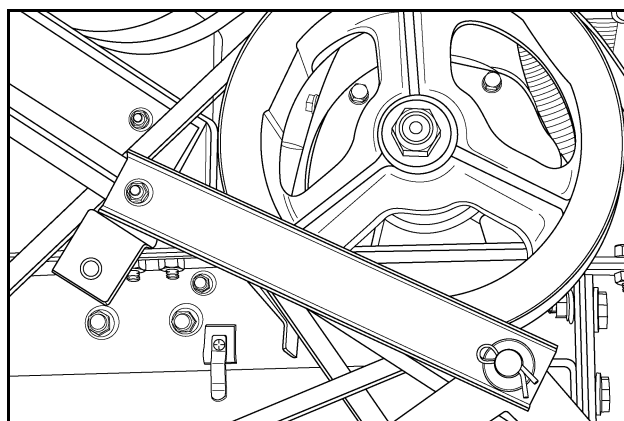
A24491

3. Remove the cleaning fan drive belt.



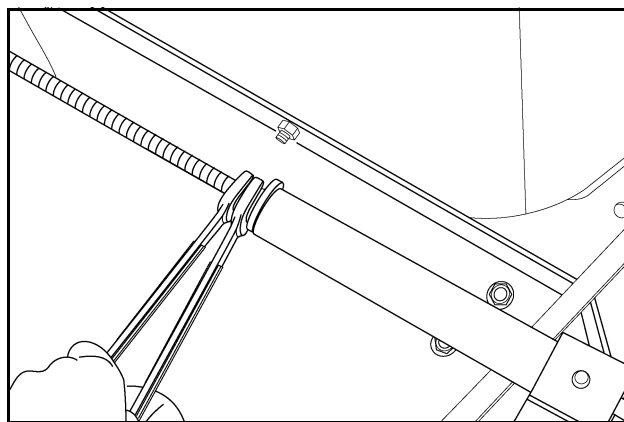
A17287

4. Remove the screw, nut and cotter pin and remove the feeder jackshaft shield bracket.



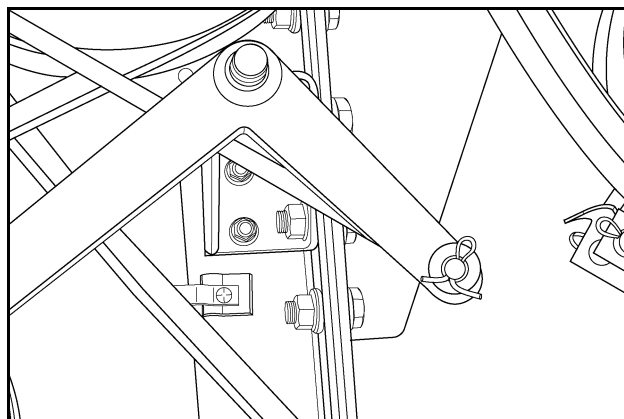
RD00H011

5. Loosen the lock nuts on the fan jackshaft drive belt tension spring rod.



RD00H012

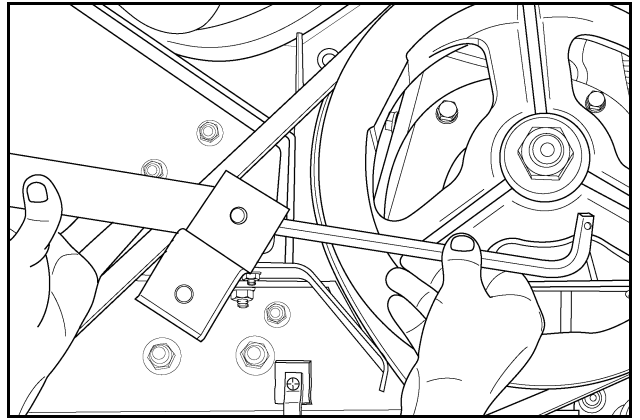
6. Remove the belt tension spring rod cotter pin and washer.



RD00H013

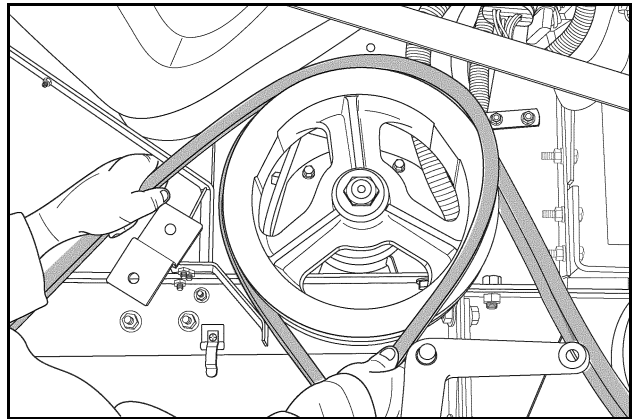
## 9 - MAINTENANCE/ADJUSTMENTS

7. Remove the belt tension spring rod from the belt tension idler arm.



RD00H014

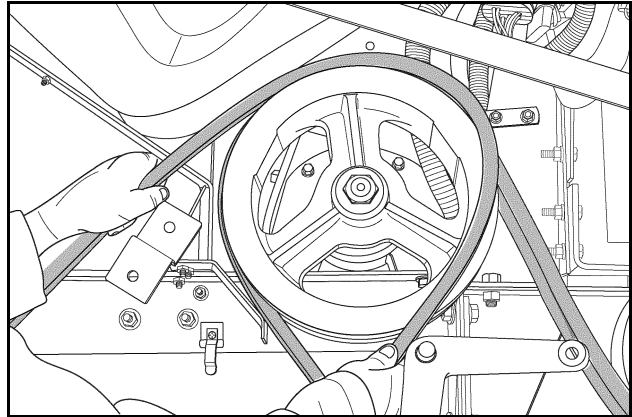
8. Remove the cleaning fan jackshaft drive belt from the feeder jackshaft pulley and the fan jackshaft pulley.



RD00H015

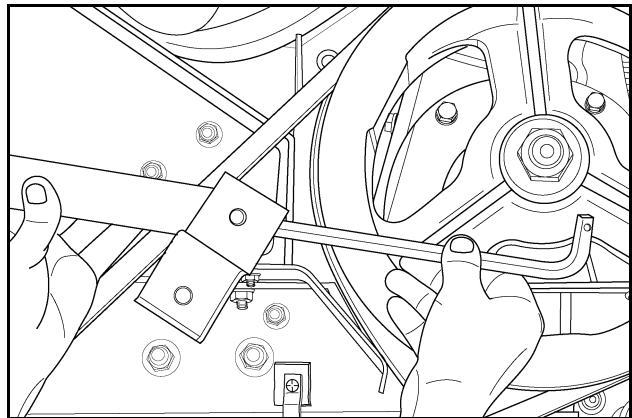
## Belt Installation and Adjustment

1. Install a new cleaning fan jackshaft drive belt on the fan jackshaft pulley and the feeder jackshaft.



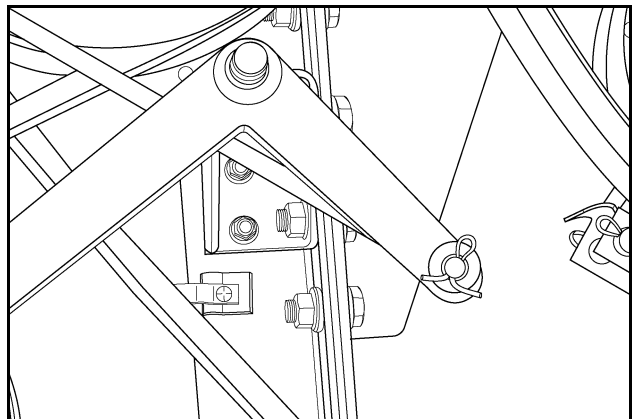
RD00H015

2. Install the belt tension spring rod in the idler arm.



RD00H014

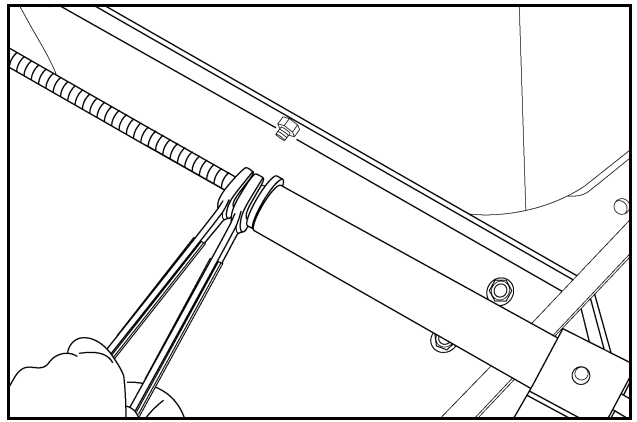
3. Install the cotter pin and washer on the belt tension spring rod.



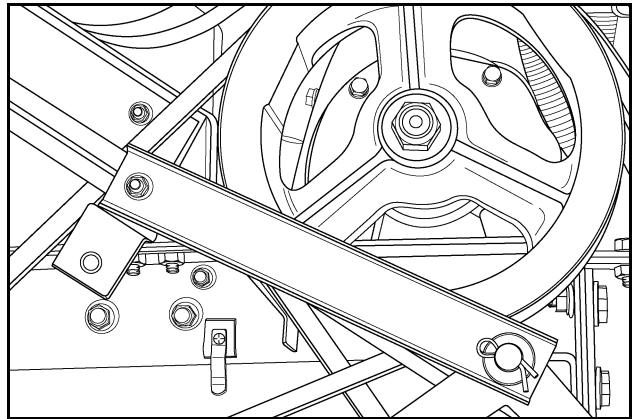
RD00H013

## 9 - MAINTENANCE/ADJUSTMENTS

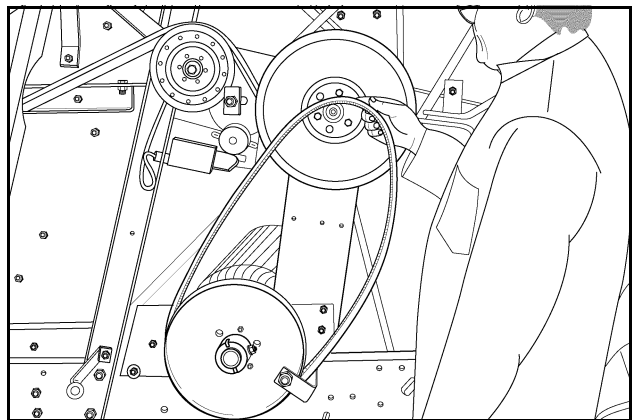
4. Tighten the fan jackshaft belt tension idler adjusting nuts until there is contact with the spring spacer outside the spring. Lock the adjusting nuts in place so the spacer can still turn.



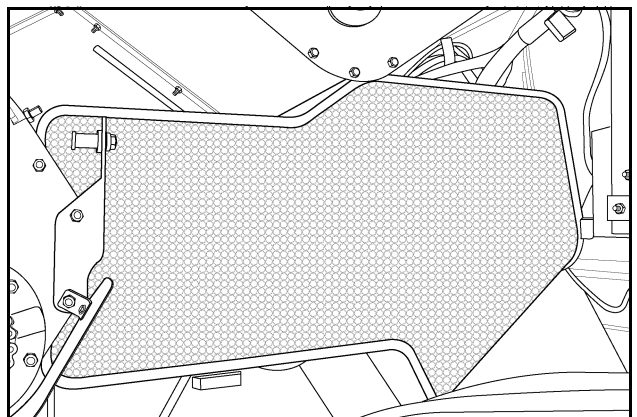
5. Install the feeder jackshaft shield mounting bracket and install the bolt, nut and cotter pin for the bracket.



6. Install the cleaning fan drive belt.

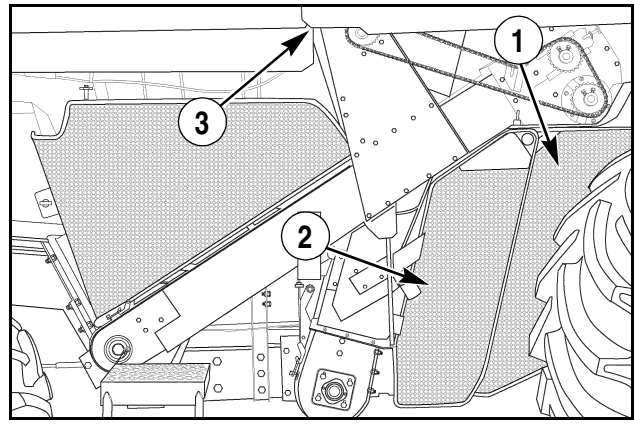


7. Install the feeder drive shield.



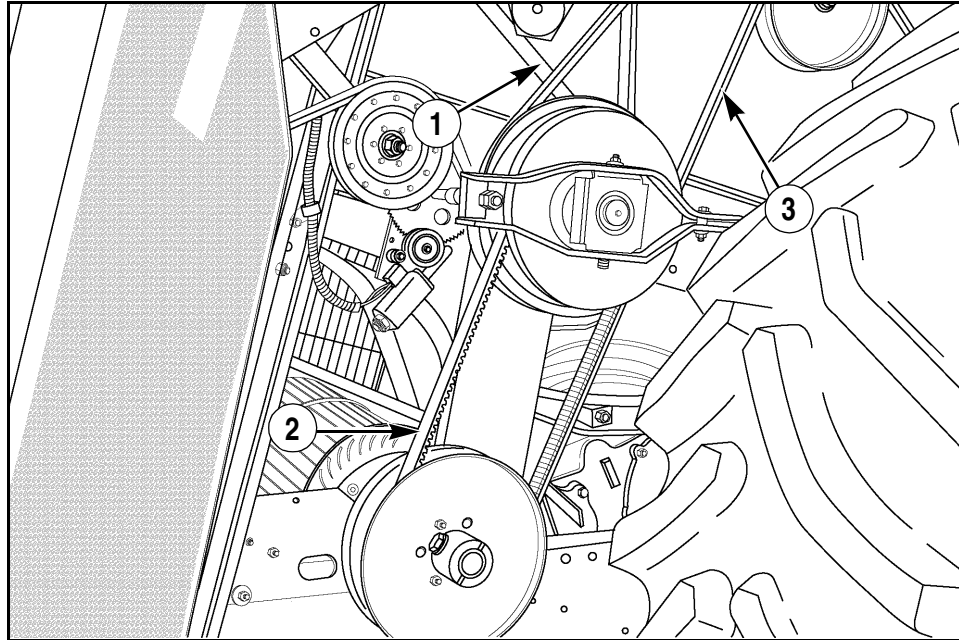
## 9 - MAINTENANCE/ADJUSTMENTS

8. Install the right front shield (1) and close the right middle shield (2) and right panel (3).



RD05D119

## ELEVATOR DRIVE BELT

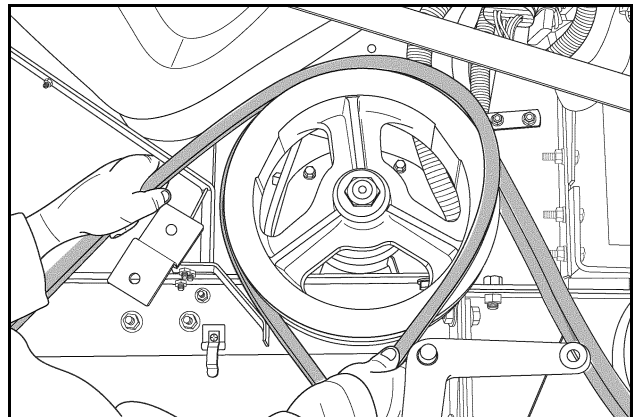


RP95G095

1. ELEVATOR DRIVE BELT    2. FAN DRIVE BELT    3. FAN JACKSHAFT DRIVE BELT

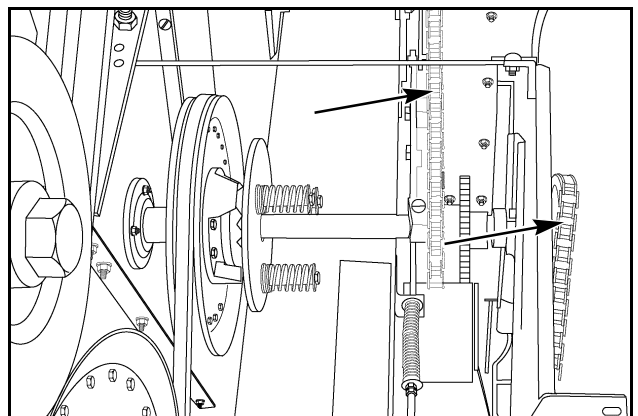
### Belt Removal

1. Remove the screen covering the belt and pulleys.
2. Remove the cleaning fan drive belt.
3. Remove the cleaning fan jackshaft drive belt.



RD00H015

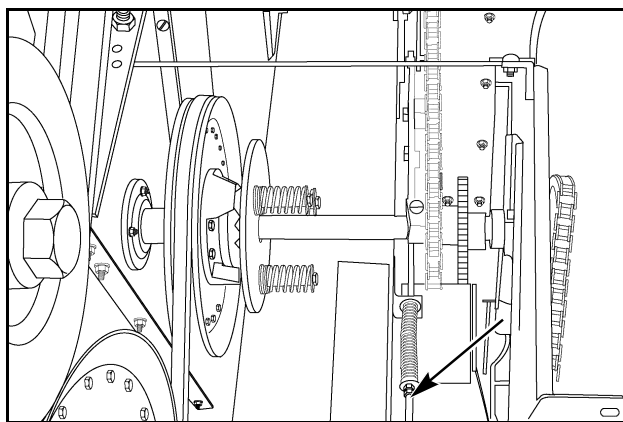
4. Remove the grain and tailings elevator drive chains.



RP95K009

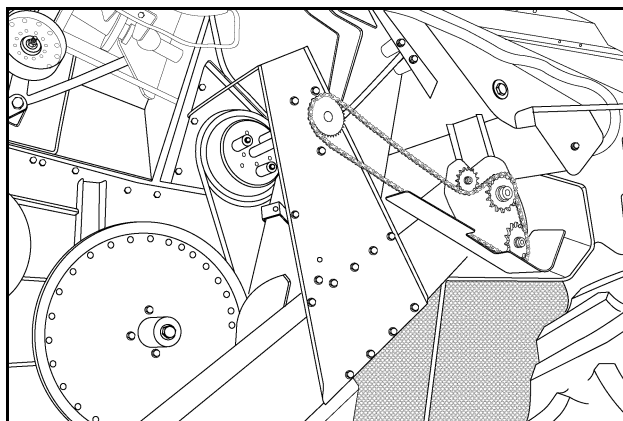
## 9 - MAINTENANCE/ADJUSTMENTS

5. Loosen the tension on the pulley tension rod.



RP95K009

6. Rotate the elevator support bracket (1) from the outer end of the elevator drive jackshaft (2).



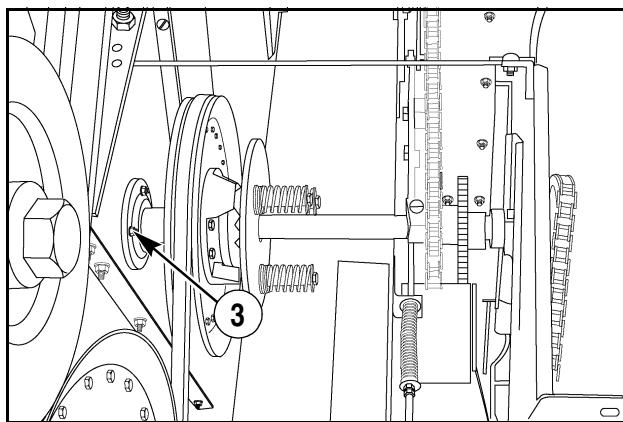
RP95K112

7. Loosen but do not remove the three nuts (3) that hold the bearing on the inner end of the jackshaft.

8. Remove the belt over the end of the jackshaft. Remove the belt from the other pulleys.

9. Install a new drive belt in the reverse order, Steps 1 through 8.

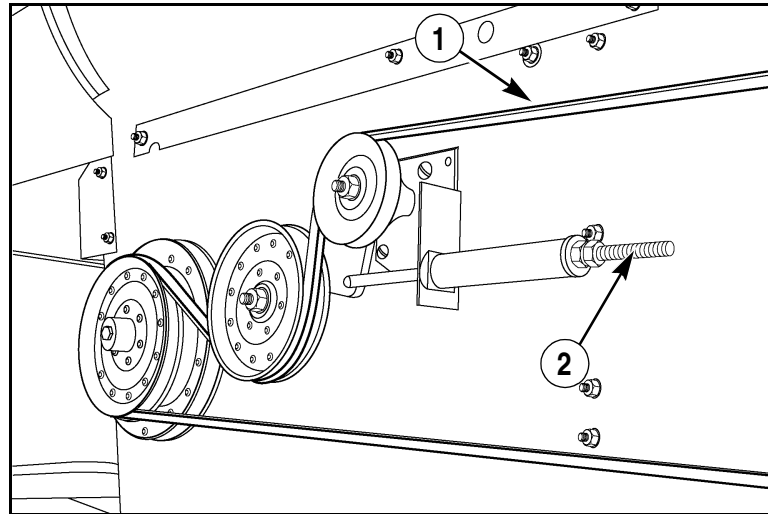
10. Tighten the tension rod until there is contact with the spring spacer outside the spring. Lock the adjusting nuts in place so the spacer can still turn.



RP95K009



## STRAW SPREADER DRIVE BELT



RD01H135

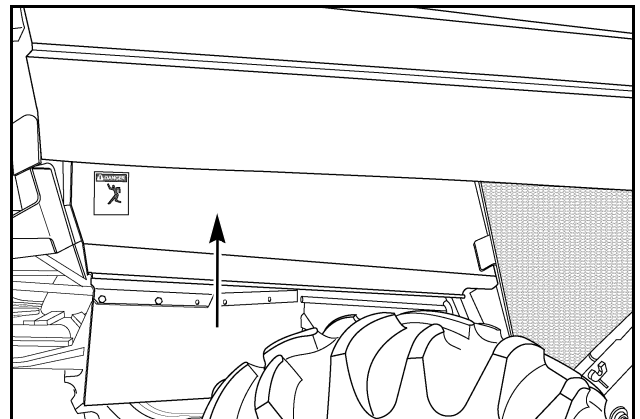
1. STRAW SPREADER BELT

2. SPRING TENSION ROD

### Belt Removal

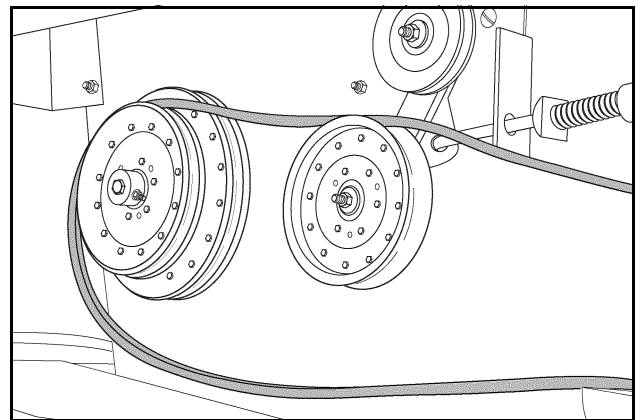
1. Remove the shields that cover the belt and pulleys.

**NOTE:** If the Combine is equipped with a beater and/or straw chopper, remove the elevator jackshaft and/or straw chopper belts.



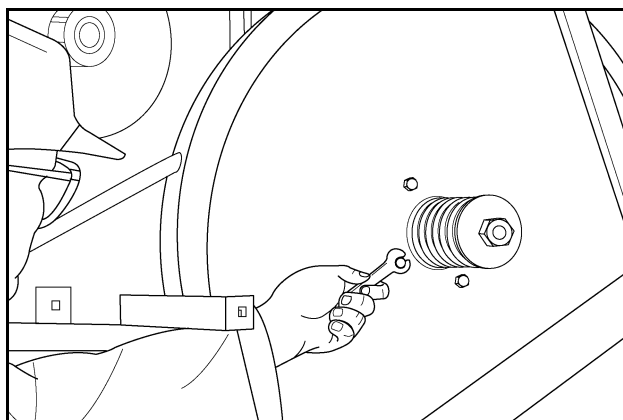
RD00E030

2. Loosen the adjusting nuts on the tension rod. Remove the spreader drive belt from the pulleys.



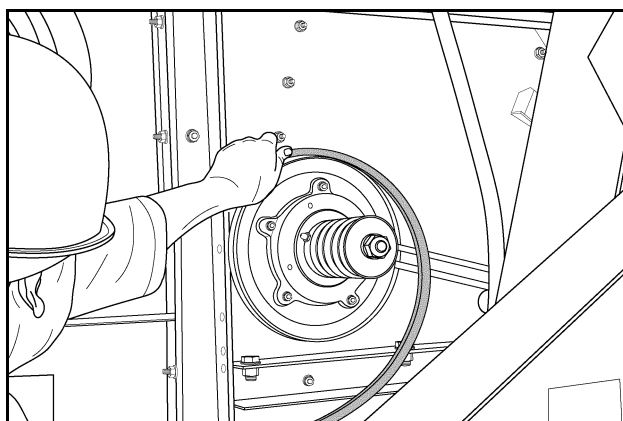
RD01H139

3. Remove the auger drive pulley.



T92628

4. Remove the spreader drive belt from the drive pulley.

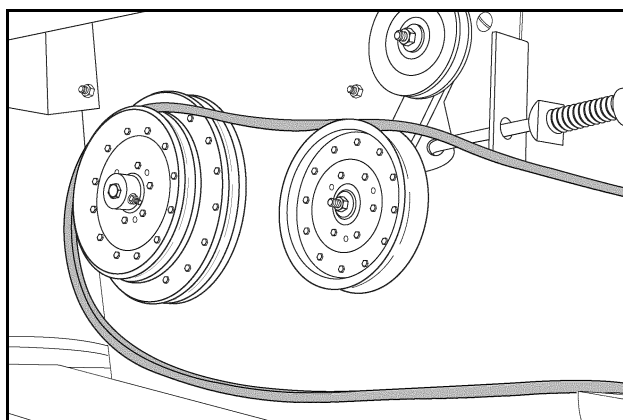


A29262

## Two Speed Drive Pulley

To switch from fast speed to slow speed do the following:

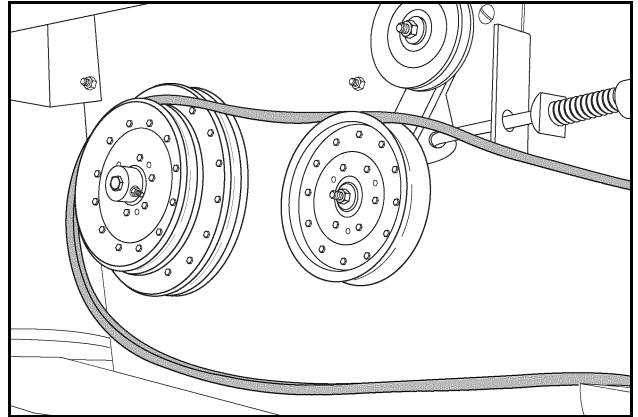
1. Repeat Step 1 and 2.
2. Remove bolt holding pulleys to the hex shaft.
3. Switch the position of the pulleys on the shaft. Install the bolt to retain the pulleys to the hex shaft.
4. Repeat Step 5 and 6.



