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VALTRA

OPERATOR'S MANUAL
F Series

YOUR WORKING MACHINE

39940211 (555124) (01/2020)

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1.1 About this manual



WARNING:
Before you use the tractor, read and understand all the instructions in this manual. Follow them strictly when you operate and maintain the tractor.

IMPORTANT: *When you use the tractor, obey all valid laws and regulations even if they are not specifically pointed out in this manual.*

This Operator's Manual is for the Valtra F Series tractors. The F Series models are:

- F75N 2D0, F75S 2D0
- F85N 2D0, F85S 2D0
- F95N 2D0, F95S 2D0
- F105N 2D0, F105S 2D0

This manual is for machines used for agricultural operations only.

Do not use the machine for an operation other than the operations in this manual.

The manufacturer accepts no liability for damage or injury if you use the machine for other operations.

This Operator's Manual gives you the information that is necessary to:

- Operate the machine satisfactorily and safely
- Do the servicing and the maintenance at the correct intervals.

The term optional equipment refers to items which are not standard equipment on the machine.

Optional equipment is selected when a purchase order for a machine is made.

The specifications of a new machine can change, thus the manufacturer has the authority to change the information in this manual.

This manual does not include maintenance, repairs and adjustments for which special tools or information is necessary.

Replacement parts are shown in a different manual that is available from your dealer.

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1.2 Intended use

This vehicle is designed to be used in agricultural, municipal and property management or other similar tasks. Using the vehicle for any other purpose will be considered an alteration of the vehicle's intended use. In this case, always contact your dealer first. Compliance with the operating conditions, maintenance schedule and repair schedule specified by the manufacturer are an essential part of the intended use.

The vehicle may only be operated, maintained and repaired by persons familiar with the features and required safety measures.

All persons who do work with the vehicle must obey all safety regulations, any other generally approved occupational and safety regulations, and road traffic regulations.

Any unauthorized modifications can release the manufacturer from liability following an accident or damage caused by the modified vehicle.

For a correct and safe scrapping of the vehicle, contact an approved Valtra dealer.

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1.3 Delivery of vehicle

Manufacturer information	Valtra Inc. FI-44200 Suolahti, Finland
Dealer information	
Vehicle type	

Information to be provided at vehicle delivery

☐ Tell the customer about the safety instructions in the vehicle's Operator's Manual and on the vehicle itself.

☐ Tell the customer about the country-specific regulations on the registration and use of the vehicle.

Delivered on:

Customer's signature:

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1.4 Serial numbers

All machines come with letters and numbers on a metal plate. They identify a component, or an assembly and are necessary when you make an order of replacement parts, or if someone steals the machine.

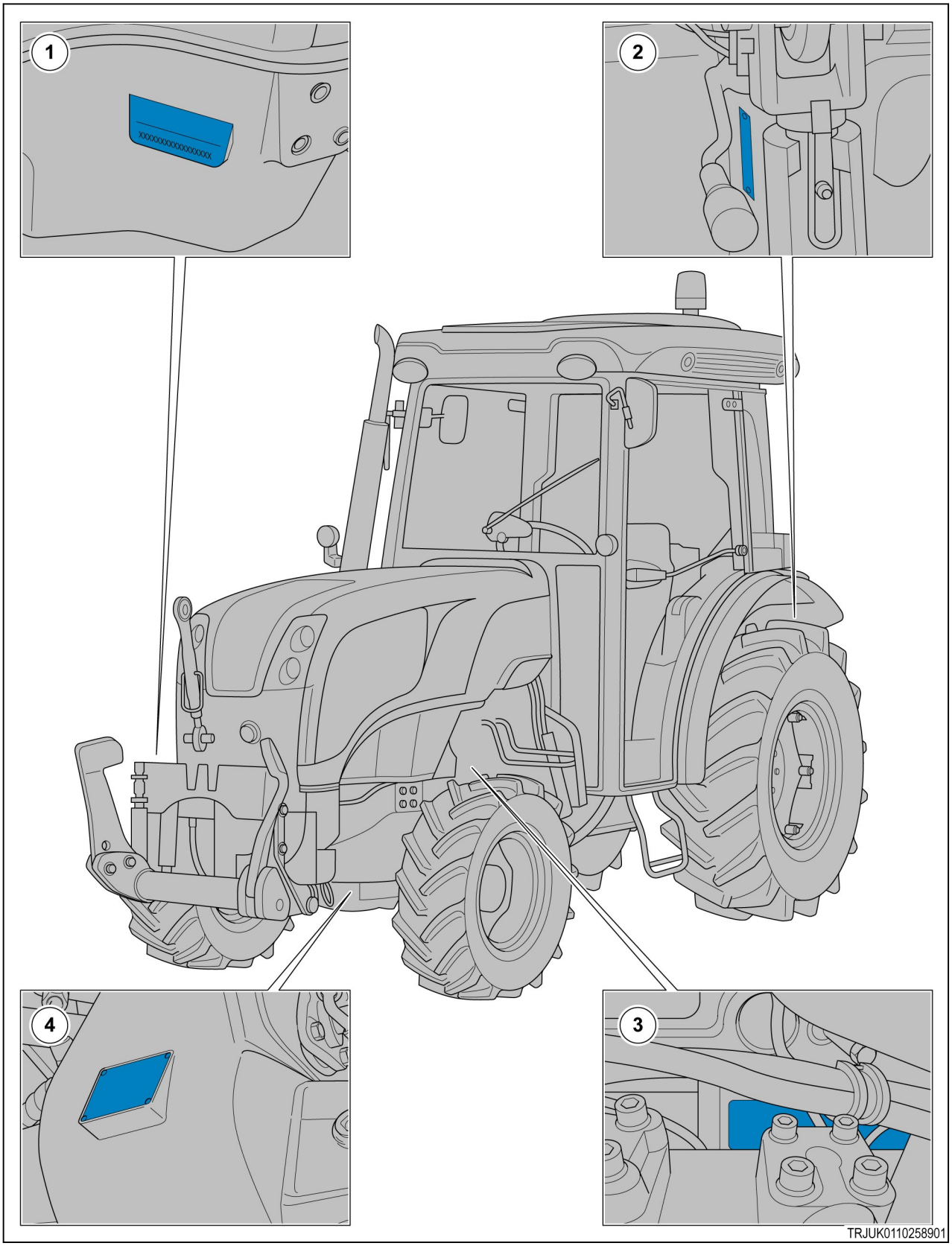


Fig. 1

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1. Vehicle identification number (VIN)

   At the rear side of the front axle support.
2. Transmission serial number

   At the rear end of the machine, in the top left corner of the gearbox.
3. Engine serial number

   On the left side of the engine.
4. Axle serial number

   At the rear right side of the axle, or at the rear center side.

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2.1 Safety precautions

Always follow the safety precautions given when working with the tractor.

The regulations given do not release the operator from statutory and other national regulations regarding traffic safety and occupational health and safety.

In addition to the precautions given in this manual, always follow the safety regulations applicable to different types of working sites and existing road traffic laws.

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2.2 Hazard statements

Five types of notifications are used in the documentation.



DANGER:
Indicates an imminently hazardous situation that, if not avoided, results 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.

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

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

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2.3 Safety Instructions

2.3.1 Forestry Applications

Standard tractors do not offer sufficient protection against forestry application risks such as trees or branches falling on the protection structure and penetration of objects into the protection structure.

2.3.2 Precautions before starting

Before starting the engine, make sure all controls are set to neutral position, especially the power take-off lever. Start the engine only in well ventilated environment. Before starting the tractor, ensure that nobody is standing nearby. Completely loosen the hand brake before moving off. Do not approach any job if tractor conditions are not satisfactory.

2.3.3 Wear safety gear

Wear close fitting clothing and safety equipment appropriate for the job. Operator's full attention is required to work in safety conditions. Do not wear earphones for radio or music when operating the machine. DO NOT wear loose clothes, jewels or other objects and gather up your hair, if long, since it could get entangled in the controls or other tractor parts.

2.3.4 Noise protections

Prolonged exposure to loud noise can cause impairment or loss of hearing. To protect yourself against loud noise, use a suitable ear protector such as earmuffs or ear plugs.

2.3.5 Proper use of steps and hand grips

To avoid any fall, always face the machine when getting on and off. Keep 3 support points using steps and handrail. Never hold onto machine controls. Be extremely careful when mud, snow or humidity create slippery conditions. Keep steps clean and free from oil or grease. Never jump off the machine. Never jump on or off the vehicle while it is moving.



WARNING:
Fall hazard! Jumping on or off the machine could cause an injury. Always face the machine, use the handrails and steps, and get on or off slowly. Maintain a three-point contact to avoid falling: both hands on the handrails and one foot on the step, or one hand on the handrail and both feet on the steps. Failure to comply could result in death or serious injury. Get on and off the machine only by using the specific accesses equipped with a handrail, steps or ladder. Do not jump off the machine. Check that the steps, ladders and platforms remain clean and clear of debris and foreign matter. Slippery areas can be a cause of accidents. Never get on or off the machine while in movement. Do not use the steering wheel or any other controls or accessories as a handrail when getting into or out of the cab.

2.3.6 Tractor Conditions

Maintaining the tractor in perfect conditions and respecting the maintenance intervals (for oil change, top-ups, reconditioning, adjustments and full cleaning) will allow you to work under the best safety and performance conditions.

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2.3.7 Adjustment and maintenance operations

Keep away from the tractor hot parts such as the engine, the exhaust or the transmission. Should you need to work on overhanging or hot parts, wear gloves or use a rag. Wear safety goggles.

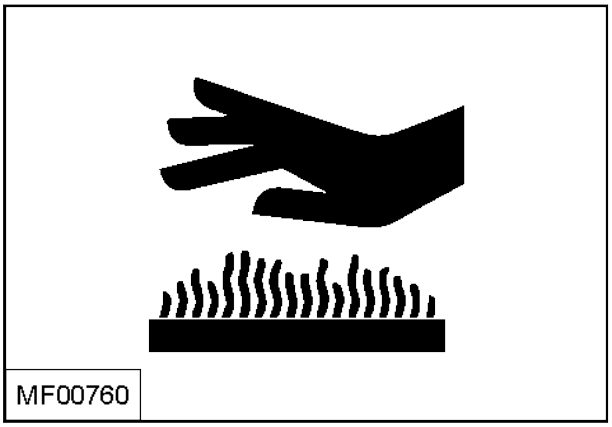


Fig. 1

2.3.8 Safe maintenance of the cooling system

The pressurised coolant system could blast out some fluid causing serious burns. Wear safety gloves and goggles. If coolant is ejected onto skin or eyes, immediately wash with plenty of water and seek medical advice.

CAUTION:
Before removing radiator cap, stop the engine and let system cool down. Before completely removing the cap, slowly loosen it until the first stop to release the pressure.

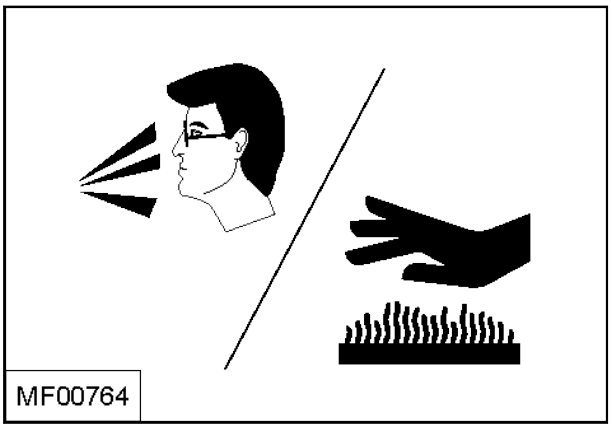


Fig. 2

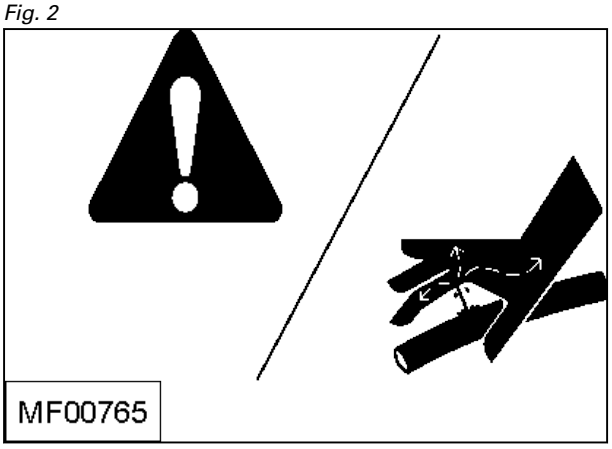


Fig. 3

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2.3.9 Hydraulic system

Transmission oil is used as hydraulic fluid for the lift and external connections. Inspect the tractor before starting the engine and once a day. Check the tractor and attachment hydraulic system. Repair or replace any leakage or damaged parts. Look for evidence allowing you to find a leakage from the tractor hydraulic system (traces of oil on the ground or on tractor).

WARNING:
Diesel fuel or hydraulic fluid under pressure could be injected in your skin or eyes leading to serious injury, blindness or even death. Pressurised liquid/fluid leakage might be not visible. Search for leaks with a piece of cardboard or wood. NEVER work bare handed. Wear safety goggles to protect your eyes. Any fluid injected into the skin MUST be surgically removed within a few hours by a doctor familiar with this type of injury.

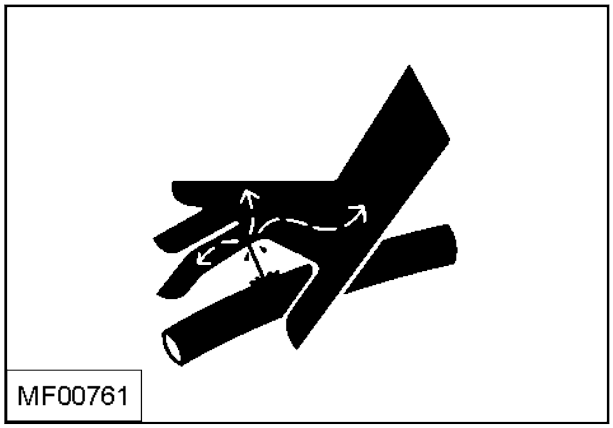


Fig. 4

Never loosen a coupling when circuit is pressurised. After the engine is stopped, when hydraulic circuits pressure is released, a residual pressure could remain -locally- especially before and after the hydraulic accumulators. Before working on the hydraulic circuit:

- Set attachments down until they rest on the ground (Front loader - Front lift - Rear lift).
- Stop the engine.

Allow oil to cool down before working on the circuit, or oil flow could cause burns and scalds. Always stop the engine before proceeding with the maintenance and lubrication operations.

2.3.10 Electric System

Interventions on the electrical system shall be exclusively performed by qualified staff. In case of need (for installing any accessory, radio accessories, etc.), contact your authorised service centre. Moreover:

- Before attempting any work on the electrical circuit, always disconnect the battery negative pole.
- Never replace a faulty fuse with a higher rating one. Fire hazard.
- Never work on elements like the generator or fan while engine is running.
- Carry out any welding operations strictly following the recommendations given.

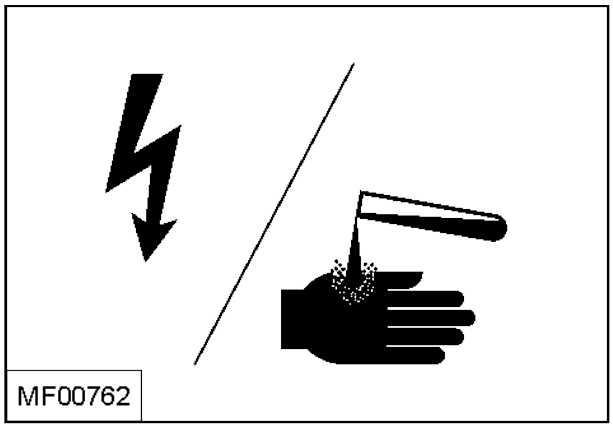


Fig. 5

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Do not start the engine by making a jumper across the starter motor wires. If the normal electrical circuit is disabled the engine will start if gear is engaged. NEVER start the engine if you are not on the machine. Start the engine only from the driving position, with gear in neutral or in parking position.

CAUTION:
The battery gives off gases that might explode. Keep batteries away from sparks and flames. Check the electrolyte level inside the battery using an electric torch. Do not check the battery charge by connecting the two poles with a metallic object. Use instead a voltmeter or a densimeter. Remove the battery negative terminal (–) first and refit it last. The sulphuric acid contained in the battery electrolyte is poisonous and caustic for the skin and tissues, and also causes blindness in contact with the eyes.

Prevent the risks as follows:

- Top up batteries in well-ventilated rooms
- Wear protective goggles and rubber gloves
- Do not clean the batteries with compressed air
- While topping up, do not breathe the fumes released by the electrolyte
- Do not spill or spread the electrolyte
- Use the correct starting procedure

If acid gets in contact with the skin or eyes:

- Immediately rinse the skin.
- Apply some sodium bicarbonate or limewater to neutralise the acid.
- Wash your eyes with water for 15/30 minutes.
- Immediately seek medical advice.

If you swallow some acid:

- Do not induce vomit
- Drink much water or milk, no more than 2 litres.
- Immediately seek medical advice.

2.3.11 Setting the machine on support

If tractor shall be set onto some supports, first of all choose a perfectly flat, sturdy enough support surface. Do not use waste blocks or hollow bricks to support the machine or any other material susceptible to collapse under continuous load. Never work under a machine supported by just a jack. Use suitable supports for the load to be supported. When using equipment or accessories together with the machine, always strictly follow the safety precautions given in the operator's manual of the accessory or equipment. Before attempting any intervention on the machine, always set the accessory or equipment to the ground.

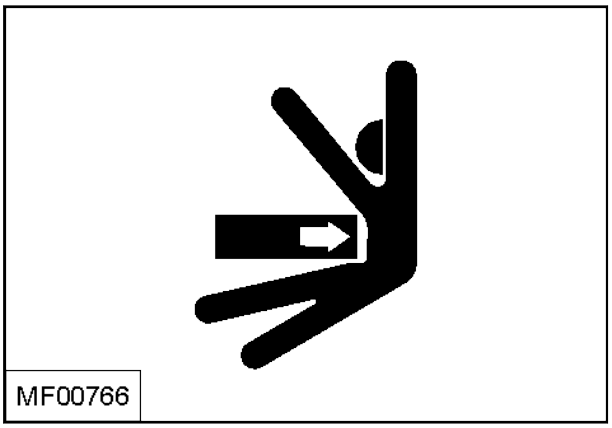


Fig. 6

4-wheel drive tractor:

- If the rear axle is on the supports, do not start the engine (the tractor could in fact move if you work the brakes (service brake or hand brake).
- If the rear axle is onto a support and if engine shall be started, the front axle must be set onto a support, too.

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2.3.12 Road Circulation

Under all circumstances, comply with the regulations about driving wheeled agricultural tractors applicable in the country of use. When driving the tractor on a public road, take several preventive measures.



WARNING:
DO NOT allow riders on the tractor nor on the towed equipment.

- Be familiar with the foreseen itinerary.
- Use flashers or beacon to drive on the road, at day or night, unless forbidden by law.
- Pay utmost attention when towing a load at transport speed, especially if the towed equipment has NO brakes.
- Respect all local or national rules about tractor's speed on the road.
- Use utmost care if doing the transport on snowy or slippery roads.
- Wait until the traffic allows tractor entry on the public road.
- Pay attention to any blind road crossing. Slow down until your visibility improves.
- DO NOT try to pass at any road crossing.
- Slow down in case of hairpin bends and turns.
- Describe wide and soft bends.
- Signal your intention to slow down, stop or turn.
- Shift down gears before driving uphill or downhill.
- Keep tractor's drive. DO NOT let the tractor move forward by inertia with clutch disengaged or gear in neutral.
- Do not move onto the lane for incoming traffic.
- Drive you vehicle in you lane as close as possible to the road side.
- If vehicles are queuing behind the tractor, set aside and let them pass.
- Drive carefully. Foresee the actions of the other drivers.
- When towing a load, start braking in advance and gradually slow down.
- Pay attention to any possible obstacles above the vehicle.
- Make sure the load does not hide any warning lights or other lights.
- Couple brake pedals together.

2.3.13 Road transport

Before driving the tractor on a public road, take several preventive measures.

- Become familiar with all applicable laws and abide by them.
- Couple brake pedals together.
- Raise all attachments in transport position and lock them in place.
- Reduce all attachments to the most compact transport configuration.
- Disengage the PTO and differential blocking.
- Ensure that any flag indicating clearance or hazard lights are in place and operating.
- Ensure you use a suitable fixing pin featuring a clip retainer.
- Clean the cat's eyes and front and rear road lights, then make sure they work.

Ensure the tractor and equipment are equipped with slow motion vehicle signals (SMV) and any other marking recommended to improve your visibility, or a beacon - if the law so requires.

2.3.14 Safe towing

Stopping distance increases with speed, trailer or equipment weight and downhill slope. Towed load, with or without brakes, if too heavy for the type of tractor or towed at too high a speed could make you lose control of the tractor. Consider overall vehicle and load weight. When towing loads on rough surfaces, in a bend or on slopes, proceed with further care.

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2.3.15 Tractor track

To minimise any risk of tipping over, always use the maximum allowed track for the operation to perform.

2.3.16 Fuel

Handle Diesel fuel with care since it is highly flammable. DO NOT smoke while refuelling. Keep away from any free flames. Stop the engine and allow for it to cool down before refuelling. Fill Diesel fuel cans in the open air. Before filling the fuel tank, ensure that no mobile phone is nearby. Prevent fire by keeping the machine clean, free of dirt, grease and residues. Always clean any fuel spillage.

IMPORTANT:
Use suitable vessels to handle fuel. These vessels shall be used only for this operation.

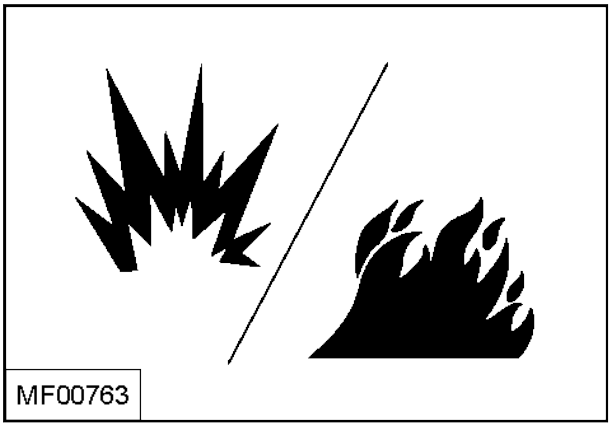


Fig. 7

2.3.17 Roll over protection structures (ROPS)

This tractor features a Roll Over Protection Structure (ROPS) or a ROPS safety cab protecting the operator in case the machine tips over. Keep the roll over protection structure (ROPS) in fully extended and locked position. If the roll over protection structure is used in the folded position (e.g. to enter in a small building), drive with utmost care. When roll over protection structure is folded, DO NOT use the safety belts. Before using the tractor under normal conditions, take the roll over protection structure to fully extended and locked position. In this conditions, always use the safety belts. It is recommended to abide by the following precautions:

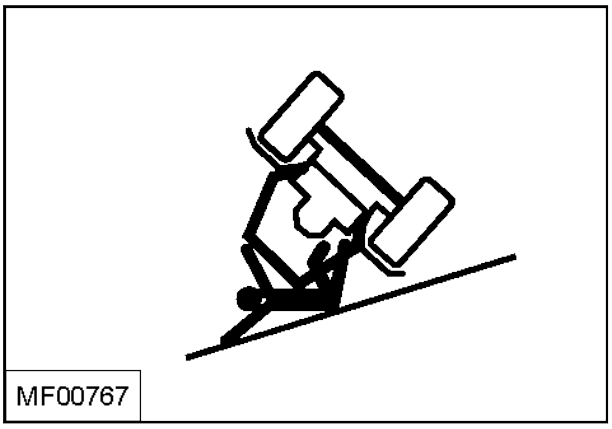


Fig. 8

CAUTION:
The list provided concerning the possible cases of overturning is incomplete.

- Do not use the tractor on slopes or in such conditions as to jeopardise its safety and stability. Beyond its limits, the tractor could tip over or roll over. Strictly comply with the recommendations given in this manual and pay special attention when running down steep slopes with tractor loaded.
- Do not drive tractor on or close to the edge of ditches, canals, banks or embankments with loose bottom or dug-out by rodents. The tractor could sink on one side and tip over.

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- Do not use the tractor on bridges or crossings that are unstable and/or have loose bottom or insufficiently strong. Do not use the tractor on bridges or crossings that are unstable and/or have loose bottom or insufficiently strong.
- Do not use the tractor beyond its dynamic stability limits. High speed, harsh driving and narrow bends run at high speed increase risk of tipping over.
- Do not use the tractor for towing or extraction jobs if you do not know the extent of pulling effort, like for instance in log pulling. The tractor could roll over to the back if the log is hard to pull.
- Pay utmost attention when using the tractor on piles of silage products with no cement boundaries. To increase tractor side stability you can either install twin wheels or increase track.
- Be careful since tractor centre of gravity could shift upward while lifting loads with the front loader or three-point hitch. In these conditions the tractor might suddenly tip over.

2.3.18 Falling objects protection structure (FOPS)

The cab featuring type-approved FOPS protects against any hazard deriving from falling objects. It is recommended to install a type-approved FOPS when working with front loaders. The cabs featuring non-type-approved FOPS offer insufficient protection against falling stones, bricks or blocks of cement.

CAUTION:
This symbol means that the tractor does NOT fit a FOPS roof (Falling Object Protective Structure) as standard. For safety reasons, all standard tractors ordered with no front loader and without FOPS roof or simply featuring a roll over arc (safety arc), shall never be equipped with a front loader or used with a front loader.

CAUTION:
3707, 3708, 3709, 3710 special tractors are NOT equipped with FOPS protection structure.

2.3.19 Attachments and accessories

To connect or disconnect an attachment, set the gear shift lever in neutral and engage the hand brake.

Use a slow gear for any movement of the tractor.

Hitch bar: This component of the tractor can not have the same function as a hitch fork and hence can not bear any vertical load.

Do not overload attachments or towed equipment.

Use suitable counterweights to keep tractor steady.

The three-point hitch and side-mounted attachments form a much wider trajectory in a bend compared to towed equipment.

Make sure you have enough space to turn.

Only use approved accessories and attachments.

Using a safety chain will help keeping control on the towed equipment in case it accidentally detaches from the drawbar during transport.

Using suitable adapters, connect the chain to tractor drawbar support or to other specific fixing points.

Leave chain just enough clearance to allow to follow in a bend.

Contact your dealer for the supply of a suitable chain having a nominal resistance equal to or higher than the gross weight of the towed machine.

When connecting or disconnecting an attachment, make sure nobody is standing between the tractor and the attachment.

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2.3.20 Stay clear of rotating drivelines - Using the safety belt - Passengers - Stationary jobs

Stationary jobs

If tractor shall work in a fixed location (use of stationary implements), lock tractor wheels, engage the hand brake and keep machine manned.

Stay clear of rotating drivelines

Entanglement in rotating shafts can cause serious injury or death. Make sure that all shields on tractor and driveline are installed and that the mobile ones can turn smoothly. Wear tight clothes. Stop the engine and be sure PTO driveline is stopped before getting near it for adjustment, connections or cleaning the attachment driven by the PTO.

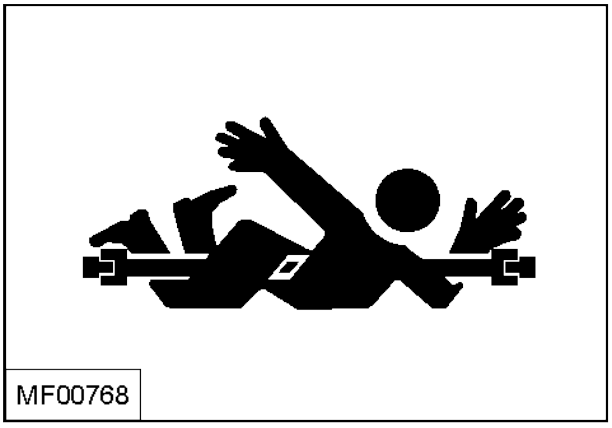


Fig. 9

Using the safety belt

On tractors with roll over protection structure (ROPS) or cab, use the safety belt to minimise any injury due to accidents or tipping over. Do not use the safety belt if tractor has no roll over protection structure or cab. Change the safety belt if the retainers, buckle, belt or retractor show sign of damage. Inspect the safety belt retainers at least once a year. Check for loosened parts or belt damage such as cuts, frays, faulty or considerable wear, discolouration or abrasion. Change parts using only approved spare parts for the relevant machine.

Passengers

No passenger on board is allowed unless a special seat is provided and the driver's view is not obstructed. Carrying persons on the tractor in other positions, for instance on the front loader, is absolutely forbidden.

2.3.21 Harmful products

Though closed, the cab does not protect against breathing vapours, aerosol or dust. Follow the instructions of the chemical product manufacturer about protection against harmful chemical substances. If the pesticide instructions indicate product requires a breathing protection, wear a suitable breathing equipment inside the cab. Before entering the cab, clean your shoes/boots by removing the mud or other contaminated particles. The chemicals for agricultural use could be harmful for your health and the environment if not used carefully. For efficient, safe and lawful use of the chemicals for agricultural use, always follow all instructions given on the labels. In case the tractor is used for treatments with pesticides, it is essential to:

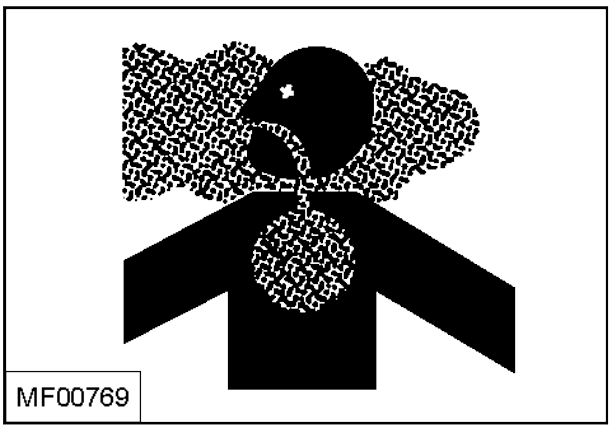


Fig. 10

- Use the appropriate personal protections.
- Attend specific training for efficient use of the personal protections.

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- Do not leave any vessel containing or that contained harmful products inside the cab.
- Take off any dirty shoes and clothes before entering the cab.
- Keep cab clean inside.
- Ensure that the cab filters are in good conditions and correctly installed. Ensure that the seals are in good conditions. Change filters if they have holes or are worn.
- Do not blow inside filters.
- Always duly dispose of vessels. Rinse at least three times any empty vessel, pierce them or crush them and duly dispose of.
- Follow respective manufacturer's instructions for pesticides, personal protections, filtering elements and sprayers. Comply with national health and safety regulations.
- Store chemicals in a safe and locked place, away from food and fodder. Keep away from children.

2.3.22 Filtering Rate

The decal on the vehicle indicates the category and gives information about protection against harmful substances such as: dust, fumes, aerosols etc.

Category 1 cab definition

The cab meets requirements set in EN 15695–1. This means that cab ventilation and filtering system does not offer any specific protection against harmful substances, but only protects from bad weather (rain, wind, snow, etc.).

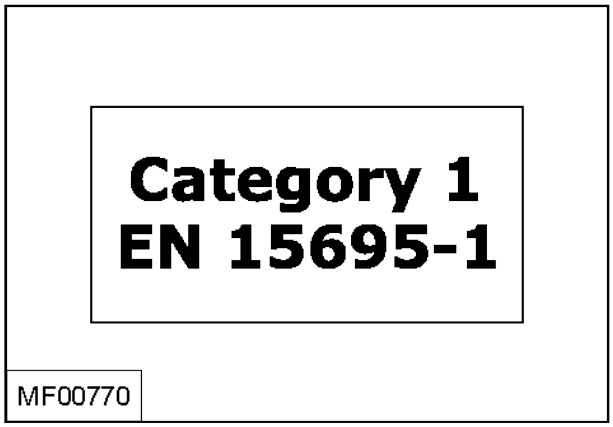


Fig. 11

Category 2 cab definition

The cab meets requirements set in EN 15695–1. This means that cab ventilation and filtering system does offer specific protection against ingress of dust, keeping a minimum pressure head. The required filtration of the external air can be obtained using the air conditioning and setting the fan to max. speed with doors, roof and windows closed.

CAUTION:
Category 1 cabs do not offer complete protection against ingress of dust, aerosol and vapours. Category 2 cabs protect against ingress of dust, and only in part does it protect against ingress of aerosol and vapours. Read and follow the instructions given by the manufacturer of the chemicals used (such as pesticides, fungicides, weed killers, etc.) further to the ones given by the sprayer manufacturer. Use the appropriate personal protection equipment and clothes (PPE) whenever those instructions so require, in particular if tractor has no cab but even if working inside the cab.

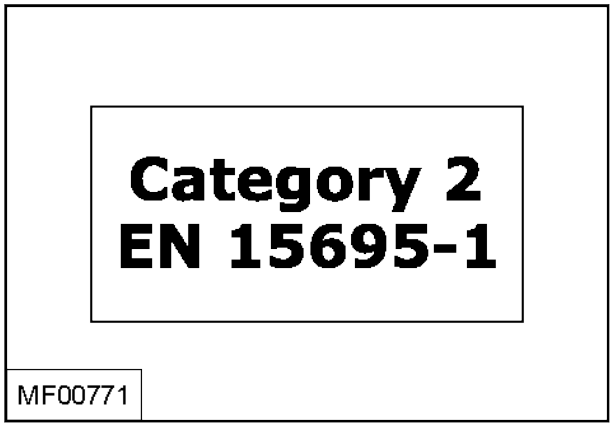


Fig. 12

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2.3.23 Fuel Circuit - Handling waste product

Fuel Circuit

The high-pressure fluid remaining in the fuel lines could cause serious injury. Only authorised technicians are allowed to make repairs.

Handling waste product

Incorrect disposal of waste could negatively affect the environment and the ecological balance. Potentially dangerous waste derives from:

- oil
- diesel fuel
- refrigerant fluid
- brake fluid
- filters
- batteries

Use sealed vessels when draining fluids.

Do not use food or drink containers that might be misleading and induce drinking of their content.

Do not discharge waste in the soil, drainage system or water courses.

Air conditioning refrigerant fluids dispersing outside could alter the atmosphere.

It is recommended to have A/C refrigerants collected and recycled by qualified waste centres, especially if so required by law.

2.3.24 Servicing tyres safely

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

Do not attempt to mount a tire without the proper equipment and experience to perform the job.

Always maintain the correct tire pressure.

Do not inflate the tires above the recommended pressure.

Never weld or heat a wheel and tire assembly.

The heat can structurally weaken or deform the wheel or lead to tire explosion.

When inflating tires, use a hose long enough to allow you to stand to one side and not in front of the tire.

Use a protection cage, if necessary and available.

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

2.3.25 Parking - towing - transporting

Parking the tractor safely

Before working on the machine:

- Lower any implement possibly connected to the ground.
- Engage the hand brake.
- Stop engine and remove key.
- Disconnect battery negative cable.
- Set a warning panel saying ‘DO NOT USE’ in the driving place.

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Towing the vehicle

The best way to move a faulty tractor is to carry it on the bed of a truck. In case of towing need, comply with the following instructions:

- Start the engine (idle speed)

CAUTION:
If it is not possible to start the engine, consult an authorised workshop to find out the possibility of towing with the engine off.

- Take reverser lever to neutral.
- Set power take-off to neutral.
- Disengage the hand brake.
- Set the gear and range shift levers to neutral position.
- Make sure the slow or very slow range are disengaged.

IMPORTANT:
Start the engine to ensure transmission lubrication during transport. Maximum engine rpm should be 1000 rpm. The tractor could be towed only under exceptional cases, solely at low speed (below 5 kph) and over a short distance (below 2000 m). Should it be necessary to cover a longer distance, load and safely anchor the tractor onto a trailer.

IMPORTANT:
With the engine off, transport the tractor only using a trailer (or transmission risks to seize). Consult an authorized service center to learn about how to tow the tractor with engine off.

IMPORTANT:
Failure to stick to the above instructions could seriously damage the transmission.

CAUTION:
Avoid injury! Incorrect towing procedures can cause accidents. When towing your machine, follow the procedure in this manual. Failure to comply could result in death or serious injury.

Transporting the vehicle on a truck

The best way to move a faulty tractor is to carry it on the bed of a truck. When tractor is in place on the truck:

- Stop the engine
- Engage the hand brake
- Block the wheels
- Fasten tractor to truck by means of slings or chains. Tractor axles and frame are suitable anchor points
- Ensure all objects are fastened to truck or tractor to avoid any object projection during transport
- Remove the key

Before carrying the tractor on a truck with lowered loading platform or on a flatcar, ensure the hood on tractor engine is well fastened and that doors, sunroof (if any) and windows are duly closed.

2.3.26 Data sheet on tractor's vibration level - hazards due to exposure to vibrations

Vibrations transmitted to the body depends on several parameters, some of them are connected to the machine, some to the ground or surface on which machine runs, and many others are specific to the driver. Factors concerning the ground surface conditions and speed prevail.

Machine-transmitted vibrations cause inconvenience to the operator and might, in some cases, jeopardise health and safety. Ensure the machine is in good conditions and that service and maintenance have been duly carried out at the scheduled intervals. Check tyre pressure and steering and brake efficiency. Check that the driver's seat and the relevant adjustment devices are in good conditions, then adjust the seat according to operator's build and weight.

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IMPORTANT: *Please refer to the specific publications for any further information about the Whole Body Vibrations (WBV) transmitted by tractors and see any local regulations concerning the corresponding risks. To correctly assess statistical values based on tractor daily use, use a specific gauge such as a 3-axis accelerometer for the seat.*

The Valtra F series tractors meet the sound level requirements in accordance with regulation (EU) 1322/2014 - annex XIII and regulation (EU) 96/2015 - annex III.

2.3.27 Regulation (EU) 1322/2014 - Annex XXII - Safety aspects in accordance with regulation and subsequent amendments and modifications

Section 2

A - Ergonomic adjustments to the operator's seat.

In order to gain maximum comfort and ergonomic positioning, make sure the seat is properly adjusted before operating your vehicle. This reduces the effects and risks that arise from whole-body vibrations. Please refer to the part of manual for specific adjustment instructions and for further information on the effects and risks of whole-body vibrations.

B - Cab climate control system

Carefully read and get to know the instructions for using and operating the heating, ventilation and air-conditioning (HVAC). In order to protect against dust and to ensure that the machine maintains a minimum pressure differential, always use the ventilation and filter system correctly.

To correctly filter external air, you must:

- Close all doors, windows and/or shutters.
- Activate the air conditioning.
- Set the fan to a higher speed.

C - Safely starting and stopping the engine

To ensure safe use, before using the machine, you must read and get to know the instructions contained in this manual regarding starting and stopping the engine. When using the machine, follow the instructions provided in this manual.

D - Emergency exit

The rear window of the machine can be used as an emergency exit. A safety signal indicates which window to use.

E - Getting on and off the machine

Hastily getting on or off the machine can cause injuries. Always look towards the machine, use the hand rail and the steps and get on or off slowly. Maintain contact at three points to avoid falling: both hands on the hand rail and a foot on the step or a hand on the hand rail and both feet on the steps.

F - Articulated machines

This rule does not apply to this/these model(s).

G - Special tools

This rule does not apply to this/these model(s).

H - Assistance, maintenance and safety

Improper operation or service of this machine can result in an accident.

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- Do not operate this machine or carry out any lubrication, maintenance or repair work without first carefully reading the information on operation, lubrication, maintenance and repair.
- Read and understand the SAFETY INSTRUCTION chapter before you perform any maintenance, service, or repairs.
- Carefully read the specific maintenance procedures for the components on which you will be working before carrying out machine maintenance.

When assembling, operating, or servicing the machine, wear protective clothing and the Personal Protective Equipment (PPE) that is required for the particular procedure. The required PPE includes:

- Protective shoes.
- Eye/face protection.
- Hard hat.
- Protective gloves.
- Filter mask.
- Ear protection.

When maintenance must be carried out at high altitude:

- Properly use the machine steps, the ladder and/or the hand holds.
- Do not get on machine surfaces that are not designed to be used as steps or platforms.
- Where necessary, use a suitable ladder to reach certain parts such as mirrors, rotating beacons or air filters.
- Never use the steps, ladder and/or hand holds while the machine is moving.
- Do not use the machine as a lift, ladder, or platform for working at heights.

If a maintenance procedure is not clear or if you have doubts regarding your ability to correctly perform a maintenance procedure, contact an authorized dealer.

Unauthorized modifications to the machine can have serious consequences. Contact an authorized dealer for any variations, additions or changes that the machine may require. Do not make any unauthorized modifications.

I - Hydraulic hoses

Check hydraulic hoses periodically. Refer to the Maintenance chapter for general precautions to take during checks. The operator does not need to carry out any maintenance on the hoses. Always contact your dealer to repair or replace hydraulic hoses.

K - Machine towing

Towing incorrectly can cause accidents. When towing a machine, follow the procedure described in this manual.

K - Using jack sockets

Only connect the machine to the connection points listed in this manual.

L - Batteries and fuel tank

Please refer to the part of manual for battery maintenance operations and for instructions on refuelling the machine.

When working on the machine batteries, take the following precautions:

To prevent an explosion:

- Always disconnect the negative cable (-) of the battery first.
- Always connect the negative cable (-) of the battery last.
- Do not short circuit the battery posts with metal objects.
- Do not weld, grind or smoke near the battery.

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- Do not create sparks or have open flame near the battery.
- When using auxiliary batteries or connecting booster cables to start the engine, use the procedure shown in the operator's manual.

Charge the batteries properly. Batteries emit explosive hydrogen and other vapours when being charged.

- Ventilate the charging area.
- Keep the battery away from sparks, naked flames and other sources of ignition.
- Never charge a frozen battery.

Avoid contact with battery acid. Battery acid can cause burns. Batteries contain sulfuric acid.

- Always wear eye protection when you work with batteries.
- Avoid contact with skin, eyes or clothing. Seek immediate medical assistance if contact occurs.
- Antidote (in case of external contact): rinse with water.
- Antidote (eyes): rinse with water for 15 minutes and call a doctor immediately.
- Antidote (in case of swallowing): drink a lot of water or milk. Do not induce vomiting.

Battery post, terminals, and related accessories contain lead and lead compounds. Wash hands after handling them.

Follow the manufacturer's instructions when you store and handle batteries.

Keep batteries out of reach of children and other unauthorized persons.

M - Danger of overturning

Do not use the machine on a slope or in other conditions that exceed the limits set out in this manual. Using the machine beyond these limits may result in roll over or tip over. Follow the recommendations in this manual. Pay particular attention when travelling on steep slopes with the tractor loaded.

Do not operate the machine on or near verges of ditches, canals, brooks or banks with bottoms that are loose or dug out by rodents. The machine may sink sideways and roll over.

Do not operate the machine on:

- Unstable crossings or bridges
- Soft surfaces
- Surfaces that cannot hold the weight of the machine

These structures may collapse or give way and cause the machine to overturn.

Always inspect the condition and carrying capacity of bridges and ramps before crossing.

Seat belts are an integral part of the protection against overturning (ROPS) and must be worn at all times. The operator must be held to the seat inside the frame in order for the protective system to work.

Always observe the machine's dynamic stability limits. Sudden or high-speed manoeuvres increase the risk of the machine overturning. Driving around bends at high speed or very close to their edges increases the risk of the machine overturning.

Do not use the machine for towing if the load retention is unknown (for example, when transporting logs). The machine may flip over backwards if the load doesn't hold.

Be extremely cautious when working with the machine on forage silos without concrete side ditches. Dual wheels or a wide track setting may improve the lateral stability of the machine.

Remember that the machine's centre of gravity could increase if loads are raised by a front loader or a three-point hitch. In these conditions, the machine may rollover earlier than expected.

NOTE:
the list provided does not include every possible risk. When using the machine, follow the instructions provided in this manual.

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N - Risks arising from contact with high-temperature surfaces

Wait for all the components to cool before doing any work. Do not handle any service fluid (engine coolant, engine oil, hydraulic oil, etc.) at temperatures exceeded. Let liquids cool.

O - Falling Objects Protective Structure (FOPS)

The machine is not equipped with a type-approved FOPS protection structure.

P - Operator Protective Structure (OPS)

The machine is not equipped with a type-approved OPS protection structure.

Q - Contact with overhead power lines

Contact with overhead power lines can cause severe electrical burns or death from electrocution. Refer to this manual for the safety measures to adopt in the event of contact between the machine and the power source.

R - Safety in the event of storms

Do not operate the machine during a thunderstorm.

S - Cleaning mudguard edges

Mudguards and/or bumpers must be regularly cleaned.

T - Proper use of tires

A tire can explode during inflation. Observe the following maintenance points:

- Properly position the tire before inflating it.
- Never force a partially or completely inflated tire.
- Do not exceed the manufacturer's recommended load or inflation pressure.

U - machine stability in the event of using heavy connected tools

To prevent machine instability, consider and follow the machine stability requirements in this manual.

V - machine stability on uneven or sloping terrain

Always be aware of the effect of incline sand steep hills on machine stability. Operating, handling, and braking performance may be affected. Adjust ballast weight and driving speed accordingly to ensure stable and accurate steering, and to ensure the required brake performance in critical situations.

Do not use the machine beyond its limits of terrain gradient and stability. Using the machine beyond these limits may result in roll over or tip over. Follow the recommendations in this manual. Pay particular attention when travelling on steep slopes with the tractor loaded.

W - Passengers

A folding passenger seat is available for some markets where local legislation permits. Do not allow children on the machine. Wear a seat belt at all times.

X - Required operator training level

See the instruction of the manual

Y - Safe vehicle loading

Always observe the machine's load limits.

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Z - Safe methods for rear towing

Avoid rear upset. Attach the equipment to the correct part of the machine. Do not use the hitch as if it were a drawbar if the horizontal load exceeds the maximum value indicated in the Specifics section.

AA - Battery isolators

The battery isolator disconnects the battery from the main electrical circuit. Refer to the manual for battery isolator switch positions ana for use the battery isolator.

AB - Seat belts

Wear the seat belt at all times when operating the machine.

AC - Auto guidance system(s)

The machine is not equipped with an auto guidance system.

AD - Safely using the folding Rollover Protective Structure (ROPS)

It is possible to temporarily lower the folding ROPS on this machine in order to access areas where overhead space is limited. Always follow the instructions in this manual when folding and opening the ROPS, and use the seat belt correctly

AE - Consequences of rolling over with folding rollover protective structure

Using machines without a cab with the ROPS folded could cause accidents in the event of rolling over. To avoid the risk of crushing:

- Always fasten the seat belt when operating the machine with the ROPS in an upright position. If the ROPS is in the folded position, the seat belt should not be used. Raise the ROPS and wear the seat belt as soon as conditions allow.
- DO NOT operate this machine with the ROPS removed. Only remove the ROPS where necessary to carry out maintenance operations or to replace it.

AF - Correct use of a folding Rollover Protection Structure (ROPS)

When using machines that do not have a cab, the operator can fold the ROPS in areas where overhead space is limited, for example in orchards and vineyards or in structures such as greenhouses. The operator is not provided with any protection when using machines with the ROPS folded. In areas where overhead space is limited, opera- tors must raise the ROPS as soon as they have finished working.

AG - Greasing points

Please refer to this manual's maintenance chapter to locate the greasing points. Carry out required greasing as per the listed intervals.

AH - Seats and whole-body vibrations

Ensure that the operator correctly adjusts the seat position to limit the risks arising from whole-body vibrations. Please refer to the Safety information chapter for further details on the effects and risks of whole-body vibrations.

Section 3

A - Instructions on mounted or towed machines, including trailers

The machine is a multifunction machine, designed to tow, transport and operate various equipment. This manual alone does not provide all the information regarding the safe use and operation of the various configurations. Only use authorized accessories. Always thoroughly read the manual or instructions

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supplied by the manufacturer to avoid injury or damage. Be aware of the operation and safety instructions before you attach, remove, or operate the equipment.

B - Three-point hitch and tow hook

Always stay clear of the implement operating area. In particular, DO NOT stand between the machine and the towed vehicle or between the three-point hitch when operating the lift controls. Make sure no bystanders are within or near these operating areas.

C - Position mounted tools before moving away from the machine

To avoid injury, lower all components, equipment or tools to the ground before leaving the cab.

D - Power Take-Off (PTO) Speed

Always use the recommended PTO speed for the tool. Consult the tool's operator manual for the correct speed.

- Match the PTO spline and speed with the PTO drive shaft provided with a tool. This will assure proper geometry and operating speed.
- Never operate tools from 540 RPM to 1000 RPM.
- Never operate tools from 1000 RPM to 540 RPM.

E - Power Take-Off (PTO) guards

Avoid tangling with the PTO. The Power Take-Off (PTO) guard must be in place for most operations to prevent death or injury while the PTO is operating. When attachments like pumps are attached to the PTO - where the guard is moved upward or removed - shielding equal to the PTO guard must be installed with the attachment.

F - Hydraulic coupling devices

The machine is equipped with a pressurized hydraulic system. Before disconnecting the couplers, you must:

- Lower the connected tools.
- Switch off the engine.
- Move the control levers forward and backward to discharge pressure from the hydraulic system.

Please refer to the manual for detailed information on the position and identification of hydraulic valves and couplers. Also read the instructions for use.

G - Lift capacity of the three-point linkage

Refer to the manual for the maximum hoisting capacity of the three-point hitch and for information on how to laterally and/or vertically adjust the three-point hitch.

H - Determination of the total weight, the loads on the axles, the permissible loads for the tires and the minimum required ballast

To avoid loss of control, always observe the tire pressure and maximum load capacities recommended by the manufacture when using the machine at high speed. Consult your authorized dealer or tire supplier for the correct pressures and load capacities of the tires fitted to your machine. For the total weight of the machine, for the maximum load capacity on the axles and the load of the tires and for information on the weight of the machine, please refer to the manual.

I - Ballast weights

Valtra advises you to equip your machine with suitable ballast weights as follows:

- Every time the machine requires higher traction to increase its grip to the ground.

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- In order to improve the machine's longitudinal stability when using very long and heavy tools.

Using very long and heavy tools can affect the machine's stability. Valtra advises that you ballast the machine with blocks of iron.

The counterweights are very heavy. Always use certified lifting equipment to remove and install counterweights. Ensure that the hardware securing the weights is correctly installed on the machine and that mounting bolts are fully tightened before operating the machine.

Clear the area around and underneath the counterweight removal and installation system before installing and removing them. Keep all unauthorized personnelclear of the area. Ensure that the lifting equipment and cables are in good condition and able to support the weight of the counterweights.

J - Trailer braking systems

Always check compatibility with the towed vehicles or equipment. In addition to the information provided in this manual, read and follow the instructions provided by the trailer manufacturer.

K - Vertical load on tow-hitch

To find out the maximum vertical load permitted on the tow hook, please refer to the manual.

L - Implements with Power Take-Off (PTO) drive shafts

All the PTO versions available for this machine, have been designed byValtra in compliance with the **ISO 501-1:2014** standard. The extent of the clear zone can be limited by using mobile or detachable devices. The clearance zone for towing vehicles must comply with **ISO 6489-3** and **ISO 5673-2:2005** standards.

M - Maximum permitted tow weights

The plate showing the authorization information for the type of machine shows the maximum permitted weights relative to the trailer.

N - Area between the machine and the tool or vehicle

Always stay clear of the tool operating area to avoid accidents. In particular, DO NOT stand between the machine and the towed vehicle or between the three-point hitch when operating the lift controls. Make sure no bystanders are within or near these operating areas.

O - Factory-installed tools

Not applicable externally to these models

Section 4

Noise declaration

Valtra measures noise levels in accordance with European Regulations:

- Regulation **(EU) 2014/1322** - Annex XIII - test method 2 (internally measured at the operator's ear).
- Regulation **(EU) 2015/96** - Annex III (externally measured).

For the values specific to the machine, please refer to manual.

Section 5

Vibration declaration

Valtra measures vibration levels in compliance with Regulation **(EU) 2014/1322**- Annex XIV. For the values specific to the machine, please refer to manual.

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Section 6.1

Using a front loader

Safety regulations - Lifting tools and suspended loads provides information on the dangers associated with using a front loader. Read and get to know this information before using the front loader. When installing a front loader, always refer to the loader manufacturer's operator manual and recommendations in addition to the information provided in this manual.

Section 6.2

Forestry use

The machine is not equipped for forestry use.

Section 6.3

Using mounted, semi-mounted or towed sprayers

When using an agricultural machine that is equipped with sprayers, beware of the following dangers:

- Risks arising from spraying hazardous substances (the machine may or may not have a cab).
- Risks arising from entering or exiting the cab when spraying hazardous substances.
- Risks related to possible contamination of working environment.
- Risks related to cleaning the cab and servicing the air filters.

The machine may be equipped with a type-approved cab in accordance with **EN 15695-1:2009**. To find out the cab category in accordance with **EN 15695-1:2009**, refer to its identification plate.

For protection against hazardous dust, aerosols and vapours, refer to the instructions provided by the chemical agent supplier, the sprayer manufacturer and the basic rules contained in this manual. Always use Personal Protective Equipment (PPE) and any other special device as advised by the chemical agent manufacturer, when using the sprayer.

2.3.28 Getting in and out of the machine

WARNING:
Fall hazard! Jumping on or off the machine could cause an injury. Always face the machine, use the handrails and steps, and get on or off slowly. Maintain a three-point contact to avoid falling: both hands on the handrails and one foot on the step, or one hand on the handrail and both feet on the steps. Failure to comply could result in death or serious injury.

Get on and off the machine only by using the specific accesses equipped with a handrail, steps or ladder.

Do not jump off the machine.

Check that the steps, ladders and platforms remain clean and clear of debris and foreign matter. Slippery areas can be a cause of accidents.

Never get on or off the machine while in movement.

Do not use the steering wheel or any other controls or accessories as a handrail when getting into or out of the cab.

2.3.29 Emergency Exit

In an emergency exit the cab through the cab doors. It is also possible to exit the cab through the open rear window.

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Exit Through Doors

To open, pull down the latch (A) and the push door (B) outwards.

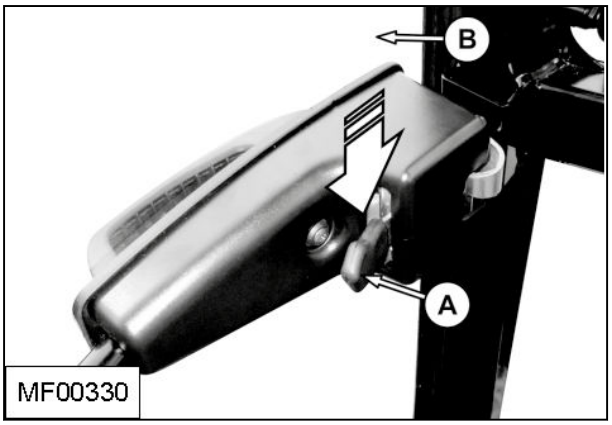


Fig. 13

Exit Through Rear Window

To open, turn the lever (C) to the left and push the window (D) outwards.

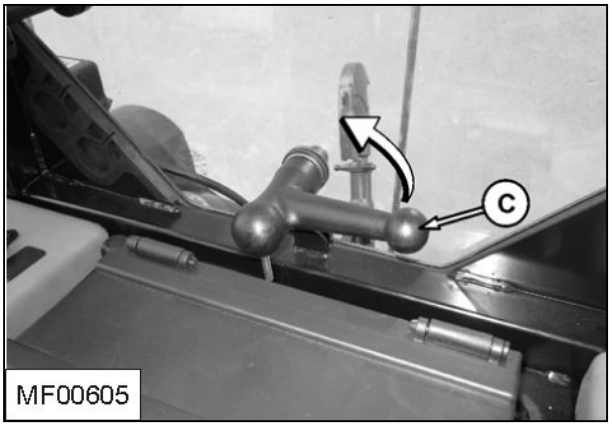


Fig. 14

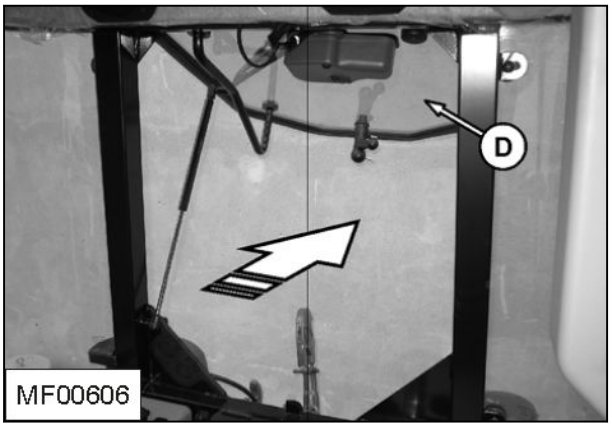


Fig. 15

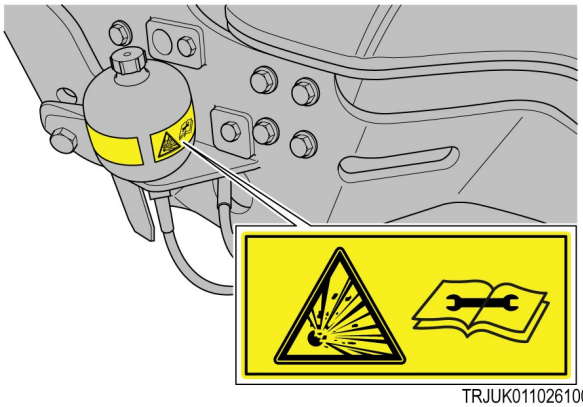
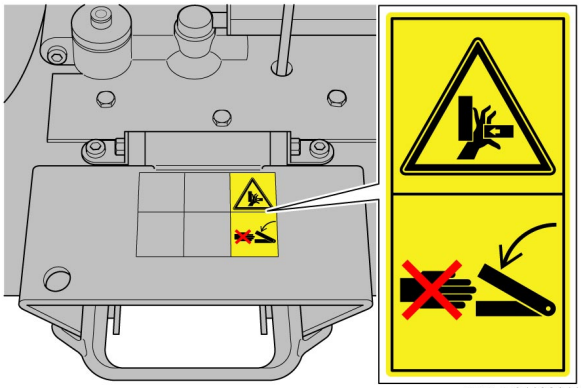
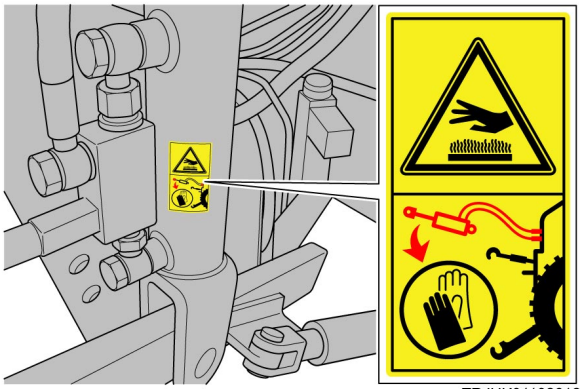
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2.4 Safety decals

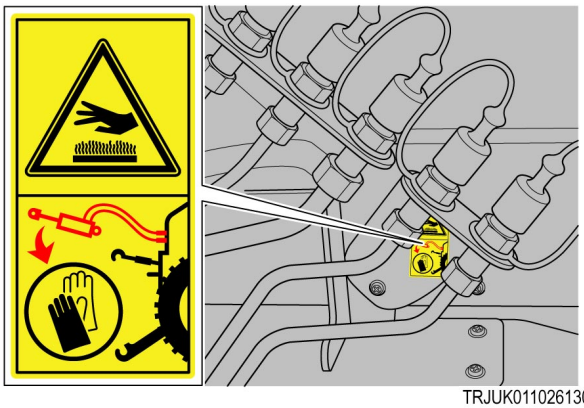
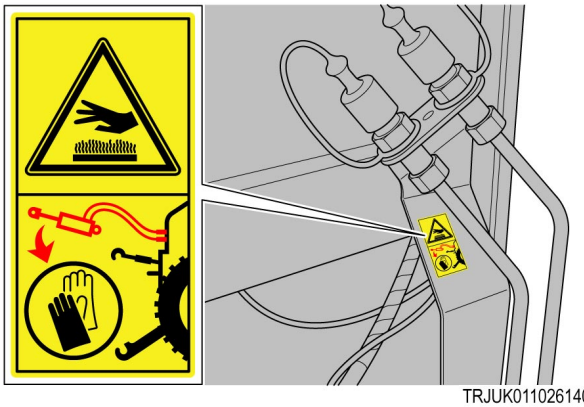
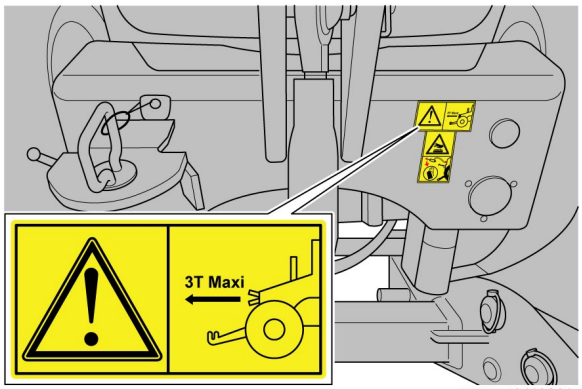
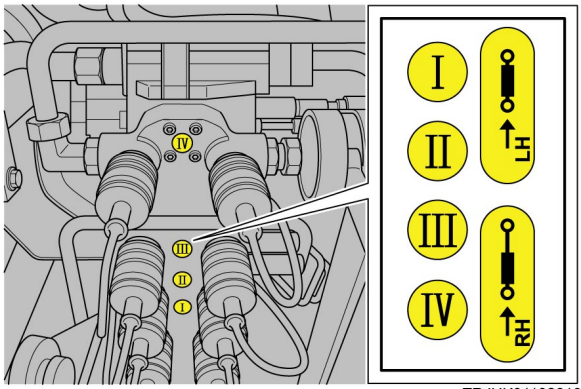
Replace the safety decals that are not possible to read or are missing. The replacement decals are available from an approved dealer. If you buy an used machine, make sure that the safety decals are:

- The correct type
- Correctly attached
- You can read them.

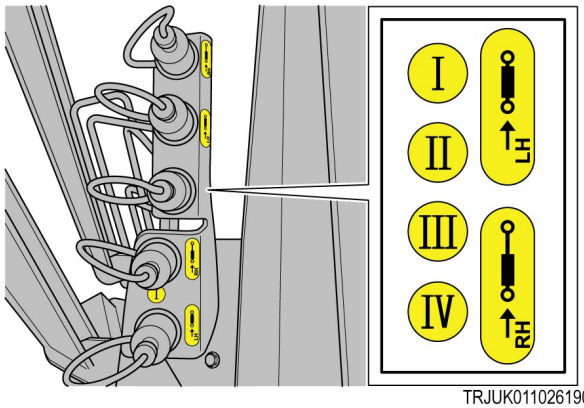
Some decals are possibly not on the machine, because of the local regulations.

Description	Decal
The hydraulic accumulators contain the gas and oil at pressure Risk of explosion. Only approved personnel can do work and maintenance on accumulators.	 TRJUK0110261001
Hitch When you install (or remove) an implement, there is a crush risk in the area between the machine and the implement. Keep away from the hitch components while you operate the hitch.	 TRJUK0110261101
Hydraulic lines and hydraulic components Rear hitch, front hitch and front distributor unit The components in the hydraulic system can become hot. Do not touch hot surfaces of the hydraulic system, accessories, or hoses and lines, it can cause personal injuries. Let the component cool, or put on personal protective equipment before you do the maintenance work on the hydraulic system.	 TRJUK0110261201

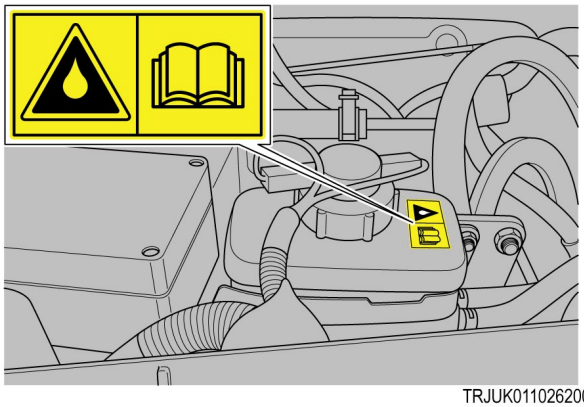
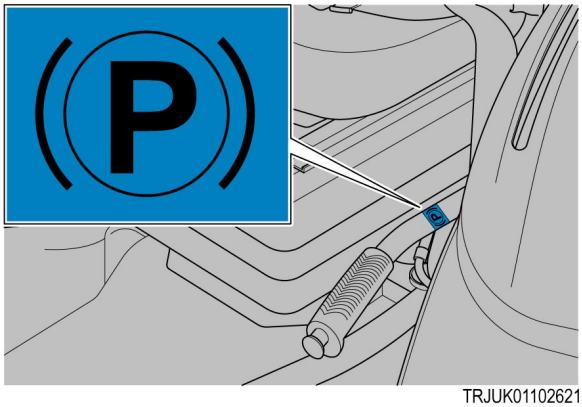
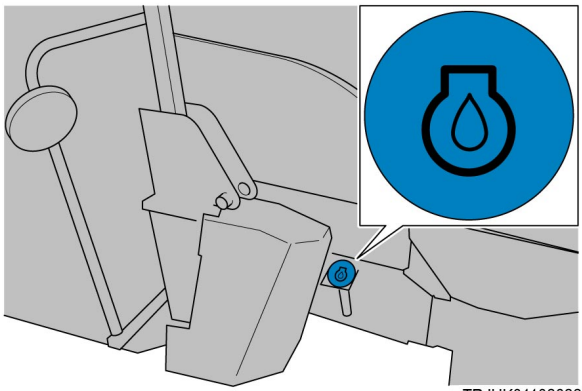
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Description	Decal
	 TRJUK0110261301
	 TRJUK0110261401
Front hitch Do not apply a force more than 3 t on the front drawbar.	 TRJUK0110261501
Auxiliary control valve Pressure connectors in the auxiliary control valve Refer to the maintenance schedule in the Operator's Manual for more data.	 TRJUK0110261801

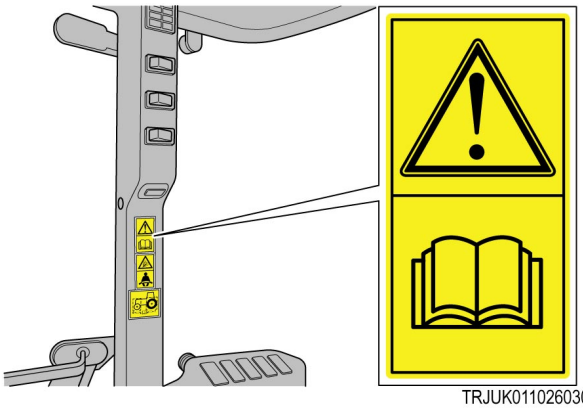
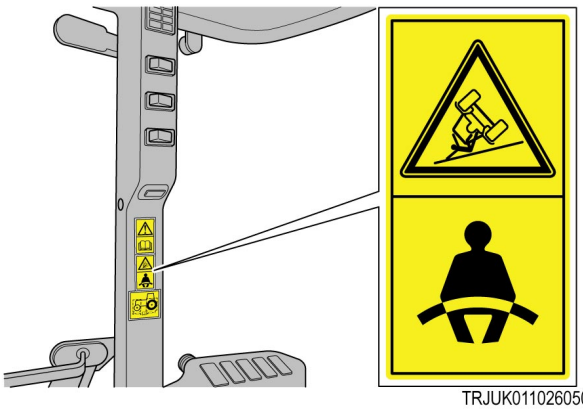
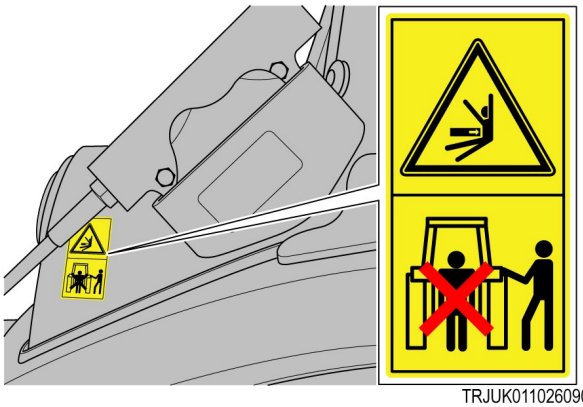
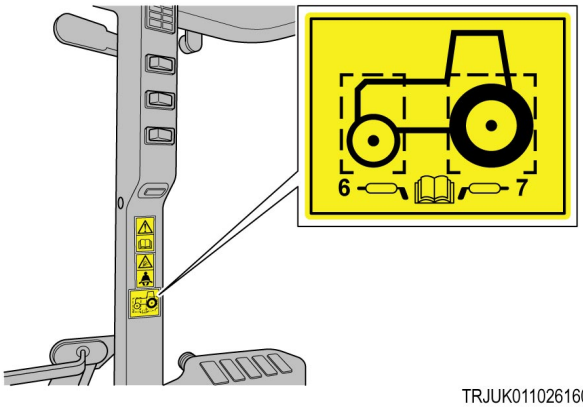
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Description	Decal
	 TRJUK0110261901

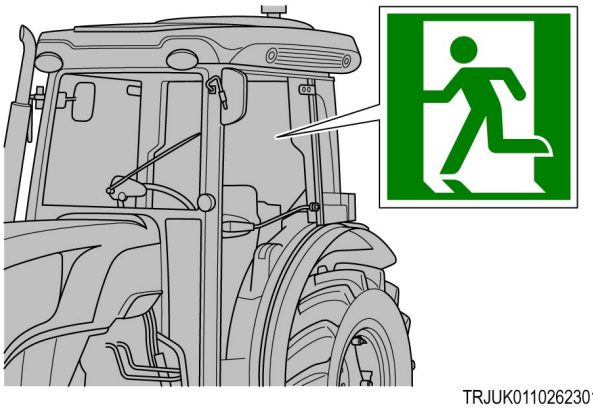
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Description	Decal
Brake fluid See the maintenance and lubrication section of this Operator's Manual for the correct servicing procedures for high pressure systems.	 TRJUK0110262001
Parking brake When you stop the machine, apply the parking brake.	 TRJUK0110262101
Engine oil Obey the specifications for the engine oil.	 TRJUK0110262201

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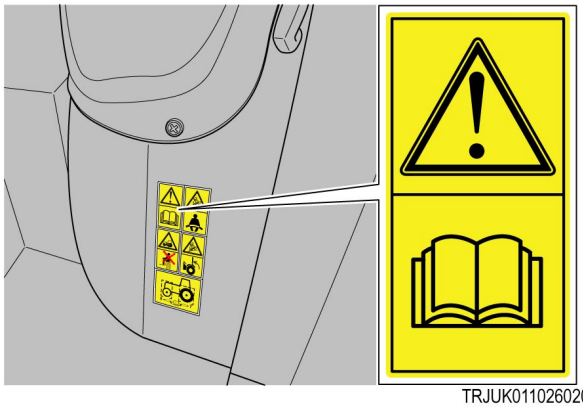
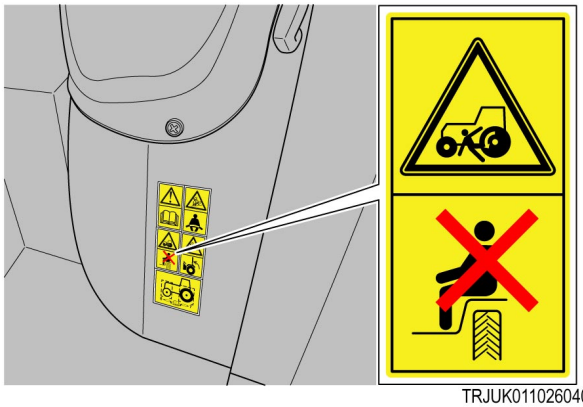
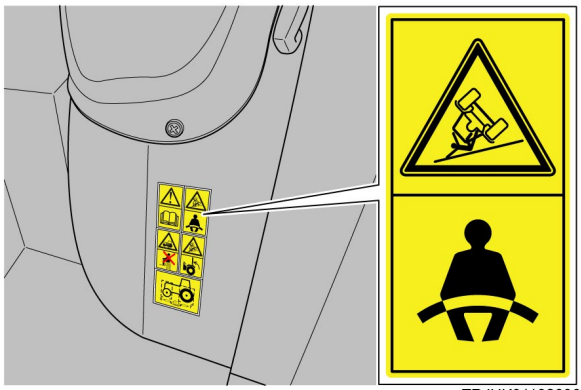
Description	Decal
Operator's Manual Read and understand all the warnings in the Operator's Manual Obey the safety instructions and always use the machine carefully.	 TRJUK0110260301
Seat belt Use the seat belt correctly. Hold the latch and pull the seat belt across the body. Install the latch into the buckle. Listen for a click. Pull on the seat belt to make sure that it attaches correctly. Tighten the seat belt across the body.	 TRJUK0110260501
Do not stay on the implement To prevent injury, do not stay on the implement (or between the implement and the machine) when you use the external (remote) controls.	 TRJUK0110260901
Lubrication Lubricate the machine. Refer to the maintenance schedule in the Operator's Manual for more data.	 6 7 TRJUK0110261601

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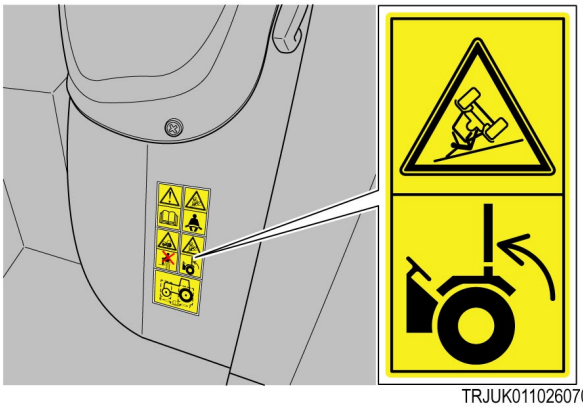
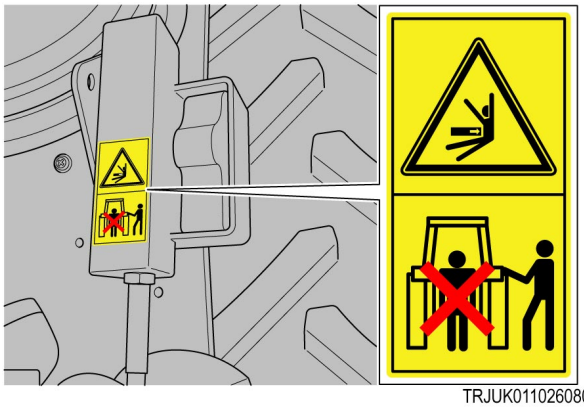
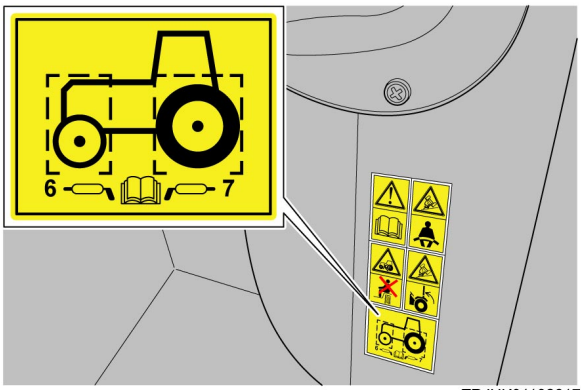
Description	Decal
Emergency exit If it is necessary, use the rear window as an emergency exit.	 TRJUK0110262301

With cab

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Description	Decal
Operator's Manual Read and understand all the warnings in the Operator's Manual. Obey the safety instructions and always use the machine carefully	 TRJUK0110260201
No persons permitted No persons permitted - do not let persons go on the machine or implement.	 TRJUK0110260401
Seat belt Use the seat belt correctly. Hold the latch and pull the seat belt across the body. Install the latch into the buckle. Listen for a click. Pull on the seat belt to make sure that it attaches correctly. Tighten the seat belt across the body.	 TRJUK0110260601

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Description	Decal
Overturn Risk that the machine can overturn. Keep the ROPS locked in vertical position.	 TRJUK0110260701
Do not stay on the implement To prevent injury, do not stay on the implement (or between the implement and the machine) when you use the external (remote) controls.	 TRJUK0110260801
Lubrication Lubricate the machine. Refer to the maintenance schedule in the Operator's Manual for more data.	 TRJUK0110261701

Without cab

Maintenance of the safety decals

- Make sure that the decal is in the correct position on the machine.
- Keep the safety decals clean. Clean the safety decals with soap and water. Do not use strong or abrasive materials or chemicals that can cause damage to the safety decals.
- Replace the safety decals that are missing or that are in a bad condition.
- Buy the replacement safety decals from an approved dealer.

How to install the safety decals

1. Make sure that the installation surface is clean and dry.

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2. Make sure that the temperature of the installation surface is not less than 5 °C (41 °F).
3. Find the correct position for the decal before you remove the cover paper.
4. Remove a small part of the cover paper.
5. Put the decal in the correct position on the installation surface. Carefully push the small part of the adhesive surface of the decal on to the installation surface.
6. Slowly remove the cover paper and attach the decal to the installation surface.
7. Make small air holes in the decal with a pin. Use the cover paper to make sure that the decal is flat.

