



4LZ-9 (C120) Full-Feeder Combine



JOHN DEERE



OPERATOR'S MANUAL

4LZ-9 (C120) Full-Feeder Combine

OMDX14727 ISSUE I8 (ENGLISH)

CALIFORNIA

Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

If this product contains a gasoline engine:



WARNING

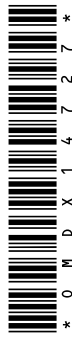
The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

The State of California requires the above two warnings.

Additional Proposition 65 Warnings can be found in this manual.

**John Deere (Jiamusi) Agricultural Machinery Co.,
Ltd**

English version
Printed in U.S.A.



Introduction

Introduction

Dear users, John Deere (Jiamusi) Agricultural Machinery Co., Ltd. sincerely thanks you for the attention and interest in our products. Wish you and your organization prosperity and a successful business.

C120 combine is a medium size and unconventional combine. This machine adopts international advanced CTS technology: Tangential flow threshing cylinder + single axial flow spike tooth separation cylinder structure. Its advantages are better threshing and separation performance as well as lower grain crushing rate. The machine is notable with its new structural design, high-tech and multi-functional characteristics. Once launched in the market, it is well recognized by the users. It primarily harvests rice, but also wheat. Its harvesting performance is at a leading position among other models in the domestic market. Its price performance ratio is higher than the others.

Rear-wheel driving device is an accessory of C120. That is developed by John Deere (Jiamusi) Agricultural Machinery Co., Ltd. to improve the driving performance of C120 in muddy fields. This manual provides information about installation of main components, routine service, troubleshooting, and certain component diagrams as well as parts numbers, and so on. Reading this manual carefully is essential for the proper use of this machine in good conditions and for its satisfactory performance throughout its service life.

C120 ground drive adopts the mechanical drive type. Users can also choose the hydrostatic drive type.

Before using this machine, users should carefully read relevant component diagrams, technical manual, and operating instructions. Installation, operation, commissioning, maintenance, and service should be carried out according to technical requirements, to ensure the proper use of machine, the safety of operators, the avoidance of machine failures, the upkeep of machine service life, as well as the saving of energy and maintenance costs, to maximize economic benefits.

Owing to technological advancement and product development, John Deere (Jiamusi) Agricultural Machinery Co., Ltd. may revise this manual, in later editions, according to the product changes in aspects of technical specifications, structure, accessories, and components, and so on. Users are advised to inform us if there are any errors written in this manual. In addition, this manual has been corrected several times after we have spotted some compiling, printing, and proofreading mistakes. Yet, errors may still be inevitable. If you find any errors in this manual, please notify us, so that we will make corrections in the later editions.

Product performance standard number: Q/JDJ040114

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September 2018

CP00718,0003627-19-05SEP18

Illustrations

Read this manual carefully to learn how to properly use and service the combine. Otherwise, personal injury or machine damage may be resulted.

This **operation manual** should be regarded as part of the combine and be sold together with the machine.

The **units of measurement** in this manual are metric units. Pay attention when using British components, that is, when replacing components, use the correct parts and fasteners. Special imperial or metric wrench may be required for imperial or metric fasteners respectively.

Right and **left** are based on the forward moving direction of the machine.

Record product identification number

Accurately record the product identification number. If the machine is lost, it can be traced. And, the code facilitates purchase of accessories. Place the machine identification number in a relatively safe place away from the machine.

John Deere provides warranty services support to the users, who are required to operate and maintain the machine according to the manual. For the explanation of warranty services, refer to the warranty services certificates of the dealer.

This form of **warranty services** ensures that **John Deere** offers product support within the warranty period. Warranty services become invalid under certain circumstances, for instance, if the machine is not operated according to the requirements stipulated in the manual, or if the machine is modified in a way that its performance does not match the original factory specifications. When fuel delivery exceeds specified value or the engine is overloaded by other means, warranty services become invalid.

4LZ-9 (C120) full-feeder combine primarily harvests rice, but also wheat. To harvest other crops, consult manufacturer technician.

Harvesting **different crops** must use the corresponding components of the company. Otherwise, the performance of the machine decreases. And, any machine failure or component damage will **not be covered by warranty services**.

Change to any products will not be notified if the products have been sold.

CP00718,0003628-19-30OCT17

General View



YC12627—UN—29AUG18
CP00606,0001995-19-29AUG18

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Safety Instructions and Safety Signs

Recognize Safety Information



T81389—UN—28JUN13

This is a safety-alert symbol. When you see this symbol on your machine or in this manual, be alert to the potential for personal injury.

Follow recommended precautions and safe operating practices.

DX,ALERT-19-29SEP98

Understand Signal Words



▲ WARNING

▲ CAUTION

TS187—19—30SEP88

DANGER; The signal word DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

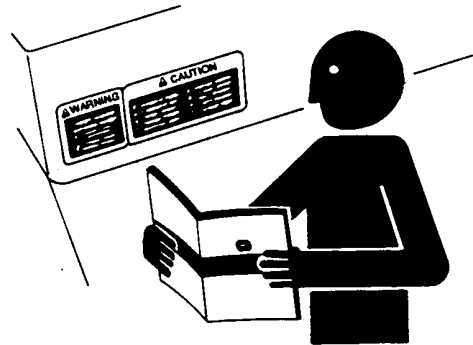
WARNING; The signal word WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION; The signal word CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury. CAUTION may also be used to alert against unsafe practices associated with events which could lead to personal injury.

A signal word—DANGER, WARNING, or CAUTION—is used with the safety-alert symbol. DANGER identifies the most serious hazards. DANGER or WARNING safety signs are located near specific hazards. General precautions are listed on CAUTION safety signs. CAUTION also calls attention to safety messages in this manual.

DX,SIGNAL-19-05OCT16

Follow Safety Instructions



TS201—UN—15APR13

Carefully read all safety messages in this manual and on your machine safety signs. Keep safety signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from your John Deere dealer.

There can be additional safety information contained on parts and components sourced from suppliers that is not reproduced in this operator's manual.

Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.

Keep your machine in proper working condition. Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.

If you do not understand any part of this manual and need assistance, contact your John Deere dealer.

DX,READ-19-16JUN09

Use Proper Tools



TS779—UN—08NOV89

Use tools appropriate to the work. Makeshift tools and procedures can create safety hazards.

Use power tools only to loosen threaded parts and fasteners.

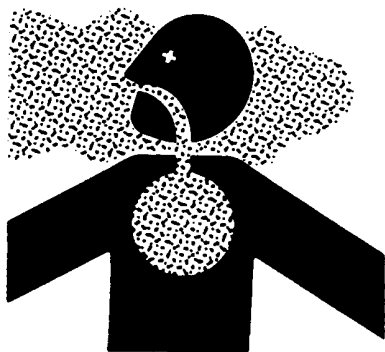
For loosening and tightening hardware, use the correct size tools. DO NOT use U.S. measurement tools on

metric fasteners. Avoid bodily injury caused by slipping wrenches.

Use only service parts meeting John Deere specifications.

DX,REPAIR-19-17FEB99

Handle Agricultural Chemicals Safely



TS220—UN—15APR13



A34471

A34471—UN—11OCT88

Chemicals used in agricultural applications such as fungicides, herbicides, insecticides, pesticides, rodenticides, and fertilizers can be harmful to your health or the environment if not used carefully.

Always follow all label directions for effective, safe, and legal use of agricultural chemicals.

Reduce risk of exposure and injury:

- Wear appropriate personal protective equipment as recommended by the manufacturer. In the absence of manufacturer's instructions, follow these general guidelines:
 - Chemicals labeled **'Danger'**: Most toxic. Generally require use of goggles, respirator, gloves, and skin protection.
 - Chemicals labeled **'Warning'**: Less toxic. Generally require use of goggles, gloves, and skin protections.
 - Chemicals labeled **'Caution'**: Least toxic. Generally require use of gloves and skin protection.
- Avoid inhaling vapor, aerosol or dust.

- Always have soap, water, and towel available when working with chemicals. If chemical contacts skin, hands, or face, wash immediately with soap and water. If chemical gets into eyes, flush immediately with water.
- Wash hands and face after using chemicals and before eating, drinking, smoking, or urination.
- Do not smoke or eat while applying chemicals.
- After handling chemicals, always bathe or shower and change clothes. Wash clothing before wearing again.
- Seek medical attention immediately if illness occurs during or shortly after use of chemicals.
- Keep chemicals in original containers. Do not transfer chemicals to unmarked containers or to containers used for food or drink.
- Store chemicals in a secure, locked area away from human or livestock food. Keep children away.
- Always dispose of containers properly. Triple rinse empty containers and puncture or crush containers and dispose of properly.

DX,WW,CHEM01-19-24AUG10

Practice Safe Maintenance



TS218—UN—23AUG88

Understand service procedure before doing work. Keep area clean and dry.

Never lubricate, service, or adjust machine while it is moving. Keep hands, feet, and clothing away from

power-driven parts. Disengage all power and operate controls to relieve pressure. Lower equipment to the ground. Stop the engine. Remove the key. Allow machine to cool.

Securely support any machine elements that must be raised for service work.

Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Remove any buildup of grease, oil, or debris.

On self-propelled equipment, disconnect battery ground cable (-) before making adjustments on electrical systems or welding on machine.

On towed implements, disconnect wiring harnesses from tractor before servicing electrical system components or welding on machine.

Falling while cleaning or working at height can cause serious injury. Use a ladder or platform to easily reach each location. Use sturdy and secure footholds and handholds.

DX,SERV-19-28FEB17

Welding Near Electronic Control Units



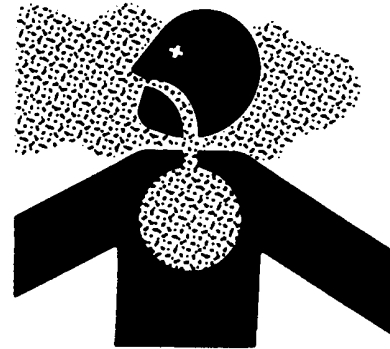
TS953—UN—15MAY90

IMPORTANT: Do not jump-start engines with arc welding equipment. Currents and voltages are too high and may cause permanent damage.

1. Disconnect the negative (-) battery cable(s).
2. Disconnect the positive (+) battery cable(s).
3. Connect the positive and negative cables together. Do not attach to vehicle frame.
4. Clear or move any wiring harness sections away from welding area.
5. Connect welder ground close to welding point and away from control units.
6. After welding, reverse Steps 1—5.

DX,VW,ECU02-19-14AUG09

Remove Paint Before Welding or Heating



TS220—UN—15APR13

Avoid potentially toxic fumes and dust.

Hazardous fumes can be generated when paint is heated by welding, soldering, or using a torch.

Remove paint before heating:

- Remove paint a minimum of 100 mm (4 in.) from area to be affected by heating. If paint cannot be removed, wear an approved respirator before heating or welding.
- If you sand or grind paint, avoid breathing the dust. Wear an approved respirator.
- If you use solvent or paint stripper, remove stripper with soap and water before welding. Remove solvent or paint stripper containers and other flammable material from area. Allow fumes to disperse at least 15 minutes before welding or heating.

Do not use a chlorinated solvent in areas where welding will take place.

Do all work in an area that is well ventilated to carry toxic fumes and dust away.

Dispose of paint and solvent properly.

DX,PAINT-19-24JUL02

Avoid Heating Near Pressurized Fluid Lines



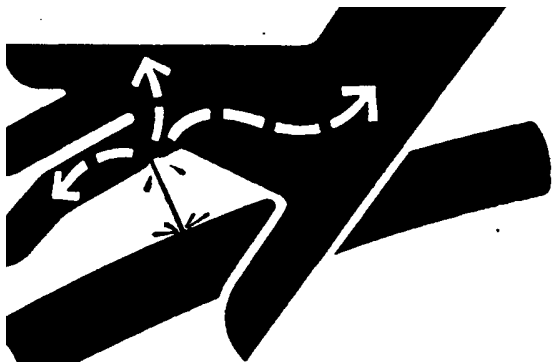
TS953—UN—15MAY90

Flammable spray can be generated by heating near pressurized fluid lines, resulting in severe burns to

yourself and bystanders. Do not heat by welding, soldering, or using a torch near pressurized fluid lines or other flammable materials. Pressurized lines can accidentally burst when heat goes beyond the immediate flame area.

DX,TORCH-19-10DEC04

Avoid High-Pressure Fluids



X9811—UN—23AUG88

Inspect hydraulic hoses periodically – at least once per year – for leakage, kinking, cuts, cracks, abrasion, blisters, corrosion, exposed wire braid or any other signs of wear or damage.

Replace worn or damaged hose assemblies immediately with John Deere approved replacement parts.

Escaping fluid under pressure can penetrate the skin causing serious injury.

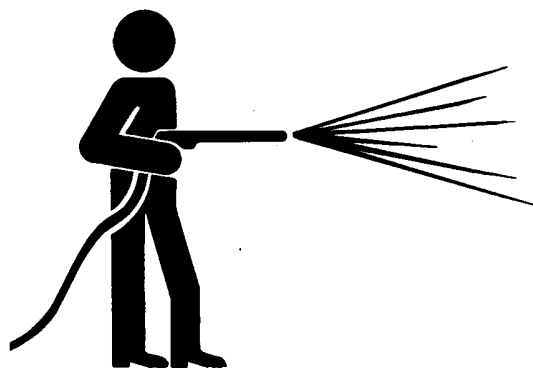
Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.

Search for leaks with a piece of cardboard. Protect hands and body from high-pressure fluids.

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source. Such information is available in English from Deere & Company Medical Department in Moline, Illinois, U.S.A., by calling 1-800-822-8262 or +1 309-748-5636.

DX,FLUID-19-12OCT11

Work in Clean Area



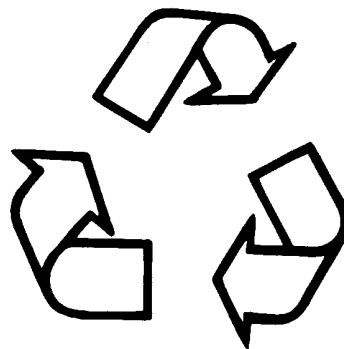
T6642EJ—UN—18OCT88

Before starting a job:

- Clean work area and machine.
- Make sure you have all necessary tools to do your job.
- Have the right parts on hand.
- Read all instructions thoroughly; do not attempt shortcuts.

DX,CLEAN-19-04JUN90

Decommissioning — Proper Recycling and Disposal of Fluids and Components



TS1133—UN—15APR13

Safety and environmental stewardship measures must be taken into account when decommissioning a machine and/or component. These measures include the following:

- Use appropriate tools and personal protective equipment such as clothing, gloves, face shields or glasses, during the removal or handling of objects and materials.
- Follow instructions for specialized components.
- Release stored energy by lowering suspended machine elements, relaxing springs, disconnecting the battery or other electrical power, and releasing pressure in hydraulic components, accumulators, and other similar systems.
- Minimize exposure to components which may have residue from agricultural chemicals, such as

fertilizers and pesticides. Handle and dispose of these components appropriately.

- Carefully drain engines, fuel tanks, radiators, hydraulic cylinders, reservoirs, and lines before recycling components. Use leak-proof containers when draining fluids. Do not use food or beverage containers.
- Do not pour waste fluids onto the ground, down a drain, or into any water source.
- Observe all national, state, and local laws, regulations, or ordinances governing the handling or disposal of waste fluids (example: oil, fuel, coolant, brake fluid); filters; batteries; and, other substances or parts. Burning of flammable fluids or components in other than specially designed incinerators may be prohibited by law and could result in exposure to harmful fumes or ashes.
- Service and dispose of air conditioning systems appropriately. Government regulations may require a certified service center to recover and recycle air conditioning refrigerants which could damage the atmosphere if allowed to escape.
- Evaluate recycling options for tires, metal, plastic, glass, rubber, and electronic components which may be recyclable, in part or completely.
- Contact your local environmental or recycling center, or your John Deere dealer for information on the proper way to recycle or dispose of waste.

DX,DRAIN-19-01JUN15

Avoid Harmful Asbestos Dust



TS220—UN—15APR13

Avoid breathing dust that may be generated when handling components containing asbestos fibers. Inhaled asbestos fibers may cause lung cancer.

Components in products that may contain asbestos fibers are brake pads, brake band and lining assemblies, clutch plates, and some gaskets. The asbestos used in these components is usually found in a resin or sealed in some way. Normal handling is not hazardous as long as airborne dust containing asbestos is not generated.

Avoid creating dust. Never use compressed air for cleaning. Avoid brushing or grinding material containing asbestos. When servicing, wear an approved respirator.

A special vacuum cleaner is recommended to clean asbestos. If not available, apply a mist of oil or water on the material containing asbestos.

Keep bystanders away from the area.

DX,DUST-19-15MAR91

Avoid Hot Exhaust



RG17488—UN—21AUG09

Servicing machine or attachments with engine running can result in serious personal injury. Avoid exposure and skin contact with hot exhaust gases and components.

Exhaust parts and streams become very hot during operation. Exhaust gases and components reach temperatures hot enough to burn people, ignite, or melt common materials.

DX,EXHAUST-19-20AUG09

Handle Starting Fluid Safely



TS1356—UN—18MAR92

Starting fluid is highly flammable.

Keep all sparks and flame away when using it. Keep starting fluid away from batteries and cables.

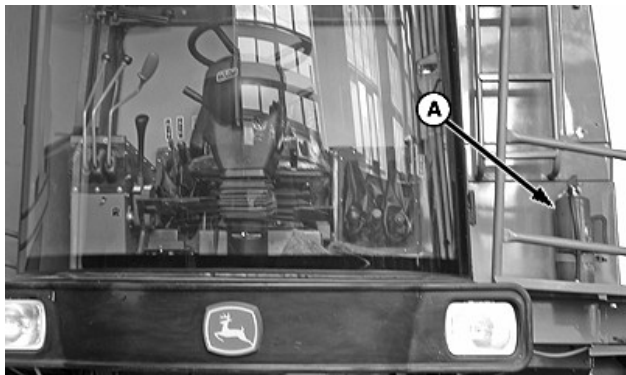
To prevent accidental discharge when storing the pressurized can, keep the cap on the container, and store in a cool, protected location.

Do not incinerate or puncture a starting fluid container.

Do not use starting fluid on an engine equipped with glow plugs or an air intake heater.

DX,FIRE3-19-14MAR14

Use of Fire Extinguisher



YC5020—UN—09JUL13



YC4693—UN—03JUL13

A—Fire Extinguisher

Machine is equipped with the portable dry powder fire extinguisher. Fire extinguisher (A) is on the left side of cab, near the front ladder. Extinguisher must be checked daily to be in place when entering or leaving the cab and when working around the machine. Fire extinguisher must be professionally serviced or replaced after use.

Portable dry powder fire extinguisher is used to put off fire with grease, oil, and chemicals.

Use fire extinguisher:

The diagram shows the recommended method to extinguish a fire. Always aim the nozzle at the base of fire.

Basic steps to use fire extinguisher are as below:

1. Remove fire extinguisher from its holder and take it to the fire scene.
2. Approach the fire in leeward direction of wind.
3. Pull safety pin from top of the fire extinguisher.

4. Hold its handle and keep fire extinguisher upright, and aim the nozzle at the fire base.
5. Squeeze handle to discharge powder from the fire extinguisher.
6. Move nozzle back and forth so that powder covers the flames.

Inspection checklist:

Check fire extinguisher at least once a month to ensure the following:

1. Is fire extinguisher placed at required location near cab ladder?
2. Is there any obstruction to the access to or the visibility of the fire extinguisher?
3. Are the operating instructions visible and facing outward?
4. Is the safety seal broken or missing?
5. Is the fire extinguisher full? (Lift it or weigh it to verify)
6. Is the nozzle damaged, corroded, leaking or clogged?

When inspection of the fire extinguisher reveals any deficiency, fire extinguisher must be serviced or replaced.

NOTE: If there is a fire, operator considers using the fire extinguisher first.

CP00718,00041B0-19-18DEC17

Handle Fluids Safely—Avoid Fires



TS227—UN—15APR13

When you work around fuel, do not smoke or work near heaters or other fire hazards.

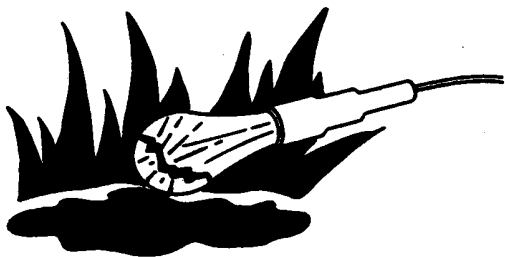
Store flammable fluids away from fire hazards. Do not incinerate or puncture pressurized containers.

Make sure machine is clean of trash, grease, and debris.

Do not store oily rags; they can ignite and burn spontaneously.

DX,FLAME-19-29SEP98

Illuminate Work Area Safely

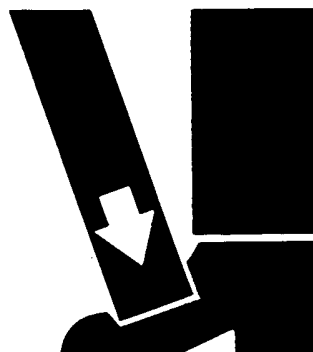


TS223—UN—23AUG88

Illuminate your work area adequately but safely. Use a portable safety light for working inside or under the machine. Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.

DX,LIGHT-19-04JUN90

Use Proper Lifting Equipment



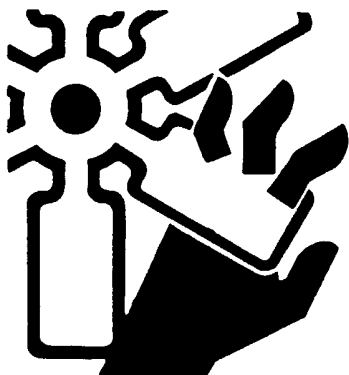
TS226—UN—23AUG88

Lifting heavy components incorrectly can cause severe injury or machine damage.

Follow recommended procedure for removal and installation of components in the manual.

DX,LIFT-19-04JUN90

Install All Guards



TS677—UN—21SEP89

Rotating cooling system fans, belts, pulleys, and drives can cause serious injury.

Keep all guards in place at all times during engine operation.

Wear close-fitting clothes. Stop the engine and be sure fans, belts, pulleys, and drives are stopped before making adjustments, connections, or cleaning near fans and their drive components.

DX,GUARDS-19-18AUG09

Live With Safety

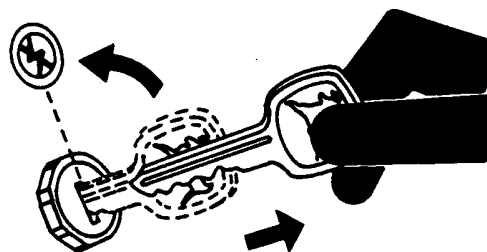


TS231—19—07OCT88

Before returning machine to customer, make sure machine is functioning properly, especially the safety systems. Install all guards and shields.

DX,LIVE-19-25SEP92

Park and Leave the Machine



TS230—UN—24MAY89

Lower header onto ground.

Before leaving machine, disengage header and threshing device. Set multi-function lever to neutral position and stop the machine. Apply park brake. Remove key, and lock the cab.

Never leave machine unattended if engine is running.

Never leave cab while driving.

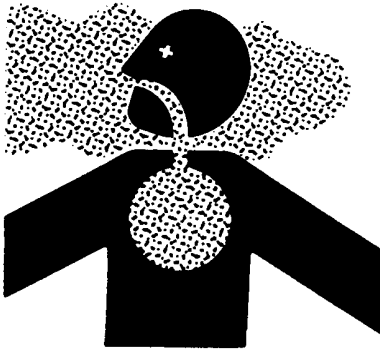
CP00718,00041B1-19-18DEC17

Do not work under a machine that is supported solely by a jack. Follow recommended procedures in this manual.

When implements or attachments are used with a machine, always follow safety precautions listed in the implement or attachment operator's manual.

DX,LOWER-19-24FEB00

Work In Ventilated Area



TS220—UN—15APR13

Engine exhaust fumes can cause sickness or death. If it is necessary to run an engine in an enclosed area, remove the exhaust fumes from the area with an exhaust pipe extension.

If you do not have an exhaust pipe extension, open the doors and get outside air into the area.

DX,AIR-19-17FEB99

Store Attachments Safely



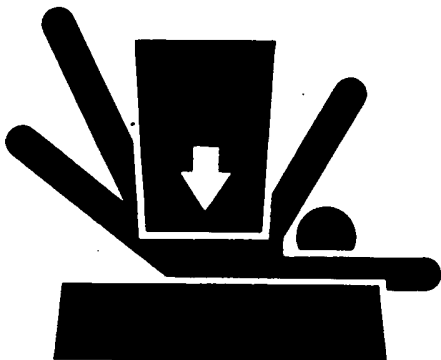
TS219—UN—23AUG88

Stored attachments such as dual wheels, cage wheels, and loaders can fall and cause serious injury or death.

Securely store attachments and implements to prevent falling. Keep playing children and bystanders away from storage area.

DX,STORE-19-03MAR93

Support Machine Properly

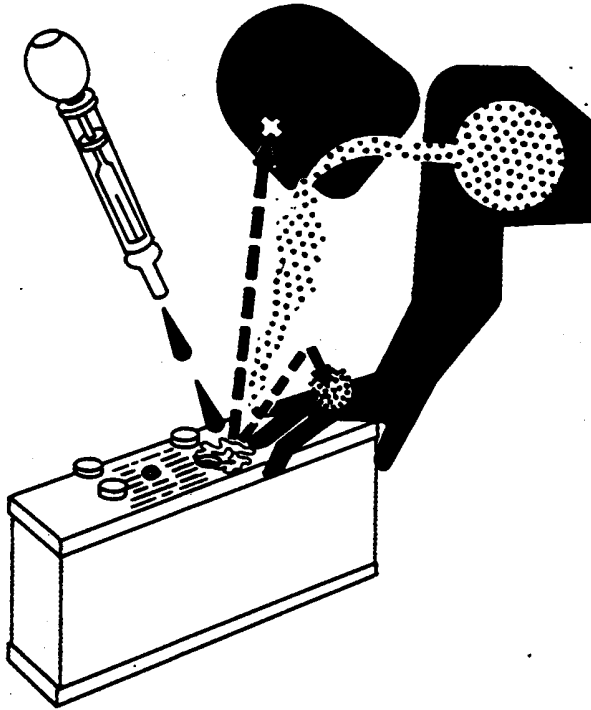


TS229—UN—23AUG88

Always lower the attachment or implement to the ground before you work on the machine. If the work requires that the machine or attachment be lifted, provide secure support for them. If left in a raised position, hydraulically supported devices can settle or leak down.

Do not support the machine on cinder blocks, hollow tiles, or props that may crumble under continuous load.

Prevent Acid Burns



TS203—UN—23AUG88

Sulfuric acid in battery electrolyte is poisonous. It is strong enough to burn skin, eat holes in clothing, and cause blindness if splashed into eyes.

Avoid the hazard by:

1. Filling batteries in a well-ventilated area.
2. Wearing eye protection and rubber gloves.
3. Avoiding breathing fumes when electrolyte is added.
4. Avoiding spilling or dripping electrolyte.
5. Use proper jump start procedure.

If you spill acid on yourself:

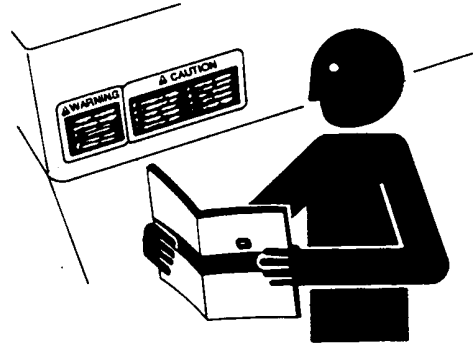
1. Flush your skin with water.
2. Apply baking soda or lime to help neutralize the acid.
3. Flush your eyes with water for 15—30 minutes. Get medical attention immediately.

If acid is swallowed:

1. Do not induce vomiting.
2. Drink large amounts of water or milk, but do not exceed 2 L (2 quarts).
3. Get medical attention immediately.

DX, POISON-19-21APR93

Replace Safety Signs



TS201—UN—15APR13

Replace missing or damaged safety signs. Use this operator's manual for correct safety sign placement.

There can be additional safety information contained on parts and components sourced from suppliers that is not reproduced in this operator's manual.

DX, SIGNS-19-18AUG09

Service Accumulator Systems Safely



TS281—UN—15APR13

Escaping fluid or gas from systems with pressurized accumulators that are used in air conditioning, hydraulic, and air brake systems can cause serious injury. Extreme heat can cause the accumulator to burst, and pressurized lines can be accidentally cut. Do not weld or use a torch near a pressurized accumulator or pressurized line.

Relieve pressure from the pressurized system before removing accumulator.

Relieve pressure from the hydraulic system before removing accumulator. Never attempt to relieve hydraulic system or accumulator pressure by loosening a fitting.

Accumulators cannot be repaired.

DX, WW, ACCL2-19-22AUG03

Do Not Open High-Pressure Fuel System



TS1343—UN—18MAR92

High-pressure fluid remaining in fuel lines can cause serious injury. Do not disconnect or attempt repair of fuel lines, sensors, or any other components between the high-pressure fuel pump and nozzles on engines with High Pressure Common Rail (HPCR) fuel system.

Only technicians familiar with this type of system can perform repairs. (See your John Deere dealer.)

DX,WW,HPCR1-19-07JAN03

Wait Before Opening High-Pressure Fuel System

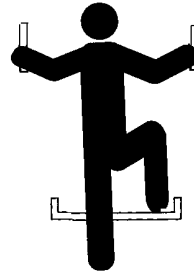


TS1343—UN—18MAR92

High-pressure fluid remaining in fuel lines can cause serious injury. Only technicians familiar with this type of system should perform repairs. Before disconnecting fuel lines, sensors, or any other components between the high-pressure fuel pump and nozzles on engines with High-Pressure Common Rail (HPCR) fuel system, confirm that the fuel pressure is relieved.

DX,WW,HPCR2-19-09SEP14

Use Steps and Handholds Correctly



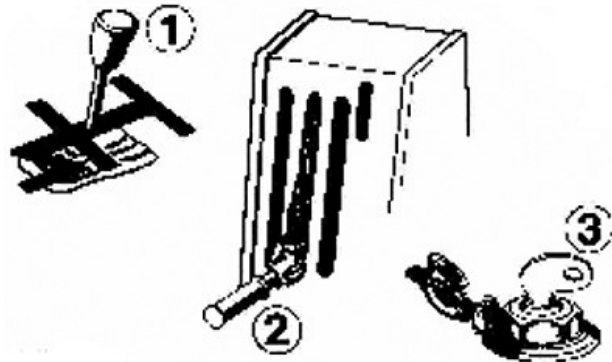
T133468—UN—15APR13

Prevent falls by facing the machine when getting on and off. Maintain 3-point contact with steps, handholds, and handrails.

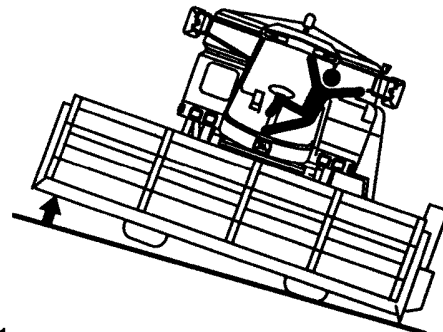
Use extra care when mud, snow, or moisture present slippery conditions. Keep steps clean and free of grease or oil. Never jump when exiting machine. Never mount or dismount a moving machine.

DX,WW,MOUNT-19-12OCT11

Drive Combine



YC1285—UN—29NOV12



ZX002461

ZX002461—UN—16JUN95

Keep all shields and guards in place at all time during operation. Only qualified driver can drive the combine. Before starting the machine, operator is note if there are any bystanders around. Honk the horn and alert them. Be cautious when attaching the header to the machine. Follow instructions in Operator's Manual of header when attaching or detaching it.

Before starting the engine, gear-shift lever is in neutral position and threshing clutch in disengaged position.

Ground speed need match road or field conditions. When driving uphill or downhill, never make sharp turns. Especially if grain tank is full, be careful when making a turn on slope.

When making turns, always consider the width of the attachment and the fact that the rear end of the machine swings out. Attachments and ground conditions affect the driving characteristics of the combine.

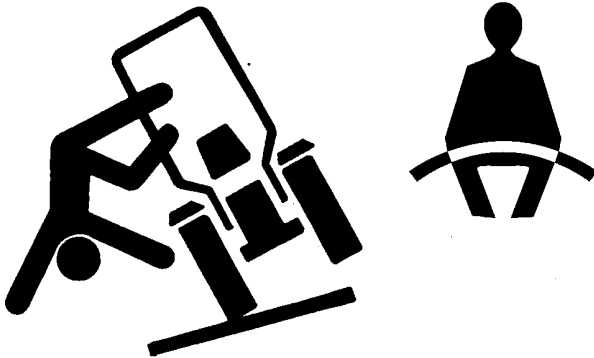
Reduce ground speed while driving on slopes and uneven roads or before making a sharp turn. When driving down a steep slope, use low gear.

Avoid holes, ditches, and obstructions which cause combine to roll over, particularly on slopes.

⚠ CAUTION: Keep hands, feet, and clothing away from power-driven parts. Never run the engine in a closed room.

CP00718,00041B2-19-18DEC17

Use Seat Belt Properly



TS1729—UN—24MAY13

Avoid crushing injury or death during rollover.

This machine is equipped with a rollover protective structure (ROPS). USE a seat belt when you operate with a ROPS.

- Hold the latch and pull the seat belt across the body.
- Insert the latch into the buckle. Listen for a click.
- Tug on the seat belt latch to make sure that the belt is securely fastened.
- Snug the seat belt across the hips.

Replace entire seat belt if mounting hardware, buckle, belt, or retractor show signs of damage.

Inspect seat belt and mounting hardware at least once a year. Look for signs of loose hardware or belt damage, such as cuts, fraying, extreme or unusual wear, discoloration, or abrasion. Replace only with

replacement parts approved for your machine. See your John Deere dealer.

DX,ROPS1-19-22AUG13

Keep Riders and Children off Machine



TS253—UN—23AUG88

Only allow the operator on the machine. Keep riders off the machine except for periods of training or short periods of observation.

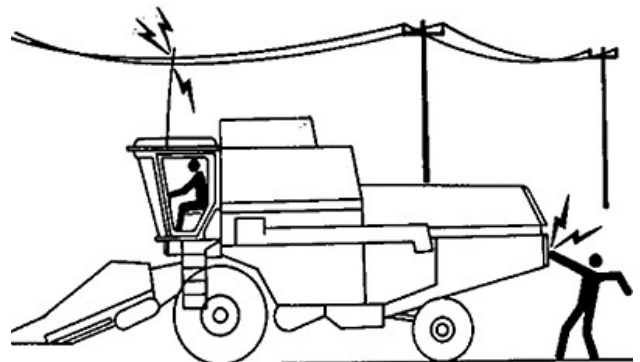
Riders are subject to injury such as being thrown off the machine. Riders also obstruct the operator's view resulting in the machine being operated in an unsafe manner.

Children never be allowed on the machine or in the combine cab when the engine is running.

The instructional seat only is used for instruction or short periods of machine observation, and not for the accommodation of children.

CP00718,00041B3-19-18DEC17

Avoid Electrical Power Lines



YC1287—UN—29NOV12

Put the grain tank unloading auger in transport position and lock it firmly.

When driving through the low-hanging cables in the transport position, ensure that a safe distance is kept

between the highest point of the machine and the cables. Absolutely avoid touching and electric shock.

CP00718,00041B4-19-18DEC17

Handle Fuel Safely—Avoid Fires



TS202—UN—23AUG88

Handle fuel with care: it is highly flammable. Do not refuel the machine while smoking or when near open flame or sparks.

Always stop engine before refueling machine. Fill fuel tank outdoors.

Prevent fires by keeping machine clean of accumulated trash, grease, and debris. Always clean up spilled fuel.

Use only an approved fuel container for transporting flammable liquids.

Never fill fuel container in pickup truck with plastic bed liner. Always place fuel container on ground before refueling. Touch fuel container with fuel dispenser nozzle before removing can lid. Keep fuel dispenser nozzle in contact with fuel container inlet when filling.

Do not store fuel container where there is an open flame, spark, or pilot light such as within a water heater or other appliance.

DX,FIRE1-19-12OCT11

In Case of Fire



TS227—UN—15APR13

CAUTION: Avoid personal injury.

Stop machine immediately at the first sign of fire. Fire may be identified by the smell of smoke or sight of flames. Because fire grows and spreads rapidly, get off the machine immediately and move safely away from the fire. Do not return to the machine! The number one priority is safety.

Call the fire department. A portable fire extinguisher can put out a small fire or contain it until the fire department arrives; but portable extinguishers have limitations. Always put the safety of the operator and bystanders first. If attempting to extinguish a fire, keep your back to the wind with an unobstructed escape path so you can move away quickly if the fire cannot be extinguished.

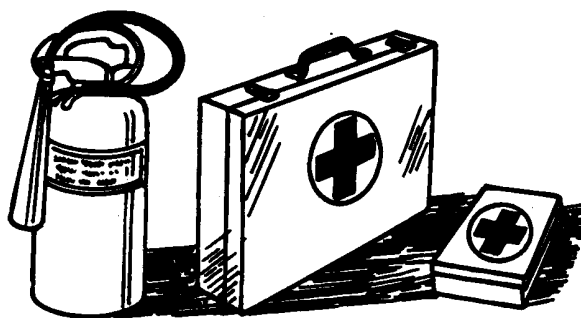
Read the fire extinguisher instructions and become familiar with their location, parts, and operation before a fire starts. Local fire departments or fire equipment distributors may offer fire extinguisher training and recommendations.

If your extinguisher does not have instructions, follow these general guidelines:

1. Pull the pin. Hold the extinguisher with the nozzle pointing away from you, and release the locking mechanism.
2. Aim low. Point the extinguisher at the base of the fire.
3. Squeeze the lever slowly and evenly.
4. Sweep the nozzle from side-to-side.

DX,FIRE4-19-22AUG13

Prepare for Emergencies



TS291—UN—15APR13

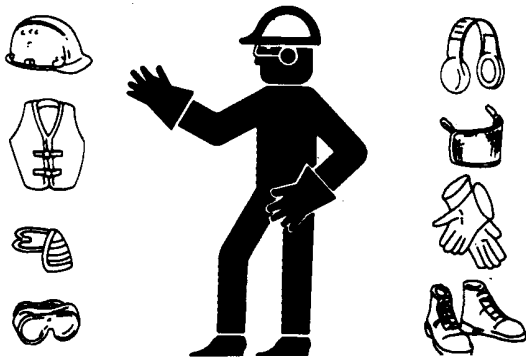
Be prepared if a fire starts.

Keep a first aid kit and fire extinguisher handy.

Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.

DX,FIRE2-19-03MAR93

Wear Protective Clothing



TS206—UN—15APR13

Wear close fitting clothing and safety equipment appropriate to the job.

Prolonged exposure to loud noise can cause impairment or loss of hearing.

Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.

Operating equipment safely requires the full attention of the operator. Do not wear radio or music headphones while operating machine.

DX,WEAR-19-10SEP90

Transport Combine Without Header Safely

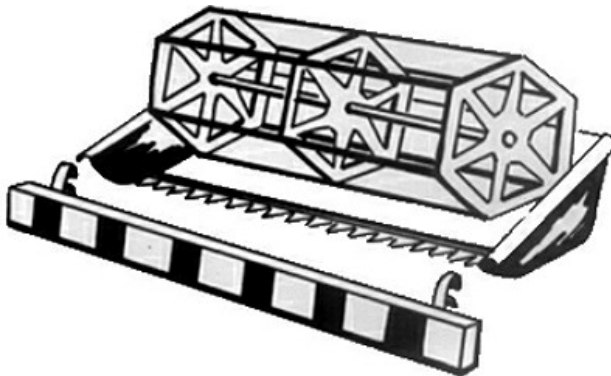


YC1291—UN—29NOV12

In some countries, transporting combine wider than 3 m is not allowed. In this case, the header is dismantled and is transported separately. After getting special permission, the header can be attached to the rear of the combine. But additional lights or other devices be used as alarm signals according to local requirements.

CP00718,00041B6-19-18DEC17

Transport Combine with Header Safely



YC1290—UN—29NOV12

Whenever possible avoid transporting on public roadways with the header attached.

If the combine must be transported with the header attached, make sure that the flashing warning lights on the header are operating and the reflective material is clean and visible.

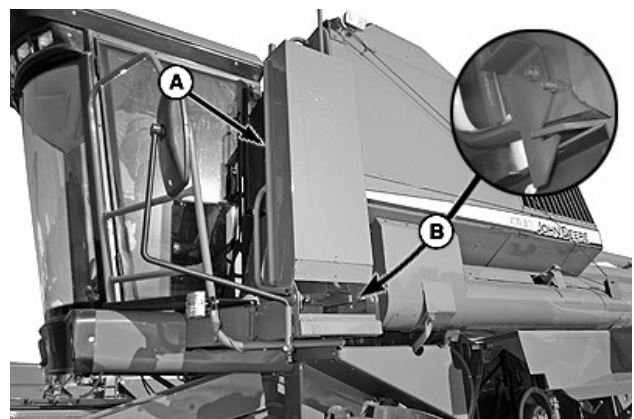
Provided that traffic regulations allow for transportation with header, dismantle the crop divider and put the guard on the blade protection device.

Lift the header before riding on the road, but do not block the sight of the operator. Lock header, see Lock Header Height in Operator's Station section.

CP00718,00041B5-19-18DEC17

Fix Ladder at Transport Position

CAUTION: Always fix the ladder to transport position before transporting on public roadways in order to reduce the machine width.



YC8107—UN—21JAN15

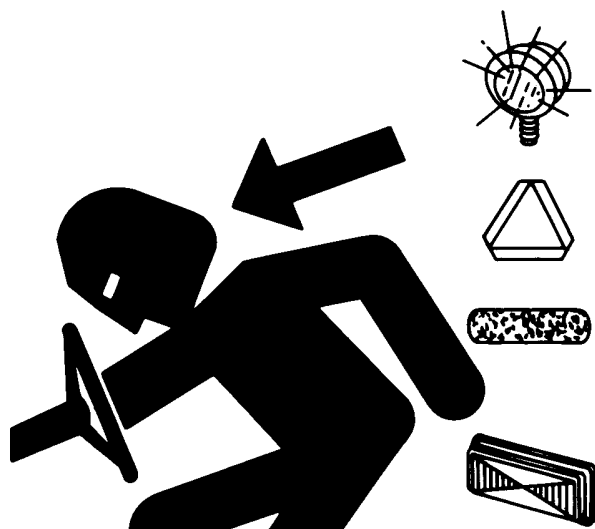
A—Ladder
B—Locking Tab

Fold up the cab ladder (A) to transport position and use the locking tab (B) to fix it.

Pay attention to safety when releasing the ladder.

CP00718,00041B7-19-17AUG18

Use Safety Lights and Devices



TS951—UN—12APR90

Prevent collisions between other road users, slow moving tractors with attachments or towed equipment, and self-propelled machines on public roads. Frequently check for traffic from the rear, especially in turns, and use turn signal lights.

Use headlights, flashing warning lights, and turn signals day and night. Follow local regulations for equipment lighting and marking. Keep lighting and marking visible, clean, and in good working order. Replace or repair lighting and marking that has been damaged or lost. An implement safety lighting kit is available from your John Deere dealer.

DX,FLASH-19-07JUL99

Do Not Get Close to the Header



YC1602—UN—29NOV12

Many moving parts, such as: central auger of the header, reel, cutterbar, cannot be shielded due to their function. When these parts are running, do not get close to them. Before servicing and clearing blockage of the

header, disengage the header engage lever, switch off the engine, set park brake, and remove the key.

CP00718,00041B8-19-18DEC17

Keep Hands Away from Blades



TS254—UN—23AUG88

Never attempt to clear obstructions in the front of or on header. Unless separator is disengaged, park brake is set, engine is shutoff, and key is removed.

Everyone must be clear of machine before starting engine.

CP00718,00041B9-19-18DEC17

General Maintenance



YC1605—UN—29NOV12

Switch off the engine before carrying out lubrication and calibration.

CP00718,00041BA-19-18DEC17

Avoid Contact with Moving Parts



TS256—UN—23AUG88

Keep hands, feet, and clothing away from power-driven parts. Never clean, lubricate, or adjust machine when it is running.

CP00718,00041BB-19-18DEC17

Stay Clear of Rotating Drivelines



TS1644—UN—22AUG95

Entanglement in rotating driveline can cause serious injury or death.

Keep all shields in place at all times. Make sure rotating shields turn freely.

Wear close-fitting clothing. Stop the engine and be sure that all rotating parts and drivelines are stopped before making adjustments, connections, or performing any type of service on engine or machine driven equipment.

DX,ROTATING-19-18AUG09

Cleaning Grain Tank and Removal of Blockages Safely



YC1607—UN—29NOV12

Avoid serious injury or death from entanglement in the grain tank cross augers. For functional purposes, the cross augers cannot be covered. Do not enter the grain tank when the engine is running. Before entering the tank to clean out residual grain, always shutoff the engine, set park brake and remove the key.

If grain bridges and fails to flow into the cross augers, shut off the engine. Remove the key and from a position on the engine compartment door use a rod, broom, or shovel to break the bridge and restore grain flow.

CP00718,00041BC-19-18DEC17

Stay Away from the Chopper



YC1608—UN—29NOV12

There are safety guards around the dangerous moving blades of the chopper. However, when the power is switched off, the blades may continue spinning for a short time. When the blades are still spinning, stay away from the chopper. Disconnect the power, switch off the engine, and remove the key. Wait until the moving parts stop spinning and then carry out maintenance of the chopper.

CP00718,00041BD-19-18DEC17

Prevent Machine Runaway



TS177—UN—11JAN89

Avoid possible injury or death from machinery runaway.

Do not start engine by shorting across starter terminals. Machine will start in gear if normal circuitry is bypassed.

NEVER start engine while standing on ground. Start engine only from operator's seat, with transmission in neutral or park.

DX,BYPAS1-19-29SEP98

Prevent Battery Explosions



TS204—UN—15APR13

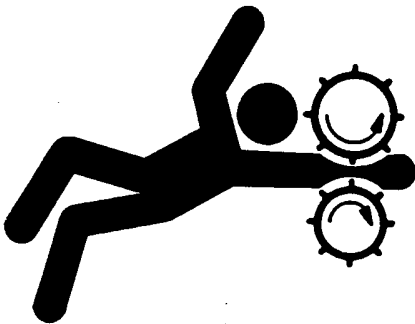
Keep sparks, lighted matches, and open flame away from the top of battery. Battery gas can explode.

Never check battery charge by placing a metal object across the posts. Use a volt-meter or hydrometer.

Do not charge a frozen battery; it may explode. Warm battery to 16°C (60°F).

DX,SPARKS-19-03MAR93

Service Machines Safely



TS228—UN—23AUG88

Tie long hair behind your head. Do not wear a necktie, scarf, loose clothing, or necklace when you work near machine tools or moving parts. If these items were to get caught, severe injury could result.

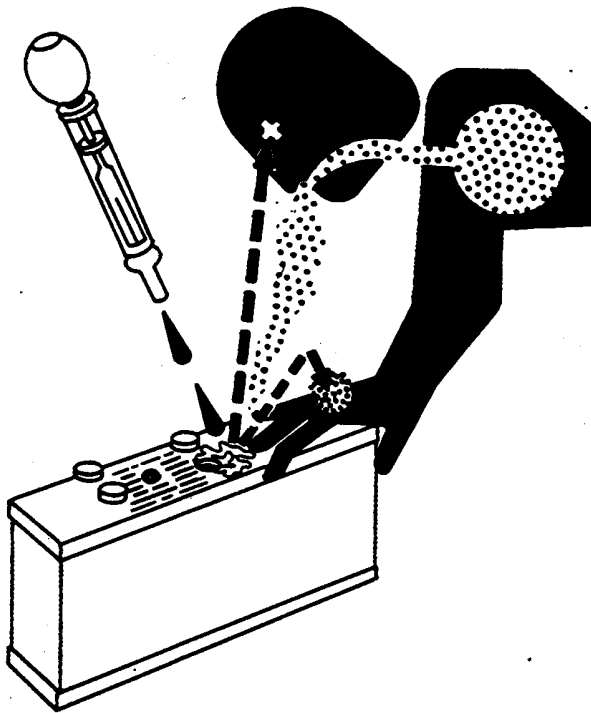
Remove rings and other jewelry to prevent electrical shorts and entanglement in moving parts.

DX,LOOSE-19-04JUN90

Handling Batteries Safely



TS204—UN—15APR13



TS203—UN—23AUG88

Battery gas can explode. Keep sparks and flames away from batteries. Use a flashlight to check battery electrolyte level.

Never check battery charge by placing a metal object across the posts. Use a voltmeter or hydrometer.

Always remove grounded (-) battery clamp first and replace grounded clamp last.

Sulfuric acid in battery electrolyte is poisonous and strong enough to burn skin, eat holes in clothing, and cause blindness if splashed into eyes.

Avoid hazards by:

- Filling batteries in a well-ventilated area
- Wearing eye protection and rubber gloves
- Avoiding use of air pressure to clean batteries
- Avoiding breathing fumes when electrolyte is added
- Avoiding spilling or dripping electrolyte
- Using correct battery booster or charger procedure.

If acid is spilled on skin or in eyes:

1. Flush skin with water.
2. Apply baking soda or lime to help neutralize the acid.
3. Flush eyes with water for 15—30 minutes. Get medical attention immediately.

If acid is swallowed:

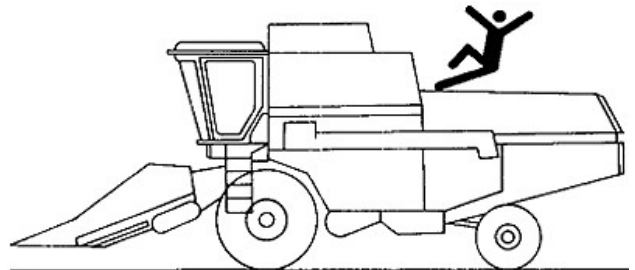
1. Do not induce vomiting.

2. Drink large amounts of water or milk, but do not exceed 2 L (2 qt.).
3. Get medical attention immediately.

WARNING: Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. **Wash hands after handling.**

DX,WW,BATTERIES-19-02DEC10

Service Engine



YC1612—UN—29NOV12

Maintenance platform can be used when servicing the engine. Ensure safety and avoid accidents when climbing onto other parts of the machine, for example, falling down from the machine.

CP00718,00041BE-19-18DEC17

Remove Accumulated Crop Debris



TS227—UN—15APR13

The buildup of chaff and crop debris in the engine compartment, on the engine, and near moving parts is a fire hazard. Check and clean these areas frequently. Before performing any inspection or service, shut off the engine, set the park brake and remove the key.

CP00718,00041BF-19-18DEC17

Service Cooling System Safely



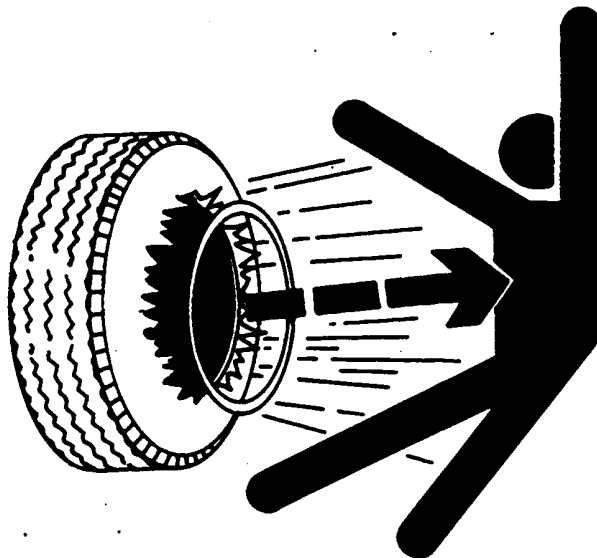
TS281—UN—15APR13

Explosive release of fluids from pressurized cooling system can cause serious burns.

Shut off engine. Only remove filler cap when cool enough to touch with bare hands. Slowly loosen cap to first stop to relieve pressure before removing completely.

DX,RCAP-19-04JUN90

Service Tires Safely

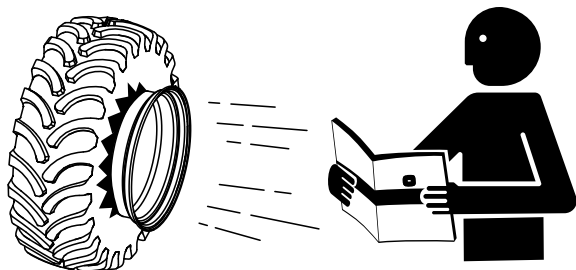


TS211—UN—15APR13

⚠ CAUTION: Explosive separation of a tire and rim parts can cause serious injury or death.

Do not attempt to mount a tire unless you have the proper equipment and experience to perform the job.

Follow Tire Recommendations



H111235—UN—13MAY14

Keep your machine in proper working order.

Use only prescribed tire sizes with correct ratings and inflate to the pressure specified in this manual.

Use of other than prescribed tires may decrease stability, affect steering, result in premature tire failure, or cause other durability or safety issues.

DX,TIRE,INFO-19-19MAY14

Always maintain the correct tire pressure. Do not inflate the tires above the recommended pressure.

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.

When inflating tires, use a clip-on chuck and extension hose long enough to allow you to stand to one side and NOT in front of or over the tire assembly. Use a safety cage if available.

Check wheels for low pressure, cuts, bubbles, damaged rims or missing lug bolts and nuts.

DX,RIM1-19-27OCT08

Retighten Nuts of Front and Rear Wheels



YC2754—UN—11DEC12

Refer to Wheel Bolts in Electrical, Hydraulic, and Drive Systems section and retighten the nuts and bolts of front and rear wheels. Otherwise, the wheels may fall off and the machine rollover. Lead to serious injury to the operator, and excessive damage to the machine.

CP00718,00041C0-19-18DEC17

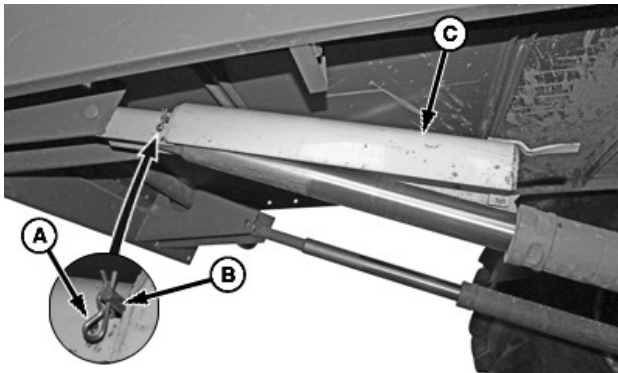
When transporting with header, or entering the header, or working under the feeder house, in order to avoid personal injuries caused by the fall of header. Lock the header height lever and safety stop (C). Follow the procedures:

1. Lift header cylinder to highest position. Stop the machine and remove the key.
2. Place timber under lifted header or feeder house, to support header or feeder house.
3. Remove spring pin (A). Remove latch (B).
4. Place one end of the safety stop (C) on cylinder plunger.
5. Install latch (B) into the hole of the safety stop (C). Use spring pin to lock.

IMPORTANT: Before operation, set header cylinder at "unlocked" state.

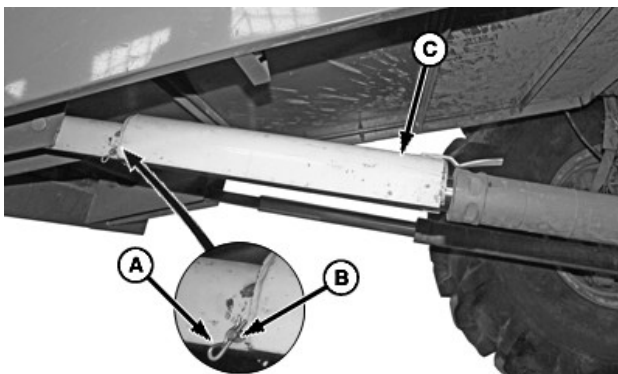
CP00718,00041C1-19-18DEC17

Lock the Feeder House Lift Cylinder Safety Stops



YC7893—UN—18JAN15

Cylinder at "Unlocked" State



YC7894—UN—18JAN15

Cylinder at "Locked" State

A—Spring Pin
B—Latch
C—Safety Stop

Protect Against Noise



TS207—UN—23AUG88

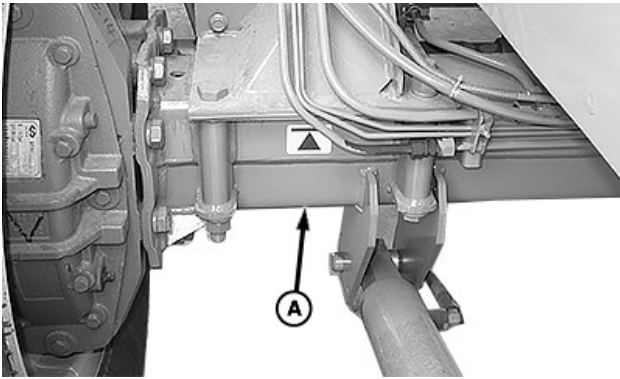
There are many variables that affect the sound level range, including machine configuration, condition and maintenance level of the machine, ground surface, operating environmental, duty cycles, ambient noise, and attachments.

Exposure to loud noise can cause impairment or loss of hearing.

Always wear hearing protection. Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.

DX,NOISE-19-03OCT17

Support Front Axle



YC12629—UN—30AUG18

A—Support Point (2 used, 1 per side)

CAUTION: The machine is heavy. If it falls or rolls over, serious injury and death be caused to you or others. In case, there are no grains in the grain tank. The machine must rest on a flat and level surface, gear-shift lever, or hydraulic driven lever set in neutral position. Engage park brake and remove the key. Secure the rear wheels.

IMPORTANT: Improper jacking can damage machine. Jack can only be applied at specific location of the machine.

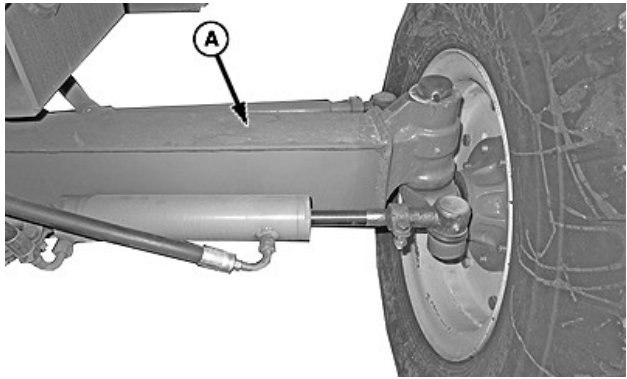
1. Park machine on a flat, level surface. Switch off the engine and remove the key.
2. Place the jack at support points (A) under the front axle.

CAUTION: The machine is heavy. If it falls or rolls over, serious injury and death be caused to you or others. Before jacking up the machine, all bystanders must stay away from the machine.

3. All bystanders stay away from the machine. Lift the machine with the jack (see Use and Precautions of Hydraulic Jack in Electrical, Hydraulic, and Drive Systems section) only to the height which is enough for removing the vehicle or for repairing tires.
4. Tighten the torque tire and the side connecting bolts in accordance with the technical specifications.
5. Lower the machine to the ground.

CP00718,00041C2-19-30AUG18

Support Rear Axle



YC1622—UN—03JAN14

A—Support Points (2 used)

CAUTION: The machine is heavy. If it falls or rolls over, serious injury and death be caused to you or others. In case, there are no grains in the grain tank. The machine must rest on a flat and level surface, gear-shift lever, or hydraulic driven lever set in neutral position. Engage park brake and remove the key. Secure the front wheels.

IMPORTANT: Improper jacking can damage machine. Jack can only be applied at specific location of the machine.

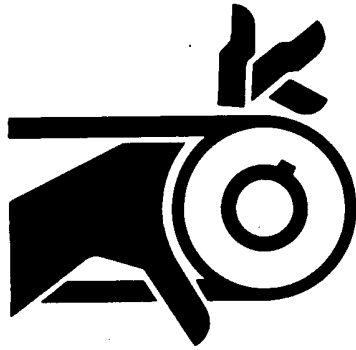
1. Park machine on a flat, level surface. Switch off the engine and remove the key.
2. Place the jack at support points (A) underneath the rear axle.

CAUTION: The machine is heavy. If it falls or rolls over, serious injury and death be caused to you or others. Before jacking up the machine, all bystanders must stay away from the machine.

3. All bystanders stay away from the machine. Lift the machine with the jack (refer to the use and precautions of jack) only to the height which is enough for removing the vehicle or for repairing tires.
4. Tighten the torque tire and the wheel connecting bolts in accordance with the technical specifications.
5. Lower the machine to the ground.

CP00718,00041C3-19-18DEC17

Service Drive Belts Safely



TS285—UN—23AUG88

When servicing drive belts, always observe these precautions:

- Avoid serious injury from the hand or arm entanglement. Never attempt to clean, check, or adjust belts while the machine is running. Always shutoff the engine, set the park brake and remove the key.
- Do not attempt to clean belts with the flammable cleaning solvents.

CP00718,00041C4-19-18DEC17

Exhaust Filter Cleaning



RG17488—UN—21AUG09

Servicing machine or attachments during exhaust filter cleaning can result in serious personal injury. Avoid exposure and skin contact with hot exhaust gases and components.

During auto or manual/stationary exhaust filter cleaning operations, the engine will run at elevated idle and hot temperatures for an extended period of time. Exhaust gases and exhaust filter components reach temperatures hot enough to burn people, or ignite, or melt common materials.

DX,FILTER-19-20JAN10

Avoid Backover Accidents



PC10857XW—UN—15APR13

Before moving machine, be sure that all persons are clear of machine path. Turn around and look directly for best visibility. Use a signal person when backing if view is obstructed or when in close quarters.

Do not rely on a camera to determine if personnel or obstacles are behind the machine. The system can be limited by many factors including maintenance practices, environmental conditions, and operating range.

DX,AVOID,BACKOVER,ACCIDENTS-19-30AUG10

Safety Signs

Pictorial Safety Signs

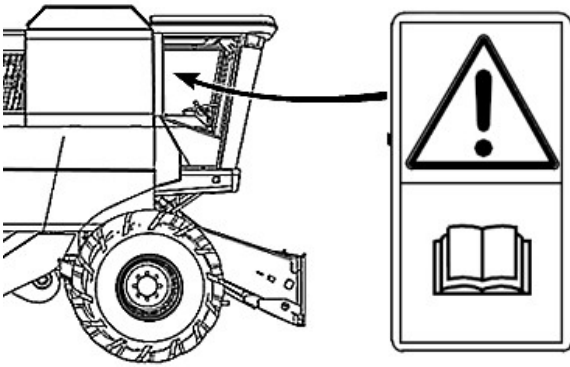


TS231—19—07OCT88

Pictorial Safety Signs

At several important places on these machine safety signs are affixed intended to signify potential hazards. The warning triangle identifies a hazard. An adjacent pictorial provides information how to avoid personal injury. These safety signs, their placement on the machine and a brief explanatory text are shown following.

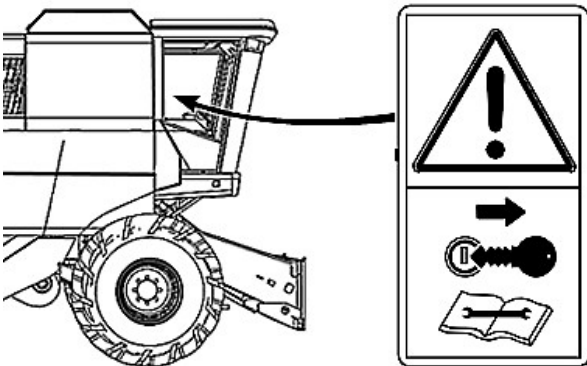
Operator's Manual



YC11193—UN—05JAN17

This operator's manual contains all important information necessary for safe machine operation. Carefully observe all safety rules. Avoid accidents.

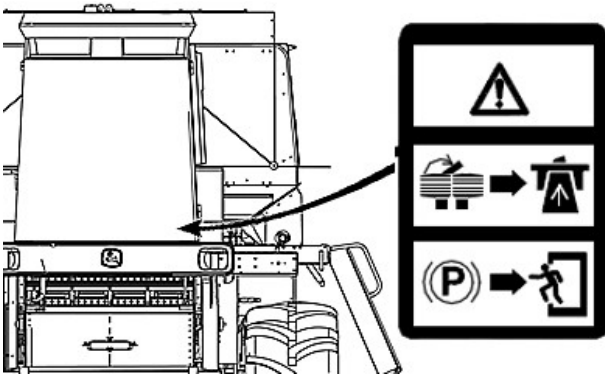
Repair and Maintenance



YC11194—UN—05JAN17

Before carrying out repair and maintenance work, shut off engine, set park brake and remove key. Refer to operator manual for all maintenance work.

Park Brake

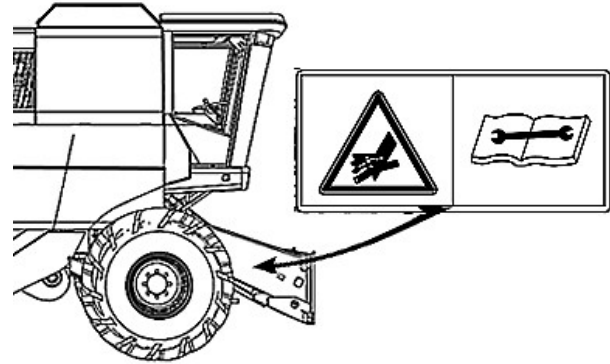


YC11195—UN—05JAN17

Lock service brakes together before driving on roadway. Set park brake before leaving machine.

Hydraulic Oil and Gas Under Pressure

NOTE: Decals are on the feeder house's left-hand and right-hand, four pieces.



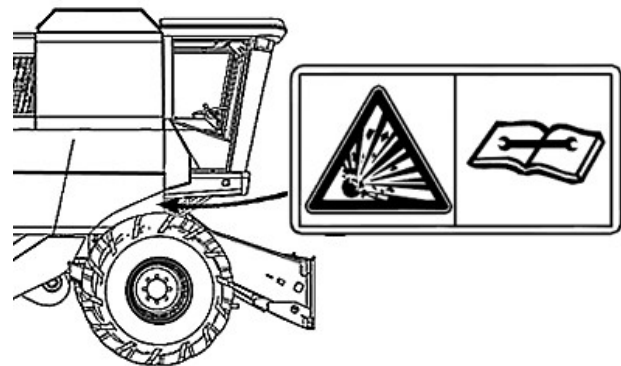
YC11196—UN—05JAN17

Avoid serious injury from contact with hydraulic oil and gas under pressure.

Before removing hydraulic components, disassembling or charging accumulators:

1. Relieve system hydraulic pressure. Refer to the operator's manual and repair manual for system information.
2. Stop engine and remove key.

Accumulator

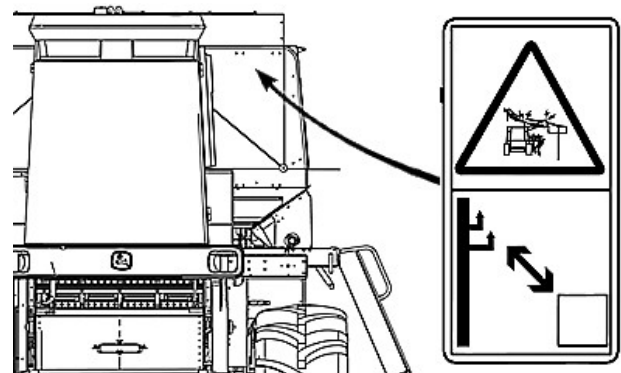


YC11197—UN—05JAN17

To prevent the risk of injury as well as possible damage to the accumulator or hydraulic system, maintain recommended nitrogen gas pressure.

Refer to Pressure Accumulator in Electrical, Hydraulic, and Drive Systems section.

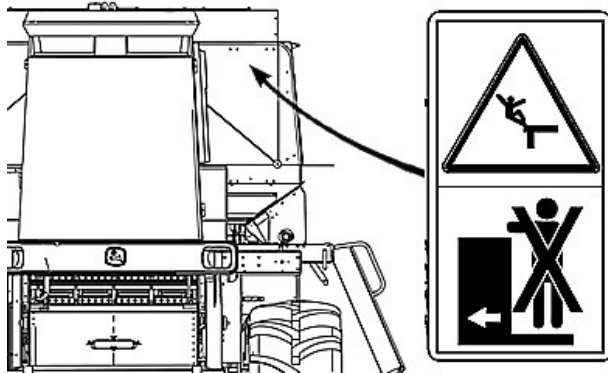
Avoid Low Hanging Power Lines



YC11198—UN—05JAN17

Avoid serious injury or death from electrocution. Do not contact electric lines. Keep the unloading auger in transport position.

Grain Tank

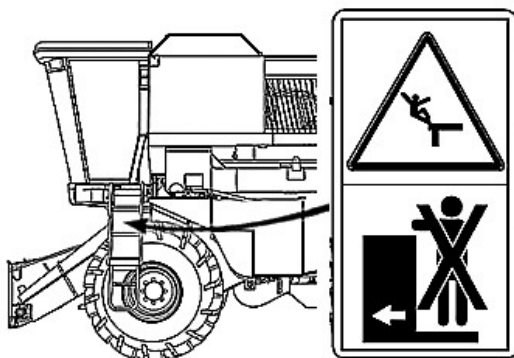


YC11199—UN—05JAN17

Avoid serious injury from falling. Do not enter grain tank in this area.

Do not allow people to stay in the operator's platform and grain tank during operation the machine.

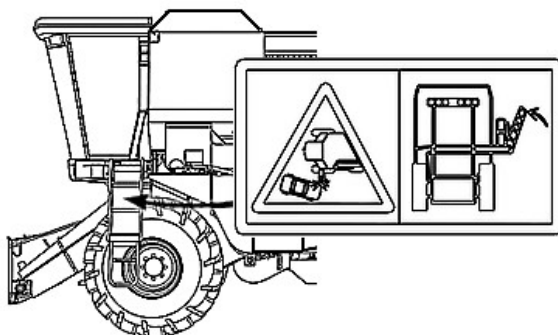
Cab/Platform Access Ladder



YC11200—UN—05JAN17

Avoid serious injury from falling. Do not allow riders on the ladder or platform area while machine is moving.

Avoid Motor Vehicle Collisions

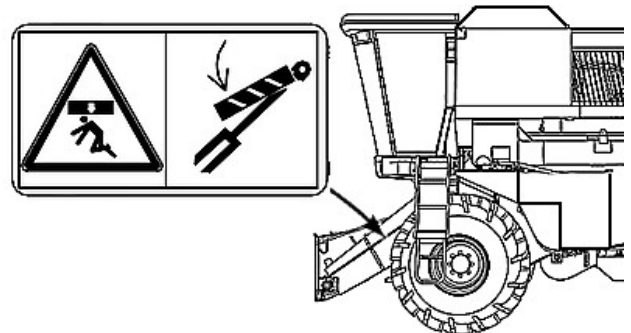


YC11201—UN—05JAN17

Avoid motor vehicle collision and serious injury or death. Always lift and lock ladder before driving machine on roadway.

Feeder House Safety Stop

NOTE: Decal is on outside and inside of shielding and on both sides of the feeder house.

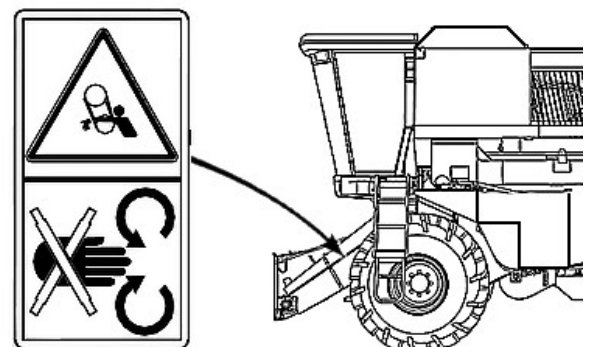


YC11202—UN—05JAN17

Avoid crushing injury. Rest header on ground or set safety stop, on the feeder house lift cylinder before getting under header.

Feeder House Guard

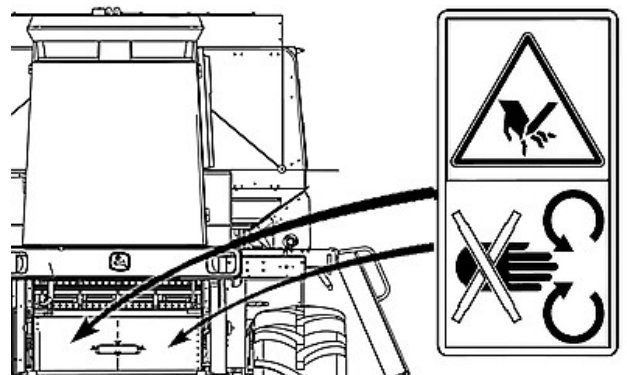
NOTE: This decal is on both sides of the feeder house.



YC11203—UN—05JAN17

Avoid serious injury or death from entanglement. Never raise shield with the engine running. Stop engine and remove key.

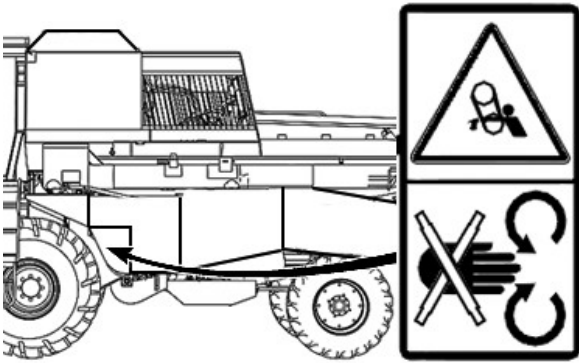
Feeder House Conveyor Chain



YC11204—UN—05JAN17

Potential hazard caused by rotating machine parts.

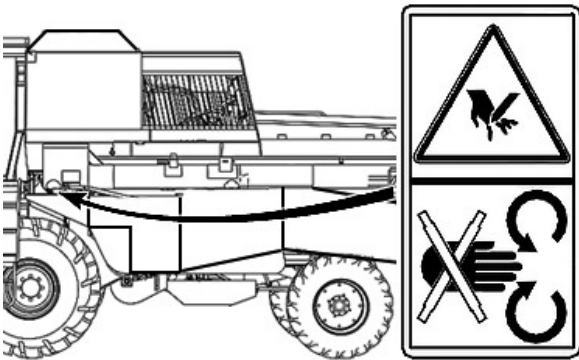
Left-Hand Guard



YC11205—UN—05JAN17

Avoid serious injury or death from entanglement. Never open shield or access the area with engine running. Stop engine and remove key.

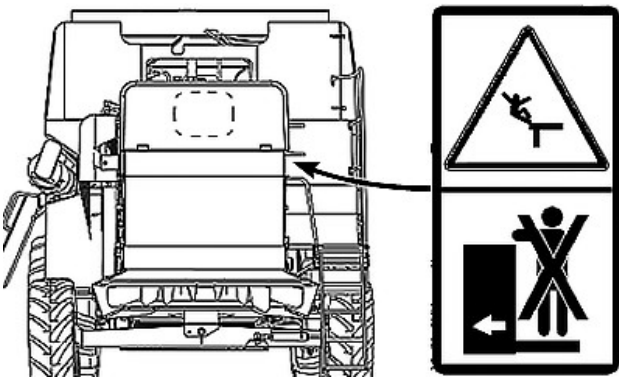
Grain Tank Cleanout Doors



YC11206—UN—05JAN17

Avoid serious injury or death from entanglement. Stop engine and remove key before opening cleanout doors.

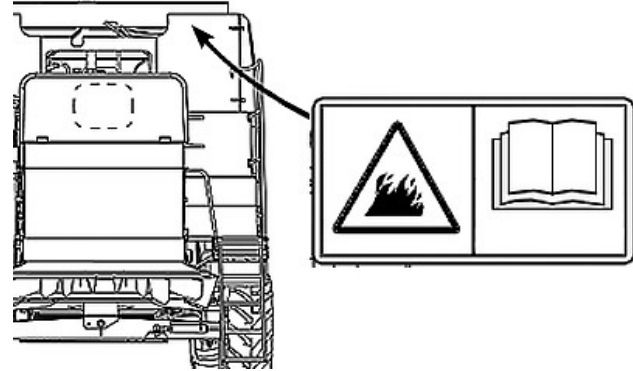
Rear Access Ladder and Service Platform



YC11207—UN—05JAN17

Avoid serious injury from falling. Do not ride ladder or engine platform while machine is moving.

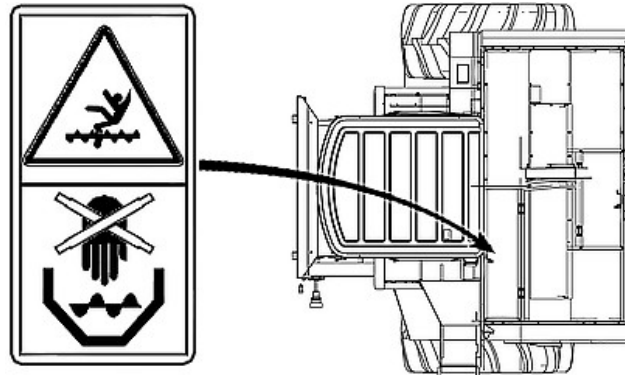
Avoid Fires



YC11208—UN—05JAN17

Avoid equipment fires. The accumulation of chaff, leaves, and other crop material in the engine compartment, on the engine or near moving parts can cause a fire. Inspect and clean these areas frequently.

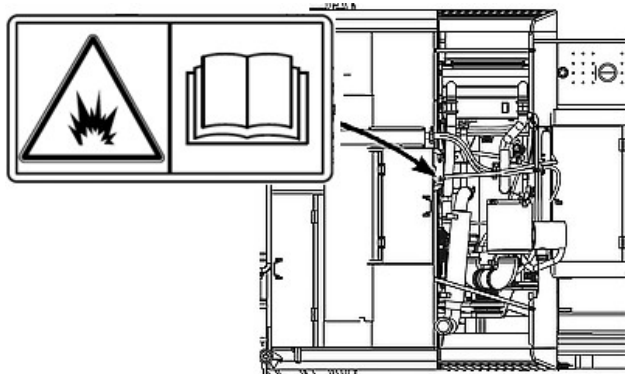
Grain Tank



YC11209—UN—05JAN17

Avoid serious injury or death from entanglement. Do not enter grain tank when engine is running.

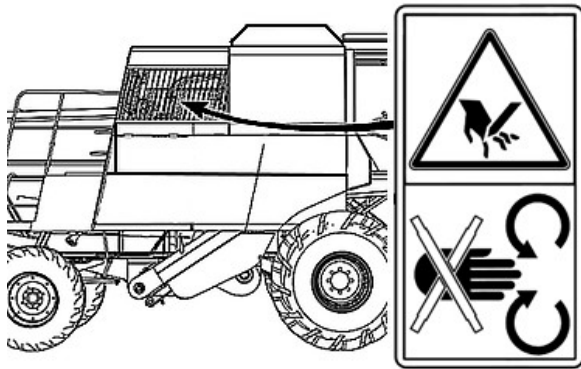
Cooling System



YC11589—UN—05APR17

Cooling system is pressurized. To prevent burn injury due to uncontrolled release of steam and hot coolant, wait until system is cool. Loosen cap slowly. Allow pressure to release before removing cap.

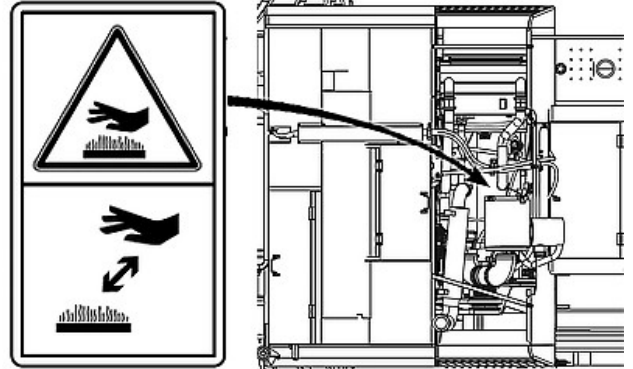
Rotary Screen Door and Radiator Fan



YC11210—UN—05JAN17

Avoid bodily injury from the rotating fan and screen components. Shut off engine and remove key before opening rotary screen door.

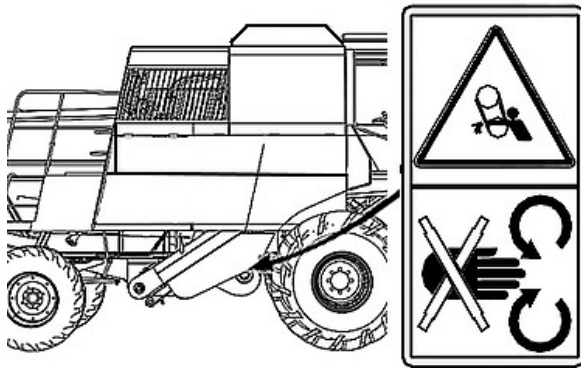
Exhaust Temperature



YC11590—UN—05APR17

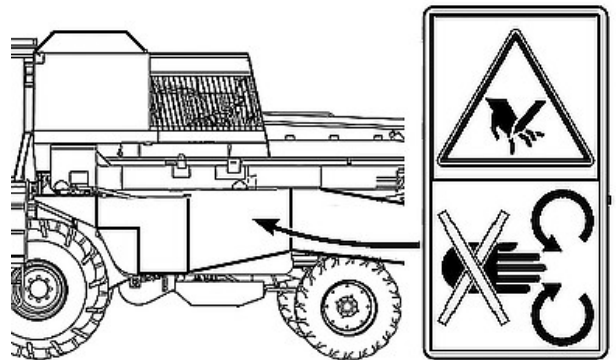
Exhaust system components be hot. To avoid severe burns, keep away from the exhaust system components.

Clan Grain Elevator



YC11211—UN—05JAN17

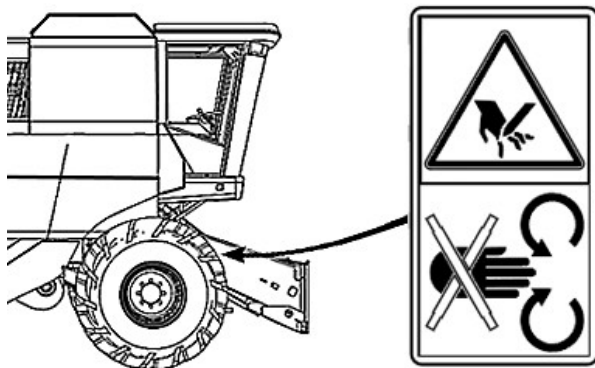
Avoid serious injury or death from entanglement. Never raise shield with the engine running. Stop engine and remove key.



YC11213—UN—05JAN17

Avoid serious injury from contact with moving components. Do not open inspection door until all motions have stopped.

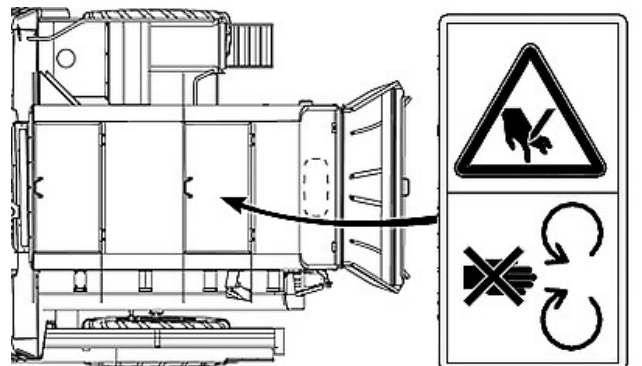
Stone Trap



YC11212—UN—05JAN17

Do not clean out stone trap until all separator and feeder house motion has stopped.

Rear Door



YC11214—UN—05JAN17

Do not open door when the combine is running.

CP00606,000183A-19-29MAY18

Operator's Station

Controls and Instruments

Before operating a new combine, make yourself familiar with the position and use of each control and instrument, in order to facilitate proper operation of combine.

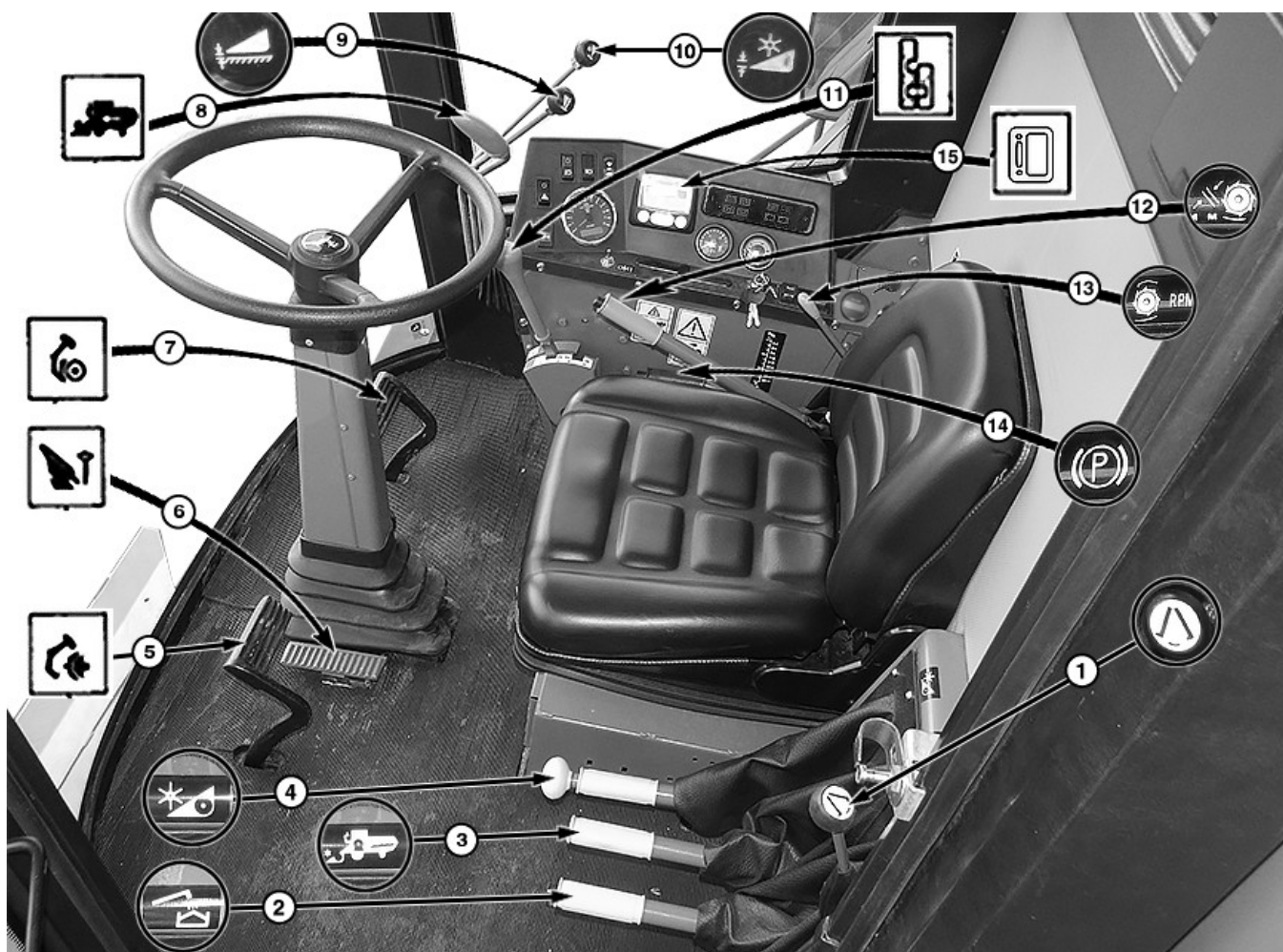
CP00718,00041C6-19-17AUG18



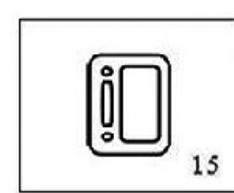
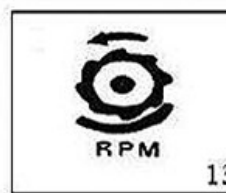
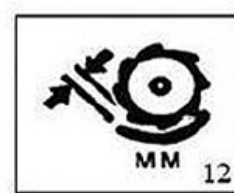
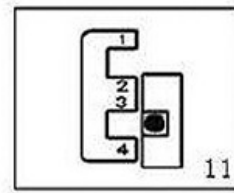
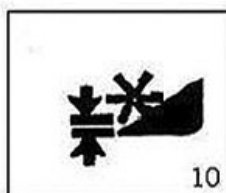
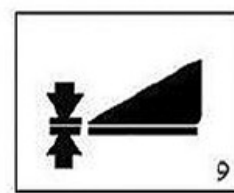
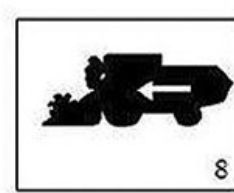
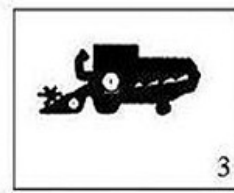
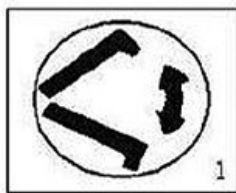
YC1536—UN—25NOV13

Control Devices in Operator's Station

Operator's Station of Belt Ground Drive Type Combine



YC11137—UN—17DEC17



YC12266—UN—06DEC17

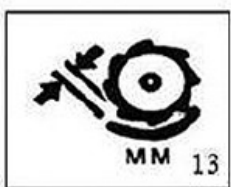
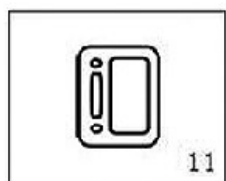
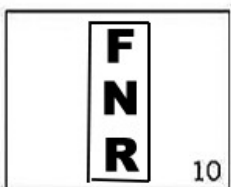
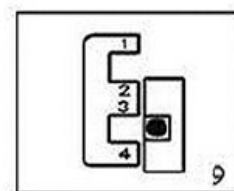
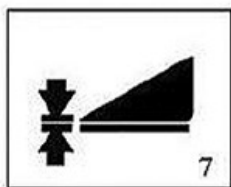
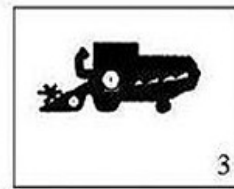
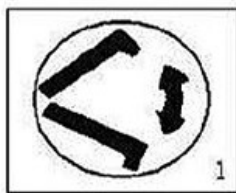
- 1—Unloading Auger Swing Lever
- 2—Unloading Auger Engage Lever
- 3—Separator Engage Lever
- 4—Header Engage Lever
- 5—Clutch Pedal
- 6—Steering Column Lock Pedal
- 7—Service Brake Pedals
- 8—Ground Speed Lever

- 9—Header Raise/Lower Lever
- 10—Reel Raise/Lower Lever (not used)
- 11—Gear-Shift Lever
- 12—Threshing Clearance Adjust Lever
- 13—Threshing Speed Level
- 14—Park Brake
- 15—Murphy Gauge

Operator's Station of Hydrostatic Drive Type Combine



YC11138—UN—17DEC17



YC12264—UN—06DEC17

- 1—Unloading Auger Swing Lever
- 2—Unloading Auger Engage Lever
- 3—Separator Engage Lever
- 4—Header Engage Lever
- 5—Steering Column Lock Pedal
- 6—Service Brake Pedals
- 7—Header Raise/Lower Lever

- 8—Reel Raise/Lower Lever (not used)
- 9—Gear-Shift Lever
- 10—Hydrostatic Drive Lever
- 11—Murphy Gauge
- 12—Threshing Speed Level
- 13—Threshing Clearance Adjust Lever
- 14—Park Brake

CP00718,00041C7-19-17AUG18

Reel Raise/Lower Control (Not Used)

NOTE: Reel raise/lower lever is only applied to the combine with cutting platform. It doesn't work on the corn combine.



