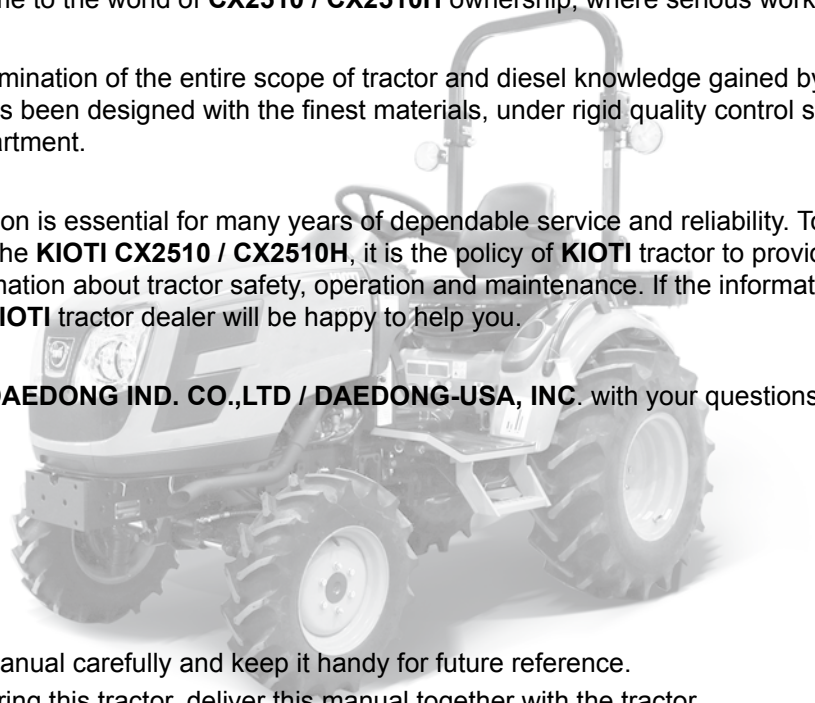
FOREWORD

Congratulations, and welcome to the world of **CX2510 / CX2510H** ownership, where serious work is made fun again!

This versatile tractor is a culmination of the entire scope of tractor and diesel knowledge gained by the **DAEDONG IND. Co., LTD** since 1947 and has been designed with the finest materials, under rigid quality control standards set forth by the **KIOTI** Engineering Department.

Knowledge of tractor operation is essential for many years of dependable service and reliability. To help new owners familiarize themselves with the **KIOTI CX2510 / CX2510H**, it is the policy of **KIOTI** tractor to provide an owners manual which includes helpful information about tractor safety, operation and maintenance. If the information you seek is not found in this manual, your **KIOTI** tractor dealer will be happy to help you.

Please feel free to contact **DAEDONG IND. CO.,LTD / DAEDONG-USA, INC**. with your questions/concerns.



< NOTE >

- Make sure to read this manual carefully and keep it handy for future reference.
- When leasing or transferring this tractor, deliver this manual together with the tractor.
- The specifications in this manual are subject to change without notice.

ISO 3600 EU STANDARDS

This manual was compiled in compliance with the ISO 3600, standards and the instructions contained here comply with the requirements of the Machinery Directive 2010/52/EU in force in the European Community. For tractors sold or used outside the European Community, local laws will apply.

Safety devices discussed in this manual.

DESCRIPTION	NON CANOPY	CANOPY
1. ROPS (protection against rollover)	Yes	No
2. FOPS (protection against falling objects)	No	No
3. OPS (protection against penetration of objects from sides) protection against hazardous chemicals	No (Category I)	No (Category I)

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SAFETY AND VEHICLE DAMAGE WARNING

This manual includes information titled as **WARNING, CAUTION, IMPORTANT** and **NOTE.** These titles indicate the following:

 **WARNING**	**This indicates that a condition may result in harm, serious injury or death to you or other persons if the warning is not heeded. Follow the advice provided with the warning.**
 **CAUTION**	**This indicates that a condition may result in damage to your vehicle or its equipment if the caution is not heeded. Follow the advice provided with the caution.**
 **IMPORTANT**	**This mark indicates emphasis on notable characteristics of working procedures, and information about technology for easier operation.**
 **NOTE**	This indicates that interesting or helpful information is being provided.

UNIVERSAL SYMBOLS

Various universal symbols have been used on the instruments and controls of your **KIOTI** tractor.
Below is a list of the universal symbols and their meanings.

 Fuel-level

 Engine coolant temperature

 Parking brake

 Battery charging condition

 Engine oil-pressure

 Power take-on clutch control-off position

 Power take-off clutchcontrol-off position

 Turn signal

 Differential lock

 Position control - Lowering

 Hazard warning lights

 Headlight-low beam

 Headlight-high beam

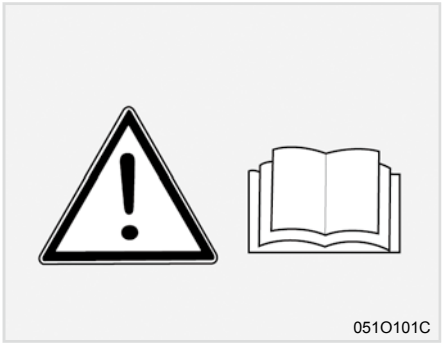
 Four-wheel drive-on

 Coolant refill warning lamp

 Preheat

BEFORE OPERATING THE TRACTOR

A careful operator is the best operator. Most accidents can be avoided by observing certain precautions. To help prevent accidents, use these safety precautions, and pay attention to the job at hand. If you can prevent an accident, your time will have been well spent.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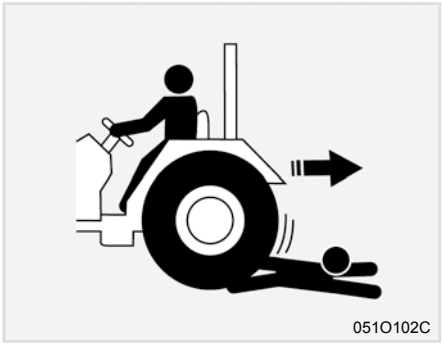
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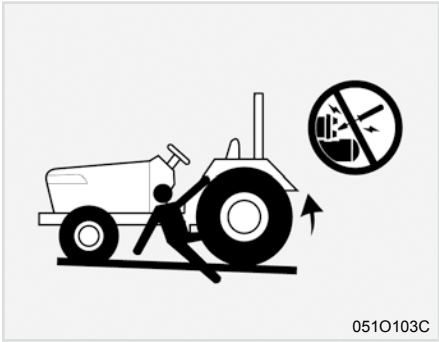
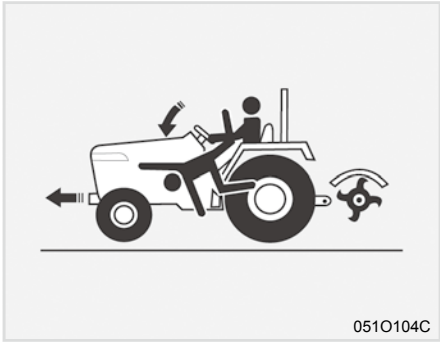
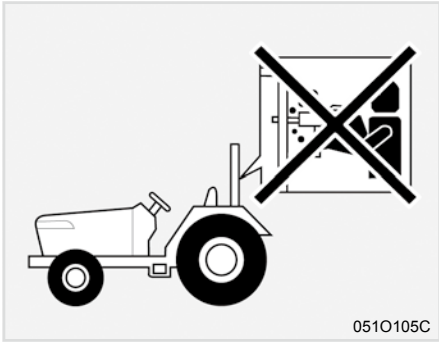
1. It is recommended that you read and understand this entire manual before operation of your new tractor. Failure to do so could result in accidents or injury.
2. Only persons who are properly trained should be allowed to operate the tractor.
3. Read and follow all warning labels and decals affixed to the tractor.
4. Replace any missing or damaged decals as soon as it is practical. A list of decals is shown on page1-19~22.
5. Keep safety decals clean of dirt and debris.
6. Watch where you are going at all times so that you are able to avoid obstacles that can cause injury or damage to your tractor.
7. When starting the tractor make sure your path is clear of people to avoid accidents caused by sudden movements.
8. Before making reverse movements with your tractor, you should always check to see that the path is clear.







