LS Tractor

OPERATOR'S MANUAL

MT774 • MT7101

LS Tractor

CONTENTS

1. General Notices for Safety

2. Instruction for Safe Operation

CONTENTS

CONTENTS

CONTENTS

CONTENTS

CONTENTS

1. General Notices for Safety

1-1. Note to the owner – General information

Operator's manual

Please have all operators read this manual carefully and keep this manual available for ready reference. Read this manual to make sure that you have a complete understanding of how to operate this tractor safely, correctly, and for the most effective performance of the tractor.

NOTE: *This operator's manual may be available in other languages; see your authorized local dealer for ordering.*

This manual contains important information concerning the adjustment and maintenance of your new equipment.

NOTE: *Some images of the tractor in this manual may differ slightly in some detail. Any variations will be similar enough for you to understand the information or instructions.*

Throughout this operator's manual, references to the right-hand and left-hand sides of the tractor are determined by facing the forward operating direction of travel.

This is the safety alert symbol. The safety alert symbol alerts you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible death or injury.

Warning	▶ **Illustrations in this manual may show protective shielding open or removed to better illustrate a particular feature or adjustment.** **Replace all shields before operating the tractor.** **Failure to comply could result in death or serious injury.**

◆ Safety Mark Description

- In the places where the cautions in usage are required, the marks such as "**DANGER", "WARNING", "CAUTION"** are found.
- You should comply with the description marked on the decals attached to the product or the contents marked with safety mark in this Operator's Manual.

Danger	**Danger** - This indicates an imminently fatal dangerous situation that may cause a serious injury or death if not avoided.
Warning	**Warning -** This indicates a potentially dangerous situation that may cause a serious injury or death if not avoided.
Caution	**Caution -** This indicates a potentially dangerous situation that may cause a light injury or damage to the property if not avoided.
Notice	**Notice -** This indicates the instructions for right use for the safety of persons or products.

Your authorized local dealer and service

Your authorized local dealer has performed a pre-delivery setup, inspection, and testing to make sure that your tractor operates at its best performance level.

Your authorized local dealer will instruct you in the general operation of your new equipment. Your dealer's staff of factory-trained service technicians will be glad to answer any questions that may arise regarding the operation of your tractor.

Your authorized local dealer carries a complete line of genuine service parts. These parts are manufactured and carefully inspected to ensure high quality and accurate fitting of any necessary replacement parts. Be prepared to give your dealer the model and product identification number of your new equipment when ordering parts. Locate these numbers now and record them below. Refer to the 'General Information' section of this manual for the location of the model and product identification numbers of your tractor.

ATTENTION: *The engine and fuel system on your tractor is designed and built to government emission standards. Tampering by dealers, customers, operators, and end users is strictly prohibited by law. Failure to comply could result in government fines, rework charges, invalid warranty, legal action, and possible confiscation of the tractor until rework to original condition is completed. Engine service and/or repairs must be done by a certified technician only!*

Improvements

We are continually striving to improve its products. We reserve the right to make improvements or changes when improvements or changes become practical and possible to do so, without incurring any obligation to make changes or additions to the equipment sold previously.

(1) Before using the tractor

※ Must read and understand this operator's manual carefully and always refer to information and prescriptions outlined in this manual to prevent all potential health and safety risks.

◆ General information for intended use

- Your tractor is designed and manufactured to pull, to carry, to supply the power to a variety of mounted or towed equipment **for agriculture**. Do not use the product for other purposes than intended by the manufacturer and outlined in this manual. Do not use this tractor for light/heavy forestry applications.
- Do not use the product beyond its **limits of terrain gradient** and stability than outlined in this manual. Using the tractor beyond these limits may cause an overturning accident.
- Do not use the tractor on higher speeds than allowed by the load of the tractor and road condition. Always choose **a suitable driving speed** to maintain the stability of the tractor.
- Do not use the tractor **near or on soft verges** of canals and brooks or banks and verges that are undermined by rodents. The tractor may sink sideways and roll-over.
- Do not use the tractor on brittle bridge heads and poor bridge floors. These constructions may collapse and cause overturning of the tractor. **Always check out the condition and carrying capacity of bridges and ramps** prior to engage.
- **Do not use the tractor without wearing the seat belt and Roll-Over Protective Structure (ROPS)** during operations where roll-over or tip-over hazards exist. The ROPS will only be fully effective when the driver remains attached to his/her seat.
- Do not use equipment mounted on the tractor which is not **correctly matching and firmly fixed**. Such equipment may increase the risk for roll-over and hit the tractor when coming loose.
- Do not use the tractor in combination with equipment arbitrarily, without **having consulted the specific operator's manual provided with the equipment**. This manual alone cannot provide you with all the information about safety operation of the combination.
- Do not use the tractor beyond its **limits of dynamic stability**. High speed, abrupt maneuvers, and fast and short cornering will increase the risk of roll-over.
- Do not use the tractor for **overloaded pulling work**, in cases where you don't know if the load will yield, for instance when pulling stumps. The tractor may flip over when the stump is not yielding.
- Be extremely cautious when working with the tractor **on forage silos without lateral concrete walls**. A wide track setting may improve the lateral stability of the tractor.
- Be cautious that the **center of gravity of the tractor may increase** when the front-end loader is loaded or the three-point linkage is raised. In these conditions, the tractor may roll-over earlier than expected.
- **Do not step down from the tractor without shutting down the PTO, shifting the transmission to neutral and applying the parking brake.**

- **Never remove or modify or change** the driver's protection device or safety device arbitrarily. *Any unauthorized modifications made to this tractor can have serious consequences. Consult an authorized dealer on changes, additions, or modifications that may be required for this tractor. Do not make any unauthorized modifications*.
- You must take the necessary precautions to always be **aware of the possible presence of bystanders**, certainly when maneuvering in confined areas. Keep people away from the tractor during work. Pay the necessary attention while operating next to public roads or footpaths. Thrown objects can get projected outside the field and hit unprotected people like bikers or pedestrians. Wait until it is clear of bystanders.
- Do not violate the **local traffic rules** related to public roads and highways.
- **Do not allow riders** on the tractor; do not allow people to stand on the access way or step to the cab when the tractor is moving. Your view to the left will be obstructed and a rider risks to fall from the tractor during unforeseen or abrupt movements.
- **This tractor has only one operator station** and is a one man operated vehicle. Other people on or around the tractor during normal operation are not allowed.
- Always stay clear from implements operating area and especially **do not stand between tractor and trailed vehicle either three-point linkage when operating lift controls**; ensure no bystanders are near these operating areas.
- This tractor may be equipped with a number of sensors to control safety functions. **Do not attempt to bypass any function** on the tractor. You will be exposed to serious hazards, and moreover, the behavior of the tractor may become unpredictable.
- The manufacturer will not be responsible for the damage or safety problems caused by maintenance or repair with non-genuine parts. It must be requested to **use the genuine parts**.
- When cleaning the tractor by using high pressurized water, **do not inject water directly to the electronic parts, wiring, air intake pipe, hot engine or muffler** inside the bonnet.
- Maintenance and repair of the tractor is performed by **skilled technical experts with the proper tools** authorized by the manufacturer.
- Pay attention to **overhead power lines and hanging obstacles**. High voltage lines may require significant clearance for safety.
- Do not operate the tractor during an **electrical storm. (Lightening strikes)**
- For damage or accidents caused by misuse or operation in violation of these rules, the manufacturer and its distributors **will not have any responsibility and warranty**.
- **Keep this operator's manual** for future reference at hand (on the tractor).

(2) Manual scope and required training level

Introduction to this manual

This manual gives information about the use of your tractor as intended and under the conditions foreseen by manufacturer during normal operation, routine service, and maintenance.

This manual does not contain all the information that relates to periodic service, conversions, and repairs that only trained service personnel can perform. Some of these activities may require appropriate facilities, technical skills, and/or tools that manufacturer does not supply with the tractor.

The manual contains the chapters as shown on the Contents pages.

Normal operation

Normal operation consists of the use of this tractor for the purpose manufacturer intends by an operator that:

- Is familiar with the tractor and any mounted equipment or towed equipment.
- Complies with the information on operation and safe practices as specified by manufacturer in this manual and by the signs on the tractor.

Normal operation includes:

- Preparation and storage of the tractor.
- Addition and removal of ballast.
- Connection and disconnection of mounted equipment and/or towed equipment.
- Adjustment and configuration of the tractor and equipment for the specific conditions of the job site, field, and/or crop.
- Movement of components into and out of working positions.

Routine service and maintenance

Routine service and maintenance consists of the daily activities necessary to maintain the proper tractor function. The operator must:

- Be familiar with the tractor characteristics.
- Comply with the information on routine service and safe practices as specified by manufacturer in this manual and by the signs on the tractor.

Routine service can include:

- Fueling
- Cleaning
- Washing
- Topping up fluid levels
- Greasing
- Replacing consumable items such as light bulbs

Periodic service, conversions, and repairs

Periodic service consists of activities that are necessary to maintain the expected life of your tractor. These activities have defined intervals.

Trained service personnel familiar with the tractor characteristics must perform these activities at the defined intervals. Trained service personnel must comply with the information on periodic service and safe practices as partly specified by manufacturer in this manual and/or other company literature.

Periodic service includes:

- Oil change service for the engine, hydraulic circuits, or transmission.
- Periodic exchange of other substances or components as required.

Conversion activities rebuild your tractor in a configuration that is appropriate for a specific job site, crop, and/or soil conditions (e.g., installation of dual wheels). Conversion activities must be done:

- By trained service personnel familiar with the tractor characteristics.
- By trained service personnel that comply with the information on conversion as partly specified by manufacturer in this manual, assembly instructions, and/or other company literature.

Repair activities restore proper function to your tractor after a failure or degradation of performance. Dismantling activities occur during the scrapping and/or dismantling of the tractor.

Trained service personnel familiar with the tractor characteristics must perform these activities. Trained service personnel must comply with the information for repair as specified by manufacturer in the service manual.

Before you operate

Read this manual before you start the engine or operate this tractor. Contact your authorized local dealer if:

- You do not understand any information in this manual.
- You need more information.
- You need assistance.

All persons training to operate, or who will operate this tractor should be old enough to possess a valid local vehicle operating permit (or meet other applicable local age requirements). These persons must demonstrate the ability to operate and service the tractor in a correct and safe manner.

(3) Metric and Imperial units abbreviations

	Metric unit		Imperial unit	
	Name	**Symbol**	**Name**	**Symbol**
Area	Square meter	m^2	Square foot	ft^2
	Square centimeter	cm^2	Square inch	in^2
	Square millimeter	mm^2	Square inch	in^2
Electricity	ampere	A	ampere	A
	volt	V	volt	V
Force	kilonewton	kN	pound	lb
	newton	N	pound	lb
Frequency	megahertz	MHz	megahertz	MHz
	Kilohertz	kHz	Kilohertz	kHz
	hertz	Hz	hertz	Hz
Rotational frequency	Revolution per minute	rpm	Revolution per minute	rpm
Length	kilometer	Km	mile	mi
	meter	m	foot	ft
	centimeter	cm	inch	in
	millimeter	mm	inch	in
Mass	kilogram	kg	pound	lb
	gram	g	ounce	oz
Power	kilowatt	kW	horsepower	Hp or ps
	watt	W	Btu per hour Btu per minute	Btu/hr Btu/min
Pressure or stress (Force per area)	kilopascal	kPa	Pound per square inch	psi
	megapascal	MPa	Pound per square inch	psi
	bar	bar	Pound per square inch	psi
	Kilogram per square centimeter	Kg/cm^2	Pound per square inch	psi
Temperature	Degrees Celsius	°C	Degrees Fahrenheit	°F

	Metric unit		Imperial unit	
	Name	**Symbol**	**Name**	**Symbol**
Time	hour	hr	hour	hr
	minute	min	minute	min
	second	s	second	s
Torque	Newton meter	N.m	Pound foot	lb.ft
	Kilogram meter	Kg.m	Pound foot	lb.ft
Velocity	kilometer per hour	km/h	mile per hour	mph
	meter per second	m/s	foot per second	ft/s
Volume	Cubic meter	m^3	Cubic yard	yd^3
	liter	L	Cubic inch	in^3
	liter	L	US gallon	US gal
	cc	cc	Cubic inch	in^3
Volume per time (flow rate)	Liter per minute	L/min	US gallon per minute	US gal/min
Sound pressure level	decibel	dB	decibel	dB

Glossary

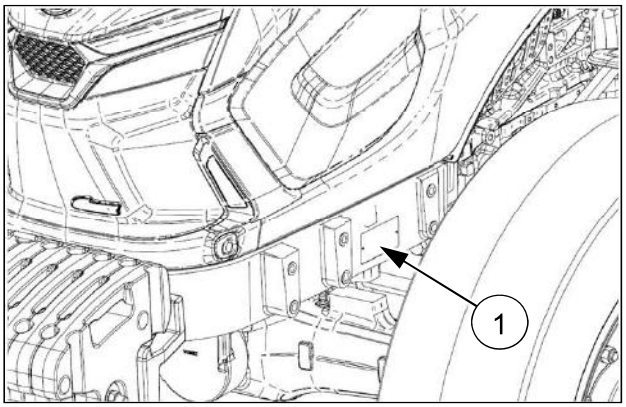
Acronym	Definition
MEC	Synchro shuttle transmission
HST	Hydrostatic transmission
PST	Power shuttle transmission
SPS	Semi-power shift transmission
MHL	Mechanical Hydraulic Lift
EHL	Electro-Hydraulic Lift
DEF	Diesel Exhaust Fluid
DPF	Diesel Particle Filter
ISO	International Organization for Standardization
MSDS	Material Safety Data Sheet
NOx	Nitrogen Oxide
PPE	Personal Protective Equipment
SCR	Selective Catalytic Reduction
<	Less than
>	Greater than

(4) Product Identification Number (PIN)

The tractor and major components are identified with Product Identification Number (PIN) plates. You should supply the PIN plate data to your authorized local dealer when requesting parts or service, and also to identify the tractor in case of theft.

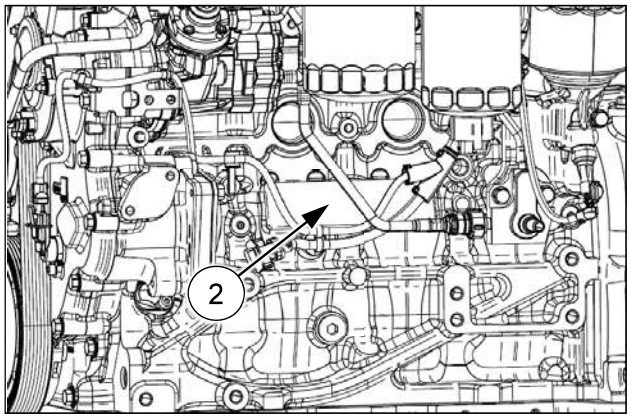
① Product Identification Number (PIN) plate

- The tractor PIN Plate① is located on the left-hand side of the engine frame.
- This may vary depending on the market.



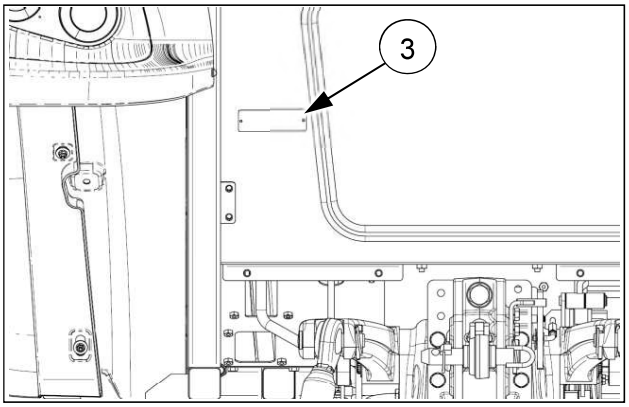
② Engine Product Identification Number (PIN) plate

- The engine PIN plate② is located on the left-hand side of the engine block.



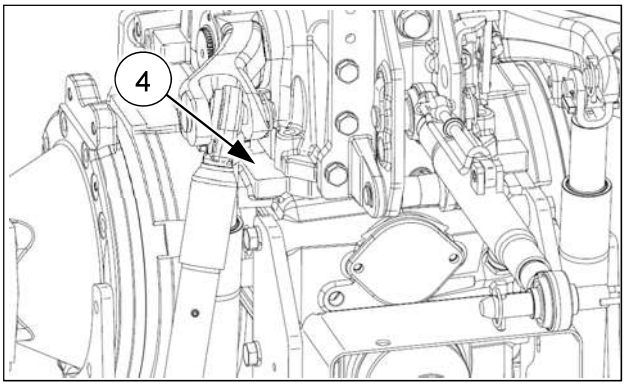
③ Roll Over Protective Structure (ROPS) Product Identification Number (PIN)

- The Roll Over Protective Structure (ROPS) PIN plate③ is located on the left-hand side of the cabin rear steel plate for cabin models, and on the right-hand side of the ROPS cross bracket behind the driver's station for roll-bar models.
- This may vary depending on the market.



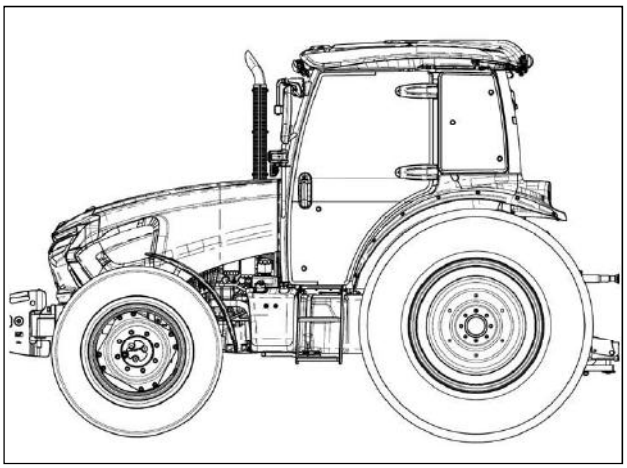
④ TM number and Running hours

- In case of requesting service or parts from your dealer, the dealer may ask you to provide the TM number④ and/or running hours⑤ displayed on the instrument panel.

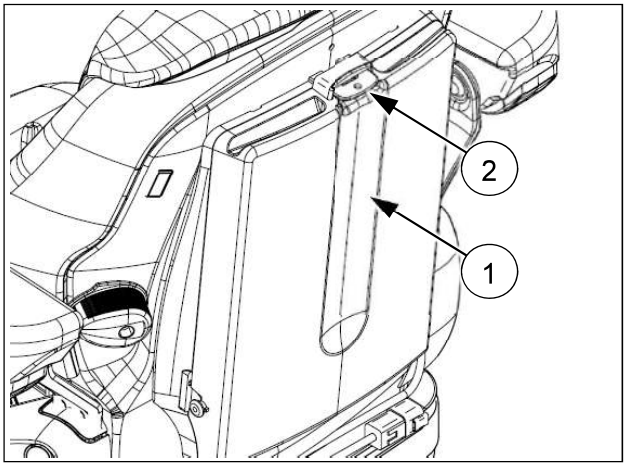


(5) Operator's manual storage

- The operator’s manual must be stored in a secure place prior to operation and it must be kept available for use by all operators.

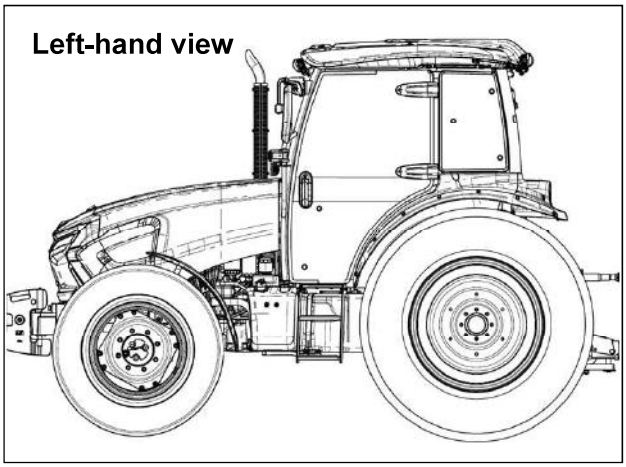


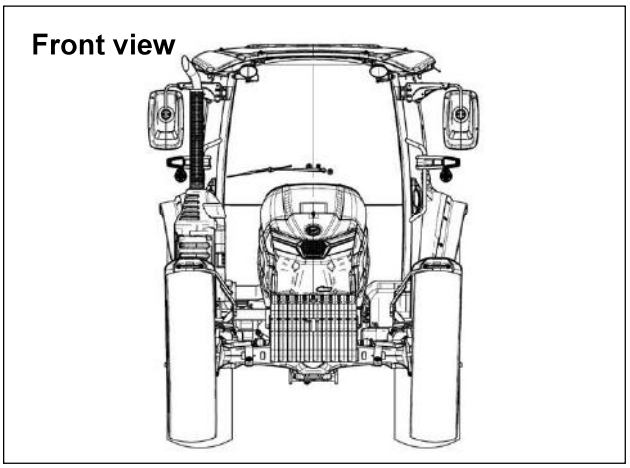
- Depending on the driver’s seat, manual storage box is installed on the rear side of the driver’s seat. To open the box, lift up the latch② and open the cover① rearward.

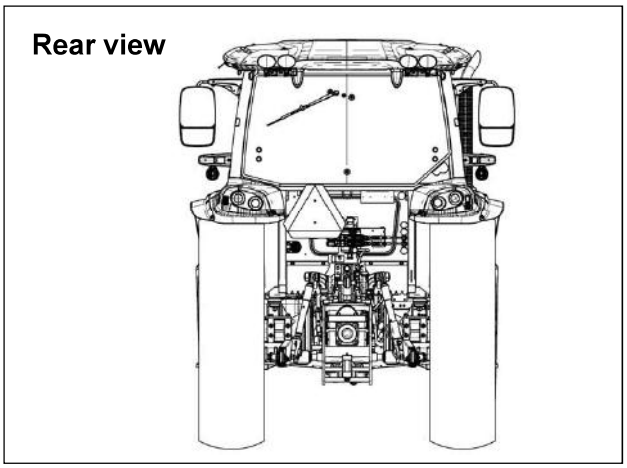


(6) Tractor orientation

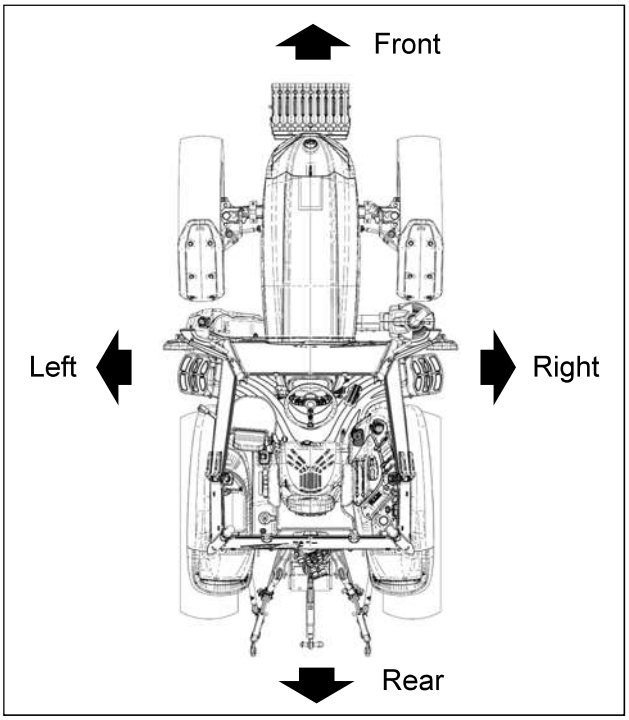
NOTE: *On this equipment, left-hand and right-hand are determined by standing behind the unit, looking in the direction of travel.*







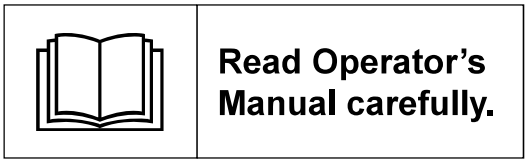
When reading this Operator's Manual, refer to the right figure for the discrimination of the directions.



1-2. Safety Precautions - read this for safety before using.

(1) Notices before using the tractor

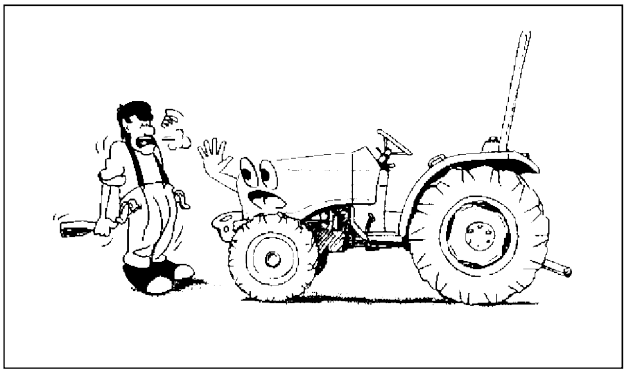
- **For Safety operation :** Before using this tractor, read carefully and understand this operator's manual and operator's manual of the mounted or trailed machinery on this tractor, and strictly follow the instructions outlined in the operator's manuals.



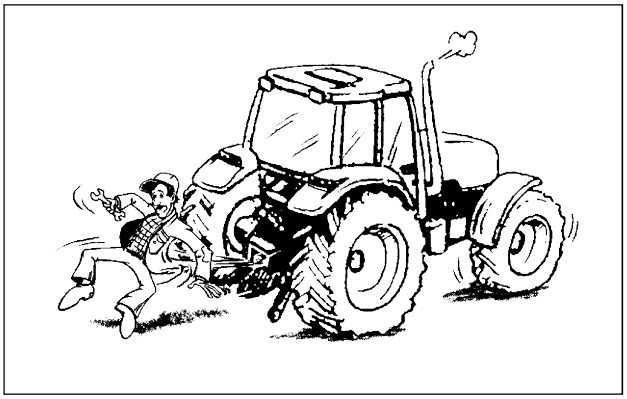
Especially, special cares must be taken for using the tractor in the places where the safety signs such as Danger, Warning, Caution etc. are marked. *(See page 1-1)*

- **Safety Decals :** For right use and personal safety of the operator, the safety decals are attached to the parts related with safety operation. Before using the tractor, comply with the safety instructions. (*For further information, refer to the chapter 1-2-(14). "Safety Decals" in this manual.*)

- **Operator's condition :** The persons such as patients, drunks, people on drugs, etc. are never allowed to operate this tractor.
  Only educated operators should use the tractor after learning the usage of controls for moving, stopping, turning and other operating.



- **Suitable Clothes & Protect Entanglement :** When checking or operating the tractor, wear tight fitting clothes and safety equipment instead of loose or long clothes. Also, slippers, high heel shoes are not suitable for operation. Wear the low shoes or work shoes or boots.



Warning 	▶ Do not approach the rotating shaft such as PTO shaft or cooling fan, especially, with loose clothing and long clothes. The entanglement in rotating shaft can cause serious injury or death. ▶ Stop the engine and be sure PTO shaft is stopped before getting near it.

- **Keep Riders off :** Riders on the tractor or implements obstruct the operator's view and can be thrown off the tractor. It can cause a serious injury or death. Riders should not be carried on the tractor at any time.

Warning	▶ Additional seat (where fitted) is used for driver training or instruction. Do not permit anyone to ride on the tractor.

● **Protect Children :** Pay special attention to children (or a child) while using the tractor or during storage.
- Make sure children keep a safe distance from the tractor and all implements before using the tractor. Be alert to the presence of children.
- Do not let children or an untrained person operate the tractor.
- Do not allow children to approach the tractor while the engine is running.
- When parking the tractor, remove the ignition key and lower implements to the ground for children's safety.

⚠Warning	▶ As children are very curious, they may do unexpected movements or actions. Special care must be taken when operating tractor or equipment.

● **Periodical Check :** "Lubrication and Maintenance" must be performed periodically. If necessary, do it immediately and if not, it may cause a failure, reduction of product life or physical injury.

** Periodic Lubrication and Maintenance*
Fuel, Oil, Filter, Air cleaner, Battery, Belt, Cable, Grease, Pedals such as clutch(Mechanical models only) and brake pedal, Tire air pressure, Wheel bolts, Toe-in, Electrical wirings, other items related to safety.

● **Genuine Parts :** When replacing parts, you must use "Genuine Parts" of the tractor. Contact your authorized local dealer. If not, it may cause a failure, reduction of product life or serious injury.

● **Restrict Maintenance :** If repairing or changing some components or settings arbitrarily, the performance of the tractor cannot be guaranteed, and may void the warranty. And also, maintenance of the heavy weighted parts without special tools may cause serious injury. These works should be treated by well-educated and skilled service experts.
If required to check or repair the tractor due to such a trouble, or having any question about your tractor, contact your authorized local dealer.

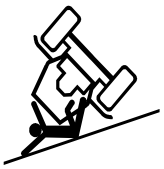
** The items that are not allowed to be modified or removed arbitrarily by user are as below :*
- Protection structures such as PTO cover, Guards, Safety frame(Roll-bar), Cab, etc.
- Engine components, Fuel injection control and setting, etc.
- Automatic control equipment, Lamps, Transmission, Hydraulic valve and pressure settings.
- Other parts that detail and where complicated adjustments are needed.

● **Lamps :** Do not modify the lamps or change the bulb capacity arbitrarily.

⚠Warning	▶ Modified lamps or changed bulb capacity may cause a traffic accident by distracting approaching driver's views. ▶ If the lamp is blown out, replace it immediately with a genuine part. In case of driving at night, it may cause a traffic accident.

- **Protective Structures :** For the operator's safety, various protective structures, i.e. Bonnet (Hood), Fan cover, PTO safety cover, PTO shaft protection cap, Roll-bar or another Roll-over Protective Structure, etc. are attached on the tractor. If these structures are modified or removed by user arbitrarily, it may cause a serious accident. Such behaviors are prohibited strictly.

Warning	▶ The Protective Structure and interconnecting components are a certified system. Any damage, fire, corrosion or modification will weaken the structure and reduce your protection. If this occurs, the Protective Structure MUST be replaced with a new one. Contact your authorized local dealer for Protective Structure inspection and replacement. ▶ In case of an accident, fire, tip or roll-over, the following MUST be performed by a qualified technician before operating the tractor again. - The Protective Structure MUST be replaced. - The mounting or suspension for the Protective Structure , operator seat and suspension, seat belt and mounting components and wiring within the operator's protective system MUST be carefully inspected for damage. - All damaged parts MUST be replaced. ▶ **DO NOT attach any device to the Protective Structure for pulling purposes.** ▶ **DO NOT weld, drill holes, attempt to straighten or repair the protective structure. The modification can reduce the structural integrity of the structure which can cause death or serious injury in the event of fire, tip, roll over, collision or accident and void the warranty.**



- **Level of protection of the FOPS (Falling Objects Protective Structure) :**
  - For cabin model, it provides protection against falling objects **according to OECD code 10 standard**. The energy level of drop test is 1365 J. But it does not mean that the cabin provide full protection against all the falling objects in the work field.
  - For roll-bar model, it does **NOT** provide any protection against falling objects. It is recommended to use a certified FOPS structure when working with front-end loaders.

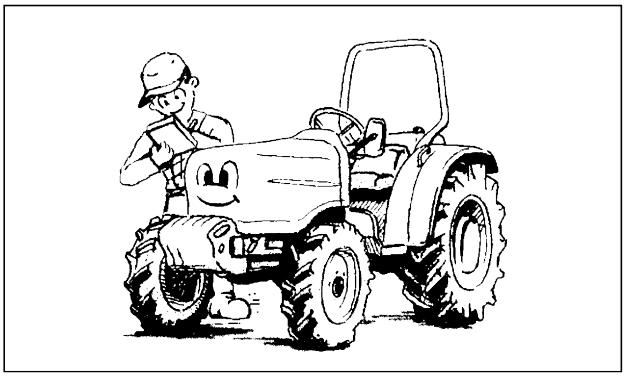
- **Level of protection against hazardous substances :**
  - For cabin model of this tractor, it provides protection against hazardous substances **according to EN15695-1:2009 (Category 2).** But it can provide only dust protection level by pressurizing air in the cabin with air filters. Do not use the tractor with crop sprayers in chemical hazardous area.
  - For roll-bar model, it does **NOT** provide any protection against hazardous substances. Do not use the tractor with crop sprayers in hazardous area.

- When using the agricultural tractor with crop sprayers, the following hazards exist:
  • Risks due to spraying hazardous substances with a tractor (fitted with a cab or not).
  • Risks related to entering or exiting the cab(if fitted) during the application of hazardous substances.
  • Risks related to the possible contamination of the operating environment.
  • Risks related to cleaning the cab and maintaining the air filters (if fitted).
  For protection against hazardous dust, aerosols, and vapors, see the instructions provided by the chemical agent supplier, the sprayer manufacturer, and the basic rules contained in this manual. Always use the Personal Protective Equipment (PPE) and any other special devices as instructed by the chemical supplier's instructions during spraying operations.

- **Level of protection of the OPS (Operators Protection Structure) :** This tractor does **NOT** provide protection against
  - falling objects, such as branches, logs or tree limbs, low hanging wires in the forest, orchard or construction area.
  - toppling trees, primarily in case a rear-mounted tree grab-crane is mounted at the rear of the tractor.
  - penetrating objects in the operator's enclosure, primarily in case a winch is mounted at the rear of the tractor.
  - steep slope or rough terrain working conditions.
  - potential risks by using any optional equipment that might be available to deal with those hazards.

  Your tractor is NOT EQUIPPED FOR FORESTRY APPLICATIONS. **NEVER enter or operate in these hazardous areas without a certified Operator Protective Structure installed.**

(2) Notices when starting Engine



- Check each part with reference of “5. Lubrication and Maintenance” in this manual. If necessary, repair or replace it immediately. **Especially, check if safety protection structures or covers are attached originally and the bolts and nuts are tightened well.**
- Before starting, **check again if there are other workers or children around the tractor and implements and keep a safe distance.**
- Start engine and operate the tractor **after sitting on the driver’s seat** with a securely fastened seat belt.
- Place the shuttle lever, transmission gear lever in NEUTRAL and especially check if parking brake is applied.
- Lower the implements on the ground.
- Ensure that rear view mirrors and the other mirrors (if fitted) are adjusted correctly, and check the operation of the headlights and other lights.
- For driver’s safety, to prevent an unintentional start, movement and operation, several and various start-safety interlock devices may be equipped on your tractor. And, these installation may need to do correct operation and follow the procedure strictly. Read carefully chapter 4-2, “Engine start and stop” in this manual before trying to start engine.
- Do not short across the starter motor terminals to start engine. It may cause a sudden start and serious injury or death.

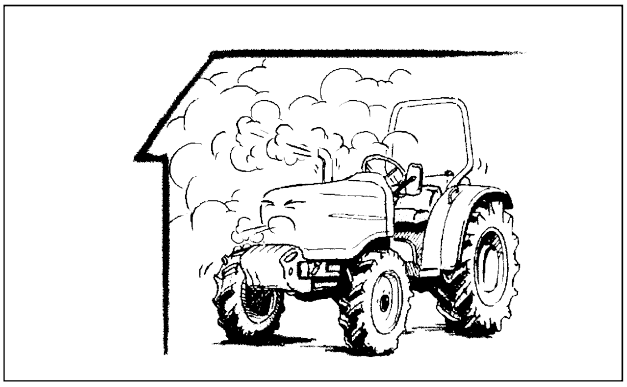
Starter motor

Warning	
	▶ Do not start the engine in a closed area. The poisonous exhaust gas can cause fatal damage to the driver or persons around.

(3) Notices while operating/using the tractor

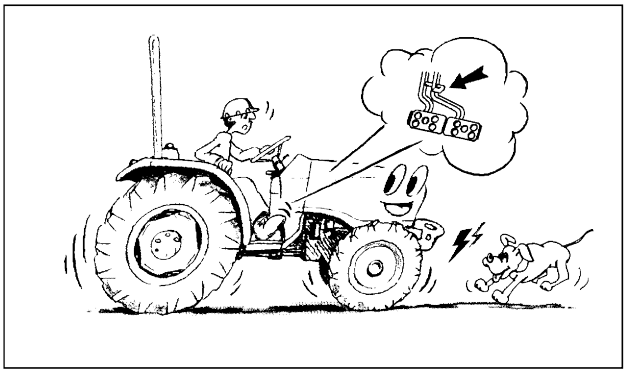
- **Ventilation**

Warning	▶It is very dangerous to work in a closed area. The poisonous exhaust gas may cause serious damage to the human body. If you should work in this area, make sure to ventilate well and put on the protective mask.

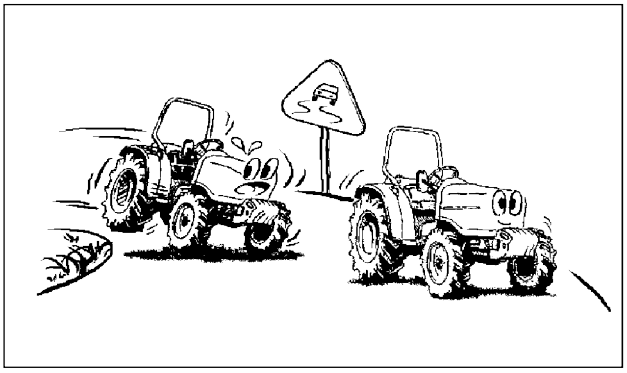


- **Noise and Vibration** : When working between buildings or in confined spaces, the sound pressure level can be increased. Wear suitable ear protectors in high noise level conditions. When working with equipment in the field, vibration intensity from equipment may be increased. To reduce the harm to the body, take a rest periodically.

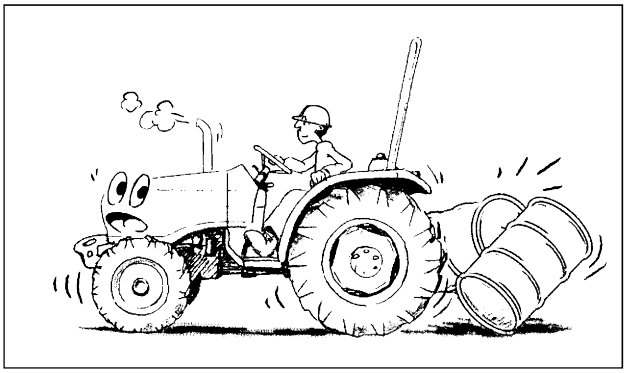
- Connect left and right brake pedal(s) while driving on the road. (if fitted)
- DO NOT use differential lock device while driving on the road or turning in the field.
- DO NOT ride your foot on the brake pedal(s) or clutch pedal.
- Do not jump up/down while tractor is moving. When getting on/off the tractor, use the grab rail and sub step to prevent falls.



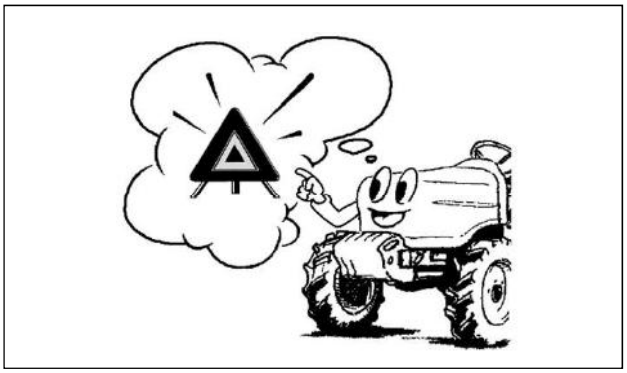
- Lower the driving speed enough before turning a sharp curve. Especially, when you drive the tractor with implements, make the turning radius wider.
- DO NOT start or stop the tractor suddenly. Engage the clutch and brake softly. If not, front wheels can be lifted up and it is very dangerous.
- While working, you must clean the spraying area, front/rear wheels, axles, mud guards and fenders regularly.



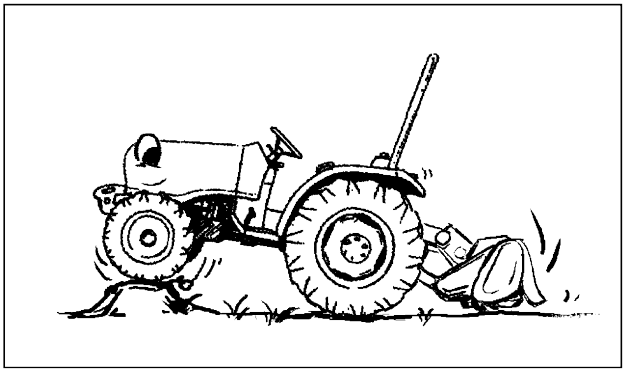
- When driving the tractor in reverse, lower the engine speed. Make sure to check if there is any obstacle or person in the rear.
- DO NOT permit other people and especially children approach within working area while operating tractor and equipment.



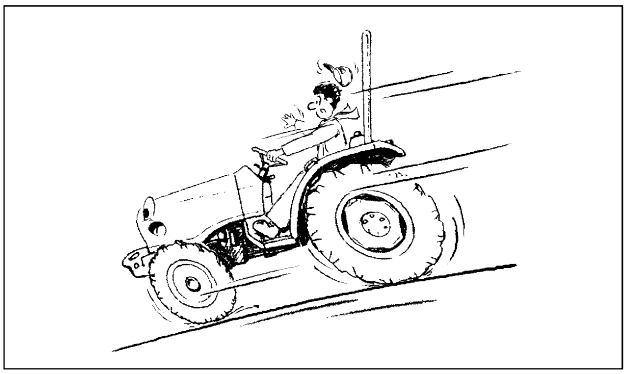
- Obey the traffic rules while driving on public roads. Do not exceed the local legal speed limit. Use a beacon or slow moving vehicle (SMV) to indicate that the vehicle is slow moving.
- If you cannot drive the tractor due to a failure, move the tractor to a safe place and install troubled vehicle (safety tripod).
  (Day : backward 100m (328 ft)
  Night : backward 200m (656 ft))



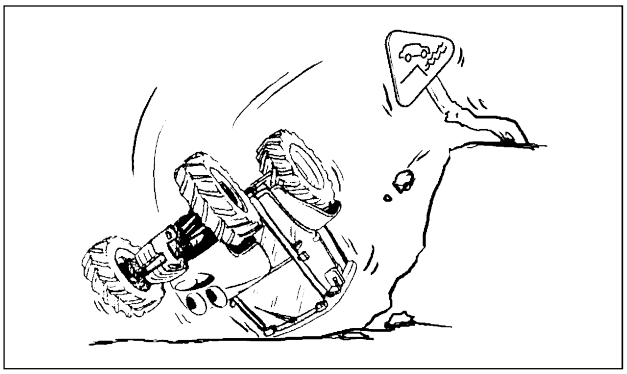
- Do not overuse the fuel, oil, etc. and pay attention not to contact the skin directly. Generally, these materials contain harmful materials to the human body. When you work in a area where hazardous chemicals are sprayed, check the cabin filter (if fitted) and replace the filter with suitable one for the purpose being used. To protect the body completely from these harmful materials, wear a safe protection equipment such as mask, and clean the body after working.
- When crossing a high ridge, let down the implement and go straight across the ridge at low speed.
- When connecting the implements to the front/rear of the tractor, install the proper additional weights in the rear/front of the tractor to keep the balance of the tractor.
- On a downhill, operate the throttle pedal and brake pedal slowly and DO NOT drive while the transmission gear is in NEUTRAL.



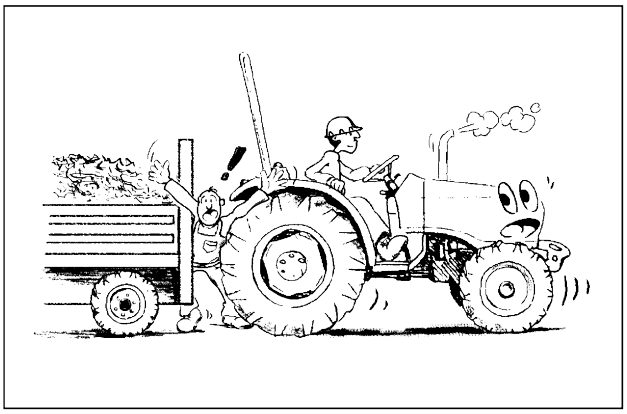
- *When working with a front/rear implement, be careful not to touch the overhead power lines and hanging obstacles.*
- *Do not operate the tractor during an electrical storm. (Lightening strikes)*



- To climb a steep slope, drive tractor slowly in reverse up the slope rather than forward. It is much safer.
- When turning tractor on a slope, the tractor can be overturned easily. Pay attention to the steering operation.
- When working at the edge of steep slope, especially, when using heavy attached implements, take special care about a turn-over.
- When working, wear the protection equipment and tighten the seat belt.
- If the authorized passenger seat is not installed, keep riders off.



(4) Notices when connecting Implement

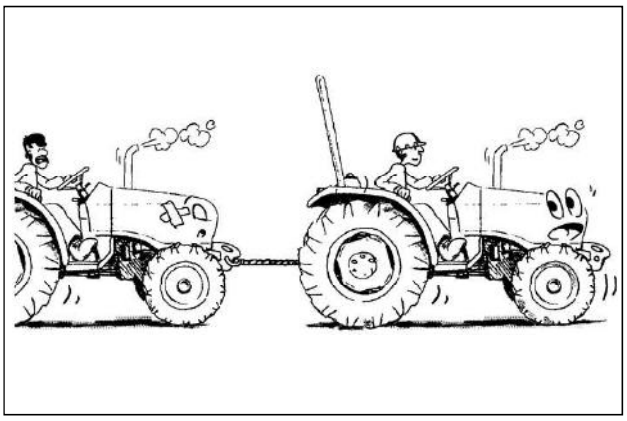


- Attach or detach the implement on wide and level ground.
- Do not use the tractor in combination with equipment arbitrarily, without having consulted the specific operator's manual provided with the equipment.
- You should stay clear from the three-point linkage when controlling it. Do not stay between tractor and implement.
- Do not stay between tractor and trailed vehicle for connecting/disconnecting or checking it. Trailed vehicle may roll down or tractor can move reverse.
- When towing the trailed vehicle, use only an approved hitch or drawbar. Do not tow by connecting to any other structures.
- When connecting heavy implements, apply the parking brake and use the wheel chock.
- Do not attach over-weighted implement.

⚠ Caution	▶ When connecting or disconnecting hydraulic couplers, lower the implement on the ground, turn off the engine and check if the pressure in the hydraulic lines is relieved. ▶ When installing the implement having big hydraulic cylinders or lines, check the oil level in the transmission housing after installing the implements.

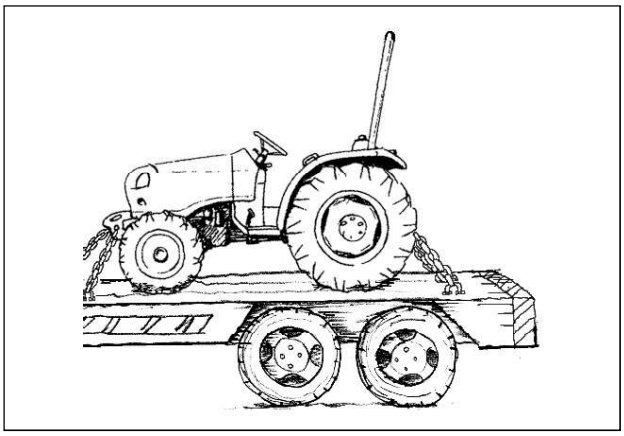
⚠ Warning	▶ Before connecting or checking the implement, put PTO switch to the "OFF" position and place PTO gear lever in the neutral position.
	▶ When attaching or detaching the implement, make sure to secure the implement and tighten the three point hitch pins correctly. Failure to do so can cause a serious failure or injury during operation.
	▶ If a heavy loaded trailer is connected to the 3-point linkage or any structure, it can cause a turnover or failure and serious injury. Make sure to use an approved towing hitch or draw bar.

(5) Notices when towing the tractor



- If your tractor needs to be towed for a short distance, use the hitch (or drawbar) or front towing hook. Do not connect to the other structure such as rear axle, ROPS, front axle, and steering components for towing.
- Your tractor can be steered for a short distance without engine running, but it will be hard to turn the steering wheel. If possible, run the engine for steering and lubrication.
- When being towed, disengage the 4WD, differential lock, parking brake and place all the transmission gear levers in the neutral position.
- Do not use cables or rope to tow the machine. If the cable or rope breaks or slips, it may whip back with enough force to cause serious injury. When using a chain, attach the chain with the hook's open side facing UP. If the hook slips, it will drop down instead of flying up.
- Never attempt to start the machine by towing. The machine could start unexpectedly.
- Do not tow the machine on public roads. Towing could cause a safety hazard for other vehicles using the roadway. *For further information, see chapter 4-4-(4) in this manual.*

(6) Notices when transporting the tractor

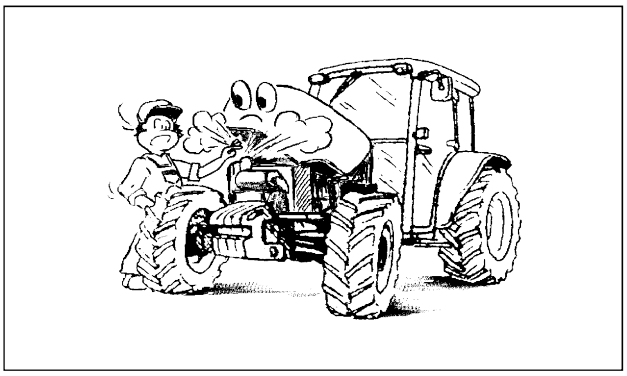


- When transporting the tractor by truck, trailer, etc., use suitable equipment or facilities to load or unload the tractor.
- Fix the tractor tightly to the vehicle with heavy-duty straps or chains.
- When fixing the rear of the tractor, use the hitch or hitch support.
- When fixing the front of the tractor, use the towing hook.
- When driving on public roads, the transporting vehicle must have signs and lights required by local regulations to avoid collision with a vehicle.

⚠Caution	▶ When fixing the tractor, do not hook or connect chains to the 4WD shaft, steering cylinder, tie-rod or front axle. These can be damaged by the chain or excessive strain. ▶ On engines equipped with a turbocharger, covers the exhaust outlet to protect the turbocharger from being rotated by air without lubrication.

(7) Notices when servicing the tractor after work

- Check and maintenance must be performed after **stopping the engine** and **cooling down the engine sufficiently.**
- DO NOT pour water into the radiator or engine when engine is hot. The engine or radiator may crack.



Warning	▶ When opening radiator cap, hot cooling water or steam may explode. Remove the cap using a thick rag or glove to prevent serious burns.
	

- **Remove all mud and debris** from the tractor after working. Especially check the engine area and exhaust system.
- Before checking or repairing hydraulic system and fuel system, make sure the **engine is stopped, and all the transmission gears are in neutral, and lower the implements to the ground**. The leaks of pressurized fluid can cause a fatal physical injury. If injured by leaking fluid, get medical attention immediately.

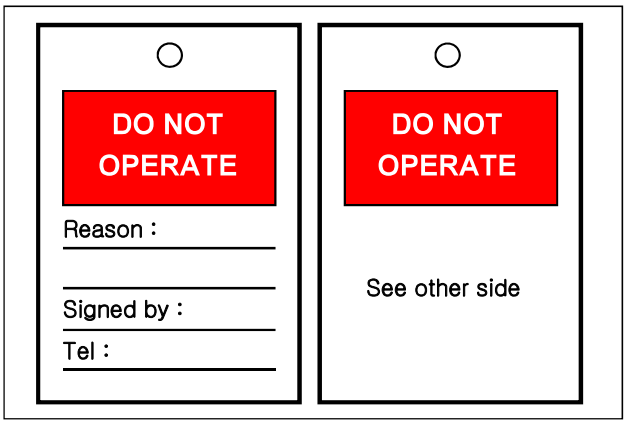
Warning	▶ Before removing hydraulic pipes or hoses and other parts, make sure to check that hydraulic pressure is relieved completely. The leaks of pressurized oil can cause a fatal physical injury. ▶ Use proper protection equipment, before servicing hydraulic system. ▶ Before connecting or disconnecting the hydraulic quick coupler, lower the implements to the ground, and check that hydraulic pressure is relieved.
	

- **Keep an approved fire extinguisher and First-aid-kit** on your tractor.
- **To prevent an fire or explosion of the battery,** keep any type of flames or sparks away from battery. Do not grind, smoke, or weld near a battery. Do not short circuit the terminals with metal objects. *For further information, see chapter 5-14-(4), "Battery handling and Notices" in this manual.*

Warning	▶ **Always remove grounded (-) battery clamp first and assemble it last**. ▶ **Sulfuric acid in battery electrolyte is poisonous.** It is strong enough to burn skin, clothing and can cause blindness if splashed into eyes ▶ Battery post, terminals and related accessories contain **lead and lead compounds**. **MUST WASH YOUR HANDS AFTER HANDLING.**
	

- Do not attempt to **remove or unfasten the air conditioning components(if fitted) arbitrarily**. There is a possible to be severely frostbitten or injured by escaping refrigerant. Contact your authorized local dealer to repair your air conditioning system.
- **Keep the area used for servicing the tractor clean and dry**. Wet or oily floors are slippery. It can be dangerous when working with electrical equipment.
- When lifting heavy parts like engine, axle, tires etc., make sure to **check the lifting facilities have enough strength and capacity.**

- Before servicing the tractor, attach a "**DO NOT OPERATE**" warning tag to the tractor in an area that will be visible.
- Electric sensors, switches and harness, including engine control unit (if equipped) are very sensitive and delicate. Strictly **prohibit injecting water, mechanical impulse and any kind of welding on engine.**



- *When assembling, operating, or servicing the tractor, wear protective clothing and any Personal Protective Equipment (PPE) necessary for the particular procedure. The necessary PPE may include: - Protective shoes, Eye and/or face protection, Hard hat, Heavy gloves, Filter mask, Hearing protection.*
- *When tractor maintenance requires you to work at heights:*
  - Correctly use tractor steps, ladders, and/or hand holds.
  - Do not stand on tractor areas that are not designed as steps or platforms.
  - When necessary, use an appropriate ladder to reach components such as mirrors, rotating beacons, or air filters.
  - Never use steps, ladders, and/or hand holds when the tractor is in motion.
  - Do not use the tractor as a lift, ladder, or platform for working at heights.
- *If you do not understand a maintenance procedure, or doubt your ability to perform a maintenance procedure correctly, see your authorized dealer.*

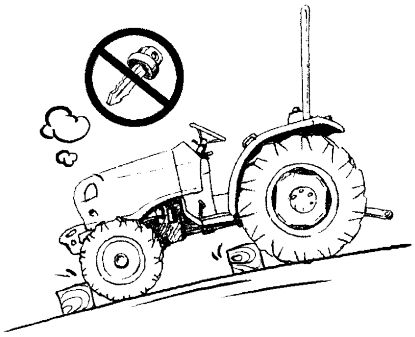
(8) Notices when handling Diesel Fuel

- *Before handling diesel fuel, refer to the chapter 5-1-(3), 5-1-(5) in this manual.*
- *Before handling Bio-diesel, refer to the chapter 5-1-(4) in this manual.*

⚠Warning	**Fire hazard!** ▶ When handling diesel fuel, observe the following precautions: 1. Do not smoke. Keep any type of flame away. 2. Never fill the tank when the engine is running. 3. Wipe up spilled fuel immediately. Always tighten the fuel tank cap securely. Failure to comply could result in death or serious injury.

(9) Notices when leaving the tractor

- Stop the tractor on a level ground.
- Place the transmission gears in the neutral position and put PTO switch to the OFF position.
- Lower the mounted implements on the ground.
- Apply the parking brake.
- Stop the engine and remove the ignition key.
- Before you leave the operator's station, wait for the engine and all moving parts to stop.
- Apply wheel chocks to the wheels when parking the tractor on a slope unavoidably.



⚠ Caution	▶ If it is necessary to park your tractor on a slope, furthermore with a loaded trailer, the tractor may roll down even if the parking brake is applied. In this case, additionally apply the lowest transmission gear and apply wheel chocks or blocks to the all tires. **- Synchro-shuttle : downhill ⇒ Reverse 1st gear / uphill ⇒ Forward 1st gear** **- Power shuttle : Engine brake by transmission gears is NOT available.**

(10) Notices relating to Toxic substances

⚠ **WARNING:** Breathing diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

- Always start and operate the engine in a well-ventilated area.
- If in an enclosed area, vent the exhaust to the outside.
- Do not modify or tamper with the exhaust system.
- Do not idle the engine except as necessary.
- Battery post, terminals and related accessories contain lead and lead compounds.
- When handling engine oil, diesel fuel, anti-freeze solution and other chemical substances, wear protective clothes, mask and gloves.
- For more information, go to www.P65warnings.ca.gov/diesel

WASH YOUR HANDS AFTER HANDLING.

(11) Tractor stability

Warning	▶ **Driving hazard!** **To prevent tractor instability, ALWAYS consider and follow the tractor stability requirements in this manual.** **Failure to comply could result in death or serious injury.**

The following procedure describes the requirements for tractor stability and how to calculate the required front-mounted and rear-mounted ballast.

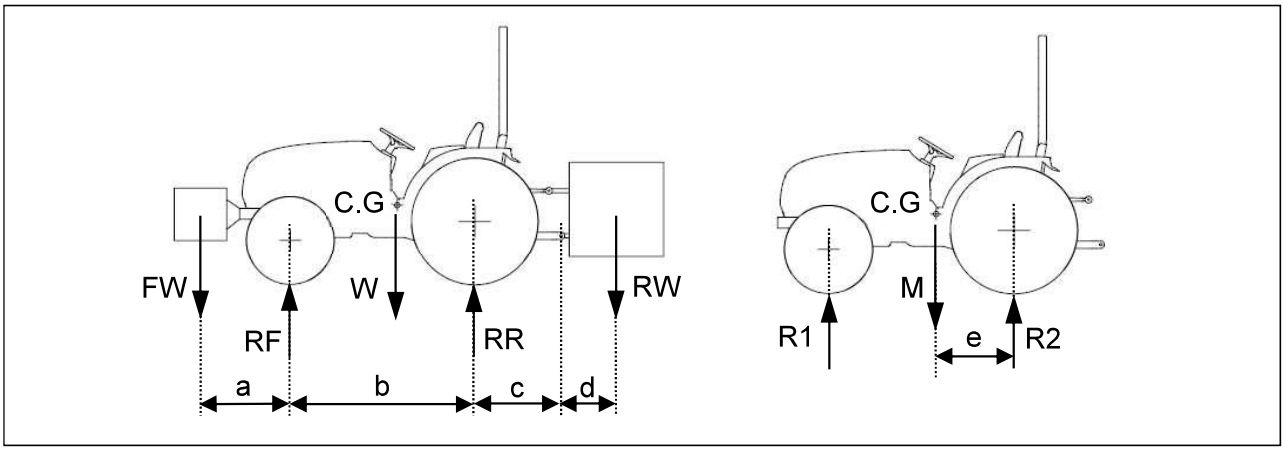
For additional ballast information, also refer to the ballast recommendations in this manual.

For the maximum permitted operating weights, refer to the vehicle weights in this manual.

The following procedure and calculation is based on a tractor on even ground.

Warning	▶ **Roll-over hazard!** **ALWAYS be aware of the effect of inclines and steep hills on tractor stability. Operating, handling, and braking performance may be affected. Adjust ballast and driving speed accordingly to ensure stable and accurate steering, and to ensure the required brake performance in critical situations.** **Failure to comply could result in death or serious injury.**

Necessary data to evaluate stability

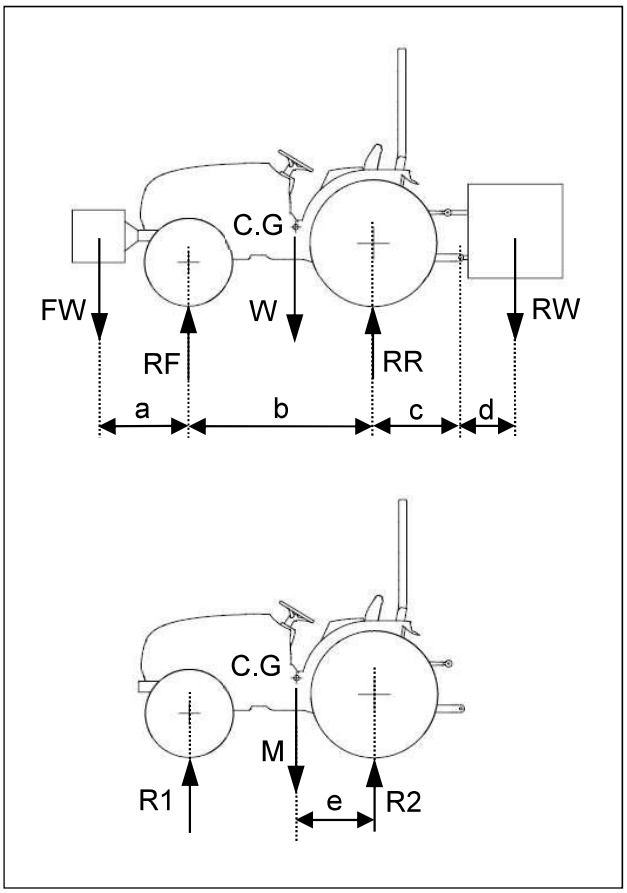


		To get this value refer to:
M	Mass of the unladen tractor = Tractor with standard equipment, minimum fuel, no weights or liquid ballast, no operator, and single wheel equipment	See chapter 7 in this manual.
R1	Front axle load of unladen tractor	See chapter 7
R2	Rear axle load of unladen tractor	See chapter 7
a	Distance, Center of gravity of front load to front axle center	Manual of the equipment or your measurement
b	Wheelbase	See chapter 7
c	Distance, rear axle center to lower hitch point of three-point linkage	See chapter 7 or your measurement
d	Distance, Center of gravity of rear load to lower hitch point of three-point linkage	Manual of the equipment or your measurement
e	Distance, rear axle center to center of gravity of mass of the unladen tractor (M)	Calculate using formula on the following pages
FW	Mass of front-mounted equipment or front-mounted ballast	Manual of the equipment or your measurement
RW	Mass of rear-mounted equipment or rear-mounted ballast	Manual of the equipment or to measurement
Wmax	Maximum permissible mass of the laden tractor	See chapter 4-5-(4)
RFmax	Maximum permissible front axle load	See chapter 4-5-(4)
RRmax	Maximum permissible rear axle load	See chapter 4-5-(4)

1. Equipment weight together with its filling must be added to laden values (seed drills, fertilizer spreaders, etc.).
2. Ballasting weight in the center of the front or rear tires, either solid or liquid, must be added to R1, R2, and M.
3. In case of an unbalanced trailer, the value c is the distance between the center of the rear axle and the hitching point, the value d is 0, and RW is the vertical load of the trailer on the hitch.

Constant parameters

0.2	Minimum ratio: actual axle load of laden front axle/ mass of the unladen tractor	Legal requirement
0.45	Minimum ratio: actual axle load of laden rear axle/ mass of the unladen tractor	Legal requirement



Required front ballast

To calculate	
FWr	Ballast required at the front when carrying a load RW at the rear

CALCULATION OF FWr
M*e = R1*b
e = (R1*b)/M
RW*(c+d) - (M *e) + (RF *b) = FWr*(a+b)
RF > 0.2*M RF value must be higher than 0.2*M
FWr>[RW*(c+d- (R1*b)+(0.2*M*b)]/(a+b)

Required rear ballast

To calculate	
RWr	Ballast required at the rear when carrying a load FW at the front

CALCULATION OF RWr
M*b (b- e) = R2*b
FW*a - M *(b- e)+ (RR*b) = RWr*(b+c+d)
RW*(c+d) - (M *e) + (RF *b) = FWr*(a+b)
RR > 0.45*M RR value must be higher than 0.45*M
RWr> [(FW*a) - (R2 *b)+(0.45 *M*b)]/(b+c+d)

Axle load limits

To calculate:	
RF	RF < RFmax
RR	RR < RRmax
W	W < Wmax

CALCULATION OF RF
(RF*B) - FW*(A + B) - (M*E)+ RW*(C + D)
RF = [FW *(A+B)+ (R1*B) - RW*(C+D)]/B < RFmax

CALCULATION OF W
W = FW + M + RW < Wmax

CALCULATION OF RR
R2T = W - RF < RRmax

(12) Ecology and the environment

Soil, air and water is essential elements for human life. To contribute to environment preservation of the Earth, we are trying to minimize the environment pollution necessitated by general business activity such as product design, manufacturing, distribution, etc.

Several substances and products derived from chemical and petrochemical products are major portion of environment pollution and must be disposed of according to environment laws or related regulations, and common sense.

Familiarize yourself with the relative legislation applicable to your country, and make sure that you understand this legislation.

Where no legislation exists, obtain information from suppliers of oils, filters, batteries, fuels, anti-freeze, cleaning agents, etc., with regard to the effect of these substances on man and nature and how to safely store, use, and dispose of these substances.

We'd like to notify the following items for "Use & Disposal" related to environment preservation.

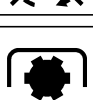
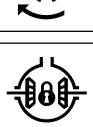
1. **Avoid the overload work** after reading the operator's manual.
   Overload work may reduce the life of the product as well as the unburned exhaust gas occurred during overload work becomes the major cause of air pollution.
2. When you replace various oils (engine oil, transmission oil, brake oil, and anti-freeze solution) directly, **do not throw the exhausted waste oil to any place.**
   This may pollute the soil and water seriously and also is prohibited legally. If violating, you would be responsible for that by civil or criminal case. The waste oil must be disposed according to the environment laws.
3. Use the product according to the operator's manual and if the life of product ended, do not throw away (or dispose) to any place. The rust water or oil coming from the disposed product may cause the pollution of soil or water. Thus**, the wasted product must be disposed lawfully,** contact your authorized local dealer nearby.
4. Modern lubricants contain additives. **Do not burn the disposed oil or fuel** in conventional heating systems.
5. When you replace the fuel, lubricants oil and coolants, avoid spillage and do not allow to be absorbed into the ground. Do not mix drained brake fluids or fuels with lubricants. They must be collected safely and disposed in a suitable manner.
6. **Do not adjust the setting of the fuel delivery system**. This will alter the emission of exhaust fumes. Do not increase the pressure in a pressurized circuit as this may lead to a component failure.
7. Do not open the air-conditioning system yourself. It contains gases that should not be released into the atmosphere. Your authorized local dealer or air-conditioning specialist has a special extractor for this purpose and can recharge the system properly.
8. Repair any leaks or defects in the engine cooling system or hydraulic system immediately.
9. In general, avoid skin contact with all fuels, oils, acids, solvents, etc. Most of these products contain substances that may be harmful to your health.

Battery recycling

Batteries and electric accumulators contain several substances that can have a harmful effect on the environment if the batteries are not properly recycled after use. Improper disposal of batteries can contaminate the soil, groundwater, and waterways. We strongly recommends that you return all used batteries to your authorized local dealer, who will dispose of the used batteries or recycle the used batteries properly. In some countries, this is a legal requirement.

(13) Symbols

The followings show the symbols and its meaning used for the tractor.

	Refer to operator's manual.
	Caution!
	Battery charging
	Fuel level
	Fuel filter
	Engine coolant temperature
	Hydraulic oil pressure
	Engine oil press-ure
	Engine preheat
	Parking brake
	Emergency lights
	Engine start
	Engine stop
	PTO stop
	PTO in operation
	Differential lock device
	SCR error

	Gear Neutral
	Forward/Reverse
	Forward
	Reverse
	4WD engage
	4WD disengage
	Quick turn (optional)
	Cruise drive (optional)
	Cruise drive release (optional)
	Position control (Up)
	Position control (Down)
	Draft control (Deep)
	Draft control (Shallow)
	Cylinder rod (shorten)
	Cylinder rod (extend)
	Cylinder rod (floating)
	Engine torque speed reduction

	Low speed
	High speed
	Engine speed control (throttle)
	Engine speed control (throttle)
	Turn signal light
	Light switch
	Side lights
	Headlights (Low beam)
	Headlights (High beam)
	Work light
	horn
	Window wiper
	Window wiper / Washer (front)
	Window wiper / Washer (rear)
	Unlatched brake pedal (optional)
	Control error
	Engine idle rpm increase

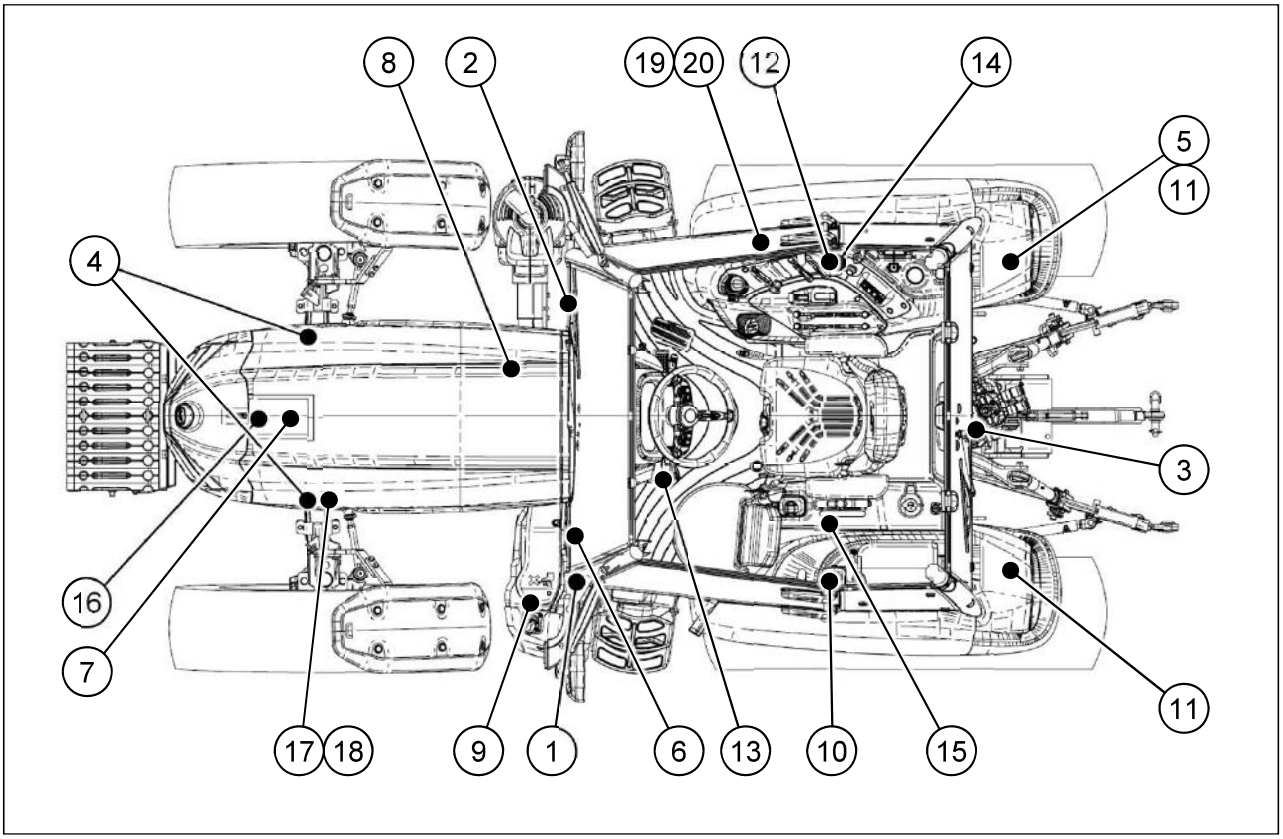
(14) Safety Decals

① Handling and Maintenance of Safety Decals

- For intended use and personal safety of the operator, the safety decals (labels) are attached to the parts related with safety operation.
- Before operating or maintaining the tractor, check the position and read the instructions carefully.
- If you find “Read Operator’s Manual” symbol **(1)** in the decals, refer to the appropriate page of the operator’s manual for further information regarding operation, adjustment, and maintenance.

⚠ Caution	▶ The instructions described on the safety decals are very important for your safety and for those working with you. If ignored, it may cause death or serious injury. ▶ If the decals are dirty, wash them with soap water and wipe with soft rags. Do not use thinner, acetone, or other harsh chemicals that may damage the decals. ▶ If the decal is detached or damaged, replace it with a new one on the original position. ▶ When cleaning the tractor with pressurized water, the decals can be detached. ▶ If a safety decal is on a part that is replaced, make sure the decal is attached on the new part.

② Safety Decals and Attaching position



1. Location : On the left-hand front cabin frame pillar.

- Ultra low sulfur diesel fuel only.
- Do not smoke while refueling and keep any type of flame away.
- Part No. : 40241059

2. Location : On the right-hand front lower glass, near the starter motor.

- RUN OVER HAZARD
- To prevent serious injury or death;
- Start only from seat with transmission and PTO in neutral.
- DO NOT short across starter terminals to start engine.
- Part No. : 40195651

3. Location : On top of rear PTO guard.

- Rotating driveline contact may cause serious injury or death.
- Keep all driveline, tractor and equipment shields in place during operation.
- Part No. : 40195650

4. Location : On the left/right-hand side of the radiator or fan shroud.

- Keep hands clothing away from the rotating fan and belts.
- Contact with moving parts may cause loss of fingers or a hand.
- Failure to comply could result in death or serious injury.
- Part No. : 40239638

5. Location : On top of the right-hand rear mud guard.

- HIGH PRESSURE FLUID HAZARD
- To prevent serious injury or death;
- Relieve pressure on system before repairing, adjusting or disconnecting.
- Wear proper hand and eye protection when searching for leaks, use wood or cardboard instead of hands.
- If hydraulic fluid or fuel sinks into skin, seek medical attention immediately.
- Part No. : 40195652

6. Location : On the left-hand cabin front cross beam. (optional)

- CAUTION.
- Height limit: 6ft, Weight limit: 200lbs.
- Always wear your seat belt.
- Be careful of disturbing driver / operator.
- Caution of door latch while buddy seat in use.
- Failure to comply could result in death or serious injury.
- Part number : 40417249

7. Location : On the front side of the upper radiator baffle.

- TO PREVENT DEATH OR SERIOUS INJURY; High pressure steam and hot water. Remove filler cap with extreme care.
- Failure to comply could result in death or serious injury.
- Part No. : 40297729

8. Location : On the right-hand side of rear hood support, inside the hood, and on the front side of muffler safety cover for MT774 models.

- TO PREVENT SERIOUS INJURY OR DEATH; Beware hot part. Keep clear of muffler to avoid injury.
- Failure to comply could result in serious injury.
- Part No. : 40239636 (1EA) for MT7101,
  40239636 (2EA) for MT774

9. Location : On top of Supply Module cover.

- Do not inject diesel fuel or water in the urea tank. (AUS 32 ISO 22241)
- Part number : 40319413
- MT7101 models only.

10. Location : On the left-hand cabin pillar.

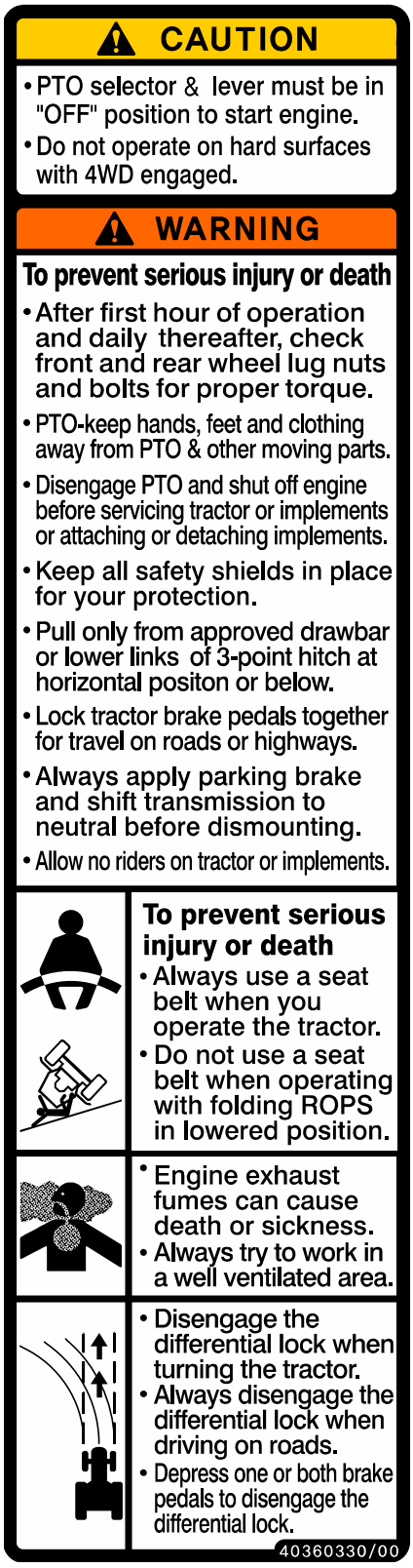
① **CAUTION**

- PTO selector & lever must be in “OFF” position to start engine.
- Do not operate on hard surfaces with 4WD engaged.

② **WARNING**

- TO PREVENT SERIOUS INJURY OR DEATH;
- After first hour of operation and daily thereafter, check front and rear wheel lug nuts and bolts for proper torque.
- PTO - keep hands, feet and clothing away from PTO & other moving parts.
- Disengage PTO and shut off engine before servicing tractor or implements, or attaching / detaching implements.
- Keep all safety shields in place for your protection.
- Pull only from approved drawbar or lower links of 3-point hitch at horizontal position or below.
- Lock tractor brake pedals together for travel on roads or highways.
- Always apply parking brake and shift transmission to neutral before dismounting.
- Always use a seat belt when you operate the tractor.
- Allow no riders on tractor or implements.
- Do not use a seat belt when operating with folding ROPS in lowered position.
- Engine exhaust fumes can cause death or sickness. Always try to work in a ventilated area.
- Disengage the differential lock when turning the tractor. Always disengage the differential lock when driving on roads.
- Depress on or both brake pedals to disengage the differential lock.

- Failure to comply could result in death or serious injury.
- Part No. : 40360330

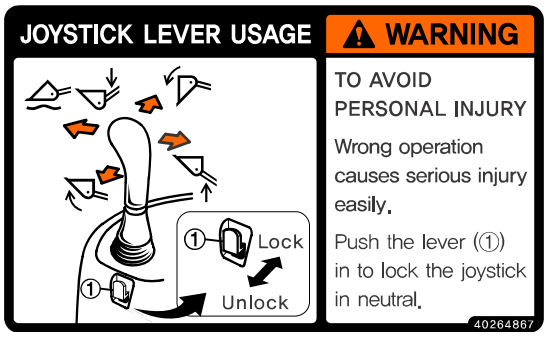


11. Location : On top of the left/right-hand rear mud guard.

- WARNING
- Avoid injury !
- Activate the external hydraulic control switches only while standing to the side of the machine (outboard of the tires).
- DO NOT stand on or near the implement or between the implement and machine.
- Failure to comply could result in death or serious injury.
- Part No. : 40269462

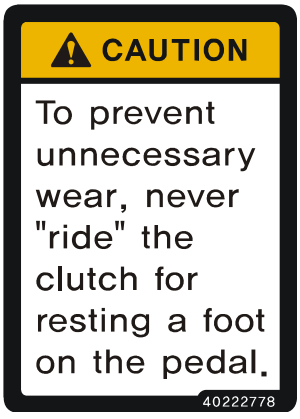
12. Location : On the front side of the right-hand control panel cover (optional)

- JOYSTICK LEVER USAGE.
- TO AVOID PERSONAL INJURY; Wrong operation causes serious injury easily. Push the lever(1) in to lock the joystick in neutral.
- Failure to comply could result in death or serious injury.
- Part number : 40264867



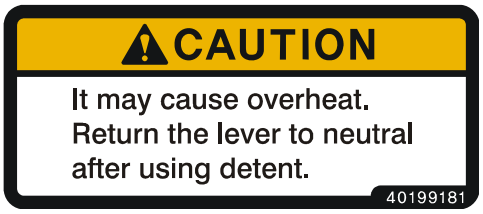
13. Location : On the steel cover under the instrument console. (optional)

- CAUTION.
- To prevent unnecessary wear, never ride the clutch pedal for resting a foot.
- Part number : 40222778



14. Location : On the right-hand door glass (optional)

- CAUTION.
- It may cause overheat. Return the lever to neutral after using detent.
- Part number : 40199181



15. Location : On top of left-hand lever guide. (optional)

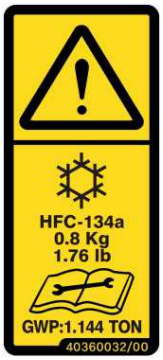
- CAUTION.
- Only L and M stage of Sub-change are available for Creeper.
- Part number : 40199180

16. Location : On top of ECU cover.

- CAUTION
- Avoid direct water spray on ECU. It may cause problems.
- Part number : 40283939

17. Location : On the left-hand side of the radiator.(Cabin models only)

- AIR CONDITIONING SYSTEM
- FLUID UNDER HIGH PRESSURE
- To prevent serious injury or death;
- Do not disconnect any lines.
- Service, repair or recharging must be performed only by a trained service technician.
- Refrigerant: HFC-134a, 0.8kg, 1.76 lb
- Part number : 40360032



18. Location : On the left-hand side of the radiator.(Cabin models only)

- AIR CONDITIONING SYSTEM
- FLUID UNDER HIGH PRESSURE
- To prevent serious injury or death;
- Do not disconnect any lines.
- Service, repair or recharging must be performed only by a trained service technician.
- Refrigerant: R-134a
- Part No. : 40323653 (Cabin models only)

19. Location : On the right-hand door glass.

- CAUTION
- Never turn off the engine during the regeneration process. A forced stop of the engine can cause serious damage to the DPF.

< How to do forced regeneration to DPF>

※ When forced DPF regeneration is done according to the need, the warning light blinks. **If there are flammable substances around, move to a safe environment and do the regeneration process according to the order below.**

1) Execute all three safety conditions below before doing forced regeneration.

① Put the shuttle lever to neutral.

② Engage parking brake. ③ Switch off PTO.

2) Prewarm the engine by idling it for 3~4 minutes.

3) Press the DPF regeneration switch for more than 3 seconds. (Regeneration temperature indicator turns on.)

• During forced regeneration, the engine speed automatically rises to 2000rpm.

• This takes about 15 to 30 minutes to. (Regeneration temperature indicator turns off after completion.)

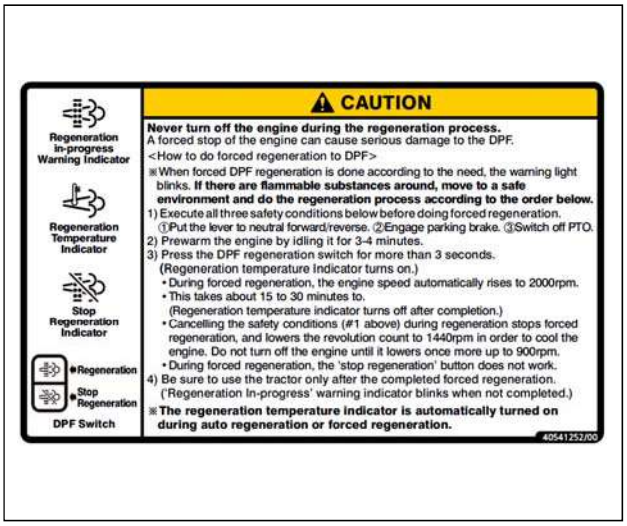
• Cancelling the safety conditions (#1 above) during regeneration stops forced regeneration, and lowers the revolution count to 1440rpm in order to cool the engine. Do not turn off the engine until it lowers once more up to 900rpm.

• During forced regeneration, the ‘stop regeneration’ button does not work.

4) Be sure to use the tractor only after the completed forced regeneration. (‘Regeneration In-process’ warning indicator blinks when not completed.)

※ The regeneration temperature indicator is automatically turned on during auto regeneration or forced regeneration.

- Part No. : 40541252 for MT774



20. Location : On the right-hand door glass.

- CAUTION
- If lamp① is blinking with DTC code 11738 (2DDA), the engine is requiring removal of SOx in SCR. Follow the below steps to DeSOx.

1. If lamp② is on, make high RPM and load to increase exhaust gas temperature for removal of HC until lamp② is off.
2. Make three safety conditions.

- F/R Neutral & Parking Brake & PTO Off

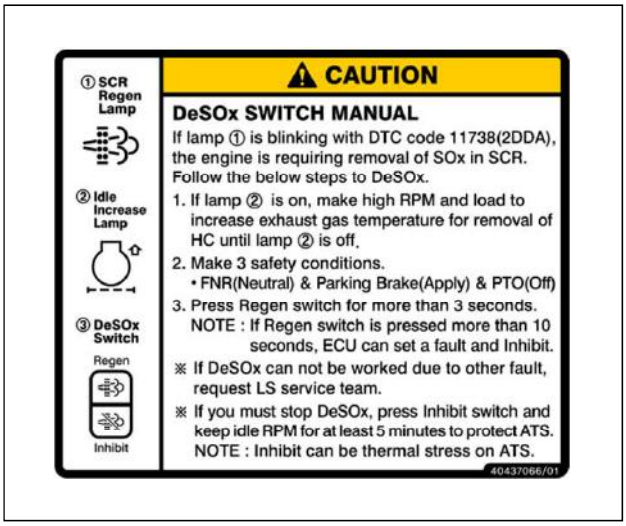
3. Press Regen switch for more than 3 seconds.

Note: If Regen switch is pressed more than 10 seconds, ECU can set a fault and Inhibit.

- If DeSOx can not be worked due to other fault, request LS service team.
- If you must stop DeSOx, press Inhibit switch and keep idle RPM for at least 5 minutes to protect ATS.

NOTE: Inhibit can be thermal stress on ATS.