YC11139—UN—17DEC17

A—Reel Raise/Lower Lever

Reel raise/lower lever (A) is at the right side of the operator's seat.

Move lever backward—Raise the reel.

Move lever forward—Lower the reel.

CP00718,00041C8-19-18DEC17

Adjust Reel Speed (Not Used)

IMPORTANT: Avoid damage to the machine. Adjust reel speed only when reel is rotating.

NOTE: Reel speed control switch is only applied to the combine with cutting platform. It doesn't work on the corn combine.



YC11140—UN—17DEC17

A—Reel Speed Control Switch

The Reel speed control switch (A) is at the instrument panel.

Increase speed—Toggle the switch away from the driver.

Decrease speed—Toggle the switch toward the driver.

After reel speed adjustment, release the switch. The switch returns automatically to neutral position.

CP00718,00041C9-19-18DEC17

Separator Engage Lever

IMPORTANT: Engage or disengage separator only when engine is running at the low idle.



YC8773—UN—10JUN15

A—Separator Engage Lever

The separator engage lever (A) is at the left side of the operator's seat.

Move lever upward—Engage threshing unit.

Move lever downward—Disengage threshing unit.

CP00718,00041CA-19-17AUG18

Adjust Threshing Speed



YC11141—UN—17DEC17

**A—Threshing Speed Adjust Lever
B—Threshing Speed Meter**

IMPORTANT: Avoid damage to the machine. Adjust threshing speed only when the threshing cylinder is rotating.

Threshing speed adjust lever (A) and threshing speed meter (B) are at the right side of the operator's seat.

Move lever upward—Increase the threshing speed.

Move lever downward—Decrease the threshing speed.

Threshing speed displays on the threshing speed meter (B).

Threshing speed (rpm)= value × 100

CP00718,00041CB-19-18DEC17

Adjust Threshing Clearance



YC11142—UN—17DEC17

A—Threshing Clearance Adjust Lever
B—Button

Threshing clearance adjust lever (A) is at the right side of the operator's seat.

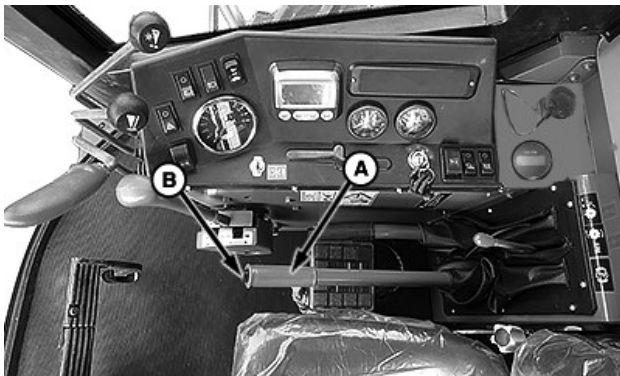
Press button (B), move lever downward—Increase clearance.

Press button (B), move lever upward—Decrease clearance.

CP00718,00041CC-19-18DEC17

Park Brake

IMPORTANT: To avoid damage to the machine. Do NOT engage the park brake when the combine is moving.



YC11143—UN—17DEC17

A—Park Brake Lever
B—Button

Park brake lever (A) is located at the right-hand side of the operator's seat.

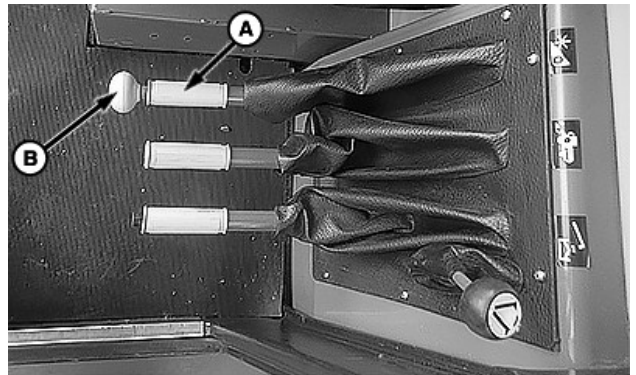
To engage the park brake, pull the park brake lever (A) until effective braking is achieved.

To disengage the park brake, push the button (B) and return the lever fully downward.

CP00718,00041CD-19-17AUG18

Header Engage Lever

IMPORTANT: Avoid damage to the machine. Before engage the header, engage threshing unit first.



YC12268—UN—11DEC17

A—Header Engage Lever
B—Button

The header engage lever (A) is at the left side of the operator's seat.

Hit the button (B), disengage header quickly .

Move lever upward—Engage header drive.

Move lever downward—Disengage header drive.

CP00606,000183B-19-29MAY18

Header Raise/Lower Lever



YC11144—UN—17DEC17

A—Header Raise/Lower Lever

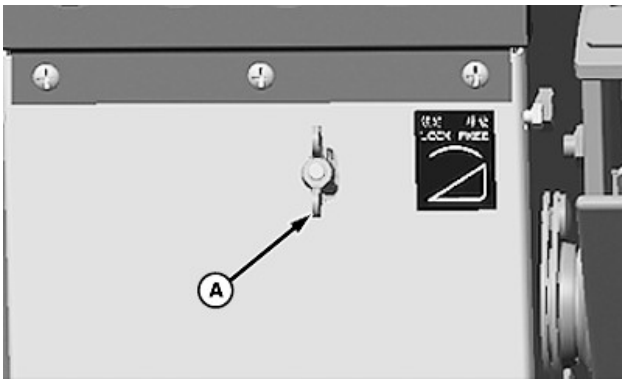
Header raise/lower Lever (A) is at the right side of the operator's seat.

Move lever backward—Lift the header.

Move lever forward—Lower the header.

CP00718,00041CF-19-17AUG18

Lock Header Height



YC10970—UN—12DEC16

Lock Position Shown

A—Wing Nut

The wing nut (A) is at the front of the instrument box. When driving combine on the road with header, raise the header and lock header raise/lower lever by using the wing nut (A).

To release the header raise/lower lever, turn the wing nut clockwise.

To lock the header raise/lower lever, turn the wing nut counterclockwise.

Make sure that the locking pin (A) is in UNLOCK position before harvesting.

CP00718,00041D0-19-17AUG18

Unloading Auger Swing Lever

CAUTION: Unloading auger **MUST** be swung back to transportation position when driving combine on the road.

NOTE: The combine can be unloaded while it is moving. The grain can be unloaded during the harvesting process.



YC1410—UN—06MAR14

A— Unloading Auger Swing Lever

Unloading auger swing lever (A) is at the left side of the operator's seat, near the door.

Move lever upward—Turn unloading auger to operation position.

Move lever downward—Turn unloading auger to transportation position.

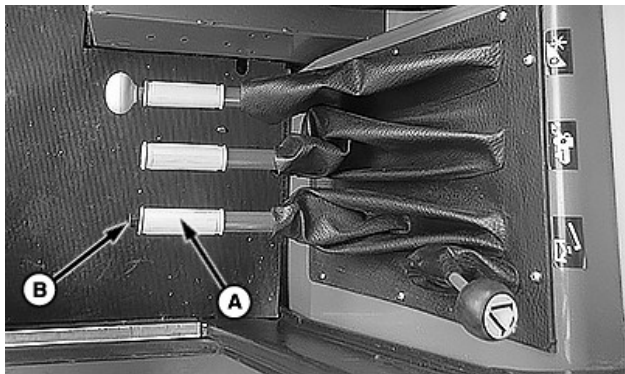
JL31334,00016E5-19-17AUG18

Unloading Auger Engage Lever

IMPORTANT: Avoid damage to the machine. Before engage the unloading auger, ensure that unloading auger is at operation position.

IMPORTANT: Avoid damage to the machine. Disengage unloading auger only when grain is unloaded completely. Complete unloading process at one time.

NOTE: The combine can be unloaded while it is moving. The grain can be unloaded during the harvesting process.



YC12270—UN—11DEC17

A—Unloading Auger Engage Lever
B—Button

The unloading auger engage lever (A) is at the left side of the operator's seat.

Press button (B), move lever upward—Engage unloading auger.

Press button (B), move lever downward—Disengage unloading auger.

To engage unloading auger, pull the unloading auger engage lever (A) slowly. Pull the unloading auger engage lever (A) quickly, when unloading auger is rotating.

JL31334,00016E6-19-17AUG18

Rear Drive Engage Lever (Optional)

IMPORTANT: When driving on roads, do not engage rear drive. Otherwise, tires wear quickly.



YC8166—UN—16MAR15

A—Rear Drive Engage Lever

Rear drive engage lever (A) is on the left bottom side of the operator's seat.

Pull the lever upward—Engage rear drive.

Push the lever downward—Disengage rear drive.

CP00606,000183C-19-17AUG18



YC11149—UN—17DEC17

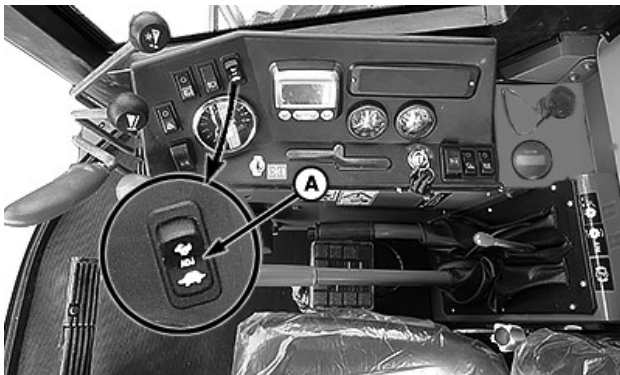
A—Ground Speed Lever

The ground speed lever (A) is at the right side of operator's seat.

Select suitable gear and move lever forward to increase ground speed. Move lever backward to decrease ground speed.

CP00718,00041D5-19-19DEC17

Throttle Switch



YC11145—UN—17DEC17

A—Throttle Switch

Throttle switch (A) is used to increase or decrease engine speed.

To increase speed—Set switch position at rabbit.

To decrease speed—Set switch position at turtle.

CP00718,00041D4-19-17AUG18

Ground Speed Lever (Belt Ground Drive Type Combine)

NOTE: Once ground speed lever is released, it returns to the neutral position automatically.

Hydrostatic Drive Lever (Option)

IMPORTANT: Hydrostatic drive lever must be set at neutral position when the combine is braked.

IMPORTANT: If the machine is equipped with a hydrostatic drive unit, it does not have a clutch pedal. Stop the machine and move the hydrostatic drive lever to neutral before shifting gears.



YC11146—UN—17DEC17

A—Hydrostatic Drive Lever

Hydrostatic drive lever (A) is at the right side of the operator's seat, on the instrument box.

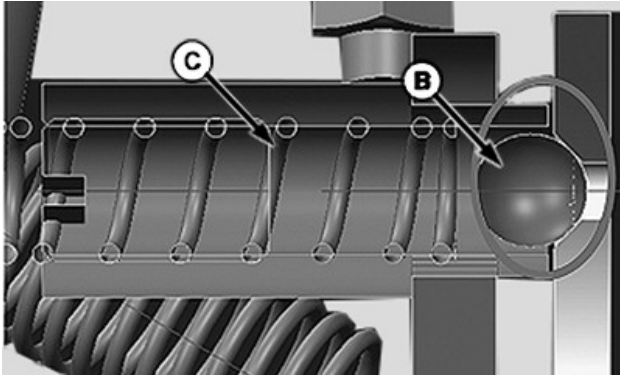
Move the lever to the front to drive the machine forward. Push the lever further to the front to increase the speed.

Move the lever to the rear to drive machine backward. Push the lever further to the rear to increase the speed.

Put the lever in neutral position to stop the combine.

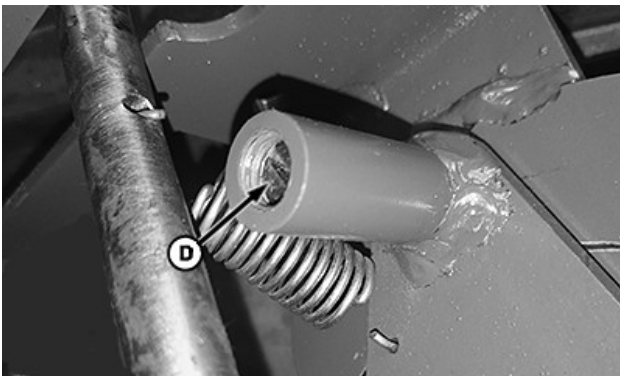
While the combine is in operation, ground speed may

need to be set as slow as possible without stopping the machine. To do this, set the hydrostatic drive lever (A) slightly ahead of the neutral position. If the machine is equipped with a hydrostatic drive unit, a lever holding mechanism in the instrument box prevents the lever from moving.



YC10797—UN—07DEC16

B—Ball
C—Spring



YC10798—UN—07DEC16

D—Screw

If the lever holding mechanism does not work, check the ball for wear and replace it, if necessary. Modify the compression pressure of spring (C) by turning screw (D).

NOTE: If the customer does not need holding mechanism, remove screw (D), spring (C), and ball (B).

CP00606,000183D-19-17AUG18

Instrument Panel

Instrument Panel (Belt Ground Drive Type)



YC11135—UN—17DEC17

A—Turn-Signal Light Switch
B—Hazard Warning Light Switch
C—Low-Beam Headlight Switch
D—High-Beam Headlight Switch
E—Throttle Switch
F—Threshing Speed Meter
G—Murphy Gauge
H—Reel Speed Switch (not used)
I—Cleaning Fan Speed Meter

J—Ground Speed Meter
K—Fuel Gauge
L—Key Switch
M—Horn Switch
N—Worklight Switch
O—Unloading Beacon and Light Switch
P—Indicator Module
Q—Diagnostic Connector

Instrument Panel (Hydrostatic Drive Type)



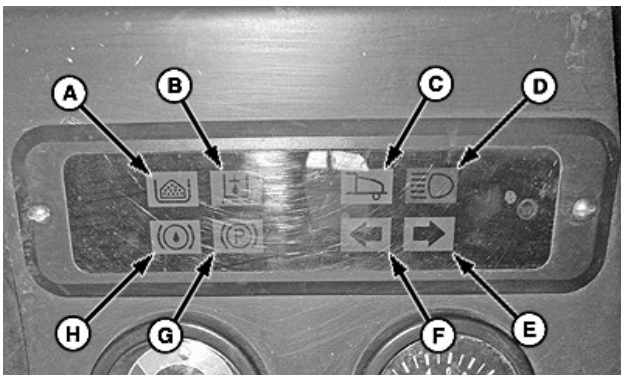
YC11136—UN—17DEC17

A—Turn-Signal Light Switch
B—Hazard Warning Light Switch
C—Low-Beam Headlight Switch
D—High-Beam Headlight Switch
E—Throttle Switch
F—Threshing Speed Meter
G—Murphy Gauge
H—Reel Speed Switch (not used)
I—Cleaning Fan Speed Meter

J—Ground Speed Meter
K—Fuel Gauge
L—Key Switch
M—Horn Switch
N—Worklight Switch
O—Unloading Beacon and Light Switch
P—Indicator Module
Q—Hydrostatic Oil Temperature Gauge
R—Diagnostic Connector

CP00718,000445E-19-23AUG18

Indicator Module



YC8388—UN—20MAY15

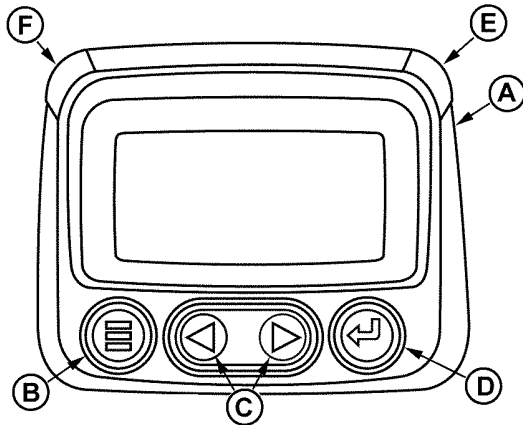
A—Full Grain Tank Indicator
B—Hydraulic Oil Filter Pressure Indicator
C—Rear Cover Plugged Indicator
D—High-Beam Headlight Indicator
E—Right Turn-Signal Indicator
F—Left Turn-Signal Indicator
G—Park Brake Indicator
H—Brake Fluid Level Indicator

(A), hydraulic oil filter pressure indicator (B), rear cover plugged indicator (C), high-beam headlight indicator (D), right turn signal indicator (E), left turn signal indicator (F), park brake indicator (G), and brake fluid level indicator (H).

CP00606,00018C0-19-23AUG18

Indicator module contains the full grain tank indicator

Murphy Gauge



RG13132—UN—09SEP03

- A—Murphy Gauge**
B—Menu Button
C—Arrow Buttons(2 used)
D—Enter Button
E—Red Indicator
F—Orange Indicator

Through Murphy Gauge (A), operator can check the engine functional data and diagnostic trouble codes (DTCs). Murphy Gauge is connected with the electronic control system and the sensors. Operator can monitor engine operation and carry out checks and troubleshooting when needed.

Press menu button (B) and various engine functions are shown in order. Imperial or metric units can be chosen. Following engine parameter menus are displayed in the Murphy Gauge diagnosis window:

- Throttle Switch Position
- Current Speed Load Percentage
- Engine Actual Torque
- Engine Speed
- Total Engine Hours
- Total Fuel Consumption
- Coolant Temperature
- Fuel Temperature
- Fuel Pressure
- Engine Oil Pressure
- Fuel Consumption Rate
- Intake Manifold Temperature
- Battery Voltage
- Engine Rated Speed
- Machine Operating Hours
- Engine Configuration Parameters
- Current Diagnostic Trouble Codes
- Saved Engine Diagnostic Trouble Codes

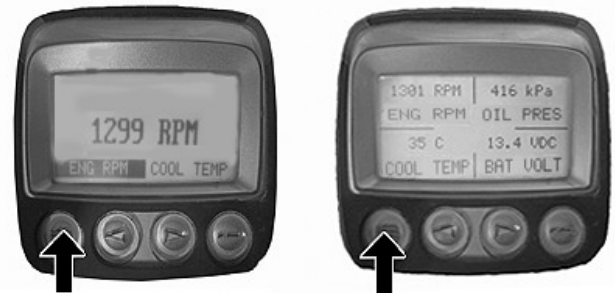
NOTE: Engine parameters that can be accessed relate to engine applications. Chinese and English languages can be chosen when configuring the gauge.

Diagnostic instrument includes a back-lit liquid crystal display (LCD). It can display a single parameter or up to four at the same time. Press two arrow buttons (C) on diagnostic instrument, scroll the engine parameter list to view the menu. Press the enter button (D) and select required items. Red (E) and orange (F) indicators display the valid trouble codes received at Murphy Gauge. When orange indicator is lit, a fault has occurred. It is recommended to check the machine while it can continue to run. When red indicator is lit, stop the machine at once and carry out checks.

JL31334,0001725-19-17AUG18

Main Menu Navigation

NOTE: Engine does not need to run when using the diagnosis gauge screen. To start the engine, refer to *Start the Engine in Control of Combine* section. All engine parameters displayed in the Murphy Gauge show that the engine is running.



YC7300—19—11DEC14

Menu Button

1. Turn key switch to the D position. A single engine parameter or four engine parameters are displayed first. Then press the Menu button.



Menu Display

YC7292—19—11DEC14

2. First, various options of Main Menu are displayed.



Arrow Buttons

YC7293—19—11DEC14

3. Press Arrow buttons, scroll, and view menu options.



Right Arrow Button

YC7294—19—11DEC14

4. Press the right arrow button to scroll down to the last option of Main Menu. Select the desired menu option.



YC7490—19—11DEC14

Use Arrow Buttons to Scroll/Display Quadrant Mode

5. Use arrow buttons to select the desired menu option. Or, press the Menu button to leave the main menu and return to the engine parameter display.

CP00718,00041DA-19-17AUG18

Engine Configuration Data

NOTE: Engine configuration data is for read only.



YC7300—19—11DEC14

Menu Button

1. Turn key switch to the D position. A single engine parameter or four engine parameters are displayed first. Then press the Menu button.



Select Engine Configuration

YC7291—19—11DEC14

2. Main menu appears. Use Arrow buttons to scroll to Engine Configuration.



Enter Button

YC7295—19—11DEC14



Stored Codes

YC7296—19—11DEC14

2. Use Arrow buttons to scroll to Stored codes.

3. When Engine Configuration is selected, press Enter button to view engine configuration data.



Menu Button

YC7300—19—11DEC14



Enter Button

YC7297—19—11DEC14

4. Press Menu button, exit the main menu and return to the engine parameter interface.

CP00718,00041DB-19-17AUG18

3. When Stored codes are selected, press Enter button to view stored code information.

View Stored Codes



Normal Operation

YC7491—19—11DEC14

1. In normal operation, a single-parameter or a four-parameter interface is displayed



Arrow Buttons

YC7298—19—11DEC14

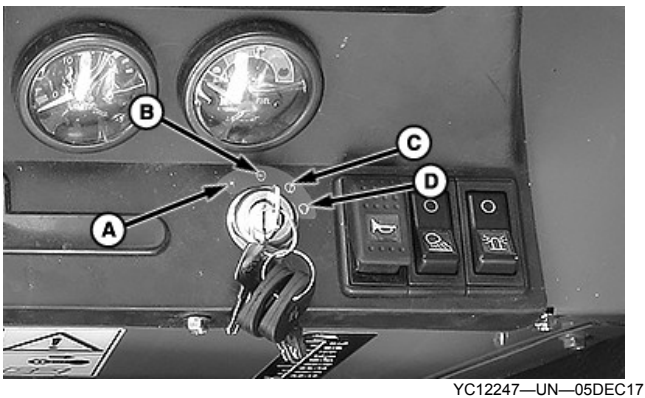
4. If Next appears above the Arrow buttons, there are more fault codes. Use Arrow buttons to scroll to the next fault code and continue viewing.



5. To view corrective actions, press Menu button and return to the engine parameter interface.

CP00718,00041DC-19-17AUG18

Key Switch



- A—First Position
- B—Second Position
- C—Third Position
- D—Forth Position

Key positions are:

First position (A):

ACC—Lights, wipe, horn, radio, and air conditioning are working.

Second position (B):

STOP—Stop engine.

Third position (C):

ON—Turn on the power, lights, wipe, horn, fuel pump,

ECU, murphy gauge, radio, and air conditioning are working.

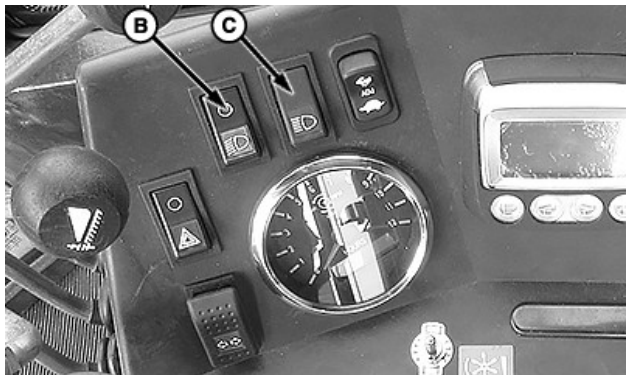
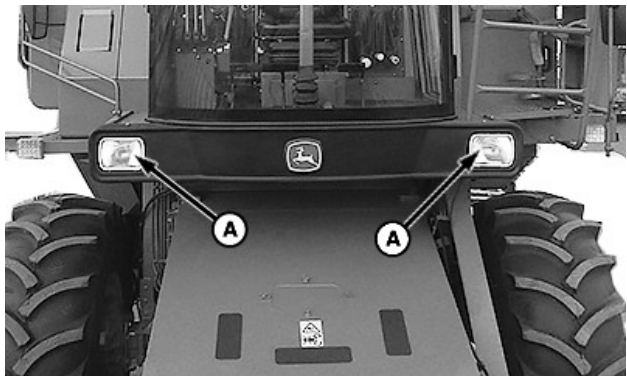
Forth position (D):

ST—Start engine.

CP00718,00041DD-19-17AUG18

Headlights

CAUTION: Accidental collision with another vehicle can cause serious injury or death to you or others. Always comply with traffic regulations when driving machine on a road. Dim headlights to low-beam for on-coming vehicles. To avoid motorist confusion, do not operate worklights when transporting on public roadways.

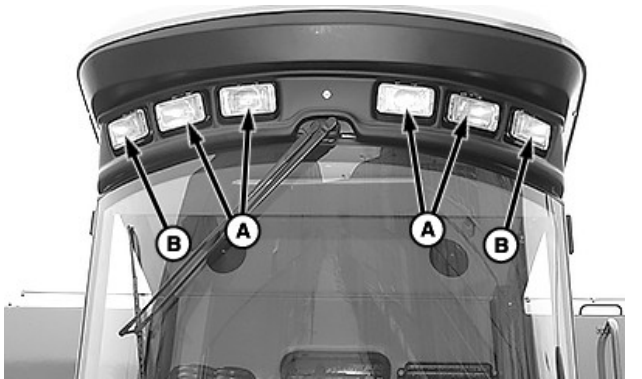


- A—Headlights (2 used)
- B—Low-Beam Headlight Switch
- C—High-Beam Headlight Switch

Headlights (A) include the high-beam headlight and low-beam headlight.

CP00606,000183E-19-23AUG18

Worklights



- A—Worklights (4 used)
- B—Worklights (2 used)
- C—Worklight Switch

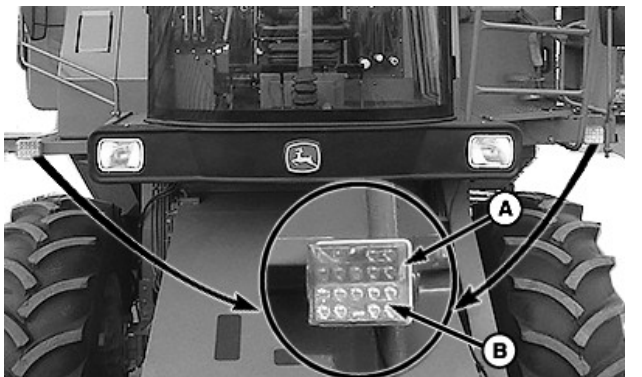
When worklight switch (C) is in neutral position, worklights (A) are working.

When worklight switch (C) is in second position, worklights (A and B) are working.

When worklight switch (C) is in OFF position, worklights (A and B) are off.

JL31334,00016E9-19-03MAY18

Front Turn-Signal Lights and Marker Lights



- A—Front Turn-Signal Lights (2 used)
- B—Front Marker Lights (2 used)
- C—Turn-Signal Light Switch
- D—Low-Beam Headlight Switch

Front turn-signal lights (A) and front marker lights (B) are modular light.

Upper lights are front turn-signal lights (A); lower lights are front marker lights (B).

Turn-signal light switch (C) controls front turn-signal lights (A). Turn on front turn-signal lights (A) before turning.

Low-beam headlight switch (D) controls the front marker lights (B). Turn on the front marker lights (B) in dark, warn vehicles.

CP00606,000183F-19-29MAY18

Tail Lights

CAUTION: When transporting on a road or highway, marker/hazard lights and tail lights on both sides provide a warning to operators of vehicles approaching from the front and rear. These lights must be turned ON when driving machine on public roadways.





YC12236—UN—05DEC17

- A—Rear Turn-Signal Lights (2 used)
- B—Brake Lights (2 used)
- C—Rear Marker Lights (2 used)
- D—Low-Beam Headlight Switch
- E—Turn-Signal Lights Switch

Tail lights include the rear turn-signal lights (A), brake lights (B), and rear marker lights (C).

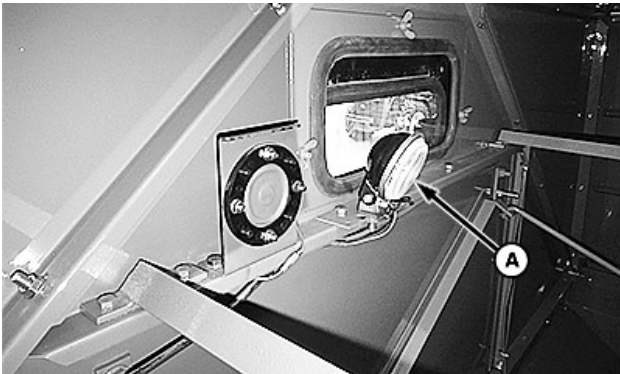
When depressing the brake pedal, brake lights (B) are working.

When the gear-shift lever is positioned in reverse position, brake lights (B) are working, meantime the backup alarm is working.

Rear marker lights (C) are controlled by the low-beam headlight switch (D) .

JL31334,00016EB-19-23AUG18

Grain Tank Light



YC10575—UN—08DEC16



YC12262—UN—05DEC17

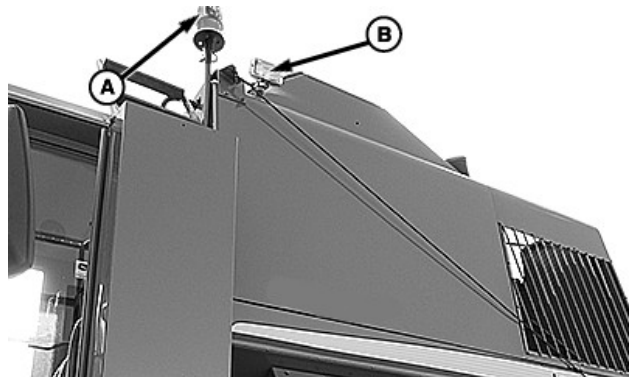
- A—Grain Tank Light
- B—Low-Beam Headlight Switch

Grain tank light (A) is in the grain tank.

Low-beam headlight switch (B) controls the grain tank light (A).

JL31334,00016EC-19-03MAY18

Unloading Beacon Light and Unloading Light



YC10779—UN—07DEC16



YC12238—UN—21NOV17

- A—Unloading Beacon Light
- B—Unloading Light
- C—Unloading Beacon and Light Switch

Unloading beacon light (A) and unloading light (B) are at the left of combine, controlled by unloading beacon and light switch (C).

JL31334,00016ED-19-03MAY18

Light Switches

CAUTION: When the machine fails or is in danger, stop and engage the hazard warning light switch (B). Turn on the hazard warning lights in foggy day.



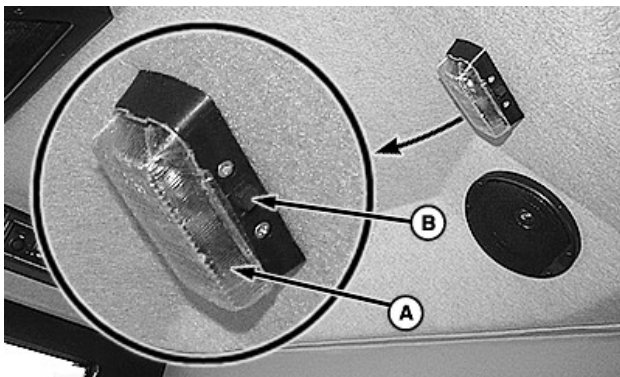
YC12237—UN—21NOV17

- A—Turn-Signal Light Switch
- B—Hazard Warning Light Switch
- C—Low-Beam Headlight Switch
- D—High-Beam Headlight Switch
- E—Worklight Switch
- F—Unloading Beacon and Light Switch

- Turn-signal light switch (A)—Control front and rear turn-signal lights.
- Hazard warning light switch (B)—Control front and rear turn-signal lights.
- Low-beam headlight switch (C)—Control low-beam headlights, grain tank light, and mark lights.
- High-beam headlight switch (D)—Control high-beam headlights.
- Worklight switch (E)—Control worklights.
- Unloading beacon and light switch (F)—Control unloading beacon light and unloading light.

CP00606,0001840-19-29MAY18

Dome Light



YC10574—UN—08DEC16

- A—Dome Light
- B—Switch

Dome light (A) is on the cab roof and above the operator's seat, switch (B) is on the side of light.

CP00606,0001841-19-17AUG18

Diagnostic Connector



YC11147—UN—17DEC17

A—Diagnostic Connector

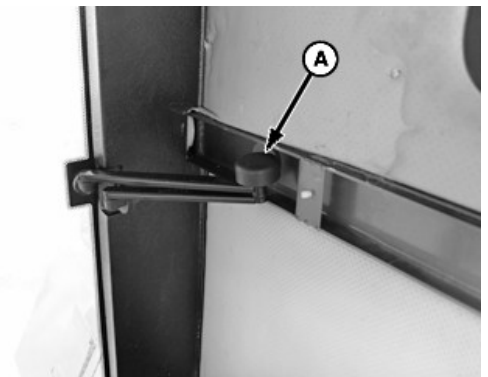
Diagnostic connector (A) is located on the instrument panel.

Connect diagnostic connector (A), diagnose engine failure.

CP00606,0001842-19-17AUG18

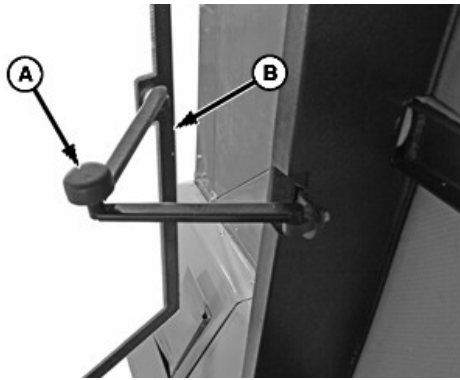
Cab Right Window (Emergency Exit)

CAUTION: If an emergency occurs and cab door cannot be opened, use right window to escape.



YC8103—UN—21JAN15

Window Close Shown



YC8104—UN—21JAN15

Window Open Shown

A—Handle
B—Right Window

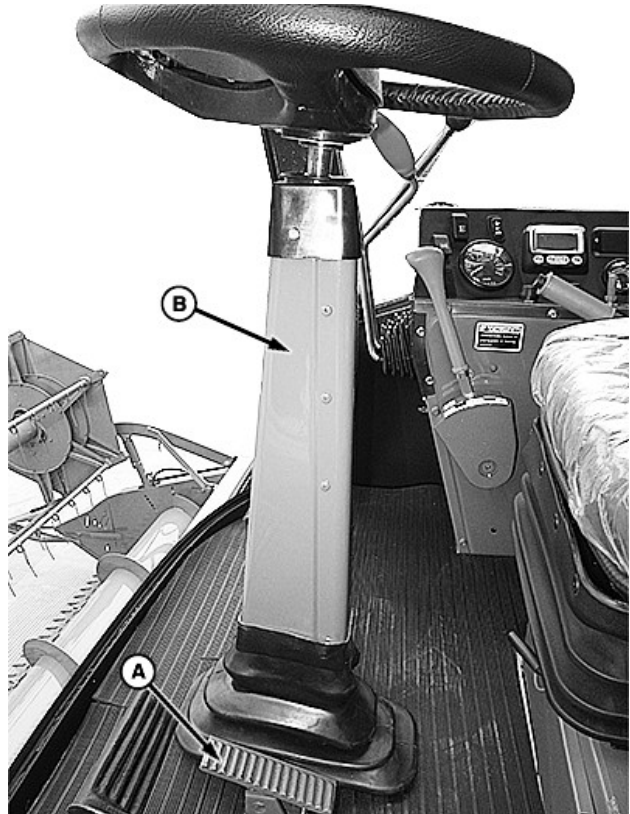
When right window (B) is closed, hold handle (A) and turn it clockwise to open the right window (B). Close the right window by turning handle in reverse direction.

CP00606,0001843-19-29MAY18

Adjust Steering Column Tilt

CAUTION: Adjust steering column only when machine is stopped. Hold steering wheel, step on pedal.

CAUTION: Avoid personal injury. Lock steering column after adjustment.



YC10577—UN—08DEC16

A—Steering Column Pedal
B—Steering Column

Release steering column:

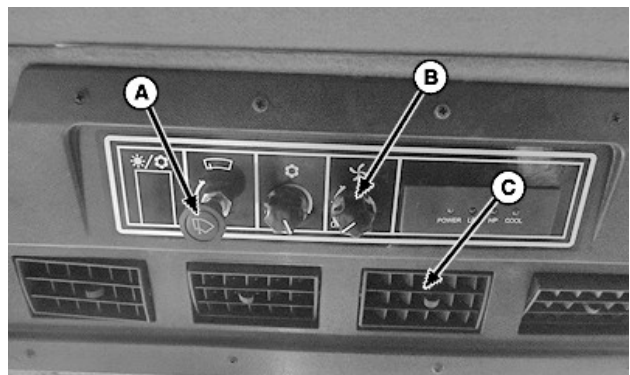
Step forward on the steering column pedal (A) to release the steering column (B), and move it to desired position.

Lock steering column:

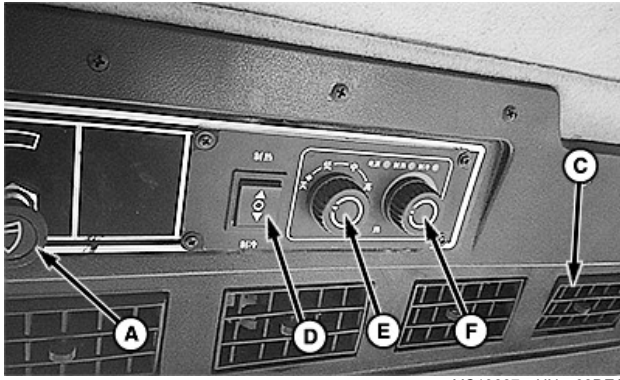
Step backward on the steering column pedal (A) to lock the steering column (B).

CP00606,0001844-19-29MAY18

Cab Ceiling Control Panel



YC3234—UN—09DEC13



YC10687—UN—08DEC16

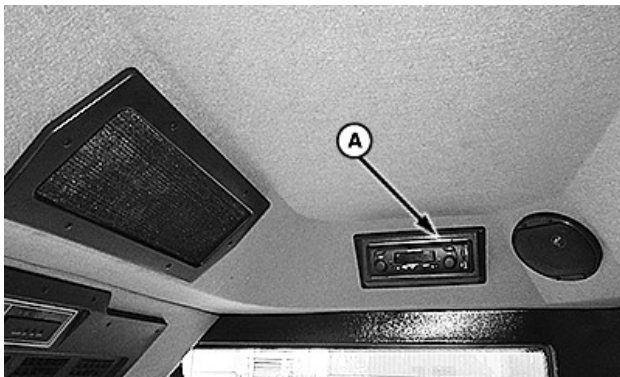
Cab Ceiling Control Panel (option)

- A—Wiper Switch
- B—Air Flow Knob
- C—Adjustable Air Inlet
- D—Air-conditioner Cooling/Heating Control Switch
- E—Air-conditioner Air Flow Control Knob
- F—Air-conditioner Temperature Adjustment Knob

The cab ceiling control panel is at the front upper part of the cab. It controls wiper and fan.

CP00606,0001845-19-17AUG18

Digital FM Radio



YC10580—UN—08DEC16

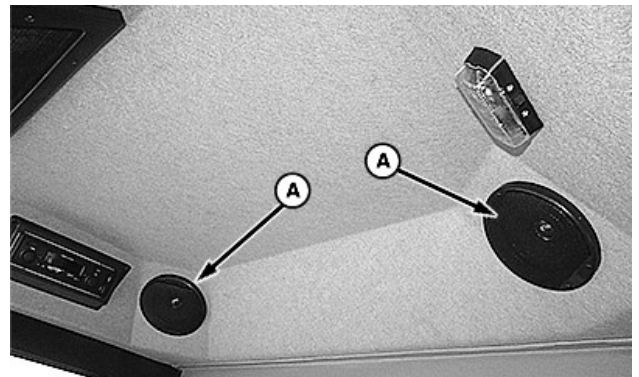
A—Radio

Combine is equipped with a radio (A).

For more information about the radio (A), refer to the manufacturer's manual.

CP00718,00041EB-19-17AUG18

Speakers



YC10590—UN—08DEC16

A—Speakers (2 used)

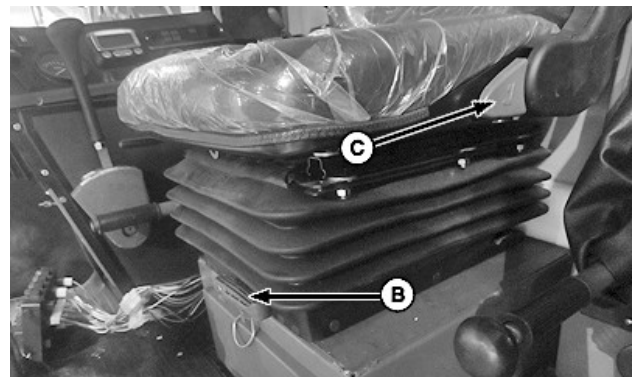
Cab ceiling is equipped with two speakers (A) at the rear.

CP00718,00041EC-19-17AUG18

Operator's Seat



YC3181—UN—23DEC13



YC3182—UN—17DEC12

- A—Fore/Aft Handle
- B—Raise/Lower Handle
- C—Backrest Tilt Handle

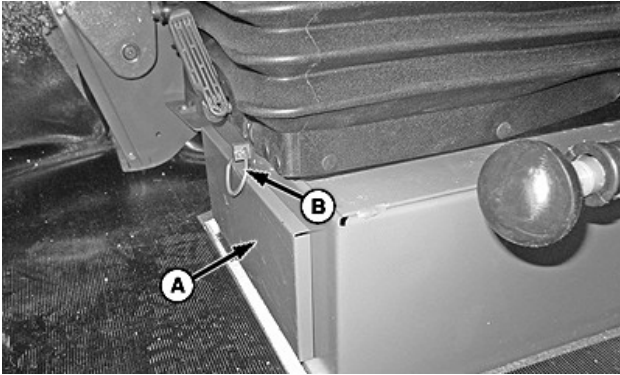
Fore/Aft Handle (A) — Pull up on the handle to slide seat forward or rearward to the desired position. Release the handle to lock.

Raise/Lower Handle (B) — Pull up on the handle to raise seat, or push down on the handle to lower seat to the desired height. Release the handle to lock.

Backrest Tilt Handle (C) — Pull up on handle and adjust backrest to desired position. Release the handle to lock.

CP00606,0001847-19-23AUG18

Toolbox



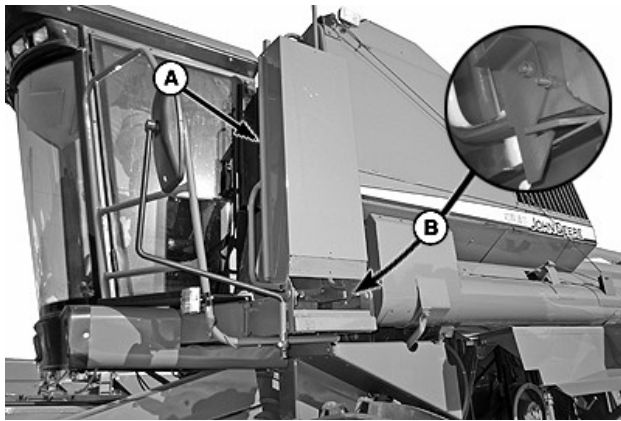
YC3200—UN—27FEB14

A—Toolbox Door
B—Door Latch

Open toolbox door (A) by moving door latch (B) upward.

CP00718,00041EE-19-18DEC17

Secure Ladder in Transport Position



YC8107—UN—21JAN15

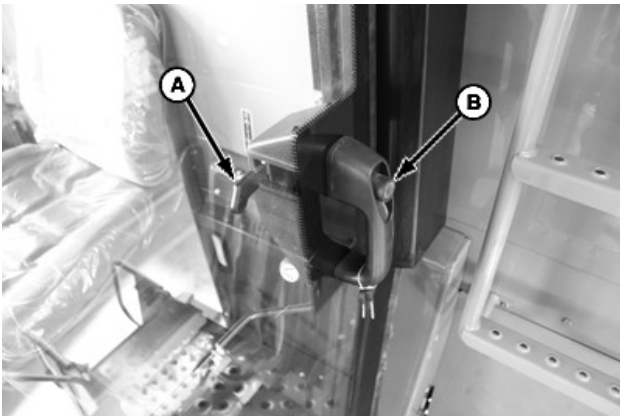
Transport Position Shown

A—Ladder
B—Locking Tab

Before driving on roads, fold up ladder (A) and use locking tab (B) to secure it in transportation position. Avoid hurting others when unfolding the ladder.

CP00718,00041F0-19-18DEC17

Cab Door Locker



YC8106—UN—21JAN15

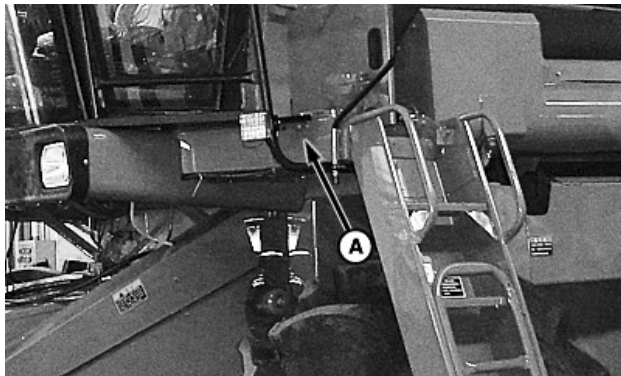
A—Handle
B—Door Locker

If the cab door is not locked, press door locker (B) to open the cab door. If the cab door is locked, first use the key to unlock and door can then be opened.

In the cab, operator can open cab door by pressing handle (A).

CP00718,00041EF-19-17AUG18

Adjust Ladder



YC8896—UN—08JUL15

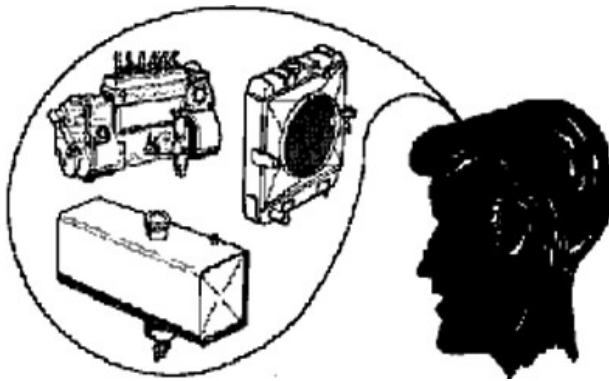
A—Connecting Plate

If wide tires are to be installed to the combine, move the connecting plate (A) outward.

CP00606,0001848-19-29MAY18

Control of Combine

Pre-Start Checks



YC1296—UN—16FEB12

Check Daily:

Before starting the combine, check the following:

- Engine
- Cooling system
- Hydraulic system
- Fuel system
- Lubrication
- Start combine in cool weather condition

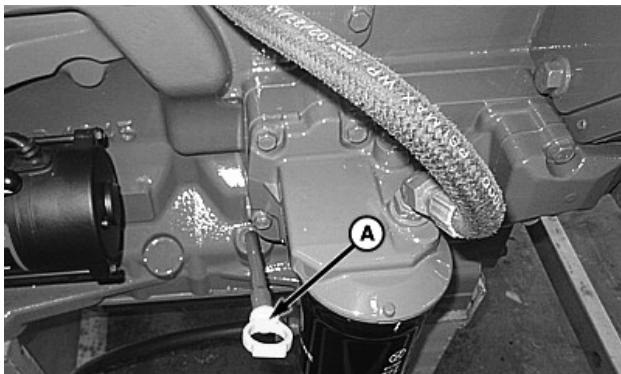
Check Engine Oil Level

Before starting the engine for the first time everyday, carry out following checks:

IMPORTANT: Keeping proper engine oil level is vital for the service life of the engine. Check engine oil level when combine is parked on level ground.

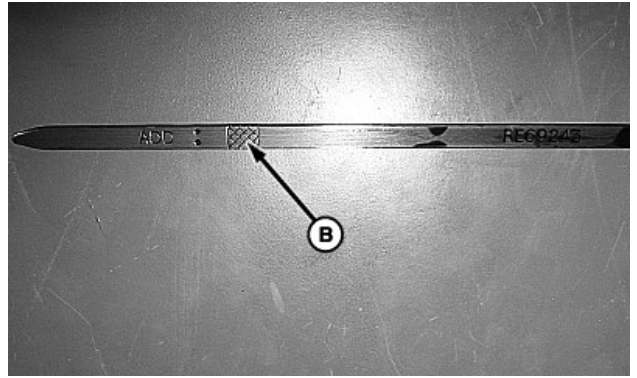
IMPORTANT: Never refill engine oil before engine oil level falls below the ADD mark.

IMPORTANT: Never fill engine oil above the top of the crosshatch pattern of the dipstick. Engine oil level should be correct if it is within the crosshatch mark. Do not operate engine when oil level is below the ADD mark on dipstick.



YC8903—UN—30JUL12

A—Oil Dipstick



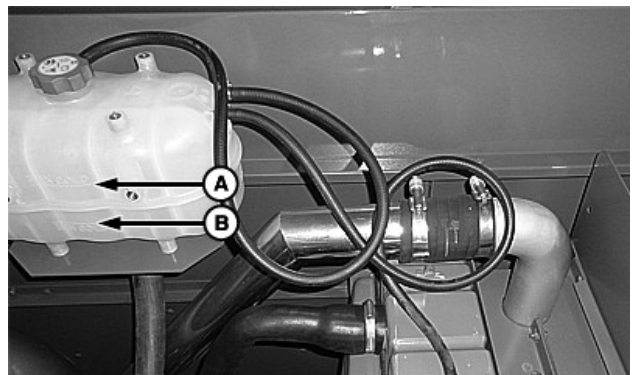
YC9574—UN—22DEC15

B—Crosshatch Mark on Dipstick

Check engine oil level with the oil dipstick (A). Refill engine oil as necessary. Use appropriate engine seasonal viscosity grade oil. For technical specifications of engine oil, see Diesel Engine Break-In Oil—Non-Emissions Certified and Certified Tier 1, Tier 2, Tier 3, Stage I, Stage II, and Stage III in Fuel, Coolant, and Lubricants section.

Check Coolant Level

CAUTION: Explosive release of fluids from pressurized cooling system can cause serious burns. If radiator cap must be removed, wait engine cooled down. Switch off engine. Wait until radiator cap is cooled down so that it can be touched by bare hands. Before fully loosening the cap, first loosen it slowly to the first pause point to release pressure. Never add coolant when engine is overheated. The coolant regulator can cause serious injury or death. Never inhale or drink coolant regulator, and avoid contact with skin or eyes. When adding coolant regulator, observe the precautions on the container.



YC8787—UN—30JUN15

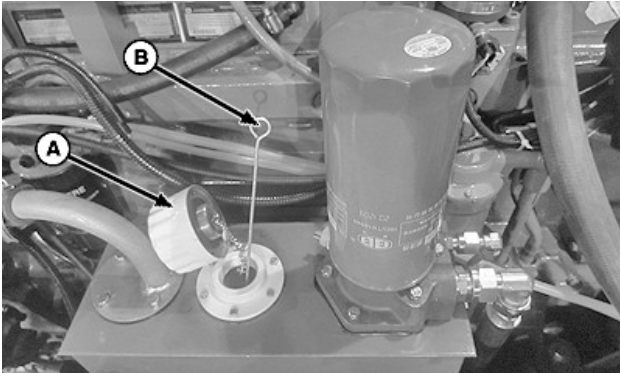
A—MAX Mark
B—MIN Mark

Coolant level need to be between the MIN mark (B) (when engine is cool) and the MAX mark (A) (when engine is hot) on the expansion tank. See Engine Coolant in Operating Engine section.

Add coolant as necessary. Coolant can normally be

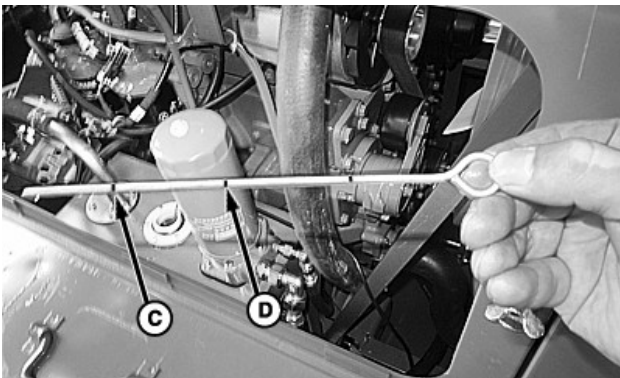
added to the expansion tank. If expansion tank is empty, add coolant directly to the radiator. For technical specifications of coolant, see Diesel Engine Coolant (engine with wet sleeve cylinder liners) in Fuel, Coolant, and Lubricants section.

Check Hydraulic Oil Level



YC3221—UN—24DEC13

A—Hydraulic Oil Reservoir Cap
B—Dipstick



YC8904—UN—12AUG15

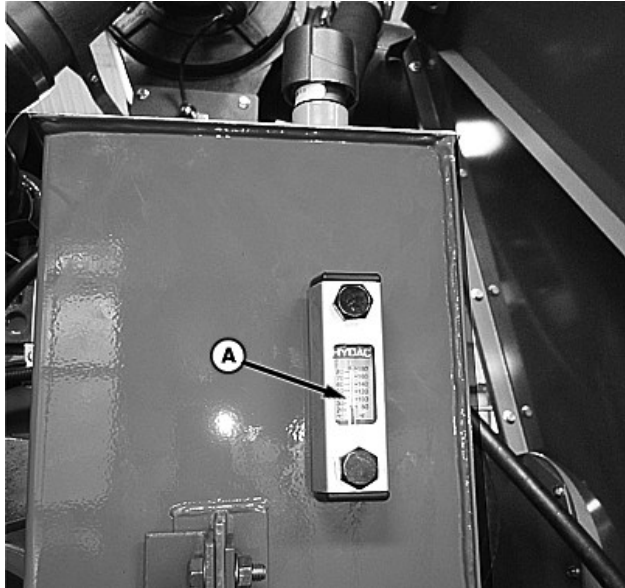
C—MIN Mark
D—MAX Mark

Retract all hydraulic cylinders and lower header onto the ground. Open hydraulic oil reservoir cap (A) and use dipstick (B) to check the oil level.

Hydraulic oil level need to be between MAX and MIN mark on dipstick (B).

For technical specifications of hydraulic oil, see Hydraulic Oil in Fuel, Coolant, and Lubricants section.

Check Hydrostatic Oil Level (Hydrostatic Drive)



YC10736—UN—12SEP16

A—Hydrostatic Oil Level Gauge

Check hydrostatic oil level by observing hydrostatic oil level gauge (A). Hydrostatic oil level should be on the upper mark of hydrostatic oil level gauge (A).

If hydrostatic oil level is below the lowest mark, add oil as necessary.

To fill hydrostatic oil, see Hydrostatic Reservoir and Filter (Optional Hydrostatic Drive Type) in section 25.

For technical specifications of hydrostatic oil, see Hydrostatic Drive Oil in Fuel, Coolant, and Lubricants section.

Check Fuel Tank Level



YC12242—UN—21NOV17

A—Fuel Level Indicator

Before starting the engine, turn the key to D position, check level through the fuel level indicator (A).

Fill fuel tank as necessary. See Fuel Tank Filler in Operating Engine section.

Check fuel tank level before starting the machine.

Fill fuel in the fuel tank:

IMPORTANT: Fuel is highly flammable and can cause serious injury or death. Do not refuel machine while smoking or near an open flame or spark. Always stop engine before refueling. Always fill the fuel tank in an open air. Be sure to reinstall fuel filler cap and rear screen after filling. Always clean up spilled fuel. Do not overfill fuel tank.

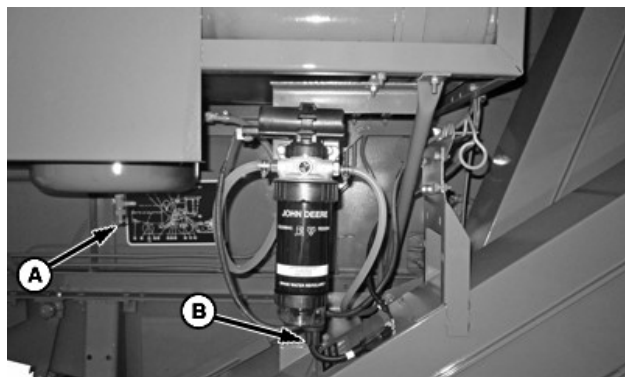


YC8789—UN—30JUN15

B—Drain Valve

1. If engine does not work for a long time, remove drain valve (B) to drain water from the fuel tank. Retighten drain valve.
2. Fill with specified fuel. See Diesel Fuel in Fuel, Coolant, and Lubricants section.

Fuel System



YC7864—UN—12NOV14

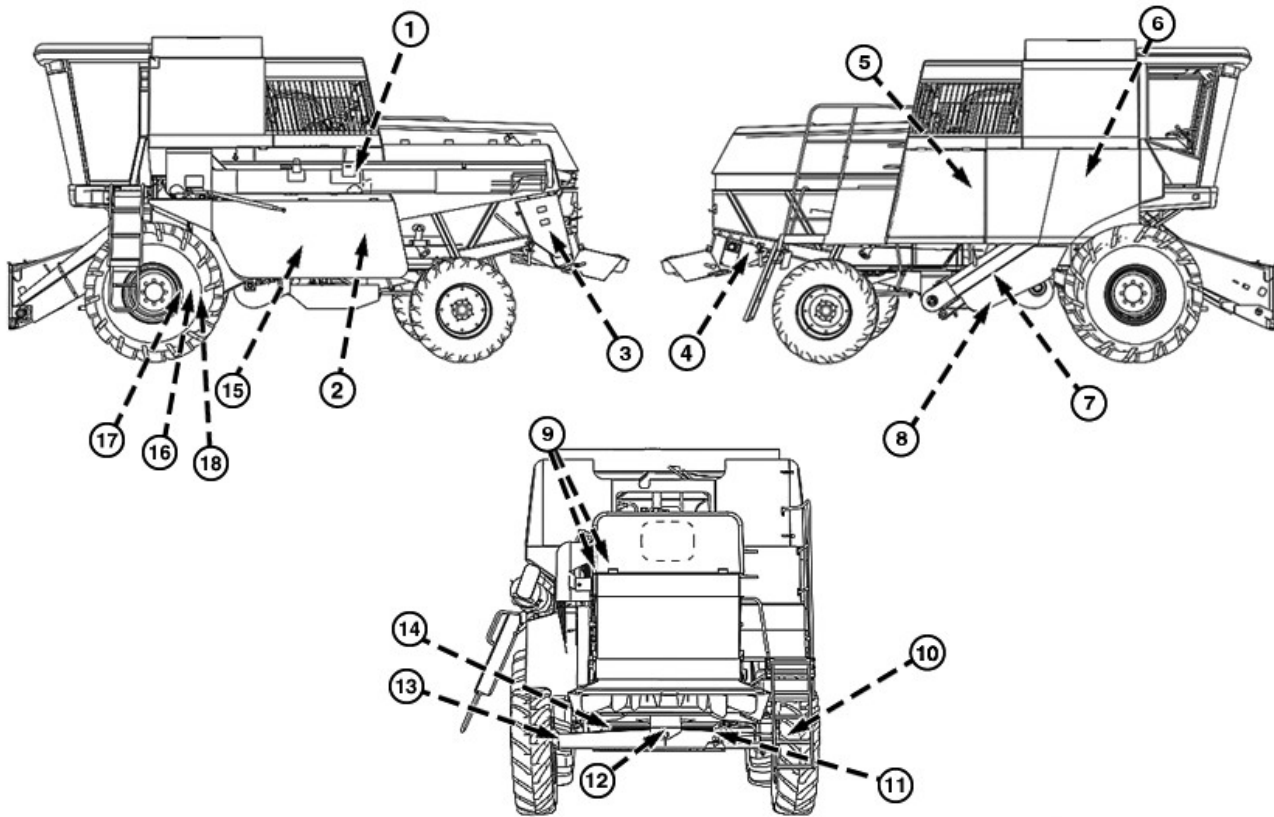
A—Drain Valve
B—Drain Valve

Before operating the combine everyday, open drain valve (A) to drain water and sediment. See Fuel Tank Sediment Bowl in Operating Engine section.

Before operating the combine everyday, open drain valve (B) to drain water and sediment. See Primary Fuel Filter in Operating Engine section.

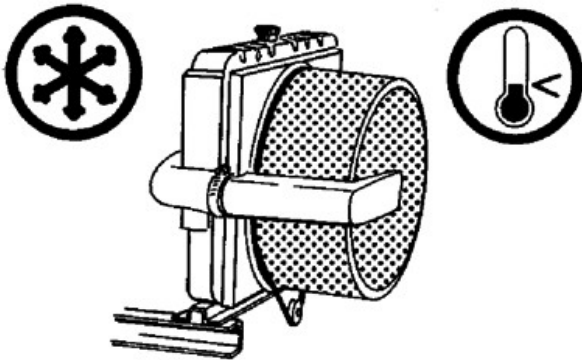
After storing combine for a long time, bleed air from the fuel system. See Bleed the Fuel System in Operating Engine section.

Lubricate Combine



Lubricate combine according to the lubrication diagrams. For the position numbers in diagram, see Lubrication Points in Lubrication and Maintenance section.

Start in Winter



Before starting combine in winter, ensure that rotary screen can rotate freely (no ice and snow).

YC1302—UN—16FEB12

CP00606,0001849-19-17AUG18

YC10776—UN—07DEC16

Start Engine

Before Starting the Engine

CAUTION: Engine exhaust fumes can cause sickness or death. If it is necessary to run an engine in an enclosed area, remove exhaust fumes from area with an exhaust pipe extension.

If you do not have an exhaust pipe extension, open doors and get outside air into area.

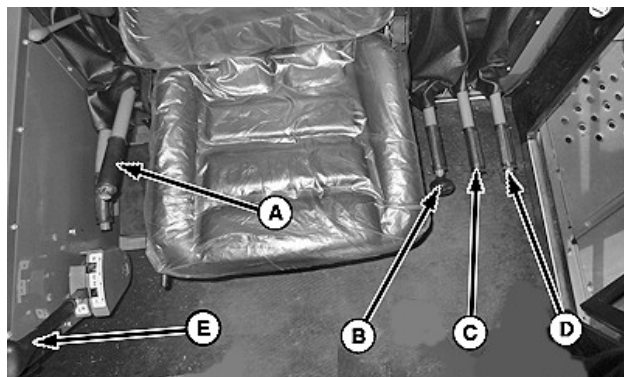
CAUTION: Sound horn before starting engine, warn others to stay clear from machine.

Start engine **ONLY** from the operator's seat. Do not start engine by shorting across starter terminals.

CAUTION: If the combine suddenly starts moving forward, serious personal injury can occur. Before starting the engine, make sure that park brake is engaged, and gear-shift lever is in neutral position.

IMPORTANT: To prevent damaging the starter, do not operate the starter for more than 30 seconds at a time. If engine does not start, wait at least two minutes before trying again.

Start the Engine



YC3223—UN—07DEC16

- A—Park Brake
- B—Header Engage Lever
- C—Separator Engage Lever
- D—Unloading Auger Engage Lever
- E—Gear-Shift Lever

1. Set park brake (A).
2. Disengage the header engage lever (B).
3. Disengage the separator engage lever (C).
4. Disengage the unloading auger engage lever (D).

NOTE: Engine can be started when separator is disengaged.

5. Set gear-shift lever (E) in neutral position.



YC12244—UN—11DEC17

A—Throttle Switch

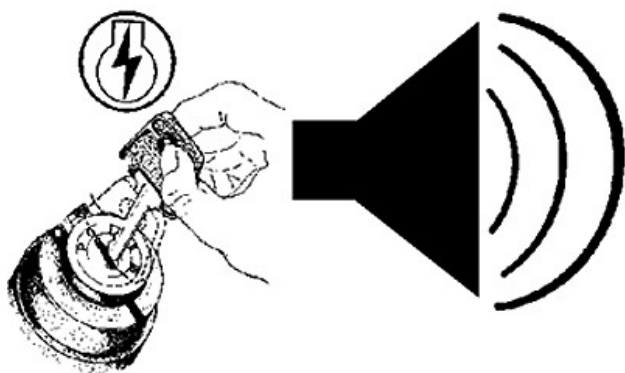
6. Set throttle switch (A) in low speed (turtle) position.



YC8050—UN—30DEC14

A—Clutch Pedal

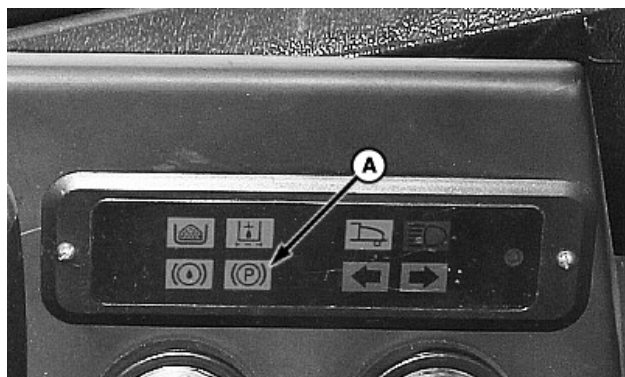
7. Press clutch pedal (A) fully.



YC1306—UN—25DEC12

8. Insert key. When the key is inserted, an intermittent buzzer sounds due to following reasons:

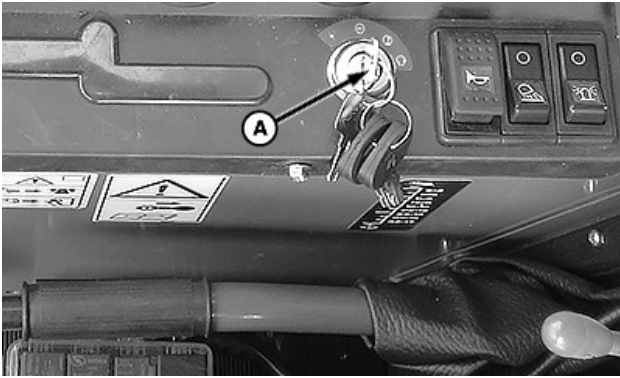
- Set park brake.
- If the rear cover blockage warning switch is engaged, horn sounds continuously.



YC8206—UN—23JAN15

A—Park Brake Light

9. Turn the key to D position. If park brake is set, park brake light (A) comes on.
10. Indicators on the Murphy Gauge go off.
11. Sound horn 5 seconds, and warn others to stay clear from machine.



YC12246—UN—05DEC17

A—Key Switch

12. Turn the key (A) to Q position.
13. If the key returns to D position before engine starts, wait until engine stops and restart the engine.

NOTE: When outdoor temperature is below 0°C, use auxiliary start-up device. Each starting time cannot exceed 30 seconds. See Use Auxiliary Start-up Device to Start the Engine in Control of Combine section.

IMPORTANT: If engine is not started within 30 seconds, wait for at least 2 minutes before restart. Do not start engine after four consecutive attempts.

IMPORTANT: To avoid damaging machine, never run engine at idle speed for more than 5 minutes.

14. Set throttle switch in low speed (turtle) position, run the engine 1-2 minutes to warm oil. If temperature is below 0 °C, extended to 2-4 minutes.
15. Other indicators are off after engine has started. See Other Indicators in Control of Combine section.

CP00606,000184A-19-29MAY18

Murphy Gauge Indicator



YC12248—UN—21NOV17

A—Orange Indicator
B—Red Indicator

After turning key switch to D or Q position, orange (A) and red (B) indicators go off. Otherwise, check for additional anomalies, and repair as needed as shown in Murphy Gauge.

CP00718,00041F4-19-18DEC17

Other Indicators



YC8209—UN—23JAN15

After engine has started, all other indicators go off.

NOTE: After park brake is set, park brake light also goes off. If other indicators are still on, check diagnostic trouble codes and repair as needed.

CP00718,00041F5-19-18DEC17

Preheat the Engine



YC12244—UN—11DEC17

A—Throttle Switch

After engine has started, set throttle switch (A) to low speed (turtle) position (engine speed is about 1300 r/m). Run engine for 1—2 minutes. If weather is cold, increase running time to 2—4 minutes.

IMPORTANT: Never run engine at idle speed for longer than 5 minutes.

CP00718,00041F6-19-17AUG18

Use Auxiliary Start-Up Device to Start the Engine



YC12251—UN—21NOV17

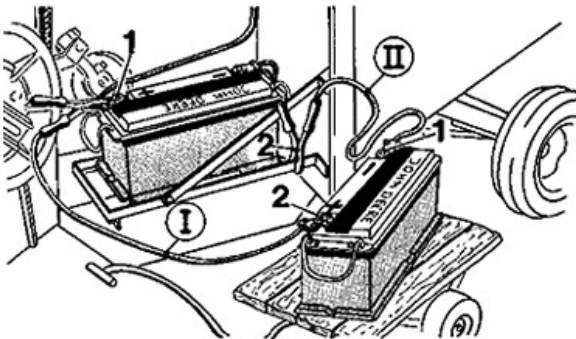
- A—Throttle Switch
B—Key Switch
C—Murphy Gauge

1. Set throttle switch (A) in low speed (turtle) position.
2. Turn key switch (B) to ON position, and keep this position for 15—20 seconds.
3. Observe reading changes on Murphy Gauge (C).
4. Quickly turn the key switch to ST position.
5. After engine has started, make sure that the switch returns to ON position (key switch automatic resets).

CP00718,00041F7-19-18DEC17

Using Parallel Battery to Start

CAUTION: Gases discharged from battery can cause explosion. Keep flame and fire away from battery. Make sure that battery connection is good. Wrong connection of cables can cause serious damage to the electrical system. Remember to connect ground cable to the negative electrode.



YC2394—UN—29OCT12

In cold weather condition, a 12-volt battery can be used in parallel with the original 12-volt electrical system of combine.

Start up procedures of using the auxiliary battery:

1. Connect auxiliary battery.
2. Start engine and run it till charging indicator goes off.
3. Disconnect and remove auxiliary battery.
4. If needed, turn lights on.

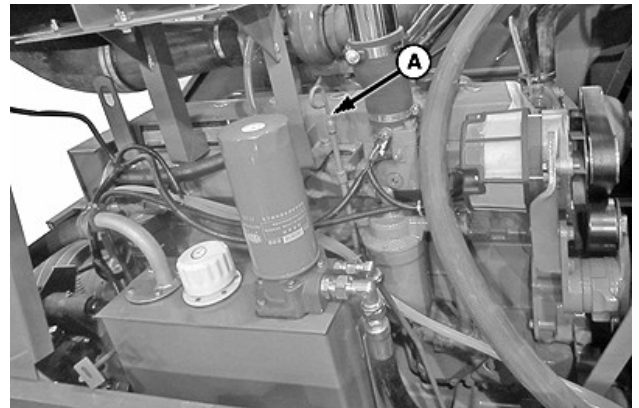
NOTE: This start-up procedure is only applicable in emergency situations.

CP00606,000184B-19-29MAY18

Engine Break-In

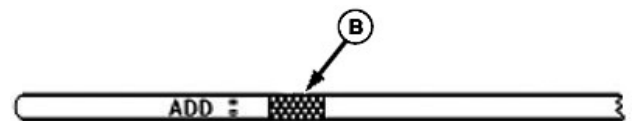
The engine is ready for normal operation. However, extra care during the first 100 hours of operation will result in more satisfactory long-term engine performance and life. DO NOT exceed 100 hours of operation with break-in oil.

1. This engine is factory-filled with John Deere DIESEL ENGINE BREAK-IN OIL (SAE 10W-30). Operate the engine at heavy loads with minimal idling during the break-in period.
2. If the engine has significant operating time at idle, constant speeds, and/or light load usage, or makeup oil is required in the first 100 hour period, a longer break-in period may be required. In these situations, an additional 100 hour break-in period is recommended using a new change of John Deere DIESEL ENGINE BREAK-IN OIL and a new John Deere oil filter.



YC6033—UN—26DEC13

A—Oil Dipstick



YC6034—UN—26DEC13

B—Crosshatch Mark on Oil Dipstick

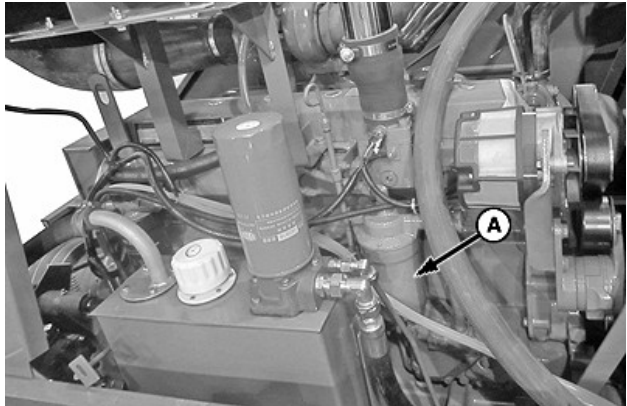
IMPORTANT: DO NOT add makeup oil until the oil level is **BELOW** the "ADD" mark. **DO NOT** fill above the crosshatch mark (B) on oil dipstick (A), whichever is present. Oil levels anywhere within the crosshatch are considered in the acceptable operating range. John Deere **ENGINE BREAK-IN OIL** should be used to make up any oil consumed during the break-in period.

3. Check engine oil level more frequently during engine break-in period. If oil must be added during this period, John Deere **DIESEL ENGINE BREAK-IN OIL** is preferred. See Diesel Engine Break-In Oil—Non-Emissions Certified and Certified Tier 1, Tier 2, Tier 3, Stage I, Stage II, and Stage III in Fuel, Coolant, and Lubricants section.
4. If John Deere engine break-in oil is not available, use engine oil of 10W-30 viscosity grade which is recommended by the American Society of Automotive Engineers and meets one of the following criteria. Change engine oil and filter after 100 operating hours:
 - a. API classified CE grade;
 - b. API classified CD grade;
 - c. API classified CC grade;
 - d. ACEA engine oil E2 series;
 - e. ACEA engine oil E1 series.
5. During the first 20 hours, avoid prolonged periods of engine idling or sustained maximum load operation. If engine will idle longer than 5 minutes, stop engine.

IMPORTANT: Some increase in oil consumption may be expected when low viscosity oils are used. Check oil levels more frequently.

If temperature is below 0°C (32°F), it may be necessary to use cold weather starting aids (see Cold Weather Start in Control of Combine section).

If air temperature is below -10°C (14°F), use an engine block heater.



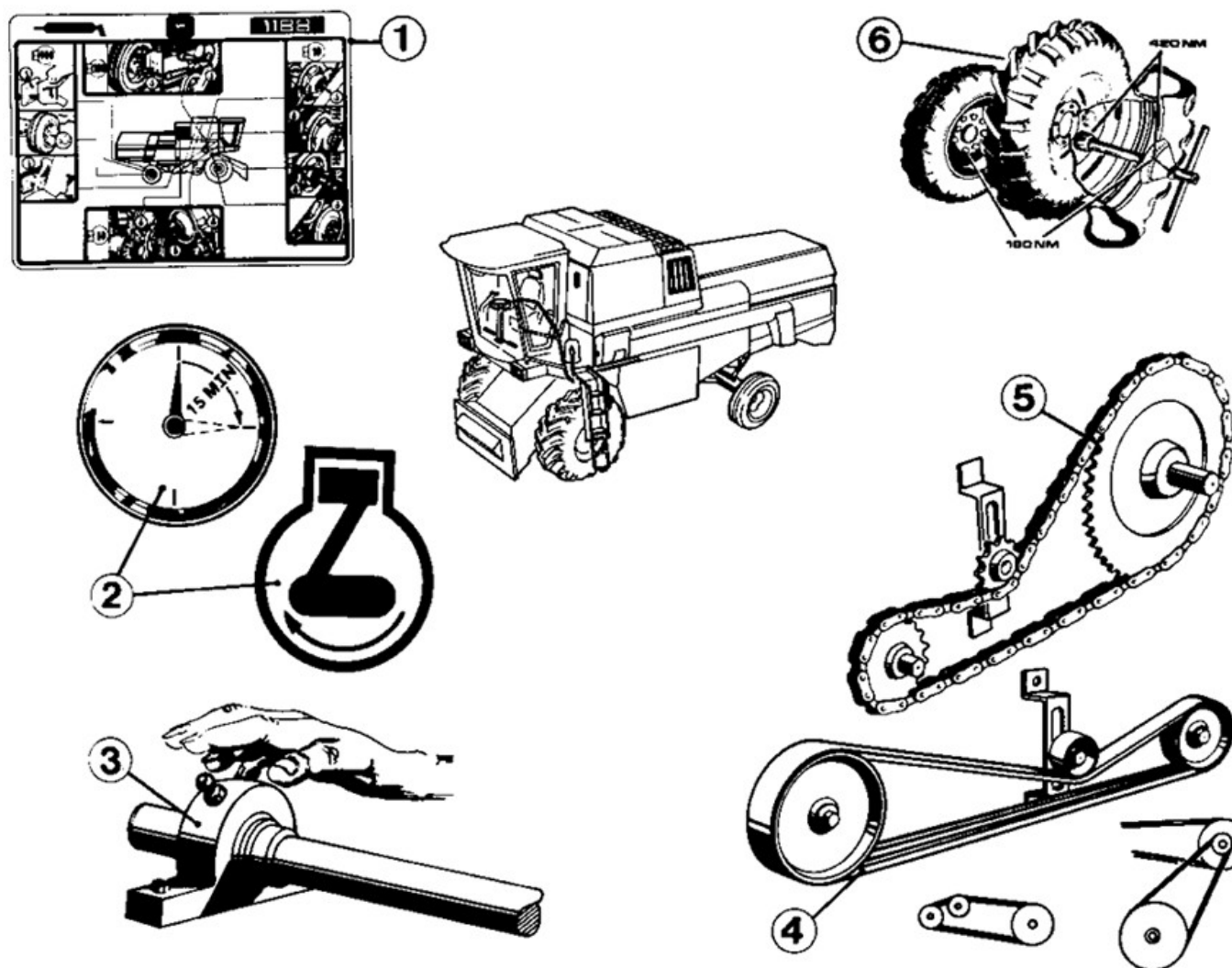
YC6032—UN—26DEC13

A—Engine Oil Filter

6. Before the first 100 hours (maximum), change engine oil and replace engine oil filter (A). (Refer to Engine Oil and Filter Service Intervals in Fuel, Coolant, and Lubricants section.) Fill crankcase with the normal seasonal viscosity grade oil. (See Diesel Engine Oil — Tier 3 and Stage III in Fuel, Coolant, and Lubricants section.)
7. Closely monitor coolant temperature in Murphy Gauge. If coolant temperature rises above 110°C, reduce load on engine. Unless temperature drops quickly, stop the engine and determine the cause of failure before resuming operation.
8. Monitor engine oil pressure in Murphy Gauge. When engine is running at low idling speed, minimum pressure is maintained at 103 kPa (1.03 bar). After engine is warmed up, pressure is increased to at least 241 kPa (2.41 bar). Maintain rated speed under full load.
9. Check alternator and fan drive V-belt for proper alignment and seating in pulley grooves.

CP00606,000184C-19-17AUG18

Machine Break-In



1. Switch off the engine, lubricate all lubrication points.
2. After engine has run for 15 minutes, engage and disengage all levers. If unusual sound is heard, immediately disengage separator and switch off the engine. Check diagnostic trouble codes and repair. Restart the engine and engage separator again.
3. If all transmission parts work normally, after the combine has run for 15—30 minutes, disengage the separator and switch off the engine. Check all bearings if they are over-heated.
4. Check the tension of V-belt. Adjust as necessary.

5. Check the tension of the drive chain, adjust as necessary.

6. Retighten front-wheel nuts with a torque of 420 N·m. Retighten rear-wheel bolts with a torque of 180 N·m.

NOTE: After engine has started for a few hours, check again the tension of belts and chains.

YC1309—UN—16FEB12

CP00718,00041FA-19-17AUG18

Stop Engine



YC11144—UN—17DEC17

A—Header Raise/Lower Lever

1. Push header raise/lower lever (A) forward to lower header slowly onto solid level ground.



YC8051—UN—21JAN15

A—Gear-Shift Lever

2. Press clutch pedal. Set gear-shift lever (A) in neutral position.

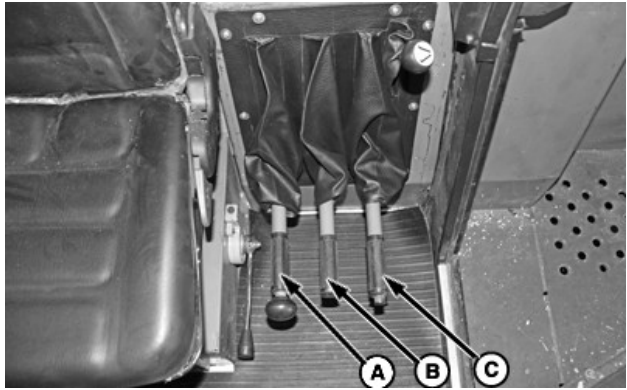


YC12244—UN—11DEC17

A—Throttle Switch

3. Set throttle switch (A) in low speed (turtle) position.

IMPORTANT: After full load operation, do not stop engine suddenly.



YC8211—UN—21JAN15

A—Header Engage Lever
B—Separator Engage Lever
C—Unloading Auger Engage Lever

4. Before stopping the engine, disengage header engage lever (A), separator engage lever (B), and unloading auger engage lever (C).
5. Before stopping the engine, run it at idle speed for 2 minutes.

IMPORTANT: If the engine is suddenly stopped, some components of the engine are over heated. Immediately restart the engine. Remove the key and stop the engine after engine runs at idle speed for 1—2 minutes,



YC12246—UN—05DEC17

A—Key Switch

6. Turn key switch (A) to shut off engine.

IMPORTANT: Set park brake, and remove the key before leaving machine.



YC11148—UN—17DEC17

A—Park Brake

7. Set park brake (A).

CP00606,000184D-19-29MAY18

Start Engine in Cold Weather Conditions

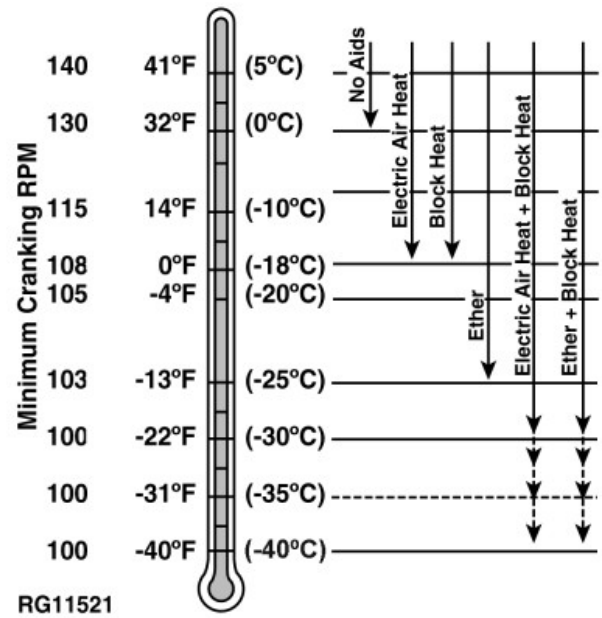


YC1314—UN—29NOV12



TS1356—UN—18MAR92

Use Starting Fluid with Caution



RG11521

RG11521—19—10JAN01

Start Engine in Cold Weather Conditions

CAUTION: If engine has air intake heater or preheat plug, never use starting fluid. Ether injection starting fluid is highly flammable and potentially explosive and can cause serious personal injury.

Do not use starting fluid near flames, sparks, or fire. Never burn or puncture a starting fluid can.

Engine is equipped with cold weather start aid such as the intake air heater, coolant heater, fuel heater, or ether injector.

Starting aids are required below 0°C (32°F). When temperature is higher, using auxiliary start aid can improve starting performance. Auxiliary start aid is also needed if load is too high when starting or idling.

Use specified engine oil (see Diesel Engine Oil — Tier 3 and Stage III in Fuel, Coolant, and Lubricants section) to start the engine in cold weather conditions.

Synthetic oil has better low temperature fluidity, especially in cold weather conditions.

If temperature is below -30°C (-22°F) or altitude is above 1500 m (5000 feet), use auxiliary start aid. (See Using Booster Battery or Charger in Control of Combine section.)

1. Carry out all checks required in Pre-Start Checks in Control of Combine section.
2. Set throttle button to low speed (turtle) position.
3. Turn key to D position, but never start the engine before engine preheat reading becomes correct.
4. Turn key switch clockwise to Q position and start the engine. After engine has started, release key switch so that it returns to D position.

5. After engine has started, run engine at idle speed (not over 1200 rpm) to preheat. (See Preheat the Engine in Control of Combine section.)

For more information about working in cold weather conditions, contact an authorized service dealer.