9. Never operate this tractor or any other agricultural equipment while under the influence of alcohol, drugs or while fatigued.
10. While working in cooperation with other tractors always communicate your intentions.
11. Never start your tractor by shorting across the starter.
12. Do not start the engine while standing on the ground.
13. Only the operator should ride on the tractor unless a passenger seat is installed. Keep bystanders away from the tractor while in operation.
14. When getting on and off the tractor, handholds and step plates should always be used. This will help to prevent accidental slips trips and falls.
15. Be sure to scrape off mud or soil from your shoes before mounting the tractor.
16. All persons using the tractor should have knowledge of its proper operation and should read this manual carefully.
17. Never dismount the tractor without setting the parking brake, lowering the implement to the ground and shutting of the tractor.
18. No modifiations should be made to your **KIOTI** tractor.

19. Before starting your tractor you should depress the clutch and make sure that all shift levers are in the neutral position and parking brake is applied.

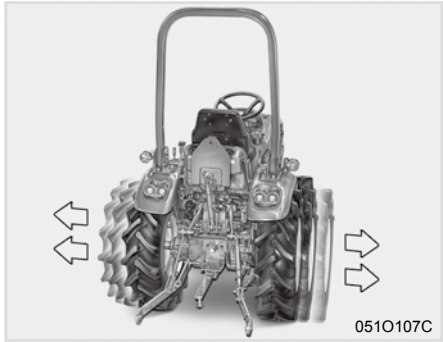
20. For your safety **ROPS** with a seat belt is recommended for all applications.

NOTE

- Always use seat belt when the tractor is equipped with a **ROPS**. Never use the seat belt when tractor is not equipped with a **ROPS** or **ROPS** is folded up.

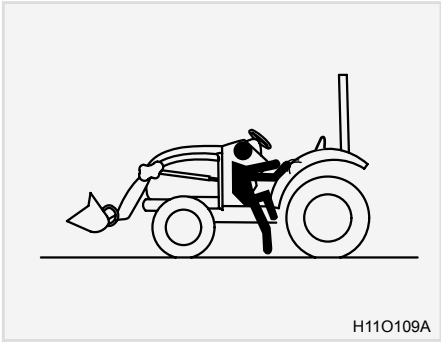
A **ROPS** should never be modified by welding, grinding or cutting, as this can weaken the **ROPS** structure. If any components of the **ROPS** unit is damaged, it must be replaced.

If the **ROPS** unit is removed or loosened for any reason, the parts should be fitted back to their original positions and all bolts should be properly torqued.



21. Extra caution should be taken when driving tractors with narrow tread widths. For added stability you should adjust your rear wheel tread width, see page 4-25.

OPERATING THE TRACTOR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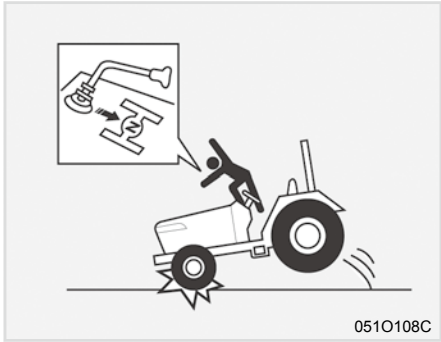
1. Always mount or dismount the tractor from left side.

   Always grip a hand rail on the fender.

⚠ WARNING

- ***Do not jump on or off the tractor. It may cause injuries. Always face the tractor, use the hand rails and steps, and get on or off slowly. Maintain a minimum three point contact to avoid falling.(Both hands on rails and one foot on the step, or one hand on the hand rail and both feet on the steps)***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2. Avoid accidental contact with gear shift levers while the engine is running. Unexpected tractor movements can result in bodily injury.


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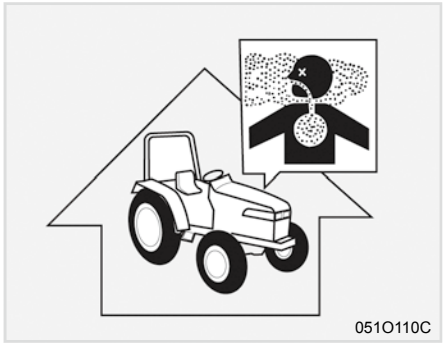
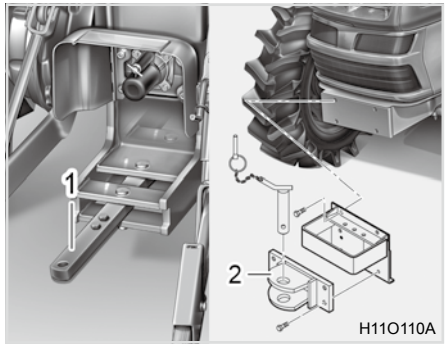
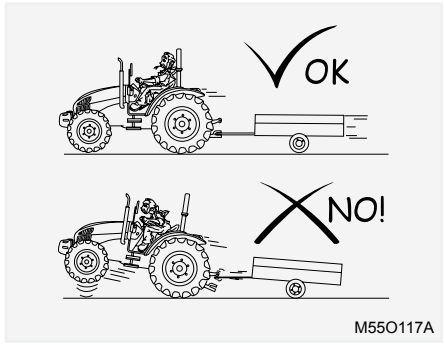
3. Do not park your tractor on a steep incline, and remember to shut off the engine and PTO before dismounting the tractor.

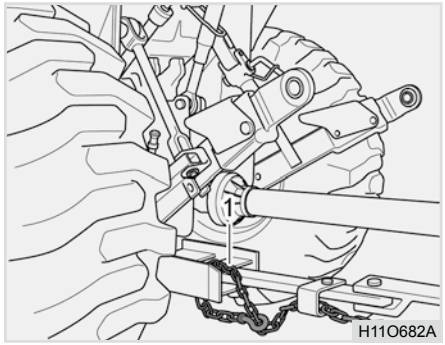




(1) Drawbar *(2) Towing Hook*



4. Do not operate your tractor in an enclosed building without proper ventilation. Exhaust fumes contain carbon monoxide and may cause serious injury or death.
5. Make sure that all pressure lines are tight before starting the tractor.
6. Pull only from the drawbar. Never hitch anything to the axle housing or any other point except the draw-bar. Pulling from any other location only increase the risk of serious personal injury or death.
7. Improper use of the draw-bar, even if correctly positioned, can cause a rear overturn.
8. Do not overload an attachment or towed equipment. Use proper counterweights to maintain tractor stability. Hitch heavy loads to the draw-bar only.



ing the proper adaptor parts, attach the chain to the tractor draw-bar support or other specified anchor location. Provide only enough slack in the chain to permit turning. See your Dealer for a chain with a strength rating equal to, or greater than the gross weight of the towed machine.

9. Check for correct coupling between tow hook and trailer. See the Towing Attachments chapter.
10. Use ballast weight as recommended. Never add more ballast to compensate a higher load than allowed. Reduce load for safety.
11. A safety chain will help control drawn equipment should it be accidentally separated from the draw-bar while transporting. Us-

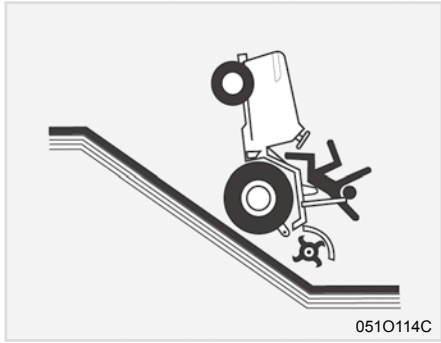
12. If the front of the tractor tends to rise up when heavy implements are attached to the three point hitch, weights should be installed on the tractor. Do not operate the tractor with a light front end.