RD01H139

## Belt Installation

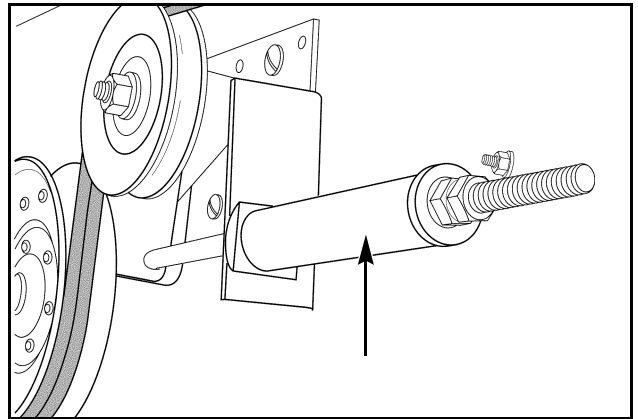
5. Install the spreader drive belt in the reverse order, Steps 1 through 4.



RD01H139

## Belt Adjustment

6. Tighten the adjusting nuts on the tension rod until the nuts are tight against the tube spacer. Loosen the nuts just enough to permit the spacer to turn. Lock the nuts together.
7. Adjust the auger drive slip clutch spring to a length of 89 mm.
8. Install the belt drive shield.

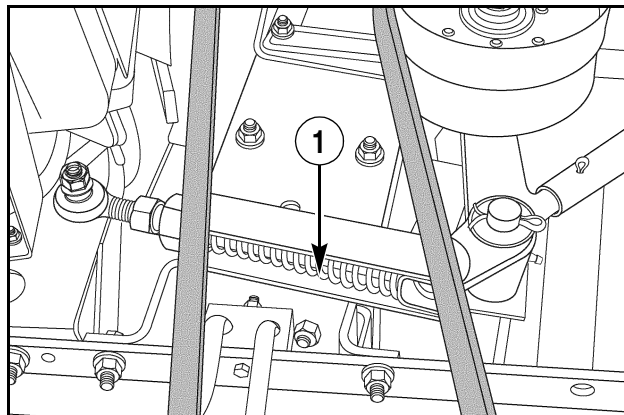


RD01H138

## STRAW CHOPPER DRIVE BELT

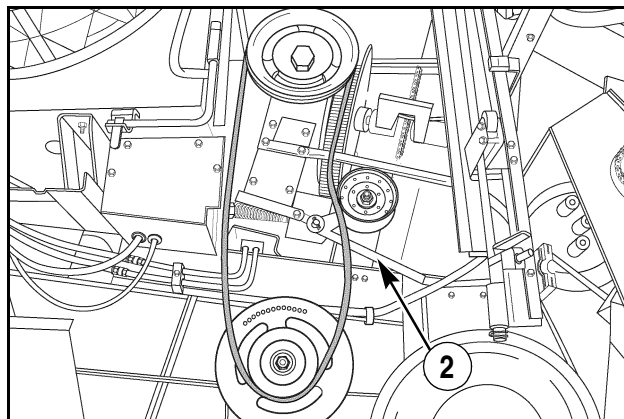
### Removal and Installation

1. Remove the belt shield. Lift the channel lock (1) off the spring.



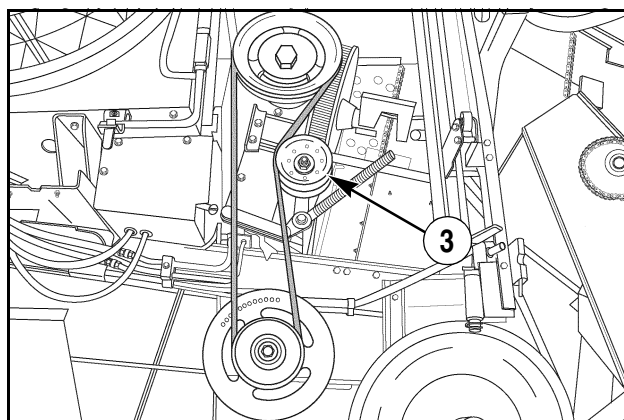
RD01H132

2. Move the idler pulley handle (2) down to release the idler pulley. Remove the belt from the pulleys.



RD02E199

3. Install the belt in the set of pulleys for the desired speed (Refer to the decal on the drive belt shield for instructions). Engage the idler pulley (3) by moving the idler pulley lever up until the channel drops into place over the spring.

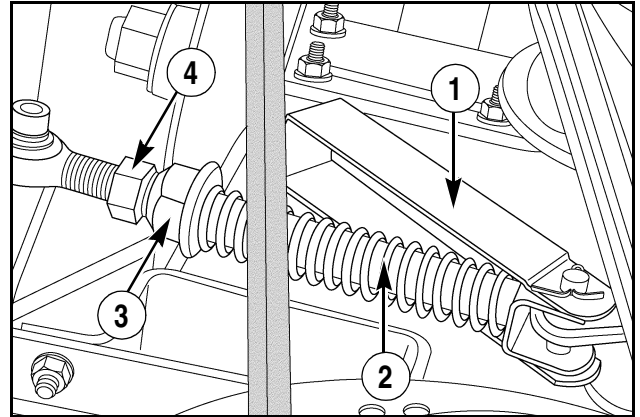


RD02E198

## Adjustment

4. The idler pulley must be engaged to adjust the tension on the belt. Move the channel lock (1) up, away from the straw chopper belt tension spring (2). Turn the adjusting nut (3) on the spring tension assembly until the spring is compressed to a length of 165 mm (6-1/2 inches). Lock the adjusting nut (4).

**NOTE:** Due to belt stretch, the tension spring must be adjusted again to the 165 mm (6-1/2 inch) measurement when the spring length increased 10 mm (3/8 inch).



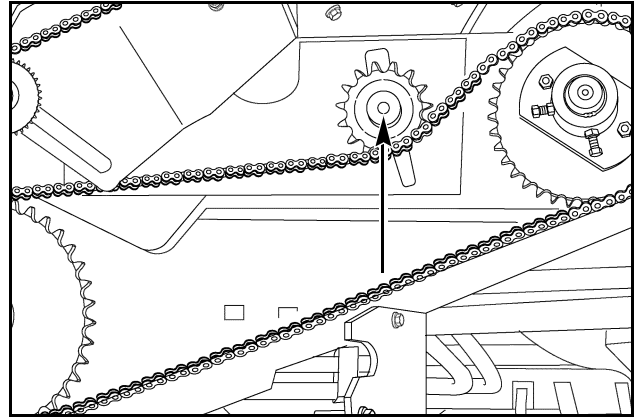
A2474

1. CHANNEL LOCK
2. TENSION SPRING
3. ADJUSTING NUT
4. LOCK NUT

## GRAIN TANK UNLOADER CHAIN

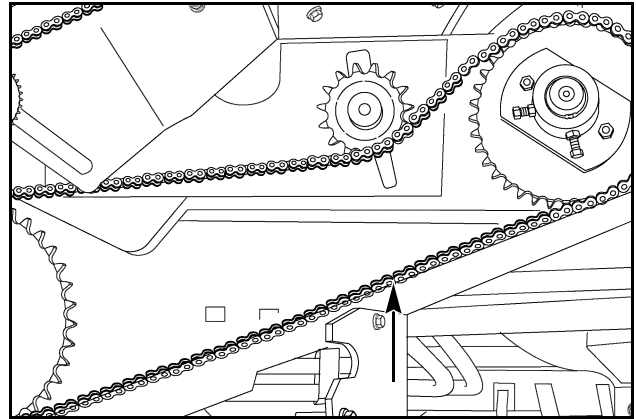
### Removal

1. Remove the auger drive chain (Refer to Rear Horizontal Auger Chain Removal). Loosen the tension idler for the unloader chain. Move the idler up to give maximum clearance to remove the chain.



RR06E021

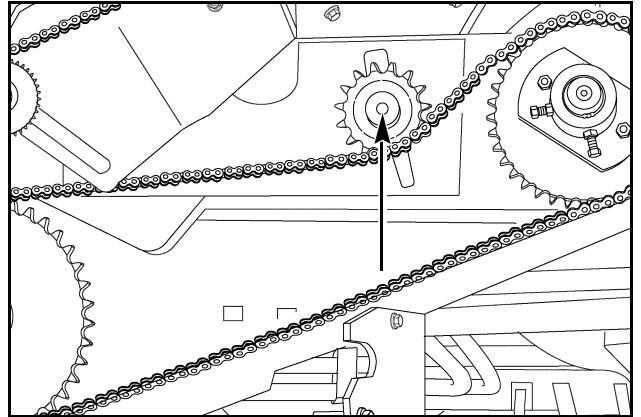
2. Remove the grain tank unloader drive chain from the sprockets.



RR06E021

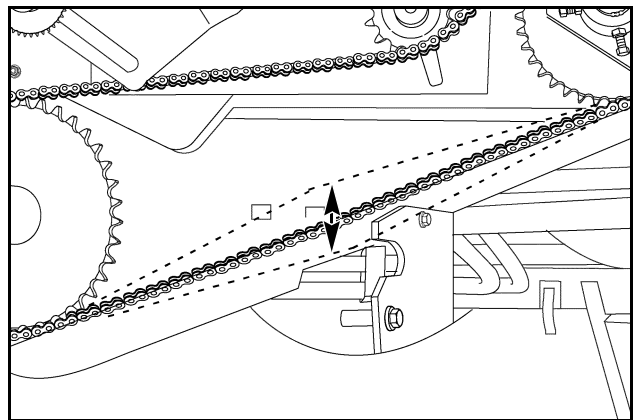
## Installation and Adjustment

3. Install the unloader drive chain on the driven double sprocket, unloader jackshaft sprocket and idler sprocket. Move the idler sprocket against the chain and tighten.



RR06E021

4. The maximum chain deflection between the two sprockets is 25.4 mm (1 inch). Install the rear horizontal auger chain (Refer to Rear Horizontal Chain Installation).

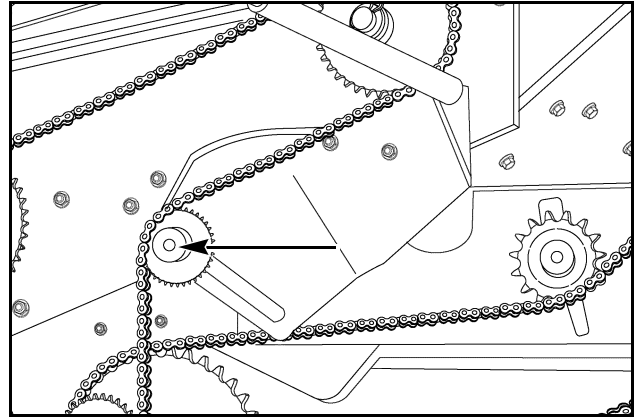


RR06E021R

## REAR HORIZONTAL AUGER DRIVE CHAIN

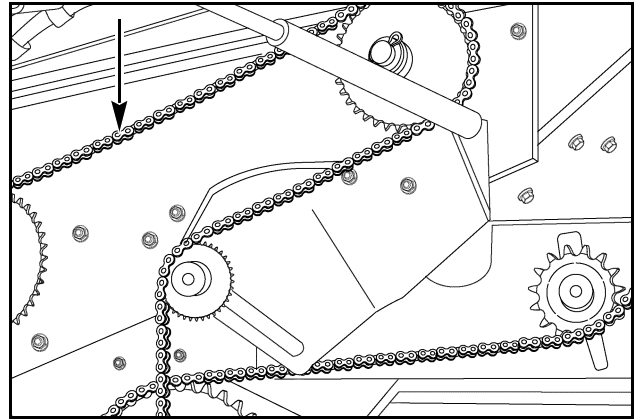
### Removal

1. Loosen the chain drive tension idler. Move the idler down to give maximum clearance.



RR06E021

2. Remove the drive chain from the sprocket.

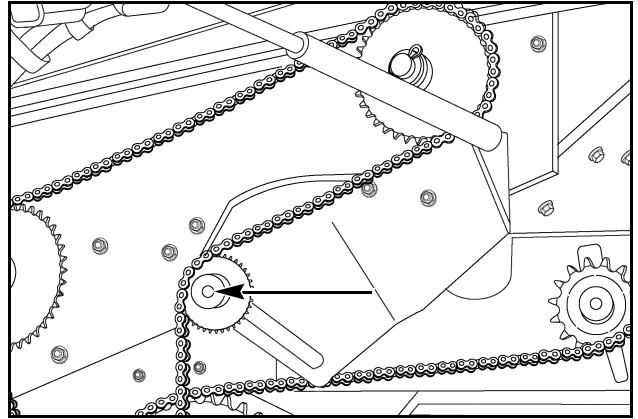


RR06E021



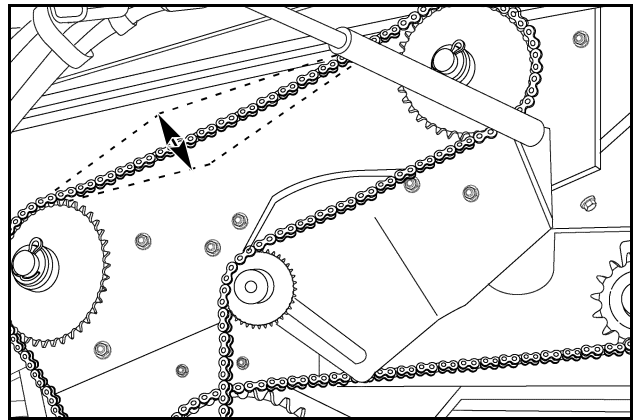
## Installation and Adjustment

3. Install the drive chain on the sprockets. Move the tension idler up against the drive chain and tighten.



RR06E021

4. The maximum chain deflection between the two sprockets is 25.4 mm (1 inch).

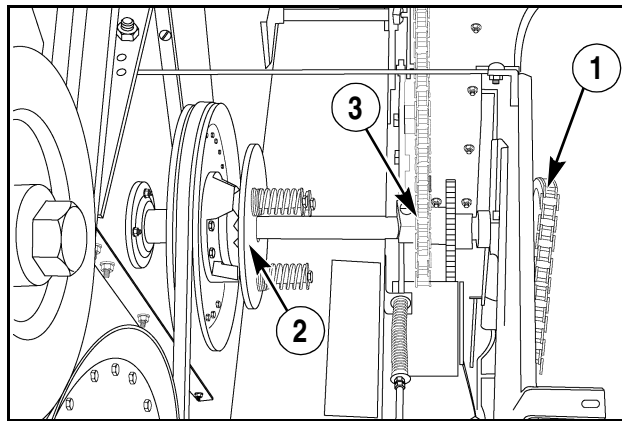


RR06E021R

## ELEVATOR DRIVE SLIP CLUTCH ADJUSTMENT

The clutch is located on the drive for grain and tailings elevators. The clutch will slip before any part of the Combine is damaged if any unusual strain is put on the drive. Stop the Combine immediately and remove the obstruction if the clutch is slipping.

**IMPORTANT:** *DO NOT add washers to the elevator drive slip clutch. The clutch has been designed for higher torque capacity. Adding washers to further compress the springs will cause the spring to become solid and the clutch will therefore not slip. This could cause the elevator drive system to fail.*



RP95K009

1. TAILINGS ELEVATOR DRIVE CHAIN
2. ELEVATOR DRIVE SLIP CLUTCH
3. CLEAN GRAIN ELEVATOR DRIVE CHAIN

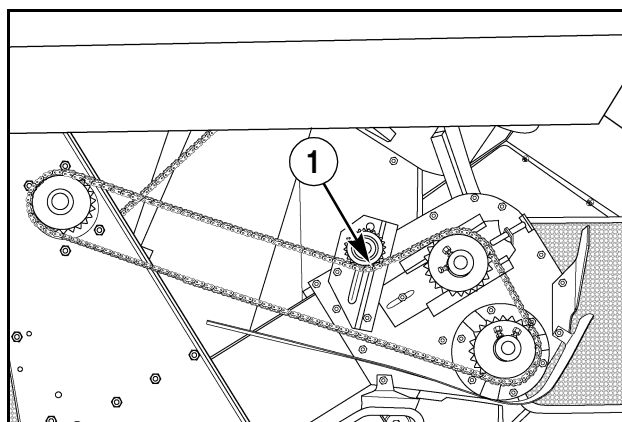
## TAILINGS ELEVATOR DRIVE CHAIN

### Removal, Installation and Adjustment

Remove the tailings elevator drive chain by loosening the idler sprocket nut. Disconnect the master connecting link and remove the chain.

Install and adjust the chain to have 25.4 mm (1 inch) total free movement. Move the idler sprocket up or down to adjust the chain free movement. Tighten the idler sprocket nut (1).

**NOTE:** *The tailings elevator drive chain must be adjusted for free movement whenever the tailings elevator conveyor chain is adjusted.*



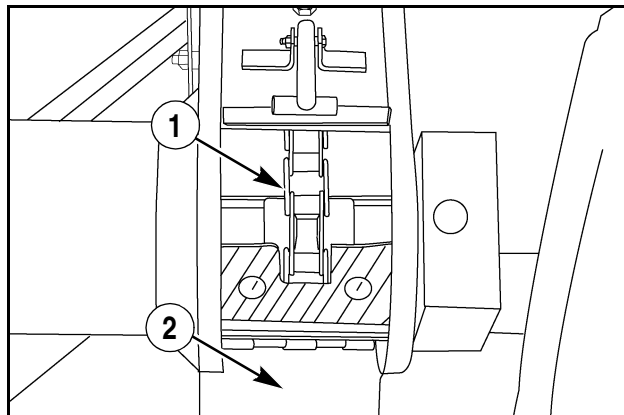
A24428

## TAILINGS ELEVATOR CONVEYOR CHAIN

### Removal and Installation

To remove the tailings elevator conveyor chain (1), turn the chain until the master connecting link is in a position at the lower door (2). Disconnect the chain. Attach a new conveyor chain to the old chain.

Pull the old chain out and the new chain in until the connector is at the bottom of the elevator. Connect the ends of the new chain together.



RD97G153

### Adjustment

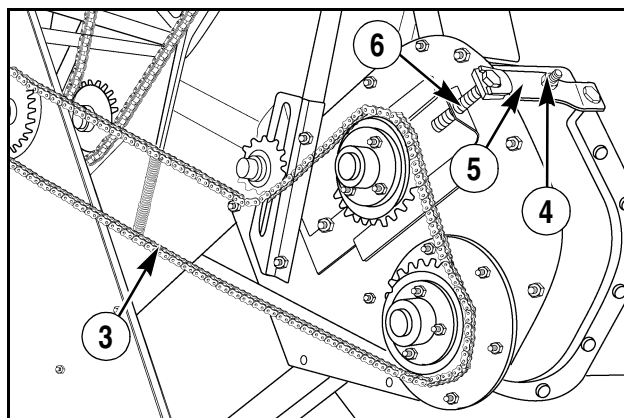
Loosen the tailings elevator drive chain (3) before adjusting the elevator conveyor chain to avoid overtightening the drive chain.

Loosen the nut on the idler sprocket and move the idler sprocket up to loosen the tailings elevator drive chain. Loosen the nut (4) on the conveyor bracket. Loosen the bolt lock strap (5) over the two adjusting bolts (6) at the top of the elevator head.

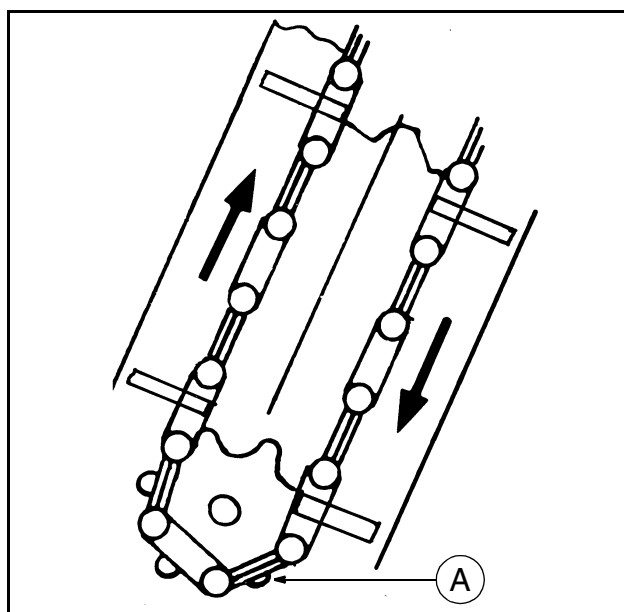
Adjust the tailings elevator drive chain.

Adjust the two bolts evenly until there is a clearance (A) of 0.8 mm (1/32 inch) between the bottom of the elevator conveyor chain lower sprocket and the chain. Position and tighten the lock strap over the two adjusting bolts at the top of the elevator head. Tighten the nut on the conveyor bracket. Adjust the tailings elevator drive chain.

**NOTE:** Check the tension of the elevator chain weekly. Do not tighten the chain too much. It is important to keep the correct tension on the chain. Loose elevator chains will grind the grain between the chain and the sprocket.



A4489



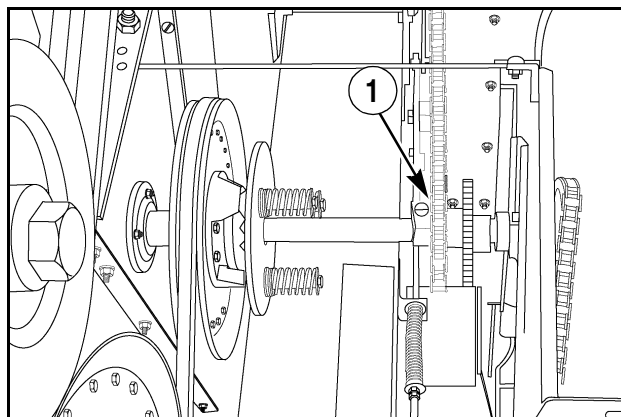
229L7

## CLEAN GRAIN ELEVATOR DRIVE CHAIN

### Removal, Installation and Adjustment

Remove the clean grain elevator drive chain (1) by loosening the nut on the tension rod. Disconnect the master connecting link. Connect a new chain to the old chain. Pull the old chain out and the new chain in. Connect the ends of the new chain.

Adjust the clean grain elevator drive chain by tightening the nut on the tension rod. Tighten the nut until the spring length is 152 mm (6 inches). Lock the adjusting nuts together.



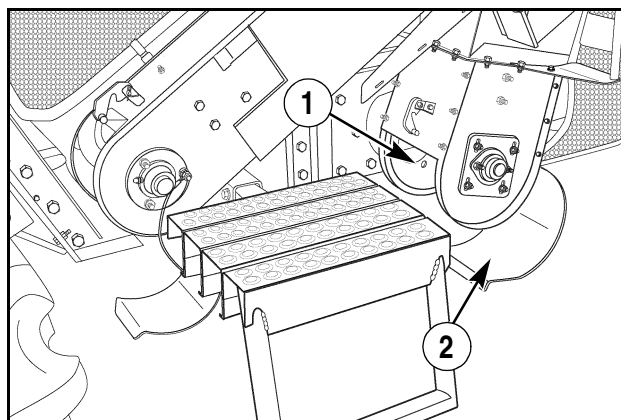
RP95K009

## CLEAN GRAIN ELEVATOR CONVEYOR CHAIN

### Removal and Installation

To remove the grain elevator conveyor chain (1), turn the chain until the master connecting link is in a position at the lower door (2). Disconnect the chain. Connect a new conveyor chain to the old chain.

Pull the old chain out and the new chain in until the connector is at the bottom of the elevator. Connect the ends of the new chain together.



RD05D121

## Adjustment

1. Loosen the clean grain elevator drive chain before adjusting the elevator conveyor chain to avoid overtightening the drive chain.

Loosen the clean grain elevator drive chain by turning the nut on the spring loaded tightener for the drive chain.

Remove the shield on the outer part of the elevator head to access the outer adjusting bolt.

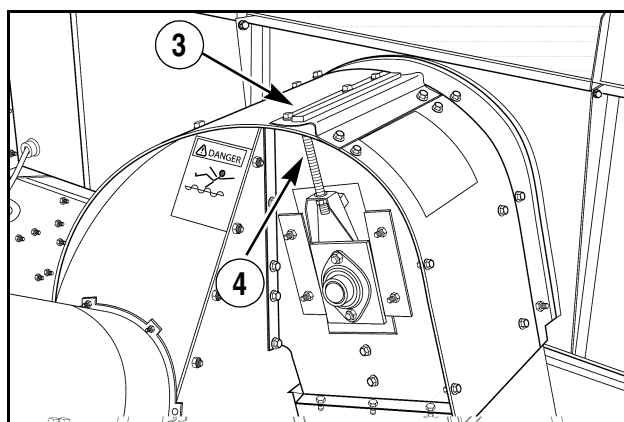
2. Loosen the bolt lock strap over the two adjusting bolts at the top of the elevator head. Adjust the clean grain elevator conveyor chain.