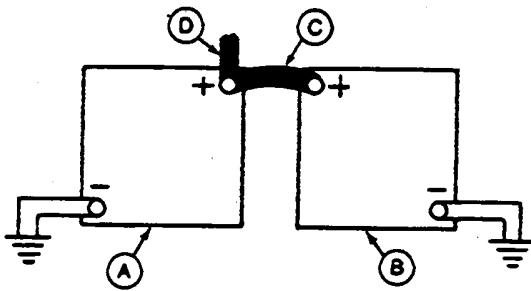
CP00606,0001851-19-17AUG18

Using Booster Battery or Charger



Battery Explosion

TS204—UN—15APR13



12-Volt System

RG4678—UN—14DEC88

- A—12-volt Machine Battery
B—12-volt Booster Battery
C—Booster Cable
D—Starter Cable

Connect a 12-volt booster battery in parallel with the machine battery and aid starting in cold weather condition. A heavy load jumper cable must be used.

CAUTION: Gas released from battery can cause explosion. Keep battery away from sparks and flames. Shut off charger first before connecting or disconnecting battery charger. Make last connection and first disconnection at a position away from battery. Negative (-) cable must be connected last and disconnected first.

CAUTION: Battery terminals, connectors, and related accessories contain lead and lead compounds, as well as chemicals known to cause cancer or reproductive disease. Wash hands after contact.

IMPORTANT: Be sure that polarity is correct. Positive electrode must be connected to the positive terminal and negative electrode must be connected to the ground. Use a 12-volt booster battery for 12-volt electrical system.

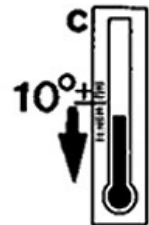
1. Connect to the booster battery to provide required voltage for the engine.

NOTE: To avoid sparks, make sure that the free end of the jumper cable does not contact the engine.

2. Connect one end of the jumper cable to the positive (+) terminal of the booster battery.
3. Connect another end of the jumper cable to the positive (+) terminal of the machine battery (connecting with starter).
4. Connect one end of another jumper cable to the negative (-) terminal of the booster battery.
5. After cable is connected, connect the negative (-) cable to the ground on the engine frame which is away from the battery.
6. Start the engine. After switching on the engine, disconnect jumper cable. First disconnect negative (-) cable.

CP00718,00041FD-19-17AUG18

Fuel System



YC1315—UN—29NOV12

Drain water and impurities from the fuel tank, the sediment bowl, and the primary fuel filter every day before starting the engine.

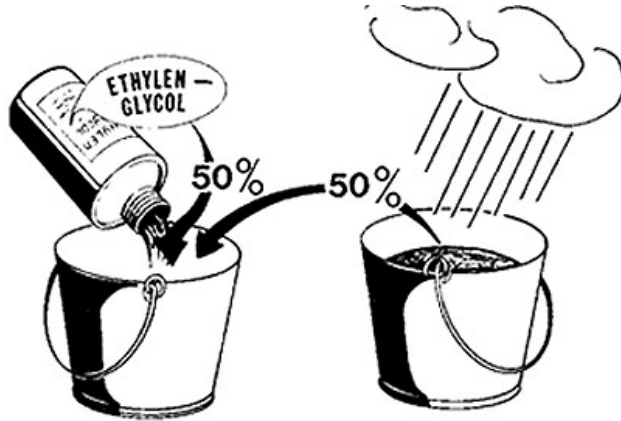
Refill fuel tank to prevent condensation and corrosion every day after harvesting, particularly after a harvest season.

In winter, when temperature is below 10°C, use special fuel or add anti-gelling compound to fuel to maintain proper viscosity.

See Diesel Fuel in Fuel, Coolant, and Lubricants section.

CP00718,00041FE-19-17AUG18

Engine Cooling System



YC2395—UN—29NOV12

Coolant has been added into the engine cooling system in the factory to prevent corrosion and freezing (if air temperature is below -37°C).

It is recommended to use John Deere Cool-Gard™ II coolant.

See Diesel Engine Coolant (Engine with Wet sleeve Cylinder Liners) in Fuel, Coolant, and Lubricants section.

CP00718,00041FF-19-17AUG18

Reminder

IMPORTANT: Only trained operators should be allowed to operate the combine.

Comply with relevant laws and regulations when driving on public roads.

CP00606,000184E-19-29MAY18

Avoid Excessive Engine Idling

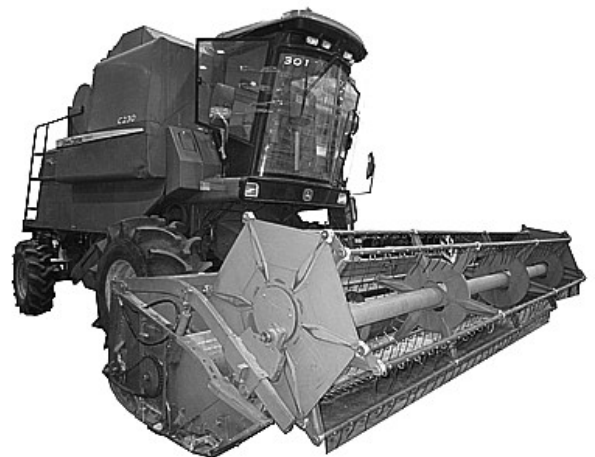


YC1316—UN—24DEC12

Excessive idling causes engine coolant temperature to drop below the normal range. This, in turn, causes crankcase oil dilution, due to incomplete fuel combustion, and permits the formation of gummy deposits on valves, pistons and piston rings. It also promotes rapid accumulation of the engine sludge and unburned fuel in the exhaust system. When heated to normal temperature, engine can run at low idling speed. Factory setting of low idling speed is 1300 rpm. If the engine has been idling over 5 minutes, stop the engine first and restart it later.

CP00718,0004201-19-17AUG18

Header Lifting Device

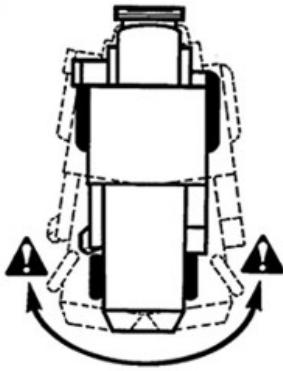


YC8052—UN—30DEC14

Lift the header to transport or operation position.

CP00718,0004202-19-17AUG18

Steer and Drive



YC2755—UN—29OCT12

The steering wheels are at the rear of combine. Operator must be familiarized with steering.

The area at the rear of combine must have enough space to steer in both directions.

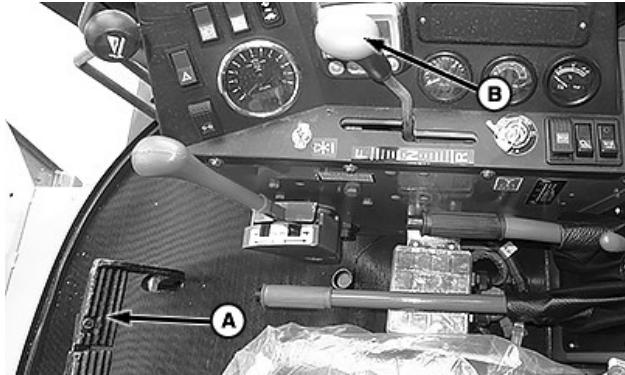
NOTE: Steering wheel is hard to turn when the combine is not running.

CP00606,000184F-19-17AUG18

IMPORTANT: If the brake did not work, release the pedals and quickly step on it again.

CP00606,0001850-19-17AUG18

Operate Brake (Hydrostatic Drive Type)



YC12255—UN—21NOV17

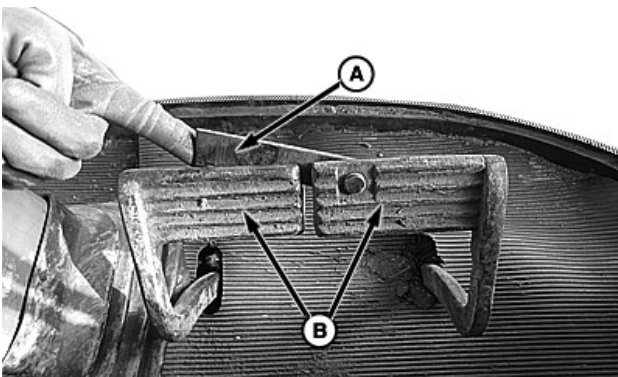
A—Brake Pedal
B—Hydrostatic Drive Lever

1. Set hydrostatic drive lever (B) to neutral position.
2. Engage brake pedals (A).

NOTE: Before braking an optional hydrostatic drive type combine, set the hydrostatic drive lever (B) to neutral position.

CP00718,0004205-19-18DEC17

Brake Pedals



YC8055—UN—21JAN15

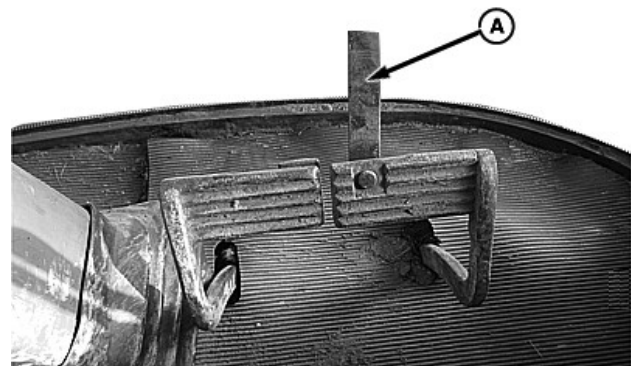


YC8056—UN—04JAN15

A—Latch
B—Brake Pedals (2 used)

Lock brake pedals (B) together with latch (A) when driving on roads.

Operate Combine in the Field



YC8057—UN—04JAN15

A—Latch

Lift latch (A), unlock brake pedals to assist machine in sharp turns.

Press right brake pedal for a sharp turn to the right.

Press left brake pedal for a sharp turn to the left.

IMPORTANT: To brake the combine, press both pedals at the same time.

CP00718,0004206-19-17AUG18

Clutch Pedal



A—Clutch Pedal

Shift gears after pressing clutch pedal (A). When driving the combine, do not press the clutch pedal (A) to prevent damaging transmission mechanism.

NOTE: Never press the clutch pedal when driving downward.

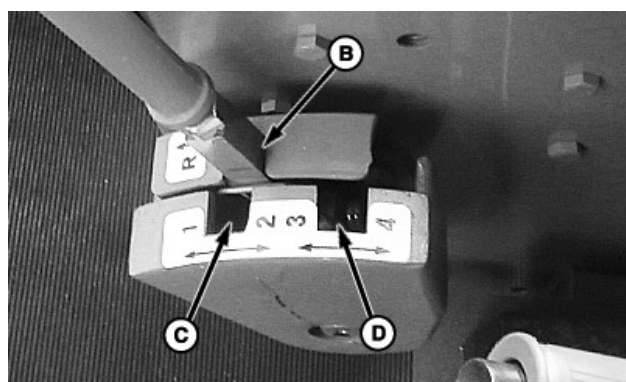
CP00606,00012DE-19-17AUG18

Gear-Shift Operation

IMPORTANT: Shift gears when the combine is stopped completely. Do not shift gears when the combine is moving.



YC8051—UN—21JAN15



YC10844—UN—08DEC16

- A— Gear-Shift Lever
B— Slot R
C— Slot 1—2
D— Slot 3—4

After disengaging the clutch pedal, place gear-shift lever (A) in required positions:

Slot R (Reverse): Place gear-shift lever in slot R (B), push forward.

Slot 1—2: Place gear-shift lever in slot 1—2 (C), push forward to the first gear. Pull backward to the second gear.

Slot 3—4: Place gear-shift lever in slot 3—4 (D), push forward to the third gear. Pull backward to the fourth gear.

- Shift directly the gear-shift lever (A) to the fourth gear for road transportation.
- Shift directly the gear-shift lever (A) to required gears when the combine is harvesting.

JL31334,00016F3-19-03MAY18

Throttle Switch



YC12244—UN—11DEC17

A—Throttle Switch

There are three engine speed positions on the throttle switch (A). Low-speed position (engine speed: 1300 rpm), medium-speed position (engine speed: 1800 rpm), high-speed position (engine speed: 2400 rpm). Set throttle switch at required position to change engine speed (lower speed to high speed: turtle to rabbit).

CP00718,0004209-19-17AUG18

Ground Speed Control (Belt Ground Drive Type Combine)

NOTE: Before moving combine forward or backward, stop machine, set ground speed lever in lowest speed position, and shift into desired gear.

1. Start the engine.
2. Raise the header to operation or transport position.
3. Observe obstacles and people around combine.
4. Sound horn and warn people around the machine.



A— Ground Speed Lever

YC11149—UN—17DEC17

5. **Move forward:** Set ground speed lever (A) in lowest speed position. Disengage clutch pedal, shift into desired gear, and engage clutch pedal. Push ground speed lever forward to get required speed.

IMPORTANT: Select appropriate speed for road transport and operation.

6. **Move backward:** Set ground speed lever (A) in lowest speed position, Disengage clutch pedal, shift into reverse gear, and engage clutch pedal. Push ground speed lever forward to get required speed.

CP00718,000420A-19-18DEC17



YC11146—UN—17DEC17

A— Hydrostatic Drive Lever

5. **Move forward:** Set hydrostatic drive lever (A) in neutral position, shift into desired gear, and push hydrostatic drive lever forward to get required speed.

IMPORTANT: Select appropriate speed for road transportation and operation. The reverse range provides a large number of selectable speeds. Select the appropriate reverse speed for moving backward

6. **Move backward:** Set hydrostatic drive lever (A) in neutral position, shift into desired gear, and pull hydrostatic drive lever backward to get required speed.

CP00718,000420B-19-18DEC17

Ground Speed Control (Hydrostatic Drive Type Combine)

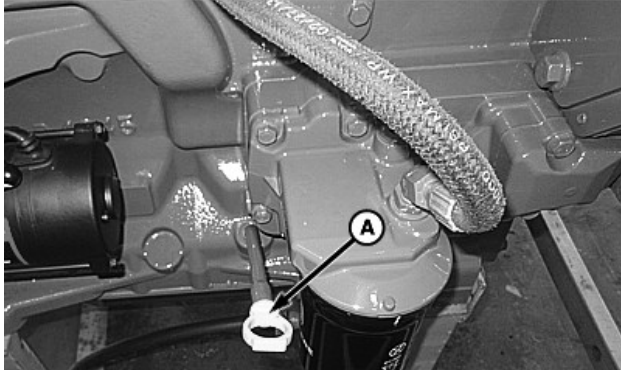
NOTE: Before moving combine forward or backward, stop machine, set hydrostatic drive lever in neutral position, shift into desired gear.

1. Start the engine.
2. Raise the header to operation or transport position.
3. Observe obstacles and people around combine.
4. Sound horn and warn people around the machine.

Operating Engine

Check Engine Sump Oil Level

CAUTION: To prevent interruption of oil circulation when engine is in inclined position, oil level does not fall below the "MIN" marks on oil dipstick.



A—Oil Dipstick

YC8903—UN—30JUL15

IMPORTANT: Checking engine oil level frequently can extend the engine service life.

Oil level is kept within required range of the oil dipstick (A). Check every 10 hours (or everyday). Before removing oil dipstick (A), completely clean the area around the oil dipstick.

For more detailed information, see Pre-start Checks in Control of Combine section.

CP00606,0001858-19-29MAY18

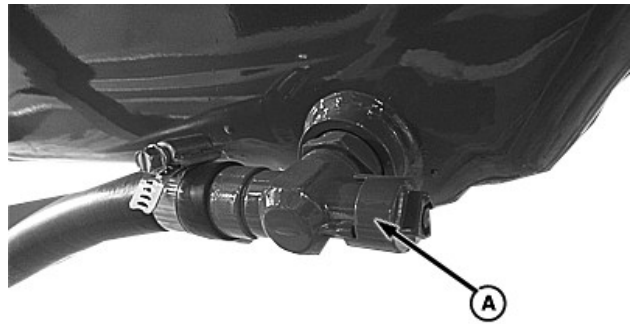
Change Engine Oil and Replace Filter

NOTE: During break-in, change engine oil and filter for the first time before 100 hours maximum of operation.

Change engine oil and filter according to the requirements, see Engine Oil and Filter Service Intervals in Fuel, Coolant, and Lubricants section. Change oil also after a harvest season.

Change engine oil and filter as follows:

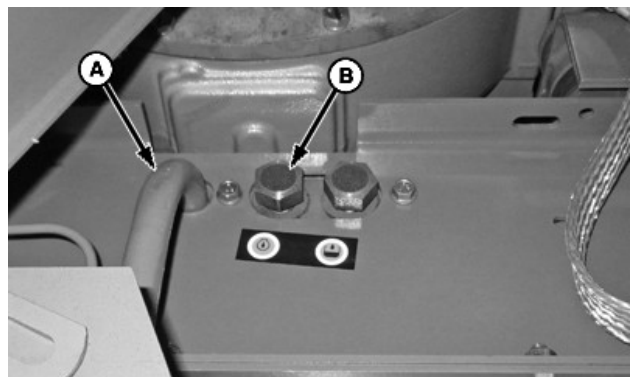
1. Warm up oil by running engine approximately 5 minutes. Shut off engine.



YC8631—UN—28FEB16

A—Drain Plug

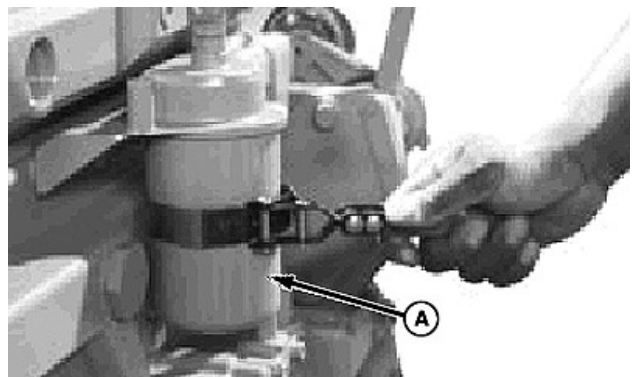
2. Loosen the drain plug (A).



YC8109—UN—26JAN15

A—Guide Pipe
B—Engine Oil Drain Plug

3. Loosen the engine oil drain plug (B), oil flows out from the guide pipe (A) to a suitable container.
4. Drain the crankcase oil from engine while warm.



YC2701—UN—24DEC12

A—Filter Element

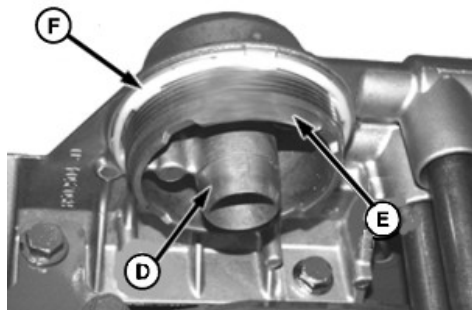
5. Turn and remove the filter element (A) using a suitable filter wrench. Discard the oil filter element.



YC9730—UN—21MAR16

B—Inner Seal
C—Outer Seal

6. Apply the clean engine oil to the new filter at the inner (B) and outer (C) seals , and the filter threads.



YC9731—UN—21MAR16

Filter and Mounting Header

D—Sealing Surface of Header
E—Sealing Surface of Header
F—Dust Seal

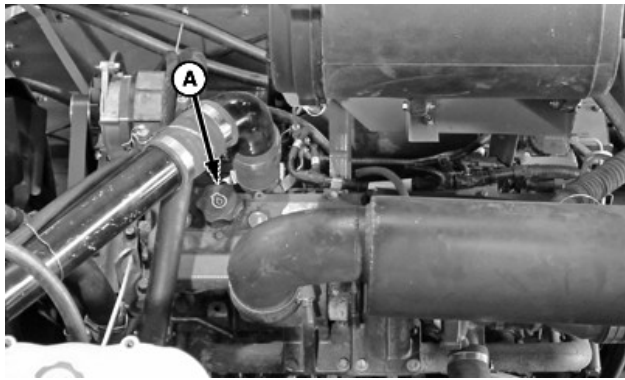
7. Wipe both sealing surfaces of header (D and E) with a clean rag. Ensure the notches in the dust seal (F) are properly installed in the slots in the housing. Replace the dust seal if damaged.

IMPORTANT: When installing the filter element, Hand tighten only. A filter wrench is used for removal only.

8. Install and tighten the oil filter by hand until firmly against the dust seal (F). DO NOT apply an extra 3/4 to 1-1/4 turn after gasket contact as done with the standard filters.
9. Tighten the drain plug.
10. Tighten the engine oil drain plug on the left-hand side of the machine.

IMPORTANT: Immediately after completing any oil change, crank engine for 30 seconds without permitting engine to start. Ensure adequate lubrication to the engine components before engine starts.

NOTE: Crankcase oil capacity varies slightly. ALWAYS fill the crankcase within the crosshatch marks on dipstick. DO NOT overfill.



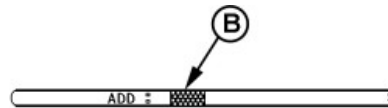
YC8108—UN—26JAN15

A—Oil Filler Cap

11. Fill engine crankcase with specified engine oil through the oil filler cap (A). (See Diesel Engine Oil — Tier 3 and Stage III in Fuel, Coolant, and Lubricants section.)

To determine the correct oil quantity for your engine, see Engine in Table of Technical Parameters section.

12. Start engine and run to check for possible leaks.



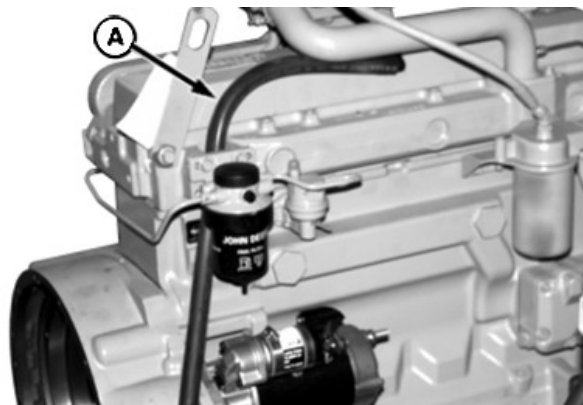
RG13730—UN—11NOV04

B—Crosshatch Marks

13. Stop engine and check oil level after 10 minutes. Ensure that oil level is within the crosshatch marks (B) on dipstick.

CP00606,0001859-19-29MAY18

Check Crankcase Ventilation System



YC10731—UN—01SEP16

A—Crankcase Ventilation Tube

If you operate the engine in the dusty conditions, check the system at shorter intervals.

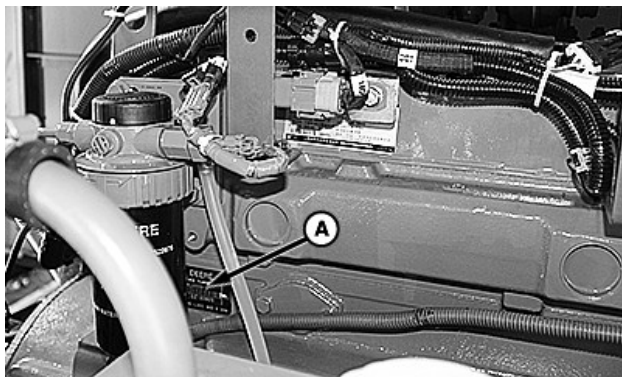
1. Remove and clean the crankcase ventilation tube (A).
2. Install the ventilation tube. Ensure that the O-ring fits

correctly the elbow adapter in the rocker arm cover. Tighten the hose clamp securely.

CP00718,000420E-19-18DEC17

Engine Serial Number

Record Engine Serial Number



YC9576—UN—14JAN16

A—Engine Serial Number Plate

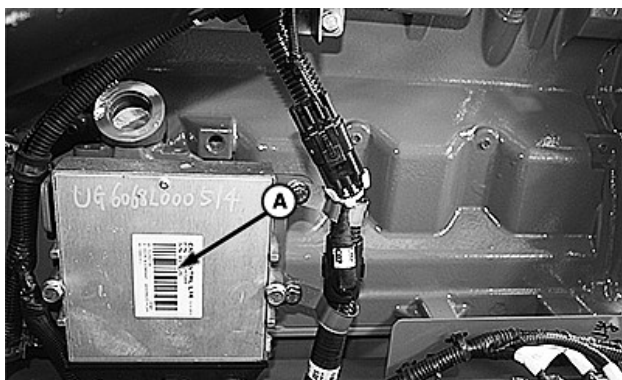
Each engine has a John Deere engine serial number.

The engine serial number plate (A) is on the right-hand side of the cylinder block behind the fuel filter.

Record all of the numbers and letters found on your engine serial number plate in the spaces provided.

Engine Serial Number:	
-----------------------	--

Record Engine Control Unit (ECU) Serial Number



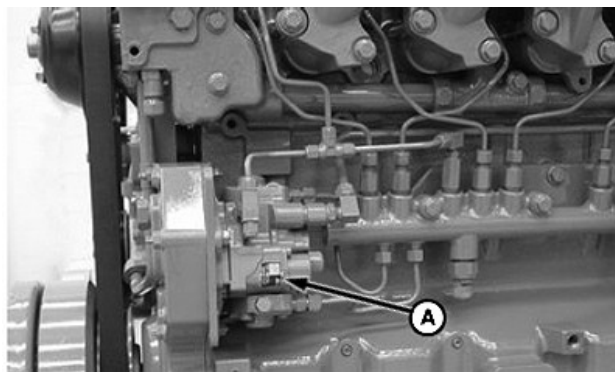
YC9575—UN—14JAN16

A—ECU Serial Number Label

Record the parts number and serial number information found on the serial number label (A) on the engine control unit (ECU) mounted on the engine.

Part No.	
Serial No.	

Record High-Pressure Fuel Pump Model Number



YC9732—UN—21MAR16

A—Serial Number Plate

Record the high-pressure fuel pump model and serial number information found on the serial number plate (A).

Model No.:	
RPM:	
Manufacture's No.:	
Serial No.:	

CP00606,000185A-19-29MAY18

Avoid Injury



YC2706—UN—29OCT12

CAUTION: Under sufficient pressure, emitted diesel can penetrate the skin, causing serious injury or death. Avoid hazard by relieving pressure before disconnecting lines. Before pressurizing this system, make sure that all joints are tightened and pipes are without damage. Fuel leak from the tiny hole is almost invisible. Use cardboard or wood plate to check for leaks, instead of using the hand. If injured by leaked fuel, immediately go to hospital for treatment.

CP00718,0004210-19-18DEC17

Do Not Open High-Pressure Fuel System



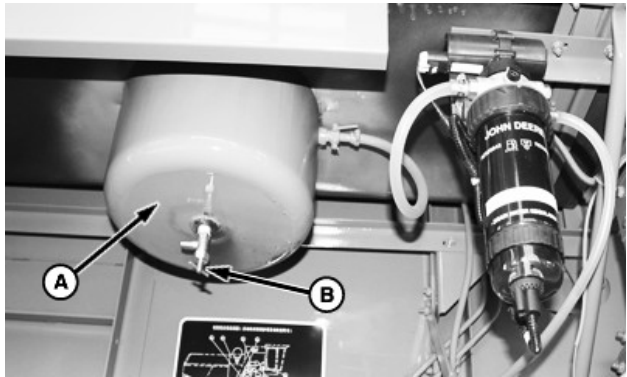
TS1343—UN—18MAR92

High-pressure fluid remaining in fuel lines can cause serious injury. Do not disconnect or attempt repair of fuel lines, sensors, or any other components between the high-pressure fuel pump and nozzles on engines with High Pressure Common Rail (HPCR) fuel system.

Only technicians familiar with this type of system can perform repairs. (See your John Deere dealer.)

DX,WW,HPCR1-19-07JAN03

Fuel Tank Sediment Bowl



YC10698—UN—08DEC16

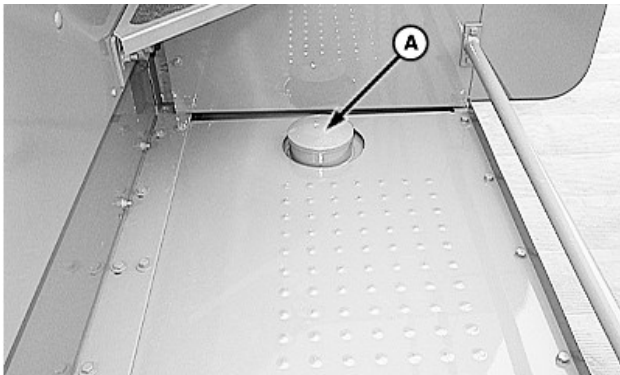
A—Sediment Bowl
B—Drain Valve

Sediment bowl (A) is at the lower part of the fuel tank for draining water and sediments.

Open the drain valve (B) daily before work starts. After all sediments and water are drained out, close the drain valve.

CP00718,0004213-19-18DEC17

Fuel Tank Filler



YC10699—UN—08DEC16

A—Filler Cap

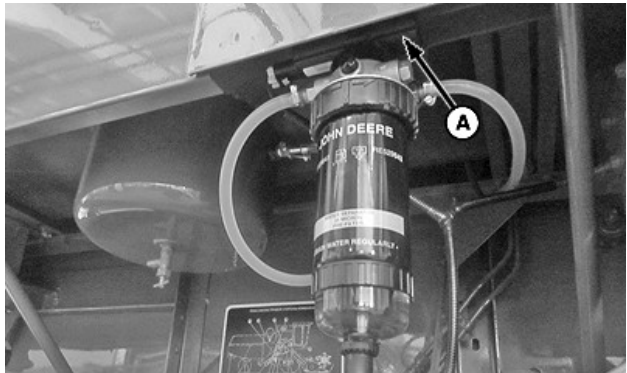
Filler cap (A) of the fuel tank is at the lower part of the rear platform. The fuel tank filler has a vent.

Clean surrounding area before opening the filler cap.

CP00718,0004212-19-19DEC17

Electronic Fuel Transfer Pump

IMPORTANT: Avoid that material buildup leads to a fire or over-heating of the fuel transfer pump, clean area around the fuel transfer pump frequently.



YC3214—UN—03JAN14

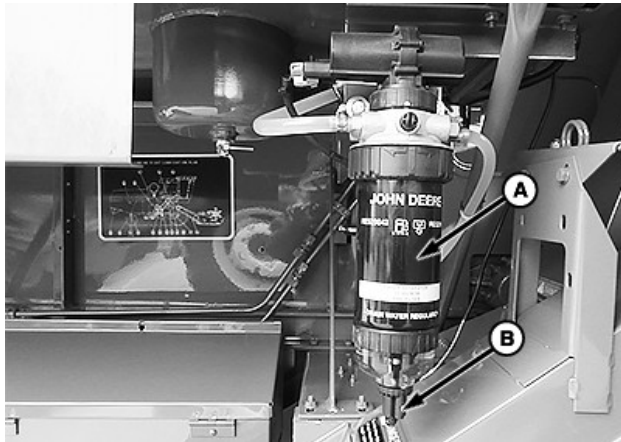
A—Electronic Fuel Transfer Pump

Electronic fuel transfer pump (A) is located above the primary fuel filter.

The engine control unit (ECU) controls electronic fuel transfer pump. When the key switch is turned to D position, electric fuel pump starts. If engine does not start within 2 minutes, engine control unit (ECU) stops the electric fuel transfer pump.

CP00718,0004214-19-18DEC17

Primary Fuel Filter



YC11162—UN—27DEC16

A—Primary Fuel Filter
B—Drain Plug

Primary fuel filter (A) is located in the front of the fuel tank.

IMPORTANT: Drain water into a suitable container and dispose of properly.

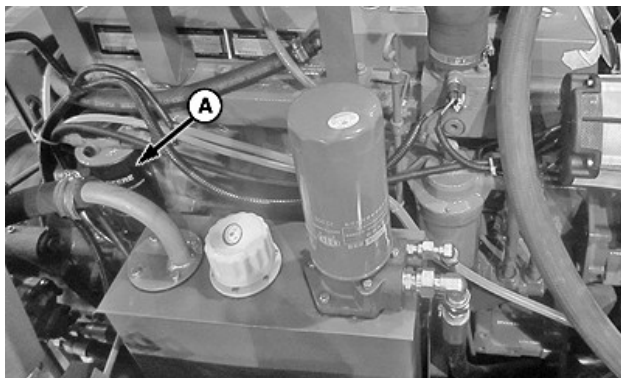
Primary fuel filter separates water from the fuel. If the filter is fitting with a see-through bowl, drain as needed based on a daily visual inspection.

Primary fuel filter has the alarm function regarding water in fuel. If too much water is in fuel, alarm indicator on the cab dashboard is on.

CP00718,0004215-19-18DEC17

Final Fuel Filter

IMPORTANT: Never fill the unfiltered fuel into the injection pump.



YC3230—UN—03JAN14

A—Final Fuel Filter

Final fuel filter (A) is located at the rear side of engine.

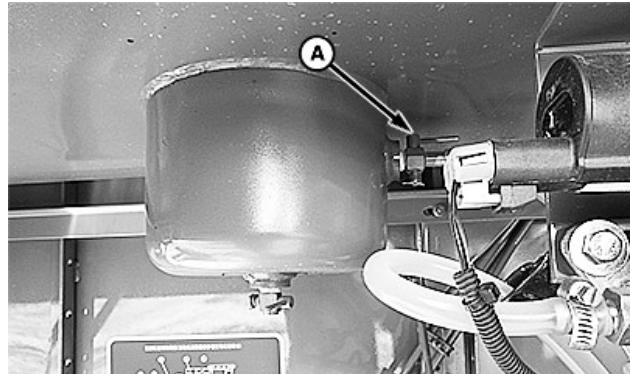
CP00718,0004216-19-18DEC17

Replace Fuel Filter Elements

For engine equipped with the primary fuel filter and final fuel filter, change both filter elements every 200 hours.

CAUTION: Escaping fluid under pressure can penetrate the skin causing serious injury. Relieve pressure before disconnecting fuel or other lines. Tighten all connectors before applying pressure. Keep hands and body away from pinholes or nozzles from which fluids eject under high pressure. Search for leaks using a piece of cardboard or wood plate. Do not use bare hands to check for leaks.

If any fluid is injected into the skin, it must be surgically removed within a few hours by a doctor familiar with this type of injury or gangrene result. Doctors unfamiliar with this type of injury call the Deere & Company Medical Department in Moline, Illinois, or other knowledgeable medical source.

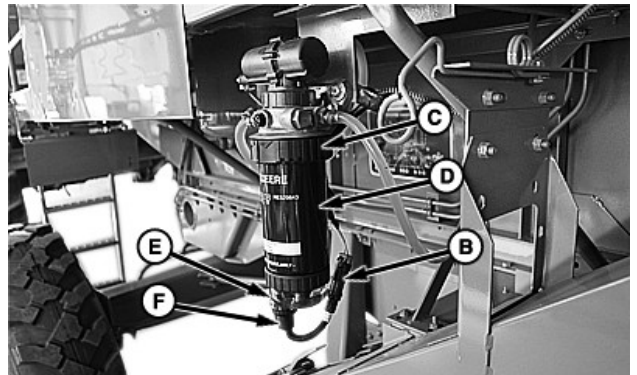


YC10701—UN—08DEC16

Open Position Shown

A—Fuel Shutoff Valve

1. Close the fuel shutoff valve (A).
2. Thoroughly clean the fuel filter assemblies and surrounding areas.



YC8808—UN—01JUL15

Primary Fuel Filter

B—Connector
C—Retaining Ring
D—Filter Element

E—Water Separator Bowl
F—Fuel Drain Plug



YC8116—UN—26JAN15

Final Fuel Filter

G—Retaining Ring
H—Filter Element
I—Fuel Drain Plug

3. Disconnect the connector (B) of the sensor.
4. Remove the fuel drain plugs (F and I) and drain fuel into a suitable container.

NOTE: Lifting the retaining rings as they are rotated helps to get them pass raised locators.

5. Firmly grasp the retaining rings (C and G), rotate them 1/4 turn clockwise (when viewed from the top). Remove the retaining rings (C and G) and filter elements (D and H) together.
6. Inspect the filter mounting base for cleanliness. Clean as required.
7. Remove the water separator bowl (E) from filter. Drain and clean the water separator bowl. Dry with the compressed air. Install bowl onto the new filter element. Tighten securely.
8. Install the new filter elements onto the mounting bases. Be sure that filter elements are properly indexed and firmly seated on bases. It is necessary to rotate filters for correct alignment.
9. Align keys on the filter elements with slots in the filter bases.

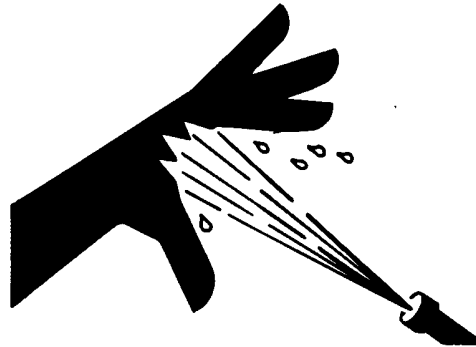
NOTE: The proper installation is indicated when a "click" is heard and a release of the retaining ring is felt.

10. Install retaining rings onto the mounting bases, make sure that dust seals are in place on the filter base. Hand tighten rings counterclockwise (about 1/3 turn) to snap into the detents. Do not overtighten the retaining rings.
11. Reconnect the connector of the sensor.

12. Open the fuel shutoff valve and bleed the fuel system. Tighten the bleed plug.

CP00606,000185B-19-29MAY18

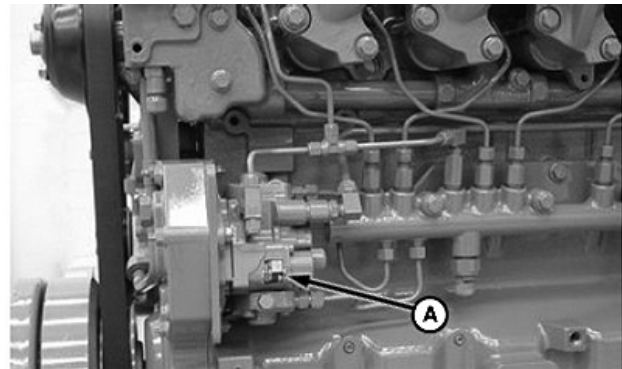
Do Not Modify Fuel System



TS1343—UN—18MAR92

CAUTION: Do not open high-pressure fuel system. High-pressure fluid remaining in fuel lines can cause serious injury. Do not disconnect or attempt repair of fuel lines, sensors, or any other components between the high-pressure fuel pump and nozzles on engines with High Pressure Common Rail (HPCR) fuel system.

IMPORTANT: Avoid causing seizure of pump parts, NEVER steam clean or pour cold water on an injection pump while it is still warm.



YC9732—UN—21MAR16

A—High-Pressure Fuel Pump

Modification or alteration of the high-pressure fuel pump (A), the injection timing, or the fuel injectors in ways not recommended by the manufacturer terminates the warranty obligation to the purchaser.

In addition, tampering with the fuel system which alters emission-related equipment on engines results in fines or other penalties, per EPA regulations or other local emission laws.

Do not attempt to service injection pump or fuel injectors yourself. Special training and special tools are required. (See your authorized servicing dealer or engine distributor.)

JL31334,0001726-19-03MAY18

Bleed the Fuel System

Bleed the fuel system in the following situations:

- Fuel filter element is changed.
- Fuel in the tank is used up.
- Fuel line and fuel injector are removed, or fuel pump is cleaned.
- Engine is idling for a long time.

CP00718,0004219-19-18DEC17

Bleed at the Primary Fuel Filter

Bleed the low-pressure fuel system according to following steps:

- 1.Fill fuel tank to the full level.
- 2.Turn the key switch to D position, start the electronic fuel transfer pump.



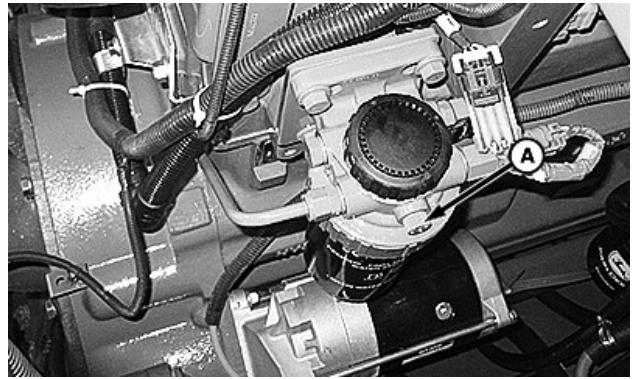
YC11192—UN—04JAN17

A—Bleed Screw

- 3.Loosen the bleed screw (A).
- 4.When no air bubbles emerge, tighten the bleed screw.

JL31334,0001727-19-03MAY18

Bleed at the Final Fuel Filter



YC9577—UN—14JAN16

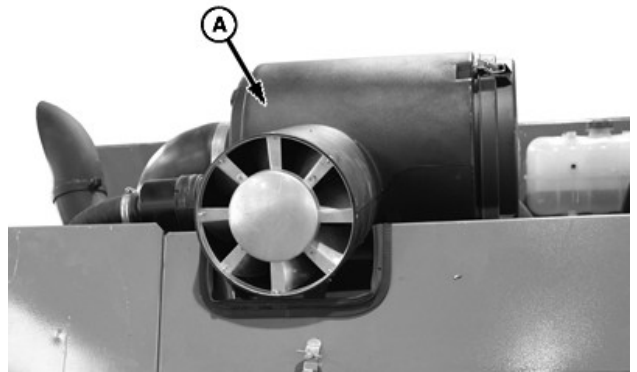
A—Bleed Screw

Turn the key switch to D position, start electronic fuel transfer pump. Loosen the bleed screw (A) and observe the bleed hole. When no air bubbles emerge, tighten the bleed screw.

CP00718,000421B-19-18DEC17

Air Filter

IMPORTANT: DO NOT start engine without the air filter.



YC8118—UN—26JAN15

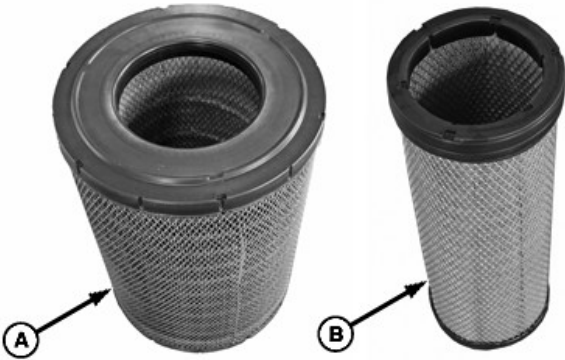
A—Air Filter

Air filter (A) is located above the engine compartment. When the Murphy Gauge shows that air filter is plugged, clean up immediately.

JL31334,0001729-19-03MAY18

Air Filter Elements

IMPORTANT: When installing the primary filter element and secondary filter element, make sure that the positions are correct and keep them clean.



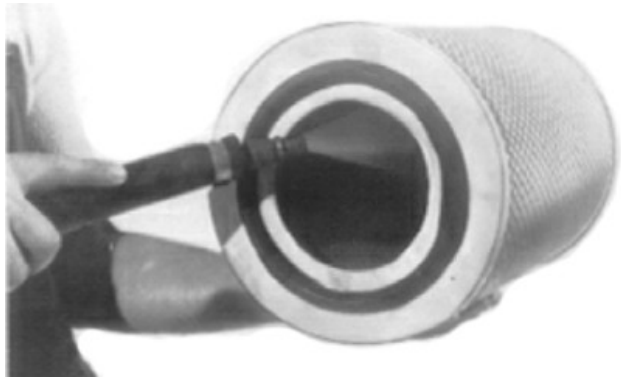
A—Primary Filter Element
B—Secondary Filter Element

YC8134—UN—26FEB15

Each filter has one dry-type primary filter element (A) and one secondary filter element (B). If the primary filter element is damaged, the secondary filter element can prevent dust from entering the engine.

JL31334,0001728-19-03MAY18

Use Compressed Air to Clean the Air Filter



YC1341—UN—03JAN14

When using compressed air to clean the filter, blow from the inside and the pressure does not exceed 500 kPa (5 bar). After ten times of the simple cleaning, use compressed air to clean again.

CP00718,000421F-19-18DEC17

Clean the Primary Air Filter Element

CAUTION: Shut off engine, set park brake and remove key.



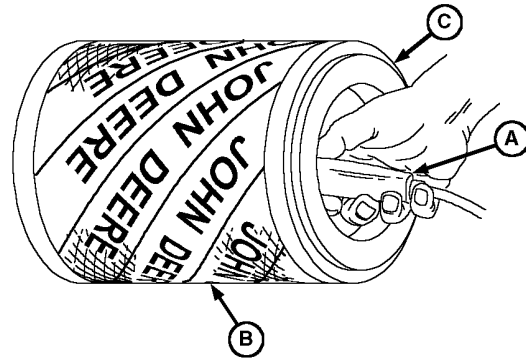
YC8135—UN—26FEB15

Cleaning in the field (simple cleaning):

When filter element is cleaned in the field, place it onto a soft surface, and use hand to pat it.

CP00718,000421E-19-18DEC17

Check Primary Air Filter Element



H59771—UN—31AUG99

A—Light
B—Outer Screen
C—Filter Gasket

1. Check carefully for holes holding a bright light (A) inside the filter element. Scrap filter element even if it only has a tiny hole.
2. Make sure that the outer screen (B) is not bent. Vibration quickly wears the filter and even makes a hole.
3. Make sure that filter gasket (C) is in good condition. If the gasket is damaged or missing, replace the primary air filter element.

CP00718,0004220-19-18DEC17

Store Air Filter Element

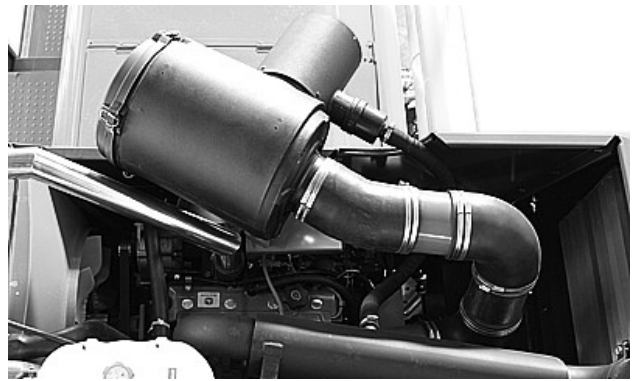


YC1343—UN—03JAN14

To prevent dust and damage, store the clean filter element in a plastic bag.

CP00718,0004221-19-18DEC17

Air Intake Hose

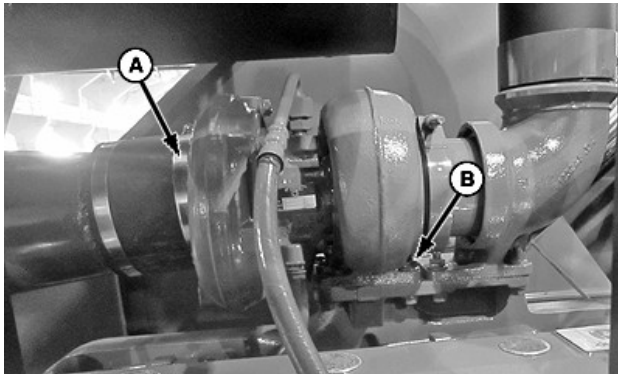


YC8811—UN—01JUL15

Hose clamps are used to seal and connect the steel pipes and rubber hoses. Check at least once a year if all hose clamps are sealed and tight. Replace hoses and hose clamps as necessary.

CP00718,0004223-19-18DEC17

Turbocharger



YC3232—UN—23DEC13

A—Connector
B—Connection point

Carefully check all connectors (A) and connection points (B) every 200 hours, ensure that the turbocharger and lubricant pipes do not leak.

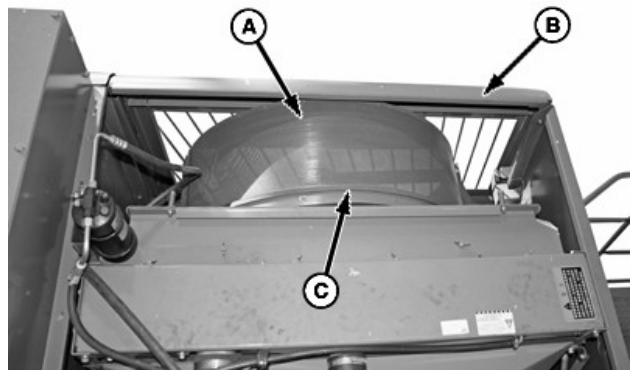
CP00718,0004222-19-18DEC17

Cooling System

Cooling system is composed of the radiator, fan, rotary screen, vacuum tube, coolant pump, thermostat, and connection hoses.

CP00718,0004224-19-18DEC17

Clean Rotary Screen



YC8137—UN—27FEB15

A—Rotary Screen
B—Shield
C—Drive Belt

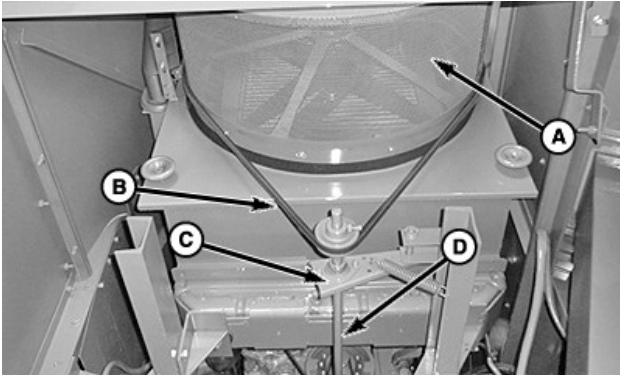
Keep the rotary screen (A) clean. Remove the chaff and dust from the outside of rotary screen daily.

Clean several times a day during the harvest period when it is dusty.

When cleaning the radiator, open the shield (B) and remove the drive belt (C).

CP00718,0004225-19-18DEC17

Rotary Screen Drive



A—Rotary Screen
B—Drive Belt
C—Bracket
D—Drive Shaft

The middle pulley drives rotary screen (A) by the drive belt (B).

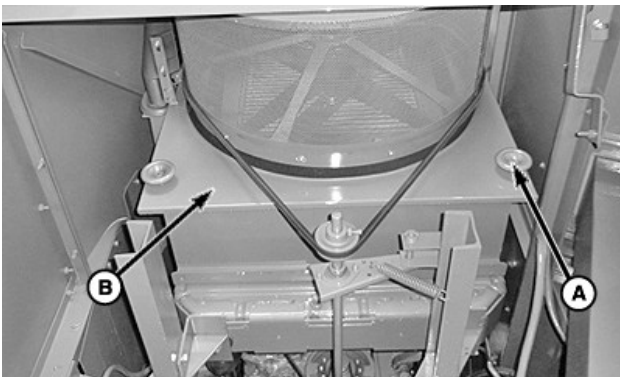
To clean the radiator, remove the drive belt.

NOTE: Avoid that the drive belt contacts oil or grease.

The V-belt is tensioned by a spring.

CP00718,0004226-19-18DEC17

Clean Radiator



A—Bolt (2 used)
B—Rotary Screen Assembly

1. Remove the drive belt.
2. Remove the bolts (A).
3. Fold up and support the rotary screen assembly (B).
4. Clean the outside of radiator by using a brush. If the radiator is dirty, use the compressed air or low-pressure water to clean the radiator from inside to outside.

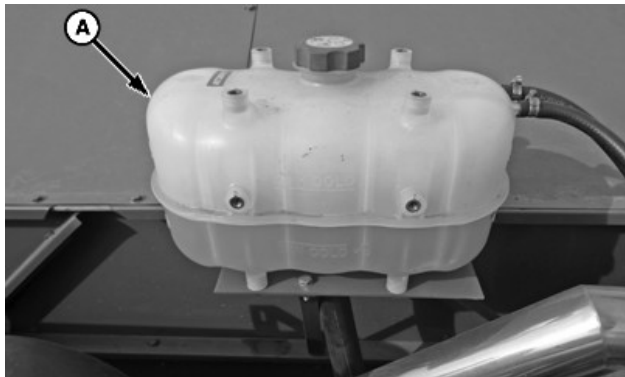
CP00718,0004227-19-18DEC17

Engine Coolant

CAUTION: When engine is hot, cooling system is at hot state under high pressure. To avoid burning, **NEVER** open the expansion tank cap at the hot state.

CAUTION: Only add coolant when engine is at cold state, to avoid damage to the engine.

IMPORTANT: Before winter comes, check the condition of coolant mixture. Engine is filled with DEERE antifreeze at factory, to prevent engine from freezing at temperatures above -37° C.



YC7859—UN—04NOV14

A—Expansion Tank

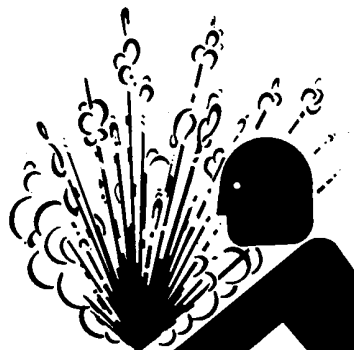
Expansion tank (A) is located outside of the rear wall of the grain tank.

Expansion tank is a translucent plastic container. Maximum (MAX) and minimum (MIN) marks are on the side of the tank, so that the coolant level can be checked without opening the tank cover.

Daily check the coolant level (or every 10 hours of operation). The coolant level is between MAX and MIN marks at the cold state.

JL31334,000172A-19-03MAY18

Radiator Cap



TS281—UN—15APR13

CAUTION: Explosive release of fluids from pressurized cooling system can cause serious burns. Shut off engine. Only remove radiator cap when cool enough to touch with bare hands. Slowly loosen cap to relieve pressure before removing completely.



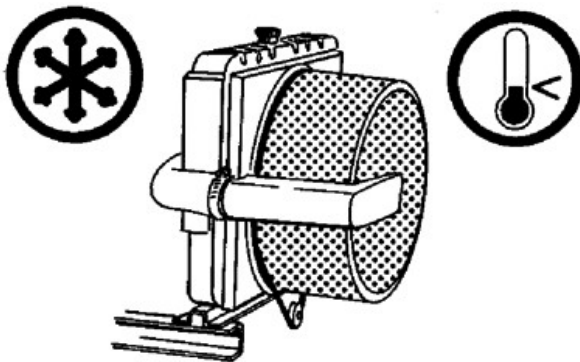
A—Radiator Cap

YC10767—UN—07DEC16

Radiator cap (A) is located above the radiator, open radiator cap to fill with coolant as needed. There is a pressure relief valve at the radiator cap. It opens when the pressure is 0.3—0.4 bar.

CP00606,000185C-19-29MAY18

Winter Operation of Rotary Screen

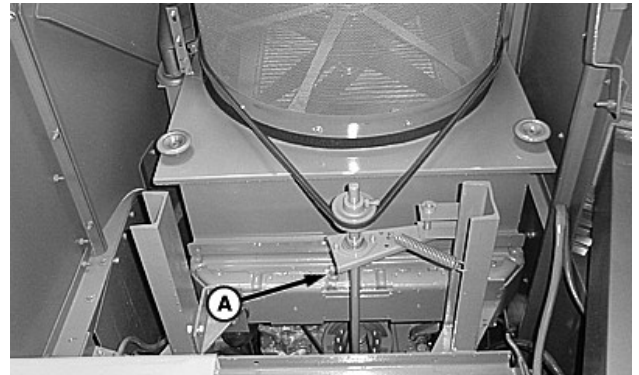


YC1302—UN—16FEB12

IMPORTANT: If the ice and snow accumulate on the rotary screen, the rotary screen belt breaks easily when engine starts. When temperature is below 0°C, ALWAYS check if the rotary screen can rotate smoothly before starting the engine.

CP00718,000422A-19-18DEC17

Water Drain Valve



YC8813—UN—01JUL15

A—Water Drain Valve

Water drain valve (A) is located at the bottom of the radiator. Drain out the coolant by opening water drain valve as needed.

CP00606,00018C1-19-29MAY18

Cooling System Flushing Procedure

IMPORTANT: It is recommended to use John Deere Cool-Gard coolant. Change interval is 2 years if using other coolant.

1. Flush the cooling system once every 6 years.
2. After draining all coolant, close drain valve (or plug) and add clean water.
3. Start the engine, warm the oil to the normal working temperature. Shut off engine.
4. Turn on the heater in the cab (if equipped) and keep it on until cleaning of cooling system ends.
5. Drain water before the rust and sediment settle.
6. Open the drain valve and use general cooling system cleaning agent to clean the cooling system.
7. After using cleaning agent to clean the cooling system, refill clean water into the system. When engine runs and water temperature reach normal working level, shut off engine, drain water away.
8. Close the drain valve and add the appropriate amount of John Deere Cool-Gard coolant.

CP00718,000422C-19-18DEC17

Check and Adjust Engine Valve Clearance

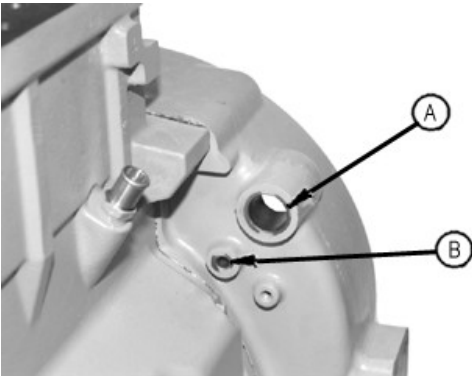
CAUTION: To prevent accidental starting of engine while performing valve adjustments, always disconnect the **NEGATIVE (—)** battery terminal.

IMPORTANT: Valve clearance **MUST BE** checked and adjusted with engine **COLD**.

1. Remove the rocker arm cover and crankcase ventilator tube.

IMPORTANT: Visually inspect contact surface of the valve tips and wear pads of the rocker arm . Check all parts for excessive wear, breakage, or cracks. Replace parts that show visible damage.

Inspect valve clearance of rocker arms. If the clearance is too big, inspect thoroughly to identify damaged parts.



RG7408—UN—06AUG96

Flywheel Housing Timing Holes

**A—Timing/Rotating Hole
B—Timing Pin Hole**

2. Remove plastic plugs or cover plate from the engine timing/rotation hole (A) and timing pin hole (B).
3. Use JDE83 or JDG281A flywheel turning tool. Rotate the engine flywheel in running direction (clockwise viewed from front) until No. 1 cylinder is at TDC compression stroke. Insert JDG1571 Timing Pin in flywheel.

If No. 1 cylinder rocker arms are loose, the engine is at No. 1 TDC compression.

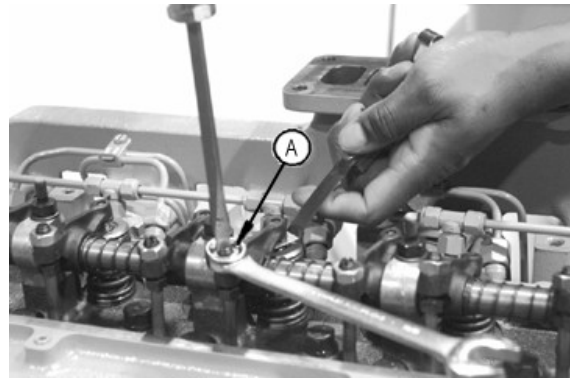
If No. 1 cylinder rocker arms are not loose, rotate engine one full revolution (360°) to No. 1 TDC compression.

4. With engine lock-pinned at TDC of No. 1 compression stroke of piston. Check valve clearance to following specifications.

Specification

Intake Valve Clearance for
Checking (Rocker Arm-to-Valve
Tip) (Engine Cold)—Clearance. 0.31—0.38 mm

Exhaust Valve Clearance for
Checking (Rocker Arm-to-Valve
Tip) (Engine Cold)—Clearance. 0.41—0.48 mm



RG7409—UN—06AUG96

A—Lock Nut

5. If valves need adjusting, use the adjustment procedure of valve clearance on the next page and adjust to the specification. Loosen the lock nut (A) on the rocker arm adjusting screw. Turn adjusting screw until feeler gauge slips with a slight drag. Hold the adjusting screw from turning with screwdriver and tighten the lock nut to specifications. Recheck the clearance again after tightening the lock nut. Readjust the clearance as necessary.

Specification

Intake Valve Clearance for
adjusting (Rocker Arm-to-Valve
Tip) (Engine Cold)—Clearance. 0.36 mm

Exhaust Valve Clearance for
adjusting (Rocker Arm-to-Valve
Tip) (Engine Cold)—Clearance. 0.46 mm

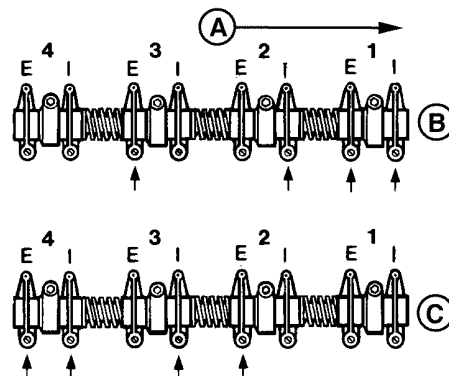
Screw Jam Nut—Torque. 27 N·m

6. Replace the rocker arm cover and crankcase ventilation tube.

JL31334,000172B-19-03MAY18

Valve Clearance Adjustment Procedure

NOTE: Fire order is 1-3-4-2.



RG4776—UN—31OCT97

**A—Front of Engine
B—No. 1 Piston TDC Compression
C—No. 4 Piston TDC Compression
E—Exhaust Valve**

I—Intake Valve

1. Lock No. 1 piston at TDC compression stroke (B).
2. Adjust valve clearance on No. 1 and 3 exhaust valves and No. 1 and 2 intake valves.
3. Turn crankshaft 360°. Lock No. 4 piston at TDC compression stroke (C).
4. Adjust valve clearance on No. 2 and 4 exhaust valves and No. 3 and 4 intake valves.

CP00718,000422E-19-18DEC17

Check Belt Tensioner Spring Tension and Belt Wear

Belt drive systems equipped with automatic (spring) belt tensioners cannot be adjusted or repaired. The automatic belt tensioner is designed to maintain proper belt tension over the life of the belt. If tensioner spring tension is not within specification, replace tensioner assembly.

Check Belt Wear



YC9734—UN—21MAR16

Belt Tensioner

- A—Cast Stop
B—Cast Stops(2 used)

The belt tensioner is designed to operate within the limit of arm movement provided by the cast stops (A and B) when correct belt length and geometry are used. Visually inspect cast stops (A and B) on belt tensioner assembly.

If the tensioner stop on the swing arm (A) is hitting the fixed stop (B), check mounting brackets (alternator, belt tensioner, idler, and so on) and the belt length.

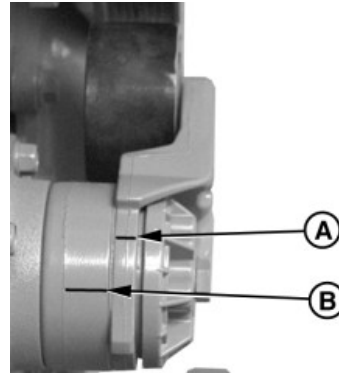
Replace belt as needed.

Check Tensioner Spring Tension

A belt tension gauge does not give an accurate measure of the belt tension when the automatic spring tensioner is used. Measure tensioner spring tension using a torque wrench and procedure outlined:

NOTE: While belt is removed, inspect pulleys and bearings. Rotate and feel for hard turning or any unusual sounds. If pulleys or bearings need replacement, see your John Deere dealer.

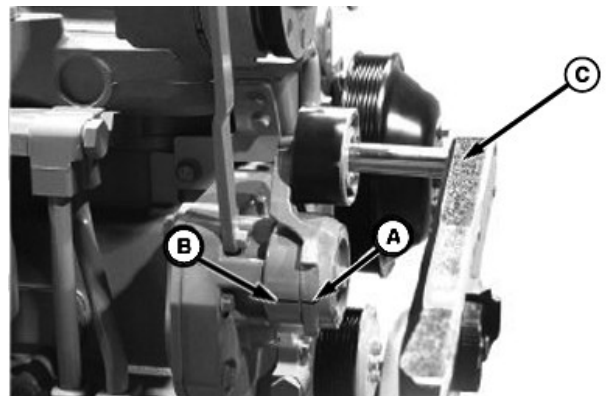
1. Release tension on belt using a long-handled 1/2 inch drive tool in the square hole on the tensioner arm. Remove belt from pulleys.
2. Release tension on the tensioner arm and remove drive tool.
3. Put a mark (A) on the swing arm of the tensioner as shown.



RG7977—UN—14NOV97

Marks on Tensioner

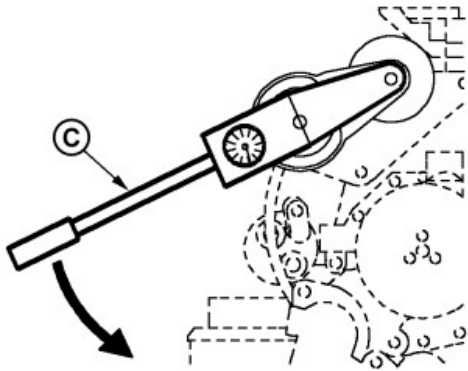
- A—Mark
B—Mark



YC9735—UN—21MAR16

Align Marks

- A—Mark
B—Mark
C—Torque Wrench



RG12065—UN—28JAN02

Align Torque Wrench with Pulley and Tensioner

C—Torque Wrench

4. Measure 21 mm from mark (A) on the swing arm and put a mark (B) on tensioner mounting base.
5. Install torque wrench (C) so that it is aligned with centers of pulley and tensioner. Rotate the swing arm using a torque wrench until marks (A and B) are aligned.

NOTE: Threads on the belt tensioner roller cap screw are LEFT-HAND threads.

6. Record the torque wrench measurement and compare with specification. Replace tensioner assembly as required.

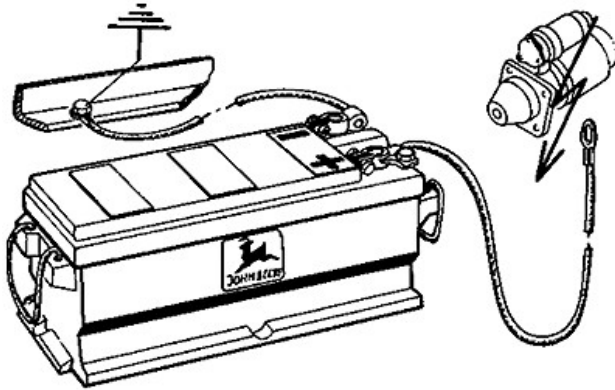
Specification

Spring Tension—Torque. 18—22 N·m
13—16 lb·ft

JL31334,000172D-19-03MAY18

Electrical, Hydraulic, and Drive Systems

Precautions of Using Battery



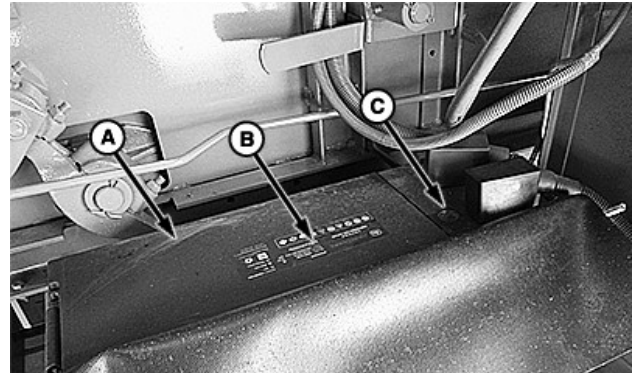
YC3152—UN—30NOV12

1. Check if battery has cracks and leakage of electrolyte.
2. Always check if the connection of cables is firm. If necessary, use a steel brush or scraper to clear oxides on the binding post and the post head. Smear a thin layer of vaseline or lubricate grease to prevent formation of sulfate.
3. If voltage is too high, switch on the headlight. Check the voltage after headlight is lit for 30 seconds. If voltage is too low, charge the battery. Check the voltage again.
4. Use the multimeter to measure the battery terminal voltage. Usually the terminal voltage is ≥ 12.6 V.
5. Negative electrode of battery is grounded through the battery disconnect switch (grounding), and positive electrode is connected to power supply. Do not reverse polarity of electrodes.
6. Never use wire-spark method to check the voltage. When the alternator is running, never disconnect the wiring to the battery.
7. When the battery becomes almost discharged, remove and recharge it. Never forcibly start the machine. Forcibly starting the machine may result in bending the electrode plate, falling off active materials and premature scrapping of battery.
8. Before repairing electrical components, disconnect the battery disconnect switch. Otherwise, electrical components can be damaged.
9. When the combine requires welding, grounding wire of the welding machine is as close as possible to the weld. Disconnect the battery disconnect switch and remove the alternator positive wire (red).
10. Measure the battery voltage. When the alternator is not working, the voltage is 12—12.5 volts. When the alternator is working, the voltage is 12.8—13.8 volts.
11. When the electrolyte level drops too fast, check for leakage or if the output voltage of alternator is too high.
12. Battery must be placed securely on the combine.

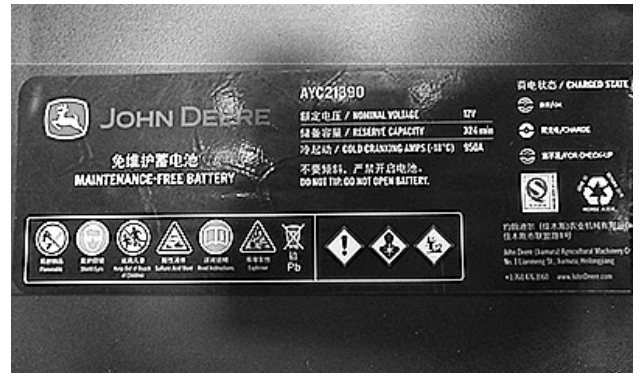
CP00718,000403B-19-13DEC17

Check Battery Charge

IMPORTANT: It is forbidden to add electrolyte to the maintenance-free battery. Battery cannot be tilted.



YC10875—UN—07NOV16



YC10876—UN—08DEC16

A—Maintenance-Free Battery
B—Label
C—Battery Status Indicator

Maintenance-free battery (A) is at the left-hand side of the machine. Often check the color of battery status indicator (C). Recharge or change the battery according to the information on the label (B).

Color	Battery Status
Green	Good
White	Recharge
Red	Lack of electrolytes, change the battery.

CP00606,000186B-19-20AUG18

Basic Electrical Component Handling / Precautions for Vehicles Equipped with Computer Controlled Systems

- When the key switch is on, it is forbidden to connect jumper cable.

Reason: That generates voltage spikes which can damage electronic components.

- Disconnect battery connections before charging (if possible).

Reason: Electric load of machine can slow down charging process. Battery charger can generate voltage spikes which can damage electronic components.

- When starting the machine, never exceed rated working voltage.

Reason: Operation can damage electronic components.

- When the key switch is on or machine is running normally, never connect or disconnect electrical connector.

Reason: Operation can interrupt the computer program and cause computer system failure, and can generate voltage spikes which can damage electronic components.

- Except for special requirements, it is forbidden to do system test when electrical components are charged or grounded.

Reason: Incorrect voltage connected to incorrect place of the electronic system can damage electronic components.

- When welding on machine, make sure that ground connector is connected to the welded components. For best protection, disconnect all electronic control units before welding.

Reason: Welding produces high current which can damage wiring harness of ground circulation. Welding also generates voltage spikes which can damage electronic components.

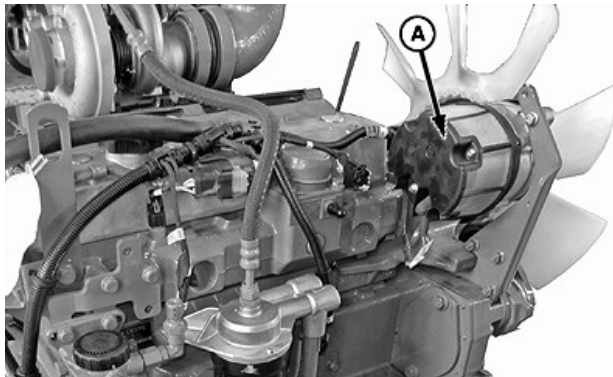
CP00718,000403D-19-20AUG18

Cause	Maintenance measures
Ground wire is loose, dirty, or corroded.	Clean and tighten all binding posts.
Battery voltage is low.	Charge the battery.
Viscosity of engine oil is not correct.	Drain original engine oil and fill in specified engine oil.

CP00718,000403E-19-20AUG18

Alternator

IMPORTANT: If positive and negative terminals of battery are reversely connected, that can damage the alternator. When connecting the battery, ensure that positive and negative terminals are not reversed.



YC8122—UN—27JAN15

A—Alternator

Disconnect the ground cable before operating the alternator (A).

Never ground the terminals or connect the jumper wire to any alternator terminal.

Do not connect or disconnect alternator wires when battery is connected or alternator is running.

Regularly clean up debris on the alternator cover and ensure good heat dissipation.

Avoid overloading the alternator, prohibit connecting other load or electrical equipment.

CP00606,000185D-19-29MAY18

Starter

NOTE: When repairing electrical system, disconnect the ground cable.

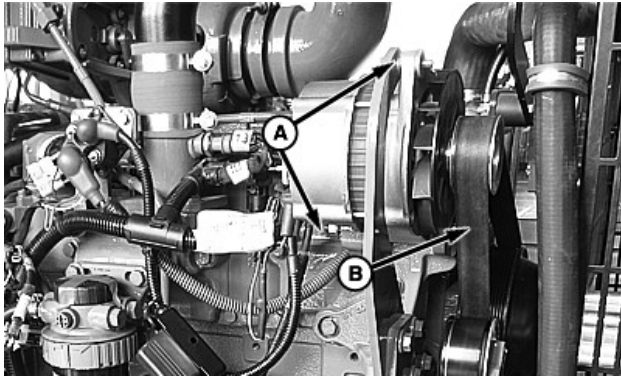
When starting, if the starter does not run or runs slowly, refer to the following table to carry out checks. If the starter is faulty, contact the John Deere dealer.

Service the starter once a year.

IMPORTANT: Total time for starting and preheat cannot exceed 10 seconds. Otherwise, the pre-heater, starter, and wiring can be damaged.

Adjust and Check Tension of Alternator Drive Belt

CAUTION: Disconnect the battery ground cable before checking and servicing the electrical system.



YC8817—UN—08JUL15

A—Nuts (2 used)
B—Belt

IMPORTANT: Do not adjust belt too tight. Avoid damages to the belt.

Loosen nuts (A). Turn alternator downward, so that belt (B) is tensioned. Exert force of 39 N on the belt. Keep a belt deflection of 10—15 mm.

Check Alternator:

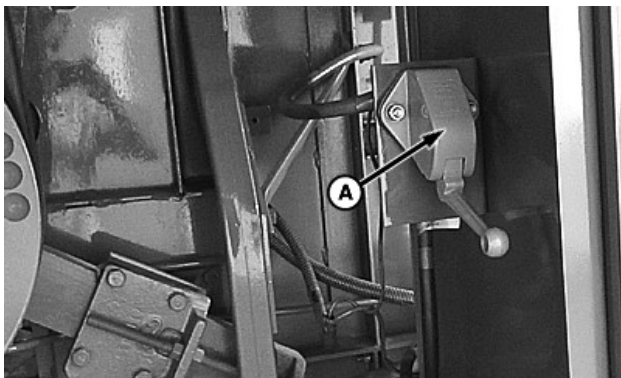
Check the alternator once annually by a qualified technician.

CP00718,0004040-19-13DEC17

Battery Disconnect Switch

IMPORTANT: Battery disconnect switch does not control power to engine control unit (ECU). If machine is not used for a long period, disconnect the battery ground cable.

IMPORTANT: In order to prevent ECU data loss, wait for at least 30 s to turn off the battery disconnect switch after engine is shut off.



YC8818—UN—08JUL15

OFF Position Shown

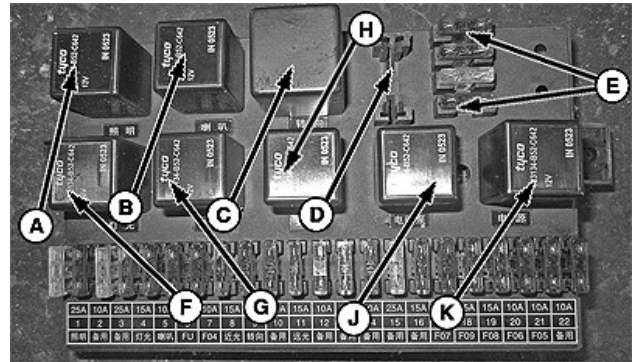
A—Battery Disconnect Switch

Battery disconnect switch (A) is close to the battery.

Set the battery disconnect switch to OFF position every day after harvesting.

CP00606,000185E-19-20AUG18

Fuse Center



YC2833—UN—03DEC12

A—Worklight Relay
B—Horn Relay
C—Flasher
D—Empty
E—Spare Fuses(4 used)
F—Side Worklight Relay
G—Low-Beam Headlight Relay
H—High-Beam Headlight Relay
J—Fuel Pump Relay
K—Power Relay

In the fuse center, there are 1 flasher, 6 relays, and 26 fuses (the diagram shows 4 spare fuses at the right upper side and 22 fuses at the lower side).

22 fuses: from left to right:

1. Worklight fuse 25A
2. Spare fuse 10A
3. Spare fuse 25A
4. Side worklight fuse 15A
5. Horn fuse 10A
6. Marker light fuse 10A
7. Grain unloading alarm 10A
8. Low-beam headlight fuse 15A
9. Turn-signal light fuse 10A
10. Spare fuse 10A
11. High-beam headlight fuse 15A
12. Spare fuse 10A
13. Spare fuse 15A
14. Spare fuse 10A
15. Spare fuse 25A
16. Spare fuse 15A
17. Instrument power fuse 10A

18. Windshield wiper fuse 10A
19. Backup light and horn fuse 15A
20. Brake light fuse 10A
21. Reel speed motor fuse 10A
22. Spare fuse 10A

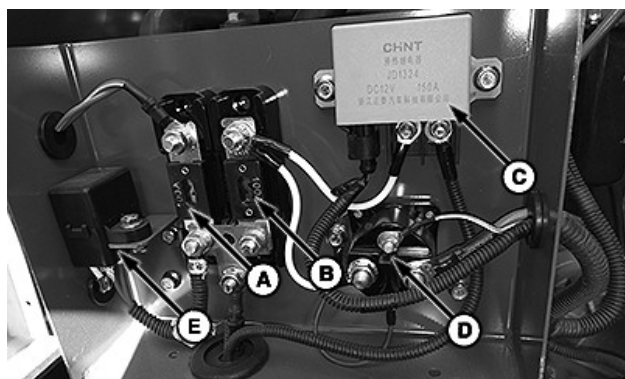
Different fuse specifications are differentiated by colors.

IMPORTANT: Never use fuses that exceed the specified values.

JL31334,000173F-19-03MAY18

Electrical Box on Engine

CAUTION: Make sure to disconnect the battery disconnect switch before replacing the fuse.



YC11126—UN—04DEC17

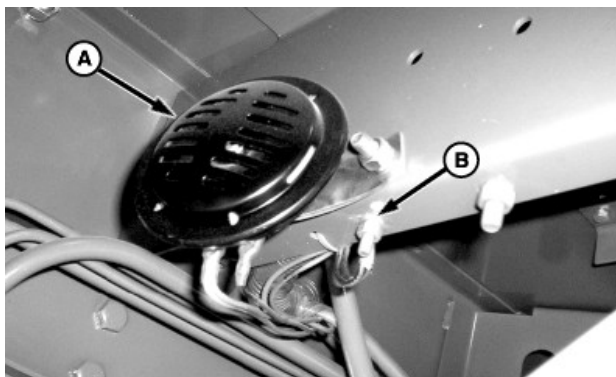
- A—Main Fuse
- B—Heater Fuse
- C—Starter Relay
- D—Heater Relay
- E—Transfer Pump Relay

The electrical box is on the left of the engine, includes main fuse (A), heater fuse (B), starter relay (C), heater relay (D), and transfer pump relay (E).

When starting the machine and the temperature is below 0°C, ECU sends out a command and heater relay is connected. Engine warms up.

CP00606,000185F-19-29MAY18

Horn



YC0316—UN—20JUL11



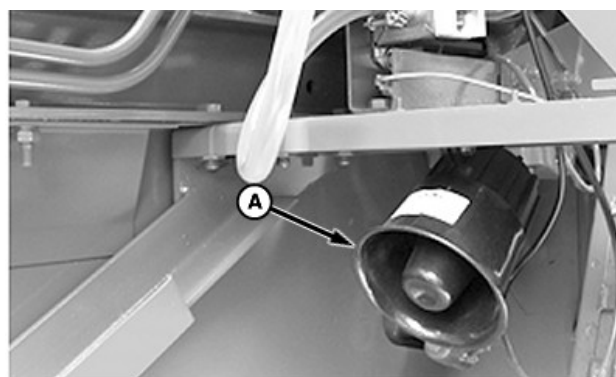
YC11125—UN—04DEC17

- A—Horn
- B—Ground Cable
- C—Horn Switch

Horn (A) is under the cab, controlled by the horn switch (C) on the instrument panel.

CP00606,000186C-19-23AUG18

Backup Alarm



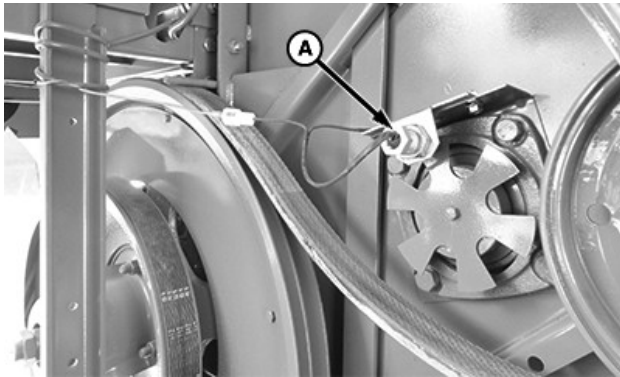
YC0319—UN—21JUL11

- A—Backup Alarm

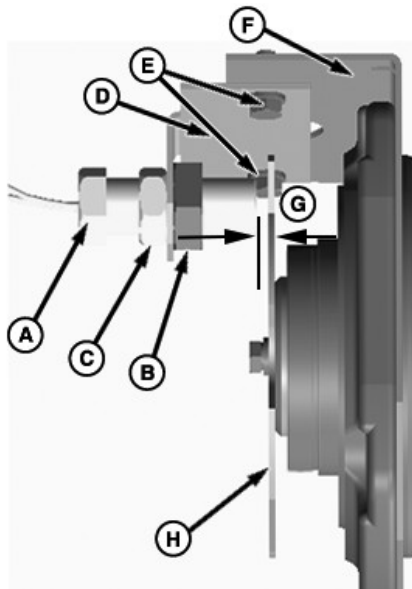
Backup alarm (A) is located at the right rear side of machine. When reverse gear is engaged, backup alarm (A) sounds to remind bystanders to stay away from the machine.

CP00718,0004045-19-20AUG18

Threshing Speed Sensor



YC10642—UN—20JUL16



YC10646—UN—20JUL16

- A—Sensor
- B—Nut
- C—Nut
- D—Guide
- E—Bolts (2 used)
- F—Plate
- G—Clearance (2 mm)
- H—Signal Wheel

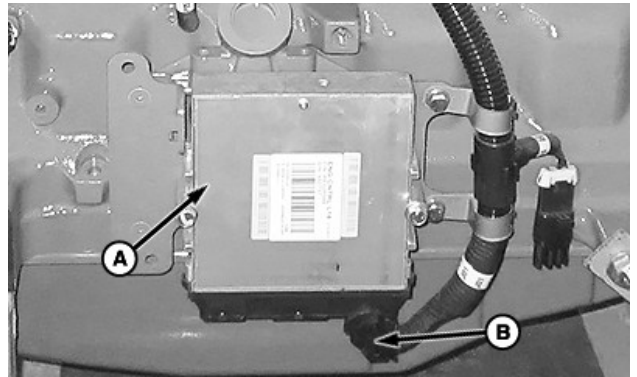
Threshing speed sensor (A) is at the left side of machine.

If the position of signal wheel (H) and sensor (A) are replaced, adjust the clearance between them.

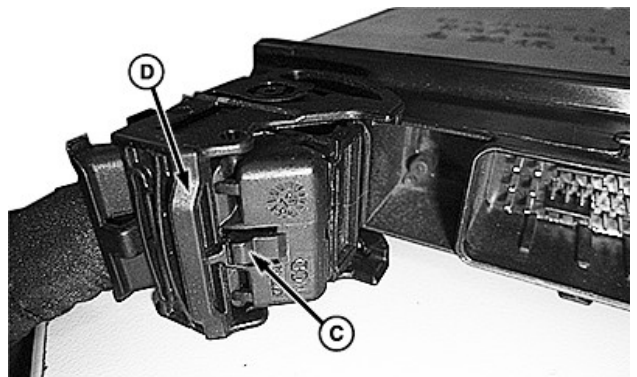
Adjustment: Adjust the clearance (G) between the sensor (A) and induced plate (H) by adjusting nuts (B and C). Check clearance for avoid interference. Adjust slowly to minimize clearance. If necessary, loosen the bolt (E), adjust position of guide (D) on plate (F), Align the sensor (A) and signal wheel (H). Tighten the bolts (E).

CP00606,0001860-19-29MAY18

Disconnection and Connection of ECU Connectors



YC10840—UN—13DEC16



YC10866—UN—08DEC16

- A—ECU
- B—Connector
- C—Tab
- D—Locker

IMPORTANT: Press down the tab (C) fully when disconnecting the connector (B).

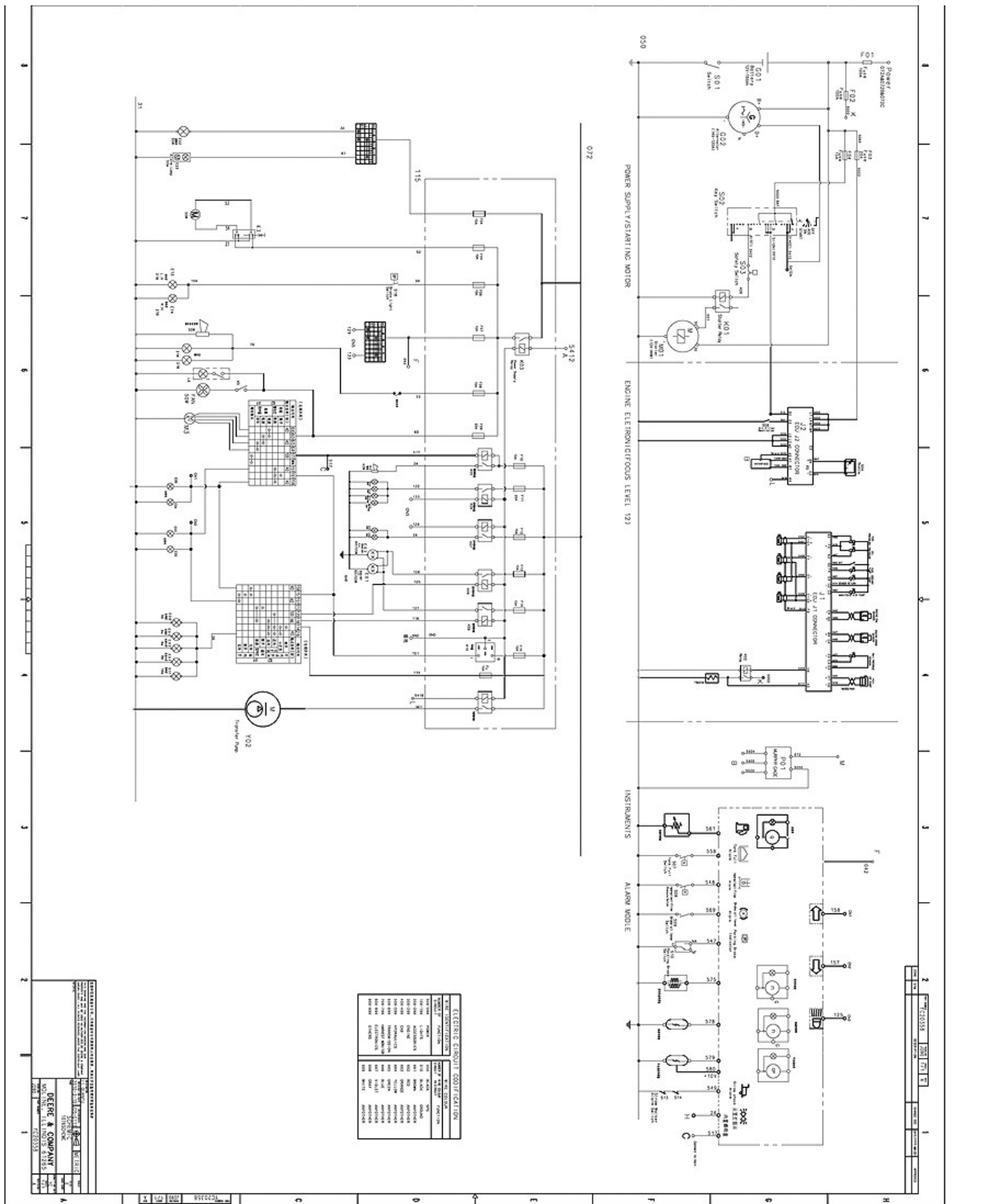
IMPORTANT: Because the pins of ECU are different in shape, it is necessary to ensure that the pin holes are aligned with the pins when connecting the connector (B). When the connector (B) is locked, a click sounds.