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3 Operation

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3.1 First use

3.1.1 Layout of controls

3.1.1.1 Controls for the mechanical version with cab

Mechanical version

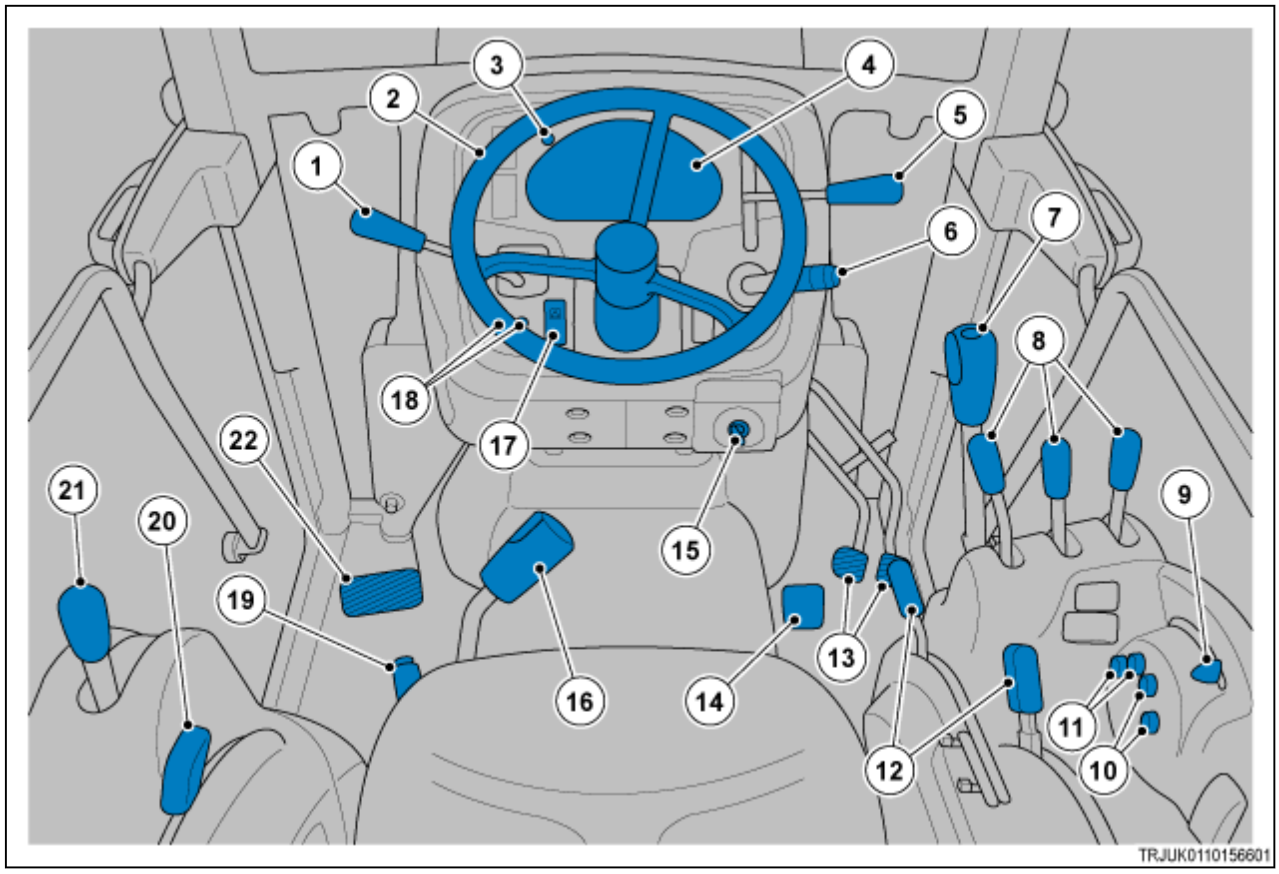


Fig. 1

(1) PowerShuttle lever
(2) Steering wheel
(3) Variable Forward Reach (VFR) control switch
(4) Instrument panel
(5) Speed range lever
(6) Road lamps and direction indicator switch
(7) Gear lever
(8) Hydraulic control levers
(9) Hand throttle lever
(10) Manual adjustment switch
(11) Cruise control switch
(12) Mechanical lift control levers
(13) Brake pedal
(14) Throttle pedal
(15) Ignition key switch
(16) Range lever
(17) Hazard light switch
(18) Digital display controls
(19) Parking brake lever
(20) Selection lever for the PTO mode
(21) Mechanical PTO clutch lever
(22) Clutch pedal.

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3.1.1.2 Controls for the mechanical version with ROPS

Mechanical version

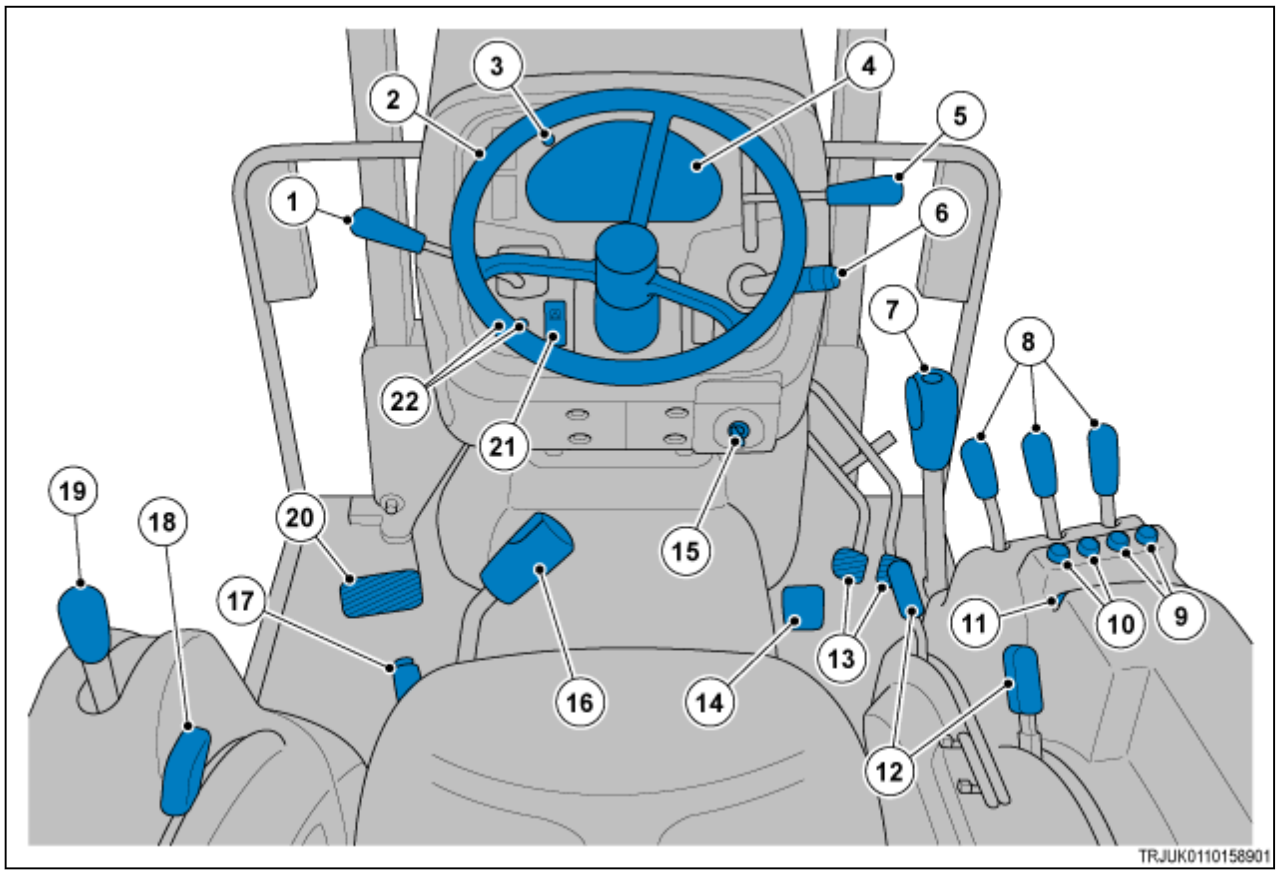


Fig. 2

(1) PowerShuttle lever
(2) Steering wheel
(3) Variable Forward Reach (VFR) control switch
(4) Instrument panel
(5) Speed range lever
(6) Road lamps and direction indicator switch
(7) Gear lever
(8) Hydraulic control levers
(9) Manual adjustment switch
(10) Cruise control switch
(11) Hand throttle lever
(12) Mechanical lift control levers
(13) Brake pedal
(14) Throttle pedal
(15) Ignition key switch
(16) Range lever
(17) Parking brake lever
(18) Selection lever for the PTO mode
(19) Mechanical PTO clutch lever
(20) Clutch pedal
(21) Hazard light switch
(22) Digital display controls.

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3.1.1.3 Controls for the PowerShuttle low specification version

PowerShuttle low specification version

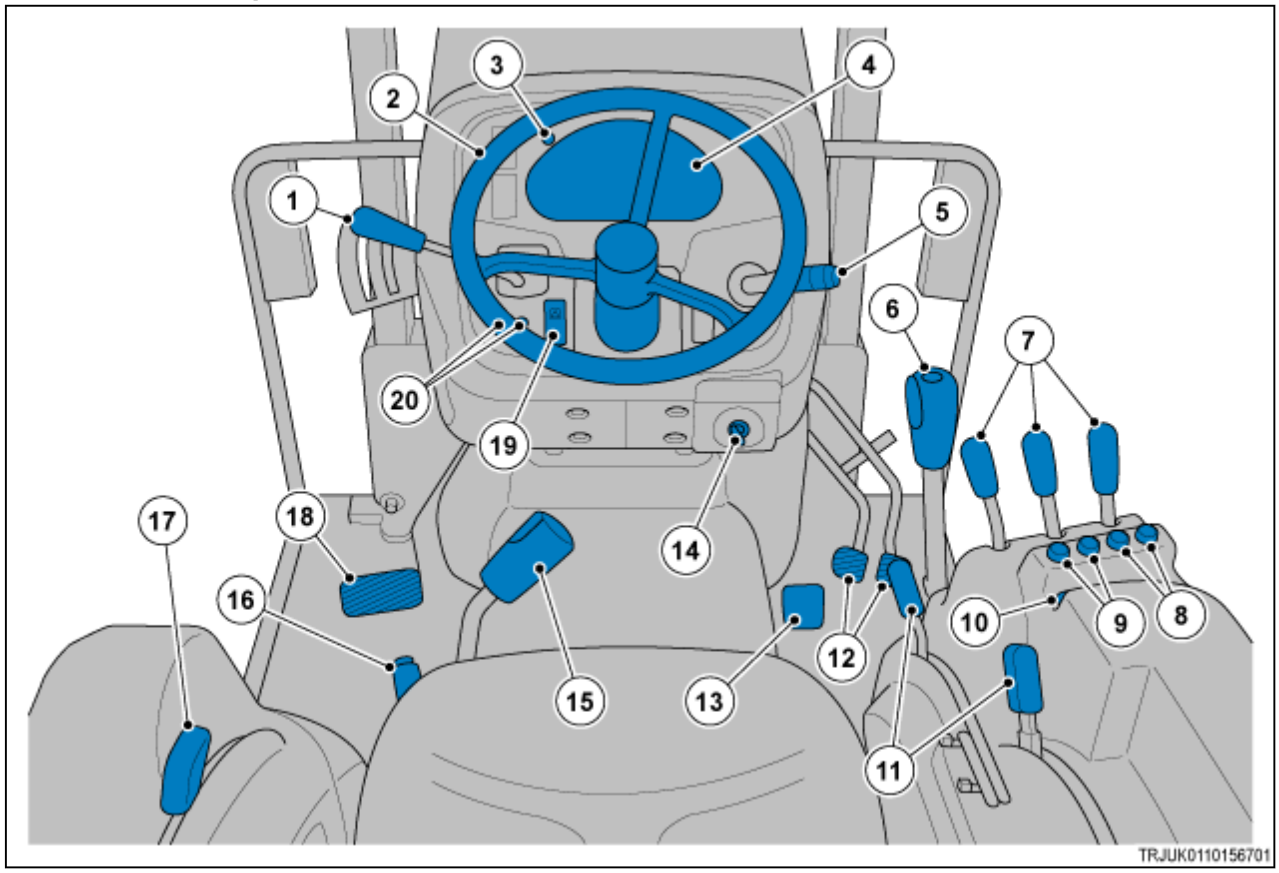


Fig. 3

(1) PowerShuttle lever
(2) Steering wheel
(3) Variable Forward Reach (VFR) control switch
(4) Instrument panel
(5) Road lamps and direction indicator switch
(6) Gear lever
(7) Hydraulic control levers
(8) Manual adjustment switch
(9) Cruise control switch
(10) Hand throttle lever
(11) Mechanical lift control levers
(12) Brake pedal
(13) Throttle pedal
(14) Ignition key switch
(15) Range lever
(16) Parking brake lever
(17) Selection lever for the PTO mode
(18) Clutch pedal
(19) Hazard light switch
(20) Digital display controls.

3.1.2 Transmission control levers

3.1.2.1 PowerShuttle lever

You can control the direction of the machine with the PowerShuttle lever. It has 3 positions:

- Up = Forward travel
- Middle = Neutral
- Down = Rearward travel

IMPORTANT:
Move your foot fully away from the clutch pedal when you are not operating the clutch. This stops the unwanted wear of the clutch.

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IMPORTANT:
To prevent damage to the transmission, do not change the speed while the machine moves.

Before you use the PowerShuttle lever:

- Put the range lever and the gear lever in the neutral position.
- Start the engine.
- Select the range and the gear speed.
- Set the engine speed.

PowerShuttle lever (mechanical version)

Press and hold the clutch pedal. Then move the PowerShuttle lever (A) from neutral to forward or reverse gear position to select the travel direction.

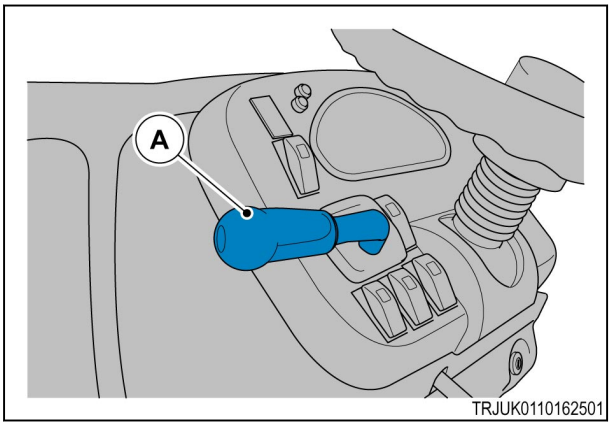


Fig. 4

PowerShuttle lever (hydrostatic version)

Set the speed range to the slowest speed. Then lift and move the PowerShuttle lever (A) to the forward or rearward position. When the PowerShuttle lever (A) is in the neutral position, the indicator light "N" on the display illuminates.

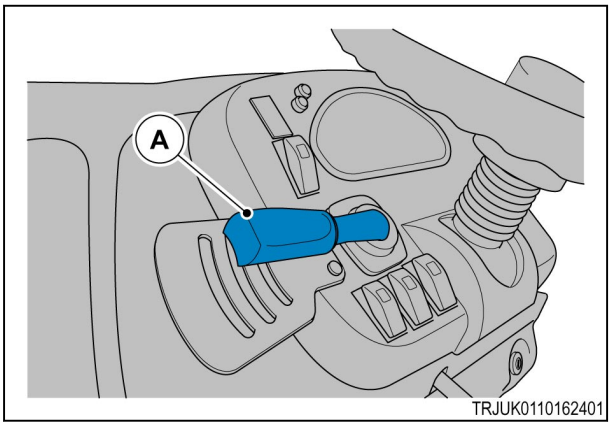


Fig. 5

3.1.2.2 Gear Lever

Operate the gear speed selection through the gear lever, found on the right side of the driver's position. Before you move the gear lever, push the clutch pedal, select the gear and gradually release the clutch pedal to gradually apply the load. You can also set the gear speed when the tractor moves.

https://truckmanualshub.com/

(A) Mechanical gear lever

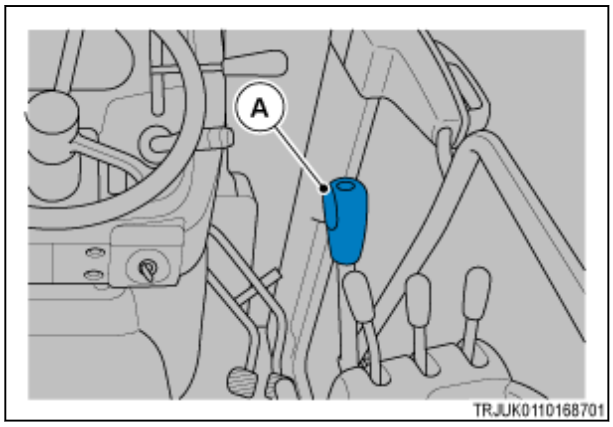


Fig. 6 Cab version

(A) Mechanical gear lever

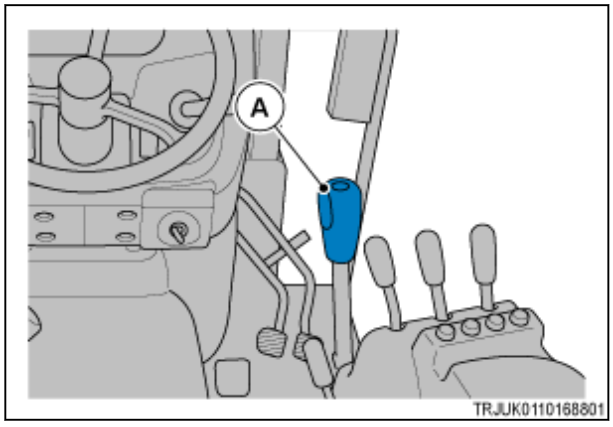


Fig. 7 ROPS version

(A) Mechanical gear lever with high or low electronic buttons

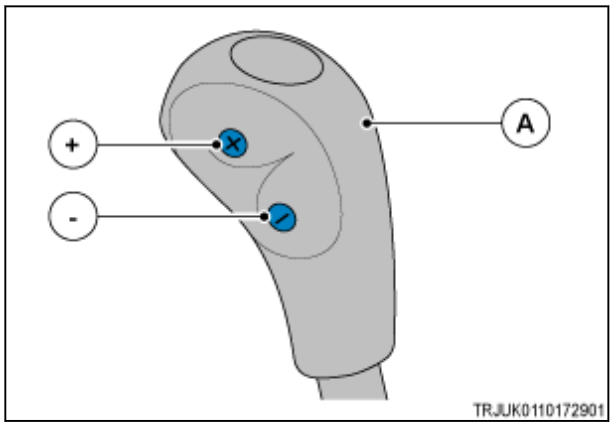


Fig. 8

3.1.2.3 Transmission controls

https://truckmanualshub.com/

Range lever

IMPORTANT:
Stop the machine before you change the range to prevent damage to the transmission.

Stop the machine and select the range with the range lever. Press the clutch pedal, select the range and gradually release the clutch pedal to apply the load. The range lever has 4 positions:

(N) Neutral
(L) Slow
(M) Moderate
(V) Fast

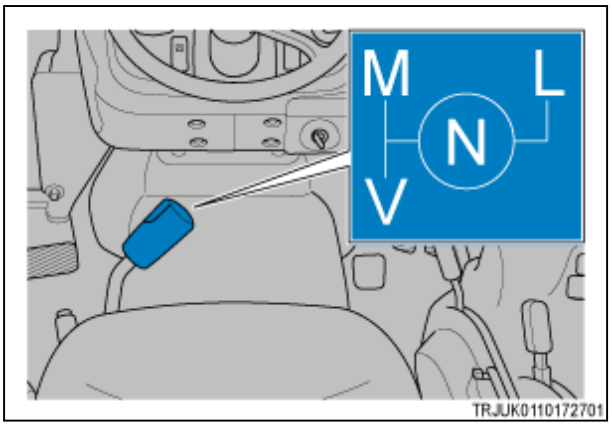


Fig. 9

Speed range lever

Speed range lever for the transmission high or low range (if equipped)

The speed range lever gives 2 more alternative speeds. Its primary function is to decrease or increase the ground speed during operation. You can operate this lever while the machine moves, but you must push the clutch pedal. The speed range lever has 3 positions:

(N) Neutral
(H) High speed - Fast range
(L) Low speed - Slow range

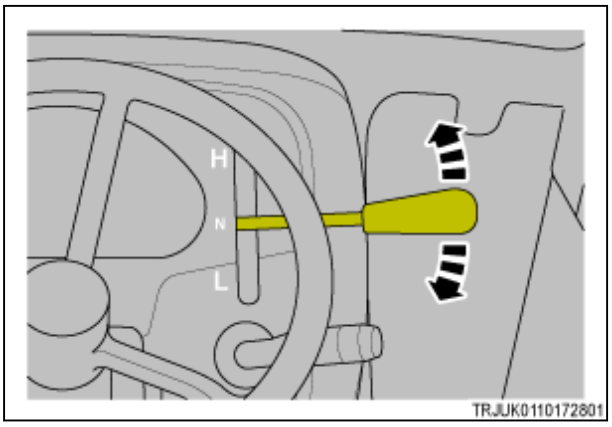


Fig. 10

Gear lever

(A) Gear lever for transmission high or low

(+) High speed - Fast range button
(-) Low speed - Slow range button

Use the gear lever (A) to select a gear. Before you move the gear lever, push the clutch pedal down fully. Select the gear and then gradually release the clutch pedal to apply the load. You can select a gear while the machine moves.

You can also select the high or low speed ranges during operation (without pushing the clutch pedal) with the (+) and (-) buttons.

IMPORTANT:
Slow range automatically engages when you start the engine.

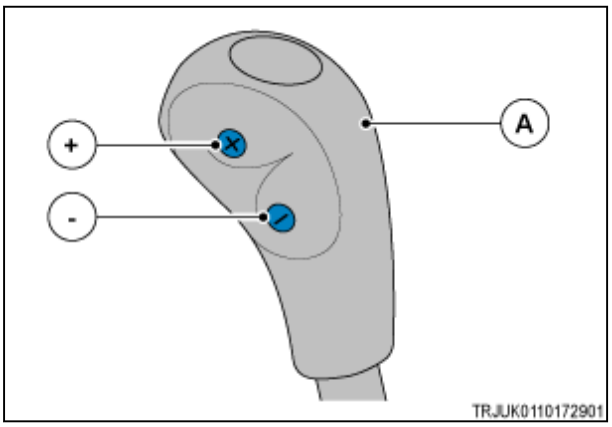


Fig. 11

https://truckmanualshub.com/

When you select the fast range with the (+) button, the indicator lamp (B) comes on. When you select the slow range with the (-) button, the indicator lamp (B) goes off.

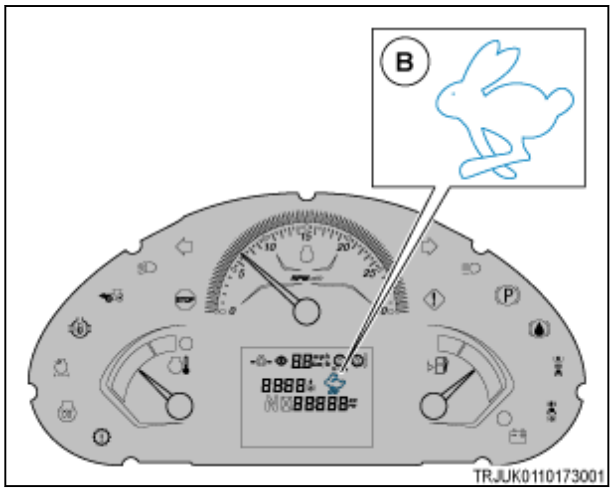


Fig. 12

3.1.3 Clutch, brakes and throttle

3.1.3.1 Clutch

Clutch pedal

Use the clutch pedal to attach an implement in a controlled mode or during a very hard movement. It disengages the clutch when fully pressed.

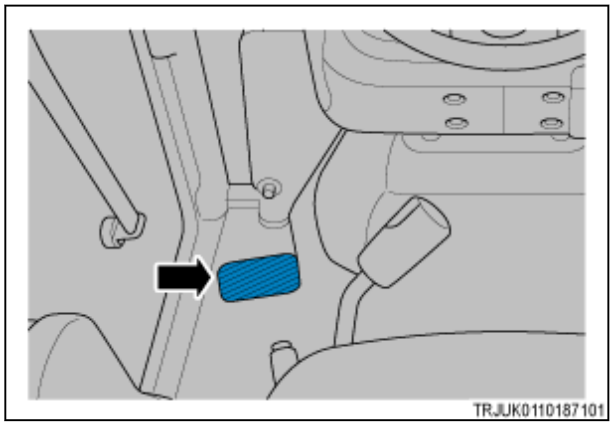


Fig. 13 With cab

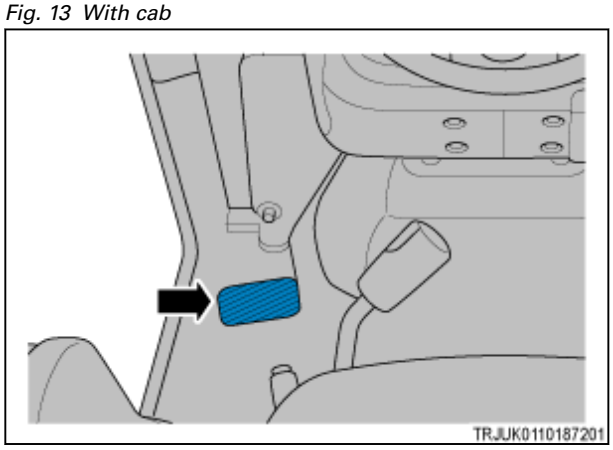


Fig. 14 With ROPS

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Clutch engage/disengage switch (if installed)

To change the transmission gear speed, push the clutch engage/disengage switch. Keep the clutch engage/disengage switch pushed and change the transmission lever to the necessary gear speed. Release the clutch engage/disengage switch to engage the clutch.

NOTE:
Push the clutch engage/disengage switch and the PowerShuttle lever switches temporarily into the neutral position. Release the clutch engage/ disengage switch and the direction selected with the PowerShuttle lever engages.

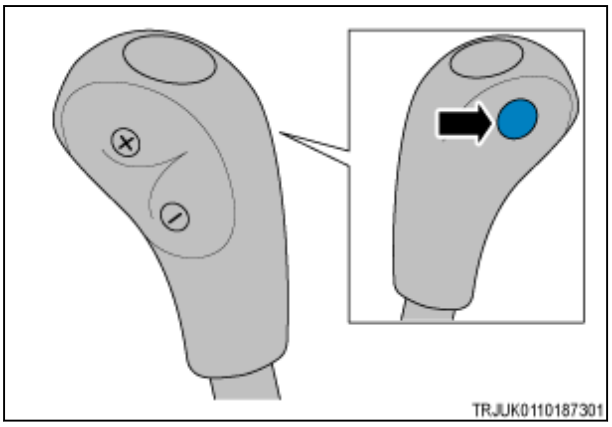


Fig. 15

3.1.3.2 Brakes

Brake Pedals

Use the latch (2) to connect the brake pedals (1).

Refer to the Safety section for maximum speed and loads when you tow an implement or trailer on the road.

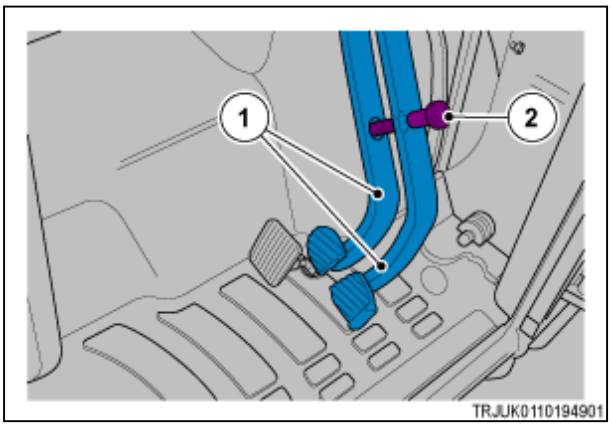


Fig. 16

Parking brake lever

Stop the machine and engage the parking brake lever (3).

When the parking brake engages, the indicator lamp (A) illuminates.

Press the button (4) and lower the lever to disengage the parking brake.

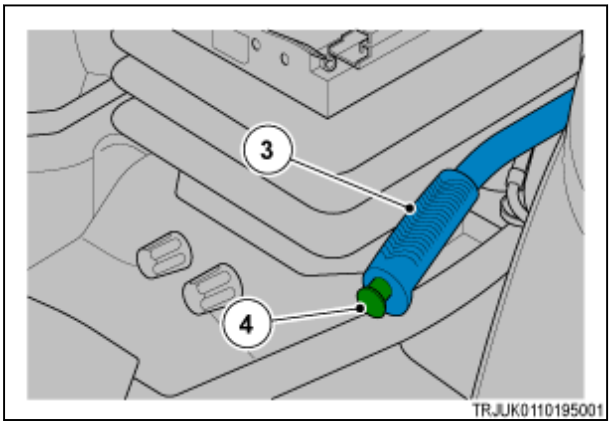


Fig. 17

https://truckmanualshub.com/

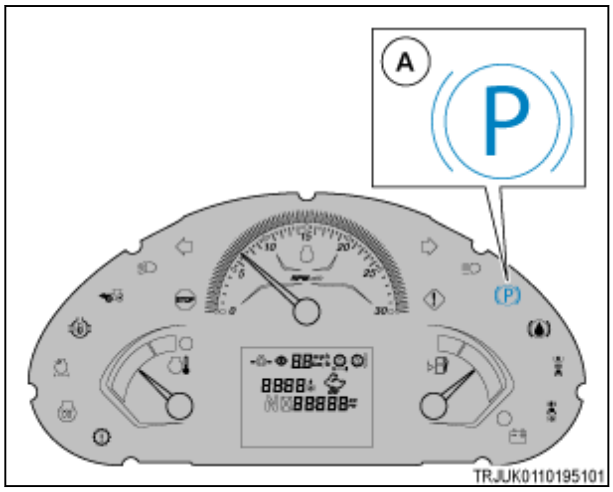


Fig. 18

3.1.3.3 Hand throttle and throttle pedal

Hand throttle lever

Move the lever to increase the engine speed.

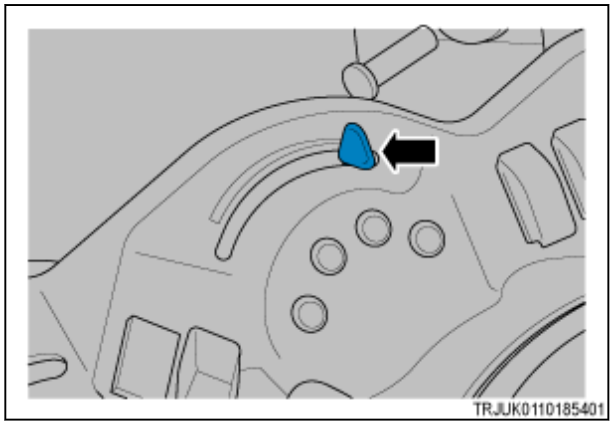


Fig. 19 With cab

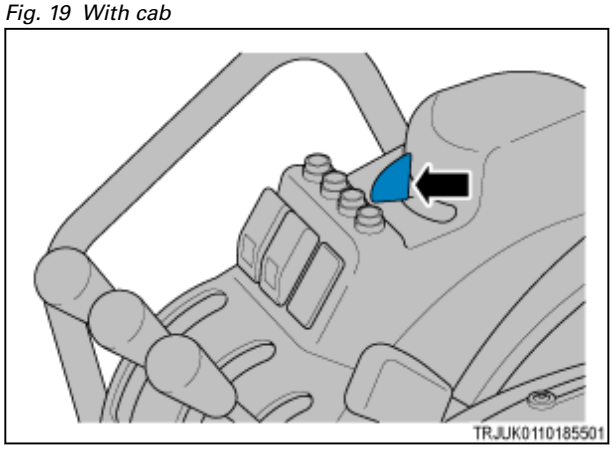


Fig. 20 With ROPS

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Throttle pedal

Press the pedal to increase the engine speed.

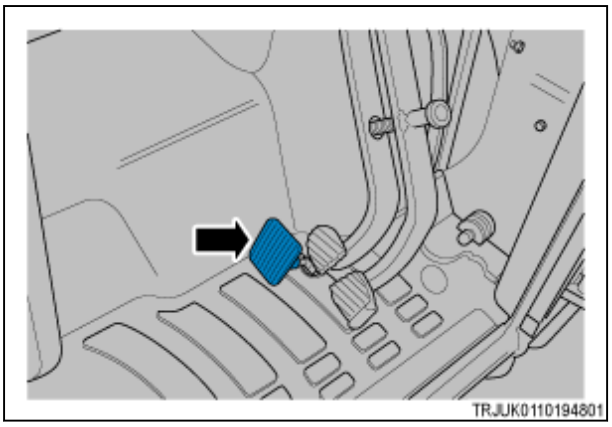


Fig. 21

3.1.4 Ignition switch - Road lamps and direction indicator switch - Steering wheel

Ignition switch

The ignition switch (1) has 4 positions:

(A) OFF
(B) Engine stop and accessory
(C) Engine ON
(D) Engine start

NOTE:
In position (A)*, the contact is open. The radio, digital clock, and cigarette lighter stay energized.*

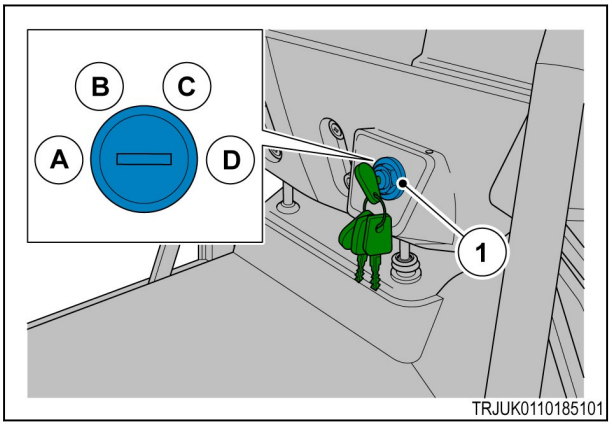


Fig. 22

Lights and horn control lever

(A) (Fully turned forward) – OFF position
(B) (Counterclockwise direction, first position) - instrument panel, park lamps, license plate lamp
(C) (Counterclockwise direction, second position) – instrument panel, park lamps, license plate lamp, head lamps

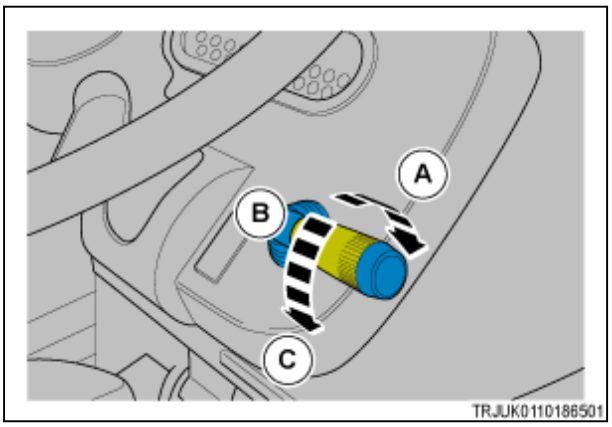


Fig. 23

https://truckmanualshub.com/

(D) Left Hand (LH) direction indicator
(E) Horn
(F) Right Hand (RH) direction indicator

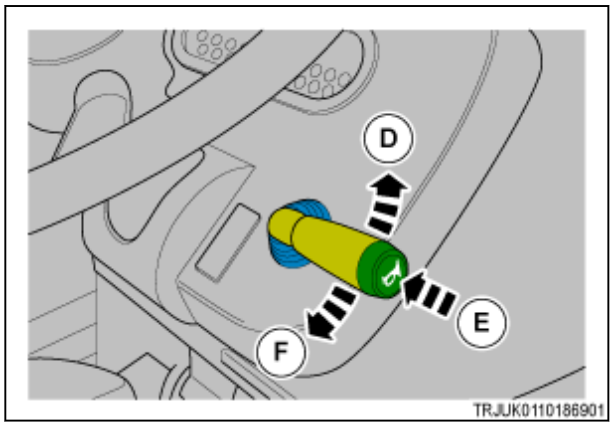


Fig. 24

Steering wheel

WARNING: Loss of control of the machine.

Risk of injury or death because you cannot control the machine.

Do not adjust the position of the steering column when the machine operates.

Adjust the position of the steering wheel (1):

(A) Turn the knob (2), to unlock the steering wheel.
(B) Set the steering wheel to the necessary height.
(C) Turn the knob (2), to lock the steering wheel at the necessary height.

NOTE:
Lock the steering wheel correctly, before you drive.

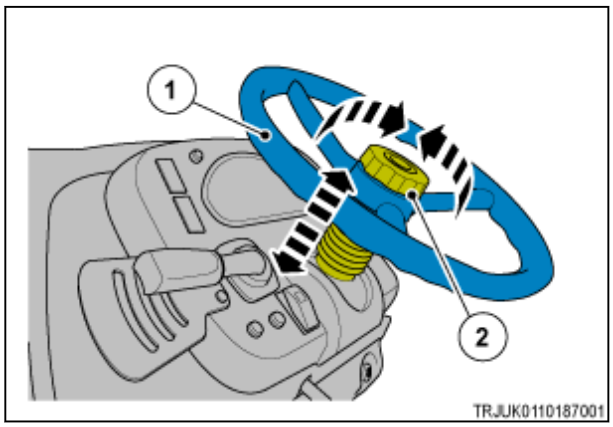


Fig. 25

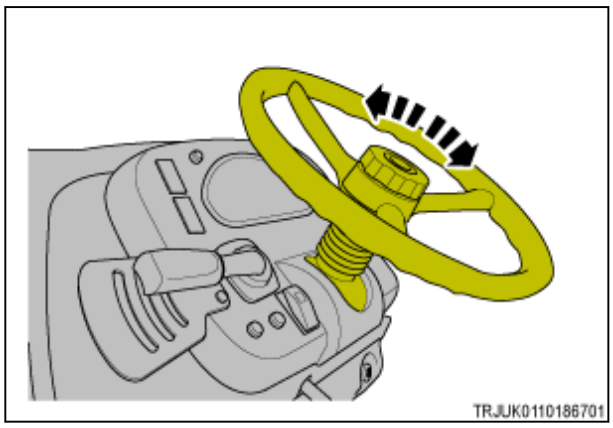


Fig. 26

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Adjust the steering wheel angle:

(D) Turn the knob (3), to unlock the steering wheel.
(E) Set the steering wheel to the necessary angle.
(F) Turn the knob (3), to lock the steering wheel at the necessary angle.

NOTE:
Lock the steering wheel correctly, before you drive.

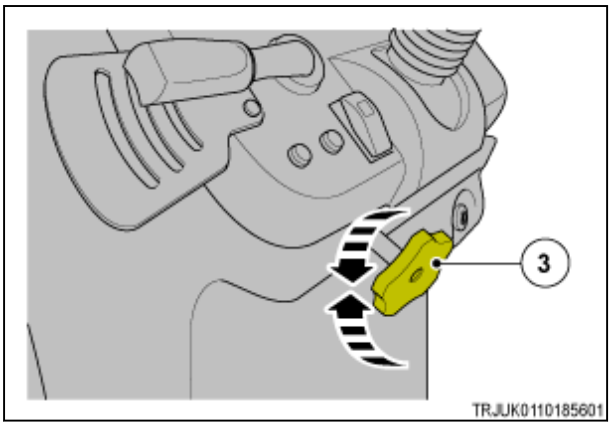


Fig. 27

3.1.5 Battery cut-off Switch

The battery cut-off switch is located on the rear side of the tractor, close to the battery.

- To disconnect the battery, turn the switch (C) to position (A) - OFF.
- To connect the battery, turn the switch (C) to position (B) - ON.

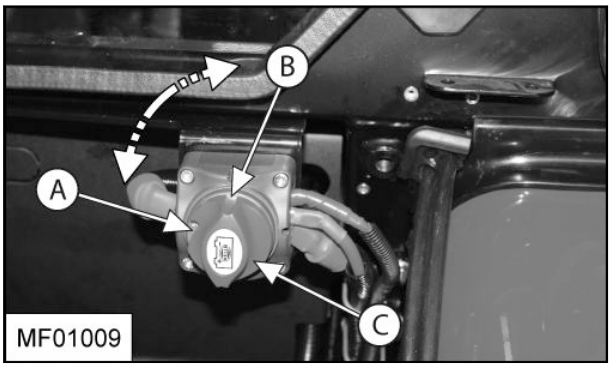


Fig. 28

IMPORTANT:
This vehicle is equipped with a battery cut-off switch that allows the battery to be disconnected from the electric system.
The cut-off switch is not a safety switch and cannot be used to stop the engine.
Never use the battery cut-off switch when the engine is still running: switch off the engine and wait at least 1 min before activating the cut-off switch to avoid serious damage to the vehicle electric/electronic system. In addition, the voltage peaks that occur at the alternator are dangerous.

IMPORTANT:
Before turning the battery cut-off switch to the OFF position, wait at least 1 min from the last engine stop (key-off). It allows the various control units to disconnect properly.
After turning the battery cut-off switch to the ON position, wait at least 10 sec before turning the ignition key to start engine. It allows the various control units to operate correctly.

CAUTION:
To avoid shock and burns, disconnect the battery before servicing on any part of the electrical system.

3.1.6 Instrument panel

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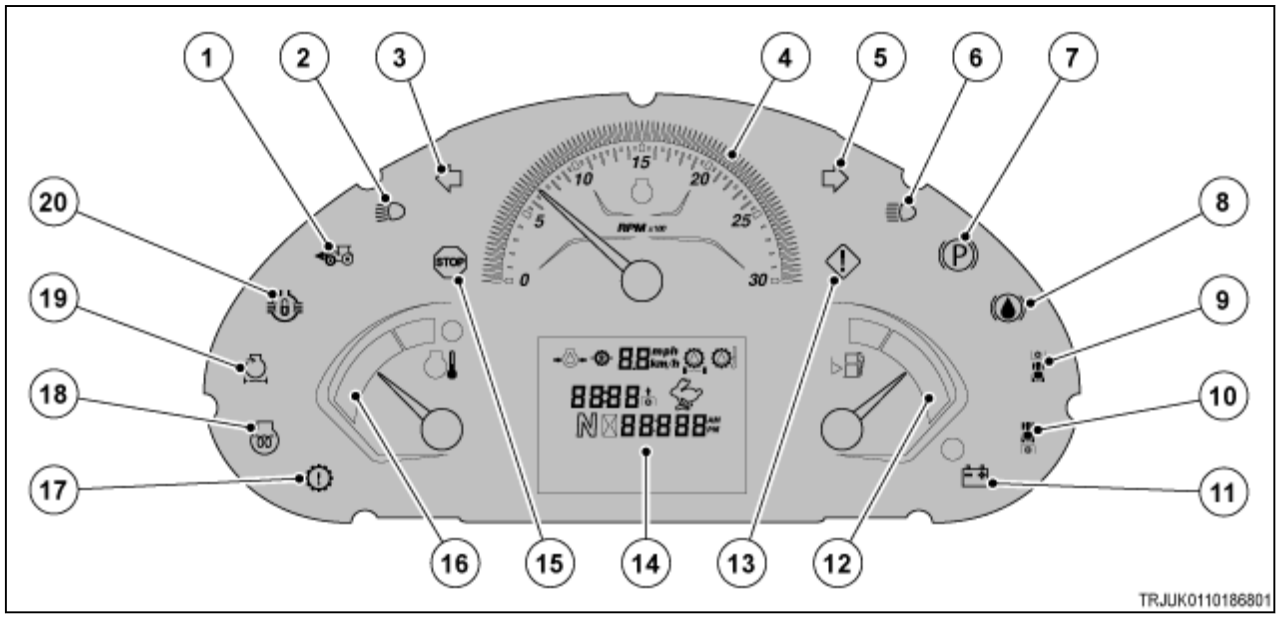


Fig. 29

1 Four-wheel drive
2 Head lamps
3 Left side direction indicator
4 Tachometer
5 Right side direction indicator
6 High beams
7 Parking brake
8 Brake fuel level low
9 Front power take-off (PTO)
10 Rear power take-off (PTO)
11 Battery
12 Fuel level indicator
13 Caution indicator
14 Display
15 Stop the machine indicator
16 Coolant temperature indicator
17 Transmission malfunction
18 Preheater ON
19 Clogged air filter
20 Differential lock indicator

3.1.7 Digital display information

The digital display shows important data, information and the operating conditions of the machine.

Indicators

1. Engine oil pressure - comes on when the engine oil pressure is low.
2. Transmission oil pressure - comes on when the transmission oil pressure is low.
3. Speedometer - the ground speed of the machine.
4. Transmission oil filter - comes on when the transmission oil filter is clogged.
5. Transmission oil temperature - comes on when the oil temperature is high.
6. General warnings and messages.
7. High speed - comes on when the electro-hydraulic transmission is in high mode.
8. Direction indicator (trailer 2).
9. Direction indicator (trailer 1).
10. Rear PTO speed.
11. Digital messages.

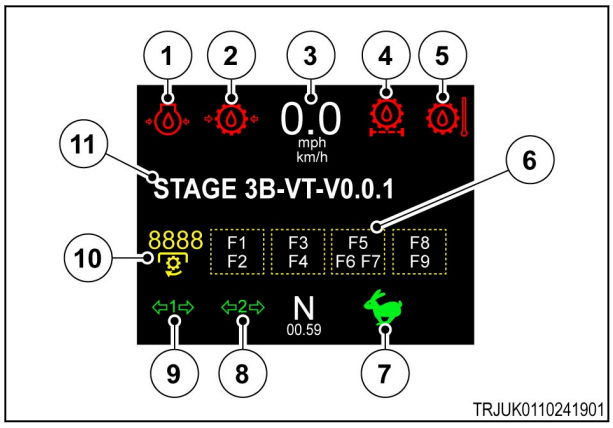


Fig. 30

https://truckmanualshub.com/

(6) Messages		
(F1)	Warning, amber light	The DPF automatic regeneration is ON.
(F2)	Warning, amber light	The DPF automatic regeneration is not approved.
(F3)	F3 icon	Water in the fuel.
(F4)	F4 icon	The operator is not in the seat.

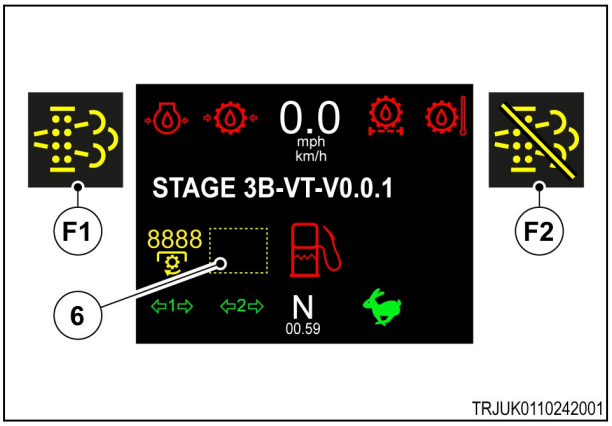


Fig. 31

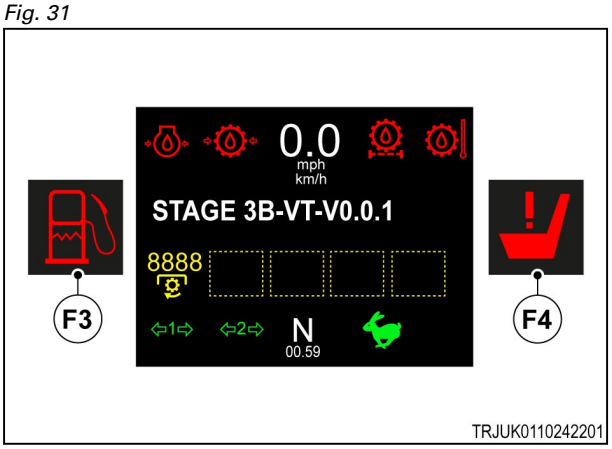


Fig. 32

Operator interface

When you turn the key to the ON position, the digital display operates.

It shows the hours of operation.

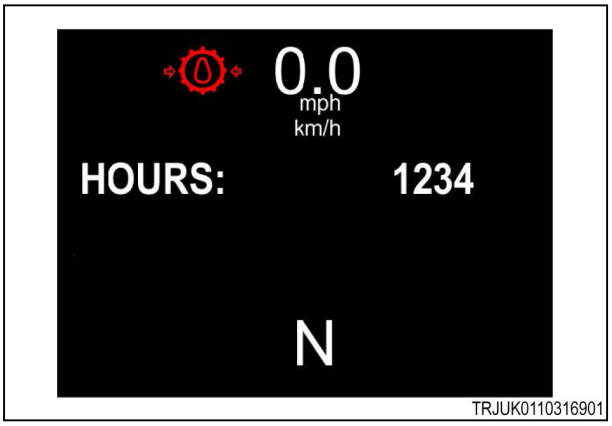


Fig. 33

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Use the digital display controls (1) and (2) to change the functions. For example, the language.

You can also change other data, this includes:

- Operating hours
- Fuel consumption
- Diesel particulate filter (DPF), (filling percentage)
- Coolant temperature
- Transmission oil temperature (only with PowerShuttle transmission)
- Front wheel drive conditions

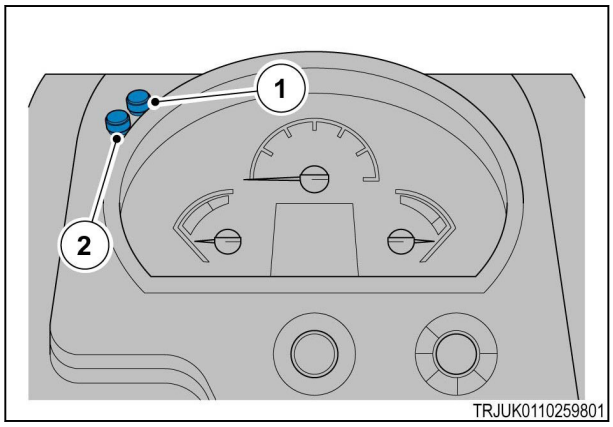


Fig. 34

Functions of the digital display controls		
	(1)	(2)
Press for a maximum of 0.3 seconds:	Up	Down
Press for a minimum of 1 second:	Select	Open and close the submenu

- To open the menu, press (1).
- To select, and open the subsequent menu (ON, OFF or AUTO), press (1).
- To make a selection, press (1) for more than 1 second.

3.1.8 Operator menu

NOTE:
Stop the vehicle, and engage the parking brake, before you open the menu. The menu closes automatically if the vehicle moves.

Functions of the digital display controls		
	(1)	(2)
Press for a maximum of 0.3 seconds:	Up	Down
Press for a minimum of 1 second:	Select	Open and close the submenu

Open the menu: With the key set in ON position, press and hold (2) for 1 second.

Navigate to the functions: Press (1) or (2), to see the different functions.

Close the menu: Press (1) and (2) at the same time, for 1 second.

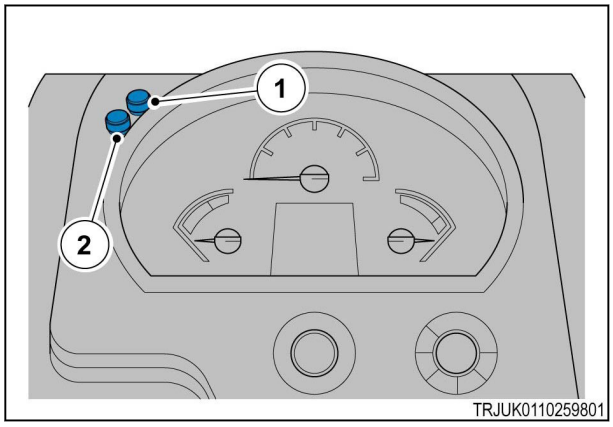


Fig. 35

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Available functions:

- Diesel Particulate Filter (DPF)
- Language
- Units
- Transmission errors
- Engine errors.

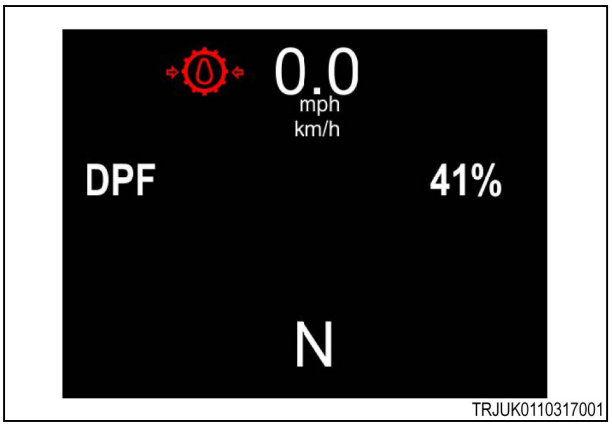


Fig. 36

3.1.9 DPF regeneration

The diesel particulate filter (DPF) collects the soot particles from the combustion process to stop air pollution. When the DPF is full, the regeneration process cleans the DPF.

Sensors monitor the exhaust pressure across the DPF. When the DPF is full, the system uses this data to control the regeneration process.

There are 2 regeneration procedures, automatic and manual.

- Automatic regeneration is when regeneration occurs automatically when it is necessary, during usual operation.
- Manual regeneration is when you manually command the system to regenerate. In some operating conditions, the temperature of the exhaust system is not sufficient to cause automatic regeneration.

NOTE:

If regeneration is not possible, or the function is not available because the digital display controls are broken, speak to your dealer immediately. Do not stay in an area of fire risk.

The DPF warning lamp shows the different operating condition of the DPF system.

- A - Regeneration is in progress.
- B - Regeneration not approved.
- C - Manual regeneration is necessary (flashing).

NOTE:
If the Diesel Particulate Filter (DPF) warning lamp flashes (C) *on the instrument panel, do a manual regeneration.*

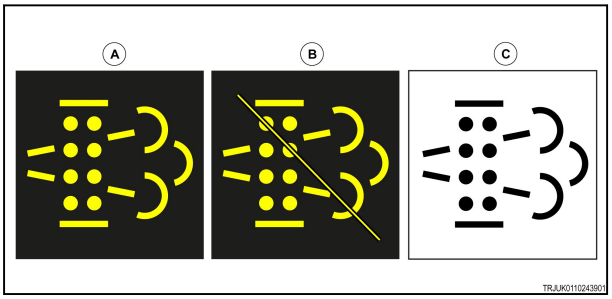


Fig. 37

https://truckmanualshub.com/

Use buttons (1) and (2) to navigate the "DPF" menu.

Functions of the digital display controls		
	(1)	(2)
Press for a maximum of 0.3 seconds:	Up	Down
Press for a minimum of 1 second:	Select	Open and close the submenu

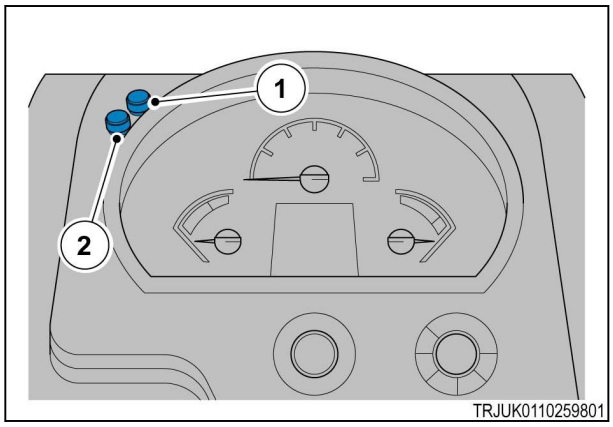


Fig. 38

NOTE:

It is necessary to stop the machine and engage the parking brake before you can get access to the menu. If the machine speed is more than 0, the menu closes automatically.

Select automatic regeneration

When you set the system to "AUTO REGEN.", regeneration can occur with the machine moving.

	Select and save	Select and save
After you get access to the DPF menu	"AUTO REGEN." (recommended)	"OK" (recommended setting)
		"NO"
	"MANUAL REGEN."	Start the procedure for manual regeneration

- Go to the DPF menu, then press and hold (1) for 1 second.
- Select "AUTO REGEN." then press and hold (1) for 1 second.
- Select "OK" to start the automatic regeneration.
- Select "NO" to disable the automatic regeneration.

Start manual regeneration

Only start the manual regeneration process when the warning lamp flashes, then:

- Stop the machine, engage the parking brake and stop PTO.
- Go to the DPF menu, then press and hold (1) for 1 second.
- Select "MANUAL REGENERATION", then press and hold (1) for 1 second.
- The system does a check of the safety conditions. A message shows if the conditions are not satisfactory.
- "HANDBRAKE" shows in the display if the parking brake is not engaged.
- "TURN OFF PTO" shows in the display if PTO is on. Stop the PTO and continue.
- If the safety conditions are satisfactory, "WAIT" message flashes. The DPF regeneration procedure is on.
- If 1 or more safety conditions are not satisfactory, the related warning message flashes for 5 seconds. Then the system exits the manual regeneration procedure and returns to the "MANUAL REGENERATION" menu. Restart the regeneration.
- After "COMPLETED" shows in the display, wait for 3 seconds and then exit the DPF menu. The regeneration process is completed.

NOTE:

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Do not operate the controls during the regeneration procedure. The control unit adjusts the engine and engine speed sets automatically to 1500 rpm. The regeneration procedure stops immediately if you operate the controls manually.

3.1.10 Language and measurement units settings

Select a unit of measurement

Operation	Procedure
Open the "UNITS" menu.	Press (1) for 1 second.
Open the submenu.	Press (2) for 1 second.
Navigate the units.	Press (1) and (2).
Change the units.	Press (1) for 1 second.
Select the units.	Press (1) or (2).
Save the selection.	Press (1) for 1 second.
Close the menu.	Press (2) for 1 second.

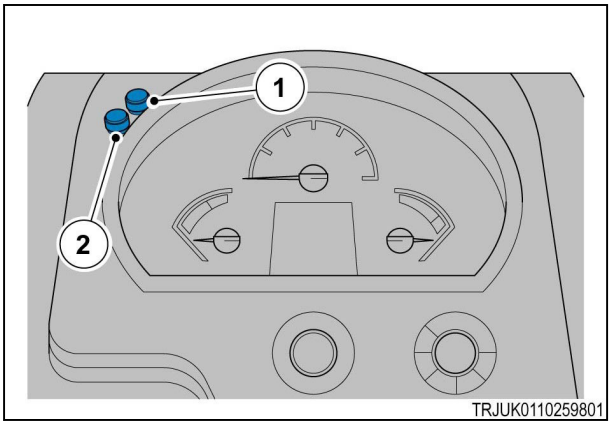


Fig. 39

An arrow shows to identify the selection.

Do the same procedure for all the other units.

Language

Select a language.

Speed

Select km/h or mph modes.

Temperature

Select °C or °F modes.

Power

Select kW or hp modes.

3.1.11 Fault code menus

NOTE:
Stop the machine and engage the parking brake before you open the menu. The menu closes automatically if the vehicle moves.

Functions of the digital display controls		
	(1)	(2)
Press for a maximum of 0.3 seconds:	Up	Down
Press for a minimum of 1 second:	Select	Open and close the submenu

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Transmission fault codes

- Go to the TRANSMISSION ERRORS menu: Press (1)
- Select and go to the subsequent submenu ERRORS: Press and hold (1)
- Navigate the list of errors: Press (1) or (2)
- Go back to the operator menu: Press and hold (2) for 1 second.

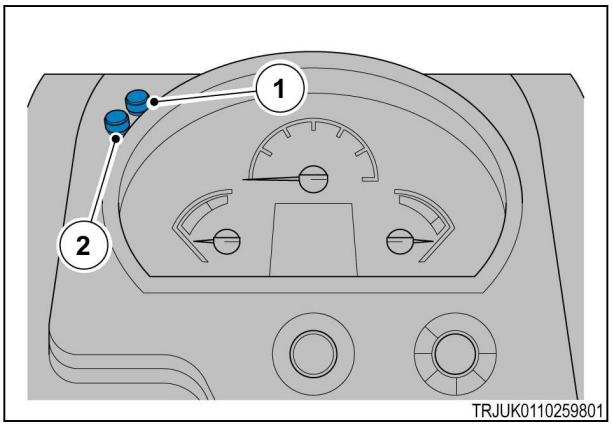


Fig. 40

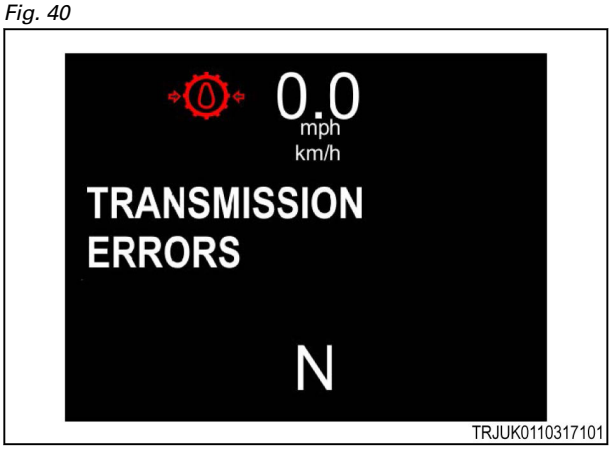


Fig. 41

Engine fault codes

- Go to the ENGINE ERRORS menu: Press (1)
- Select, and go to the subsequent submenu ERRORS: Press and hold (1)
- Navigate the list of errors: Press (1) or (2)
- Go back to the operator menu: Press and hold (2) for 1 second.

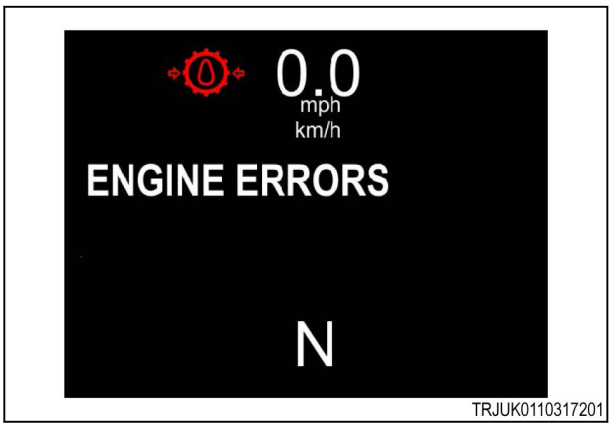


Fig. 42

NOTE:
Only your dealer can get access to all the information in the speed pulse settings and the software menus. For more information speak to your dealer.

Speed pulse

- Go to the SPEED PULSE SETTING menu: Press (1)
- Go back to the operator menu: Press, and hold (2) for 1 second

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Software

- Go to the SOFTWARE menu: Press (1)
- Select, and go to the subsequent submenu VALUE: Press, and hold (1)
- Go back to the operator menu: Press, and hold (2) for 1 second

3.1.12 Reset the oil maintenance counter

Before starting the procedure

After replacement of the engine oil, it is necessary to reset the timer of the oil service monitoring system. Do as follows to reset the timer:

Procedure

1. Turn the ignition switch (1) to the ON position (C).

2. Wait for 6 seconds.

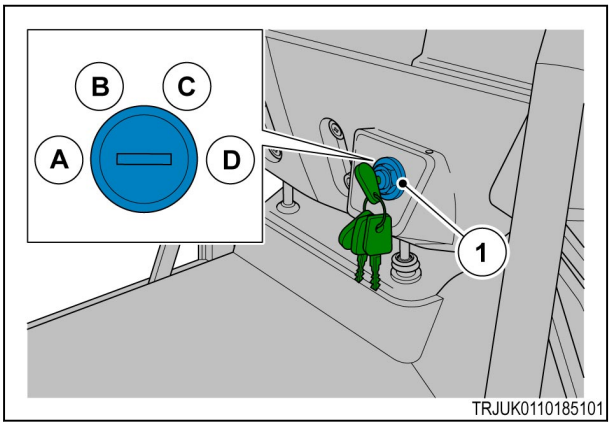


Fig. 43

3. Press and hold the buttons 2 and 3 at the same time for 15 seconds.

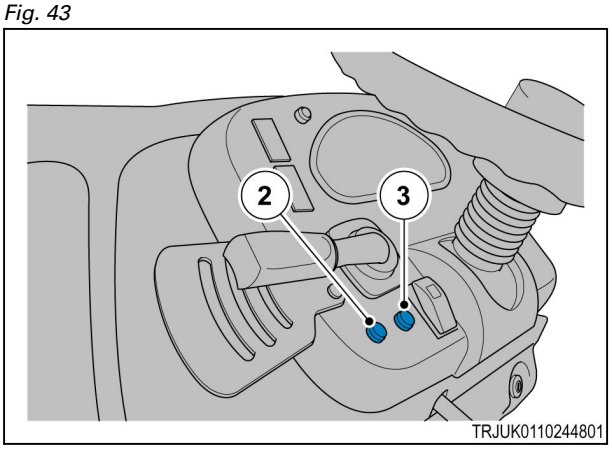


Fig. 44

4. Release the buttons 2 and 3.

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5. When you complete the procedure, you hear an alarm and the warning lamp (4) flashes for a short time.

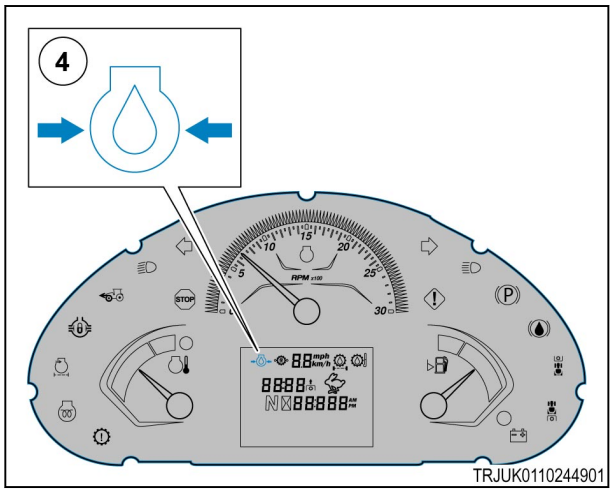


Fig. 45

3.1.13 Cruise control memory

(1) Increase the engine speed
(2) Decrease the engine speed
(3) Start cruise control, and the memory 1 button
(4) Start cruise control, and the memory 2 button

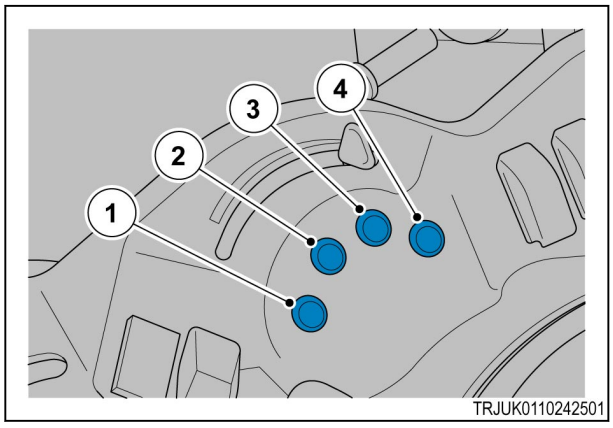


Fig. 46 With cab

(1) Start cruise control, and the memory 2 button
(2) Start cruise control, and the memory 1 button
(3) Decrease the engine speed
(4) Increase the engine speed

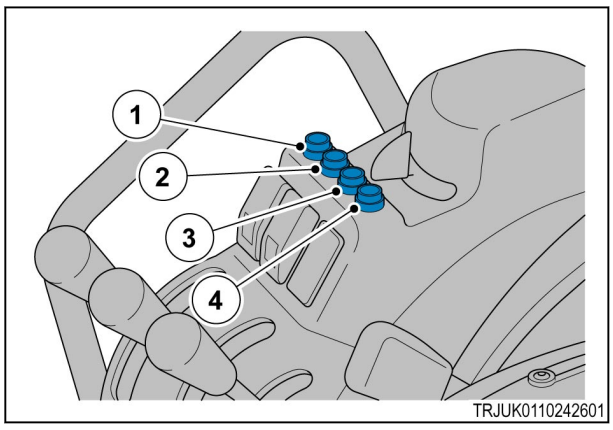


Fig. 47 Without cab

https://truckmanualshub.com/

Start an engine speed memory

With the engine on, press the button (3), until the message "SET POINT" shows on the digital display.

Use the hand throttle lever (A), or the throttle pedal (B), to set the engine speed.

Press the button (3), for a minimum of 3 seconds, to set the adjustment.

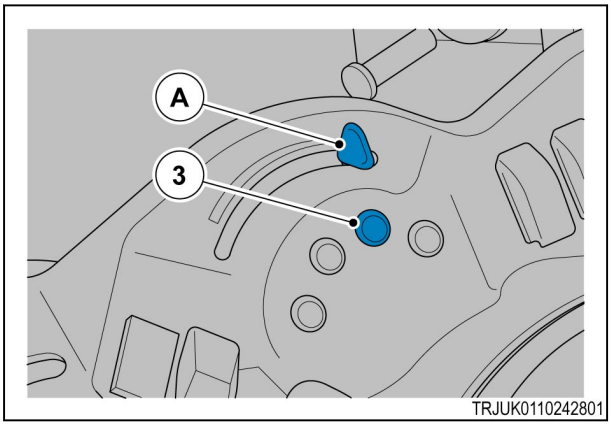


Fig. 48 With cab

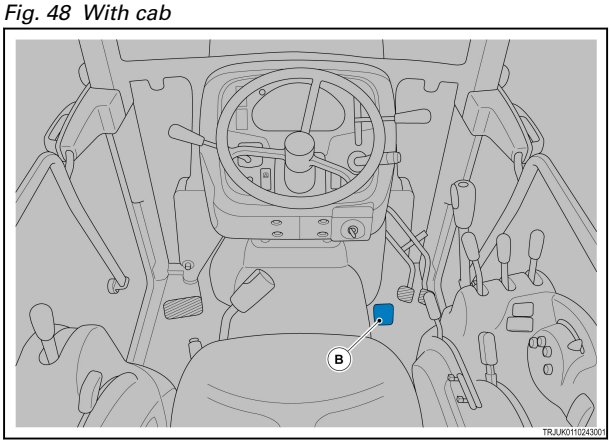


Fig. 49 With cab

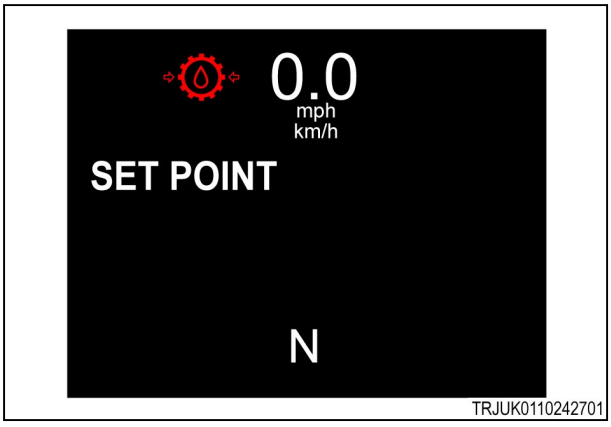


Fig. 50

https://truckmanualshub.com/

With the engine on, press the button (2), until the message "SET POINT" shows on the digital display.

Use the hand throttle lever (A), or the throttle pedal (B), to set the engine speed.

Press the button (2), for a minimum of 3 seconds, to set the adjustment.

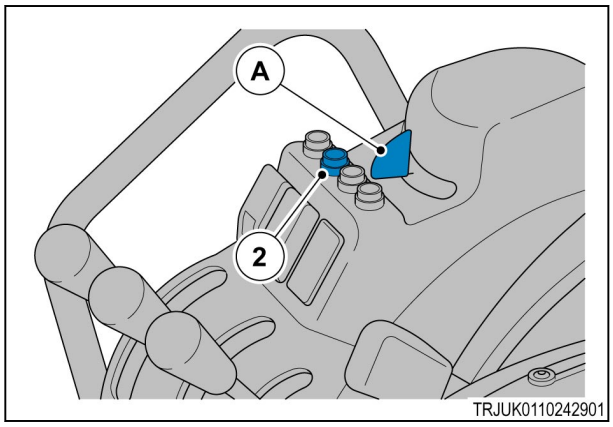


Fig. 51 Without cab

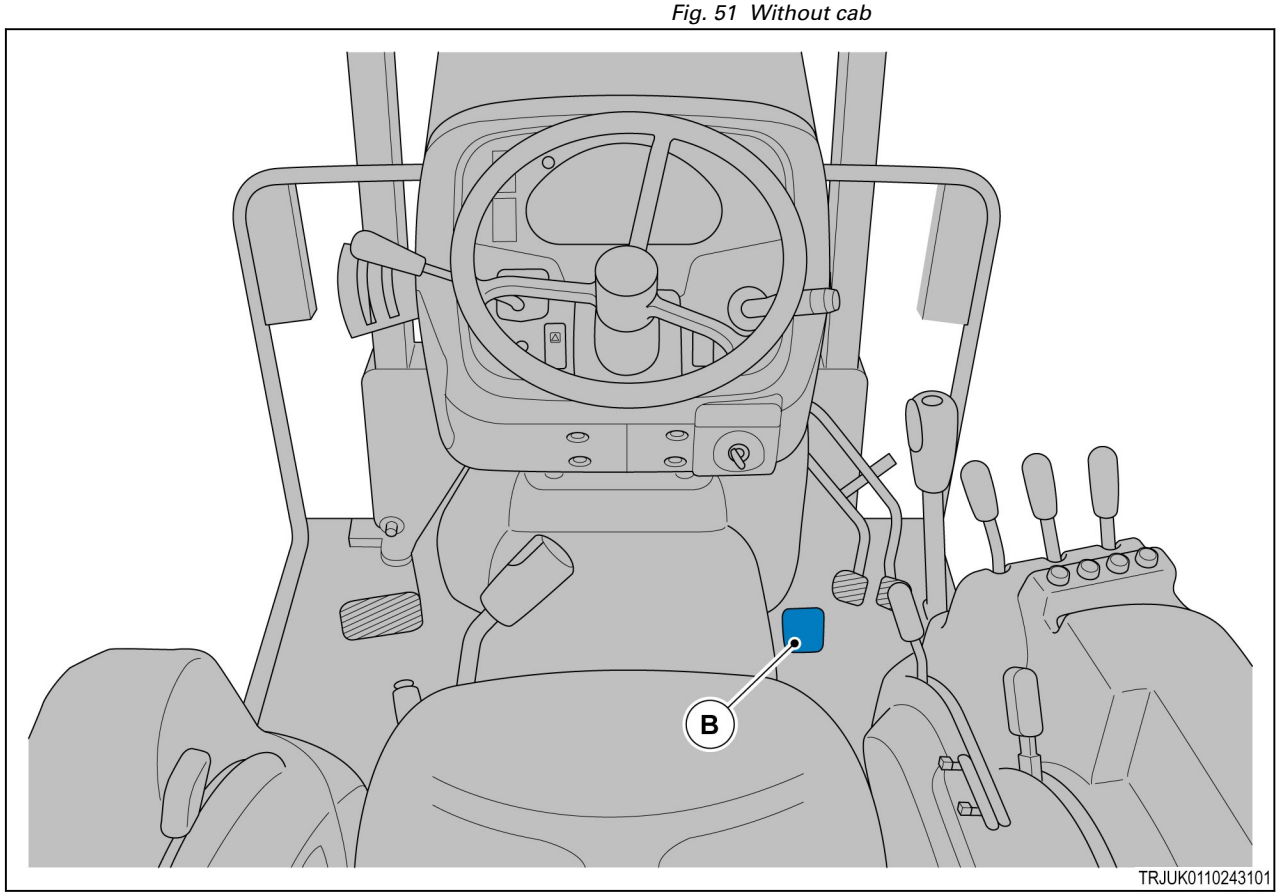


Fig. 52 Without cab

The message "CRUISE ON" illuminates on the digital display, to show that the cruise control is on.

If you release the hand throttle lever (A), or the throttle pedal (B), the engine speed stays at the stored value.

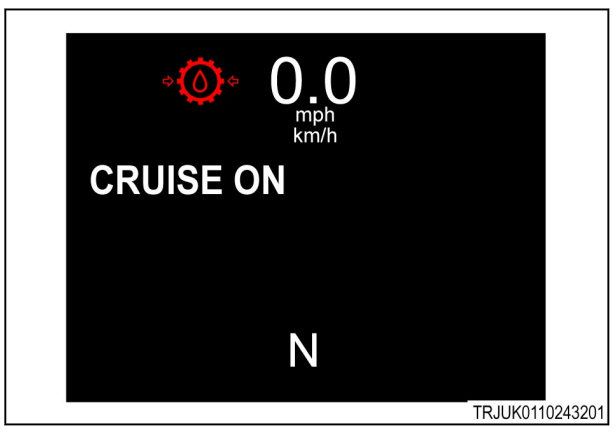


Fig. 53

https://truckmanualshub.com/

Press the buttons (1), and (2), to correct the engine speed in steps of 25 rpm. Use the button (1), to increase the speed, or button (2), to decrease the speed.

The cruise control then sets the new engine speed as the set speed.

