

4LZ-7(C110) Full-feeding Combine Harvester



OPERATOR'S MANUAL 4LZ-7(C110) Full-feeding Combine OMYC27467 ISSUE H6 (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.

约翰迪尔 (佳木斯) 农业机械有限公司

English version
在中国打印



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.

C110 combine harvester is a medium-sized, unconventional combine harvester. This machine adopts the international advanced CTS technology: intermittent-flow threshing cylinder + single-axial-flow spike tooth separation cylinder structure. The advantages are to enhance the performance of threshing and separation and to reduce the crushing rate of grain. 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 and rapeseed, etc. Its harvesting performance is at a leading position among other models in the domestic market. Its price performance ratio is higher than the others.

C110 adopts rear-wheel driving device. That is developed by John Deere (Jiamusi) Agricultural Machinery Co., Ltd. to improve the driving performance of C110 in muddy fields. This manual provides information about installation of main components, routine service, troubleshooting and certain component diagrams as well as parts numbers, etc. Reading this manual carefully is very essential for the proper use of this machine in good conditions and for its satisfactory performance throughout its service life.

C110 driving mode is of mechanical belt drive type. Users can also choose 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, so as 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, so as 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, etc. 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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CP00606,0000B41 -19-25FEB16-1/1

Illustrations

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

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

The **units of measurement** in this manual are metric units. Please pay attention when using imperial components, i.e. use correct parts and fasteners when replacing components. Special imperial or metric wrenches 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 code

Accurately record the product identification code. If the machine is lost, it can be traced. And, the code facilitates purchase of accessories. Please place the machine

identification code 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, please refer to the warranty service 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 the amount of fuel supply exceeds specified value or the engine is overloaded by other means, warranty services also become invalid.

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

CP00596,000063A -19-13FEB14-1/1

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A John Deere ILLUSTRATION™ Manual

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Safety Instructions and Safety Signs

Recognize Safety Information

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 -19-29SEP98-1/1

T81389 —UN—28JUN13

Understand Signal Words

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.

 **DANGER**

 **WARNING**

 **CAUTION**

DX,SIGNAL -19-03MAR93-1/1

TS187 —19—30SEP88

Follow Safety Instructions

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 -19-16JUN09-1/1

TS201 —UN—15APR13

Use Proper Tools

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.



TS779 —UN—08NOV89

DX,REPAIR -19-17FEB99-1/1

Practice Safe Maintenance

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 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.



TS218 —UN—23AUG88

DX,SERV -19-17FEB99-1/1

Remove Paint Before Welding or Heating

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 -19-24JUL02-1/1

TS220 —UN—15APR13

Handle chemical products safely

Direct exposure to hazardous chemicals can cause serious injury. Potentially hazardous chemicals used with John Deere equipment include such items as lubricants, coolants, paints, and adhesives.

A Material Safety Data Sheet (MSDS) provides specific details on chemical products: physical and health hazards, safety procedures, and emergency response techniques. Check the MSDS before you start any job using a hazardous chemical. That way you will know exactly what the risks are and how to do the job safely. Then follow procedures and recommended equipment. (See your John Deere dealer for MSDS's on chemical products used with John Deere equipment.)



OUYC401,000037B -19-13MAR12-1/1

YC1283 —UN—29NOV12

Avoid Heating Near Pressurized Fluid Lines

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.



TS953 —UN—15MAY90

DX,TORCH -19-10DEC04-1/1

Avoid High-Pressure Fluids

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.

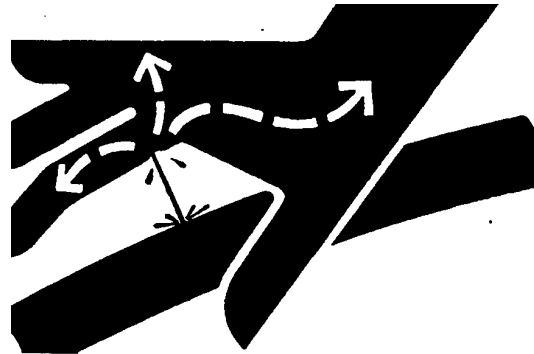
Replace worn or damaged hose assemblies immediately with John Deere approved replacement parts.

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



X9811 —UN—23AUG88

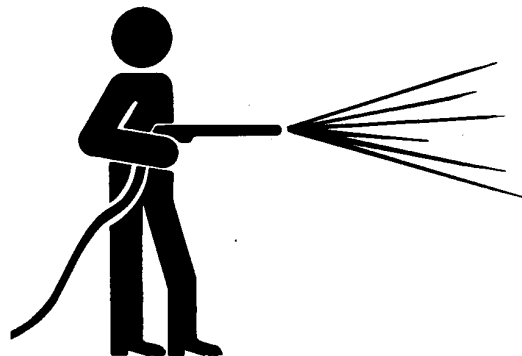
with this type of injury should reference a knowledgeable medical source. Such information is available in English from Deere & Company Medical Department in Moline, Illinois, U.S.A., by calling 1-800-822-8262 or +1 309-748-5636.

DX,FLUID -19-12OCT11-1/1

Work in Clean Area

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.



T6642EJ —UN—18OCT88

DX,CLEAN -19-04JUN90-1/1

Dispose of Waste Properly

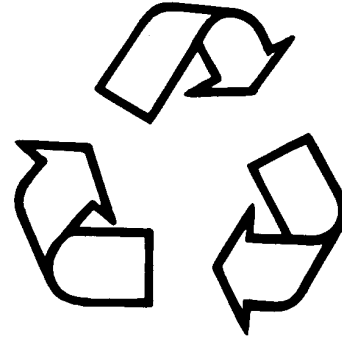
Improperly disposing of waste can threaten the environment and ecology. Potentially harmful waste used with John Deere equipment include such items as oil, fuel, coolant, brake fluid, filters, and batteries.

Use leakproof containers when draining fluids. Do not use food or beverage containers that may mislead someone into drinking from them.

Do not pour waste onto the ground, down a drain, or into any water source.

Air conditioning refrigerants escaping into the air can damage the Earth's atmosphere. Government regulations may require a certified air conditioning service center to recover and recycle used air conditioning refrigerants.

Inquire on the proper way to recycle or dispose of waste from your local environmental or recycling center, or from your John Deere dealer.



DX,DRAIN -19-03MAR93-1/1

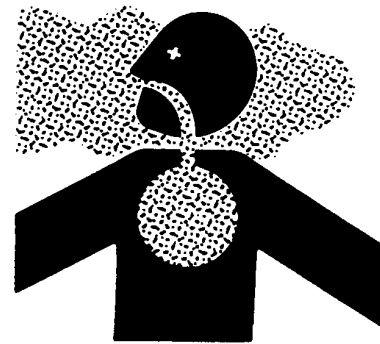
TS1133 —UN—15APR13

Avoid Harmful Asbestos Dust

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 -19-15MAR91-1/1

TS220 —UN—15APR13

Avoid Hot Exhaust

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 -19-20AUG09-1/1

RG17488 —UN—21AUG09

Handle Starting Fluid Safely

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.



TS1356—UN—18MAR92

DX,FIRE3 -19-16APR92-1/1

Handle Fluids Safely—Avoid Fires

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.

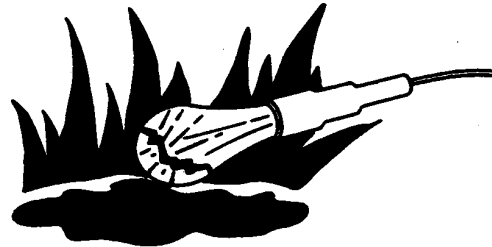


TS227—UN—15APR13

DX,FLAME -19-29SEP98-1/1

Illuminate Work Area Safely

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.



TS223—UN—23AUG88

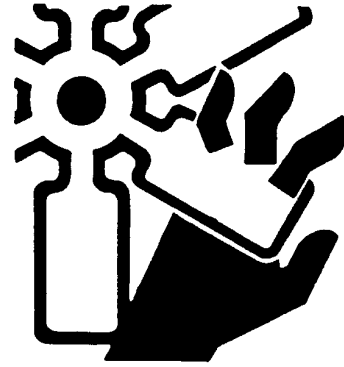
DX,LIGHT -19-04JUN90-1/1

Install All Guards

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.



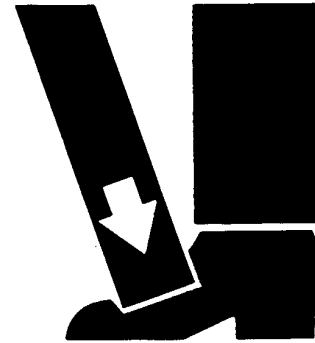
DX, GUARDS -19-18AUG09-1/1

TS677 —UN—21SEP89

Use Proper Lifting Equipment

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 -19-04JUN90-1/1

TS226 —UN—23AUG88

Live With Safety

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



DX, LIVE -19-25SEP92-1/1

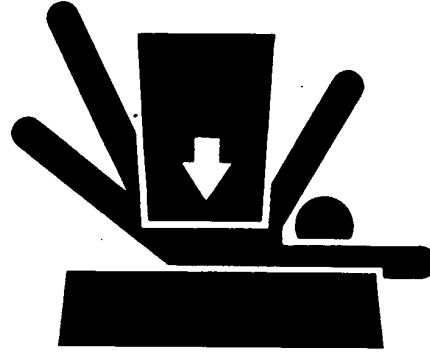
TS231 —19—07OCT88

Support Machine Properly

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. 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.



TS229 —UN—23AUG88

DX,LOWER -19-24FEB00-1/1

Prevent Acid Burns

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:

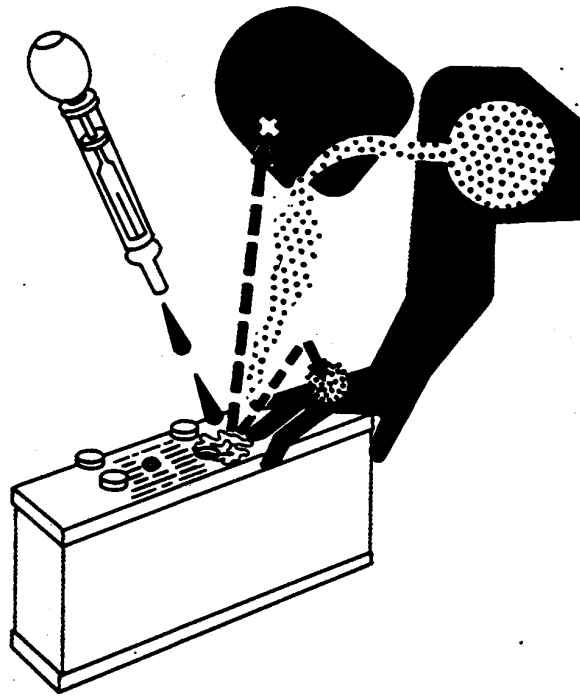
1. Filling batteries in a well-ventilated area.
2. Wearing eye protection and rubber gloves.
3. Avoiding breathing fumes when electrolyte is added.
4. Avoiding spilling or dripping electrolyte.
5. Use proper jump start procedure.

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.



TS203 —UN—23AUG88

DX,POISON -19-21APR93-1/1

Replace Safety Signs

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 -19-18AUG09-1/1

TS201 —UN—15APR13

Service Accumulator Systems Safely

Escaping fluid or gas from pressurized hydraulic accumulator 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 hydraulic system before removing accumulator. Never attempt to relieve hydraulic system or accumulator pressure by loosening a fitting.

Accumulators cannot be repaired.



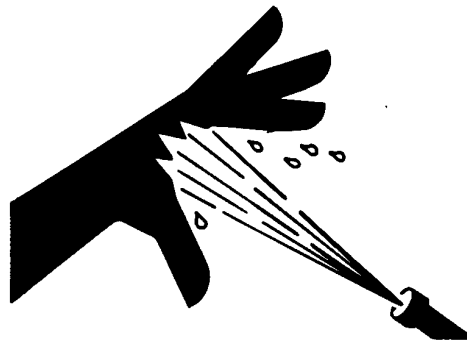
DX,WW,ACCLA -19-15APR03-1/1

TS281 —UN—15APR13

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.

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

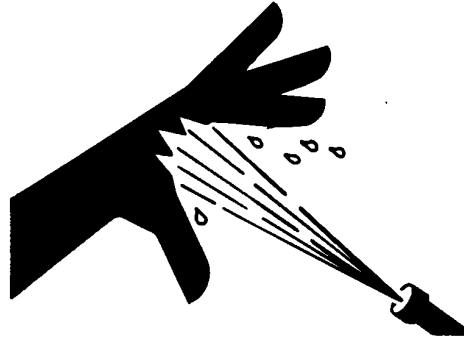


DX,WW,HPCR1 -19-07JAN03-1/1

TS1343 —UN—18MAR92

Wait Before Opening High-Pressure Fuel System

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, wait a minimum of 15 minutes after engine is stopped.



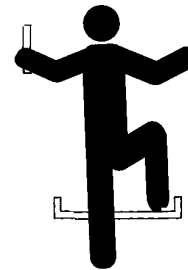
TS1343 —UN—18MAR92

DX,WW,HPCR2 -19-07JAN03-1/1

Use Steps and Handholds Correctly

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.



T133468 —UN—15APR13

DX,WW,MOUNT -19-12OCT11-1/1

Drive the machine

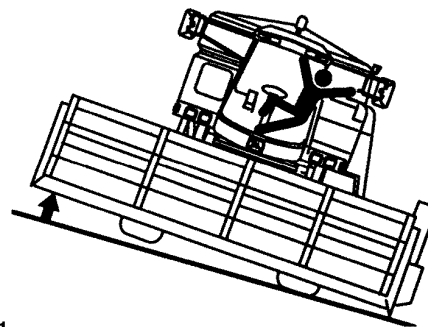
Operate the machine only when all machine guards in place.

Before starting, pay attention to the surrounding situation of the machine (such as if any child is around). Make sure that view is unobscured. Before starting the machine, press horn as a warning.

Driving speed should match road or field conditions. When driving up or down a slope, never make a sharp turn. Be especially careful when turning on slopes with full grain tank.

Follow instructions in the Operator's Manual of cutter when attaching or detaching the cutter.

When making turns, always take into consideration 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 harvester.



ZX002461

ZX002461 —UN—16JUN95

Reduce driving speed when driving on slopes and uneven roads as well as before making a sharp turn. Set low gear before driving down a steep slope.

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

CP00596,000095F -19-17DEC14-1/1

Never take other passengers or children.

Only the operator is allowed to work 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. Moreover, riders may block operator's view, hindering the safe operation of machine.

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

Trainer's seat is only for training or short periods of observation. It is not for children use.



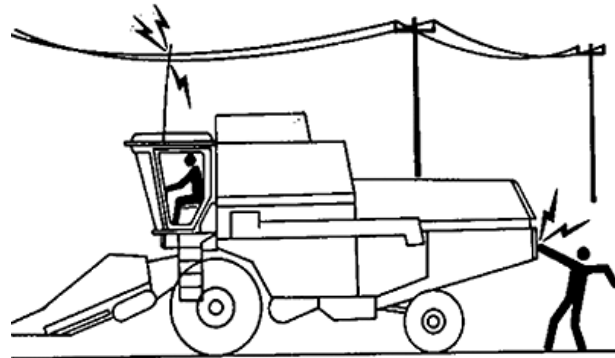
TS253 —UN—23AUG88

CP00596,0000960 -19-17DEC14-1/1

Avoid cables

Before riding on the road, set the grain unloading cylinder to the transport state and lock it firmly.

When riding through the low-hanging cables in the transport state, ensure that a safe distance is kept between the highest point of the machine and the cables. Absolutely avoid touching and electric shock.



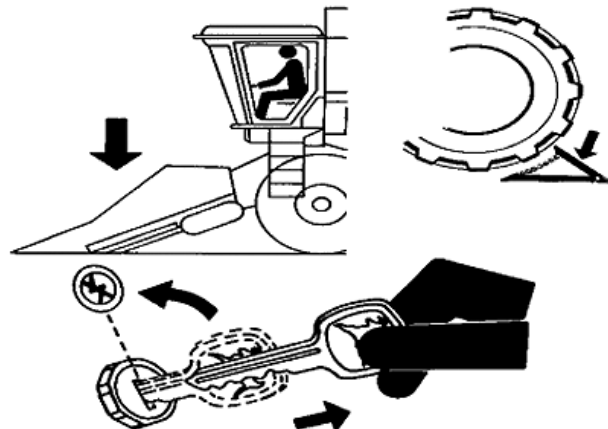
YC1287 —UN—29NOV12

OUYC401,0000393 -19-13MAR12-1/1

Park the harvester safely

Before leaving the harvester, you should:

- lower the cutter on the ground.
- switch off the engine and get the key out.
- apply hand brake and disconnect the battery grounding line.
- hang NOT TO BE USED sign in the cab.



YC1288 —UN—29NOV12

OUYC401,0000394 -19-19MAR12-1/1

Handle Fuel Safely—Avoid Fires

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.



TS202 —UN—23AUG88

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

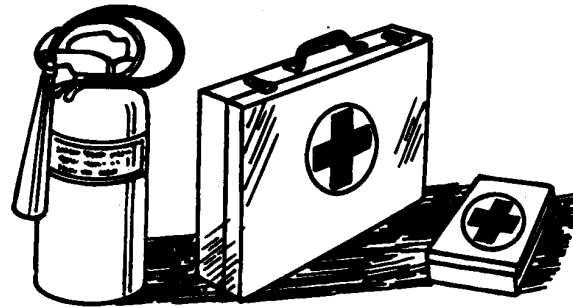
DX,FIRE1 -19-12OCT11-1/1

Prepare for Emergencies

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.



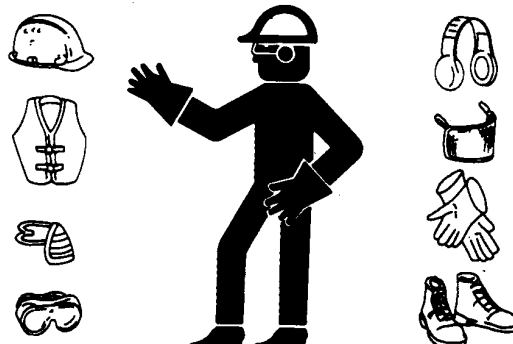
TS291 —UN—15APR13

DX,FIRE2 -19-03MAR93-1/1

Wear Protective Clothing

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

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



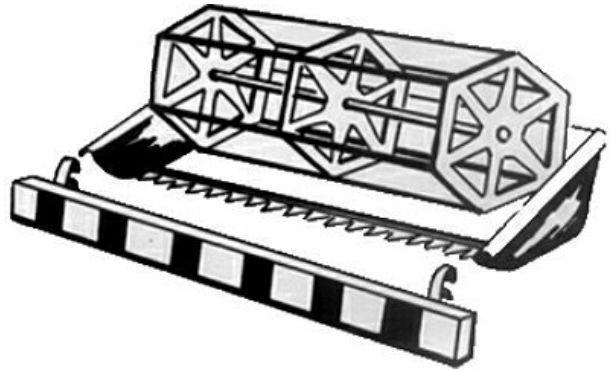
TS206 —UN—15APR13

DX,WEAR2 -19-03MAR93-1/1

Transport harvester with cutter safely

Provided that traffic regulations allow for transportation with cutter, dismount the wheat separator and put the guard on the blade protection device.

Lift the cutter before riding on the road, but do not block the sight of the operator.



YC1290 —UN—29NOV12

OUYC401,0000398 -19-13MAR12-1/1

Transport harvester without cutter safely

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



YC1291 —UN—29NOV12

OUYC401,0000399 -19-13MAR12-1/1

Transport position of steps

Before transporting, fold up the steps of the cab and fix them in the position as shown in the diagram.



YC1292 —UN—05JAN13

OUYC401.000039A -19-13MAR12-1/1

Transport position of grain unloading cylinder

Before transporting, unload all the grain inside the cylinder. Fold the unloading auger to its transport position and lock it firmly.

When the harvester is riding on roads, turn the grain unloading cylinder back to its transport state. Otherwise, it may collide with roadside objects (e.g. utility poles and street lamps, etc.).

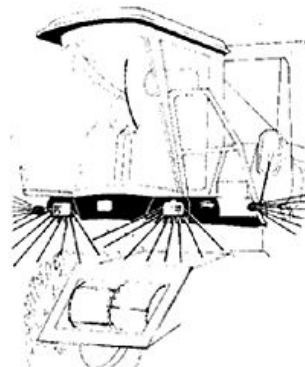


YC2201 —UN—02AUG12

OUYC401.000039B -19-03MAR13-1/1

Transport lights

Check if the transport lights are in proper positions and are functioning normally.



YC1294 —UN—05JAN13

OUYC401.000039C -19-13MAR12-1/1

Drive on a slope

Be particularly cautious when driving on a slope so as to prevent the combine harvester from rolling over. Never use neutral gear when driving the combine harvester on a slope.



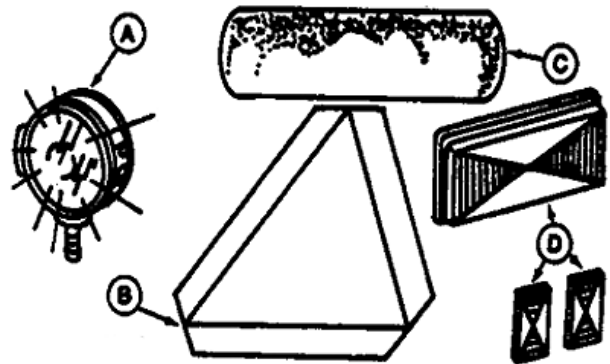
YC1295 —UN—29NOV12

OUYC401,000039D -19-13MAR12-1/1

Use safety lights and devices

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.



YC1601 —UN—29NOV12

OUYC401,000039E -19-13MAR12-1/1

Do not get close to the cutter

Many moving parts, such as: central auger of the cutter, reel, wing-shaped conveyor and pulling stalk rolls of the corn cutter, due to their functional needs, cannot be totally covered by guards. When these parts are running, do not get close to them. Before servicing and clearing blockage of the cutter, separate the cutter drive belt clutch, switch off the engine and get the key out.



YC1602 —UN—29NOV12

OUYC401,000039F -19-13MAR12-1/1

Keep hands away from blades

Do not remove obstacles on the cutter before separating the threshing clutch, switching off the engine and getting out the key.

Before starting the harvester, make sure bystanders are away from the machine.

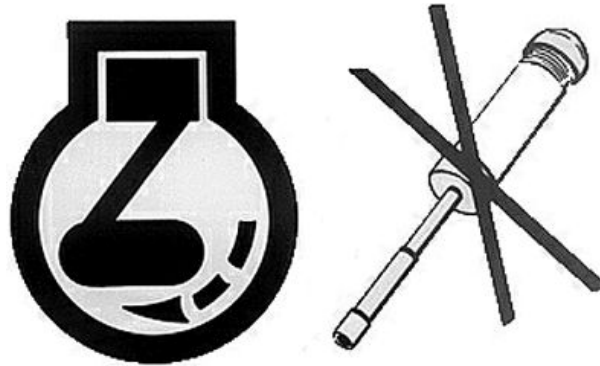


YC1603 —UN—29NOV12

OUYC401,00003A0 -19-13MAR12-1/1

General maintenance

Switch off the engine before carrying out lubrication and calibration.



YC1605 —UN—29NOV12

OUYC401,00003A2 -19-13MAR12-1/1

Avoid touching moving parts

Keep hands, feet and clothing away from the moving parts. When the machine is at work, do not carry out lubrication and calibration.



YC1606 —UN—29NOV12

OUYC401,00003A3 -19-13MAR12-1/1

Cleaning grain tank

Avoid serious injury or death from entanglement in the grain tank cross augers. For functional purposes the cross augers cannot be completely covered. Do not enter the grain tank when the engine is running.

Before entering the tank to clean out residual grain, always shut off the engine, set parking brake and remove the key.



YC1607 —UN—29NOV12

OUYC401,00003A4 -19-14MAR12-1/1

Stay away from the chopper

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 get the key out. Wait until the moving parts stop spinning and then carry out maintenance of the chopper.

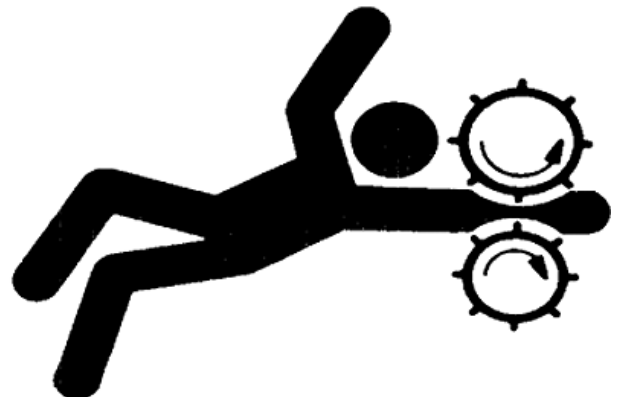


YC1608 —UN—29NOV12

OUYC401,00003A5 -19-14MAR12-1/1

Service machines safely

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 get the key out. Wait until the moving parts stop spinning and then carry out maintenance of the chopper.

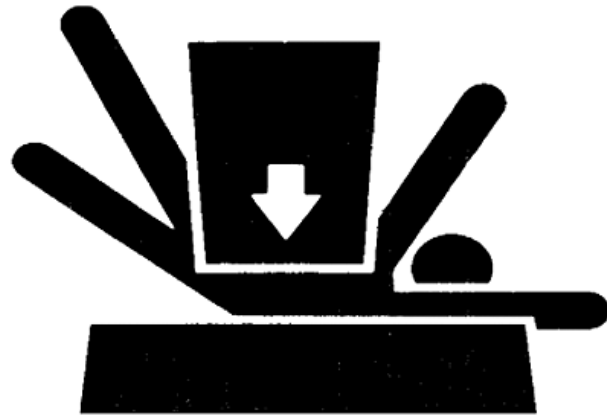


YC1609 —UN—29NOV12

OUYC401,00003A6 -19-14MAR12-1/1

Support harvester properly

Lower accessory or apparatus onto the ground. If you have to lift the harvester or accessory, always support them safely. Do not use cinder bricks, hollow bricks, or other materials that will break under sustained loading to support the harvester. Do not work on the harvester which is only supported by one jack. Comply with the procedures recommended in this manual.

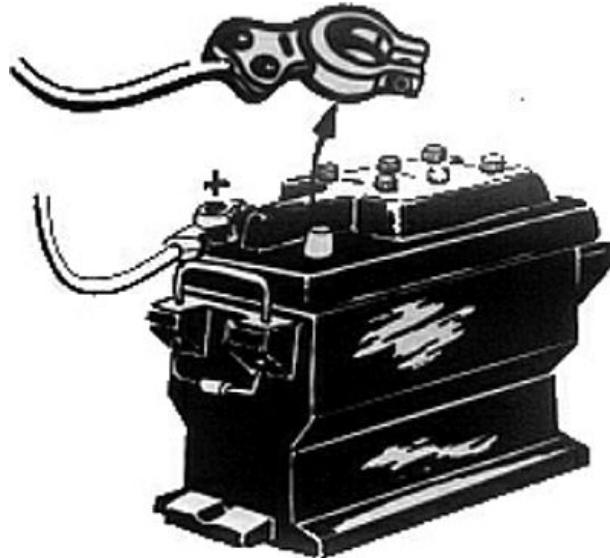


YC1610—UN—29NOV12

OUYC401,00003A7 -19-14MAR12-1/1

Maintenance of electrical parts

When carrying out maintenance of the combine harvester electrical parts, first separate the battery grounding wire.



YC1611—UN—29NOV12

OUYC401,00003A8 -19-14MAR12-1/1

Handling Batteries Safely

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.

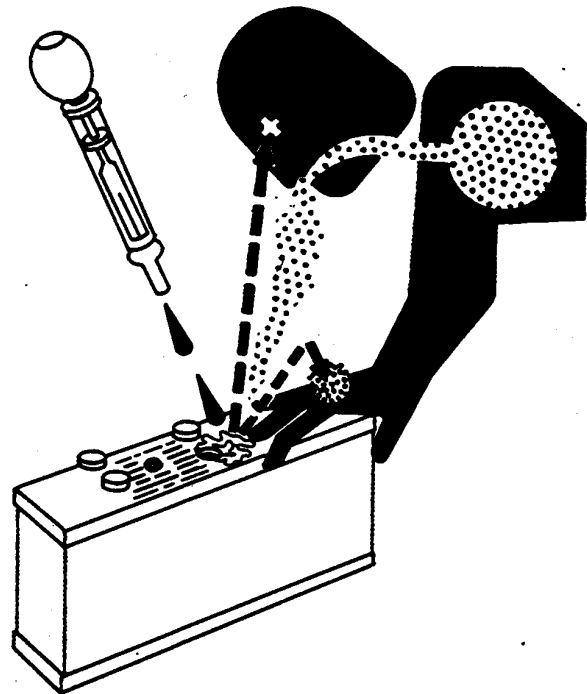
If acid is spilled on skin or in eyes:

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.**



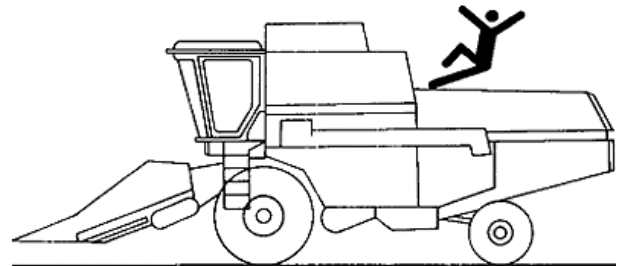
TS204 —UN—15APR13

TS203 —UN—23AUG88

DX,WW,BATTERIES -19-02DEC10-1/1

Service engine

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



YC1612 —UN—29NOV12

OUYC401,00003AB -19-14MAR12-1/1

Clear accumulated tailings

Chaff and tailings accumulated around engine compartment, on the engine and around moving parts may catch a fire. Always check and clean those areas. Before performing any checks or maintenance, switch off engine, apply parking brake and remove key.



TS227 —UN—15APR13

CP00596,0000961 -19-17DEC14-1/1

Service cooling system safely

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.



TS281 —UN—15APR13

OUYC401,00003AD -19-14MAR12-1/1

Service Tires Safely

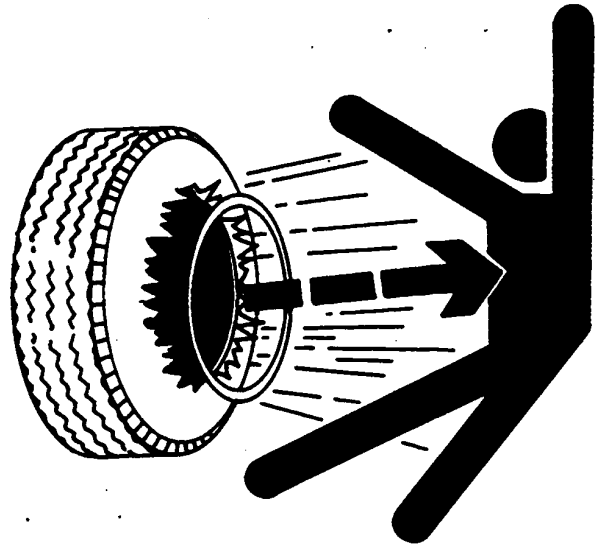
Explosive separation of a tire and rim parts can cause serious injury or death.

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.



TS211 —UN—15APR13

DX,RIM -19-24AUG90-1/1

Re-tighten nuts of front and rear wheels

Refer to "Regular maintenance" section and re-tighten the nuts and bolts of front and rear wheels. Otherwise, the wheels may fall off and the machine may roll over, causing serious injury to the operator and excessive damage to the machine.



YC2754 —UN—11DEC12

CP00596,0000963 -19-17DEC14-1/1

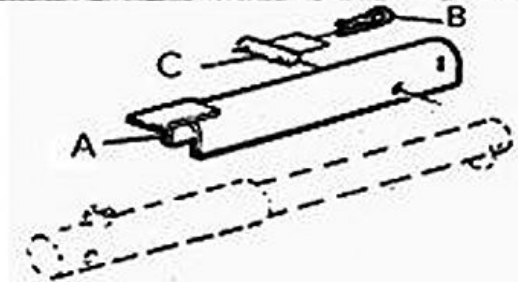
Lock the feeder house lift cylinder safety stops

When transporting with cutter or working in the cutter or feeder house, to avoid personal injury due to cutter fall, always lock the lever to control the height of the cutter, and install the feeder house lift cylinder safety stops (A). Follow the steps below:

- 1 — Lift the feeder house to the highest position. Stop the machine and get the key out.
- 2 — Support center of feeder house using appropriate safety stands.
- 3 — Pull out spring pins (B) at both sides of feeder house safety stop. Remove lock pin (C).
- 4 — Place lift cylinder safety stop over cylinder rod. Install lock pin (C) and pins (B).

Before lowering feeder house, attach lift cylinder safety stop (A) in stowed position. Follow these steps: Pull out spring pins (B) at both sides of safety stop. Remove lock pin (C). Lift safety stop and insert lock pin (C). Insert spring pins (B) on both sides of lock pin.

A—Feeder house lift cylinder safety stops
B—Spring pin
C—Lock pin

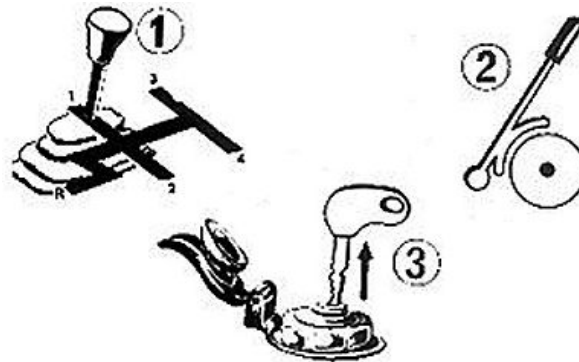


YC1615—UN—29NOV12

OUYC401,00003B0 -19-14MAR12-1/1

Park machine safely

1. Select neutral position of the gear or move the hydraulic driven control handle to the zero position.
2. Engage parking brake.
3. Get the engine switch key out or pull out the close button.
4. Place the cutter reel to the lowest position.
5. Hydraulic oil in other oil tanks should return to the reservoir.

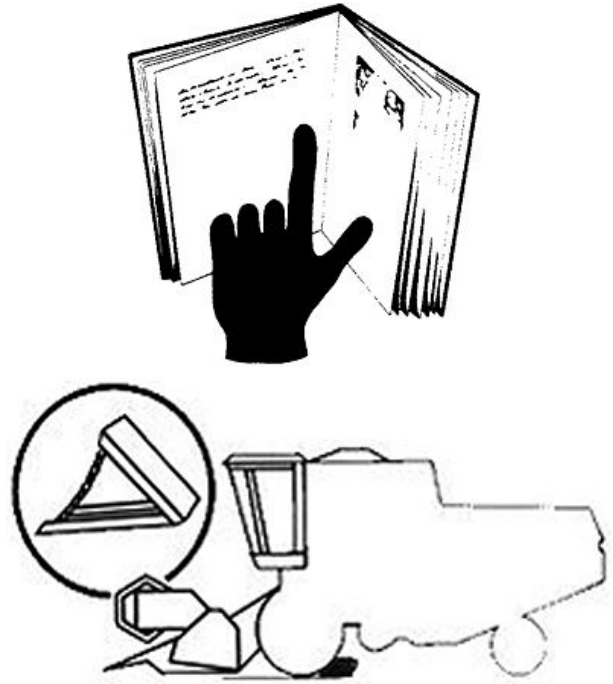


YC1616—UN—29NOV12

OUYC401,00003B1 -19-14MAR12-1/1

Park combine harvester safely

When the combine harvester is parked on a slope, place chock before or after the front wheels.



YC3601—UN—24APR13

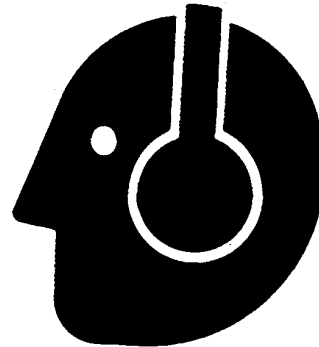
YC1617—UN—29NOV12

OUYC401,00003B2 -19-27DEC12-1/1

Protect Against Noise

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.

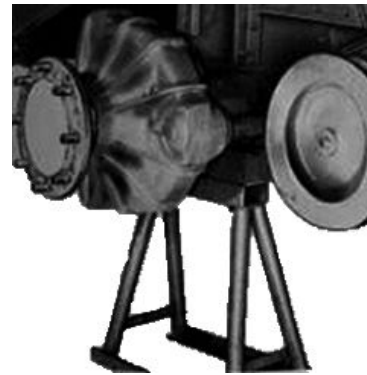


TS207—UN—23AUG88

DX,NOISE -19-03MAR93-1/1

Use and precautions of hydraulic jacks

1. Before lifting, insert the slotted end of the handle into the returning oil valve stem. And, 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 counter clockwise direction. The piston rod will descend slowly. If there is loading, the oil returning valve stem should not be turned too quickly. Otherwise, it is dangerous because of the fast rate of descend.
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 at appropriate locations underneath, so as to avoid any danger caused by jack failure. (as shown in the diagram)
7. When using the jack, avoid abrupt vibrations.
8. Use jacks to lift the combine harvester and use frames to support it firmly. (As shown in the diagram, the frames can be self-made.)



YC1618—UN—17FEB12

YC1619—UN—17FEB12

YC1620—UN—17FEB12

OUYC401,00003B4 -19-14MAR12-1/1

Support front axle

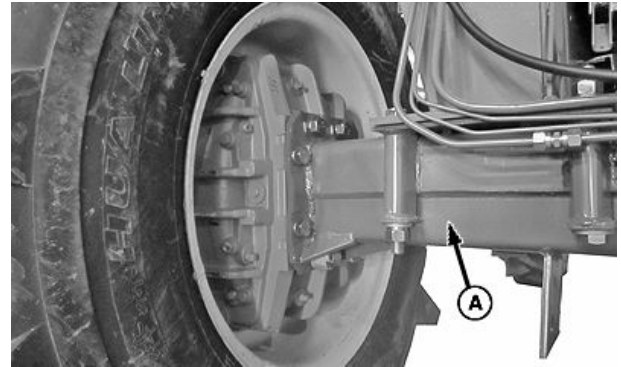
CAUTION: The machine is heavy. If it falls or rolls over, serious injury and death may be caused to you or others. In case there are no grains in the grain cylinder, the machine must rest on a flat and level surface with gear set in neutral position. Engage parking brake and get the key out. Secure the rear wheels.

IMPORTANT: Damage to machine can be caused by improper jacking. Jack can only be applied at specific location of the machine.

1. Park machine on level surface. Switch off the engine and get the key out.
2. Place the jack at level surface (A) underneath the front axle.

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

3. All bystanders should stay away from the machine. Then, lift the machine with the jack (please refer to the



A—Front axle

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 side connecting bolts in accordance with the technical specifications.
5. Lower the machine to the ground.

OUYC401,00003B5 -19-14MAR12-1/1

YC1621—UN—03JAN14

Support rear axle

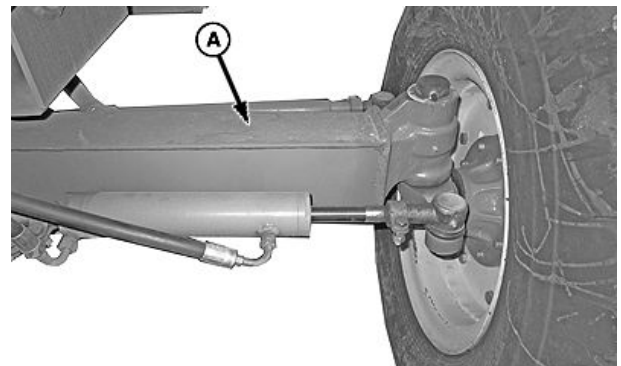
CAUTION: The machine is heavy. If it falls or rolls over, serious injury and death may be caused to you or others. In case there are no grains in the grain cylinder, the machine must rest on a flat and level surface with gear set in neutral position. Engage parking brake and get the key out. Secure the front wheels.

IMPORTANT: Damage to machine can be caused by improper jacking. Jack can only be applied at specific location of the machine.

1. Park machine on level surface. Switch off the engine and get the key out.
2. Place the jack at level surface (A) underneath the rear axle.

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

3. All bystanders should stay away from the machine. Then lift the machine with the jack (please refer to the



A—Rear axle

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.

OUYC401,00003B6 -19-14MAR12-1/1

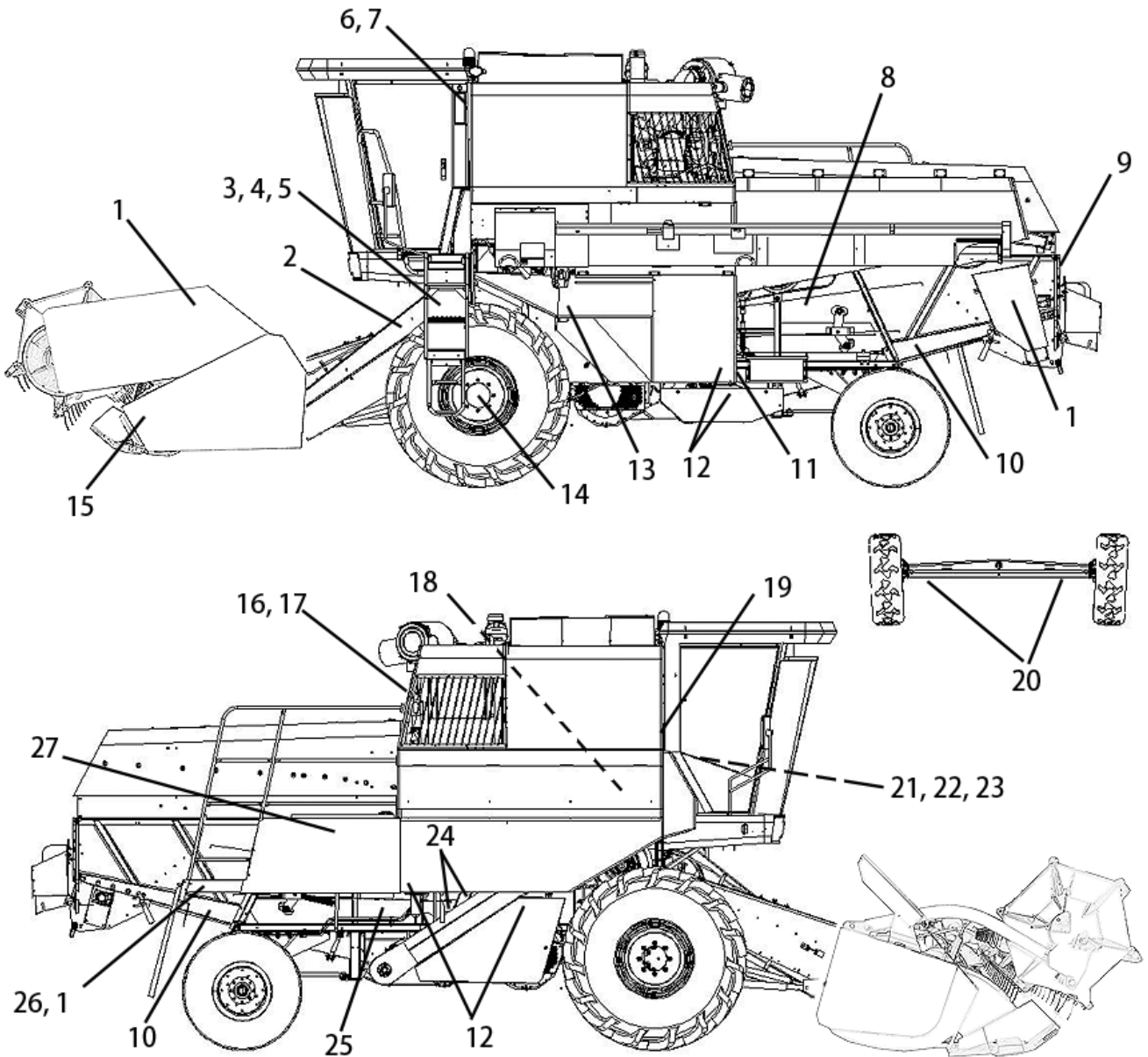
YC1622—UN—03JAN14

Safety signs

CAUTION: 1. Safety alert signs are about personal safety and should be strictly complied with.

2. Safety alert signs must be kept clear. If they are lost or unclear, replace them at once (please

contact John Deere dealer). When replacing new components during maintenance, those new components should bare safety signs specified by the manufacturer.

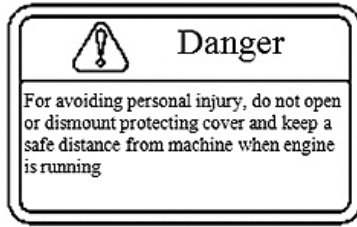


Locations and contents of safety alert signs are listed below

Continued on next page

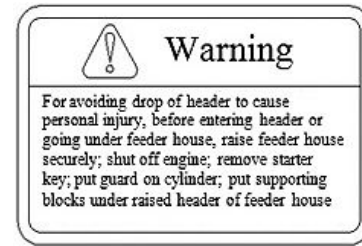
CP00834,00007F9 -19-06SEP13-1/4

YC4344—JUN—06SEP13



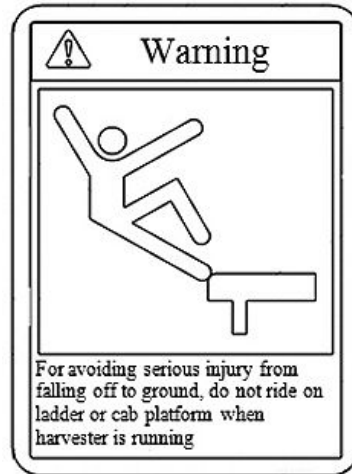
1. Safety alert sign

YC1709 —19—01APR12



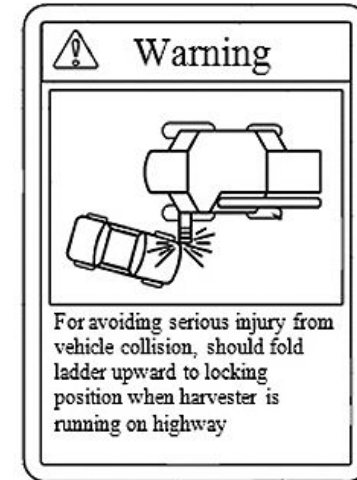
2. Safety alert sign

YC1708 —19—01APR12



3. Safety alert sign

YC1705 —19—01APR12



4. Safety alert sign

YC1706 —19—01APR12

YC5026 —19—06MAR14



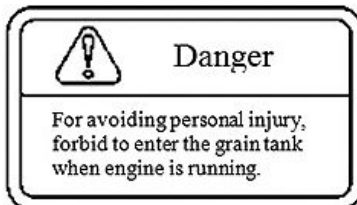
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YC1707 —19—01APR12

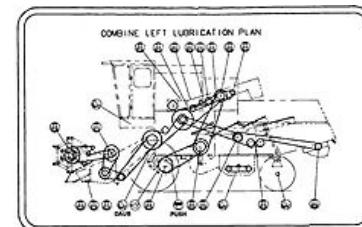


6. Sign

YC1703 —19—01APR12



7. Safety alert sign



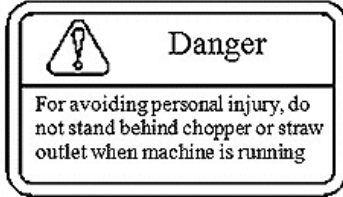
8. Sign

YC5025 —19—19FEB14

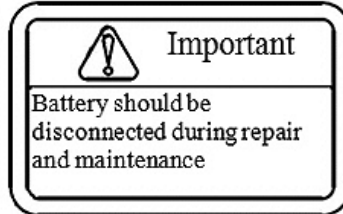
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CP00834.00007F9 -19-06SEP13-2/4

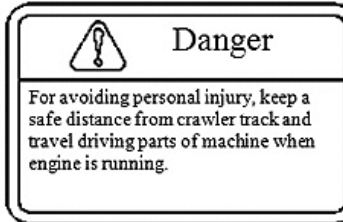
YC1693 —19—01APR12



9. Safety alert sign

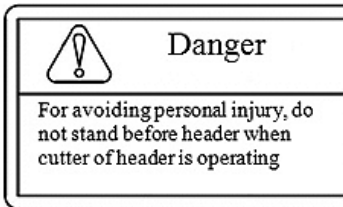


11. Safety alert sign

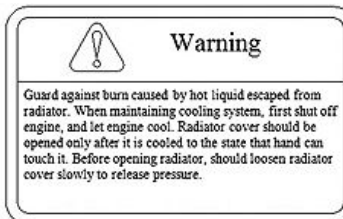


13. Safety alert sign

YC1710 —19—01APR12

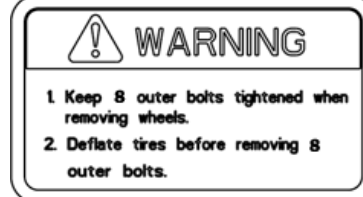


15. Safety alert sign



17. Safety alert sign

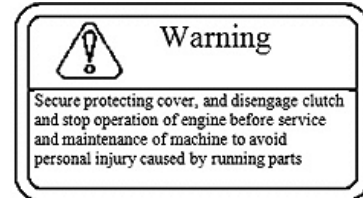
YC4346 —19—07MAR14



10. Safety alert sign

YC1713 —19—01APR12

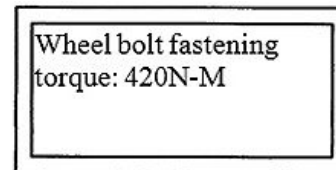
YC1692 —19—01APR12



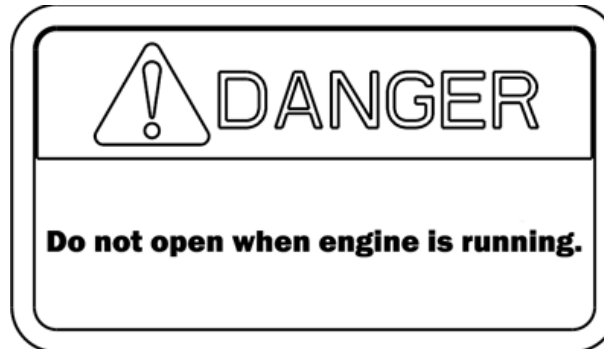
12. Safety alert sign

YC1711 —19—01APR12

YC1712 —19—01APR12



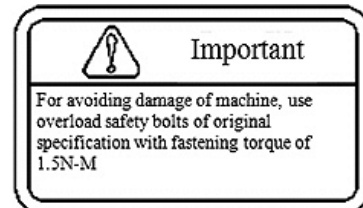
14. Sign



16. Safety alert sign

YC1695 —19—01APR12

YC1696 —19—01APR12



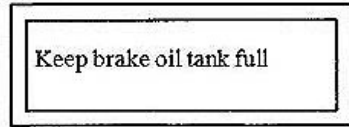
18. Safety alert sign

YC4347 —19—06MAR14

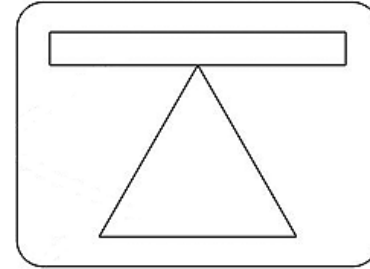
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CP00834,00007F9 -19-06SEP13-3/4

YC1694 —19—01APR12



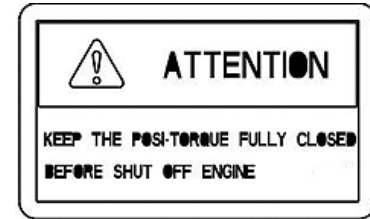
19. Safety alert sign



20. Sign

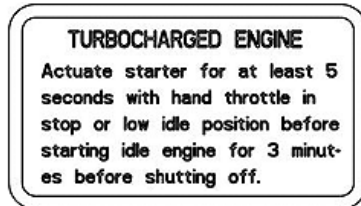


21. Safety alert sign



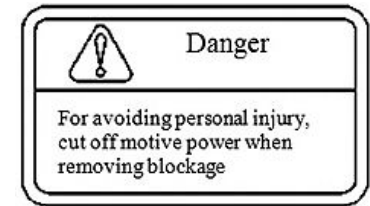
22. Safety alert sign

YC5019 —19—20FEB14



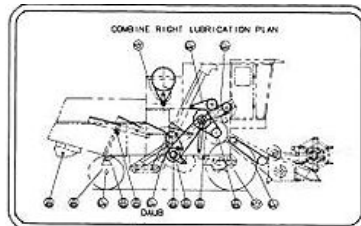
23. Safety alert sign

YC4349 —19—20FEB14



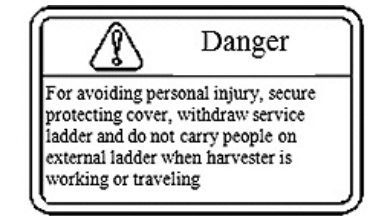
24. Safety alert sign

YC1698 —19—01APR12



25. Sign

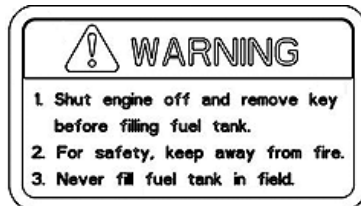
YC1697 —19—01APR12



26. Safety alert sign

YC4343 —19—19FEB14

YC4342 —19—20FEB14



27. Safety alert sign

CP00834,00007F9 -19-06SEP13-4/4

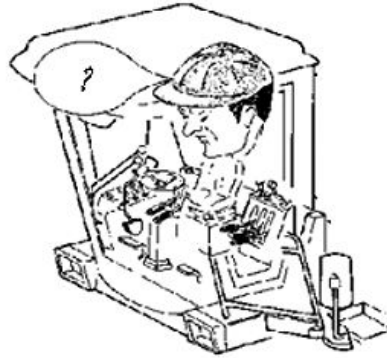
YC1643 —UN—02JAN14

YC4350 —19—20FEB14

Operator station

Controls and meters

Before driving a new harvester, familiarize yourself with the location and use of each control and meter.

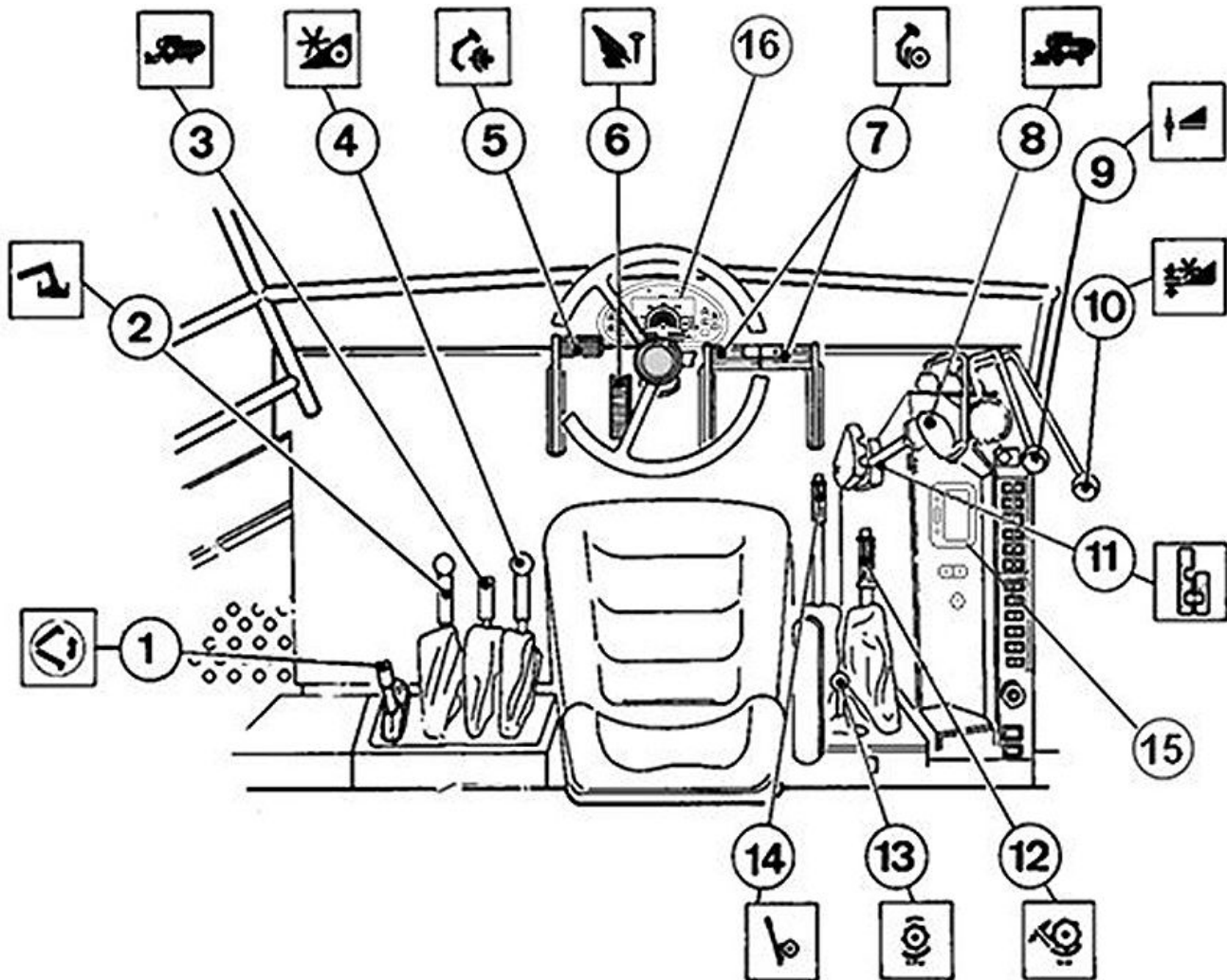


YC1536—UN—25NOV13

CP00718,000112E -19-24DEC13-1/1

Control devices in operator station

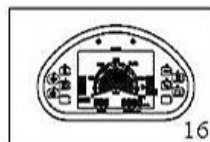
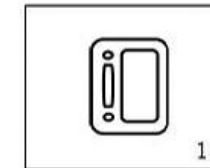
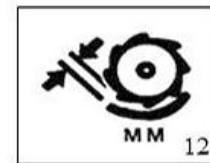
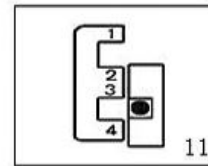
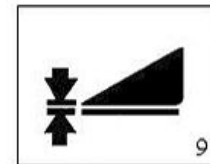
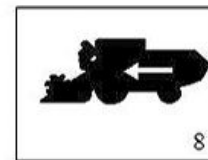
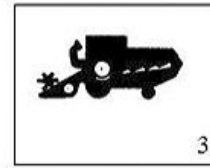
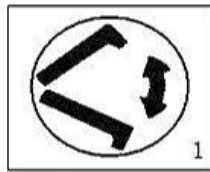
Operator station of mechanical belt drive type harvester



YC1280—UN—09FEB14

Continued on next page

CP00718,000112F -19-25DEC13-1/4



- 1— Grain unloading cylinder rotary lever
- 2— Grain unloading clutch lever
- 3— Threshing clutch lever
- 4— Cutter clutch lever

- 5— Clutch pedals
- 6— Steering wheel lock pedal
- 7— Foot brake
- 8— Ground driving speed lever
- 9— Cutter height lever

- 10— Reel height lever
- 11— Ground driving speed shift lever
- 12— Cylinder concave clearance adjustment lever
- 13— Cylinder speed adjustment lever

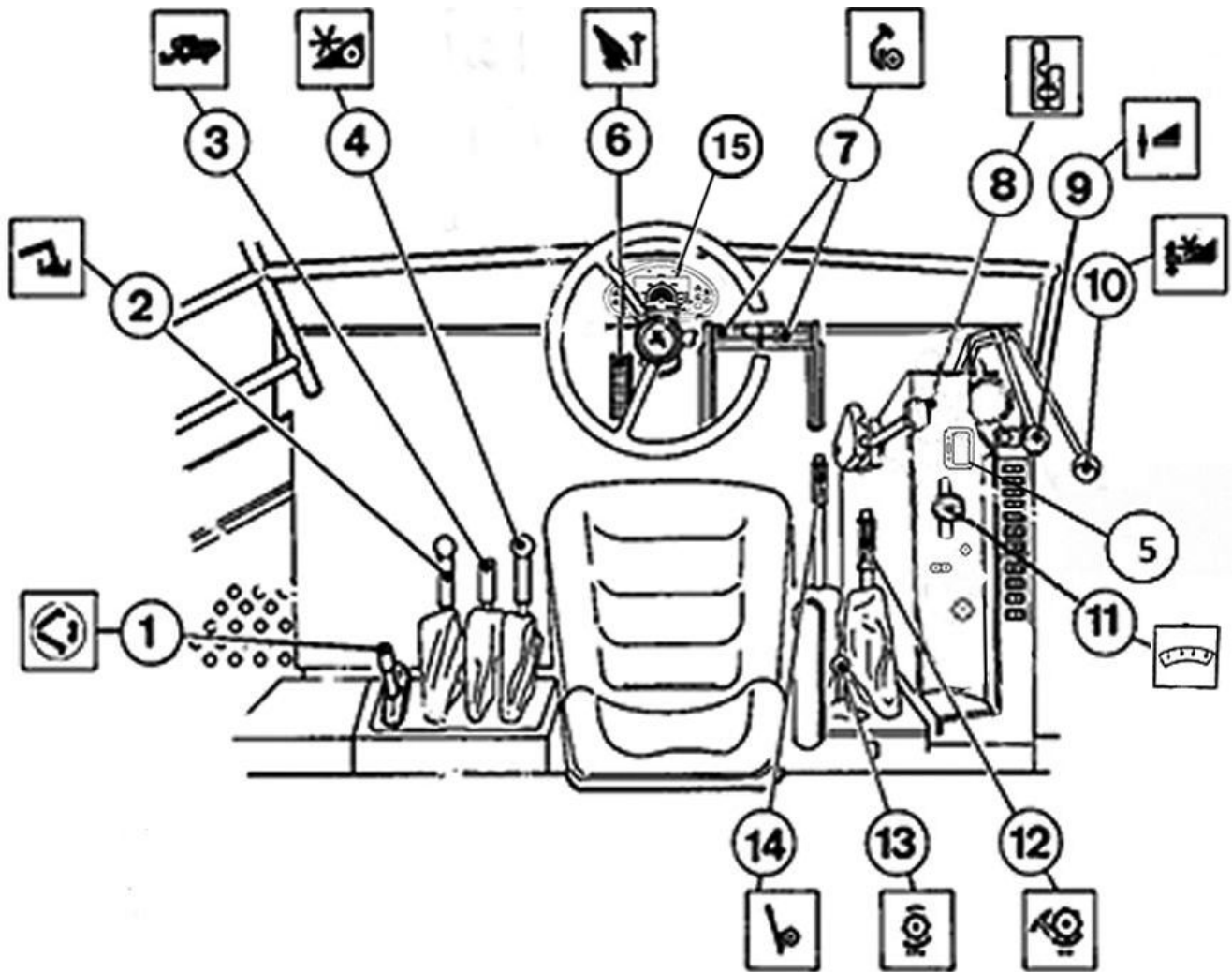
- 14— Hand brake
- 15— Murphy gauge
- 16— Dashboard

Continued on next page

CP00718,000112F -19-25DEC13-2/4

YC1543—UN—22MAR12

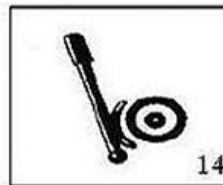
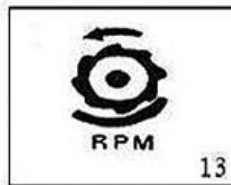
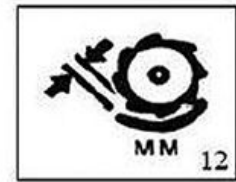
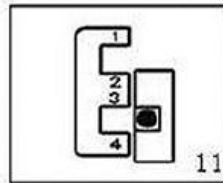
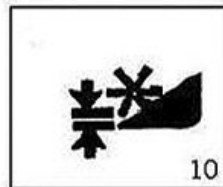
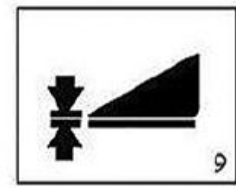
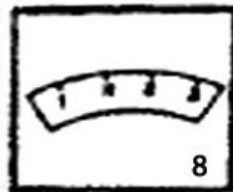
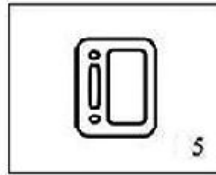
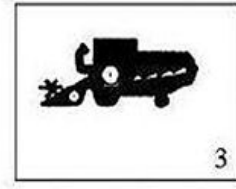
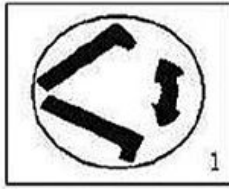
Operator station of optional hydraulic
drive type harvester



YC5858 — UN — 30MAR14

Continued on next page

CP00718,000112F -19-25DEC13-3/4



- | | | | |
|--|---|---|-------------------------------------|
| 1— Grain unloading cylinder rotary lever | 5— Murphy gauge | 9— Cutter height lever | 13— Cylinder speed adjustment lever |
| 2— Grain unloading clutch lever | 6— Steering wheel lock pedal | 10— Reel height lever | 14— Hand brake |
| 3— Threshing clutch lever | 7— Foot brake | 11— Shift lever | 15— Dashboard |
| 4— Cutter clutch lever | 8— Continuously variable transmission (CVT) lever | 12— Cylinder concave clearance adjustment lever | |

NOTE: Compared to mechanical belt drive type harvester, there is no clutch pedal in operator station of optional hydraulic drive type harvester.

CP00718,000112F -19-25DEC13-4/4

YC5859—UN—23DEC13

Reel height control

Move lever backward — Lift reel.

Move lever forward — Lower reel.



YC1402 —UN—17JAN14

CP00718,0001130 -19-24DEC13-1/1

Reel speed adjustment

Motor speed adjustment: Motor speed of reel can be adjusted by using the switch control.

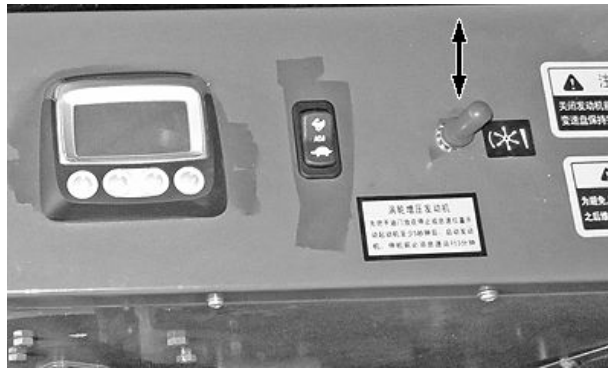
Caution: Reel speed can be adjusted only when it is turning

Increase speed — Set the switch control to the left.

Decrease speed — Set the switch control to the right.

A—Fast

B—Slow



YC1403 —UN—17JAN14

CP00718,0001131 -19-24DEC13-1/1

Threshing clutch

Threshing clutch lever is at the left side of the operator.

Move lever upward — Engage threshing clutch.

Move lever downward — Disengage threshing clutch.

Caution: If combined harvester is equipped with a chopper, steadily engage threshing clutch when engine reaches rated speed.