- Part No. : 40437066 for MT7101



(15) Instructional Decals

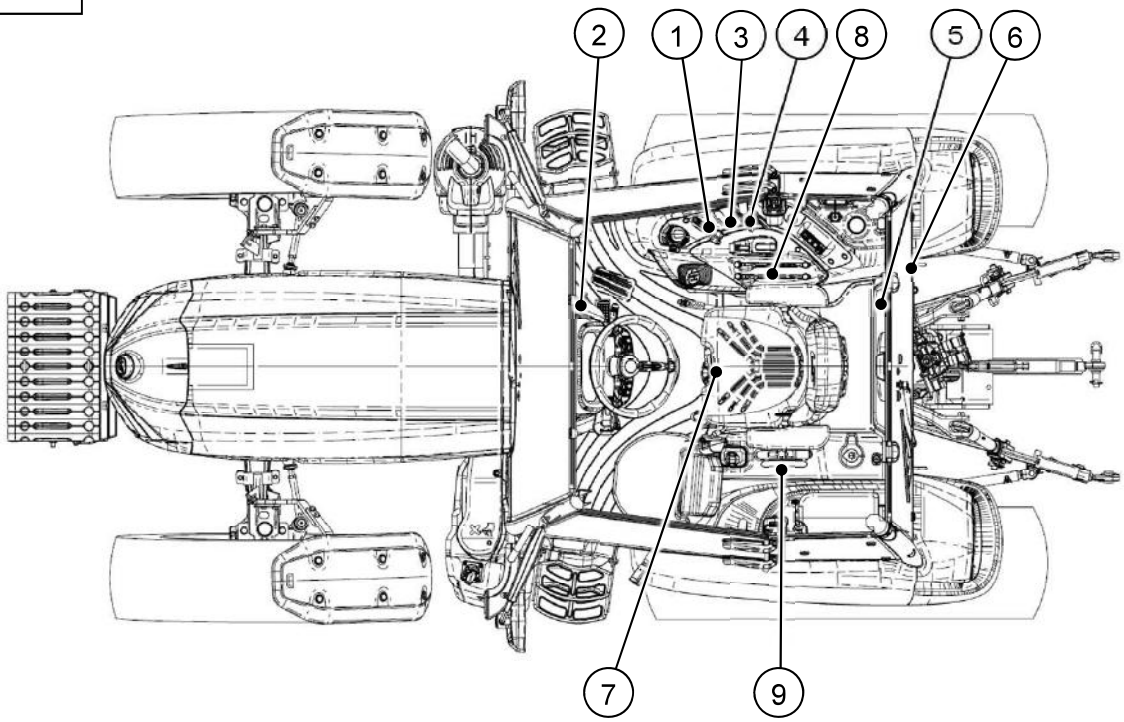
① Instructional Decals and Attaching position

The following instructional signs are placed on your tractor as a guide for your safety and for those working with you. Walk around the tractor and note the content and location of these instructional signs before operating your tractor.

Keep instructional signs clean and legible. Clean instructional signs with a soft cloth, water, and a gentle detergent. Do not use solvent, gasoline, or other harsh chemicals. Solvents, gasoline, and other harsh chemicals may damage or remove instructional signs.

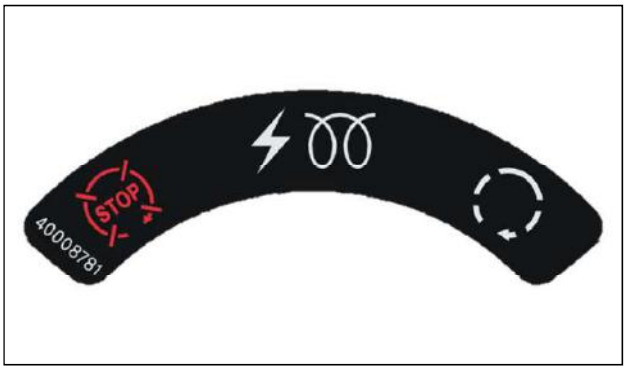
Replace all instructional signs that are damaged, missing, painted over, or illegible. If an instructional sign is on a part that is replaced, make sure the instructional sign is installed on the new part. See your authorized local dealer for replacement instructional signs.

Cabin

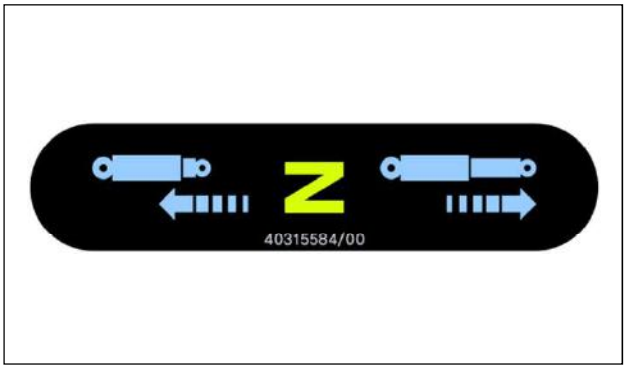


1. Location: On top of the right-hand control lever guide.
- Throttle lever.
- Part No. : 40233965

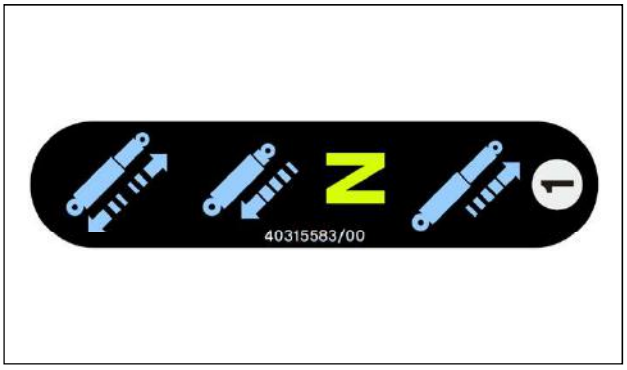
2. Location: On the right-hand side of the body panel cover under the instrument panel.
- Key switch.
- Part No. : 40008781



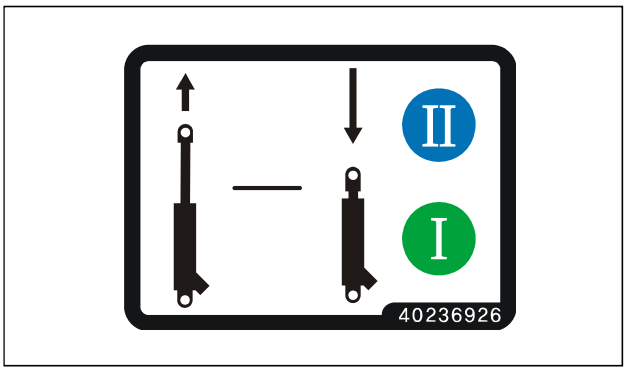
3. Location: On top of the right-hand control lever guide.
- Remote control lever.
- Part No. : 40315584



4. Location: On top of the right-hand control lever guide.
- Remote control lever.
- Part No. : 40315583
- It may vary depending on the market.(optional)



5. Location: on the rear steel plate of the cabin.
- Remote valve quick couplers
- Part No. : 40236926
- Cabin models only.

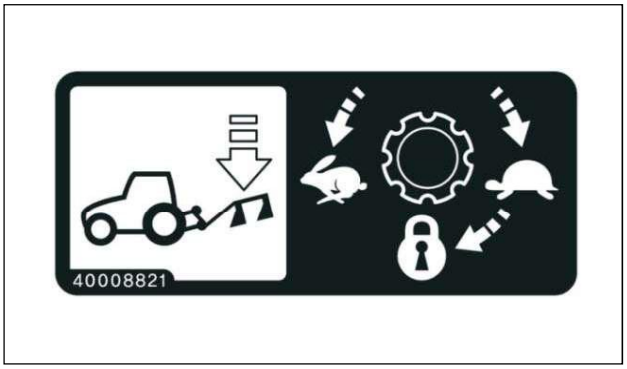


6. Location: on the right-hand rear cabin frame.

- External hydraulic control
- Part No. : 40353476
- It may vary depending on the market.(optional)

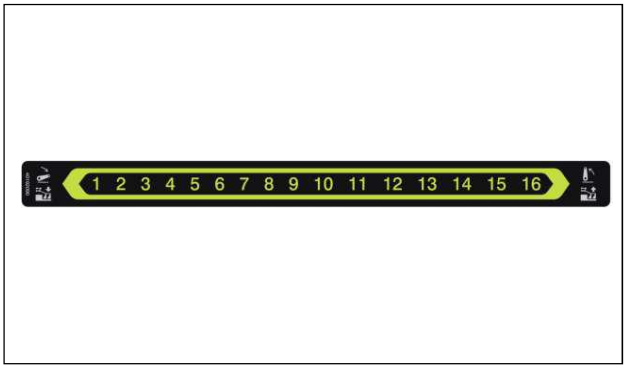
7. Location: below the driver's seat.

- Hydraulic lift control. (down speed control valve)
- Part No. : 40008821
- Mechanical Hydraulic Lift(MHL) models only.



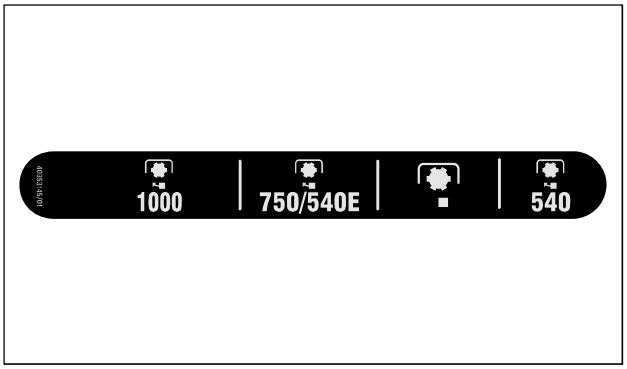
8. Location: on the right-hand hydraulic lever guide.

- Hydraulic lift control. (position and draft control lever)
- Part No. : 40192090
- Mechanical Hydraulic Lift(MHL) and Cabin models only.



9. Location: on the left-hand lever guide.

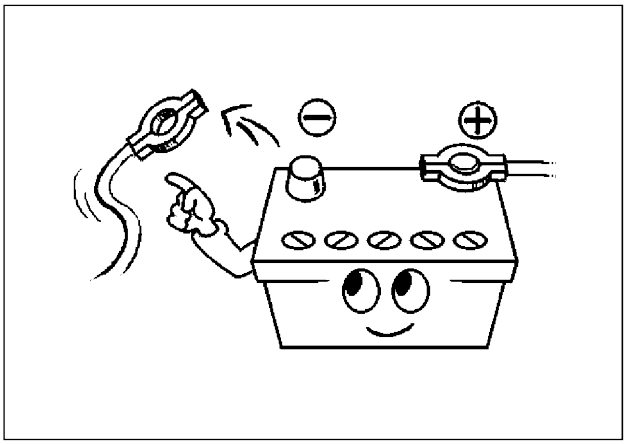
- PTO gear lever.
- Part No. : 40353145
- It may vary depending on the market.(optional)



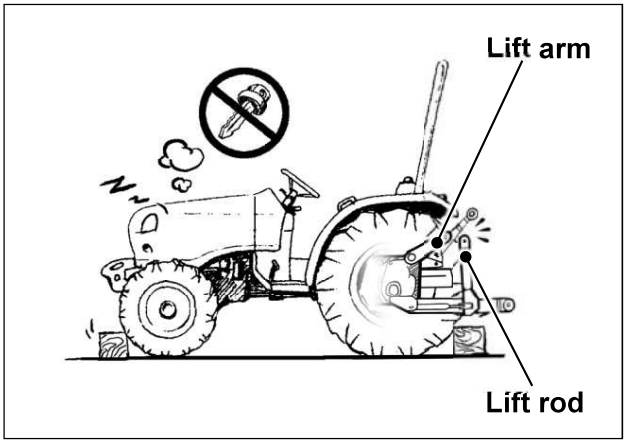
1-3. Long-term storage

(1) Preparation for storage

※ Wash your tractor cleanly and follow the procedure as below.



- Apply grease or lubricant oil or spray paint to the non-painted metal to avoid corrosion. Keep the tractor in a covered, dry and well-ventilated place.
  Temperature : 10℃ ~ 35℃ (50℉ ~ 95℉)
  Humidity : 45% ~ 70%
- Place all controls, including electrical switches, in neutral position and apply the wheel chocks to the tires and disengage the parking brake.
- Check the lubricant level of each parts and if the engine oil has exceeded 100 hours of work, change the oil and run the engine for 5 minutes at idle rpm.
- Drain the engine coolant completely. If the engine coolant is anti-freeze solution, it is not necessary to drain but check its density.
- Fill the fuel tank with fuel.
- Loosen all drive belts and clean the air cleaner.
- Loosen the rubber plug (if fitted) under the clutch chamber to drain water.
- Remove the battery, clean the cover and smear the terminals with grease. Place the battery in a ventilated place not less than 10°C (50°F) and away from direct sunlight.
- Remove the lift-rod and place the lift-arm to the highest position to lubricate the internal cylinder.



- If possible, fit stands or other suitable supports under the axles to raise the wheel off the ground. And let the air out of the tires. If not, check the tire pressure from time to time.
- Remove the ignition key.
- Cover the tractor with a non-water-proof cover.
- If the implements are attached, lower the implements on a support off the ground.

⚠Warning	▶ When restarting engine at the end of long-term storage, follow the instructions of the “Preparation for Reuse” as below.

(2) Check & Maintenance during storage

- Apply grease or lubricant oil regularly to the non-painted parts.
- Check the leakage of fuel, oil and coolant. If necessary, repair the damaged part.
- Check if the tire air pressure is normal.
- **Start the engine periodically for about 15 minutes, *at least once a month*** for circulation and lubrication in the fuel system and engine. This may vary depending on the engine, fuel system, fuel type and so on. Consult your authorized local dealer.
- The battery should be charged about once a month not to be discharged entirely.

⚠Caution	▶ As the electrolyte of battery is sulfuric acid, it is emits the explosive and poisonous gas. It is strong enough to burn skin, clothing and can cause blindness if splashed into eyes. - Keep the sparks and flames and cigarettes away from the battery. - When handling the battery, wear safety glasses to protect the eyes. - If the electrolyte contacts the eyes and skin, wash with water immediately and go to see a doctor. ▶ When removing and storing battery, select dry and cool place out of reach of children.

(3) Preparation for Reuse

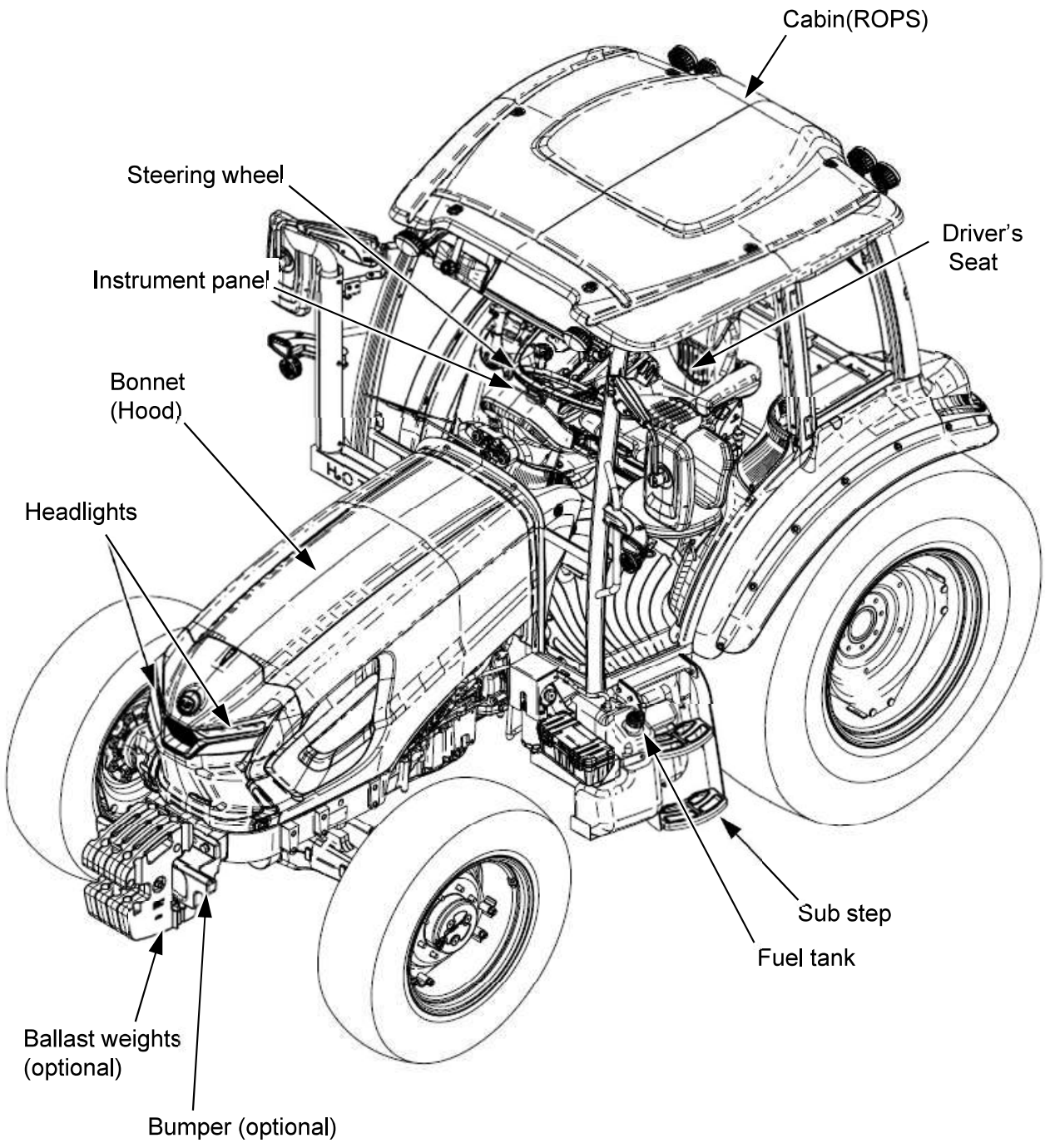
※ When using first after long-term storage, check each part as below.

- Inflate the tires to the recommended pressures and remove the blocking.
- Check the damaged part or loosen part.
- Check the leakage of fuel, coolant, engine oil, transmission and front axle oil.
- Check the level and density of the engine coolant.
- Check the level of engine, transmission, rear and front axle oil, and fuel.
  (For further information, refer to the chapter 5, "Lubrication and Maintenance" in this manual.)
- Check all drive belts carefully, paying particular attention to the point where the straight run of the belt starts to bend around the pulley. Check the vee groove in the pulley for corrosion.
- Electric system check
  - Is there any open circuit or any other problem in the wiring?
  - Is there any problem of the instruments?
  - Is the charging state of the battery sufficient?
- Start the engine and allow it to idle for a few minutes. Ensure the engine is receiving lubrication and each control is functioning correctly.
- Run the engine at a fast idling speed (suggest 1000/1500 rpm) until normal operating temperature is registered, and check the surroundings for oil, fuel and coolant leakage.
- Drive the tractor without a load and check if the tractor is operating satisfactorily.

2. Instruction for Safe Operation

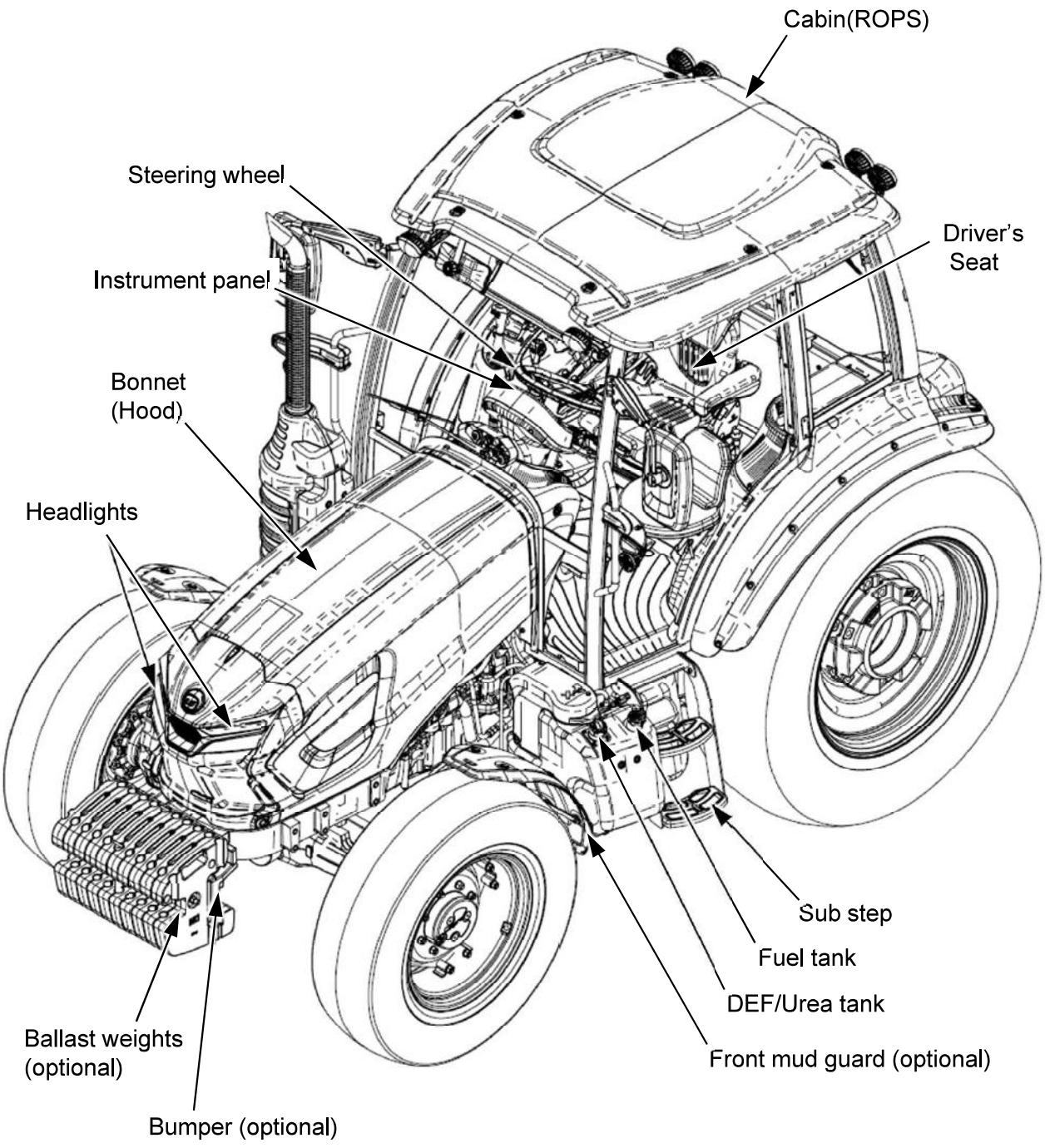
(1) The name of each part

① MT774 model



***NOTE**: Some figures may be different from your tractor depending on optional specifications.*

② MT7101 model

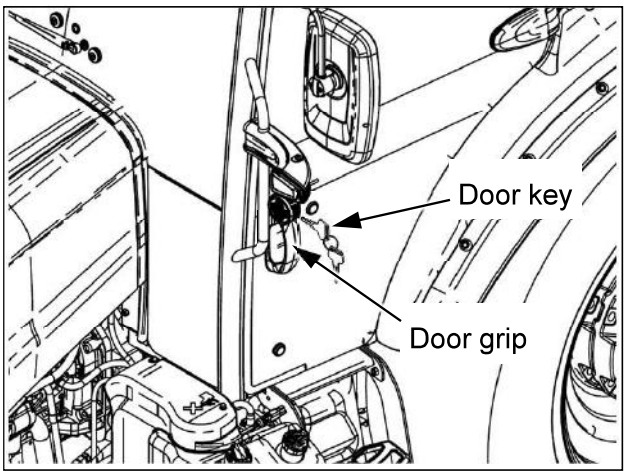


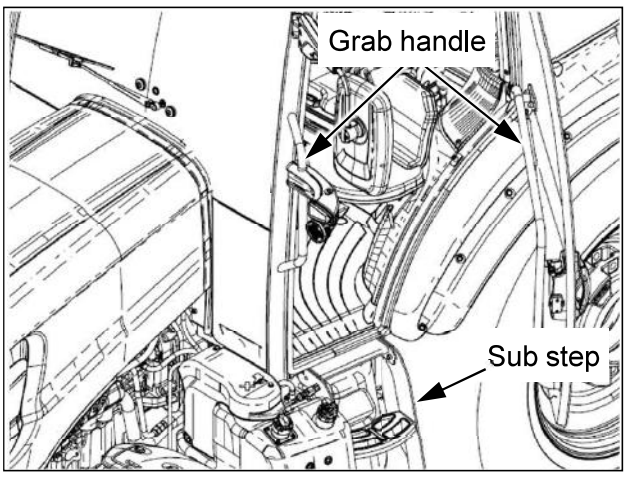
***NOTE**: Some figures may be different from your tractor depending on optional specifications.*

2-1. Boarding and Exiting the tractor

(1) Boarding the tractor

- Whenever possible, use the left-hand side door for entering.
- To enter the cabin, release the cabin door lock with the provided key and *just pull the door grip.*
- When boarding the tractor, use the sub-step, steering wheel, and grab handles provided on the cabin frame and door.
- Do not jump up/down for your safety. *Jumping on/off the tractor could cause an injury. Always face the tractor, use the grab handles and steps, and get on/off slowly. Maintain a three-point contact to avoid falling: both hands on the grab handles and one foot on the step, or one hand on the grab handle and both feet on the steps.*

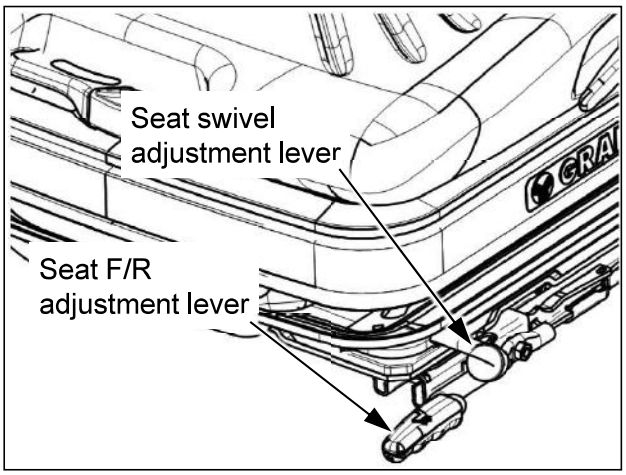




⚠ Caution	▶ **Operator's condition :** The persons such as patients, drunks, people on drugs, etc. are never allowed to operate this tractor. Only well-educated operators should use the tractor after learning the usage of controls for moving, stopping, turning and other operating. ▶ Do not grasp the gear levers when entering the cabin from the right-hand side.

(2) Seat adjustment

● Before operating the tractor, adjust the position of driver's seat according to your body size and length.

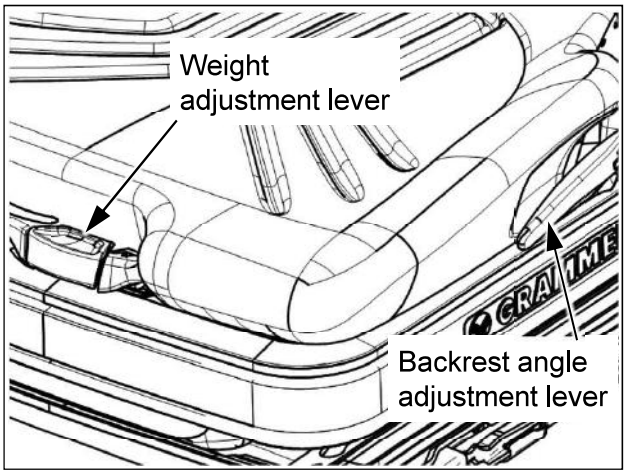


1) Seat F/R adjustment lever

- After sitting on the driver's seat, move the seat F/R adjustment lever up to release the lock.
- Move the driver's seat forward or backward according to your body length.
- Release the seat F/R adjustment lever and check if the driver's seat is locked in place.

2) Seat swivel adjustment lever

- Pull the seat swivel adjustment lever to release the lock and rotate the seat to the right side.
- Release the lever and check if the driver's seat is locked in place.
- The swiveled position is allowed only while operating in the field, and so return the seat to the neutral position before driving on public roads.

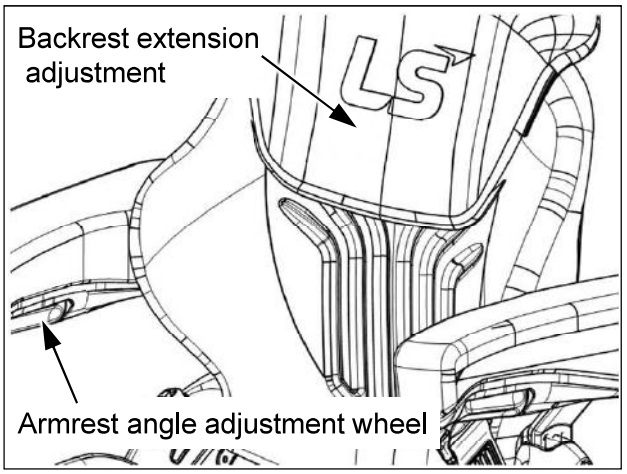


3) Weight adjustment lever

- PUSH the lever downward for light weight.
- PULL the lever upward for heavy weight after turning the key switch to the "ON" position.

4) Backrest angle adjustment lever

- Lift the lever upward to adjust the backrest angle.
- After adjusting, release the lever and check if the backrest is locked in place.



5) Armrest angle adjustment wheel

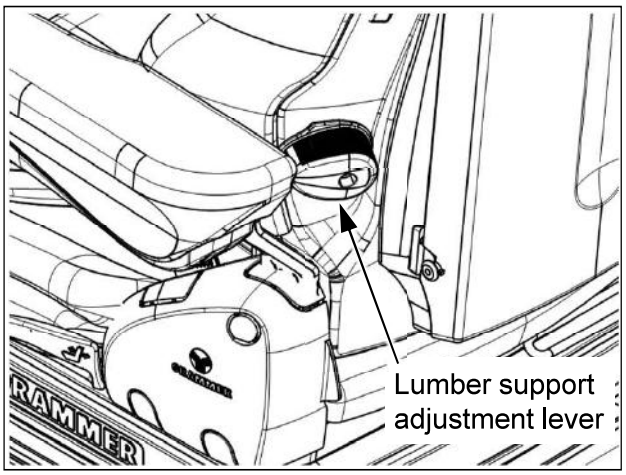
- It is used to lower/lift the armrest.
- Rotate the wheel inside to lower the armrest.
- Rotate the wheel outside to lift the armrest.

6) Backrest extension adjustment

- Pull or push down the backrest to fit your body.

7) Lumber support adjustment lever

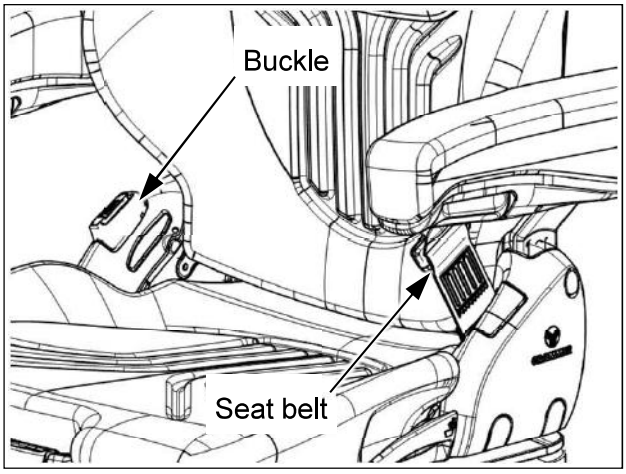
- Turn the lever counter-clockwise to raise the height of the lumber support.
- Turn the lever clockwise to lower the height of the lumber support.



warning	▶ DO NOT put your hand under the driver's seat while sitting. It may cause a serious injury by the seat suspension. ▶ DO NOT adjust the seat position while driving.

(3) Seat belt

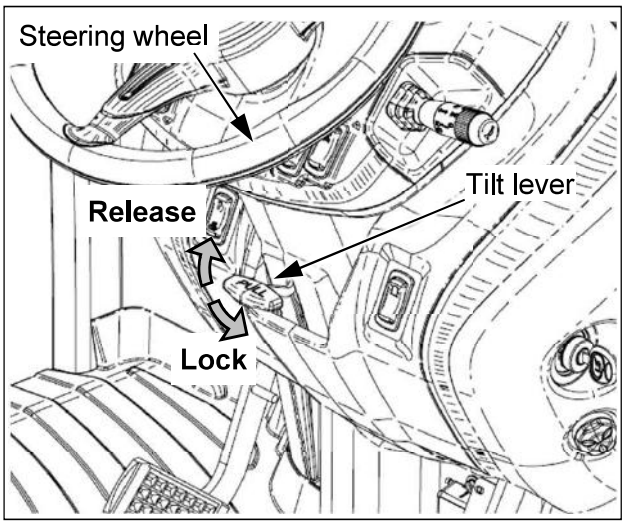
- Always wear the seat belt before operating the tractor and adjust the belt to fit your body.
  1. Insert the seat belt end into the buckle until a “click” indicates it is properly engaged.
  2. To remove the seat belt from the buckle, press the red release button on the buckle.
- Check the seat belt regularly. If damaged or frayed, replace it with a new one.



Warning	▶ If not wearing the seat belt, it may cause a serious injury in case of an accident. - While operating in a cabin or with a roll bar installed, you must wear the seat belt. After wearing the seat belt, adjust the seat belt to fit your body. ▶ If the roll-bar is folded down or removed for roll-bar models, do not wear the seat belt.

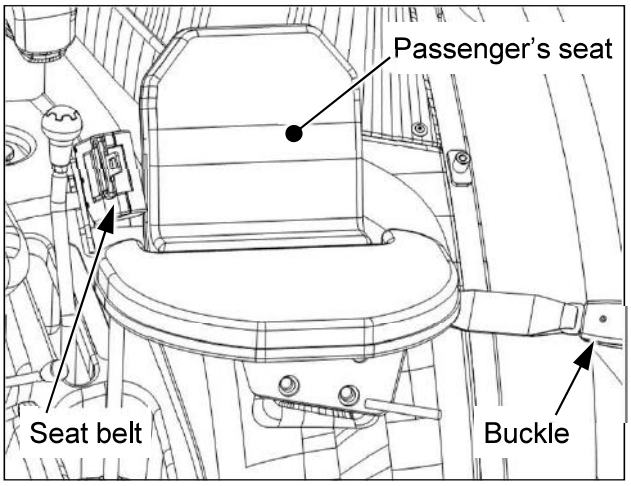
(4) Tilting steering wheel

- Pull and hold the tilt lever upward to release the steering column and tilt the steering wheel to fit your body size.
- Release the tilt lever to the locking position and make sure to check the steering wheel is locked in place firmly.
- You must adjust the steering wheel only when the tractor has stopped completely.



Caution	▶DO NOT adjust the steering wheel while driving. It may cause a serious accident.

(5) Passenger's seat (optional)

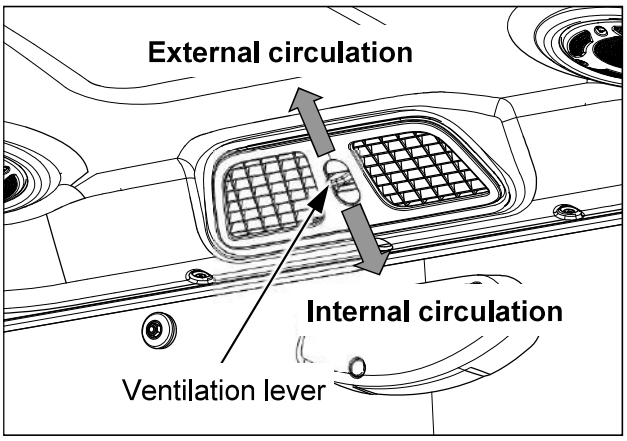


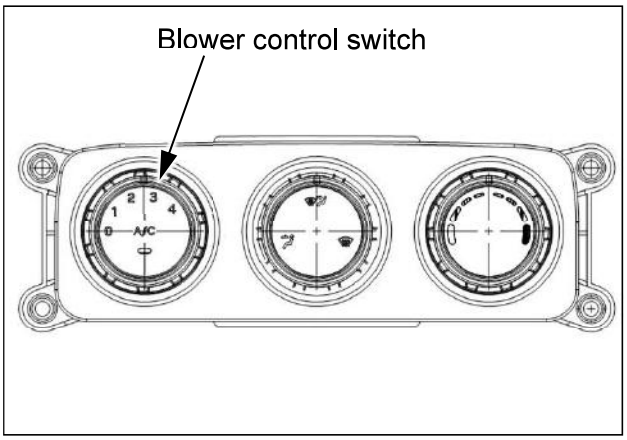
- The extra seat provided in the cab of the tractor is installed in order to allow only a trainer or a trainee to be seated safely while teaching a new operator or by dealer personnel when monitoring the function of the tractor. It is not allowed for road transportation of a passenger or for transferring passengers between fields or during operation in the field.
- The folding passenger's seat is available for some markets where local legislation permits.
- The passenger's seat is to be used only when training a new operator or when a service technician is diagnosing a problem.
- Before sitting on the passenger's seat, be sure to check the folding system is locked in the upright position. After using it, keep the seat in the folded position.
- Always wear the seat belt and adjust the belt to fit to your body.
  1. Insert the seat belt end into the buckle until a "click" indicates it is properly engaged.
  2. To remove the seat belt from the buckle, press the red release button on the buckle.
- Check the seat belt regularly. If damaged or frayed, replace it with a new one.

⚠Warning	**Misuse hazard !** ▶ Only use the passenger's seat for training new operators or when a technician is diagnosing a problem. ▶ Extra riders, especially children, are not allowed to ride on the tractor. ▶ The use of the passenger's seat is strictly forbidden for applications related with work. ▶ When the passenger's seat is occupied, the following precautions must be followed: - Tractor should only be driven at low speeds and over level ground. - Avoid driving on highways or public roads. - Avoid quick starts or stops. - Avoid sharp turns. - Always wear correctly adjusted seat belt. - Keep doors closed at all times. - Failure to comply could result in death or serious injury.

(6) Ventilation (Cabin only)

- You can adjust the ventilation lever to circulate air outside or inside the cabin.
  - **External circulation** : Air comes from outside through the cabin air filters.
  - **Internal circulation** : The air can be re-circulated inside the cabin.
- To increase the air pressure inside the cabin, move the ventilation lever to the external circulation position and turn the blower control clockwise fully.

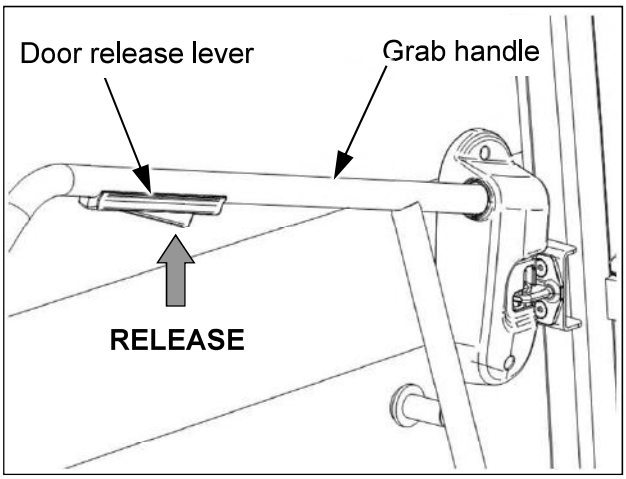




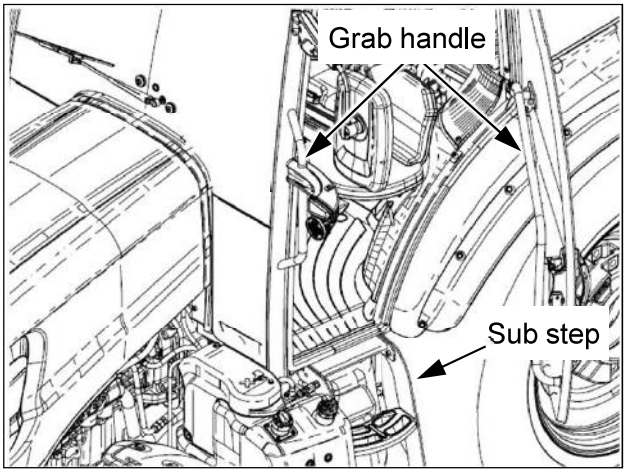
⚠ Warning	▶ DO NOT ventilate the cabin in pesticides or other hazardous chemical spraying area.

(7) Exiting the tractor

① Door (Left / Right)



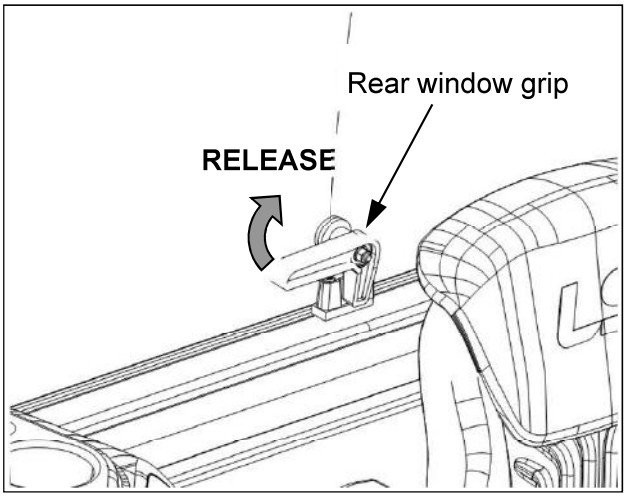
- Whenever possible, use the left-hand side door for exiting the cabin.
- To open the left/right cabin door, press the door release lever upward, and use the grab handle to push the door outside.
- Do not jump up/down for your safety. *Jumping on/off the tractor could cause an injury. Always face the tractor, use the grab handles and steps, and get on/off slowly. Maintain a three-point contact to avoid falling: both hands on the grab handles and one foot on the step, or one hand on the grab handle and both feet on the steps.*
- Remove the starter key and lock the cabin doors before leaving the tractor.



⚠ Caution	▶ Do not grasp the transmission gear levers when entering/exiting the cabin .

② Rear Window

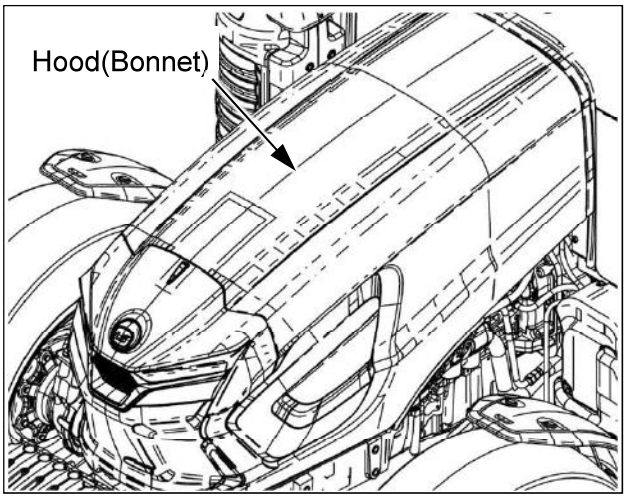
- To open the rear window for ventilation, turn the rear window grip clockwise while pulling the grip.
- Push the grip outside slightly. This rear window is held open by gas cylinders.
- This rear window can be used for emergency exit.



2-2. Safety device

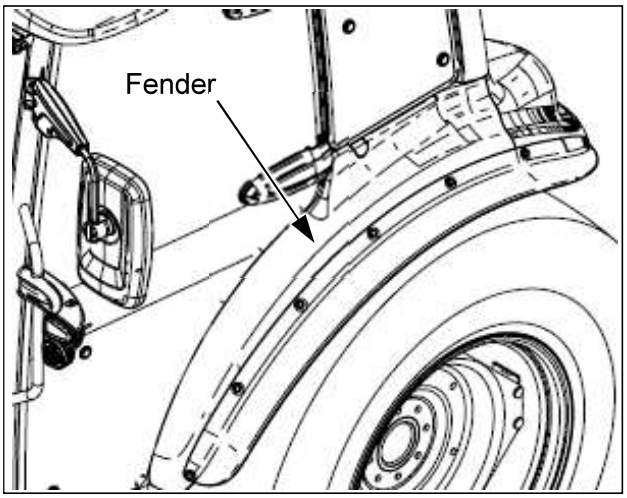
(1) Hood (Bonnet)

- Hood is a protection device to prevent an unintended access to the rotating parts around engine; cooling fan, fan belt and rotating shaft and pulley.
- Do not remove and modify the hood.



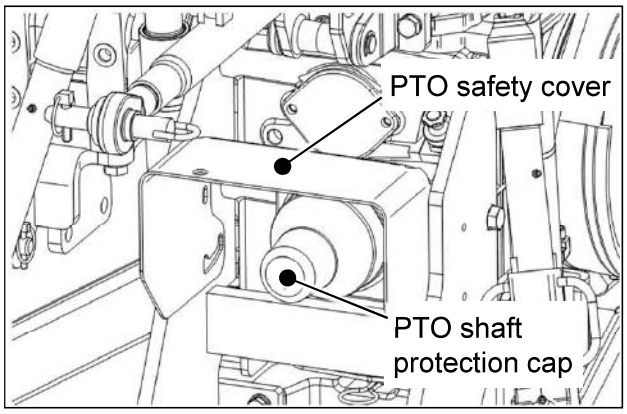
(2) Fender

- Fender is a protection device to prevent an unintended access to the rear tires and to prevent mud from irrupting to the driver.
- Do not remove and modify the fender.



(3) PTO safety cover and protection cap

- The PTO safety cover is a protective device to prevent unintended access to the PTO shaft and to prevent accidents caused by the rotating drive shaft.
- Do not remove the PTO safety cover. If the PTO safety cover or protection cap is damaged or removed, replace it with a genuine part.
- Do not step on the PTO safety cover.
- After using the PTO shaft, apply grease and insert the PTO shaft protection cap.

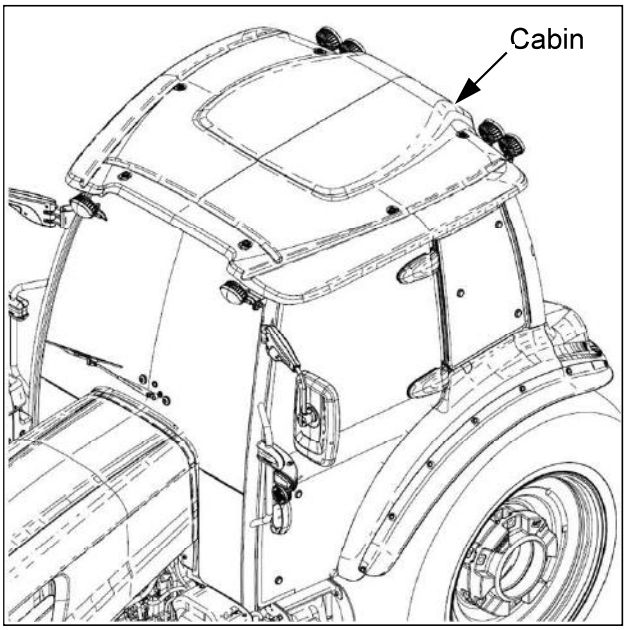


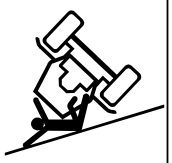
Warning 	▶ If you contact the rotating shaft, it may cause a serious injury. - DO NOT try to touch the rotating shafts. - DO NOT remove the safety covers. - Avoid loose clothes that can easily be rolled up in the rotating shaft.

(4) Roll-Over Protective Structure (ROPS)

- Cabin

- This Roll-Over Protective Structure, Cabin is an integrated and certified structure for driver's safety. This structure will reduce the risk of serious injury or death when being over-turned.
- DO NOT remove, modify or repair the cabin arbitrarily. Any damage of fire, corrosion, welding, bending, drilling, grinding and cutting of any part of the cabin, it can weaken the protective structure and reduce your protection.
- If the cabin mounting bolts or other inter-connecting parts are loosened or removed for any reason, make sure that all the parts reinstalled correctly before operating the tractor.

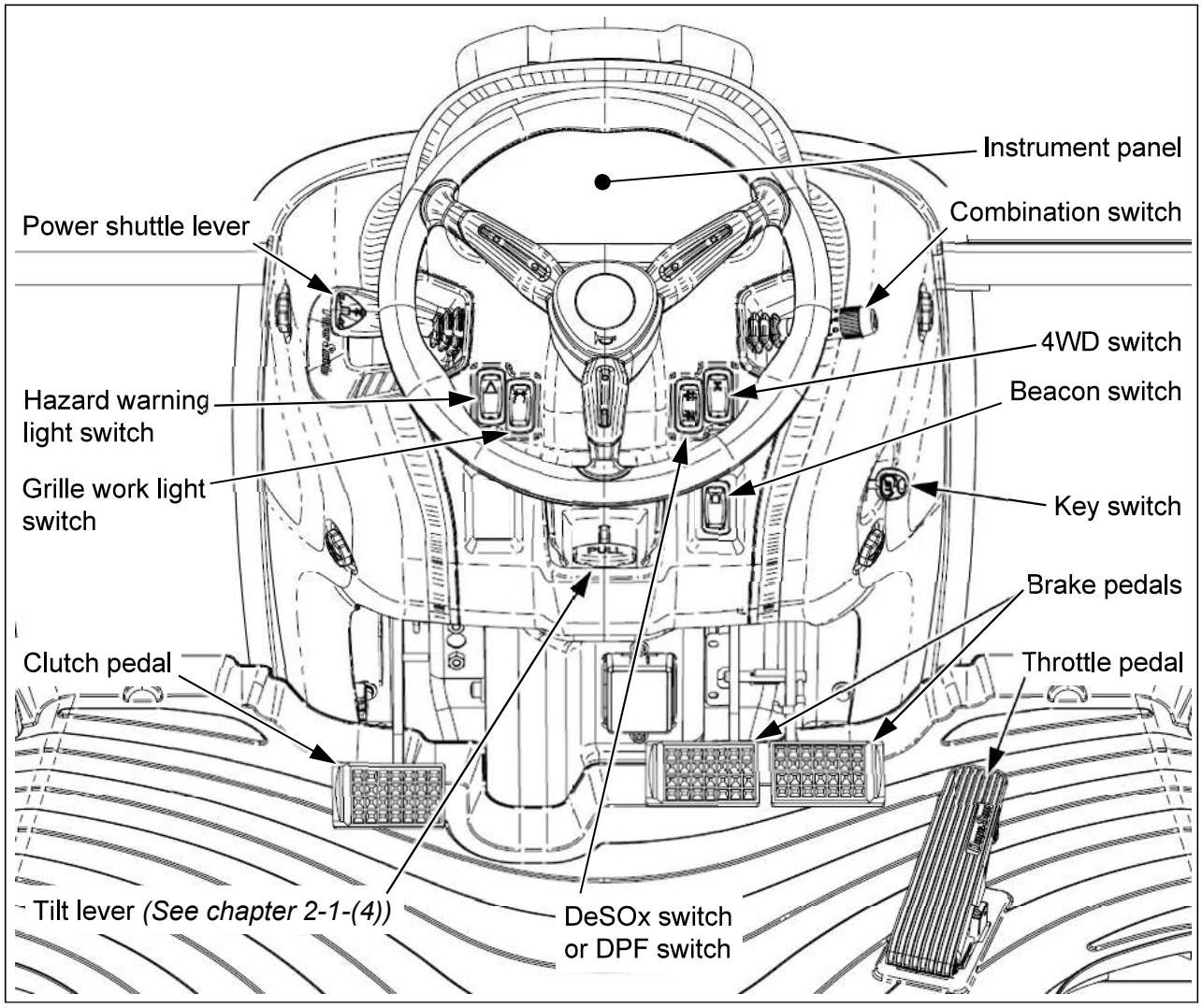


Warning	**Roll-over hazard!** Failure to comply could result in death or serious injury.
 	▶ Do not modify or remove the Roll-Over Protective Structure(ROPS) arbitrarily for safety. Unless the ROPS is installed correctly, it may cause a serious accident or death when being overturned. ▶ Be sure to stand up the Roll-Over Protective Structure(ROPS) and check the bolts, pins and nuts correctly kept in place. ▶ Always wear the seat belt when operating the vehicle in the cabin. ▶ Do not connect chains or ropes to the ROPS for pulling purposes, as the vehicle could tip over. ▶ When driving through door openings or under low overhead objects, make sure there is sufficient clearance for the ROPS. ▶ Do not step on the fender for the maintenance of cabin roof.

3. Instruments and Controls

3-1. Instrument panel and Front controls

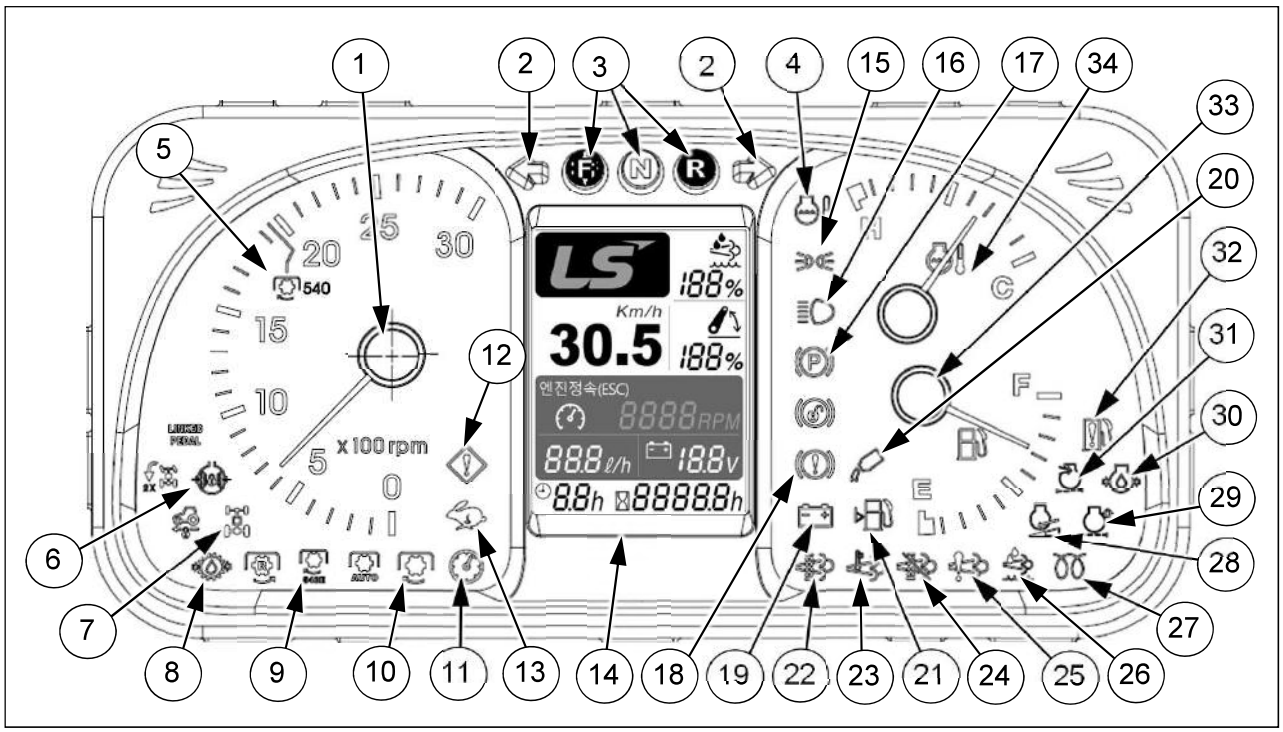
Important to owner, read carefully



NOTE: *Depending on the optional specifications, some figures may be different from your tractor.*

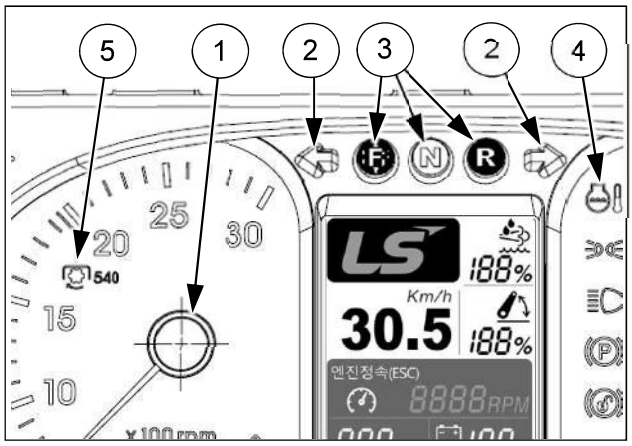
(1) Instrument panel

NOTE: *Some non-indicated indicators on the instrument panel are not used on this model.*



1. Tachometer
2. Turn signal indicator (LH/RH)
3. Forward/Neutral/Reverse indicator(optional)
4. Coolant over-heat warning indicator
5. PTO speed indicator
6. Differential lock indicator
7. 4WD indicator
8. Hydraulic oil filter pressure indicator
9. 540E PTO operation indicator
10. PTO operation indicator
11. Engine Speed Cruise control indicator
12. Vehicle control error warning indicator
13. High speed indicator (optional)
14. LCD display panel
15. Tail light indicator
16. High beam indicator
17. Parking brake indicator
18. Brake malfunction indicator (optional)
19. Battery charging indicator
20. DEF level warning indicator (MT7101 models only)
21. Low fuel level indicator
22. HC level / DPF regeneration indicator
23. DPF temperature indicator
24. DPF inhibited regeneration indicator
25. ATS malfunction indicator
26. Urea quality indicator (MT7101 models only)
27. Cold start aid indicator
28. Engine torque reduction indicator
29. Engine idle rpm increase indicator
30. Engine oil pressure indicator
31. Air cleaner service indicator
32. Fuel filter warning indicator
33. Fuel level gauge
34. Engine coolant temperature gauge

① Tachometer



- The tachometer shows the engine revolutions per minute (“10” means 1000rpm). The display will return to zero when the engine is not running.

② Turn signal indicator (Left / Right)

- When turning on the turn signal lights with the combination switch, the front/rear turn signal lights and this indicator will flash simultaneously. The key switch should be in the “ON” or “Start” position. Before turning the vehicle while driving on public roads, turn on the turn signal lights.
- When turning on the hazard warning light switch, all the turn signal light will flash simultaneously regardless of the key switch position. Use the hazard warning light switch in an emergency situation according to your local traffic regulations.

③ Forward/Neutral/Reverse indicator(optional)

- These indicators will be turned on/off when operating the power shuttle lever to the FORWARD / NEUTRAL / REVERSE position. (Power shuttle models only)

④ Coolant over-heat warning indicator

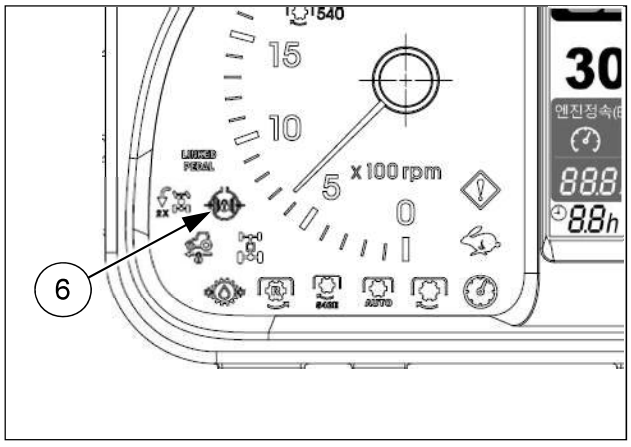
- If the engine coolant temperature goes over the critical level, this indicator will be turned on. Stop and cool down the engine immediately.
- If not cleared, contact your authorized local dealer for check.

⑤ PTO speed indicator

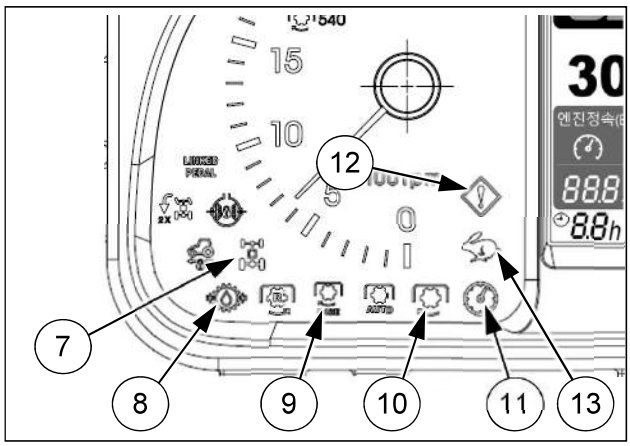
- It is determined by the position of the needle on the tachometer. The tachometer is marked to indicate 540 RPM of rear PTO.
- If the tachometer registers above the 540 RPM mark for rear PTO operation, this indicates a dangerous over-speed condition. Reduce the engine speed immediately.

⑥ Differential lock indicator

- This indicator will be turned on when activating the differential lock switch with the key switch placed in the “ON” position. Only use the differential lock switch on a slippery field ground.



(7) 4WD indicator



- When pressing 4WD switch to the “4WD” position, this indicator will be turned on.
- When pressing the brake pedals, the 4WD will be engaged automatically to brake the front wheels, and this indicator will be turned on.

(8) Hydraulic oil filter pressure indicator

- If the pressure differential of the hydraulic oil filter is increased over the designated level, this indicator will be turned on. Replace the oil filter with a new one.
- It may be turned on in cold winter temporarily. At this time, warm up the transmission oil and recheck the indicator.

(9) 540E PTO operation indicator

- When the PTO gear lever is in the 750/540E RPM position, and the PTO switch and 540E PTO switch are in the “ON” position, this indicator will be turned on, and the engine maximum speed will be restricted in this mode.

(10) PTO operation indicator

- When the key switch is in the “ON” position and the PTO mode switch is in the **“MANUAL**” position and the PTO switch is in the “ON” position, this indicator will be turned on.
- If the PTO mode switch is in the “**AUTO**” position, the rear PTO and this indicator will be turned off to protect the PTO drive shaft when the clutch pedal is depressed or the rear implement is lifted up over the specified limit.

(11) Engine Speed Cruise control(ESC) indicator

- This indicator is turned on when operating the ESC main switch to the “ON” position and the ESC mode is ready.

(12) Vehicle control error warning indicator

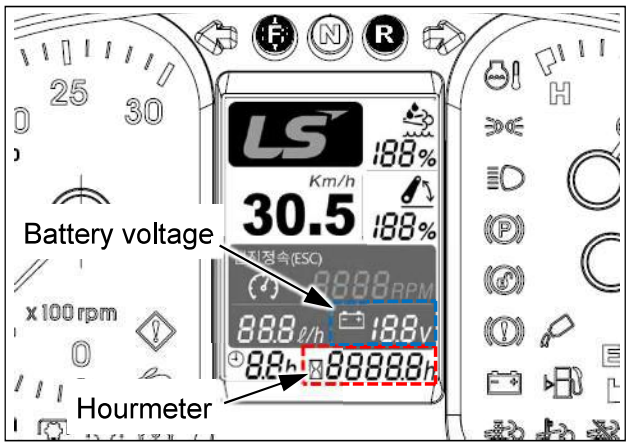
- If there is any significant error on the vehicle control, this indicator will be turned on. Contact your authorized local dealer for check.
- This indicator shows detailed information for vehicle control error in combination with other indicators. *For further details, see chapter 3-1-(2) in this manual.*

(13) High speed indicator (optional)

- When the key switch is in the “ON” position and the HI speed switch for power shuttle models (optional) is activated, this indicator will be turned on. *For the details, see chapter 3-2-(4), “HI-LO select switch” in this manual.*

⑭ LCD display panel

ⓐ Hourmeter

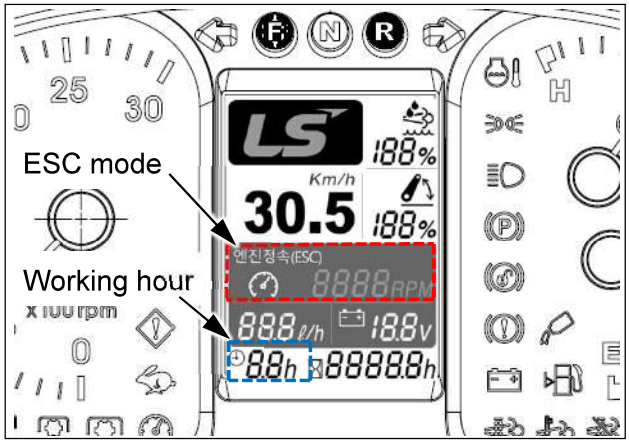


- If your tractor is working on the normal conditions, accumulated operating hours will be displayed as shown in the right figure.
- It records the hours that your tractor has been operated regardless of the engine RPM. Use the hourmeter as a guide to determine hourly service and maintenance intervals.
- The number, 0019.1 in the hourmeter means the tractor has been used for 19.1 hours so far. (19 hours and 6 minutes)

ⓑ Battery voltage

- Current available battery voltage is displayed.

ⓒ Engine Speed Cruise control(ESC) mode

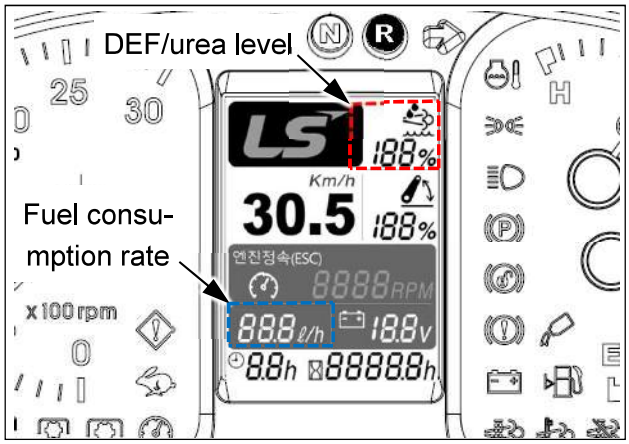


- The RPM stored in the ECU for Engine Speed Cruise control(ESC) and selected mode is displayed in the normal operating conditions.
- If an error(s) is occurred on the vehicle control system, the related diagnostic trouble code(s) is displayed sequentially.

ⓓ Working hour

- Continuous operating hours from turning the key switch to the ON position until now is displayed.

ⓔ DEF/urea level



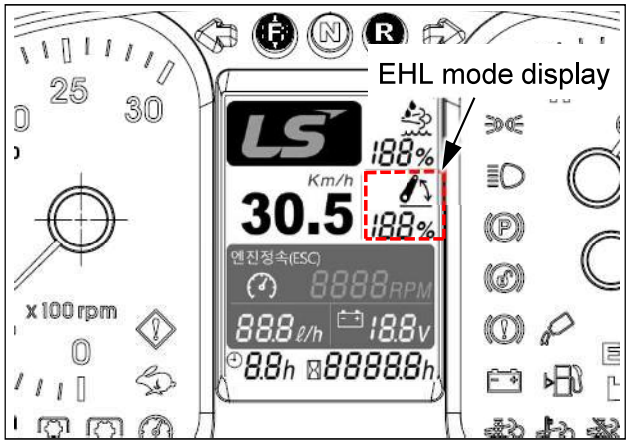
- This display shows the DEF/urea level in percent ratio.
- It is a catalyst for engine after-treatment process.

ⓕ Fuel consumption rate

- Average fuel consumption rate is displayed.

⑨ EHL mode display (optional)

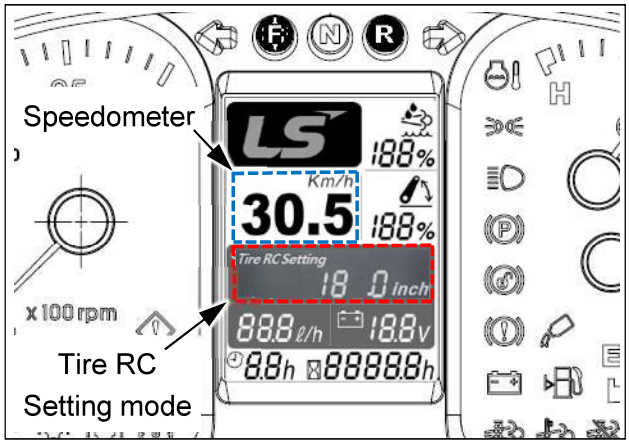
- It displays the control status of the Electro-Hydraulic Lift (EHL, optional).
- It displays the height of the hydraulic lift-arms as a percentage of the maximum lift height.

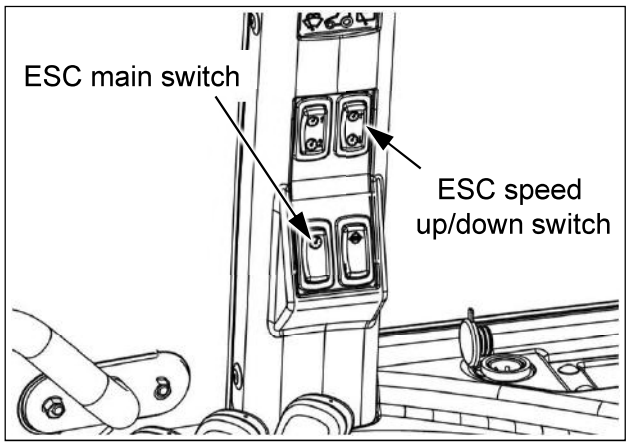


⑧ Speedometer

- Current vehicle speed is displayed in km/h or mph(mile/h) unit. This is theoretically calculated from the tire rolling circumference and the display unit can be changed as below.
- ***Changing Unit(km/h ←→ mph, mm←→inch):***

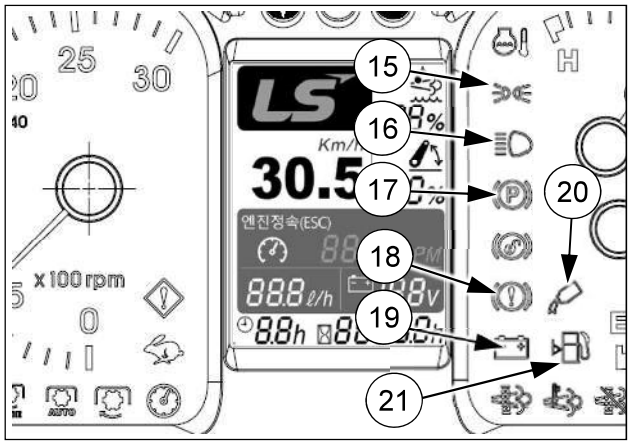
1. Turn off the engine, and apply the parking brake.
2. ***Entering edit mode***: Turn key switch to the “ON” position with pressing the upper side of the ESC main switch. At this time, the “*Tire RC Setting*” will be displayed.
3. Press the upper side of the ESC main switch shortly(within one second). The units of the tire rolling circumference and vehicle speed will be changed.
4. ***Editing tire rolling circumference***: In edit mode, the first digit will blink at first. If pressing the upper side of the ESC speed up/down switch, the next digit will blink. If pressing the lower side of the switch, the number is changed from ”9” to “0” each time when you press.
5. If pressing the upper side of the ESC main switch for over two seconds, your data will be saved and the edit mode will be exited. If pressing the lower side of the ESC main switch or turn key switch to the “OFF” position, your input data will not be saved and the edit mode will be exited.





(15) Tail light indicator

- When turning the key switch to the ON position and turning on the combination light switch, the side lights, tail lights and this indicator will be turned on at the same time.



(16) High beam indicator

- When turning on the high beam of the headlamps, this indicator will be turned on simultaneously. Do not turn on the high beam when a vehicle comes in the opposite lane.

(17) Parking brake indicator

- This indicator will be turned on when applying the parking brake. If shifting the power shuttle lever forward or reverse when the parking brake is engaged, this indicator will blink with alarming buzzer. Do not drive the vehicle with the parking brake applied.

(18) Brake malfunction indicator (optional)

- If the trailer brake air pressure is lower than the designated level, this indicator will be turned on. (optional)
- If the oil level in the brake oil tank is lower than the designated level, this indicator will be turned on.

(19) Battery charging indicator

- This indicator will be turned on when turning the key switch to the “ON” position and it will be turned off after starting engine.
- If this bulb becomes lit during operation, it indicates that the charging system is not operating normally. As the battery can be completely discharged under these conditions, contact your authorized local dealer for checking the electrical charging system.

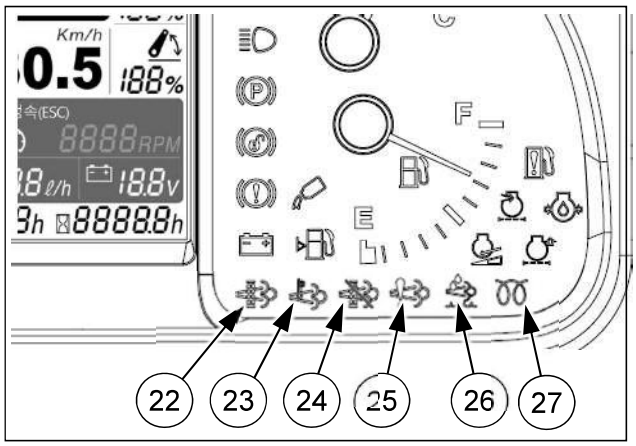
(20) DEF level warning indicator (MT7101 model only)

- This indicator shows that DEF/urea level is low and the urea tank is need to be refilled soon. Depending on the urea level, the displays is changed. *For further information, see chapter 3-1-(2) in this manual.*

(21) Low fuel level warning indicator

- When the fuel level in the fuel tank is below minimum level, this indicator will be turned on. If this indicator turns on, fill the fuel tank immediately with fuel.
- When working on the uphill/downhill, the fuel can be exhausted before this indicator is turned on. Add fuel in advance.

(22) HC level / DPF regeneration indicator



① MT774 model

- When the regeneration process in the DPF is working, this indicator will be turned on with continuous light. It is not a failure but normal operation.
- ***If this indicator is blinking, it means that the soot is over accumulated in the DPF. Comply with the instructions of the chapter 3-1-(14), "DPF switch" in this manual.*** *For further information about this indicator, see chapter 3-1-(15) in this manual.*

② MT7101 model

- This indicator shows that HC level in the SCR device is so high. At this time, the engine low idle will be boosted up automatically and the HC burning process will go on.
- After the burning process is finished, this indicator will be turned off.

(23) DPF temperature indicator

- When the regeneration process in the DPF is working and the DPF temperature is over the designated temperature, this indicator will be turned on with continuous light.

(24) DPF inhibited regeneration indicator

- When the DPF switch is pressed to Inhibited regeneration mode, this indicator will be turned on and the regeneration of the DPF will be inhibited or stopped.

(25) After-treatment system(ATS) malfunction indicator

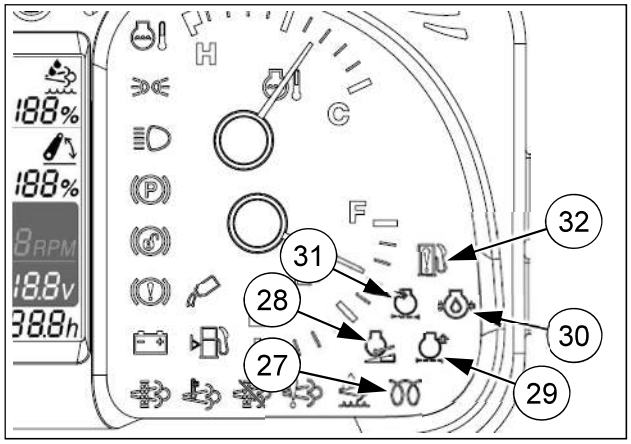
- There is any error in the Selective Catalytic Reduction(SCR) for reducing the NOx in the exhausted gas. This indicator will inform you about DEF/urea level, system malfunction, and engine torque reduction in combination with other indicator. *For further information, see chapter 3-1-(2) in this manual.*

(26) Urea quality indicator (MT7101 model only)

- This indicator will light or blink depending on the warning level of the quality of the DEF/urea solution.
  - First level : Solid on
  - Second, Final step : Blink

(27) Cold start aid indicator

- If the cold start aid device is working, this indicator will be turned on, and it will be turned off about 10 seconds later. After the indicator is turned off, start the engine.



(28) Engine torque reduction indicator

- This indicator shows the engine is going on under the engine torque reduction process due to an error in the After-treatment system (ATS).

(29) Engine idle rpm increase indicator

- If the engine speed is needed to be increased for normal after-treatment process while the parking brake is applied and the power shuttle lever is in the neutral position and the PTO switch is in the OFF position, the engine low idle will be increased automatically and this indicator will be turned on. If any of the above safety measurements are not met, this indicator will blink.

(30) Engine oil pressure indicator

- The light indicates oil pressure only and goes out when sufficient oil pressure is present at the oil sender.
- This indicator will be turned on when turning the key switch to the “ON” position and it will be turned off after starting engine.
- If the indicator is turned on during operation, stop the engine immediately and check the engine oil level. If the engine oil level is normal, contact your authorized local dealer for checking the engine lubrication system.

(31) Air cleaner service indicator

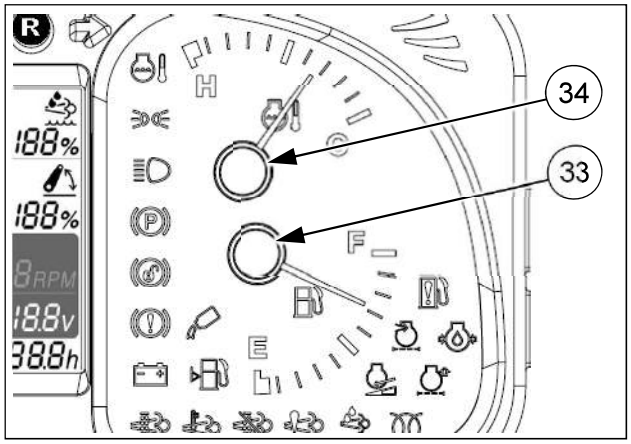
- If the air cleaner element is clogged, and the differential pressure is increased, this indicator will be turned on. After stopping the engine, clean or replace the filter element with a new one.

(32) Fuel filter warning indicator

- When there is a restriction or excess water in the fuel filter, this indicator will be turned on. Remove water in the fuel filter. *(See chapter 5-5-(1) in this manual)*

(33) Fuel level gauge

- This gauge displays the fuel level in the fuel tank. If the needle indicates “**E**”, fill the fuel tank immediately with fuel.
- The gauge activates when the key switch is in the ON position. It will register “empty” with the key switch in the OFF position.



(34) Engine coolant temperature gauge

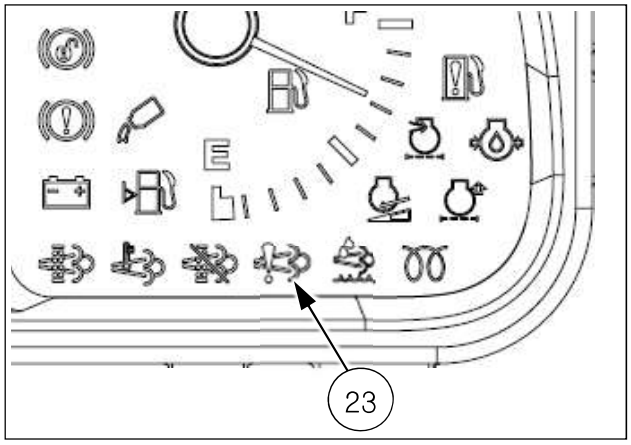
- This gauge indicates the engine coolant temperature during operation. It activates when the operator turns the key switch to the “ON” position. The gauge will register cold with the key switch in the OFF position.
- The closer the needle approaches “**H**” mark, the higher the engine coolant temperature is. If the needle moves to red portion of the gauge, this indicates an overheated condition. Stop the engine immediately and check the problem.
- Engine coolant is very hot. When checking the coolant, comply with the instructions of the chapter 5-12-(1), “Replacement of Engine coolant” in this manual.

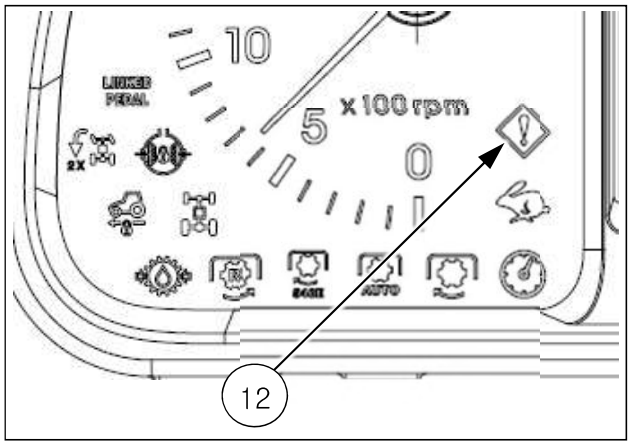
(2) Warning system and inducement strategy related to ATS

① MT774 model only

Engine torque and rpm inducement due to after-treatment system error

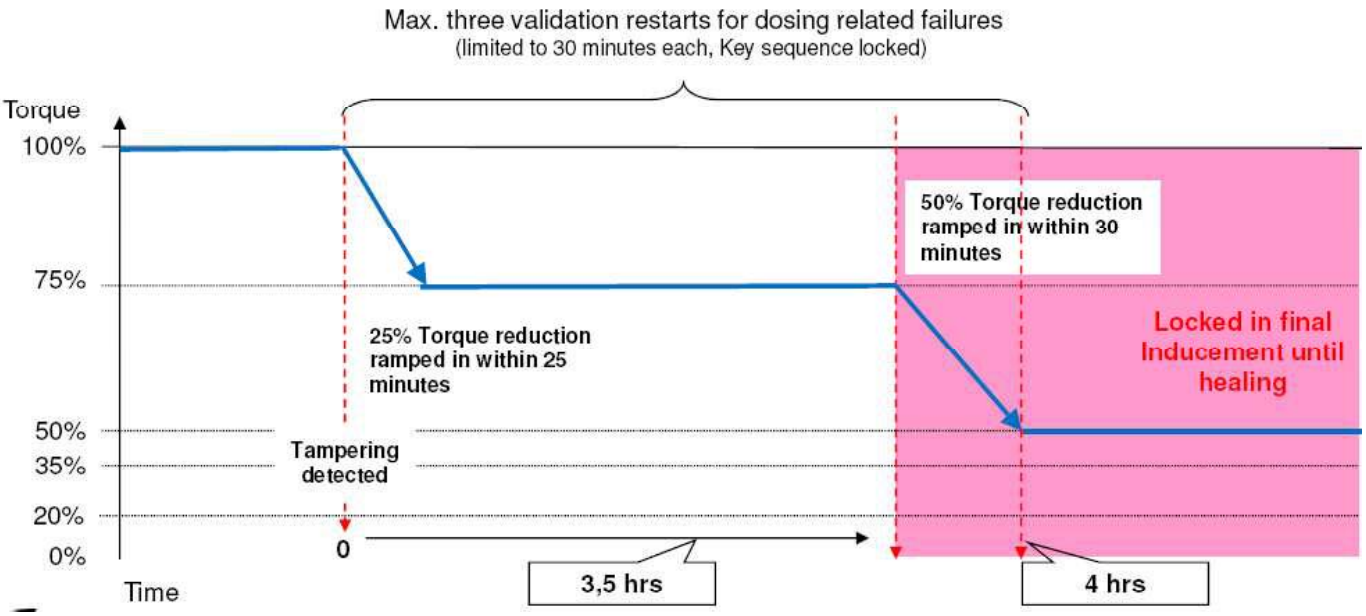
- If a defect occurs in the various sensors and related electrical devices that detect the temperature or pressure of exhaust gas related to the operation of the exhaust gas recirculation (EGR) or DOC+DPF device, the exhaust gas after-treatment device cannot operate normally. If this condition continues for a long time, it can lead to environmental pollution and major failure of the exhaust gas after-treatment device and engine.
- In order to notify the driver of this situation and enable him/her to take action, the engine output is lowered and the engine speed and torque are reduced.
- If the after-treatment system(ATS) malfunction indicator **(23)** comes on on the instrument panel, please contact your authorized local dealer or service center immediately to check the problem. If the problem is not resolved within the designated time, engine output will be reduced once more and the vehicle control error warning indicator **(12)** will also turn on. Please see the next pages for more details.