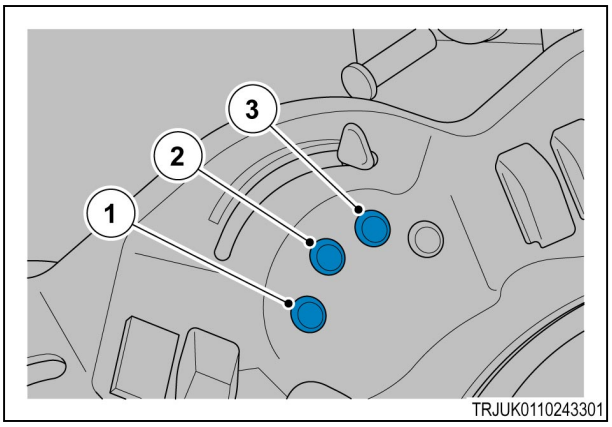


Fig. 54 With cab

Press the buttons (3), and (4), to correct the engine speed in steps of 25 rpm. Use the button (4), to increase the speed, or button (3), to decrease the speed.

The cruise control then sets the new engine speed as the set speed.

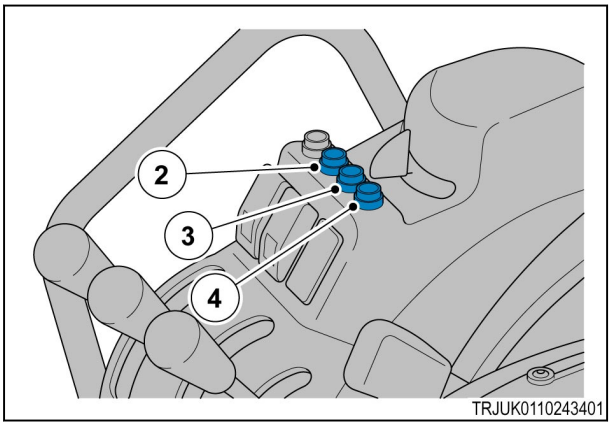


Fig. 55 Without cab

Switch off the cruise control

To switch off the cruise control, press the button (3), for a maximum of 3 seconds. The message "CRUISE OFF" illuminates on the digital display.

NOTE:
If you use 1, or 2 brake pedals, at a speed of 14 km/h or higher, the cruise control goes off. When you stop the engine, the parameters for cruise control erase.

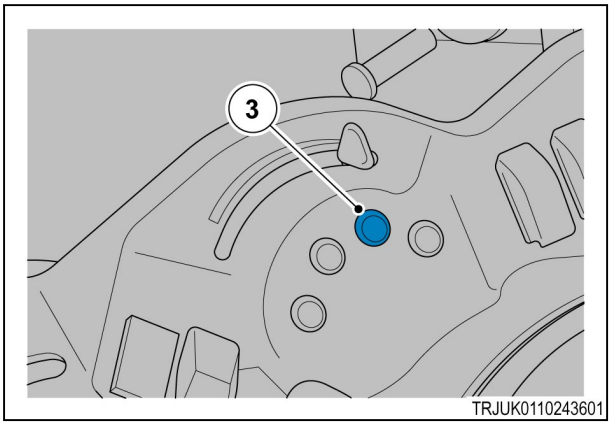


Fig. 56 With cab

https://truckmanualshub.com/

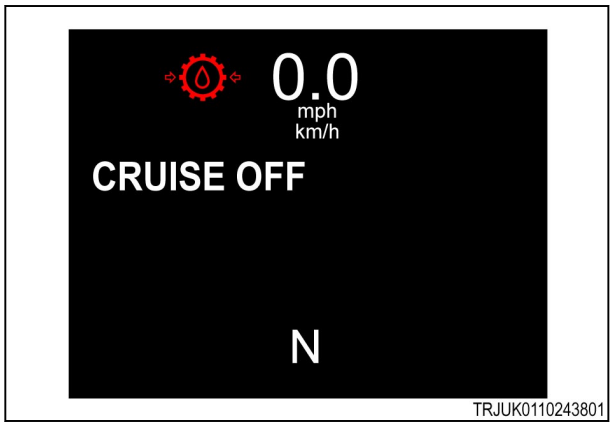


Fig. 57

To switch off the cruise control, press the button (2), for a maximum of 3 seconds. The message "CRUISE OFF" illuminates on the digital display.

NOTE:
If you use 1, or 2 brake pedals, at a speed of 14 km/h or higher, the cruise control goes off. When you stop the engine, the parameters for cruise control erase.

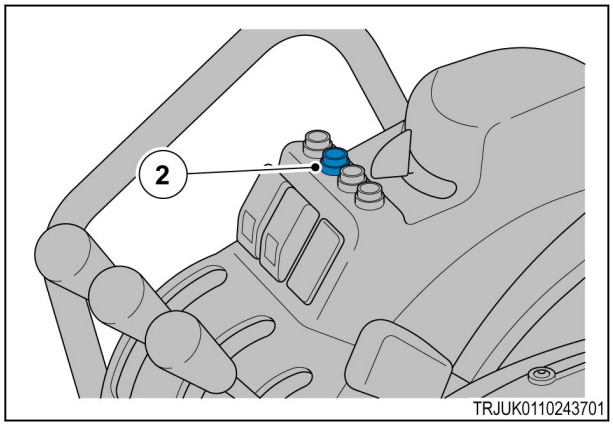


Fig. 58 Without cab

Manually adjust the engine speed memories

Use the hand throttle lever (A), or the throttle pedal (B), to get the necessary engine speed.

To save the engine speed in memory 1, press the button (1), for a minimum of 3 seconds.

To save the engine speed in memory 2, press the switch (2), for a minimum of 3 seconds.

When you save a new valve in the engine speed memory, the message "SET POINT" illuminates on the digital display. The engine speed memory comes on automatically, and stays on for the subsequent startups.

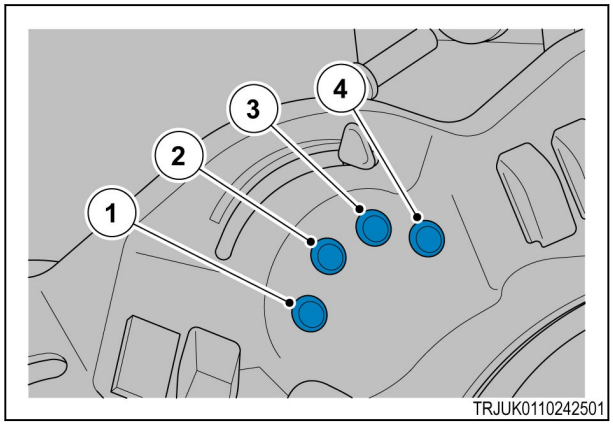


Fig. 59 With cab

https://truckmanualshub.com/

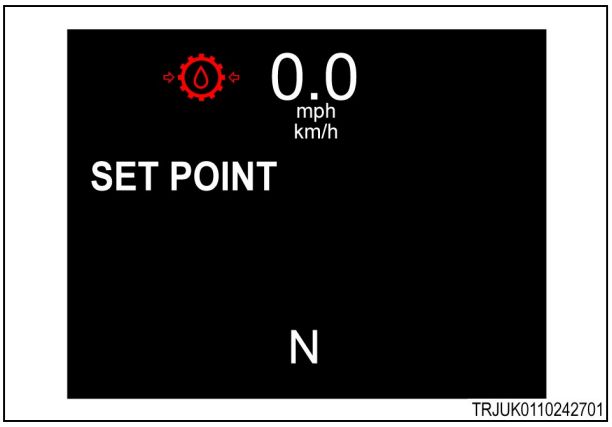


Fig. 60

Use the hand throttle lever (A), or the throttle pedal (B), to get the necessary engine speed.

To save the engine speed in memory 1, press the button (4), for a minimum of 3 seconds.

To save the engine speed in memory 2, press the switch (3), for a minimum of 3 seconds.

When you save a new valve in the engine speed memory, the message "SET POINT" illuminates on the digital display. The engine speed memory comes on automatically, and stays on for the subsequent startups.

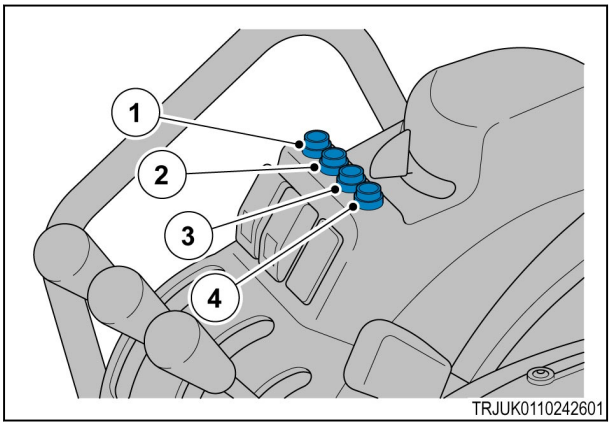


Fig. 61 Without cab

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3.1.14 Machine lamps

Cab version

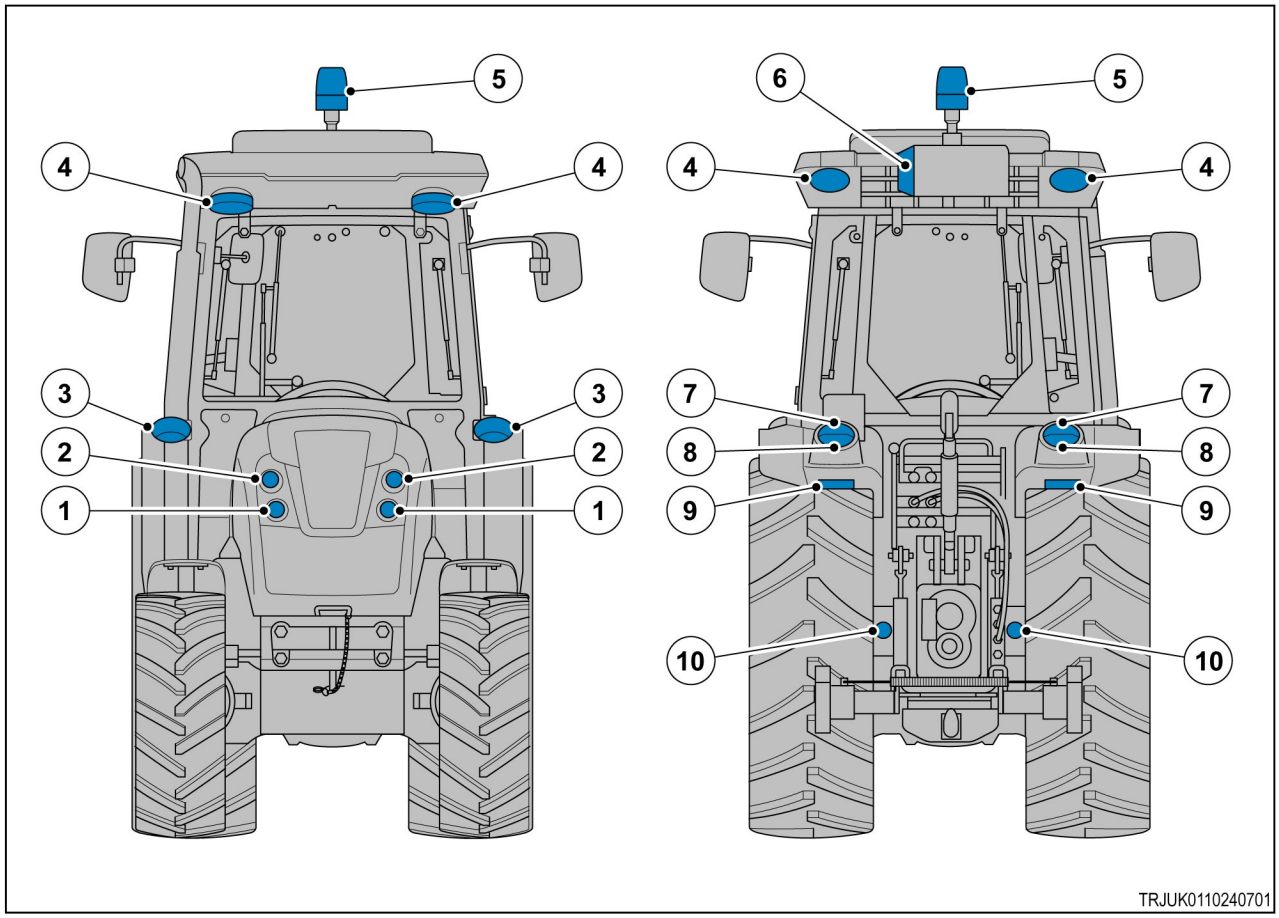


Fig. 62

1 High beam lamp
2 Low beam lamp
3 Position lamp, direction indicator
4 Work lamp
5 Rotary beacon
6 License plate lamp
7 Direction indicator
8 Position lamp, stop lamp
9 Reflector
10 Reflector

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ROPS version

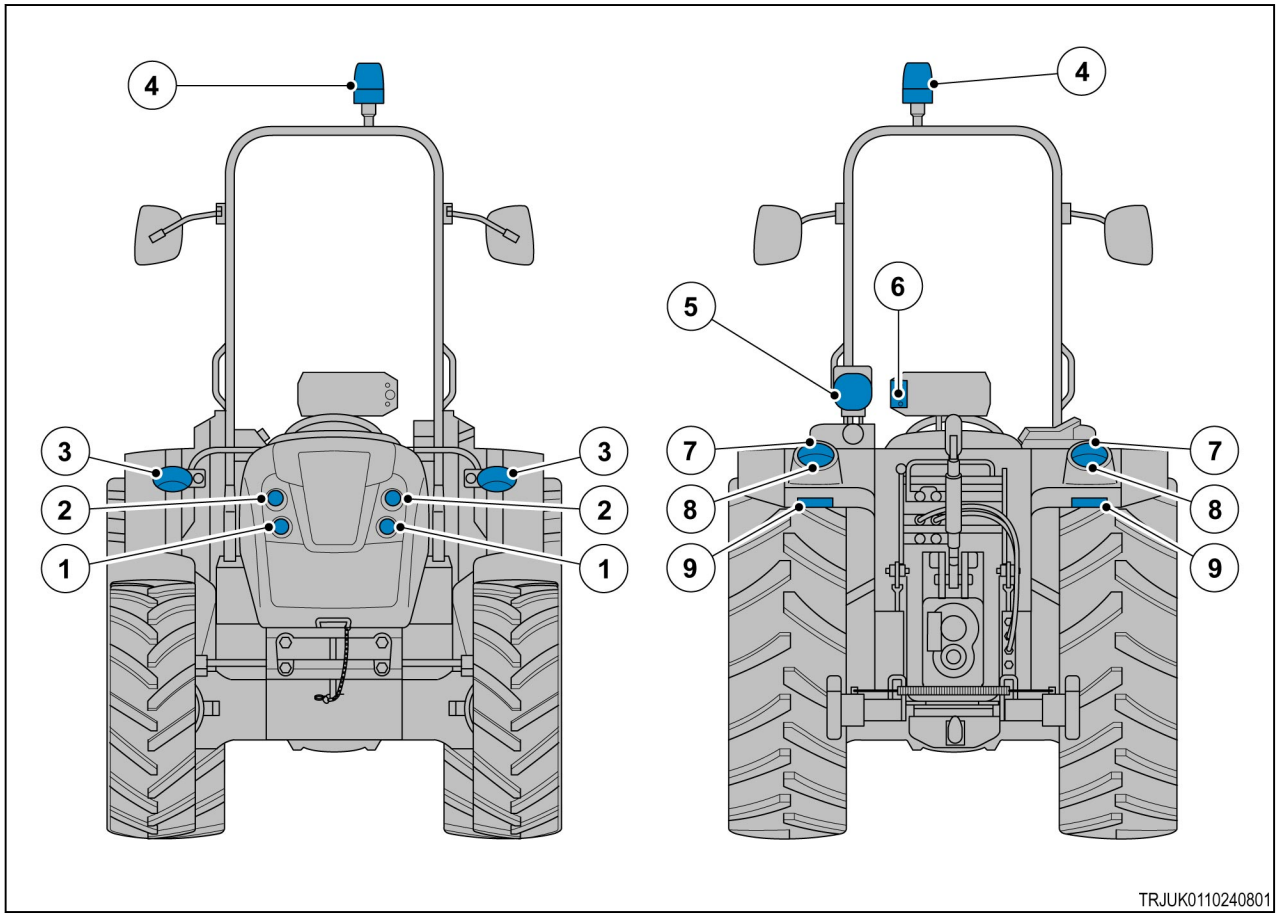


Fig. 63

1 High beam lamp
2 Low beam lamp
3 Position lamp, direction indicator
4 Rotary beacon
5 Work lamp
6 License plate lamp
7 Direction indicator
8 Position lamp, stop lamp
9 Reflector

3.1.15 Heater and Air conditioner Controls

Heater

The cab has been designed to produce comfortable working conditions for the operator with all the windows closed. Fresh air can be brought in from outside the cab or the heated or cooled air within the cab can be recirculated. The controls are as follows:

1 Blower Control
2 Heat Control

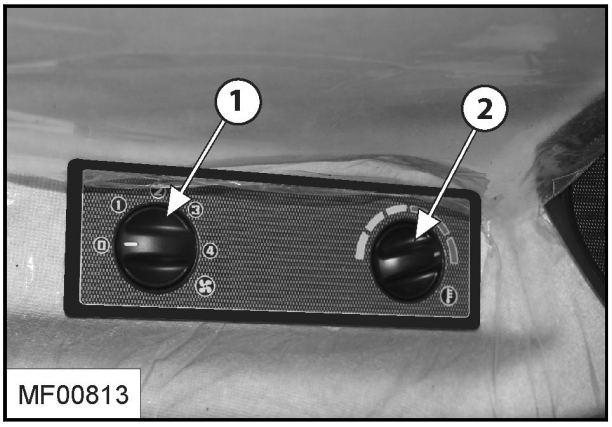


Fig. 64

https://truckmanualshub.com/

Air Conditioner

The cab has been designed to produce comfortable working conditions for the operator with all the windows closed. Fresh air can be brought in from outside the cab or the heated or cooled air within the cab can be recirculated. The controls are as follows:

1 Blower Control
2 Temperature Control
3 Air conditioner Control

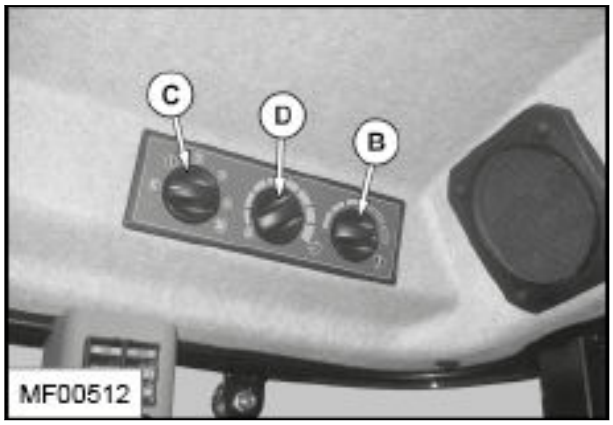


Fig. 65

Air Recirculation Control

Move control to the RIGHT (close) to maximise fresh air into the cab. Moving the control LEFT (open) will recirculate the air in the cab. The recirculated air will pass through the vents (G) air filter and back into the blower:

E Recirculated air - UP.
F Outside air - DOWN

Fresh Air Operation

Close the air recirculation control (E) to obtain fresh air from outside the cab. This gives the maximum cooling effect with the air conditioning OFF.

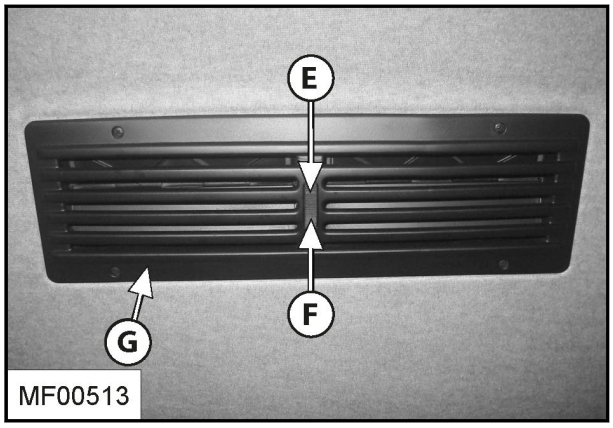


Fig. 66

Air Flow Louvres

Fresh air entering the cab from the outside, passes through the air filter, blower, heater and air conditioner evaporator. It is blown through a set of four adjustable louvres (H) above the windscreen.

Heating and Ventilating Operation

WARNING:
The cab air filter is designed to remove dust from the air but may not exclude chemical vapour. Follow the chemical manufacturer's directions regarding protection from hazardous chemicals.

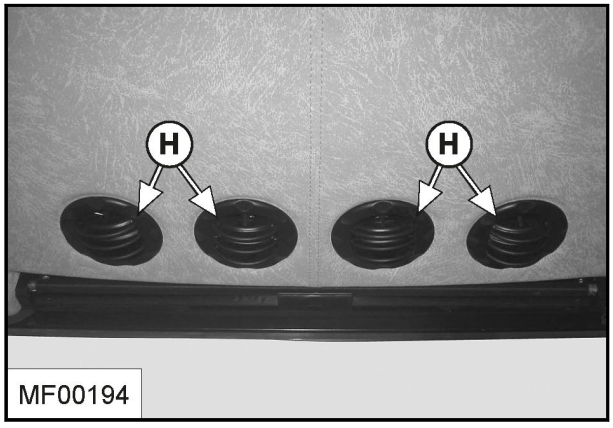


Fig. 67

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Blower Control

This has an OFF position (fully counterclockwise) and four stages of blower fan speed.

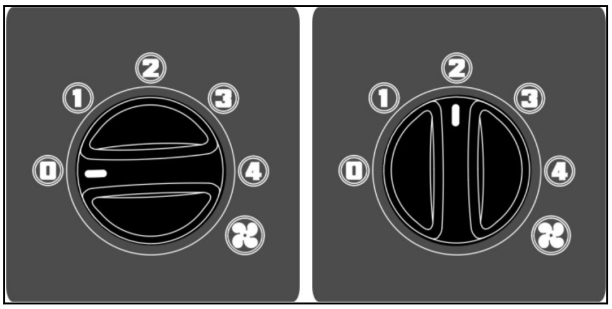


Fig. 68

Air Conditioner Control

Turn this knob counter-clockwise to switch OFF. The further it is turned clockwise, the colder the air. Always turn OFF when not in use.

NOTE:
When Air Conditioner control is turned ON and fan switch is OFF fan will operate at fan speed (1).

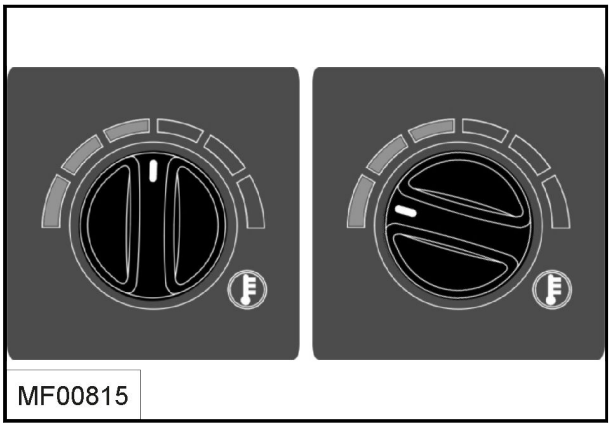


Fig. 69

Heat Control

The more this knob is turned clockwise the greater the heat delivered. Full heat output will only be available when the engine has reached full operating temperature.

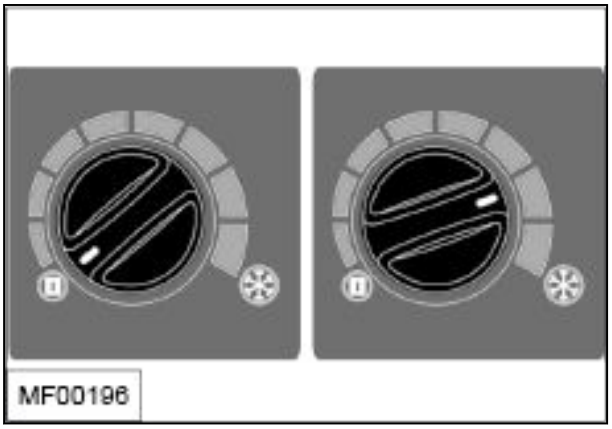


Fig. 70

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Cold Weather Operation

Open the air recirculation control (A) to recirculate air that has already been heated. This gives the maximum heating effect. It will be necessary to adjust the opening of the various louvres (B) and (C) to balance the heat output between the front and rear screen. To move large quantities of heat to the floor open the left and right-hand louvres in row (B) and close or partial close the others, set the blower control (D) to full speed.

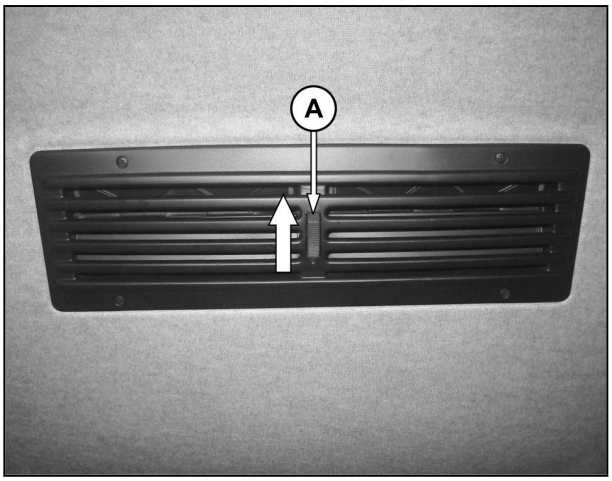


Fig. 71

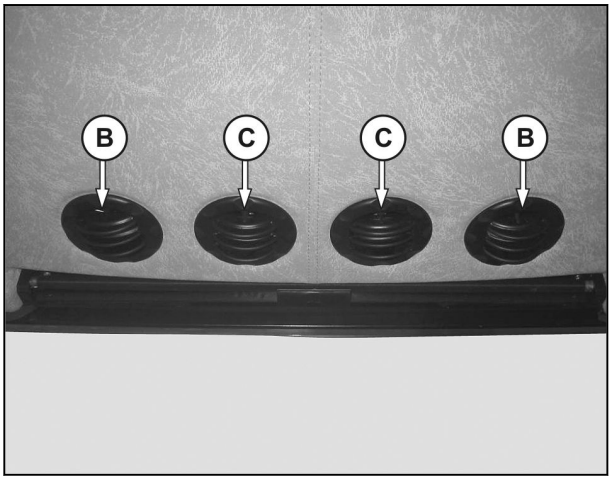


Fig. 72

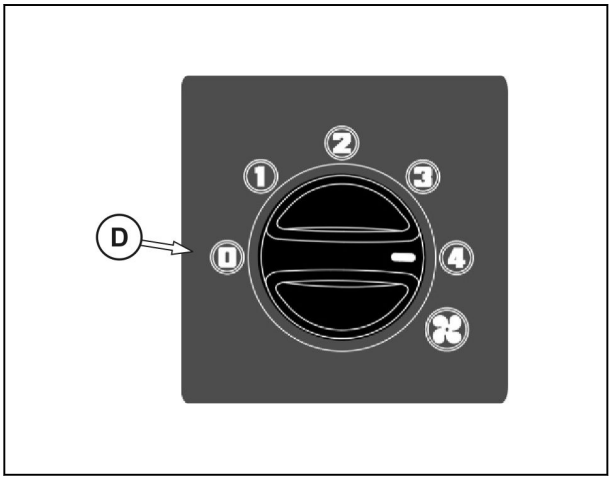


Fig. 73

https://truckmanualshub.com/

Defrosting the windscreen

Close the air recirculation control (E) to remove the humidity in the cab. When clear, open the air recirculation control to recirculate air that has already been heated. Open and direct the louvres (B) and (C) to the windscreen. Set the blower control (D) to maximum. To defrost the side windows and rear window, close or partial close all the front louvres so as to obtain the required volume of air out of the rear louvres.

Dusty Conditions

Close the air recirculation control (E) and run the blower on maximum to pressurise the air in the cab.

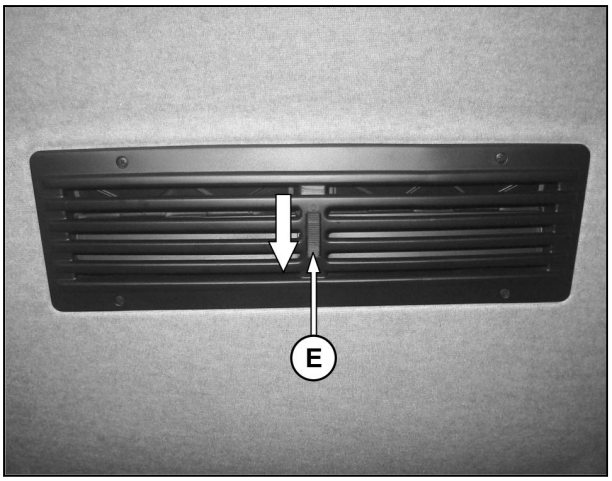


Fig. 74

3.1.16 Air Conditioning Operation

Operating the System

1. Make sure that all doors, windows and the roof hatch are closed.

2. With the engine running, turn ON the air conditioner temperature control (2).

3. Turn ON the blower motor (1) to mid speed.

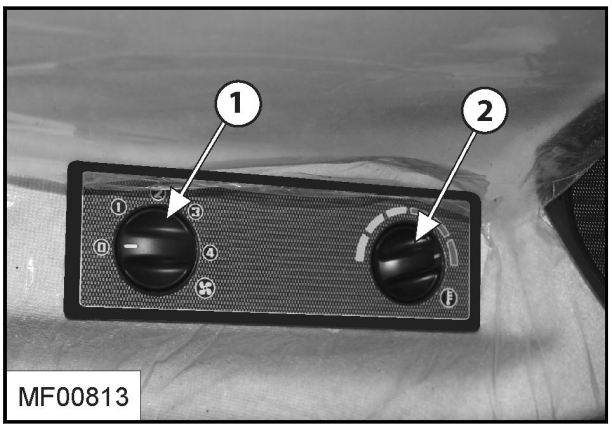


Fig. 75

4. Open fully the air recirculation control (4) by moving the control lever LEFT. This will recirculate the air that has been already cooled to give the best cooling effect.

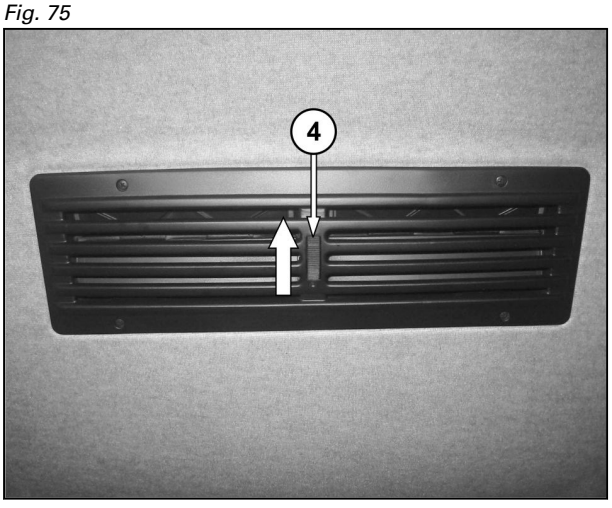


Fig. 76

https://truckmanualshub.com/

5. Open and adjust the louvres, (5) to obtain the best cooling for the ambient temperature and humidity. Lower blower speeds result in cooler air.

6. When the desired temperature has been obtained, adjust the blower speed and temperature control to maintain the cooling level. If problems are experienced with the system, immediately inspect for a clogged condenser in front of the engine radiator.

IMPORTANT:
Switch ON the air conditioning system for approximately 20 minutes every month, including the cooler seasons. This lubricates the moving parts; for example, the compressor and the system, prevents loss of refrigerant.

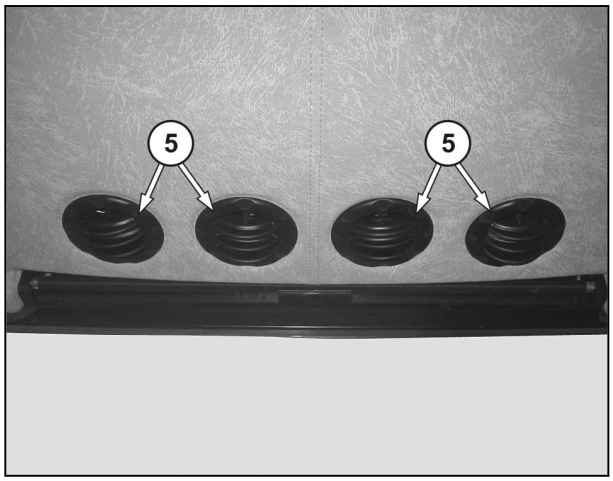


Fig. 77

3.1.17 Electrical sockets

Machine with a cab

(1) Diagnostics socket
(2) Cigarette lighter
(3) 3 pin socket

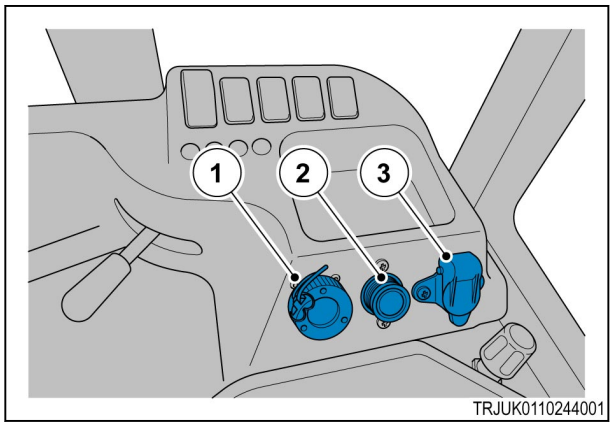


Fig. 78

(4) Trailer power socket

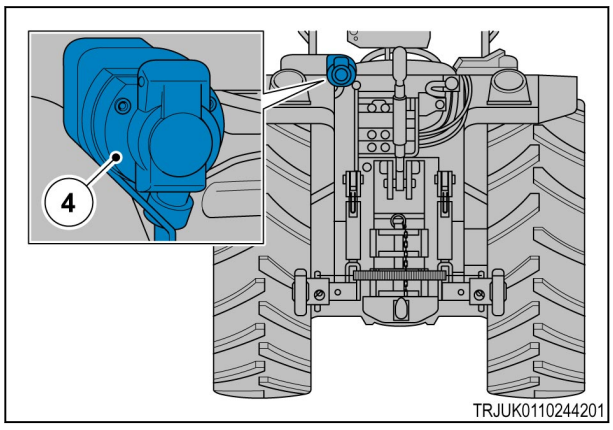


Fig. 79

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Machine without a cab

(1) Cigarette lighter socket
(2) Diagnostics socket
(3) 3 pin socket

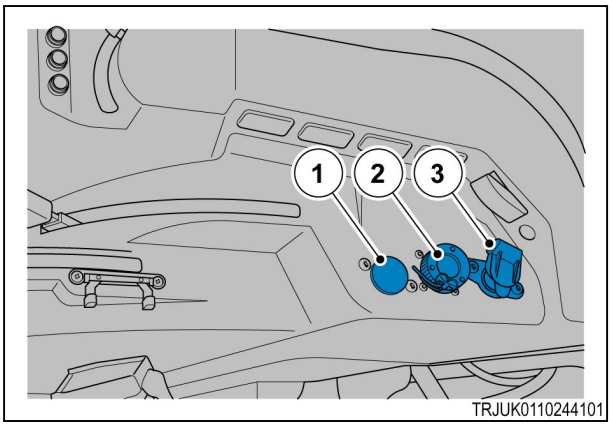


Fig. 80

(4) Trailer power socket

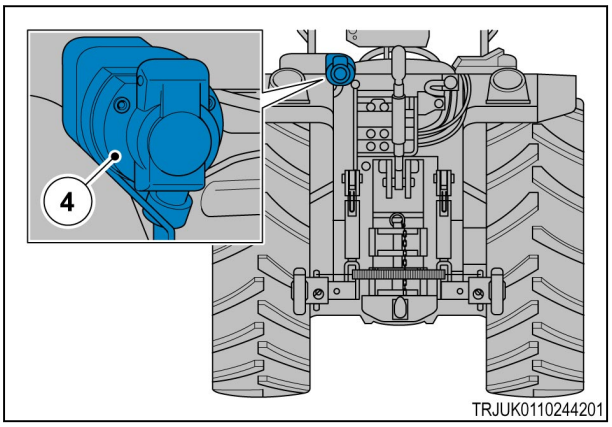


Fig. 81

3.1.18 Tool box

The tool box is behind the operator´s seat.

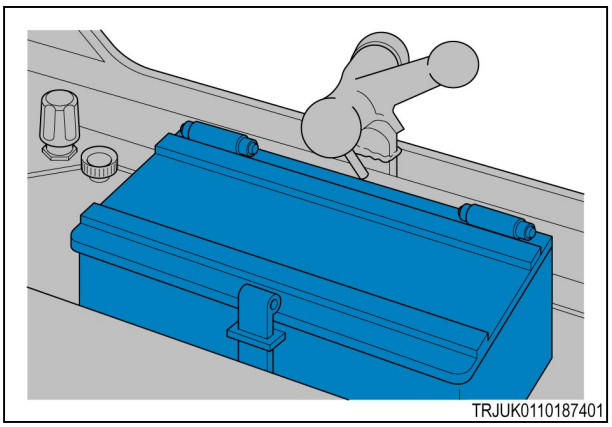


Fig. 82

3.1.19 Ballast weights

In some operating conditions, it is necessary to apply weight to the machine. This helps to increase the force available at the drawbar or to keep the machine stable on slopes.

You can install ballast weights on the wheels, the front of the machine or the rear of the machine.

You must always install the correct quantity of ballast weight for the specified task and the ground conditions.

Always make sure that the machine is correctly balanced between the front and the rear.

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Do not use more ballast weights than is necessary. The total weight on each wheel must not be more than the recommended limit.

Remove the added weights when they are not necessary. If you do not remove the ballast weights they can cause:

- The machine to use more fuel.
- Compression of the soil.
- Decreased life of the machine.

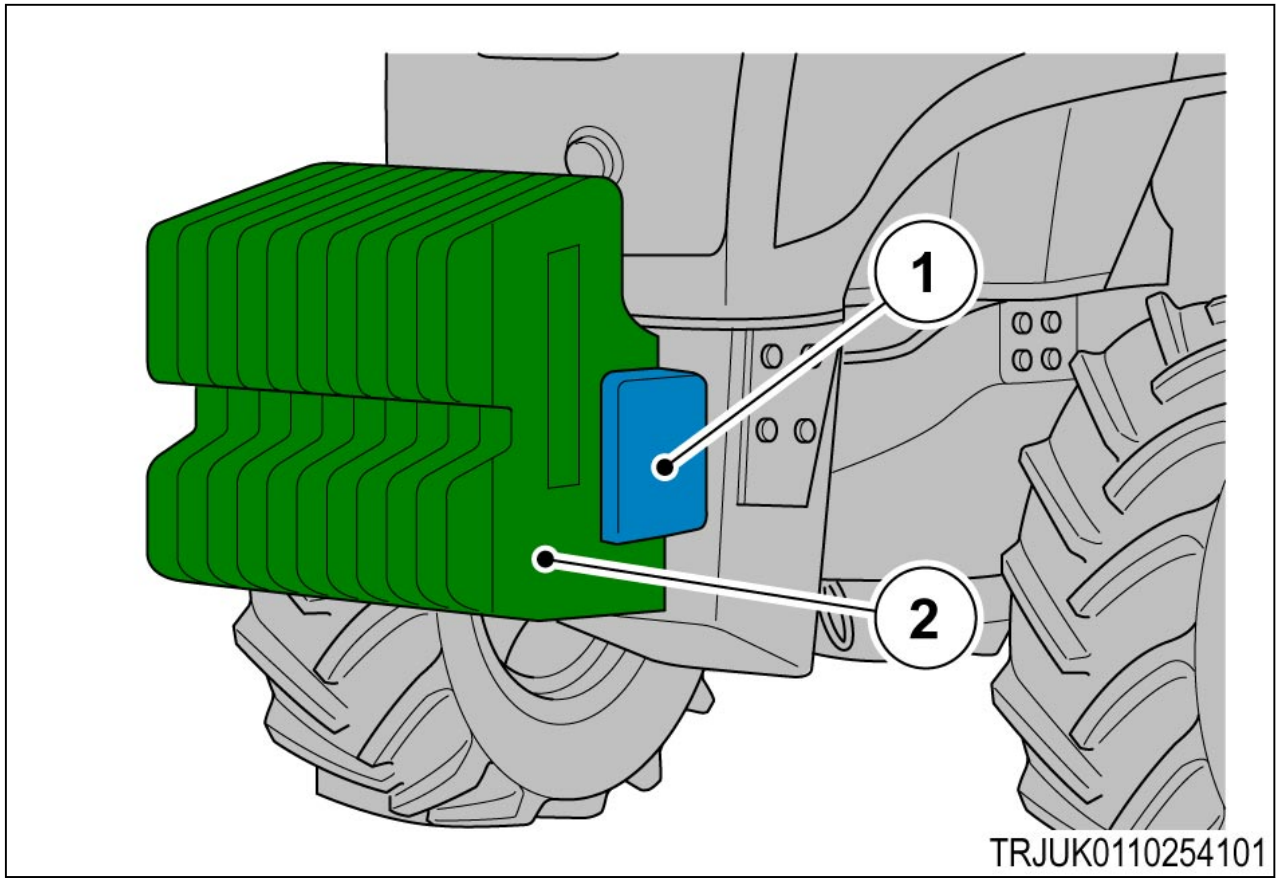


Fig. 83

(1) - Ballast weight holder

(2) - Ballast weights

Ballast weights and fasteners are available from your dealer. You must install the ballast weights in the correct proportions between the axles.

Important: Obey the assembling instructions before you adjust the ballast weights.

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Permitted ballast weights - Narrow model

Front tire	Load index	Tire pressure	Maximum load on tires	Front axle maximum load	Load without ballast weight holder kg	Load with ballast weight holder kg	2-12
240/70 R16	104 A8	2.4 bar	1800 kg	2200 kg	X	X	X
260/70 R16	109 A8	2.4 bar	2060 kg	2200 kg	X	X	X
280/70 R16	112 A8	2.4 bar	2240 kg	2200 kg	X	X	X
280/70 R18	114 A8	2.4 bar	2360 kg	2200 kg	X	X	X

Load without ballast weight holder kg	Load with ballast weight holder kg	2	4	6	8	10	12
1110	1200	1260	1320	1380	1440	1500	1560

Permitted ballast weights - Standard model

Front tire	Load index	Tire pressure	Maximum load on tires	Front axle maximum load	Load without ballast weight holder kg	Load with ballast weight holder kg	2-12
280/70 R16	112 A8	2.4 bar	1800 kg	2240 kg	X	X	X
280/70 R18	114 A8	2.4 bar	2060 kg	2360 kg	X	X	X
280/70 R20	116 A8	2.4 bar	2240 kg	2500 kg	X	X	X
320/70 R20	113 A8	1.6 bar	2360 kg	2300 kg	X	X	X

Load without ballast weight holder kg	Load with ballast weight holder kg	2	4	6	8	10	12
1110	1200	1260	1320	1380	1440	1500	1560

X = Number of permitted ballast weights

NOTE:
The total weight includes the ballast and a holder of 80 kg.

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3.1.20 Differential lock

IMPORTANT: *Risk of damage to the machine - The 2 wheels on the axle must turn at the same speed when you engage the differential lock.*

Engage the differential lock when you drive on loose soil or a slippery surface to control wheel slip.

To engage the differential lock:

- Decrease the vehicle speed to less than 14 km/h.
- Push the differential lock switch.

Machine with a cab

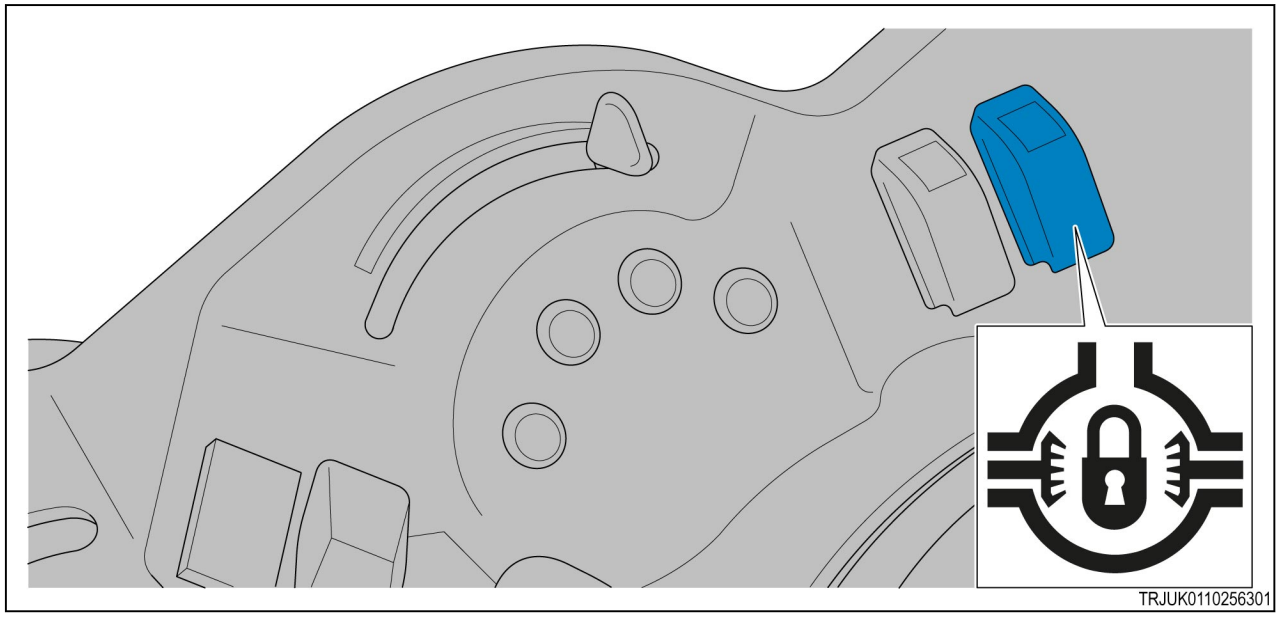


Fig. 84

Machine without a cab

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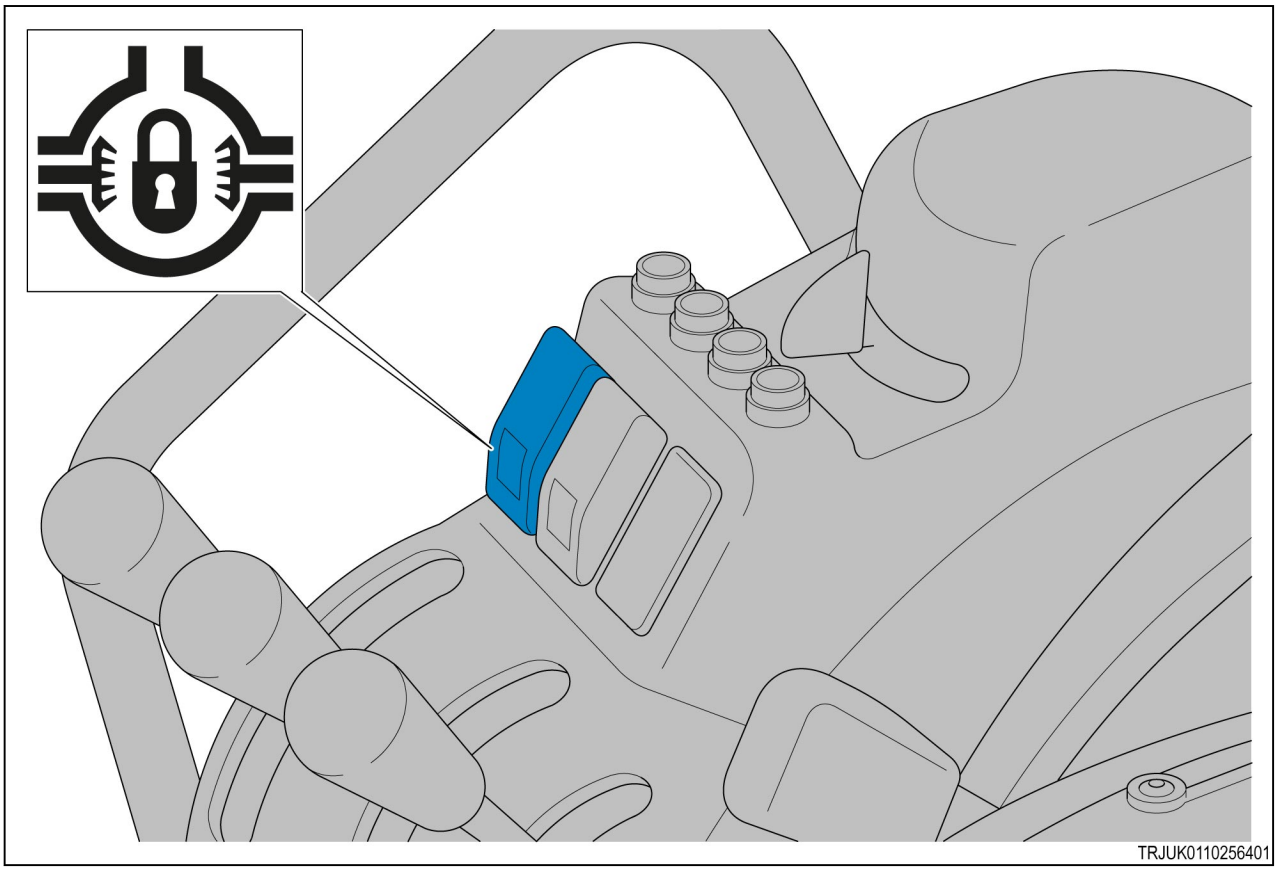


Fig. 85

The differential lock will continue to operate until:

- You push the differential lock switch.
- The vehicle speed is higher than 14 km/h.
- You turn the steering through a large angle.
- You operate the brake pedal.
- You set the engine to OFF.

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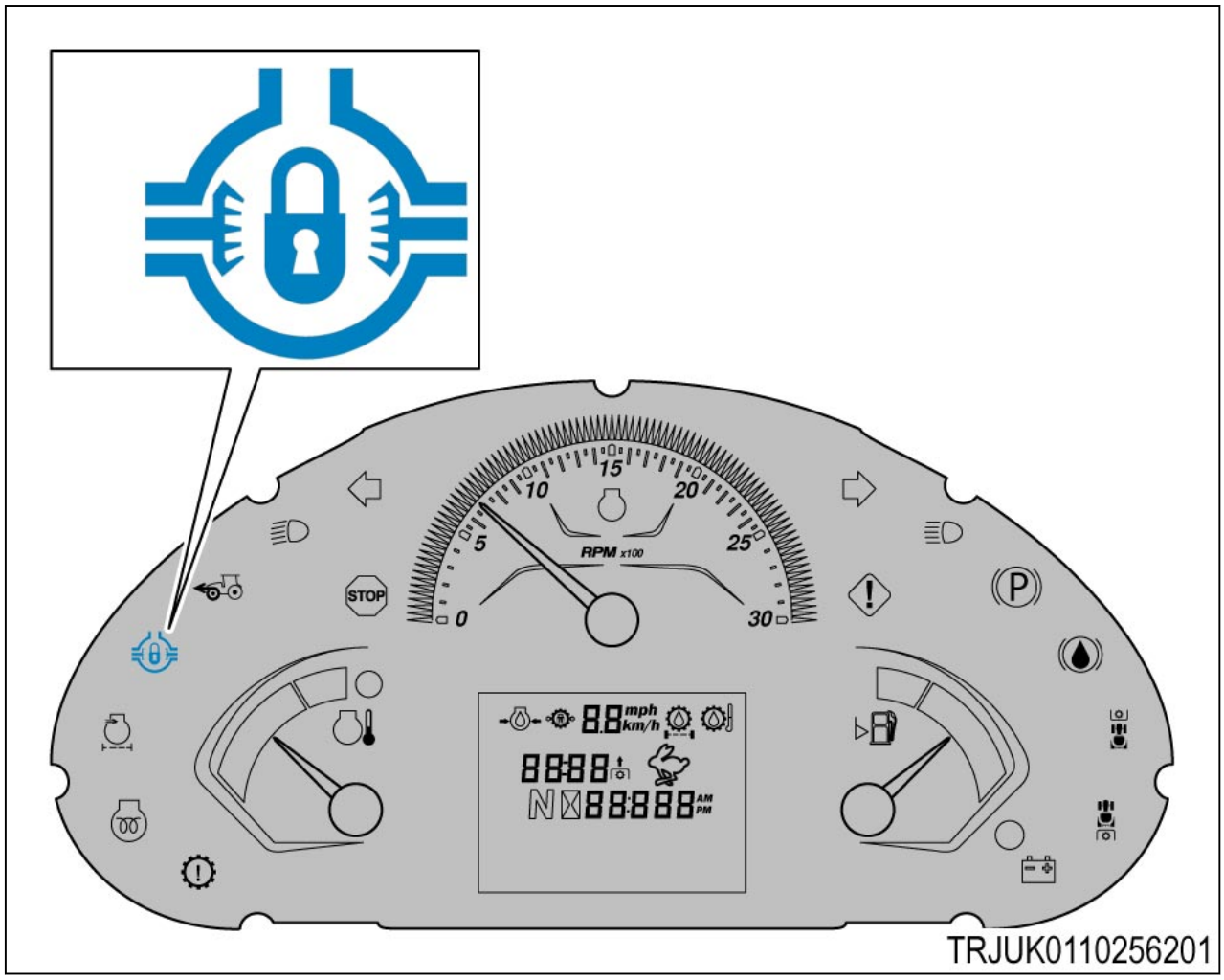


Fig. 86

The warning lamp illuminates when the differential lock is engaged.

IMPORTANT:
Do not drive the machine at a high speed when the differential is locked. Do not turn the steering through a large angle when the differential is locked.

NOTE: *The differential lock disengages automatically:*

- *When the speed is higher than 14 km/h (8,69 mph).*
- *When the steering turns through a large angle.*
- *When the engine is set to OFF.*

The warning lamp goes out when the differential lock disengages.

3.1.21 Differential Lock Logic

WARNING:
This vehicle is equipped with a device that controls the effective Differential Lock engagement in function of the number of brake pedals pressed and the Differential Lock switch position.

All possible logic combinations are described in the following table:

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DL Switch	Travel Speed	N. of Brake Pedals Pressed	Diff. Lock Status
OFF	Independent	Independent	Unlocked
ON		0	Locked
		1	Unlocked
		2	

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3.2 Power take-off

3.2.1 Power Take Off - Operating Instructions

Operating Instructions

As far as possible, the angles (a) and (b) at the universal joints should be the same at both ends of the drive shaft. In applications where this is frequently not the case (e.g. lots of sharp turns), it is recommended to use a constant-velocity drive shaft.

NOTE:
The two schematic drawings do not show any guards on the drive shaft. A guard is mandatory when using drive shafts.

IMPORTANT:
When using drive shafts of the "plug-in" type, the forks on either end of the intermediate shaft must be aligned in the same plane.

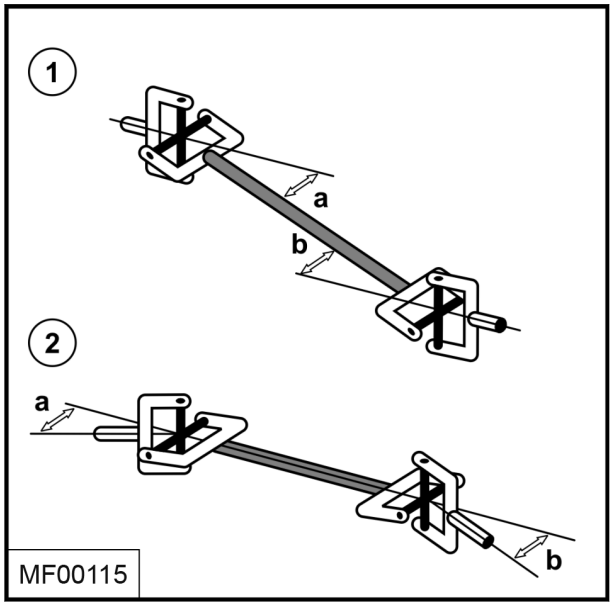


Fig. 87

3.2.2 Attaching PTO-Driven Implement

CAUTION:
Stop the engine before attaching implement or working in area of implement hitch.

Procedure

1. Turn the ignition key off to stop the engine.
2. Attach implement to tractor before connecting PTO drive line. Lock three-point hitch in upward position if it is not to be used.
3. Rotate PTO shield upward for clearance.
4. With engine off, turn shafts lightly by hand if necessary to line up splines.
5. Connect drive line to PTO shaft.
6. Pull out on shaft to make sure drive line is locked to PTO shaft.
7. Place PTO shield in downward position.
8. Make sure all shields are in place and in good condition.

   NOTE:
   Never operate PTO unless master shield is properly installed.
9. WITH ENGINE STOPPED, check integral shields on drive line by making sure they rotate freely on shaft. Lubricate or repair as necessary.
10. Check carefully for any interference.

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After finishing the procedure

WARNING:
Power take-off shafts and power take-off driven implements can be extremely hazardous; observe the following important points:

- **Remove PTO cap (A) only when the PTO is to be used.**
- **As soon as PTO-driven implement is removed, re-install cap over PTO stub shaft.**

NOTE:
Master shield (B) *may be folded up when attaching certain implements to the PTO, but it must be lowered as soon as the implement is installed.*

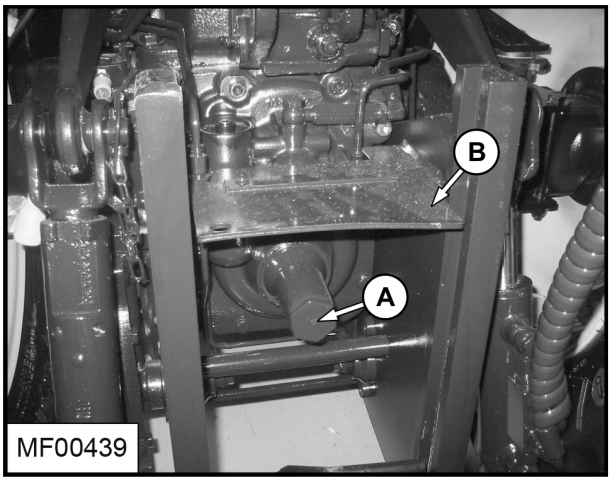


Fig. 88

CAUTION:
Never operate PTO unless the master shield is in position.

DANGER:
Before attaching, adjusting or working on PTO-driven implements, disengage the PTO, stop the engine, remove the key and apply the parking brake. DO NOT work under raised implements.

Before engaging a PTO-driven implement that is attached to rear three point, ALWAYS carefully raise and lower the implement using Position Control, checking for clearances, PTO shaft slide range, and articulation.

Refer to Safety Instructions for important information.

The tractor can be fitted with one of three types of PTO:

- Single speed 540 rpm.
- Two speed 540/540E rpm.
- Two speed 540/1000 rpm.

IMPORTANT:
When operating PTO implements such as rotary mowers, hay balers, grinder-mixer, etc., the implement must be equipped with an overrunning clutch or damage to PTO brake may occur.

DANGER:
DO NOT connect, disconnect or adjust PTO with the engine running.

DANGER:
As soon as the PTO implement drive shaft (shaft with universal joint (s)) is removed, always install the PTO output shaft guard over tractor PTO shaft.

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3.2.3 Attaching to the PTO Shaft

Procedure

1. If PTO-driven implements are connected to the swinging drawbar, the drawbar must be set so that the horizontal distance (A) between the end of the PTO shaft and the pin hole in the end of the drawbar is 356 mm.
2. Unscrew and remove the PTO cap and store it in the tool box for future use.
3. Attach the PTO shaft to the splined shaft on the tractor. Ensure that the locking device has securely retained the shaft.
4. Ensure that all the guards are in place. A hole is provided for the PTO driveline shield chain to prevent it from rotating.

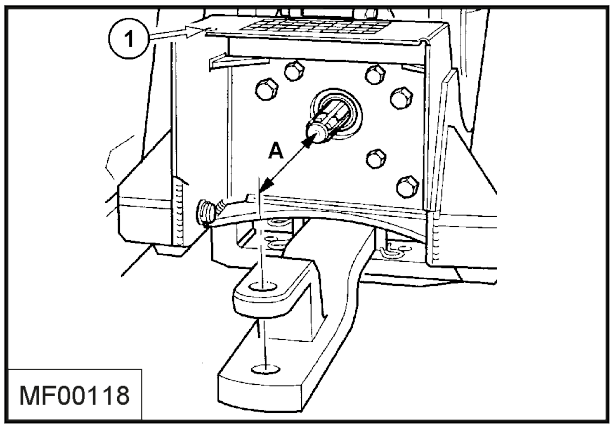


Fig. 89

3.2.4 Operate the PTO

Operate the PTO

DANGER: The machine has many mechanical parts that move.

The parts that move can hit persons.

Do not go in the dangerous areas of the machine during operation. The operator of the machine must make sure that no person goes in the dangerous areas during operation.

With the PTO switch engaged, do not engage the clutch at engine speeds more than than 1600 rpm. Make sure that you fully engage the clutch, or fully disengaged. A not fully engaged, or a slowly engaged clutch can cause damage to internal components.

Before you disengage the PTO, always decrease the engine speed to idle to prevent damage of the PTO brake. Do not stop the PTO at a high rpm. This can cause damage or wear the brake when you use high inertia implements.

If speed selection from the neutral position is not easy to engage, engage and disengage the PTO clutch.

Economical mode 540/540E PTO

With implements that operate at 540 rpm and when you do work with light loads, if the implement absorbs power that is 10% lower than the maximum tractor power or more, use the economical mode PTO.

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PTO speed selection

IMPORTANT:

Only use the rear power take-off speed selector lever when no equipment is connected to the PTO.

The speed lever controls the PTO speed. Move the lever to position

- (A) for 540E rpm or 1000 rpm
- (B) Neutral position
- (C) for 540 rpm.

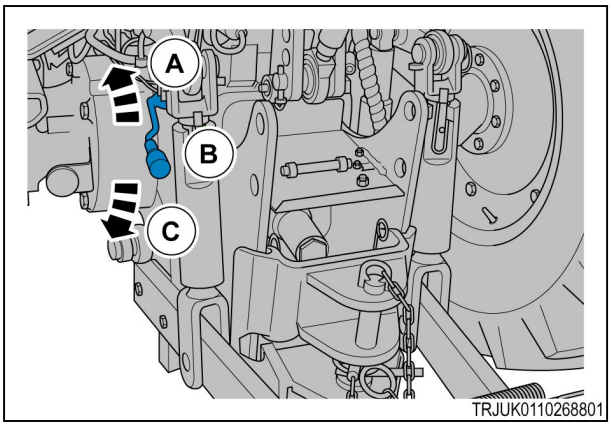


Fig. 90

3.2.5 Engage and disengage the PTO

Engage the PTO

To engage the PTO, press the PTO switch (A) or move the PTO clutch lever (B) forward.

You can see the PTO speed on the digital display.

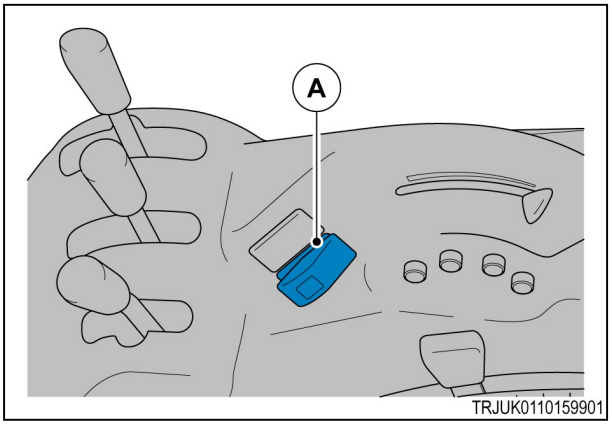


Fig. 91

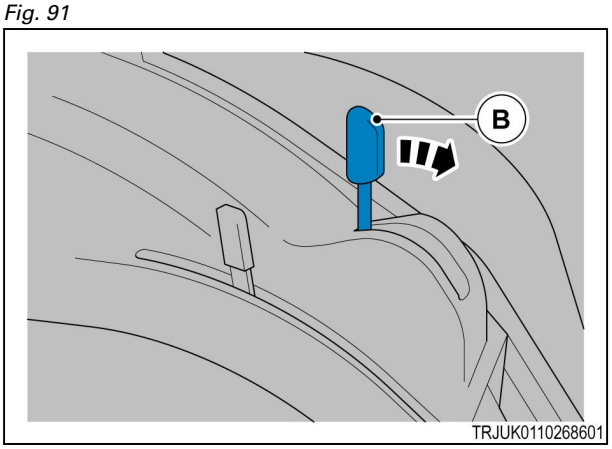


Fig. 92

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Disengage the PTO

To disengage the PTO, press the PTO switch (A) or move the PTO clutch lever (B) rearward.

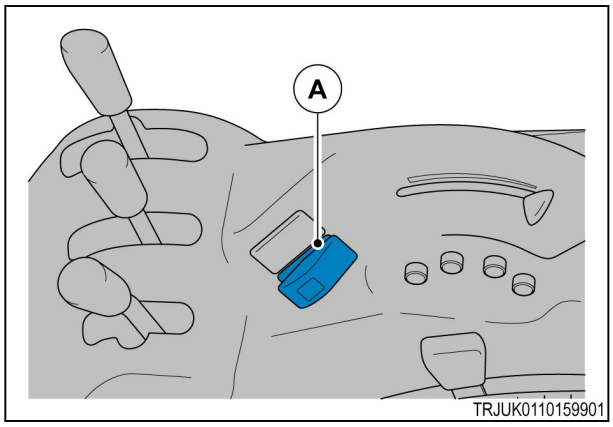


Fig. 93

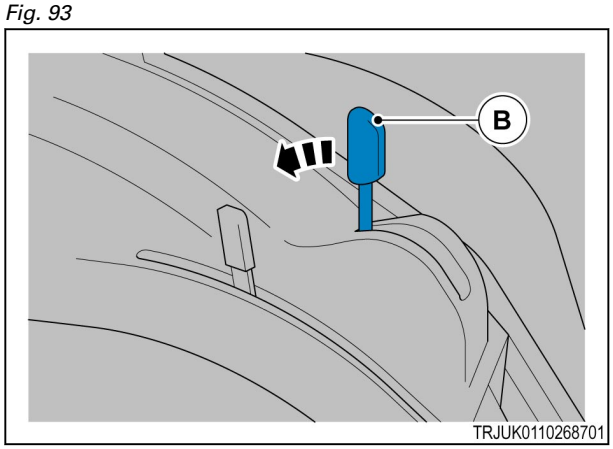


Fig. 94

3.2.6 PTO indicator lamp and speed indicator

PTO indicator lamp

(A) Rear PTO indicator lamp
(B) Front PTO indicator lamp

When you engage the PTO, the PTO indicator lamp comes on.

IMPORTANT:
If there is a PTO fault, the PTO indicator lamp flashes. Speak to an approved service centre for a diagnostic check.

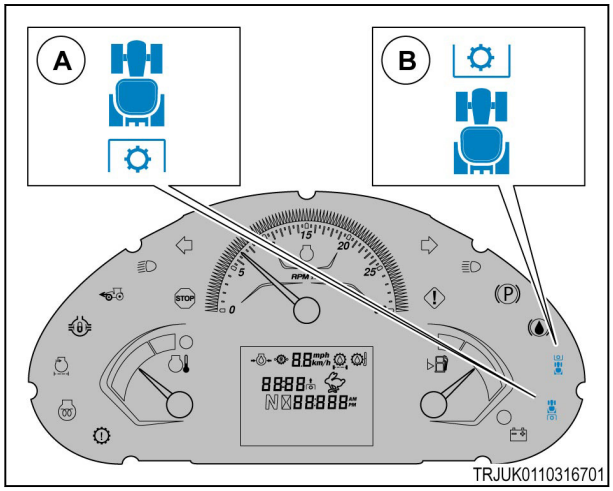


Fig. 95

PTO speed indicator

You can see the speed of the PTO on the digital display.

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3.2.7 Select the speed of the PTO - independent mode to ground speed mode

DANGER: The machine has many mechanical parts that move.

The parts that move can hit persons.

Do not go in the dangerous areas of the machine during operation. The operator of the machine must make sure that no person goes in the dangerous areas during operation.

With the PTO mode control lever (Independent or Ground Speed) (1), you can go from a neutral position (N) to independent mode (D), or ground speed mode (E).

To select the ground speed mode, stop the machine, and move the PTO mode control lever (1) to the position (E).

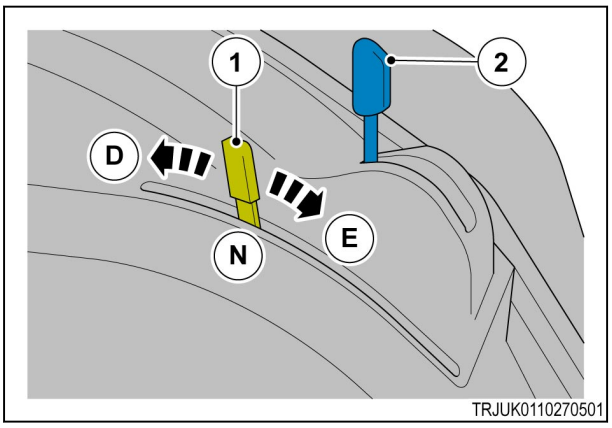


Fig. 96

When you engage the ground speed mode, the GND indicator will show on the dashboard.

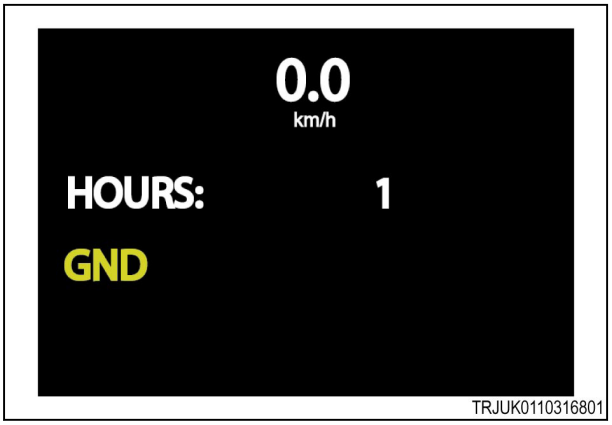


Fig. 97

NOTE:
In ground speed mode, the mechanical PTO clutch lever (2) *has no effect.*

NOTE:
The neutral position is not available on a machine with an electro-hydraulic transmission. Use the PTO mode control lever (1) *to select independent mode* (D) *or ground speed mode* (E).

3.2.8 Operation of the PTO with the machine stopped

WARNING: The machine can move without warning.

The machine is heavy and can cause death or injury.

Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks.

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Procedure

1. Put the PowerShuttle lever (1) in neutral position.

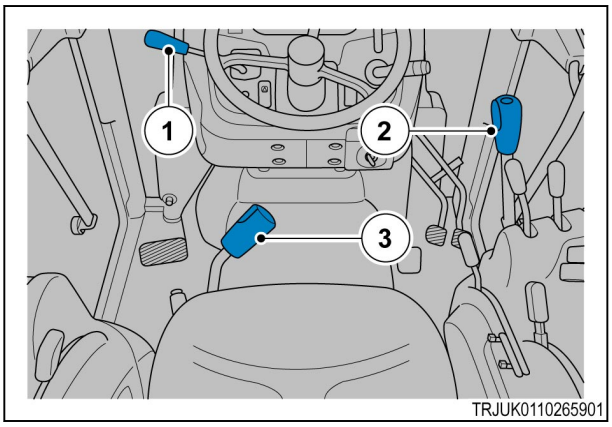


Fig. 98 With cab

2. Put the gear lever (2) in neutral position.

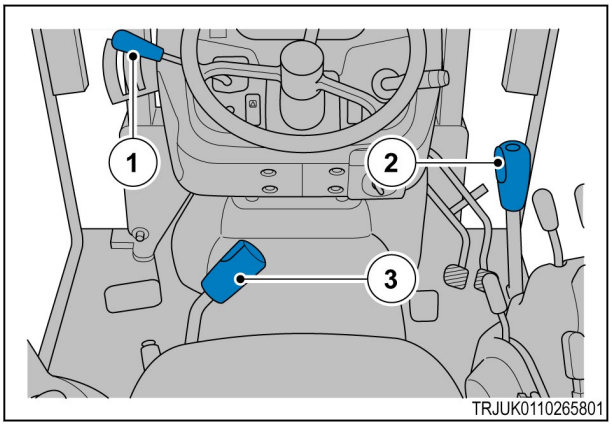


Fig. 99 Without cab

3. Put the speed range lever (3) in neutral position.

If it is necessary to move from the operator's seat when you stop the machine, obey these instructions:

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4. Engage the PTO switch (4), or the mechanical PTO clutch lever (5).

5. Move from the operator's seat, and in less than 5 seconds, engage the PTO switch (4), or the mechanical PTO clutch lever (5) again.

NOTE:
If the PTO is on when you move from the operator's seat, the PTO automatically stops.

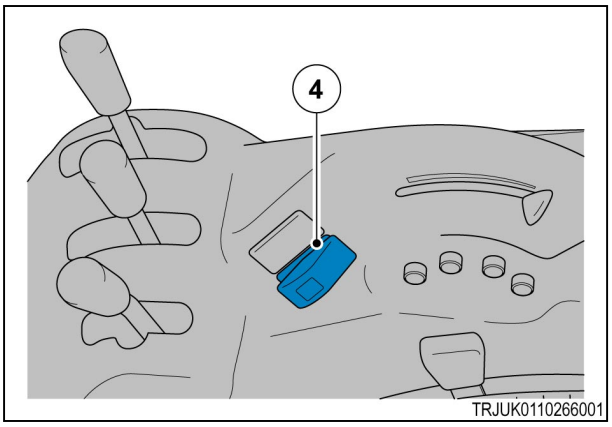


Fig. 100

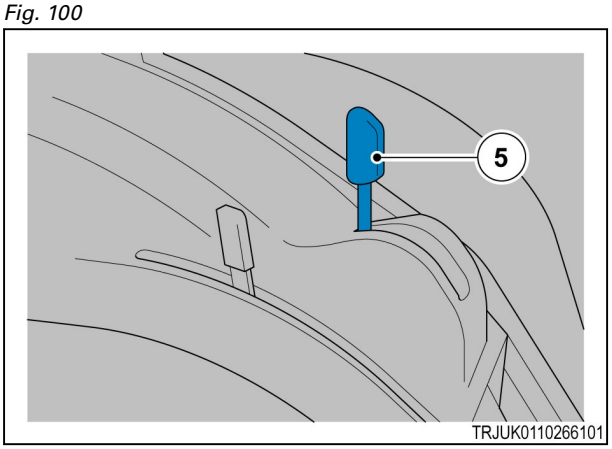


Fig. 101

3.2.9 PTO Warning Light Logic

WARNING:
The PTO Warning Light status depend of the engine rpm, ground drive PTO control (if equipped) and PTO speed control.

All possible PTO control combinations are described in the following table with the correspondent Warning Light status:

Ground PTO control	PTO clutch Control	Speed PTO Control	Engine rpm	PTO warning light status
Independent	ON	Neutral	Independent	540+540E Flashing
Independent	ON	Independent	<400	540+540E Flashing
OFF	ON	540	>400	540 ON
OFF	ON	540 E	>400	540 E ON
OFF	ON	1000	>400	1000 ON
OFF	OFF	Independent	Independent	All lights OFF
ON	Independent	Independent	<400	540+540E Flashing

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3.3 Three point hitch

3.3.1 3 point hitch

When you adjust the 3 point hitch, make sure that:

- It can move fully.
- The depth control lever is in the low position before you attach an implement.
- You adjust the top link to put the implement parallel to the ground.
- If you use a plow, you adjust the lower link stabilizers to a maximum lateral movement of 100 mm.

Setting the hitch parallel to the ground

IMPORTANT:
Obey the specified dimensions.

You can adjust the length of the top link to put the implement parallel to the ground.

If you:

- Increase the length of the top link, it decreases the angle.
- Decrease the length of the top link, it increases the angle.

The top link has 3 possible locations:

- Top hole - Decreased depth control, increased lift capacity.
- Middle hole - Standard position.
- Bottom hole - Increased depth control, decreased lift capacity.

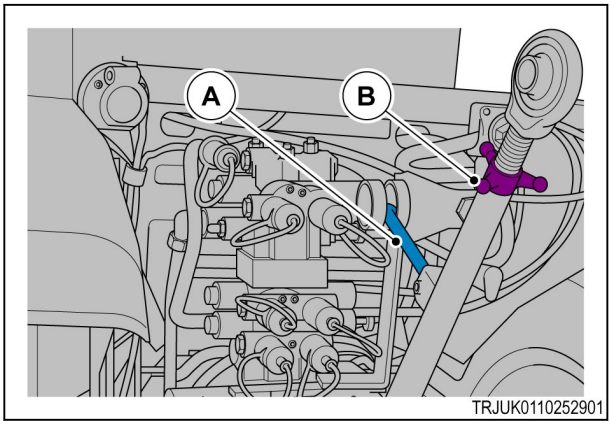


Fig. 102

Lower the implement to remove the weight from the hitch.

Adjust the top link to level the implement front to rear:

- Release the rod (A).
- Loosen the fastener (B).
- Rotate the top link clockwise to increase the length or counterclockwise to decrease the length.

IMPORTANT:
The length of the top link must not be more than 830 mm measured from the bottom to the center of the attached point.