YC1404 —UN—17JAN14

CP00718,0001132 -19-24DEC13-1/1

Cylinder speed adjustment

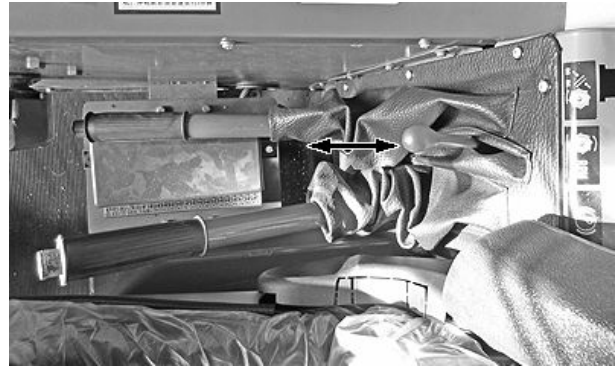
Cylinder rotation speed adjustment lever is located at the right-middle of the operator.

Move lever upward — Increase cylinder rotation speed.

Move lever downward — Decrease cylinder rotation speed.

Cylinder rotation speed displays on the cylinder rotation speed meter.

Rotation speed = value × 100



YC1405 —UN—17JAN14

CP00718,0001133 -19-24DEC13-1/1

Concave clearance adjustment

Concave clearance adjustment lever is located at the right side of and farther from the operator.

Move lever downward — Increase clearance.

Move lever upward — Decrease clearance.



YC1406 —UN—17JAN14

CP00718,0001134 -19-24DEC13-1/1

Hand brake operation

Hand brake lever is located at the right side of and closer to the operator.

Move lever upward — Engage brake.

Move lever downward — Release brake.



YC1407 —UN—17JAN14

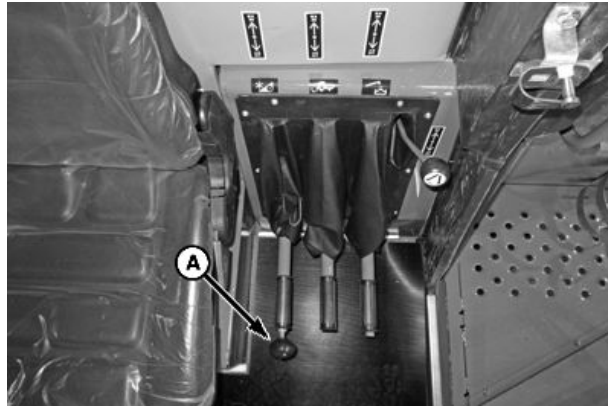
CP00718,0001135 -19-24DEC13-1/1

Cutter drive clutch lever

Clutch lever has a quick disengagement button. Hit that button with a hand, clutch lever will quickly disengage.

Move lever upward — Engage cutter clutch.

Move lever downward — Disengage cutter clutch.



YC1408 —UN—06MAR14

CP00718,0001136 -19-24DEC13-1/1

Cutter height control

Move lever backward — Lift cutter.

Move lever forward — Lower cutter.



YC1409 —UN—17JAN14

CP00718,0001137 -19-24DEC13-1/1

Grain unloading auger hydraulic rotary handle

Move handle upward — Grain unloading auger turns to transport position.

Move handle downward — Grain unloading auger turns to unloading position.



YC1410 —UN—06MAR14

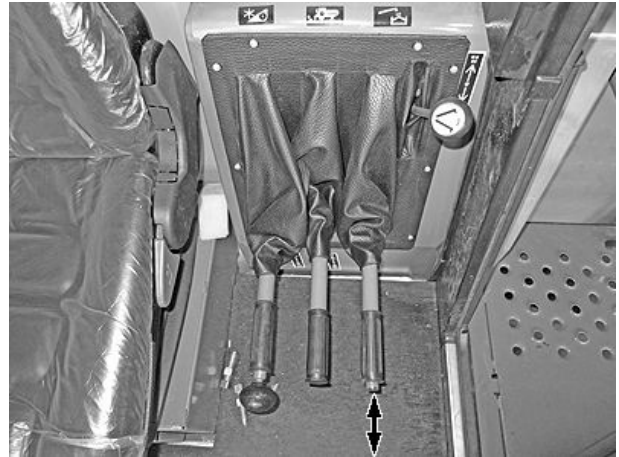
CP00718,0001138 -19-24DEC13-1/1

Grain unloading lever

Move lever upward — Engage grain unloading auger.

Move lever downward — Disengage grain unloading auger.

Caution: Before engaging, make sure that grain unloading auger is at working position, so as to ensure work safety.



YC1411 —UN—17JAN14

CP00718,0001139 -19-24DEC13-1/1

Rear drive lever (optional)

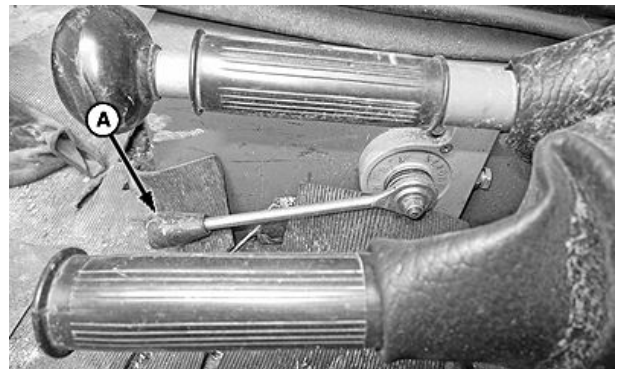
IMPORTANT: When driving on normal roads, do not engage rear drive. Otherwise, that may cause rapid wear of tires.

Rear drive lever (A) is at the bottom left beneath the operator's seat.

To engage rear drive, pull up the lever.

To disengage rear drive, push down the lever.

A—Rear drive lever



YC7588 —UN—30JUL14

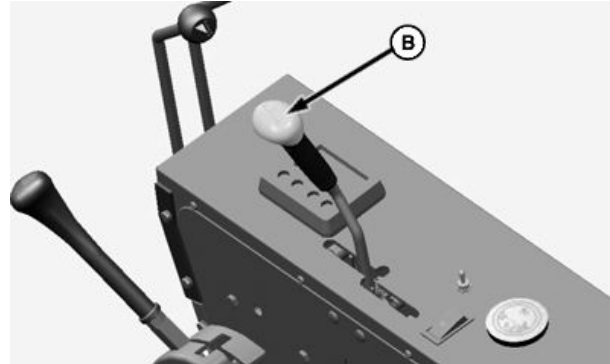
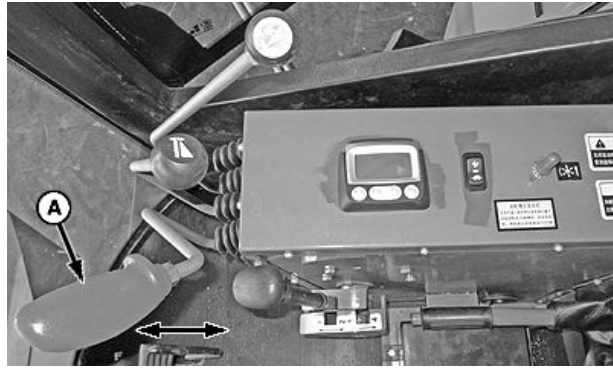
CP00596,0000860 -19-01AUG14-1/1

Ground driving speed lever

NOTE: Optional hydraulic drive type harvester is not equipped with lever (A), but with lever (B).

A—Ground driving speed lever
- Mechanical belt drive type
harvester

B—Ground driving speed lever
- Optional hydraulic drive
type harvester

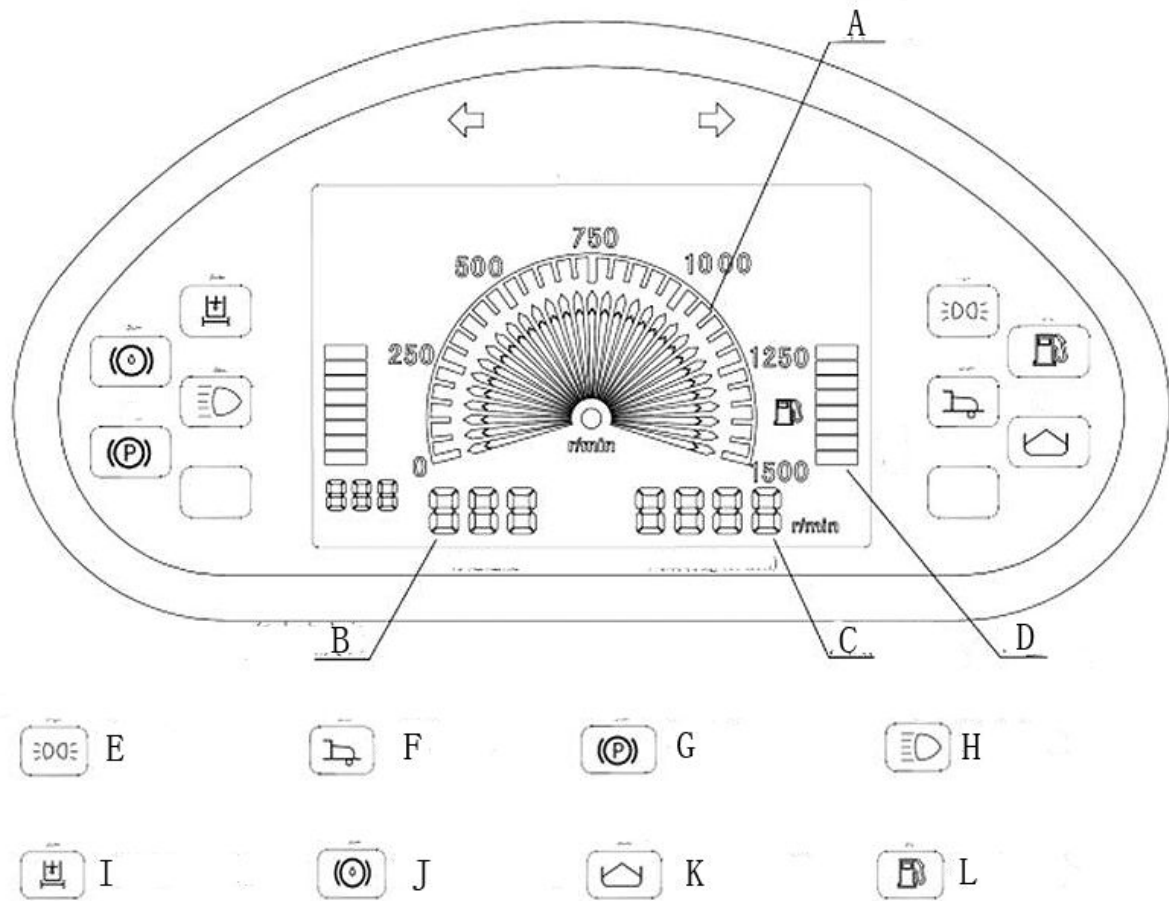


YC5862 —UN—17JAN14

YC5863 —UN—24DEC13

CP00718,000114A -19-24DEC13-1/1

Dashboard



A—Cylinder rotation speed
B—Ground driving speed meter
C—Fan speed meter

D—Fuel gauge
E—Extremity lights
F—End cover blockage
G—Parking lights

H—High beam
I—Hydraulic oil filter pressure alert
J—Brake oil level

K—Grain tank full
L—Oil level alert

CP00718,000113B -19-24DEC13-1/1

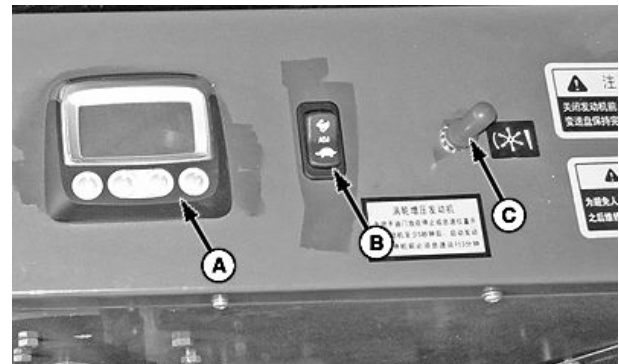
YC1413—UN—22MAR12

Control panel meters

Mechanical belt drive type harvester control panel meters

A—Murphy gauge
B—Reel motor speed switch

C—Throttle switch



Continued on next page

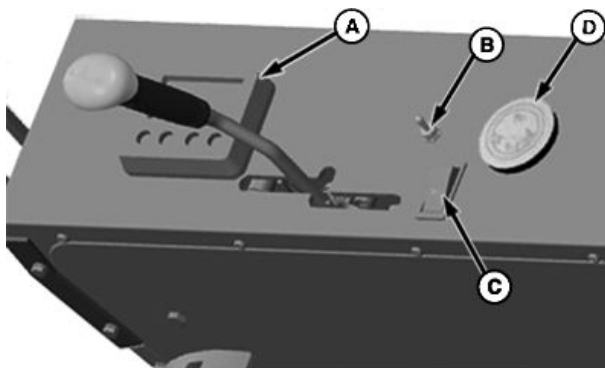
CP00718,000113C -19-24DEC13-1/2

YC5861—UN—17JAN14

Optional hydraulic drive type harvester control panel meters

NOTE: Compared to mechanical belt drive type harvester, ground driving system fuel thermometer (D) is added to the control panel meters of optional hydraulic drive type harvester.

- | | |
|---------------------------|--|
| A—Murphy gauge | C—Throttle switch |
| B—Reel motor speed switch | D—Ground driving system fuel thermometer |



YC5860—UN—24DEC13

CP00718,000113C -19-24DEC13-2/2

Murphy gauge

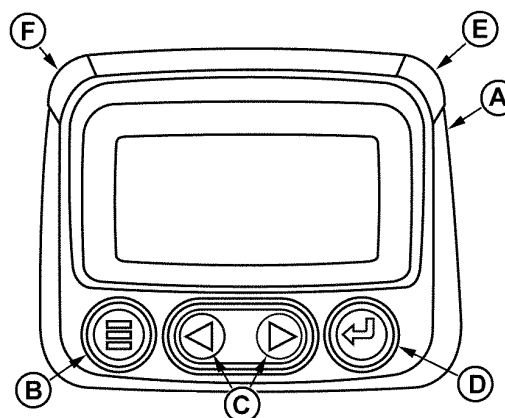
Through Murphy gauge (A), operator can check the functional data and fault codes of engine (DTCs). Meters are connected with electronic control system and its sensors. Operator can then monitor engine operation and carry out checks and troubleshooting when needed.

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

- Engine hours
- Engine Speed, rpm
- System Voltage
- Coolant Temperature
- Oil pressure
- Throttle position
- Intake manifold temperature
- Current fault (diagnosis) codes
- Current fuel consumption
- Saved engine fault (diagnosis) codes
- Check engine configuration parameters

NOTE: Engine parameters that can be accessed vary with engine applications. Six languages can be chosen when configuring the gauge.

Diagnosis meter includes a back-lit liquid crystal display (LCD). It can display a single parameter or 4 parameters



RG13132—UN—09SEP03

at the same time. Press arrow keys (C) to scroll the list of engine parameters and to view the menu. Press Enter key (D) to select required items. Red (E) and yellow (F) indicators indicate received fault code signals. When yellow indicator is lit, that means a fault occurs, but the machine can continue running. Checks are required. When red indicator is lit, stop the machine at once and carry out checks.

CP00718,000113D -19-24DEC13-1/1

View engine information in diagnosis gauge

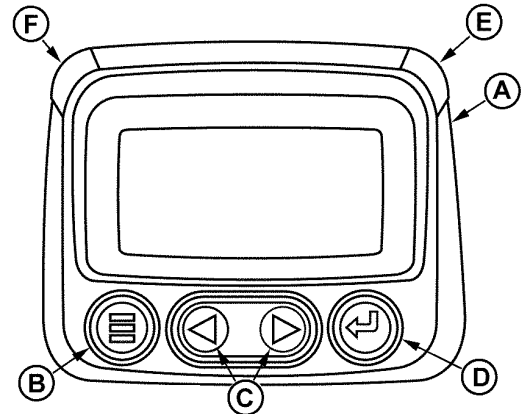
Diagnosis gauge (A) displays a large number of engine operating data and diagnostic trouble codes (DTC). That gauge is connected with electronic control system and its sensors. As such, operator can monitor the engine and handle its failure when needed.

Press Menu button (B) to sequentially view various functions of the engine.

Diagnosis gauge window displays the following engine parameters:

- Inlet air temperature
- Battery voltage
- Machine service hours
- Intake manifold temperature
- Fuel level
- Fuel temperature
- Fuel supply pressure
- Engine oil pressure
- Coolant pressure
- Coolant level
- Fuel consumption per unit time
- Barometric pressure
- Boost pressure
- Engine speed
- Engine hours
- Engine coolant temperature
- Total fuel consumption

NOTE: Available engine parameters are related to engine applications. Diagnosis gauge can be provided in English or Chinese version.



A—Diagnosis gauge
B—Menu button
C—Arrow keys

D—Enter key
E—Red indicator
F—Orange indicator

Diagnosis gauge has a backlit LCD display. It can display a single parameter or four parameters simultaneously. Use the two Arrow keys (C) of the diagnosis gauge to browse through the engine parameter list and the menu list. Use Enter key (D) to select highlighted option. Red (E) and orange (F) indicators show that diagnosis gauge receives diagnostic trouble codes. When orange indicator (F) is lit, that means although a fault has occurred, the machine can continue running. A check is recommended. When red indicator (E) is lit, the machine must be stopped for a check.

CP00851,0000F6B -19-23JUN14-1/1

Main menu navigation

NOTE: Engine does not need to run when using the diagnosis gauge screen. If you want to start the engine, please refer to "Start the engine". All engine parameters displayed in the diagnosis gauge show that the engine is running.

1. Turn keyswitch to the ON position. It starts with the display of a single engine parameter or four engine parameters. Then press the "Menu" button.



Menu button

Continued on next page

CP00851,0000F6C -19-18SEP14-1/5

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



Menu display

YC7292 —19—11DEC14

CP00851,0000F6C -19-18SEP14-2/5

3. Press "Arrow" keys to scroll and view menu options.



Arrow keys

YC7293 —19—11DEC14

CP00851,0000F6C -19-18SEP14-3/5

4. Press the right arrow key to scroll down till the last option of "Main Menu". Select that last option.



Right arrow key

YC7294 —19—11DEC14

Continued on next page

CP00851,0000F6C -19-18SEP14-4/5

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



Use arrow keys to scroll / to display quadrant mode

CP00851,0000F6C -19-18SEP14-5/5

YC7490 —19—11DEC14

Engine configuration data

NOTE: Engine configuration data is for read only.

NOTE: Engine does not need to run when using the diagnosis gauge. If you want to start the engine, please refer to "Start the engine". All engine parameters displayed in the diagnosis gauge show that the engine is running.

- Turn key switch to the ON position. It starts with the display of a single engine parameter or four engine parameters. Then press the "Menu" button.



Menu button

CP00718,000172D -19-17SEP14-1/4

YC7300 —19—11DEC14

- Main menu appears. Use "Arrow" keys to scroll till "Engine configuration".



Select engine configuration

Continued on next page

CP00718,000172D -19-17SEP14-2/4

YC7291 —19—11DEC14

- When "Engine configuration" is selected, press "Enter" key to view engine configuration data.



Enter key

YC7295 —19—11DEC14

CP00718,000172D -19-17SEP14-3/4

- Press "Menu" button to exit the main menu and return to engine parameter interface.



Menu button

YC7300 —19—11DEC14

CP00718,000172D -19-17SEP14-4/4

View stored codes

NOTE: Engine does not need to run when using the diagnosis gauge. If you want to start the engine, please refer to "Start the engine". All engine parameters displayed in the diagnosis gauge show that the engine is running.

- Under normal operation, single-parameter or four-parameter interface displays.



Normal operation

YC7491 —19—11DEC14

Continued on next page

CP00718,000172E -19-17SEP14-1/5

2. Use "Arrow" keys to scroll till "Stored codes".



Stored codes

YC7296 —19—11DEC14

CP00718,000172E -19-17SEP14-2/5

3. When "Stored codes" is selected, press "Enter" key to view stored code information.



Enter key

YC7297 —19—11DEC14

Continued on next page

CP00718,000172E -19-17SEP14-3/5

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



Arrow keys

YC7288 —19—11DEC14

CP00718,000172E -19-17SEP14-4/5

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



Menu button

YC7289 —19—11DEC14

CP00718,000172E -19-17SEP14-5/5

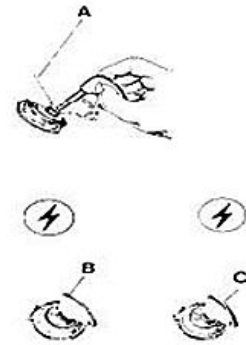
Power switch positions

Power switch is at location (D) behind the steering wheel and has 3 positions.

A — Key at position 0, no rotation, power is disconnected.

B — Key at position 1, rotation gear 1, power is connected, electric pump works.

C — Key at position 2, rotation gear 2, engine starts.



CP00718,000113E -19-24DEC13-1/1

YC1537 —UN—16MAR12

YC1414 —UN—16MAR12

Headlights, front turn signal lights and extremity lights

Headlights of combine harvester can be set to low beam or high beam. When driving in opposite direction closely with other vehicles, use low beam.

A — Headlights

B — High beam and low beam

When headlights are lit, front extremity lights (C) are on. Turn signal lights are controlled by turn signal switch.



CP00718,000113F -19-24DEC13-1/1

YC1415 —UN—22MAR12

Rear turn signal lights, extremity lights and brake lights

When headlights are lit, rear extremity lights are on. Turn signal lights are controlled by turn signal switch. When brake pedal is pressed, brake lights are on. When shift lever is set to reverse gear, reversing lights are on.



YC6813 —UN—24APR14

CP00718,0001140 -19-21APR14-1/1

Turn signal light and headlight switch

Pull switch lever backward, left turn signal light is on. Push switch lever forward, right turn signal light is on. Turn the knob at lever end to control headlights.

I— Right

II— Left



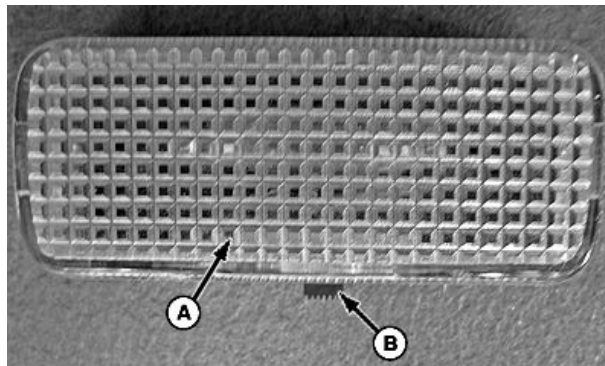
YC1417 —UN—22MAR12

CP00718,0001141 -19-24DEC13-1/1

Dome light

A — Dome light

B — Switch



YC1418 —UN—17JAN14

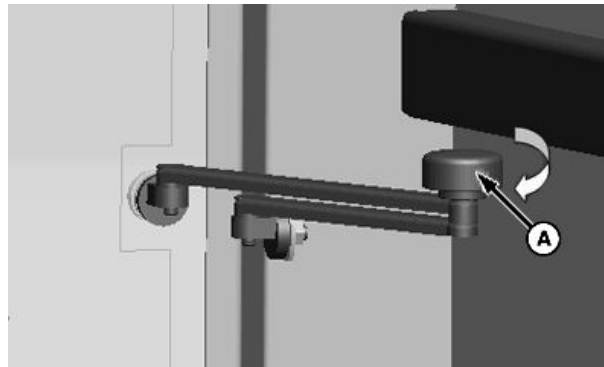
CP00718,0001142 -19-24DEC13-1/1

Driving cab right window control handle

Turn the control handle (A) according to the arrow direction to open the right window; Turn it in the opposite direction to close.

A — Right window control handle

CAUTION: In case of emergency, if the cab door cannot be opened, please use the right window to escape: Use the above method to open the right window as an emergency exit. Unscrew handle A. The right window can then be fully opened for escape.



YC1419 —UN—11FEB14

CP00718,0001143 -19-24DEC13-1/1

Adjust steering column angle

Lift handle (A) to unlock steering lever, so that steering lever can be set to desired position.

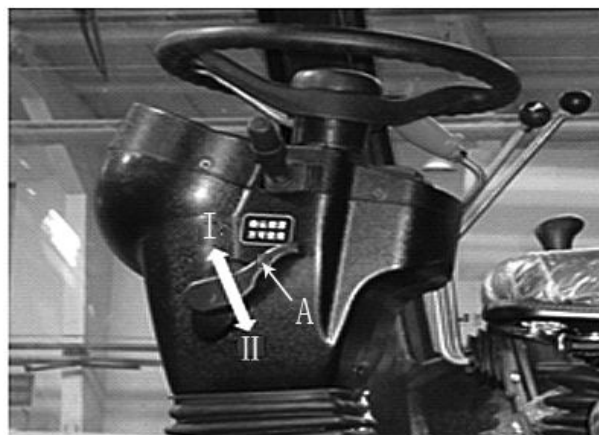
Lock steering lever:

Press handle (A) downward to lock steering column.

Note: Lock it after adjustment!

I — Open

II — Locked



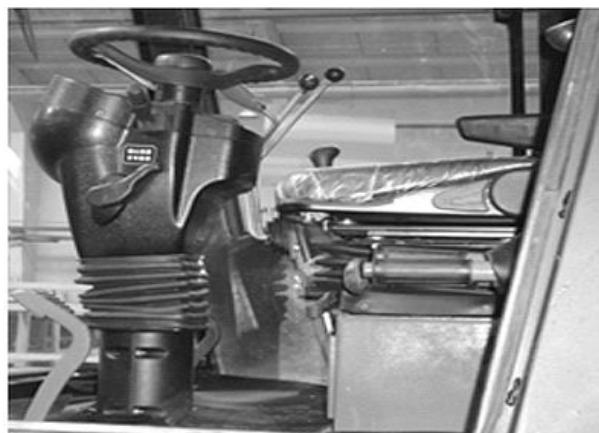
YC1420 —UN—22MAR12

CP00718,0001144 -19-24DEC13-1/1

Operator seat and armrests

Operator seat is of suspension type. It can be adjusted back and forth (adjustment handle at bottom right) and up and down (adjustment handle at bottom middle). Backrest angle can also be adjusted (adjustment handle at bottom left).

Armrests can be folded up or unfolded, according to the need of the operator (different seats may not provide armrests).

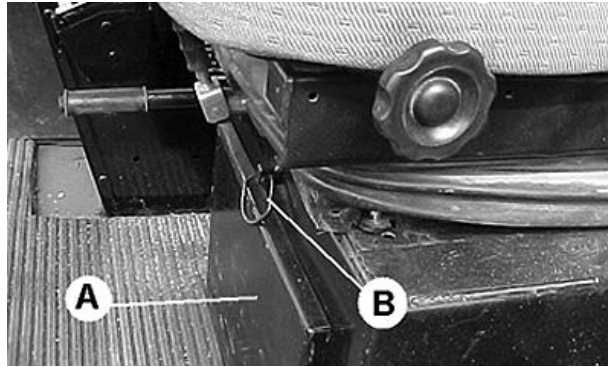


YC1421 —UN—27FEB12

CP00718,0001145 -19-24DEC13-1/1

Toolbox below the seat

Move door latch (B) upward to open the toolbox door (A).

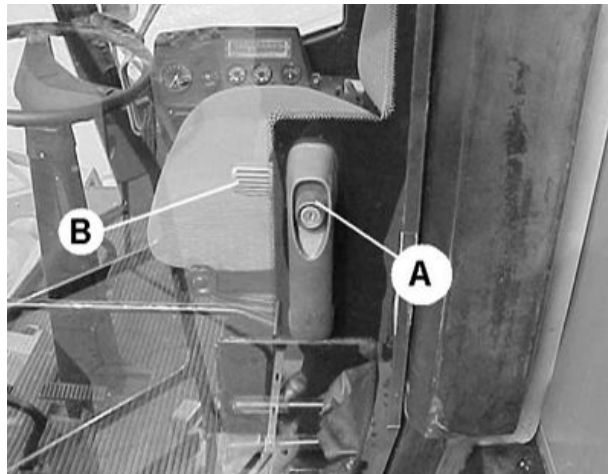


YC1422 —UN—29NOV12

CP00718,0001146 -19-24DEC13-1/1

Driving cab door lock

Use key at (A) to open driving cab door. To open door inside the cab, press handle (B).

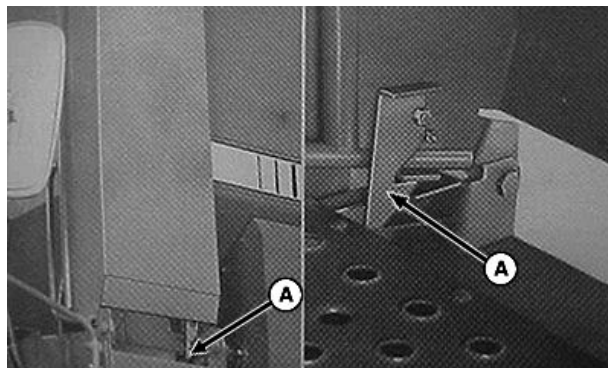


YC1423 —UN—27FEB12

CP00718,0001147 -19-24DEC13-1/1

Precautions when fixing ladder

Note: Before driving on the road, fold up the ladder and use latch (A) to secure it. Avoid hitting others when unfolding the ladder.

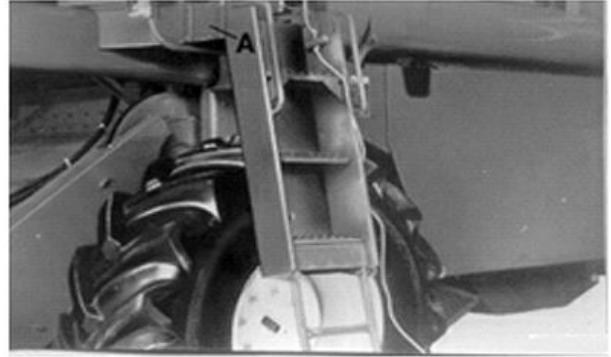


YC1424 —UN—25DEC12

CP00718,0001148 -19-24DEC13-1/1

Ladder adjustment

If you need to install wide tires to the combine harvester, you can move the ladder connecting plate (A) outward.



YC1425—UN—27FEB12

CP00718,0001149 -19-24DEC13-1/1

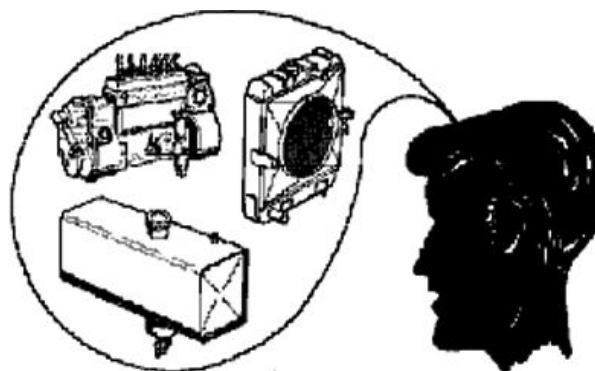
Control of Combine

Pre-start checks

Check daily:

Before starting combine harvester, check the following:

- Engine
- Cooling system
- Hydraulic system
- Fuel system, etc.



YC1296—UN—16FEB12

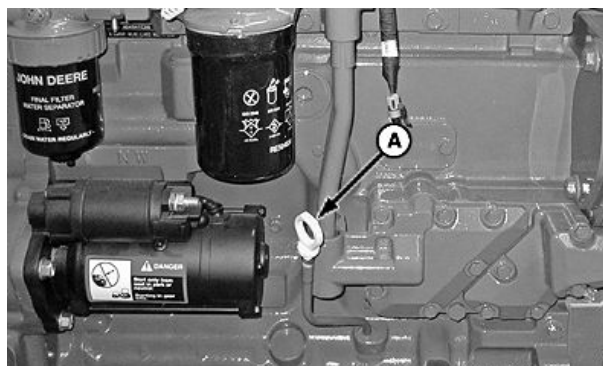
CP00718,00011E2 -19-25DEC13-1/1

Check engine oil level

IMPORTANT: Do not start the engine when engine oil level is lower than the lowest mark of the gauge (A).

Oil level should be maintained between the uppermost and the lowest mark of the gauge. If oil level is below the lowest mark of the gauge, add oil as needed.

A—Engine oil dipstick



YC7863—UN—12NOV14

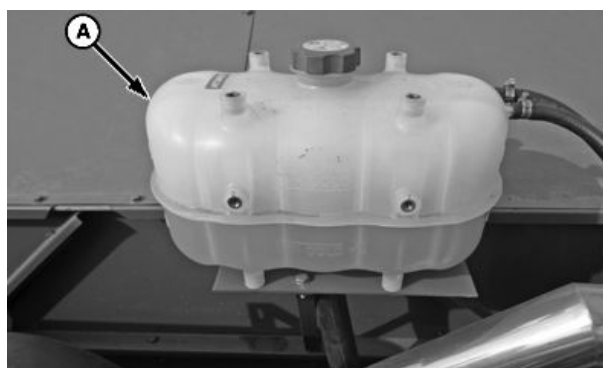
CP00718,00011E3 -19-13NOV14-1/1

Check coolant level

CAUTION: Hot fluids emitted from the cooling system can cause serious burns. Before checking or servicing the cooling system, make sure that its temperature is low enough that you can touch it with bare hands.

Check coolant in overflow tank (A). Its level should be between the highest and lowest marks. If it is below the lowest mark, add coolant as needed.

A—Overflow tank

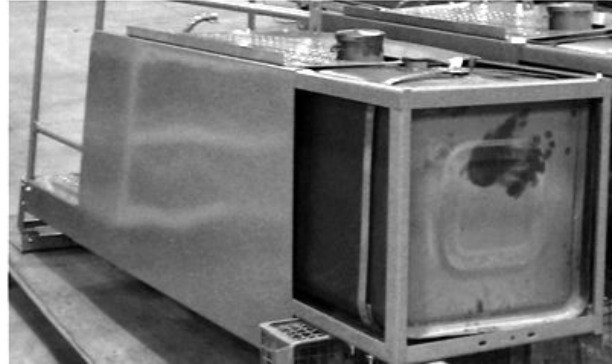


YC7869—UN—04NOV14

CP00718,00011E4 -19-13NOV14-1/1

Check fuel tank level

Before starting the machine, check the fuel tank level. If fuel is not enough, refill it.



YC1299—UN—16FEB12

CP00718,00011E5 -19-25DEC13-1/1

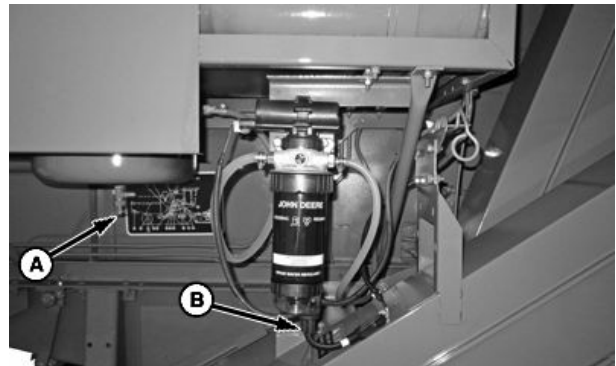
Fuel system

NOTE: After storing for a long time, bleed air from the fuel system.

If needed, respectively open the fuel tank dust cup drain valve (A) and water cup drain valve (B) to drain impurities and water from the fuel system.

A—Drain valve

B—Drain valve

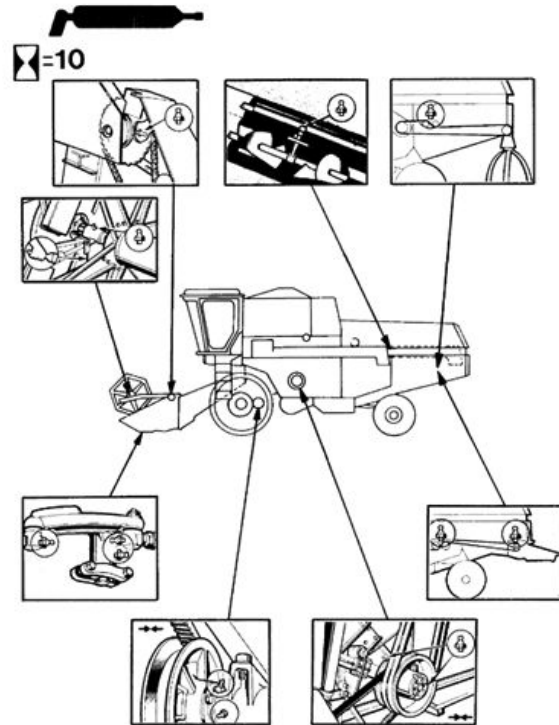


YC7864—UN—12NOV14

CP00718,00011E6 -19-13NOV14-1/1

Lubricate combine harvester

Lubricate combine harvester according to the lubrication diagrams on the right and left sides of the machine.

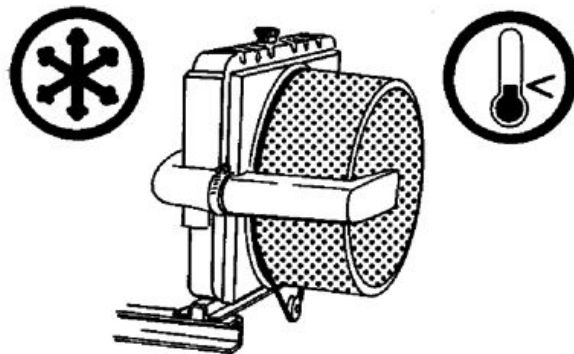


YC1301—UN—16FEB12

CP00718,00011E7 -19-25DEC13-1/1

Start in winter

Before starting combine harvester, make sure that rotary screen can rotate freely.



YC1302—UN—16FEB12

CP00718,00011E8 -19-25DEC13-1/1

Use of fire extinguisher

Machine is equipped with portable dry powder fire extinguisher. Fire extinguisher (A) is on the left side of driving cab, near 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.

Use fire extinguisher

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

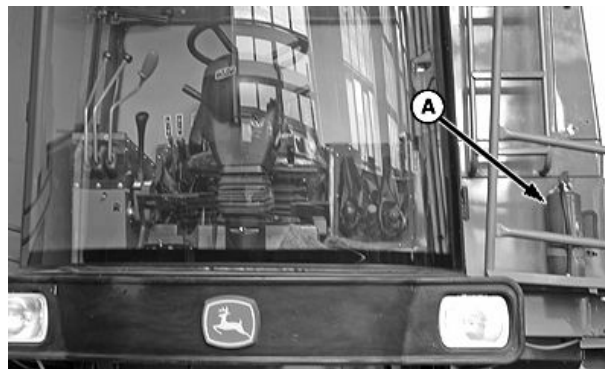
Basic steps to use fire extinguisher are as below:

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

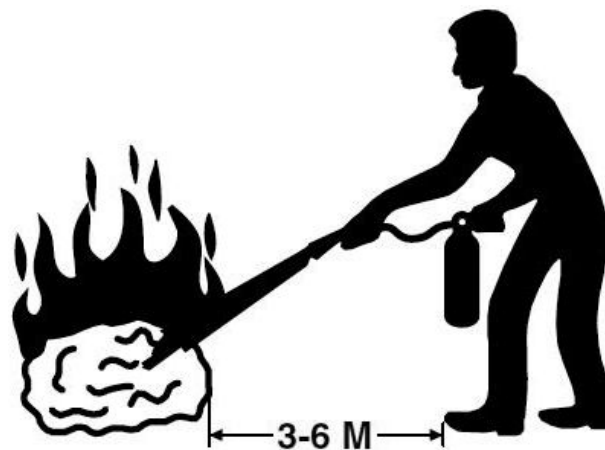
Inspection checklist

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 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)



YC5020 —UN—08JUL13



YC4693 —UN—03JUL13

A—Fire extinguisher

6. Is the nozzle damaged, corroded, leaking or clogged?

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

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

CP00606,000047B -19-09DEC14-1/1

Before starting the engine

NOTE: Before starting the engine in a small room, first ensure that exhaust ventilation equipment is properly installed. Ensure that ventilation in the room is sufficient. Other personnel should stay away from combine harvester.



T81389—UN—28JUN13

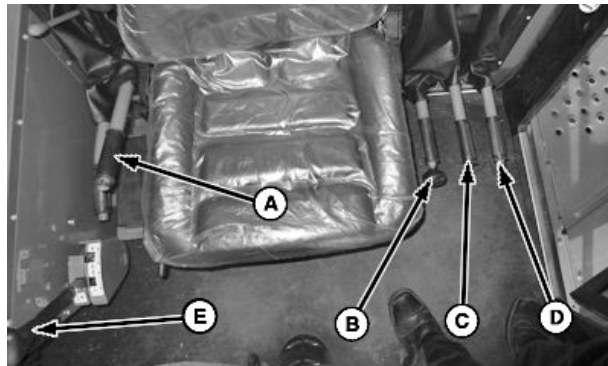
CP00718,00011EA -19-25DEC13-1/1

Lever position

1. Apply hand brake (A);
2. Disengage cutter clutch lever (B);
3. Disengage threshing clutch lever (C);
4. Disengage grain unloading auger clutch lever (D);
5. Set shift lever (E) to neutral position.

NOTE: Engine can start only when threshing lever is at disengaged position.

A—Hand brake	D—Grain unloading clutch
B—Cutter clutch	E—Shift lever
C—Threshing clutch	



YC3223—UN—29OCT14

CP00834,000114F -19-16JUN14-1/1

Hand throttle starting position

Hand throttle should be set to idle position ("turtle" position).



YC1304—UN—17JAN14

CP00718,00011EC -19-25DEC13-1/1

Clutch pedal

Completely step on clutch pedal.



YC1305—UN—16FEB12

CP00718,00011ED -19-25DEC13-1/1

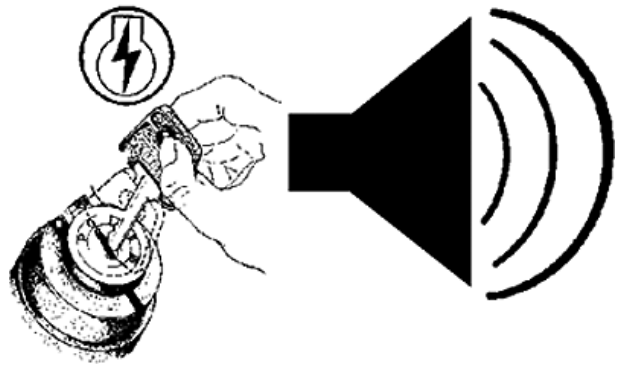
Start procedure

Completely press clutch pedal. Turn keyswitch to START position to start the motor.

Starting time per attempt must not exceed 30 seconds.

If startup key returns to running position before engine starts, wait until engine has stopped and then restart.

IMPORTANT: If engine is not started within 30 seconds, wait for at least 2 minutes before restart. Consecutive attempts to start cannot exceed four times.

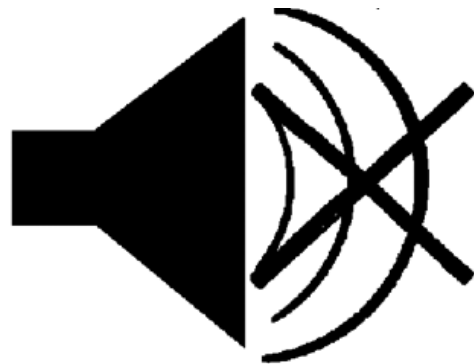


YC1306—UN—25DEC12

CP00596,00008A2 -19-25SEP14-1/1

Intermittent alarm system

After keyswitch power is connected, engine oil pressure indicator on dashboard is lit, parking brake light flashes with buzzer. When hand brake is disengaged, intermittent alarm signal stops. After harvester starts, engine oil pressure indicator goes off.



YC1307—UN—16FEB12

CP00718,00011EF -19-25DEC13-1/1

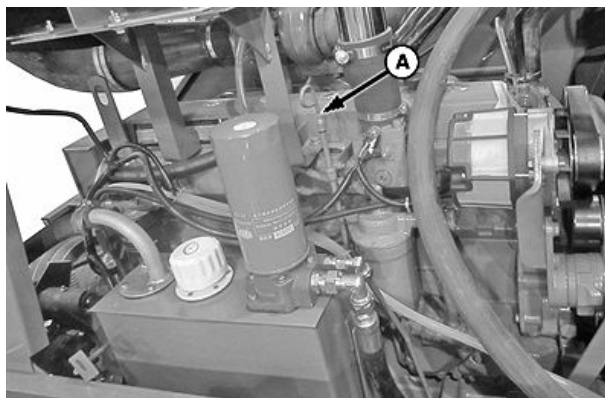
Engine Break-in

1. Engine break-in oil filled in factory is John Deere engine break-in oil. During break-in, when running engine under different operating conditions, minimize running at idling speed, especially under heavy load, so as to allow for proper break-in of engine components.
2. If in the first 100 operating hours, engine is mostly idle, at constant speed or under light load, then a longer break-in period may be required. If break-in oil needs refill, break-in period may be extended. In such cases, it is recommended to change John Deere engine break-in oil and oil filter. Then, run 100 hours again for break-in.

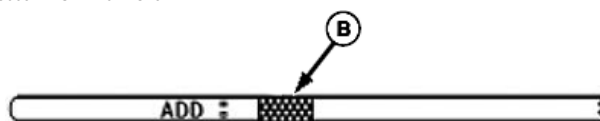
IMPORTANT: Prevent loss of power. If engine oil level exceeds oil dipstick mark, engine power consumption increases. Never refill engine oil before engine oil level falls below the "ADD" mark. During break-in, use John Deere engine break-in oil (TY22041) to replenish any consumed engine oil. Never refill engine oil exceeding the maximum limit of grid area (B) of oil dipstick (A). Engine oil level falling within the grid area (B) is regarded as acceptable.

NOTE: TY22041 is John Deere break-in oil number.

3. Engine oil level should be checked more often during break-in period. It is recommended to refill John Deere engine break-in oil as replenishment during break-in.
4. If John Deere engine break-in oil is not available, please use diesel 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 engine idling or sustained heavy load operation. If engine idling is over 5 minutes, switch off the engine.



YC6034 —UN—26DEC13



A—Oil Dipstick

B—Grid Area on Oil Dipstick

Continued on next page

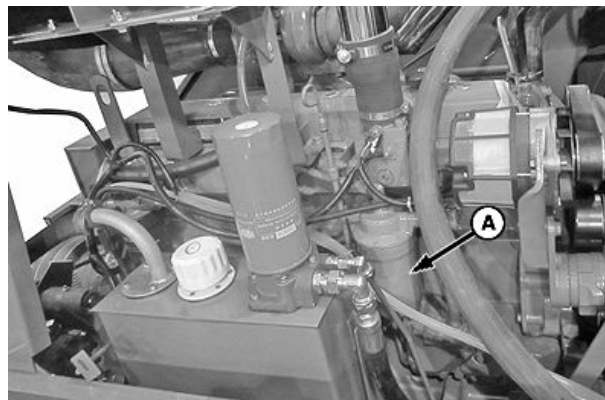
CP00606,0000F24 -19-25JUL16-1/2

YC6033 —UN—26DEC13

IMPORTANT: When using low-viscosity engine oil, oil consumption increases slightly. Check oil level more frequently. If ambient temperature is below -10°C, use pre-heater when starting the engine.

6. Within the first 100 hours (maximum), change engine oil and engine oil filter (A). Fill engine oil of proper seasonal viscosity into crankcase. Refer to Chapter 35 "Engine Oil and Filter Service Intervals".
7. Monitor engine oil pressure in Murphy Gauge. When engine is running at low idling speed, minimum pressure should be maintained at 103 kPa (1.03 bar). After engine is warmed up, pressure should be increased to at least 241 kPa (2.41 bar). Maintain rated speed under full load.
8. Closely monitor coolant temperature in Murphy Gauge. If coolant temperature rises above 110°C, reduce load of engine. Unless temperature drops quickly, switch off the engine and determine the cause of failure before resuming operation.
9. Check alternator / fan rubber V-belt tension, check if it is well aligned and situated in pulley groove.

IMPORTANT: When changing oil, never mix new and old oil. Mixing different grades of oil



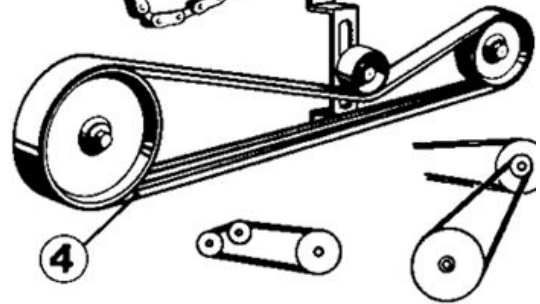
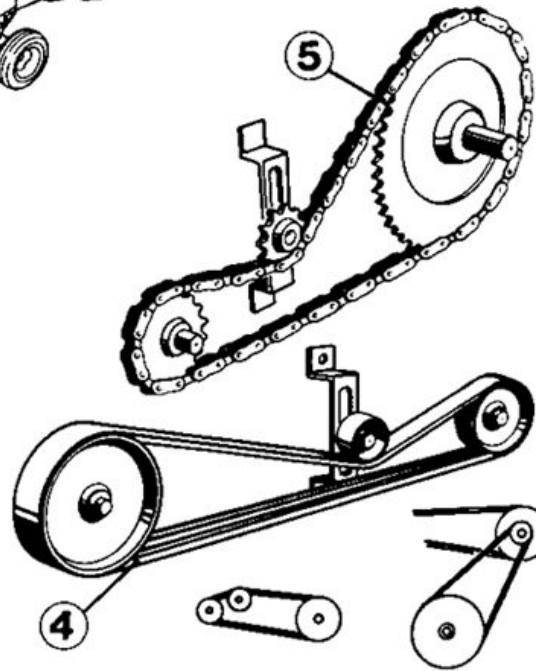
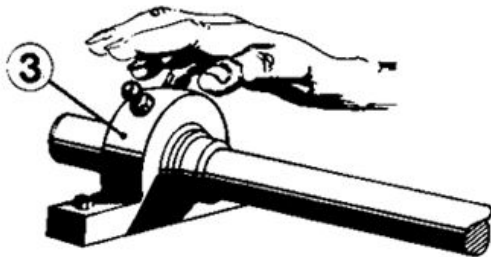
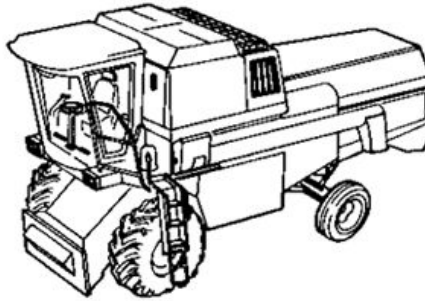
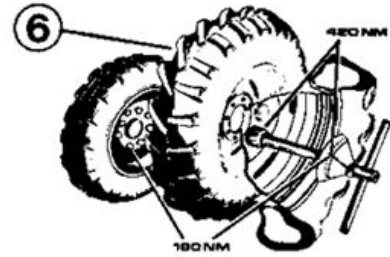
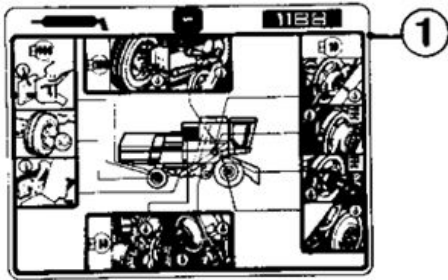
A—Engine Oil Filter

is prohibited. Strictly follow oil changing intervals stated in maintenance instructions to change engine oil and filter.

YC6032 —UN—26DEC13

CP00606,0000F24 -19-25JUL16-2/2

Machine break-in



1. Switch off the engine, lubricate all lubrication points.
2. After engine has run for 15 minutes, engage and disengage each lever. In case of abnormal sound, immediately disengage threshing clutch lever and switch off the engine. Carry out troubleshooting and repair. Then, restart the engine and engage threshing clutch.
3. If all transmission parts operate normally, after the combine harvester has run for 15 - 30 minutes, disengage the clutch and switch off the engine. Check all bearings if they are over-heated.

4. Check the tension of V-belt. Adjust it if needed.
5. Check the tension of drive chain. Adjust it if needed.
6. Re-tighten front-wheel nuts with torque of 420 N.m.;
Re-tighten rear-wheel bolts with torque of 180 N.m.

After starting work for a few hours, re-examine the tension of belts and chains.

YC1309 — UN—16FEB12

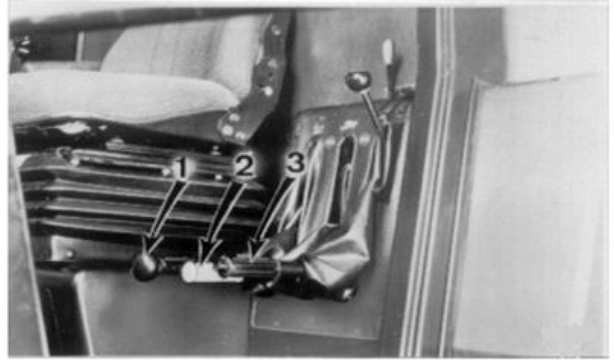
CP00718,00011F1 -19-25DEC13-1/1

Stop the engine

IMPORTANT: After full-loading operation, do not stop the engine suddenly.

First disengage the following components:

1. cutter;
2. threshing component;
3. grain unloading component.



YC1310—UN—16FEB12

CP00718,00011F2 -19-25DEC13-1/1

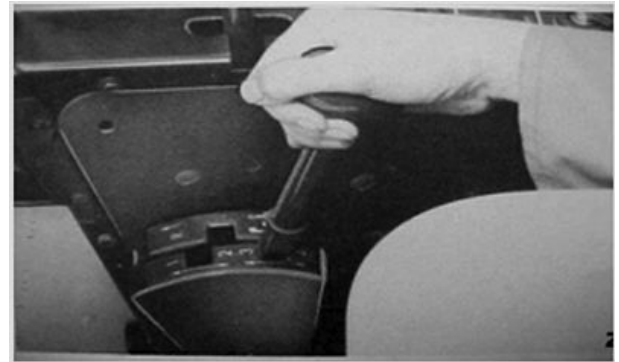
Lower the cutter to the ground



YC1311—UN—17JAN14

CP00718,00011F3 -19-25DEC13-1/1

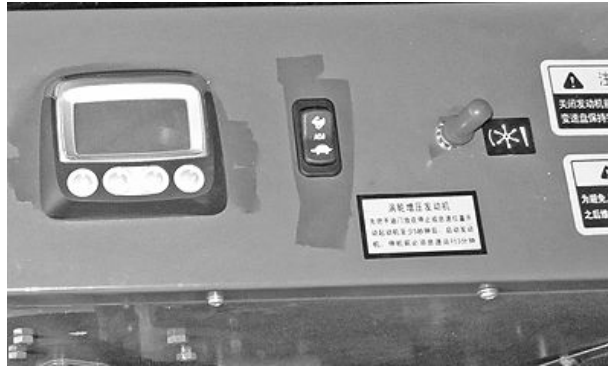
Set shift lever to neutral position



YC1312—UN—16FEB12

CP00718,00011F4 -19-25DEC13-1/1

Press the throttle button to low-speed (turtle) position



YC1304—UN—17JAN14

CP00718,00011F5 -19-25DEC13-1/1

Switch off the engine

Before switching off the engine, let it run idle for 2 minutes.

IMPORTANT: Some parts of the engine may be over-heated if the engine is suddenly stopped in working temperature. At this moment, immediately restart the engine. After it runs idle for 1 ~ 2 minutes, take out the main switch key and stop the engine. Important! Before leaving driving cab, remember to take out the main switch key.



YC1313—UN—29NOV12

CP00718,00011F6 -19-25DEC13-1/1

Cold working

CAUTION: If engine has air intake heater or glow plug, using starting fluid is prohibited. Ether starting fluid is highly inflammable and may explode, resulting in personal injuries. Do not use starting fluid near open flames, sparks or fire. Never burn or puncture a starting fluid can.

If it is below 0°C, use auxiliary start-up equipment. If it is higher than this temperature, using auxiliary start-up equipment may improve starting performance. If at the beginning of start-up or from start-up to idle running, there is much load, then using auxiliary start-up equipment may be required.

Using correct engine oil is critical to achieve required starting speed in cold weather.

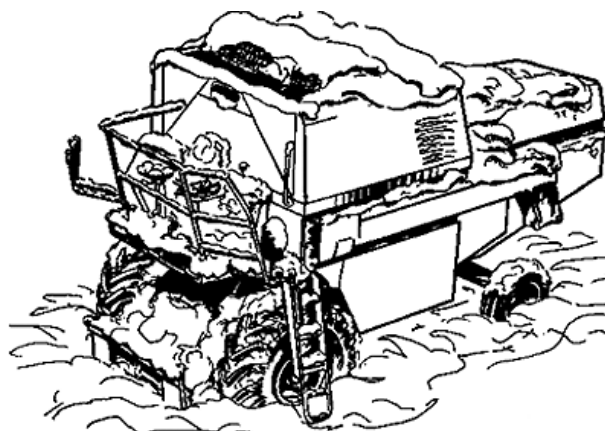
For engine without air intake heater: Manually start ether injector.

CAUTION: Air intake heater runs automatically through engine control unit (ECU). "Engine warm-up indicator" above the engine dashboard keyswitch must be lit, when switch is on. In warm weather, if indicator is lit shortly, carry out checks of the indicator. In cold weather, when air intake heater or glow plug works automatically, the indicator should be lit. Working time is related to temperature. Before indicator is lit, never start the engine.

For engine with air intake heater: Turn keyswitch to (ON) position. Before engine warm-up indicator is off, never start the engine.

Using booster battery or charger

CAUTION: Gases released from battery can cause explosions. Keep battery away from sparks and flames. Before connecting or disconnecting



YC1314—UN—29NOV12

battery charger, switch off charger first. Make last connection and first disconnection at a point away from battery. Negative (-) cable must be connected last and disconnected first. Battery terminals, connectors and related accessories contain lead and lead compounds, which can cause cancer or reproductive system problems. Wash hands after contact.

IMPORTANT: Polarity can cause damage to electrical system. Positive electrode must be connected to positive terminal and negative electrode must be grounded. 12-volt electrical system must use 12-volt booster battery. 24-volt electrical system must use 24-volt booster battery.

1. Connect to booster battery or battery, so as to provide required voltage to engine. Note: To avoid sparks, never connect the free end of jumper cable to engine.
2. Connect one end of jumper cable to the positive (+) terminal of booster battery.

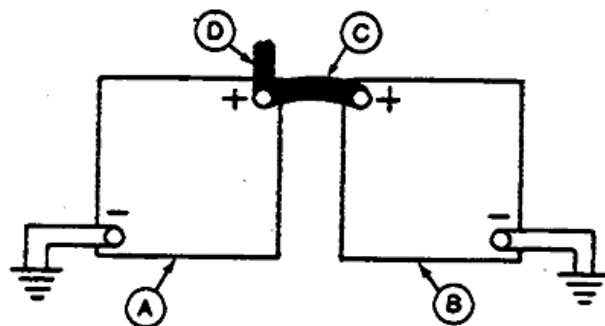
CP00718,00011F7 -19-25DEC13-1/2

3. Connect another end of jumper cable to the positive (+) terminal of the battery (with starter).

4. Connect one end of another jumper cable to the negative (-) terminal of booster battery.

5. After cable connection is done, connect the negative (-) cable to the grounding point which is away from the battery.

6. Start the engine. After switching on the engine, disconnect jumper cable at once. First disconnect negative (-) cable.



YC3781—UN—28FEB13

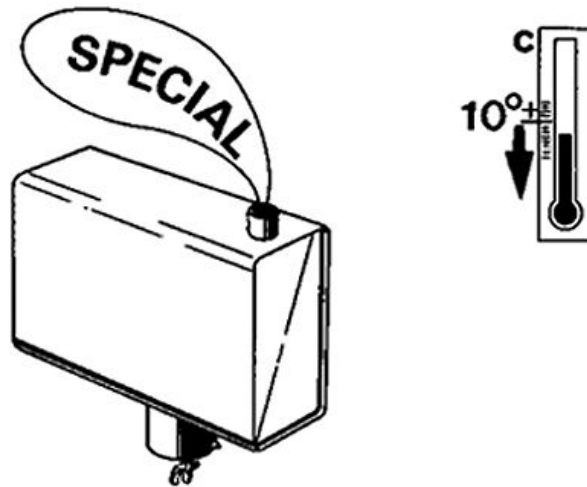
CP00718,00011F7 -19-25DEC13-2/2

Fuel system

Drain water and impurities from fuel tank, dust cup and water catchment filter daily before starting the engine.

Refill fuel tank daily after work, particularly after a harvest season. This can prevent condensation and corrosion.

When working in the fields in winter, if outdoor temperature is lower than 10°C, use special fuel or add some anti-condensation material into fuel, in order to maintain appropriate viscosity.



YC1315—UN—29NOV12

CP00718,00011F8 -19-25DEC13-1/1

Reminder

Combine harvester should be driven by professionals.

When driving on roads, comply with relevant laws and regulations.

CP00718,00011F9 -19-25DEC13-1/1

Start the engine

Please refer to "Pre-start checks" and "Start" instructions of the engine.

Avoid prolonged engine idling

Prolonged idling may cause engine coolant temperature to drop below the normal range. That may lead to thinning of crankcase oil. Owing to inadequate fuel combustion, gelatinous precipitates may form at valves, pistons and piston rings. It also promotes rapid accumulation of engine sludge and unburned fuel in the exhaust system. When heated to normal working temperature, engine can run at low idling speed. Factory setting of engine low idling speed is 1300 rpm. When engine idling is over 5 minutes, stop the engine first and restart it later.



YC1316—UN—24DEC12

CP00596,000090D -19-30OCT14-1/1

Cutter lifting device

Lift the cutter to transport or working position.



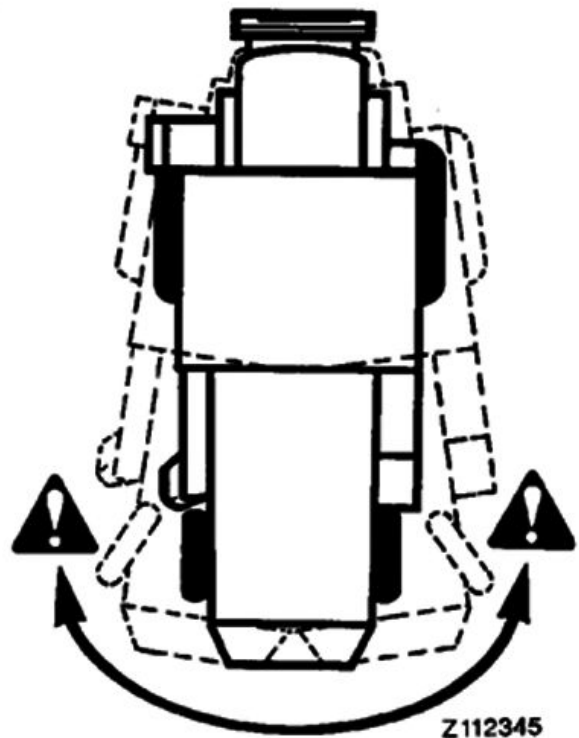
YC1317—UN—16FEB12

CP00718,00011FB -19-25DEC13-1/1

Steer and drive

Combine harvester steers at the rear. Driver should familiarize himself with and master this steering characteristic.

NOTE: When the combine harvester turns, pay particular attention!

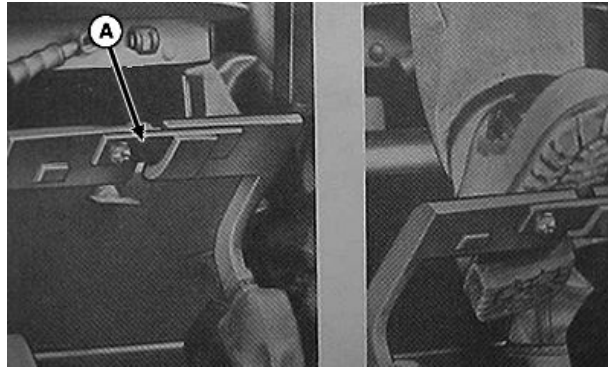


YC1318—UN—16FEB12

CP00718,00011FC -19-25DEC13-1/1

Foot brake

When being transported on roads, use connecting plate (A) to lock the two brake pedals together.



YC1319—UN—23DEC12

CP00718,00011FD -19-25DEC13-1/1

Optional hydraulic drive braking

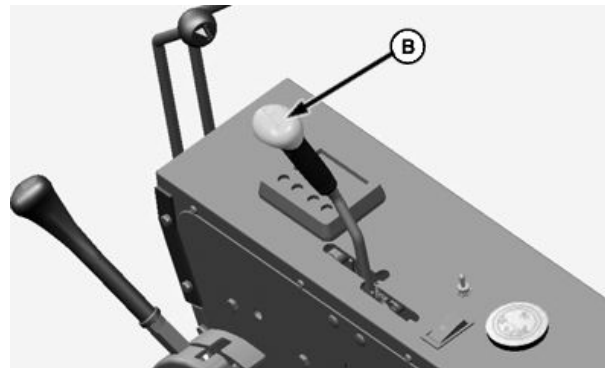
1.Set shift lever (B) to middle position.

2.Press brake pedals (A).

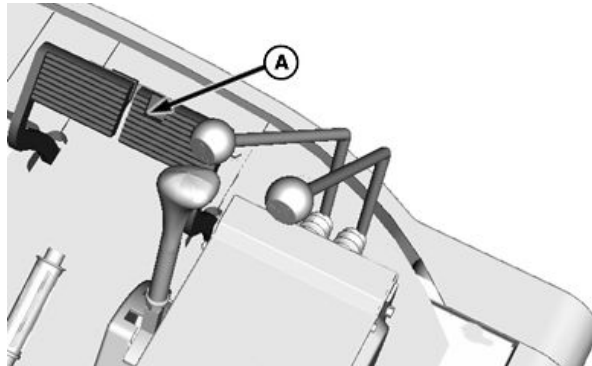
NOTE: Before braking an optional hydraulical drive type harvester, set shift lever (B) to middle position.

A—Brake pedals

B—Shift lever



YC5863—UN—24DEC13



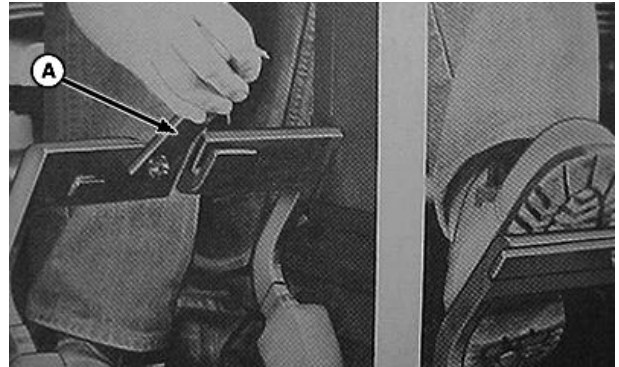
YC5865—UN—24DEC13

CP00718,00011FE -19-25DEC13-1/1

Field working

When making a sharp turn, only need to use one brake. Lift the connecting plate (A) at this moment.

NOTE: To brake the combine harvester, press the two pedals at the same time.

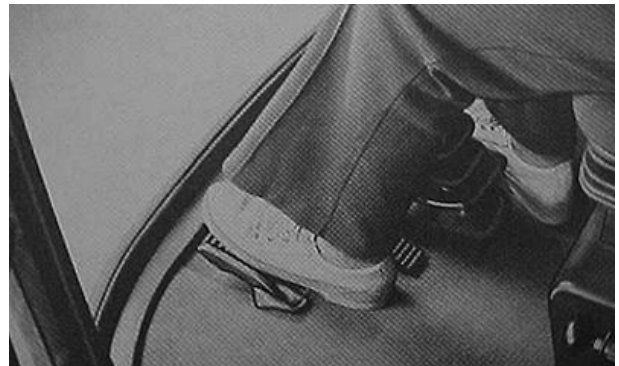


YC1320 —UN—23DEC12

CP00718,00011FF -19-25DEC13-1/1

Clutch

Place transmission in gear after pressing clutch pedal. When combine harvester is in motion, do not press your foot onto clutch pedal. Otherwise, the gear device may be damaged.



