MASSEY FERGUSON

MF 4600

Series Tractors

Models: 4608 / 4609 / 4610

OPERATOR'S MANUAL

FROM MASSEY FERGUSON

MASSEY FERGUSON®

TO OUR CUSTOMER:

Congratulations on your selection of a Massey Ferguson® Product. We believe you have exercised excellent judgment in the purchase of your Massey Ferguson® machine. We are most appreciative of your patronage.

Your Dealer has performed the pre-delivery service on your new machine.

He will discuss with you the operating and maintenance instructions given in this manual, and instruct you in the proper and varied applications of this machine. Call on him at any time when you have a question or need equipment related to the use of your machine.

We recommend that you carefully read this entire manual before operating the unit. Also, time spent in becoming fully acquainted with it's performance features, adjustments, and maintenance schedules will be repaid in a long and satisfactory life of the product.

This equipment is covered by a written warranty which will be provided to you by your Massey Ferguson® Dealer at time of purchase.

Massey Ferguson® is a worldwide brand of AGCO Corporation, Duluth, Georgia

CALIFORNIA
Proposition 65 Warning

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.

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

4608 / 4609 / 4610 Utility Tractor

1. Safety

1.1 Introduction

1.1.1 Safety alert symbol

The safety alert symbol means Attention! Become Alert! Your Safety Is Involved!

Look for the safety alert symbol both in this manual and on safety signs on this machine. The safety alert symbol will direct your attention to information that involves your safety and the safety of others.

Fig. 1

1.1.2 Safety messages

The words DANGER, WARNING or CAUTION are used with the safety alert symbol. Learn to recognize these safety alerts and follow the recommended precautions and safety practices.

DANGER:
Indicates an imminently hazardous situation that, if not avoided, will result in DEATH OR VERY SERIOUS INJURY.

WARNING:
Indicates a potentially hazardous situation that, if not avoided, could result in DEATH OR SERIOUS INJURY.

CAUTION:
Indicates a potentially hazardous situation that, if not avoided, may result in MINOR INJURY.

Fig. 2

1.1.3 Informational messages

The words important and note are not related to personal safety, but are used to give additional information and tips for operating or servicing this equipment.

IMPORTANT: *Identifies special instructions or procedures which, if not strictly observed, could result in damage to or destruction of the machine, process, or its surroundings*

NOTE: *Identifies points of particular interest for more efficient and convenient repair or operation.*

1.1.4 Safety signs

WARNING:
Do not remove or obscure safety signs. Replace any safety signs that are not readable or are missing. Replacement signs are available from your dealer in the event of loss or damage. The actual location of the safety signs is illustrated at the end of this section.

Keep signs clean by wiping off regularly. Use a mild soap and water solution if necessary.

If parts have been replaced or a used machine has been purchased, make sure all safety signs are present and in the correct location and can be read. Illustrations of safety sign locations are located at the rear of this section.

Replace any safety signs that can not be read, are damaged, or are missing. Clean the machine surface thoroughly with a mild soap and water solution before replacing signs. Replacement safety signs are available from your dealer.

1.1.5 A word to the operator

It is your responsibility to read and understand the safety section in this manual and the manual for all attachments before operating this machine. Remember you are the key to safety. Good safety practices not only protect you, but also the people around you.

Fig. 3

Study the content in this manual and make the content a working part of your safety program. Keep in mind that this safety section is written only for this type of machine. Practice all other usual and customary safe working precautions, and above all remember - safety is your responsibility. You can prevent serious injury or death.

This safety section is intended to point out some of the basic safety situations that may be encountered during the normal operation and maintenance of your machine. This section also suggests possible ways of dealing with these situations. This section is not a replacement for other safety practices featured in other sections of this manual.

Personal injury or death may result if these precautions are not followed.

Learn how to operate the machine and how to use the controls properly.

Do not let anyone operate the machine without instruction and training.

For your personal safety and the personal safety of others, follow all safety precautions and instructions found in the manuals and on safety signs affixed to the machine and all attachments.

Use only approved attachments and equipment.

Make sure your machine has the correct equipment needed by the local regulations.

WARNING:
An operator should not use alcohol or drugs which can affect their alertness or coordination. An operator on prescription or 'over the counter' drugs needs medical advice on whether or not they can properly operate machines.

CAUTION:
If any attachments used on this equipment have a separate Operator Manual, see that manual for other important safety information.

1.1.6 This manual

This manual covers general safety practices for this machine. The operator manual must always be kept with the machine.

Right-hand and left-hand, as used in this manual, are determined by facing the direction the machine will travel when in use.

The photos, illustrations, and data used in this manual were current at the time of printing, but due to possible in-line production changes, your machine can vary slightly in detail. The manufacturer reserves the right to redesign and change the machine as necessary without notification.

WARNING:
In some of the illustrations and photos used in this manual, shields or guards may have been removed for clarity. Never operate the machine with any shields or guards removed. If the removal of shields or guards is necessary to make a repair, they must be replaced before operation.

The Operator Manual is stored in the holder on the machine. After using the Operator Manual, return the manual to the storage location.

1.2 Operation

1.2.1 Prepare for operation

Read and understand all operating instructions and precautions in this manual before operating or servicing the machine.

Make sure you know and understand the positions and operations of all controls. Make certain all controls are in neutral and the parking brake is applied before starting the machine.

Make certain all people are well away from your area of work before starting and operating the machine. Check and learn all controls in an area clear of people and obstacles before starting your work. Be aware of the machine size and have enough space available to allow for operation. Never operate the machine at high speeds in crowded places.

Emphasize the importance of using correct procedures when working around and operating the machine. Do not let children or unqualified persons operate the machine. Keep others, especially children, away from your area of work. Do not permit others to ride on the machine.

Make sure the machine is in the proper operating condition as stated in the Operator Manual. Make sure the machine has the correct equipment required by local regulations.

1.2.2 Roll over protective structure

The roll over protective structure (ROPS) is effective in reducing injuries during overturns. Overturning a tractor without ROPS or with the ROPS folded down can result in serious injury or death. Operate with ROPS folded down only when conditions make this necessary. Return ROPS to upright, locked position as soon as conditions permit.

Do not weld, drill, or alter the ROPS.

If the tractor has been rolled over or the ROPS frame has been damaged in any manner, the ROPS must be replaced. Do not attempt to repair a damaged ROPS. If damage does occur, consult your dealer and replace all damaged parts.

Before using the tractor make sure the ROPS frame is not damaged and it is securely fastened to the tractor .

Do not attach chains, ropes, or cables to the ROPS for pulling purposes - damage to the ROPS and/or overturn of the tractor may result. Always pull from the tractor drawbar.

Observe all recommendations and instructions regarding the installation of covers or roofs which are used as sunshields only, and do not afford the operator protection from falling objects.

1.2.3 General information

When parking, park the machine on a solid level surface and lower any implements to the ground. Put all controls in neutral and apply the parking brake. Stop the engine and take the key with you.

WARNING:
Do not leave the machine unattended with any implement or attachment in the raised position. Lower the implement or attachment fully before leaving the machine. A sudden loss of hydraulic pressure can cause the implement or attachment to drop without warning.

Make sure the machine is in the proper operating condition according to the Operator Manual.

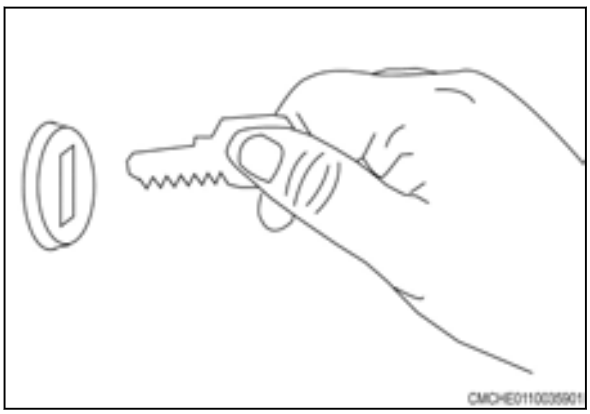


Fig. 4

Do not dismount from moving machinery.

Stay off slopes too steep for operation.

Be aware of the size of the machine and have enough space available to allow for operation.

Do not operate near the edge of banks. Setback distance from the bank must equal or exceed, the overall height of the bank.

Whenever possible, travel directly up or down slopes, keeping the heavy end of the tractor on the uphill side. If necessary to cross a steep slope, avoid turning uphill. Slow down and make a wide turn.

Do not operate on steep slopes as overturn may result.

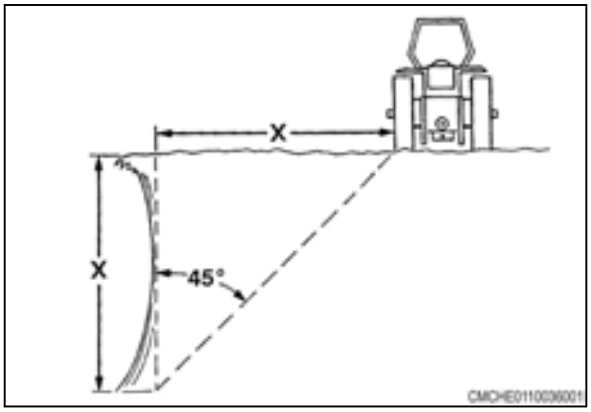


Fig. 5

On models with independent brake pedals, keep the brake pedals latched together at all times unless independent braking is required. Never use independent braking during transport.

Always drive at a proper speed relative to local conditions and ensure your speed is low enough for an emergency stop.

Reduce speed prior to turns to avoid the risk of overturning.

Keep speed to a minimum.

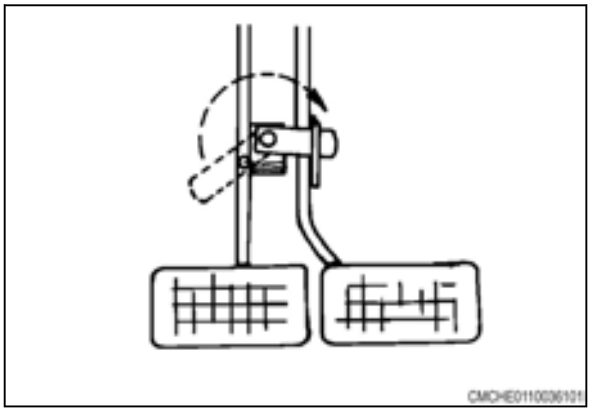


Fig. 6

Always keep the tractor in gear to provide engine braking when going downhill. Do not coast.

Avoid sudden or heavy brake applications when operating in wet, muddy, or icy ground conditions, or on loose surfaces, such as sand or gravel.

Sudden or heavy braking during turns increases the tendency to over steer. This effect is more pronounced with trailed equipment.

Keep a firm grip on the steering wheel at all times, with the thumbs clear of the spokes when driving the tractor.

Remain seated in operator's seat.

Fig. 7

In the event of an overturn, hold the steering wheel firmly and keep your seat belt fastened. Do not attempt to leave the seat until the tractor has come to rest.

Watch for holes, rocks, or other hidden hazards. Always inspect area prior to operation.

Be observant of the operating area and terrain.

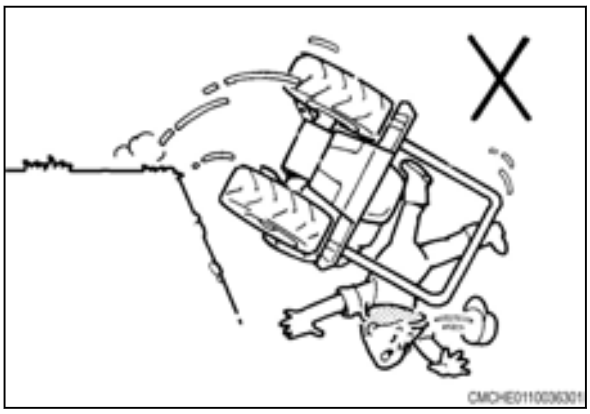


Fig. 8

Avoid contact with electrical power lines. Contact with electrical power lines can cause electrical shock, resulting in very serious injury or death.

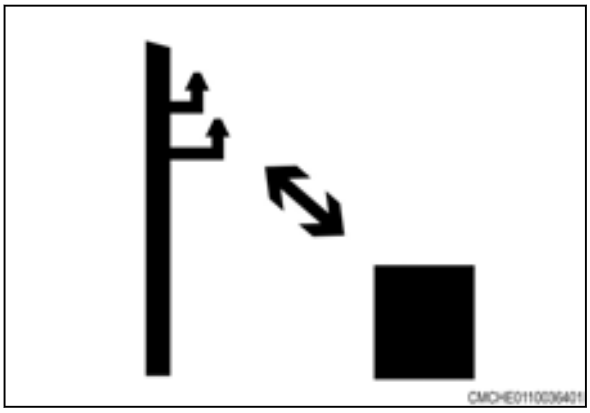


Fig. 9

Never allow anyone on any part of the tractor or attachments except in the operator's seat when the engine is running.

Do not get on or off the tractor or attachments while the tractor is moving.

Do not carry passengers.

Fig. 10

Always shut off the engine, shift the transmission to neutral, set parking brake and remove the start key before leaving the operator's seat or before permitting anyone to inspect, clean, lubricate, adjust or repair any part of the tractor or attachments. Never leave the tractor unattended while the engine is operating.

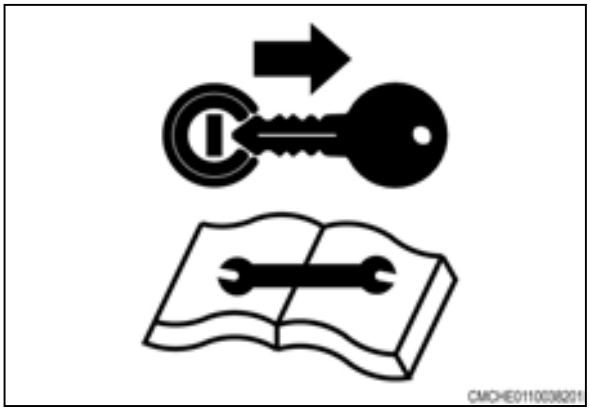


Fig. 11

Pull only from the approved drawbar.

Towing or attaching to other locations may cause the tractor to overturn.

Use a safety transport chain with towed implements. A safety transport chain connecting the tractor to the implement will help control pull-type equipment should it accidentally separate from the drawbar.

Always attach the safety transport chain to the tractor drawbar support.

Provide only enough slack in the safety transport chain to permit turning. See your dealer for a chain with strength rating equal to or greater than the gross weight of the towed machine.

For towed equipment without brakes, Do not tow equipment at speeds over 32 km/h (20 mph). Do not tow equipment that, when fully loaded, weighs more 1.5 times the weight of the towing unit.

For towed equipment with brakes, Do not tow equipment at speeds over 40 km/h (25 mph). Do not tow equipment that, when fully loaded, weighs more than 4.5 times the weight of the towing unit.

Stopping distance increases with speed and weight of towed loads, and on hills and slopes. Towed loads with or without brakes, that are too heavy for the tractor or are towed too fast, can cause loss of control. Consider the total weight of the equipment and load.

When using a loader attachment, to avoid serious injury or death due to falling loads resulting from inadvertent raising or roll-back of the loader, do not connect loader hydraulics to any tractor auxiliary valve that has detents which cannot be locked out or removed, except for the float function in the loader lower circuit. If the tractor is equipped with such a valve, a dedicated, properly configured loader valve must be installed.

Make sure the proper attachment is on the loader so the load is restrained and cannot roll down the loader arms onto the operator.

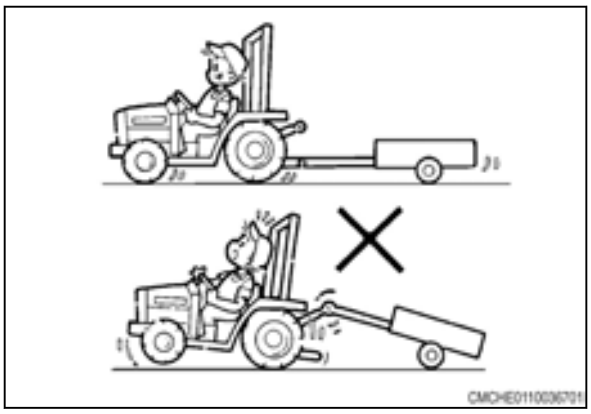


Fig. 12

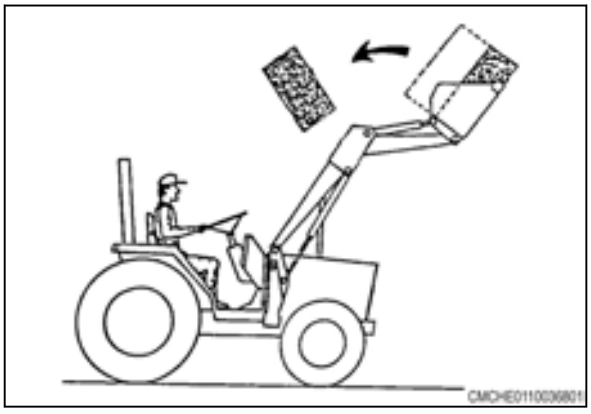


Fig. 13

1.2.4 Personal protective equipment

Wear all personal protective equipment (PPE) and protective clothing issued to you or called for by job conditions and country/local regulations. PPE includes, but is not limited to, equipment to protect eyes, lungs, ears, head, hands and feet when operating, servicing, or repairing equipment.

Always keep hands, feet, hair, and clothing away from moving parts. Do not wear loose clothing, jewelry, watches, or other items that could entangle in moving parts. Tie up long hair that can also entangle in moving parts.

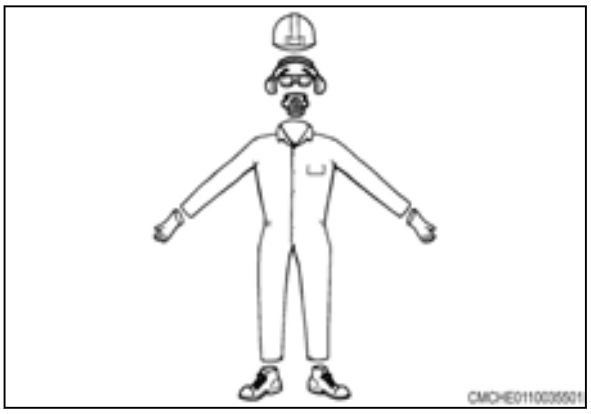


Fig. 14

1.2.5 Seat instruction

Securely fasten the seat belt before operating the machine. Always remain seated and have the seat belt fastened while operating the machine when the roll over protective structure (ROPS) is in the upright position. Replace the seat belts when they become worn or broken.

Never wear a seat belt loosely or with slack in the belt system. Never wear the seat belt in a twisted condition or pinched between the seat structural members.

Do not wear the seat belt when the ROPS is folded down.

Do not adjust the steering column or seat while driving.

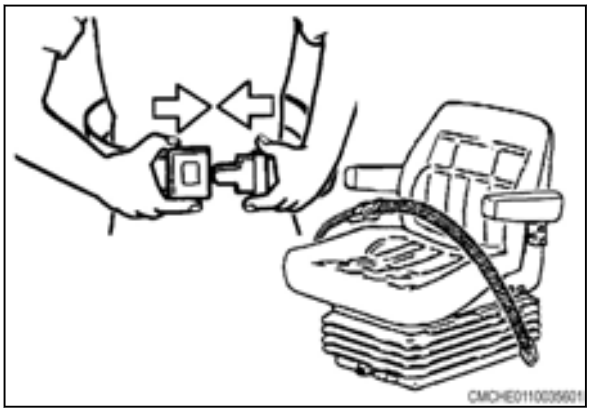


Fig. 15

1.2.6 Shield and guards

All shields and guards must be in the correct operating position and in good condition.

Do not open, remove, or reach around shields while the engine is operating. Entanglement in rotating belts and components can cause serious injury or death. Stay clear of rotating components.

Fig. 16

Do not operate the machine with the drive shaft shields open or removed. Entanglement in rotating drive shafts can cause serious injury or death. Stay clear of rotating components.

Make sure rotating guards turn freely.

Fig. 17

1.2.7 Power takeoff safety

Keep all shields in place.

The rear power takeoff (PTO) master shield (1) must be correctly installed at all times. The PTO shaft cover(s) must be installed when the PTO driveline is not in use.

Do not use PTO adapters. PTO shaft adapters, reducers and/or extensions extend the implement drive shaft coupler and universal joint beyond the protection of the PTO master shield.

Reduce PTO speed slowly. When stopping any PTO driven machine, idle the engine to reduce the PTO speeds before disengaging.

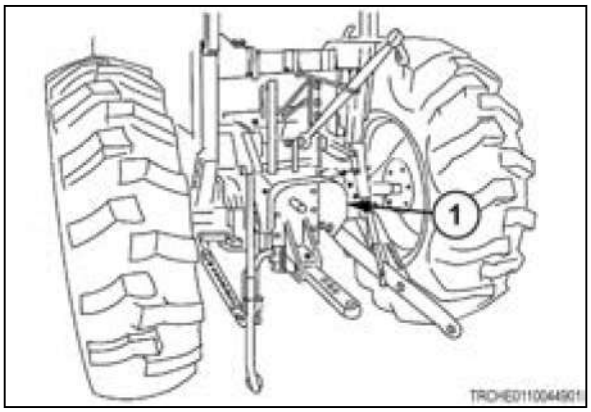


Fig. 18

The implement drive shaft coupler (1) must securely lock to, and be retained by the annular groove on the tractor PTO shaft.

Always disengage the PTO, park the tractor, shut off the engine and remove the key before:

- Connecting or disconnecting the implement drive shaft.
- Adjusting the PTO driveline or PTO driven machine.
- Cleaning, unplugging, or servicing the PTO driven machine.

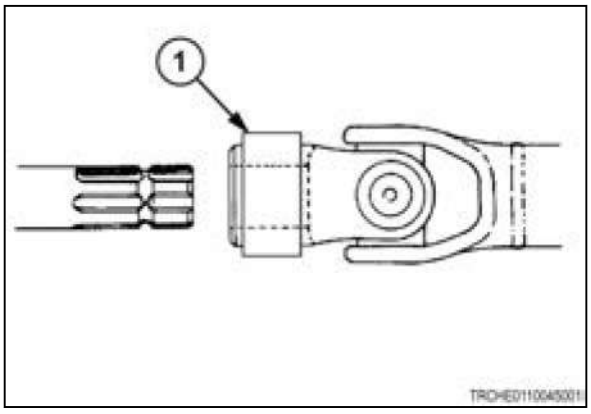


Fig. 19

1.2.8 Exhaust warning

Never operate the engine in a closed building unless the exhaust is vented outside.

Do not tamper with or modify the exhaust system with unapproved extensions.

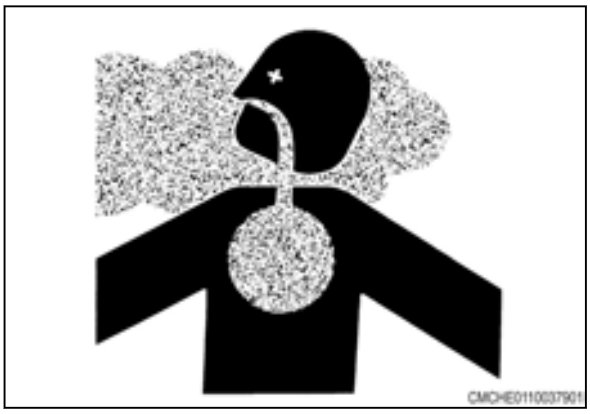


Fig. 20

1.2.9 Flying debris

WARNING:
Be careful when operating along the side of a road or building. Rocks or other debris can be thrown from the machine during operation possibly resulting in injury.

Never stand near the machine during operation. Debris can be thrown from the machine during operation possibly resulting in injury.

Fig. 21

1.2.10 Agricultural chemicals

Agricultural chemicals can be very hazardous. Improper use of fertilizer, fungicides, herbicides, insecticides and pesticides can injure people, plants, animals, soil and other people's property.

Always read and follow all manufacturers' instructions before opening any chemical container.

Even if you think you know the instructions, read and follow instructions each time you use a chemical.

Use the same precautions when adjusting, servicing, cleaning or storing the machine as used when installing chemicals into the hoppers or tanks.

Inform anyone who comes in contact with chemicals of the potential hazards involved and the safety precautions required.

Stand upwind and away from smoke from a chemical fire.

Store or dispose of all unused chemicals only in a manner as specified by the chemical manufacturer.

1.3 Travel on public roads

Make sure you understand the speed, brakes, steering, stability, and load characteristics of this machine before you travel on public roads.

Use good judgment when traveling on public roads. Maintain complete control of the machine at all times. Never coast down hills.

The maximum speed of farm equipment is governed by local regulations. Adjust travel speed to maintain control at all times.

Familiarize yourself with and obey all road regulations that apply to your machine. Consult your local law enforcement agency for local regulations regarding movement of farm equipment on public roads. Use head lamps, flashing warning lamps, tail lamps and turn signals, day and night, unless prohibited by local law.

Make sure all the flashers are operating prior to driving on the road. Make sure reflectors are correctly installed, in good condition, and wiped clean. Make sure the Slow Moving Vehicle (SMV) emblem is clean, visible, and correctly mounted on the rear of the machine.

Always travel with the loader as low as possible. Do not drive with loader up.

Lock brake pedals together (if equipped with dual brake pedals) so both wheel brakes will be applied at the same time.

Raise implements to transport position and lock in place. Place all implements into narrowest transport configuration.

Disengage the power takeoff and differential lock.

With towed implements, use a proper hitch pin with a clip retainer and safety transport chain.

Be aware of other traffic on the road. Keep well over to your own side of the road and pull over, whenever possible, to let faster traffic pass.

Be aware of the overall width, length, height, and weight of the machine. Be careful when transporting the machine on narrow roads and across narrow bridges.

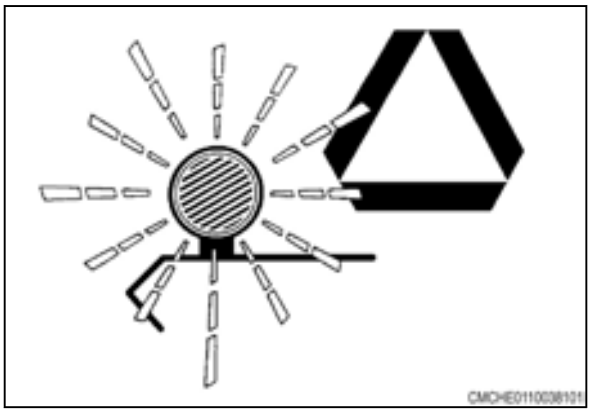


Fig. 22

Watch for overhead wires and other obstructions. Avoid contact with electrical power lines. Contact with electrical power lines can cause electrical shock, resulting in very serious injury or death.

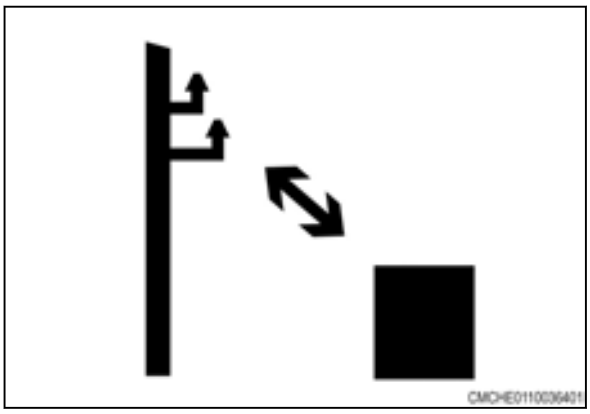


Fig. 23

1.4 Maintenance

1.4.1 General maintenance information

Before doing any unplugging, lubricating, servicing, cleaning, or adjusting:

- Park the machine on a solid level surface.
- Make sure all controls are in the neutral position and apply the parking brake.
- Make sure all implements and attachments have been lowered to the ground.
- Stop the engine and take the key with you.
- Look and Listen! Make sure all moving parts have stopped.
- Put blocks in front of and behind the wheels of the machine before working on or under the machine.

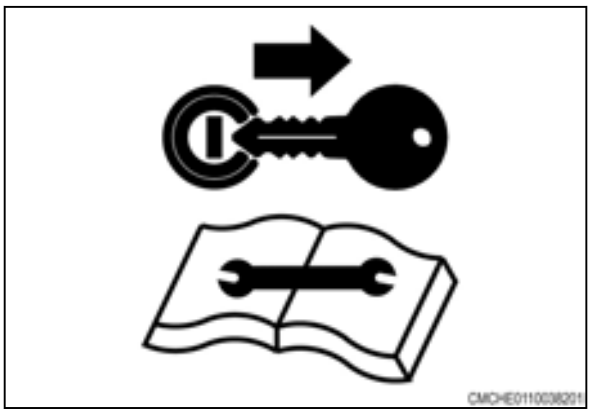


Fig. 24

Do not pull crop or any other object from the machine while the machine engine is running. Moving parts can pull you in faster than you can move away.

Check all nuts and bolts periodically for tightness, especially wheel mounting hardware.

Do not attempt to service or adjust the machine until all moving parts have stopped.

After unplugging, lubricating, servicing, cleaning, or adjusting the machine make sure all tools and equipment have been removed.

Make sure electrical connectors are clean and free of dirt or grease before connecting.

Check for loose, broken, missing, or damaged parts. Make sure the machine is in good repair. Make sure all guards and shields are in position.

Never service, check or adjust drive chains or belts while the engine is running.

Fig. 25

Do not operate the machine with the drive shaft shields open or removed. Entanglement in rotating drive shafts can cause serious injury or death.

Stay clear of rotating components.

Make sure rotating guards turn freely.

A loose yoke can slip off a shaft and result in injury to persons or damage to the machine.

When installing a quick disconnect yoke, the spring activated locking pins must slide freely and be seated in the groove on the shaft. Pull on the driveline to make sure the quick disconnect yoke can not be pulled off the shaft.

Remove spilled oil, antifreeze or fuel immediately from the steps, platform, and other access areas.

Keep all access areas clean and free of obstructions.

Fig. 26

Fig. 27

1.4.2 Fire prevention and first aid

Be prepared for emergencies.

Keep a first aid kit handy for treatment of minor cuts and scratches.

Always carry one or more fire extinguishers of the correct type. Check fire extinguishers regularly as instructed by the manufacturer. Make sure fire extinguishers are properly charged and in operating condition.

Due to the nature of the crops this machine will operate in, the risk of fire is of concern. Use a water type fire extinguisher or other water source for a fire in crop.

For fires involving anything other than crop, such as oil or electrical components, use a dry chemical fire extinguisher with an ABC rating.

Mount fire extinguishers within easy reach of where fires can occur.

Frequently remove accumulated crop material from the machine and check for overheated components. Check the machine daily for any noises that are not normal. Such noises could indicate a failed component that can cause excess heat.

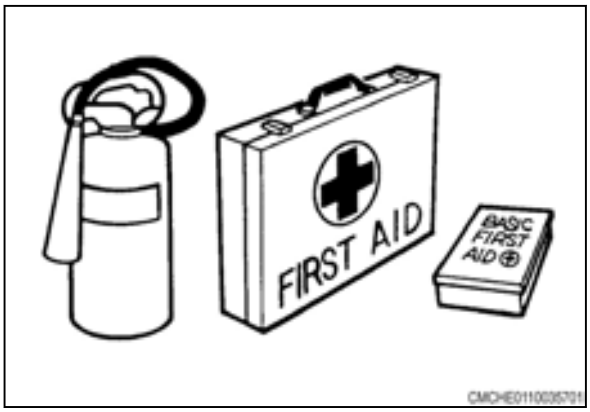


Fig. 28

If any flame cutting, welding, or arc welding is to be done on the machine or attachments, make sure to clear any crop material or debris from around the area. Make sure the area below the work area is clear of any flammable material as falling molten metal or sparks can ignite the material.

If fire occurs stand upwind and away from smoke from the fire.

Fig. 29

1.4.3 High pressure leaks

Fluid leaking from the hydraulic system or the fuel injection system under high pressure can be very hard to see. The fluid can go into the skin causing serious injury.

Fluid injected into the skin must be surgically removed within a few hours. If not removed immediately, serious infection or reaction can develop. Go immediately to a doctor who knows about this type of injury.

Fig. 30

Use a piece of cardboard or wood to search for possible leaks. Do not use your bare hand. Wear leather gloves for hand protection and safety goggles for eye protection.

Relieve all pressure before loosening any hydraulic lines. Relieve the pressure by lowering raised equipment, shutting off accumulator valve, if equipped, and shutting off the engine. Tighten all connections securely before applying pressure.

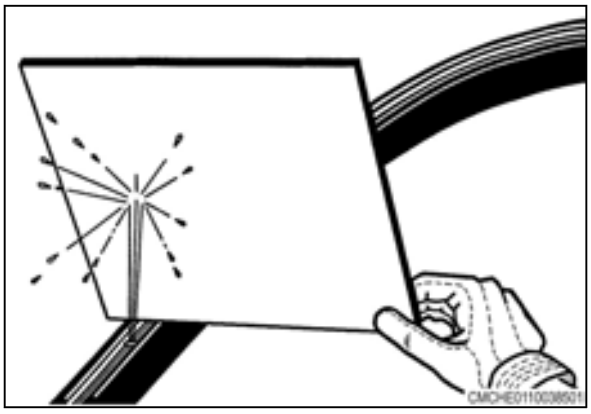


Fig. 31

1.4.4 Engine safety

CAUTION:
See the engine Instruction Manual for other important engine safety information.

Make sure all shields, guards and access doors are in place and properly closed before starting the engine.

Start the engine from the operator's seat only. Make sure all controls are in neutral and drives are disengaged.

Make sure all bystanders are clear of the machine before starting the engine.

Do not bypass the neutral start system. The neutral start system is designed to prevent starting the machine in gear. Any manual override of this system can cause death or serious injury.

Never connect booster cables to the starter terminals or short across the starter terminals.

Do not use aerosol starting fluid as a starting aid. The heaters in the intake manifold can cause the starting fluid to ignite resulting in an explosion. This explosion can cause death or very serious injury and damage to the engine.

Fig. 32

Fig. 33

Keep out of the engine compartment while the engine is running. Before opening the engine hood, shut off the engine and take the key with you.

Look and Listen! Make sure all moving parts have stopped.

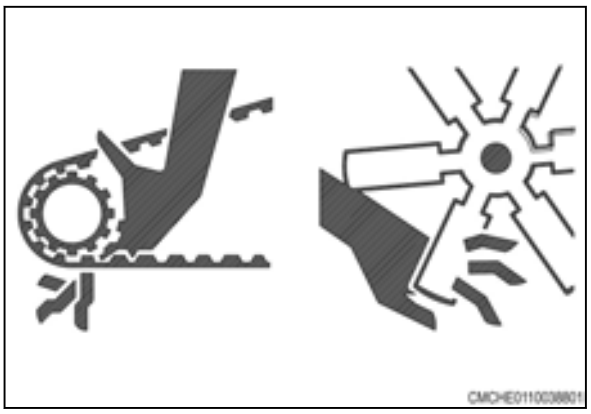


Fig. 34

Be aware the surfaces in and around the engine compartment will be hot if the engine has been running, even for a short time.

Always permit parts that contain hot fluid or gases to cool to the touch before handling or disconnecting.

Fig. 35

Never remove the cap from a hot radiator. Escaping steam and hot fluids can cause personal injury.

Always permit the radiator to cool to the touch before removing the cap.

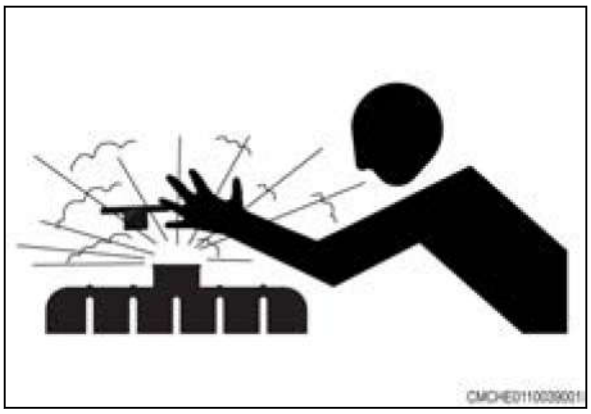


Fig. 36

1.4.5 Fuel safety

Fuel is flammable and must be handled with care.

Always stop the engine before adding fuel.

Keep open flames and electrical sparks away from the area.

Do not smoke while adding fuel.

Clean up any spilled fuel.

Fig. 37

1.4.6 Battery safety

Electrical storage batteries give off highly flammable hydrogen gas. Keep lighted smoking materials, open flames, and electrical sparks away from the battery.

Do not lay tools or other conductive materials on a battery.

Be careful when connecting booster cables to the machine. Electrical component damage or battery explosion can result if booster cables are not installed correctly. See Jump Starting in the Maintenance section for more information.

Battery posts, terminals and other battery parts contain lead and lead compounds. Wash hands carefully after handling a battery.

Fluid in the electrical storage batteries contains sulfuric acid. Avoid all contact of fluid with eyes, skin, or clothing. Wash your hands after handling the battery.

If skin contact occurs, flush immediately with large amounts of water.

If eye contact occurs, flush with water for 15 minutes and seek medical attention immediately.

If swallowed, drink large quantities of water or milk. Do not induce vomiting. Seek medical attention immediately.

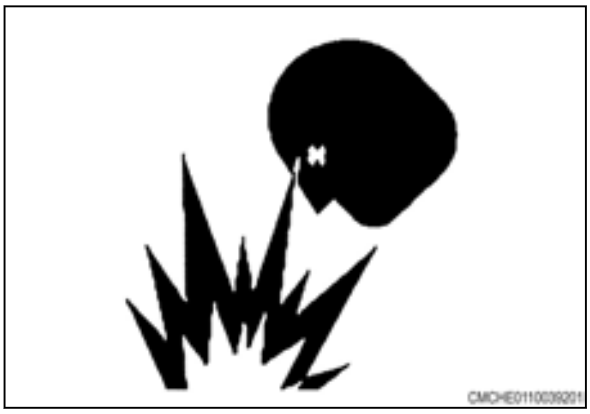


Fig. 38

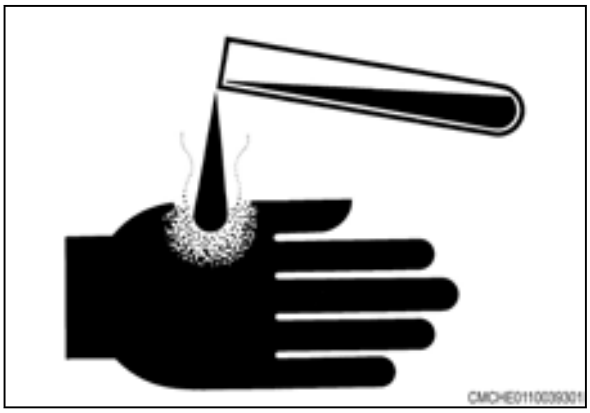


Fig. 39

1.4.7 Tire safety

Check tires for cuts, bulges, and correct pressure. Replace worn or damaged tires. When tire service is needed, have a qualified tire mechanic service the tire. Tire changing can be very hazardous and must be done by qualified tire mechanic using proper tools and equipment. See the Specifications Section for the correct tire size.

Tire explosion and/or serious injury can result from over inflation. Do not exceed the tire inflation pressures. See the Specifications Section for the correct tire pressure.

Do not inflate a tire that is seriously under inflated or has been run flat. Have the tire checked by qualified tire mechanic.

Do not weld on the rim when a tire is installed. Welding will make an air/gas mixture that can cause an explosion and burn with high temperatures. This danger applies to all tires, inflated or deflated. Removing air or breaking the bead is not enough. The tire must be completely removed from the rim prior to welding.

Fig. 40

When preparing a calcium chloride solution for fluid ballasting the tractor tires, never pour water onto the calcium chloride. A chlorine gas can be generated which is poisonous and explosive. This can be avoided by slowly adding calcium chloride flakes to water and stirring until they are dissolved.

When seating tire beads onto rims, never exceed 2.4 bar (35 psi) or the maximum inflation pressure specified on the tire. Inflation beyond this maximum pressure may break the bead, or even the rim, with explosive force.

1.4.8 Replacement parts

Where replacement parts are necessary for periodic maintenance and servicing, genuine replacement parts must be used to restore your equipment to original specifications.

The manufacturer will not accept responsibility for installation of unapproved parts and/or accessories and damages as a result of their usage.

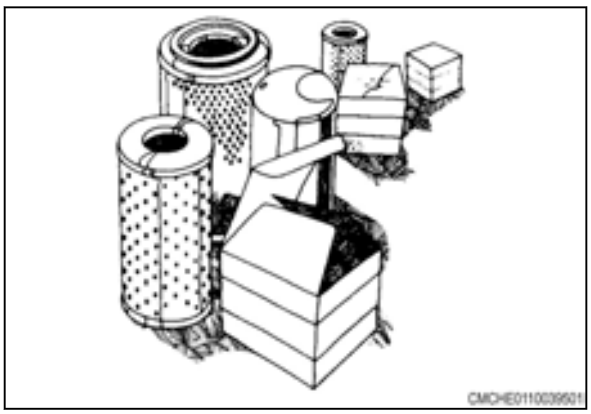


Fig. 41

1.5 Safety signs

Cab tractor safety sign location

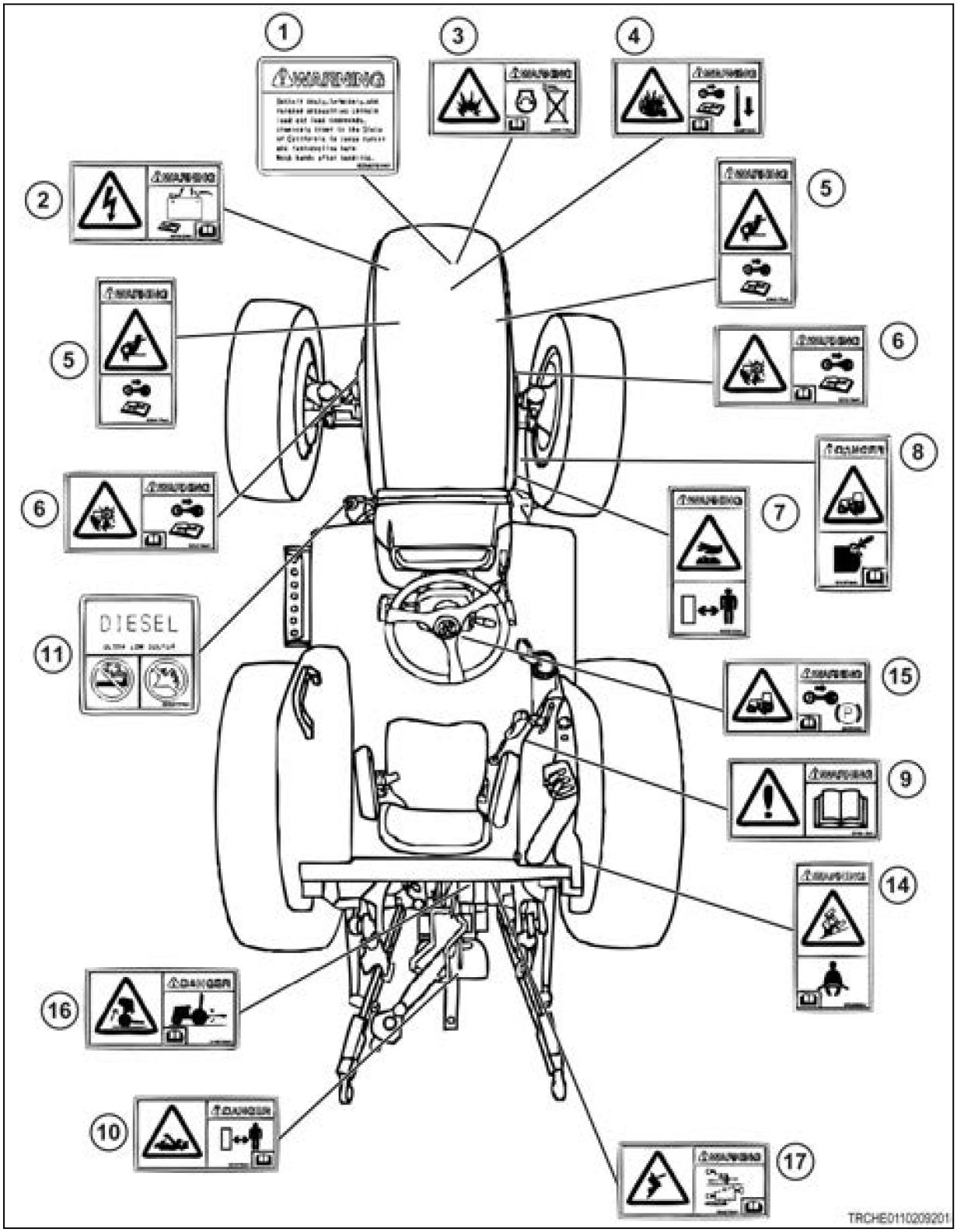


Fig. 42

Platform tractor safety sign location

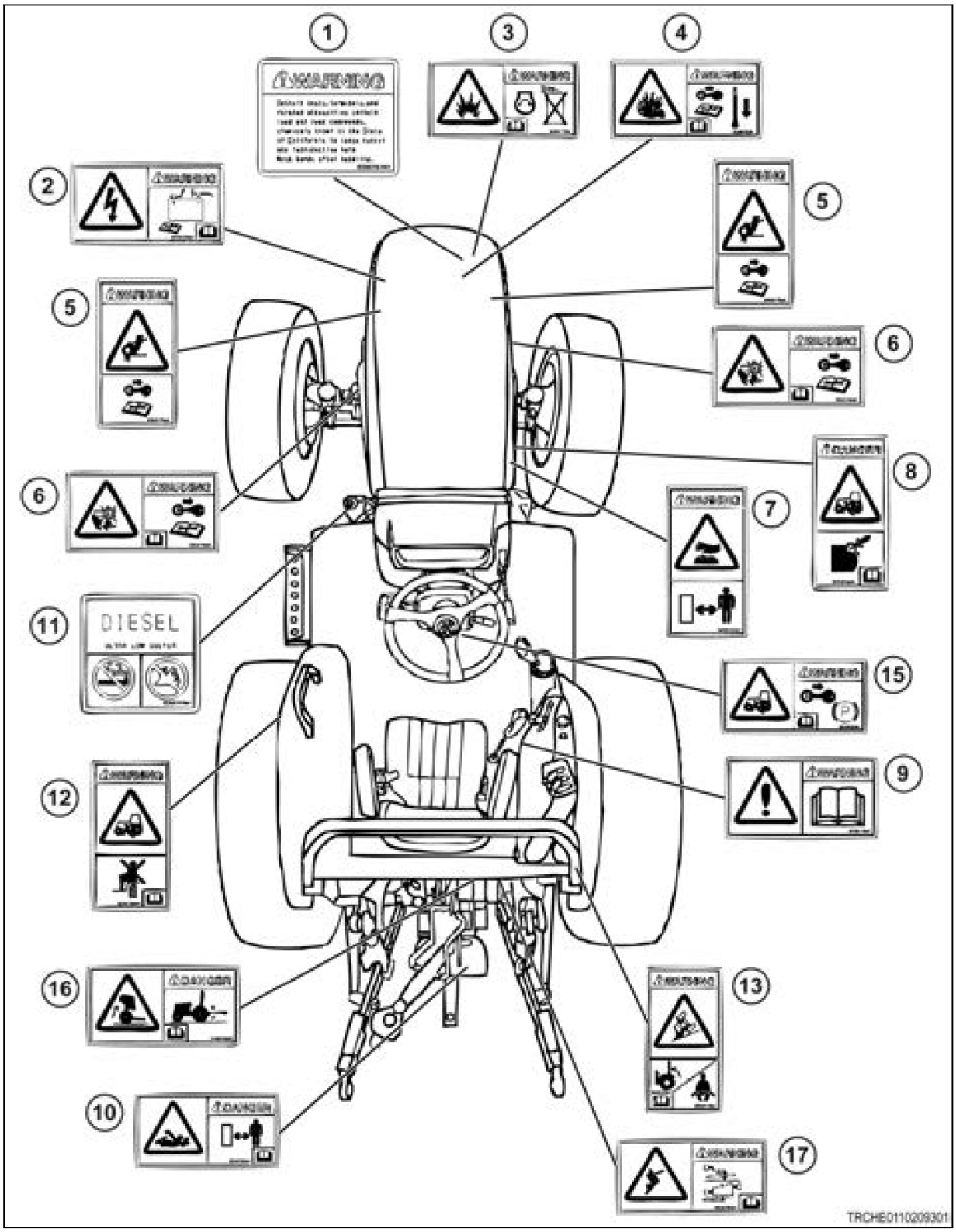


Fig. 43

Safety signs

Most of the safety signs on this machine have two panels with few or no words. The hazard panel (A) depicts the hazard and the consequence of encountering the hazard. The avoidance panel (B) depicts the action required to avoid the hazard.

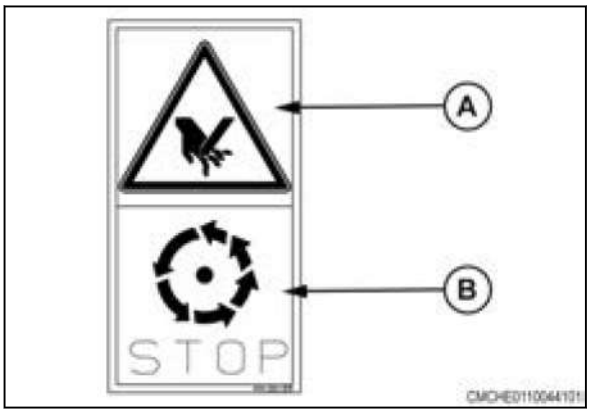


Fig. 44

WARNING Sign (1) - 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.

Fig. 45

WARNING Sign (2)

Hazard (A) - Electrical shock hazard - risk of personal injury and component damage.

Avoidance (B) - Remove negative cable(s) from battery(s) before removing starter solenoid cover and before servicing electrical system.

Read the Operator Manual for safety information and operating instructions before operating the machine.

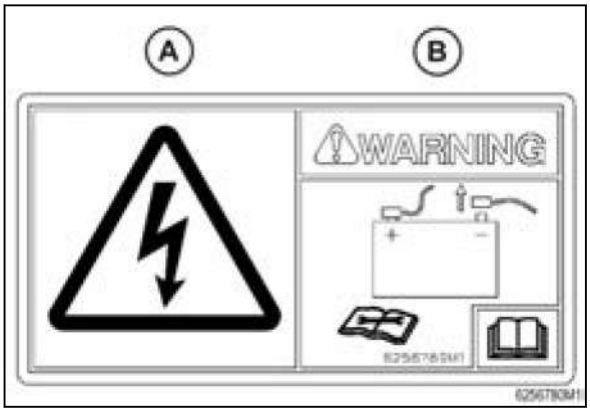


Fig. 46

WARNING Sign (3)

Hazard (A) - Explosion and/or fire hazard.

Avoidance (B) - Do not use aerosol starting aid (ether) - engine is equipped with a thermal starting aid.

Read the Operator Manual for safety information and operating instructions before operating the machine.

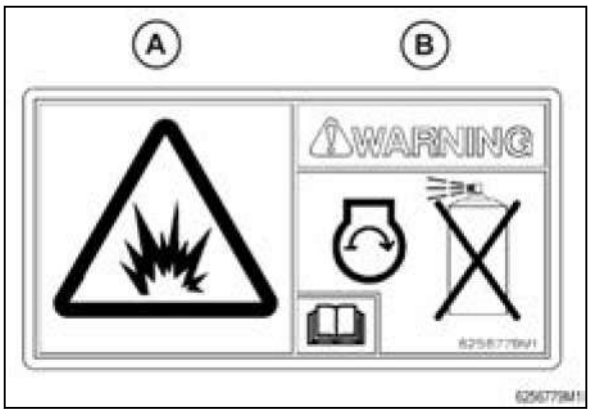


Fig. 47

WARNING Sign (4)

Hazard (A) - High pressure steam and hot water hazard - risk of scalding.

Avoidance (B) - Shut off engine, remove key and wait for system to cool before removing radiator cap. Remove the filler cap with extreme care.

Read the Operator Manual for safety information and operating instructions before operating the machine.

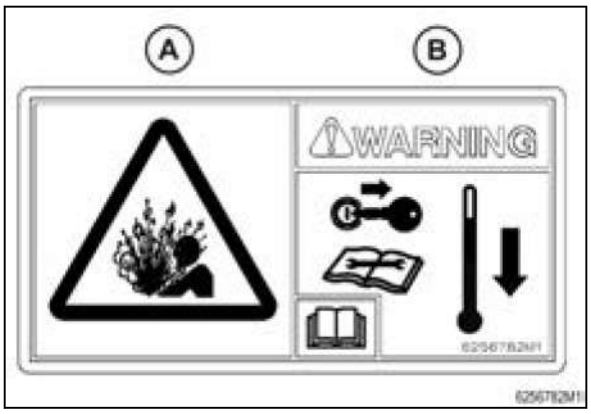


Fig. 48

WARNING Sign (5)

Hazard (A) - Entanglement hazard in belt drive.

Avoidance (B) - Shut off engine and remove key before performing maintenance or repair work.

Fig. 49

WARNING Sign (6)

Hazard (A) - Shearing hazard - engine fan.

Avoidance (B) - Shut off engine and remove key before performing maintenance or repair work.

Read the Operator Manual for safety information and operating instructions before operating the machine.

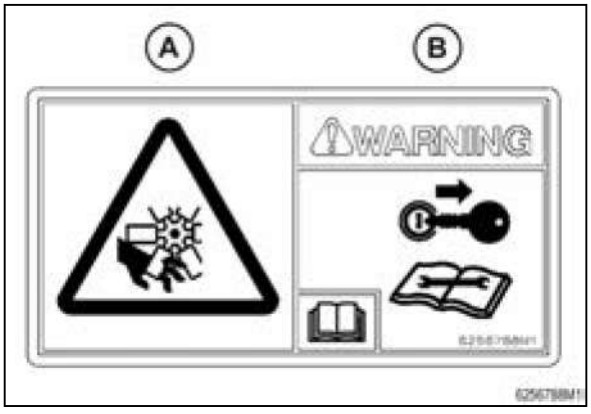


Fig. 50

WARNING Sign (7)

Hazard (A) - Hot surfaces - burn hazard.

Avoidance (B) - Keep safe distance away from area when machine is running.

Fig. 51

DANGER Sign (8)

Hazard (A) - Run-away machine and runover hazard.

Avoidance (B) - Start only from seat with transmission and PTO in neutral. Do not short across starter terminals to start engine.

Read the Operator Manual for safety information and operating instructions before operating the machine.

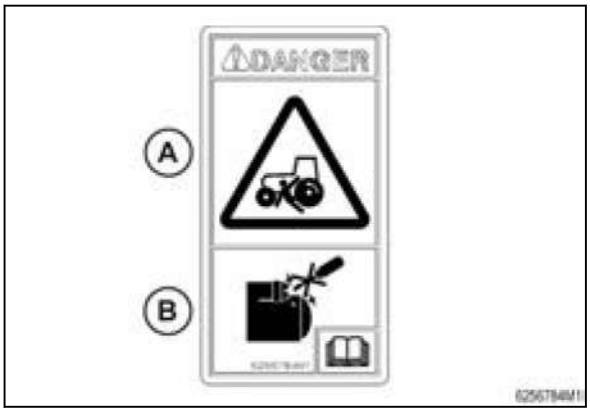


Fig. 52

WARNING Sign (9)

Hazard (A) - General safety alert.