IMPORTANT:
Obey the specified dimensions or the top link threads can become damaged.

After you adjusted the top link:

- Tighten the fastener (B).
- Install the rod (A).

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Lateral adjustment

To set the implement equally from side to side, adjust the right or the left link rod:

- Lift the lock (C).
- Turn the link rod (D) clockwise to lift the linkage.
- Turn the link rod (D) counterclockwise to lower the linkage.

The length (E) must between:

- Minimum length = 430 mm
- Maximum length = 560 mm.

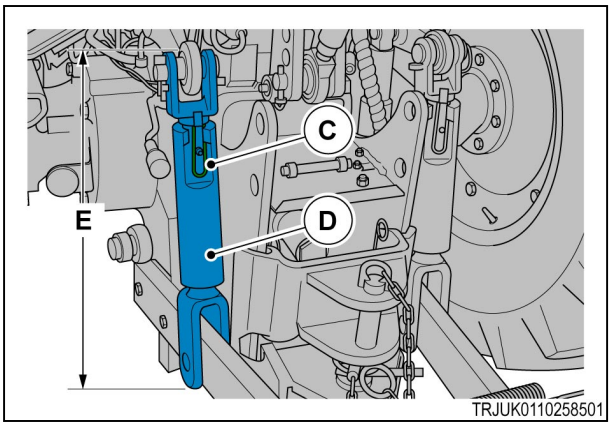


Fig. 103

3.3.2 3 point hitch system

This linkage is made to category 2 specifications. It can be adapted to category 1 specifications.

(1) Top link
(2) Lift arms
(3) Adjustable links
(4) Ball ends
(5) Lower links

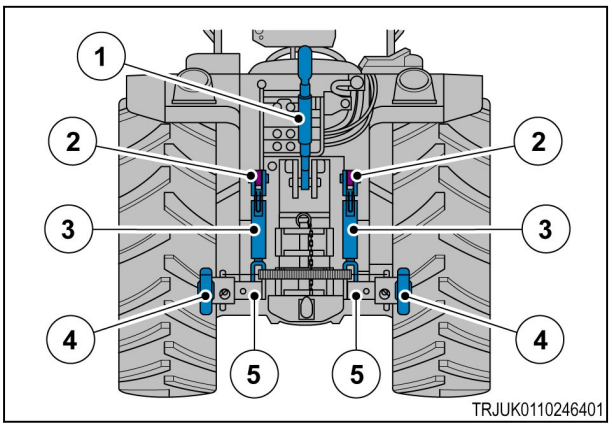


Fig. 104

3.3.3 Hitch control levers

3 point hitch control levers

The position control lever (A) and the draft control selector (B) adjust the position of the 3 point hitch.

IMPORTANT:
During transport and when the 3 point hitch is not in operation, push the lever (B) *fully forward.*

The position control lever (A) lifts the 3 point hitch when pulled rearward and lowers the 3 point hitch when moved forward. The draft control lever (B) controls the 3 point hitch position compared to draft loads.

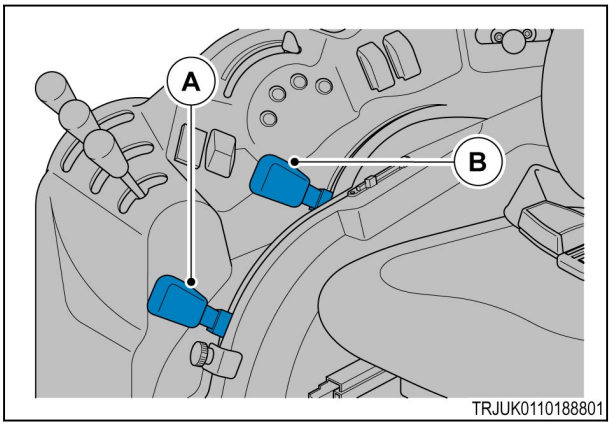


Fig. 105

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Adjust the speed that the 3 point hitch lowers

When you attach a heavy implement, the 3 point hitch moves down with more speed. Adjust the drop speed control to decrease the speed. This prevents damage to the implement or injury to personnel.

Turn the 3 point hitch drop speed control knob (C) clockwise to decrease the 3 point hitch drop speed. To lock the 3 point hitch, turn the adjustment knob fully clockwise. Turn counterclockwise to increase drop speed.

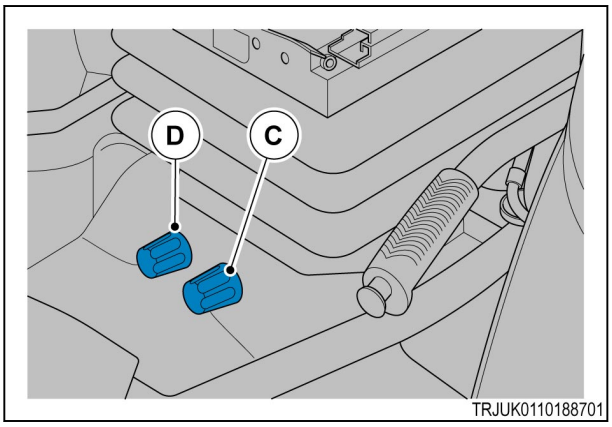


Fig. 106

Adjust the reaction speed

You can control the reaction speed of the 3 point hitch with the control (D). Turn the control clockwise (increase) or counterclockwise (decrease) to adjust the reaction speed.

The high reaction speed of the 3 point hitch can cause vibration. To prevent vibrations, turn the reaction speed control (D) gradually counterclockwise.

Draft Control

To adjust the depth of an implement, move the position lever (A) and then the draft control selector (B) forward.

Move the machine forward, then move the draft control selector (B) gradually until you get the correct depth.

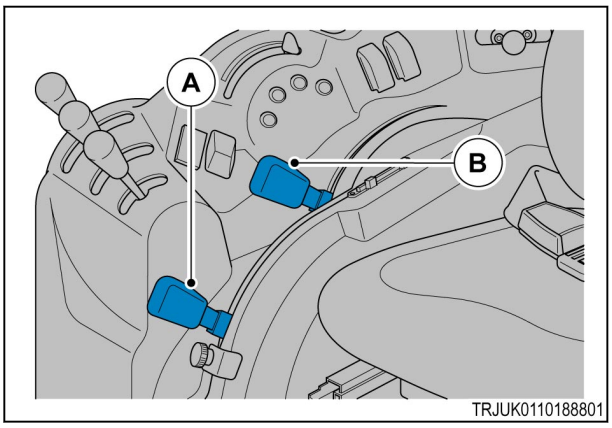


Fig. 107

Reaction speed

To adjust the draft control, make sure that the adjustment knob is fully open.

The top link is connected to the support in relation to the reaction speed.

(E) Top hole: lowest reaction speed
(F) Middle holes: moderate reaction speed
(G) Bottom hole: highest reaction speed

IMPORTANT:
Move the top link to holes (E) *or* (F) *if:*

- *There is unwanted vibrations through the hitch*
- *The height of the implement is too high when lifted up*
- *The range of the draft control is too small.*

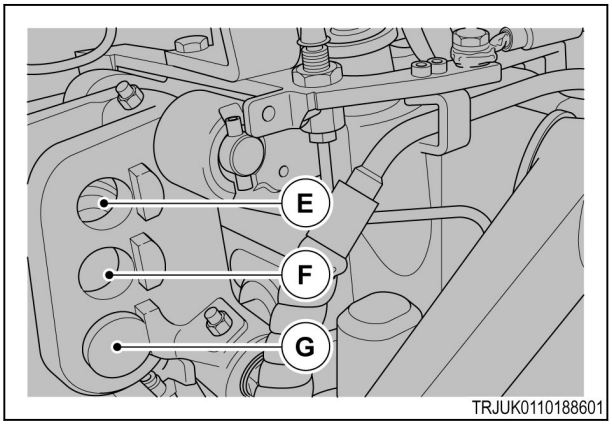


Fig. 108

https://truckmanualshub.com/

When you do work with a plough, use the bottom position which supplies increased lift height and with less force.

IMPORTANT:
Move the top link to holes (F) *or* (G) *if:*

- *The draft control operation is unsatisfactory and the engine speed decreases too far before you lift the implement.*
- *The rear of the implement feels loose and drags the ground when you lift the implement.*

During special operations, the lift can cause vibrations. To remove the vibration, gradually turn the adjustment knob (C) counterclockwise.

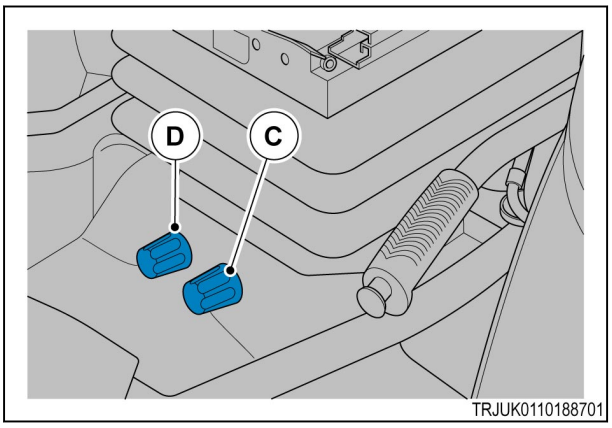


Fig. 109

Float position and position control

The control lets the implement keep a set height to the machine.

Adjusting the implement position

Move the lever (B) forward. Move the lever (A) gradually rearward until you have the necessary implement position.

Operations

At the end of the operation, move the lever (A) rearward to lift the implement. To continue the operation move it forward again.

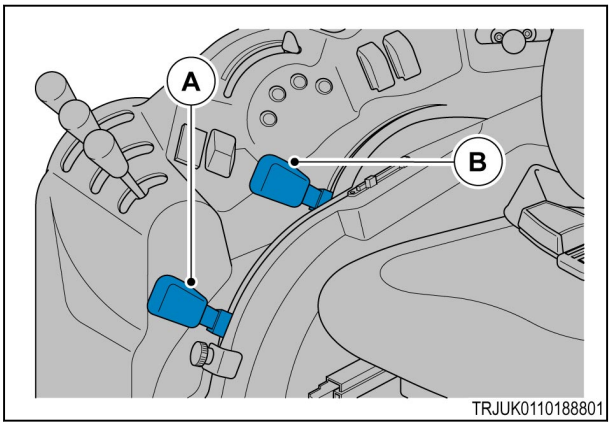


Fig. 110

Implement follows ground contour

In this mode, the coupling is free. Lower the implement to the ground and the implement follows the ground contours.

To do this, move the levers (A) and (B) fully forward.

Use lever (A) to lift the implement.

Transport of attached implements

To transport implements, move lever (B) forward and move lever (A) fully rearward.

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Adjusting rear 3 point control lever friction

IMPORTANT:
Make sure that the engine is OFF and that the 3 point hitch is in the lowest position.

If the position control lever does not stay in the set position, tighten the position control lever fastener (I) until the lever stays in position.

If the draft control selector does not stay in the set position, tighten the draft control lever fastener (H) until the lever stays in position.

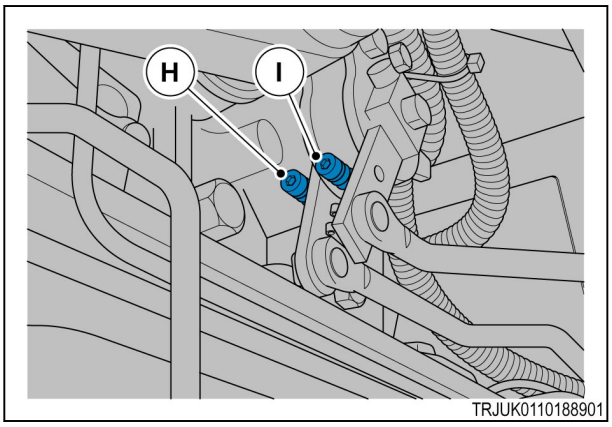


Fig. 111

https://truckmanualshub.com/

3.4 Remote valves

3.4.1 Auxiliary valves

WARNING: Unwanted loss of hydraulic pressure.

Risk of death or injury.

Use the applicable supports when you do work near to the hydraulic system.

IMPORTANT:
Make sure that the oil in the hydraulic cylinders is clean. Dirty oil can cause damage to the machine.

NOTE:
If the implement accidentally disconnects from the machine, the hoses also disconnect.

Operation

The auxiliary valves operate the remote hydraulic implement.

On the right side of the operator, there are the hydraulic control levers (1), (2), (3), and (4).

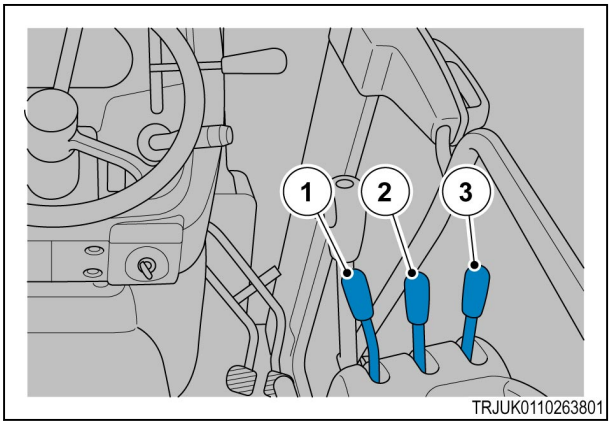


Fig. 112 With cab

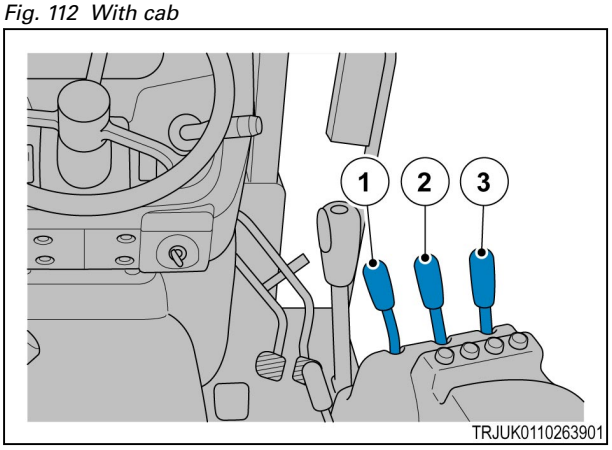


Fig. 113 Without cab

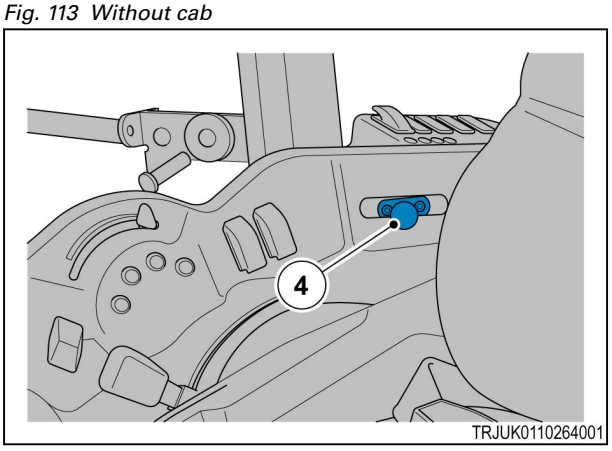


Fig. 114

https://truckmanualshub.com/

The hydraulic control levers operate the control valves (1), (2), (3), and (4) in the rear of the machine. For example, control lever (1) operates control valve (1).

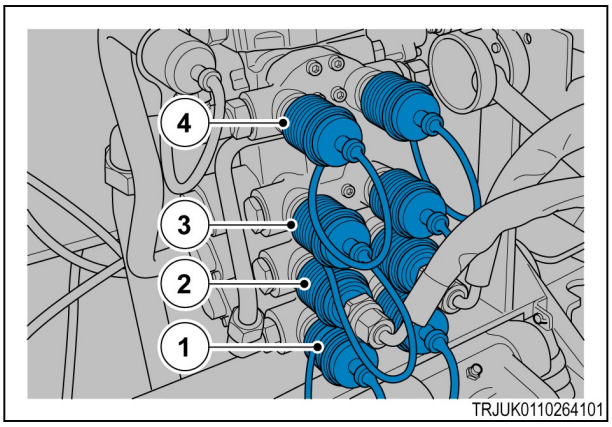


Fig. 115

Positions of the levers:

N = neutral position

A = floating position

B = jack input position

C = jack output position

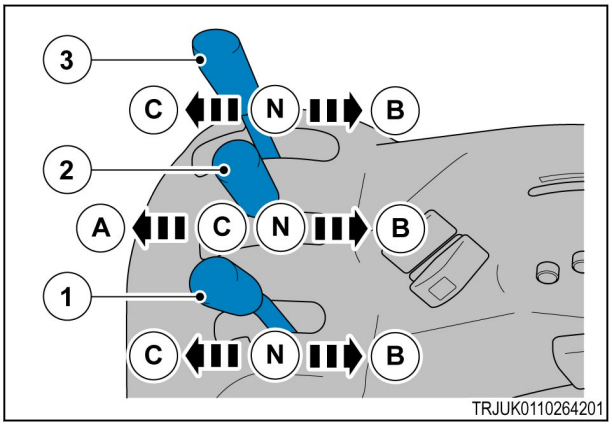


Fig. 116 With cab

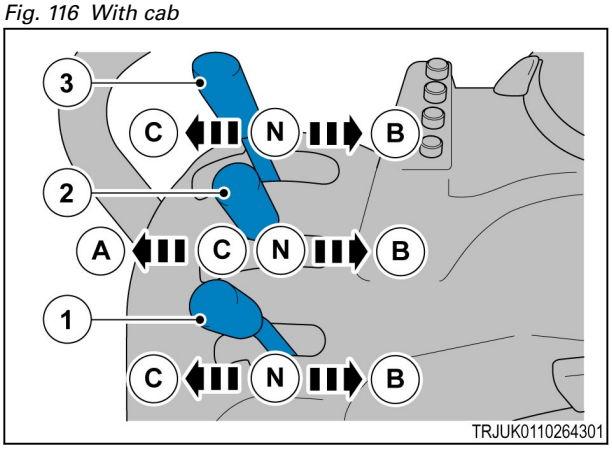


Fig. 117 Without cab

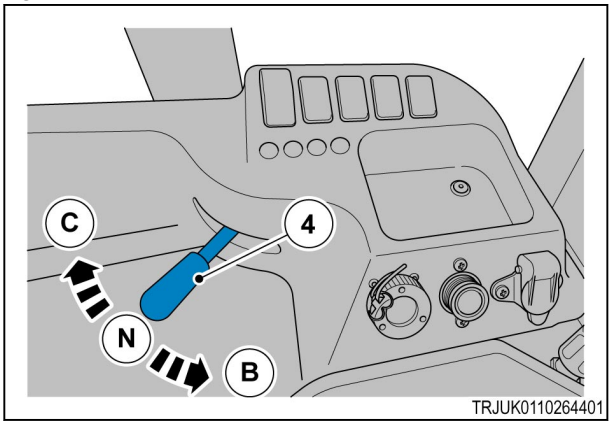


Fig. 118

https://truckmanualshub.com/

3.5 Trailer brake system

Towed equipment

WARNING: Loss of control.

Risk of death, injury or damage to the machine.

Do not tow the machine faster than its approved towing speed. Obey the recommendations from the equipment manufacturer.

WARNING: Loss of control.

Risk of death or injury.

Before you tow the trailer, make sure that the brakes on the trailer operate correctly.

WARNING: Loss of control.

Risk of death or injury.

Always connect the brake pedals together when you attach a hydraulic braked trailer to the machine.

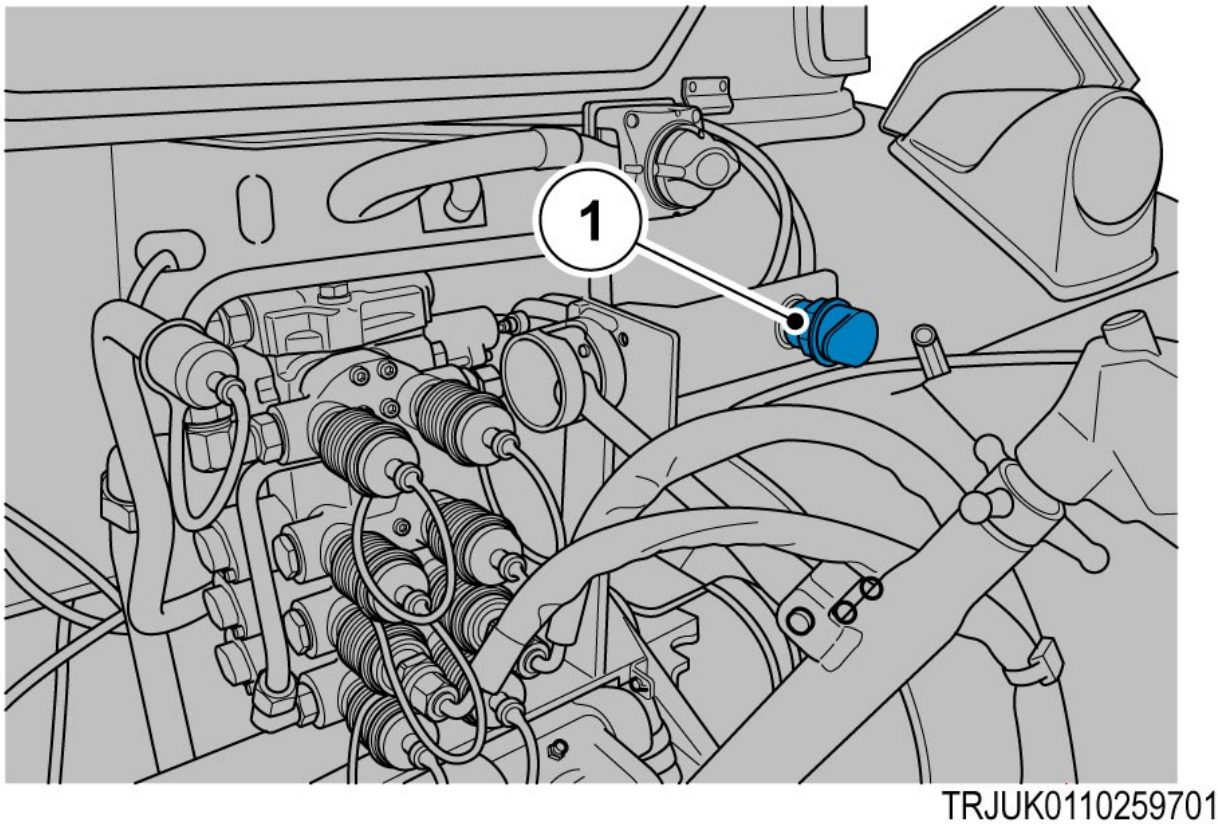


Fig. 119

Remove the cap from the hydraulic trailer brake line (1). Make sure that the couplings are clean and connect the supply hose. Use the latch to connect the brake pedals together. The machine brake system adjusts the brake pressure of the towed equipment.

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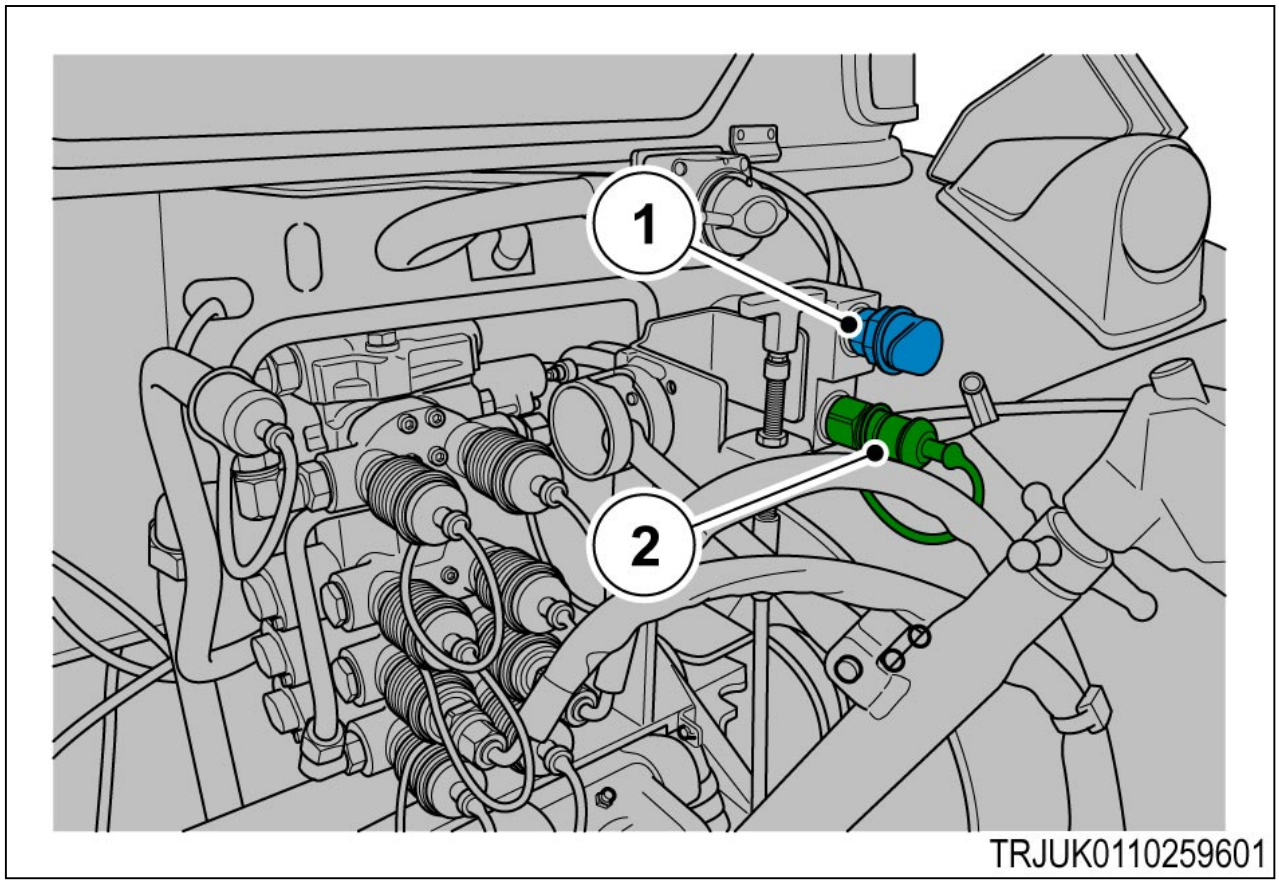


Fig. 120

Remove the cap from the hydraulic trailer brake line (1) and (2). Make sure that the couplings are clean and connect the supply hose. Use the latch to connect the brake pedals together. The machine brake system adjusts the brake pressure of the towed equipment.

NOTE: *Always keep the trailer brake lines clean. Always put the covers on the brake lines when you do not use them.*

IMPORTANT:
If the towed implement has trailer brakes, make sure that you connect the connections for the trailer brakes before you drive the machine.

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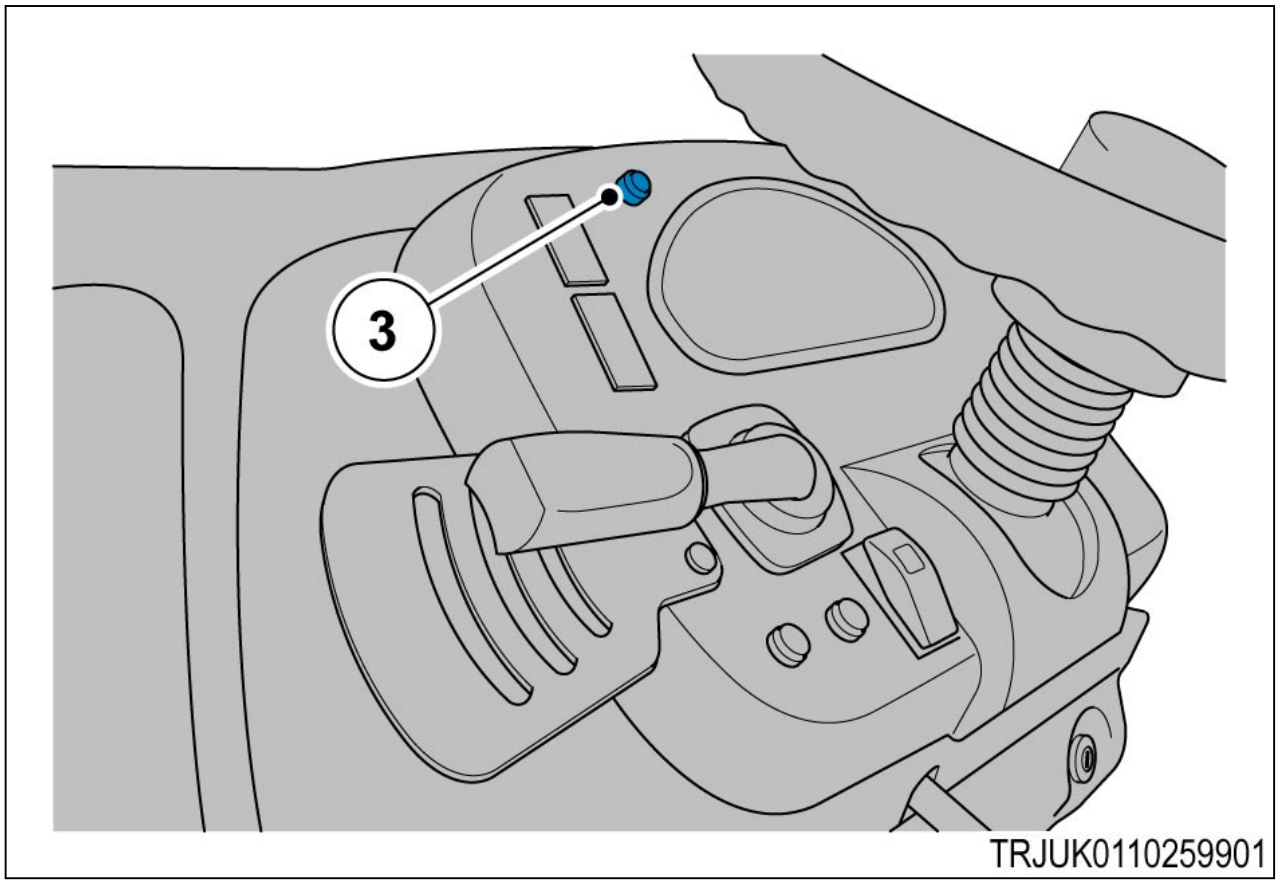


Fig. 121

The warning lamp (3) shows the malfunctions of the brake system and, or shows when you use the parking brake. If you press the warning lamp, the system does a check of the operation of the parking brake. It simulates use of the parking brake and if you try to move the machine, you get resistance from the trailer parking brake.

Do not tow equipment that does not have brakes:

- At speeds more than 32 km/h.
- When the full load has a weight above 1.5 t and more than 1.5 times the weight of the machine unit.

Do not tow equipment that has brakes:

- At speeds more than 40 km/h
- When the full load has a weight more than 4.5 times the weight of the towing unit.

The distance necessary to stop the machine increases on slopes and with the speed and weight of the towed load. Towed loads with or without brakes that are too heavy for the machine, or that you tow too quickly, can cause loss of control. Look at the total weight of the equipment and its load.

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IMPORTANT:
When you stop, apply the parking brake and the trailer parking brake.

IMPORTANT:
The machine´s parking brake, indicator lamp (A), *has no effect on the hydraulic trailer brake.*

The indicator lamp (B) on the instrument panel comes on when the oil level in the machine´s brake reservoir is low.

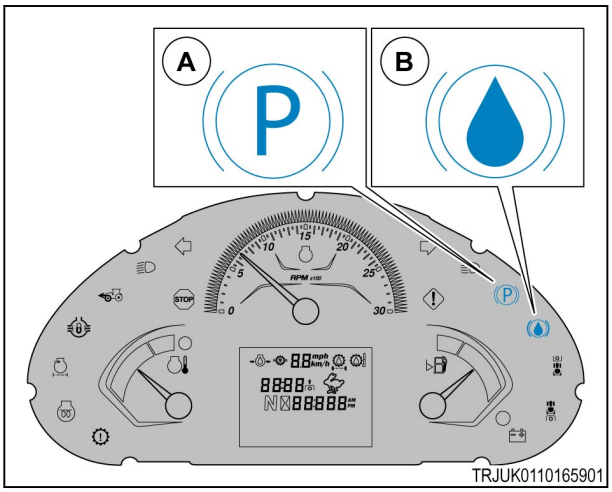


Fig. 122

https://truckmanualshub.com/

3.6 Trailer hitches - Models with slide guide rail - Types

They can be either type, according to different country specifications:

(A) EEC

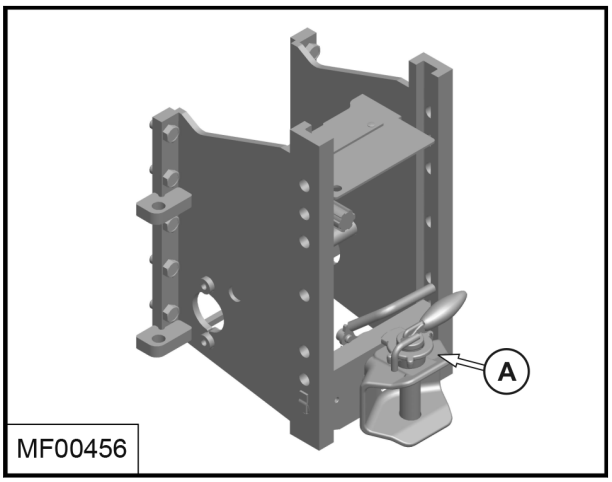


Fig. 123

(B) CUNA C

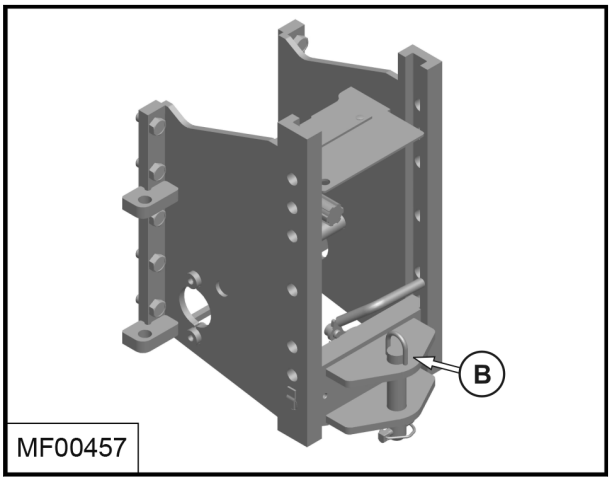


Fig. 124

(C) CUNA D2 Type

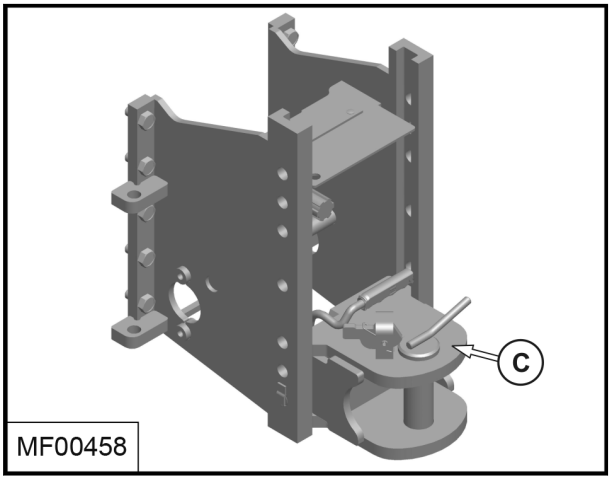


Fig. 125

https://truckmanualshub.com/

3.6.1 Adjusting trailer hitch height - EEC/CUNA C Model

Procedure

1. Support the hitch (A) with one hand.

2. With the other hand push the security pin (B) and pull the lever (C).

3. Bring the hitch (A) to the required position.

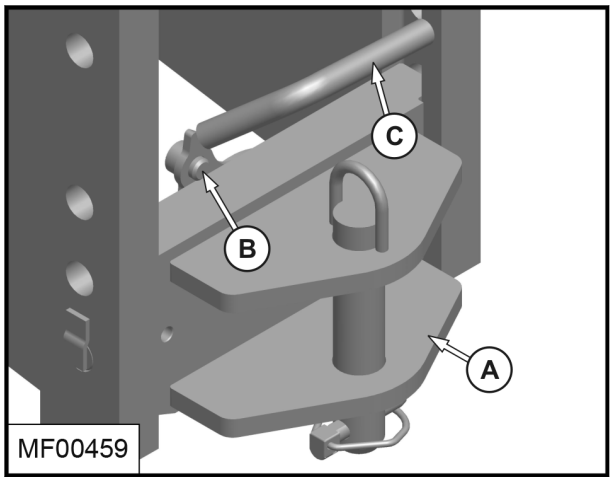


Fig. 126

3.6.2 Adjusting trailer hitch height - CUNA D2 Model

Procedure

1. Support the hitch (A) with one hand.

2. With the other hand pull the lever (B) and bring the hitch (A) to the required position.

IMPORTANT:
Use only trailers with a towing eye that matches the hitch pin diameter.

NOTE:
Check and replace if needed wear or damaged parts.

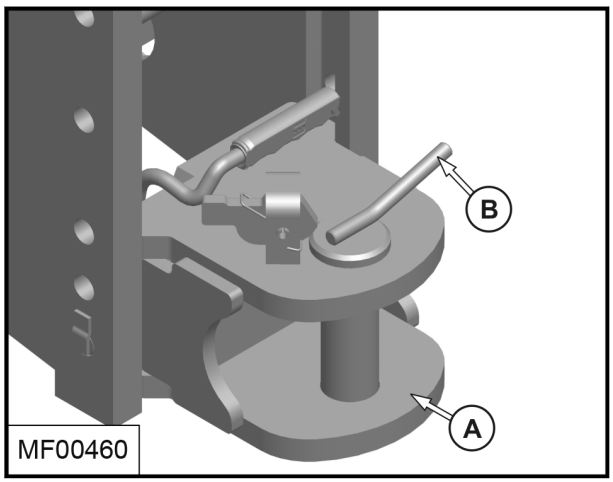


Fig. 127

https://truckmanualshub.com/

3.7 Trailer hitches - Models with holes guide rail - Types

They can be either type, according to different country specifications:

(A) CEE

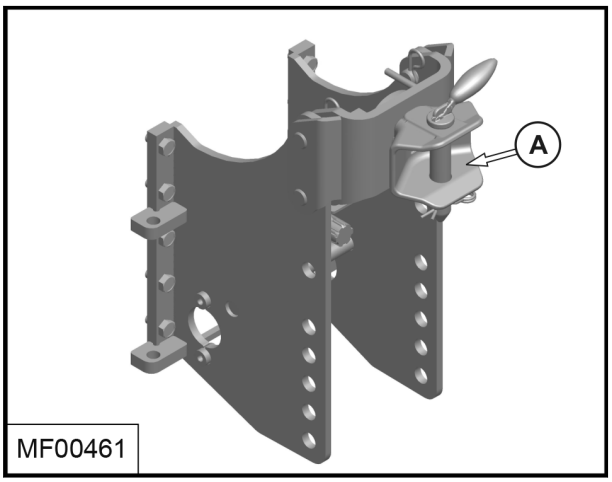


Fig. 128

(B) CUNA C

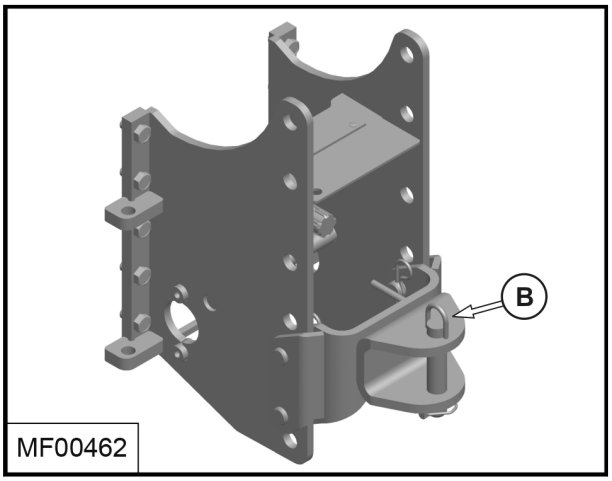


Fig. 129

(C) CUNA D2 Type

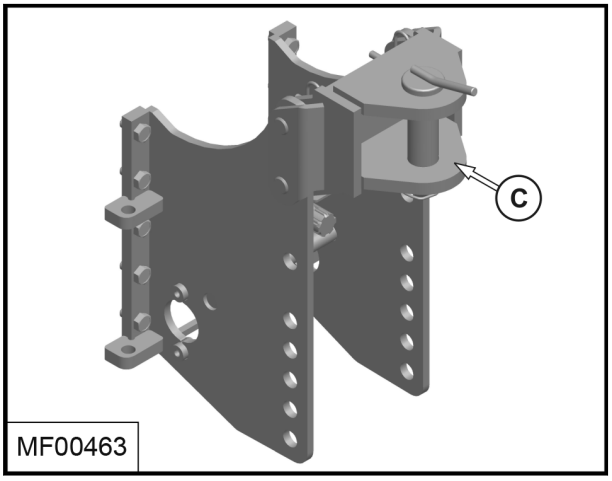


Fig. 130

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3.7.1 Adjusting trailer hitch height - Models with holes guide rail

Procedure

1. Support the hitch (A).

2. Remove the locking pins (B) and pins (C).

3. Bring the hitch (A) to the required position.

4. Re-install the pins (C) and the locking pins (B) once the desired setting is obtained.

IMPORTANT:
Use only trailers with a towing eye that matches the hitch pin diameter.

NOTE:
Check and replace if needed wear or damaged parts.

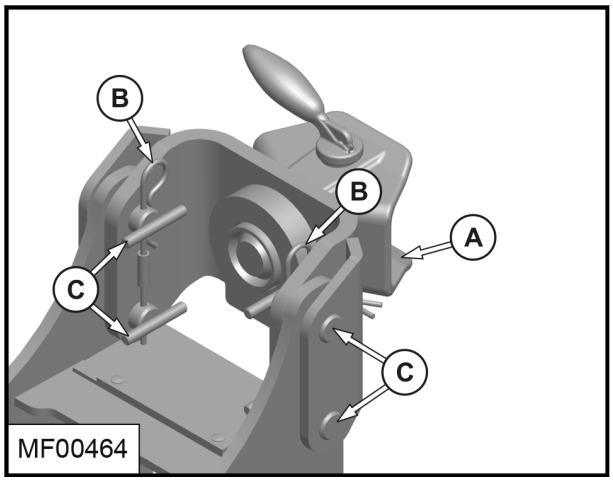


Fig. 131

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3.8 Swinging drawbar

3.8.1 Adjusting the swinging drawbar length

The offset of the swinging drawbar (A) can be adjusted as required.

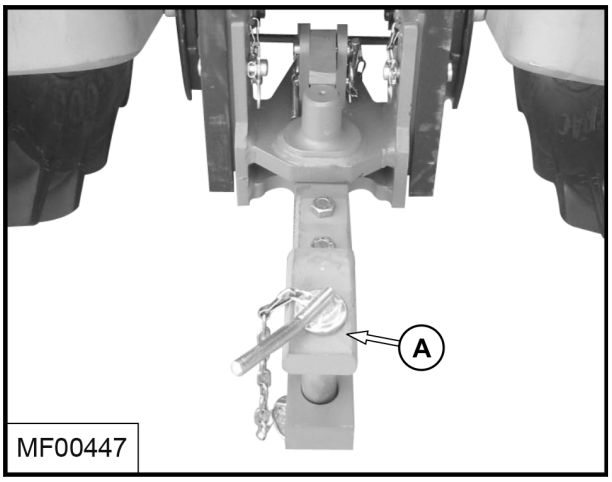


Fig. 132

Procedure

1. To adjust the drawbar for length, remove the locking pins (A) and the pins (B).
2. Adjust the drawbar length as required.
3. Refit the locking pins (A) and the pins (B).

WARNING:
The drawbar must be correctly set for the implement being towed.

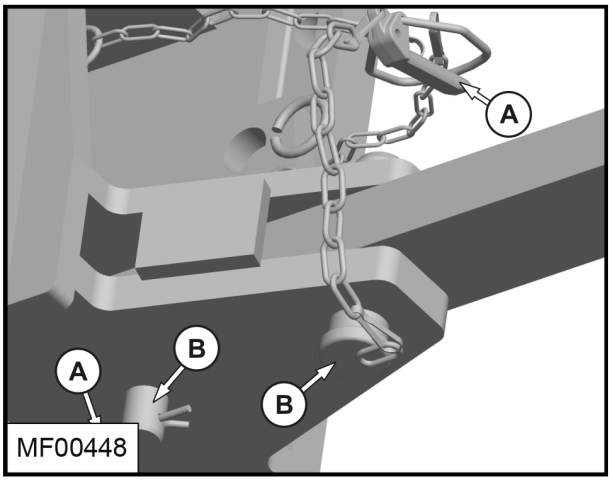


Fig. 133

https://truckmanualshub.com/

4. Store the locking pins (A) and the pins (B) in the tool box (D) when not in use.

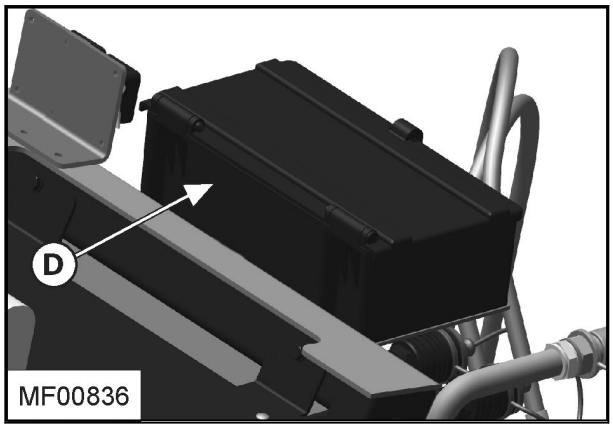


Fig. 134

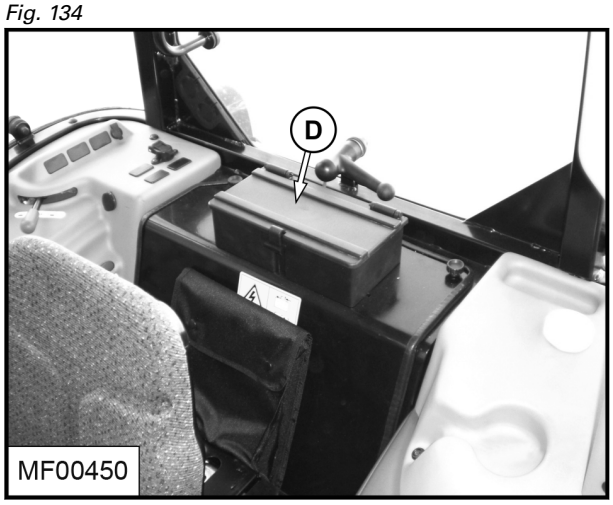
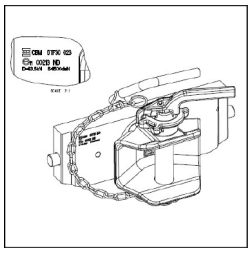
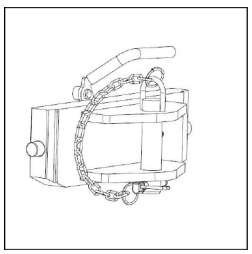
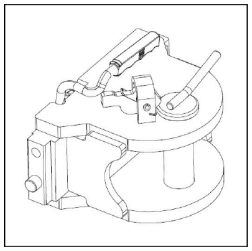
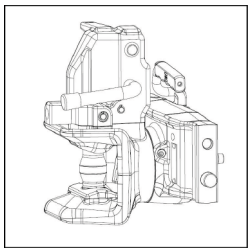
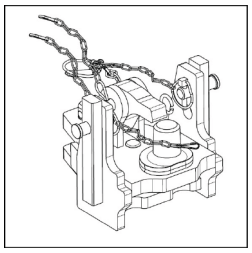
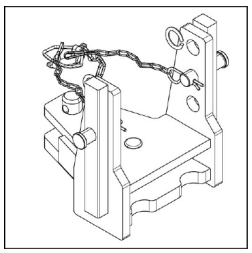
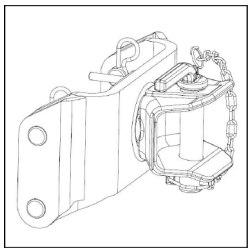
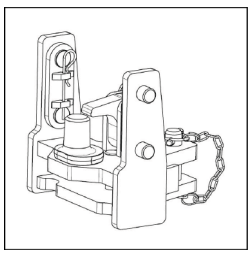


Fig. 135

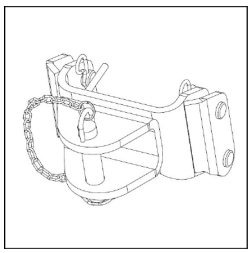
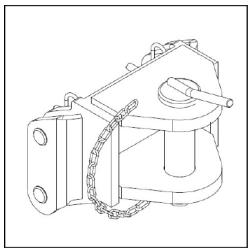
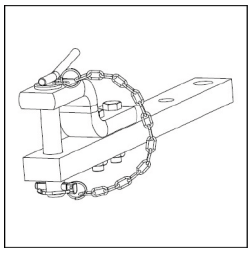
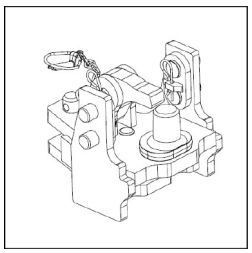
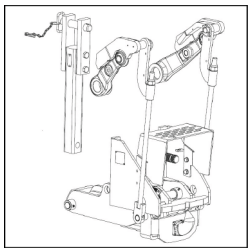
3.8.2 Drawbar maximum permissible vertical load

Figures	Type	Vertical Load (Kg)	Max Towable Weight (Kg)	D-Value (kN)
LADDER FRAME: SLIDER				
	Clevis type mechanical coupling CBM GTF30023	1500		43.5
	No-swivel clevis coupling CBM X 244 SL-E/xx Category x and CBM X314 SL-E/xx	1500	6000	

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Figures	Type	Vertical Load (Kg)	Max Towable Weight (Kg)	D-Value (kN)
	No-swivel clevis coupling CBM Y 244 SL-E/xx Category y and CBM Y314 SL/xx	2000	14000	
	Clevis type mechanical coupling CBM GTF30014	2000		96.4
	Pin (piton) type mechanical coupling CBM GTP001	2000	20000	
	Tractor drawbar CBM GTB 30003 Category 2	736		35
LADDER FRAME: HOLES				
	Clevis type mechanical coupling CBM GTF30031	1350		40
	Tractor drawbar CBM GTB 30003 Category 2	736		35

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Figures	Type	Vertical Load (Kg)	Max Towable Weight (Kg)	D-Value (kN)
	No-swivel clevis coupling CBM X 212 F/xx Category x	1500	6000	
	No-swivel clevis coupling CBM X 212 F/xx Category y	2000	14000	
	Drawbar CBM X002BT/xx Category x	0	6000	
	Pin (piton) type mechanical coupling CBM GTP001	2000	20000	
PICK-UP HITCH				
	Towing hook CBM GTU001 Pick-up hitch	3000		88.1
	Tractor drawbar CBM GTB 30020 Category 2	1200		40

3.8.3 Adjusting the swinging drawbar height - models with slide guide rail

Tractors may be equipped with a swinging drawbar (A) with slide guide rail according with the options available.

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Procedure

1. Support the swinging drawbar (A).
2. Remove the locking pins (B) and the side pins (C) from each side.
3. Move the swinging drawbar (A) to the required position and re-install the side pins (C) and locking pins (B) removed.

   NOTE:
   Check and replace if needed worn or damaged parts.

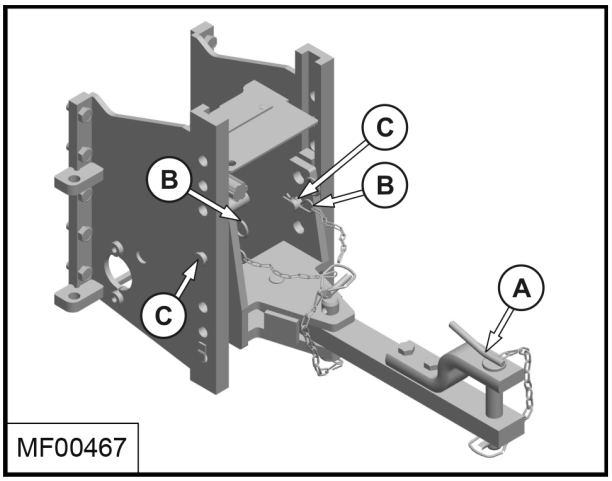


Fig. 136

3.8.4 Adjusting the swinging drawbar height - models with holes guide rail

Tractors may be equipped with a swinging drawbar (A) with holes guide rail according with the options available.

Procedure

1. Support the swinging drawbar (A).
2. Remove the locking pins (B) and the side pins (C) from each side.
3. Move the swinging drawbar (A) to the required position and re-install the side pins (C) and locking pins (B) removed.

   NOTE:
   Check and replace if needed worn or damaged parts.

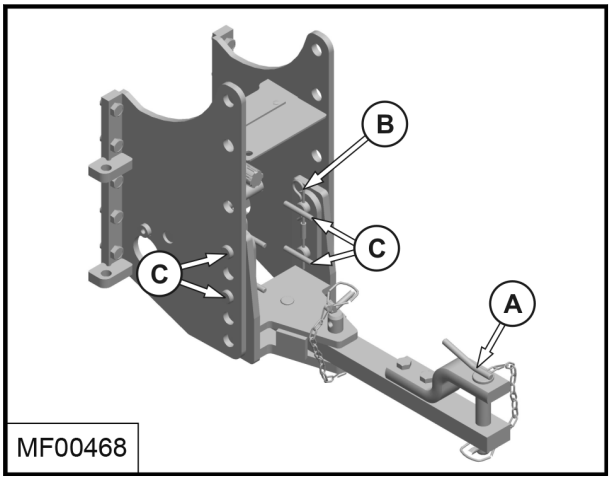


Fig. 137

https://truckmanualshub.com/

3.9 Pickup hitch

CAUTION:
With the pickup hitch lowered, DO NOT do work between the hook mechanism and the transmission housing.

This pickup hitch (A) lets you tow implements, equipment and trailers with a tow eye.

You can operate the mechanism that locks the pickup hitch from the operator's seat.

Use the pickup hitch controls and the control lever handle (B) to operate the pickup hitch.

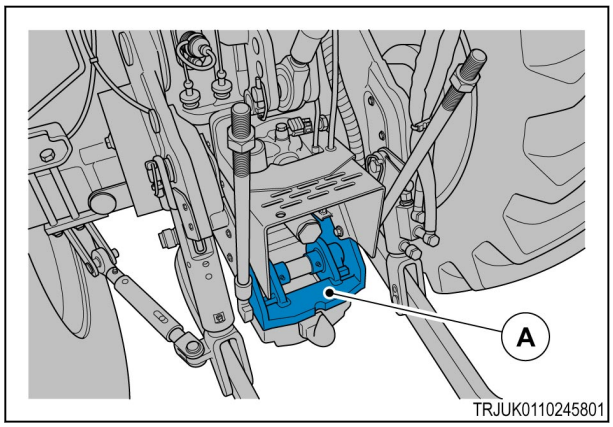


Fig. 138

Procedure

1. Lift the lift linkage to the maximum height.
2. Pull and hold the control lever handle (B) to unlock the hook (C).
3. Lower the lift linkage to the correct height while you pull the control lever handle (B).
4. Move the tractor into position.

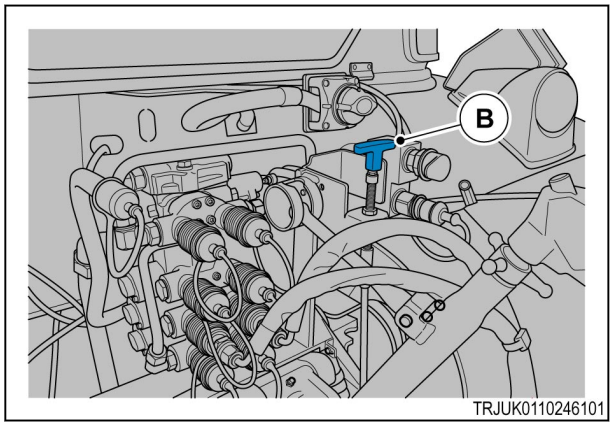


Fig. 139

5. Lift the lift linkage to engage the hook (C) into the trailer's tow eye. Continue to lift the pickup hitch until the hook (C) locks in position.
6. Carefully lower the lift linkages until the hook (C) holds the trailer weight.
7. Make sure that the pickup hitch is locked correctly. It must not lower when the lift linkage is lowered.

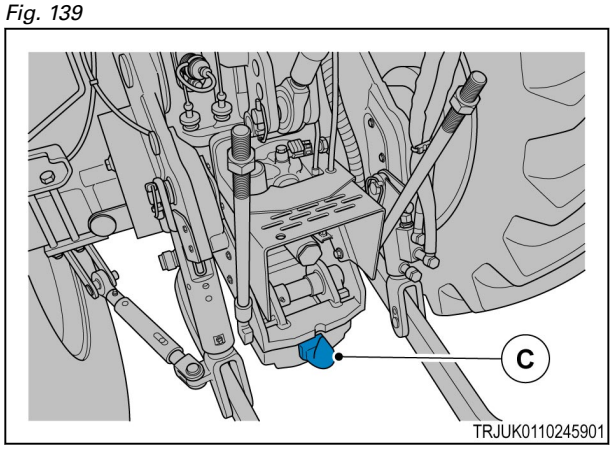


Fig. 140

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After finishing the procedure

IMPORTANT:
If the control lever handle is hard to operate or the hook does not lock correctly, speak to an approved service center. Make sure that the adjustment of the lift linkage nuts (D) *and the pickup hitch hook* (C) *is correct.*
Examine the pickup hitch components for wear at a 100 hour interval. Replace a component if necessary.

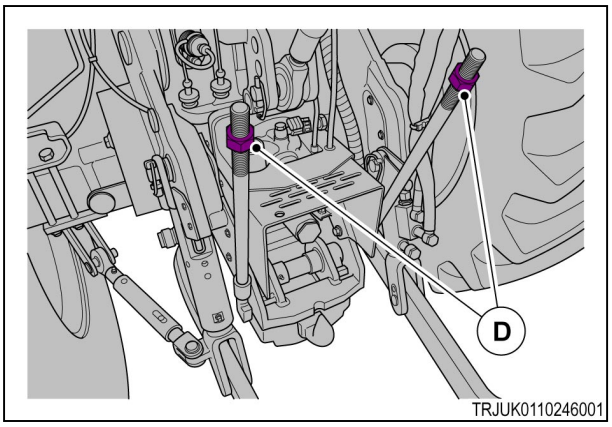


Fig. 141

CAUTION:
Make sure that the safety locks are in the correct position before you use the machine.

NOTE:
Lubricate the pickup hitch at a 100 hour interval (see the "Lubrication points" in the related section).

3.9.1 Drawbar

Before starting the procedure

It is possible to replace the hook hitch with a drawbar.

Install

1. Lower the hitch.
2. Engage the parking brake and remove the ignition key.
3. Remove the 2 retaining pins from the hook hitch.
4. Remove the hook hitch.

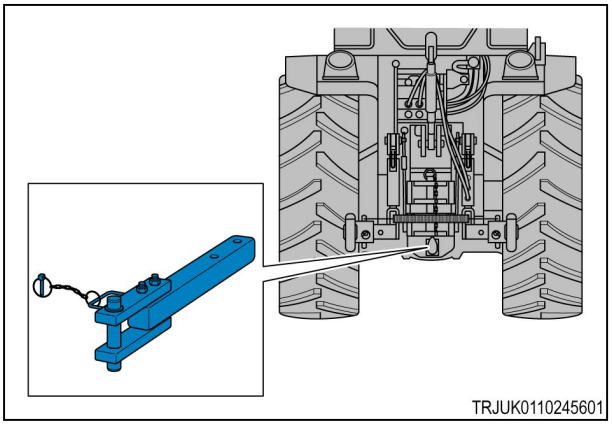


Fig. 142

5. Install the drawbar.
6. Install the 2 retaining pins to the hook hitch.
   Use the same procedure to install the hook hitch again, if it is necessary.

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3.10 Radio

The radio is located in the pillar on the left side.

For the use of the radio, please refer to dedicated manual on the vehicle.



Fig. 143

https://truckmanualshub.com/

3.11 Daily checks

Before you start the machine, do the preliminary checks below:

Engine oil level

WARNING: The machine can move without warning.

The machine is heavy and can cause death or injury.

Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks.

Do a check of the engine oil level when the oil is cold.

Remove the dipstick (1), clean the dipstick oil level marks (2) and install it fully. Remove the dipstick again and do a check of the oil level. The permitted range is between the 2 marks (A) on the dipstick (2).

Do not operate the engine if the oil level is below the lower mark on the dipstick. If it is necessary, add the specified oil through the oil filler.

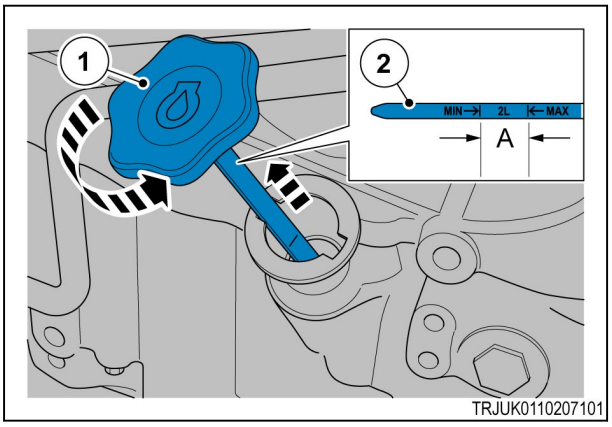


Fig. 144

Coolant level

DANGER: Pressurized circuits with hot fluid.

The hot fluid can cause injury.

Stop the engine and let the system cool down before you remove the radiator cap.

Do a check of the coolant level.

Stop the engine and let the system cool down before you remove the radiator cap.

Slowly turn and remove the cap (1). Slowly fill it up with the specified coolant if necessary.

The correct coolant level is 25 mm below the cap.

Do not add cold water in a warm engine. It can cause damage to the engine.

Do not start the engine if the coolant level is below the minimum level.

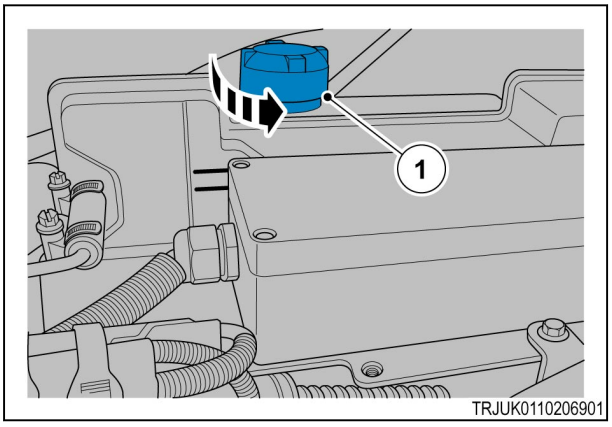


Fig. 145

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Transmission / hydraulic system oil level

CAUTION: Risk of machine damage.

Transmission failure.

Do not start the engine if the oil level is below the minimum level.

CAUTION: Risk of machine damage.

Hydraulics failure.

Some implements use a large volume of oil to operate their hydraulic systems. Fill the hydraulic oil to the maximum level if it is necessary.

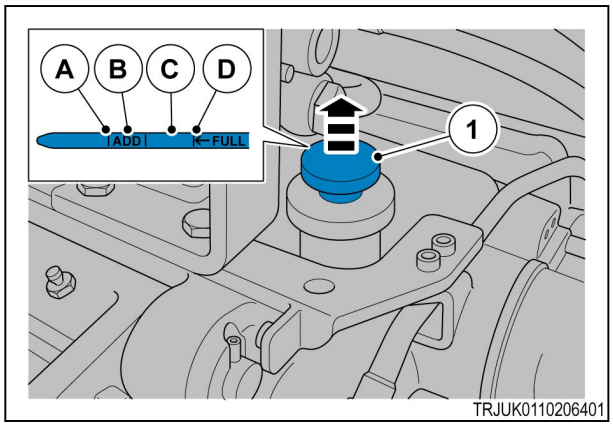


Fig. 146

Do a check of the transmission oil level.

Remove the dipstick (1) and clean the dipstick oil level marks. Install the dipstick fully.

Remove the dipstick again and do a check of the oil level:

- Minimum level, fill up before you start the engine (A).
- Fill up directly (B).
- Standard oil level (C).
- Maximum level (D).

Do not start the engine if the level is below the minimum level. Fill up with the specified oil until it is at the standard oil level.

Make sure that the oil level always is above level A on the dipstick.

Quantity of fuel

Diesel fuel must be filled through the fuel tank filler with the engine stopped and applicable precautions to prevent dirt going into the fuel tank.

Do a check of the fuel level.

WARNING: Risk of fire.

Damage to the machine and risk of death.

Do not smoke while refuelling. Clean the fuel tank filler cap and the adjacent area.

Look at the indicator (1) on the instrument panel to see the fuel level.

Do not run out of fuel. Bleeding the fuel system will be necessary.

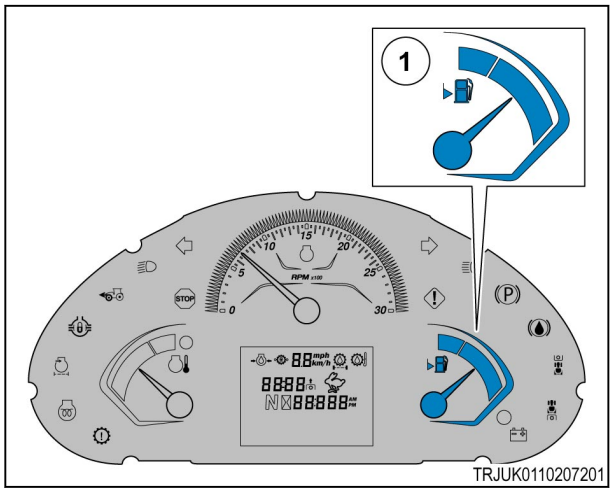


Fig. 147

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You must:

- Make sure that you do not use fuel containing dirt or water to refuel the machine.
- Do not fill the tank with polluted fuel. Use a filter to clean the fuel.
- Carefully clean around the fuel tank filler cap.
- Refuel with the applicable pump.
- Prevent a spill of fuel.

Stop the engine. Remove the fuel cap (2). Fill the fuel tank.

NOTE:
Refer to the safety instruction section.

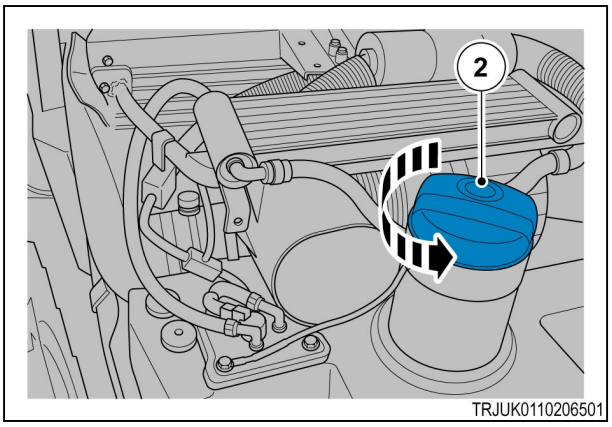


Fig. 148

Tire pressure

Do a check of the tire pressures.

The correct tire pressure gives the best results for tire wear and wheel slip. A pressure which is less than the standard pressure will cause more tire wear. A pressure which is more than the standard pressure will cause more wheel slip.

Make sure that you use the tires pressure which are recommended for the machine and the operating conditions. The pressure must be adjusted to the applicable conditions.

Seat adjustment

WARNING: Risk of loss of control.

Risk of death.

Do not make the seat adjustments while the machine moves. Make all seat adjustments with the machine at a stop and the parking brake applied.

NOTE: *It is mandatory to put on the safety belt. Obey your local road rules.*

The seat can be adapted to suit persons of different heights. Do not adjust the seat when you drive. Adjust the seat to the right distance from the pedals and steering wheel.

Adjust the operator's seat position (model with mechanical suspension)

Move the lever (1) and move the seat forward or rearward to the correct position. Adjust the seat position to a good position from the pedals and steering wheel. Let go of the lever (1) and make sure that the seat locks in position.

Loosen the hand wheel (2) and hold the seat between the cushion and backrest to adjust the seat height. When the seat is at the correct height, tighten the handwheel (2).

Turn the adjuster knob (3) to adjust the seat to your weight. The weight markings are recommended parameters where the seat suspension system will have the full range of vertical travel.

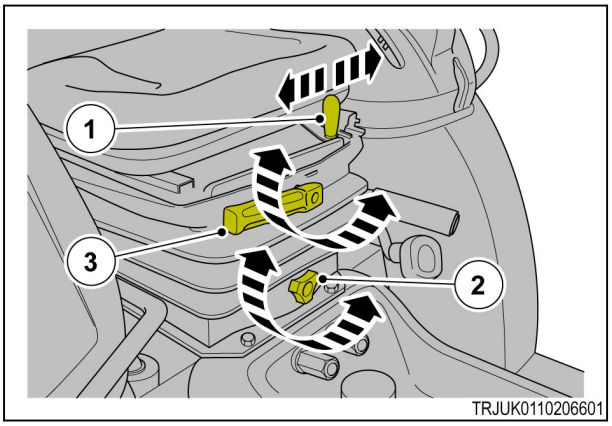


Fig. 149

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Adjust the operator's seat position (model with pneumatic)

Operate the lever (1) to release the seat. Move the seat forward or rearward to the correct position. Adjust the seat position to the correct distance from the pedals and steering wheel. Release the lever (1) and make sure that the seat locks in position.

Operate the button (2) to adjust the seat height. Push the button to lift the seat. Pull the button to lower the seat.

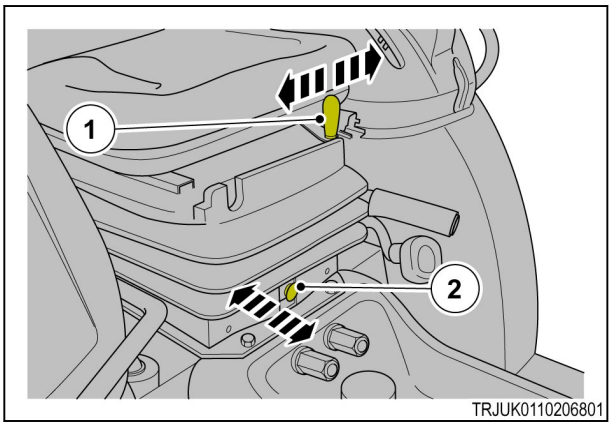


Fig. 150

Safety belt

NOTE: *It is mandatory to put on the safety belt. Obey your local road rules.*

Machine without a cab

WARNING: Risk of injury.

Risk of injury or death.

Always put on the safety belt when you work with the roll bar in vertical position and locked. The machine can overturn.

NOTE: *Do not put on the safety belt when the roll bar is down.*

Machine with a cab

WARNING: Risk of injury.

Risk of injury or death.

Always put on the safety belt. The machine can overturn.

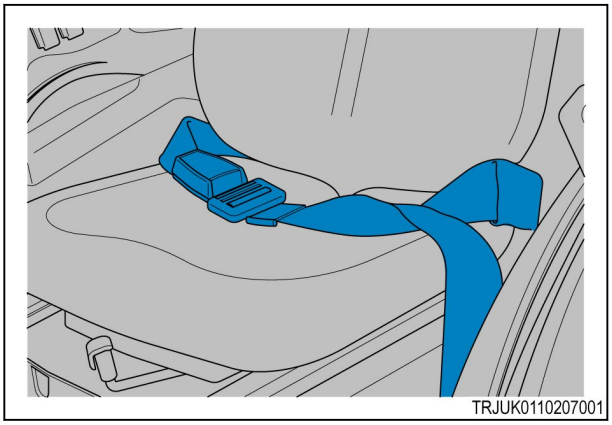


Fig. 151

https://truckmanualshub.com/

3.12 Starting and stopping the engine

WARNING: Always obey the correct procedure.

The procedure can cause death or injury if you do not do the procedure correctly.

Read and obey the related information before you do the procedure.

WARNING: Flammable gas.

Heat or sparks can ignite gas from the battery without warning. Explosion of the battery or burns to personnel can occur.

Do not put heat sources near to the vehicle battery. Make sure that there is good airflow through the work area when you do work near batteries.

CAUTION: PPE is mandatory.

This procedure can cause injury.

Put on Personal Protective Equipment (PPE) when you do this procedure.

IMPORTANT:

- *Do the recommended daily checks on the machine.*
- *Make sure that there is fuel in the fuel tank.*
- *Engage the parking brake.*
- *Put the lift control levers in the down position.*
- *Set the hand throttle to a moderate speed.*

IMPORTANT:
Put these controls in the neutral position:

- *Gear lever*
- *PowerShuttle*
- *High and Low-range lever*
- *Hydraulic control levers*
- *PTO mode lever.*

IMPORTANT:

- *Do not engage the PTO.*

Start the engine

NOTE:
Start the machine from the driving position only.

NOTE:
Start the engine in a clean environment. Make sure that there is good airflow in the work area when the engine operates.

NOTE:
Do not short circuit the battery.

Turn the ignition key (1) to position (C).

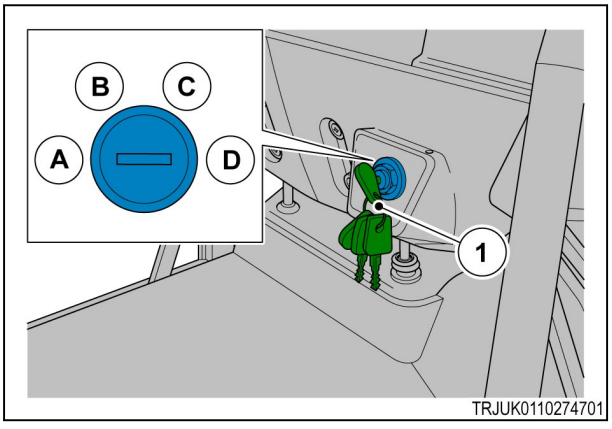


Fig. 152

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When there is contact, the system runs a test, and warning lamps (2), (3), (4), and (5) come on for a short time.

If the warning lamps do not come on, examine the protection fuse.

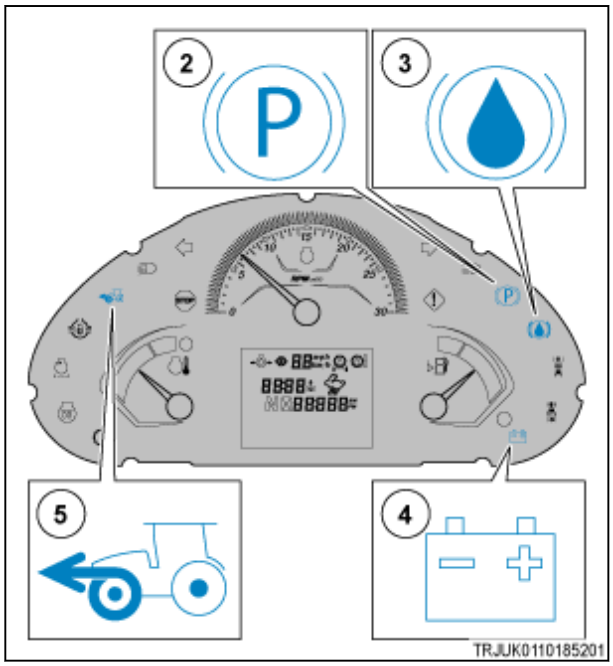


Fig. 153

When the engine temperature is too low, warning lamp (A) comes on.

Let the lamp go off before you turn the key to start position.

Release the key when the engine starts.

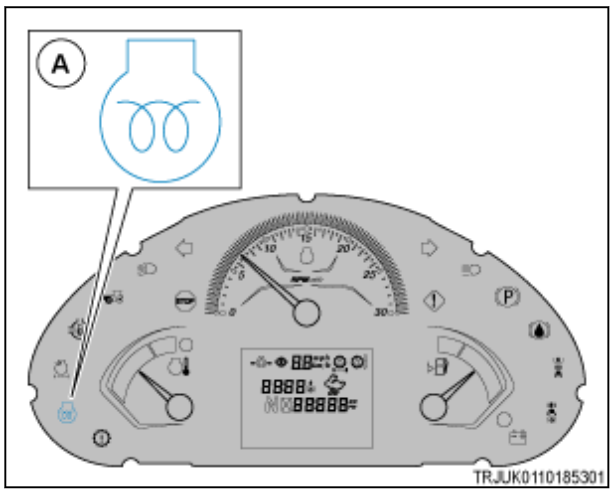


Fig. 154

IMPORTANT:
Operate the engine for approximately 10 minutes before you use the machine.

IMPORTANT:
Do not operate the starter motor for more than 30 seconds.
If the engine does not easily start, wait for 3 minutes, and then try again.
Do this sequence for a maximum of 3 times, and if the problem continues, speak to your dealer.

Moving the machine

IMPORTANT:
Do not use the hand throttle when you drive the machine on roads.

NOTE:
Set the hand throttle to the idle speed position (approximately 1200 rpm) for 2 - 3 minutes before you apply heavy loads to the engine.