Adjust the two bolts evenly until there is a clearance of 0.8 mm (1/32 inch) between the bottom of the elevator conveyor chain lower sprocket and the chain.

Position and tighten the lock strap over the two adjusting bolts at the top of the elevator head.

3. Adjust the clean grain elevator. drive.

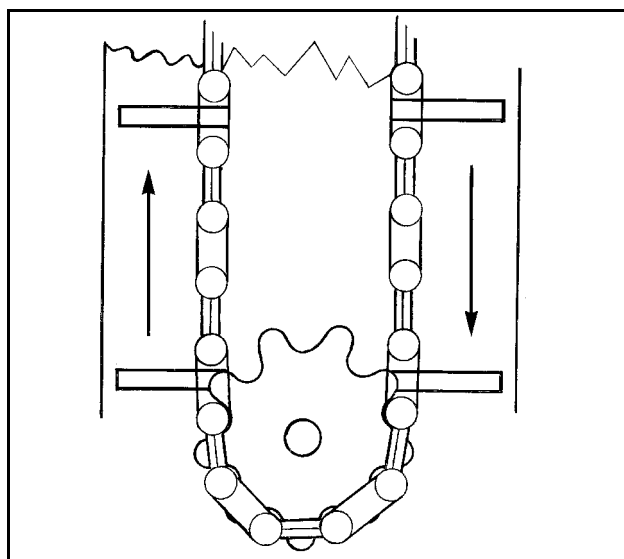
**NOTE:** Check the tension of the elevator chain weekly. Do not tighten the chain too much. It is important to keep the correct tension on the chain. A loose elevator chain will grind the grain between the chain and the sprocket.



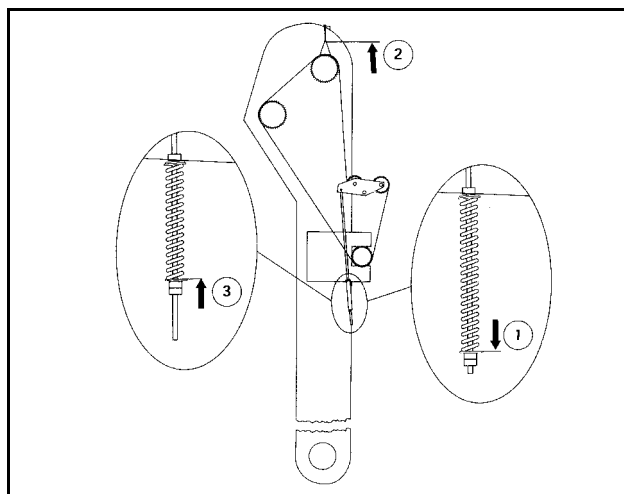
A24450

3. LOCK STRAP

4. ADJUSTING BOLT



RB97G010

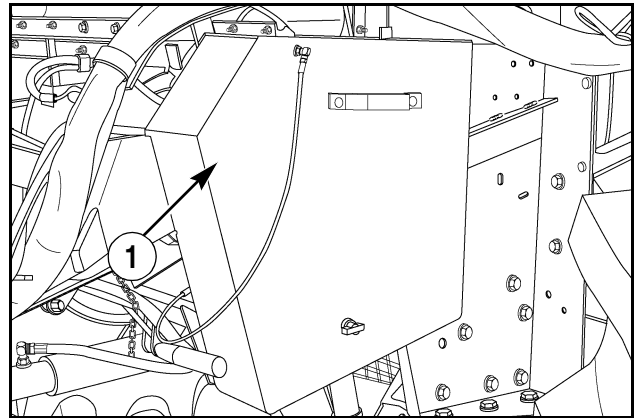


RB97G011

## ROCK TRAP DRIVE CHAIN

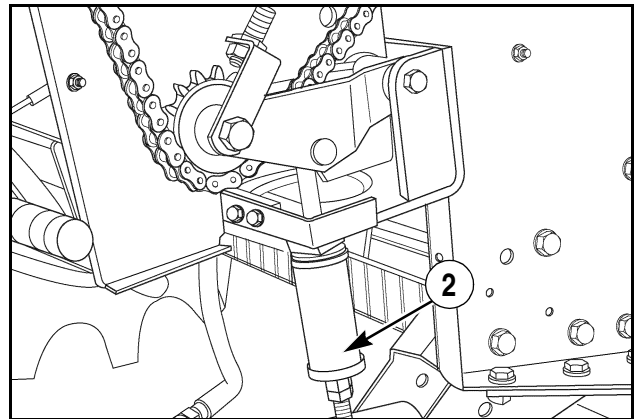
### Removal

1. Stop the engine and remove the key from the switch. Remove the rock trap shield (1).



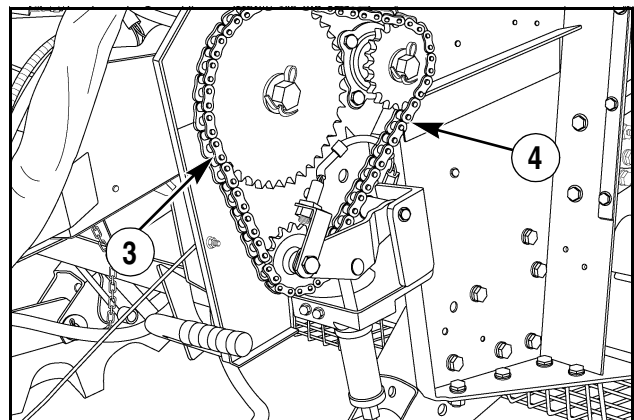
RD00E005

2. Remove chain tension by loosening the nuts on the idler adjustment.



RD00E010

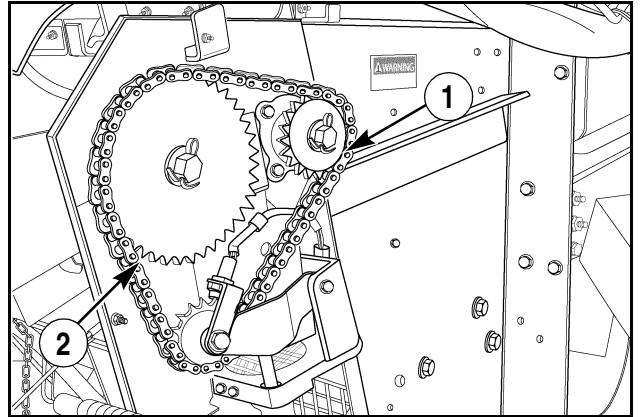
3. Remove the connector link (3) from chain (4). Remove the chain from the rock trap sprockets.



RD00E006

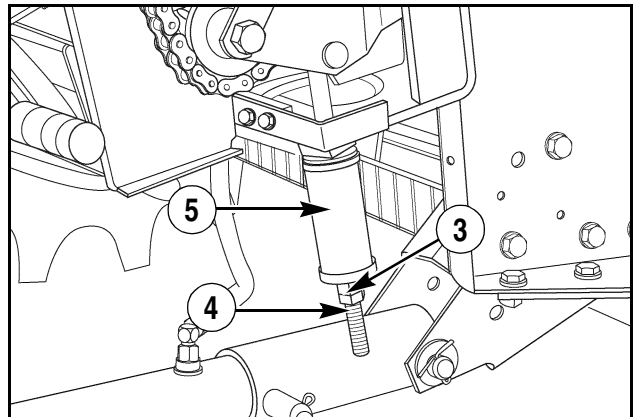
## Installation

1. Install the chain (1) on the rock trap sprockets.  
Install chain connector link (2).



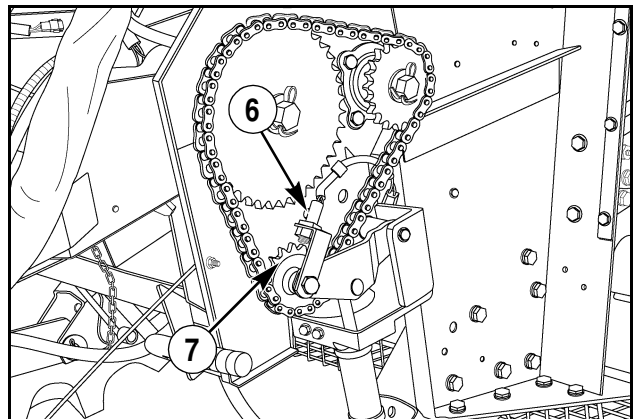
RD00E007

2. Tighten the adjusting nuts (3) on the tension rod (4) until the nuts (3) are tight against the tube spacer (5). Loosen the nuts (3) just enough to permit the tube spacer (5) to turn. Lock the nuts (3) together.



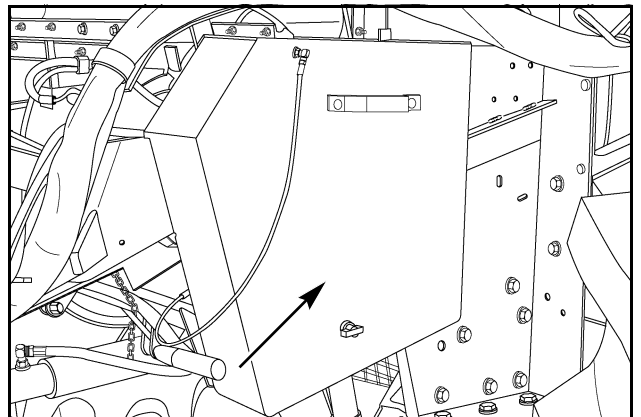
RD00E010

3. Check the clearance between the sensor (6) and the idler sprocket (7). The correct clearance is 0.254 to 1,524 mm (0.010 to 0.060 inch).



RD00E006

4. Install the Rock Trap Drive Chain shield.

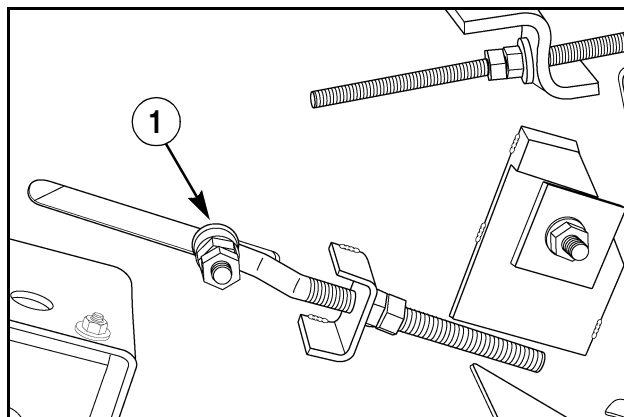


RD00E005

## FEEDER CONVEYOR CHAIN

### Removal

1. Loosen the adjusting bolt (1) on each side of the feeder housing and move the drum rearward.

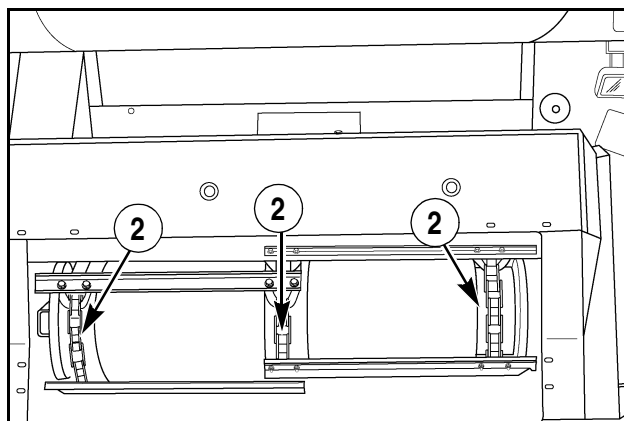


RD00F043

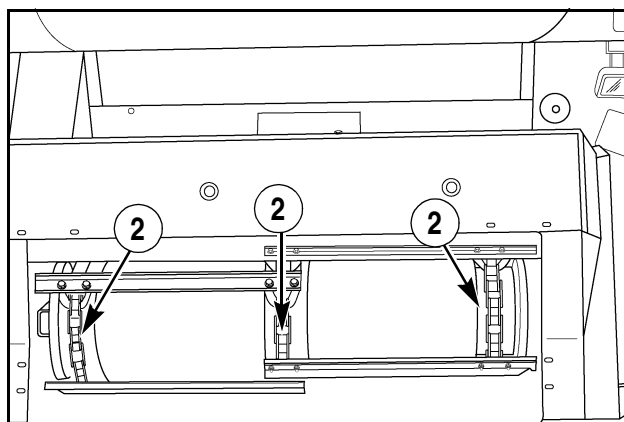
2. Remove the master link (2) from the feeder conveyor chain. Use the old feeder conveyor chain to pull the new feeder conveyor chain through the feeder housing.

### Installation

3. Install the master link (2) (Three required) in the feeder conveyor chain.



RD97G165



RD97G165



## Adjustment

Keep the feeder conveyor chain adjusted correctly at all times. Inspect the chain for correct tension after the first 50 hours of operation and at regular intervals thereafter.

**IMPORTANT:** *Be sure to adjust the chain evenly on both sides to prevent excessive wear on both chains and sprockets.*

**NOTE:** *The conveyor drum stop must be in the middle position before adjusting conveyor chain tension.*

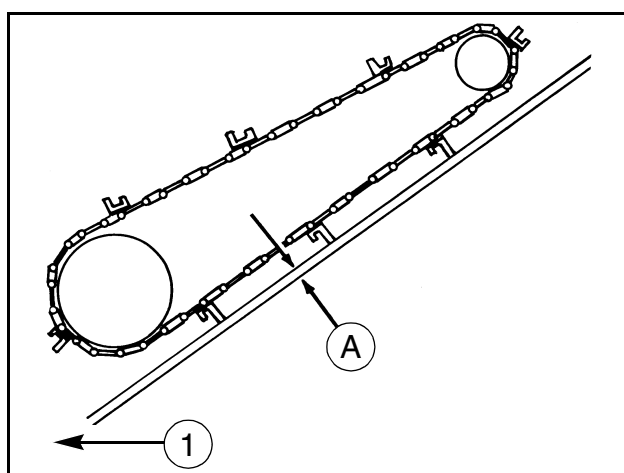
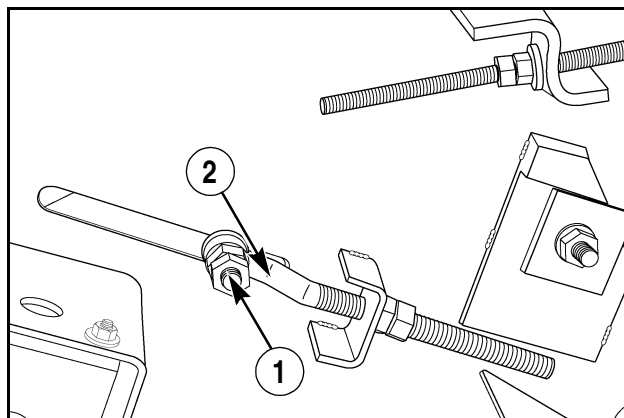
The conveyor chain tension is adjusted by moving the feeder drum forward or rearward. Adjust the chain tension as follows:

1. Loosen the drum arm pivot bolt (1) on each side of the feeder.
2. Use the adjusting bolt (2) on each side of the feeder to move the drum forward to apply tension to the chain.
3. Adjust the conveyor chain to give clearance (A) of 0.8 to 3.2 mm (1/32 to 1/8 inch) between the chain slats and the bottom of the feeder housing.

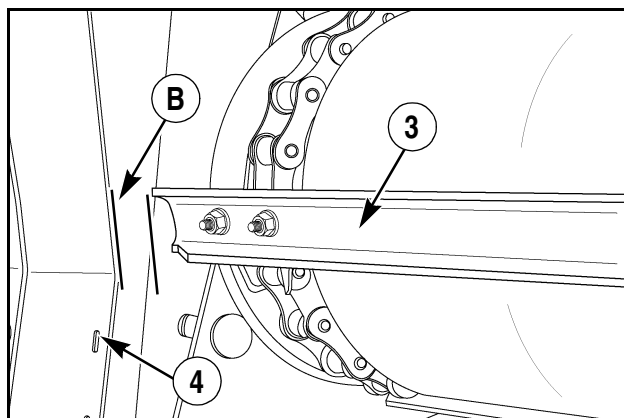
**NOTE:** *Measure the clearance at the point of maximum sag of the lower strand of the conveyor chain.*

4. After adjusting the chain tension, check the clearance between the chain slats (3) and the feeder adapter (4). The clearance (B) must be no more than 38 mm (1-1/2 inch) to provide correct feeding and transfer of material from the header auger.
5. If the clearance in Step 4 is not correct, add or remove chain links as necessary and adjust the position of the drum.

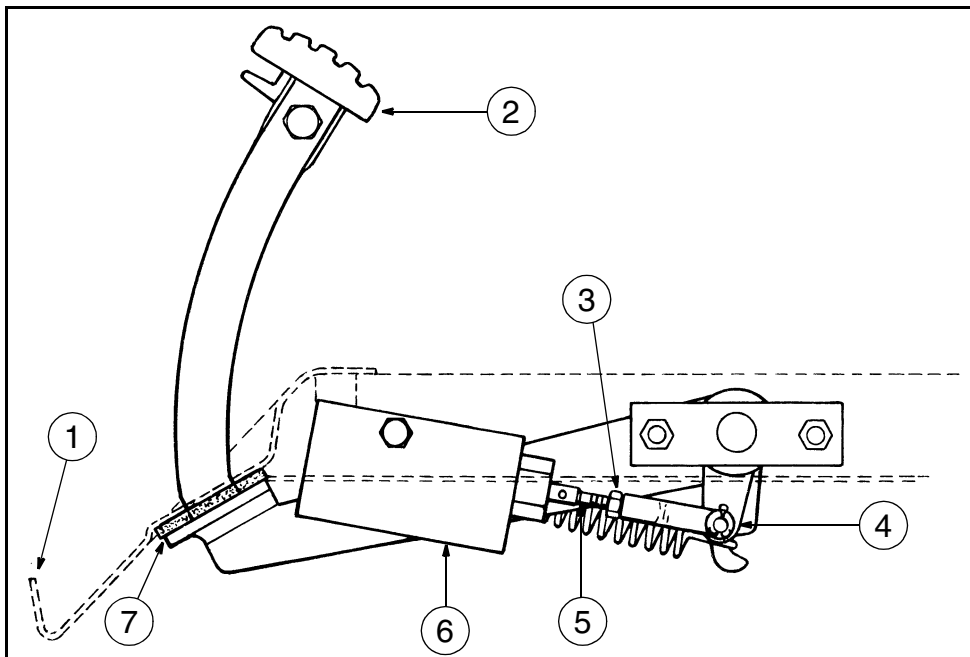
**NOTE:** *If equipped with Field Tracker® be sure the chain clears the adapter when the feeder is tilted.*



1. FRONT OF MACHINE



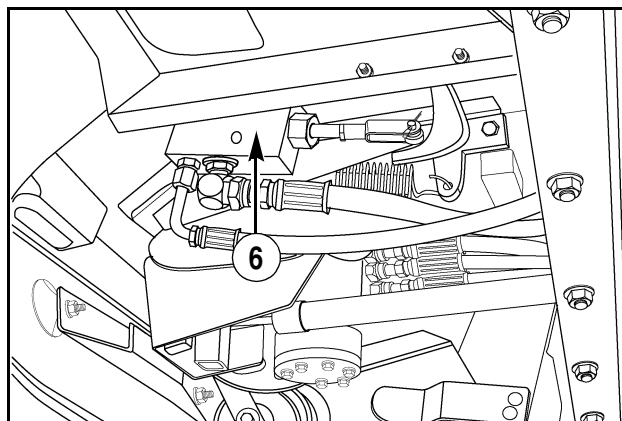
## FOOT-N-INCH PEDAL ADJUSTMENT



634L94

The Foot-N-Inch valve (6) is located below the operator's cab in the center of the Combine. Adjust the valve as follows:

1. Loosen the clevis (4) lock nut (3) on the Foot-N-Inch valve (6).
2. Use a pin punch and rotate the valve spool (5) until the top of the dust seal (7) on the Foot-N-Inch pedal (2) clears the bottom of the deck (1). Reverse direction on the valve spool (5) until the dust seal (7) just touches the bottom of the deck (1).
3. Tighten the clevis lock nut (3) while holding the valve spool (5).
4. Fully depress the Foot-N-Inch pedal (2) and release. The pedal must move freely and the pedal must stop on the valve and not on the bottom of the deck (1).



A24433

**NOTE:** Power to the drive wheels is disengaged when the Foot-N-Inch pedal is fully depressed. The Combine will be in a free wheeling state.

## FEEDER ADJUSTMENTS

### Automatic Feeder Cutoff

The Automatic Feeder Cutoff monitors the speed of the feeder pivot shaft. Any time the feeder pivot shaft speed drops below 210 RPM, power to the feeder clutch solenoid will be shut off. The feeder indicator on the shaft speed monitor will illuminate and the audible warning will sound. The feeder will remain shut off until the feeder clutch switch is turned OFF and ON.

**NOTE:** *There is a five (5) second delay at start up to allow the feeder to reach operating speed before the feeder cutoff starts to monitor the shaft speed.*

### Bypass Automatic Feeder Cutoff

The Automatic Feeder Cutoff can be bypassed to provide standard operation of the feeder clutch.

To bypass the Automatic Feeder Cutoff, refer to Change Mode in Operating Instructions in this manual.

## Operational Check and Adjustments

If the feeder is not operating correctly, see the following operating malfunctions for instructions.

**NOTE:** *The separator must be engaged and the operator must be in the seat to engage the feeder.*

1. Feeder does not engage at all. This indicates that there is no power to the feeder clutch solenoid or there is no signal to the controller from the seat switch. Check the following:

- A. Check for a blown fuse (Number 10). Replace as required.
- B. The switch in the operator's seat may have disengaged the feeder drive. Reset the feeder clutch switch by turning OFF and ON to permit operation of the feeder.

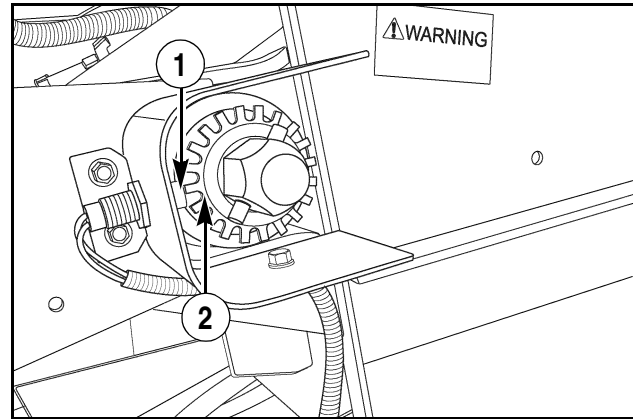
2. Feeder runs for approximately four (4) seconds and disengages. This indicates that the instrumentation is not getting a signal from the feeder speed sensor (1). Check the following items:

- A. Check for damage to the sensor (1) or connecting wires.
- B. Check the clearance between the sensor (1) and the signal sprocket (2). The correct clearance is 0.25 to 1.5 mm (0.010 to 0.060 inch).

If necessary, temporarily bypass the Automatic Feeder Cutoff.

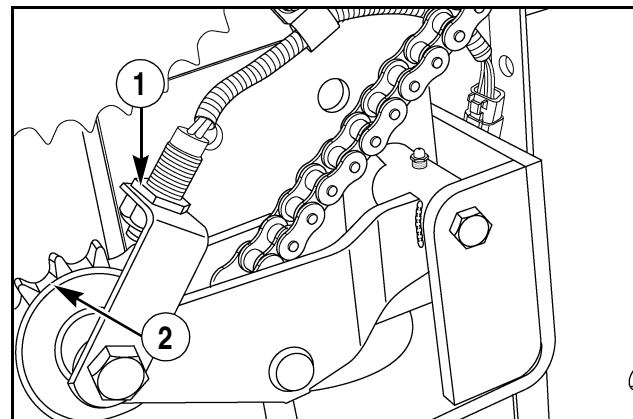
**NOTE:** *If the operator leaves the seat for more than 7 seconds, the feeder will disengage. The operator must be in the seat and cycle the feeder clutch switch to reengage the feeder.*

**NOTE:** *The feeder speed sensor (1) is located opposite the signal sprocket (2) on the Left side of the feeder housing or on the rock trap idler arm.*



RD01H078

**SENSOR WITHOUT ROCK TRAP**

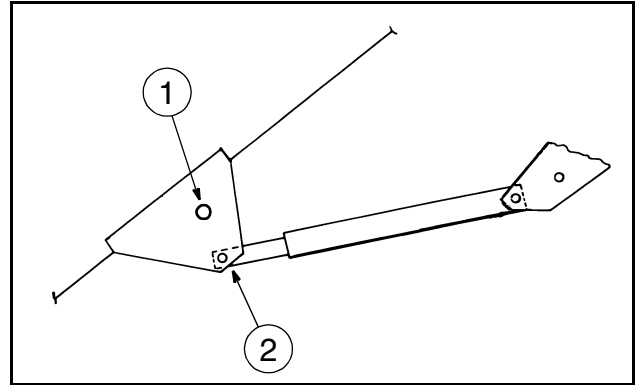


RD00E009

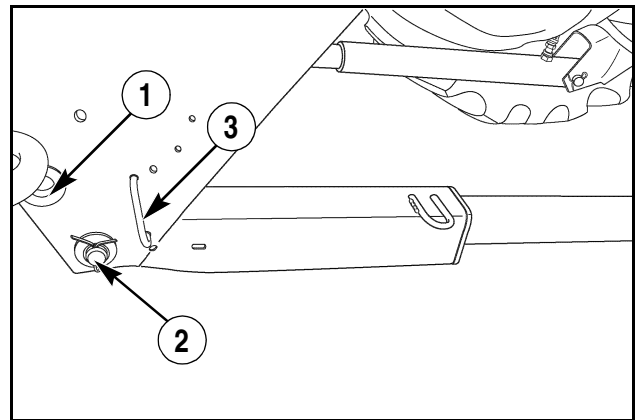
**SENSOR WITH ROCK TRAP**

## Feeder Cylinder Anchor Positions

The feeder lift cylinders can be mounted in the upper hole (1) of the feeder lift bracket (for High Clearance) or the lower hole (2) (for Low Clearance). The feeder lift cylinder safety stand retainer pin (3) must also be moved correspondingly.