13. Always use the proper ballast weight on your tractor when using rear implements.
14. Watch front and rear to avoid obstacles at row ends, near trees and around other obstructions.

⚠ WARNING

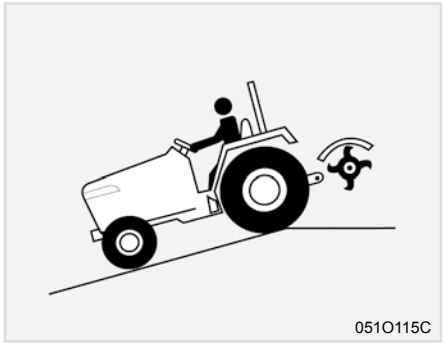
- ***Drive carefully to avoid injury from penetration of objects from sides, because this machine does not comply to OPS.***

15. Do not leave equipment in the raised position when the vehicle is stopped or unattended.
16. When using implements or attachments with your tractor you should first read their respective owner's manual. You should always keep their safe operation procedures in mind.
17. You should be familiar with your equipment and its limitations.
18. If abused or used incorrectly your tractor can become dangerous to you and bystanders. Overloading your tractor or using unsafe equipment can also be dangerous and should be avoided. Refer to the "Specifications of Implement Limitation", which outlines the maximum load for safe tractor operation.

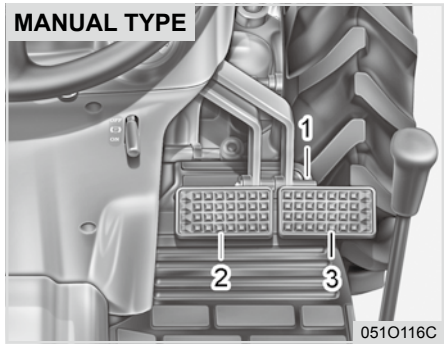


19. Driving forward out of a ditch or steep inclines can cause the tractor to tip over backwards. To avoid this you should back out of these positions. Four wheel drive tractors can give you a false sense of security in the tractors ability to maneuver out of these positions, so extra caution should be taken.
20. Never try to get on or off a moving tractor.

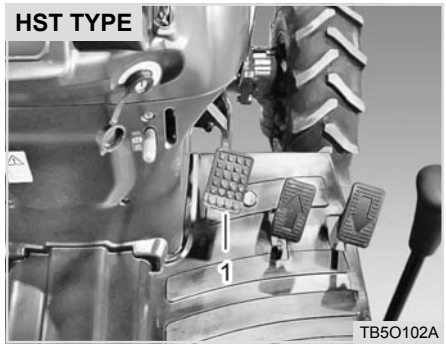
DRIVING THE TRACTOR



21. When working in groups, always let the others know what you are going to do before you do it.
22. Never "freewheel". Disengaging the clutch or shifting into neutral while descending a slope as this could lead to a loss of control.
23. Do not operate near ditches, holes, embankments, or other terrain features which may collapse under the tractor's weight. The risk of tractor upset is even higher when the ground is loose or wet.



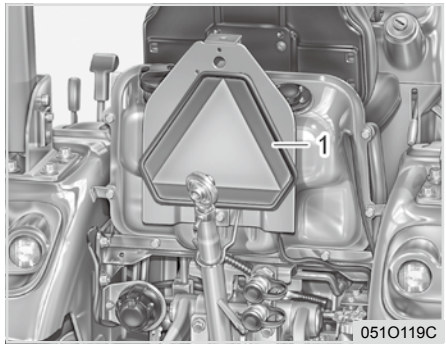
(1) Interlock
(2) Brake Pedal (L) *(3) Brake Pedal (R)*



(1) Brake Pedal

1. Lock the brake pedals together when traveling at road speeds. Brake both wheels simultaneously when making an emergency stop. Uneven braking at road speeds could cause the tractor to tip over.

2. Always slow the tractor before turning. Turning at high speed may tip the tractor over or cause an operator to lose control of the tractor.

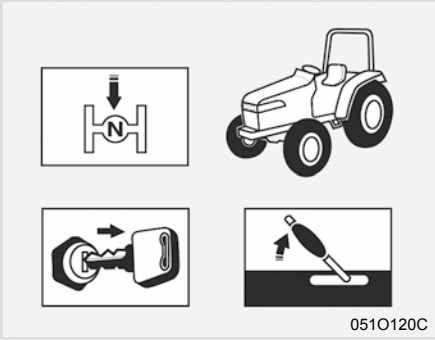


(1) SMV Emblem

3. Make sure that the Slow Moving Vehicle (SMV) sign is clean and visible. Use hazard lights as required.

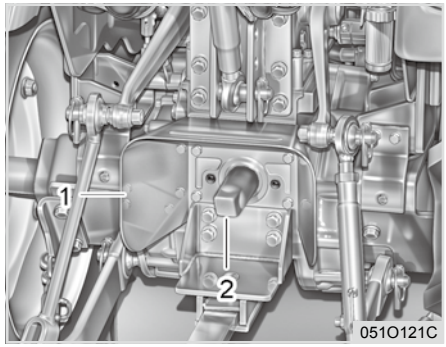
4. Observe all local traffic and safety regulations.
5. Turn the headlights on. Dim them when meeting another vehicle.
6. Drive at speeds that allow you to maintain control at all times.
7. Do not apply the differential lock while traveling at road speeds. As the tractor may lose the ability to steer.
8. Avoid sudden movements of the steering wheel as this can cause a loss of control of the tractor. This risk is especially great when traveling at road speeds.
9. Do not operate an implement while the tractor is on the road. Lock the three point hitch in the raised position.
10. When towing other equipment, use a safety chain and place an SMV emblem on it as well.

PARKING THE TRACTOR



1. Disengage the PTO, lower all implements, place all control levers in the neutral position, set the parking brake, stop the engine and remove the key.

OPERATING THE PTO

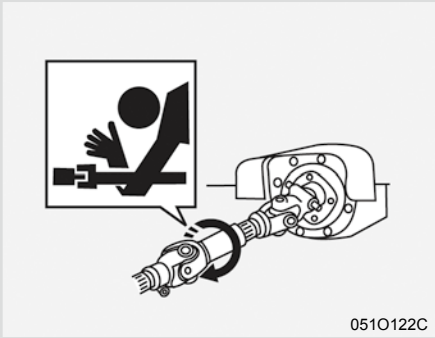


(1) PTO Shield (2) PTO Shaft Cap

1. Make sure the tractor is completely stopped, gears are in neutral and all moving components have completely stopped before connecting, disconnecting, adjusting, cleaning or servicing any PTO driven equipment.
2. Keep the PTO shield in place at all times. Replace the PTO shaft cap when the shaft is not in use.
3. Before installing or using PTO driven equipment, read the manufacturer's manual and review the safety labels attached to the equipment.

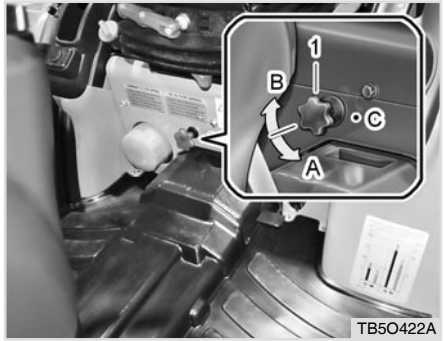
⚠ WARNING

- ***Before driving an implement through the PTO, always make sure that all bystanders are well away from the tractor.***
- ***When using the PTO drive with a stationary tractor, always make sure that the gears are in neutral and that the parking brake is applied.***
- ***Before starting up any PTO-driven implement hitched to the three-point linkage, lift the implement to its full height and check that at least 1/4 of the total length of the telescopic section of the drive shaft is engaged.***
- ***Ensure that implements and attachments are properly installed and that the tractor and implement PTO RPM ratings match.***



4. When operating stationary PTO driven equipment, always apply the tractor parking brake and place chocks behind and in front of the rear wheels. Stay clear of all rotating parts.
5. Do not attach a PTO driven implement if the implement's safety shields are damaged or not in place. Rotating shafts are an entanglement hazard.