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Press the clutch pedal (1) and engage the applicable gear and range.

Adjust the hand throttle position (5) to set the ground speed.

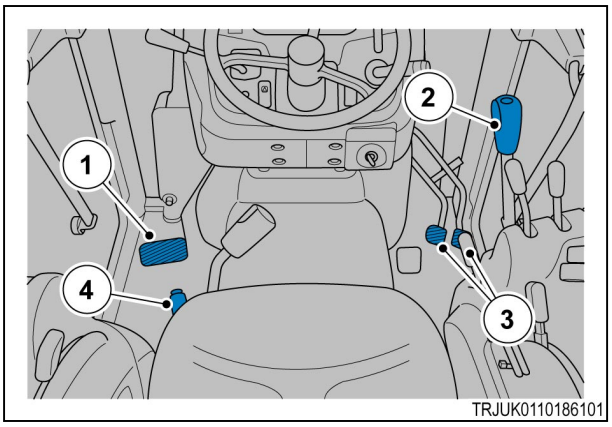


Fig. 155

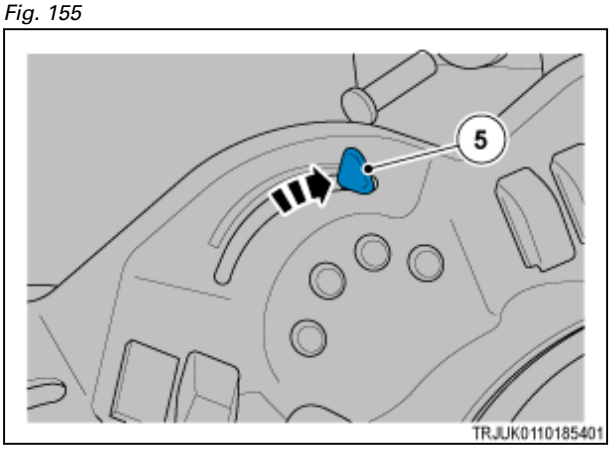


Fig. 156 With cab

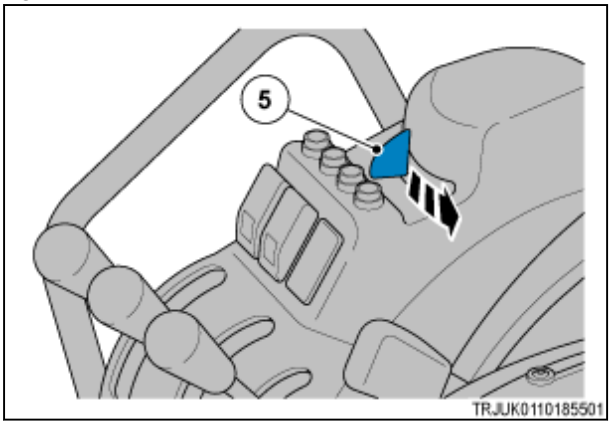


Fig. 157 Without cab

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Stop the machine

IMPORTANT:
Move all connected equipment to the ground before you stop the engine.

Set the hand throttle lever (5) to idle speed position.

Press the clutch pedal (1), and the 2 brake pedals (3).

Set the gear lever (2) to the neutral position.

Stop the machine, release the clutch pedal (1), and engage the parking brake (4).

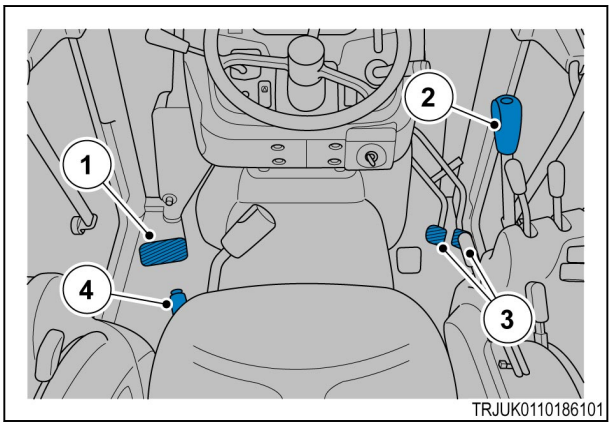


Fig. 158

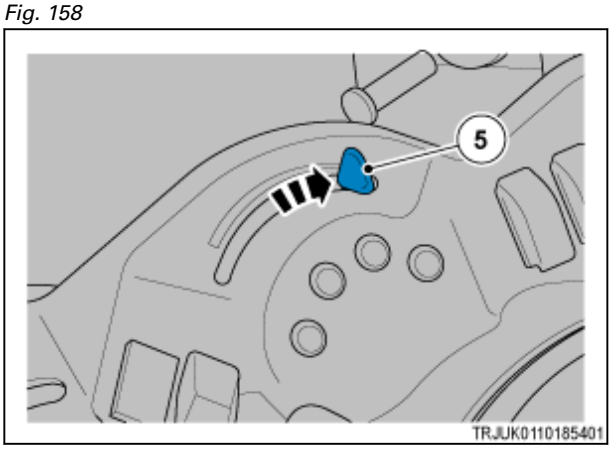


Fig. 159 With cab

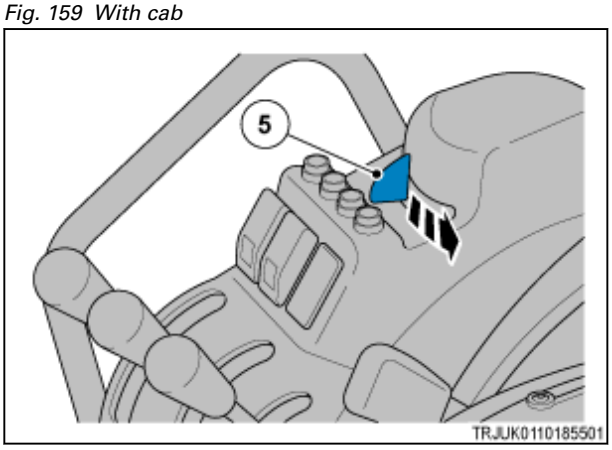


Fig. 160 Without cab

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- Remove the key from the ignition switch.

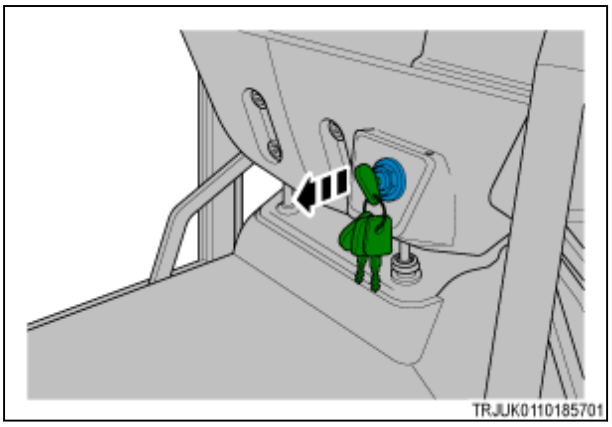


Fig. 161

Start the machine with an auxiliary battery

IMPORTANT:
Make sure that you connect the battery terminals correctly to prevent damage to the battery, and the electrical system.
Always connect the positive cables (B) *and then the negative cables* (A).

Connect an external auxiliary battery to the battery in the machine.

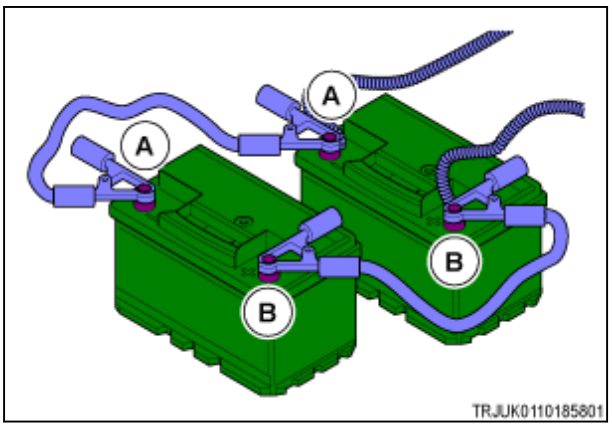


Fig. 162

Monitor the instrument panel after the engine starts

IMPORTANT:
If the warning lamps (1),(2), *or* (3) *come on when the engine starts, stop the engine.*
Find the cause of the malfunction, or speak to your dealer.

(1) Engine oil pressure
(2) Generator warning lamp
(3) Coolant temperature

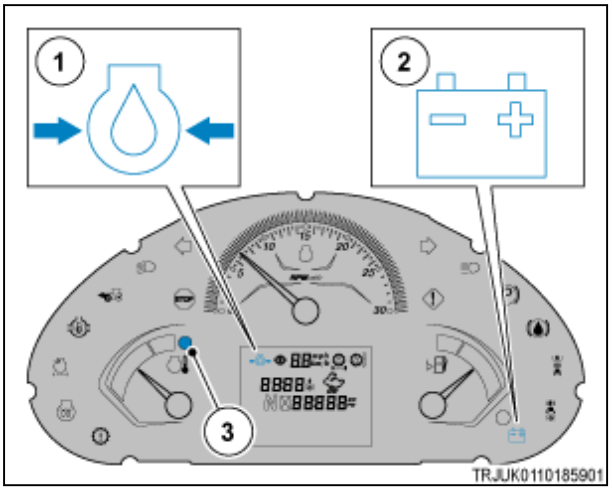


Fig. 163

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Lamp for engine oil pressure

IMPORTANT:
Do not let the engine operate when the oil pressure is not sufficient.
If lamp (1) *comes on while the engine operates, immediately stop the engine.*
Examine the engine oil level, and if necessary, fill the engine with oil to the correct level.
Speak to your dealer if the malfunction continues.

Low charge level - Generator warning lamp

The lamp (2) comes on when the ignition key is in the ignition position.

The lamp goes off when the engine starts.

If the generator output voltage is low, the lamp comes on to show there is a malfunction. If this occurs, stop the engine and examine the belt tension.

Speak to your dealer if the malfunction continues.

Coolant temperature indicator

If the coolant temperature gets too hot, the warning lamp (3) comes on.

Immediately stop the engine, and:

- Examine the coolant level in the radiator.
- Make sure that the radiator is not clogged.
- Examine the tension of the fan belt.

If the problem continues, speak to your dealer.

Warning lamp for a clogged air filter

If the air filter is clogged, the lamp (A) comes on.

Clean, or change the filter element.

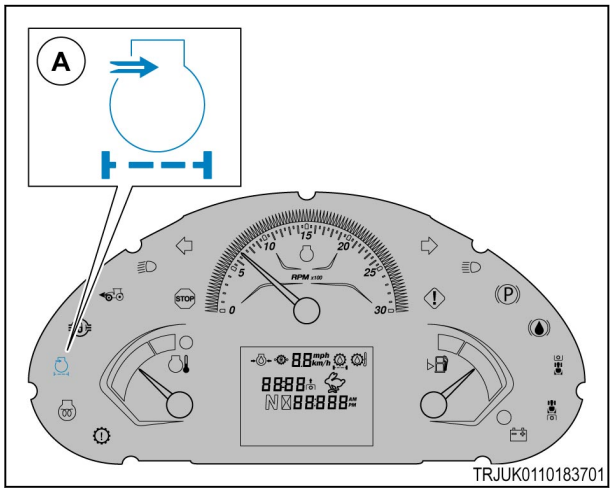


Fig. 164

Stop the engine

IMPORTANT:
Move all connected equipment to the ground before you stop the engine.

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- Put the hand throttle lever to low rpm. Let the engine operate at a low rpm for a short time.
- Engage the parking brake.
- Put the reverse lever in the neutral position.
- Disengage the PTO.
- Stop the machine movement.

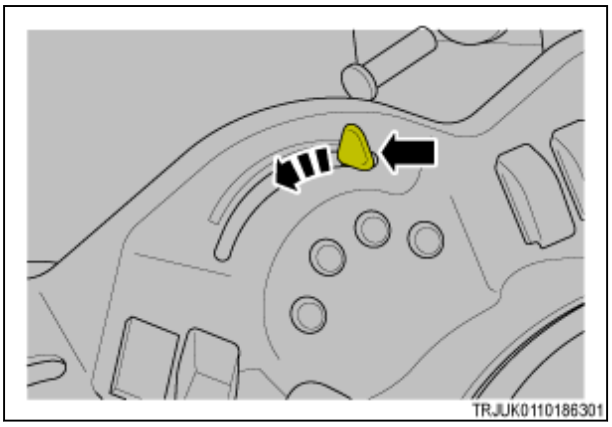


Fig. 165 With cab

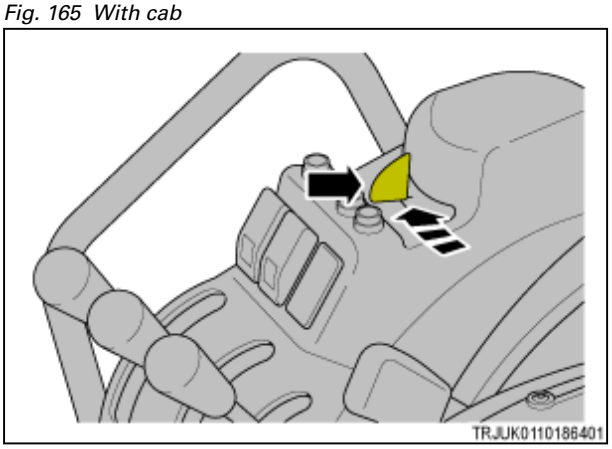


Fig. 166 Without cab

- Turn the ignition key (1) to position (B), to stop the engine.
- Remove the key from the ignition switch.

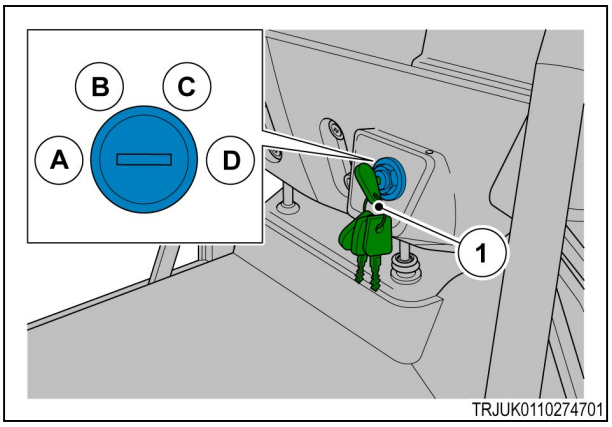


Fig. 167

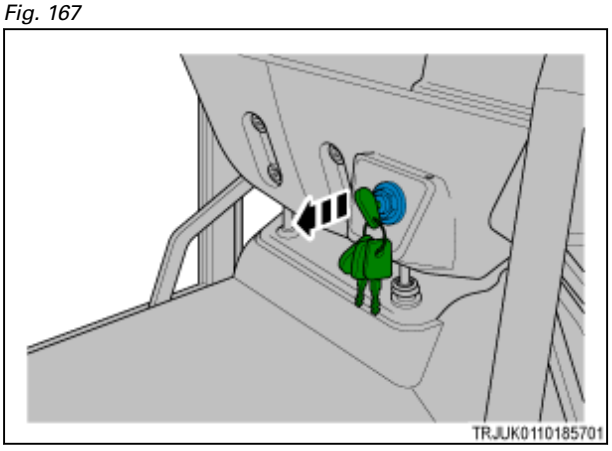


Fig. 168

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4.1 Maintenance schedule

Maintenance schedule

You must select the maintenance schedule based on running hours or the annual maintenance schedule for your machine.

The maintenance tasks must be done so that the periodical maintenance chart is obeyed.

You must obey the periodical maintenance chart when you do the normal daily and weekly maintenance tasks,

Maintenance based on running hours

Maintenance schedule based on running hours must be used for tractors which have more than 600 running hours in a year.

Order the maintenance from an approved workshop where service personnel that has been trained by Valtra will do the maintenance.

Annual maintenance

Annual maintenance must be used for tractors which have less than 600 running hours in a year. Order the maintenance from an approved workshop where service personnel that has been trained by Valtra will do the maintenance.

In the annual maintenance, the service tasks scheduled for 2400 h and 3000 h should be carried out at intervals of two years

Service guide column legend:

- A - 10 hours or daily
- B - Initial 100 hour service
- C - Initial 600 hour service
- D - Every 600 hours
- E - Every 1200 hours
- F - Every 2400 hours
- G - Every 3000 hours
- H - 2 years

Service Guide	A	B	C	D	E	F	G	H
ENGINE								
Check the engine oil	X							
Change the engine oil		X	X	X				
Replace the engine oil filter cartridge		X	X	X				
Check the cooling circuit seal	X	X	X					
Check the coolant level	X	X	X					
Check and clean the radiator cap				X				
Tighten the manifolds		X	X					
Check the air intake seal		X	X					
Check water pump / alternator drive belt's tension			X	X				
Check the engine alternator and water pump belts	X			X				
Check the air conditioning compressor belt and replace if necessary				X				
Replace the engine air filter			X		X			

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Service Guide	A	B	C	D	E	F	G	H
Replace the engine air filter safety cartridge						X		
Clean the coolers	X							
Clean the radiator grilles	X							
Replace the oil vapour recycling filter					X			
Inspect the water pump					X			
Check the turbo charger					X			
Change the fluid in the engine cooling circuit						X		
Check the high-pressure pump						X		
Replace water pump / alternator drive belt							X	
Diesel Particulate filter							X	
Inspect the alternator							X	
ELECTRICAL SYSTEM AND INSTRUMENTS								
Clean and lubricate the battery terminals		X	X	X				
Check the instrument panel operation (warning lights, alarms and digital displays)		X	X					
Check that the dry air filter clogging warning light is operating		X	X					
Check the lights and lighting indicators		X	X					
Lights - Check that all lights (including headlights) are functioning properly	X							
FRONT AXLE AND STEERING								
Check the front axle final drive oil				X				
Change the front axle final drive oil		X	X		X			
Check the front axle differential casing oil				X				
Change the front axle differential casing oil		X	X		X			
Check the operation of the hydrostatic steering		X	X	X				
Front-wheel drive axle - Lubricate pivot pin and king pins (only when operating in extremely wet and muddy conditions)	X							
Front-wheel drive axle - Lubricate wheel bearings (only when operating in extremely wet and muddy conditions)	X							
Front-wheel drive axle - Lubricate all universal joints including u.j. shaft from transmission to front-wheel drive axle (only when operating in extremely wet and muddy conditions)	X							
TRANSMISSION AND HYDRAULICS								
Check the transmission/hydraulic oil level	X	X						
Replace the hydraulic circuit/transmission filter cartridge		X	X	X				
Replace the hydraulic filter third pump (optional)			X				X	
Check the hydraulic circuit		X	X	X				
Change the hydraulic/transmission oil			X		X			
Replace the hydraulic strainer			X		X			

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Service Guide	A	B	C	D	E	F	G	H
Rear axle - Lubricate bearings (only when operating in extremely wet and muddy conditions)	X							
CLUTCHES AND BRAKES								
Check and adjust the service brakes		X	X	X				
Check the service brake fluid level	X	X	X	X				
Check that the brakes work properly		X	X	X				
Check and adjust the handbrake clearance		X	X					
Check the clutch pedal clearance and if necessary readjust	X			X				
Check the power take-off clutch clearance				X				
Check the handbrake clearance					X			
Change brake fluid								X
FUEL SYSTEM								
Replace the fuel filter		X	X	X				
Check the injection circuit pipes and connections		X	X					
Fuel system - Drain residue from fuel tank				X				
GENERAL								
Check and adjust the wheel alignment		X						
Check the tightness of the wheel discs on the hubs		X	X	X				
Check the tightness of the wheel discs on the rims		X	X	X				
Check the tyre inflation pressure		X	X	X				
Check the tightness of the front weights		X		X				
Check the tightness of the connecting screws (engine - front axle support, steering gear, front weights)		X	X			X		
Check the clevis clearance			X	X				
Clean the A\C condenser	X							
Clean the cab air filter - main filter	X							
Three-point hitch - Lubricate lift links and rockshaft (only when operating in extremely wet and muddy conditions)	X							
Trailer hitch - Lubricate all greasing points (only when operating in extremely wet and muddy conditions)	X							
Lubricate all greasing points (except where otherwise stated)	X							
Replace the cab air filter				X				
Activate the air-conditioning (for at least 20 minutes)				X				

4.1.1 Lubrification and Periodic Service

CAUTION:
Do not lubricate or adjust the tractor while the engine is running unless recommended to do so.

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IMPORTANT:
Directing pressurized water at electronic/electrical components or connectors, bearings and hydraulic seals, fuel injection pumps or other sensitive parts and components may cause product malfunctions. Reduce pressure, and spray at a 45 to 90 angle.

IMPORTANT:
The recommended service intervals are for normal average conditions. Service MORE OFTEN if the tractor is operated under adverse conditions.

The intervals at which the various parts should be checked, lubricated, serviced or adjusted are based on the actual hours of operation as shown on the hour meter. The meter operates whenever the engine is running and shows the accumulated hours of engine operation. Using hour meter as a guide, perform all services at the hourly intervals indicated on the following pages. Always check to make sure that the hour meter is working.

CAUTION:
After servicing, cleaning or repairing your machine, re-install any safety guards or shields before operating the tractor again. Use only lubricants that meet the specifications outlined in the "Recommended lubricants and additives" section when performing tractor service.

4.1.2 Service Tractor Safely

DANGER:
Improper operation or service of this machine can result in an accident. Do not operate the tractor or perform any lubrication, maintenance or repair activity until you have read and understood the operation, lubrication, maintenance and repair information. Failure to comply will result in death or serious injury.

DANGER:
Improper operation or service of this machine can result in an accident. Any unauthorized modifications made to the tractor can have serious consequences. Refer to your authorized dealer on changes, additions, or modifications that may be required for this machine. Do not make any unauthorized modifications. Failure to comply will result in death or serious injury.

WARNING:
Improper operation or service of this machine can result in an accident. Read and understand the SAFETY INFORMATION Section before you perform any maintenance, service, or repairs. Read and understand the specific service procedures for the components you plan to work with before you start servicing the machine. Failure to comply could result in death or serious injury.

WARNING:
Improper operation or service of this machine can result in an accident. If you do not understand a maintenance procedure, or doubt your ability to perform a maintenance procedure correctly, contact your authorized dealer. Failure to comply could result in death or serious injury.

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IMPORTANT:
Regulate the operator's seat correctly in the most comfortable, ergonomic position before using the machine. This reduces the risks and effects of the vibrations transmitted to the whole body.
Disengage power to attachments and stop the engine before making any repairs or adjustments.
Do not change the engine governor setting or over speed engine.
Keep the vehicle and attachments in good operating condition.
Keep safety devices in place and in working condition.
Keep all nuts, bolts and screws tight and in line with the specific tightening torque values to be sure the equipment is in proper working condition.
Before operating on any part of the engine, stop the engine, and let it cool. Hot engine parts can cause serious burns.
Never run the engine unless the shuttle lever and the transmission controls are in neutral position and the parking brake is engaged.
Be careful to prevent clothing, jewelry, or long hair from getting caught in the fan blades, drive belts, or any other moving engine parts.
Unauthorized modifications to the tractor may impair machine parts, compromise the proper functioning and affect the safety and/or the machine life.

CAUTION:
Never perform any service work near rotating or moving parts. Never remove or open any service doors or other guards when engine is running or hot. No service is to be performed on or around the engine with engine running.

IMPORTANT:
Prevent any unintentional operation of engine or starting motor when the engine cover is open or guards are removed.

4.1.3 Clean the air-conditioning condenser

CAUTION: Unwanted release of refrigerant.

Refrigerant is very cold and can cause injury.

Put on PPE when you do work on the refrigerant system.

WARNING: Falling off, or into the machine.

Falls from height cause death or injury.

Use the applicable access equipment when you do work at height.

CAUTION:
DO NOT loosen the air-conditioning hoses to access to the condenser. Skin contact with the refrigerant can cause frost burns.

IMPORTANT:
Examine the air-conditioning components frequently for damage or leaks. If the air-conditioning components are dirty with oil, there can be a refrigerant leak. Speak to you dealer and have a full inspection of the system.

If the operation of the air-conditioning is intermittent, before you examine other components clean the:

- Condenser grill
- Cab air filter.

If this does not correct the problem the refrigerant level in the system can be low.

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Clean the condenser

If the system does not operate correctly, clean the air-conditioning condenser in the cab-roof. To get access to the condenser do the steps that follow:

Loosen the fastener and lift the latch (1).

Open the condenser cover (2).

Use the rod (3) to hold the cover open.

Remove all the unwanted material from the surface of the condenser with a brush.

Close the condenser cover and tighten the fastener.

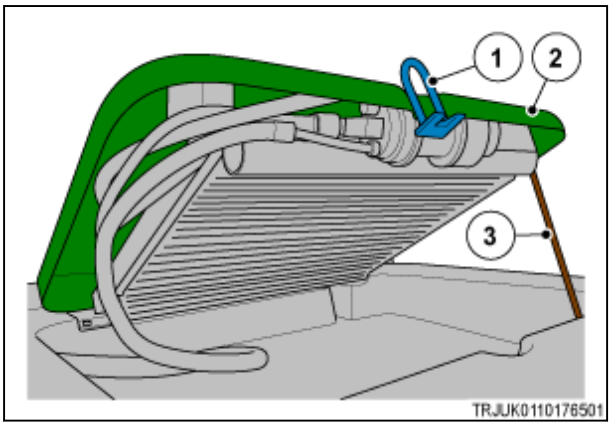


Fig. 1

If the fault continues, speak to your dealer and have a full inspection of the system.

4.1.4 Electrical service and maintenance

IMPORTANT:
Obey the correct procedure when you disconnect and connect the electrical systems. If you do not, you can cause damage to the machine.

WARNING: Flammable gas.

Heat or sparks can ignite gas from the battery without warning. Explosion of the battery or burns to personnel can occur.

Do not put heat sources near to the vehicle battery. Make sure that there is good airflow through the work area when you do work near batteries.

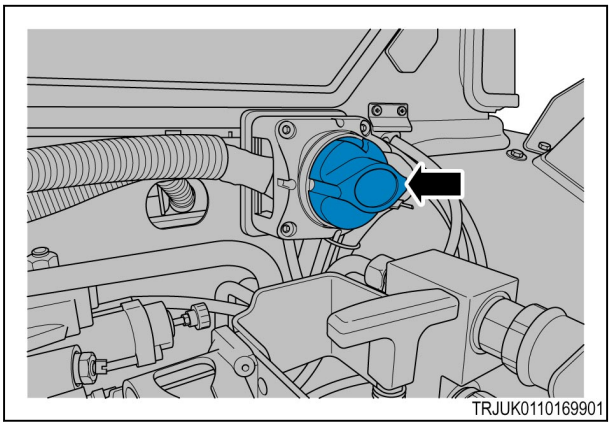


Fig. 2

Always disconnect the cut-off switch or the battery ground before you do work on the electrical system.

Different battery manufacturers can have different configurations of battery connections. Carefully identify the configuration of the battery in your machine.

4.1.4.1 Remove the battery

Before starting the procedure

WARNING: Flammable gas.

Heat or sparks can ignite gas from the battery without warning. Explosion of the battery or burns to personnel can occur.

Do not put heat sources near to the vehicle battery. Make sure that there is good airflow through the work area when you do work near batteries.

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IMPORTANT:
Obey the correct procedure when you disconnect and connect the electrical systems. If you do not, you can cause damage to the machine.

NOTE:
Different battery manufacturers can have different configurations of battery connections. Carefully identify the configuration of the battery in your machine.

Machine with a cab

Procedure

1. Set the battery cut-off switch to OFF.

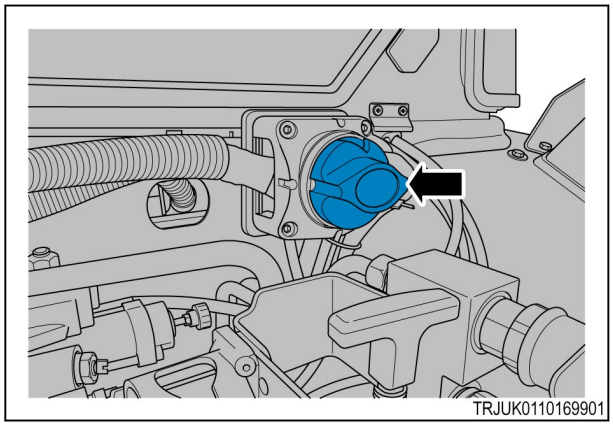


Fig. 3

2. Move the control lever on the front of the seat.

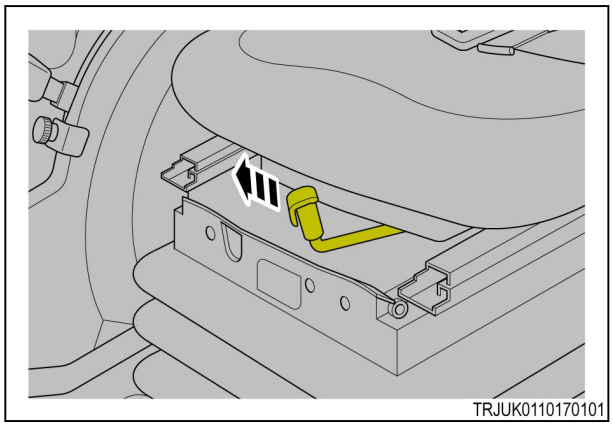


Fig. 4

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3. Move the seat forward for access.

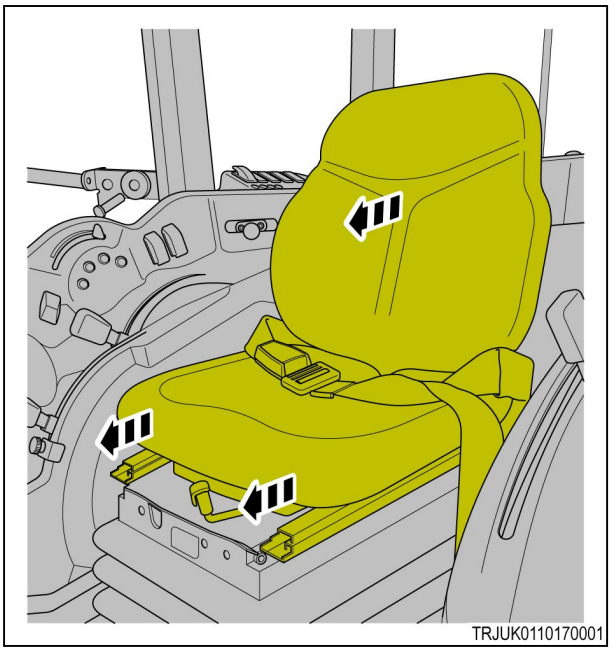


Fig. 5

4. Remove the fasteners.

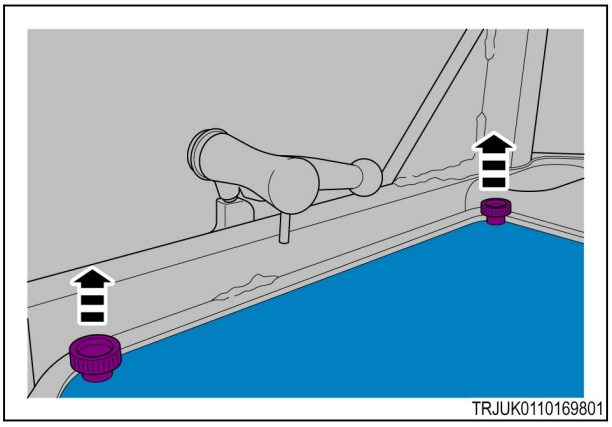


Fig. 6

5. Remove the cover.

6. Release the protective covers from the positive and negative connectors.

7. Disconnect the positive (1) and negative (2) connectors from the battery.

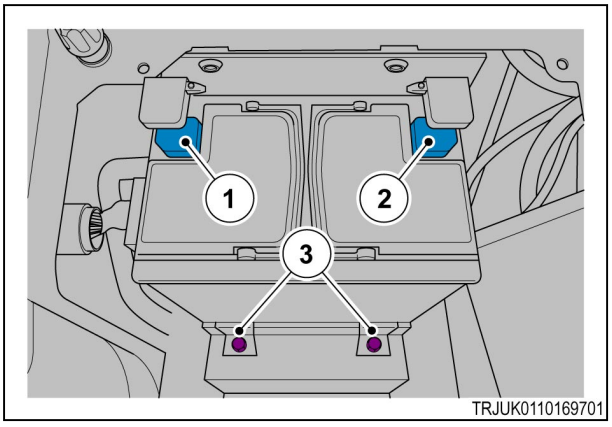


Fig. 7

8. Loosen the fasteners (3).

9. Remove the battery.

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Machine without a cab

Procedure

1. Set the battery cut-off switch to OFF.

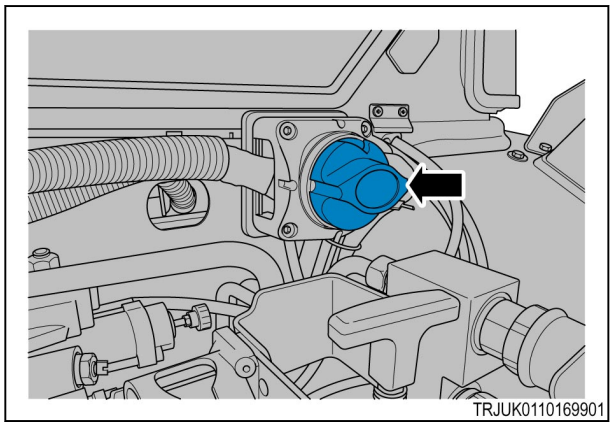


Fig. 8

2. Remove the fasteners.

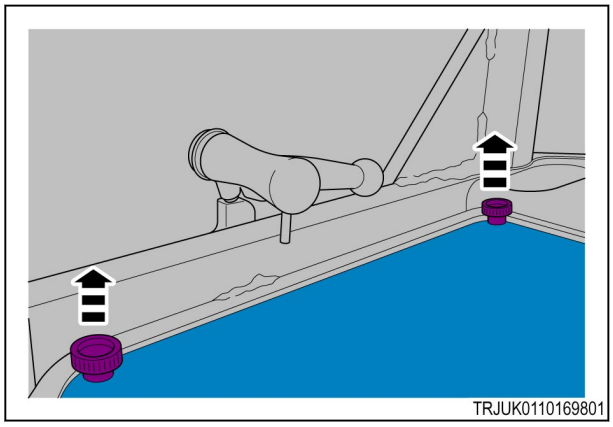


Fig. 9

3. Remove the cover.

4. Release the protective covers from the positive and negative connectors.

5. Disconnect the positive (1) and negative (2) connectors from the battery.

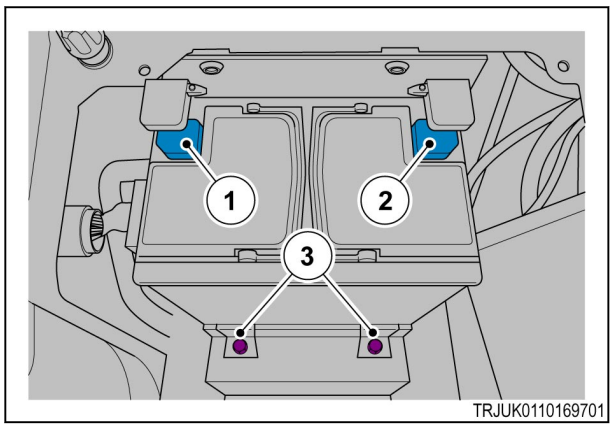


Fig. 10

6. Loosen the fasteners (3).

7. Remove the battery.

4.1.4.2 Power Shuttle Electronic Control Unit

To gain access to the Power Shuttle Electronic Control Unit proceed as follows:

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Procedure

1. Remove the Battery (see relevant procedure).

2. Remove the bolts (1).

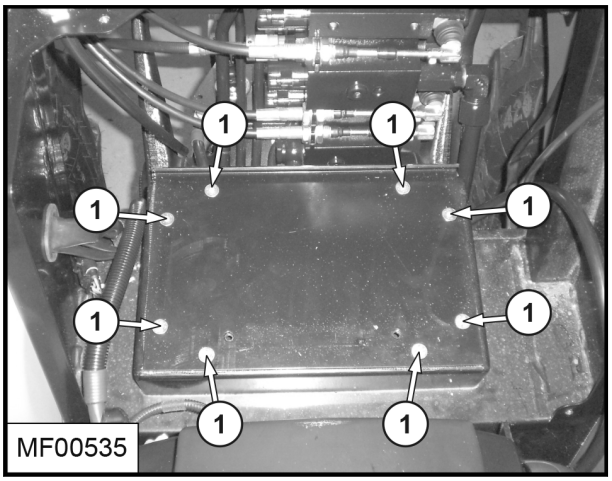


Fig. 11

3. Remove the cover (2) to gain access to the electronic control unit (3).

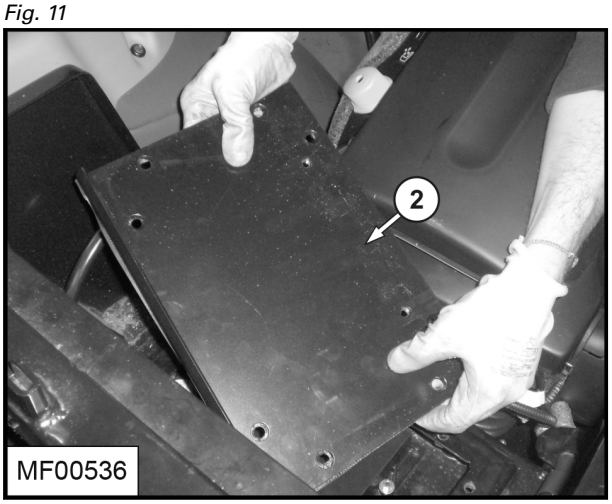


Fig. 12



Fig. 13

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4.2 Fuses and relays

4.2.1 Fuses and relays box - location

Loosen the fasteners (1) and remove the cover (2) below the left panel of the dashboard to get access to the fuse box (3).

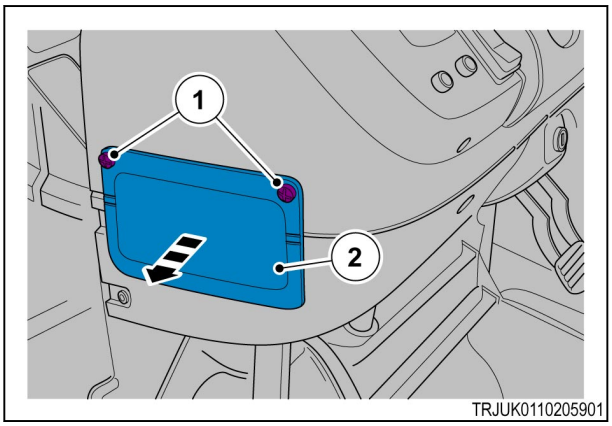


Fig. 14

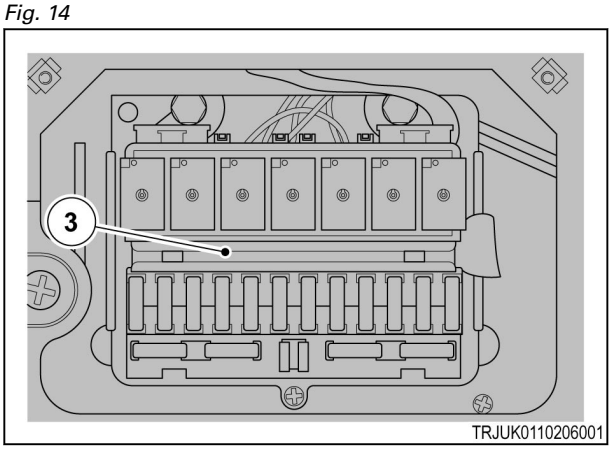


Fig. 15

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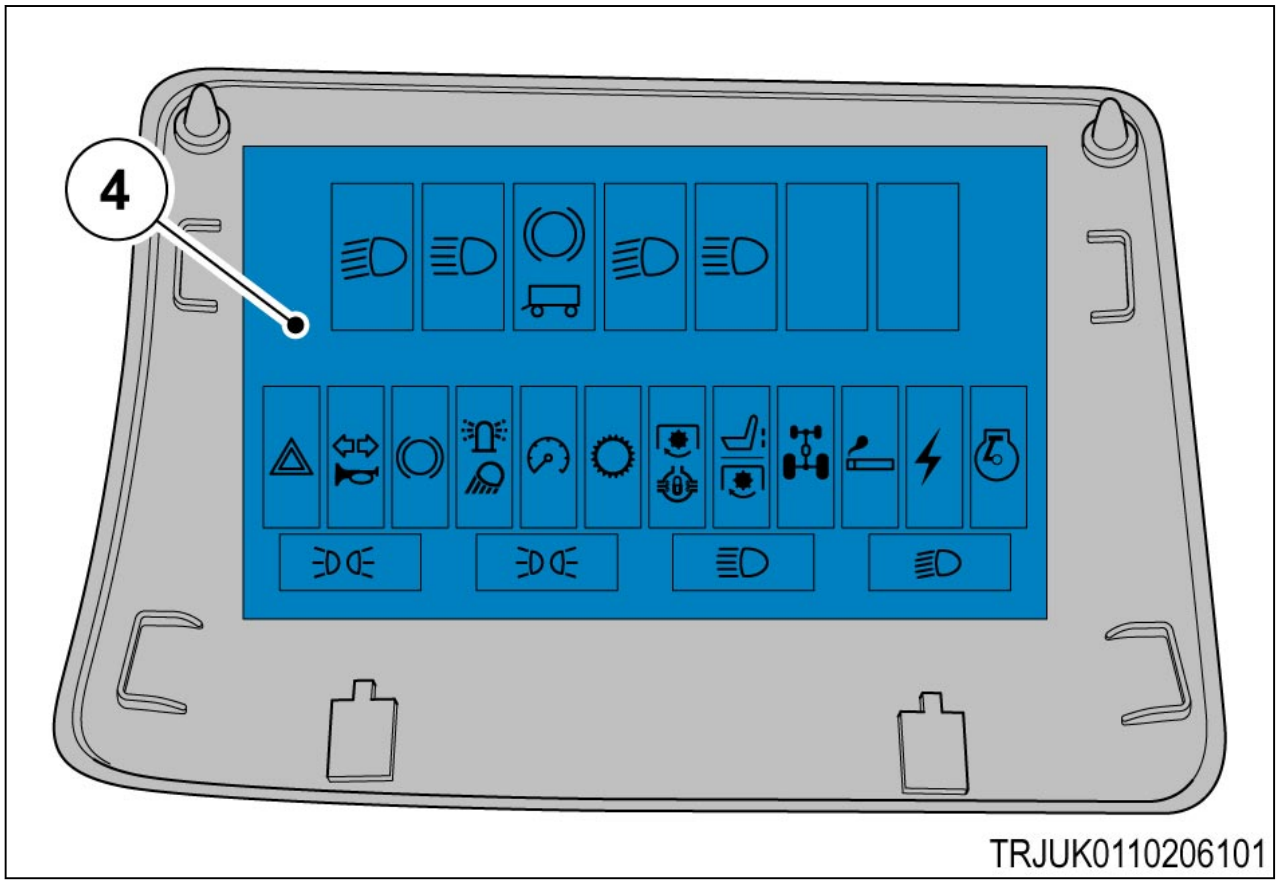


Fig. 16

Behind the cover is a label (4) with symbols that show the circuit for each fuse.

4.2.2 Fuses and relays box - description

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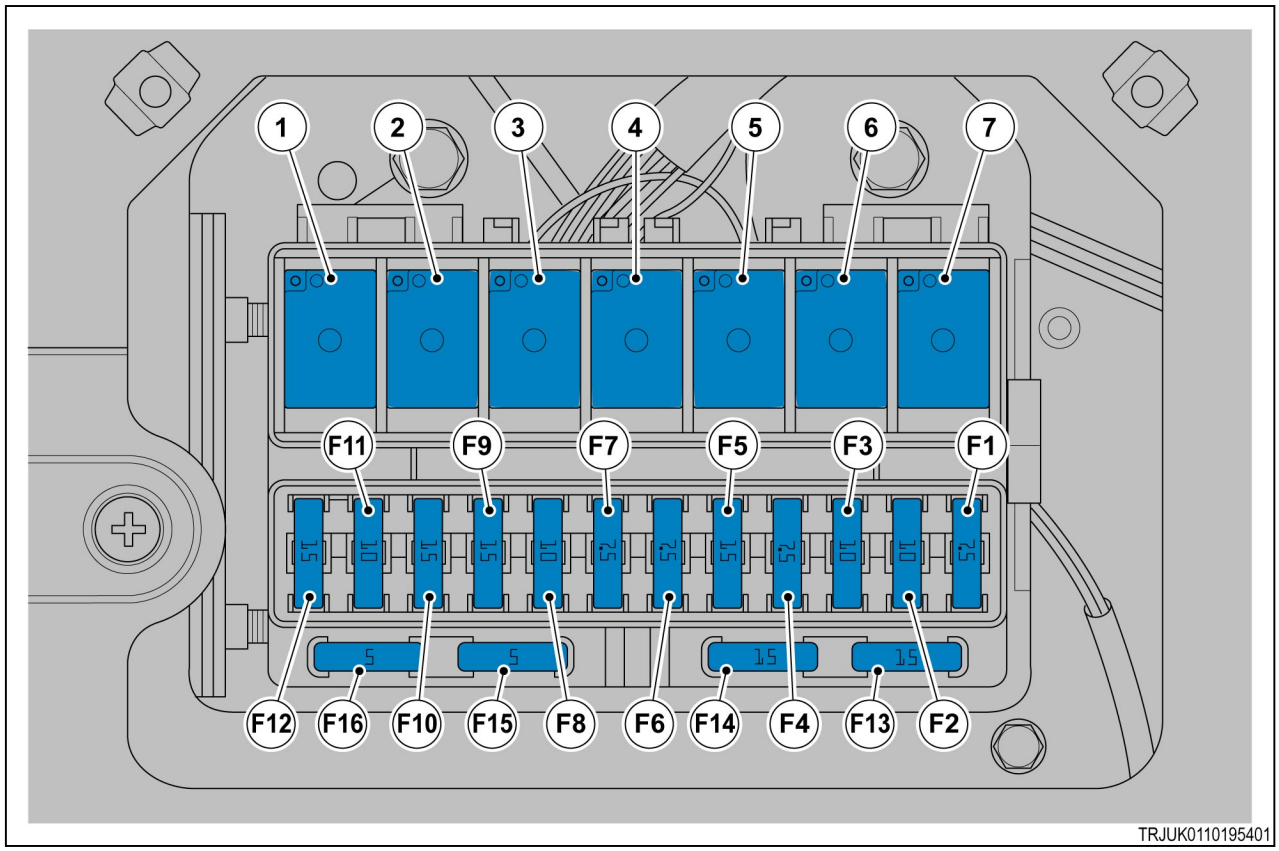


Fig. 17

Position	Rating	Fuse function
F1	7.5 A	Engine ECU (+15)
F2	10 A	3 pin power socket (+15)
F3	10 A	3 pin socket (+30), cigarette lighter
F4	7.5 A	four-wheel drive solenoid valve, four-wheel drive switch, throttle pedal sensor, speed sensor
F5	15 A	Pneumatic seat * , cab (+15)
F6	7.5 A	PTO switch, PTO solenoid valve, differential lock switch, hand throttle sensor, differential lock pressure switch, 4WD pressure switch, Variable Forward Reach (VFR) *
F7	10 A	Dashboard (+15), high or low switches** , PowerShuttle (+15)** , high or low*** , hydraulic super creeper (+15)*
F8	10 A	Dashboard (+30), hydraulic super creeper (+15)* , PowerShuttle (+30)**
F9	15 A	Beacon lamp
F10	15 A	Stop lamp
F11	10 A	Turn indicators, horn
F12	15 A	Warning lamps
F13	15 A	Low beam lamps
F14	15 A	High beam lamps
F15	5 A	Cab work lamps, right side position lamps
F16	5 A	Left side position lamps

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* if installed

** only on 24+12 transmission version

*** only on 24+24 transmission version

Position	Type	Relay function
1	12 V/30 A	Low beam lamps
2	12 V/30 A	High beam lamps
3	12 V/30 A	Trailer brake valve
4	12 V/30 A	H4 Low beam lamps
5	12 V/30 A	H4 High beam lamps
6	12 V/30 A	Safety start
7	12 V/30 A	H3 Work lamp*

* if installed

Fuse box on the B-pillar, right side

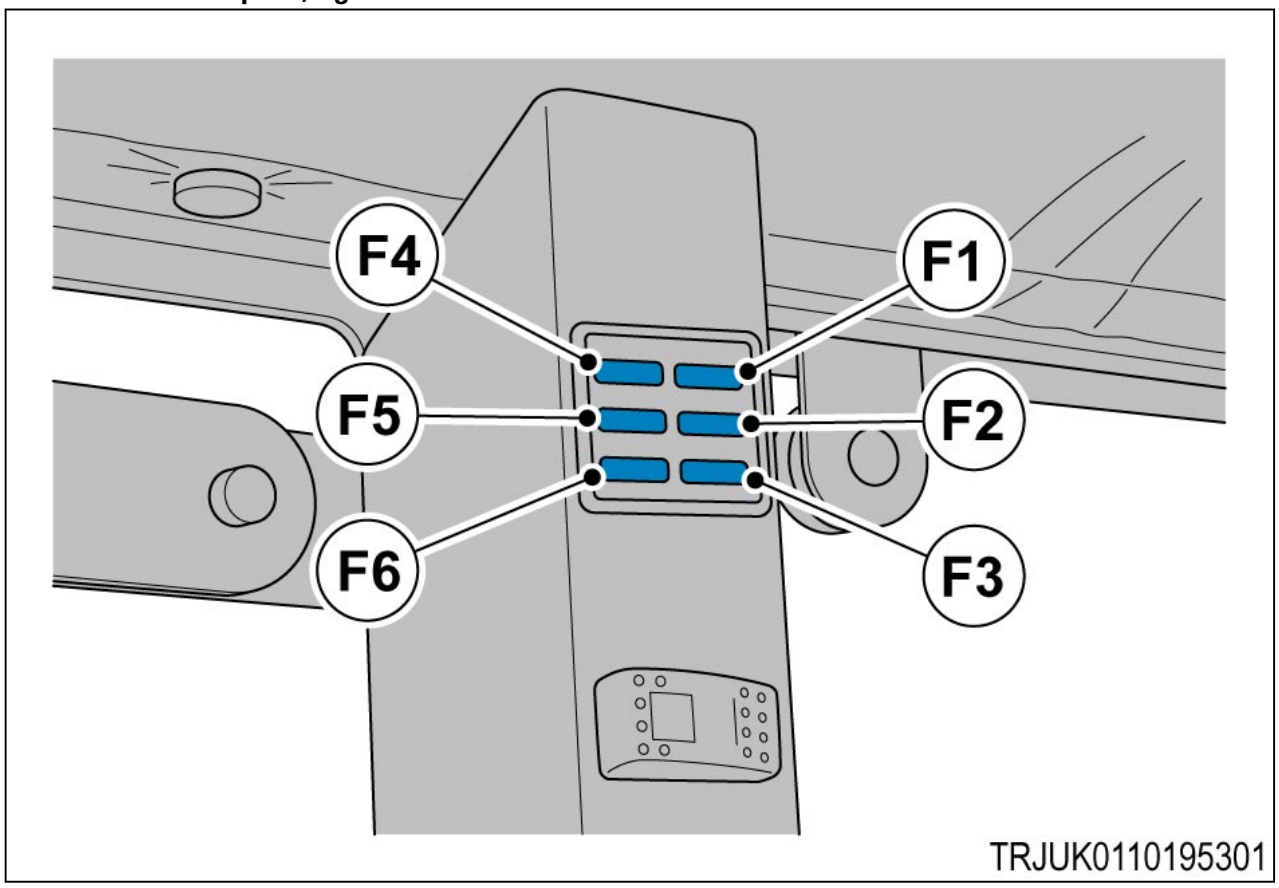


Fig. 18

Position	Rating	Fuse function, B-pillar right side
F1	15 A	Front work lamps
F2	15 A	Rear work lamps
F3	10 A	Radio (+15), rear window wiper

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Position	Rating	Fuse function, B-pillar right side
F4	10 A	Radio (+30), internal lamp
F5	15 A	Windshield wiper, windshield washer pump
F6	30 A	Air-conditioning module

Relays on the B-pillar, left side

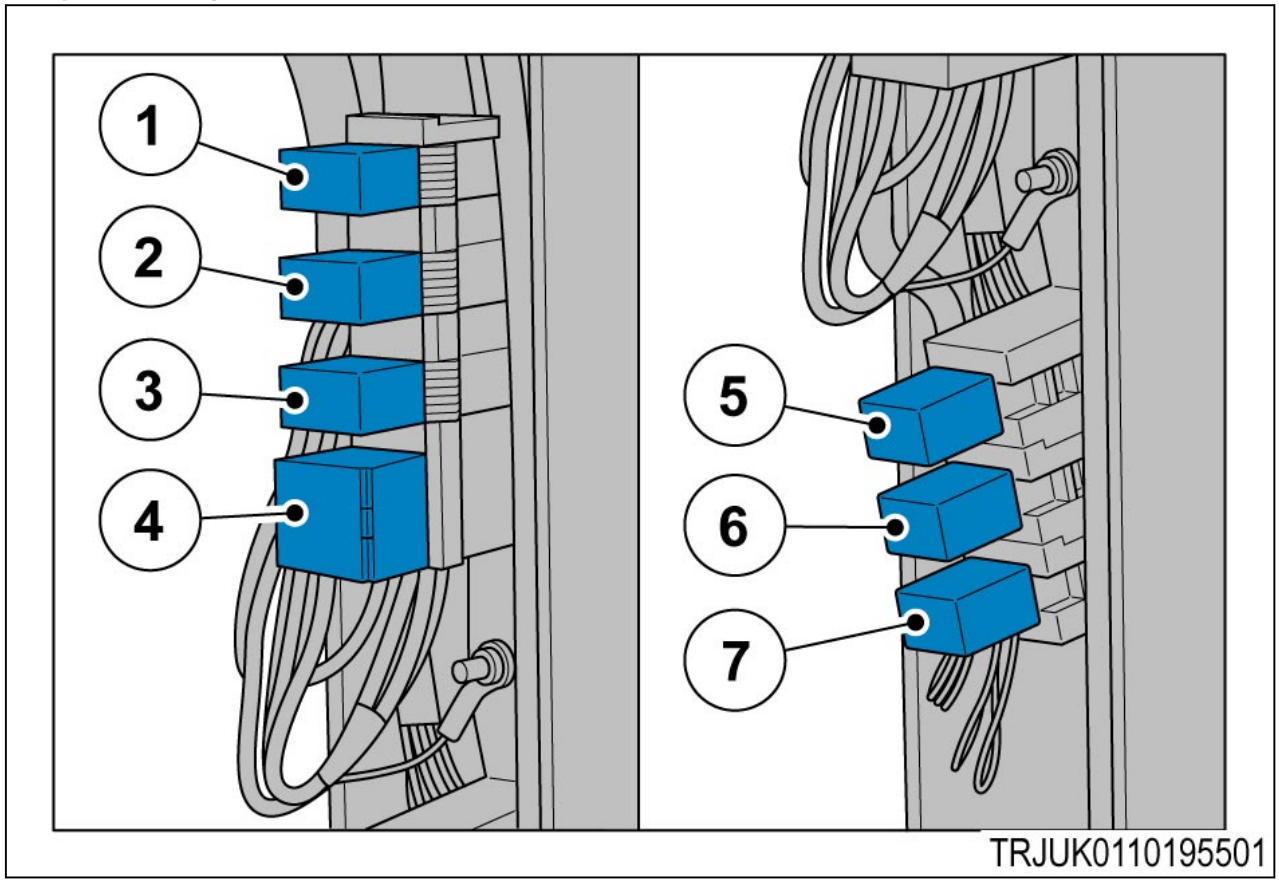


Fig. 19

Position	Type	Relay function, B-pillar left side
1	12 V/30 A	Front work lamps
2	12 V/30 A	Rear work lamps
3	12 V/20 A	Air-conditioning clutch
4	12 V/70 A	Cab roof power supply
5	12 V/20 A	Air-conditioning/heating circuit power supply (series)
6	12 V/20 A	Air-conditioning/heating circuit power supply (parallel)
7	12 V/20 A	Air-conditioning/heating circuit power supply

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Air-conditioning and heating circuit fan

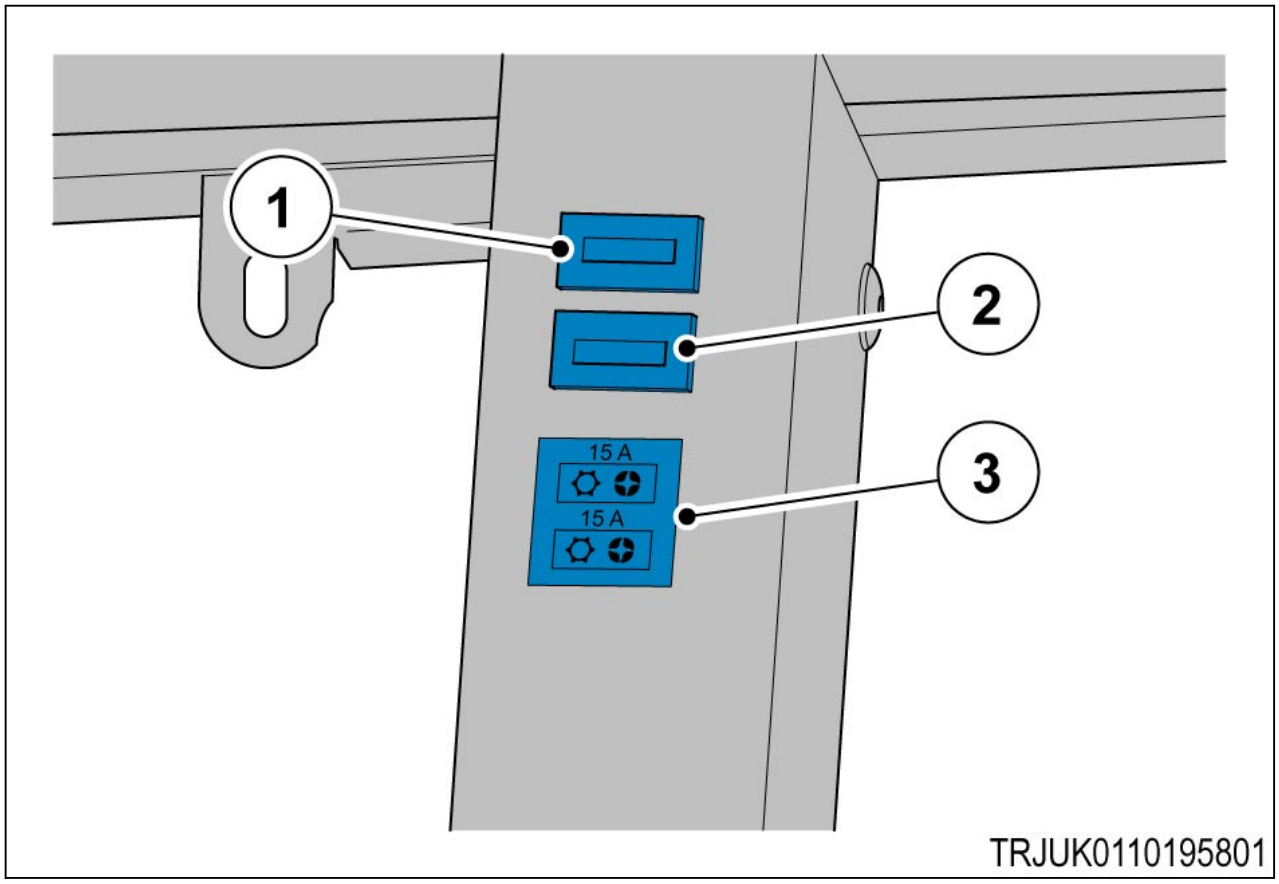


Fig. 20

The power supply fuses (F1), (F2) for the air-conditioning and heating fans are on the left side B-pillar. The label (3) shows the fuse rating.

Position	Rating	Fuse function, fan power supply
1	15 A	Fan motor power supply fuse
2	15 A	Fan motor power supply fuse

4.2.3 Remove the starter Relay

Before starting the procedure

IMPORTANT:
Obey the correct procedure when you disconnect and connect the electrical systems. If you do not, you can cause damage to the machine.

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Procedure

1. Set the battery cut-off switch to OFF.
2. Remove the dashboard cover.

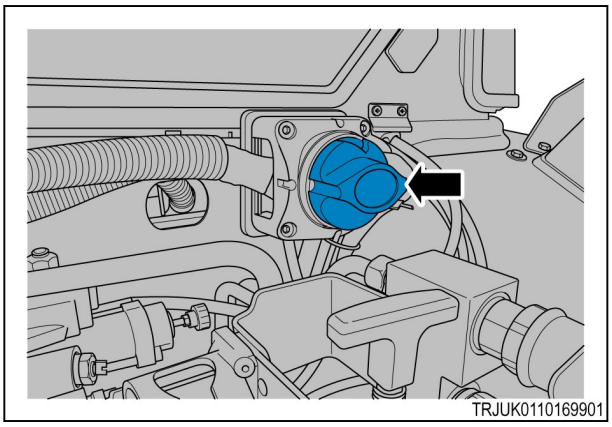


Fig. 21

3. Disconnect the connector (C).
4. Remove the fastener (A) and remove the starter relay (B).
5. Install in opposite sequence.

   IMPORTANT:
   When the battery cut-off switch is ON, wait 10 seconds before you turn the ignition switch.

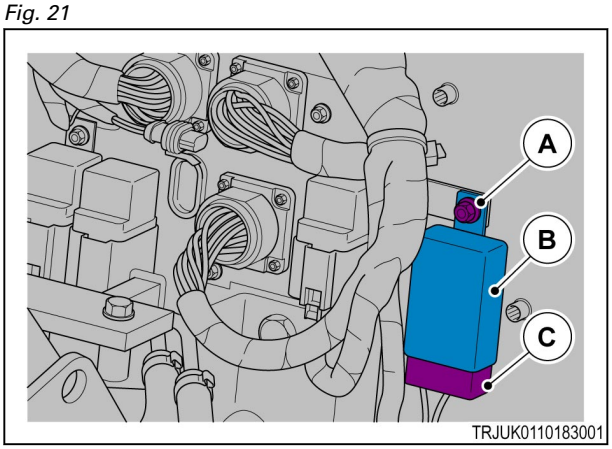


Fig. 22

4.2.4 Direction indicator relay

Removal

1. Disconnect the battery.
2. Remove the right top dashboard housing.
3. Loosen the screw (A).
4. Disconnect the connector (C).
5. Remove the direction indicator relay (B).

Installation

6. Connect the connector (C).
7. Install the direction indicator relay (B).
8. Install the screw (A).
9. Connect the battery.
10. Do a check of the direction indicators.

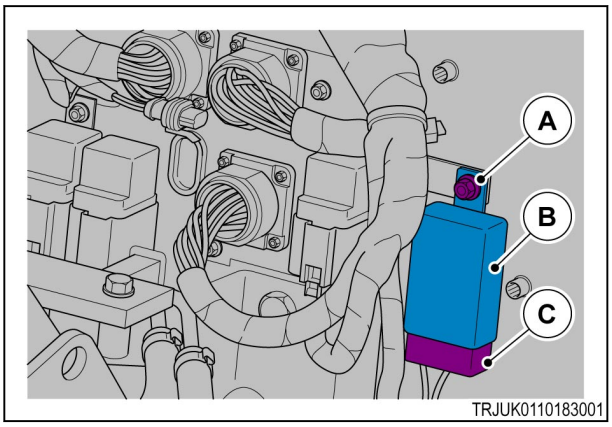


Fig. 23

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4.2.5 Engine Fuse Box

The engine fuses and relays box (A) is located over the engine hood near the coolant tank.

Loosen the screws (1) and remove the cover to access the fuse box (A).

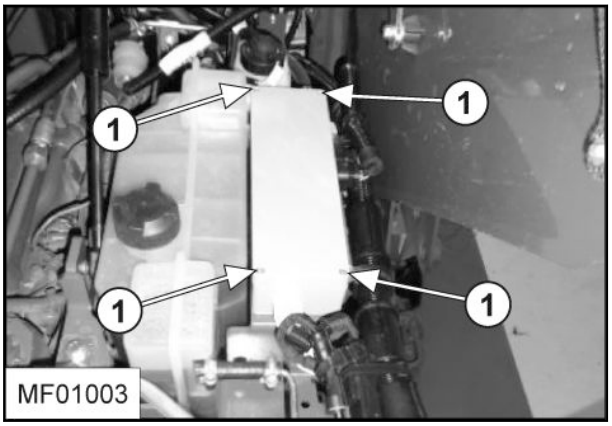


Fig. 24

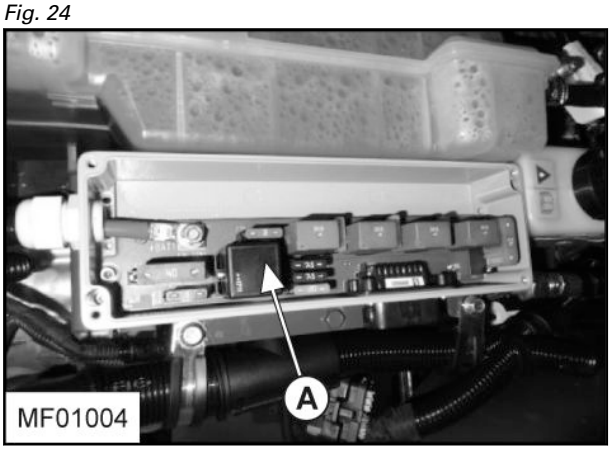


Fig. 25

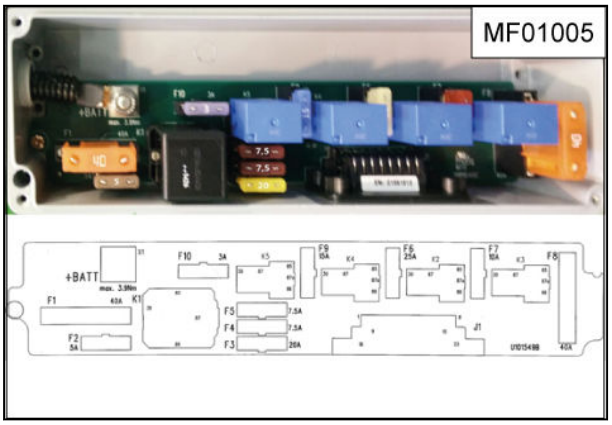


Fig. 26

FUSES		
Position	**Type**	**Function**
F1	40 A	Main fuse
F2	5 A	Main fuse Main Relays solenoid
F3	20 A	ECU pin 3-5
F4	7,5 A	ECU pin 1
F5	7,5 A	Relay solenoids power supply

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FUSES		
Position	**Type**	**Function**
F6	25 A	Not used
F7	10 A	Not used
F8	40 A	Not used
F9	15 A	Fuel Heater
F10	3 A	EHC (option)

RELAYS		
Position	**Function**	**Size**
K1	Main	"Maxi" 50 A
K2	Not used	"Mini" 15 A
K3	Not used	"Mini" 15 A
K4	Fuel heater	"Mini" 15 A
K5	EHC (option)	"Mini" 15 A

4.2.6 Other fuses

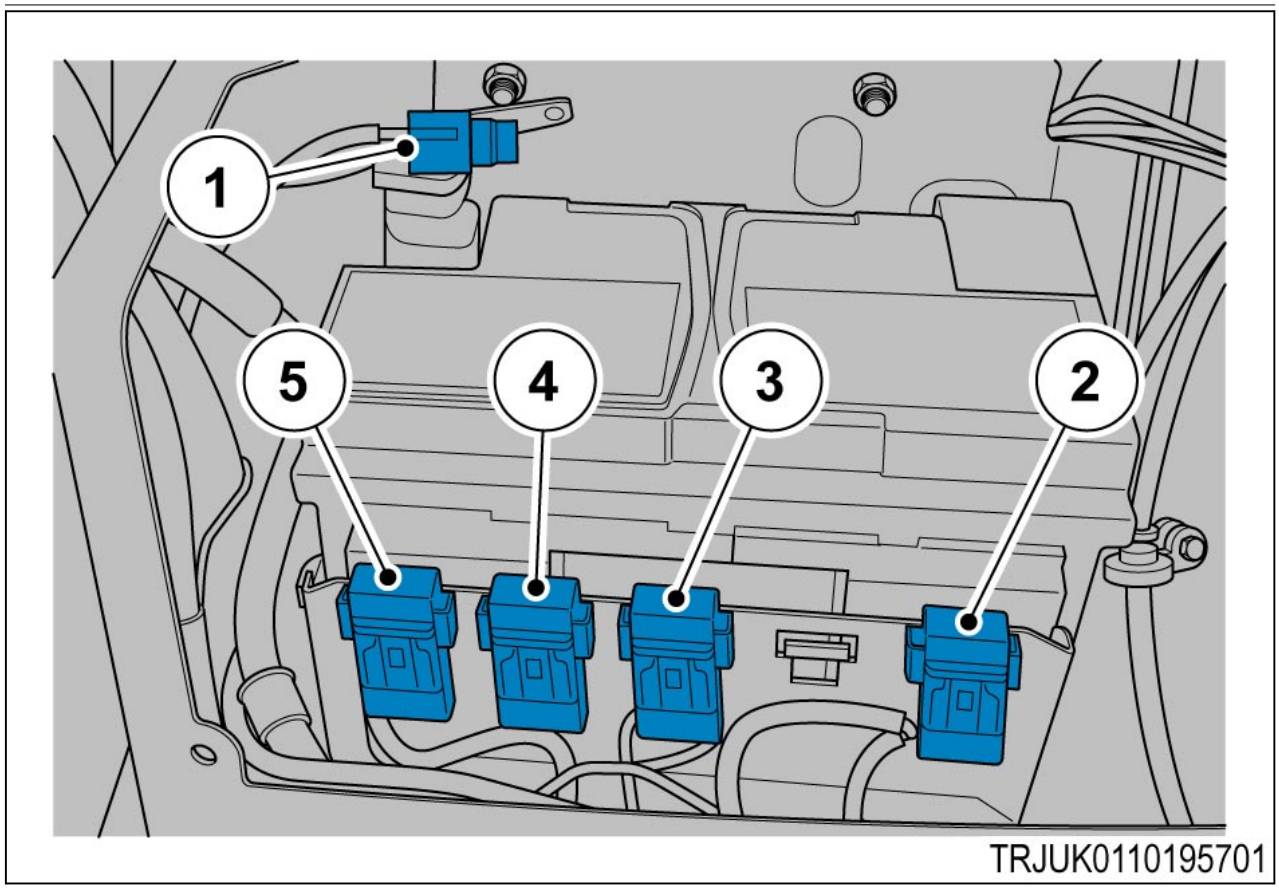


Fig. 27

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These fuses are in the battery compartment

Position	Rating	Fuse function
1	30 A	Electro-hydraulic (EH) Selective Control Valve (SCV)*
2	70 A	Primary roof harness*
3	70 A	Engine ECU
4	60 A	Heater plug
5	50 A	Primary harness*

* if installed

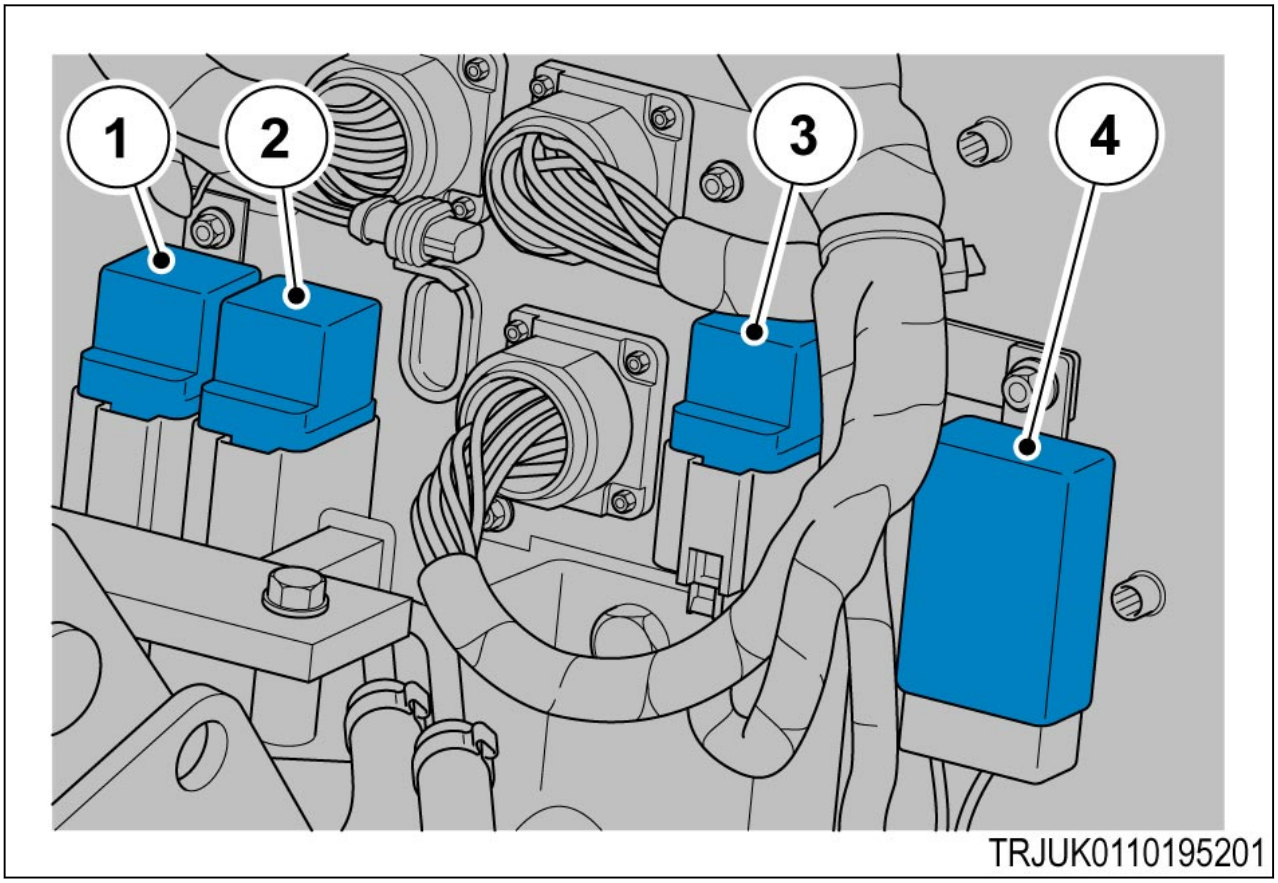


Fig. 28

These fuses are below the dashboard cover

Position	Type	Relay function
1	12 V/15 - 30 A	Front PTO interlock*
2	12 V/20 A	Auxiliary fuel tank pump*
3	12 V/15 - 30 A	Starter
4	12 V/21 W	Direction indicator

* if installed

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4.3 Bulb replacement - Safety Instructions

When replacing a bulb, always comply with the following safety instructions:



CAUTION:
Always switch the lights off before you change a bulb.



CAUTION:
First allow the bulb to cool down (it may cause burns).



CAUTION:
Wear safety goggles and gloves when changing the bulb.



CAUTION:
The bulb is made of glass and contains gas; the bulb is under high pressure, so there is a risk of it shattering.



CAUTION:
Do NOT use any bulbs that have fallen on the ground or have scratches on their surface, as there is a risk of them shattering.



CAUTION:
Make sure that the bulb is seated correctly in its holder in the light.



CAUTION:
Check the light for signs of damage and make sure the seals are seated correctly.

IMPORTANT:
Use only bulbs that require 12 volts and are of the same type and wattage as the bulb that is being replaced.

IMPORTANT:
Never touch the glass surface of the bulb, hold it only by its base.

IMPORTANT:
Use a clean cloth and alcohol to remove any fingerprints from the glass bulb.

IMPORTANT:
If the tractor is fitted with halogen bulbs, never touch a halogen bulb with the fingers. Natural moisture in the skin will cause the bulb to burn out when the light is switched on. Always use a clean cloth or tissue when handling halogen bulbs.

4.3.1 Headlight alignment

The tractor must be in normal road-going conditions and parked on a level surface at a distance of 7.6 m from a wall (tyres must be inflated to the correct pressures and the front wheels must be positioned for travel in a straight line).

Switch on the low beam headlights.