161L8

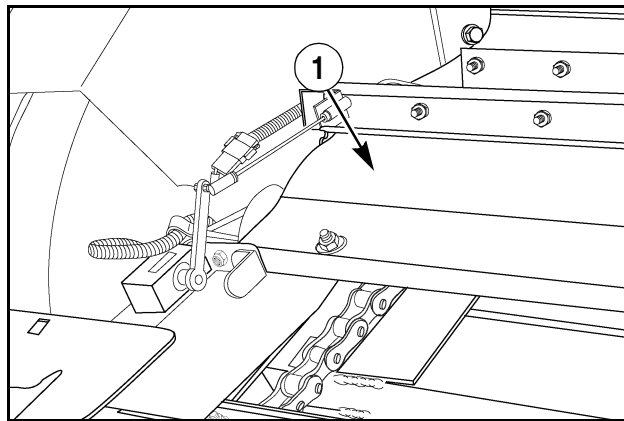


RD01H174

## Adjustable Strippers

Adjustable strippers reduce the build up of material at the feeder conveyor sprockets. Adjust the strippers as follows:

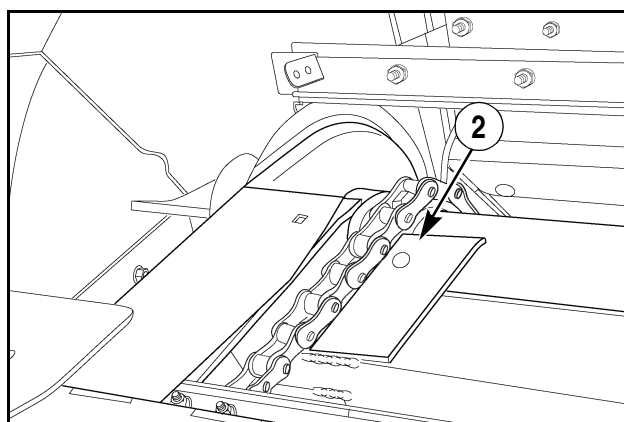
1. Remove the upper top cover (1) from the feeder.
2. Loosen the two stripper retainer bolts for each stripper (2).
3. Move each stripper until the sprocket is centered in this slot and the sprocket teeth are a minimum of 0.8 mm (1/32 inch) from the strippers.
4. Tighten the retainer bolts and install the feeder top cover (1).



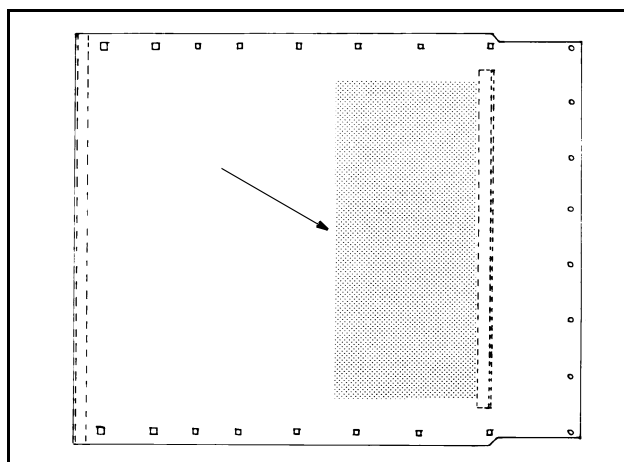
RD97G168

## Perforated Feeder Bottom (Parts Accessory)

The perforated feeder bottom sheet will permit dirt to pass through the perforations instead of into the Combine when harvesting edible beans and peas. See your dealer.



RD97G167



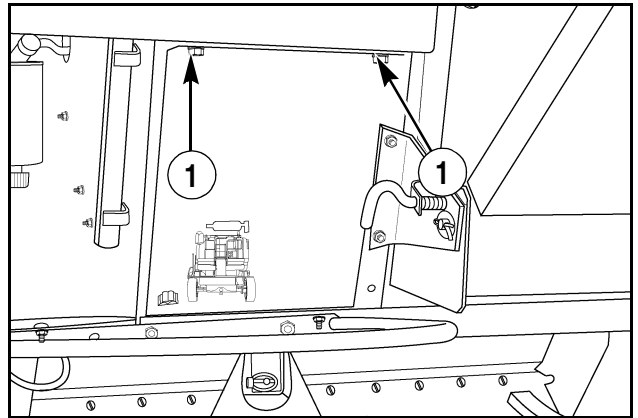
212L7

**PERFORATED FEEDER BOTTOM SHEET**

## STRAW SPREADER

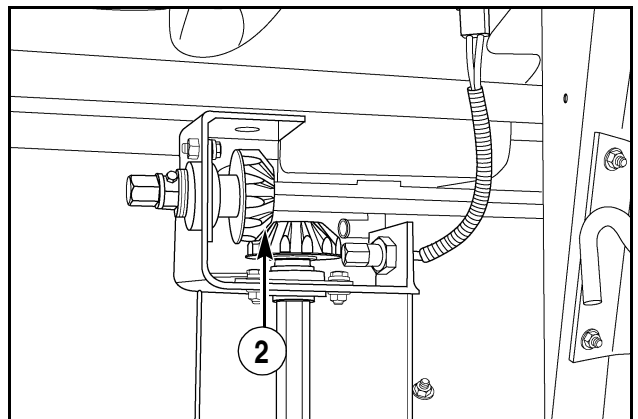
### Drive Gear Compartment Cleaning

Remove the covers over the straw spreader drive gears at 100 hour intervals by removing the two bolts (1) from each cover.



RD97G064

Clean straw from the area around the gears (2) and bearings.



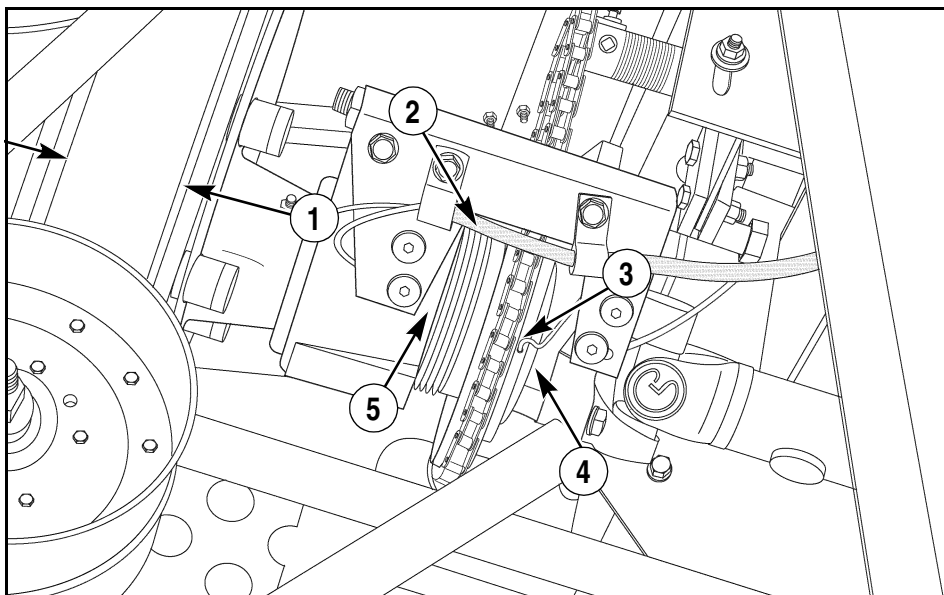
RD00E035



**WARNING:** Failure to clean this area can lead to excessive debris accumulation and possible fire. M509

## SEPARATOR DRIVE

## Jackshaft Limit Switch Adjustment

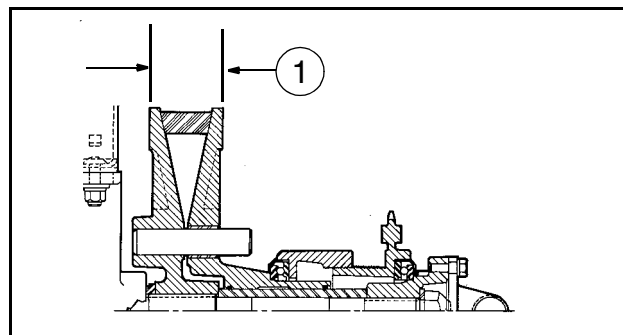


RD05F098

- |             |                       |                      |
|-------------|-----------------------|----------------------|
| 1. DISTANCE | 3. SPROCKET           | 5. REAR LIMIT SWITCH |
| 2. SLEEVE   | 4. FRONT LIMIT SWITCH |                      |

If the front and rear limit switches are replaced or need to be reset, do the following:

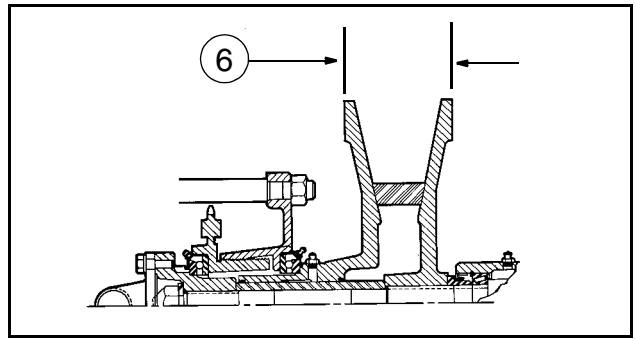
1. Start the engine. Move the separator drive switch to ON.
2. To set the front limit switch, close the variable pulleys by pushing the rotor switch to the fast speed rotor drive position until there is a distance (1) of 79 mm (3.11 inch) at the outer edges of the jackshaft pulley halves.
3. Move the separator drive switch to OFF and stop the engine. Remove the Key from the Key Switch.
4. Loosen the front limit switch and rotate the switch toward the sprocket until the switch clicks. Tighten the switch.



423L8



5. To check the above setting, start the engine and move the separator drive switch to ON. Open the variable pulleys by pushing the rotor switch to the slow speed rotor drive position until there is a decrease of 100 RPM in the rotor speed. Close the variable pulleys by pushing the rotor switch to the fast speed rotor drive position until the motor shuts OFF. The distance between the jackshaft pulley halves at the outer edges must be 79 mm (3.11 inch).



424L8

6. To set the rear limit switch, start the engine and move the separator drive switch to ON. Open the variable pulleys by pushing the rotor switch to the slow speed rotor drive position until there is a distance (6) of 105.84 mm (4.17 inch) between the jackshaft pulleys at the outer edges.

7. Loosen the rear limit switch and rotate the rear limit switch toward the sprocket until the switch clicks. Tighten the switch.

8. To check the rear limit switch setting, start the engine and move the separator drive switch to ON. Close the variable pulleys by pushing the rotor switch to the fast speed rotor drive position until there is an increase of 100 RPM in the rotor speed.

9. Open the variable pulleys by pushing the rotor switch to the slow speed rotor drive position until the motor shuts OFF. The distance between the jackshaft pulleys at the outer edges must be 105.84 mm (4.17 inch).

**NOTE:** *The front and rear limit switches must be set correctly to prevent an overload on the thrust bearing when the rotor is run at fast speed or to prevent locking up the threads when the rotor is run at a slow speed. Check the position of the limit switches after rotor drive belt or limit switch replacement. Adjust as needed.*

## CONCAVES AND GRATES

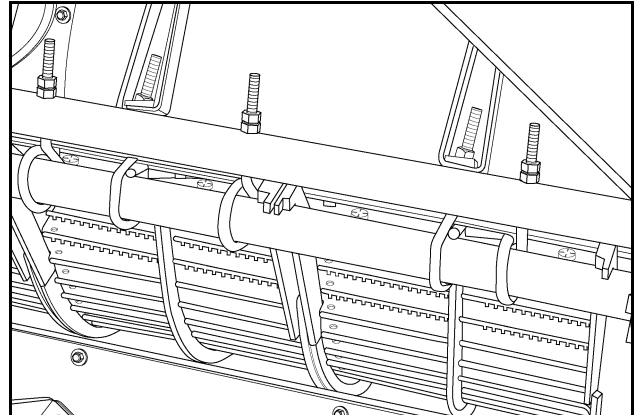
### Concave Removal



**WARNING:** Before setting the concave gauge, adjusting the concaves or removing concaves and rear grates, put all levers in neutral, set the parking brake and shut OFF the engine. Remove the key from the key switch.

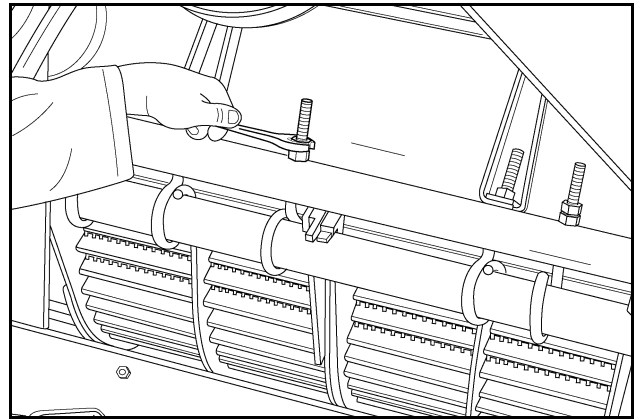
M189B

1. Remove the concave panel from the right side of the Combine.



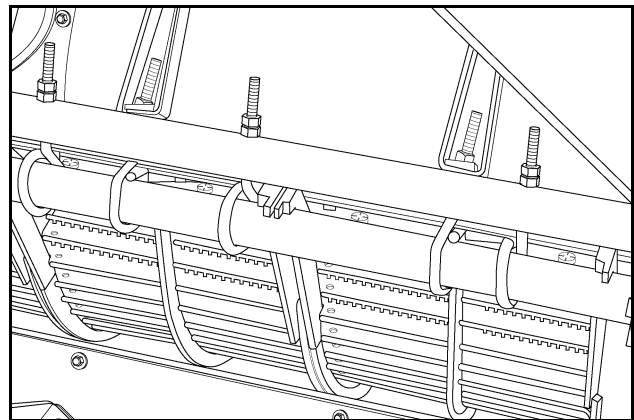
A1906

2. Loosen the nuts on the four eyebolts just enough to lift the pipe off the concave.



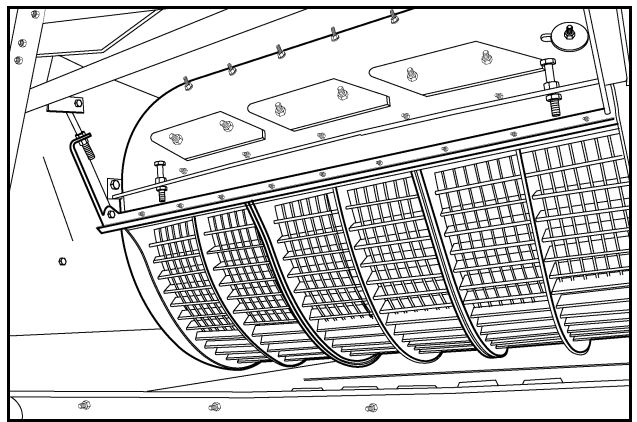
A1907

3. Lift the pipe off the concave sections. Move the pipe to the left side of the separator.



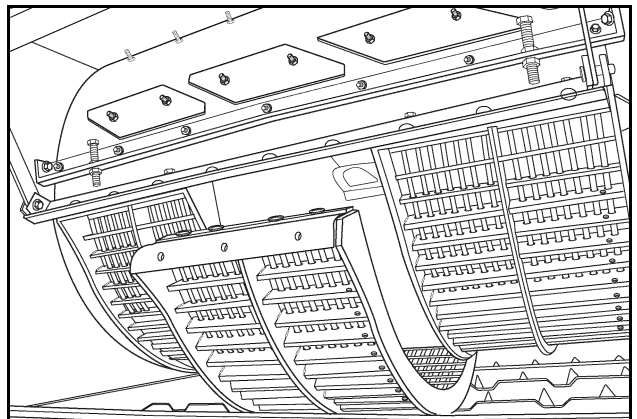
A1906

4. Remove the cover panel from the left side of the Combine. Remove the five (5) bolts and nuts that hold the center concave in place. Lower the concave.



RD01H099

5. Pull the concave out from the left side of the Combine. Push DOWN as you pull to the left.
6. Repeat Steps 4 and 5 to remove the front and rear concaves.

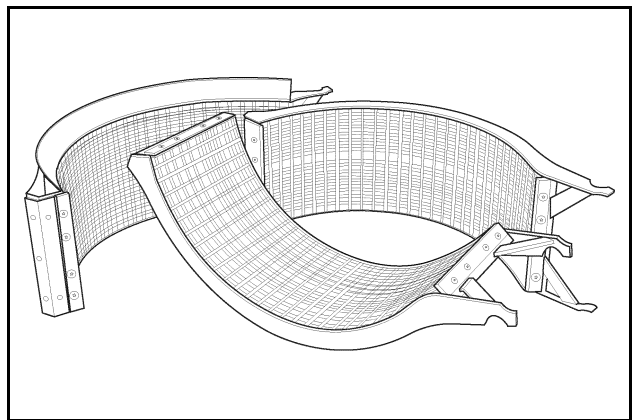


RD01H103

### Concave Installation

7. Install the desired concave sections. The front concaves have a ramp on the front edge and must be replaced in the front position.

**NOTE:** *If necessary, turn the rotor to help in the removal and installation of the concave sections.*



RD01H327

## Grate Removal

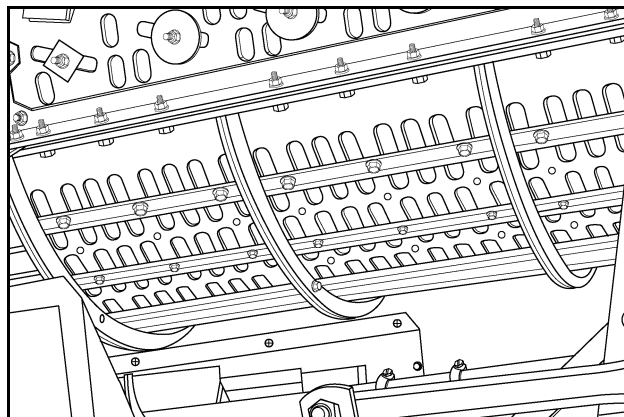


**WARNING:** Before setting the concave gauge, adjusting the concaves or removing concaves and rear grates, put all levers in neutral, set the parking brake and shut OFF the engine. Remove the key from the key switch.

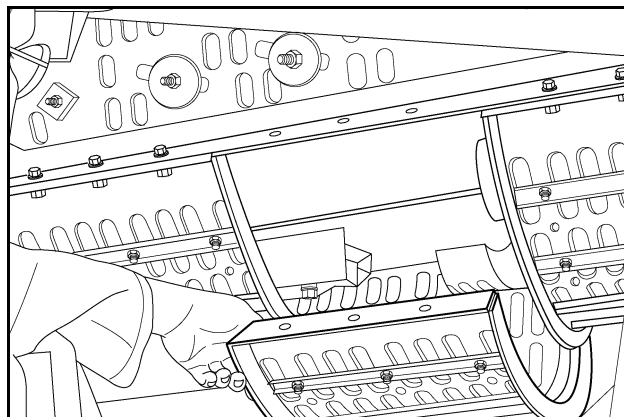
M189B

8. Remove the cover panel on the left side of the Combine.
9. Remove the four (4) bolts and nuts that connect the three grates.
10. Remove the three (3) bolts and nuts that hold the center grate to the rotor cage.
11. Remove the center grate. The center grate must be removed from the Combine first to allow clearance for removing the other two grates. Repeat Steps 10 and 11 to remove the front and rear grates.

**NOTE:** The front grate is held to the rotor cage by four bolts and nuts.



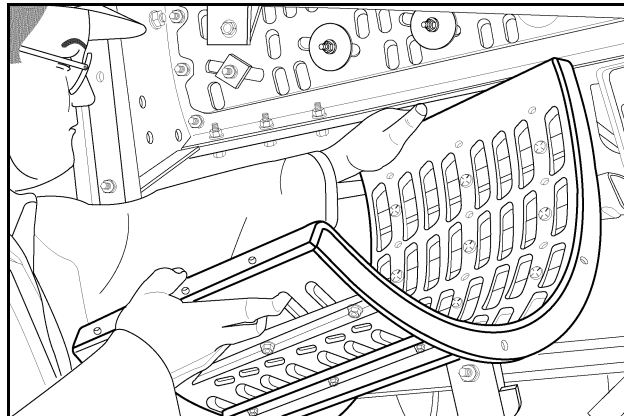
A1895



A1899

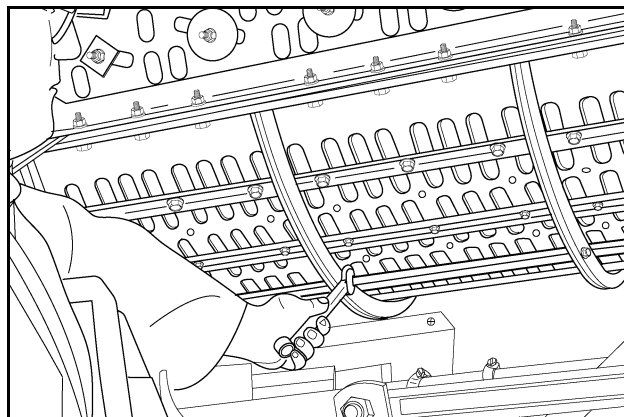
## Grate Installation

12. Install the grates on the left side of the Combine. The rear grate must be installed first, the front grate second and the middle grate last. The slotted end of each grate hooks into the spacer on the grate hanger bar which is located on the right side of the Combine.



A1900

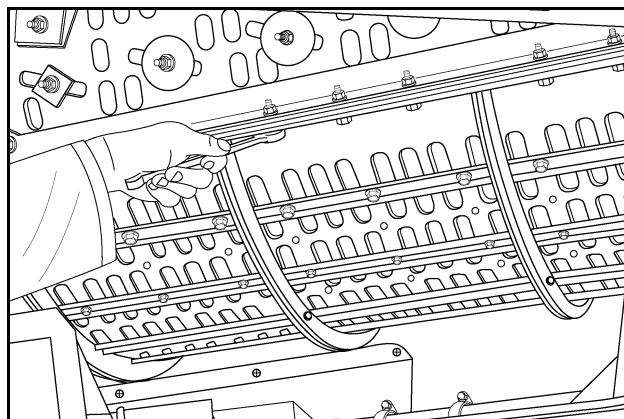
13. Install but do not tighten the four bolts and nuts that connect the grates.



A1897

14. Install and tighten the bolts and nuts that hold the grate to the rotor cage. Tighten the bolts and nuts installed in Step 13.

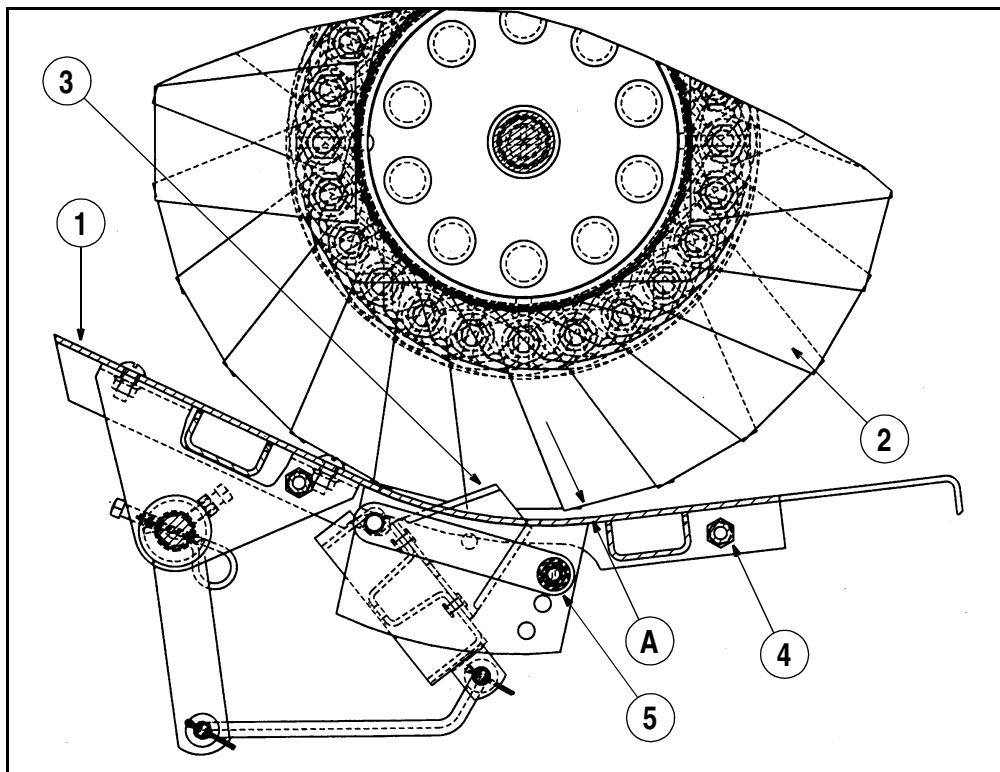
15. Install the cover panel on the left side of the Combine.