YC1321 —UN—23DEC12

CP00718,0001200 -19-25DEC13-1/1

Place transmission in gear

After pressing clutch pedal:

- Choose gear 4 for road transport;
- Choose appropriate gear for working in the fields.

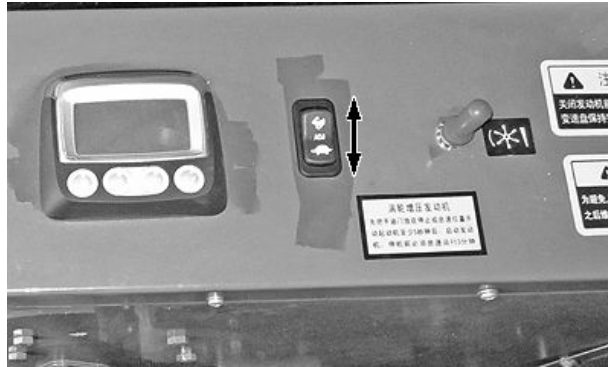


YC1322 —UN—16FEB12

CP00718,0001201 -19-25DEC13-1/1

Throttle

There are three gear settings for electronic throttle control: low speed (1300 rpm), medium speed (1800 rpm), high speed (2400 rpm). Select the appropriate speed (low → high: turtle → rabbit) as necessary.



YC1323—UN—17JAN14

CP00596,000090E -19-30OCT14-1/1

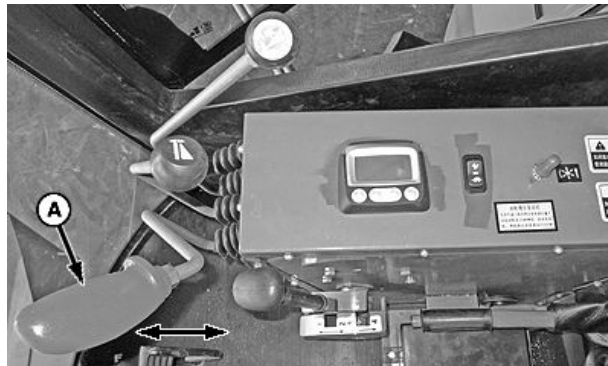
Mechanical CVT control

Driving forward: Pull CVT lever (A) to the lowest speed. Slowly release clutch pedal. Push lever forward until desired speed is reached.

IMPORTANT: Select appropriate speed for road transport and for working in the fields.

Driving backward: When engine is running, pull CVT lever (A) to the lowest speed. Select reverse gear. Slowly release clutch pedal.

A—CVT lever



YC5862—UN—17JAN14

CP00718,0001203 -19-25DEC13-1/1

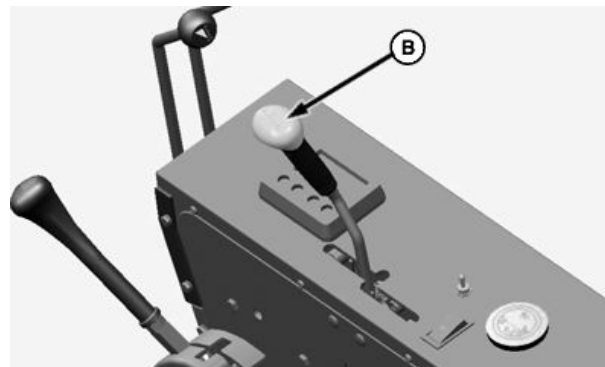
Optional hydraulic drive type ground driving speed control

Driving forward: Pull shift lever (B) to middle position. Push lever forward until desired forward speed is reached.

IMPORTANT: Select appropriate speed for road transport and for working in the fields.

Driving backward: When engine is running, pull shift lever (B) to middle position. Push lever backward until desired reverse speed is reached.

IMPORTANT: When driving backward, range of reverse speed is large, select the appropriate reverse speed.



B—Shift lever

YC5863—UN—24DEC13

CP00718,0001204 -19-25DEC13-1/1

Operating Engine

Get close to the engine

From the rear of engine

From the top of engine



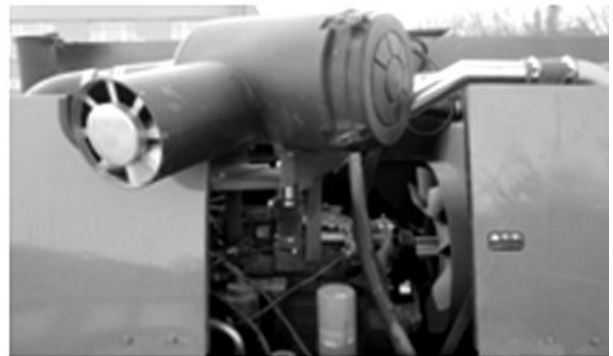
YC1387 —UN—27FEB12

CP00596,0000111 -19-12MAR12-1/1

Engine house

Clean frequently to keep the engine house clean.

NOTE: Dust, engine oil and chaff may easily cause a fire in the engine house. When necessary, use compressed air to clean up the engine house and use a cloth to wipe grease off.

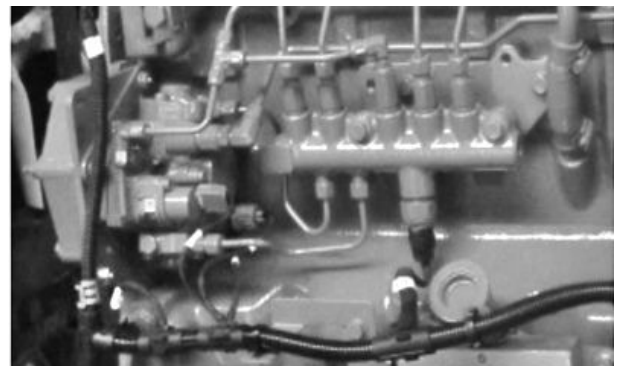


YC1326 —UN—19FEB12

CP00596,0000112 -19-12MAR12-1/1

Get close to the fuel injection pump

Loosen the 4 butterfly nuts in the grain tank, remove the cover, and then you can repair the fuel injection pump.



YC1327 —UN—20FEB12

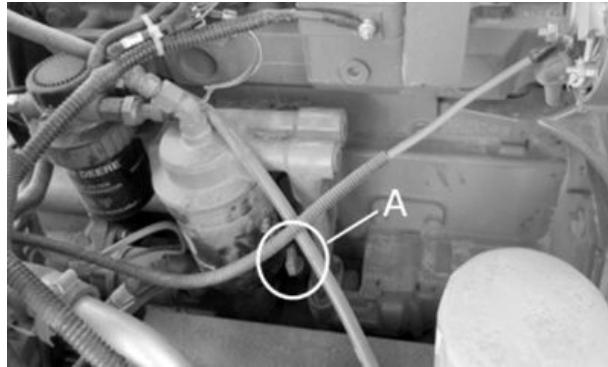
CP00596,0000113 -19-12MAR12-1/1

Check engine sump oil level

To prevent interrupted circulation of lubricant oil when the engine is in tilted position, oil level should not drop below the lowest mark of the gauge.

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

Oil level should reach the required mark of the gauge. Check once every 10 hours. Before picking up the gauge (A), thoroughly clean the surrounding of the gauge.



YC1328—UN—27FEB12

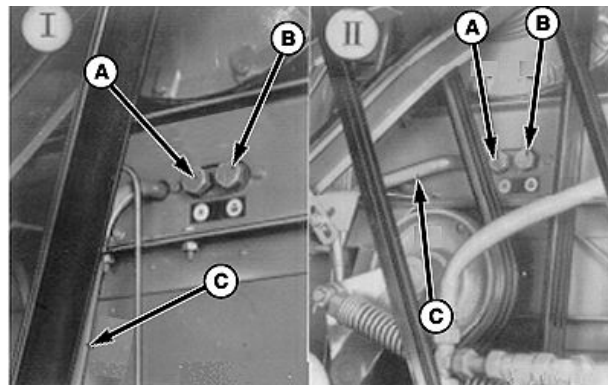
CP00596,0000114 -19-12MAR12-1/1

Change engine oil and filter

1. Follow requirements in **Engine oil and filter service intervals** to change engine oil and filter. Change oil also after harvest season. When discharging oil, harvester should be on level ground. Operate engine for around 5 minutes to pre-heat engine oil. Then, switch off the engine. Tighten oil drain plug (A) before adding oil.

2. Loosen oil draining plug (A).

A—Engine oil drain plug C—Oil drain line
B—Hydraulic oil drain plug

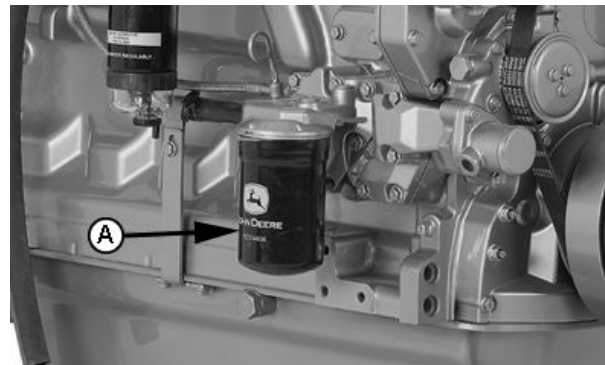


YC2870—UN—11DEC12

CP00596,00008A3 -19-13NOV14-1/5

3. Use a suitable filter wrench to remove filter element (A). Dispose of the used engine oil filter element.

IMPORTANT: Filtering of lubricating oil is very critical for proper lubrication of the machine. Filter must be replaced regularly. Use filter that meet John Deere performance requirements.



RG13721—UN—11NOV04

Continued on next page

CP00596,00008A3 -19-13NOV14-2/5

4. Smear clean engine oil on inner seal ring (B), outer seal ring (C) and threads of the new filter.



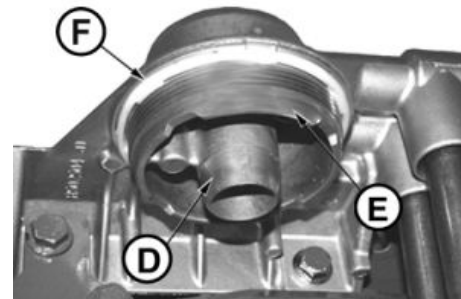
CP00596,00008A3 -19-13NOV14-3/5

RG11617 —UN—24OCT01

5. Use a clean cloth to wipe the two seal surfaces of filter covers (D and E). Make sure that the notches of dust seal ring (F) are properly fitted into the filter housing groove. If dust seal ring is damaged, replace it.

IMPORTANT: When installing filter element, only use hands to tighten it. Filter wrench can only be used when removing the filter. Make sure that the notches of dust seal ring (F) are properly fitted into the filter housing groove.

6. Use hands to install engine oil filter and tighten it until it is closely in contact with dust seal ring (F). After it is in contact with seal ring, never make additional 3/4 to 1-1/4 turns. This is different from standard filters.



A—Engine oil filter element
B—Inner seal gasket
C—Outer seal gasket

D—Cover seal surface
E—Cover seal surface
F—Dust seal ring

CP00596,00008A3 -19-13NOV14-4/5

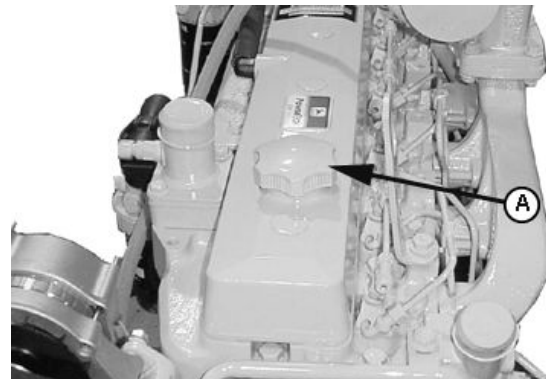
RG11618 —UN—24OCT01

7. Add correct John Deere engine oil through the rocker arm oil inlet cap (A).

IMPORTANT: After changing engine oil, immediately turn the engine for 30 seconds but do not start it. This is to ensure proper lubrication of engine parts before the engine is started.

8. Start the engine and let it run. Check for leakage.

9. After 10 minutes, stop the engine and check engine oil level.



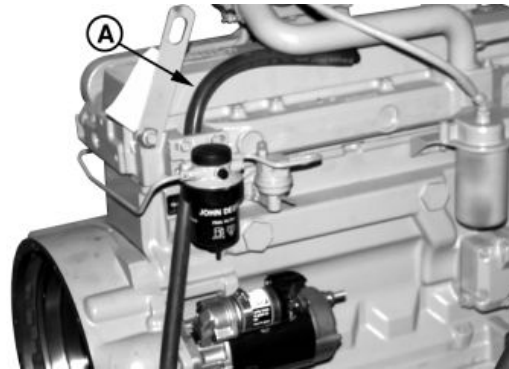
CP00596,00008A3 -19-13NOV14-5/5

RG11619 —UN—24OCT01

Check crankcase ventilation system

If engine is working in dusty environment, shorten the interval between system checks.

1. Remove and clean crankcase vent pipe (A).
2. Install vent pipe. Make sure that O-shaped ring and rocker arm cover match each other. Firmly tighten hose hoop.



CP00596,0000640 -19-13FEB14-1/1

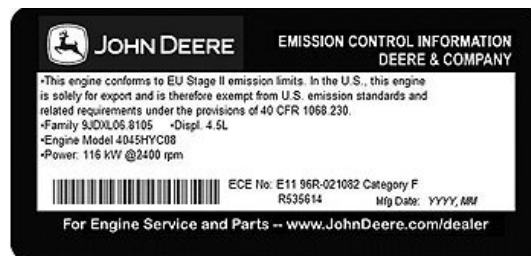
RG8017A—UN—19JUN00

Engine label

Contents on the engine label include the main technical data and information of the machine your purchased. These serve as main basis for the user to buy repair parts and for the machine manufacturer to provide after-sale technical service in future.

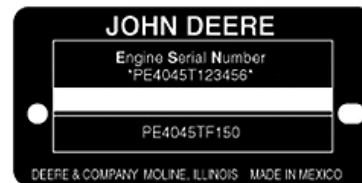
Note: Record all numbers and letters on the engine label. You need to provide that engine product number when you require services and warranty.

Engine control unit serial number



YC1715 —19—01APR12

YC1701 —19—01APR12

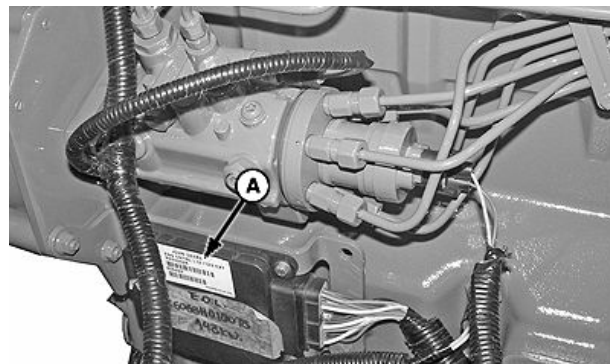


OUYC401,0000165 -19-03MAR13-1/3

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

High-pressure fuel pump model

A—Serial number label



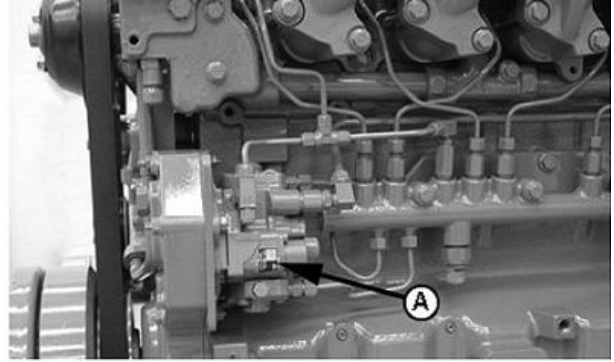
Continued on next page

OUYC401,0000165 -19-03MAR13-2/3

YC3763 —UN—03JAN14

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

A—Serial number label



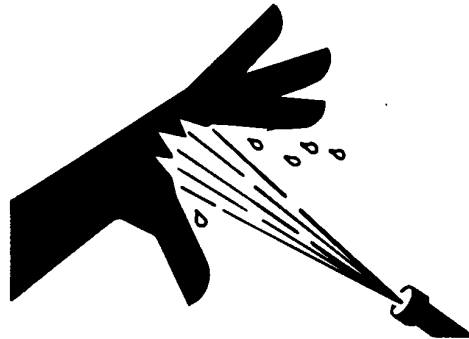
YC3764 —UN—28FEB13

OUC401,0000165 -19-03MAR13-3/3

Avoid injury

⚠ CAUTION: Escaping fluid under pressure can penetrate the skin causing serious injury or death. All pressure must be released before disconnecting lines.

Before pressurizing the system, make sure that all connectors are tightened and all lines are not damaged. Oil can leak from small holes, almost invisible. Use cardboards or wood plates to check for oil leakage. Do not use hands to check it. If injured by injected oil, immediately go to hospital for medical treatment.

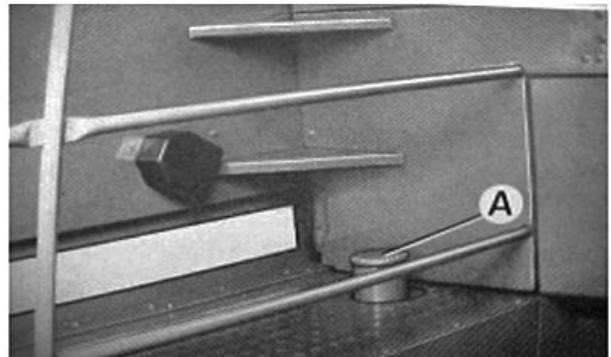


TS1343 —UN—18MAR02

CP00596,0000119 -19-12MAR12-1/1

Fuel tank

Fuel tank inlet is at the rear platform. There is a vent hole at fuel tank cap. Before opening the fuel tank cap, clean surrounding area.

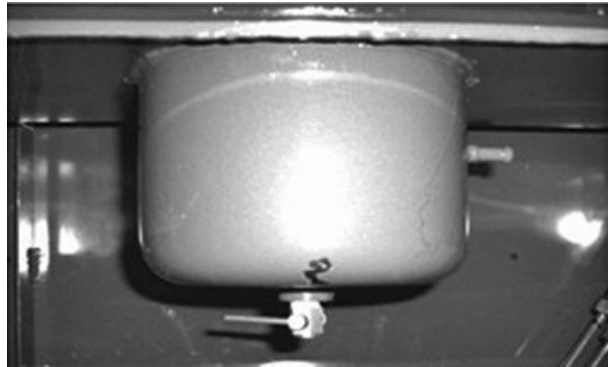


YC1332 —UN—20FEB12

CP00596,000011A -19-12MAR12-1/1

Sediment bowl

Sediment bowl is at the oil tank lower part. At the bottom of sediment bowl is a drain switch, for draining water and sediment. Daily before work starts, open drain switch. After all sediment and water are drained, close drain switch.



YC1333—UN—20FEB12

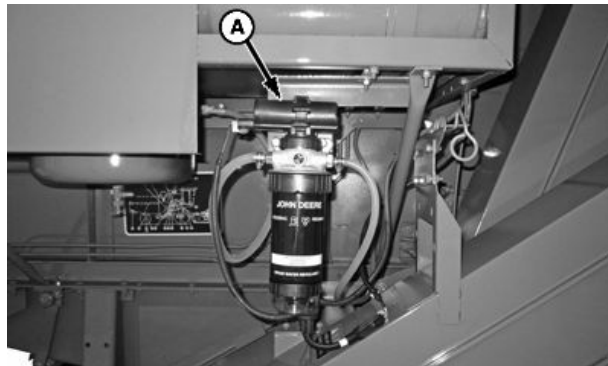
CP00596,000011B -19-13NOV14-1/1

Electric fuel pump

NOTE: Clean area around fuel pump often to avoid material build up, possibly leading to a fire or over-heating of electric fuel pump.

Electric fuel pump (A) is located next to the sediment bowl which is at the lower part of oil tank.

A—Electric fuel pump



YC7865—UN—12NOV14

CP00596,000011C -19-13NOV14-1/1

Use fuel safely

Use fuel carefully: It is highly flammable.

No flame or smoking when getting close to fuel.

Switch off the engine when refueling. Refueling should be done outdoor. Never refuel in the working area.

Keep the machine clean and free of fuel and debris accumulation.

Readily clean up any fuel spilled onto the machine.



TS202—UN—23AUG88

CP00596,000011D -19-12MAR12-1/1

Fuel filter

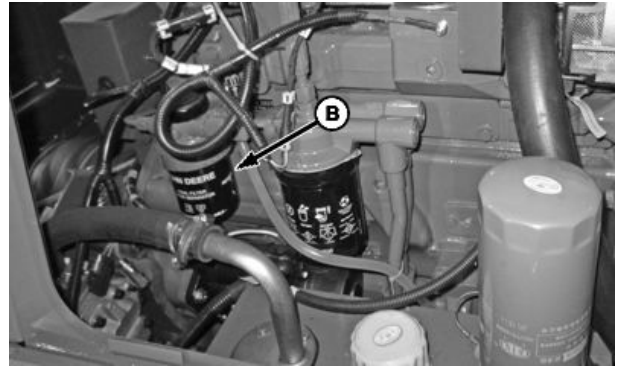
NOTE: *Never fill unfiltered diesel into injection pump.*

After 200 operating hours, change coarse filter (A) and final filter (B) on need basis.

When removing diesel filter element, seal ring or installing new filter element, avoid contact with dust and dirt.

A—Coarse filter, filtering accuracy is 50 microns.

B—Final filter, filtering accuracy is 2 microns.



CP00596,000011E -19-13NOV14-1/1

YC7867 —UN—13NOV14

YC7866 —UN—13NOV14

Bleed air from engine fuel system

Bleed air from fuel system in the following situations:

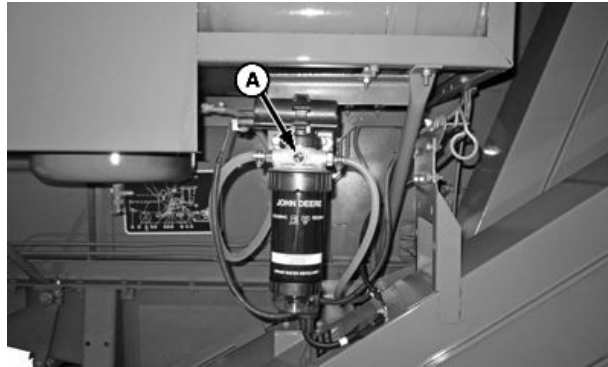
- replacing fuel filter element.
- machine running out of fuel.
- dismantling fuel pipes, fuel injector, or cleaning fuel pump.
- running engine at idle speed for a long time.

Bleed air from fuel prefilter with electric fuel pump

- Fill fuel tank and ensure that fuel shut off is in the open position.
- Turn key switch to auxiliary position to activate electric fuel pump.
- Loosen fuel coarse filter bleed screw (A).
- Tighten bleed screw when no bubble comes out.

Bleed air from fuel filter:

When electric fuel pump works (main switch is connected), loosen final filter bleed screw (B). Observe bleed vent and tighten bleed screw when no bubble comes out.



A—Coarse filter bleed screw

B—Final filter bleed screw

CP00596,000011F -19-13NOV14-1/1

YC7868 —UN—13NOV14

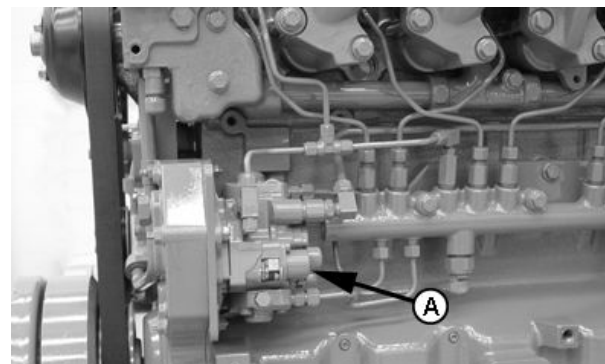
YC7869 —UN—13NOV14

Do not modify fuel system

CAUTION: Opening high-pressure fuel system is strictly prohibited. High-pressure fluid remaining in fuel lines can cause serious injury. Never disconnect or attempt to repair fuel lines, sensors or any other parts between high-pressure fuel pump and fuel system engine fuel injector which is equipped with high-pressure common rail (HPCR). Only technicians who are familiar with this type of system should carry out repairs. (Please contact John Deere dealer.)



IMPORTANT: Before fuel injection pump is completely cooled, never use steam or cold water to clean it. Otherwise, that may cause damage to internal parts of fuel injection pump. If any changes or modifications not recommended by the manufacturer are made to fuel injection pump (A) or fuel injector, product warranty provided by the manufacturer is automatically terminated. Moreover, unauthorized modifications made to fuel system may impact emissions-related equipment. Subject to local laws, that may result in penalty or punishment. Never make unauthorized adjustment of fuel injection pump or fuel injector. That requires professional training and the use of special tools. (Please contact authorized service provider or engine dealer.)



A—Fuel injection pump

OUYC401,0000166 -19-13NOV14-1/1

TS1343 —UN—18MAR92

RG13735 —UN—11NOV04

Clean the air filter

When air filter indicator is lit, that means the air filter is clogged. Clean the air filter immediately.

NOTE: If air filter is not installed, engine cannot start.



CP00596,0000120 -19-12MAR12-1/1

YC1387 —UN—27FEB12

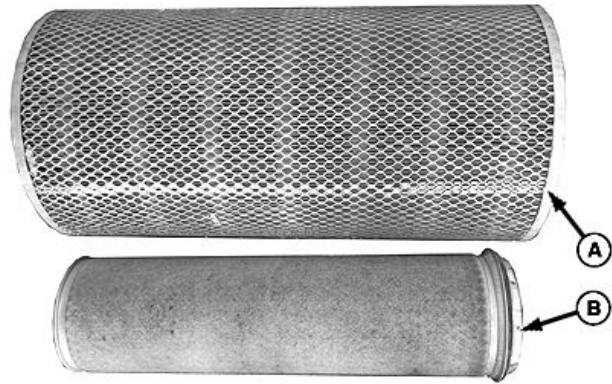
Air filter primary element and secondary element

Each air filter has a dry primary element and a secondary element. If primary filter element is damaged, secondary filter element can prevent dust from entering the engine.

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

A - Primary element

B - Secondary element



YC1339 —UN—17JAN14

CP00596,0000121 -19-03APR14-1/1

Clean the primary air filter element

Cleaning in the fields (simple cleaning):

When filter element needs to be cleaned in the fields, place it onto a soft surface (e.g. tires), and use hand to pat it.

NOTE: When cleaning filter element, beware not to damage it. Only pat against its metal edge.

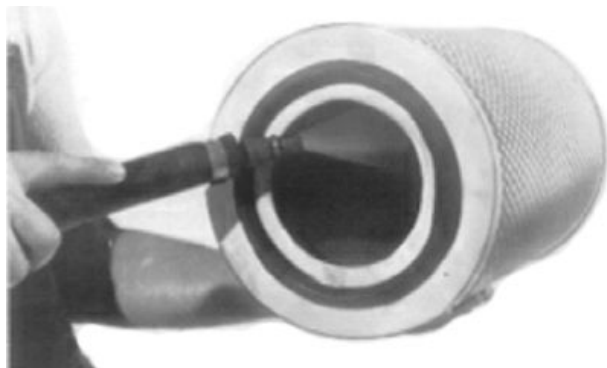


YC1340 —UN—28NOV12

CP00596,0000122 -19-12MAR12-1/1

Use compressed air to clean the air filter

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

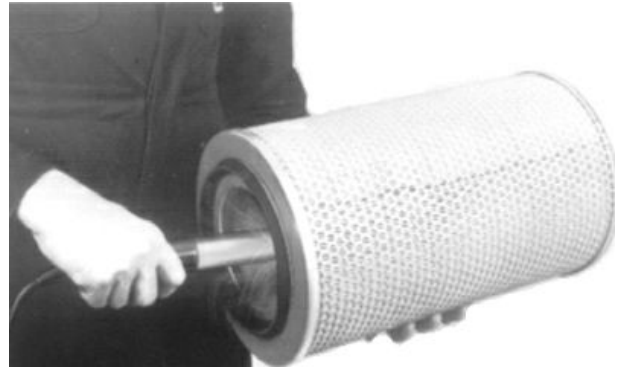


YC1341 —UN—03JAN14

CP00596,0000123 -19-29AUG14-1/1

Check the filter element

After cleaning, check if filter element is damaged. Put a light inside the filter element, you can then check for very tiny cracks when the light goes through. Check if the gasket can be used, replace it when necessary.



YC1342 —UN—03JAN14

CP00596,0000124 -19-12MAR12-1/1

Store filter element

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



YC1343 —UN—03JAN14

CP00596,0000125 -19-12MAR12-1/1

Turbocharger

For every 200 hours, check carefully all connectors and connection points to ensure that turbocharger and lubricating oil pipes do not leak.

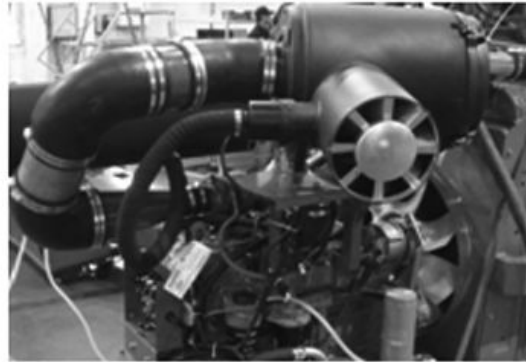


YC1344 —UN—20FEB12

CP00596,0000126 -19-12MAR12-1/1

Air intake pipes

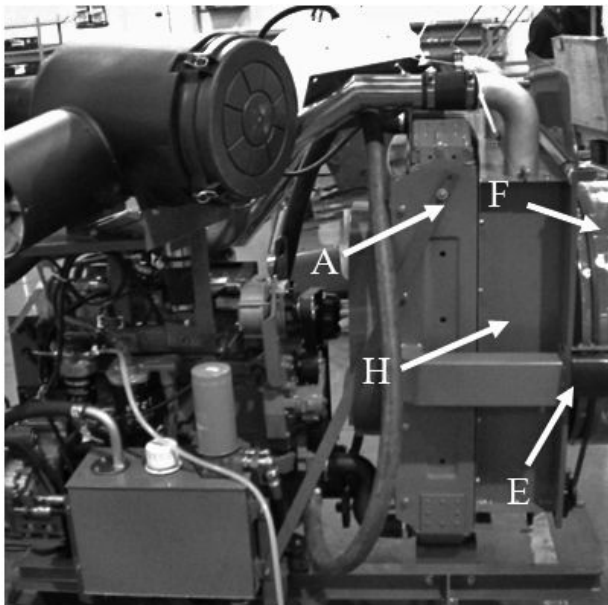
Hose clamps are used to seal and connect steel pipes and rubber hoses. Check at least once a year if all the hose clamps are sealed and tightened. When necessary, replace the hoses and hose clamps.



YC1345—UN—20FEB12

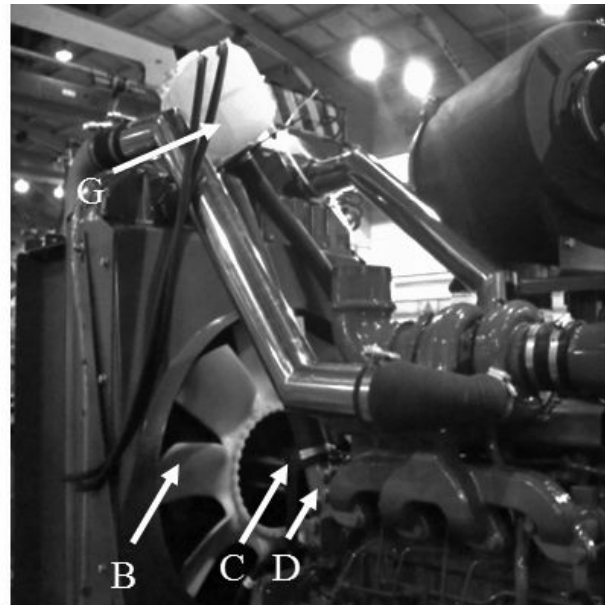
CP00596,0000127 -19-12MAR12-1/1

Cooling system



A—Radiator
B—Fan
C—Thermostats

D—Water pump
E—Vacuum tube
F—Rotary screen



G—Expansion tank
H—Charge air cooler

YC1346—UN—20FEB12

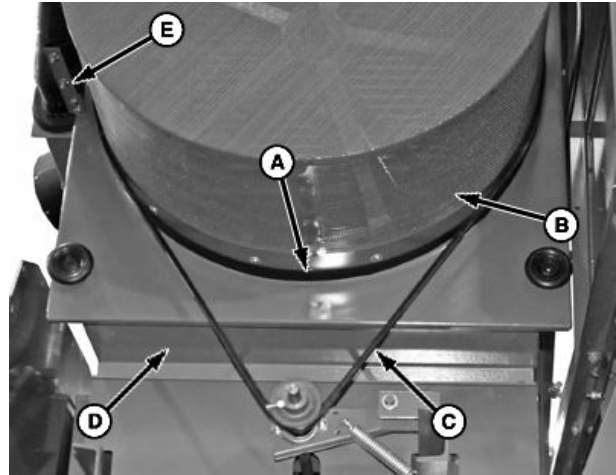
CP00596,0000128 -19-12MAR12-1/1

Exterior cleaning of rotary screen

To keep the exterior of rotary screen (B) clean, clear chaff and dust off rotary screen exterior daily.

Under poor harvesting conditions, clean several times daily.

- | | |
|-----------------|---------------|
| A—Rubber seal | D—Radiator |
| B—Rotary screen | E—Vacuum tube |
| C—Belt | |



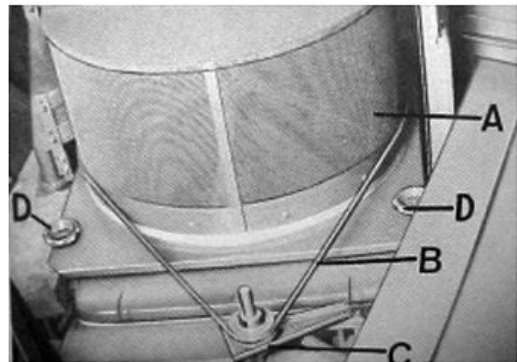
YC7870—UN—13NOV14

CP00596,0000129 -19-13NOV14-1/1

Drive rotary screen

When cleaning the radiator, remove V-belt (B) from the spring tension wheel.

- | | |
|--|--------------------------------|
| A—Rotary screen | C—Middle axle to rotary screen |
| B—Rotary screen middle axle drive V-belt | D—Handle |
| | V-belt |

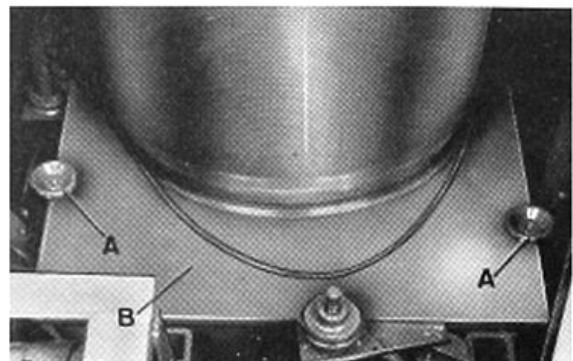


YC1348—UN—20FEB12

CP00596,000012A -19-12MAR12-1/1

Clean the radiator rotary screen

- Unscrew handle (A)
- Fold the rotary screen upward and use a rod to support (B)
- Use a brush to clean the exterior of radiator. If radiator is really dirty, use compressed air or low pressure water to clean radiator. Clean radiator from rear to front.



YC1348—UN—20FEB12

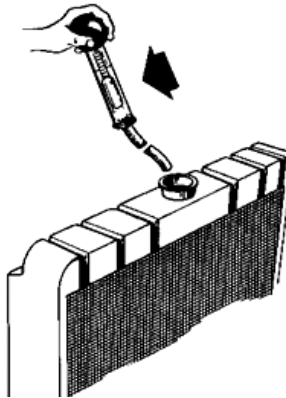
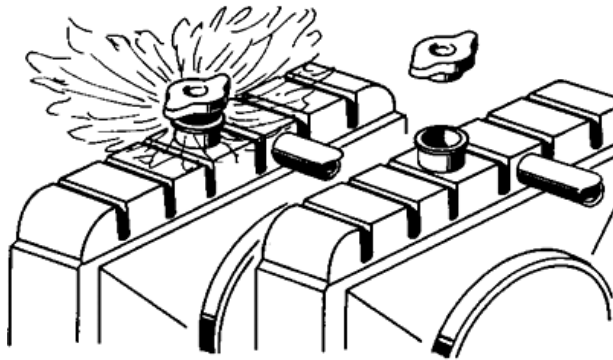
CP00596,000012B -19-12MAR12-1/1

Engine coolant

Daily check the coolant level (every 10 operating hours).

NOTE: Switch off the engine before checking the coolant level.

IMPORTANT: Before winter comes, check the condition of coolant mixture. If engine coolant is water, always drain coolant water in winter.



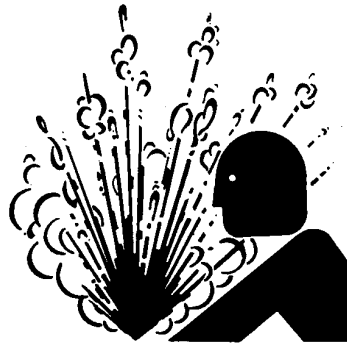
YC1350—UN—20FEB12

CP00596,000012C -19-12MAR12-1/1

Radiator cap

There is a pressure relief valve at the radiator cap. It opens when the pressure is 0.3 ~ 0.4 bar.

⚠ CAUTION: 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 relieve pressure before removing completely.

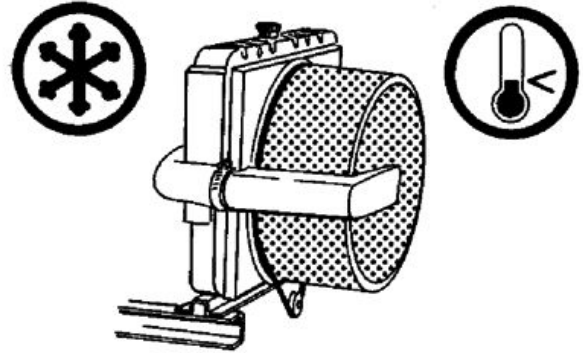


TS281—UN—15APR13

CP00596,000012D -19-12MAR12-1/1

Winter operation of rotary screen

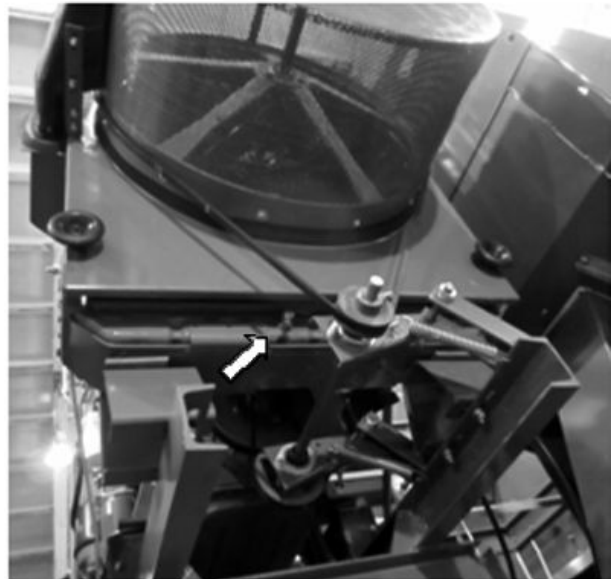
IMPORTANT: If ice and snow accumulate on the rotary screen, the rotary screen belt may break easily when engine starts. When temperature is below 0°C, before switching on the engine, always check if the rotary screen can rotate smoothly.



YC1302 —UN— 16FEB12

CP00596,000012E -19-12MAR12-1/1

Water tank discharge valve



YC1351 —UN— 20FEB12

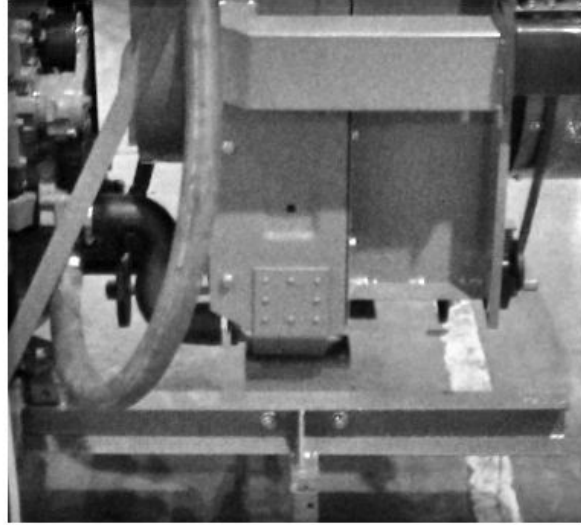
CP00596,000012F -19-12MAR12-1/1

Drive of the radiator rotary screen

Rotary screen relies on the V-belt, which goes through the crankshaft pulley and the countershaft pulley, to transmit power.

Avoid contacting the V-belt with oil and lubricating grease.

Tension of the belt relies on the spring tension device.



YC1353 —UN—20FEB12

CP00596,0000131 -19-12MAR12-1/1

Check and adjust valve clearance

CAUTION: During valve adjustment, remember to disconnect battery negative (-) terminal, so as to avoid sudden start of engine.

IMPORTANT: Valve clearance can be checked or adjusted only when engine is at cool state.

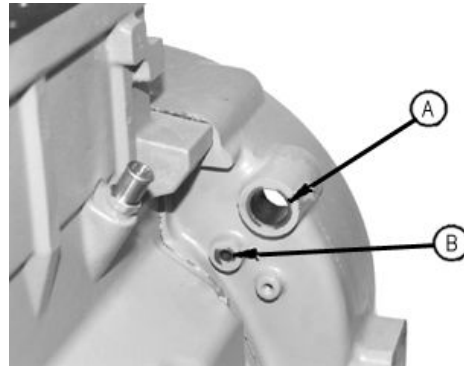
1.Remove rocker arm cover and crankcase vent pipe.

IMPORTANT: Visually inspect contact surfaces of valve tips and rocker arm wear pads. Check all parts for excessive wear, breakage, or cracks. During visual inspection, replace any parts that are found damaged. If valve clearance is too large, carry out a thorough check to identify damaged parts.

2.Remove plastic plugs on the engine timing hole (A) and timing pin hole (B).

3.Turn engine flywheel in the direction of rotation (clockwise as viewed from the front) until cylinder 1 is at compression stroke top dead center. If rocker arm of cylinder 1 is loose, that implies cylinder 1 is at compression stroke top dead center.

4.When engine pin locks at cylinder 1 piston compression stroke top dead center, check if valve clearance meets the following technical specifications.



A—Timing hole

B—Timing pin hole

Specification

Intake valve
clearance—Clearance..... 0.31-0.38 mm

Specification

Exhaust valve
clearance—Clearance..... 0.41-0.48 mm

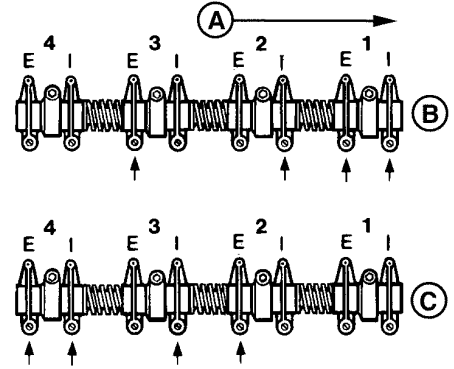
RG7408 —UN—06AUG96

Continued on next page

CP00596,000090F -19-30OCT14-1/3

5. Ignition sequence of engine is 1-3-4-2. If you need to adjust valves, follow this sequence:

1. Lock cylinder 1 piston at compression stroke top dead center (B).
2. Adjust exhaust valve clearance of cylinder 1 and cylinder 3 as well as intake valve clearance of cylinder 1 and cylinder 2.
3. Rotate crankshaft for 360°. Lock cylinder 4 piston at compression stroke top dead center (C).
4. Adjust exhaust valve clearance of cylinder 2 and cylinder 4 as well as intake valve clearance of cylinder 3 and cylinder 4.



A—Engine front
B—Cylinder 1 piston compression stroke top dead center
C—Cylinder 4 piston compression stroke top dead center

E—Exhaust valve
I—Intake valve

CP00596,000090F -19-30OCT14-2/3

6. Carry out adjustment according to the following technical specifications and methods. Loosen lock nut (A) on rocker arm adjustment screw. Turn adjusting screw until sliding of feeler gauge incurs slight resistance. Use screwdriver to hold adjusting screw still. At the same time, tighten lock nut according to technical specifications. Check clearance again after tightening lock nut. Re-adjust clearance if necessary.

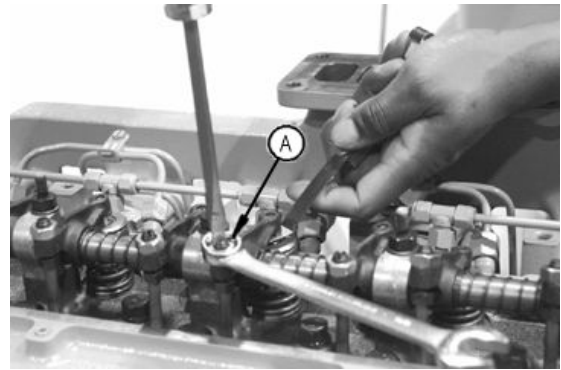
Specification

Intake valve
clearance—Clearance..... 0.36 mm

Specification

Exhaust valve
clearance—Clearance..... 0.46 mm

7. Re-install rocker arm cover and crankcase vent pipe.



A—Adjustment screw

CP00596,000090F -19-30OCT14-3/3

Check fan belt tensioner

Belt tensioner cannot be adjusted or repaired. Automatic belt tensioner is designed to maintain proper belt tension over the life of the belt. If tension of spring does not meet technical specifications, replace the tensioner assembly.

Avoid contacting the V-belt with oil and lubricating grease.

Belt tension relies on the spring tension device.

Check belt for wear and tear

If length of belt and its geometry are correct, belt tensioner can work properly within the range limited by cast stoppers (A and B).

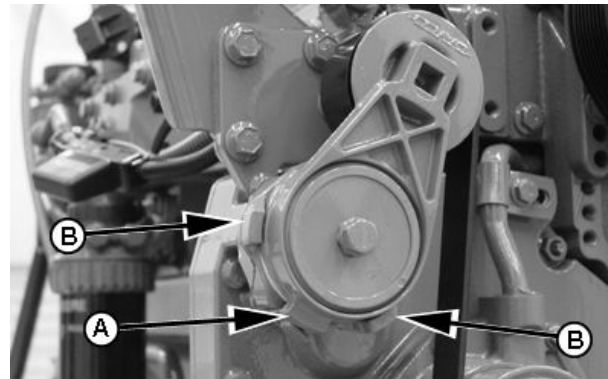
Visually check cast stoppers (A and B) on the belt tensioner assembly.

If stopper (A) on swing arm hits the fixed stopper (B), check the support frame (alternator, belt tensioner, idler wheel, etc.) and length of belt. When needed, replace the belt.

Check spring tension of tensioner

When automatic spring tensioner is used, belt tension gauge cannot give an accurate belt tension measurement. To measure spring tension of tensioner, use a torque wrench and follow the steps below:

1. Use the turning tool with a 1/2 feet long handle to release belt tension. That tool is at the rectangular hole of the tensioner arm. Remove belt from pulleys.



A—Cast stopper

B—Cast stopper



CAUTION: Check pulleys and bearings when removing the belt. Turn and check if it can move smoothly or with abnormal sound. If pulleys or bearings need to be replaced, please contact John Deere dealer.

2. Release tension on tensioner arm and remove turning tools.

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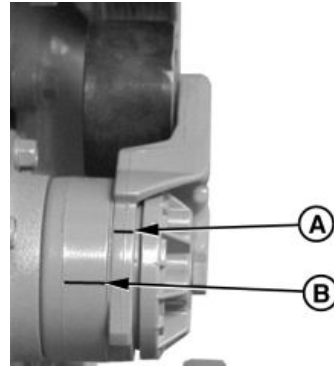
OUYC401,0000168 -19-02MAR13-1/2

RG13744 —UN—11NOV04

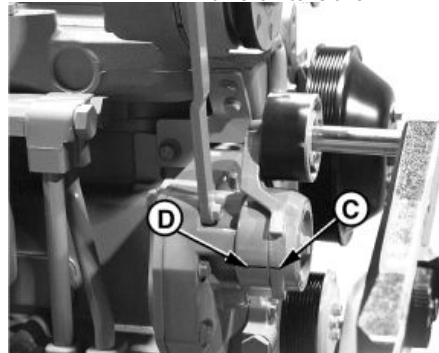
3. As shown in the diagram, make a mark (A) on tensioner swing arm.
4. Make another mark (B), which is 21 mm from mark (A), on tensioner base.
5. Attach torque wrench (C), so that it aligns with pulley and the center of tensioner. Use torque wrench to turn swing arm until marks (A and B) are aligned.
6. Record the measured value of torque wrench, and compare it with the following technical specifications. When needed, replace tensioner assembly

A—Swing arm mark
B—Mark on tensioner
installation base

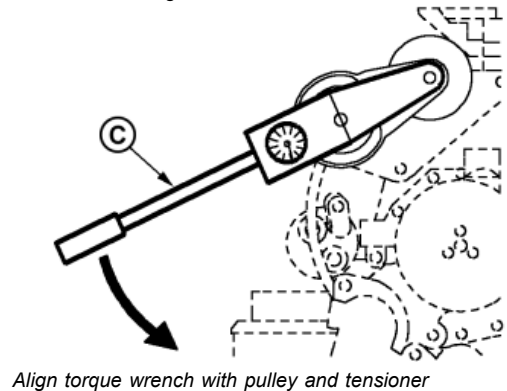
C—Torque wrench



Marks on tensioner



Alignment marks



Align torque wrench with pulley and tensioner

OUYC401.0000168 -19-02MAR13-2/2

RG7977 —UN—14NOV97

RG8037C —UN—11SEP00

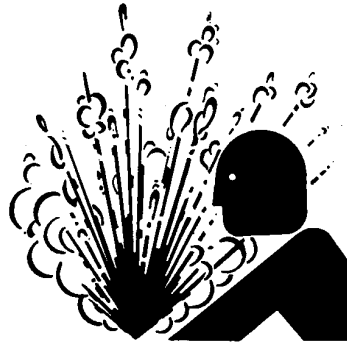
RG12065 —UN—28JAN02

Test thermostat opening temperature

Remove thermostat

⚠ CAUTION: Explosive release of fluids from pressurized cooling system can cause serious burns. Discharge coolant only when its temperature is lower than working temperature. Always loosen radiator pressure cap or drain valve slowly to release pressure.

- 1.1. Visually check if there is any leakage around thermostat.
2. Remove radiator pressure cap and partially bleed the cooling system.



TS281—UN—15APR13

OUYC401,0000169 -19-02MAR13-1/7

3. Remove pipe from thermostat cover to coolant pump and seal.

A—Pipe from thermostat cover to coolant pump



RG8115A—UN—15JAN88

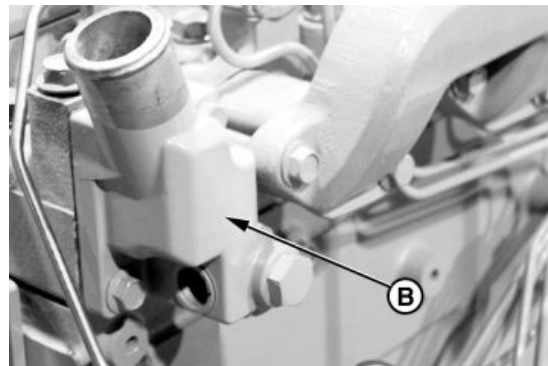
OUYC401,0000169 -19-02MAR13-2/7

4. Remove thermostat cover (B) and gasket.
5. Remove thermostat.
6. Remove and scrap all gaskets. Clean contact surface of gaskets.
7. Clean and check the cover for cracks or damage.

Test thermostat opening temperature

1. Remove thermostat.
2. Visually check if thermostat is corroded or damaged.

B—Thermostat cover



RG7921A—UN—13NOV97

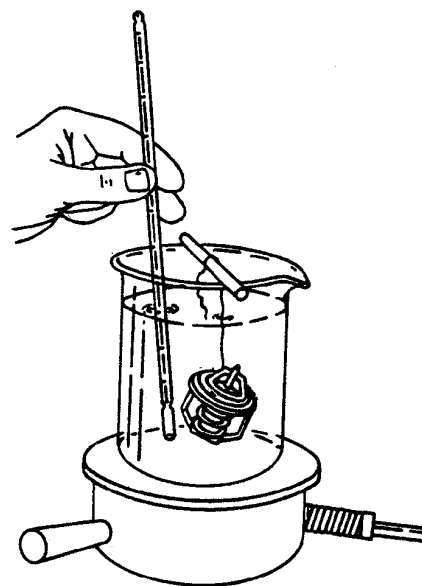
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OUYC401,0000169 -19-02MAR13-3/7

3. Hang thermostat and thermometer in water container
4. Stir the water as it heats. Observe the opening of thermostat: start to open at 71°C, fully opened at 82°C.
5. Take out the thermostat and observe its closing when cooled down. In ambient temperature, thermostat should close completely. Its closing should be smooth and slow.
6. Replace damaged thermostat.

Install thermostat

1. Clear all gaskets on thermostat cover and thermostat housing surface.



RG5971 —UN—23NOV97

OUYC401,0000169 -19-02MAR13-4/7

2. Use positioning pins (A) to hold the gasket properly. A new gasket should be put on cylinder head.
3. Use reeling to install thermostat, so that it is at upright position.
4. Use screwdriver to hold thermostat still. Install thermostat and coolant manifold / thermostat cover.
5. Tighten the bolts of that cover with torque 70 N.m.



RG7614A —UN—06NOV97

OUYC401,0000169 -19-02MAR13-5/7

6. Use multi-purpose lubricating grease to lubricate the new O-shaped ring. Install rear oil seal (B) at thermostat cover.

A—Positioning pins

B—Rear oil seal



RG7921B —UN—13NOV97

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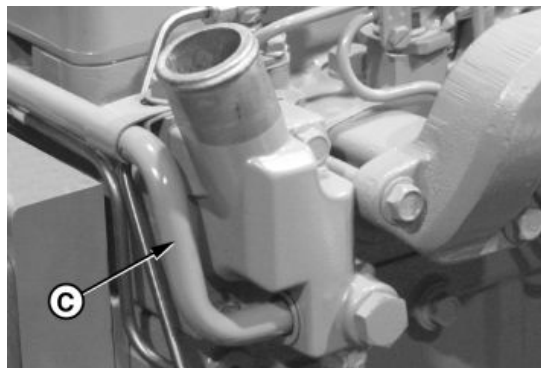
OUYC401,0000169 -19-02MAR13-6/7

7. Install coolant manifold / thermostat cover to coolant pump pipe (C). Tighten clamps.

8. If coolant is not yet added, fill coolant into cooling system and then check for leakage.

IMPORTANT: When filling in coolant, bleed air from the cooling system. To bleed air from the system, loosen the temperature sensor connector at the rear of cylinder head or the plug on thermostat housing. Reinstall connector or plug after bleeding air.

C—Thermostat cover
connecting pipe



RG8115B —UN—15JAN98

OUYC401,0000169 -19-02MAR13-7/7

Electrical, Hydraulic and Drive Systems

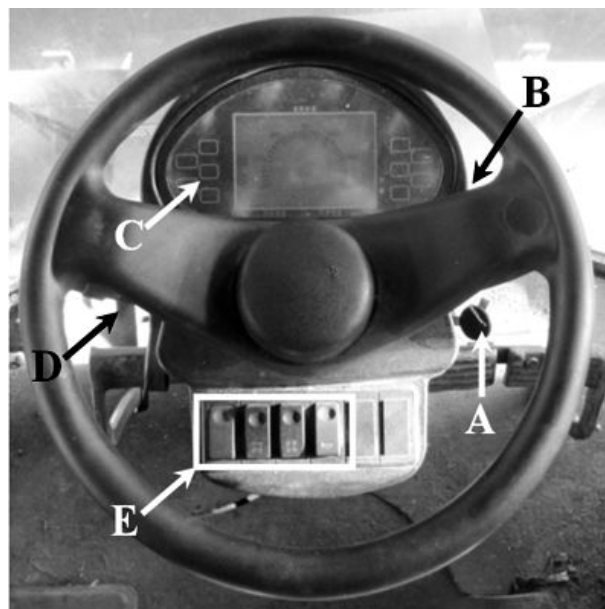
Tune-up combine harvester

1. When in operation, observe carefully if the indicator lights on the dashboard are normal, and all signal devices are working reliably.
2. Check if the electrical system lines, lights, indicator lights are working reliably.

Driving control:

C110 adopts modular meter instrument, as shown in the diagram:

- A — Power switch
- B — Right handle modular switch
- C — Modular meters
- D — Left handle modular switch
- E — from left to right: danger alert switch, lighting, grain unloading alert, horn.

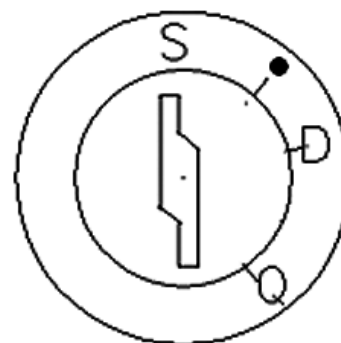


YC1354 —UN—21FEB12

CP00718,0000FCF -19-11DEC13-1/1

Power switch

- ① "S" is a dummy (lock, steering locking device is not provided, so when key is turned from "•" auxiliary position to "S" position, pressing safety button (black) cannot lock the steering wheel).
- ② "•" (auxiliary position): This position is not in use.
- ③ "D" (ignition position): Turn the key to this position so that regulator is on and battery continuously discharges to the generator excited winding. Oil pressure gauge, water temperature gauge and voltmeter are connected, showing the signal values of engine and battery under current operating conditions. After engine is off, promptly disconnect from ignition position. Otherwise, excited winding and regulator will be burnt.
- ④ "Q" (start position): Turn the key to this position so that starter is on and it drives engine to start. Key returns to "D" position when hand is no longer holding it. Never hold



the key and stop it from returning after engine starts, that can damage the starter!

YC1355 —UN—21FEB12

CP00718,0000FD0 -19-11DEC13-1/1

Modular switch right handle

Modular switch right handle is located at the bottom right of the steering wheel. It controls the wipers.

- ① OFF gear: Set the modular switch right handle to the forefront position. Wipers return to their original positions.
- ② LO gear: Set the modular switch right handle backward to gear I. Wipers move in low speed.

- ③ HI gear: Set the modular switch right handle backward further to gear II. Wipers move in high speed.

CP00718,0000FD1 -19-11DEC13-1/1

Modular dashboard

For details, refer to Operator station - Controls and meters
10-7

CP00718,0000FD2 -19-11DEC13-1/1

Modular switch left handle

Modular switch left handle is located at the bottom left of the steering wheel. It controls the front and rear extremity lights, meter lights, front headlights, front and rear turn signal lights and brightness of headlights.

① Extremity light and meter light switch: Turn the modular switch left handle backward to gear I. Front and rear extremity lights are constantly on, illuminating a wide area for working at night. Meanwhile, meter lights are on for viewing the meters at night, so that working conditions can be monitored.

② Headlight switch: Turn the modular switch left handle further backward to gear II. Headlights and front and rear extremity lights are constantly on. That is for working at night.

③ Turn signal light switch: Move the modular switch left handle from neutral position to the turning direction. Front lights and side taillights of the turning direction flash. Meanwhile, turn signal indicator light on the dashboard flashes. After turning, set the switch back to neutral position.

④ Headlight dimmer switch: Move modular switch left handle upward, headlight is set to low beam. Move handle downward, headlight is set to high beam. Move handle up and down several times, low beam and high beam are set alternately. That is used for driving at night and under foggy weather.

CP00718,0000FD3 -19-11DEC13-1/1

Use and maintenance

① After engine starts, release start-up key at once so it returns automatically to "D" position. Each start should last for about 5 seconds. Pre-heating time should not exceed 5 seconds. If start fails, wait at least for 2 minutes before restart. If it still fails, wait at least for 5 minutes before starting again. If it fails to start in three attempts, stop trying. Carry out troubleshooting first and then start again. After engine stops, turn the key back to its original position, i.e. S or ● position.

② In non-harvest season, remove battery from the harvester and place it in a well-ventilated and dry place. Recharge it once a month as required (6-QA-135 battery generally is recharged with 13.5 amps constant current).

③ After engine starts, start-up switch should be able to return to original position automatically. If it does not return, replace or repair it. Otherwise, that can burn the starter. Upon starting the starter, if you hear that starter pinion hits engine gear ring, release your hand at once so that start-up switch returns to original position. After starter pinion returns to starting position, attempt to start again.

④ Frequently clean up the dust on the alternator. Never use wire-spark method to check if the alternator is generating electricity.

CP00718,0000FD4 -19-11DEC13-1/1

Precautions of using battery

1. Before use, first check if battery has cracks, so as to prevent leakage of electrolyte.
 2. Electrolyte level should be higher than electrode plate for 10-15 mm. When insufficient, add distilled water. Never add ordinary water or concentrated sulfuric acid.
 3. When mixing electrolyte, diluted sulfuric acid emits heat and increases the temperature of electrolyte. Therefore, mixed electrolyte should only be filled into the battery after it is cooled down to below 35°C.
 4. Always check if the binding post head is firm. If necessary, use a wire brush or scraper to clear oxides on the binding post and the post head. Then, smear a thin layer of Vaseline or lubricating grease to prevent formation of sulfate.
 5. Always check if the binding post head is firm. If necessary, use a wire brush or scraper to clear oxides on the binding post and the post head. Then, smear a thin layer of Vaseline or lubricating grease to prevent formation of sulfate.
 6. Use multimeter to measure the battery terminal voltage. Usually when standing still, the terminal voltage is $\geq 12.6V$, and the electrolyte density is $\geq 1.22g/cm^3$. Then, you can basically determine that the battery has a certain level of power reserve.
 7. Negative electrode of battery should be grounded through the main switch (grounding), positive electrode connects to power supply, and these cannot be reversed. Otherwise, the alternator will burn, causing serious damage to electrical parts.
 8. Never use wire-spark method to check the voltage. When alternator is running, never disconnect the wiring to the battery.
 9. When the battery is in serious lack of electricity, unload and re-charge it. Never forcibly start the machine. Otherwise, it leads to bending of electrode plate, falling off of active materials and premature scrapping of battery.
 10. Before repairing electrical parts, disconnect the battery main switch. Otherwise, electrical components will be damaged.
 11. When the combine harvester requires welding, the grounding wire of welding machine should be as close as possible to the weld. Disconnect battery main switch and remove alternator positive wire (red).
 12. Battery cover should be kept clean and air vent of the inlet cap should not be blocked, so as to avoid danger caused by gas expansion due to chemical reaction during charging.
 13. Measure the battery voltage. When alternator is not working, the voltage is 12 - 12.5 volts. When alternator is working, the voltage is 12.8 - 13.8 volts.
 14. When electrolyte drops too fast, check for leakage or if the output voltage of alternator is too high.
- IMPORTANT: When the battery is not in use for a long time, unload it and store it indoor. Regularly check the degree of battery discharge. If it exceeds the specified limit, re-charge it at once.**

CP00718,0000FD5 -19-11DEC13-1/1

Check the electrolyte specific gravity

Use a hydrometer to check the electrolyte specific gravity. Electrolyte specific gravity of a fully charged battery should be 1.28, and that of a discharged battery falls to 1.20.

The relationship between electrolyte density and degree of discharge is: density drops every 0.01g/cm³ is equivalent to 6% of battery being discharged. Battery discharged for more than 50% in summer and more than 25% in winter should not be used. Re-charge it at once. Otherwise, the battery will be scrapped prematurely.

NOTE: Temperature affects the battery charging level. Electrolyte specific gravity of a fully charged battery in tropical areas is 1.23.



YC1356—UN—06FEB14

CP00718,0000FD6 -19-11DEC13-1/1

Check electrolyte level

After 100 operating hours, check the battery electrolyte level. It should be at the middle line between the maximum and minimum marks. If it is below the middle line, it is considered too low. Distilled water should then be added.

IMPORTANT: As water and electrolyte cannot be mixed immediately, run the engine for 30 minutes in winter and then add distilled water, in order to ensure well mixing of water and electrolyte.



YC1357—UN—06FEB14

CP00718,0000FD7 -19-11DEC13-1/1

Starter

NOTE: When servicing electrical system, disconnect battery grounding wire or switch off main power.

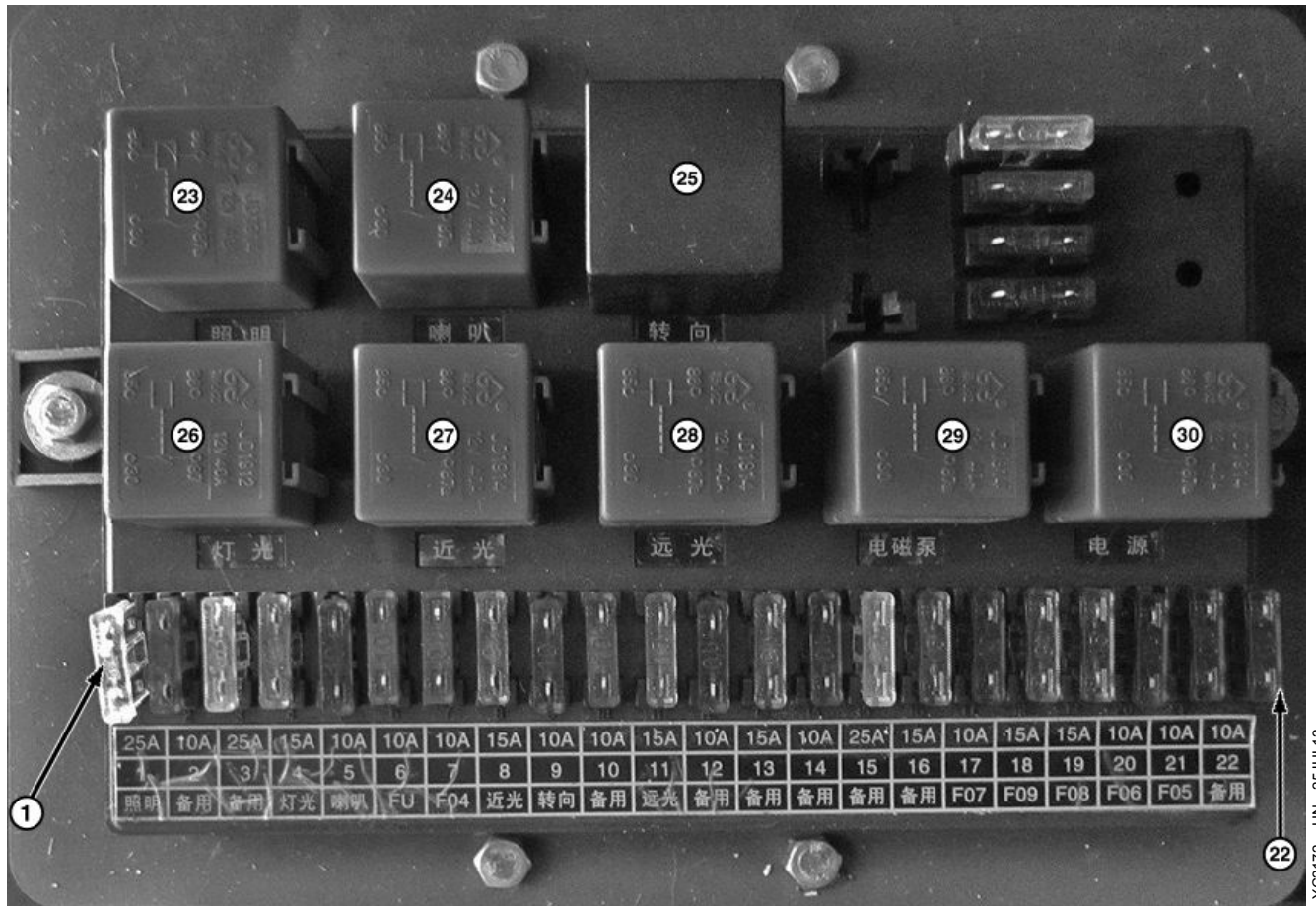
When starting, if starter does not run or runs very slowly, refer to the following table to carry out checks. If the starter is defective, contact an experienced technician to repair it.