To disconnect the connector (B): Press down the tab (C), then disconnect connector (B) and ECU (A) by pulling the locker (D).

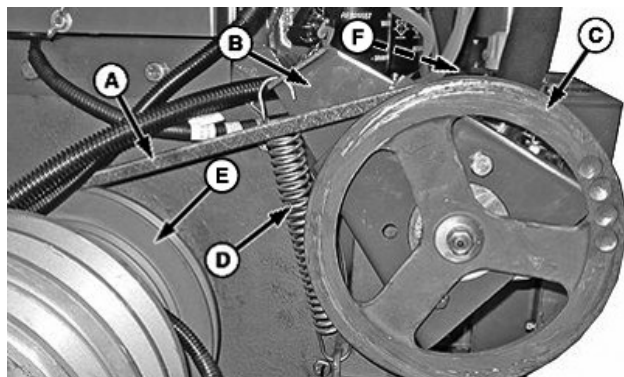
To connect the connector (B): Align pin holes of the connector (B) and pins of ECU (A), and connect connectors. Pull the locker (D) to ensure the tab (C) is locked.

CP00606,0001861-19-29MAY18

Electrical Schematic



Hydraulic Pump Drive Belt Tension



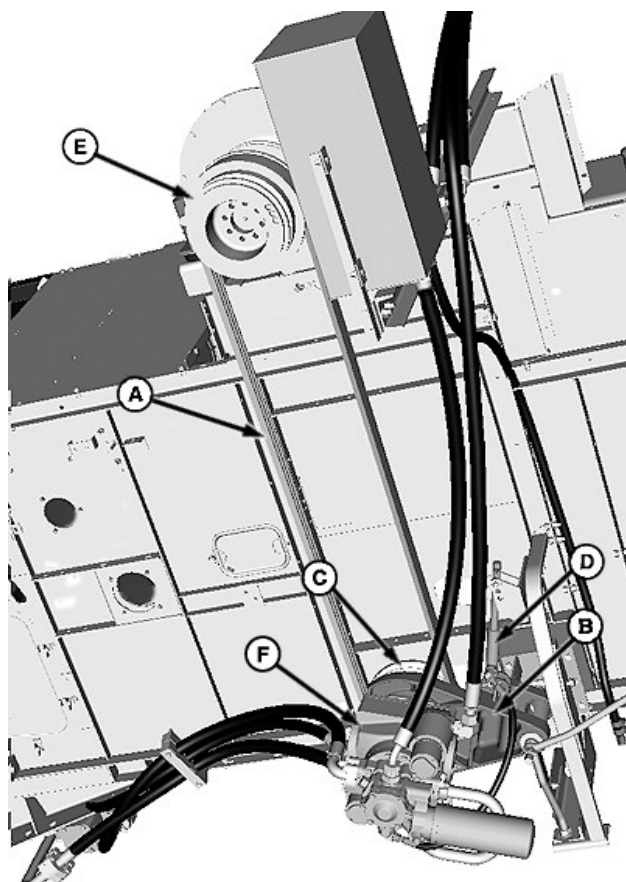
YC8239—UN—27JAN15

- A—Drive Belt
- B—Hydraulic Pump Bracket
- C—Pulley
- D—Tension Spring
- E—Engine Output Terminal
- F—Hydraulic Pump

Power from the engine output terminal (E) is transmitted to pulley (C) through drive belt (A), and drives the shaft of the hydraulic pump (F). Hydraulic pump drive belt (A) is automatically tensioned by tension spring (D).

CP00718,0004049-19-13DEC17

Variable Pump Drive Belt Tension (Hydrostatic Drive Type)



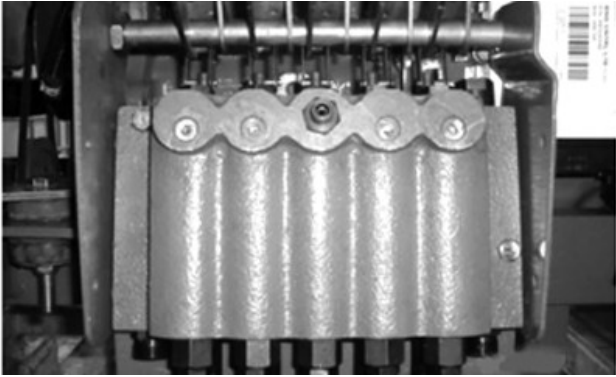
YC5850—UN—23DEC13

- A—Belt
- B—Bracket
- C—Pulley
- D—Tension Cylinder
- E—Engine Output Terminal
- F—Hydrostatic Pump

The power from the engine output terminal (E) is transmitted to the pulley (C) through the belt (A), goes to the shaft of the hydrostatic pump (F). The belt (A) is automatically tensioned by the tension cylinder (D).

CP00718,000404A-19-13DEC17

Hydraulic Control Valve



YC1363—UN—21FEB12

IMPORTANT: If hydraulic control valve fails, ask professional technician to repair it.

Hydraulic control valve is installed on the engine. The lever pulls the cable to control the raise/lower function of the header and reel, threshing speed, swing of the unloading auger, and ground speed. Follow the signs on operating levers, push the lever forward or pull it backward to carry out corresponding operations.

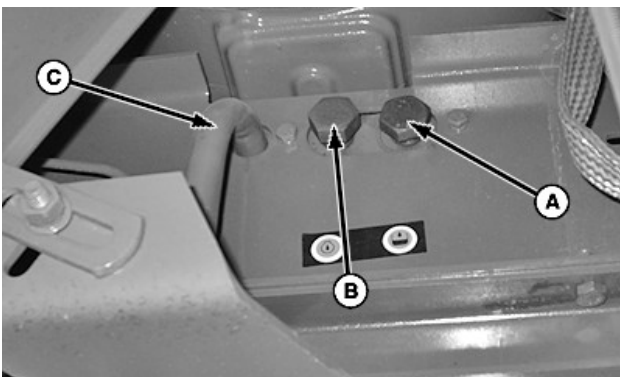
Carry out maintenance following the instructions on the cover on the grain tank near the engine.

CP00718,000404B-19-20AUG18

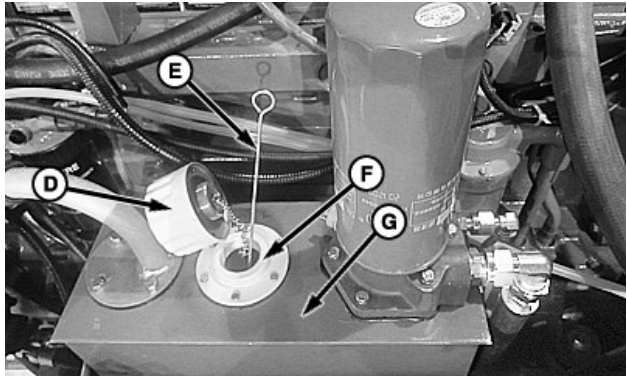
Change Hydraulic Oil

NOTE: Lower header and reel to the lowest position and swing the unloading auger to transport position before changing hydraulic oil..

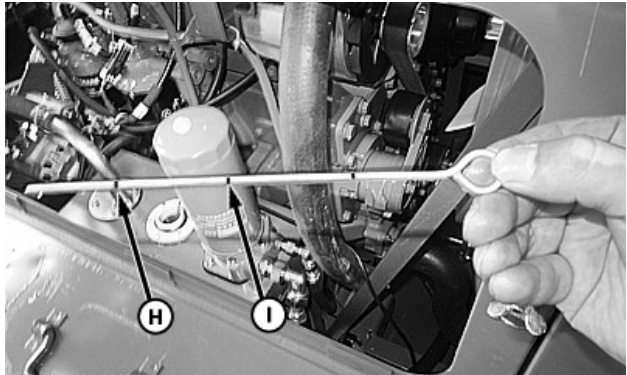
Change the hydraulic oil after the first 100 hours of machine operation, after that change oil every 500 hours of operation or at the end of every harvest season.



YC3227—UN—24DEC13



YC8912—UN—14JUL15



YC8911—UN—29JUL15

- A—Hydraulic Oil Drain Plug
- B—Engine Oil Drain Plug
- C—Drain Tube
- D—Filler Cap
- E—Dipstick
- F—Filler Neck
- G—Hydraulic Oil Reservoir
- H—Minimum Mark on Dipstick
- I—Maximum Mark on Dipstick

Drain Oil: Loosen the hydraulic oil drain plug (A) for 1—2 turns. Oil flows through the drain tube (C) to the container.

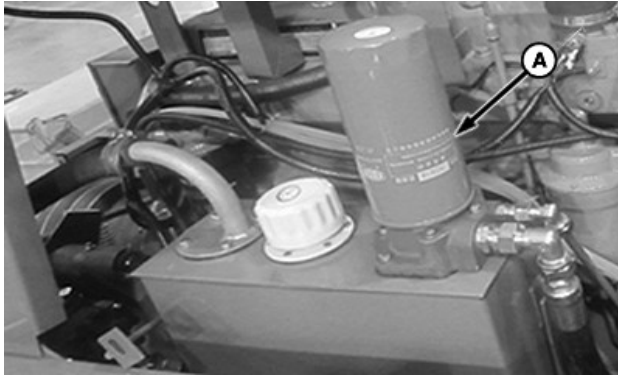
Check Hydraulic Oil Level: Open filler cap (D). Use oil dipstick (E) to check hydraulic oil level. Refill hydraulic oil as necessary.

Fill Oil: Open filler cap (D). Fill the hydraulic oil through the filler neck (F) to the hydraulic oil reservoir (G). Clean the filler neck (F) before filling. Fill hydraulic oil until oil level is between the maximum (I) and minimum (H) marks on dipstick.

Always use a specified oil. See Hydraulic Oil in Fuel, Coolant, and Lubricants section.

JL31334,0001732-19-03MAY18

Hydraulic Oil Filter



YC8299—UN—09FEB15

A—Filter

Replace filter (A) after first 100 hours of machine operation. After that replace filter every 500 hours of operation or at the end of every harvest season.

Install new filter following next steps:

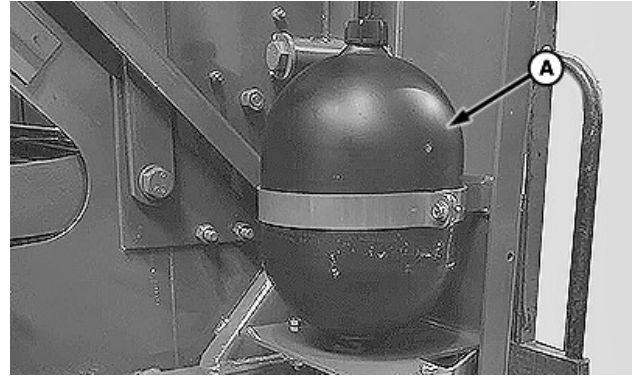
1. Grease the seal surface.
2. Tighten filter elements: First set seal ring so that it contacts mounting surface. Then tighten 3/4—5/4 turns, but not too tight.

Start engine and check for oil leaks. Tighten if necessary.

IMPORTANT: Keep clean when installing the filter and prevent impurities entering the reservoir and filter.

CP00718,000404D-19-20AUG18

Accumulator



YC12628—UN—05SEP18

A— Accumulator

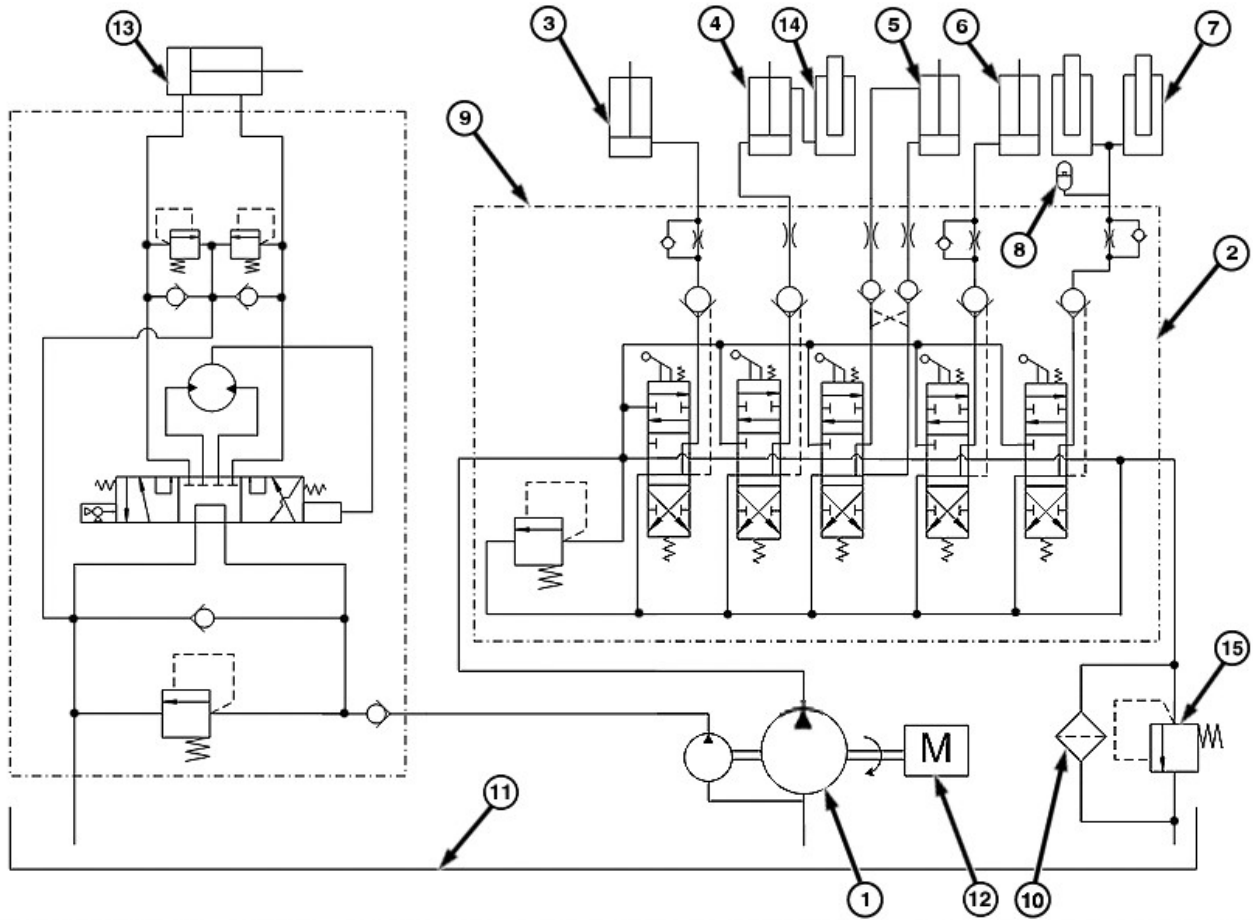
To buffer against impact load from the header and protect the header cylinder, combine is equipped with the hydraulic accumulator (A).

Charge accumulator with nitrogen, refer to parameters in following table:

Pressure Chamber Capacity	2.8 L
Nitrogen Charging Pressure	4.5 MPa

JL31334,0001733-19-30AUG18

Hydraulic Schematic

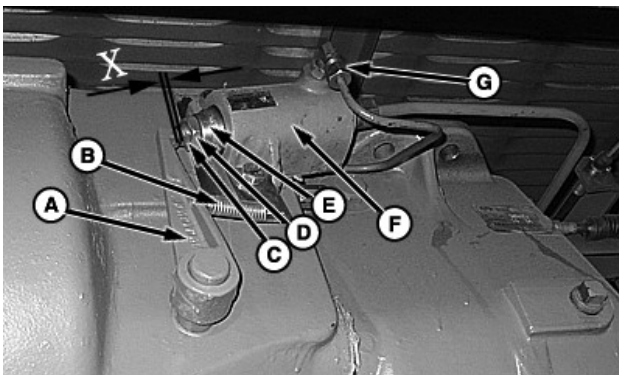


YC1717—UN—24OCT17

- | | |
|--|--|
| 1—Hydraulic Pump | 9—Steering Metering Valve |
| 2—Control Valve | 10—Oil Return Filter |
| 3—Threshing Speed Adjustment Cylinder | 11—Reservoir |
| 4—Reel Raise/Lower Cylinder (right-hand) | 12—Engine |
| 5—Grain Unloading Auger Swing Cylinder | 13—Steering Cylinder |
| 6—Ground Speed Adjustment Cylinder | 14—Reel Raise/Lower Cylinder (left-hand) |
| 7—Header Raise/Lower Cylinder | 15—Filter Bypass Valve |
| 8—Accumulator | |

CP00718.000404F-19-20AUG18

Adjust Clutch Clearance



- B—Return Spring
 C—Adjustment Screw
 D—Bolt
 E—Cylinder Piston Rod
 F—Clutch Cylinder
 G—Nut
 X—Clearance (5 mm)

Pull clutch lever (A) away from the clutch cylinder (F). Clearance (X) between the front surface of the adjustment screw (C) and the surface of clutch lever (A) is 5 mm.

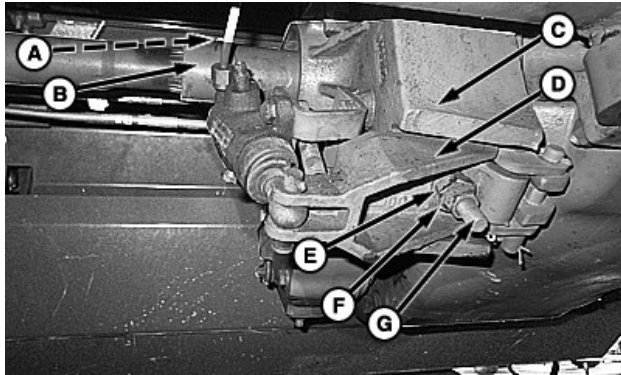
YC8065—UN—21JAN15

A—Clutch Lever

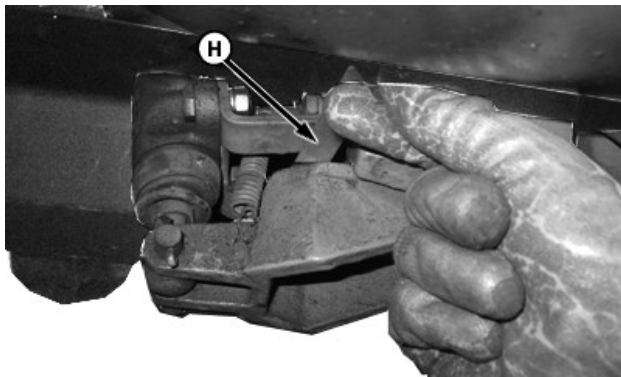
IMPORTANT: Ground speed clutch and gear device must be engaged or disengaged completely. Half-engaging is not allowed.

CP00718,0004050-19-20AUG18

Adjust Service Brake



YC8066—UN—21JAN15



YC8099—UN—21JAN15

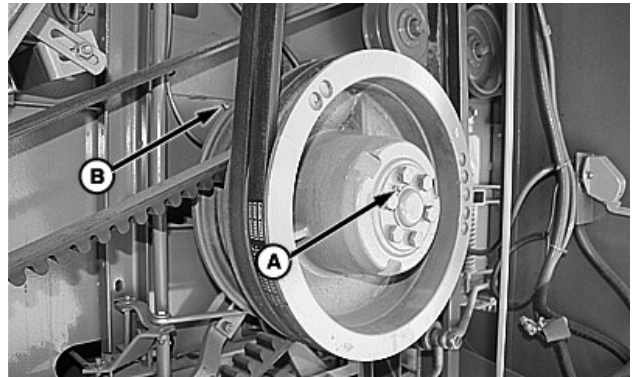
- A—Spring Pin
- B—Coupling
- C—Brake Housing
- D—Brake Lever
- E—Nut
- F—Lock Nut
- G—Adjustment Spindle
- H—Feeler Gauge (3 mm)

Adjust service brake as follows:

1. Set gear-shift lever to neutral position.
2. Remove spring pin (A) and slide coupling (B) outward.
3. Place 3 mm feeler gauge (H) between the brake housing (C) and the brake lever (D).
4. Turn nut (E) on the adjustment spindle (G) until brake is engaged (by turning final driveshaft to check).
5. Tighten nut (E) with the lock nut (F) .
6. After adjustment, remove feeler gauge (H). Reinstall coupling (B) and secure with spring pin (A).

JL31334,0001734-19-23AUG18

Posi-Torq Upper Unit Lubrication



YC8059—UN—10FEB15

- A—Outer Pulley Half Bearing Lubrication Fitting
- B—Inner Pulley Half Bearing Lubrication Fitting

Apply grease to the lubrication fittings (A and B) until feeling some resistance at the manual pump. Grease every 10 hours of operation.

IMPORTANT: Never lubricate upper unit with pulley halves opened.

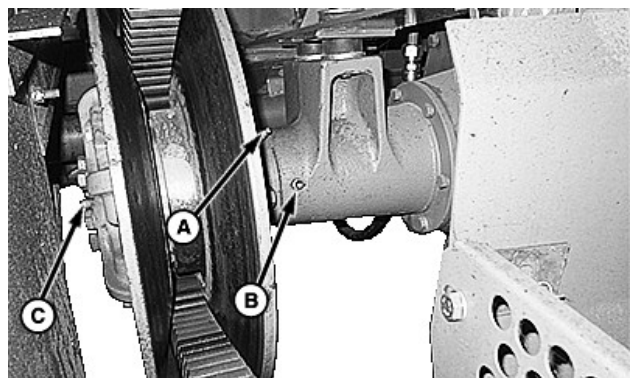
CP00718,0004052-19-13DEC17

Posi-Torq Lower Unit Lubrication

IMPORTANT: Use Mobil XHP222 grease or a better one to lubrication points of the Posi-Torq lower unit.

Lubricate lower unit as follows (when halves are fully closed):

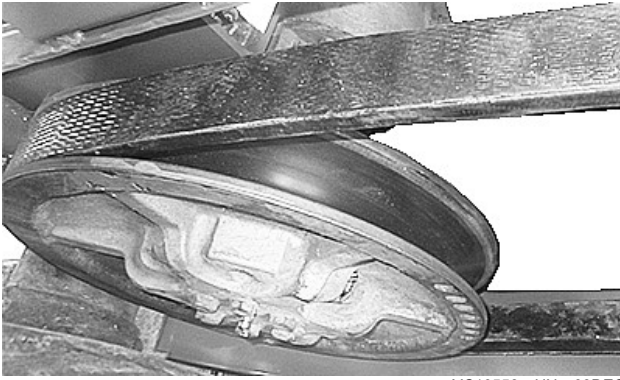
1. Cam housing



YC10706—UN—08DEC16

Posi-Torq Lower Unit Open State

- A—Cam Housing Lubrication Fitting
- B—Input Housing Lubrication Fitting
- C—Spring Housing Lubrication Fitting



YC10558—UN—08DEC16

Cam housing is filled with 200—220 g grease in factory. Grease every 10 hours of operation. Apply grease to the lubrication fitting (A) until feeling some resistance at the manual pump.

2. Input housing

Grease every 10 hours of operation. Apply grease to the lubrication fitting (B) until feeling some resistance at the manual pump.

3. Spring housing

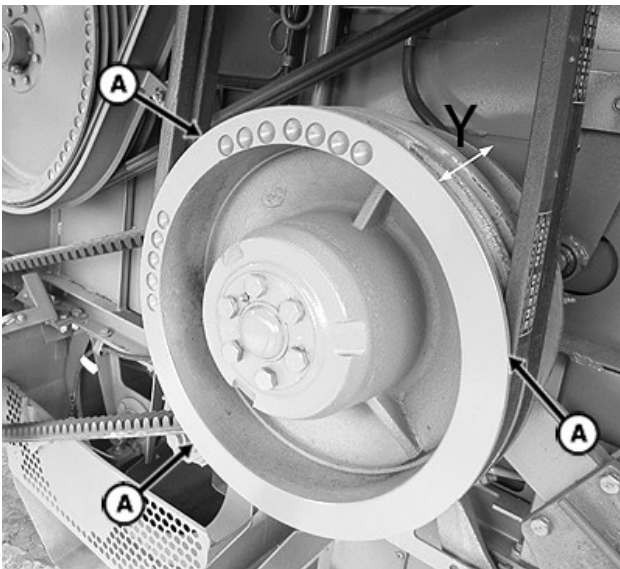
Spring housing is filled with 150—160 g grease in factory. Grease every 10 hours of operation. Apply grease to the lubrication fitting (C) until feeling some resistance at the manual pump.

IMPORTANT: Never lubricate lower unit with pulley halves opened.

JL31334,0001735-19-20AUG18

Posi-Torq Upper Unit Parallel

Pulley must be in parallel with the sidewall, to prevent the belt from wearing or flipping.



YC2005—UN—11JUL12

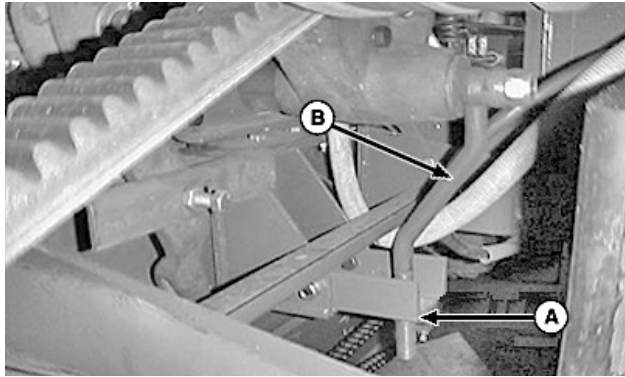
A—Measuring Points(3 used)

Y—Distance

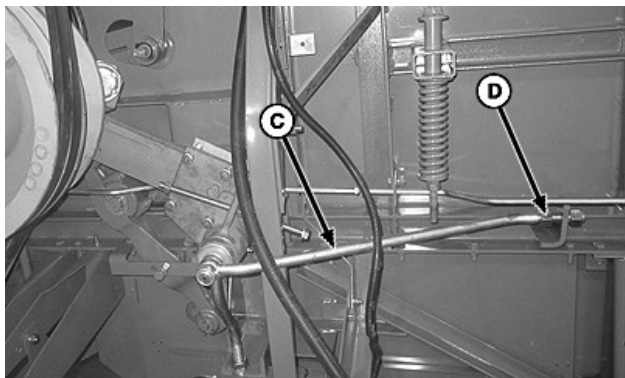
To check if pulley is parallel, measure the distance (Y) with the ruler between measuring points (A) on the edge of pulley half with sidewall. All three measurements are less that 3 mm.

Adjust Parallel

If the deviation is more than 3 mm, adjust as follows:



YC1371—UN—30DEC13



YC1560—UN—25DEC12

A—Hex Nut
B—Adjustment Lever
C—Adjustment Lever
D—Hex Nut

Adjust the hex nuts (A and D) on adjustment levers (B and C) until pulley half is parallel to the sidewall within the limit of 3 mm. Retighten hex nuts (A and D).

CP00606,0001862-19-23AUG18

Posi-Torq Lower Unit Clearance

CAUTION: Avoid personal injury, shut off engine. Do not adjust clearance until all parts stop working.

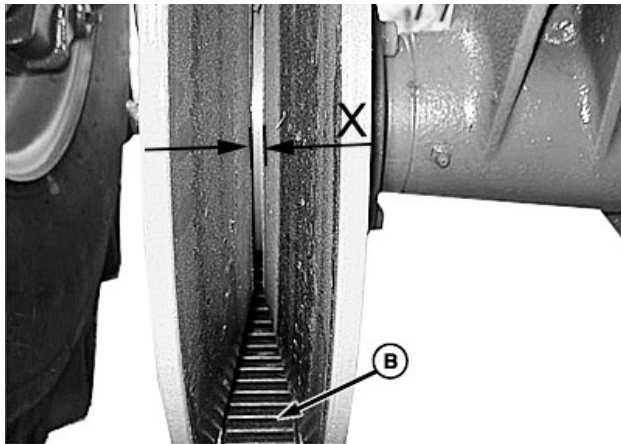


YC11149—UN—17DEC17

C—Tension Screw

Loosen bolts (A) and nuts (B). Adjust nuts (B) on the tension screw (C) until specified clearance has been obtained. Finally tighten nuts (B) and bolts (A). Restart engine and push ground speed lever forward, then pull ground speed lever backward. Shut off engine and recheck clearance.

JL31334,0001737-19-23AUG18



YC10860—UN—08DEC16

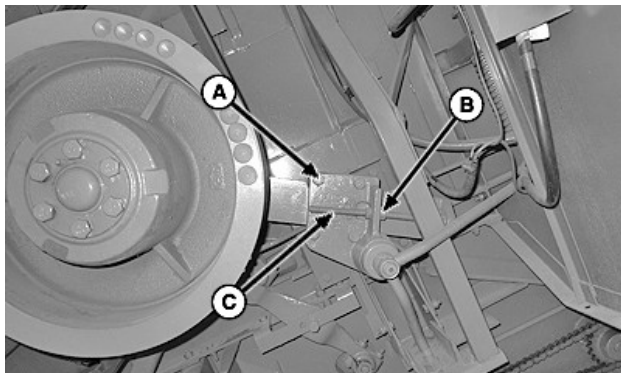
A—Ground Speed Lever
B—Belt
X—Clearance (5 ± 1.5 mm)

Requirement:

Start engine and pull the ground speed lever (A) backward until pulley halves are fully closed. Shut off the engine. Clearance (X) between lower pulley halves is 5 ± 1.5 mm.

IMPORTANT: Under any circumstances, clearance must not exceed 6.5 mm. Check clearance after every 50 hours of operation and adjust as necessary.

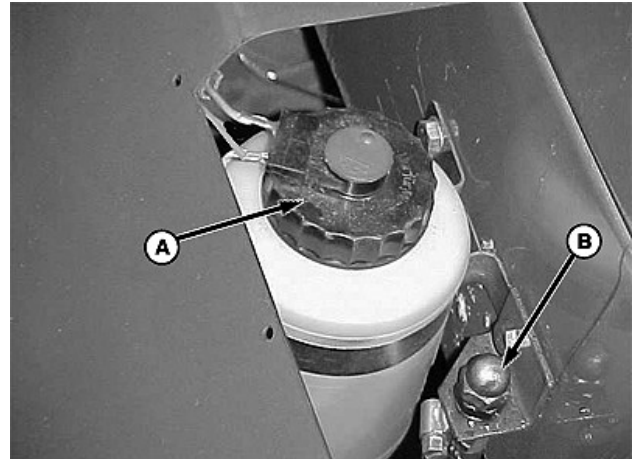
Adjustment:



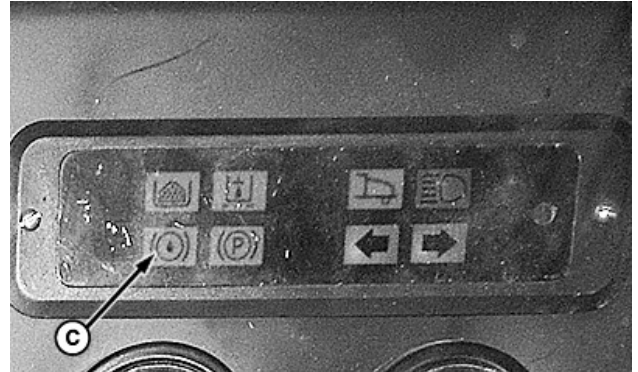
YC1374—UN—30DEC13

A—Bolt (4 used)
B—Nut (2 used)

Brake Fluid Can



YC2842—UN—03DEC12



YC10711—UN—08DEC16

A—Brake Fluid Can
B—Bleed Screw
C—Brake Fluid Level Indicator

Brake fluid can (A) is equipped with an alarm device. When brake fluid is inadequate, brake fluid level indicator (C) lights.

Brake oil specification: 10[#] aviation hydraulic oil.

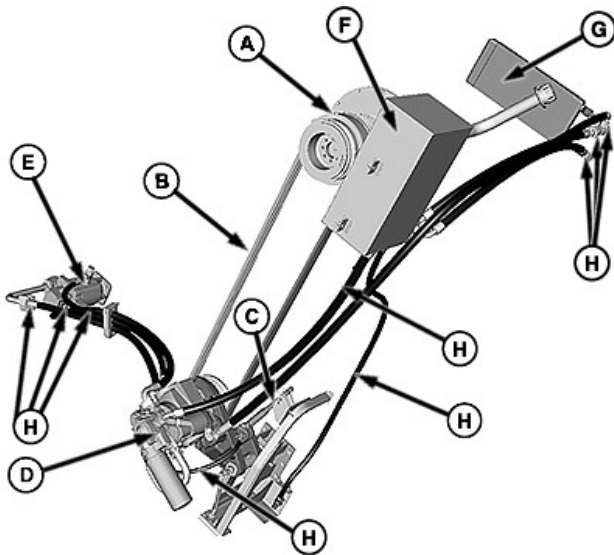
Always bleed the brake system after changing or repairing parts. Proceed as follows:

1. Loosen the bleed screw (B). Press the clutch pedal fully.
2. Repeat thrice until the clutch cylinder stroke reaches maximum 28 mm.

3. Tighten the bleed screw.

CP00606,0001863-19-23AUG18

Variable Speed Drive (Hydrostatic Drive Type)



YC12620—UN—07MAR18

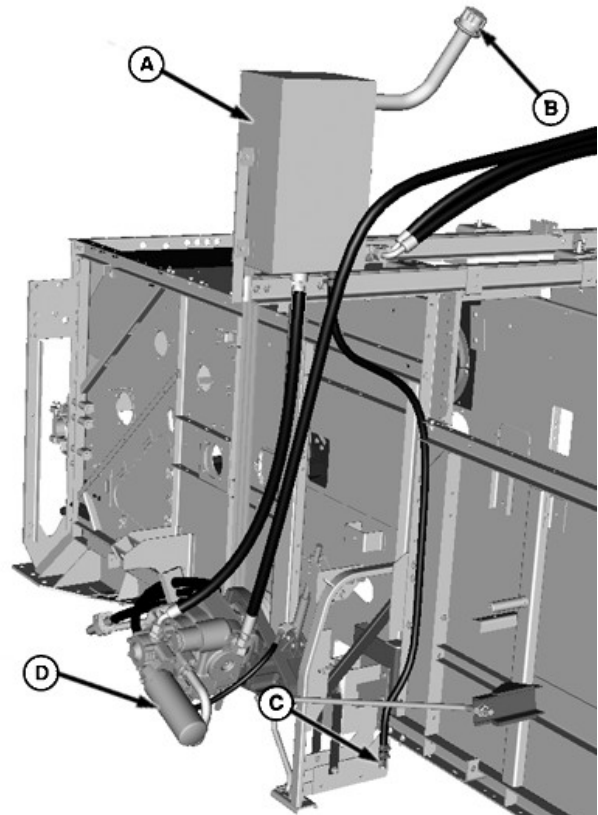
- A—Engine Output Terminal
- B—Drive Belt
- C—Tension Cylinder
- D—Variable Pump
- E—Motor
- F—Hydrostatic Reservoir
- G—Oil Cooler
- H—Oil Hoses

Engine output terminal (A) rotates. Power is transmitted through the drive belt (B) to the variable pump (D). Variable pump (D) pumps oil from the hydrostatic reservoir (F). High-pressure oil from the variable pump (D) reaches motor (E) through oil hoses (H). The motor (E) drives the transmission which transmits engine power to the final drive and the front wheels of the combine.

IMPORTANT: Hydraulic oil of the whole system is cooled upon returning through the oil cooler. Regularly clean the oil cooler and the housing.

CP00606,0001864-19-29MAY18

Hydrostatic Reservoir and Filter (Hydrostatic Drive Type)



YC10782—UN—23NOV17

- A—Hydrostatic Reservoir
- B—Filler Neck
- C—Oil Drain Plug
- D—Oil Filter

Always use a specified oil. See Hydrostatic Drive Oil in Fuel, Coolant, and Lubricants section.

The capacity of the hydrostatic reservoir (A) is 30 L.

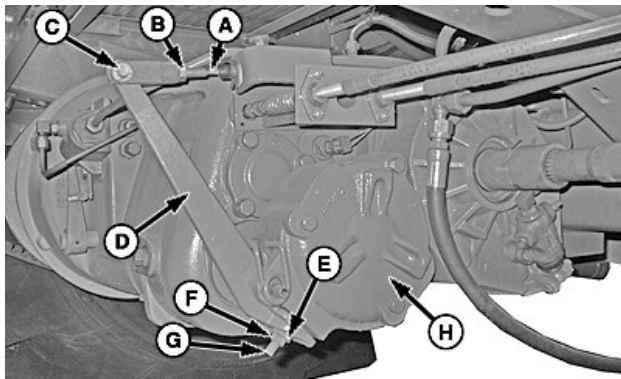
Change oil and filter after the first 100 hours of operation. After that, change oil and filter after 500 hours of operation or at the end of every harvest season.

Drain oil: Open oil drain plug (C), and drain the oil into an appropriate container.

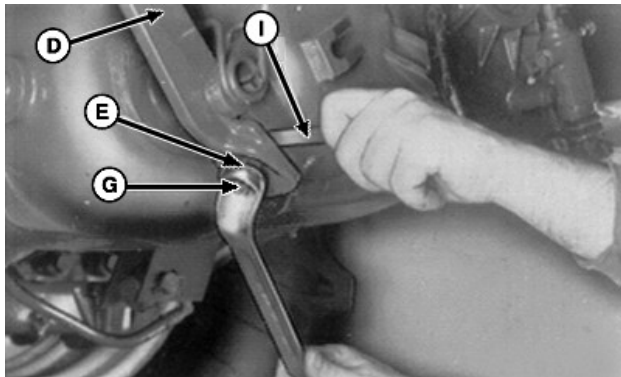
Fill oil: Before filling oil, clean the filler neck (B). Fill oil through the filler neck (B).

CP00718,0004058-19-13DEC17

Adjust Park Brake



YC1376—UN—30DEC13



YC1377—UN—24DEC12

- A—Park Brake Cable
- B—Nut
- C—Yoke
- D—Brake Lever
- E—Nut
- F—Lock Nut
- G—Adjustment spindle
- H—Brake Housing
- D—Brake Lever
- E—Nut
- G—Adjustment spindle
- I—Feeler Gauge (3 mm)

NOTE: Place a 3 mm feeler gauge (I) between the brake housing (H) and brake lever (D) when adjusting.

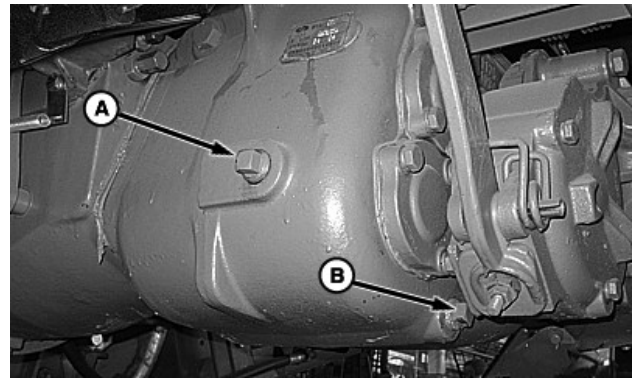
Adjust park brake using either of following method:

- Loosen nut (B), remove the cotter pin, and adjust the yoke (C).
- Adjust length of the adjustment spindle (G) by loosening lock nut (F) and turning nut (E).

JL31334,000173D-19-23AUG18

Transmission Oil

IMPORTANT: Under certain operating conditions, such as traveling on a slope, always fill transmission with specified oil.



YC8898—UN—09JUL15

- A—Oil Filler and Level Plug
- B—Oil Drain Plug

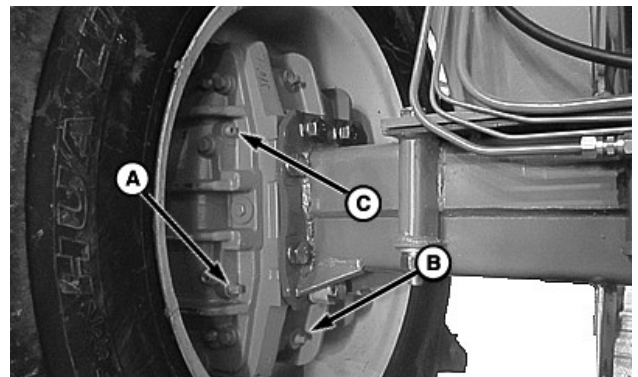
Always use a specified oil. See Gear Oil in Fuel, Coolant, and Lubricants section.

Check oil level after every 100 hours of operation. Change oil after the first 100 hours of operation. Change oil after every 500 hours of operation.

CP00718,000405A-19-13DEC17

Final Drive Oil

IMPORTANT: Always use the specified oil.



YC10651—UN—26JUL16

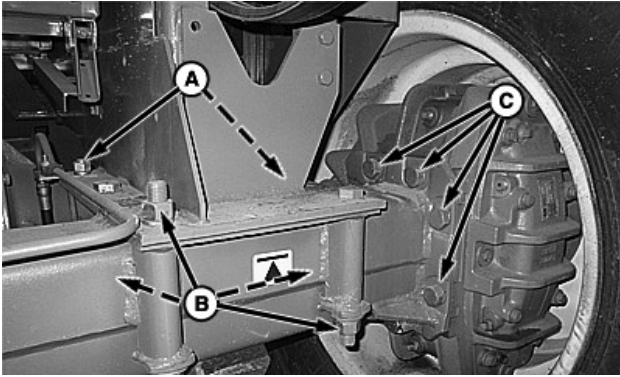
- A—Oil Level Plug
- B—Oil Drain Plug
- C—Oil Filler and Vent Plug

Always use a specified oil. See Gear Oil in Fuel, Coolant, and Lubricants section.

Check oil level after every 100 hours of operation. Change oil after the first 100 hours of operation. Change oil after every 500 hours of operation.

CP00718,000405B-19-13DEC17

Front Axle



YC8202—UN—12MAR15

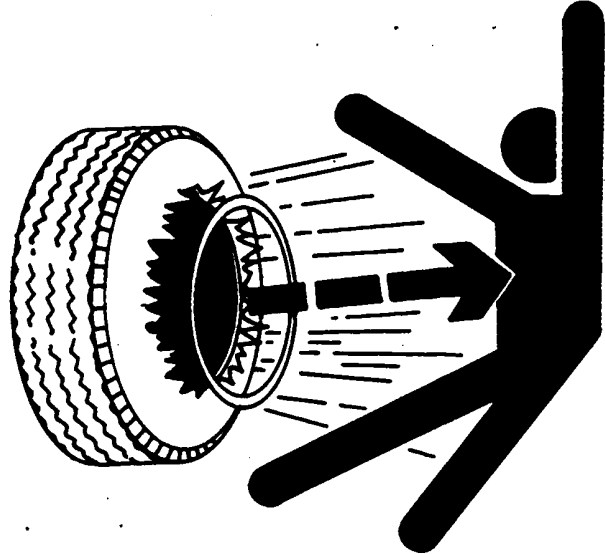
- A—Nuts (2 used)
B—Nuts (4 used)
C—Bolts (8 used)

Check the torque of attaching bolts and nuts of the front axle after the first 25 hours of operation,

1. Torque of nuts (A) is 240 N·m.
2. Torque of nuts (B) is 435 N·m.
3. Torque of nuts (C) is 435 N·m.

CP00718,000405C-19-20AUG18

Service Tires Safely



TS211—UN—15APR13

Explosive separation of a tire and rim parts can cause serious injury or death.

Do not attempt to mount a tire unless you have the proper equipment and experience to perform the job.

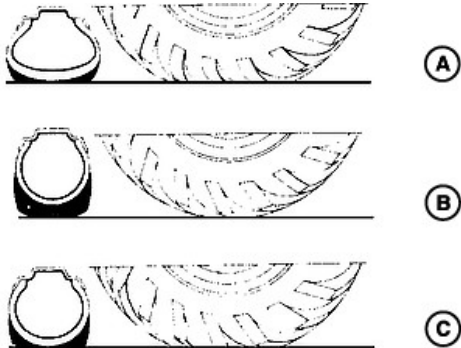
Always maintain the correct tire pressure. Do not inflate the tires above the recommended pressure. Never weld or heat a wheel and tire assembly. The heat can cause an increase in air pressure resulting in a tire explosion. Welding can structurally weaken or deform the wheel.

When inflating tires, use a clip-on chuck and extension hose long enough to allow you to stand to one side and NOT in front of or over the tire assembly. Use a safety cage if available.

Check wheels for low pressure, cuts, bubbles, damaged rims or missing lug bolts and nuts.

CP00718,000405E-19-20AUG18

Tire Maintenance



YC12576—UN—01MAR18

- A—Under Inflation
B—Over Inflation
C—Proper Inflation

Tire service life depends on proper inflation.

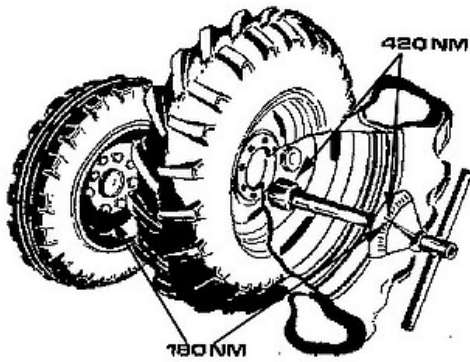
1. Check tires daily for damage and the correct pressure.
2. Repair any cuts or brakes as soon as possible or change tire.
3. Avoid tires from exposure to sunlight and chemicals.

Inflation pressure of the front wheel tire 23.1-26 is 170 kPa.

Inflation pressure of the rear wheel tire 12.00-18 is 420 kPa.

CP00606,0001865-19-20AUG18

Wheel Bolts



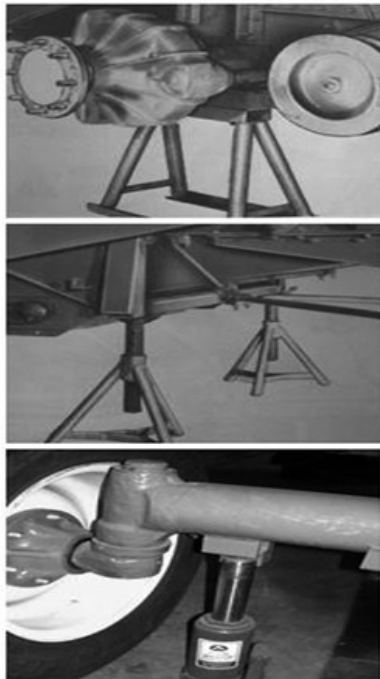
YC12577—UN—01MAR18

Front Wheels: Check and tighten front wheel nuts to 420 N·m torque after the first hour of operation and again after the first 20 to 25 hours of operation,

Rear Wheels: Check and tighten rear wheel bolts to 180 N·m torque after the first hour of operation and again after the first 20 to 25 hours of operation,

CP00606,0001866-19-20AUG18

Use and Precautions of Hydraulic Jack



YC12597—UN—01MAR18

1. Before lifting, insert the slotted end of handle into the oil returning valve stem. Tighten the oil returning valve stem in clockwise direction.

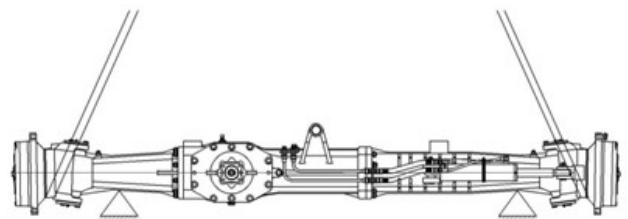
2. Insert the handle into the press-hand-hole and move it up and down. The piston rod moves up steadily and lifts the load. As the jack has a limit device, the load can only be lifted to a certain height.
3. To lower the piston rod, use the slotted end of handle to turn the oil returning valve stem slightly in counterclockwise direction. The piston rod descends slowly. If there is the load, the oil returning valve stem cannot be turned too quickly.
4. Before lifting, estimate the weight of the object. Overloading is prohibited.
5. To use a jack, determine the center of gravity of the object. Choose the focal point of the jack. Place the object in a balanced way and consider the hardness of the ground. When needed, lay hard wood plates underneath to prevent the object from being skewed or even falling over when being lifted.
6. After the heavy object has been lifted, lay hard wood plates or other supporting materials under the jack, to avoid any danger caused by jack failure.(as shown in the diagram)
7. When using the jack, avoid abrupt vibrations.

NOTE: Use jacks to lift the combine and use frames to support it firmly. First loosen the front or rear wheel nuts, and remove the wheels. The frames in the diagram can be self-made.

CP00606,0001867-19-29MAY18

Rear-Wheel Drive Axle Precautions (Optional)

1. Hoist the axle, but not the tie rod. When storing, use dedicated shelves. Do not stack randomly, to avoid damage and oil leakage.



YC7571—UN—16JUL14

2. To avoid accidents, check the swing angle of rear axle before leaving factory.
3. Adjust the toe-in follow instructions, to avoid abnormal wear of tires.
4. When the combine is driving on roads of good conditions, power of the rear drive axle is cut off.
5. Prohibit carrying out repairs or maintenance under

the machine when power is not cut off, machine is not parked, safety measures are not ready.

6. Always check the bolts, nuts, and other components that are easily loose. For example, drive wheel hub nuts, main decelerator and half shaft sleeve connecting nuts. If they are loose, tighten them promptly.
7. When servicing the machine, strictly follow the required intervals and steps stated in the operator's manual, to avoid abnormal wear of gears and bearings. If operating conditions are poor, shorten the service intervals.
8. As required, use recommended brands of lubricants. When changing lubricants, never mix new and oil lubricants, different brands or lubricants from different manufacturers.
9. Performance of the rear-wheel drive axle gradually deteriorates after a certain period. Proper use and operation extend service life and maintain the reliability.
10. Nuts through riveting treatment (such as nuts at final drive) must not be loosened or removed. Be handled by professional technicians.
11. Rear-wheel drive axle must not be placed upside down when transport or installation.

CP00718,0004061-19-13DEC17

Rear-Wheel Drive Axle Break-In (Optional)

Carry out rear-wheel drive axle break-in as requirement. If the drive axle break-in is not done before use, parts and components are seriously worn, so that service life is shortened.

Preparation Before Use

1. Check if all bolts, nuts, and steering limit bolts of the rear-wheel drive axle are tightened. If they are loose, tighten them at once.
2. Lubricant the fittings on the wheel hub and drive axle.
3. Through the inspection hole, check the rear axle central drive and final drive oil level.

Break-In

1. Run the machine without load. Meanwhile, carefully check the condition of rear-wheel drive axle to see if there is any abnormal sound, oil leakage, water spillage, or other abnormalities. If abnormality is found, immediately stop the machine and carry out troubleshooting before starting again.
2. After no-load break-in, if the rear-wheel drive axle is at normal state, break-in with load can be done.
3. When machine is static, start the engine, turn steering wheel steadily to the left and right. Observed the steering of rear wheels.

NOTE:

1. During machine gear I or gear II with load break-in, rear-wheel drive axle is engaged. During break-in at other gears, rear-wheel drive axle is disengaged.

2. After adding new lubricant, bleed air after 4 operating hours. Otherwise, bleeding is not needed.

Operation After Break-In

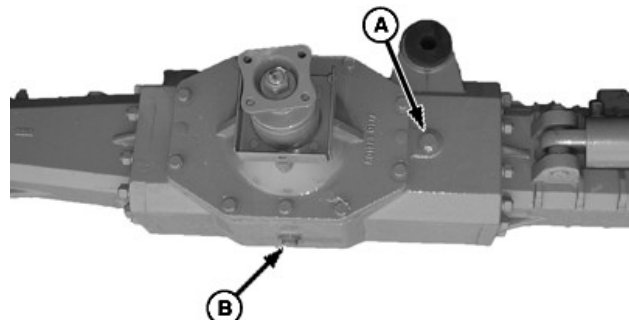
1. After machine stops, drain lubricant from the rear-wheel drive axle. Meanwhile, add some kerosene or light diesel for cleaning (together with the whole drive system). After draining the cleaning agent, fill new GL-5 (85W/90) gear oil with amount: Center drive 18L, final drive 1.5L per side.
2. Check rear-wheel drive axle toe-in, adjust it if necessary.
3. Check and tighten all bolts, nuts, and screws.
4. Add lubricant at all lubricating fittings.

CP00718,0004062-19-13DEC17

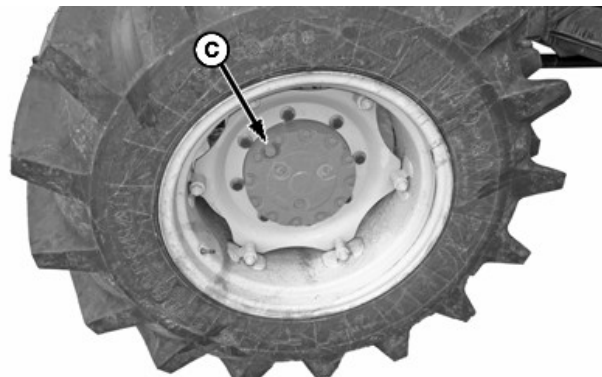
Rear-Wheel Drive Axle Service (Optional)

IMPORTANT: For extending the service live, regularly maintain the rear-wheel drive axle.

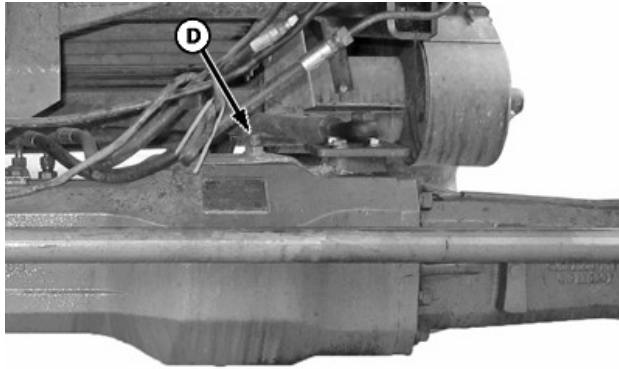
Lubrication of Rear-Wheel Drive Axle



YC7572—UN—16JUL14



YC7573—UN—16JUL14



YC7574—UN—16JUL14

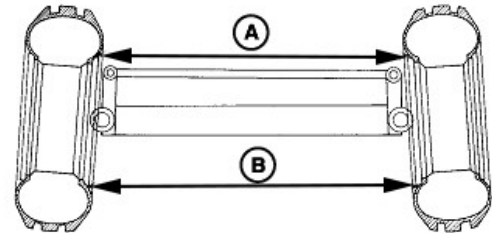
- A—Oil Level Plug
B—Oil Drain Plug
C—Oil Plug
D—Retaining Vent Plug

1. Apply GL-5 85W/90 gear oil to lubricate the rear-wheel drive axle.
2. **Central drive service:** Change lubricant every 1600 operating hours. Check oil level after 400 operating hours. Unscrew the oil level plug (A) to check. Oil level reaches the plug hole. Refill oil as needed. When changing lubricant, drain off used oil from the oil drain plug (B). Then, tighten oil drain plug. Add new lubricant through the retaining vent plug (D).
3. **Final drive service:**
 - Change lubricant every 800 operating hours. Check oil level after 200 operating hours, to prevent abnormal wear of gears caused by not enough lubricating oil.
 - When changing lubricating oil, turn wheel hub so that the plug (C) is at the lowest position. Remove oil drain plug, drain off used oil. Turn wheel hub again so that the plug is at level position. Add new lubricant through the inspection hole.
4. **Transfer case service:** To keep good working condition of the rear-wheel drive axle, add a reasonable amount of oil.

- Fill 3.2 kg GL-5 80W/90 gear oil to the transfer case.
- After first 100 operating hours, change gear oil. Change oil every 400 operating hours thereafter.

Adjust Toe-In

NOTE: Toe-in is measured at the rear-wheel drive axle contour centerline.



YC10910—UN—10NOV16

- A—Distance
B—Distance

Toe-in adjustment method: Drives combine to a level ground, straight-ahead. At the same height through the centerline of rear wheel, measure the distance (A and B) between the front end and the rear end of rear wheels. Loosen lock nuts on tie rod and assembly. Turn the tie rod so that it extends or shortens. When $B - A = 2 - 8$ mm, tighten the lock nuts.

Daily Checks

Check the bolts, nuts, and other components that are easily loose. Tighten as needed.

CP00606.0001868-19-23AUG18

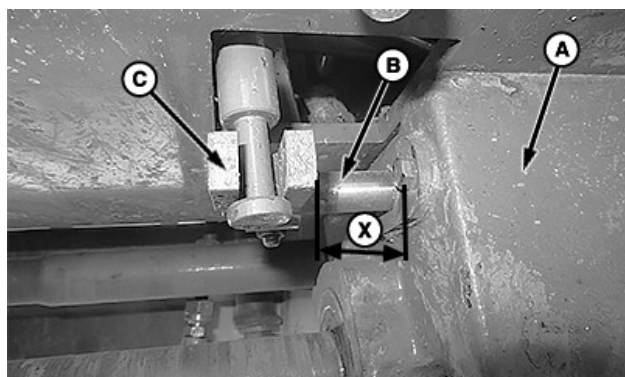
Torque Requirements of Rear-Wheel Drive Axle Fasteners (Optional)

Name and assembly parts	Thread specifications	Tightening torque (N·m)
Large bevel gear and differential housing connecting bolt	M12×1.25×30	110—130
Differential holder bearing cover fastening bolt	M12×1.25×70	110—130
Small bevel connecting flange fastening nut	M20×1.5	Small bevel gear rotation torque is 1—2 N·m
Knuckle bearing pre-fastened nut	M75×2	Apply 300 N·m to tighten and return 8° to lock
Left and right half tube and fastening nut	M14×1.5	130—150
Differential holder assembly and center drive connecting bolt	M12×1.25×40	80—95
Steering shaft and knuckle connecting bolt	M12×1.25×30	110—130
Planetary gear carrier and wheel housing connecting bolt	M10×1.25×30	60—75
Steering tie rod lock nut	M30×2	220—250
Steering tie rod ball joint lock nut	M20×1.5	180—220
Stop bolt lock nut	M14×1.5	110—130

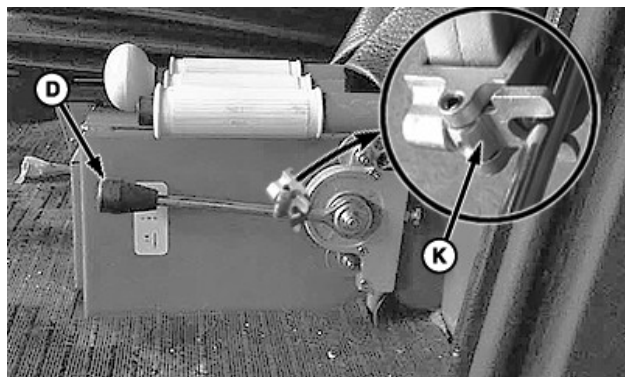
Name and assembly parts	Thread specifications	Tightening torque (N·m)
Vent valve assembly, vent plug assembly, oil drain plug	M22×1.5	50—60

CP00606,0001869-19-20AUG18

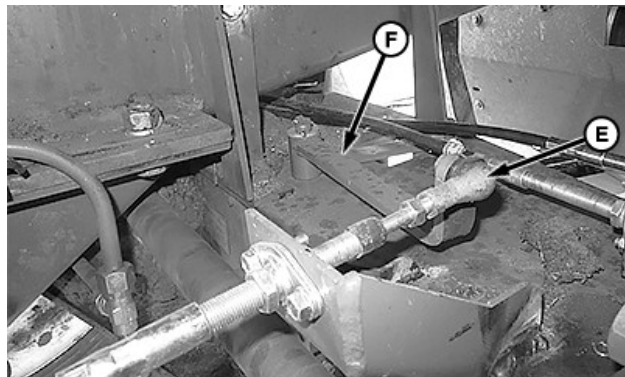
Install Flexible Cable of Rear-Wheel Drive Axle (Optional)



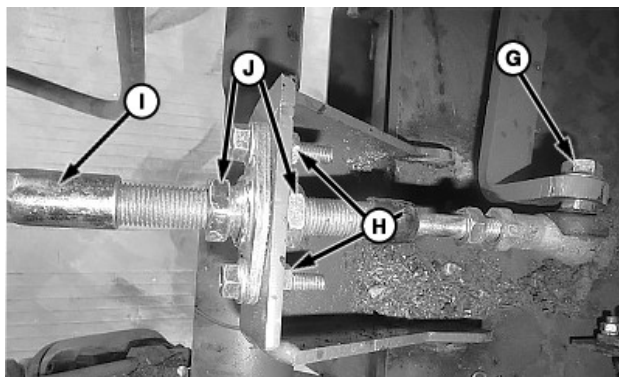
YC11514—UN—22MAR17



YC11923—UN—20JUL17



YC11274—UN—16MAR17



YC11275—UN—16MAR17

- A—Gear Case
- B—Shaft
- C—Lock Plate
- D—Rear-Wheel Drive Engage Lever
- E—Ball Joint
- F—Link
- G—Nut
- H—Nuts (2 used)
- I—Flexible Cable
- J—Nuts (2 used)
- K—Locker
- X—Length (34 mm)

1. Push/pull the rear-wheel drive engage lever to control the position of shaft (B) through flexible cable.

NOTE: When gears are not placed neutral position, the length (X) which the shaft extends is 34 mm.

2. Before installing flexible cable of rear-wheel drive axle, pull the lock plate (C) to extend the shaft (B) out completely. Then the gears in gear case (A) are engaged and the length (X) is 34 mm.
3. Loosen nuts (J).
4. Engaged the rear-wheel drive engage lever (D), lock the rear-wheel drive engage lever (D) with the locker (K).
5. Connect the ball joint (E) and link (F).

IMPORTANT: DO NOT change the stoke of flexible cable (I).

6. Tighten the nut (J).

NOTE: If the connection of flexible cable is hard, move the machine slowly.

7. Unlock the locker (K). Disengage the rear-wheel drive engage lever (D), lock the rear-wheel drive engage lever (D) with the locker (K). Measure and check the

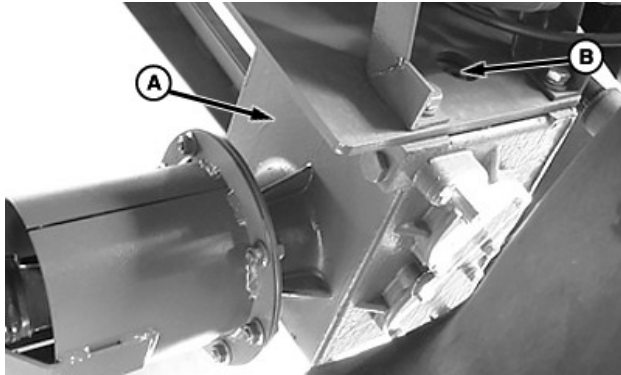
length. If necessary, readjust until the length is 34 mm.

8. Check if the gear is shifted easily.

CP00606,000186A-19-23AUG18

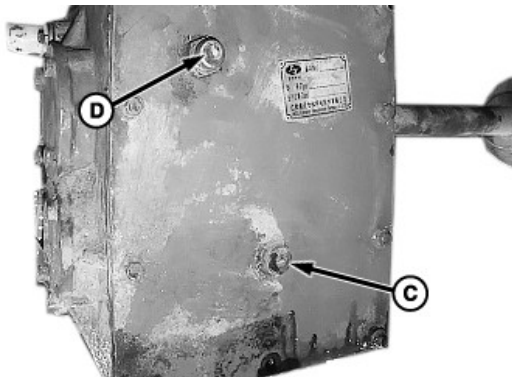
Gear Oil of Rear-Wheel Drive (Optional)

IMPORTANT: Must use the recommended specified gear oil.

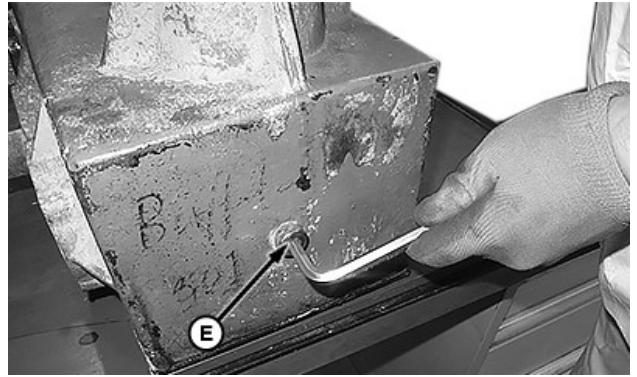


Upper

YC11507—UN—08MAR17



YC11508—UN—08MAR17



YC11509—UN—08MAR17

Lower

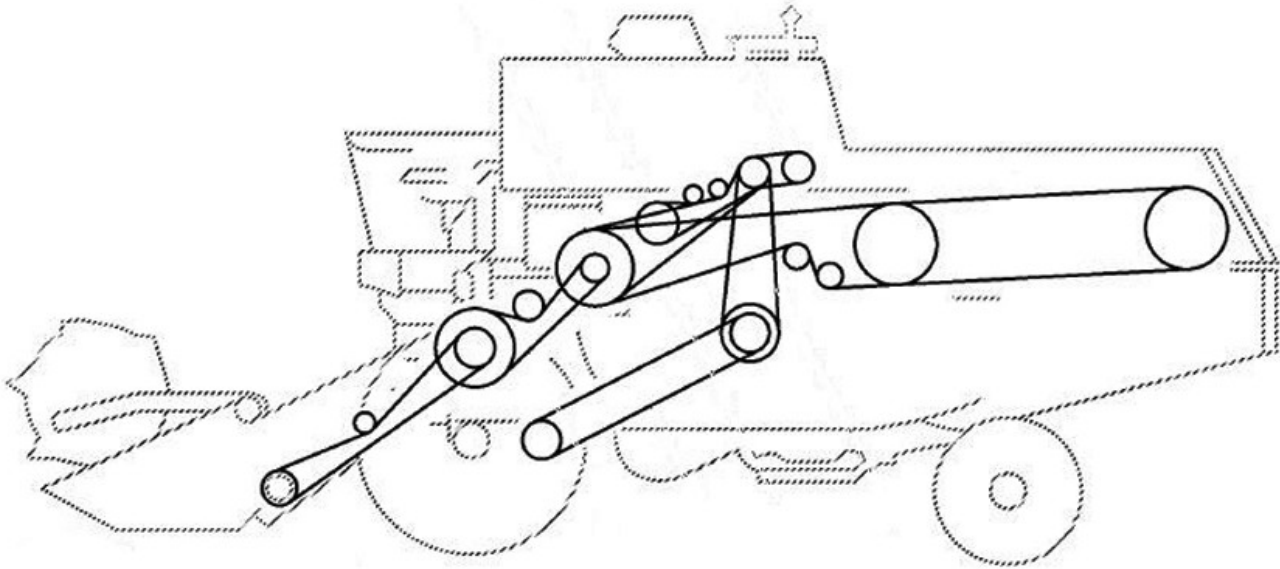
- A—Rear-Wheel Drive Gear Ccase
- B— Filler Port
- C—Oil Level Plug
- D—Bleed Screw
- E—Oil Drain Plug

Gear Oil of Rear-Wheel Drive: GL-5 80W/90.

Capacity: 3.2 kg.

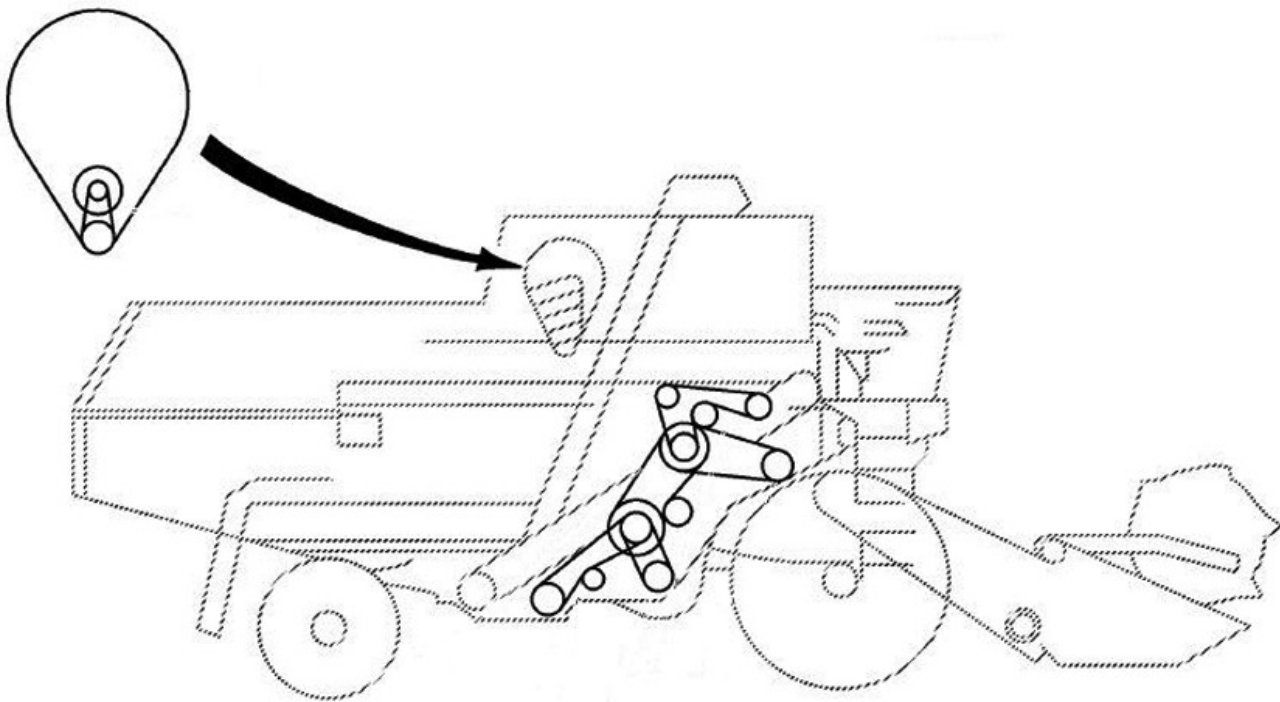
JL31334,000173C-19-23AUG18

Left-Hand Transmission Route Diagram



YC6406—UN—12FEB14
CP00718,0004065-19-13DEC17

Right-Hand Transmission Route Diagram



YC6407—UN—12FEB14
CP00718,0004066-19-13DEC17

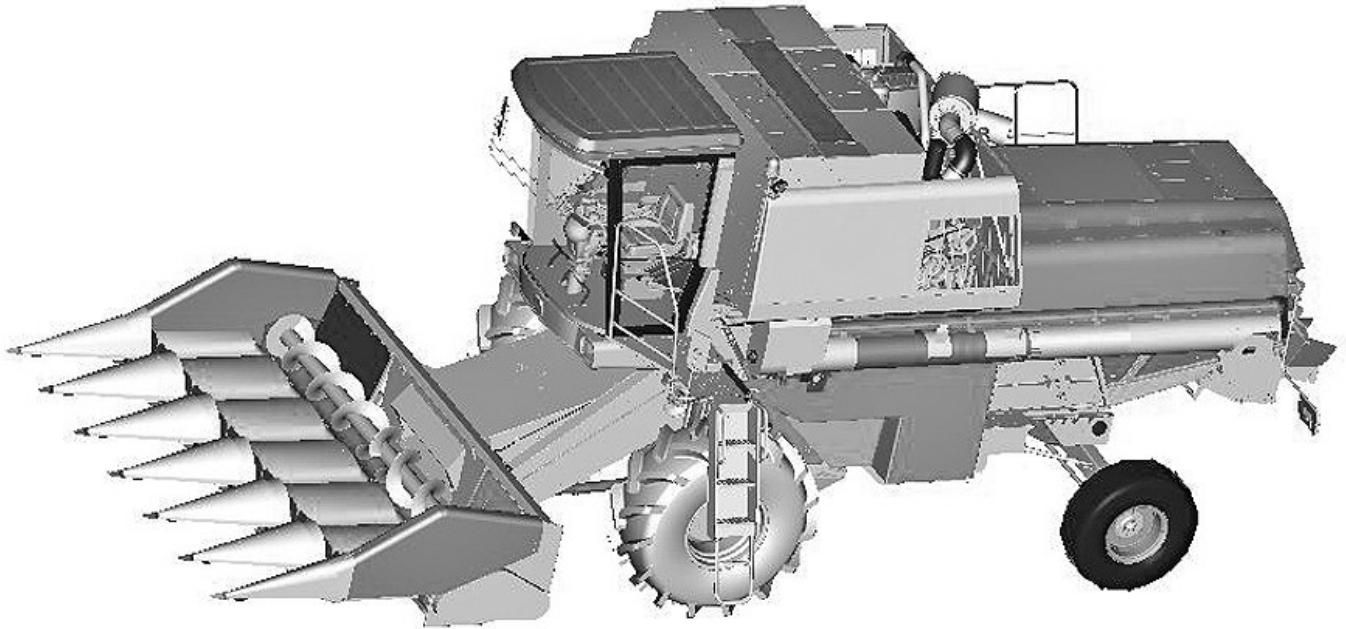
Operating Machine

Choice of Harvesting Time

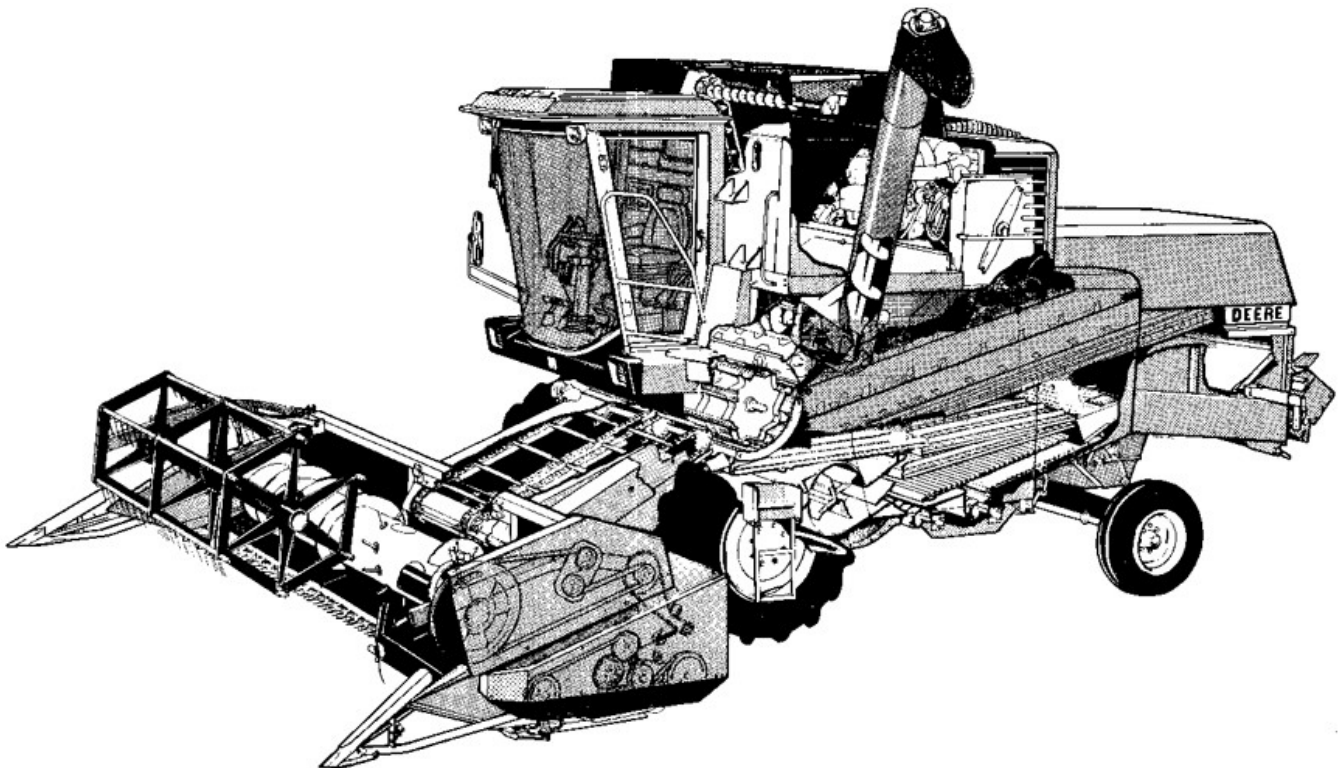
Ensure that crop is ripe. Otherwise, the harvesting quality of combine is affected.

CP00718,0004230-19-19DEC17

Avoid Grain Losses



YC6240—UN—06MAR14



YC1426—UN—19MAR14

Basic principle of combine adjustment is to reduce losses and failures.

To achieve the objectives, pay particular attention to timely harvesting. Early or late harvesting results in unnecessary losses and failures.

Make necessary adjustments to the combine according to harvest conditions and moisture content of crops.

Pay particular attention to the following losses and situations:

- 1.Header loss
- 2.Excessive tailings
- 3.Cracked grain
- 4.Excessive chaff in the grain tank
- 5.Separator loss
- 6.Cleaning loss
- 7.Nature grain loss
- 8.Unthreshed loss

CP00718,0004231-19-21AUG18

Header Operation



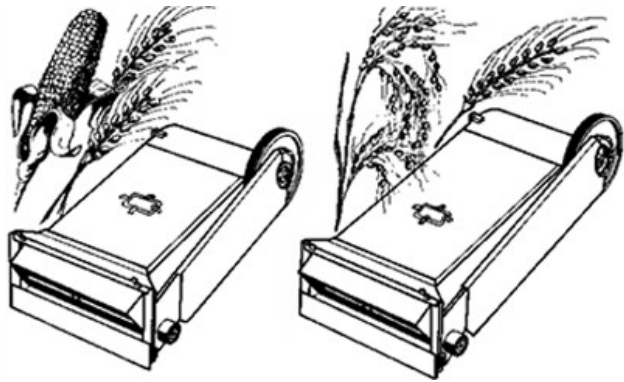
YC6668—UN—18MAR14

Refer to header Operator's Manual for more header information.

CP00718,0004232-19-21AUG18

Feeder House

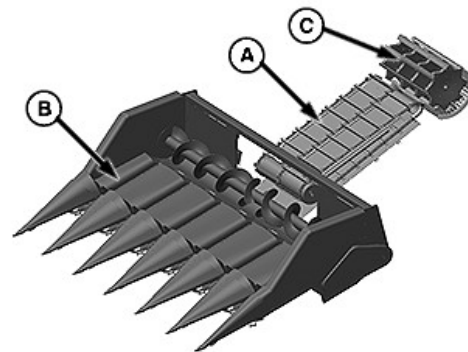
When connecting header, pay attention to the connection of hydraulic hoses and wire harness.



YC1428—UN—26NOV12

CP00718,0004233-19-21AUG18

Work Process of Feeder House



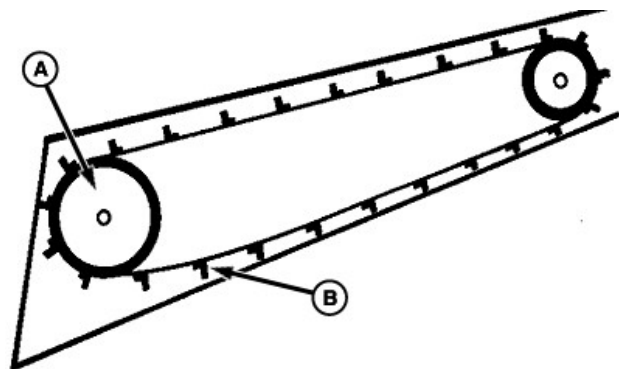
YC10989—UN—07DEC16

- A—Conveyor Chain
B—Header
C—Threshing Cylinder

Conveyor chain (A) receives the corns from the header (B) and transmits to the threshing cylinder (C).

CP00606,000186D-19-21AUG18

Adjust Conveyor Chain Tension

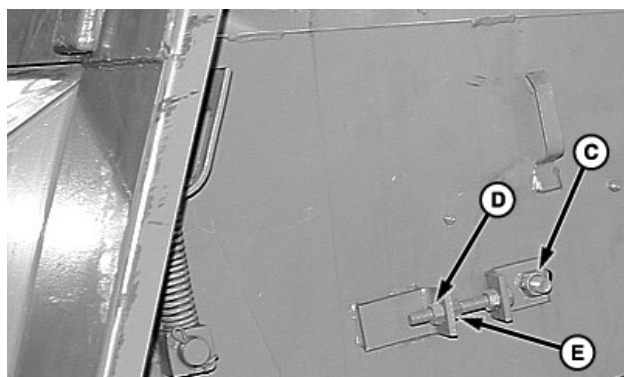


YC9669—UN—26FEB16

- A—Feeder Conveyor Drum
B—Third Slat

Adjust tension of the conveyor chain, until the third slat

(B) (seen from the front) below the feeder conveyor drum (A) touches the bottom of the feeder house.



YC9465—UN—26FEB16

C—Nut (2 used, 1 per side)
D—Nut (2 used, 1 per side)
E—Nut (2 used, 1 per side)

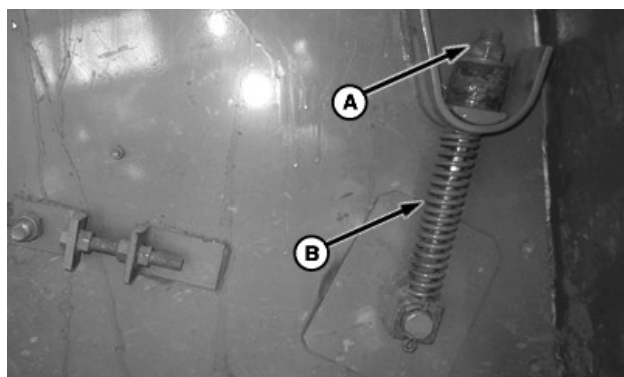
Adjustment Method: Loosen nuts (C) on both sides of the feeder house. Adjust nuts (D and E), until correct tension is obtained. Retighten all nuts.

NOTE: When adjusting tension of the conveyor chain, make an adjustment at both ends.

CP00606,000186E-19-29MAY18

Adjust Feeder House Conveyor Drum

NOTE: For other crops (except corn), adjust the length of spring to 140 mm.



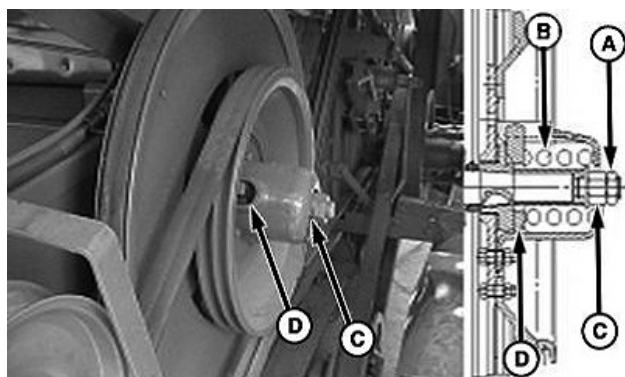
YC10987—UN—07DEC16

A—Nut (2 used, 1 per side)
B—Spring

Adjustment Method: At both sides of machine, adjust the nuts (A) until the length of spring (B) is within 107—113 mm.

CP00606,000186F-19-21AUG18

Feeder House Slip Clutch



YC8072—UN—20JAN15

A—Nut
B—Spring
C—Nut
D—Jaw

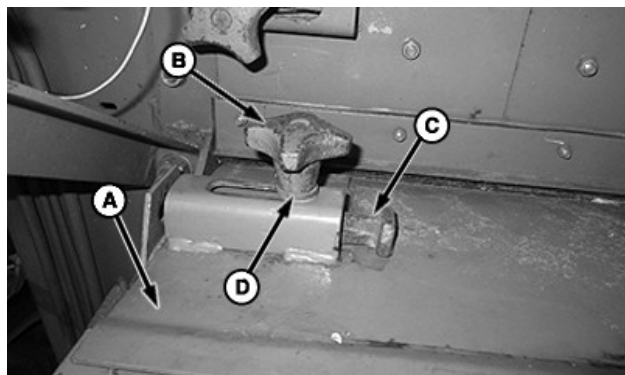
Torque of the feeder house upper shaft is transmitted through the pressure of spring (B) on a pair of jaws (D).

During the operation of the feeder house, if the load is greater than the pre-tightening force, the jaws (D) compress the spring (B) to slip the clutch.

Adjustment: Adjust nuts (A and C), until spring (B) reaches the specified pre-tightening force. Retighten nuts (A and C).

CP00606,0001870-19-22AUG18

Upper Feeder House Cover



YC8079—UN—22JAN15

A—Cover
B—Grip Nut (2 used, 1 per side)
C—Latch (2 used, 1 per side)
D—Lock Washer (2 used, 1 per side)

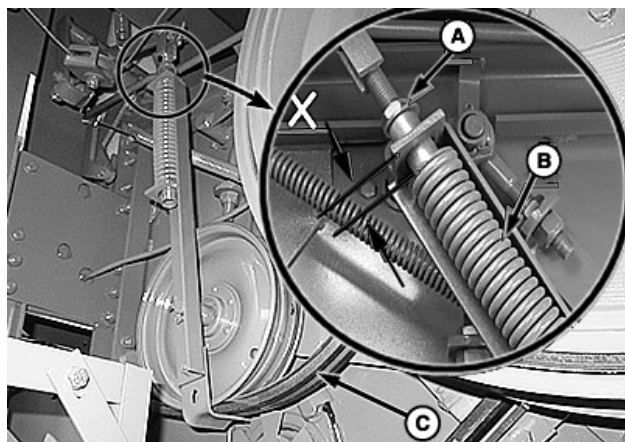
Service upper part of the feeder house through the upper feeder house cover (A).

To remove cover (A), loosen grip nuts (B), slide latches (C) together with grip nuts (B) inward and remove. Install cover (A) in reverse order.

NOTE: Make sure that lock washers (D) are located under grip nuts (B).

CP00606,0001871-19-21AUG18

Feeder House Drive



- A—Lock Nut
- B—Tension Spring
- C—Belt
- X—Length (7—12 mm)

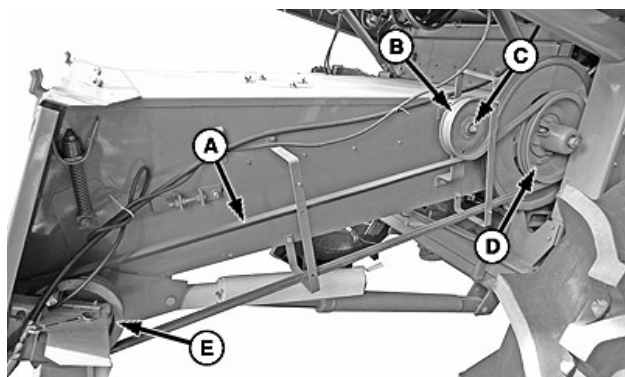
When the feeder house drive is engaged, the belt (C) is tightened.

Adjustment Method: Adjust lock nut (A), until the length (X) is 7—12 mm. Retighten lock nut (A).

CP00606,0001872-19-29MAY18

Header Drive

NOTE: Remove the safety guard when adjusting belt. For clarity, the safety guard has been removed in the illustration.