A1898

## STRAW CHOPPER (If Equipped)

### Concave Blade Replacement

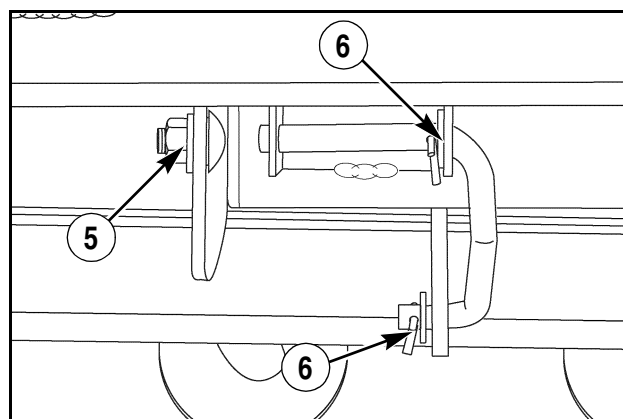


RH00J016

1. CONCAVE      2. ROTOR BLADE      3. CONCAVE BLADE      4. CONCAVE ADJUSTING BOLTS

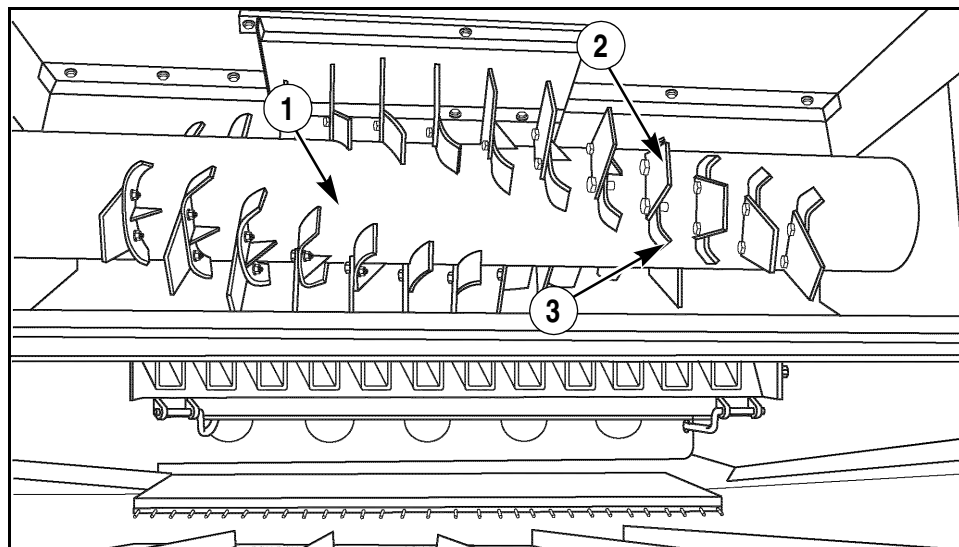
The concave blade assembly is removed from the concave by removing bolt, nut and strap (5) and cotter pin and flat washer (6). Lift the concave blade assembly out. New blades are riveted on the assembly with 3/16 x 5/8 inch flat head solid rivets.

Use the concave adjusting bolts (4) to set a clearance (A) of 1.6 to 4.8 mm (1/16 to 3/16 inch) between the concave (1) and the tip of the rotor blade (2).



RD00H028

## Rotor Blade Replacement



RD01H143

1. ROTOR

2. ROTOR BLADE

3. ROTOR BLADE SUPPORT

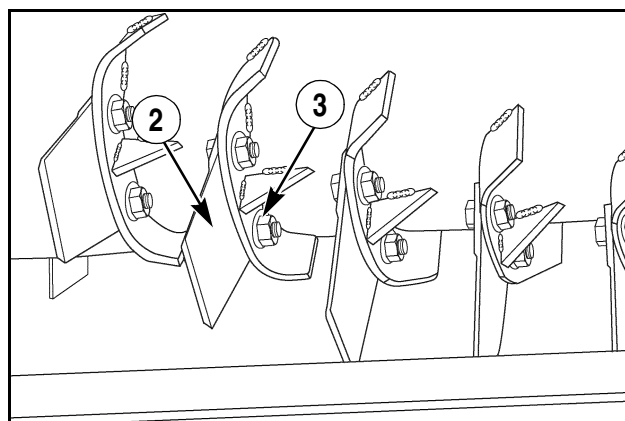
Stop the engine and remove the key from the switch to prevent anyone from starting the Combine.

The straw chopper rotor blades can be reversed for increased wear. Place each blade on the original blade support when reversing the rotor blades. Position the nut against the support and tighten the bolts from the blade side to a torque of 102 to 115 Nm (75 to 85 pound foot).

Replace the straw chopper rotor blades in sets of two. When replacing a straw chopper rotor blade, make sure that the straw chopper rotor blade opposite the one that is being replaced, is also replaced to maintain a balanced straw chopper rotor.

Use 1/2 x 1 inch hex head, Grade 5 bolts and flange lock nuts. Position the nuts against the support and tighten the bolts from the blade side to a torque of 102 to 115 Nm (75 to 85 lb. ft.). The rotor must be balanced if too much vibration occurs after reassembly. See your dealer.

**NOTE:** Do not remove the bolts on the balancing disc at the ends of the straw chopper rotor.



RD01H145

## COOLING SYSTEM

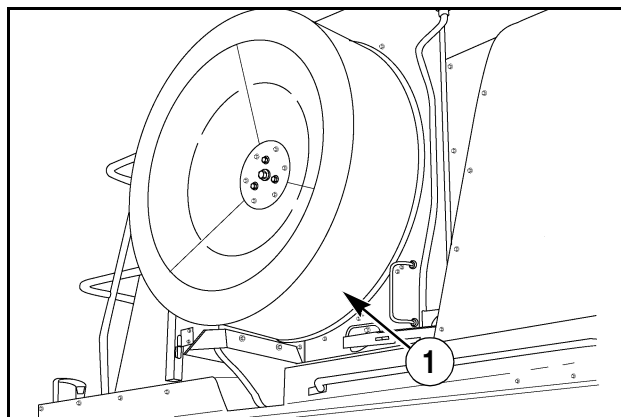
### Cleaning the Rotary Screen, Radiator, Hydraulic Oil Coolers and Condenser Core

Inspect the cooling system daily.

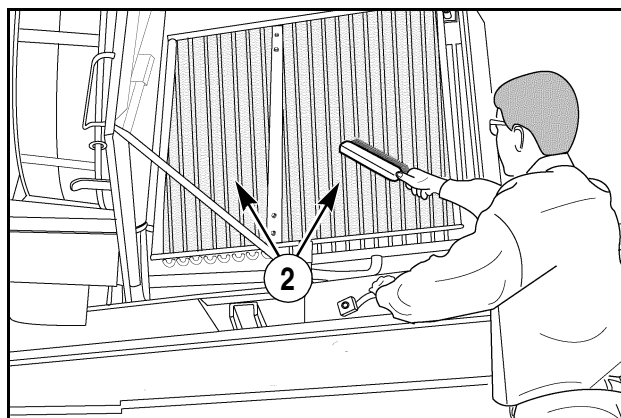
The rotary screen is self-cleaning and gives protection to the radiator, fuel/oil cooler and condenser. In some conditions a layer of material may build up on the screen. Periodic cleaning may be required. With the engine stopped, lightly brush the exterior of the screen to remove fine material. Compressed air is recommended to remove material from the screen, if necessary. Water may cause plugging of screens and cores.

The radiator/cooler fins are designed to minimize build up of material in the cooler core. Material will normally deposit on the front face of the coolers. Periodic cleaning may be required. With the engine stopped, lightly brush the exterior of the coolers to remove material. Compressed air can be used to remove material from the coolers, if necessary.

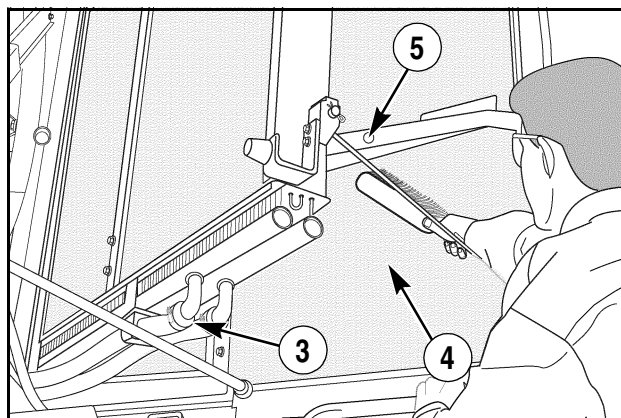
**IMPORTANT:** Always wear face protection when using compressed air.



RD06C044



RD03M002



RD03M003

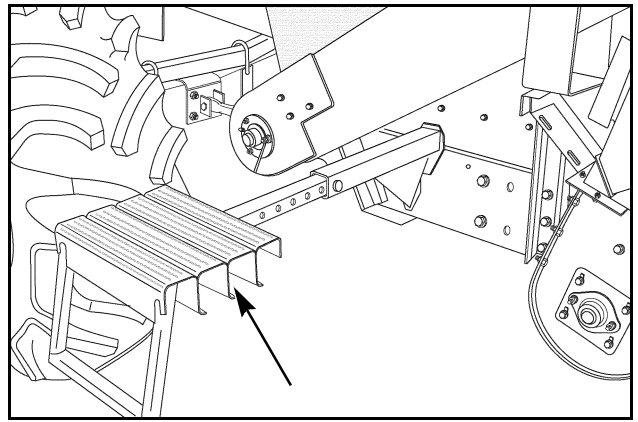
1. ROTARY AIR SCREEN (WITH STEEL SCREEN SHOWN)
2. OIL COOLER, CONDENSER/FUEL COOLER
3. CHARGE AIR COOLER
4. RADIATOR
5. RADIATOR WIPER BLADE, CHARGE AIR COOLER WIPER BLADE (NOT SHOWN)



## 9 - MAINTENANCE/ADJUSTMENTS

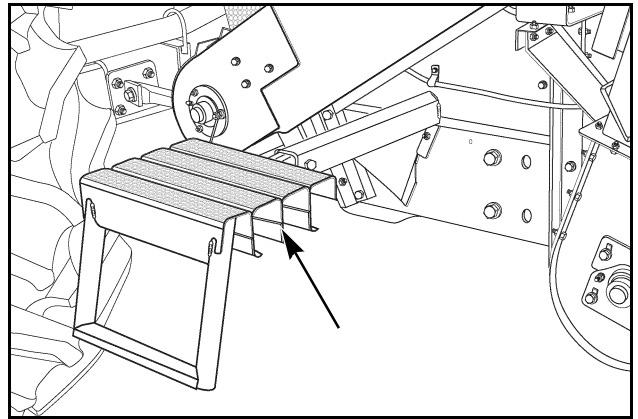
Open the front right hand side panel, then open the rear right hand side panel. When a buildup of dust and dirt is found, remove the clean-cut plug from the bottom of the compartment. Clean the radiator and compartment. Install the clean out plug and close the side panels and latches.

A radiator wiper blade is installed on all Combines. When operating in extremely dirty crop conditions on hot days the wiper blade will lengthen the radiator surface cleaning interval.



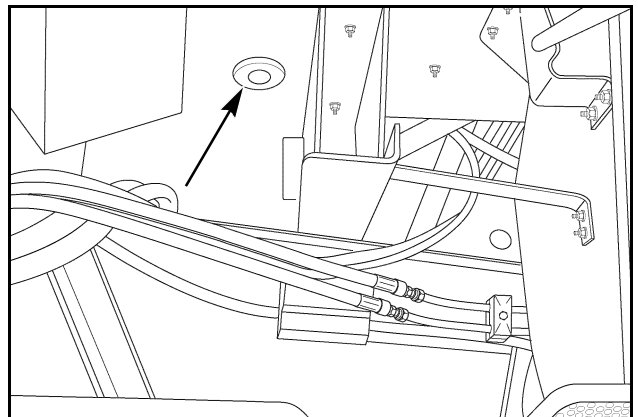
RD05D116

**STEP IN SERVICE POSITION**



RD05D115

**STEP IN TRANSPORT POSITION**



RR02K028



**WARNING:** Radiator wiper blade will spin when engine is running (HI or LOW throttle position). The wiper blade will also spin with the engine running and the side panel door open. When cleaning the engine radiator, turn engine OFF, open side panel door, and tie the wiper blade to the vertical post. Start engine if desired and clean radiator as previously described. Turn engine OFF. Untie wiper blade and close side panel door.

M332A

## FUEL INJECTORS

Replacement or Refurbishing Interval ..... Every 2000 Hours (or Every 2 Years)  
 Contact your dealer for service.

## ROCKER ARM TO VALVE CLEARANCE ADJUSTMENT

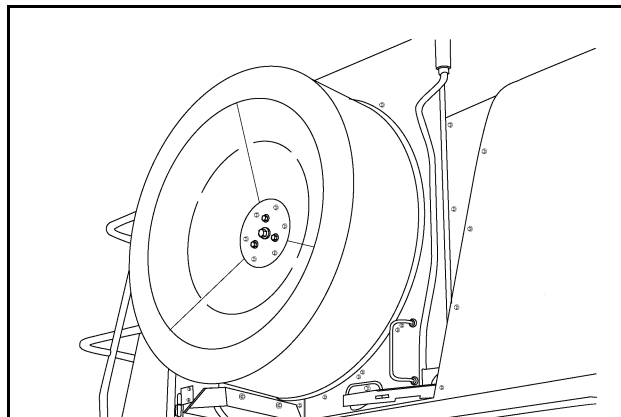
Service Interval..... Every 1000 Hours  
 Contact your dealer for service.

## ROTARY AIR SCREEN VACUUM SYSTEM

Your Combine may be equipped with a rotary air screen power clean vacuum system. The metal rotary air screen with the vacuum system will rotate at 70 RPM to improve the performance of the system. The system will keep the air screen free from debris and buildup, including bees wings and leaf particles. An outlet tube discharges the debris close to the ground and away from the rotary air screen.

### Rotary Air Screen Brush If Equipped

When operating the Combine with chopping Corn Heads, an optional internal rotary brush is recommended. The brush is always in contact with the rotary air screen, but can be manually locked into a non-contact position for extended operation if not using chopping Corn Heads. The brush is designed to keep the rotary screen free of corn sucrose and other sticky debris and available only on Combines equipped with a metal rotary air screen. The brush kit is available from your dealer.

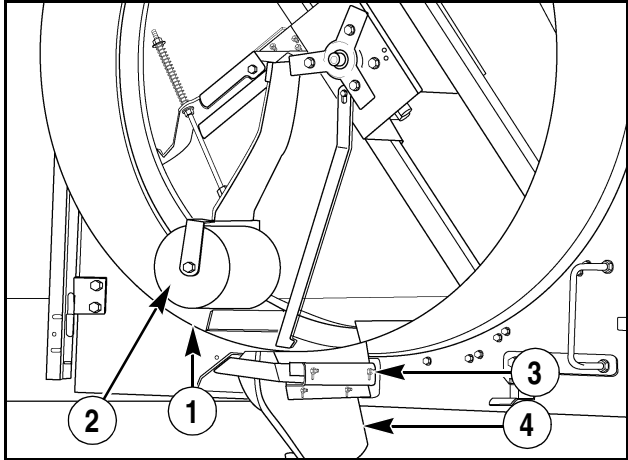


RD06C044

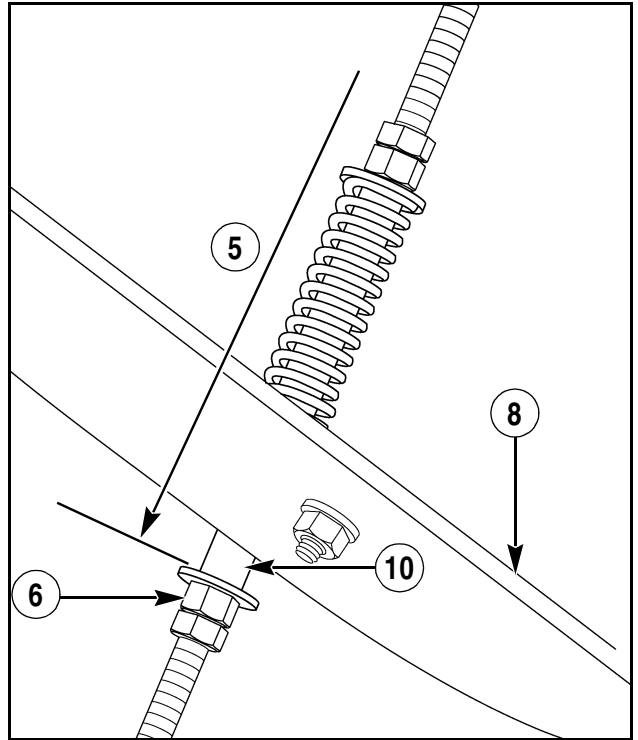
## ROTARY AIR SCREEN BRUSH ADJUSTMENT (IF EQUIPPED)

**IMPORTANT:** Note the position of the tube spacer (10) and the spring (7) relative to the wing plate (8). The washer (9) is over the tube spacer above the wing plate and retains the spring.

1. Adjust the position of the rotary brush by moving the 3/8 inch nuts (6), washers and tube spacer (10) assembly up or down along the rod.

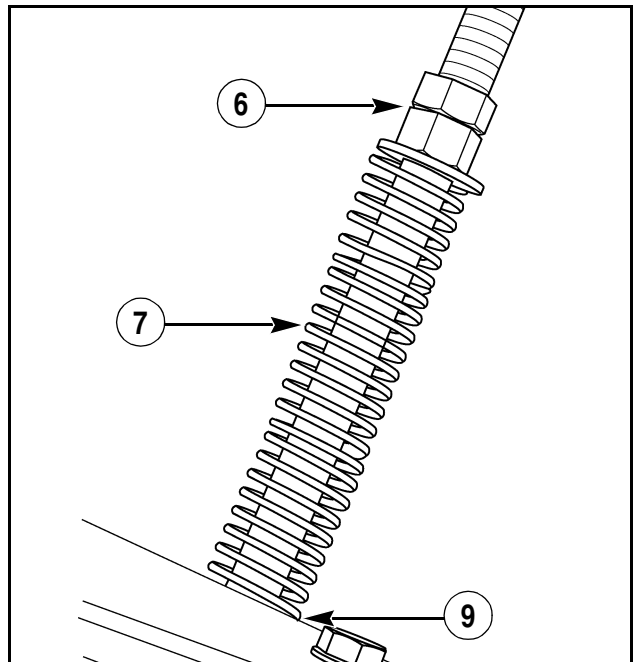


RR06B013



RR06B012

Continued on Next Page



RR06B007

- |   |                     |
|---|---------------------|
| 1. ROTARY AIR SCREEN                          | 6. 3/8 INCH HEX NUT |
| 2. ROTARY BRUSH                               | 7. SPRING           |
| 3. STATIONARY BRUSH                           | 8. WING PLATE       |
| 4. NOZZLE                                     | 9. WASHER           |
| 5. 150 TO 160 mm (5-29/32 TO 6-19/644 INCHES) | 10. TUBE SPACER     |

## 9 - MAINTENANCE/ADJUSTMENTS

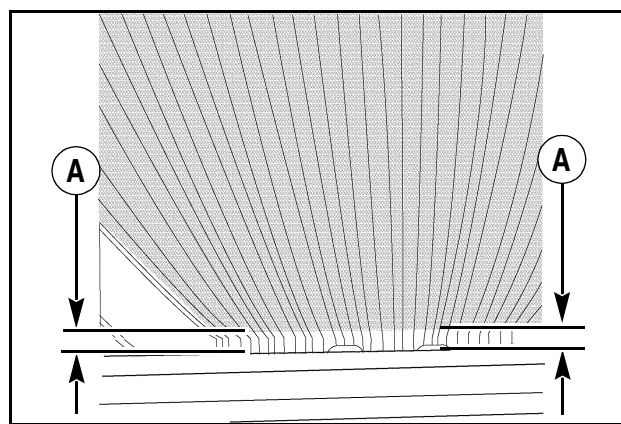
**Tools required:** 9/16 inch Wrench and Flat-Bladed Screwdriver.

2. The brush bristles should poke evenly through the rotary air screen holes - approximately 1 to 2 mm (3/64 to 5/64 inch) (A) along the rotary air screen, as shown in the illustration. Adjust the position of the rotary brush in the swing plate slot to achieve an even distribution.

A. Hold the shaft (1) using the Screwdriver, while loosening or tightening the 3/8 inch nut.

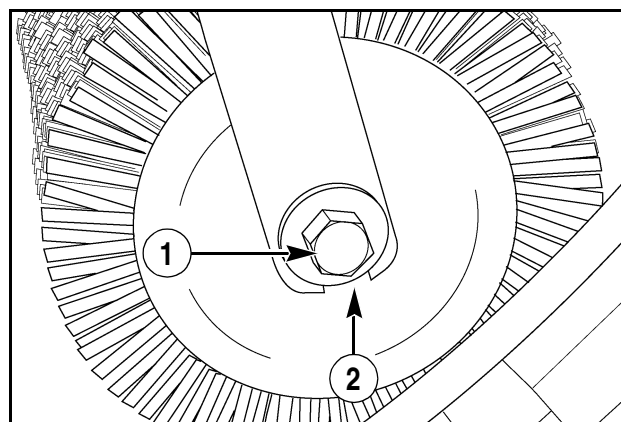
B. Adjust UP or DOWN position (2) on the brush shaft in slot.

**IMPORTANT:** Rotate the rotary air screen 360 degrees. the rotary brush should stay in contact with the screen at all times.



RR06B006

A. 1 TO 2 mm (3/64 TO 5/64 INCH)



RR06B005

1. BRUSH SHAFT  
2. ADJUSTING POSITION

**ELECTRICAL SPECIFICATIONS**


System Voltage.....	12 Volt Negative Ground
Batteries .....	Two 12 Volt Low Maintenance 950 CCA Hybrid Batteries Group Size 31
Alternator .....	135 Ampere
Voltage Regulator .....	12 Volt, Solid State Component of Alternator
Cranking Motor .....	12 Volt, 4 kw with Solenoid Switch

**Lamps and Bulbs**

SEALED BEAM LAMPS .....	BULB NUMBERS
Headlamps (Cab Hi/Lo) .....	9004 (137823A*)
Headlamps (Cab Hi/Lo) (Long Life) .....	9004XL (388872A*)
Cab Flood Lamps.....	9005 (87106291)

LAMPS

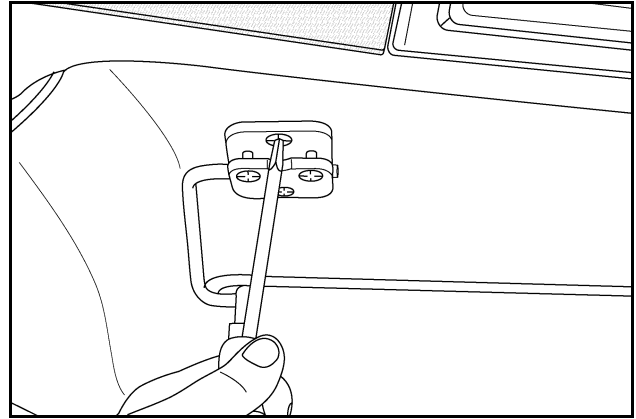
Side Flood Lamps (If Equipped) .....	1312210C*
Headlamp HID Bulb .....	87282633
Aftercut Lamps (If Equipped) .....	92242C*
Rear Flood Lamp (If Equipped).....	92242C*
Tail Lamps.....	1157 (T34857)
Gauge Backlighting Warning Lamps.....	73 (28628R*)
Instrument Display Backlighting With Socket.....	7219 (121615A*)
Grain Scan Monitor Lamps .....	73 (28628R*)
Turn Signal Indicator .....	192 (26069R*)
Dome Lamps.....	3050958R*
Grain Tank Lamp.....	1156 (9417866)
Unloader Arm Lamp.....	92242C*
Console Illumination Lamp.....	168 (D71346)
Turn Signal Lamps (Front, Rear and External) .....	1156 (9417866)
Instrument Panel Warning Lamps.....	73 (28628R*)
Overhead Panel Backlighting .....	192 (26069R*)
Rocker Switch Backlighting (without socket).....	134608A*
Rocker Switch Backlighting (with socket).....	3141107R*
Service Lamps (If equipped) .....	3051192R*
Extremity Wide Clearance Lamps .....	1156 (9417866)
Oval Sieve Lamp .....	894 (323094A*)
Wait to Start Lamp.....	1815
Engine Warning Light Modular Lamp .....	658

	<p><b>WARNING:</b> Before working on any part of the electrical system, disconnect the battery ground cable. Do not connect cable until all electrical work has been completed. This will prevent shorts or electrical shocks.</p> <p style="text-align: right;">M198A</p>
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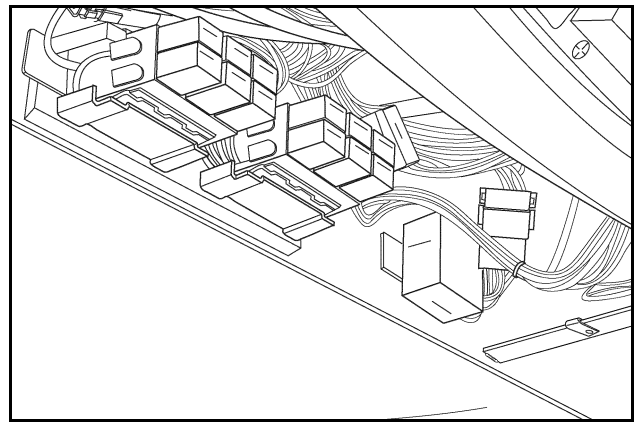
## Headliner Relay Panel

To access the headliner relay panel, remove the sun visor and remove the front headliner.