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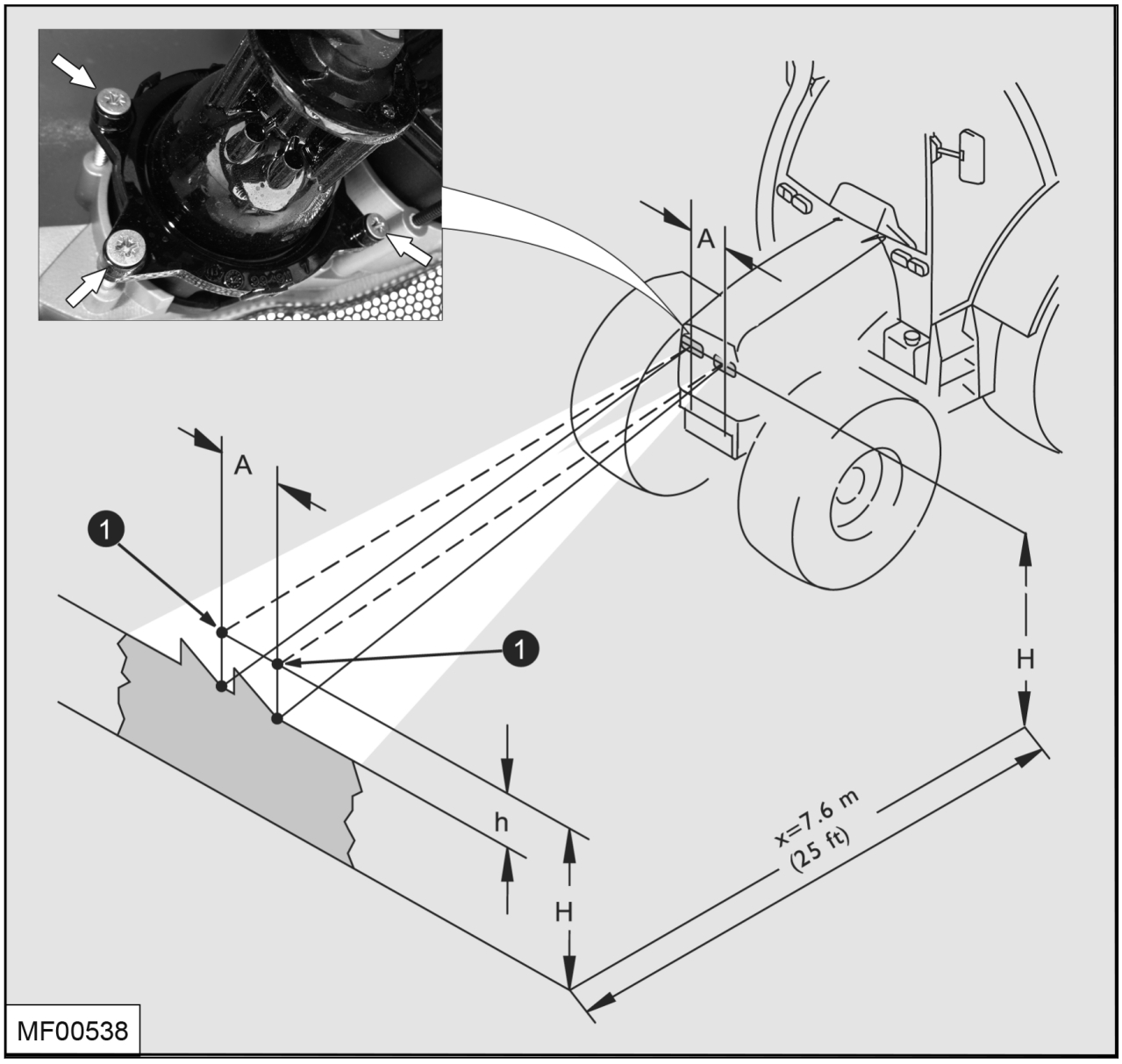


Fig. 29

(1) points on the wall corresponding to the centers of the headlights
(A) distance apart of headlights
(H) height of headlights
(h) distance of the centre of the beam from the horizontal axis
(X) distance between headlights and wall

Turn the adjuster nuts on the studs indicated by the arrows in the figure to move the beam in a vertical or horizontal direction.

NOTE:
In order to determine the points on the wall corresponding to the centres of the headlights, we recommend that you bring the tractor up to the wall with the low beam headlights on, mark the centres on the wall and then move back to a distance of 7.6 m from the wall.

To adjust the beam:

- Position the tractor facing a wall or screen 7.5 m away, distance (X).
- Draw a horizontal line on the wall or screen (1) the same as center height of the headlights from the ground (H).
- Draw two vertical lines (1) the same as the horizontal center to center distance between the headlights (A).

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- Draw a second horizontal line (h) at a distance (h) below and parallel to line (H). Distance (h) is calculated by multiplying distance (H) by 0.1; for example, headlight height 1130 mm x 0.1 = 133 mm.
- Adjust each headlight, on main beam, individually by covering the opposite one and aligning the upper edge of the illuminated zone to line (h).

4.3.2 Headlight adjustment

Procedure

1. Open the engine hood.

2. Turn the screws (A), (B) and (C) in order to adjust the light alignment.

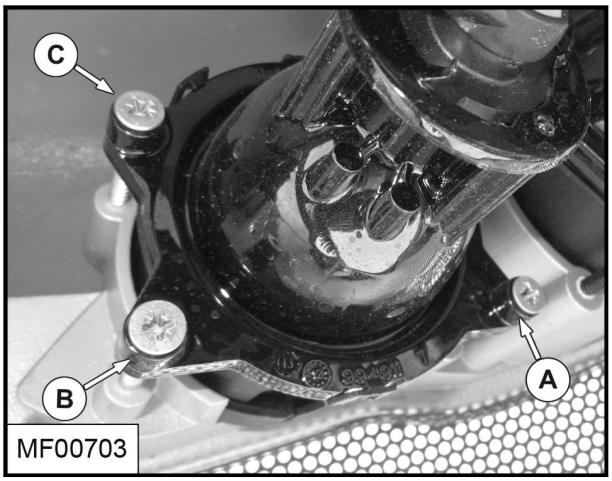


Fig. 30

4.3.3 Headlight - lamp bulb replacement

Procedure

1. Turn the ignition key OFF and disconnect the battery cut-off switch.

2. Disconnect the electrical connector from the lamp bulb.

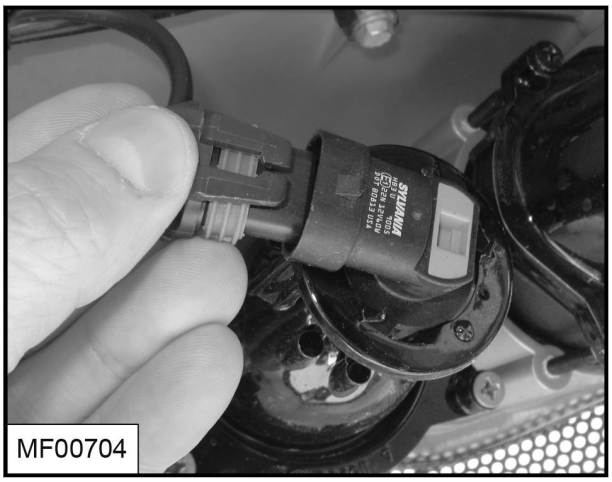


Fig. 31

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3. Turn and remove the bulb.

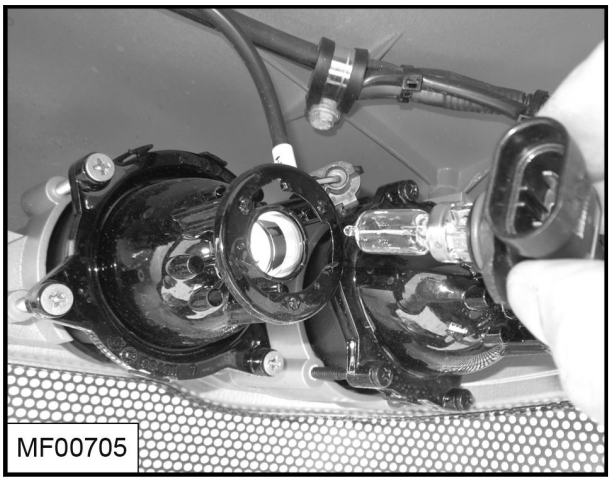


Fig. 32

4. Install new bulb and restore the electrical connector.
5. Connect the battery cut-off switch.

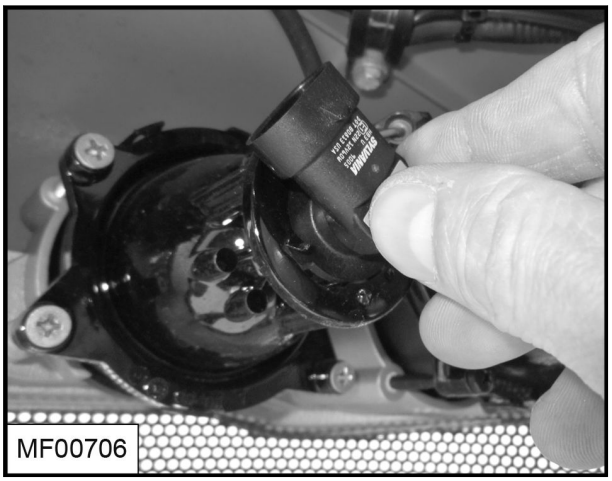


Fig. 33

4.3.4 Replace a bulb in a rear lamp

Procedure

1. Make sure that the ignition switch is set to OFF.
2. Remove the fasteners (A).

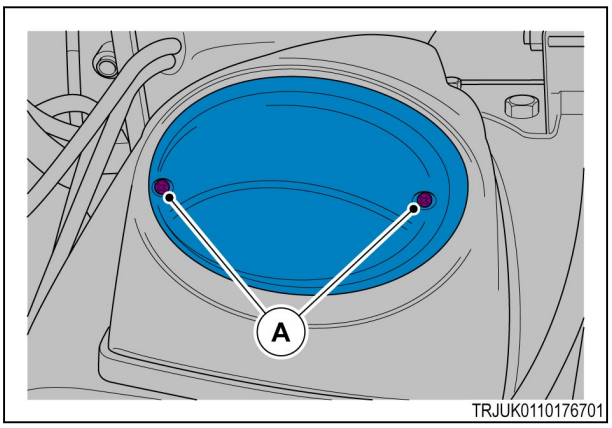


Fig. 34

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3. Remove the cover.



Fig. 35

4. Push the bulb (B) in and turn it counterclockwise to release. Remove the bulb (B).

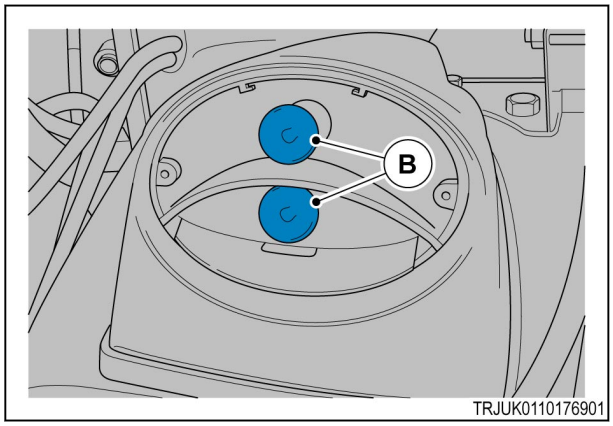


Fig. 36

5. Push the bulb (B) in and turn it clockwise to install.

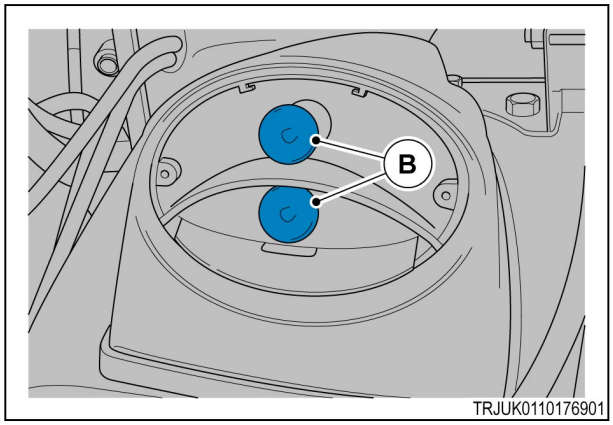


Fig. 37

6. Install the cover.

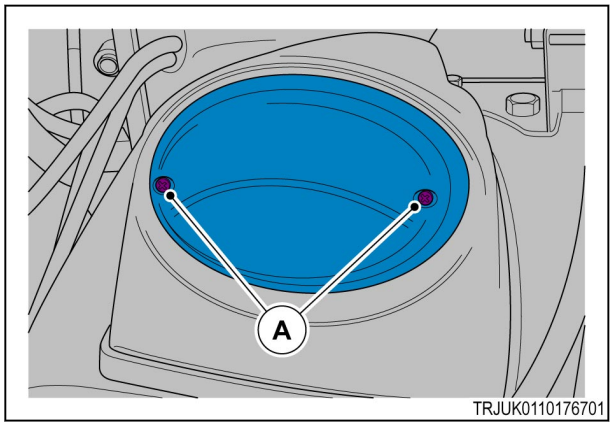


Fig. 38

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7. Install the fasteners (A).

4.3.5 Replace the position lamp or direction indicator bulb

Procedure

1. Make sure that the ignition switch is OFF.

2. Remove the fasteners (1).

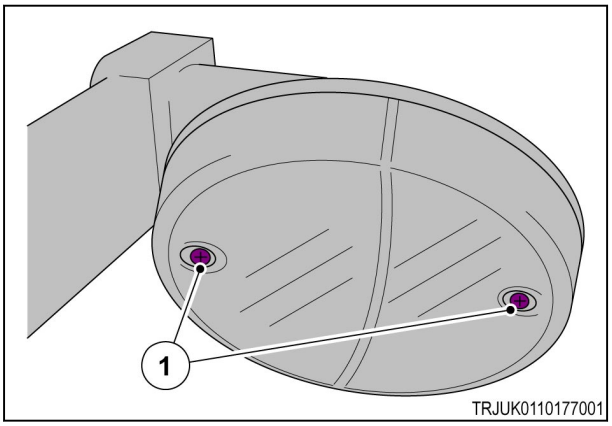


Fig. 39

3. Remove the lamp cover (2).

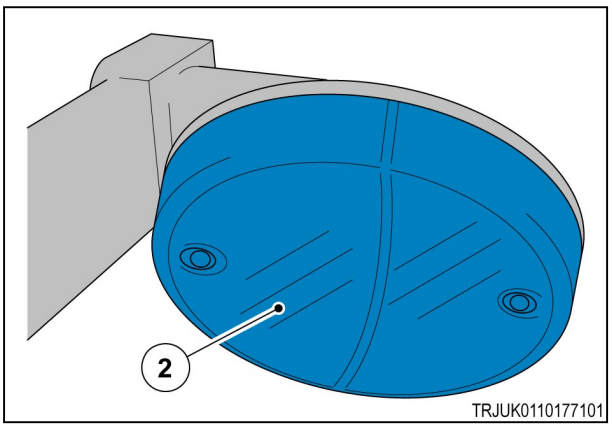


Fig. 40

4. Push the bulb (3) in and turn it counterclockwise to release it. Remove the bulb (3).

5. Push the bulb (3) in and turn it clockwise to install it.

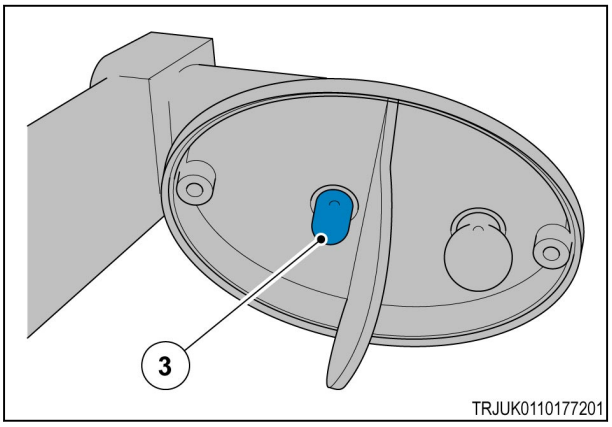


Fig. 41

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6. Install the lamp cover (2).

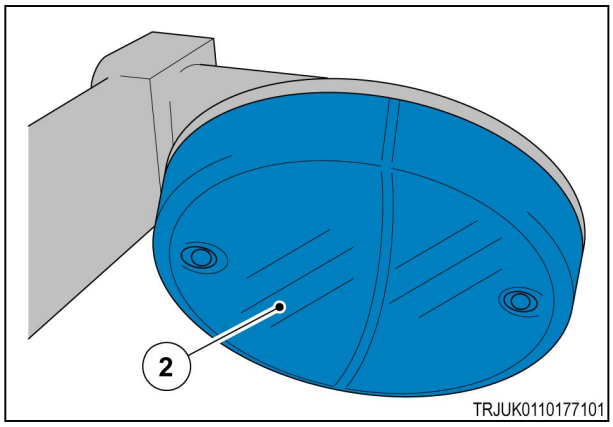


Fig. 42

7. Install the fasteners (1).

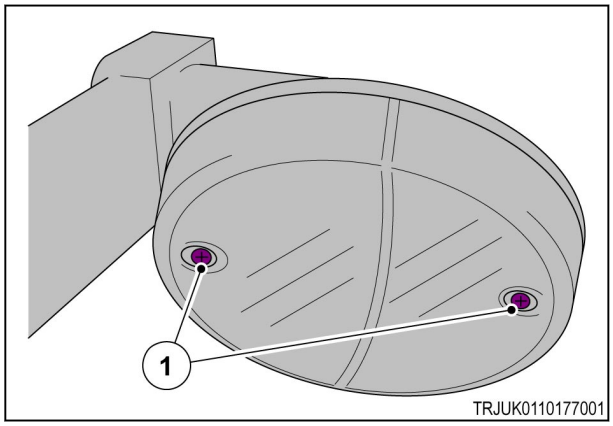


Fig. 43

4.3.6 Replace the bulb in the beacon lamp

Procedure

1. Make sure that the ignition switch is OFF.

2. Turn the cover (A) counterclockwise to remove the lens.

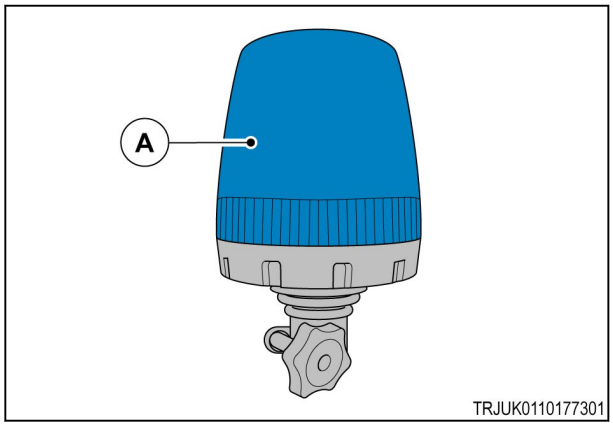


Fig. 44

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3. Push the fastener down and turn it counterclockwise. Remove the fastener (B).

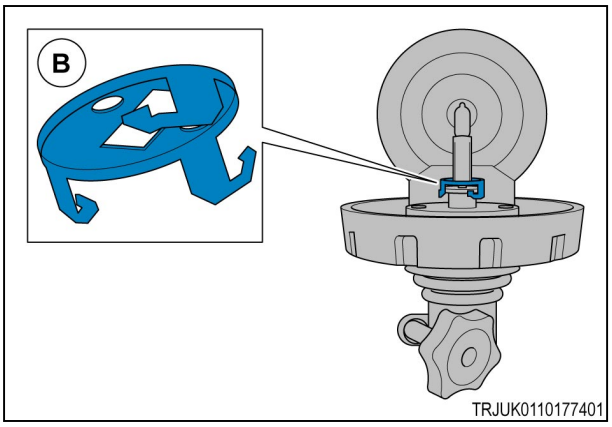


Fig. 45

4. **IMPORTANT:**
Do not touch the glass section of the bulb. This can decrease the life of the bulb.

Remove the bulb (C).

5. Install the new bulb.

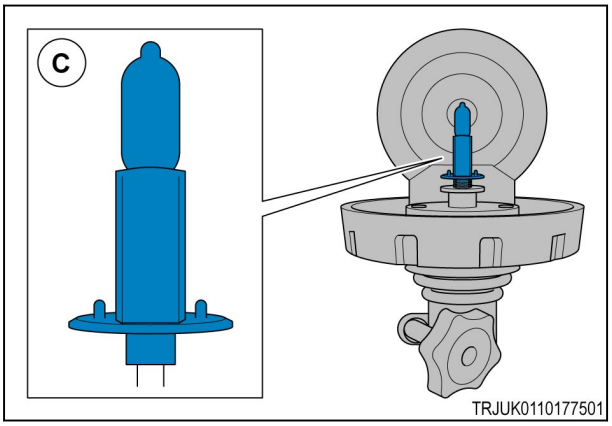


Fig. 46

6. Push the spring down with the fastener and turn the fastener clockwise.

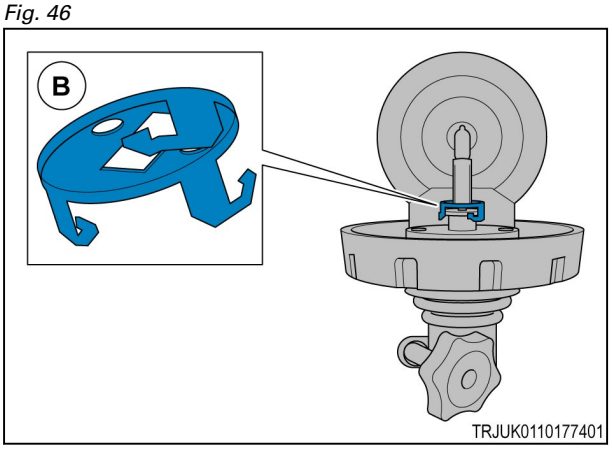


Fig. 47

7. Turn the cover (A) clockwise to install the lens.

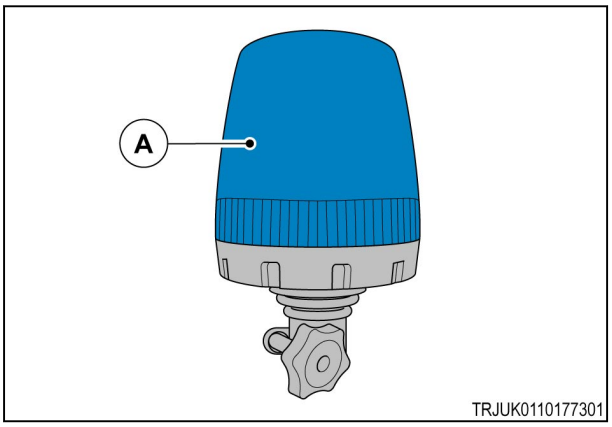


Fig. 48

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4.3.7 Replace a bulb in the rear work lamp

Rear work lamp

1. Make sure that the ignition switch is set to OFF.
2. Remove the cover (A) to get access to the bulb.
3. Push the bulb in and turn it counterclockwise to release. Remove the bulb.
4. Push the bulb in and turn it clockwise to install.
5. Install the cover.

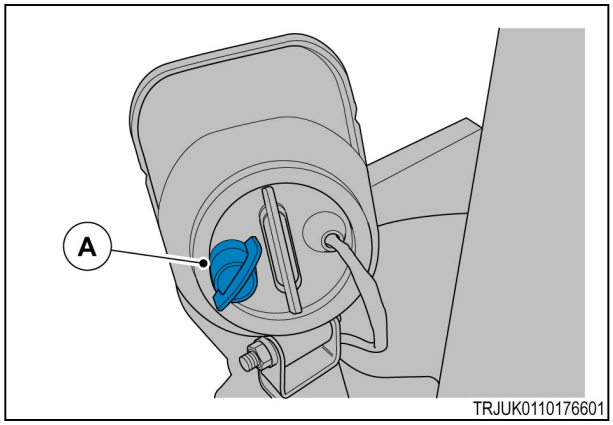


Fig. 49

4.3.8 Replace a bulb in a cab work lamp

Before starting the procedure

WARNING: Falling off, or into the machine.

Falls from height cause death or injury.

Use the applicable access equipment when you do work at height.

Procedure

1. **IMPORTANT:**
   Do not immediately set the battery cut-off switch to the OFF position. Wait a minimum of 1 minute from the last engine stop (ignition switch to OFF). This gives the electronic control units a correct shutdown process.

   Set the ignition switch to OFF.
2. Set the battery cut-off switch to OFF.

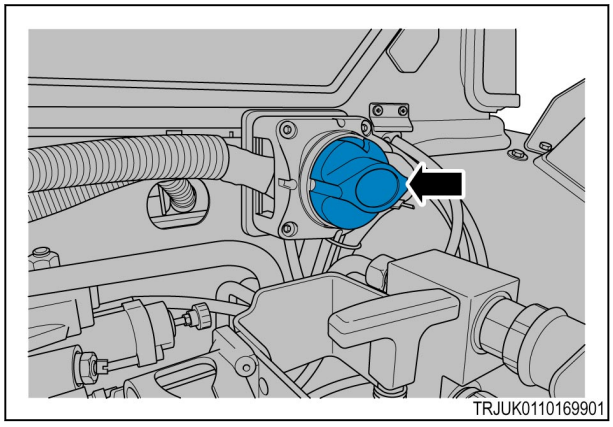


Fig. 50

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3. Remove the 2 fasteners and remove the external ring to access the bulb.

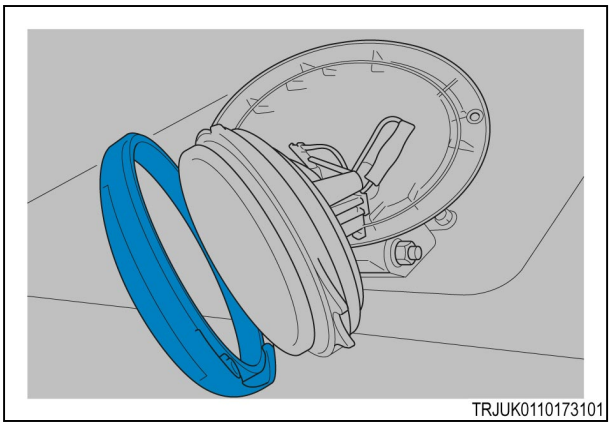


Fig. 51

4. Disconnect the electrical connector and release the clip.

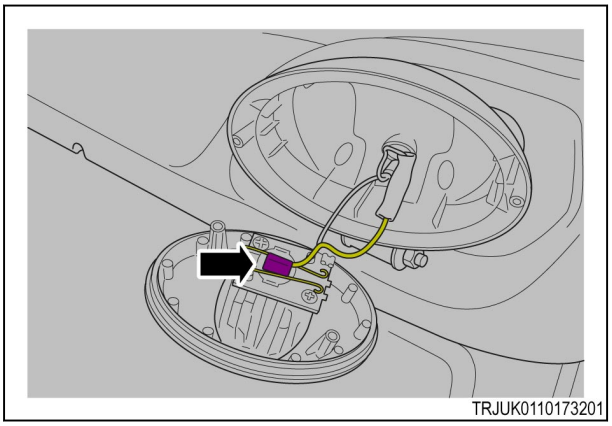


Fig. 52

5. **IMPORTANT:**
Do not touch the glass part of the bulb.

Remove the bulb.

6. Install the new bulb.

7. Install the clip and connect the electrical connector.

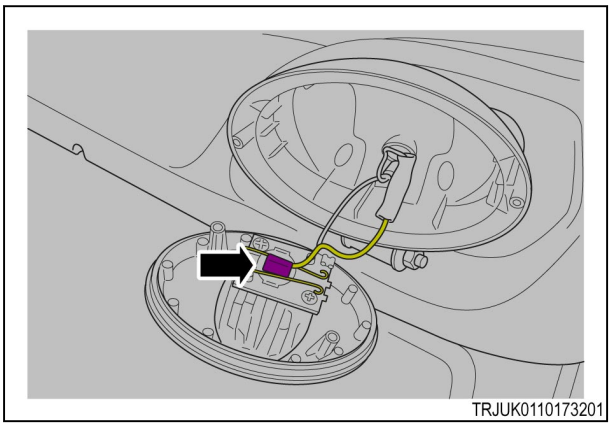


Fig. 53

https://truckmanualshub.com/

8. Install the external ring and the 2 fasteners.

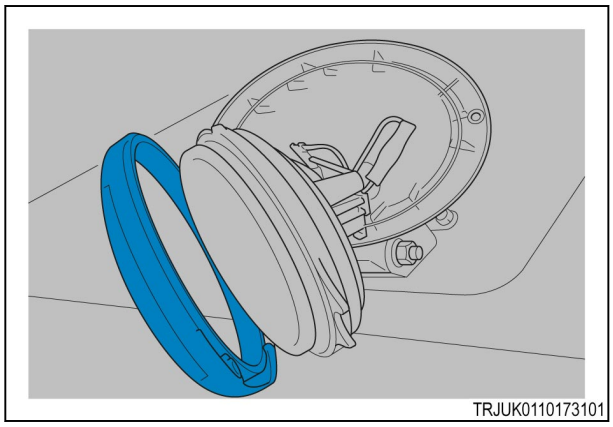


Fig. 54

9. IMPORTANT:

Following this procedure do not start the engine immediately, wait a minimum of 10 seconds. This allows the electronic control units to operate correctly.

Set the battery cut-off switch to ON.

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4.4 Lower Links - Ends adjustment

Lower link ends can be adjusted according to the implements. To obtain different positions proceed as follows:

Procedure

1. Remove lock pin (A).
2. Remove pin (B).
3. Adjust position of bracket (C).
4. Re-install pin (B) and lock pin (A) once the desired setting is obtained.

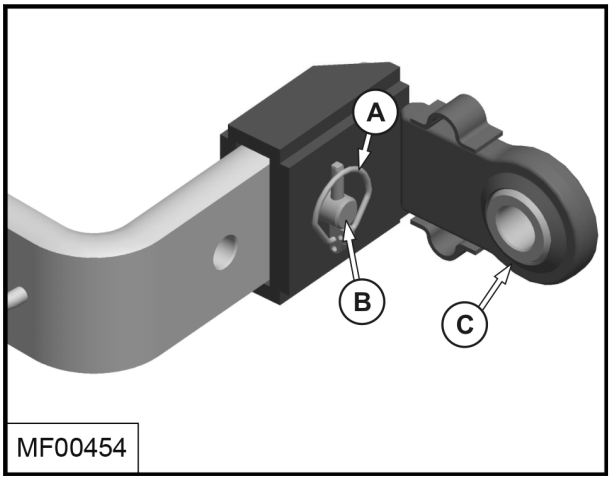


Fig. 55

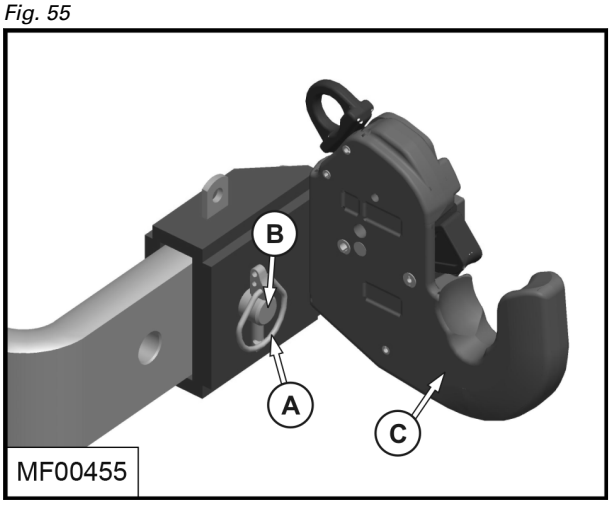


Fig. 56

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4.5 Lower Links - Hook Type Ball Ends

Whenever the hook-type ball ends are fitted, to attach the implement proceed as follows:

Procedure

1. Unlock the hook pulling the lever (A).
2. Raise the links until the hook ends engage the link balls and lock into position.
3. To detach, rest the implement safely on the ground, lift the catches and latch back as above.
4. Move down the lower links and after having detached the top link and any other connections move forward.

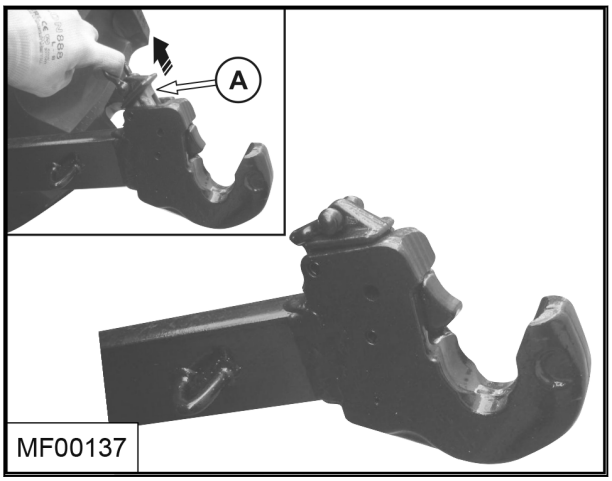


Fig. 57

https://truckmanualshub.com/

4.6 Tire Maintenance

Tire pressure

Make sure that the tire pressure is correct for the specified model tire dimension. Examine the tire pressure each 100 - 150 hours. Refer to the applicable table in the "Technical specifications" chapter of this manual.

IMPORTANT:
When the maximum hold is necessary during field work, the rear tire pressure can decrease to a minimum of 8 bar. This also decreases the load capacity.

The front and rear tire inflate pressures must always agree to the specification table. You can decrease these values in proportion to the permitted limits to get a correct mechanical alignment between the front and the rear wheels.

Ballast weight

In some work conditions, you must add weight to the machine to increase the drawbar pulling power and decrease the wheel slip. Apply the correct quantity of weight for the specified task and ground conditions.

When you add weight to the rear wheels, it increases the draft force and decreases the weight on the front wheels.

NOTE: *Steering control can decrease.*

A risk of injury or death because you cannot control the machine.

Always put the correct weight on the front end to balance the machine.

Do not use more weight than necessary. The total weight on each wheel must not be higher than the recommended load levels.

Remove the added weights when you cultivate or do other light tasks. More weight than necessary compresses the soil, wastes fuel and decreases the life of the machine.

Get the available weights and fasteners from your dealer. The machine weight must apply in proportion between the axles.

To replace or repair a tire, you must go to an approved tire technician who has the correct equipment.

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4.7 Adjustment of steering angle

When the power front axle is in the condition of maximum oscillation and the wheels are turned to the maximum steering angle, there must be no interference between the tyres or fenders and engine hood. If necessary, adjust the internal angle by way of bolts (A).

Make sure that bolts on each carrier are adjusted to contact at same time. Adjust stops to limit travel in full right and full left turn.

IMPORTANT:
At the smaller track settings, an interference condition may occur between the tyre and tractor or loader, if fitted, when the wheels are turned to the full lock position. To avoid this condition you must check by turning the wheels to full lock and adjusting the steering stops as necessary.

Procedure

1. Place the jack under the engine sump and raise the tractor enough to allow the axle to swing from one stop to the other.
2. Turn the front wheels to full lock and check that the inside edge of the tyre does not foul the tractor.
3. Carry out the same check on the other lock.
4. If necessary, adjust the length of the steering stops (A) on both sides so that a foul condition will not occur.
5. Tighten the lock-nuts (B) after adjustment (torque 125 Nm).
6. Repeat this procedure on the left side.

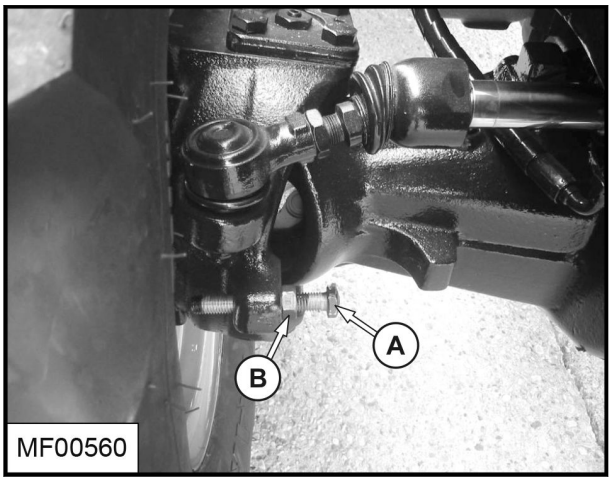


Fig. 58

https://truckmanualshub.com/

4.8 Windshield washer system

Examine the washer fluid level in the reservoir on the cab's rear left side. Fill the reservoir if it is necessary.

If the windshield washer jet does not operate, clean and adjust the jet with a suitable tool. Adjust the jet orientation until it points to the top of the area that the windshield wiper blade covers. In cold weather, add an applicable fluid to the washer fluid to prevent the washer fluid freezing.

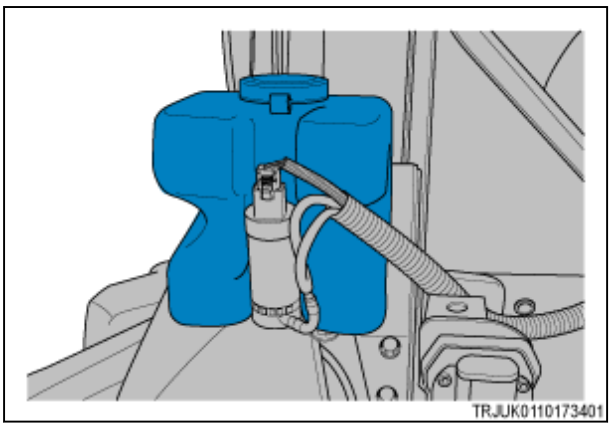


Fig. 59

https://truckmanualshub.com/

4.9 Removing air from the fuel circuit

If air enters the fuel system, it must be removed before the engine can be started.

Air can enter the system if:

- The fuel tank has been run dry or drained.
- One of the low pressure fuel pipes leaks during operation or has been disconnected.
- The fuel filters have been replaced.

WARNING:
Diesel fuel under pressure can penetrate the skin or eyes and cause serious personal injury, blindness or death.

WARNING:
Do not open high-pressure pipe connectors on the fuel system when the engine is running. Wait at least 30 sec. after the engine has stopped. If the jet of high-pressure fuel comes into contact with your skin, the fuel will penetrate the skin causing severe injuries. Get medical help immediately!

IMPORTANT:
In case of fuel filter changing, a bleeding procedure is needed. Refer to the relevant procedure.

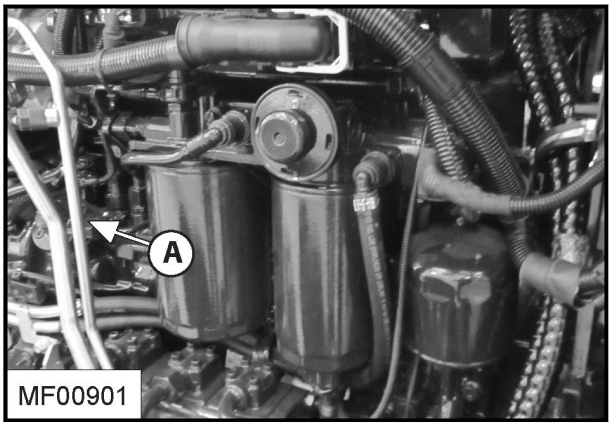


Fig. 60

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4.10 Tractor Jacking Points

WARNING:
Equipment failure could cause accident or injury! Only use rigging equipment that has the capacity to lift the loads that you are moving. Always check the rigging equipment each day for damaged or missing parts. Make sure other workers or bystanders are not under the load while it is moving. Failure to comply could result in death or serious injury.

WARNING:
Jack stands can slip or fall over. Dropping, tipping, or slipping of machine or its components is possible. DO NOT work under a vehicle supported by jack stands only. Park the tractor on a level surface. Block the wheels. Support the machine with safety stands. Failure to comply could result in death or serious injury.

WARNING:
Unexpected machine movement! If you are supporting any wheel(s) of a four wheel drive machine on a jack stand, NEVER attempt to start the engine or rotate a wheel. The wheels could move, causing the machine to fall from the stand. Instead, support all the wheels so they are just clear of the ground. Failure to comply could result in death or serious injury.

Use wooden wedges (1) to prevent the front axle from tilting.

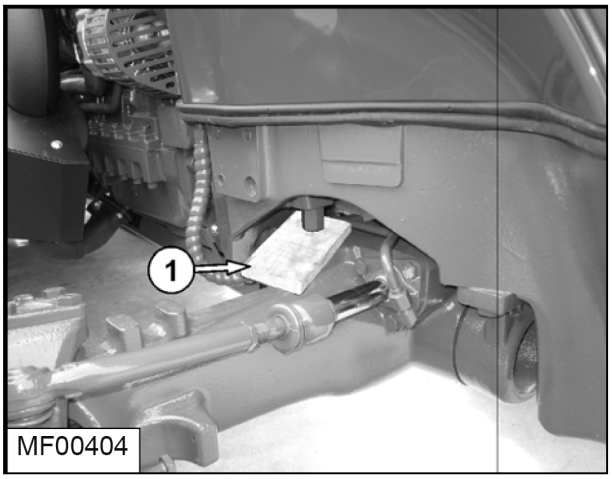


Fig. 61

Recommended lifting points (1) to raise the rear of the tractor (e.g. for removing the rear wheels).

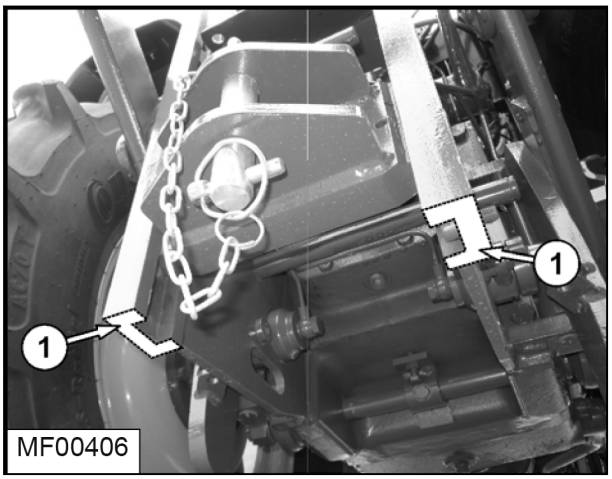


Fig. 62

https://truckmanualshub.com/

Recommended lifting points (1) to raise the rear of the tractor (e.g. for removing the rear wheels) - version with pick-up hitch.

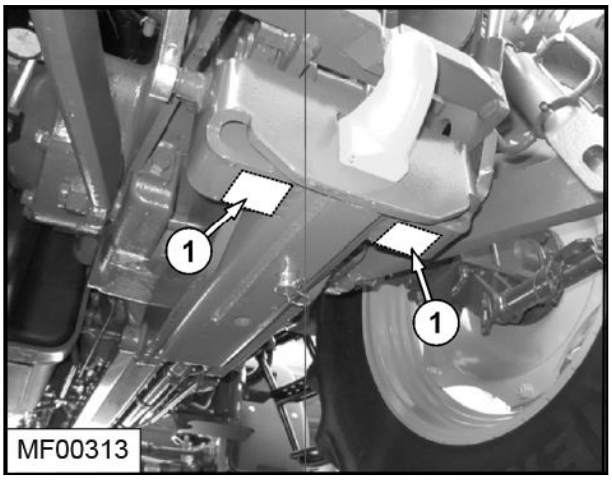


Fig. 63

Recommended lifting point (1) to raise the right hand side of the front axle (e.g. for removing the right front wheel).

Recommended lifting point (2) to raise the center of the front axle.

Recommended lifting point (3) to raise the left hand side of the front axle (e.g. for removing the left front wheel).

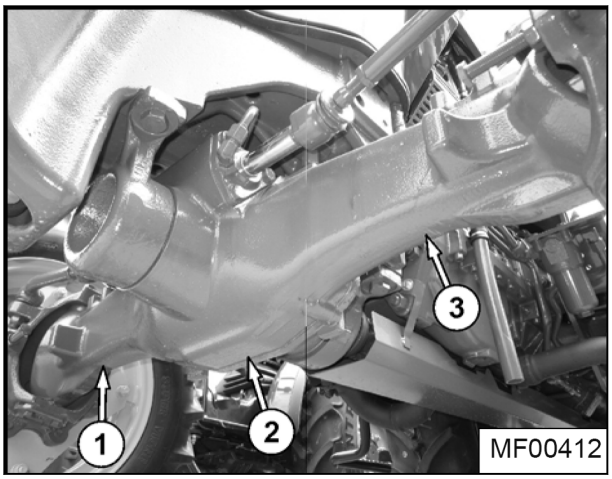


Fig. 64

Recommended lifting point (1) to raise the front end of the tractor under the base weight.

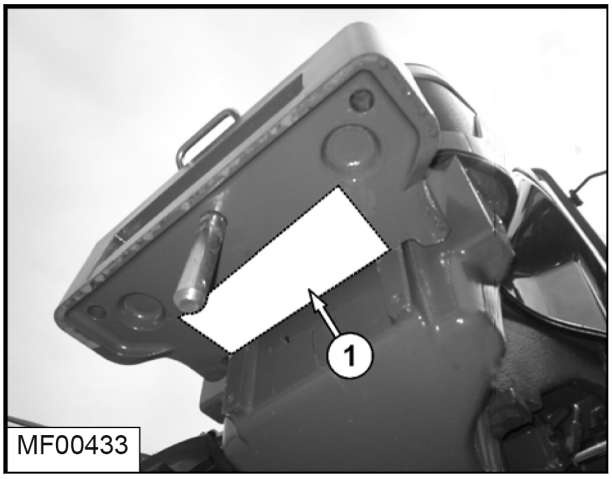


Fig. 65

https://truckmanualshub.com/

4.11 Grease and lubrication

4.11.1 Lubrication points

Lubricate all grease points

(For the correct lubrication interval, see the "Maintenance schedule").

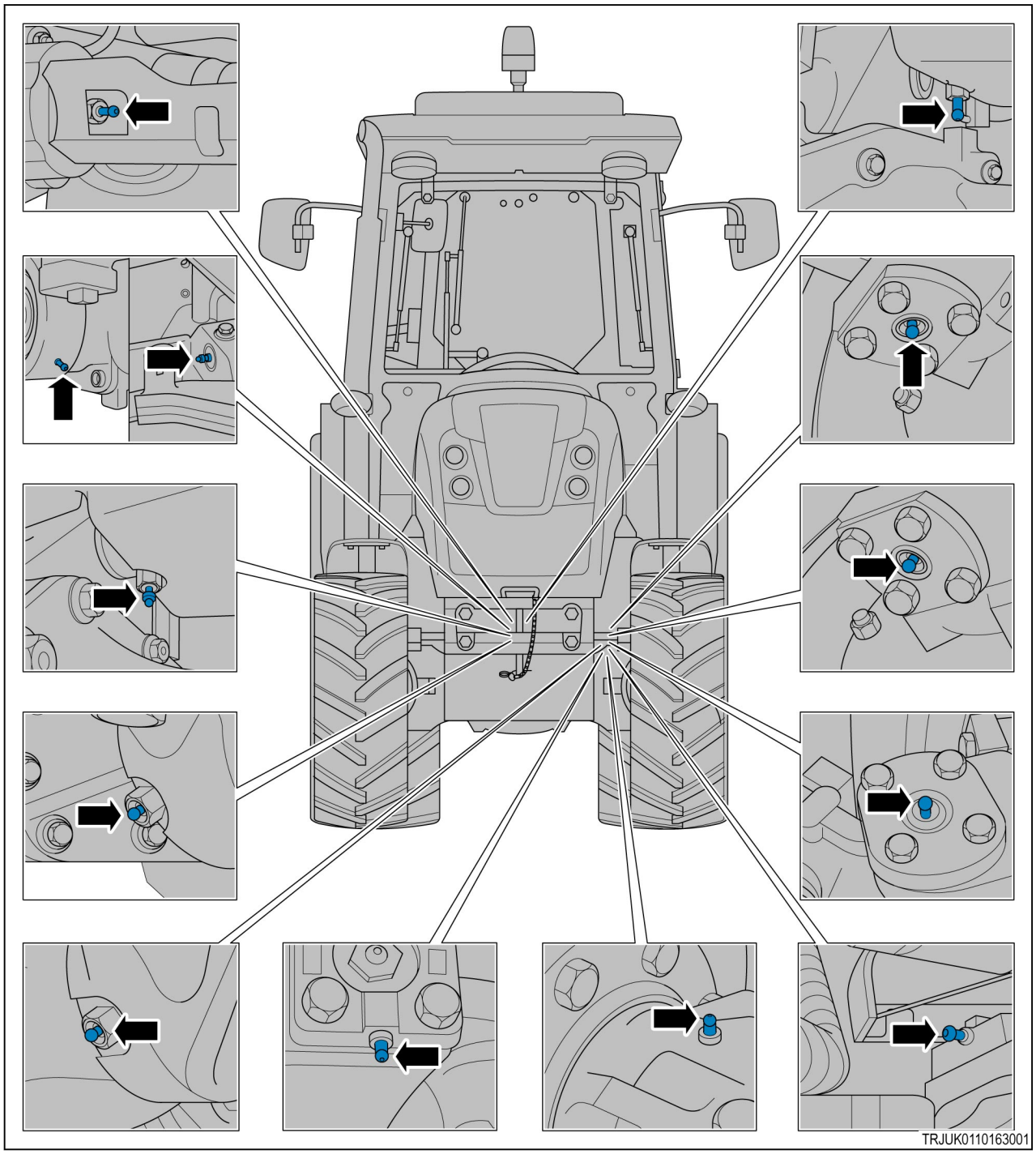


Fig. 66

https://truckmanualshub.com/

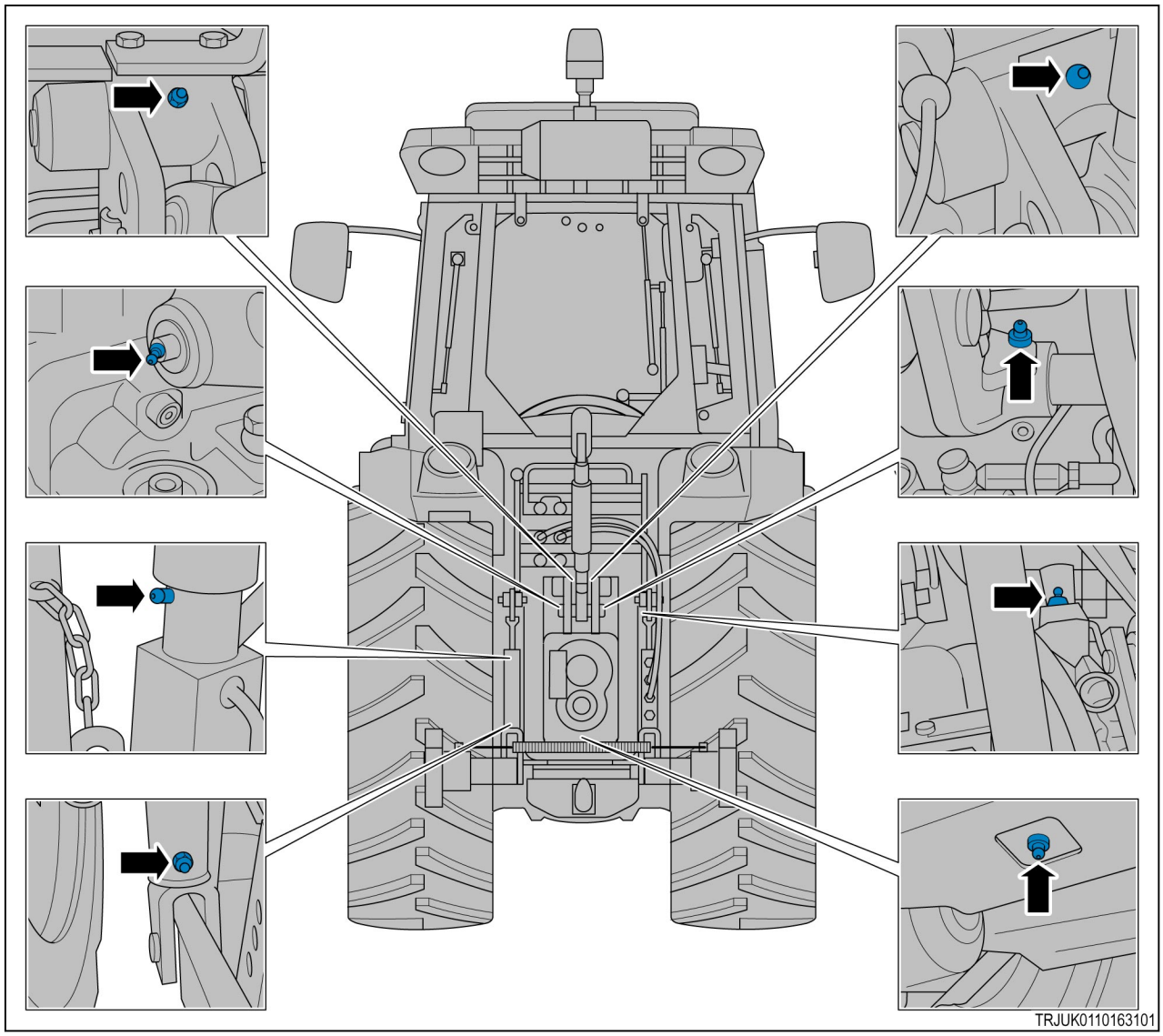


Fig. 67

https://truckmanualshub.com/

4.12 Maintenance operations

4.12.1 Engine Oil Level Check

Remove the dipstick (A), wipe clean and re-insert it fully. Remove again the dipstick (A) and check the oil level. The acceptable operating range is between the two marks on the dipstick.

IMPORTANT:
Do not operate the engine when the oil level is below the lower mark on the dipstick.

In this case add specified oil through the filler neck (refer to the "Recommended lubricants and additives" section).

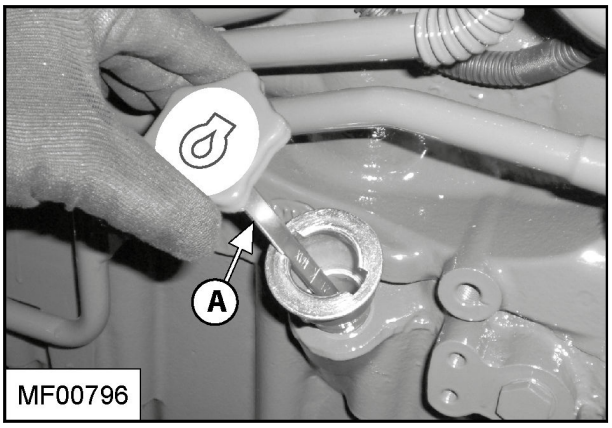


Fig. 68

4.12.2 Drain the Engine Oil

Drain the oil when the engine is warm, remove the plugs (1) (one for side) from the engine sump with the tractor standing on level ground.

Refit and tighten the drain plug to a torque of 35 Nm.

Refill with an approved oil to the MAX mark on the dipstick.

NOTE:
Allow time for the oil to settle in the sump before rechecking the level.

NOTE:
An interval of 400 hours is the maximum. In difficult working conditions the oil may need changing more frequently (every 200 hours for example).

WARNING:
Engine oil, filter and fuel filters need to be changed every 200 hours when using BIO-FUELS.

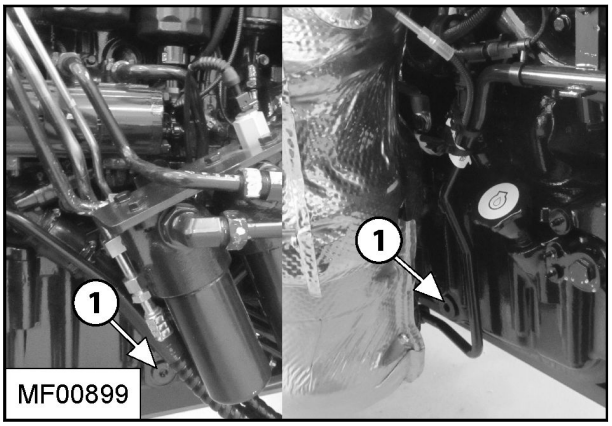


Fig. 69

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4.12.3 Coolant level

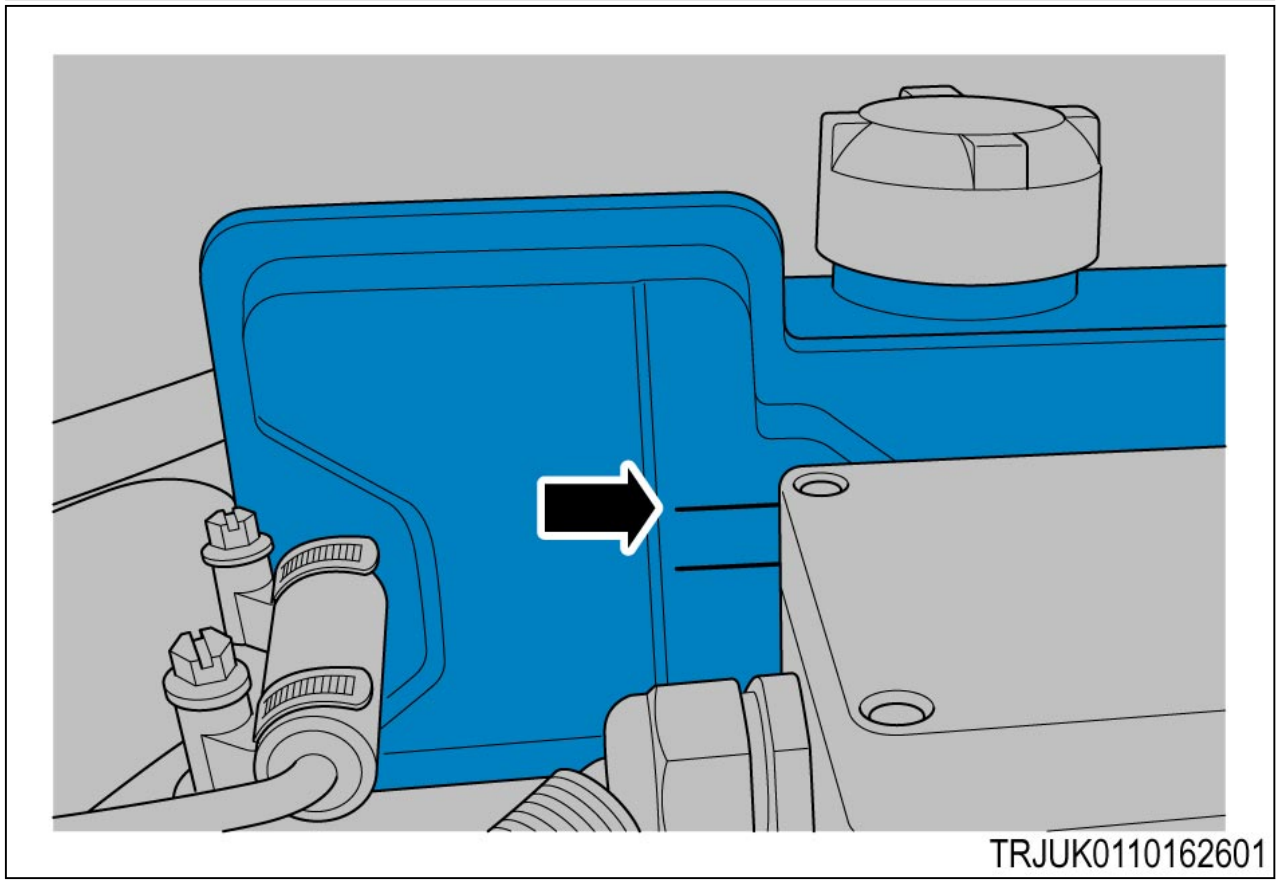


Fig. 70

WARNING: Pressurized fluid.

Risk of death or injury.

Obey the procedure to release the pressure.

Regularly examine the engine coolant level when the engine is cold. The coolant level must be between the "MAX" and the "MIN" marks on the inspection scale.

If it is necessary, fill the expansion tank with the correct coolant to the "MAX" mark (refer to the "Lubricants and additives" section).

IMPORTANT:
If the coolant level continuously decreases, speak to an approved service center.

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4.12.4 Transmission/Hydraulic System Oil Level Check

Remove the dipstick (A), wipe clean and re-insert it fully. Remove again the dipstick and check the oil level. The oil level should be between the full mark and the end of the dipstick.

IMPORTANT:
If using implements that require a greater quantity of oil in the hydraulic circuit, the oil level must be up to the mark "XXX".

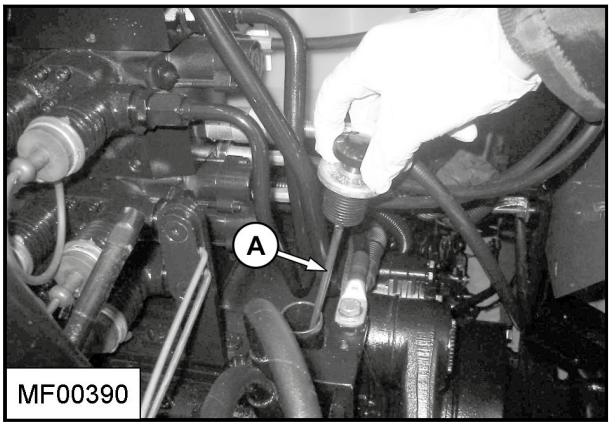


Fig. 71

4.12.5 Brake fluid level check

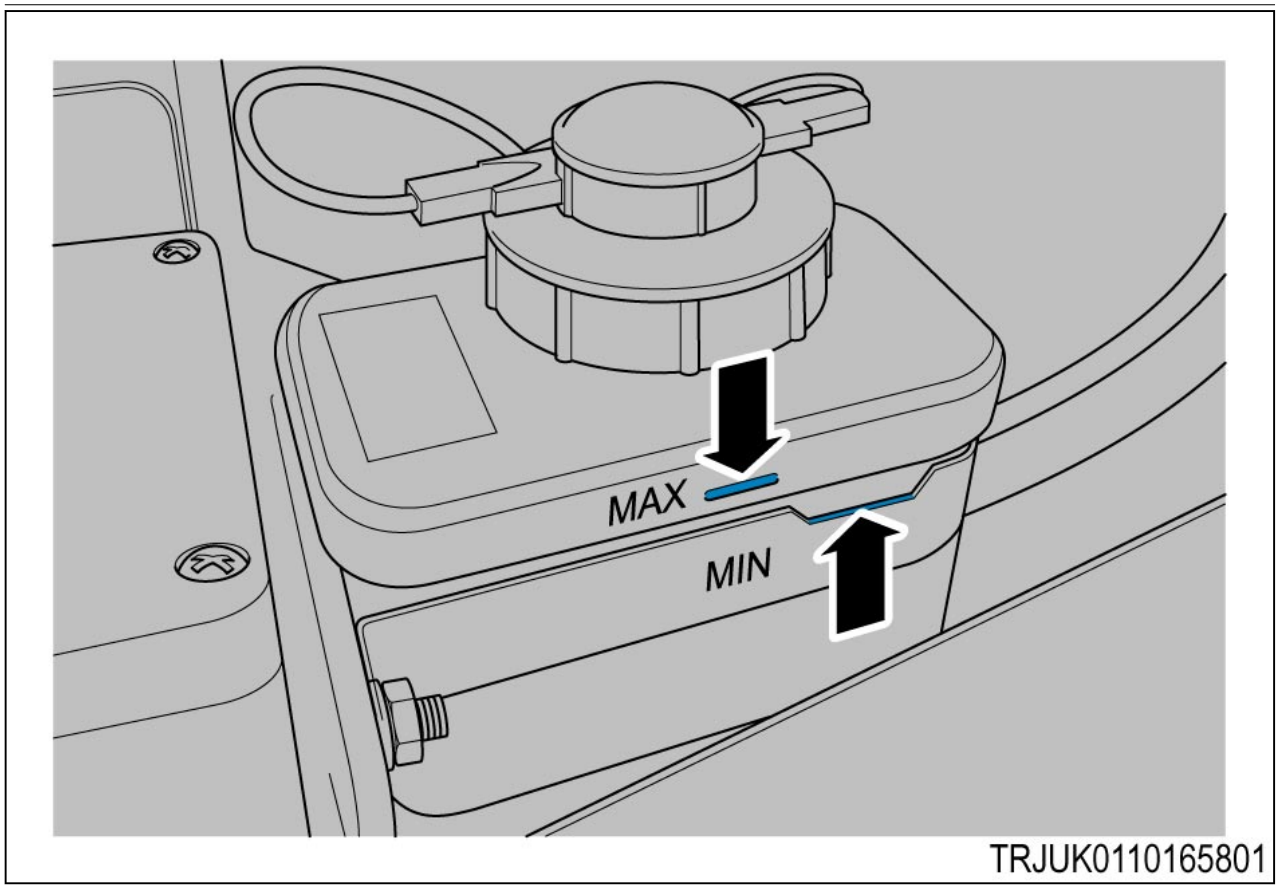


Fig. 72

Examine the brake fluid level through the inspection scale on the brake fluid reservoir.

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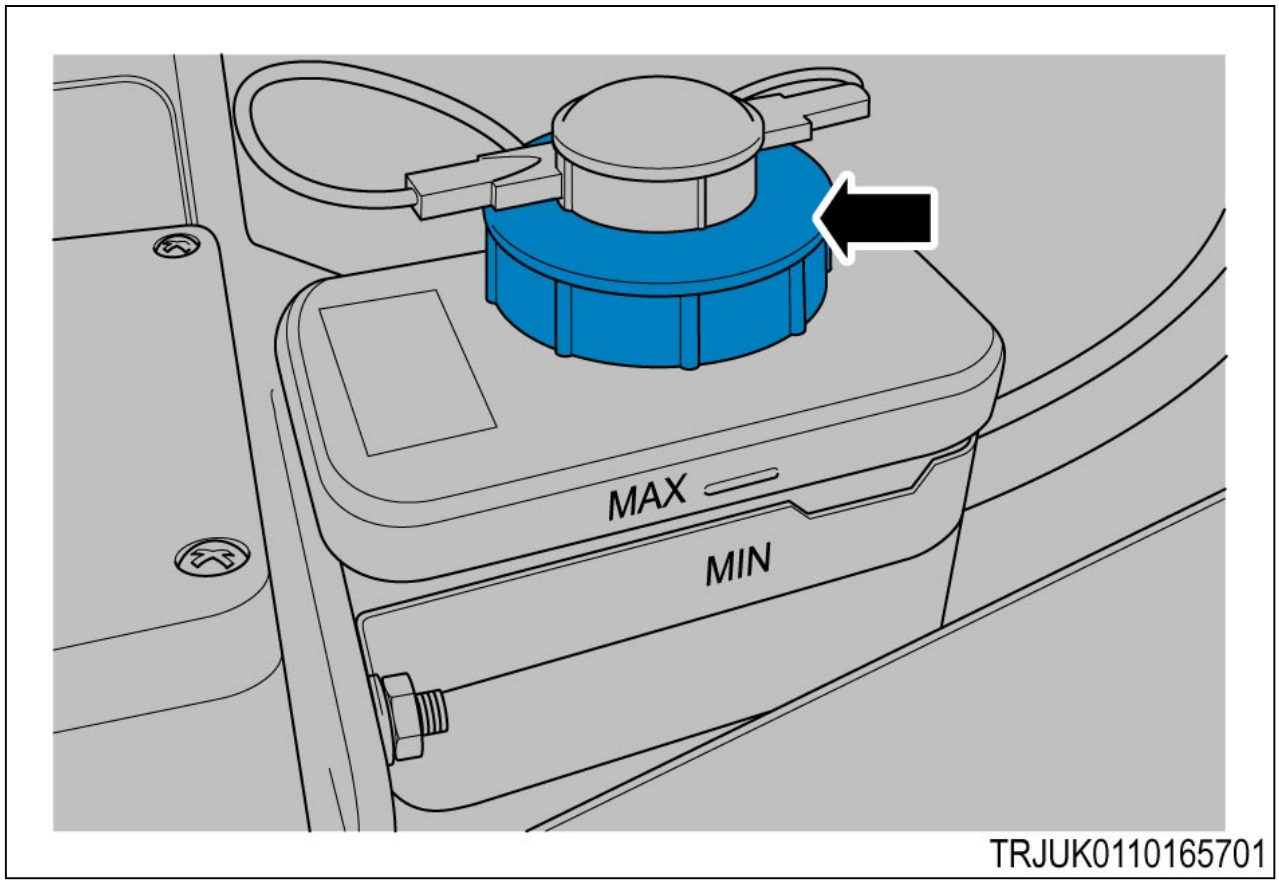


Fig. 73

If necessary, remove the lid and fill the reservoir with the specified fluid (see the "Lubricants and additives" section).

NOTE:
Do not use DOT-3 brake fluids or seal failures will occur. Use specified fluid.

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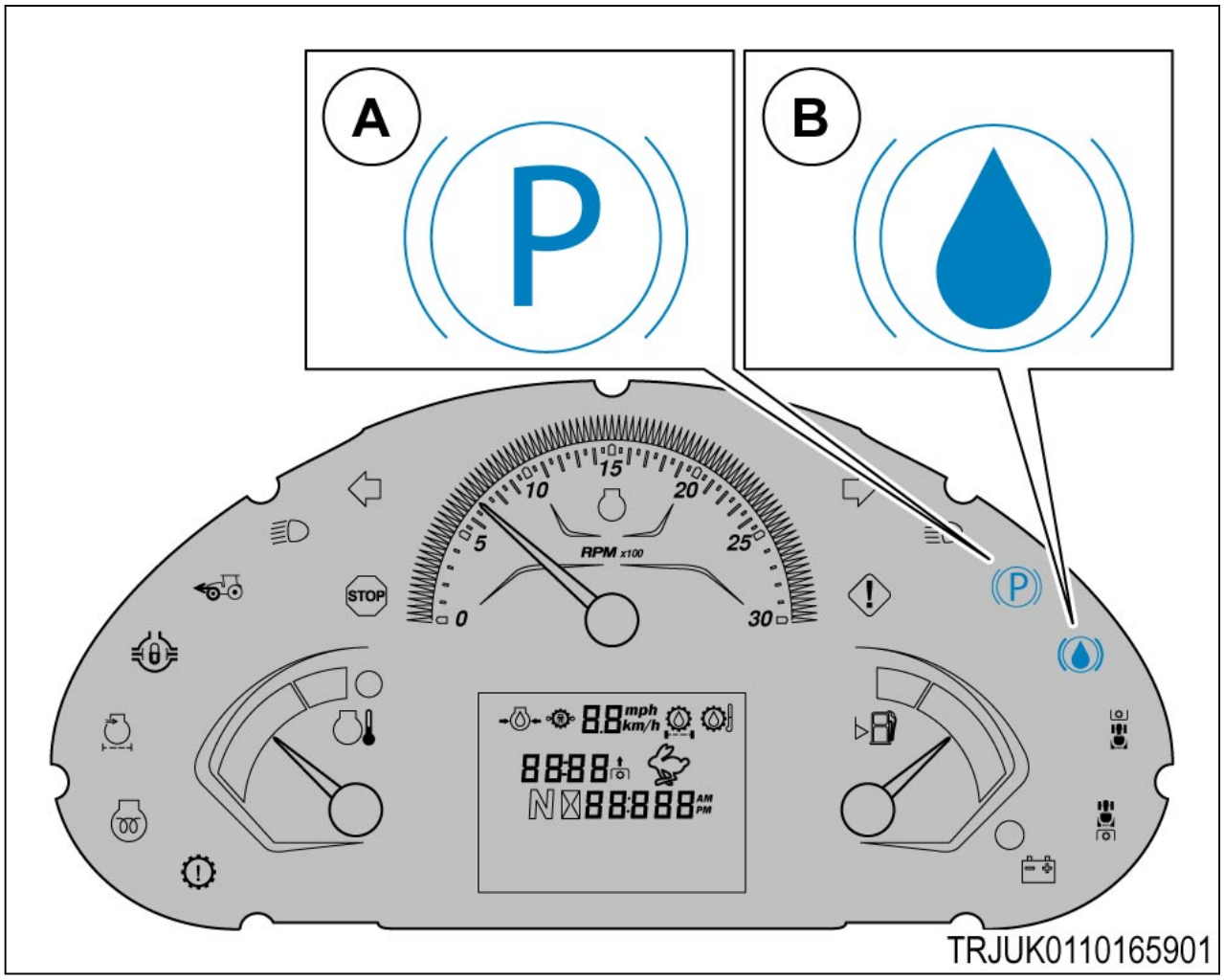


Fig. 74

A warning lamp on the instrument panel (B) will come on if the brake fluid level is low.

With the ignition switch on engine start position, engage the parking brake and make sure that the warning lamp (A) comes on.

If brake fluid reservoir is full and the warning lamp (B) comes on, speak to an approved service center or bleed the brake system as follow:

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- Loosen the fasteners (C).

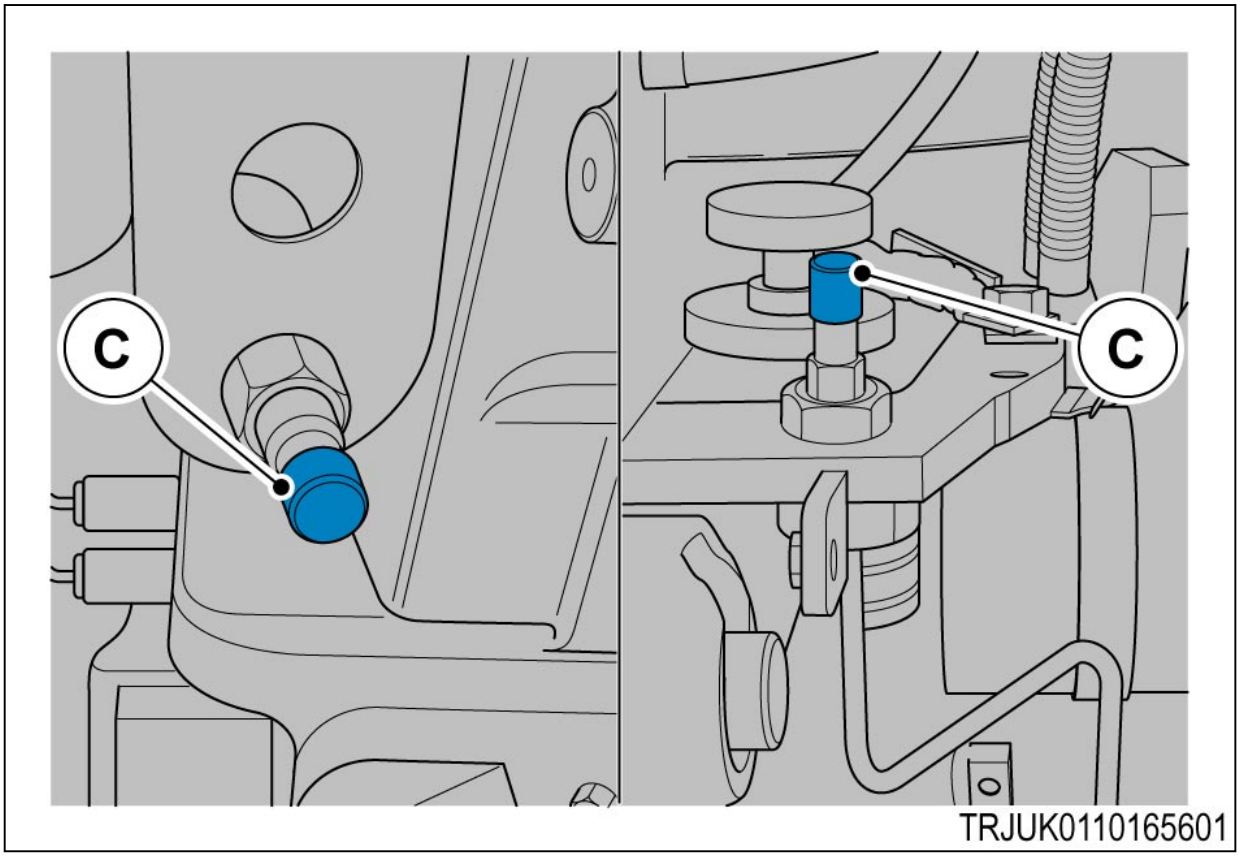


Fig. 75

- Press the brake pedals until brake fluid bleeds from the fasteners (C).

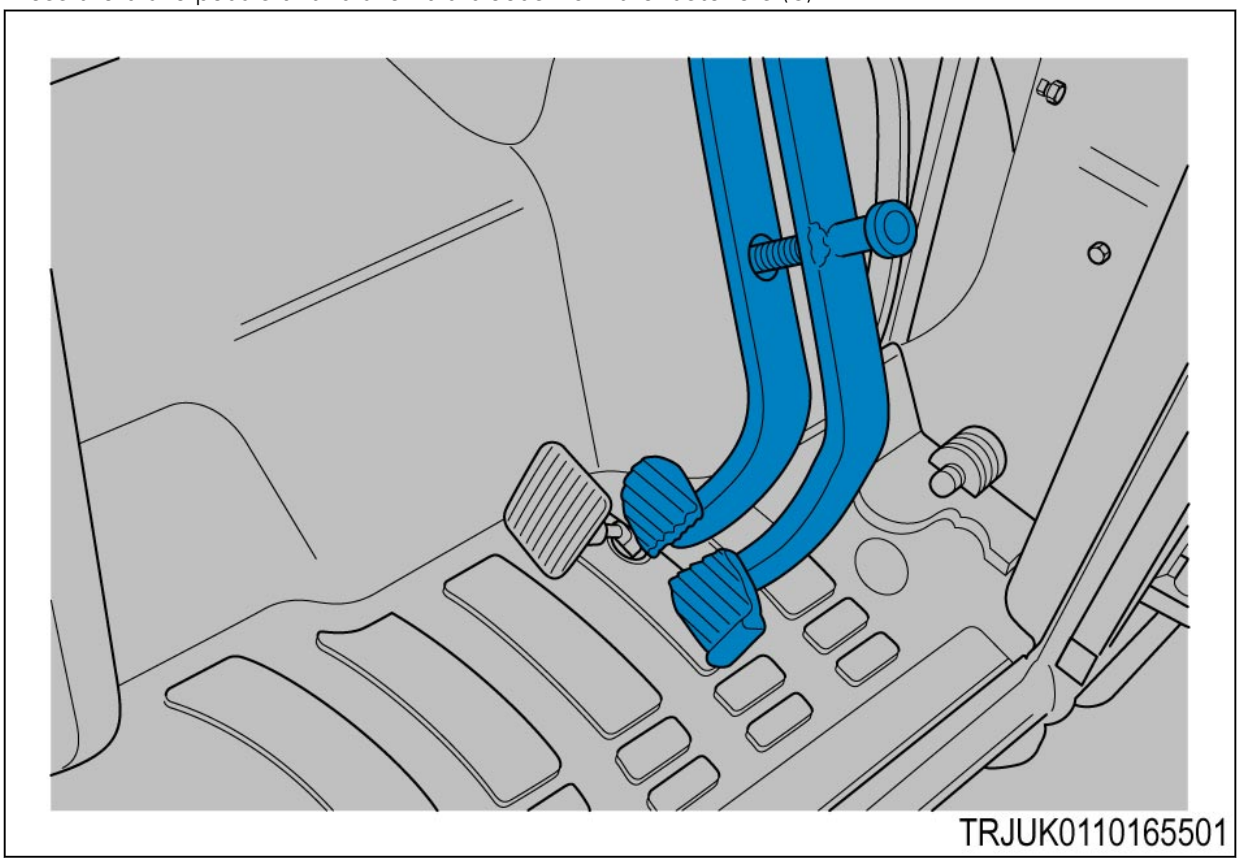


Fig. 76

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- Tighten the fasteners (C).