Starter should be serviced once a year.

Causes	Maintenance measures
1. Grounding wire is loose, dirty or corroded	Clean and tighten all binding posts.
2. Battery output power is low	Check electrolyte level and specific gravity. Charge battery if necessary.
3. Battery voltage is low	Charge the battery.
4. Viscosity of engine oil is not correct	Drain original engine oil and fill in engine oil of correct type.

CP00596,00008A4 -19-01SEP14-1/1

Driving cab fuse panel



1— Work light 25A

2— Spare 10A

3— Spare 25A

4— Side work light 15A

5— Horn 10A

6— Extremity light 10A

7— Grain unloading light 10A

8— Low beam headlight 15A

9— Turn signal light 10A

10— Spare 10A

11— High beam headlight 15A

12— Spare 10A

13— Spare 15A

14— Spare 10A

15— Spare 25A

16— Spare 15A

17— Dashboard 10A

18— Windshield wiper 10A

19— Reversing light and horn 15A

20— Brake light 10A

21— Reel speed control motor 10A

22— Spare 10A

23— Work light relay

24— Horn relay

25— Turn signal light relay

26— Side work light relay

27— Low beam headlight relay

28— High beam headlight relay

29— Transfer pump relay

30— Power relay

1. Fuse panel is on the right side of driving cab, next to the seat.

2. Change fuses and relays as needed.

IMPORTANT: Only use fuses of the recommended value in the positions indicated

CP00718,0000FD9 -19-11DEC13-1/1

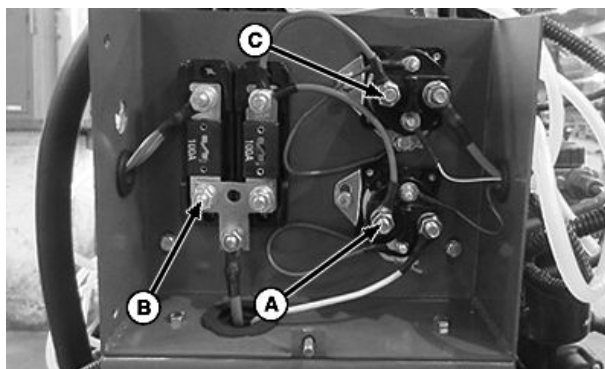
Start relay and main fuse

When ambient temperature is below 0°C, engine ECU sends out commands, so that pre-heat relay connects to the engine and starts pre-heating.

NOTE: When replacing the fuse piece, make sure to disconnect the main switch to avoid grounding of repair tools and burning of battery.

A—Start relay
B—Main fuse

C—Pre-heat relay



YC1359—UN—25DEC12

CP00718,0000FDA -19-11DEC13-1/1

Alternator

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

Alternator (A) is driven by engine crankshaft belt (B). Tensioner pulley (C) automatically tensions the belt.

When engine is running, alternator generates electricity to electrical equipment of the whole vehicle, and at the same time charges the battery power used for starting.

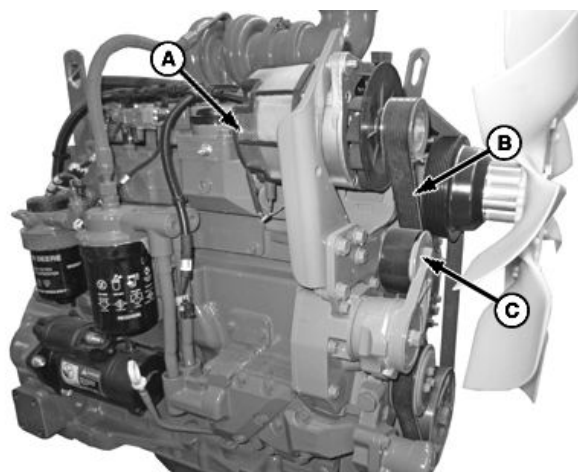
Before operating the alternator, battery grounding cable must be disconnected.

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

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

Owing to bad working environment of harvester, user needs to regularly clean up debris on the alternator cover, to ensure good heat dissipation.

User must not add other load or electrical equipment, in order to avoid overloading of alternator.



A—Alternator
B—Belt

C—Tensioner Pulley

YC8126—UN—28JAN15

CP00596,00009DC -19-29JAN15-1/1

Adjust and check the tightness of the alternator drive belt

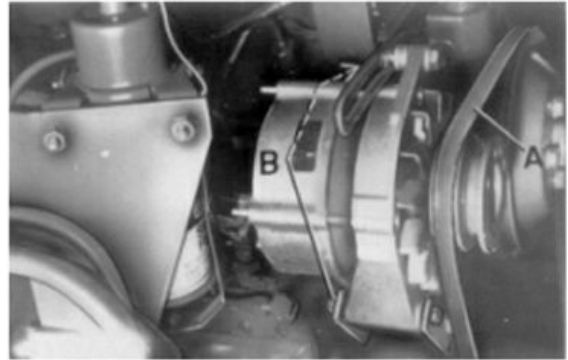
Loosen nut (B). Turn the alternator downward, so as to tighten the V-belt (A). Exert 39 N.m. force on the belt between the pulleys. The belt should be of 10~15 mm deflection.

IMPORTANT: Never make the V-belt too tight; Otherwise, it will be damaged.

Inspect alternator:

Alternator should be inspected by professional technician once a year.

Note: Before repairing electrical system, disconnect the battery grounding wire.



YC1361—UN—21FEB12

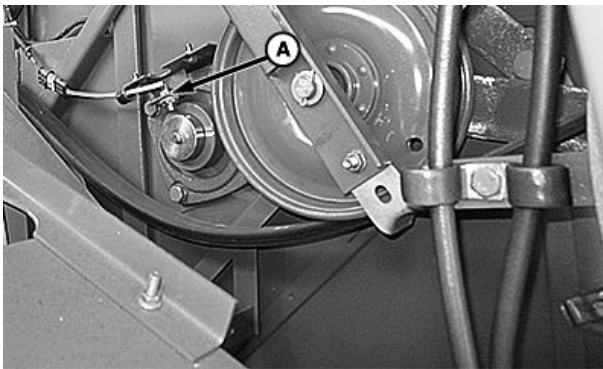
CP00718,0000FDC -19-11DEC13-1/1

Cylinder Speed Sensor

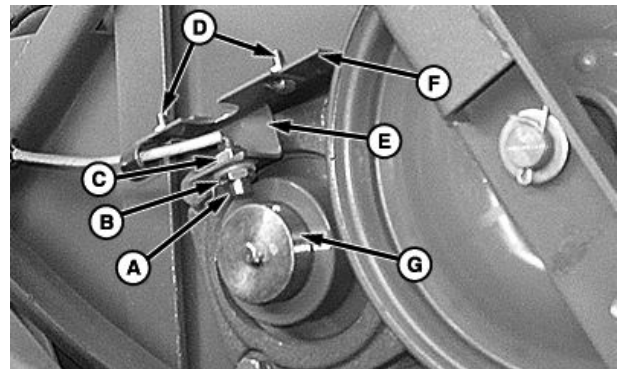
Cylinder speed sensor (A) is located on the left side of engine.

If magnetic steel and sensor positions change because of threshing cylinder maintenance or other reasons, adjust the clearance of cylinder speed sensor.

Adjustment: Adjust nuts (B and C) to adjust clearance (H) between sensor (A) and magnetic steel (G). Check magnetic steel and sensor clearance and make sure no interference. Fine tune to minimize clearance. If necessary, loosen bolts (D), adjust position of guide (E) on plate (F), so that sensor (A) and magnetic steel (G) align (concentric). Tighten bolts (D).



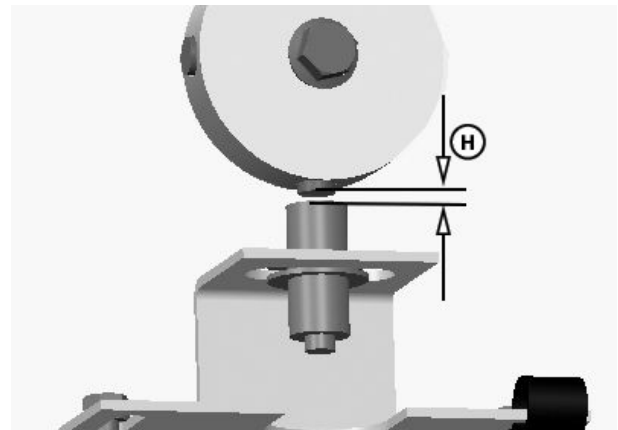
YC10643—UN—20JUL16



YC10644—UN—20JUL16

A—Sensor
B—Nut
C—Nut
D—Bolts (2 pieces)

E—Guide
F—Plate
G—Magnetic Steel
H—2 mm

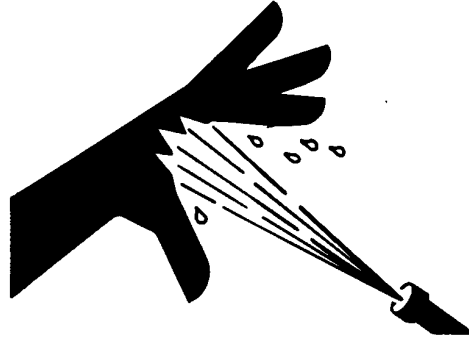


YC10645—UN—20JUL16

CP00606,0000F0E -19-21JUL16-1/1

About leakage of hydraulic lines and hoses

! CAUTION: Leaked hydraulic oil and diesel have enough pressure to penetrate into the skin, causing serious injury. Hence, before disconnecting any lines, remember to release pressure from the system. And, tighten all connectors firmly before pressurizing the system. Make sure that oil lines pipes and hoses are not damaged. Leakage from tiny holes along oil lines is barely visible. Use cardboard or wood plates to check for leakage (never check with bare hands). In case of injury caused by ejected oil, immediately seek for medical treatment.



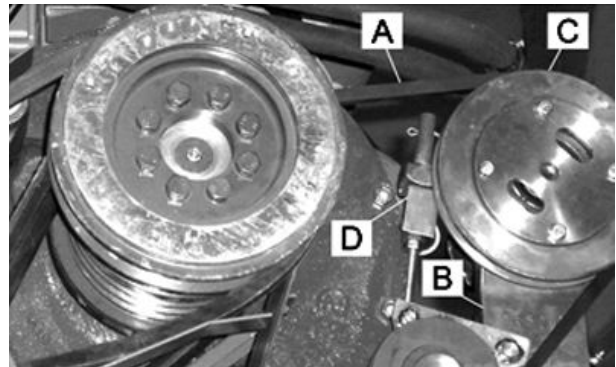
TS1343 —UN—18MAR92

CP00718,0000FDD -19-11DEC13-1/1

Hydraulic pump drive

Hydraulic pump drive belt tension is automatically controlled by tension spring.

A—V-belt C—Pulley
B—Hydraulic pump drive belt D—Tension spring



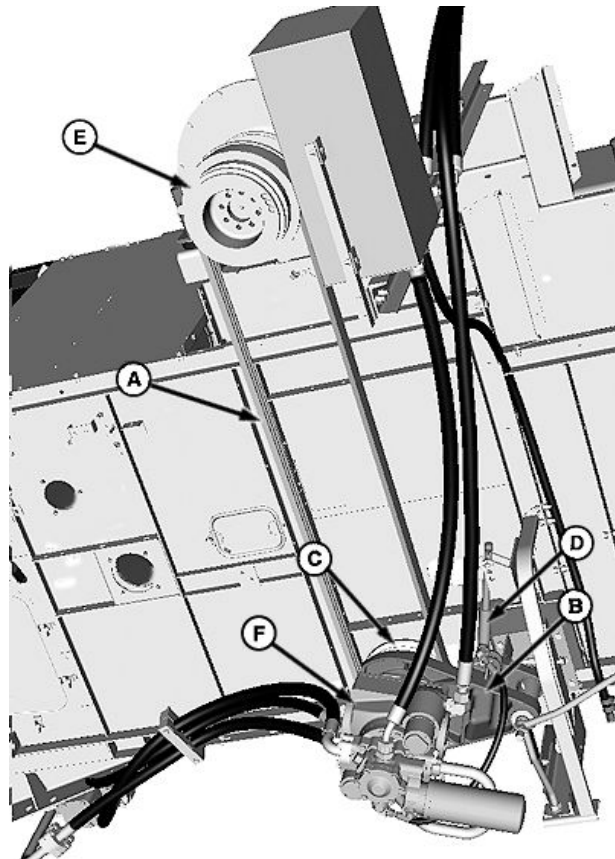
YC1362 —UN—21FEB12

CP00718,0000FDE -19-11DEC13-1/1

Variable pump drive belt tension - Optional hydraulic drive type

Variable pump drive belt (A) is automatically tensioned by tension cylinder (D).

- | | |
|-------------------------|--------------------------|
| A—Belt | D—Tension cylinder |
| B—Variable pump bracket | E—Engine output terminal |
| C—Pulley | F—Variable pump |



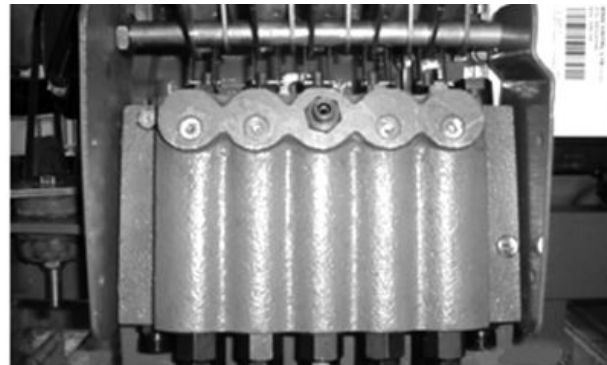
YC8850 —UN—23DEC13

CP00718,0000FF3 -19-11DEC13-1/1

Hydraulic control valve

Hydraulic control valve is installed on the engine. The lever pulls the cable to control the lifting and lowering of the cutter and reel, continuously variable transmission of the cylinder, rotation of grain unloading cylinder and continuously variable transmission driving. Follow the signs on the operating handle, push the lever forward or pull it backward to carry out corresponding operations.

If hydraulic valve is defective, ask professional technician to repair it.



YC1363 —UN—21FEB12

CP00718,0000FDF -19-11DEC13-1/1

Change oil of hydraulic system

Change oil after 500 operating hours or after the end of harvest season. When changing oil, set cutter and reel to the lowest position.

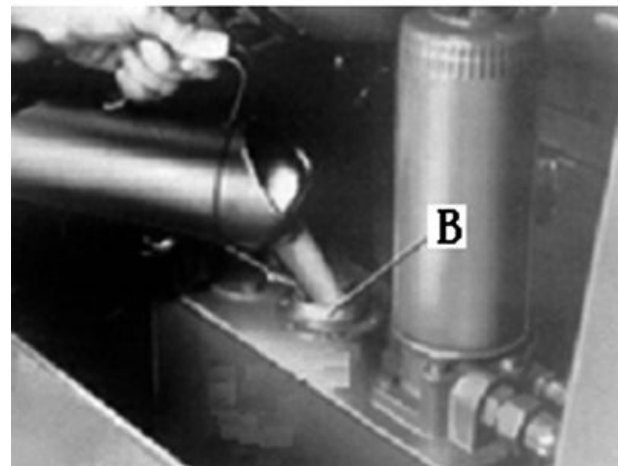
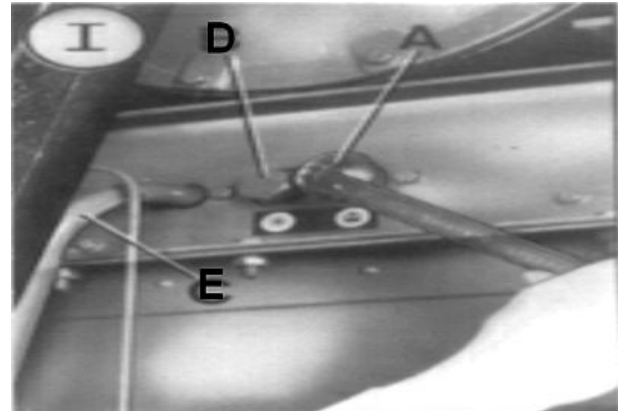
Drain oil: Loosen oil drain plug (A). Oil flows to designated container (container volume should not be less than 18 L).

IMPORTANT: Only use oil that meets the requirements.

Before filling oil, clean oil inlet thoroughly. Fill oil up to 10-40 mm above filter element bottom. (can use a clean iron rod to check).

A—Hydraulic oil drain plug
B—Oil inlet

D—Engine oil drain plug
E—Oil drain line



YC1386—UN—22FEB12

CP00718,0000FE0 -19-11DEC13-1/1

Filter

After the new machine has worked for 100 hours, change hydraulic oil and filter. Thereafter, change them once every 500 operating hours or after the end of harvest season.

1. Loosen filter
2. Remove filter

When installing a new filter, follow the steps below:

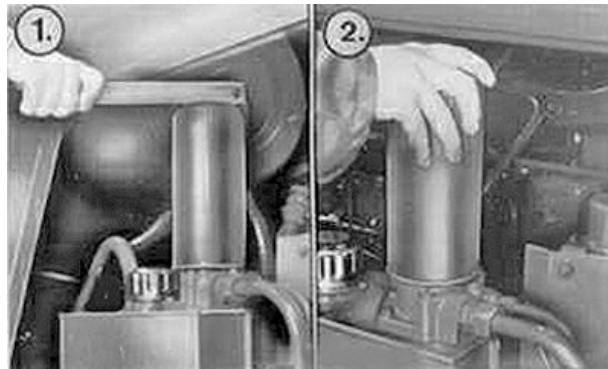
1. Smear oil to seal the surface.
2. When tightening the filter element, first put the seal ring in contact with the installation surface. Then, tighten it an additional $\frac{3}{4}$ to $1\frac{1}{4}$ turns, but not too tight.

Switch on the engine. Check for any oil leakage. Tighten it a bit if necessary.

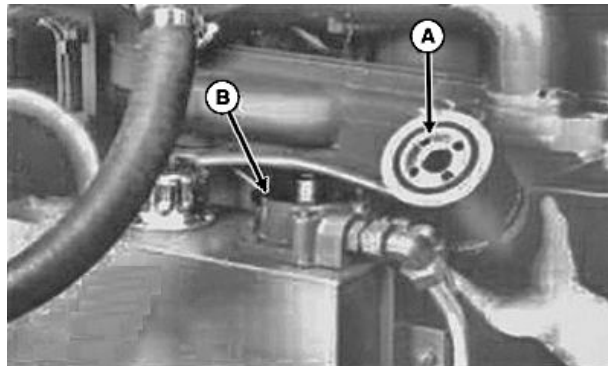
IMPORTANT: Clean area around filters before replacing to prevent contamination.

A—Filter

B—Filter base



YC1364—UN—24DEC13



YC1365—UN—24DEC13

CP00718,0000FE1 -19-11DEC13-1/1

Pressure Accumulator

Harvester is equipped with pressure accumulator, to buffer against impact load from cutting platform, and to protect cutting platform cylinder.

IMPORTANT: According to requirements, user needs to visit formal domestic plant for nitrogen charge.

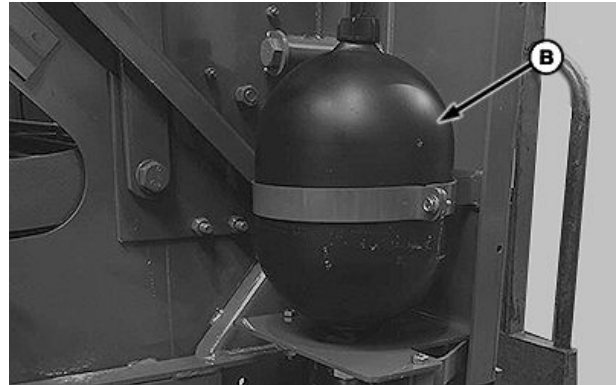
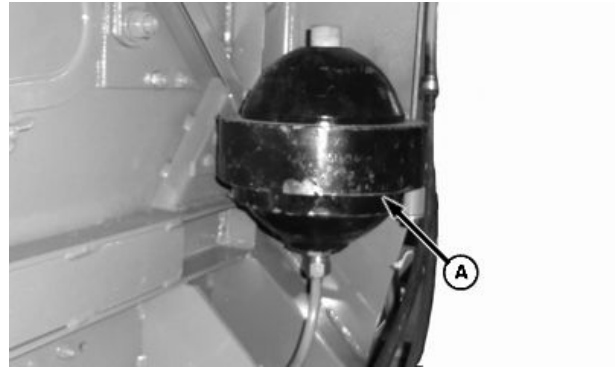
NOTE: As machine configuration is different (with or without mechanical rear drive), requirements and parameters for pressure accumulator nitrogen charge are not the same.

According to machine configuration (with or without mechanical rear drive), when charging pressure accumulator nitrogen, refer to parameters in below table:

	Machine Configuration (with Mechanical Rear Drive)	Machine Configuration (without Mechanical Rear Drive)
Pressure Chamber Capacity (L)	2.5 L	2.8 L
Nitrogen charging pressure (MPa)	3.5 MPa	4.5 MPa (recommended)

**A—Pressure Accumulator
(with Mechanical Rear
Drive)**

**B—Pressure Accumulator
(without Mechanical Rear
Drive)**

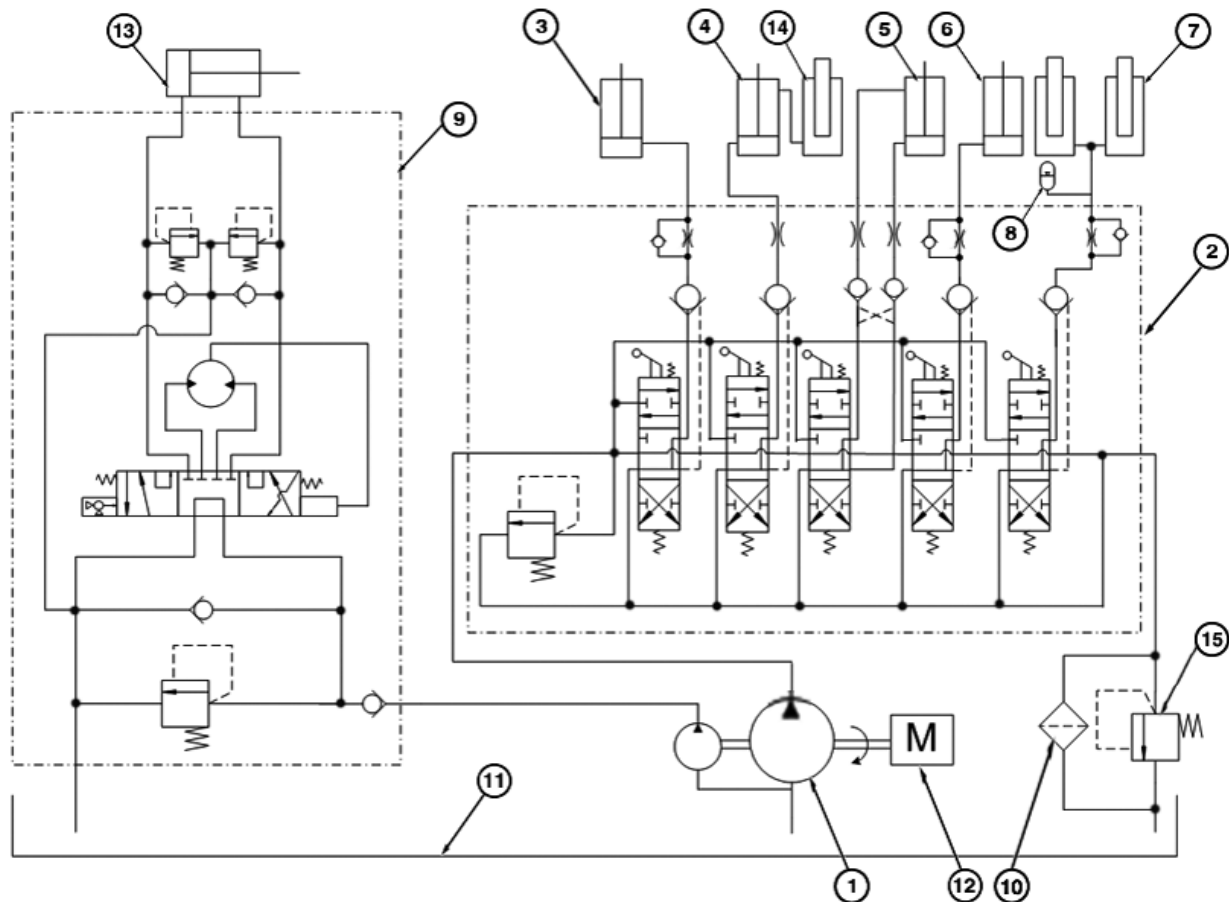


YC8300—UN—10FEB15

YC10678—UN—10AUG16

CP00718,0001805 -19-11AUG16-1/1

Hydraulic schematic



- | | | | |
|---------------------------------------|--|---------------------------|---------------------------------|
| 1—Hydraulic pump | 5—Grain unloading auger swing cylinder | 8—Accumulator | 14—Reel lifting cylinder - Left |
| 2—Control valve | 6—Driving speed adjustment cylinder | 9—Steering metering valve | 15—Filter bypass valve |
| 3—Threshing speed adjustment cylinder | 7—Cutting lifting cylinder | 10—Oil return filter | |
| 4—Reel lifting cylinder - Right | | 11—Oil tank | |
| | | 12—Engine | |
| | | 13—Steering cylinder | |

CP00596,0000632 -19-12FEB14-1/1

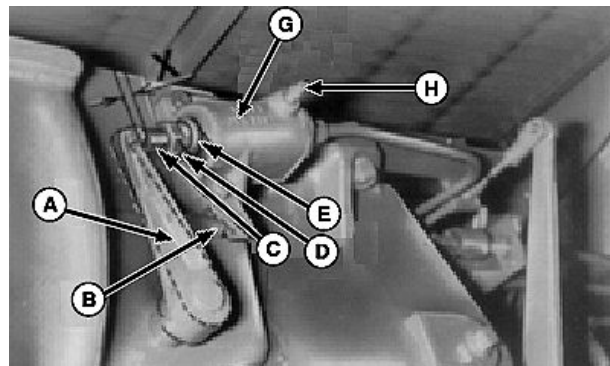
YC6405—UN—11FEB14

Adjust clutch clearance

Pull clutch lever (A) to the left. Clearance between front surface (C) of slave oil tank piston adjustment screw and surface of clutch lever should be 5 mm.

IMPORTANT: Ground driving clutch control and gear device must be fully engaged or disengaged completely. Half-engagement is not allowed. In normal operation, feet must be kept away from clutch pedals. Never get used to slowing down by pressing feet on clutch pedals.

- | | |
|--------------------|--------------------|
| A—Clutch lever | E—Oil tank plunger |
| B—Return spring | G—Slave oil tank |
| C—Adjustment screw | H—Bleed screw |
| D—Hex bolt | X—5 mm clearance |



CP00596,0000910 -19-30OCT14-1/1

YC1386—UN—24DEC12

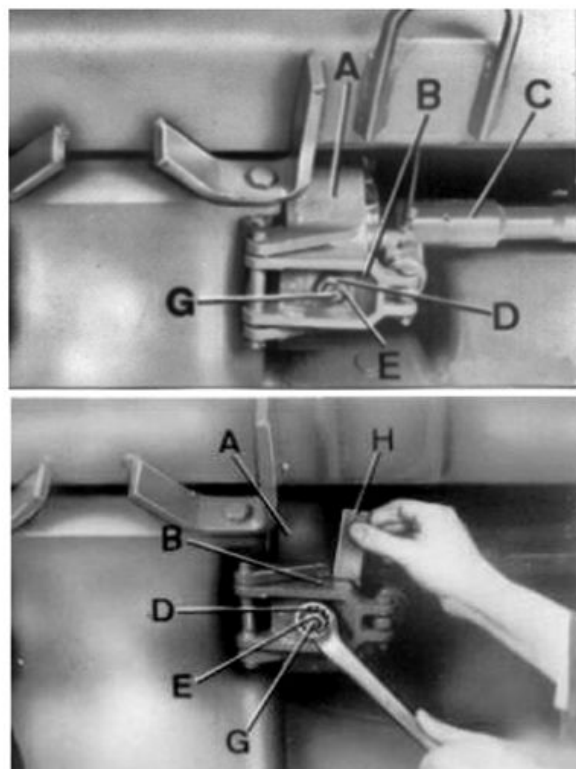
Adjustment of foot brake

Follow the steps below to adjust foot brake:

1. Set the shift lever to neutral position
2. Remove spring cylindrical pins and slide connection sleeve (C) outward.
3. Place 3 mm clearance gauge (H) between brake housing (A) and brake lever (B).
4. Turn the special nut (D) (by turning final drive shaft) of the adjustment lever (G) until it stops.
5. Use lock nut (E) to fix special nut (D) tightly.
6. After adjustment, remove clearance gauge (H). Install connection sleeve and fix it with cylindrical pins.

A—Brake housing
B—Brake lever
C—Connection sleeve
D—Special nut

E—Lock nut
G—Adjustment lever
H—Clearance gauge (3 mm)

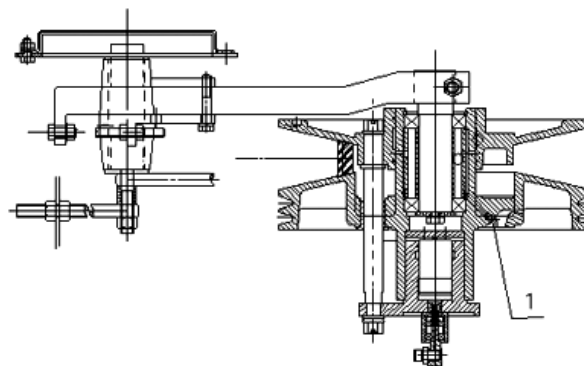


CP00718,0000FE3 -19-11DEC13-1/1

YC1367 —UN—21FEB12

CVT driving transmission

1— Moving plate bearing lubricant cup



CVT upper device

CP00718,0000FE4 -19-11DEC13-1/1

YC1368 —UN—21FEB12

Lubrication of lower device

IMPORTANT: Lubrication points of torque booster continuously variable transmission lower device must use high pressure resistant and high temperature resistant Mobil XHP222 lubricating grease or better types. Never use ordinary lubricating grease.

After installing the lower device, ensure adequate lubrication. Follow the steps below to lubricate (when continuously variable transmission torque booster plate is at engaged position):

1. Cam ring housing

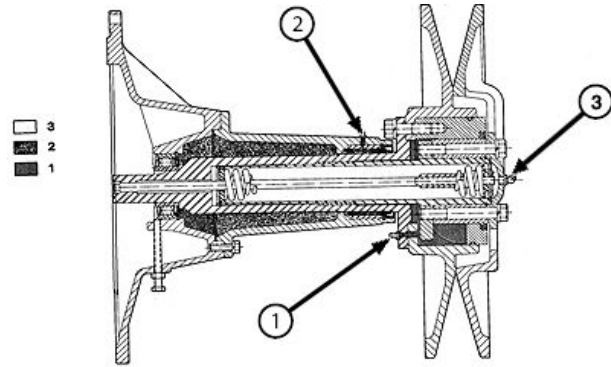
Cam ring housing is factory filled with 200 g of lubricating grease. Fill grease every 10 operating hours. Use grease gun to fill lubricating grease into fitting until you feel back pressure.

2. Input housing

Use grease gun to fill lubricating grease fitting until you feel back pressure. Thereafter, fill grease every 10 operating hours.

3. Inner and outer spring chambers

Use grease gun to fill lubricating grease into the spring chambers until you feel the back pressure. Thereafter, fill grease every 10 operating hours. After the end



Torque booster continuously variable transmission lower device

1— Cam chamber lubricant cup 3— Spring chamber lubricant cup
2— Input housing lubricant cup

of harvest season, open the torque booster spring. Smear lubricating grease on the spring to prevent it from getting rusted due to contact with air.

NOTE: When stopping the machine, continuously variable transmission torque booster shift plate must be at the lowest speed position, as shown in the diagram that two plates are at engaged position.

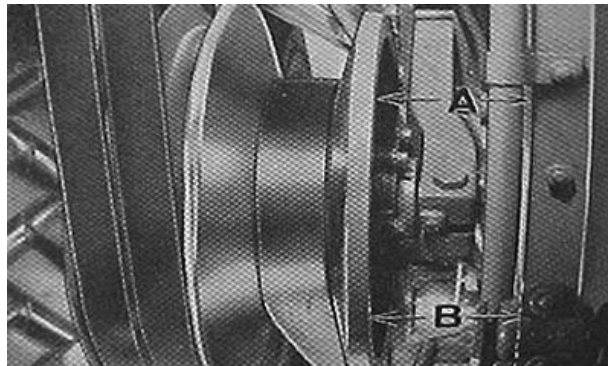
CP00718,0000FE5 -19-11DEC13-1/1

YC1369 —UN—25DEC12

Torque booster upper drive device

CVT pulley must be in parallel with the machine wall to prevent the belt from wearing or flipping.

To check if it is in parallel, measure the distance between point A and the machine wall as well as between point B and the machine wall. Distance deviation of these measurements should not be more than 1.5 mm.



CP00718,0000FE6 -19-11DEC13-1/1

YC1370 —UN—25DEC12

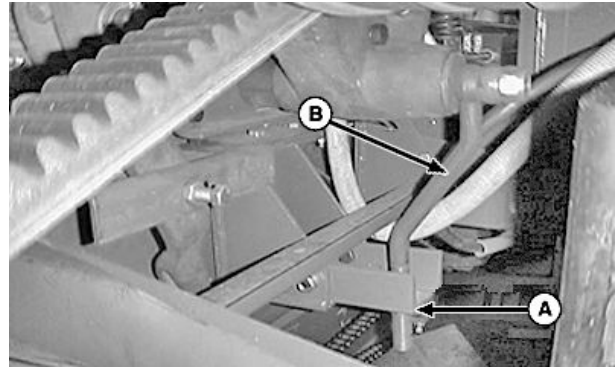
Adjust parallel degree

If distance deviation is over the maximum limit of 1.5 mm, adjust as follows:

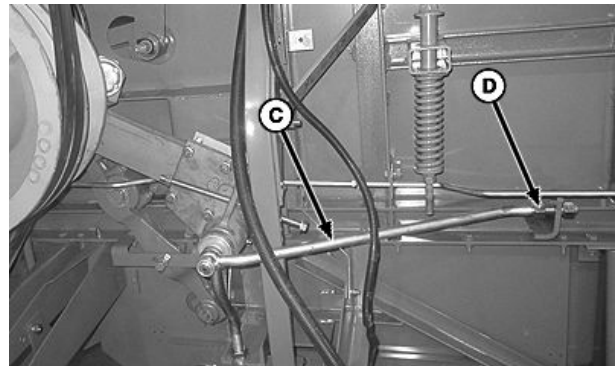
Adjust the hex nuts (A and D) on the adjustment levers (C and B). Set the parallel degree of belt pulleys within the tolerance range of 1.5 mm. Then, re-fix the hex nuts (A and D).

A—Hex Nut
B—Adjustment lever

C—Adjustment lever
D—Hex Nut



YC1371 —UN—30DEC13



YC1560 —UN—25DEC12

CP00718,0000FE7 -19-11DEC13-1/1

Torque booster lower drive device

Clearance adjustment:

Switch on the engine and push the control lever forward until CVT plate is completely closed. Then, switch off the engine. Distance between the CVT belts should be 5 ± 1.5 mm.

Important! Under all circumstances, clearance (X) must not exceed 6.5 mm. Otherwise, the belt cannot work properly. When necessary, check and adjust every 50 hours.

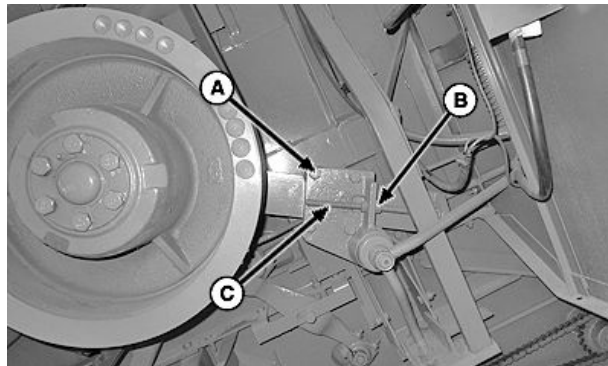
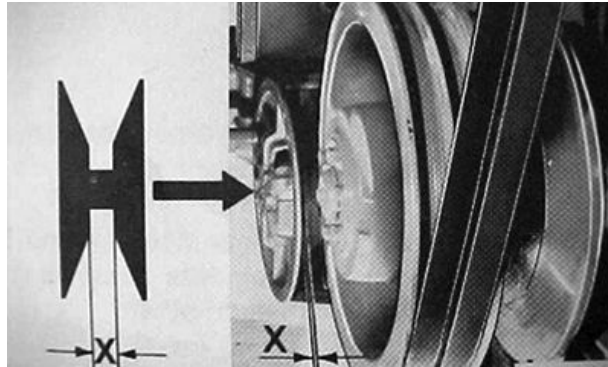
X — Clearance 5 ± 1.5 mm

Adjustment:

Loosen 4 bolts (A) and lock nuts (B). Turn screw (C) until the required clearance is set. Finally, tighten lock nuts (B) and 4 bolts (A). Then, start the engine. Push the ground driving speed lever forward. Switch off the engine. Check the clearance again.

A—Bolt
B—Lock nut

C—Tension screw

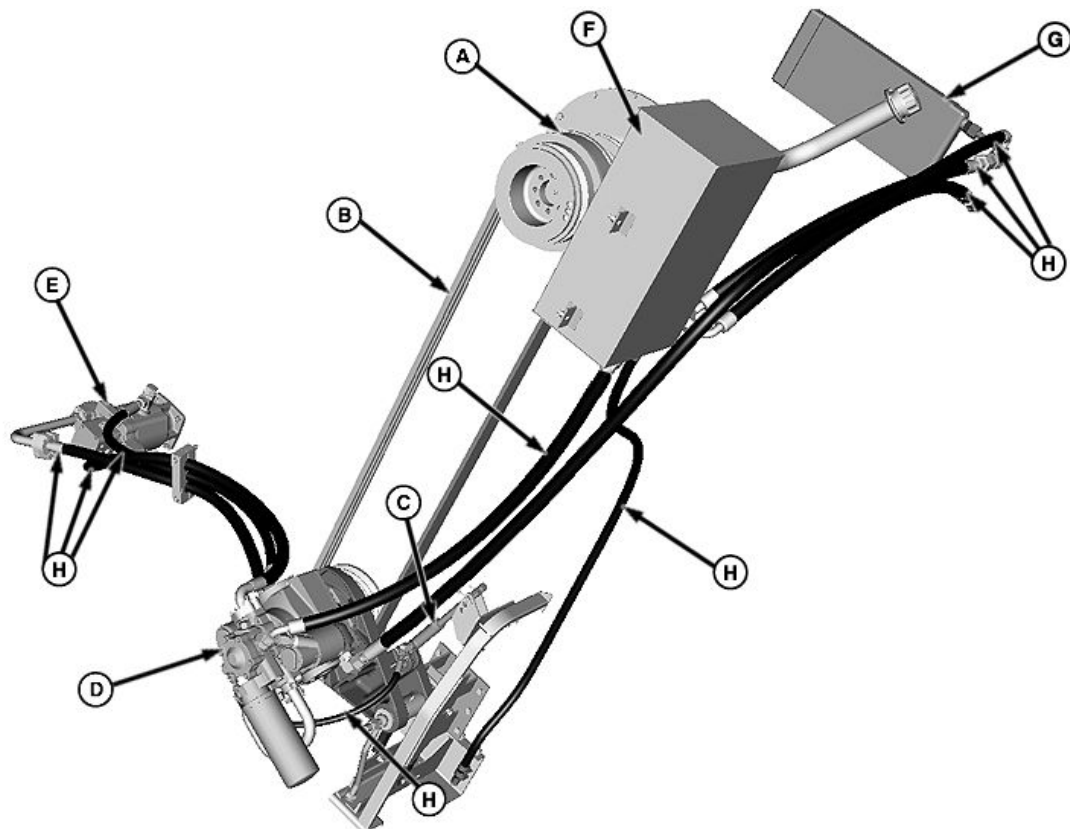


YC1373 —UN—21FEB12

YC1374 —UN—30DEC13

CP00718,0000FE8 -19-11DEC13-1/1

Variable speed drive device - Optional hydraulic drive



A—Engine output terminal
B—Drive belt

C—Tension cylinder
D—Variable pump

E—Motor
F—Oil tank
G—Oil cooler

H—Oil pipe

For driving harvester, power is driven hydraulically from engine output terminal (A) to gearbox, and to wheels at last.

Engine (A) drives belt pulley through the belt. Variable pump (D) pumps oil from hydraulic oil tank (F). Pressurized oil flows through oil pipe (H) to hydraulic motor (E).

Hydraulic motor (E) runs and drives gearbox shaft. Power is thus transmitted from engine to wheels.

IMPORTANT: Hydraulic oil in the whole system returns through oil cooler (G) and is cooled. Regularly clean the oil cooler and its housing.

CP00718,0000FF4 -19-13FEB14-1/1

YC5852 —UN—23DEC13

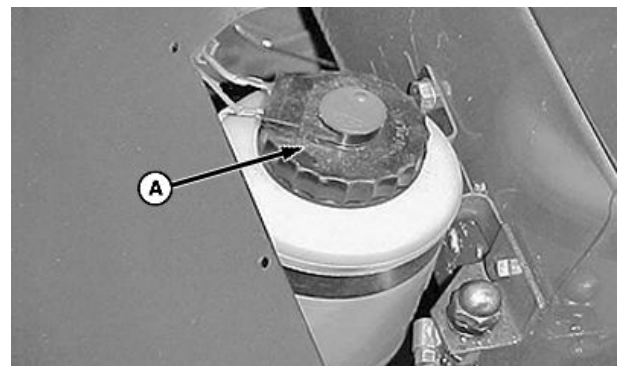
Brake oil can

Fill up the brake oil can (A) with oil that meets the requirements. Oil can is equipped with a low level alarm device.

Brake oil can should be fully filled. Oil should meet the requirements.

Bleed air from braking system after replacing parts or repairs.

Loosen the bleed screw on brake oil can. Press the clutch pedal to the end and then tighten the bleed screw; Repeat this three times until the clutch cylinder stroke reaches the maximum 28 mm.



CP00718,0000FE9 -19-11DEC13-1/1

YC1375 —UN—30DEC13

Ground driving system oil tank - Optional hydraulic drive

Oil tank volume of ground driving system is 30 L.

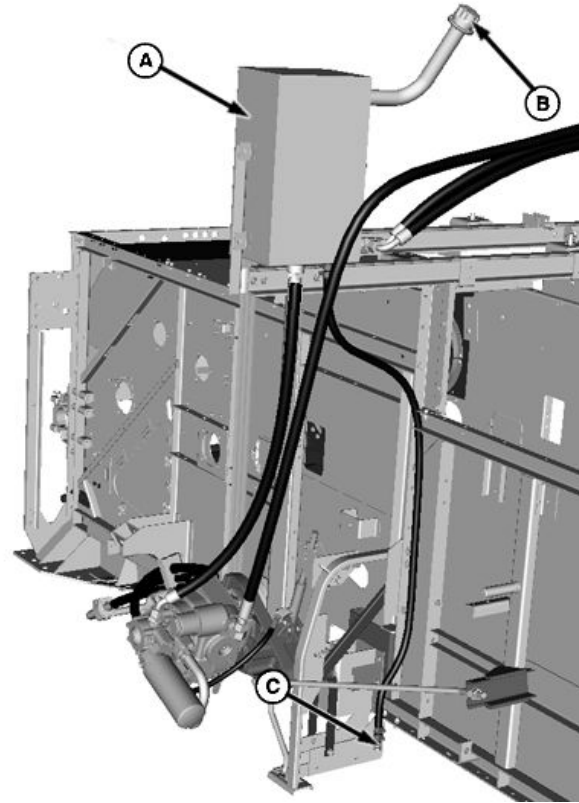
Change oil after 500 operating hours or at the end of harvest season.

Drain oil: Loosen oil drain plug (C). Oil flows to designated container.

Fill oil: Use oil of specific grade only. Before filling oil, clean oil inlet thoroughly. Fill oil tank (A) through oil inlet (B).

A—Oil tank
B—Oil inlet

C—Oil drain plug



YC5851—UN—23DEC13

CP00718,0000FF5 -19-03JAN14-1/1

Adjustment of Hand Brake

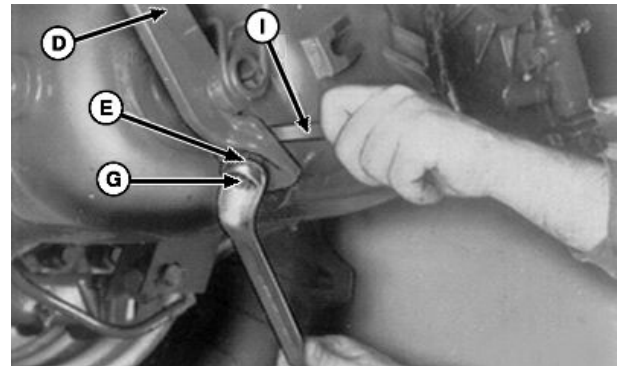
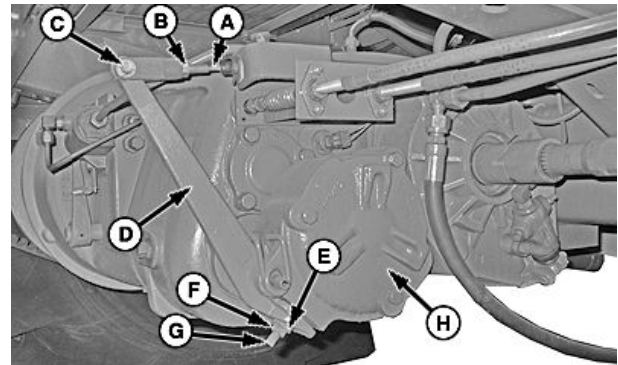
There are two methods of hand brake adjustment:

1. Loosen hex nut (B) at the bottom of hand brake soft shaft (A). Remove cotter pin (U) and adjust fork frame (C).
2. Loosen lock nut (F) and turn adjustment nut (E). Adjust the length of shaft (G).

Note: When using either of the two methods, a feeler gauge (3 mm) should be able to be put between brake housing and wall.

A—Hand Brake Soft Shaft
B—Hex Nuts
C—Fork Frame
D—Brake Rod
E—Adjustment Nut

F—Lock Nut
G—Adjustment Shaft
H—Brake Housing
I—Feeler Gauge (3 mm)



CP00606,0000B19 -19-28JAN16-1/1

YC1376 —UN—30DEC13

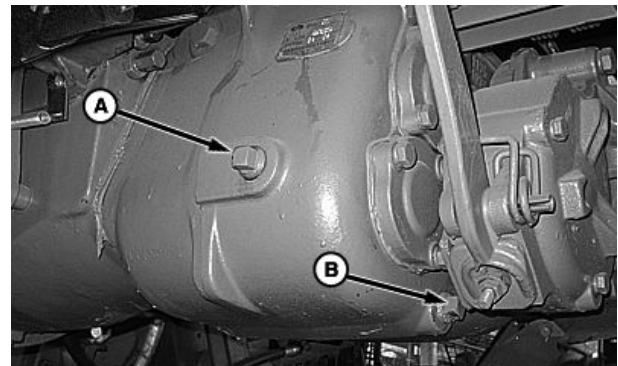
YC1377 —UN—24DEC12

Transmission

IMPORTANT: Use gear oil that meets required specifications. Under special operating conditions, such as on slopes, appropriately add gear oil.

After the first 100 operating hours, change gear oil. Thereafter, change oil every 500 operating hours and check the oil level every 100 operating hours. Refill oil when needed.

A—Fill Port and Oil Level Plug B—Oil Drain Plug



JL31334,000102D -19-01AUG16-1/1

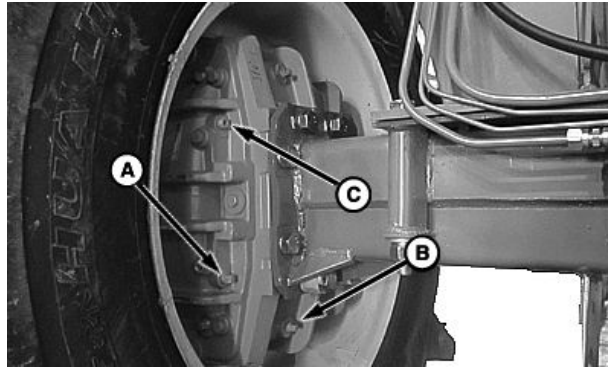
YC8898 —UN—09JUL15

Final Drive

IMPORTANT: Use gear oil that meets requirements.

After the first 100 operating hours, change gear oil. Thereafter, change oil every 500 operating hours and check the oil level every 100 operating hours. Refill oil when needed.

A—Fill Port and Oil Level Plug C—Bleed Screw
B—Oil Drain Plug



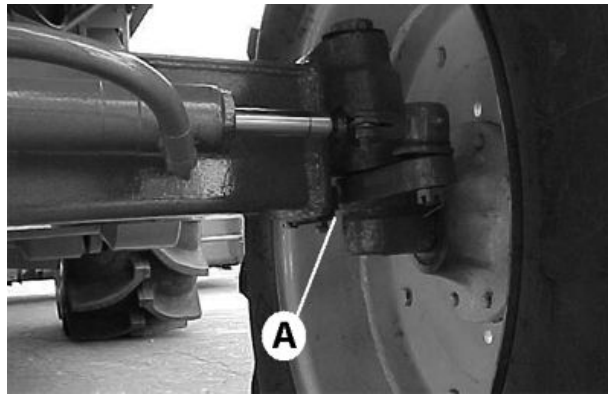
YC10651—UN—26JUL16

JL31334,000102E -19-01AUG16-1/1

Rear axle

Steering arm bolt: After driving for 50 hours, tighten steering arm bolt (A) with torque of 180 N.m.

Tire toe-in: Always properly keep the steering wheel toe-in. Otherwise, the harvester will be difficult to steer and the tires are easily worn.



YC1380—UN—21FEB12

CP00718,0000FED -19-11DEC13-1/1

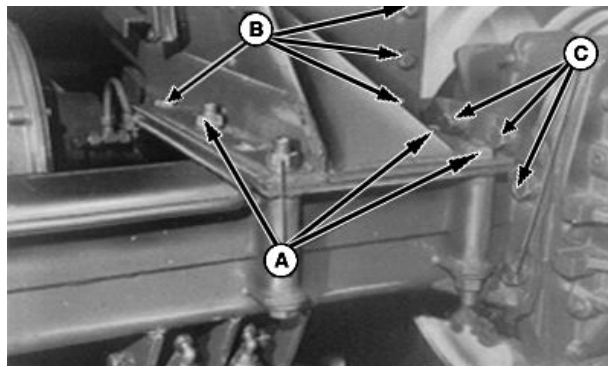
Front Axle

After driving for 25 hours, check the torque of bolts and nuts of the front axle.

Torque of nuts (A) is 435 N.m.

Torque of nuts (B) is 240 N.m.

Torque of nuts (C) is 435 N.m.



YC1381—UN—25DEC12

CP00606,0000B1C -19-28JAN16-1/1

Tire maintenance

Condition of tire inflation affects the machine service life.

1. Check for any tire damage and the pressure condition daily.
2. Promptly repair and replace the tires if there are any cuts and damage.
3. Avoid excessive exposure of tires under the sun. Avoid contact with chemicals.

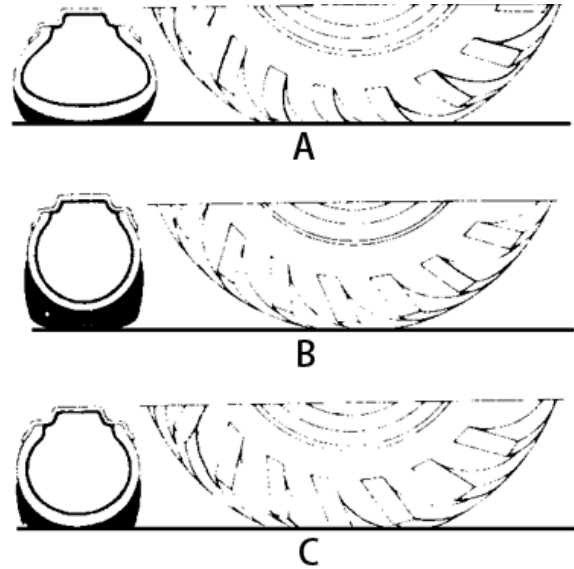
Tire pressure of drive wheel 23.1-26 is 170 kPa;

Tire pressure of guide wheel 12-18 is 350 kPa.

NOTE: When temperature is too high or too low, tire pressure may change. Please adjust tire pressure to factory requirement: Drive wheel 170 kPa, guide wheel 350 kPa.

A—Under-inflated
B—Over-inflated

C—Properly inflated



YC1382 —UN—26MAR12

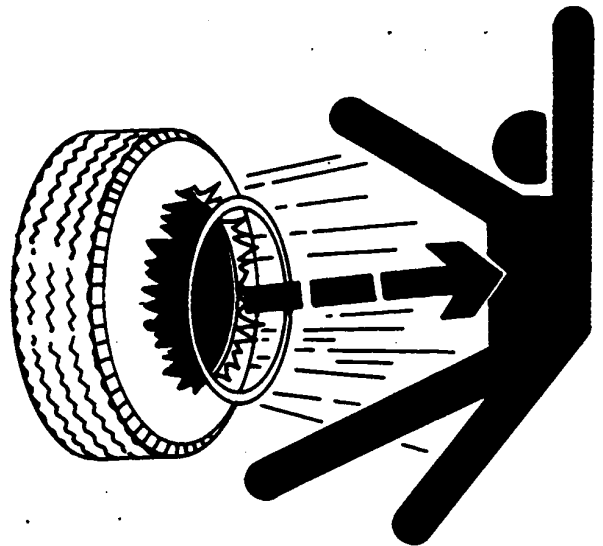
CP00606,0000962 -19-20OCT15-1/1

Mount tires safely

Burst of tire and wheel rim can cause personal injury or death. Only mount the tires when proper tools and experience are ready.

Maintain proper tire pressure. Inflation pressure should not exceed the recommended value. Stay away when tires are being inflated. If possible, use safety screen.

Check the tires daily. Do not drive the harvester when tire pressure is low, when there are cracks and bubbles, when wheel rim is damaged or when fastening bolts and nuts are missing.



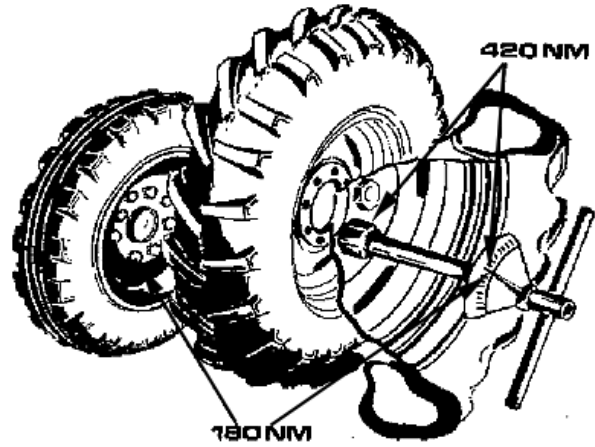
TS211 —UN—15APR13

CP00718,0000FF0 -19-11DEC13-1/1

Bolts of front and rear wheels

For **rear wheels**, after driving for 20 to 25 hours, check and tighten rear wheel bolts with torque of 180 N.m.

For **front wheels**, after driving for the first hour and for further 20 to 25 hours, check and tighten front wheel bolts with torque of 420 N.m.



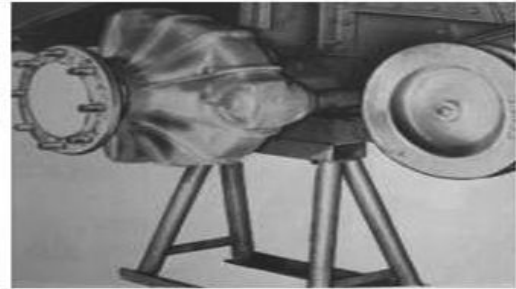
YC1384—UN—21JAN15

CP00718,0000FF1 -19-11DEC13-1/1

Use and precautions of hydraulic jack

1. Before lifting, insert the slotted end of handle into the oil returning valve stem. And, 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 anti-clockwise direction. The piston rod will descend slowly. If there is loading, the oil returning valve stem should not be turned too quickly. Otherwise, it is dangerous because of the fast rate of descend.
4. Before lifting, estimate the weight of the object. Overloading is prohibited.
5. To use a jack, determine the centre 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 at appropriate locations underneath, so as to avoid any danger caused by jack failure. (as shown in the diagram)
7. When using the jack, avoid abrupt vibrations.

NOTE: Use jack to lift the combine harvester and use frames to support it firmly. First loosen the front and rear wheel nuts. Then, dismount the tires. The frames in the diagram can be self-made.



YC1385—UN—21FEB12

CP00718,0000FF2 -19-11DEC13-1/1

Operational principles of rear drive axle (optional)

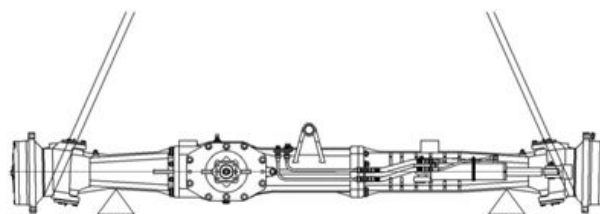
Rear drive axle is mainly consisted of axle housing, main decelerator (mainly composed of a pair of spiral gears), differential, steering drive shaft, wheel-side decelerator, tie rod and steering cylinder, etc. Main decelerator is to reduce rotation speed, increase torque and change torque transmission direction. Wheel-side decelerator

is to increase torque further, to drive machine forward. Differential allows the wheels at both sides of machine to run at different speeds, so that machine can turn and drive on uneven roads. Half shaft transmits torque from differential to the end of rear drive axle. Power of rear drive axle is transmitted from transfer case via drive shaft to rear central drive, from there to half shaft on both sides, then to both final drives, so that rear wheels are driven.

CP00596,0000842 -19-16JUL14-1/1

Rear drive axle (optional) precautions

1. Rear drive upon hoisting should hoist the axle housing, but not the tie rod. When storing, use dedicated shelves. Do not stack randomly, so as to avoid damage and oil spillage.
2. Before leaving factory, machine should be checked if rear axle swing angle is correct, so as to prevent accidents.
3. Please follow instructions to adjust toe-in, so as to avoid abnormal wear of tires.
4. When harvester is riding on roads of good conditions, power of rear drive axle should be cut off.
5. If input power is not cut off, machine is not parked properly, safety measures are not ready, it is prohibited to carry out repairs or maintenance beneath the machine.
6. Always check the bolts, nuts and other parts that may be loose at all joints. For example, drive wheel hub nuts, main decelerator and half shaft sleeve connecting nuts, etc. If they are loose, tighten them promptly.
7. Strictly follow the required intervals and steps stated in operator's manual to service the machine, so as to avoid abnormal wear of gears and bearings. If operating conditions are poor, shorten the service intervals.
8. As required, please use recommended brands of lubricants. When changing lubricants, never mix



YC7571—UN—16JUL14

- new and oil lubricants, different brands or those from different manufacturers.
9. Performance of rear drive axle may gradually deteriorate after a certain period of time. Proper use and operation of it may extend its service life and maintain its reliability.
 10. Nuts which have gone through riveting treatment (such as nuts at final drive) must not be loosened or removed. That should be handled by professional technicians.
 11. Rear drive axle must not be placed upside down upon transport or installation.

CP00596,0000840 -19-01AUG14-1/1

Rear drive axle (optional) break-in

Follow commissioning requirement to carry out rear drive axle break-in. If drive axle break-in is not done before being put into use, parts and components may be seriously worn, so that service life is significantly shortened.

Preparation before use

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

Break-in

1. Run the machine without load. Meanwhile, carefully check the condition of rear 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 rear drive axle is at normal technical 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 drive axle should be engaged; During break-in at other gears, rear drive axle should be 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 lubricating oil from rear drive axle. Meanwhile, add some kerosene or light diesel for cleaning (together with the whole drive system). After draining the cleaning agent, fill in new GL-5 (85W/90) gear oil with amount: axle body main minus 18L, body side minus 1.5L each.
2. Check rear drive axle toe-in, adjust it if necessary.
3. Check and tighten all external bolts, nuts and screws.
4. Add lubricant at all lubricating points.

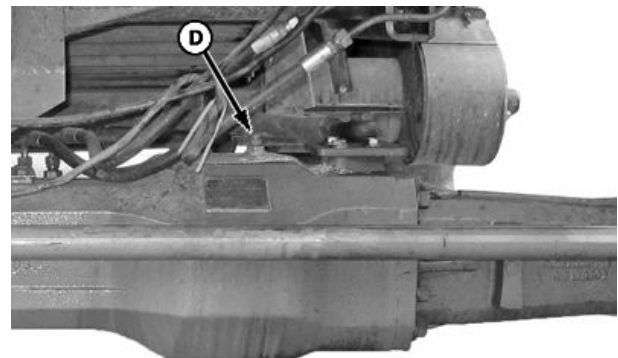
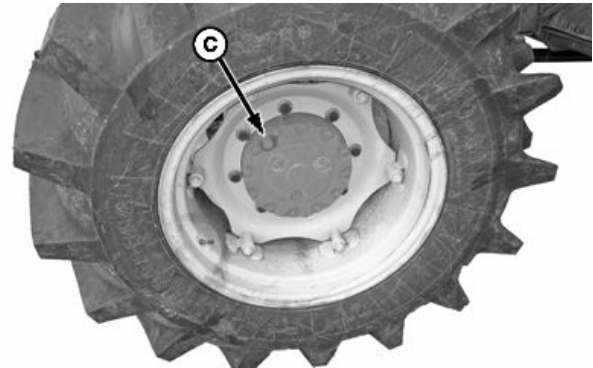
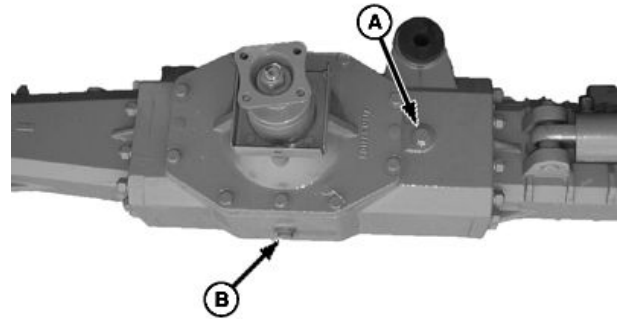
CP00596,0000841 -19-01AUG14-1/1

Rear drive axle (optional) use and service

Due to a variety of adverse factors, joints among parts and components may be loose, bearings may be worn. In addition, lubricating oil, grease and other materials will gradually be consumed, so that working conditions of drive axle become worse. Therefore, timely tighten and adjust parts as well as regularly change and add oil, etc. can help ensure proper working of parts and components, achieving longer service life. For that, please do the following:

Lubrication of rear drive axle

1. Rear drive axle uses GL-5 85W/90 gear oil.
2. To keep good working condition of rear drive axle, add a reasonable amount of oil. Not enough oil will cause abnormal damage to gears and overheating of bearings. Too much oil may waste power and lead to oil leakage.
 - Oil amount of rear drive axle central drive should not exceed axle centerline. Oil level should be maintained at around view hole plug (A).
 - Oil level of rear drive axle wheel side should be below centerline. When filling oil, rear wheels should be turned so that plug (C) is at level position. Unscrew the plug. Oil level should reach the plug hole. Specific oil filling amount can be referred to the main technical parameters table.
3. Central drive servicing: Change lubricating oil every 1600 operating hours. Check oil level after 400 operating hours. Unscrew plug (A) to check. Oil level should reach the plug hole. Refill oil if needed. When changing lubricating oil, drain away waste oil from drain plug (B). Then, tighten drain plug. Add new lubricating oil via retaining vent plug (D).
4. Final drive servicing:
 - Change lubricating oil 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 drain plug (C) is at the lowest position. Remove oil drain plug to drain away waste oil. Turn wheel hub again so that wheel rim filler mark is at level position. Add new lubricating oil up to the plug.
5. Transfer case servicing: To keep good working condition of rear drive axle, add a reasonable amount of oil.
 - Transfer case uses GL-5 80W/90 gear oil, amount 3.2 kg.



A—View hole plug
B—Oil drain plug

C—Plug
D—Retaining vent plug

- After first 100 operating hours, change gear oil. Change oil every 400 operating hours thereafter.

Continued on next page

CP00596,0000843 -19-01AUG14-1/3

YC7572 —UN—16JUL14

YC7573 —UN—16JUL14

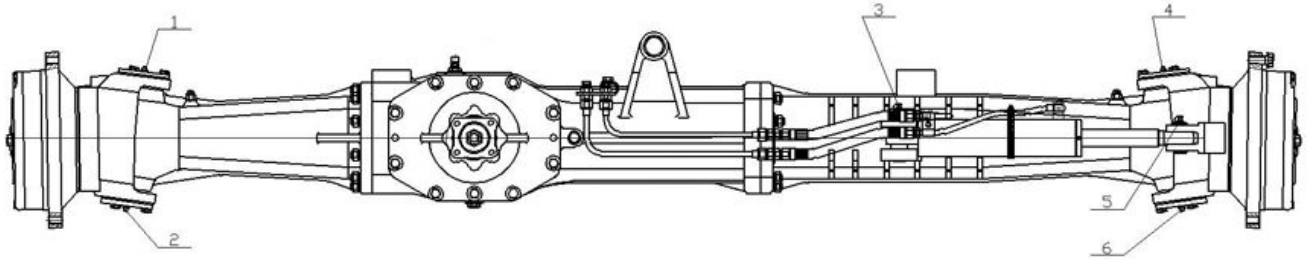
YC7574 —UN—16JUL14

Add lubricating grease

Each oil cup should be regularly filled with lubricating grease (every 200 hours at kingpin oil cup, every 50 operating hours for the rest). Type of lubricating grease:

General purpose lithium-base lubricating grease (GB/T 5671-95).

Locations of fillers and lubricating points are shown in the diagram.