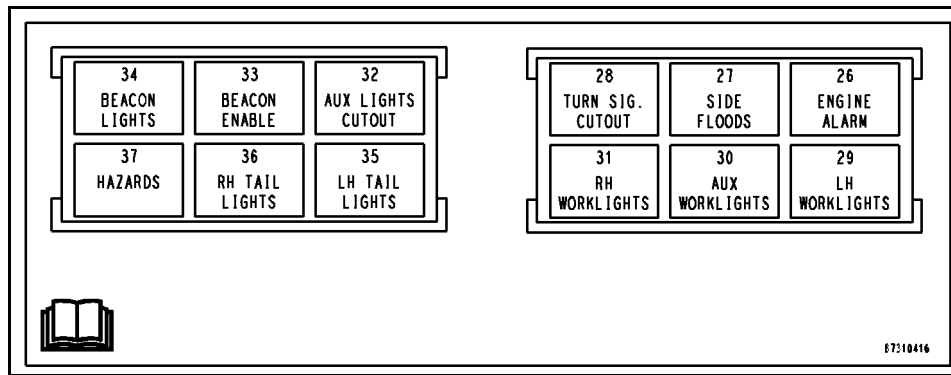
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RD00E062



RD05D127



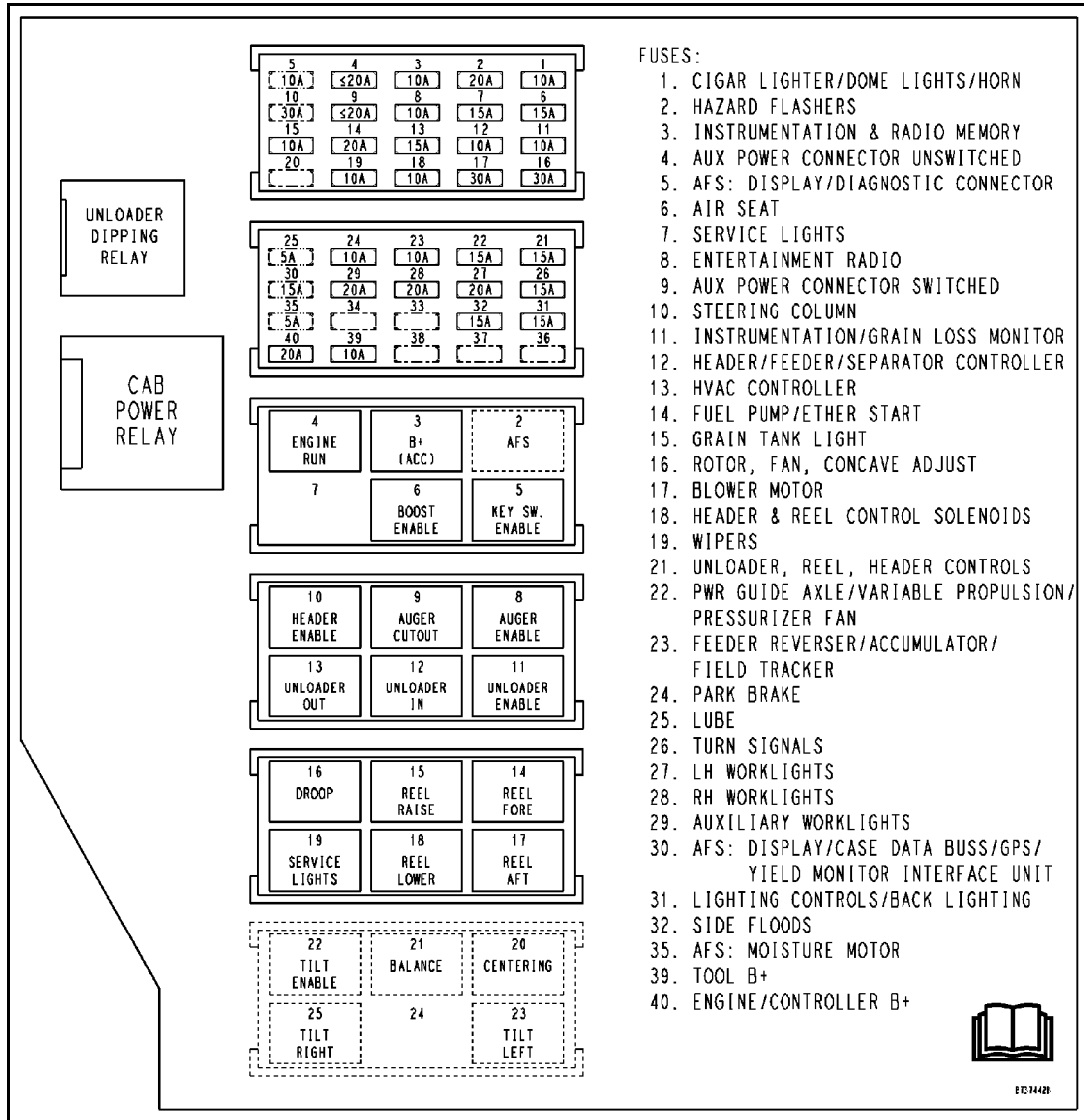
87310416

**RELAYS**

26.....	Engine Alarm
27.....	Side Flood Lamps
28.....	Turn Signal Cutout
29.....	Left Work Lamps
30.....	Auxiliary Work Lamps
31.....	Right Work Lamp
32.....	Auxiliary Lights Cutout
33.....	Beacon Enable
34.....	Beacon Lamps
35.....	Left Tail Lamp
36.....	Right Tail Lamp
37.....	Hazards

## Cab Lower Fuse Panel

The cab fuse panel is located beneath the Right console. Remove the cover to access the cab fuse panel.



87374428



**FUSES**

1. Cigar Lighter/Dome Lamps/Horn.....	10 Ampere
2. Hazard Flashers .....	20 Ampere
3. Instrumentation and Radio Memory .....	10 Ampere
4. Auxiliary Power Connector (Unswitched).....	Maximum 20 Ampere
5. AFS: Display/Diagnostic Connector.....	10 Ampere
6. Air Seat.....	15 Ampere
7. Service Lights.....	15 Ampere
8. Entertainment Radio.....	10 Ampere
9. Auxiliary Power Connector (Switched) .....	Maximum 20 Ampere
10. Steering Column (Key Switch).....	30 Ampere
11. Instrumentation./Grain Scan Monitor/Low Coolant Module .....	10 Ampere
12. Header/Feeder/Separator Controllers .....	10 Ampere
13. HVAC Controller .....	15 Ampere
14. Fuel Pump/Alternator Excitation/Ether Start.....	20 Ampere
15. Grain Tank Lamp .....	10 Ampere
16. Rotor, Fan, Concave Adjust.....	30 Ampere
17. Blower Motor .....	30 Ampere
18. Header and Reel Control Solenoids .....	10 Ampere
19. Wipers .....	10 Ampere
20. Open	
21. Unloader, Reel, Header Control Switches .....	15 Ampere
22. Power Guide Axle/Variable Propulsion/Pressurizer Fan.....	15 Ampere
23. Feeder Reverser/Accumulator/Field Tracker®.....	10 Ampere
24. Park Brake .....	10 Ampere
25. Lubrication .....	5 Ampere
26. Turn Signals.....	15 Ampere
27. Left Working Lamps.....	20 Ampere
28. Right Working Lamps .....	20 Ampere
29. Auxiliary Working Lamps .....	20 Ampere
30. AFS: Display/Case Data Buss/GPS/Yield Monitor Interface Unit .....	15 Ampere
31. Lighting Controls/Back lighting .....	15 Ampere
32. Side Floods.....	15 Ampere
35. AFS: Moisture Motor.....	5 Ampere
39. Engine Diagnostic Connector Power .....	10 Ampere
40. Engine/Controllers .....	20 Ampere
Inline Fuse Engine Harness .....	30 Ampere

**RELAYS**

A.....	Unloader Dipping
B.....	Cab Power
2.....	AFS
3.....	B+ (Acc)
4.....	Engine Run Enable
5.....	Key Switch Enable
6.....	Boost Enable
8.....	Auger Enable
9.....	Auger Cutout
10.....	Header Enable
11.....	Unloader Enable
12.....	Unloader In
13.....	Unloader Out
14.....	Reel Fore
15.....	Reel Raise
16.....	Droop
17.....	Reel Aft
18.....	Reel Lower
19.....	Service Lamps
Field Tracker® (If Equipped)	
20.....	Centering
21.....	Balance
22.....	Tilt Enable
23.....	Tilt Left
25.....	Tilt Right

## ALTERNATOR CHARGING SYSTEM

Follow these general rules to prevent damage to the electrical system:

1. Before working on the electrical system, disconnect the battery cables. Wash your hands after handling battery components.
2. Do not make a reverse battery connection.
3. When you use an auxiliary battery for starting, connect negative terminal to Combine frame away from the batteries and positive to positive.
4. When charging the Combine batteries, disconnect the battery cables from the battery terminals. Do not use a battery charging machine for starting the Combine.

5. Never operate the Combine when the battery cables are disconnected.

6. When you do maintenance on the engine, prevent foreign material from entering the alternator.

**IMPORTANT:** *If you must do welding, disconnect the batteries. Put the ground cable of the welder as close as you can to the weld area. Do not put the ground cable where the current can flow through bearings or along channels with wire harnesses.*

## Alternator

The alternator is mounted in a fixed position on the side of the engine.

The alternator is equipped with a built in regulator.

When the ampere indicator lamp comes on or voltmeter reading drops, the operator should stop the engine, remove the key and clean the alternator screen and alternator. A suggested means is with an air hose.

**ATTENTION:** *Always wear face protection if using compressed air.*

In order to assure satisfactory operation of the charging system make a periodic check as follows:

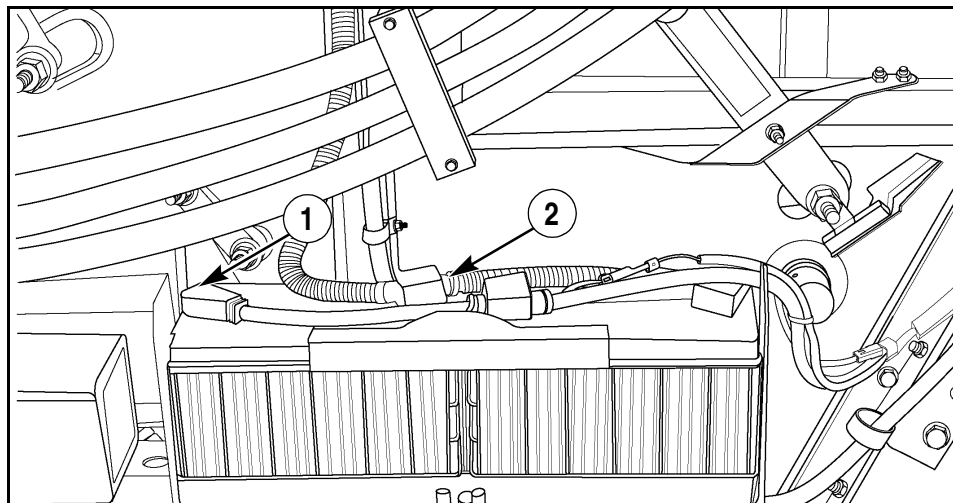
- Keep proper belt tension.
- Mounting bolts must be tight.

**IMPORTANT:** *Keep the alternator screen clean. Check the screen daily and clean as required.*

To prevent possible damage to the system avoid the following:

1. Do not short-out or ground across the terminals of the alternator.
2. Do not operate the charging system with the output cable disconnected or with the battery disconnected.

## BATTERIES



RD97G066

1. NEGATIVE (-) TERMINAL

2. POSITIVE (+) TERMINAL

The Combine is equipped with two (2) 12 volt low maintenance batteries. Check the electrolyte level in each cell after every 100 hours or 3 months. Add distilled water to get the electrolyte level up to the indicator under each cap. Keep the vent holes open at all times.

When replacing the battery make sure that the ground cable is connected to the negative (-) terminal on the battery. When disconnecting the battery, disconnect the negative (-) cable first. When connecting the battery, connect the negative (-) cable last.

**NOTE:** To prevent damage to the battery do not over tighten the battery hold down bolts.



**WARNING:** BATTERY ACID CAUSES SEVERE BURNS. Batteries contain sulfuric acid. Avoid contact with skin, eyes or clothing. Antidote: EXTERNAL - flush with water. INTERNAL - Drink large quantities of water or milk. DO NOT induce vomiting. Seek medical attention immediately. EYES - Flush with water for 15 minutes and seek medical attention immediately. BATTERIES PRODUCE EXPLOSIVE GASES. Keep sparks, flame, cigars and cigarettes away. Ventilate when charging or using in enclosed area. Always wear eye protection when working near batteries. Wash hands after handling. KEEP OUT OF REACH OF CHILDREN.

M144B

## Battery Cables and Terminals

The battery terminals must be kept clean and tight. A good method to clean the terminals is to use Battery Saver (Case Part Number M20831) according to instructions on the container. This cleaner needs no water. If Case Battery Saver is not available, remove all corrosion with a wire brush, then wash with a weak solution of baking soda or ammonia. Put some petroleum jelly or light grease on the terminals to prevent further corrosion.

Inspect the battery cables for damage. Replace any battery cable that has damage.

To prevent hard starting, keep battery cables tight.



**WARNING:** *When working around storage batteries, remember that all of the exposed metal parts are "live". Never lay a metal object across the terminals because a spark, short circuit, explosion or personal injury may result.*

M145A



**WARNING:** *Battery posts, terminals and related accessories contain lead and lead compounds. **Wash hands after handling.***

M793

## When Batteries Are Not in Use

When the Combine is not in use, the batteries will need a charge every six weeks. A storage battery not in use will slowly discharge. A battery that has discharged can freeze at low ambient temperatures and cause damage to the battery and Combine.

## Battery Recycling

**NOTE:** *Discarding old batteries can cause an environmental liability. Check with your local environmental or recycling center or your dealer for correct disposal information.*

## Auxiliary Battery Connections



**WARNING:** Engine can start with transmission in gear when neutral or safety start switch is bypassed:

1. Do not connect across terminals on starter.
2. Attach a booster battery by connecting the positive terminal of the booster battery to the "positive terminal" provided or to the positive terminal of the machine battery. Connect the negative terminal of the booster battery to the "negative terminal" provided or to the chassis of the machine. Then use recommended starting procedures from operator's seat.
3. When necessary, repair electrical system components promptly so that "jump starting" will not be attempted.

Machine runaway can cause injury or death to operator and bystanders.

M107D

If the battery is discharged and the lights do not indicate some battery voltage, check the battery for an open circuit with a voltmeter. Disconnect the negative (-) battery cable from the battery. Connect the voltmeter between the negative (-) and the positive (+) battery terminals. If the voltmeter shows no voltage, the battery has an internal open circuit. Replace the battery. Connecting a battery charger or an auxiliary battery to a battery with an open circuit can cause a spark inside the battery. The spark can cause a battery explosion.

If the voltmeter shows a voltage, a battery charger or an auxiliary battery can be connected to the discharged battery.

When using a battery charger, make sure that the charger is turned off before connecting to the battery. Charge the battery in a well ventilated area only. Do not try to charge a frozen battery.



**WARNING:** Unless instructed otherwise never service or make adjustments to the machine with the engine running. Before making adjustments, put the shift control lever in Neutral and set the park brake OR put the shift control lever in park position as equipped.

M147C

**NOTE:** The Combine uses an electrical system with a negative ground. Making connections to the electrical system in reversed polarity can cause damage to the electrical system components.

Connect an auxiliary battery to the Combine battery in the exact order as follows:

1. Connect the positive (+) terminal (1) of the auxiliary battery to the positive (+) terminal on the Combine batteries.

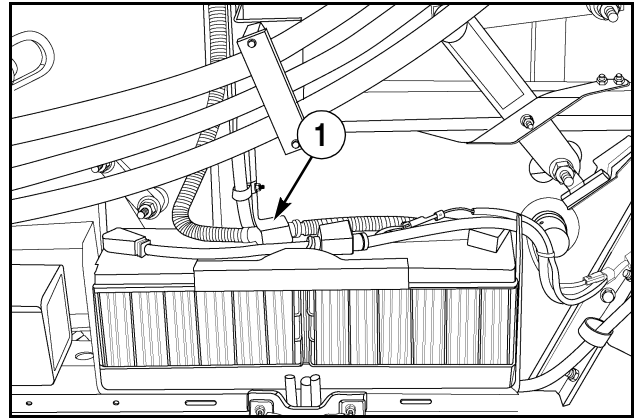
**NOTE:** *The cable clamps must not make contact with any metal objects.*

2. Connect the negative (-) terminal of the auxiliary battery to the Combine frame, away from the batteries. Make the final connection at the Combine frame.

**IMPORTANT:** *This is the only safe method to start the engine with an external power supply. Any other method of starting can cause injury or death to the operator or other persons. Do not connect auxiliary battery cables across the terminals of the starter. Start the engine from the operator's seat.*

After the engine is started, disconnect the auxiliary battery cables in the exact order as follows:

1. Disconnect the negative cable clamp from the Combine chassis
2. Disconnect the other negative cable clamp from the negative terminal of the auxiliary battery.
3. Disconnect the positive cable clamp from the positive terminal on the Combine batteries and then from the positive terminal on the auxiliary battery.



RD97G066



**WARNING:** *Battery posts, terminals and related accessories contain lead and lead compounds. **Wash hands after handling.***

M793

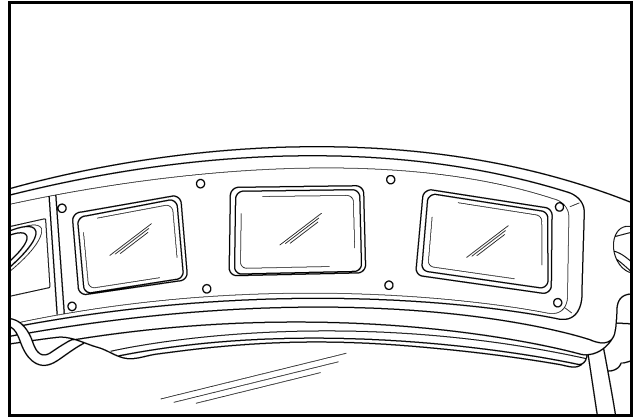


## LAMP BULB REPLACEMENT

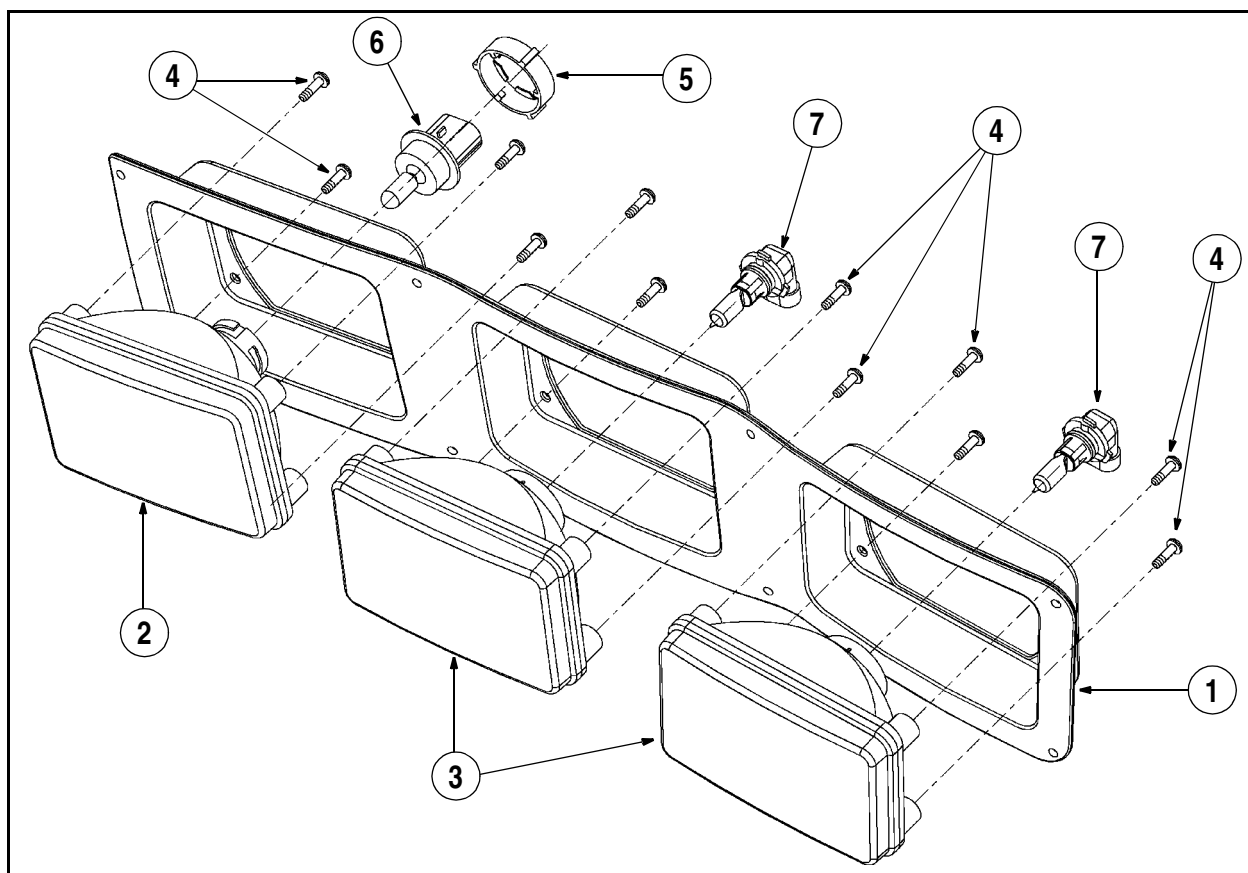
### Head Lamp

1. Remove the eight screws from the head lamp bezel assembly and remove the assembly. Disconnect the wire harness to the bulb to be replaced.

Continued on Next Page



RK99G139



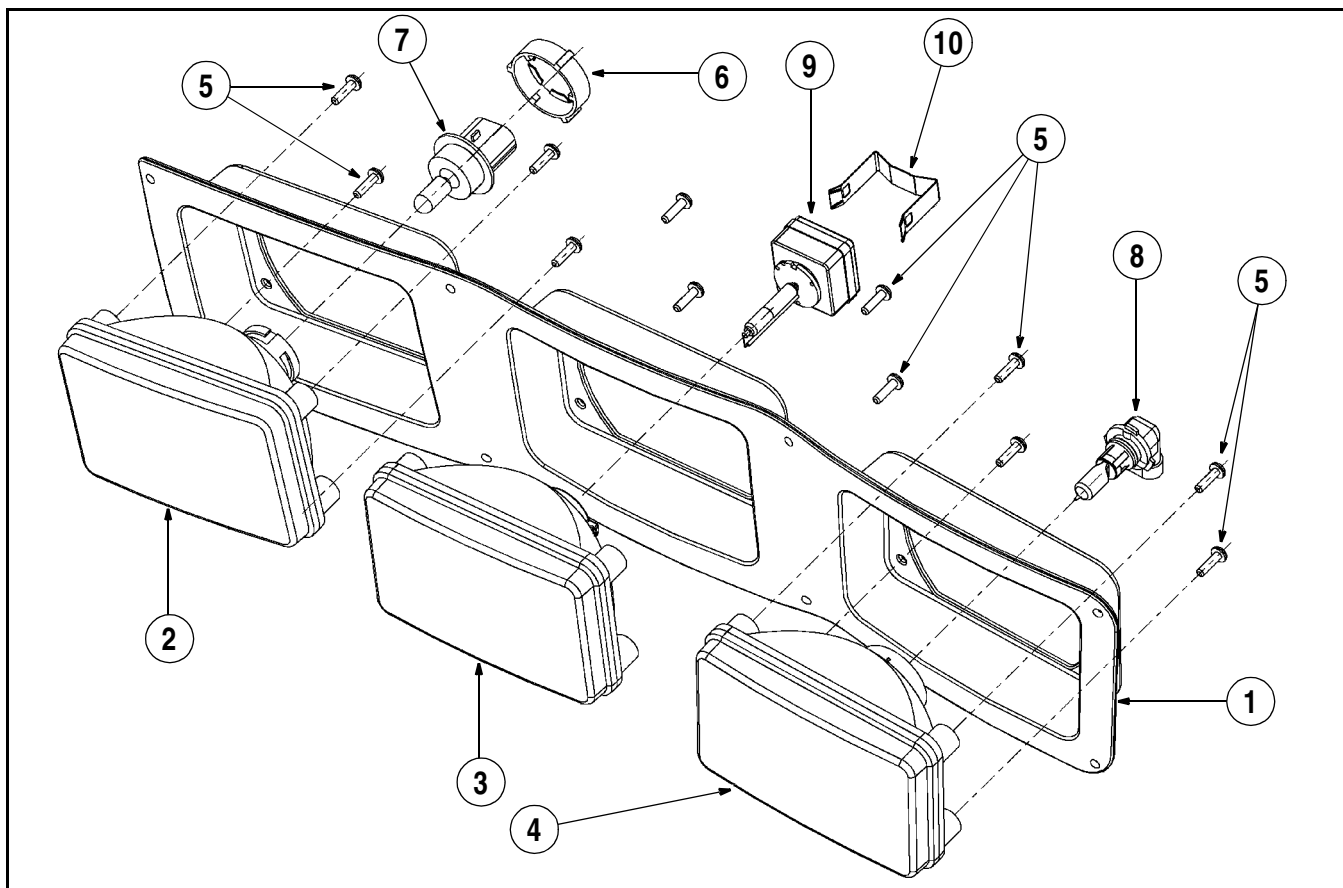
87367616

- |                       |  |                              |
|-----------------------|--|------------------------------|
| 1. HEAD LAMP BEZEL    | 4. SCREW - PAN HEAD TAPPING, NUMBER 10 X 19 mm | 6. BULB - LONG LIFE, 65W/45W |
| 2. FLOOD LAMP - FIXED | 5. LOCKING COLLAR                              | 7. BULB - 9005, 12V          |
| 3. FLOOD LAMP         |  |                              |

**CAB LAMPS - STANDARD**

2. High/Low beam, turn to remove locking collar (5). Remove bulb (6). Install new bulb.
3. Single element bulb (7), Turn to remove. Install new bulb.