USING 3-POINT HITCH



(1) 3-point hitch lowering speed knob
(A) FAST (B) SLOW
(C) LOCK

1. Use the 3-point hitch only with equipment designed for 3-point hitch usage.
2. When using a 3-point hitch mounted implement, be sure to install the proper counterbalance weight on the front of the tractor.
3. When transporting on the road, set the implement lowering control in the "LOCK" position to hold the implement in the raised position.

SERVICING THE TRACTOR

In order to service your tractor you must park it on a flat level surface, set the parking brake, place the gear shift lever in neutral and stop the engine.

1. Do not smoke while working around the battery or when refueling your tractor. Keep all sparks and flames away from the battery and fuel tank. The battery presents an explosive hazard because it gives off hydrogen and oxygen… especially when recharging.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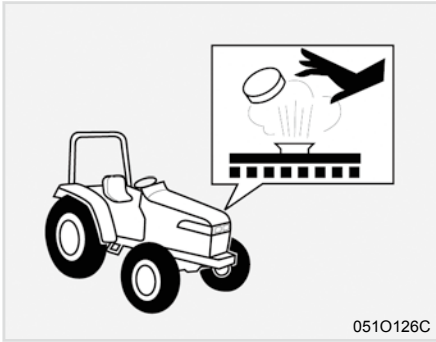
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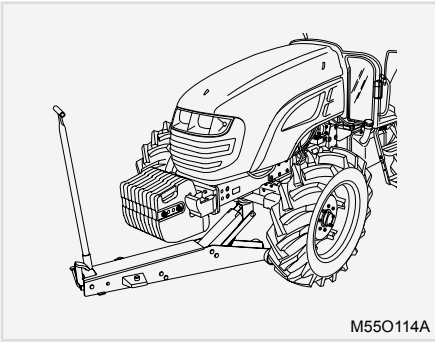
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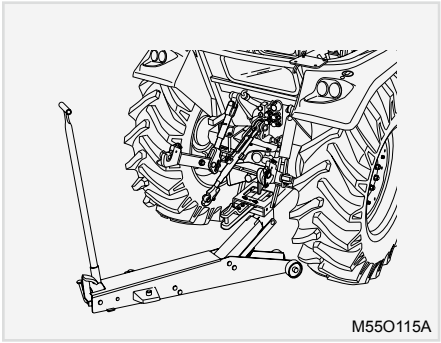
2. Allow the tractor time to cool off before servicing any part that may have become hot while the tractor was running.
3. You must always stop the engine before refueling the tractor. Avoid overfilling the tractor or spilling the fuel.
4. Before jump starting a dead battery, read and follow all of the instructions.
5. It is recommended to keep a first aid kit and fire extinguisher handy at all times.
6. Do not remove the radiator cap while the coolant is hot. When cool, slowly rotate the cap to the first stop and allow sufficient time for excess pressure to escape. After all the pressure is released remove the cap completely. If your tractor is equipped with a coolant recovery tank, add coolant there rather than to the radiator.
7. If the tractor must be lifted for servicing, take it to a suitably equipped workshop.
8. Carry out the following operations before any operation about the tractor: Engage the four-wheel drive, the first gear and the parking brake and put chocks to the wheels touching the ground.
9. Before lifting the tractor, use wooden blocks to increase the stability at the front axle.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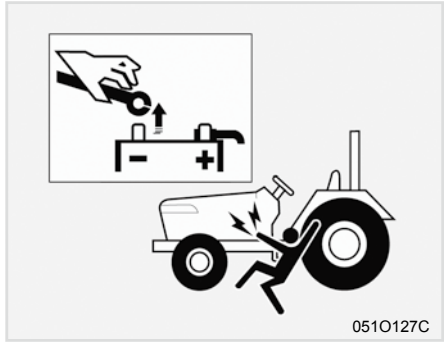
NOTE

- Apply the jack lift to the lifting points according to the type of operation and follow the safety procedures given before.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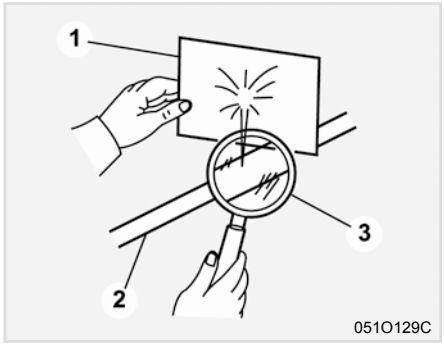
10. Use jack lifts of suitable capacity and apply them at the centre of the front and rear axles while paying due attention to weight distribution.
11. No decals for the lifting point are applied on the tractor, as they would be, too difficult to apply in the available spaces and would be all too easily removed or effaced during normal operation of the tractor.
12. When working with your tractors electrical components you must first disconnect the battery cables.
13. To ensure that there are no accidents from sparks you must first disconnect the negative battery cable.



(1) Cardboard (2) Hydraulic Line
(3) Magnifying Glass

14. Tire mounting should be done by qualified professionals, with the proper equipment.
15. Maintaining correct tire pressure is important for the life of your tires.

    Do not inflate the tires above the recommended pressure specified in the owner's manual or on the tractor tire.
16. Securely support the tractor when changing wheels or the wheel tread width.
17. Make sure that wheel bolts have been tightened to the specified torque.
18. Escaping hydraulic fluid under pressure has sufficient force to penetrate skin, causing serious personal injury. Be sure to release all residual pressure. Before disconnecting hydraulic lines.

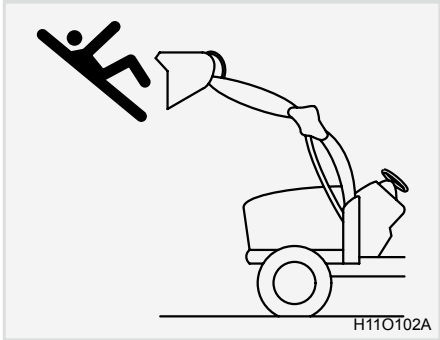
    Before adding pressure to the hydraulic system, make sure that all connections are tight and that all line, pipes and hoses are free of damage.
19. Fluid escaping from pinholes may not be visible. Do not use hands to search for suspected leaks;

    Use a piece of cardboard or wood, instead. Use of safety goggles or other eye protection is also highly recommended. If injured by escaping fluid, see a medical doctor at once. This fluid can produce gangrene and/or severe allergic reaction.

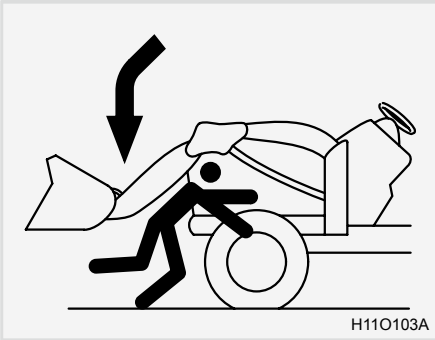
SAFETY PRECAUTIONS WHEN USING THE LOADER

20. Keep environmental pollution in mind. When replacing coolant or oil, dispose of it the right way.

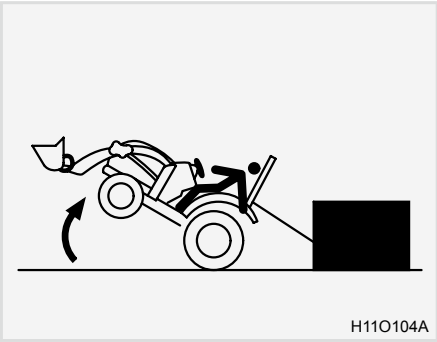
    Be sure to observe all relevant regulations when you dispose of engine oil, transmission oil, fuel, coolant, filters and battery.



1. Never let anyone get in the loader and use the loader as a workstation. Otherwise, it may lead to a fatal injury or even death.