Avoidance (B) - Read the Operator Manual for safety information and operating instructions before operating the machine.

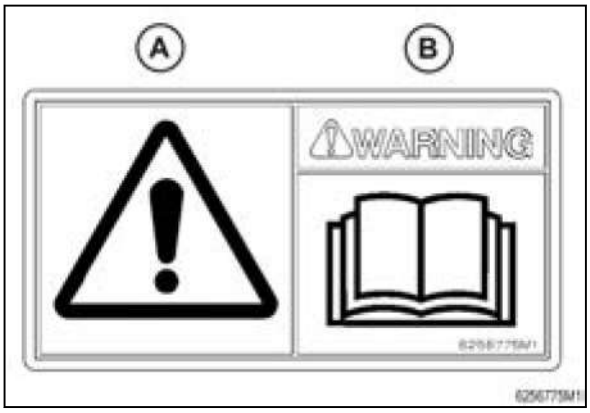


Fig. 53

DANGER Sign (10)

Hazard (A) - Entanglement hazard in PTO drive line.

Avoidance (B) - Keep safe distance away from PTO drive line area when machine is running.

Read the Operator Manual for safety information and operating instructions before operating the machine.

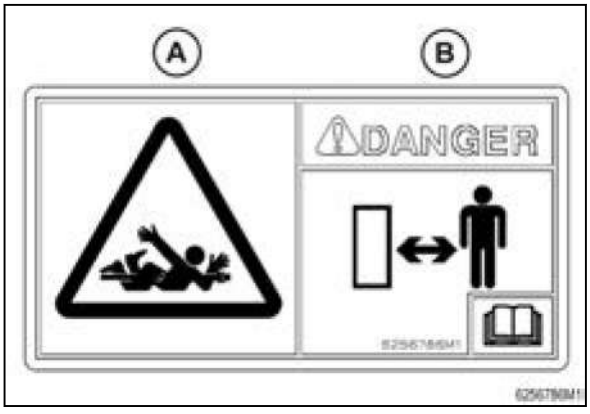


Fig. 54

Safety Sign (11)

Diesel - Ultra low sulfur (A)

No Smoking. No open flame (B)

Fig. 55

WARNING Sign (12)

Hazard (A) - Fall off/run over hazard.

Avoidance (B) - No Riders. Do not allow anyone to ride on any part of the machine or attached equipment.

Read the Operator Manual for safety information and operating instructions before operating the machine.

Fig. 56

WARNING Sign (13)

Hazard (A) - Rollover hazard - risk of being crushed.

Avoidance (B) - Keep ROPS in the upright and locked position except when operating in low clearance environment.

Use extra care and do not wear seat belt when operating with ROPS folded down.

In the event of an overturn, hold on to the steering wheel and do not attempt to jump off the machine.

Read the Operator Manual for safety information and operating instructions before operating the machine.

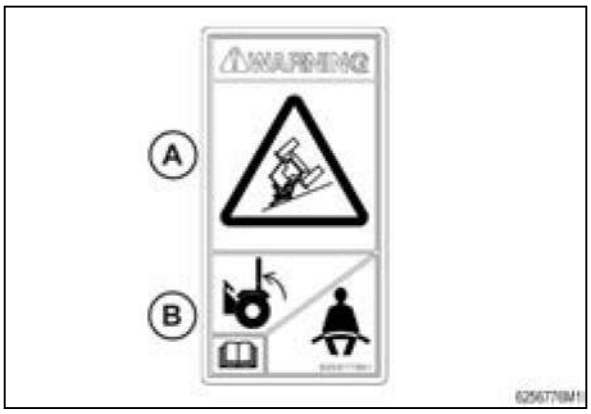


Fig. 57

WARNING Sign (14)

Hazard (A) - Rollover hazard

Avoidance (B) - Use extra care and wear seat belt at all times.

In the event of an overturn, hold on to the steering wheel and do not attempt to jump off the machine.

Read the Operator Manual for safety information and operating instructions before operating the machine.

Fig. 58

WARNING Sign (15)

Hazard (A) - Run-away machine and runover hazard.

Avoidance (B) - Shut off engine and remove key and apply parking brake before leaving the operator's seat.

Read the Operator Manual for safety information and operating instructions before operating the machine.

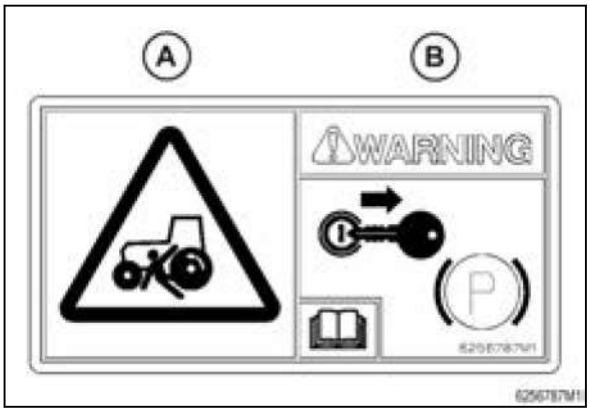


Fig. 59

DANGER Sign (16)

Hazard (A) - Rear rollover hazard - risk of being crushed.

Avoidance (B) - Pull only from approved drawbar or lower links of 3-point hitch at horizontal position or below. Never pull from above rear axle center line.

Read the Operator Manual for safety information and operating instructions before operating the machine.

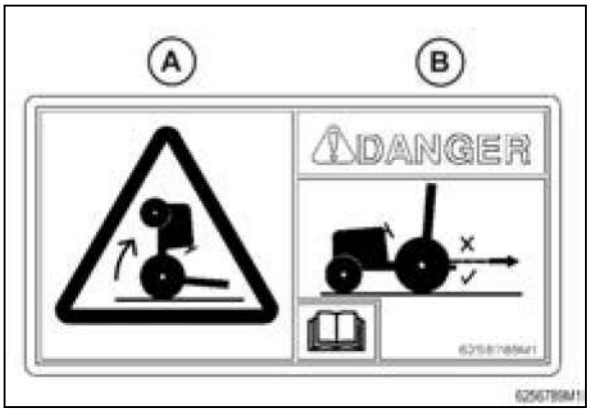


Fig. 60

WARNING Sign (17)

Hazard (A) - Risk of component separation resulting in flying objects.

Avoidance (B) - Make sure drawbar/3-point hitch is in correct position and check length of PTO drive shaft when attaching PTO driven equipment.

Read the Operator Manual for safety information and operating instructions before operating the machine.

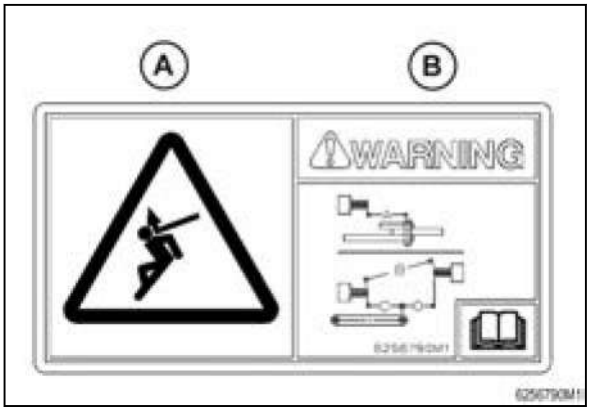


Fig. 61

2. Introduction

2.1 Introduction

WARNING:
In some illustrations and photos, the shields or guards are removed for clarity. Contact with moving parts can cause personal injury or death. Never operate the machine with any shields or guards removed or in poor working condition.

CAUTION:
Read this manual in its entirety prior to operating the machine. Use only genuine replacement parts for repairs and/or replacement.

This manual gives the operator the proper instructions needed for operation and maintenance. Read, understand, and follow these instructions for best machine performance and life. With proper maintenance and operation procedures, the machine will have better over all performance. Use normally available tools for maintenance on this machine.

All operators must read and understand this manual before operating this machine. Where possible, operators who have not operated the machine must receive instruction from an operator who has operated this machine. Your dealer can give instruction in machine operation. Keep this manual with the machine for future reference. If the original manual is damaged, order a replacement from your dealer.

See your dealer for any service problems and adjustments. The dealer is equipped for all service work and to help with specific applications of the machine in local conditions.

Left-hand and right-hand are determined by facing the direction the machine will travel when in use.

2.1.1 Intended use

This machine is designed solely for use in customary agricultural operations.

Do not use this machine for any application or purpose other than those described in this manual. The manufacturer accepts no liability for damage or injury resulting from misuse of this machine.

Compliance with the conditions of operation, service and repair as specified by the manufacturer constitute essential elements for the intended use of this machine.

This machine should be operated, serviced and repaired only by qualified persons familiar with its characteristics and familiar with the relevant safety rules and procedures.

All generally recognized safety regulations and road traffic regulations must be obeyed at all times.

Any unauthorized modifications performed on this machine will relieve the manufacturer of all liability for any resulting damage or injury.

2.1.2 Proper disposal of waste

Improper disposal of waste can pollute the environment and ecology. A few examples of potentially harmful equipment waste can include, but not limited to, items such as oil, fuel, coolant, brake fluid, filters, battery chemicals, tires, etc.

Use leak proof containers when draining fluids. Do not use food or beverage containers to collect waste fluids, as food or beverage container(s) may mislead someone into drinking from them.

Do not pour or spill 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 with local environmental or recycling center on the proper way to recycle or dispose waste.

2.2 Machine identification

Each machine is identified by a model and a serial number.

Record these numbers in the spaces given.

Give the model number and serial number to your dealer when parts or service are required.

Machine model number:	
Machine serial number:	

Date of delivery:	

Dealer name:	
Dealer address:	
Dealer telephone number:	
Dealer e-mail address:	
Dealer fax number	

2.2.1 Serial number plate

The serial number plate (1) is located below the operator seat.

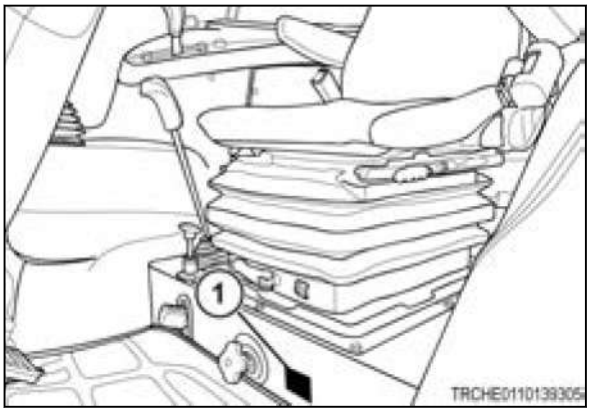


Fig. 1

The serial number plate contains the model number and serial number.

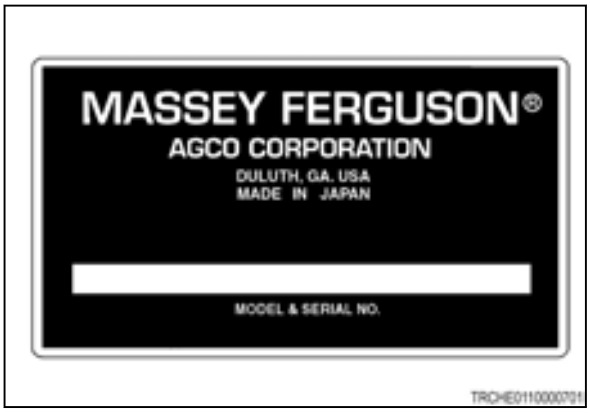


Fig. 2

2.2.2 Engine identification

The engine identification plates (1) are located on the rear of the engine and on the right-hand side of the engine valve cover.

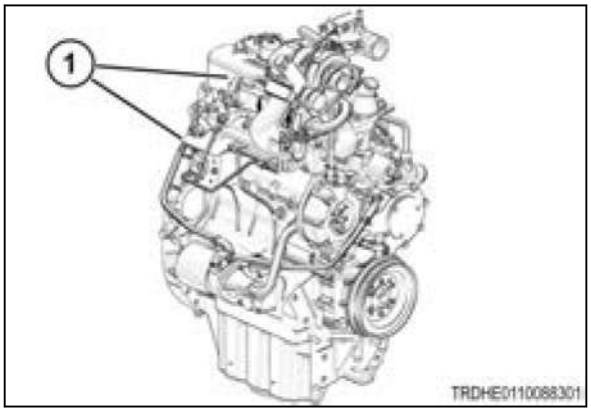


Fig. 3

Serial number break - An engine identification plate (1) is located below the operator seat.

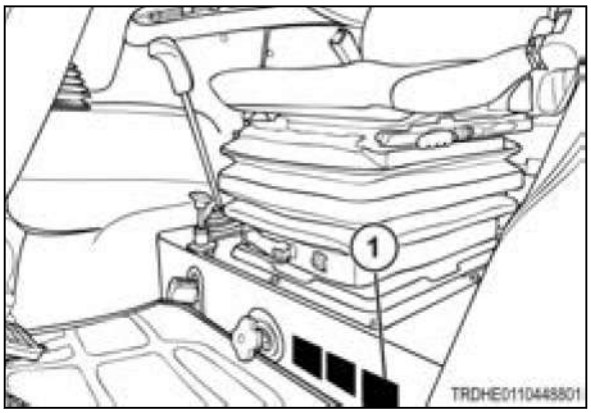


Fig. 4

The engine identification plate contains the engine model number (1) and the engine serial number (2).

Engine model number:	
Engine serial number:	

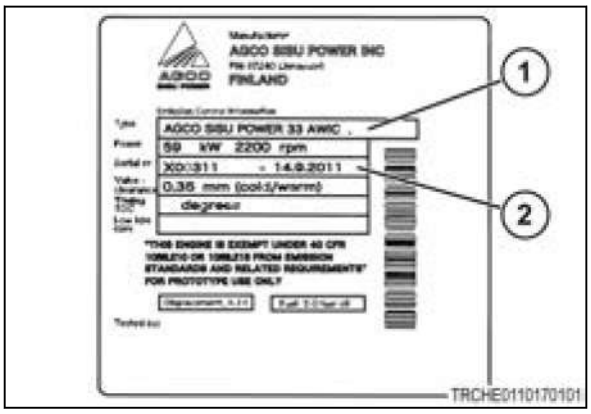


Fig. 5

2.2.3 Chassis number

The chassis number (1) is stamped in right-hand side of front frame.

Chassis number:	

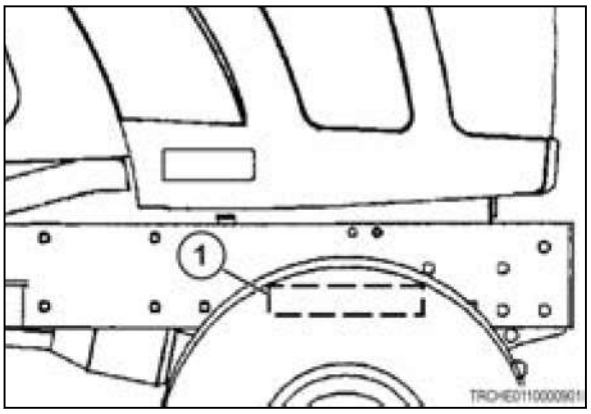


Fig. 6

2.3 Major components

2.3.1 Cab tractor major components

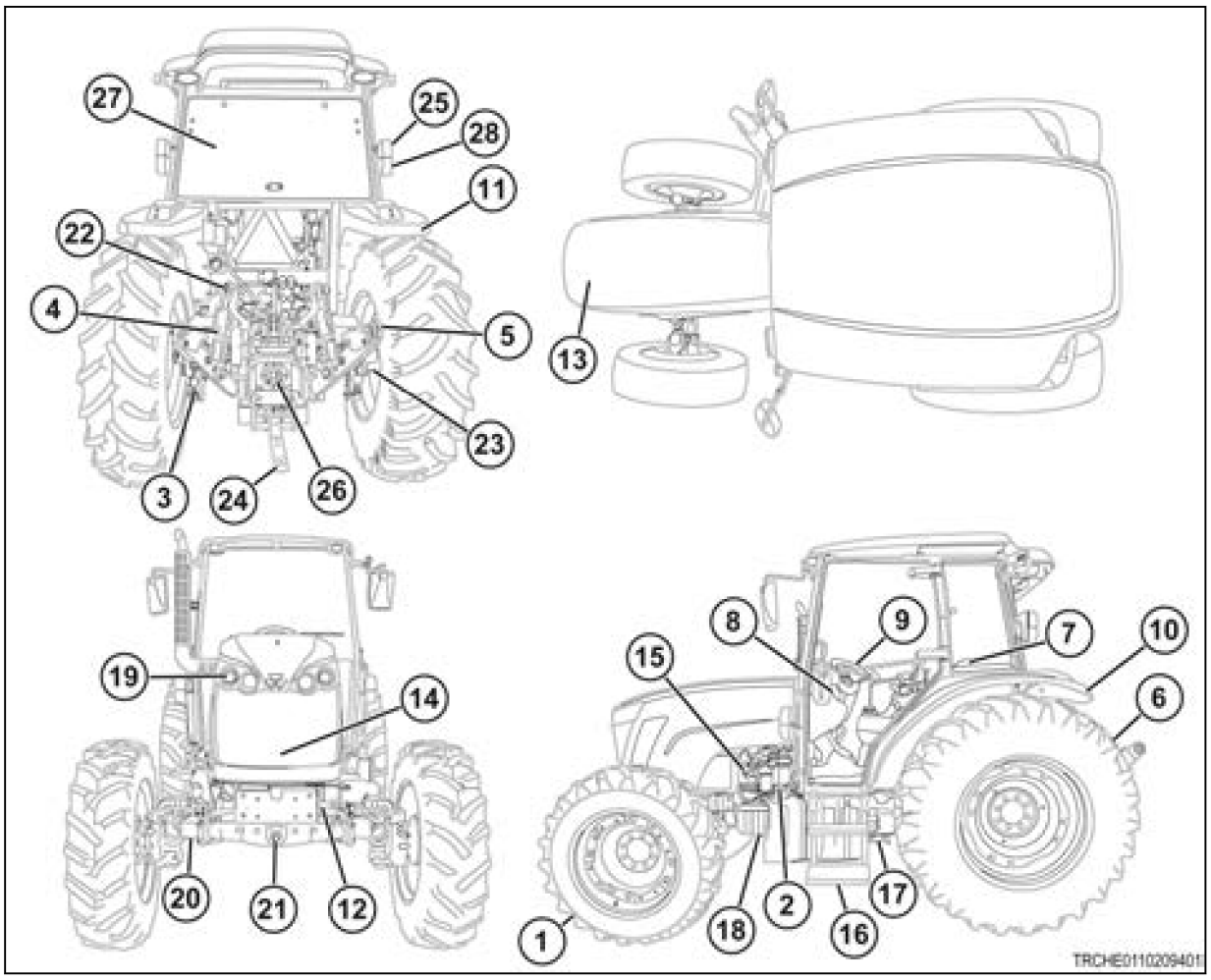


Fig. 7

(1) Front wheels
(2) Fuel tank filler
(3) Stabilizer
(4) Lift rod
(5) Lower links
(6) Rear wheels
(7) Operator's seat
(8) Instrument panel
(9) Steering wheel
(10) Fender
(11) Reflector
(12) Steering cylinder
(13) Engine cover and front grill
(14) Battery
(15) Engine
(16) Foot step
(17) Transmission
(18) Front wheel drive shaft
(19) Headlamp
(20) Front axle
(21) Front axle pivot
(22) Lift arm
(23) Rear axle
(24) Drawbar
(25) Turn/warning lamps
(26) Power take off (PTO)
(27) Cab
(28) Brake lamps (Austrialia only)

2.3.2 Platform tractor major components

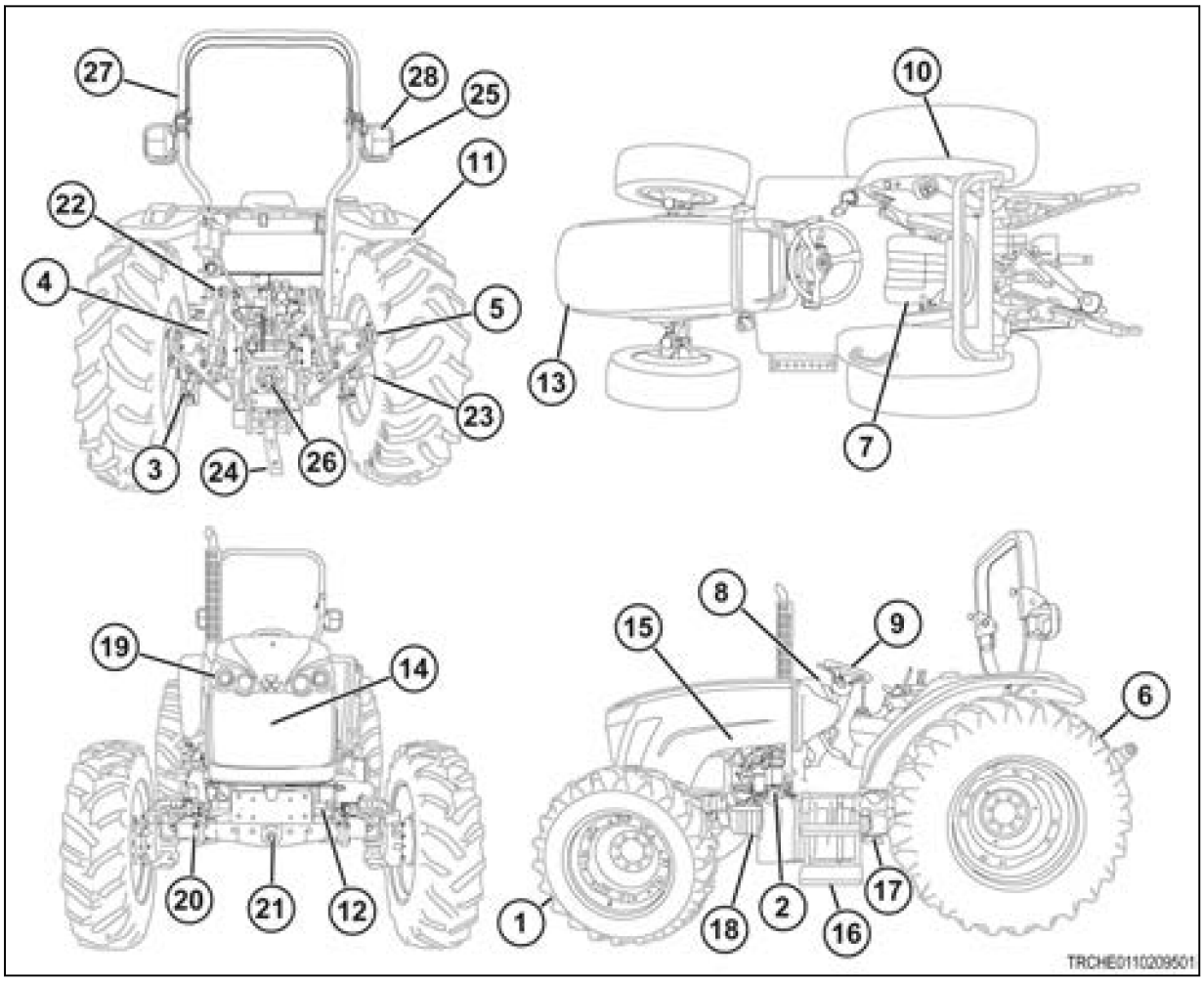


Fig. 8

(1) Front wheels
(2) Fuel tank filler
(3) Stabilizer
(4) Lift rod
(5) Lower links
(6) Rear wheels
(7) Operator's seat
(8) Instrument panel
(9) Steering wheel
(10) Fender
(11) Reflector
(12) Steering cylinder
(13) Engine cover and front grill
(14) Battery
(15) Engine
(16) Foot step
(17) Transmission
(18) Front wheel drive shaft
(19) Headlamp
(20) Front axle
(21) Front axle pivot
(22) Lift arm
(23) Rear axle
(24) Drawbar
(25) Turn/warning lamps[1]
(26) Power take off (PTO)
(27) Roll over protective structure (ROPS)
(28) Brake lamps (Austrialia only)

[1] For the 4610 low profile model the turning/warning lamps are fender mounted.

2.4 Emissions warranty

CALIFORNIA EMISSION CONTROL WARRANTY STATEMENT

YOUR WARRANTY RIGHTS AND OBLIGATIONS

The **California Air Resources Board (CARB)** and AGCO are pleased to explain the **emission control system warranty** on your **2012** and later engine. In California, new heavy-duty off-road engines must be designed, built, and equipped to meet the State's stringent anti-smog standards. AGCO must warrant the emission control system on your engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your engine.

Your emission control system may include parts such as the fuel-injection system and the air induction system. Also included may be hoses, belts, connectors and other emission-related assemblies.

Where a warrantable condition exists, AGCO will repair your heavy-duty off-road engine at no cost to you including diagnosis, parts, and labor.

MANUFACTURER'S WARRANTY COVERAGE:

The emission related devices on your 2012 and later heavy-duty off-road engines are warranted for five (5) years or 3000 hours of operation for all engines 19KW or greater, whichever occurs first from the date of delivery of the engine to the initial purchaser.

If any emission-related part on your engine is defective, the part will be repaired or replaced by AGCO within the warranty period.

A) General Emissions Warranty Coverage

AGCO warrants to the ultimate purchaser and each subsequent purchaser of each off-road compression-ignition engine that the engine is:

(1) Designed, built, and equipped so as to conform with all applicable regulations adopted by the Air Resources Board pursuant to its authority in Chapters 1 and 2, Part 5, Division 26 of the Health and Safety Code; and

(2) Free from defects in materials and workmanship which cause the failure of a warranted part to be identical in all material respects to the part as described in the engine manufacturer's application for certification for a period of five years or 3,000 hours of operation, whichever occurs first, for all engines rated at 19KW and greater, except as noted below. In the absence of a device to measure hours of use, the engine shall be warranted for a period of five years.

B) Warranty on emissions-related parts shall be interpreted as follows:

(1) Any warranted part which is not scheduled for replacement as required maintenance shall be warranted for the warranty period defined in Subsection (A)(2). If any such part fails during the period of warranty coverage, it shall be repaired or replaced by the engine manufacturer according to Subsection (4) below. Any such part repaired or replaced under the warranty shall be warranted for the remaining warranty period.

(2) Any warranted part which is scheduled only for regular inspection shall be warranted for the warranty period defined in Subsection A)(2). A statement in such written instructions to the effect of "repair or replace as necessary" shall not reduce the period of warranty coverage. Any such part repaired or replaced under warranty shall be warranted for the remaining warranty period.

(3) Any warranted part which is scheduled for replacement as required maintenance shall be warranted for the period of time prior to the first scheduled replacement point for that part. If the part fails prior to the first scheduled replacement, the part shall be repaired or replaced by the engine manufacturer according to Subsection (4) below. Any such part repaired or replaced under warranty shall be warranted for the remainder of the period prior to the first scheduled replacement point for the part.

(4) Repair or replacement of any warranted part under the warranty provisions of this article shall be performed at no charge to the owner at a warranty station.

(5) Notwithstanding the provisions of Subsection (4) above, warranty services or repairs shall be provided at all manufacturer distribution centers that are franchised to service the subject engines.

(6) The owner shall not be charged for diagnostic labor that leads to the determination that a warranted part is in fact defective, provided that such diagnostic work is performed at a warranty station.

(7) The engine manufacturer shall be liable for damages to other engine components proximately caused by a failure under warranty of any warranted part.

(8) Throughout the engine's warranty period defined in Subsection (A)(2), the engine manufacturer shall maintain a supply of warranted parts sufficient to meet the expected demand for such parts.

(9) Any replacement part, as defined in Section 1900(b)(13), Title 13, may be used in the performance of any maintenance or repairs and must be provided without charge to the owner. It is not necessary for replacement parts to be the same brand or by the same manufacturer as the original part sold with the engine. Such use shall not reduce the warranty obligations of the engine manufacturer.

(10) Add-on or modified parts, as defined in Section 1900(b)(1) and (b)(10), Title 13, that are not exempted by the Air Resources Board may not be used. The use of any non-exempted add-on or modified parts shall be grounds for disallowing a warranty claim made in accordance with this article. The engine manufacturer shall not be liable under this article to warrant failures of warranted parts caused by the use of a non-exempted add-on or modified part.

CALIFORNIA EMISSION CONTROL WARRANTY STATEMENT

YOUR WARRANTY RIGHTS AND OBLIGATIONS

(11) The Executive Officer may request and, in such case, the engine manufacturer shall provide, any documents which describe that manufacturer's warranty procedures or policies.

C) Each manufacturer shall include a copy of the following emission warranty parts list with each new engine, using those portions of the list applicable to the engine.

(1) Fuel Metering System
- (A) Fuel injection system
- (B) Air/fuel ratio feedback and control system.
- (C) Cold start enrichment system.

(2) Air Induction System
- (A) Controlled hot air intake system.
- (B) Intake manifold.
- (C) Turbocharger/Supercharger Systems.
- (D) Charge Air Cooling Systems.

(3) Catalyst or Thermal Reactor System
- (A) Catalytic converter.
- (B) Diesel Oxydation Catalyst (DOC)
- (C) Exhaust manifold

(4) Particulate Controls
- (A) Smoke Puff Limiters.

(5) Advanced Oxides of Nitrogen (NOx) Controls
- (A) NOx Absorbers
- (B) Selective Catalyst Reduction (SCR)
- (C) Reluctant (urea/fuel) containers/dispensing systems

(6) Positive Crankcase Ventilation (PCV) System.
- (A) PCV Valve.
- (B) Oil Filler Cap.

(7) Miscellaneous items Used in Above Systems
- (A) Vacuum, temperature, and time sensitive valves and switches.
- (B) Electronic control units, sensors, solenoids, and wiring harnesses.
- (C) Hoses, belts, connectors, assemblies, clamps, fittings, tubing, sealing gaskets or devices, and mounting hardware.
- (D) Pulleys, belts and idlers.
- (E) Emission Control Information Labels
- (F) Any other part with the primary purpose of reducing emissions or that can increase emissions during failure without significantly degrading engine performance.

OWNER'S WARRANTY RESPONSIBILITIES:

As the heavy-duty off-road engine owner, you are responsible for the performance of the **required maintenance listed in your owner's manual**.

AGCO recommends that you retain all receipts covering maintenance on your heavy-duty off-road engine, but AGCO cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.

As the heavy-duty off-road engine owner, you should however be aware that AGCO may deny you warranty coverage if your heavy-duty off-road engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

Your engine is designed to op erate on diesel fuel only. Use of any other fuel may result in your engine no lo nger operating in compliance with California's emissions requirements.

You are responsible for initiating the warranty process. The ARB suggests that you present your heavy-duty off-road engine to an AGCO dealer as soon as a problem exists. The warranty repairs should be completed by the dealer as expeditiously as possible.

CALIFORNIA EMISSION CONTROL WARRANTY STATEMENT

YOUR WARRANTY RIGHTS AND OBLIGATIONS

EMISSION WARRANTY EXCLUSIONS

This warranty shall not cover any of the following:

- Conditions resulting from tampering, misuse, abuse, improper adjustment, engine alteration, use of modified parts, use of replacement parts that are not the same in performance and durability as genuine replacement parts, failure to use the recommended fuel or oil, use of unapproved fuel or oil additives, or failure to perform required maintenance.
- Consequential damages such as loss of time, inconvenience, or loss of use of this engine or equipment.
- Damages or repair costs caused by the owner's unreasonable delay in making the engine available for warranty inspection and repair.
- Repairs not covered by this warranty, and diagnosis or inspection fees that do not result in eligible warranty service being performed.
- Any replacement with non-genuine parts or malfunction of genuine parts due to use of non-approved parts.
- The use of any non-exempted add-on or modified parts shall be grounds for disallowing a warranty claim.
- Travel Time and Mileage
- Freight
- Unless mandated by State or Provincial laws.

OBTAINING WARRANTY SERVICE

To obtain warranty service, owner should take the engine to the nearest Dealer or service center authorized by AGCO or the equipment manufacturer. If available, the original purchase receipt (showing the initial date of purchase) and all available maintenance records should be presented.

The authorized AGCO dealer will contact AGCO Warranty Department for confirmation of coverage.

The authorized Dealer or service center may perform the necessary repairs or adjustments within a reasonable time and furnish owner with a copy of the repair order. AGCO wants to assist in providing the services applicable under this warranty. If you need assistance in locating the nearest authorized Dealer or service center, or have any questions about your warranty rights and responsibilities, you should contact AGCO Answers at **1-877-525-4384** or email agcoanswers@agcocorp.com

UNITED STATES AND CANADA EMISSION CONTROL WARRANTY STATEMENT

APPLICABILITY

This section shall apply to new 1996-1999 model year and heavy duty off road compression-ignition engines and new 2000 and later model year compression-ignition engines. The warranty period shall begin on the date the engine or equipment is delivered to an ultimate purchaser. The use of alternative fuels shall not void the warranties on any engine certified to use such fuel.

WARRANTY STATEMENT

AGCO warrants to the ultimate purchaser and each subsequent owner that the compression-ignition engine and emission related parts in this equipment are designed, built, and equipped so as to conform with all applicable regulations adopted by the Air Resources Board (ARB) pursuant to its authority in Chapters 1 and 2, Part 5, Division 26 of the Health and Safety Code provided there has been no abuse, neglect, or improper maintenance of the engine. AGCO also warrants to the ultimate purchaser and each subsequent owner that the compression-ignition engine and emission related parts in the equipment are designed, built, and equipped so as to conform with all applicable regulations adopted by the US Environmental Protection Agency, pursuant to its authority under the Federal Clean Air Act provided there has been no abuse, neglect, or improper maintenance of the engine. This warranty is effective in all states of the U.S.A. and all provinces and territories of Canada.

WARRANTY PERIOD

The warranty period for this engine's emission related parts to be free from defects in materials and workmanship which cause the failure of a warranted part to be identical in all material respects to the parts as described in the engine manufacturer's application for certification begins on the date the engine or equipment is delivered to an ultimate purchaser and continues for a period of five (5) years or 3,000 hours for 19 to 560 kW emission related parts except as noted below. In the absence of a device to measure hours of use, the engine emissions related parts shall be warranted for a period of five (5) years.

For all engines rated less than19kW, and for constant-speed engines rated under 37kW with rated speeds higher than or equal to 3000rpm, the period of two (2) years or 1,500 hours of operation, whichever occurs first. In the absence of a device to measure hours of use, the engine shall be warranted for a period of two years. If any emission related part on your engine fails within the warranty period, the part will be repaired or replaced by AGCO.

AGCO'S WARRANTY RESPONSIBILITY

Listed below are the parts covered by this warranty. Any part listed below that is subject to scheduled maintenance during the warranty period is warranted up to the first scheduled replacement point for that part. A part repaired or replaced under this warranty is warranted for the remainder of the warranty period. Parts replaced under this warranty become the property of the manufacturer. The warranted parts could include:

POWER RANGE	WARRANTY TERM	COVERED COMPONENTS
Below or equal to 19kw	2 years or 1,500 hours	Rubber Flanges, Fuel Injection Pump, Fuel Injectors, Intake Manifold, Exhaust Manifold, Nozzle Assembly, Turbo Charger (if applicable), Controlled Hot air Intake System, Miscellaneous Vacuum, temperature, and time sensitive valves and switches, Electronic control units, sensors, solenoids and wiring harnesses. Hoses, belts, connectors, assemblies, clamps, fitting, tubing, sealing , pulleys, belts and idlers, Emission Control Information Labels, Any other part with the primary purpose of reducing emissions or that can increase emissions during failure without significantly degrading engine performance.
19-37kw	5 years or 3,000 hours	Rubber Flanges, Fuel Injection Pump, Fuel Injectors, Intake Manifold, Exhaust Manifold, Nozzle Assembly, Turbo Charger (if applicable), Controlled Hot Air Intake system, Miscellaneous Vacuum, temperature, and time sensitive valves and switches, Electronic control units, sensors, solenoids, and wiring harnesses. Hoses, belts, connectors, assemblies, clamps, fitting, tubing, sealing , pulleys, belts and idlers, Emission Control Information Labels, Any other part with the primary purpose of reducing emissions or that can increase emissions during failure without significantly degrading engine performance.
37kw-Up	5 years or 3,000 hours	Fuel Injection Pump, Nozzle Assembly, Injection Pipe, Connector of Fuel Line, Intake manifold, Fuel pipe Assembly, Inlet Pipe, Inlet Pipe band, air cleaner element, fuel filter element, turbocharger systems, exhaust manifold, hoses, clamps, connectors, and sealing gaskets of devices used in systems above, catalysts, Electronic control units and sensors**, cold start enrichment system, charge air cooling system, controlled hot air intake system, catalytic converter, exhaust manifold, regenerators, oxidizers, fuel additive devices, and any other device used to regenerate or aid in the regeneration of the particulate control device, smoke puff limiters, selective catalyst reduction, reductant (DEF) containers/dispensing systems, Miscellaneous Vacuum, temperature, and time sensitive valves and switches, solenoids, and wiring harnesses. Hoses, belts, connectors, assemblies, clamps, fitting, tubing, sealing, gaskets or devices and mounting hardware, pulleys, belts and idlers, Emission Control Information Labels, Any other part with the primary purpose of reducing emissions or that can increase emissions during failure without significantly degrading engine performance.

NOTE: Filters that are replaced as part of normal scheduled maintenance are NOT covered by emissions warranty. These parts are listed as, but not limited to, engine air filter, oil filter, fuel filter, DEF filters, etc.

** SENSORS RELATING TO EMISSION COMPONENTS ONLY

Repair or replacement of any warranted part under the warranty provisions of this statement shall be performed at no charge to the owner at an authorized warranty station.

The owner shall not be charged for diagnostic labor that leads to the determination that a warranted part is in fact defective, provided that such diagnostic work is performed at an authorized warranty station.

OWNER MAINTENANCE AND REPAIR RESPONSIBILITY

The engine owner is responsible for the proper use and maintenance of the engine, as specified in the Operator's Manual. AGCO reserves the right to deny coverage under this warranty if the owner has not properly maintained the engine and/or emission related parts and failure occurs due to neglect, abuse, and/or unapproved modifications.

AGCO is not responsible for resultant damage to an emission-related part or component resulting from:

- Any application or installation AGCO deems improper
- Attachments, accessory items or parts not sold nor approved by AGCO.
- Improper engine maintenance, repair or abuse
- Owner's unreasonable delay in making the product available after being notified of a potential product problem.

AGCO shall be liable for damages to other engine components proximately caused by a failure under warranty of any warranted part.

This warranty is in addition to AGCO Standard Warranty.

AGCO recommends that the original owner keep the original purchase receipt (with the date of initial purchase), and all repair receipts and maintenance records, and transfer them to any subsequent owner.

However, AGCO will not deny warranty claims solely for the lack of receipts or failure to document the performance of all scheduled maintenance. The engine owner is responsible for presenting the engine to the nearest Dealer or service station authorized by AGCO when a problem exists.

Subject to the limitations above, non-warranty maintenance or repair of emission control parts on this engine may be performed by the owner, or by any repair establishment or individual, without affecting coverage under this warranty; however, reimbursable warranty repairs must be performed by a dealer or service center authorized by AGCO or the manufacturer of this equipment.

The use of parts that are not equivalent in performance and durability to genuine parts may impair the effectiveness of the emission control system and prevent coverage under this warranty. If non-genuine AGCO parts are used for maintenance or replacement on this engine, you should assure yourself that such parts are warranted by their manufacturer to be equivalent to genuine parts in performance and durability.

EMISSION WARRANTY EXCLUSIONS

This warranty shall not cover any of the following:

- Conditions resulting from tampering, misuse, abuse, improper adjustment, engine alteration, use of modified parts, use of replacement parts that are not the same in performance and durability as genuine replacement parts, failure to use the recommended fuel or oil, use of unapproved fuel or oil additives, or failure to perform required maintenance.
- Consequential damages such as loss of time, inconvenience, or loss of use of this engine or equipment.
- Damages or repair costs caused by the owner's unreasonable delay in making the engine available for warranty inspection and repair.
- Repairs not covered by this warranty, and diagnosis or inspection fees that do not result in eligible warranty service being performed.

• Any replacement with non-genuine parts or malfunction of genuine parts due to use of non-approved parts

The use of any non-exempted add-on or modified parts shall be grounds for disallowing a warranty claim.
• Travel Time and Mileage *
• Freight *

* Unless mandated by State or Provincial laws.

OBTAINING WARRANTY SERVICE
All repairs qualifying under this limited warranty must be performed by a Dealer or service center authorized by AGCO or the manufacturer of this equipment.

To obtain warranty service, owner should take the engine to the nearest Dealer or service center authorized by AGCO or the equipment manufacturer. If available, the original purchase receipt (showing the initial date of purchase) and all available maintenance records should be presented. The authorized AGCO dealer will contact AGCO Warranty Department for confirmation of coverage.

The authorized Dealer or service center may perform the necessary repairs or adjustments within a reasonable time and furnish owner with a copy of the repair order. AGCO wants to assist in providing the services applicable under this warranty. If you need assistance in locating the nearest authorized Dealer or service center, or have any questions about this warranty, you may contact an AGCO Warranty representative at:

AGCO Corporation
Technical Services and Support
P.O. Box 4300
Hesston, KS 67062-2002
678-534-3199

3. Operation

3.1 Location of instruments and controls

Front controls for all models

CAUTION:
Become familiar with all operating controls before operating the machine. Read this manual fully before starting.

(1) Instrument panel
(2) Steering wheel
(3) Hand throttle lever
(4) Foot throttle pedal
(5) Brake pedals
(6) Parking brake
(7) Steering column tilt pedal
(8) Clutch pedal
(9) Forward/Reverse lever

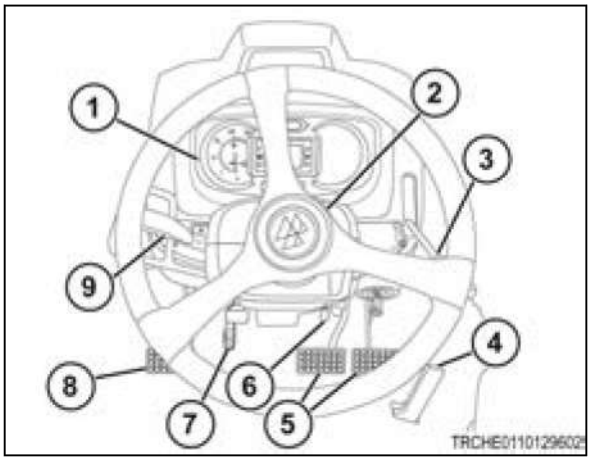


Fig. 1

Right-hand side controls for standard models

(1) Differential lock pedal
(2) Four-wheel drive shift control lever, if equipped
(3) Gear shift lever
(4) Three-point hitch position control lever
(5) Power takeoff switch
(6) Draft control dial
(7) Range shift lever
(8) Auxiliary hydraulic levers [2]
(9) Joystick control lever, if equipped
10 Creep lever, if equipped[3]

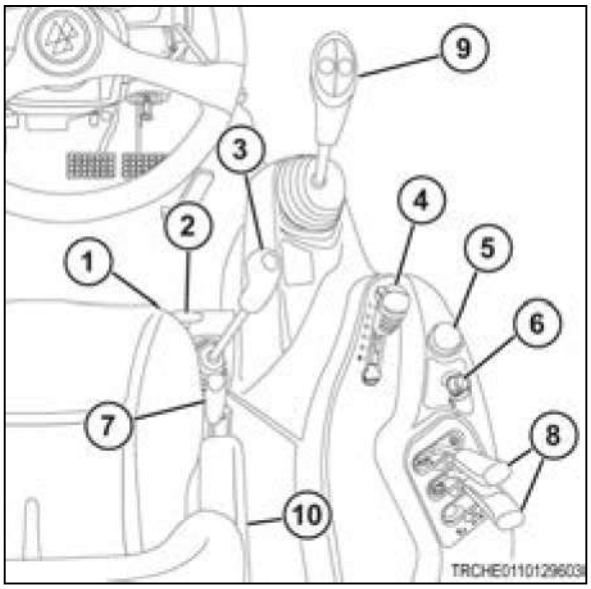


Fig. 2

[2] Up to three auxiliary hydraulic levers can be installed. Four-wheel drive models come with two auxiliary hydraulic levers. Two-wheel drive models come with one auxiliary hydraulic lever.
[3] The creep lever is available from the factory on late production models.

Right-hand side controls for the 4610 low profile

(1) Differential lock pedal
(2) Four-wheel drive shift control lever
(3) Gear shift lever
(4) Three-point hitch position control lever
(5) Power takeoff switch
(6) Draft control dial
(7) Range shift lever
(8) Auxiliary hydraulic levers [4]
(9) Creep lever, if equipped

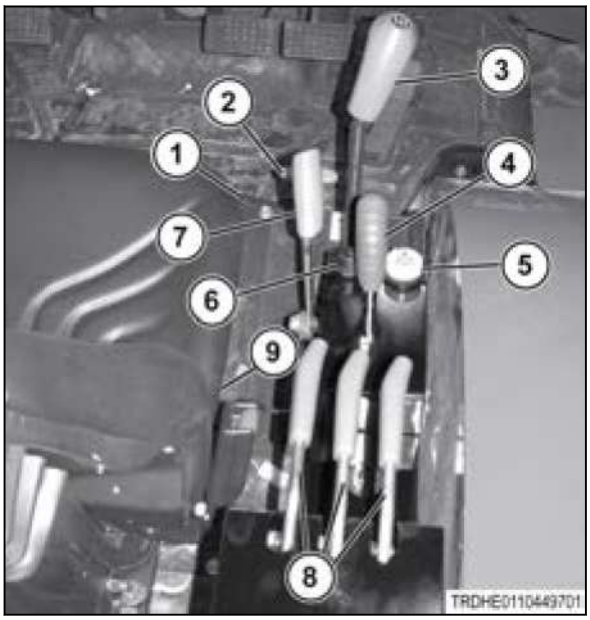


Fig. 3

[4] Up to three auxiliary hydraulic levers can be installed. Four-wheel drive models come with two auxiliary hydraulic levers. Two-wheel drive models come with one auxiliary hydraulic lever.

3.2 Instrument panel components

(1) Tachometer
(2) Turn indicator lamps
(3) Gauge display
(4) Right-hand side indicator lamps
(5) Bottom indicator lamps
(6) Flashing warning lamp switch
(7) Display select switch
(8) Main switch

NOTE:
The instrument panel and switches can be different from what is shown.

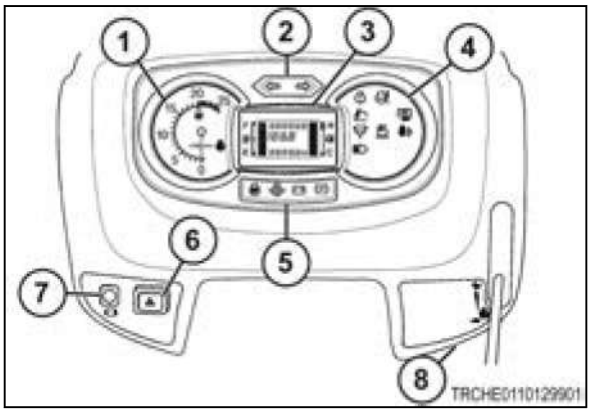


Fig. 4

3.2.1 Main switch

The main switch (1) is located to the right-hand side of the steering column.

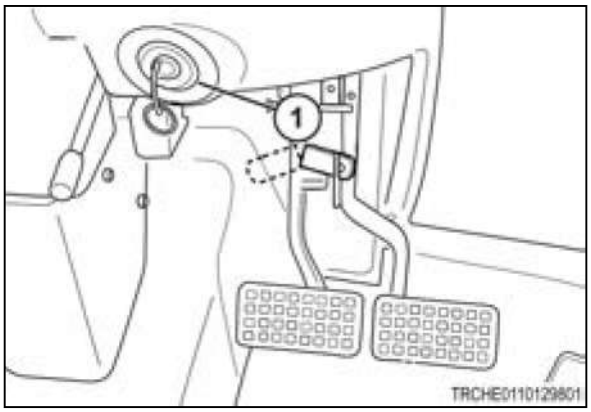


Fig. 5

The main switch has the four following positions:

(1) Off (STOP) - The machine engine and all electrical circuits are off. The key can be removed.
(2) ACC (accessory) - Power is supplied to all circuits.
(3) Heat - Energizes the intake heater to warm the intake air and help with starting.
(4) Start - The starter is activated. This position is spring-loaded to the heat position.

NOTE: *The PTO switch must be in the off position, the parking brake must be applied, and the forward/reverse lever must be in the neutral position before the engine can be started.*

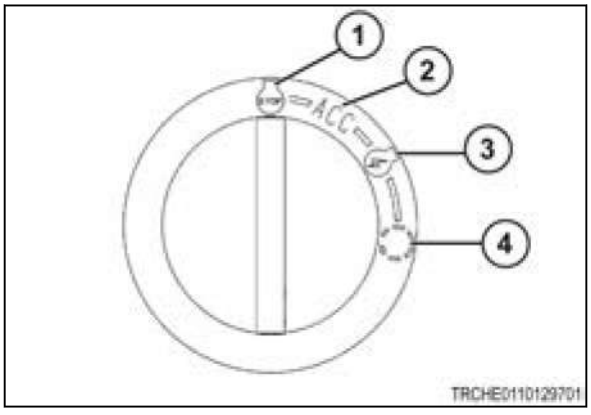


Fig. 6

3.2.2 Lamp switches

Main lamp switch

The main lamp switch (1) is a rotary switch with three operating positions:

(2) Off - The main switch is fully counterclockwise. All lamps are off.
(3) First position - The low beam head lamps and the rear tail lamps are illuminated.
(4) Second position - The main (high) beam head lamps and rear tail lamps are illuminated.

To operate the turn signal lamps, move the lever for main lamp switch in the direction the tractor is being turned. Move the lever forward (5) if the tractor is being turned to the left-hand side. Move the lever rearward (6) if the tractor is being turned to the right-hand side. Return the lever to the center position to stop the turn signal lamps.

The turn signal lamps will not self-cancel. Move the lever to the center position after completing a turn.

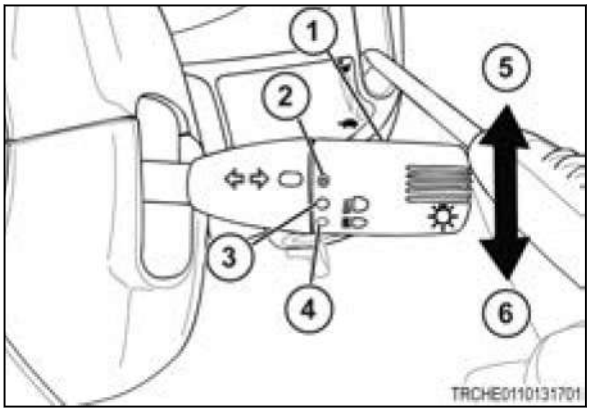


Fig. 7

Warning indicator switch

CAUTION:
Flashing warning lights must be used any time the tractor is driven on public roadway. Consult local agencies for other marking requirements.

The warning indicator switch (1) is a push button, located on the left-hand side of the instrument panel. Both turn signal lamps will flash at the same time when the warning indicator switch is pushed.

Push the warning indicator switch again to stop both turn signal lamps from flashing at the same time.

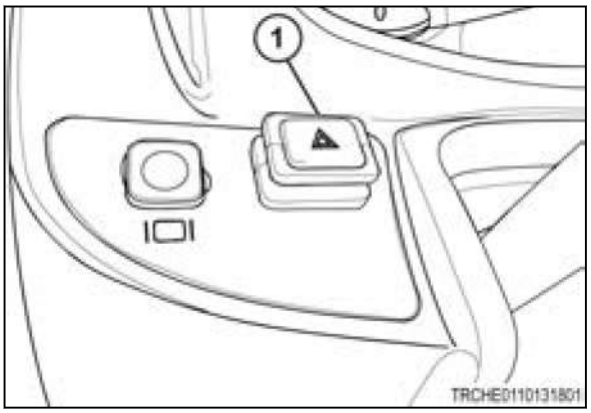


Fig. 8

3.2.3 Tachometer

The tachometer (1) uses a scale to show engine speed in crankshaft revolutions per minute (rpm).

The rear power takeoff (PTO) speed of 540 rpm is approximately 1993 engine rpm. The rear PTO speed of 1000 rpm is approximately 2178 engine rpm.

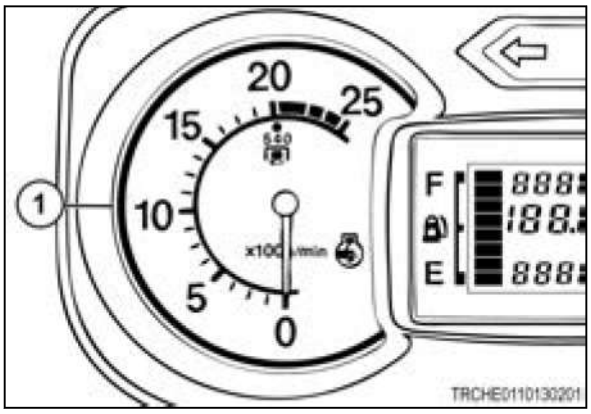


Fig. 9

3.2.4 Indicators and gauges

Right-hand indicator lamps

The indicator lamps located on the right-hand side of the instrument panel.

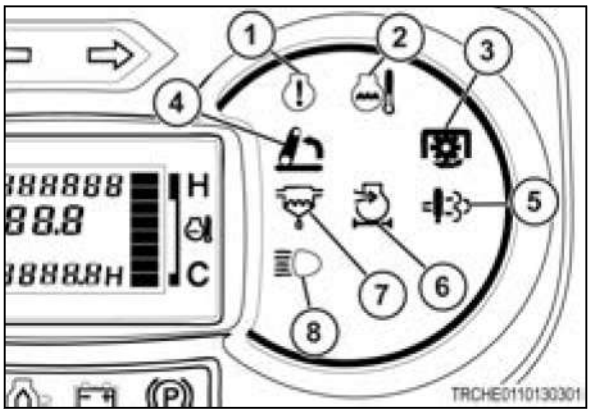
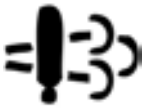


Fig. 10

	Indicator	Name	Description
(1)		Red stop lamp	Stop the engine immediately and find the cause of the problem. Illuminates when and a serious problem is found. Problems can include coolant temperatures above 113 °C (235 °F), low oil pressure, and rail pressure above normal.
(2)		Coolant temperature lamp	Illuminates when the engine is too hot. Decrease the engine speed to idle. Permit the engine to operate at no load for several minutes. Find the cause of the problem. See troubleshooting for more information.
(3)		Power takeoff (PTO) lamp	Illuminates when the PTO control switch is engaged. The lamp will go out when the PTO switch is in the off position.
(4)		Lift up lamp	Illuminates when the position control lever is in the highest position. The lamp will flash when the hydrostatic control is not ready and in the waiting position.
(5)		Emissions lamp	Illuminates when the engine management system indicates a malfunction in the exhaust system.
(6)		Filter restriction lamp	Illuminates when the air filter is restricted. Clean or replace the air filter.
(7)		Water in the fuel lamp	Illuminates when the sensor finds water in the fuel water separator in the fuel pre-filter. Drain the water from the fuel pre-filter.
(8)		Main (high) beam lamp	Illuminates when the lamp switch is in the high beam position.

Bottom indicator lamps

The indicator lamps located on the bottom of the instrument panel.