YC7575—UN—16JUL14

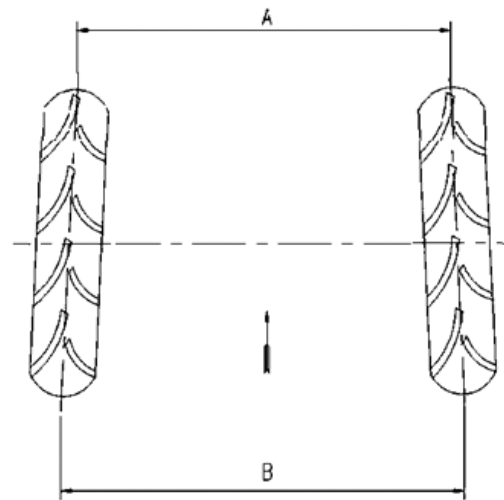
CP00596,0000843 -19-01AUG14-2/3

Adjust toe-in

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

Toe-in means the distance between both harvester rear wheels of the front-end is a bit shorter than that of the rear-end. When harvester is in use, toe-in will change due to deformation and wear of rear axle parts. If it is not promptly adjusted, rear wheel tread is worn quicker, and harvester is difficult to ride straight forward. Toe-in upon tire installation is 2-8 mm.

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



YC7576—UN—16JUL14

CP00596,0000843 -19-01AUG14-3/3

Daily checks

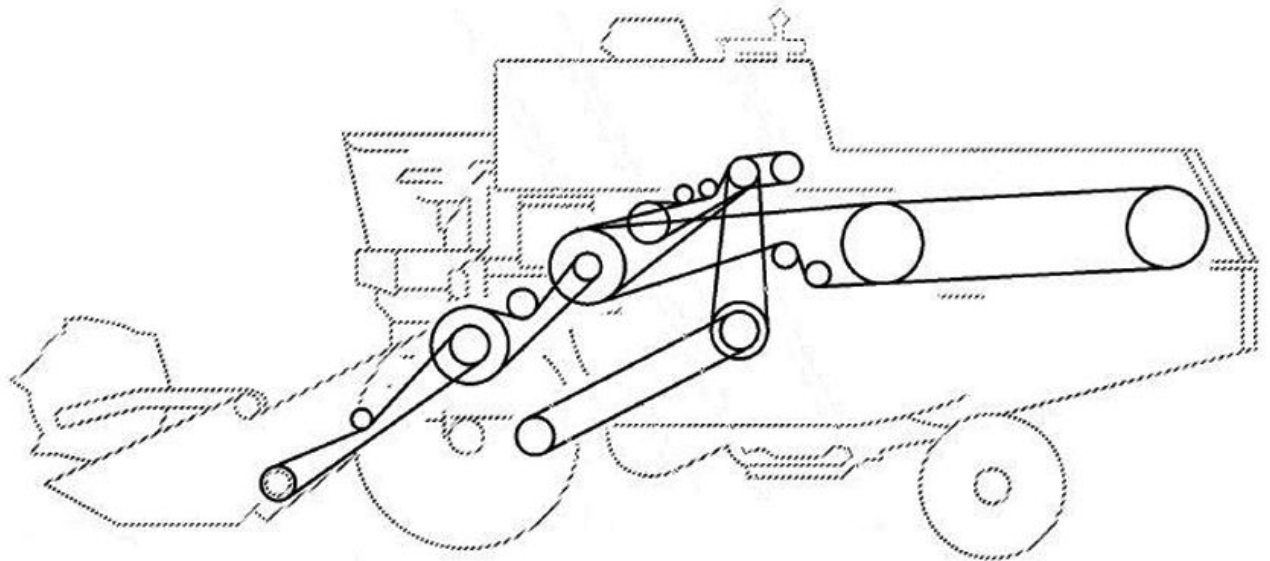
Always check the bolts, nuts and other parts that may be loose at all joints. If they are loose, tighten them.

Torque Requirements of Rear Drive Axle (Optional) Fasteners

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 cap 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 main decelerator 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
Vent valve assembly, vent plug assembly, oil drain plug	M22×1.5	50 - 60

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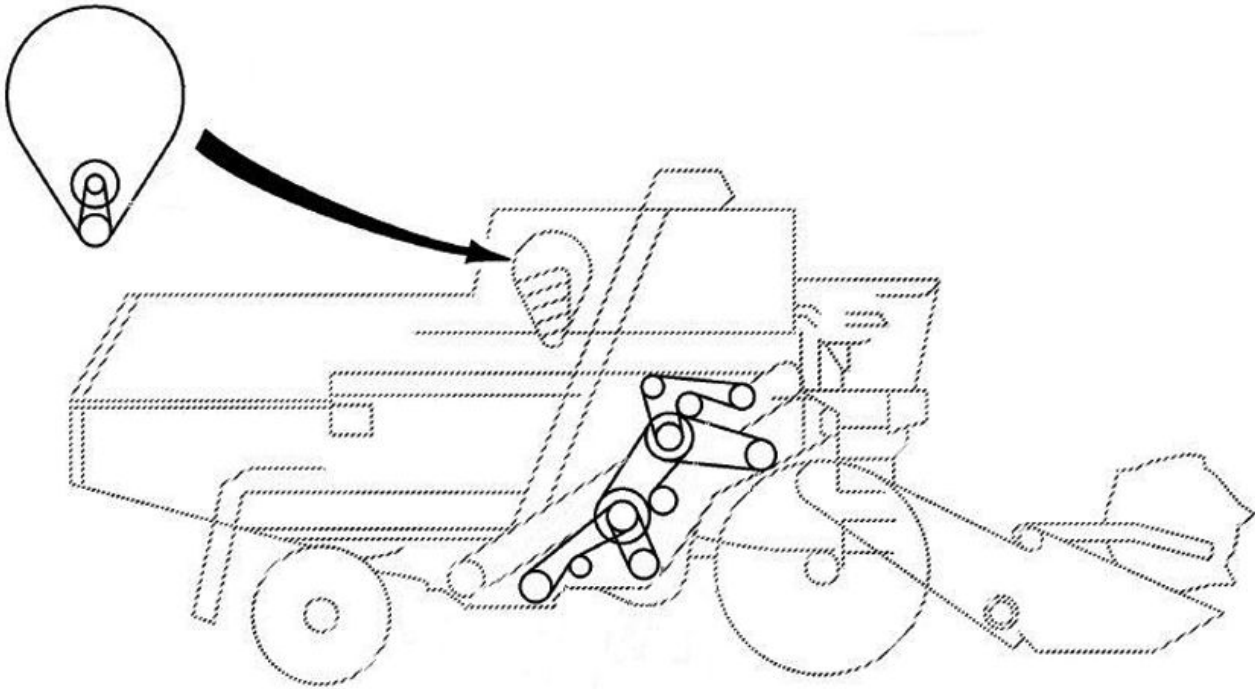
Left side transmission route diagram



YC6406—UN—12FEB14

CP00596,0000633 -19-12FEB14-1/1

Right side transmission route diagram



YC6407—UN—12FEB14

CP00596,0000634 -19-12FEB14-1/1

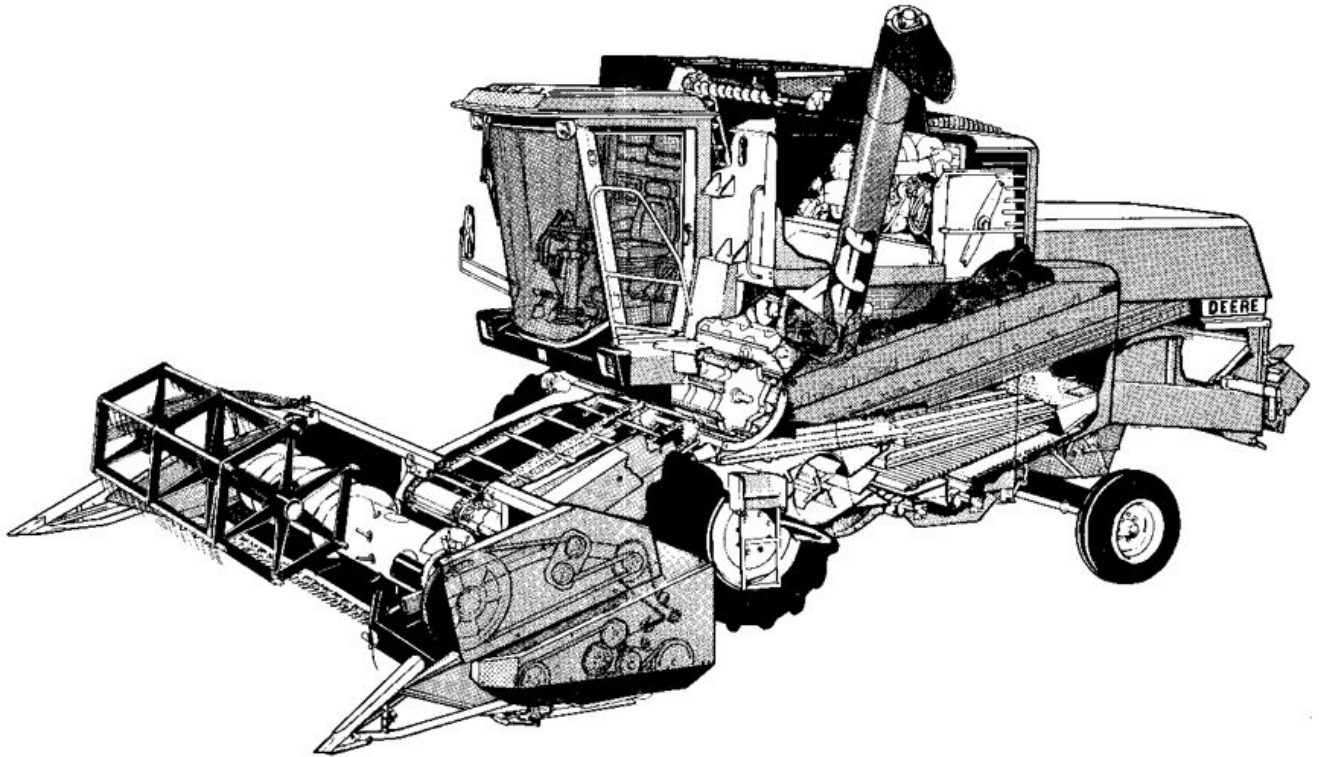
Operating Machine

Selection of harvest time

Ensure the maturity of crops. Otherwise, the harvest quality of harvester may be affected.

CP00606,0000176 -19-14MAR12-1/1

Avoid grain loss



YC1426—UN—19MAR14

The basic principle of adjusting combine harvester is to reduce losses and failures. To achieve the said objectives, pay particular attention to harvest conditions. Harvesting too early or too late will result in unnecessary failures and losses. Make necessary adjustments to the machine according to harvest conditions and water content of crops.

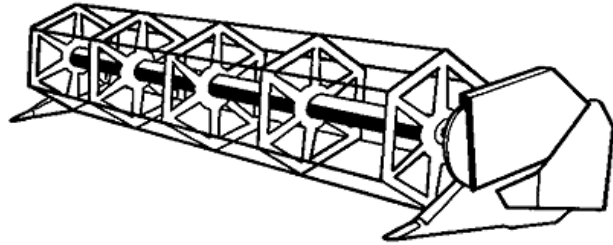
Pay particular attention to the loss and conditions of following parts:

1. Cutter loss
2. Excessive tailings
3. Grain crushing
4. Excessive chaff in grain tank
5. Separator grain loss
6. Cleaning loss
7. Natural shattering loss
8. Threshing loss

CP00606,0000177 -19-14MAR12-1/1

Usage of cutter

Please refer to the cutter operation manual regarding the use of cutter.

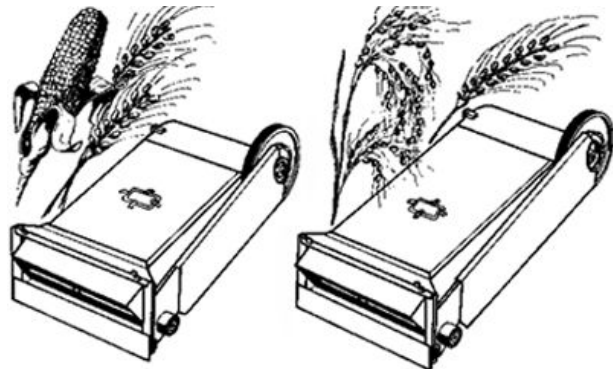


YC1427—UN—26NOV12

CP00606,0000178 -19-14MAR12-1/1

Feeder house

Avoid component damage. Ensure that all wiring harnesses and hydraulic lines are out of the way before connecting machine to platform.

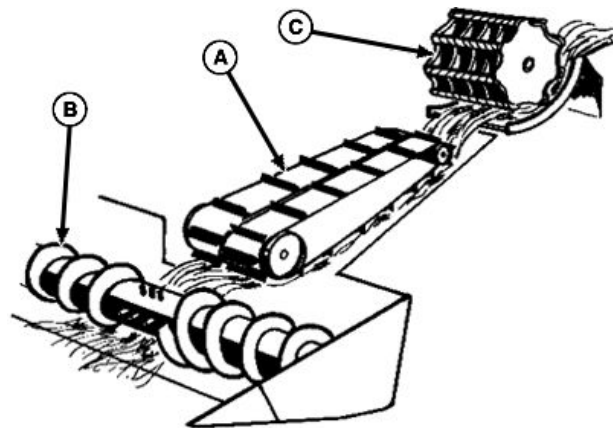


YC1428—UN—26NOV12

CP00606,0000179 -19-14MAR12-1/1

Work process of conveying system

Conveyor chain (A) gets crops from auger (B) and then transports them to cylinder (C).



YC1429—UN—11DEC12

CP00606,000017A -19-14MAR12-1/1

Adjustment of Conveyor Tension

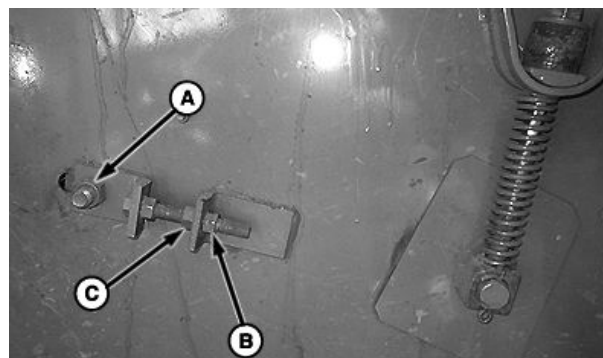
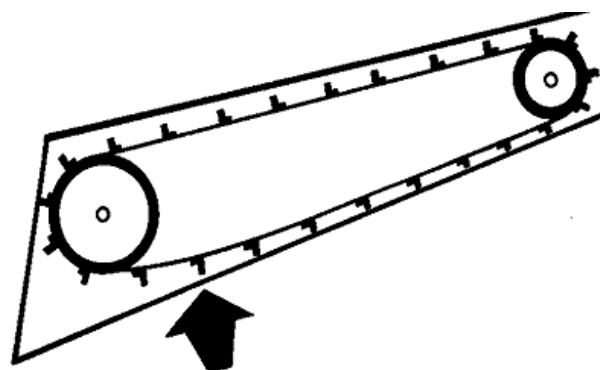
Adjust the tension of conveyor chain, so that the front third link below floating roller just contacts feeder bottom.

Adjustment method: Loosen nuts (A) on both sides of feeder. Adjust nuts (B and C), until required tension is set. Then, tighten all nuts.

NOTE: When adjusting tension of conveyor chain, do that on both ends simultaneously.

A—Nut
B—Nut

C—Nut



CP00606,000043D -19-16JAN15-1/1

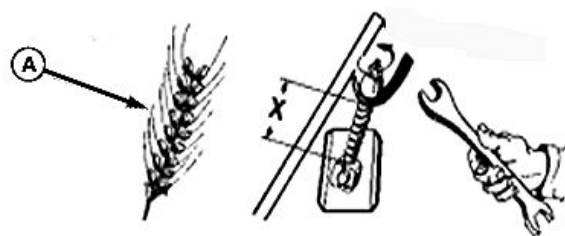
YC1430 —UN—26NOV12

YC8070 —UN—16JAN15

Adjustment of feeder house drum

Thick layer of crops lift float roller. When layer of crops is thin, float roller falls to its original position under the forces of gravity and spring. Length of spring for harvesting general crops (A) is shown in the diagram.

A—General crops (wheat, rice) X—140 mm



CP00834,0001147 -19-16JUN14-1/1

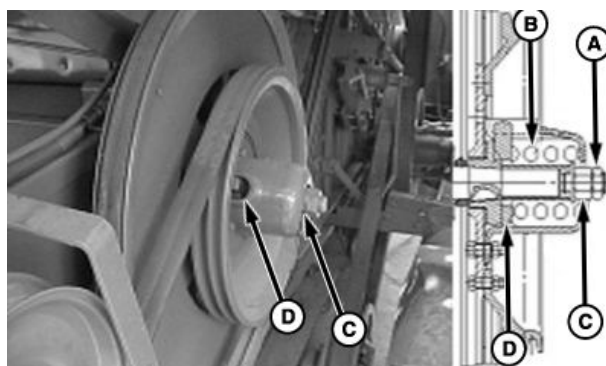
YC4376 —UN—24APR13

Feeder house slip clutch

During the conveyor operation, when the axial load is greater than the pre-tightening force, the tooth-holder (D) compresses spring (B) to clutch safely.

A—Hex nut
B—Spring

C—Hex nut
D—Tooth-holder



YC1432 —UN—28OCT12

CP00606,000017D -19-14MAR12-1/1

Upper feeder house door

To remove upper feeder house door, loosen handle (B) and slide pin lock pin (C) inward. Repeat on opposite side and remove door. Install in reverse order.

A—Cover plate
B—Lock nut

C—Lock pin



YC1433 —UN—19MAR12

CP00606,000017E -19-14MAR12-1/1

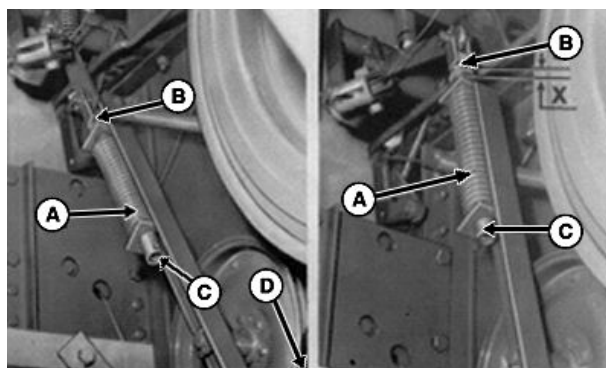
Conveyor drive

To ensure that the drive of conveyor chain is reliable, properly adjust the tension of linked belt (D).

Verify Measurement (X) fall within specification range.
Maintain proper belt tension of linked belt (D).

A—Tension spring
B—Lock nut
C—Pipes

D—Linked belt
X—Specified length: 10 - 15 mm



YC1434 —UN—25DEC12

CP00606,000017F -19-19MAR12-1/1

Cutter drive

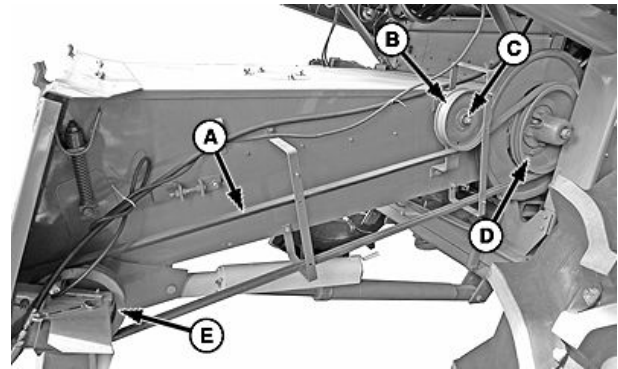
Use tensioner pulley (B) to tighten belt (A).

Note: Guard has been removed to facilitate illustration of the diagram.

Note! Only remove the guard when adjusting drive chain and belt.

A—V-belt
B—Tensioner pulley
C—Hex nut

D—Driving wheel
E—Driven wheel



YC1435—UN—30DEC13

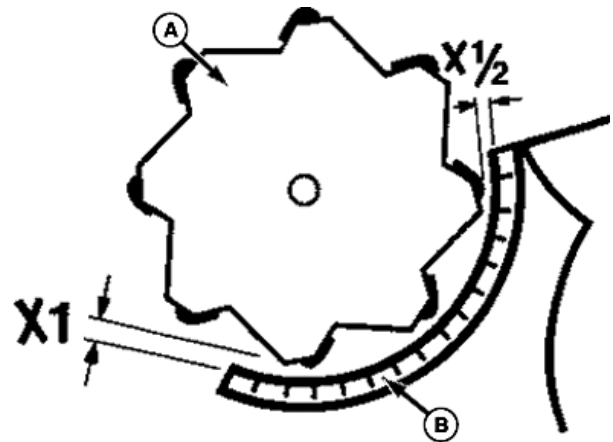
CP00606,0000180 -19-14MAR12-1/1

Threshing device

Threshing device is the most important part of the combine harvester. Therefore, adjust it very carefully.

A—Threshing cylinder

B—Concave



YC1436—UN—11FEB14

CP00606,0000181 -19-14MAR12-1/1

Adjustment of the cylinder and concave

1. High cylinder rotation speed and little clearance between cylinder and concave produce good threshing result.

NOTE: When cylinder rotation speed is too high and concave clearance is too little, crushing results.

2. When cylinder rotation speed is low and clearance between cylinder and concave is large, less crushing rate results.

NOTE: When cylinder rotation speed is low and concave clearance is too large, threshing becomes ineffective.

3. **Basic adjustment:**

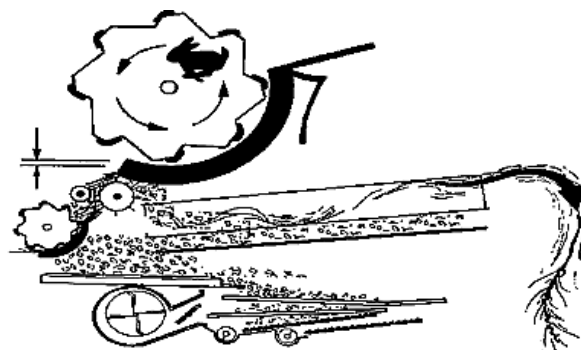
Moist crops:

Increase cylinder rotation speed and reduce concave clearance.

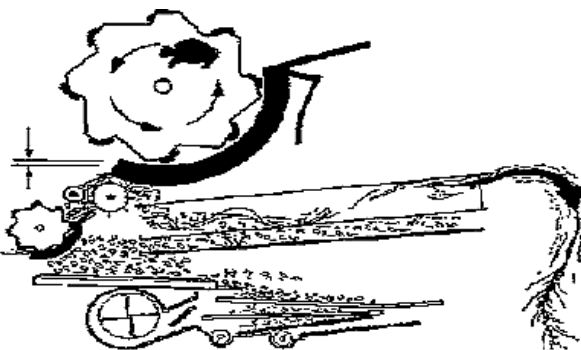
Dry crops:

Reduce cylinder rotation speed and increase concave clearance.

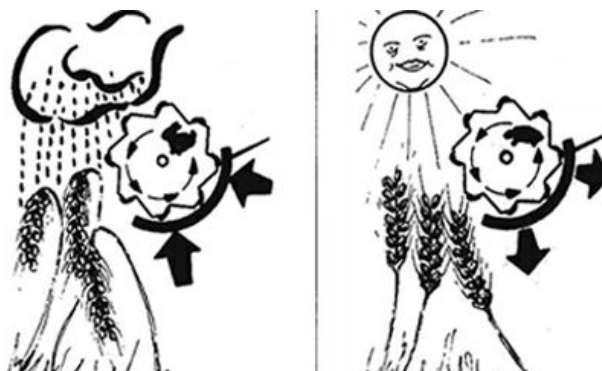
IMPORTANT: To get a good threshing result, it is most crucial to properly adjust cylinder rotation speed and clearance between cylinder and concave.



YC1437—UN—27FEB12



YC1438—UN—27FEB12



YC1439—UN—27NOV12

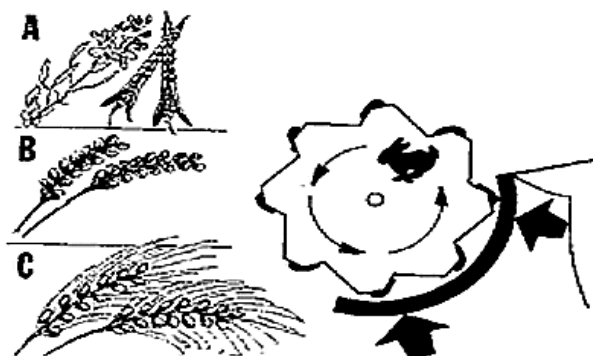
CP00606,0000182 -19-14MAR12-1/1

Adjust concave and cylinder rotation speed according to different crops

Small grain and general crops: High cylinder rotation speed, little clearance between concave and cylinder.

A—Rapeseed
B—Wheat

C—Barley



YC1440—UN—27FEB12

CP00834,0001148 -19-16JUN14-1/1

Determine threshing effect

To determine threshing effect, pay attention to the following:

- threshed stems
- grain loss at the rear of combine harvester
- grain in grain tank
- tailings



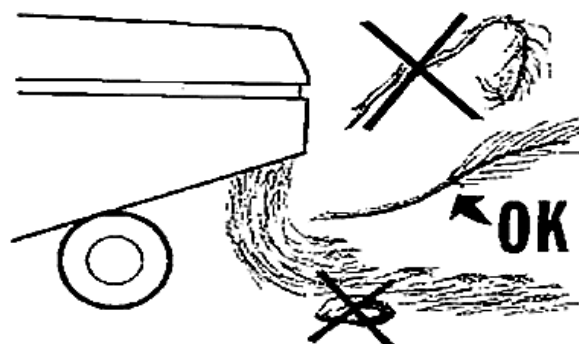
YC1442—UN—27FEB12

CP00606,0000184 -19-14MAR12-1/1

Check the threshed stems and grain at the rear of combine harvester

Threshed stems should be intact.

Grain on the floor should be very little.



YC1443—UN—27FEB12

CP00606,0000185 -19-14MAR12-1/1

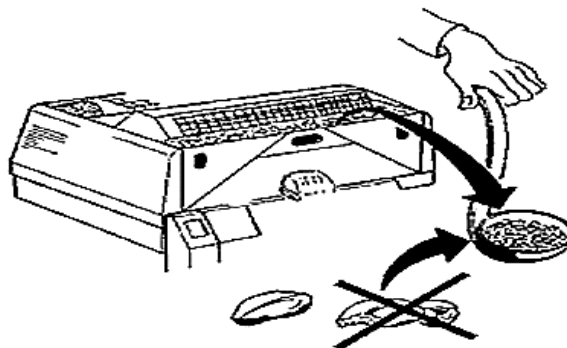
Grain in grain tank

Amount of crushed grain in grain tank should be kept minimal. If the amount is large, check the following:

- Are tailings excessive?
- Is cylinder rotation speed too high?
- Is concave clearance too little?

A lot of tailings and chaff inside grain tank. Follow below method to adjust:

Each time, increase fan speed 10 rpm and check the effect. If not effective, reduce sieve opening degree 1 mm and check the effect. If still not effective, reduce chaffer opening degree 2 mm, until not many tailings and chaff are in grain tank.



YC1444—UN—27FEB12

CP00596,0000BB1 -19-31JUL15-1/1

Check tailings

Each tailing elevator paddle should not transport too many tailings.

Most tailings should be non-threshed spike heads.

There should be no grain, stems and chaff in the tailings.

If lots of grain is in tailings, try the below method:

Increase sieve opening degree for 1 mm and check the effect. If not effective, reduce fan speed for 20 rpm and check the effect. If still not effective, increase chaffer opening degree for 1 mm, until not much grain is in tailings.



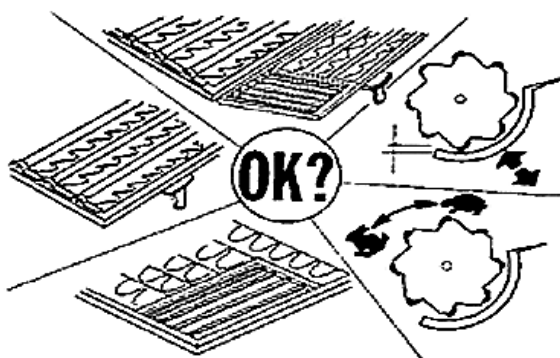
YC1445—UN—27FEB12

CP00851,0000DCA -19-06MAR14-1/1

Problem of tailings

Check the following:

- Are chaffer and sieve adjusted properly?
- Is chaffer extension placed properly?
- Is chaffer extension plate placed properly?
- Is concave clearance properly adjusted according to different crops?
- Is cylinder rotation speed correct?

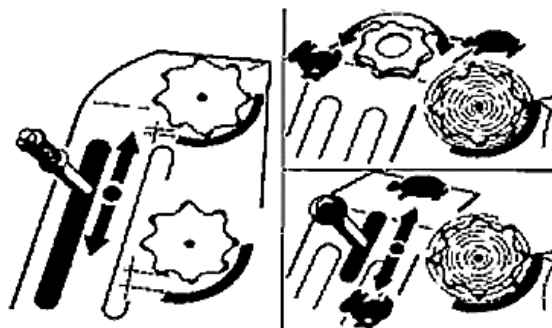


YC1446—UN—27FEB12

CP00606,0000188 -19-14MAR12-1/1

Solve the threshing problem

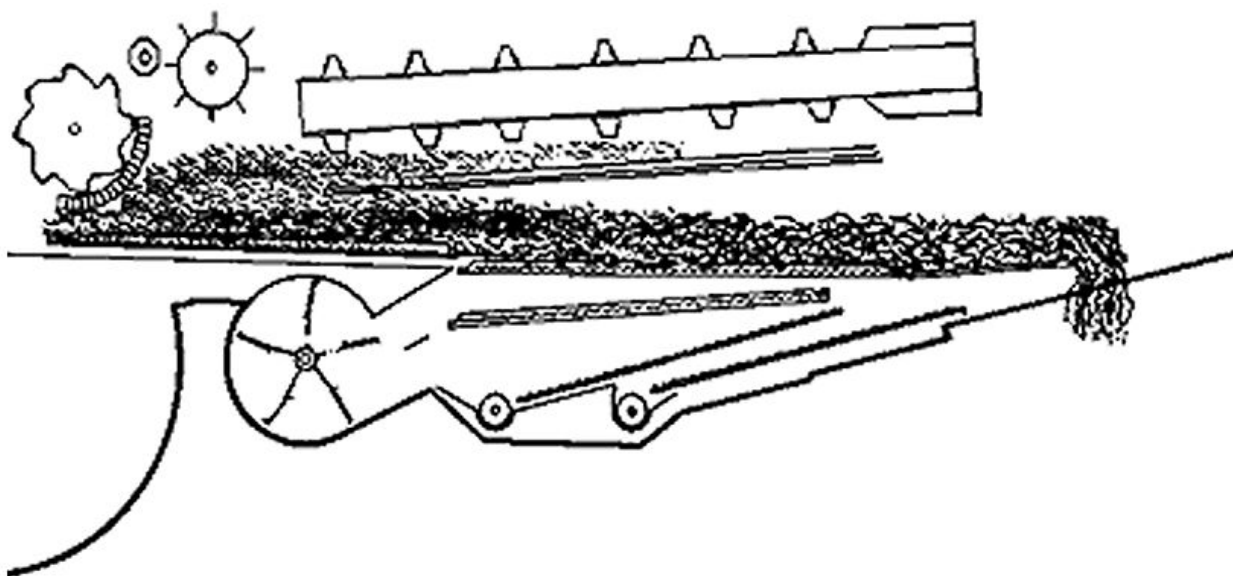
If threshing results are not satisfactory (too many tailings, cleaning device is not adjusted properly or other problems), please refer to the following.



YC1447 —UN—24MAY12

CP00606,0000189 -19-14MAR12-1/1

Over-threshing



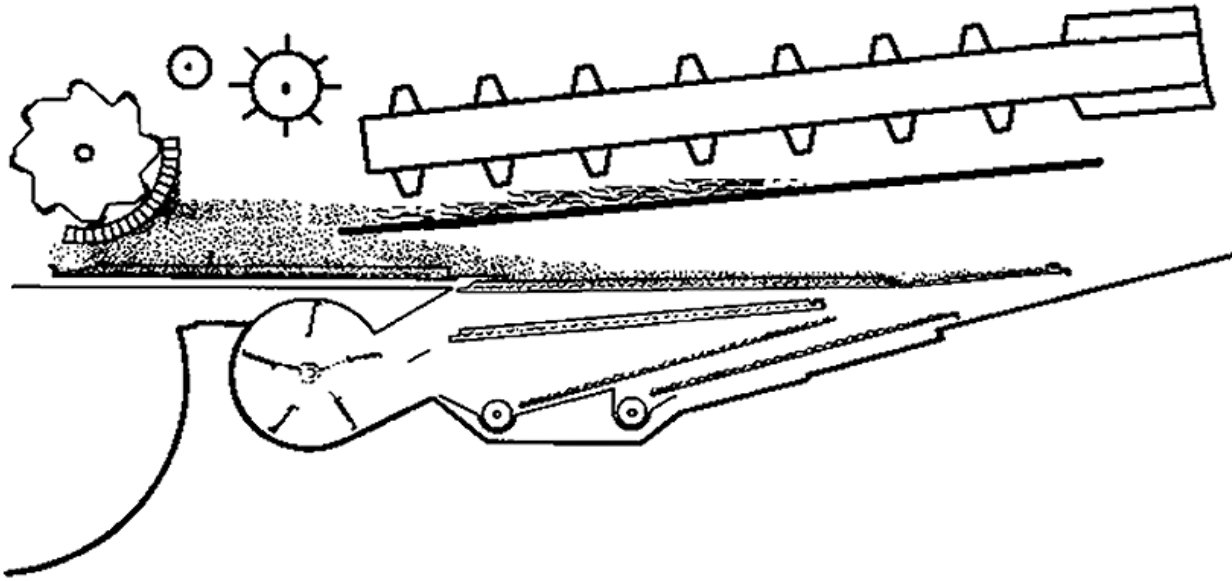
YC1448 —UN—20FEB14

Over-threshing is due to excessively high cylinder rotation speed and not enough clearance between cylinder and concave. Over-threshing can be solved by reducing cylinder rotation speed. Reduce for 50 rpm each time. Before the second adjustment, check the effect of last

adjustment. If the result is not good, each time increase concave clearance for one adjustment teeth (3 mm). If the threshing problem still cannot be solved, reduce driving speed, because large feeding amount may also lead to over-threshing.

CP00851,0000DC6 -19-25SEP14-1/1

Insufficient threshing



Insufficient threshing is due to excessively low cylinder rotation speed and too much clearance between cylinder and concave. Increase cylinder rotation speed by 5% first. If that fails to solve the problem, gradually reduce concave clearance. After making adjustment, check the

result of adjustment. Under certain harvest conditions (e.g. number of plants is small), the above method cannot solve the problem. In this situation, increase driving speed by half gear.

YC1449—UN—20FEB14

CP00606,000018B -19-25SEP14-1/1

Basic Adjustment — Wheat

Clearance between concave and cylinder has been adjusted in the factory, inlet clearance is 7~8 mm while outlet clearance is 4~5 mm.

Concave adjustable handle is then set at the second slot from above (maximum deviation must not be over 1 mm).

If harvest need is not met, use adjustment handle to change concave inlet clearance 7~29 mm, outlet clearance 4~19 mm.

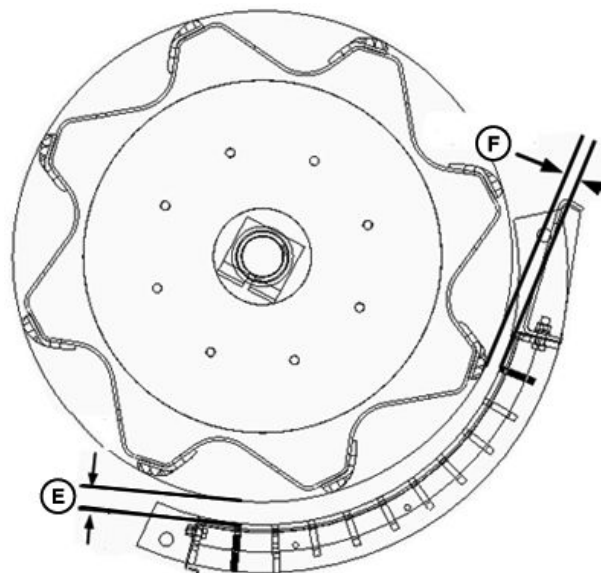
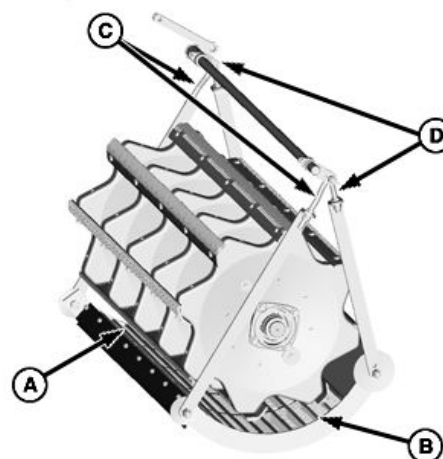
Measurement locations: At the top of cylinder rasp bar, at concave horizontal rod.

Inlet — Measure from the second front horizontal rod on concave.

Outlet — Measure from the second rear horizontal rod on concave.

If above requirements are not met, adjust concave adjustment handle position or turn the nut of adjustment bolt so as to adjust concave clearance. Details can be found in [Concave Clearance Adjustment Mechanism](#).

- | | |
|---|---------------------------------------|
| A—Inlet Clearance Measurement Location | D—Outlet Adjustment Screws (2 pieces) |
| B—Outlet Clearance Measurement Location | E—Inlet Minimum Clearance (7~8 mm) |
| C—Inlet Adjustment Screws (2 pieces) | F—Outlet Minimum Clearance (4~5 mm) |



YC9708—UN—24MAR16

YC9705—UN—25MAR16

CP00606,0000BD9 -19-05APR16-1/1

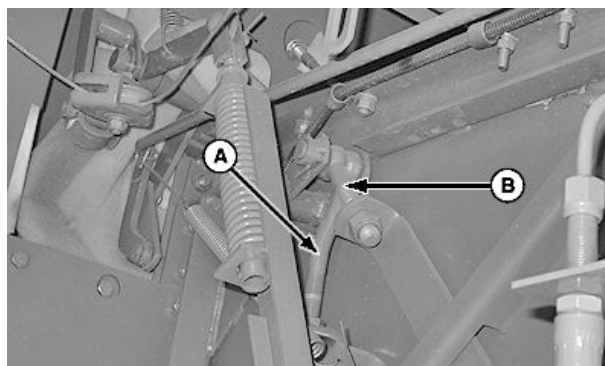
Concave clearance adjustment mechanism

When fine-tuning, adjust the hex nuts on adjustment bolts (A and B).

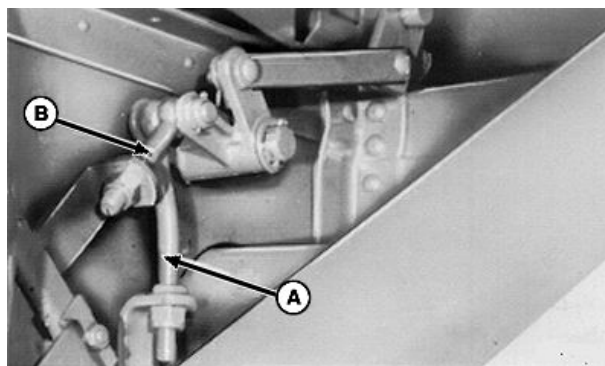
Important: Left and right sides must be adjusted at the same time to ensure that length, direction and clearance of cylinder are consistent, i.e.: concave should be parallel to cylinder. Speed and clearance determine threshing performance.

A—Adjustment bolt

B—Adjustment bolt



Left side



Right side

CP00606,000018D -19-18FEB14-1/1

YC1451—UN—31DEC13

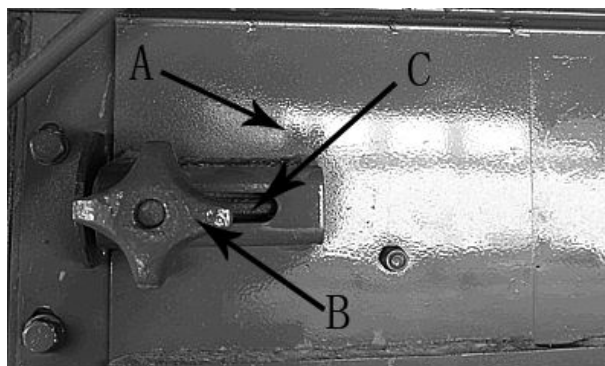
YC1452—UN—25DEC12

Front cylinder inspection door

To open the front inspection door, loosen bolts (B) at both ends and move latch (C) inward. Then, remove door (A). Install in reverse order of removal.

A—Inspection door
B—Nut

C—Latch



CP00606,000018E -19-19MAR12-1/1

YC1453—UN—19MAR12

Stone trap

Used to collect stones, so as to prevent stones from damaging threshing cylinder and concave. Regularly empty the stone trap.



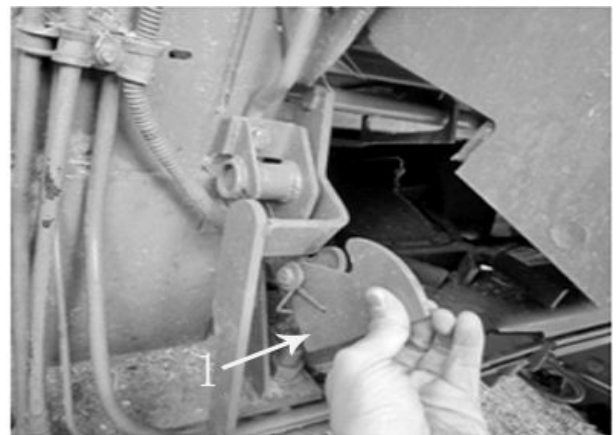
YC1454 —UN—27FEB12

CP00606,000018F -19-14MAR12-1/1

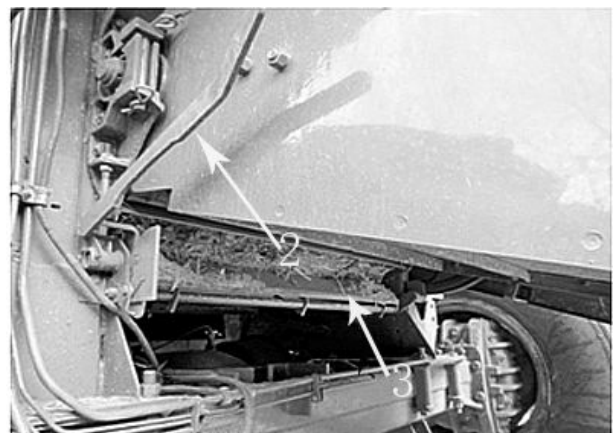
Empty the stone trap

First open locking device (1). Pull handle (2) upward. At the same time, flip over stone trap (3) to empty it.

CAUTION: When flipping over the stone trap, beware of falling stones and residuals!



YC1455 —UN—27FEB12



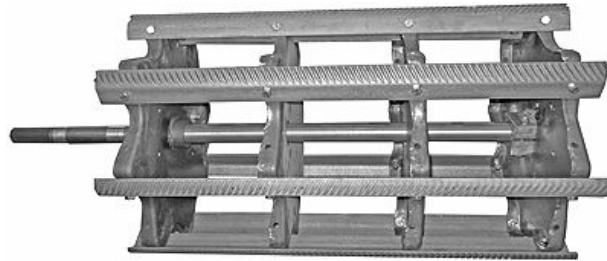
YC1456 —UN—27FEB12

CP00606,0000190 -19-14MAR12-1/1

Cylinder rasp-bar

Cylinder is alternately equipped with right and left tooth-shaped rasp-bars. To change rasp-bars, replace two symmetrical rasp-bars at the same time, so as to keep the cylinder balanced. When replacing rasp-bars, the cylinder needs not be dismounted.

IMPORTANT: Re-tighten the newly replaced rasp-bars once after 10 operating hours.



YC1457 —UN—23FEB14

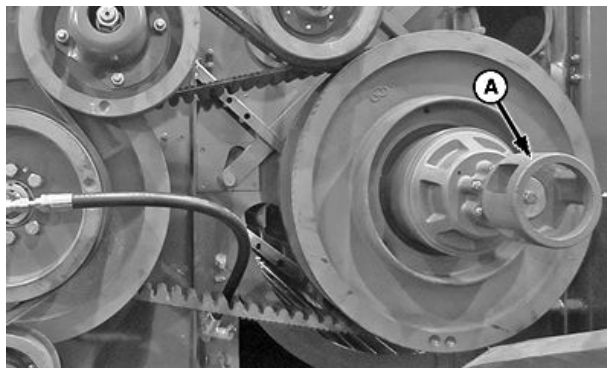
CP00606,0000191 -19-14MAR12-1/1

Turn the cylinder

Remove cylinder door. Use an appropriate rod to turn the cylinder.

Attention! When the engine is running, do not clean the cylinder.

A—Plate wheel hub



YC1458 —UN—17JAN14

CP00606,0000192 -19-22MAR12-1/1

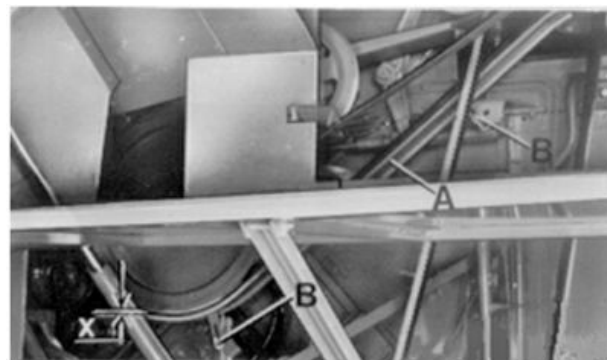
Threshing clutch belt guide

Distance (X) between belt and belt guide is 2~5 mm (straw pulley and belt pulley also follow this requirement).

A—Belt guide

B—Adjustment brackets

X—Clearance



YC1459 —UN—27FEB12

CP00606,0000193 -19-14MAR12-1/1

Threshing clutch drive belt tension adjustment

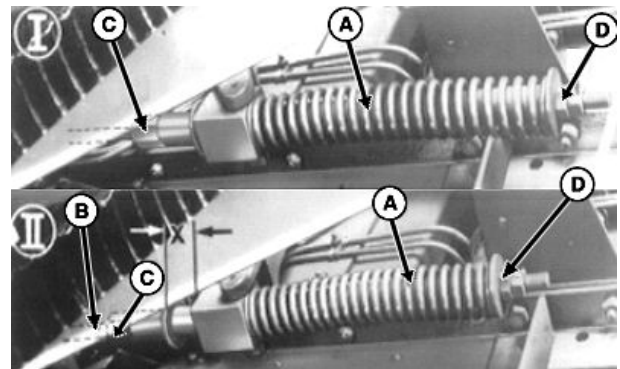
— Engage threshing clutch handle.

— When $X = 23\sim 27$ mm, the belt tension is appropriate. If clearance (X) is inappropriate, adjust bolt (C).

Adjustment method: Engage threshing clutch handle first. Loosen nut (D). Turn the adjustment bolt (C). Then, tighten nut (D) until washer contacts sleeve. Check if (X) is appropriate. Re-adjust if otherwise.

NOTE: Engage the threshing clutch only when all people are away from the machine.

IMPORTANT: 1. When the machine is not in use, do not engage the threshing clutch. 2. Never use belt dressing on clutch drive belt.



A—Spring
B—Adjustment lever
C—Adjustment bolt

D—Lock nut
X—Control distance 23~27 mm

CP00606,0000194 -19-19MAR12-1/1

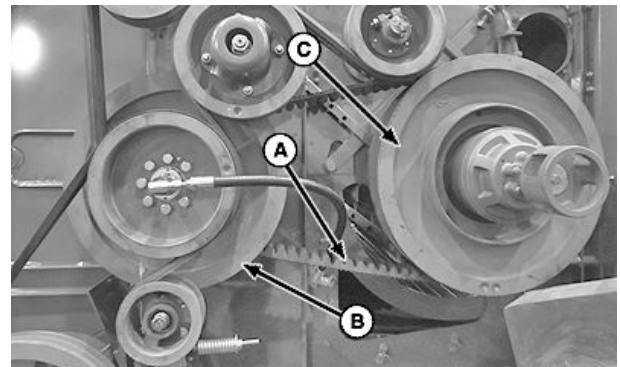
YC1460—UN—25DEC12

Drive system

Drive system should be dismantled by professionals. Beware of personal safety as the torque spring has great pressure.

A—Belt
B—Drive plate

C—Cylinder plate



CP00606,0000195 -19-14MAR12-1/1

YC1461—UN—31DEC13

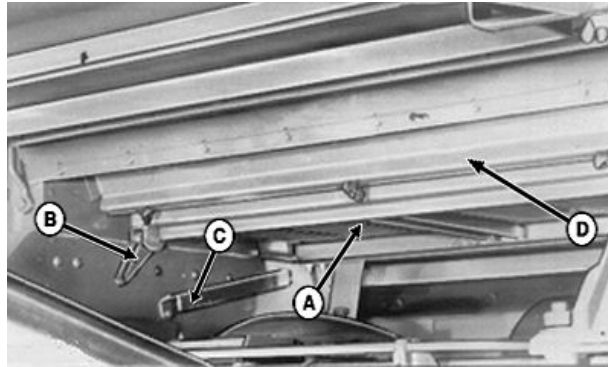
Threshing cleaning device

Below concave:

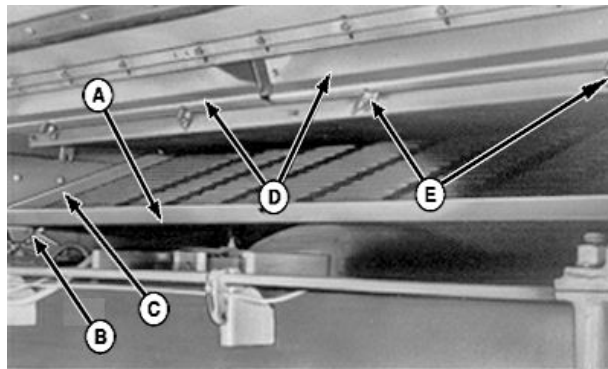
Open front ladder board (A) and you can clean the threshing section. Front ladder board (A) is fixed by two left and right clips (B), as shown in the diagram. To open front ladder board, open clips (B) and put the opened ladder board (A) on bracket (C). Then, you can clean the ladder board.

A—Front ladder board
B—Clip
C—Bracket

D—Stone trap base plate
E—Stone trap disk nuts



YC1462—UN—25DEC12

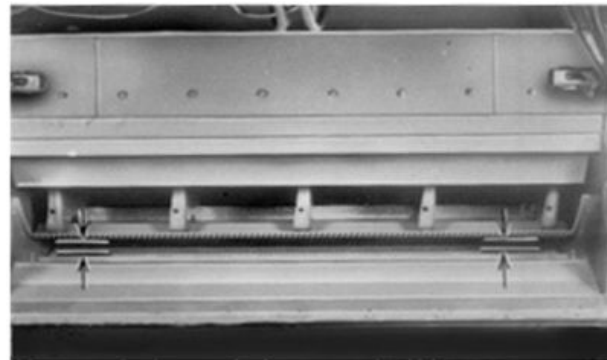


YC1533—UN—31DEC13

CP00606,0000196 -19-19MAR12-1/1

Adjust concave level

The concave is adjusted and leveled before leaving the factory. Regularly check to ensure that the concave is in parallel with the cylinder.



YC1463—UN—27FEB12

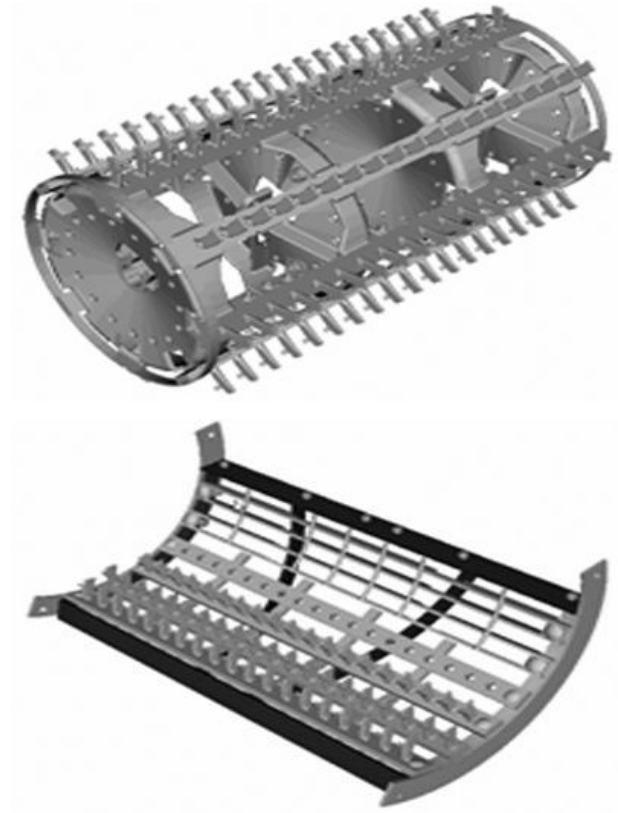
CP00606,0000197 -19-14MAR12-1/1

Rice harvest accessories

These accessories include rice cylinder and rice concave. Rice threshing is done by the friction movement of the spike teeth between cylinder and concave.

Promptly replace the missing or damaged spike teeth.

Use a hammer and a piece of hardwood to install a new spike tooth. Use a nut to hold it firmly. Spike tooth should be installed in the way that its long side is at the rear of rotation direction.



YC1464 —UN—27FEB12

YC1465 —UN—20FEB14

CP00606,0000198 -19-14MAR12-1/1

Adjust rice concave and cylinder

When adjusting, put the cylinder close to the concave as much as possible (refer to adjustment of concave). Clearance (X) between cylinder and concave spike teeth should not be less than 4 mm.

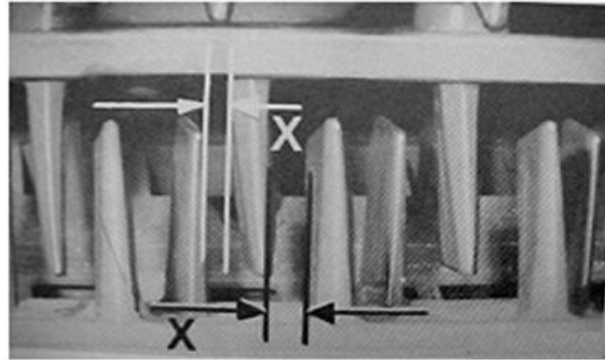
When rotating, clearance in-between spike tooth rows on the concave should be the same.

If clearance is not the same, rice on one side will not be threshed well, while on another side rice will be over-threshed.

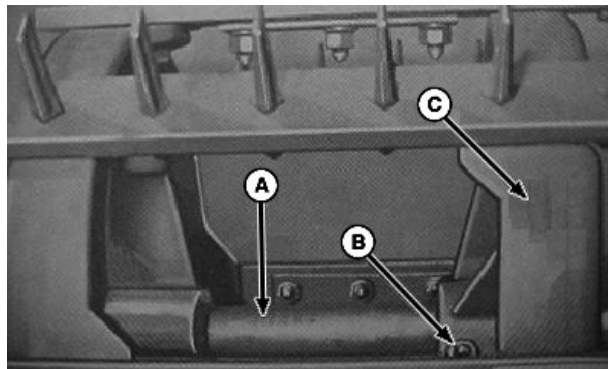
Adjust the position of cylinder spoke plate (C) on the cylinder shaft (A) to re-position the cylinder and to adjust the clearance. After adjustment, use fastening bolt (B) to fix the cylinder.

A—Cylinder shaft
B—Fastening bolt

C—Cylinder spoke plate
X—4 mm



YC1466—UN—27FEB12



YC1467—UN—25DEC12

CP00606,0000199 -19-14MAR12-1/1

Basic Adjustment — Corn

NOTE: When harvesting corn, change relevant accessories if needed. Refer to installation instructions of corn harvest components (INSYC33559).

NOTE: For detailed operating procedures, refer to corn operator's manual (OMYC32463).

Clearance between concave and cylinder has been adjusted in the factory, inlet clearance is 22~23 mm while outlet clearance is 19~20 mm.

Concave adjustable handle is then set at the second slot from above (maximum deviation must not be over 1 mm).

If harvest need is not met, use adjustment handle to change concave inlet clearance 22~44 mm, outlet clearance 19~34 mm.

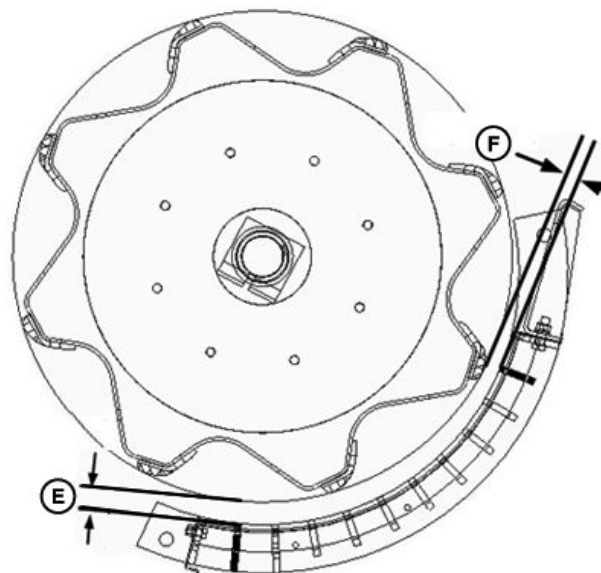
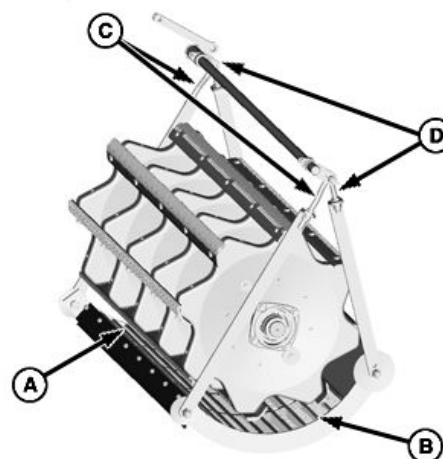
Measurement locations: At the top of cylinder rasp bar, at concave horizontal rod.

Inlet — Measure from the second front horizontal rod on concave.

Outlet — Measure from the second rear horizontal rod on concave.

If above requirements are not met, adjust concave adjustment handle position or turn the nut of adjustment bolt so as to adjust concave clearance. Details can be found in [Concave Clearance Adjustment Mechanism](#).

- | | |
|---|---|
| A —Inlet Clearance Measurement Location | D —Outlet Adjustment Screws (2 pieces) |
| B —Outlet Clearance Measurement Location | E —Inlet Minimum Clearance (22~23 mm) |
| C —Inlet Adjustment Screws (2 pieces) | F —Outlet Minimum Clearance (19~20 mm) |



CP00606,0000F42 -19-27JUL16-1/1

YC9708 —UN—24MAR16

YC9705 —UN—25MAR16

Concave filler plates

Concave filler plates: Concave filler plates are used to keep material in concave for a longer time to help separate the grain from the hull on hard trashing crops.



CP00606,000019E -19-14MAR12-1/1

YC1472 —UN—27FEB12

Install concave filler plates

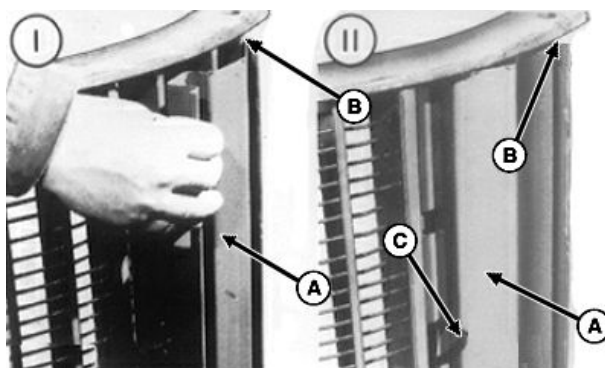
Installation positions are provided on the concave. Before installation, clean the front support (B) thoroughly.

I— Step one

II— Step two

A—Filler plates
B—Front support

C—Spring pin



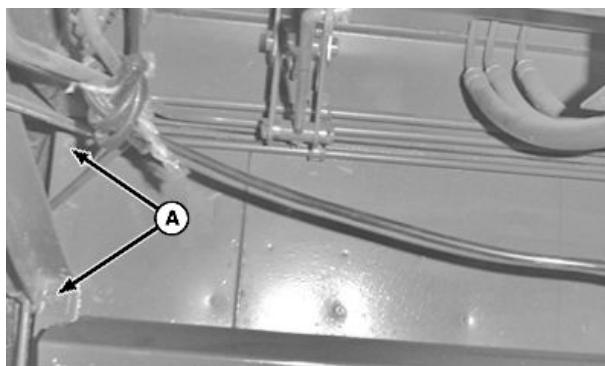
YC1473—UN—25DEC12

CP00606,000019F -19-14MAR12-1/1

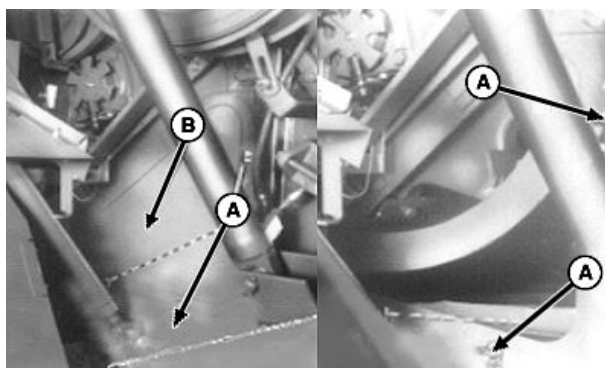
Clear cylinder blockage

Before clearing the cylinder blockage, make sure the following measures are reliably implemented:

1. Put the cutter on the ground. Separate the cutter and the threshing clutch.
2. Put the shift lever at neutral position and engage hand brake.
3. Switch off the engine.
4. Remove key from machine.
5. Disconnect power supply.
6. Set the concave clearance lever to the maximum.
7. Open the cylinder front inspection door and the observation windows at both sides for cleaning.
8. Use hooks and other tools for cleaning when needed.
9. When removing plugs, never rotate the machine without knowing where all bystanders are located. Always warn bystanders when you are going to turn the machine by hand.
10. After cleaning, immediately remove the blockage and install the dismantled parts.



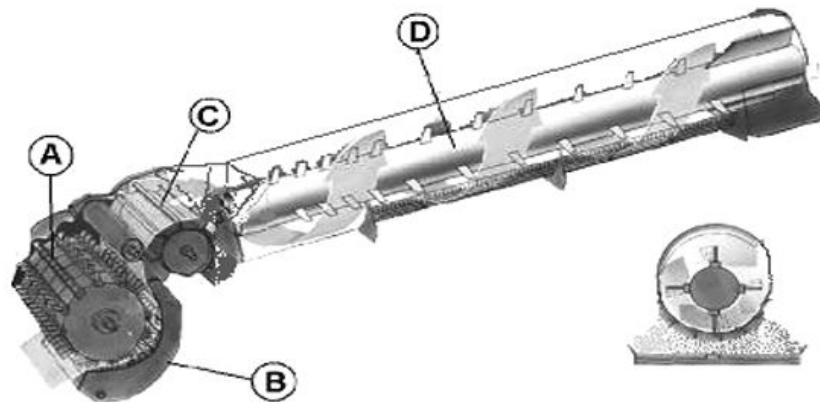
YC1474—UN—31DEC13



YC1475—UN—25DEC12

CP00606,00001A0 -19-14MAR12-1/1

Spike tooth separator



Materials to be cut go through the feeder house into threshing cylinder (A) and threshing concave (B).

The 8-wing upward serrated overshot beater (C) transports the materials to separation cylinder (D). Separation cylinder separates, rotates and transports the materials further. Spike teeth on the separation cylinder rub and brush the materials.

The fixed guide vanes on sidewall of the spike tooth separation cylinder facilitate materials to form numeral

spiral motions through the tines. The brushing function of the rotating spike teeth and the centrifugal force together generate the maximum separation of heavy grain.

In this process, the separated grain drops to the grain shaker pan at the bottom of spike tooth separation grid panel. When the materials reach the rear of separation grid panel, they are free of entrained grain. The grain return pan transports the grain to the cleaning system for final cleaning.

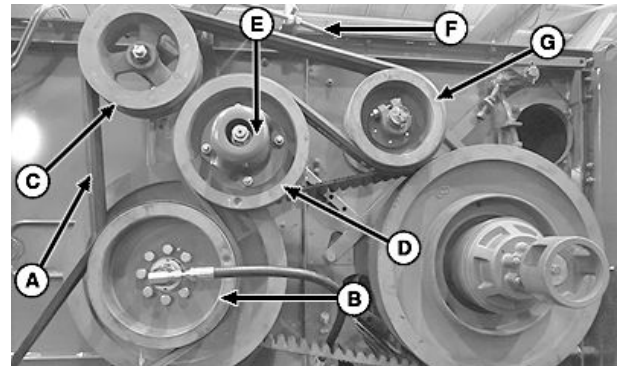
CP00606,00001A2 -19-14MAR12-1/1

YC1478—UN—27FEB12

Beater roller drive

Hexagonal belt (A) drives the beater. Use the tension lever (F) to adjust the tension of hexagonal belt (A).

- | | |
|-----------------------------------|----------------------------|
| A—Hexagonal belt | E—Safety clutch |
| B—Main drive pulley | F—Tension lever |
| C—Tensioner pulley | G—Downward stripper beater |
| D—Upward serrated overshot beater | |

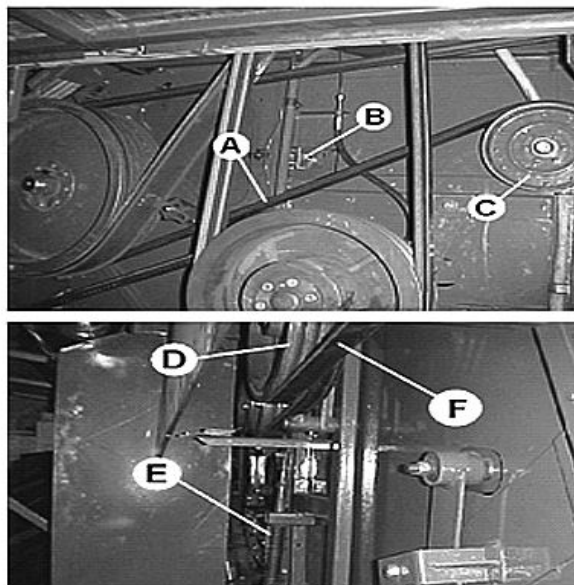


CP00606,00001A3 -19-14MAR12-1/1

YC1479—UN—31DEC13

Separation cylinder and chopper belt drive

Separation cylinder belt drive is composed of drive belt (A and F), tensioner pulley (C) and middle pulley (D). Adjust the tension of drive belt by adjusting the length of spring (E). Spring (E) is 200 mm long. (B) is the front retaining point of the separation cylinder, one at the right side and another at the left side.



YC1480 —UN—27FEB12

CP00606,00001A4 -19-14MAR12-1/1

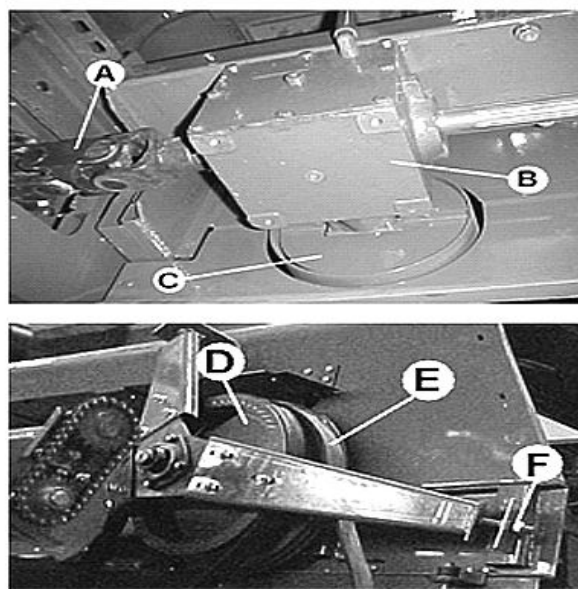
Separation cylinder rear drive

The power of separation cylinder flows from universal joint (A) to gear box (B), and then to separation cylinder (C). When installing universal joint (A), use specific tools to ensure its coaxiality.