2. Do not stand under the lifted loader or get close to it. Also, lower the loader arm onto the ground before leaving the tractor. Otherwise, it may lead to a fatal injury or even death.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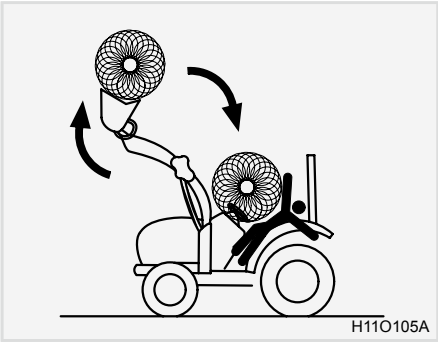
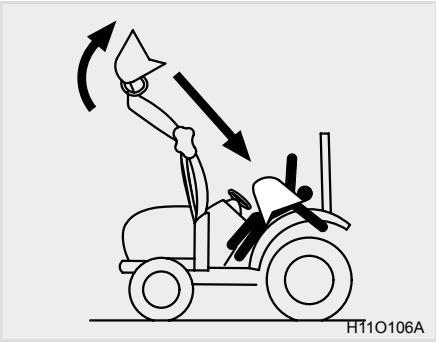

H11O105A

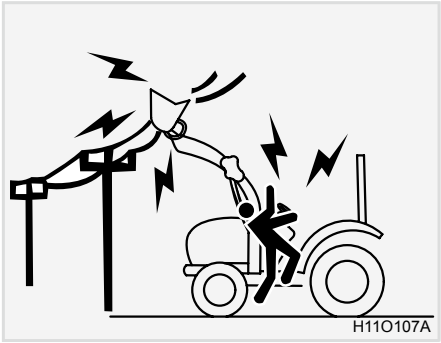

H11O106A

3. The tractor can over turn if the draw-bar is improperly loaded.

   Make sure to use a draw-bar properly for the 3-point hitch lower link. Otherwise, it may lead to an injury or even death.

4. Never carry a big object with the loader unless a proper implement is attached. Keep a carried object low during driving. Otherwise, it may lead to an injury or even death.

5. When attaching or detaching the loader, fix all parts which are connected to the bucket and boom. The bucket or boom can be accidentally dropped down, leading to an injury or even death.


H11O107A


H11O108A


C56O185A

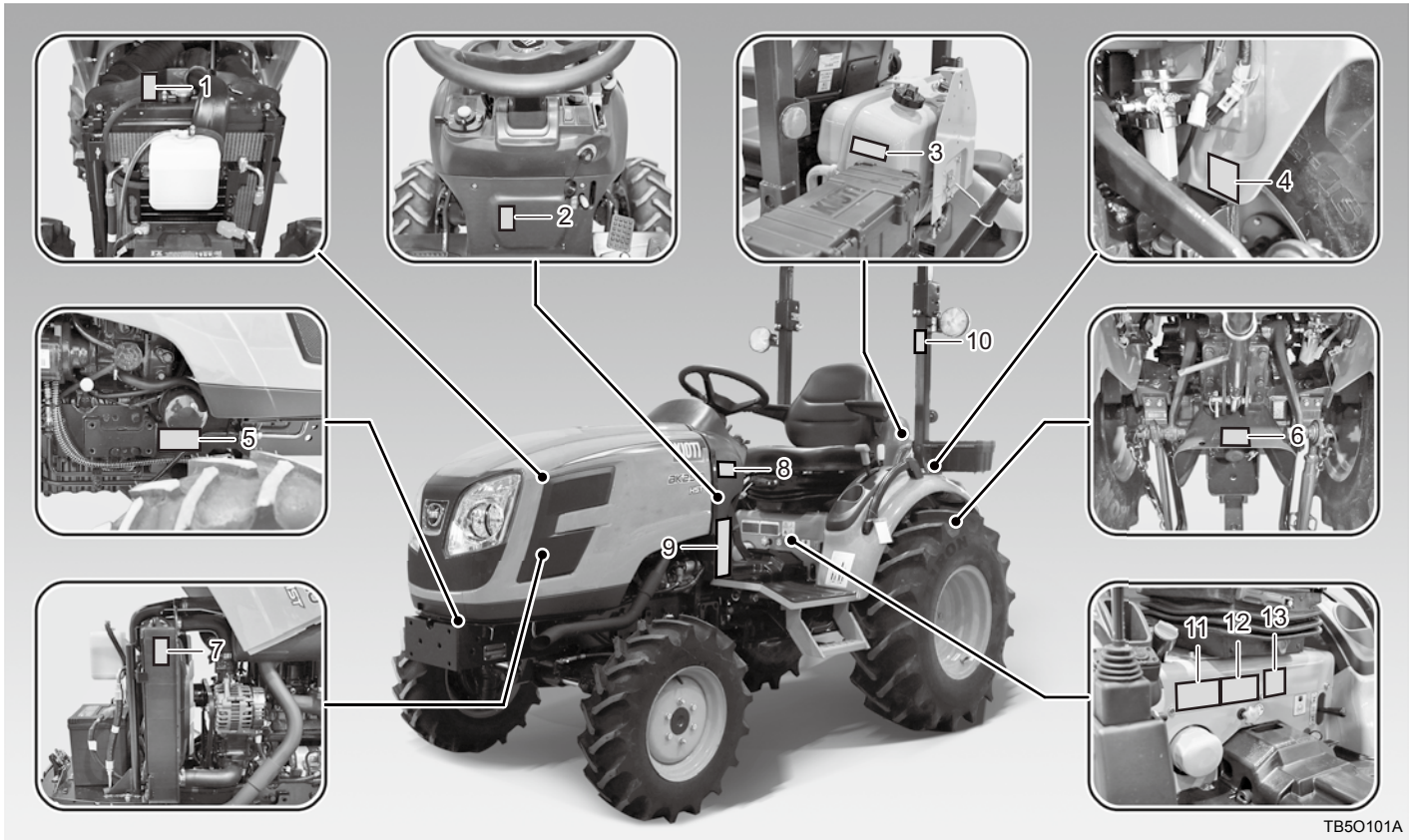
6. Do not allow loader arms or attachment to contact electrical power lines. Electrocution will cause serious injury or death.

7. Keep bystanders away. No riders.
   Otherwise, it may lead to a fatal injury or even death.

IMPORTANT

- **ROPS (Roll Over Protective Structure), sun canopy or cabin are not a FOPS (Falling Object Protective Structure).**
  It never can protect the riders against falling objects.
  Avoid driving the vehicle into a dangerous area such as falling rocks zone.

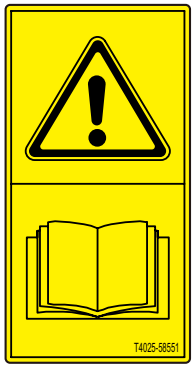
SAFETY DECAL MAINTENANCE
DECAL MOUNTING LOCATION



DECALS

(1) Part No.: T4025-58541

(2) Part No.: T4025-58551



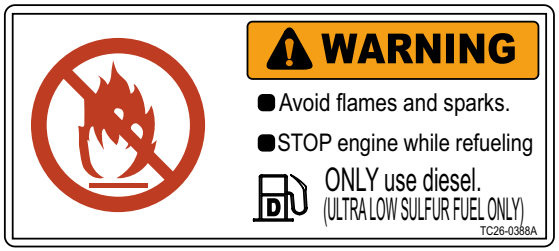
(4) Part No.: T2325-50192

REMINDER

1. Do not allow too much water or sediment to accumulate in the filter.
2. Replace paper element every 100 hours of operation.
3. Replace element if damaged or a hole is noticed.
4. Use the specified fuel only.

T2325-50192

(3) Part No.: TC26-0388A



(5) Part No.: T2350-52171

ENGINE OIL FILTER CARTRIDGE

1. Replace cartridge after every 150 hours of use.
2. Apply a thin film of oil to the surface of gasket before screwing on.
3. Tighten filter by hand.
4. When filter has been removed, the oil level will decrease. Be sure to check the crankcase oil level and refill to designated level. After starting the engine, check for leaks.