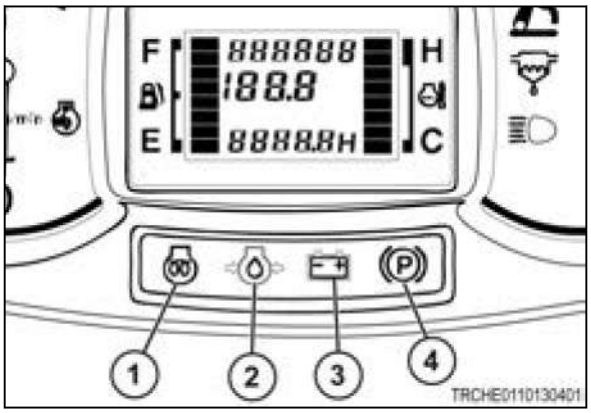


Fig. 11

	Indicator	Name	Description
(1)		Wait to start lamp	Illuminates after the main switch is turned to the heat position. The lamp will turn off to indicate the engine intake is warm and the engine can be started. The lamp illuminates for a maximum of 30 seconds.
(2)		Engine oil pressure lamp	Illuminates if the engine oil pressure is low. If the lamp comes on while the engine is operating, stop the engine immediately and find the cause.
(3)		Battery charge lamp	Illuminates when the main switch is in the ACC (accessory) position. The battery charge lamp will go out after the engine starts, to show the battery is being charged.
(4)		Parking brake lamp	Illuminates when the parking brake is applied.

Engine hourmeter

The engine hourmeter (1) is not resettable. Maintenance intervals are monitored by the engine hourmeter in one hour intervals.

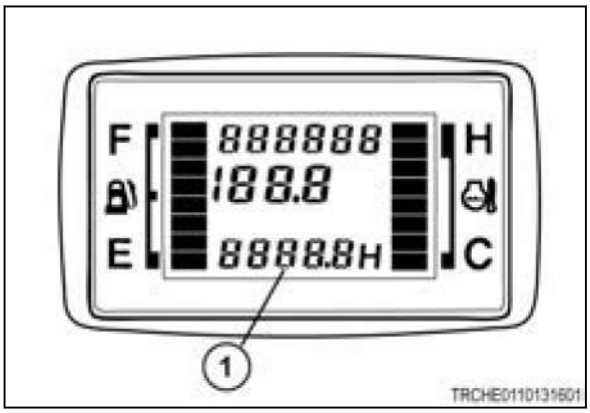


Fig. 12

Coolant temperature gauge

CAUTION:
Do not service a hot engine. Let the engine fully cool before servicing or removing the radiator cap.

The coolant temperature gauge (1) uses a bar graph to show the temperature of the engine coolant. The coolant temperature gauge is active when the main switch is in the ACC (accessory) position.

- C (Cold) (2) - shows too cold of a temperature for severe work. Let the engine warm (bar graph in the middle position) before applying a heavy load.
- H (Hot) (3) - shows the engine is too warm. Decrease the engine speed to idle. Let the engine operate at no load for several minutes. Stop the engine and find the cause. See troubleshooting for more information.

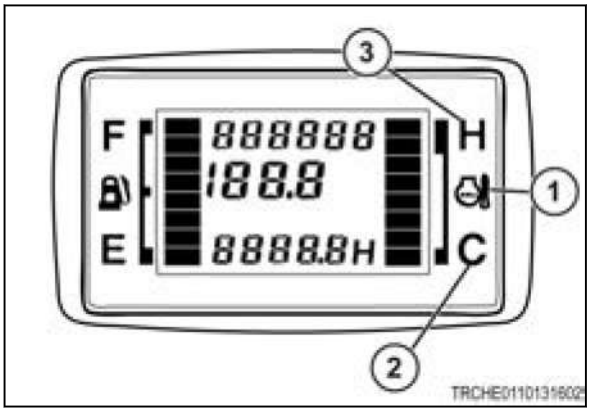


Fig. 13

Fuel gauge

CAUTION:
Do not refill the fuel tank with the engine on or hot. Permit cooling to occur. Do not smoke near the fuel tank. Cleanup any spilled diesel fuel.

The fuel gauge (1) uses a bar graph to show the level of diesel fuel in the fuel tank. The fuel gauge is active only when the main switch is in the ACC (accessory) position.

The nearer the bars are to the full icon (2), the more diesel fuel is in the fuel tank.

Do not let the fuel gauge reach the empty icon (3).

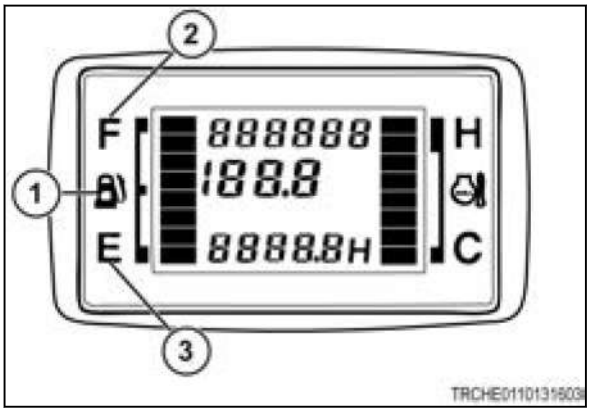


Fig. 14

NOTE:
Use only clean diesel fuel. Clean the area around the fuel tank to prevent dirt/water entry into the fuel tank. Do not run out of fuel, as bleeding air from the fuel system will be required. Keep the fuel tank full to decrease condensation.

Ground speed indicator

On late production models, the ground speed (1) will show on the digital display as well as tachometer.

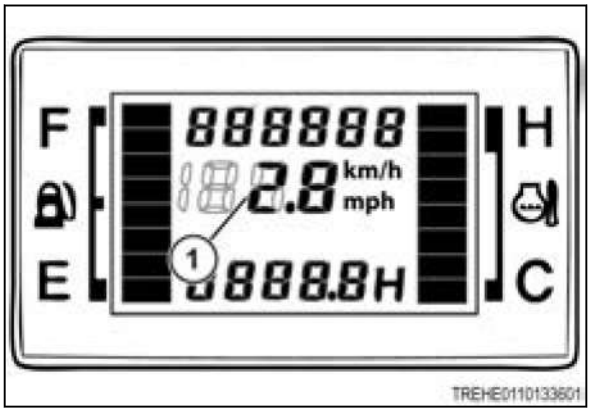


Fig. 15

PTO speed indicator

On late production models, the PTO speed (1) will show on the digital display.

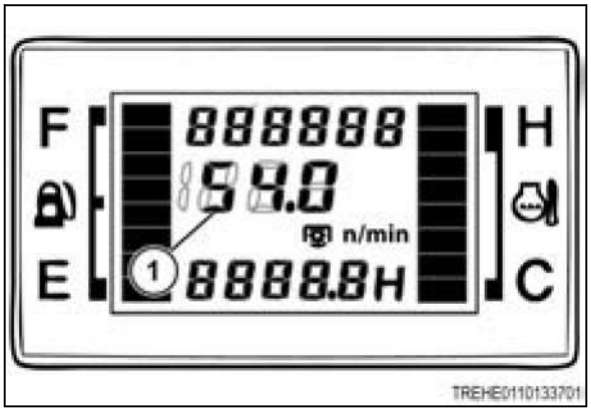


Fig. 16

Turn signal/warning indicator lamps

The turn signal/warning indicator lamps (1) are above the gauge display.

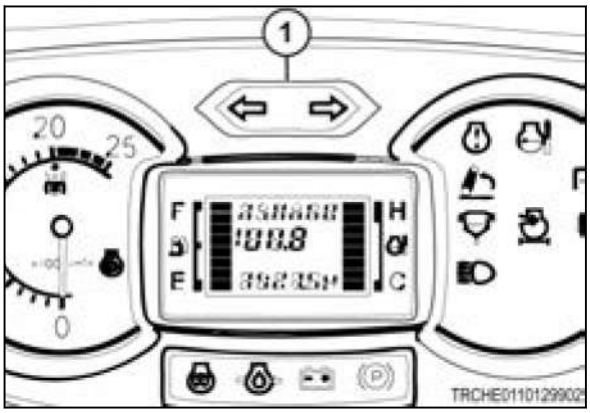


Fig. 17

Fault code display

Fault codes are shown on the gauge display.

(1) Suspect parameter number (SPN) - system fault code
(2) Failure mode indicator (FMI) - failure fault code

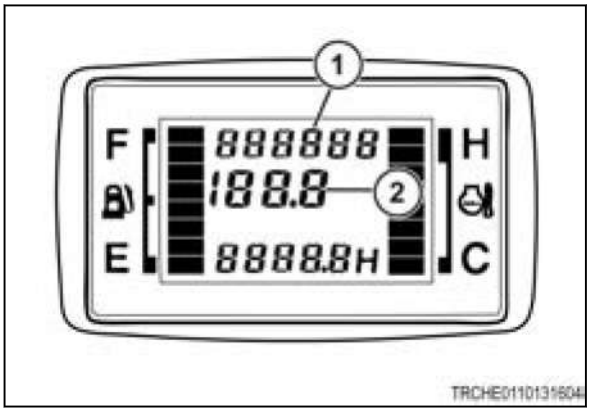


Fig. 18

3.2.5 Display select switch

When fault codes are shown, push the display select switch (1) to see the next fault code screen on the gauge display.

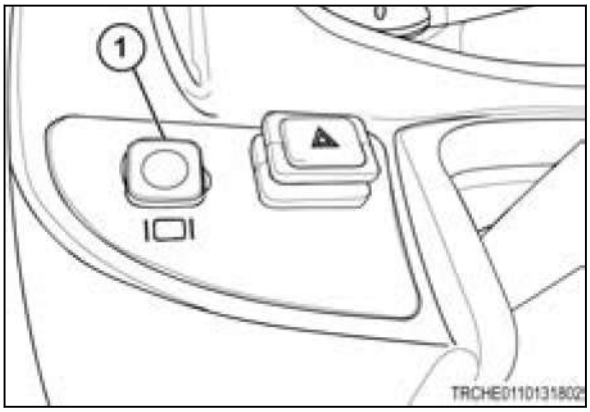


Fig. 19

3.3 Clutch pedal

The clutch pedal (1) is a foot pedal that disengages the engine from the transmission when fully pressed.

Press the clutch pedal to:

- start the engine
- select or change gears
- stop machine movement
- engage or disengage four-wheel drive
- engage or disengage the power takeoff

Slowly raise the pedal to engage the engine and start the machine moving in the selected gear. Raise the clutch pedal smoothly to prevent sudden movement.

Press the clutch pedal quickly to prevent too much wear.

Do not continuously press the clutch pedal.

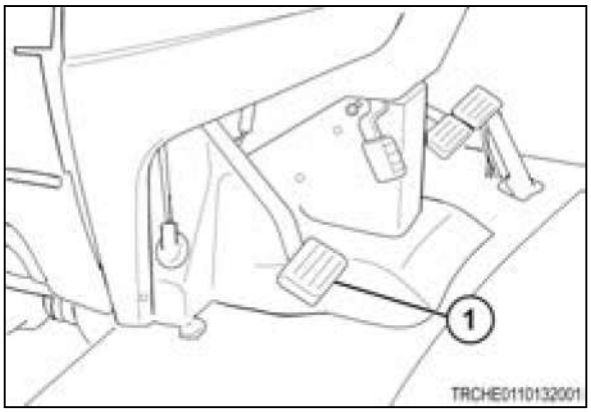


Fig. 20

3.4 Brake pedals and parking brake

3.4.1 Brake pedals

CAUTION:
Do not use the individual wheel brakes when transporting, operating on public roads or operating at high speeds. Lock the brakes together with the pedal lock. Make sure the brakes are adjusted equally.

CAUTION:
For towing safety, the towed equipment, when fully loaded, must not be more than 1.5 times the weight of the towing unit.

Press the left-hand brake pedal (1) to engage the left-hand wheel brake.

Press the right-hand brake pedal (2) to engage the right-hand wheel brake.

Lock the left-hand brake pedal and the right-hand brake pedal together when moving on public roads or operating at high speed.

To lock the brake pedals together, move the pedal lock (3) on the left-hand brake to engage the right-hand brake.

Press both brake pedals at the same time to stop or slow the machine.

Press the brake pedals separately to help turn the machine when sharp turns are necessary or when fields are muddy.

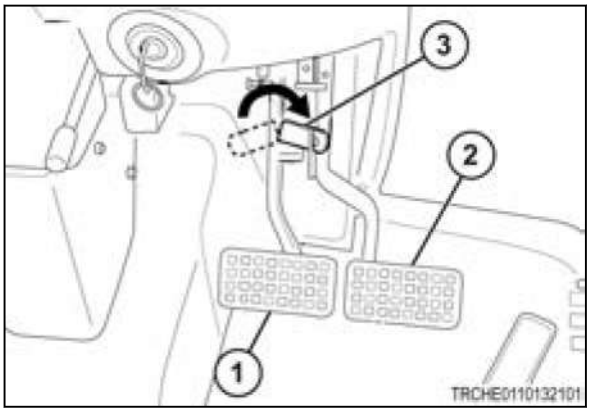


Fig. 21

3.4.2 Applying the parking brake

Procedure

1. Latch the brake pedals (1) together with the pedal lock (2).
2. Press and hold the brake pedals.
3. Lift up on the parking brake lever (3).
4. While holding the parking brake lever, release the brake pedals.

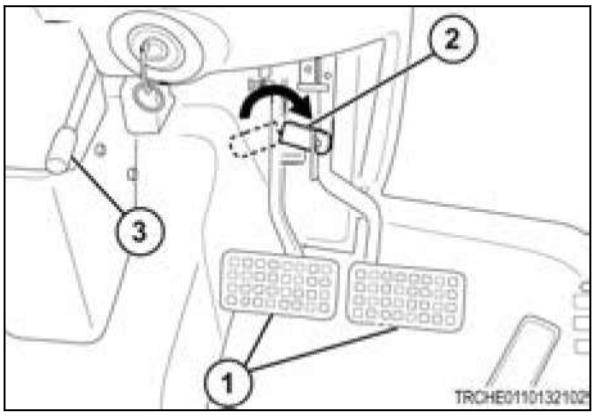


Fig. 22

3.4.3 Releasing the parking brake

Release the parking brake before driving the machine to prevent increased wear.

Procedure

1. Press the brake pedals (1).

Result

The parking brake lever (2) will release.

2. Release the brake pedals and permit the brake pedals to return to the operating position.

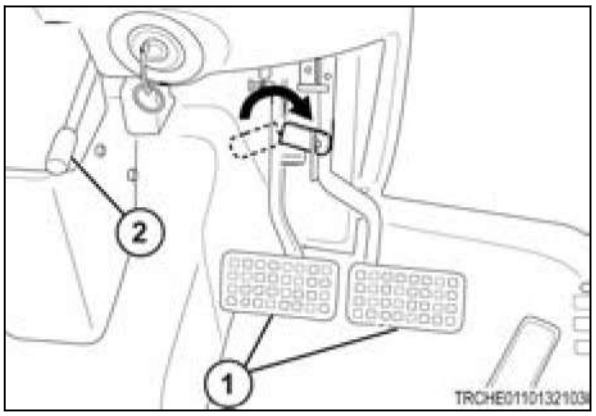


Fig. 23

3.5 Breaking in the tractor

Correct operation of the tractor during the first 50 hours determines the performance and life of the engine and tractor.

IMPORTANT: *The correct maintenance and lubrication procedures are important and required for correct operation.*

- Operate the engine at full speed.

  Prevent excessive load on the engine. If the engine speed decreases too far, operate in a lower gear to keep higher engine speed.
- Check the coolant level and all oil levels frequently during the break-in period.

  Watch for leaking of fluids. Fill the fluid levels as required, and repair any leaks.
- Tighten any nuts, bolts, or screws that have loosened, especially wheel retaining bolts.

  Check the torque on the wheel bolts after 10 hours of operation.

  NOTE: *All fasteners on this machine are metric.*
- Adjust the brake linkage as necessary.

  During the first hours of operation, lining materials will wear to adjust to the surface of the brake discs. This process can make early adjustment necessary.
- If equipped with a clutch, adjust the clutch pedal free play as necessary.

  During the first hours of operation, lining materials will wear to adjust to the surface of the clutch discs. This process can make early adjustment necessary.
- Keep the area around fuel tank filler clean. Make sure diesel fuel is of correct grade and free of contamination. See the specifications for the correct grade of fuel.
- Do the required initial maintenance after the first 50 hours of operation. This includes changing the engine oil and oil filter.

3.6 Starting the tractor

Before starting the procedure

WARNING:
Carefully read and understand the Safety information in this manual. Your safety and that of others depends on proper start-up and operation of the tractor.
Always start and operate the engine in a well ventilated area.
If in an enclosed area, vent the exhaust to the outside.
Do not modify or tamper with the exhaust system.

CAUTION:
Do not attempt to start the tractor unless seated in operator's seat. Do not allow anyone on the tractor except for the operator.

3.6.1 Inspecting before operation

Use the following list to inspect the machine daily before starting.

- Make sure all the safety shields are in position and fastened correctly.
- Make sure the operator has instructions on the correct and safe operation of the machine and any attachments or implements.
- Check the coolant, engine oil, and transmission oil levels. Fill as necessary.
- Check the engine belt tension and adjust as required.
- Make sure the radiator, air intake screens, and radiator screen are clear of debris to supply maximum engine cooling.
- Check the operation of the clutch, the brake, and the throttle controls. All controls must operate freely and be adjusted correctly.
- Make a general inspection of the tires, the tire pressure, and the wheel bolt torque.
- Look for any leaks and correct before operating the machine.
- Check the steering for too much looseness.
- If equipped with hydrostatic controls, make sure the machine stops when the hydrostatic control pedals are in the neutral position.
- Check the fuel level. Keeping the fuel tank full while not in operation will reduce condensation and supply a full tank for the next use.
- Check the operation of the lamps and the warning flashers. If the machine is operating on public road, make sure the slow moving vehicle emblem is in position.

  NOTE: *Local laws can be different for the use of the warning flashers and the slow moving vehicle emblem. Check the local laws.*

3.6.2 Starting the tractor - normal conditions

CAUTION:
Do not start the tractor unless in the operator's seat. Do not allow anyone on the tractor except for the operator.

Procedure

1. Latch the brake pedals (1) together.
2. Press the brake pedals and apply the parking brake lock (2).
3. Put the forward/reverse lever (3) in the centered neutral position.
4. Make sure the power takeoff (PTO) switch (4) is in the off position.

   IMPORTANT:
   The forward/reverse lever must be in the neutral position and the PTO switch must be off to actuate the neutral start switches and permit operation of the starter motor.
5. Put the three-point hitch position lever (5) in the down position. Turn the draft control dial (6) to off.
6. Move the hand throttle lever (7) to the low idle position.
7. Turn the main switch (8) to the heat position . The wait to start lamp will illuminate. Wait until the wait to start lamp is off to start the tractor.
8. Turn the main switch to the start position to engage the starter. Release the switch when the engine starts.

   If the engine does not start or stalls:

   a) Turn the main switch to the STOP position for two seconds.
   b) Turn the main switch to the start position to engage the starter. Release the switch when the engine starts.
9. Set the engine speed to approximately 1500 rpm to permit the engine and the hydraulic system to warm.

   Do not load or race a cold engine.

   NOTE:
   When starting a cold engine, the exhaust from the muffler can contain black soot. Avoid the area around the muffler when starting a cold engine. This soot can stick to objects so do not put objects by the front right-hand side of the tractor. If the soot sticks to the tractor, clean quickly to prevent staining.
10. Check the indicators.

    The battery charge indicator and the engine oil pressure lamp on the bottom of the instrument panel (9) must go out when the engine starts. If either of the lamps stay illuminated, stop the engine immediately and find the cause of the problem.

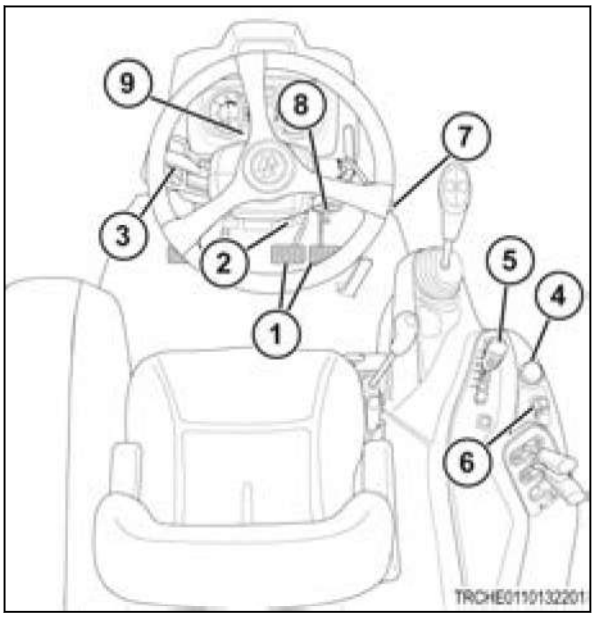


Fig. 24 All models front controls and standard models right-hand controls

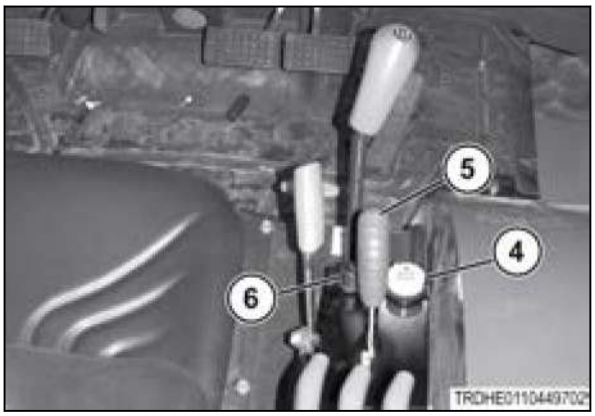


Fig. 25 4610 low profile right-hand controls

IMPORTANT:
If the engine will not start and operate after several tires, see maintenance information. Bleeding air from the fuel system can be necessary.

NOTE:
If the engine has run out of fuel, it will be necessary to bleed the fuel system.

3.6.3 Cold weather starting

Starting an engine in colder ambient temperatures is the same as for normal conditions except for the following:

- Longer use of the intake heater is necessary. Wait until the wait to start lamp is off to start the tractor.
- At temperatures below 4 °C (39 °F) use No. 1 (No. 1-D) diesel fuel because of possible fuel gelling characteristics of No. 2 (No. 2-D) fuel at cold ambient temperature.
- Additional warm up time is necessary for the central hydraulic reservoir because of colder (thicker) oil. The central hydraulic reservoir supplies the hydraulic fluid, and the lubrication to the transmission and the center housing.
- Check all the controls (steering, braking, etc.) before operating the machine.

NOTE:
Installation of an accessory engine block heater can be necessary in cold weather conditions. See your dealer.

IMPORTANT:
Never use ether or any other starting fluid to start engines equipped with an intake heater. Severe engine damage will occur if starting fluid contacts intake heater.

If a booster battery is necessary to start the tractor, connect the booster battery in parallel. Always connect the positive (+) terminals together first. Then install the booster cable on the booster battery negative (-) terminal and ground the booster cable end on the tractor away from the tractor battery.

3.6.4 Warm engine starting

When starting an engine that is still warm, use the same normal starting procedure except turning the main switch to the glow position for 5 to 7 seconds can be removed. Use of glow plugs is not necessary when starting a warm engine.

3.6.5 Warm up period

IMPORTANT: *Not following proper warm up procedures can result in severe engine damage, hydraulic pump seizure, driveline bearing or gear damage and/or sluggish steering or braking.*

After starting a cold engine, let the engine idle at slow speed to make sure all engine components are lubricated.

In colder ambient temperatures, extended warm up will be required to also warm hydraulic fluid and lubricate driveline components.

Ambient temperature		Warm up time
degrees C	degrees F	
0 and up	32 and up	5 to 10 minutes
0 to -10	32 to 15	10 to 20 minutes
-10 to -20	15 to -5	20 to 30 minutes
-20 and less	-5 and less	30 or more minutes

Suggested warm up period:

3.6.6 Operator check items

CAUTION:
Do not attempt to service tractor with engine running or hot. Allow to cool.

Check the following during operation:

- The engine oil pressure lamp will illuminate if the engine oil pressure is low. Stop the engine immediately and find the cause.
- The battery charge lamp will illuminate if the battery is not being charged properly. Stop the engine and find the cause.
- The coolant temperature gauge will indicate hot if the engine is too hot. Stop the engine, allow to cool and find the cause.
- Fill the fuel tank before the fuel gauge reaches the empty position. Running out of fuel will result in the need to bleed air from the fuel system.

3.7 Engine speed controls

CAUTION:
Always select the engine speed appropriate for the task. Decrease the speed before turning or backing the machine.

CAUTION:
The hand throttle lever must be in the low idle position when using the foot throttle pedal. This ensures maximum engine braking when the foot throttle pedal is released.

The hand throttle lever (1) controls the engine speed. The hand throttle lever will stay in the position selected by the operator. Move the hand throttle lever forward to increase the engine speed. Move the hand throttle lever rearward to decrease the engine speed.

The foot throttle pedal (2) will override the settings of the hand throttle lever for increased engine speed. When the foot throttle pedal is released, the engine speed returns to the position of the hand throttle lever.

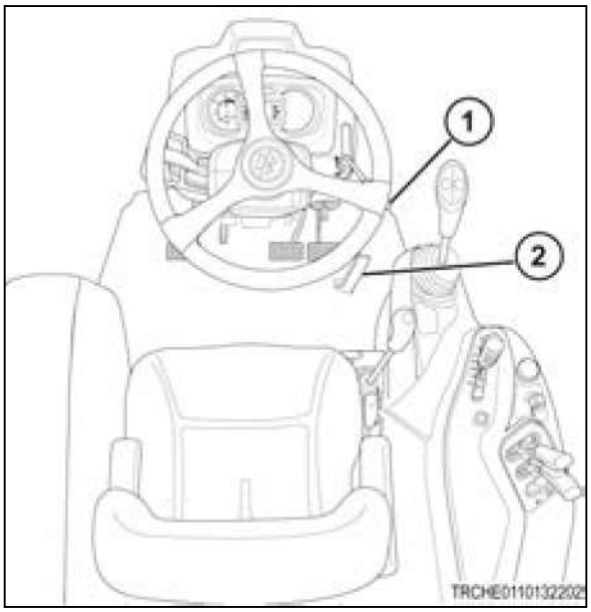


Fig. 26

3.8 Ground speed controls

3.8.1 Forward/reverse lever

CAUTION:
Forward or reverse direction changes must not be made at high speed.

Forward or reverse travel is selected by the forward/reverse lever (1) on the left-hand side of the steering column.

- Lift up and move the forward/reverse lever forward (A) to move in the forward direction.
- Lift up and move the forward/reverse lever rearward (B) to move in the reverse direction.
- Lift up and move the forward/reverse lever to the neutral position (C) to stop.

Make sure the forward/reverse lever is in the neutral position before starting the engine.

With the forward/reverse lever in the forward or reverse positions, direction change is possible without pressing the clutch pedal.

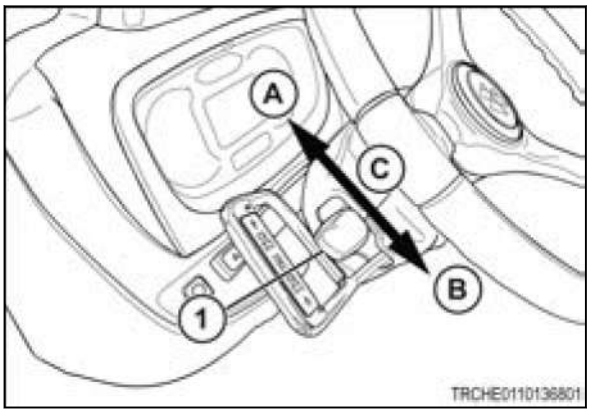


Fig. 27

3.8.2 Range shift lever and gear shift lever

Standard models

The synchronized shifting permit the gear shift lever (1) to move while the machine is moving, with the clutch pedal pressed.

The sliding mesh gears permits the range shift lever (2) to change positions when the tractor is stopped, with the clutch pedal and the brake pedals pressed.

The range shift lever has two major speed changes.

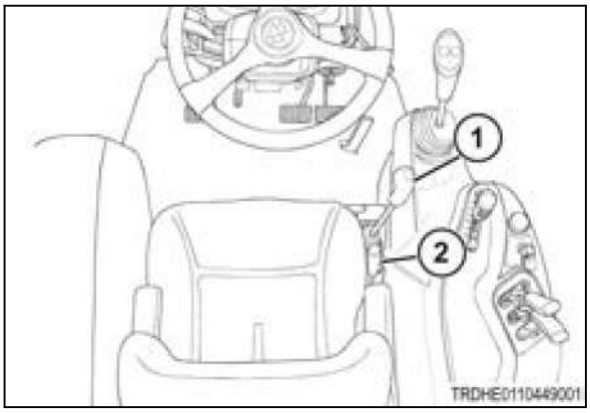


Fig. 28

4610 low profile model

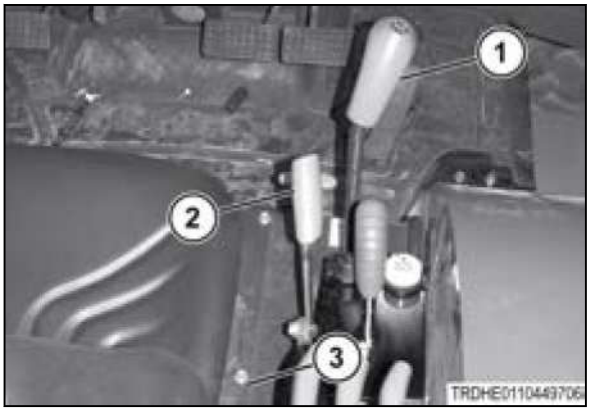


Fig. 29

The synchronized shifting permit the gear shift lever (1) to move while the machine is moving, with the clutch pedal pressed.

The sliding mesh gears permits the range shift lever (2) to change positions when the tractor is stopped, with the clutch pedal and the brake pedals pressed.

The range shift lever has two major speed changes.

If equipped, the creep lever (3) is used to change the slowest speed range. The creep lever gives one major speed change.

3.8.2.1 Shifting the main gears

Procedure

1. Press the clutch pedal.
2. Select the desired position of the gear shift lever.
3. Slowly release the clutch pedal.
4. Continue with operation.

3.8.2.2 Changing range speed

Procedure

1. Press the clutch pedal and brake pedals to stop the machine. Make sure the machine has come to a complete stop before continuing.
2. Select the desired position of the range shift lever.
3. Release the brake pedals and clutch pedal to continue operation.

3.8.2.3 Engaging creep speed

Procedure

1. Press the clutch pedal and the brake pedals to stop the machine. Make sure the machine has come to a complete stop before continuing.
2. Pull the creep lever upward.
3. Release the brake pedals and clutch pedal to continue operation.

3.8.2.4 Disengaging creep speed

Procedure

1. Press the clutch pedal and the brake pedals to stop the machine. Make sure the machine has come to a complete stop before continuing.
2. Push the creep lever downward.
3. Release the brake pedals and clutch pedal to continue operation.

3.8.3 Ground speed charts

Gear arrangement with the correct ground speeds, in order from slow to fast, are shown in the charts.

Two-wheel drive

Shift Positions	Tires	4608	4609		
	Front	7.5-16	7.50-18	10.00-16	10.00-16
	Rear	16.9-30	16.9-30	16.9-34	18.4-30
Range	Gear				
Forward					
	1	2.26 km/h (1.4 mph)	2.12 km/h (1.32 mph)	2.27 km/h (1.41 mph)	2.22 km/h (1.38 mph)
	2	2.89 km/h (1.8 mph)	2.71 km/h (1.68 mph)	2.90 km/h (1.8 mph)	2.84 km/h (1.76 mph)
	3	3.76 km/h (2.34 mph)	3.53 km/h (2.19 mph)	3.77 km/h (2.34 mph)	3.69 km/h (2.29 mph)
	4	5.11 km/h (3.18 mph)	4.80 km/h (2.98 mph)	5.12 km/h (3.18 mph)	5.02 km/h (3.12 mph)
	5	6.89 km/h (4.28 mph)	6.47 km/h (4.02 mph)	6.91 km/h (4.29 mph)	6.76 km/h (4.2 mph)
	6	8.26 km/h (5.13 mph)	7.76 km/h (4.82 mph)	8.28 km/h (5.15 mph)	8.11 km/h (5.04 mph)
	1	9.54 km/h (5.93 mph)	8.96 km/h (5.57 mph)	9.57 km/h (5.95 mph)	9.37 km/h (5.82 mph)
	2	12.20 km/h (7.58 mph)	11.46 km/h (7.12 mph)	12.23 km/h (7.6 mph)	11.98 km/h (7.44 mph)
	3	15.88 km/h (9.87 mph)	14.91 km/h (9.27 mph)	15.92 km/h (9.89 mph)	15.59 km/h (9.69 mph)
	4	21.57 km/h (13.4 mph)	20.25 km/h (12.58 mph)	21.62 km/h (13.43 mph)	21.18 km/h (13.16 mph)
	5	29.08 km/h (18.07 mph)	27.31 km/h (16.97 mph)	29.16 km/h (18.12 mph)	28.56 km/h (17.75 mph)
	6	34.88 km/h (21.67 mph)	32.75 km/h (20.35 mph)	34.97 km/h (21.73 mph)	34.25 km/h (21.28 mph)
Maximum speed		36.63 km/h (22.76 mph)	34.39 km/h (21.37 mph)	36.72 km/h (22.82 mph)	35.96 km/h (22.35 mph)
Reverse					
	1	2.18 km/h (1.35 mph)	2.05 km/h (1.27 mph)	2.19 km/h (1.36 mph)	2.14 km/h (1.33 mph)
	2	2.79 km/h (1.73 mph)	2.62 km/h (1.63 mph)	2.80 km/h (1.74 mph)	2.74 km/h (1.7 mph)
	3	3.64 km/h (2.26 mph)	3.41 km/h (2.12 mph)	3.65 km/h (2.27 mph)	3.57 km/h (2.22 mph)
	4	4.94 km/h (3.07 mph)	4.64 km/h (2.88 mph)	4.95 km/h (3.08 mph)	4.85 km/h (3.01 mph)
	5	6.66 km/h (4.14 mph)	6.25 km/h (3.88 mph)	6.68 km/h (4.15 mph)	6.54 km/h (4.06 mph)
	6	7.99 km/h (4.96 mph)	7.50 km/h (4.66 mph)	8.01 km/h (4.98 mph)	7.84 km/h (4.87 mph)

Shift Positions	Tires	4608	4609		
	Front	7.5-16	7.50-18	10.00-16	10.00-16
	Rear	16.9-30	16.9-30	16.9-34	18.4-30
Range	Gear				
	1	9.22 km/h (5.73 mph)	8.66 km/h (5.38 mph)	9.25 km/h (5.75 mph)	9.06 km/h (5.63 mph)
	2	11.79 km/h (7.33 mph)	11.07 km/h (6.88 mph)	11.82 km/h (7.34 mph)	11.58 km/h (7.2 mph)
	3	15.35 km/h (9.54 mph)	14.41 km/h (8.95 mph)	15.39 km/h (9.56 mph)	15.07 km/h (9.36 mph)
	4	20.85 km/h (12.96 mph)	19.57 km/h (12.16 mph)	20.90 km/h (12.99 mph)	20.47 km/h (12.72 mph)
	5	28.11 km/h (17.47 mph)	26.40 km/h (16.4 mph)	28.19 km/h (17.52 mph)	27.61 km/h (17.16 mph)
	6	33.72 km/h (20.95 mph)	31.66 km/h (19.67 mph)	33.81 km/h (21.01 mph)	33.11 km/h (20.57 mph)
Maximum speed		35.41 km/h (22 mph)	33.24 km/h (20.66 mph)	35.50 km/h (22.06 mph)	34.77 km/h (21.61 mph)

Shift Positions	Tires	4610		
	Front	7.50-18	10.00-16	10.00-16
	Rear	16.9-30	16.9-34	18.4-30
Range	Gear			
Forward				
	1	2.26 km/h (1.4 mph)	2.41 km/h (1.5 mph)	2.36 km/h (1.47 mph)
	2	2.89 km/h (1.8 mph)	3.09 km/h (1.92 mph)	3.02 km/h (1.88 mph)
	3	3.76 km/h (2.34 mph)	4.02 km/h (2.5 mph)	3.93 km/h (2.44 mph)
	4	5.11 km/h (3.18 mph)	5.46 km/h (3.39 mph)	5.34 km/h (3.32 mph)
	5	6.89 km/h (4.28 mph)	7.36 km/h (4.57 mph)	7.21 km/h (4.48 mph)
	6	8.26 km/h (5.13 mph)	8.82 km/h (5.48 mph)	8.64 km/h (5.37 mph)
	1	9.54 km/h (5.93 mph)	10.19 km/h (6.33 mph)	9.98 km/h (6.2 mph)
	2	12.21 km/h (7.59 mph)	13.03 km/h (8.1 mph)	12.76 km/h (7.93 mph)
	3	15.89 km/h (9.87 mph)	16.96 km/h (10.54 mph)	16.61 km/h (10.32 mph)
	4	21.57 km/h (13.4 mph)	23.04 km/h (14.32 mph)	22.56 km/h (14.02 mph)
	5	29.09 km/h (18.08 mph)	31.07 km/h (19.31 mph)	30.43 km/h (18.91 mph)
	6	34.90 km/h (21.69 mph)	37.26 km/h (23.15 mph)	36.49 km/h (22.67 mph)
Maximum speed		36.64 km/h (22.77 mph)	39.12 km/h (24.31 mph)	38.32 km/h (23.81 mph)

Shift Positions	Tires	4610		
	Front	7.50-18	10.00-16	10.00-16
	Rear	16.9-30	16.9-34	18.4-30
Range	Gear			
Reverse				
	1	2.14 km/h (1.33 mph)	2.33 km/h (1.45 mph)	2.29 km/h (1.42 mph)
	2	2.74 km/h (1.7 mph)	2.98 km/h (1.85 mph)	2.92 km/h (1.81 mph)
	3	3.56 km/h (2.21 mph)	3.88 km/h (2.41 mph)	3.80 km/h (2.36 mph)
	4	4.84 km/h (3.01 mph)	5.27 km/h (3.27 mph)	5.17 km/h (3.21 mph)
	5	6.52 km/h (4.05 mph)	7.11 km/h (4.42 mph)	6.97 km/h (4.33 mph)
	6	7.82 km/h (4.86 mph)	8.53 km/h (5.3 mph)	8.35 km/h (5.19 mph)
	1	9.04 km/h (5.62 mph)	9.85 km/h (6.12 mph)	9.65 km/h (6 mph)
	2	11.55 km/h (7 mph)	12.60 km/h (7.83 mph)	12.34 km/h (7.67 mph)
	3	15.04 km/h (9.35 mph)	16.40 km/h (10.19 mph)	16.06 km/h (9.98 mph)
	4	20.42 km/h (12.69 mph)	22.27 km/h (13.84 mph)	21.81 km/h (13.55 mph)
	5	27.54 km/h (17.11 mph)	30.03 km/h (18.66 mph)	29.41 km/h (18.28 mph)
	6	33.04 km/h (20.53 mph)	36.02 km/h (22.38 mph)	35.28 km/h (21.92 mph)
Maximum speed		34.69 km/h (21.56 mph)	37.82 km/h (23.5 mph)	37.04 km/h (23.02 mph)

Four-wheel drive

Shift Positions	Tires	4608		4609	
	Front	9.5-24	10.5/80-18	11.2-24	12.5/80-18R4
	Rear	16.9-30	19.5L-24R4	16.9-30	19.5L-24R4
Range	Gear				
Forward					
	1	2.26 km/h (1.4 mph)	1.98 km/h (1.23 mph)	2.27 km/h (1.41 mph)	1.98 km/h (1.23 mph)
	2	2.89 km/h (1.8 mph)	2.53 km/h (1.57 mph)	2.90 km/h (1.8 mph)	2.53 km/h (1.57 mph)
	3	3.76 km/h (2.34 mph)	3.29 km/h (2.04 mph)	3.77 km/h (2.34 mph)	3.29 km/h (2.04 mph)
	4	5.11 km/h (3.18 mph)	4.47 km/h (2.78 mph)	5.12 km/h (3.18 mph)	4.47 km/h (2.78 mph)
	5	6.89 km/h (4.28 mph)	6.03 km/h (3.75 mph)	6.91 km/h (4.29 mph)	6.03 km/h (3.75 mph)
	6	8.26 km/h (5.13 mph)	7.23 km/h (4.49 mph)	8.28 km/h (5.15 mph)	7.23 km/h (4.49 mph)

Shift Positions	Tires	4608		4609	
	Front	9.5-24	10.5/80-18	11.2-24	12.5/80-18R4
	Rear	16.9-30	19.5L-24R4	16.9-30	19.5L-24R4
Range	Gear				
	1	9.54 km/h (5.93 mph)	8.35 km/h (5.19 mph)	9.57 km/h (5.95 mph)	8.35 km/h (5.19 mph)
	2	12.20 km/h (7.58 mph)	10.68 km/h (6.64 mph)	12.23 km/h (7.6 mph)	10.68 km/h (6.64 mph)
	3	15.88 km/h (9.87 mph)	13.90 km/h (8.64 mph)	15.92 km/h (9.89 mph)	13.90 km/h (8.64 mph)
	4	21.57 km/h (13.4 mph)	18.88 km/h (11.73 mph)	21.62 km/h (13.43 mph)	18.88 km/h (11.73 mph)
	5	29.08 km/h (18.07 mph)	25.46 km/h (15.82 mph)	29.16 km/h (18.12 mph)	25.46 km/h (15.82 mph)
	6	34.88 km/h (21.67 mph)	30.54 km/h (18.98 mph)	34.97 km/h (21.73 mph)	30.54 km/h (18.98 mph)
Maximum speed		36.63 km/h (22.76 mph)	32.06 km/h (19.92 mph)	36.72 km/h (22.82 mph)	32.06 km/h (19.92 mph)
Reverse					
	1	2.18 km/h (1.35 mph)	1.91 km/h (1.19 mph)	2.19 km/h (1.36 mph)	1.91 km/h (1.19 mph)
	2	2.79 km/h (1.73 mph)	2.45 km/h (1.52 mph)	2.80 km/h (1.74 mph)	2.45 km/h (1.52 mph)
	3	3.64 km/h (2.26 mph)	3.18 km/h (1.98 mph)	3.65 km/h (2.27 mph)	3.18 km/h (1.98 mph)
	4	4.94 km/h (3.07 mph)	4.32 km/h (2.68 mph)	4.95 km/h (3.08 mph)	4.32 km/h (2.68 mph)
	5	6.66 km/h (4.14 mph)	5.83 km/h (3.62 mph)	6.68 km/h (4.15 mph)	5.83 km/h (3.62 mph)
	6	7.99 km/h (4.96 mph)	6.99 km/h (4.34 mph)	8.01 km/h (4.98 mph)	6.99 km/h (4.34 mph)
	1	9.22 km/h (5.73 mph)	8.07 km/h (5.01 mph)	9.25 km/h (5.75 mph)	8.07 km/h (5.01 mph)
	2	11.79 km/h (7.33 mph)	10.32 km/h (6.41 mph)	11.82 km/h (7.34 mph)	10.32 km/h (6.41 mph)
	3	15.35 km/h (9.54 mph)	13.44 km/h (8.35 mph)	15.39 km/h (9.56 mph)	13.44 km/h (8.35 mph)
	4	20.85 km/h (12.96 mph)	18.25 km/h (11.34 mph)	20.90 km/h (12.99 mph)	18.25 km/h (11.34 mph)

Shift Positions	Tires	4608		4609	
	Front	9.5-24	10.5/80-18	11.2-24	12.5/80-18R4
	Rear	16.9-30	19.5L-24R4	16.9-30	19.5L-24R4
Range	Gear				
	5	28.11 km/h (17.47 mph)	24.61 km/h (15.29 mph)	28.19 km/h (17.52 mph)	24.61 km/h (15.29 mph)
	6	33.72 km/h (20.95 mph)	29.52 km/h (18.34 mph)	33.81 km/h (21.01 mph)	29.52 km/h (18.34 mph)
Maximum speed		35.41 km/h (22 mph)	30.99 km/h (19.26 mph)	35.50 km/h (22.06 mph)	30.99 km/h (19.26 mph)

Shift Positions	Tires	4610 standard		4610 low profile	
	Front	12.4-24	12.5/80-18R4	12.5/80-18R4	9.5-24
	Rear	16.9-34	19.5L-24R4	16.9-34	18.4-26
Range	Gear				
Forward					
	1			0.34 km/h (0.21 mph)	0.37 km/h (0.23 mph)
	2			0.43 km/h (0.27 mph)	0.47 km/h (0.29 mph)
	3			0.56 km/h (0.35 mph)	0.61 km/h (0.38 mph)
	4			0.76 km/h (0.47 mph)	0.83 km/h (0.52 mph)
	5			1.03 km/h (0.64 mph)	1.12 km/h (0.7 mph)
	6			1.23 km/h (0.76 mph)	1.34 km/h (0.83 mph)
	1	2.41 km/h (1.5 mph)	1.98 km/h (1.23 mph)	2.14 km/h (1.33 mph)	2.33 km/h (1.45 mph)
	2	3.09 km/h (1.92 mph)	2.53 km/h (1.57 mph)	2.73 km/h (1.7 mph)	2.98 km/h (1.85 mph)
	3	4.02 km/h (2.5 mph)	3.29 km/h (2.04 mph)	3.56 km/h (2.21 mph)	3.88 km/h (2.41 mph)
	4	5.46 km/h (3.39 mph)	4.47 km/h (2.78 mph)	4.83 km/h (3 mph)	5.26 km/h (3.27 mph)
	5	7.36 km/h (4.57 mph)	6.03 km/h (3.75 mph)	6.52 km/h (4.05 mph)	7.10 km/h (4.41 mph)
	6	8.82 km/h (5.48 mph)	7.23 km/h (4.49 mph)	7.81 km/h (4.85 mph)	8.51 km/h (5.29 mph)
	1	10.19 km/h (6.33 mph)	8.35 km/h (5.19 mph)	9.02 km/h (5.61 mph)	9.83 km/h (6.11 mph)
	2	13.03 km/h (8.1 mph)	10.68 km/h (6.64 mph)	11.54 km/h (7.17 mph)	12.57 km/h (7.81 mph)

Shift Positions	Tires	4610 standard		4610 low profile	
	Front	12.4-24	12.5/80-18R4	12.5/80-18R4	9.5-24
	Rear	16.9-34	19.5L-24R4	16.9-34	18.4-26
Range	Gear				
	3	16.96 km/h (10.54 mph)	13.90 km/h (8.64 mph)	15.02 km/h (9.33 mph)	16.36 km/h (10.17 mph)
	4	23.04 km/h (14.32 mph)	18.88 km/h (11.73 mph)	20.40 km/h (12.68 mph)	22.22 km/h (13.81 mph)
	5	31.07 km/h (19.31 mph)	25.46 km/h (15.82 mph)	27.51 km/h (17.09 mph)	29.96 km/h (18.62 mph)
	6	37.26 km/h (23.15 mph)	30.54 km/h (18.98 mph)	33.00 km/h (20.51 mph)	35.94 km/h (22.33 mph)
Maximum speed		39.12 km/h (24.31 mph)	32.06 km/h (19.92 mph)	34.65 km/h (21.53 mph)	37.73 km/h (23.45 mph)
Reverse					
	1			0.33 km/h (0.21 mph)	0.35 km/h (0.22 mph)
	2			0.42 km/h (0.26 mph)	0.45 km/h (0.28 mph)
	3			0.54 km/h (0.34 mph)	0.59 km/h (0.37 mph)
	4			0.74 km/h (0.46 mph)	0.80 km/h (0.5 mph)
	5			0.99 km/h (0.62 mph)	1.08 km/h (0.67 mph)
	6			1.19 km/h (0.74 mph)	1.30 km/h (0.81 mph)
	1	2.33 km/h (1.45 mph)	1.91 km/h (1.19 mph)	2.07 km/h (1.29 mph)	2.25 km/h (1.4 mph)
	2	2.98 km/h (1.85 mph)	2.45 km/h (1.52 mph)	2.64 km/h (1.64 mph)	2.88 km/h (1.79 mph)
	3	3.88 km/h (2.41 mph)	3.18 km/h (1.98 mph)	3.44 km/h (2.14 mph)	3.75 km/h (2.33 mph)
	4	5.27 km/h (3.27 mph)	4.32 km/h (2.68 mph)	4.67 km/h (2.9 mph)	5.09 km/h (3.16 mph)
	5	7.11 km/h (4.42 mph)	5.83 km/h (3.62 mph)	6.30 km/h (3.91 mph)	6.86 km/h (4.26 mph)
	6	8.53 km/h (5.3 mph)	6.99 km/h (4.34 mph)	7.55 km/h (4.69 mph)	8.23 km/h (5.11 mph)
	1	9.85 km/h (6.12 mph)	8.07 km/h (5.01 mph)	8.72 km/h (5.42 mph)	9.50 km/h (5.9 mph)
	2	12.60 km/h (7.83 mph)	10.32 km/h (6.41 mph)	11.16 km/h (6.93 mph)	12.15 km/h (7.55 mph)
	3	16.40 km/h (10.19 mph)	13.44 km/h (8.35 mph)	14.52 km/h (9.02 mph)	15.82 km/h (9.83 mph)

Shift Positions	Tires	4610 standard		4610 low profile	
	Front	12.4-24	12.5/80-18R4	12.5/80-18R4	9.5-24
	Rear	16.9-34	19.5L-24R4	16.9-34	18.4-26
Range	Gear				
	4	22.27 km/h (13.84 mph)	18.25 km/h (11.34 mph)	19.72 km/h (12.25 mph)	21.48 km/h (13.35 mph)
	5	30.03 km/h (18.66 mph)	24.61 km/h (15.29 mph)	26.59 km/h (16.52 mph)	28.96 km/h (18 mph)
	6	36.02 km/h (22.38 mph)	29.52 km/h (18.34 mph)	31.90 km/h (19.82 mph)	34.74 km/h (21.59 mph)
Maximum speed		37.82 km/h (23.5 mph)	30.99 km/h (19.26 mph)	33.49 km/h (20.81 mph)	36.48 km/h (22.67 mph)

3.8.4 Four-wheel drive

The four-wheel drive front axle is mechanically driven. The four-wheel drive shift lever (1) engages and disengages the drive for the front axle.

IMPORTANT:
Stop the tractor before engaging or disengaging the four-wheel drive.

- Move the lever down to engage the front axle (four-wheel drive). Power is available to both front and rear axles.
- Move the lever up to disengage the front axle.

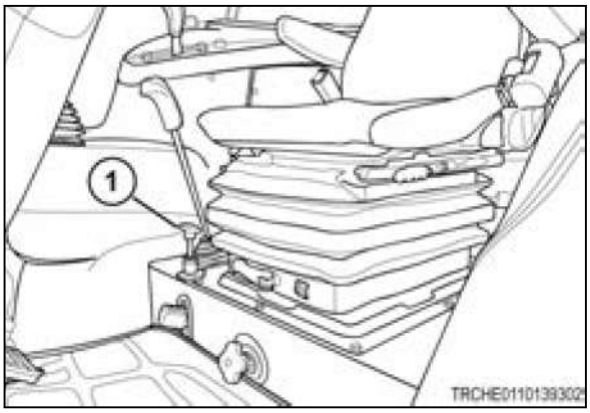


Fig. 30

When the front axle is engaged, the ground speed of the front tires will vary from the ground speed of the rear tires. This is to assist steering when four-wheel drive is selected.

For this reason, disengage the front axle when the tractor is roading or operating on a hard, dry surface. Failure to do so will cause in rapid wear of the front drive tires and possible driveline damage.

IMPORTANT:
Always disengage the front drive axle when operating in conditions with a small amount of wheel slippage (dry or hard surfaces).

IMPORTANT:
If tire replacement is necessary, install replacement tires that are the same to keep the correct front/rear axle lead ratio.

3.8.5 Engaging the differential lock

CAUTION:
Do not use differential lock on hard surfaces or when transporting the tractor.

CAUTION:
When differential lock is engaged, steering ability of tractor will be greatly reduced. Disengage before attempting a turn.

When the differential lock pedal is pressed, both sides of the rear axle are locked together so the rear wheels turn together at the same speed. This is especially important when operating in loose soil or slippery conditions.

Procedure

1. Stop the tractor.

   IMPORTANT:
   Do not engage the differential lock while the rear wheels are turning. Severe damage can result.
2. Press and hold the lock pedal (1).
3. Start ground travel.

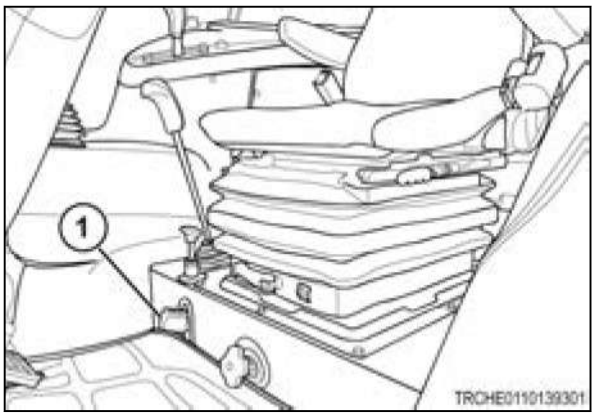


Fig. 31

After finishing the procedure

To disengage the differential lock, press the clutch pedal. Release the differential lock pedal.

NOTE:
The differential lock pedal will normally return to the off position when disengaged. If the differential lock pedal remains engaged, tap the brake pedals alternately while the tractor is moving slowly.

3.8.6 Stopping the machine

Before starting the procedure

Procedure

1. Decrease the engine speed.
2. Press the clutch pedal and the brake pedals.
3. Put the forward/reverse lever in neutral.
4. Put the range shift lever and the gear shift lever in the neutral position.
5. Latch the brake pedals together.
6. Press the brake pedals and apply the parking brake.
7. Permit the engine to idle for several minutes for even cooling.
8. Turn the main switch to stop.

   Result
   The engine must stop.
9. Lower any attachments and mounted equipment to the ground.

After finishing the procedure

CAUTION:
Before leaving the tractor unattended, make sure the brakes are locked, any attachments and mounted equipment are lowered to the ground, and the key is removed from the ignition.

Always park the machine on a level area whenever possible. If hillside parking is necessary, block both of the rear wheels as shown.

NOTE: *When stopping or parking the machine, apply the parking brake. Without the parking brake applied, the machine can slowly move (especially with cold oil).*

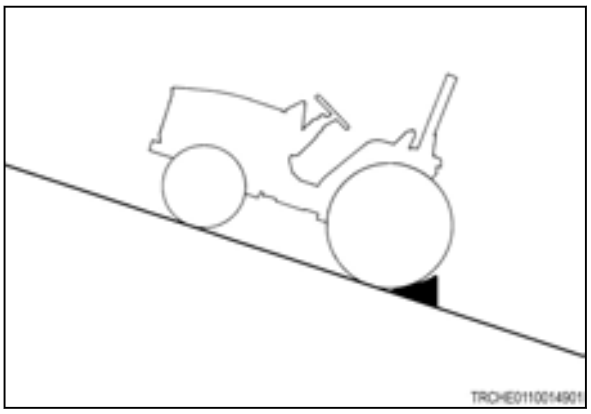


Fig. 32

3.9 Joystick, if equipped

3.9.1 Joystick control lever

WARNING:
Do not operate the joystick except when seated in the tractor. The front loader may operate unexpectedly, causing personal injury.

The joystick control lever (1) is located on the right-hand side of the seat.