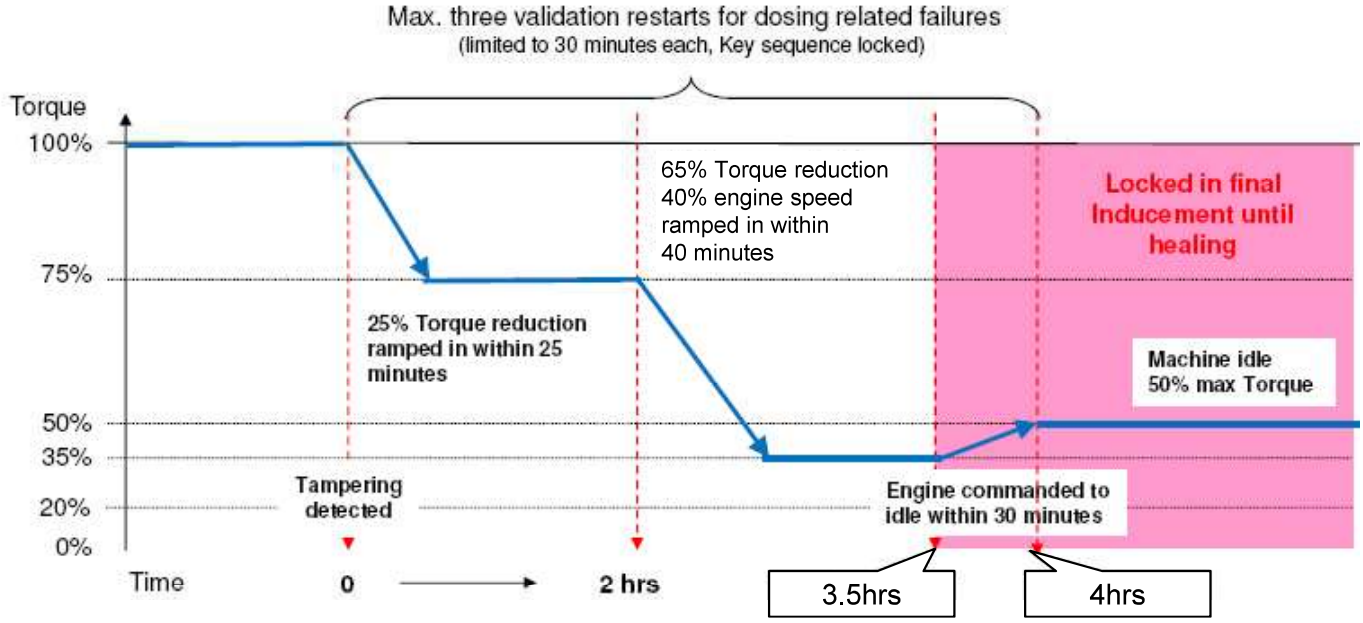
ⓐ Engine inducement strategy – EGR technical failure

	First step	Second step
Symbol	 ON ON(Red)	 Blink(60Hz) ON(Red)
Meaning	EGR valve or system failure was detected.	EGR valve or system failure was not recovered within 3.5 engine running hours.
Induce-ment	25% Torque reduction ramped in within 25 minutes	50% Torque reduction ramped in within 30 minutes



ⓑ Engine inducement strategy – System tampering detection

	First step	Second step	Final step
Symbol	 ON	 Blink(1Hz) ON	 Blink(1Hz) ON ON(Red)
Meaning	System tampering was detected. (Electric, technical defect)	System tampering detected was not recovered within 2 engine running hours.	System tampering detected was not recovered within 3.5 engine running hours.
Induce-ment	25% Torque reduction, 25% engine speed ramped in within 25 minutes	65% Torque reduction, 40% engine speed ramped in within 40 minutes	65% Torque reduction, engine commanded to idle within 30 minutes



② MT7101 model only

- System will distinguish among 4 failure categories
  1. DEF level
  2. Poor DEF quality
  3. SCR system total failures / tampering
  4. EGR failures

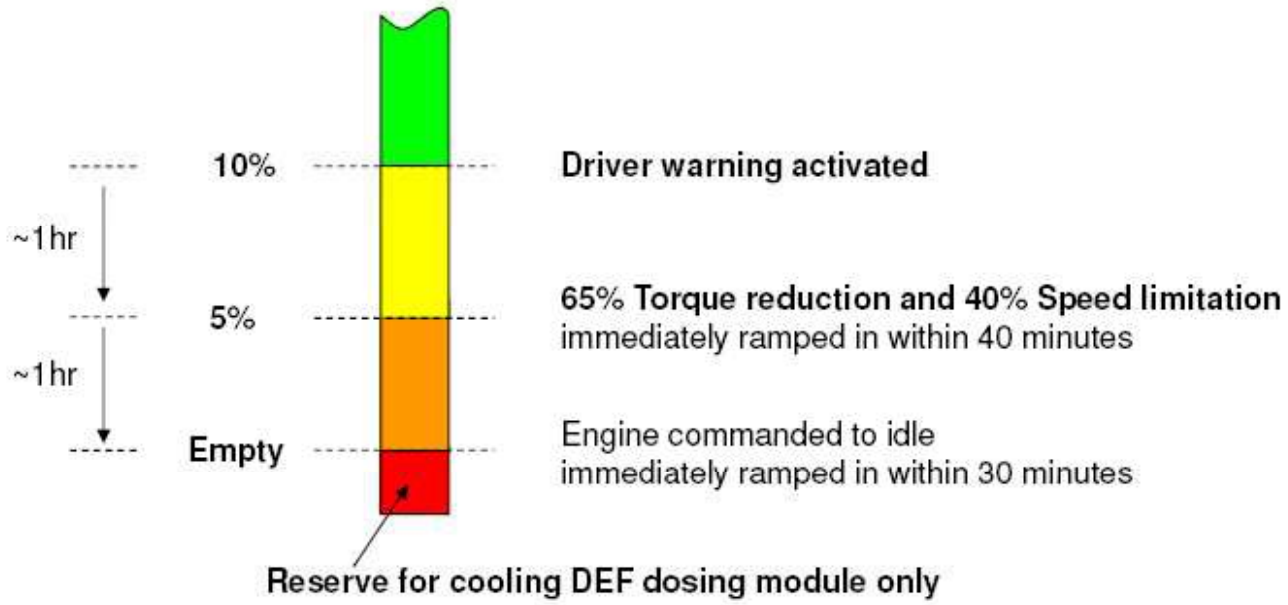
- Up to 4 inducement steps
  - Type of reaction is for all categories the same, only time to reaction differs

1. Driver information	Warning lamp activated
2. First step	25% torque reduction Immediately ramped in, maximum 25 minutes
3. Second step	65% torque reduction, 40% engine speed reduction Immediately ramped in, maximal 40 minutes
4. Final step	Machine idle, limited to 50% maximum engine Torque Immediately ramped in, maximum 30 minutes

General items

- Vehicle reach final inducement after 4 hours of operation after failure detection.
- Three full power restarts (validation restarts for healing) part of 4 hours time frame.
- Validation restarts
  - Validation restarts allowed any time after detection.
  - Validation restarts are key cycle locked to avoid unintended activation.
  - Limited to 30 minutes each.
  - After expiring of the 30 minutes is the engine immediately ramped down to final inducement.
  - Validation restart is available only for failures that need heated up after treatment system or active dosing – not for electrical failures, DEF quality or DEF level.
- Repeated offenders: after 3 failure detections within 40 hours inducement locked
- Failures can be reset only with a dealership tool
  - SCR inducement failures.
  - Reset of repeated offenders time & event counter.

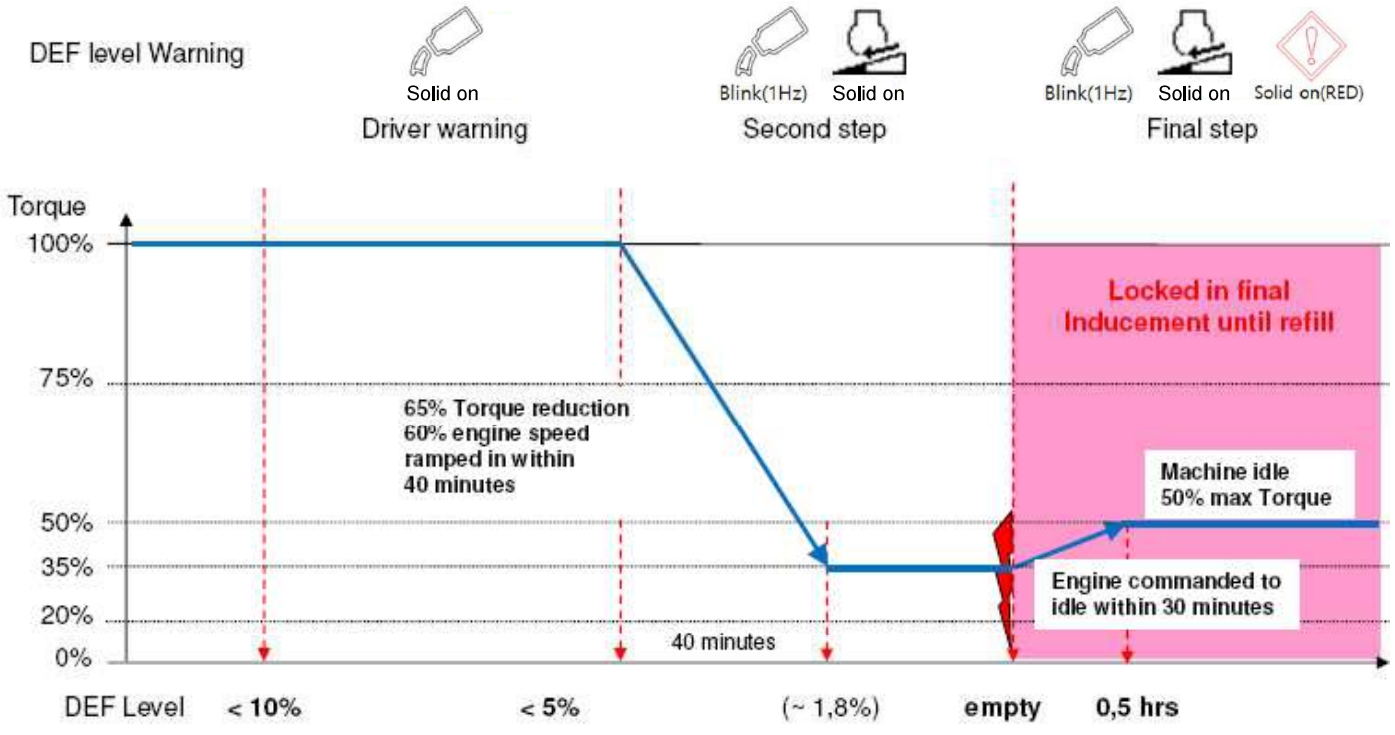
ⓐ SCR inducement strategy - Low DEF level



Warning & Inducement for low DEF level

Tier 4 final

Visual and audible warnings used for inducement may vary depending on the design of the display units.

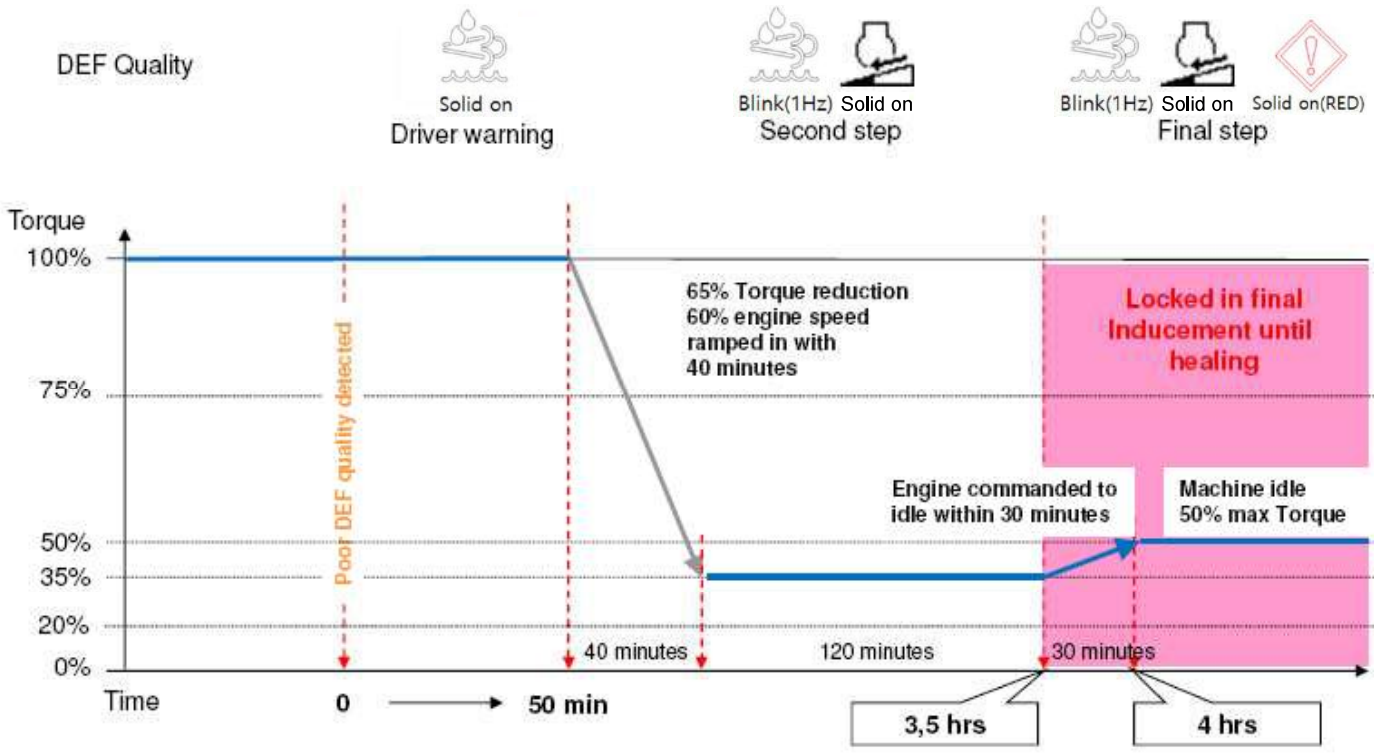


ⓑ SCR inducement strategy – poor DEF quality

Warning & Inducement for poor DEF quality

Tier 4 final

Visual and audible warnings used for inducement may vary depending on the design of the display units.



ⓒ SCR inducement strategy – SCR System tampering detection

Warning & Inducement for tampering MY15+

Tier 4 final

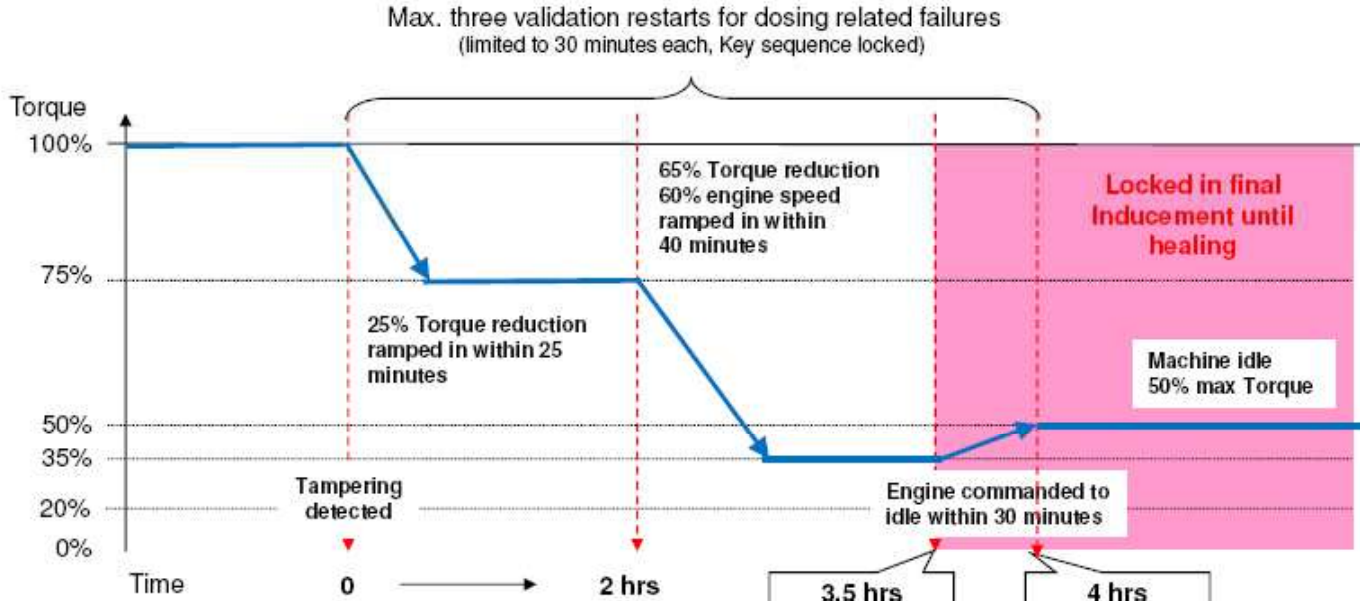
Visual and audible warnings used for inducement may vary depending on the design of the display units.

DEF Technical failure symbol

Solid on
First step

Blink(1Hz) Solid on
Second step

Blink(1Hz) Solid on Solid on(RED)
Final step



ⓓ SCR inducement strategy – EGR technical failure

- Failure categories
  - EGR valve electrical failure
  - Monitors of failures that can be attributed to tampering (e.g.: electrical failures on EGR systems sensors)
  - Monitors that require EGR valve closure as recovery action
- Up to 2 inducement steps
  - First Step : 25% of power reduction
  - Second Step : 50% of power reduction

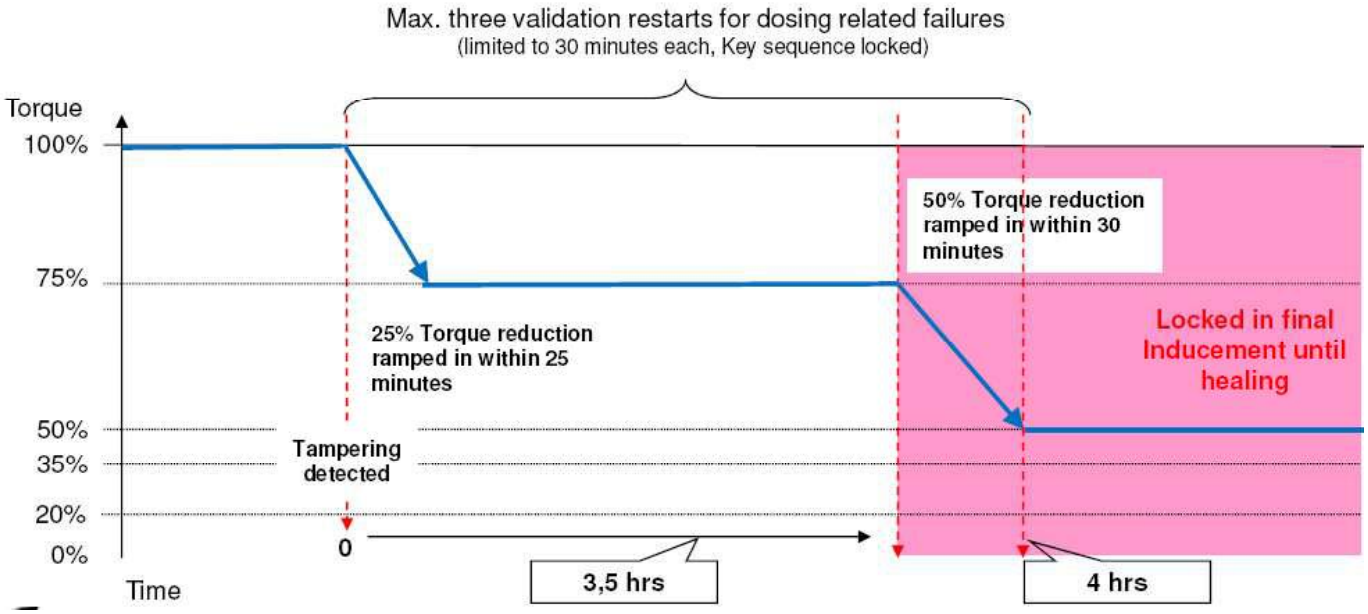
Warning & Inducement for tampering failures

Tier 4 final

Visual and audible warnings used for inducement may vary depending on the design of the display units.

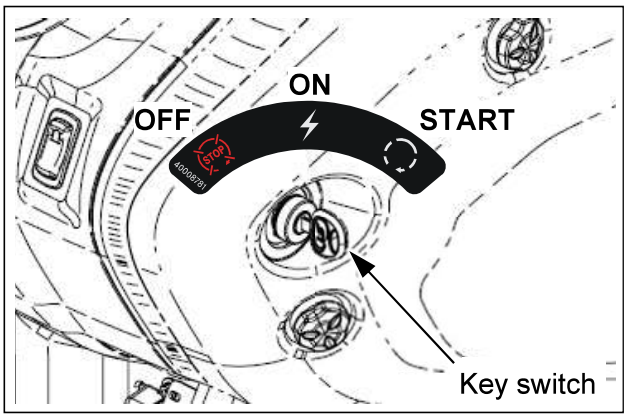
EGR Technical failure symbol

First step　　Final step



(3) Key switch

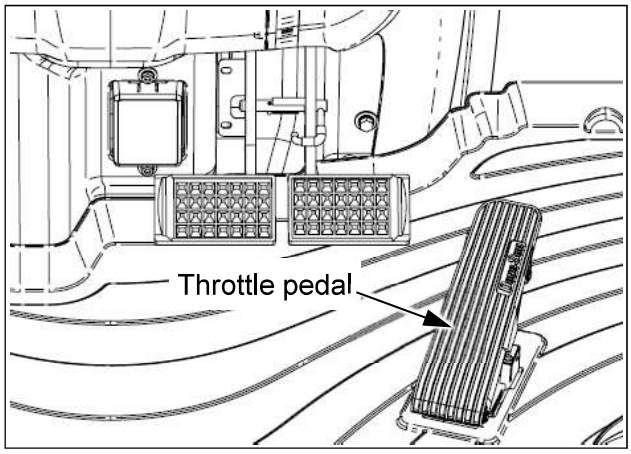
- "**OFF**" – power off (engine stop)
- "**ON**" – power on
- "**START**" – engine start
- As soon as the engine starts, turn the ignition key to the "ON" position immediately. Otherwise, it may cause damage to the starter motor.



Caution	▶ To start the engine, the start-up safety switch should be engaged. - sit in the driver's seat and put the PTO switch to the "OFF" position, - depress the clutch pedal fully and place the power shuttle lever in the neutral position, and then turn the key switch to the "Start" position. *See chapter 4-2-(1), "Engine Start" in this manual.* ▶ If the tractor is not in use, the ignition key should be removed.

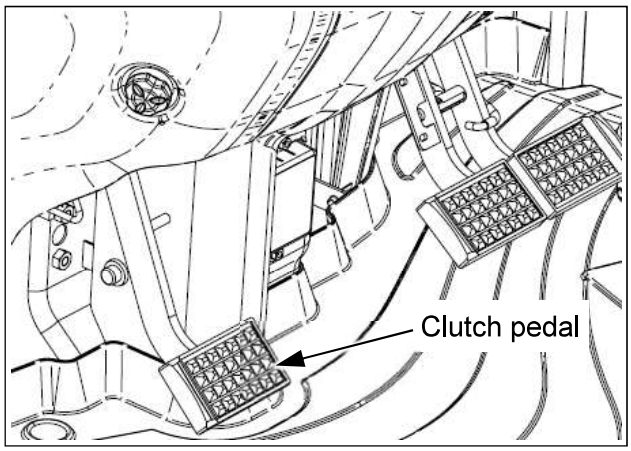
(4) Throttle pedal

- This pedal is used when driving on the road.
- When pressing the throttle pedal, the engine speed will be increased.
- When using the throttle pedal, the throttle lever must be placed in "Low speed" position.
- When pressing brake pedals with pressing the throttle pedal first, the engine speed will be changed to the low idle speed.
- When pressing the throttle pedal with pressing brake pedals first, the engine speed will be controlled by the throttle pedal.
- There is a sensitive electric sensor on the throttle pedal. Do not remove or modify the throttle pedal arbitrarily.



Caution	▶ When driving on the road, place the throttle lever to the low speed position and use this throttle pedal.

(5) Clutch pedal

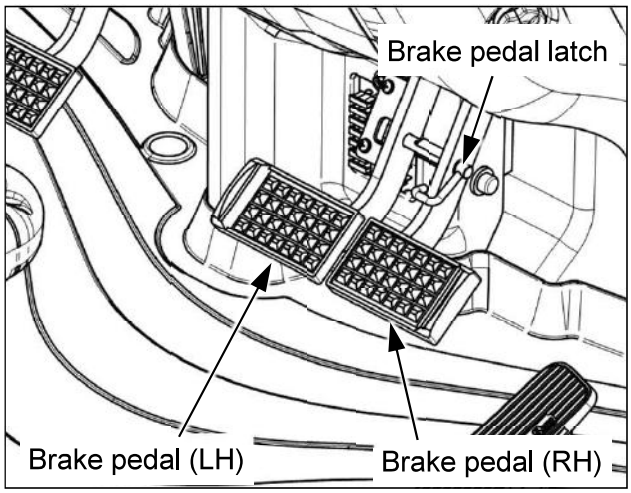


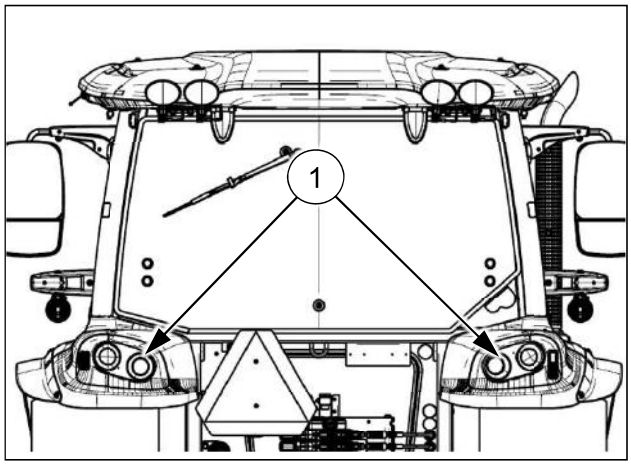
- This pedal is used to engage or disengage the main transmission clutch for engine start, transmission gear shift and stopping tractor.
- To disengage the clutch, depress the clutch pedal quickly and fully, and release it slowly.
- When depressing the clutch pedal, if the PTO mode switch is placed in the "**Manual**" position, the PTO shaft will rotate regardless of the clutch pedal. If the PTO mode switch is placed in the "**AUTO**" position and the clutch pedal is fully depressed, the PTO shaft will be stopped.
- If the clutch pedal sensor has trouble or an error, the engagement or disengagement of the clutch is NOT smoothly operated and it's corresponding error code is displayed on the instrument LCD panel with an intermittent alarming beef. In this case, the tractor can be moved by using the power shuttle lever. After moving the tractor to the safe area, contact your authorized local dealer for check.
- To protect the radical wear of the clutch, if the engagement time is lasted over 6 seconds, an alarming buzzer will sound off, and if lasted over 8 seconds, the clutch will be disengaged completely. In this case, operate the power shuttle lever again from the neutral position or depress the clutch pedal fully one time to recover the power shuttle system.
- When driving the tractor on a slope, especially with heavy loaded implements, select a suitable driving speed to start the tractor. Long-lasted clutch engagement at a high transmission gear ratio and high engine speed can cause serious damage to the clutch pack.

⚠Caution	► Depress the clutch pedal quickly and fully, and release it slowly. ► As the start safety switch is installed for operator's safety, depress the clutch pedal fully to start the engine. ► Do not ride your foot on the clutch pedal while driving the tractor. ► If the engagement time is lasted over 8 seconds on a slope, the engine power will be cut off by the safety interlock system. It means that the tractor can slip down and your special care must be taken. At this time, press the brake pedals immediately and recover the power shuttle system by depressing the clutch pedal fully or re-operating the power shuttle lever from the neutral position.

(6) Brake pedals

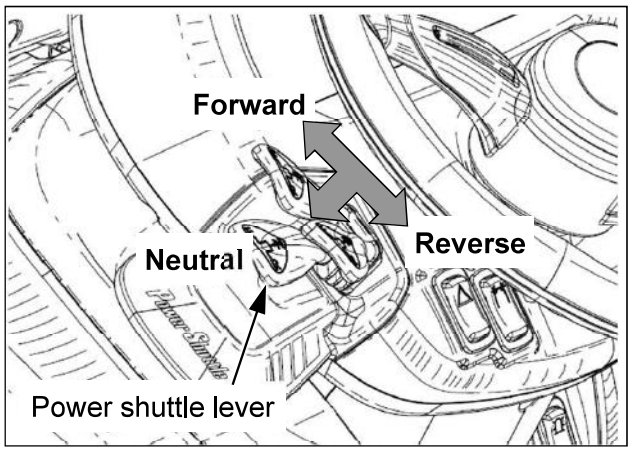
- When stopping the tractor, press both brake pedals together after depressing the clutch pedal fully.
- If the brake pedals are not locked with the brake pedal latch, the left and right brakes pedal can be operated independently. The left/right brake pedal transmits the braking force on each wheel. This one-brake pedal operation is useful to reduce the turning radius in field ground.
- To reduce the turning radius in the work field, release the brake pedal latch, and press only the left/right pedal firmly.
- When driving on public roads, connect the brake pedals with the brake pedal latch.
- DO NOT press the one-brake pedal while the differential lock is engaged. It may cause damage or failure of the rear axle.
- When the brake pedals are pressed, the 4WD will be engaged automatically to brake the front wheels.
- When pressing the brake pedals while pressing the throttle pedal first, the engine speed will be changed to the low idle rpm.
- The brake lights① will illuminate when the brake pedal is depressed and the key switch is in the “ON” position.



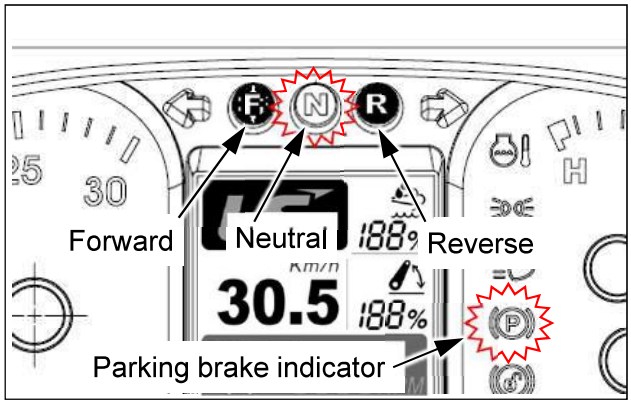


⚠Caution	▶When driving on public roads, engage the brake pedals with the brake pedal latch. If pressing the one-side brake pedal while driving, the tractor may turnover. ▶DO NOT ride your foot on the brake pedals while driving to prevent the brake disks or other brake system components from being damaged.

(7) Power shuttle lever



- Your tractor has an advanced electro-hydraulic power shuttle system which controls the movement (Forward/Reverse/Stop) of the tractor by engaging or disengaging the multi-disk clutches.
- This is used to select the forward or reverse drive. To change the forward or reverse, *lift up the power shuttle lever and just push it forward or pull it back without depressing the clutch pedal.* This system will provide you more convenient forward-reverse operation than mechanical synchro-shuttle system.
- Before reversing the tractor, lower the engine speed and check the safety conditions behind your tractor.



- If the transmission oil temperature is below the specified temperature, the neutral (N) indicator on the instrument panel will flash to remind you that warm-up is required. The indicator will automatically turn off when the oil temperature is higher than the specified temperature.
- If the oil temperature is considerably lower than proper level, a shock due to sudden engagement of the power shuttle clutch may occur. Before operating the power shuttle lever, be sure to warm-up the engine and transmission oil sufficiently in cold weather.
- If shifting the power shuttle lever forward or reverse in the state of vacant driver's seat, it can cause a severe accident. Be sure to SEAT IN THE DRIVER'S SEAT.
- If shifting the power shuttle lever forward or reverse when the parking brake is engaged, the parking brake indicator will blink with alarming buzzer. Before shifting the power shuttle lever, you should RELEASE THE PARKING BRAKE.

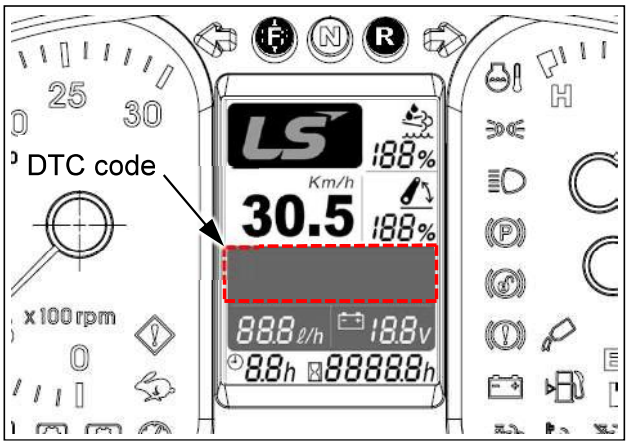
⚠ Warning	▶ *When starting or shifting the power shuttle lever on a slope, always press down the brake pedals first, and release them at the moment when the vehicle starts. The vehicle can be moved forward or slipped backward during the engaging time of the clutch. It may cause a roll-over accident. PLEASE BE CAREFUL !*

- If the hydraulic pressure of the power shuttle system goes lower than proper level during operation, corresponding error codes will be displayed on the instrument panel with continuous alarm. At this time, move the power shuttle lever to the neutral position first. DO NOT try to operate the tractor any more, because the clutch engagement under lower pressure can cause damage to the clutch disk plate even if it's just for a little while. Contact your authorized local dealer immediately to get some instructions or to check the problem. Even though the alarm sounds, the tractor can be moved restrictively for escaping from an emergency situation.

⚠Caution	► In case of shifting other transmission gear levers except this power shuttle lever, depress the clutch pedal fully to disengage the power shuttle clutch. Otherwise, it may cause damage to the transmission drive lines. ► To start the engine, you should place the power shuttle lever in the neutral position and place the PTO switch in the OFF position, and then depress the clutch pedal fully. ► Before operating the power shuttle lever, you should sit correctly in the driver's seat. ► Before changing direction of the tractor by using the power shuttle lever, be sure to check the safety conditions of your directions, especially in reverse. ► It is dangerous to shift the power shuttle lever at high speeds. Before changing your direction, it is necessary to reduce the driving speed. Otherwise, it may cause damage to the power shuttle clutch and transmission drive lines and a serious accident. ► Proper transmission oil temperature is necessary to the performance of the power shuttle system. Be sure to warm-up the tractor until the neutral indicator stops blinking and do not operate the tractor hastily, especially in cold weather. ► Park the tractor on a level ground and apply the parking brake. If you need to park the tractor on a slope, apply the parking brake, and apply the wheel chocks to all the wheels. The engine brake by engaging low speed gears is NOT available for this power shuttle system.

− Diagnostic Trouble Code(DTC)

- If a failure occurs in the sensor or control valve related to the power shuttle system, the related error codes (SPN, FMI code) will be displayed on the instrument LCD panel as shown in the right figure.
- In case of several errors, the error codes will be displayed by turns every second. In this case, record all the error codes.
- If any error code is displayed, contact your authorized local dealer for check and repair.



(8) Combination light switch

① Turning ON/OFF the lights

- Combination light switch is used to turn on/off the following lights.

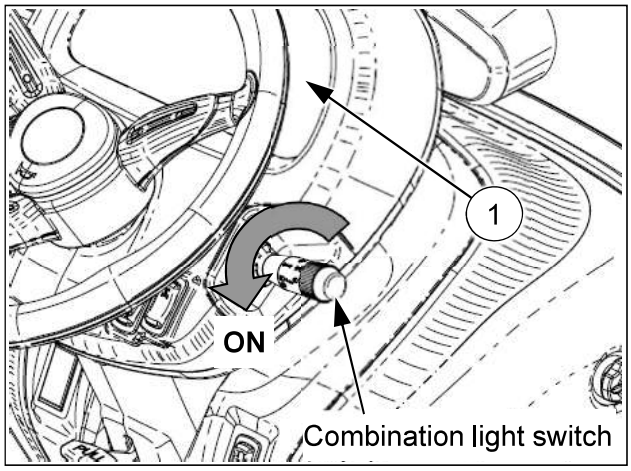
① Instrument panel lights. ② Side lights. ③ Tail lights. ④ Headlights.

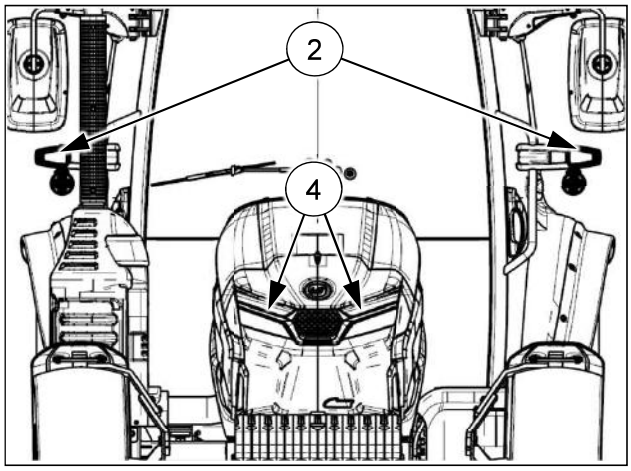
- To turn on/off the lights described as below, turn the switch to the position where the related symbol is marked.

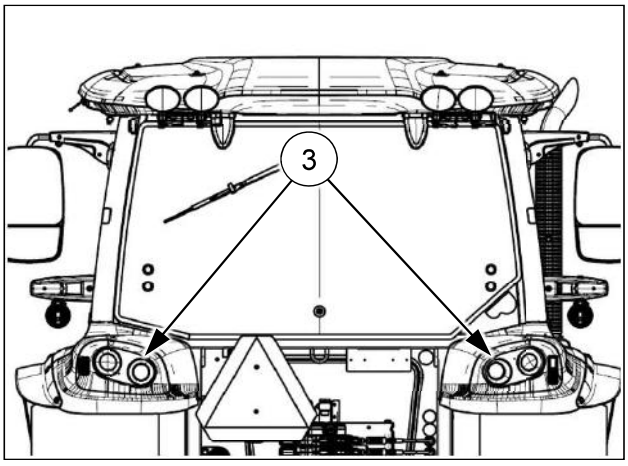

- Instrument panel light is turned on and other lights are turned off.


- Instrument light, side lights and tail lights are turned on.


- Instrument light, side lights and tail lights and headlights(Low beam) are turned on.





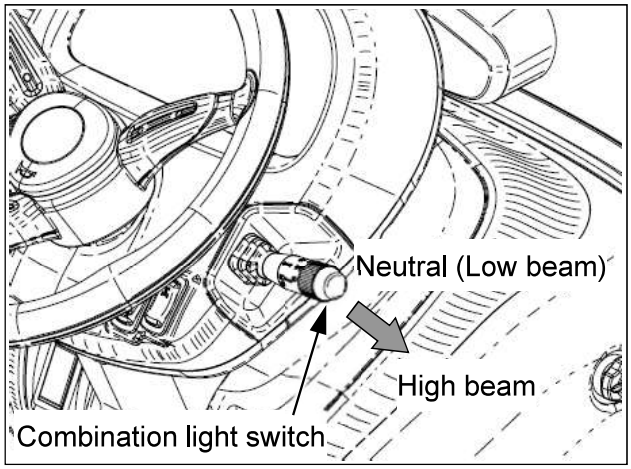


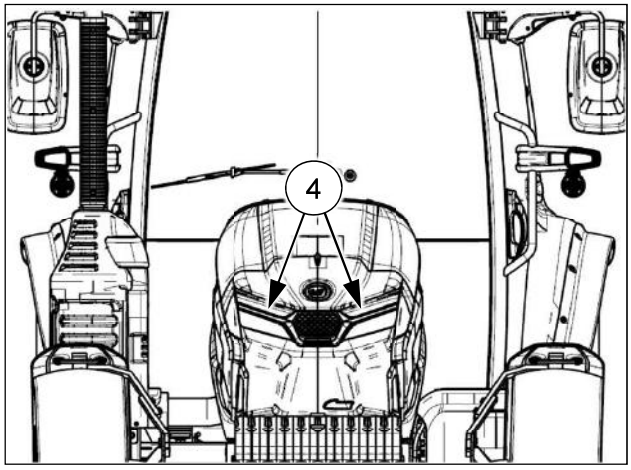
⚠Caution	▶ When passing with other vehicles in the opposite lane at night, turn the headlights to the low beam not to distract oncoming cars.

② Turning ON/OFF High beam

- When pushing the switch downward from neutral position, the high beam of the headlights④ will be turned on and the switch will be held at that position.
- To turn off the high beam, return the switch to neutral position manually.
- When the high beam is turned on, the high beam indicator on the instrument panel also comes on.

 - High beam indicator

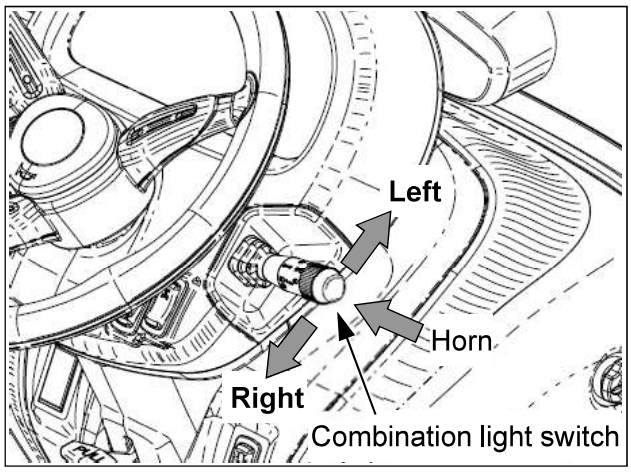




⚠Caution	▶ When passing with other vehicles in the opposite lane at night, turn the headlights to the low beam not to distract oncoming cars.

③ Horn operation

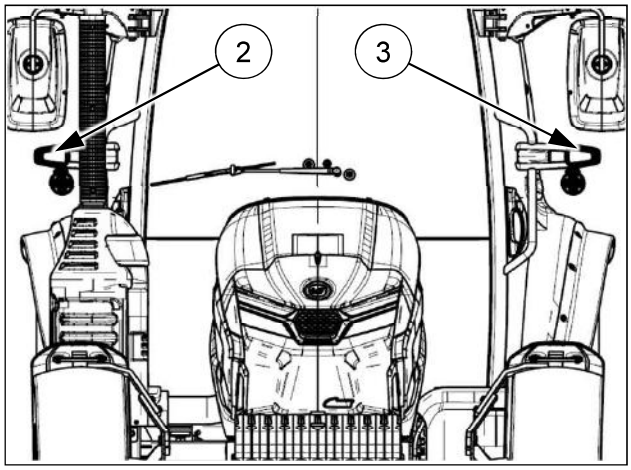
- To sound off the horn, press the switch end to the inside.
- If releasing the switch, it will return to the original position and the horn will stop working.

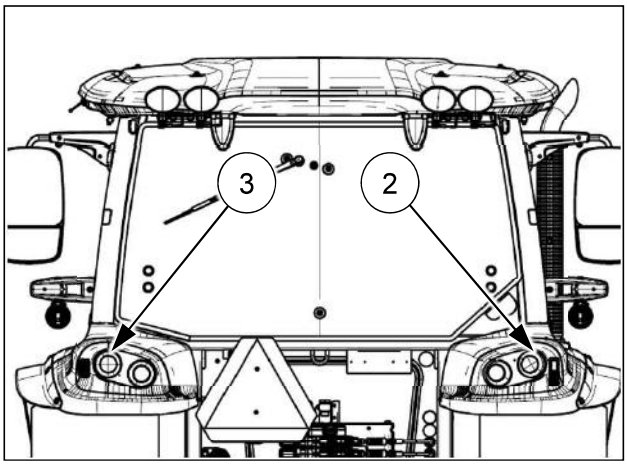


④ Operating turn signal lights

- This switch is used to give information to other vehicles when turning to the left or right.
- When the key switch is placed in the ON position,

  - If turning the switch clockwise, the right turn signal lights② and indicator will flash, and the left turn signal lights for the opposite side of turning direction will illuminate continuously.
  - If turning the switch counter-clockwise, the left turn signal lights③ and indicator will flash, and the right turn signal lights for the opposite side of turning direction will illuminate continuously.
- If turning the turn signal light switch left or right while the hazard warning lights are activated, the hazard warning lights for the opposite side of turning direction will stop flashing and illuminate continuously.

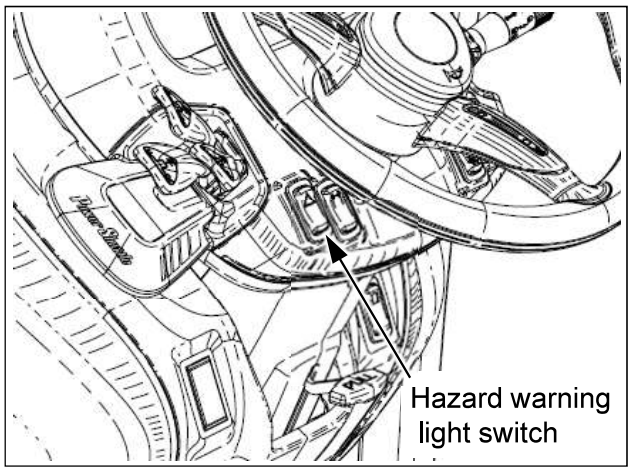


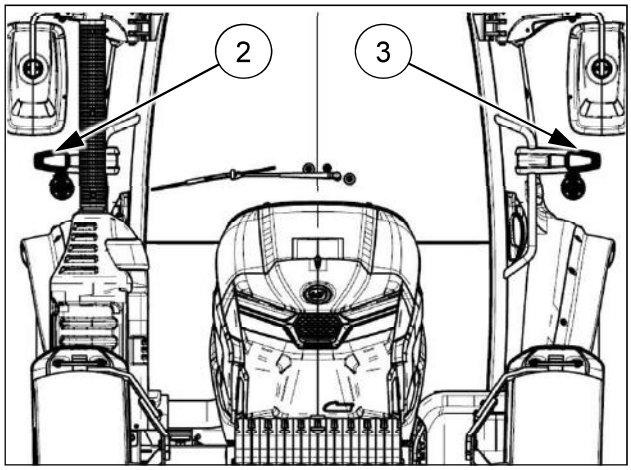


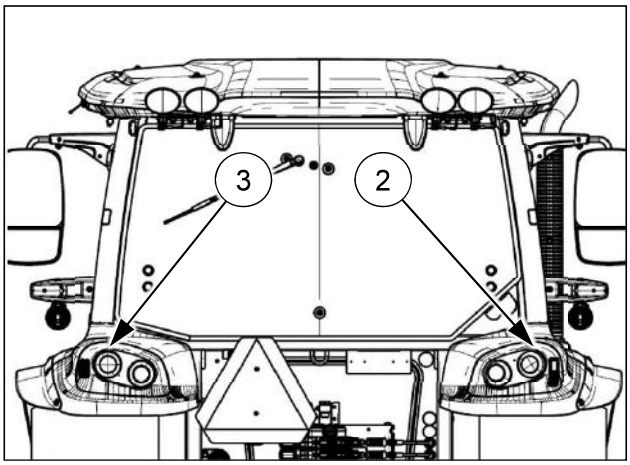
Notice	▶ When driving on the road, operate the turn signal lights to inform other vehicles before changing your direction.

(9) Hazard warning light switch

- This is used to give information to other vehicles in case of an emergency situation.
- If pressing the upper side (symbol part) of the switch, all the turn signal lights②,③ will flash.
- Use this hazard warning light switch in emergency situations according to your local traffic regulations.
- If the hazard warning lights are operated at the same time when the turn signal lights are activated, flashing speed of the turn signal lights will increase by approximately 50% for North American version.





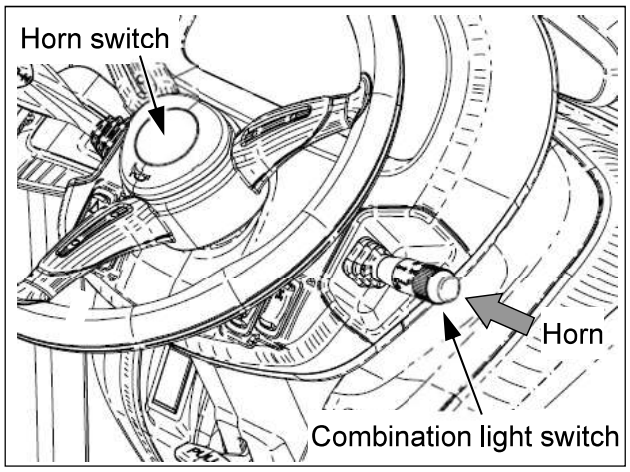


⚠Caution	▶ If using the hazard warning lights for a long time while the engine is stopped, the battery can be discharged completely due to high electrical power consumption.

Notice	▶The hazard warning lights can be turned on regardless of the key switch position.

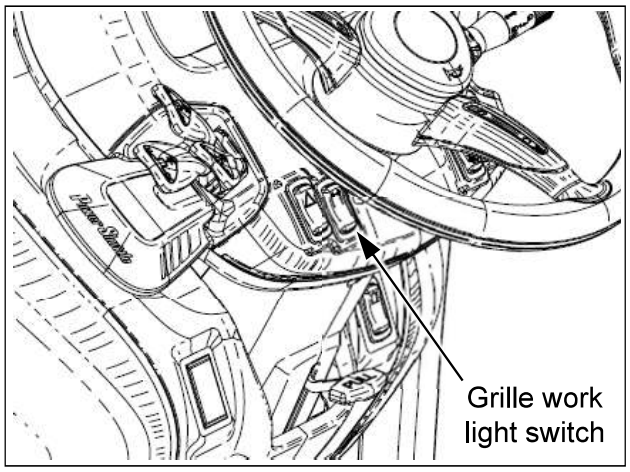
(10) Horn switch (optional)

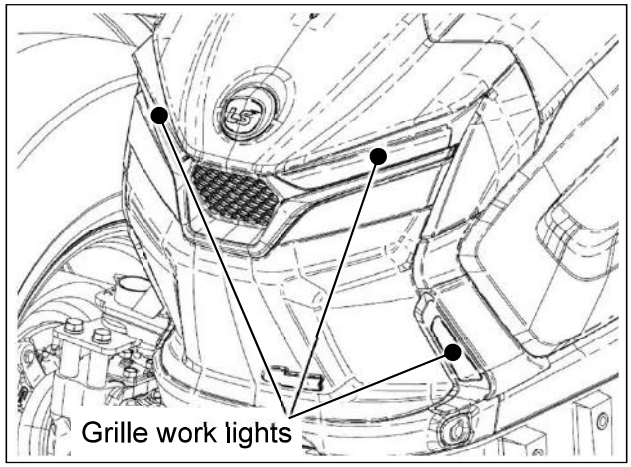
- To sound off the horn, press the switch end of the combination light switch into the inside or press down the horn switch in the middle of the steering wheel.
- If releasing the switch, it will return to the original position and horn operation will be stopped.



(11) Grille work light switch

- This is used to turn on/off the grille work lights of the front grille.
- **ON** - Press the upper side(symbol part) of the switch.
- **OFF** - Press the lower side of the switch.

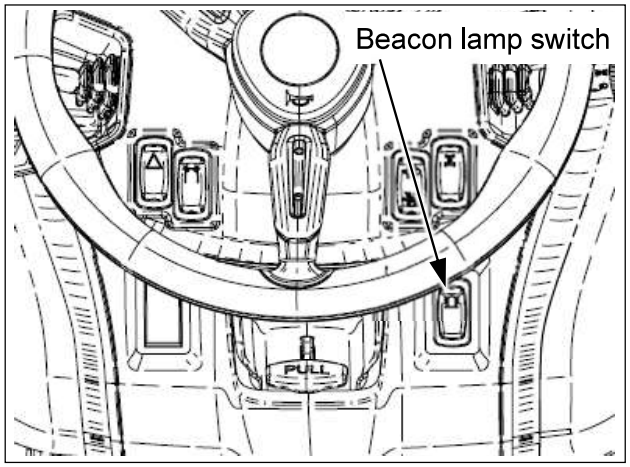


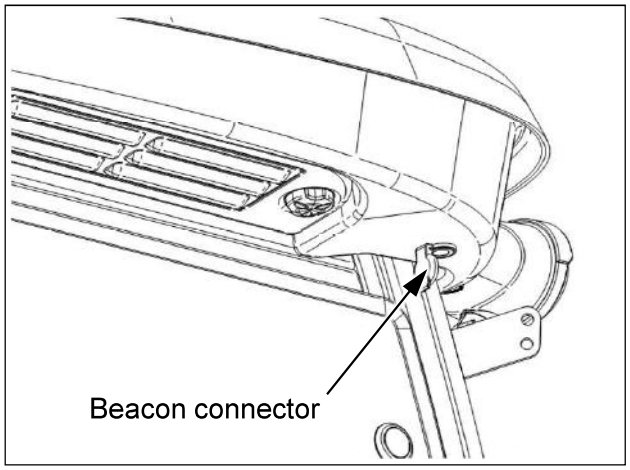


⚠Caution	▶When driving on public roads at night, do not leave the work lights on. It may cause a distraction to the drivers of the oncoming cars.

(12) Beacon lamp switch

- This switch is used to turn on/off the beacon lamp installed to the beacon connector. (if equipped)
- The beacon connectors are installed on the left/right-hand side under the cabin roof for cabin models.
- Press the upper side (symbol part) of the switch to turn on the beacon lamp.

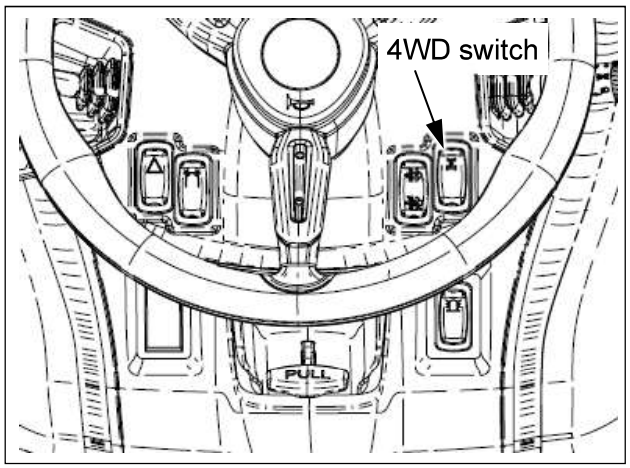




(13) 4WD switch

- This switch is used to engage/disengage the four wheel drive (4WD). Press the upper side (symbol part) of the switch to engage the 4WD.
- Press the lower side of the switch for 2WD.
- The front wheel drive (4WD) is effective for the followings.

  -When traction is needed in plow ground.
  -When working on slippery ground.
  -When working with tiller on hard ground.
  -When crossing a ridge



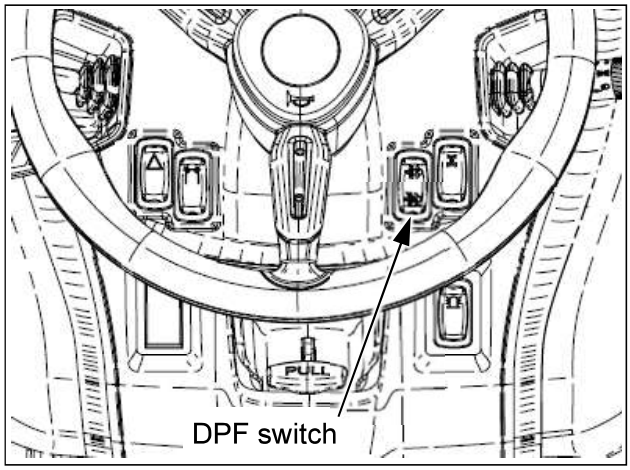
⚠ Caution	▶ When driving on public roads, disengage the 4WD. If not, it may cause damage to the tires and transmission drive line and a serious accident. After working in the field, disengage the 4WD before coming out from the field. ▶ If you drive the tractor at high speed while the 4WD is engaged, sharp steering may cause a serious accident.

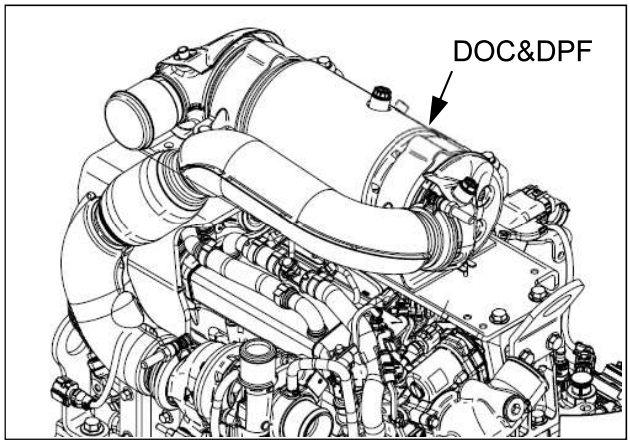
(14) DPF switch (MT774 models only)

- The regeneration process is the process of burning and cleaning the soot accumulated in the DPF while driving.
- This switch is used to select the **Regeneration mode** or **Inhibited regeneration mode**.

  - Regeneration mode: If the soot is loaded over the designated level and the engine is warmed up enough, the DPF regeneration will be processed automatically by ECU. *For more information, see page 3-32, 33 in this manual.*

  - Inhibited regeneration mode: The regeneration mode is disabled manually until operator inputs the signal to exit this mode. *For more information, see page 3-34 in this manual.*
- And, this switch is used to process the regeneration manually. *For the detailed operating methods, see page 3-35 in this manual.*





① DOC&DPF

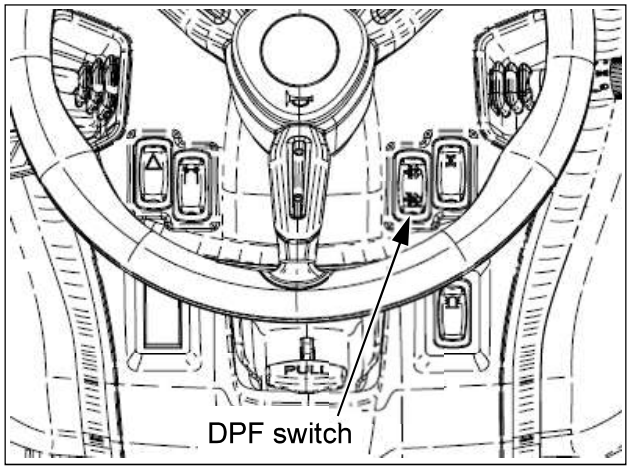
- The Diesel Oxidation Catalyst (DOC) and the Diesel Particulate Filter (DPF) is to reduce engine exhaust hydrocarbons, carbon monoxide and other toxic gases. This system converts exhaust emissions to harmless carbon dioxide and water. The DPF also traps Particular Matter (PM)

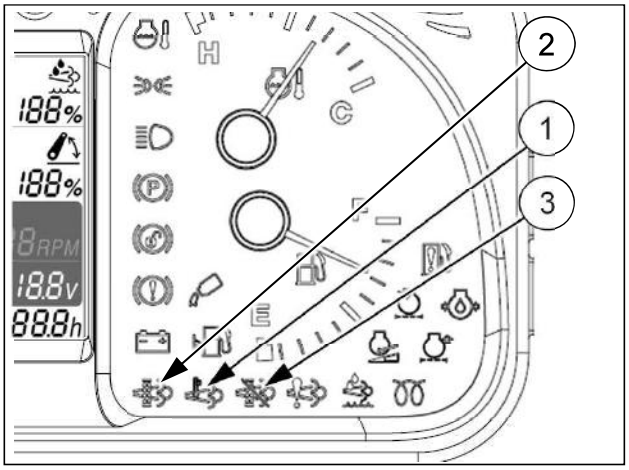
System component	Description
Diesel Oxidation Catalyst (DOC)	This is a catalytic converter that designed specifically for diesel engines to reduce the emission element such as hydrocarbons(HC), carbon monoxide(CO), and to do exothermic reaction for DPF regeneration.
Diesel Particulate Filter (DPF)	This is a filter and an after-processing component that captures soot in the engine exhaust gas, and to prevent the filter from clogging, the particulate matter will be automatically burned into CO_2 at a high temperature by regeneration process.

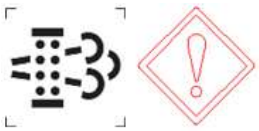
- It is very important to read this operator's manual and understand the safe operation of your tractor. If you have any questions about the operation of this emission system, please contact your authorized local dealer.

② Indicator illumination on the instrument panel

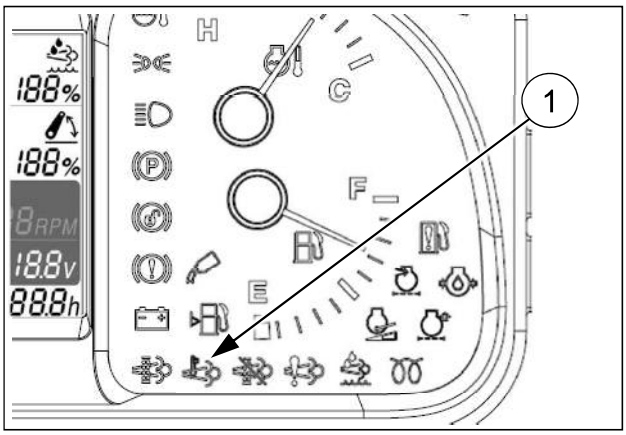
- The indicators related to the DPF regeneration have several illumination figures and its meanings as follows. Read carefully and keep in mind the instructions well.





Indicators	Illumination	Symptom & Actions	Remarks
1. DPF temperature indicator	 ON	This indicator will be turned on when regeneration is processing.	
2. DPF regeneration indicator	 Blink(1 sec)	Soot level : Medium Manual regeneration is recommended. (Press and hold the upper side of the DPF switch over three second for regeneration.)	
	 Blink(0.5 sec)	Soot level : High Manual regeneration is required. (Press and hold the upper side of the DPF switch over three second for regeneration.)	
	 ON	Soot level : Critical Manual regeneration with DPF switch is not available, but regeneration with a diagnostic tool is available.	Contact your authorized local dealer.
3. DPF inhibited regeneration indicator	 ON	Press and hold the lower side of DPF switch over three second to enter this inhibited regeneration mode. Automatic DPF regeneration is stopped and manual regeneration is available. If the manual regeneration process is finished, the inhibited regeneration mode will continue.	See page 3-34

③ Regeneration mode



- In this mode, the operator does not need to take any actions, the system is activated automatically by the engine electronic controller.

***NOTE** : The regeneration is the normal operating mode.*

- The regeneration will be activated by ECU ;
  - When soot's rate reaches a specified value or higher.
  - When the engine is warmed up enough.
  - When the DPF switch is not pressed to the Inhibited regeneration mode.

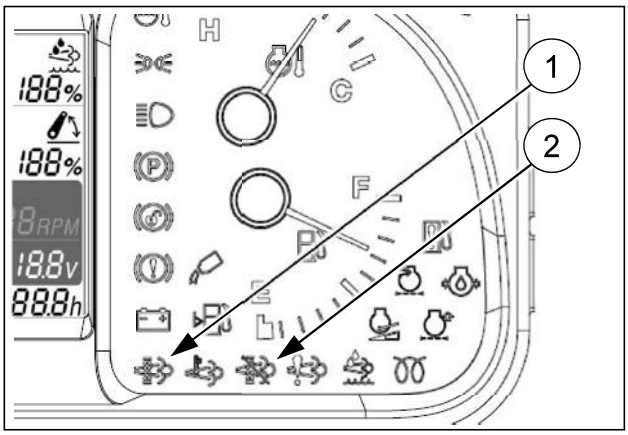
- *Regeneration process will last for **approximately 10 to 30 minutes.***
- During the regeneration, the DPF temperature indicator **(1)** will be turned on.
- In case of turning off the engine while the regeneration is processing, the regeneration is to resume again when restarting the engine.

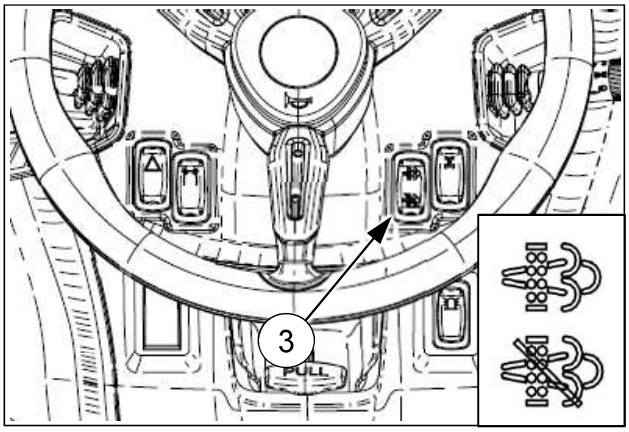
⚠Warning	▶ **Fire hazard!** During the Diesel Particulate Filter(DPF) regeneration process, the exhaust stack and fixed hood area becomes extremely hot. Park the machine outside and away from combustible or highly flammable material. Failure to comply could result in death or serious injury.

⚠Caution	▶ **Burn hazard !** During the Diesel Particulate Filter (DPF) regeneration process, the exhaust stack and fixed hood area becomes extremely hot. Allow area to cool before servicing or working near the exhaust system components. Failure to comply could result in minor or moderate injury.

NOTICE	▶ If engine is turned off during the regeneration, soot will not be completely burned and may increase fuel consumption. KEY-OFF during regeneration mode is not recommendable because too short operation won't finish regeneration mode, So, we recommend to users to operate until all indicator lights are turned off without key switch OFF.

④ Inhibited regeneration mode





***NOTICE** : Only use this mode when regeneration needs to be delayed or stopped because of an operation condition that may risk a fire hazard due to high exhaust temperatures during regeneration.*

***NOTE** : The inhibited regeneration mode can be set while the automatic regeneration is processing. But, it is not available to set during the manual regeneration process. After the process is finished, please set the inhibited regeneration mode.*

- The regeneration mode can be delayed or stopped by the use of the DPF switch **(3)**.
- **To enter the inhibited regeneration mode** :

1. Press and hold the lower side of the DPF switch **(3) over 3 seconds** to enter the inhibited regeneration mode. And then DPF inhibited regeneration indicator **(2)** will be turned on.

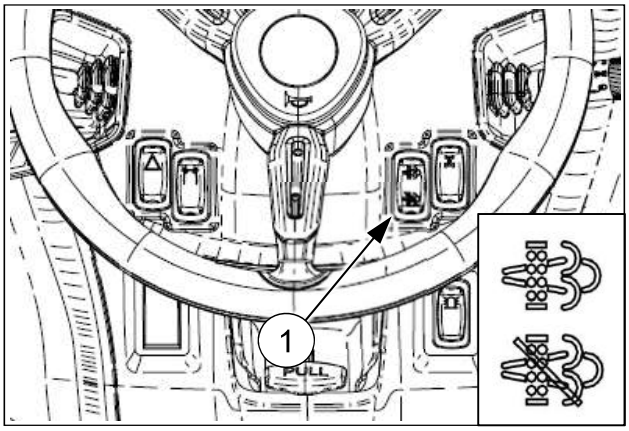
***NOTICE** : When tractor arrives at a safe regeneration location, press again the lower side of the DPF switch to exit the Inhibited regeneration mode. Otherwise, excessive soot in the DPF may overload the emission system and result in a reduction of engine power.*

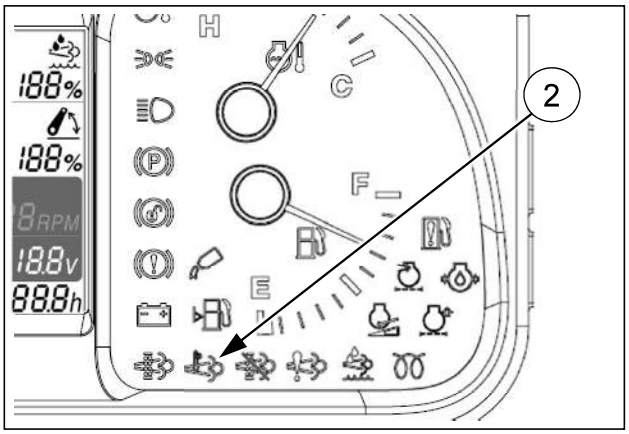
- **To exit the Inhibited regeneration mode (To go to the regeneration mode) :**

1. Press and hold the lower side of the DPF switch **(3)** for **over 3 seconds** to exit the Inhibited regeneration mode and to enter the automatic regeneration mode.
2. When exiting the inhibited regeneration mode, the DPF inhibited regeneration indicator **(2)** will be turned off.

⑤ Manual regeneration mode

- The manual regeneration is a procedure to manually regenerate the engine after-treatment device using the DPF switch when the automatic regeneration cannot be processed due to soot overload of the DPF.
- During manual regeneration, the temperature of the engine after-treatment device rises above 630 °C. (1166 °F)
- Manual regeneration is possible by pressing the upper part of the DPF switch **(1)** for more than 3 seconds. “Manual regeneration”, operated manually by the driver, can be activated under certain conditions managed by the engine ECU.
- The following safety measures must be taken before operating the DPF switch.
  - Place the power shuttle lever in the neutral position.
  - Engage the parking brake.
  - Place the PTO switch in the “OFF” position.
- While the regeneration process is in progress, the DPF temperature indicator light **(2)** on the instrument panel as shown in the right figure.
- If you want to stop the regeneration process in the middle for unavoidable reasons, disable one of the safety measures described above and manual regeneration will be stopped. Please pay attention to safety and choose the appropriate method according to the situation.





⚠ Caution	▶ To avoid unnecessary heat exhaustion of the after-treatment device, do not stop the regeneration process in the middle or remove safety measures unless it is unavoidable. If the regeneration process is manually stopped in the middle, the engine must be run at low idle engine speed for approximately 5 minutes to protect the engine aftertreatment system. ▶ If the DPF switch is pressed for more than 10 seconds for some reason, the engine control system (ECM) generates an error code and the regeneration process does not proceed.

● **Engine rotation speed changes during manual regeneration**

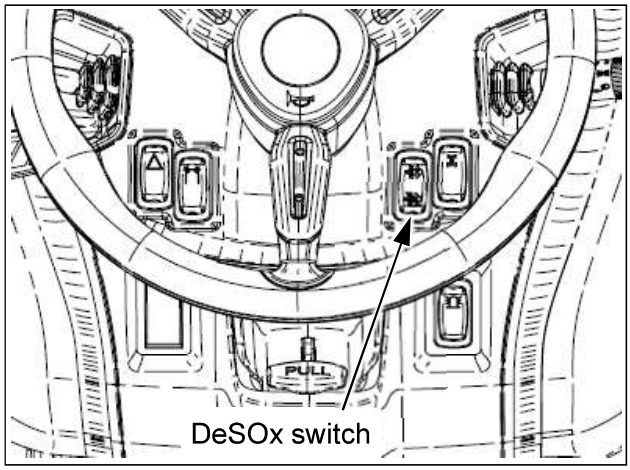
- **Start-up phase** : When manual regeneration begins, engine warm-up operation is performed at 1440 rpm to raise the coolant temperature above 60 °C (140 °F). If the engine temperature is above 60°C (140 °F) and the heating phase begins, skip this step.
- **Heating phase** : Perform the heating phase at engine 1500 rpm until the exhaust temperature of DOC + DPF exceeds 200 °C (392 °F).
- **Regeneration phase** : The engine is maintained at 2000 rpm for a complete regeneration process.
- **Cooling phase** : The engine is maintained at 1440 rpm in normal mode (non-regenerative) until the exhaust temperature is below 200 °C (392 °F). The maximum operating time for this stage is 5 minutes, after which the engine returns to low idle.

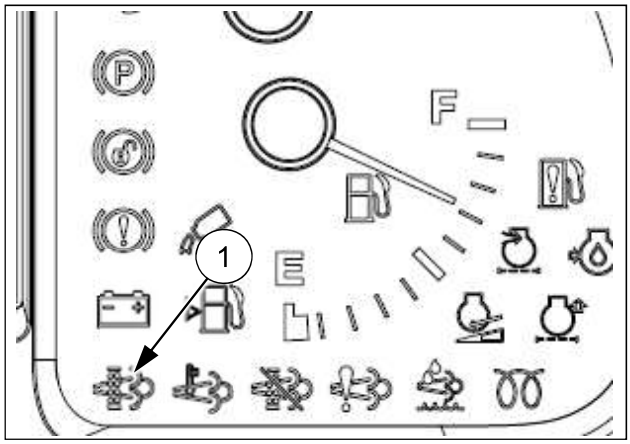
● **Conditions to activate the DPF manual regeneration**

	Conditions to activate the regeneration	**Conditions to exit the regeneration**
Engine	- At least 10 seconds have passed since the engine started. -Cooling water temperature: 30~110°C - Engine oil temperature: 25 ~ 130 ° C - Atmospheric pressure: 0.6 atm (600 hPa) or higher - Fuel temperature: below 80°C - No engine and aftertreatment errors	- Coolant temperature: above 110°C - Engine oil temperature: above 130 ° C - Fuel temperature: above 80°C - Engine and after-processing device errors occur
Vehicle	- Place the power shuttle lever in the neutral position. - Engage the parking brake. - Put the PTO switch in the OFF position.	- Operate the power shuttle lever. - Release the parking brake. - Turn on the PTO switch.

(15) DeSOx switch (MT7101 models only)

- When the engine sends the signal that DeSOx is required to the instrument panel, the indicator① below flashes at 60Hz on the instrument panel.
- *If pressing the upper side of the switch for more than three seconds*, it will send the signal to the engine to run the DeSOx process.
- *The following safety conditions must be met before pressing the DeSOx switch.*
  - Power shuttle lever is in neutral,
  - Parking brake is engaged,
  - PTO switch is in "OFF" position.
- When the DeSOx is activated, the indicator① on the instrument panel flashes during the process.
- If you want to stop the process while the DeSOx is running, press down the lower part of the DeSOx switch.



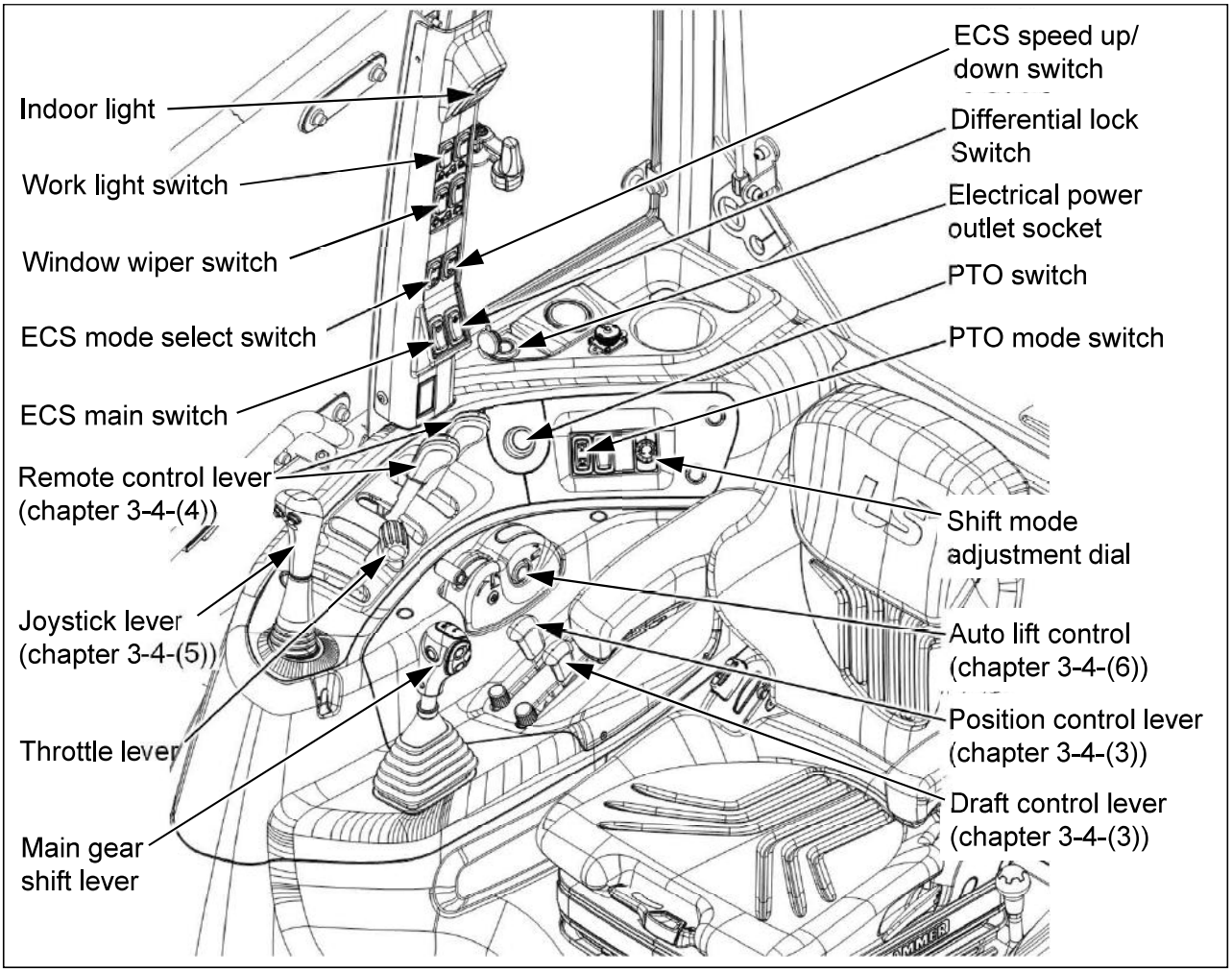


⚠Caution	▶ If it is not strictly necessary, do not exiting from the safety conditions or stopping the process to prevent thermal stress on the after-treatment system (ATS). ▶ If the thermal treatment has been stopped manually, the engine must be left running at low idle rpm at least for 5 minutes in order to protect the ATS. ▶ If the DeSOx switch is press down for more than 10 seconds intentionally or not, the Engine Control Management(ECM) will set a fault and does not allow forced thermal treatment.

3-2. Right-hand controls and Cabin pillar

Important to owner, read carefully

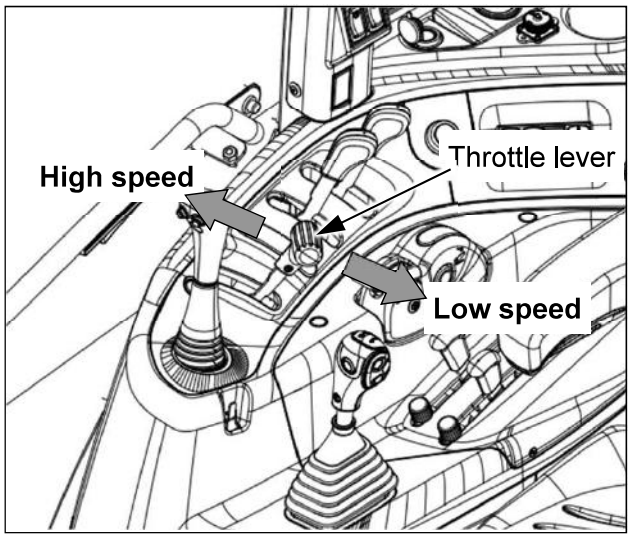
- Mechanical Hydraulic Lift (MHL)



- Depending on the optional specifications, some figures may be different from your tractor.

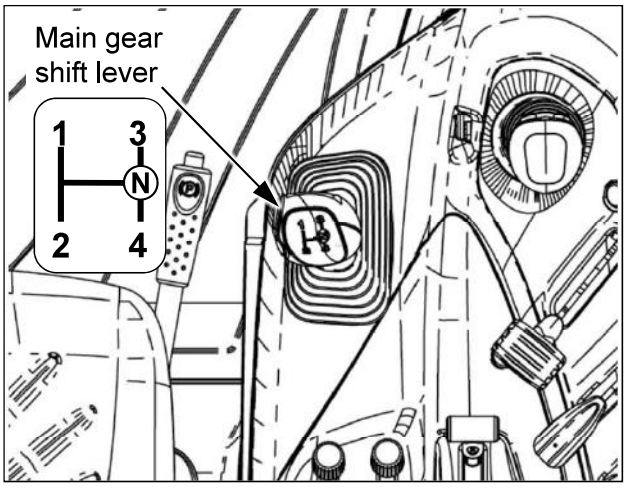
(1) Throttle lever

- It is used to control the engine speed in field operation. DO NOT use while driving on public roads. Use the throttle pedal at this time.
  - **Low speed** : Pull the lever backward
  - **High speed** : Push it forward.
- There is a sensitive electric sensor on the throttle lever. Do not remove/modify it arbitrarily.
- If starting engine when this lever is not in low idle position, the engine speed will be set to low idle position automatically.
- This lever must be placed on the low idle position before operating. Otherwise, the engine speed is not controlled.



(2) Main gear shift lever

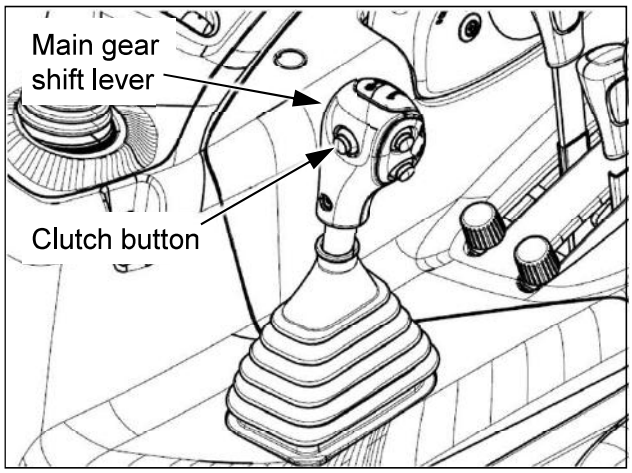
- Four speed gear shift and neutral positions are available.
- The main gear shift lever can be operated while driving after depressing clutch pedal. It is not necessary to stop the tractor completely due to the synchromesh gears.

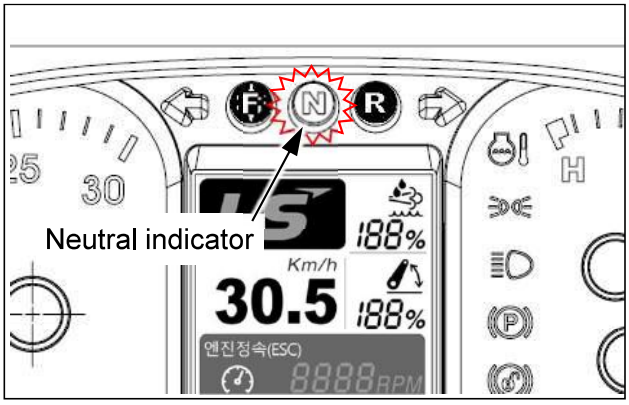


Notice	▶ Operate the main gear shift lever by correct "**H**" pattern. If operated diagonally, it may cause a failure.

(3) Clutch button

- This button is used to engage/disengage the main clutch when shifting the main gear shift lever without depressing the clutch pedal.
- If pressing and holding the clutch button, the engine power is cut off, if releasing it, the engine power is connected to the transmission.
- When shifting the main gear shift lever, comply with the following procedure.
  1. press and hold the clutch button.
  2. move the main gear shift lever.
  3. release the clutch button.
- When pressing and holding the clutch button, the neutral indicator on the instrument panel will blink.

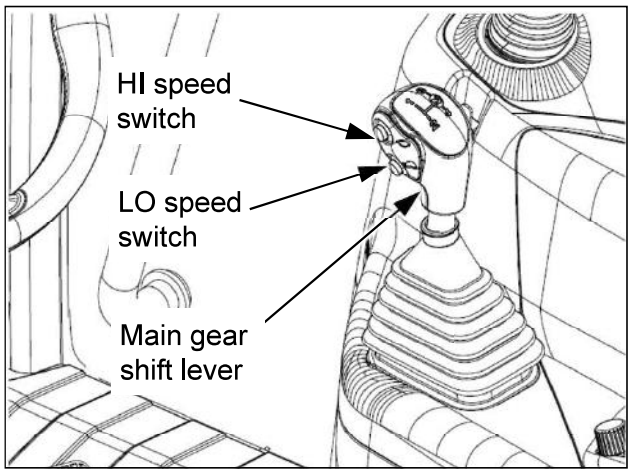


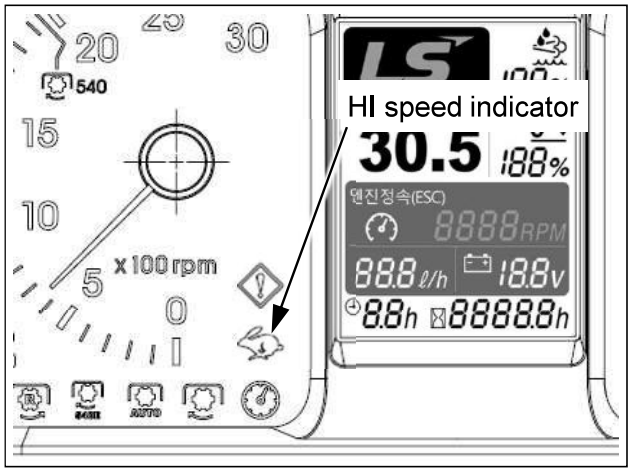


⚠Caution	▶ Be careful not to press the clutch button due to unintentional or habitual operation. ▶ Use only when shifting the main gear shift lever while driving. This clutch button has only ON/OFF mode, and it does not provide any soft and progressive modulation of the clutch. If you start the tractor from a stop by using this clutch button, the engaging shock can be greater than when using the power shuttle lever.

(4) HI-LO select switch

- The HI/LO speed switches are used to shift the driving speed easily, without depressing the clutch pedal in the power shuttle models. (optional)
- If pressing the “HI” speed switch while driving, the “HI” speed indicator (hare symbol) on the instrument panel will be turned on, and driving speed of the tractor is faster than “LO” speed by 1.2 times.
- When working with a tiller or plow in the field ground, use these switches follow.
  First, begin to work in the HI speed mode that is properly combined with the main gear shift lever, range gear shift lever and engine speed. If the engine speed drops due to overloads, press the LO speed switch to escape the overloaded conditions. If the engine speed is recovered to the pre-defined speed, press the HI speed switch again for ordinary work.



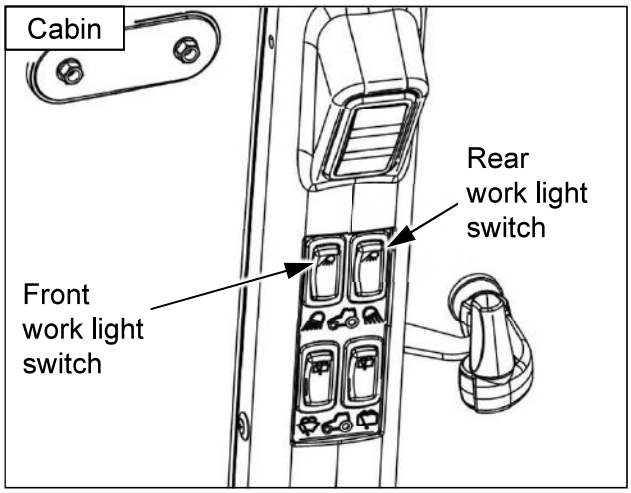


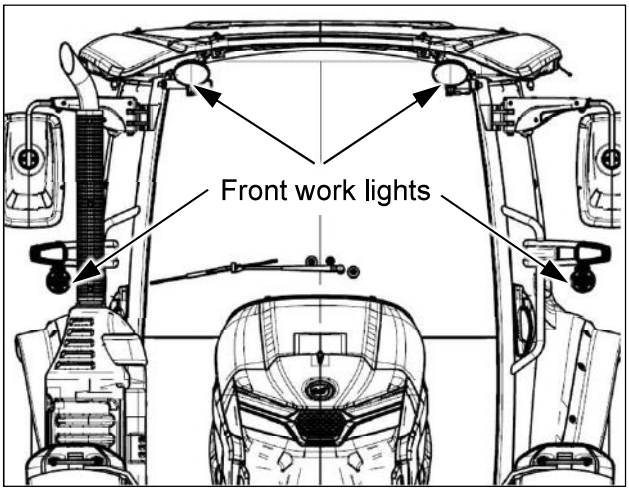
⚠Caution	▶When working in the field, if pressing the Hi/Lo speed switch at a stop or very low speed, it may damage to the clutches or drive lines. Start the vehicle slowly after relieving the loads.

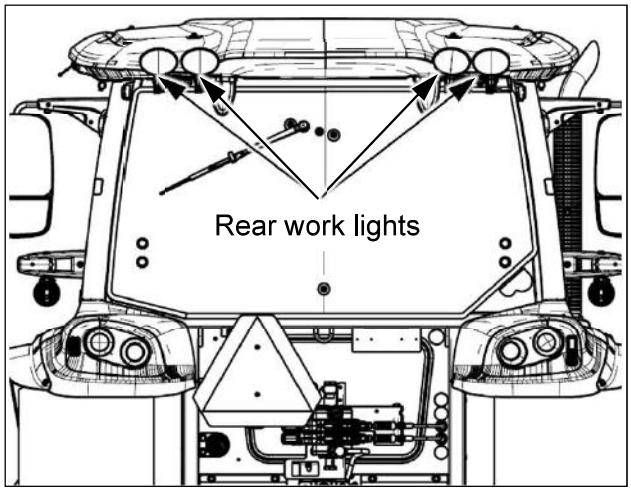
(5) Work light switches

- Cabin type (Front, Rear)

- This is used to turn on/off the front/rear work lights.
- **ON** - Press the upper side (symbol part) of the switch.
- **OFF** - Press the lower side of the switch.