T2350-52171

(6) Part No.: T4025-58751

(7) Part No.: T4025-58741

(8) Part No.: T4182-53191

WARNING

TO AVOID POSSIBLE INJURY, DEATH OR LOSS OF PROPERTY FROM A MACHINE RUNAWAY

- With the engine off, unexpected machine movement could result regardless of the gearshift postion.
- Before dismounting the machine, apply the parking brake to prevent machine runaway.

T4182-53191

(9) Part No.: TD26-1009A

WARNING

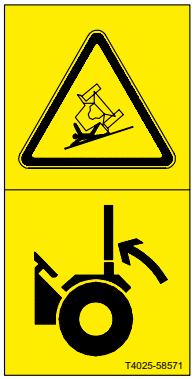
Breathing diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

- 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.

For more information go to www.P65warnings.ca.gov/diesel

TD26-1009

(10) Part No.: T4025-58571



(11) Part No.: T2350-53141

TRANSMISSION OIL FILTER CARTRIDGE

1. Change the cartridge oil filter after the first 50 hours of operation and every 200 hours thereafter.
2. Apply a slight coat of oil on to the cartridge gasket.
3. Install the new filter cartridge hand tight only. Over tightening may cause deformation of rubber gasket.

T2350-53141

(12) Part No.: T2360-53151

HST OIL FILTER CARTRIDGE

1. Change the cartridge oil filter after the first 50 hours of operation and every 200 hours thereafter.
2. Apply a slight coat of oil on to the cartridge gasket.
3. Install the new filter cartridge hand tight only. Over tightening may cause deformation of rubber gasket.

T2360-53151

(11) Part No.: T4025-58581

CAUTIONS FOR DECAL MAINTENANCE

Safety decals are attached to the tractor for safe operation. Make sure to follow the instruction on the decals as well as the following instruction:

⚠ CAUTION

- **Keep the decals clean and intact. If any decal is dirty, wash it with soap and dry with a soft cloth.**
- **Never use a solvent, such a thinner or acetone, since it can ruin the decals.**
- **Do not spray high-pressure water directly onto the decal. The decal may fall off the tractor.**

IMPORTANT

- **If a decal is damaged or lost, contact your local KIOTI dealer immediately to install a new decal.**
- **Make sure to attach the decal to the correct position cleanly without bubbles after cleaning its mounting surface.**
- **If a decal is attached to a component to be replaced, replace the decal as well.**

MEMO

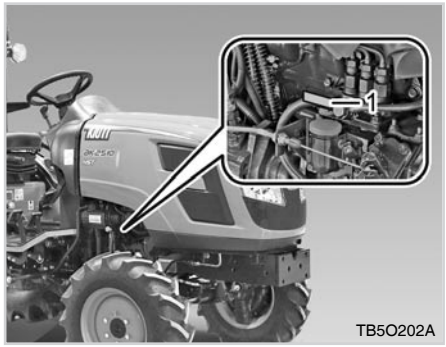
VEHICLE IDENTIFICATION NUMBER

TRACTOR SERIAL NUMBER

(1) Tractor Serial Number Plate

This number is to identify the vehicle, and its plate is attached on the front right side of the front axle frame.

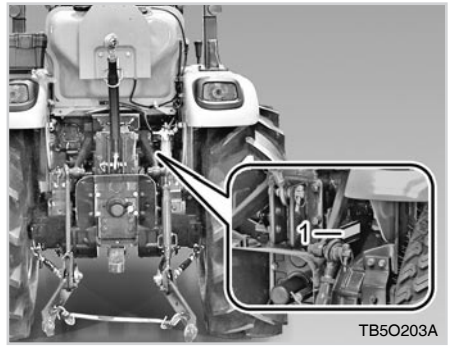
ENGINE SERIAL NUMBER



(1) Engine Serial Number

The engine number is marked on the intake manifold. It is also stamped on the mounting surface of the injection pump in case of its loss.

TRANSMISSION SERIAL NUMBER



(1) Transmission Serial Number

The transmission number is stamped on the transmission case behind the rear right wheel.

Your dealer is cares about you and your tractor and has the desire to help you get the most value from it. After reading this manual thoroughly, you will find that you can do some of the regular maintenance yourself.

However, when in need of parts, warranty or major service, be sure to see your **KIOTI** dealer. For service, contact the **KIOTI** dealership from which you purchased your tractor or your local authorized **KIOTI** dealer.

When in need of parts, be prepared to give your dealer both the tractor and engine serial numbers.

Before using non-**KIOTI** approved implements, contact your nearest dealer, regarding safety application of the implement.

- **Tractor Model Name:**
- **Tractor Serial No:**
- **Engine Serial No:**
- **Date of Purchase:**

To be filled in by owner.

ESSENTIAL REPLACEMENT PARTS

OILS AND FLUIDS


H11O204A

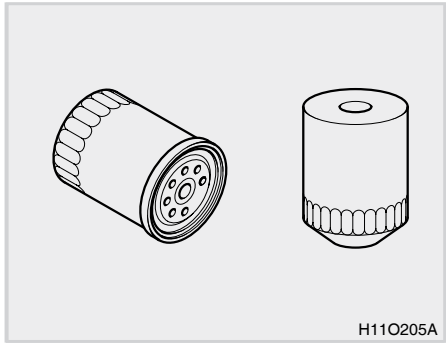
Various oils and fluids are used in this tractor for operation, lubrication, cooling, and anti-corrosion of various parts.

If oil or fluid is insufficient, contaminated or degraded, it can cause poor performance, incorrect operation, and seized parts of the tractor, leading to malfunctions.

Regularly add or change the fluid specified on the right to keep the tractor in perfect condition.

NO.	ITEM	SPECIFICATION	CAPA [U.S.gal. (L)]	
			MANUAL	HST
1	Engine oil	Tier2 or 3 (Without DPF) - API CH grade above Tier4 (With DPF) - API CJ grade above SAE 10W30, 10W40, 15W40	1.53 (5.8)	
2	Transmission fluid	DAEDONG UTF55 Exxonmobil Mobilfluid 424 BP:Tractran UTH Exxonmobil Hydraulic 560 Shell:Donax TD	6.20 (23.5)	5.42 (20.5)
3	Grease	SAE multi purpose type grease	Apply in moderation	
4	Antifreeze	Fresh clean water with ethylene glycol (50:50)	2.06 (7.8)	
5	Front axle oil	SAE #90 grade higher or TM oil	0.8 (3.0)	

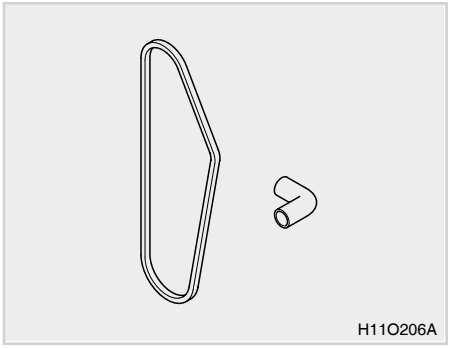
FILTERS


H11O205A

Filters for the engine, transmission, air cleaner, and A/C are consumables that purify oil and air. Make sure to replace the these items when changing oil.

NO.	PART NO	DESCRIPTION	QTY
1	E6201-32443	Engine Oil Filter	1
2	T4665-34001	Hydraulic Filter	1
3	76KD-1033-1	Fuel Filter Element	1
4	T4665-11541	Element assembly	1

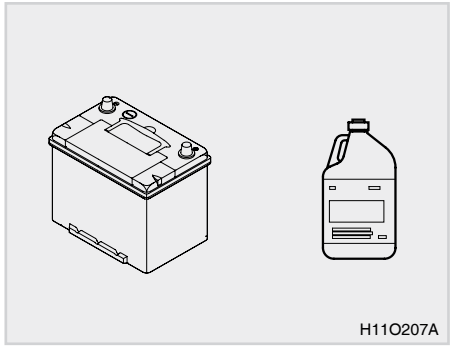
BELTS AND RUBBER PARTS



Belts, hoses and boots, which are made of rubber, get weakened and cracked as they age. If these parts remain in this state, they can be broken off, leading to a serious problem in the tractor. Therefore, regularly check or replace those items to prevent the failure.