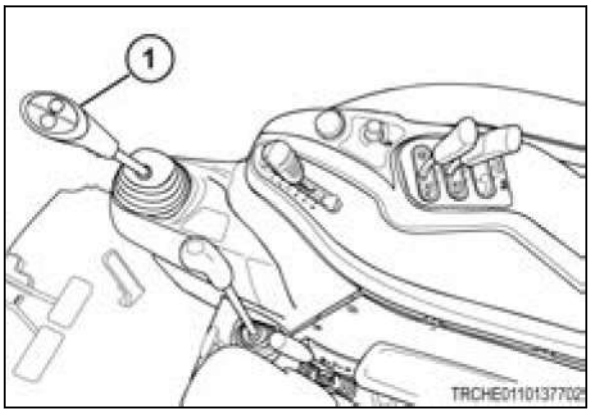


Fig. 33

The raise, lower, float operations for the boom, and rollback, dump, fast dump operations for the bucket can be controlled with the joystick control lever.

The raise and lower operations for the boom, and rollback and dump operations for the bucket automatically return to the neutral position when the joystick control lever is released.

The float on the boom can be kept at the float position by the detent device.

NOTE:
When the joystick is operated on a tractor without a front loader, the relief valve can be operated, causing the three-point link to stop operating.

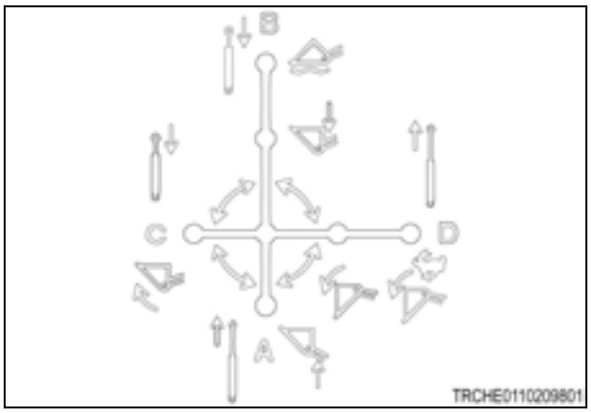


Fig. 34

3.9.2 Joystick operation

Move the joystick control lever (1) to operate the auxiliary valve. The auxiliary valve supplies oil to the hydraulic ports located on the right-hand side.

Move the joystick control lever rearward and forward to move the A/B spool in the control valve.

Move the joystick control lever side-to-side to move the C/D valve spool and control the loader bucket position. When used with a blade, this controls angling (left and right).

All positions, except float, will return to the neutral position when lever is released.

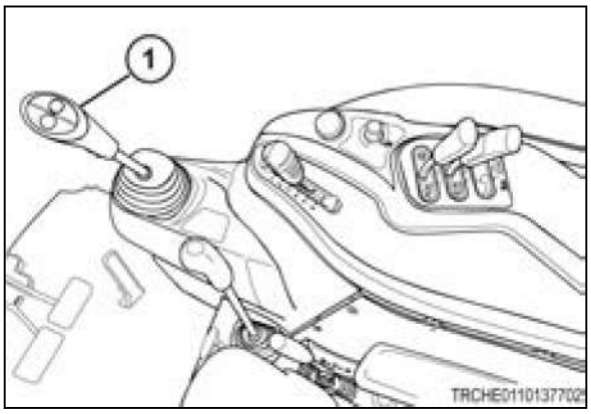


Fig. 35

(1) Move rearward to raise the loader or other attachment.
(2) Move forward to lower the loader or other attachment.
(3) Push completely forward to put into the float position to permit the attachment to follow ground contours. When in float, the detent holds the A/B valve spool. Pull the lever rearward to disengage the detents.
(4) Move left to roll back the bucket.
(5) Move right to dump the bucket.
(6) Push completely to the right to put the valve in the regenerative position, permitting the bucket to dump quickly.

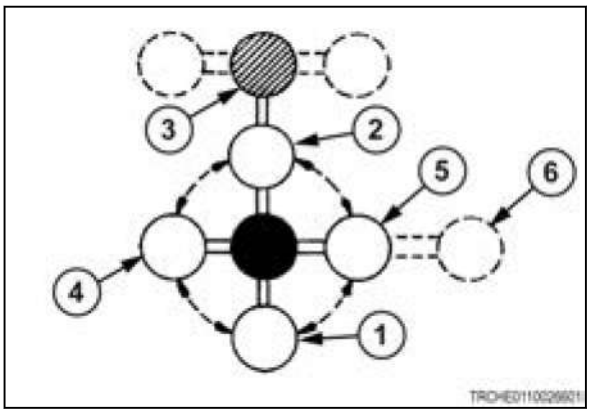


Fig. 36

NOTE:
If the float position or any other valve functions can not be selected, it can be necessary to adjust the control rod at the base of the joystick control lever.

3.9.3 Joystick lockout

The joystick lockout (1) is located on the front of the console below the joystick.

- To lock the joystick, raise the lock lever and move the lock lever to the left.

  With the lock lever in the up position, the joystick cannot be operated.
- To unlock the joystick, move the lock lever to the right and down.

  When the lock lever in the down position, the joystick can be operated.

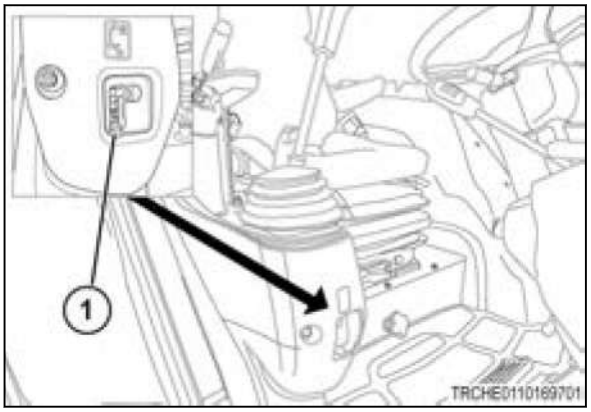


Fig. 37

3.9.4 Hydraulic ports

The hydraulic output ports are located above the right-hand step.

Loader outlet ports

Output port	Function
A	Loader raise
B	Loader lower and loader float
C	Bucket roll back
D	Bucket dump and dump quickly

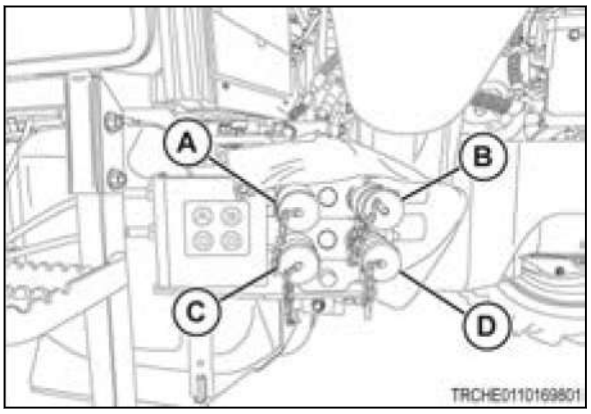


Fig. 38

Outlet ports for other hydraulic operations

Output port	Double acting cylinder	Single acting cylinder
A	Extend	Extend/retract
B	Retract	Not used
C	Extend	Not used
D	Retract	Not used

3.10 Rear auxiliary hydraulics

CAUTION:
Always lower implement to ground, shut off engine and relieve system pressure (by operating control levers with engine off) before connecting or disconnecting implement hoses.

CAUTION:
Make sure all hydraulic hoses, couplers and cylinders are in good condition before use.

Standard models

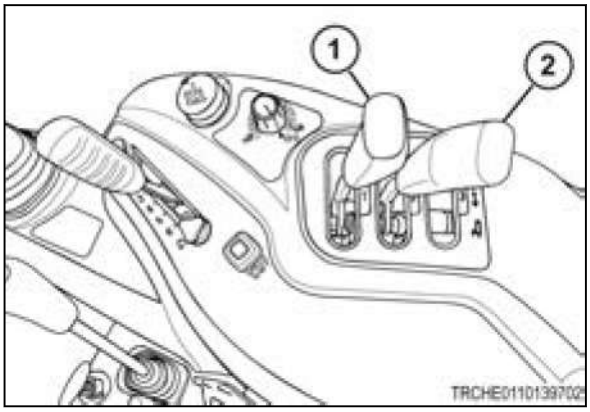


Fig. 39

4610 low profile models

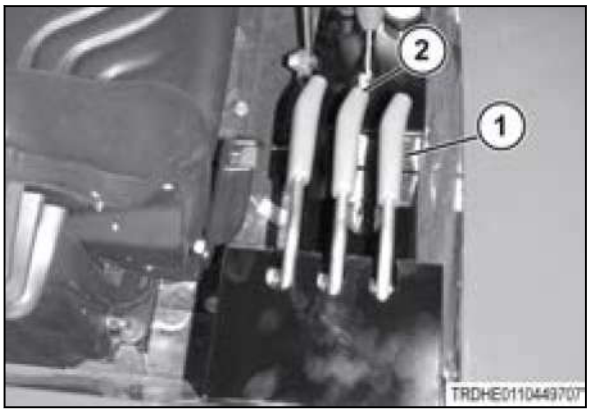


Fig. 40

The rear auxiliary hydraulics operate implements requiring an external hydraulic source for operation.

The control levers (1) and (2) control implement raising, lowering, or other hydraulic function. Pull the handle back to raise the implement. Push the handle forward to lower the implement.

The control levers are spring loaded to the center (neutral) position.

NOTE:
Four-wheel drive - Two valves are standard. A third valve is optional.
Two-wheel drive - one valve is standard. Two additional valves are optional.

The remote couplers are located at the back of the tractor.

For standard models:

- On the right-hand side, the right-hand coupler set (1) is controlled by the front control lever, if equipped.
- On the right-hand side, the left-hand coupler set (2) is controlled by the middle control lever.
- On the left-hand side, the coupler set is controlled by the rear control lever, if equipped.

For 4610 low profile models:

- On the right-hand side, the right-hand coupler set (1) is controlled by the control lever nearest the fender.
- On the right-hand side, the left-hand coupler set (2) is controlled by the middle control lever.
- On the left-hand side, the coupler set is controlled by the control lever nearest the operator seat, if equipped.

Connect the implement hoses to the coupler set. The male coupler tip, on the implement hose, must be fully inserted and locked into the tractor coupler to operate correctly.

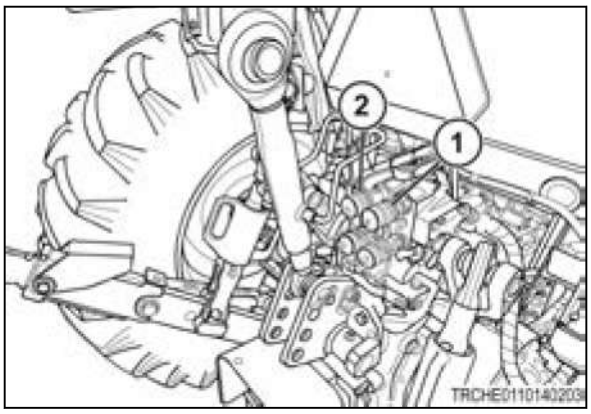


Fig. 41

Free flow valve

If a free flow valve is installed, the control lever will lock in the forward position. The control lever does not automatically return to the neutral position after the hydraulic cylinder stops. Move the handle to the neutral position.

Kickout and free flow valve

If a kickout valve and a free flow valve are installed, the control lever will lock in the forward and rearward positions. The control lever does not automatically return to the neutral position after the hydraulic cylinder stops. Move the handle to the neutral position.

3.10.1 Double-acting and single-acting settings

The levers to select between double-acting or single-acting hydraulics are located on the hydraulic valves.

- Double-acting hydraulics

  Most implements require double-acting hydraulics. Two hoses are connected to each hydraulic cylinder.

  For double-acting hydraulics, move the lever to the right-hand position (1).
- Single-acting hydraulics

  Implements with one hose connected to each hydraulic cylinder require single-acting hydraulics.

  For single-acting hydraulics, move the lever to the left-hand position (2).

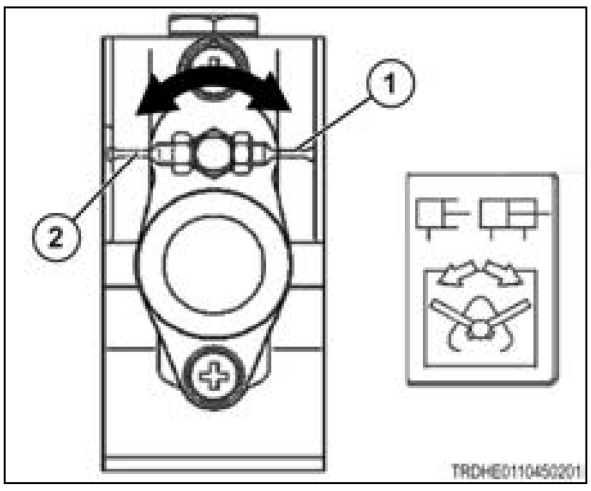


Fig. 42

3.11 Cab components

Front cab components

(1) Cab lamp
(2) Cab component instrument panel
(3) Side air vents
(4) Front air vents
(5) Air conditioner operation panel

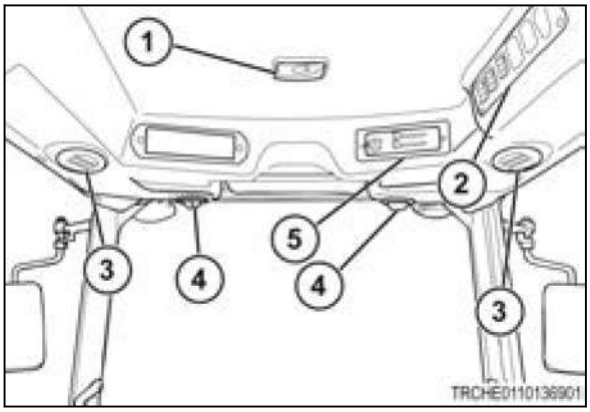


Fig. 43

Rear cab components

(1) Side air vents
(2) Cab air filter
(3) Speakers

NOTE:
For North America the speaker covers are installed, but the speakers are optional. For Australia the speakers are installed.

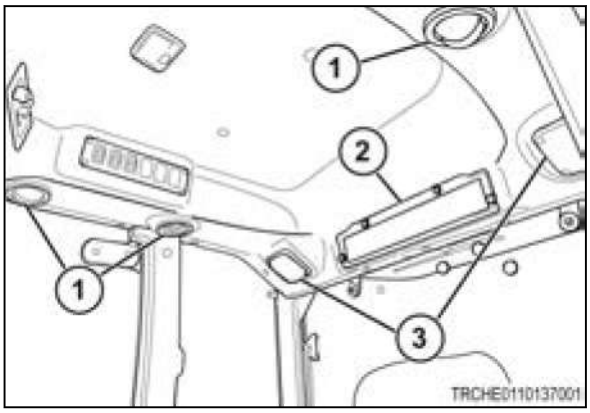


Fig. 44

3.11.1 Doors

CAUTION:
When closing the door, be sure to keep hands and fingers out of the way.

CAUTION:
Do not operate the machine with the door partially or fully open.

CAUTION:
If there is an emergency, exit from either the right-hand door or the left-hand door. If the doors cannot be opened, exit from the rear window.

A door is located on the right-hand and left-hand side of the machine.

To open the door of the cab from the outside, push the door lock button (1) and pull the handle (2).

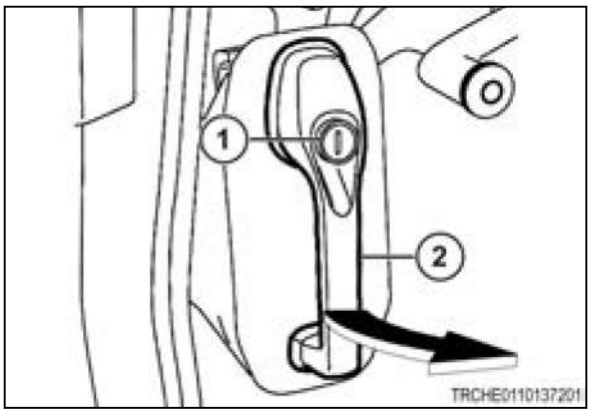


Fig. 45

To lock the door, insert the key into the keyhole in the door lock button (1) and turn 90° counterclockwise (2). Pull the key out of the keyhole in the horizontal position.

To unlock the door, insert the key into the keyhole in the door lock button and turn 90° clockwise (3). Pull the key out of the keyhole in the vertical position.

The door cannot be locked with the key from the inside of the cab.

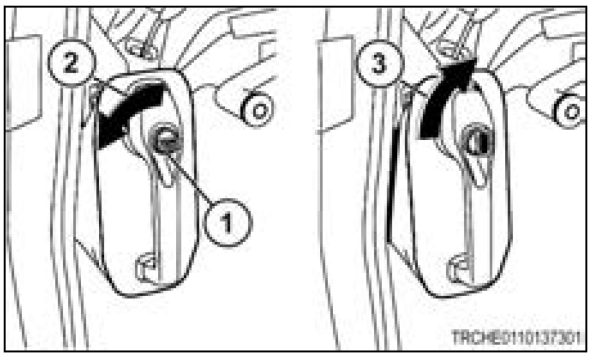


Fig. 46

To open the door from the inside of the cab, slide the inner door handle (1) rearward and then push on the handle (2) on the door.

To close the door from the inside of the cab, slowly pull the inner door handle.

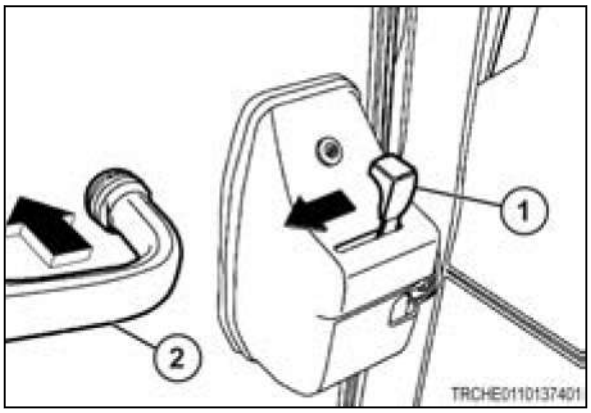


Fig. 47

When exiting the machine, use the handle (1) and the footstep (2).

Do not put weight on the door spring (3) when entering or exiting the cab.

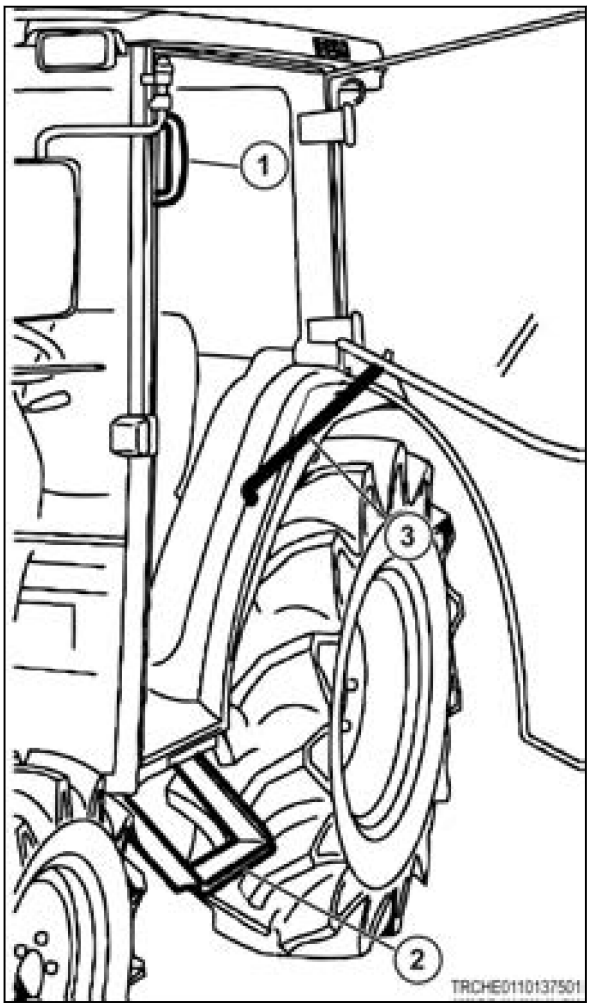


Fig. 48

3.11.2 Rear windshield

CAUTION:
When closing the rear windshield, make sure to keep your hand and fingers out of the way.

To unlock the rear windshield, hold the handle (1) and turn clockwise 90°. To open the rear windshield, push out on the handle. The windshield will open and is held in position by a damper.

IMPORTANT: *Before opening the rear windshield, check what is going on at the rear of the tractor.*

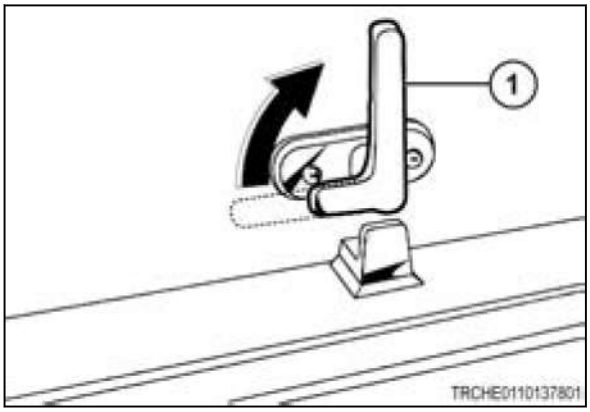


Fig. 49

IMPORTANT: *Make sure the handle is in the unlock position when closing the rear windshield. Damage to the handle can occur if the rear windshield is closed with the handle in the lock position.*

To close the rear windshield, pull the handle (1) toward the cab until the rear windshield can be locked. Make sure the handle is in the unlocked position. Then turn the handle counterclockwise 90° to lock the windshield.

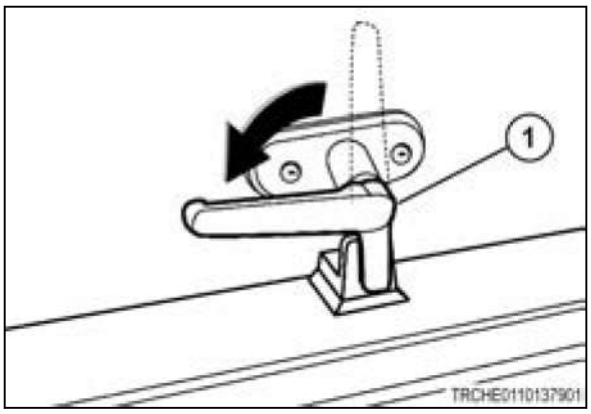


Fig. 50

3.11.3 Corner windows

CAUTION:
When opening and closing the corner windows, make sure to use the handle to prevent fingers from getting caught in the window linkage.

IMPORTANT: *When operating the machine on the road, make sure to close and lock the corner windows. Not closing the corner windows can cause damage to the corner windows.*

The left-hand and right-hand corner windows can be opened and closed. The procedure is the same for both corner windows.

To unlock the corner window, pull the handle (1). The unlocked handle will be in position A. Push the handle outward to secure the corner window in the open position. The open position is position B.

To close the corner window, hold the handle and pull the handle in. The closed position is position C. Turn the handle to lock the corner window. The locked handle will be in position D.

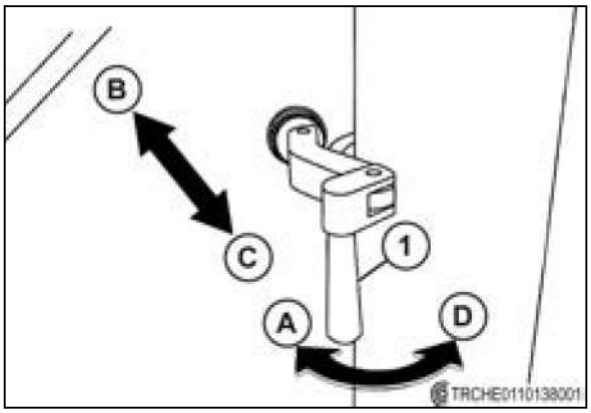


Fig. 51

3.11.4 Cab lamp

The cab lamp (1) is located at the top of the cab ceiling. The switch (2) turns the lamp on and off.

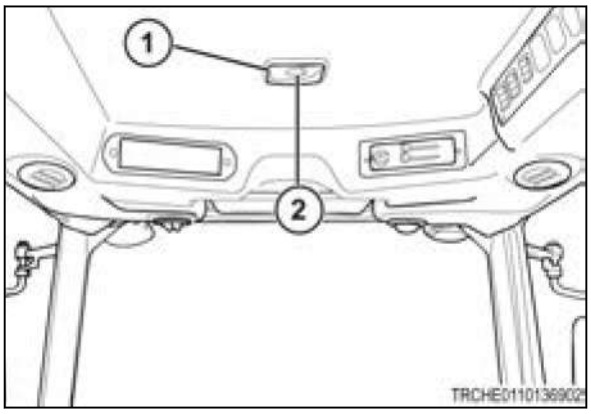


Fig. 52

3.11.5 Work lamps

The work lamps will illuminate the working area in front of and to the rear of the machine.

WARNING:
Turn off all work lamps before driving on public roads. White lights pointing rearwards can result in confusion of other road users and are illegal in many jurisdictions.

Front work lamps (1)

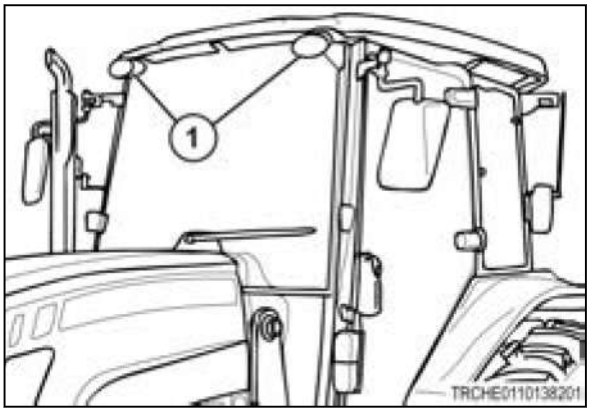


Fig. 53

The control switches for the front work lamps (1) are located on the top left-hand side of the cab.

To turn on the work lamps, press the top of the control switch (2). The control switch LED (3) will illuminate.

To turn off the work lamps, press the bottom part of the control switch (4).

When stopping the engine, make sure the work lamps are turned off to keep the battery from being discharged.

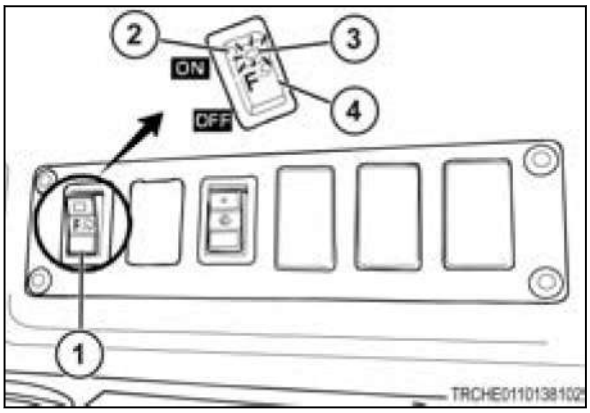


Fig. 54

3.11.6 Air vents

The front air vents (1) blow air toward the front windshield to help with defrosting and to prevent fogging. The side air vents (2) blow air toward the sides of the operator.

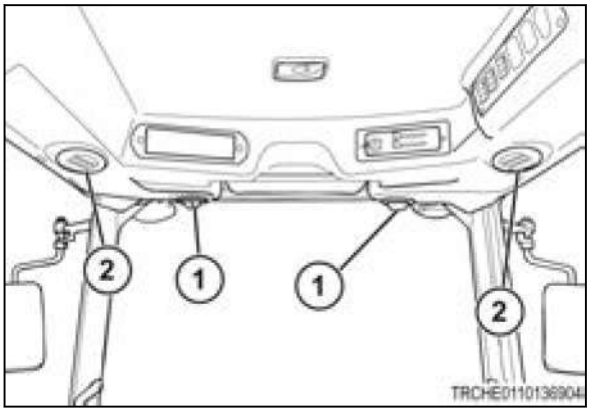


Fig. 55

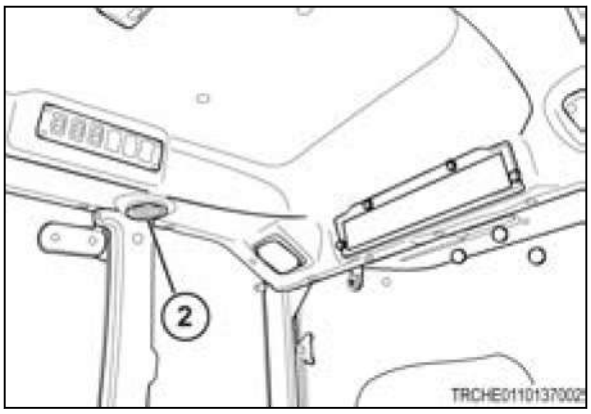


Fig. 55

Each air vent moves to let changes be made to the direction of the air flow.

(1) Moves the air flow to the left-had side and to the right-hand side
(2) Moves the air flow to the front and the rear

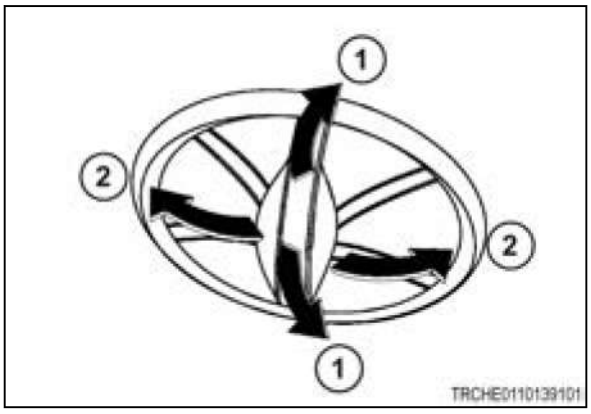


Fig. 56

3.11.7 Air conditioning operation

3.11.7.1 Air conditioning controls

The air conditioning controls (1) are located in the upper right-hand corner of the cab.

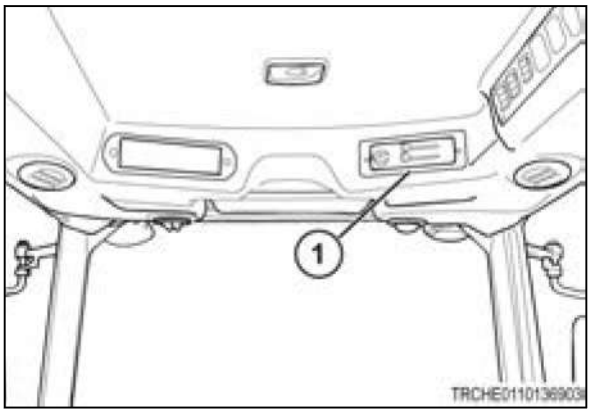


Fig. 57

(1) Fan speed control dial
(2) Air conditioning button
(3) Ventilation control lever
(4) Temperature control lever

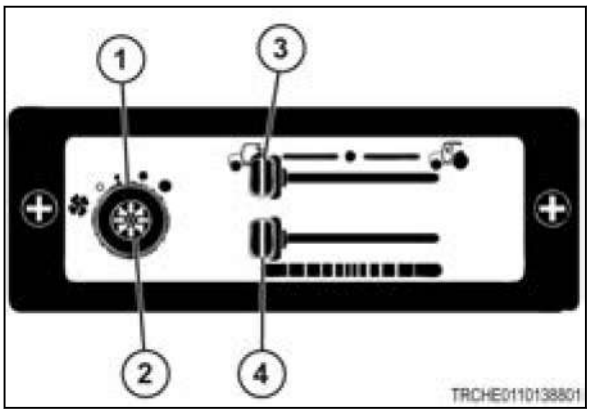


Fig. 58

Fan speed control dial

The fan speed can be adjusted to three levels by moving the fan speed control dial position to (1), (2) and (3)

The air conditioning will not operate if the fan speed control dial (4) is set in the off position (5).

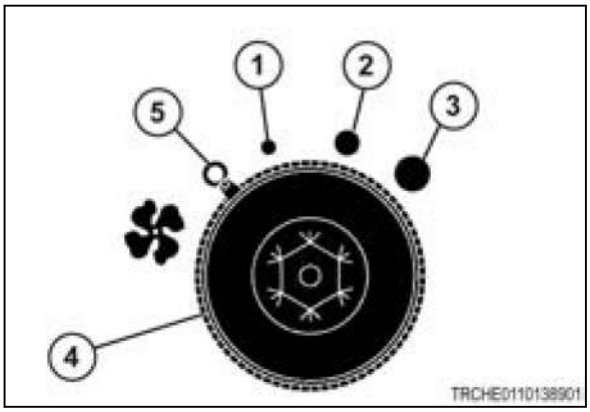


Fig. 59

Air conditioning button

Press the air conditioning button (1) to engage cooling of the air in the cab. The air conditioning button illuminates (2) when air conditioning is engaged. The fan speed control dial must be turned to an on position for the air conditioning system to operate.

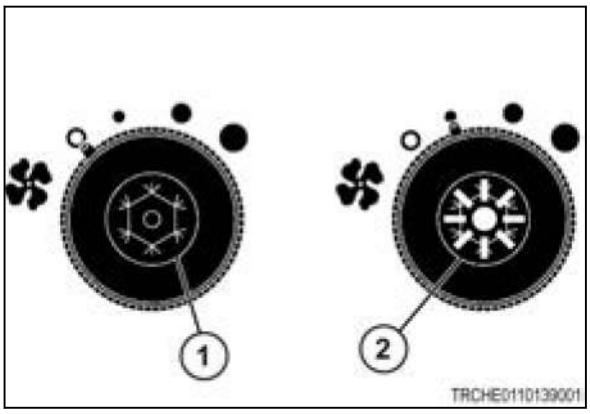


Fig. 60

Ventilation control lever

The ventilation control lever (1) is used to change between outside air and inside air.

The outside air position (2) blows are while pulling outside air into the cab. This position is used for normal operation or when the windshields and windows are foggy.

The inside air position (3) blows air without pulling outside air into the cab. This position is used to make the cooling of the air conditioning faster.

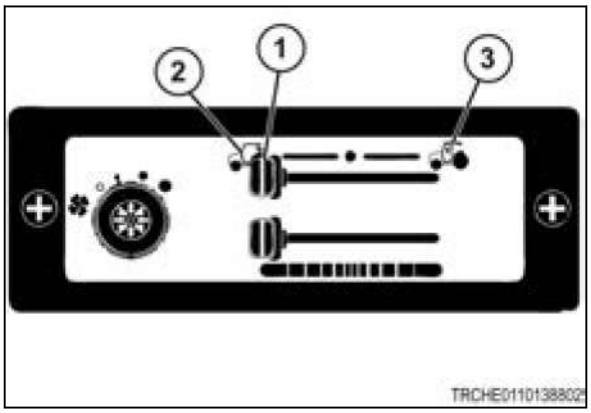


Fig. 61

Temperature control lever

The temperature control lever (1) is used to adjust the air temperature within the cab. The temperature control lever can be moved from the cool position (2) to the warm position (3) or any position in between.

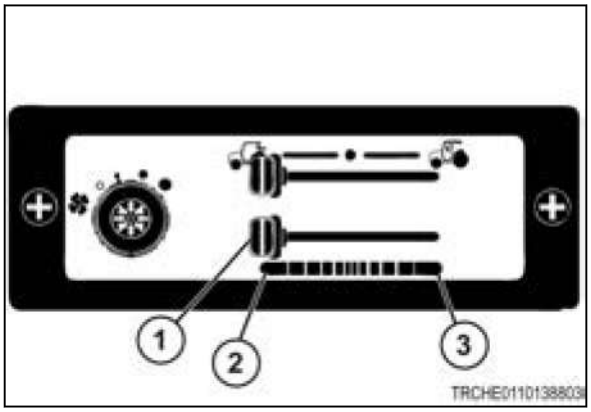


Fig. 62

3.11.7.2 Operating the cooling system

Procedure

1. Set the ventilation control lever (1) to the inside air position (2).
2. Set the temperature control lever (3) to the coolest position (4).
3. Press the air conditioning button (5).
4. Turn the fan speed dial (6) to the desired speed.

   Result

   Cool air will blow from the front vents and the side vents to cool and dry the cab.
5. Adjust the fan speed, the direction of air flow, and the temperature as necessary.
6. When the temperature becomes comfortable, switch the ventilation control lever to outside air (7).

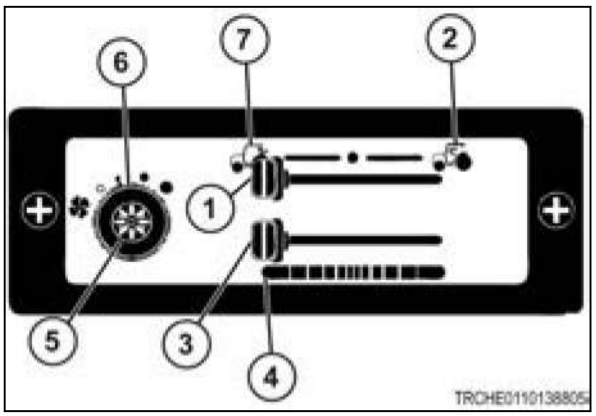


Fig. 63

3.11.7.3 Operating the heating system

Procedure

1. Set the ventilation control lever (1) to the inside air position (2).
2. Set the temperature control lever (3) to the warmest position (4).
3. Make sure the air conditioning button (5) is off.
4. Turn the fan speed dial (6) to the desired speed.

   Result

   Warm air will blow from the front vents and the side vents to heat the cab.
5. Adjust the fan speed, the direction of air flow, and the temperature as necessary.
6. When the temperature becomes comfortable, switch the ventilation control lever to outside air (7).

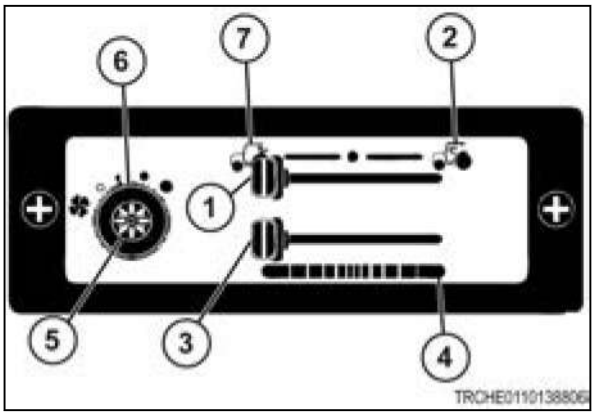


Fig. 64

3.11.7.4 Operating the defrosting system

Procedure

1. Set the ventilation control lever (1) to the outside air position (2).
2. Set the temperature control lever (3) to the warmest position (4).
3. To remove fog from the windows, turn the air conditioning (5) on.

   NOTE: *Air conditioning is not required when the outside temperature is very cold.*
4. Turn the fan speed dial (6) to the desired speed.

   Result

   Warm air will blow from the front vents and the side vents.

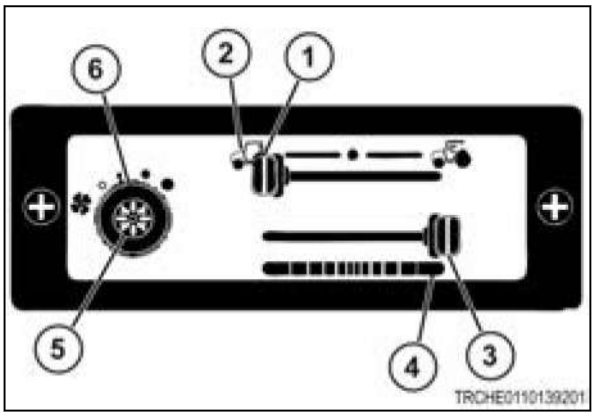


Fig. 65

3.11.8 Windshield wiper and washer

3.11.8.1 Front windshield wiper and washer

The front windshield washer nozzle (1) is located on the outside of the cab in the upper right-hand side.

The front windshield wiper (2) is located on the outside of the cab below the operator's view.

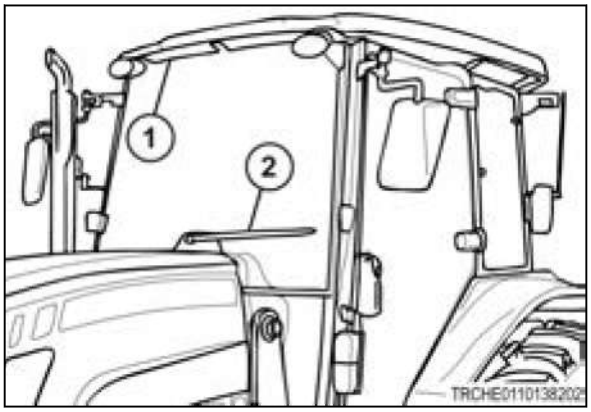


Fig. 66

To operate the front windshield wiper and washer, use the front windshield wiper and washer switch (1) on the component instrument panel. Press the top half (2) of the switch to turn on the front windshield wiper blade. The switch LED (3) will illuminate when the front windshield wiper blade is moving. Press more firmly to release washer fluid while the front windshield wiper blade is moving.

To stop the front windshield wiper blade, press the lower half (4) of the front windshield wiper and washer switch. Press more firmly to release washer fluid when the wiper blade is not moving.

Do not use the windshield wiper for an extended time with the engine stopped.

If the windshield wiper is frozen to the windshield, remove the ice.

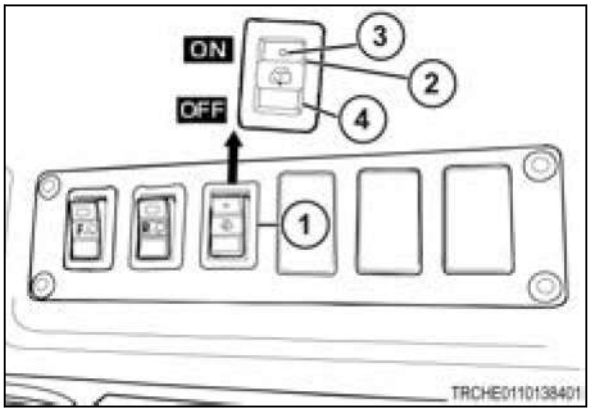


Fig. 67

3.11.8.2 Rear windshield wiper and washer, if equipped

The rear windshield wiper (1) is located on the outside of the cab at the top center of the rear windshield.

The rear windshield washer nozzle is located on the rear windshield wiper.

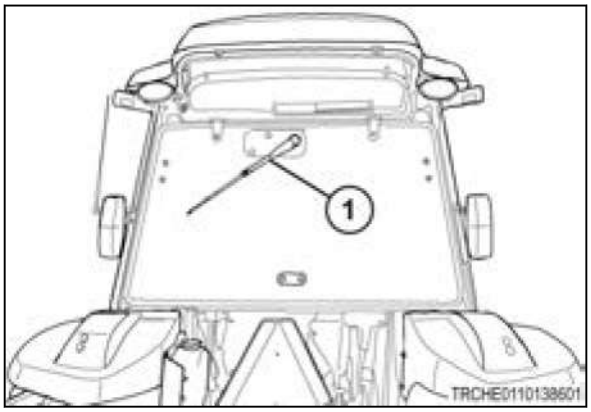


Fig. 68

To operate the rear windshield wiper and washer, use the rear windshield wiper and washer switch (1) in the cab component instrument panel. Press the top portion (2) of the rear windshield wiper and washer switch to turn on the rear windshield wiper blade. The switch LED (3) will illuminate when the rear windshield wiper blade is moving. Press more firmly to release washer fluid while the rear windshield wiper blade is moving back and forth.

To stop the rear windshield wiper blade, press the lower portion (4) of the rear windshield wiper and washer switch. Press more firmly to release washer fluid without the wiper blade moving.

Do not use the windshield wiper for an extended time with the engine shut off.

If the windshield wiper is frozen to the windshield, remove ice before using.

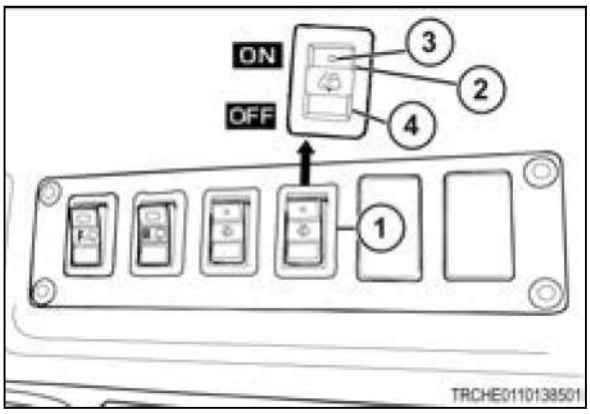


Fig. 69

3.11.8.3 Washer reservoir

The washer reservoir (1) is located on the left-hand side of the rear of the tractor.

Lift the lid (2) to open the washer reservoir.

Use automobile washer fluid to fill the washer reservoir.

Press on the lid to close the washer reservoir.

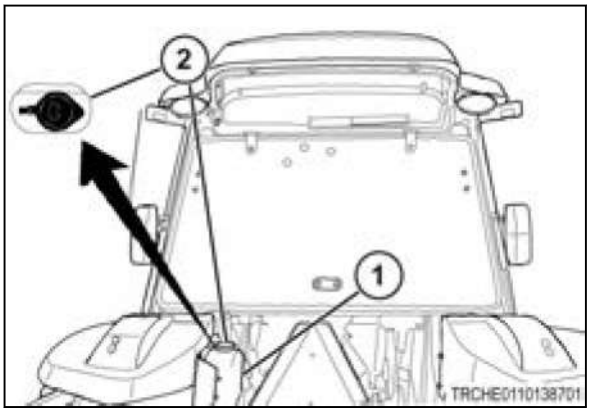


Fig. 70

3.11.9 Antenna

The antenna (1) is located on the left-hand turn/ warning lamp.

IMPORTANT:
To keep from damaging the antenna when putting a cover on the machine, lower the antenna until the antenna is facing down toward the fender.

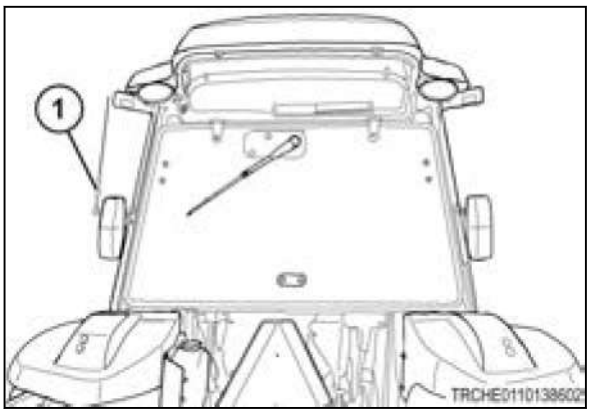


Fig. 71

3.12 Seat and steering column

3.12.1 Platform tractor seat adjustments

Early production models

CAUTION:
Never make seat or steering column adjustments while tractor is in motion. Make sure all adjustments are locked prior to operating unit.

(1) Weight adjustment knob

Turn the weight adjustment knob to set the tension. The tension is correct when the two arrows align while the driver is on the seat.

A	Upper limit 120 kg (265 lb)
B	Middle point 85 kg (187 lb)
C	Lower limit 50 kg (110 lb)

(2) Height adjustment knob

1. Loosen the height adjustment knob.
2. Move the seat to the correct height.
3. Tighten the height adjustment knob.

(3) Fore/aft adjustment handle

1. Pull the fore/aft adjustment handle.
2. Move the seat into the correct position.
3. Release the fore/aft adjustment handle.

Fig. 72

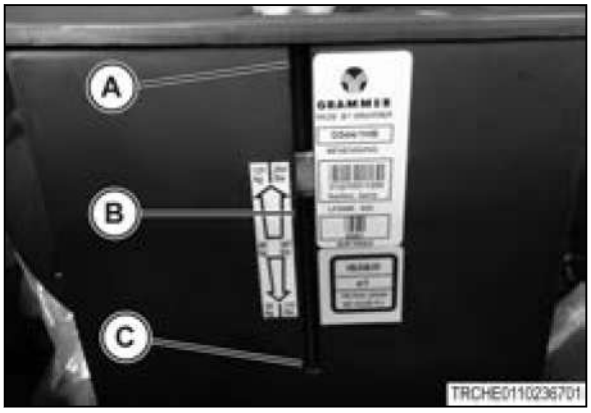


Fig. 72

Late production models

(1) Weight adjustment knob

Turn the weight adjustment knob to set the tension. The tension is correct when the two arrows align while the driver is on the seat.

(2) Height adjustment knob

1. Stand in front of the operator seat.
2. Pull up on the height adjustment handle.
3. Move the seat to the correct height.
4. Release the height adjustment handle.

(3) Fore/aft adjustment handle

1. Pull the fore/aft adjustment handle.
2. Move the seat into the correct position.
3. Release the fore/aft adjustment handle.

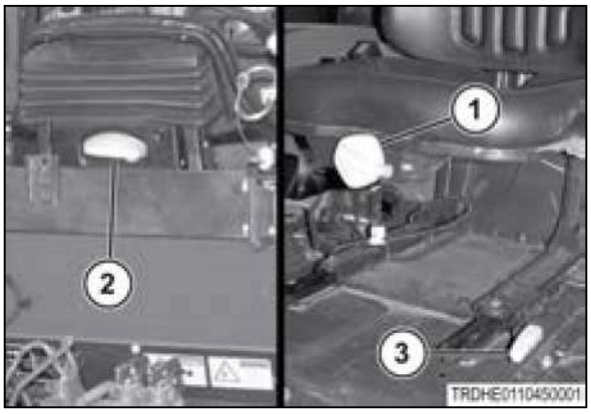


Fig. 73

3.12.2 Cab tractor seat adjustments

CAUTION:
Never make seat or steering column adjustments while tractor is in motion. Make sure all adjustments are locked prior to operating unit.

(1) Weight adjustment handle

- To increase the tension, turn the handle clockwise.
- To decrease the tension, turn the handle counterclockwise.

(2) Fore/aft adjustment handle

1. Pull the fore/aft adjustment handle.
2. Move the seat into the correct position.
3. Release the fore/aft adjustment handle.

(3) Backrest angle adjustment lever

1. Lift the backrest position lever.
2. Move the backrest into the correct position.
3. Release the backrest position lever.

(4) Seat height

There are three height positions.

- Lift the seat cushion to the next position to change the seat height.
- Lift the seat cushion all the way up and then down to return to the lowest position.

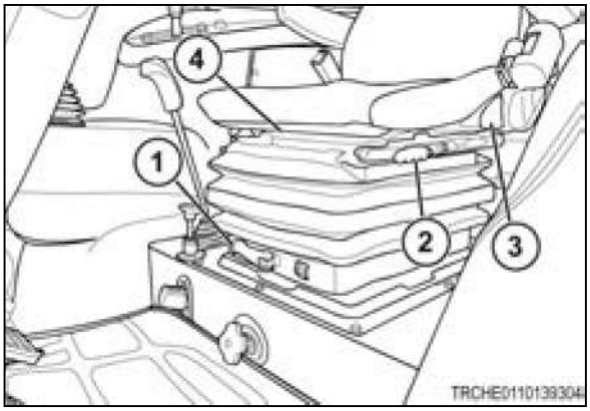


Fig. 74

3.12.3 Seat switch

The machine has a seat switch.

If the operator leave the seat:

- with the PTO (power takeoff) operating and the parking brake applied, the audible alarm actuates for five seconds
- with the PTO operating and the parking brake not applied, the audible alarm will continuously actuate and the PTO will turn off
- with the forward/reverse lever not in neutral, the audible alarm will continuously actuate

3.12.4 Steering column tilt

The steering column can be adjusted forward and rearward to any one of three positions. To adjust the steering column:

1. Hold the steering wheel with both hands.
2. Push the tilt lock pedal (1).
3. Move the steering column to the desired position.
4. Release the tilt lock pedal. Make sure tilt lock pedal returns to the original position and locks the steering column into position.

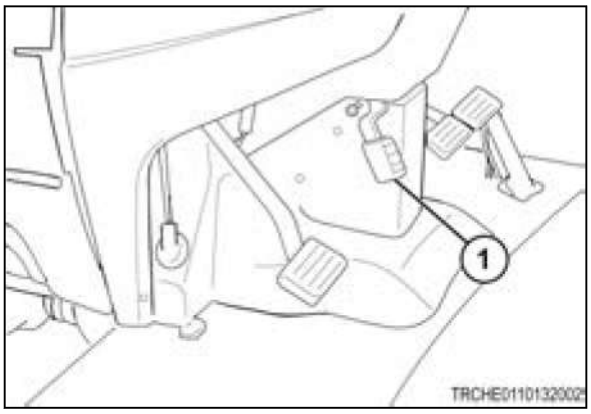


Fig. 75

3.12.5 Manual holder

Cab tractor

A manual holder (1) is located behind the operator's seat.

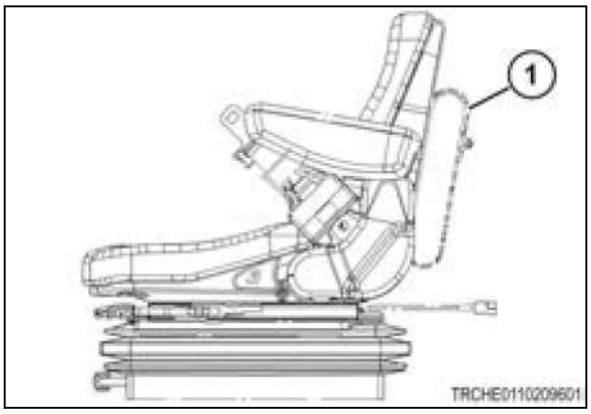


Fig. 76

Platform tractor

A manual holder (1) is located on the left-hand side of the operator's seat.

Fig. 77

3.13 Roll over protective structure

WARNING:
No roll over protection is provided when the ROPS is folded down. Drive with extreme care. Tractor roll over may result in serious injury or death.

Tractors without a cab are equipped with a roll over protective structure (ROPS) (1) and seat belt. When overhead clearance is low, the upper part of the ROPS can be folded down.

The seat belt must be worn at all times when tractor is being operated with the ROPS in the upright, locked position.

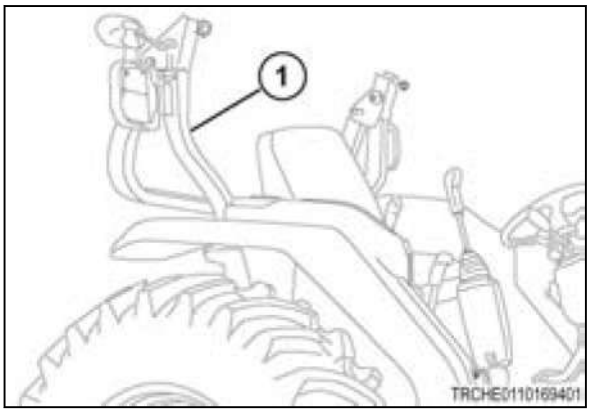


Fig. 78

3.13.1 Standard roll over protective structure

3.13.1.1 Folding down the ROPS

For standard models only.

When overhead clearance is low, the upper part of the ROPS can be folded down.

The seat belt must not be worn when operating with the ROPS folded down.

Procedure

1. Loosen the lock nuts (1) on both sides of the ROPS frame.
2. Loosen the knob (2) on both sides of the ROPS frame.
3. Remove the locking pin (3) on both the right-hand and left-hand sides on the ROPS frame.
4. Lower the upper part (4) of the ROPS.