Adjusting nuts (F) (at three positions) can adjust the parallelism of input shaft.

(D) is separation cylinder drive sheave. (E) is chopper drive belt.

Please refer to pages 30-25 for the usage of specific tools.



YC1481 —UN—27FEB12

CP00606,00001A5 -19-14MAR12-1/1

Replace bearing, tines or deflector at the front of separator cylinder

Open the rear cover. Remove bolt (A). Move the coupling to the right and remove it.

Remove bracket of separation cylinder and track fixing bolts.

Remove front and sidewall fixing bolts.

Use a crowbar to turn the rope roller and roll the separation cylinder to the maintenance position. To roll in the cylinder requires fixing the cable to the rear. Fix it when the correct position is confirmed. Wrap the cable in the opposite direction to rolling.

NOTE:

1. During the whole process, make sure that the separation cylinder contacts the track properly, so as to prevent it from falling off. When needed, use strengthening rods to prevent the rack on both sides from opening.
2. Avoid over-rolling for fear that it will tilt and drop.
3. During the working process, do not allow any people to stay beneath the cylinder.
4. Do not turn cylinder by hand when removing blockages.



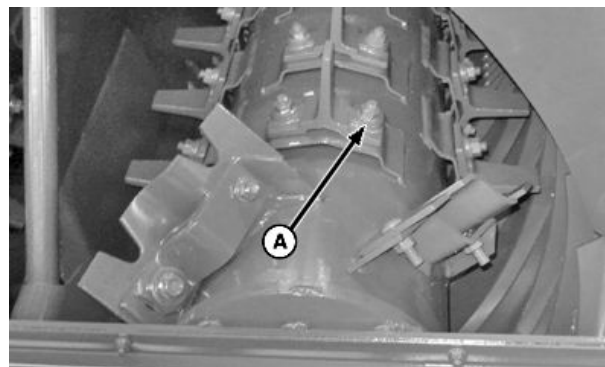
YC1482 —UN—27FEB12

CP00606,00001A6 -19-14MAR12-1/1

Change tines

Remove fixing bolts and flanged nuts (A) which attach the tines. Replace damaged and seriously worn tines.

NOTE: Replace symmetrically so as to maintain the balance.



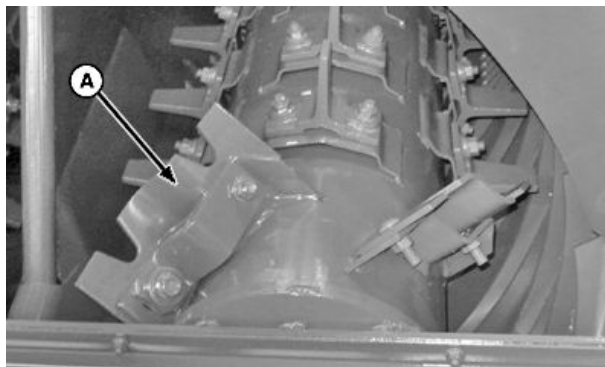
YC1483 —UN—24DEC13

CP00606,00001A7 -19-14MAR12-1/1

Change deflector

Remove round head bolts and flanged nuts which fix deflector (A). Replace deflector according to its status of wear and tear.

NOTE: Replace symmetrically so as to maintain the balance.

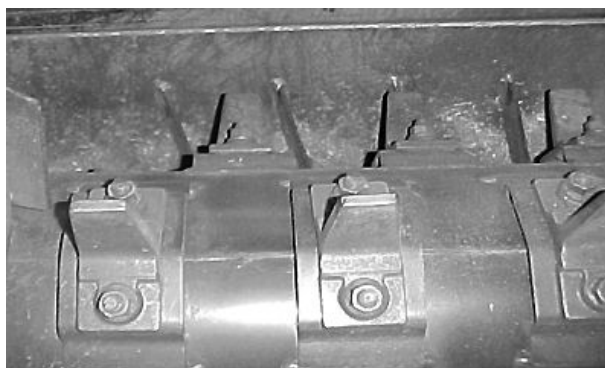


YC1484 —UN—24DEC13

CP00606,00001A8 -19-14MAR12-1/1

Clear blockage or other failures

When clearing serious blockage or replacing tines, you may remove the separation cylinder upper cover panel from the rear cover. First, remove the 3rd panel from the rear. Under normal circumstances, removing only one panel is enough.



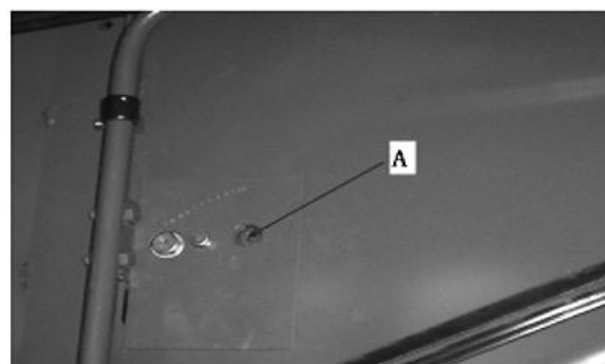
YC1485 —UN—27FEB12

CP00606,00001A9 -19-14MAR12-1/1

Lubrication of separation cylinder front bearing

On the left sidewall, there is a nozzle (A) near separation cylinder front fixing holder. Lubricate the bearing every 100 hours.

It is required to use No. 3 molybdenumdisulphide lithium base lubricating grease.



YC1486 —UN—27FEB12

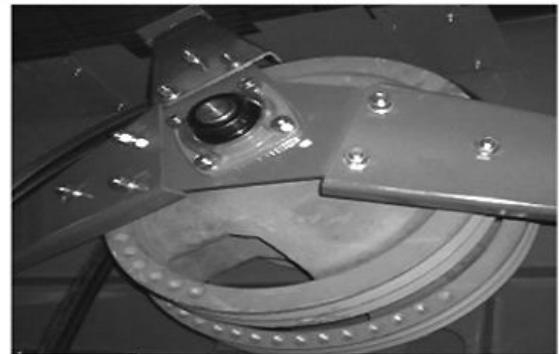
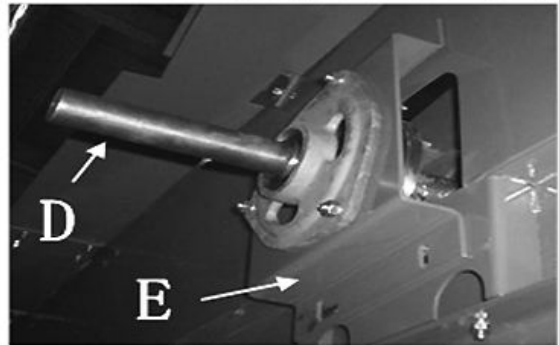
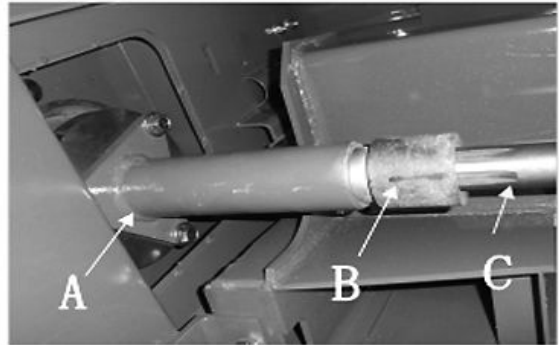
CP00606,00001AA -19-14MAR12-1/1

Use of specific tools

Specific tools are composed of two parts (A) and (B). Install tools to drive shaft (D). Insert end (B) onto gearbox shaft (C).

Rotate drive shaft to center bearing. When the central point is found, fix supporting plate (E). Install other components in order.

Dismount the tools. Install universal joint. (When dismounting tools, separate tools A and B. First dismount tool A and then tool B.)



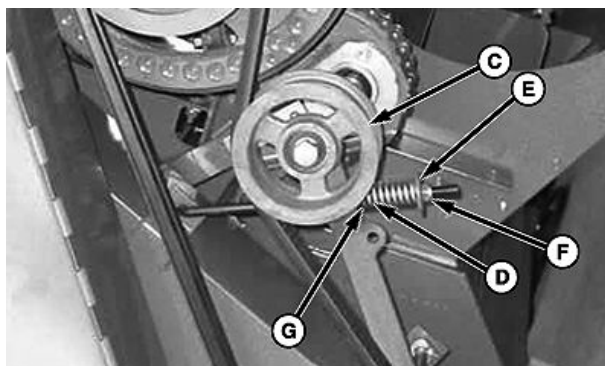
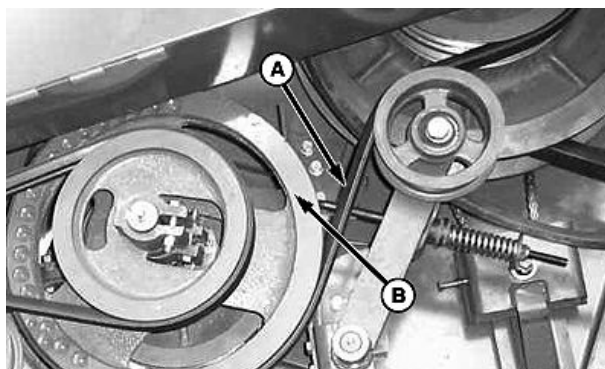
YC1487 —UN—27FEB12

CP00606,00001AC -19-14MAR12-1/1

Cleaning, grain and tilling transmission main drive

Drive belt (A) and tensioner pulley (C) automatically tighten. Tension spring (D) of tensioner pulley (C) should be of 59 mm long. Use a hex nut (F) to adjust the spring.

- | | |
|----------------------------|------------------|
| A—Transmission belt | E—Washer |
| B—Transmission belt pulley | F—Hex nut |
| C—Tensioner pulley | G—Spring casting |
| D—Spring | |



YC2409—UN—25JUL14

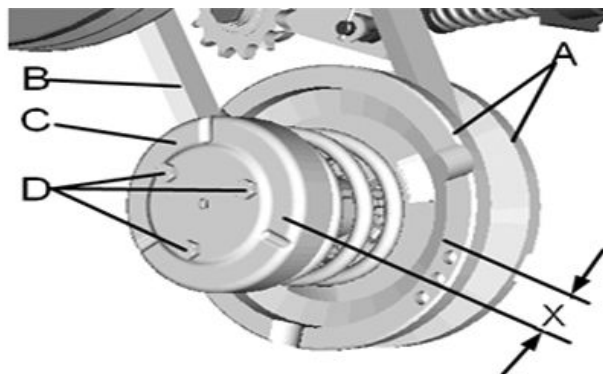
YC2410—UN—25JUL14

CP00606,00001AD -19-10OCT12-1/1

Fan drive

The condition for correctly adjusting the lower disc is as follows: When moving plate and fixed plate are fully merged, measure size (X); This size is between the outer surface of spring casting and the outside of variable-speed disc (A).

- | | |
|-----------------------|----------------|
| A—Variable-speed disc | D—Hex bolts |
| B—Drive belt | X—103 - 105 mm |
| C—Spring casting | |



YC1490—UN—27FEB12

CP00606,00001AE -19-14MAR12-1/1

Cleaning process

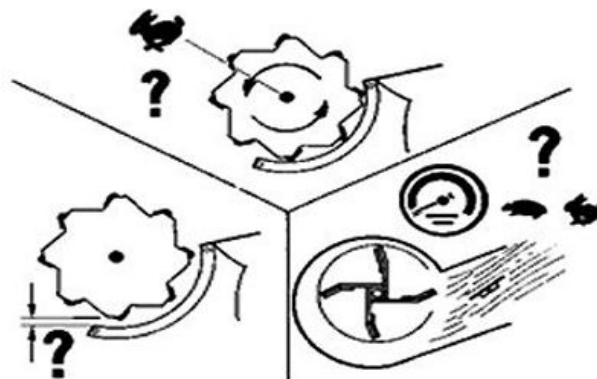
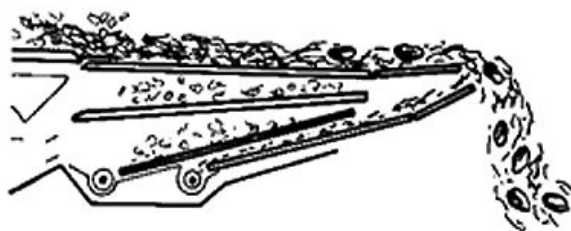
With sieve and fan, short stems are screened out of the machine, chaff is blown out, and clean grain passes through shaker pan and then enter the grain auger.

Please note that over-threshing will increase the load of cleaning.

Note: Amount of air flow should make chaff and short stems floating so as to reduce cleaning loss.

In case of excessive cleaning loss, check the following:

- — Are concave clearance and chaffer opening degree too small?
- — Is cylinder rotation speed too high?
- — Are air flow and direction appropriate?



CP00851,0000DC7 -19-06MAR14-1/1

YC1491 —UN—27FEB12

YC1492 —UN—30DEC13

Adjustment of chaffers

Chaffers are of adjustable fish-scale type. Opening degree of fish-scales should be appropriate, so that grain can go through sieves and fall from them after screening. If opening degree of chaffer is too much, that will increase the loading of sieve. If opening degree of chaffer is not enough, some grain will fall onto the tailing slide and increase crushing. Other grain will be thrown to the rear of the machine, leading to cleaning loss.

Cleaning loss may be caused by the following reasons:

1. Air flow or opening degree of chaffer and chaffer extension is too little, so that there is a layer of bran and grass over the grain.
2. Air flow is too strong and grain is blown out of the cleaning chamber.

To make appropriate adjustments to solve the problem, it is very important to know which reason mentioned above leads to cleaning loss. In the first case, the problem may be due to over-threshing and fan air flow being too little. Check the threshed straw: If straw is seriously crushed, cylinder and concave must be adjusted in order to reduce over-threshing; If straw is intact and not broken, increase amount of air flow to make chaff float above chaffer, or increase the opening degree of chaffer for 1 mm, so that grain can fall through chaffer. Before making further adjustments, check the result of the previous adjustment.

CP00851,0000DC8 -19-06MAR14-1/1

Adjustment of sieves

Final cleaning is done by grain sieves. Its opening degree should be big enough to let grain easily pass through, without chaff and bran passing through.

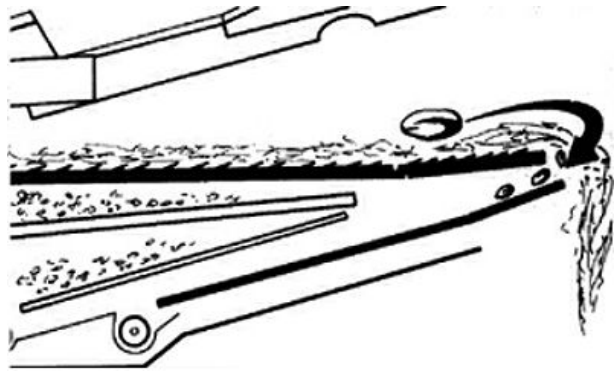
If opening degree of the sieves is too little, grain will go to tailings. Excessive tailings will lead to over-threshing. That may also cause serious crushing.

When adjusting sieves, increase sieve opening degree for 1 mm each time, until much impurities appear in grain tank; Then, slightly decrease sieve opening degree, until cleanliness of grain sample in tank is acceptable.

CP00851,0000DC9 -19-06MAR14-1/1

Slide extension

When adjusting slide extension, under normal harvest condition, it can be a bit longer than chaffer extension. This can reduce grain loss.



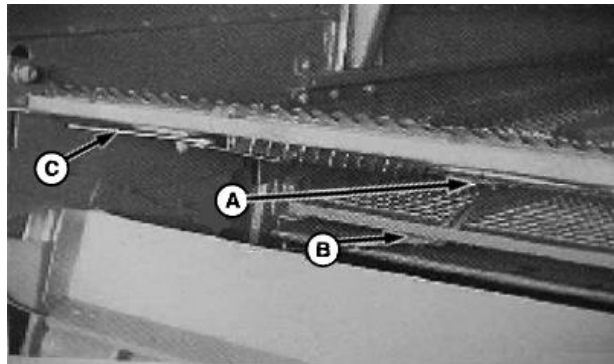
YC1493—UN—26NOV12

CP00606.00001B2 -19-14MAR12-1/1

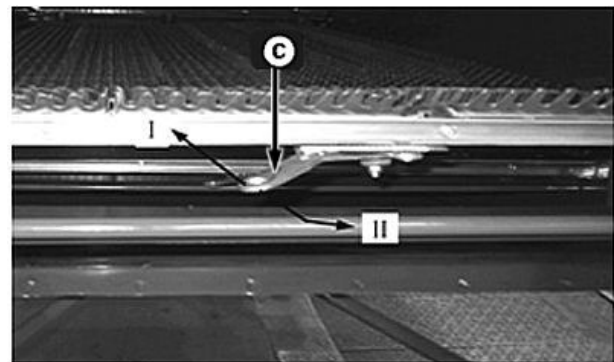
Adjustment of chaffer, chaffer extension, and sieves

Use three handles to separately adjust chaffer, grain sieves and rear sieves. Please refer to page 60-5 to 60-7 for "Adjustment diagrams" for the degree of adjustments.

- | | |
|---------------------------------------|-----------|
| A—Chaffer adjustment handle | I— Closed |
| B—Sieve adjustment handle | II— Open |
| C—Chaffer extension adjustment handle | |



YC1494—UN—25APR13



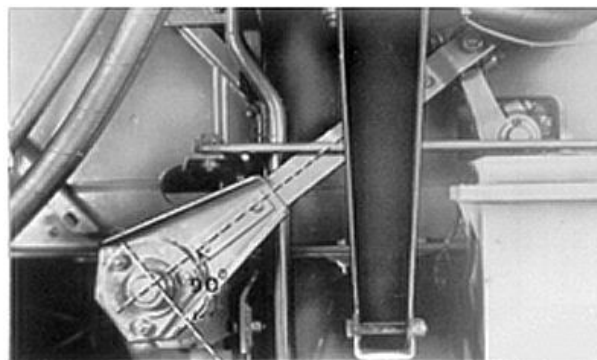
YC1495—UN—25APR13

CP00606.00001B3 -19-19MAR12-1/1

Connecting rod and hanger rod of sieve chamber drive

When replacing the isolator bushing of connecting rod and hanger rod, set the connecting rod at neutral position. Determine the neutral position by the following method: Use a hand to turn belt pulley, until the connecting rod centerline forms an angle of 90° to the crank and pin shaft centerline.

Regularly replace the isolator bushing.

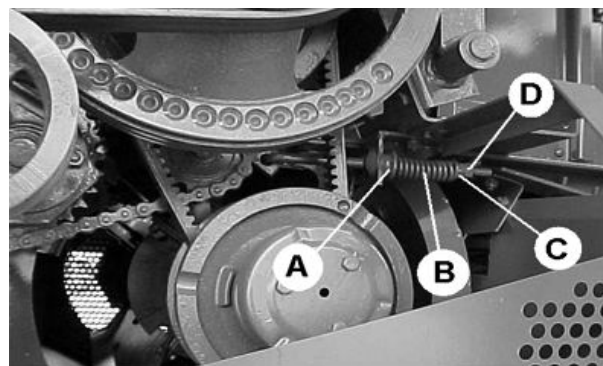


YC1496 —UN—27FEB12

CP00606,00001B4 -19-14MAR12-1/1

Sieve chamber drive tension mechanism

Sieve chamber chain drive is tensioned by spring (B). Adjustment nuts (C) and (D) can be used to adjust the tightness of the chain. (A) is a spherical spring casting. The principle of adjusting the length of spring (B) is to minimize its impact under working condition.



YC1497 —UN—27FEB12

CP00606,00001B5 -19-14MAR12-1/1

Cleaning drive chain

Cleaning drive chain drives upper and lower sieve chambers, shaker pan and other transporting components. Its impact load is rather large and is worn rather quickly. Regularly replace it according to the usage conditions.

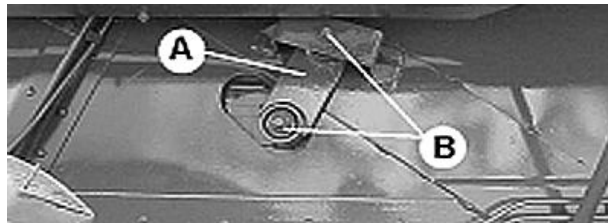
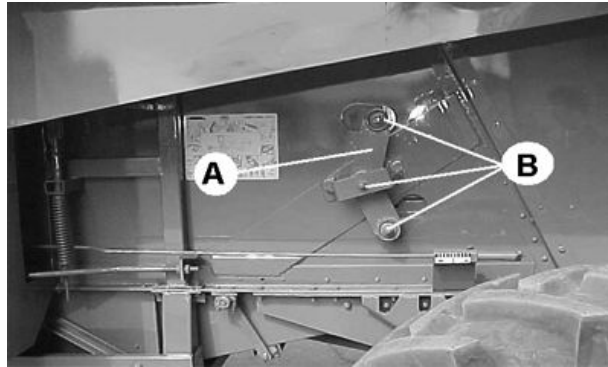


YC1498 —UN—27FEB12

CP00606,00001B6 -19-14MAR12-1/1

Shaker pan drive arm

Shaker pan is driven by drive arm (A). Regularly check the tightness of nut (B) when working.



CP00606,00001B7 -19-14MAR12-1/1

YC1499—UN—27FEB12

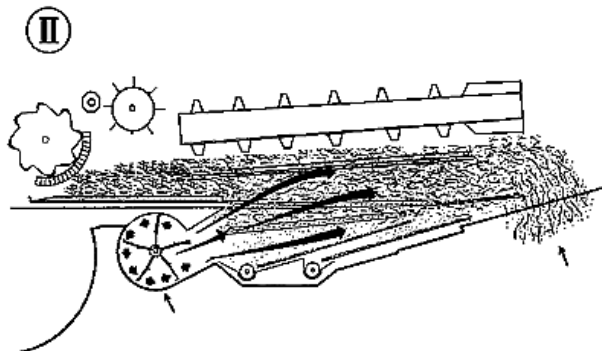
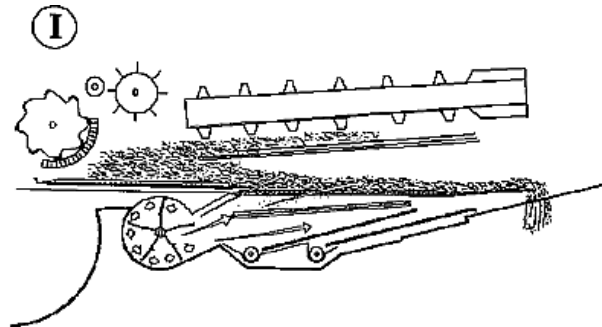
YC1534—UN—07MAR12

Adjustment of fan speed

IMPORTANT: When air flow is too less, cleaning is not effective. When air flow is too much, loss results.

Before adjusting fan speed, increase opening degree of chaffer and sieve to their recommended maximum according to the crop type (refer to machine adjustment diagram). Then, starting from the recommended minimum fan speed, gradually increase fan speed, until no grain is blown out of combine harvester or into tailing slide. Carefully check the adjustment results. When the allowed maximum fan speed is reached, if necessary, adjust the chaffer slightly. Then, adjust the fan until the best result is attained.

IMPORTANT: Check the result of the previous adjustment before adjusting further.



CP00834,0001149 -19-16JUN14-1/1

YC1500—UN—07MAR12

YC1501—UN—07MAR12

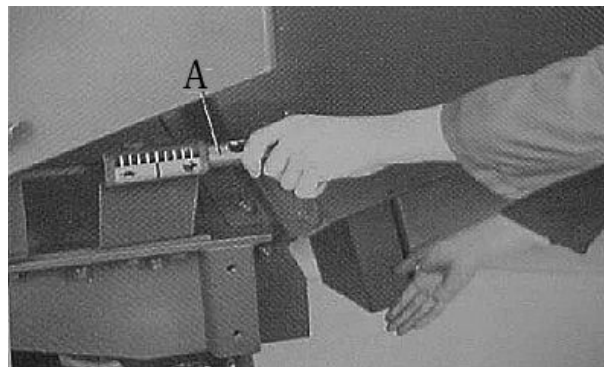
Fan speed adjustment handle

Refer to machine adjustment chart for the recommended fan speed range.

IMPORTANT: Adjust fan speed only when the fan is running.

NOTE: In general, more grain loss is caused by low air flow rather than high air low.

A—Fan speed adjustment handle



YC1502—UN—09MAR12

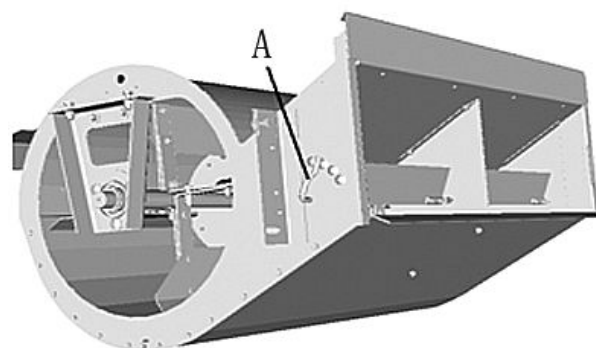
CP00596,0000653 -19-18FEB14-1/1

Wind direction

To change air flow direction, use wind deflector adjustment lever (A) at the left of machine.

Note: Wind deflector adjustment lever (A) is at neutral position as per factory setting.

A—Wind deflector adjustment lever



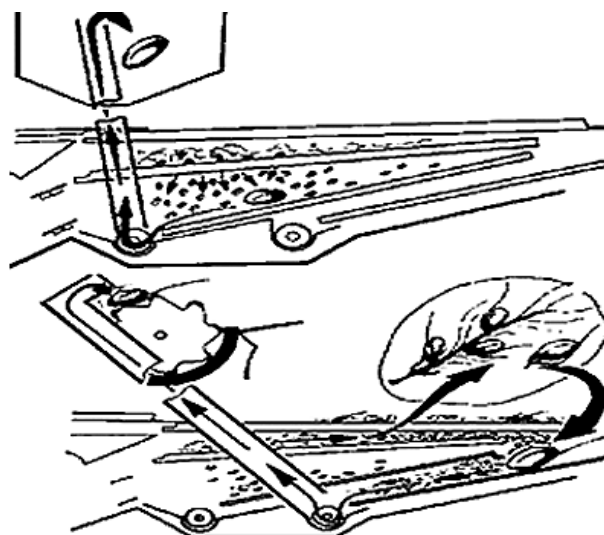
YC1503—UN—09MAR12

CP00606,00001BA -19-14MAR12-1/1

Grain flow

Grain fall from the chaffer to the clean grain auger, to the clean grain elevator, then entering the grain tank.

Spikes that are not totally threshed and small amount of chaff pass through the chaffer, to the return pan and to the tailings auger. Tailing elevator transports these partly threshed spikes back to the middle part of threshing cylinder for threshing again.



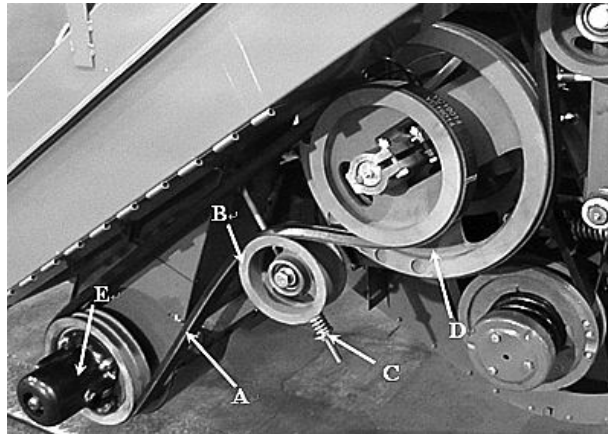
YC1504—UN—26NOV12

CP00606,00001BB -19-14MAR12-1/1

Grain and tailing elevator drive

Grain and tailing elevator is driven by drive belt (A) of main drive pulley (D). Drive belt (A) is tensioned by spring tensioner pulley (B).

- | | |
|--------------------|---------------------|
| A—Drive belt | D—Main drive pulley |
| B—Tensioner pulley | E—Screen |
| C—Spring | |



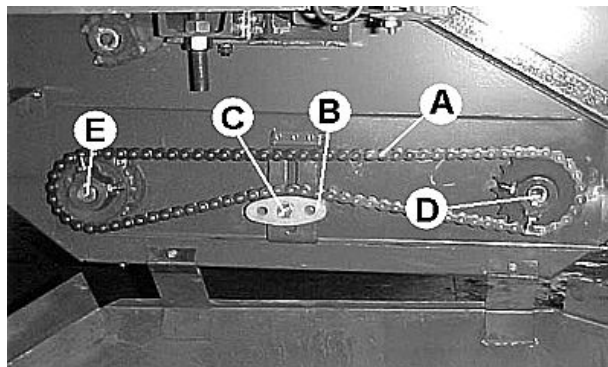
YC1505—UN—07MAR12

CP00606,00001BC -19-14MAR12-1/1

Grain and tailing auger drive

Tailing auger is driven by chain of clean grain auger. Moving tension block (B) can adjust the tightness of drive chain (A).

- | | |
|------------------|-----------------------------|
| A—Drive chain | D—Lower tailing auger shaft |
| B—Tension block | E—Grain auger shaft |
| C—Adjustment nut | |



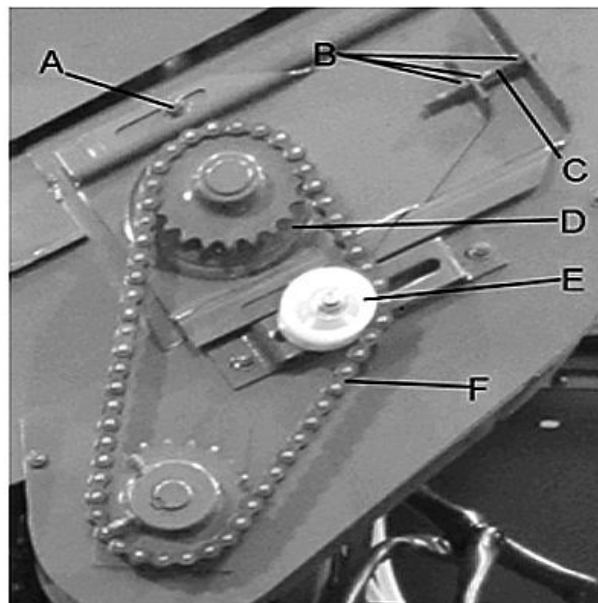
YC1506—UN—07MAR12

CP00606,00001BD -19-14MAR12-1/1

Adjustment of tailing elevator drive chain

Loosen tension block (E). Loosen hex nuts (A). Adjust hex nuts (B) on tension bolt (C). Change the position of bearing seat (D). Make sure that drive chain (F) is in the correct position. After adjusting the chain, tighten all hex nuts.

- | | |
|----------------|-----------------|
| A—Hex nuts | D—Bearing seat |
| B—Hex nuts | E—Tension block |
| C—Tension bolt | F—Drive chain |



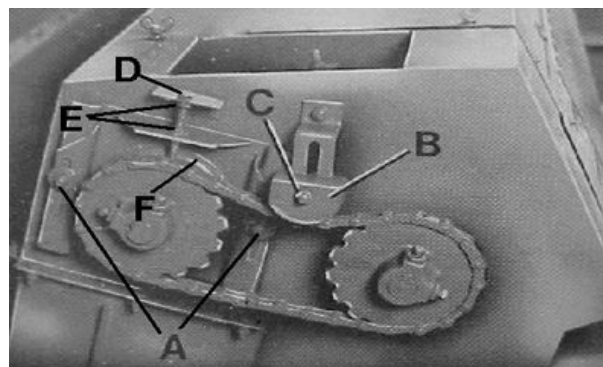
YC1507—UN—07MAR12

CP00606,00001BE -19-14MAR12-1/1

Adjustment of grain elevator drive chain

Loosen tension block (B). Loosen hex nuts (A). Adjust hex nuts (E) on tension bolt (D). Change the position of bearing seat (F). Make sure that drive chain is in the correct position. After adjusting the chain, tighten all hex nuts.

- | | |
|-----------------|----------------|
| A—Hex nuts | D—Tension bolt |
| B—Tension block | E—Hex nuts |
| C—Hex nuts | F—Bearing seat |



YC1508—UN—07MAR12

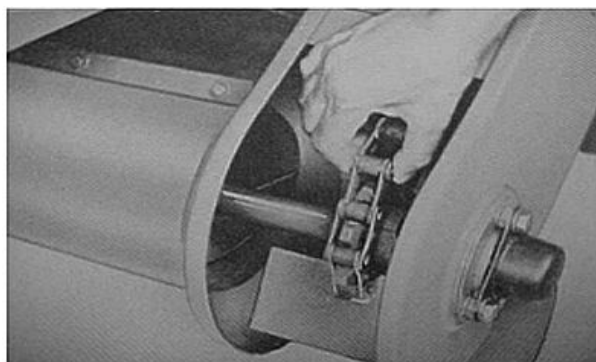
CP00606,00001BF -19-14MAR12-1/1

Adjustment of elevator chain

Tighten elevator chain, so that the first chain element behind the sprocket is lifted 6 ~ 15 mm.

Requirements of elevator conveyor chain tightness adjustment: When the chain is tight, use a hand to push chain element inward to the sprocket teeth; Usually, that can lift the first chain element behind the sprocket 6 ~ 15 mm.

NOTE: If conveyor chain is too loose or too tight, the transportation efficiency and service life of relevant components will be adversely affected.



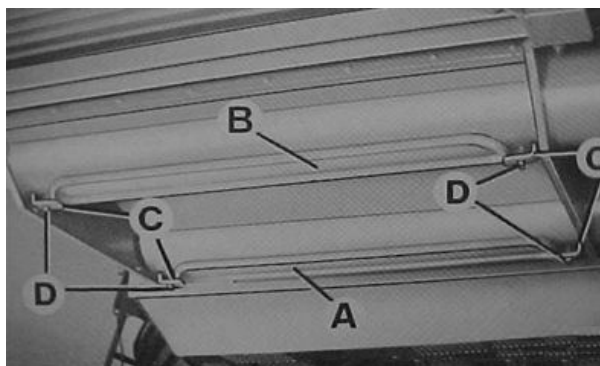
YC1509—UN—07MAR12

CP00606.00001C0 -19-14MAR12-1/1

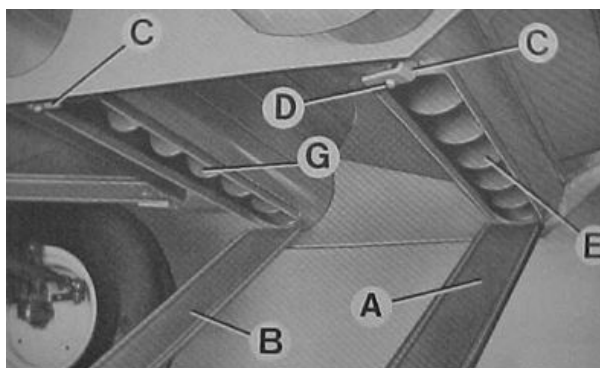
Clean grain auger and tailings auger

Remove nuts (D) and open cover (A) or (B). When harvesting seeds or changing the variety of harvested crops, clean the two augers thoroughly.

- | | |
|---------------------------|---------------------|
| A—Clean grain auger cover | D—Nuts |
| B—Tailing auger cover | E—Clean grain auger |
| C—Fixing clips | G—Tailing auger |



YC1510—UN—07MAR12

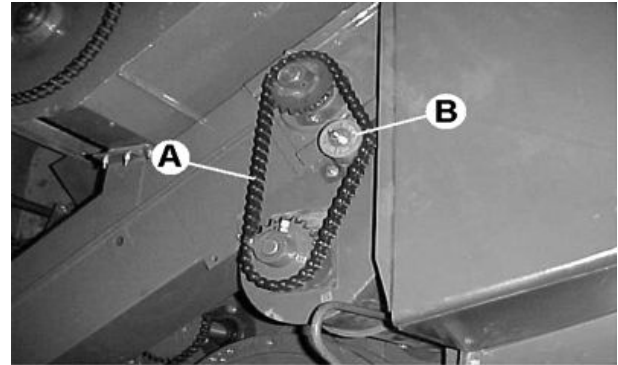


YC1511—UN—07MAR12

CP00606.00001C1 -19-14MAR12-1/1

Tailing auger upper drive

Drive chain (A) should keep a certain degree of tightness. Use tensioner pulley (B) to adjust.

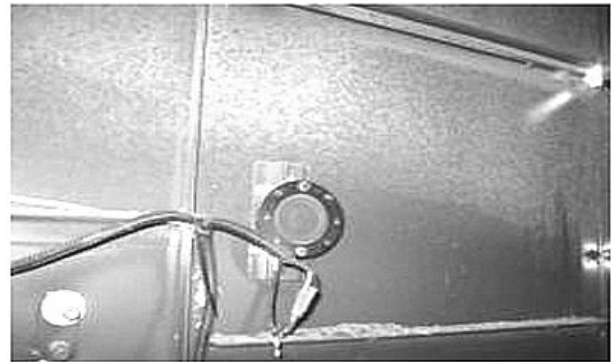


YC1512 —UN—07MAR12

CP00606,00001C2 -19-14MAR12-1/1

Grain tank full indicator

Full indicator is installed in the grain tank. It is composed of sensors in the grain tank and the indicator light on dashboard. When grain tank is full, the indicator light will be lit. Immediately unload tank.



YC1513 —UN—07MAR12

CP00606,00001C3 -19-14MAR12-1/1

Grain distribution auger drive

Use tensioner pulley (B) to adjust the tension of grain distribution auger chain (A).



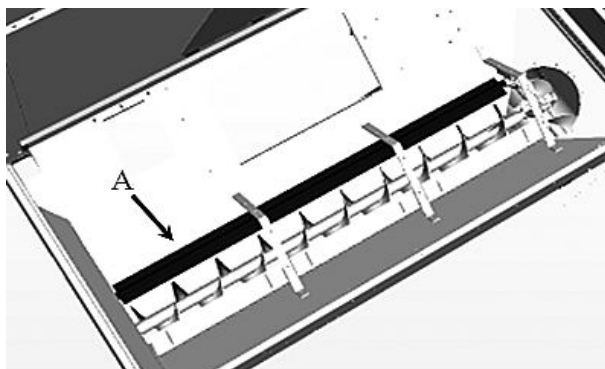
YC1514 —UN—21MAR12

CP00606,00001C4 -19-14MAR12-1/1

Grain unloading from grain tank lower part

Grain tank lower part is equipped with rotating impeller (A) to facilitate grain unloading in a shorter time.

Rotating impeller and unloading grain auger are fitted with cover, so that grain can evenly enter auger. Cover cannot be opened too wide. Otherwise, horizontal auger is overloaded. You may adjust the cover to regulate grain unloading speed.



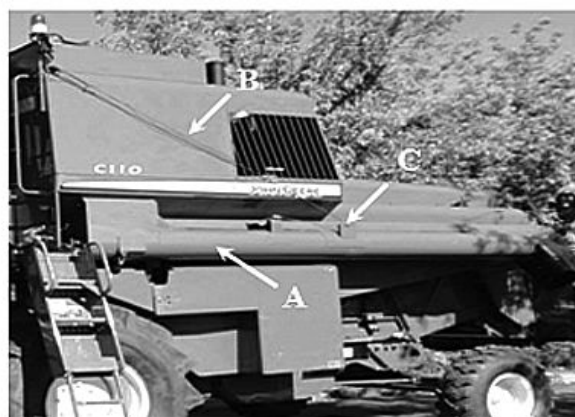
YC1515—UN—07MAR12

CP00596,0000654 -19-18FEB14-1/1

Long grain unloading auger

Machine can be equipped with long grain unloading auger. Wire rope is hung in the middle of the long grain unloading cylinder.

A—Long grain unloading auger C—Tensioner pulley
B—Wire rope



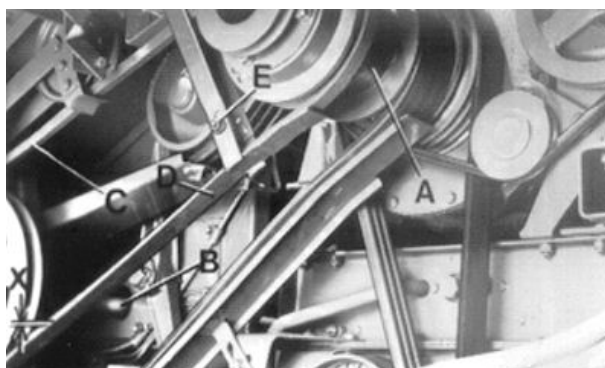
YC1516—UN—07MAR12

CP00596,0000655 -19-18FEB14-1/1

Grain unloading auger drive (left)

Grain unloading auger main drive is at the left of the machine. Intermediate shaft (B) is driven by engine pulley (A) through belt (C). Clearance (X) between belt guide (D) and belt (C) in tensioned state is 3 ~ 5 mm.

A—Engine pulley B—Intermediate shaft
C—V-belt D—V-belt guide E—Bolt



YC1517—UN—27NOV12

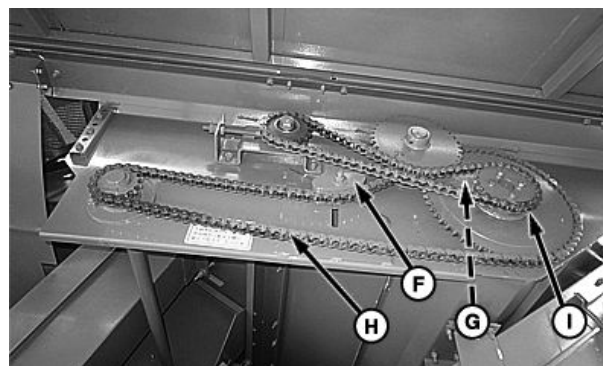
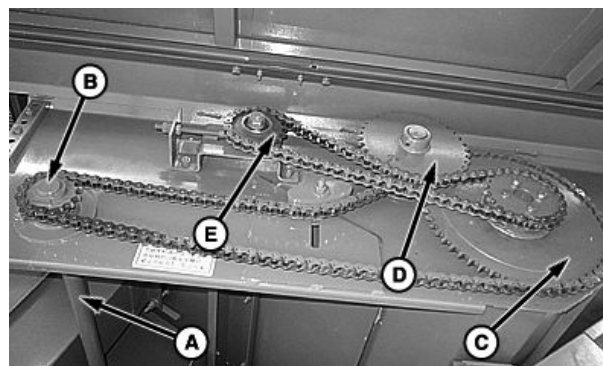
CP00606,00001C7 -19-14MAR12-1/1

Grain Unloading Auger Drive (Right)

IMPORTANT: Shear screw (G) is overload protection device. Use screw of original specifications upon replacement. Tightening torque is 15 N.m.

On the right side of machine, power is transmitted from countershaft (A) through drive chain sprocket (B) to grain unloading auger sprocket (C), and further to grain unloading auger and grain unloading rotating impeller sprocket (D). Adjust tension block (F) to tighten drive chain (H). Adjust tensioner pulley (E) to tighten drive chain (I).

- | | |
|--|--------------------|
| A—Countershaft | F—Tensioner Pulley |
| B—Drive Chain Sprocket | G—Shear Screw |
| C—Grain Unloading Auger Sprocket | H—Drive Chain |
| D—Grain Unloading Rotating Impeller Sprocket | I—Drive Chain |
| E—Tension Sprocket | |



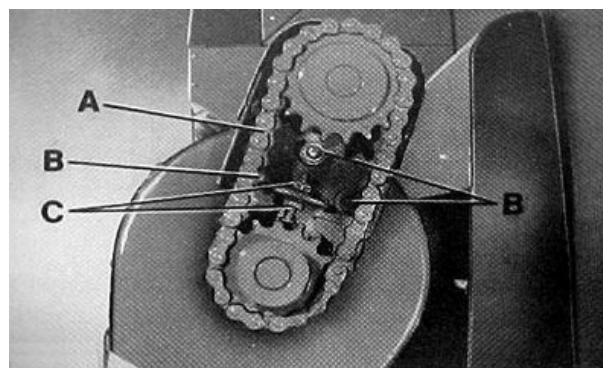
CP00606,0000B78 -19-07MAR16-1/1

YC9131—UN—17NOV15

YC9132—UN—17NOV15

Grain unloading auger drive

Grain unloading auger is driven through the universal joint shaft and a chain drive. Tightness of chain (A) can be adjusted by nuts (B) and (C).



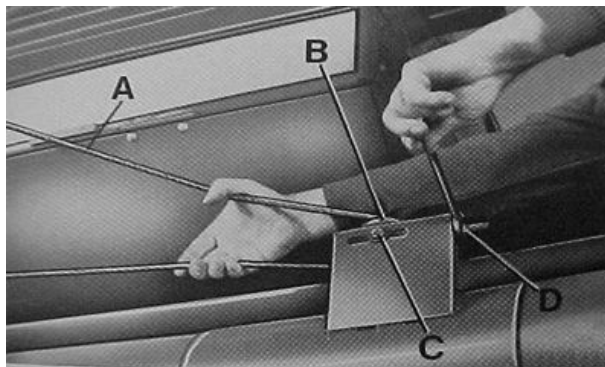
CP00606,00001C9 -19-14MAR12-1/1

YC1519—UN—07MAR12

Adjustment of wire rope

Before the first use of machine, check the tension of wire rope at least once a week. Loosen pin shaft nut (C). Adjust the tension of wire rope (A) through the adjustment nut (D) of tensioner pulley (B). Thus, when grain unloading cylinder is retrieved, wire rope can be pressed to 30 ~ 40 mm. After adjustment, re-tighten pin shaft nut (C).

- | | |
|--------------------|-------------|
| A—Wire rope | C—Pin shaft |
| B—Tensioner pulley | D—Nut |



YC1520—UN—07MAR12

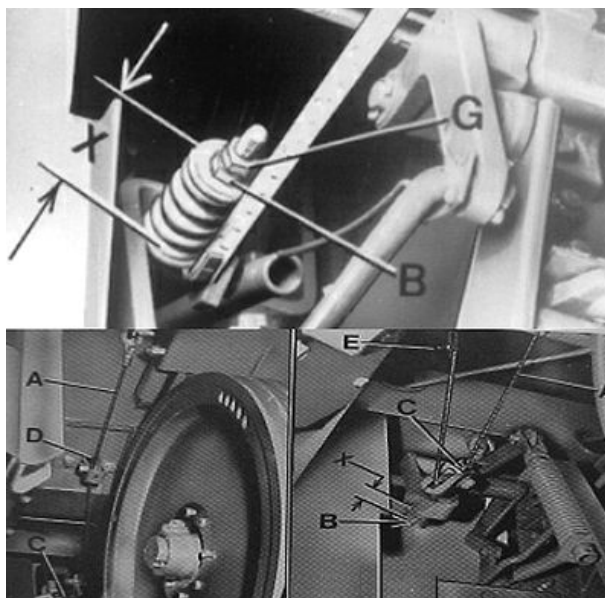
CP00596,0000656 -19-18FEB14-1/1

Grain unloading auger automatic shut-off device

Grain unloading auger drive automatic shut-off device is equipped for the sake of safety. When grain unloading auger is in extended position, the clutch wire rope must be tightened. Use nut (B) to adjust wire rope (A), so that spring length (X) is 39 mm.

After adjusting, use lock nut (F) to lock the nut (B). If wire rope has been stretched too much, use clip (E) to shorten it.

- | | |
|------------------|------------|
| A—Wire rope | E—Clip |
| B—Adjustment nut | G—Lock nut |
| C—Pulley | X—39 mm |
| D—Guide pulley | |



YC1521—UN—27NOV12

CP00606,00001CB -19-14MAR12-1/1

Chopper

CAUTION: Before adjusting or servicing chopper, disconnect power to chopper and stop the engine. When the chopper is in use, do not allow any person to stay at the rear of machine.

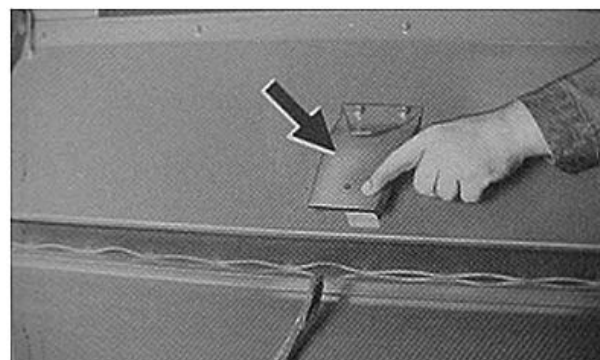


YC1522 —UN—09MAR14

CP00596,0000657 -19-18FEB14-1/1

Check daily

Daily before using the machine, check the alarm device at the rear. When engine stops, use hand to press alarm touch panel, so as to check if alarm signal is normal.

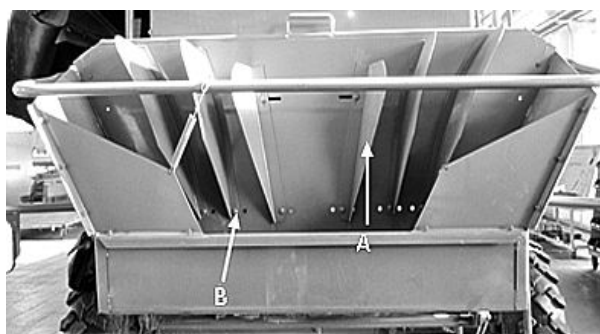


YC1523 —UN—07MAR12

CP00596,0000658 -19-18FEB14-1/1

Adjustment of vanes

Loosen bolts (B). Adjust vanes (A) so machine distributes residue the width of the machine.



YC1524 —UN—07MAR12

CP00606,00001CE -19-14MAR12-1/1

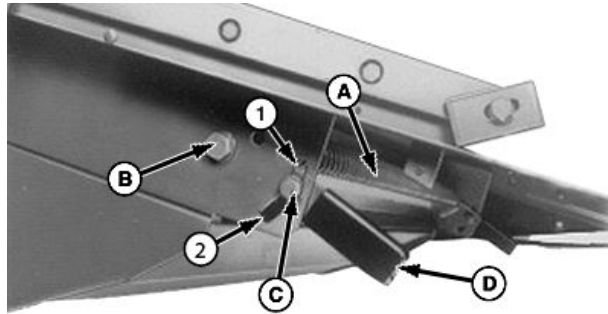
Adjustment of cutting length

Cutting length can be adjusted through lifting or lowering the fixed blade. Fixed blade is tightened by connecting bolt (B).

1. Highest cutting position
2. Lowest cutting position

Important! Do not adjust the handle too low to avoid high power consumption. Important! When harvesting beans, rapeseed or other loose grains, set the handle to the highest position.

- | | |
|-----------------------|----------------------------------|
| A—Fixed blade bracket | C—Cutting length adjustment bolt |
| B—Connecting bolt | D—Handle |

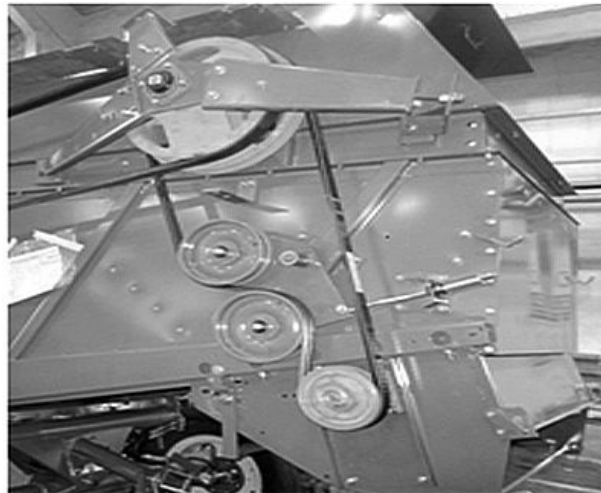


YC1525—UN—30DEC13

CP00596,0000659 -19-18FEB14-1/1

Chopper drive device

IMPORTANT: Chopper and threshing clutch are synchronized together. Therefore, when chopper is not in use, disconnect drive belt and chopper as required.



YC1526—UN—07MAR12

CP00606,00001D0 -19-14MAR12-1/1

Change chopper blades

CAUTION: When changing chopper blades, fix the rotors so as to avoid accidents.

NOTE: When changing chopper blades, use M10×50 10.9 grade bolts and self-locking nuts, with tightening torque of 50 N.m.

Damaged chopper blades can cause vibration and require replacement. The weight of new blades should be roughly equal to the replaced ones. Do not re-grind dull blades. Reverse direction of dull blades or replace as required.

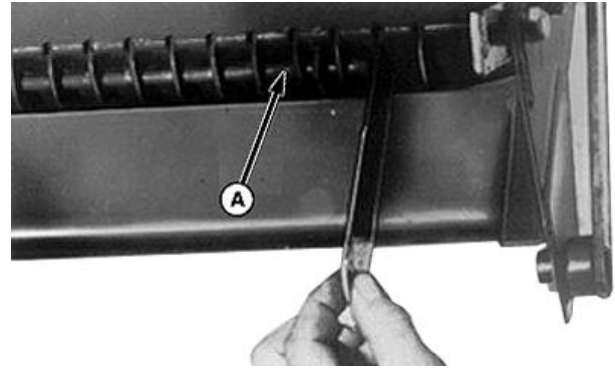


YC1527—UN—07MAR12

CP00606,00001D1 -19-06NOV14-1/1

Change fixed blades

Remove cotter pins from shank (A) and pull the shank backward as far as possible. Remove the blades. After inserting new blades, install shank (A) and cotter pins.

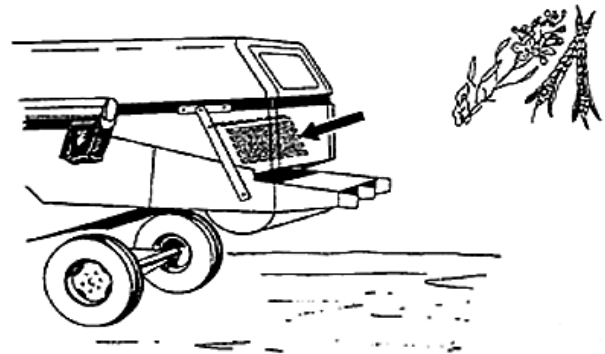


YC1528 —UN—03JAN14

CP00606,00001D2 -19-14MAR12-1/1

Install guide plate

If chopper does thoroughly dispose of residue, insert (optional) guide plate.

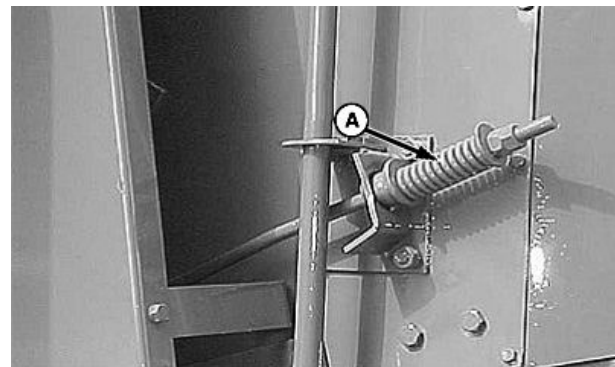


YC1529 —UN—07MAR12

CP00606,00001D3 -19-14MAR12-1/1

Tighten chopper drive belt

Chopper drive belt is tightened by spring (A). The length of spring needs to be adjusted appropriately according to the working status of drive belt. The principle is: Under normal load, the belt should not be over-heated.

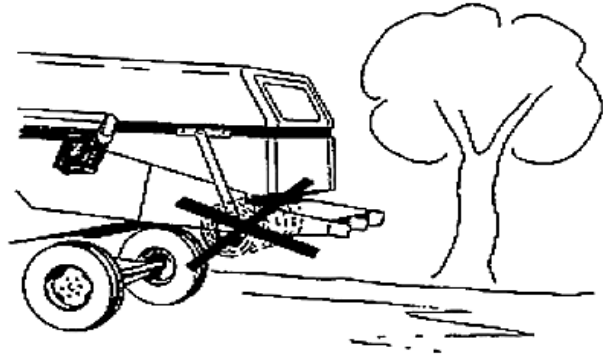


YC1530 —UN—26DEC13

CP00606,00001D4 -19-14MAR12-1/1

Road transport

NOTE: Never engage the chopper when transporting on the road.



YC1531—UN—07MAR12

CP00606,00001D5 -19-14MAR12-1/1

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.).

Cold Filter Plugging Point (CFPP) should be at least 5°C (9°F) below the expected lowest temperature or **Cloud Point** below the expected lowest ambient temperature.

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, and Stage IV 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.
- **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 -19-13JAN16-1/1

Storing Fuel

If fuel in fuel tank or supply tank has extreme low turnover, fuel conditioner may be added to prevent water condensation. For proper service or maintenance recommendations, please contact John Deere dealer.

1. Fill the fuel tank at the end of each operating day, to prevent water condensation and freezing during cold weather.

2. Keep all storage tanks as full as practicable to minimize condensation.
3. Properly close fuel tank cap to prevent water from entering. Regularly check the water content in fuel.
4. Check the engine oil level daily before starting the engine. If the engine oil level rises, that implies the engine oil is mixed with fuel.

CP00606,0000B42 -19-25FEB16-1/1

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.

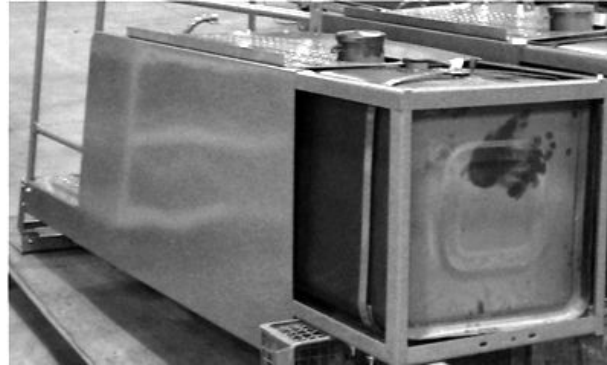
DX,FILT2 -19-14APR11-1/1

Refuel the fuel tank

Refuel daily after work.

Fuel tank capacity: 300 L.

NOTE: Caution: Always shut off engine before refueling. Never refuel machine near an open flame or an ignition source.



YC1299—UN—16FEB12

CP00596,000008E -19-08MAR12-1/1

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 CJ-4	ACEA E9
API CI-4 PLUS	ACEA E7
API CI-4	ACEA E6
API CH-4	ACEA E5
API CG-4	ACEA E4
API CF-4	ACEA E3
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 -19-15MAY13-1/1

Diesel Engine Oil

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 Plus-50™ is also recommended.

Other oils may be used if they meet one or more of the following:

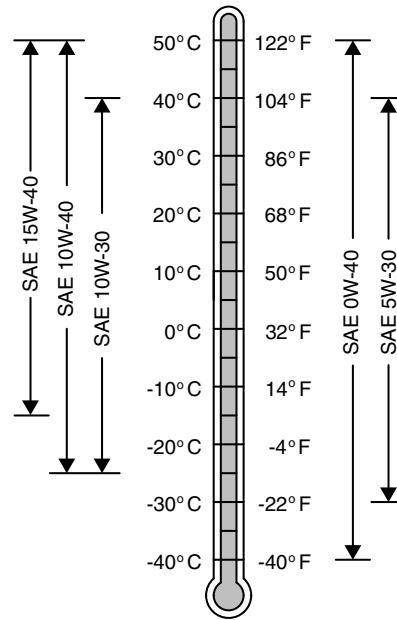
- John Deere Torq-Gard™
- API Service Category CJ-4
- API Service Category CI-4 PLUS
- API Service Category CI-4
- ACEA Oil Sequence E9
- ACEA Oil Sequence E7
- ACEA Oil Sequence E6
- ACEA Oil Sequence E5
- ACEA Oil Sequence E4

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 10 000 mg/kg (10 000 ppm).

Plus-50 is a trademark of Deere & Company
Torq-Gard is a trademark of Deere & Company



Oil Viscosities for Air Temperature Ranges

TS1691 — UN—18JUL07

DX,ENOIL11 -19-11APR11-1/1

Engine oil and filter service intervals

Recommended engine oil and filter service intervals depend on the use of oil, filter model and diesel sulfur content. 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 John Deere dealer for more information about engine oil analysis.

Even if operating hours are fewer than the recommended service interval, change engine oil and filter at least once every 12 months.

Fuel sulfur level affects engine oil and filter service intervals.

- It is recommended to use diesel with sulfur content lower than 1000 mg/kg (1000 ppm).
- If diesel with sulfur content exceeding 5000 mg/kg (5000 ppm) is used, shorten the engine oil and filter service interval by half.
- Never use diesel with sulfur content over 10000 mg/kg (10000 ppm).

IMPORTANT: To avoid engine damage:

- **If higher than B20 mixed biodiesel is used, shorten the engine oil and filter service interval by half. Oil analysis may extend service intervals.**
- **Only use approved oil.**

Approved oil:

- "Plus-50 oil" includes John DeerePlus-50™ II and John Deere Plus-50.
- "Other oil" includes John DeereTorq-Gard™, API CJ-4, API CI-4 PLUS, API CI-4, ACEA E9, ACEA E7, ACEA E6, ACEA E5 and ACEA E4 oil.

NOTE: Only if all following conditions are met, it may extend to 375 hours to change oil and filter:

- Diesel with sulfur content lower than 1000 mg/kg (1000 ppm) is used.
- John Deere Plus-50 II™ or John Deere Plus-50 oil is used.
- Approved John Deere oil filter is used.

Engine oil and filter change intervals	
Fuel sulfur content	Lower than 1000 mg/kg (1000 ppm)
Plus-50 oil	375 hours
Other oil	250 hours
Fuel sulfur content	1000-2000 mg/kg (1000-2000 ppm)
Plus-50 oil	300 hours
Other oil	200 hours
Fuel sulfur content	2000-5000 mg/kg (2000-5000 ppm)
Plus-50 oil	275 hours
Other oil	150 hours
Fuel sulfur content	5000-10000 mg/kg (5000-10000 ppm)
Plus-50 oil	187 hours
Other oil	125 hours

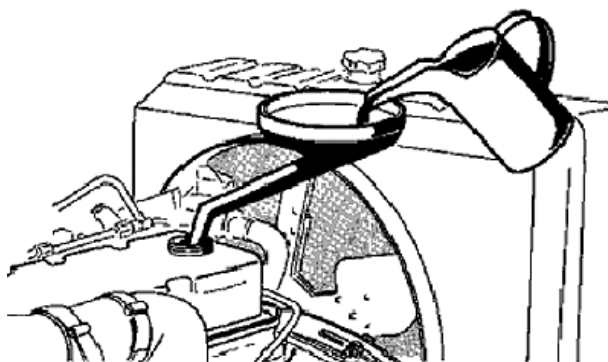
Oil analysis may extend service interval of "other oil" to at most not exceeding the interval of Plus-50 oil.

Plus-50 is a trademark of Deere Company
Torq-Gard is a trademark of Deere Company

CP00596,00008A5 -19-01SEP14-1/1

Sump oil capacity (including filter)

Engine oil capacity is around 12.5 L.



YC1388—UN—07DEC12

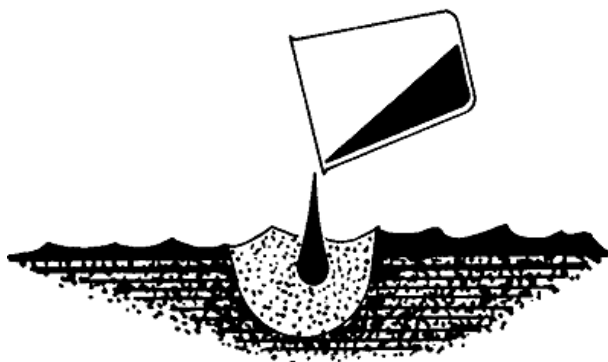
CP00596,0000090 -19-01SEP14-1/1

Comply with the rules and regulations of environmental protection

Have environmental and ecological awareness.

Determine the correct disposal method 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.



YC1389—UN—07DEC12

CP00596,0000091 -19-08MAR12-1/1

Selection of coolant

Coolant has already been filled into the engine cooling system in the factory. That can prevent corrosion and freezing. Coolant is not frozen when the winter temperature does not fall below -37°C (-34°F). If protection against lower temperature is required, please consult your John Deere dealer.

Following engine coolants are recommended:

1. John Deere COOL-GARD™II Premix
2. John Deere COOL-GARD II PG Premix

Other coolants

John Deere COOL-GARD II and COOL-GARD II PG coolants may not be available in the operating regions. If these coolants are not available, you may use concentrated coolants for heavy-duty diesel engines or pre-diluted coolants, which should meet the following chemical and physical requirements:

1. Use nitrite-free and high-quality additives.
2. When equipment load is equal to or more than 60%, conduct John Deere cavitation test method or quick test for cylinder liner cavitation protection.
3. That may protect the cooling system metals (cast iron, aluminum and copper alloys, such as brass) from corrosion.

IMPORTANT: Important: Never use cooling system leak-mending agents or coolants which contain

leak-mending agent. Do not mix ethylene glycol base and propylene glycol base coolants. Using coolants that contain nitrite is strictly prohibited.

Drain intervals of diesel engine coolant

Drain and flush the cooling system and refill with fresh coolant at the indicated interval, which varies with the coolant used. If only John Deere COOL-GARD II Premix or COOL-GARD II PG Premix coolant is used in the cooling system, maintenance-free period of John Deere COOL-GARD™II Premix, COOL-GARD II PG Premix and COOL-GARD II concentrate is up to 6 years or 6000 operating hours.

Use coolant test strips, that is designed for John Deere COOL-GARD II coolant, to test coolant status annually. If test result indicates that additives are needed, then add John Deere COOL-GARD II coolant extender.

If John Deere COOL-GARD™II Premix, COOL-GARD II PG Premix concentrate or COOL-GARD II concentrate is used, but coolant is not tested or COOL-GARD II coolant extender is not added, drain interval is 4 years or 4000 operating hours. This drain interval is only applicable to COOL-GARD II coolant with ratio of concentrate to quality water being 40% to 60%. If the coolant used is not COOL-GARD II or COOL-GARD II PG, drain interval should be shortened to 2 years or 2,000 operating hours.

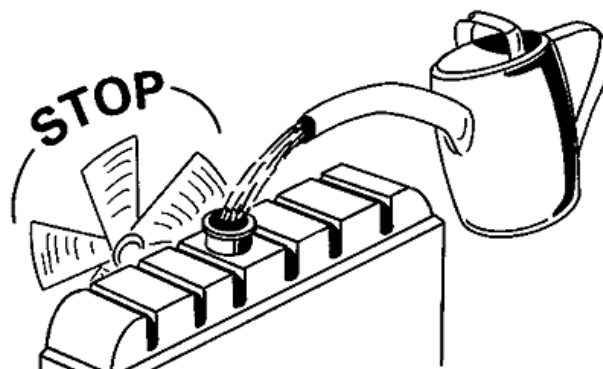
CP00834,00004B8 -19-01MAR13-1/1

Add coolant

NOTE: Do not add cold coolant into the hot engine. That may make the cylinder cover and body burst.

Add coolant after the cooling system has cooled down. Coolant level should be about 20 ~ 30 mm below the upper edge of the tank.

IMPORTANT: Do not use cooling system seal additive.