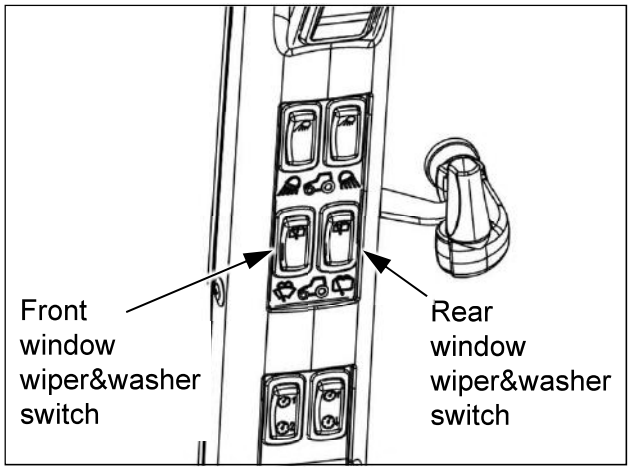


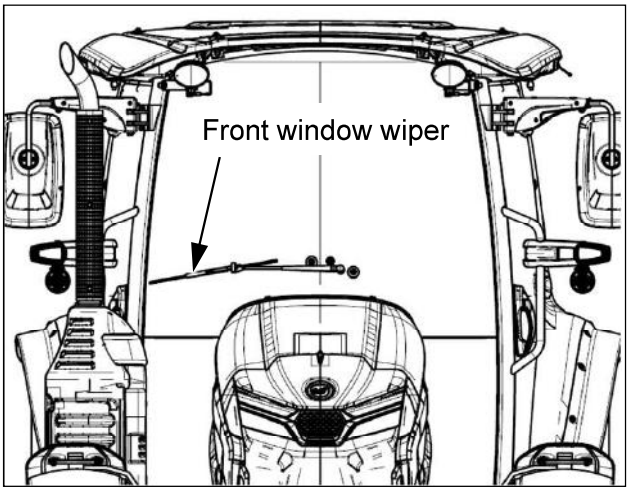


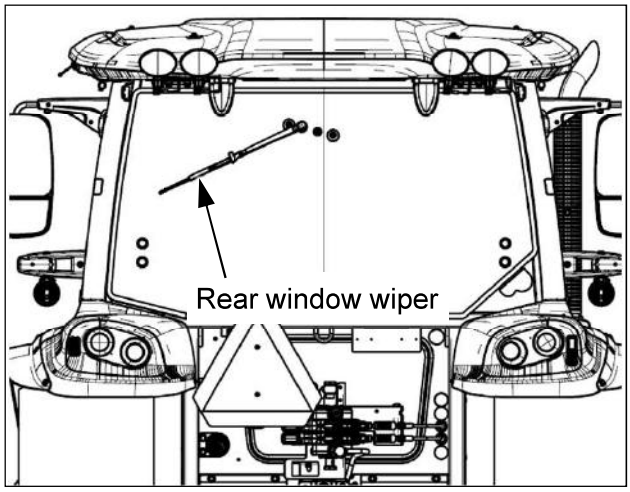
⚠Caution	▶When driving on public roads at night, do not leave the front/rear work lights on. It may cause a distraction to the drivers of the oncoming/following cars.

(6) Window wiper&washer switch (Cabin type)

- This switch is used to operate the front and rear window wiper.
- Press the upper side of the switch to operate only the front/rear wiper.
- If you press and hold the upper side of the switch again, the washer liquid will be sprayed out.



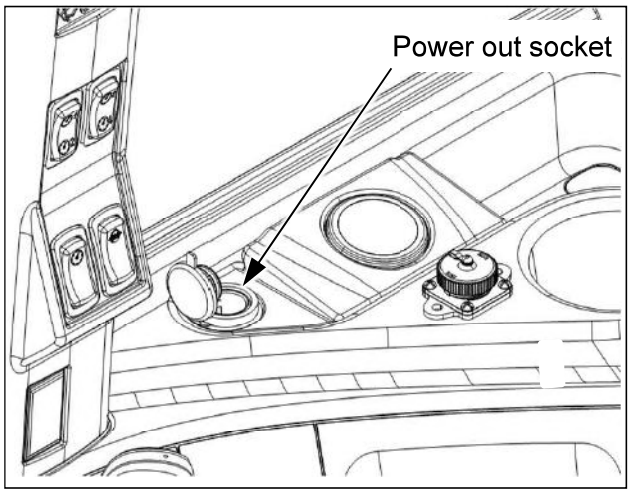




⚠Caution	▶ Use windshield washer liquid for automobile in wintertime. ▶ Do not operate the wiper without windshield washer liquid, it may cause damage to the wiper motor.

(7) Electrical power outlet socket (Cabin type)

① Power outlet socket

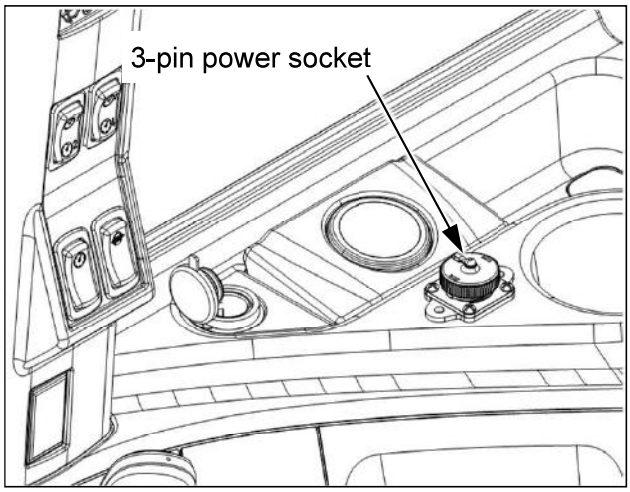


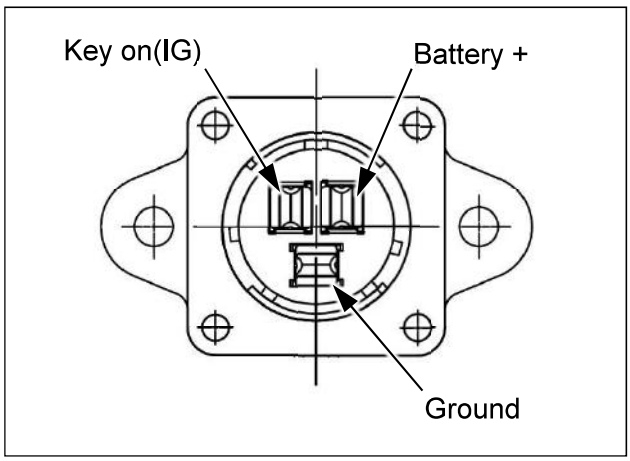
- This is used to withdraw electric power for charging of a cigarette lighter jack or cellular phone.
- In case of using a cigarette lighter jack(optional), push the cigarette lighter jack into the socket to heat the coil. If the heating process is finished, the jack is retracted automatically, and it can be used as a substitute for a lighter.
- In case of using it as a power supply(12V), use a electrical equipment less than 8A of current flow.

Caution	▶ When using a cigarette lighter jack, cares must be taken not to touch the heating coil. The heated coil is very hot and it may cause a serious burn.

② 3-pin power socket (optional)

- This is used to charge or supply electric power for a electric component with 3-pin power socket.
- Check the electric capacity of the electric component before connecting.
  Voltage: 12V DC
  Current: 15 Amp (Maximum)

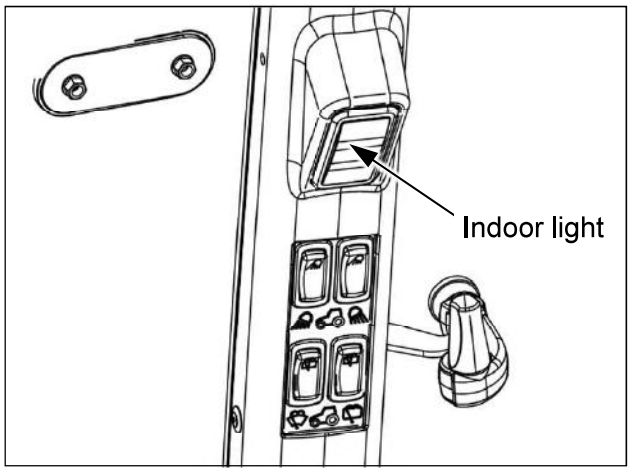




(8) Indoor light (Cabin type)

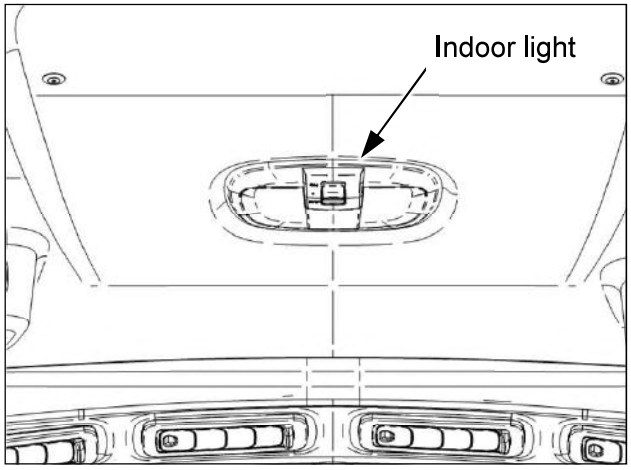
① RH pillar indoor light

- This light is installed on the right-hand cabin pillar.
- Press the lower side of the indoor light to turn on the light.
- Press the lower side again to turn off the light.



② Top ceiling indoor light

- This light is installed on the top ceiling.
- If you place the indoor light switch on the middle position, the indoor light will be turned on/off automatically whenever you open/close the left-hand cabin door.
- **ON** : The indoor light turns on.
  ○ : The indoor light turns on/off automatically.
  OFF: The indoor light turns off.



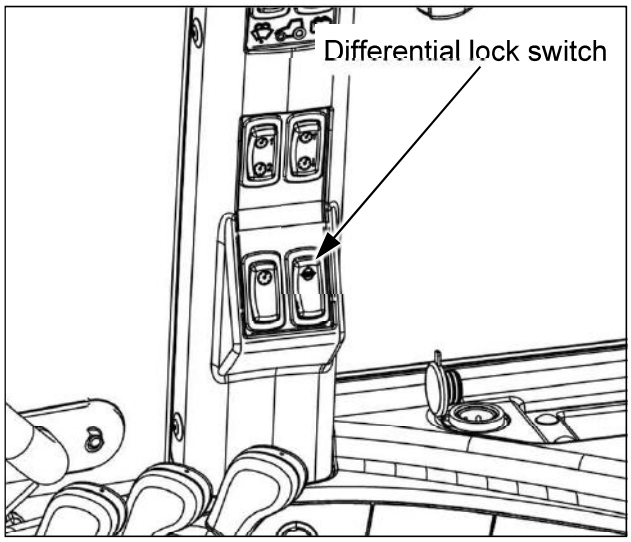
(9) Audio player (Cabin type)

- Refer to the attached user's manual of your audio player.

⚠Caution	▶ To ensure safe operation, avoid turning up the player volume so high/loud. ▶ Do not use a headset while driving the tractor.

(10) Differential lock switch

- This is effective for working on a slippery ground. If the tractor cannot go forward as one side rear wheel is slipping, depress the clutch pedal and press down the upper side of the differential lock switch.
- If the differential lock is engaged, both rear wheels are connected and rotate at the same speed, allowing you to move forward. But, this interferes with the steering operation. After escaping from the slippery ground, release the differential lock.
- Push the lower side of the switch or press down the brake pedals once to release the differential lock. If the traction of rear wheels is equalized, the differential lock is released automatically.
- If the differential lock does not released, i.e. when turning to the right or left, the turning radius is larger than normal operation, depress the clutch pedal once and press one-side brake pedal slightly for a second, and then the other.

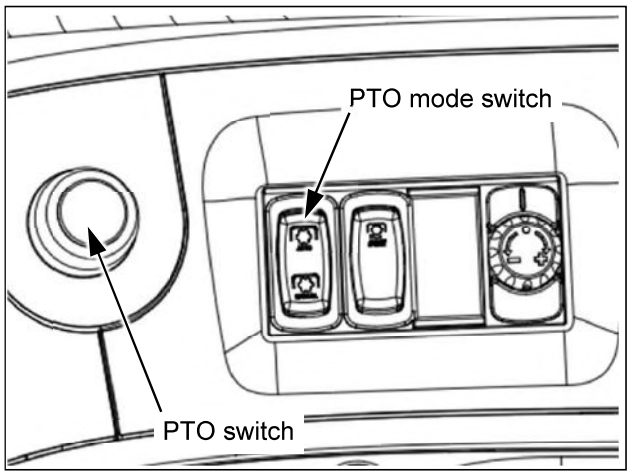


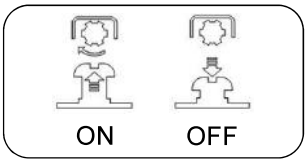
⚠Warning	▶ Do not turn the tractor while the differential lock is engaged. ▶ Do not use the differential lock while driving on the road. ▶ Stop or slow the tractor before engaging the differential lock.

(11) PTO switch

- The engine can be started only when the PTO switch is placed in the OFF position for safety. *For the details of the engine start, see chapter 4-2-(1), "Engine start" in this manual.*
- After starting the engine, you must comply with the following instructions to operate the PTO.

1. Check the safety conditions around the implement.
2. Place the PTO gear lever to the desired position.
3. Select the PTO mode switch to the "**AUTO**" or "**Manual**" position. *For further information about PTO mode switch, see next chapter.*
4. Pull the PTO switch with pressing the lock button of the switch to engage the PTO. The PTO operation indicator will be turned on .
5. If you want to stop the PTO temporarily while operating, push the PTO switch in the "OFF" position. The PTO shaft will be stopped.

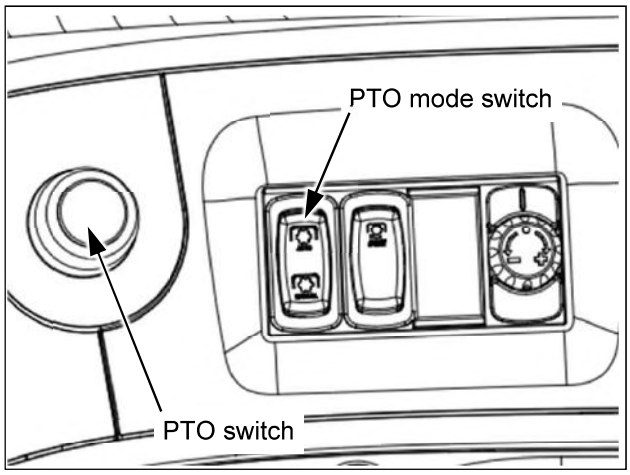




⚠Warning	▶ Before attaching, detaching or checking the PTO driven equipment, always place the PTO switch in the "OFF" position, and PTO gear lever in the neutral position. ▶ If the PTO mode switch is placed in the **MANUAL** position, the PTO shaft rotates always regardless of the clutch pedal or position of the implement. Pay attention to the surroundings to prevent an accident. ▶ Do not engage the PTO clutch at high engine speed. Sudden engagement can cause damage to the implement and PTO drive lines. Engage the PTO at low idle rpm, and then raise the engine speed.

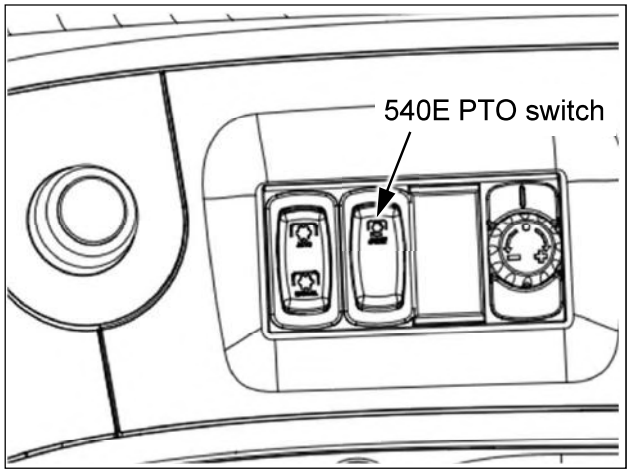
(12) PTO mode switch (optional)

- It is used to select “**AUTO**” or “'**MANUAL**” mode of the PTO operation. Press the upper side of the switch for “**AUTO**” mode.
- When the PTO mode switch is placed on;
  - **AUTO:** if pressing the clutch pedal, the PTO will be stopped automatically.
  - **MANUAL:** The PTO shaft will rotate always regardless of the clutch pedal or position control lever.



(13) 540E PTO switch (optional)

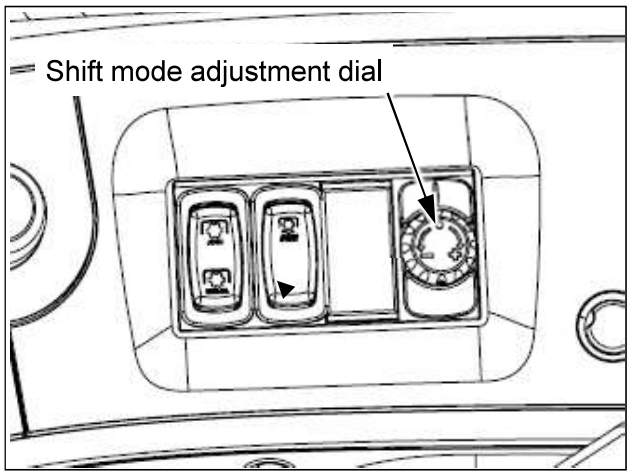
- It is used to turn on/off the 540E PTO operation mode when working in the field.
- In this mode, the engine maximum speed will be restricted up to the designated engine speed related to the 540 PTO speed for economic PTO operation.
- When the PTO gear lever is in the 750/540E rpm position and the PTO switch is turned on, if pressing this switch to “ON” position, the 540E PTO mode is ready.
- **ON** - press the upper side (symbol part) of the switch.
  OFF - press the lower side of the switch.



⚠ Caution	▶ If placing the PTO switch or 540E PTO switch to the “OFF” position or placing the PTO gear lever to other position except 750/540E position while the engine maximum speed is restricted, The 540E PTO mode may be exited and the engine speed can be suddenly increased. ▶ Before exiting the 540E PTO mode, lower the engine speed to idle rpm.

(14) Shift mode adjustment dial

- This dial is used to adjust the clutch engaging response time for starting or shifting gear ratio of the power shuttle system.
- If turning this dial clockwise ("-" symbol), the response time of the clutch will be delayed, otherwise ("+" symbol), the response time will be shortened.
  "+" symbol: in case of heavy loaded tractor on a slope.
  "-" symbol: in case of unladen tractor on a level ground.
- The faster engaging response time is, the larger engaging shock is. Appropriately select the dial position depending on the working conditions.

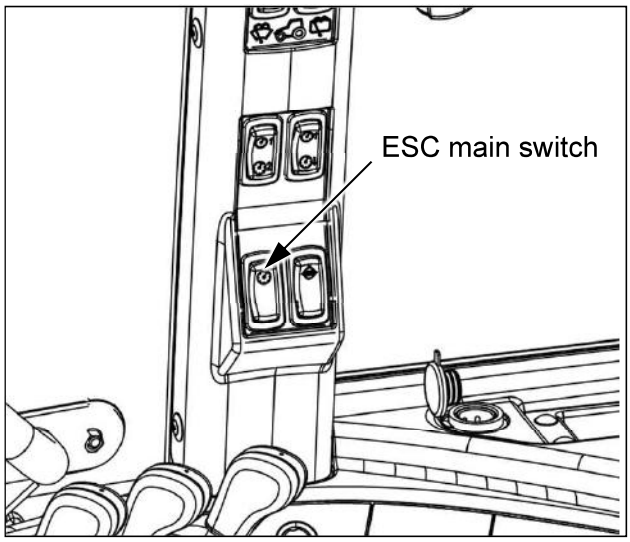


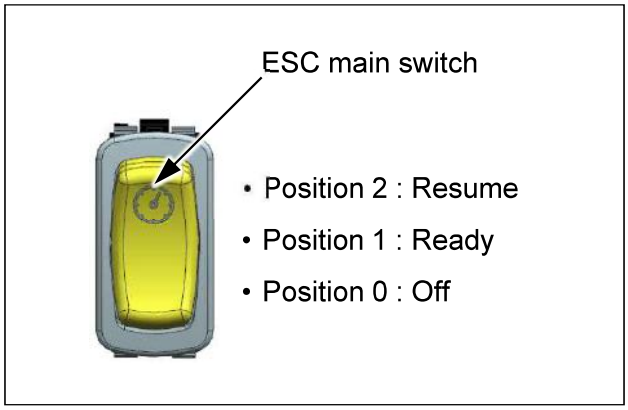
⚠Caution	▶If turning the shift mode adjustment dial counter-clockwise ("+" symbol) fully in case of the unladen tractor, the engaging shock can be increased. ▶If turning the shift mode adjustment dial clockwise ("-" symbol) fully in case of the heavy loaded tractor on a slope, the engaging time can be delayed abnormally. ▶Before starting the tractor, be sure to check position of the shift mode adjustment dial.

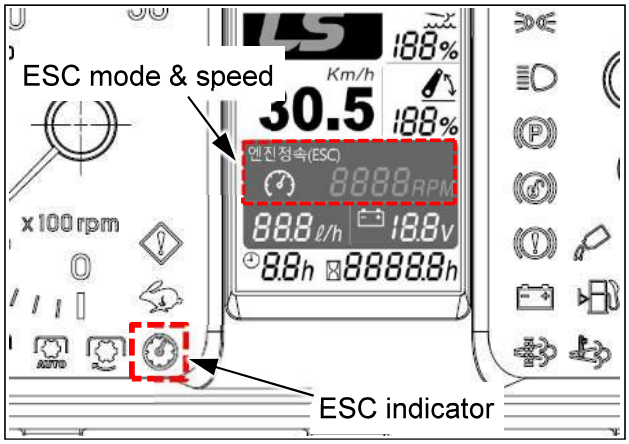
(15) Engine Speed Cruise control(ESC) switch

① ESC main switch

- This switch is used to enable the Engine Speed Cruise control(ESC) function.
- If pressing the ESC main switch from position 0 to position 1 **(Off –> Ready)**,
  - The ESC indicator on the instrument panel will be blinked.
  - The engine speed stored in the ECU will be displayed on the LCD panel.
- If pressing the ESC main switch from position 1 to position 2 **(Ready –> Resume),**
  ① **(if pressing below 2 second) –** The ESC indicator will be turned on and the engine speed cruise control(ESC) will start.
  ② **(if pressing over 2 second) –** The current engine speed will be stored in the ECU and the stored engine speed will blink 3 times on the LCD panel.
- To exit the ESC control,
  -. Press the lower side (“Off ” position) of the ESC main switch or press down the brake pedals.

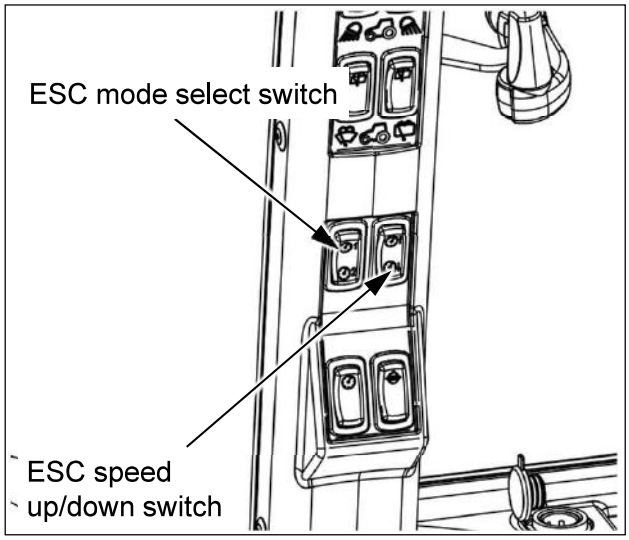






② ESC speed up/down switch

- This switch is used to adjust the engine speed for ESC when the ESC is working.
- If pressing the upper/lower side of the switch, the engine speed will be;
  - Upper side: Increased.
  - Lower side: Decreased.

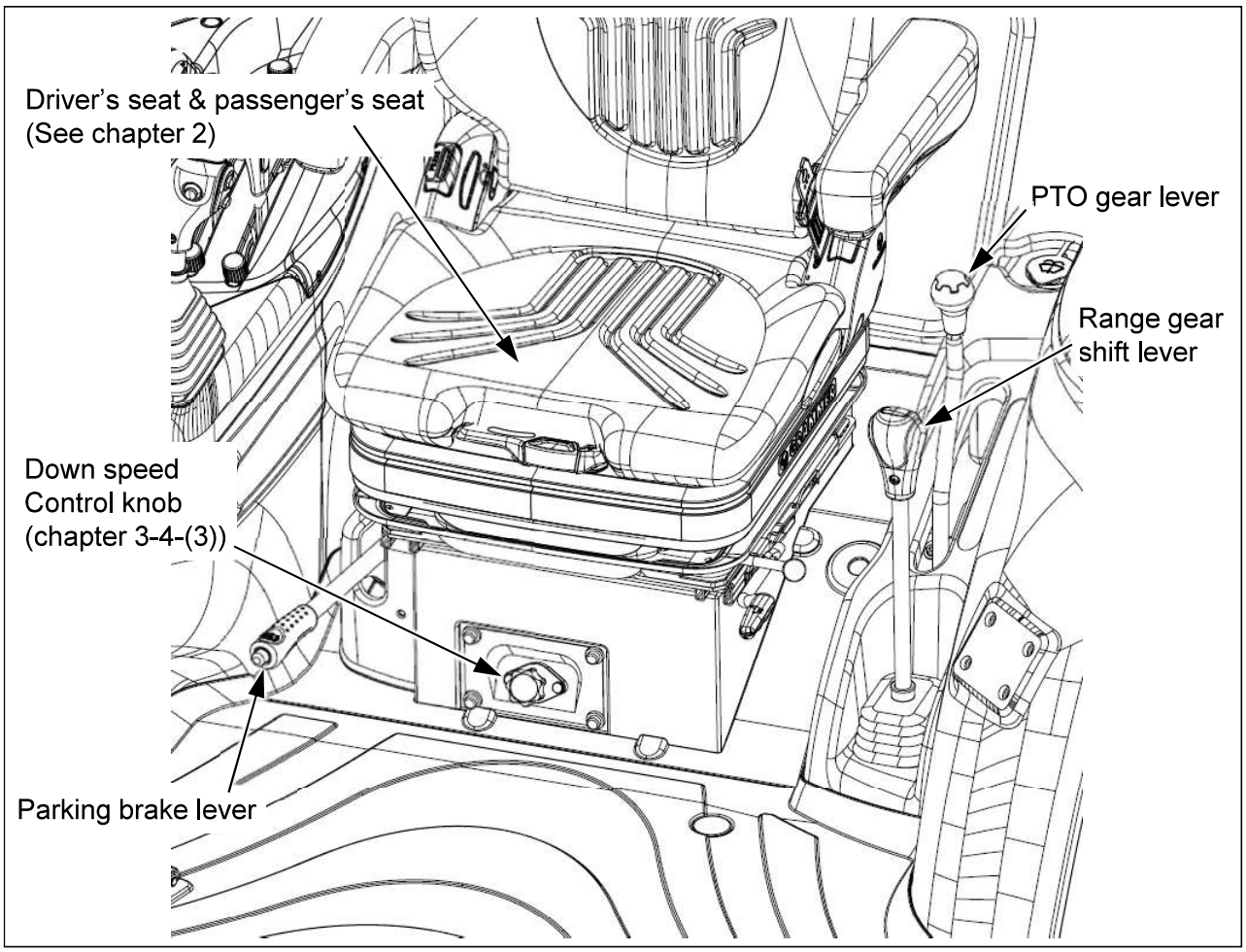


③ ESC mode select switch

- This switch is used to select an engine speed cruise control while the ESC is working.
- Two ESC mode is available.
- Press the upper or lower side of the switch to select an engine cruise control mode.

3-3. Left-hand controls and Seat

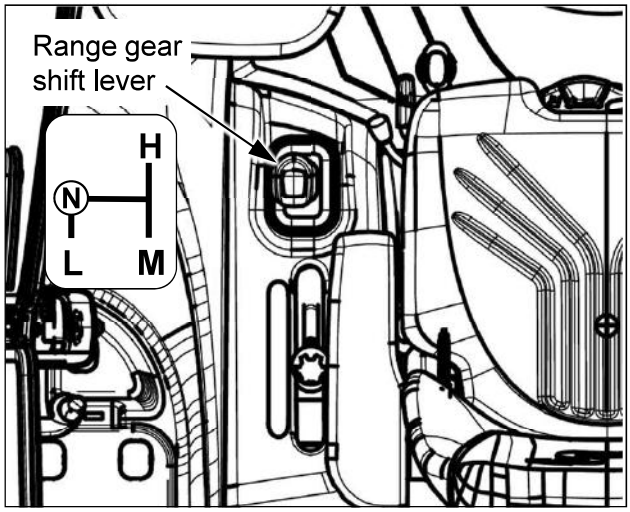
Important to owner, read carefully



- Depending on the optional specifications, some figures may be different from your tractor.

(1) Range gear shift lever

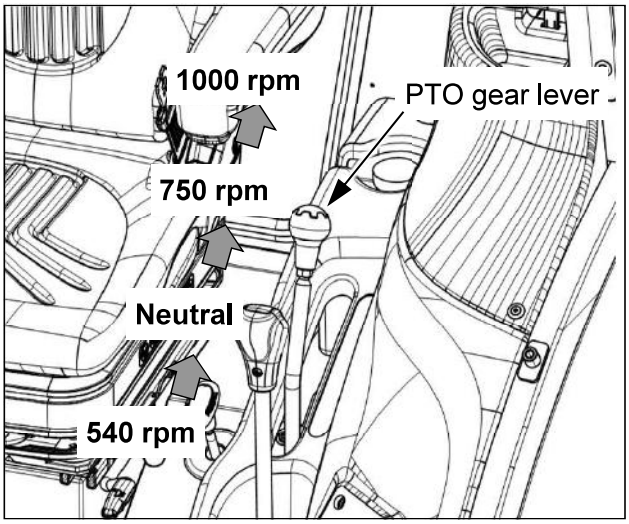
- Three speed gear shift and neutral positions are available.
- Before operating the range gear shift lever, press down the clutch pedal, brake pedals and stop the tractor completely.



Notice	▶ Operate the range gear shift lever by correct "**H**" pattern. If operated diagonally, it may cause a failure.

(2) PTO gear lever

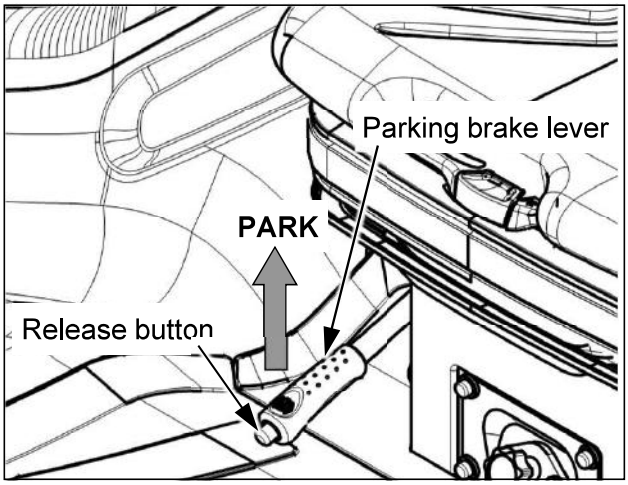
- 540 / 750(540E) / 1000 rev/min and neutral positions are available.
- Before operating the PTO gear lever, press the clutch pedal and put PTO switch in the "OFF" position, and stop the PTO shaft completely.
- When attaching/detaching the rear implement, place the PTO gear lever to the neutral position.
- *For further information about the PTO shaft, see chapter 4-5-(2) in this manual.*



Notice	▶ Operate the PTO gear lever by correct "**I**" pattern. If operated diagonally, it may cause a failure. ▶ If the PTO gear lever is not engaged smoothly, shift the lever again after lifting up the implement from the ground to align the drive shaft.

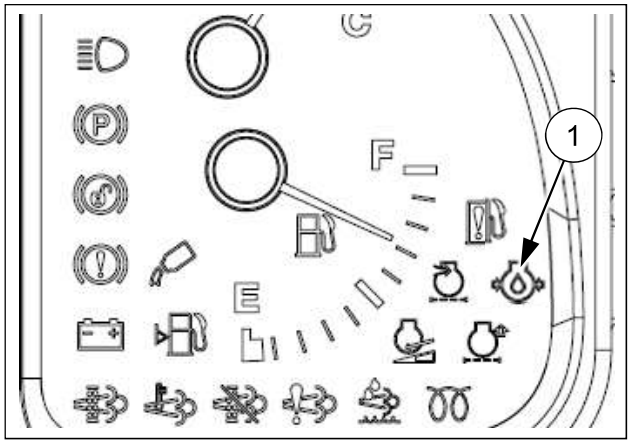
(3) Parking brake lever

- This lever is used to apply the parking brake.
- To apply the parking brake,
  - lock the brake pedals with brake pedal latch.
  - pull the parking brake lever upward.
  - release the brake pedals slowly to check slippage of the tractor.
- To release the parking brake,
  - press the brake pedals first.
  - push the lever downward after pressing the release button.
- It can be also used for emergency stopping.
- If pulling up the parking brake lever when the shuttle lever is placed in the Forward/ Reverse position, the parking brake indicator will blink with alarming buzzer. If placing the shuttle lever in the neutral position or turning the key switch to the “OFF” position at this time, the alarming signals will disappear.

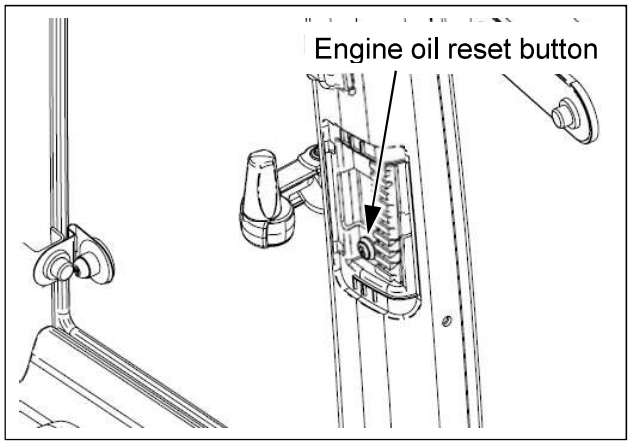


⚠ Caution	▶ DO NOT drive the tractor with applying the parking brake. It may cause damage to the brake and parking brake system.

(4) Engine oil reset button (MT774 MODELS ONLY)



- During the regeneration process of the exhaust gas after-treatment device, the fuel post-injection process is performed to burn the soot particles smoothly. However, such a post-injection may cause some of the fuel to remain inside the engine cylinder and get mixed with the engine oil and deteriorate the engine oil's performance. In order to notify the driver of this situation and to manage engine oil, the engine control unit (ECU) flashes the engine oil pressure warning light① on the instrument panel every second when it is time to change the engine oil.
- **If the engine oil pressure warning light on the instrument panel blinks every second, change the engine oil and press the engine oil reset button for 2 seconds or longer to reset the engine oil condition**. The engine oil reset button is mounted inside when the fuse box cover of the left cabin filler is opened.
- If the engine oil condition is not initialized after replacing the engine oil, the warning light may flash earlier even though the time to change the engine oil has not arrived.
- Regardless of whether the engine oil pressure warning light is blinking or not, **always reset the engine oil condition by pressing the engine oil reset button after changing the engine oil.**



⚠Caution	▶ If the engine oil reset button is operated for reasons not related to the engine oil change, it may result in damage to the engine due to an error in the calculation of the engine oil change point. Refrain from unnecessary manipulation.

3-4. Hydraulic system

(1) Safety precautions

- Hydraulic oil leaks under high pressure can penetrate skin and cause infection or other injury. To prevent personal injury, comply with the instructions as below.
  -. Relieve all pressure before disconnecting hydraulic lines.
  -. Before applying pressure, make sure all connections are tight and components are in good condition.
  -. Never use your hand to check for suspected leaks under pressure.
  -. If injured by leaking fluid, get medical attention immediately.
- The hydraulic hoses and fittings on your tractor meet engineering specifications for the particular function. When replacing damaged parts, use only manufacture authorized service parts.
- Care in hydraulic hose installation is a must:
  -. Make sure pressure is relieved before starting installation procedure.
  -. DO NOT kink or twist a hose, failure may occur. Properly route the hose.
  -. Have a certified hydraulic technician install the hose.
  -. Remove air from the hydraulic system after installing any hydraulic component.
- Periodically check hydraulic system for leaks or damaged parts - kinked, crushed, flattened, hard blistered, heat cracked, charred, twisted, soft or loose covered hoses and fittings.
- DO NOT pull or apply external forces to the hose. The hose may fail and cause injury.
- Keep all persons away from the working area. If a hose fails, mechanisms controlled by fluid power can become hazardous. Lifted mechanisms can fall to the ground, steering system may fail, etc.
- Stay clear of a pressurized hose assembly that has blown apart. Hose fittings can be thrown off at high speed and a loose hose can whip around with great force.
- Hydraulic oil can reach high temperatures. *Wait for all components to cool before you perform any maintenance or adjustment operation. Do not handle any service fluid (engine coolant, engine oil, hydraulic oil, etc.) at temperatures that exceed **50 °C (122 °F**). Allow fluids to cool.*
- Vibration can reduce hose service life. Make sure all retaining clamps and/or devices are secured.
- Environmental conditions can cause hose and fittings to deteriorate. *You must periodically inspect the hydraulic hoses. See the Maintenance chapter for general inspection precautions. The hoses do not require any operator-performed maintenance. Always see your authorized local dealer for hydraulic hose repair or replacement.* Replace worn or damaged hoses and fittings.
- Before checking or repairing the hydraulic system, make sure the engine is stopped, and all the transmission gears are in neutral, and lower the implements to the ground.

Warning 	▶ Before removing hydraulic pipes or hoses and other parts, make sure to check that hydraulic pressure is relieved completely. The leaks of pressurized oil can cause a fatal physical injury. ▶ Use proper protection equipment, before servicing the hydraulic system. ▶ Before connecting or disconnecting the hydraulic quick couplers, lower the implements to the ground, and check if the hydraulic pressure is relieved.

(2) Steering system

- The hydraulic steering system controlled by fluid power provides you more convenience to operate the steering wheel.
- Notices when using the steering system.

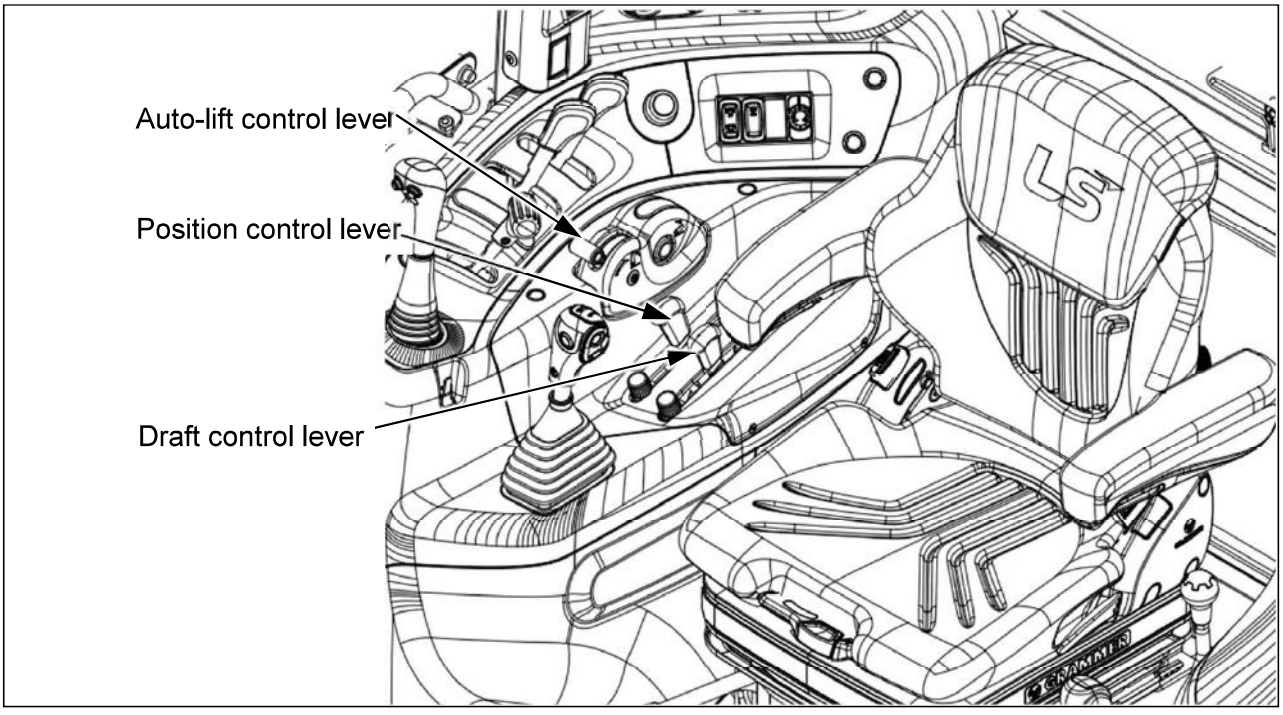
1. If there is too much of a load in front-end loader bucket, it could be difficult to operate the steering wheel. In this case, it is necessary to reduce the size of the load.
2. Do not operate the tractor unnecessarily in a state of fully steered front wheels for a long time. As unnecessary hydraulic force is applied to the steering linkage, it may cause damage to the steering system and excessive increase of the hydraulic oil temperature which may cause reduction of the product life or a failure of the hydraulic and steering system. Especially, DO NOT operate the steering wheel excessively when a front wheel is mired in a ditch. The rim and disk of the wheel could be damaged or deformed.
3. If an abnormal noise sounds off when operating the steering wheel, this may mean that there is some air in the steering components or lines. In this case, turn the steering wheel to the left and right direction fully about 2~3 times. It will exhaust the air and the abnormal noise will disappear. If it's not cleared, contact your authorized local dealer for check.
4. When starting engine in cold weather, an abnormal noise may occur. In this case, warm up the tractor before using it in order to reduce the oil viscosity.

Notice	▶ When the engine is stopped, the steering wheel becomes hard to turn. But this does not mean a failure. It can be only used in an emergency situation. ▶ When releasing the steering wheel after steering operation while driving, the steering wheel does not return to neutral position automatically.

(3) Hydraulic lift control (Mechanical Hydraulic Lift, MHL)

- The hydraulic lift system for controlling the rear three-point linkage is operated by the position control lever and/or draft control lever.
- To lower the 3-point linkage, first make sure the down speed control knob is open, and then move the position control lever forward. To raise the 3-point linkage, move the position control lever rearward.
- An adjustable lower stopper is installed for returning the lever to a preset lowering position of the 3-point linkage. An adjustable upper stopper prevents the control lever from exceeding the lift limit and causing the tractor hydraulic system to go over the relief valve setting. (If equipped)
- The hydraulic lift system provides accurate, smooth, and instant hydraulic power for raising a variety of compatible equipment whenever the engine is running. The position control mode maintains the selected height or depth of three-point linkage equipment in relation to the tractor. When the operator moves the position control lever to a higher or lower position, the system repositions the equipment to a higher or lower position and maintains the selected position.

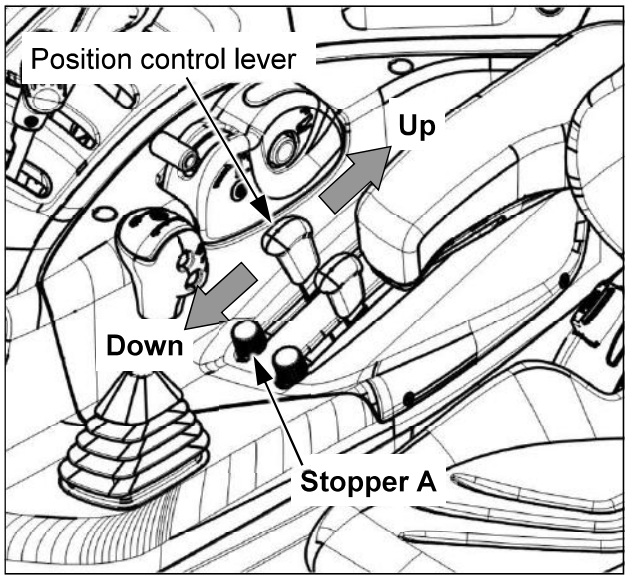
Danger	**Crushing hazard!** ▶ Make sure area is clear of all persons before lowering equipment. Failure to comply will result in death or serious injury.



① Position control

- Position control provides easy, accurate control of the three-point linkage equipment, which is operated above the ground, such as tiller, sprayers, rakes, mowers etc. It also provides uniform depth when using a blade or similar equipment on ground level.
- When operating in position control, there is a definite relationship between the position of the control lever and the position of the equipment.

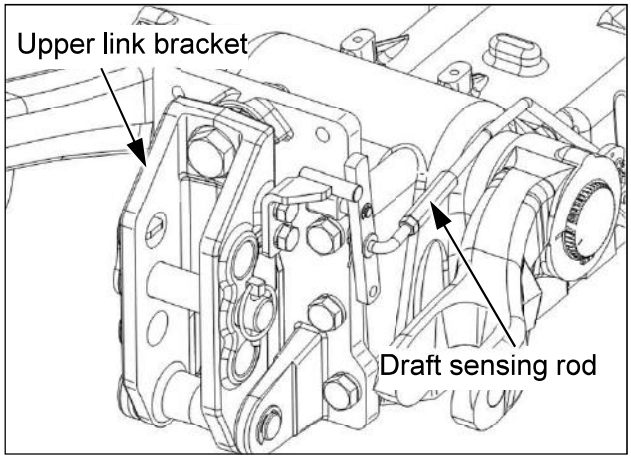
1. Move the position control lever to change the position of the equipment relative to the tractor.
2. The system will automatically maintain the equipment in the selected position.
3. You can limit the range of the position control lever operation by moving and tightening the stopper A.

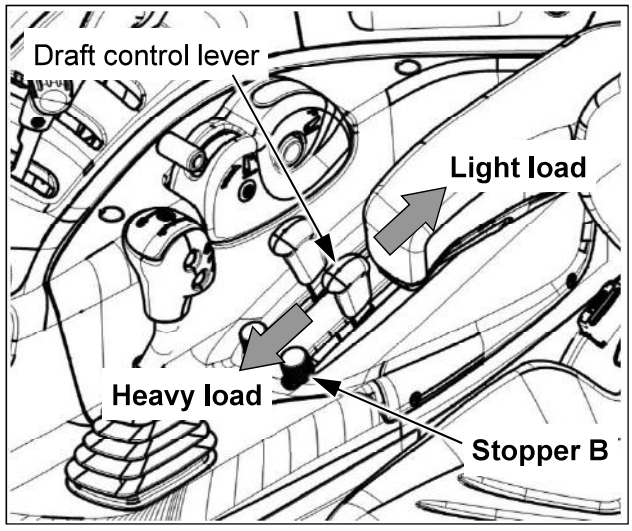


② Draft control

- The draft control lever sets the desired depth of the attached implement. Draft control is best when using implements that operate in the ground, such as plows, harrows, or cultivators. The amount of draft loading on the implement will increase or decrease as the working depth or the soil resistance changes.

1. To set the draft control, move the position control lever to its full forward position.
2. Then set the implement draft depth lower by moving draft control lever forward, or set it higher by moving lever rearward.
3. Implement depth will be determined, depending on the soil conditions. The hydraulic lift system keeps the tractive effort steady automatically in draft control.
4. You can limit the range of the draft control lever operation by moving and tightening the stopper B.
5. If you want to lift the rear implement, use the position control lever instead of the draft control lever.





③ Mixed control

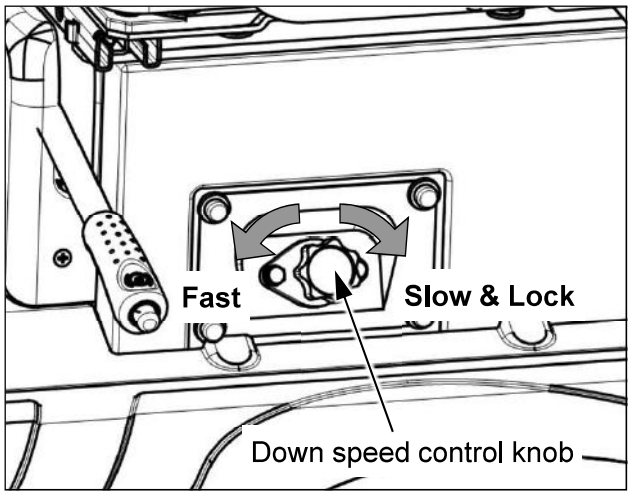
- You can use draft and position control together to operate in draft control but prevent the implement from sinking excessively when soil conditions change. First, set the draft control lever with the position control lever fully forward. Then move the position control lever back until the 3-point linkage start to rise. The position control lever sets the lowered position of the hydraulic lift system.

④ Float operation

- Move the draft control lever and position control lever fully forward. The three-point linkage will now be free to “float” or follow the ground contour. This mode is useful for scraper blades, etc.

⑤ Down speed control knob

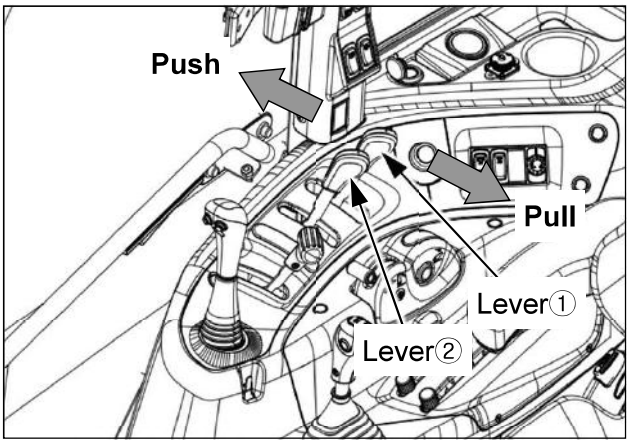
- It is used to adjust the down speed of the rear 3-point linkage. Turn the down speed control knob clockwise to decrease the down speed of the implement and turn the knob counter-clockwise to increase the down speed.
- If turning the knob clockwise fully, the implement will be fixed and even if lowering down the position control lever, the implement does not let down.
  - Tiller : Slow in down speed
  - Plough : Fast in down speed
- When working in hard ground, slow down the down speed to avoid bounding of the implement.

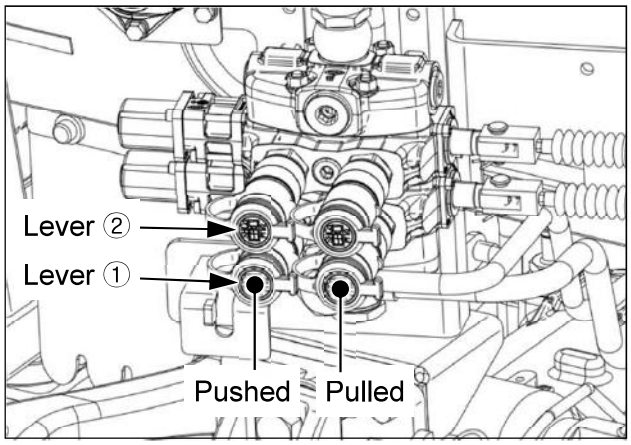


⚠Warning	▶ When driving on the road, replacing tiller blades or removing grass around the tiller blades, turn the down-speed control knob clockwise slightly to lock. ▶ The knob rotates about two revolutions. Do not over-tighten the knob. It may cause damage to the control valve and connection parts.

(4) Remote control lever and Quick coupler (optional)

- These remote control levers are used to operate the hydraulic cylinder and/or motor of the implement attached to your tractor.
- If you **push** the remote control lever(s) **forward**, the hydraulic pressure works **to the left-hand coupler** of the related lever, and **the right-hand coupler** is connected **to the drain line**.
- Each lever of this parallel circuit remote control valve can be operated independently. But, when operating these levers at the same time, the quick coupler under less pressure may begin to work first.
- After connecting and preliminary operating the hydraulic equipment, check again the transmission oil level of the tractor.
- Depending on the remote control valve type, a spring-return type lever, detent type lever or a combination of these types will be installed on your tractor. (optional)
  - Spring-return type: When releasing the lever after operating fully, the lever will return to the neutral position automatically.
  - Detent type: When releasing the lever after operating fully, the lever is fixed on the working position. In this case, you must move the lever to the neutral position manually after operating. *If leaving this lever on, it may cause an over-heat and serious damage to the hydraulic system.*
  - Detent with auto-release type: When releasing the lever after operating fully, the lever is fixed on the working position, and if the system pressure due to the full stroke or overload is over the designated level, the remote control lever will return to the neutral position automatically.



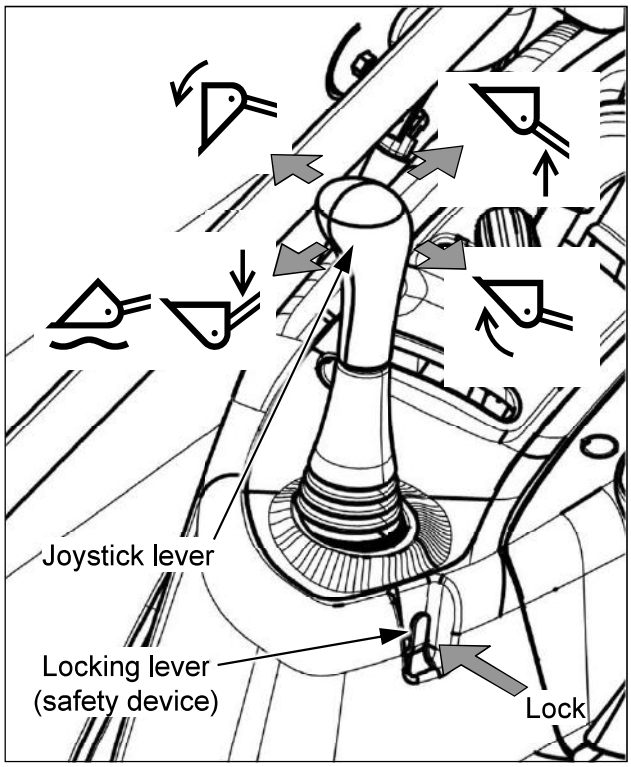


Warning	▶ Before removing the hydraulic pipes, hoses or other parts, make sure to check that the hydraulic pressure in the hydraulic lines is relieved completely. The leaks of pressurized oil can cause a fatal physical injury. ▶ Use proper personal protection equipment before servicing the hydraulic system. ▶ Before connecting or disconnecting the hydraulic quick couplers, lower the implements to the ground, and check if the hydraulic pressure is relieved completely.

Caution	▶ When connecting a high volumetric capacity cylinder to the remote control system, lower the implement to the ground, and check if the transmission oil level is marked between “Min” and “Max” scale on the oil gauge. If necessary, add new oil.

(5) Joystick lever (optional)

- The multi-functional joystick lever helps you operate the front-end loader comfortably.
- The joystick lever can be operated basically in four directions as shown in the right figure.
- If you move the joystick lever diagonally, the boom and bucket cylinders will be operated at the same time. In this case, a cylinder with a relatively light load may be moved first.
- If you want to float the bucket along the ground, lower the front-end loader and push forward the joystick lever to the float position. After finishing work, pull the lever and place it in the neutral position.
- The locking lever shown in the right figure is used to lock the joystick lever when you are not using the joystick lever.
  - Pull away from the joystick: Unlock
  - Push towards the joystick : Lock
- *For further information, see chapter 4-5-(7) in this manual.*



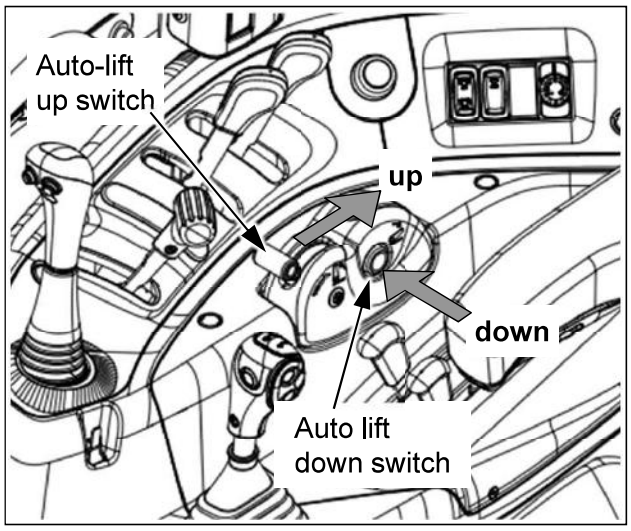
<Meaning of symbols>

Bucket floating
Boom up
Bucket up
Boom down
Bucket dump

Warning	▶ To prevent an accident, secure the joystick lever with the locking lever when the joystick lever is not in use.

(6) Auto-lift control (MHL)

※ It is used to lift up the implement up to the highest position quickly and lower it down to the position set by the position control lever without using the position control lever.

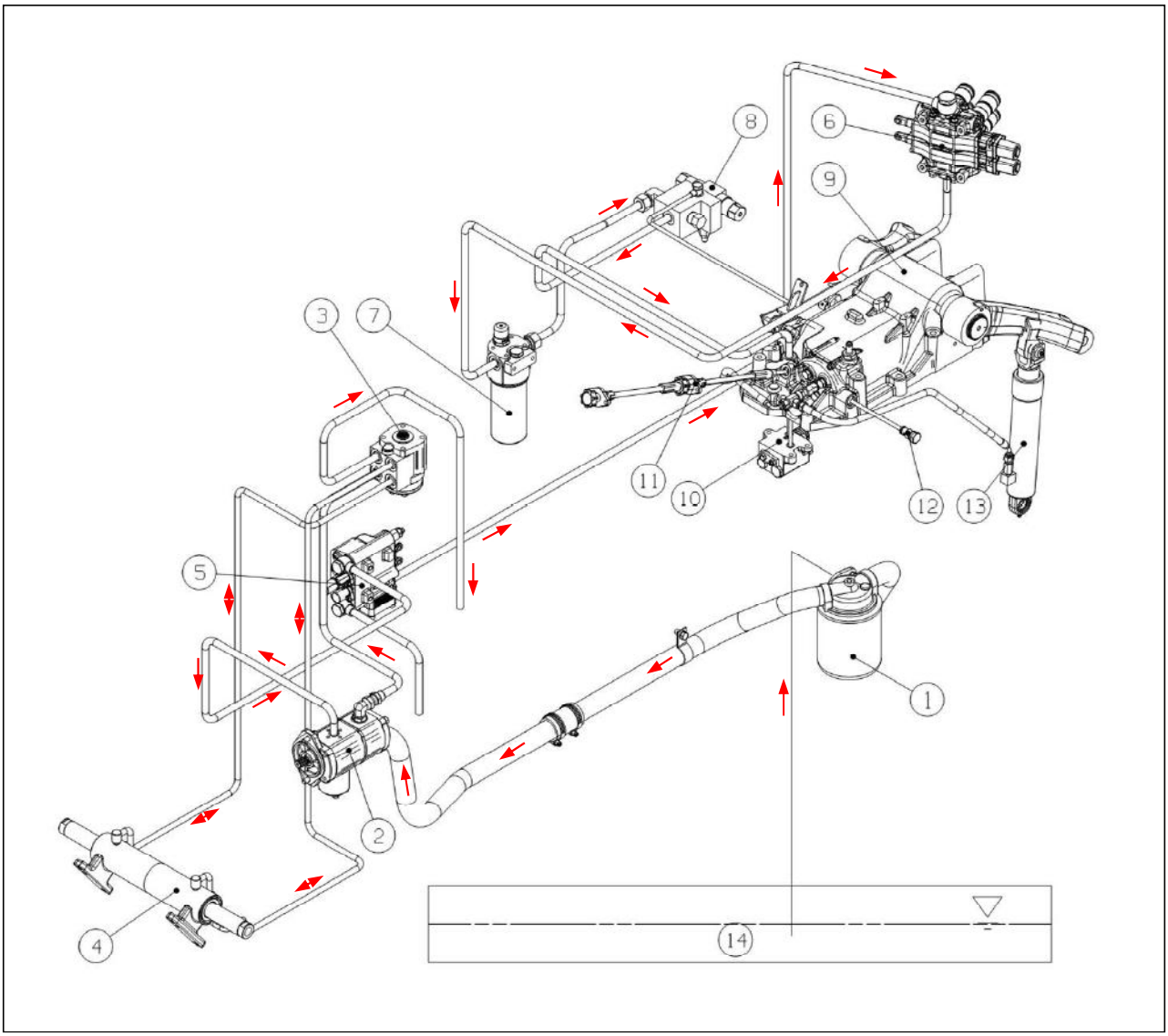


- Pull the auto-lift up switch backward to lift up the implement.
- Press the auto-lift down switch to lower down the implement. At this time, the auto-lift up switch returns forward automatically.
- When the auto-lift up switch is pulled back, the implement will NOT be moved by the position control lever.
- When lifting up the implement, the PTO shaft will be stopped in case that the PTO mode switch is placed in the "**AUTO**" position. (optional)

⚠Warning	▶ When driving on the road, lift up the implement with the position control lever and lock the down speed control knob slightly. ▶ When lifting up or down the implement with the auto-lift control switches, do not approach the implement. And, before using the switches, you must check the safety conditions of the working area.

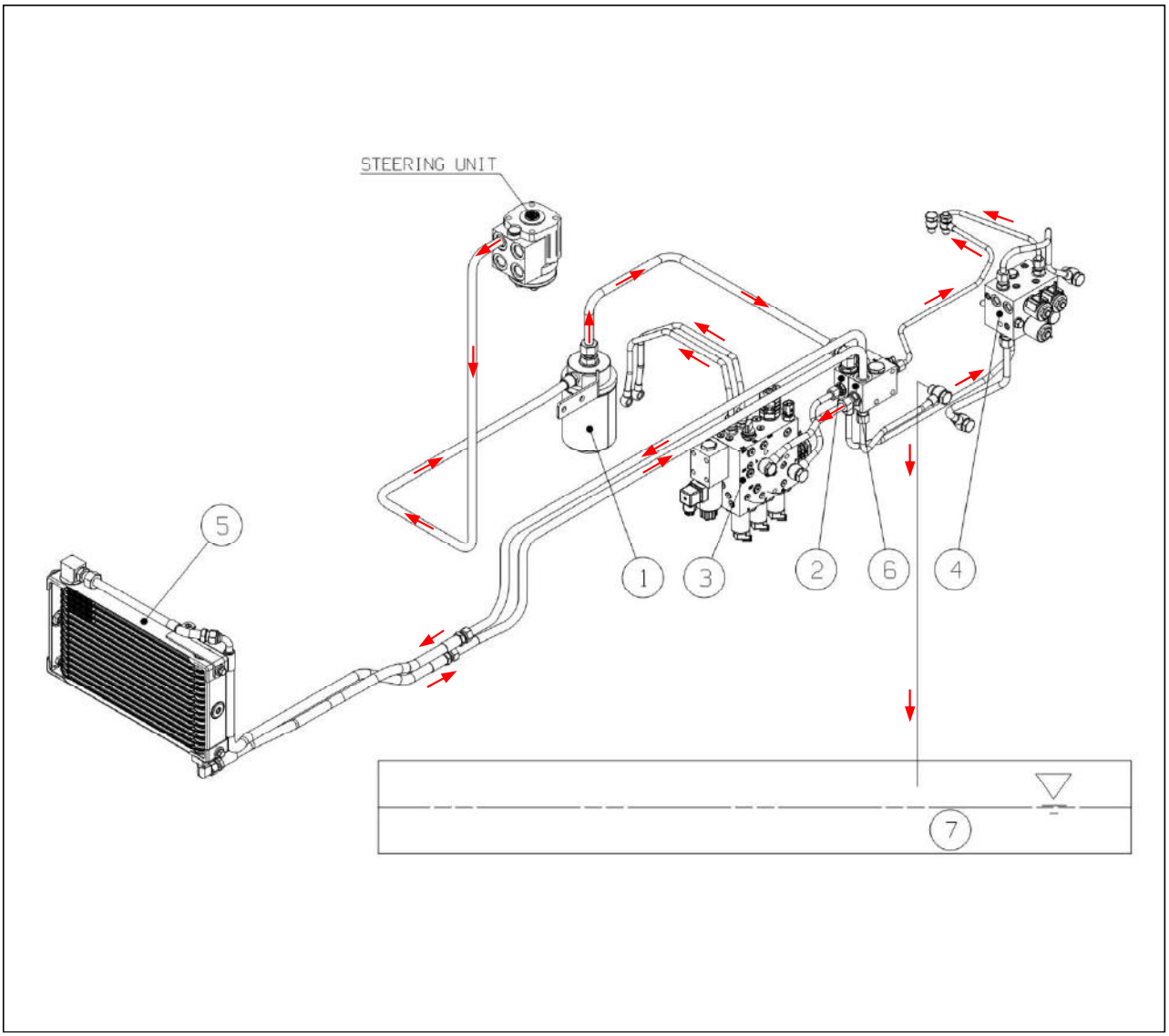
(7) Hydraulic System Diagram

① Mechanical Hydraulic Lift (MHL)



1. Hydraulic oil filter
2. Hydraulic pump
3. Steering unit
4. Steering cylinder
5. Front loader valve or
   Front outlet valve (optional)
6. Remote control valve (optional)
7. In-line filter (optional)
8. Leveling control valve (optional)
9. Hydraulic lift housing (MHL)
10. Hydraulic lift control valve (MHL)
11. Down speed control valve (MHL)
12. Safety valve
13. Hydraulic lift cylinder (optional)
14. Oil tank (Transmission case)

② Power shuttle transmission hydraulic control line (optional)



1. Power shuttle filter
2. Sequence valve
3. Power shuttle control valve
4. TM control valve
5. Oil cooler
6. Oil cooler valve
7. Oil tank (Transmission case)

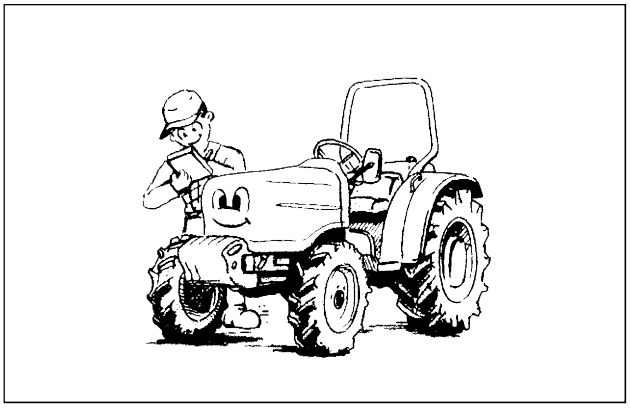
4. Operation and Work

4-1. How to handle new tractor

(1) Check points

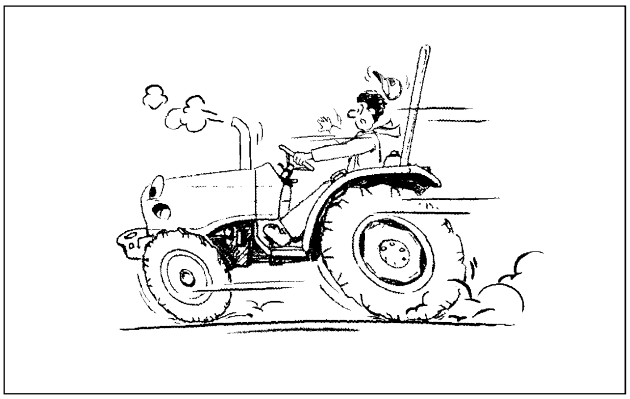
※ For new tractor, the followings must be checked once again even though there was sufficient quality management, inspection, regulating of each part in the factory.

- Appearance check
  - Is there any damage while transporting?
- Engine cooling system check
  - Is there anti-freeze solution in the radiator? And any leakage?
- Fuel system check
  - Is there any leakage of fuel in the fuel system?
- Oil level check
  - Is there optimal oil amount in each part ?
- Electric system check
  - Is there any cut-off or any other problem in the wiring?
  - Is there any problem to operate the instruments?
  - Is the state of battery charging sufficient?



(2) Notices in handling new tractor (Engine brake-in procedure)

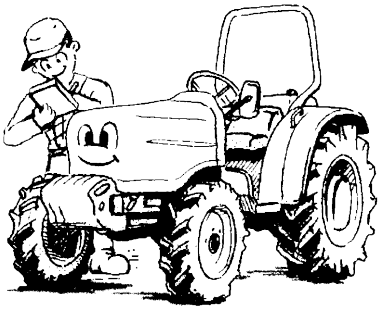
- To get the best performance, comply with the followings.



- DO NOT start or stop the tractor suddenly.
- DO NOT operate heavy loaded work and do not increase the engine rpm to high speed suddenly.
- Despite warm ambient temperature, warm up the engine for about 5 minutes at low idle rpm.
- Use the lower gear ratios when pulling heavy loads and avoid continuous operation at constant engine speeds. You will save fuel and minimize engine wear by selecting the correct gear ratio for a particular operation
- Avoid prolonged operation at either high or low engine speeds without a load on the engine.
- Check the instruments frequently and keep the radiator and oil reservoirs filled to recommended levels. Daily checks include the engine oil level, radiator coolant, and air cleaner.
- After using the first 50 hours, be sure to perform the maintenance items listed in the maintenance schedule. *Refer to the chapter 5-4, "First 50 hour check" in this manual.* If possible, contact your authorized local dealer for "First 50 hour check".

4-2. Engine Start and Stop

⚠ Caution	▶ Check each part before starting the engine. ▶ Check if there are any other people around before starting. ▶ Place all the transmission gear levers and switches in the NEUTRAL or OFF position.

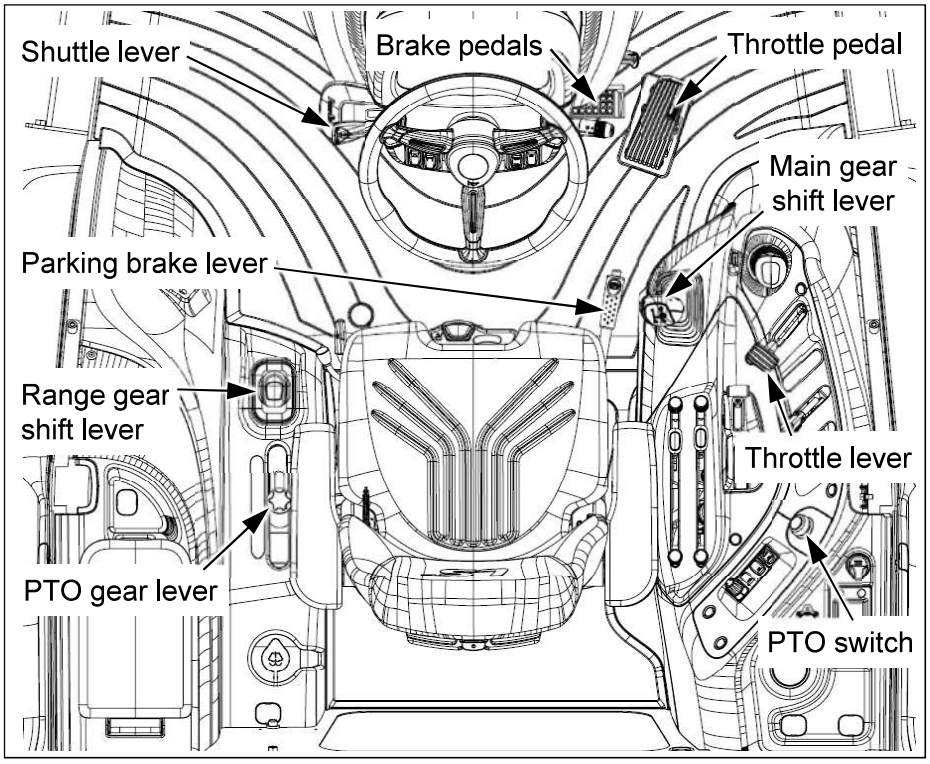


(1) Engine start

1. Sit in the driver's seat and apply the parking brake lever.

2. Place the main gear shift lever, range gear shift lever, shuttle lever in the neutral position and put the PTO switch in the "OFF" position.

3. Pull the throttle lever to the lowest speed position and don't step on the throttle pedal.



4. Turn the key switch to the ON position and check if the engine oil pressure indicator, battery charging indicator and cold start aid indicator are turned on.

5. Wait until the cold start aid indicator is turned off. (about 15 seconds)

6. Depress the clutch pedal fully and turn the key switch to the "Start" position. As soon as the engine starts, release the key switch to the ON position.

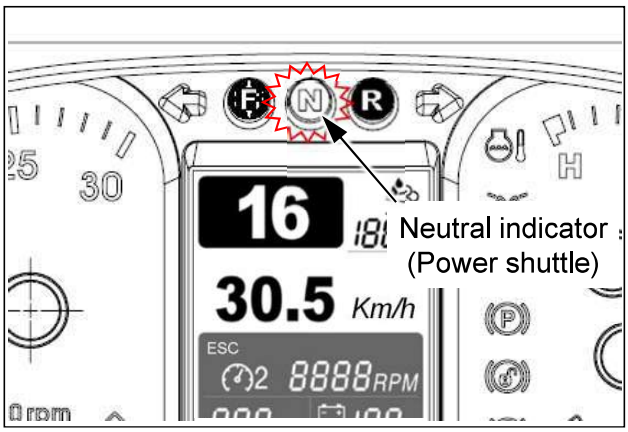
7. Check if the engine oil pressure indicator and battery charging indicator are turned off. If any of these indicators are turned on, stop the engine immediately and check the problem.

8. Run the engine for a few minutes to allow the engine oil and transmission oil to warm up. *For the details, see chapter 4-3-(1) in this manual.*

⚠ Warning  	▶ Only start the engine outdoors or in a well ventilated place, as the engine exhaust fumes may cause sickness or death. ▶ To avoid an explosion, never use starting fluid to start the engine. ▶ Start the engine only from the driver's seat after depressing clutch pedal fully while all the transmission gear levers are placed in the neutral position. ▶ DO NOT start the engine by shorting across the terminals of the starter motor. If the engine starts, the tractor can be moved suddenly.
⚠ Caution	▶ To start the engine, be sure to depress the clutch pedal fully, place the shuttle lever in the neutral position, and put the PTO switch in the "OFF" position. Otherwise, the engine cannot start even if turning the key switch to the "Start" position. ▶ DO NOT operate the starter motor more than 10 seconds. If the engine does not start, wait for 1~2 minutes before restarting. ▶ When the engine is running, DO NOT turn the key switch to the "Start" position. It may cause a failure of the starter motor. ▶ In cold weather, be sure to warm up the engine sufficiently. If using the tractor suddenly in cold weather, the engine life can be reduced. *For the details, see chapter 4-3-(1) in this manual.* **Especially for power shuttle models, sudden start without warming-up the engine can cause damage to the power shuttle clutch and reduce it's reliability. Be sure to warm up the engine until the blink of the neutral indicator disappears on the instrument panel.**

(2) Start in cold weather

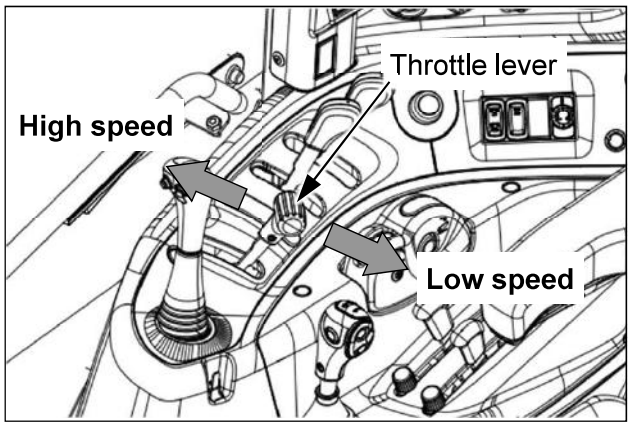
- Place the throttle lever to the low idle position.
- Start the engine after the cold start aid indicator is turned off.
- If the engine runs rough, push the throttle pedal down 2~3 times for a while.
- After starting the engine, carry out warm-up for 5~10 minutes at low idle position. *For the details, see chapter 4-3-(1) in this manual.* **Specially, for power shuttle models, be sure to warm up the engine until blink of the neutral indicator has disappeared on the instrument panel.**
- Use the engine oil for winter in cold weather. Refer to "Lubricants and Capacity" at the end of this manual.
- Use the diesel for winter when it is very cold weather. It is much easier to start the engine.



⚠ Caution	▶ When storing the tractor in cold weather, the battery must be removed and stored in a cool, dry place that is not frozen away from children. ▶ Allowing engine to idle for a long time will waste fuel and cause a build-up of carbon.

(3) Engine stop

- Place all the transmission gear levers or switches in their “NEUTRAL” or “OFF” positions.
- Pull the throttle lever backward to reduce the engine speed and turn the key switch to the “OFF” position. The engine will be stopped.
- Remove the ignition key after stopping engine.



⚠ Caution	▶ When stopping the engine after finishing heavy work, run the engine at low idle speed for about 2 minutes to cool down the engine. If you stop the engine suddenly, the engine life could be reduced.

4-3. How to drive and stop

(1) Engine and transmission Warm-up

***- Engine warm-up*:** We strongly recommend that you should always warm-up the engine basically for five minutes after starting to lubricate and protect the engine. In cold weather, comply with the below table.

- Transmission warm-up: The tractor hydraulic oil also serves as the tractor transmission fluid. During cold weather operation, the hydraulic oil viscosity increases. This increase in oil viscosity restricts the oil's ability to flow and lubricate in the transmission and hydraulic circuits. The cold oil can result in abnormal noises and delay or slower operation times due to the increased oil viscosity.

NOTE: *A warm up time at **50%** rated engine speed is recommended to assure proper vehicle functionality, transmission lubrication and operation.*

NOTE: *Do not operate the tractor under full load condition until the hydraulic oil is sufficiently warmed up.*

Ambient Temperature	Recommended Warm-Up Time
Above 0 °C (32 °F)	Minimum of 5 minutes
0 – -10 °C (32 – 14 °F)	5 to 10 minutes
-10 – -20 °C (14 – -4 °F)	10 to 15 minutes
Below -20 °C (-4 °F)	More than 15 minutes

⚠Warning	▶ **Unexpected movement!** During the warm-up operation, do the following: Engage the parking brake, set all shift levers to their NEUTRAL positions, and place the Power Take-Off (PTO) switch in the OFF position. Failure to comply could result in death or serious injury.

(2) How to drive

- Power-shuttle models

1. Lift up all the implements (front/middle/rear) from the ground after starting engine.

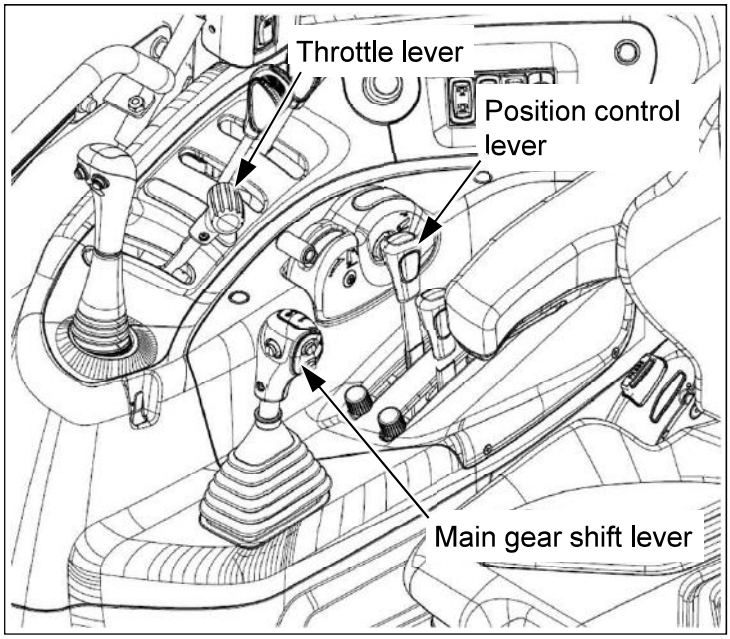
2. Pull the throttle lever to the low speed position.

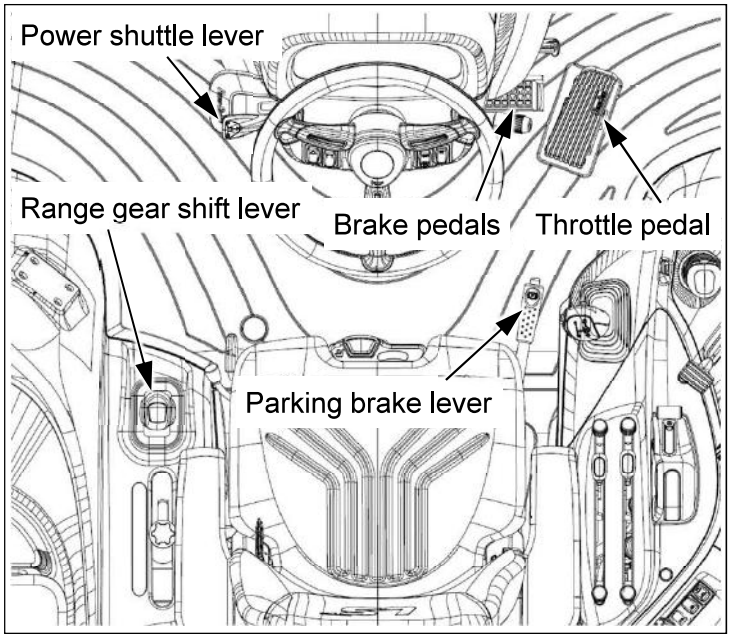
3. Place the power-shuttle lever in neutral position.

4. Place the transmission gear levers (Main, Range, Creeper gear lever) on a suitable position.

5. Press down the brake pedals and release the parking brake lever.

6. Place the power-shuttle lever to forward/reverse position, and press down the throttle pedal slowly when the vehicle begins to start.



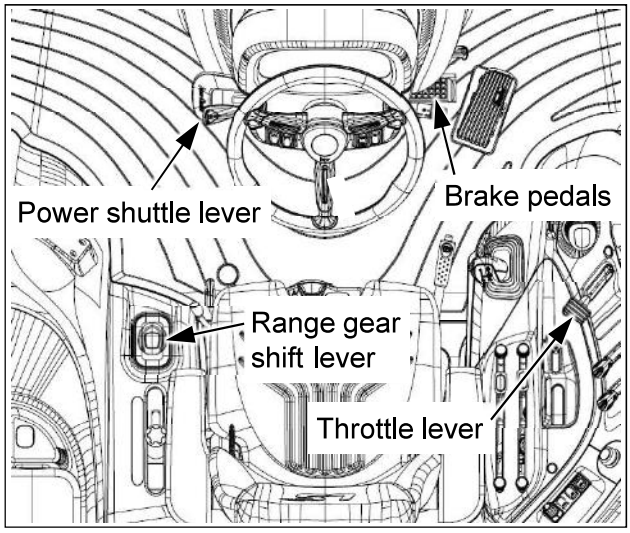


Notice	▶When starting the power-shuttle models normally, use the power-shuttle lever without depressing the clutch pedal.

⚠Caution	▶ If starting the tractor at high engine speed, it may cause sudden start. Be sure to start the tractor at low engine speed and then raise the engine speed gradually. ▶ Before starting the power shuttle models, warm up the tractor sufficiently to prevent the shifting shock and delayed movement. ▶ When starting the power shuttle lever on a slope, always press down the brake pedals first, and release them at the moment when the vehicle starts. ▶ When starting the vehicle, be sure to check the transmission gear ratio and check the safety conditions of your direction.

(3) Changing speed

- Depress the clutch pedal fully and operate all the transmission gear shift levers correctly.
- The forward or reverse of the power shuttle models can be selected by the power shuttle lever without depressing clutch pedal.
- The main gear shifting of the synchro-shuttle or power shuttle models is available while driving after depressing clutch pedal or clutch button (optional).
- Before shifting the range gear shift lever and PTO gear lever, press down the brake pedals and stop the tractor completely.
- Set an appropriate driving speed according to the road conditions.

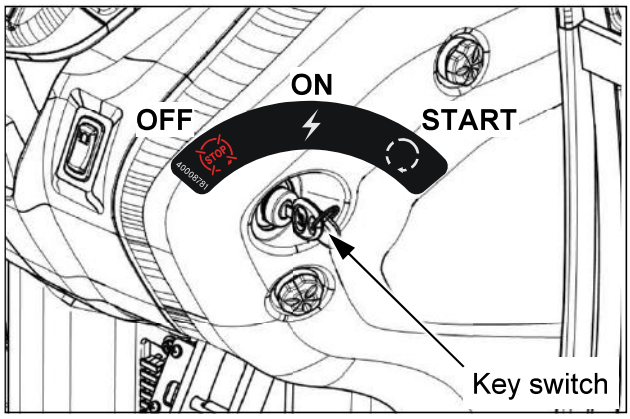


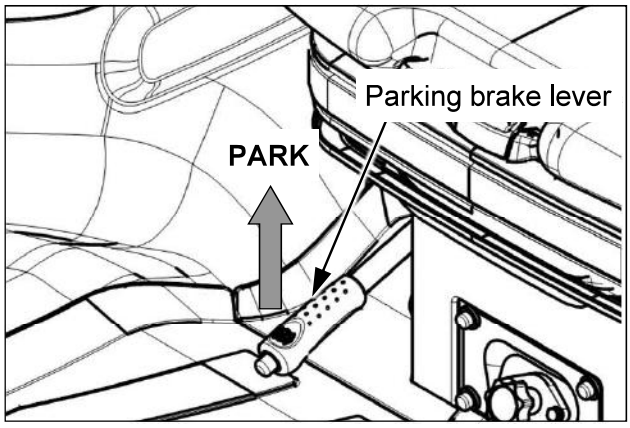
(4) Emergency stop

1. Press the clutch pedal and brake pedals at the same time to stop the tractor. Turn OFF the key switch.

2. DO NOT release the clutch pedal until all moving parts have been stopped.

3. Apply the parking brake.





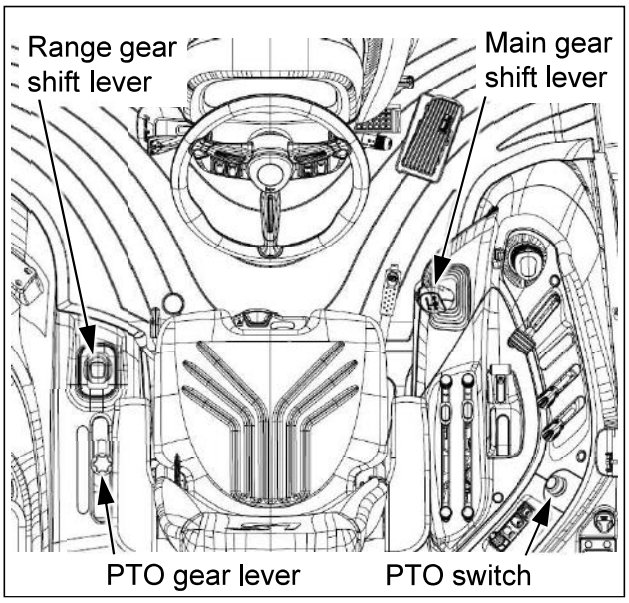
⚠ Caution	▶ DO NOT leave the tractor while the transmission gear is placed in the neutral position and the parking brake is not applied. The tractor may roll down. Apply the parking brake at all times before leaving the tractor. ▶ Remove the ignition key always after stopping engine.