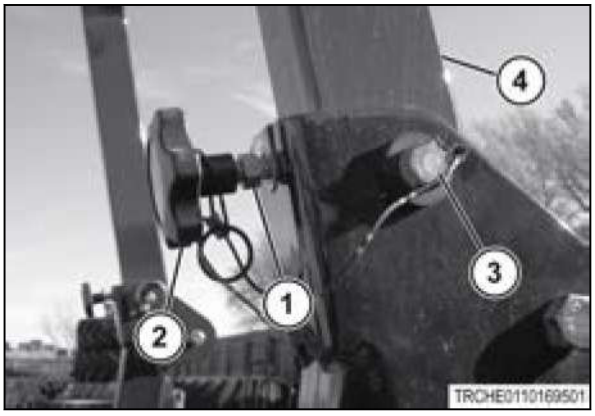


Fig. 79

5. Install the locking pin (1) on each side of the ROPS frame.
6. Tighten the knob (2) on the right-hand side and the left-hand side of the ROPS frame.
7. Tighten the lock nuts (3) on each side of the ROPS frame.

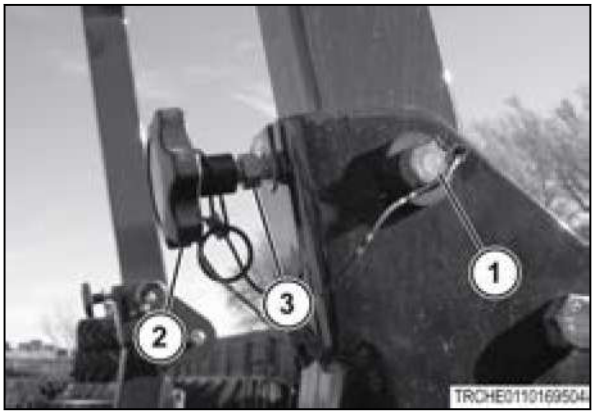


Fig. 80

3.13.1.2 Putting the ROPS in the upright position

For standard models only.

When the overhead clearance is better put the ROPS into the upright position.

Procedure

1. Loosen the lock nuts (1) on both sides of the ROPS frame.
2. Loosen the knob (2) on both sides of the ROPS frame.
3. Remove the locking pin (3) on both the right-hand and left-hand sides on the ROPS frame.

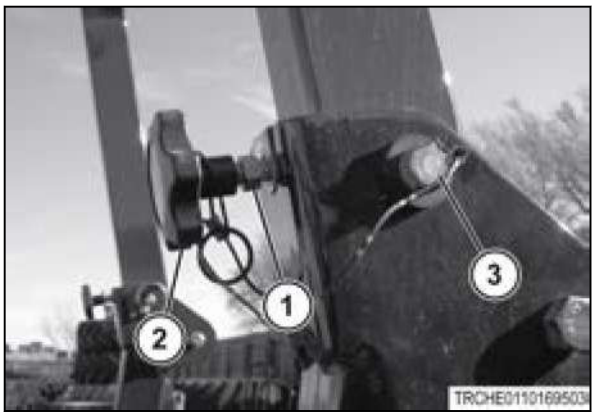


Fig. 81

4. Lift the upper part (1) of the ROPS into the upright position.
5. Install the locking pin (2) on each side of the ROPS frame.
6. Tighten the knob (3) on the right-hand side and the left-hand side of the ROPS frame.
7. Tighten the lock nuts (4) on each side of the ROPS frame.

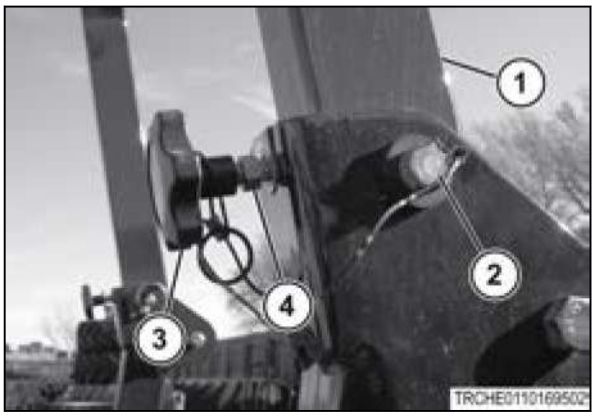


Fig. 82

3.13.2 4610 low profile roll over protective structure

3.13.2.1 Folding down the ROPS

When overhead clearance is low, the upper part of the ROPS can be folded down.

The seat belt must not be worn when operating with the ROPS folded down.

Procedure

1. Remove the clip (1) from pin on both the right-hand and left-hand sides of the ROPS frame.
2. Remove the pin (2) on both the right-hand and left-hand sides on the ROPS frame.
3. Lower the the ROPS(3).

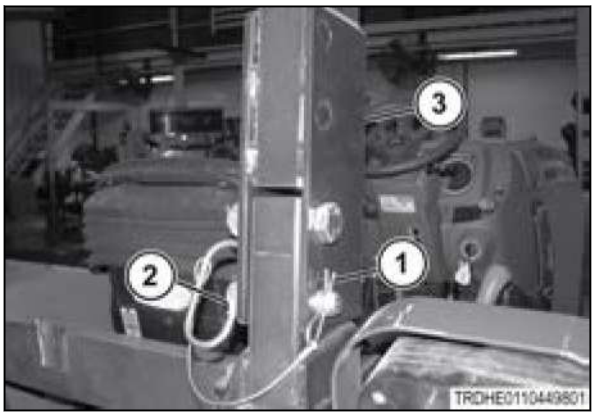


Fig. 83

4. Install the pin (1) on both the right-hand and left-hand sides of the ROPS frame.
5. Install the clip (2) in the pin on the right-hand side and the left-hand side of the ROPS frame.

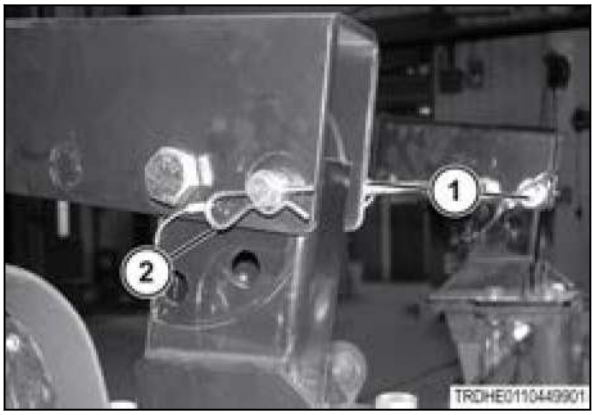


Fig. 84

3.13.2.2 Putting the ROPS in the upright position

When the overhead clearance is better put the ROPS into the upright position.

Procedure

1. Remove the clip (1) from pin on both the right-hand and left-hand sides of the ROPS frame.
2. Remove the pin (2) on both the right-hand and left-hand sides on the ROPS frame.
3. Raise the ROPS(3) in the upright position.

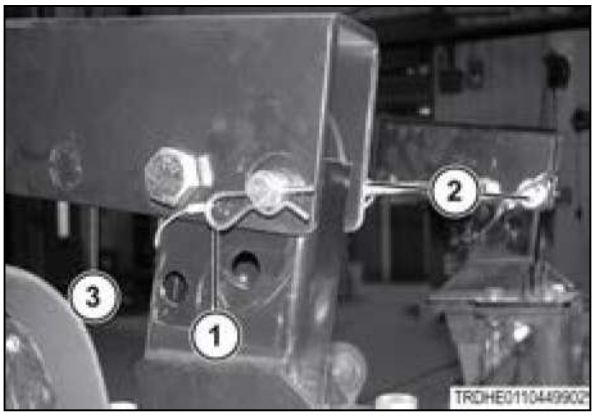


Fig. 85

4. Install the pin (1) on both the right-hand and left-hand sides of the ROPS frame.
5. Install the clip (2) in the pin on the right-hand side and the left-hand side of the ROPS frame.

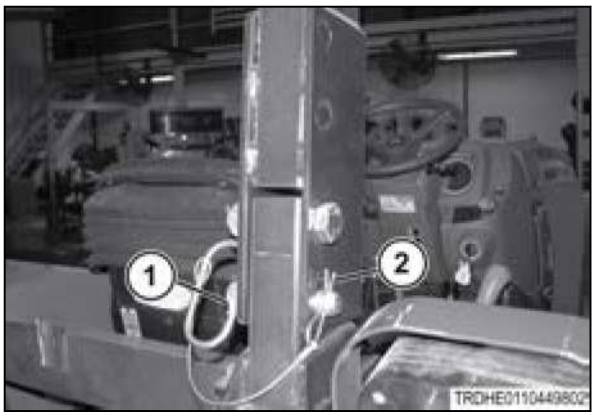


Fig. 86

3.14 Tool box

The tool box (1) is located on the rear of the tractor.

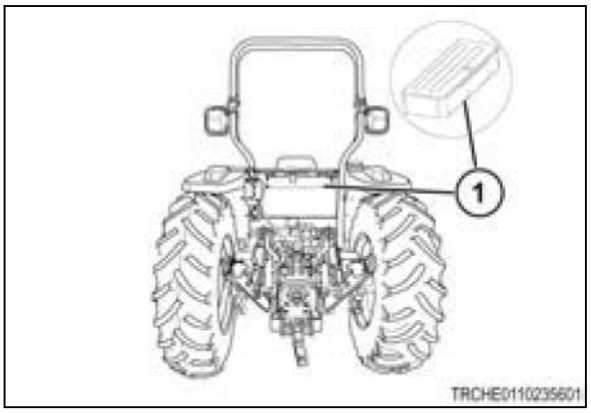


Fig. 87

3.15 Power takeoff

WARNING:
Power takeoff (PTO) shafts and PTO driven implements can be extremely hazardous. Observe the following important points:

- **Always install PTO cap when a PTO drive shaft is not connected. The cap protects bystanders from injury as well as the splines from damage.**
- **Before attaching, adjusting or working on PTO driven implements, disengage the PTO, stop the engine and remove the key. Do not work under raised equipment.**
- **Before engaging a PTO-driven implement, always carefully raise and lower the implement using lift control. Check clearances, PTO shaft sliding range and articulation.**
- **Make sure that all PTO safety shields are in place at all times.**
- **Make sure all PTO-driven implements are in good condition and conform to current standards.**
- **Never step across any driveline.**
- **Do not use the tractor drawbar or the implement drawbar as a step.**
- **Never use the driveline as a step.**
- **Never wear loose fitting clothes.**
- **Keep at least your height away from a rotating driveline.**

3.15.1 Rear power takeoff

CAUTION:
Always shut off PTO and shut off tractor engine before servicing PTO driven implement. Allow all movement and motion to stop before leaving operator's seat.

CAUTION:
Make sure all PTO shields are installed on tractor and equipment. Before cleaning or adjusting tractor or PTO driven machine, shut off engine and disengage PTO.

The rear power takeoff (PTO) shaft (1) gives power to rear mounted PTO driven implements.

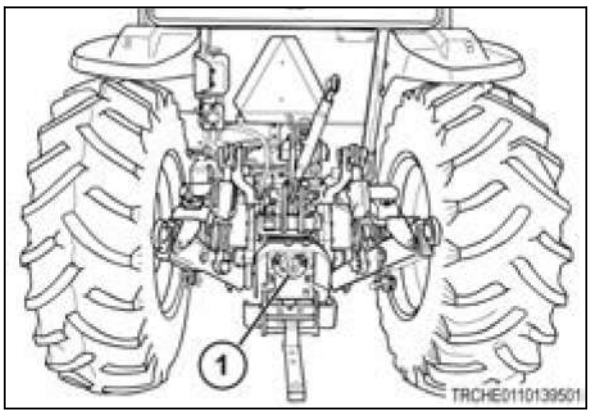


Fig. 88

Do the following:

- Implements connected to the drawbar:

  Make sure the distance (A) from the center of the hitch pin on the drawbar (1) to the end of the PTO shaft (2) is 405 mm (16 in).
- Three-point implements:

  If necessary, remove the drawbar with some three-point hitch mounted equipment. On some types of mounted equipment, the PTO shaft will hit the drawbar when lowered.
- Install the protective cover over the PTO shaft when the PTO shaft is not in use.

Connect the implement driveline (1) to the PTO shaft. Make sure the locking pins are seated in the groove on the PTO shaft.

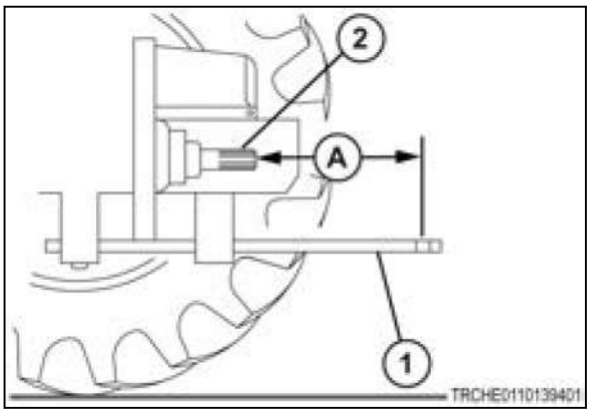


Fig. 89

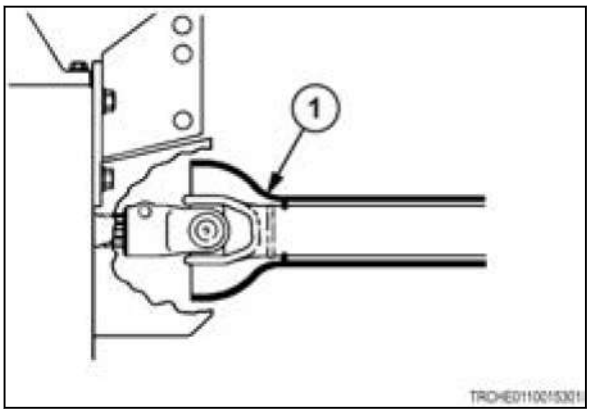


Fig. 90

3.15.2 Engaging the power takeoff

1. Move the power takeoff (PTO) selector lever to the position for the correct speed. See the information on power takeoff speed.

IMPORTANT:
The PTO switch must be in the off position before moving the PTO selector lever.

2. Lower the engine speed.

Result

This will decrease the shock load to the PTO drive.

3. Push the PTO switch (1) and turn the PTO switch to the right (clockwise).

IMPORTANT:
To prevent switch damage, push the switch before trying to turn. Do not force the switch to the on position without pushing the PTO switch.

Result

The PTO lamp will illuminate on the instrument panel display.

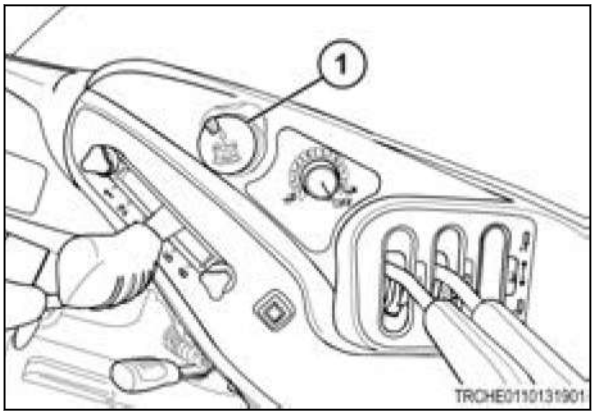


Fig. 91 Standard models

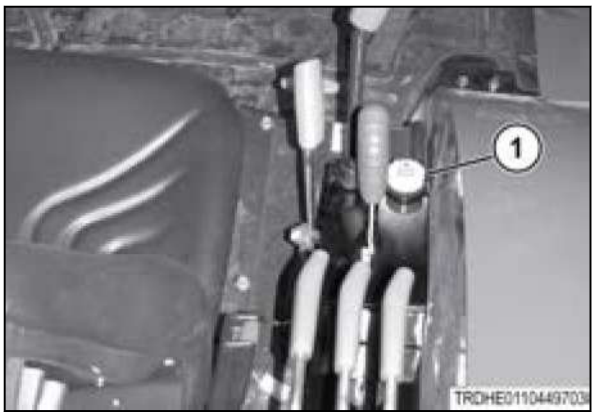


Fig. 92 4610 low profile model

3.15.3 Disengaging the power takeoff

Procedure

1. Lower the engine speed.
2. Press in and release the Power takeoff (PTO) switch (1).

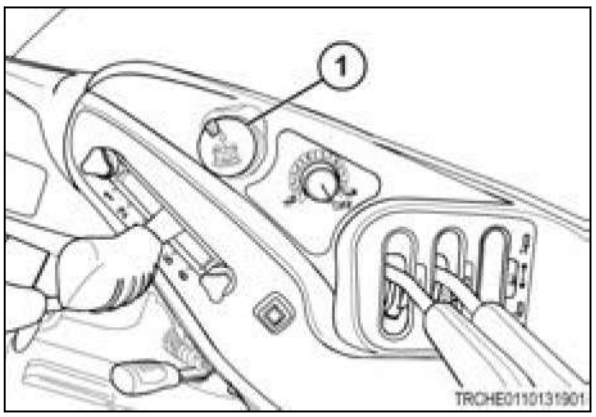


Fig. 93 Standard models

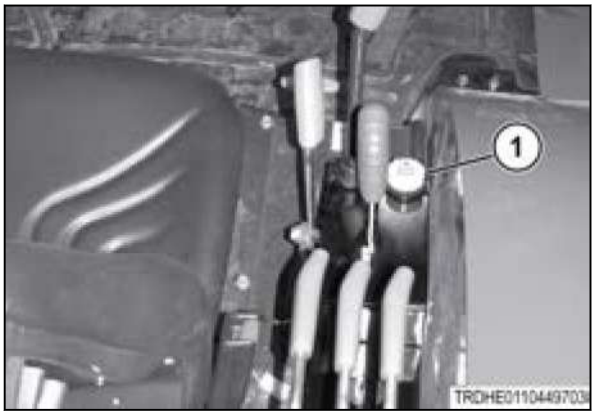


Fig. 94 4610 low profile model

After finishing the procedure

If the PTO will not be used, move the PTO selector lever to the neutral (center) position.

3.15.4 Power takeoff speed

North American models

Two power takeoff (PTO) types and speeds are available.

PTO type	Shaft size	Splines	Speed	Engine speed
ISO type 1	35 mm (1-3/8 in)	6	540 rpm	1993 rpm
ISO type 2	35 mm (1-3/8 in)	21	1000 rpm	2178 rpm

The PTO selector lever (1) is located on the rear of the tractor. The PTO selector lever selects the speed of the PTO.

Set the PTO selector lever to the correct position for the desired PTO speed.

IMPORTANT:
The PTO switch must be in the off position before moving the PTO selector lever.

- Push the PTO selector lever forward (A) for 540 rpm PTO speed.

  NOTE:
  The PTO selector lever can only be moved forward if the 21 spline PTO shaft is in the holder (2) *or if the holder is empty.*
- Move the PTO selector lever to the center (B) position for neutral.
- Pull the PTO selector lever to the rear (C) for 1000 rpm PTO.

  NOTE:
  The PTO selector lever can only be moved to the rear if the six spline PTO shaft is in the holder.

From the factory, the six spline, 540 rpm PTO shaft is installed in the tractor. The 21 spline, 1000 rpm PTO shaft is in the holder.

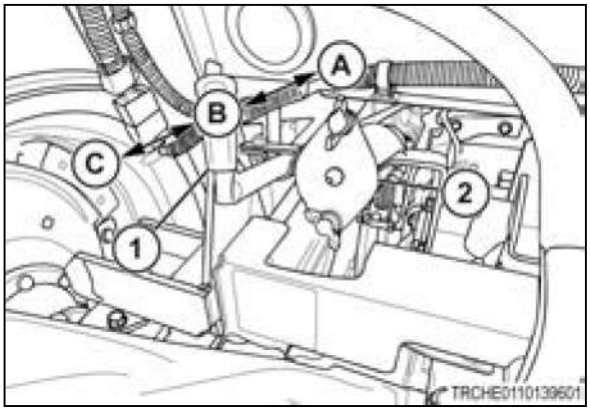


Fig. 95

Australian models

Two PTO speeds are available.

PTO type	Shaft size	Splines	Speed	Engine speed
ISO type 1	35 mm (1-3/8 in)	6	540 rpm	1993 rpm
ISO type 1	35 mm (1-3/8 in)	6	750 rpm	2129 rpm

The PTO selector lever (1) is located on the rear of the tractor. The PTO selector lever selects the speed of the PTO.

Set the PTO selector lever to the correct position for the desired PTO speed.

IMPORTANT:
The PTO switch must be in the off position before moving the PTO selector lever.

- Push the PTO selector lever forward (A) for 540 rpm PTO speed.
- Move the PTO selector lever to the center (B) position for neutral.
- Pull the PTO selector lever to the rear (C) for 750 rpm PTO.

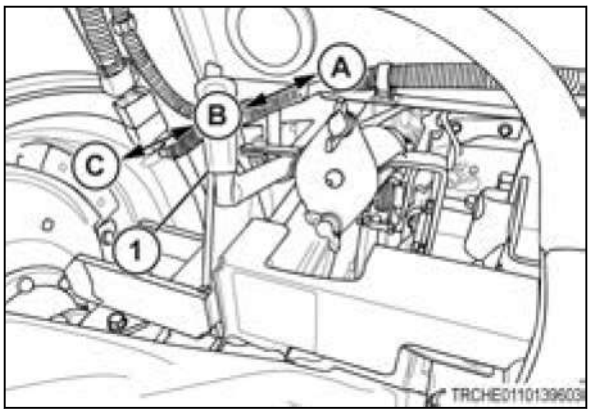


Fig. 96

3.15.5 Changing the power takeoff shaft

For the North American model only. Keep the power takeoff (PTO) shaft not installed in the tractor in the holder (1) next to the PTO selector lever.

Store the PTO shaft in the holder with the implement end of the shaft facing away from the machine. Lightly lubricate the PTO shaft before storing in the holder to protect against moisture.

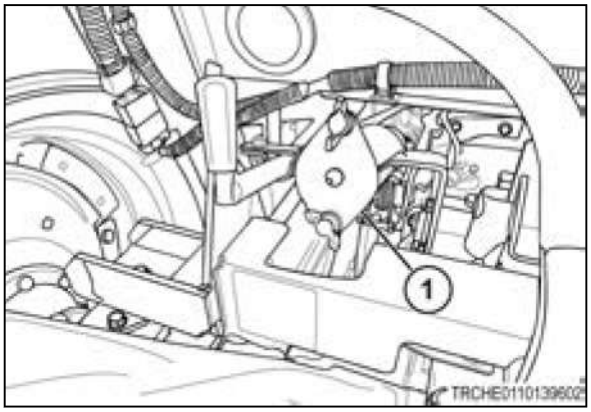


Fig. 97

Procedure

1. Make sure the PTO switch is in the off position.
2. Apply the parking brake, stop the engine and take the key with you.
3. Move the PTO selector lever (1) to the center (neutral) position.
4. Remove the bolts (2) from around the PTO shaft.
5. If installed, remove the PTO cover (3).
6. Remove the plate (4).
7. Remove the snap ring (5).
8. Pull the PTO shaft out of the transmission.
9. Apply grease to the new PTO shaft.
10. Push the new PTO shaft into the transmission.
11. Install the snap ring.
12. Install the plate.
13. If the PTO will not be used, install the PTO cover.
14. Install and tighten the bolts.

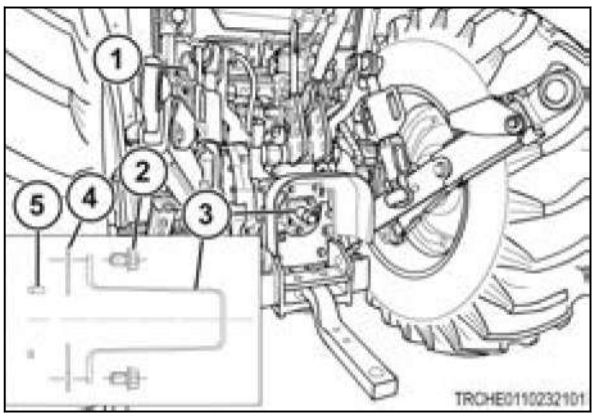


Fig. 98

15. Put the original PTO shaft (1) into the holder. When in the holder, the implement end of the PTO shaft must be toward the rear.

NOTE:
If a PTO shaft is not in the holder, only 540 rpm can be selected.

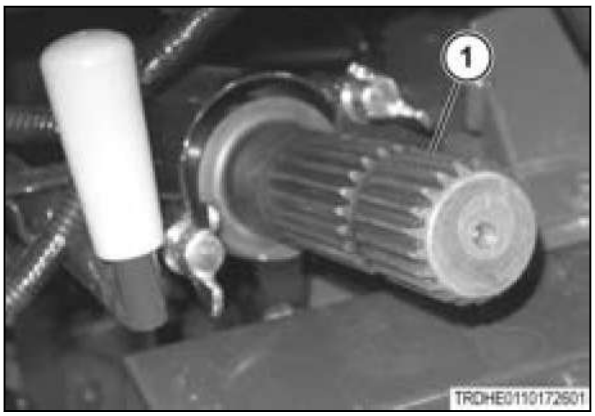


Fig. 99

3.16 Three-point hitch

CAUTION:
When using mounted implements with the PTO driveline, make sure: PTO drive shaft has minimum 51 mm (2 in) engagement of telescoping sections, at all hitch/implement positions.
Make sure hitch height during raising does not bind drive shaft universal joints due to extreme drive shaft angles. Limiting raising height may be required.
Make sure the PTO drive is disengaged during transport.

Three-point hitch connects the tractor and implement into one working unit. Implement position and raising are controlled hydraulically. In addition, implement weight and loads put downward pressure on the tractor rear wheels to increase traction.

NOTE: *Do not use three-point hitch mounted backhoes. Only use backhoes with a full subframe mount.*

3.16.1 Lift control

CAUTION:
When working on or around mounted implements, always lower to ground prior to work. If implement must be raised, always block implement and lower links securely.

CAUTION:
Always use lift control to attach or detach implements to provide precise control of hitch.

Use the lift control when fastening or removing implements and other operations requiring the implement to be kept at a constant height above the ground. Lift control is also used with implements equipped with gauge wheels.

Standard models

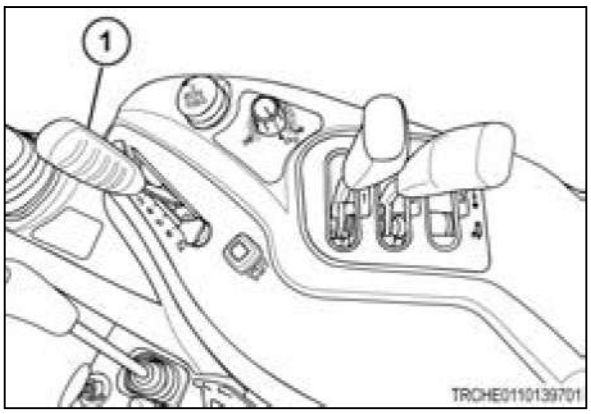


Fig. 100

4610 low profile model

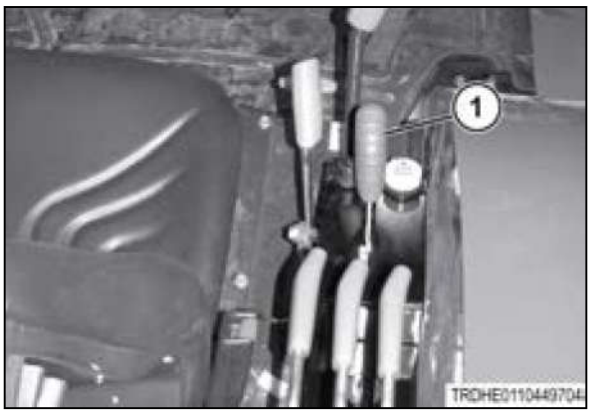


Fig. 101

The lift control lever (1) keeps the hitch position at a constant height in relation to the tractor. As the lift control lever is moved rearward, the hitch and implement are raised. Moving the lever forward will lower the hitch.

NOTE:
When starting the engine, make sure the implement is lowered to the ground and the lift control lever is fully forward. This reduces the load on the starter because the hitch is trying to raise when the engine is cranked. Turn the draft control to off.

To begin work, align the tractor and implement in the field and move the lift control lever forward (toward the down position). Adjust the implement height using the lift control lever as desired. Adjust the draft control until the correct working depth is maintained.

When turning, move the lift control lever rearward (toward the up position) to raise the implement. Finish turning and return the lift control lever to the set position to continue operation.

To finish work and transport, move the lift control lever fully rearward.

NOTE:
If the hitch position does not change when the lift control lever is moved, turn the draft control to off. Then turn the draft control to the desired setting.

3.16.2 Lift control stops

Set the front lever stop (1) to touch the lift control lever (2) in the desired work position. This permits the implement to be returned to the same position after the hitch has been raised.

If required, set the rear lever stop (3) to limit the implement height when raised.

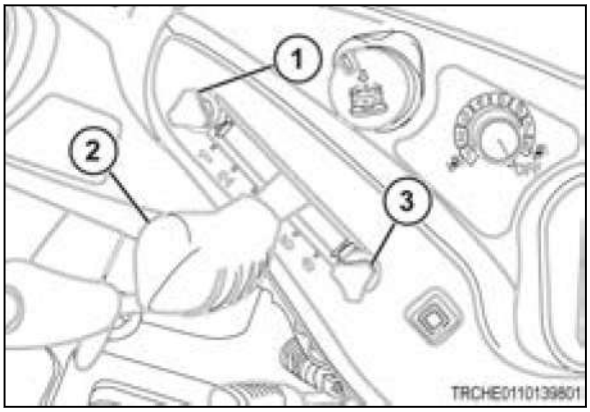


Fig. 102

3.16.3 Draft control

CAUTION:
Do not use draft control when precise hitch positioning is required (attaching/detaching implements for example). Using draft control on non ground-engaging implements should not be attempted.

Standard models

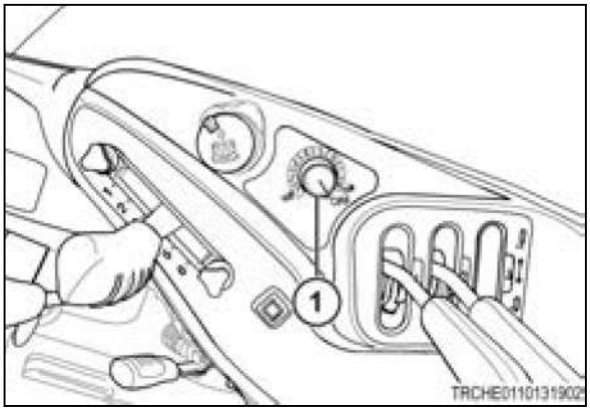


Fig. 103

4610 low profile model

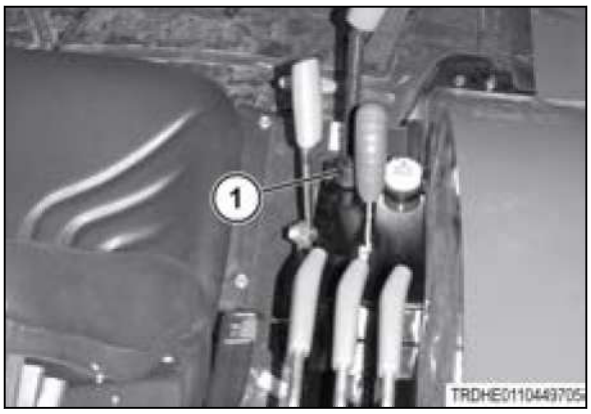


Fig. 104

Draft control (1) adjusts the draft or load on the tractor when pulling ground-engaging implements such as plows, subsoilers, and cultivators. As ground contours and/or soil conditions change, the system will raise or lower the implement as necessary to keep an even load on the tractor.

- Turn the knob clockwise to increase the load on the tractor. The working depth can be deeper.
- Turn the knob counterclockwise to decrease the load on the tractor. The working depth can be shallower.

Changes in the soil texture or in ground speed can require a small adjustment of the draft control to keep the same working depth.

Lowering the top link fastening position on the tractor will also decrease sensitivity.

Turn the draft control to off before starting the engine.

NOTE:
If the hitch position does not change when the lift control lever is moved, turn the draft control to off. Then turn the draft control to the desired setting.

3.16.4 Lowering rate control

The lowering rate knob (1) adjusts the rate of drop of the three-point hitch and implement.

- Turn clockwise to slow the drop rate (increase the lowering time)
- Turn counterclockwise to increase the drop rate (decrease the lowering time)

Turn the lowering rate control knob fully clockwise to lock the implement (or hitch) in the raised position for transport.

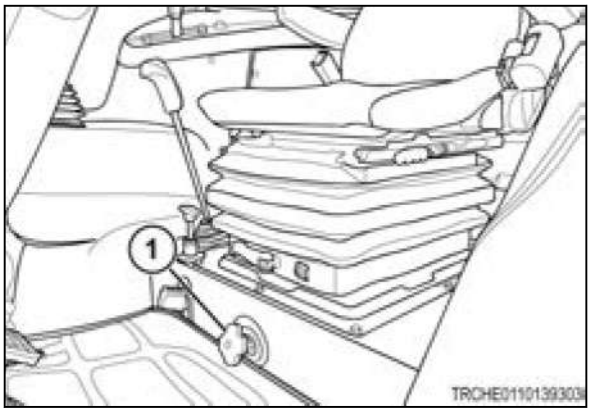


Fig. 105

3.16.5 Three-point hitch linkage

(1) The lower links are the primary fastening points to the lower implement pins.
(2) The lift rods connect the lower links to the hydraulic lift arms for raising or lowering of the lower links. The lift rod connected to the right-hand lower link can level the implement (side to side).

(3) The stabilizer reduces the side sway of the implement.
(4) The top link is an adjustable, turnbuckle type to level the implement (front to rear).

3.16.6 Three-point hitch dimensions

The three-point hitch is designed for Category II implements with these dimensions.

Ref	Description	Dimension
A	Lower link width	825 mm (32.5 in)
B	Lower link pin diameter	28 mm (1.1 in)
C	Top link height	610 mm (24.03 in)
D	Top link pin diameter	25.7 mm (1.01 in)

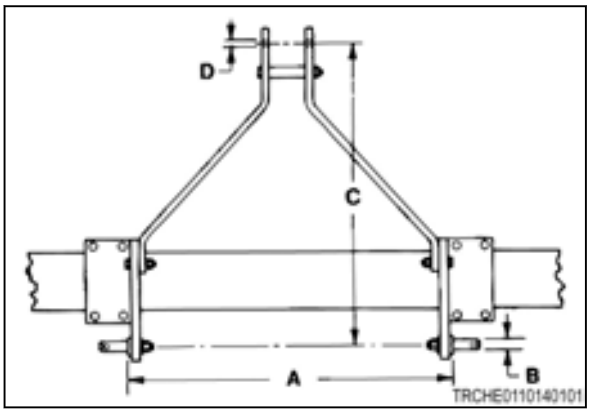


Fig. 107

3.16.7 Three-point hitch adjustments

CAUTION:
Secure all pins after adjustment is made. Always use pins supplied with tractor.

CAUTION:
Stay clear from the area of the three-point linkage when working with mounted machines, trailers, and towed machinery.

NOTE: *When using implements with power takeoff shafts, adjust the three-point hitch so there is clearance between the implement and the hitch. Also check for interference with the master shield.*

3.16.7.1 Lift rod length

The length of the lift rods (1) is adjustable. To change the length of the a lift rod:

1. Lift the handle (2).
2. Turn the handle to lengthen or shorten the lift rod.
3. Move the handle down to lock.

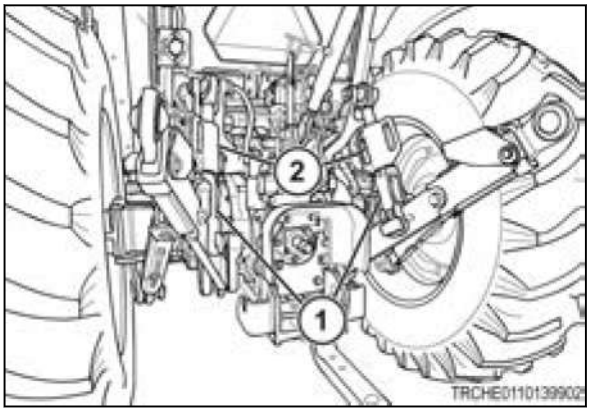


Fig. 108

3.16.7.2 Lift rod mounting

The lift rod (1) can be installed to the lower link (2) in a fixed or float position.

- Float position (A) - Install the pin (3) so the head of the pin is parallel to the long hole in the lift rod.
- Fixed position (B) - Install the pin so the head of the pin is 90° to the long hole in the lift rod.

The lift rod can be installed to the lower link in one of three positions:

- Front position (4) - gives increased lift range and reduced lift capacity
- Middle position (5) - normal position
- Rear position (6) - gives increased lift capacity and reduced lift range

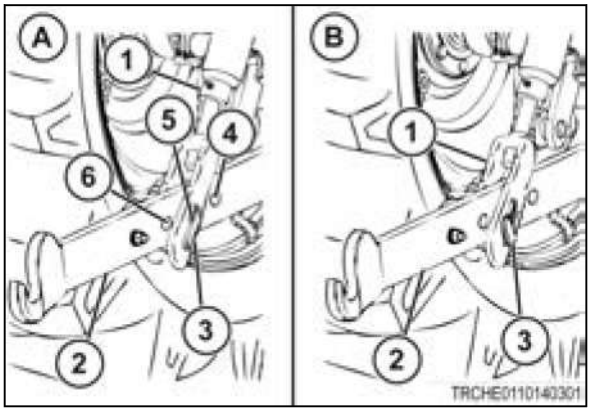


Fig. 109

3.16.7.3 Top link connection position

There are for connection positions on the tractor for the top link (1).

- Position A - Use for most implements.
- Position B - Use for heavy or high draft implements. The tractor draft system will be less sensative.
- Positions C or D - Use for implements with low draft. The tractor draft system will be more sensative.

  Use for implements operated high off the ground or for increased height during transport.

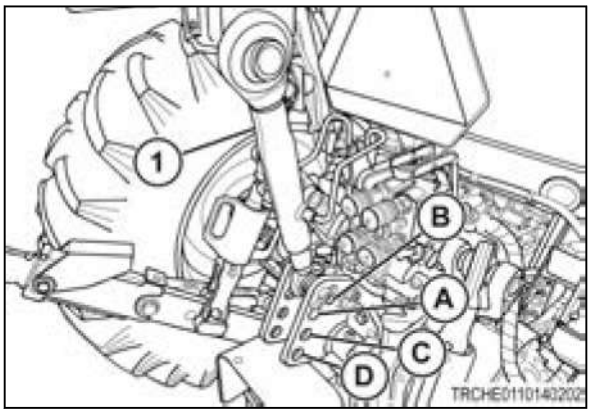


Fig. 110

3.16.7.4 Top link length

Change the length of the top link (1) to change the fore or aft tilt of the implement.

See the implement operator manual for the correct tilt.

To adjust the length of the top link:

1. Turn the handle (2) to change the position of the top link.
2. When the length is correct, secure the handle and the top link.

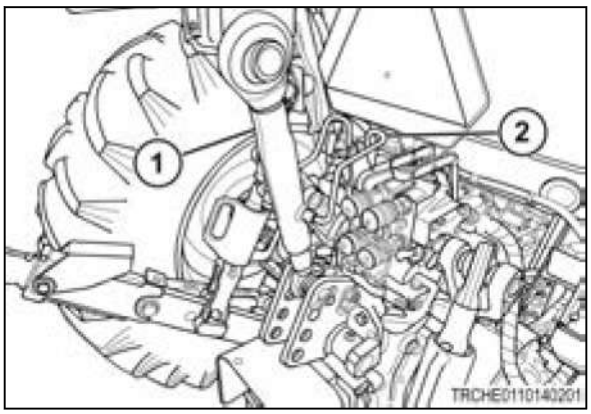


Fig. 111

3.16.7.5 Stabilizer

The stabilizers (1) limit the lateral movement of the implement.

Adjust the stabilizer the same on both sides.

Do not remove all lateral movement. The lower links can be damaged with no lateral movement.

Raise and lower the implement to check the stabilizer adjustment.

The amount of lateral movement varies for each type of implement.

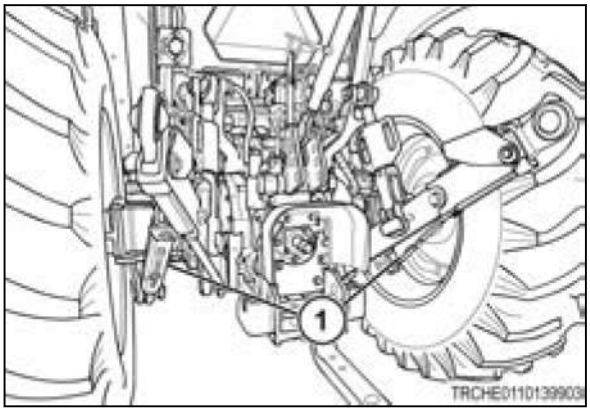


Fig. 112

Increase the rear wheel spacing if the stabilizer touches the tire when the implement is connected.

Implement	Total lateral movement
Plow, subsoiler	5 to 6 cm (2 to 2.4 in)
Mower, sprayer	minimal

3.16.8 Connecting implements - ball type hitch

Tractors sold in North America have the ball type hitch.

CAUTION:
Always use lift control to attach or detach implements to provide precise control of the hitch.

Procedure

1. Back the tractor to the implement. Align the tractor with the implement hitch frame.
2. Use the lift control lever (1) to raise or lower the hitch. Align the left-hand lower link end with the implement fastening pin.
3. Apply the parking brake, stop the engine and take the key with you.

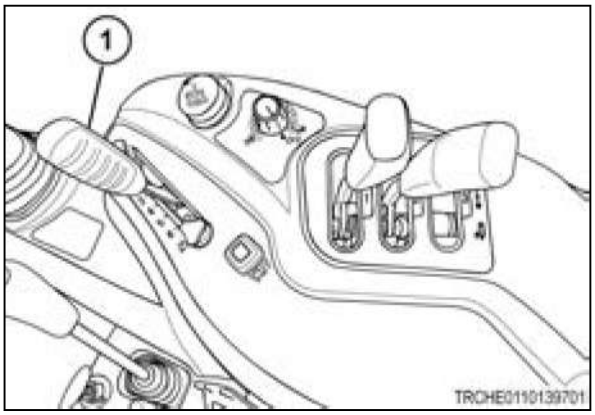


Fig. 113 Standard models

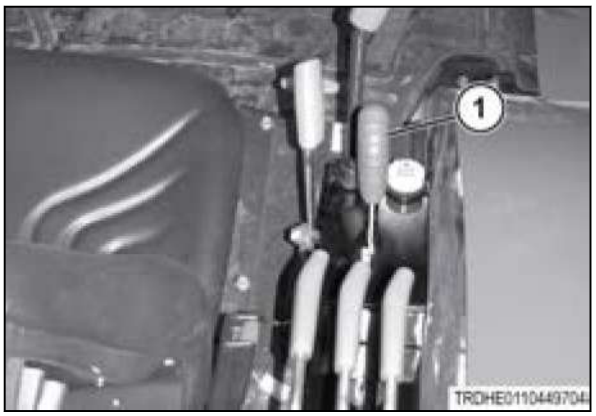


Fig. 114 4610 low profile model

4. Push the lever (1) on the lower link down. Pull out the lower link ends (2).

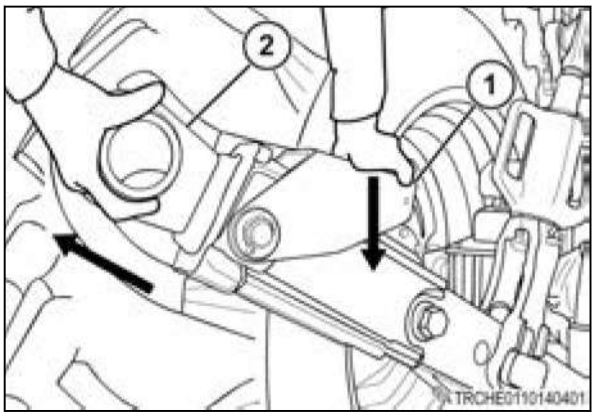


Fig. 115

5. Slide the ball end of the left lower link (1) over the implement pin and secure with a klik pin.

6. Use the leveling turnbuckle (2) to adjust the height of the right lower link.

7. Connect the right lower link (3) to the implement with a klik pin.

8. Attach the top link (4) to the top of the implement hitch frame. Use the pin supplied with the tractor.

9. Start and back up the tractor until the lower link ends are in and latched. Apply the parking brake, stop the engine and take the key with you.

10. Rotate the center barrel section of the top link to level the implement from front to rear.

11. Use the leveling turnbuckle and top link to adjust for level operation.

12. Make sure all adjustments are secure.

13. Adjust the stabilizer (5) equally at each lower link to limit side play to the desired level.

Do not remove all side play to prevent damage to the lower link.

14. Check the clearance between the drawbar and the implement. If necessary, remove the drawbar.

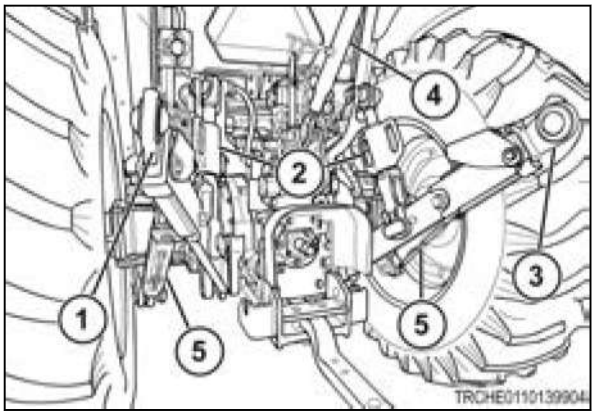


Fig. 116

3.16.9 Connecting implements - hook type hitch

Tractors sold in Australia have the hook type hitch.

CAUTION:
Always use lift control to attach or detach implements to provide precise control of the hitch.

Procedure

1. Remove the balls (1) from the storage location on the tractor.

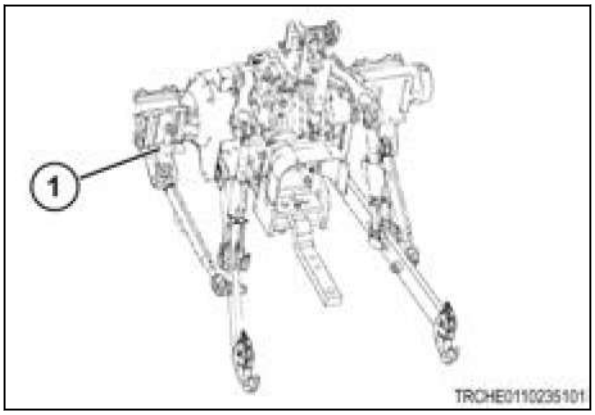


Fig. 117

2. Install the balls (1) to the implement.

3. Unlock the lower link hooks.

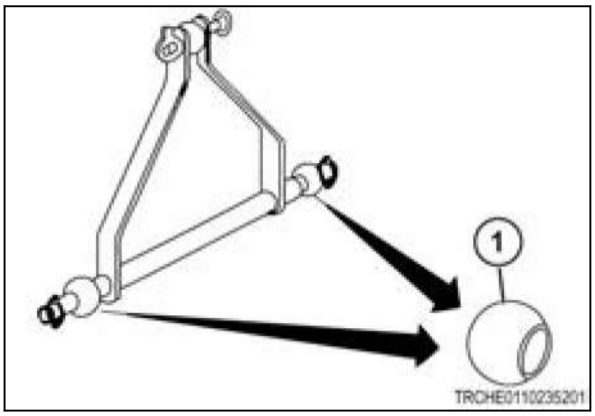


Fig. 118

4. Use the lift control lever (1) to raise or lower the hitch so the hooks are below the balls.

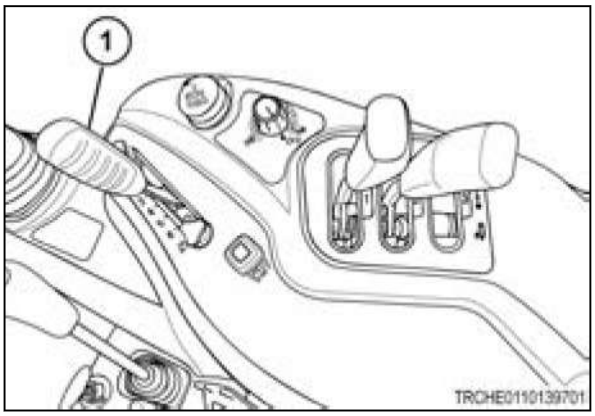


Fig. 119 Standard models

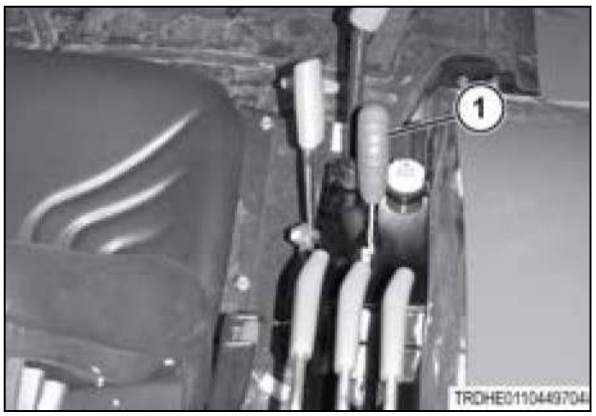


Fig. 120 4610 low profile model

5. Unlock the lower link hooks (1).
6. Back the tractor to the implement. Align the hooks on the lower links with the balls on the implement.
7. Use the lift control lever to raise the lower links so the hooks connect to the balls on the implement.
8. Apply the parking brake, stop the engine and take the key with you.
9. Lock the lower link hooks (2).
10. Install the top link to the top ball on the implement hitch frame.
11. Rotate the center barrel section of the top link to level the implement from front to rear.
12. Use the leveling turnbuckle and top link to adjust for level operation.
13. Make sure all adjustments are secure.
14. Adjust the stabilizer the same at each lower link to limit side play to the desired level.

    Do not remove all side play to prevent damage to the lower link.

    NOTE:
    The amount of side play (stabilizer looseness) varies with the implement and the type of operation. Usually 50 mm (2 in) of total side movement is desired, 25 mm (1 in) to each side of the tractor centerline.
15. Check the clearance between the drawbar and the implement. If necessary, remove the drawbar.

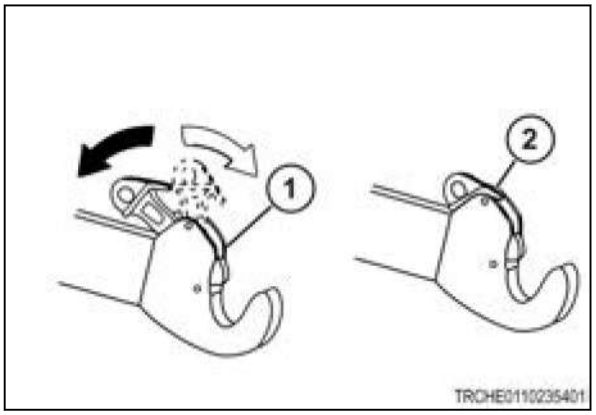


Fig. 121

3.16.10 Disconnecting implements

Before starting the procedure

CAUTION:
Always use the lift control to attach or detach implements to provide precise control of the hitch.

Procedure

1. Select a solid, level surface to disconnect and store the implement.
2. Lower the implement to the ground by moving the lift control lever to the down position.
3. If necessary, adjust the turnbuckle on the right-hand lift link to level the implement on the ground.
4. Lock the brakes, stop the engine, and take the key with you.
5. If necessary, disconnect the implement PTO drive shaft.
6. Remove the top link from the implement.

   NOTE:
   Lengthening or shortening the top link can be necessary to disconnect the implement.
7. Put the top link in the storage position on the tractor by engaging the spring on the top link in the slot in the rear center panel.
8. Disconnect the lower links from the implement pins.
9. Adjust the stabilizers (1) to prevent tire interference.
10. Take position in the operator seat and then start the engine. Release the brake and drive the tractor clear of the implement.

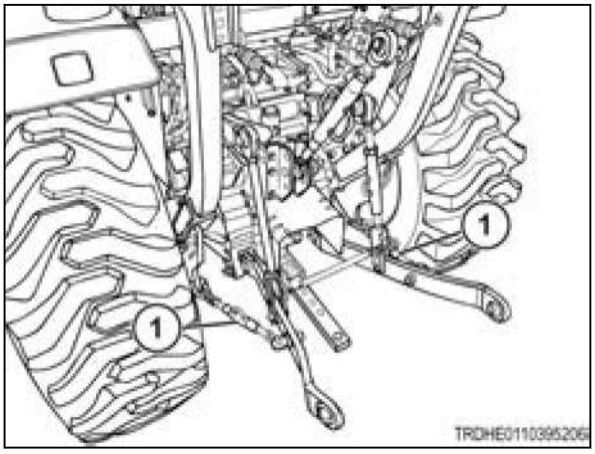


Fig. 122

3.17 Drawbar

CAUTION:
Pulling heavy loads will require extended braking distances. Reduce travel speed.

The drawbar (1) at the rear of the tractor permits pull-type implements to be connected to the tractor.

The maximum vertical load on the drawbar must not be more than 400 kg (882 lb).

Make sure the attachment is correctly fastened and the safety transport chain is used.

If an implement is connected to the three-point hitch, it can be necessary to remove the drawbar to give operating clearance. This is especially true for implements with a power takeoff drive. To remove the drawbar, remove the clips and pins and slide the drawbar from the bracket.

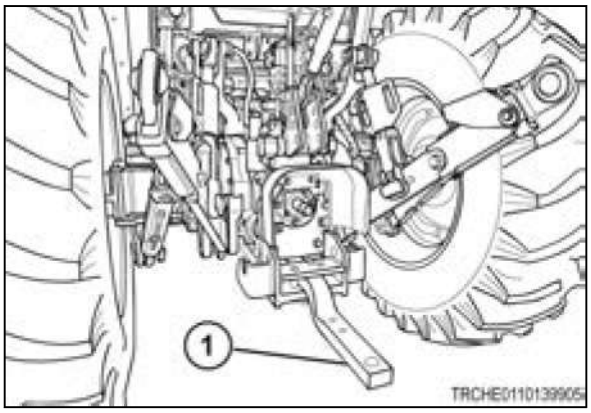


Fig. 123

3.18 Auxiliary electrical connectors

CAUTION:
Select the correct size electrical wire and fuse for the auxiliary power supply.

The trailer connector (1) is located on the rear of the tractor.

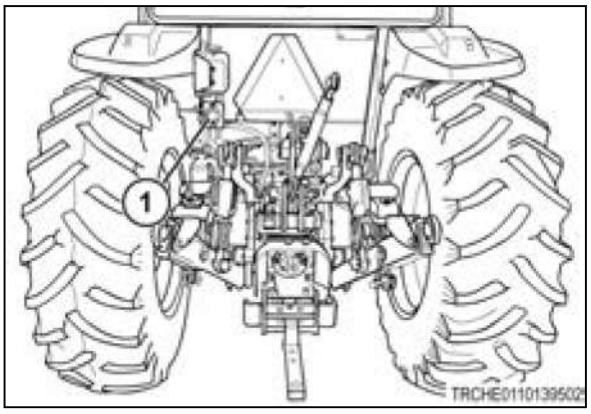


Fig. 124

Early production standard models

For early production standard models, the auxiliary electrical connector (1) is located toward the rear of the right-hand console.