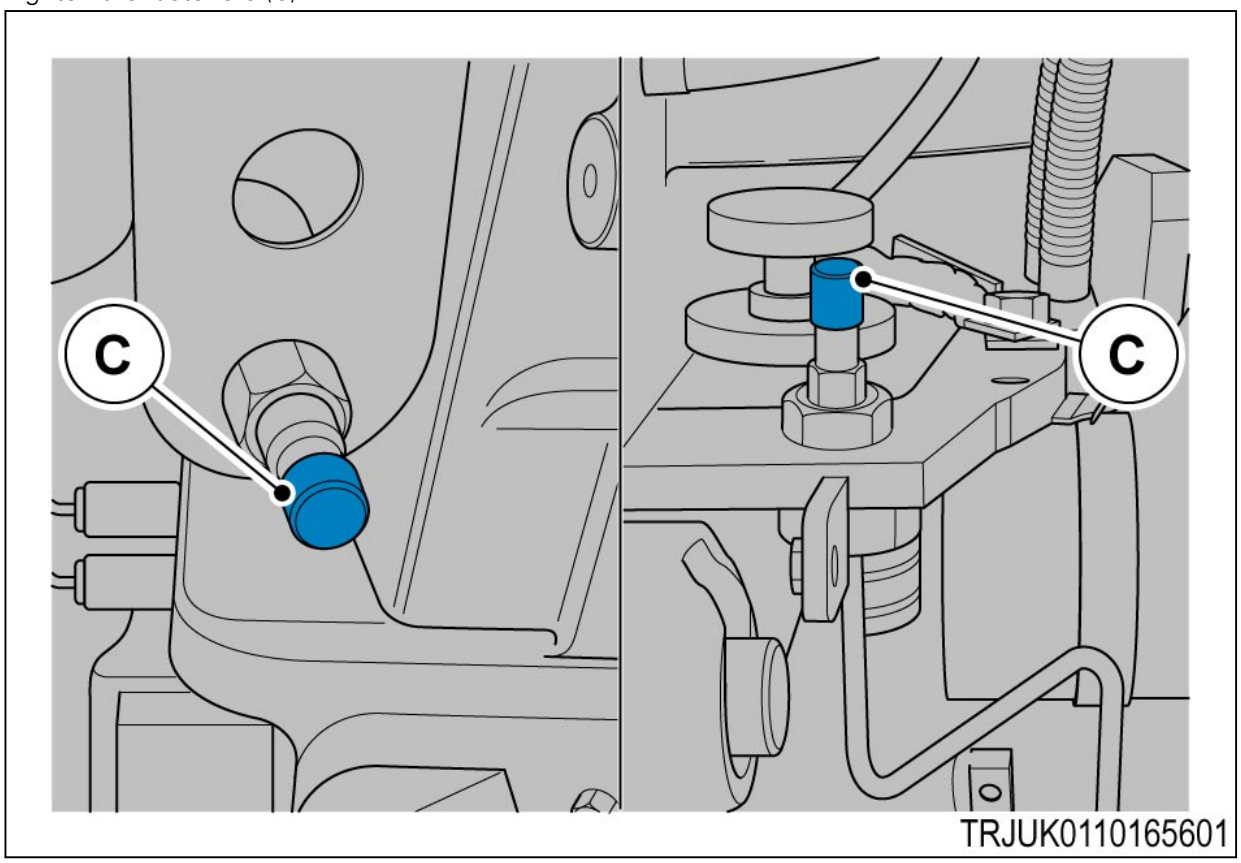


Fig. 77

4.12.6 Clean the dust removal valve

WARNING: The machine can move without warning.

The machine is heavy and can cause death or injury.

Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks.

WARNING: The machine has parts that move without operator input.

The parts that move can hit persons.

Stop the engine on the machine and remove the ignition key.

IMPORTANT:
Do not start the engine when the dust removal valve is removed.

IMPORTANT:
Clean the dust removal valve each day when you operate the machine where there is a large quantity of dust.

IMPORTANT:
Replace a damaged dust removal valve immediately.

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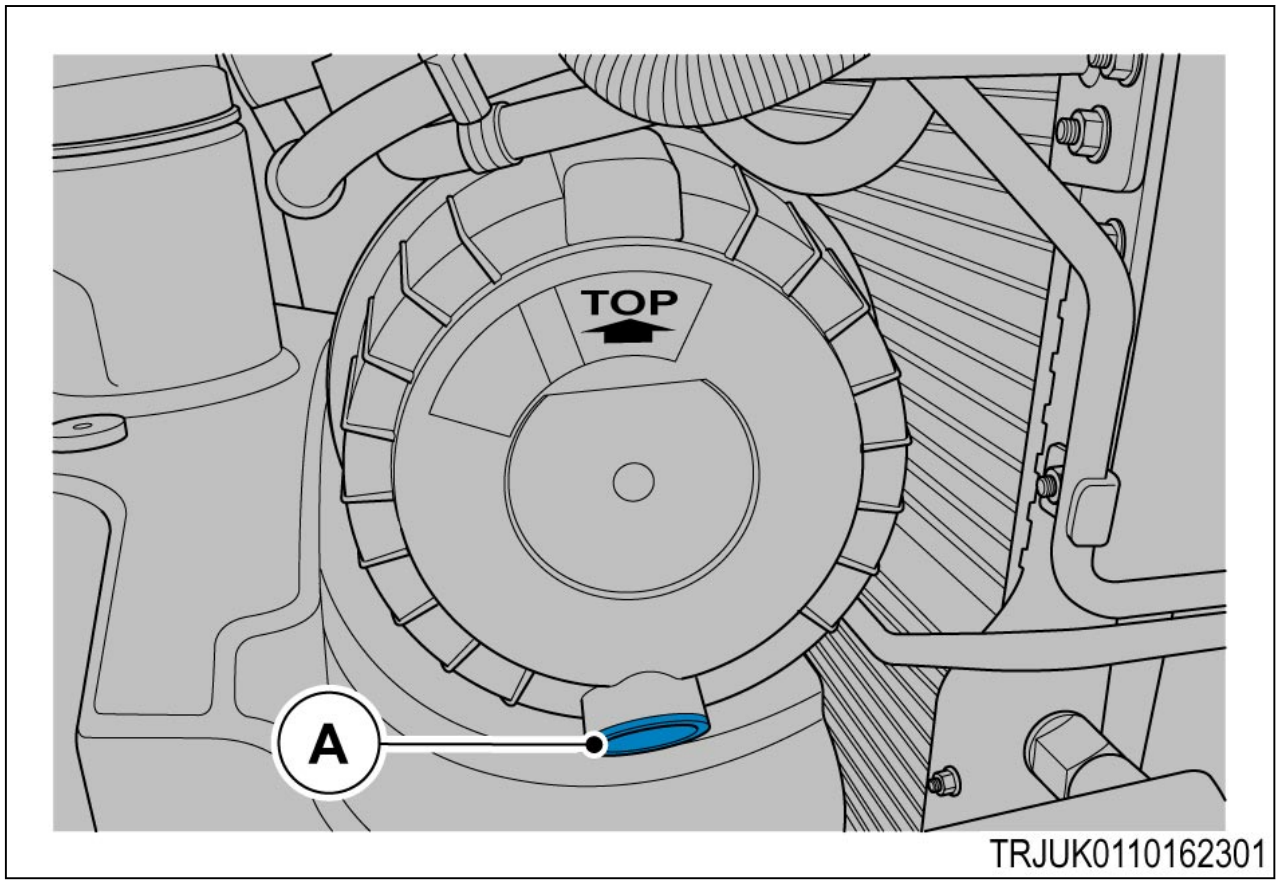


Fig. 78

Remove the dust removal valve (A). Use a finger to remove the dust collected in the dust removal valve. Clean the air filter housing if a large quantity of dust is found. Make sure that the air filter elements are in good condition.

Chaff an other large particles of unwanted materials can prevent the dust removal valve (A) from operate correctly. Examine the operation of the dust removal valve (A) each day when you use the machine in these conditions.

Remove and clean the dust removal valve regularly.

If it is necessary, speak to an approved service center.

4.12.7 Check the neutral start system

4.12.7.1 Mechanical reverse transmission (12/12 and 24/24)

Before starting the procedure

Make sure that the starter motor turns the engine when the PTO switch (A) is disengaged, and the mechanical reverse lever (B) is in the neutral position.

NOTE:
The position of the gear lever is independent.

CAUTION:
If the starter motor turns the engine in one of the these steps, speak to an approved service center.

Procedure

1. Engage the parking brake.

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2. PTO lever (B).

a) Move the PTO lever (B) to engage the PTO.

b) Turn the ignition switch to the engine START position.

c) Turn the ignition switch to the ON position.

The starter motor must not turn the engine.

Result

The starter motor must not turn the engine. If the starter motor turned the engine, speak to an approved service center.

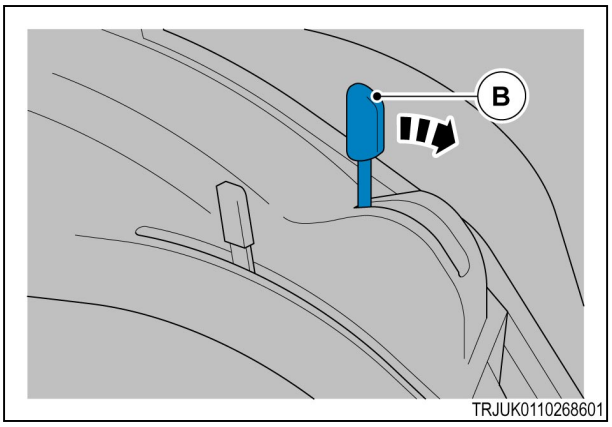


Fig. 79

3. Mechanical reverse lever (A).

a) Push and hold the clutch pedal.

b) Move the mechanical reverse lever (A) out of the neutral position.

c) Turn the ignition switch to the engine START position.

d) Turn the ignition switch to the ON position.

Result

The starter motor must not turn the engine. If the starter motor turned the engine, speak to an approved service center.

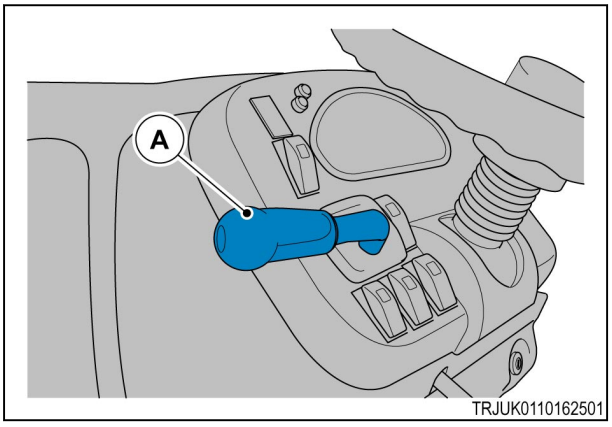


Fig. 80

4.12.7.2 PowerShuttle transmission (24/12)

Before starting the procedure

Make sure that the starter motor turns the engine when the PTO switch (A) is disengaged, and the gear lever (B) is in the neutral position.

NOTE:
The position of the PowerShuttle lever is independent.

CAUTION:
If the starter motor turns the engine in one of the these steps, speak to an approved service center.

Procedure

1. Engage the parking brake.

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2. PTO switch (A).

a) Push the PTO switch (A) to engage the PTO.

b) Turn the ignition switch to the engine START position.

c) Turn the ignition switch to the ON position.

The starter motor must not turn the engine.

Result

The starter motor must not turn the engine. If the starter motor turned the engine, speak to an approved service center.

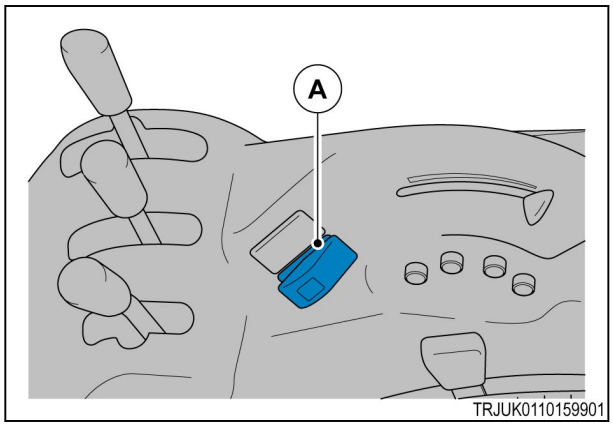


Fig. 81

3. Gear lever (B).

a) Move the gear lever (B) out of the neutral position.

b) Turn the ignition switch to the engine START position.

c) Turn the ignition switch to the ON position.

Result

The starter motor must not turn the engine. If the starter motor turned the engine, speak to an approved service center.

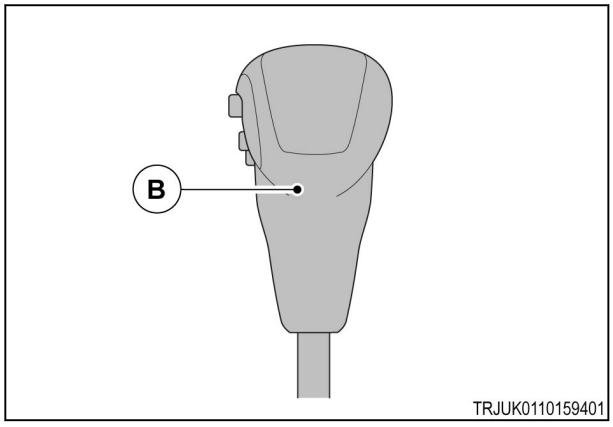


Fig. 82

4.12.8 Check fan belt wear and tension

CAUTION:
Make sure that the engine is switched off and that it is completely cold.

Check the belt wear and tension. The replacement and tensioning must be done by an authorised service centre.

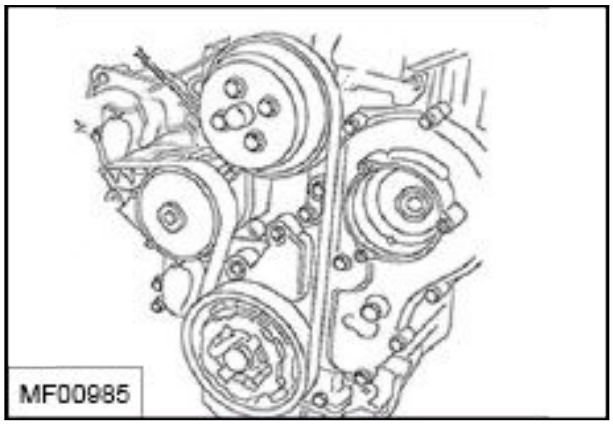


Fig. 83

4.12.9 Check air conditioning compressor belt wear and tension

CAUTION:
Make sure that the engine is switched off and that it is completely cold.

Check the wear and tension of the air conditioning compressor belt. The replacement and tensioning must be done by an authorised service centre.

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4.12.10 Remove and clean the cab air filters

Before starting the procedure

WARNING: Falling off, or into the machine.

Falls from height cause death or injury.

Use the applicable access equipment when you do work at height.

Procedure

1. **NOTE:**

Remove the 2 fasteners (A) and the cover on each side of the cab roof.

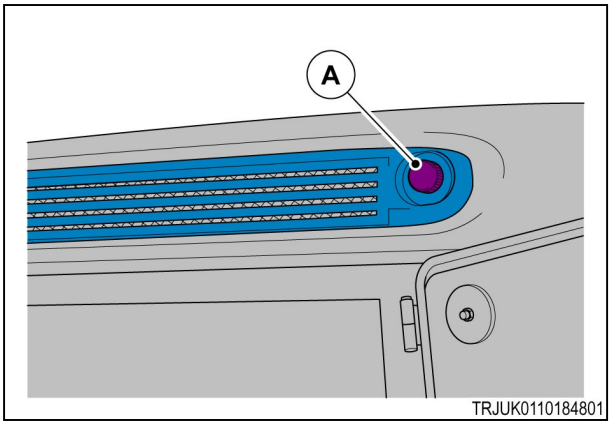


Fig. 84

2. Turn the levers (B) to release the cab air filters.

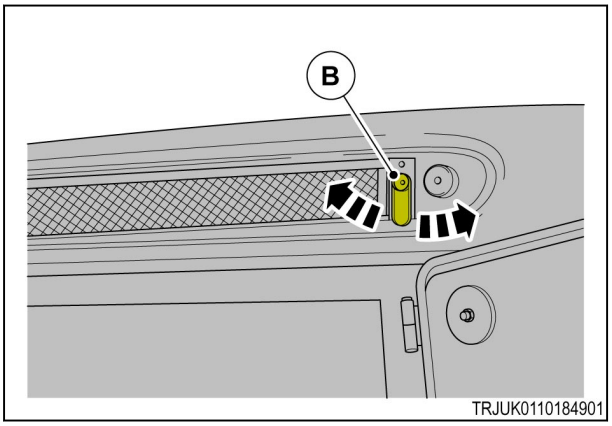


Fig. 85

3. **CAUTION: PPE is mandatory.**

This procedure can cause injury.

Put on Personal Protective Equipment (PPE) when you do this procedure.

Remove the cab air filters. Use compressed air to clean the cab air filters if it is necessary.

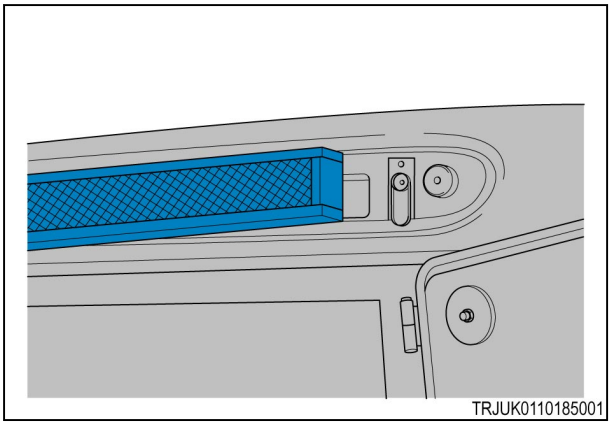


Fig. 86

NOTE:

Before installation of the cab air filters, clean out the compartments with a moist cloth to remove dust.

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NOTE:
Change the cab air filters at an interval of 600 hours of operation.

4. Install the cab air filters.

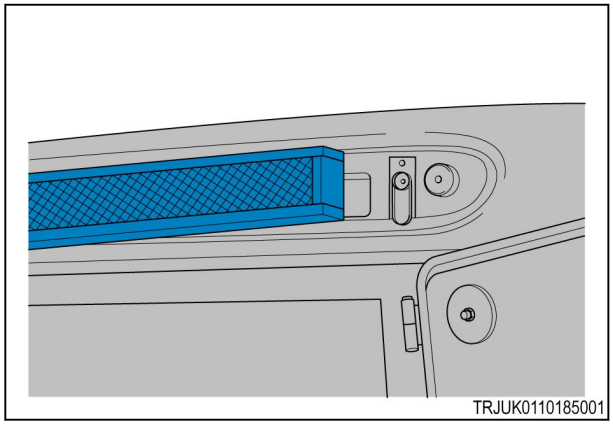


Fig. 87

5. Turn the levers to lock the cab air filters in position.

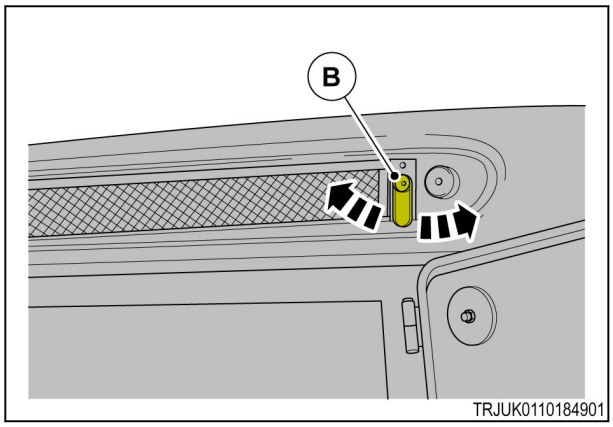


Fig. 88

6. Install the cover and the 2 fasteners (A) on each side of the cab roof.

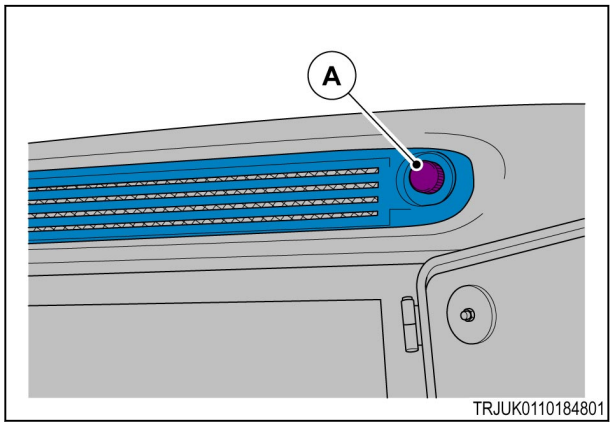


Fig. 89

https://truckmanualshub.com/

4.12.11 Wheel Tires - Bolts tightening torques and tires pressure

Wheel Tires - Bolts tightening torques

Tighten the rear wheel nuts and bolts to the specified tightening torque values.

IMPORTANT:
Check the tightness of the rim, disk and wheel bolts after 10 hours every time you replace a wheel.

Specifications:

A Wheel disk to axle flange - 400 Nm
B Rim to wheel disk - 280 Nm for M18 bolt or 210 Nm for M16 bolt

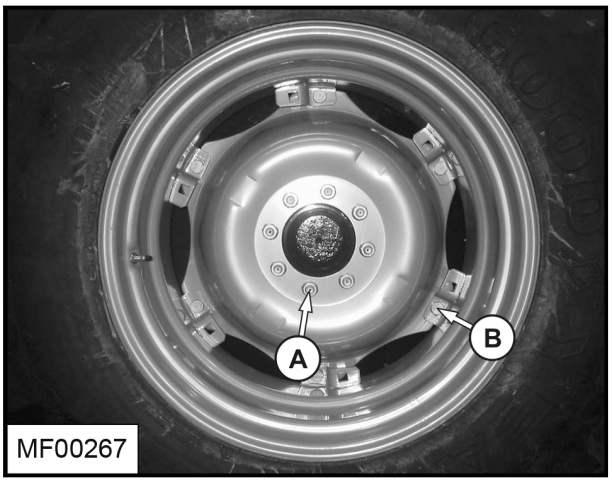


Fig. 90

IMPORTANT:
Check the tightness of the rim, disk and wheel bolts after 10 hours every time you replace a wheel.

Specifications:

D Wheel disk to axle flange - 300 Nm
E Rim to wheel disk - (E) rim/disc - 280 Nm for M18 bolt or 210 Nm for M16 bolt

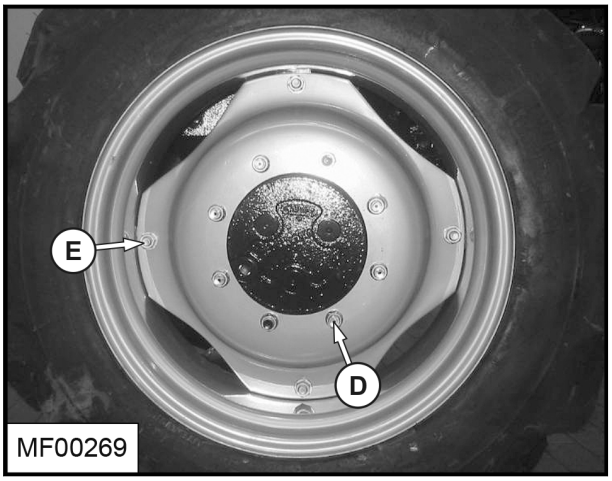


Fig. 91

Tires pressure

Make sure that the tire pressure is compliant to the specific model tire size. Check the tire inflation pressure every 100-150 hours. Refer to the dedicated table in the "Technical specifications" chapter of this manual.

IMPORTANT:
Whenever the maximum grip is required during field work, the rear tire inflation pressure can be reduced to a minimum of 0.8 bar. In this case the load capacity is severely reduced.

The front and rear tire inflation pressures should always correspond to the ones given in the specifications table. These values may be proportionally reduced to the permitted limits when necessary to ensure a correct mechanical match between front and rear wheels.

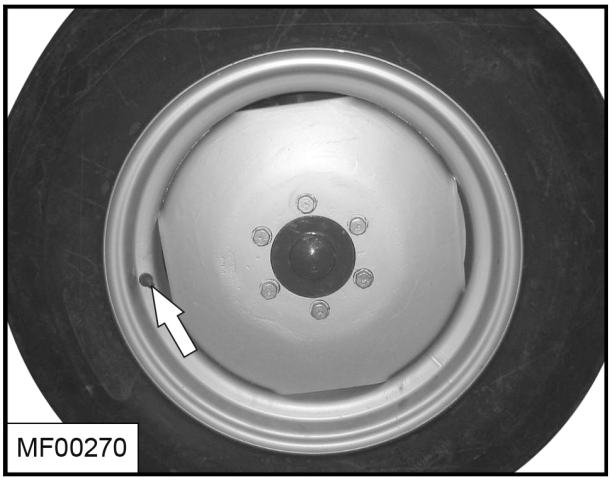


Fig. 92

https://truckmanualshub.com/

4.12.12 Air filter blockage indicator lamp

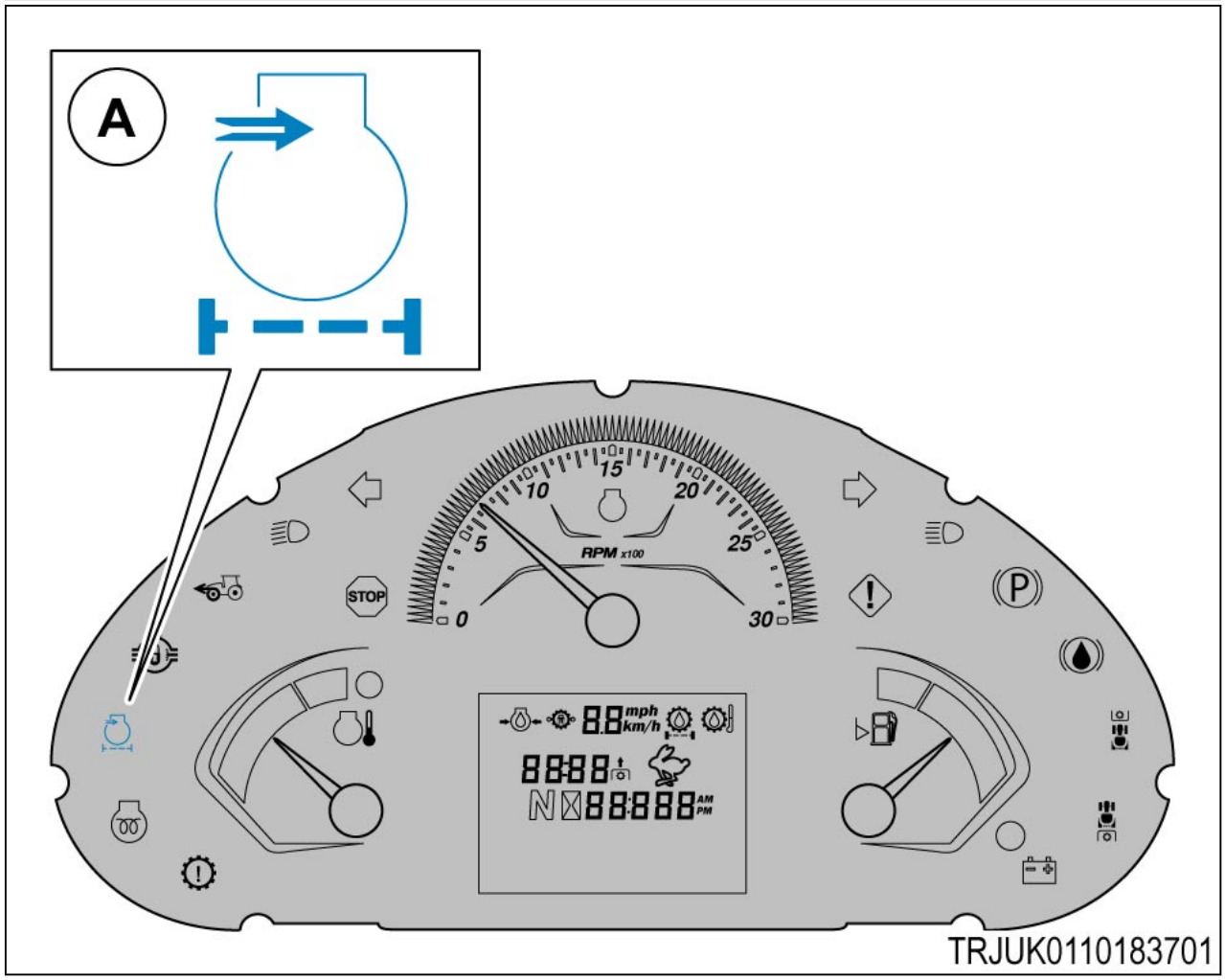


Fig. 93

The air filter blockage indicator lamp (A) illuminates if the air filter becomes blocked. Set the engine to OFF. Examine the air filter assembly. Clean or replace the air filter elements if it is necessary.

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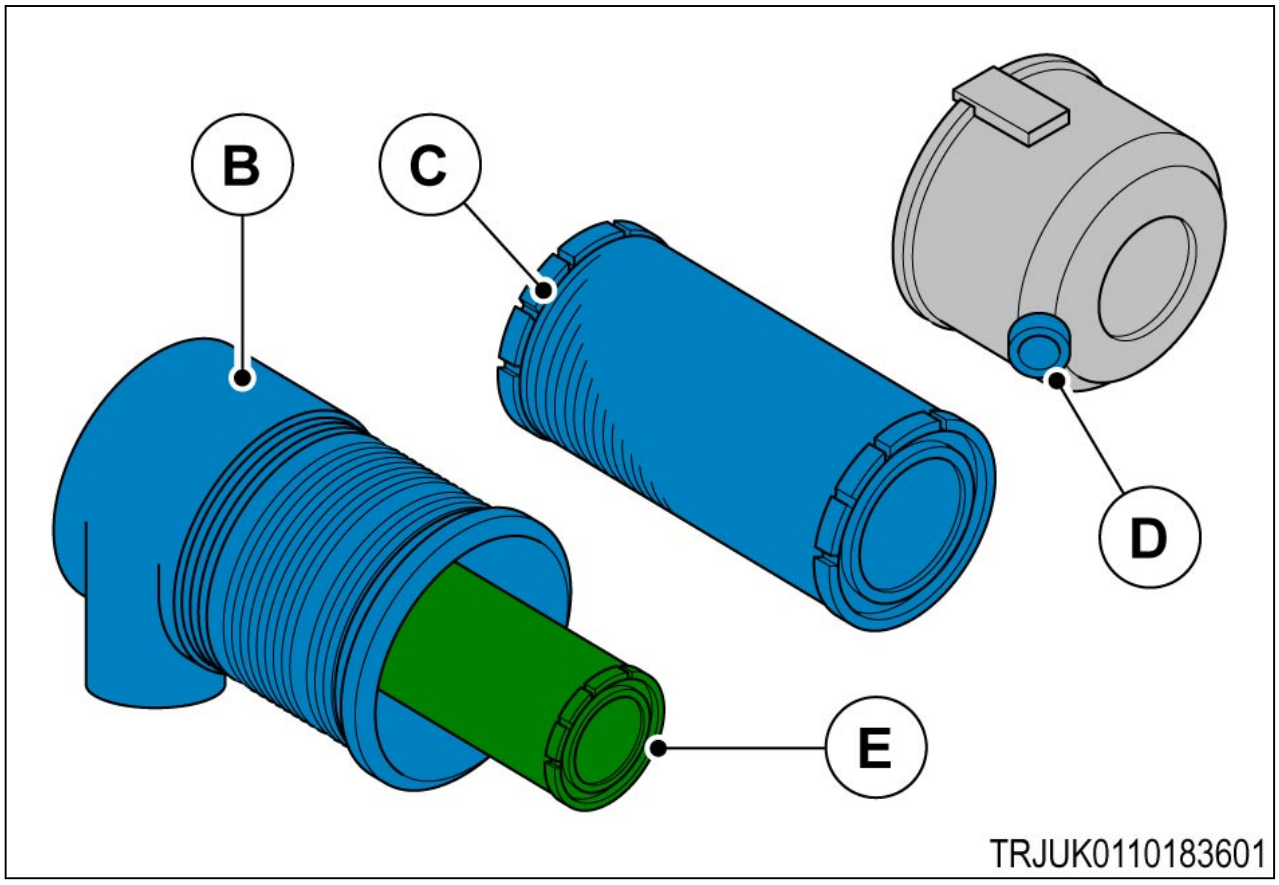


Fig. 94

(A) Air filter blockage indicator lamp
(B) Air filter housing
(C) Primary air filter
(D) Dust removal valve
(E) Secondary filter

The primary filter element collects the particles of dirt and the secondary air filter element collects the particles of dirt which go through the primary filter element.

Remove dust collected in the dust removal valve (D) regularly.

The secondary filter element cannot be cleaned and must be replaced.

Clean the primary air filter element (C) if the air filter blockage indicator lamp (A) comes on.

IMPORTANT:
The primary filter element can be cleaned a maximum of 5 times and replaced after the first 500 hours of operation. Each subsequent primary filter element can be cleaned a maximum of 5 times and then replaced after 1000 hours of operation.

4.12.13 Clogged filter sensor for the transmission oil filter

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All PowerShuttle transmissions, have a clogged filter sensor for the transmission oil filter (A).

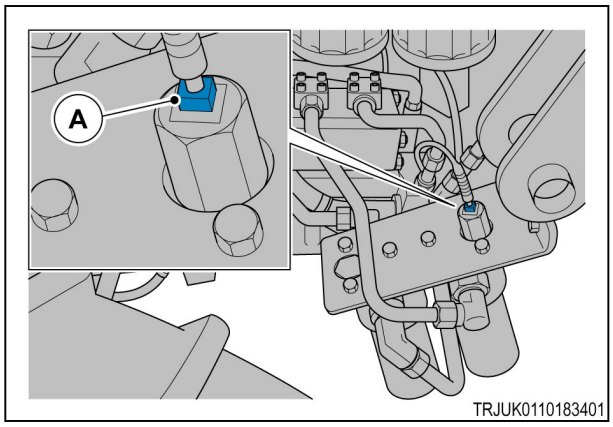


Fig. 95

If the warning lamp (B) comes on, it is necessary to replace the transmission oil filter (see the procedure in the maintenance operations section).

IMPORTANT:
You must replace the transmission oil filter immediately if the warning lamp (B) *comes on. A clogged filter can cause damage to the transmission.*

IMPORTANT:
At low ambient temperatures (less than 10 °C), the warning lamp (B) *on the instrument panel can come on. This can occur for 5-10 minutes until the transmission oil is at the correct operating temperature.*

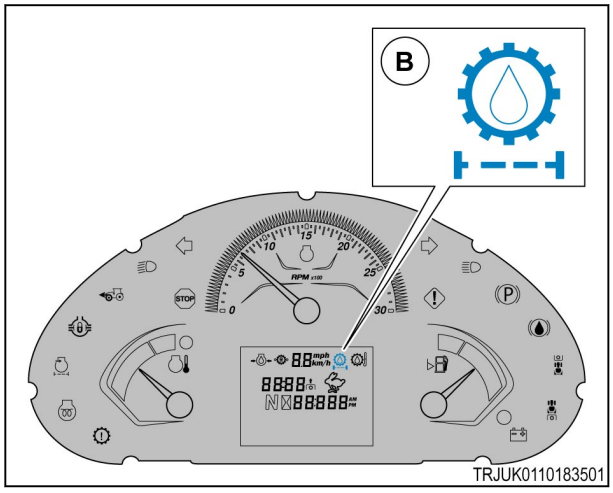


Fig. 96

4.12.14 Examine the oil levels in the front axle

WARNING: The machine can move without warning.

The machine is heavy and can cause death or injury.

Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks.

Examine the oil level in the reduction gear unit for the front axle

Move the hub to the horizontal position and remove the level plug (A).

If the oil level is below the hole, fill the reduction gear unit to the level plug hole with the specified fluid (see the "Lubricants and additives" section).

Install the level plug and tighten to 80 Nm.

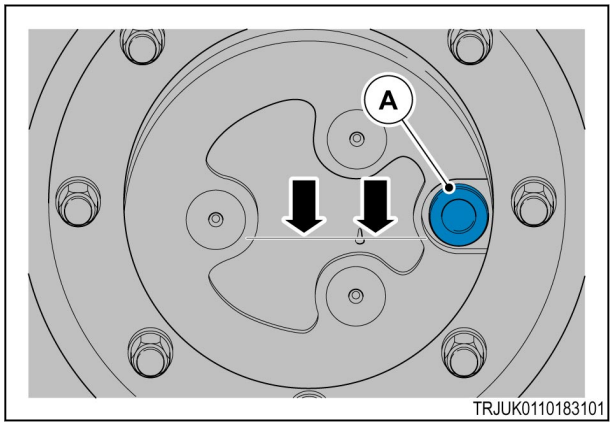


Fig. 97

https://truckmanualshub.com/

Examine the oil level in the front axle housing

Remove the level plug (B).

If the oil level is below the hole, fill the axle housing to the level plug hole with the specified fluid (see the "Lubricants and additives" section).

Install the level plug (B) and tighten to 70 Nm.

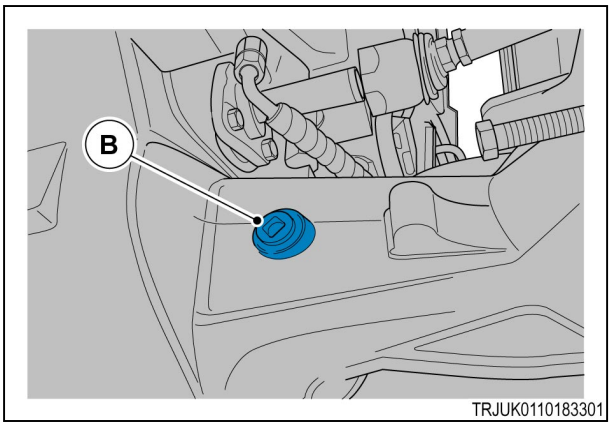


Fig. 98

Drain the oil from the front axle

Put a container below the drain plug (C) to collect the oil.

Remove the drain plug (C).

Fully drain the system.

Install the drain plug (C) and tighten to 70 Nm.

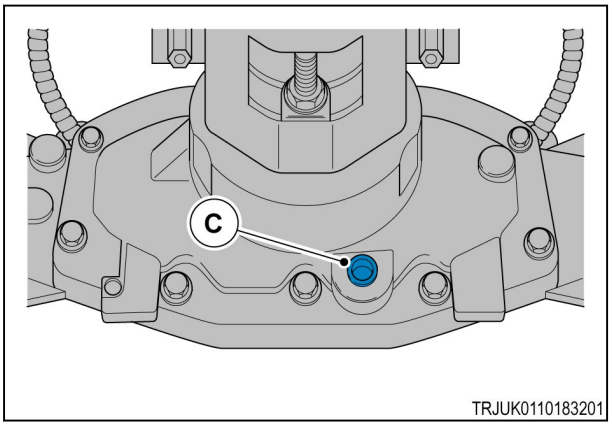


Fig. 99

Fill the front axle with oil

Remove the level plug (B).

Fill the axle housing to the level plug hole with the specified fluid (see the "Lubricants and additives" section).

Install the level plug (B) and tighten to 70 Nm.

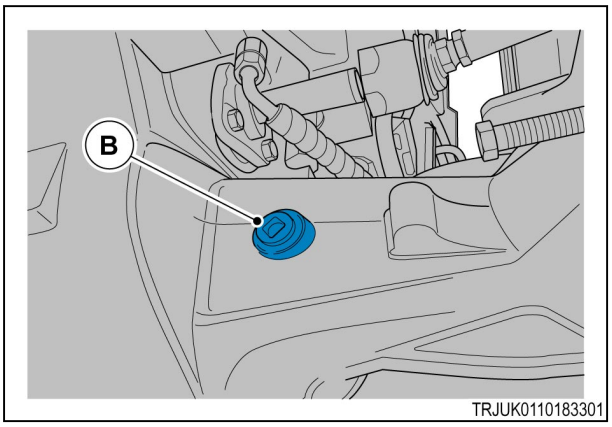


Fig. 100

4.12.15 Check Rops and Cab Tightness

Verify the tightness of the cab or frame mounting bolts by your dealer or agent every 2400 hours.

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CAUTION:
The ROPS cab or frame complies with all international safety standards. It must never be drilled or modified to install accessories or implements. Welding any item to the cab or frame or repairing the cab or frame, is not permitted. If any such operation is carried out, the cab or frame may no longer comply with ROPS standards. The only components which can be fitted are AGCO original components, which must be fitted by your dealer or agent.

4.12.16 Replace the air intake filters

WARNING: Hot components.

Risk of death or injury caused by burns.

Before you do work on the machine, stop the engine and remove the ignition key.

Let the temperature of the component decrease until it is the same as the ambient temperature.

WARNING: Entanglement.

Risk of death or injury from components that you think are stopped.

Make sure that all the components of the machine stop fully before you go near the machine.

NOTE: *Do not start the engine when the air intake filters are removed.*

NOTE: *If the warning lamp for the air cleaner comes on during operation, remove and clean the primary filter element. If the warning lamp stays on, replace the primary filter element.*

NOTE: *You can extend the servicing interval for a short time (for example, until an available time). If you clean the filter regularly, this will not decrease its performance.*

Procedure

1. Open the engine cover.
2. Release the fastener (1). Turn the cover (2) counterclockwise and remove the cover (2).

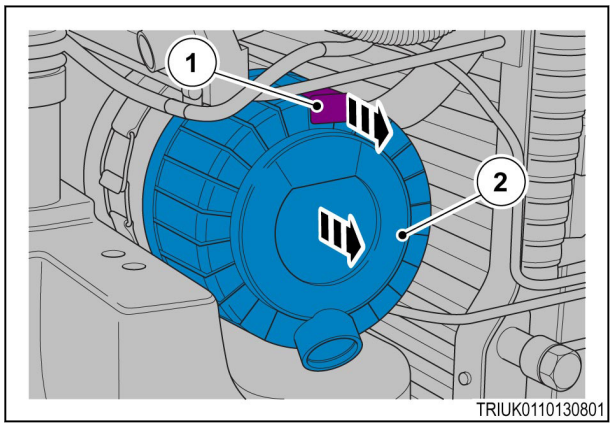


Fig. 101

https://truckmanualshub.com/

3. Remove the primary filter element from the air filter housing.

4. **NOTE:** *You can only clean the primary filter element a maximum of 5 times. You must replace the primary filter element after 1500 hours (or 2 years) of operation.*

   Examine, clean or replace the primary filter element.

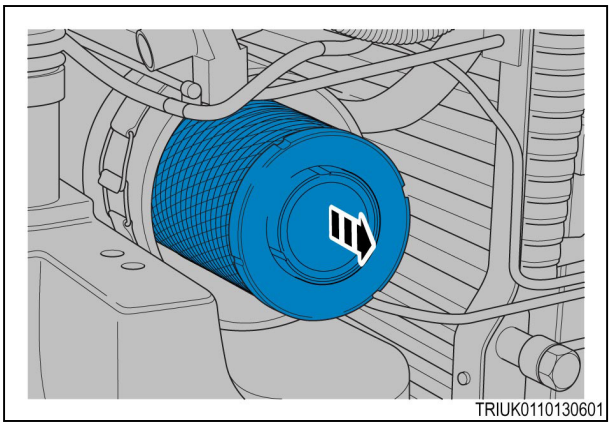


Fig. 102

5. **NOTE:** *Do not try to clean the secondary filter element, you must replace it.*

   Remove and examine the secondary filter element. Make sure that it is not damaged.

6. Install the secondary filter element.

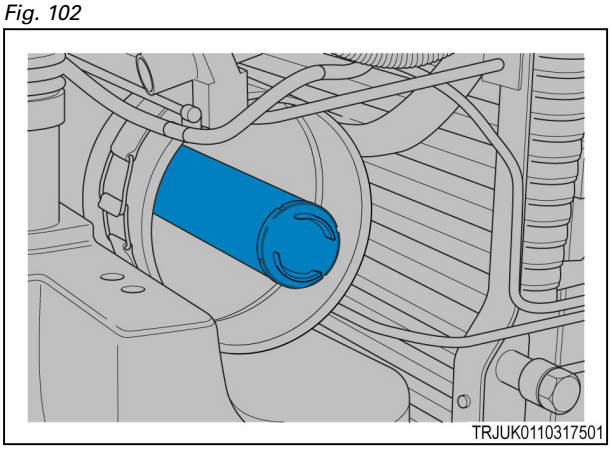


Fig. 103

7. **NOTE:** *Make sure that you install the rubber seal correctly.*

   Install the primary filter element into the air filter housing.

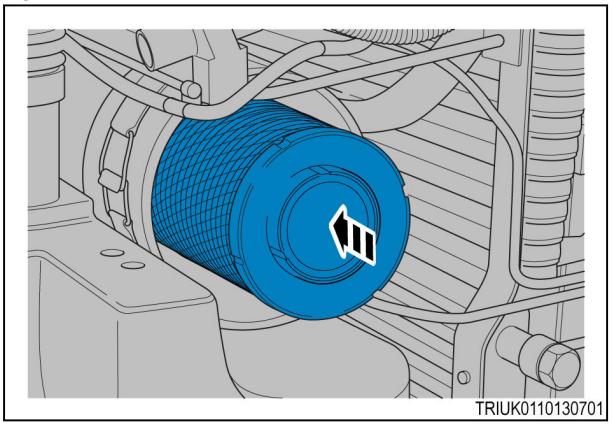


Fig. 104

8. Install the air filter cover (2), turn the cover clockwise to lock it in position. Make sure that you install the clip (1) correctly.

9. **IMPORTANT:** *Do not start the engine if the installation of the filter elements and the cover is not correct.*

   Close the engine cover.

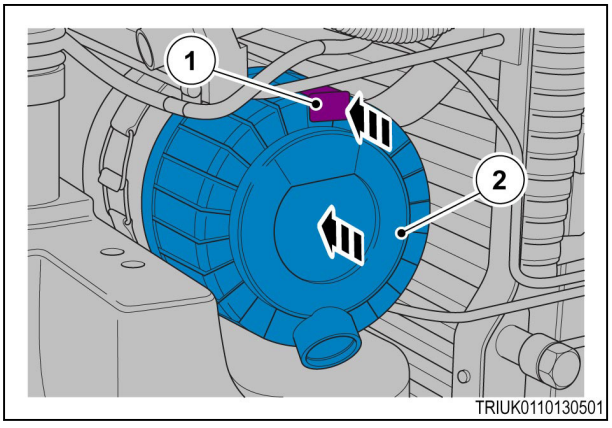


Fig. 105

https://truckmanualshub.com/

4.12.17 Change the transmission/hydraulic oil

IMPORTANT:
Make sure that the engine is cold.

IMPORTANT:
Put a container below the drain plugs (A) *and* (B) *to collect the fluid.*

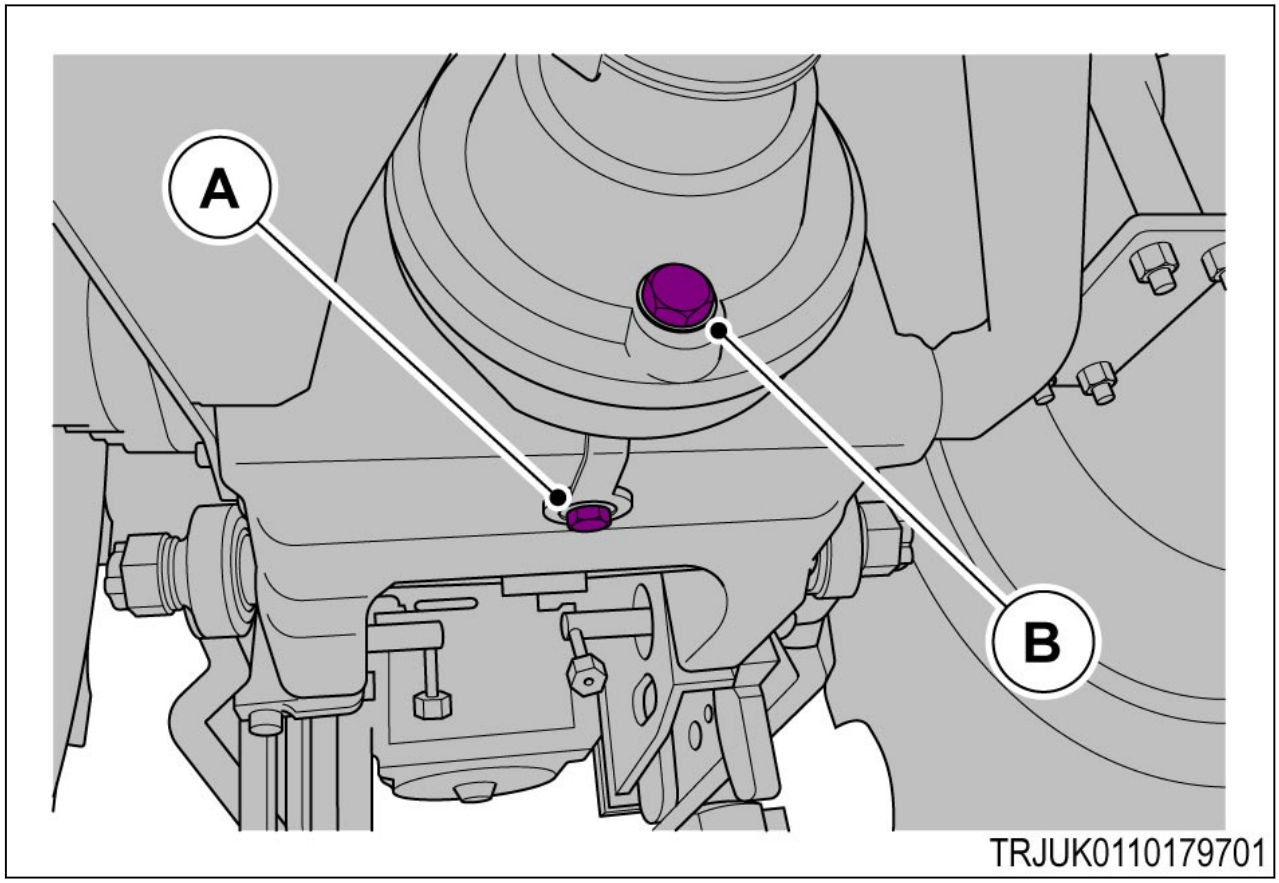


Fig. 106

Remove the drain plugs (A) and (B).

Fully drain the system.

Install the drain plugs (A) and (B), tighten to 80 Nm.

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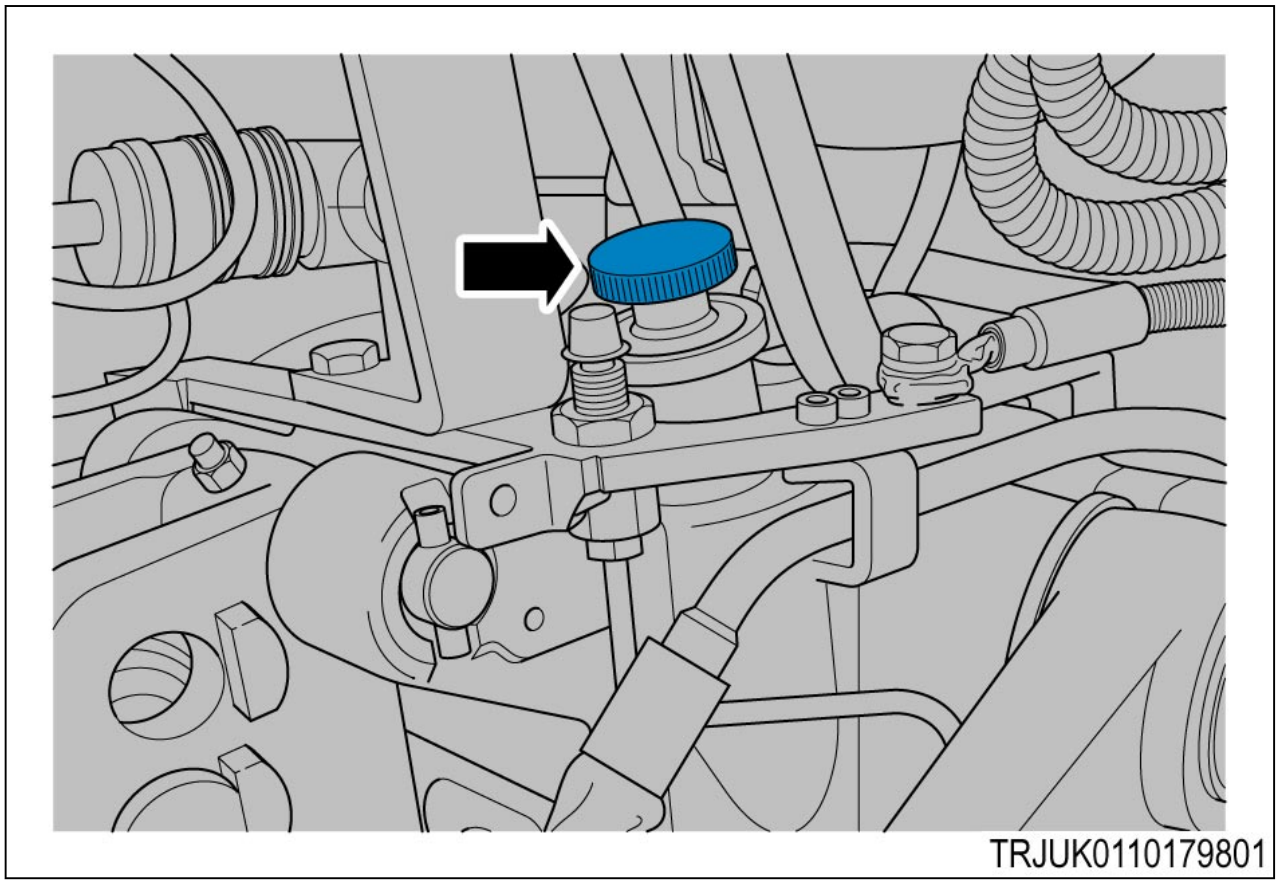


Fig. 107

Remove the oil filler cap.

Fill with the specified fluid and volume (see the "Lubricants and additives" and "Capacities" section).

Install the oil filler cap.

4.12.18 Change the oil suction strainer

Drain the Transmission hydraulic oil.

Remove the four clamps (B) and the two hoses (C).

Replace the strainer (D) with a new one. Make sure that the arrow on the strainer body points forward.

Re-install the clamps.

Refill transmission oil.

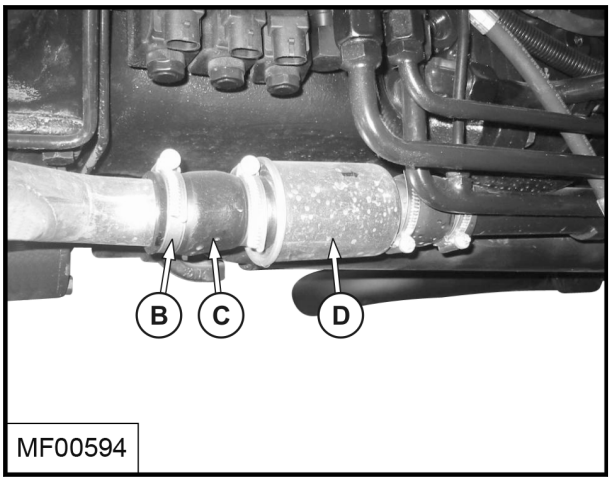


Fig. 108

https://truckmanualshub.com/

4.12.19 Replace the fuel filter

Before starting the procedure

WARNING: Hot components.

Risk of death or injury caused by burns.

Before you do work on the machine, stop the engine and remove the ignition key.

Let the temperature of the component decrease until it is the same as the ambient temperature.

CAUTION: PPE is mandatory.

Risk of injury caused by fuel.

Use the correct Personal Protective Equipment and make sure that there is good airflow through the work area.

Remove

1. Set the main switch to OFF.

2. Open the engine cover.

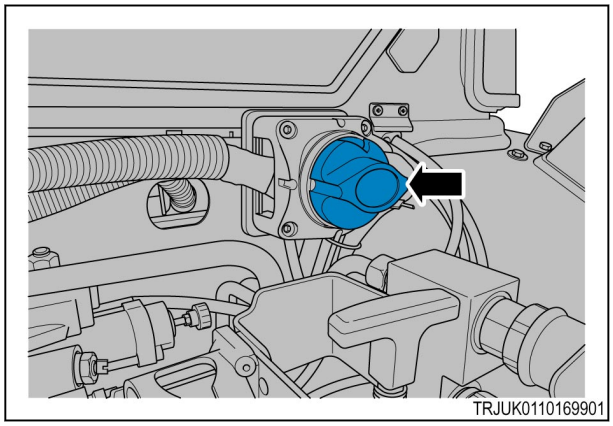


Fig. 109

3. Remove the connector (B).

4. Put a container below the water-in-fuel sensor (A) to collect spilled fuel.

5. Loosen the water-in-fuel sensor (A).

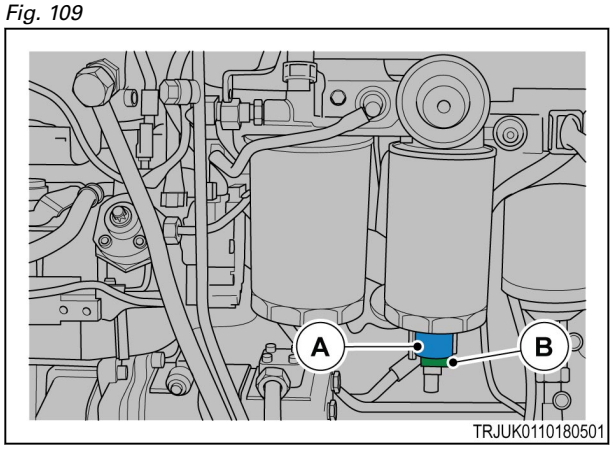


Fig. 110

https://truckmanualshub.com/

6. Loosen the bleed screw (C).

7. Remove the fuel pre-filter (E) and the fuel filter (F).

8. Clean the mating surfaces on the machine and then lubricate the gaskets on the new filters.

Install

9. Install the new fuel filters (E) and (F) and tighten them with your hands. The specified torque is 20 Nm.

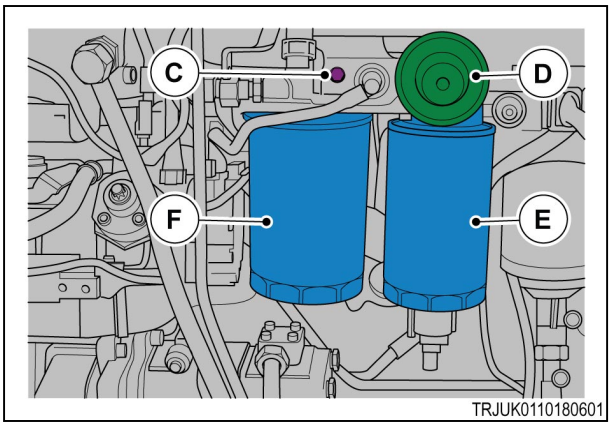


Fig. 111

10. Tighten the water-in-fuel sensor (A) by hand.

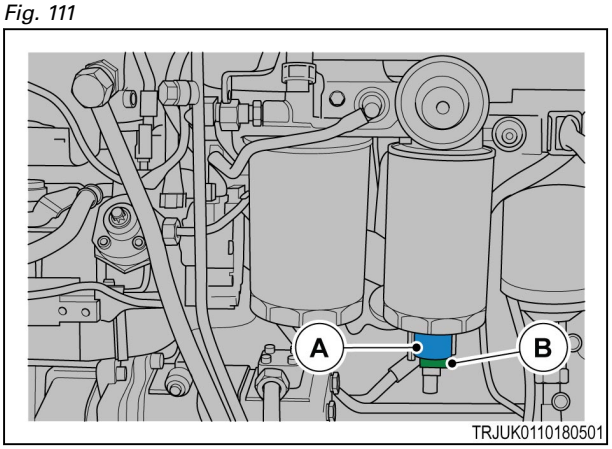


Fig. 112

11. Operate the hand pump (D) until the fuel flows at the bleed screw (C).

12. Tighten the bleed screw (C) when there is no air in the system.

13. Connect the connector (B).

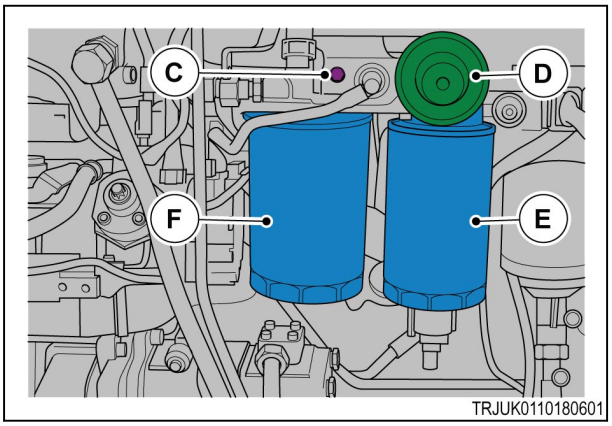


Fig. 113

14. Set the main switch to ON.

15. Start the engine and let it operate at idle speed for approximately 5 minutes to remove remaining air. Examine the fuel system for leaks.

IMPORTANT:
If you find a large quantity of water in the pre-filter, it is necessary to drain the fuel tank.

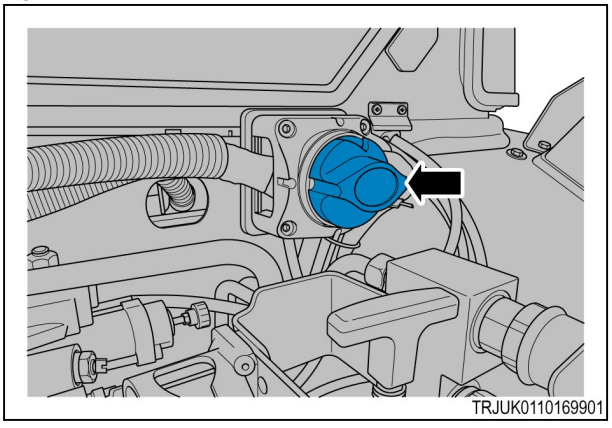


Fig. 114

https://truckmanualshub.com/

16. Put a container below the fuel tank and remove the drain plug (G).

17. Drain the fuel tank fully.

18. Install and tighten the drain plug (G).

19. Fill the tank with new fuel.

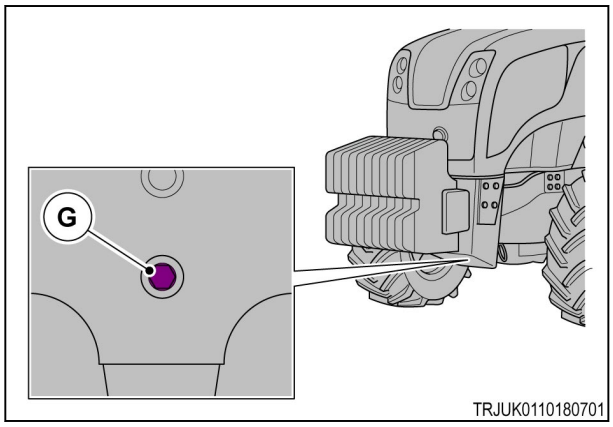


Fig. 115

4.12.20 Engine Oil and Filter Replacement

Liquid drain

1. Drain the oil when the engine is warm, remove the plugs (1) (one for side) from the engine sump with the tractor standing on level ground.

2. Refit and tighten the drain plug to a torque of 35 Nm.

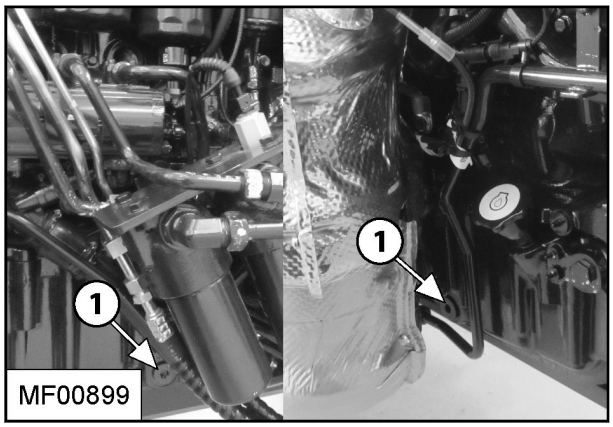


Fig. 116

To change the filter (A) proceed as follows:

3. Unscrew and discard the filter assembly.

4. Fill the new filter slowly with clean oil.

5. Smear a few drops of clean engine oil on the new sealing ring, then place it on top of the new filter.

6. Screw the filter onto the filter head until the sealing ring just contacts the filter head, then tighten it further half turn by hand only (do not over tighten).

7. Ensure that there is lubricating oil in the sump.

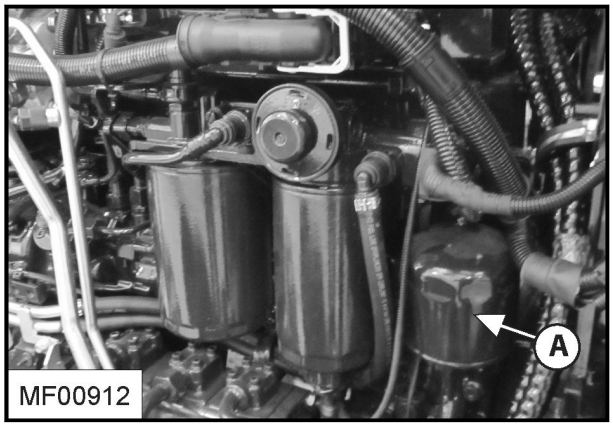


Fig. 117

https://truckmanualshub.com/

Refill Oil

8. Remove dipstick (A), wipe clean and re-insert it fully.

9. Refill with an approved oil between the two marks on dipstick.



CAUTION:
After changing the oil and the filter, ensure that the engine will not start and operate the starter motor until oil pressure is obtained, waiting for 5 bar oil pressure light to go out. To ensure that the engine will not start, disconnect the electrical stop control of the fuel injection pump. Run the engine and check for leaks, then recheck the oil level and top up if necessary. The valves clearance should be checked by your dealer or agent every 1200 hours.

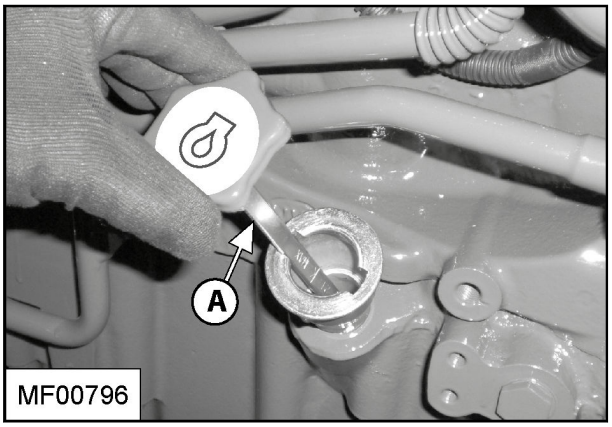


Fig. 118



WARNING:
Engine oil, filter and fuel filters need to be changed every 200 hours when using BIO-FUELS.

IMPORTANT:
When the Oil filter replacement is done, reset the oil change counter on display, as indicated on the relative section of the manual.

4.12.21 Replace transmission/hydraulic oil filter cartridge

Before starting the procedure

For replacing the transmission oil filter element proceed as follows:

Procedure

1. Disconnect the Battery.

2. Arrange a suitable container for collecting the hydraulic oil.

3. Unscrew the hydraulic filter bowls (A) and (B) using a filter wrench.

4. Remove the filter cartridges (C) and (D).

5. Properly clean the filter bowls (A) and (B) and their seats.

6. Apply a film of oil on the gaskets.

7. Install new filter cartridges (C) and (D).

8. Refit the filter bowls (A) and (B), and tighten to 70 Nm.

9. Reconnect the Battery.

10. Run the engine for several seconds.

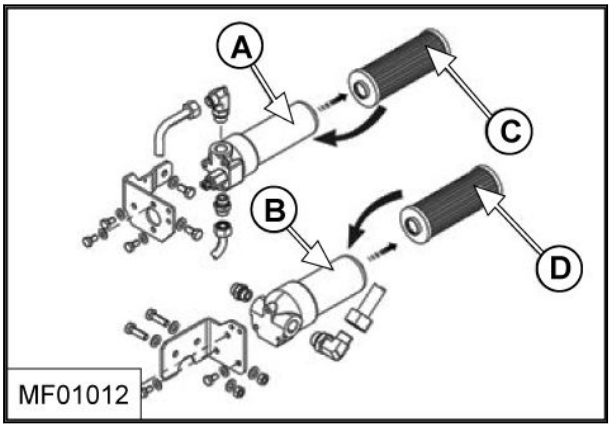


Fig. 119

https://truckmanualshub.com/

11. Check the hydraulic oil level.

12. Check for leaks.

4.12.22 Replace transmission/hydraulic oil filter cartridge (third pump)

Before starting the procedure

CAUTION:
Before working on hydraulic oil filters, ensure that the hydraulic oil is cold. Wear impervious protective gloves. Risk of burns, injuries and/or health problems.

Procedure

1. Disconnect the Battery.

2. Arrange a suitable container to collect the hydraulic oil.

3. Disconnect the oil pipe (E).

4. Unscrew the filter cap (F).

5. Remove the filter cartridge (G).

6. Properly clean the filter cap (F) and its seat.

7. Apply a film of oil on the gasket.

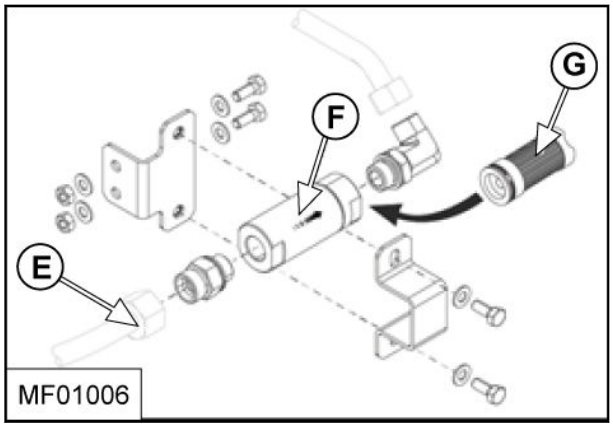


Fig. 120

8. Install new filter cartridge (G).

9. Refit the filter cap (F) and tighten at 70 Nm.

10. Reconnect the oil pipe (E).

11. Restore the transmission oil level with proper oil.

12. Reconnect the Battery - Run the engine for several seconds.

13. Check the hydraulic oil level.

14. Check for leaks.

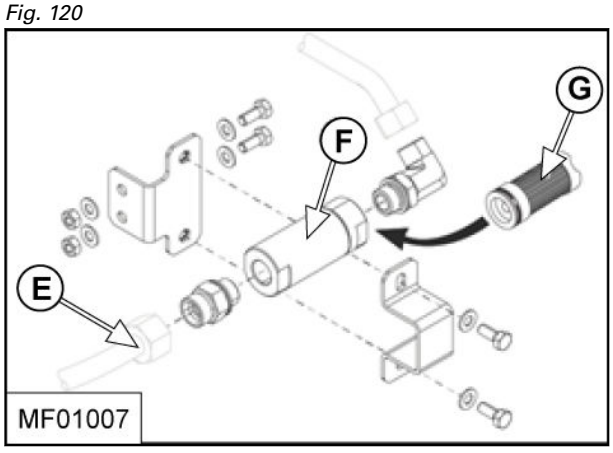


Fig. 121

https://truckmanualshub.com/

4.12.23 Fan belt replacement

CAUTION:
Make sure that the engine is switched off and that it is completely cold.

Replacement and tensioning must be done by an authorised service centre.

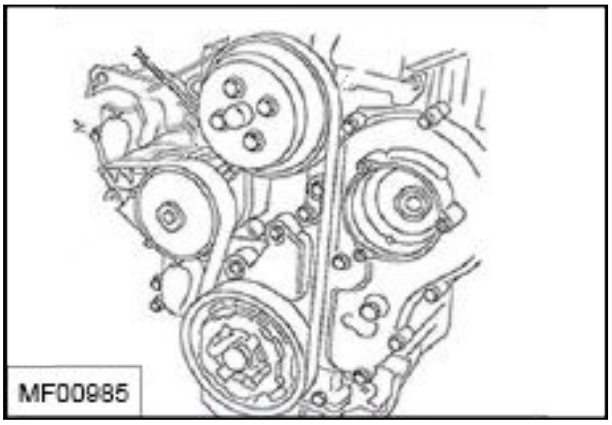


Fig. 122

4.12.24 Air conditioning compressor belt replacement

CAUTION:
Make sure that the engine is switched off and that it is completely cold.

Replacement and tensioning must be done by an authorised service centre.

4.12.25 Drain the Fuel Tank

Drain the fuel tank from water and sediment removing the plug (D).