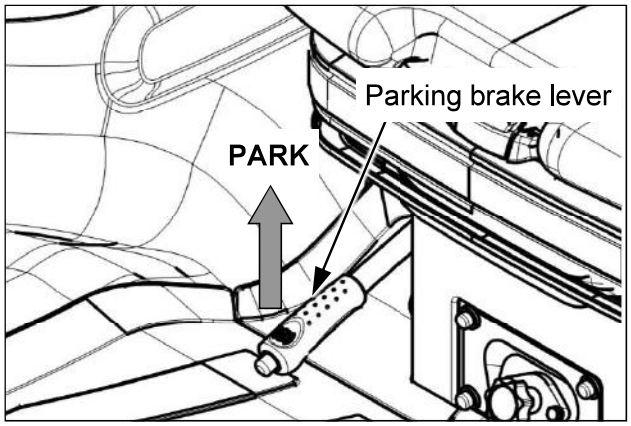
(5) Stopping tractor

1. Press down the clutch pedal and brake pedals. Pull the throttle lever to the “Low” speed position. Place the shuttle lever, main gear shift lever in their neutral positions and put the PTO switch to the “OFF” position.

2. Lower the implements to the ground. Turn the key switch to the “OFF” position.

3. Apply the parking brake and release the brake pedals and clutch pedal slowly.

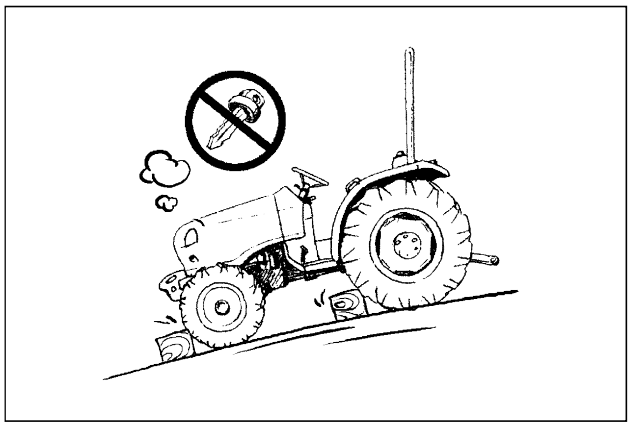




⚠ Caution	▶ DO NOT leave the tractor while the transmission gear is placed in the neutral position and the parking brake is not applied. The tractor may roll down. Apply the parking brake at all times before leaving the tractor. ▶ Remove the ignition key always after stopping engine.

(6) Parking

- Stop the tractor on a level surface, not on a slope.
- Disengage the PTO and place all the transmission shift levers in their neutral positions.
- Lower the mounted implements on the ground.
- Apply the parking brake.
- Stop the engine and remove the ignition key.
- Before you leave the operator's station, wait for the engine and all moving parts to stop.
- Apply the wheel chocks to the wheels when parking the tractor on a slope unavoidably.

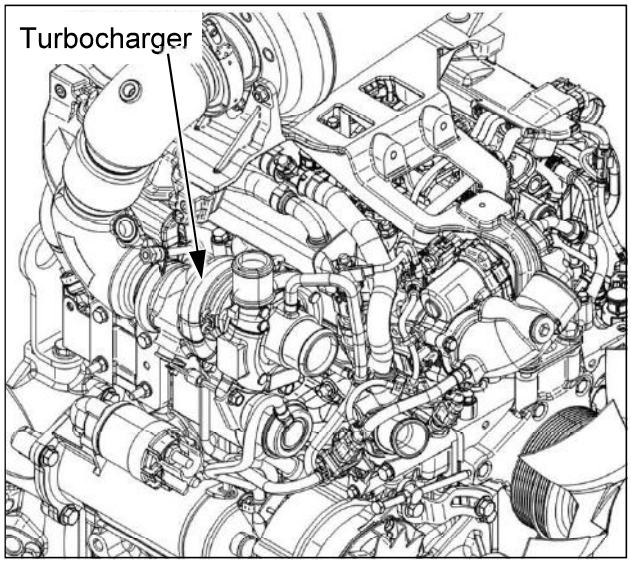


- **In case of power shuttle models, engaging the lowest gear for engine brake after the engine is stopped is NOT available. When parking the tractor on a hill, you should apply the parking brake and wheel chocks to the wheels.**

⚠Caution	▶If it is necessary to park your tractor on a slope, furthermore with a loaded trailer, the tractor may roll down, even though the parking brake is applied. In this case, apply all the transmission gears in their lowest speed positions and apply the wheel chocks or blocks to the all tires. **- Mechanical: downhill ⇒ reverse 1st gear / uphill ⇒ forward 1st gear.** **- Power shuttle: Engine brake by transmission gears is NOT available.**

(7) Handling Turbocharger (if fitted)

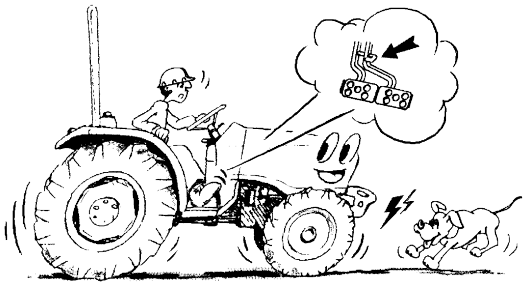
- The turbine of the turbocharger is a highly precise part that rotates at high speed.
- Before accelerating or working the tractor fitted with the turbocharger, allow the engine to idle at 1000 rpm for about 1 minute to ensure that the turbocharger is correctly lubricated.
- Before stopping engine fitted with the turbocharger, allow the engine to idle at low idle rpm for about 2 minutes. This allows the turbocharger and manifold to cool, preventing deformation of the components.



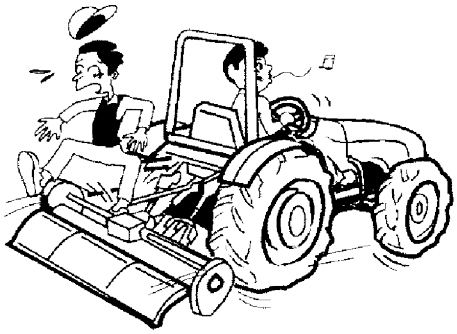
4-4. Transport on public roads

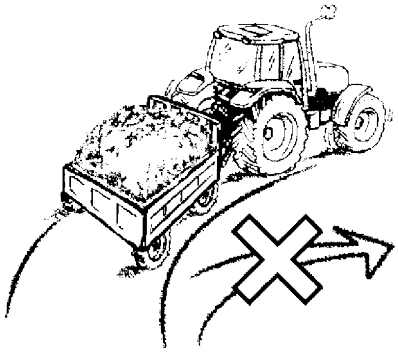
(1) Safety rules when driving tractor on the roads

- When facing downhill, DO NOT place the transmission gear lever in the neutral position.
- When driving the tractor on an unpaved road with a heavy rear implement on the 3-point linkage, do not drive fast and do not lift up the implement to the highest position. The hydraulic lift system may be damaged by vibration and impact. In this case, place the position control lever on the 3/4 rising position of the full stroke and select an appropriate driving speed before entering the unpaved road.



DO NOT USE DIFF-LOCK





⚠Caution	▶ Connect the left/right brake pedals with the brake pedal latch before driving. ▶ Avoid a sudden start, sudden brake and sharp turning. ▶ DO NOT allow people or baggage on the tractor or implement. ▶ Place the PTO gear lever in the neutral position and put the PTO switch in the “OFF” position. ▶ DO NOT use the differential lock pedal and front wheel drive(4WD) on the road. ▶ When traveling with an implement on the rear 3-point linkage, tighten the stabilizers to avoid lateral movement. ▶ When traveling with a long and heavy implement, turn slowly with a wide turning radius. ▶ While traveling on public roads, do not ride your foot on the clutch pedal or brake pedals, do not operate any implement such as tiller, loader and etc. ▶ When traveling or starting the tractor on an uphill, select the range shift gear lever and main gear shift lever properly not to damage the engine and transmission drive lines. **Specially, for power shuttle models, the power shuttle clutch can be seriously damaged due to long-lasted engagement.**

(2) Light operation

- Your tractor is equipped with the following lights.

① Headlights

② Side lights, Front turn signal lights and Hazard warning lights

③ Rear turn signal lights and Hazard warning lights

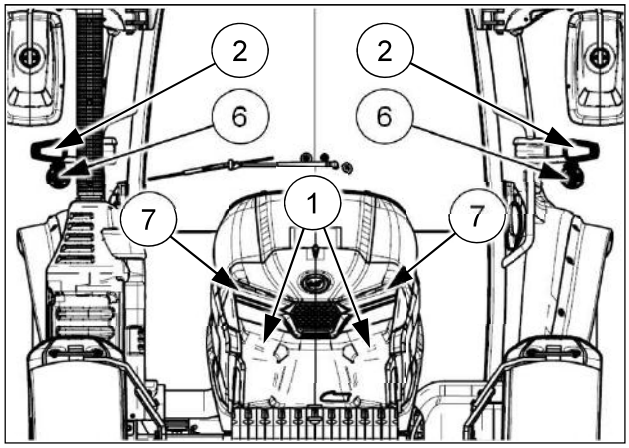
④ Tail lights and Brake lights

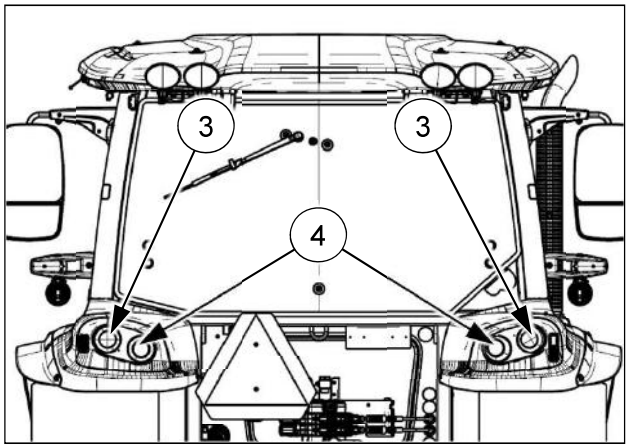
⑤ Rear work lights

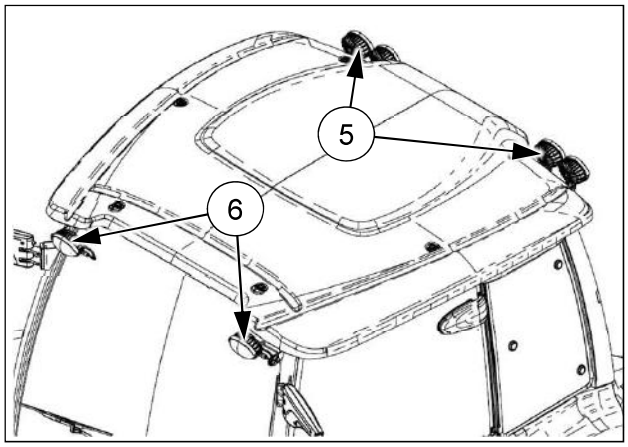
⑥ Front work lights

⑦ Grille work lights

- Use the hazard warning lights and headlights (low beam) when you are traveling on public roads day or night. (North America only)
- Do not modify the lamps or change the bulb capacity arbitrarily.
- When driving the tractor on public roads, operate the lights according to your local traffic regulations.
- *For the details about light operation, refer to the chapter 3 in this manual.*







⚠Warning	▶ Modified lamps or changed bulb capacity may cause a traffic accident by distracting approaching driver's views. ▶ If the lamp is blown out, replace it immediately with a genuine part. In case of driving at night, it may cause a traffic accident.

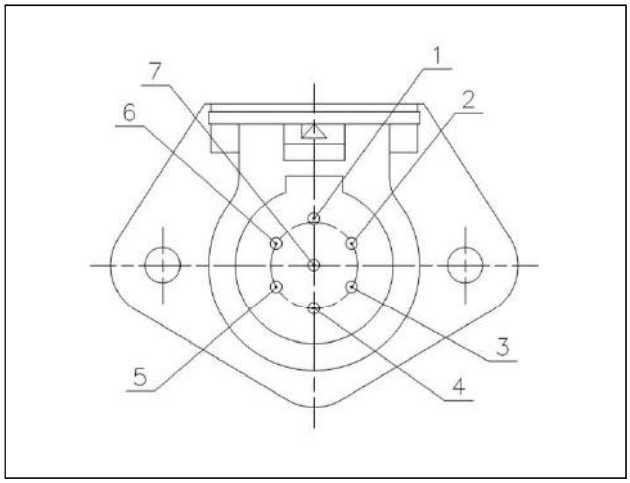
⚠Caution	▶ If using the hazard warning lights for a long time while the engine is stopped, the battery can be discharged completely due to high electrical power consumption.

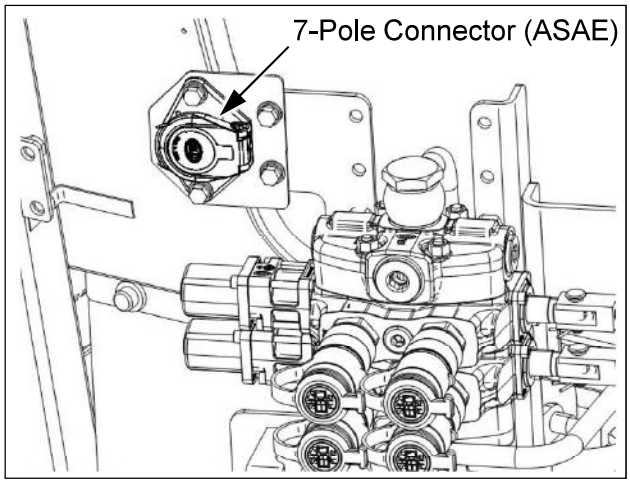
(3) 7-Pole connector (optional)

- One of the standard 7-pole trailer connectors is provided and is mounted at the rear of the tractor. The connections of the 7-pole connector (as viewed from rear of tractor) are as follows;

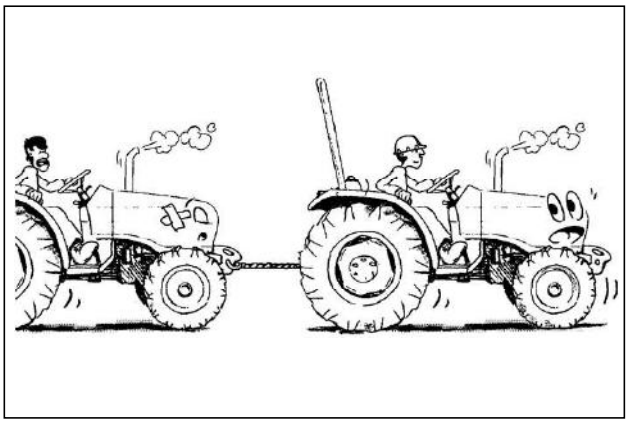
● ASAE Version

Pin No.	Function
1	Ground (Earth)
2	Working light
3	Left turn signal light
4	Brake light
5	Right turn signal light
6	License number plate light
7	Auxiliary





(4) Notices when towing the tractor



- If your tractor needs to be towed for a short distance, use the hitch (or drawbar) or front towing hook. Do not connect to the other structure such as rear axle, ROPS, front axle, and steering components for towing. These components could be damaged by the chain or by excessive strain.
- Your tractor can be steered for a short distance without engine running, but it will be hard to turn the steering wheel. If possible, run the engine for steering and lubrication.
- When being towed, disengage the followings;
  - Front wheel drive (4WD)
  - Differential lock
  - Parking brake,

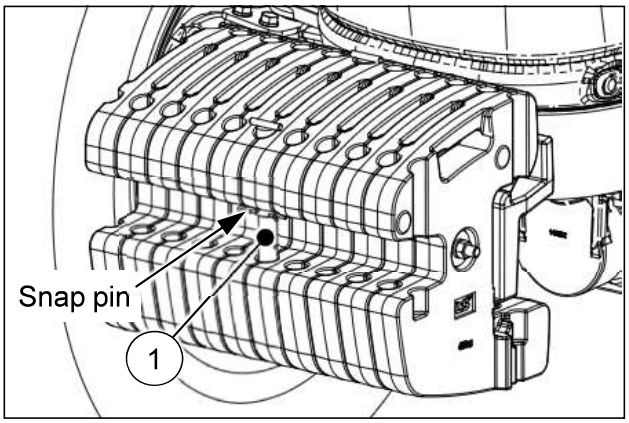
  and place all the transmission gear levers in the neutral position.
- Check the horizontal and vertical permissible load of the hitch (or drawbar), and total weight of the towed vehicle before towing. (*See chapter 4-5-(3). "Hitch and Drawbar" in this manual.*)
- Make sure to install the towing pins and locking pins after connecting the chain.
- Tow the tractor slowly in a longitudinal straight line.

⚠Warning	▶ **Unexpected machine movement!** Never attempt to start the machine by towing. The machine could start unexpectedly. Failure to comply could result in death or serious injury.
⚠Warning	▶ **Transport hazard!** Do not tow the machine on public roads. Towing could cause a safety hazard for other vehicles using the roadway. Failure to comply could result in death or serious injury.
⚠Warning	▶ **Hazard to bystanders!** Do not use cables or rope to tow the machine. If the cable or rope breaks or slips, it may whip back with enough force to cause serious injury. When using a chain, attach the chain with the hook's open side facing UP. If the hook slips, it will drop down instead of flying up. Failure to comply could result in death or serious injury.
Notice	▶ If it is necessary to tow the tractor, all the transmission gear levers must be moved to their neutral positions before stopping the engine. Otherwise, it can cause damage to the transmission components during towing.

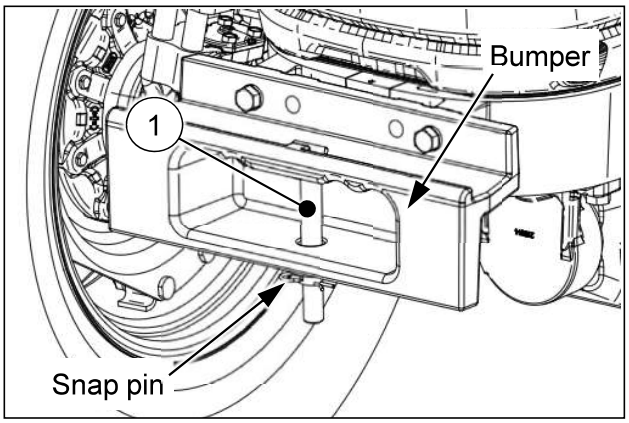
- Use a strong chain when towing the tractor. Tow the tractor from the rear using only the drawbar. Tow the tractor from the front using the tow pin in the front weights or front support. Have an operator steer and brake the tractor. If possible, run the engine to provide lubrication to the transmission and power steering.

  NOTE: The tractor should only be towed a short distance, such as out of a building. Do not tow on roadways or as a method of transport.

- When connecting a chain to the front towing hook on the front ballast weights, make sure to check the snap pin is installed in place firmly on the front towing hook pin①. Otherwise, the front towing hook pin may be out of place while towing and it may cause a serious injury or death.

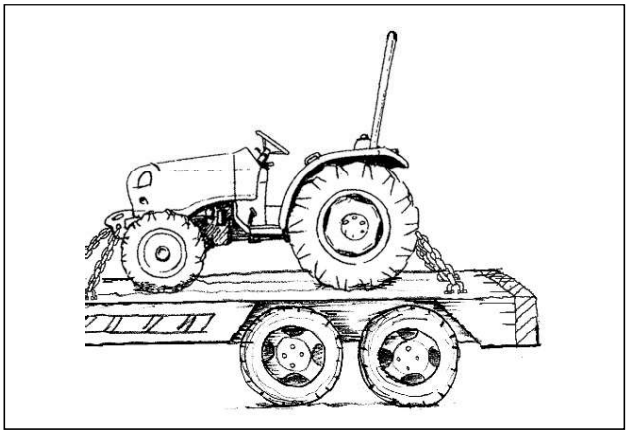


- When the front ballast weights are removed, use the bumper for front towing device.
- Insert the front towing hook pin① to the bumper and assemble the snap pin as shown in the right figure.
- Make sure to check the snap pin is installed in place firmly on the front towing hook pin①. Otherwise, the front towing hook pin may be out of place while towing and it may cause a serious injury or death.



(5) Notices when transporting the tractor

- When transporting the tractor by truck, trailer, etc., use suitable equipment or facilities to load or unload the tractor.
- Fix the tractor tightly to the vehicle with heavy-duty straps or chains.
- When fixing the rear of the tractor, use the hitch or hitch support.
- When fixing the front of the tractor, use the towing hook.
- When driving on public roads, the transporting vehicle must have signs and lights required by local regulation to avoid collision with a vehicle.

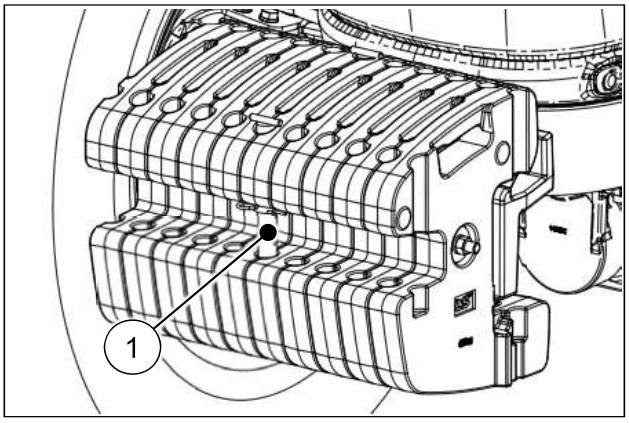


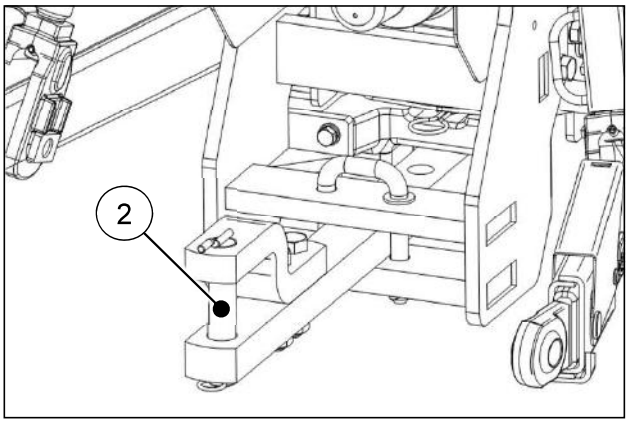
⚠Caution	▶ When fixing the tractor, do not hook or connect chains to the 4WD shaft, steering cylinder, tie-rod or front axle. These can be damaged by the chain or excessive strain. ▶ In case of turbocharger engine (where fitted), cover the exhaust outlet to protect that the turbocharger does not rotate by air without lubrication.

- Transport the tractor with all four wheels on a flatbed trailer or truck. Secure the tractor as follows:

  - Secure the front of the tractor at the front towing hook① of the front ballast weights or bumper. (optional)

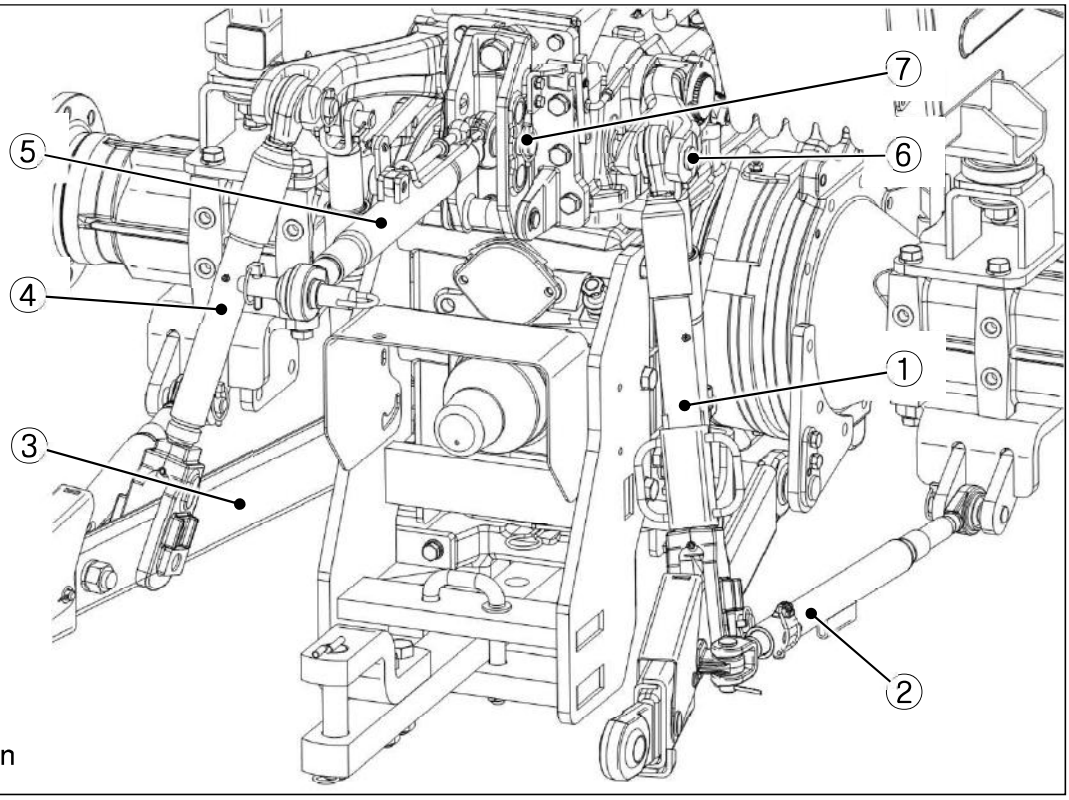
  - Secure the rear of the tractor at the rear drawbar or hitch②. (optional)





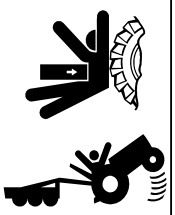
4-5. Field Operations

(1) Rear 3-point linkage



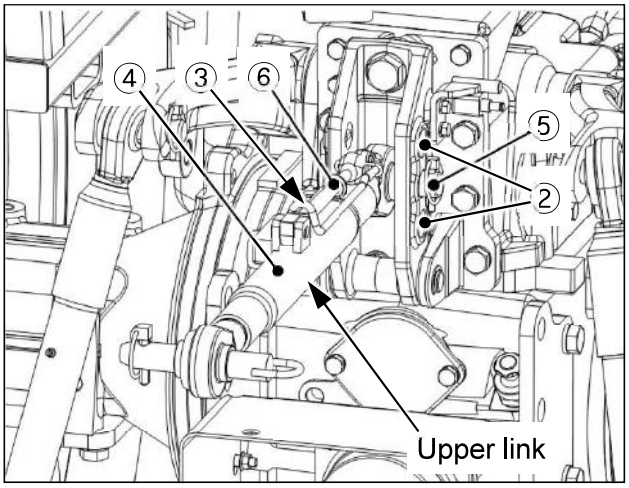
1. Lift rod (RH)
2. Stabilizer
3. Lower link
4. Lift rod (LH)
5. Upper link
6. Lift rod pin
7. Upper link pin

- When attaching a rear implement, comply with the followings.
  1. Set the rear implement upright on a level surface and approach the implement in reverse.
  2. Stop the tractor on an adaptable attaching position and apply the parking brake.
  3. Connect the lower links **(3)** to the implement and insert the lock pin firmly. (left, right)
  4. Connect the upper link **(5)** to the implement and insert the lock pin firmly. Wide adjustable range of the upper link provides you easier attachment.
  5. Fix the implement firmly with stabilizers **(2)**.(left, right).
  6. When detaching the implement, comply with the same procedure in reverse.

Warning	
	▶ Before attaching/detaching an implement, place the PTO switch in the OFF position and the PTO gear lever(if fitted) in the neutral position, and apply the parking brake. ▶ When attaching/detaching an implement, make sure to assemble and tighten the connecting parts correctly. ▶ If your tractor is used to tow heavy loads, always use an approved drawbar or hitch to avoid a tipping, turnover and personal injury. Never connect the loads to the 3-point linkage, rear axle, or other parts. ▶ Never connect an implement that requires more power than capacity of your tractor. ▶ Never stand between implement and tractor when connecting implement. ▶ Do not change the pressure set of the relief valve arbitrarily to increase the lift capacity of the 3-point linkage. It can cause fatal damage to the hydraulic system.

① Upper link installation and adjustment

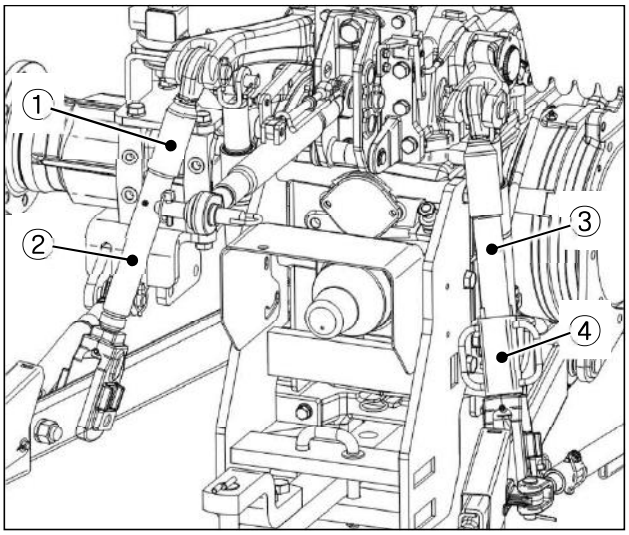
- Select a suitable attaching hole **(2)** depending on the implement.
- To adjust the length of the upper link, release the locking spring **(3)** and turn the sleeve **(4)** with the handle **(6)**.
- Fix the handle **(6)** with the locking spring **(3)** after adjusting.
- **Adjustment range : 550~855mm (21.7~33.7 in)**



Caution	▶ Do not adjust the length of the upper link over the maximum limit. It may cause fatal injury or death by falling object.

② Adjustment of lift-rod (Left/Right)

- For lift rod (LH): After removing the upper lift-rod pin, detach the upper part **(1)** of the lift-rod from the lift-arm and turn the upper part left or right.
- For lift rod (RH): Lift up the handle **(4)** and turn it to the left or right to adjust the length. Secure the handle **(4)** in place after adjusting.



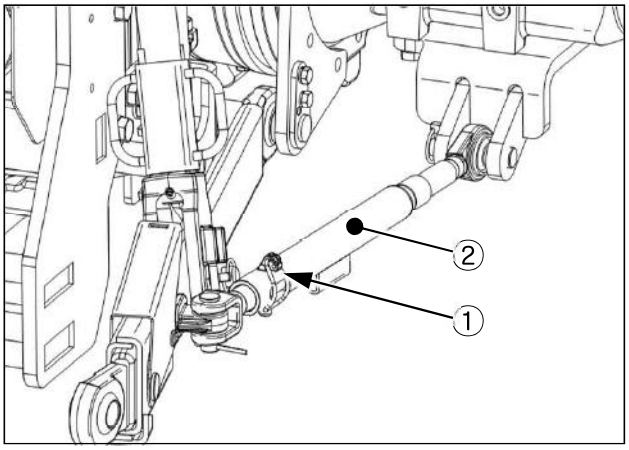
Lift rod (LH)	Lift rod (RH)
521~635 mm (20.5~25.0 in)	495~635 mm (19.5 ~ 25.0in)

Caution	▶ Do not adjust the length of the lift-rod over the maximum limit. It may cause fatal injury or death by falling object.

③ Adjustment of stabilizer (optional)

- Check link type

- Pull up the link pin **(1)** and turn the grip of the stabilizer clockwise/counter-clockwise with adjusting the stabilizer's length.
- Insert the link pin **(1)** into the hole and tighten it securely with the locking spring.

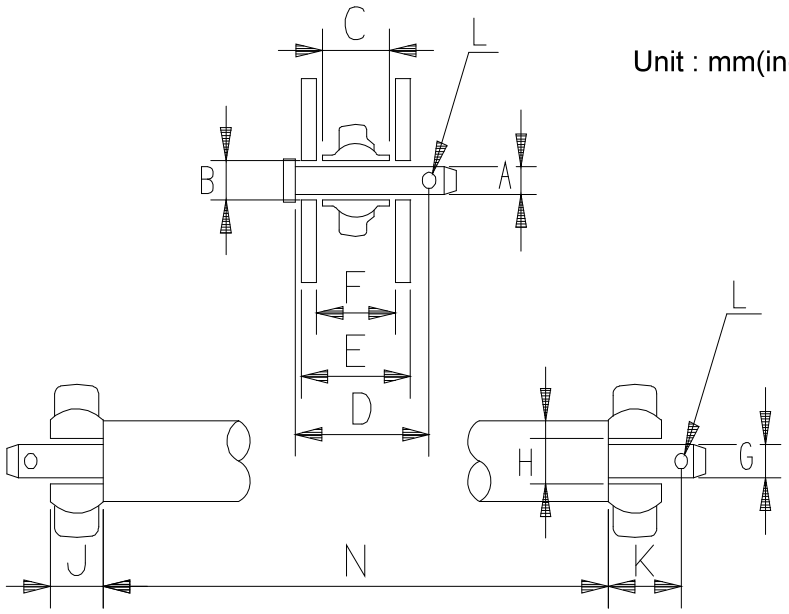


Notice	▶When adjusting the stabilizer's length, set the implement's lateral swinging clearance to be 20~40mm. (0.8~1.6 in.)

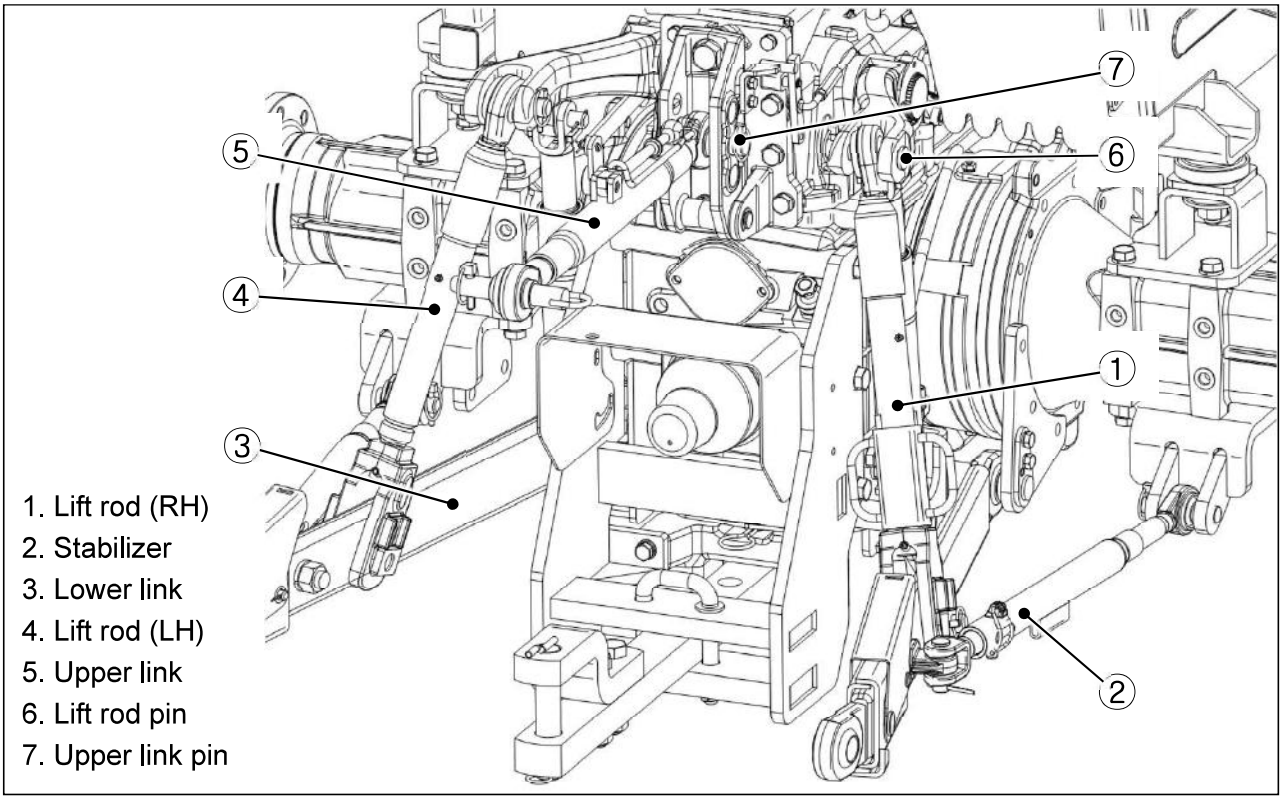
④ Reference of implement installation part

	A	B	C (MAX)	D (MIN)	E (MAX)	F (MIN)	G	H	J	K	L	N
CAT.2	25.4 (1.00)	25.7 (1.01)	51 (2.00)	93 (3.66)	86 (3.38)	52 (2.04)	28 (1.10)	28.7 (1.12)	45 (1.77)	49 (1.92)	12 (0.47)	825 (32.4)

Unit : mm(inch)



⑤ Handling of the 3-point linkage

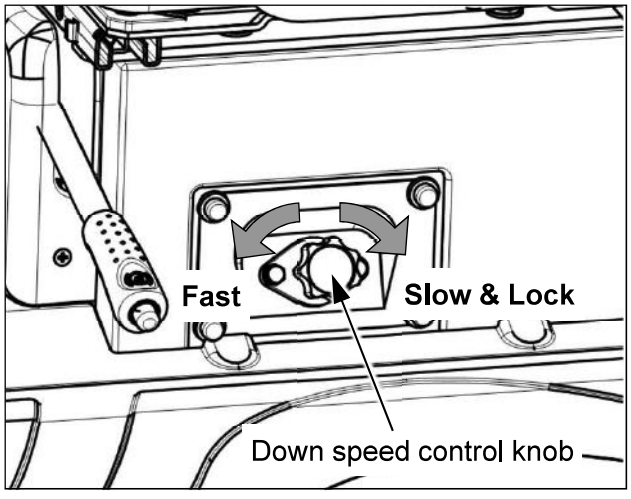


1. Lift rod (RH)
2. Stabilizer
3. Lower link
4. Lift rod (LH)
5. Upper link
6. Lift rod pin
7. Upper link pin

- When driving the tractor without attached implement, comply with the followings.
  1. Secure the upper link **(5)** with the fixing hook installed in front of the upper link.
  2. Connect the stabilizers **(2)** to the lower links **(3)** to avoid the lateral movement of the lower links.

- If the 3-point linkage is not necessary, remove it as follow.
  1. Remove the upper link pin **(7)** and upper link **(5)**.
  2. Detach the rear side of the stabilizer **(2)** from the lower link **(3)**.
  3. Detach the lower side of lift-rod(LH)/(RH) while holding lower link **(3)** tightly not to fall down.
  4. Remove lift rod (LH), lift rod (RH) and stabilizers **(2)** step by step.
  5. Remove lower links **(3)** carefully not to get hurt due to its own weight.

- When using the hitch/drawbar, or driving on the road, lift up the 3-point linkage and fix it by turning the down speed control knob to the locking position.

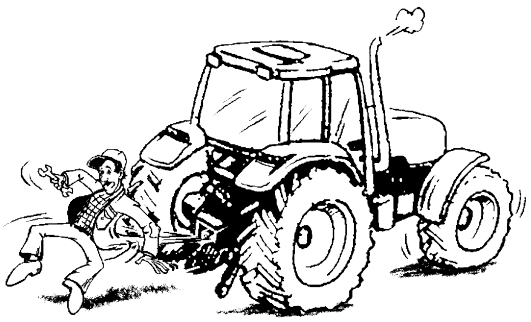


⚠ Caution	▶ The parts of the 3-point linkage are very heavy. When handling them, take care not to get injury. PLEASE BE CAREFULL !

(2) Power take-off (PTO) operation

① Safety precautions

- When PTO shaft is rotating, NEVER APPROACH the shaft.
- Check if the PTO shield and protection cap is attached correctly. If they are removed or damaged, replace it with a new one. After using the PTO shaft, reinstall the PTO protection cap originally.
- **Suitable Clothes & Protect Entanglement :** When checking or attaching implement to the PTO shaft, wear tight fitting clothes and safety equipment instead of loose or long clothes. Also, slippers, high heel shoes are not suitable. Wear the suitable clothes.

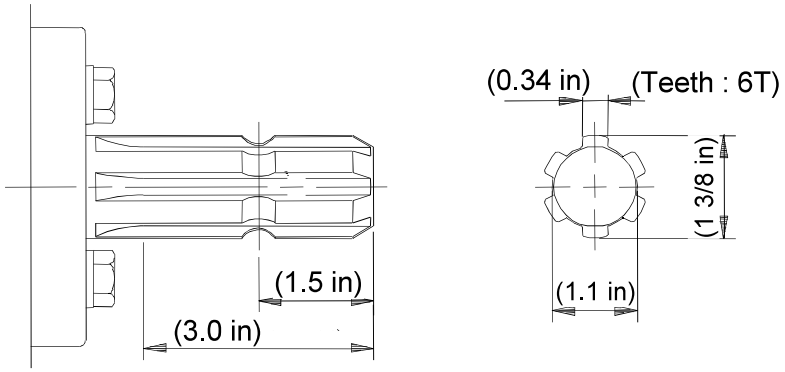


Warning 	▶ Do not approach the rotating shaft such as PTO shaft or cooling fan, especially, with loose and long clothes. The entanglement in rotating shaft can cause serious injury or death. Stop the engine and be sure to check that the PTO shaft has been stopped completely before getting near it.

② Specification and Dimension of Rear PTO shaft

- Check the specification of the rear PTO shaft before attaching an implement. The spline teeth may be different depending on the market.

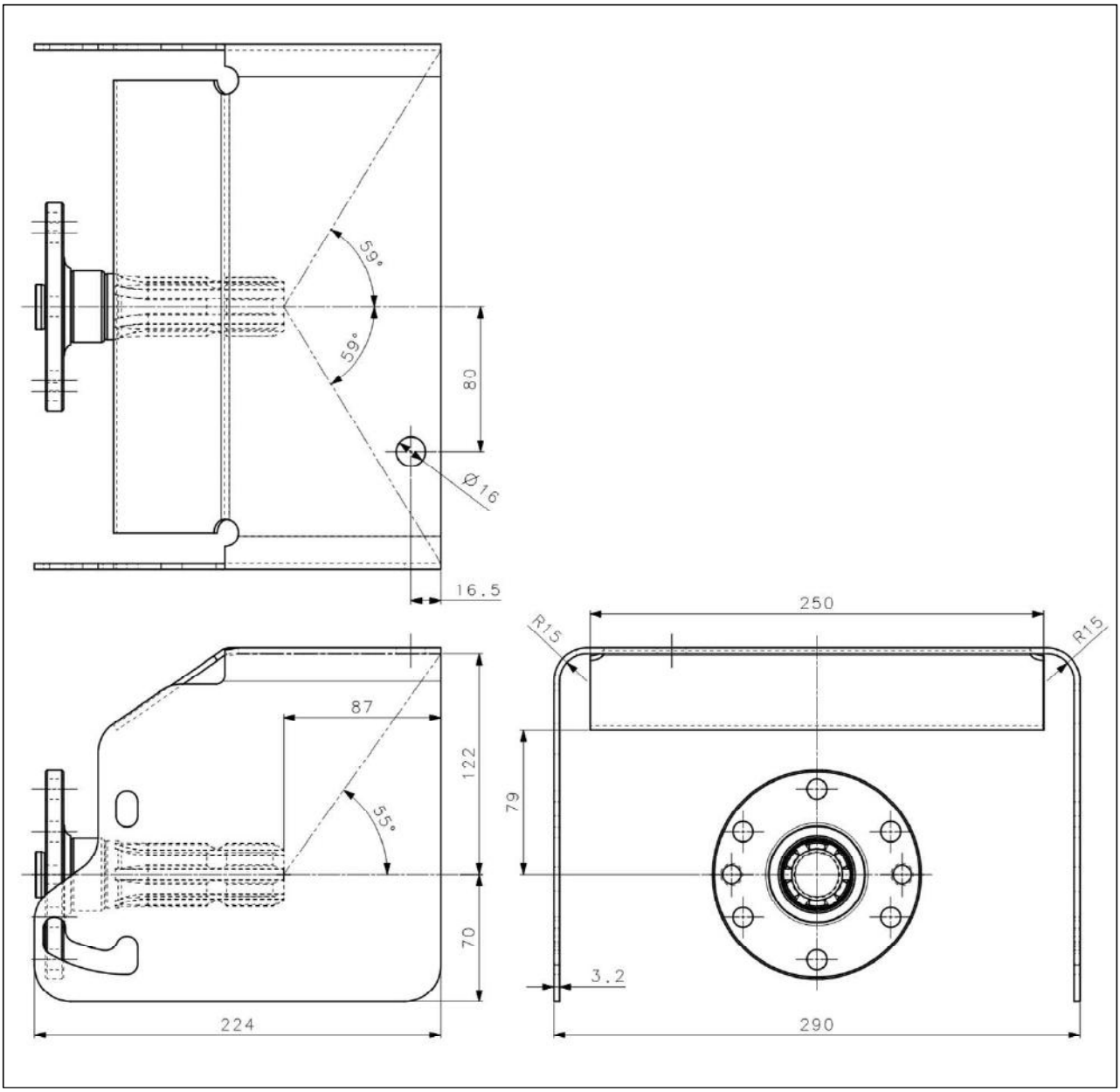
- Spline Teeth : 6T, in conformity with ISO 500-3:2004, Type 1

PTO gear(s)	1	2 (optional)	3
PTO / Engine speed	540 / 1958 rev/min	750 / 2132 rev/min 540E / 1535 rev/min	1000 / 2125 rev/min
Direction of rotation	Clockwise (as viewed from rear of tractor)		
Shaft dimension (Unit : inch)			

③ Attaching power take-off(PTO) drive shaft

- When connecting PTO drive shaft to the PTO shaft and implement, make sure to check that the locking pin of the PTO drive shaft is locked in place.
- When attaching PTO drive shaft, refer to the drawings as below for safety clearance zone.
- After installing implement(s), check the followings according to the position of the 3-point linkage.
  - check the articulation angle of the PTO drive shaft and rotating noise is suitable.
  - check the interference with PTO safety cover and other structure.
  - check the effective engaging length of the PTO drive shaft.
  - check the working position of the automatic PTO ON/OFF device. (if fitted)

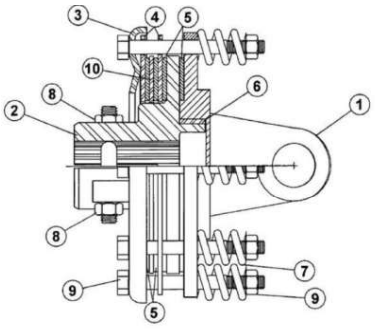
⚠Caution	▶ The steep inclination of the PTO drive shaft makes a loud noise and cause a failure of the PTO driveline. When working in the field, do not lift up the rear implement over the manufacture's limitation ***that the maximum articulation angle of the PTO drive shaft is 18 degree when the PTO drive shaft is rotating.***



- Implements with a high power requirement should be operated with the 1000 rev/min PTO (21-spline shaft). (optional)
- If it is necessary to use the 6-spline shaft (at 540 rev/min) to operate implements having a power requirement of more than 75 horsepower, then it is strongly recommended that the implement is fitted with a slip clutch to avoid damage to the PTO output shaft and other tractor components.

Example of PTO drive shaft

Example of slip clutch



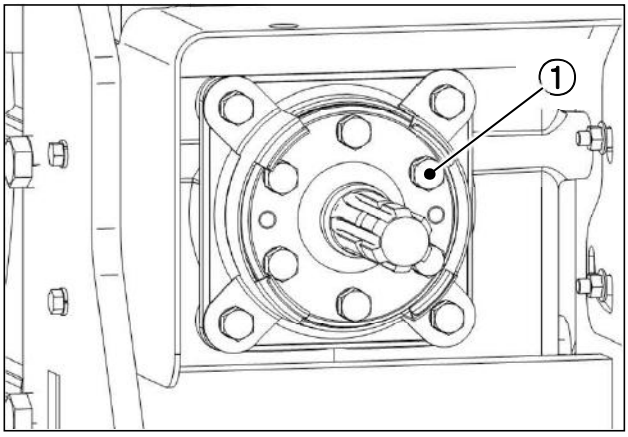
⚠ Caution	▶ Do not engage the PTO clutch at high engine speed. Sudden engagement can cause damage to the implements, PTO clutch and drive line. Engage the PTO at low idle rpm, and then raise the engine speed up.

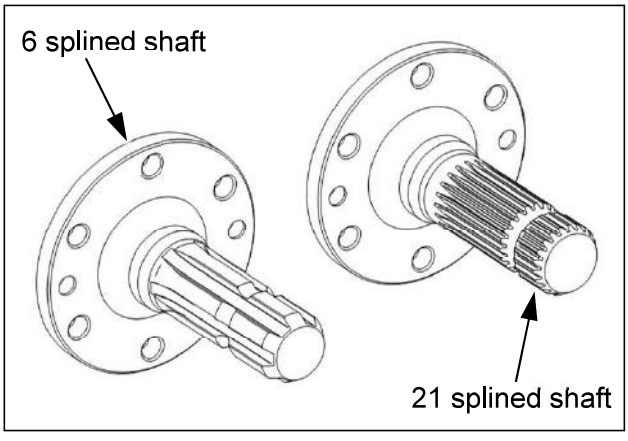
④ Changing the power take-off(PTO) shaft (optional, if provided)

Warning 	**Entanglement hazard !** ▶ Before attaching or detaching equipment or changing the PTO shaft: 1. Apply the parking brake. 2. Move all controls to neutral and PTO switch to “OFF” position. 3. Stop the engine and remove the key. 4. Wait for the PTO shaft to stop turning before leaving the driver’s station. Failure to comply could result in death or serious injury.

Warning	▶ **Personal Protective Equipment (PPE) required.** When assembling, operating, or servicing the machine, wear protective clothing and PPE necessary for the particular procedure. Some PPE that may be necessary includes protective shoes, eye and/or face protection, hard hat, heavy gloves, filter mask, and hearing protection. Failure to comply could result in death or serious injury.

- Remove the plastic protection cap.
- Using a suitable tool, unscrew the 6-M10 bolts(1) and remove the PTO shaft.
- Make sure that the 2-parallel pins are in place.
- Assemble the new PTO shaft and tighten the 6-M10 bolts(1).
- Assemble the plastic protection cap when not using the PTO shaft.
- Two splined PTO shafts are available (optional):
  1. PTO shaft with 21 splines for 1000 RPM PTO.
  2. PTO shaft with 6 splines for 540, 540E or 750 RPM PTO.





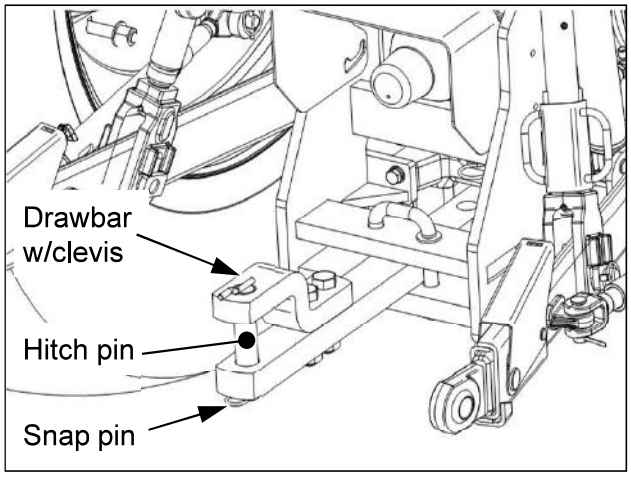
Caution	▶ Implements with a high power requirement should be operated with the 1000 rev/min PTO and it is obligatory to fit the PTO with 21 splines.

(3) Hitch and Drawbar (optional)

- It is used to tow the trailer or other rear towed equipment.
- Remove snap pin and hitch pin first, and align the hitch pin holes between tractor and trailer.
- When attaching/detaching towed equipment, be sure to check the pins locked in place correctly.
- DO NOT exceed the maximum permissible vertical and horizontal load of the couplings.

- Drawbar w/clevis

- It is used to connect two-axle towed equipment.
- It is available to adjust the position of the draw-bar after removing lock-pin in the right figure. After adjusting, assemble the pins firmly.
- Type & EC component type-approval mark :
  XP-DBT : e13-00054 NS
  Vertical load : 900 kg (1984lb)
  Horizontal load : 7 tonnes (15432lb)
- The maximum permissible towable mass is depending on the brake system type on the towed equipment as below. Check the brake system of your towed equipment.



	Drawbar w/clevis
Unbraked towable mass	N/A
Inertia-braked towable mass	7000 kg (15432 lb)
Hydraulic & Pneumatic braked towable mass	7000 kg (15432 lb)

⚠Caution	▶ Vertical loads on the coupling point of the drawbars, it may vary depending on the tire load rating. Consult your authorized local dealer. ▶ Use always the drawbar or hitch for pulling work. DO NOT use the 3-point linkage, rear axle or other parts. If so, the tractor could be overturned. ▶ When attaching/detaching towed equipment, apply the parking brake and stop the engine before applying the locking pins manually. ▶ Before transporting equipment on public roads, make sure you comply with your local traffic regulations.

(4) Technically maximum permissible mass

- When working with a front-end loader or a rear heavy loaded attachment installed to the 3-point linkage, install the ballast weights on the counter-part axle to maintain front and rear weight balance of the tractor. If not, the front or rear axle can be strained and damaged by the overloaded weight.
- When working with a front-end loader, place the attached rear weight to the highest position and turn the down speed control knob to the "**Lock**" position.
- **DO NOT exceed the total maximum permissible mass and/or permissible maximum mass on each axle** declared by manufacturer as below, **even if the load capacity of the tire is sufficient**.
- **If the load capacity of the tires is lower than maximum permissible mass on each axle,** the maximum mass on each axle must be loaded **under the load capacity of the tire. Check the load capacity of the tires.**

	All models	Remarks
Technically total maximum permissible mass	6200kg (13669 lb)	It may depend on the load capacity of the tires. (See next chapter)
Front axle (*)	2600kg (5732 lb)	
Rear axle	4200kg (9259 lb)	

* includes front mounted equipment or loader in the raised position but without load in the bucket.

- **Restrict operation**: In case that driving speed of the tractor does not exceed 8km/h (5 mph) and standard front/rear wheel tracks (*refer to the chapter 4-5-(6), "Adjusting wheel track and tire replacement" in this manual*) are applied, the intermittent maximum permissible load of the front axle can be **4200kg (9259 lb)** for all models. But, it is restricted by the load capacity of the tires.

⚠Caution	▶ Maximum permissible mass is measured with only the front or rear wheels on the scales inclusive of ballasts and with mounted equipment in the raised position. ▶ **Do not exceed the maximum permissible mass above and/or the load capacity of the tires.** Overloaded operation may invalidate the warranty. ▶ DO NOT change the setting pressure of the relief valve arbitrarily to increase the lift capacity of the front loader or 3-point linkage. It can cause fatal damage to the hydraulic system and front axle.

(5) Tires and Load capacity

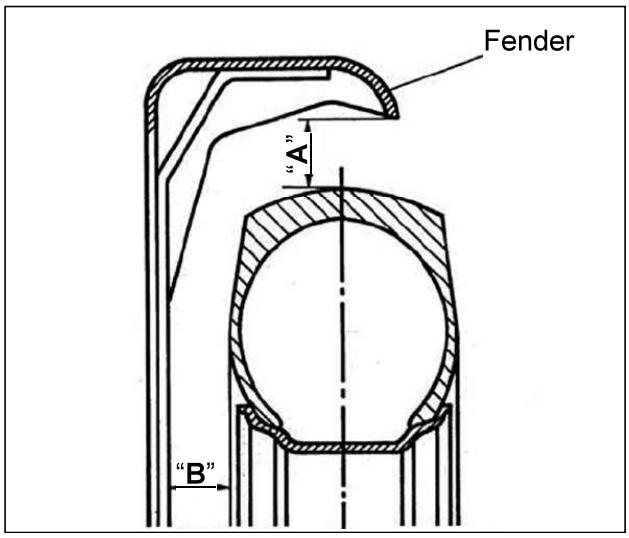
- For safe operation and secure the reliability of the transmission driveline, use only approved tire combinations and manage the specified tire air pressure regularly as below table. If using an unapproved tire combination or unsuitable tire air pressure, it may cause a failure of the front/rear axle and reduce the reliability of the transmission driveline.

Axle No.(*)	Tires	Standard air pressure (kg/cm2)	Load rating per tire (kg)	Max. mass per axle (kg)	Maximum mass (kg)
1	11.2-24 8PR 112 A6 R-1	2.4 (235 KPa, 34 psi)	896 (1975 lb)	1790 (3946 lb)	5370 (11839 lb)
2	16.9-30 8PR 136 A6 R-1	1.6 (156 KPa, 23 psi)	1792 (3951 lb)	3580 (7893 lb)	
1	12.4-24 8PR 120 A6 R-1	2.2 (216 KPa, 31 psi)	1120 (2469 lb)	2240 (4938 lb)	6200 (13669 lb)
2	18.4-30 8PR 140 A6 R-1	1.6 (156 KPa, 23 psi)	2000 (4409 lb)	4000 (8818 lb)	
1	12.4-24 8PR 120 A6 R-1	2.2 (216 KPa, 31 psi)	1120 (2469 lb)	2240 (4938 lb)	6010 (13250 lb)
2	16.9-34 8PR 138 A6 R-1	1.6 (156 KPa, 23 psi)	1888 (4162 lb)	3770 (8311 lb)	
1	13.6-24 8PR 124 A6 R-1	2.2 (216 KPa, 31 psi)	1280 (2822 lb)	2560 (5644 lb)	6200 (13669 lb)
2	18.4-34 10PR 143 A6 R-1	1.6 (156 KPa, 23 psi)	2180 (4806 lb)	4360 (9612 lb)	
1	11.2-24 10PR R-1	2.4 (240 KPa, 34 psi)	985 (2172 lb)	1970 (4343 lb)	5360 (11817 lb)
2	16.9-30 6PR R-1	1.3 (124 KPa, 18 psi)	1696 (3740 lb)	3390 (7474 lb)	
1	13.6R24 128 A8/B R-1W	1.7 (165 KPa, 24 psi)	1451 (3200 lb)	2900 (6393 lb)	6200 (13669 lb)
2	18.4R34 144 A8/B R-1W	1.7 (165 KPa, 24 psi)	2790 (6150 lb)	5580 (12302 lb)	

(*) 1 : Front axle, 2 : Rear axle

Caution	▶ **Do not exceed the maximum permissible mass(Total/Front/Rear) declared by manufacturer.** Overloaded operation may invalidate the warranty. *For further information, refer to the chapter 4-5-(4) in this manual.* ▶ If the front/rear tires have enough load capacity, the permissible mass on each axle can be restricted by the maximum permissible mass of the front/rear axle.

(6) Adjusting Wheel tracks and tire replacement



- If the front wheel track is adjusted, check the clearances between tires and tractor body case by case. If necessary, the steering angle must be adjusted.
  (Refer to the chapter 4-5-(8) in this manual.)
- When adjusting rear wheel track, check the radial and lateral clearance between rear tire and tractor chassis as below.
  - A : 60mm (2.4 in) (Minimum)
  - B : 40mm (1.6 in) (Minimum)
  Depending on rim or disk type, the front and rear wheel tracks may vary.
- The combinations of the front & rear wheels are as below

① Front wheels
- 11.2-24 8PR, Rim & disk(W10x24)
- 13.6-24 8PR, Rim & disk(W12x24)

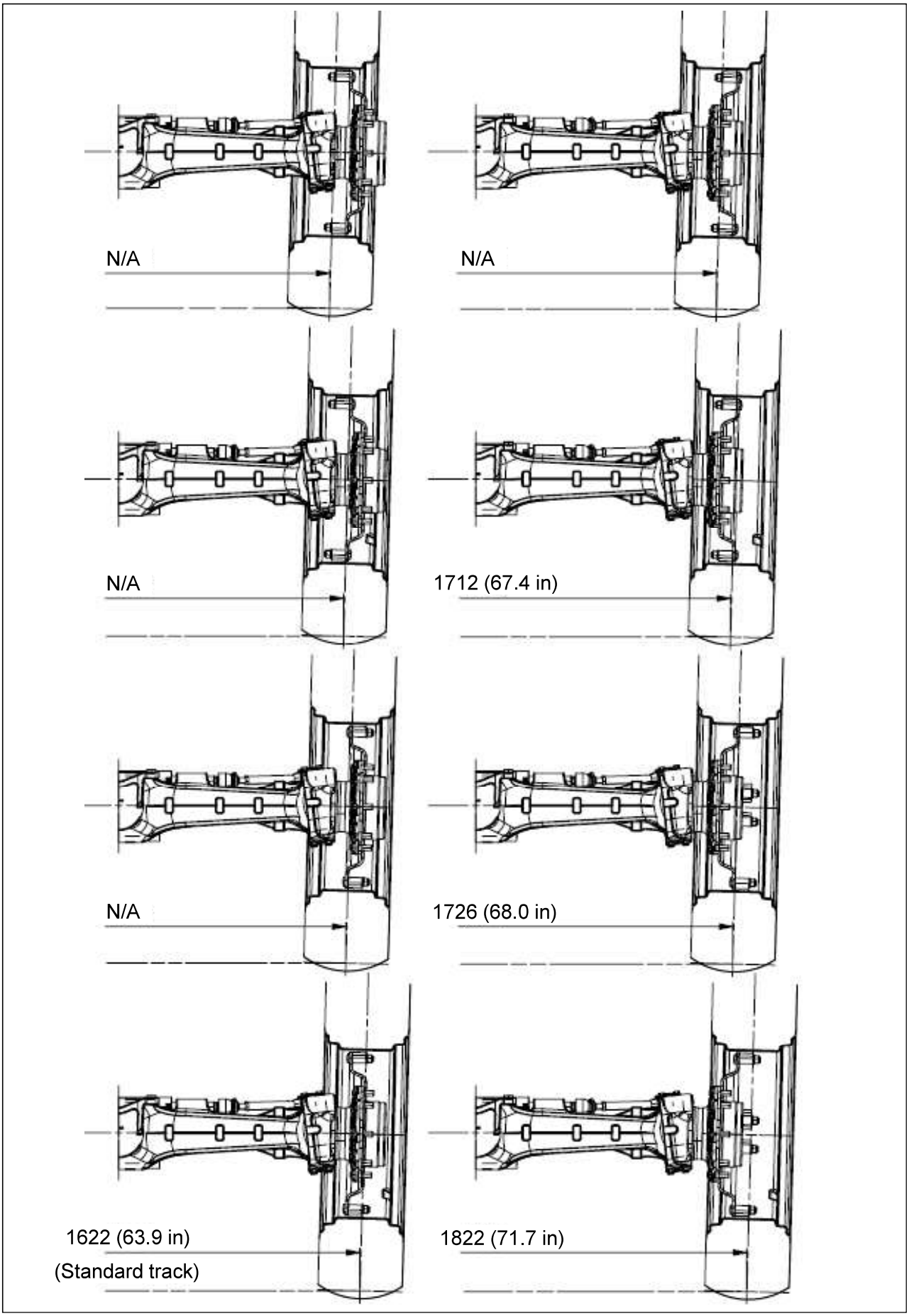
② Rear wheels
- 16.9-30 8PR, Rim & disk(W15x30)
- 18.4-34 8PR, Rim & disk(W15x34)

⚠Warning	▶ The tractor wheels are very heavy, PLEASE BE CAREFUL. ▶ When removing the wheels, proceed with extreme caution, use a suitable hoist and specific equipment to move the heavy parts.

Notice	▶ When adjusting the wheel track, pay attention to the direction of tire lugs. For agricultural tires, if it shows **"Λ" shape** when looked behind, it is correct. ▶ **Actual settings may vary depending on the brand of the rim and type of tire.**

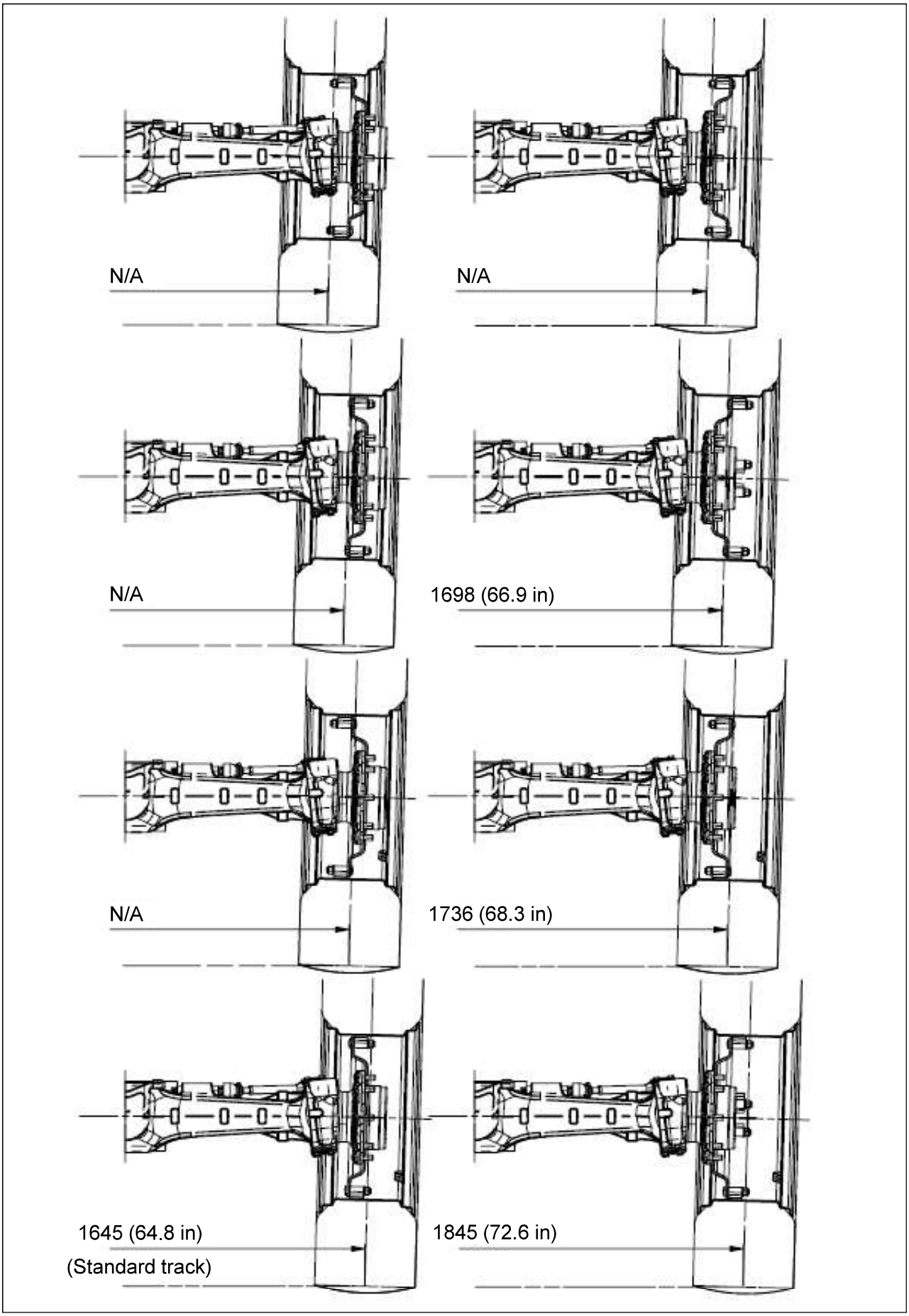
① Front wheel track – 11.2-24 with rim & disk (W10x24)

Unit : mm (inch)



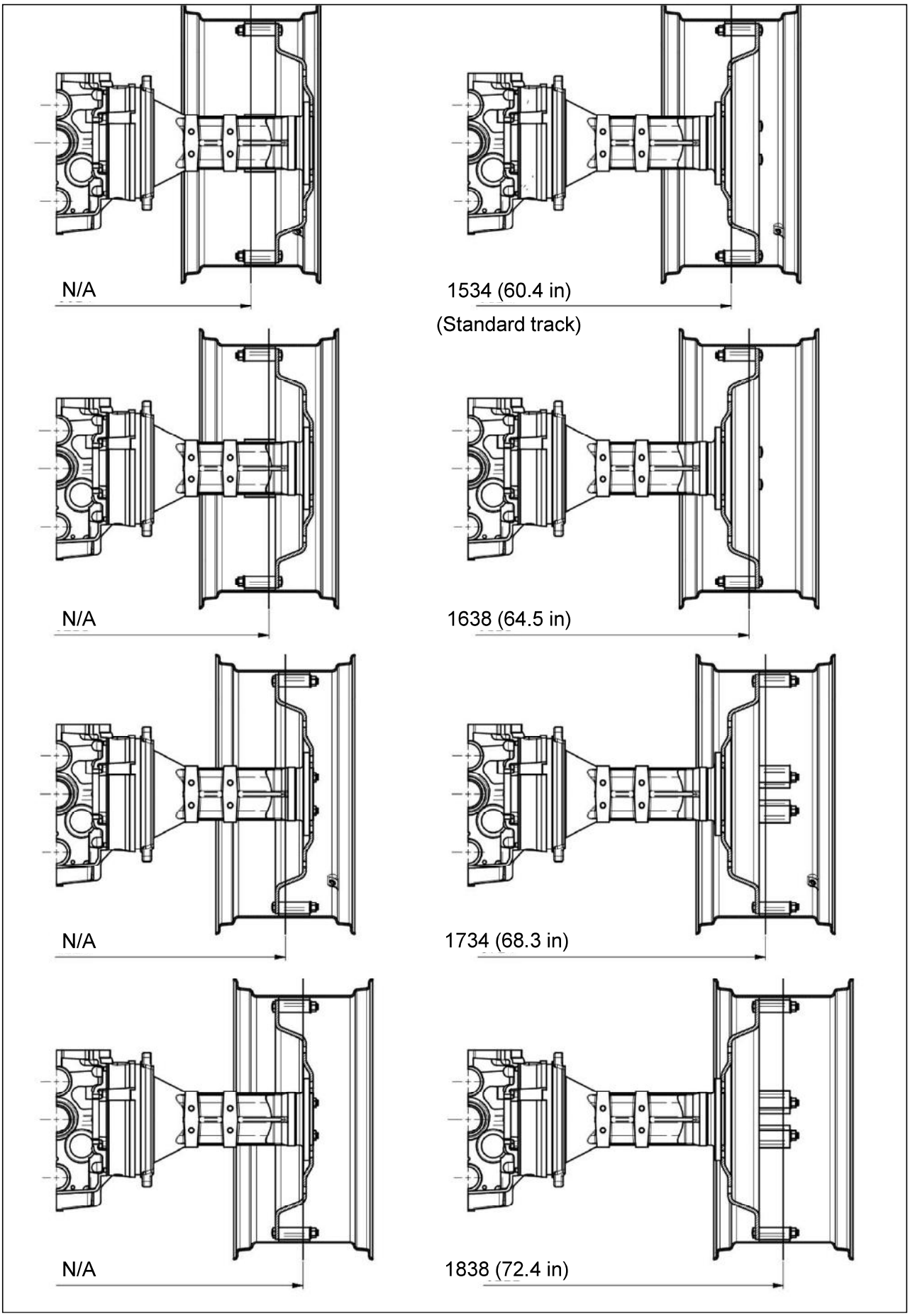
① Front wheel track – 13.6-24 with rim & disk (W12x24)

Unit : mm (inch)



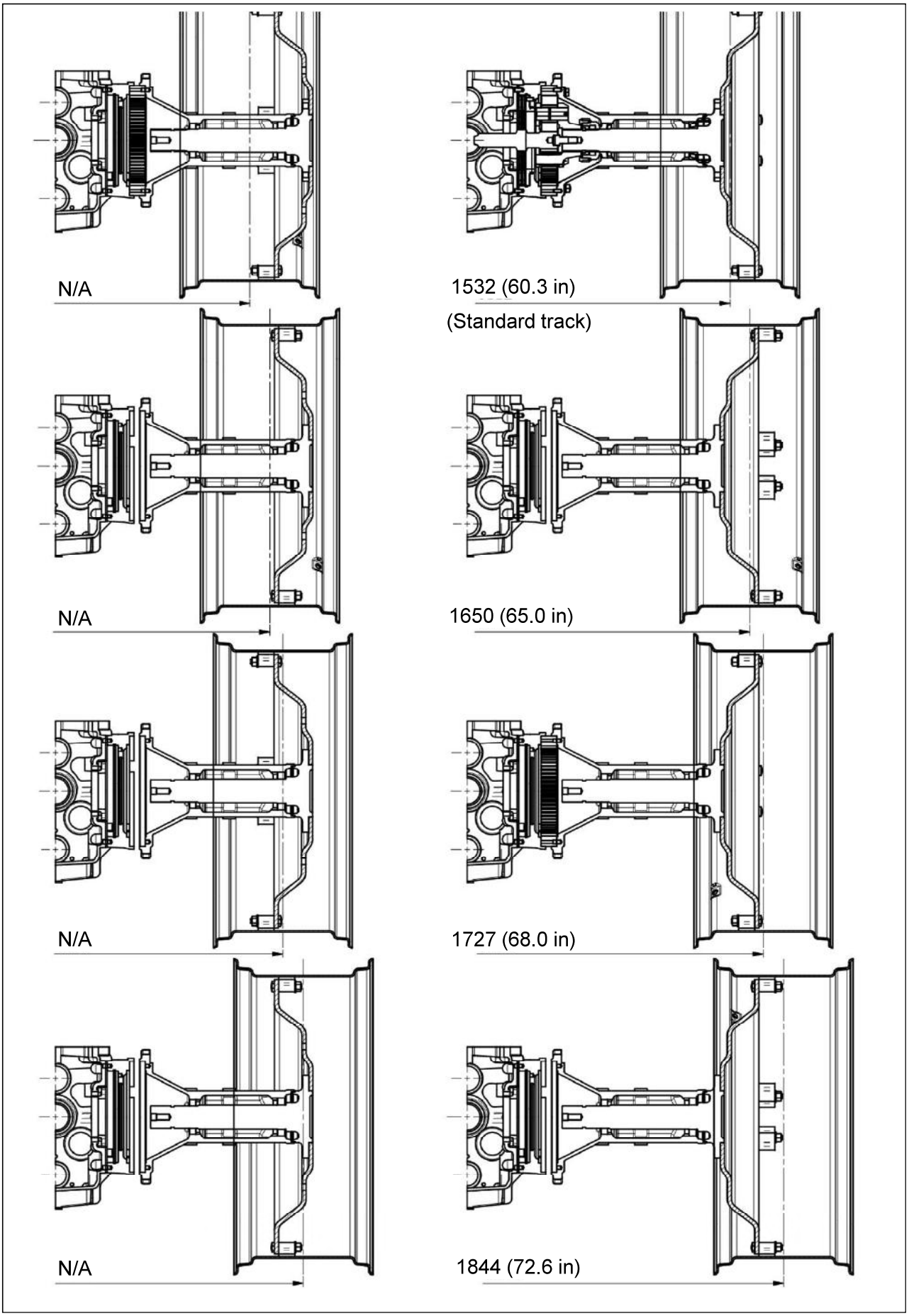
② Rear wheel track – 16.9-30 with rim&disk (W15x30)

Unit : mm (inch)



② Rear wheel track – 18.4-34 with rim&disk (W15x34)

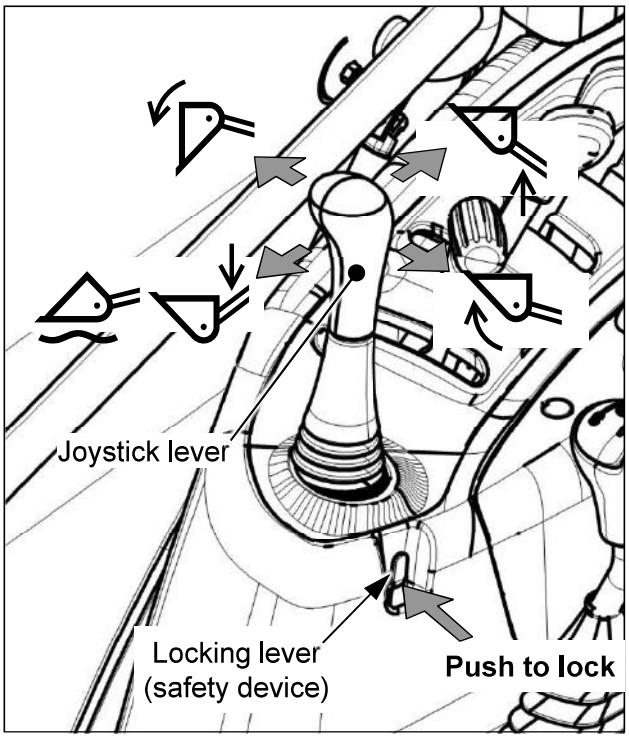
Unit : mm (inch)



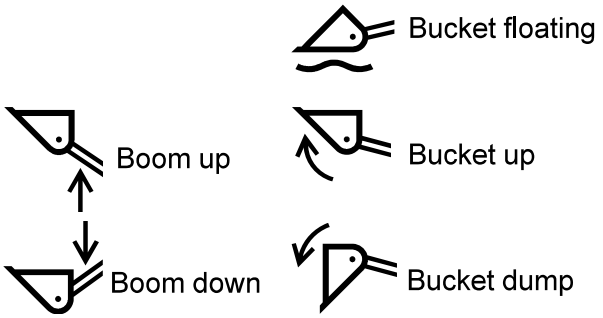
(7) Using Front-end loader (optional)

① Safety precautions

- If attaching a non-approved front-end loader or heavy front-mounted implement, the engine block or front axle can be damaged or broken. Contact your authorized local dealer.
- Do not attach any non-approved front-mounted implement by manufacturer. If it is ignored, any warranty is not effective no longer.
- If an approved front-end loader is attached, multi-functional joystick lever in the right figure can provide you more convenient operation.
- When operating the tractor with a front-end loader, The center of gravity of the tractor may be higher, and the stability of the vehicle may be worse than unattached vehicle.
  -. DO NOT drive fast on a traffic load. The rolling or tipping of the tractor can be happened easily.
  -. When loading/unloading the bucket on a slope, move the tractor straight against the slope.
  -. DO NOT try to approach a stiff slope.
  -. Attach the rear ballast on the 3-point linkage or rear wheels(if applicable) to prevent overload of the front axle and to improve the stability of the vehicle.
- When working with front-end loader, the front visibility of the tractor may be worse than unattached vehicle. Make sure to observe people and other vehicles around the tractor.
- DO NOT allow people under the front-end loader while lifted.
- DO NOT allow people on the bucket.



<Meaning of Symbols>

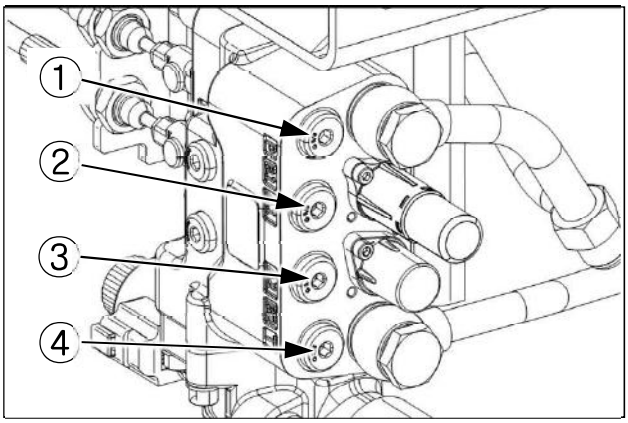


⚠Warning	**TO AVOID PERSONAL INJURY !** ▶ After using the front-end loader, secure the locking lever to the lock position. ▶ When leaving the tractor, lower down the front-end loader on the ground. ▶ Do not lift the front-end loader to a height from which objects may fall or roll onto the driver. ▶ Use always the correct attachment (grab forks, buckets.. etc.) for the specific task to perform and ensure that the load is securely kept in place.

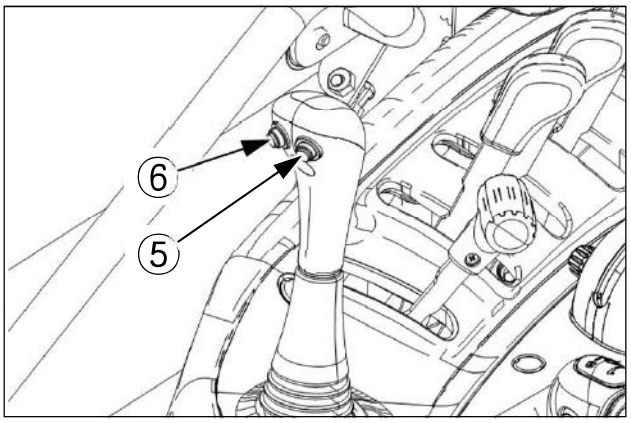
⚠Caution	**PRE-OPERATION CHECK, REAR BALLAST !** ▶ For tractor stability and operator's safety, when attaching a front-end loader or any front attachment, rear ballast should be added to the rear of the tractor in the form of implements as counter weight like Back Hoe, Rotary Tiller, etc. The amount of rear ballast will be depend on the application. ▶ Also, you should detach the front ballast weight plates and bumper(if fitted) when attaching the front equipment.

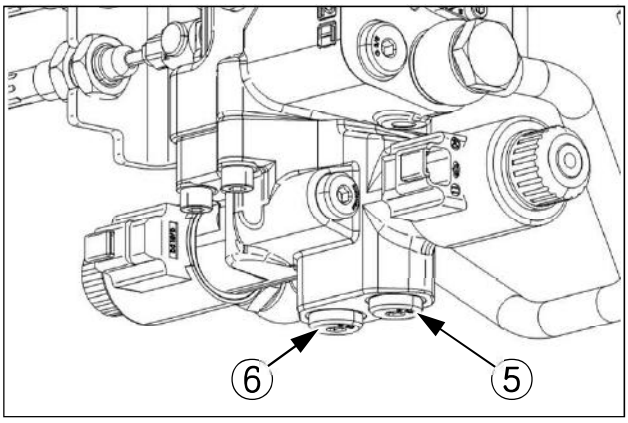
② Connection of hydraulic hoses

- Refer to the following instruction for connections of hydraulic hoses.
- For basic joystick lever;
  Boom down —---- outlet ①
  Boom up ---------- outlet ②
  Bucket up --------- outlet ③
  Bucket dump ----- outlet ④
- The thread specification of outlet ports is PF 3/8. Use suitable quick couplers for hose connection. If possible, contact your authorized local dealer.



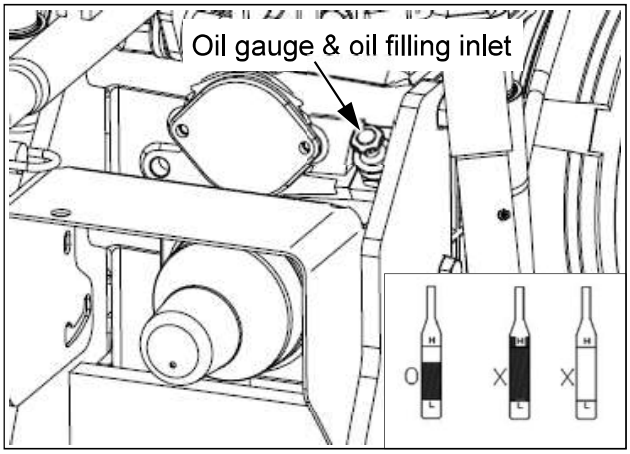
- The electric switches(if fitted) installed on the joystick lever are used to operate the solenoid valve having outlet ports ⑤,⑥ as below. When pressing these switches;
  Left-hand switch : oil flows to outlet ⑤
  Right-hand switch : oil flows to outlet ⑥





- After connecting the hoses, start the engine and check the leakage of the hydraulic lines.

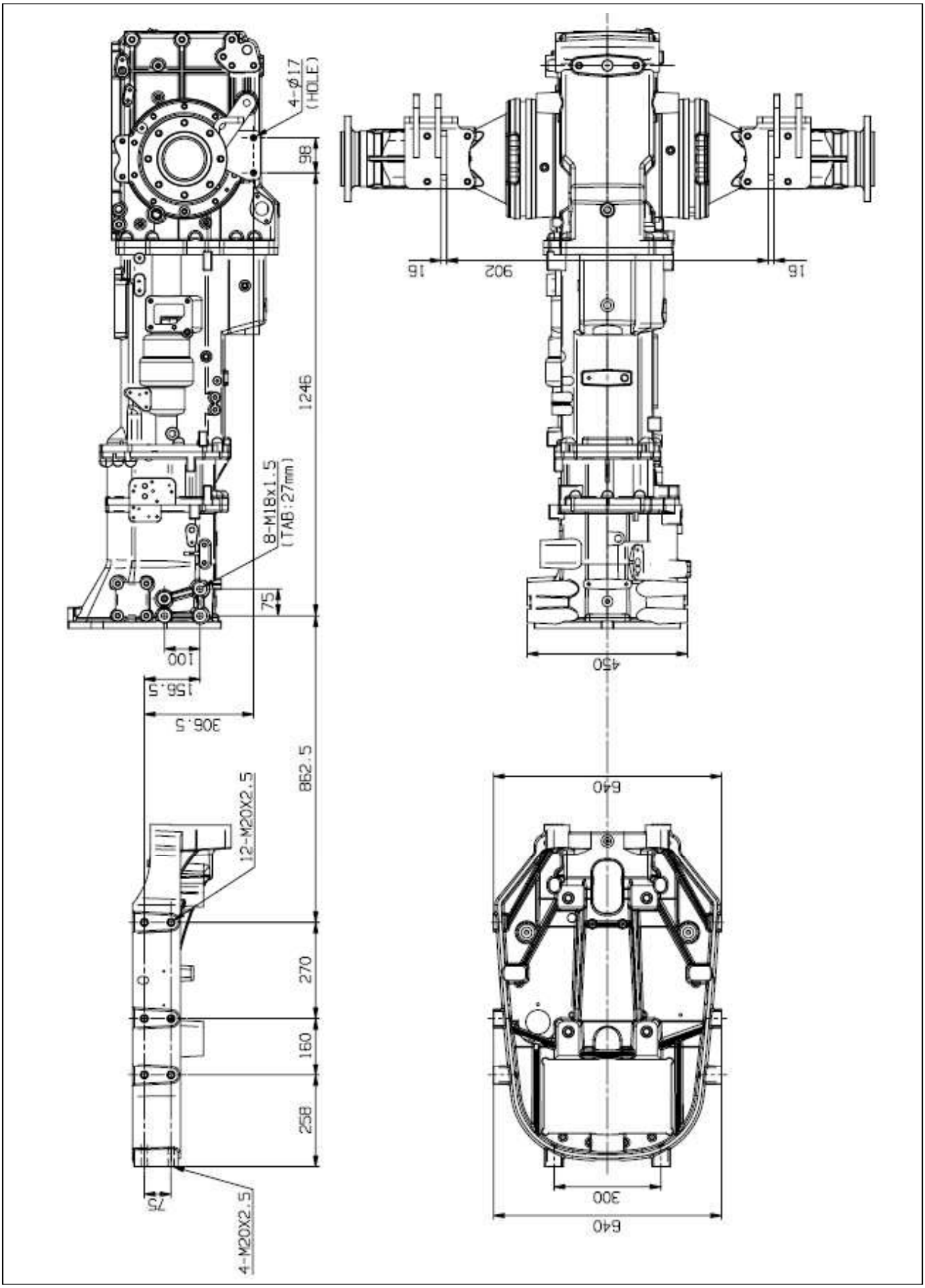
NOTICE: *After lowering the front implement, check if the transmission oil level is marked between "Min" and "Max" scale on the oil gauge. If necessary, add new oil.*



③ Attaching points for Front-end loader

- When attaching the front-end loader, refer to the drawings as below.