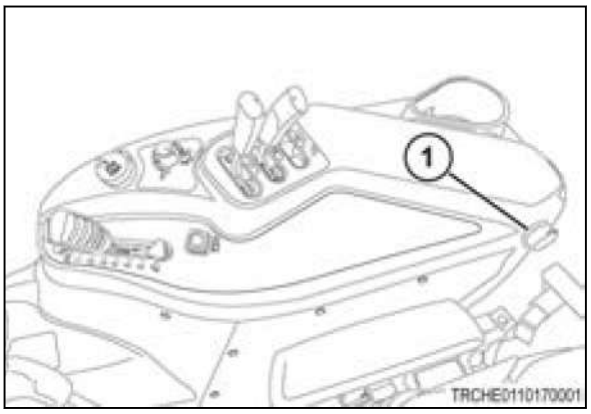


Fig. 125

Late production standard models

For late production standard models, there are two auxiliary electrical connectors.

- (1) - Located toward the rear of the right-hand console.
- (2) - To connect an implement terminal.

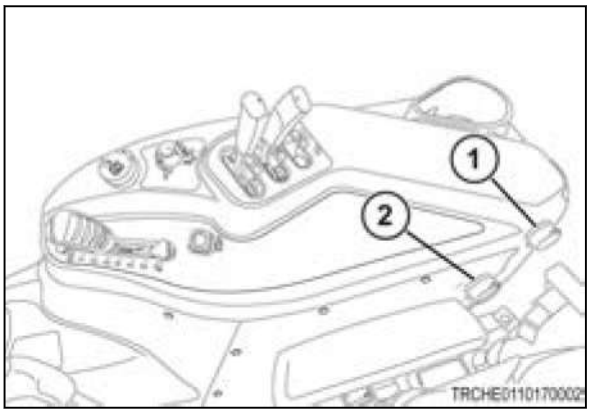


Fig. 126

4610 low profile models

For 4610 low profile models, the auxiliary electrical connector (1) is located on the front of the right-hand console.

Fig. 127

4. Maintenance

4.1 Lubrication and maintenance chart

Severe conditions or conditions that are not normal will require more frequent lubrication.

See the machine specifications for correct type and quantity of lubricant.

Daily	100 hours	200 hours	Other	
X				Check the engine oil level, fill if necessary.
X				Check the transmission oil level, fill if necessary.
X				Clean the air cleaner element.
X				Check the radiator coolant level, fill if necessary.
X				Inspect and clean the radiator fins.
X				Inspect and clean the fuel filter sediment bowl.
X				Lubricate the lubrication fittings.
		X		Inspect the windshield wiper, replace if necessary.
			Weekly	Check the windshield washer fluid reservoir, fill if necessary.
X		X		Inspect the air conditioner belt, replace if necessary.
X	X			Inspect the engine belt, replace if necessary.
X	X		Yearly	Inspect the radiator hoses, replace if necessary.
X		X		Inspect and correct the tire air pressure.
X	X			Inspect and tighten wheel bolts and nuts.
			Weekly	Drain water from the fuel prefilter.
	X			Drain moisture from the clutch housing.
	X		Yearly	Inspect the power steering hoses, replace if necessary.
	X		Yearly	Inspect air conditioning hoses, replace if necessary.
	X		Yearly	Inspect the fuel hoses, replace if necessary.
		X		Check the front axle oil level, fill if necessary.
		X		Inspect and adjust the brake pedal free play.
		X		Inspect the steering joint. If adjustment or service is necessary, see your dealer.
		X		Inspect the toe in. If adjustment or service is necessary, see your dealer.
		X		Inspect and tighten the tie rod end. If adjustment or service is necessary, see your dealer.

Daily	100 hours	200 hours	Other	
		X		Clean the air conditioner condenser.
			Monthly	Clean the air conditioner filter.
			400 hours	Change the engine oil and replace the filter.
			400 hours	Change the transmission oil and replace the filter.
			600 hours	Replace the air filter element.
			600 hours	Change the front axle oil.
			1000 hours	Replace the fuel filter element. See your dealer.
			1000 hours	Replace the engine belt.
			First 500 hours, then yearly	Inspect and adjust the engine valve clearance. If adjustment or service is necessary, see your dealer.
			Yearly	Inspect and replace the electrical wiring. If service is necessary, see your dealer.
			Yearly	Inspect the lamps, replace if necessary.
			Yearly	Inspect the warning device. If service is necessary, see your dealer.
			Yearly	Inspect rubber cab mounts, replace if necessary.
			Yearly	Inspect and the hydraulic hoses (joystick, hydraulic pump), replace if necessary.
			Yearly	Inspect the assist cylinder hoses, replace if necessary.
			Yearly	Inspect the oil cooler hose, replace if necessary.
			Yearly	Drain, flush, and replace the radiator coolant.

4.1.1 Initial lubrication and maintenance chart

After first 50 hours	
X	Change the engine oil and replace the filter.
X	Inspect the engine belt, replace if necessary.
X	Change the transmission oil and replace the filter.
X	Change the front axle oil.
X	Inspect and adjust the brake pedal free play.
X	Inspect and adjust the steering joint. If adjustment or service is necessary, see your dealer.
X	Inspect and adjust the toe in. If adjustment or service is necessary, see your dealer.
X	Inspect and adjust the tie rod end. If adjustment or service is necessary, see your dealer.

After first 50 hours	
X	Inspect and correct the tire air pressure.
X	Inspect and adjust the wheel bolts and nuts.
X	Inspect the power steering hose, replace if necessary.
X	Inspect the fuel hose, replace if necessary.
X	Inspect the electrical wiring, replace if necessary.
X	Inspect the lamps, replace if necessary.
X	Inspect the warning device, replace if necessary.
X	Inspect the air conditioner belt, replace if necessary.
X	Clean the air conditioner condenser.

4.2 Lubrication fill and drain locations

- Grease fittings
- Fill location
- Drain location
- Oil level check location

Ref	Description	Type
1	Engine	Engine oil
2	Radiator overflow reservoir	Coolant
3	Fuel tank	Diesel fuel
4	Transmission housing	Hydraulic oil
5	Front axle, four-wheel drive only	Hydraulic oil
6	Axle pivots	Grease
7	Front spindles	Grease
8	Ball joint	Grease
9	Front brake pivots	Grease
10	Brake arm pivots	Grease
11	Parking brake pivots	Grease
12	Lift rod	Grease
13	Top link	Grease

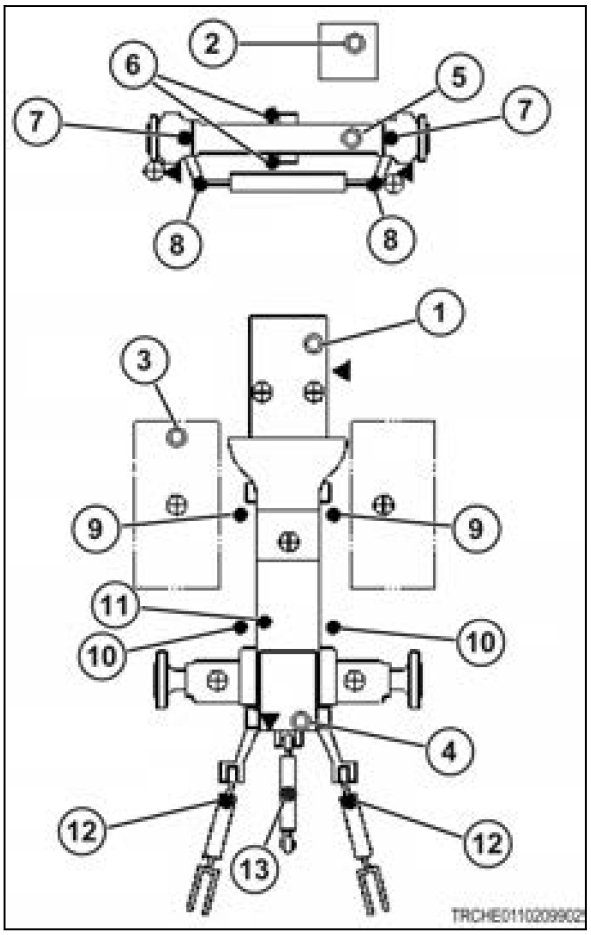


Fig. 1

4.3 Engine cover

4.3.1 Opening the engine cover

Procedure

1. Move the latch handle (1) away from the machine.
2. Lift the front of the engine cover (2).

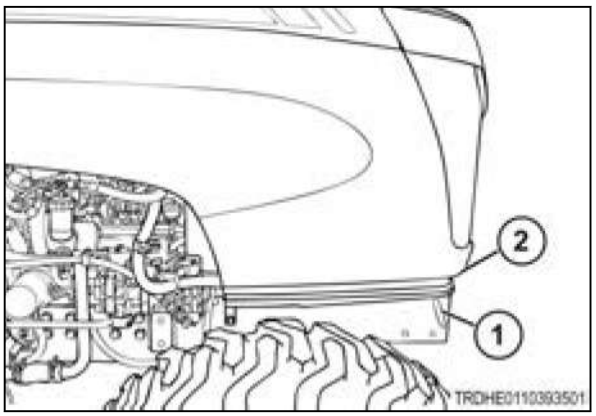


Fig. 2

4.3.2 Closing the engine cover

Procedure

1. Pull down on the front of the engine cover (1).
2. Make sure the latch is in the locked position.

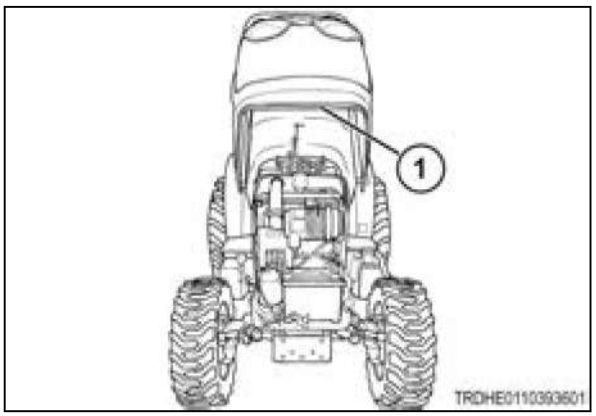


Fig. 3

4.4 Lubrication details

4.4.1 Lubrication fittings

Clean the grease gun and the lubrication fittings before and after lubricating to prevent contamination from dirt.

NOTE:
When operating in muddy or extremely wet conditions, lubricate the fittings daily.

4.4.2 Engine oil and filter

4.4.2.1 Checking the engine oil level

Procedure

1. Park the machine on a solid, level surface. Apply the parking brake, stop the engine, and take the key with you.
2. Wait a short time to let the oil stabilize in the crankcase.
3. Pull out the dipstick (1) from the level gauge guide pipe. Make sure the oil level is between the upper limit (F) and the lower limit (L) on the dipstick.
4. Wipe off the dipstick, momentarily install in the engine, and check the oil level again.
5. Add oil through filler opening (2) as required.

   See specifications for the correct type of oil.

   NOTE:
   Add oil slowly to let the air leave the crankcase.

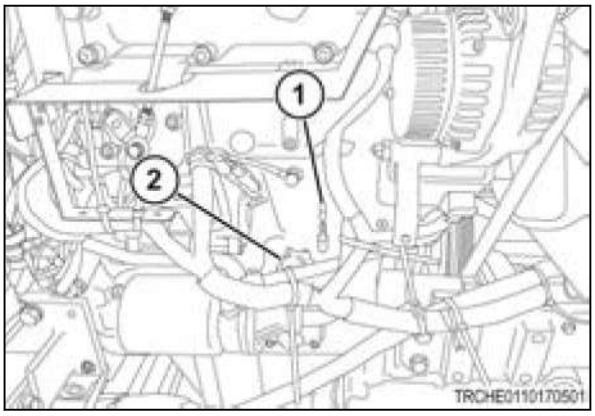


Fig. 4

4.4.2.2 Changing the engine oil

Procedure

1. Operate the machine until the engine is warm (temperature gauge must show above the cold mark).
2. Park the machine on a solid, level surface. Apply the parking brake, stop the engine, and take the key with you.
3. Place a suitable catch pan in position.
4. Remove both drain plugs (1) from the engine and drain the oil.

   CAUTION:
   Be careful to avoid contact with hot oil. Use suitable gloves and protective clothing.
5. Install the drain plugs.
6. Fill the engine crankcase through the filler opening (2) to the F (full) mark on the dipstick.

   See specifications for the correct type of oil.

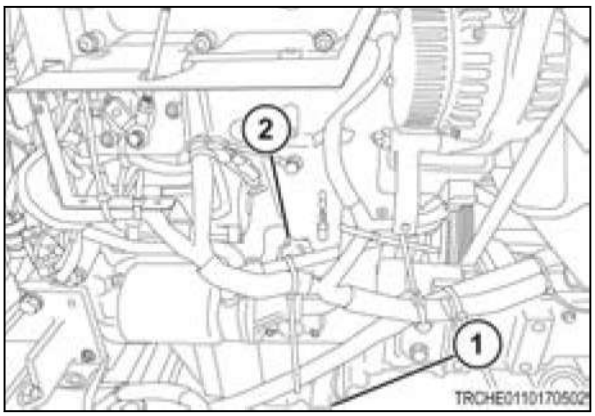


Fig. 5

4.4.2.3 Replacing the engine oil filter

Procedure

1. Remove the engine oil filter (1) from the engine and discard.
2. Make sure the original filter gasket has been removed.
3. Lubricate the new gasket on the replacement element with clean engine oil.
4. Screw on a new oil filter until the gasket contacts the adapter.
5. Tighten the oil filter 1/2 turn.
6. Clean any spilled oil and fill the crankcase.
7. Start the engine, check for leaks, and add oil as required.

   See specifications section for the correct type of oil.

   IMPORTANT:
   The engine warranty is valid only when original AGCO Power™ filter elements are used.

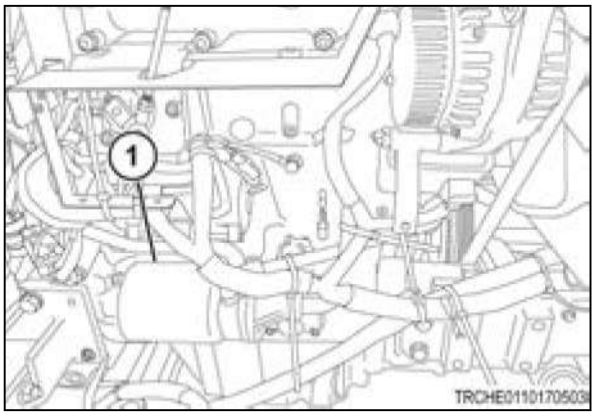


Fig. 6

4.4.3 Transmission oil

The transmission oil lubricates the transmission, center housing, and rear axles, and is used as hydraulic fluid.

NOTE: *Adding oil to the transmission will also keep the oil level correct in the center housing and rear axles.*

4.4.3.1 Checking the transmission oil level

Procedure

1. Park the machine on a solid, level surface.
2. Lower the three-point hitch and all external hydraulically controlled equipment.
3. Set the park brake, stop the engine, and take the key with you.
4. Pull out the dipstick (1).
5. Wipe the dipstick clean.
6. Install the dipstick to the end but do not secure in position.
7. Pull out the dipstick. Make sure the oil level is between the upper limit (A) and the end of the dipstick (B).
8. If necessary, add oil.
   a) Remove the filler plug (2).
   b) Add oil through the filler opening.

      See specifications for the correct type of oil.
   c) Install the filler plug.

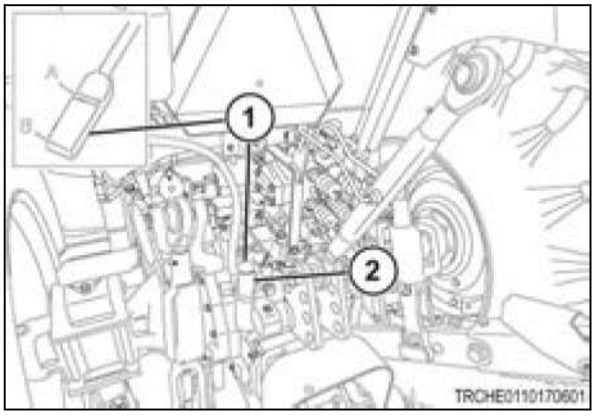


Fig. 7

4.4.3.2 Changing the transmission oil and filter

Procedure

1. Park the machine on a solid, level surface. Lower the three-point hitch and any hydraulically controlled equipment completely. Apply the parking brake, stop the engine, and take the key with you.
2. Place a catch pan in position.
3. Remove the drain plug (1) and let all oil drain from the system.

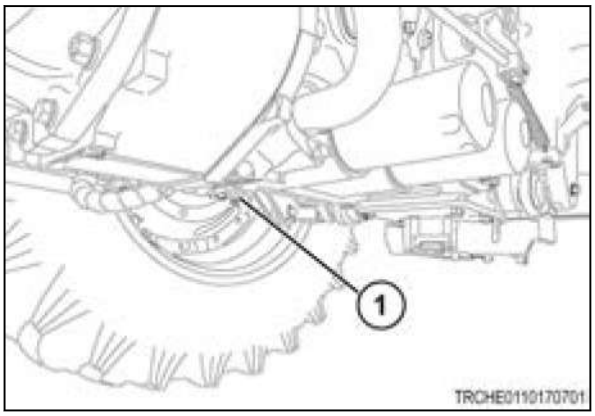


Fig. 8

4. Remove the transmission oil filters (1). Use a filter wrench, if required.
5. Make sure the original filter gasket has been completely removed.
6. Clean the filter adapter.
7. Lubricate the gasket on the new filter with clean hydraulic oil.
8. Install the new filter until the gasket contacts with the adapter and tighten additional 2/3 turn by hand. Do not use a filter wrench to install the filter.
9. Install the drain plug.
10. Fill the system with clean transmission oil.

    See specifications for the correct type of oil.
11. Start the tractor and let idle several minutes while operating the hydraulic controls.

    IMPORTANT:
    If the hydraulic system does not operate correctly after the transmission oil has been changed or after long term storage, see your dealer.
12. Stop the engine and lower the three-point hitch.
13. Check the oil level. Add transmission oil as necessary.

    See specifications for the correct type of oil.
14. Check for leaks and repair as necessary.

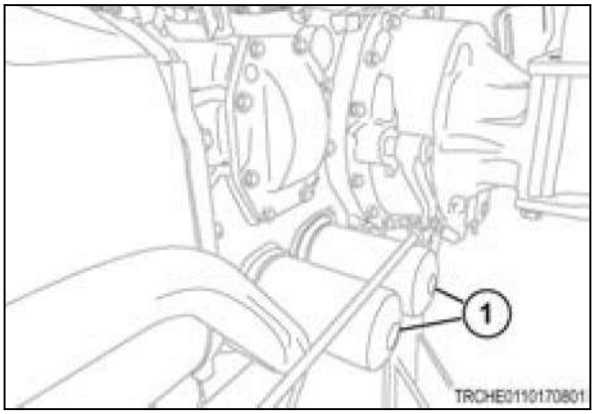


Fig. 9

4.4.4 Front axle oil

The front dive axle has a common oil level for the front differential housing and each wheel reduction unit.

4.4.4.1 Checking the front axle oil level

Procedure

1. Park the machine on a solid, level surface. Stop the engine, apply the parking brake, and take the key with you.
2. Remove the oil fill plug (1) on the top of the right-hand front axle.
3. Wait 10 minutes for the oil level to become equal.
4. Check the oil level.

   Make sure the oil level is at the mid point of the front axle housing. If the oil level is low, add oil to the front axle through the fill plug.

   See Specifications for the correct type of oil.
5. Install the oil fill plug.

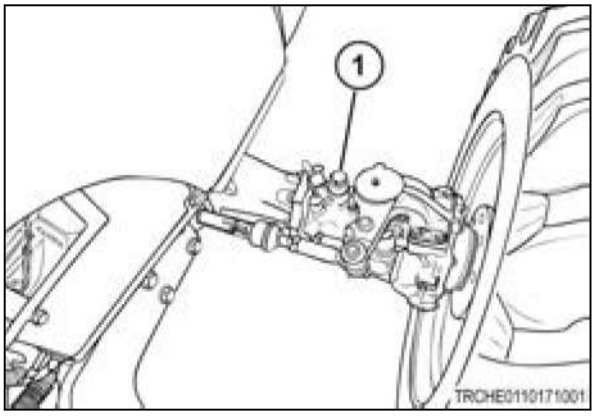


Fig. 10

4.4.4.2 Changing the front axle oil

Procedure

1. Park the machine on a solid, level surface. Stop the engine, apply the parking brake, and take the key with you.
2. Put suitable catch pans under the drain plugs (1).
3. Remove the drain plugs and drain the oil out of the final case on the front axle.
4. Wrap the threads of the drain plugs with sealing tape.
5. When the oil has drained completely, install the drain plugs securely.
6. Remove the plugs (2) on the top of the final case on both sides of the axle to let air out of the front axle.
7. Fill with oil through the oil fill hole (3).

   See Specifications for the correct type of oil.
8. Install the plugs on the top of the final case on both sides of the axle.

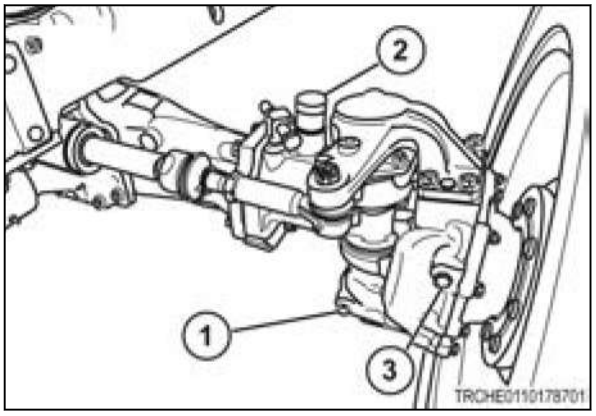


Fig. 11

4.5 Coolant

4.5.1 Coolant level

The radiator is equipped with an overflow tank (1) to keep the coolant in the radiator at the correct level. Check the coolant level in the overflow tank during the daily inspection.

Open the engine cover. Make sure the coolant level in the overflow tank is between FULL and LOW.

If the coolant is below the LOW level, add coolant to the overflow tank so the level is between FULL and LOW.

IMPORTANT:
Do not fill the overflow tank above the FULL level. Overfilling will prevent the radiator from correctly operating and can cause a coolant leak.

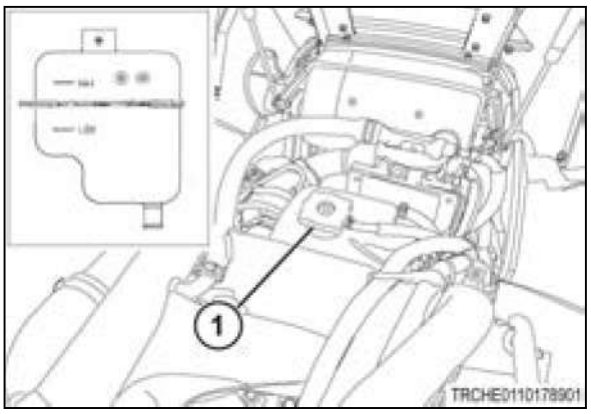


Fig. 12

4.5.2 Replacing coolant

Procedure

1. Make sure the engine is cool.
2. Park the tractor on a solid, level surface. Apply the parking brake, stop the engine, and take the key with you.
3. Put a suitable catch pan in position.
4. Open the drain valve (1) at the left-hand side of the engine. Drain the coolant.

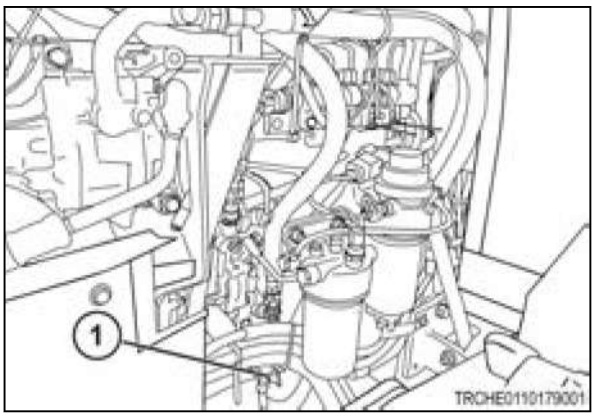


Fig. 13

5. Remove the overflow tank (1) and drain the coolant.
6. Flush the inside of the radiator and the overflow tank with water.
7. Install the overflow tank.
8. Close the drain valve.
9. Fill the cooling system with coolant.
10. Install the cap on the overflow tank.
11. Operate the engine for five minutes at approximately 1500 rpm.
12. Stop the engine and take the key with you.

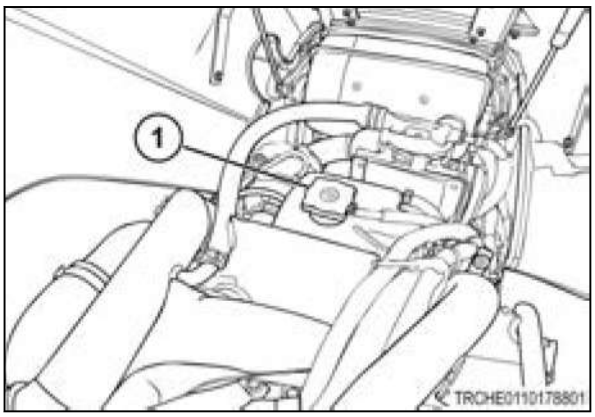


Fig. 14

13. Check the coolant level and add coolant as necessary. The coolant level must be between LOW and MAX.

4.5.3 Antifreeze

Freezing of the coolant can result in damage to the engine. Mix in 50/50 antifreeze (Long Life Coolant) when the outside temperature will drop below 0° C (32° F) .

The mixture ratio of antifreeze can be different depending on the antifreeze manufacturer and temperature. Follow the instructions for the antifreeze.

4.5.4 Cleaning the radiator

WARNING:
Make sure to stop the engine when cleaning the radiator. Placing your hands in this area while the engine is operating may result in serious injury.

The radiator screen can become plugged with grass, straw, insects, and debris. Clean the radiator screen when necessary.

IMPORTANT:
A plugged radiator will cause the engine to become too hot and the engine oil consumption to increase.
Do not apply high pressure water directly to the radiator as this can damage to the fins.
Do not directly spray water on the electrical wiring or electrical parts around the engine.

Procedure

1. Park the tractor on a solid, level surface.
2. Turn the front tires to the right.
3. Apply the parking brake, stop the engine, and take the key with you.
4. Make sure the engine is cool.
5. Open the engine cover.
6. Pull out the radiator screen (1).
7. Clean the radiator screen.
8. Wash dirt and other debris from between the fins in the radiator core (2) with water.
9. Install the radiator screen.
10. Close the engine cover.

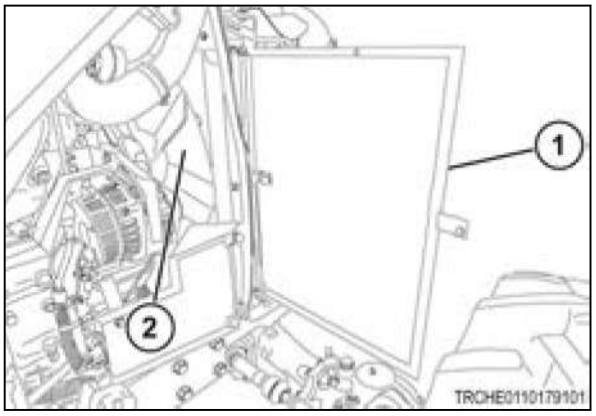


Fig. 15

4.6 Belts

4.6.1 Engine belt

CAUTION:
Due to muffler position, allow to cool before checking or adjusting the engine belt tension.

IMPORTANT:
If too much tension is applied to the belt, the bearings in the fan will be damaged.

Correct engine belt tension helps to make sure of enough coolant flow through the cylinder block and the radiator.

The tension on the engine belt must be 13 mm (1/2 in) deflection at 2.3 kg (5.0 lb) of force.

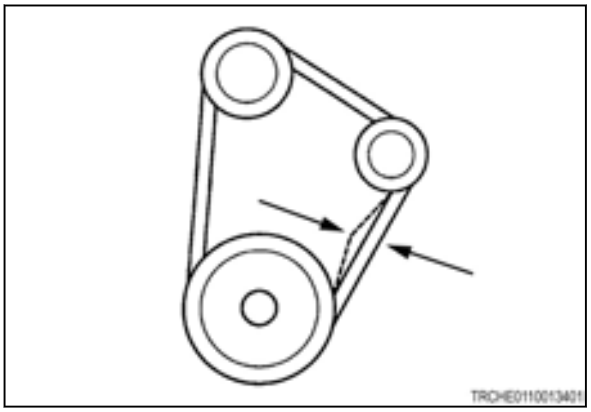


Fig. 16

4.6.2 Adjusting the engine belt

Procedure

1. Loosen the alternator pivot bolt (1) .
2. Loosen the tensioner bracket bolt (2).
3. Pull outward on the top of the alternator to get the correct tension on the belt.
4. Tighten the tensioner bracket bolt.
5. Tighten the alternator pivot bolt.

   IMPORTANT: *Do not pry against the alternator housing or pulley. Carefully pry against the alternator mounting flange to prevent damage.*

   IMPORTANT: *If too much tension is applied to the belt drive, the bearing in the alternator will be damaged.*

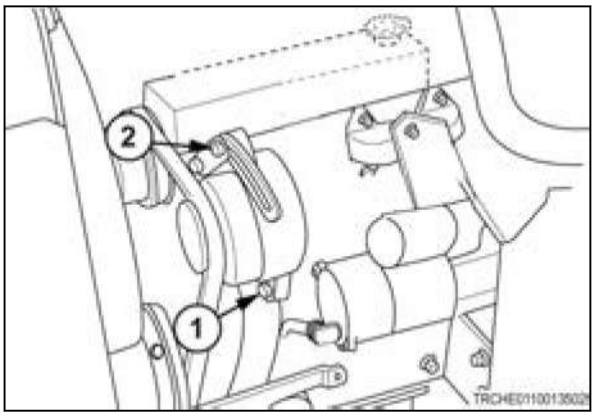


Fig. 17

4.6.3 Adjusting the air conditioner compressor belt

The tension is correct when the belt deflects 10 to 15 mm (0.4 to 0.6 in) when pushed by hand between the pulleys (A).

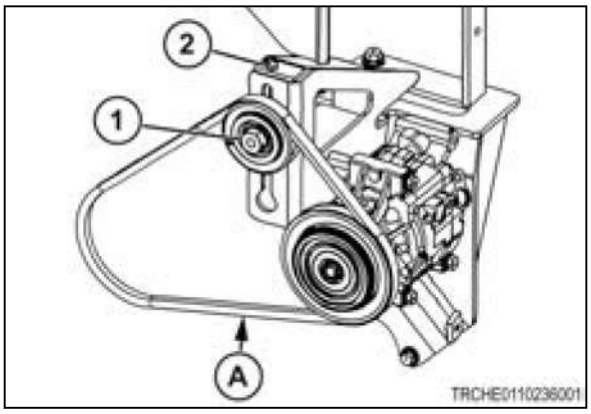


Fig. 18

Procedure

1. Loosen the tensioner bolt (1).
2. Use the adjustment bolt (2) to move the tensioner.
3. Tighten the tensioner bolt.

After finishing the procedure

NOTE: *Check the tension of a new belt after one hour of operation. Adjust the tension if necessary.*

4.7 Engine air filter

IMPORTANT:
Never operate the engine with the air filters removed.

Open the engine cover to service the air filter (1) and the dust ejector (2).

The dust ejector is a trap for dust deposits that fall from the outer element.

Periodically squeeze the dust ejector to release the deposits. If the deposits are damp, wipe the ejector clean with a cloth.

NOTE:
Regular cleaning of the dust ejector can reduce filter element maintenance.

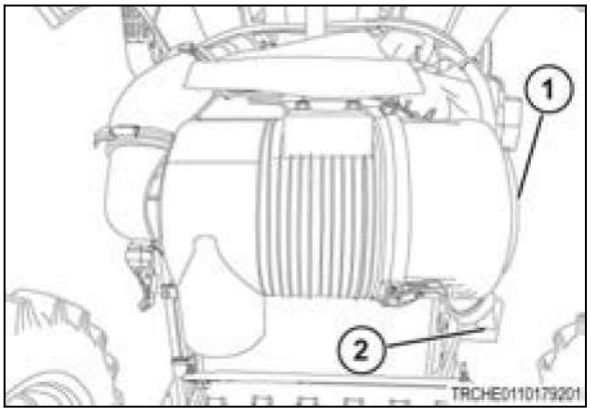


Fig. 19

The air filter (1) is a dry paper element that filters dust particles from the intake air.

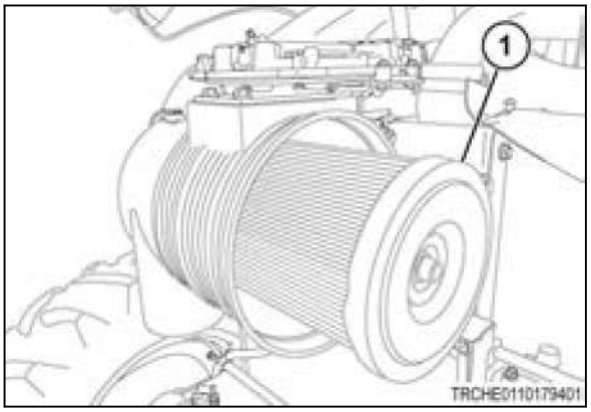


Fig. 20

4.7.1 Replacing the engine air filter

Procedure

1. Open the engine cover.
2. Release the latches (1) on the air filter housing.
3. Remove the cover from the air filter housing.

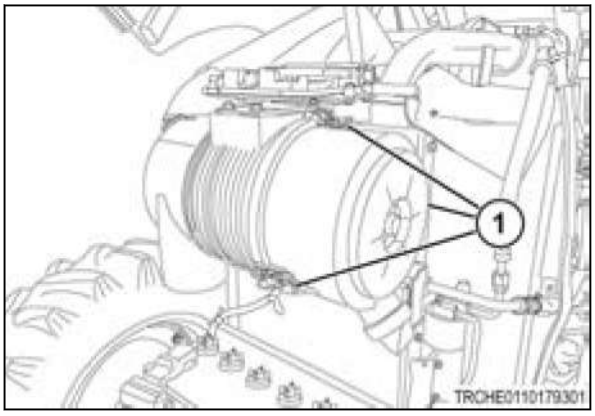


Fig. 21

4. Pull the outer filter element (1) from the air filter housing.
5. If there is moisture in the air filter housing (2), wipe the inside with a clean cloth.

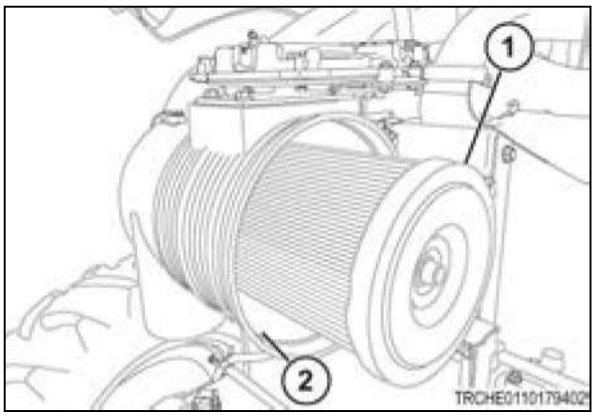


Fig. 22

6. Pull the inner element (1) from the air filter housing
7. Inspect the inner element.

   If the color of the element is not the correct color (indicating dirt) or is damaged, replace the inner and outer elements.

   IMPORTANT:
   Do not clean the inner element. The inner element protects the engine from dust entering if the outer element fails.
8. Install the inner element.
9. Install the outer element.
10. Install the cover.
11. Close the latches.
12. Close the engine cover.

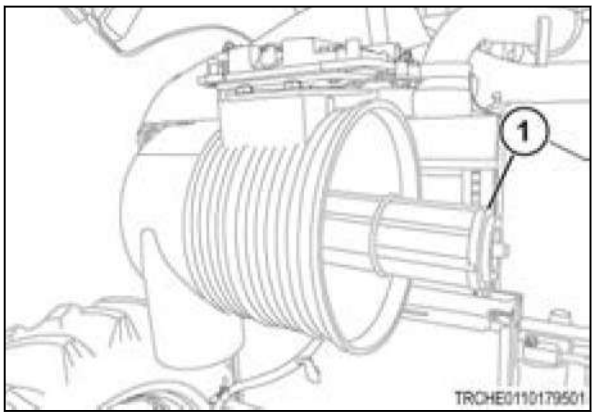


Fig. 23

4.7.2 Cleaning the engine air filter

The outer element (1) can be cleaned (if in good condition) using the following procedures:

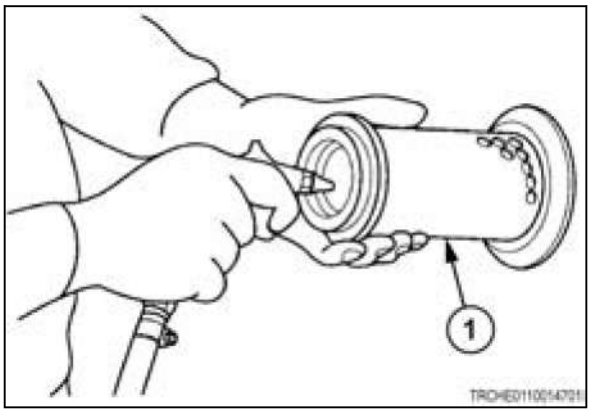


Fig. 24

Procedure

1. Remove loose dirt, grass, chaff, and other debris using compressed air not more than 200 kPa (30 psi) from inside the element. Be careful not to damage the element pleats with air flow.
2. If the outer element is coated with oil or soot:
   a) Prepare a solution of warm water and non-foaming detergent.
   b) Soak the element for 30 minutes.
   c) Shake the element in the solution until the oil and soot are loosened.

d) Wash the element with clean water until the water is clear.

e) Let the element dry completely. Do not dry by using compressed air or heat.

3. After cleaning (or washing) element, check the element for pin holes, punctures, or tears. If the element paper, canister or seal show any signs of damage, replace the element.

IMPORTANT: *Do not hit the filter element against a rock, concrete or other hard item when cleaning. This can result in damage of the filter element, reducing engine performance.*

NOTE: *Replace the outer element after washing five times.*

4.8 Cab air filters

4.8.1 Changing the air conditioner filter

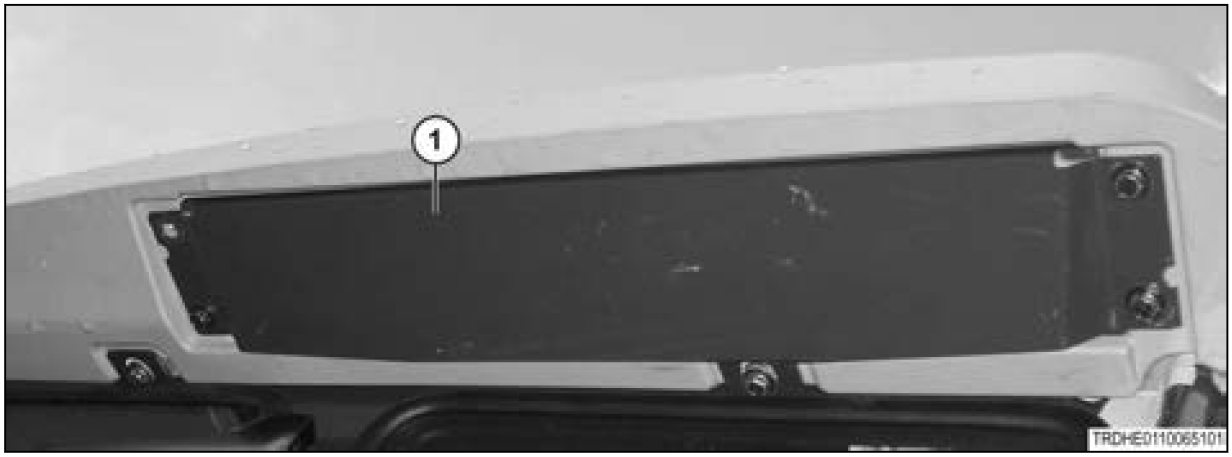


Fig. 25

The air conditioner filter (1) is in the left-hand side of the roof. Inspect and clean the air conditioner filter every month, depending on use and conditions.

NOTE: *Neglected cleaning of the air filter will cause deteriorated airflow rate, along with problems with the air conditioner unit.*

Procedure

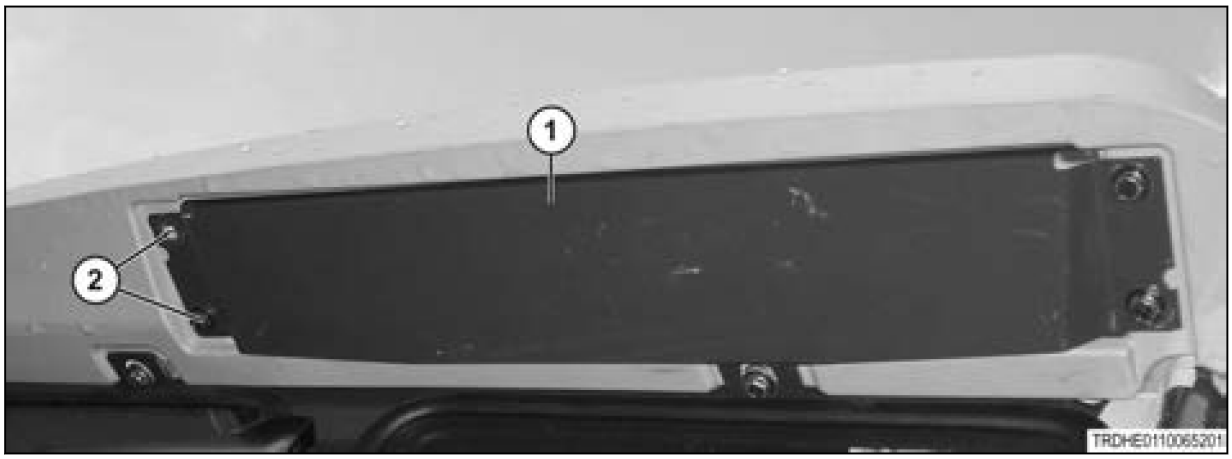


Fig. 26

1. Remove the four screws (2), and open the filter cover (1).
2. Remove the air conditioner filter (1).

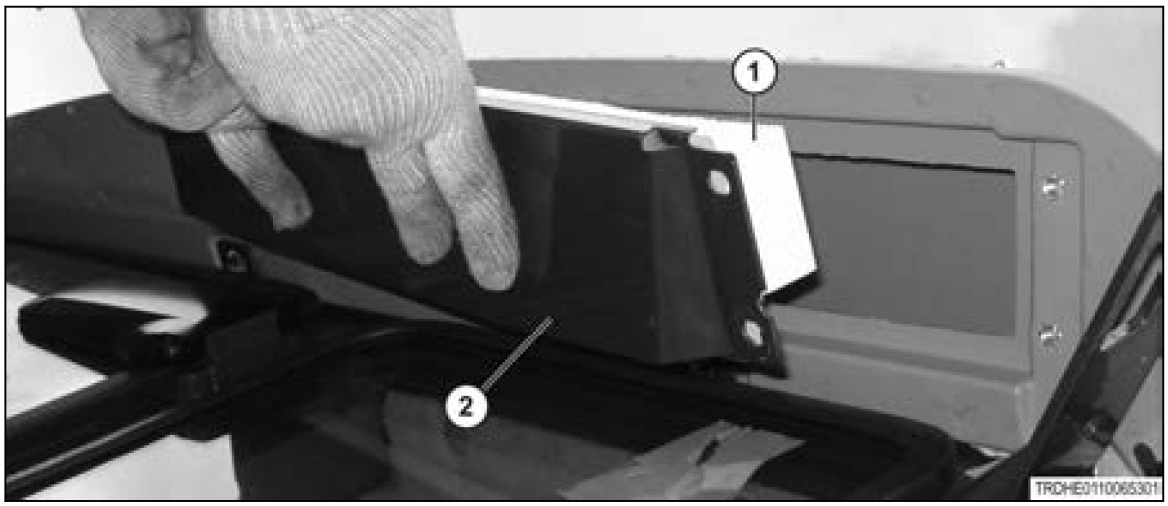


Fig. 27

NOTE: *The air conditioner filter and filter cover (2) can be removed at the same time.*

3. Blow the filter with compressed air from the opposite side of air flow.

4. Install the filter.

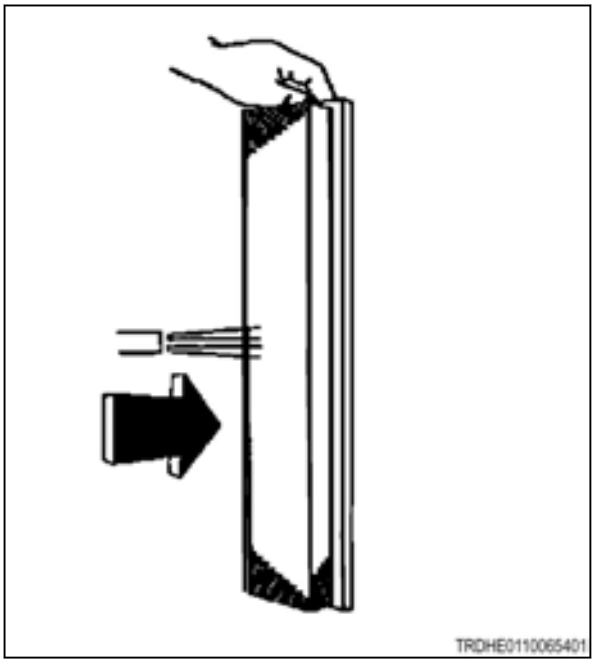


Fig. 28

4.8.2 Servicing the recirculation air filter

Procedure

1. Remove the cover (1).
2. Remove the air filter (2).
3. Clean the air filter.

   IMPORTANT: *Do not damage the element pleats with compressed air.*
4. Inspect the air filter and replace if damaged.
5. Install the air filter.
6. Install the cover.

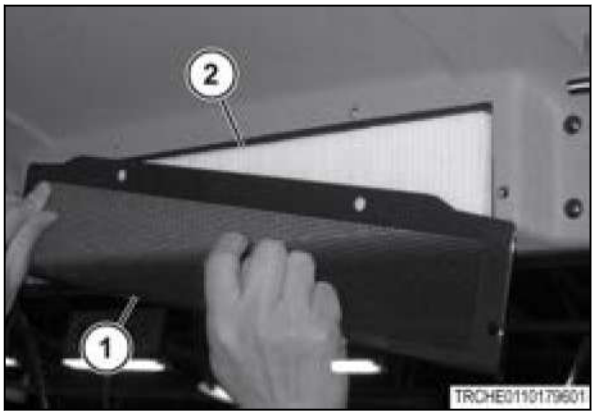


Fig. 29

4.9 Fuel system

CAUTION:
Do not refill fuel tank with engine running or hot. Allow cooling period. Do not smoke near fuel tank. Clean up any spilled fuel.

IMPORTANT: *Do not tamper with the injection pump or the injector adjustments. Tampering will cause severe engine damage or engine failure. The warranty will not cover a machine with tampering.*

Use only clean ultra low sulfur diesel fuel of correct grade. Water or dirt in the fuel tank or other parts of the fuel system can cause repeated blockage of the fuel filter and possible injection pump damage.

Keep the area around the fuel cap clean and use only clean diesel fuel to prevent dirt and water from getting into the fuel tank when filling.

Do not run out of fuel as bleeding air from the system will be required.

Keep the fuel tank full to reduce condensation.

4.9.1 Fuel filter

The fuel filters (1) are located on the left-hand side of the engine.

The fuel filters strain the fuel before the fuel reaches the high pressure pump.

A completely clean area around the fuel filters is required when servicing the fuel system.

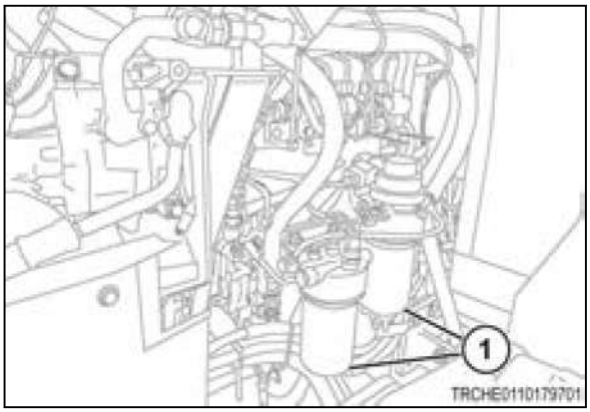


Fig. 30

4.9.2 Removing the water from the fuel system

Drain the water from the fuel prefilter:

- Weekly
- Every 50 hours of operation
- When water in the fuel indicator illuminates on the instrument panel

1. Put a container under the fuel prefilter (1).
2. Open the drain located on the bottom of the fuel prefilter.
3. When the water is drained, close the drain.

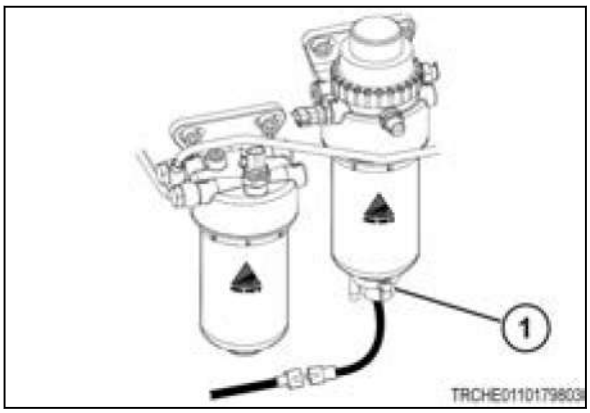


Fig. 31

4.9.3 Replacing the fuel filter

Procedure

1. Clean the filters and the area around the filters.
2. Disconnect the wire harness (1) from the water in fuel sensor (2).
3. Put a container under the fuel filters to catch the fuel.
4. Turn the pre-filter (3) counterclockwise and remove.
5. Remove the water in fuel sensor from the pre-filter.
6. Turn the final fuel filter (4) counterclockwise and remove.
7. Remove the plug and install the water in fuel sensor into the new pre-filter.

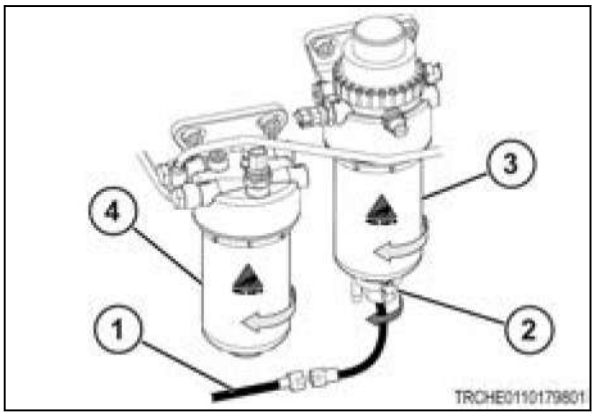


Fig. 32

8. Lubricate the O-rings on the new fuel filters with clean fuel (1).
9. Fill the outer chamber (2) of the filters with clean fuel.

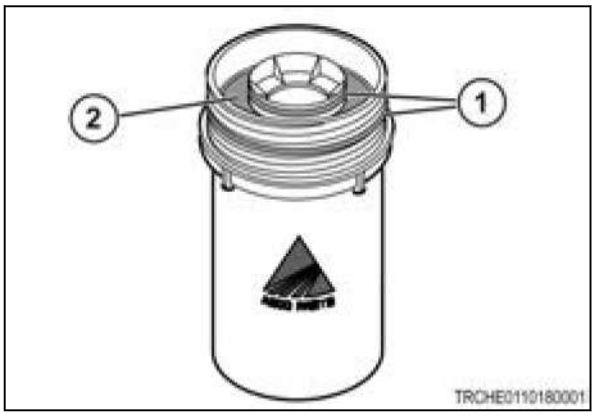


Fig. 33

10. Install the new filters. Turn the filters until the plastic flange (1) contacts the bracket (2).
11. Connect the wire harness to the water in fuel sensor.
12. Bleed the fuel system.
13. Start the engine and inspect for leaks.

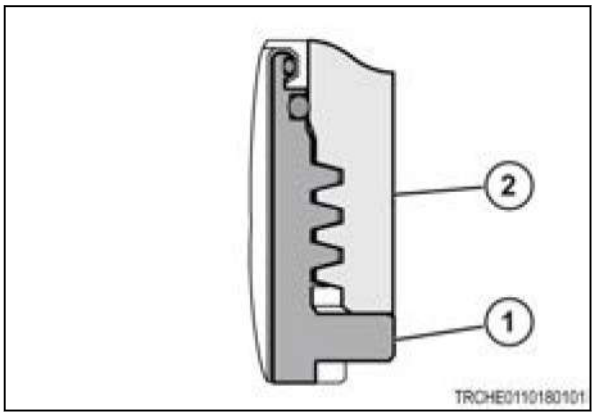


Fig. 34

After finishing the procedure

IMPORTANT:
Take the used filter elements to proper disposal point.

IMPORTANT:
The engine warranty is valid only when original AGCO Power™ filter elements are used.

4.9.4 Bleeding the fuel system

Procedure

1. Open the bleeding plug (1) on the high pressure pump.
2. Press and release the hand pump (2) on top of the pre-filter until fuel is seen at the bleeding plug.

   IMPORTANT:
   Do not use too much force or tools on the hand pump.
3. Close the bleeding plug. Tighten the bleeding plug to 6 Nm (4 lbf ft).
4. Continue operating the hand pump until pressure is felt in the pump. The hand pump will be hard to press.
5. Clean any fuel from the engine.
6. Start the engine. The fuel system automatically removes the air still in the fuel system.

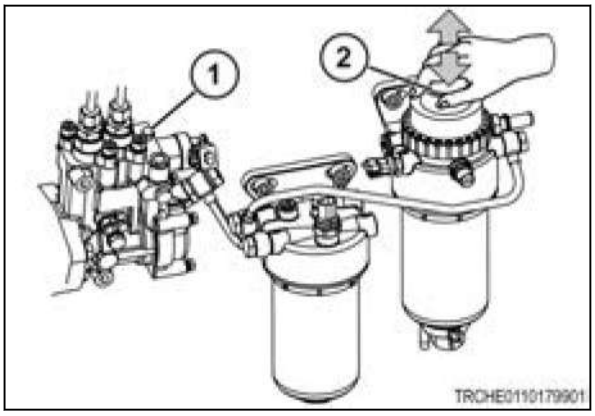


Fig. 35

4.9.5 Fuel tank filler cap

When the fuel tank filler cap is removed, a hissing or popping noise can be heard. This is because of the cap design and is a normal condition. Do not change the cap or use an unapproved replacement as fuel leakage can occur during possible machine upset.

4.9.6 Hand throttle lever

The hand throttle lever must remain in the position selected by the operator. Through normal use, friction against the hand throttle lever can decrease, causing the hand throttle lever to move out of the selected position. Turn the adjusting nut (1) as required to hold the hand throttle lever in the selected position.

NOTE:
Remove the steering column cover and the instrument panel to get access to the adjusting nut.