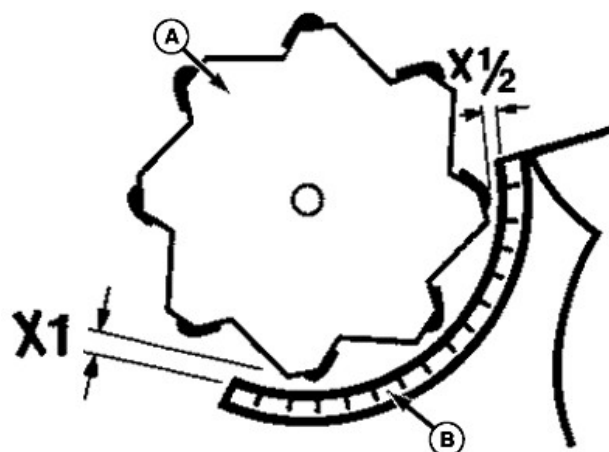
- A—Belt
- B—Idler
- C—Nut
- D—Drive Pulley
- E—Driven Pulley

Power goes from drive pulley (D) to driven pulley (E) through belt (A), then to header. Belt (A) is tensioned by idler (B).

Adjustment: Loosen nut (C). Tension the belt (A) by adjusting idler (B). Retighten nut (C).

CP00606,0001873-19-29MAY18

Threshing Unit

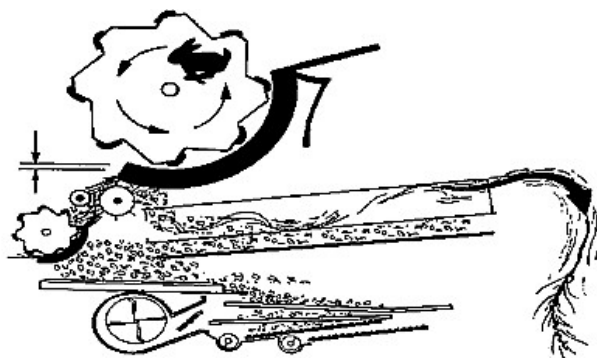


- A—Threshing Cylinder
- B—Concave

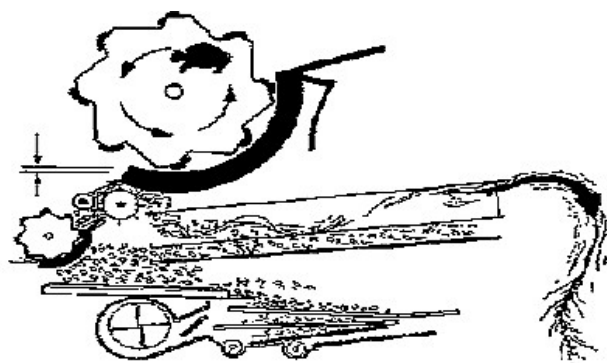
Threshing cylinder (A) and concave (B) are the most important components on the combine. To get the good threshing effect, adjust the threshing clearance and threshing speed carefully.

CP00606,0001874-19-21AUG18

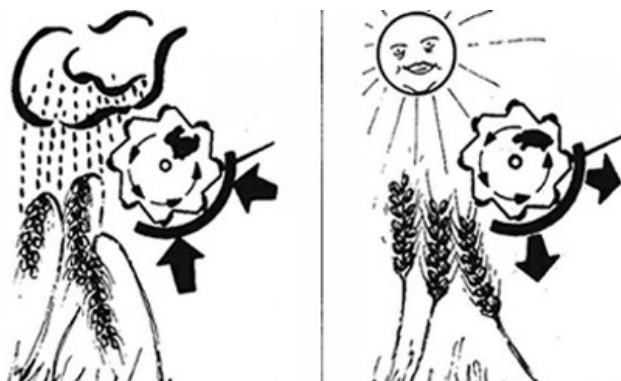
Adjust Threshing Cylinder and Concave



YC1437—UN—27FEB12



YC1438—UN—27FEB12



YC1439—UN—27NOV12

NOTE: Threshing speed too fast and/or threshing clearance too tight may result grain cracked.

Threshing speed too slow and/or threshing clearance too wide may result grain unthreshed.

1. To get a stronger threshing effect, increase the threshing speed and decrease the threshing clearance.

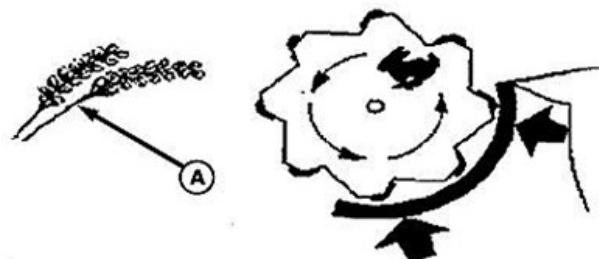
2. Basic Adjustment:

- **Moist crops:** Increase cylinder speed and/or reduce threshing clearance.
- **Dry crops:** Reduce cylinder speed and/or increase threshing clearance.

IMPORTANT: To get a good threshing result, it is essential to adjust threshing speed and threshing clearance properly.

CP00718,00045D7-19-21AUG18

Adjust Threshing Clearance Depending on Crops



YC7463—UN—28JUL14

A—Wheat

Small grain and ordinary crops: The cylinder speed is high, and threshing clearance is small.

CP00718,000423D-19-19DEC17

Determine Threshing Effect

To determine threshing effect, pay attention to the following:



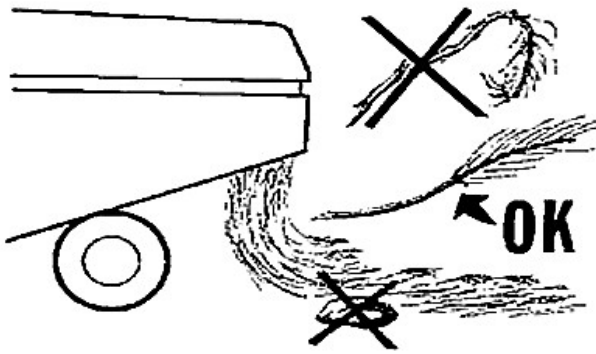
YC1442—UN—27FEB12

- Threshed straw
- Grain loss at the rear of combine
- Grain in the grain tank
- Tailings

CP00718,000423E-19-21AUG18

Check Threshed Straw and Grain at the Rear of Combine

Check threshed straw and grain at the rear of combine, required as follows:



YC1443—UN—27FEB12

- Straw threshed is intact.
- Grain dropped on the ground is less.

CP00718,000423F-19-21AUG18

Check Grain in Grain Tank



YC3119—UN—26NOV12

Amount of cracked grain in the grain tank is kept minimal. If not, check the following:

- Are tailings excessive?
- Is threshing speed too high?
- Is threshing clearance too tight?

CP00718,0004240-19-21AUG18

Check Tailings

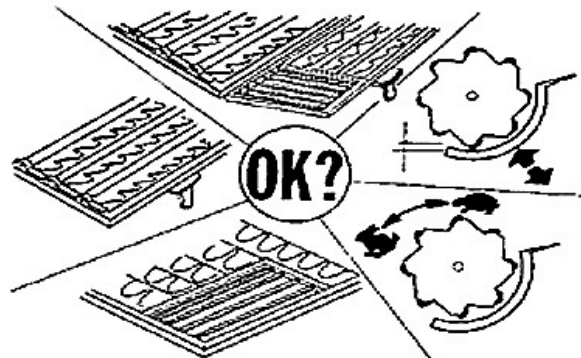


YC1445—UN—27FEB12

- None of the tailings elevator paddles are transporting too many tailings.
- Most tailings are mostly unthreshed heads.
- Tailings do not contain grains, straw, and chaff.

CP00718,0004241-19-19DEC17

Excessive Tailings



YC1446—UN—27FEB12

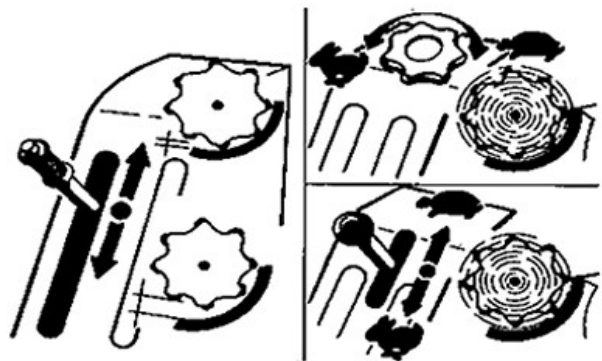
Check the following:

- Are chaffer and sieve adjusted properly?
- Is chaffer extension placed properly?
- Is grain pan extension placed properly?
- Is threshing clearance properly adjusted according to different crops?
- Is cylinder speed correct?

CP00718,0004242-19-19DEC17

Solve Threshing Problem

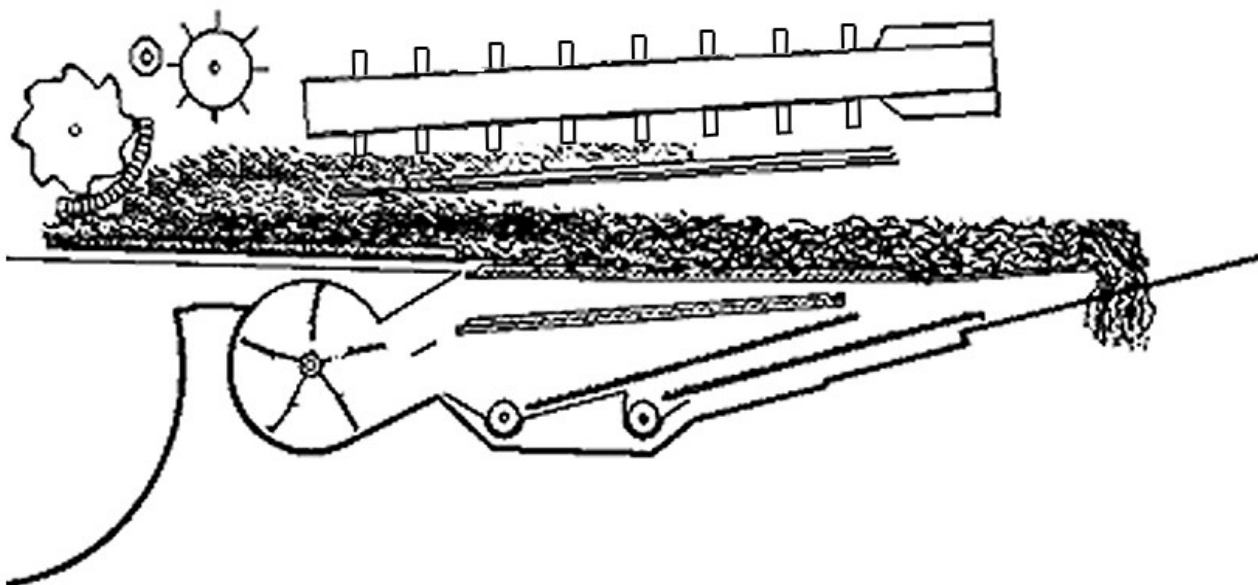
If threshing results are not satisfactory (excessive tailings, cleaning unit is not adjusted properly or other problems), refer to the followings.



YC2730—UN—29OCT12

CP00718,0004243-19-21AUG18

Over-Threshing



Over-threshing is due to too fast threshing speed and too tight threshing clearance.

Over-threshing can be solved by decreasing the threshing speed. Decrease the threshing speed in increments of 50—100 rpm and increase the threshing clearance in increments of 1 mm. Before the second adjustment, check the result of the previous adjustment.

If over-threshing still cannot be solved, reduce ground speed. High feed rate can also lead to over-threshing.

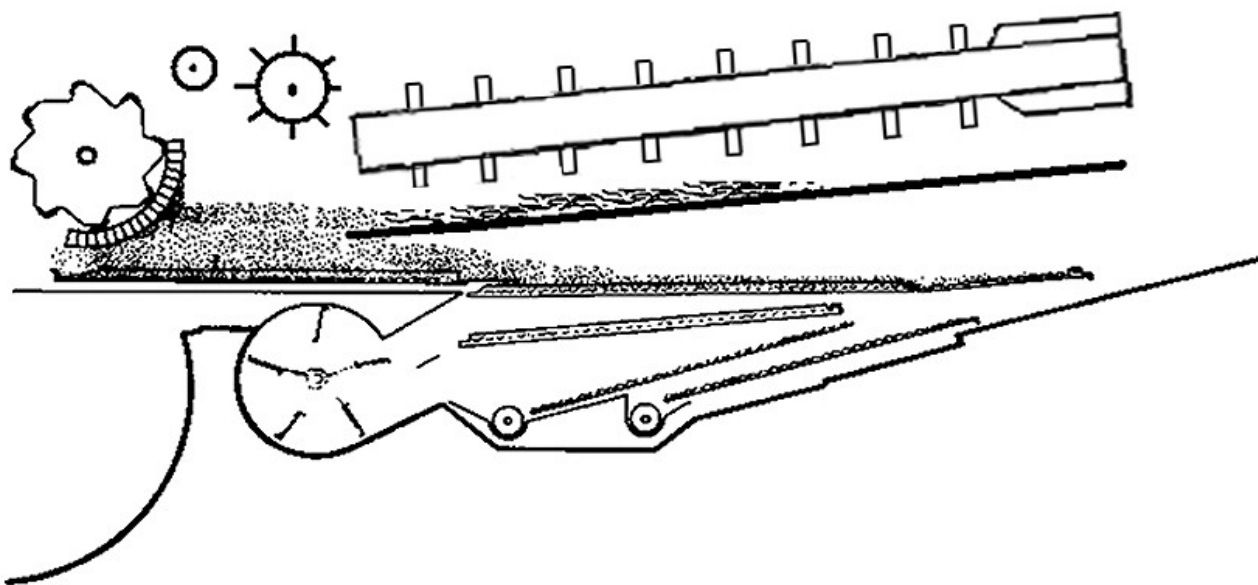
NOTE: Check the result before performing next adjustment..

YC8336—UN—25MAR15

CP00718,00045D8-19-21AUG18

Insufficient Threshing

NOTE: Check the result before performing next adjustment.



Insufficient threshing is due to the too low threshing speed and too wide threshing clearance.

Insufficient threshing can be solved by increasing the threshing speed in increments 50--100 rpm and

decrease the threshing clearance in increments in 1 mm.

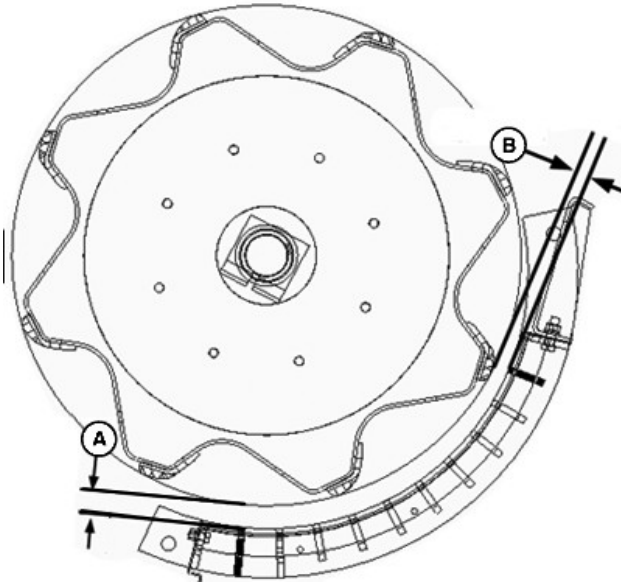
Under the certain harvesting conditions, it is possible

YC8337—UN—25MAR15

that the problem cannot be solved. Increase the ground speed in this situation.

CP00718,00045D9-19-21AUG18

Basic Adjustment - Threshing Clearance



YC12286—UN—01JAN18

A—Inlet Clearance
B—Outlet Clearance

Threshing clearance is set at the factory as following :

- Inlet: 22—23 mm
- Outlet: 19—20 mm

Threshing clearance can be set by the threshing clearance adjust lever to:

- Inlet: 22—44 mm
- Outlet: 19—34 mm

Measurement Locations: the clearance between the rasp-bar and the filler plate.

- Inlet location: the second filler plate from the front view.
- Outlet location: the second filler plate from the rear view.

CP00718,00045C7-19-21AUG18

Basic Adjustment—Rice

NOTE: When harvesting rice, use the spike tooth cylinder.

Threshing Clearance has been adjusted in the factory. Inlet clearance is 22—23 mm while outlet clearance is 19—20 mm.

Threshing clearance adjust lever is then set at the second slot from above (maximum deviation must not be over 1 mm).

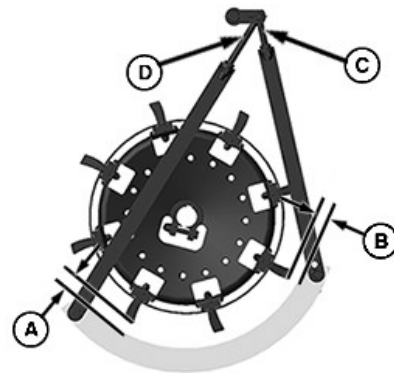
If harvest need is not met, use threshing clearance adjust lever to change inlet clearance to 22—44 mm, outlet clearance to 19—34 mm.

Measuring Locations: At the top of cylinder rasp bar, and on the concave horizontal rod.

Inlet—Measure from the second front horizontal rod on concave.

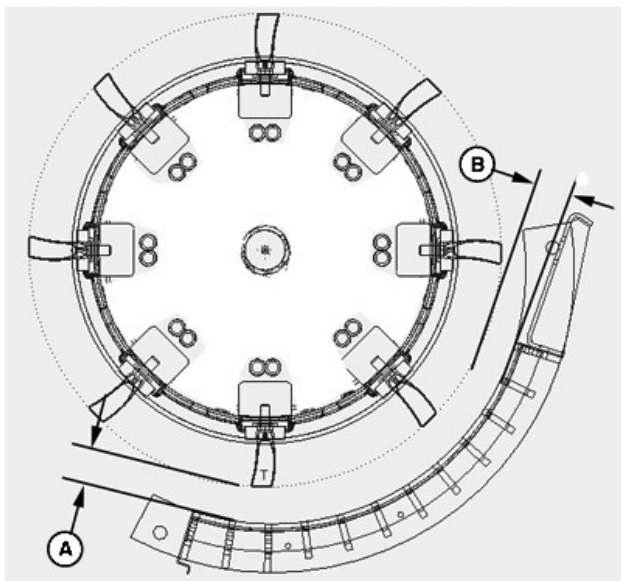
Outlet—Measure from the second rear horizontal rod on concave.

If the requirements are not met, adjust threshing clearance adjust lever or turn adjustment screws (C and D) to adjust threshing clearance. For more details, see Threshing Clearance Adjustment in Operating Machine section.



YC12287—UN—01JAN18

A—Inlet Minimum Clearance (22—23 mm)
B—Outlet Minimum Clearance (19—20 mm)
C—Inlet Adjustment Screws (2 used)
D—Outlet Adjustment Screws (2 used)



YC12288—UN—01JAN18

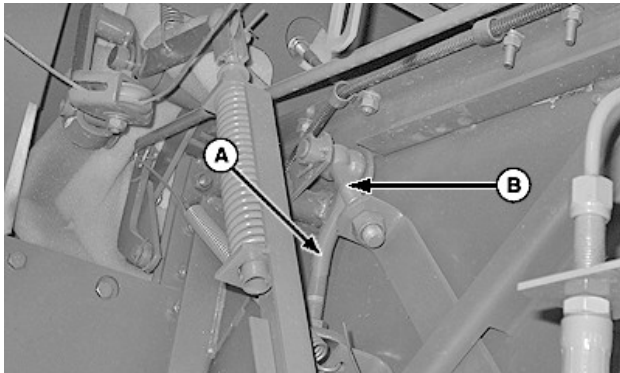
A—Inlet Minimum Clearance (22—23 mm)

B—Outlet Minimum Clearance (19—20 mm)

JL31334,000170A-19-21AUG18

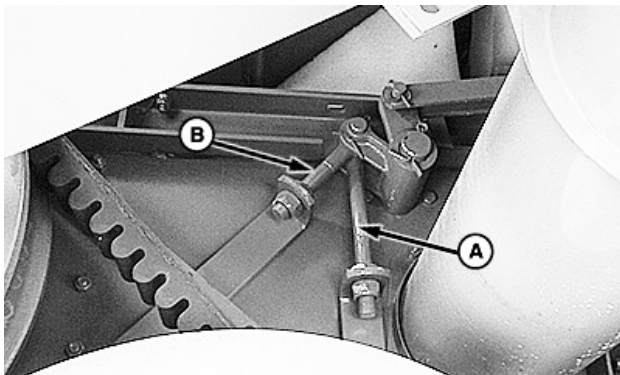
Adjust Threshing Clearance

IMPORTANT: To ensure even clearance along the cylinder rasp-bar, always adjust both sides at one time.



YC1451—UN—31DEC13

Left-Hand Side



YC10713—UN—08DEC16

Right-Hand Side

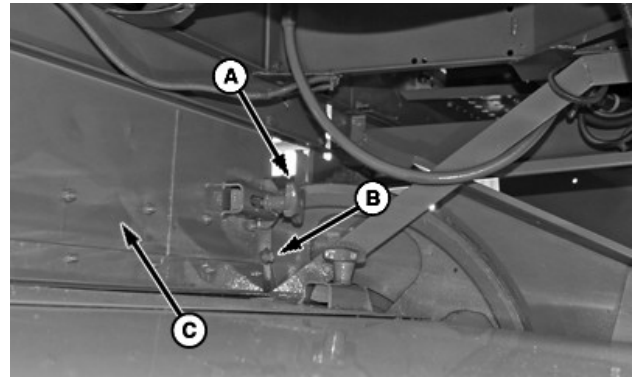
A—Adjust Screws (2 used, 1 per side)
B—Adjust Screws (2 used, 1 per side)

Adjust the inlet clearance by adjusting the adjust screws (A) on both sides of the machine.

Adjust the outlet clearance by adjusting the adjust screws (B) on both sides of the machine.

CP00606,0001875-19-22AUG18

Front Cylinder Inspection Cover



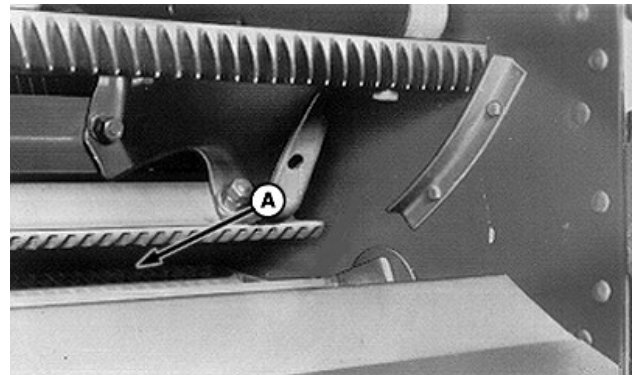
YC9670—UN—29FEB16

A—Nut (2 used, 1 per side)
B—Bolt (2 used, 1 per side)
C—Cover

Remove the bolts (B), loosen the nuts (A) by hand, slide the latches inward, and remove the cover (C) to check if the cylinder is clogged.

CP00718,0004249-19-21AUG18

Stone Trap



YC8069—UN—22JAN15

A—Stone Trap

Stone trap (A) is located in front of the cylinder.

Stone trap collects stones during harvesting process to prevent stones from damaging threshing cylinder and concave.

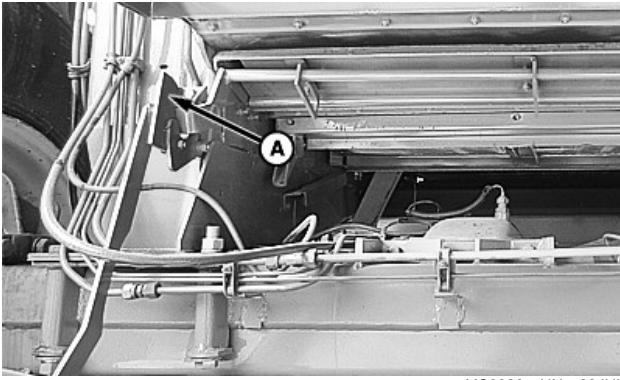
Periodically clean the stone trap.

CP00718,000424A-19-21AUG18

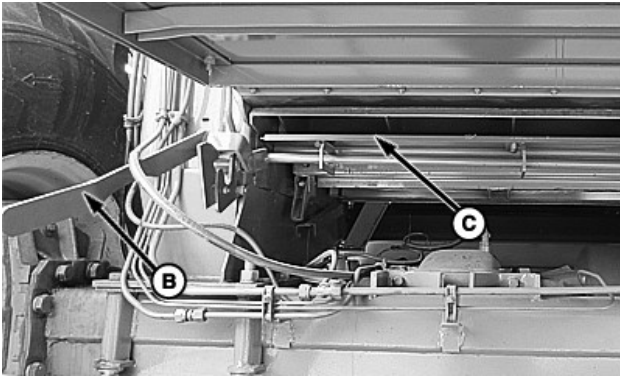
Clean Stone Trap

CAUTION: Raise feeder house, engage safety stop, shut OFF engine, set park brake and remove key.

IMPORTANT: Clean the stone trap timely, prevent component failure and grain loss.



YC8820—UN—08JUL15



YC8832—UN—08JUL15

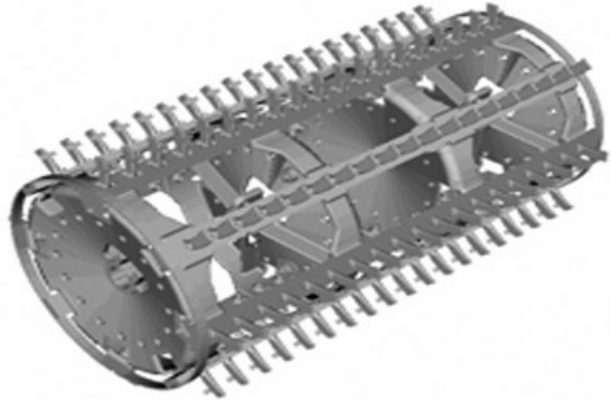
- A—Latch
- B—Handle
- C—Stone Trap

Open the latch (A), pull the handle (B) upward, and turn the stone trap (C) downward to clean.

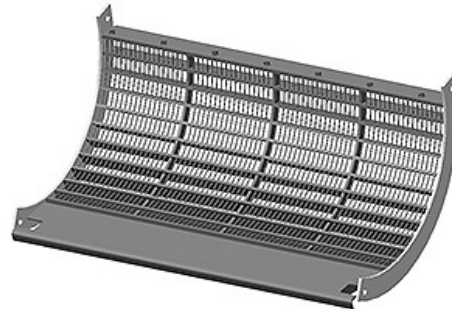
CP00606,0001876-19-30AUG18

Rice Harvesting Accessories

Rice harvesting accessories include the rice cylinder and the rice concave. Rice threshing is done by the friction movement between the spike teeth of cylinder and concave.



YC1464—UN—27FEB12



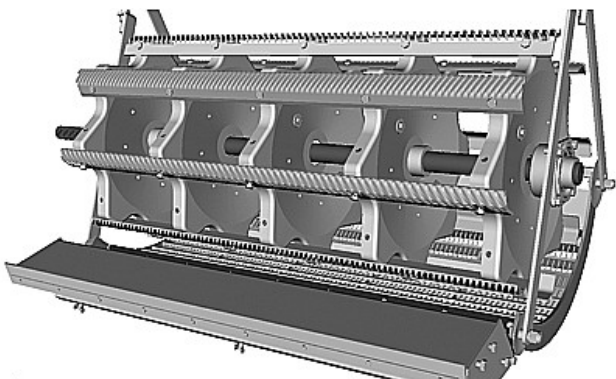
YC10793—UN—07DEC16

Cylinder Rasp Bar

IMPORTANT: Retighten the bolts of replaced rasp bar after the first 10 hours operation.

NOTE: Rasp bars can be removed or installed without removing the threshing cylinder.

Threshing cylinder is a balanced assembly. Rasp bars must be replaced in sets to maintain balance.



YC9671—UN—29FEB16

CP00718,00045C1-19-21AUG18

IMPORTANT: Replace lost or damaged spike teeth.

Install a new spike tooth using a hammer and a piece of hardwood. Tighten firmly using a nut. Spike tooth is installed with the long side at the rear in regard to direction of rotation.

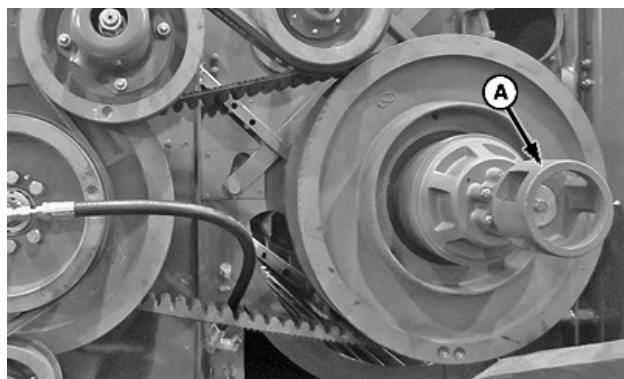
CP00718,000424D-19-19DEC17

Rotate Threshing Cylinder

CAUTION: Shut OFF engine, set park brake, and remove key.

CAUTION: Never unplug cylinder while engine is running. Be sure to install cover before starting combine.

CAUTION: Remind bystanders before rotating the threshing cylinder.



YC1458—UN—17JAN14

A—Hub

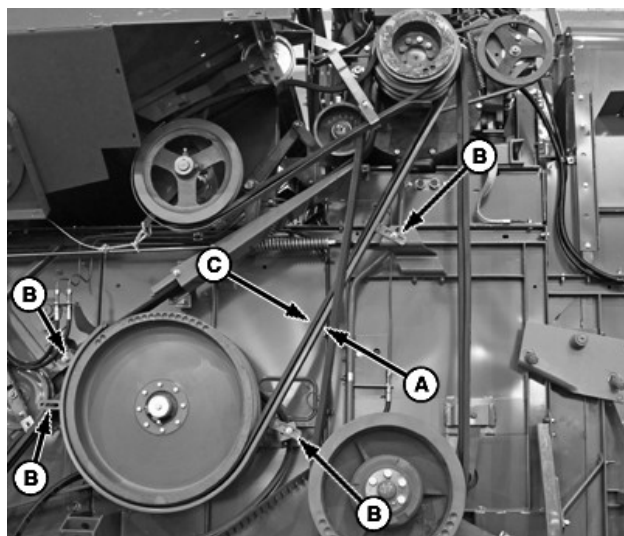
Rotate the threshing cylinder by rotating the hub (A) using an appropriate bar.

CP00606,0001877-19-09AUG18

Adjust Separator Belt Guide

CAUTION: Shut OFF engine, set park brake, and remove key.

NOTE: Regularly adjust the belt guide to prevent interference with the belt throughout the harvest season.



YC3217—UN—01MAR15

A—Belt Guide
B—Bolts (4 used)
C—Belt

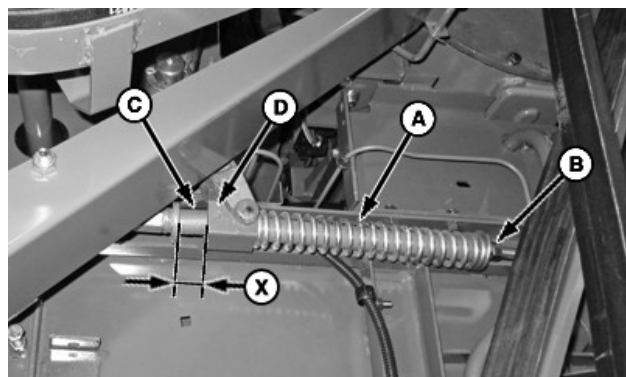
Engage the separator, loosen the bolts (B). Adjust the belt guide (A) until the clearance is 2—5 mm between the belt (C) and the belt guide (A). Retighten the bolts (B).

CP00606,0001878-19-21AUG18

Adjust Separator Belt Tension

CAUTION: Shut OFF engine, set park brake, and remove key.

IMPORTANT: Keep separator disengaged when the combine is not working.



YC10732—UN—07SEP16

A—Spring
B—Nut (2 used)
C—Adjusting Screw
D—Guide Block
X—Clearance

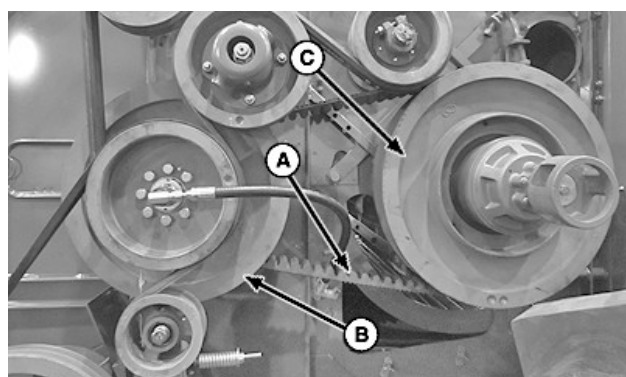
The clearance (X) between the adjusting screw (C) and guide block (D) is 23—27 mm under the separator engaged.

Adjustment Method: Engage separator, loosen the nuts (B) and turn the adjusting screw (C). Tighten nuts (B) until the clearance (X) is 23—27 mm.

CP00606,0001879-19-09AUG18

Threshing Cylinder Variable Speed Drive

CAUTION: Threshing cylinder variable speed drive is assembled under pressure. To avoid personal injury, **MUST** be serviced by John Deere dealer.



YC1461—UN—31DEC13

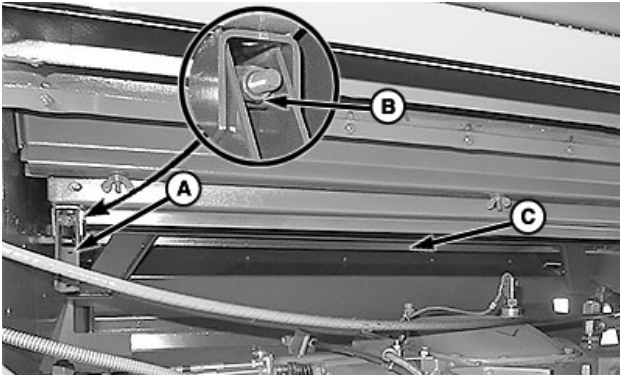
A—Belt
B—Driver Sheave
C—Driven Sheave

Threshing cylinder variable speed drive is composed of driver sheave (B), driven pulley (C), and belt (A).

CP00606,000187A-19-21AUG18

Clean Threshing Unit

IMPORTANT: Clean the machine in time, prevent component failure and loss.



YC12833—UN—29AUG18

A—Clip (2 used)
B—Nut (2 used)
C—Front Grain Pan

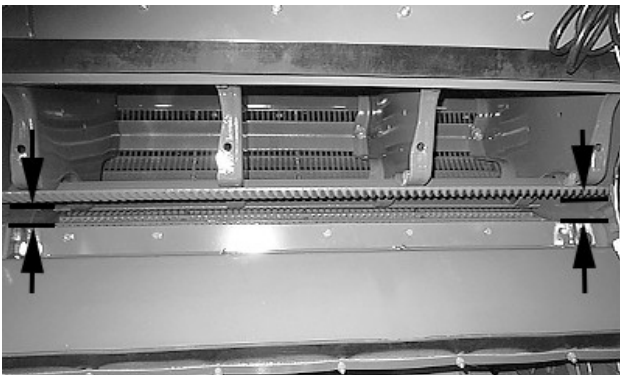
Lower the grain pan to clean the threshing unit.

Loosen the nuts (B) and open the clips (A), lower the grain pan (C) to clean the threshing unit.

CP00606,000187B-19-03SEP18

Adjust Concave

The concave is adjusted in the factory. Regularly check the concave. Ensure that the concave is in parallel with the cylinder. Related to the adjustment method, see Threshing Clearance Adjustment in Operating Machine section.



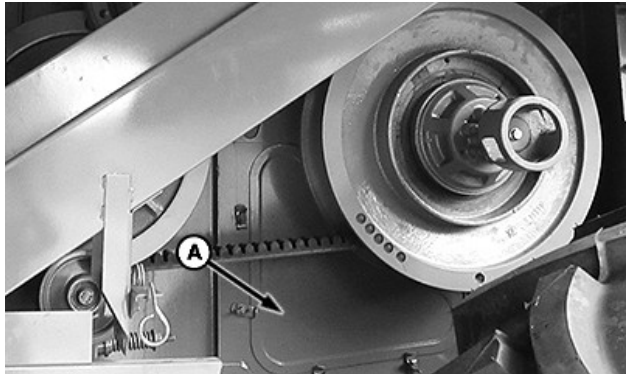
YC11522—UN—22MAR17

CP00718,00045C6-19-21AUG18

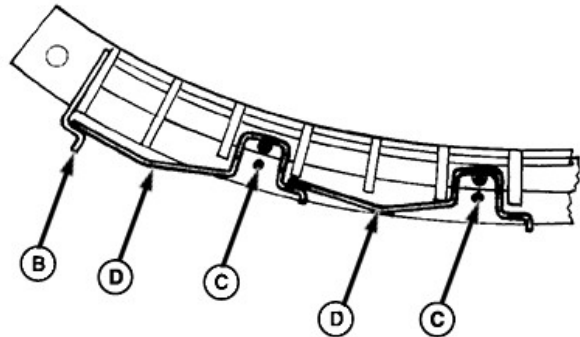
Concave De-Awning Plates

NOTE: It is not necessary to remove the concave to install the plates.

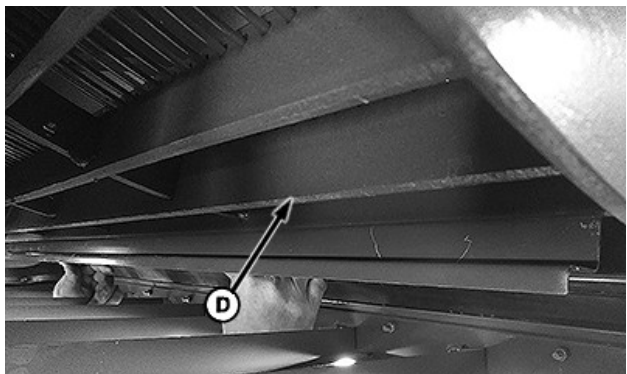
Concave de-awning plates are recommended for some crops such as barley and peas.



YC12283—UN—01JAN18



YC11132—UN—11DEC17



YC11131—UN—11DEC17

A—Cover (2 used, 1 per side)
B—Front Support
C—Cotter Pins
D—De-Awning Plates

1. Remove the covers (A) at both sides of machine.
2. Clean the chaff from the front support (B) to ensure that the de-awning plate fits properly in the concave.
3. Attach the de-awning plate (D) with the cotter pins (C).

4. Use one plate to begin. Then install the second if needed.

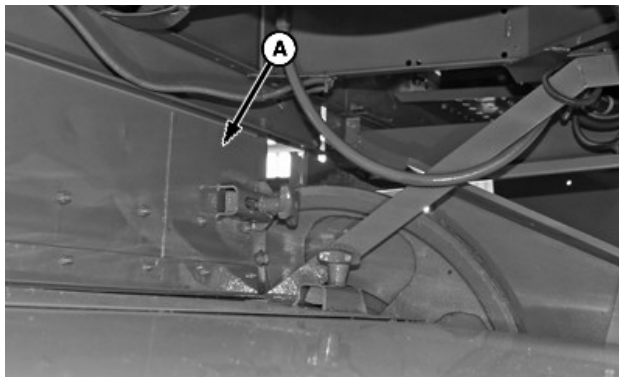
CP00606,000187C-19-29MAY18

Clean Cylinder

CAUTION: Always warn bystanders when rotating the cylinder.

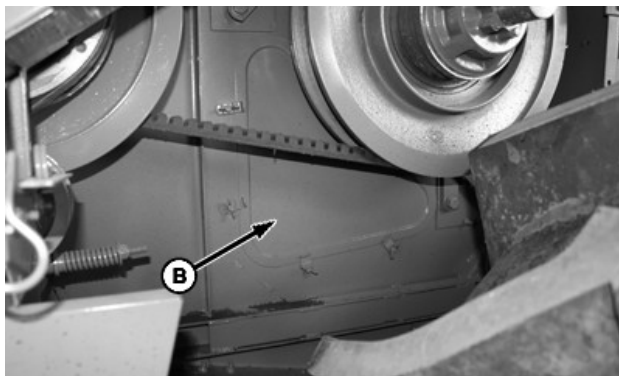
Before cleaning cylinder, ensure that the following are reliably implemented:

1. Put the header on the ground. Disengage the separator.
2. Set the gear-shift lever in neutral position and set park brake.
3. Shut off the engine.
4. Remove the key.
5. Turn off the battery disconnect switch.
6. Set the threshing clearance adjust lever in the maximum position.



YC8129—UN—11FEB15

A—Front Cover



YC8130—UN—11FEB15

B—Side Cover (2 used)

7. Open the cylinder front cover (A) and the side covers (B) for cleaning.
8. Use hooks and other tools for cleaning when needed.
9. When cleaning, remind bystanders not to rotate the cylinder.

10. Reinstall the parts removed.

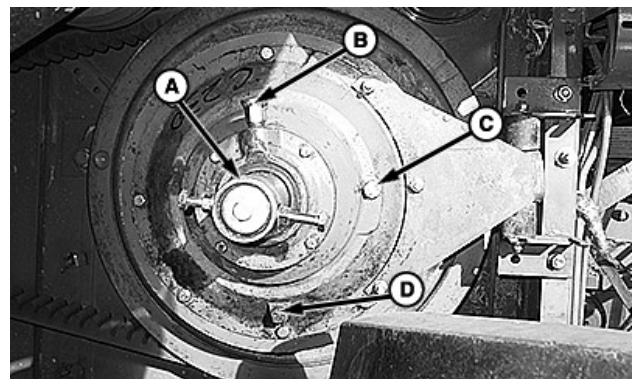
Cleaning method:

1. Open the cylinder front cover (A) and the side covers (B) for cleaning.
2. Use hooks and other tools for cleaning when needed.
3. When cleaning, remind bystanders not to rotate the cylinder.
4. Check and solve the troubles which result in the blockage. Reinstall the parts removed.

JL31334,000170D-19-21AUG18

Threshing Speed Reduction (Optional)

Combine can be equipped with the threshing speed reduction. Threshing speed is reduced about 50% with the threshing speed reduction.



YC10836—UN—20SEP16

- A—Shift Collar
- B—Vent Plug
- C—Oil Filler Plug
- D—Oil Drain Plug

Threshing speed range:

- Shift collar (A) pushed in 515—1100 rpm
- Shift collar (A) pulled out 205—435 rpm

Change oil interval:

Change oil after the first 100 hours of operation. Change oil after every 500 hours of operation or at the end of every harvest season.

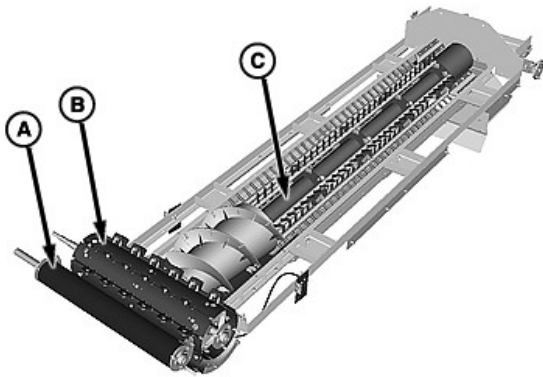
Check oil level every 100 hours of operation.

Factory oil: 00# lithium grease. Capacity: 0.8 kg.

IMPORTANT: Close pulley halves when checking oil level or refilling, As oil flows slowly, check again after 15 minutes. Refill oil if necessary.

CP00718,0004257-19-21AUG18

Separator



YC12622—UN—07MAR18

- A—Stripper Roll
- B—Overshoot Beater
- C—Separator Rotor

The stripper roll (A) and overshoot beater (B) transport the material from the threshing cylinder to the separator rotor (C). Separator rotor separates, rotates, and transports the materials further. Rods on the separator rod-bar brush the materials.

Guide vanes mounted on the inner side wall of separator generate spiral movements of materials. The brushing function of rotating tines and the centrifugal force together generate the maximum separation of heavy grains.

During this process, separated grains fall onto shaker which is at lower part of the separation baffle. When materials reach the rear part of separation baffle, there is no entrained grains. Shaker transports grains to the cleaning shoe for final cleaning.

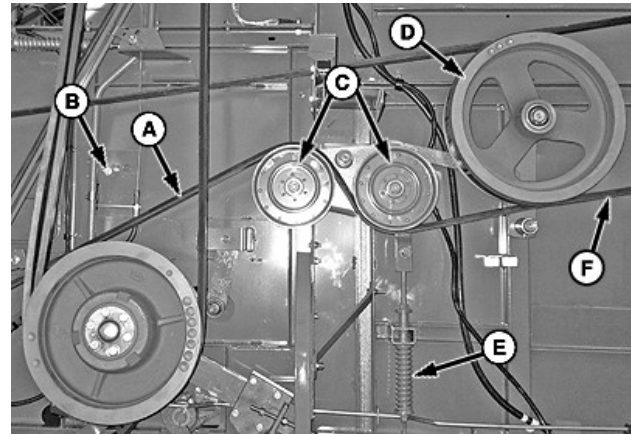
CP00606,00018B7-19-10AUG18

tension pulley (C), overshoot beater pulley (D), and stripper roll pulley (G). Slip clutch (E) protects the drive device when beater is overloaded.

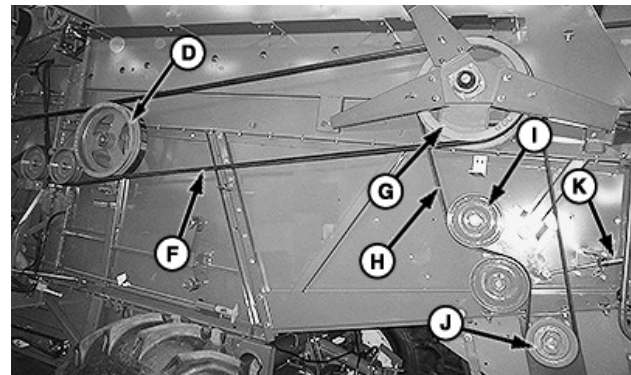
The beater is driven by the belt (A). Use the tension lever (F) to tension the belt.

CP00606,000187D-19-21AUG18

Separator and Chopper Belt Drive

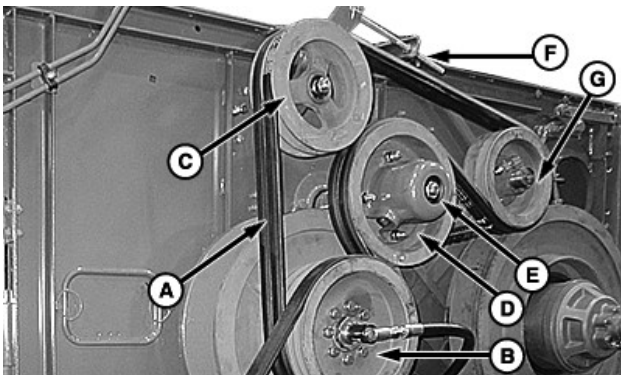


YC8836—UN—06JUL15



YC10734—UN—07SEP16

Beater Drive



YC9578—UN—23DEC15

- A—Belt
- B—Drive Pulley
- C—Tension Pulley
- D—Overshoot Beater Pulley
- E—Slip clutch
- F—Tension Lever
- G—Stripper Roll Pulley

Beater drive is composed of belt (A), drive pulley (B),

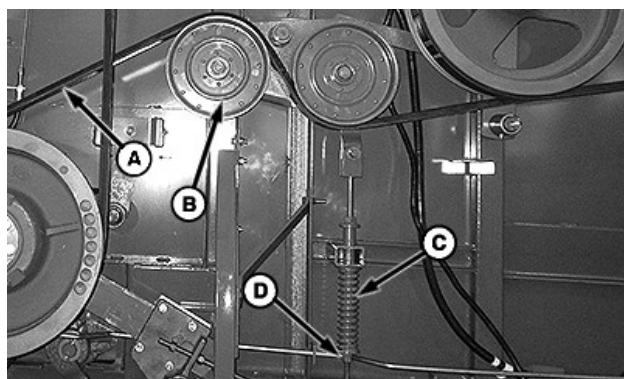
- A—Belt
- B—Separator Fixed Points (2 used, 1 per side)
- C—Tension Pulleys (2 used)
- D—Transition Pulley
- E—Spring
- F—Belt
- G—Separator Drive Pulley
- H—Belt
- I—Tension Pulley
- J—Chopper Drive Pulley
- K—Spring

Separator drive is composed of belts (A and F), tension pulleys (C), and the transition pulley (D). Adjust tension of the belt (A) by compressing or releasing the spring (E). Both separator fixed points (B) are on the side wall of the machine.

Chopper drive is composed of belts (F and H), tension pulleys (I), transition pulley (D), and chopper drive pulley (J). Adjust tension of the belt (H) by compressing or releasing the spring (K).

CP00606,000187E-19-21AUG18

Tension Separator Drive Belt



YC10783—UN—07DEC16

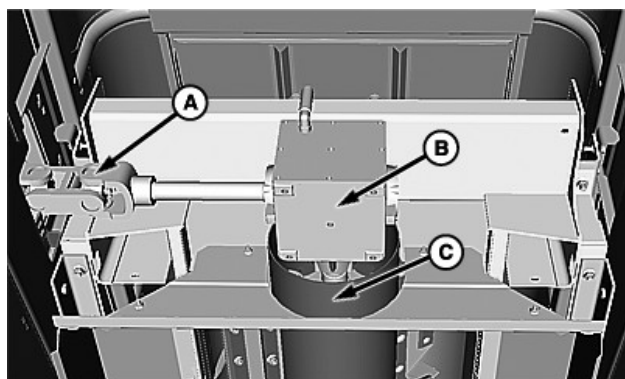
- A—Drive Belt
- B—Idler
- C—Spring
- D—Nut (2 used)

Separator drive belt (A) is tensioned by spring (C). To tension the belt, Rotate the support of idlers (B) by compressing the spring (C) .

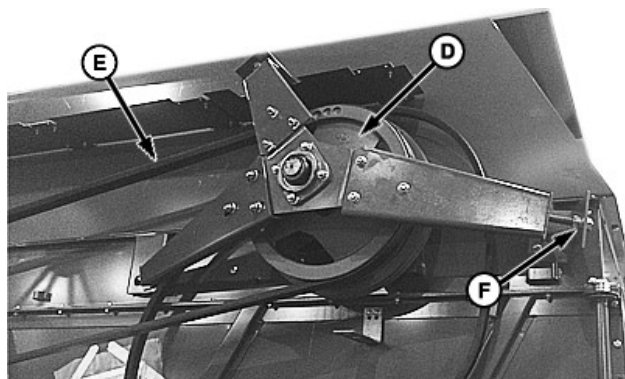
Adjustment Method: Tighten the nuts (D), until spring (C) is compressed to 130-160 mm. Retighten nuts.

CP00606,000187F-19-21AUG18

Separator Rotor Drive



YC8833—UN—08JUL15



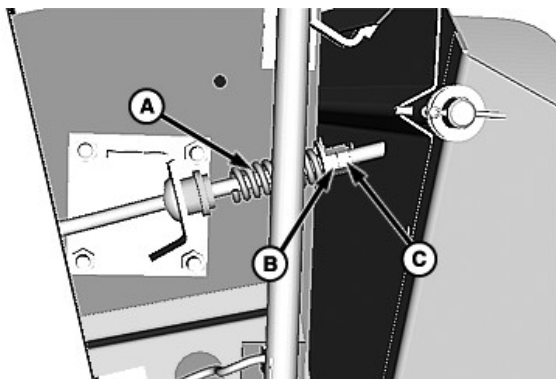
YC12461—UN—22AUG18

- A—Universal Joint
- B—Gear Case
- C—Separator Rotor
- D—Separator Rotor Drive Pulley
- E—Drive Belt
- F—Nut (6 used)

Power from the drive belt (E) is transferred to the gear case (B) and separator rotor (C) through the separator rotor drive pulley (D) and universal joint (A).

CP00606,0001881-19-14AUG18

Tension Chopper Drive Belt



YC8887—UN—07JUL15

- A—Spring
- B—Nut
- C—Nut

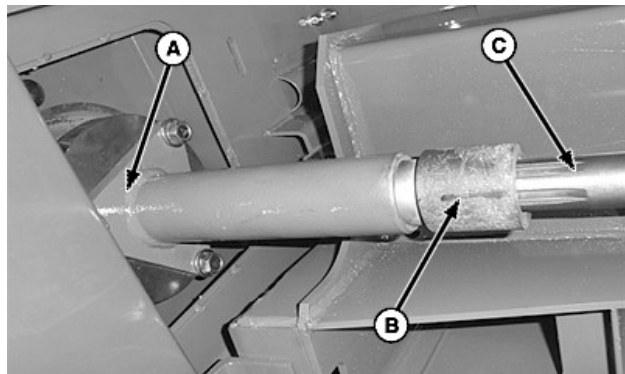
Chopper drive belt is tensioned by the spring (A). Compress or release the spring according to the working conditions.

Principle: Drive belt does not overheat under the normal work load.

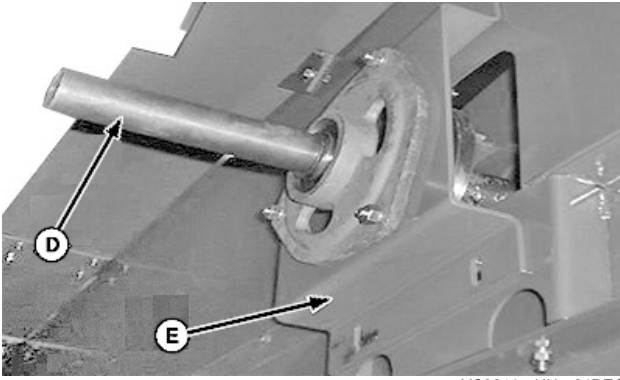
Adjustment Method: Compress or release the spring by tighten or loosen the nuts (B and C).

CP00606,0001880-19-14AUG18

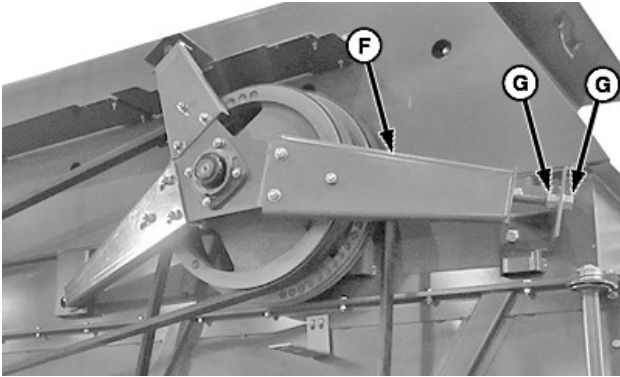
Install Separator Rotor Drive Pulley



YC3240—UN—31DEC13



YC3241—UN—31DEC13



YC12462—UN—22AUG18

- A—Special Tool
- B—Special Tool
- C—Gear Case Shaft
- D—Driveshaft
- E—Inner Support
- F—Outer Support
- G—Adjust Nuts (6 used, 2 per location)

Couple the driveshaft (D) and gear case shaft (C) using the special tools (A and B).

Secure the inner support (E) using four cap screws. Install the lock collar.

Install the drive pulley and belt.

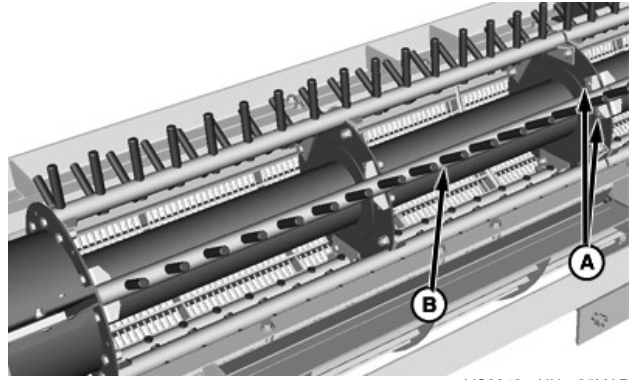
Install the outer support (F) using the adjust nuts (G). Install the lock collar.

Remove the special tools and install the universal joint.

JL31334,0001710-19-14AUG18

Replace Tine Rod Weldment

NOTE: To keep the balance, remove the opposite tine rod weldment too.



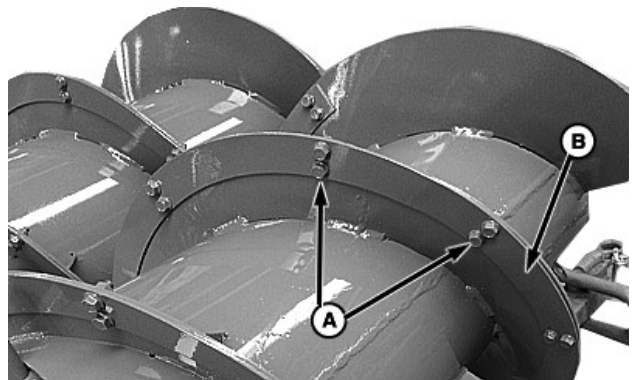
YC8342—UN—25MAR15

- A—Cap Screws (6 used)
- B—Tine Rod Weldment

Remove the cap screws (A). Replace damaged or seriously worn tine rod weldment (B).

CP00606,0001882-19-14AUG18

Replace Wear Plate



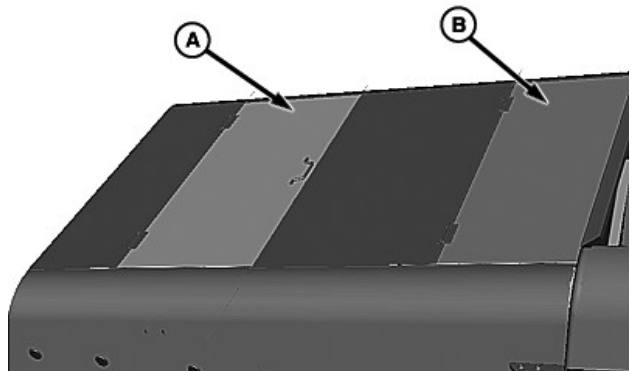
YC8343—UN—25MAR15

- A—Cap Screws (4 used)
- B—Wear Plate

Remove the cap screws (A). Replace the wear plate (B) when seriously worn.

CP00606,0001883-19-14AUG18

Clean Separator

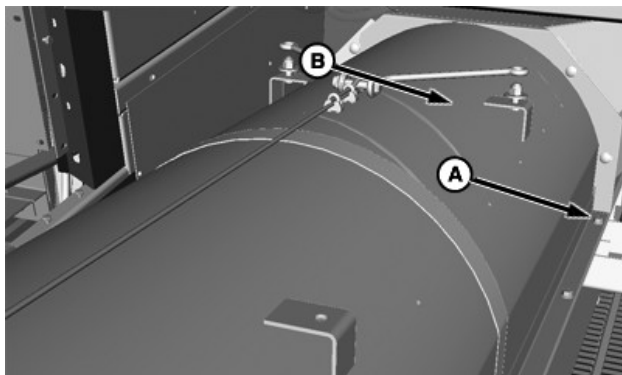


YC9678—UN—10MAR16

- A—Upper Panel

B—Upper Panel

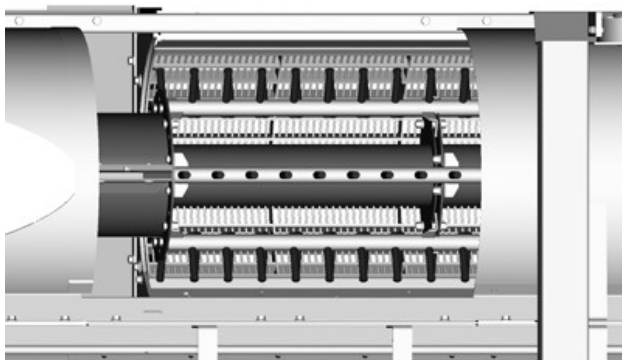
1. When cleaning serious blockage, open the upper panels (A and B).



YC8344—UN—25MAR15

A—Bolt
B—Upper Panel

2. Remove bolts (A). Remove the upper panel (B).



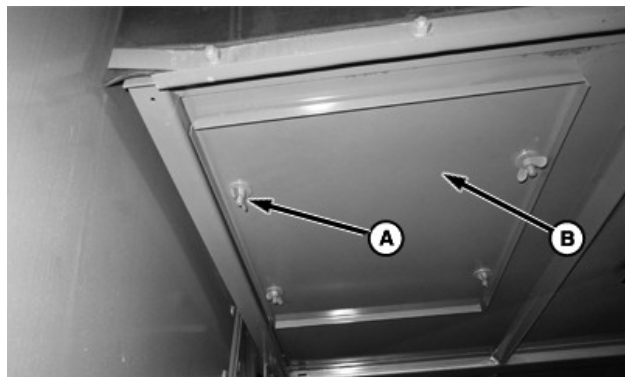
YC8125—UN—28JAN15

JL31334,0001712-19-14AUG18

Clean Separator Grate

CAUTION: To avoid personal injury, be aware of falling soil and debris when removing the plate (B).

Separator grate blockage increases the separator loss. Check the separator grate regularly. Clear blockages as required.



YC8347—UN—25MAR15



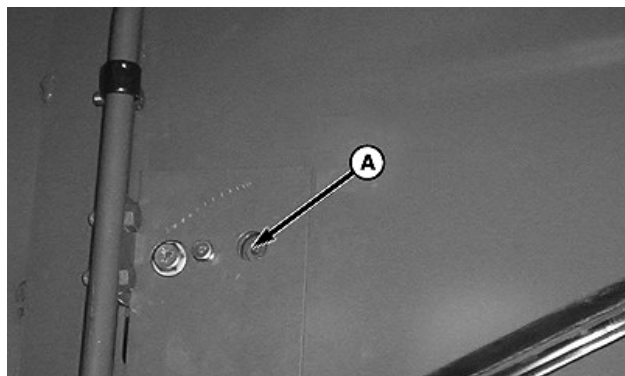
YC8348—UN—25MAR15

A—Wing Nut (4 used)
B—Plate

Loosen the wing nuts (A). Remove the plate (B). Clear blockages.

CP00606,0001884-19-22AUG18

Lubricate Front Separator Bearing



YC3404—UN—25JUL14

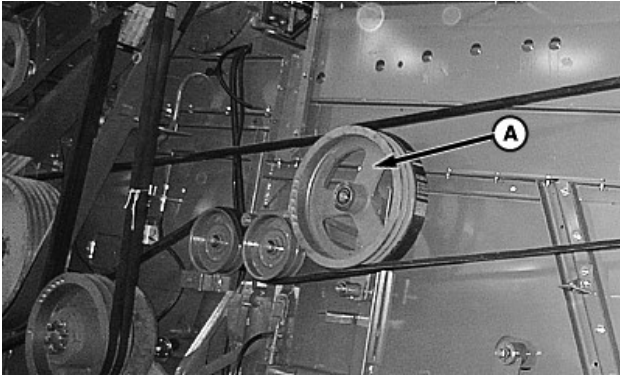
A—Grease Fitting

The grease fitting (A) of front separator bearing is located on the left-hand sidewall of the machine.

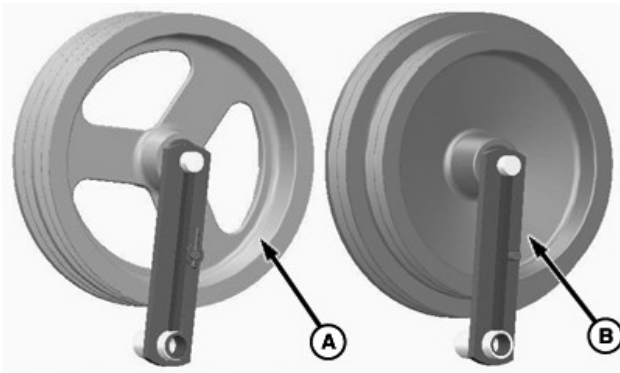
Grease the bearing every 100 hours of operation.

CP00606,0001885-19-14AUG18

Adjust Separator Speed (Fixed Speed Gear Case)

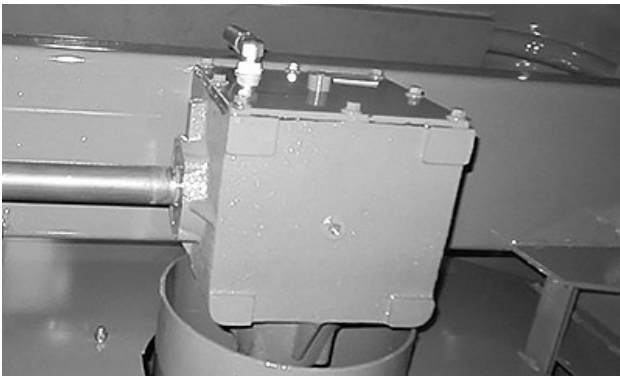


YC8341—UN—25MAR15



YC9548—UN—30NOV15

A—Drive Pulley (standard configuration 700 rpm)
B—Drive Pulley (optional configuration 800/500 rpm)



YC10728—UN—28DEC17

The standard configuration is equipped with the drive pulley (A) and speed is set to 700 rpm.

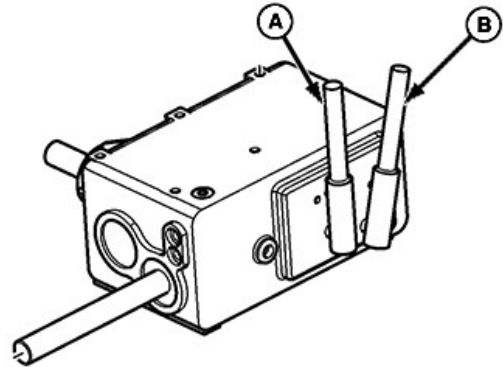
When harvesting wet rice, install drive pulley (B). Place small wheel toward the outside of machine body, speed of separator is set to 800 rpm.

Place small wheel of the drive pulley (B) toward the inside of machine body, speed of separator is set to 500 rpm.

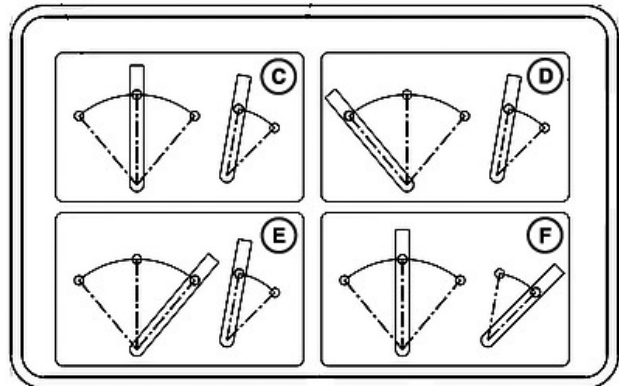
CP00606,0001886-19-03SEP18

Adjust Separator Speed (3-Speed Gear Case)

IMPORTANT: Make sure that at least one shift lever (A or B) is positioned in neutral position during the speed adjustment process.



YC12463—UN—22AUG18



YC10730—UN—28DEC17

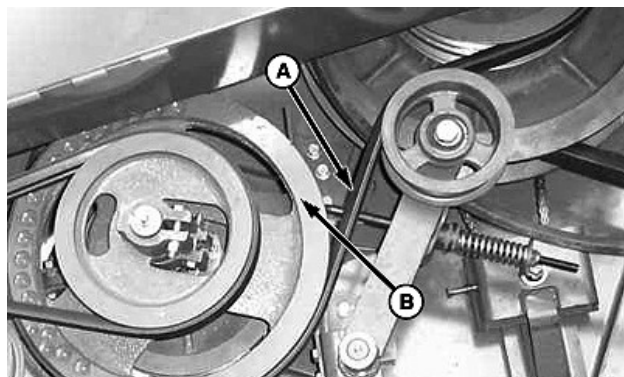
A—Shift Lever
B—Shift Lever
C—Neutral
D—500 rpm
E—700 rpm
F—800 rpm

Combine can be equipped with the adjustable speed gear case. Change the shift levers (A and B) at different position to adjust the separator speed.

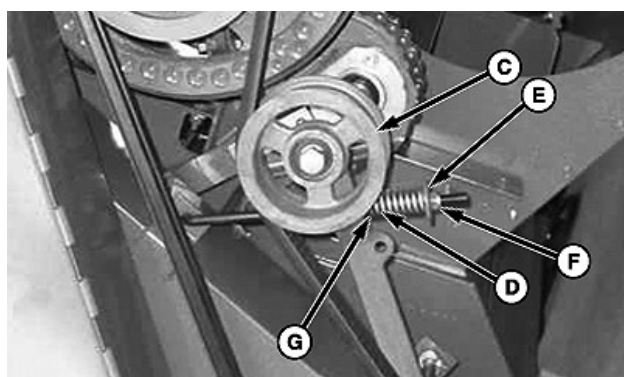
- C position: Neutral
- D position: 500 rpm
- E position: 700 rpm
- F position: 800 rpm

CP00606,0001887-19-15AUG18

Cleaning Shoe, Clean Grain Elevator, and Tailings Elevator Drive



YC2409—UN—25JUL14



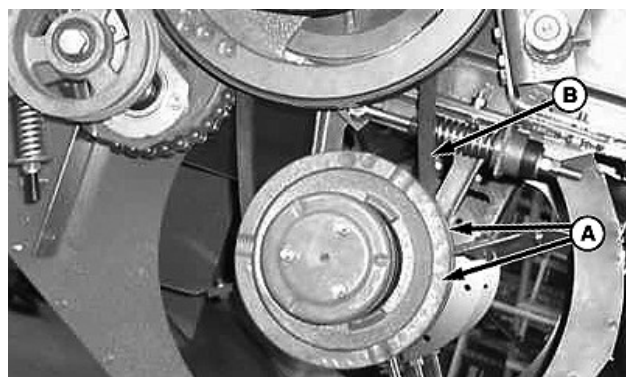
YC2410—UN—25JUL14

- A—Belt
- B—Drive Pulley
- C—Tension Pulley
- D—Spring
- E—Washer
- F—Nut
- G—Spring Seat

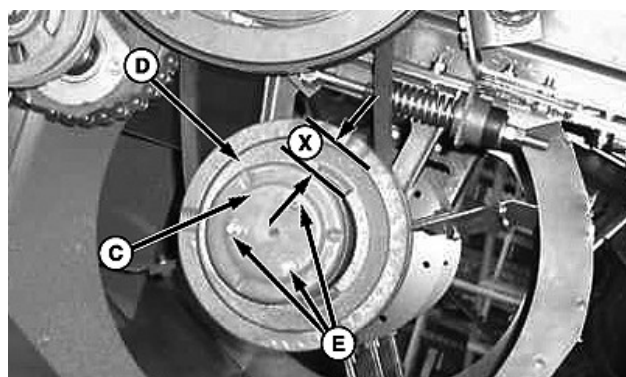
The power from the drive pulley (B) goes to tailings elevator, clean grain elevator, and cleaning shoes by belt (A). The belt (A) is automatically tensioned by spring (D). The length of the tension spring is compressed to 59 mm. Change the length of spring to adjust the tension of the belt with nut (F).

CP00606,0001888-19-29MAY18

Cleaning Fan Drive



YC2411—UN—25JUL14



YC2412—UN—25JUL14

- A—Variable Fan Speed Sheaves (2 used)
- B—Drive Belt
- C—Spring Seat
- D—Outer Half Sheave
- E—Bolts (3 used)
- X—Dimension (103—105 mm)

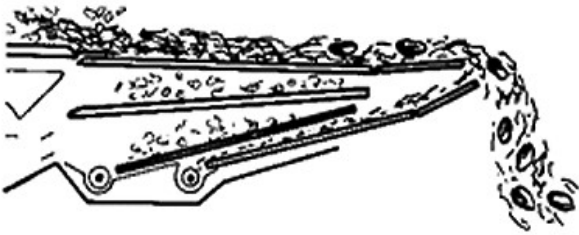
The variable fan speed sheaves (A) are adjusted under following conditions: When both variable fan speed sheaves are fully closed, measure dimension (X): from the outer surface of spring seat (C) to outer surface of the outer half sheave (D).

Adjust bolts (E) to change the dimension (X) to 103—105 mm.

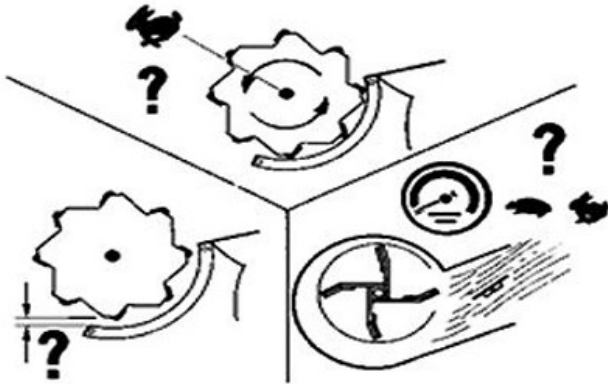
CP00606,0001889-19-21AUG18

Cleaning Process

With cleaning shoe movement and fan blast, short straw is cast outside the combine, chaff is blown out. Clean grain passes through the sieve, and enters the grain auger from the upper pan. Tailings enter the tailings auger through lower pan.



YC1491—UN—27FEB12



YC1492—UN—30DEC13

As a result of over-threshing, the cleaning unit becomes overloaded, resulting in poor separation of grain from the chaff. A considerable amount of grain is lost, dropping to the ground at the rear of combine.

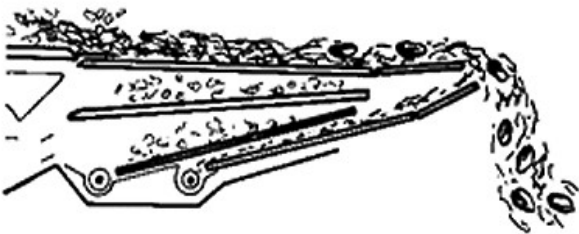
NOTE: The blast is as strong as possible, but grain loss is kept to a minimum.

If over-threshing, check the following:

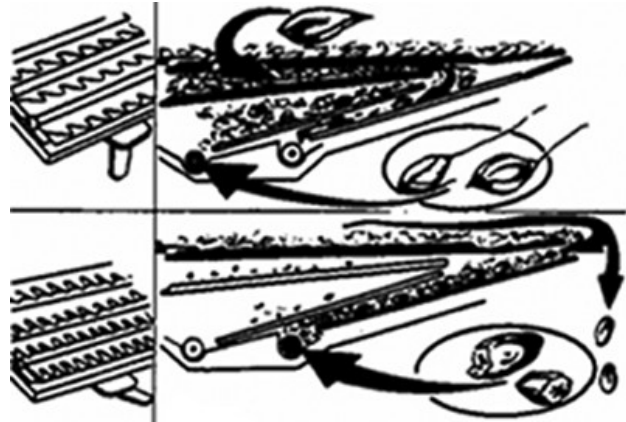
- Is threshing clearance too small?
- Is cylinder speed too high?
- Are fan speed and direction appropriate to sieve load?

CP00718,00045DA-19-21AUG18

Adjust Chaffer



YC1491—UN—27FEB12



YC2759—UN—26NOV12

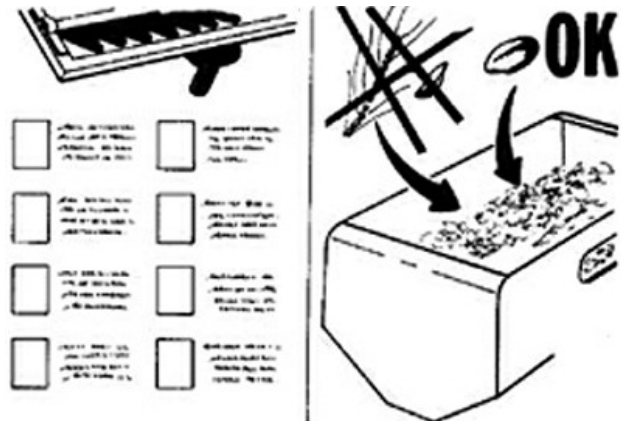
Adjust the chaffer clearance wide enough, so that the grain falls off before passing the length of the chaffer.

If the chaffer clearance is too wide, the sieve overloads.

If the chaffer is not adjusted wide enough, some grain falls onto the tailings pan. The cracked grain and some good grains are lost out of the rear of the combine.

CP00718,00045DB-19-15AUG18

Adjust Sieve



YC2760—UN—26NOV12

Refer to combine adjustment chart, perform basic adjustments. The grain falls onto the pan in the front of sieve. Always check the result of previous adjustment before perform next adjustment, ensure only little chaff or no chaff is in the grain tank.

If the sieve clearance is adjusted too wide, there is too much chopped straw in the grain tank.

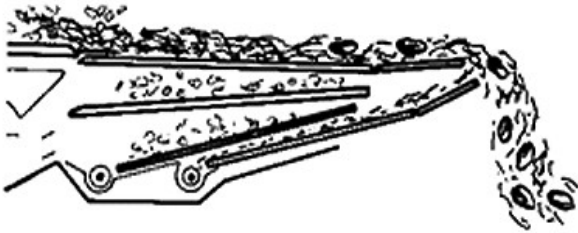
If the sieve clearance is not adjusted wide enough, there are too many grains in the tailings and too many cracked grains in the grain tank.

CP00718,0004269-19-15AUG18

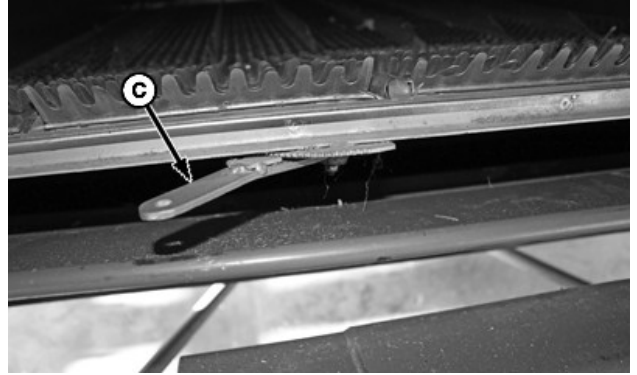
Return Pan Extension

When adjusting extension, under normal harvesting

conditions, it is a bit longer than chaffer extension for reducing grain loss.



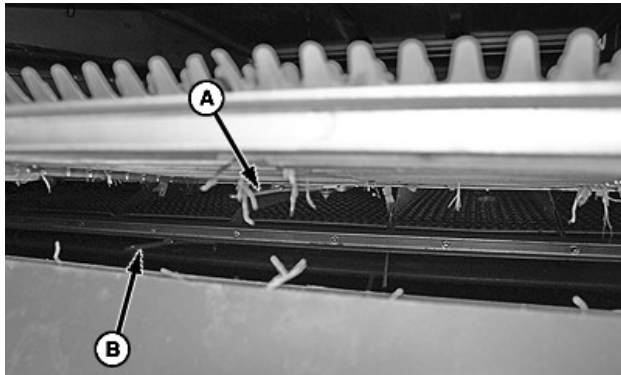
YC1491—UN—27FEB12
CP00718,00045DC-19-21AUG18



YC8142—UN—02MAR15

A—Chaffer Adjustment Lever
B—Sieve Adjustment Lever
C—Chaffer Extension Adjustment Lever

Adjusting Lever of Chaffer, Sieve, and Chaffer Extension



YC8143—UN—02MAR15

Adjust chaffer clearance using the chaffer adjustment lever (A) .

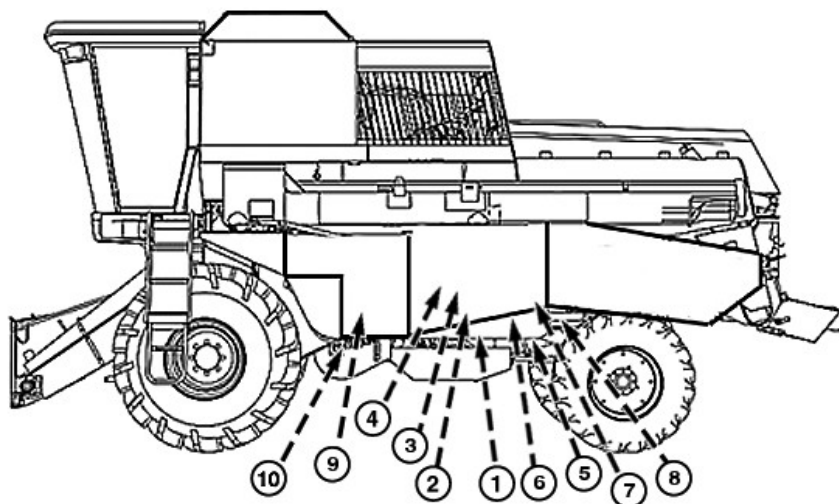
Adjust sieve clearance using the sieve adjustment lever (B).

Adjust chaffer extension clearance using the chaffer extension adjustment lever (C).

For three levers, move to the left to increase clearance, move to the right to decrease clearance. Adjust the clearance for different crops. See Recommended Adjustment Diagrams in Loss Evaluation and Adjustment Diagrams section.

CP00606,000188A-19-21AUG18

Shoe Pitman and Hanger



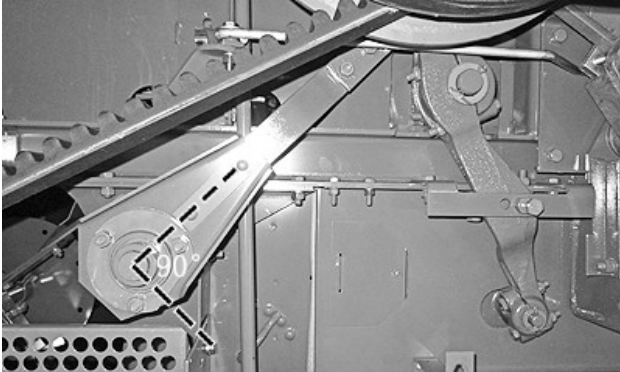
Rubber Bushing Position - Left-Hand Side

YC10855—UN—29SEP16

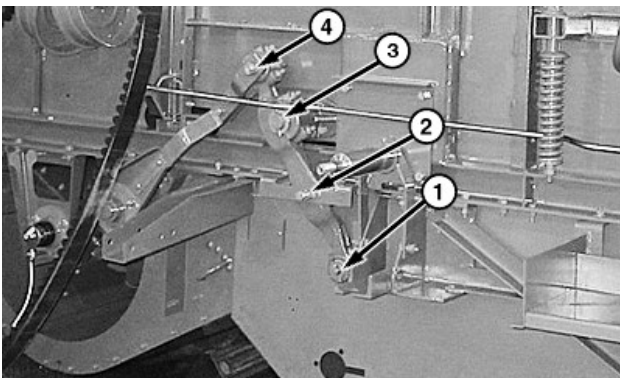
IMPORTANT: Change rubber bushings regularly.

NOTE: Rubber bushing positions on the right-hand side of combine are same as on the left-hand side.

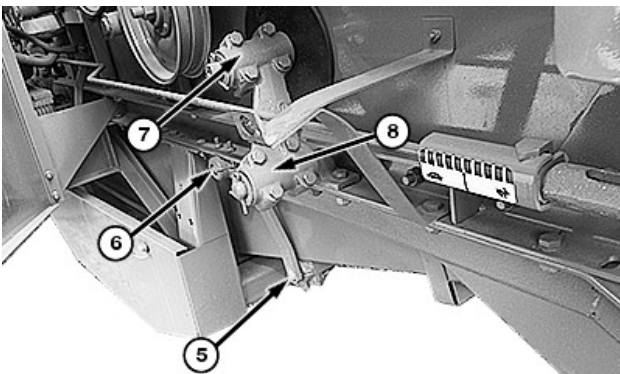
IMPORTANT: To avoid failure, change rubber bushings according to the order as shown in the diagram.



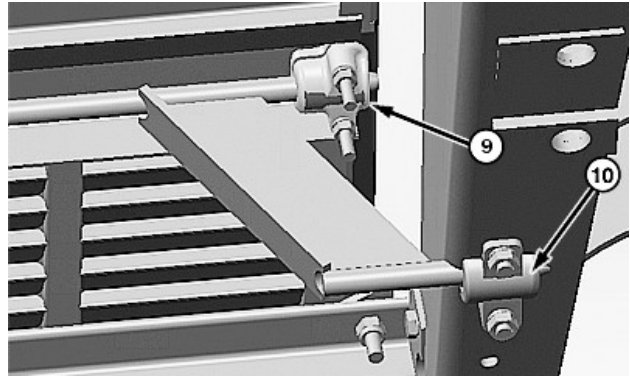
YC10854—UN—08DEC16



YC10804—UN—08DEC16



YC10805—UN—08DEC16



YC10853—UN—08DEC16

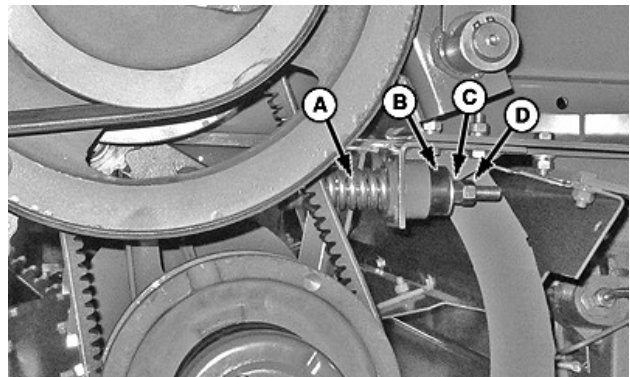
When replacing the rubber bushings on the shoe pitman and hangers, ensure that the shoe pitman is in center position.

The center position is determined as follows:

Rotate the main drive sheave by hand until the centerline through the pitman forms 90° angle with the line connecting the pivot shaft hub and the center of the crankshaft.

CP00718,000426C-19-19DEC17

Shoe Drive Tension



YC2413—UN—23FEB14

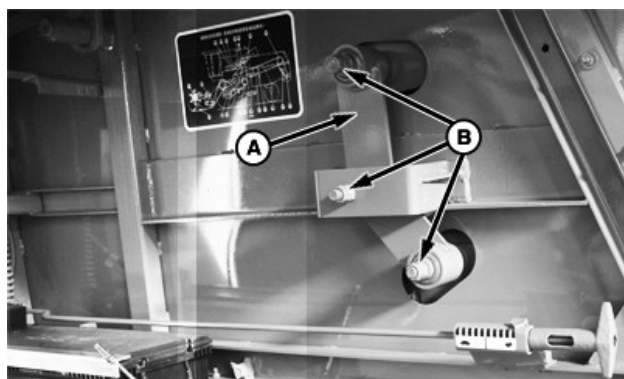
A—Spring
B—Rubber Bushing
C—Nut
D—Nut

Shoe chain drive is tensioned by the spring (A). Adjust the tension of the chain by adjusting the nuts (C and D). The principle of adjusting the length of spring (A) is to minimize the impact under working conditions.

The chain drives sieve and chaffer, shaker pan, and other components. The impact load is rather large and the rubber bushing (B) is worn quickly. Regularly replace it according to the usage conditions.

CP00606,000188B-19-21AUG18

Shaker Pan Drive Arm



A—Drive Arm
B—Nuts (6 used)

The drive arm (A) drives shaker pan. Regularly check the tightness of nuts (B).

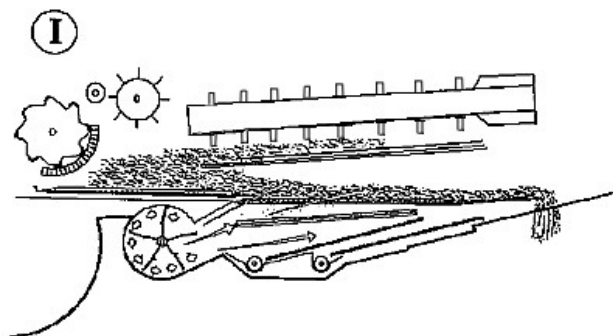
YC8839—UN—07JUL15

CP00606,000188C-19-21AUG18

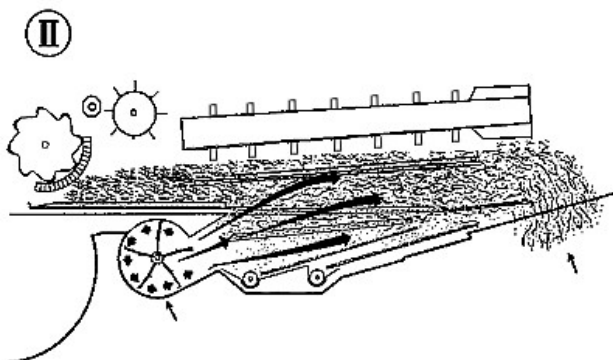
Cleaning Fan Speed

IMPORTANT: Always check the result before performing next adjustment.