(Unit : mm)



(8) Adjusting Steering Angle

- The steering angle must be checked or adjusted in the following cases:
  - When the front wheel track is adjusted.
  - When the front tires are replaced with new tires of larger diameter or width.
  - When installing a front implement such as front-end loader.
- Comply with the following instructions.

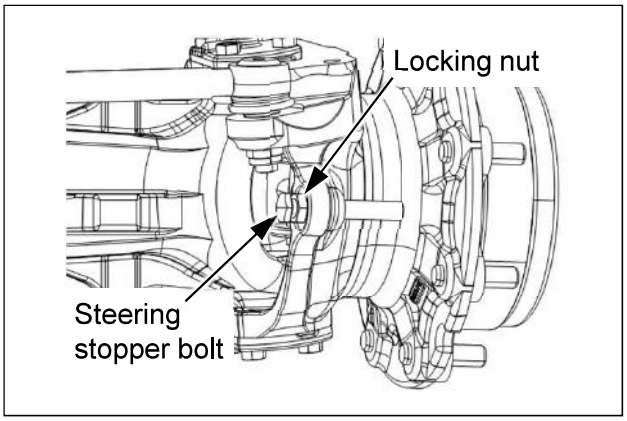
1) Loosen the locking nuts on both sides.

2) Connect the front hook of the tractor to the suitable hoist by using a specified wire. And, lift up the front axle off the ground sufficiently.

3) Lift up one side of the front axle fully and turn the steering wheel to the left and right with checking that the clearances between tires and other parts are ***over 20mm (0.8 in.) at least.***

4) At this time, set each steering stopper on both sides to be contacted with the cast. Check all the possible interferences by combinations of the steering and oscillation of the front axle.

5) Tighten the locking nuts on both sides.



Notice	▶ DO NOT shorten the length of the steering stopper beyond the factory condition. If the stopper does not contact the cast at maximum steering condition, it can cause damage to the steering cylinders and linkage.

(9) Recommended Maximum Specification of Implements

- When attaching an implement to the tractor, refer to the following specifications recommended for the maximum capacity of each implement. DO NOT attach a bigger implement than these specifications. For other implements, contact your authorized local dealer.

No.	Implements	Specification	MT774	MT7101
1	Trailer	Max. vertical load (kg)	See chapter 4-5-(3) in this manual	
2	Mid mower	Max. cutting width (mm)	-	-
3	Rear mounted mower	Max. cutting width (mm)	2743(108 in)	2743(108 in)
4	Flail Mower	Max. cutting width (mm)	-	-
5	Sickle Bar	Max. cutting width (mm)	2750(108 in)	2750(108 in)
6	Rear mounted Sprayer	Total weight (kg)	1200 (2646 lb)	1200 (2646 lb)
7	Pull type Sprayer	Max. weight (kg)	See chapter 4-5-(3) in this manual	
8	Rotary Tiller	Max. tilling width (mm)	2200 (86 in)	2300 (91 in)
9	Furrow Plow	Max. tilling width (mm)	2200 (86 in)	2300 (91 in)
10	Bottom Plow	Max. size (mm)	1750 (69 in)	1750 (69 in)
11	Disk harrow (pull type)	Max. working width (mm)	2200 (86 in)	2300 (91 in)
12	Chisel Plow	Maximum width (mm)	2200 (86 in)	2300 (91 in)
13	Front grader	Max. working width (mm)	2200 (86 in)	2300 (91 in)
14	Rear blade	Max. working width (mm)	2200 (86 in)	2300 (91 in)
15	Front loader	Max. lift capacity (kg) (@ bucket pivot)	2336 (5150 lb)	2336 (5150 lb)
16	Landscape Rake	Max. working width (mm)	2438 (96 in)	2438 (96 in)
17	Box blade	Max. working width (mm)	2200 (86 in)	2300 (91 in)
18	Backhoe	Max. weight (kg) (W/O Bucket)	-	-
19	Snow Blade	Max. working width (mm)	2300 (91 in)	2300 (91 in)
20	Snow Blower	Max. working width (mm)	2300 (91 in)	2300 (91 in)

(10) Ballasting Weights (optional)

Tractor ballasting

For sufficient traction and maximum performance in heavy draft operations, and to counterbalance rear-mounted equipment, weight should be added to the tractor in the form of liquid ballast, cast iron weights, or a combination of both. Only enough weight should be added to provide good traction and stability. Adding more weight than is needed results in unnecessary soil compaction, increased rolling resistance, and higher fuel consumption.

NOTE: *When adding weight to the tractor, verify the tire pressure is correct. See chapter 4-5-(5), "Tires and Load capacity" in this manual for tire pressures and permissible loads.*

Front end ballast may be required for stability and steering control when weight is transferred from the front wheels to the rear wheels as an implement is raised by the tractor's three-point hitch.

Use the following as a general guide:

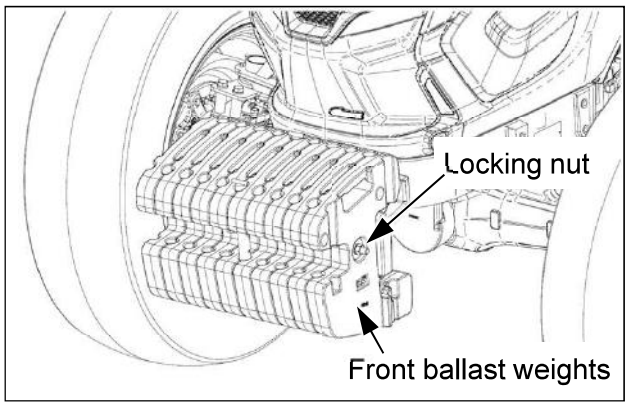
- Ballast the tractor (less implement) so that approximately one-third of the tractor weight is on the front wheels. For optimum traction, tractors equipped with 4WD should be ballasted so that **40 – 45%** of machine weight is on the front wheels.
- When a rear mounted implement is raised to the transport position, the front wheel reaction should be at least **20%** of tractor weight.
- Add additional front end ballast as required for stability during operation and transport. Tractor front end ballast may not always maintain satisfactory stability if the tractor is operated at high speed on rough terrain. Reduce tractor speed and exercise caution under these conditions.
- When using front-mounted equipment, add weight to the rear axle to maintain good traction and stability. Front-mounted equipment varies in weight. Refer to equipment manual for ballasting.

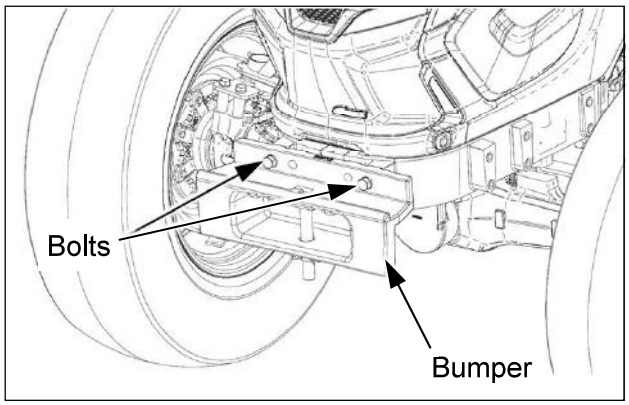
Weighting limitations

The weighting limitations that follow are limitations only. They do not imply that the tractor should be weighted to attain the weights given. Use only enough weight to obtain good performance.

① Front ballasting weights (optional)

- It is used to balance the front/rear weight of the tractor.
- To remove the front ballast weights, unscrew the locking nut of the front ballast weights and disassemble the weight plates one by one.
  Front ballast weight (kg) :
  40kg x 4ea = 160kg or
  40kg x 6ea = 240kg or
  40kg x 8ea = 320kg or
  40kg x 10ea = 400kg
- To remove the bumper, connect the bumper to a suitable hoist and unscrew the bolts as shown in the right figure.
  Bumper weight (kg) : 60kg.
- When assembling the ballast weights, comply with the reverse procedure of disassembly.
- For additional ballast weights and adjustments, contact your authorized local dealer.





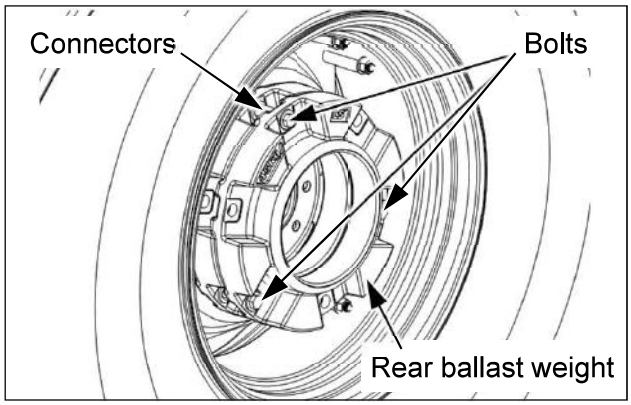
⚠ Warning	**Heavy parts!** ▶ The ballast weights are very heavy. When removing/attaching the ballast weights, please be careful and use a suitable hoist and specific equipment to move the heavy parts. Failure to comply could result in death or serious injury.

⚠ Caution	▶ You should detach the front ballast weight plates and bumper(if fitted) when attaching the front-end equipment.

② Rear ballasting weights (optional)

- Rear wheel weights (optional)

- To remove the rear ballast weights, connect the weight to a suitable hoist, and unscrew the bolts as shown in the right figure and disassemble the weight plates one by one if necessary.
  Rear weight (kg) : 45kg x 2ea = 90kg or
  45kg x 4ea = 180kg
- When assembling the ballast weights, comply with the reverse procedure of disassembly.
- For additional ballast weights and adjustments, contact your authorized local dealer.



- Rear ballast weights on the 3-point linkage

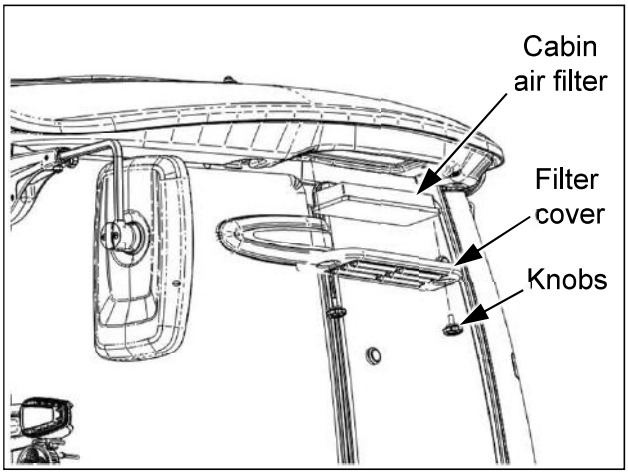
- To mount the ballast weights on the rear of the tractor, an additional weight bracket must be installed on the rear three-point hitch.
- Contact your authorized local dealer for the bracket.
- If you hard to get the bracket, you can use an equivalent weight rear implement as the ballasting weight.

⚠Warning	**Heavy parts!** ▶ The ballast weights are very heavy. When removing/attaching the ballast weights, please be careful and use a suitable hoist and specific equipment to move the heavy parts. Failure to comply could result in death or serious injury.

(11) Working in hazardous area

Level of protection against hazardous substances: For cabin model, it provides protection against hazardous substances **according to EN15695-1:2009 (Category 2).** But it can provide only dust protection level by pressurizing air in the cabin with air filters. Do not use the tractor with crop sprayers in hazardous area. If unavoidable, comply with the following instructions.

① Cabin air filters (LH/RH)



- When operating with pesticides, cabin air filters should be replaced with specific charcoal filters. Contact your authorized local dealer.
- In additional, you should wear the protective clothing, globes, mask, etc. before operating in such a hazardous spraying area.
- These filters must only be fitted when working with pesticides and replaced with the normal paper filters at the end of work.

⚠ Caution	▶ Do not use these filters during other work, as they will quickly become clogged with dust. When replacing the charcoal filters at the end of spraying work, return them to the original packaging and make sure that they are carefully sealed. ▶ The charcoal filters last for approximately 50 hours of work. They must, however, be replaced each year. If, when working with pesticides, toxic odors are noted, stop the work immediately and replace the filters with new ones. ▶ These filters must never be washed or cleaned with compressed air. Discarded filters must not be thrown away. Take disposed filters to authorized collection points.

⚠ Warning	▶ The charcoal filters do not guarantee full protection against all pesticides. ▶ These specific filters only reduce the harmful effects of these products. As a result, operator has to comply with the safety rules recommended for using each single product. Wear the protection clothing, globes, mask, etc. before operating in that area. ▶ DO NOT operate the tractor in heavy pesticides or other hazardous spraying area.

Notice	▶ The filters are made of specially treated media with a rubber sealing strip bonded around the sides. Take care not to damage the element during installation.

② Cleaning the cabin inside

- Protective clothing worn when handling the sprayer with pesticides or when carrying out external works, must be removed and stored away carefully before re-entering the cabin.
- After working with pesticides, ventilate the cabin and clean the inside parts (interior trim, panels, step, etc.) of the cabin with clean damp cloth to remove the chemical residue.

4-6. Driving speed

- Driving speed of the tractor or revolution speed of the PTO shaft must be selected appropriately depending on the type of work, tires or ground conditions. For safety, operate the tractor at a suitable speed. **(Unit : Km/h -> Mile/h)**

① Power shuttle models (optional)

- **Standard transmission (F24xR24)**

Range gear		1				2				3			
Main gear		1	2	3	4	1	2	3	4	1	2	3	4
For-ward	Hi	1.72	2.42	3.46	4.77	4.69	6.61	9.45	13.03	12.01	16.94	24.21	33.38
	mph	*1.07*	*1.51*	*2.15*	*2.97*	*2.91*	*4.11*	*5.87*	*8.10*	*7.47*	*10.53*	*15.05*	*20.74*
	Lo	1.42	2.00	2.86	3.94	3.87	5.46	7.80	10.76	9.92	13.98	19.98	27.55
	mph	*0.88*	*1.24*	*1.78*	*2.45*	*2.41*	*3.39*	*4.85*	*6.68*	*6.16*	*8.69*	*12.42*	*17.12*
Rev-erse	Hi	1.77	2.50	3.58	4.93	4.84	6.83	9.76	13.46	12.41	17.50	25.01	34.47
	mph	*1.10*	*1.55*	*2.22*	*3.06*	*3.01*	*4.24*	*6.07*	*8.36*	*7.71*	*10.87*	*15.54*	*21.42*
	Lo	1.46	2.07	2.95	4.07	4.00	5.64	8.06	11.11	10.24	14.44	20.64	28.45
	mph	*0.91*	*1.28*	*1.83*	*2.53*	*2.48*	*3.50*	*5.01*	*6.90*	*6.36*	*8.97*	*12.82*	*17.68*

Note) Engine rated speed : 2200rev/min, Rear tires : 16.9-30 (Rc=708mm)

- **Standard transmission (F24xR24)**

Range gear		1				2				3			
Main gear		1	2	3	4	1	2	3	4	1	2	3	4
For-ward	Hi	1.82	2.57	3.67	5.06	4.97	7.01	10.02	13.81	12.73	17.95	25.66	35.38
	mph	*1.13*	*1.60*	*2.28*	*3.14*	*3.09*	*4.36*	*6.22*	*8.58*	*7.91*	*11.16*	*15.94*	*21.98*
	Lo	1.50	2.12	3.03	4.18	4.10	5.78	8.27	11.40	10.51	14.82	21.18	29.20
	mph	*0.93*	*1.32*	*1.88*	*2.59*	*2.55*	*3.59*	*5.14*	*7.08*	*6.53*	*9.21*	*13.16*	*18.14*
Rev-erse	Hi	1.88	2.65	3.79	5.23	5.13	7.24	10.35	14.26	13.15	18.54	26.50	36.53
	mph	*1.17*	*1.65*	*2.36*	*3.25*	*3.19*	*4.50*	*6.43*	*8.86*	*8.17*	*11.52*	*16.47*	*22.70*
	Lo	1.55	2.19	3.13	4.31	4.24	5.97	8.54	11.77	10.85	15.30	21.87	30.15
	mph	*0.96*	*1.36*	*1.94*	*2.68*	*2.63*	*3.71*	*5.31*	*7.31*	*6.74*	*9.51*	*13.59*	*18.74*

Note) Engine rated speed : 2200rev/min, Rear tires : 16.9-34 (Rc=750mm)

5. Lubrication and Maintenance

5-1. General information

- Adequate lubrication and maintenance on a regular schedule is vital to maintaining your equipment. To ensure long service and efficient operation, follow the lubrication and maintenance schedules outlined in this manual. The use of proper fuels, oils, grease and filters, as well as keeping the systems clean, will also extend tractor and component life.

NOTICE: *While any company can perform necessary maintenance or repairs on your equipment, we strongly recommend that you use only authorized local dealers and products that meet the given specifications. Improperly or incorrectly performed maintenance and repair voids the equipment warranty and may affect service intervals.*

NOTICE: *Always use genuine replacement parts, oils and filters to ensure proper operation, filtration of engine and hydraulic systems. See your authorized local dealer for additional oil quantities. Regular lubrication is the best insurance against delays and repairs. Proper lubrication will extend tractor life. Refer to the following charts for lubricants and service intervals.*

NOTICE: *Failure to complete the required maintenance at the recommended intervals can cause unnecessary downtime.*

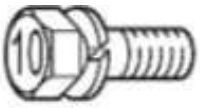
- The intervals listed in the Lubrication Chart are guidelines to be used when operating in normal conditions. Adjust the intervals for operating in adverse environmental and working conditions. The intervals should be shortened for sandy, dusty and extremely hot operating conditions.

⚠Warning	▶ **Avoid injury!** **1. Disengage all drives.** **2. Engage parking brake.** **3. Lower all attachments to the ground, or raise and engage all safety locks.** **4. Shut off engine.** **5. Remove key from key switch.** **6. Wait for all tractor movement to stop.** **Failure to comply could result in death or serious injury.**
⚠Warning	▶ **Entanglement hazard!** **Disengage the Power Take-Off (PTO), turn off the engine, and remove the key. Wait for all movement to stop before leaving the operator's position. Never adjust, lubricate, clean, or unplug tractor with the engine running. Failure to comply could result in death or serious injury.**
⚠Warning	▶ **Illustrations in this manual may show protective shielding open or removed to better illustrate a particular feature or adjustment. Replace all shields before operating the tractor. Failure to comply could result in death or serious injury.**

- Always clean the area around dipsticks, fill caps, and check plugs when checking fluid levels. Failure to clean these areas may allow contamination to enter the system. Drain, flush and refill the system any time you suspect it is contaminated.

(1) Tightening Torque for normal assembly

- Check if the bolts or nuts of each part are loosened. If necessary, tighten it again as referring to the following table. For additional hardware, contact your authorized local dealer.

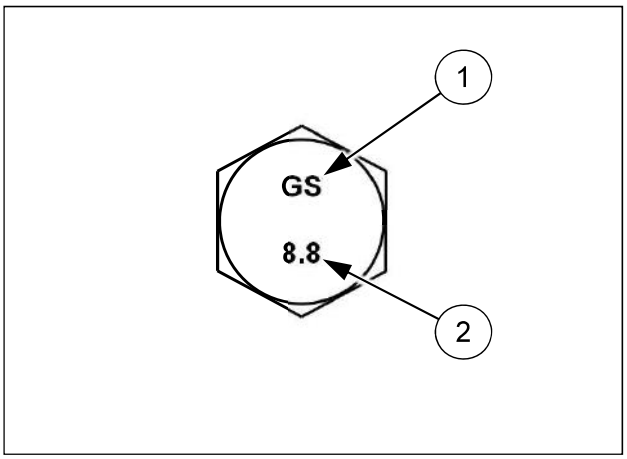
Strength class marks		
4T	8T	10.9T
		

Spec.	Tool (mm)	Strength	Hardware tightening torque, Unit : N.m(lbf-ft)		
			Re-use	Permanent	Maximum
M8 X 1.25	12	8.8	20(15)	24(18)	26(19)
		10.9	28(21)	34(25)	39(28)
		12.9	33(25)	40(29)	45(33)
M10 X 1.25	17	8.8	43(31)	51(38)	56(42)
		10.9	61(45)	73(54)	83(61)
		12.9	71(53)	86(63)	97(71)
M12 X 1.25	19	8.8	75(56)	90(67)	100(74)
		10.9	108(80)	129(95)	147(108)
		12.9	126(93)	151(112)	171(126)
M12 X 1.75	19	8.8	68(50)	82(60)	90(67)
		10.9	98(72)	117(86)	133(98)
		12.9	114(84)	137(101)	155(114)
M14 X 1.5	22	8.8	119(87)	142(105)	157(116)
		10.9	170(125)	204(150)	231(170)
		12.9	198(146)	238(176)	270(199)
M16 X 1.5	24	8.8	180(133)	216(159)	238(176)
		10.9	257(190)	309(228)	350(258)
		12.9	301(222)	361(266)	409(301)
M18X 1.5	27	8.8	271(200)	325(240)	358(264)
		10.9	375(276)	450(332)	510(376)
		12.9	438(323)	526(388)	595(439)
M20 X 1.5	30	8.8	379(279)	454(335)	500(369)
		10.9	523(386)	628(463)	712(525)
		12.9	612(451)	734(542)	832(613)
M22 X 1.5	32	8.8	506(373)	608(448)	668(493)
		10.9	700(516)	840(619)	952(702)
		12.9	818(603)	982(724)	1112(820)
M24 X 2	36	8.8	643(474)	771(569)	848(625)
		10.9	888(655)	1066(786)	1208(891)
		12.9	1038(766)	1246(919)	1411(1041)
M30 X 2	46	8.8	1311(967)	1573(1160)	1729(1276)
		10.9	1812(1336)	2174(1604)	2465(1818)
		12.9	2118(1562)	2542(1875)	2878(2123)

Identification markings

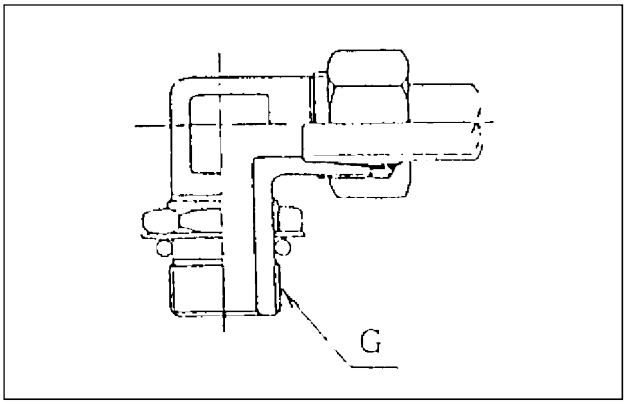
Metric hex bolt head

1. Manufacturer's identification
2. Property class



(2) Standard torque data for hydraulics

Installation of adjustable fittings in straight thread O-ring bosses



1. Lubricate the O-ring by coating it with a light oil or petroleum.

2. Install the O-ring in the groove adjacent to the metal backup washer which is assembled at the extreme end of the groove.

3. Install the fitting into the straight thread boss until the metal backup washer contacts the face of the boss.

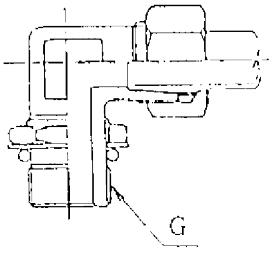
NOTICE: *Do not over tighten and distort the metal backup washer.*

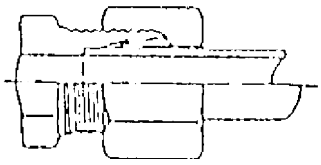
4. Position the fitting by turning out (counterclockwise) up to a maximum of one turn.

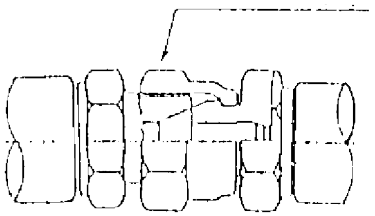
5. Holding the pad of the fitting with a wrench, tighten the locknut and washer against the face of the boss.

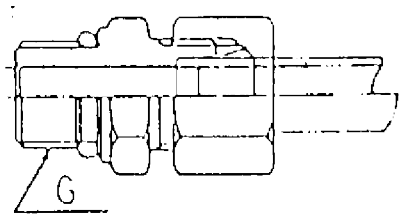
Standard torque data for hydraulic tubes and fittings

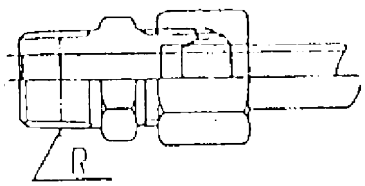
NOTICE: *These torques are recommended for hydraulic tubes of your tractor. When assemble the hydraulic lines, refer to the following torques on each application. Before installing and torquing pipe fittings, Clean the threads and faces.*

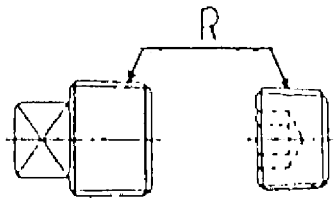
Thread	Torque		Figure	Remarks
	N · m	{kgf · m}		
G 1/4	49~69	5~6		1. Materials of threaded hole: Cast or steel.
G 3/8	59~69	6~7		
G 1/2	78~88	8~9		

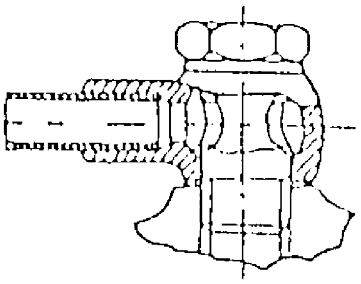
Pipe spec.		Pre-torque		Tightening torque		Figure	Remarks
Outer dia.	Thickness	N · m	{kgf · m}	N · m	{kgf · m}		
8	1~1.5	29~34	3~3.5	29~34	3~3.5		Pipe material: OST
10	1~1.5	29~39	3~4	34~49	3~3.5		
12	1~2.5	44~59	4.5~6	49~69	5~7		
15	1~2.5	69~98	7~10	88~118	9~12		
18	1.5~2	118~147	12~15	146~167	15~17		
20	2~3	147~177	15~18	167~206	17~21		
22	2	177~206	18~21	196~235	20~24		
27.2	2.8	323~343	33~35	343~373	35~38		SGP

Thread	Torque		Figure	Remarks
	N · m	{kgf · m}		
G 1/8	15	1.5		
G 1/4	25	2.6		
G 3/8	49	5		
G 1/2	59	6		
G 3/4	118	12		

Thread	Torque		Figure	Remarks
	N · m	{kgf · m}		
G 1/8	20~25	2~2.5		1. Materials of threaded hole: Cast or steel.
G 1/4	39~49	4~5		
G 3/8	49~59	5~6		
G 1/2	59~69	6~7		
G 3/4	118~127	12~13		

Thread	Torque		Figure	Remarks
	N · m	{kgf · m}		
G 1/8	15	1.5		1. Apply seal tape before assembling 2. Threaded hole: Taper or parallel steel or cast
G 1/4	25	2.6		
G 3/8	49	5		
G 1/2	59	6		

Thread	Torque		Figure	Remarks
	N · m	{kgf · m}		
G 1/8	15	1.5		1. Apply seal tape before assembling 2. Threaded hole: Taper or parallel steel or cast
G 1/4	25	2.6		
G 3/8	49	5		
G 1/2	59	6		
G 3/4	118	12		

Thread	Holes	Torque		Figure	Remarks
		N · m	{kgf · m}		
G 1/4	2	39~44	4.0~4.5		1. Materials of threaded hole: Cast or steel. 2. Assemble with packing washers. 3. Holes: Number of holes on the same section plane.
G 3/8	2	47~54	4.8~5.5		
	4	39~44	4.0~4.5		
G 1/2	4	47~54	4.8~5.5		
G 3/4	4	59~69	6.0~7.0		
M 12	2	20~27	2.0~2.8		
M 14	2	34~39	3.5~4.0		
	4	29~34	3.0~3.5		
M 16	2	49~59	5.0~6.0		
	4	39~44	4.0~4.5		

(3) General specification - Diesel fuel

- Only use diesel fuel that conforms to "**Lubricants and Capacity**" in this manual or equivalent in your engine. Do not use any other low grade diesel fuel.

NOTICE: *Use of other low grade diesel fuels will result in loss of engine power, high fuel consumption, and damage to the exhaust after-treatment system (if equipped).*

NOTE: *When operating the tractor in very cold climates, the use of winter blended fuel is permitted for a short period of time. See your fuel supplier for winter fuel requirements in your area.*

Fuel conditioner

- Diesel fuel conditioner is available from your authorized local dealer. Instructions for the use of the fuel conditioner are on the container.
- The use of diesel fuel conditioner will:
  - Clean fuel injectors, valves, and manifolds for increased service life.
  - Disperse insoluble gummy deposits that form in the fuel system.
  - Separate moisture from the fuel.
  - Stabilize fuel in storage.

NOTICE: *Use only manufacturer approved biocide additives to prevent damage to the exhaust after-treatment system (if equipped).*

(4) Biodiesel fuel

Fatty Acid Methyl Ester Biodiesel (Biodiesel Fuel) consists of a family of fuels derived from vegetable oils treated with methyl esters.

NOTICE: *Biodiesel Fuel blends are approved for your engine only if they comply with* ***EN14214*** *Specification Standards or* ***ASTM D6751****.*

NOTICE: *It is imperative that you check which blend is approved for your engine with your authorized local dealer. Be aware that the use of Biodiesel Fuel that does not comply with the Standards mentioned above could lead to severe damage to the engine and fuel system of your tractor. The use of fuels that are not approved may void manufacturer warranty coverage.*

Biodiesel approved blend

The use of biodiesel blends meeting Specification Standards ASTM 6751 or EN14214 is approved for your engine ***up to B5 (5% blend ratio***). It is highly recommended to use biodiesel fuel from accredited suppliers to maintain quality and consistency of the fuel.

Biodiesel Fuel Usage Conditions

NOTICE: *The Biodiesel Fuel must meet the fuel Specification mentioned above.*

Biodiesel Fuel must be purchased from a trusted supplier that understands the product and maintains good fuel quality. Biodiesel Fuel must be pre-blended by the supplier. Mixing Biodiesel Fuels on-site can result incorrect mixture that can lead to problems with both engine and fuel system.

Engine performance is affected by the use of Biodiesel Fuel. There may be up to **12%** reduction in power or torque depending on the blend used.

NOTICE: *DO NOT modify the engine and/or injection pump settings to recover the reduced performance.*

The reduced power must be accepted if using any Biodiesel Fuel blend.

Some modification may be required to allow your engine to run Biodiesel Fuel. Consult your dealer for complete information on these modifications.

Biodiesel Fuel has a higher cloud point than Diesel Fuel.

NOTICE: *The use of high Biodiesel Fuel blends is not recommended in cold weather conditions.*

With Biodiesel Fuels, it may be necessary to change the engine oil, engine oil filter and fuel filter elements more frequently than with Diesel Fuels. Biodiesel Fuel can remove rust and particles from the inside of on-site fuel storage tanks that would normally adhere to the sides of the tank. Like particle deposits that commonly occur with Diesel Fuel, these particles can become trapped by the tractor fuel filters, causing blockage and shortening filter life. In cold weather, this is more likely to happen. Consult your authorized local dealer for information on cold weather operation and proper maintenance intervals when using any Biodiesel Fuel blend.

When handling Biodiesel Fuel, care must be taken not to allow water into the fuel supply. Biodiesel Fuel will actually attract moisture from the atmosphere.

Fuel tanks must be kept as full as possible to limit the amount of air and water vapors in them. It may be necessary to drain the fuel filter water tap more frequently.

Potential oxidation and stability could be a problem with the fuel stored in the tractor.

NOTICE: *Tractor must not be stored for more than three months with Biodiesel Fuel blends in the fuel system.*

If long storage periods are necessary, the engine must run on Diesel Fuel for 20 hours to flush the Biodiesel Fuel out of the engine fuel system prior to storage.

NOTICE: *Biodiesel Fuel must not be stored in on-site storage tanks for more than three months.*

Any spillage of Biodiesel Fuel must be cleaned up immediately before it can cause damage to the environment and the paint finish of the tractor.

Before using Biodiesel Fuel blends you should consult with your dealer to receive full information about the approved blend for your tractor and any detailed conditions of its usage.

NOTICE: *Be aware that not fulfilling the requirements and conditions of Biodiesel Fuel usage will void your tractor's Warranty coverage.*

(5) Refueling the tractor

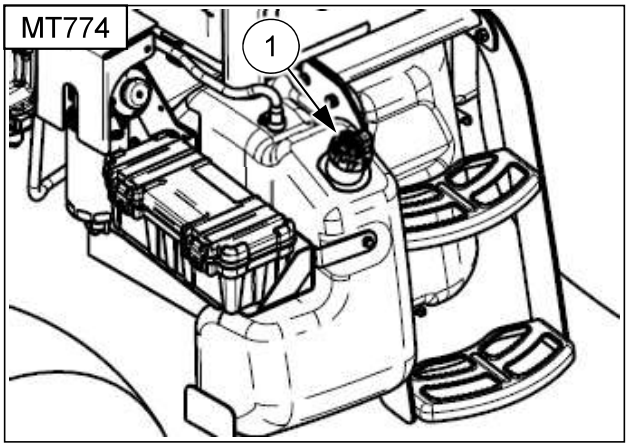
Warning	**Fire hazard!**
	▶ When handling diesel fuel, observe the following precautions: 1. Do not smoke. Keep any type of flame away. 2. Never fill the tank when the engine is running. 3. Wipe up spilled fuel immediately. Always tighten the fuel tank cap securely. Failure to comply could result in death or serious injury.

- The fuel tank filler cap① is installed as shown in the right-hand figure. Observe the following:

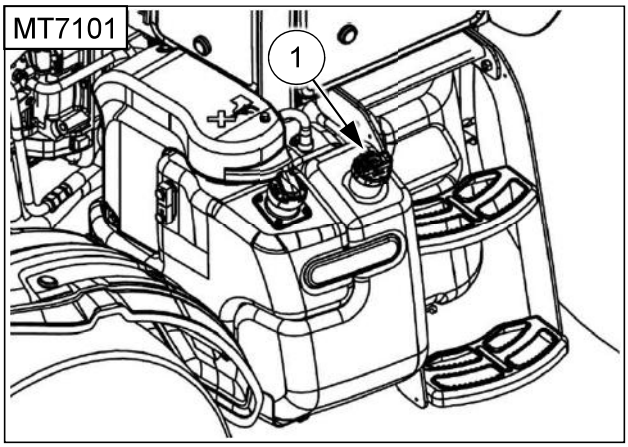
1. Before removing the cap, wipe all dust and dirt from around the cap to prevent debris from falling into the tank while filling.
2. Use an approved fuel container and check the inside of the container periodically for cleanliness.
   For fuel tank capacity, see chapter 5-3, "Lubricants and Capacity" or the last page in this manual.
3. If there is no filter on the storage tank or fuel container, filter the fuel through a 100-mesh or finer screen when filling the tractor fuel tank.
4. Keep the tractor tank as full as possible (without filling to capacity) to minimize condensation. Fill to the bottom of the filler neck to allow room for expansion.

NOTE: *It is a good practice to fill the fuel tank at the end of each day, as this will reduce overnight condensation.*

MT774



MT7101



NOTE: *The fuel cap is a vented-type. Use only an approved replacement cap to prevent fuel system-related problems.*

- Do not mix gasoline, alcohol or blended fuels to diesel fuel. These mixtures are explosive in fuel tank.
- Never remove the fuel cap or refuel with the engine running or hot.
- Maintain control of the fuel filler nozzle when filling the fuel tank.
- Never use fuel for cleaning purposes.
- Arrange fuel purchases so that summer grade fuels are not held over and used in the winter.
- *Before handling Bio-diesel, refer to the chapter 5-1-(4) in this manual.*

(6) Change engine coolant to Organic Acid Technology (OAT) coolant

- Depending on the date of manufacture, your cooling system may be equipped with conventional ethylene glycol coolant or an Organic Acid Technology (OAT) coolant solution. You can easily identify **OAT coolant solution** by its yellow color. You should never mix the coolant types.
- The coolant solution used must meet the manufacturer's material specifications for either coolant type. Refer to the chapter 5-3, "Lubricants and Capacity" in this manual.

NOTICE: *NEVER mix OAT coolant with conventional coolant. Under no circumstances should you top off a cooling system with only water. You can use a refractometer to check the concentration level. You should not use Supplemental Coolant Additives (SCA) when using* **OAT coolant solution***. Change the coolant solution at the recommended change interval.*

If you need to change a tractor from conventional coolant to OAT coolant or vice versa, you should follow the "Changing coolant types" procedure below to attain the full benefit of the coolant.

Changing coolant types

To change coolant from OAT coolant to conventional coolant (or vice versa):

1. Empty the engine cooling system by draining the coolant into a suitable container.
2. Fill the system with clean water.
3. Start the engine and run the engine for at least **30 min**.

   NOTE: *Make sure that you activate the heating system (if equipped) to circulate fluid through the heater core.*

4. Repeat Steps 1 to 3 for a total of two washes.
5. Fill the system with conventional coolant (or OAT coolant).
6. Operate the engine until it is warm. Inspect the tractor for leaks.
7. If you are changing to OAT coolant, then attach the decal to indicate the use of OAT coolant in the cooling system.

Definitions

Conventional coolant:

A coolant that relies on inorganic inhibitors such as silicates, nitrites, and phosphates for corrosion and cavitation protection.

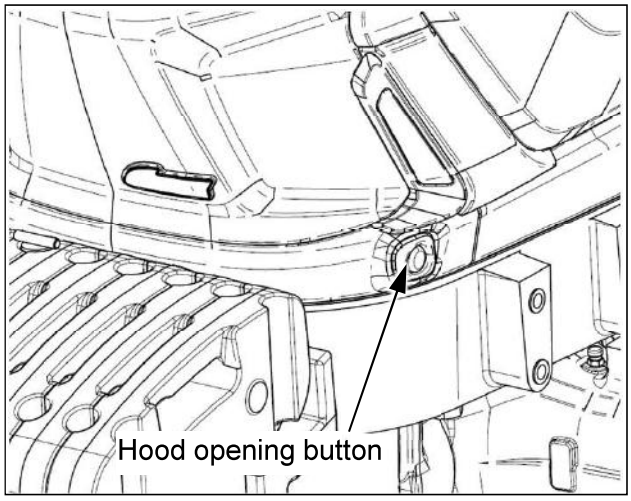
Organic Acid Technology (OAT) coolant:

A coolant that relies on inhibitors such as organic acid salts for corrosion and cavitation protection.

(7) Access for maintenance

① Opening Hood

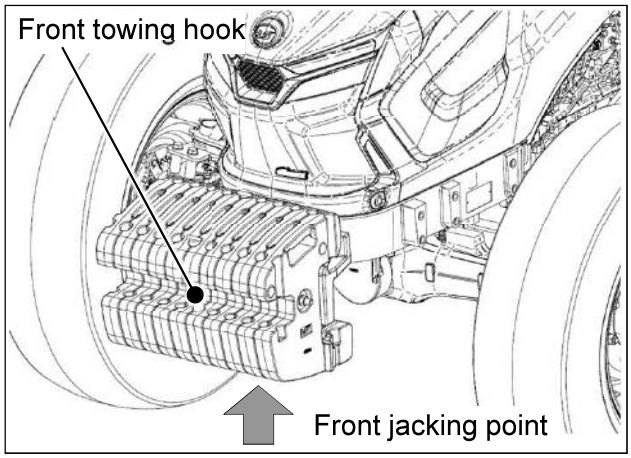
- For safety, the hood must be closed and correctly latched before operating the tractor.
- The hood is hinged at the rear and a gas cylinder is attached to provide easy access to the engine for check and maintenance.
- To open the hood, push the hood opening button and lift the hood upward.
- To close the hood, pull the hood and push it down to the locking position slightly.

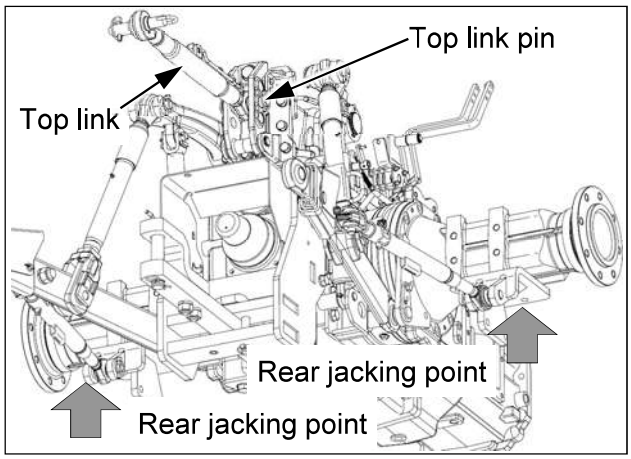


⚠Caution	▶ *Before opening the hood, you have to stop the engine completely.* ▶ *If opening the hood while engine is running, it can cause serious damage or death by unintended access to the rotating shaft, pulley, V-belt, cooling fan of the engine or engine application parts. PLEASE BE CAREFUL.*

② Jacking points

- The jacking points for maintenance is depending on serviced parts case by case. Do not hesitate to contact your authorized local dealer for asking.
- Do not use the front axle assembly or steering linkage and cylinder for jacking point. These components have some rotating pivots and/or does not have enough structural strength.
- For general maintenance, use a flat surface under the engine frame end or bumper for jacking point, and additionally connect the front towing hook to the hoist for safety.
- For rear jacking points, two flat surfaces under the rear axle housings are recommended, and additionally use the top-link bracket and its pin for lifting point after removing the top-link.

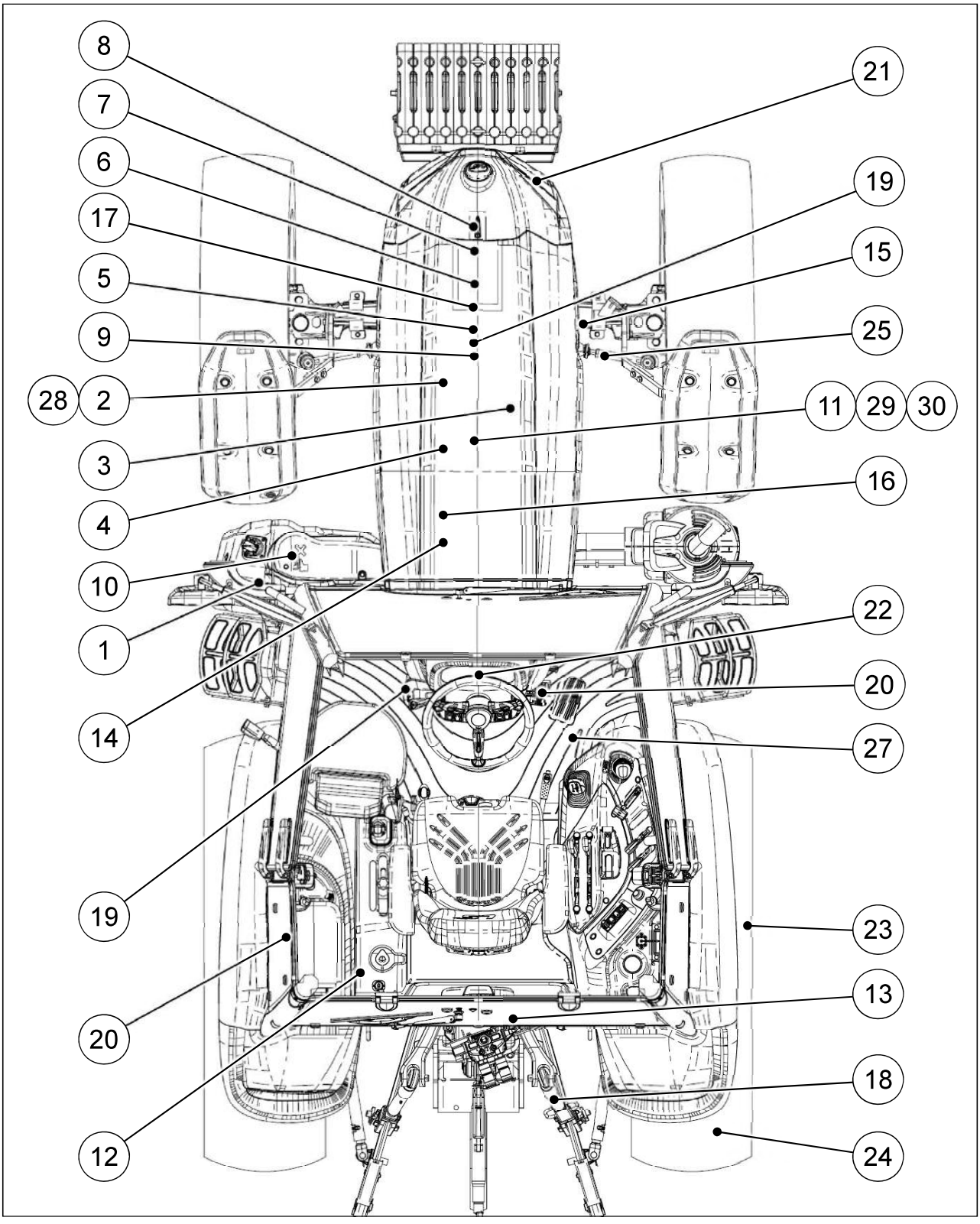




⚠Caution	▶ When lifting the rear of the tractor, apply chocks to the slots between front axle and engine frame symmetrically to prevent the tractor from rolling.

5-2. Maintenance chart

- Periodic maintenance not only extends the service life of the tractor but also serves to ensure safe operation. **The maintenance chart shows the standard service intervals. If you notice any abnormal symptoms, make sure to carry out the inspection and maintenance work, regardless of recommended service intervals** in this maintenance chart.
- Appropriate service intervals vary depending on the usage and operating conditions. In extreme dusty/dirty environments, the service intervals should be shorter than normal condition.



No.	Checking Parts	Page No.	Check period (Every ___ hr)							
			Daily	50	300	600	1200	1800	3000	4000
1	Fuel & DEF/urea tank	5-20	▲							
2(*)	Fuel filters (pre-, main)	5-39	▲			●				
3(*)	Engine oil	5-19, 5-36	▲			●				
4(*)	Engine oil filter	5-16, 5-36		★		●				
5(**)	Engine coolant	5-24, 5-45	▲						●	
6(**)	Radiator screen	5-26, 5-30	▲	■						
7	Air cleaner	5-25, 32, 42	▲	■			●			
8	Battery	5-32		▲						
9(**)	Fan belt tension	5-35, 5-48		▲ (First)	▲				●	
10(**)	DEF filter (MT7107 only)	5-47							●	
11	Nozzle inj. pressure	5-41				▲				
12	Hydraulic oil filter	5-16, 5-33		★	●					
13	Transmission oil	5-31, 5-38		▲		●				
14	Hydraulic hoses	5-32		▲						
15	Front axle oil	5-31, 5-37		▲		●				
16	Brake oil	5-34			▲					
17	Front axle holder	5-30		▲						
18	3-point linkage	5-30		▲						
19	Clutch pedal play	5-28	▲							
20	Brake pedal play	5-29	▲							
21	Lights & Horn	5-24	▲							
22	Instrument & Indicators	5-23	▲							
23	Bolts and Nuts	5-27	▲							
24	Tire air pressure	5-26	▲							
25	Toe-in	5-35			▲					
26	Cabin air filter	5-32, 5-41		■		●				
27	Power shuttle filter(opt)	5-16, 5-33		★	●					
28	Blow-by filter	5-43						●		
29	Turbocharger	5-44, 5-49						▲	■	
30	DOC+DPF (MT774 only)	5-53								●

** : Every year check even if the service interval is not reached.*

*** : Every two year check even if the service interval is not reached.*

★ First Replacement ● Replacement ▲ Check, Adjustment and Supply ■ Clean up

5-3. Lubricants and Capacity

Lubricants	Capacity	International Standard	Recommended items
Engine coolant	**12 L** (3.2 U.S.gals.)	ASTM D6210	Soft water (50%)+ Anti-freeze (50%)
Fuel	**115 L** (30.4 U.S.gals.)	ASTM D975 No.2	Ultra low sulfur diesel
DEF/urea solution (MT7101 only)	**16 L** (4.2 U.S.gals.)	ISO 22241 / AUS32 / DIN V70070	32.5% Urea solution
Engine oil	**6.5 ~ 8.1 L** (1.7~2.1 U.S.gals.)	API CJ-4 or ACEA E8	KIXX DL (Manufacturer : GS Caltex)
Transmission oil (common use for hydraulic lift and steering system)	**55 L** (14.5 U.S.gals.)	API GL4 ISO VG 32/46	**LSTH400G** (Manufacturer : GS Caltex)
Front axle oil	**4.4 L** (1.2 U.S.gals) for center housing **0.6 L** (0.2 U.S.gals) for each final housing **=5.6 L** (1.5 U.S.gals)	API GL5 SAE 80W-90	**KIXX Geartec LSD GL-5** **80W-90** (Manufacturer : GS Caltex)
Grease (Front axle holder, 3-point linkage)	Proper amount	NLGI 2	MAHWAK Multi purpose or MAHWAK All purpose (Caltex)
Clutch & Brake oil	**0.5 L** (0.1 U.S.gals.)	Mineral based oil (ISO 7308)	LSTH400 (S-OIL TOTAL) LHM PLUS (TOTAL) LHM (Mobil) LHM-S (Shell)

RECOMMENDED ENGINE OIL VISCOSITIES

The correct engine oil viscosity grade is dependent upon ambient temperature. Refer to the below chart when selecting engine oil for your tractor.
In areas where prolonged periods of extreme temperatures are encountered, local lubricant practices are acceptable. Contact your authorized local dealer.

	Ambient temperature	Lubricant No.
Cold mission	-28℃ ~ 35℃ (-18℉ ~ 95℉)	SAE 10W-30
European / North American mission	-10℃ ~ 40℃ (14℉ ~ 104℉)	SAE 15W-40
Very hot countries / Heavy mission	0℃ ~ 40℃ (32℉ ~ 104℉)	SAE 20W-40

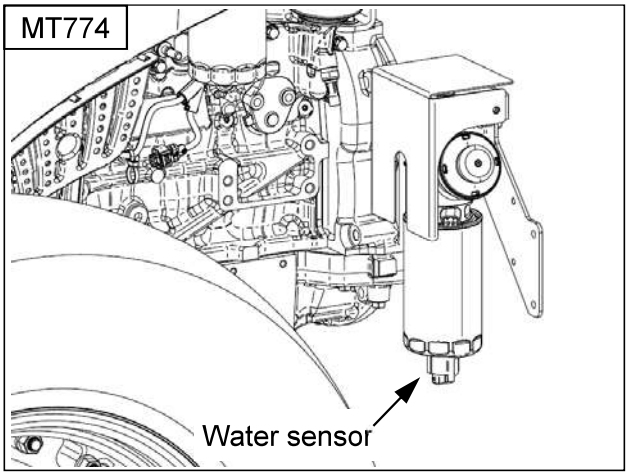
5-4. First 50 hour check

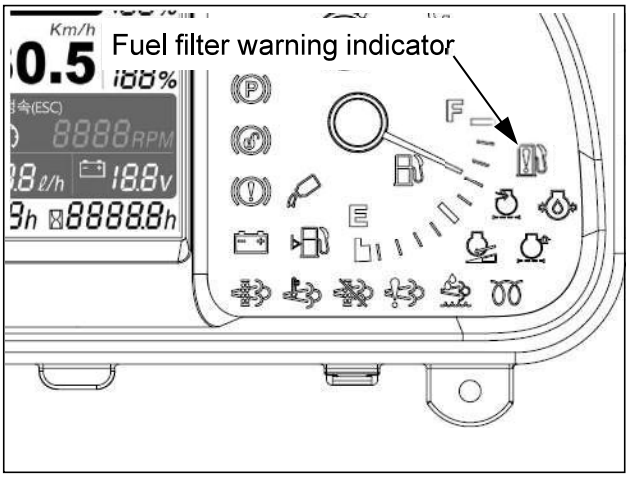
- After using first 50 hours, contact your authorized local dealer for maintenance if possible.
  - Replace engine oil filter. (⇒ Refer to Every 600 hour check. *See page 5-36*)
  - Replace hydraulic oil filter. (⇒ Refer to Every 300 hour check. *See page 5-33*)
  - Replace power shuttle oil filter. (if fitted) (⇒ Refer to Every 300 hour check. *See page 5-33*)
  - Check transmission / rear axle / hydraulics oil level.
  - Check front axle oil level.
  - Check and adjust parking brake.
  - Check torque of exhaust manifold bolts.
  - Check and adjust V-belts and tension.
  - Tighten all cooling system hose connections.
  - Check torque of safety cab or frame mounting bolts.
  - Check torque of front end weight clamp bolts. (Where fitted)
  - Check torque of wheel bolts and nuts.
  - Check tire pressures and condition.
  - Clean radiator, oil cooler and A/C condenser cores. (Where fitted)
  - Check radiator coolant level and specific gravity.
  - Check clutch pedal free play. (Mechanical synchro-shuttle models)
  - Check brake adjustment and pedal equalization.
  - Lubricate all grease fittings.
  - Neutral start switches operative.

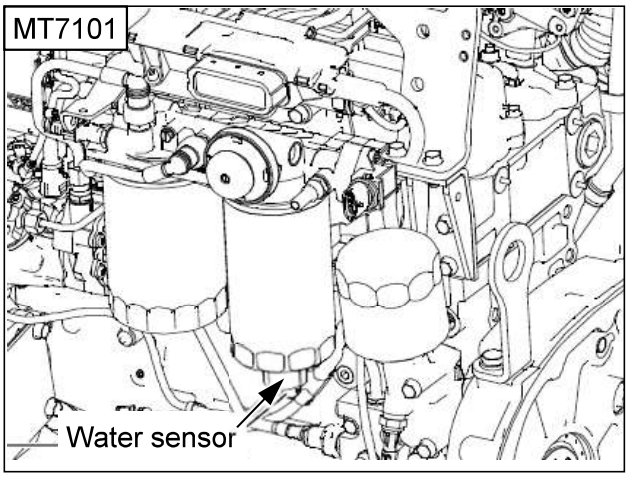
5-5. When the warning indicator lights

(1) Fuel filter warning indicator

- Stop the engine, apply the parking brake and cool down the engine.
- Set container under the fuel pre-filter.
- Disconnect the electric wiring from the sensor and disassemble the water sensor.
- Drain the contaminated fuel.
- If the pure fuel begins to come out, tighten the water sensor and connect the electric wiring to the sensor.
- Check if the fuel filter warning indicator is turned off.

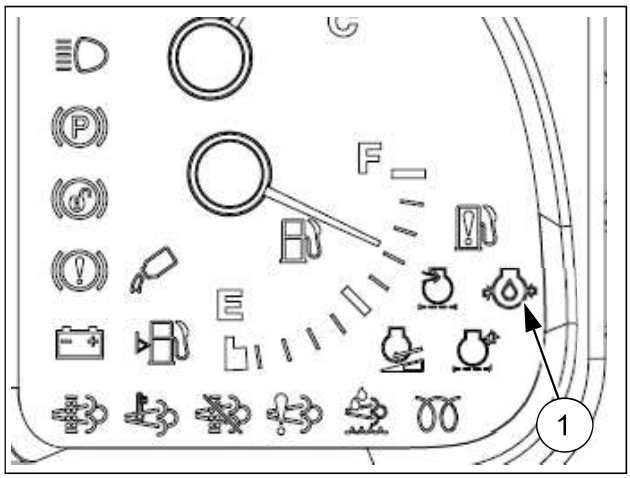






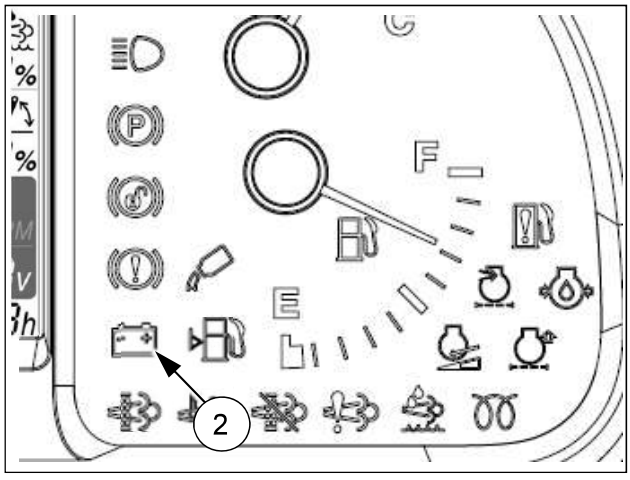
⚠ Warning	▶ Fuel leaked or spilled onto hot surfaces or electrical components can cause a fire. To help prevent possible injury, turn the key switch off when changing fuel filters or water separator elements. Clean up fuel spills immediately.
⚠ Caution	▶ Do not allow dirt to enter the fuel system. Thoroughly clean the area around a fuel system component that will be disconnected. Fit a suitable cover disconnected fuel system component. Do not fill the new filter with fuel. Invisible fine contaminants can enter the injection pump and it may cause damage to the fuel injection system.
⚠ Caution	▶ Do not throw the exhausted waste fuel to any place. This may pollute the soil and water seriously and also is prohibited legally. If violating, you would be responsible for that by civil or criminal case. The waste oil must be disposed according to the environmental laws.

(2) Engine oil pressure indicator



- This indicator① will be turned on when turning the key switch from “OFF” to “ON” position. After starting engine, this indicator must be turned off.
- If this indicator turns on while the engine is running, STOP THE ENGINE IMMEDIATELY.
- Check the engine oil level first, and if necessary, add new engine oil and recheck the indicator.
- If the engine oil level is normal, it means that there is a problem on the lubrication system, contact your authorized local dealer for check.
- If the engine oil pressure warning light flashes every second, it is to inform the driver that engine oil needs to be changed. When the engine oil is changed and the engine oil reset button is pressed for 2 seconds or longer to reset the engine oil status, this warning light turns off. *For more information, refer to 3-3-(4), “Engine oil reset button” in this manual.*

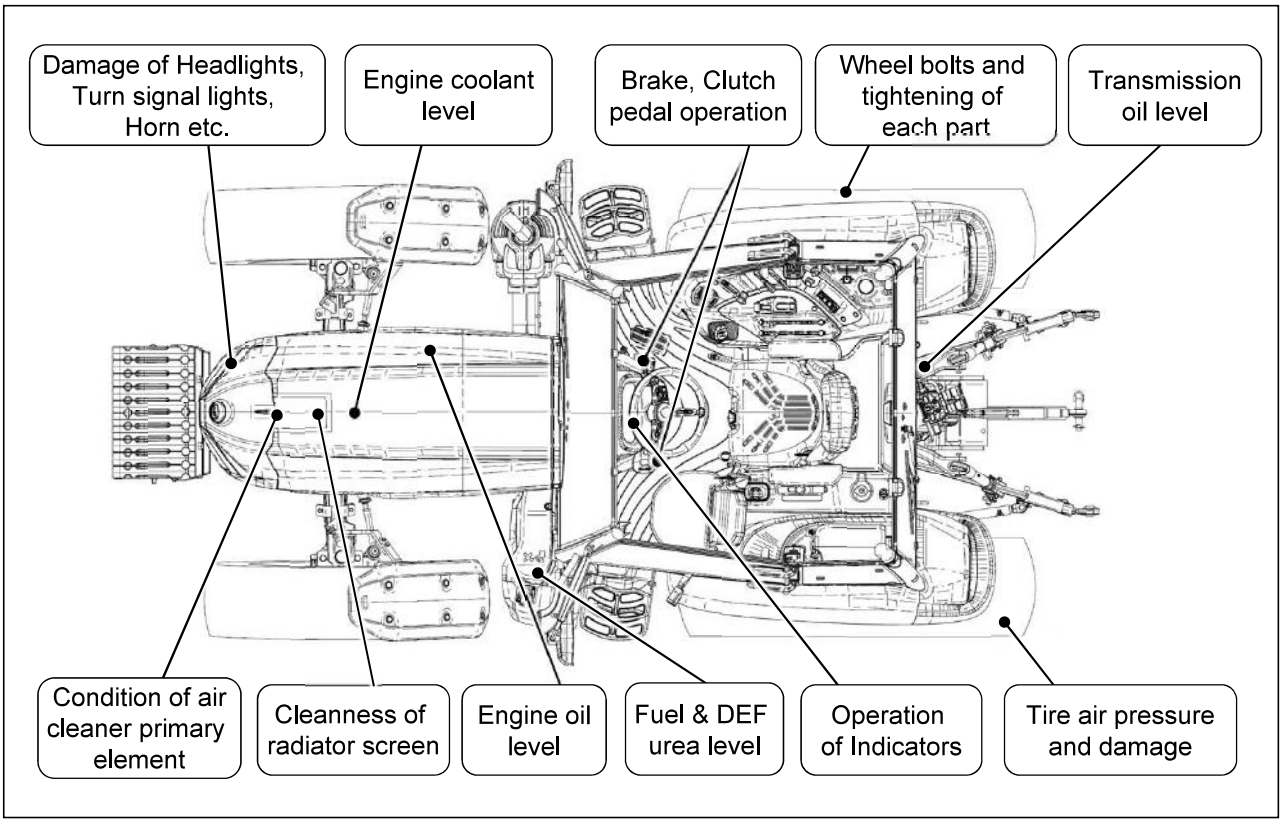
(3) Battery charging indicator



- This indicator② will be turned on when turning the key switch from “OFF” to “ON” position. After starting engine, this indicator must be turned off.
- If this indicator turns on while engine is running, it means that there is a problem on the electric charging system.
- If the problem is not cleared, stop the engine and contact your authorized local dealer for check.

5-6. Checking Before Starting (Daily check)

● Before starting engine, check the followings carefully to avoid any failure or damage.

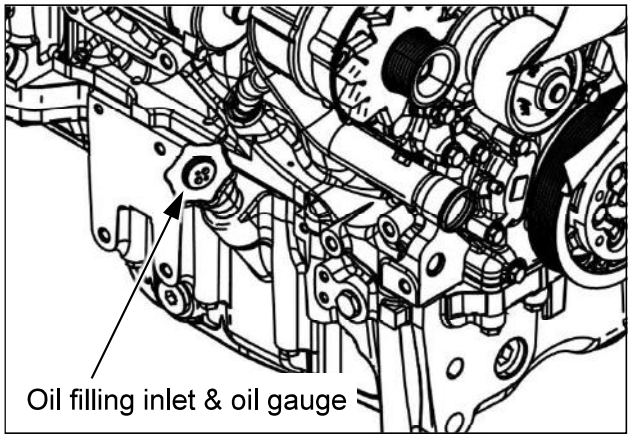


(1) Engine oil

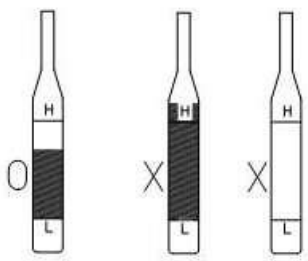
● **Oil specification and capacity :**
See chapter 5-3, "Lubricants and Capacity" or the last page in this manual.

● **Checking engine oil level**

- Check the engine oil level before starting engine or about 5 minutes later after stopping engine.
- Check if the oil level is between MAX and MIN marks of the oil gauge. If necessary, add new oil.
- If the oil level goes over the MAX level mark, contact your authorized local dealer for check.
- It must only be checked while the engine is stopped.
- If your engine is used in dusty/dirty conditions, the service interval must be shorter than normal condition.
- Replace the engine oil and engine oil filter after the first 50 hours of use.



Engine oil gauge

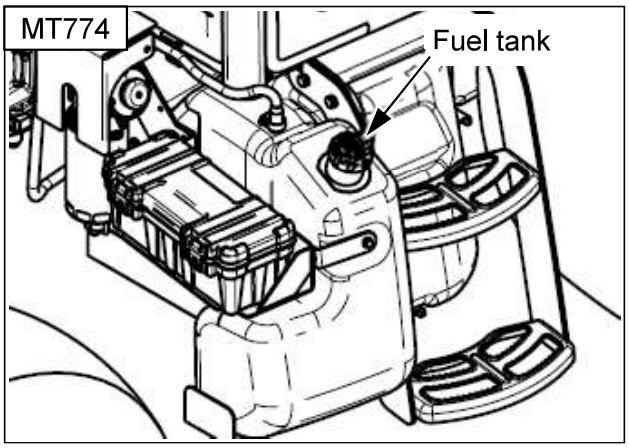


(2) Fuel tank & DEF/urea tank

① Handling Diesel fuel

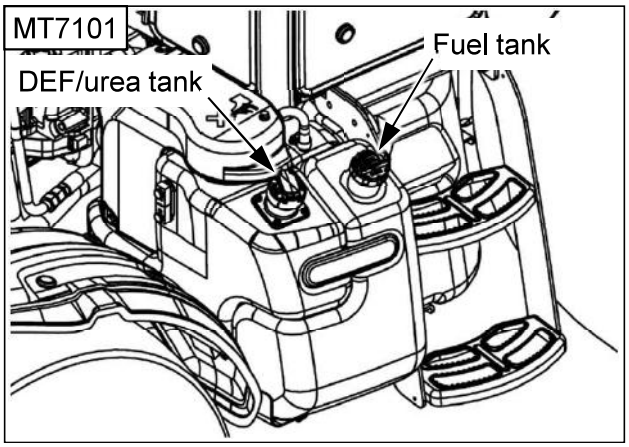
- Specification and capacity :

- *See chapter 5-3, "Lubricants and Capacity" or the last page in this manual.*



- Storing Diesel fuel

- If contaminants such as dust or water are mixed with the fuel, it can cause serious damage to the engine. To fill the tank, the fuel storage facility must be equipped as shown in the right figure. If possible, fill the tank with fuel at the gas station.

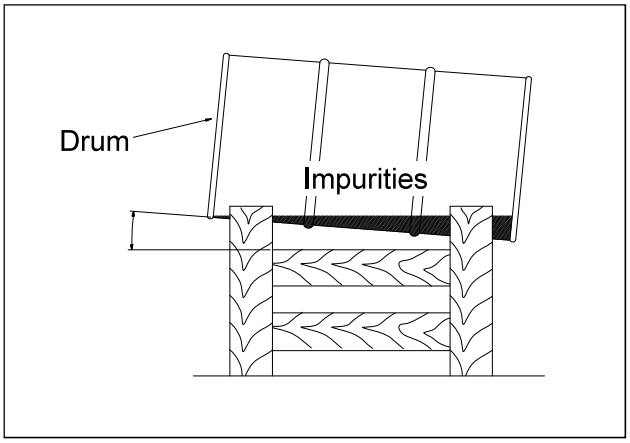


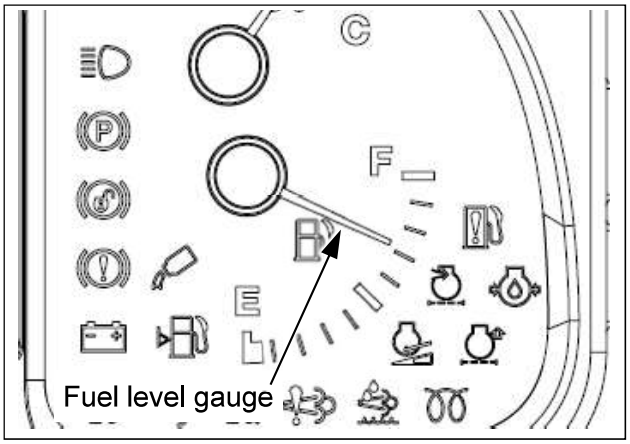
- Using Diesel fuel for winter

- General diesel fuel tends to generate paraffin dregs in cold weather which may cause a bad engine start. Thus, it is recommended to use diesel for winter in cold weather.

- Checking Fuel level

- Check the fuel gauge and if it's not sufficient, fill the fuel tank with fuel. *For further information about diesel fuel, see chapter 5-1-(3), 5-1-(4), 5-1-(5) in this manual.*





Notice	▶ After finishing work, fill the fuel tank fully. As the temperature drops down during the night, the humidity in the fuel tank is condensed, and may be mixed with the fuel.

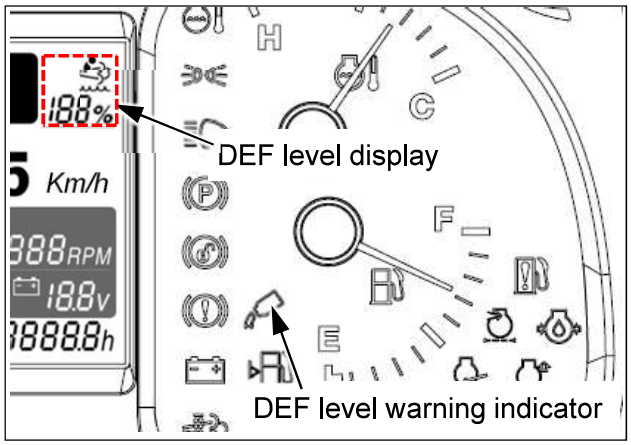
② Handling DEF/urea solution (MT7101 model only)

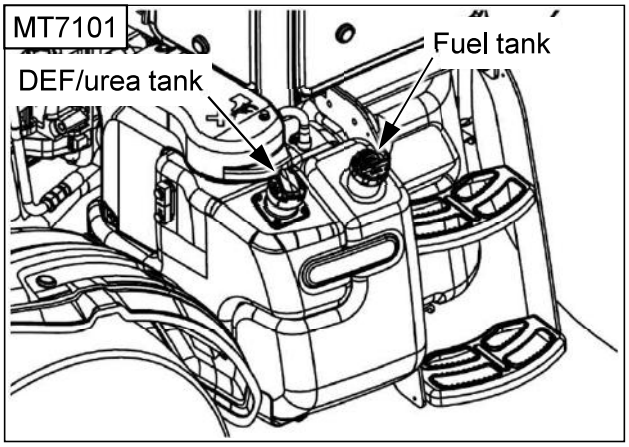
- Specification and Capacity: *See chapter 5-3, "Lubricants and Capacity" or the last page in this manual.*

⚠Caution	▶Refer to the Materials Safety Data Sheet(MSDS) when handling aqueous urea solution. To avoid malfunction in the SCR system, only use the aqueous urea solution in accordance to ISO 22241, AUS32, or DIN V70070.

- Checking DEF/urea level

- Check the urea level before operating the tractor. Check the DEF/urea level display on a daily basis. If it's not sufficient, fill the tank with DEF/urea solution.
- Do not confuse fuel tank inlet with urea tank inlet. If DEF/urea solution is filled into the fuel tank or other fluid compartment, do not start the engine until the solution is clearly purged from the tank. If wrong fluid has been added to the urea tank, drain the urea tank, clean, and fill the tank with new urea solution.





- General information related to the DEF/urea solution

- Do not cut off the battery power for 13 minutes after the engine is stopped. Failure to comply will prevent the exhaust gas reduction system from functioning properly. The remaining urea solution in the system has to be returned to the urea tank at this time by the battery power.
- The engine output power will be limited when the discharge mode for thawing the frozen urea solution is processing. If the process is finished and the exhaust gas is heated up to normal temperature, the limitation will be quitted.
- Low idle rpm can be increased up to 1100 rpm in order to remove hydrocarbon in SCR.

- Appropriate action when the warning indicators illuminate

- Depending on the DEF/urea level, the information and warning system has several signals as below. *For further information, refer to the chapter 3-1-(1).*

1. When the indicator illuminates in accordance with shortage of urea solution, stop the operation and supply the urea solution.

1st warning	Solid on	2nd warning	Blink

2. When the indicator illuminates in accordance with quality of urea solution, stop the operation and replace the urea solution in the urea tank.

1st warning	Solid on	2nd warning	Blink

3. When the indicator illuminates in accordance with the failure of smoke reduction system, stop the operation and contact your authorized local dealer.

1st warning	Solid on	2nd warning	Blink

4. When the warning indicators illuminate in accordance with hydrocarbon(HC) concentration, make driving or working to remove the HC. If no operation is required, idle RPM could be increased to 1150 with safety conditions. (Transmission neutral, Parking brake, PTO off)

1st warning		2nd warning	

Caution	▶ If you do not take an appropriate action when the indicators illuminate, the engine output power and speed can be limited automatically and you can not work normally in the field.

- Handling DEF/urea solution during the long-term storage

- Keep the storage temperature within 25°C (77°F).
- Do not remove the connector which is related urea solution and cooling system.
- Fill the urea tank with new urea solution after draining the residual urea solution in the tank.
- Replace the urea solution with a new one in every 4 months and run the engine sufficiently to change the old urea solution in the SCR system.
- In case of reuse of the tractor after storage over the 4 months, inspect the main filter in supply module, if necessary, replace it with a new one.
- When the urea solution is stored in the tractor urea tank, it is available to use the solution about for 4 months. But the period can be shortened depending on the storage temperature.

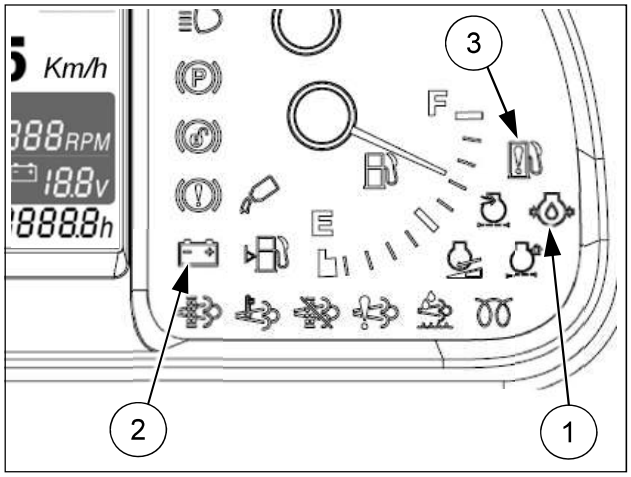
- Instruction for new DEF/urea solution

- Only purchase it as much as it can be used within 6 months.
- Store it in cool and well-ventilated place but keep it out of direct sunlight.
- Purchase the urea solution in 10L(2.5U.S.gals.) packaging, and dispose the remaining solution after filling the urea tank as your local regulation.
- Expiration date of the new urea solution will vary depending on the storage temperature as below.

Storage temperature [℉(℃)]	Expiration period (month)
< 23℉ (-5℃)	No guarantee
≤ 50℉ (10℃)	36
≤ 77℉ (25℃)	18
≤ 86℉ (30℃)	12
≤ 95℉ (35℃)	6
95℉ (35℃) <	No guarantee

(3) Instrument panel & Indicators

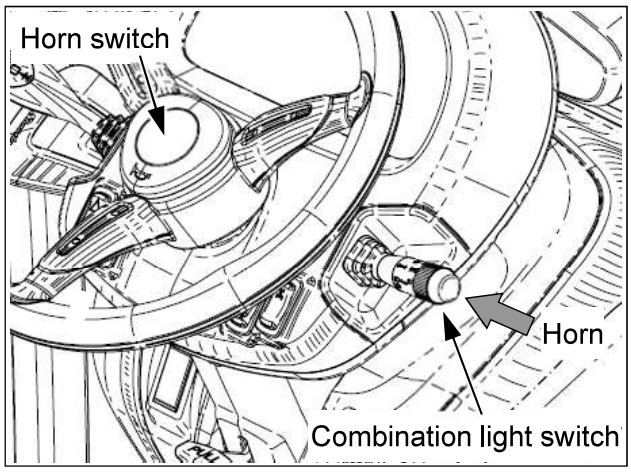
- Check if the instruments and indicators are normally turned on/off before starting engine or while operating frequently and periodically.
- If the **engine oil pressure indicator (1)** and **battery charging indicator (2)** are turned on while the engine is running, stop the engine immediately and check the engine lubrication system and battery charging system. If possible, contact your authorized local dealer for check.
- You must drain water in the fuel filter when the **fuel filter warning indicator (3)** lights. Refer to the chapter 5-5-(1) in this manual.
- *For further information about indicators, refer to the chapter 3-1-(1), "Instrument panel" in this manual.*



(4) Turn signal lights, Lights and Horn

- Check the operational status of the headlights, turn signal lights, horn and other illumination lights.
- If the light is OFF suddenly when operating the switch, check the problems as followings.

1. Check the related fuse in the fuse box. *See chapter 5-14-(3), "Fuse & Main fuse" in this manual.*
2. Check the light bulb. If damaged, replace it with a rated new one. *See below table and refer to the chapter 5-14-(6), 5-14-(7) in this manual.*



Illuminating Lights	Light bulb specification
Head lights (Low beam / High beam)	12V LED 10.5W / LED 33.6W
Turn signal lights (front) / Side lights (front)	12V 16W / LED
Turn signal lights (rear)	12V 21W
Brake lights / Tail lights (rear)	12V LED / LED
Work lights (grille)	12V LED 18W(upper) / LED 4.8W (lower)
Work lights (cabin)	12V LED 12W (grab handle) / LED 30W (roof)
Indoor light	12V 10W(cabin only)
Instrument panel lights & Warning indicators	LED

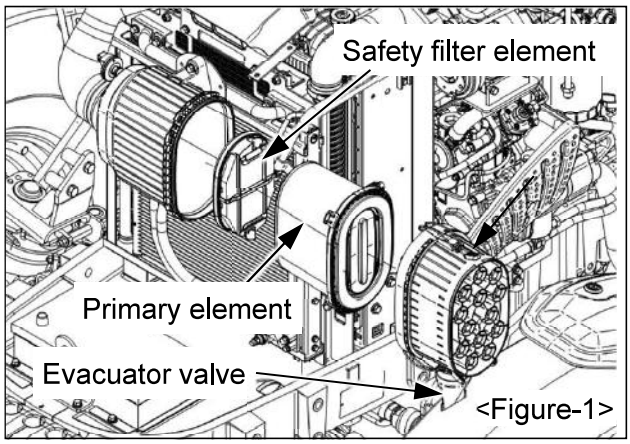
Notice	▶ Use the bulb of rated capacity. If using an improper bulb arbitrarily, it may cause a failure of the electric system.

(5) Engine coolant

- Before opening the radiator cap, cool down the engine coolant sufficiently.
- *Refer to the chapter 5-12-(1), " Replacement of engine coolant " in this manual. (See page 5-45)*

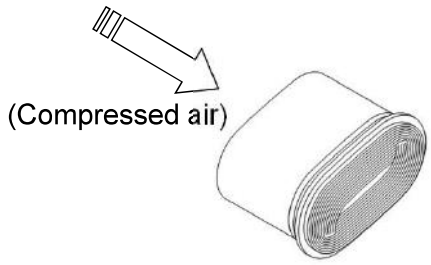
(6) Air cleaner

① Cleaning filter element



- If the air-cleaner service indicator in the instrument panel is turned on, make sure to check and clean the filter element regardless of recommended service intervals in this maintenance chart.
- Remove the cover and pull the primary element straight out, ensuring the safety filter element remains in place. (Fig. 1)
- When cleaning the element in the working field, tap the element by hand to remove the dust.

Notice	▶ Do not tap the element on a hard place when cleaning. ▶ If the element is cracked, replace it with a new one.



< Figure-2 >

- If the dust is not removed by tapping, use compressed air (less than 500kPa (5bar; 72psi)) from inside to outside as shown in the right figure (Fig. 2) to remove the dust and debris. And, clean the inside of the filter element with a clean damp cloth.

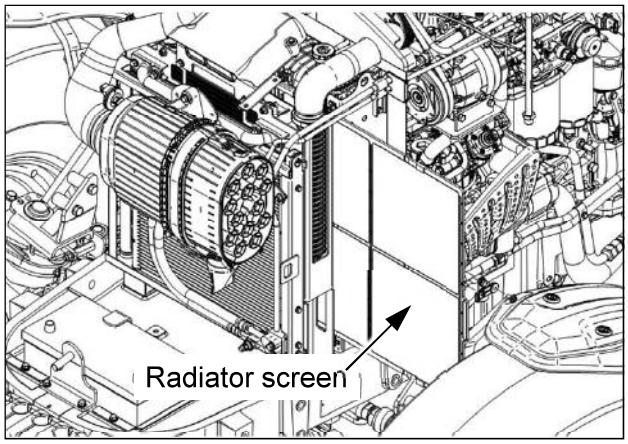
Notice	▶ Do not assemble a wet filter element. ▶ Do not dry the wet filter element by using the compressed air. It may cause damage to the filter element. ▶ DO NOT start the engine or close the hood if the filter element is not assembled.

② Filter assembly

- Clean the inside of the air cleaner housing using a clean damp cloth, being careful not to damage the safety element.
- Check if there is damage inside the filter element by using a light. If there is tiny crack or small hole in the filter element or the gasket is damaged, replace it with a new one.
- Insert the filter element deeply into the filter housing.
- Remove the dust from the evacuator valve and clean the inside of the cover.
- Assemble the cover with the evacuator valve facing downwards.

(7) Cleaning Radiator and Radiator screen

- Inspect the radiator and radiator screen for these items on a daily basis: Damaged fins, corrosion, dirt, grease, insects, leaves, oil, and other debris. Clean the radiator and radiator screen, if necessary.
- To access the radiator, pull out the radiator screen as shown in the right figure.
- When cleaning the radiator with compressed air, make sure the air flows from the engine towards the fan.
- Check and clean other heat exchangers(if equipped) around the engine radiator.

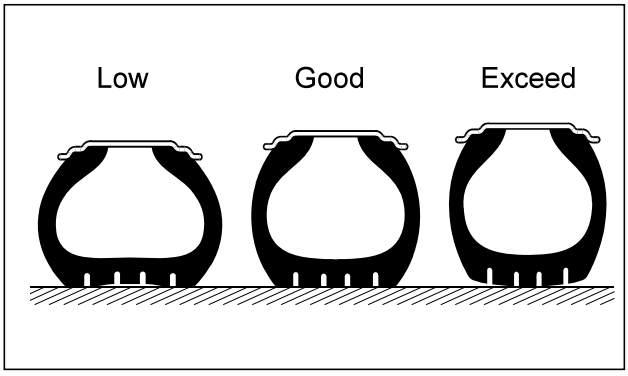


⚠ Caution	▶ The dust and dirt, other debris, and damaged fins can cause that cooling efficiency of the radiator is reduced and the engine can be overheated. ▶ Clean the radiator only after stopping engine. ▶ If cleaning with water, take care not to spray water to the hot engine block, electric or electronic parts. If possible, do not use water.

(8) Tire air pressure and damage

① Check

- Check the tire air pressure and damage of the tires on a daily basis. Always manage the correct pressure of the front/rear tires, and if the tires are damaged, replace them with new one.
- Ensure the tire air pressures are not lower than the designated values, to prevent;
  - blown tires;
  - bead wear;
  - internal damage;
  - irregular wear and short service life.



- Do not over-inflate the tires, as this may cause to damage in the event of impact and, in extreme conditions, the rim and disk may be deformed or the tires may burst.

⚠ Caution	▶ Do not assemble/disassemble the tires arbitrarily. Only qualified service personnel should perform this maintenance in a tire repair center equipped with special tools. ▶ When checking tire air pressure, keep the body away from the valve mechanism or cap. Tire air pressure vary depending on the load weighing on the axles.

② Standard air pressure - *See chapter 4-5-(5), "Tires and Load capacity" in this manual.*

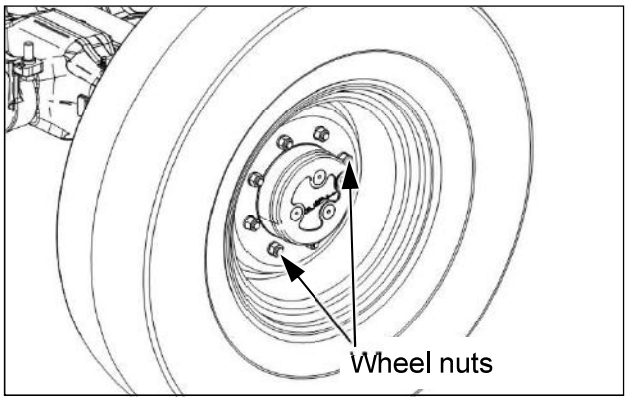
(9) Tightening state of bolts and nuts of each part

- Check if the bolts or nuts of each part are loosened. If necessary, tighten it again. Especially, check the bolts and nuts of the tires before starting engine, if necessary, tighten them.

⚠Warning	▶ **Roll-over hazard!** **Never operate the machine with a loose wheel rim or disc. Always tighten nuts and/or bolts to the specified torque value and at the recommended intervals.** **Failure to comply could result in death or serious injury.**

Tighten the wheel bolts and nuts to the specified torque any time you remove the wheel assembly from the machine or loosen the wheel bolts or nuts.