**NOTE:** *DO NOT touch the glass of a Halogen Bulb. If the glass is touched, it MUST be cleaned with window cleaner or alcohol.*

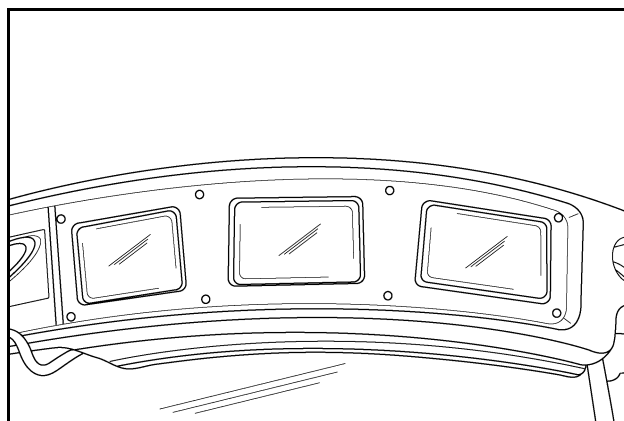


87382809

- |                       |                     |                   |
|-----------------------|---------------------|-------------------|
| 1. BEZEL - LEFT SHOWN | 5. RETAINING SCREW  | 8. BULB - 12 VOLT |
| 2. FLOOD LAMP - FIXED | 6. LOCKING COLLAR   | 9. BULB - HID     |
| 3. FLOOD LAMP - HID   | 7. BULB - LONG LIFE | 10. LOCKING CLIP  |
| 4. FLOOD LAMP         |                     |                   |

**CAB LAMPS - HIGH INTENSITY DISCHARGE [HID] (OPTIONAL)**

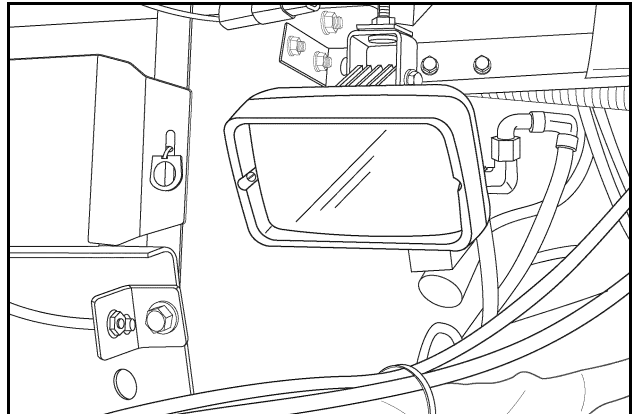
4. Install head lamp bezel on Combine.



RK99G139

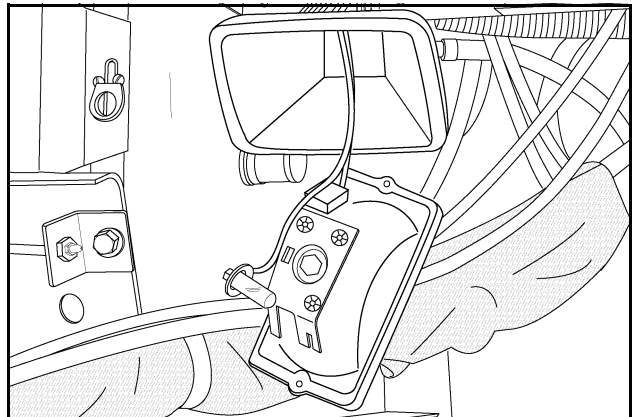
## Flood Lamp, Aftercut Lamps, Side Flood Lamps, Rear Flood Lamps, Unloader Arm Lamp and Sieve Lamp

1. Remove the two retaining screws and pull the lamp assembly out.



RD02E174

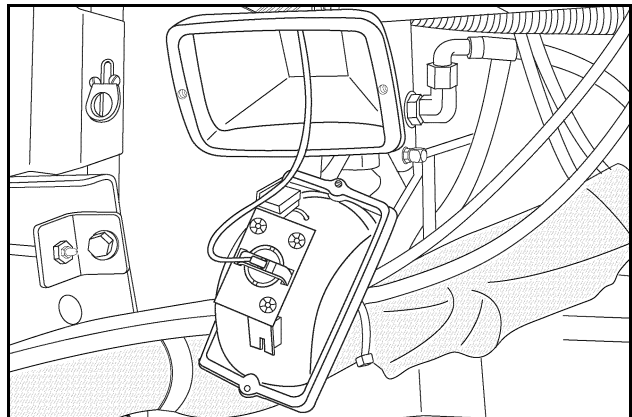
2. Remove the bulb retainer clip and remove the bulb.



RD02E176

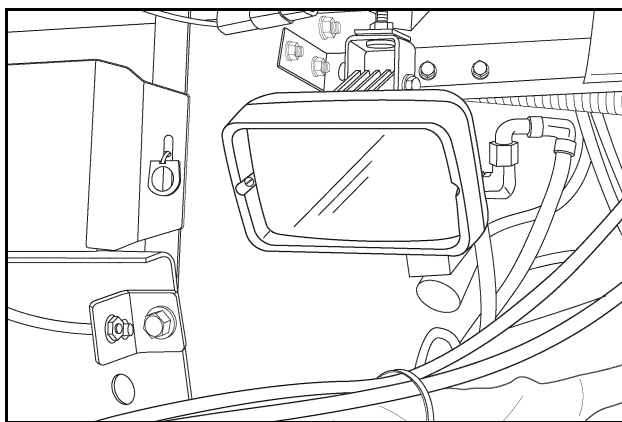
3. Install new bulb and fasten in place with retainer clip.

**NOTE:** Do Not touch bulbs with fingers as skin oils can cause premature failure of halogen bulbs.



RD02E175

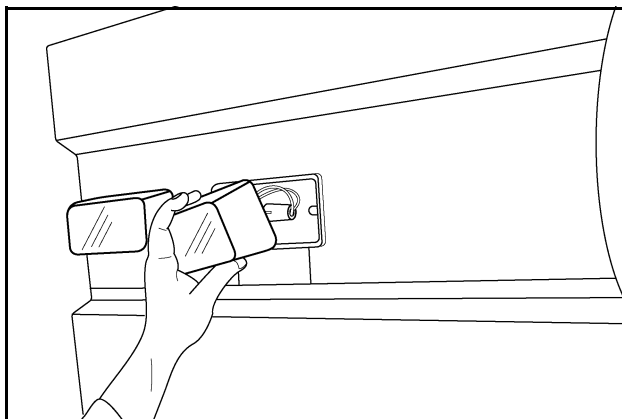
4. Install the lamp assembly and two retaining screws.



RD02E174

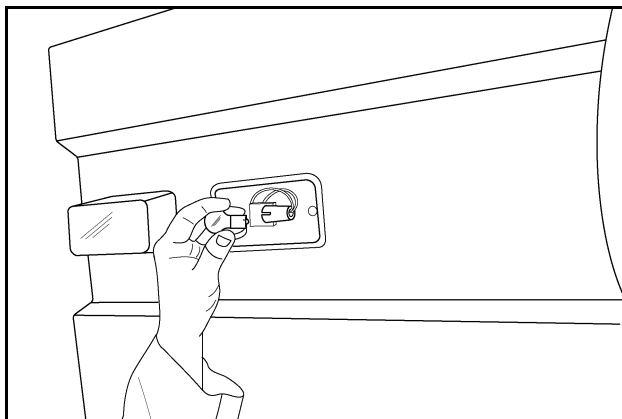
## Tail Lamp and Warning Lamp

1. Remove the two screws and remove the cover.



A25955

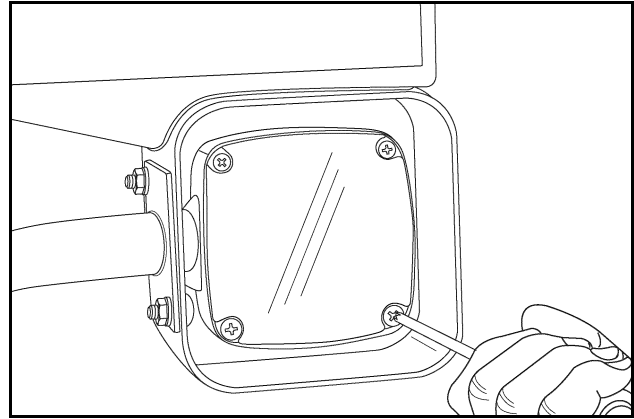
2. Push in and turn counterclockwise to loosen and remove the bulb. Install new bulb and cover.



A25956

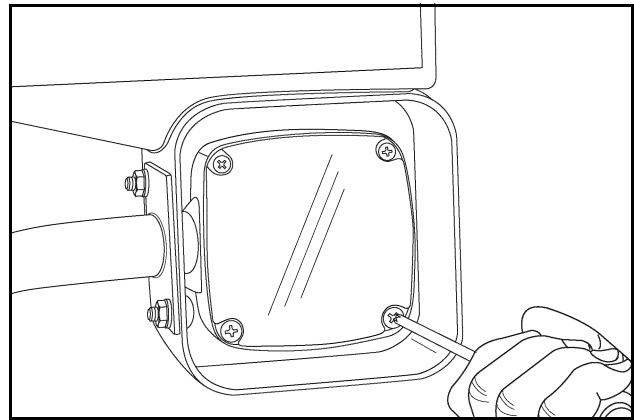
## Extremity Wide Clearance Lamps

Remove the two screws and remove the cover.



RD00H061

Push in and turn counterclockwise to loosen and remove the bulb. Install new bulb.



RD00H062

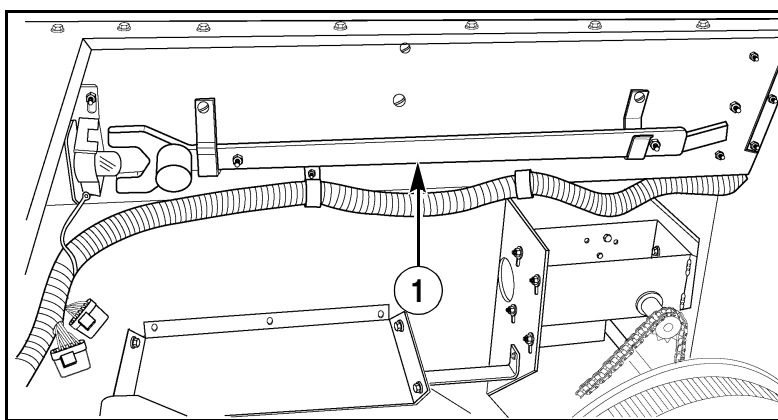
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## STORAGE PREPARATION

When your Combine is not going to be used for some time, store the Combine in a dry, protected place. Leaving your Combine outside, open to the weather, will shorten its life.

Follow the procedure below when your Combine is placed in storage for periods up to six (6) months:

1. Cover the engine starter and alternator with plastic before washing the Combine. Wash or clean and completely lubricate the Combine (Refer to Lubrication/Filters/Fluids in this manual).
2. Clean the inside of the Combine including the chaffer sieves, shoe sieves, operator's cab and instrument console.
3. Rodents can damage a Combine in storage. Rodents will eat plastic, insulation or rubber material, especially when coated with grain dust. Clean the areas where rodents may nest. Leave access panels and doors open to remove convenient nesting pockets. In some conditions, leaving moth balls will help discourage rats and mice.
4. Run the engine long enough to completely warm the oil in the crankcase before draining the oil. Remove and replace the oil filter as instructed. Fill the crankcase with fresh oil and run the engine for two to five minutes.
5. Open the drain on the water separator fuel filter and drain the water and sediment before closing. Fill the fuel tank with a premium grade diesel fuel. If this fuel grade has not been used regularly, drain the fuel tank and fill with premium diesel fuel. Run the engine for five minutes to circulate the fuel through the fuel injection system.
6. Clean the air cleaner filter and body.
7. Drain, flush and fill the cooling system with the correct antifreeze mixture to protect the Combine to the lowest anticipated temperature. Add cooling system conditioner and change the coolant filter conditioner.
8. Close the fuel shutoff valve between the water separator filter and fuel tank to prevent fuel draining from fuel injection system into the fuel tank.
9. Plug the engine breather pipe and exhaust pipe.
10. The batteries need not be removed from the Combine except for extended storage periods (more than 30 days) below freezing temperatures. The batteries must be fully charged to prevent freezing. Disconnect the negative (-) ground cable at the batteries to prevent possible discharge. Wash your hands after handling battery components.
11. Store the Combine where there is protection from light. Clean the tires before storage. Support the Combine so that the load is off the tires. If the Combine is not supported, inflate the tires at regular intervals.
12. Lubricate all the chains with oil.
13. Open the doors at the bottom of elevators and the grain tank. Open the front auger bed door and clean out the auger bed.
14. Retract all hydraulic cylinders to prevent the piston rods from rusting. Always lower the header to remove the weight from the hydraulic system. Coat all exposed cylinder rods with light grease to prevent rust.
15. Remove tension from the belts.



RD02E211

**INSIDE ENGINE COMPARTMENT**

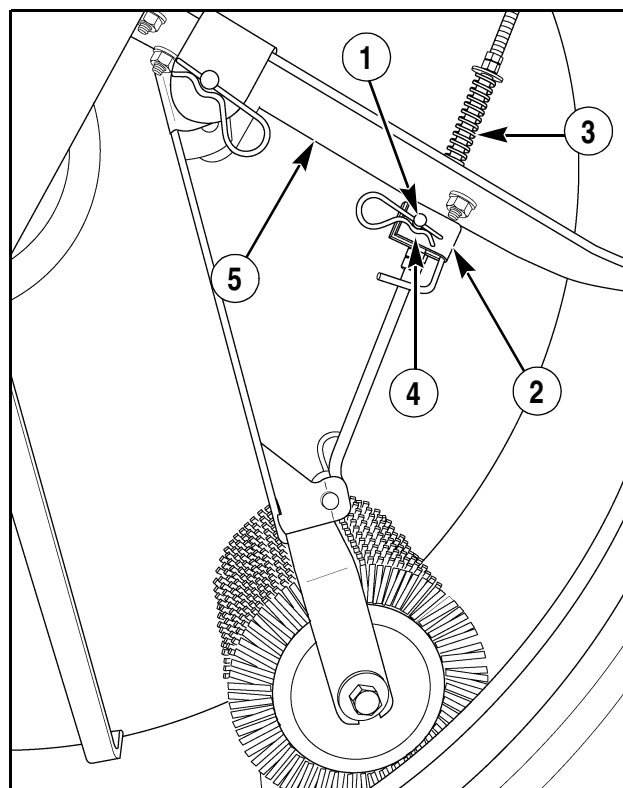
1. ROTOR ROCKING WRENCH IN STORAGE POSITION

**Rotary Air Screen Brush Storage**

The rotary brush should be in storage position anytime harvesting conditions do not require the use of the brush as well as when rotary brush is not needed for more than one week.

**Storage Procedure:**

- A. Remove hair pin and headed pin (1) from the locking mechanism (2). DO NOT discard pins.
- B. Pull the brush away from the rotary air screen by compressing the spring (3) enough to slide the locking mechanism (2) between the washer (4) and the wing plate (5).
- C. Secure locking mechanism (2) by reinstalling the headed pin and hair pin (1).



RR06B004

- 1. HEADED PIN AND HAIR PIN
- 2. LOCKING MECHANISM
- 3. SPRING
- 4. WASHER
- 5. WING PLATE



## REMOVING FROM STORAGE

It is recommended that caution be used when starting an engine that has been in storage.

1. Open the fuel tank shutoff valve. Open the separator filter drain valve and remove contaminated fuel. Close the drain valve.
2. Check that the grade of oil in the engine crankcase is as specified in this manual.
3. Remove the plugs from the engine breather tube and the exhaust pipe.

4. Check the coolant level in the radiator.
5. Check that the batteries are fully charged. Connect the ground cables and tighten all terminals. Wash your hands after handling battery components.
6. Check brake linkages.
7. Check to make sure the feeder conveyor slip clutch will function properly.



**WARNING:** Check the machine for leaks or any parts that are broken, not working correctly, or not there at all. Before you start the machine, tighten all caps, dipsticks, battery covers, etc.

M104A



**WARNING:** Before starting the engine, be sure all operating controls are in neutral. This will eliminate accidental movement of the machine or start up of power driven equipment.

M106E



**WARNING:** Never operate the engine in a closed building. Proper ventilation is required under all circumstances.

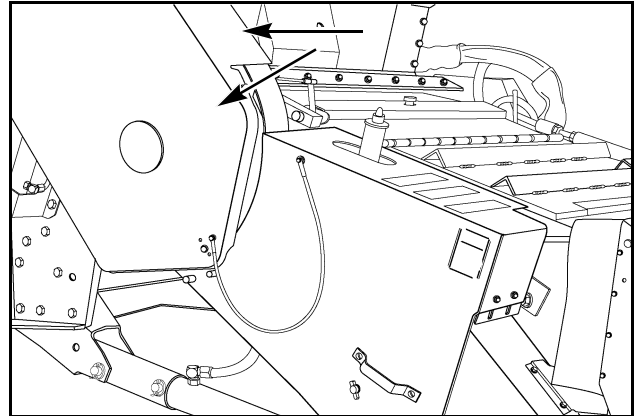
M142A

8. DO NOT accelerate the engine rapidly or operate at high RPM immediately after starting.
9. Check the tension on the drive belts.
10. Inflate the tires to the correct operating pressures.
11. Close the elevator doors and the grain tank unloader door. Make sure the grain tank, tailings auger trough and clean grain auger trough clean out slots are closed.
12. Make sure that all shields are in proper position.

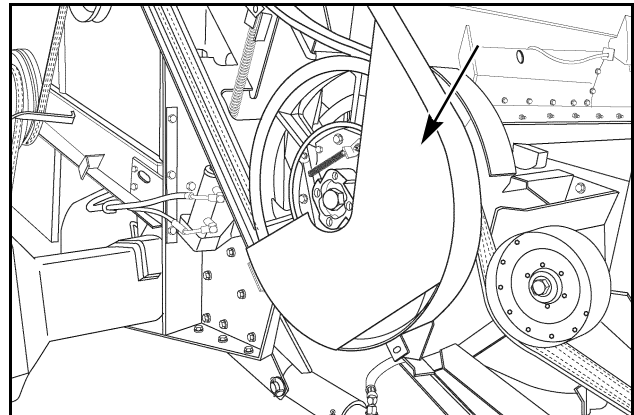
## Feeder Conveyor Slip Clutch

Check the feeder conveyor slip clutch yearly to make sure the clutch functions properly after a period of storage.

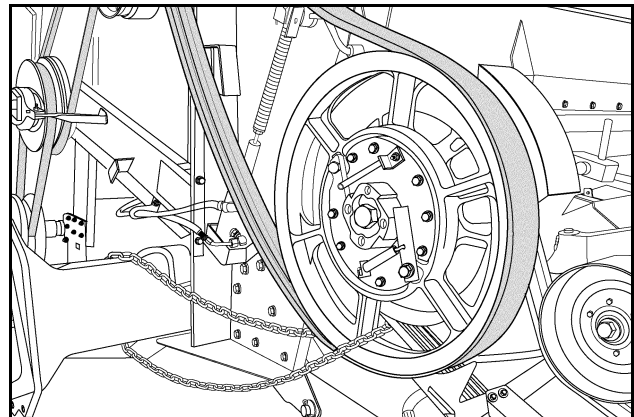
1. Remove the shields that cover the feeder jackshaft drive belt.



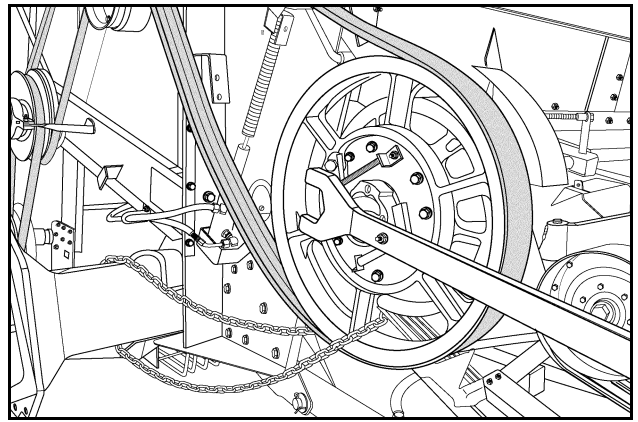
2. Remove the belt trap shield.



3. Install a chain through the pulley and around the front drive axle.

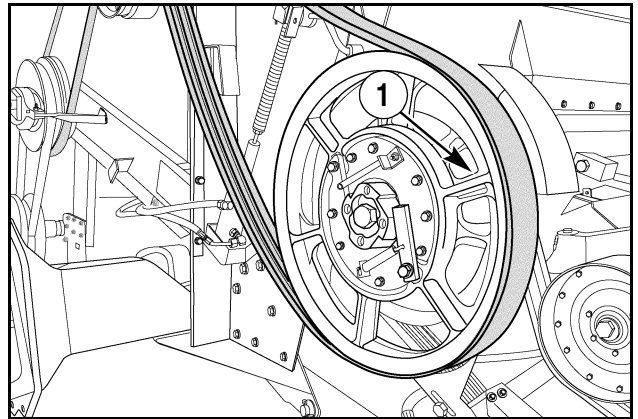


4. Use the rotor wrench to turn the feeder pivot shaft counterclockwise. The clutch must slip when a force of 610 to 746 Nm (450 to 550 pound foot) is applied to Combines without a rock trap and when a force of 764 to 881 Nm (550 to 650 pound foot) is applied to Combines with a rock trap. This will require a force of 756 to 890 N (170 to 200 pounds) for Combines without a rock trap and a force of 890 to 1068 N (200 to 240 pounds) for Combines with a rock trap to be applied to the rotor wrench.



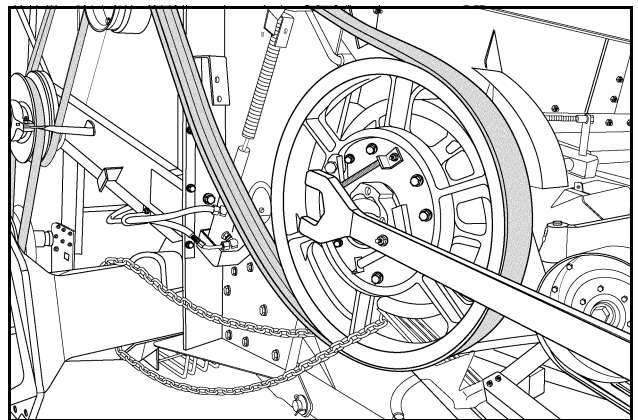
RD01H219

5. Check the length of the compression springs (1) if the clutch will not slip or the force required to slip the clutch is more than the specified value. The compressed spring length must be 55 mm (2.2 inches). Loosen the bolts to adjust the springs to this length if the spring length is less than the specified length. Check the force required to slip the clutch.



RD01H217

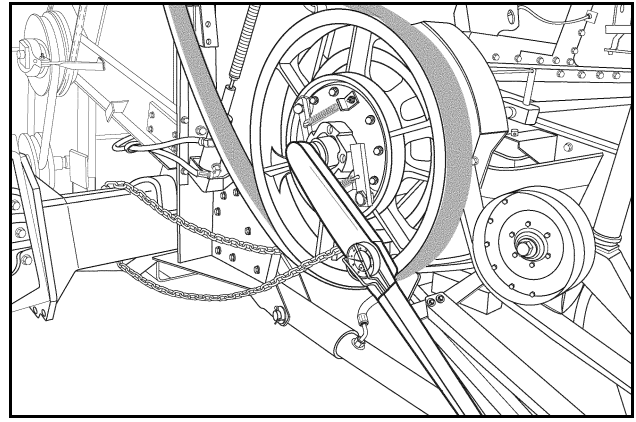
6. Loosen the bolts on the springs if the force required to slip the clutch is still more than the specified value. Turn the feeder pivot shaft two or three complete turns to make sure the clutch surfaces are clean.



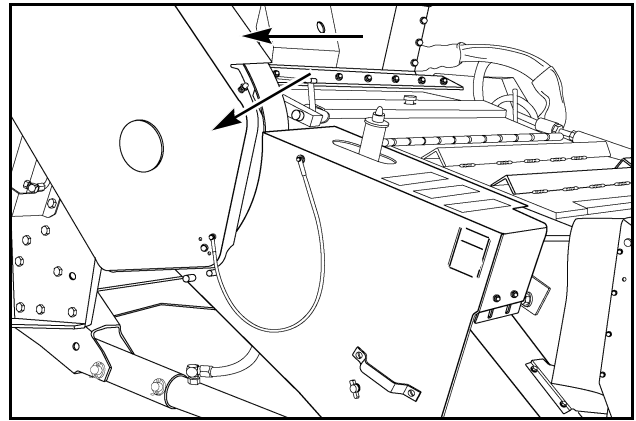
RD01H219

## 11 - STORAGE

7. Adjust the compression springs to the specified length and use a torque wrench to measure the force required to slip the clutch. If the force required is larger than the specified values the clutch will need to be disassembled and the surfaces of the clutch cleaned. See your dealer.