NO.	PART NO	DESCRIPTION	QTY
1	E5640-72531	Fan Belt	1

OTHER COMPONENTS



The battery condition is very important for engine start performance especially in winter.

Therefore, make sure to check its condition daily.

NO.	PART NO	DESCRIPTION	QTY
1	-	Battery (65AH R-type)	1

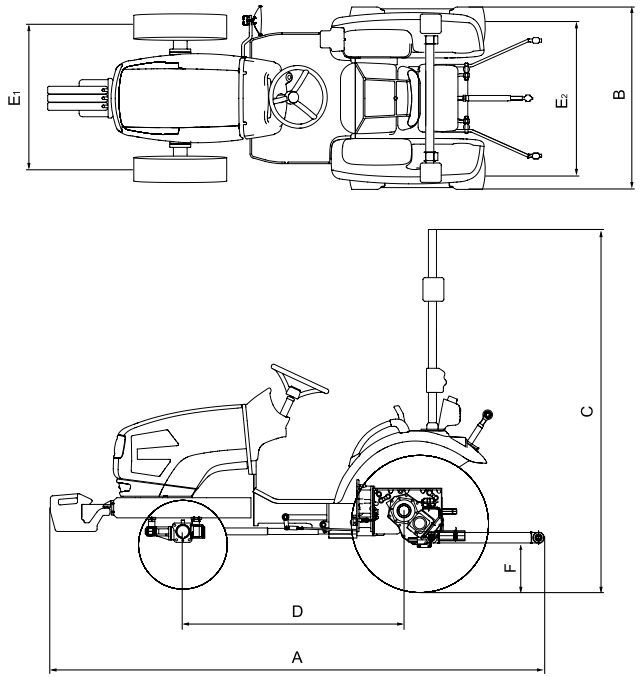
MEMO

3

3

GENERAL SPECIFICATIONS
EXTERNAL DIMENSIONS

in. (mm)



TB5O301A

ITEM	MODEL	
	CX2510	CX2510H
1. Overall length (A)	124.8 (3,170)	
2. Overall width (B)	49.4 (1,256)	
3. Overall height (C)	82.8 (2,103)	
4. Wheel base (D)	59.8 (1,520)	
5. Tread (E1)	38.1 (968)	
6. Tread (E2)	37.4 (951)	
7. Ground clearance (F)	13.4 (340)	

※ A: Front weights + 3-Point hitch
E1: Front wheel tread E2: Rear wheel tread

※ NOTE: The specifications are subject to change for the purpose of improvement without any notice.

※ These dimensions are measured with the standard tires installed on the **ROPS** model tractor.

GENERAL SPECIFICATIONS

ITEM			MODEL		REMARK
			CX2510H	CX2510	
Engine	Model		3A165LWH-U2	3A165LWH-U2	
	Number of cylinders		3		
	Total displacement	cc (cu)	1,647 (87)		
	Bore and stroke	in. (mm)	3.4 X 3.6 (87 X 92.4)		
	Engine gross power	HP (kW)	24.5 (18.3)		
	PTO Power	HP (kW)	18.8 (14)	19.3 (14.4)	
	Rated revolution	rpm	2,600		
Capacities	Fuel tank	U.S.gal. (L)	6.6 (25)		
	Transmission oil	U.S.gal. (L)	5.42 (20.5)	6.20 (23.5)	
	Front axle oil	U.S.gal. (L)	-		
Drive train	Clutch		Dry single		
	Transmission		Hydrostatic	Manual	
	No. of speeds		-	6F2R	
	Ground speed [Tire for agriricultural (AG)] mph (km/h)	Forward	0 - 21.74	1.22 - 19.07	
		Reverse	0 - 15.22	1.51 - 7.40	
	4-wheel drive		Mechanical		
	Quick turn (QT)		None		
	Brake		Wet disc type		
	Differential lock		Rear Standard		

※ NOTE: The specifications are subject to change for the purpose of improvement without any notice.

ITEM			MODEL		REMARK
			CX2510H	CX2510	
Tires	Agricultural	Front	7 - 12/6		
		Rear	11.2 - 16/6		
	Turf	Front	23 x 8.5 - 12		
		Rear	33 x 12.5 - 16.5		
	Industrial	Front	23 x 8.5 - 12		
		Rear	12 - 16.5		
Hydraulic system	Pump capacity L/min (gpm)		42.9 (11.32) [Main : 26 (6.86) / Steering: 16.9 (4.46)]		
	Steering		Power Steering		
	Hydraulic lift control		Position control		
	Standard remote valve quantity		1 (Option)		
	3-point hitch		Category I		
	Max. lifting capacity Kgf (lbs.)	24 in. (61 cm) Behind	546 (1,203)		
		Lower link end	739 (1,629)		
PTO	Type		Live	Transmission	
	PTO shaft		SAE 1-3 / 8″ 6 splines		
	Rear rpm		540		
Weigh (Incluiding ROPS) lbs. (kg)			2,308 (1,047)	-	

※ NOTE: The specifications are subject to change for the purpose of improvement without any notice.

NOISE LEVELS AS PERCEIVED BY THE OPERATOR

The following tables give the noise level values, measured from the driver's seat in instantaneous conditions in compliance with standards EEC77/31(dBA) - annex II (without load) - and when driving by in compliance with standard EEC 74/151 (dBA).

Tractors with Cabin			
Model	**Directive of The European Parliament and of the Council**	**Noise level at the operator's ear according to 2009/76/EC**	**Noise level in motion according to 2009/63/EC**
CX2510	2003/37/EC	85.2 dB(A)	79.5 dB(A)
CX2510H		85.8 dB(A)	80.1 dB(A)

※ Note: Data supplied by the manufacturer, approval values pending.

VIBRATION LEVELS OF THE TRACTOR

⚠ WARNING

- ***The vibration level transmitted to the body as a whole depend on different parameters, some of them relating to the machine, others to the terrain and many specific for the operator. The prevailing parameters are the type of terrain or work surface and the ground speed.***
- ***Vibrations cause discomfort for the operator and in some cases put his/her health and safety at risk.***
- ***Make sure that the tractor is in good condition and that all routine servicing is correctly and regularly carried out.***
- ***Check tire pressure and the steering and braking systems.***
- ***Check that the operator's seat and adjustment systems are in good condition, then adjust the seat to the operator's weight and size.***

⊕ IMPORTANT

- **More information on Whole Body Vibration (WBV) on agricultural tractors can be found in more specific publications and the relative risks can be taken into account following the laws of the country. In order to correctly estimate statistical values based on your daily work on the tractor, a specific measure instrument is required, such a three-axis accelerometer applied to the seat**

In accordance to EU Directive 78/764/EC the following table shows vibration levels measured on seats, in aws.