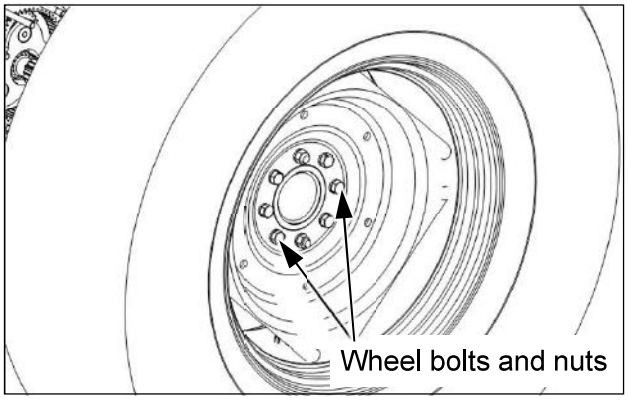
Front Wheel Torque: M18x1.5P
2500~2800 kgf.cm
(245~275 N.m, 181~203 lb.ft)



Rear Wheel Torque: M18x1.5P
2500~2800 kgf.cm
(245~275 N.m, 181~203 lb.ft)

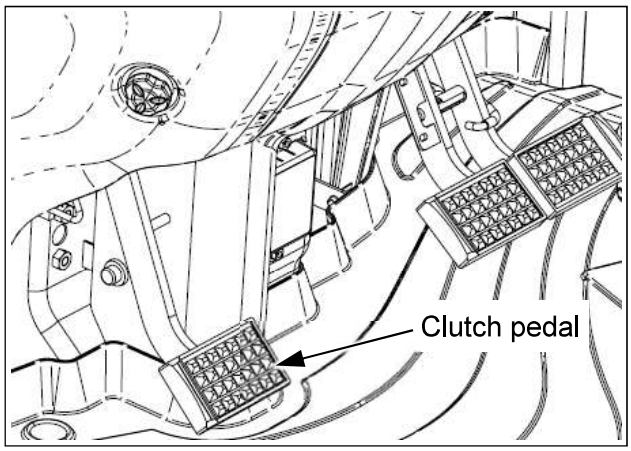
NOTICE: *Check and tighten wheel bolts and nuts to proper torque specifications after the following hours of use:*

- First 5 hours
- First 50 hours
- Every 300 hours



(10) Adjustment of Clutch pedal play

① Power shuttle models only

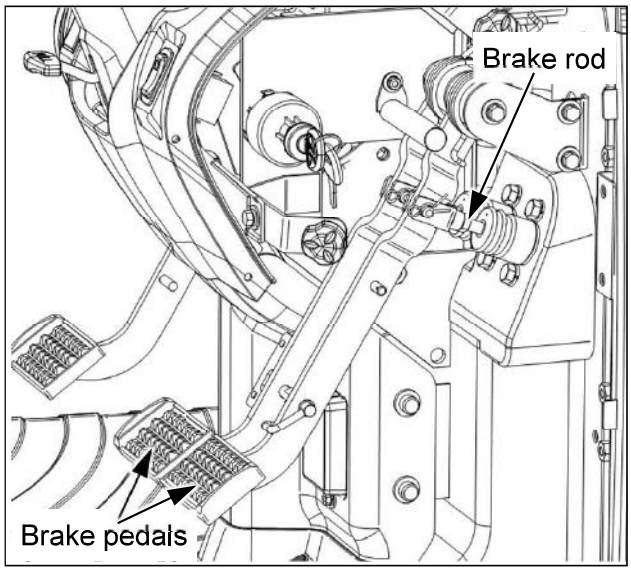


- In case of power shuttle models, an electric sensor to control the power shuttle clutch pack is attached and tuned specially on the clutch pedal linkage system.
  If this linkage system is changed or modified arbitrarily, it may cause a serious fault or malfunction to the power shuttle clutch pack.
- If you need any service for the power-shuttle system, do not hesitate to contact your authorized local dealer for check.
- It is not necessary to bleed the clutch line of the power-shuttle model.

(11) Adjustment of Brake pedal play

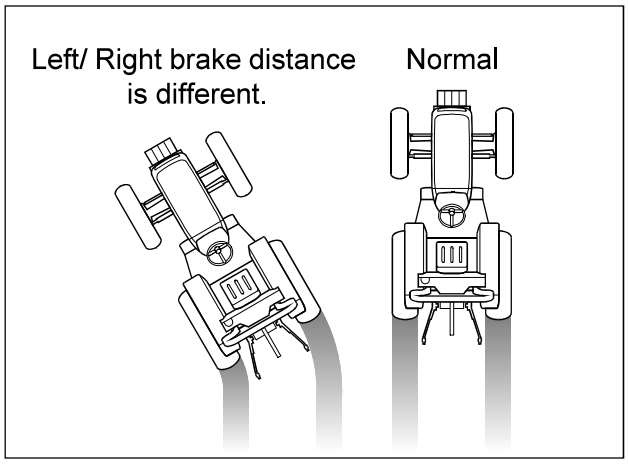
- Check the distance of brake pedal play before using the tractor.
- **Normal distance : 20~40mm. (0.7~1.6 in.)**
- If the brake pedal play is over the normal distance, adjust it as below.

1. Loosen the locking nut and turn the brake rod to the left/right direction.
2. If the brake rod is tightened, the pedal play will be increased, and if loosened, it will be reduced.
3. Pay attention that brake rod does NOT push the piston of brake master cylinder when the brake pedal is released.
4. After adjusting the pedal play, tighten the locking nut.
5. Check if the brake distance of the left and right brake is same as below.



- **Checking the brake distance**

1. Connect the left and right brake pedal with the brake pedal latch.
2. Check the skid marks of the tires or stability of the tractor while driving at a suitable speed.
3. If the brake distance is different as shown in the right figure, adjust the pedal play again.
4. If the vehicle is turned to the left-hand side when checking the braking distance, *tighten the left-hand brake rod or loosen the right-hand brake rod with checking the brake pedal play distance.*



5-7. Every 50 hour check

(1) Lubricating grease nipple

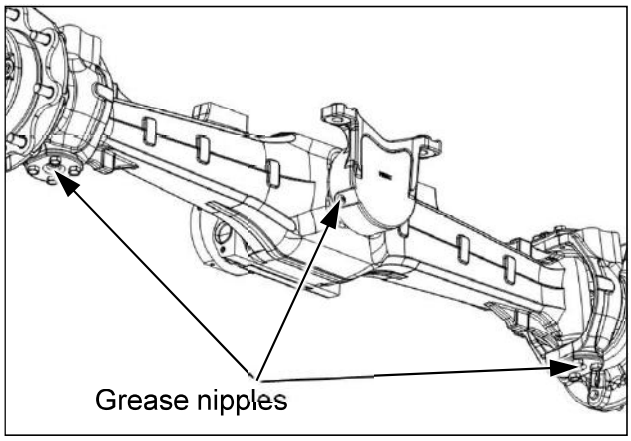
- Front axle front/hear holders
- Front axle king-pin shaft cover (lower)
- 3-point linkage

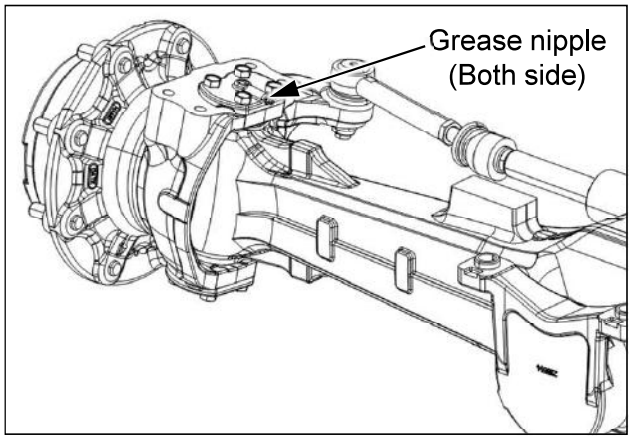
1.Wipe dirt from fittings before greasing.

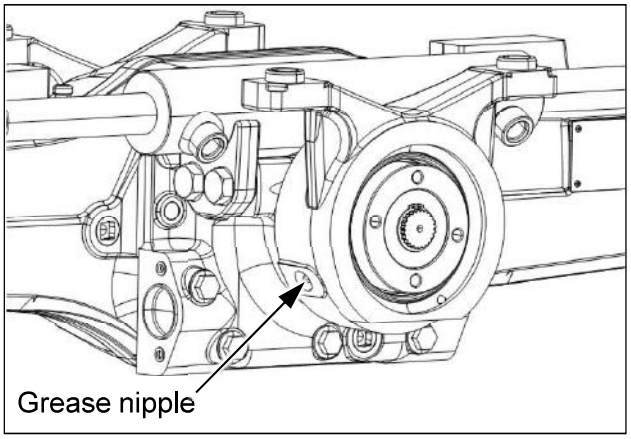
2.Use a grease gun containing clean high grade of grease.
For grease specification, see chapter 5-3, "Lubricants and Capacity" or the last page in this manual.

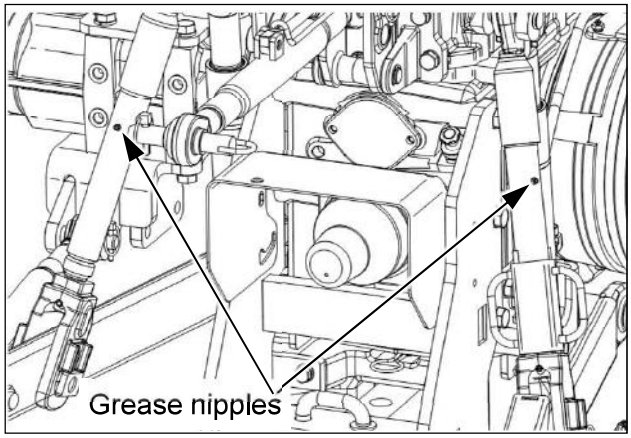
3.Pump fresh grease into fitting to adequately lubricate the component and force out any contamination from the grease passage.

4.Wipe off excess grease.







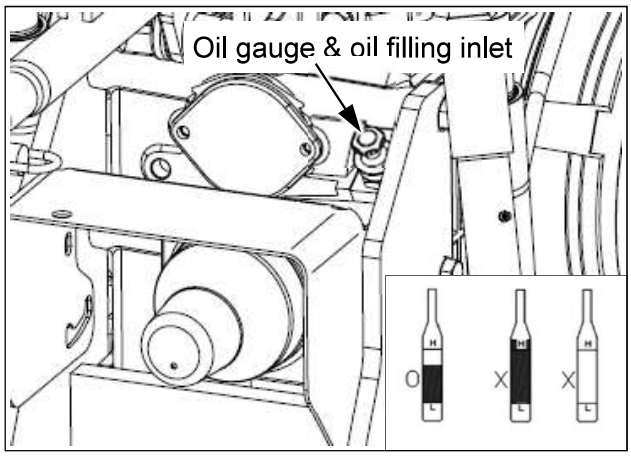


(2) Cleaning Radiator and Radiator screen

- *See chapter 5-6-(7) in this manual. (See page 5-26)*

(3) Checking Transmission oil

- Stop the tractor on a level surface and apply the parking brake and lower the implements to the ground.
- Clean around oil filling inlet and pull the oil gauge straight out.
- If oil level is between “Min” and “Max” mark of the oil gauge, it means proper amount.
- For oil specification, *see chapter 5-3, “Lubricants and Capacity” or the last page in this manual.*

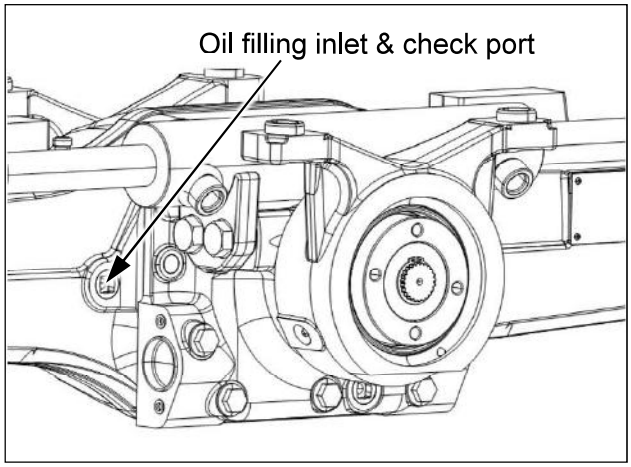


⚠ Caution	▶ The contaminated oil may reduce the durability of the power drive line and it can cause failure of the transmission and hydraulic system. Clean around the oil filling inlet before opening the gauge.

(4) Checking Front axle oil

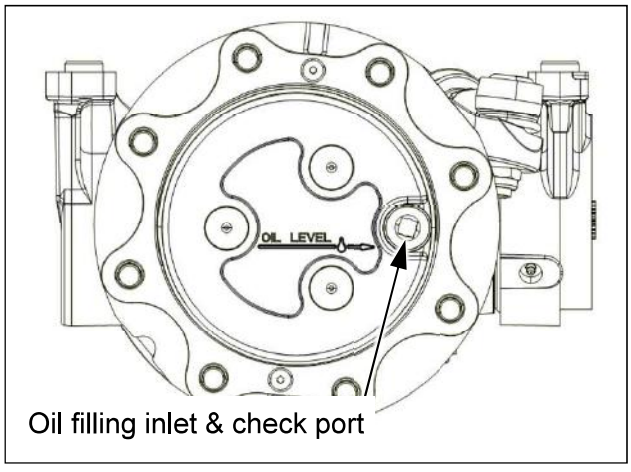
① Center housing

- Park the tractor on a level surface.
- Open the oil check port plug and be sure to check if the oil level is full.
- If necessary, add new oil into the oil filling inlet. (after 5~10 minutes later, check the oil level again)
- Tighten the oil check port plug.
- For oil specification, *see chapter 5-3, “Lubricants and Capacity” or the last page in this manual.*



② Final gear case

- Place the oil check port horizontally.
- Open the oil check port plug and be sure to check if the oil level is full. If necessary, add new oil into the oil filling inlet.
- Tighten the oil check port plug, and check the oil level on the other side.
- For oil specification, *see chapter 5-3, “Lubricants and Capacity” or the last page in this manual.*



(5) Battery check

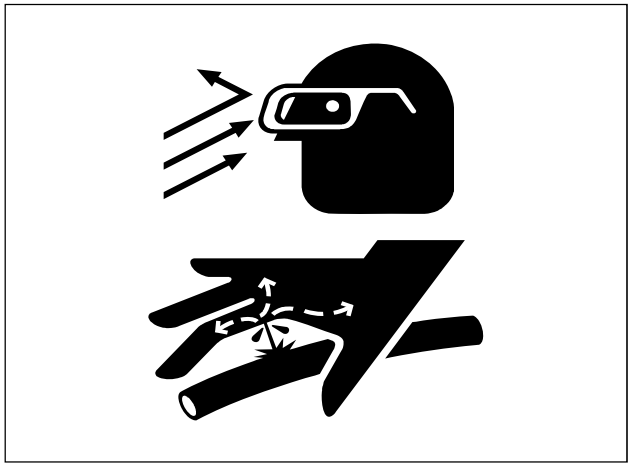
- *Refer to the chapter 5-14-(4), "Batter handling and Notices" in this manual. (See page 5-64)*

(6) Air cleaner (Dry type)

- *Refer to the chapter 5-6-(6) in this manual. (See page 5-25)*

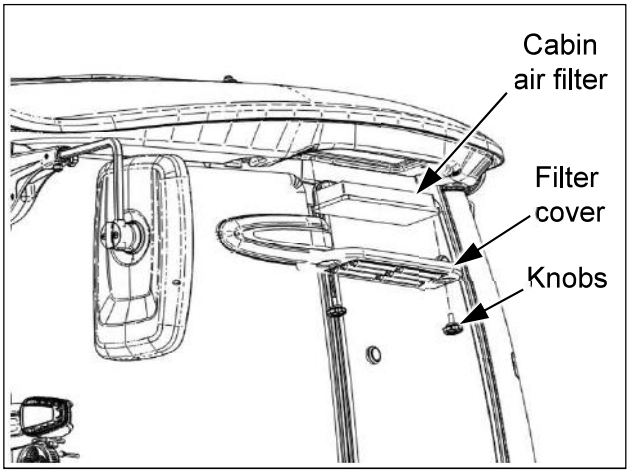
(7) Hydraulic hoses and Leakage

- Stop the engine and place all the transmission gears in their neutral positions and lower down the implement to the ground.
- Periodically check the hydraulic system for leaks or damaged parts - kinked, crushed, flattened, hard blistered, heat cracked, charred, twisted, soft or loose covered hoses and fittings.
- Before removing hydraulic components, make sure to check that the hydraulic pressure is relieved completely. The leaks of pressurized oil can cause a fatal physical injury.
  For further information, see chapter 3-4, "Hydraulic system" in this manual.



(8) Cleaning Cabin air filters

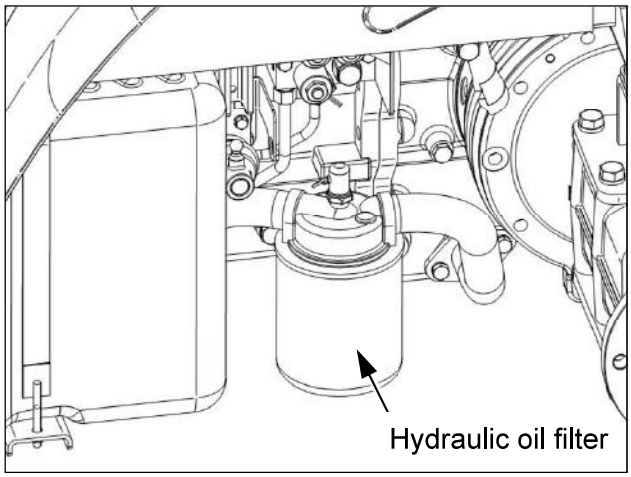
- Before servicing the filters, switch off the blower and close all the cabin doors and windows.
- Unscrew the knobs under the roof and remove the cover and filter element as shown in the right figure.
- Clean the elements by blowing with compressed air not exceeding 30psi (2bar). Blow the dust from the upper surface through the element to the underside. Hold the nozzle at least 12 in. (300mm) from the element to prevent damage to the filter media.
- Clean all filter chambers with a damp, lint-free cloth. Re-install the filter elements.
- Re-install the filter cover and tighten the knobs.



Notice	▶ The filters are made of specially treated media with a rubber sealing strip bonded around the sides. Take care not to damage the element during installation.

5-8. Every 300 hour check

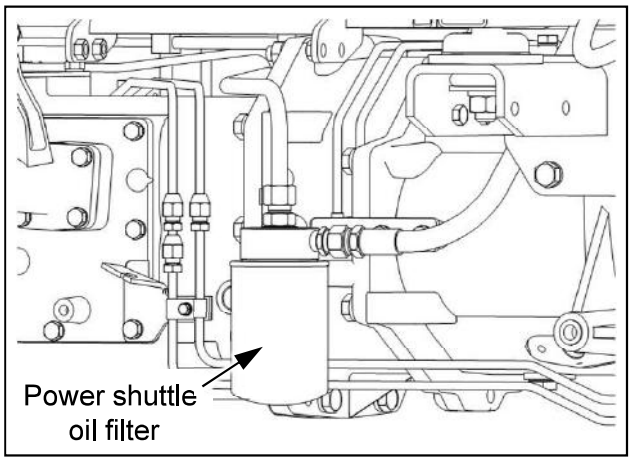
(1) Replacing Hydraulic Oil Filter



- Park tractor on level surface and apply the parking brake and lower the implements and stop the engine.
- The filter is located in front of the left rear axle housing.
- Carefully clean around the filter and set a clean container under the filter.
- Coat clean hydraulic oil on the packing of new filter and check the packing is placed well in the groove.
- Turn the oil filter counter-clockwise to remove with filter wrench.
- Turn the new filter clockwise to assemble until the packing makes contact with the mounting surface. Tighten ¾ to 1 turn more after packing contact.
- Run the engine at idle and check any leakage.
- Check the oil level. If necessary, add new oil. *For oil specification, see chapter 5-3, "Lubricants and Capacity" or the last page in this manual.*

Warning	▶ Make sure to stop the engine before loosening the oil filter. ▶ If the filter or oil is very hot, it may cause serious burns. After cooling down the tractor sufficiently, replace the filter. ▶ Do not throw the exhausted waste oil to any place. This may pollute the soil and water seriously and also is prohibited legally. If violating, you would be responsible for that by civil or criminal case.

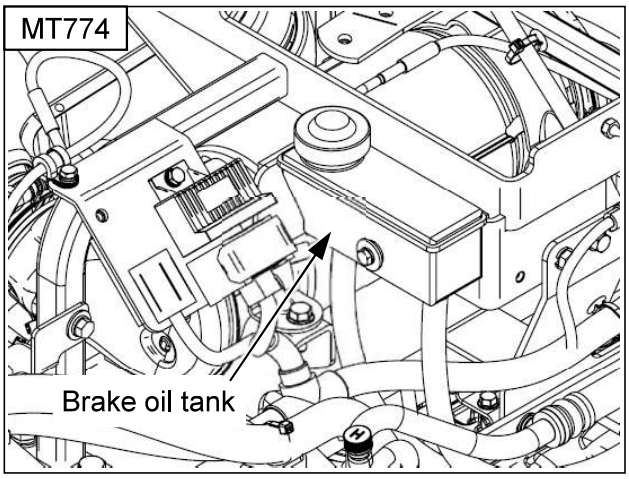
(2) Replacing Power shuttle oil filter (power shuttle models only)

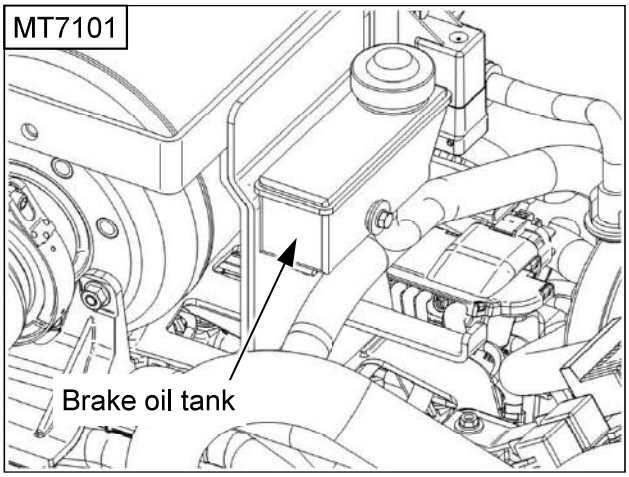


- This filter is attached under the right-hand step floor of the power shuttle models.
- Replace this filter with a new one in the same way as the replacement procedure of the hydraulic oil filter.

(3) Checking Brake oil

- Open the hood(bonnet) and check the brake oil level. If the oil level is between “MAX” and “MIN” marks, it means “Proper amount”. If necessary, add new brake oil.
- Make sure to check the specification, before adding new oil.
  For oil specification, see chapter 5-3, “Lubricants and Capacity” or the last page in this manual.
- If the brake oil is discolored or contaminants with dirt and debris, replace the oil with new one.
- If the brake oil is replaced, bleed air from the brake and clutch (MEC models only) line. If possible, contact your authorized local dealer. (*For further information, refer to the chapter 5-14-(2), “Air-bleeding from Brake line” in this manual. See page 5-57)*





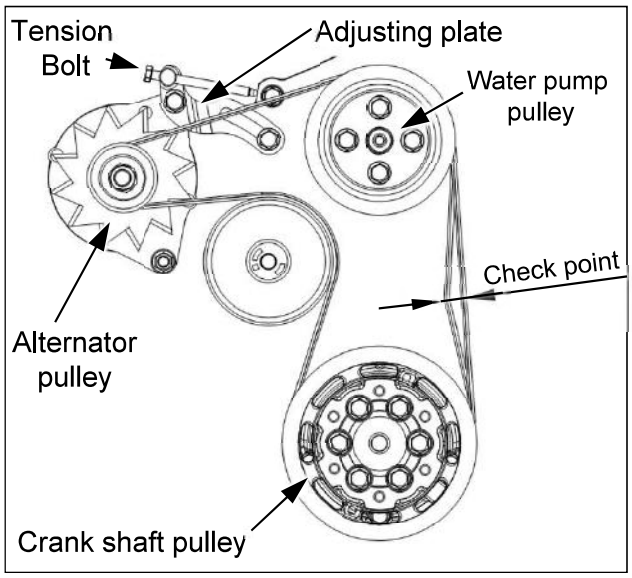
⚠Warning	▶ If any part of clutch line (MEC models only) or brake line is replaced or the oil is replaced, bleed air from the system. Air bubbles in the brake and clutch line can cause serious malfunction of the brake and clutch operation and fatal physical injury. ▶ If the specific oil is not used, even though a little amount, it can cause serious faults of the clutch and brake components such as oil seals and packings. In this case, all parts of the brake and clutch system must be serviced. Contact your authorized local dealer. ▶ When the engine is very hot, it may cause serious burns. After cooling down the engine sufficiently, check the brake oil level.

(4) Tension of Fan belt

- Check if the fan belt tension is normal. If it is not suitable to normal value, adjust the tension as below.
  - Belt tension: crank shaft pulley ~ water pump pulley
  - **Normal: Approx. 10~12mm (0.4~0.5in.) (when pressed by 98 N (22 lb))**
- When adjusting the tension,

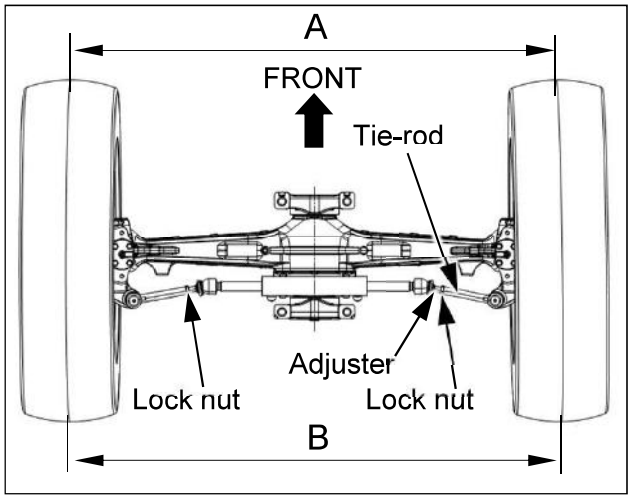
1. Loosen two locking bolts of alternator and a hinge bolt of adjusting plate slightly.
2. Tighten or loosen the tension bolt to apply the standard tension to the belt.
3. Tighten the locking bolts of alternator and adjusting plate.

- Check the fan belt for wear or cracks. If there is a problem, replace it with a new one



(5) Toe-in

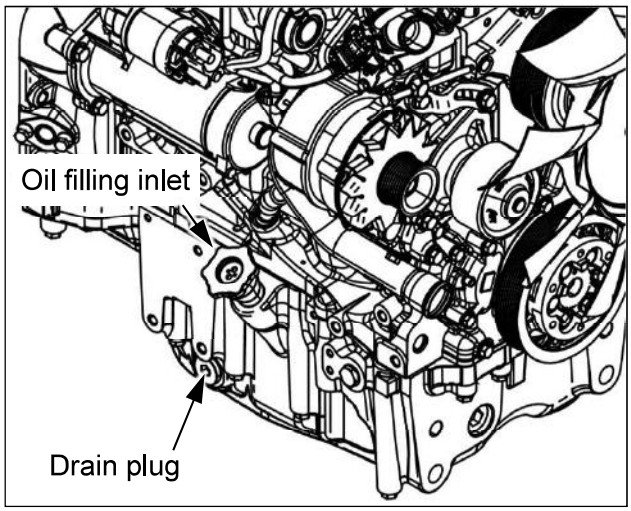
- Check and adjust the toe-in of the front wheels and if necessary, adjust it as follows.
  Normal value : B – A = 0~5 mm (0~0.2 in.)
- Loosen the lock nuts of the tie-rods on both sides.
- Fix the steering cylinder and turn the adjuster counter-clockwise, the toe-in (“B-A”) will be increased. If turning it clockwise, the toe-in will be decreased.
- Turn the adjuster of the other side by the same displacement.
- After checking the toe-in, tighten the lock-nuts.
- If possible, contact your authorized local dealer.



5-9. Every 600 hour check

(1) Replacing Engine oil and Filter

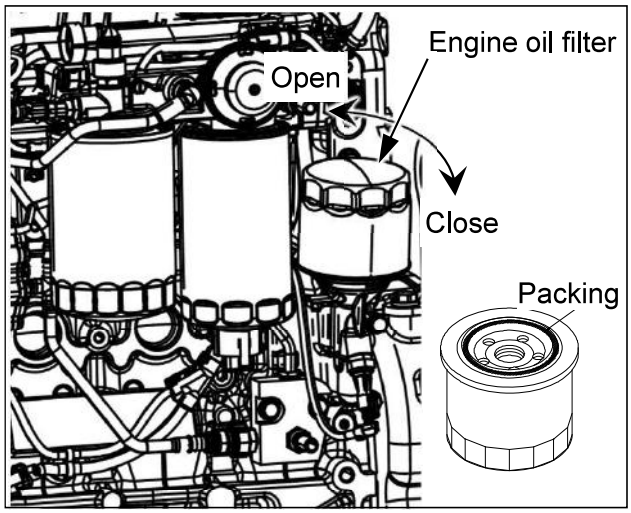
① Drain Engine oil



- Run the engine for a few minutes to warm oil.
- Park the tractor on a level surface.
- Set a clean container under the drain plugs and remove both LH and RH drain plugs of oil pan and drain the oil completely.

NOTE: *When the engine oil is warm, the impurities can be drained completely.*

② Replace Engine oil filter



- Clean carefully around the filter.
- Coat clean engine oil on the packing of new filter and check the packing is placed well in the groove.
- Turn the oil filter counter-clockwise to remove it with a filter wrench.
- Turn the new filter clockwise to assemble it until the packing makes contact with the mounting surface. Tighten ¾ to 1 turn more after packing contact.
- If the metal is attached to the element of oil filter to be disassembled, contact your authorized local dealer.

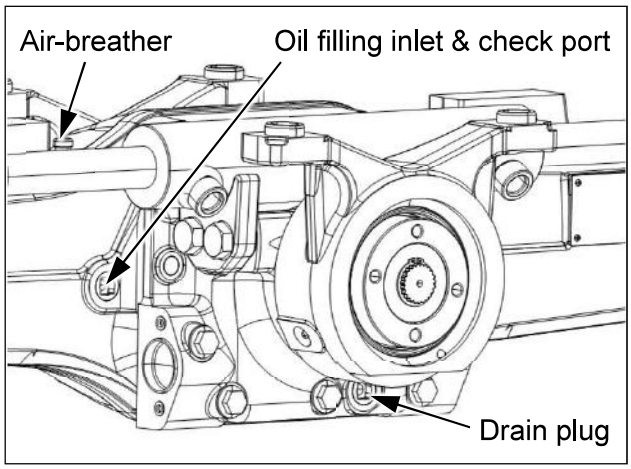
③ Fill Engine oil

- Tighten the drain plugs.
- Add new engine oil as its capacity and check the oil level is between “MIN” and “MAX” marks on the oil gauge. *For oil specification, see chapter 5-3, “Lubricants and Capacity” or the last page in this manual.*
- Check any leakage of the engine while running the engine for several minutes at idle rpm.
- Stop the engine. After several minutes later, check again the oil level is between “MIN” and “MAX” marks on the oil gauge.
- Install the oil gauge.

(2) Changing Front axle oil

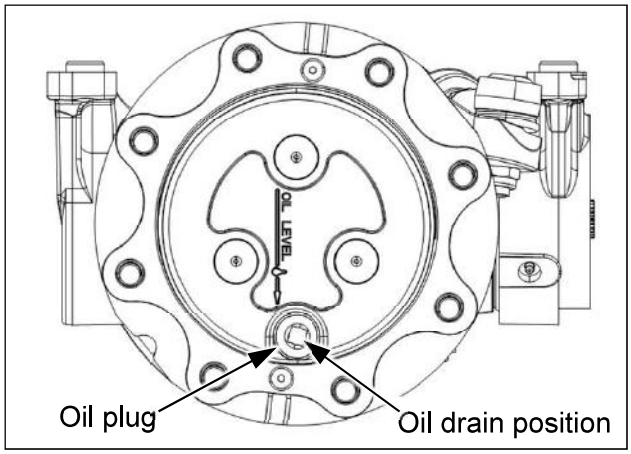
① Center housing

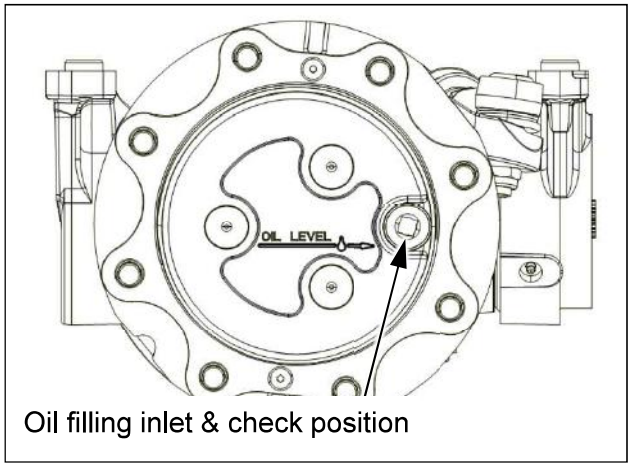
- Stop the tractor on a level surface and apply the parking brake.
- Clean air-breather and the surrounding area.
- Set a container under the drain plug.
- Remove oil filling inlet plug first, and drain plug.
- Drain oil completely, and clean with care and tighten the drain plug.
- Add new oil into the oil filling inlet with checking if the oil flows out through the oil check port.
- Clean with care and tighten the oil check port plug.
- *For oil specification, see chapter 5-3, "Lubricants and Capacity" or the last page in this manual.*



② Final gear cases

- Stop the tractor on a level surface and apply parking brake.
- Set a container under the oil plug of the final gear case.
- Before draining oil, rotate the wheel end so that the oil plug is at the highest position.
- Partially unscrew the oil plug to release possible pressure.
- Place the oil plug downward and remove the oil plug. Drain oil completely.
- Add new oil into the oil filling inlet with checking if the oil flows out through the oil check port.
- If necessary, wrap the sealing tape on the oil plug, and tighten the oil plug.
- *For oil specification, see chapter 5-3, "Lubricants and Capacity" or the last page in this manual.*

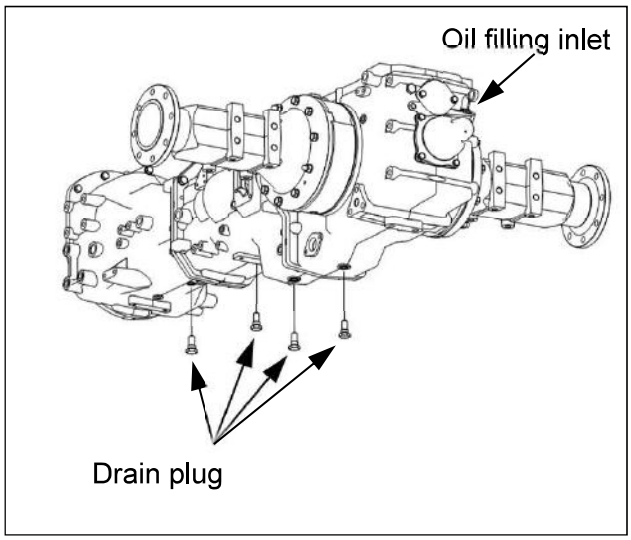


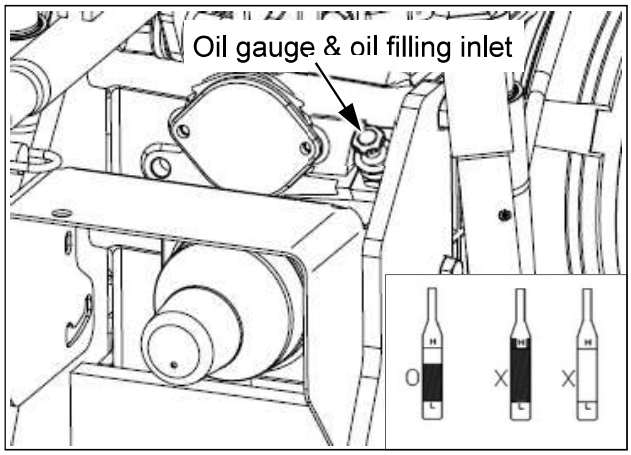


⚠ Caution	▶ Before draining oil, partially unscrew the oil plug to release possible pressure at the highest position of the oil plug.

(3) Changing Transmission oil

- Stop the tractor on a level surface and apply the parking brake. Run the engine for several minutes to warm oil and lower the implements. Stop the engine.
- Set a clean container under the drain plugs and remove the drain plugs. Drain the oil completely.
- Remove metal chips and sludge from the drain plugs and tighten drain plugs again with new cooper washers.
- Add new oil until the oil level is between “Min” and “Max” marks of the oil gauge.
- *For oil specification and capacity, see chapter 5-3, “Lubricants and Capacity” or the last page in this manual.*



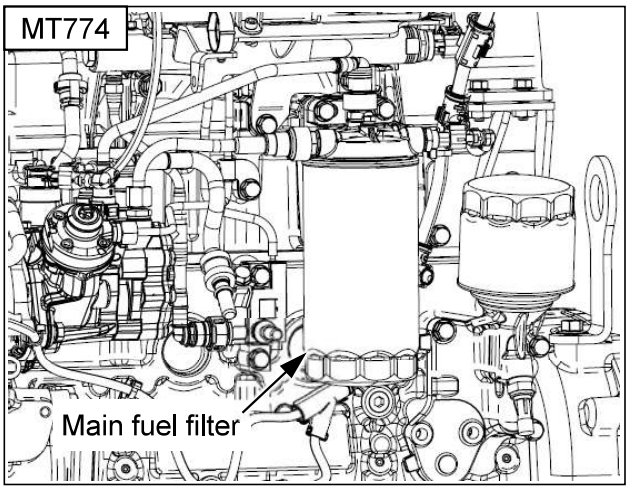


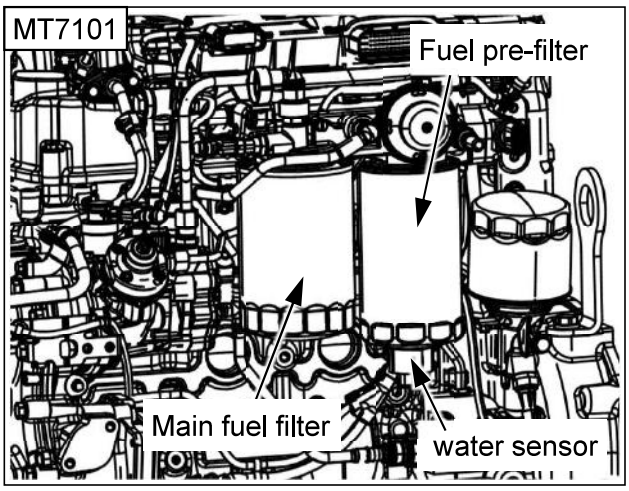
⚠ Caution	▶ Contaminated oil may reduce durability of the transmission drive lines and it can cause a failure of the hydraulic system. Clean around the oil filling inlet and then open the oil gauge.

(4) Replacing Fuel filter cartridge

① Main fuel filter

- Stop the engine and cool it down. Apply the parking brake and set a clean container under the main fuel filter.
- Turn the filter counter-clockwise to remove it from the filter flange with a filter wrench.
- Coat the seal of the new filter with a little fuel.
- Assemble the new filter to the filter flange. (Tightening torque: 22±3 N.m (16.2 lb-ft))
- Bleed air from the main fuel filter. *(See chapter 5-14-(1), "Air-bleeding from Fuel system" in this manual.)*



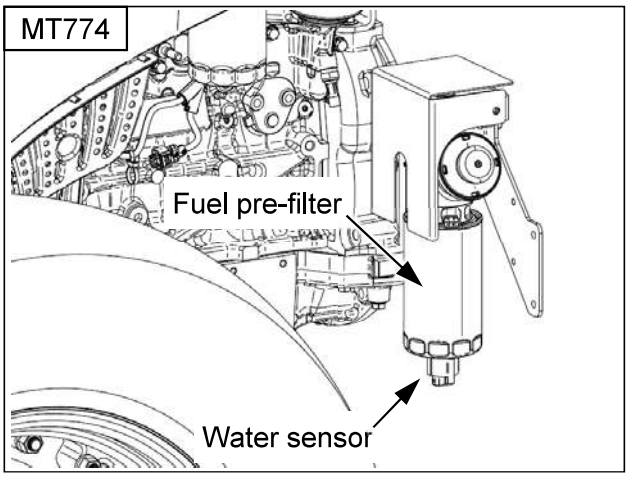


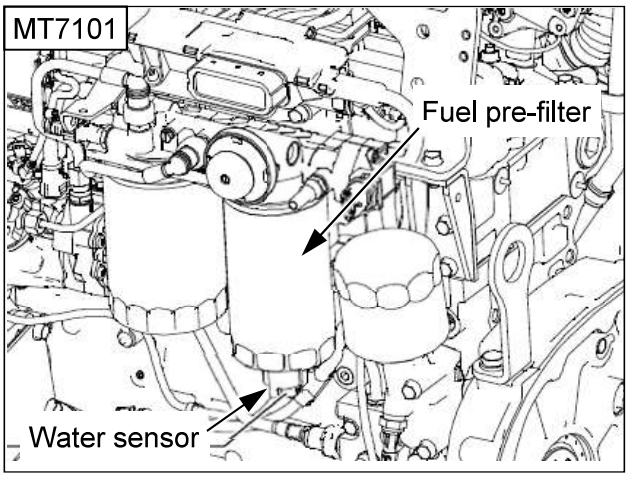
⚠Caution	▶ Do not allow dirt to enter the fuel system. Thoroughly clean the area around a fuel system component that will be disconnected. Fit a suitable cover disconnected fuel system component. Do not fill the new filter with fuel. Invisible fine contaminants can enter the injection pump and it may cause damage to the fuel injection system.

⚠Caution	▶Do not throw the exhausted waste fuel to any place. This may pollute the soil and water seriously and also is prohibited legally. If violating, you would be responsible for that by civil or criminal case. The waste fuel must be disposed according to the environmental laws.

② Fuel pre-filter

- Stop the engine and cool it down. Apply the parking brake and set a clean container under the fuel pre-filter.
- Remove the electric wiring connected to the water sensor, and remove the water sensor.
- Turn the filter counter-clockwise to remove it from the filter flange with a filter wrench.
- Coat the seal of the new filter with a little fuel.
- Assemble the new filter to the filter flange.
- Bleed air from the fuel pre-filter. *(See chapter 5-14-(1), "Air-bleeding from Fuel system" in this manual.)*





⚠Caution	▶ Do not allow dirt to enter the fuel system. Thoroughly clean the area around a fuel system component that will be disconnected. Fit a suitable cover disconnected fuel system component. Do not fill the new filter with fuel. Invisible fine contaminants can enter the injection pump and it may cause damage to the fuel injection system.

(5) Checking Nozzle injection pressure

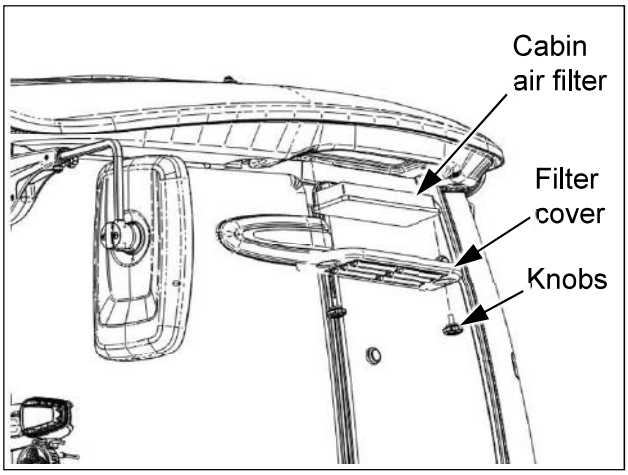
- Contact your authorized local dealer for check.
  Normal injection pressure : 180 MPa (26107 psi)

⚠Warning	▶ Fuel leaked or spilled onto hot surfaces or electrical components can cause a fire. ▶ Work carefully around an engine that is running. Engine parts that are hot, or parts that are moving, can cause personal injury. ▶ Make sure that you wear eye protection at all times during testing. When fuel injection nozzles are tested, the high pressure test fluid can pierce the skin and cause serious injury to the operator. Always keep the tip of the fuel injection nozzle pointed away from the operator and into the fuel collector.

⚠Caution	▶ Do not allow dirt to enter the fuel system. Thoroughly clean the area around a fuel system component that will be disconnected. Fit a suitable cover over disconnected fuel system component. ▶ If a fuel injector is suspected of operating outside of normal parameters, it should be removed by a qualified technician. The suspect fuel injector should be taken to an authorized agent for inspection.

(6) Replacing Cabin air filters

- Before servicing the filters, switch off the blower and close all the cabin doors and windows.
- Cabin air filters are installed on the left and right-hand side under the cabin roof.
- Unscrew the knobs under the roof and remove the covers and filter elements as shown in the right figure.
- Clean both filter chambers with a damp, lint-free cloth.
- Replace the cabin air filters with new ones.
- Re-install the filter covers and tighten the knobs.
- If you use charcoal filters (active carbon filters), you should replace the filters sooner than regular filters.

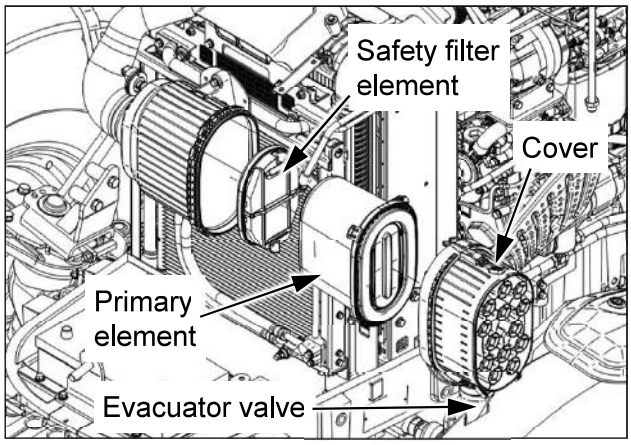


***NOTICE**: The filters are made of specially treated media with a rubber sealing strip bonded around the sides. Take care not to damage the element during installation.*

⚠Caution	▶ The charcoal filters (active carbon filters) last for approximately 50 hours of work. They must, however, be replaced each year. If, when working with pesticides, toxic odors are noted, stop the work immediately and replace the filters with new ones. *For further information for charcoal filters, refer to the chapter 4-5-(11), "Working in hazardous area" in this manual.*

5-10. Every 1200 hour or 1 year check

(1) Replacing Air cleaner element (Dry type)

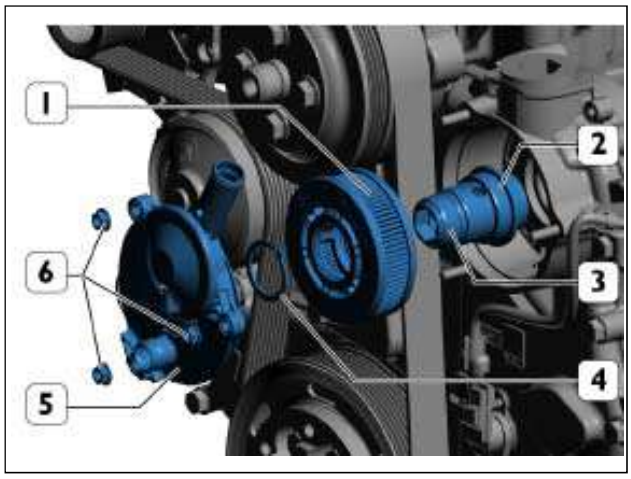


- If the air-cleaner service indicator in the instrument panel is turned on, make sure to check and replace the filter element regardless of recommended service intervals in this maintenance chart.
- Remove the cover and pull the primary element straight out, ensuring the safety filter element remains in place.
- Clean the inside of the air cleaner housing using a clean damp cloth, being careful not to damage the safety element.
- Check if there is any damage inside the filter element by using a light. If finding a tiny crack or small holes in the filter element or the gasket is damaged, change it with a new one.
- Insert the filter element deeply into the filter housing.
- Remove the dust from the evacuator valve and clean the inside of the cover.
- Assemble the cover with the evacuator valve facing downwards.

Notice	▶ Do not start the engine or close the hood if the filter element is not assembled..

5-11. Every 1800 hour check

(1) Replacing Blow-by filter element

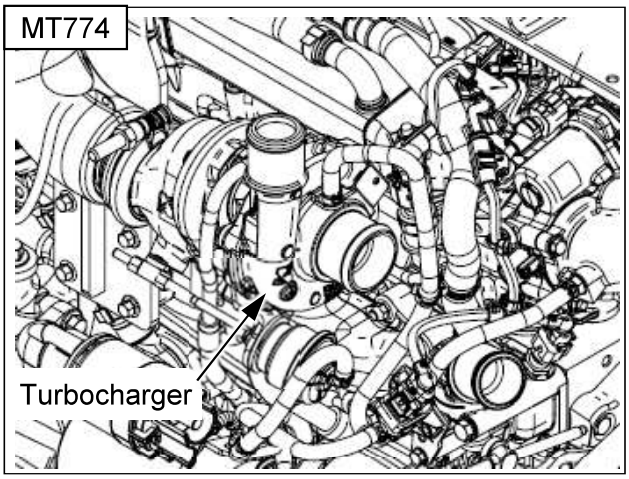


- The blow-by filter has been developed and quipped for the collection, filtering and condense of the lubricating oil vapors. Only proceed with the engine stopped and at low temperature, in order to avoid the risk of burning.
- Use a suitable container to collect the oil.
- Unscrew the nut(2), disconnect fittings(1, 4) and remove the oil vapors circulation pipe(3).
- Unscrew the nuts(6) and remove the blow-by filter cover(5) complete with membrane valve and breather pipe.
- Lift the circlip(4) and remove the blow-by filter(1) from the threaded bush(3) and shaft(2).
- Replace and install the new blow-by filter(1) on the shaft(2) with threaded bush(3) and fix it with the circlip(4).
- Mount cover(5) of the blow-by filter with membrane valve and breather pipe and tighten the nuts(6) to the specified torque.

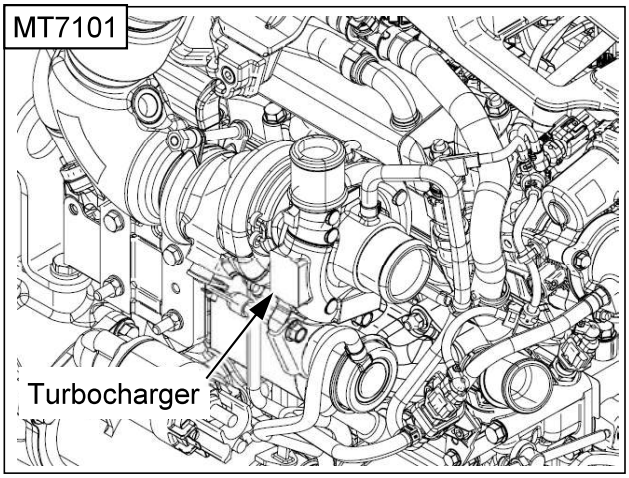
(2) Checking Turbocharger visually

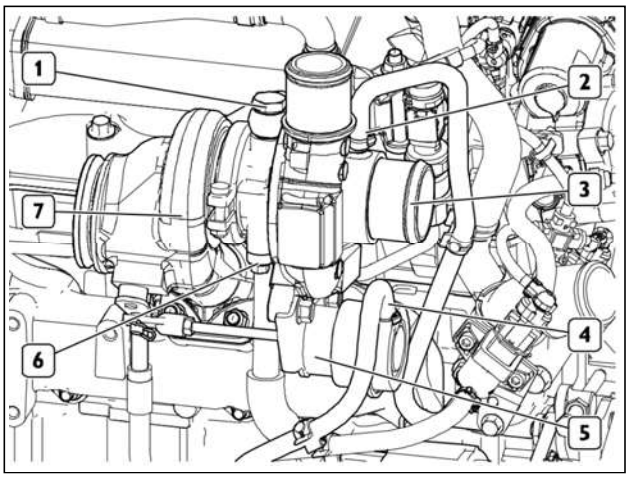
- Only proceed when the engine is not turning over.
- Check for any cracks present on the turbocharger.
- Visually check that the rotors of the turbine **(7)** and the compressor **(3)** and the relative inlet and outlet ducts are not clogged or damaged. If they are, they must be replaced.
- Check there are not bent or damaged blades in the rotors of the turbine **(7)** and the compressor **(3)**.
- Check the tightening of the fittings **(1)**, **(6)** and carry out a visual inspection to check for any oil leaks.
- In the event of any oil leaks, replace the gaskets of the fittings **(1)**, **(6)**.
- Check that there are no carbon deposits between the exhaust manifold and the turbocharger. Replace the turbocharger gasket if necessary.
- Check the turbocharger gasket for any signs of rupture or damage and replace it if necessary.
- Check the wastegate actuator **(5)** is fully tightened, lubricated and not deformed.
- Check that the pipes **(2)** and **(4)** of the Wastegate valve are not clogged or damaged, otherwise replace them. Visually inspect and check for any air leaks.

MT774



MT7101





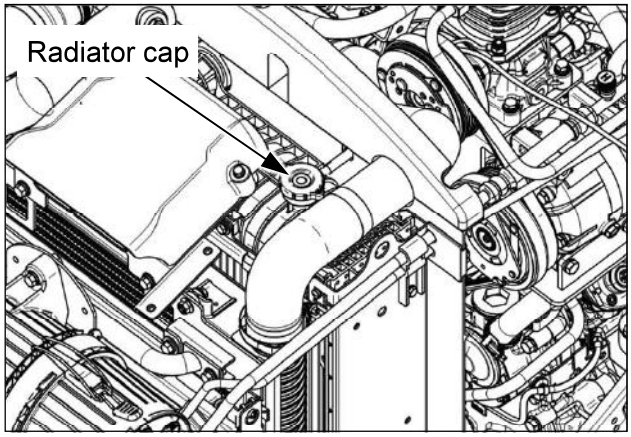
⚠Caution	**Hazard warning !** ▶ Before starting, make sure you have suitable PPE (gloves, shoes, glasses, overalls). Failure to comply with these prescriptions can result in the risk of serious injury.

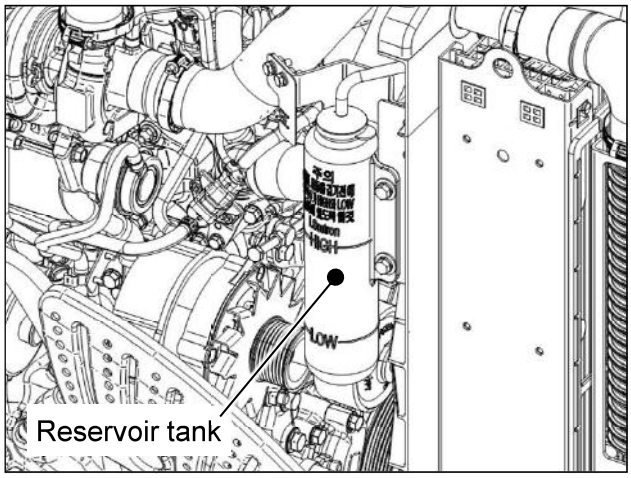
5-12. Every 3000 hour check or 2 year check

(1) Replacement of Engine coolant

① Check

- Stop the engine and allow the engine to cool down. Loosen the radiator cap slowly in order to relieve any pressure. Remove the radiator cap.
- Check if the coolant of the radiator and reservoir tank is insufficient or not on a daily basis. Check if the coolant level of the reservoir tank is between “Min” and “Max” marks.
- If necessary, add new engine coolant.
- Do not open the radiator cap except to check the coolant or change it.



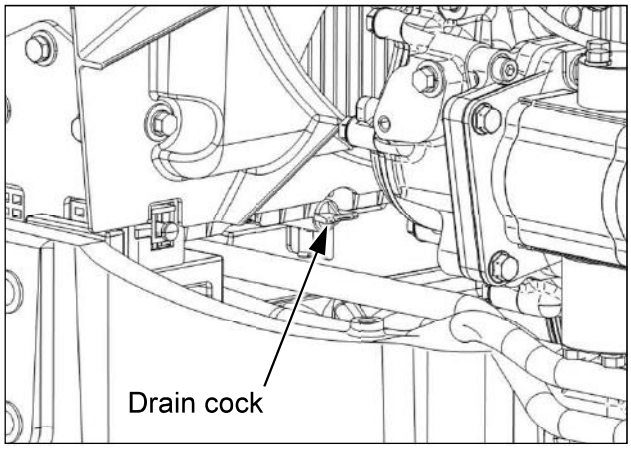


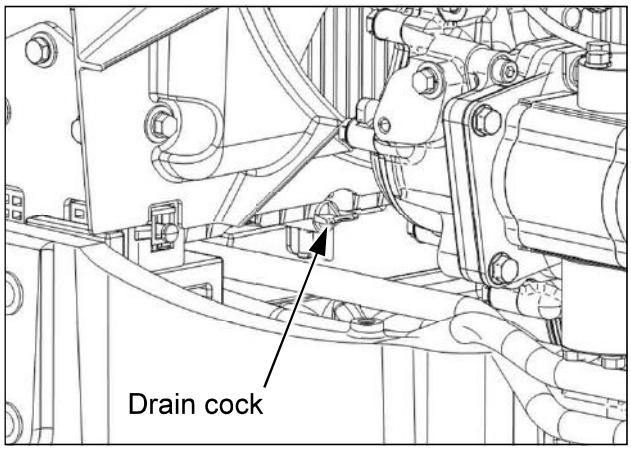
Caution	▶ *NEVER mix OAT coolant with conventional coolant. For further information about OAT, see chapter 5-1-(6) in this manual.*

Warning 	▶ **Pressurized System**: When opening the radiator cap, be careful of the escaping hot water or steam. Hot coolant can cause serious burns. To open the radiator cap, stop the engine and wait until the cooling system components are cool down. Loosen the radiator cap slowly in order to relieve the pressure. ▶ Wear the protection globes or cover the radiator cap with a rag before opening the radiator cap.

② Drain

- Stop the engine and allow the engine to cool down. Loosen the radiator cap slowly in order to relieve any pressure. Remove the radiator cap.
- Set a suitable clean container under the radiator drain cock.
- Open the drain cock on the radiator.
- Allow the coolant to drain completely.





⚠Caution	▶ Care must be taken to ensure that fluids are contained during performance of inspection and maintenance of the product. Be prepared to collect the fluid with suitable containers before opening any compartment or disassembling any component containing fluids. ▶ Dispose of all fluids according to Local regulations and mandates. ▶ Keep all parts clean from contaminants. Contaminants may cause rapid wear and shortened component life.

③ Flush

- Flush the cooling system 2~3 times with clean water in order to remove any debris.
- Close the drain cock on the radiator.
- Fill the cooling system with clean water. Install the radiator cap.
- Start and run the engine at low idle until the temperature reaches 49 to 66 °C (120 to 150 °F).
- Stop the engine and allow the engine to cool. Loosen the radiator cap slowly in order to relieve any pressure. Remove the radiator cap. Open the drain cock on the radiator. Allow the water to drain.

⚠Caution	▶ Do not fill the cooling system faster than 5 L (1.3 US gal.) per minute to avoid air locks. Cooling system air locks may result in engine damage.

④ Fill

- Close the drain cock on the radiator.
- Fill the cooling system with the designated coolant. Do not install the radiator cap. *For coolant specification and capacity, see chapter 5-3, "Lubricants and Capacity" or the last page in this manual.*
- Start and run the engine at low idle. Increase the engine rpm to high idle. Run the engine at high idle for one minute in order to purge the air from the cavities of the engine block. Stop the engine.
- Check the coolant level. Maintain the coolant level within 13mm (0.5 in.) below the bottom of the pipe for filling. Maintain the coolant level in the reservoir tank at the correct level.
- Clean the radiator cap. Inspect the gasket that is on the radiator cap. If the gasket is damaged, install a new radiator cap.
- Start the engine. Inspect the cooling system for leaks and for correct operating temperature.
- Use the coolant with anti-freeze solution in cold weather.
- Anti-freeze solution is filled up from the factory. After first winter, change the coolant to remove the debris or corrosion.

⚠ Caution	▶ Do not fill the cooling system faster than 5 L (1.3 US gal.) per minute to avoid air locks. Cooling system air locks may result in engine damage.

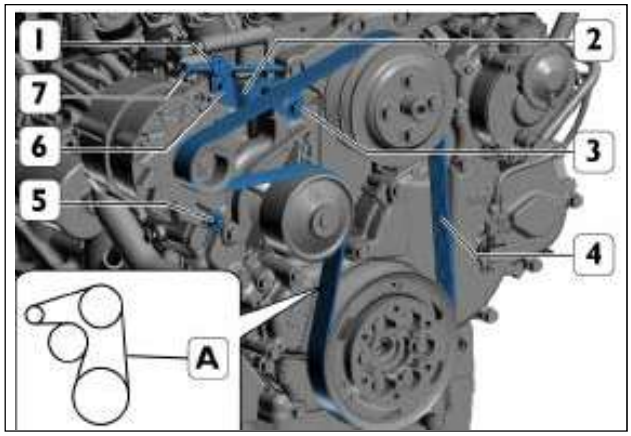
※ Anti-freeze

- The amount of anti-freeze in the coolant must be determined on the ambient temperature. If the amount of anti-freeze in the coolant is low, the coolant can be frozen and the engine and radiator may be damaged.
- Mix the water and anti-freeze with 40%~60% according to operating condition as below table and fill radiator and engine the mixture after checking the volume and capacity.

Anti-freeze (%)	Freezing point °C (°F)	Boiling point °C (°F)	Remark
40	-24 (-11)	106 (223)	
50	-37 (-35)	108 (226)	
60	-52 (-62)	111 (232)	

- If possible, always use the anti-freeze solution. If not, change the coolant with anti-freeze solution before winter time.
- Run the engine for about 5 minutes after filling anti-freeze to mix it with water well.

(2) Replacing Engine fan belt

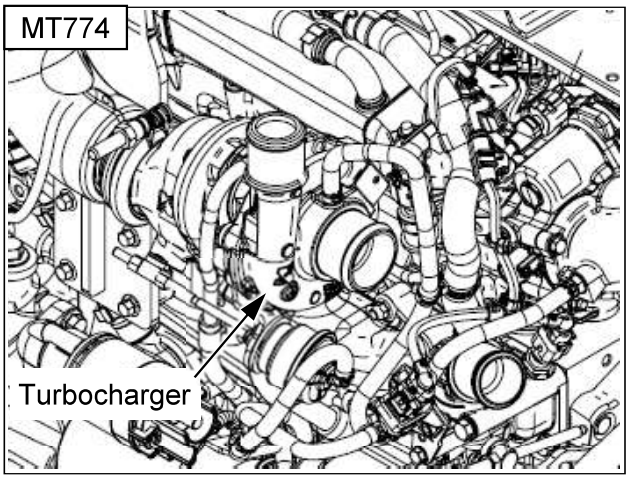


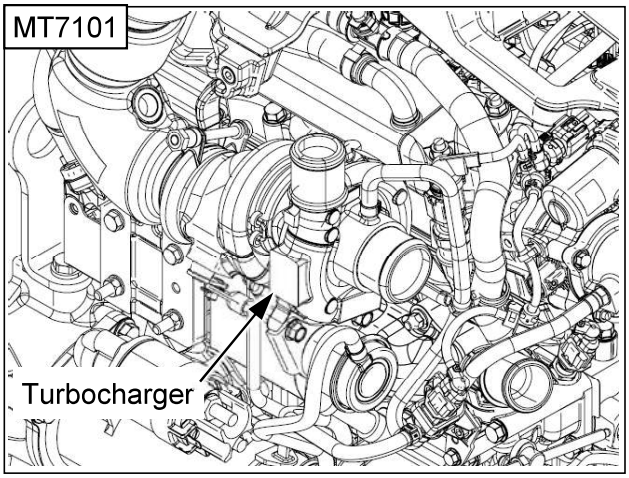
- Loosen the bolt(5) anchoring the alternator to its lower support and the screw(3) fixing the tensioning bracket(2) to the crankcase.
- Loosen the lock nut(1) and unscrew the adjustment screw(7) on the tensioning bracket(2) to loosen and remove the auxiliary members' drive belt(4)
- Replace the worn belt(4) with new one.
- Ensure that all components of the pulleys and guide rollers are clean and free from wear and damage. If necessary, replace any components that are worn or damaged.
- Ensure that the pulleys and guide rollers are free from dirt and build up from the old belt.
- Fit the auxiliary members' drive belt(4) inside the shoulders of all the pulleys in the order: crankshaft pulley, fan drive pulley, alternator, water pump. Ensure the belt(4) is centered on all pulleys.
- Proceed to tension the auxiliary members' drive belt(4) by screwing the adjusting screw(7) until the tensioning bracket(2) has reached the full extent position of the available adjustment, as shown in the figure
- The correct value of statistical tension of the auxiliary members' drive belt(4) must be within the range indicated in the table:

Statistical tension	Measured value (N / rib / span)	Frequency control (Hz)
Minimum	64	121
Rated	84	140
Maximum	104	158

(3) Cleaning Turbocharger

- Turbochargers are a major component related to exhaust gas emission regulations.
- These parts should be inspected and cleaned regularly for turbocharger problems.
- However, this part must be inspected by an experienced service expert, so please contact your authorized local dealer or service center for inspection.

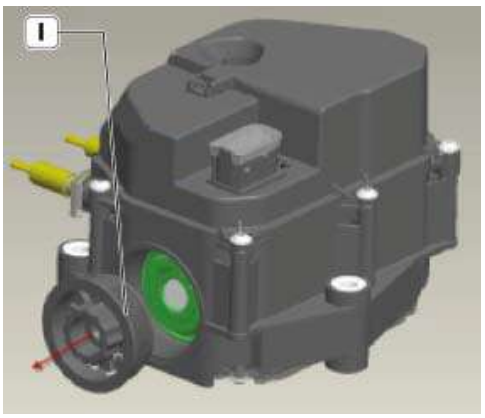




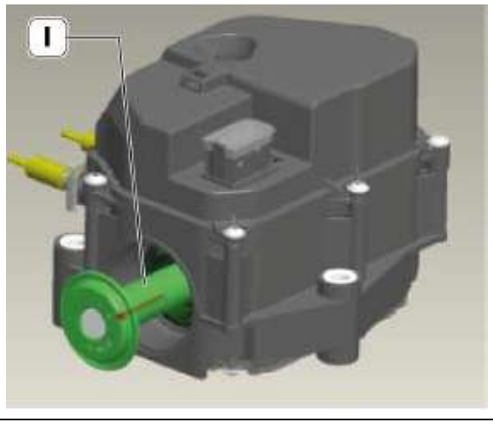
(4) Replacing DEF filter element (MT7101 model only)

- When replacing the DEF filter, comply with the instruction as below

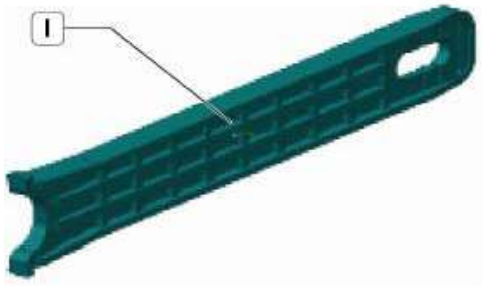
1) Remove filter cover.



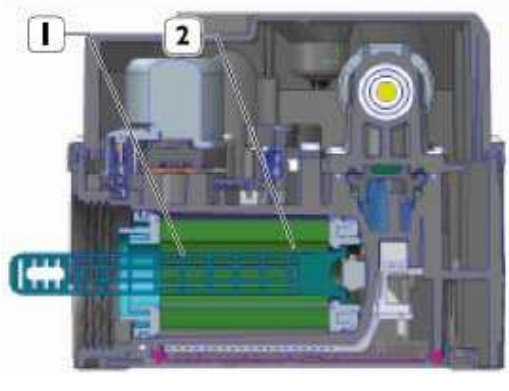
2) Pull out the element support.



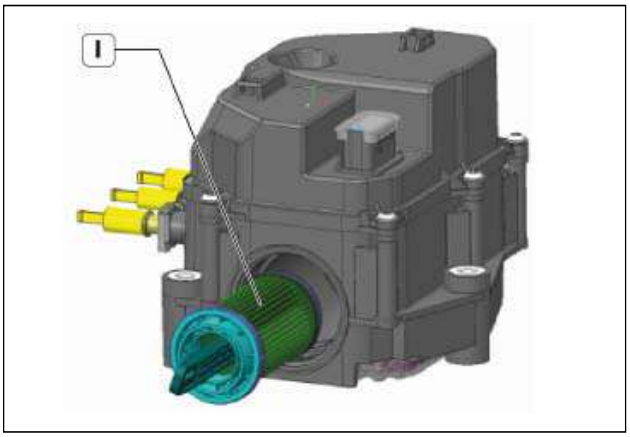
3) Insert the tool in the right direction to disassemble the filter element.



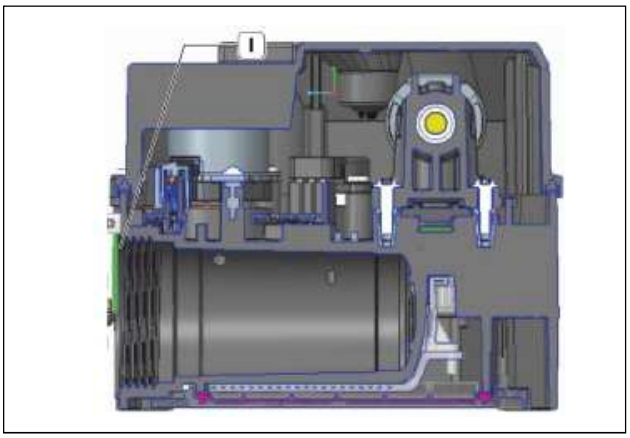
4) Push into the tool straight until a “click” indicates it is properly engaged.



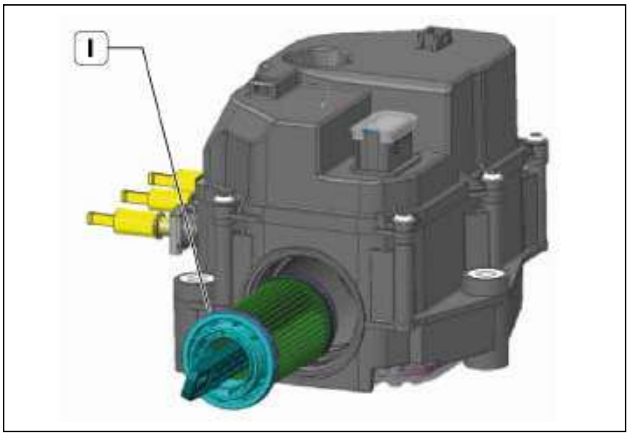
5) Disassemble the filter element.



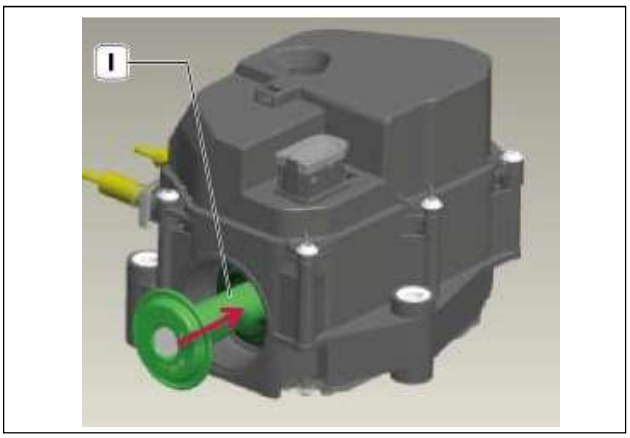
6) Clean the contact surface.



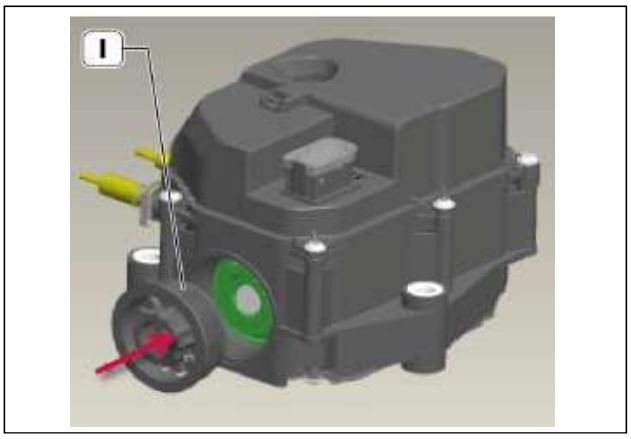
7) Coat the gasket with the DEF/urea solution and assemble the new element.



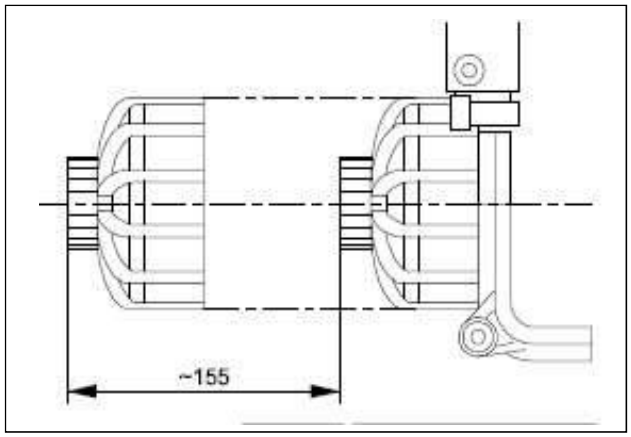
8) Insert the new element support properly.



9) Assemble the filter cover.
Recommended torque : 20N.m



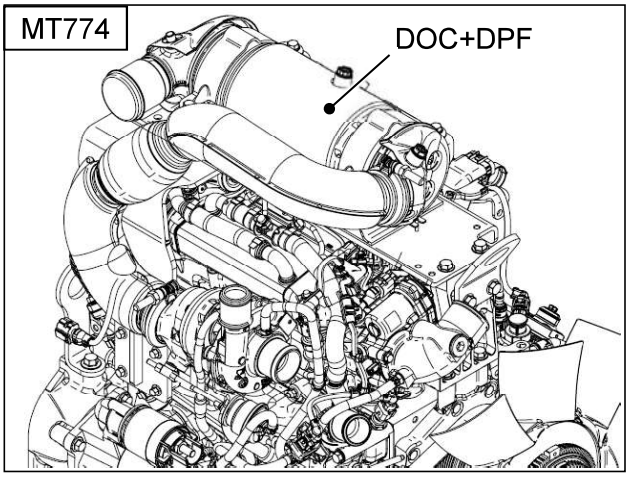
Notice	▶ When replacing the filter element, the space for assembly/disassembly is needed minimum 141~155mm.



5-13. Every 4000 hour check

(1) Replacing DOC + DPF (MT774 model only)

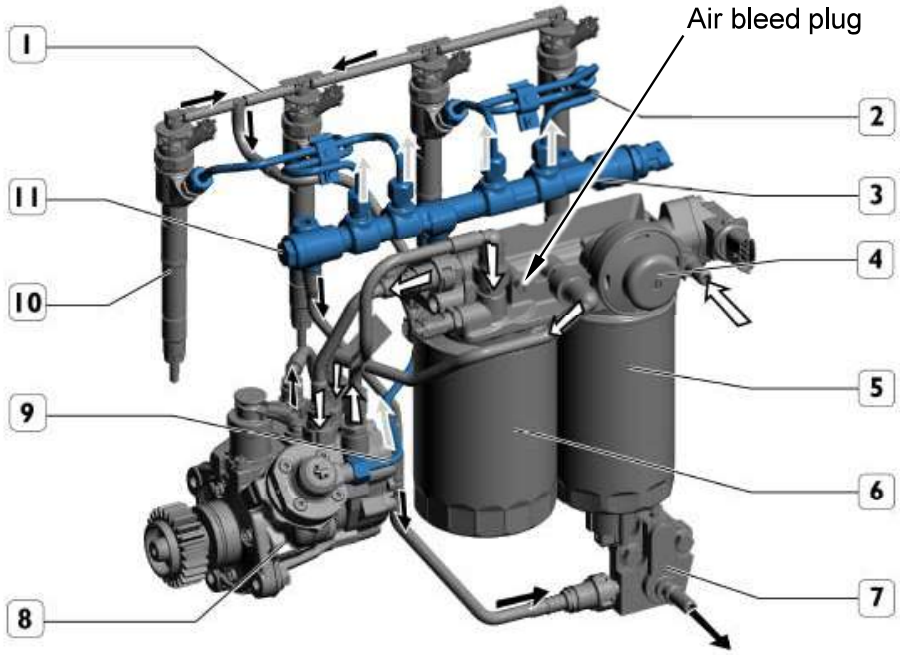
- DOC+DPF is a major component related to exhaust gas emission regulations.
- These parts should be inspected regularly for DOC+DPF problems.
- However, this part must be inspected by an experienced service expert, so please contact your authorized local dealer or service center for inspection and replacement.



5-14. General maintenance (When required)

(1) Air-bleeding from Fuel system

● Air in the fuel system may cause weak fuel injection or a failure of engine start or stop. To prevent such a failure, bleed air from the fuel system.



1. Fuel return line (Injector ~ Fuel return coupler)
2. Fuel injection pipes (Common rail ~ Injector)
3. Common rail
4. Manual feed pump
5. Fuel pre-filter
6. Fuel main filter
7. Fuel return coupler
8. High pressure pump
9. Fuel pressure pipe (Pump ~ Common rail)
10. Injector
11. Relief valve

⚠ Danger	▶ HIGH PRESSURE FUEL. When the engine is running, do not loosen the fuel injection pipes to bleed air from the fuel system.

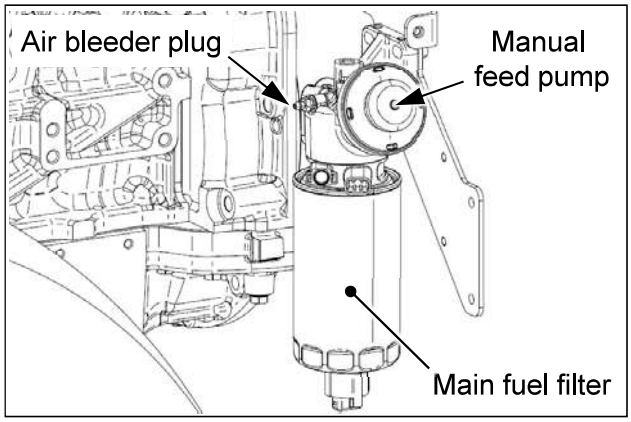
⚠ Caution	▶ Do not adjust or modify the fuel injection system arbitrarily. This will alter the emission of exhaust fumes and engine performance.

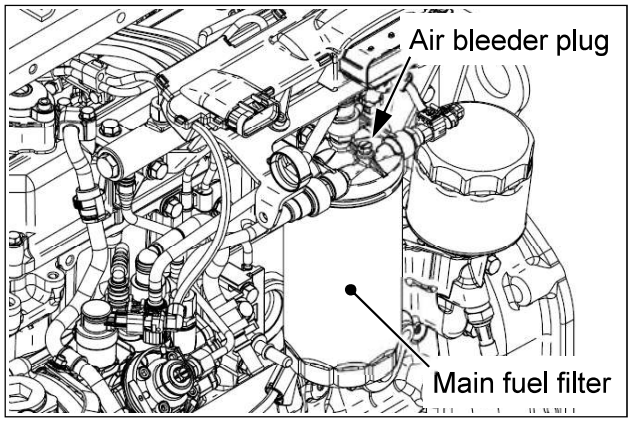
Notice	▶ When replacing fuel filter only, air-bleeding from fuel injection pipe is not necessary.

① Air-bleeding from Fuel filter (MT774 model only)

- After replacing the main fuel filter or fuel pre-filter, you must bleed out the air in the fuel filter. Proceed as follows:

1. Install a cloth or clean container at the bottom of the air bleeder plug.
2. Press the manual feed pump repeatedly.
3. Use a wrench to loosen the air bleeder plug and discharge the fuel containing air. Close the air bleeder plug while checking the condition of the fuel flowing out.
4. At this time, if fuel containing air bubbles flows out, repeat steps 1 and 3. Air bleed is complete when clean fuel without air bubbles flows out.
5. After finishing air bleed, tighten the air bleeder plug. (Tightening torque: 18±2 N.m (13.3 lb-ft))



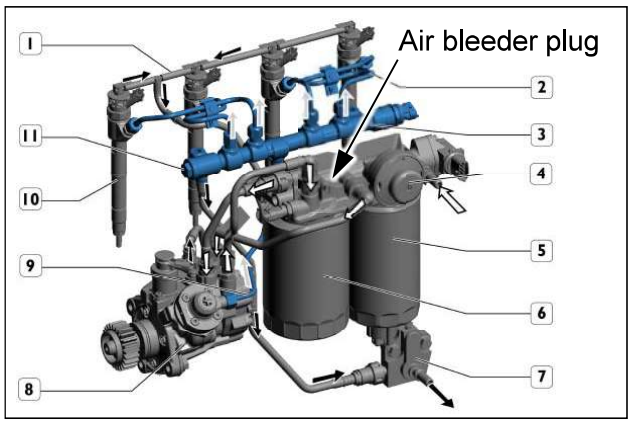


⚠Warning	▶ Fuel leaked or spilled onto hot surfaces or electrical components can cause a fire. To help prevent possible injury, turn the key switch off when changing fuel filters or water separator elements. Clean up fuel spills immediately.

⚠Caution	▶ Do not allow dirt to enter the fuel system. Thoroughly clean the area around a fuel system component that will be disconnected. Fit a suitable cover disconnected fuel system component. Do not fill the new filter with fuel. Invisible fine contaminants can enter the injection pump and it may cause damage to the fuel injection system.

⚠Caution	▶ Cover the bleeding fuel with a rag so that it does not flow into other components. ▶ Do not throw the exhausted waste fuel to any place. This may pollute the soil and water seriously and also is prohibited legally. If violating, you would be responsible for that by civil or criminal case. The waste oil must be disposed according to the environmental laws.

② Air-bleeding from Fuel filter (MT7101 model only)



- After replacing the main fuel filter or fuel pre-filter, you must bleed out the air in the fuel filter. Proceed as follows:

1. Install a cloth or clean container at the bottom of the air bleeder plug.
2. Press the manual feed pump **(4)** repeatedly.
3. Use a wrench to loosen the air bleeder plug and discharge the fuel containing air. Close the air bleeder plug while checking the condition of the fuel flowing out.
4. At this time, if fuel containing air bubbles flows out, repeat steps 1 and 3. Air bleed is complete when clean fuel without air bubbles flows out.
5. After finishing air bleed, tighten the air bleeder plug. (Tightening torque: 18±2 N.m (13.3 lb-ft))

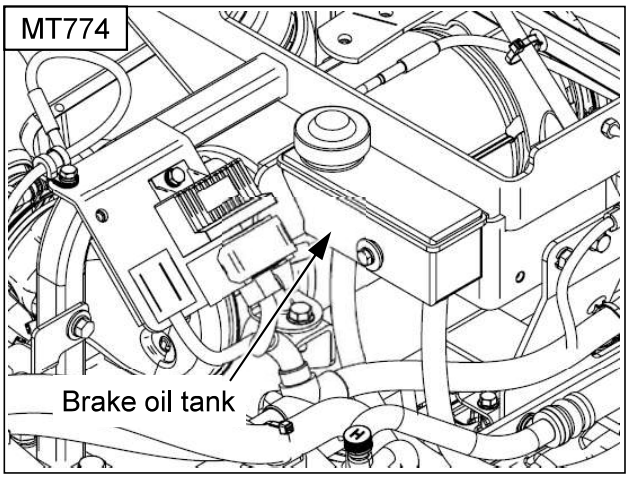
⚠Warning	▶ Fuel leaked or spilled onto hot surfaces or electrical components can cause a fire. To help prevent possible injury, turn the key switch off when changing fuel filters or water separator elements. Clean up fuel spills immediately.

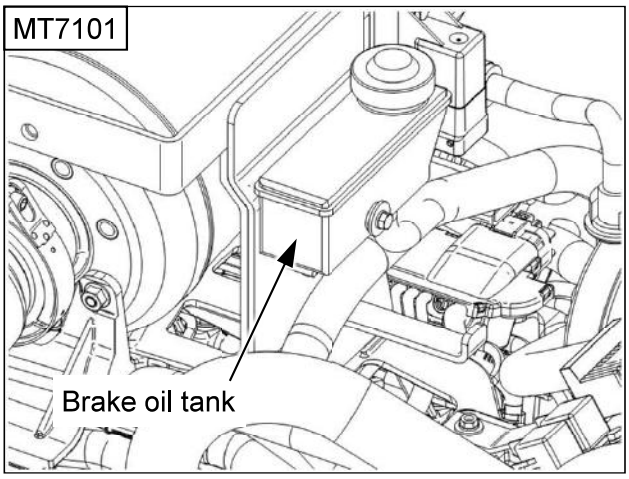
⚠Caution	▶ Do not allow dirt to enter the fuel system. Thoroughly clean the area around a fuel system component that will be disconnected. Fit a suitable cover disconnected fuel system component. Do not fill the new filter with fuel. Invisible fine contaminants can enter the injection pump and it may cause damage to the fuel injection system.

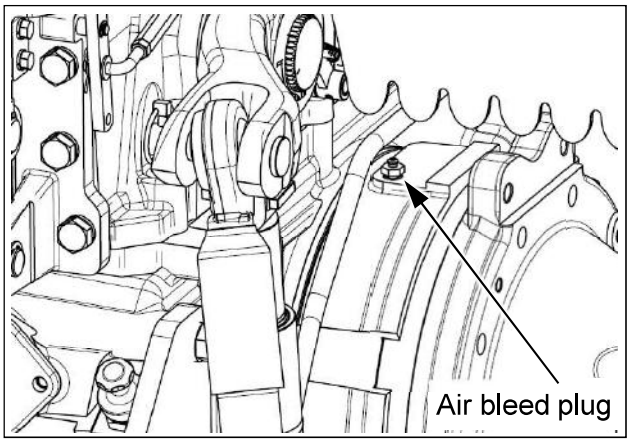
⚠Caution	▶Cover the bleeding fuel with a rag so that it does not flow into other components. ▶Do not throw the exhausted waste fuel to any place. This may pollute the soil and water seriously and also is prohibited legally. If violating, you would be responsible for that by civil or criminal case. The waste oil must be disposed according to the environmental laws.

(2) Air-bleeding from brake lines

1. As the brake system of this tractor is separated into the left and right brake, air-bleed must be carried out separately.
2. Stop the engine and apply parking brake. Open the bonnet and fill the brake oil tank with new oil sufficiently. *For oil specification and capacity, see chapter 5-3, "Lubricants and Capacity" or the last page in this manual.*
3. Release the left/right connecting pin of the brake pedals.
4. Loosen the air-bleed plug slightly installed on top of the brake housing, and press and hold the brake pedal down slowly up to full stroke.
5. Fasten the plug slightly, and then release the brake pedal. Repeat procedure 4~5 for several times.
6. Check the brake oil level frequently and fill the tank during the air bleeding procedure.
7. If there is no bubbles coming out through the air bleed plug, check the brake pedal pressure and balance and tighten the air bleed plug.