*NOTE: Too little fan blast causes insufficient cleaning.
Too much fan blast causes loss of grain.*



YC8345—UN—25MAR15



YC8346—UN—25MAR15

Before adjusting the fan speed, adjust chaffer and sieve to the maximum recommended clearance for different

crops (See Recommended Adjustment Diagrams in Loss Evaluation and Adjustment Diagrams section). Increase gradually the speed from the lowest fan speed until no grain is blown out of the combine or into the tailings return.

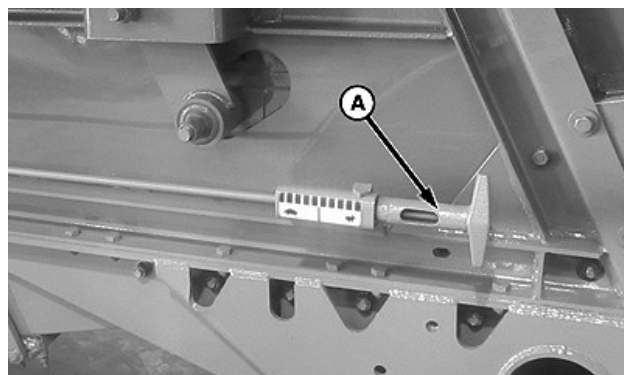
Check the results carefully. After reaching the maximum acceptable fan speed, continue to make minor adjustments to chaffer and if necessary, readjust the fan until best results are achieved.

CP00718,000426F-19-21AUG18

Adjust Fan Speed

IMPORTANT: Always adjust the fan speed while the fan is running.

For recommended fan speed, see Recommended Adjustment Diagrams in Loss Evaluation and Adjustment Diagrams section.



YC2414—UN—25JUL14

A—Knob

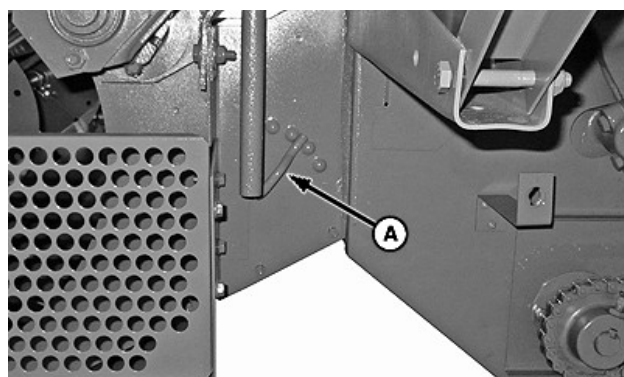
Adjust fan speed by turning the knob (A).

Increase speed - Turn knob counterclockwise.

Decrease speed - Turn knob clockwise.

CP00606,000188D-19-15AUG18

Fan Air Deflector



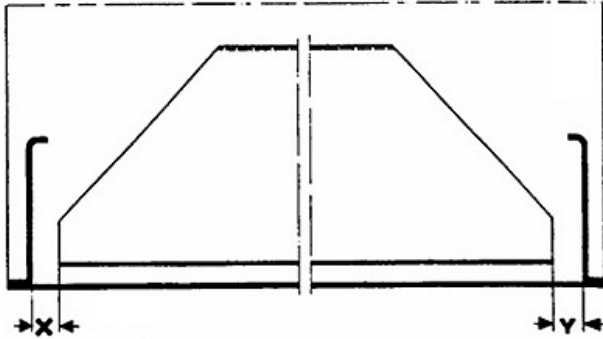
YC8174—UN—25MAR15

A—Deflector Lever

Change the direction of the fan blast by turning the deflector lever (A), so that a strong gust of air is present where the grain leaves the grain pan and passes onto the chaffer.

CP00606,000188E-19-15AUG18

Fan Side Clearance

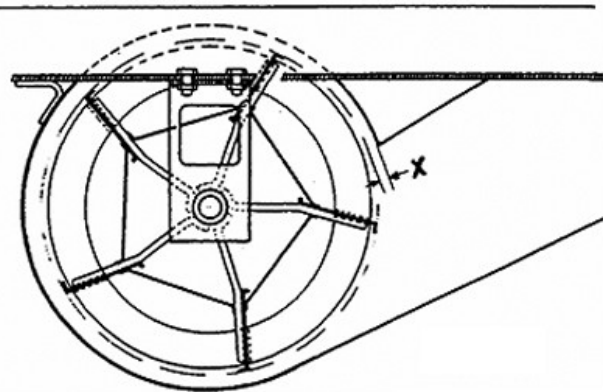


YC8301—UN—10FEB15

Fan side clearance between fan blades and housing is the same. That is, $X=Y$.

CP00718,0004272-19-21AUG18

Fan Radial Clearance



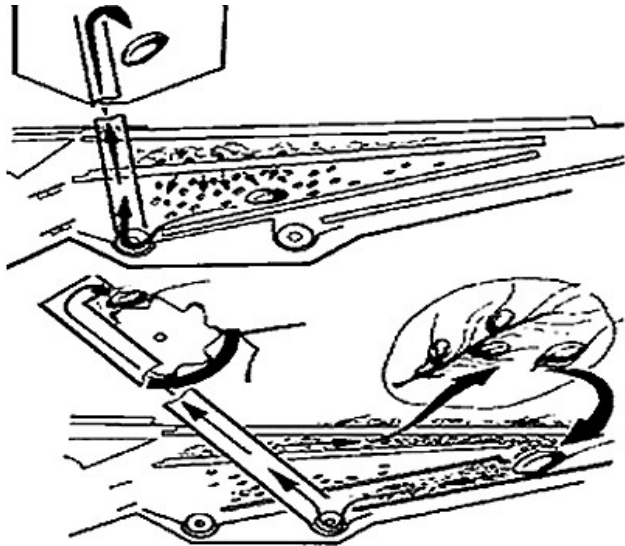
X—Clearance (12 mm)

YC2769—UN—26NOV12

Radial clearance (X) between fan blades and front edge of housing is 12 mm, and equal over entire width.

CP00718,0004273-19-21AUG18

Grain Conveyor



YC1504—UN—26NOV12

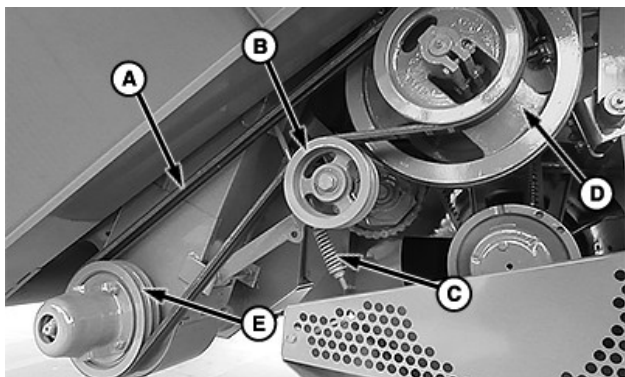
Grain falls onto the return pan, primarily from the first half of sieve. Grain is passed on to the grain auger and elevator and finally to the grain tank.

Unthreshed grain heads and a small amount of chaff are passed to the end of the sieve and forward to the tailings auger through the return pan. The tailings elevator conveys material back to the threshing cylinder where it is rethreshed.

CP00718,0004274-19-19DEC17

Grain and Tailings Elevator Drive

IMPORTANT: To avoid the belt damage and transmitting inefficiently, **MUST** align the drive pulley (D), pulley (E), and idler (B).



YC10919—UN—01DEC16

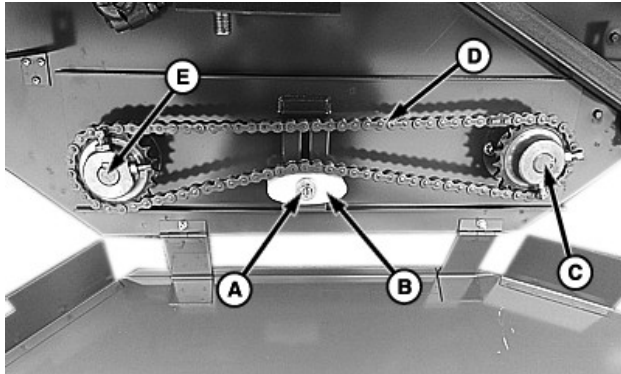
- A— Belt
- B— Idler
- C— Spring
- D— Drive Pulley
- E— Pulley

The power from drive pulley (D) goes to grain and tailings elevator by belt (A). The belt is tensioned by idler (B).

(B) automatically. To tension the belt, adjust the length of spring (C) to 79—81 mm.

CP00606,000188F-19-21AUG18

Grain and Tailings Auger Drive



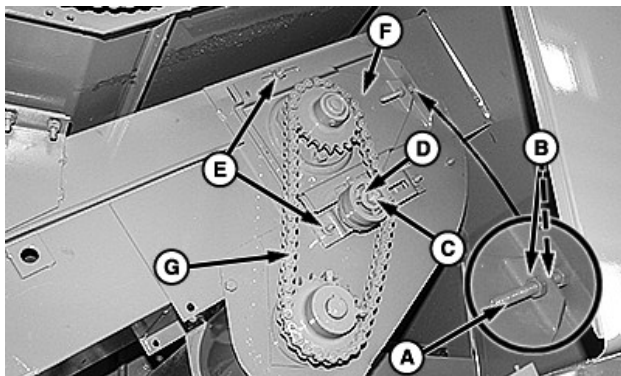
- A— Nut
- B— Idler
- C— Lower Tailings Auger Shaft
- D— Chain
- E— Lower Grain Auger Shaft

The power from the lower grain auger shaft (E) goes through the lower tailings auger shaft (C) by chain (D), goes to the tailings auger. The chain is tensioned by idler (B).

Adjustment: Loose nut (A), adjust the idler (B) to the tension chain (D). Retighten nut.

CP00606,0001890-19-21AUG18

Adjust Tension of Tailings Elevator Conveyor Chain



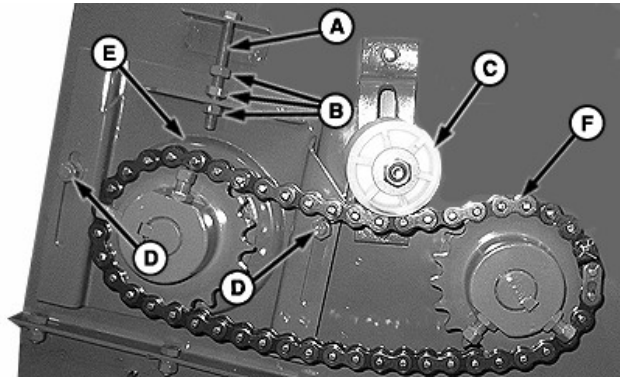
- A— Bolt
- B— Nuts (2 used)
- C— Nut
- D— Idler
- E— Nuts (2 used)
- F— Bearing Housing
- G— Chain

Loosen nut (C) on idler (D). Loosen nuts (E). Adjust nuts (B) on bolt (A), Adjust the bearing housing (F) to tension

tailings elevator conveyor chain. Retighten all nuts and tension chain (G) by adjusting idler as required.

CP00606,0001891-19-29MAY18

Adjust Tension of Grain Elevator Conveyor Chain



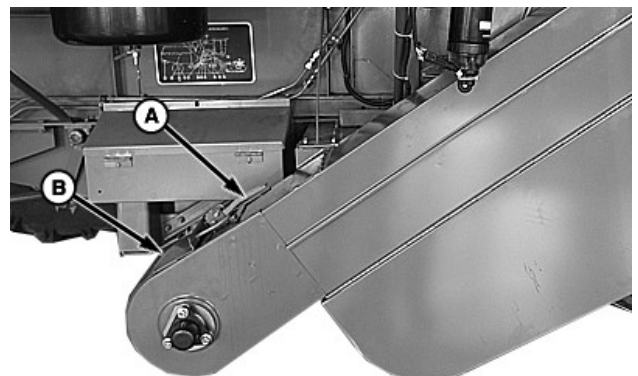
- A— Bolt
- B— Nuts (3 used)
- C— Idler
- D— Nuts (2 used)
- E— Bearing Housing
- F— Chain

Loosen idler (C). Loosen nuts (D). Adjust nuts (B) on bolt (A), tighten the clean grain elevator conveyor chain by adjusting the bearing housing (E). Retighten all nuts and tension chain (F) by adjusting idler as required.

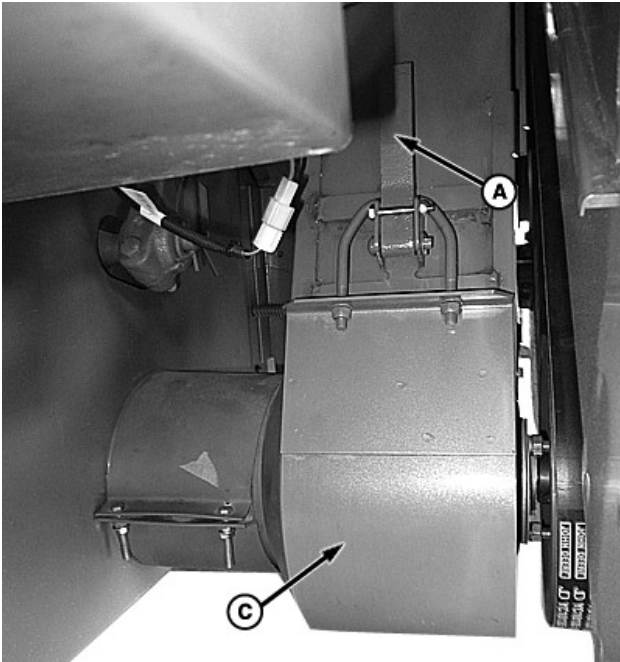
CP00606,0001892-19-29MAY18

Elevator Lower Inspection Doors

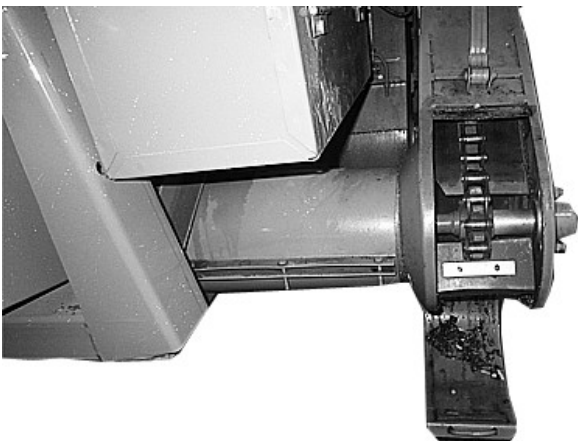
CAUTION: Avoid accidents when cleaning elevators.



YC9510—UN—09NOV15



YC9509—UN—09NOV15



YC9511—UN—09NOV15

- A— Handles
- B— Tailings Elevator Lower Inspection Door
- C— Grain Elevator Lower Inspection Door

Open inspection doors (B and C) by pulling the handles (A) to clean elevators at the end of each harvesting day or storing combine a long period.

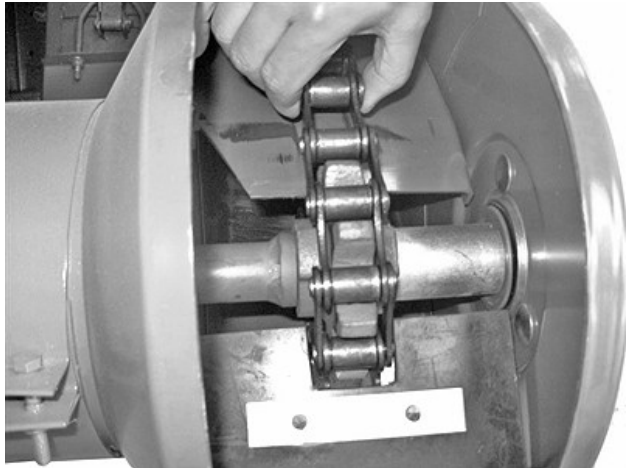
When changing crops, open doors and thoroughly clean the elevators.

Open doors and run engine, check if the chain or paddles are damaged.

CP00606,0001893-19-29MAY18

Adjust Elevator Conveyor Chains

NOTE: If conveyor chain is too loose or too tight, the transmission efficiency and service life of relevant components are affected.



YC2884—UN—03JAN14

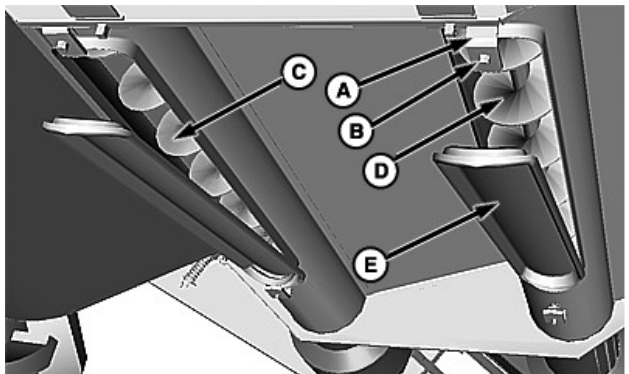
Adjustment: Tension elevator chain so that there is 6—15 mm movement at the bottom of the chain at the first link behind the chain sprocket.

CP00718,000427A-19-19DEC17

Clean Grain Auger and Tailings Auger

IMPORTANT: Clean the clean grain auger and the tailing auger before changing crop.

NOTE: Clean the tailings auger (C) in the same way as the clean grain auger.



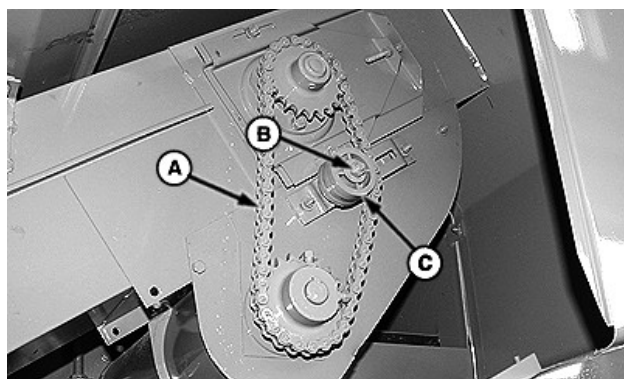
YC8552—UN—24APR15

- A—Retaining Clip
- B—Nut
- C—Tailings Auger
- D—Clean Grain Auger
- E—Auger Cover

Remove the nuts (B) and retaining clips (A), open the cover (E), and clean the clean grain auger (D). Install in reverse order after cleaning.

CP00606,0001894-19-29MAY18

Upper Tailings Auger Drive



YC8249—UN—05FEB15

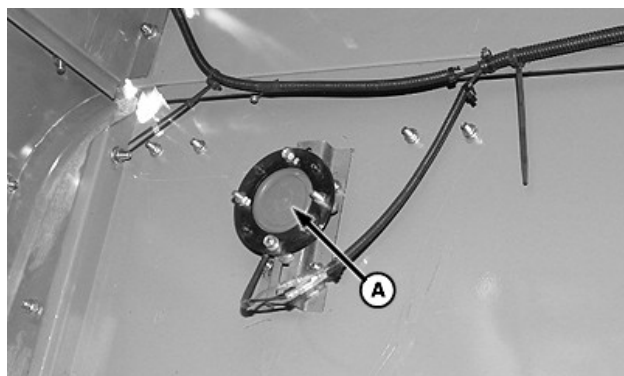
A—Chain
B—Nut
C—Idler

The chain (A) drives tailings auger. The chain is tightened by the idler (C).

Adjustment: Loosen nut (B), adjust idler (C) to tension the chain (A) as required. Retighten nut (B).

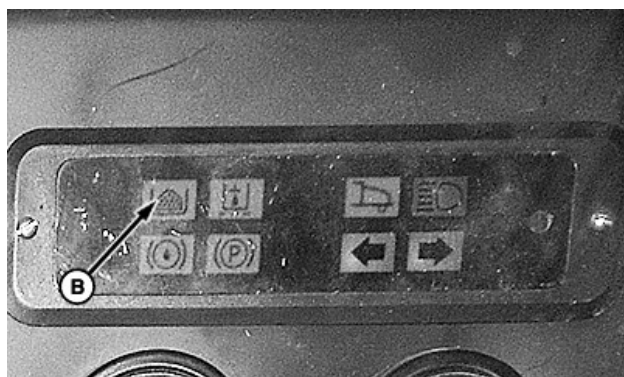
CP00606,0001895-19-21AUG18

Full Grain Tank Indicator



YC8238—UN—28JAN15

A—Full Grain Tank Sensor



YC10809—UN—08DEC16

B— Full Grain Tank Indicator

Combine is equipped with the full grain tank warning system. It is composed of the full grain tank sensor (A) in

the grain tank and full grain tank indicator (B) on the instrument panel. Full grain tank indicator (B) lights up to warn the operator when the grain tank is full.

CP00606,0001896-19-21AUG18

Grain Tank Leveling Auger Guard

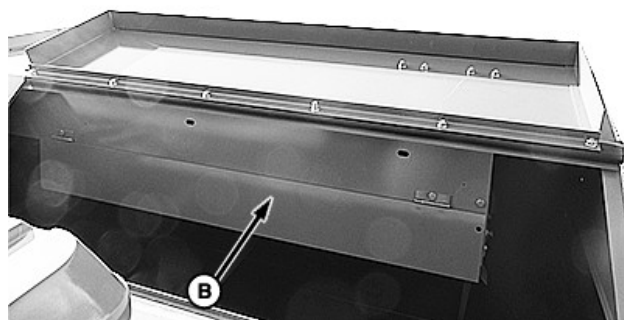
CAUTION: To avoid accidents, **NEVER** enter the grain tank when the engine is running.

CAUTION: Shut off the engine, remove the key, and set the park brake before entering the grain tank.

CAUTION: Do **NOT** remove the leveling auger guard when the combine is in operation.



YC10810—UN—08DEC16



YC10811—UN—08DEC16

A— Grain Tank Cover
B— Leveling Auger Guard

Open the grain tank cover (A), the leveling auger guard (B) is found.

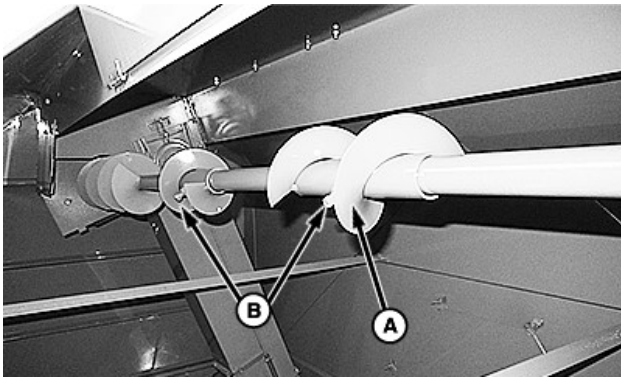
JL31334,000171B-19-21AUG18

Grain Tank Leveling Auger

CAUTION: Avoid accidents. **NEVER** enter the grain tank when the engine is running.

CAUTION: Must shut off the engine, remove the key, and set the park brake before entering the grain tank.

CAUTION: Do NOT remove the leveling auger guard when the combine is in operation.



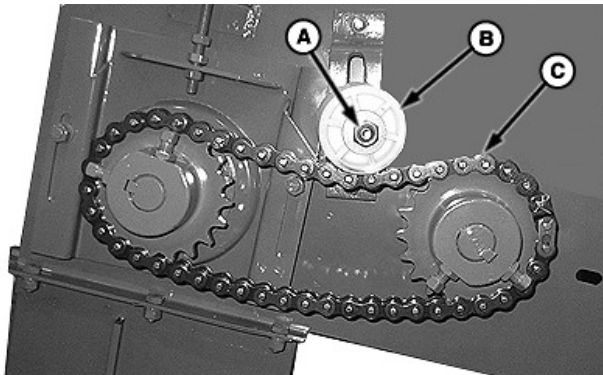
YC10812—UN—08DEC16

- A— Leveling Auger Flight
B— Bolts (2 used)

Adjustment: Loosen the bolts (B), adjust the position of leveling auger flights (A) to distribute grains evenly.

JL31334,0001741-19-21AUG18

Grain Tank Leveling Auger Drive



YC8246—UN—05FEB15

- A— Nut
B— Idler
C— Chain

The chain (C) drives grain tank leveling auger. The chain is tightened by the idler (B).

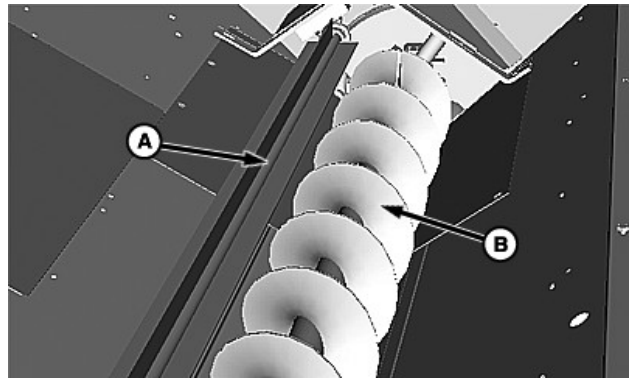
Adjustment: Loosen nut (A), adjust the idler (B) to the tension chain (C) as required. Retighten nut.

CP00606,0001898-19-21AUG18

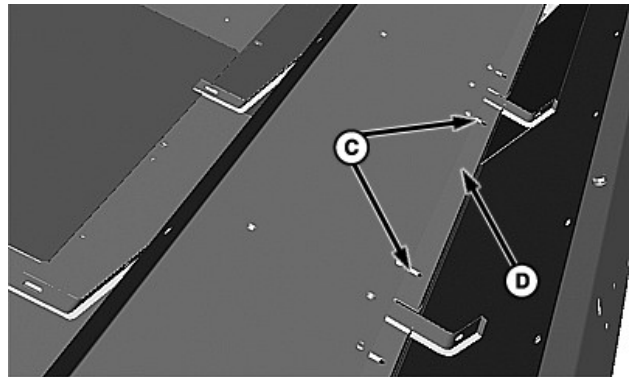
Lower Unloading Devices in Grain Tank

CAUTION: To avoid series personal injury, NEVER enter the grain tank when engine is running.

CAUTION: Shut off engine, set park brake, and remove key before entering grain tank.



YC8884—UN—07JUL15



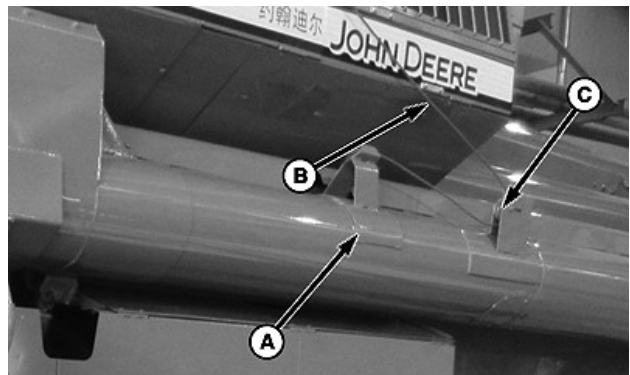
YC8883—UN—07JUL15

- A—Unloading Impeller
B—Unloading Auger
C—Nuts (6 used)
D—Cover (3 used)

Covers (D) are installed above the unloading impeller (A) and unloading auger (B). Do not set covers (C) too high, or the load on the unloading auger will be excessive. Loosen the nuts (C), adjust the unloading speed as required by lifting or lowering covers (D).

JL31334,000171C-19-21AUG18

Long Unloading Auger (Optional)



YC2422—UN—25JUL14

- A— Long Unloading Auger
B— Wire Rope
C— Idler

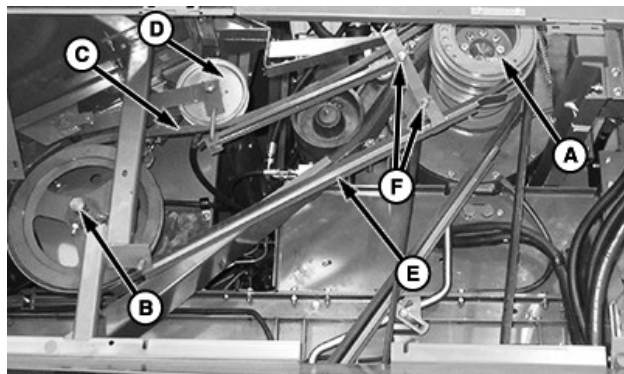
Combine can optionally be equipped with an extra-long unloading auger (A).

The wire rope (B) supports the long unloading auger. The tension of wire rope is adjusted by adjusting idler (C).

CP00718,0004282-19-21AUG18

Unloading Auger Drive (Left-Hand)

CAUTION: Avoid accidents. Shut off the engine when adjusting.



YC9684—UN—15MAR16

- A— Engine Pulley
- B— Countershaft
- C— Belt
- D— Idler
- E— Belt Guide
- F— Nuts (2 used)
- X— 3—5 mm

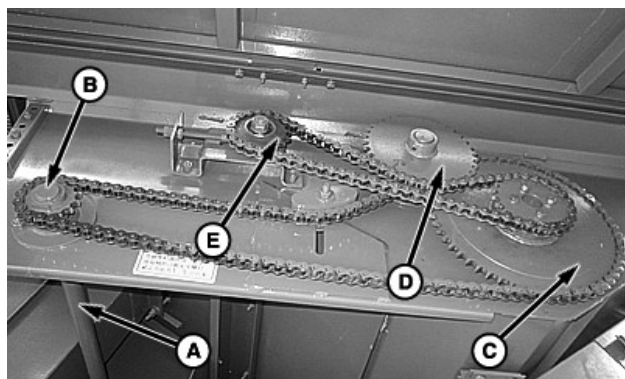
On the left-hand side of combine, the power from the engine pulley (A) goes to countershaft (B) through belt (C).

Adjustment: Tension belt (C) by adjusting idler (D). Loosen nuts (F), adjust belt guide (E) until the clearance between the belt guide (E) and belt (C) is 3—5 mm. Retighten nuts (F).

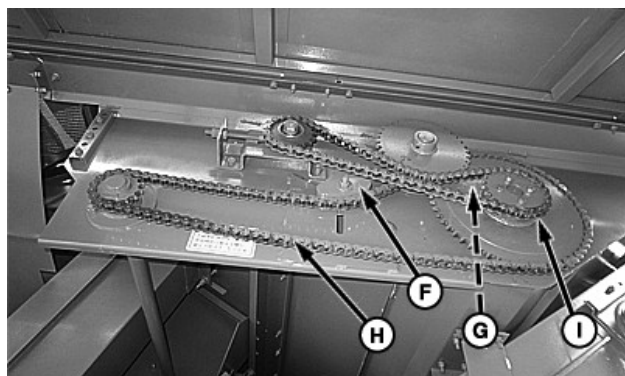
CP00606,0001899-19-21AUG18

Unloading Auger Drive (Right-Hand)

IMPORTANT: The shear screw (G) is a safety feature, broken when overloaded. Replace only with the original type of screw. Torque screw to 15 N·m, each time it is replaced.



YC9131—UN—17NOV15



YC9132—UN—17NOV15

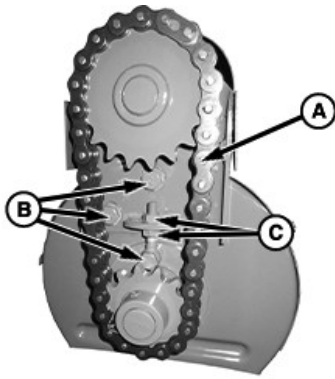
- A—Drive Shaft
- B—Sprocket
- C—Unloading Auger Sprocket
- D—Unloading Impeller Sprocket
- E—Idler
- F—Idler
- G—Shear Screw
- H—Chain
- I—Chain

On the right-hand side of the machine, the sprocket (B) transfers the power from the drive shaft (A) to the unloading auger sprocket (C). Unloading auger sprocket (C) transfers the power to the unloading auger and the unloading impeller through the unloading impeller sprocket (D).

Adjust tension of the chain (H) through the idler (F). Adjust tension of the chain (I) through the tension sprocket (E).

CP00606,000189A-19-21AUG18

Unloading Auger End Drive



YC9679—UN—15MAR16

- A— Chain
- B— Nuts (3 used)
- C— Nuts (2 used)

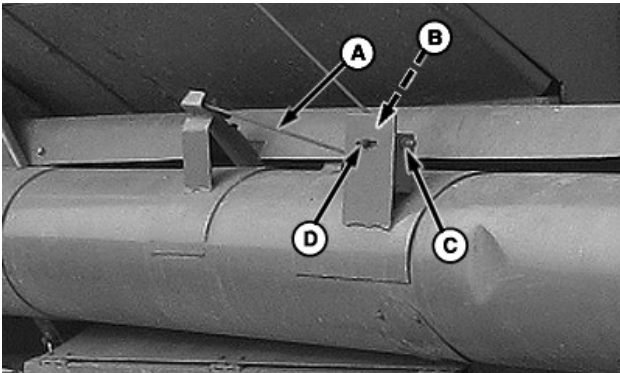
Unloading auger is driven by a universal joint shaft above the grain unloading auger and chain (A) at the end of the unloading auger.

Open cover at the end of unloading auger, adjust the tension of chain (A). Loosen nuts (B), adjust the tension through nuts (C). Retighten nuts (B) and reinstall cover after adjusting.

CP00606,000189B-19-16AUG18

Adjust Length of Wire Rope

Before using combine for the first time and at least once a week, check the length of wire rope.



YC8227—UN—23JAN15

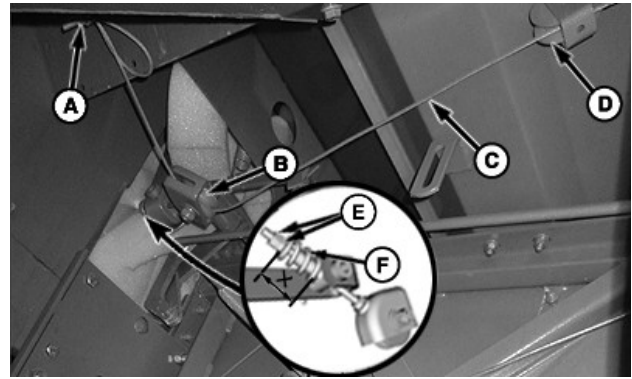
- A— Wire Rope
- B— Idler
- C— Nut
- D— Nut

Adjustment:

Swing the unloading auger in. Loosen nut (D). Adjust nut (C) to adjust idler (B). Tighten wire rope (A) until the wire rope can be pressed approximately 30—40 mm apart. Retighten nut (D).

CP00606,000189C-19-21AUG18

Unloading Auger Automatic Cut-Out Device



YC8298—UN—06FEB15

- A— Clamp
- B— Pulley
- C— Wire Rope
- D— Guide Pulley
- E— Nuts (2 used)
- F— Spring
- X— Length (39 mm)

For the safe operation of unloading auger, an automatic cut-out device is installed. The wire rope (C) must always be under tension when unloading auger is swung out.

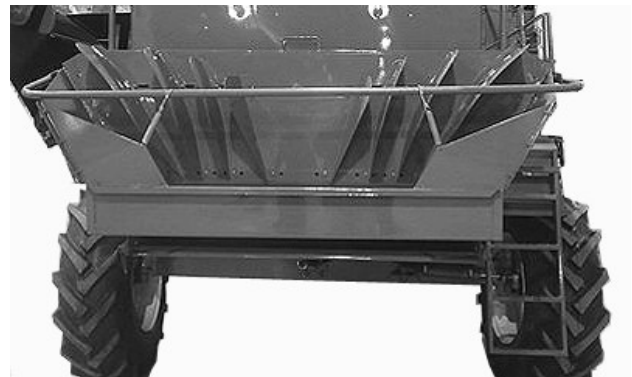
Adjustment: Swing out the unloading auger. Adjust nuts (E) to change length of spring (F) until the length (X) is 39 mm. If wire rope has stretched too much, adjust the clamp (A) to shorten.

CP00606,000189D-19-21AUG18

Straw Chopper (Optional)

CAUTION: To avoid accidents, shut OFF engine, set park brake, and remove key before checking and servicing the straw chopper.

Do not allow any person to stay behind the machine when the chopper is running.



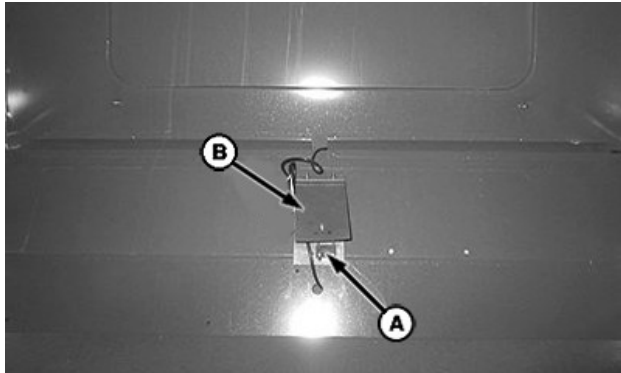
YC8228—UN—27JAN15

Combine is optional to be equipped with a straw chopper.

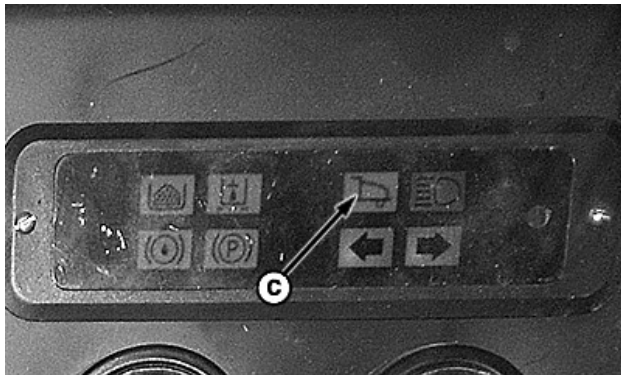
CP00606,000189E-19-21AUG18

Rear Cover Plugged Warning

CAUTION: Shut OFF engine and set park brake before checking the rear cover plugged sensor.



YC8226—UN—23JAN15



YC11005—UN—12DEC16

- A—Sensor
- B—Induced Plate
- C—Rear Cover Plugged Indicator

Rear cover plugged warning device is composed of the sensor (A) and rear cover plugged indicator (C). When rear cover is plugged, the rear cover plugged indicator (C) lights up and the horn sounds.

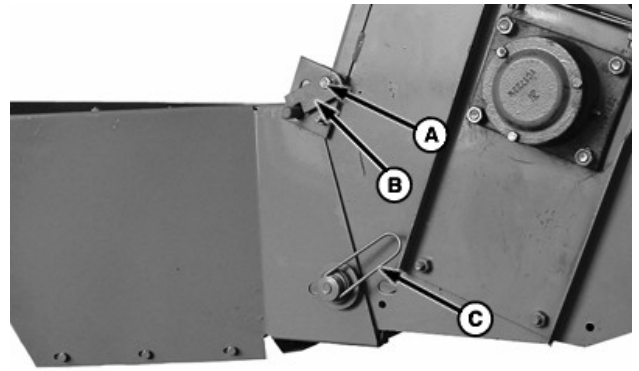
Check the rear cover plugged warning sensor daily before operating combine.

Inspection Method: Turn the key switch to "RUN" position, press the induced plate (B) down, make sure that the horn sounds.

CP00606,000189F-19-21AUG18

Secure Straw Chopper in Operation Position

NOTE: Operate on both side of machine synchronously.



YC8296—UN—09FEB15

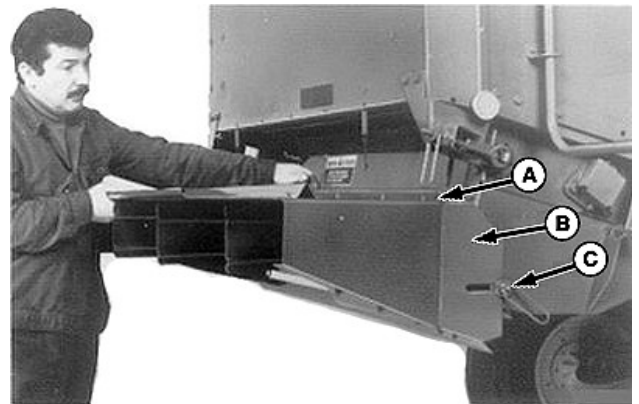
- A—Nut (2 used, 1 per side)
- B—Plate (2 used, 1 per side)
- C—Latch (2 used, 1 per side)

Position plates (B), tighten nuts (A), and lock latches (C).

CP00606,00018A0-19-21AUG18

Attach Straw Spreader

CAUTION: MUST install the straw spreader before operating with the straw chopper as it also serves a guard.



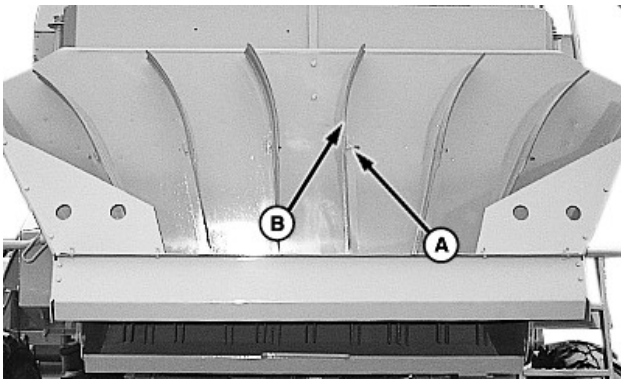
YC2429—UN—30DEC13

- A—Rail
- B—Straw Spreader
- C—Bolt

Lift the straw spreader (B) in rail (A). When tightening bolts (C), adjust spreader angle to regulate how far the chopped material is thrown.

CP00606,00018A1-19-16AUG18

Adjust Straw Deflectors



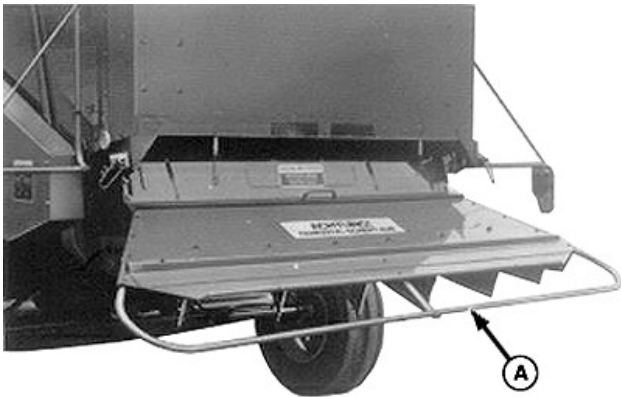
A— Bolt
B— Deflector

Loosen bolts (A). Adjust deflectors (B) as required to regulate width of chopped material.

CP00606,00018A2-19-21AUG18

Keep Guard Rail in Position

NOTE: In certain countries, the removal of the guard rail (A) is prohibited when the straw chopper is in operation.



A— Guard Rail

YC2431—UN—30DEC13

CP00718,000428D-19-21AUG18

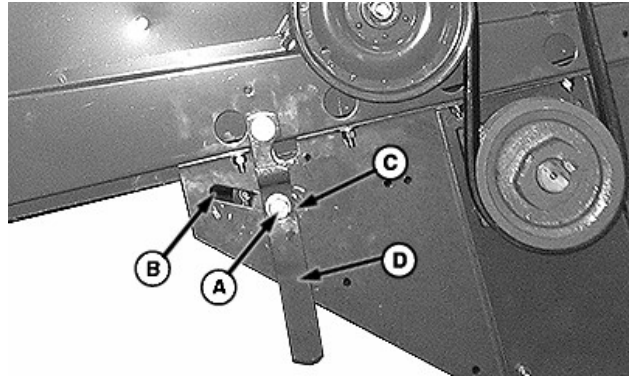
Adjust Chop Length

CAUTION: Shut OFF engine, set park brake, and remove key.

IMPORTANT: Knifebank must be fully disengaged for corn.

NOTE: Chopper can be run with knives disengaged, however chop quality decreases.

Use position in between to optimize power consumption and achieve satisfactory chop length.



YC10785—UN—07DEC16

A— Bolt (2 used)
B— Disengaged Position
C— Engaged Position
D— Handle (2 used)

Knives can be adjusted to any position. Position of knives determines the chop length of material.

Knifebank Engaged Position (C):

Loosen the bolts (A) at both sides of machine.

Move the handle (B) forward until knifeback is at the front of adjustment slot.

Tighten the bolts at both sides of machine to lock the knifebank into position.

Knifebank Disengaged Position (B)

Loosen the bolt (A) at both sides of machine.

Move the handle (B) rearward until knifebank is at the rear of adjustment slot.

Tighten the bolt at both side of machine to lock the knifebank into position.

CP00606,00018A3-19-17AUG18

Straw Chopper Drive

CAUTION: When transporting combine, chopper must be secured in the transport position.

IMPORTANT: Chopper and separator run synchronously. Must remove the chopper when not in use.



YC8237—UN—27JAN15

The chopper is powered by the separator drive and runs synchronously with the separator. See Separator and Chopper Drive in Operate Machine section.

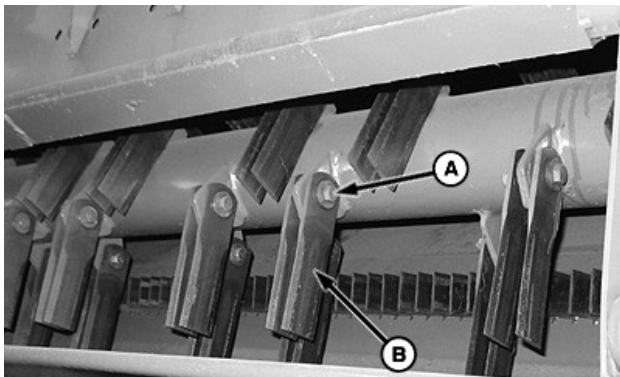
CP00718,000428F-19-21AUG18

Replace Rotary Blades

CAUTION: Shut OFF engine, set park brake and remove key.

Broken chopper blades can cause vibration. Replace the broken blade and the blade that is directly opposite immediately.

Do not sharpen blunt blades, turn, or replace blunt blades. Replace blades with new ones only. Ensures that all the blades on the rotor weigh the same.



YC8240—UN—28JAN15

A— Bolt
B— Rotary Blade

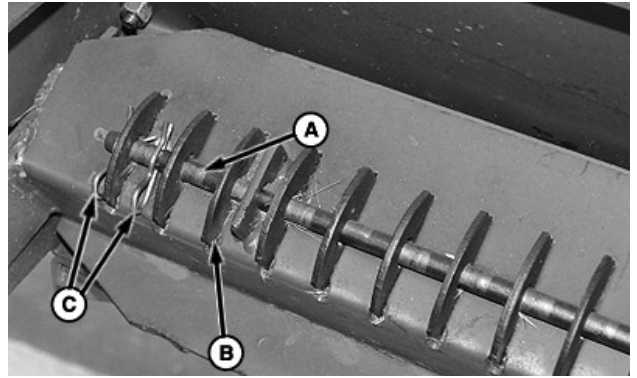
Removal: Remove bolt (A), remove the rotary blade (B). Install in reverse order.

Use only 10.9 grade bolts M10×50 with self-locking nuts and torque to 50 N·m.

CP00606,00018A4-19-17AUG18

Replace Chopper Stationary Knife Blades

CAUTION: Shut OFF engine, set park brake, and remove key. Knife blades are sharp.



YC8244—UN—04FEB15

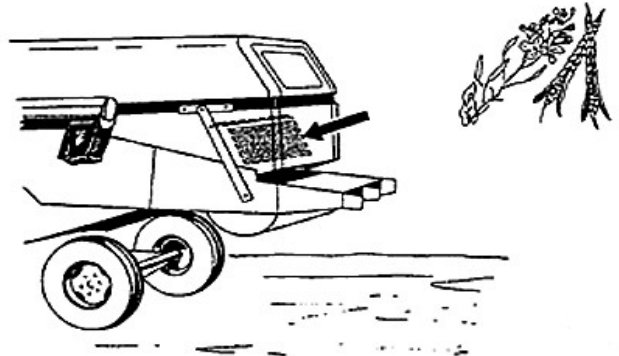
A— Retaining Rod
B— Stationary Knife Blade
C— Cotter Pins (2 used)

Remove the cotter pins (C), pull the retaining rod (A) backward as far as possible and remove. Replace the stationary knife blade (B).

CP00606,00018A5-19-21AUG18

Install Deflector (Optional)

When chopping bulky crops such as rape, installing deflector is recommended.



YC1529—UN—07MAR12

CP00718,0004292-19-19DEC17

Air Conditioner General Checking Guidelines (Optional Air Conditioning System)

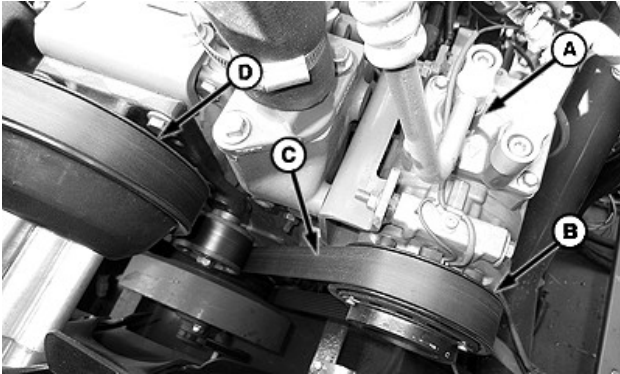
Checking as followings:

1. Check the tension of the compressor drive belt.
2. Ensure that the compressor clutch is engaged.
3. Check if the condenser is clogged with dirt. Clean using compressed air as needed.
4. Check if the evaporator is clogged with dirt. Clean using compressed air as needed.
5. Check if the air filter cover is clogged with dirt. Clean using compressed air as needed.
6. Ensure that all electrical harnesses are connected.
7. Ensure that all pipes connectors are connected.

8. Check the refrigerant level and fill as needed.

CP00718,00043C6-19-22AUG18

Air Conditioner Compressor Drive (Optional Air Conditioning System)



YC8351—UN—26MAR15

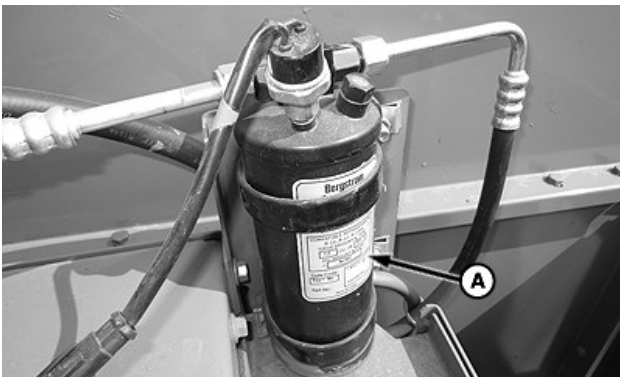
- A— Compressor
- B— Compressor Pulley
- C— Belt
- D— Fan Pulley

The power from the fan pulley (D) goes to compressor pulley (B) and finally drives compressor (A) through belt (C).

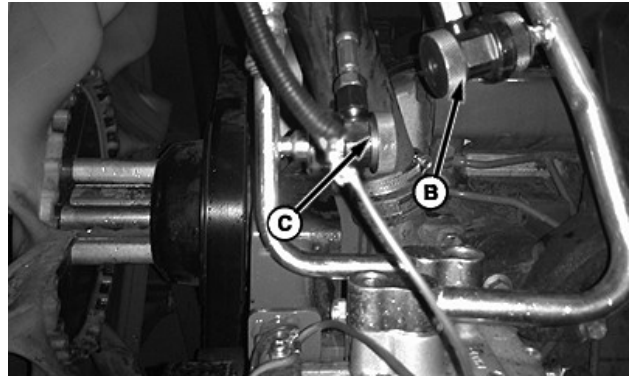
Periodically check the tension of the compressor drive belt as needed.

CP00606,00018A6-19-22AUG18

Refrigerant and Drier Filter (Optional Air Conditioning System)



YC8353—UN—26MAR15



YC8354—UN—02APR15

- A— Drier Filter
- B— Filler Connector
- C— Filler Connector

Drier filter (A) is located near the engine fan rotary screen. The function is storing the refrigerant, absorbing the water in the air conditioning system, and drying the refrigerant.

Fill the refrigerant through the filler connectors (B and C) when the refrigerant level is lower.

CP00606,00018A7-19-22AUG18

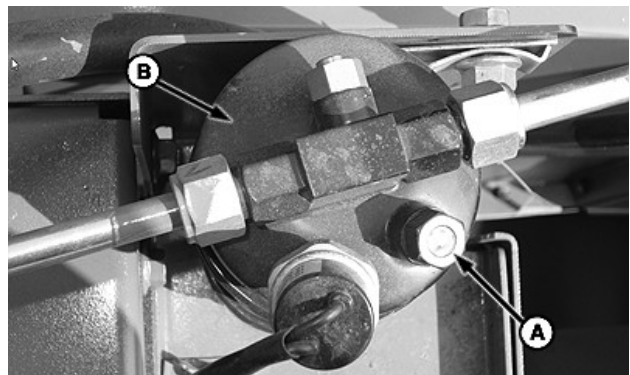
Check Refrigerant Level and Replace Drier Filter (Optional Air Conditioning System)

IMPORTANT: Check the color of drier filter. Replace the drier filter when the color changes to pink.

IMPORTANT: When repairing air conditioning system parts for several hours, drier filter absorbs the water in the air and ineffective, results in clogging of the expansion valve. Replace the drier filter as needed.

Check the refrigerant level as followings:

1. Start cold mode of air conditioner.
2. Rotate air temperature adjust button, set the air conditioning system for maximum cooling.
3. Rotate the recirculation fan speed adjust button, set the recirculation fan for maximum speed.



YC8352—UN—26MAR15

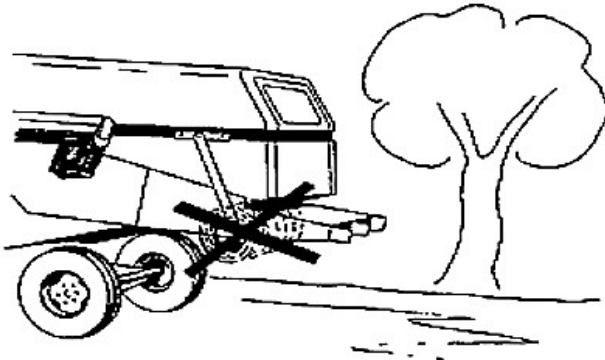
A—Sight Glass
B—Drier Filter

4. After several minutes, check the sight glass (A) on the drier filter (B).
5. If the refrigerant appears cloudy or foamy, refrigerant level is low and system should be recharged.

CP00606,00018A8-19-22AUG18

Road Transportation

⚠ CAUTION: Must adjust the chopper to transport position before driving combine on road to avoid injury caused by running in case. Never engage the chopper when transporting the combine on the road.



YC1531—UN—07MAR12
CP00718,0004293-19-21AUG18

Fuel, Coolant, and Lubricants

Diesel Fuel

Consult your local fuel distributor for properties of the diesel fuel available in your area.

In general, diesel fuels are blended to satisfy the low temperature requirements of the geographical area in which they are marketed.

Diesel fuels specified to EN 590 or ASTM D975 are recommended. Renewable diesel fuel produced by hydrotreating animal fats and vegetable oils is basically identical to petroleum diesel fuel. Renewable diesel that meets EN 590, ASTM D975, or EN 15940 is acceptable for use at all percentage mixture levels.

Required Fuel Properties

In all cases, the fuel shall meet the following properties:

Cetane number of 40 minimum. Cetane number greater than 47 is preferred, especially for temperatures below -20°C (-4°F) or elevations above 1675 m (5500 ft.).

Cloud Point should be below the expected lowest ambient temperature or **Cold Filter Plugging Point** (CFPP) should be a maximum 10°C (18°F) below the fuel cloud point.

Fuel lubricity should pass a maximum scar diameter of 0.52 mm as measured by ASTM D6079 or ISO 12156-1. A maximum scar diameter of 0.45 mm is preferred.

Diesel fuel quality and sulfur content must comply with all existing emissions regulations for the area in which the engine operates. **DO NOT** use diesel fuel with sulfur content greater than 10 000 mg/kg (10 000 ppm).

E-Diesel fuel

DO NOT use E-Diesel (Diesel fuel and ethanol blend). Use of E-Diesel fuel in any John Deere machine may void the machine warranty.

 **CAUTION: Avoid severe injury or death due to the fire and explosion risk from using E-Diesel fuel.**

Sulfur content for Interim Tier 4, Final Tier 4, Stage III B, Stage IV Engines, and Stage V engines

- Use **ONLY** ultra low sulfur diesel (ULSD) fuel with a maximum of 15 mg/kg (15 ppm) sulfur content.

Sulfur Content for Tier 3 and Stage III A Engines

- Use of diesel fuel with sulfur content less than 1000 mg/kg (1000 ppm) is **RECOMMENDED**.
- Use of diesel fuel with sulfur content 1000—2000 mg/kg (1000—2000 ppm) **REDUCES** the oil and filter change interval.
- **BEFORE** using diesel fuel with sulfur content greater than 2000 mg/kg (2000 ppm), contact your John Deere dealer.

Sulfur Content for Tier 2 and Stage II Engines

- Use of diesel fuel with sulfur content less than 2000 mg/kg (2000 ppm) is **RECOMMENDED**.
- Use of diesel fuel with sulfur content 2000—5000 mg/kg (2000—5000 ppm) **REDUCES** the oil and filter change interval.¹
- **BEFORE** using diesel fuel with sulfur content greater than 5000 mg/kg (5000 ppm), contact your John Deere dealer.

Sulfur Content for Other Engines

- Use of diesel fuel with sulfur content less than 5000 mg/kg (5000 ppm) is **RECOMMENDED**.
- Use of diesel fuel with sulfur content greater than 5000 mg/kg (5000 ppm) **REDUCES** the oil and filter change interval.

IMPORTANT: Do not mix used diesel engine oil or any other type of lubricating oil with diesel fuel.

Improper fuel additive usage may cause damage on fuel injection equipment of diesel engines.

DX,FUEL1-19-13JAN18

Handling and Storing Diesel Fuel

 **CAUTION: Reduce the risk of fire. Handle fuel carefully. DO NOT fill the fuel tank when engine is running. DO NOT smoke while you fill the fuel tank or service the fuel system.**

Fill the fuel tank at the end of each day's operation to prevent water condensation and freezing during cold weather.

Keep all storage tanks as full as practical to minimize condensation.

Ensure that all fuel tank caps and covers are installed properly to prevent moisture from entering. Monitor water content of the fuel regularly.

When using biodiesel fuel, the fuel filter may require more frequent replacement due to premature plugging.

Check engine oil level daily prior to starting engine. A rising oil level may indicate fuel dilution of the engine oil.

IMPORTANT: The fuel tank is vented through the filler cap. If a new filler cap is required, always replace it with an original vented cap.

When fuel is stored for an extended period or if there is a slow turnover of fuel, add a fuel conditioner to stabilize the fuel. Keeping the free water drained and treating the

¹ See DX,ENOIL12,OEM, DX,ENOIL12,T2,STD, or DX,ENOIL12,T2,EXT for more information on Engine Oil and Filter Service Intervals.

bulk fuel storage tank quarterly with a maintenance dose of a biocide will prevent microbial growth. Contact your fuel supplier or John Deere dealer for recommendations.

DX,FUEL4-19-13JAN18

Fuel Filters

The importance of fuel filtration cannot be overemphasized with modern fuel systems. The combination of increasingly restrictive emission regulations and more efficient engines requires fuel system to operate at much higher pressures. Higher pressures can only be achieved using fuel injection components with very close tolerances. These close manufacturing tolerances have significantly reduced capacities for debris and water.

John Deere brand fuel filters have been designed and produced specifically for John Deere engines.

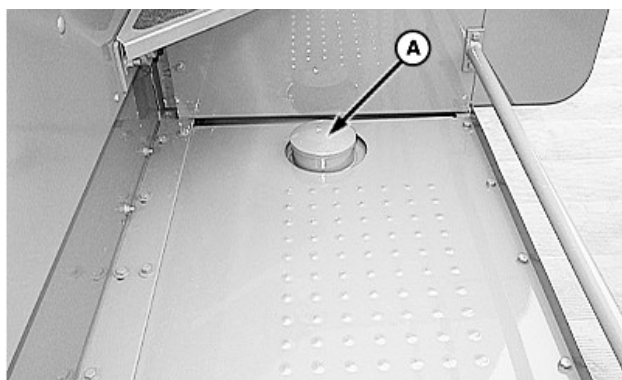
To protect the engine from debris and water, always change engine fuel filters as specified in this manual.

DX,FILT2-19-14APR11

Fill Fuel Tank

CAUTION: Be careful when handling fuel. Never fill tank when engine is running. Smoking or making flames nearby is strictly prohibited during filling tank.

Fill fuel tank at the end of each day. This prevents condensation in tank as moist air cools.



YC10699—UN—08DEC16

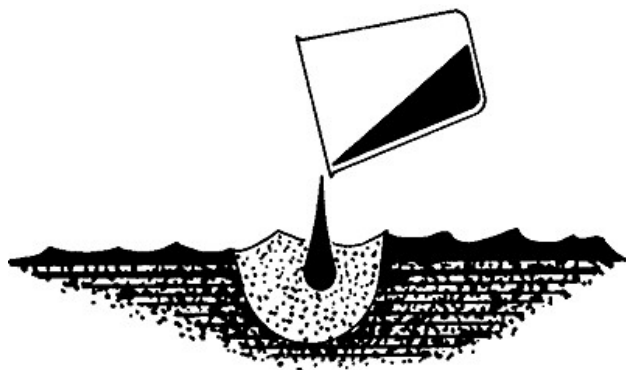
A— Filler Cap

For the position of filler cap (A) and the method of filling, see Fuel Tank Filler in Operating Engine section.

Fuel tank capacity: 300 L.

CP00606,00018A9-19-29MAY18

Comply with Rules and Regulations of Environmental Protection



YC1389—UN—07DEC12

Have environmental and ecological awareness.

Determine the correct disposal methods before discarding any liquids.

Always comply with rules and regulations of environmental protection when handling engine oil, fuel, coolant, brake fluid, filter elements, and batteries.

CP00718,0004295-19-19DEC17

Diesel Engine Break-In Oil — Non-Emissions Certified and Certified Tier 1, Tier 2, Tier 3, Stage I, Stage II, and Stage III

New engines are filled at the factory with either John Deere Break-In™ or John Deere Break-In Plus™ Engine Oil. During the break-in period, add John Deere Break-In™ or Break-In Plus™ Engine Oil, respectively, as needed to maintain the specified oil level.

Operate the engine under various conditions, particularly heavy loads with minimal idling, to help seat engine components properly.

If John Deere Break-In™ Engine Oil is used during the initial operation of a new or rebuilt engine, change the oil and filter at a maximum of 100 hours.

If John Deere Break-In Plus™ Engine Oil is used, change the oil and filter at a minimum of 100 hours and a maximum equal to the interval specified for John Deere Plus-50™ II or Plus-50™ oil.

After engine overhaul, fill the engine with either John Deere Break-In™ or Break-In Plus™ Engine Oil.

If John Deere Break-In™ or Break-In Plus™ Engine Oil is not available, use an SAE 10W-30 viscosity grade diesel engine oil meeting one of the following and change the oil and filter at a maximum of 100 hours of operation:

- API Service Classification CE
- API Service Classification CD

*Break-In is a trademark of Deere & Company.
Break-In Plus is a trademark of Deere & Company
Plus-50 is a trademark of Deere & Company.*

- API Service Classification CC
- ACEA Oil Sequence E2
- ACEA Oil Sequence E1

IMPORTANT: Do not use Plus-50™ II, Plus-50™, or engine oils meeting any of the following for the initial break-in of a new or rebuilt engine:

API CK-4	ACEA E9
API CJ-4	ACEA E7
API CI-4 PLUS	ACEA E6
API CI-4	ACEA E5
API CH-4	ACEA E4
API CG-4	ACEA E3
API CF-4	
API CF-2	
API CF	

These oils do not allow the engine to break in properly.

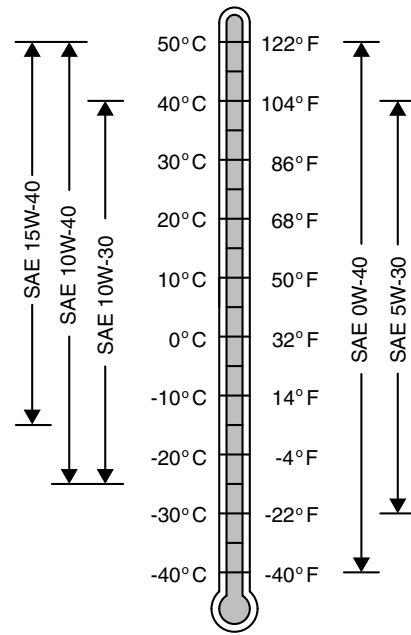
John Deere Break-In Plus™ Engine Oil can be used for all John Deere diesel engines at all emission certification levels.

After the break-in period, use John Deere Plus-50™ II, John Deere Plus-50™, or other diesel engine oil as recommended in this manual.

DX,ENOIL4-19-02NOV16

Diesel Engine Oil — Tier 3 and Stage III

Failure to follow applicable oil standards and drain intervals can result in severe engine damage that might not be covered under warranty. Warranties, including the emissions warranty, are not conditioned on the use of John Deere oils, parts, or service.



TS1691—UN—18JUL07

Oil Viscosities for Air Temperature Ranges

Use oil viscosity based on the expected air temperature range during the period between oil changes.

John Deere Plus-50™ II oil is preferred.

John Deere Torq-Gard™ is also allowed.

John Deere Plus-50™ is also recommended.

Other oils may be used if they meet one or more of the following standards:

- John Deere Torq-Gard™
- API Service Category CK-4
- API Service Category CJ-4
- API Service Category CI-4 PLUS
- API Service Category CI-4
- ACEA Oil Sequence E9
- ACEA Oil Sequence E7
- ACEA Oil Sequence E6
- ACEA Oil Sequence E5
- ACEA Oil Sequence E4

Multi-viscosity diesel engine oils are preferred.

Diesel fuel quality and fuel sulfur content must comply with all existing emissions regulations for the area in which the engine operates.

DO NOT use diesel fuel with sulfur content greater than 10000 mg/kg (10000 ppm).

DX,ENOIL11-19-13JAN18

*Plus-50 is a trademark of Deere & Company
Torq-Gard is a trademark of Deere & Company*

Engine Oil and Filter Service Intervals

Recommended oil and filter service intervals are based on a combination of oil pan capacity, type of engine oil and filter used, and sulfur content of the diesel fuel. Actual service intervals also depend on operation and maintenance practices.

Use oil analysis to evaluate the condition of the oil and to aid in selection of the proper oil and filter service interval. Contact your John Deere dealer for more information on engine oil analysis.

Change the oil and oil filter at least once every 12 months even if the hours of operation are fewer than the otherwise recommended service interval.

Diesel fuel sulfur content affects engine oil and filter service intervals.

- Use of diesel fuel with sulfur content less than 1000 mg/kg (1000 ppm) is **RECOMMENDED**.
- **BEFORE** using diesel fuel with sulfur content greater

than 5000 mg/kg (5000 ppm), **REDUCES** the oil, and filter change interval.

- **DO NOT** use diesel fuel with sulfur content greater than 10 000 mg/kg (10 000 ppm).

IMPORTANT: To avoid engine damage:

- **Reduce oil and filter service intervals by 50% when using biodiesel blends greater than B20. Oil analysis allows longer service intervals.**
- **Use only approved oil types.**

Approved Oil Types:

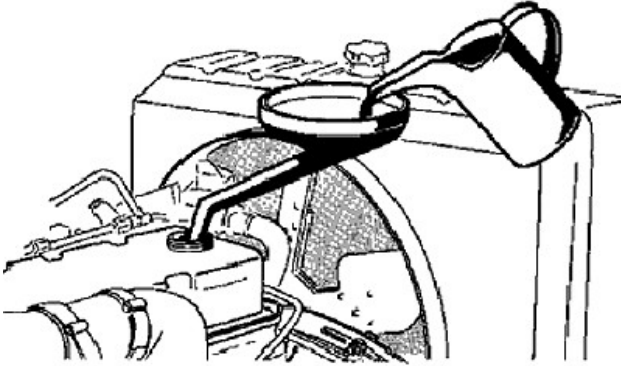
- "Plus-50 Oils" include John Deere Plus-50™ II and John Deere Plus-50™
- "Other Oils" include John Deere Torq-Gard™, API CK-4, API CJ-4, API CI-4 PLUS, API CI-4, ACEA E9, ACEA E7, ACEA E6, ACEA E5, and ACEA E4.

PowerTech™ Engine oil and filter change intervals	
Sulfur content of fuel	Lower than 1000 mg/kg (1000 ppm)
Plus-50 oil	375 hours
Other oils	250 hours
Fuel sulfur content	1000-2000 mg/kg (1000-2000 ppm)
Plus-50 oil	300 hours
Other oils	200 hours
Fuel sulfur content	2000-5000 mg/kg (2000-5000 ppm)
Plus-50 oil	275 hours
Other oils	150 hours
Fuel sulfur content	5000-10000 mg/kg (5000-10000 ppm)
Plus-50 oil	187 hours
Other oils	125 hours

Oil analysis extends service interval of "Other oils", to a maximum not exceeding the interval of Plus-50 Oils.

CP00718,0004296-19-19DEC17

Engine Crankcase Capacity (Including Filter)



YC1388—UN—07DEC12

Engine crankcase capacity (including filter) is about 12.5 L.

CP00718,0004297-19-19DEC17

Oil Filters

Filtration of oils is critically important for proper operation and lubrication. John Deere brand oil filters have been designed and produced specifically for John Deere applications.

John Deere filters adhere to engineering specifications for quality of the filter media, filter efficiency rating, strength of the bond between the filter media and the element end cap, fatigue life of the canister (if applicable), and pressure capability of the filter seal. Non-John Deere branded oil filters might not meet these key John Deere specifications.

Always change oil filters regularly as specified in this manual.

DX,FILT1-19-11APR11

Diesel Engine Coolant (engine with wet sleeve cylinder liners)

Failure to follow applicable coolant standards and drain intervals can result in severe engine damage that may not be covered under warranty. Warranties, including the emissions warranty, are not conditioned on the use of John Deere coolants, parts or service.

Preferred Coolants

Failure to follow applicable coolant standards and drain intervals can result in severe engine damage that may not be covered under warranty. Warranties, including the emissions warranty, are not conditioned on the use of John Deere coolants, parts, or service.

The following pre-mix engine coolants are preferred:

- John Deere COOL-GARD™ II

COOL-GARD is a trademark of Deere & Company

- John Deere COOL-GARD II PG

COOL-GARD II pre-mix coolant is available in several concentrations with different freeze protection limits as shown in the following table.

COOL-GARD II Pre-Mix	Freeze Protection Limit
COOL-GARD II 20/80	-9°C (16°F)
COOL-GARD II 30/70	-16°C (3°F)
COOL-GARD II 50/50	-37°C (-34°F)
COOL-GARD II 55/45	-45°C (-49°F)
COOL-GARD II PG 60/40	-49°C (-56°F)
COOL-GARD II 60/40	-52°C (-62°F)

Not all COOL-GARD II pre-mix products are available in all countries.

Use COOL-GARD II PG when a non-toxic coolant formulation is required.

Additional Recommended Coolants

The following engine coolant is also recommended:

- John Deere COOL-GARD II Concentrate in a 40—60% mixture of concentrate with quality water.

IMPORTANT: When mixing coolant concentrate with water, do not use less than 40% or greater than 60% concentration of coolant. Less than 40% gives inadequate additives for corrosion protection. Greater than 60% can result in coolant gelation and cooling system problems.

Other Coolants

Other ethylene glycol or propylene glycol base coolants may be used if they meet the following specification:

- Pre-mix coolant meeting ASTM D6210 requirements
- Are nitrite-free
- Coolant concentrate meeting ASTM D6210 requirements in a 40—60% mixture of concentrate with quality water

If coolant meeting one of these specifications is unavailable, use a coolant concentrate or pre-mix coolant that has a minimum of the following chemical and physical properties:

- Provides cylinder liner cavitation protection according to either the John Deere Cavitation Test Method or a fleet study run at or above 60% load capacity
- Is formulated with a nitrite-free additive package
- Protects the cooling system metals (cast iron, aluminum alloys, and copper alloys such as brass) from corrosion

Water Quality

Water quality is important to the performance of the

cooling system. Deionized or demineralized water is recommended for mixing with ethylene glycol and propylene glycol base engine coolant concentrate.

Coolant Drain Intervals

Drain and flush the cooling system and refill with fresh coolant at the indicated interval, which varies with the coolant used.

When COOL-GARD II or COOL-GARD II PG is used, the drain interval is 6 years or 6000 hours of operation.

If a coolant other than COOL-GARD II or COOL-GARD II PG is used, reduce the drain interval to 2 years or 2000 hours of operation.²

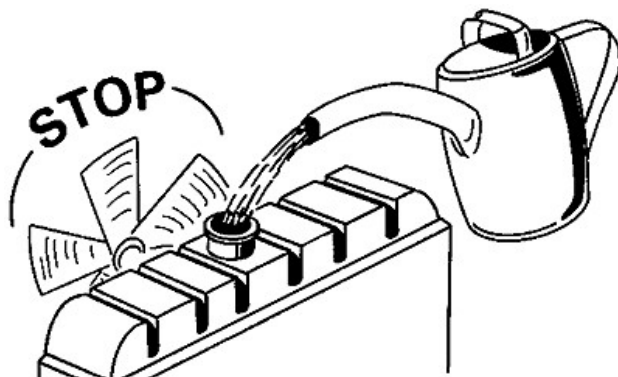
IMPORTANT: Do not use cooling system sealing additives or antifreeze that contains sealing additives.

Do not mix ethylene glycol and propylene glycol base coolants.

Do not use coolants that contain nitrites.

DX,COOL3-19-13JAN18

Fill Coolant



YC1390—UN—05DEC12

IMPORTANT: Do not use cooling system sealing additives or antifreeze that contains sealing additives.

NOTE: Fill recommended coolant. Never pour cold liquid into a hot engine that causes crack the cylinder head or the block. DO NOT operate engine without coolant for even a few minutes.

Fill coolant after the cooling system has cooled down.

² Coolant analysis may extend the service interval of other "Coolants" to a maximum not to exceed the interval of Cool-Gard II coolants. Coolant analysis means taking a series of coolant samples at 1000 hour increments beyond the normal service interval until either the data indicate the end of useful coolant life or the maximum service interval of Cool-Gard II is reached.

Coolant level is about 20—30 mm below the upper edge of the tank.

CP00718,0004298-19-19DEC17

Safety Maintenance of Cooling System

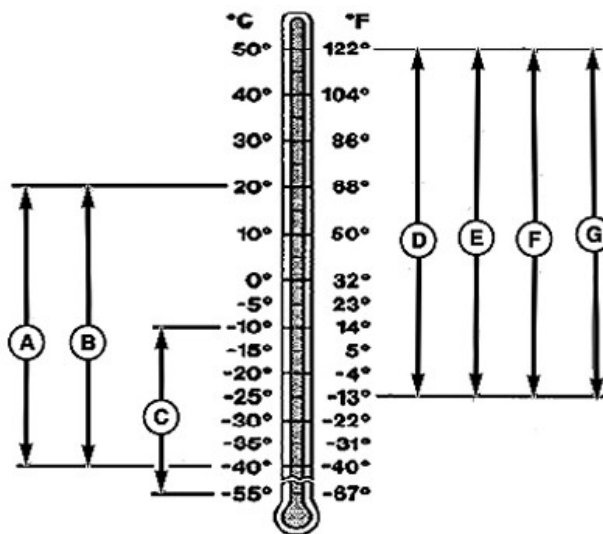
Engine cooling system is pressurized. Explosively released fluids can cause serious burns.

Switch off the engine. Open the filler cap only after the radiator has cooled down till bare hands touch. Before filler cap is fully opened, slowly loosen it to the first stopping point in order to release pressure.



YC2445—UN—16OCT12
CP00718,0004299-19-19DEC17

Hydraulic Oil



- A— Low Viscosity
- B— JDM J20B
- C— Arctic Oil
- D— Hy-Gard
- E— JD UNIVERSAL OIL
- F— JDM J20A
- G— QUATROL

Selection of hydraulic oil:

YC3383—UN—30DEC13

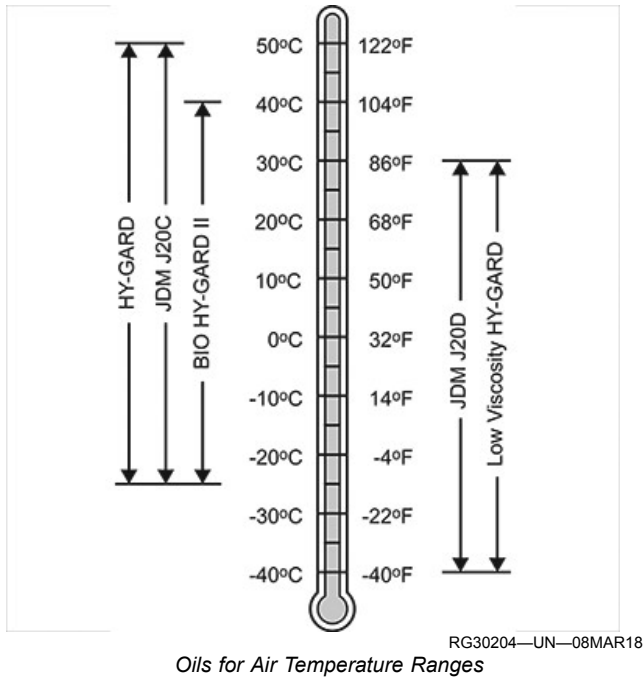
Factory oil: YC - N68 (low condensation point and high viscosity hydraulic oil).

Deere Hy-Gard™ oil is recommended.

QUATROL oil or other oil can also be used. But the oil meets the Deere JDMJ20C or JDMJ20D standard. When temperature is below -40°C, use Arctic oil (APICC/SC, MIL-L-46167).

CP00718,000429A-19-19DEC17

Hydrostatic Drive Oil



Use oil viscosity based on the expected air temperature range during the period between oil changes.

The following oils are preferred:

- John Deere Hy-Gard™
- John Deere Low Viscosity Hy-Gard™

Other oils may be used if they meet one of the following:

- John Deere Standard JDM J20C
- John Deere Standard JDM J20D

Use John Deere Bio Hy-Gard™ II oil when a biodegradable fluid is required.³

DX,HYOIL-19-13JAN18

Hy-Gard is a trademark of Deere & Company.
Bio Hy-Gard is a trademark of Deere & Company

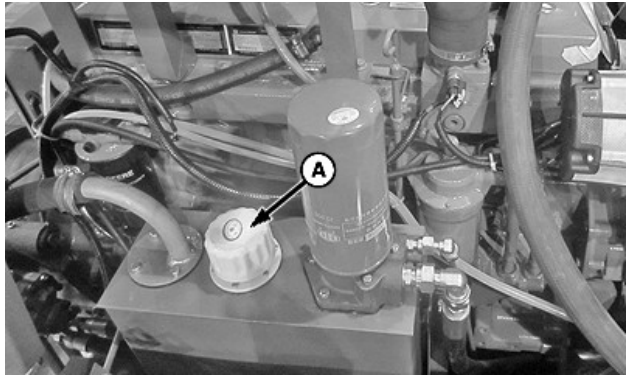
³ Bio Hy-Gard II meets or exceeds the minimum biodegradability of 80% within 21 days according to CEC-L-33-T-82 test method. Bio Hy-Gard II should not be mixed with mineral oils, because this reduces the biodegradability and makes proper oil recycling impossible.

Hydraulic Lift System Capacity

Complete hydraulic systems: 25 L.

Reservoir capacity: 21.8 L.

NOTE: Loosen filler cap (A) and use oil dipstick to check oil level.

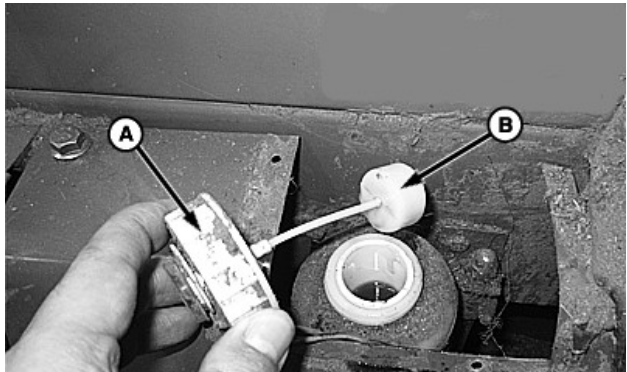


YC2446—UN—03JAN14

A— Filler Cap

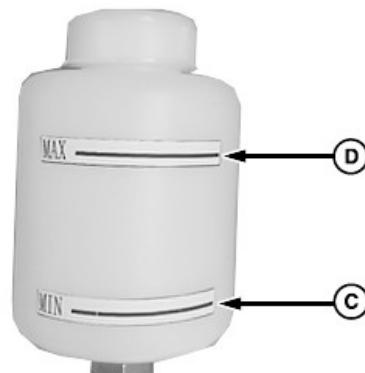
CP00718,000429B-19-19DEC17

Brake Fluid



YC9515—UN—11DEC17

A— Reservoir Cap
B— Oil Level Indicator



YC12291—UN—03JAN18

C—MIN
D—MAX

Complete capacity: 3 L.

Reservoir capacity: 0.75 L.

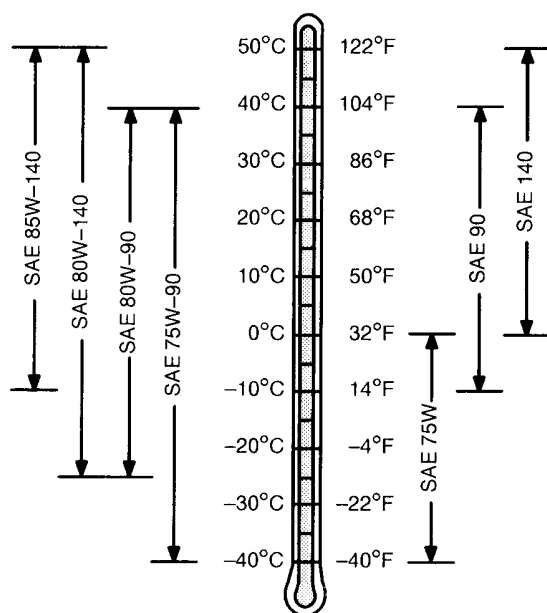
NOTE: Add 10[#] aviation hydraulic oil.

The new machine has worked for first 100 hours, change brake fluid. Thereafter, change it every 500 hours or at end of the harvest season.

Brake fluid level need to be between MAX and MIN mark on reservoir.

JL31334,0001720-19-03MAY18

Gear Oil



TS1653—UN—14MAR96

Oil Viscosities for Air Temperature Ranges

Use oil viscosity based on the expected air temperature range during the period between oil changes.

The following oils are preferred:

- John Deere GL-5 Gear Lubricant
- John Deere EXTREME-GARD™

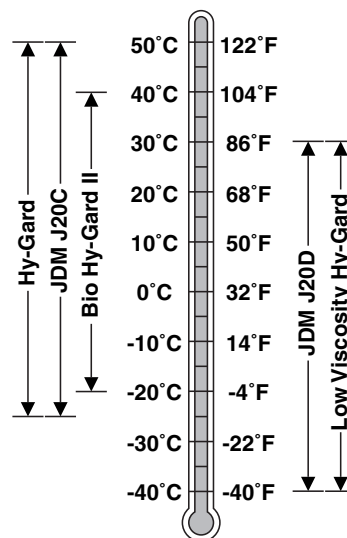
Other oils may be used if they meet the following:

- API Service Category GL-5

DX,GEOIL-19-14APR11

EXTREME-GARD is a trademark of Deere & Company

Transmission Oil



TS1739—UN—13SEP16

Oils for Air Temperature Ranges

Use oil viscosity based on the expected air temperature range during the period between oil changes.

The following oils are preferred:

- John Deere Hy-Gard™
- John Deere Low Viscosity Hy-Gard™

If they meet one of the following, other oils are used :

- John Deere Standard JDM J20C
- John Deere Standard JDM J20D

Use John Deere Bio Hy-Gard™ II oil when a biodegradable fluid is required.⁴

CP00718,000429D-19-19DEC17

Gear Case Factory Oil

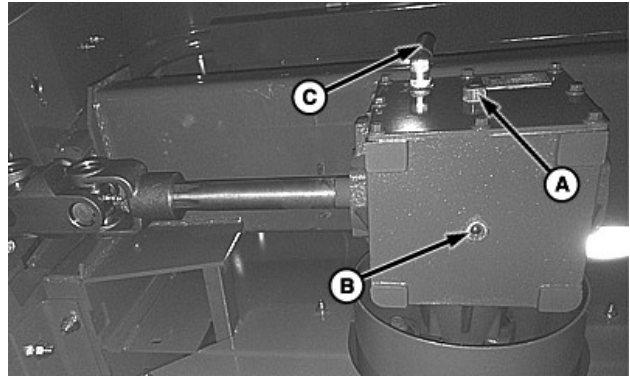
Position	Gear Lubricant	Capacity
Front axle gear case	GL-5 80W/90 gear lubricant	6.6 L
Front axle final drive	GL-5 80W/90 gear lubricant	3.1 L (single side)
Rear drive axle (optional)	GL-5 85W/90 gear lubricant	Provided by factory

Hy-Gard is a trademark of Deere & Company
Bio Hy-Gard is a trademark of Deere & Company

⁴ Bio Hy-Gard II meets or exceeds the minimum biodegradability of 80% within 21 days according to CEC-L-33-T-82 test method. Bio Hy-Gard II should not be mixed with mineral oils, because this reduces the biodegradability and makes proper oil recycling impossible.