IMPORTANT:
Before removing plug (D)*, place a suitable container under the tank to collect drainage.*

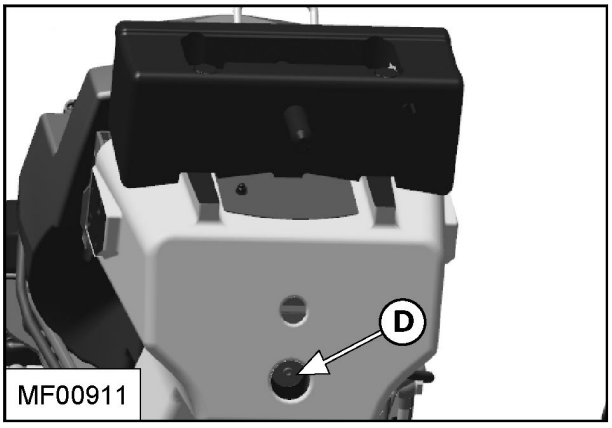


Fig. 123

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5 Specifications

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5.1 General specifications

Engine				
Model	75	85	95	105
Engine type	F5DFL413B*E - F5DFL413Y*A	F5DFL413X*A	F5DFL413W*A	F5DFL413V*A
Maximum power at 2300 rpm	55 kW	64 kW	71 kW	77 kW
Number of cylinders	4	4	4	4
Cylinder capacity	3387 cm³	3387 cm³	3387 cm³	3387 cm³
Bore	99 mm	99 mm	99 mm	99 mm
Stroke	110 mm	110 mm	110 mm	110 mm
Maximum torque speed	1500	1500	1500	1500
Maximum torque	309 Nm@ 1500 rpm	370 Nm@ 1500 rpm	403 Nm @ 1500 rpm	403 Nm @ 1600 rpm
Type of clutch: only mechanical clutch	12" - single plate, dry	12" - single plate, dry	12" - single plate, dry	12" - single plate, dry

Electrical system	
Model	75 -105
Battery	12 V - 100 Ah
Generator	14 V - 100 A
Starter motor	4.2 kW

Number of gears	24 + 24 s speed
Type	Mechanical
Reverse	Synchronizer
High and Low-range	Synchronizer
Number of gears	4
Number of ranges	3
Machine speed	40 km/h

Number of gears 24 + 12 s speed	
Type	Electro-hydraulic
Reverse	Power
High and Low-range	Power

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Number of gears 24 + 12 s speed	
Number of gears	4
Number of ranges	3
Machine speed	40 km/h

Steering system 4WD	
Maximum system pressure	190 bar
Flow	100 cm^3

Air-conditioning system	
Capacity	800 g
Refrigerant	R134a

Brake system	
Oil reservoir	0.5 l

Fuel tank	
All models	75 l
Auxiliary - all models	30 l

Bulb light specification	
High beam lamp	12V - 60W HB3
Rear work lamp bulb (platform models)	12V - 55W H3
Head lamp	12V - 60/55W H4 and 12V 4W T4W
Rear lamps	12V - R5W
Turn signal lamps	12V - R21W
Beacon lamp	12V 50W H1
Cab work lamp	12V - 55W H3
License plate lamp	12V - 10W
Cab internal lamp	12V - 2X10W

Brakes	
Control	Integrated mechanical and hydraulic functions
Brake configuration	Wet disc

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Differential locking	
Type	Mechanical, with shaft
Engaged	Hydraulic

Rear axle	
Model	Narrow / Standard
Type	Planetary gear
Ratio	6:1
Flange space	972 mm / 1242 mm
Wheel fastener circle diameter	203 mm
Wheel disc centre diameter	152 mm
Number of wheel fasteners	8 (each side)
Wheel fasteners type	M18 x 1.5
Maximum load capacity on the rear axle	3100 kg
NOTE: *The Local regulations can limit the values specified in the Tire load index chart.*	

PTO			
Standard PTO speed	540 1/min	540e 1/min	1000 1/min
Engine speed	1938 1/min	1648 1/min	1962 1/min
PTO end diameter	1"3/8	1"3/8	1"3/8
Number of splines	6	6	21
Direction of rotating	Clockwise	Clockwise	Clockwise
Gear ratio: Engine speed / PTO rpm	3.6	3	1,9
Ground speed PTO			
Standard PTO speed	540 1/min	540e 1/min	1000 1/min
Number of PTO turns for 1 turn of a wheel (24.85 mph)	9.077	10.670	16.605

Front axle	
Model	Narrow / Standard
Type	4WD
Maximum steering angle	55° / 52°
Rake	6° / 7°
Differential type	Limited slip
Flange gap	990 mm / 1326 mm
4WD engaged	Electro-hydraulic
Differential locking	Automatic

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Front axle	
Number of wheel fasteners	6 / 8
Wheel fasteners type	M18
Wheel disc centre diameter	162 mm / 221 mm
Wheel fastener circle diameter	205 mm / 275 mm
Maximum load capacity on front axle	2200 kg
NOTE: *The Local regulations can limit the values specified in the Tire load index chart.*	

Noise emissions	
Model	75 -105
External driving noise. Measurement procedure refers to Regulation (EU) 2018/985 Annex II.	
Movement @2550 1/min	84 dB(A)
Stationary	83 dB(A)
Noise level at operator´s ear. Measurement procedure refers to Regulation (EU) 1322/2014 Annex 13 Amendment R (EU) 2018/830.	
Without cab	86 dB(A)
With open cab	80 dB(A)
With closed cab	79 dB(A)

Hydraulic system	
Model	75 -105
Hydraulic pump auxiliary spool valves / Rear lift	
Maximum pump displacement	25 cm³
Capacity	66.8 l/min
Hydraulic pump steering / Transmission	
Maximum pump displacement	11 cm³
Capacity	29.8 l/min
Hydraulic pump for rear lift - Optional	
Maximum pump displacement	11 cm³
Capacity	29.8 l/min

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Maximum load	
Maximum load weight	
Total load weight 4WD	4400 kg
Total vehicle weight on the front axle 4WD	2200 kg
Total vehicle weight on the rear axle	3100 kg
NOTE: *The Local regulations can limit the values specified in the Tire load index chart.*	

Load weight		
Model	Narrow	Standard
Cab version		
Total weight 4WD	3040 - 3275 kg	3150 - 3385 kg
Front weight 4WD	1255 - 1535 kg	1315 - 1595 kg
Rear weight 4WD	1740 - 1785 kg	1790 - 1835 kg
ROPS version		
Total weight 4WD	-	2885 - 3120 kg
Front weight 4WD	-	1275 - 1555 kg
Rear weight 4WD	-	1565 - 1610 kg
Ballast weight holder 65 kg		

Maximum tow weight		
Model	Narrow	Standard
Trailer brake system	Maximum tow weight	
Without brake	1800 kg	
Override brake	8000 kg	
Hydraulic brake (ROPS)	-	16900 kg
Hydraulic brake (CAB)	17700 kg	18200 kg
Pneumatic brake (ROPS)	-	16900 kg
Pneumatic brake (CAB)	17700 kg	18200 kg
NOTE: *The Local regulations can limit the values specified in the Tire load index chart.*		

Tire load capacity			
Front	Load index	Load capacity	Model
240/70 R16	104 A8	1800 kg	Narrow
280/70 R16	112 A8	2240 kg	Narrow - Standard
280/70 R18	114 A8	2360 kg	Narrow - Standard
260/70 R16	109 A8	2060 kg	Narrow
320/70 R20	113 A8	2300 kg	Standard

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Tire load capacity			
280/70 R20	116 A8	2500 kg	Standard
Rear	Load index	Load capacity	Model
340/85 R28 (13.6 R28)	127 A8	3500 kg	Narrow
360/70 R24	122 A8	3000 kg	Narrow
380/70 R24	125 A8	3300 kg	Narrow - Standard
380/70 R28	127 A8	3500 kg	Narrow - Standard
380/85 R28 (14.9 R28)	133 A8	4120 kg	Narrow
420/70 R24	130 A8	3800 kg	Narrow - Standard
420/70 R28	133 A8	4120 kg	Narrow - Standard
480/65 R28	139 A8	4860 kg	Standard

Weight		
Cab model	Narrow	Standard
Total weight without operator and without front ballast weight	2965 kg	3075 kg
Platform model	Narrow	Standard
Total weight without operator and without front ballast weight	2700 kg	2810 kg

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5.2 Travel speed chart

24+12 Transmission at 2300 rpm

		Index Radius					
Range	**Speed**	**650**	**625**	**600**	**575**	**550**	**525**
A	1	0,5	0,5	0,5	0,5	0,4	0,4
	2	0,6	0,6	0,6	0,6	0,5	0,5
	3	0,8	0,7	0,7	0,7	0,7	0,6
	4	0,9	0,9	0,8	0,8	0,8	0,7
	5	1,1	1,1	1,0	1,0	0,9	0,9
	6	1,3	1,3	1,2	1,2	1,1	1,1
	7	1,6	1,6	1,5	1,4	1,4	1,3
	8	1,9	1,8	1,8	1,7	1,6	1,5
B	9	2,4	2,3	2,2	2,2	2,1	2,0
	10	2,9	2,7	2,6	2,5	2,4	2,3
	11	3,5	3,4	3,3	3,1	3,0	2,9
	12	4,2	4,0	3,8	3,7	3,5	3,4
	13	5,1	4,9	4,7	4,5	4,3	4,1
	14	6,0	5,8	5,6	5,3	5,1	4,9
	15	7,4	7,1	6,9	6,6	6,3	6,0
	16	8,7	8,4	8,0	7,7	7,4	7,0
C	17	10,7	10,3	9,9	9,5	9,1	8,7
	18	12,6	12,1	11,6	11,1	10,6	10,2
	19	15,7	15,1	14,5	13,8	13,2	12,6
	20	18,4	17,7	17,0	16,2	15,5	14,8
	21	22,6	21,8	20,9	20,0	19,2	18,3
	22	26,6	25,5	24,5	23,5	22,5	21,5
	23	32,8	31,5	30,3	29,0	27,7	26,5
	24	38,5	37,0	35,5	34,0	32,5	31,1

24+24 Transmission at 2300 rpm

		Index Radius					
Range	**Speed**	**650**	**625**	**600**	**575**	**550**	**525**
A	1	0,5	0,5	0,5	0,5	0,4	0,4
	2	0,6	0,6	0,6	0,6	0,5	0,5
	3	0,8	0,7	0,7	0,7	0,7	0,6
	4	0,9	0,9	0,8	0,8	0,8	0,7

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		Index Radius					
Range	**Speed**	**650**	**625**	**600**	**575**	**550**	**525**
	5	1,1	1,1	1,0	1,0	0,9	0,9
	6	1,3	1,3	1,2	1,2	1,1	1,1
	7	1,6	1,6	1,5	1,4	1,4	1,3
	8	1,9	1,8	1,8	1,7	1,6	1,5
B	9	2,4	2,3	2,2	2,2	2,1	2,0
	10	2,9	2,7	2,6	2,5	2,4	2,3
	11	3,5	3,4	3,3	3,1	3,0	2,9
	12	4,2	4,0	3,8	3,7	3,5	3,4
	13	5,1	4,9	4,7	4,5	4,3	4,1
	14	6,0	5,8	5,6	5,3	5,1	4,9
	15	7,4	7,1	6,9	6,6	6,3	6,0
	16	8,7	8,4	8,0	7,7	7,4	7,0
C	17	10,7	10,3	9,9	9,5	9,1	8,7
	18	12,6	12,1	11,6	11,1	10,6	10,2
	19	15,7	15,1	14,5	13,8	13,2	12,6
	20	18,4	17,7	17,0	16,2	15,5	14,8
	21	22,6	21,8	20,9	20,0	19,2	18,3
	22	26,6	25,5	24,5	23,5	22,5	21,5
	23	32,8	31,5	30,3	29,0	27,7	26,5
	24	38,5	37,0	35,5	34,0	32,5	31,1

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5.3 Tires Combination

Front Tire	Rear Tire	Models
280/70 R18	380/70 R24	GE - WF
280/70 R20	420/70 R24	WF
300/70 R20	420/70 R24	WF
280/85 R20	380/85 R28	WF
320/65 R18	440/65 R24	WF
420/65 R20	480/65 R28	WF
280/70 R18	420/70 R24	F
280/70 R20	380/70 R28	F - WF
300/70 R20	420/70 R28	F - WF
320/70 R20	420/70 R28	F - WF
320/70 R20	480/65 R28	F - WF
260/70 R16	360/70 R24	GE
180/95 R16	380/70 R20	GE
260/70 R16	380/70 R20	F - GE
280/70 R16	380/70 R24	GE
280/70 R18	440/65 R24	GE
280/70 R16	360/70 R24	GE
180/95 R16	320/85 R24	V
180/95 R16	250/85 R28	V
180/95 R16	280/85 R28	V
7.50 R16	320/85 R28	V - S
7.50 R16	340/85 R28	V
260/70 R16	380/70 R24	S
280/70 R18	380/70 R28	S
280/70 R18	420/70 R28	S
280/70 R16	420/70 R24	S
240/70 R16	360/70 R24	S
280/70 R18	340/85 R28	S
7.50 R18	340/85 R28	S
7.50 R20	340/85 R28	F
9.50 R20	380/85 R28	F

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5.4 Tire - Load capacity

Front	Load index	Load capacity kg	Load capacity lb	Inflation pressure bar	Models
6.50-16	89 A8	1460	3219	4,2	V
180/95 R16	105 A8	1850	4078	3,2	V - GE
7.50 R16	100 A8	1600	3527	3.2	V - S - F
10.0/75-15,3	106 A8	1900	4189	3	V - F
7.50 R18	102 A8	1700	3748	3,2	V - S - GE
240/70 R16	104 A8	1800	3968	2,4	V - S - GE_
280/70 R16	112 A8	2240	4938	2,4	V - S - F - GE
280/70 R18	114 A8	2360	5203	2,4	S - F - WF - GE
260/70 R16	109 A8	2060	4542	2,4	S - GE
8.25-16	104 A8	1800	3968	2,9	S
200/70 R16	94 A8	1340	2955	2,4	S
9.5 R20	8 PR	1560	3439	2,8	F
280/70 R20	116 A8	2500	5512	2,4	F - WF
7.50 R20	104 A8	1800	3527	3,2	F
320/70 R20	113 A8	2300	5070	1,6	F - WF
300/70 R20	110 A8	2120	4674	1,6	F - WF
400/60-15.5	126 A8	3740	8246	2,8	F
500/55-17	136 A8	5240	11552	3,3	F - WF
280/85 R20	112 A8	2240	4938	1,6	WF
420/65 R20	128 A8	3600	7937	1,6	WF
420/65 R18	109 A8	2060	4542	1,6	WF
340/65 R18	113 A8	2300	5070	1,6	WF

Rear	Load index	Load capacity kg	Load capacity lb	Inflation pressure bar	Models
14.9 R28	128 A8	3600	7937	1,6	F
270/95 R32	136 A8	4480	9877	4	F
340/85 R28 (13.6 R28)	127 A8	3500	7716	1,6	F
360/70 R24	122 A8	3000	6613	1,6	F - V - S - GE
380/70 R24	125 A8	3300	7275	1,6	F - WF - S - GE
380/70 R28	127 A8	3500	7716	1,6	F - WF - S
380/85 R28 (14.9 R28)	133 A8	4120	9083	1,6	F - WF - S
420/70 R24	130 A8	3800	8378	1,6	F - WF - S
420/70 R28	133 A8	4120	9083	1,6	F - WF - S

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Rear	Load index	Load capacity kg	Load capacity lb	Inflation pressure bar	Models
480/65 R24	136 A8	4480	9877	1,6	F
480/65 R28	139 A8	4860	10714	1,6	F - WF
600/55-22.5	144 A8	6170	13602	1,3	F
550/60-22.5	140 A8	5510	12147	1,6	F
600/55-26.5	153 A8	8040	17725	2	F - WF
440/65 R24	131 A8	3900	8598	1,6	WF - GE
480/70 R24	138 A8	4720	10406	1,6	WF
250/85 R28 (9.5 R28)	112 A8	2240	4938	1,6	V
280/85 R28 (11.2 R28)	118 A8	2640	5820	1,6	V - GE
320/85 R24 (12.4 R24)	122 A8	3000	6613	1,6	V
320/85 R28 (12.4 R28)	124 A8	3200	7055	1,6	V - S
340/85 R24 (13.6 R24)	125 A8	3300	7275	1,6	V
340/85 R28 (13.6 R28)	127 A8	3500	7716	1,6	V - S
360/70 R28	125 A8	3300	7275	1,6	V
380/70 R20	122 A8	3000	6613	1,6	S - GE
280/85 R24 (11.2 R24)	115 A8	2430	5357	1,6	GE
360/70 R20	120 A8	2800	6173	1,6	GE
320/70 R24	116 A8	2500	5511	1,6	GE

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5.5 Clearance between the tires and the machine

Narrow, Standard - Front ROPS

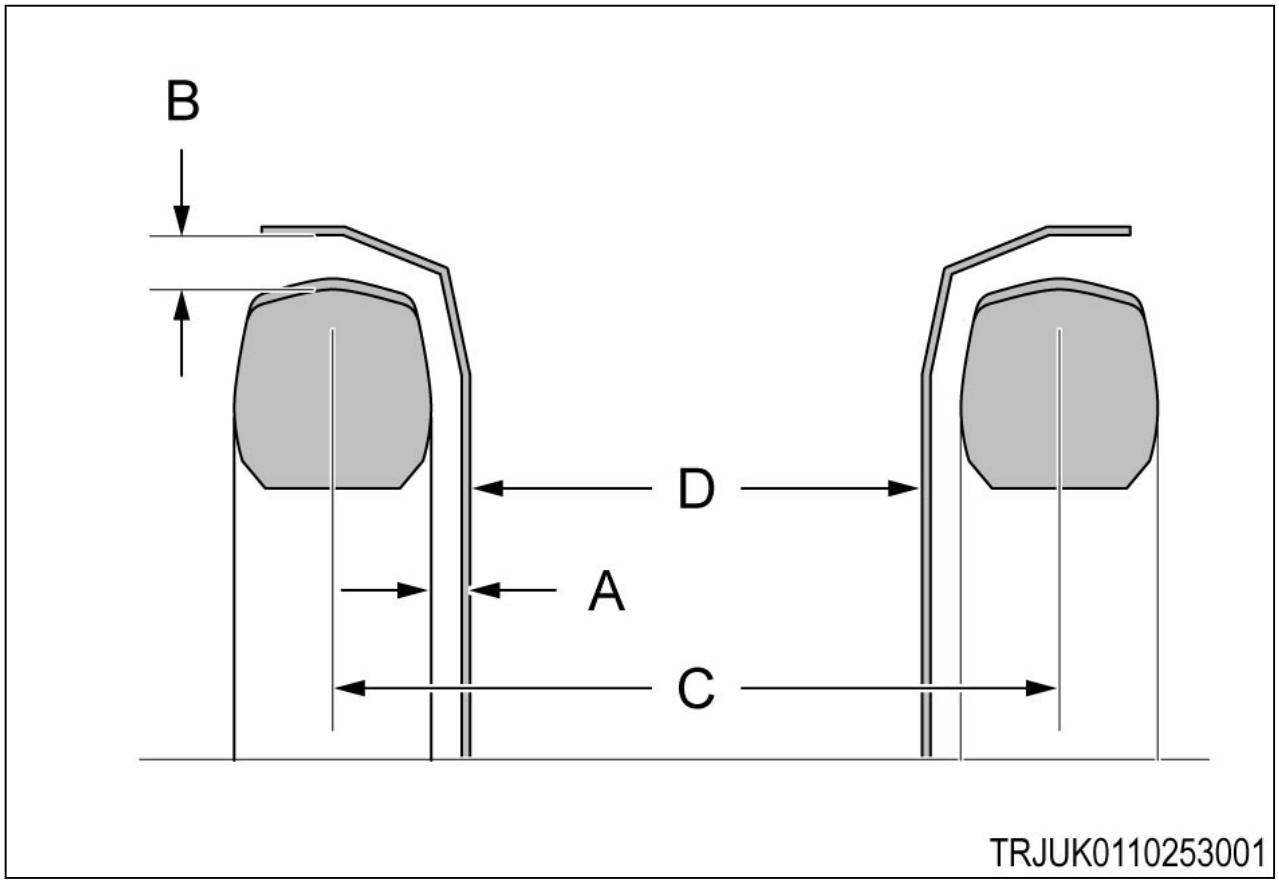


Fig. 1

(A) = minimum 15 mm

(B) = minimum 30 mm

D	
Narrow	Standard
520	600

Tire dimensions	Minimum value			Minimum value		
	Narrow			Standard		
	A	B	C	A	B	C
280/85 R28	-	-	-	-	-	-
320/85 R28	43	91	959	-	-	-
250/85 R28	-	-	-	-	-	-
360/70 R24	58	146	1038	99	146	1196
340/85 R28	17	71	995	59	71	1114
340/85 R24	-	-	-	-	-	-

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Tire dimensions	Minimum value			Minimum value		
320/85 R24	-	-	-	-	-	-
360/70 R28	-	-	-	-	-	-
380/70 R24	44	127	1038	85	127	1196
380/85 R28	26	40	1007	42	40	1114
420/70 R28	67	46	1118	27	46	1114
380/70 R20	16	184	965	-	-	-
420/70 R24	21	91	1038	62	91	1196
380/70 R28	16	75	955	51	84	1114
480/65 R24	-	-	-	44	93	1191
480/65 R28	-	-	-	56	43	1217
270/95 R32	-	-	-	123	48	1155
14.9 R28	-	-	-	41	38	1114
440/65 R24	-	-	-	-	-	-
480/70 R24	-	-	-	-	-	-
600/55-22.5	-	-	-	35	86	1300
550/60-22.5	-	-	-	85	102	1350
600/55-26.5	-	-	-	40	54	1300

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5.6 Wheel torques

Fastener	Front wheel torque	Rear wheel torque
(A) Disc to flange	300 Nm	400 Nm
(B) M16	210 Nm	210 Nm
(B) M18	280 Nm	280 Nm

IMPORTANT: *Do a check of the wheel fastener torque after the first 4 and 8 hour operation intervals.*

IMPORTANT: *Do a check of the wheel fastener torque after the first 100 hour interval, and each 600 hour interval.*

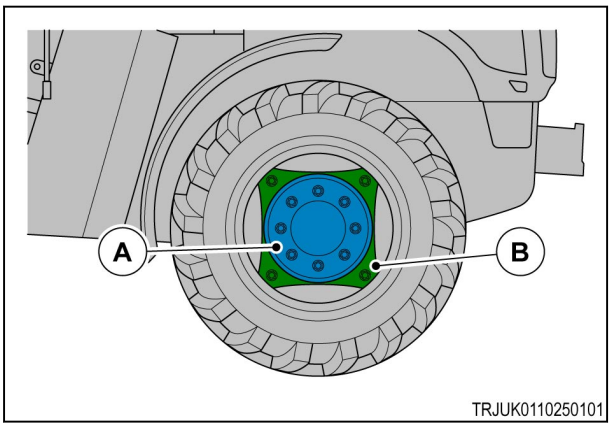


Fig. 2 Front

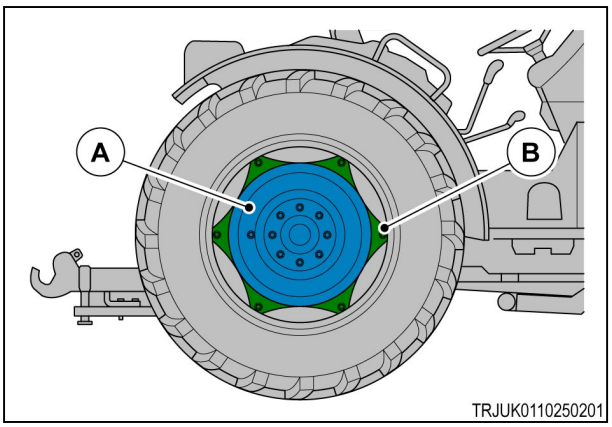


Fig. 3 Rear

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5.7 Front and rear track

5.7.1 Front track

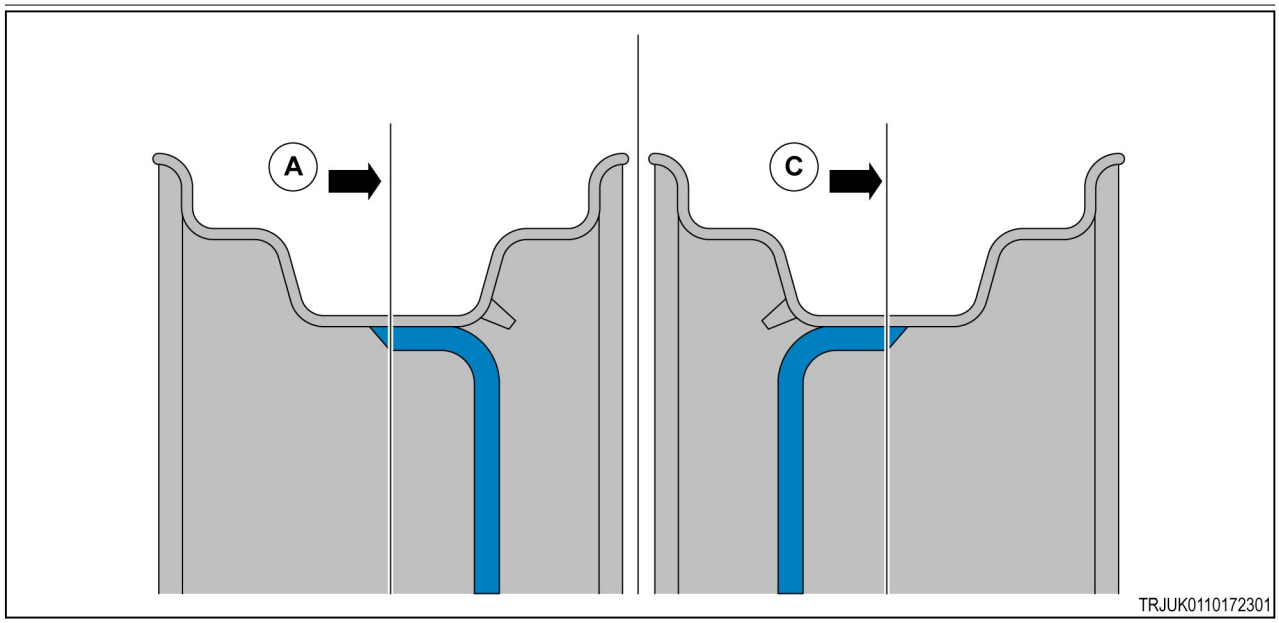


Fig. 4

2 position rims

Standard	Dimension (mm)	
	A	C
280/70 R20	1164	1464
300/70 R20	1163	1463
320/70 R20	-	1462

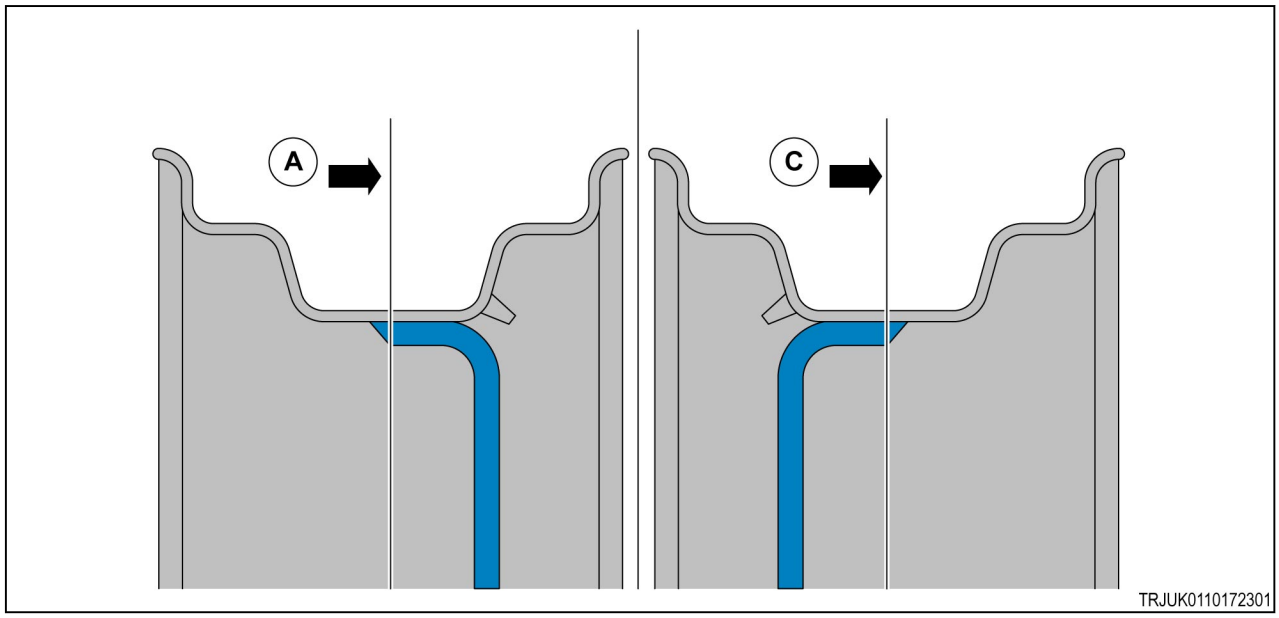


Fig. 5

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2 position rims

Narrow	Dimension (mm)	
	A	C
240/70 R16	-	1089
260/70 R16	-	1088
280/70 R16	-	1087

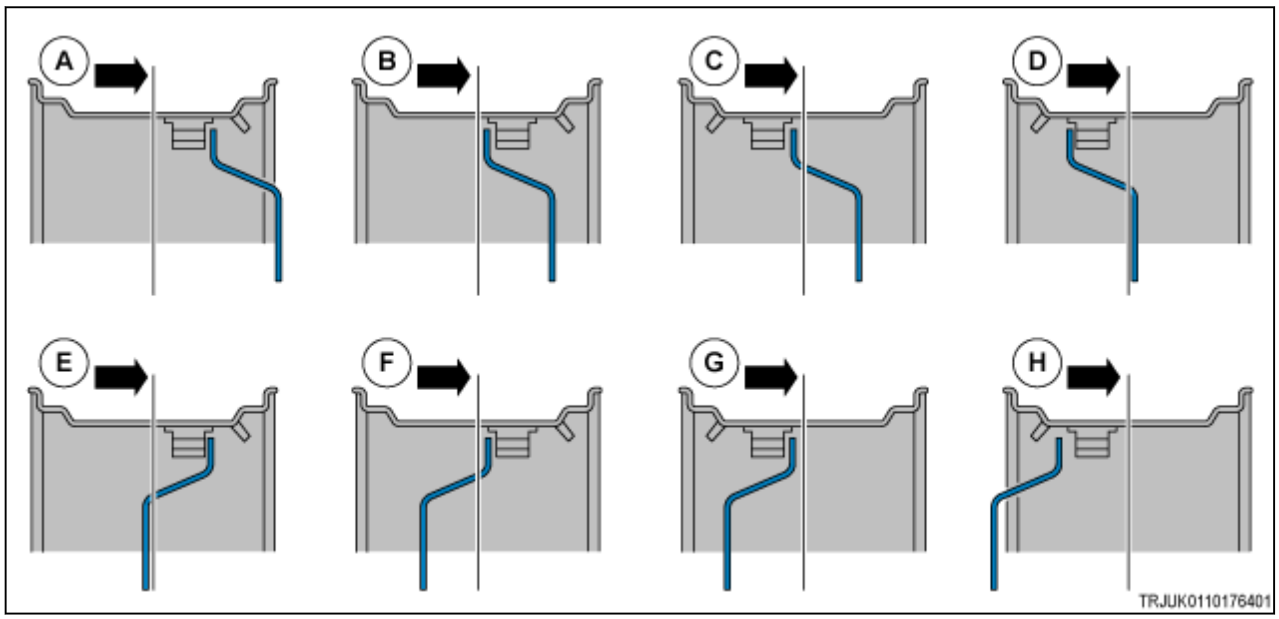


Fig. 6

4 or 8 position adjustable rims

Standard	Dimension (mm)							
	A	B	C	D	E	F	G	H
280/70 R18	1181	1257	1369	1445	-	-	-	-
280/70 R20	-	1129	1233	1343	1280	1389	1493	1603
300/70 R20	-	1129	1233	1342	1279	1389	1493	1602
320/70 R20	-	-	1233	1341	1279	1388	1492	-

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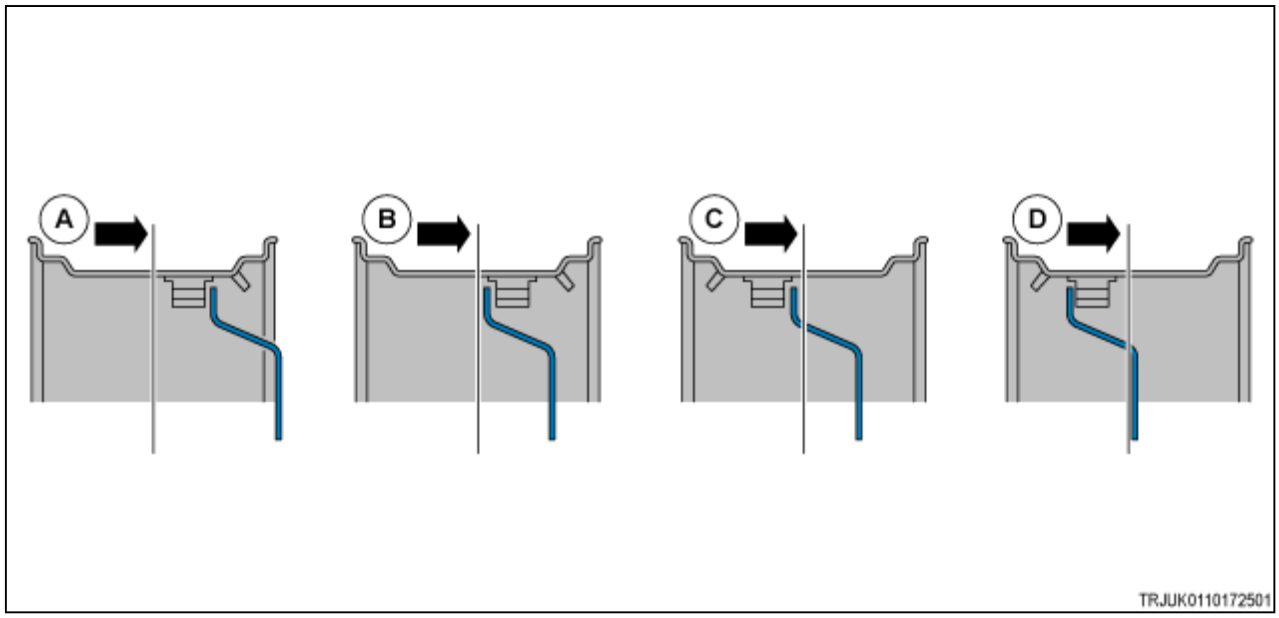


Fig. 7

4 position adjustable rims

Narrow	Dimension (mm)			
	A	B	C	D
240/70 R16	-	-	1037	1113
260/70 R16	-	-	1036	1112
280/70 R16	-	-	1035	1111
280/70 R18	-	-	1034	1110

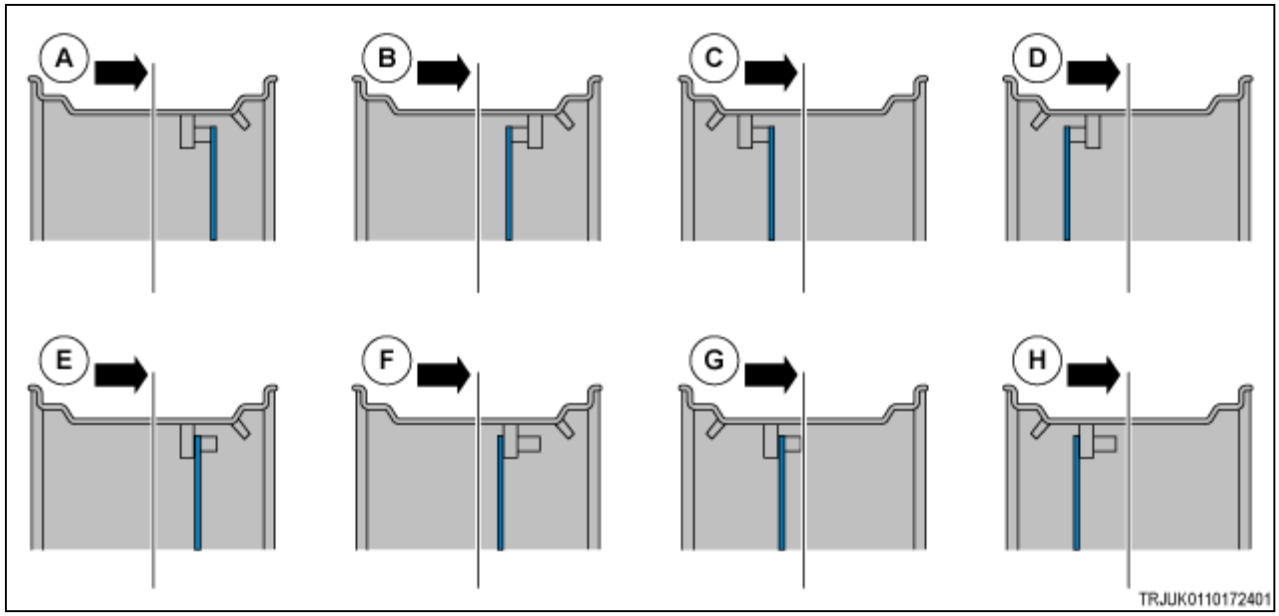


Fig. 8

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8 position adjustable rims - reinforced rims

Standard	Dimension (mm)							
	A	B	C	D	E	F	G	H
280/70 R18	-	1263	1367	1483	-	1225	1405	1445*

* This tire width is not compatible for all functions, and can have an effect on the steering.

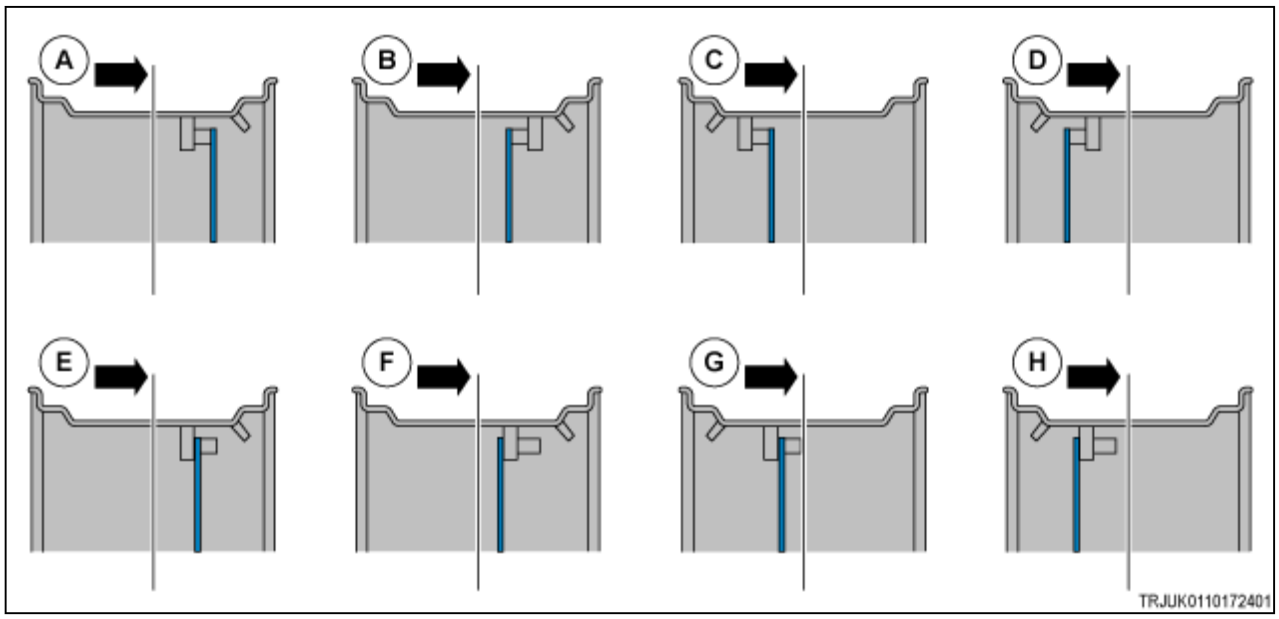


Fig. 9

8 position adjustable rims - reinforced rims

Narrow	Dimension (mm)							
	A	B	C	D	E	F	G	H
280/70 R18	-	-	1032	1148	-	-	1070	1100

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5.7.2 Rear track

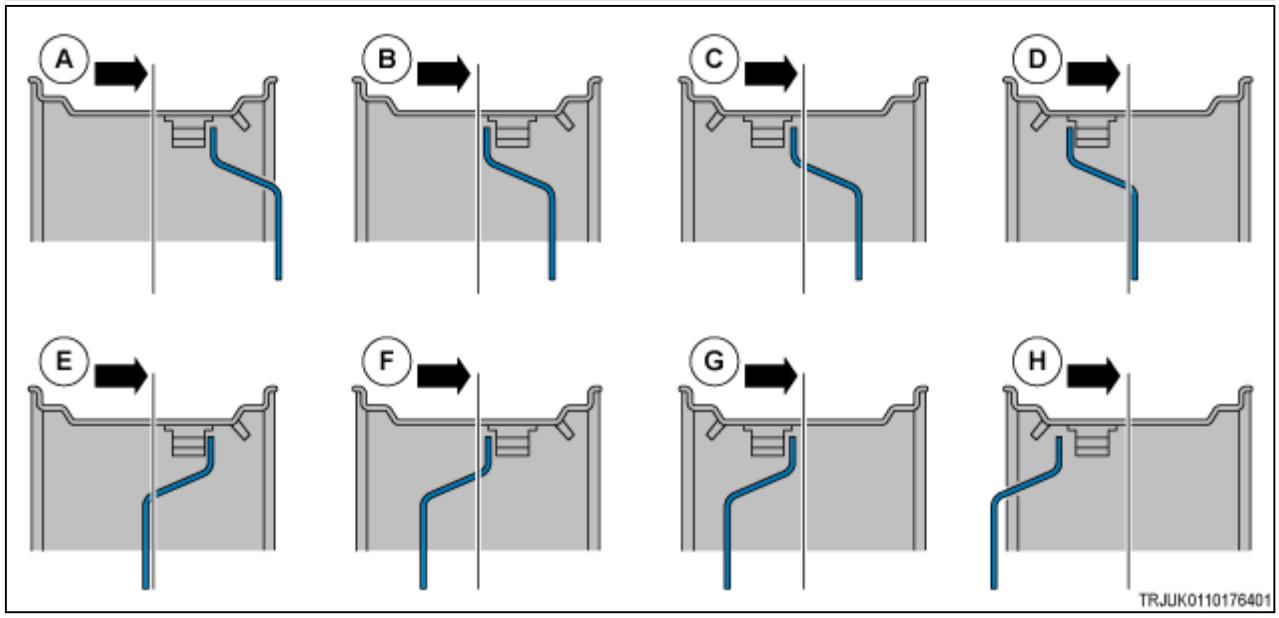


Fig. 10

8 position adjustable rims

Standard	Dimension (mm)							
	A	B	C	D	E	F	G	H
380/70 R24	-	-	1196	1039	1195	1308	1364	1477
420/70 R24	-	-	1196	1309	1195	1308	1364	1477
380/70 R28	-	-	1114	1225	1277	1388	1514	-
420/70 R28	-	-	1114	1225	1277	1388	1514	-
480/65 R28	-	-	-	1217	1285	1396	-	-

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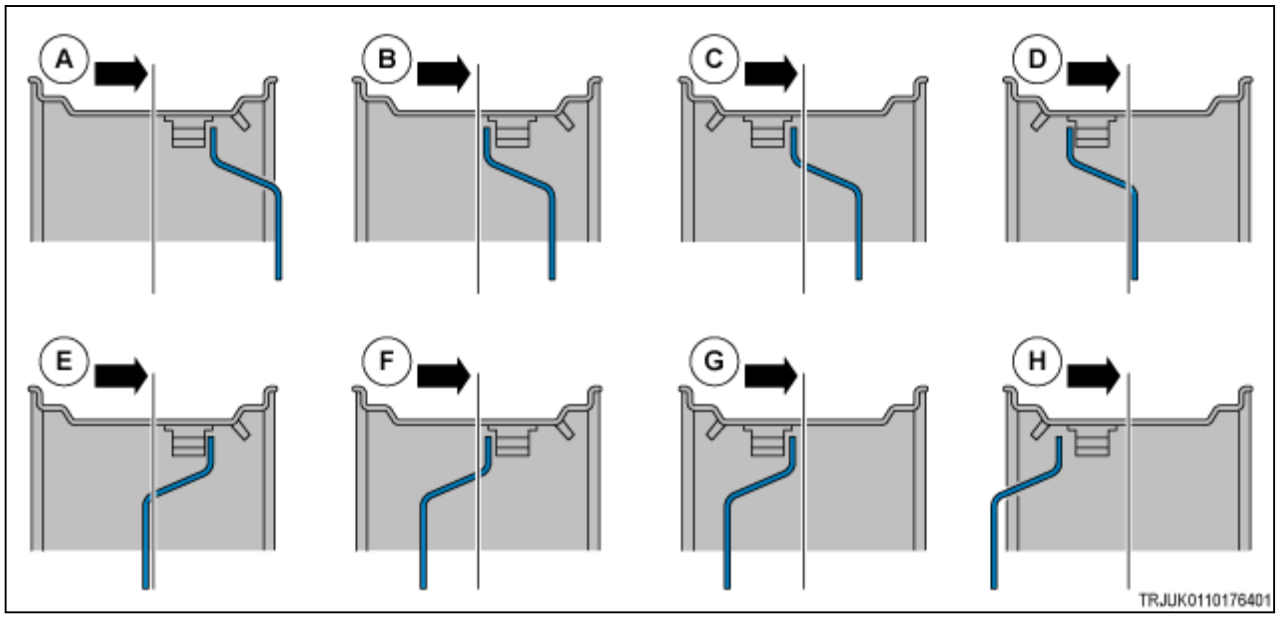


Fig. 11

8 position adjustable rims

Narrow	Dimension (mm)							
	A	B	C	D	E	F	G	H
360/70 R24	-	-	-	1039	-	1038	1094	1207
380/70 R24	-	-	-	1039	-	1038	1094	1207
420/70 R24	-	-	-	1039	-	1038	1094	1207
340/85 R28 (13.6 R28)	-	-	-	955	1003	1114	1248	1359
380/70 R28	-	-	-	-	1007	1118	1244	1355
380/85 R28 (14.9 R28)	-	-	-	-	1007	1118	1244	1355
420/70 R28	-	-	-	-	-	1118	1244	1355

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5.8 PTO speed

Independent mode

PTO	PTO speed - engine speed at 2300 rpm
540	641
540 E	753
1000	1173

PTO	Engine speed
540	1938 rpm
540 E	1648 rpm
1000	1962 rpm

Ground speed mode

PTO	Number of turns of the PTO to 1 of a wheel
540	9.1
540 E	10.7
1000	16.6

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5.9 Dimensions

5.9.1 Dimensions

With cab

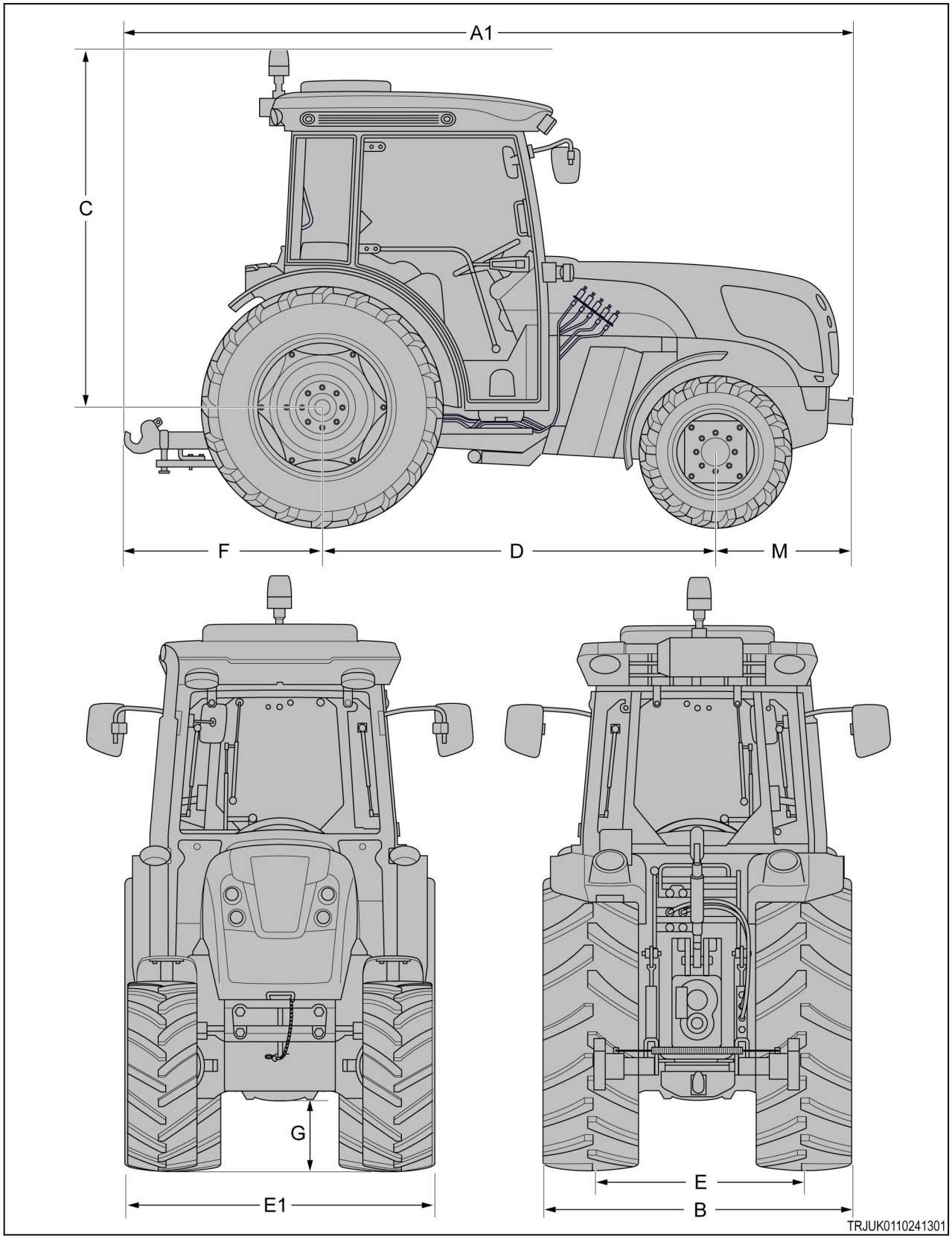


Fig. 12

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Dimension	Definition	Narrow	Standard
A1	Maximum length for road use	4940 mm	4940 mm
B	Minimum width for road use	1278 mm	1227 mm
B	Maximum width for road use	1785 mm	1951 mm
C	Maximum height for road use	1803 mm	1803 mm
D	Wheelbase	2148 mm	2124 mm
E	Rear track minimum width	955 mm	947 mm
E	Rear track maximum width	1359 mm	1555 mm
E1	Front track minimum width	850 mm	1129 mm
E1	Front track maximum width	1148 mm	1603 mm
F	Rear overhang	1083 mm	1083 mm
G	Ground clearance with front ballast weight	195 mm	270 mm
G	Ground clearance without front ballast weight	295 mm	316 mm
H	Front overhang	1709 mm	1733 mm
I	Maximum rear slope-out angle	12°	12°
L	Maximum front slope-in angle	9°	9°
M	Front overhang without front lift	970 mm	994 mm

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Without cab

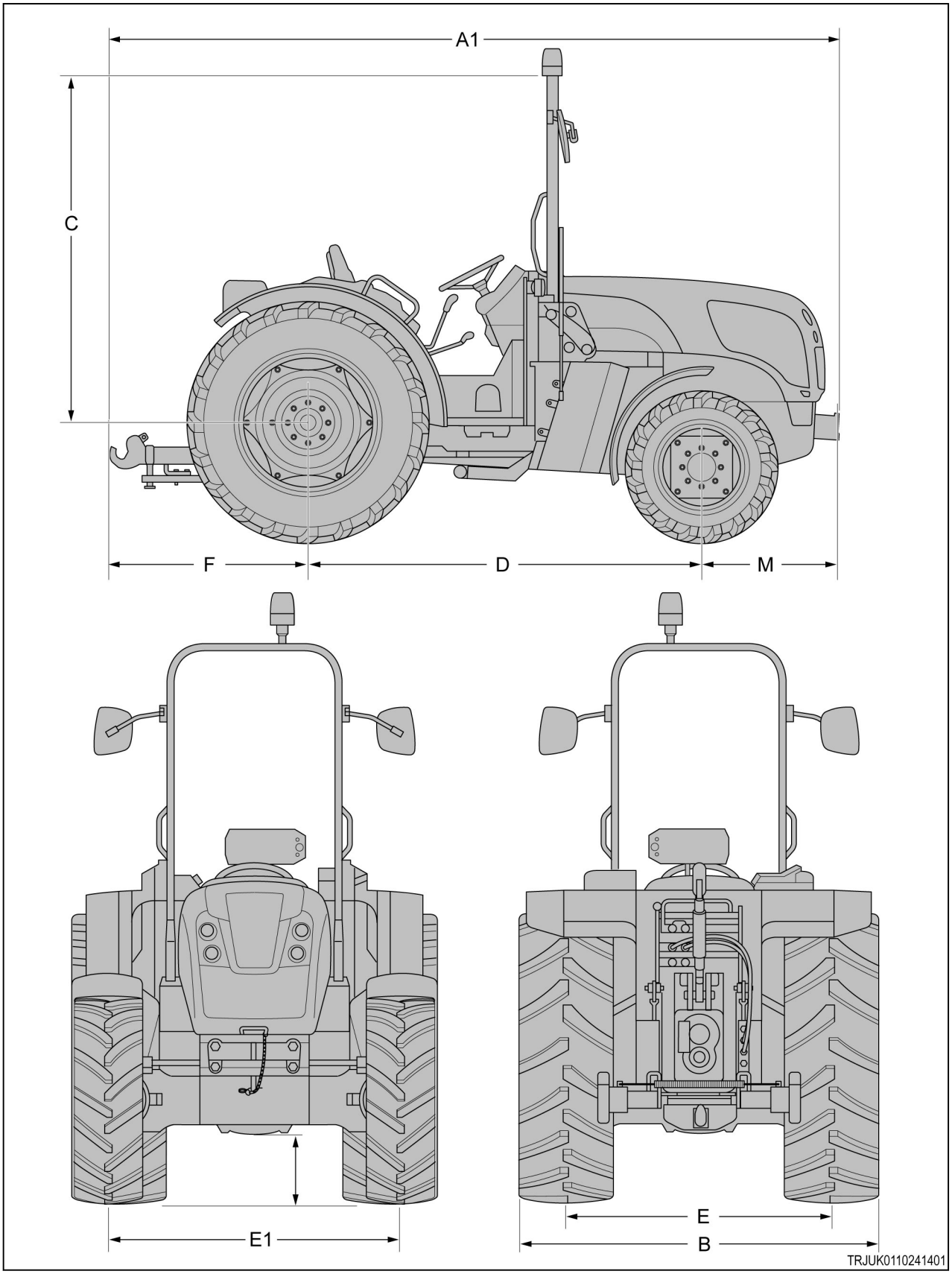


Fig. 13

https://truckmanualshub.com/

Dimension	Definition	Standard
A1	Maximum length for road use	4616 mm
B	Minimum width for road use	1227 mm
B	Maximum width for road use	1951 mm
C	Maximum height for road use	1803 mm
D	Wheelbase	2124 mm
E	Rear track minimum width	947 mm
E	Rear track maximum width	1555 mm
E1	Front track minimum width	1129 mm
E1	Front track maximum width	1603 mm
F	Rear overhang	1083 mm
G	Ground clearance with front ballast weight	270 mm
G	Ground clearance without front ballast weight	316 mm
H	Front overhang	1409 mm
I	Maximum rear slope-out angle	12°
L	Maximum front slope-in angle	11°
M	Front overhang without front lift	994 mm

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5.10 Recommended lubricants

5.10.1 Lubricants and additives

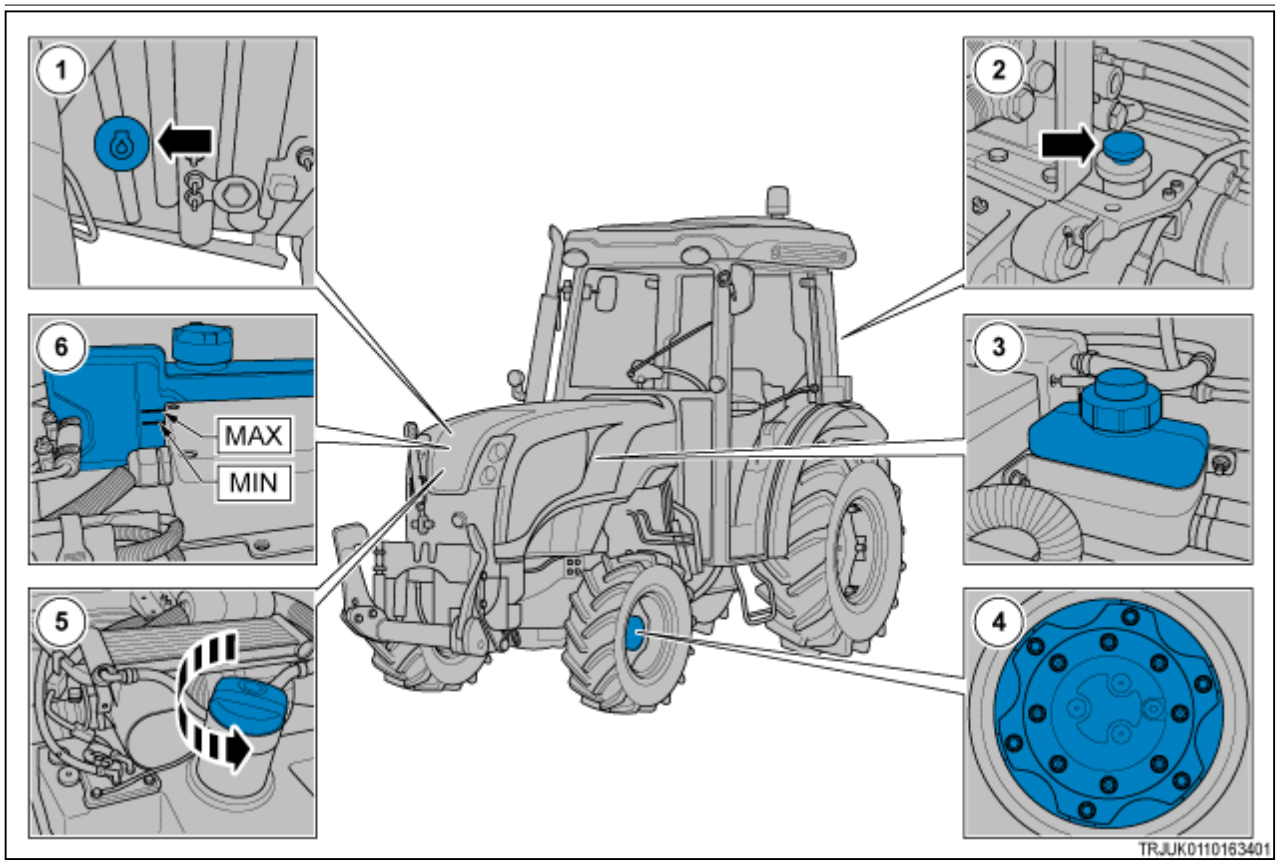


Fig. 14 With cab

Number	Type	Specification
(1)	Engine oil	SAE 10W40 CJ-4, ACEA E3 - E5, API CF - CH4, MIL - L - 2104 F
(2)	Transmission and hydraulic systems	SAE 10W-30 / API GL-4
(3)	Brake system	ATF DEXRON II-D
(4)	Final drives	SAE 10W-30 / API GL-4
	Front axle differential	
(5)	Fuel tank	Standard fuel compliant with the EN 590 (2005/55 - 2005/78)
(6)	Cooling system	SAE J1034 Ethylene glycol - 50% mixture with water
	Air-conditioning refrigerant	R134a
	Air-conditioning compressor oil	SP-20

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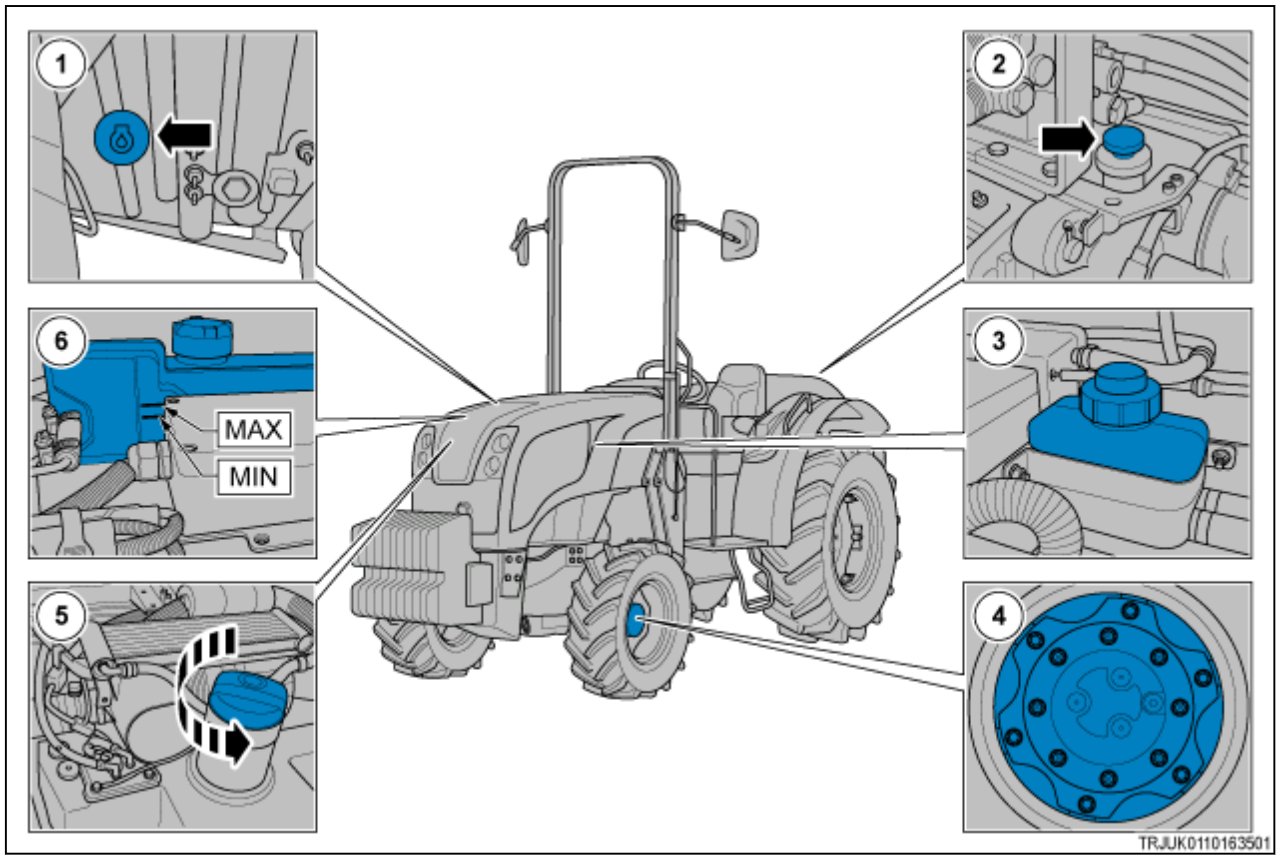


Fig. 15 Without cab

Number	Type	Specification
(1)	Engine oil	SAE 10W40 CJ-4, ACEA E3 - E5, API CF - CH4, MIL - L - 2104 F
(2)	Transmission and hydraulic systems	SAE 10W-30 / API GL-4
(3)	Brake system	ATF DEXRON II-D
(4)	Final drives	SAE 10W-30 / API GL-4
	Front axle differential	
(5)	Fuel tank	Standard fuel compliant with the EN 590 (2005/55 - 2005/78)
(6)	Cooling system	SAE J1034 Ethylene glycol - 50% mixture with water

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5.10.2 Capacities

With cab

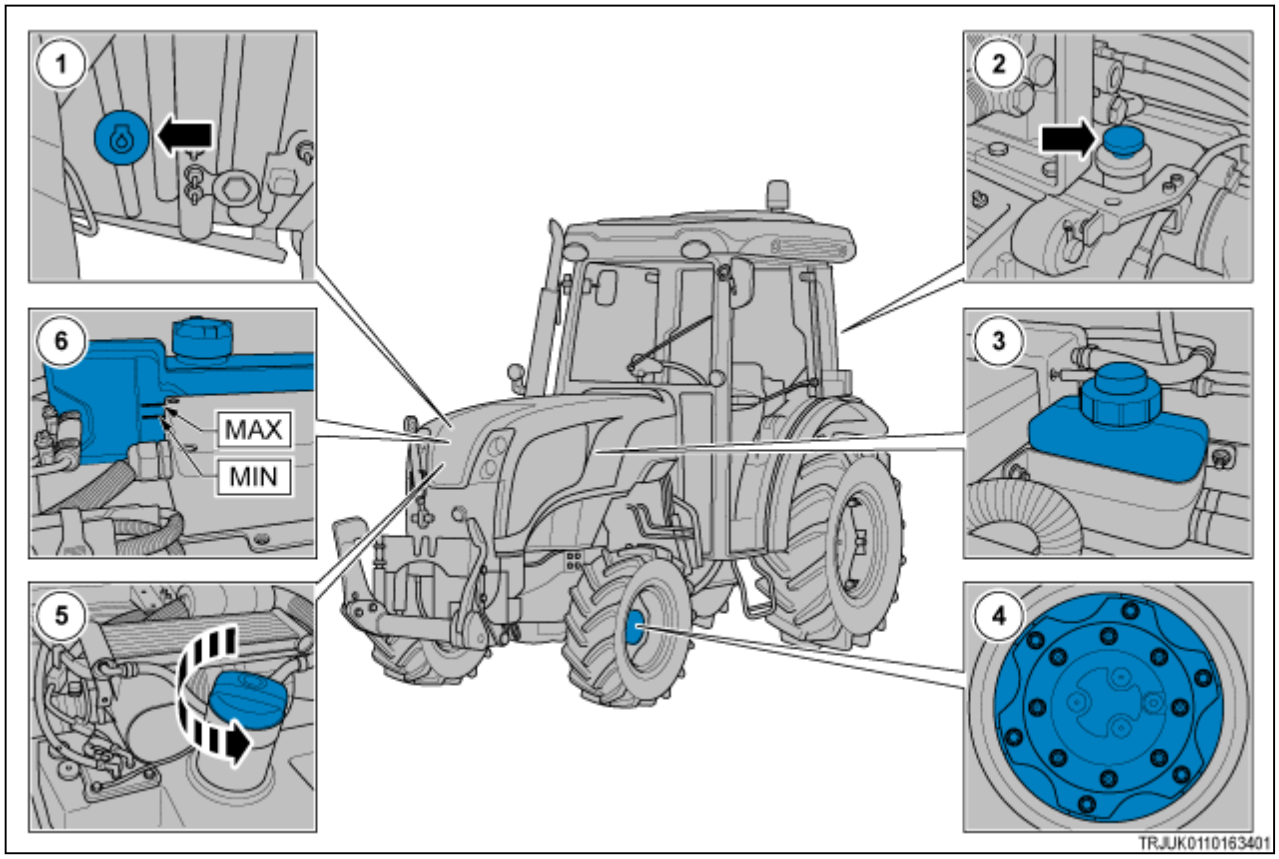


Fig. 16

Number	System	Standard	Narrow
(1)	Engine oil	9.5 l + 1.4 l	9.5 l + 1.4 l
(2)	Transmission and hydraulic systems	41 l + 45 l	41 l + 45 l
(3)	Brake system	0.5 l	0.5 l
(4)	Final drives	0.6 l +/- 15 % for each final drive	0.4 l +/- 0.1 l for each final drive
	Front axle differential	3.5 l +/- 0.3 l	3 l +/- 0.3 l
(5)	Fuel tank	75 l + 30 l	75 l
(6)	Cooling system	11 l	11 l
	Air-conditioning refrigerant	800 g	800 g
	Air-conditioning compressor oil	135 cm^3	135 cm^3

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Without cab

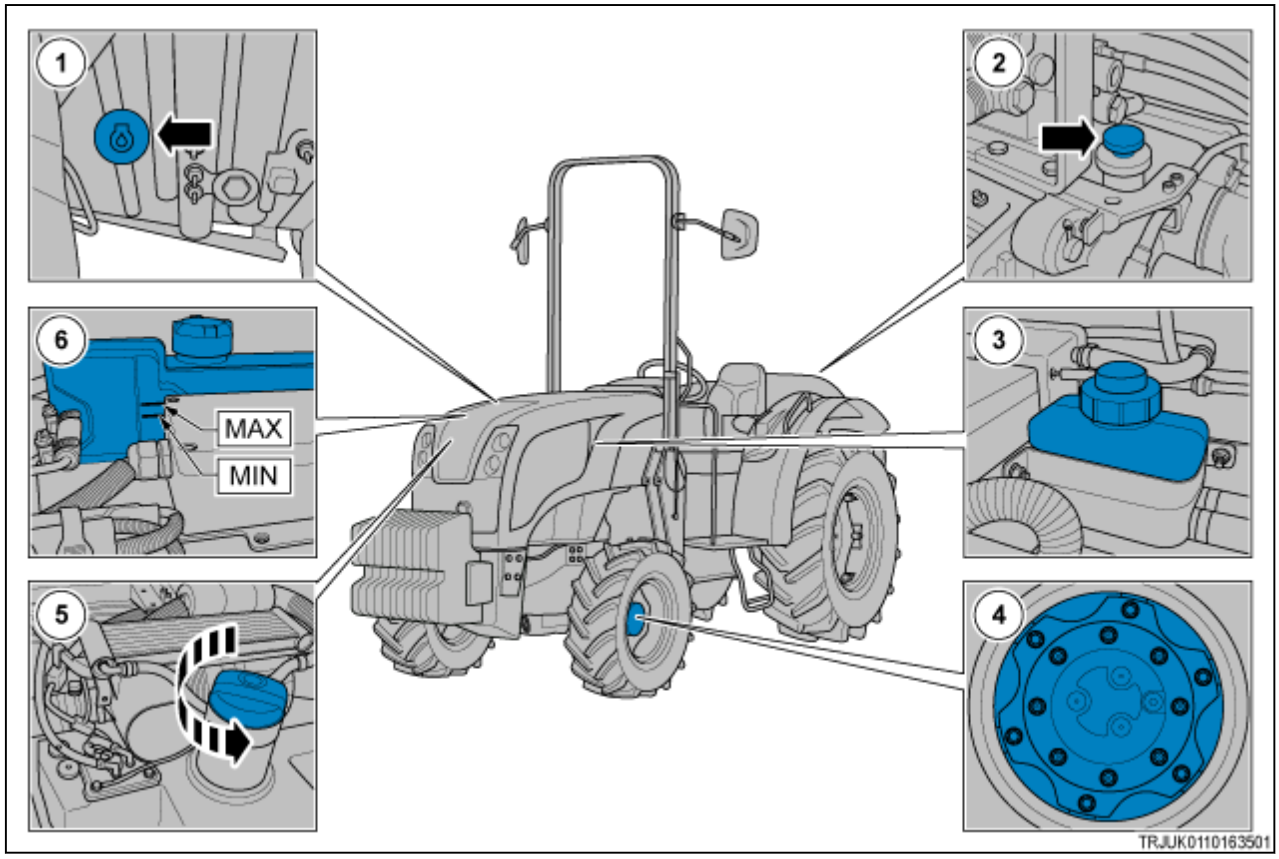


Fig. 17

Number	System	Standard
(1)	Engine oil	9.5 l + 1.4 l
(2)	Transmission and hydraulic systems	41 l + 45 l
(3)	Brake system	0.5 l
(4)	Final drives	0.6 l +/- 15 % for each final drive
	Front axle differential	3.5 l +/- 0.3 l
(5)	Fuel tank	75 l + 30 l
(6)	Cooling system	10 l

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6 Troubleshooting

6.1 Fault code list 241

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6.1 Fault code list

Fault code	Description
E001	Foot Throttle Sensor is Out of Range (Positive or negative characteristic)
E002	Difference between Positive and Negative characteristic is Out of Range
E004	Hand Throttle Sensor is Out of Range (Positive or negative characteristic)
E005	Difference between Positive and Negative characteristic is Out of Range
E007	Inconsistent values of Right or Left Pedal Brake Sensor
E008	4WD Switch short circuit to Vbatt or stuck
E009	Pressure Switch signal on 4WD pipeline not correct at engine OFF
E010	Pressure Switch signal on 4WD pipeline not correct at engine ON (rpm > 700)
E011	Diff-Lock Switch short circuit to Vbatt or stuck
E012	Pressure Switch signal on Diff-Lock pipeline not correct at engine OFF
E013	Pressure Switch signal on Diff-Lock pipeline not correct at engine ON (rpm > 700)
E014	Cruise Control SET Switch short circuit to GND or stuck
E015	Cruise Control UP Switch short circuit to GND or stuck
E016	Cruise Control DOWN Switch short circuit to GND or stuck
E020	The Feedback of the PTO Safety Valve is negative
E021	The Feedback of the PTO Main Valve is negative
E022	Base control function call period not correct
E023	Inconsistent values of PTO Switch Sensor
E024	Gear 540 Engaged signal under threshold
E025	Gear 540 Engaged signal inconsistent
E026	Gear 540 Engaged signal over threshold
E027	Gear 2ND Engaged signal under threshold
E028	Gear 2ND Engaged signal inconsistent
E029	Gear 2ND Engaged signal over threshold
E030	Engaged Gear Speed detection failure
E031	Direct Mode Engaged signal under threshold
E032	Direct Mode Engaged signal inconsistent
E033	Direct Mode Engaged signal over threshold
E034	GD Mode Engaged signal under threshold
E035	GD Mode Engaged signal inconsistent
E036	GD Mode Engaged signal over threshold
E037	Engaged Mode detection failure
E041	PTO pressure switch open signal failure
E042	PTO pressure switch closed signal failure
E043	PTO Safety Valve stuck open

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Fault code	Description
E044	PTO Main Valve stuck open
E045	PTO Clutch low pressure
E046	PTO Output Shaft Speed signal failure
E047	Cruise Control SET2 Switch short circuit to GND or stuck
E141	EEPROM corrupted
E142	MMC to SMC communication error
E143	MMC and SMC SW version are different
E144	MMC dead or not responding
E145	Error on CAN BUS
E148	4WD Steering Switch short circuit to Vbatt or stuck
E150	4WD Steering Angle Out of Range
E152	Front PTO HSD Feedback error
E154	Wheel Speed Sensor Out of Range

Transmission Control Unit

Error Code	Description
E060	Transmission Electronic Control Unit internal failure
E061	Transmission Electronic Control Unit internal failure
E062	Historical data replaced corrupted
E063	FLASH MEMORY calibration parameters corruption
E064	FLASH MEMORY writing failure
E065	Can bus physical support or communication failure
E066	Transmission Electronic Control Unit supply voltage is under 9V
E067	Transmission Electronic Control Unit supply voltage is over 16V
E068	Sensor supply voltage is under 4.5V
E069	Sensor supply voltage is over 5.5V
E070	Overcurrent detected on Forward Low Clutch
E071	Overcurrent detected on Forward High or Reverse clutch
E072	Overcurrent detected on main ring valve HS supply pin
E073	All outputs overcurrent
E074	FNR Lever is applying Forward and Reverse signals simultaneously to Transmission Electronic Control Unit
E075	FNR Lever is applying Forward and Neutral signals simultaneously to Transmission Electronic Control Unit
E076	FNR Lever is applying Neutral and Reverse signals simultaneously to Transmission Electronic Control Unit
E077	FNR Lever is applying simultaneously Forward, Neutral and Reverse signals to Transmission Electronic Control Unit

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Error Code	Description
E078	PWM benches supplied with FNR lever in Neutral position or clutch pedal completely pressed
E080	Clutch pedal angular sensor output voltage is too high.
E081	Clutch pedal angular sensor output voltage is too low
E082	Clutch pedal angular sensor signal is under stroke minimum value (lower than 100 dgt)
E083	Clutch pedal angular sensor signal is over stroke maximum value (higher than 990 digit)
E084	Clutch pedal angular sensor and switch signals are not consistent (switch pressed signal at stroke over 20% or switch not pressed signal at 0% of stroke)
E085	Differential pressure presence detected without engine being on
E086	Differential pressure detected on filter with engine on and oil temperature over 20°C
E087	Main ring line low pressure (less than 7 bar)
E088	Clutches main ring pressure presence detected without engine being on
E089	Clutches main ring pressure presence detected without valve being powered and engine on
E090	Oil temperature is under –20 °C
E091	Oil temperature is over 120 °C
E092	Oil temperature sensor signal too high
E093	Oil temperature sensor signal too low
E094	Forward High clutch valve coil no current feedback with command
E155	Forward high clutch - high current
E095	Forward High clutch valve coil current feedback detected when valve is not supplied
E096	Forward High clutch valve coil difference between measured and reference current
E097	Forward Low clutch valve coil no current feedback with command
E156	Forward low clutch - high current
E098	Forward Low clutch valve coil current feedback detected when valve is not supplied
E099	Forward Low clutch valve coil difference between measured and reference current
E100	Reverse clutch valve coil no current feedback with command
E157	Reverse clutch - high current
E101	Reverse clutch valve coil current feedback detected when valve is not supplied
E102	Reverse clutch valve coil difference between measured and reference current
E103	Forward High clutch pressure sensor signal over maximum value (higher than 940 digit)
E104	Forward High clutch pressure sensor signal under minimum value (lower than 40 digit)
E105	Forward High clutch pressure lower than 0.250 bar when pressure requested
E106	Forward High clutch pressure over 0.9 bar when clutch is not activated
E107	Forward High clutch pressure reference and measure differ of 0.5 bar

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Error Code	Description
E108	Forward High clutch proportional valve PI characteristic out of nominal ranges (150 mA)
E109	Forward Low clutch pressure sensor signal over maximum value (higher than 940 digit)
E110	Forward Low clutch pressure sensor signal under minimum value (lower than 40 digit)
E111	Forward Low clutch pressure lower than 0.250 bar when pressure requested
E112	Forward Low clutch pressure over 0.9 bar when clutch is not activated
E113	Forward Low clutch pressure reference and measure differ of 0.5 bar
E114	Forward Low clutch proportional valve PI characteristic out of nominal ranges (150 mA)
E115	Reverse clutch pressure sensor signal over maximum value (higher than 940 digit)
E116	Reverse clutch pressure sensor signal under minimum value (lower than 40 digit)
E117	Reverse clutch pressure lower than 0.250 bar when pressure requested
E118	Reverse clutch pressure over 0.9 bar when clutch is not activated
E119	Reverse clutch pressure reference and measure differ of 0.5 bar
E120	Reverse clutch proportional valve PI characteristic out of nominal ranges (150 mA)
E121	Forward High clutch unexpected slipping
E122	Forward Low clutch unexpected slipping
E123	Reverse clutch unexpected slipping
E124	Clutches output speed sensor failure
E125	Clutches output speed sensor sign failure
E126	Transmission Electronic Control Unit internal failure
E127	Transmission Electronic Control Unit internal failure
E128	Transmission Electronic Control Unit internal failure
E129	First calibration not performed
E130	Can bus physical support or communication failure
E131	Can bus physical support or communication failure
E132	Can bus physical support or communication failure
E133	Overcurrent detected on main ring valve LS pin
E134	Engine EEC1 message timeout
E135	Vehicle ECU message CAN timeout
E136	Forward High clutch long time slipping
E137	Reverse clutch long time slipping
E138	Absence of electrical signal from FNR lever
E139	Comfort control command failure
E140	Forward Low clutch long time slipping
FNR	Lever engaged without driver presence
No driver	Driver presence seat switch not pressed

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