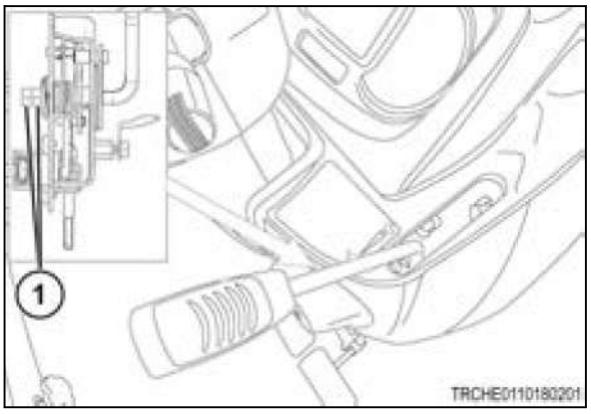


Fig. 36

4.10 Electrical system

4.10.1 Battery

WARNING:
Never disassemble the battery.

WARNING:
When charging the battery from an external source, set charging voltage below 16 volts. Set charging ampere below 1/10 (one tenth) of the battery capacity (13.0 A or less). The battery temperature must not rise above 54 °C (129 °F).

WARNING:
When connecting and disconnecting the battery cables, turn off the power of the battery charger. If you have any questions about the battery, consult you dealer.

CAUTION:
Batteries produce explosive hydrogen gas when charged. Keep all sparks and open flames away from the battery.

CAUTION:
When necessary to disconnect the battery cables, always disconnect the grounded (-) cable first to prevent short circuits.

CAUTION:
Batteries contain sulfuric acid electrolyte (fluid). Wear eye and face protection. If electrolyte comes in contact with skin or clothes, wash immediately. Contact a physician if electrolyte is ingested or gets in eyes.

The battery (1) is located under the engine cover in front of the radiator.

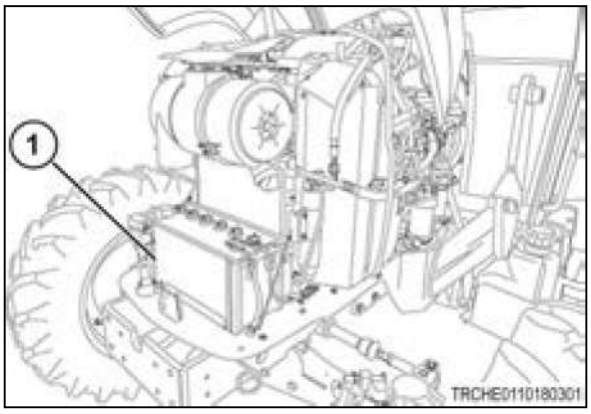


Fig. 37

Keep the top of the battery clean. Make sure the cable connections are clean and tight. Debris on the battery can cause discharge of the battery and fire.

The battery is a maintenance free type. It is not necessary to add water to the battery.

If the battery performance is weak, remove the battery and charge the battery with a battery charger. Follow the instructions for the battery charger. Repeated battery charging can be because of a problem with the tractor charging system and/or the battery.

NOTE:
When handling the battery, never close or cover the battery vent.

The battery will discharge if the machine is in storage for a long time, especially in the winter. Remove the negative battery terminal before storing the machine for more than one month. After storage, check the make sure the battery has enough charge for operation. If in storage for more than six months, charge the battery.

4.10.2 Replacing the battery

Before starting the procedure

CAUTION:
When necessary to disconnect the battery cables, always disconnect the grounded (-) cable first to prevent short circuits.

Procedure

1. Disconnect the negative (-) cable (1).
2. Disconnect the positive (+) cable (2).
3. Remove the battery retaining clamp.
4. Remove the battery.
5. Install the battery.

   NOTE:
   The replacement battery must be the same size and the same capacity.
6. Install the battery retaining clamp.
7. Install the positive (+) battery cable to the battery.

   The positive battery terminal connects to the starter solenoid.

   IMPORTANT:
   Do not reverse the battery cable connections. This will cause electrical system damage.
8. Install the negative (-) battery cable to the battery.

   The negative battery cable connects to the machine frame.

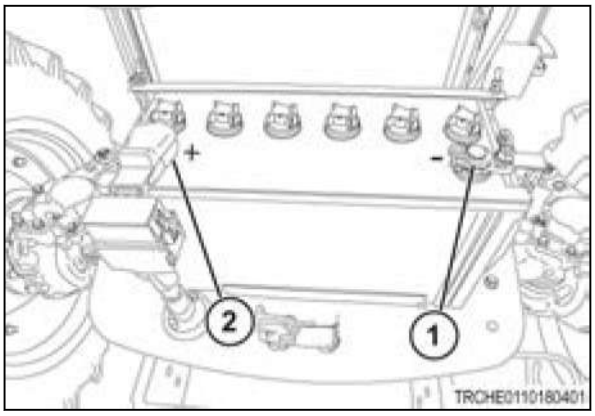


Fig. 38

4.10.3 Fuses

CAUTION:
Keep all wiring connections clean and tight. Make sure wiring is correctly secured to prevent damage.

CAUTION:
Do not alter wiring by adding homemade extensions or replacements. Doing so can eliminate fuse protection and/or eliminate safety features of the system.

CAUTION:
The machine is equipped with a negative (-) ground system. Machine metal parts provide many electrical connections. For this reason, all positive (+) circuits must be insulated to prevent grounding or short circuits and prevent possible fire.

CAUTION:
Do not replace any fuse with a fuse of higher amperage rating. Do not use wire (or foil) to bypass fuse protection. A fire can result.

IMPORTANT: *If fuses blow repeatedly, examine electrical system for grounded or shorted circuits.*

4.10.3.1 Main fuse box - platform tractor

Main fuse box for platform tractors sold in North America

The main fuse block (1) is located on the right-hand side of the steering post.

Ref	Amp	Function
1	20	Lamp switch
2	15	Turn switch
3	5	Instrument panel (12 v)
4	5	Alternator
5	15	External auxiliary power supply
6	20	7P socket
7	15	EGR
8	15	Machine ECU
9	10	Horn
10	10	Instrument panel (IG2)
11	10	Beacon lamp switch (optional)
12	15	Work lamp (optional)
13	15	Beacon lamp (optional)
14	5	Starter
15	5	Check mode

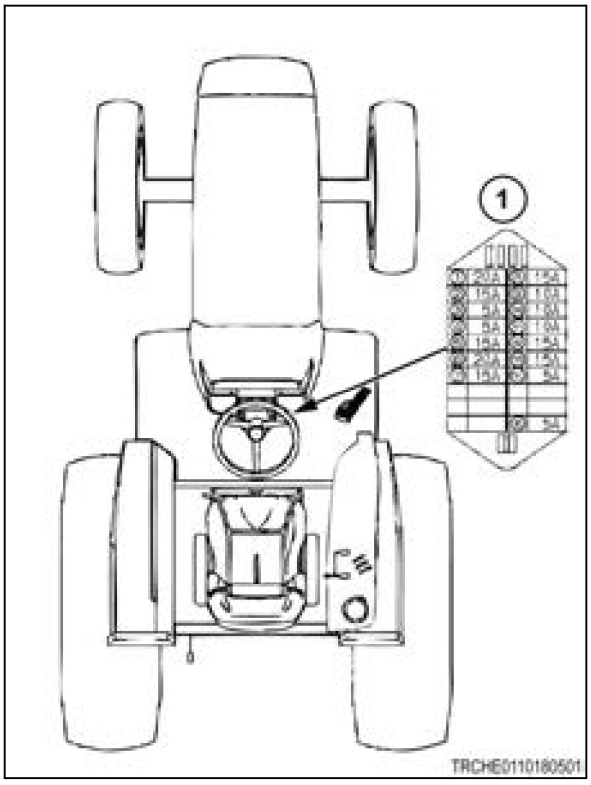


Fig. 39

IMPORTANT:
Fuses have a specific amperage for the circuit. Do not replace fuses with parts that are not approved.

Main fuse box for platform tractors sold in Australia

The main fuse block (1) is located on the right-hand side of the steering post.

Ref	Amp	Function
1	20	Lamp switch
2	15	Turn switch
3	5	Instrument panel (12 v)
4	10	Brake lamp
5	5	Alternator
6	15	External auxiliary power supply
7	15	EGR
8	15	Machine ECU
9	10	Horn
10	10	Instrument panel (IG2)
11	10	Beacon lamp switch (optional)
12	15	Work lamp (optional)
13	15	Beacon lamp (optional)
14	5	Starter
15	5	Check mode

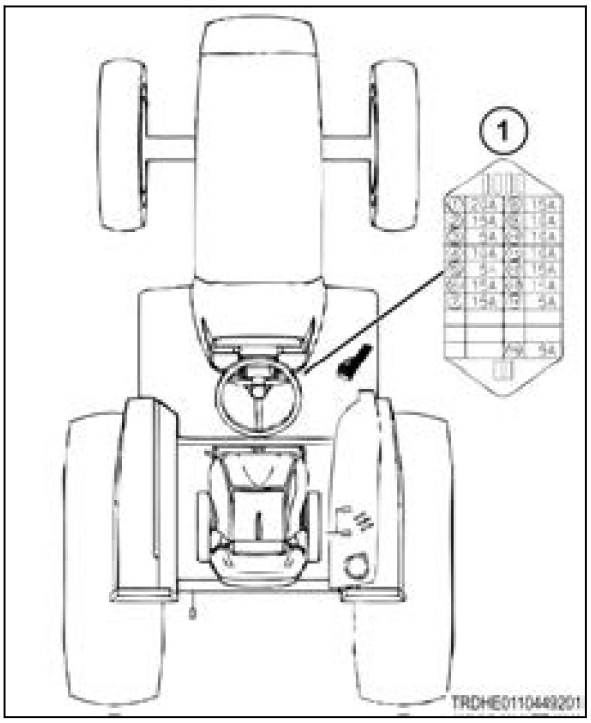


Fig. 40

IMPORTANT:
Fuses have a specific amperage for the circuit. Do not replace fuses with parts that are not approved.

4.10.3.2 Main fuse box - cab tractor

IMPORTANT:
Fuses have a specific amperage for the circuit. Do not replace fuses with parts that are not approved.

Early production tractors sold in North America

The main fuse block (1) is located on the right-hand side of the steering post.

Ref	Amp	Function
1	20	Lamp switch
2	15	Turn switch
3	5	Instrument panel (12 v)
4	5	Alternator
5	15	External auxiliary power supply
6	20	7P socket
7	15	EGR
8	15	Machine ECU
9	10	Horn
10	10	Instrument panel (IG2)
11	10	Washer switch
12	7.5	Air conditioner
13	5	Starter
14	5	Check mode

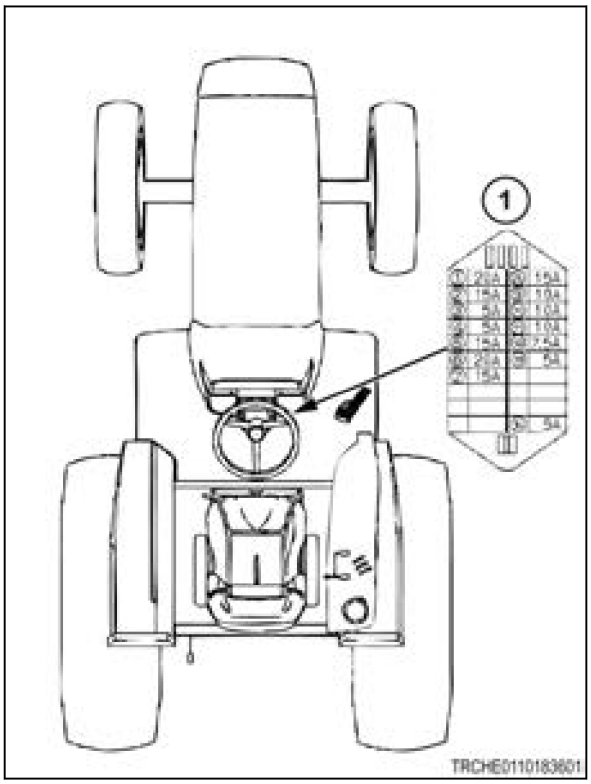


Fig. 41

Late production cab tractors sold in North America

Ref	Amp	Function
1	20	Lamp switch
2	15	Turn switch
3	5	Instrument panel (12 v)
4	5	Alternator
5	15	External auxiliary power supply
6	20	7P socket
7	15	EGR
8	15	Machine ECU
9	10	Horn
10	10	Implement power supply
11	10	Instrument panel (IG2)
12	10	Washer switch
13	7.5	Air conditioner
14	5	Starter
15	5	Check mode

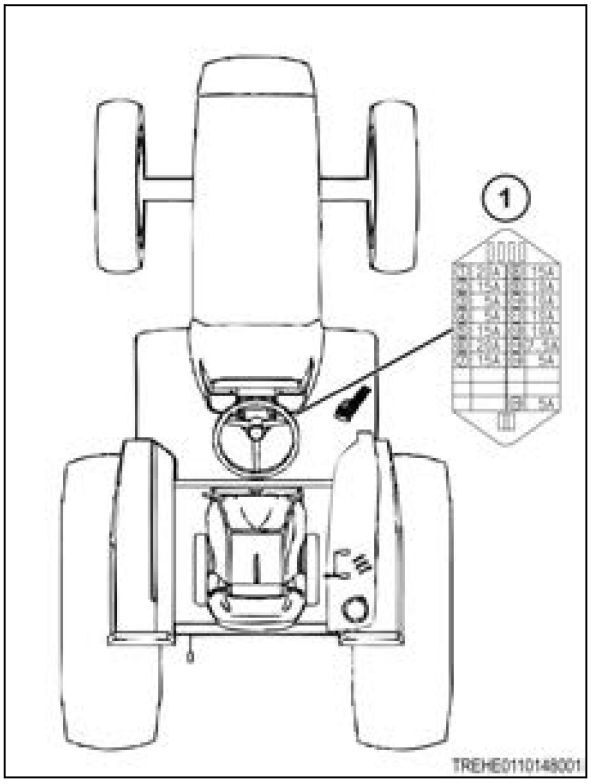


Fig. 42

Main fuse box for cab tractors sold in Australia

The main fuse block (1) is located on the right-hand side of the steering post.

Ref	Amp	Function
1	20	Lamp switch
2	15	Turn switch
3	5	Instrument panel (12 v)
4	10	Brake lamp
5	5	Alternator
6	15	External auxiliary power supply
7	15	EGR
8	15	Machine ECU
9	10	Horn
10	10	Instrument panel (IG2)
11	10	Washer switch
12	7.5	Air conditioner
13	5	Starter
14	5	Check mode

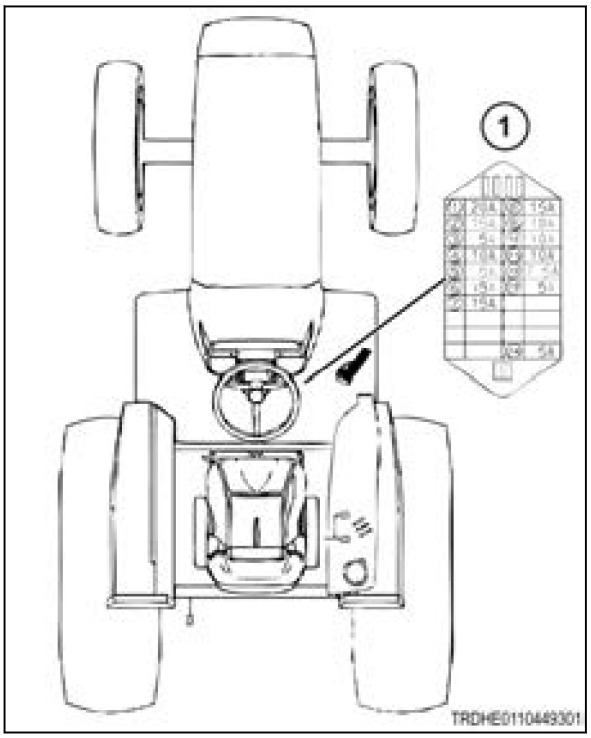


Fig. 43

4.10.3.3 Cab fuses

The main fuse block (1) is located on the left-hand side of the steering post.

Ref	Amp	Function
1	15	Front work lamps
2	15	Beacon lamp (optional)
4	15	Work lamp (optional)
5	5	Cab lamp
6	10	Radio (optional)
7	15	Radio (optional)
8	10	Front windshield wiper
9	10	Rear windshield wiper (optional)
10	25	Blower

Time deplay fuses (2)

Ref	Amp	Function
1	60	Front work lamps (yellow)

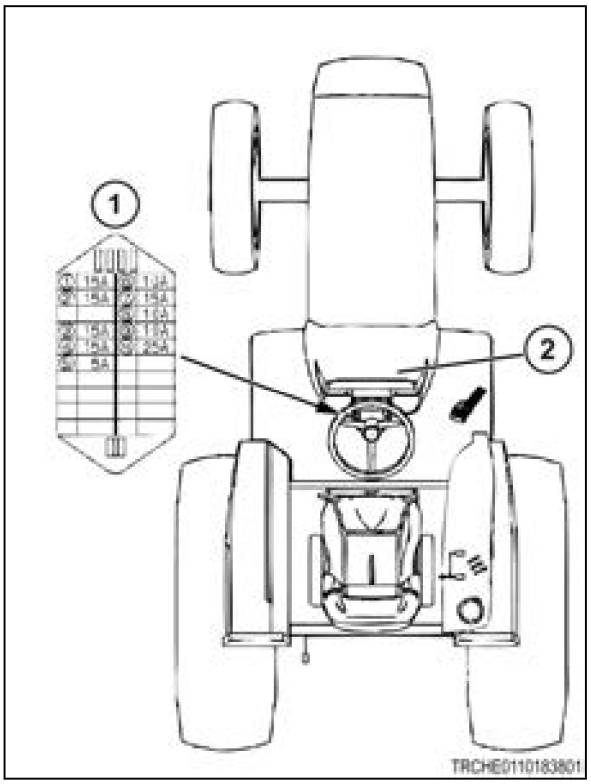


Fig. 44

IMPORTANT:
Fuses have a specific amperage for the circuit. Do not replace fuses with parts that are not approved.

4.10.3.4 Time delay fuses

IMPORTANT:
Fuses have a specific amperage for the circuit. Do not replace fuses with parts that are not approved.

Early production models

Time delay fuses are inline fuses that melt when there is a sustained heavy electrical load or short circuit to protect the circuit.

The fuse block with three fuses (1) is located near the battery.

Ref	Amp	Function
1	60	Main switch (yellow)
2	40	Main fuse (green)
3	100	Alternator circuit (blue)

NOTE:
Failure of the alternator circuit slow blow fuse is normally caused by incorrect polarity (such as reversed cables when using a booster battery). A failed fuse will not let the battery be charged during normal operation.

The fuse block with one fuse (2) is located on the left-hand side of the radiator bracket.

Ref	Amp	Function
	30	Engine ECU power supply (pink)

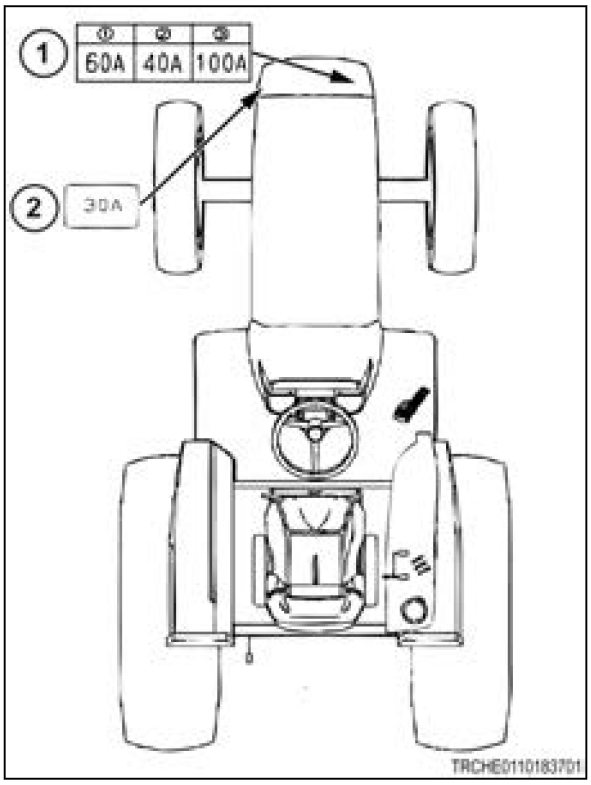


Fig. 45

Late production models

Time delay fuses are inline fuses that melt when there is a sustained heavy electrical load or short circuit to protect the circuit.

The fuse block with three fuses (1) is located near the battery.

Ref	Amp	Function
1	60	Main switch (yellow)
2	50	Main fuse (red)
3	100	Alternator circuit (blue)

NOTE:
Failure of the alternator circuit slow blow fuse is normally caused by incorrect polarity (such as reversed cables when using a booster battery). A failed fuse will not let the battery be charged during normal operation.

The fuse block with one fuse (2) is located on the left-hand side of the radiator bracket.

Ref	Amp	Function
	30	Engine ECU power supply (pink)

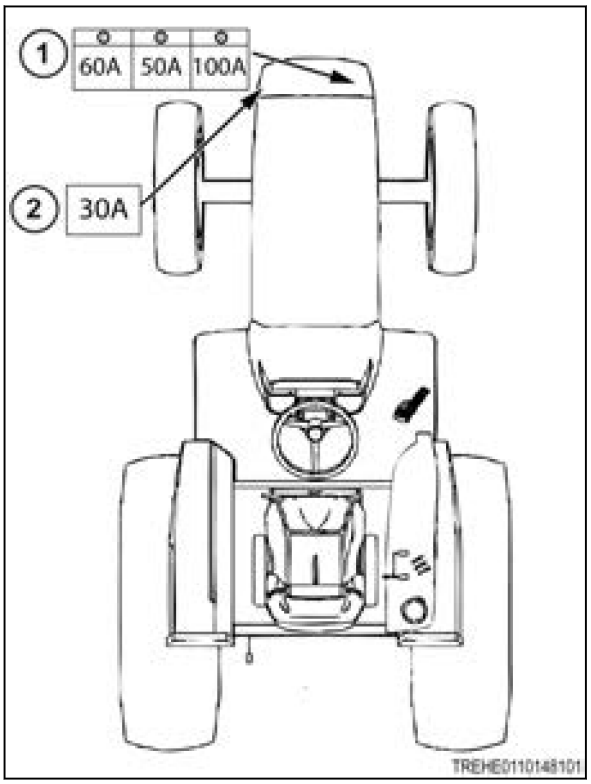


Fig. 46

4.10.4 Connectors

4.10.4.1 Connectors - cab tractor

The following connectors are provided to install optional devices.

(1) Radio connection
(2) Rear windshield wiper
(3) Beacon lamp
(4) Work lamp
(5) Trailer connector

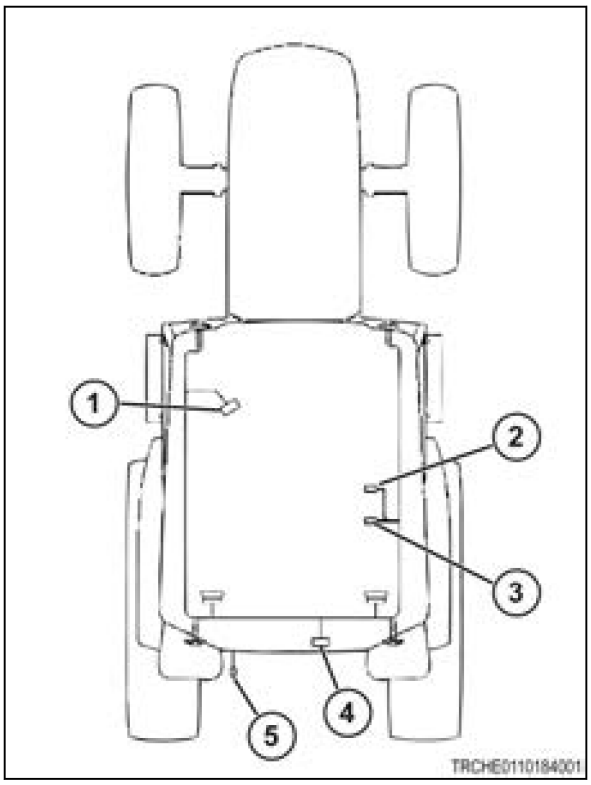


Fig. 47

Trailer connector for tractors sold in North America.

Ref	Wire color	Function
1	White	Ground
2	Black	Work lamps
3	Yellow	Left-hand flashing and turn lamps
4	Brown	Tail lamp
5	Green	Right-hand flashing and turn lamps

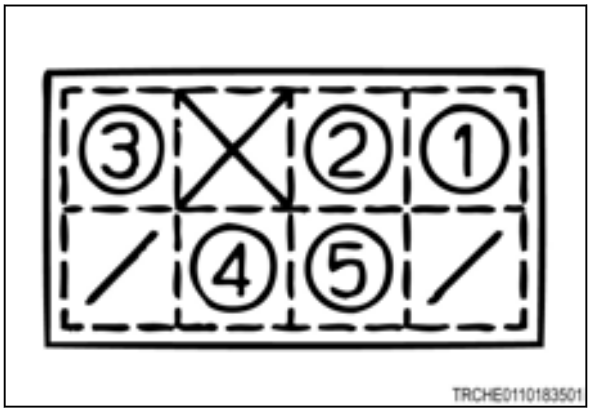


Fig. 48

Trailer connector for tractors sold in Australia.

Ref	Wire color	Function
1	Black	Ground
2	Green / black	Left-hand flashing and turn lamps
3	Red / black	Brake lamp
4	Green	Right-hand flashing and turn lamps
5	Yellow	Tail lamp

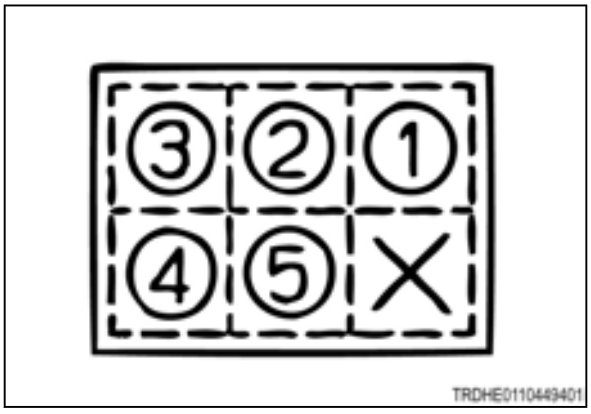


Fig. 49

4.10.4.2 Connectors - platform tractor

The following connectors are provided to install optional devices.

(1) Beacon lamp
(2) Work lamp
(3) Trailer connector

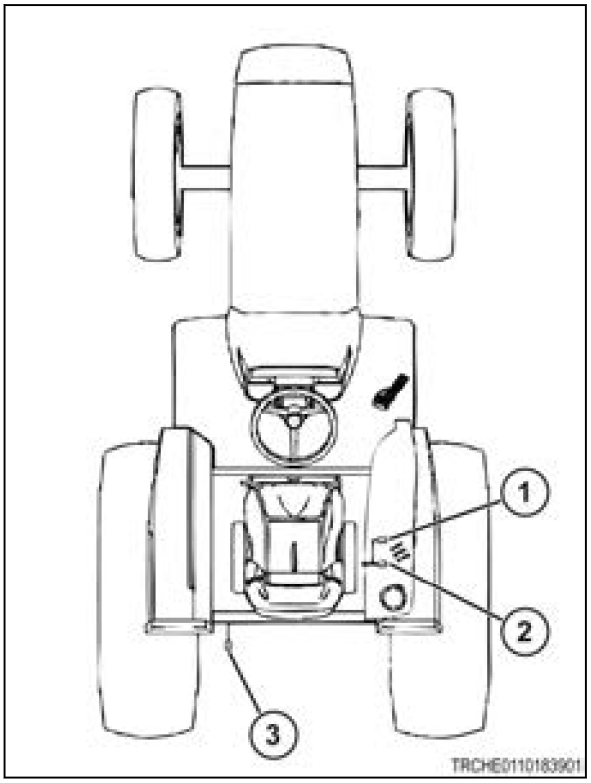


Fig. 50

Trailer connector for tractors sold in North America

Ref	Wire color	Function
1	White	Ground
2	Black	Work lamps
3	Yellow	Left-hand flashing and turn lamps
4	Brown	Tail lamp
5	Green	Right-hand flashing and turn lamps

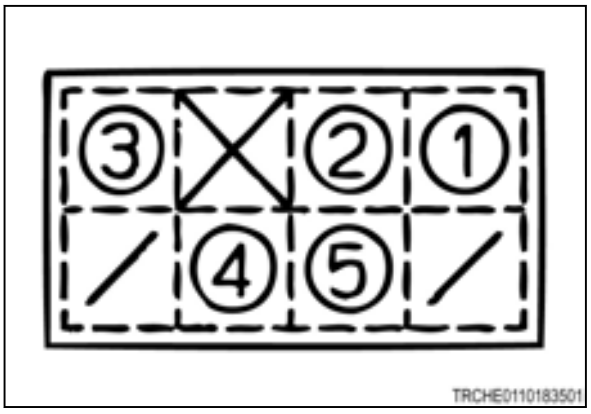


Fig. 51

Trailer connector for tractors sold in Australia.

Ref	Wire color	Function
1	Black	Ground
2	Green / black	Left-hand flashing and turn lamps
3	Red / black	Brake lamp
4	Green	Right-hand flashing and turn lamps
5	Yellow	Tail lamp

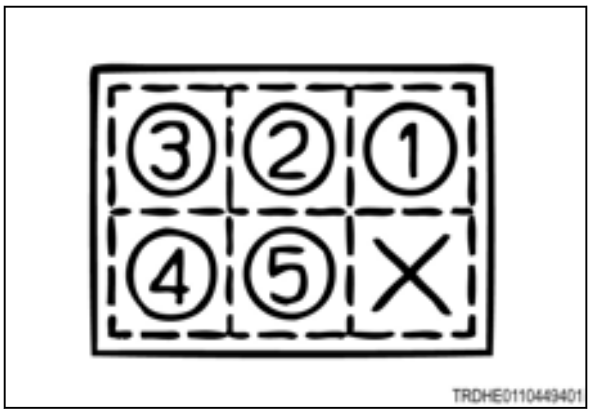


Fig. 52

4.10.5 Checking the neutral start system

Before starting the procedure

WARNING:
Do not bypass or modify the neutral switch. If the neutral start system does not operate correctly, see your dealer immediately.

The machine has a neutral start system. To start the machine, all the following is necessary:

- Forward/reverse lever in the neutral position
- Parking brake applied
- Power takeoff (PTO) switch in the off position

IMPORTANT:
Make sure no people or obstructions are around the machine. Sudden movement of the machine can occur.

Periodically make sure the starting circuit is operating correctly. The procedure for this check is as follows:

Procedure

1. Apply the parking brake. Try to start the engine with the forward/reverse lever or the range shift lever in neutral and the PTO switch in the off position.

   Result

   The starter must engage.
2. Apply the parking brake. Try to start the engine with the forward/reverse lever or the range shift lever engaged and the PTO switch in the off position.

   Result

   The starter must not engage.
3. Apply the parking brake. Try to start the engine with the forward/reverse lever or the range shift lever in neutral and the PTO switch in the on position.

   Result

   The starter must not engage.
4. Release the parking brake. Try to start the engine with the forward/reverse lever or the range shift lever in neutral and the PTO switch in the off position.

   Result

   The starter must not engage.

After finishing the procedure

If the neutral start system is not operating correctly, the neutral start system must be repaired immediately by your dealer.

4.11 Brakes

4.11.1 Checking the brake adjustment

Through use, the free play will increase and the brake balance can change.

Adjust and balance the brakes before there is too much free play.

The correct free play (A) of each single brake pedal is 35 to 45 mm (1.38 to 1.77 in).

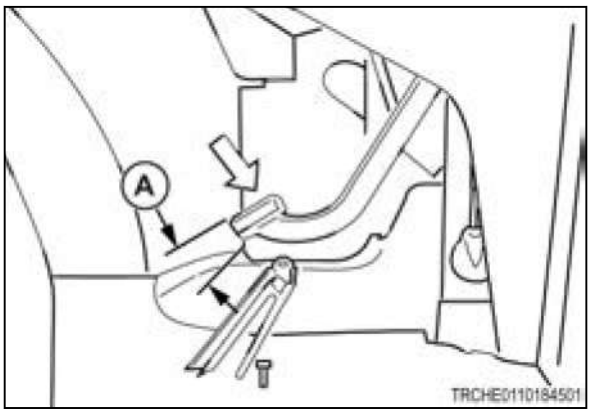


Fig. 53

Procedure

1. Release the brake pedal latch.
2. Put a measuring device at the bottom of the brake pedal.
3. Push the brake pedal down by hand.
4. Measure the brake pedal free play.
5. Check the other brake pedal.
   The free play must be the same for both brake pedals.

4.11.2 Adjusting the brakes

CAUTION:
Brakes must be adjusted evenly to permit equal braking action at both rear wheels when brake pedals are latched together.

Procedure

1. Loosen the right-hand thread lock nut (1) and the left-hand thread lock nut (2).
2. Adjust the pedal turnbuckle (3) so the free play is correct for the brake pedal.

   If the brake cannot be adjusted by the pedal turnbuckle, loosen the locknut (4) on the brake rod on the side of the transmission case. Turn the brake rod turnbuckle (5) to adjust. Tighten the locknut.

   NOTE: *Check for contact between the brake arm and the transmission case boss when only the brake turnbuckle (3) is adjusted.*
3. Repeat the procedure for the other brake. The free play in both pedals must be equal.
4. Tighten the lock nuts against the turnbuckles.
5. Latch the pedals together.
6. Operate the tractor at low speed.
7. Press the brake pedals.

   Result

   If the tractor pulls to one side, adjust one brake. Make sure all lock nuts are tight. Check the operation of the brakes.

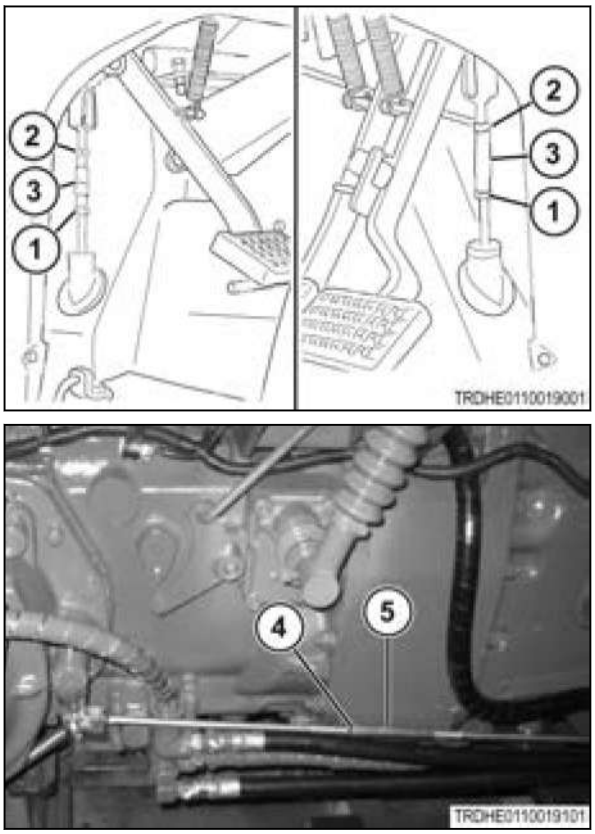


Fig. 54

4.12 Wheels and tires

Check the wheels and the tires periodically for:

- correct tire pressures
- tight wheel hardware
- any damage that can be dangerous to the tractor operation and the operator safety

Correct the condition before operating the tractor.

Correct tire pressure will help keep the tires in good condition.

If a tire has deep scratches, cuts, or punctures, have the tire repaired or replaced by qualified personnel as soon as possible.

See Specification for the correct inflation pressure and the wheel hardware torque.

IMPORTANT:
If necessary to replace any tire(s), make sure the original tire size is used. Correct tire size is required on four-wheel drive tractors to make sure the correct front axle or lead ratio (over speed) is held.
AG and R-4 tire arrangement must be kept at a 1 to 5 percent front wheel lead ratio. Turf tire arrangement must be kept at a 1 to 3 percent front wheel lead ratio. See the specification for the front wheel lead ratio.

4.12.1 Tire inflation pressures

Four-wheel drive

Model	Tire type	Tire location	Tire size	Pressure
4608	AG	Front	9.5-24	207 kPa (30 psi)
		Rear	16.9-30	124 kPa (18 psi)
	R4	Front	10.5/80-18	228 kPa (33 psi)
		Rear	19.5L-24	165 kPa (24 psi)
4609 4610	AG	Front	11.2-24	248 kPa (36 psi)
		Rear	16.9-30	124 kPa (18 psi)
		Front	12.4-24	221 kPa (32 psi)
		Rear	18.4-30	110 kPa (16 psi)
		Front	12.4-24	221 kPa (32 psi)
		Rear	16.9-34	165 kPa (24 psi)
	R4	Front	12.5/80-18	317 kPa (46 psi)
		Rear	19.5L-24	164 kPa (24 psi)
4610 low profile	AG	Front	12.5/80-18	317 kPa (46 psi)
		Rear	16.9-24	124 kPa (18 psi)
		Front	9.5-24	207 kPa (30 psi)
		Rear	18.4-26	110 kPa (16 psi)

Two-wheel drive

Model	Tire Type	Tire Location	Tire Size	Pressure
4608	AG	Front	7.5-16	303 kPa (44 psi)
		Rear	16.9-30	124 kPa (18 psi)
		Front	9.5-15	310 kPa (45 psi)
		Rear	16.9-30	124 kPa (18 psi)
4609 4610	AG	Front	9.5L-15	310 kPa (45 psi)
		Rear	16.9-30	124 kPa (18 psi)
		Front	7.5-18	303 kPa (44 psi)
		Rear	16.9-30	124 kPa (18 psi)
		Front	10-16	221 kPa (32 psi)
		Rear	18.4-30	110 kPa (16 psi)
		Front	10-16	221 kPa (32 psi)
		Rear	16.9-34	165 kPa (24 psi)

The maximum tire pressures for maximum loads are given. Tire pressure can be reduced as the load on the tire is reduced.

Tire pressures vary according to make, load, and speed as well as to the type of work being carried out. Refer to the inflation tables issued by the tire manufacturers.

4.12.2 Wheel bolt torque

CAUTION:
Correct wheel bolt torque must be maintained. Installation of front or mid mounted implements (for example: loaders, mowers) increase loads and require frequent checking of wheel bolts.

Periodically, check the wheel bolts torque on the front and rear wheels.

4.12.2.1 Wheel bolt torque chart

Wheel bolts	Torque
Front wheel lug nut	285 Nm (210 lbf ft)
Rear wheel lug nut	285 Nm (210 lbf ft)
Rear wheel center to rim bolts (Ag and industrial tires only)	230 Nm (170 lbf ft)

4.12.3 Adjusting the front wheel alignment

The correct toe-in dimensions of the front wheels (A minus B) are 2 to 6 mm (0.08 to 0.24 in).

Measure toe-in from the tire center to the tire center at a point halfway up on the face of each tire.

1. Loosen the lock nuts (1).
2. Turn the turnbuckle (2) to adjust the tie rod length. Adjust each side equally.
3. Tighten the lock nuts.

   After tightening the lock nuts, the ball joints must move freely.

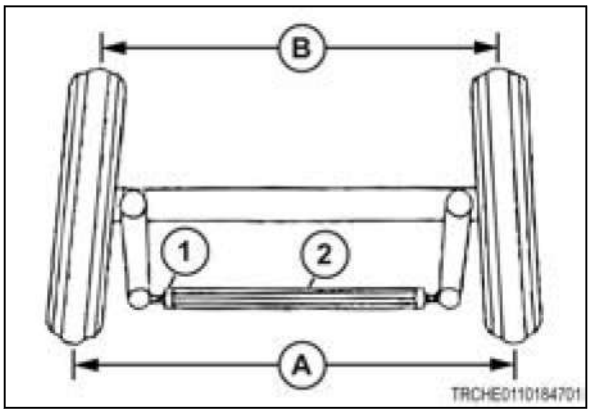


Fig. 55

4.12.4 Tie rod end

WARNING:
The nut on the tie rod end must be tight. A loose tie rod end nut can cause steering instability.

Make sure the nuts on both tie rod ends are tight. If loose, tighten the nuts.

Nut (1) on four-wheel drive models

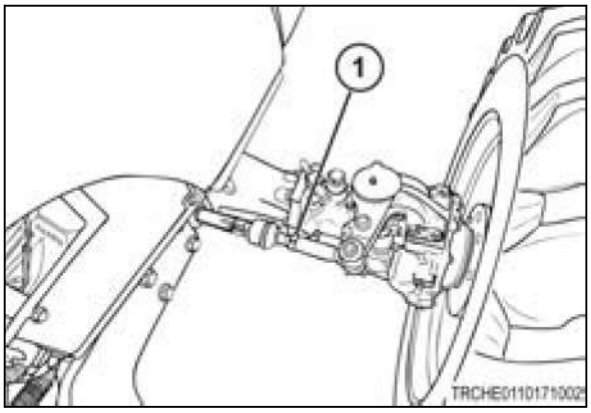


Fig. 56

Nut (1) on two-wheel drive models

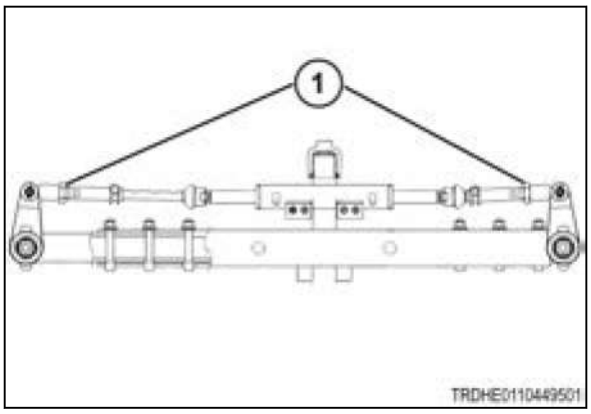


Fig. 57

4.12.5 Front axle stop bolts

Four-wheel drive models only

If a loader is installed, set the stop bolt (1) so the tire will not touch the loader frame.

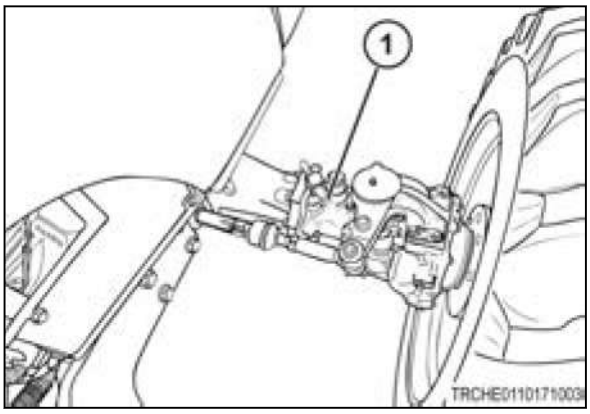


Fig. 58

4.12.6 Front wheel spacing

Four-wheel drive models

Front four-wheel drive agricultural (AG) tires or R4 tires cannot be reversed.

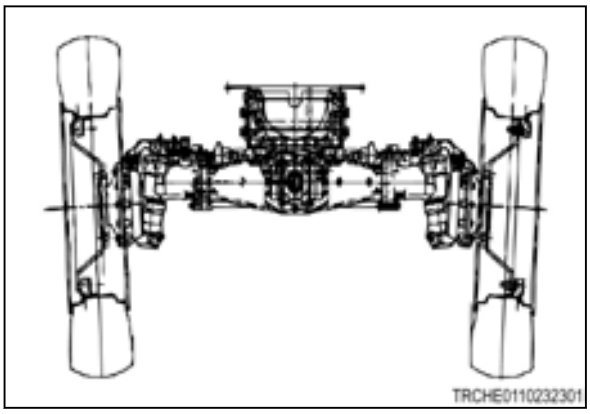


Fig. 59

Model	Tire Type	Tire Size	Setting
4608	AG	9.5-24	1229 to 1839 mm (48.4 to 72.4 in)
	R4	10.5/80-18	1245 to 1854 mm (49 to 73 in)
4609/4610	AG	11.2-24	1288 to 1897 mm (50.7 to 74.7 in)
		12.4-24	
	R4	12.5/80-18	1306 to 1915 mm (51.4 to 75.4 in)
4610 low profile	AG	12.5/80-18	1306 to 1915 mm (51.4 to 75.4 in)
		9.5-24	1288 to 1897 mm (50.7 to 74.7 in)

Two-wheel drive models

Front two-wheel drive agricultural (AG) tires cannot be reversed.

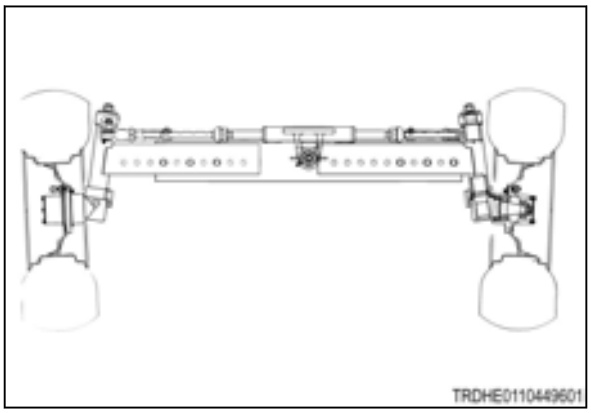


Fig. 60

Model	Tire Type	Tire Size	Setting
4608	AG	9.5L-15	1548, 1648, 1748, or 1848 mm (60.9, 64.9, 68.8, or 72.7 in)
		7.50-16	
4609/4610		9.5L-15	1548, 1648, 1748, or 1848 mm (60.9, 64.9, 68.8, or 72.7 in)
		7.50-18	1544, 1644, 1744, or 1844 mm (60.8, 64.7, 68.7. or 72.6 in)
		10.0-16	1542, 1642, 1742, or 1842 mm (60.7, 64.6, 68.6, or 72.5 in)

4.12.7 Rear wheel spacing

CAUTION:
Rear wheels are heavy. Use care when moving. Make sure tractor is blocked securely.

Three different rear wheel spacings are available by:

- reversing the wheel centers
- moving the rear tires and wheels from side to side
- changing the position of the wheel rim on the wheel center

Lug type tires must always be installed so when seen from the rear, the V-pattern of the tread point upward.

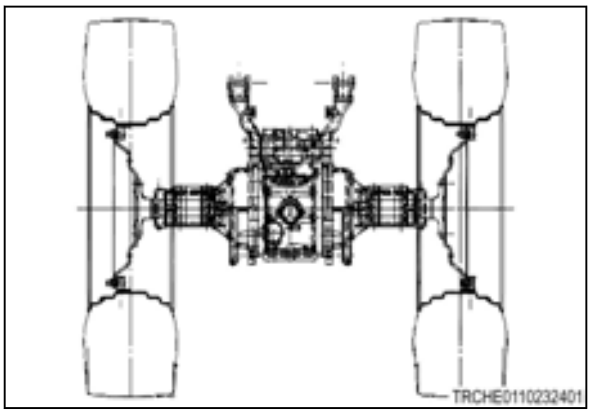


Fig. 61

Model	Tire Type	Tire Size	Setting
4608	AG	16.9-30	1245 to 1854 mm (49 to 73 in)
	R4	19.5L-24	1339 to 1847 mm (52.7 to 72.7 in)
4609/4610	AG	16.9-30	1245 to 1854 mm (49 to 73 in)
		18.4-30	1346 to 1854 mm (53 to 73 in)
		16.9-34	1245 to 1854 mm (49 to 73 in)
	R4	19.5L-24	1339 to 1847 mm (52.7 to 72.7 in)
4610 low profile	AG	16.9-24	1237 to 1847 mm (48.7 to 72.7 in)
		18.4-26	1339 to 1847 mm (52.7 to 72.7 in)

Four-wheel drive rear wheel settings

Model	Tire Type	Tire Size	Setting
4608	AG	16.9-30	1245 to 1854 mm (49 to 73 in)
4609/4610		16.9-30	1245 to 1854 mm (49 to 73 in)
		16.9-34	
		18.4-30	1346 to 1854 mm (53 to 73 in)

Two-wheel drive rear wheel settings

4.12.7.1 Changing the rim offset

Procedure

1. Lift the rear of the machine so the tire is off the ground.
2. Put blocks into position to support the machine.
3. Remove the rim (1) from the wheel center (2).
4. Turn the wheel center so the rim brackets can move around the outer edge of the wheel center.
5. Put the rim on the opposite side of the wheel center.
6. Install the rim to the wheel center.
7. Repeat the procedure for the other side.
8. Tighten all wheel bolts.

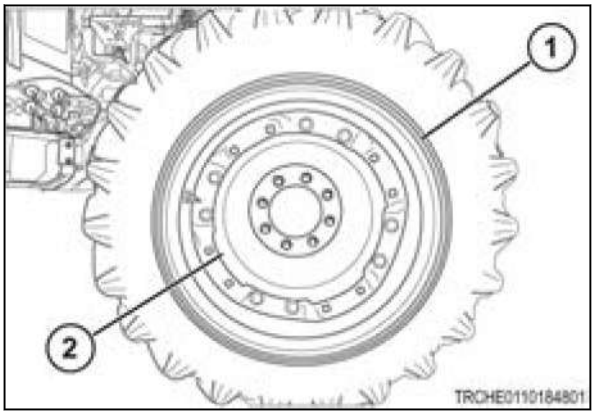


Fig. 62

After finishing the procedure

Check the wheel bolt torque again after a short period of operation.

4.12.7.2 Moving the rear wheels from side to side

Procedure

1. Lift the rear of the machine so both tires are off the ground.
2. Put blocks into position to support the machine.
3. Remove the bolts fastening the rear wheel assemblies to the rear axle hubs.
4. Move the rear wheel assemblies to the other side of the machine.
5. Install the rear wheel assemblies to the rear axle hubs.
6. Tighten all wheel bolts.

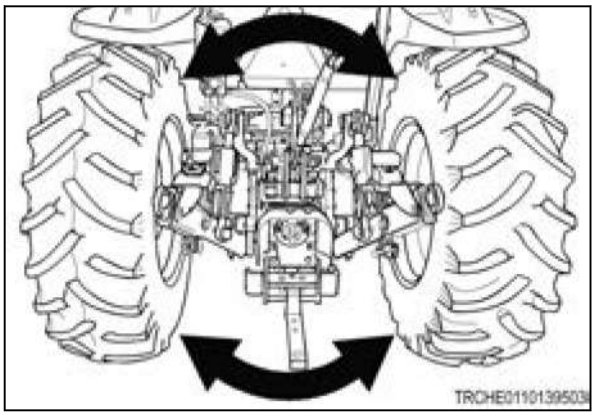


Fig. 63

After finishing the procedure

Check the wheel bolt torque again after a short period of operation.

4.12.8 Steering free play

CAUTION:
Excessive steering free play must be corrected before use.

Check steering for excessive looseness, as indicated by steering wheel free play. Maximum free play (1) is approximately 30 mm (1.25 in) when measured at outside of the steering wheel rim.

Excessive free play can be caused by:

- Air in the steering system
- Worn or damaged power steering unit
- Worn or damaged steering cylinder

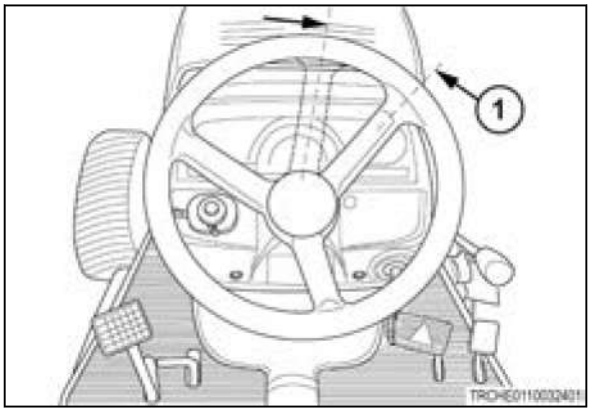


Fig. 64

4.12.9 Front axle fore and aft

Fore and aft play between the front drive axle (1) and the supports must be 0.1 to 0.3 mm (0.004 to 0.012 in).

Lift the front tires off the ground to measure front axle fore and aft play.

To adjust the front axle fore and aft play:

1. Loosen the lock nut (2).
2. Turn the adjusting bolt (3) until the fore and aft play is correct.
3. Tighten the lock nut.

NOTE: *Too much fore and aft play will cause noise. This noise will be louder when using four wheel drive.*

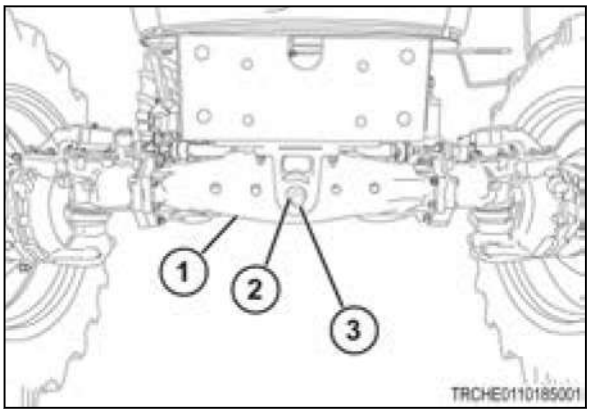


Fig. 65

4.13 Clutch housing plug

Remove the clutch housing drain plug (1) to remove any moisture build up.

Oil draining through the hole indicates leakage from the engine rear crankshaft seal and/or the transmission input. Contact your dealer if there are signs of oil leakage.

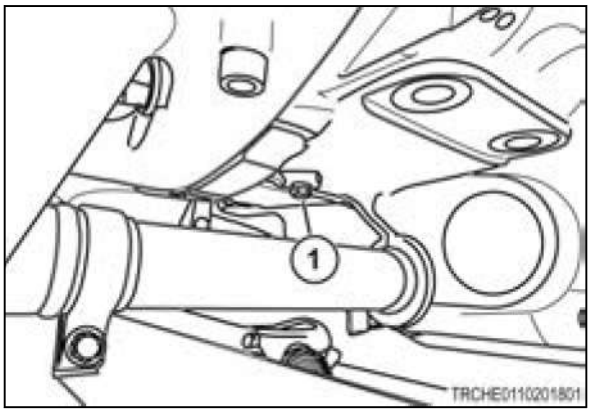


Fig. 66

4.14 Preparing for storage

If tractor is to be stored for extended periods, such as off-season times, proper maintenance steps need to be taken to protect the tractor. These steps will vary according to geographical area and storage season.

Procedure

1. Replace the engine oil and the filter.
2. Operate at low idle five minutes to lubricate parts.
3. Lubricate all lubrication fittings and lightly lubricate the control linkage pivots.
4. Remove implements.
5. Store the tractor in an enclosed area, if possible, for protection from the weather.

   If the tractor cannot be stored in an enclosed area, use a cover and cover the exhaust pipe to prevent rain or snow from entering the exhaust pipe.
6. Block up the tractor to remove weight from the tires and to protect the tires from oily or damp floor.
7. Raise and lock the three-point lift linkage in the up position by turning the lowering rate control knob (1) fully clockwise.
8. Drain water from the fuel tank.
9. Fill the fuel tank to prevent condensation from forming on the inside of the tank. Fill with winter fuel before winter.
10. Remove the battery and store in cool dry location.

    Keep the battery charged during storage period.
11. Put a cover on the air filter inlet.
12. If the tractor is stored during the cold weather season, make sure the antifreeze mixture is correct.
13. Touch up scratches with paint.