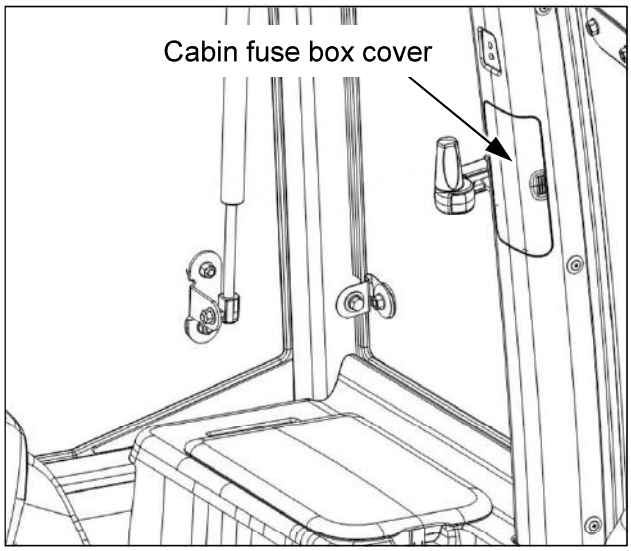






(3) Fuse & Main fuse

① Cabin fuse box



- The cabin fuse box is installed on the left cabin filler.
- How to replace the fuse.

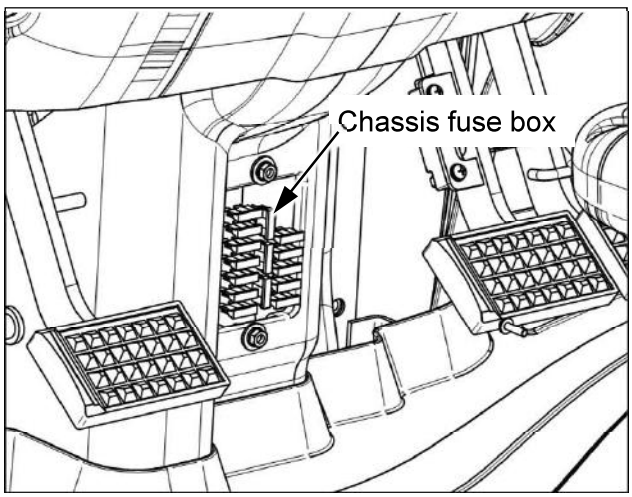
1. Remove the fuse box cover.
2. Check if each fuse is damaged or not.
3. Replace it with a new one as same as damaged fuse if necessary.

- The capacity and function of each fuse is described in the cover of fuse box.

< Cabin fuse box >

⚠Caution	▶ If the same function fuse is damaged repeatedly, contact your authorized local dealer for check. Do not use a substitute such as wire or aluminum foil. ▶ If using the substitute instead of the rated capacity fuse, it may cause a fire which results in damage of the tractor or serious personal injury.

② Chassis fuse box (MT7101 only)



- The chassis fuse box is installed under the front console cover.
- How to replace the fuse.

1. Remove the fuse box cover.
2. Check if each fuse is damaged or not.
3. Replace it with a new one as same as damaged fuse if necessary.

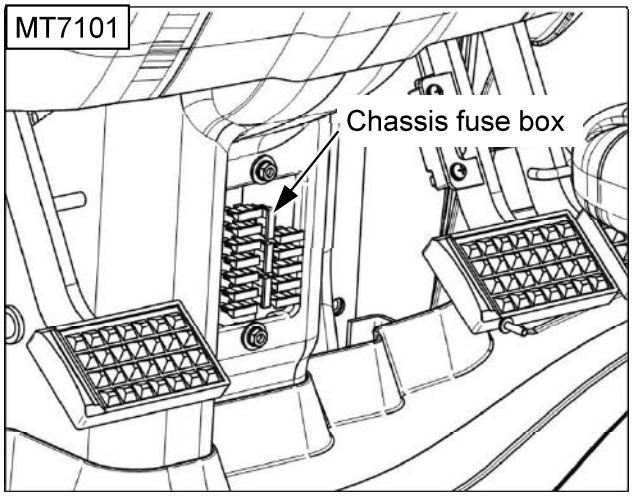
- The capacity and function of each fuse is described in the cover of fuse box.

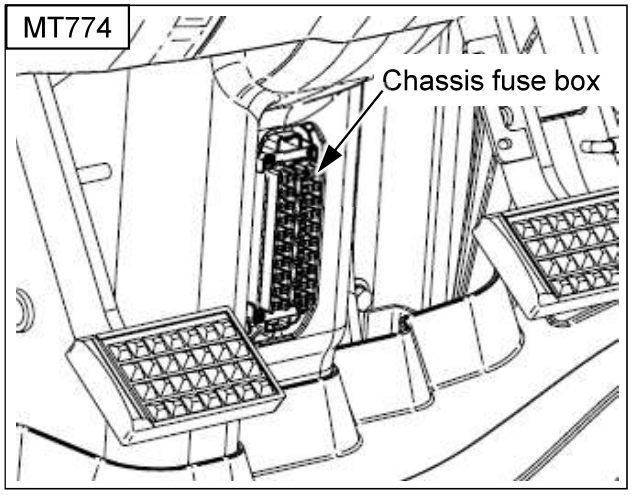
② Chassis fuse box

- The chassis fuse box is installed under the front console cover.
- How to replace the fuse.

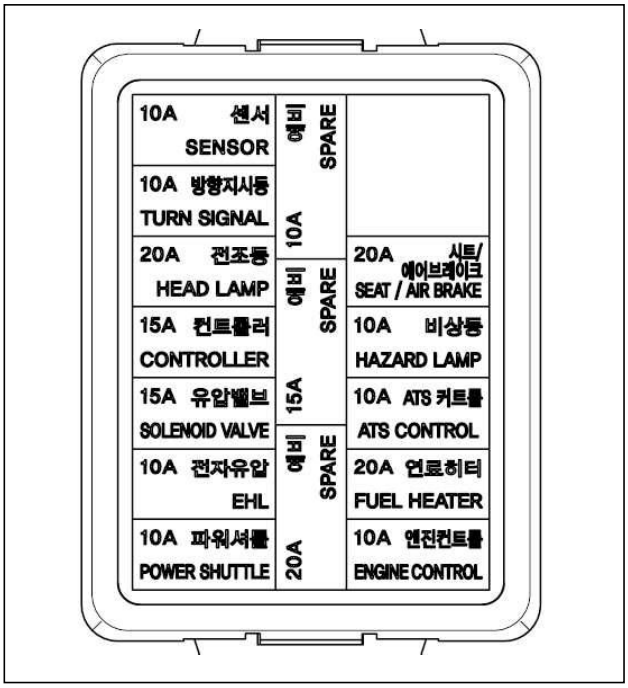
1. Remove the fuse box cover.
2. Check if each fuse is damaged or not.
3. Replace it with a new one as same as damaged fuse if necessary.

- The capacity and function of each fuse is described in the cover of fuse box.



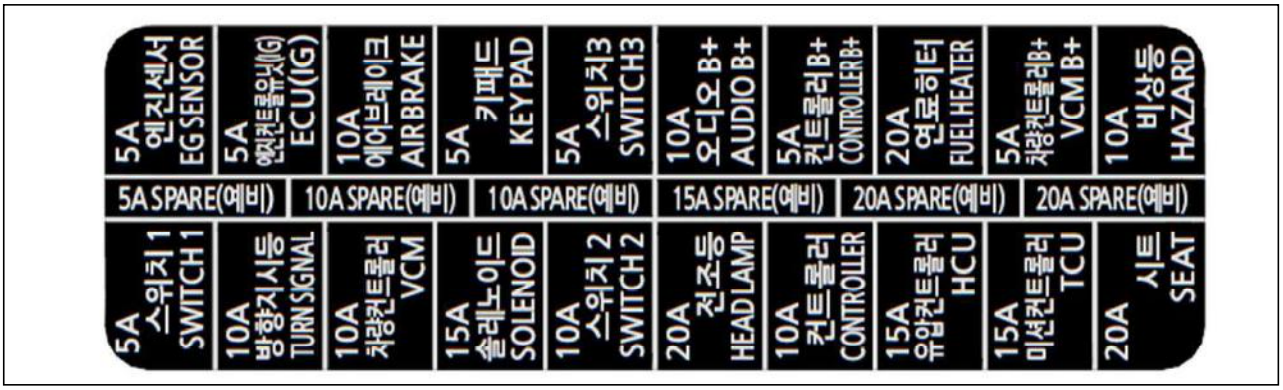


ⓐ Fuses and Function Description for MT7101 models



Wiring spec.	Connection circuit	Fuse spec.	Remark
1.25BnB	1 — 13	10A	Sensor
1.25YB	2 — 14	10A	Turn signal
2RL	3 — 15	20A	Head light
1.25WGn	4 — 16	15A	Controller
2WB	5 — 17	15A	Solenoid VV
0.85YGn	6 — 18	10A	EHL
0.85YL	7 — 19	10A	Power shuttle
1.25Bn	8 — 20	20A	Seat/Air brake
2WR	Main common terminal is connected on 13, 14		
1.25P	9 — 21	10A	Hazard light
1.25BGn	10 — 22	10A	ATS control
2W	11 — 23	20A	Fuel heater
3RL	ECU common terminal is connected on 21		
1.25LY	12 — 24	10A	Engine control

ⓑ Fuses and Function Description for MT774 models



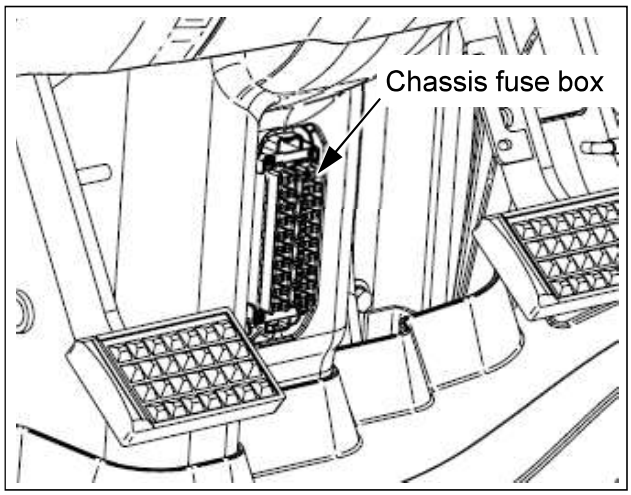
Wiring spec.	Connection circuit	Fuse spec.	Remark
0.85BnR	1-11	5A	SWITCH 1
1.25YB	2-12	10A	TURN SIGNAL
0.85W	3-13	10A	VCM
1.25WY	4-14	15A	SOLENOID
0.85L	5-15	10A	SWITCH 2
2.0LR	6-16	20A	HEAD LAMP
0.85WGn	7-17	10A	CONTROLLER
0.85YGn	8-18	15A	HCU
0.85YL	9-19	15A	TCU
1.25Bn	10-20	20A	SEAT
0.85BnB	31-21	5A	EG SENTOR
0.85Lt	32-22	5A	ECU(IG)
0.85WB	33-23	10A	AIR BRAKE
0.85Gn	34-24	5A	KEYPAD
0.85WL	35-25	5A	SWITCH 3
2WR	Connect IG power common terminal to 15.16 and connection terminal 11.21 to 2WR wire		
0.85P	36-26	10A	AUDIO B+
0.85PB	37-27	5A	CONTROLLER B+
2.0Y	38-28	20A	FUEL HEATER
0.85BR	39-29	5A	VCM B+
0.85PL	40-30	10A	HAZARD
3.0RL	B+ power common terminal is connected to No. 26		

③ Chassis fuse box (MT774 only)

- The chassis fuse box is installed under the front console cover.
- How to replace the fuse.

1. Remove the fuse box cover.
2. Check if each fuse is damaged or not.
3. Replace it with a new one as same as damaged fuse if necessary.

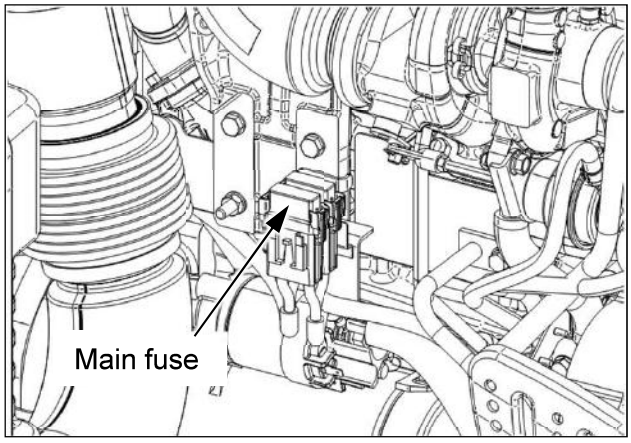
- The capacity and function of each fuse is described in the cover of fuse box.



Wiring spec.	Connection circuit	Fuse spec.	Remark
0.858BnR	1 — 11	5A	Switch 1
1.25YB	2 — 12	10A	Turn signal
0.85W	3 — 13	10A	VCM
1.25WY	4 — 14	15A	Solenoid
0.85L	5 — 15	10A	Switch 2
2.0LR	6 — 16	20A	Head Lamp
0.85WGn	7 — 17	10A	Controller
0.85YGn	8 — 18	15A	HCU
0.85YL	9 — 19	15A	TCU
1.25Bn	10 — 20	20A	Seat
0.85BnB	31 — 21	5A	EG Sensor
0.85Lt	32 — 22	5A	ECU(IG)
0.85WB	33 — 23	10A	Air Brake
0.85Gn	34 — 24	5A	Keypad
0.85WL	35 — 25	5A	Switch 3
2WR	Connect the IG power common terminal to 15 and 16, and connect terminals 11 and 21 with 2WR WIRE.		
0.85P	36 — 26	10A	Audio B+
0.85PB	37 — 27	5A	Controller B+
2.0Y	38 — 28	20A	Fuel Heater
0.85BR	39 — 29	5A	VCM B+
0.85PL	40 — 30	10A	Hazard
3.0RL	B+ power common terminal is connected on 26		

④ Main fuse check and replacement

- The main fuse is attached to the right side of the engine.
- If the main fuse is damaged, replace it with a genuine part having same rated capacity.
  Rated capacity : 80 A
- As the main fuse is a device to protect electric system and wirings, if damaged, check if there is a trouble in the electric system. Contact your authorized local dealer for check.



⚠ Caution	▶ The main fuse is an important part to protect the electric system and components. If the main fuse is often burn out, contact your authorized local dealer. ▶ Do not use a substitute instead of the rated genuine fuse. Do not connect electric wires to the battery terminals directly. It may cause a fire and serious injury.

(4) Battery handling and Notices

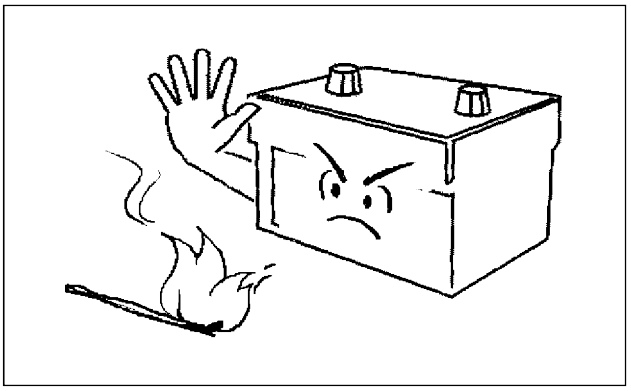
※ **Battery fluid (Electrolyte) is a solution of water and sulfuric acid. It makes poisonous gas which is very harmful to eyes, skin and clothing. And also this gas is explosive. Read the following instructions thoroughly before handling the battery.**

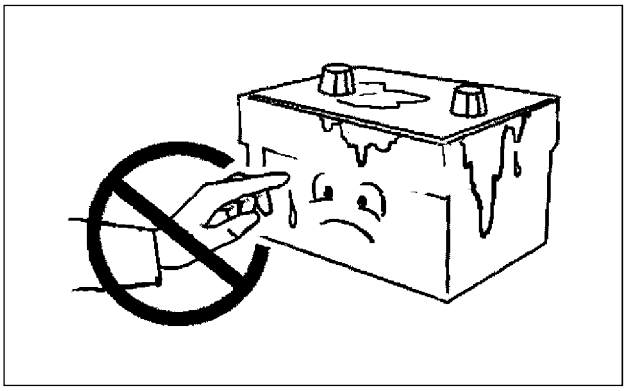
① Battery check

● **Indicator(if fitted)** on the top of the battery displays the battery state. If the indicator color is;

- **GREEN** : Normal state.
  If the engine does not start despite of green color, contact your authorized local dealer.
- **CLEAN** : Low charging state – charge the battery.
- **WHITE or RED** : Replace the battery with a new one after checking the vehicle.

● If the terminals of battery harness are loosened, tighten it completely.
If the terminals of battery are corroded, clean it with warm water and apply grease.

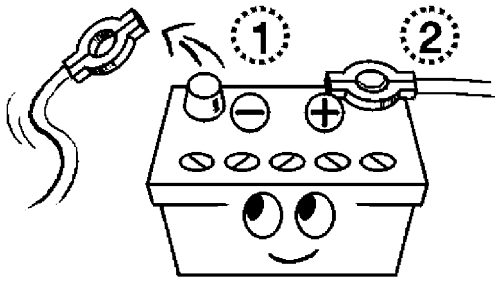




Caution	
	▶ The poisonous gases from the battery are explosive. Comply with the following instructions. - Keep cigarettes, sparks and flames away from the battery. Use a flashlight to check the battery electrolyte level or indicator. - Never check the battery voltage by shorting the terminals with metal objects. Use a voltmeter or hydrometer. - Always remove the grounded (-) battery clamp first and assemble it last. If not, it can cause an explosion by spark.
	▶ Sulfuric acid in the battery electrolyte is poisonous. It is strong enough to burn skin, clothing and it can cause blindness if splashed into the eyes. - Never disassemble the battery. - Do not touch the battery or liquid by bare hand without gloves or any protection. - Flush eyes with clean water for about 20 minutes if the electrolyte is splashed into your eyes, and get medical attention immediately.
	▶ Charge the battery in an area with good ventilation and DO NOT charge a frozen battery.
	▶ Replace the old battery with a same capacity genuine product.

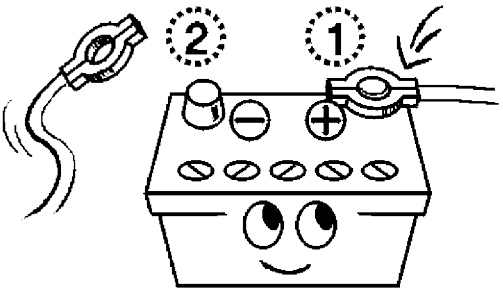
② Notices in attaching/detaching the battery

- When detaching battery, remove the negative(-) terminal from the battery first.
  If not, when metal object is contacted between positive(+) terminal and the body, it may cause the dangerous spark.



< When detaching >

- When attaching the battery, the positive (+) terminal must be attached first and the negative (-) terminal must be connected last.



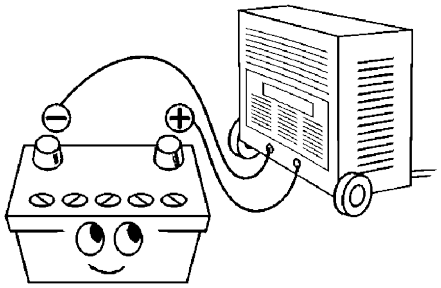
< When attaching >

Caution	▶ Stop engine and apply parking brake and remove the ignition key before replacing the battery.
	▶ Put on eye protection and globes to protect your body from poisonous sulfuric acid before handling the battery.
	▶ Always remove grounded (-) battery clamp first and assemble it last. If not, it can cause an explosion by spark.
	▶ Keep all flames and sparks away and DO NOT smoke while charging the battery.
	▶ Replaced old battery must be disposed of in a suitable manner, according to the national legislation or local regulations. Contact your authorized dealer.
	▶ Replace the old battery with a same capacity genuine product.

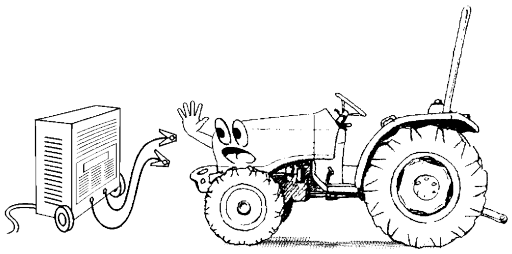
③ Notices in charging the battery using separate charger

- As the battery fluid makes poisonous gas which can explode during the charging, comply with the following instructions.

1. Detach battery from the tractor.
2. Wait until the battery is warmed to room temperature.
3. Connect the cable of charger to the (+), (-) terminal of the battery correctly.
   - Connect (+) charger cable to (+) battery terminal. : Red color
   - Connect (–) charger cable to (–) battery terminal. : Black color
4. Plug in charger cord.
5. Charge battery with a “SLOW CHARGE”.
6. Check the charging current and temperature of electrolyte during the charging.
7. Unplug charge cord and remove charger cables.
8. Attach battery to the tractor.



< when connecting the charger >



< Do not charge the attached battery>

⚠ Caution	▶ Put on eye protection and globes to protect your body from poisonous sulfuric acid before handling the battery .
	▶ Always remove grounded (-) battery clamp first and assemble it last. If not, it can cause an explosion by spark. ▶ Keep all flames and sparks away and DO NOT smoke while charging the battery.
	▶ Detach the battery from your tractor before charging. DO NOT charge directly while the battery is attached to the tractor. ▶ Turn off or unplug the charger cord, before connecting or disconnecting the charger cable to or from the battery.
	▶ Charge the battery in an area with good ventilation. ▶ Do not charge the frozen battery. ▶ Use the rated 12V-5A charger. ▶ Never check the battery voltage by shorting the terminals with metal objects.

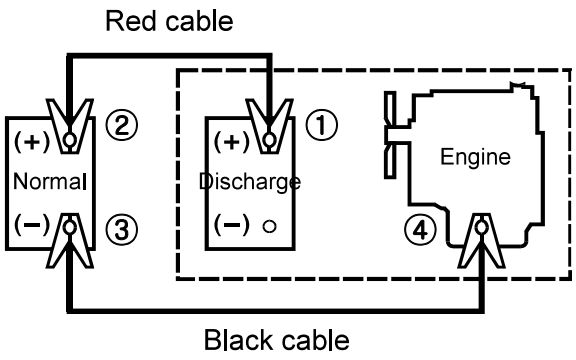
④ How to use jumper cables

※ If the battery which is attached to the tractor is discharged and needs to connect an auxiliary battery, follow the instructions as below.

ⓐ Connecting Jumper cables

- Check the followings before connecting the cables.
  - Is the spring of clamp normal?
  - Is the cable and clamp cut-off?

1. Stop engine, apply parking brake and remove the ignition key.
2. Connect two (+) terminals of both batteries with red cable.
   (tractor battery-①, auxiliary battery-②)
3. Connect one end of black cable to (-) terminal(③) of auxiliary battery and the other end to engine block desired to start (④).
4. Start engine. If the engine does not start, check the electrolyte level of each battery.

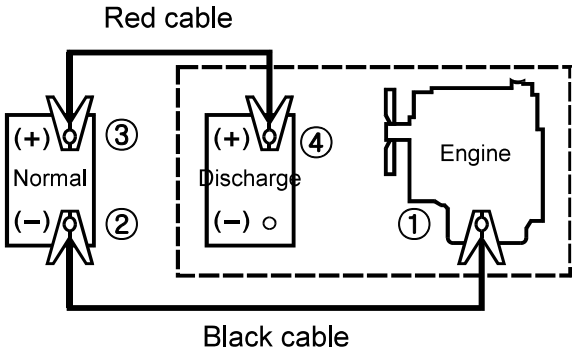


< Connecting order of jumper cables >

Caution	▶ The toxic gases from battery can be exploded by spark. Keep all flames and sparks away and DO NOT SMOKE while charging the battery.
	▶ The negative(-) terminal of the auxiliary battery must be connected to the engine block, not to the negative(-) terminal of the tractor battery.

ⓑ Removing Jumper cables

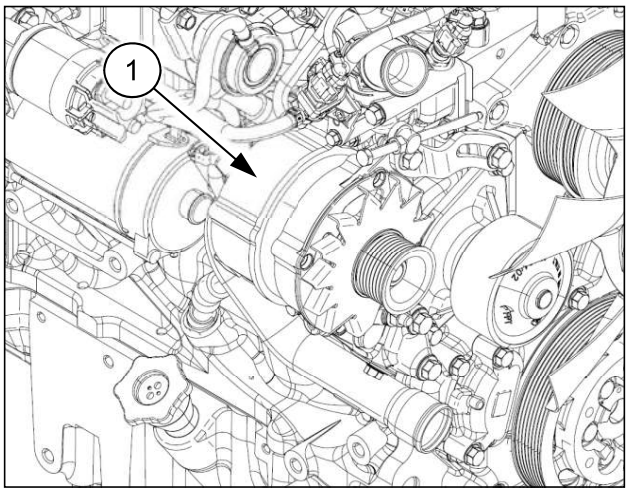
- Remove jumper cables as shown in the right figure, “Removing order of jumper cables”.



< Removing order of jumper cables >

Notice	▶ Pay attention not to change the (+) and (-) pole. Otherwise, it may cause a failure of electric circuit or damage of the wire and even the polarity of the battery can be changed in an over-discharged state.

(5) Alternator and drive belt - Check

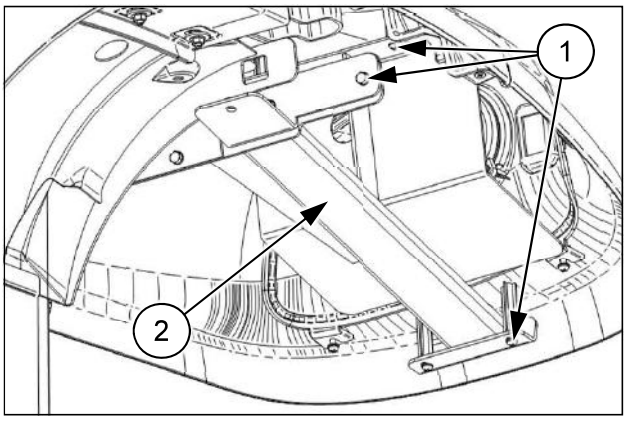


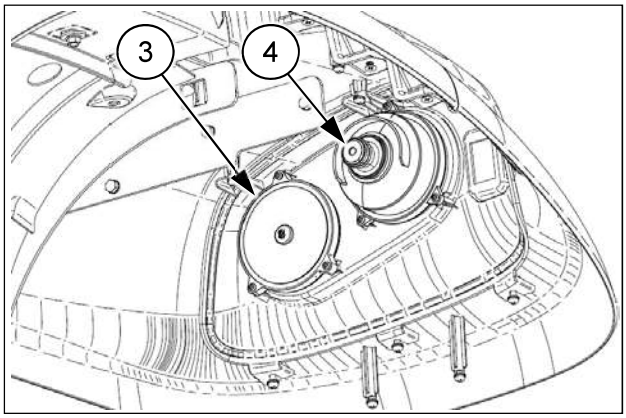
- The tractor alternator① is belt-driven from the engine crankshaft pulley. It is important that belt slippage does not occur, or the charging system will be affected.
  To adjust the fan belt, see page 5-35.
- Required alternator periodical maintenance:
  - Belt adjustment
  - Inspect alternator terminals
  - Clean alternator cooling fan fins
- When working on or checking the alternator, adhere to following precautions. Otherwise, alternator damage may occur:
  - Do not UNDER ANY CIRCUMSTANCES short the field terminal of the alternator to ground.
  - Do not disconnect the alternator output lead or battery cables while the alternator is operating.
  - Do not remove the alternator from the tractor without first disconnecting the negative (-) battery cable. When removing the battery, disconnect the negative (-) cable first.
  - To install a battery, MAKE SURE that the positive (+) cable is connected first and that the negative terminal is connected to ground. Reverse polarity will destroy the rectifier diodes in the alternator.

NOTE: *If the battery charge warning indicator illuminates, indicating that the alternator is not charging the battery, check the fan belt and the wiring connections. If these items are in satisfactory condition and the warning light continues to indicate no charge, contact your authorized local dealer.*

(6) Turn signal light bulb – Replace (Bulb type)

① Rear turn signal light bulb – replacement

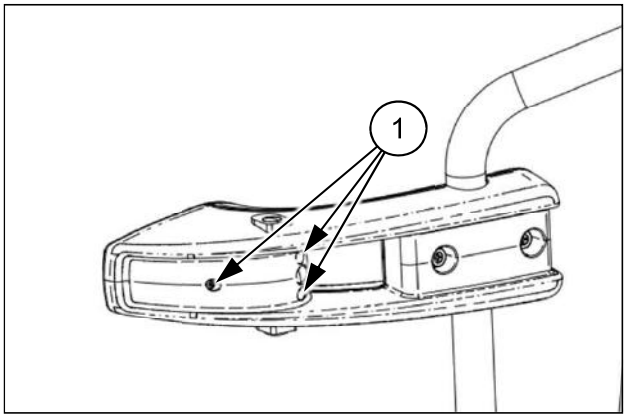


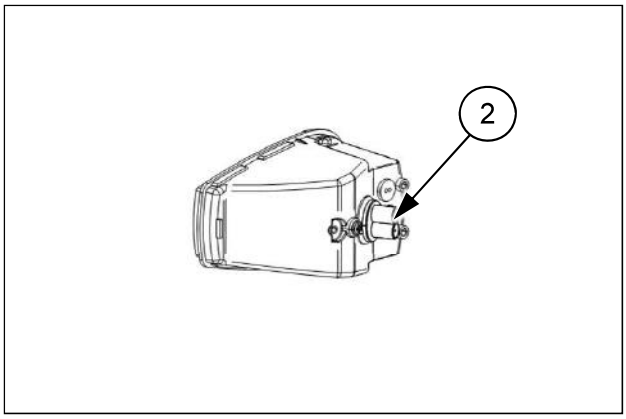


1. Unscrew the locking screws① and remove the rear mud guard bracket②.
2. Turn the socket of the turn signal light④ counter-clockwise to remove the socket from the housing.
3. Push in on the turn signal light bulb and rotate counter-clockwise in the socket to remove the old bulb.
4. Insert the new bulb into the socket and turn the bulb in a clockwise direction until tightened.
5. Install the socket, and assemble the rear mug guard bracket② with locking screws①.

NOTE: *For about bulb specification, refer to the chapter 5-6-(4) in this manual.*

② Front turn signal light bulb – replacement



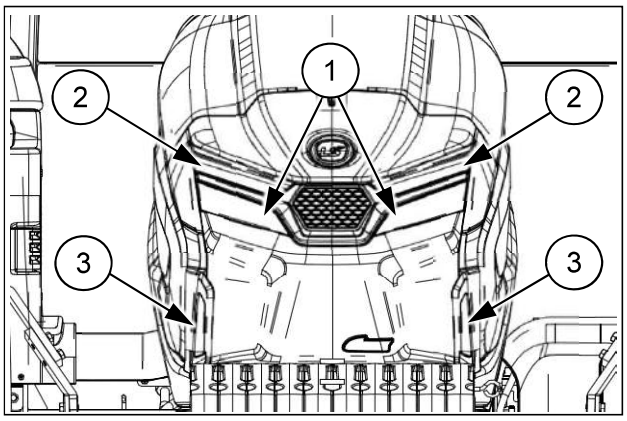


1. Remove the three screws① retaining the turn signal light assembly and remove the assembly.
2. Turn the socket counter-clockwise and remove the socket from the housing.
3. Push in on the turn signal light bulb and rotate counterclockwise in the socket to remove the old bulb.
4. Insert the new bulb into the socket and turn the bulb in a clockwise direction until tightened.
5. Install the socket to the housing.
6. Install the turn signal light assembly to the cover and tighten the retaining screws.

NOTE: *For about bulb specification, refer to the chapter 5-6-(4) in this manual.*

(7) Headlight bulb and work lamp bulb - Replace

- Low beam, high beam headlights and grill work lights are LED type and the bulbs cannot be replaced by user. Contact your authorized local dealer to replace the lamps.
  ① Headlights (Low beam)
  ② Headlights (High beam)
  ③ Lower grill work lights



(8) Touch-up paint color

- The following color specifications are recommended for touch-up paint repairs. For the details, contact your authorized local dealer.
- You can use acryl urethane paint.

Color for Cabin models	Parts	Munsell number
Deep Sky Blue	Hood, Fenders, Roof	8.41B 3.59/10.99
Gray N1	Right-hand remote control lever guide, right-hand switch cover.	N1
Gray N2	Left/Right-hand interior trims, Front IP center cover.	N2
Gray N3	Left/Right-hand control covers, Front IP side covers, Steering column covers, Instrument upper cover, Cabin pillar covers.	N3
LS Metallic Silver	Front and rear wheels.	-
Black	Transmission case, Front axle.	N1.0

5-15. Troubleshooting

⚠ Warning	▶ To avoid injury due to sudden start, apply parking brake and place the transmission gear in “Neutral”.

System	Faults	Possible causes	Solutions
Engine	The start motor does not turn when turning the key switch.	▲ Start safety switch is not contacted ▲ PTO switch is not on “OFF” position ▲ Discharge of battery ▲ Terminal loosened ▲ Key switch failure ▲ Start motor failure	▲ Depress the clutch pedal fully ▲ Place PTO switch on “OFF” position ▲ Charge or replace ▲ Tighten ▲ Repair or replace ▲ Repair or replace
	The start motor turns but the engine does not start.	▲ The battery is weak ▲ bad ground ▲ Improper viscosity of engine oil ▲ Air in fuel system ▲ Fuel filter clogged ▲ Error in engine body ▲ Fuel cock closed	▲ Charge or replace ▲ Tighten the ground ▲ Replace the oil with proper viscosity ▲ Bleed the air ▲ Wash or replace the filter ▲ Repair ▲ Open the cock
	Engine revolution is irregular.	▲ Air in fuel system ▲ Fuel filter clogged ▲ Injection nozzle clogged ▲ Fuel leakage ▲ Irregular fuel injection	▲ Bleed air ▲ Clean or replace the filter ▲ Repair or replace ▲ Repair ▲ Repair
	Engine turns more than maximum speed.	▲ Impurities in governor	▲ Repair
	Engine stops suddenly during operation.	▲ Fuel shortage ▲ Fault of nozzle ▲ moving parts failure due to bad lubrication	▲ Add fuel and bleed air ▲ Repair or replace ▲ Repair
	Engine stops at low rpm.	▲ Fault of injection pump ▲ Valve gap is not correct ▲ Poor nozzle pressure	▲ Repair ▲ Adjust the gap ▲ Repair

System	Faults	Possible causes	Solutions
Engine	Engine overheat	▲ Lack of engine coolant ▲ Bad fan belt tension or broken ▲ Dirt attached to the radiator	▲ Supplement ▲ Adjust belt tension or replace ▲ Clean
	The color of exhausted smoke is white.	▲ Air cleaner clogged ▲ Engine oil exceeded ▲ Lack of fuel supply	▲ Wash element ▲ Adjust in proper level ▲ Repair
	The color of exhausted smoke is black.	▲ Bad quality of fuel ▲ Oversupply of fuel ▲ Fault of nozzle	▲ Use good quality fuel ▲ Repair ▲ Repair
	Engine power is low.	▲ Injection nozzle clogged ▲ Carbon piled to valve seat ▲ Bad adjustment of valve gap ▲ Bad injection timing ▲ Lack of fuel supply ▲ Air cleaner clogged	▲ Repair ▲ Repair ▲ Repair ▲ Repair ▲ Check fuel system ▲ Clean or replace
	Engine oil pressure indicator is ON during operation.	▲ Lack of engine oil ▲ Low viscosity of engine oil ▲ Warning light switch error ▲ Fault of oil pump ▲ Oil filter element is clogged	▲ Supplement ▲ Replace the proper oil viscosity ▲ Replace ▲ Repair ▲ Replace element
	Battery charging indicator is ON during operation	▲ Abnormal wiring ▲ Fault of alternator ▲ Fault of battery ▲ Bad fan belt tension or broken	▲ Check battery terminals and ground, repair ▲ Repair or replace ▲ Replace ▲ Adjust belt tension or replace
	Electronic control errors	▲ Fault of electric sensors or wire harness or ECU	▲ Contact your authorized local dealer.
Clutch	Clutch is slipped.	▲ Wrong clutch pedal play ▲ Friction lining worn or broken	▲ Adjust ▲ Replace
	Clutch does not cut-off.	▲ Lining damaged ▲ Wrong clutch pedal play	▲ Repair or replace ▲ Adjust

System	Faults	Possible causes	Solutions
Brake	Brake does not work or only one side works.	▲ Wrong brake pedal play ▲ Lining worn or broken ▲ Left/right pedal play is different ▲ Air in brake line	▲ Adjust ▲ Replace ▲ Adjust ▲ Bleed air
	After brake pedal working, it does not return.	▲ Return spring damaged ▲ Lack of grease in shaft parts ▲ Master cylinder seal damaged	▲ Replace the spring ▲ Remove the rust, apply grease ▲ Replace
Hydraulic lift system	The linkage does not move up.	▲ Lack of transmission oil ▲ Air in the suction pipe ▲ Hydraulic filter clogged ▲ Hydraulic pump failure ▲ Control valve failure ▲ Cylinder or cylinder related parts broken	▲ Aid oil ▲ Tighten the filter or replace seal of connecting part ▲ Clean the filter or replace ▲ Repair or replace ▲ Repair or replace ▲ Repair or replace
	Oil leakage	▲ Connecting part loosened ▲ Oil seal damaged ▲ Pipe cracked	▲ Tighten ▲ Replace ▲ Replace
	If lever is placed on the raising position, relief valve sounds off.	▲ Upper limit of position control lever is changed	▲ Adjust the upper limit
	The linkage does not move down.	▲ Down speed control valve locked ▲ Control valve failure ▲ Cylinder damaged ▲ Lift shaft moving part damaged	▲ Turn the knob counter-clockwise ▲ Repair or replace ▲ Replace ▲ Repair or replace

System	Faults	Possible causes	Solutions
Steering System	Hydraulic steering system does not work.	▲ Pump worn or part damaged ▲ Steering unit damaged or worn ▲ Oil leakage by steering cylinder piston seal damaged or worn ▲ Oil leakage by pipe damage	▲ Repair or replace ▲ Repair or replace ▲ Repair ▲ Repair or replace
	Hard to operate the steering wheel.	▲ Steering unit - Steering unit spline and column spline does not aligned - Spool and sleeve damaged by foreign material - Excessive tightening torque of end cap bolt ▲ Pump - Low speed - Wearing, failure ▲ Relief valve - Valve spool clogged - Setting pressure too low	▲ - Check mounted condition of steering unit and column - Replace - Apply regular torque ▲ - Adjust RPM or Repair - Repair or replace ▲ - Repair or replace - Reset or adjust
	Cylinder does not work smoothly as steering wheel movement	▲ Air in steering line if not used for a long time ▲ Air in suction pipe ▲ Piston seal damaged	▲ Bleed air ▲ Repair ▲ Replace
	Steering wheel turns to the opposite direction.	▲ bad assembly of steering gear ▲ bad assembly of steering hose	▲ Repair ▲ Repair
	Oil leakage of steering pump, steering unit, cylinder and fittings	▲ Seal damaged	▲ Replace seal
	Abnormal noise	▲ Lack of oil ▲ Exceeding resistance of suction line ▲ Air in system	▲ Aid oil ▲ Replace filter ▲ Bleed air

System	Faults	Possible causes	Solutions
Electric System	Battery does not charge	▲ Abnormal wiring ▲ Alternator failure ▲ Lack of fan belt tension or broken ▲ Abnormal battery	▲ Check the tightening state of terminals and ground ▲ Repair or replace ▲ Adjust fan belt tension or replace ▲ Replace
	Headlight is dark.	▲ Battery capacity is low ▲ Bad wiring and contact	▲ Charge or replace ▲ Check and repair
	Headlight is not ON.	▲ Light bulb cut-off ▲ Fuse blown	▲ Replace ▲ Check the cause, and replace it
	Horn does not sound.	▲ Switch failure ▲ Abnormal wiring ▲ Horn failure	▲ Replace ▲ Repair ▲ Replace
	Turn signal light does not work.	▲ Light bulb cut-off ▲ Bad connection ▲ Fuse blown	▲ Replace ▲ Tighten terminals ▲ Check the cause, and replace it
	Cold start aid indicator is not ON.	▲ Relay and timer damaged ▲ Bad connection of preheat plug wiring	▲ Replace ▲ Check and tighten
	Other illuminating light or indicator is not ON.	▲ Fuse blown ▲ Light bulb cut-off	▲ Check the cause, and replace it ▲ Replace

5-16. Engine manufacturer’s warranty

The following attachment shows warranty terms and conditions for the engine by manufacturer, FPT.

But, the warranty periods of LS Tractor always prevail over the ones mentioned on the attachment by engine manufacturer, FPT.

- Attachment

US Environmental Protection Agency (EPA) Warranty Statement

FPT Industrial S.p.A. warrants to the ultimate purchaser and each subsequent purchaser that the engine is designed, built and equipped so as to conform with US Environmental Protection Agency (EPA) regulations applicable at the time of manufacture and that it is free from defects in workmanship or material which would cause it not to meet these regulations for a period of:

• 2 years or 1,500 hours of operation, whichever occurs first, for engines less than **19 kW** (**25 Hp**)
• 5 years or 3,000 hours of operation, whichever occurs first, for engines greater than or equal to **19 kW** (**25 Hp**)

NOTE: *This warranty applies to all units operated in the United States or Canada.*

Coverage

The model year, class of diesel engine, and emission application determination for your engine are identified on the Emission Control Information Label. This label is affixed to one of the following areas of the engine: the top of engine's rocker arm cover, the right-hand side of the oil pan, and the right-hand side of the engine front gear cover. The warranty period begins on the date the new equipment is sold to the first retail purchaser. The presence of the emission control label is the indication that the engine conforms to the applicable standards. Any emission control system parts which are proven defective during normal use will be repaired or replaced during the warranty period.

The engine owner has responsibility to perform all the required maintenance listed in the Owner's Manual. FPT Industrial S.p.A. will not deny an emission warranty claim solely because no record of maintenance exists; however, a claim may be denied if failure to perform maintenance resulted in the failure of a warranted part.

It is recommended that replacement parts used for maintenance or repairs be FPT Industrial S.p.A. Service Parts to maintain the quality originally designed into your emission certified engine. The use of non- FPT Industrial S.p.A. parts does not invalidate the warranty on other components unless the use of such parts causes damage to warranted parts.

The manufacturer is liable for damages to other engine components caused by the failure of any warranted emission control system part. FPT Industrial S.p.A. is not responsible for failures resulting from improper repair or the use of parts that are not genuine FPT Industrial S.p.A. or FPT Industrial S.p.A. approved parts.

Component coverage

New engines certified for sale and registered will have the following items covered by the emission warranty, depending on the emission level of the engine, if the items were first installed on the new engine as original equipment:

Fuel injection system
• Fuel injection pump
• Fuel injectors
• Fuel injection lines

Air induction system
• Intake manifold
• Turbocharger system (includes exhaust manifold)
• Charge air cooler

Positive Crankcase Ventilation (PCV) system (if applicable)
• PCV valve
• Oil fill cap

Exhaust after treatment Devices (if applicable)
• Diesel Oxidation Catalyst (DOC)
• Diesel Particulate Filter (DPF)
• Selective Catalytic Reduction (SCR)
• Diesel Exhaust Fluid (DEF) tank and dispensing systems

- Attachment

Exhaust Gas Recirculation Systems (EGR)
• EGR valve assembly
• EGR cooler

Cold Start Enrichment Systems

Electronic Control Units, Sensors, Solenoids, and Wiring
harnesses used in above systems

Emissions warranty does not cover

• Repairs arising from storage deterioration, failure to maintain the equipment, negligence, alteration, improper use of the equipment, collision or other accident, vandalism, or other casualty, or operation beyond rated capacity or specification.

• Repairs arising from abuse or neglect, including but not limited to: operation without adequate coolant or lubricants, adjustments to the fuel system outside equipment specifications, over-speeding, improper storage, starting, warm-up, or shutdown practices, incorrect fuel or contaminated fuel, oil or other fluids.

• Normal maintenance services, such as engine tune-ups, engine fuel system cleaning, checks, adjustments, shimming, etc.

• Items replaced due to customer demand.

• Labor charges performed by anyone except a dealer authorized by contract to repair the equipment, unless they qualify under special provisions (i.e. outside labor).

• Any and all travel costs for items such as towing, service calls, or transporting a unit to and from the place where the warranty service is performed.

• Normal maintenance costs, including but not limited to: lubricants, coolants, fluids, fuel, filters, and associated labor. Lubricants, filters, and coolants may qualify for warranty reimbursement if they require replacement as a DIRECT RESULT of a defect in material or workmanship.

• Claims involving the inspection or reconditioning of units after storage or prior use.

• Repairs arising from service performed by agents not approved by [Brand].

• Repairs arising from any unauthorized modification to the product or the use of non- [Brand] parts, implements or attachments.

• Removal, replacement, or installation of non- [Brand] optional equipment, attachments or components.

• Premiums charged for overtime labor costs or out of shop expenses.

• Economic loss including lost profits, crop loss, equipment rental, or other expense.

• Unauthorized modification or updating machines without a warrantable failure.

• Any and all costs of dealer shop supplies incurred with repairs, including but not limited to: solvents, cleaners, anti-seize lubricants, loctite, sealant, adhesive, oil-dry, shop towels, etc.

• Failure of the machine, its implements or attachments caused by improper field application or loading.

• Any and all costs for coolant, fuel, or lube (oil) analysis including supplies and lab recommendations.

• Cost associated with cleaning of machine in preparation for servicing.

- Attachment

CALIFORNIA EMISSION CONTROL WARRANTY STATEMENT
YOUR WARRANTY RIGHTS AND OBLIGATIONS

California Air Resources Board and FPT Industrial S.p.A. are pleased to explain the **emission control system warranty** on **2018 through 2020** off-road diesel engines. In California, new heavy-duty off-road engines must be designed, built and equipped to meet the State's stringent anti-smog standards. **FPT Industrial S.p.A.** must warrant the emission control system on your engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your engine.

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

Where a warrantable condition exists, **FPT Industrial S.p.A.** will repair your heavy-duty off-road engine at no cost to you including diagnosis, parts and labor.

MANUFACTURER'S WARRANTY COVERAGE:

The **2018-2020** heavy-duty off-road engines are warranted for **5 years or 3000 hours, whichever comes first**. If any emission-related part on your engine is defective, the part will be repaired or replaced by **FPT Industrial S.p.A.**.

OWNER'S WARRANTY RESPONSIBILITIES:

- As the off-road engine owner, you are responsible for the performance of the **required maintenance listed in your owner's manual**. **FPT Industrial S.p.A.** recommends that you retain all receipts covering maintenance on your off-road engine, but (manufacturer's name) cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.
- As the off-road engine owner, you should however be aware that **FPT Industrial S.p.A.** may deny you warranty coverage if your off-road engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.
- Your engine is designed to operate on (fuel) only. Use of any other fuel may result in your engine no longer operating in compliance with California's emissions requirements.
- You are responsible for initiating the warranty process. The ARB suggests that you present your off-road engine to a **XXX(FPT CLIENT NAME) DEALER** as soon as a problem exists. The warranty repairs should be completed by the dealer as expeditiously as possible.

If you have any questions regarding your warranty rights and responsibilities, you should contact **NAFTA Technical Service Group at 1-630-481-2905 or email: fpt-na-warranty@fptindustrial.com**.

CALIFORNIA EMISSION CONTROL WARRANTY PARTS LIST

Fuel injection system
- **Fuel injection pump**
- **Fuel injectors**
- **Fuel injection lines**

Air induction system
- **Intake manifold**
- **Turbocharger system (includes exhaust manifold)**
- **Charge air cooler**

Positive Crankcase Ventilation (PCV) system (if applicable)
- **PCV valve**
- **Oil fill cap**

Exhaust after treatment Devices (if applicable)
- **Diesel Oxidation Catalyst (DOC)**
- **Diesel Particulate Filter (DPF)**
- **Selective Catalytic Reduction (SCR)**
- **Diesel Exhaust Fluid (DEF) tank and dispensing systems**

Exhaust Gas Recirculation Systems (EGR)
- **EGR valve assembly**
- **EGR cooler**

Cold Start Enrichment Systems

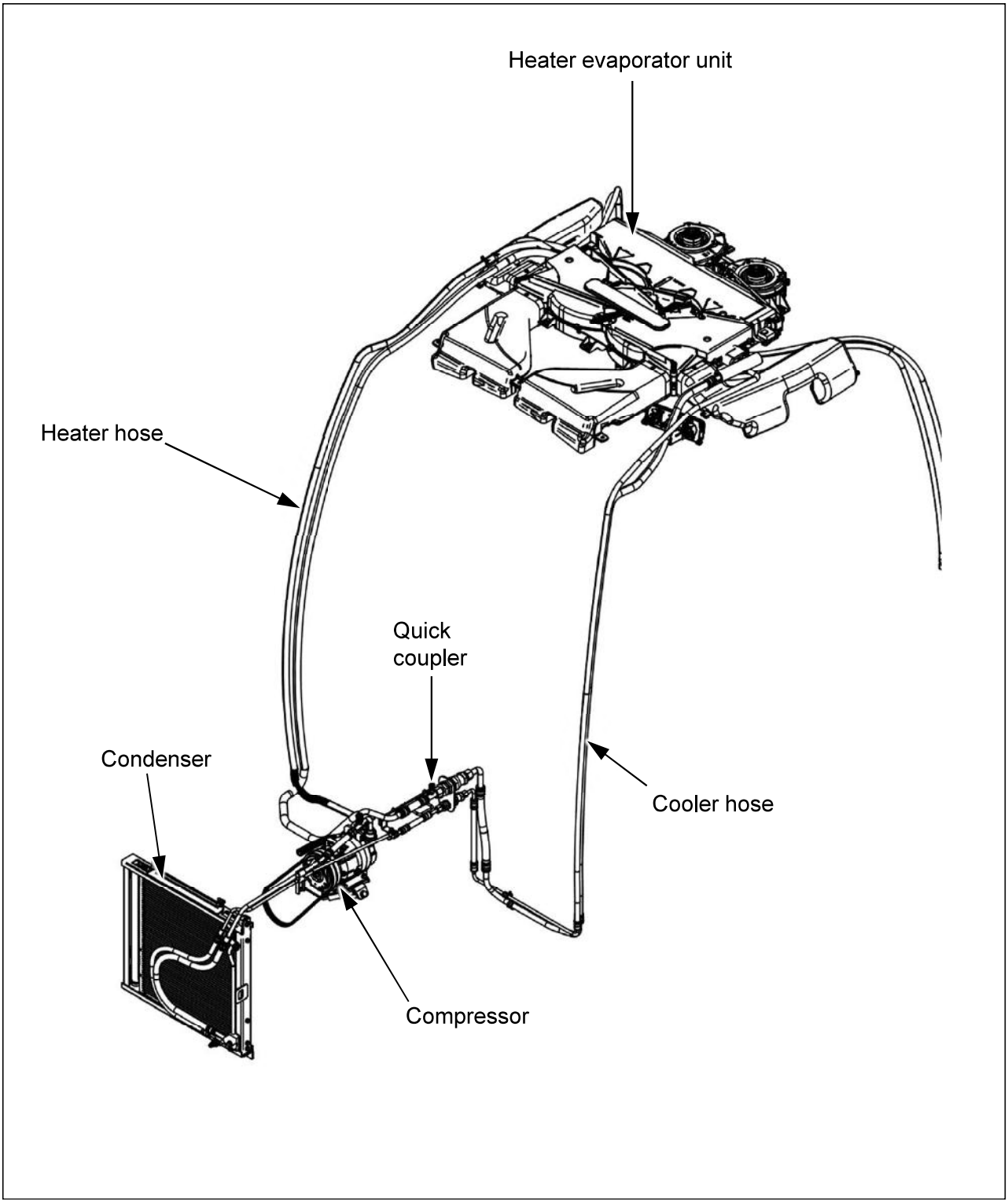
Electronic Control Units, Sensors, Solenoids, and Wiring harnesses used in above systems

Miscellaneous items used in above systems, such as hoses, belts, connectors, tubing, gaskets, and mounting hardware.

Emission Control Information Labels

6. Air Conditioning System (Cabin type)

6-1. The name of each part of cooling and heating system

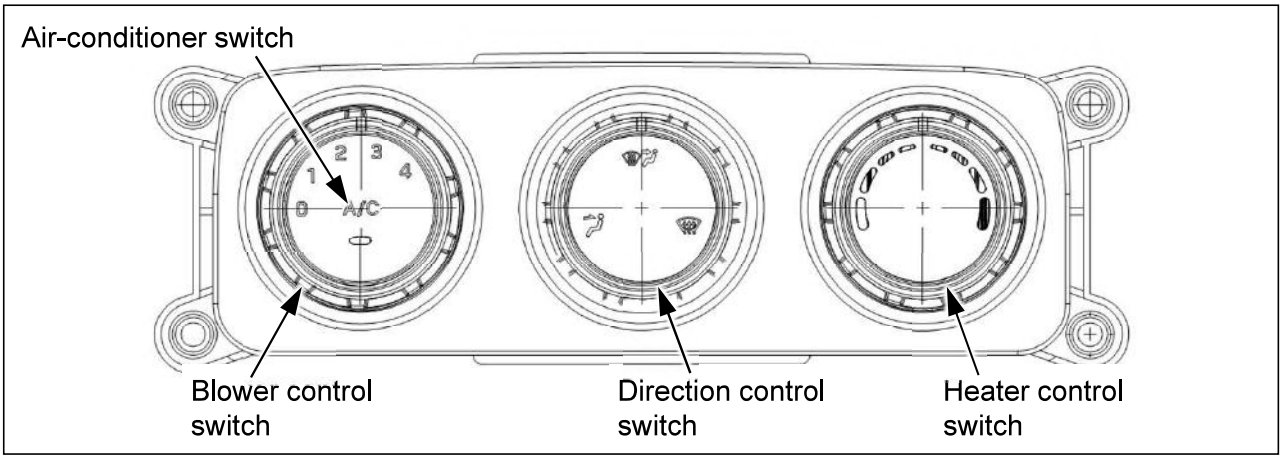


⚠Caution	▶ Maintenance of the air conditioning system and components (Compressor, Condenser, Heater evaporator unit and connection parts) must be performed in a designated dealer. DO NOT disassemble the components arbitrarily.

6-2. How to use Air conditioner and Heater

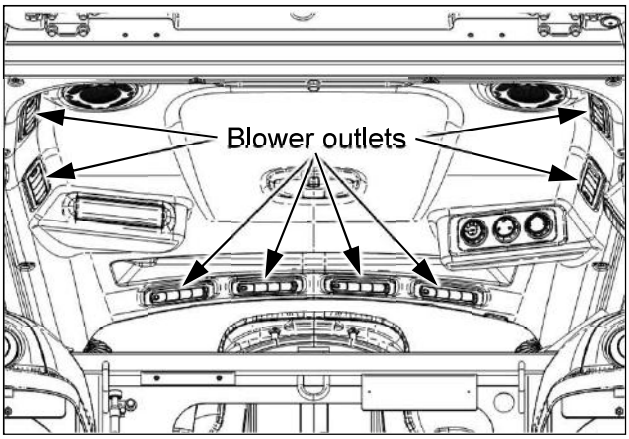
(1) How to operate air conditioner and heater

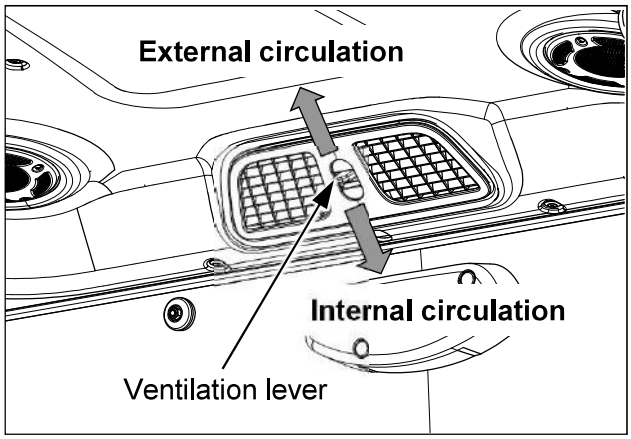
- Air-conditioner switch and Blower control switch
  - It is used to operate the air conditioner. If you push the air-conditioner switch and turn the blower control switch to 1~4 position, the operation lamp will be ON and the air conditioner begins to work.
- Direction control switch
  - It is used to select the air flow direction – front grille, front & side grille, side grille.
- Heater control switch
  - It is used to select warm or cool air. Turn the switch clockwise (blue mark) for cool air, and otherwise, turn it counter-clockwise (red mark).



(2) Air direction control

- To control the air flow direction, adjust the blade angle of the blower outlets.
- For internal circulation, move the ventilation lever to the internal circulation position.
- When operating the air conditioner or heater, open the blower outlets always.





⚠ Caution	▶ Never sleep in the cabin with the air conditioner or heater turned on. It may cause suffocation. ▶ When operating in the cabin for a long time, ventilate the cabin frequently.

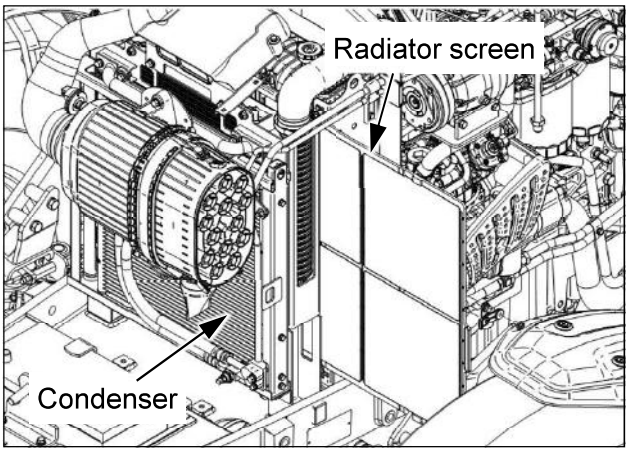
6-3. Every 6 month check

(1) Checking refrigerant amount

- Check the refrigerant amount periodically. Contact your authorized local dealer for check up. The components of the air conditioning system should be handled by an authorized service expert.
- **Refrigerant and capacity: R-134a, 850 g (30.0 oz)**

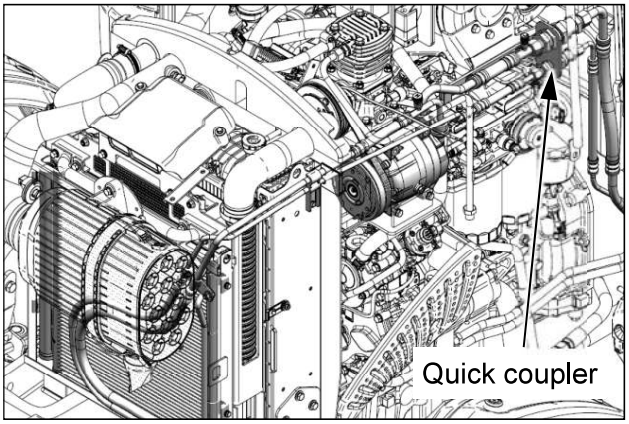
(2) Cleaning Condenser and Radiator screen

- Stop engine and allow the engine to cool down. Open the hood(bonnet) and remove the radiator screen.
- You can unlatch the rubber stopper(s) and pull out the radiator screen and condenser to the left-hand side.
- Remove dust and dirt, dry grass, and other debris stuck to the condenser, radiator and radiator screen and other heat exchanger (if fitted) with soft brush or low pressurized air or water.
- Be careful not to deform the cooling fins while cleaning. If necessary, repair the deformed fins.
- Depending on the working conditions, shorten the service interval reasonably.



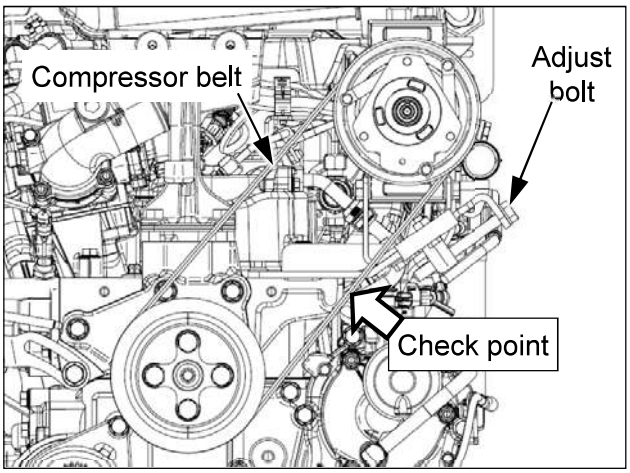
(3) Checking Leakage

- Check the tightening torque and oil leakage of the connecting parts.
- Oil spots or stains on the connecting parts may indicate a possible refrigerant leak. Contact your authorized local dealer to check the refrigerant amount.



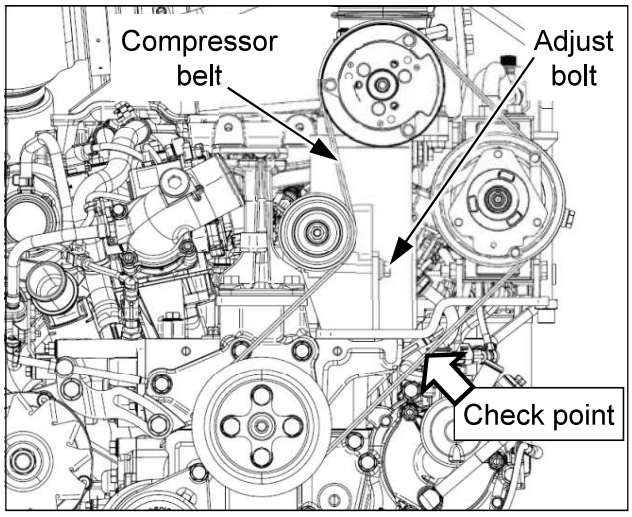
(4) Belt tension adjustment

① Standard type - without Air trailer brake



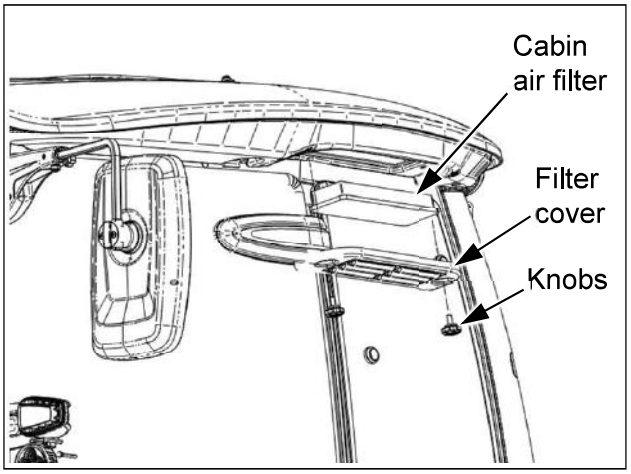
- Check if the belt tension is proper or not. If necessary, adjust the belt tension with the adjust bolt.
- **Tension : Approx. 10 mm (0.4 in.) (when pressed by 98N (22 lb))**
- Check the damaged part of the belt. If necessary, replace it with a new one after checking the pully alignment.

② Optional type - with Air trailer brake



- Check if the belt tension is proper or not. If necessary, adjust the belt tension with the adjust bolt.
- **Tension : Approx. 10 mm (0.4 in.) (when pressed by 98N (22 lb))**
- Check the damaged part of the belt. If necessary, replace it with a new one after checking the pully alignment.

(5) Cleaning and replacing cabin air filters



- Check, clean and replace the cabin air filters periodically after referring to the chapter 5 in this manual.
- Refer to the chapter 5-2, “Maintenance chart” in this manual.

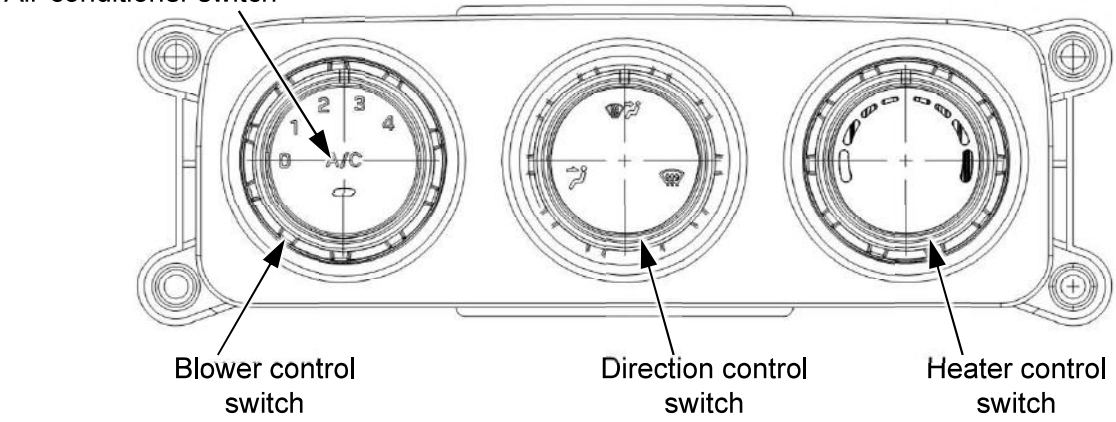
6-4. Every year check

(1) Compressor check

- Check the oil leakage on the magnet clutch in front of the compressor.
- Check the abnormal noise sounds and if necessary, contact your authorized dealer for check.

(2) Control switch check

- Check the electric switches of the control panel is normally operated.



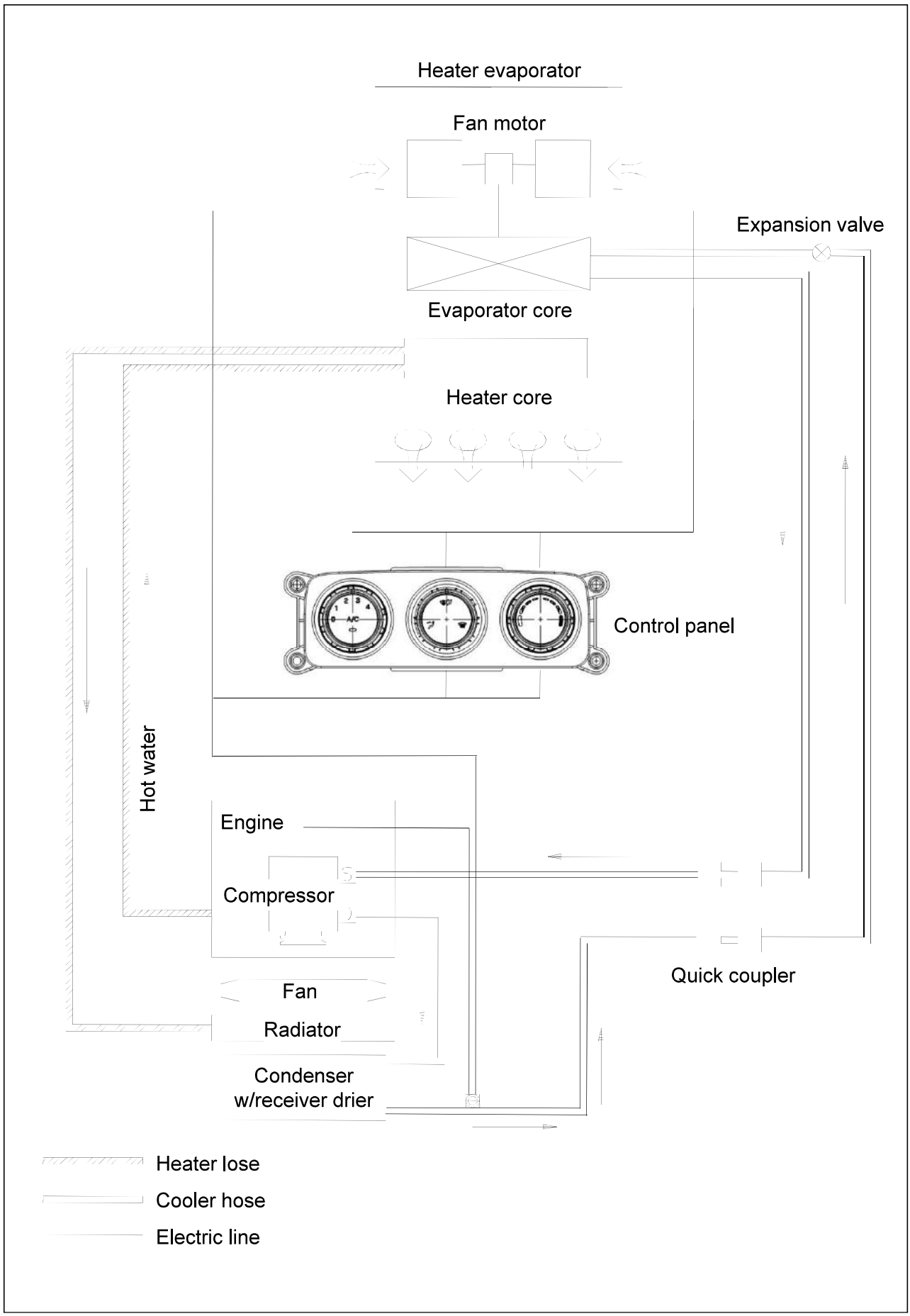
⚠Caution	▶ If there is a problem with the air conditioning system, do not disassemble the components arbitrarily, but contact your authorized local dealer for check.

6-5. Troubleshooting

No.	Failures		Cause	Actions
1	Fan motor does not turn.		Fuse blown.	Check and replace.
			Wiring cut off and poor connection.	Repair the wiring or connect right.
			Failure of fan motor.	Replace.
			Resistor, relay and switch cut off.	Replace.
2	Fan motor is normal but the air volume is small.		Evaporator or heater core was clogged.	Remove the obstacles and clean the cores.
			Duct was misaligned.	Repair the duct.
			Fan damaged or Fan motor failure.	Replace.
			Filter was clogged.	Clean or replace.
3	Air conditioning is insufficient despite of the normal operation of compressor and blower.	Low and high pressure is low.	Leakage of refrigerant.	Contact your authorized local dealer.
		Low and high pressure is high.	Refrigerant overcharged.	Contact your authorized local dealer.
			Condenser or radiator screen was clogged.	Clean condenser and the screen.
			Air is in air conditioning line.	Contact your authorized local dealer.
			Expansion valve does not control the refrigerant flow.	Contact your authorized local dealer.
		Low pressure is high, high pressure is low.	Compressor leakage.	Contact your authorized local dealer.
		Low pressure is vacuum intermittently.	Water is in air conditioning line.	Contact your authorized local dealer.
		Low pressure is vacuum, high pressure is low.	Receiver dryer, pipe or expansion valve is clogged.	Contact your authorized local dealer.

No.	Failures	Cause	Actions
4	The compressor does not rotate or it is hard to rotate.	Belt loosened.	Adjust the belt tension.
		Temperature switch or pressure switch is ON.	Check refrigerant amount.
		Coil of magnet clutch was shorted or cut off.	Contact your authorized local dealer.
		Compressor failure.	Contact your authorized local dealer.
		Wiring cut off or poor connection such as ground.	Check and repair.
5	No warm air does not come out.	The amount of warm water is small.	Check and add the engine coolant.
		Heater line is clogged or distorted.	Check and repair.
		Poor operation of the thermostat of engine coolant.	Repair or replace.

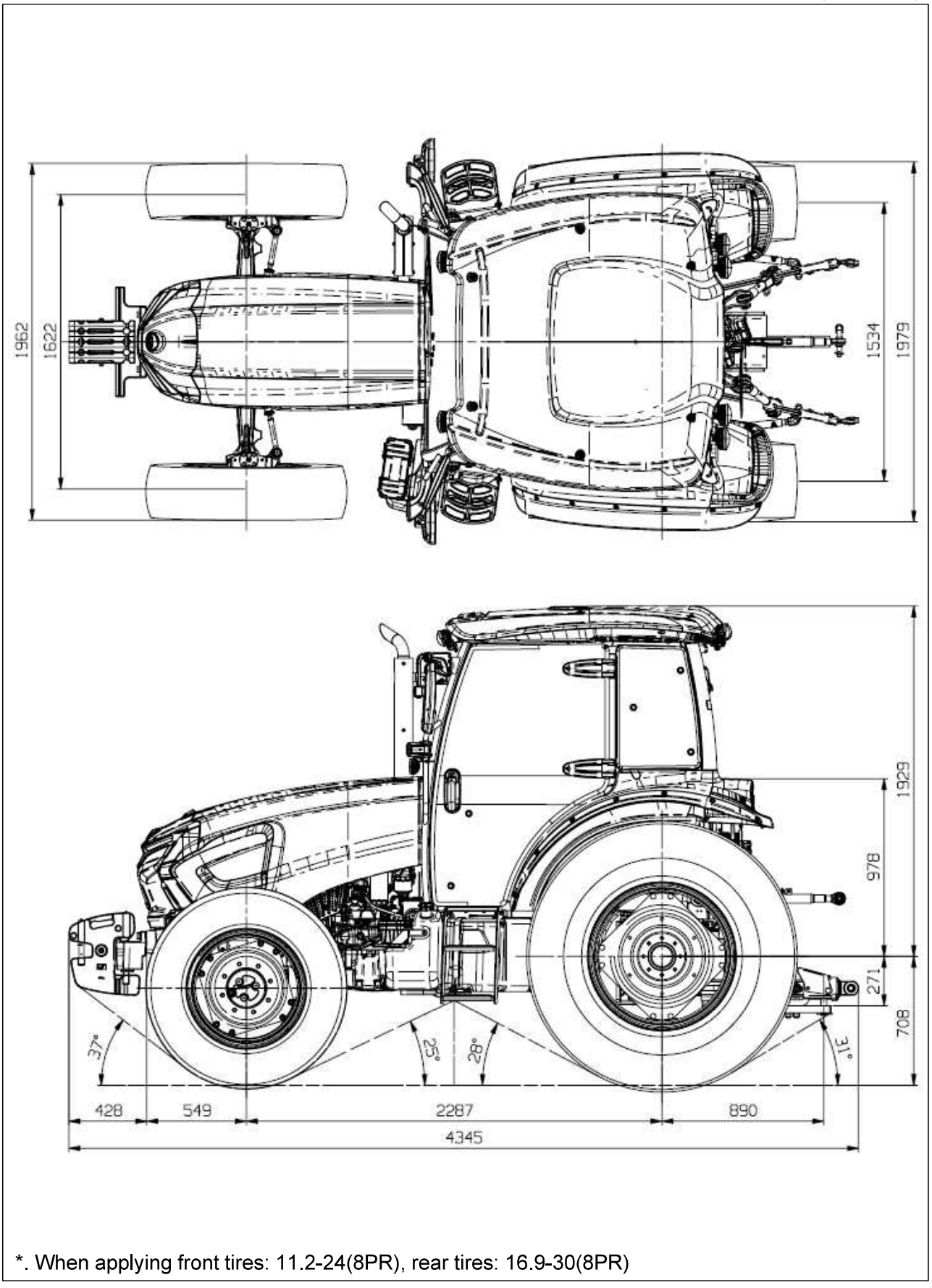
6-6. System diagram



7. Dimension and Specification

(1) MT774, Cab type

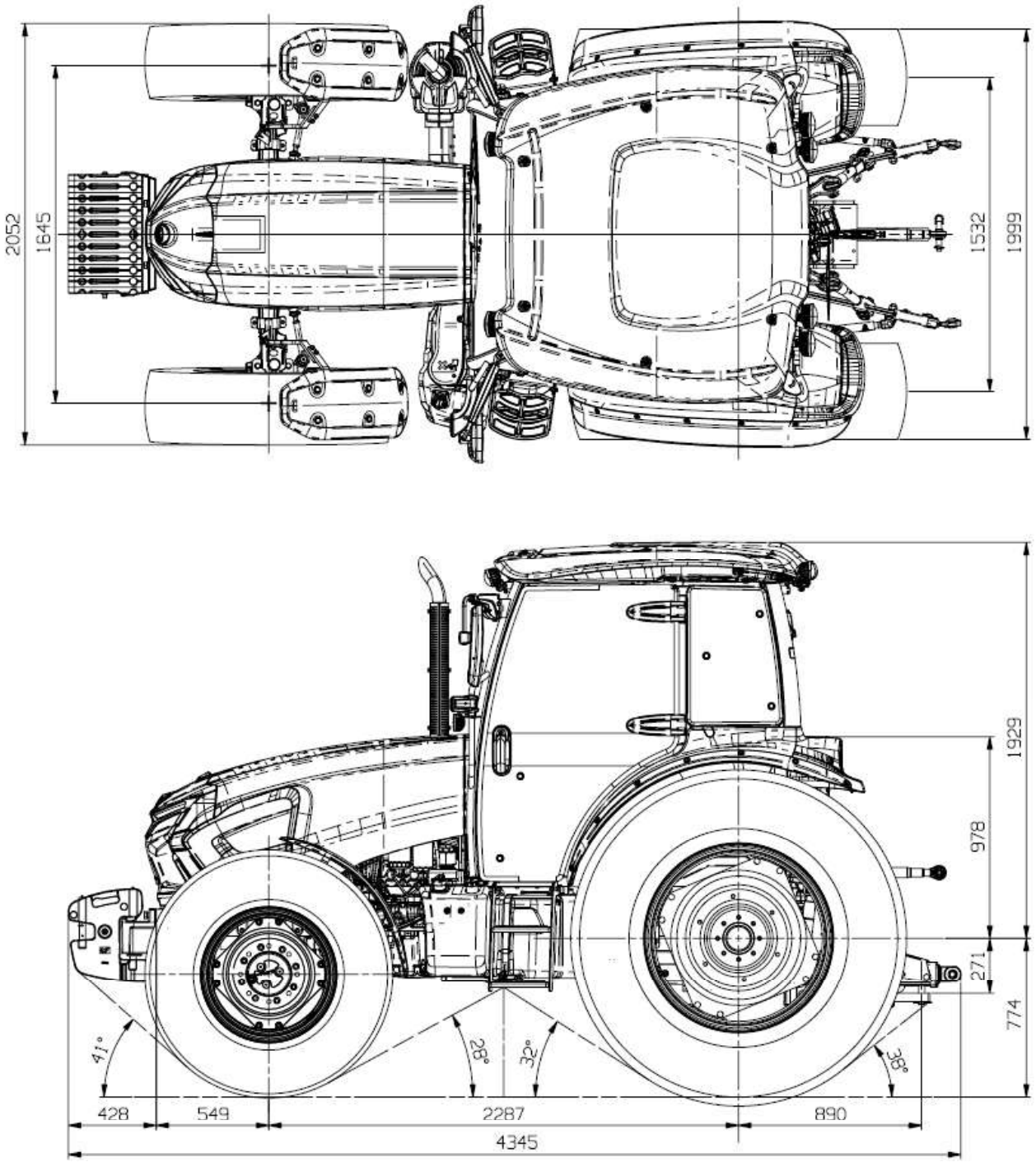
(Unit : mm)



*. When applying front tires: 11.2-24(8PR), rear tires: 16.9-30(8PR)

(2) MT7101, Cab type

(Unit : mm)



*. When applying front tires: 13.6-24(8PR), rear tires: 18.4-34(10PR)

		MT774	MT7101
WEIGHT	Roll-bar Type	N/A	N/A
	Cabin Type (with bumper)	3460kg (7628 lb)	3509kg (7736 lb)
	Weight distribution	Front : Rear = 0.45 : 0.55(Cabin)	
	Bumper/Front weight	60kg (132 lb) / 40kg(88 lb) x 6~10ea (optional)	
	Rear weight	45kg(99 lb) x 2~4ea (optional)	
ENGINE	Model	F5DGL413F	F5G-75kW
	Type	In-line, water cooled, 4 stroke, CRDi	
	No. of cylinder	4	
	Diameter x stroke	99 x 110mm (3.90 x 4.33 in)	99 x 110mm (3.90 x 4.33 in)
	Displacement	3387cc (206.7 in.^{3})	3387cc (206.7 in.^{3})
	Compression ratio	17 : 1	17 : 1
	Engine speed	900 ~ 2300 rev/min	850 ~ 2400 rev/min
	Maximum torque	375N.m / 1400rpm	430N.m / 1400rpm
	Engine power	55kW / 2200 rpm	75kW / 2200 rpm
FUEL INJECTION PUMP	Type	Bosch CP4.11	
	Fuel filter	Replaceable cartridge type	
	Injection order	1-3-4-2	
LUBRICATION SYSTEM	Type	Forced circulation type	
	Pump	Trocoid gear pump	
	Filter	Replaceable cartridge type	
COOLING SYSTEM	Pump	Centrifugal type	
	Temperature control	Thermostat	
	Air cleaner	Dry type	
TRANS-MISSION	Type	F24xR24 Power shuttle with Hi-Lo and Hand clutch	
	Main clutch	Wet disks	
	Forward / Reverse	Power shuttle	

			MT774	MT7101
Differential lock			Electro-Hydraulic Differential lock (EHD)	
PTO	Type		Independent PTO with wet disk clutch	
	No. of speed		3 speed gears (optional)	
	PTO / Engine		1st speed : 540 rpm / 1958 rpm 2nd speed : 750 rpm / 2132 rpm or 540E rpm / 1535 rpm (optional) 3rd speed : 1000 rpm / 2125 rpm	
HYDRAULIC LIFT	Type		Open center system, Position & draft control	
	3 Point linkage		CAT 2, in conformity with ISO 730:2014	
	Draft load detection		Upper link	
	Lowering speed control and cylinder fixing device		Down speed control valve	
	Pump		Gear pump type, Engine drive	
	Rated flow		58.6LPM (15.5 gpm)	59.4LPM (15.7 gpm)
	System pressure		18.6MPa (2702psi)	18.6MPa (2702psi)
	Lift capacity	Lower link end	3290 kgf (7253 lbf)	3800 kgf (8378 lbf)
		24” behind lift point	2350 kgf (5181 lbf)	2700 kgf (5952 lbf)
REMOTE CONTROL	Type		Double acting (One spring return type and one detent type with auto-release)	
	No. of Q/coupler		SAE ½”, 4EA	
	F/Loader coupler		Joystick loader valve with 3rd-function	
STEERING SYSTEM	Type		Hydrostatic	
	Oil		Transmission oil (common use)	
	Min. turning radius (with brake)		3.5m (11.5ft)	
	Max. steering angle		53°	
	No. of steering turns		4.0 turns from stop to stop (maximum)	
	Rated flow		24.4LPM (6.4 gpm)	24.8LPM (6.5 gpm)
	System pressure		14.2MPa (2060 psi)	14.2MPa (2060 psi)

			MT774	MT7101
ALTERNATOR	Rated output		14V, 1.68kW (120A)	
	Voltage control		Built-in (IC type)	
BATTERY	Voltage		12V	
	Capacity		110AH	
START MOTOR	Output power		3.2KW	
	Operation		Solenoid start	
LIGHTS	Headlights (Low / High beam)		12V LED 10.5W / LED 33.6W	
	Turn signal lights (front / rear)		12V 16W / 21W	
	Side lights (front)		12V LED	
	Stop light / Taillight (rear)		12V LED / LED	
	Work light (grille)		12V LED 18W(upper) / LED 4.8W (lower)	
	Work light (cabin)		12V LED 12W (grab handle) / LED 30W (roof)	
OTHERS	Instrument panel lights		LED	
	Indoor light (CAB)		12V 10W	
	Warning indicators		LED	
	Cold start aid		Glow plug	
STD. AGRI. TIRE	Front		11.2-24 (8PR)	13.6-24 (8PR)
	Rear		16.9-30 (8PR)	18.4-34 (10PR)
WHEEL TRACK ADJUSTMENT	Front	Tracks	4	4
		Dimension	1622~1822mm (63.9 ~ 71.7 in.)	1645~1845mm (64.8 ~ 72.6 in.)
	Rear	Tracks	4	4
		Dimension	1534~1838mm (60.4~72.4 in.)	1532~1844mm (60.3~72.6 in.)

** These specifications are only general product information about standard model. Actual data may vary depending on the various optional product, and also can be changed at any time to improve the product qualification without any prior notification **

Lubricants and Capacity

Lubricants	Capacity	International Standard	Recommended items
Engine coolant	**12 L** (3.2 U.S.gals.)	ASTM D6210	Soft water (50%)+ Anti-freeze (50%)
Fuel	**115 L** (30.4 U.S.gals.)	ASTM D975 No.2 or EN 590	Ultra low sulfur diesel
DEF/urea solution (MT7101 only)	**16 L** (4.2 U.S.gals.)	ISO 22241 / AUS32 / DIN V70070	32.5% Urea solution
Engine oil	**6.5~8.0 L** (1.7~2.1 U.S.gals.)	API CJ-4 or ACEA E8	KIXX DL (Manufacturer : GS Caltex)
Transmission oil (common use for hydraulic lift and steering system)	**55 L** (14.5 U.S.gals.)	API GL4 ISO VG 32/46	**LSTH400G** (Manufacturer : GS Caltex)
Front axle oil	**4.4 L** (1.2 U.S.gals) for center housing **0.6 L** (0.2 U.S.gals) for each final housing **=5.6 L** (1.5 U.S.gals)	API GL5 SAE 80W-90	**KIXX Geartec LSD GL-5 80W-90** (Manufacturer : GS Caltex)
Grease (Front axle holder, 3-point linkage)	Proper amount	NLGI 2	MAHWAK Multi purpose or MAHWAK All purpose (Caltex)
Clutch & Brake oil	**0.5 L** (0.1 U.S.gals.)	Mineral based oil (ISO 7308)	LSTH400 (S-OIL TOTAL) LHM PLUS (TOTAL) LHM (Mobil) LHM-S (Shell)

RECOMMENDED ENGINE OIL VISCOSITIES

The correct engine oil viscosity grade is dependent upon ambient temperature. Refer to the below chart when selecting engine oil for your tractor.
In areas where prolonged periods of extreme temperatures are encountered, local lubricant practices are acceptable. Contact your authorized local dealer.

	Ambient temperature	Lubricant No.
Cold mission	-28℃ ~ 35℃ (-18℉ ~ 95℉)	SAE 10W-30
European / North American mission	-10℃ ~ 40℃ (14℉ ~ 104℉)	SAE 15W-40
Very hot countries / Heavy mission	0℃ ~ 40℃ (32℉ ~ 104℉)	SAE 20W-40

LS Tractor USA LLC.

PO Box 70, Battleboro, NC 27809
Tel : 252-984-0700
Fax : 252-984-0701

www.lstractor.com
www.lstractorusa.com

P/NO 52137309/01
DATE 20240000