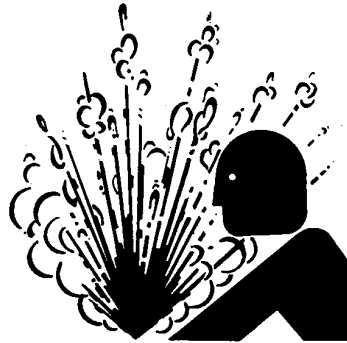
YC1390 —UN—05DEC12

CP00596,0000093 -19-08MAR12-1/1

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 it can be touched by bare hands. Before filler cap is fully opened, slowly loosen it to the first stopping point in order to release pressure.



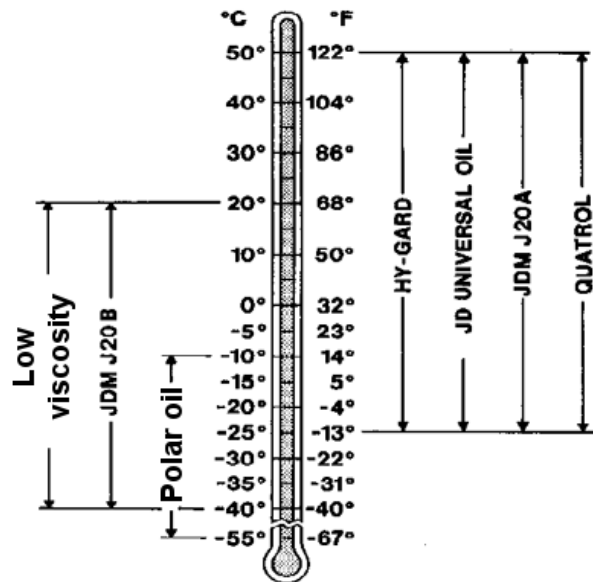
TS281—UN—15APR13

CP00596,0000094 -19-08MAR12-1/1

Selection of hydraulic oil

Factory oil: YC - N68 (low pour-point thickening hydraulic oil).

QUATROL oil or other oil can also be used. But the oil should meet the Deere JDMJ20C or JDMJ20D standard. When temperature is below -40°C , use cold weather oil (APICC/SC, MIL-L-46167).



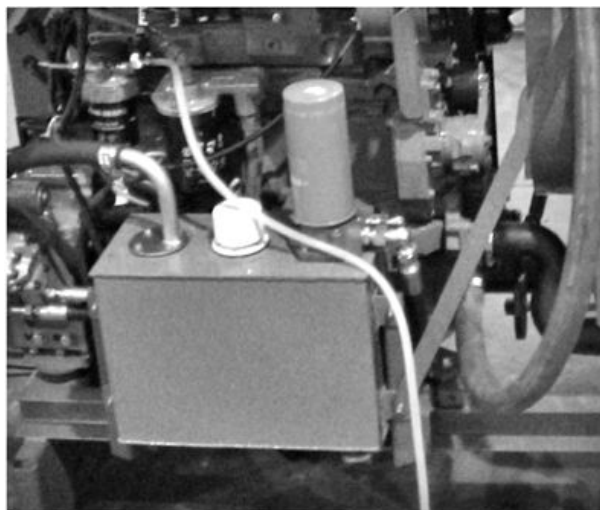
YC1558—19—20JUN12

CP00596,0000095 -19-22MAR12-1/1

Hydraulic lift system capacity

All hydraulic systems: 25 L

Oil tank capacity: 20 L



YC1392 —UN—22FEB12

CP00596,0000096 -19-08MAR12-1/1

Brake and clutch

All hydraulic system capacity: 3 L

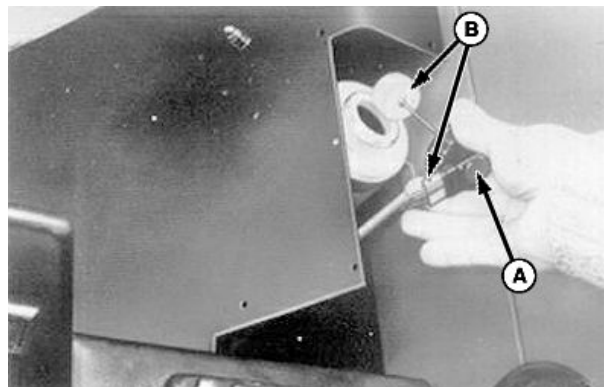
Supplementary container capacity: 0.75 L

A — Container lid

B — Oil level indicator

NOTE: Add L-TSA32# turbine oil

After the new machine has worked for 100 hours, change brake fluid. Thereafter, change it once after every 500 operating hours or after the end of harvest season.



YC1393 —UN—30DEC13

CP00596,0000097 -19-08MAR12-1/1

Gear Oil

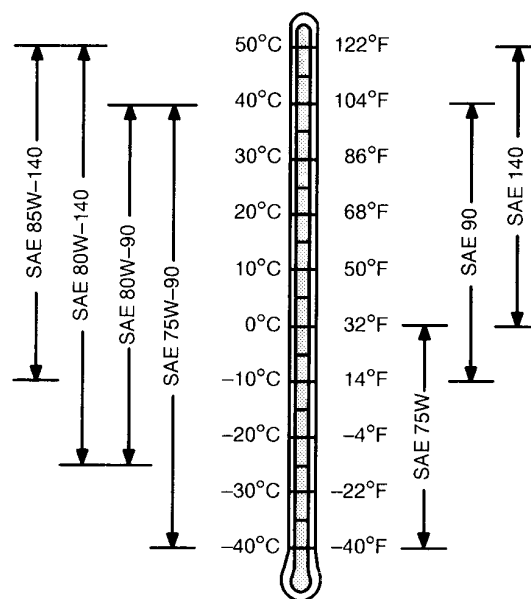
Use oil viscosity based on the expected air temperature range during the period between oil changes.

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



Oil Viscosities for Air Temperature Ranges

EXTREME-GARD is a trademark of Deere & Company

TS1653—UN—14MAR96

DX,GEOIL -19-14APR11-1/1

Transmission oil

Use oil with corresponding viscosity according to the expected air temperature range during the period between oil changes.

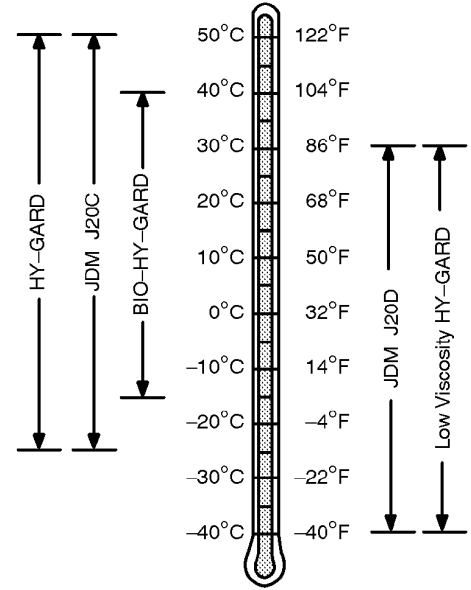
It is recommended to use following oil:

- John DeereHY-GARD™
- John Deere low viscosityHY-GARD™

Oil that meets one of the following requirements can also be used:

- John Deere standard JDM J20C
- John Deere standard JDM J20D

When biodegradable oil is required, you may use John DeereBIO-HY-GARD™.¹



HY-GARD is a trademark of Deere Company
BIO-HY-GARD is a trademark of John Deere Company

¹ According to CEC-L-33-T-82 test method, BIO-HY-GARD can reach at least 80% biodegradation in 21 days. BIO-HY-GARD cannot be mixed with mineral oil. Otherwise, biodegradability will decrease and lubricant cannot be reused.

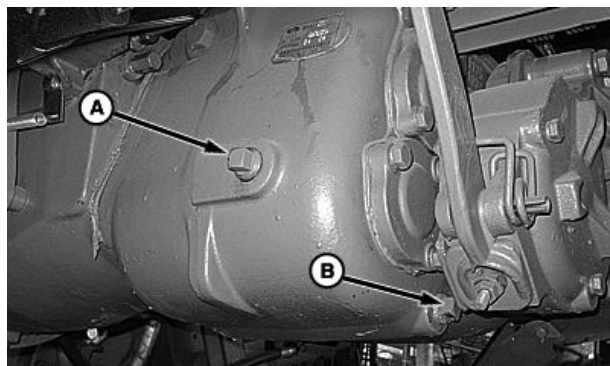
CP00606,0000447 -19-25NOV14-1/1

Gear Case Factory Oil

C110		
Location	Gear lubricant	Filling amount
Front axle gearbox	GL-5 80W/90 gear lubricant	5.5 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
Rear drive transfer case (optional)	GL-5 80W/90 gear lubricant	3.2 kg
Separation cylinder gearbox	HY-GARD™ multi-purpose oil	2.0 L

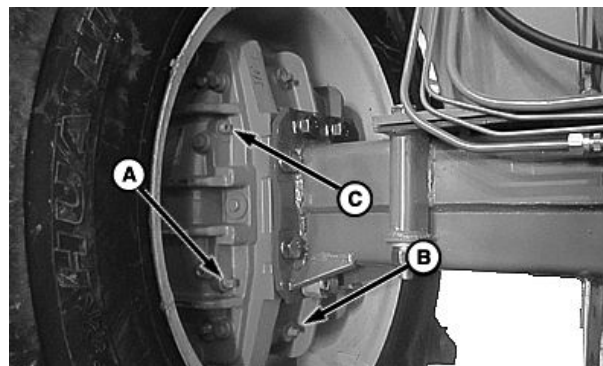
CP00606,0000B1D -19-28JAN16-1/1

Gear Oil Capacity



Transmission

YC8898 —UN—09JUL15



Final Drive

YC10651 —UN—26JUL16

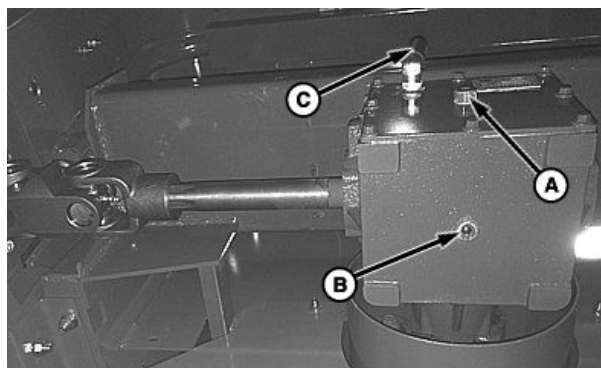
Transmission gear oil capacity: 5.5 L.

Final drive capacity (single): 3.1 L.

Separation cylinder gearbox capacity: 2 L.

Oil level should align with oil plug.

A—Fill Port and Oil Level Plug C—Bleed Screw
B—Oil Drain Plug



Separation Cylinder Gear Case

YC10652 —UN—26JUL16

JL31334,000102F -19-01AUG16-1/1

Pressure resistant general-purpose lubricating grease

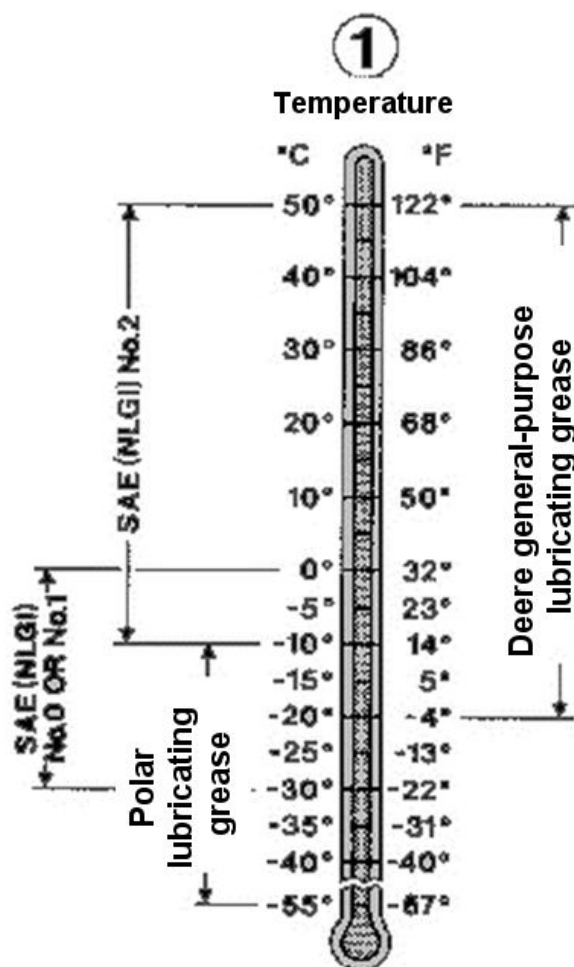
You can use the following lubricating grease:

Domestic brands:

1. Molybdenumdisulphide lithium base lubricating grease: to be used on general lubrication surface with all indicators in the table below.
2. Mobil XHP222 lubricating grease: You must use Mobil XHP222 lubricating grease at torque booster lower device.

Foreign brands:

1. SAE general-purpose lubricating grease
2. Add 3~5% molybdenumdisulfide to SAE general-purpose lubricating grease. When temperature is below -30°C, use cold weather lubricating grease (MIL-G-10924C).



	Dropping point °C	Work penetration	Copper corrosion	Mechanical impurities	Moisture, % (m) ≤'	Free organic acid	Free alkali, NaOH% m ≤'	Petrochemical plant enterprise standards in Kazakhstan
No. 3 molybdenumdisulphide lithium base lubricating grease	1 8 0	2 2 0 - 2 5 0	Passed	Nil	Trace	Nil	0.15	Q/SHB12-1996

CP00596,000009A -19-22MAR12-1/1

Storage of lubricating grease

Machine can work at the maximum efficiency only with the use of clean lubricating grease. Lubricating grease

must be stored in a clean container, which is placed in a dust-free, dry and pollution-free area.

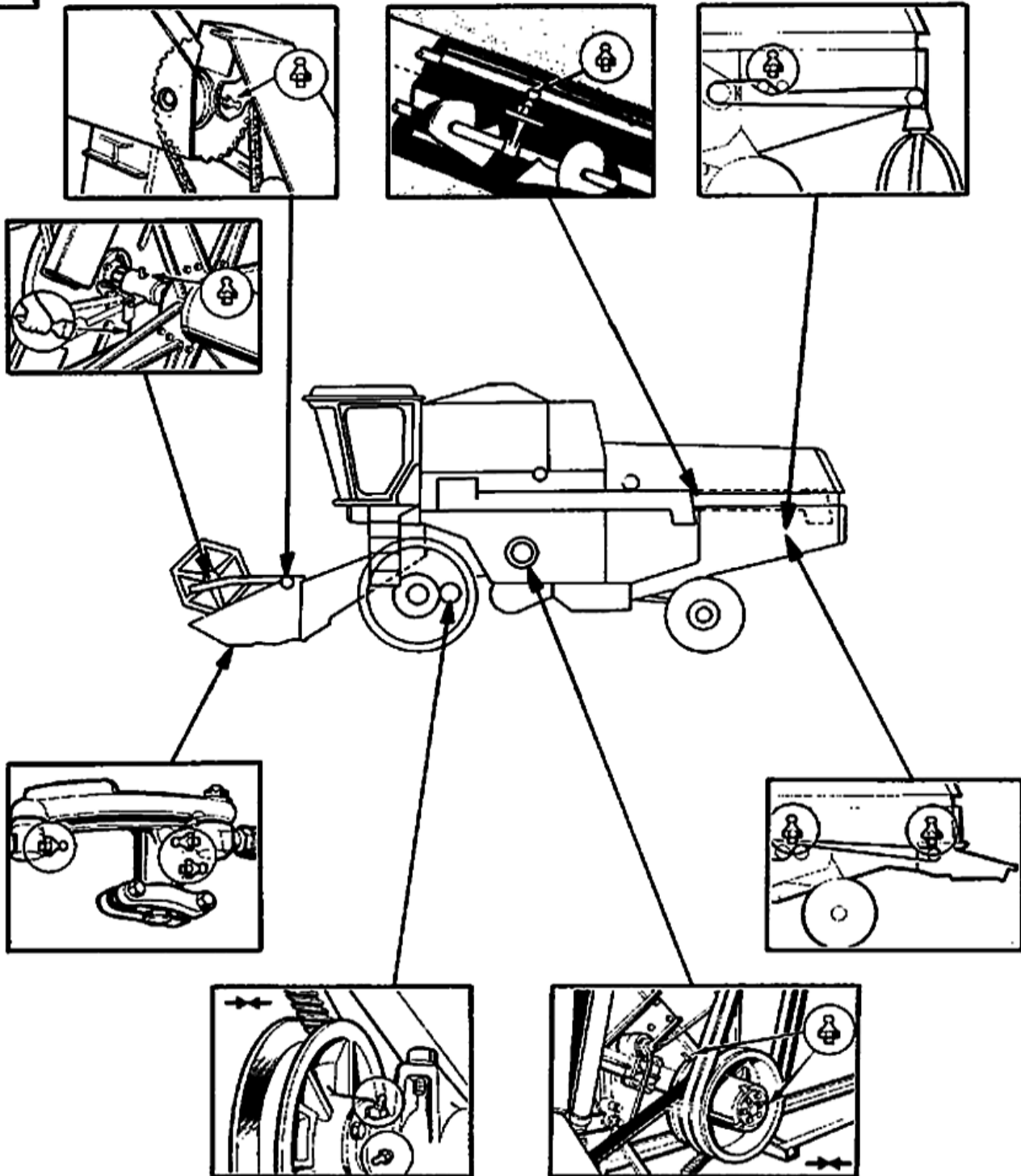
CP00596,000009B -19-08MAR12-1/1

Lubrication and Service

Daily maintenance



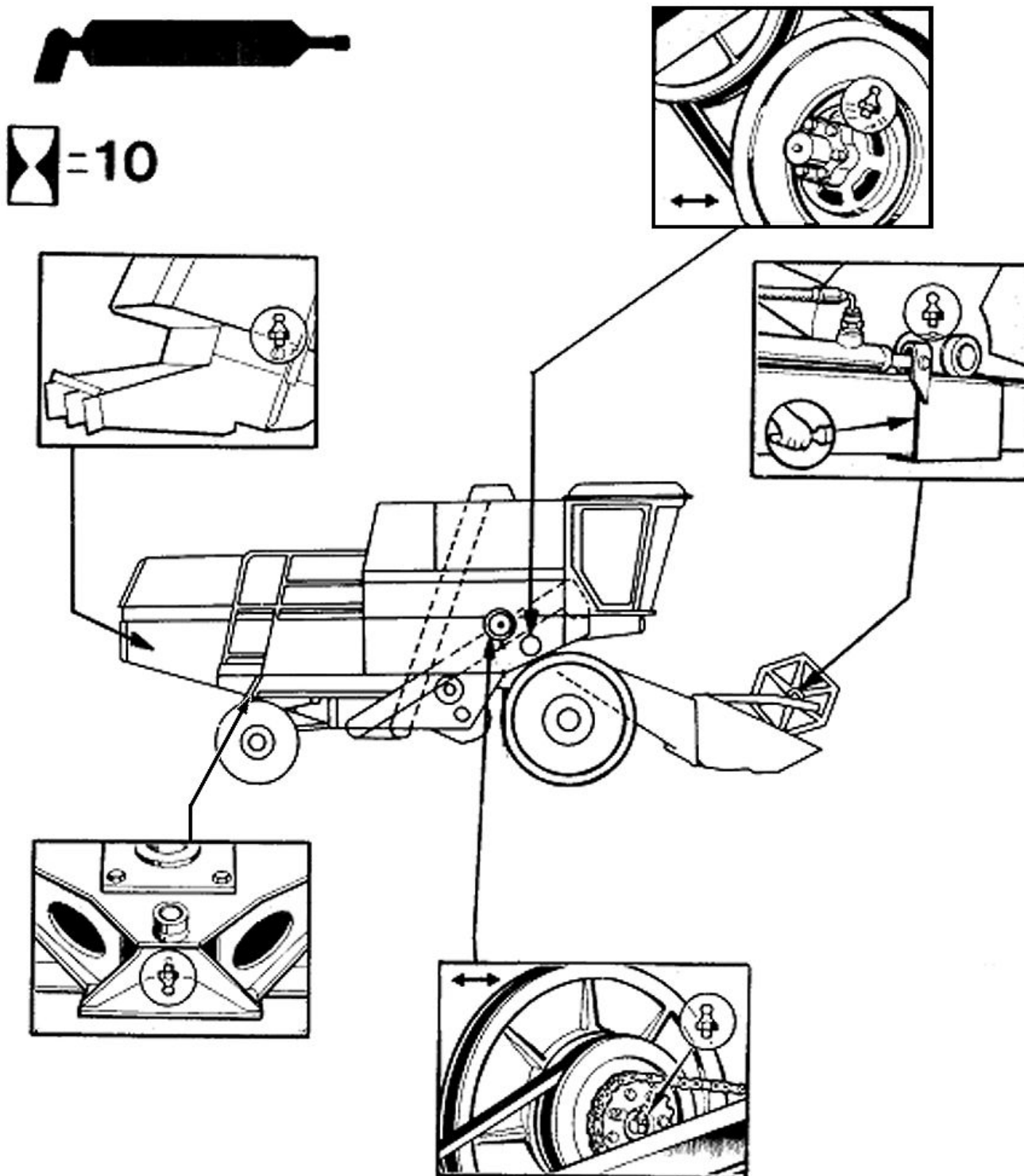
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CP00596,0000B37 -19-27APR15-1/2

YC1396—JUN—23FEB12



CP00596,0000B37 -19-27APR15-2/2

YC1397 —UN—05DEC12

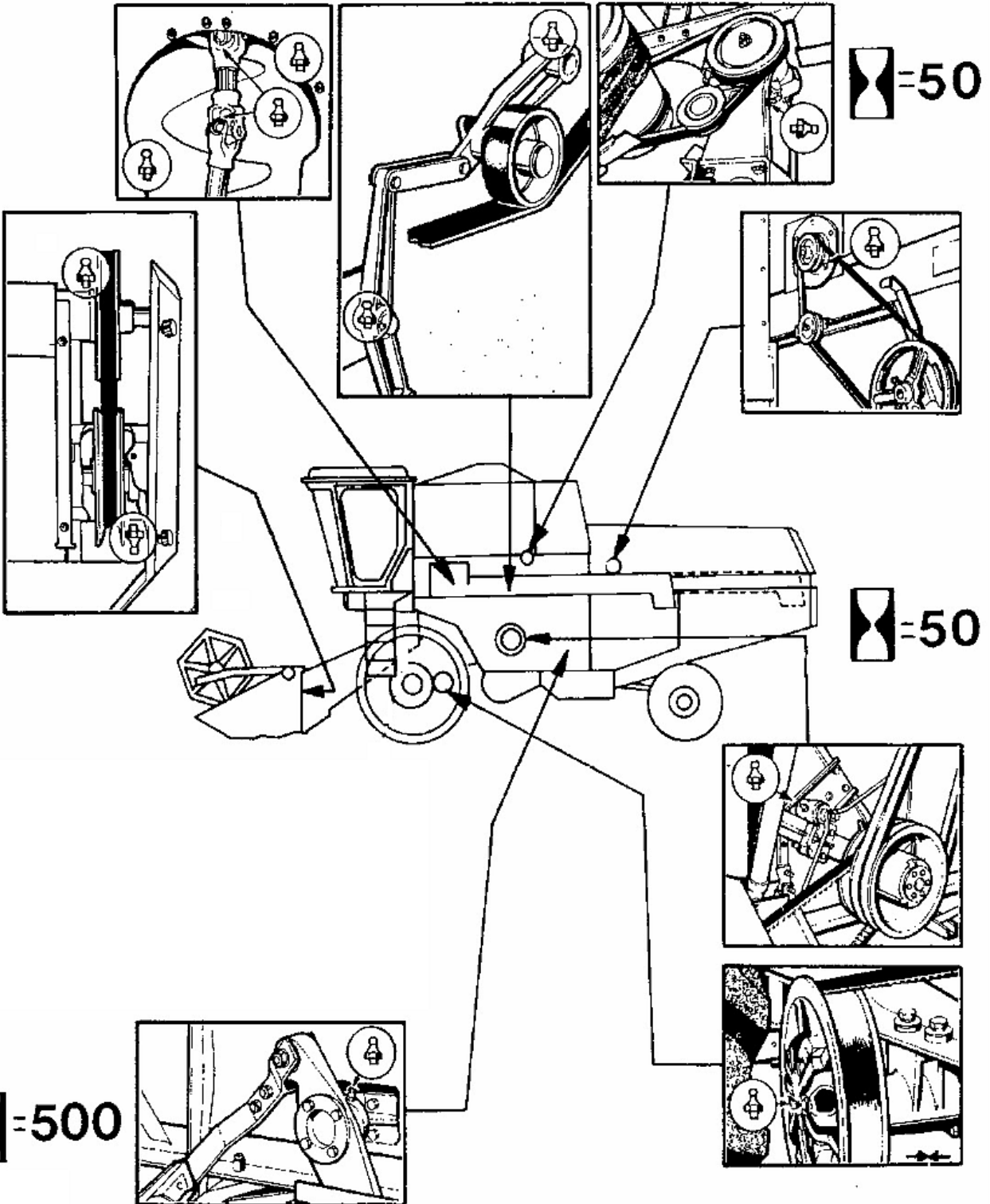
Miscellaneous

Diagram illustrating the assembly of various components (hydraulic cylinders, hoses, and fittings) onto a skid steer loader. The diagram shows the loader's chassis, wheels, and the attachment points for the hydraulic system. Callouts indicate the location of each component and the quantity required (e.g., 50, 500).

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CP00596,0000B47 -19-27APR15-1/2

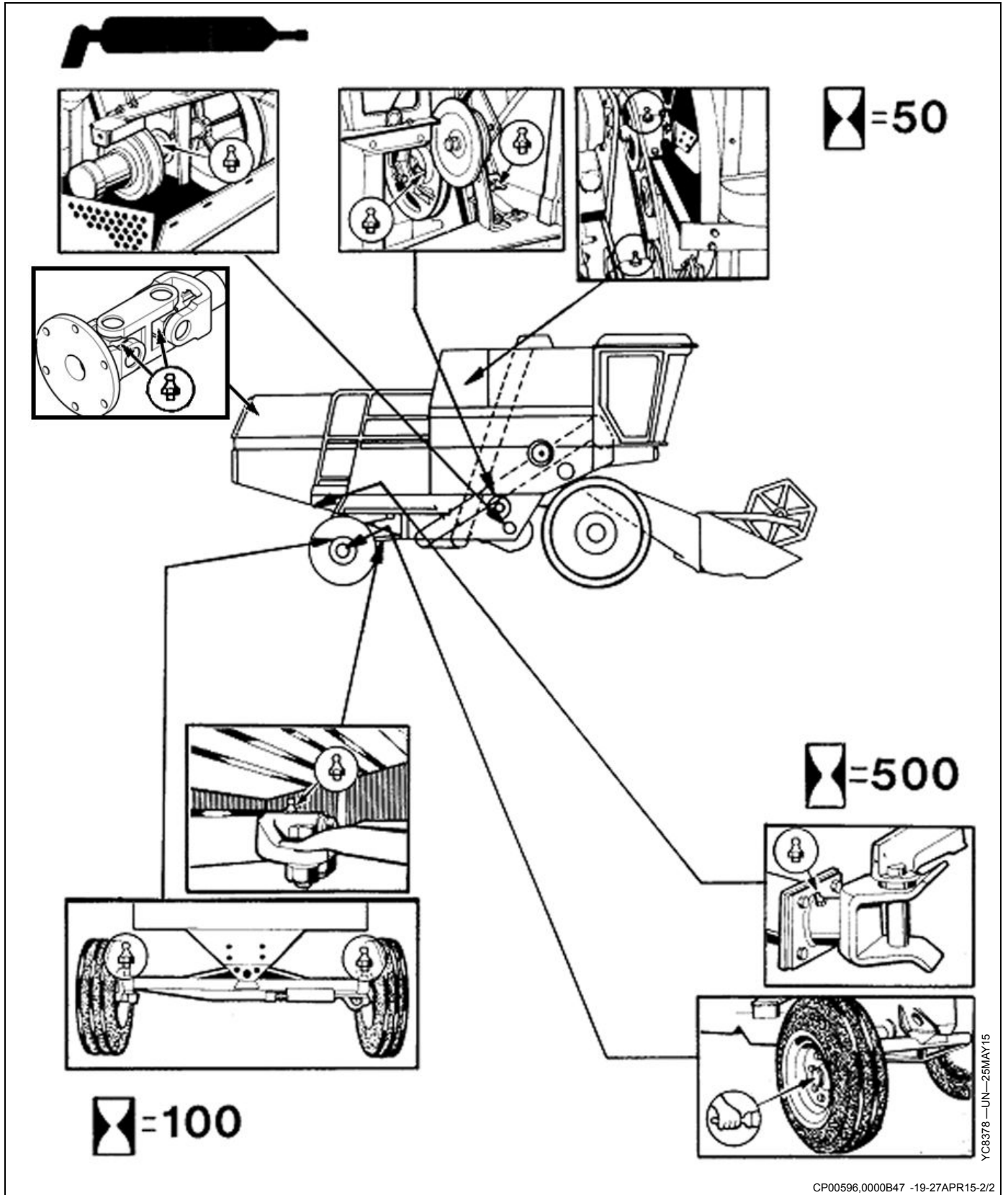
YC1398 —UN—23FEB12



YC1398 —UN—23FEB12

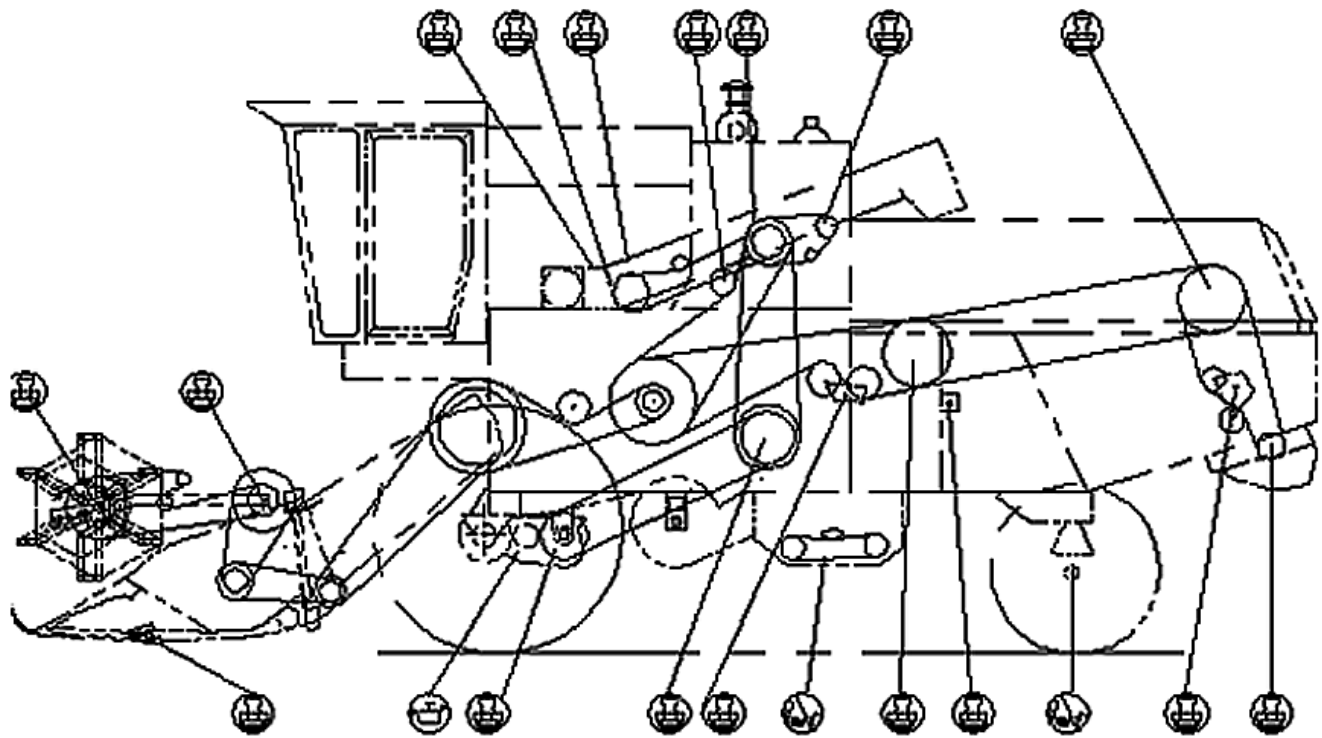
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CP00596,0000B47 -19-27APR15-1/2



CP00596,0000B47 -19-27APR15-2/2

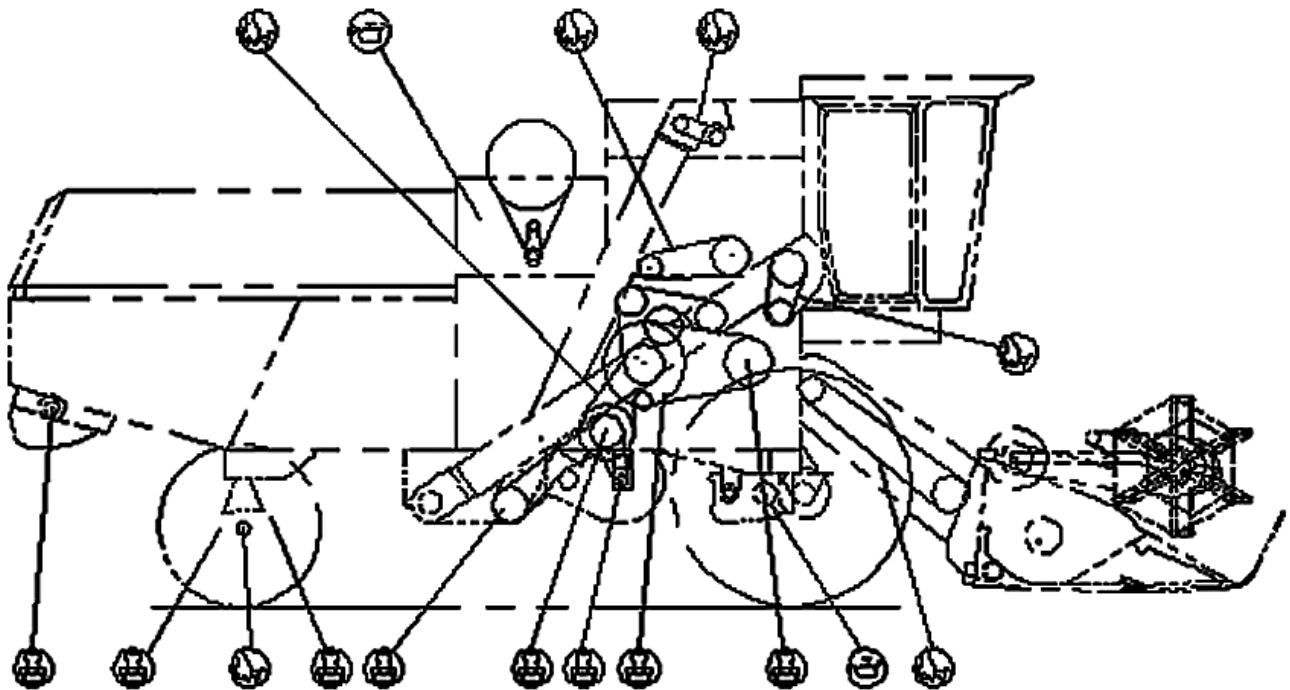
Machine left side lubrication diagram



YC1400—UN—23FEB12

CP00596,000065A -19-18FEB14-1/1

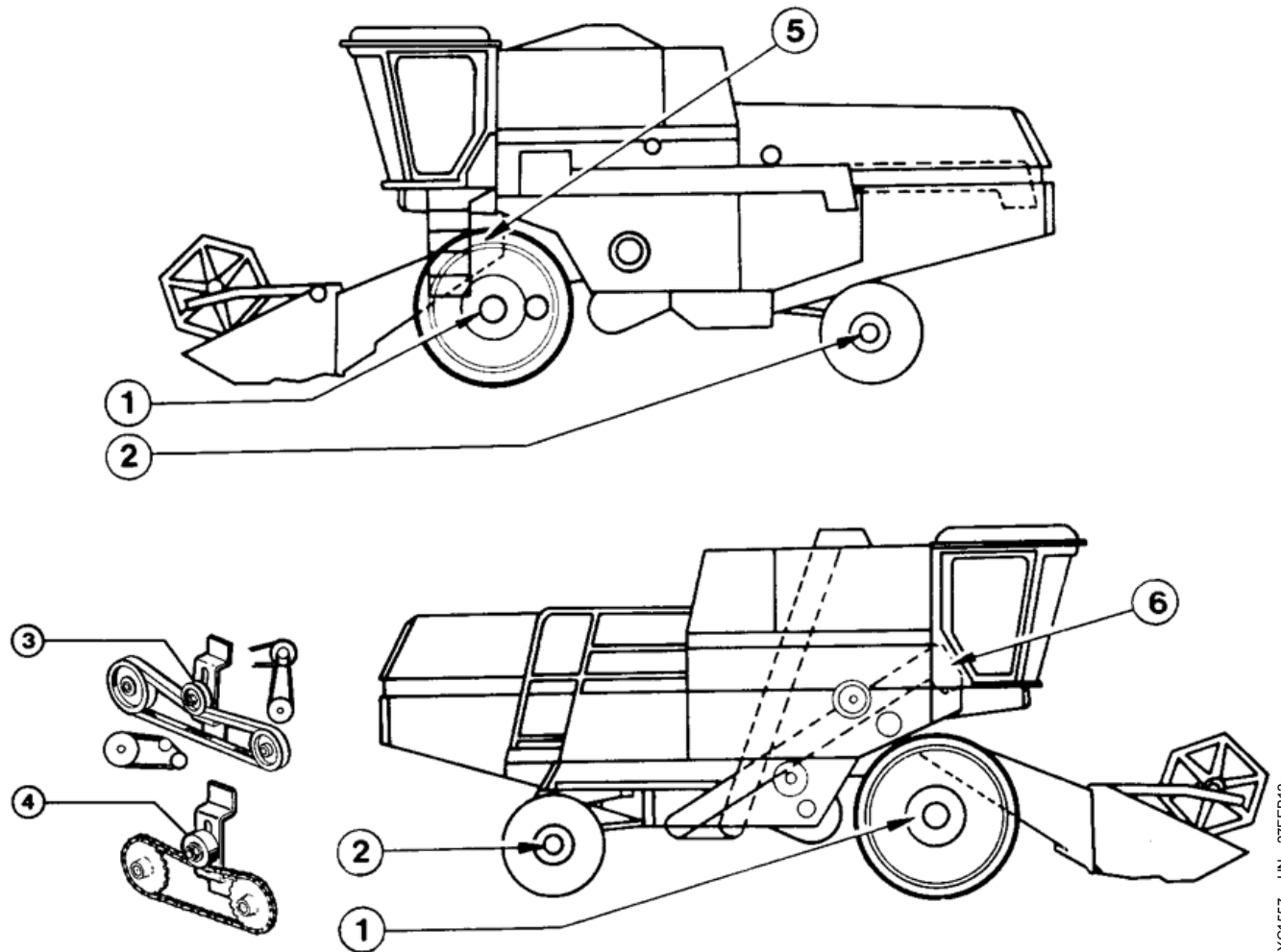
Machine right side lubrication diagram



YC1551—UN—23FEB12

CP00596,000065B -19-18FEB14-1/1

After several hours of first use

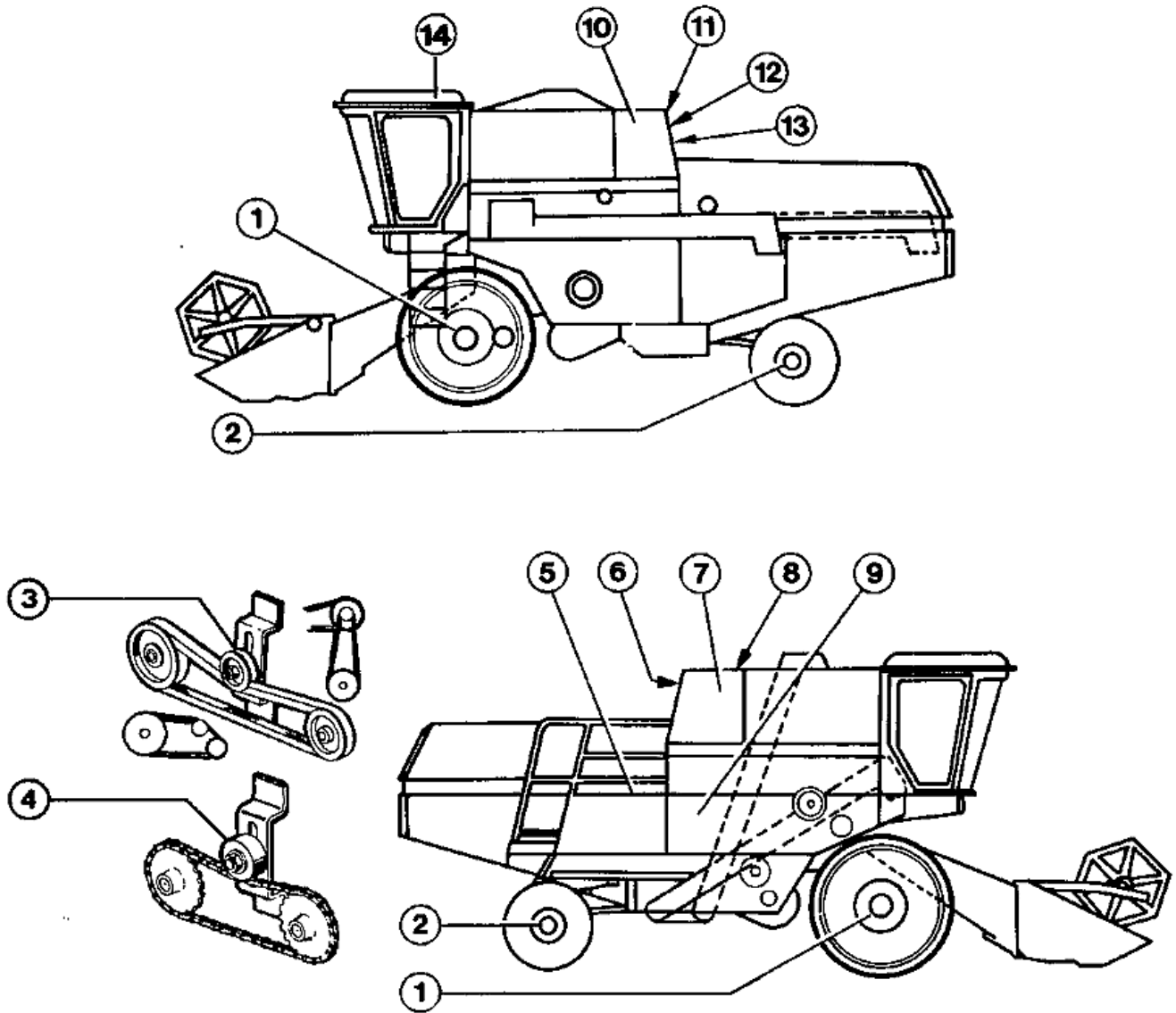


1. Tighten front wheel nuts with torque of 420 N.m.
2. Tighten rear wheel bolts with torque of 180 N.m.
3. Check and adjust the tension of V-belt.
4. Check and adjust drive chain.
5. When needed, check and adjust the feeder house clutch spring.
6. When needed, check and adjust the elevator safety clutch spring.

CP00596,00000A0 -19-13FEB14-1/1

YC1557—UN—27FEB12

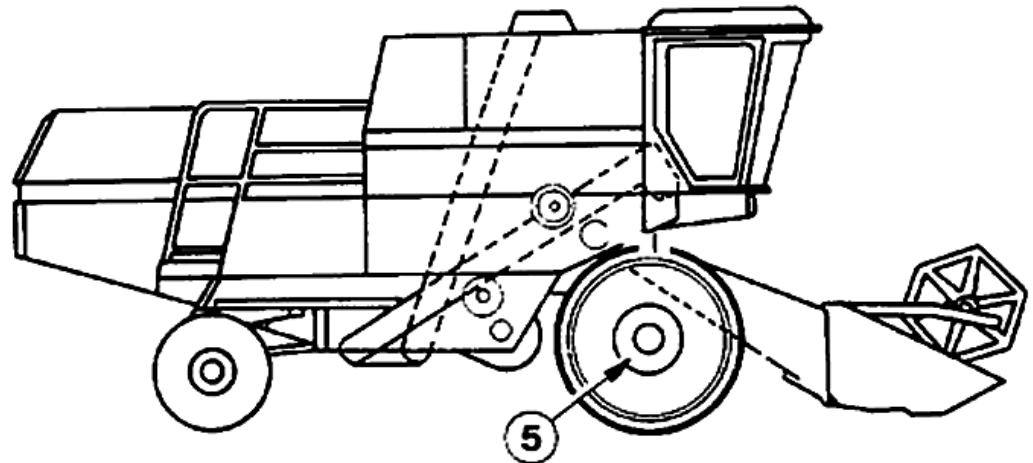
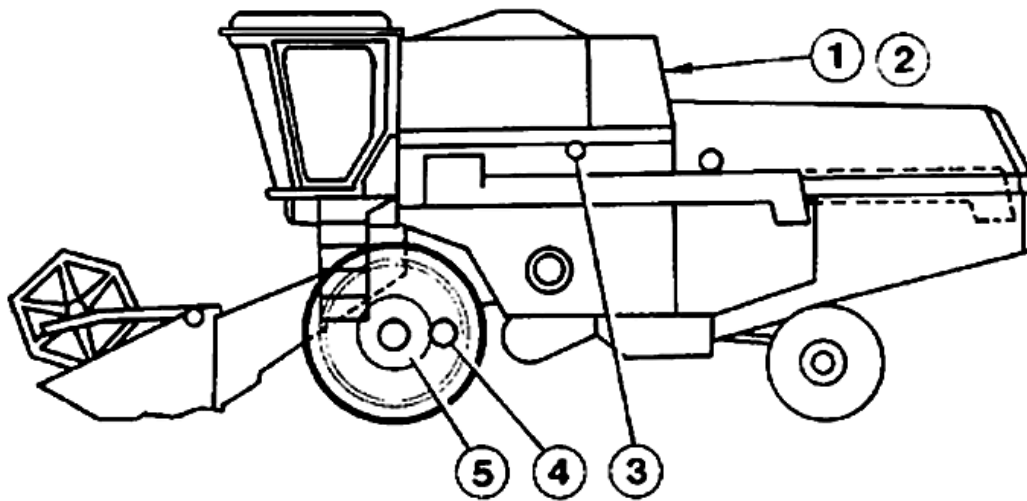
Every 10 operating hours



1. Tighten front wheel nuts with torque of 420 N.m.
2. Tighten rear wheel bolts with torque of 180 N.m.
3. Check and adjust the tension of all V-belts.
4. Check and adjust all drive chains.
5. Add fuel.
6. When indicator light is lit, clean the dry type air filter.
7. Clean rotating wind shield and radiator.
8. Check coolant level and fill it full.
9. Check and clean water catchment device.
10. Check fuel filter and drain away precipitated water and sediments.
11. Clean oil inlet of hydraulic oil tank and check the oil level.
12. Park machine on level ground. Check engine sump oil. Add oil when needed.
13. Clean air-conditioning system.
14. Clean the driving cab air filter.

CP00596,000065C -19-18FEB14-1/1

After 100 operating hours



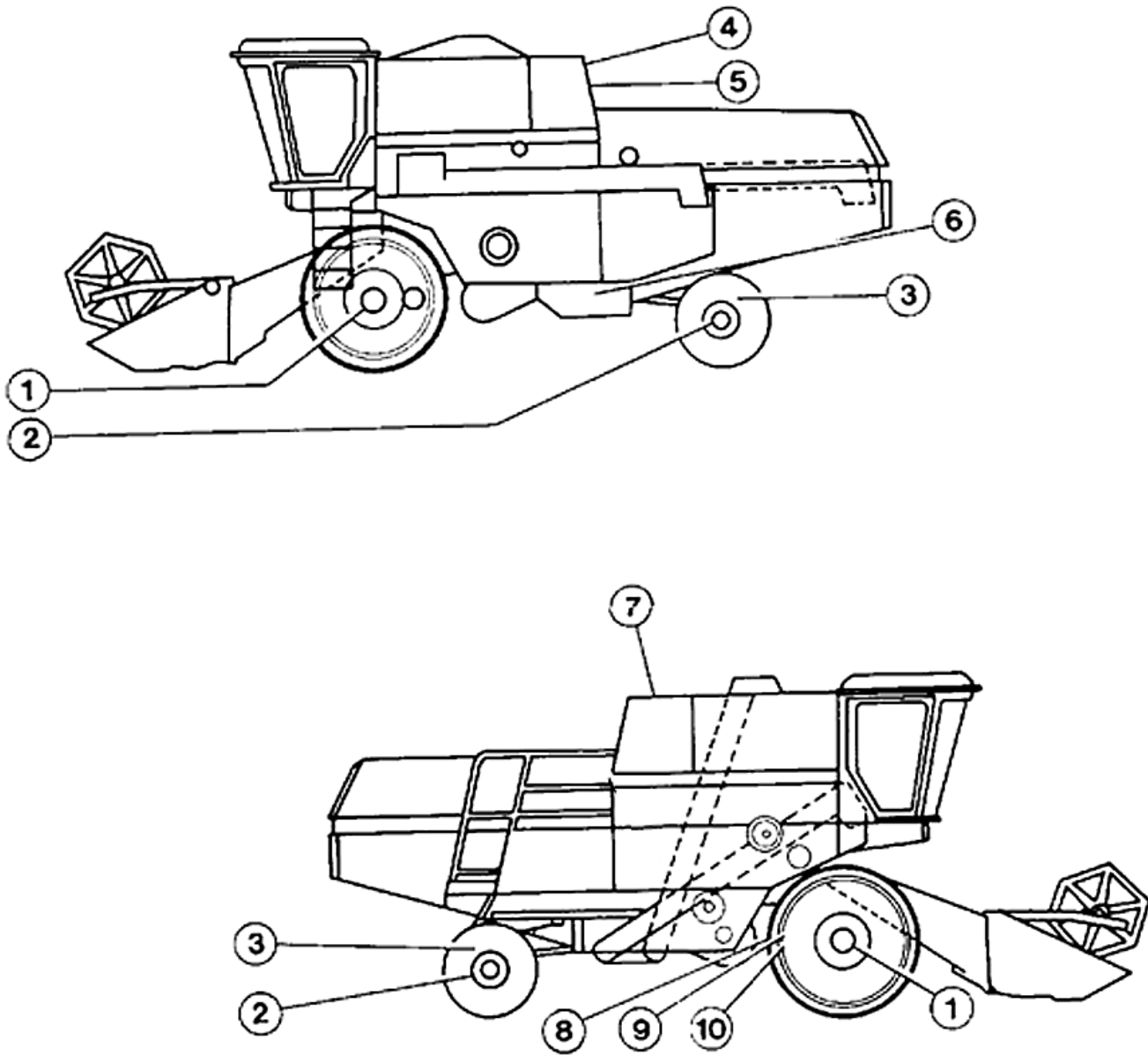
1. Change hydraulic oil filter.
2. Change hydraulic oil.
3. Change engine oil and filter.
4. Change gearbox oil.

5. Change final drive oil.
6. Change cylinder decelerator gear oil (if equipped).
7. Change separation cylinder gear oil.

CP00596,00000A2 -19-30OCT14-1/1

YC1553 —UN—23FEB12

After every 200 operating hours or a season



1. Tighten front wheel nuts with torque of 420 N.m.
2. Tighten rear wheel bolts with torque of 180 N.m.
3. Tighten steering arm connecting bolt with torque of 180 N.m.
4. Change fuel filter element.
5. Change engine oil and filter¹.

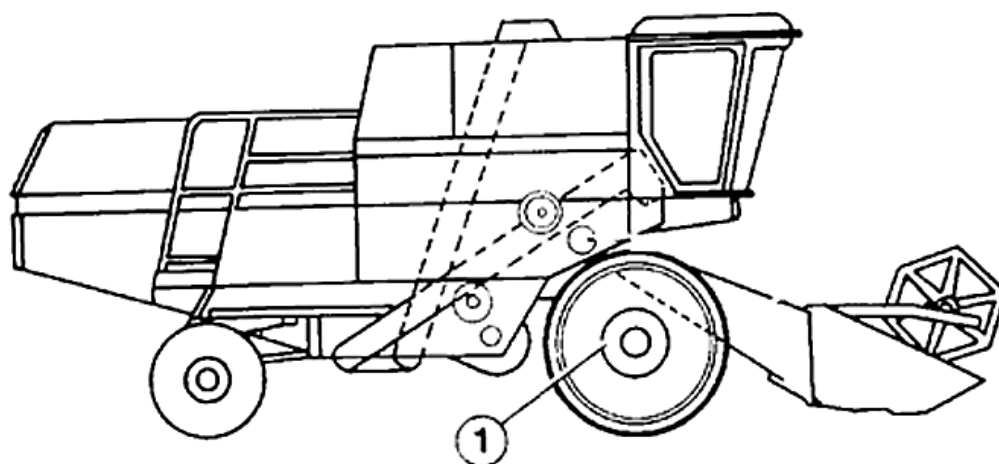
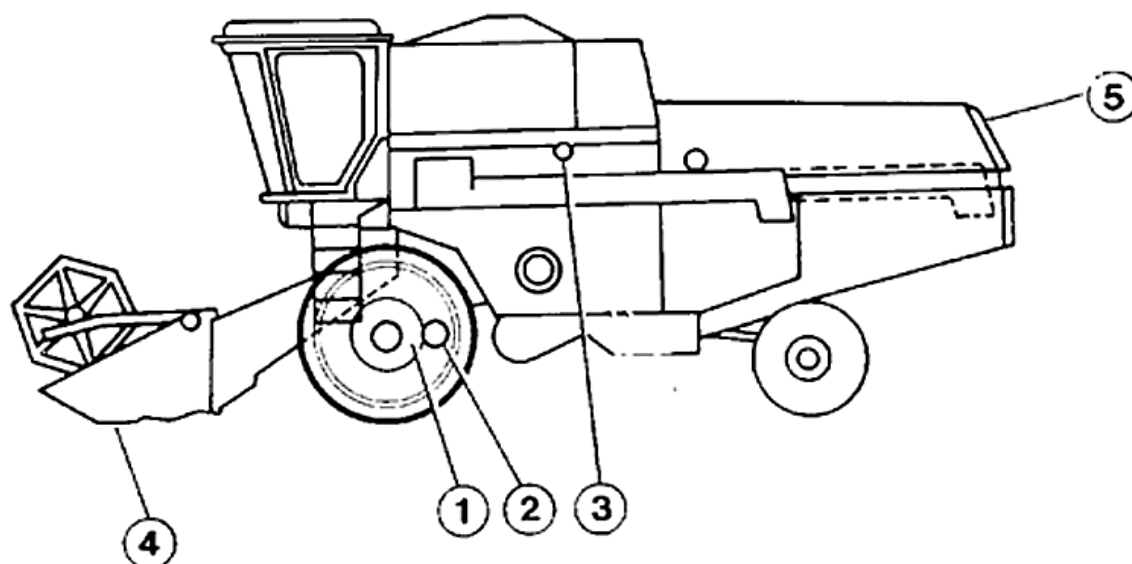
6. Check battery electrolyte specific gravity. When needed, charge it or fill distilled water to the full level.
7. Check coolant level and fill it full.
8. Check and adjust ground driving clutch clearance.
9. Check and adjust foot brake.
10. Adjust hand brake cable.

¹This is for reference only. Please refer to "Engine oil and filter service intervals" and fuel sulfur content as well as engine oil types to select specific service intervals.

YC1554—UN—11NOV14

CP00596,00000A3 -19-30OCT14-1/1

Every 500 operating hours

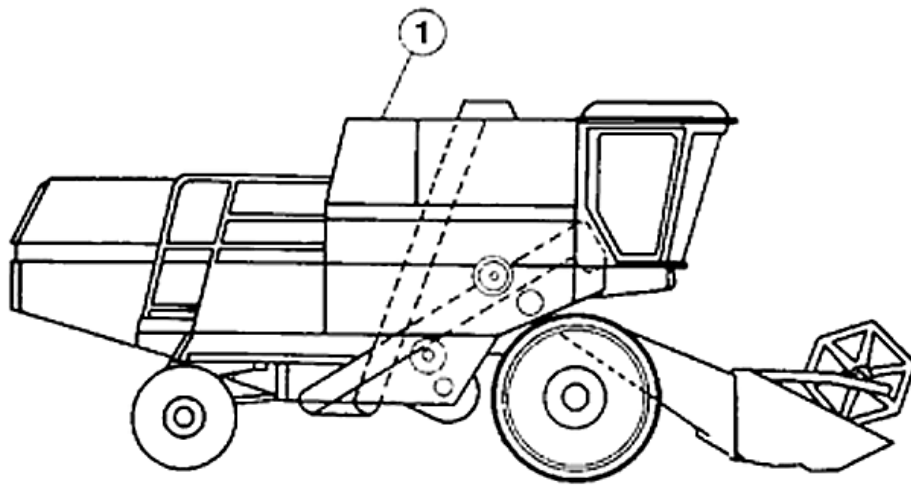
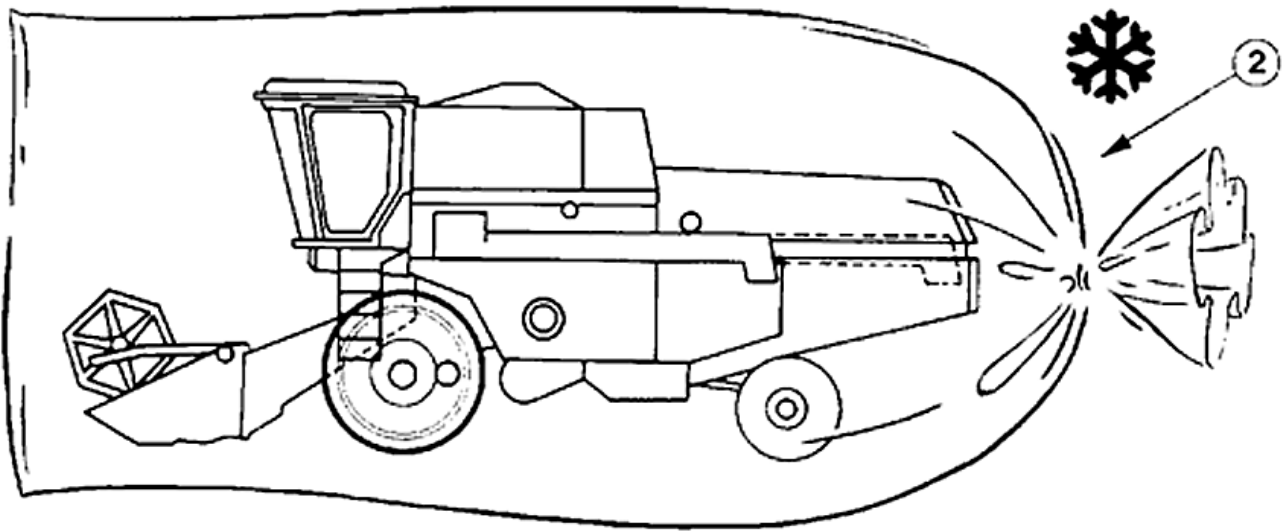


1. Change final drive oil.
2. Change gearbox oil.
3. Change hydraulic system oil.
4. Check wobble box oil level.
5. Change separation cylinder gearbox oil.

CP00596,00000A4 -19-11NOV14-1/1

YC1555—UN—11NOV14

After harvest season



1. Clean engine rotary screen and radiator thoroughly.
2. Prevent the entire machine from being corroded (please refer to the part of machine care).

CP00596,00000A5 -19-08MAR12-1/1

YC1556 —UN—23FEB12

Maintenance, Storage and Transport of Combine

Dismounting method of bearings with eccentric sleeve

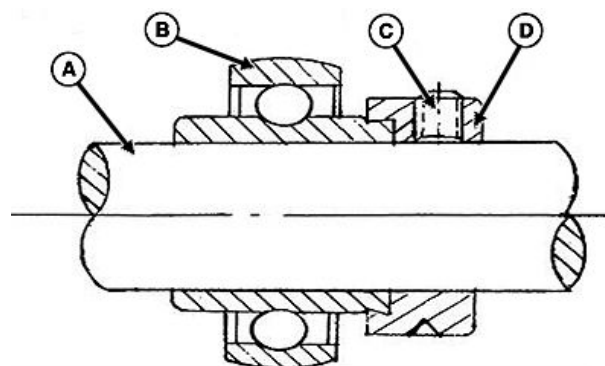
Dismounting method of bearings (390xxx series) with eccentric sleeve:

To install:

1. Assemble bearing (B) onto the shaft. Fix it at the sidewall of the machine (Before tightening the bearing seat fixing bolt, rotate the shaft for several rounds. Then, tighten the bearing seat bolt).
2. Put on eccentric sleeve (D). After determining the rotation direction of the shaft, tighten the eccentric sleeve (D) according to the shaft rotation direction.
3. Put a punch against the blind hole on eccentric sleeve (D). Use a hammer to hit until it locks tightly.
4. Use an internal hex wrench to fasten the tightening screw (C).

To dismount:

1. Use internal hex wrench to loosen tightening screw (C).
2. Put punch against the blind hole on eccentric sleeve (D). Use hammer to hit the punch, in the reverse



A—Shaft
B—Bearings

C—Fastening screw
D—Eccentric sleeve

direction of shaft rotation, until eccentric sleeve is loose.

3. Remove eccentric sleeve (D). Remove bearing seat. Then, remove the bearing.

CP00834,000114E -19-16JUN14-1/1

YC2448—UN—03MAR13

Dismounting method of grain and tailing auger

To dismount:

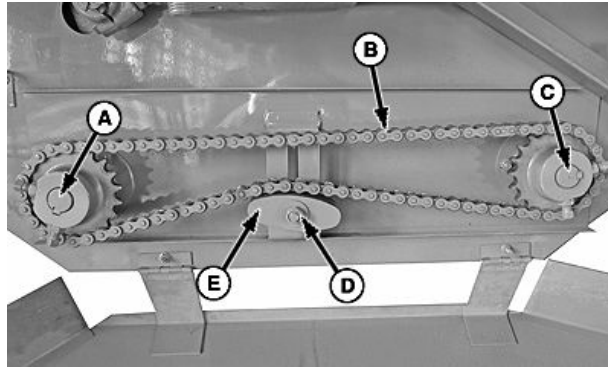
1. First, remove bearing cap, bearing, elevator chain and sprocket at the right side of auger. Remove also the left drive tension pulley, chain, sprocket, bearing, bearing seat and baffle behind. You can then find a long gap near the bearing mounting place at the left sidewall.
2. Align auger flighting of auger being removed with gap in side sheet. Slowly turn auger and remove.

To install:

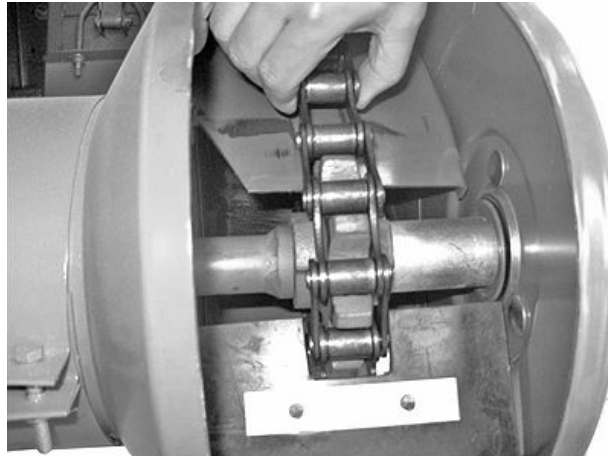
1. Align auger to side sheet, rotate and install.
2. Install sprocket, elevator chain, bearing and bearing cap at the right side of auger. Then, install the baffle behind the left bearing seat, bearing seat, bearing, sprocket, chain and tension pulley. Install shield.

A—Grain auger shaft
B—Drive chain
C—Lower tailing auger shaft

D—Adjustment nuts
E—Tension block



YC6030—UN—26DEC13



YC6054—UN—30DEC13

CP00834,000114D -19-16JUN14-1/1

Adjustment of variable speed cable

Variable speed cable adjustment:

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 machine that has been used for a period of time, as the length of cable has changed, it is not accurate to use method 1 for adjustment. Use the following method to adjust instead:

1. Loosen cable fixing nut, so that cable is of a free state.
2. Set shift lever to a certain gear or at neutral position.
3. Pull cable until shifting fork shaft protrudes from gearbox with required size.
4. Tighten nuts at both ends of cable bracket.
5. Check the conditions of all gears.

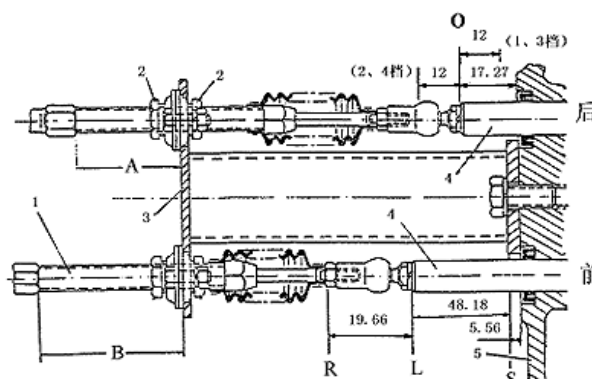
For example:

At gear 1: Front shifting fork shaft should protrude $48.18 + 5.56 = 53.34$ mm. Rear shifting fork shaft should protrude $17.27 - 12 = 5.27$ mm.

At gear 2: Front shifting fork shaft should protrude $48.18 + 5.56 = 53.34$ mm. Rear shifting fork shaft should protrude $17.27 + 12 = 29.27$ mm.

At gear 3: Front shifting fork shaft should protrude 5.56 mm. Rear shifting fork shaft should protrude $17.27 - 12 = 5.27$ mm.

At gear 4: Front shifting fork shaft should protrude 5.56 mm. Rear shifting fork shaft should protrude $17.27 + 12 = 29.27$ mm.



At reverse gear: Front shifting fork shaft should protrude $19.66 + 48.18 + 5.56 = 73$ mm. Rear shifting fork shaft should protrude 17.27 mm. If it is too difficult to measure using above methods, open the gearbox cover, check and match gears directly. It is preferred to choose gear 3 and 4 neutral positions. It is because, under this condition, gear Z20 of dual sliding gear and gear Z29 of intermediate shaft have the same width, so that it is easy to observe.

CAUTION: Pull cables separately because there is interlocking mechanism between the two shifting fork shafts.

CP00834,000114C -19-16JUN14-1/1

YC2878—UN—24DEC12

Machine storage after harvest

Main machine: Machine should be stored in a dry and covered place. Before storing, check the following:

1. Clean the machine interior and exterior thoroughly, so as to prevent chaff and dust from corroding or damaging the parts.
2. Remove or loosen all V-belts.
3. Clean all chains and coat them with anti-rust oil.
4. Clean augers, elevators and sieves thoroughly.
5. Take protective measures at the lower part of slope conveyor so as to prevent corrosion.
6. Lubricate machine parts thoroughly according to lubrication diagrams.
7. Coat adjustment bolts and safety clutch with oil.
8. Remove load of springs.
9. Repaint surfaces where paint fades or falls.
10. Coat the cylinder plunger surface with oil and retract the plunger as far as possible.
11. Lower the cutter and place timber underneath.
12. Elevate the machine with supports, so that tires are without load (do not deflate tubeless tires).

If condition is limited and combine harvester is placed outdoors, elevate the machine with supports. Dismount wheels and store them in a dry and ventilated place. Smear oil on the sliding or rotating parts that are without nozzles.