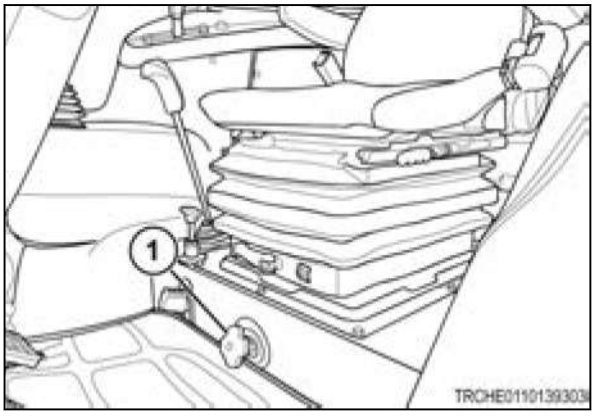


Fig. 67

After finishing the procedure

To prepare the tractor for operation after storage:

1. Remove the cover from the air filter inlet.
2. Install the battery.
3. Replace the fuel filters.
4. Loosen the engine belt. Turn the fan back and forth to loosen the water pump seal. Tighten the engine belt.
5. Remove the upper lubrication line to the turbocharger. Add about 0.1 L (0.11 qt (US)) of clean engine oil to the bearing housing. Install the upper lubrication line.
6. Remove the blocks from under the tractor.

4.15 Power washing

When cleaning the machine with a power washer:

- Keep the tip at least 1 m (40 in) (A) from the machine.
- Use a fan spray nozzle (1), not a stream nozzle (2).
- Do not directly spray the engine electronic control unit (ECU) or the tractor ECU.

CAUTION:
If a high pressure washer is used, follow the instructions in the operator manual and safety signs for the power washer. Not using correctly can cause personal injury or damage to the machine
.

Not using a power washer correctly can cause:

- Damage to electrical parts or a fire caused by a short circuit
- Damage to hydraulic hoses causing an oil leak
- Removal of decals and safety signs
- Damage to engine, radiator, or inside of the cab
- Damage to rubber and plastic parts
- Paint removal

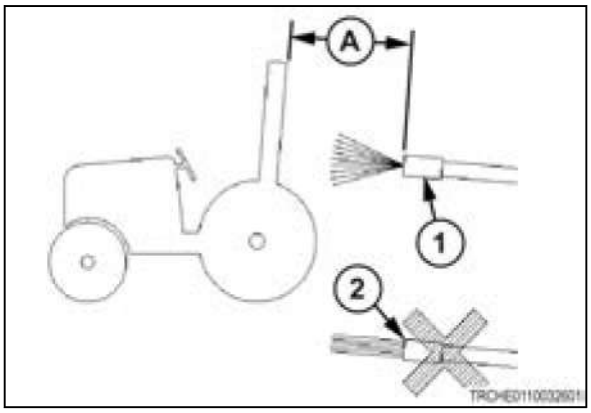


Fig. 68

5. Troubleshooting

5.1 Engine troubleshooting

Starter motor does not operate with the key turned to start	
Cause(s)	**Solution(s)**
Forward/reverse lever is not in neutral	Put the forward/reverse lever in neutral
PTO clutch engaged	Disengage PTO clutch
Parking brake not applied	Apply the parking brake
Broken neutral switch	See your dealer
Discharged battery	Charge the battery
Loose or dirty terminals	Clean and tighten securely
Broken main switch	See your dealer
Broken starter	See your dealer
Blown fuse	Replace the fuse

Starter motor operates but not at full speed	
Cause(s)	**Solution(s)**
Discharged battery	Charge the battery
Loose or dirty terminals	Clean and tighten securely
Defective ground	Clean and tighten the starter mounting
Improper oil viscosity	Replace with oil of correct viscosity
Defective engine	See your dealer

Starter motor operates but engine does not start	
Cause(s)	**Solution(s)**
Electric fuel solenoid not operating	See your dealer
Air in fuel system	Bleed fuel system
Clogged fuel filter	Clean the filter
Fuel is not being supplied	Check fuel level
Incorrect preheating procedure	Longer use of heater
Defective engine	See your dealer

Irregular engine running	
Cause(s)	**Solution(s)**
Air in fuel system	Bleed the fuel system
Clogged fuel filter	Clean the filter
Clogged fuel injectors	See your dealer

Irregular engine running	
Cause(s)	**Solution(s)**
Fuel line is leaking air	Tighten clamps, replace defective pipes
Defective engine	See your dealer
Old fuel	Replace the fuel

When decelerated, engine stops	
Cause(s)	**Solution(s)**
Incorrect low idle setting	See your dealer
Malfunctioning fuel injection pump	See your dealer
Improper valve clearance	See your dealer

Engine over-speeds	
Cause(s)	**Solution(s)**
Defective fuel injectors	See your dealer
Incorrect high speed setting	See your dealer
Engine oil is getting into combustion chambers	See your dealer

Engine stops unexpectedly during operation	
Cause(s)	**Solution(s)**
Insufficient fuel supply	Top up fuel and bleed fuel system
Defective fuel injectors	See your dealer
Defective fuel injection pump	See your dealer
Engine seizure due to low or poor oil	See your dealer
Broken neutral switch	See your dealer

Engine overheats	
Cause(s)	**Solution(s)**
Insufficient coolant	Top up coolant
Broken or loose fan belt	Adjust belt tension or replace
Clogged grille, radiator screens	Clean
Clogged radiator fins	Clean
Defective thermostat	Replace
Insufficient engine oil	Inspect the oil level and fill if necessary

Exhaust fumes are white	
Cause(s)	**Solution(s)**
Clogged air cleaner	Clean or replace element(s)
High engine oil level	Inspect the oil level and correct
Insufficient fuel delivery	See your dealer
Cold-running engine	Let the engine warm, check the thermostat

Exhaust fumes are too black	
Cause(s)	**Solution(s)**
Poor fuel	Replace with better grade
Excessive fuel delivery	See your dealer
Insufficient fuel injector pressure	See your dealer
Insufficient combustion air	Check, clean or replace the air filter

Poor engine output	
Cause(s)	**Solution(s)**
Seized fuel injectors and/or carbon deposit	See your dealer
Insufficient compression or leaking valves	See your dealer
Incorrect valve clearances	See your dealer
Incorrect fuel injection timing	See your dealer
Insufficient fuel supply	Check fuel system
Clogged air cleaner	Clean or replace the elements(s)

Engine oil pressure indicator is illuminated during operation	
Cause(s)	**Solution(s)**
Insufficient engine oil	Replenish
Too low oil viscosity	Replace with oil of proper viscosity
Defective pressure switch	Replace
Clogged oil filter	Replace element cartridge.
Defective oil pump	See your dealer

Battery charge indicator is illuminated during operation	
Cause(s)	**Solution(s)**
Defective wiring	Correct loose or dirty terminals, short circuit, poor ground, etc.
Defective alternator	See your dealer
Defective regulator	See your dealer
Defective battery	Replace the battery
Loose or damaged fan belt	Adjust the belt tension or replace

5.2 Clutch troubleshooting

Clutch slips	
Cause(s)	**Solution(s)**
Worn or burnt clutch lining	See your dealer

Clutch will not disengage	
Cause(s)	**Solution(s)**
Seized clutch lining	See your dealer
Transmission shafts seized	See your dealer
Oil pressure too low	See your dealer

5.3 Brakes troubleshooting

Brakes do not work well	
Cause(s)	**Solution(s)**
Too much free-play of pedals	Adjust free-play
Worn or seized linings	See your dealer
Different pedal strokes	Adjust so both pedals are equal

Brake pedal does not return smoothly	
Cause(s)	**Solution(s)**
Broken return spring	Replace broken spring
Poor lubrication	Remove rust, then lubricate

5.4 Electrical system troubleshooting

Battery cannot be charged	
Cause(s)	**Solution(s)**
Blown fuse	Check fuse and replace
Defective wiring	Correct loose, dirty terminals, short circuit, poor ground, etc.
Loose or damaged fan belt	Give belt correct tension or replace
Defective battery	Correct loose terminal connection, corrosion, or replace battery
Defective alternator	See your dealer
Defective regulator	See your dealer

Headlamps are dim	
Cause(s)	**Solution(s)**
Discharged battery	Charge battery. Check charging system.
Poor connections	Check ground points and terminals. Clean and tighten

Specific function will not operate	
Cause(s)	**Solution(s)**
Burned out bulb	Replace
Blown fuse	Check fuse and replace
Poor contact	Inspect ground points and terminals; clean if necessary
Defective switch	Replace as required

5.5 Hydraulic system troubleshooting

Not enough oil pressure	
Cause(s)	**Solution(s)**
Low engine speed	Increase speed
Low transmission oil	Fill to specified level
Intake piping is sucking air	Tighten clamps or replace cracked pipes and defective O-rings
Clogged oil filter	Clean or replace
Defective hydraulic oil pump	See your dealer
Defective control valve	See your dealer
Broken cylinder	See your dealer

Leaking hydraulic lines	
Cause(s)	**Solution(s)**
Loose joints	Tighten
Cracked lines	Replace lines, O-rings

With control lever in raise position, relief valve blows	
Cause(s)	**Solution(s)**
Poorly adjusted rod on lift control lever	Correct rod adjustment

Three-point hitch does not lower	
Cause(s)	**Solution(s)**
Locked lowering speed control knob	Turn counterclockwise to lowering position
Defective control valve	See your dealer
Broken cylinder	See your dealer
Seized lift shaft bearing	See your dealer
Three-point hitch locked	Turn the draft knob to off and then to the desired setting.

5.6 Steering system troubleshooting

Steering wheel is hard to turn or turns in one direction	
Cause(s)	**Solution(s)**
Poorly installed steering column	Correct steering column.
Air in steering hydraulic system	Bleed steering system.
Clogged suction filter	Remove and clean.
Improper toe-in	Correct toe-in.
Different front tire inflation	Inflate both tires to same pressure.
Defective steering unit, pump	See your dealer.

Steering wheel has too much free-play	
Cause(s)	**Solution(s)**
Worn steering column	See your dealer.
Oil leaking	Replace pipes, O-rings.
Defective steering unit	See your dealer.
Loose steering or ball joints	Tighten or replace defective parts.

5.7 Fault code display

Fault codes for vehicle electronic control unit (ECU)

- The Suspect Parameter Number (SPN) (1) for the vehicle ECU is composed of four figures. When the digital display shown the fault code, a 't' is added to the left-hand side of the SPN. A hyphen (-) is added between the thousand's place and the hundred's place.
- Failure Mode Indicator (FMI) (2) - failure code for fault

When the display shows a vehicle fault code, see your dealer.

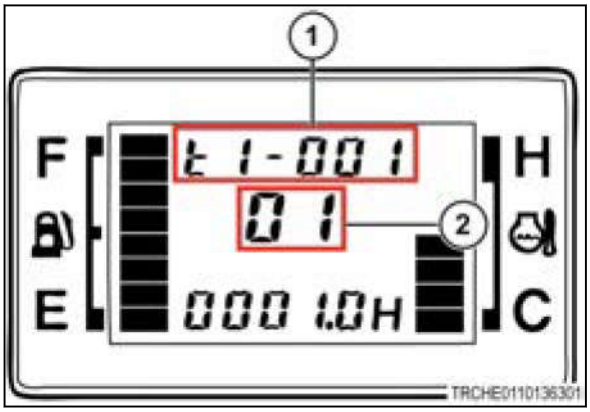


Fig. 1

Fault codes for the engine ECU

(1) Suspect Parameter Number (SPN) - system code for fault

(2) Failure Mode Indicator (FMI) - failure code for fault

When the display shows an engine fault code, see your dealer.

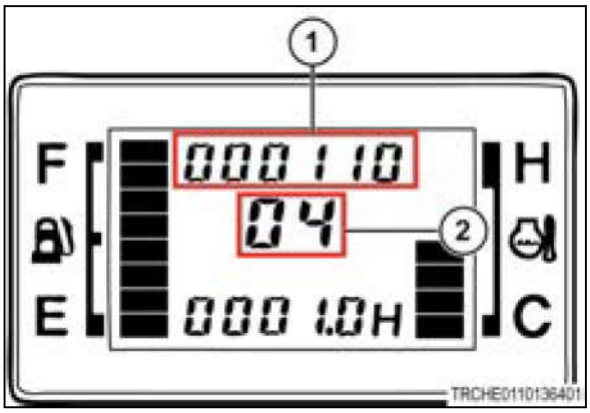


Fig. 2

Display for one fault code

The display shows a main screen (1) for approximately one second when the ECU has problems. Then the display shows the actual fault code screen (2).

To change the display to see the main screen, press the display select switch.

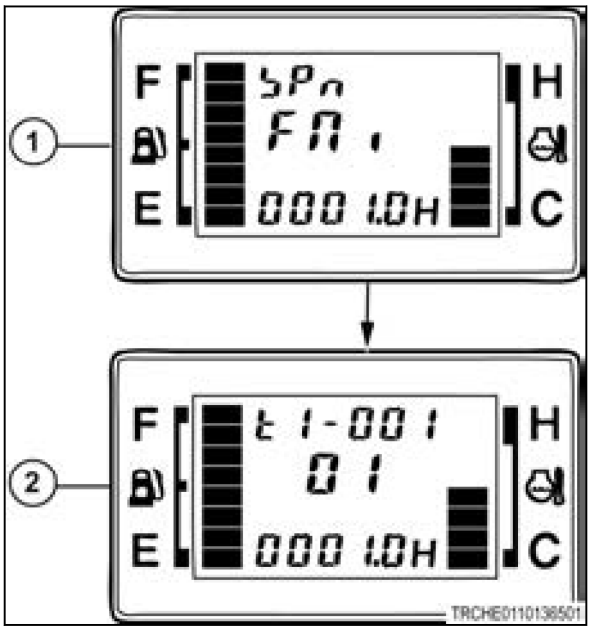


Fig. 3

Display for two or more fault codes

The display shows a main screen (1) for approximately one second when the ECU has problems. Then the display shows the actual fault code screen (2).

When both the vehicle ECU and the engine ECU have problems, the engine ECU fault code screens will show first.

After all fault codes have been provided a blank screen (3) will show on the display.

To change the display to see the each fault code, press the display select switch.

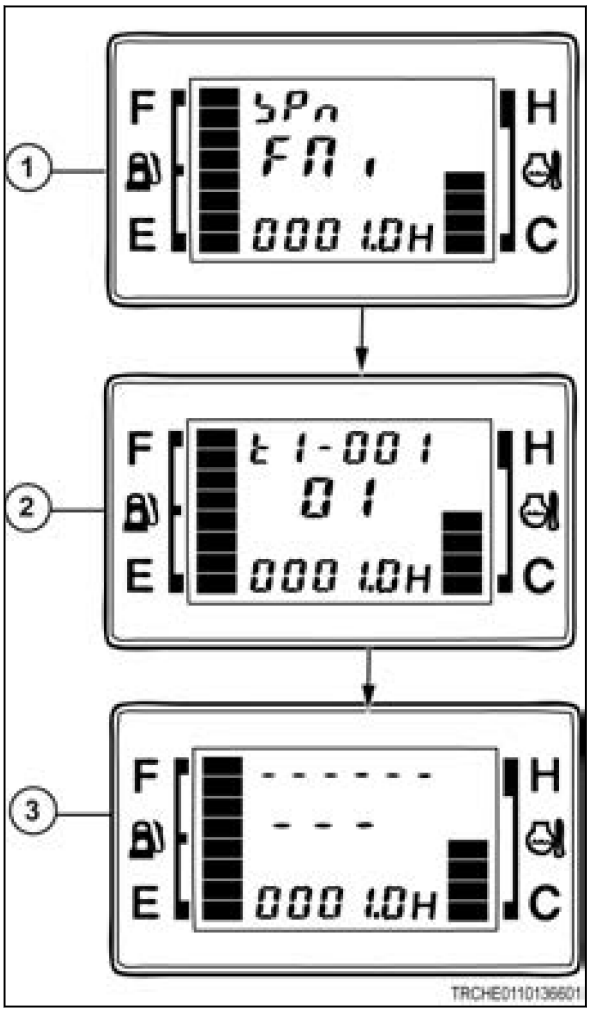


Fig. 4

CAN communication error

The display will show the CAN communication error screen when the data from either ECU is not received for five second or more.

When the display shows a CAN communication error, see your dealer.

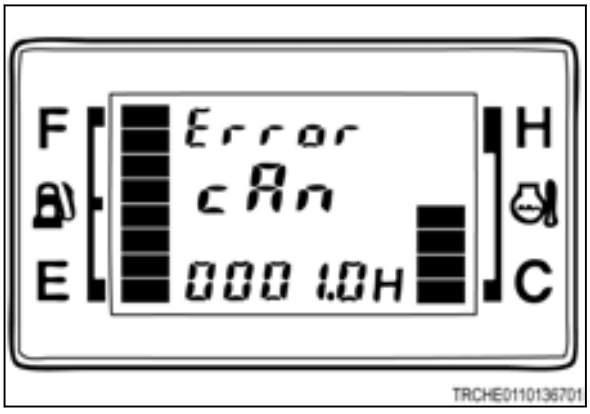


Fig. 5

5.7.1 Fault code list for the vehicle electronic control unit (ECU)

Content of fault	Display	SPN	FMI
The value of the position lever sensor is less than the regulated value	t1-001	1001	01
The value of the position lever sensor is more than the regulated value	t1-001	1001	02
The value of the highest position lever sensor is not in the applicable range	t1-001	1001	03
The value of the lift arm sensor is less than the regulated value	t1-002	1002	01
The value of the lift arm sensor is more than the regulated value	t1-002	1002	02
The value for the highest position lift arm sensor is not in the applicable range	t1-002	1002	03
The value of the draft sensor is less than the regulated value	t1-004	1004	01
The value of the draft sensor is more than the regulated value	t1-004	1004	02
The value of the draft sensor is not in the applicable range	t1-004	1004	03
The value of the clutch pedal sensor is less than the regulated value	t3-055	3055	01
The value of the clutch pedal sensor is more than the regulated value	t3-055	3055	02
The value of the temperature sensor for the transmission oil is less than the regulated value	t3-057	3057	01
The value of the temperature sensor for the transmission oil is more than the regulated value	t3-057	3057	02
The clutch pedal switch does not change to ON side	t3-151	3151	06
The clutch pedal switch does not change to OFF side	t3-151	3151	04
Both the forward switch and the reverse switch for the shuttle shift are on	t3-152	3152	01
The forward oil pressure switch of forward is off when the controller provides an on output signal.	t3-351	3351	21
The reverse oil pressure switch is off when the controller provides an on output signal.	t3-352	3352	21
The forward oil pressure switch is on for more than 500 milliseconds when the controller provides an off signal for more than two second.	t3-351	3351	22
The reverse oil pressure switch is on for more than 500 milliseconds when the controller provides an off signal for more than two second.	t3-352	3352	22
The clutch pedal relay is off from more than one second when the clutch pedal switch is on.	t3-151	3151	09

Content of fault	Display	SPN	FMI
	t3-156	3156	08
The clutch pedal relay is on for more than one second when the clutch pedal switch is off.	t3-151	3151	09
	t3-156	3156	08

5.7.2 Fault code list for the engine ECU

	Fault description	SPN	FMI
Coolant temperature	The coolant temperature sensor voltage is below normal	000110	04
	The coolant temperature sensor voltage is above normal or open circuit	000110	03
	The coolant temperature is above normal	000110	16
	The coolant temperature is high enough to actuate alarm	000110	00
Fuel temperature	The fuel temperature sensor voltage is below normal	000174	04
	The fuel temperature sensor voltage is above normal or open circuit	000174	03
	The fuel inlet temperature is high - more than 85 °C (185 °F)	000174	00
Intake air temperature	The voltage for the intake air temperature sensor is below normal	000105	04
	The voltage for the intake air temperature sensor is above normal or open circuit	000105	03
	The intake air temperature is above normal - more than 90 °C (194 °F)	000105	16
Oil pressure	The oil pressure sensor voltage is below normal	000100	04
	The oil pressure sensor voltage is above normal or open circuit	000100	03
	The oil pressure is above normal - more than 9.5 bar (138 psi) at 30 °C (86 °F) 9.5 bar at 30 °C (138 psi at 86 °F)	000100	16
	The oil pressure is low	000100	18
	The oil pressure is low enough to actuate the alarm	000100	01
Boost pressure	The boost pressure sensor voltage is below normal	000102	04
	The boost pressure sensor voltage is above normal or open circuit	000102	03
	The boost pressure is low	000102	18
	The intake manifold pressure drop is too high when starting	000102	31
Rail pressure	The rail pressure sensor voltage is below normal	000157	04
	The rail pressure sensor voltage is above normal or open circuit	000157	03

	Fault description	SPN	FMI
	The rail pressure raw value is intermittent	000157	02
	The rail pressure raw value is above maximum offset	000157	20
	The rail pressure raw value is below minimum offset	000157	21
	The rail pressure is above normal	000157	16
Power stage diagnosis	The power stages can be disabled because of high battery voltage	520200	16
	The power stages can be disabled because of low battery voltage	520200	18
Crankshaft sensor	The crank speed signal is erratic because of too much pulse noise	004201	02
	The crankshaft speed sensor signal is missing	004201	31
Cam speed sensor	The signal difference between crankshaft and camshaft is too large	000723	08
	The cam speed sensor signal is missing	000723	31
	The number and/or position of the camshaft pulses are implausible - disturbed signal	000723	02
Water in the fuel sensor	Water in the fuel/fuel tank	000097	31
Fuel filter pressure	The main fuel filter inlet pressure sensor voltage is below normal	000094	04
	The main fuel filter inlet pressure sensor voltage is above normal or open circuit	000094	03
	The main fuel filter inlet pressure is above normal	000094	16
	The main fuel filter inlet pressure below normal	000094	18
	The main fuel filter inlet pressure is out of safe operating range and the alarm will actuate	000094	31
Electronic Control Unit (ECU) temperature	The ECU temperature sensor voltage is above normal or open circuit	001136	03
	The ECU temperature sensor voltage is below normal	001136	04
Ambient pressure	The ambient pressure sensor voltage is below normal	000108	04
	The ambient pressure sensor voltage is above normal or open circuit	000108	03
CAN BUS	Bus off Vehicle CAN (250k)	000639	19
	Bus off Engine CAN (1M)	520201	19
	Torque/Speed Control (TSC1) timeout	003349	08
	ECU internal fault 0132	520297	31
	ECU internal fault 0133	520298	31
5Vdc reference supplies	5Vdc Supply 1 voltage is out of range	003509	31
	5Vdc Supply 2 voltage is out of range	003510	31

	Fault description	SPN	FMI
	5Vdc Supply 3 voltage is out of range	003511	31
12V supply	12V sensor supply 1 voltage is above normal	003512	03
	12V sensor supply 1 voltage is below normal	003512	04
	Internal 12V supply voltage is above normal	001043	03
	Internal 12V supply voltage is below normal	001043	04
Main relay	Main relay early opening at previous afterrun	001485	31
	ECU internal fault 0100	001485	11
Main relay short circuit to ground	ECU Main Relay1 has a short circuit to GROUND	520202	04
	ECU Main Relay2 has a short circuit to GROUND	520203	04
Main relay short circuit to battery	ECU Main Relay1 has a short circuit to HIGH SOURCE	520202	03
	ECU Main Relay2 has a short circuit to HIGH SOURCE	520203	03
Battery voltage	The battery voltage sensor voltage is above normal	000168	03
	The battery voltage sensor voltage is below normal	000168	04
	The battery voltage is above normal: 12 V battery - more than 17 V 24 V battery - more than 32 V	000168	00
	The battery voltage is below normal - less than 7.8 V	000168	01
Throttle 1	The throttle 1 sensor is below normal at idle	000091	04
	The throttle 1 sensor is above normal or open circuit at idle	000091	03
Rail pressure monitoring	The rail pressure is above normal	000157	00
	The rail pressure controller has a negative deviation	000157	17
	The rail pressure controller has a positive deviation	000157	15
	The rail pressure has leakage found in load condition	000157	31
	The rail pressure has leakage found at low idle	000157	14
	The rail pressure is below normal	000157	18
Pressure relief valve	The rail pressure relief valve is open	520208	31
	The rail pressure relief valve is forced to open - increase the pressure	520243	31
	The rail pressure relief valve is forces to open - do a pressure shock	520244	31
	Do a balance check for the rail pressure relief valve to make sure the rail pressure relief valve is opening	520295	31
	The rail pressure relief valve averaged rail pressure is outside the expected tolerance range	520296	31
	The rail pressure relief valve reached the maximum permitted opening count	520245	31

	Fault description	SPN	FMI
	The rail pressure relief valve reached the maximum permitted open time	520246	31
MPROP	MPROP control - High side short circuit to ground	001076	06
	MPROP control - Low side short circuit to ground	001076	04
	MPROP control - High side short circuit to high source	001076	03
	MPROP control - Low side short circuit to high source	001076	05
	MPROP control - Open circuit	001076	14
	MPROP control - Power stage over temperature	001077	31
	ECU internal fault 0101	001077	03
	ECU internal fault 0102	001077	04
Solenoid valve 1	Solenoid valve 1 - Current is below normal: Open circuit	000651	05
	Solenoid valve 1 - Short circuit	000651	14
	Solenoid valve 1 - Calibration value is missing	000651	13
Solenoid valve 2	Solenoid valve 2 - Current is below normal: Open circuit	000652	05
	Solenoid valve 2 - Short circuit	000652	14
	Solenoid valve 2 - Calibration value is missing	000652	13
Solenoid valve 3	Solenoid valve 3 - Current is below normal: Open circuit	000653	05
	Solenoid valve 3 - Short circuit	000653	14
	Solenoid valve 3 - Calibration value is missing	000653	13
Injectors	The number of injections is limited by the quantity balance of the high pressure pump	000003	14
	Error in the plausibility of the injection energizing time	520209	31
	Error in the plausibility of the start of energizing angles	520210	12
	Injector bank 0 short circuit	520240	31
	Injector bank 1 short circuit	520241	31
CY33X	ECU internal fault 0103	520211	31
MOCSOP (Test for redundant shut-off paths)	ECU internal fault 0105	520212	31
	ECU internal fault 0106	520213	31
	ECU internal fault 0107	520214	31
	ECU internal fault 0108	520215	31
	ECU internal fault 0109	520216	31
	ECU internal fault 0110	520217	31
	ECU internal fault 0111	520218	31
	ECU internal fault 0112	520219	31

	Fault description	SPN	FMI
	ECU internal fault 0113	520220	31
	ECU internal fault 0114	520221	31
	ECU internal fault 0115	520222	31
	ECU internal fault 0116	520223	31
	ECU internal fault 0117	520224	31
	ECU internal fault 0118	520225	31
	ECU internal fault 0119	520226	31
	ECU internal fault 0120	520227	31
CY320	ECU internal fault 0121	520228	12
FADC	ECU internal fault 0122	520229	13
CY146	ECU internal fault 0123	520247	31
Engine protection	The engine specification is not matched	520230	31
	The engine speed is above normal	000190	16
All applications	Bad digital input configuration	520232	31
OCWDA (Operating condition of WDA/ABE shut-off	ECU internal fault 0128	520233	31
	ECU internal fault 0129	520234	31
	ECU internal fault 0130	520235	31
	ECU internal fault 0131	520236	31
EGR valve	EGR Valve communication error	002791	09
	EGR Valve initialization error	002791	10
	EGR Valve not present	002791	31
	EGR Valve overload	002791	06
	EGR Valve position deviation	002791	07
	EGR Valve short cut	002791	12
	EGR Valve temperature alert	002791	00
	EGR Valve mechanical fault	002791	13
	EGR Circulation mass flow rate is below normal	002659	01
Grid heater relay	The grid heater relay voltage is above normal or short to HIGH SOURCE	000626	03
	The grid heater relay current is above normal or short to ground	000626	06
	The grid heater relay current is below normal or open circuit	000626	05
EGR gas temperature	The EGR gas temperature sensor voltage is above normal or open circuit	000412	03
	The EGR gas temperature sensor voltage is below normal	000412	04

6. Specifications

6.1 Specifications

6.1.1 Engine specifications

	4608	4609	4610
Type	Four stroke diesel engine		
Model	33 AWIC		
Make	AGCO power		
Number of cylinders	3		
Aspiration	Turbocharged and air to air intercooled		
Injection	Direct		
Bore	108 mm (4.3 in)		
Stroke	120 mm (4.7 in)		
Displacement	3.3 L (3.5 qt (US))		
Rated speed	2200 rpm		
Low idle speed	912 to 988 rpm		
High idle speed	2218 to 2402 rpm		
Maximum torque at rpm	346 Nm (255 lbf ft) at 1500 rpm	387 Nm (285 lbf ft) at 1500 rpm	410 Nm (302 lbf ft) at 1500 rpm
Engine horse power (Maximum output)	63 kW (84 hp) at 2000 rpm	71 kW (95 hp) at 2000 rpm	75 kW (101 hp) at 2000 rpm
Engine cooling	Liquid, forced circulation		
Air cleaner	Dual stage, dry element		
Air intake	Engine cover grille		
Cold starting aid	Intake heater		
Firing order	1-2-3		
Valve clearance (cold)	0.35 mm (0.01 in)		

6.1.2 Electrical specifications

	4608	4609	4610
System voltage	12 volt		
Grounding	Negative		
Battery cold cranking amperes (cca) @ - 18 °C (64 °F)	799 cca		
Battery JIS type	130E41R		
Battery case dimensions			
Length	410 mm (16.2 in)		
Width	175 mm (6.9 in)		
Height	234 mm (9.2 in)		
Alternator	12 volt, 95 ampere		
Starter	12 volt, 3.0 kW (4 hp)		

6.1.3 Transmission specifications

	4608	4609	4610
Primary transmission	Six speed synchronized		
Range transmission	Without creep gear, two speed sliding mesh		
	With creep gear, three speed sliding mesh		
Mechanical shuttle	Electro-hydraulic control with multiple plate wet disc, 95% reverse reduction		
Gear speeds			
Power shuttle	Without creep gear, 12 forward, 12 reverse		
	With creep gear, 18 forward, 18 reverse		
Clutch	Multiple stage wet with 128 mm (5 in) disc		

6.1.4 Power takeoff specifications

	4608	4609	4610
Type	Independent, engine driven		
Control	Electro-hydraulic control		
Clutch	Hydraulically engaged, multiple plate wet disc		
Output	Clockwise rotation from the rear of the tractor		
Shaft			
540 rpm (North America only)	35 mm (1.4 in) diameter, 6 spline, ISO type 1		
1000 rpm (North America only)	35 mm (1.4 in) diameter, 21 spline, ISO type 2		
540/750 rpm (Australia)	35 mm (1.4 in) diameter, 6 spline, ISO type 1		
Engine speed			
540 rpm	1993 rpm		
1000 rpm (North America only)	2178 rpm		
750 rpm (Australia only)	2129 rpm		

6.1.5 Front axle specifications - 4WD only

	4608	4609	4610
Engagement	Mechanical		
Joint on axle	Bevel gear		
Oscillation angle	6 to 8 degrees		
Steering	Hydrostatic		
Rear wheel to front wheel drive ratio	1:1.45	1:1.4	

6.1.6 Rear axle specifications

	4608	4609	4610
Final reduction	Planetary		

6.1.7 Brake specifications

	4608	4609	4610
Type	Wet multi disc		
Actuation	Mechanical		
Braking area	467.36 sq cm (72.68 sq in) x 8 pieces		
Parking brake	Hook type		

6.1.8 Hydraulic specifications

	4608	4609	4610
Main hydraulic system			
Pump	Transmission mounted		
Maximum output	66.5 l/min		
Pressure	19.6 mPa		
Steering system			
Type	Hydrostatic		
Pump	Transmission mounted		
Maximum output	25.7 l/min (6.8 gal/min (US))		
Pressure	15.8 mPa (2292 psi)		
Rear linkage			
Type	Three-point hitch		
Size	Category II		
Control	Single control lever		
Lift capacity - measured at ball ends			
Standard:	2500 kg (5512 lb)		
Optional:	3300 kg (7275 lb)		
Lift capacity - measured at 610 mm (24 in)			
Standard:	1500 kg (3307 lb)		
Optional:	2000 kg (4409 lb)		

6.1.9 Fuel specifications

	4608	4609	4610
Type	Ultra low sulfur fuel only		
Above 4 °C (39 °F)	No. 2-D		
Below 4 °C (39 °F)	No. 1-D		

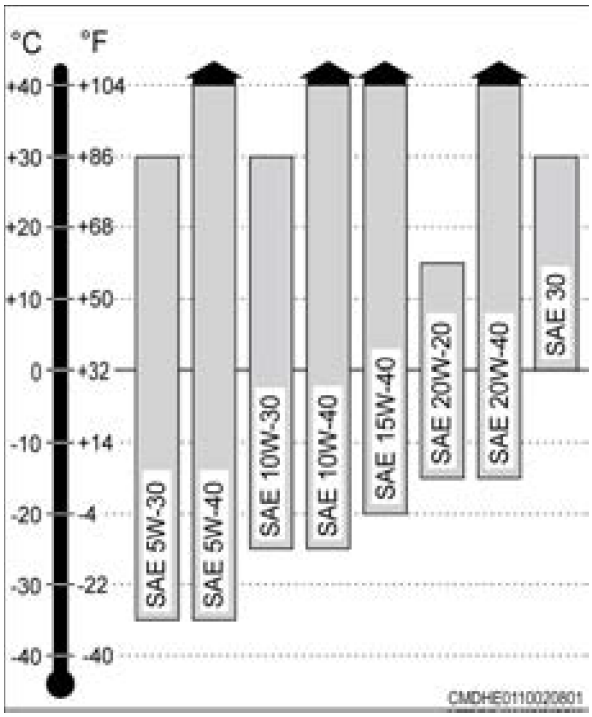
6.1.10 Operating slope angle

	4608	4609	4610
Up/down	20 degrees		
Side to side	20 degrees		

6.1.11 Capacities

	4608	4609	4610
Engine crankcase with filter	12.5 L (13.2 qt (US))		
Cooling system	11.5 L (12.2 qt (US))		
Fuel tank	100 L (105.7 qt (US))		
Transmission and differential housing (including hydraulic system)	58 L (61.3 qt (US))		
Front drive axle (four-wheel drive only)	8 L (8.5 qt (US))	10 L (10.6 qt (US))	

6.1.12 Lubrication specifications

	4608	4609	4610
Lubrication			
Lubrication fittings	Massey Ferguson M-1105 or equivalent lithium base grease No. 2		
Engine oil	Massey Ferguson Multiguard® or equivalent in the correct SAE viscosity. Oil must meet or exceed MIL-L-46152 requirements, API Service CJ-4, ACEA Service E7.		
Engine oil viscosity			

	4608	4609	4610
Transmission and differential housing (including hydraulic system)	AGCO Permatran® 821XL		
Front axle	AGCO Permatran® 821XL		
Engine coolant			
Freezing protection (original factory fill)	-34 °C (-29 °F)		
Recommended coolant	50/50 mixture ethylene glycol and water		

6.1.13 Wheel bolt torque chart

Wheel bolts	Torque
Front wheel lug nut	285 Nm (210 lbf ft)
Rear wheel lug nut	285 Nm (210 lbf ft)
Rear wheel center to rim bolts (Ag and industrial tires only)	230 Nm (170 lbf ft)

6.1.14 Tire inflation pressures

Four-wheel drive

Model	Tire type	Tire location	Tire size	Pressure
4608	AG	Front	9.5-24	207 kPa (30 psi)
		Rear	16.9-30	124 kPa (18 psi)
	R4	Front	10.5/80-18	228 kPa (33 psi)
		Rear	19.5L-24	165 kPa (24 psi)
4609 4610	AG	Front	11.2-24	248 kPa (36 psi)
		Rear	16.9-30	124 kPa (18 psi)
		Front	12.4-24	221 kPa (32 psi)
		Rear	18.4-30	110 kPa (16 psi)
		Front	12.4-24	221 kPa (32 psi)
		Rear	16.9-34	165 kPa (24 psi)
	R4	Front	12.5/80-18	317 kPa (46 psi)
		Rear	19.5L-24	164 kPa (24 psi)
4610 low profile	AG	Front	12.5/80-18	317 kPa (46 psi)
		Rear	16.9-24	124 kPa (18 psi)
		Front	9.5-24	207 kPa (30 psi)
		Rear	18.4-26	110 kPa (16 psi)

Two-wheel drive

Model	Tire Type	Tire Location	Tire Size	Pressure
4608	AG	Front	7.5-16	303 kPa (44 psi)
		Rear	16.9-30	124 kPa (18 psi)
		Front	9.5-15	310 kPa (45 psi)
		Rear	16.9-30	124 kPa (18 psi)
4609 4610	AG	Front	9.5L-15	310 kPa (45 psi)
		Rear	16.9-30	124 kPa (18 psi)
		Front	7.5-18	303 kPa (44 psi)
		Rear	16.9-30	124 kPa (18 psi)
		Front	10-16	221 kPa (32 psi)
		Rear	18.4-30	110 kPa (16 psi)
		Front	10-16	221 kPa (32 psi)
		Rear	16.9-34	165 kPa (24 psi)

The maximum tire pressures for maximum loads are given. Tire pressure can be reduced as the load on the tire is reduced.

Tire pressures vary according to make, load, and speed as well as to the type of work being carried out. Refer to the inflation tables issued by the tire manufacturers.

6.1.15 Maximum load capacity

Four-wheel drive maximum load capacity

Model	Ag tires	4608	4609	4610
	Front	9.5-24	12.4-24	12.4-24
	Rear	16.9-30	16.9-34	16.9-34
Platform tractors				
Front axle weight				
	NA type	1150 kg (2535 lb)	1200 kg (2646 lb)	
	Aus type	1155 kg (2546 lb)	1205 kg (2657 lb)	
Rear axle weight				
	NA type	1815 kg (4001 lb)		
	Aus type	1835 kg (4045 lb)		
Total weight				
	NA type	2965 kg (6537 lb)	3015 kg (6647 lb)	
	Aus type	2990 kg (6592 lb)	3040 kg (6702 lb)	
Cab tractor				
Front axle weight				
	NA type	1250 kg (2756 lb)	1300 kg (2866 lb)	
	Aus type	1255 kg (2767 lb)	1305 kg (2877 lb)	
Rear axle weight				

Model	Ag tires	4608	4609	4610
	Front	9.5-24	12.4-24	12.4-24
	Rear	16.9-30	16.9-34	16.9-34
	NA type	1900 kg (4189 lb)		
	Aus type	1920 kg (4233 lb)		
Total weight				
	NA type	3150 kg (6944 lb)	3200 kg (7055 lb)	
	Aus type	3175 kg (7000 lb)	3225 kg (7110 lb)	
Maximum weight capacities				
Front axle capacity		3400 kg (7496 lb)	3800 kg (8377 lb)	
Rear axle capacity		4000 kg (8818 lb)	4800 kg (10 582 lb)	
Total capacity		5200 kg (11 464 lb)	6500 kg (14 330 lb)	

NA = North American tractors

Aus = Australian tractors

NOTE:
The machines used to calculate the specifications above are equipped with a joystick. To calculate a different total weight:

- *A machine without a joystick - subtract 60 kg (132 lb)*

Two-wheel drive maximum load capacity

Model	Tire	4608	4609	4610
Specifications based on tire size	Front	7.5-16	7.5-18	7.5-18
	Rear	16.9-30	18.4-30	18.4-30
Platform tractors				
Front axle weight		995 kg (2194 lb)	1015 kg (2238 lb)	
Rear axle weight		1705kg (3759 lb)	1735 kg (3825 lb)	
Total weight		2700 kg (5952 lb)	2750 kg (6063 lb)	
Cab Tractors				
Front axle weight		1065 kg (2348 lb)	1085 kg (2392 lb)	
Rear axle weight		1835 kg (4045 lb)	1865 kg (4112 lb)	
Total weight		2900 kg (6393 lb)	2950 kg (6504 lb)	
Maximum weight capacities				
Front axle capacity		3400 kg (7496 lb)	3800 kg (8377 lb)	
Rear axle capacity		4000 kg (8818 lb)	4800 kg (10 582 lb)	
Total capacity		5200 kg (11 464 lb)	6500 kg (14 330 lb)	

NOTE:
The machines used to calculate the specifications above are equipped with a joystick. To calculate a different total weight:

- *A machine without a joystick - subtract 60 kg (132 lb)*

6.2 Dimensions

6.2.1 Platform tractor dimensions

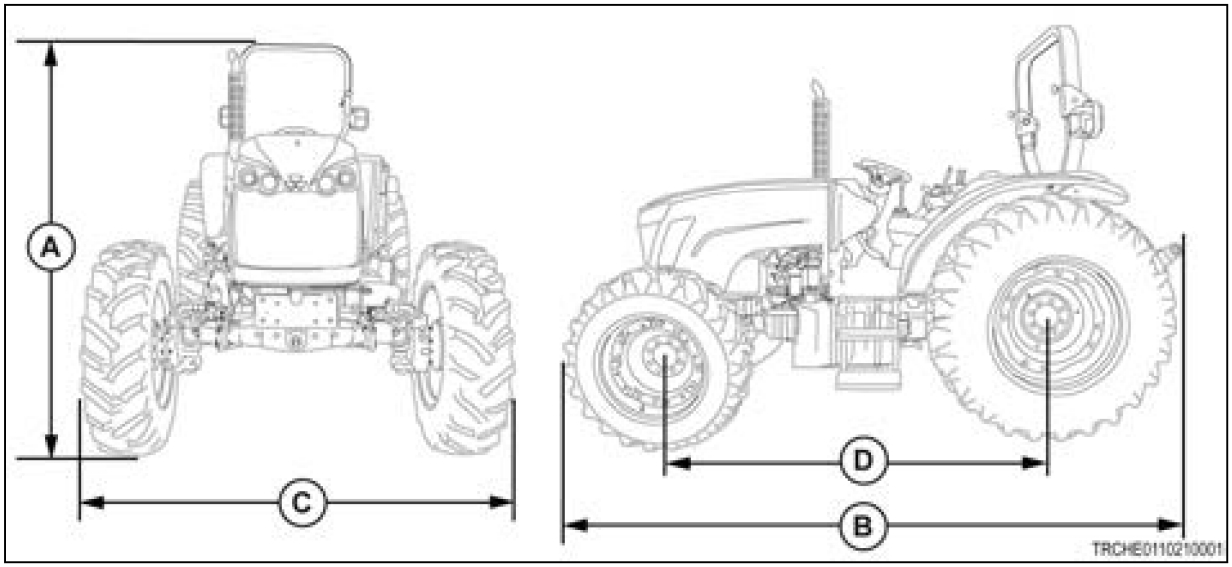


Fig. 1

General dimensions		Tires	4608	4609	4610 standard	4610 low profile
Specifications based on tire size		Front	9.5-24	12.4-24	12.4-24	12.5-80/18
		Rear	16.9-30	16.9-34	16.9-34	16.9-24
A	Overall height		2650 mm (104.4 in)	2710 mm (106.8 in)		2624 mm (103.4 in)
B	Overall length (front grille to end of the three-point hitch	NA	3815 mm (150.3 in)	3875 mm (152.7 in)		3792 mm (149.4 in)
		Aus	3895 mm (153.5 in)	3955 mm (155.8 in)		
C	Minimum width		2045 mm (80.6 in)	2050 mm (80.8 in)		2002 mm (78.9 in)
D	Wheelbase		2260 mm (89 in)			
Ground clearance			460 mm (18.1 in)	470 mm (18.5 in)		343 mm (13.5 in)
Front wheel tread			1450 mm (57.1 in)			1610 mm (63.4 in)
Rear wheel tread			1550 mm (61.1 in)			1542 mm (60.8 in)
Turning radius (with brake)			3300 mm (130 in)			
Weight		NA	2965 kg (6537 lb)	3015 kg (6647 lb)		3105 kg (6845 lb)
		Aus	2960 kg (6526 lb)	3040 kg (6702 lb)		

Four-wheel drive model dimensions

NA = North American tractors / Aus = Australian tractors

General dimensions		Tires	4608	4609	4610 standard
Specifications based on tire size		Front	7.5-16	7.5-16	7.5-18
		Rear	16.9-30	18.4-30	18.4-30
A	Overall height		2650 mm (104.4 in)	2710 mm (106.8 in)	
B	Overall length (front grille to end of the three-point hitch		3825 mm (150.7 in)	3845 mm (151.5 in)	3865 mm (152.3 in)
C	Minimum width		2000 mm (78.8 in)		
D	Wheelbase		2250 mm (88.6 in)		
Ground clearance			555 mm (21.9 in)		
Front wheel tread			1543 mm (60.8 in)		
			1643 mm (64.7 in)		
			1743 mm (68.7 in)		
			1843 mm (72.6 in)		
Rear wheel tread			1176 to 1855 mm (46.3 to 73 in)	1176 to 1855 mm (46.3 to 73 in)	
Turning radius (with brake)			3300 mm (130 in) (130 in)		
Weight			2700 kg (5952 lb)	2750 kg (6063 lb)	

Two-wheel drive model dimensions

NA = North American tractors / Aus = Australian tractors

6.2.2 Cab tractor dimensions

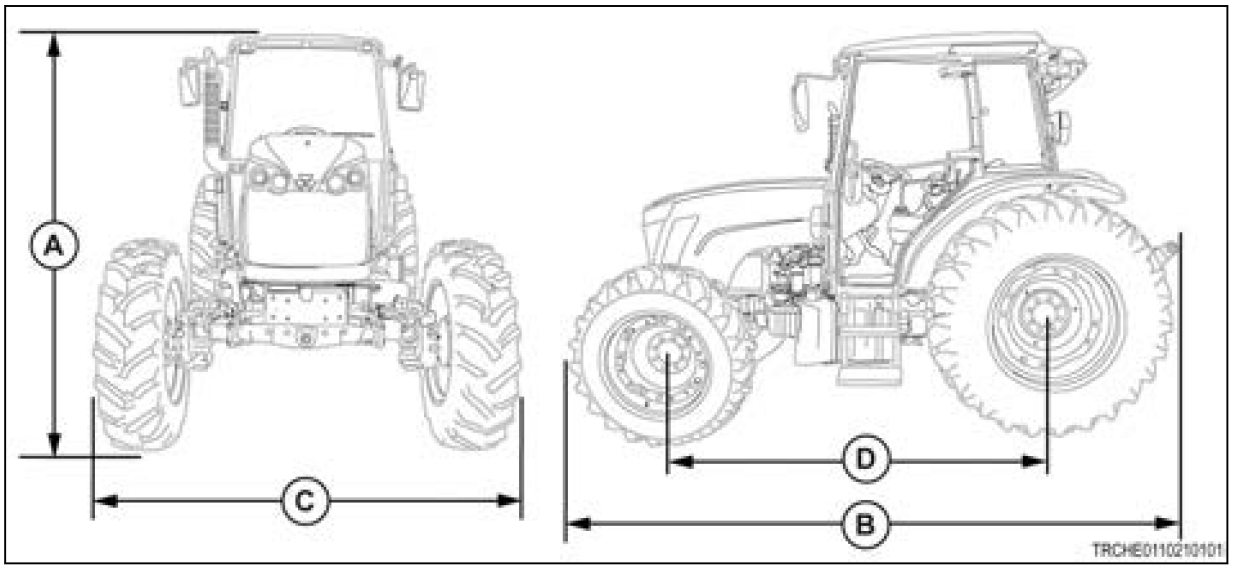


Fig. 2

Four-wheel drive dimensions

General Dimensions		Tires	4608	4609	4610
Specifications based on tire size		Front	9.5-24	12.4-24	12.4-24
		Rear	16.9-30	16.9-30	16.9-34
A	Overall Height		2550 mm (100.5 in)	2600 mm (102.4 in)	
B	Overall Length (front grill to end of three-point)	NA	3815 mm (150.3 in)	3875 mm (152.7 in)	
		Aus	3895 mm (153.5 in)	3955 mm (155.8 in)	
C	Minimum Width		2045 mm (80.6 in)	2050 mm (80.8 in)	
D	Wheelbase		2260 mm (89 in)		
Ground Clearance			460 mm (18.1 in)	470 mm (18.5 in)	
Front Wheel Tread			1450 mm (57.1 in)		
Rear Wheel Tread			1550 mm (61.1 in)		
Turning Radius (with brake)			3300 mm (130 in)		
Weight		NA	3150 kg (6944 lb)	3200 kg (7055 lb)	
		Aus	3175 kg (7000 lb)	3225 kg (7110 lb)	

NA = North American tractors / Aus = Australian tractors

Two-wheel drive dimensions

General Dimensions		Tires	4608	4609	4610
Specifications based on tire size		Front	7.5-16	7.5-18	7.5-18
		Rear	16.9-30	18.4-30	18.4-30
A	Overall Height		2550 mm (100.5 in)	2600 mm (102.4 in)	
B	Overall Length (front grill to end of three-point)	NA	3825 mm (150.7 in)	3845 mm (151.5 in)	3865 mm (152.3 in)
		Aus	3895 mm (153.5 in)	3955 mm (155.8 in)	
C	Minimum Width		2000 mm (78.8 in)		
D	Wheelbase		2250 mm (88.6 in)		
Ground Clearance			555 mm (21.9 in)		
Front Wheel Tread			1543 mm (60.8 in)		
			1643 mm (64.7 in)		
			1743 mm (68.7 in)		
			1843 mm (72.6 in)		
Rear Wheel Tread			1176 to 1855 mm (46.3 to 73 in)	1144 to 1854 mm (45 to 73 in)	
Turning Radius (with brake)			3300 mm (130 in)		
Weight			2900 kg (6393 lb)	2950 kg (6504 lb)	

NA = North American tractors / Aus = Australian tractors

7. Accessories

7.1 Accessories

7.1.1 Engine block heater

The engine block heater is installed through a port in the engine block coolant cavity to assist starting in colder ambient temperatures.

7.1.2 Wheel weights

Bolt on cast weights are available for rear wheels.

7.1.3 Auxiliary hydraulic valves

A valve is available to give implement hydraulic function. A one, two, or three valve configuration are available.

7.1.3.1 Free flow valve and kickout valve

A free flow valve and kickout valve are available.

7.1.4 Three-point assist cylinder

An assist cylinder for the rear three-point linkage is available. The assist cylinder increases the lift capacity from 2500 kg to 3300 kg (7275 lb).

7.1.5 Implements and attachments

Your dealer offers a complete line of implements and attachments, such as mowers, loaders, backhoes, tillers and numerous ground-engaging tools, to complete your needs. Please check with your dealer for more information.

NOTE: *Make sure your tractor has the proper ballast for your specific front and/or rear mounted implements.*

7.1.6 Canopy

The canopy is a sunshade that attaches to the roll over protective structure (ROPS) to improve operator comfort. The canopy is not designed to offer protection from falling objects.

7.1.7 Joystick

A joystick and auxiliary valve is available for the operation of a loader and other attachments.

7.1.8 Rear windshield wiper

The rear windshield wiper installs on the outside of the cab in the center of the rear windshield.

7.1.9 Speaker and antenna

For cab models, a speaker and antenna are available.

7.1.10 Creep set

The creep set gives one more major speed change. The creep lever changes the slowest speed range.

8. Assembly

8.1 Checklists

8.1.1 Pre-delivery checklist

Attention dealer, refer to AGCO SOURCE for machine pre-delivery inspection information.

8.1.2 Delivery checklist

	1	Make arrangements for dealer personnel to be present when starting the machine in the field. Confirm all systems are working correctly. Review the Operator's Manual to confirm the machine is set up correctly.
	2	Explain the Warranty of the machine to the owner. Complete the Warranty Registration form and list the serial number of the machine. The dealer and the owner must both sign the form.
	3	Review the Safety Section with the machine operator. Review various warning decals for dangerous operating procedures or conditions. Instruct the owner of the machine to review the operator manual with each operator of the machine.
	4	If required, review with operator how to adjust, connect, or disconnect other attachments to the machine.
	5	Review with the operator the locations and functions of the controls. Refer to the Operation section.
	6	Inform the operator about the adjustments for varying field conditions.
	7	Inform the operator about the importance of proper lubrication and servicing. Refer to the Lubrication and Maintenance Section.
	8	Review with the operator the use the lighting system when operating a machine on the road at night and during the day. The tail lamps, warning lamps, and SMV (Slow Moving Vehicle) emblem must be used for warning operators of other vehicles. Inform the customer to check local government regulations that deal with movement of slow and over width vehicles.
	9	Give the Operator's Manual to the owner. Make sure the owner will review all sections of the manual.

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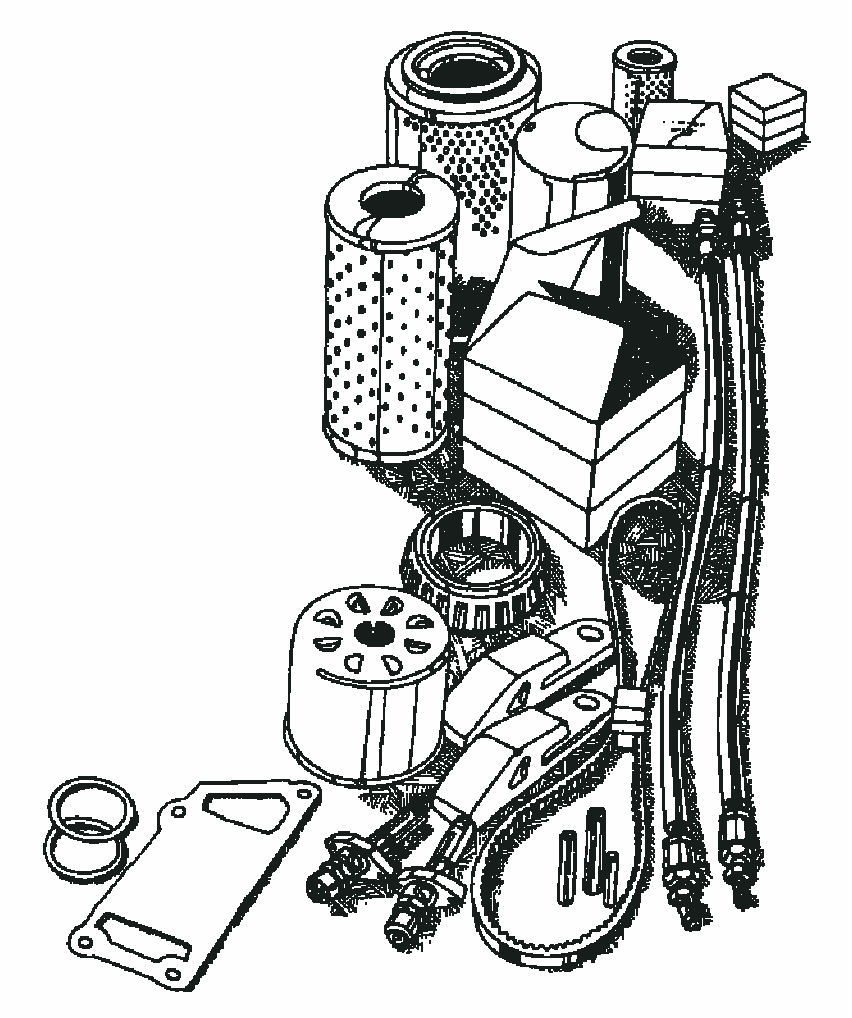

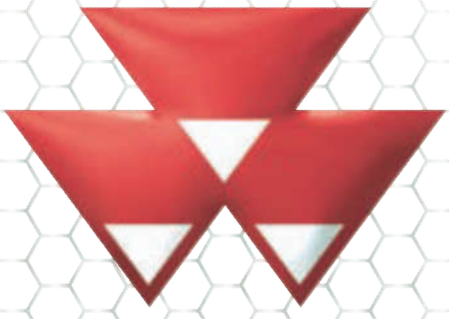

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