Position	Gear Lubricant	Capacity
Rear axle drive gear case (optional)	GL-5 80W/90 gear lubricant	3.2 kg
Separator drive gear case (non-adjustable speed)	HY-GARD™	1.6 L
Separator drive gear case (adjustable speed)	HY-GARD™	2.5 L

CP00606,00018AA-19-06AUG18



YC10652—UN—26JUL16

Separation Cylinder Gear Case (non-adjustable speed)

- A— Filler Port and Oil Level Plug
- B— Oil Drain Plug
- C— Bleed Screw

Transmission gear case capacity: 6.6 L

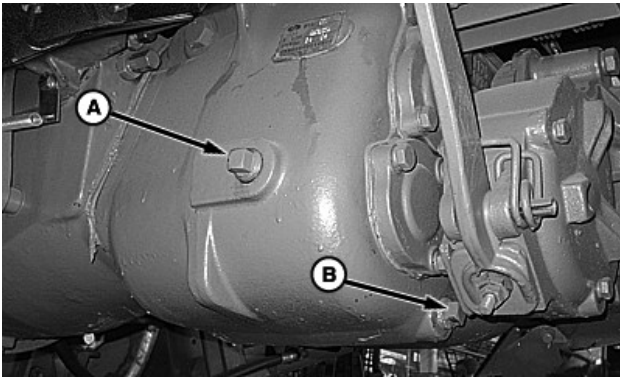
Final drive capacity (single): 3.1 L

Separator drive gear case capacity (non-adjustable speed): 1.6 L

Separator drive gear case capacity (adjustable speed): 2.5 L

JL31334,0001721-19-06AUG18

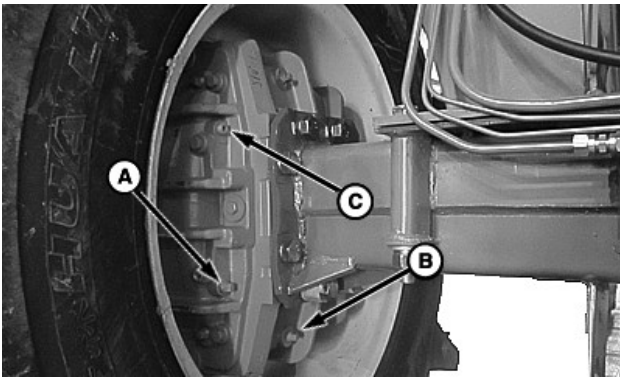
Gear Oil Capacity



YC8898—UN—09JUL15

Transmission

- A— Filler Port and Oil Level Plug
- B— Oil Drain Plug

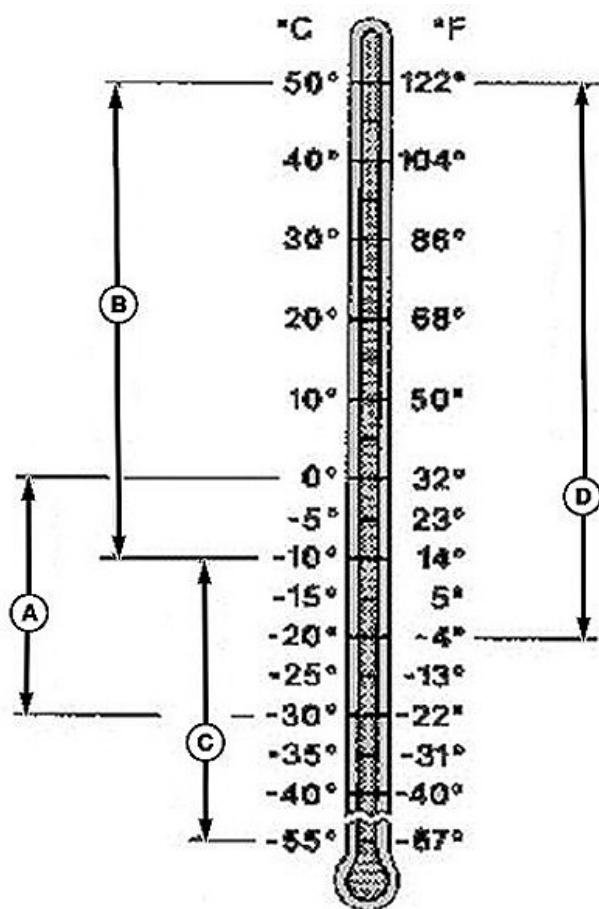


YC10651—UN—26JUL16

Final Drive

- A— Filler Port and Oil Level Plug
- B— Oil Drain Plug
- C— Bleed Screw

Pressure Resistant Universal Lubricate Grease



YC3384—UN—30DEC13

A—SAE(NLGI) No.0 or No.1
 B—SAE(NLGI) No.2
 C—Arctic Lubricate Grease
 D—Deere Universal Lubricate Grease

Use the following lubricate grease:

1. Molybdenum disulphide lithium lubricates grease: to be used on the general lubrication surface with all specifications in the table .
2. Mobil XHP222 lubricate grease: Must use Mobil XHP222 lubricate grease at the Posi- torq variable speed lower device.
3. SAE universal lubricates grease.
4. Add 3 ~ 5% molybdenum disulfide to SAE universal lubricate grease. When temperature is below -30°C, use arctic lubricate grease (MIL-G-10924C).

	Dropping point (°C)	Work penetration	Copper corrosion	Mechanical impurities	Moisture, % (m) ≤	Free organic acid	Free alkali, NaOH% m ≤	Enterprise standards of the haerbin petrochemical plant
No. 3 molybdenum disulphide lithium lubricate grease	1 8 0	2 2 0 - 2 5 0	Passed	Nil	Trace	Nil	0.15	Q/SHB12-1996

CP00718,00042A0-19-19DEC17

Lubricant Storage

Your equipment can operate at top efficiency only when clean lubricants are used.

Use clean containers to handle all lubricants.

Store lubricants and containers in an area protected from dust, moisture, and other contamination. Store containers on their side to avoid water and dirt accumulation.

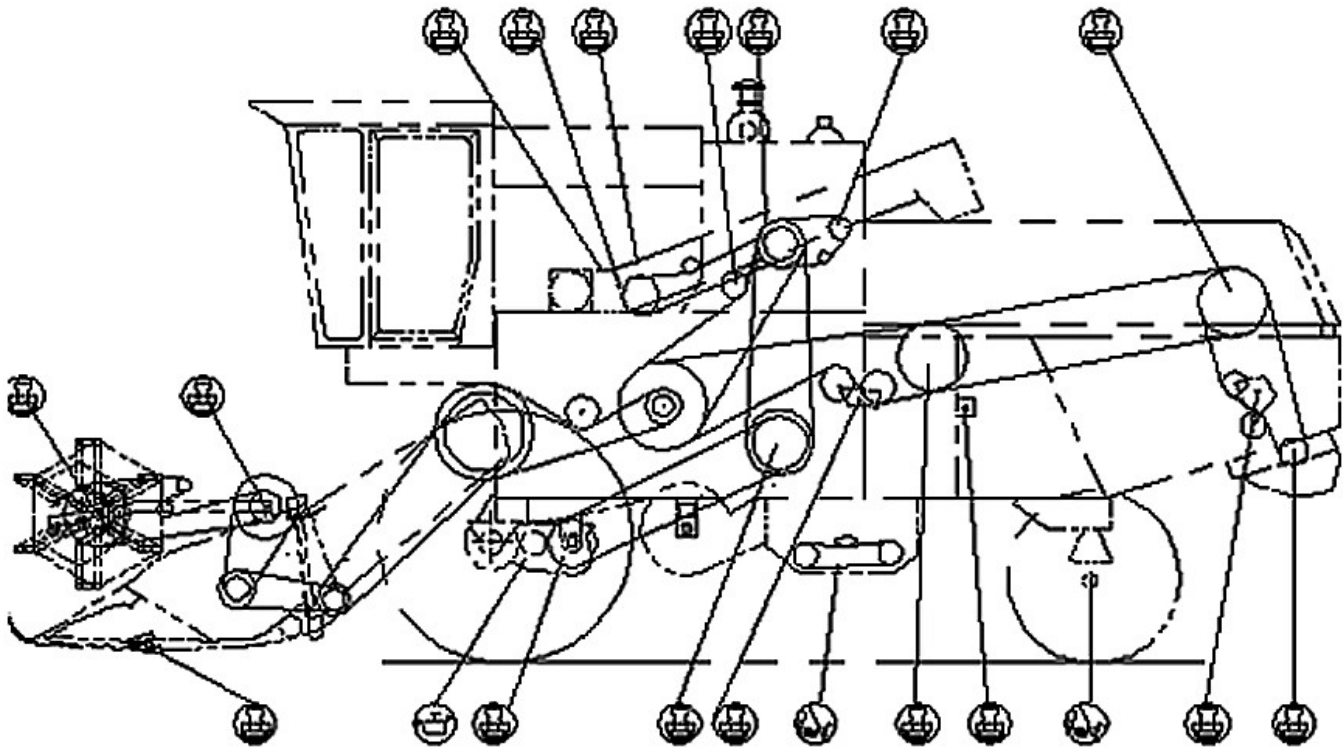
Make certain that all containers are properly marked to identify their contents.

Properly dispose of all old containers and any residual lubricant they may contain.

DX,LUBST-19-11APR11

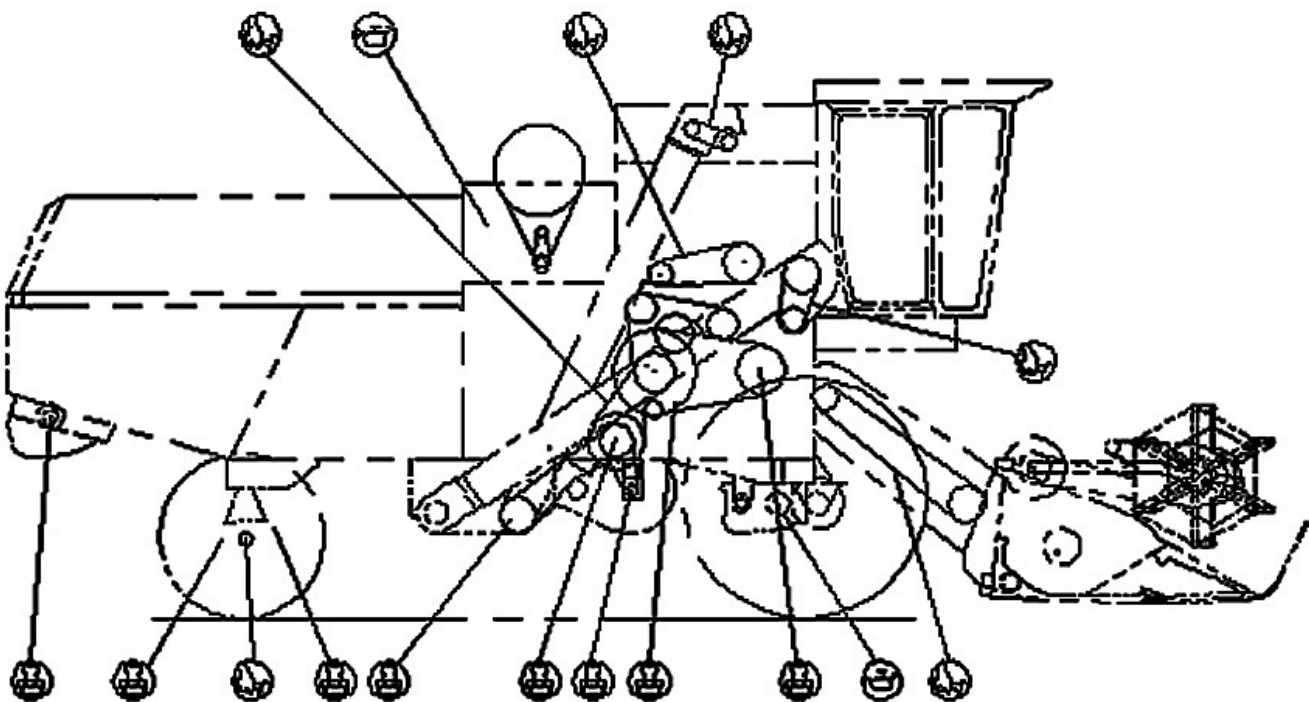
Lubrication and Maintenance

Left-Hand Lubrication Chart



YC1400—UN—23FEB12
CP00718,000441C-19-19DEC17

Right-Hand Lubrication Chart



YC1551—UN—23FEB12
CP00718,000441D-19-19DEC17

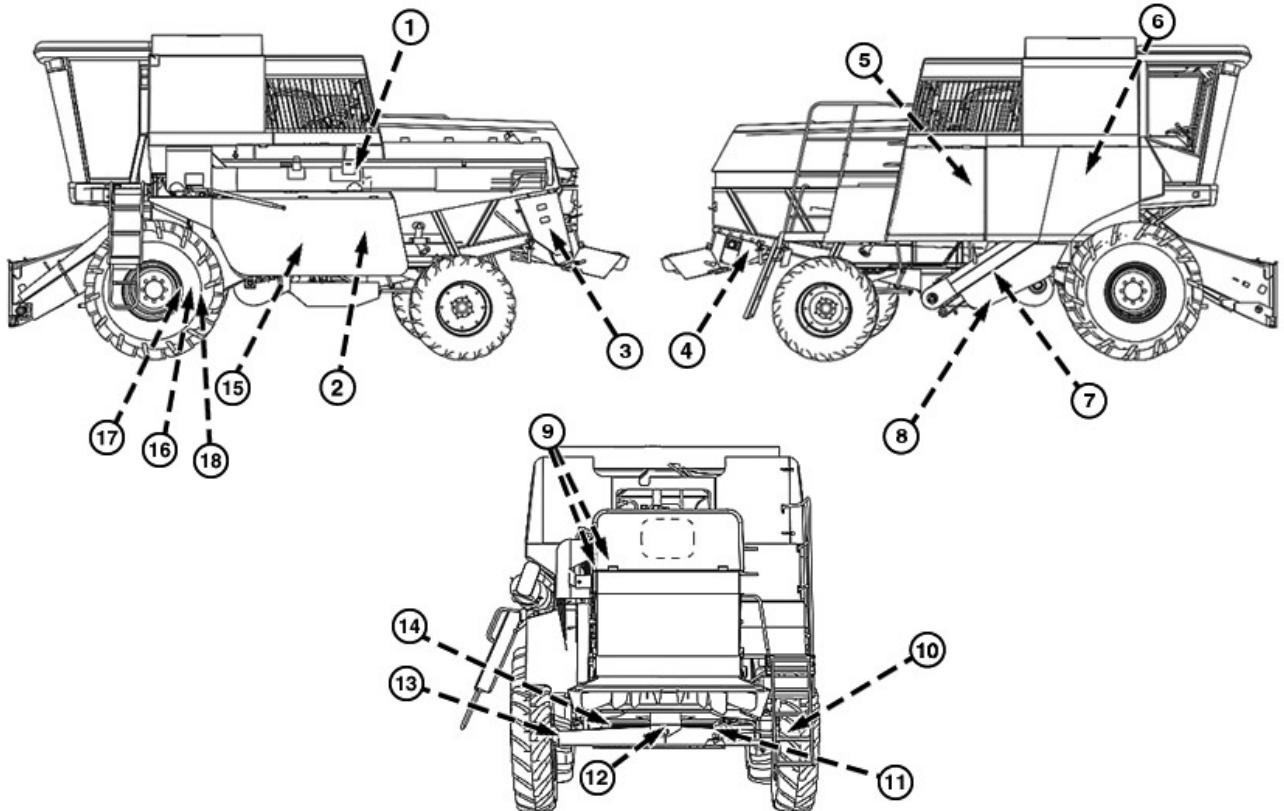
Lubrication Points

IMPORTANT: Recommended service intervals are for average conditions. Service more frequently if combine is used in extreme conditions.

CAUTION: Switch off the engine and remove the key. Lubricate machine after moving parts stopping.

NOTE: Filling grease through lubrication points until feeling pressure returned.

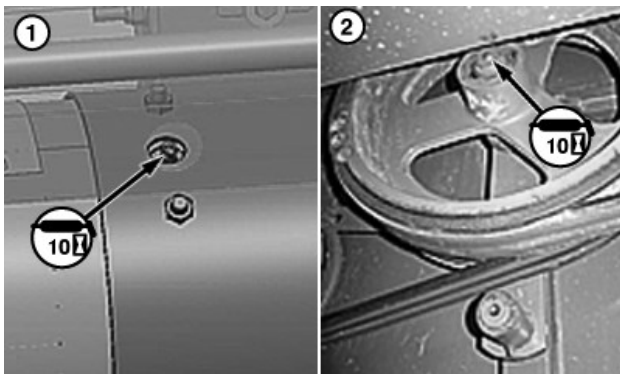
Every 10 Hours



YC10776—UN—07DEC16

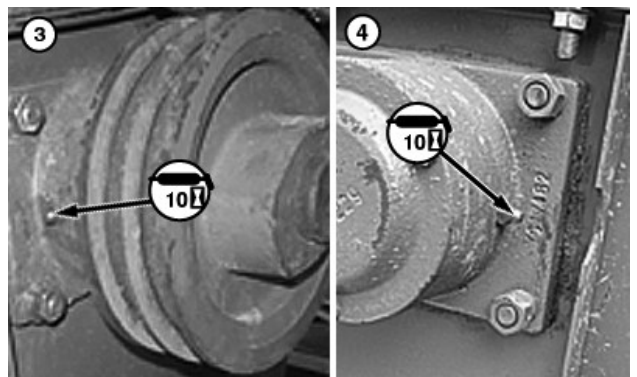
NOTE: Before lubricating unloading auger telescopic segment, swing out the unloading auger, switch off the engine and remove the key.

2. Straw chopper drive pulley.



YC9774—UN—30MAR16

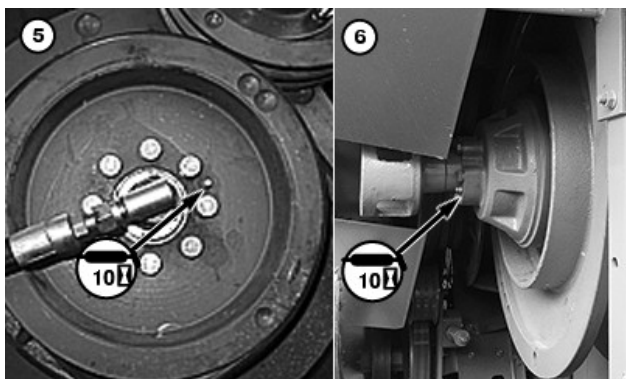
1. Unloading auger telescopic segment.



YC9775—UN—30MAR16

3. Straw chopper bearing (left-hand).

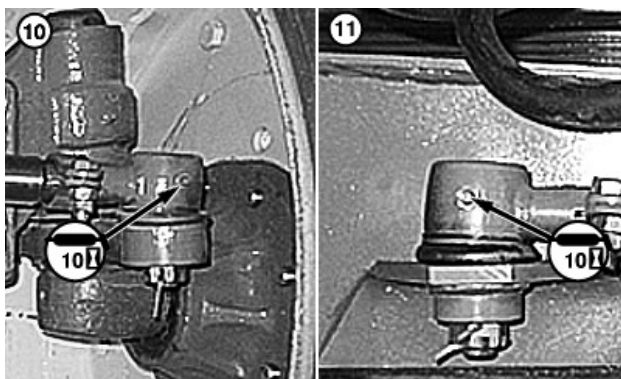
4. Straw chopper bearing (right-hand).



YC12284—UN—01JAN18

5. Threshing cylinder drive pulley.

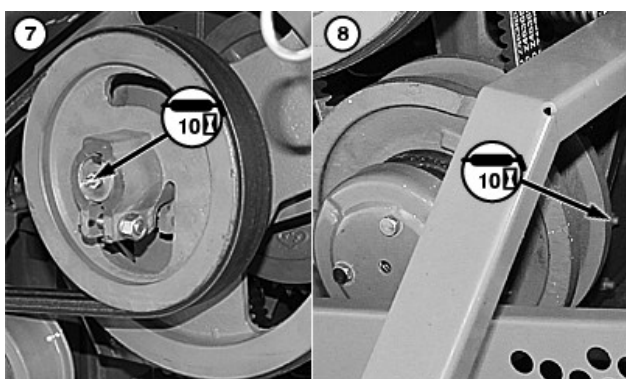
6. Threshing cylinder pulley.



YC9779—UN—30MAR16

10. Steering cylinder universe joint.

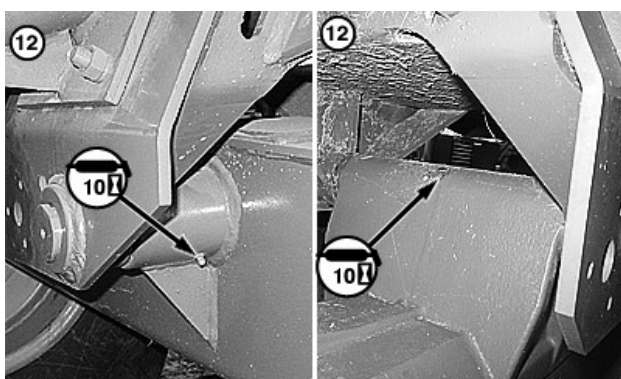
11. Steering tie rod pivots.



YC9777—UN—30MAR16

7. Fan variable speed drive pulley and bearing.

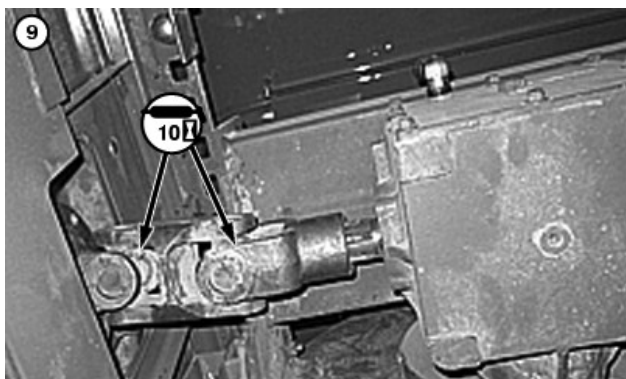
8. Fan variable speed pulley.



YC9780—UN—30MAR16

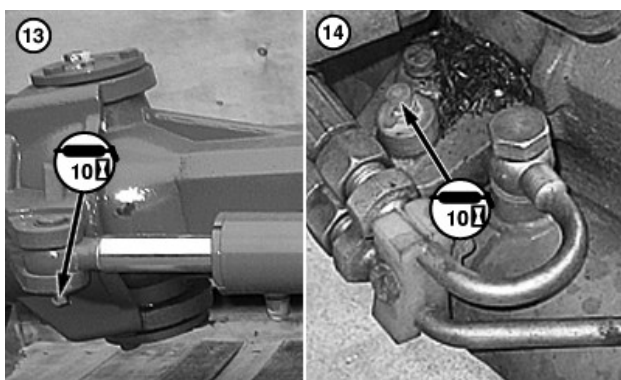
12. V-type tie rod pivot.

NOTE: Right graphic is used for rear wheel drive combine.



YC9778—UN—30MAR16

9. Separator drive universal joint.

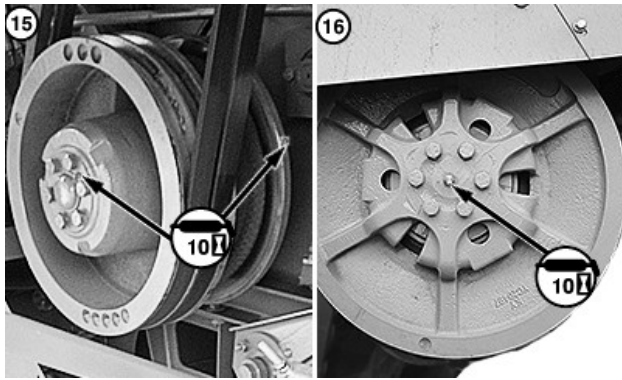


YC9781—UN—30MAR16

13. Steering cylinder universe joint (optional rear wheel drive combine).

14. Steering tie rod pivots (optional rear wheel drive combine).

NOTE: Lubricating Posi-Torq variable speed upper unit and support arm with Posi-Torq variable speed upper pulley fully closed.

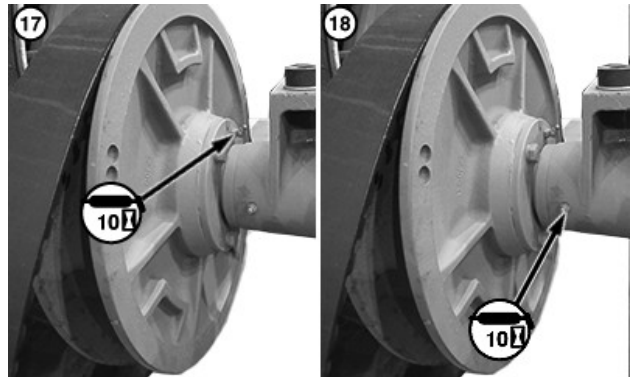


YC10772—UN—07DEC16

15. Posi-Torq variable speed upper unit.

NOTE: Lubricating Posi-Torq variable speed lower unit with the Posi-Torq variable speed lower pulley fully closed. Must use Mobil XHP222 or more better grease. For more details, see Posi-Torq Lower Unit Lubrication in Electrical, Hydraulic, and Drive Systems section.

16. Posi-Torq variable speed lower unit spring.

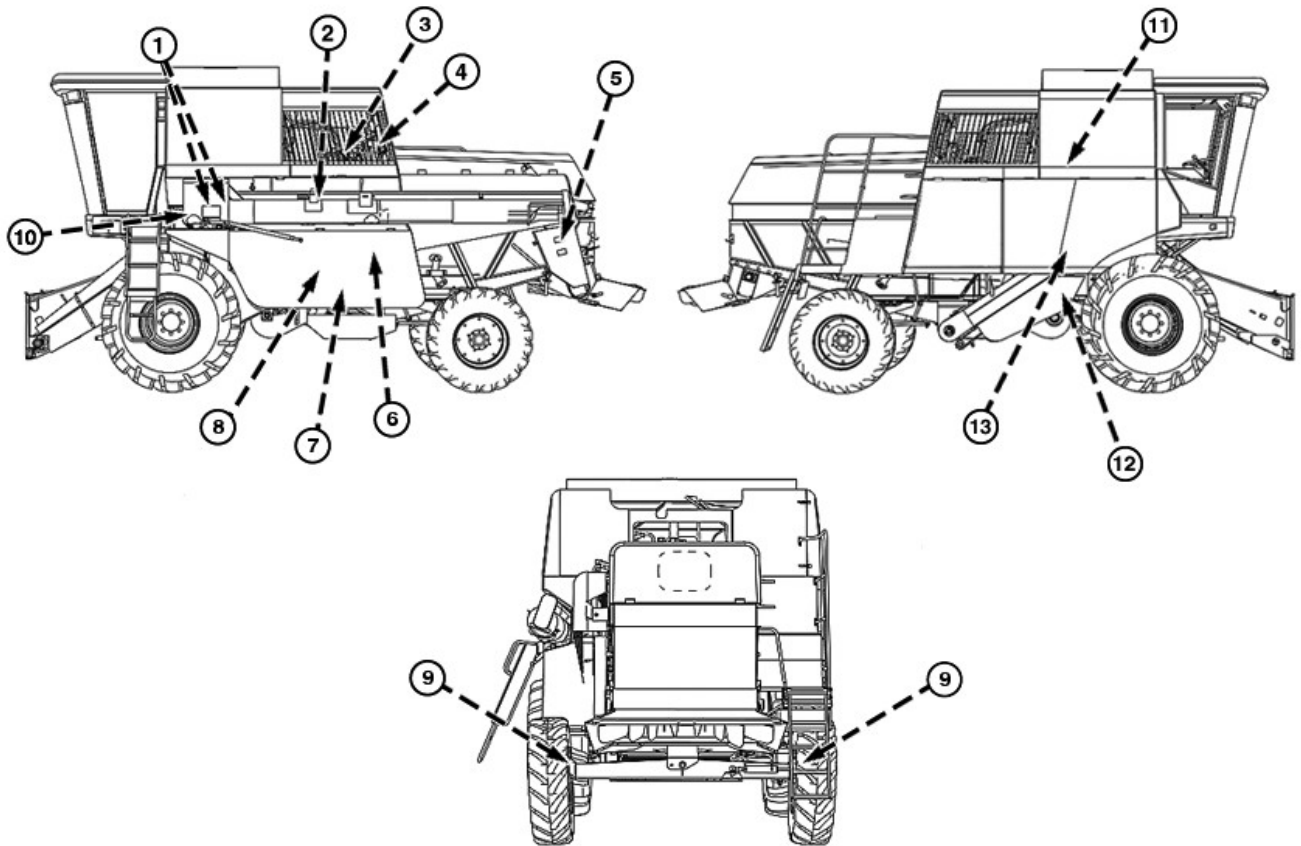


YC10771—UN—07DEC16

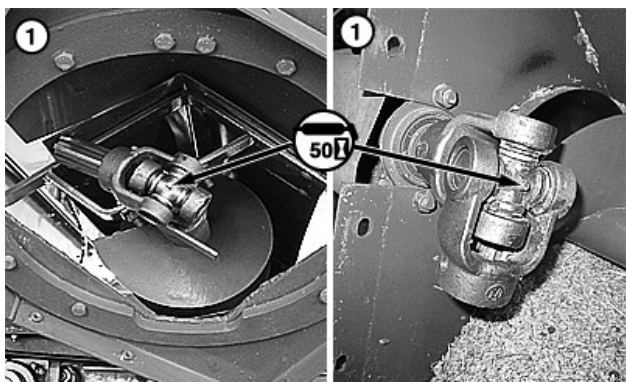
17. Posi-Torq variable speed lower unit inner pulley half cam.

18. Ground drive input housing bearing.

Every 50 Hours

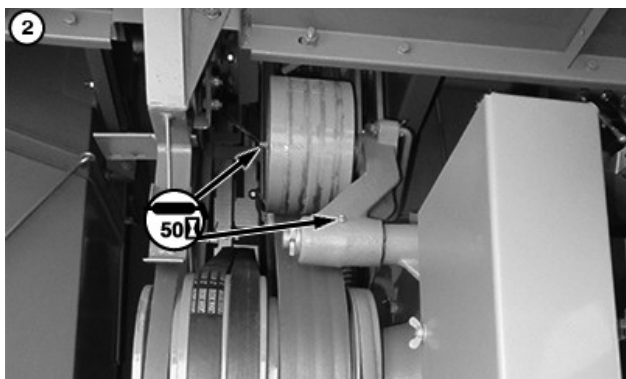


YC12698—UN—02SEP18



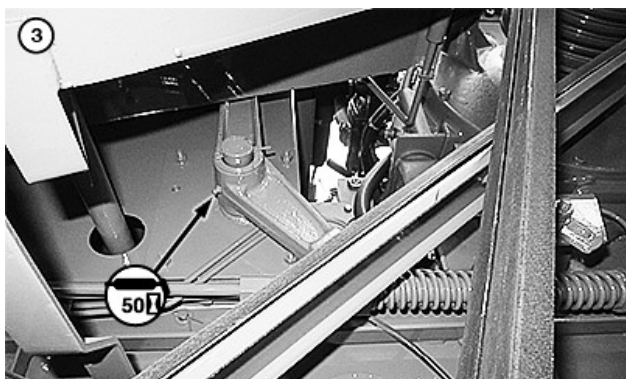
YC9782—UN—30MAR16

1. Unloading auger universal joint.



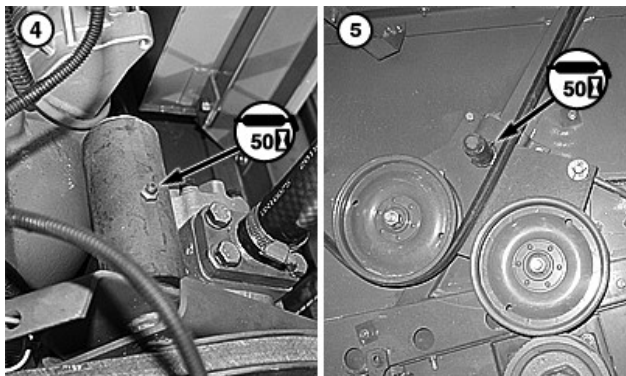
YC10773—UN—07DEC16

2. Separator engage idler and idler arm.



YC10528—UN—08DEC16

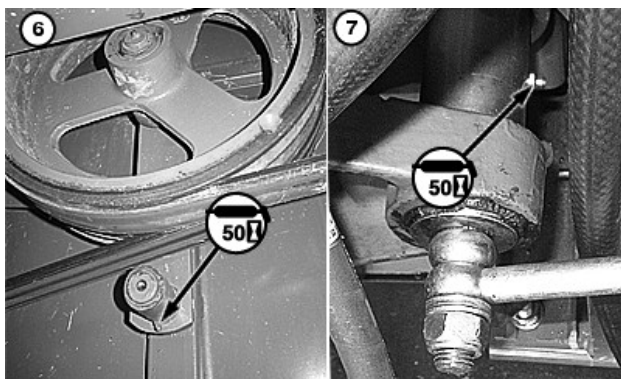
3. Separator engage support arm.



YC9784—UN—30MAR16

4. Hydraulic pump support arm.

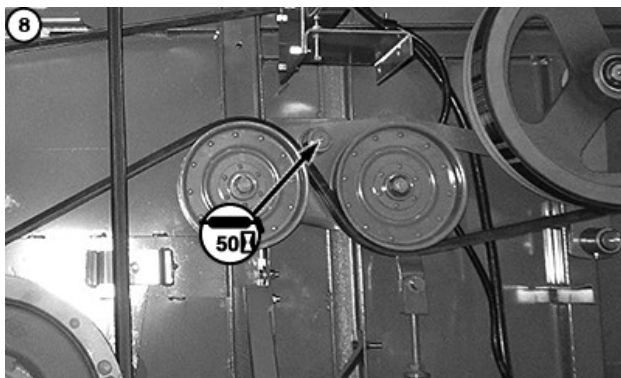
5. Separator idler arm.



YC9785—UN—30MAR16

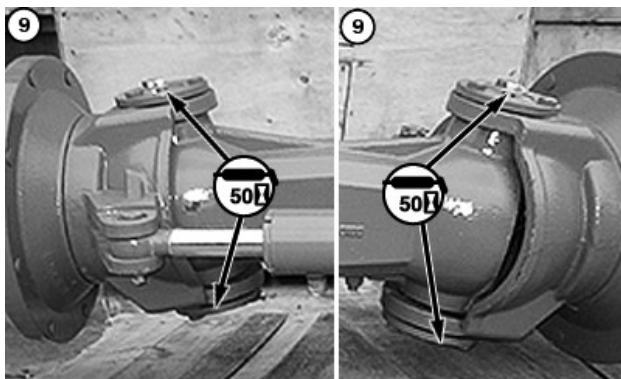
6. Separator drive pulley support arm.

7. Separator engage support arm.



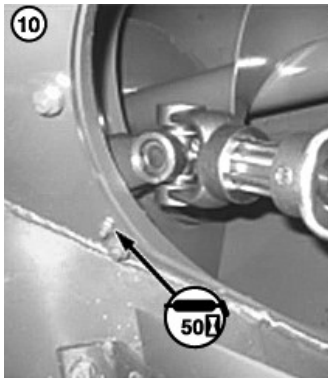
YC10784—UN—07DEC16

8. Chopper drive idler arm.

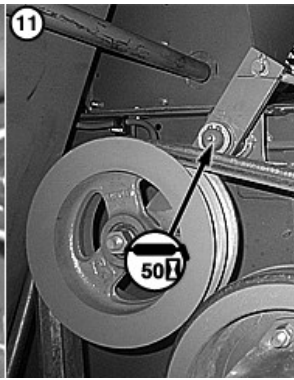


YC10774—UN—07DEC16

9. Rear axle bearing and pivot (optional rear wheel drive combine).



10. Unloading rotator.

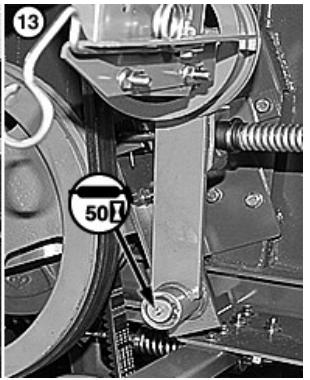


11. Beater drive idler arm.

YC9787—UN—30MAR16



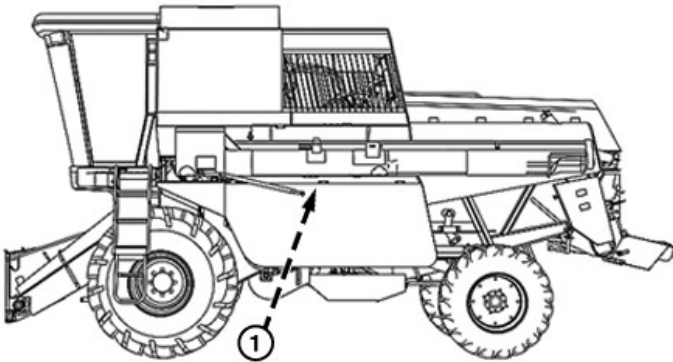
12. Cleaning fan idler arm.



13. Cleaning shoe idler arm.

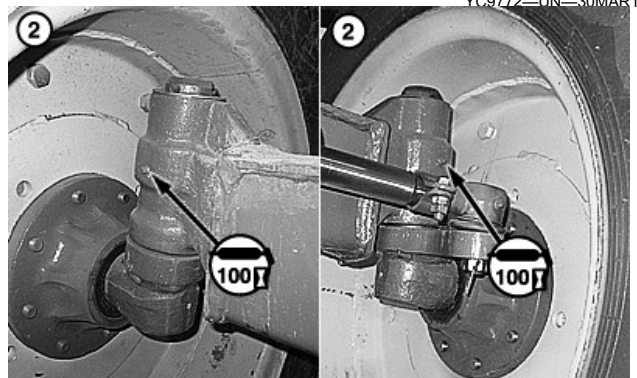
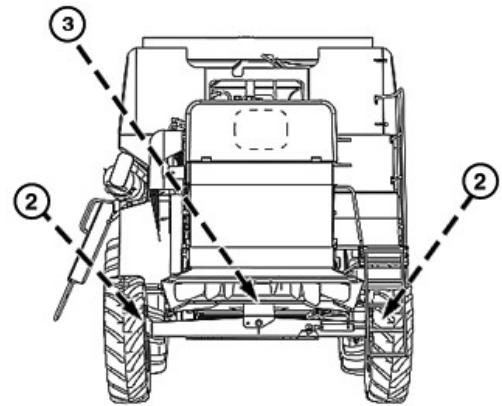
YC9788—UN—30MAR16

Every 100 Hours



1. Front separator bearing.

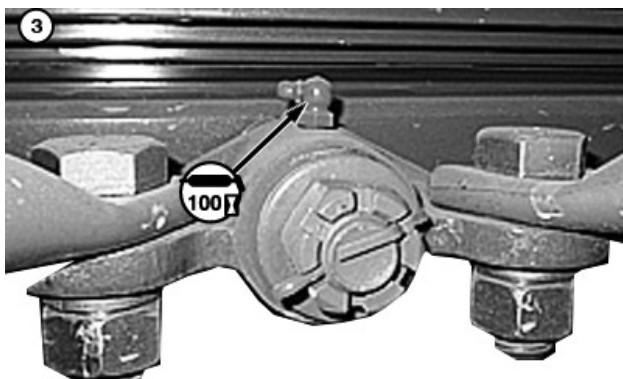
YC9791—UN—30MAR16



2. Rear axle bearing and pivot.

YC9772—UN—30MAR16

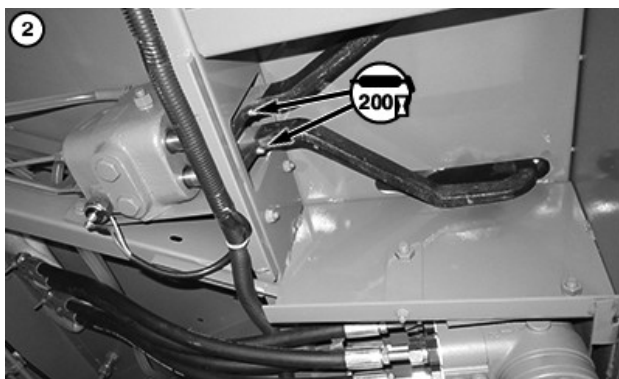
YC9792—UN—30MAR16



YC9793—UN—30MAR16

3. Rear axle support pivot.

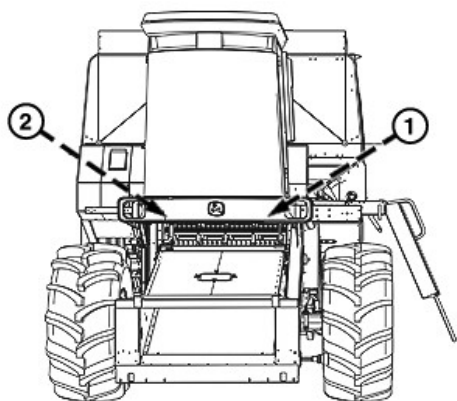
Every 200 Hours



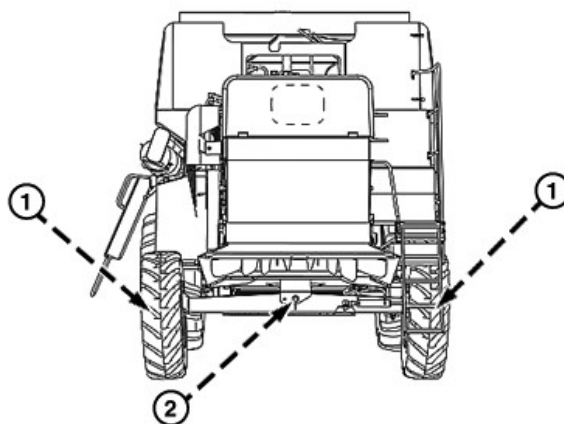
YC11020—UN—14FEB17

2. Service brake pedal.

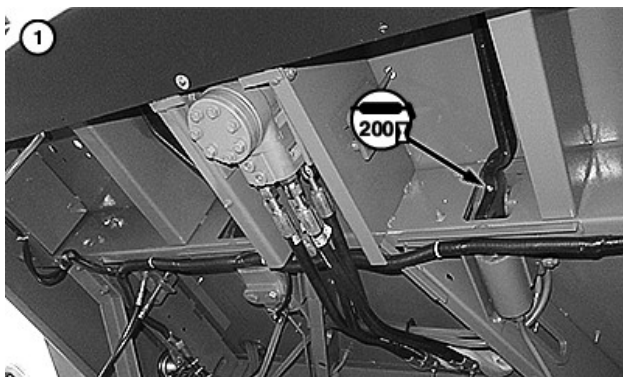
Every 500 Hours



YC10777—UN—07DEC16



YC9773—UN—30MAR16



YC11019—UN—14FEB17

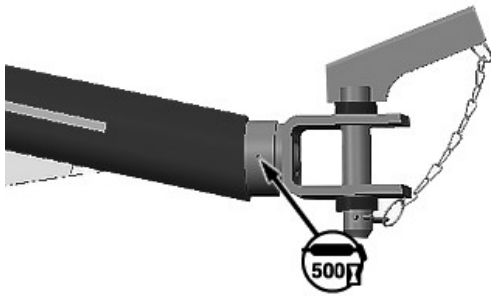
1. Clutch pedal.



YC9794—UN—30MAR16

1. Rear wheel bearings.

②



2. Rear axle hitch.

CP00606,0000FCB-19-28AUG18

Lubrication Chains

Lubricate chains at the start or at the end of every day.

YC12292—UN—03JAN18

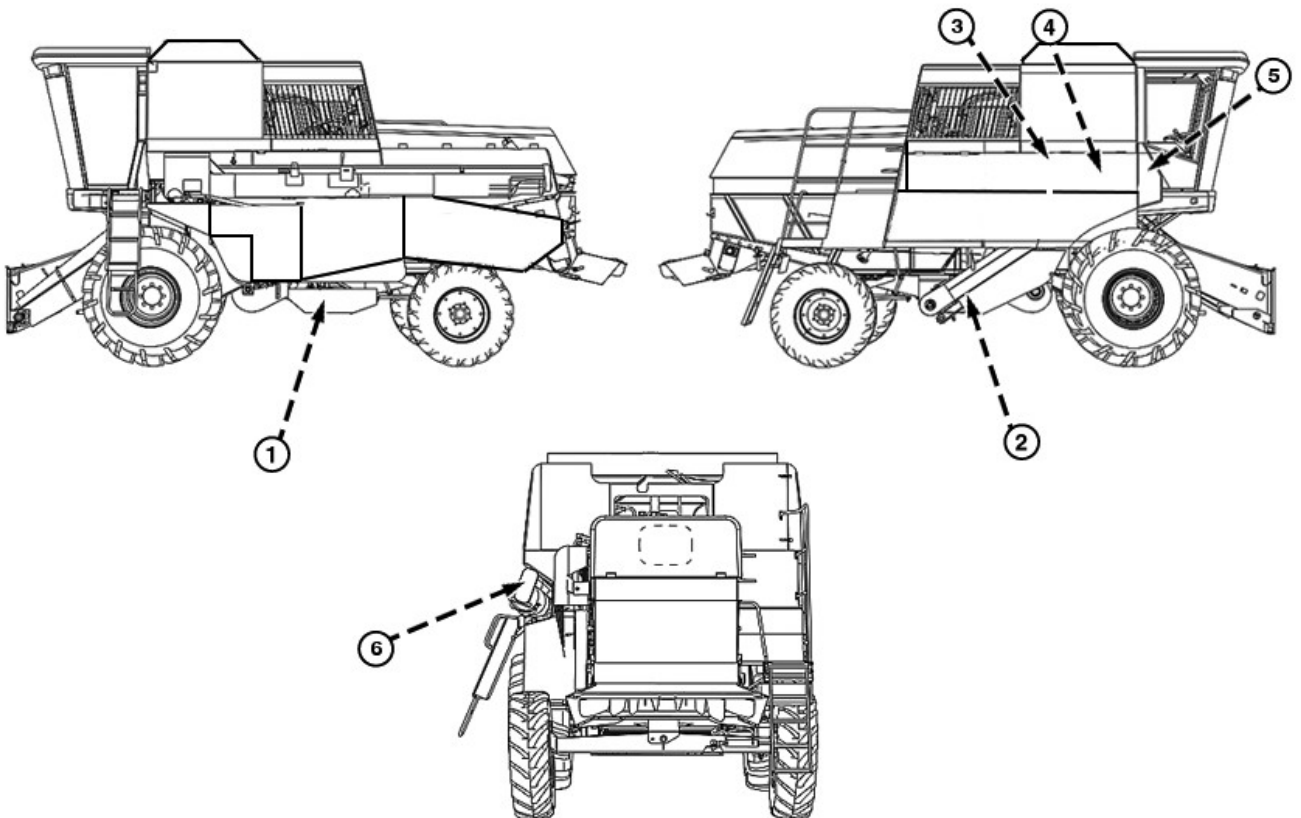
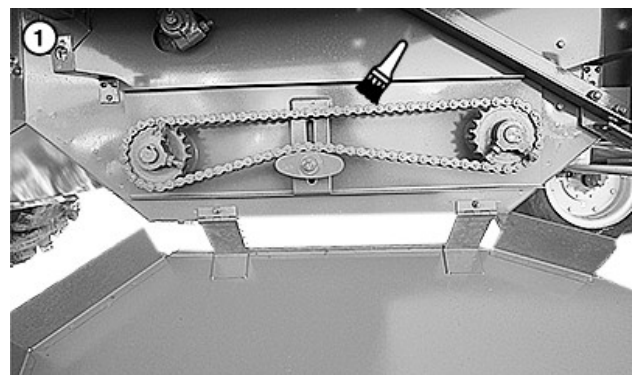


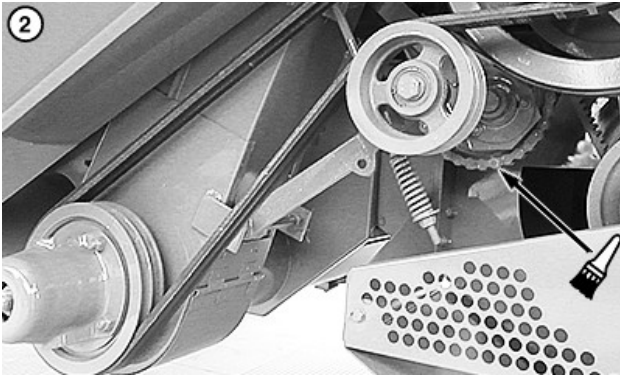
Chart of Chain Position

YC10845—UN—25OCT16



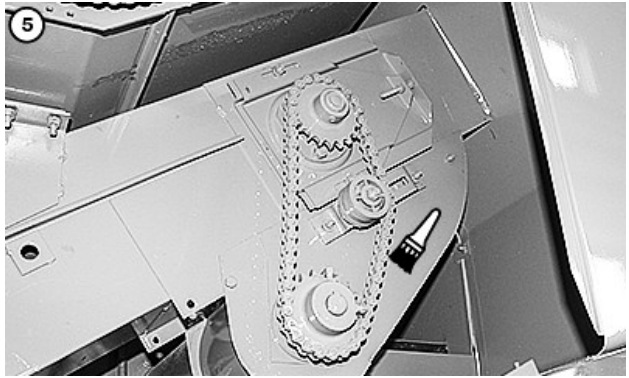
Elevator Drive Chain

YC10846—UN—08DEC16



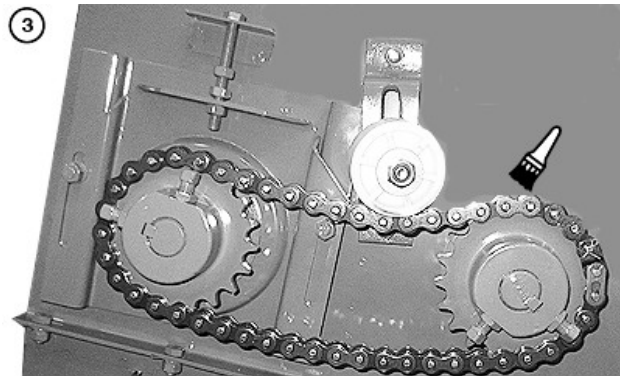
YC10847—UN—08DEC16

Cleaning Shoes Drive Chain



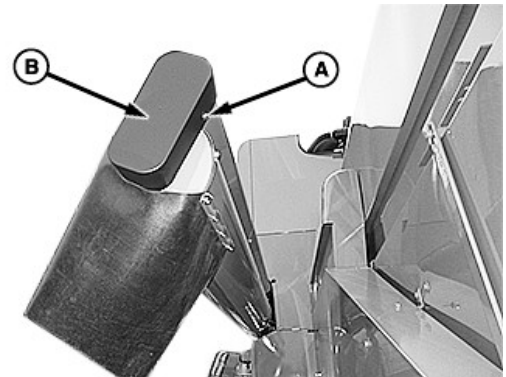
YC10850—UN—08DEC16

Tailing Elevator Drive Chain



YC10848—UN—08DEC16

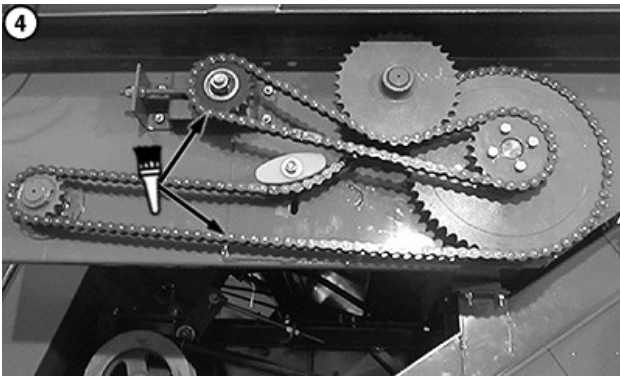
Grain Elevator Drive Chain



YC10851—UN—08DEC16

A— Cap Screw (2 used)
B— Cover

NOTE: Before lubricating unloading auger drive chain (in end), remove cap screws (A) and open cover (B).



YC10778—UN—07DEC16

Unloading Auger Drive Chain

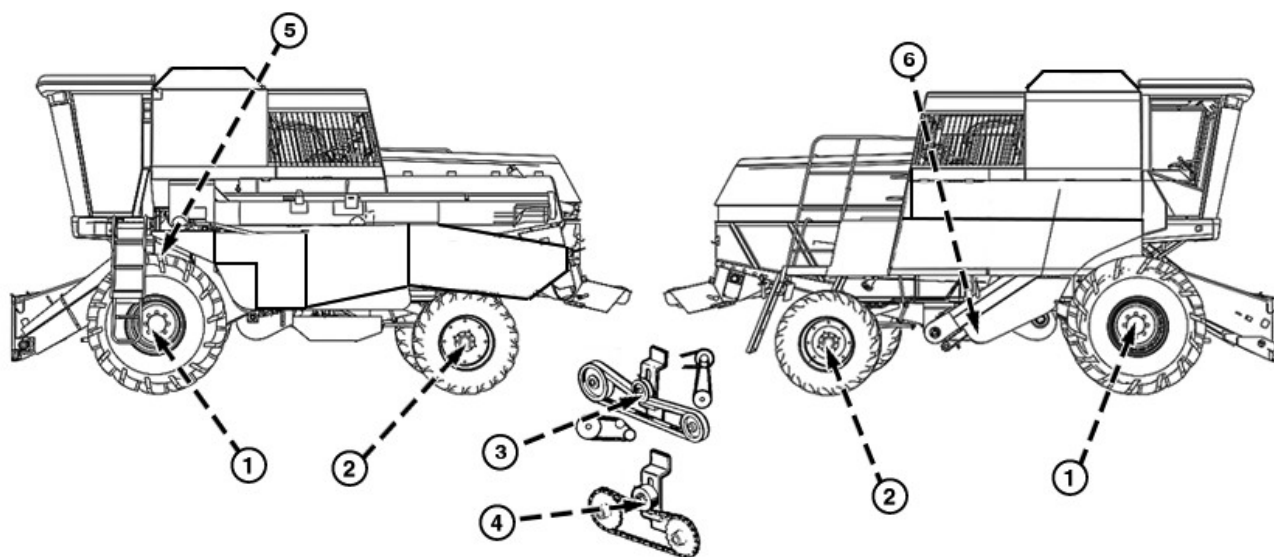


YC10852—UN—08DEC16

Unloading Auger Drive Chain (In End)

CP00606,00018AB-19-29MAY18

First Several Hours



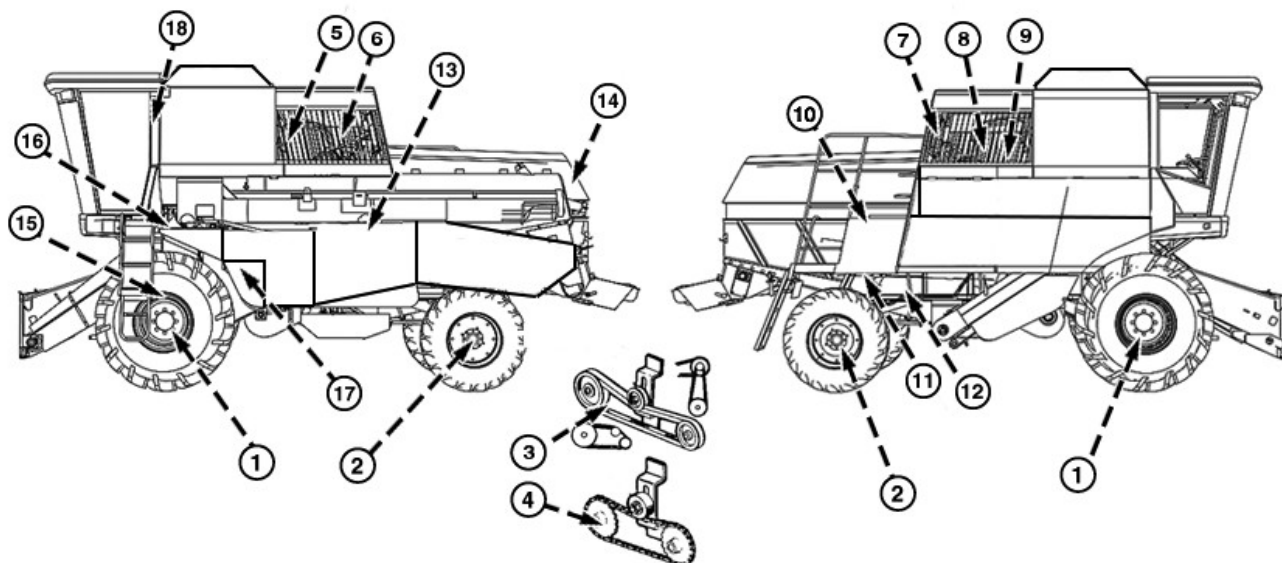
1. Tighten front wheel attaching nuts with torque 420 N·m.
2. Tighten rear attaching wheel bolts with torque 180 N·m.
3. Check and adjust the tension of V-belts.
4. Check and adjust the tension of drive chains.

5. Check and adjust feeder house slip clutch spring as needed.
6. Check and adjust elevator slip clutch spring as needed.

YC10901—UN—13NOV16

CP00718,0004420-19-19DEC17

Every 10 Hours (Daily)



1. Check front wheel attaching nuts with torque 420 N·m, check tires, and pressures.
2. Check rear wheel attaching bolts with torque 180 N·m, check tires, and pressures.

3. Check and adjust the tension of V-belts.
4. Check and adjust the tension of drive chains.
5. Check coolant level and fill as recommended. See Engine Coolant in Operating Engine section.

YC10903—UN—10NOV16

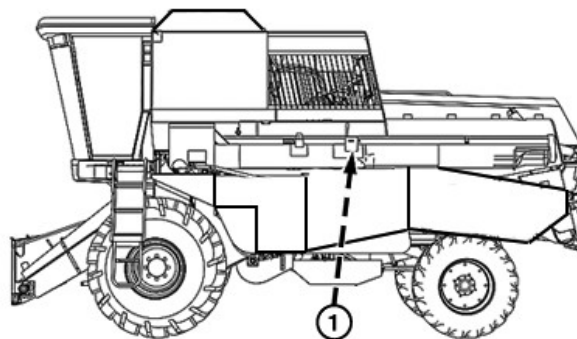
6. Clean air filter elements. See Clean the Primary Air Filter Element in Operating Engine section.
7. Clean around the hydraulic reservoir filler neck and check hydraulic oil level. See Change Oil of Hydraulic System in Electrical, Hydraulic, and Drive Systems section.
8. Clean radiator and rotary screen. See Clean Radiator and Clean Rotary Screen in Operating Engine section.
9. Check engine crankcase oil level. For related operation, see Pre-Start Check in Operating Engine section.
10. Fill fuel tank. See Fuel Tank Filler in Operating Engine section.
11. Check and clean fuel tank sediment bowl. See Fuel Tank Sediment Bowl in Operating Engine section.
12. Check fuel filter. Empty water and impurity. See Primary Fuel Filter in Operating Engine section.
13. Check and adjust the tension of the separator clutch drive belt. See Threshing Unit Belt Tension Adjustment in Operating Machine section.
14. Check tailing volume sensor. See Rear Cover Blockage Warning Device in Operating Machine section.
15. Check and adjust ground drive clutch clearance. See Adjust Clutch Clearance in Electrical, Hydraulic, and Drive Systems section.
16. Check and adjust the tension of the feeder house drive belt. See Feeder House Drive in Operating Machine section.
17. Check and clean the stone trap, grain pan and return pan.
18. Clean air conditioner system.

CP00718,0004421-19-30AUG18

1. Check front axle bolts attached to frame. See Front Axle in Electrical, Hydraulic, and Drive Systems section.
2. Check and tighten front wheel attaching nuts with torque 420 N·m.
3. Check and tighten rear wheel attaching bolts with torque 180 N·m.

CP00718,0004422-19-19DEC17

First 50 Hours

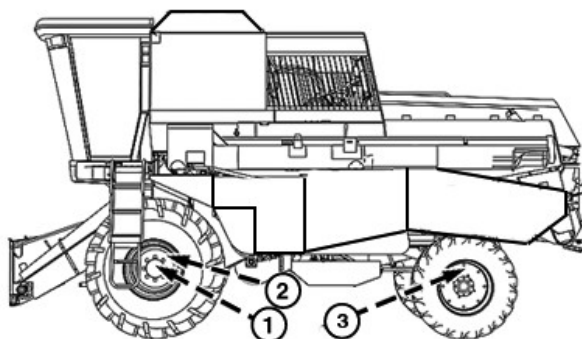


YC10909—UN—05JAN17

1. Check the tension of steel rope. See Adjust Steel Rope in Operating Machine section.

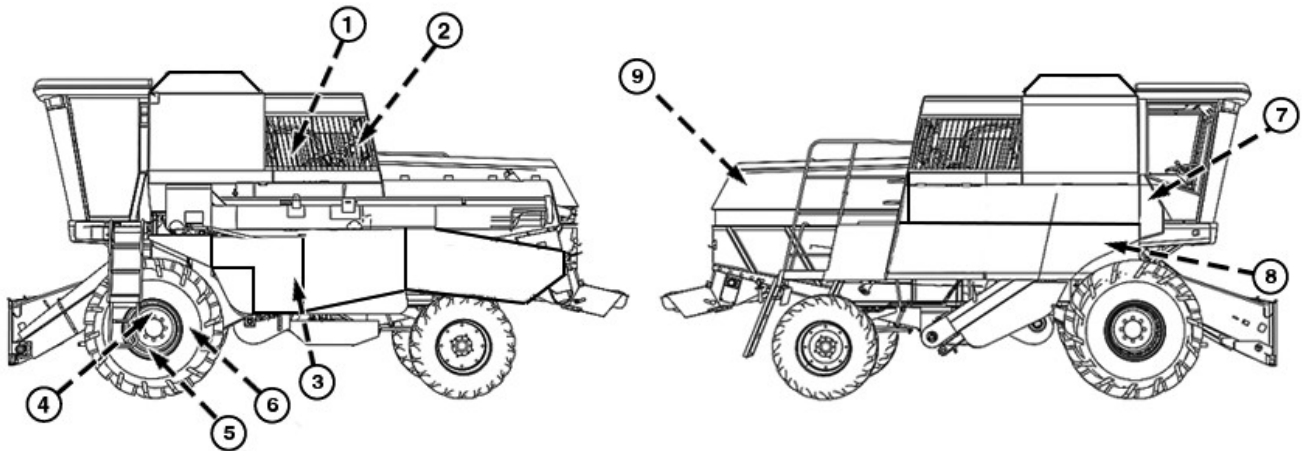
CP00718,0004423-19-19DEC17

First 25 Hours



YC10908—UN—10NOV16

First 100 Hours

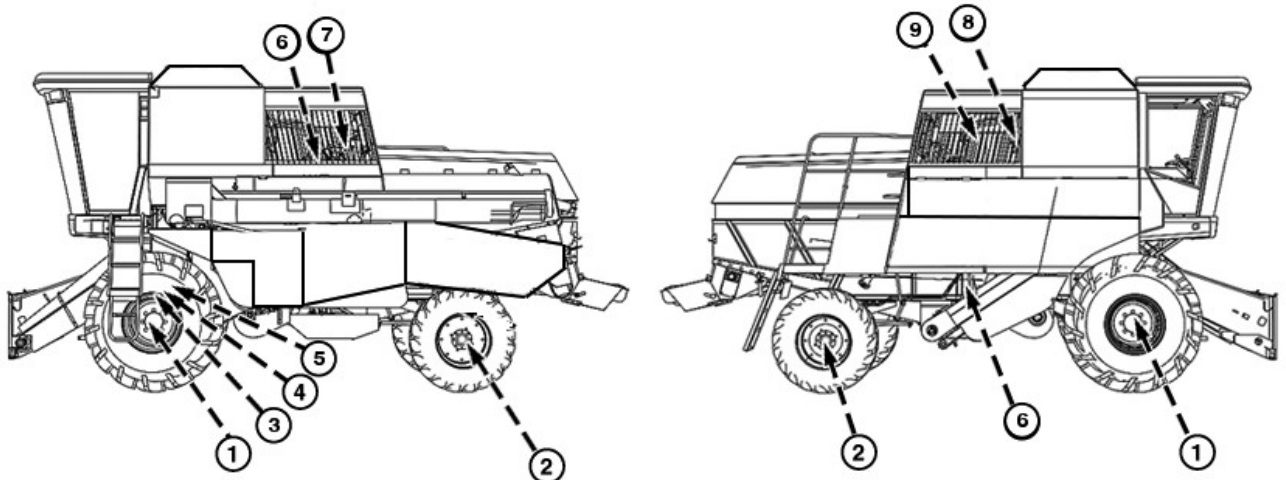


YC11021—UN—14FEB17

1. Change engine break-in oil and filter, fill oil as recommended. See Change Engine Oil and Replace Filter in Operating Engine section.
2. Change hydraulic oil and filter. See Change Oil of Hydraulic System and Hydraulic Oil Filter in Electrical, Hydraulic, and Drive Systems section.
3. Change hydrostatic oil and filter. See Hydrostatic Reservoir and Filter (Optional Hydrostatic Drive Type) in Electrical, Hydraulic, and Drive Systems section.
4. Change transmission oil. See Transmission in Electrical, Hydraulic, and Drive Systems section..
5. Change final drive oil. See Final Drive in Electrical, Hydraulic, and Drive Systems section..
6. Check and adjust ground drive clutch clearance. See Adjust Clutch Clearance in Electrical, Hydraulic, and Drive Systems section..
7. Change brake fluid. See Brake Fluid in Electrical, Hydraulic, and Drive Systems section.
8. Change separator speed reducer gear oil. See Threshing Cylinder Speed Reduction (Optional) in Operating Machine section.
9. Change separator drive gear oil. See Transmission Oil and Gear Oil Capacity in Operating Machine section.

CP00718,0004424-19-19DEC17

Every 200 Hours (Every Season)



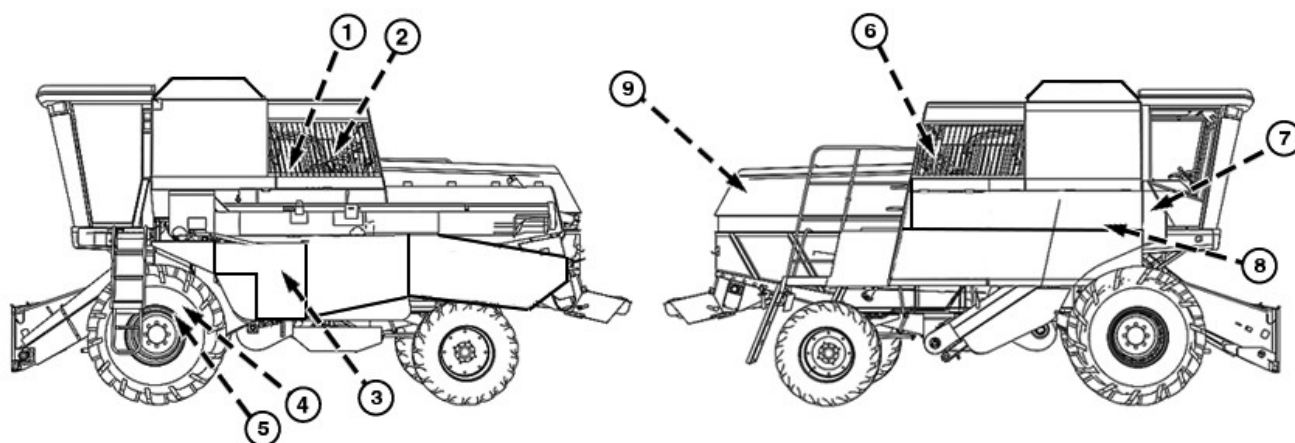
YC10906—UN—06JAN17

1. Tighten front attaching wheel nuts with torque 420 N·m.
2. Tighten rear wheel attaching bolts with torque 180 N·m.
3. Check and adjust service brake clearance. See

- Adjust Service Brake in Electrical, Hydraulic, and Drive Systems section.
4. Adjust the flexible cable of the park brake. See Adjust Park Brake in Electrical, Hydraulic, and Drive Systems section.
 5. Check front axle bolts attached to frame. See Front Axle in Electrical, Hydraulic, and Drive Systems section.
 6. Change primary fuel filter and final fuel filter elements. See Replace Fuel Filter Elements in Operating Engine section.
 7. Change engine oil and filter. See Change Engine Oil and Replace Filter in Operating Engine section.
 8. Check coolant level and fill as recommended. See Engine Coolant in Operating Engine section.
 9. Check and tighten all clamps and connections of the turbocharger. See Turbocharger in Operating Engine section.

CP00718,0004425-19-19DEC17

Every 500 Hours

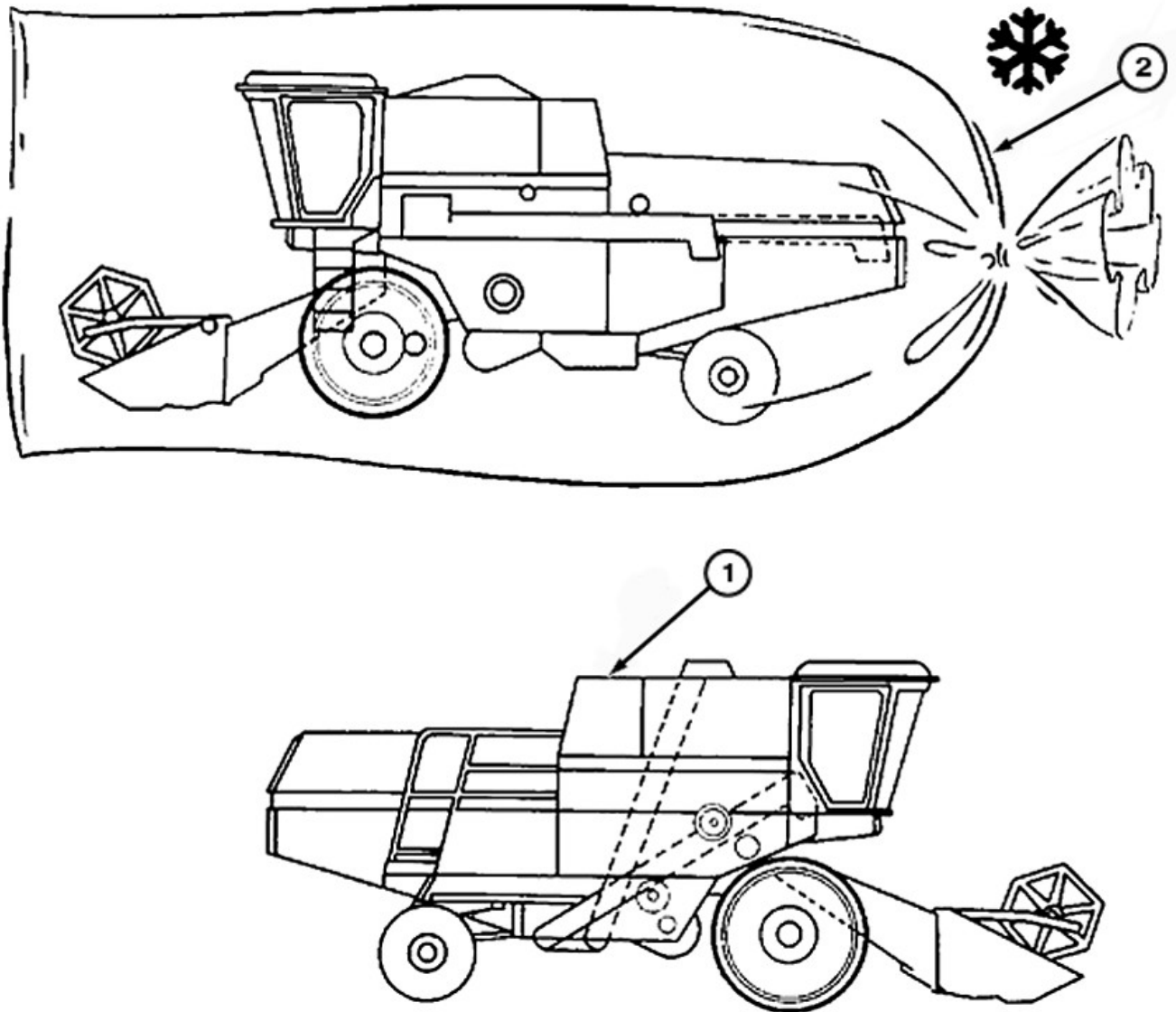


YC11022—UN—14FEB17

1. Check the starter. See Starter in Electrical, Hydraulic, and Drive Systems section.
2. Change engine oil and filter, fill oil as recommended. See Change Engine Oil and Replace Filter in Operating Engine section.
3. Change hydrostatic oil and filter. See Hydrostatic Reservoir and Filter (Optional Hydrostatic Drive Type) in Electrical, Hydraulic, and Drive Systems section.
4. Change final drive oil. See Final Drive in Electrical, Hydraulic, and Drive Systems section.
5. Change transmission oil. See Transmission in Electrical, Hydraulic, and Drive Systems section.
6. Change hydraulic oil and filter. See Change Oil of Hydraulic System and Hydraulic Oil Filter in Electrical, Hydraulic, and Drive Systems section.
7. Change brake fluid. See Brake Fluid in Electrical, Hydraulic, and Drive Systems section.
8. Change separator speed reducer gear oil. See Threshing Cylinder Speed Reduction (Optional) in Operating Machine section.
9. Change separator drive gear oil. See Transmission Oil and Gear Oil Capacity in Operating Machine section.

CP00718,0004426-19-19DEC17

Every Harvest Season



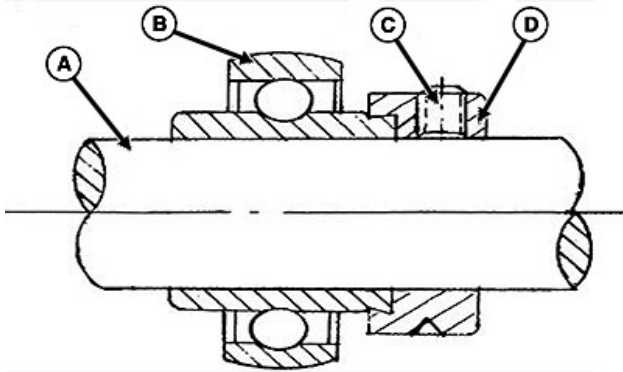
YC8233—UN—26JAN15

1. Clean engine rotary screen and radiator thoroughly.
2. Prevent the machine from corrosion.
3. Others see Storage Combine at the End of Harvest Season in Maintenance, Storage, and Transportation of Combine section.

CP00718,0004427-19-19DEC17

Maintenance, Storage, and Transportation of Combine

Removal and Installation of Bearings (390 xxx Series) with Eccentric Sleeve



YC2448—UN—03MAR13

- A— Shaft
- B— Bearing
- C— Set Screw
- D— Eccentric Sleeve

To install:

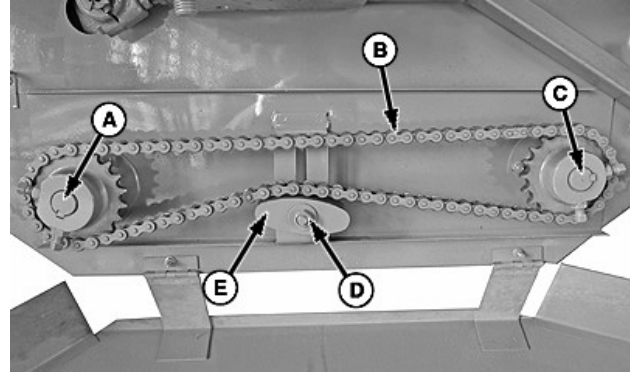
1. Install bearing (B) onto the shaft. Fasten it with the sidewall of the machine. (Before tightening the bearing seat mounting bolts, rotate the shaft for several rounds.)
2. Put on the eccentric sleeve (D). After determining the rotation direction of the shaft, tighten the eccentric sleeve (D) according to the rotation direction.
3. Put a punch against the blind hole on eccentric sleeve (D). Use a hammer to hit the punch until eccentric sleeve locks tightly.
4. Fasten set screw (C) with a hexagon wrench.

To remove:

1. Loosen set screw (C) with a hexagon wrench.
2. Put punch against the blind hole on eccentric sleeve (D). Use hammer to hit the punch, in the reverse direction of shaft rotation, until eccentric sleeve is loosened.
3. Remove eccentric sleeve (D). Remove bearing seat and bearing.

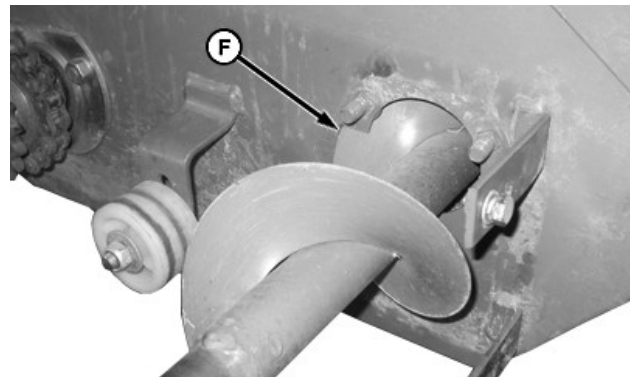
CP00718,00042AD-19-19DEC17

Removal and Installation of Grain and Tailing Auger



YC6030—UN—26DEC13

- A— Grain Auger Shaft
- B— Drive Chain
- C— Tailing Auger Shaft
- D— Nut
- E— Tension Block



YC8150—UN—04MAR15

- F— Gap

To remove:

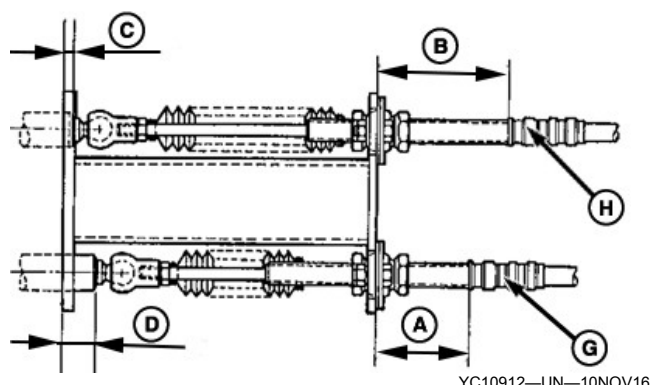
1. On the right side, remove bearing housing, bearing, elevator chain, and sprocket. On the left side, remove tension block (E), drive chain (B), sprocket, bearing housing, bearing, and cover. A gap (F) on the left sidewall is found.
2. Align auger blade with gap (F). Slowly swing auger out.

To install:

1. Align auger blade with gap (F) on the left sidewall, slowly swing auger in.
2. On the right side, install sprocket, elevator chain, bearing, and bearing housing. On the left side, install cover, bearing, bearing housing, sprocket, drive chain (B), tension block (E).

JL31334,0001723-19-03MAY18

Adjustment of Variable Speed Cable



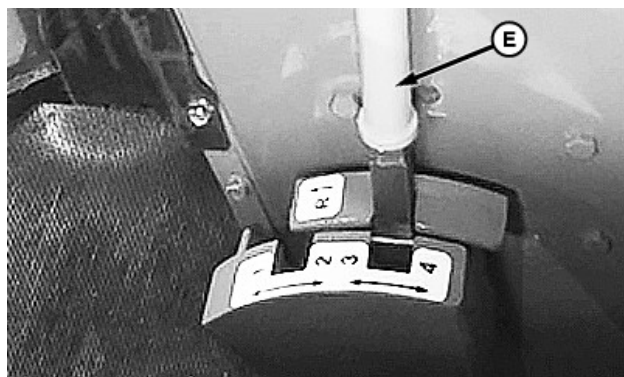
- A— 65 mm
B— 85 mm
C— 5.56 mm
D— 17.29 mm

YC10912—UN—10NOV16

NOTE: Pull cables (G and H) separately because there is interlocking mechanism between the two shifting fork shafts.

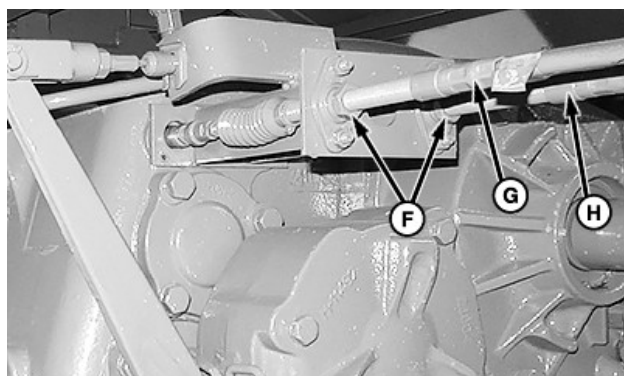
- Loosen nuts (F), make cable (G and H) in a free state.
- Pull cables (G and H) until shifting fork shaft protrudes from gear case with required size: C = 5.56 mm, D = 17.29 mm.
- Adjust the position of cable until A = 65 mm, B = 85 mm.
- Tighten nuts (F) at both ends of the cable bracket.
- Check and readjust as need.

JL31334,0001724-19-03MAY18



E— Gear-Shift Lever

YC10877—UN—08DEC16



- F— Nuts (4 Used)
G— Cable
H— Cable

YC10913—UN—08DEC16

For a new machine, check the size of (A) and (B), as shown in the right diagram: A = 65 mm, B = 85 mm.

For a used machine, the length of cable has changed, adjust as follows:

- Set gear-shift lever (E) at neutral position between three gear and four gear.

Storage of Combine at the End of Harvest Season

Machine: If possible, store the combine in a dry, sheltered place. Before storing, check the following:

- Clean thoroughly the inside of the combine and its outside. Prevent residue and dust from corroding or damaging machine.
- Remove or loosen all V-belts.
- Thoroughly clean all chains and grease them with a brush of thick oil to avoid corrosion.
- Thoroughly clean augers, elevators, and shoes.
- Take protective measures under the feeder house to avoid corrosion.
- Thoroughly lubricate the combine according to the lubrication charts.
- Grease threads of adjusting bolts and safety clutch.
- Relieve tension on the springs.
- Touch up all places where paints are damaged.
- Leave the lower and top elevator openings open.
- Lubricate all the metallic surfaces on the hydraulic cylinder pistons and retract them.
- Lower the header onto blocks.
- Strut the machine with wood blocks so that the wheels do not touch the ground. Leave tires inflated.
- Due to limitations, the combine is parked in the open air, raise it and remove the wheels. Store the wheels in a ventilated and dry place.
- Lubricate all the linkages and friction points that need lubrication.

Engine: Protect engine against corrosion, take the following measures:

- Clean outside of the engine with a good solvent.

NOTE: Do NOT use gasoline.

2. Drain, wash the engine cooling system, refill recommended coolant.
3. Drain the engine oil and replace the filter, refill recommended oil .
4. Place cardboards between the fan belt and pulley to avoid adhesion.
5. Fill the tank full with fuel. Empty water and impurity in the primary filter.
6. Clean the engine air intake, replace the air filter elements.

Other: Remove and clean the battery. Store it in a proper place after charging.

CP00718,00042B0-19-19DEC17

Re-Use Combine



YC2449—UN—18OCT12

After long period of storage, the combine must be serviced in detail before the start of each season. Ensure that the machine is in good work condition.

Machine:

1. Install belts and properly adjust tension.
2. Adjust drive chain tension properly.
3. Adjust safety clutch spring pressure properly.
4. Close elevator openings .
5. Thoroughly lubricate the combine according to the lubrication charts.
6. Check battery and recharge the battery if needed. Install battery to the machine.
7. Check the tire inflation pressures.
8. Check fire extinguisher and charging as specification in the label.

CAUTION: Do not start the engine in a closed place to avoid suffocation. Tighten attaching bolts and nuts of front and rear wheels.

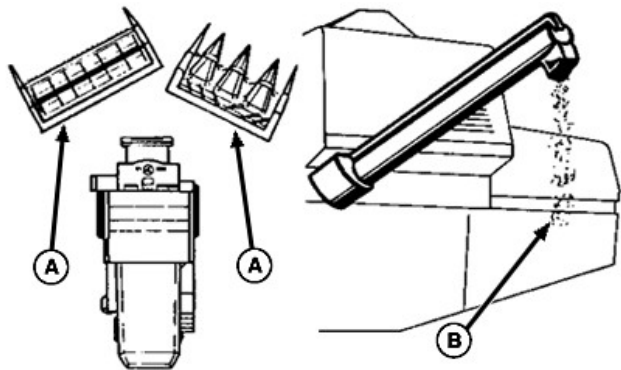
9. Run the combine at half throttle for an hour.
10. Check all bearings for overheating.

Engine:

1. Remove seal plugs in the filler cap and cardboards between the fan belt and pulleys.
2. Check coolant level.
3. Check engine oil level.
4. Run engine at lower idle speed until oil pressure indicator light goes out (about 5 seconds). Run the engine at half throttle for 5 minutes.
5. Run the engine with loaded and check for abnormal noise. Immediately switch off the engine and checks and repairs if abnormal.
6. Check all the hose and clamps. Contact the service center if leakage.

CP00718,00042B1-19-19DEC17

Transport Combine Under Own Power



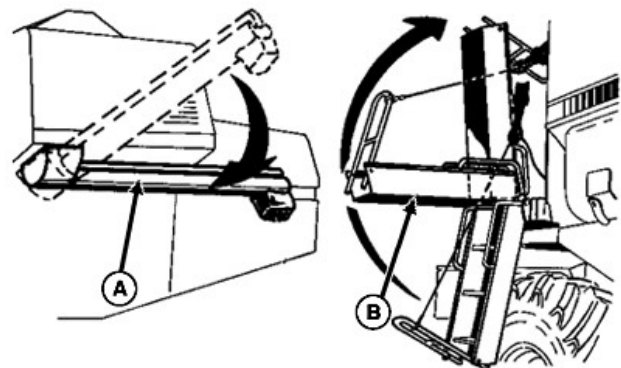
YC2450—UN—05DEC12

A— Header
B— Empty Grain Tank

Remove header (A) .
Empty grain tank (B).

CP00718,00042B2-19-19DEC17

Unloading Auger and Operator Station Ladder



YC2451—UN—05DEC12

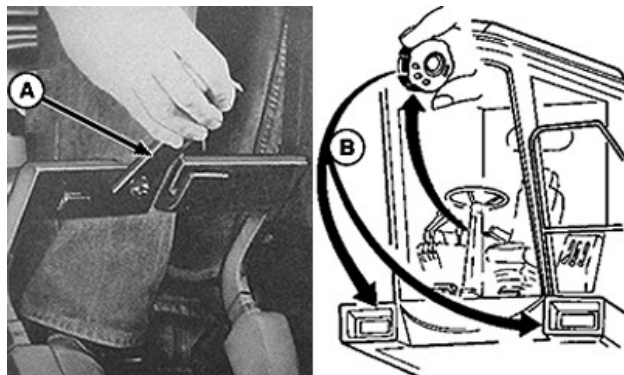
A— Unloading Auger
B— Operator Station Ladder

Swing in unloading auger (A).

Fold operator station ladder (B) upward and secure.

CP00718,00042B3-19-19DEC17

Service Brake Pedals and Lights



A— Service Brake Pedal
B— Lights

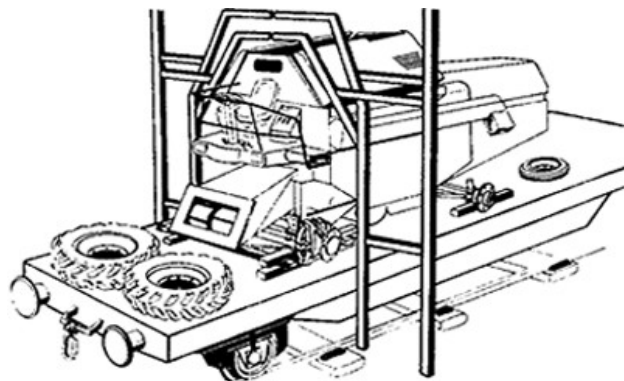
YC1687—UN—09DEC12

Couple service brake pedals (A) together for driving on public roads.

Switch on lights (B) when necessary.

CP00718,00042B4-19-19DEC17

Transportation Preparation of Combine



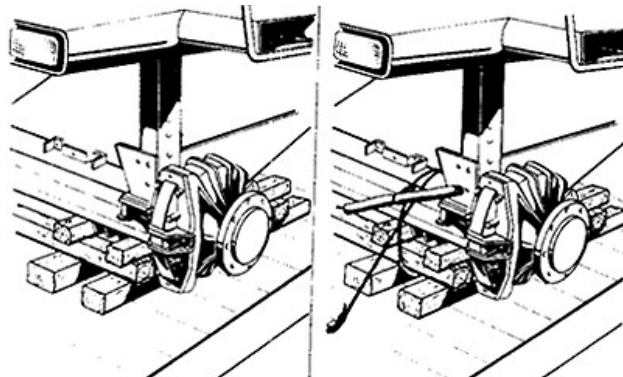
YC1688—UN—09DEC12

CAUTION: Place the combine in horizontal state on trailer for avoiding tilting.

If the combine is too high or too wide to be transported, remove front and rear wheels and secure the combine safely onto the trailer.

CP00718,00042B5-19-19DEC17

Secure Combine



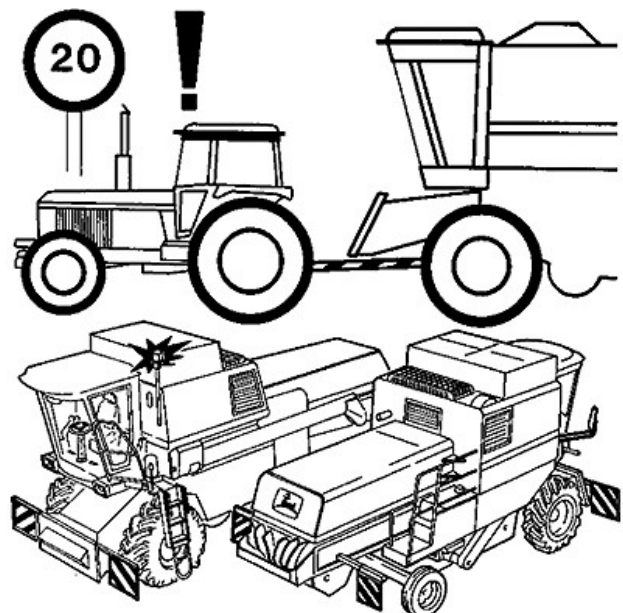
YC1689—UN—23NOV12

IMPORTANT: Lower the combine to wooden blocks for supporting. Never place final drives on trailer.