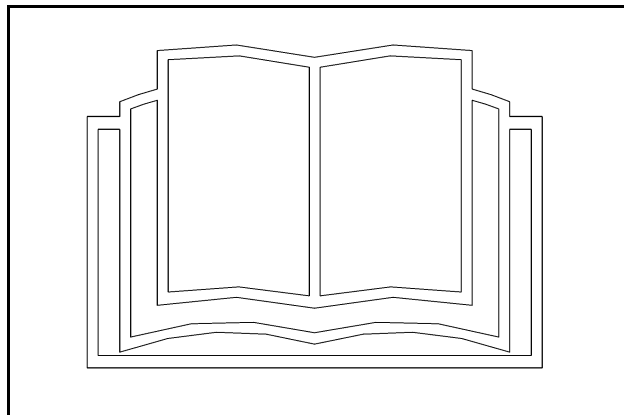
8. Remove the chain and install the belt trap and the shields.



## INFORMATIONAL DECALS

### Decals With “Read Operator’s Manual” Symbol

Decals which display the “Read Operator’s Manual” symbol are intended to direct the operator to the Operator’s Manual for further information regarding maintenance, adjustments and/or procedures for particular areas of the Combine. When a decal displays this symbol refer to the appropriate page of the Operator’s Manual as given below.



782L95

DECAL LOCATION	DESCRIPTION	PAGE
1. Operator’s Manual Pouch	Manual Storage	2
2. Cab Back Wall	Do Not Block Cab Recirculation Air Filter	59
3. Cab Headliner	Hazard Warning Park Brake Disable	11, 55
4. Cab Headliner	Upper Relay Identification	417
5. Cab Lower Fuse Box	Lower Fuse and Relay Identification	418
6. Operator’s Ladder	Upper and Lower Control	142
7. Lubrication Decals		
Left Side	10 to 100 Hour Intervals	267, 285
Right Side	10 to 100 Hour Intervals	270, 286
Top	10 to 100 Hour Intervals	264, 284
Rear Axle	10 to 100 Hour Intervals	275, 288

## 12 - INFORMATIONAL DECALS

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<b>DECAL LOCATION</b>	<b>DESCRIPTION</b>	<b>PAGE</b>
8. Hydraulic Reservoir	Hydraulic Fluid Level, Checking and Filling	319
9. Final Drive Assembly, Front Wheel	Drive Wheel Bolt Torque	241
10. Steering Axle Wheel Hub	Bolt Torque - Standard Axle Bolt Torque - Heavy Duty Axle Bolt Torque - Power Guide Axle	244
11. Feeder, Right Side	Adjustment of Feeder Conveyor Front Drum - With Stone Retarder Conveyor Front Drum - Without Stone Retarder	162
12. Grain Elevator Head (Top Back Side)	Elevator Conveyor Adjustment and Drive Chain Routing Horizontal Delivery Inclined Delivery	391
13. Straw Chopper Drive (Right Side, If Equipped)	Chopper Speed and Chopper Concave Adjustment	221

**DIESEL ENGINE**

Model - AXIAL-FLOW® 2577 .....	6TAA-8304
Type - AXIAL-FLOW® 2577 .... Six Cylinder, Four Stroke Cycle, Turbocharged, Intercooled, Valve in Cylinder Head	
Model - AXIAL-FLOW® 2588 .....	6TAA-8304
Type - AXIAL-FLOW® 2588 .... Six Cylinder, Four Stroke Cycle, Turbocharged, Intercooled, Valve in Cylinder Head	
Firing Order .....	1-5-3-6-2-4
Bore .....	114 mm
Stroke .....	135 mm
Piston Displacement.....	8.3 Liter
Compression Ratio - AXIAL-FLOW® 2577 .....	17.0 to 1
Compression Ratio - AXIAL-FLOW® 2588 .....	17.5 to 1
Cylinder Sleeves.....	Wet Type, Can be Removed
Governor Engine Speed without Load - Separator OFF.....	2470 to 2510 RPM
Governor Engine Speed without Load - Separator ON .....	2410 RPM
Recommended Harvest Speed .....	Above 2340 RPM
Engine Idle Speed .....	1000 to 1200 RPM
Rated Power - AXIAL-FLOW® 2577 Combine .....	265 HP + 25 Rise
Rated Power - AXIAL-FLOW® 2588 Combine .....	305 HP + 20 Rise

**Engine Lubrication System**

Oil Pressure.....	296 to 372 kPa (43 to 54 PSI) with Engine Warm and Operating at Rated Speed
Type System .....	Pressure and Spray

**Fuel System**

Fuel Injectors .....	17 mm
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**Air Intake System**

Type .....	Dry Type Air Induction System, Two Stage
------------	--

## POWER TRAIN

### Transmission

Type ..... Three Speed Range Hydrostatic Drive  
 Gear Selection ..... Three Speed

### Hydrostatic Propulsion System

(Refer to Repair Manual for Proper Test Procedure)

#### Corn and Grain Combines

Pump Type ..... Variable Displacement Axial Piston Pump With Manual Displacement Control  
 Pump Capacity at 2200 Engine RPM ..... 220 to 231 l/min (58 to 61 GPM)  
 Maximum System Pressure ..... 41 369 kPa (6000 PSI)

#### Rice Combines

Pump Type ..... Variable Displacement Axial Piston Pump With Manual Displacement Control  
 and Pressure Override Valve  
 Pump Capacity at 2200 Engine RPM ..... 220 to 231 l/min (58 to 61 GPM)  
 Maximum Continuous System Pressure ..... 41 369 kPa (6000 PSI)  
 Maximum Peak System Pressure (1 to 2 Seconds) ..... 44 816 kPa (6500 PSI)

### Auxiliary Hydraulic System

(Refer to Repair Manual for Proper Test Procedure)

Pump Type ..... Piston Pump/Gear Pump Combination  
 Header Lift/Steering Pump Capacity at 2400 Engine RPM (Piston Pump) ..... 83.3 l/min (22.0 GPM Minimum)  
 Maximum Header Lift System Pressure ..... 20 700 kPa (3000 PSI) [207 bars]  
 Minimum Steering Relief Pressure ..... 15 860 kPa (2300 PSI) [158.6 bars]  
 Reel Drive Minimum/Maximum Flow at Coupling at 2400 Engine RPM ..... 41.6 l/min (11.0 GPM)  
 Maximum Reel Drive System Pressure ..... 15 200 kPa (2200 PSI) [152.0 bars]

### Foot Brakes

Hydraulically Operated Power Brakes ..... 229 mm (12 Plates 9 Inch)  
 Wet Disc Type / Utilizes the Normal Hydraulic Fluid  
 from the Main Hydraulic System at 1240 kPa (180 PSI) [12.4 bars]



## GENERAL MACHINE

**NOTE:** Specifications are based on 2410 RPM at High Idle.

### Feeder

Type .....	Under Shot Slatted Conveyor
Width .....	1 162 mm (45-3/4 Inches)
Length- With Rock Trap .....	1 384 mm (54-1/2 Inches)
- Without Rock Trap .....	1 524 mm (60 Inches)
Pivot Shaft Speed .....	411 RPM
Conveyor Chain Speed .....	2.52 m/s (497 ft./min)
Feeder Jackshaft Speed .....	518 RPM

### Rotor

Diameter .....	762 mm (30 Inches)
Length .....	2 794 mm (110 Inches)
Speeds - Three Speed Gear Case	
Lo-Range .....	250 to 425 RPM
Mid - Range .....	400 to 740 RPM
Hi-Range .....	660 to 1150 RPM

### Rotor Cage

Diameter .....	864 mm (34 Inches)
Length .....	2 059 mm (81-1/8 Inches)
Rotor Cage Separating Area .....	0.802 m <sup>2</sup> (1243 Inch <sup>2</sup> )
Rotor Grate Area .....	0.897 m <sup>2</sup> (1390 Inch <sup>2</sup> )
Total Separating Area (Separator Cage and Rotor Grate) .....	1.699 m <sup>2</sup> (2633 Inch <sup>2</sup> )

### Concave

Type .....	3 Sections - Bar and Wire
Wire Size	
- Grain Combine .....	3/16 Inch Diameter at 0.42 Inches Spacing (4.8 at 10.7 mm)
- Corn and Rice Combines .....	1/4 Inch Diameter at 0.83 Inches Spacing (6.4 at 21.1 mm)
Concave Area .....	1.144 m <sup>2</sup> (1773 Inch <sup>2</sup> )
Total Threshing and Separating Are (Total Rotor Cage Separating Area, Concave Grate Area and Rotor Grate Area) .....	2.780 m <sup>2</sup> (4307 Inch <sup>2</sup> )

### Discharge Beater

Type .....	3 Blade Triangular
Speed .....	765 RPM

### Auger Bed

Number of Augers .....	5
Speed .....	267 RPM
Direction of Rotation .....	4 Augers - Clockwise 1 Auger - Counterclockwise

### Cleaning Fan

Type .....	Cross-Flow®
Minimum Speed.....	450 RPM
Maximum Speed.....	1200 to 1300 RPM

### Chaffer Sieve

Type .....	Adjustable
Spacing	
- Grain and Rice Combines .....	28.4 mm (1-1/8 Inches)
- Corn Combine.....	41.1 mm (1-5/8 Inches)
Center Section.....	Adjusted Externally

### Shoe Sieve

Type .....	Externally Adjustable
------------	-----------------------

### Cleaning Area

Chaffer.....	2.684 m <sup>2</sup> (4160 Inch <sup>2</sup> )
Shoe .....	2.331 m <sup>2</sup> (3613 Inch <sup>2</sup> )
Pneumatic.....	0.112 m <sup>2</sup> (174 Inch <sup>2</sup> )
Total .....	5.127 m <sup>2</sup> (7947 Inch <sup>2</sup> )

### Elevators

Type .....	Roller Chain with Rubber Flights
Speed	
- Tailings Drive Shaft .....	491 RPM
- Tailings Conveyor Chain .....	2.35 m/s (463 ft./min)
- Clean Grain Drive Shaft (Normal Speed).....	415 RPM
- Clean Grain Drive Shaft (High Speed).....	488 RPM
- Clean Grain Conveyor Chain (Normal Speed).....	2.6 m/s (507 ft./min)
- Clean Grain Conveyor Chain (High Speed) .....	3.0 m/s (596 ft./min)

### Grain Delivery Auger

Diameter .....	250 mm (9-27/32 Inches)
Speed .....	456 RPM

**Tailings Auger Trough**

Diameter ..... 127 mm (5 Inches)  
 Auger Speed ..... 491 RPM

**Tailings Delivery Auger**

Diameter ..... 127 mm (5 Inches)  
 Speed ..... 491 RPM

**Grain Tank**

Capacity - AXIAL-FLOW® 2577 ..... 230 Bushels  
 Capacity - AXIAL-FLOW® 2588 ..... 290 Bushels

**Grain Tank Unloader**

Unloader Tube Auger Speed ..... 596 RPM  
 Unloading Rate ..... 2.4 Bushels/Second

**Straw Spreader**

Rotors ..... Two 3Bat  
 Two Speeds ..... 339 RPM (at High Idle)

**Straw Chopper (If Equipped)**

Rotor Diameter ..... 419 mm (16.5 Inches)  
 Number of Rotor Blades ..... 28  
 Number of Concave Blades ..... 13  
 Speed of Rotor  
 - High ..... 2780 RPM  
 - Low ..... 697 RPM

**Rotary Air Screen**

Speed  
 Metal with Power Clean Vacuum System ..... 70 RPM  
 Plastic ..... 230 RPM

## APPROXIMATE TRAVEL SPEEDS

### Grain/Corn Combine

#### Standard Transmission with 37/35 Change Gears

HYDROSTATIC DRIVE MOTOR RANGE	SINGLE SPEED OR TWO SPEED			TWO SPEED		
	LO			HI		
GEAR	FIRST	SECOND	THIRD	FIRST	SECOND	THIRD *
TIRE SIZE	mph (km/h)	mph (km/h)	mph (km/h)	mph (km/h)	mph (km/h)	mph (km/h)
30.5L-32 R1	4.03 (6.48)	7.34 (11.81)	19.23 (30.94)	4.89 (7.86)	8.90 (14.31)	19.23 (30.94)
30.5L-32 R2	4.16 (6.70)	7.58 (12.20)	19.86 (31.96)	5.05 (8.12)	9.19 (14.79)	19.86 (31.96)
800/65-R32 R1W	3.83 (6.17)	6.99 (11.24)	18.71 (30.10)	4.82 (7.75)	8.77 (14.12)	18.71 (30.10)
20.8-38 R1 Dual	4.10 (6.59)	7.46 (12.00)	19.55 (31.45)	4.97 (7.99)	9.05 (14.55)	19.55 (31.45)

\* An electrical lockout prevents the hydrostatic motor from shifting to HI range when Combine is operated in third gear.

**NOTE:** *Speeds in reverse are 63 percent of speeds shown above in each gear.*

## Rice Combine (Standard), Grain/Corn Combine (Optional)

### Transmission with 34/38 Change Gears -

#### Power Guide Axle NOT Engaged

HYDROSTATIC DRIVE MOTOR	SINGLE SPEED OR TWO SPEED			TWO SPEED		
	LO			HI		
RANGE						
GEAR	1st	2nd	3rd	1st	2nd	3rd*
TIRE SIZE	mph (km/h)	mph (km/h)	mph (km/h)	mph (km/h)	mph (km/h)	mph (km/h)
30.5L-32 R1	3.41 (5.49)	6.21 (9.99)	16.27 (26.18)	4.13 (6.65)	7.53 (12.11)	16.27 (26.18)
30.5L-32 R2	3.52 (5.67)	6.42 (10.32)	16.81 (27.05)	4.27 (6.87)	7.78 (12.52)	16.81 (27.05)
800/65-R32 R1W	3.25 (5.22)	5.91 (9.51)	15.83 (25.48)	3.94 (6.34)	7.15 (11.54)	15.83 (25.48)
76 x 50.00-32 HF3	3.73 (5.99)	6.79 (10.92)	18.18 (29.22)	4.52 (7.27)	8.24 (13.24)	18.18 (29.22)
900/65 R32 R2	3.60 (5.78)	6.55 (10.54)	17.54 (28.2)	4.37 (7.03)	7.92 (12.79)	17.54 (28.23)
20.8-38 R2 Dual	3.59 (5.77)	6.53 (10.51)	17.11 (27.53)	4.35 (7.00)	7.92 (12.74)	17.11 (27.53)
18.4R-42 R1 Dual	3.47 (5.58)	6.32 (10.17)	16.93 (27.25)	4.21 (6.77)	7.67 (12.34)	16.93 (27.25)
20.8R42 R1 Dual	3.74 (6.01)	6.80 (10.95)	17.83 (28.69)	4.53 (7.29)	8.25 (13.27)	17.83 (28.69)
900/60 R32 R1	3.60 (5.78)	6.55 (10.54)	17.54 (28.2)	4.37 (7.03)	7.92 (12.79)	17.54 (28.23)
900/60 R32 R1W	3.60 (5.78)	6.55 (10.54)	17.54 (28.2)	4.37 (7.03)	7.92 (12.79)	17.54 (28.23)

**NOTE:** Speeds in reverse are 63 percent of speeds shown on previous page in each gear.

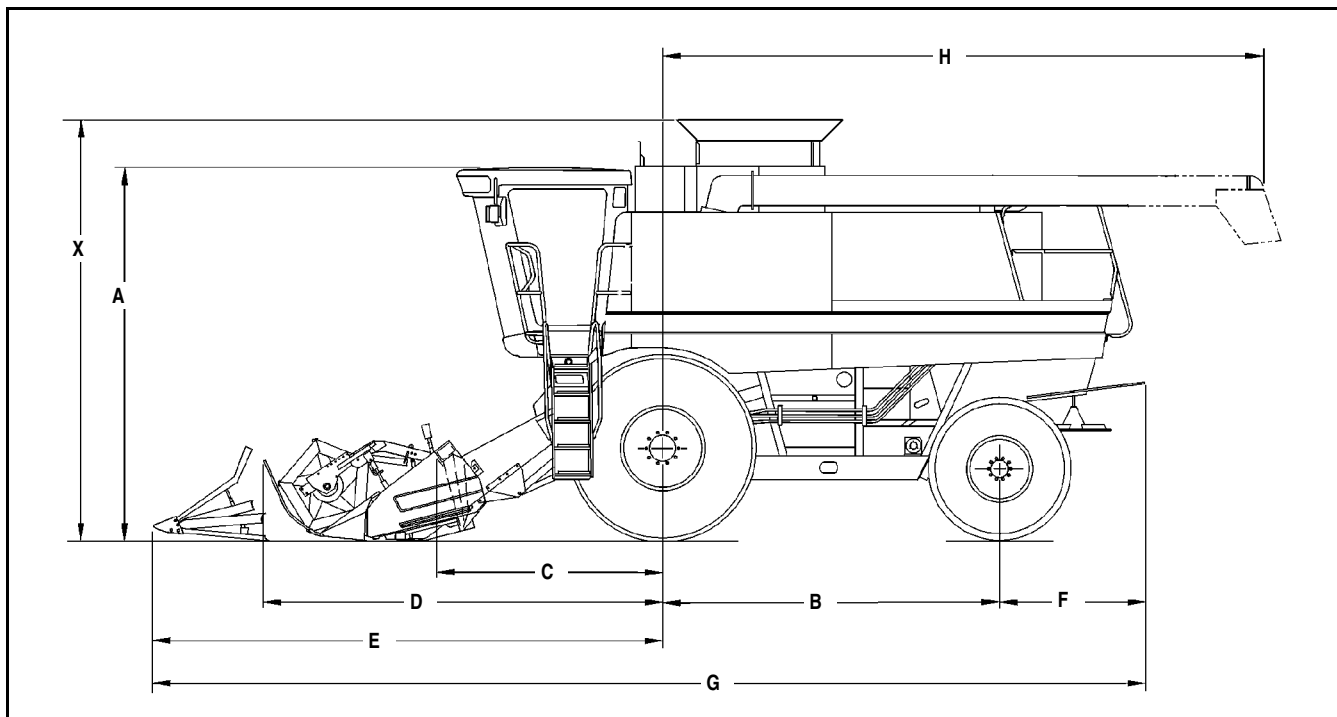
**NOTE:** Travel speeds with Power Guide Axle engaged will be approximately 84 percent of speed shown on previous page in each gear.



**WARNING:** To avoid component failure do not overload, overspeed or alter the strength of any part of the Combine. Avoid modifications which would: Increase engine power above that specified; Increase component speed or load above that specified; Increase grain tank capacity above maximum specified; Overload tires by using headers greater than recommended; Overload structure or drive components through use of unauthorized attachments or alterations. Do not exceed recommended corn head or header size.

M320A

## APPROXIMATE OVERALL MEASUREMENTS

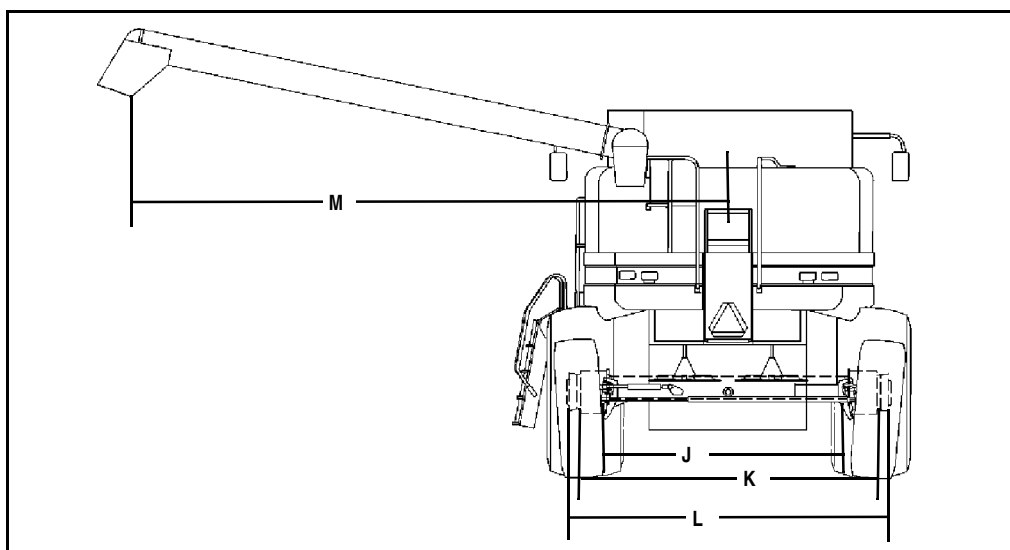


RH06F284

A. See Chart (Next Page)	E. 5117 mm (201.5 Inch) without Rock Trap, with Field Tracker®
B. 3587 mm (141.2 Inch)	E. 5066 mm (199.4 Inch) without Rock Trap, without Field Tracker®
C. 2249 mm (88.5 Inch) without Rock Trap, with Field Tracker®	E. 5213 mm (205.2 Inch) with Rock Trap, with Field Tracker®
C. 2198 mm (86.5 Inch) without Rock Trap, without Field Tracker®	E. 5162 mm (203.2 Inch) with Rock Trap, without Field Tracker
C. 2345 mm (92.3 Inch) with Rock Trap, with Field Tracker®	F. 1314 mm (51.7 Inch)
C. 2294 mm (90.3 Inch) with Rock Trap, without Field Tracker®	G. 9950 mm (391.7 Inch) without Rock Trap, with Field Tracker®
D. 3929 mm (154.7 Inch) without Rock Trap, with Field Tracker®	G. 9899 mm (389.7 Inch) without Rock Trap, without Field Tracker®
D. 3878 mm (152.7 Inch) without Rock Trap, without Field Tracker®	G. 10 046 mm (395.5 Inch) with Rock Trap, with Field Tracker®
D. 4025 mm (158.5 Inch) with Rock Trap, with Field Tracker®	G. 9995 mm (393.5 Inch) with Rock Trap, without Field Tracker®
D. 3974 mm (156.5 Inch) with Rock Trap, without Field Tracker®	H. 6242 mm (245.7 Inch) - for 5.5 m Unloader H. 7136 mm (280.9 Inch) - Optional 6.4 m Unloader
	X. See Maximum Height Note on Next Two Pages

**NOTE:** These dimensions are with the feeder lowered.

### 13 - SPECIFICATIONS



RH04E103

J. 2550 mm (100.4 Inch)	M. 6495 mm (255.7 Inch) - For 5.5 m Unloader M.7409 mm (291.7 Inch) - Optional 6.4 m Unloader
K. 3188 mm (125.5 Inch)	
L. 3243 mm (127.7 Inch)	

	TIRE SIZE	AXLE CLEARANCE POSITION			
		LOW		HIGH	
		Inch	(mm)	Inch	(mm)
<b>A</b>	20.8-38 R1 Dual	159.5	(4051)	163.0	(4140)
	18.4-R42 R1 Dual	159.6	(4054)	163.1	(4142)
	20.8-R42 R1 Dual	160.9	(4086)	164.3	(4173)
	30.5L-32 R1	158.7	(4032)	162.2	(4120)
	30.5L-32 R2	159.9	(4062)	163.3	(4149)
	800/65R32 R1W	158.4	(4023)	161.9	(4111)
	900/65 R32 R2			166.1	(4219)
	76 X 50.00-32 HF3	163.0	4140.2	165.2	(4196)

**NOTE:** These dimensions are with the feeder lowered.

**NOTE:** Maximum height - **Dimension "X"** - to the top of the grain extension, will be 17.0 inch (432 mm) higher than the **Dimension "A"** listed in the chart above with Combine NOT equipped with Advanced Farming System (AFS) Antenna.

**NOTE:** Maximum height - **Dimension "X"** - to the top of the grain extension, will be 19.7 inch (500 mm) higher than the **Dimension "A"** listed in the chart above with Combine equipped with Advanced Farming System (AFS) Antenna.

## Steering

Turning Radius.....	108 inch (2743 mm) Tread
To Combine Centerline (Non-Power Guide Axle) .....	244 inch (6198 mm)

## APPROXIMATE SHIPPING WEIGHTS

AXIAL-FLOW® 2577 Combine.....	27 500 pounds (12 500 kg)
AXIAL-FLOW® 2588 Grain/Corn Combine .....	27 500 pounds (12 500 kg)
AXIAL-FLOW® 2588 Rice Combine.....	28 100 pounds (12 772 kg)

**NOTE:** *Weight is based on typical equipped Combine.*



MACHINE SETTING FOR VARIOUS CROPS

CROP \_\_\_\_\_

Date										
MACHINE SETTING										
Rotor Speed										
Rotor Gear Ratio Range										
Concave Indicator										
Concave Type										
Chaffer Setting										
Shoe Setting										
Fan Speed										
Grate Type										
Transport Vane Position										

Crop Moisture \_\_\_\_\_

Yield \_\_\_\_\_

Remarks \_\_\_\_\_

\_\_\_\_\_

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\_\_\_\_\_

MACHINE SETTING FOR VARIOUS CROPS

CROP \_\_\_\_\_

Date										
MACHINE SETTING										
Rotor Speed										
Rotor Gear Ratio Range										
Concave Indicator										
Concave Type										
Chaffer Setting										
Shoe Setting										
Fan Speed										
Grate Type										
Transport Vane Position										

Crop Moisture \_\_\_\_\_

Yield \_\_\_\_\_

Remarks \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

MACHINE SETTING FOR VARIOUS CROPS

CROP \_\_\_\_\_

Date										
MACHINE SETTING										
Rotor Speed										
Rotor Gear Ratio Range										
Concave Indicator										
Concave Type										
Chaffer Setting										
Shoe Setting										
Fan Speed										
Grate Type										
Transport Vane Position										

Crop Moisture \_\_\_\_\_

Yield \_\_\_\_\_

Remarks \_\_\_\_\_

\_\_\_\_\_

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MACHINE SETTING FOR VARIOUS CROPS

CROP \_\_\_\_\_

Date										
MACHINE SETTING										
Rotor Speed										
Rotor Gear Ratio Range										
Concave Indicator										
Concave Type										
Chaffer Setting										
Shoe Setting										
Fan Speed										
Grate Type										
Transport Vane Position										

Crop Moisture \_\_\_\_\_

Yield \_\_\_\_\_

Remarks \_\_\_\_\_

\_\_\_\_\_  
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