Engine: To protect engine against corrosion, take the following protective measures:

1. Wash the engine exterior. Note: Do not use gasoline.
2. Drain away coolant and clean the cooling system. Then, refill coolant.
3. Drain away engine oil and replace filter. Then, refill qualified engine oil.

4. Place cardboards between fan belt and pulleys so as to avoid adhesion.
5. Add anti-rust agent:
 - a. Before adding anti-rust agent, run the engine for a few minutes.
 - b. Add 300 cc. anti-rust agent in the engine oil. Then, run the engine again for a few minutes.
Note: Engine oil can be used in the next season for 20 ~ 25 hours. Then, drain it away and refill qualified new engine oil.
 - c. (3) Drain away oil from hydraulic oil tank. Add new oil and 50 cc. anti-rust agent.
 - d. Drain away fuel. Add 150 cc. anti-rust agent and 10 L fuel into the empty fuel tank. Start the engine and run it for 15 ~ 20 minutes, so that anti-rust agent is distributed throughout the fuel system. At the same time, repeatedly operate all hydraulic levers.
 - e. Switch off the engine and cool it down for 15 ~ 20 minutes.
 - f. Prepare 35 cc. anti-rust agent for each tank. Spray anti-rust agent onto air inlet. At the same time, switch on the motor to run the engine. When doing the above tasks, throttle lever should be set at "stop" position.

IMPORTANT: When doing the above tasks, do not switch on the engine. Otherwise, repeat the said procedure once. After adding anti-rust agent, do not restart the engine. Seal it after adding anti-rust agent as it is easily evaporated. Upon completion of the said tasks, use tarpaulin sheet to cover the engine entirely.

Fuel tank: Fill the tank full with fuel.

Miscellaneous: Dismount and clean the battery. Place it in a proper place after charging.

CP00596,000065D -19-18FEB14-1/1

Re-use the machine

After long period of storage, conduct a comprehensive inspection of machine to ensure that it is in good condition before use.

Main machine:

1. Install belts and properly adjust their tension.
2. Adjust drive chain tension properly.
3. Adjust safety clutch spring pressure properly.
4. Close elevator valve.
5. Lubricate all working parts according to lubrication diagrams.
6. Run the machine in medium speed for 1 hour.
7. Check all bearings if they are over-heated.

⚠ CAUTION: Maintain good ventilation before starting the engine. Do not start the engine in a sealed room to avoid suffocation. Tighten bolts and nuts of front and rear wheels.

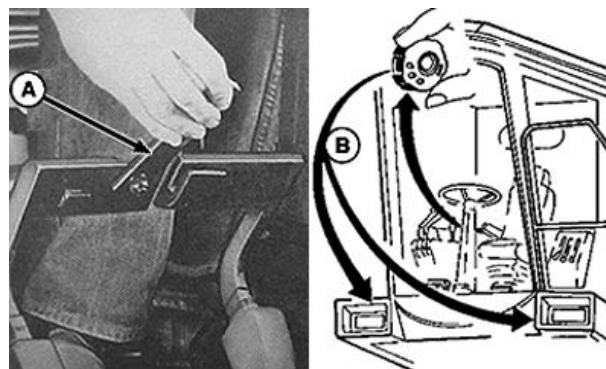
Engine:

1. Remove the covering tarpaulin sheet, seal plugs and cardboards between fan belt and pulleys.
2. Check coolant level. Antifreeze and anti-rust agent can remain in the cooling system.
3. When adding anti-rust agent to engine oil, drain it away after using for 25 hours. Refill qualified engine oil.
4. Before switching on the engine, set throttle lever at "Stop" position. Then, start the motor. When engine oil pressure indicator light goes out (about 5 seconds), start the engine and run it in medium speed for 5 minutes.
5. When it is loaded, run the engine and check for abnormal noise. If abnormality is found, immediately stop the engine and carry out checks and repairs.
6. Check if oil pipes are leaking. When needed, contact the service centre.

CP00596,000065E -19-18FEB14-1/1

Brake pedals and lighting

When transporting on roads, couple brake pedals (A) together. When needed, switch on lights (B).



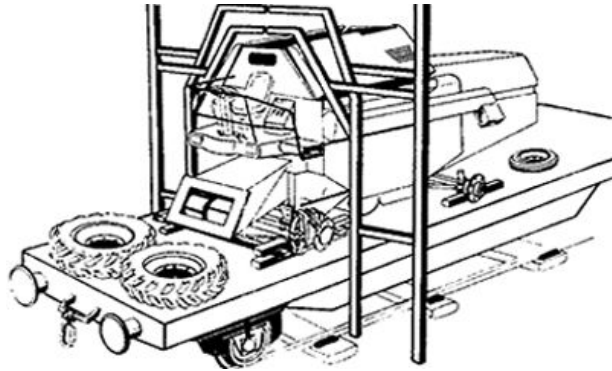
YC1687—UN—09DEC12

OUYC401,00004C2 -19-19MAR12-1/1

Machine transport preparation

If machine is too high and too wide for transport, remove front and rear wheels and secure combine harvester onto the transporter.

⚠ CAUTION: When securing the machine, keep it levelled and balanced to prevent it from falling over.



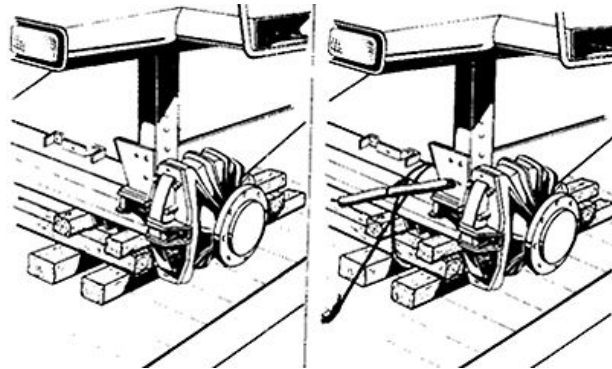
YC1688—UN—09DEC12

CP00596,000065F -19-18FEB14-1/1

Retain the machine for transport

IMPORTANT: When descending the machine, do not put the final gearbox directly on the transporter. Use timber to support it properly.

Use ropes, cables and wood to retain the front and rear axles of machine on transporter.



YC1689—UN—23NOV12

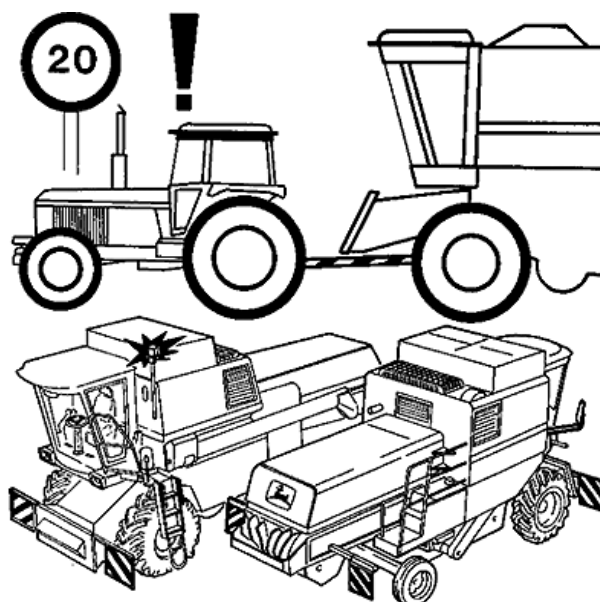
CP00596,0000660 -19-18FEB14-1/1

Towing transport

CAUTION: Do not use ropes to tow the machine. Use appropriate drawbars and fix them securely to the proper positions on front axle.

Switch on hazard warning lights upon towing.

IMPORTANT: When towing speed is over 20 km/h, tires, gearbox and final drive may be damaged. Rear axle towing device is only for towing a cutter. Never use it to tow a vehicle or tractor.



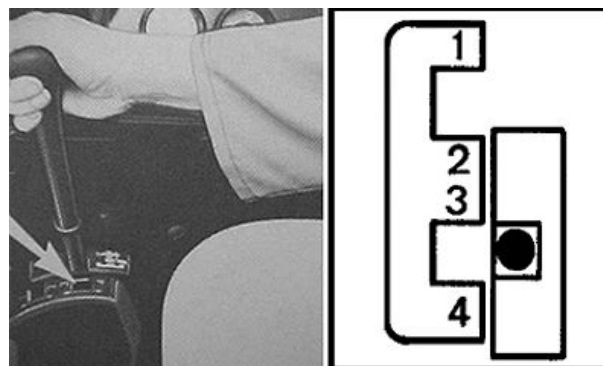
YC1690 —UN—30DEC13

CP00596,0000661 -19-18FEB14-1/1

Set shift lever to neutral position

IMPORTANT: Disengage hand brake.

NOTE: Upon towing transport, set shift lever to the position as shown in the diagram.



YC1691 —UN—09DEC12

CP00596,0000662 -19-18FEB14-1/1

Fire prevention

Recommendations on fire prevention

Machine must be checked regularly during the harvest period. Crops and other debris must be cleared. Make sure that the machine works properly and reduce the risk of fire.

Follow the routine maintenance procedures in the Operator's Manual to regularly and thoroughly clean the machine. That can reduce the risk of fire, decrease cost of downtime and enhance 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, apply parking brake and remove key.

Machine is equipped with fire extinguisher. When entering or leaving the cab and when working around the machine, check the fire extinguisher daily to ensure that it is in place and can be used. Fire extinguisher must be professionally serviced or replaced after use.

For more information, refer to "Clean the machine" section.

CP00596,00005C7 -19-18DEC13-1/1

Use fire extinguisher

About how to use a fire extinguisher, please refer to safety section "Use fire extinguisher" in this manual.

CP00596,00005C9 -19-14MAY14-1/1

Handle Fuel Safely—Avoid Fires

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.



TS202 —UN—23AUG88

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

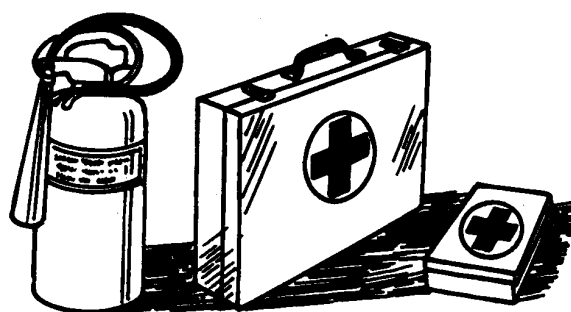
DX,FIRE1 -19-12OCT11-1/1

Prepare for Emergencies

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.



TS291 —UN—15APR13

DX,FIRE2 -19-03MAR93-1/1

Handle Starting Fluid Safely

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.



DX,FIRE3 -19-16APR92-1/1

TS1356 —UN—18MAR92

Clean up accumulated crops

Chaff and crops gathered around the engine compartment, on the engine and near moving parts may constitute a fire hazard. Check and clean those parts and components regularly. Before performing any checks or maintenance, switch off engine, apply parking brake and remove key.



CP00596,00005CA -19-18DEC13-1/1

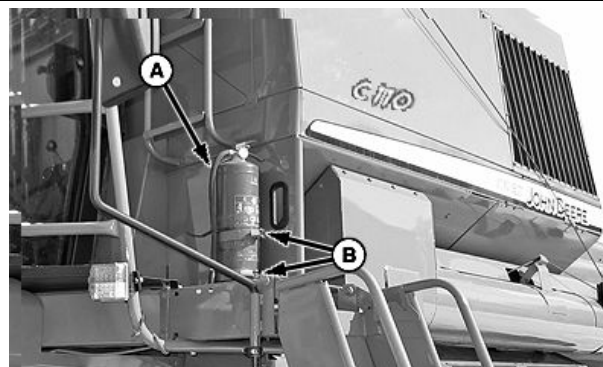
TS227 —UN—15APR13

Location of fire extinguisher

Fire extinguisher (A) is at the holder on the left side of cab. When fire extinguisher is needed, quickly open the clamps (B) and take out the fire extinguisher.

A—Fire extinguisher

B—Clamps (2 pieces)



CP00596,0000797 -19-14MAY14-1/1

YC5293 —UN—12AUG13

In case of fire

Stop harvesting immediately when sign of fire is noted. Sign of fire can be smoke or flame.

Never compromise personal safety to fight against fire. If the fire location is far away, it is not necessary to put it off by all means.

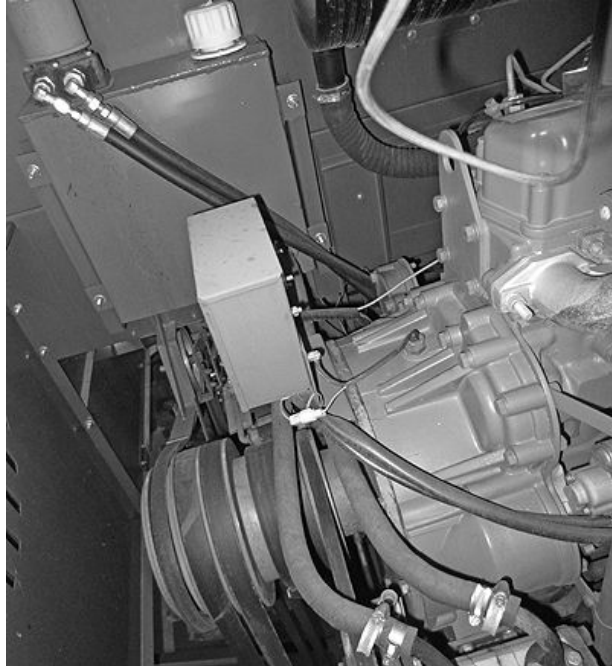
If fire can be safely put out, carefully follow the requirements below:

1. Remove fire extinguisher from holder and bring it to approach the fire location.
2. Approach the fire in leeward direction of wind.
3. Pull safety pin from top of fire extinguisher.
4. Hold the handle so as to keep fire extinguisher perpendicular to the ground. Aim the hose at fire base.
5. Squeeze handle to discharge powder from fire extinguisher.
6. Move nozzle back and forth so that fire flame is covered by fire extinguishing powder.

CP00596,00005CC -19-18DEC13-1/1

Clean engine compartment

⚠ CAUTION: When engine is running, never clean it or its compartment. Dirt, grease, chaff and tailings accumulated in engine compartment or on engine may constitute a fire hazard. Air flow direction, crop type and moisture affect the location and extent of chaff and debris accumulation. Check and clean those areas frequently.



YC6000—UN—17DEC13

CP00596,00005CD -19-14MAY14-1/1

Clean the machine

Regularly clean the machine

Machine must be checked periodically during the harvest period. Crops and other debris must be cleared. Make sure that the machine works properly and reduce the risk of fire.

Main machine components that require periodical checks and cleaning are described in this section. Frequency of checks and cleaning is related to many factors, including operating conditions, machine settings, crop conditions, operating speed, weather conditions, particularly under dry, hot and windy conditions. These photos show the accumulated crops and tailings before cleaning. The photos are for reference only.

IMPORTANT: Crops and tailings may accumulate in various locations. Air flow direction, crop type and moisture affect the location and extent of crop and debris accumulation. These parts need to be checked and cleaned during the harvest period. Main parts that need to be checked and cleaned are:

- Engine compartment
- Engine cooling system
- Fuel tank
- Pulley
- Trough
- Guard
- Wiring harnesses and fuse centers
- Main engine gearbox and hydraulic hoses
- Gearbox

Although some other parts also need to be cleaned regularly, but these parts are more important in regard to fire prevention. These parts can be easily cleaned by using compressed air.

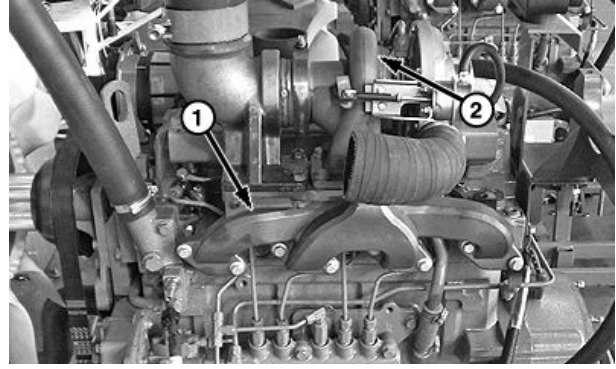
Follow the routine maintenance procedures in the Operator's Manual to regularly and thoroughly clean the machine. That can reduce the risk of fire, decrease cost of downtime and enhance machine performance.

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, apply parking brake and remove key.

Engine compartment

These parts need to be checked and cleaned during the entire harvest period. Main parts that need to be checked and cleaned are:

1. Exhaust manifold
2. Turbocharger
3. Below the engine



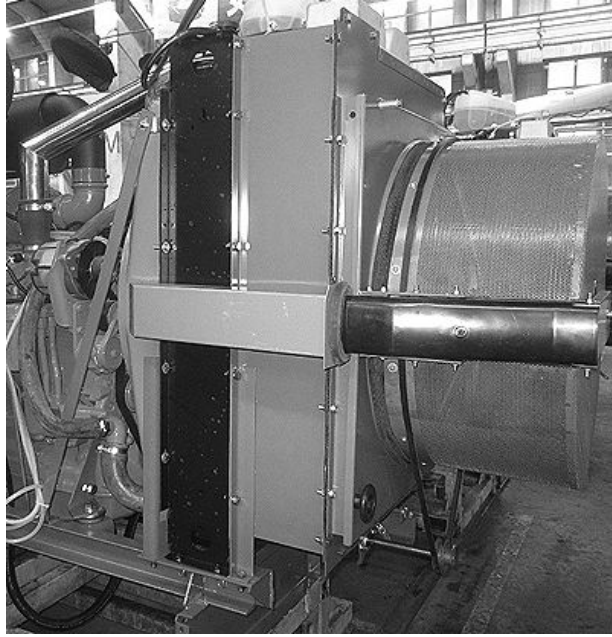
YC6001 —UN—17DEC13

YC6002 —UN—18DEC13

CP00596,0000798 -19-14MAY14-1/1

Engine cooling system

These parts need to be checked and cleaned during the harvest period.



YC3958 —JUN—01APR13

CP00596,0000799 -19-14MAY14-1/1

Fuel tank

CAUTION: If oil leakage is found, stop the machine immediately. Locate the leak. Never start the machine before it has been repaired.



YC6683—UN—14MAY14

Upper part



YC6672—UN—12MAY14

Lower part



YC6694—UN—14MAY14

Side



YC6682—UN—14MAY14

Electric fuel pump

Regularly check and clean the upper part, lower part and sides of fuel tank as well as around electric fuel pump in harvest season.

CP00596,000079A -19-14MAY14-1/1

Cleaning fan

These parts need to be checked and cleaned during the entire harvest period. Main parts that need to be checked and cleaned are:



Left-hand side

YC6686 —UN—13MAY14



Right-hand side

YC6681 —UN—13MAY14

CP00596,000079B -19-14MAY14-1/1

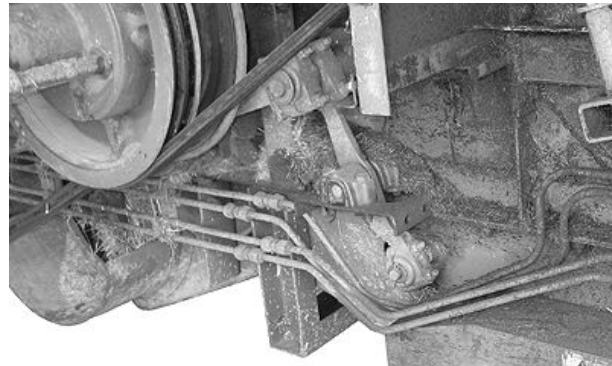
Trough

These parts need to be checked and cleaned during the entire harvest period. Main parts that need to be checked and cleaned are:



Right-hand side

YC6683 —UN—13MAY14



Left-hand side

YC6685 —UN—13MAY14

CP00596,000079C -19-14MAY14-1/1

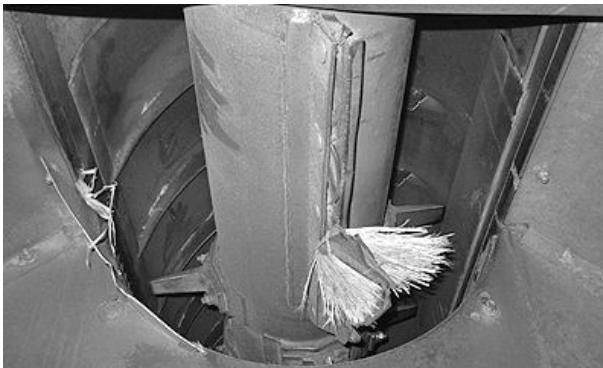
Separation cylinder

These parts need to be checked and cleaned during the entire harvest period. Main parts that need to be checked and cleaned are:



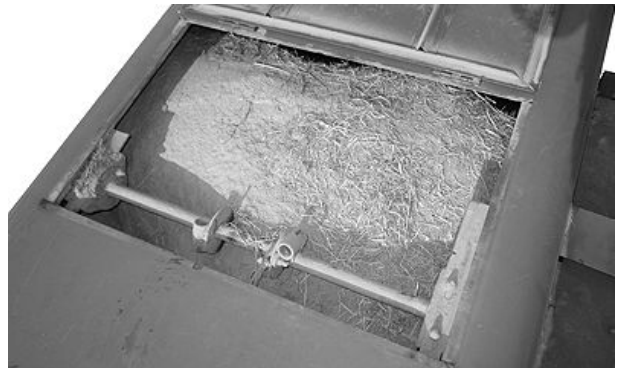
YC6674 —UN—13MAY14

Gearbox



YC6675 —UN—13MAY14

Separation cylinder



YC6676 —UN—13MAY14

Upper part

CP00596,000079D -19-14MAY14-1/1

Wiring harnesses and oil lines

Regularly check wiring harnesses and clear debris around during the harvest period.



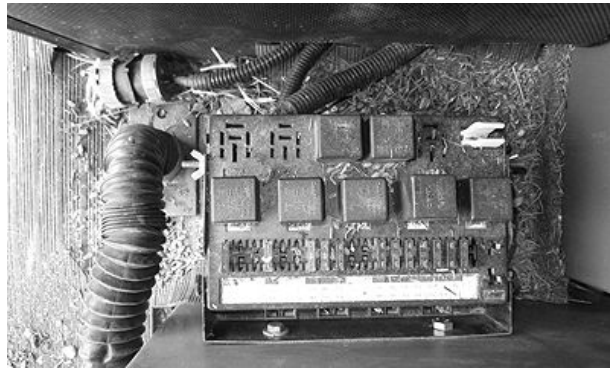
YC6803 —UN—24DEC13



YC6678 —UN—13MAY14



YC6877 —UN—13MAY14



YC6692 —UN—13MAY14

CP00596,000079E -19-14MAY14-1/1

Gearbox

Regularly check and clean gearbox during the harvest period.

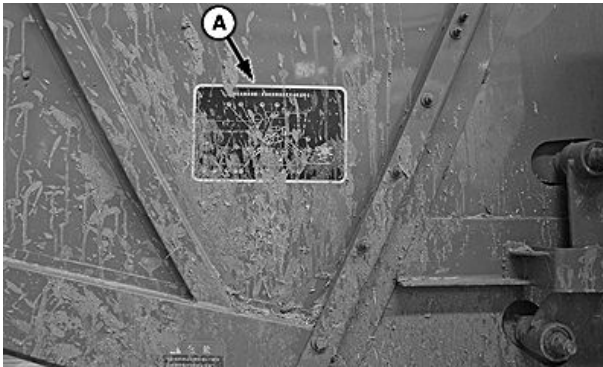


YC6673 —UN—13MAY14

CP00596,000079F -19-14MAY14-1/1

Safety label location

Lubrication label (A) shows the machine parts which need to be lubricated. Follow the frequency shown on

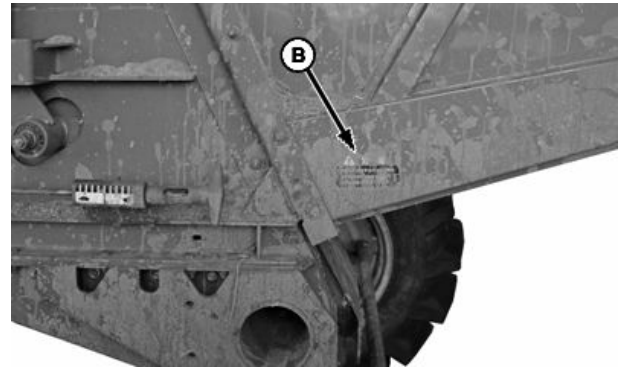


A—Lubrication label

Bearing failures or overheating may cause a fire. To reduce bearing failures or overheating, always lubricate according to lubrication label on machine.

Crops and debris may accumulate around bearings and bearing caps. These parts need to be regularly checked and cleaned during the harvest period.

the lubrication label to lubricate. For more information about lubrication intervals, refer to "Lubrication and Maintenance".



B—Safety sign

Relevant safety information are on safety sign (B), instructing operator how to work properly. If safety label is covered by weeds or dirt, clean it immediately so that safety label can be read clearly.

CP00596,00007A0 -19-14MAY14-1/1

Analysis and troubleshooting of common failures

Analysis and troubleshooting of failures

Most harvester usage problems are due to incorrect adjustments.

In failure analysis, potential problems are listed with corresponding recommended solutions for the operator.

OUYC401.000050E -19-16MAR12-1/1

Feeder house

Symptom	Problem	Solution
Uneven or bundle-like feeding to cylinder	Cutter central auger is too high.	Adjust central auger downward. Please refer to cutter operator's manual.
	-	-
	Front part of feeder house chain is adjusted too high.	Adjust the feed rolls so that conveyor chain plate is separated from feeder house floor with appropriate clearance.
	Feeder house chain is too tight. Feed rolls are pulled upwards.	Adjust conveyor chain with proper tension.
	Cutter drive belt slips.	Spring tensioner pulley should press on drive belt properly and firmly.
	Central auger, compared to the anti-wrapped board, is too much forward.	Adjust auger backward towards anti-wrapped board. Please refer to cutter operator's manual.
	Feeder house drive belt slips.	Adjust tension of drive belt.
Cutter or reel cannot be lifted correctly	Feeder house chain slat is damaged.	Straighten or replace the feeder house chain slat.
	Dirt, stems and leaves accumulate on feeder house floor.	Clean feeder house floor
	Air is in the hydraulic system.	Fix leaks and bleed air from reel lift system.

OUYC401.000050F -19-16MAR12-1/1

Threshing 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.
	Clearance between concave and cylinder is too small or too big.	Adjust clearance between concave and cylinder.
	Cylinder rotation speed, relative to the crop, is too low.	Increase cylinder rotation speed.
	Too much crop entering the cylinder.	Reduce driving speed.
Cylinder suffers from reverse feeding.	Engine speed is not correct.	Ask professionals to repair it.
Grain is not threshed completely.	The crop is not suitable for threshing.	Test crop humidity before harvest.
	Cylinder rotation speed is too slow.	Increase cylinder rotation speed until a good threshing result is achieved, but do not increase the speed to a critical point where grain is crushed.
	Clearance between cylinder and concave is too big.	Reduce clearance between cylinder and concave so as to enhance threshing.
	Feeding to cylinder is uneven.	Check the tightness of feeder house chain and its floating state during conveying.
	Not enough materials enter the harvester. Threshing is not good.	Increase driving speed.
Grain in the grain tank is seriously crushed.	Cylinder rotation speed, relative to the crop, is too high.	Reduce cylinder rotation speed until grain is not crushed, but good threshing should still be kept. And/Or, slightly widen the concave clearance.
	Clearance between cylinder and concave is too small.	Increase the clearance between cylinder and concave until crushing stops.
	Too much grain is in the tailings. Grain is crushed during re-threshing.	Slightly increase the opening degree of sieve, so as to reduce tailings.
		Reduce fan speed.
	Not enough materials enter the harvester.	Increase driving speed.
	Damaged auger trough or bent auger fighting.	Straighten the auger trough, auger fighting or auger shaft. Replace as needed.

Continued on next page

CP00718,000200E -19-30MAR16-1/2

Symptom	Problem	Solution
Grain is lost in the spike tooth separation cylinder.	Grain is lost in spike tooth separation cylinder. Loss in cleaning chamber is zero or very low.	Remove the closed cover on separation cylinder concave and change the tines (starting with 2 ~ 3 pieces per side). Reduce driving speed.
There is nearly no bran in tailings. Grain in grain tank is very clean.	Fan speed is too high and/or the opening degree of chaffer is not enough.	Reduce fan speed and/or increase the opening degree of chaffer.
There is some bran in the tailings. Grain in grain tank is clean.	Opening degree of sieve is too small.	Increase the opening degree of sieve.
There is a large amount of bran in the tailings. Cleanliness of grain in grain tank is low.	Opening degree of sieve is too small. Fan speed is too low.	Increase the opening degree of sieve. Increase fan speed.
There is too much debris (grated weeds) in tailings.	Opening degree of chaffer and chaffer extension is too much when there are many weeds. Cylinder rotation speed is too high and concave clearance is too little.	Reduce the opening degree of chaffer and chaffer extension. Reduce cylinder rotation speed and/or increase the clearance between cylinder and concave.
Grain in grain tank is not clean (incompletely threshed spikes).	Opening degree of sieve is too much. Incomplete threshing occurs in cylinder.	Reduce opening degree of sieve. Increase cylinder rotation speed and/or decrease clearance between cylinder and concave.
Grain in grain tank is not clean (mostly bran).	Fan speed is too low.	Increase fan speed.
Grain is lost in cleaning chamber (grain in grain tank is clean).	Chaffer is closed. Fan speed is incorrect.	Open chaffer. Adjust fan speed. Check tailings, loss and cleanliness of grain in grain tank.
Serious grain loss happens (when feed rate is low or high).	Separation cylinder drops too many materials resulting in grain loss in cleaning chamber (no grain loss in separation cylinder). Fan speed is too high.	Remove some fingerplates from the rear of separation cylinder concave. Replace them with blocking plates. Reduce fan speed.
	Opening degree of chaffer is not enough.	Increase the opening degree of chaffer.
Serious grain loss happens (only when feeding volume is high).	Fan speed is too low.	Increase fan speed.

CP00718.000200E -19-30MAR16-2/2

Ground drive system

Symptom	Problem	Solution
Ground drive belt (in the entire speed range) is too tight.	Continuously variable transmission speed will not adjust.	Fully lubricate the moving plate cam. Remove rust. Replace worn parts.
It is difficult or fails to change speed.	Clutch is not completely separated.	Check the oil level in oil tank and check if the clearance at separate lever is correct. Take appropriate actions to solve the problem.
	Variable speed cable is adjusted improperly.	Adjust variable speed cable.
	Variable speed cable is damaged, dirty, corroded or pressed.	Check, clean, adjust or replace cable.
	Gearbox has internal problem.	Ask professionals to repair it.

OUYC401,0000511 -19-16MAR12-1/1

Steering system

Symptom	Problem	Solution
Rear wheels swing in transport speed.	Toe-in is not adjusted properly.	Adjust toe-in.
When steering at the limit position, steering arm does not contact the stopper.	Steering cylinder is not adjusted properly.	Adjust steering cylinder.

OUYC401,0000512 -19-16MAR12-1/1

Braking 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 leakage. Add brake fluid or bleed air from the system.
Braking force is insufficient.	Worn parts and improperly adjusted brakes.	Ask professionals to repair it.

OUYC401,0000513 -19-16MAR12-1/1

Rear Drive Axle (Optional)

Symptom	Problem	Solution
Noise of central drive increases	Small bevel gear shaft bearing clearance is too large	Re-adjust
	Gears mesh abnormally	Re-adjust meshing prints
	Differential shaft is worn, stuck	Replace
	Planetary gear or pad is worn	Replace
	Differential bearing is worn or damaged	Replace
Bearing is overheated	Bearing preload is too much	Re-adjust
	Lubrication is inadequate	Check oil level and refill when needed
	Bearing or gear clearance is too small	Re-adjust
Final drive has abnormal sound	Final drive gears are not well meshed	Replace
	Bearing is worn or damaged	Replace
Steering is difficult	Steering cylinder oil leaks	Repair or replace
Steering fails	Steering cylinder piston is damaged	Replace
Final drive oil leaks	Rotary seal is damaged	Replace
Central drive oil leaks	Oil seal collar and double-lip skeleton seal ring are damaged	Replace
Small bevel gear or spiral bevel gear is stuck	Small bevel gear shaft and spiral bevel gear are not installed correctly	Replace
Rear tires are seriously worn	Rear wheel rim or spoke is seriously deformed	Adjust rear wheel rim or spoke
	Toe-in is not adjusted correctly	Adjust toe-in
	Knuckle is seriously worn	Replace pin shaft
	Tire pressure is insufficient during transport operations	Inflate tires as required
	Rear drive power input is not cut off during transport operations	Disengage rear drive axle power input during transport

CP00596,0000844 -19-17MAR15-1/1

Engine

Symptom	Problem	Solution
It is difficult or fails to switch on the engine.	There is no fuel.	Fill and bleed air from fuel system.
	Oil-water separator filter element is blocked.	Replace 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 filter element and bleed air.
	Fuel brand is not correct.	Use appropriate fuel according to the conditions of use.
	Fuel pump has 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 circuit of start relay.
	Viscosity of crankcase 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 problem.	Ask professionals to repair it.
	Injector valve is stuck.	Ask professionals to repair it.
	Engine has internal problem.	Ask professionals to repair it.
Engine operates unstably and often stops.	Coolant temperature is low.	Run the pre-heat engine.
	Oil-water separator filter element is blocked.	Replace filter element.
	Fuel filter element is blocked.	Replace filter element and bleed air.
	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 injector nozzle is dirty or defective.	Ask professionals to repair it.
	Fuel pump has problem.	Ask professionals to repair it.
	Valve push rod is bent or valve is stuck.	Ask professionals to repair it.

Continued on next page

OUYC401,0000514 -19-16MAR12-1/3

Symptom	Problem	Solution
Power is insufficient.	Oil-water separator filter element is blocked.	Replace filter element.
	Engine is over-heated.	Refer to "Engine is over-heated" below.
	Intake air is restricted.	Clean air filter.
	Fuel filter element is blocked.	Replace filter element and bleed air from the system.
	High altitude operation is required.	With increasing altitude, engine will lose part of the power. Use correct high-altitude fuel.
	Fuel injector is dirty or defective.	Ask professionals to repair it.
	Fuel pump has 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.
		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.

Continued on next page

OUYC401,0000514 -19-16MAR12-2/3

Symptom	Problem	Solution
Engine fuel consumption is too high.	Engine oil leaks.	Check pipes, sealed components and the area near 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.
	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 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.
	Muffler is defective.	Check if muffler is damaged that generates back pressure.
	Engine timing fails.	Ask professionals to repair it.
Engine emits white smoke.	Temperature of engine block is low.	Pre-heat the engine to operating temperature.
	Fuel brand is not correct.	Fuel with low cetane number cannot start the engine. Use fuel with correct cetane number.
	Thermostat is defective.	Remove and check thermostat.

OUYC401,0000514 -19-16MAR12-3/3

Electrical system

Symptom	Problem	Solution
Battery cannot be charged.	Alternator belt is loose or defective.	Adjust the tightness 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.	Ask professionals to repair it.
Starter starts slowly or cannot start.	Start 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 crankcase oil is too high.	Drain the oil away. Refill engine oil of appropriate viscosity to crankcase.
	Main fuse or 2# 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.
	Brush contact is bad.	Adjust or replace it with a new carbon brush.
	Belt is too loose.	Tighten the belt.
Meters do not display any indications.	Wiring connections are bad.	Check and tighten screws.
	3# fuse blows.	Replace fuse of same specifications.
	Sensor is damaged.	Replace sensor of same specifications.
Light bulb is not lit.	Switch is defective or wiring connections are bad.	Replace it with a new switch.
	Fuse blows or light bulb is defective.	Replace fuse and light bulb of same specifications.

OUYC401,0000515 -19-16MAR12-1/1

Hydraulic system

Symptom	Problem	Solution
Slow or no hydraulics.	Oil level in oil tank is too low.	Check oil level and add hydraulic oil.
	Gear pump functions badly. Relief valve is adjusted and sealed improperly.	If oil pump is sealed badly or is excessively worn, replace it with a new pump. Otherwise, adjust or replace the relief valve in control valve.
Cutter ascends or descends slowly.	Relief valve is sealed badly or is adjusted improperly.	Replace or adjust the relief valve in control valve.
	Orifice is installed in a wrong position.	Re-install 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 ascend.	Quick connector of oil pipe is not screwed tightly.	Tighten quick connector.
	Orifice of control valve is blocked.	Clear the orifice of control valve.
When engine speed is low, the helm saves power. When engine speed is high, the helm is overloaded.	Seal tape of oil return ball valve is worn.	Remove long tail fixing bolts. Use a hammer and punch to hit the steel ball of ball valve so as to connect it with the seal tape below.
Control valve is defective.		Refer to the hydraulic control valve user's manual.

OUYC401,0000516 -19-16MAR12-1/1

Table of Technical Parameters

4LZ-7 (C110) Full-feeding combine harvester

Machine Parameters				
Structure Type		Wheeled Self-Propelled Full-Feeding		
Hourly Productivity (hm ² /h)		0.8-1.3 (rice), 0.9-1.65 (wheat)		
Fuel Consumption per Hectare (kg/hm ²)		16.5-42 (rice), 14-39 (wheat)		
Feeding Rate (kg/s)		7		
Total Loss Rate (%)		≤1.2 (wheat), ≤3.0 (rice)		
Crushing Rate (%)		≤1.0 (wheat), ≤1.5 (rice)		
Impurity Rate (%)		≤2.0 (wheat), ≤2.0 (rice)		
Threshing Loss Rate (%)		≤1.0 (wheat), ≤2.5 (rice)		
Cutting Width (mm)		4610 (215R/215F); 5405 (218R/218F optional); 3725 (212R/212F optional)		
Transport State Dimensions (mm) (L×W×H)		7230×3150×3800 (without cutter)		
Working State Dimensions (mm) (L×W×H)		9530×5000×3800 (215R/215F); 9530×5800×3800 (218R/218F optional); 9530×4150×3800 (212R/212F optional)		
Ground Clearance (mm)		420~470		
Machine Mass		Without Cutter	Mechanical	9180
			Hydraulic	9570
		With Cutter	Mechanical	10380 (215R); 10680 (218R optional); 10060 (212R optional)
				10500 (215F); 10800 (218F optional); 10210 (212F optional)
			Hydraulic	10770 (215R); 11070 (218R optional); 10450 (212R optional)
				10890 (215F); 11190 (218F optional); 10600 (212F optional)
Reliability	Mean Time Between Failures MTBF (h)	≥50		
	Validity	≥93%		
Noise dB(A)	Dynamic Ambient Noise	≤87		
	Noise at Operator Ears	≤93		
NOTE: 1. Hourly productivity and fuel consumption vary according to different ground, crop and other natural conditions. Parameters are for reference only!				
2. Operating performance refers to combine harvest performance under conditions of standard feeding rate, no weeds above cutting line, crop 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%.				

CP00606,00009E2 -19-09AUG16-1/1

Threshing Device

Threshing cylinder type: 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 concave / Spike tooth concave

Concave area (m²): 0.52

JL31334,0000FCF -19-21JUL16-1/1

Separation device

Type of separation mechanism: Tine longitudinal single-axial-flow separation cylinder

Total Separation Area (m²): 1.62

Separation Cylinder Gearbox: : 1.75 (L) one piece

OUYC401,00004C9 -19-06MAR15-1/1

Table of Technical Parameters

Cleaning Device

Chaffer Area (m²): 1.91 (with extension)
Sieve Area (m²): 1.48

Fan Quantity: 1
Fan Type: Straight Shell Type
Fan Diameter (mm): Φ500

OUYC401,00004CA -19-26MAR15-1/1

Grain Tank

Grain unloading mode: Grain tank mechanical self-unloading
Volume (m³): 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

CP00718,00012FB -19-06MAR15-1/1

Ground Driving Device

Drive mode: 4 × 2
Steering type: Rear-wheel steering
Gearbox Type: Mechanical
Brake Type: Disk Brake
Driving Tires: 23.1-26 12PR R-2/23.1-26 12PR R-1/28L-26 12PR R-2
Driving Tire Pressure: 1.7 bar (170 KPa)
Steering Tires: 12-18 12PR /14.9-24 R2 (Rear Drive)
Steering tire pressure: 3.50 bar (350 KPa)

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): 5.5
Final drive (L): 3.1 x 2
Minimum passing radius (m): 8.3 (215R/215F); 8.9 (218R/218F optional); 8.1 (212R/212F optional)

CP00606,00009E3 -19-09AUG16-1/1

Electrical system

Working voltage (V): 12 negative ground

Battery model: 6-QA-165
Start relay: JD1320

OUYC401,00004CD -19-13MAR12-1/1

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 optional hydraulic drive type combine harvester 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

CP00834,0001145 -19-29JUL16-1/1

Table of Technical Parameters

Engine

Machine Serial No.	000000 - 019999	020000 -
Manufacturer	John Deere (Tianjin) Co., Ltd.	John Deere (Tianjin) Co., Ltd.
Model No.	4045HYC08	4045HYC07
Structure Type	Inline 4-cylinder 4-stroke direct injection	Inline 4-cylinder 4-stroke direct injection
Emission Level	China Stage II	China Stage III
Rated Power (kW)	116	116
Rated Speed (rpm)	2400	2400
Maximum Idle Speed (rpm)	2400	2400
Maximum Torque (N.m)	560	560
Bore × Stroke (mm)	106.5×127	106.5×127
Number of Cylinders	4	4
Displacement (L)	4.5	4.5
Compression ratio	17.0 : 1	17.0 : 1
Thermostat Opening Temperature (°C)	82	82
Fuel Consumption at Rated Power (g/kw.h)	≤230	≤230
Diesel Tank Volume (L)	300	300
Engine Oil Volume (L)	12.5	12.5
Cooling System Volume (L)	32	32

JL31334,0000FD0 -19-26JUL16-1/1

Miscellaneous

Allowed people in cab (person): 1

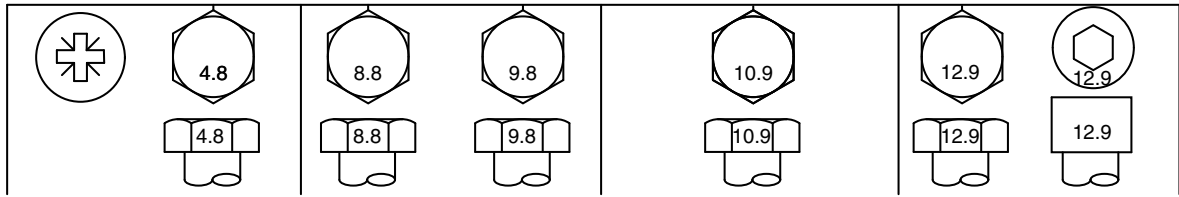
Diameter of feed rolls / Row number of tooth plates:

418 (mm) / 8

OUYC401,00004D0 -19-13MAR12-1/1

Metric Bolt and Screw Torque Values

TS1670 —UN—01MAY03



Bolt or Screw Size	Class 4.8				Class 8.8 or 9.8				Class 10.9				Class 12.9			
	Lubricated ^a		Dry ^b		Lubricated ^a		Dry ^b		Lubricated ^a		Dry ^b		Lubricated ^a		Dry ^b	
	Nm	lb.-in.	Nm	lb.-in.	Nm	lb.-in.	Nm	lb.-in.	Nm	lb.-in.	Nm	lb.-in.	Nm	lb.-in.	Nm	lb.-in.
M6	4.7	42	6	53	8.9	79	11.3	100	13	115	16.5	146	15.5	137	19.5	172
									Nm	lb.-ft.	Nm	lb.-ft.	Nm	lb.-ft.	Nm	lb.-ft.
M8	11.5	102	14.5	128	22	194	27.5	243	32	23.5	40	29.5	37	27.5	47	35
			Nm	lb.-ft.	Nm	lb.-ft.	Nm	lb.-ft.								
M10	23	204	29	21	43	32	55	40	63	46	80	59	75	55	95	70
	Nm	lb.-ft.														
M12	40	29.5	50	37	75	55	95	70	110	80	140	105	130	95	165	120
M14	63	46	80	59	120	88	150	110	175	130	220	165	205	150	260	190
M16	100	74	125	92	190	140	240	175	275	200	350	255	320	235	400	300
M18	135	100	170	125	265	195	330	245	375	275	475	350	440	325	560	410
M20	190	140	245	180	375	275	475	350	530	390	675	500	625	460	790	580
M22	265	195	330	245	510	375	650	480	725	535	920	680	850	625	1080	800
M24	330	245	425	315	650	480	820	600	920	680	1150	850	1080	800	1350	1000
M27	490	360	625	460	950	700	1200	885	1350	1000	1700	1250	1580	1160	2000	1475
M30	660	490	850	625	1290	950	1630	1200	1850	1350	2300	1700	2140	1580	2700	2000
M33	900	665	1150	850	1750	1300	2200	1625	2500	1850	3150	2325	2900	2150	3700	2730
M36	1150	850	1450	1075	2250	1650	2850	2100	3200	2350	4050	3000	3750	2770	4750	3500

Torque values listed are for general use only, based on the strength of the bolt or screw. DO NOT use these values if a different torque value or tightening procedure is given for a specific application. For stainless steel fasteners or for nuts on U-bolts, see the tightening instructions for the specific application. Tighten plastic insert or crimped steel type lock nuts by turning the nut to the dry torque shown in the chart, unless different instructions are given for the specific application.

Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical property class. 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 fastener threads are clean and that you properly start thread engagement. When possible, lubricate plain or zinc plated fasteners other than lock nuts, wheel bolts or wheel nuts, unless different instructions are given for the specific application.

^a"Lubricated" means coated with a lubricant such as engine oil, fasteners with phosphate and oil coatings, or M20 and larger fasteners with JDM F13C, F13F or F13J zinc flake coating.

^b"Dry" means plain or zinc plated without any lubrication, or M6 to M18 fasteners with JDM F13B, F13E or F13H zinc flake coating.

DX,TORQ2 -19-12JAN11-1/1

Machine Identity and Crime Prevention Techniques

Machine Sign

Record serial number:

When ordering parts, you need to provide machine model and serial number on serial number decal. Please mark that number in the blank space below for later use.

JOHN DEERE			
Model	产品型号	Product Name	产品名称
		全喂入联合收割机	
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 (Jiangsu) 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			

YC1714—UN—26MAR12

JL31334,0000F6D -19-19JUL16-1/1

Crime prevention measures

Crime prevention measures:

Properly keep the proof of ownership, prevent theft and avoid troubles.

TAKE A BITE OUT OF
CRIME
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YC1679—UN—06DEC12

JL31334,0000F6E -19-19JUL16-1/1

Record identification number

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.



YC1680—UN—07DEC12

JL31334,0000F6F -19-19JUL16-1/1

Keep the proof of ownership

Keep the proof of ownership:

1. Take color photos of each machine from different angles.
2. Maintain an updated inventory of all machines.
3. Store the archived identification numbers, color photos and inventory list properly in a safe and reliable place.

JL31334,0000F70 -19-19JUL16-1/1

Parking indoor

1. Park large equipment at the exit.
2. Lower equipment onto the ground and take out the key.
3. Remove batteries during 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 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.



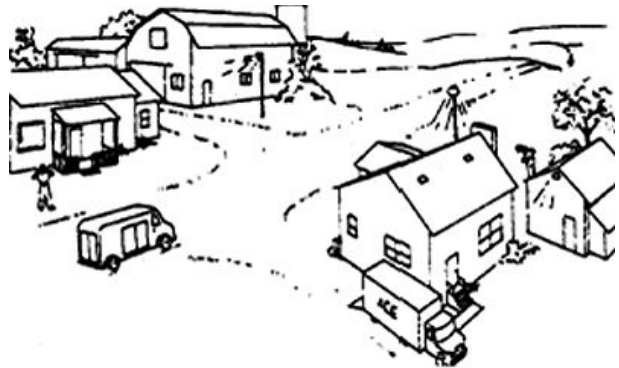
YC1882 —UN—06DEC12

OUYC401,00004F0 -19-19MAR12-1/1

Avoid damages

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 identification plate from the dealer.



YC1883 —UN—06DEC12

OUYC401,00004F1 -19-13MAR12-1/1

Report Theft Immediately

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 machine loss be posted with full description and identification numbers.



YC1684—UN—06DEC12

JL31334,0000F71 -19-19JUL16-1/1

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 harvester operator checks the grain loss promptly.
4. Whether combine harvester is properly adjusted.

JL31334.0000F72 -19-19JUL16-1/1

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 due to incorrect adjustment, combine has 4% grain loss, loss per hectare is 200 kg. This example shows that spending 30 minutes to adjust the combine properly can save a lot of grains.

JL31334.0000F73 -19-19JUL16-1/1

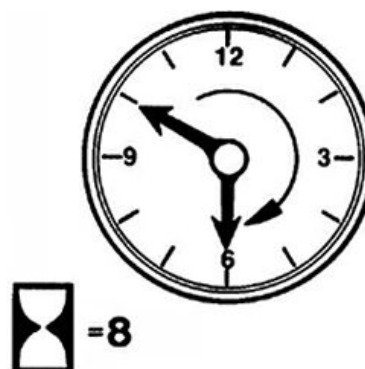
First example of loss calculation

Combine harvester works under the condition of 4% loss. If adjustment is correct, grain loss may reduce by 1%. If the yield per hectare is 5000 kg, every hour 2 hectares are harvested, in 8 hours 16 hectares are harvested.

4% 16 hectares $\times$ 200 kg = 3200 kg

3% 16 hectares $\times$ 150 kg = 2400 kg

800 kg less grain is lost.



4%=3200 kg
3%=2400 kg
2%=1600 kg
1%= 800 kg

YC1645—UN—26NOV12

JL31334.0000F7B -19-19JUL16-1/1

Second example of loss calculation

In the above example, grain loss decreases to 3%, loss rate is still high. Reduce driving speed, loss can reduce to 1.5%. After reducing speed, 1.8 hectares are harvested per hour. 14.4 hectares are harvested in 8 hours.

3% 16 hectares $\times$ 150 kg = 2400 kg

1.5% 14.4 hectares $\times$ 75 kg = 1080 kg

1320 kg less grain is lost.

JL31334.0000F74 -19-19JUL16-1/1

Example illustration

8 hours 16 hectares 4% loss = 3200 kg

8 hours 14.4 hectares 1.5% loss = 1080 kg

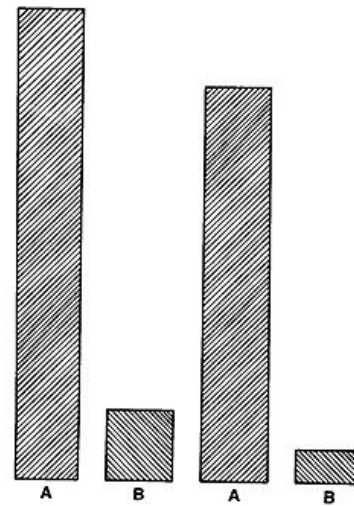
Reduced loss = 2120 kg

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.

Certainly, if a designated person is deployed to check loss, the harvesting result of combine harvester is better (especially when several combine harvesters are working in the field at the same time).



A—Area covered

B—Loss percentage

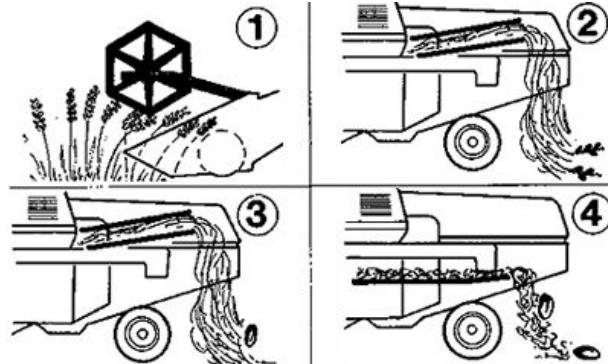
CP00596,000063D -19-13FEB14-1/1

YC1646 —UN—20FEB12

Confirming grain loss

When combine harvester is adjusted to its optimal, grain loss still occurs. This loss can be classified in four aspects, as follows:

1. Cutting loss
2. Threshing loss
3. Separation loss
4. Cleaning loss



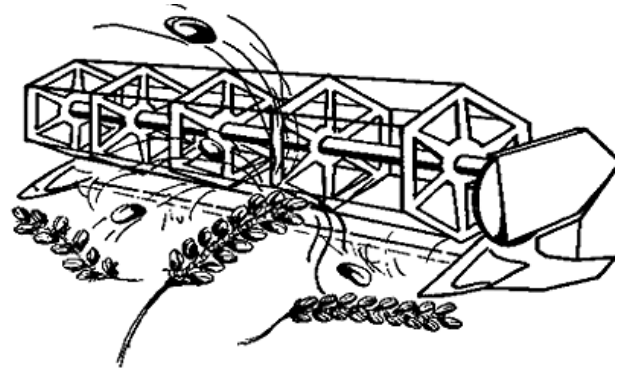
CP00596,000063E -19-13FEB14-1/1

YC1647 —UN—26NOV12

Cutting Loss

Cutting loss: It includes fallen spikes and shattered seeds blown by the reel.

The method of confirming cutting loss is to compare the number of grain (deduct naturally fallen grain) before and after cutting in a certain area.

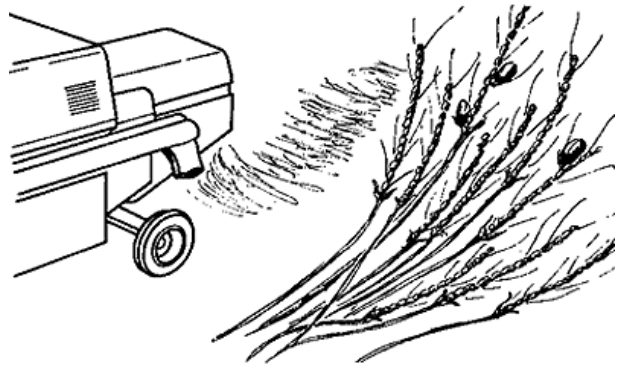


YC1648—UN—23NOV12

JL31334,0000F75 -19-19JUL16-1/1

Threshing loss

Threshing loss refers to non-threshed grains on spikes behind the combine. To calculate threshing loss, count the number of grain 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).



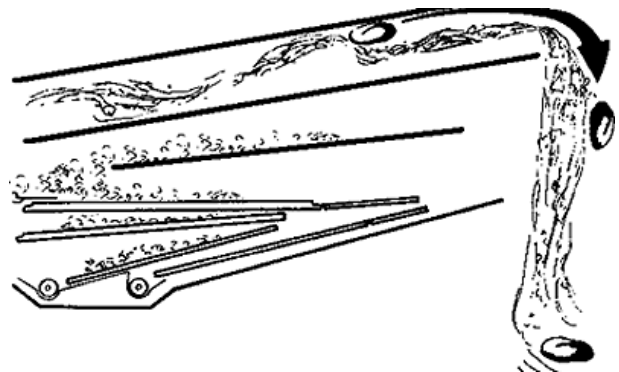
YC1649—UN—23NOV12

JL31334,0000F76 -19-19JUL16-1/1

Separation loss

Separation loss is the grains mingled in stems. Insufficient threshing and excessive tailings may increase separation loss.

If after adjusting the cylinder rotation speed and concave clearance, separation loss still does not drop, then reduce the driving speed.

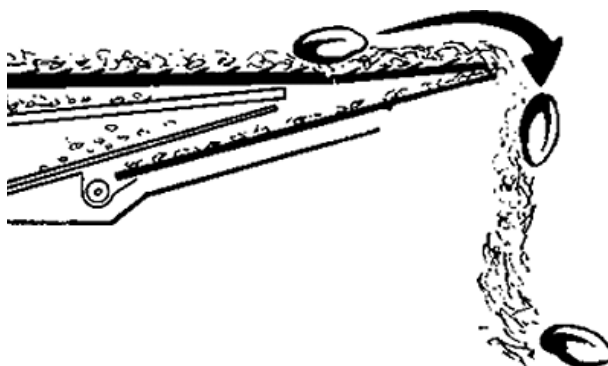


YC1650—UN—26NOV12

OUYC401,00004FB -19-13MAR12-1/1

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 will decrease.



YC1651—UN—23NOV12

OUYC401,00004FC -19-13MAR12-1/1

Use wire frames to evaluate grain loss: (example A)

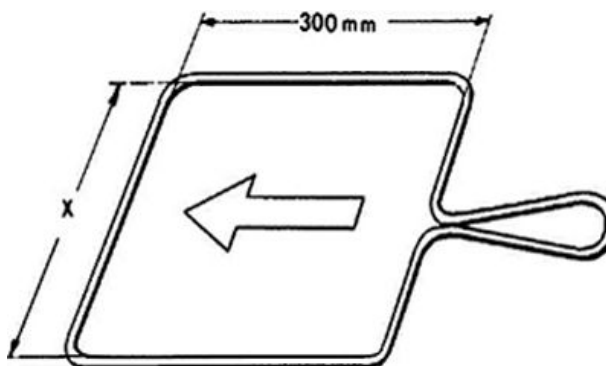
Use wire frames (self-made) to measure according to the method below:

Place wire frames on the ground separately in front of the cutter and behind the cutter.

1. Count the number of grain in front of the cutter.
2. Count the number of grain behind the combine harvester (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.

$X = 250 \text{ mm}$



YC1652—UN—09DEC12

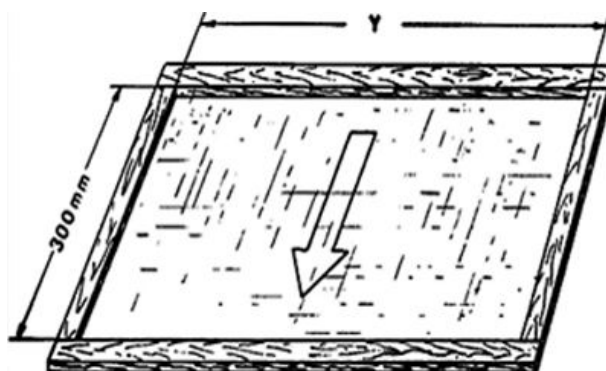
OUYC401,00004FD -19-13MAR12-1/1

Using 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.



YC1653—UN—09DEC12

JL31334,0000F77 -19-19JUL16-1/1

Operating performance of full-feeding crop combine harvester

Operating standard: The People's Republic of China Machinery Industry Standard JB/T 5117 - 2006

Under the conditions of standard feeding rate, no weed above 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 operating performance should be consistent with the provisions stated in the table below.

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 moisture content rates for testing are 10%-25% for wheat stems and 20%-60% for rice.

JL31334.0000F78 -19-19JUL16-1/1

Feeding volume and evaluation

Feeding volume: refers to the total mass of all materials (crops, weeds, etc.) fed into the threshing body per unit time. It is closely related to cutting width, operating speed, yield per acre and ratio of grain/straw (ratio between mass of grain and mass of stems, chaff and bran of harvested materials).

Feeding volume is an important indicator to measure the machine performance.

Evaluation of feeding volume: Feeding volume can be calculated through testing the basic data of machine and field.

Feeding volume (kg/s) = yield per acre (kg) × speed (m/s) × cutting width × (1 + grain/straw ratio) / 667

OUYC401.0000500 -19-13MAR12-1/1

Preventing Grain Loss

Working process of combine harvester 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 harvester diagrams and actual situations.

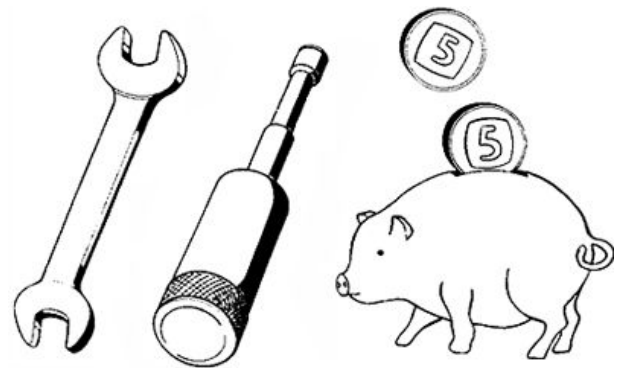
IMPORTANT: Important! Separation loss of combine harvester can be resolved by reducing the driving speed, but do not neglect adjusting other aspects to reduce loss.

Follow requirements below to reduce separation loss:

- Keep separation cylinder grid panel free of obstruction.
- Reduce weeds (lift the cutter).
- Avoid excessive threshing (reduce cylinder rotation speed).
- Avoid overloading the separation cylinder (reduce driving speed).

Follow requirements below to reduce cleaning loss:

- If broken stems accumulate on sieve surface, increase fan speed.
- When grain is blown out of the chaffer 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).
- Keep sieve surface clean.
- Remove rear baffle.
- Reduce chaff on sieve surface and avoid excessive threshing. When sieves are overloaded, reduce grains on them (by reducing driving speed of combine).

YC1654 —UN—26NOV12

JL31334.0000F79 -19-19JUL16-1/1

Threshing adjustment of combine harvester

⚠ CAUTION: NOTE: Combine harvester adjustment diagrams are only for general operating conditions. Carry out different adjustments for varied crops or operating conditions.

Opening size (X) of chaffer and sieves can be measured by the method in the right diagram.

Note:

1. When harvesting different crops, please 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 harvester appropriately.



YC1661—UN—27NOV12

OUC401,0000502 -19-13MAR12-1/1

Recommended Adjustment Diagrams for Combine

Rice

Cylinder speed (rpm) 500 - 950

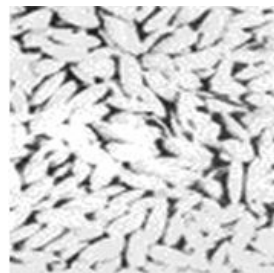
Concave clearance:

- Inlet 14 mm
- Outlet 10 mm

Chaffer adjustment 16 - 19 mm

Sieve adjustment 6.5 - 9.5 mm

Fan speed (rpm) 800 - 1100



Rice

YC1667—UN—22FEB12

JL31334,0000F7A -19-19JUL16-1/2

Wheat

Cylinder speed (rpm) 700 - 1050

Concave clearance:

- Inlet 10 - 20 mm
- Outlet 6 - 10 mm

Chaffer adjustment 12.5 - 19 mm

Sieve adjustment 3 - 6.5 mm

Fan speed (rpm) 700 - max.



Wheat

YC1671—UN—22FEB12

JL31334,0000F7A -19-19JUL16-2/2

List of easily-worn parts and accessories

Easily-worn parts

It is recommended 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	Needle 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

Continued on next page

CP00834,00007F6 -19-12FEB14-1/3

List of easily-worn parts and accessories

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/keyswitch
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

Continued on next page

CP00834,00007F6 -19-12FEB14-2/3

List of easily-worn parts and accessories

99	AYC24100	Proximity switch
100	RE198505	Throttle switch

CP00834,00007F6 -19-12FEB14-3/3

Accessories

IMPORTANT: It is recommended 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	BYC10004	Wheat threshing device
2	BYC10040	HT-10 cutter transporter

CP00596,0000630 -19-12FEB14-1/1

Corn Kernel Accessories

installation instructions: Installing Corn Harvest Components (INSYC33559).

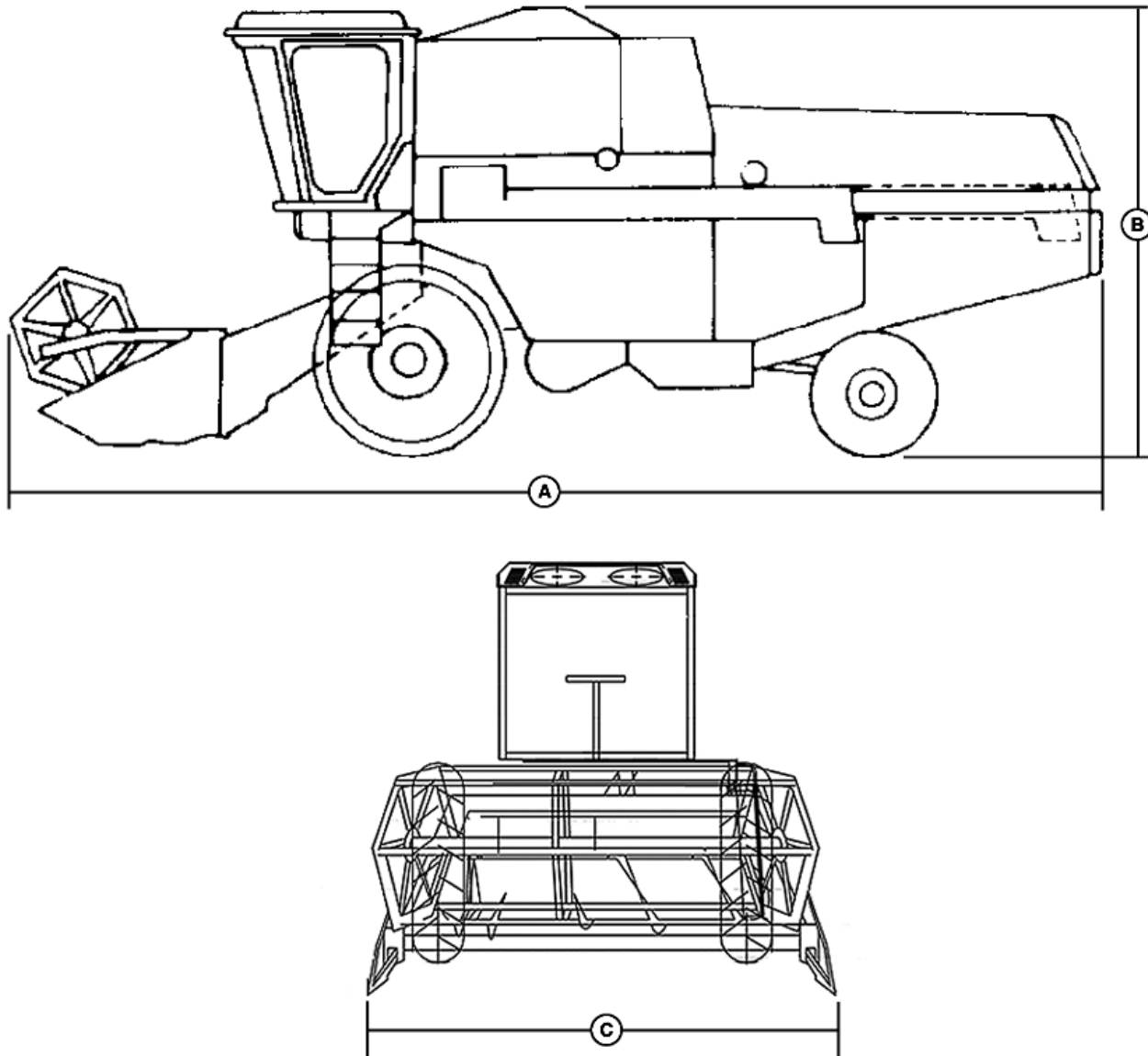
When harvesting corn kernels, change to following accessories. For changing procedures, please read

Machine Model	Corn Harvest Component No.	Information	Remarks
C110	BDX10005	Corn Concave	NOTE: 1. Choose either cylinder decelerator or cylinder chain drive; 2. 600 rpm roller drive shaft only applies to cylinder chain drive.
	BYC10043	Soybean, Corn Functional Components	
	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 (recommended)	
	BDX10008	600 rpm roller drive wheel	
	BDX10017	Corn Comb Separation Concave	

CP00606,0000B44 -19-05APR16-1/1

Dimensions

Dimension diagrams



A—9530 mm (with cutting platform); 7230 mm (without cutting platform)

B—3800 mm
C—5000 mm (215R/215F); 5800 mm (218R/218F optional); 4150 mm (212R/212F optional); 3150 mm (without cutting platform)

YC7890—UN—24DEC14

CP00606,0000B1E -19-11AUG16-1/1

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