Use appropriate bindings and wooden blocks to secure front and rear axles of combine on the trailer.

CP00718,00042B6-19-19DEC17

Tow Combine



YC1690—UN—30DEC13

CAUTION: Never tow combine with a wire rope. Always use a suitable tow bar. Reliably connect tow bar to the suitable locations of front axle.

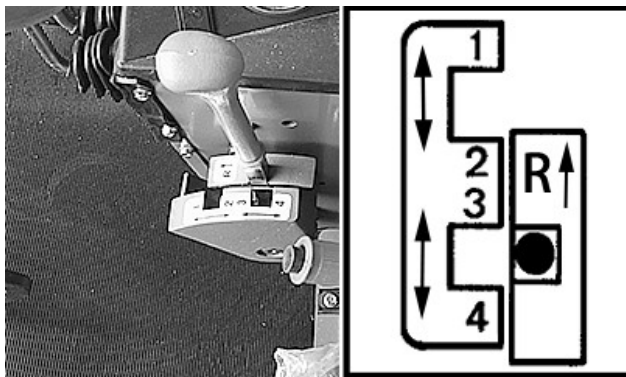
IMPORTANT: Towing at speeds higher than 20 km/h could damage tires, transmission, and final drive.

Turn warning lights ON when towing the machine.

IMPORTANT: Towing hitch on the rear axle is only for header towing. Never attempt to tow the machine from the header towing hitch.

CP00718,00042B7-19-19DEC17

Place Gear-Shift Lever at Neutral Position



YC12592—UN—01MAR18

IMPORTANT: Disengage park brake.

NOTE: Move gear-shift lever to neutral position as shown.

CP00606,00018AC-19-29MAY18

Fire Prevention

Fire Prevention Recommendations

Machine must be inspected periodically throughout the working day. Build up of crop material and other debris must be removed to ensure proper machine function and to reduce the risk of fire.

Regular and thorough cleaning of machine, combined with other routine maintenance procedures listed in this Operator's Manual greatly reduces risk of fire, chance of costly downtime and improves machine performance.

Always follow all safety procedures posted on the machine and in the Operator's Manual. Before carrying out any inspection or cleaning, switch off the engine, set park brake and remove key.

Machine is equipped with the fire extinguisher. Extinguisher must be checked daily when entering or exiting cab and when working around the machine to ensure that it is in working condition. Fire extinguishers must be replaced or professionally serviced after any use.

For additional information, see related contents in Machine Cleanout section.

CP00718,00042B9-19-19DEC17

Use Fire Extinguisher

About how to use the fire extinguisher, see Use Fire Extinguisher in Safety Instructions and Safety section.

CP00718,00042BA-19-19DEC17

Handle Fluids Safely—Avoid Fires



TS227—UN—15APR13

When you work around fuel, do not smoke or work near heaters or other fire hazards.

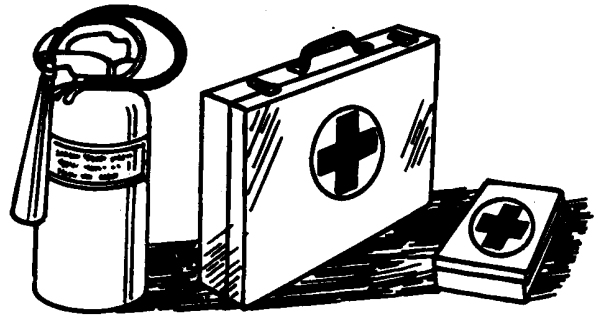
Store flammable fluids away from fire hazards. Do not incinerate or puncture pressurized containers.

Make sure machine is clean of trash, grease, and debris.

Do not store oily rags; they can ignite and burn spontaneously.

DX,FLAME-19-29SEP98

Prepare for Emergencies



TS291—UN—15APR13

Be prepared if a fire starts.

Keep a first aid kit and fire extinguisher handy.

Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.

DX,FIRE2-19-03MAR93

Handle Starting Fluid Safely



TS1356—UN—18MAR92

Starting fluid is highly flammable.

Keep all sparks and flame away when using it. Keep starting fluid away from batteries and cables.

To prevent accidental discharge when storing the pressurized can, keep the cap on the container, and store in a cool, protected location.

Do not incinerate or puncture a starting fluid container.

Do not use starting fluid on an engine equipped with glow plugs or an air intake heater.

DX,FIRE3-19-14MAR14

Remove Accumulated Crop Debris



TS227—UN—15APR13

The buildup of chaff and crop debris in the engine compartment, on the engine, and near moving parts is a fire hazard. Check and clean these areas frequently. Before performing any inspection or service, shut off the engine, set the park brake and remove the key.

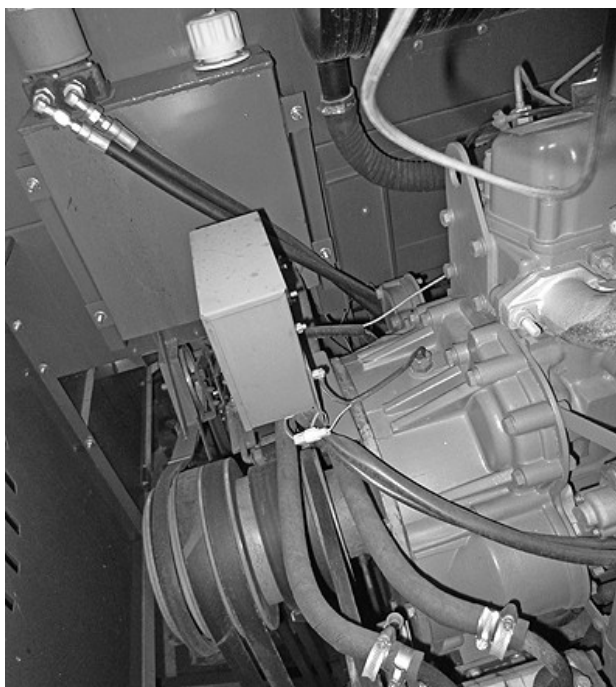
CP00718,00042BB-19-19DEC17

1. Remove fire extinguisher from the bracket and carry to area of fire.
2. Approach area of fire with wind to your back.
3. Pull safety pin from top of extinguisher.
4. Hold extinguisher upright by handles and aim hose at the base of flames.
5. Squeeze handles to discharge fire extinguisher.
6. Move nozzle back and forth, covering flames with a cloud of powder or water.

CP00718,00042BD-19-19DEC17

Clean Engine Compartment

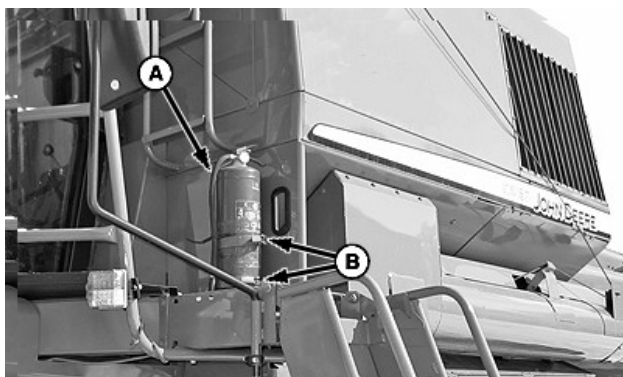
CAUTION: Do not clean engine or engine compartment with engine running.



YC6000—UN—17DEC13

Fire Extinguisher Locations

NOTE: If fire extinguisher is not equipped with machine, must order from the local dealer.



YC10726—UN—07DEC16

A— Fire Extinguisher
B— Clamp (2 Used)

The fire extinguisher (A) is on the left side of cab, closed to the grain tank. To remove fire extinguisher, loosen clamps (B) on the bracket and remove fire extinguisher from the bracket.

CP00606,00018AD-19-29MAY18

Dirt, oil, chaff, and crop debris in the engine compartment and on the engine is a fire hazard. Direction of wind, type of crop and its moisture content can all have an effect on where and how much chaff and debris accumulate. Check and clean these areas frequently.

CP00718,00042BE-19-19DEC17

In Case of Fire

Stop harvesting immediately at first sign of fire. This may be the smell of smoke or the sight of smoke or flames.

Do not risk personal injury. If a fire is too far advanced, do not try to extinguish it.

If fire can be safely extinguished, proceed carefully and follow these guidelines:

Machine Cleanout

General Cleaning Guidelines

Machine must be inspected periodically throughout the harvest days. Buildup of crop material and other debris must be removed to ensure proper machine function and to reduce the risk of fire.

Frequency of inspections and cleanings vary depending on a number of factors, including operating conditions, machine settings, crop conditions, operating speeds, and weather conditions. Inspections and cleanings are required multiple times throughout the harvest day, particularly in dry, hot, and windy conditions.

Some of these photographs show accumulations of crop material and other debris before cleaning. This type of accumulation is not normal; it was allowed for illustrative purposes only.

IMPORTANT: Regular and thorough cleaning of machine combined with other routine maintenance procedures listed in the Operator's Manual greatly reduce the risk of fire, chance of costly downtime, and improve machine performance.

Crop material and other debris can accumulate in various areas. Direction of wind, type of crop, and crop moisture content can all impact where and how much crop material and debris can accumulate. Be aware of harvest conditions and adjust your cleaning schedule to ensure proper machine function and to reduce the risk of fire. Inspect and clean these areas as needed throughout the harvest day.

Main areas that required to be inspected and cleaned frequently are:

- Engine compartment
- Engine cooling system
- Fuel tank
- Cleaning fan
- Trough
- Separating device
- Wiring harnesses and oil lines
- Gear case

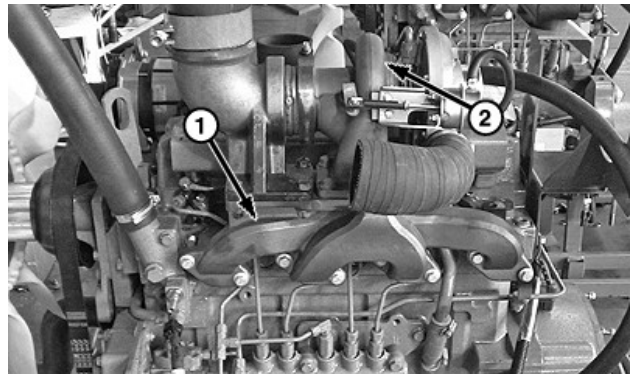
Although some other areas also are required to clean regularly, but these areas are more frequently to clean with compressed air.

Always follow all safety procedures posted on the machine and in the Operator's Manual. Before carrying out any inspection or cleaning, always shut OFF engine, set park brake and remove key.

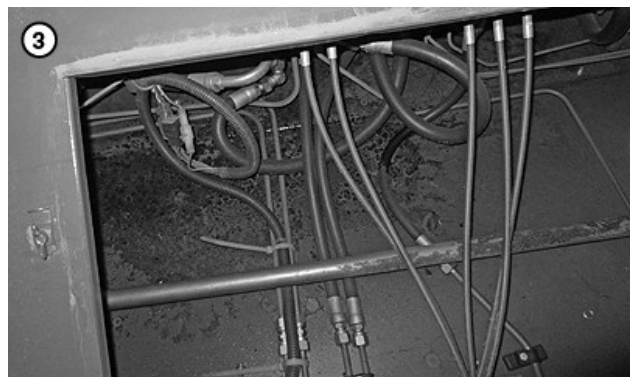
CP00718,00042BF-19-19DEC17

Engine Compartment

These areas around engine compartment are inspected and cleaned throughout the entire harvest day.



YC6001—UN—17DEC13



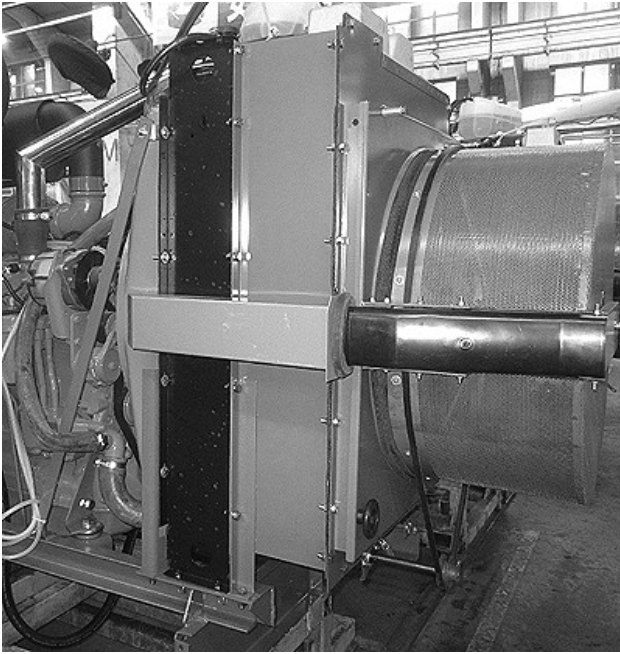
YC6002—UN—18DEC13

- 1.Exhaust manifold
- 2.Turbocharger
- 3.Below the engine

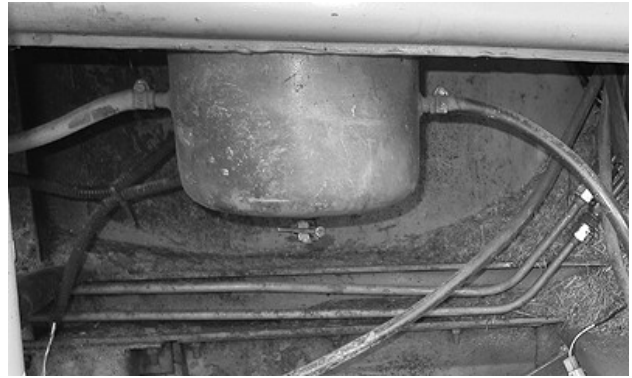
CP00718,00042C0-19-19DEC17

Engine Cooling System

These areas around engine cooling system are inspected and cleaned throughout the entire harvest day.



YC3958—UN—01APR13
CP00718,00042C1-19-19DEC17



YC6672—UN—12MAY14

Lower



YC6694—UN—14MAY14

Side

Fuel Tank

⚠ CAUTION: If oil leakage is found, stop the machine immediately. Locate the leak. Never start the machine before it has been repaired.

Regularly inspect and clean the upper part, lower part, and sides of the fuel tank and around the fuel transfer pump throughout the entire harvest day.



YC6693—UN—14MAY14

Upper



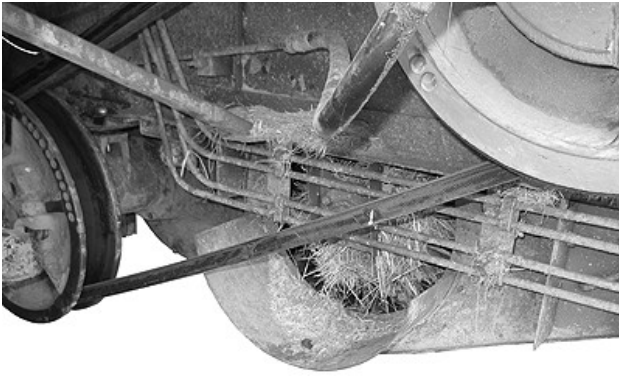
YC6682—UN—14MAY14

Fuel Transfer Pump

CP00606,00018AE-19-29MAY18

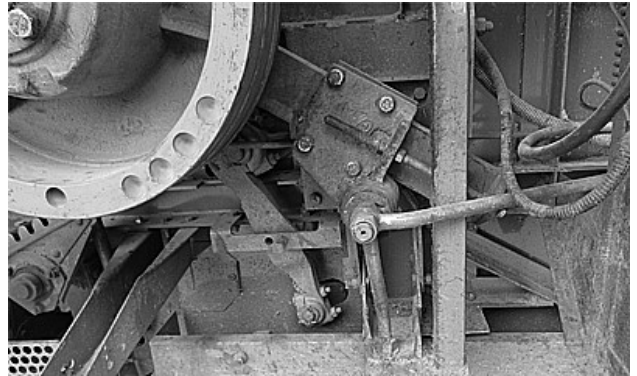
Cleaning Fan

These areas around cleaning fan are inspected and cleaned throughout the entire harvest day.



Left-Hand Side

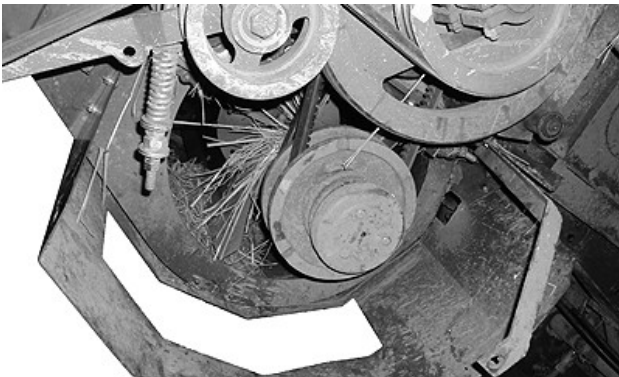
YC6686—UN—13MAY14



Left-Hand Side

YC8892—UN—07JUL15

CP00606,00018B0-19-29MAY18



Right-Hand Side

YC6681—UN—13MAY14

CP00606,00018AF-19-29MAY18

Separator

These areas around the separator are inspected and cleaned throughout the entire harvest day.



Gear Case

YC6674—UN—13MAY14

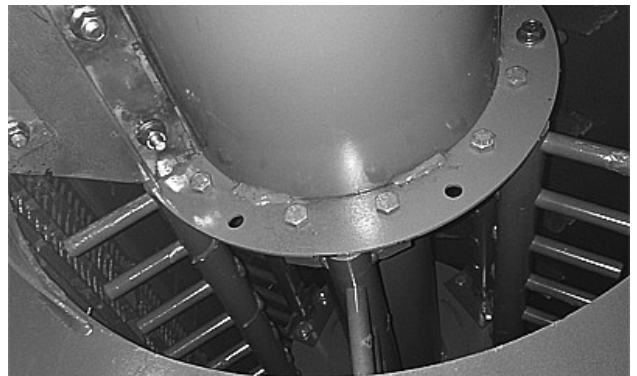
Trough

These areas around trough are inspected and cleaned throughout the entire harvest day.



Right-Hand Side

YC6683—UN—13MAY14



Separator

YC8893—UN—07JUL15



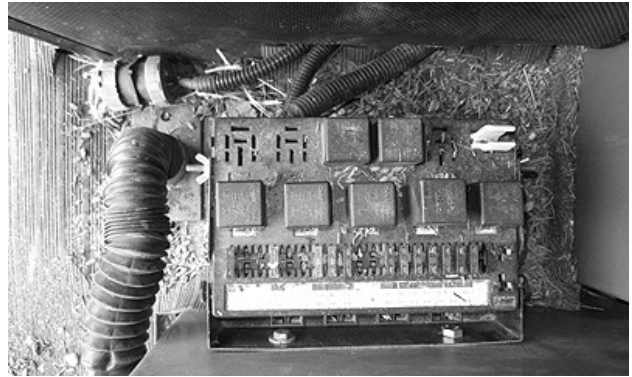
YC6676—UN—13MAY14

Upper

CP00606,00018B1-19-29MAY18



YC6677—UN—13MAY14

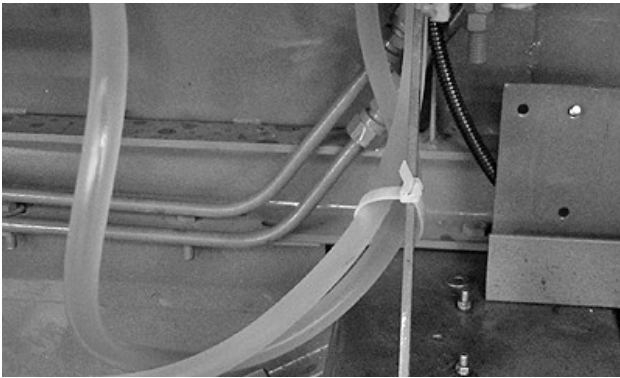


YC6692—UN—13MAY14

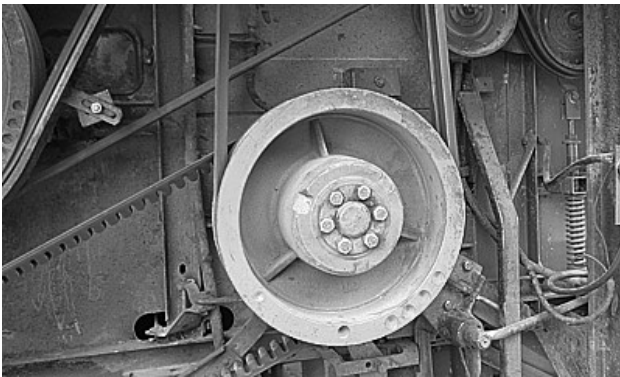
CP00606,00018B2-19-29MAY18

Wiring Harnesses and Oil Lines

These areas around wiring harnesses and oil lines are inspected and cleaned throughout the entire harvest day.



YC6003—UN—24DEC13



YC8894—UN—08JUL15

Gear Case

These areas around gear case and oil lines are inspected and cleaned throughout the entire harvest day.

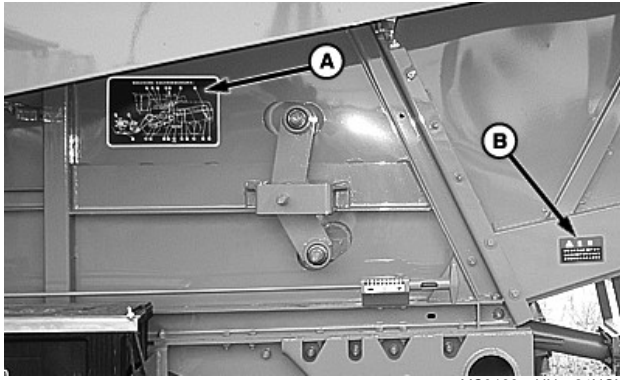


YC6673—UN—13MAY14

CP00718,00042C7-19-19DEC17

Labels

All labels are inspected and cleaned throughout the entire harvest day.



YC9133—UN—24NOV15

- A— Lubrication Label
- B— Safety Sign

CP00718,00042C8-19-19DEC17

Analysis and Troubleshooting of Common Failures

Analysis and Troubleshooting of Failures

Most combine problems are due to incorrect adjustments.

In failure analysis, potential problems are listed with corresponding recommended solutions for the operator.

CP00718,00042C9-19-22AUG18

Feeder House

Symptom	Problem	Solution
Uneven or bunched feeding of crop to cylinder.	Header auger is too high.	Adjust auger down and back. Refer to the header operator's manual.
	Front part of the feeder house chain is adjusted too high.	Adjust the feed rolls so that conveyor chain plate is separated from the feeder house floor with appropriate clearance.
	Feeder house chain is too tight. Feed rolls are pulled upwards.	Adjust conveyor chain with proper tension.
	Header drive belt slips.	Spring tension pulley presses the drive belt properly and firmly.
	Central auger, compared to the anti-wrapped board, is too much forward.	Adjust auger backward towards anti-wrapped board. Refer to header operator's manual.
	Feeder house drive belt slips.	Adjust tension of the drive belt.
	Feeder house chain slat is damaged.	Straighten or replace the feeder house chain slat.
	Dirt, stems, and leaves accumulate on the feeder house floor.	Clean feeder house floor.
Header cannot be lifted correctly	Air is in the hydraulic system.	Fix leaks and bleed the lifting system.

CP00718,00042CA-19-22AUG18

Separator and Cleaning System

Symptom	Problem	Solution
Cylinder fails to operate in high speed.	Drive belt is loose.	Adjust drive belt.
Cylinder is clogged or overloaded.	Engine speed is not correct.	Ask professionals to repair it.
	Threshing clearance is too tight or too wide.	Adjust threshing clearance.
	Threshing speed is too low.	Increase the threshing speed.
	Too much crop enters the cylinder.	Reduce the ground speed.
Cylinder suffers from the reverse feeding.	Engine speed is not correct.	Ask professionals to repair it.

Symptom	Problem	Solution
Crop is not threshed.	The crop is not suitable for threshing.	Test moisture before harvest.
	Threshing speed is too slow.	Increase the threshing speed until a good threshing result is achieved, but do not increase the speed to a critical point where grain is crushed.
	Threshing clearance is too big.	Decrease the threshing clearance to enhance threshing.
	Feeding to cylinder is uneven.	Check the tension of the feeder house chain.
	Not enough materials enter the combine. Threshing is not good.	Increase the ground speed.
Grain in the grain tank is seriously cracked.	Threshing speed is too high.	Decrease the threshing speed until grain is not crushed, but good threshing still is kept. And/Or, slightly increase the threshing clearance.
	Threshing clearance is too small.	Increase the threshing clearance until crushing stops.
	Too much grain is in the tailings. Grain is crushed during rethreshing.	Slightly increase the sieve clearance to reduce tailings.
		Decrease the cleaning fan speed.
	Not enough materials enter the combine.	Increase the ground speed.
	Damaged auger trough or bent auger flighting.	Straighten the auger trough, auger flighting, or auger shaft. Replace as needed.
There is nearly no chaff in tailings. Grain in the grain tank is clean.	Cleaning fan speed is too high and/or the chaffer clearance is too tight.	Decrease the cleaning fan speed and/or increase the chaffer clearance.
There is some chaff in the tailings. Grain in the grain tank is clean.	Sieve clearance is too tight.	Increase the sieve clearance.
There is a large amount of bran in the tailings. Cleanliness of grain in the grain tank is low.	Sieve clearance is too tight. Cleaning fan speed is too low.	Increase the sieve clearance. Increase the cleaning fan speed.
There is too much debris (grated weeds) in tailings.	Chaffer clearance and/or chaffer extension clearance are too wide when there are many weeds.	Decrease the chaffer clearance and chaffer extension clearance.
	Threshing speed is too high and threshing clearance is too tight.	Decrease the threshing speed and/or increase the threshing clearance.
Grain in the grain tank is not clean (incompletely threshed spikes).	Sieve clearance is too wide.	Decrease the sieve clearance.

Symptom	Problem	Solution
	Incomplete threshing occurs at cylinder.	Increase the threshing speed and/or decrease the threshing clearance.
Grain in the grain tank is not clean (mostly chaff).	Cleaning fan speed is too low.	Increase the cleaning fan speed.
Grain is lost in cleaning shoe (grain in the grain tank is clean).	Chaffer is closed.	Open chaffer.
	Cleaning fan speed is incorrect.	Adjust the cleaning fan speed. Check tailings, loss, and cleanliness of grain in the grain tank.
	Separator rotor drops too many materials resulting in grain loss in cleaning shoe (no grain loss at the separator rotor).	Remove some finger plates from the rear of separator grates. Replace them with blocking plates.
Serious grain loss happens (when feed rate is low or high).	Cleaning fan speed is too high.	Reduce the cleaning fan speed.
	Chaffer clearance is too tight.	Increase the chaffer clearance.
Serious grain loss happens (only when feeding rate is high).	Cleaning fan speed is too low.	Increase the cleaning fan speed.

CP00718,00042CB-19-22AUG18

Ground Drive System (Belt Ground Drive Type)

Symptom	Problem	Solution
Ground drive belt is too tight in the entire speed range.	Posi-Torq [™] Posi-Torq [™] ground drive doesn't work.	Fully lubricate Posi-Torq [™] ground drive and Repair as needed.
difficult or fails to change speed.	Clutch is not separated.	Check the transmission oil level and inspect the clearance at separate lever. Fill the transmission oil or adjust the clutch clearance.
	Variable speed cable is adjusted improperly.	Adjust the variable speed cable.
	Variable speed cable is damaged, dirty, corroded, or pressed.	Check, clean, adjust, or replace cable.
	Gearbox has the internal problem.	Ask professionals to repair.

CP00718,00042CC-19-22AUG18

Steering System

Symptom	Problem	Solution
Rear wheels swing in transport speed.	Toe-in is not adjusted properly.	Adjust toe-in.

Posi-Torq is a trademark of Deere & Company

Symptom	Problem	Solution
Steering arm does not contact the stopper when steering at the limit position.	Steering cylinder is not adjusted properly.	Adjust steering cylinder.

CP00718,00042CD-19-22AUG18

Brake System

Symptom	Problem	Solution
Brake pedals are soft and weak.	Brake fluid level is low and/or there is air in the system.	Check for leaks. Add brake fluid or bleed the brake system.
Braking force is insufficient.	Worn parts and improperly adjusted brakes.	See your John Deere dealer.

CP00718,00042CE-19-22AUG18

Rear-Wheel Drive (Optional)

Symptom	Problem	Solution
Central drive generates much noise.	Small bevel gear shaft bearing clearance is too large.	adjust the clearance.
	Gear meshing is not proper.	adjust meshing setting.
	Differential shaft is worn or stuck.	Replace.
	Planetary gear or gasket is worn.	Replace.
	Differential bearing is worn or damaged.	Replace.
Bearing overheats.	Bearing preloaded too much.	Readjust.
	Lubrication is not enough.	Check oil level. Refill as needed.
	Bearing or tooth surface clearance is too small.	Readjust.
Final drive generates abnormal noise.	Final drive gear meshing is not proper.	Replace.
	Bearing is worn or damaged.	Replace.
Steering is difficult.	Oil leaks from steering cylinder.	Repair or replace.
Steering fails.	Steering cylinder piston is damaged.	Replace.
Final drive oil leaks.	Rotary oil seal is damaged.	Replace.
Central drive oil leaks.	Oil seal retaining ring and lips skeleton seal are damaged.	Replace.

Symptom	Problem	Solution
Small bevel gear or helical bevel gear clashes.	Small bevel gear shaft and helical bevel gear are improperly installed.	Replace.
Rear tire wears heavily.	Rear wheel rim or spoke is severely deformed.	Repair rear wheel rim or spoke.
	Toe-in is improperly adjusted.	Adjust toe-in.
	Steering knuckle is seriously worn.	Replace pin shaft.
	Tire pressure is not enough during transport.	Inflate to specification.
	Rear drive input power is not cut off during transport.	Disconnect rear drive input power before transport.

CP00718,00042CF-19-22AUG18

Engine

Symptom	Problem	Solution
difficult or fails to switch on the engine.	There is no fuel.	Fill and bleed the fuel system.
	Primary fuel filter element is blocked.	Replace the filter element.
	There is water, dirt, or air in the fuel system.	Discharge water. Clean away the dirt. Refill oil and bleed air from the system.
	Fuel filter element is blocked.	Replace the filter element and bleed the fuel system.
	Fuel brand is not correct.	Use appropriate fuel according to the conditions of use.
	Fuel pump has the wire coupling problem.	Check fuel pump wires.
	Fuel injector nozzle is dirty or defective.	Ask professionals to repair it.
	Actuation circuit impedance is too high.	Clean and tighten battery as well as the circuit of the starter relay.
	Viscosity of engine oil is too high.	Drain it away and refill oil of suitable viscosity and quality.
	System pressure is insufficient.	Ask professionals to repair it.
Engine vibrates too much.	Engine oil is insufficient.	Fill in engine oil of suitable viscosity.
	Fuel system has gases inside.	Bleed air from the fuel system.
	Fuel pump has the problem.	Ask professionals to repair it.

Symptom	Problem	Solution
Engine operates unstably and often stops.	Injector valve is stuck.	Ask professionals to repair it.
	Engine has the internal problem.	Ask professionals to repair it.
	Coolant temperature is low.	Run the preheat engine.
	Water separator filter element is blocked.	Replace filter element.
	Fuel filter element is blocked.	Replace filter element and bleed the fuel system.
	There is water, dirt, or air in the fuel system.	Discharge water. Clean away the dirt. Refill oil and bleed the fuel system.
	Fuel injector nozzle is dirty or defective.	Ask professionals to repair it.
	Fuel pump has the problem.	Ask professionals to repair it.
Power is insufficient.	Valve push rod is bent or valve is stuck.	Ask professionals to repair it.
	Water separator filter element is blocked.	Replace filter element.
	Engine is over-heated.	Refer to "Engine is over-heated".
	Intake air is restricted.	Clean air filter.
	Fuel filter element is blocked.	Replace filter element and bleed the fuel system.
	High altitude operation is required.	With increasing altitude, engine loses part of the power. Use correct high-altitude fuel.
	Fuel injector is dirty or defective.	Ask professionals to repair it.
	Fuel pump has the problem.	Ask professionals to repair it.
Engine is over-heated.	Intake air leaks.	Check for leakage and repair.
	Coolant is insufficient.	Add sufficient coolant to radiator. Check hose or radiator for leakage. Check if joints are loose.
	There is dirt on radiator or rotary screen.	Clean radiator and rotary screen.
	Rotary screen does not move.	Drive belt is broken.

Symptom	Problem	Solution
		Drive belt is off the pulley groove.
	Fan drive belt is loose or broken.	Replace the worn drive belt.
	Scale forms in cooling system.	Drain and flush cooling system.
	Thermostat is defective.	Remove and check thermostat.
	Vacuum duct is clogged.	Clean vacuum duct.
	Fan speed is low.	Increase fan speed.
Engine oil pressure is low.	Engine oil level is low.	Check crankcase oil level and refill oil when needed.
	Engine oil brand is incorrect.	Drain the oil away. Refill engine oil of appropriate viscosity to crankcase.
	Engine oil radiator is clogged.	Ask professionals to repair it.
Engine oil consumption is too high.	Air intake system has high resistance.	Check air filter and clean air inlet.
	Engine oil leaks.	Check pipes, sealed components, and the area near the drain plug for leakage.
	Viscosity of crankcase oil is too low.	Drain the oil away. Refill engine oil of appropriate viscosity to crankcase.
	Engine oil radiator is clogged.	Clean engine oil radiator.
	Cylinder scuffs.	Ask professionals to repair it.
	Internal parts are worn.	Ask professionals to repair it.
Engine fuel consumption is too high.	Air filter is dirty or clogged.	Clean air filter.
	Fuel brand is not correct.	Use correct fuel brand according to the conditions of use.
	Fuel injector is dirty or defective.	Ask professionals to repair it.
	Engine timing fails.	Ask professionals to repair it.
Engine emits black or gray smoke.	Air filter is dirty or clogged.	Check if air filter is clogged. Clean filter element.
	Fuel brand is not correct.	Use correct fuel brand according to the conditions of use.
	Fuel injector is dirty or defective.	Ask professionals to repair it.
	Air is inside the fuel supply system.	Bleed air from the fuel supply system.

Symptom	Problem	Solution
Engine emits white smoke.	Muffler is defective.	Check if muffler is damaged that generates back pressure.
	Engine timing fails.	Ask professionals to repair it.
	Temperature of the engine block is low.	Pre-heat the engine to operating temperature.
	Fuel brand is not correct.	Fuel with the low cetane number cannot start the engine. Use fuel with correct cetane number.
	Thermostat is defective.	Remove and check thermostat.

CP00718,00042D0-19-22AUG18

Electrical System

Symptom	Problem	Solution
Battery cannot be charged.	Alternator belt is loose or defective.	Adjust the tension of the belt or replace the damaged belt.
	Wiring connections are loose or corroded.	Clean and tighten battery connections.
	Alternator or voltage regulator functions improperly.	See your John Deere dealer.
Starter starts slowly or cannot start.	Starter relay does not work.	Check the relay and wiring.
	Battery wiring connections are loose or corroded.	Clean and tighten the loose wiring connections.
	Key switch is worn or connection terminal is loose.	Key switch is worn or connection terminal is loose.
	Viscosity of engine oil is too high.	Drain the oil away. Refill engine oil of appropriate viscosity to crankcase.
	Main fuse or heater fuse blows.	Replace fuse of same specifications.
	Battery is insufficiently charged.	Charge the battery.
	Starter is defective.	Repair or replace the starter.
Alternator fails to generate power.	Wiring connections are bad or wrongly connected.	Refer to schematics and wiring diagram to check and ensure that all points are properly contacted.
	Starter coil is damaged.	Replace with a new alternator.
	Diode is damaged.	Change diode.

Symptom	Problem	Solution
Meters do not display any indications.	Brush contact is bad.	Adjust or replace it with a new carbon brush.
	Belt is too loose.	Tighten the belt.
	Wiring connections are bad.	Check and tighten screws.
	Main fuse blows.	Replace fuse of same specifications.
Light bulb is not lit.	Sensor is damaged.	Replace sensor of same specifications.
	Switch is defective or wiring connections are bad.	Replace with a new switch.
	Fuse blows or light bulb is defective.	Replace fuse and light bulb of same specifications.

CP00718,00042D1-19-22AUG18

Hydraulic System

Symptom	Problem	Solution
Slow or no hydraulics.	Oil level in the reservoir is too low.	Check oil level and add oil.
	Gear pump functions badly.	Repair or replace as needed.
	Relief valve is adjusted and sealed improperly.	Repair or replace as needed.
Header ascends or descends slowly.	Relief valve is sealed badly or is adjusted improperly.	Replace or adjust the relief valve in the control valve.
	Orifice is installed in a wrong position.	Reinstall orifice in the correct position.
	Suction pipe is badly bent and does not work smoothly.	Smoothen the pipe or replace it with a new one.
Reel fails to raise.	Coupler of oil pipe is not screwed tightly.	Tighten Coupler.
	Orifice of the control valve is blocked.	Clear the orifice of the control valve.
Hydraulic functions don't work.	Control valve is defective.	See your John Deere dealer.

CP00718,00042D2-19-22AUG18

Specifications

4LZ-9 (C120) Full-Feeder Combine

Structure type: Self-propelled full-feeder combine

Hourly productivity (hm^2/h): 0.9—1.65 (wheat), 0.8—1.3 (rice)

Theoretical operating speed (km/h): 1.05—9.8

Fuel consumption per hectare (kg/hm^2): 14—39 (wheat), 16.5—42 (rice)

Feed rate (kg/s): 9.0 (rice, wheat)

Loss rate (%): ≤ 1.2 (wheat); ≤ 3.0 (rice)

Threshing loss rate (%): ≤ 1.0 (wheat); ≤ 2.5 (rice)

Tailing content rate (%): ≤ 2.0 (wheat); ≤ 2.0 (rice)

Crushing rate (%): ≤ 1.0 (wheat); ≤ 1.5 (rice)

Cutting width (mm): 4610 (215R/215F); 5405 (218R/218F optional); 3725 (212R/212F optional)

Minimum passing radius (mm): Turn left/right 8300 (215R/215F); 8900 (218R/218F optional); 8100 (212R/212F optional)

Dimensions (mm) (L×W×H): Transport state 7230×3150×3800 (without header)

Dimensions (mm) (L×W×H): Working state 9530×5000×3800 (215R/215F); 9530×5800×3800 (218R/218F optional); 9530×4150×3800 (212R/212F optional)

Weight (kg) (mechanical belt type): 10380 (215R); 10680 (218R optional); 10060 (212R optional)

Weight (kg) (mechanical belt type): 10500 (215F); 10800 (218F optional); 10210 (212F optional)

Weight (kg) (mechanical belt type): 9180 (without header)

Weight (kg) (optional hydraulic drive type): 10770 (215R); 11070 (218R optional); 10450 (212R optional)

Weight (kg) (optional hydraulic drive type): 10890 (215F); 11190 (218F optional); 10600 (212F optional)

Weight (kg) (optional hydraulic drive type): 9570 (without header)

Mean time between failures MTBF (h): ≥ 50

Availability: $\geq 93\%$

Dynamic ambient noise dB (A): ≤ 87

Operator ear noise dB (A): ≤ 93

NOTE: 1.Hourly productivity and fuel consumption varies according to different ground status, crops, and other natural conditions. Parameters are for reference only!

2.Operating performance is the performance of combine when under the conditions of standard feed rate, no weed above the cutting line, crops upright, wheat-straw ratio of 0.6~1.2, grain moisture content of 12%~20%, rice-straw ratio of 1.0~2.4, grain moisture content of 15%~28%.

CP00718,0003947-19-15NOV17

Threshing Device

Threshing cylinder type: Tangential flow rasp bar/spike tooth

Cylinder diameter (mm): 610

Cylinder width (mm): 1020

Cylinder rotation speed (rpm): 565 ± 50 — 1150 ± 50 (CVT type)

Concave type: Grid type

Concave area (m^2): 0.52

CP00718,0003948-19-15NOV17

Separation Device

Separation mechanism type: Tine type longitudinal single axial separator

Total separation area (m^2): 1.62

Separator gear case capacity (L): 2

CP00718,0003949-19-15NOV17

Cleaning Device

Chaffer area (m^2): 1.91 (including chaffer extension)

Sieve area (m^2): 1.48

Number of fan vanes: 4

Fan type: Straight volute type

CP00718,000394A-19-15NOV17

Grain Tank and Grain Unloading

Grain unloading mode: Grain tank mechanical self-unloading

Volume (m^3): 4.2

Average grain unloading time (min): ≤ 2.5

Conveyor type: Scraper chain type

Height of grain unloading outlet/length of horizontal extension (mm): 3085/2935

CP00718,000394B-19-15NOV17

Ground Drive Device

Drive type: Front wheels drive

Steering type: Rear-wheel steering

Brake type: Hydraulic

Driving tires: 23.1-26 12PR R-2; 23.1-26 12PR R-1 (optional); 28L-26 12PR R-2 (optional)

Driving tire pressure: 1.7 bar (170 KPa)

Steering tires: 12-18 -12PR /14.9-24-R2 (rear drive)

Steering tire pressure: 4.20 bar (420 kPa)

Ground clearance (mm): 420—470

Ground driving speed (km/h): 1.05—20 (mechanical belt type)

Ground driving speed (km/h): ≤24 (optional hydraulic drive type)

Driving wheel tread (mm): 2600

Steering wheel tread (mm): 2600

Front and rear wheelbase (mm): 3717

Gearbox capacity (L): 6.6

Final drive (L): 3.1 (single side)

CP00718,000394C-19-23AUG18

Electrical System

Working voltage (V): 12 negative ground

Battery model: 6-QA-165

Start relay: JD1320

CP00718,000394D-19-15NOV17

Hydraulic System

Hydraulic system (initial filling): 25 (L)

Oil tank capacity (L): 20

Hydraulic pump model: G5-16-06-IS17S-20-L

Rated pressure (MPa): 20/20

Rated speed (rpm): 2500

Displacement (ml/rev): 16/06

Full hydraulic steering model: BZZ1-100

Relief valve opening pressure (MPa): 10

Displacement (ml/rev): 100

Control valve model: LD40-5

Relief valve opening pressure (MPa): 14.5±0.3

Flow rate (L/min): 40

Additional parameters of the optional hydraulic drive type combine are as follows:

Ground driving system fuel tank capacity (L): 33

Variable pump model: 3923-383-R1

Displacement (ml/rev): 63.7

Relief valve opening pressure (MPa): 43.8

Constant displacement motor model: 3933-118-R1

Displacement (ml/rev): 63.7

Relief valve opening pressure (MPa): 46.6

CP00718,000394E-19-15NOV17

Engine

Manufacturer: John Deere (Tianjin) Co., Ltd.

Manufacturing location: Tianjin

Engine model: 4045HYC15

Emissions: Stage III

Structure type: Inline four-cylinder four-stroke direct injection

Rated power (kW): 121

Rated speed (rpm): 2400

Maximum idling speed (rpm): 2400

Maximum torque (N·m): 552

Bore × stroke (mm): 106.5 × 127

Number of cylinders: 4

Displacement (L): 4.5

Compression ratio: 17.0 : 1

Thermostats: Open at 82°C, fully open at 95°C

Fuel consumption at rated power: 245 g/kWh

Fuel tank capacity (L): 300

Engine oil (L): 12.5

Cooling system (L): 32

CP00718,000394F-19-15NOV17

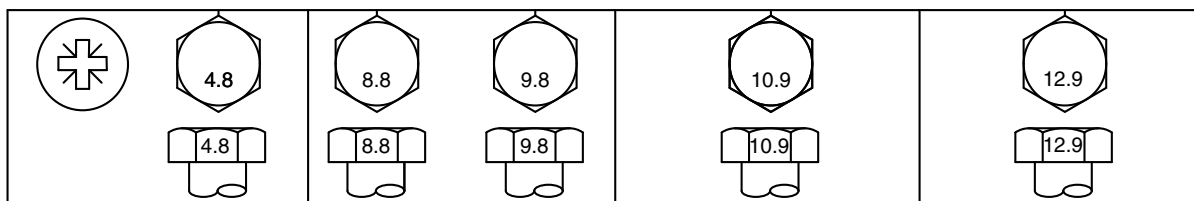
Miscellaneous

Feeding roller diameter / number of the tooth plate rows: 418 (mm)/8

Cab capacity (Person): 1

CP00718,0003950-19-15NOV17

Metric Bolt and Screw Torque Values



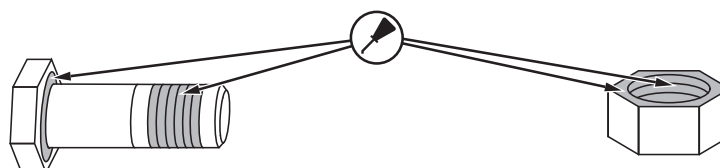
TS1742—UN—31MAY18

Bolt or Screw Size	Class 4.8				Class 8.8 or 9.8				Class 10.9				Class 12.9			
	Hex Head ^a		Flange Head ^b		Hex Head ^a		Flange Head ^b		Hex Head ^a		Flange Head ^b		Hex Head ^a		Flange Head ^b	
	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in
M6	3.6	31.9	3.9	34.5	6.7	59.3	7.3	64.6	9.8	86.7	10.8	95.6	11.5	102	12.6	112
									N·m	lb·ft	N·m	lb·ft	N·m	lb·ft	N·m	lb·ft
M8	8.6	76.1	9.4	83.2	16.2	143	17.6	156	23.8	17.6	25.9	19.1	27.8	20.5	30.3	22.3
			N·m	lb·ft	N·m	lb·ft	N·m	lb·ft								
M10	16.9	150	18.4	13.6	31.9	23.5	34.7	25.6	46.8	34.5	51	37.6	55	40.6	60	44.3
	N·m	lb·ft														
M12	—	—	—	—	55	40.6	61	45	81	59.7	89	65.6	95	70.1	105	77.4
M14	—	—	—	—	87	64.2	96	70.8	128	94.4	141	104	150	111	165	122
M16	—	—	—	—	135	99.6	149	110	198	146	219	162	232	171	257	190
M18	—	—	—	—	193	142	214	158	275	203	304	224	322	245	356	263
M20	—	—	—	—	272	201	301	222	387	285	428	316	453	334	501	370
M22	—	—	—	—	365	263	405	299	520	384	576	425	608	448	674	497
M24	—	—	—	—	468	345	518	382	666	491	738	544	780	575	864	637
M27	—	—	—	—	683	504	758	559	973	718	1080	797	1139	840	1263	932
M30	—	—	—	—	932	687	1029	759	1327	979	1466	1081	1553	1145	1715	1265
M33	—	—	—	—	1258	928	1398	1031	1788	1319	1986	1465	2092	1543	2324	1714
M36	—	—	—	—	1617	1193	1789	1319	2303	1699	2548	1879	2695	1988	2982	2199

The nominal torque values listed are for general use only with the assumed wrenching accuracy of 20%, such as a manual torque wrench. DO NOT use these values if a different torque value or tightening procedure is given for a specific application. For lock nuts, for stainless steel fasteners, or for nuts on U-bolts, see the tightening instructions for the specific application.

Replace fasteners with the same or higher property class. If higher property class fasteners are used, tighten these to the strength of the original.

- Make sure that fastener threads are clean.
- Apply a thin coat of Hy-Gard™ or equivalent oil under the head and on the threads of the fastener, as shown in the following image.
- Be conservative with the amount of oil to reduce the potential for hydraulic lockup in blind holes due to excessive oil.
- Properly start thread engagement.



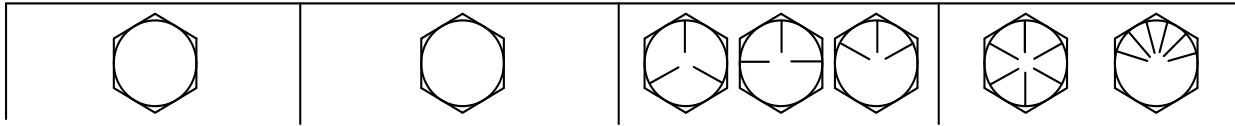
TS1741—UN—22MAY18

^aHex head column values are valid for ISO 4014 and ISO 4017 hex head, ISO 4162 hex socket head, and ISO 4032 hex nuts.

^bHex flange column values are valid for ASME B18.2.3.9M, ISO 4161, or EN 1665 hex flange products.

DX,TORQ2-19-30MAY18

Unified Inch Bolt and Screw Torque Values



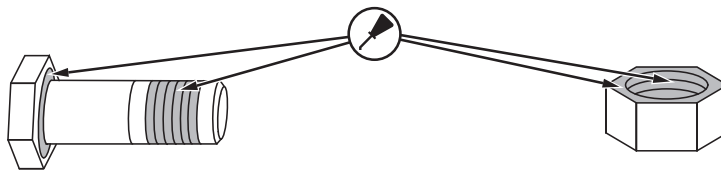
TS1671—UN—01MAY03

Bolt or Screw Size	SAE Grade 1 ^a				SAE Grade 2 ^b				SAE Grade 5, 5.1 or 5.2				SAE Grade 8 or 8.2			
	Hex Head ^c		Flange Head ^d		Hex Head ^c		Flange Head ^d		Hex Head ^c		Flange Head ^d		Hex Head ^c		Flange Head ^d	
	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in
1/4	3.1	27.3	3.2	28.4	5.1	45.5	5.3	47.3	7.9	70.2	8.3	73.1	11.2	99.2	11.6	103
5/16	6.1	54.1	6.5	57.7	10.2	90.2	10.9	96.2	15.7	139	16.8	149	22.2	16.4	23.7	17.5
3/8	10.5	93.6	11.5	102	17.6	156	19.2	170	27.3	20.1	29.7	21.9	38.5	28.4	41.9	30.9
7/16	16.7	148	18.4	163	27.8	20.5	30.6	22.6	43	31.7	47.3	34.9	60.6	44.7	66.8	49.3
1/2	25.9	19.1	28.2	20.8	43.1	31.8	47	34.7	66.6	49.1	72.8	53.7	94	69.3	103	75.8
9/16	36.7	27.1	40.5	29.9	61.1	45.1	67.5	49.8	94.6	69.8	104	77	134	98.5	148	109
5/8	51	37.6	55.9	41.2	85	62.7	93.1	68.7	131	96.9	144	106	186	137	203	150
3/4	89.5	66	98	72.3	149	110	164	121	230	170	252	186	325	240	357	263
7/8	144	106	157	116	144	106	157	116	370	273	405	299	522	385	572	422
1	216	159	236	174	216	159	236	174	556	410	609	449	785	579	860	634
1-1/8	305	225	335	247	305	225	335	247	685	505	751	554	1110	819	1218	898
1-1/4	427	315	469	346	427	315	469	346	957	706	1051	775	1552	1145	1703	1256
1-3/8	564	416	618	456	564	416	618	456	1264	932	1386	1022	2050	1512	2248	1658
1-1/2	743	548	815	601	743	548	815	601	1665	1228	1826	1347	2699	1991	2962	2185

The nominal torque values listed are for general use only with the assumed wrenching accuracy of 20%, such as a manual torque wrench. DO NOT use these values if a different torque value or tightening procedure is given for a specific application. For lock nuts, for stainless steel fasteners, or for nuts on U-bolts, see the tightening instructions for the specific application.

Replace fasteners with the same or higher property class. If higher property class fasteners are used, tighten these to the strength of the original.

- Make sure that fastener threads are clean.
- Apply a thin coat of Hy-Gard™ or equivalent oil under the head and on the threads of the fastener, as shown in the following image.
- Be conservative with the amount of oil to reduce the potential for hydraulic lockup in blind holes due to excessive oil.
- Properly start thread engagement.



TS1741—UN—22MAY18

^aGrade 1 applies for hex cap screws over 6 in (152 mm) long, and for all other types of bolts and screws of any length.

^bGrade 2 applies for hex cap screws (not hex bolts) up to 6 in (152 mm) long.

^cHex head column values are valid for ISO 4014 and ISO 4017 hex head, ISO 4162 hex socket head, and ISO 4032 hex nuts.

^dHex flange column values are valid for ASME B18.2.3.9M, ISO 4161, or EN 1665 hex flange products.

DX,TORQ1-19-30MAY18

Machine Identity and Crime Prevention Techniques

Machine Identity

JOHN DEERE			
Model	产品型号	Product Name	产品名称
		谷物联合收割机	
Product Identification Number		制造编号	
Engine Power	功率	Production Date	制造日期
	Kw	年 月 日	
Feed Rate	喂入量	Combine Weight	质量
	Kg/s		Kg
John Deere (Jiamusi) Agricultural Machinery Co., Ltd. 约翰·迪尔(佳木斯)农业机械有限公司 MADE IN CHINA 中国制造			

YC2452—19—20FEB14

Record serial number:

When ordering parts, provide the machine model and serial number on the serial number decal. Mark that number in the blank space for later use.

CP00718,00042DF-19-19DEC17

Crime Prevention Measures



YC1679—UN—06DEC12

Properly keep the proof of ownership, prevent theft, and avoid troubles.

CP00718,00042E0-19-19DEC17

Recording Identification Number



YC1680—UN—07DEC12

Record identification number:

1. Mark your machine in accordance with your unique numbering system.
2. Record product identification number (PIN) and the identification numbers of engine, chassis, pumps, and other components. Mark the product identification number (PIN) in all documents, such as insurance policy, invoices, and warranty certificate.

CP00718,00042E1-19-19DEC17

Keep Proof of Ownership



TS1680—UN—09DEC03

1. Maintain in a separate, secure location an up-to-date inventory of all product and component serial numbers.
2. Regularly verify that identification plates have not been removed. Report any evidence of tampering to law enforcement agencies and order duplicate plates.
3. Other steps you can take:
 - Mark your machine with your own numbering system

- Take color photographs from several angles of each machine

CP00718,00042E2-19-19DEC17

Parking Indoor

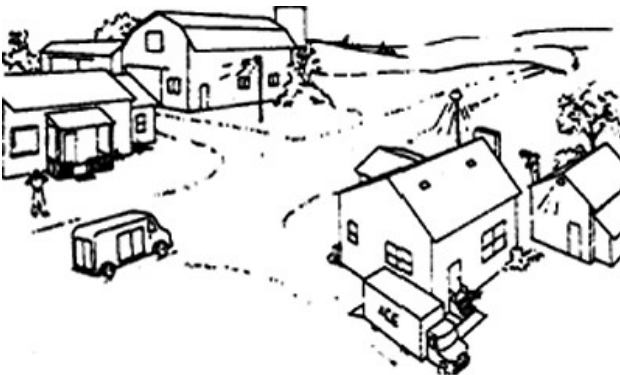


YC1682—UN—06DEC12

1. Park large equipment at the exit.
2. Lower equipment onto the ground and take out the key.
3. Remove batteries during the storage period.
4. Lock cab door, windows, and hangar door.
5. Park in a well-lit and fenced region.
6. Lower all equipment onto the ground.
7. Take out the start-up key. Remove batteries during the storage period.
8. Lock cab door, windows, and guarding devices.
9. Put the wheels in a place furthest away, so that it is difficult to mount them.

CP00718,00042E3-19-19DEC17

Avoid Damages



YC1683—UN—06DEC12

Avoid damages:

1. Install guarding devices.
2. Participate in neighborhood watch-out activities. Keep a written record of suspicious vehicles or

people. Report timely to the security or police when problems are found.

3. Check if the machine identification plate is stolen. If that is so, immediately notify the security or police. Order a copy of the identification plate from the dealer.

CP00718,00042E4-19-19DEC17

Immediately Report Theft



YC1684—UN—06DEC12

Report theft immediately:

1. Immediately notify the local security or police and insurance agent.
2. Provide a complete description of the machine, all the archived identification numbers and color photos.
3. After providing the identification numbers to any local or national crime reporting centers, request to verify the identification numbers. Verify these numbers carefully to ensure accuracy.
4. Notify the local John Deere dealer of the theft and request the publication of a detailed description and identification number of the stolen machine.

CP00718,00042E5-19-19DEC17

Loss Evaluation and Adjustment Diagrams

Limit of Grain Loss

The current minimum limit of permitted grain loss is 1 ~ 2% (harvesting wheat). This value is determined by the following factor:

1. Whether harvest conditions are normal.
2. Whether harvest time is tight.
3. Whether combine operator checks the grain loss promptly.
4. Whether combine is properly adjusted.

CP00718,00042E6-19-19DEC17

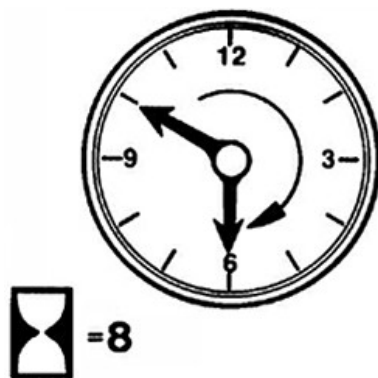
Meaning of Grain Loss

Grain loss (%)	1	2	3	4
Yield (kg/ha)	kg	kg	kg	kg
3000	30	60	90	120
4000	40	80	120	160
5000	50	100	150	200

If yield per hectare is 5000 kg, 1% grain loss equals to 50 kg loss. If adjustment is improper, combine operates at 4% loss rate, loss per hectare is 200 kg. This example shows that spending 30 minutes to adjust the combine properly can save a lot of grains.

CP00718,00042E7-19-19DEC17

First Example of Loss Calculation



4%=3200 kg

3%-2400 kg

2%-1600 kg

1%- 800kg

YC1645—UN—26NOV12

Combine works under the condition of 4% loss. If adjustment is correct, grain loss may reduce by 1%. If yield per hectare is 5000 kg, 2 hectares are harvested per hour, 16 hectares are harvested in 8 hours.

4% 16 hectares × 200 kg = 3200 kg

3% 16 hectares × 150 kg = 2400 kg

800 kg less grain is lost.

CP00718,00042E8-19-19DEC17

Second Example of Loss Calculation

In the previous example, grain loss is reduced to 3% but the loss rate is still high. By reducing driving speed, the loss can decrease to 1.5%. After reducing speed, 1.8 hectares are harvested per hour, 14.4 hectares can be harvested in 8 hours.

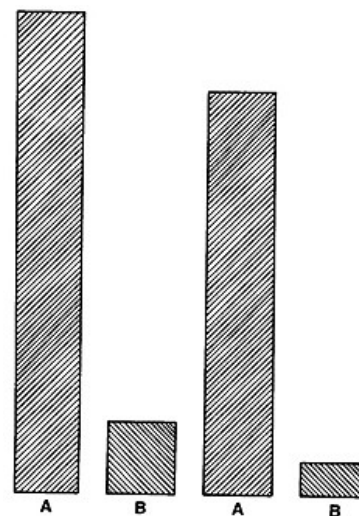
3% 16 hectares × 150 kg = 2400 kg

1.5% 14.4 hectares × 75 kg = 1080 kg

1320 kg grain loss can be reduced.

CP00718,00042E9-19-19DEC17

Example Illustration



YC1646—UN—20FEB12

A—Area covered
B—Loss percentage

8 hours 16 hectares 4% loss = 3200 kg

8 hours 14.4 hectares 1.5% loss = 1080 kg

Reduced loss = 2120 kg

Reducing grain loss of 2120 kg equals to the cost of harvesting 10 hectares.

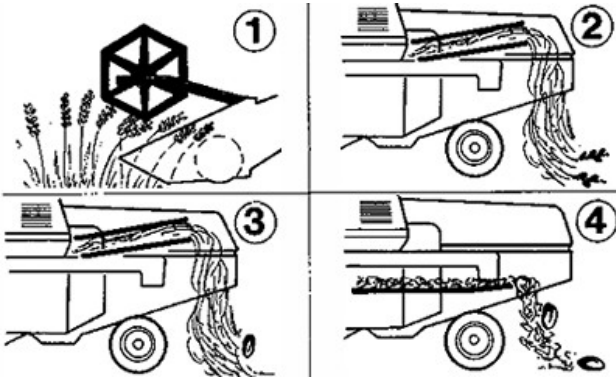
Reducing driving speed and loss appropriately can save more grains. If the operator or other personnel can check grain loss three times a day, loss can be reduced to 1 ~ 1.5%. Checking only takes half an hour.

Reducing loss by 1% means (if works 8 hours daily) saving 800 ~ 1000 kg of grains per day.

If a designated person is deployed to check loss, the harvesting result of combine is better (especially when several combines are working in the field at the same time).

CP00718,00042EA-19-19DEC17

Confirming Grain Loss



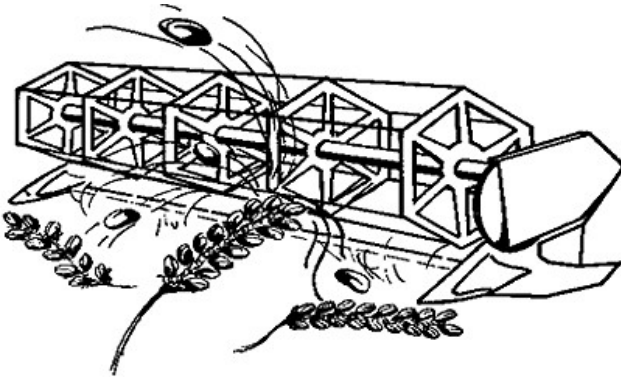
YC1647—UN—26NOV12

When combine is adjusted to its optimal, grain loss still occurs. This loss can be classified in four aspects, as follows:

1. Header loss
2. Threshing loss
3. Separation loss
4. Cleaning loss

CP00718,00042EB-19-19DEC17

Header Loss



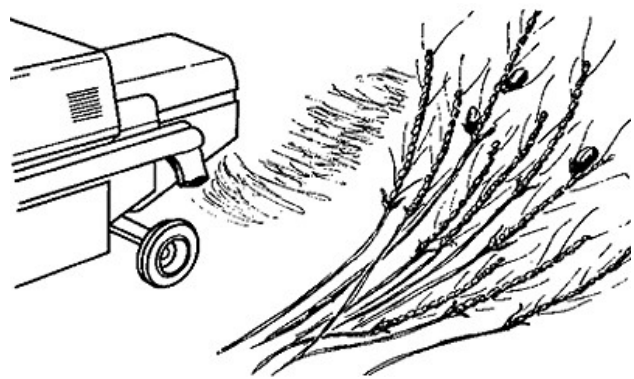
YC1648—UN—23NOV12

Header loss: It includes fallen spikes and shattered seeds blown by the reel.

The method of confirming header loss is to compare the number of grains (deduct naturally fallen grain) before and after cutting in a certain area.

CP00718,00042EC-19-19DEC17

Threshing Loss

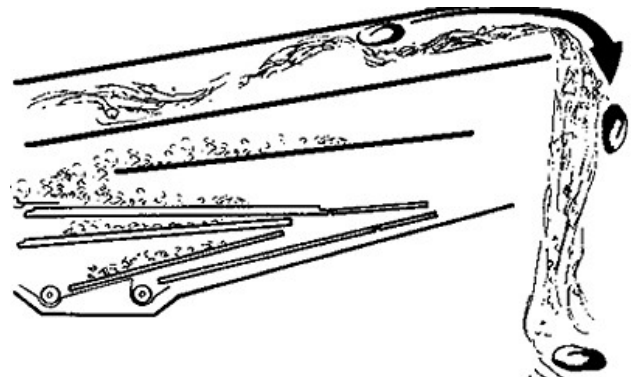


YC1649—UN—23NOV12

Threshing loss refers to non-threshed grains on spikes behind the combine. To calculate threshing loss, count the number of grains remaining on 10 threshed spikes. If three grains are found, that is equivalent to 1% loss (assuming an average of 30 grains on a spike).

CP00718,00042ED-19-19DEC17

Separation Loss



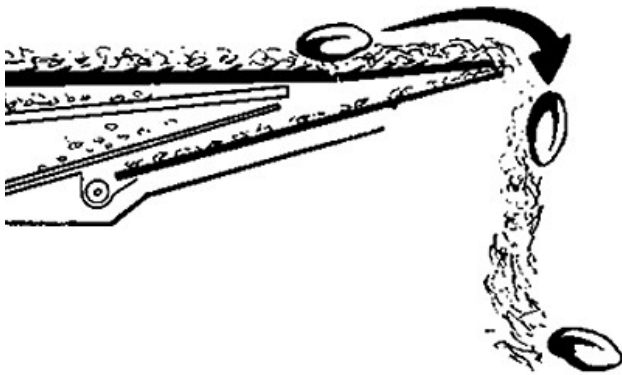
YC1650—UN—26NOV12

Separation loss is the grain mingled in stems. Insufficient threshing and excessive tailings may increase separation loss.

If after adjusting the cylinder rotation speed and threshing clearance, separation loss still does not drop, then reduce the driving speed.

CP00718,00042EE-19-19DEC17

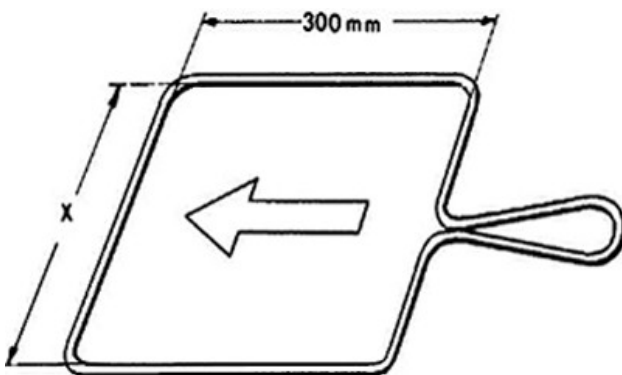
Cleaning Loss



Cleaning loss is caused by improper adjustment of chaffer, sieves, and fan, so that grains fall onto the ground after passing through the machine. If adjustment is done correctly, cleaning loss decreases.

CP00718,00042EF-19-19DEC17

Use Wire Frames to Evaluate Grain Loss: (Example A)



Use wire frames (self-made) to measure according to the method below:

Place wire frames on the ground separately in the front of the header and behind the header.

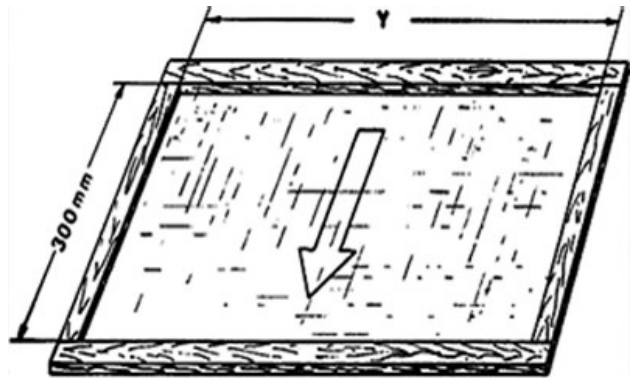
1. Count the number of grains in front of the header.
2. Count the number of grains behind the combine (within the width of separator).

When calculating loss, deduct the counted number at the front from the counted number at the rear. Multiply this value by 5. And, that is total loss.

$X = 250 \text{ mm}$

CP00718,00042F0-19-19DEC17

Use Canvas Frame to Evaluate Grain Loss: (Example B)



Using canvas frame to measure is more accurate, but it requires two people to do it.

Place canvas frame below combine (within separation width). After machine has passed, remove stems and chaff from frame. Then count the number of grains in the frame.

Y—Greater than the width of combine separation device

CP00718,00042F1-19-19DEC17

Operating Performance of Full-Feeder Crop Combine

Operating standard: The People's Republic of China Machinery Industry Standard JB/T 5117-2006

Under the conditions of standard feed rate, no weed above the cutting line, crops upright, wheat-straw ratio of 0.6—1.2, grain moisture content of 12%—20%, rice-straw ratio of 1.0—2.4, grain moisture content of 15%—28%, its performance meets the following requirements.

Items	Wheat	Rice
Model	Self-propelled	Self-propelled
Tailing content rate %	≤ 2.0	≤ 2.0
Total loss rate %	≤ 1.2	≤ 3.0
Crushing rate %	≤ 1.0	≤ 1.5

Note: Recommended test water content of the wheat stem is 10%—25%, that of rice is 20%—60%.

CP00718,00042F2-19-19DEC17

Feed Rate and Evaluation

Feed rate: refers to the total mass of all materials (crops, weeds, and so on) fed into the threshing body per unit time. It is closely related to cutting width, ground speed, yield per acre and ratio of grain/straw (ratio between the mass of grain and mass of stems, chaff, and bran of harvested materials).

Feed rate is an important indicator to measure the machine performance.

Evaluation of feed rate: Feed rate can be calculated through testing the basic data of machine and field.

Feeding rate (kg/s) = yield per acre (kg) × speed (m/s) × cutting width × (1 + grain/straw ratio) / 667

CP00718,00042F3-19-23AUG18

- Keep sieve surface clean.
- Remove rear baffle.
- Reduce chaff on the sieve surface and avoid excessive threshing. When sieves are overloaded, reduce grain on them (by reducing driving speed of combine).

CP00718,00042F4-19-19DEC17

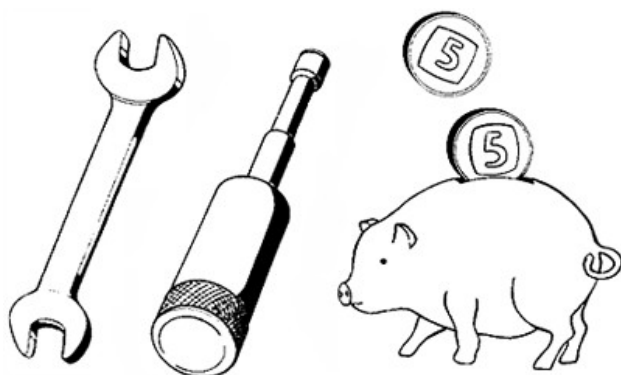
Prevent Grain Loss

Working process of combine is complicated. Factors leading to grain loss are varied. To get the best value of money, therefore, you should carefully adjust the machine according to combine diagrams and actual situations.

IMPORTANT: Separation loss of combine can be resolved by reducing the driving speed, but do not neglect adjusting other aspects to reduce loss.

Follow requirements below to reduce separation loss:

- Keep separation cylinder grid panel free of obstruction.
- Reduce weeds (lift the header).
- Avoid excessive threshing (reduce cylinder rotation speed).
- Avoid overloading the separation cylinder (reduce driving speed).



YC1654—UN—26NOV12

Follow requirements below to reduce cleaning loss:

- If broken stems accumulate on the sieve surface, increase fan speed.
- When grain is blown out of the sieve chamber, reduce fan speed.
- Use wind deflector to adjust the direction of air flow. If air is not blowing on the sieves, broken stems accumulate on sieves.
- Increase the opening degree of sieve. Lift or lower the chaffer extension (when needed, use finger-shaped chaffer according to harvest conditions).

Threshing Adjustment of Combine



YC1661—UN—27NOV12

NOTE: Combine adjustment diagrams are only for the general operating conditions. Carry out different adjustments for varied crops or operating conditions.

Opening size (X) of chaffer and sieves are measured by the method in the right diagram.

NOTE: When harvesting different crops, use dedicated harvest components. Data above are recommended values. Users should base on the ground conditions, crop varieties, and other natural conditions to adjust the combine appropriately.

CP00718,00042F5-19-19DEC17

Recommended Adjustment Diagrams



Rice

YC10887—UN—08DEC16

Rice

Cylinder speed (rpm) 500—950

Threshing clearance:

- Inlet 14 mm
- Outlet 10 mm

Chaffer adjustment 16—19 mm

Sieve adjustment 6.5—9.5 mm

Fan speed (rpm) 800—1100



Wheat

YC10886—UN—08DEC16

Wheat

Cylinder speed (rpm) 850—1100

Threshing clearance:

- Early stage inlet 7—8 mm
- Early stage outlet 4—5 mm
- Mid-late stage inlet 9—12 mm
- Mid-late stage outlet 7—10 mm

Chaffer adjustment 14—16 mm

Sieve adjustment 10—13 mm

Fan speed (r/m) 850—1100

NOTE: 1. When harvesting different crops, use dedicated harvest components. 2. Data above are recommended values. Users should base on the ground conditions, crop varieties, and other natural conditions to adjust the combine appropriately.

CP00606,00018B3-19-29MAY18

Optimization and Adjustment of Harvesting Wheat in Central Plains

IMPORTANT: Optimization and adjustment of C120 combine is recommended. Users should also base on the ground conditions, crop varieties, and other natural conditions to adjust the combine appropriately.

Optimization of combine should base on various factors, for example, crop, climate, and ground conditions. No fixed configuration can apply for all situations. To achieve the best combine operating performance and harvest quality, adjust the machine according to different local conditions. The following is about adjustment and optimization of C120 combine when harvesting wheat in central plains.

Harvesting quality is related to maintenance conditions, crop status, machine settings, and operating parameters. Read operating instructions carefully before use, and familiarize yourself with the following important information.

- Maintenance conditions.
 - Read and understand operating instructions.
 - Check belt tension.
 - Refill oil according to instructions. Regularly clean air filters and oil as well as fuel filters.
 - Check leaks from ground driving and threshing CVT disks.
 - Check if parts are operating normally.
 - Regularly clear awn and debris from the tangential flow concave and ladder.
1. Normal harvest stubble height is 15—25 cm, operating speed at middle-high speed gear two. Cutting stubble too low may affect harvest efficiency, and soil may accumulate on header, taken to threshing concave, leading to concave blockage and grain loss; If cutting stubble below 15 cm, reduce ground driving speed.
 2. When harvesting at early stage, set threshing clearance adjust handle to minimum, where concave inlet clearance is 7-8 mm and outlet clearance is 4—5 mm. If it is different, please adjust timely. Refer to operator's manual for detailed adjustment method. At early stage, it is recommended to work with small clearance. According to change in the dryness of wheat, threshing clearance may increase appropriately. Usually at later stage, recommended threshing clearance adjust handle can be placed at the second or third teeth position, inlet clearance is 9—12 mm while outlet clearance is 7—10 mm, to adapt to crop changes.
 3. When harvesting wheat, threshing cylinder, run at high speed. Recommended speed at early stage is 1000 r/m or above. At later stage, recommended speed is 850 r/m or above.

4. Wheat awn is much in central plains. Regularly clear awn and dust from the tangential flow concave and bearing plate. If cleaning is not timely enough, bearing plate and concave may be blocked, resulting in the threshing concave problem and grain loss. recommending to open side door and use iron hook for cleaning daily.
5. Timely adjust chaffer and sieve opening degree. Adjust according to cleanliness of grains in tank. Recommended chaffer opening is 14—16 mm, and sieve opening is 10—13 mm. If grains in tank are dirty, reduce chaffer opening, and increase sieve opening.
6. Adjust fan speed. If the sieve surface has much bran, grains in tank contain more tailings, cleaning loss is high. Increase fan speed to 1100 r/m; If sieve surface has not much bran, grains in tank contain fewer tailings, cleaning loss is high. Reduce fan speed to 900 r/m.

Optimization methods under special cases:

- High yield: Reduce operating speed.
- Low stubble: Reduce operating speed.
- High humidity: Reduce threshing clearance, increase cylinder speed, reduce operating speed.
- High crushing loss: Increase threshing clearance, reduce cylinder speed.
- High separation loss: Reduce threshing clearance, increase cylinder speed, reduce operating speed.
- Lots of tailings: Increase fan speed.

CP00718,00042F7-19-19DEC17

List of Easily Worn Parts and Accessories

Easily Worn Parts

IMPORTANT: Recommending to use original parts for repair and maintenance. Otherwise, machine may be damaged or machine service life may be shortened.

Serial number	Part Number	Name
1	RE504836	Engine oil filter
2	AYC18013	Hydraulic air filter
3	YC26339	Oil return pipe filter
4	YC26340	Oil return pipe filter
5	AH148879	Air filter
6	AYC21390	Battery
7	YC20022	Antifreeze (L)JDM H24
8	YC11368	V-belt 2HB4560
9	YC10136	V-belt 60 MM2660.5
10	YC10138	V-belt 2HB3813
11	YC10134	V-belt HC2422
12	YC10143	V-belt 4HB3816
13	AYC10133	V-belt 2 MOD-D3601
14	AYC10132	Belt HCC2700
15	Z46365	Belt HJ1280
16	H165708	Belt 2HB2120
17	YC10135	V-belt 2 HB2385
18	YC10137	V-belt 2 HC5231
19	YC25104	Belt HM3854
20	AYC18053	Rolling bearing UE207 (390207) GB/T 3882-1995
21	AYC18055	Rolling bearing UEL205 (390505) GB/T 3882-1995
22	AYC18059	Rolling bearing UEL310 (390610) GB/T 3882-1995
23	AYC18056	Rolling bearing UEL206 (390506) GB/T 3882-1995
24	AYC18054	Rolling bearing UE208 (390208) GB/T 3882-1995
25	AYC18067	Bearing 688910K
26	AYC18042	Deep groove ball bearing 6303-2RS1 (180303) GB/T 276-1994
27	JD9913	Roller bearing
28	AYC22839	Bearing 6205-2Z GB/T276-1994
29	JD10087	Bearing
30	AYC18076	Thrust ball bearing 51110 (8110) GB/T 301-1995
31	AYC18051	Rolling bearing UE205 (390205) GB/T 3882-1995
32	AYC18057	Rolling bearing UEL207 (390507) GB/T 3882-1995
33	AYC18058	Rolling bearing UEL208 (390508) GB/T 3882-1995
34	AYC18084	Rolling bearing 960208 (XJ208) GB/T 3882-1995
35	AYC19052	Bearing 6309-RS GB/T276-94
36	AYC18048	Rolling bearing UE202 (390202) GB/T 3882-1995
37	AYC18050	Rolling bearing UE204 (390204) GB/T 3882-1995
38	AYC18038	Deep groove ball bearing 6203-2RS1 (180203) GB/T 276-1994
39	AYC18049	Rolling bearing UE203 (390203) GB/T 3882-1995
40	AYC18052	Rolling bearing UE206 (390206) GB/T 3882-1995
41	AH86809	Bearing
42	AYC18064	Bearing 61809TN (1000809) (JD10046) GB/T 276-1994
43	AYC18065	Bearing 61818TN (1000818) (JD33012) GB/T 276-1994
44	AYC18083	Needle bearing K162220 (JD39053) GB/T 290-1998
45	AYC18066	Bearing 61822TN (1000822) (JD33015) GB/T276-1994
46	AYC18032	Deep groove ball bearing 6206-RS1 (160206) GB/T 276-1994
47	AYC10538	Chain T=38 L=107

List of Easily Worn Parts and Accessories

Serial number	Part Number	Name
48	AYC10539	Chain T=38 L=107
49	AYC10540	Chain T=19.05 L=13
50	AZ23212	Chain T=15.875 L=88
51	AYC12156	Chain T=15.875 L=56
52	AYC12428	Chain T=38 L=157
53	AYC12452	Chain T=38 L=176
54	AYC17256	Chain T=15.875 L=49
55	AYC21036	Chain 10A-1X125 GB/T 1243-2006
56	AYC21037	Chain 10A-1X75 GB/T 1243-2006
57	AYC16508	Chain T=19.05 L=53
58	AYC15360	Chains T=19.05 L=36 (includes a link)
59	AYC10635	Seal ring $\Phi 110 \times \Phi 90 \times 8$
60	Z42027	O-shaped ring 53x45x4
61	Z42028	O-shaped ring 68x60x4
62	Z42030	O-shaped ring 88x80x4
63	L53825	O-shaped ring
64	AYC22504	Seal ring
65	YC17302	O-shaped ring
66	YC23139	O-shaped ring
67	YC10667	Seal ring
68	YC23133	O-shaped ring
69	AYC19566	Seal ring
70	AYC22505	Seal ring
71	YC20339	O-shaped ring 50x3.55 GB/T 3452.1-2005
72	YC13010	Sealing washer 18 (JB1002-77)
73	YC16678	O-shaped seal ring
74	YC12806	Sealing washer 24 (JB1002-77)
75	YC12798	O-shaped seal ring 44x3.5 (GB1235-76)
76	YC12580	Sealing washer
77	YC18766	O-shaped ring $\Phi 22 \times 2.4$ GB1235-76
78	Z34562	O-shaped ring
79	51M7042	O-shaped ring
80	51M7040	O-shaped ring
81	RE278977	Start relay
82	AYC21353	Horn switch
83	AYC21368	Work light switch
84	AYC21936	FLASH switch
85	AYC21934	Wiper switch
86	AYC21935	Lighting-integrated switch ZK-2
87	AYC21370	Start-up integrated switch/key switch
88	AZ22892	Filter oil pressure switch
89	AZ34292	Magnetic switch
90	AYC13693	Handbrake light switch JK931
91	AYC10033	Magnetic proximity switch
92	AL111410	Air filter switch
93	AYC10160	Oil circuit switch
94	AYC10697	Main power switch JK861
95	AYC11302	Air-conditioning switch assembly
96	AYC14347	Hydraulic brake switch JK613B
97	AYC16124	Neutral switch KN1-223
98	AYC19001	Grain full alarm switch
99	AYC24100	Proximity switch
100	RE198505	Throttle switch

List of Easily Worn Parts and Accessories

Serial number	Part Number	Name
111	AYC23637	Tines

CP00606,00018B4-19-29MAY18

Accessories

IMPORTANT: Recommending to use original parts for repair and maintenance. Otherwise, machine may be damaged or machine service life may be shortened.

2	BYC10040	HT-10 header transporter
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CP00718,000342E-19-16OCT17

Serial number	Part number	Name
1	BYC10004	Wheat threshing device

Corn Kernel Accessories

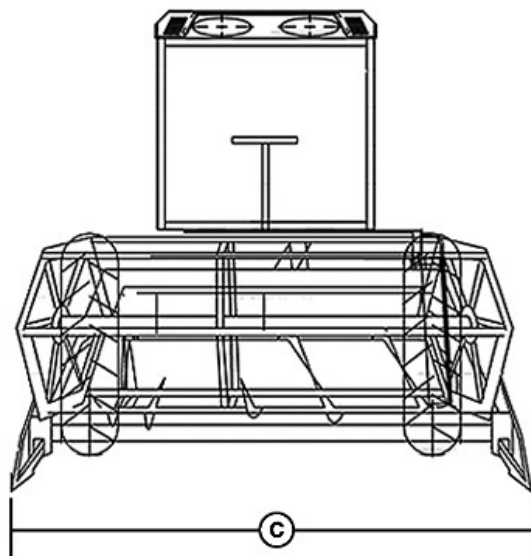
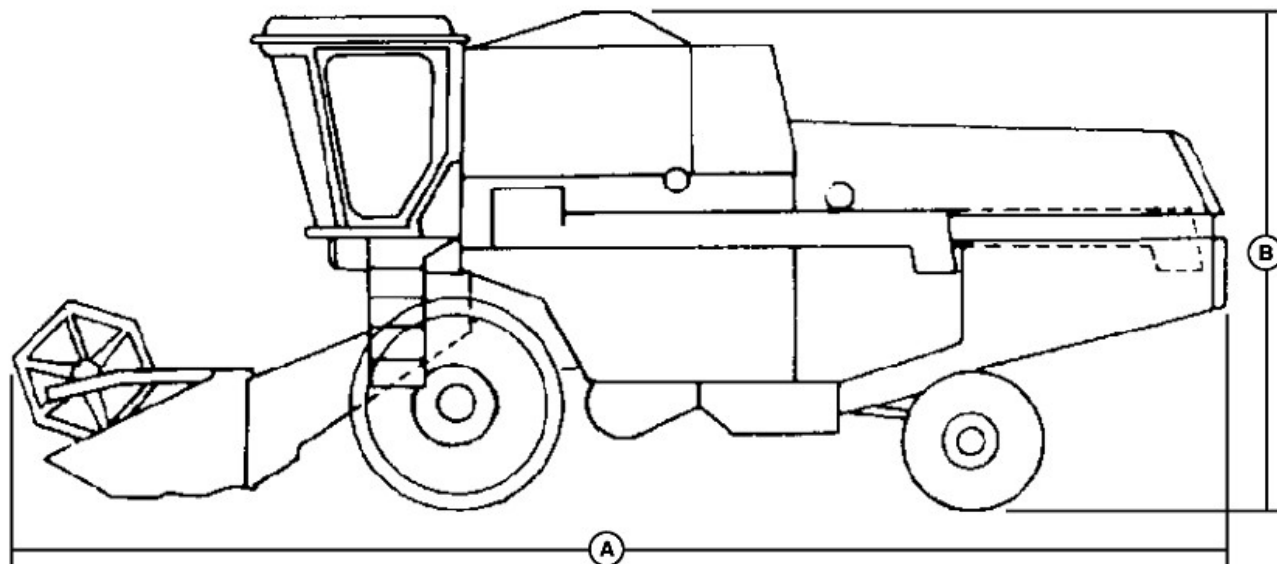
When harvesting corn kernels, change to following accessories. For changing procedures, read installation instructions: Installing Corn Harvest Components (INSYC33559).

Machine Model	Corn Harvest Component No.	Information	Remarks
C120	BDX10005	Corn Concave	NOTE: 1. Choose cylinder decelerator or cylinder chain drive; 2. 600 r/m roller driveshaft is only applicable to cylinder chain drive; 3. Recommend to use square hole sieve or long tooth sieve.
	BDX10040	Soybean, Corn Functional Components (used for adjustable speed gear case)	
	BYC10043	Soybean, Corn Functional Components (used for non-adjustable speed gear case)	
	BYC10037	Cylinder Decelerator	
	BYC10045	Cylinder Chain Drive	
	BYC10048	Cylinder Closure Plate	
	BYC10051	Stone Trap Cover	
	BYC10053	Hex Shaft	
	BYC10081	Feeder House Chain Drive	
	BDX10014	Square Hole Sieve	
	BDX10044	Long Tooth Sieve	
	BDX10008	600 r/m Roller Drive Wheel	
	BDX10017	Corn Comb Separation Concave	

CP00606,00018B5-19-29MAY18

Dimensions

Dimension Diagrams



A—9530 mm (with header); 7230 mm (without header)
B—3800 mm

C—5000 mm (215R/215F); 5800 mm (218R/218F optional); 4150 mm (212R/212F optional); 3150 mm (without header)

YC7890—UN—24DEC14

CP00718,0003442-19-14NOV17

Combine Configuration Table

Configuration Table

Harvest quality can be improved by changing different components.

IMPORTANT: The following is for reference. Use different configurations according to the actual situation.

Model	Main Applications	Main Configurations	Main Features	Main Machine Sales Code	Comments
C120	Mainly applies to rice and wheat areas	Rice threshing device, rod tooth separation cylinder + grid separation concave	Mainly for harvesting rice, can harvest wheat after changing to the wheat threshing cylinder (BDX10012)	0161YC01-- 0161YC06 0162YC01-- 0162YC06 0163YC01-- 0163YC06	If wheat needs to be harvested shortly after rain, that is, to harvest wheat with raindrops on stems, then change the first piece of grid concave at the front of separation concave to comb concave. The configuration is separation concave front comb concave plus rear grid concave. Comb concave component bundle number: BDX10035
	Mainly applies to harvesting wheat first and then rice areas	Wheat threshing device, rod tooth separation cylinder + grid separation concave	Mainly for harvesting wheat and barley, can harvest rice after changing to the rice threshing cylinder (BDX10013)	0161YC13-- 0161YC18 0162YC09-- 0162YC10 0163YC13-- 0163YC18	
	Mainly applies to wheat and soybean and a small number of corn areas	Wheat threshing cylinder, rod tooth separation cylinder + comb separation concave	Mainly harvest wheat and barley, can harvest soybean and small amount of corn after changing to soybean and corn accessories and header	0161YC07-- 0161YC12 0162YC07-- 0162YC08 0163YC07-- 0163YC12	
	Mainly used in Xinjiang and Heixi area to harvest corn and wheat. To harvest rice, it is recommended to buy rod tooth separation cylinder model.	Wheat threshing cylinder, plate tooth separation cylinder + comb separation concave	Mainly harvest wheat and barley, can harvest soybean and corn after changing to soybean and corn accessories and header, millet can also be harvested after appropriate adjustments	0161YC19-- 0161YC24 0162YC07-- 0162YC08 0163YC19-- 0163YC24	
	Mainly applies to corn kernel areas	Corn kernel harvest model	Harvest corn kernels mainly, can harvest soybeans if equipped with flexible cutting table	All grain harvest model	Refer to Operator's Manual (OMDX12937)

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