Operator's Vibration level			
Seat type	**Directive of The European Parliament and of the Council**	**Light-weight operator**	**Heavy-weight opeartor**
W08SSS	78/764/EEC	Less than 1.25 m/s^2	Less than 1.25 m/s^2

* aws = correct weighted value of the vibration acceleration (m/s^2)

TRAVELING SPEED

MANUAL MODEL

mph (km/h)

HI - LOW	MAIN		SPEED
LOW	Forward	1	0.758 (1.22)
		2	1.174 (1.89)
		3	2.417 (3.89)
	Reverse		0.938 (1.51)
HI	Forward	1	3.461 (5.57)
		2	5.338 (8.59)
		3	11.004 (17.71)
	Reverse		4.269 (6.87)

* At rated engine speed (2,600 RPM)

HST MODEL

mph (km/h)

HI - LOW	MAIN	SPEED
LOW	Forward	0 ~ 4.455 (0 ~ 7.17)
	Reverse	0 ~ 3.120 (0 ~ 5.02)
HI	Forward	0 ~ 12.545 (0 ~ 20.19)
	Reverse	0 ~ 8.780 (0 ~ 14.13)

* At rated engine speed (2,600 RPM)

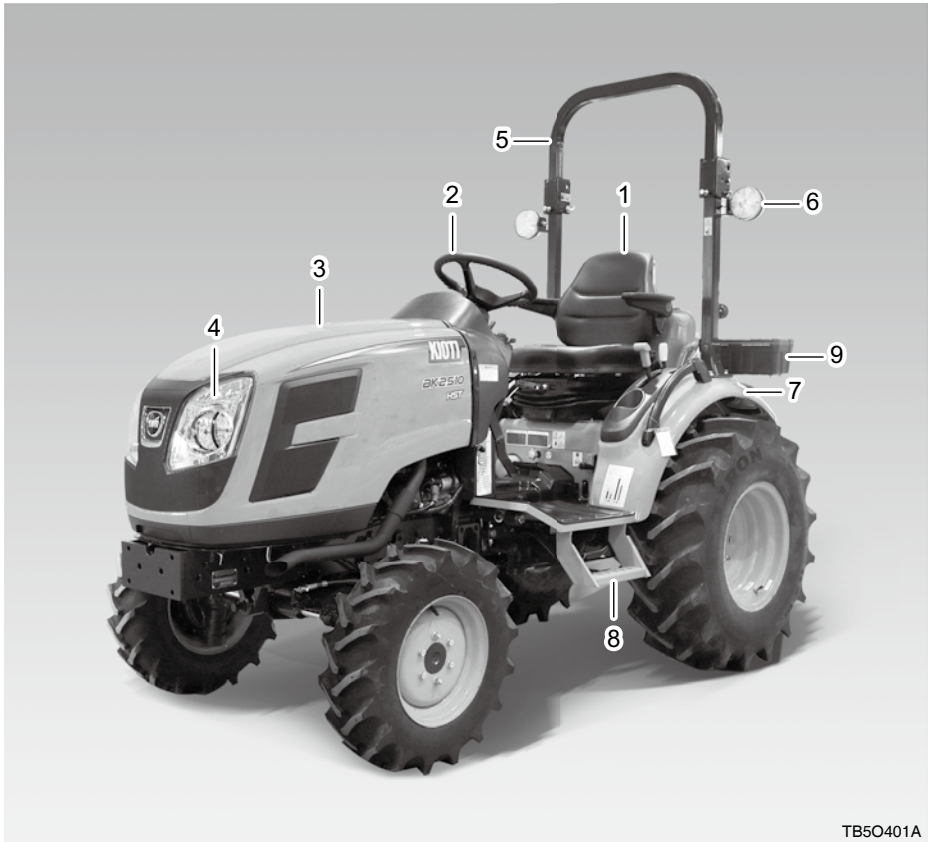
IMPLEMENT LIMITATIONS
STANDARD SIZE BY IMPLEMENT

in. (mm)

IMPLEMENT	DESCRPITION	CX2510 / CX2510H	REMARKS
1. Loader	Max. Bucket width	48.0 (1,219), 54.0 (1,372)	Operating Capa.300 Kgf (660 lbs.) and below
2. Backhoe with sub frame	Max. Digging depth	Below 77.0 (1,956)	Do not use 3 point hitch backhoe
3. Mid Mower	Max. width	Below 60.0 (1,524)	
4. Tiller	Max. width	Below 47.0 (1,194)	
5. Box Blade	Max. width	Below 48.0 (1,219)	
6. Rear Blade	Max. width	Below 60.0 (1,524)	
7. Rotary Cutter	Max. width	52.0 (1,321), 56.0 (1,524)	
8. Belt Guard	Max. width	52.0 (1,321), 60.0 (1,524)	
9. Chain Guard	Max. width	52.0 (1,321), 60.0 (1,524)	
10. Bale Transport	Max.	Below 48.0 (1,219)	
11. Core Aerator	Max.	48.0 (1,219), 60.0 (1,524)	

DESCRIPTION OF OPERATING SYSTEM

EXTERIOR VIEW

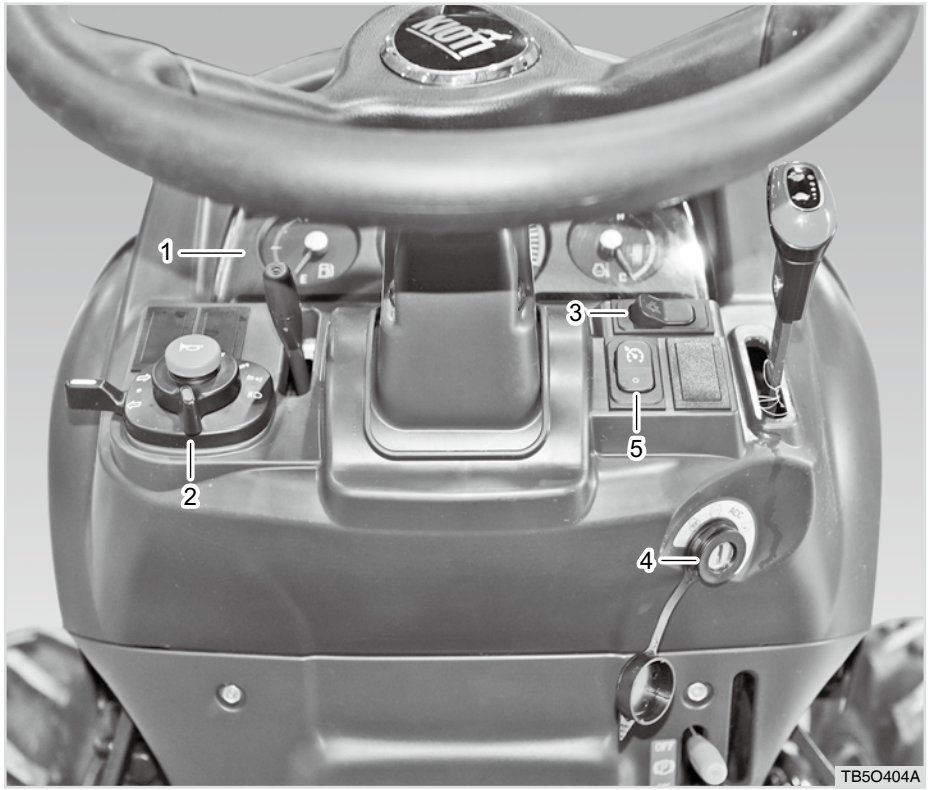


(1) Seat
(2) Steering Wheel
(3) Hood / Bonnet
(4) Head Lamp
(5) ROPS
(6) Combination Lamp
(7) Fender
(8) Step
(9) Toolbox

(1) Fuel Tank Cap
(2) Top Link
(3) Lift Arm
(4) PTO Cover
(5) Turn Buckle
(6) Lower Link
(7) Draw Bar
(8) Reflector

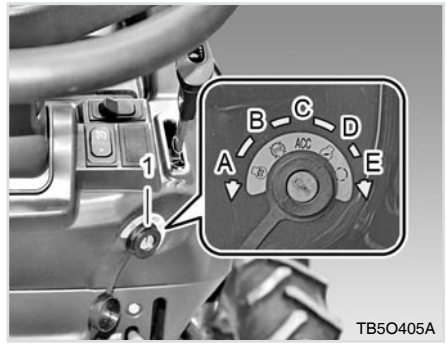
SWITCH

SWITCH MOUNTING LOCATION



(1) Instrument Panel
(2) Combination Switch
(3) Hazard Lamp Switch
(4) Key Switch
(5) HST Cruise Switch (HST Only)

KEY SWITCH



(1) Key switch *(A) Pre-heat* *(B) OFF*
(C) ACC *(D) ON* *(E) Start*

- **Pre-heat** (A)

  The preheat operation is automatically activated according to the change in the ambient temperature. When the preheat indicator goes off, start the engine.

Ambient temperature	Preheat time
Below 15°C	ON for 20 sec.
15° ~ 30°	ON for 9 sec.
Over 30°	OFF

- **OFF** (B)

  When the key switch is in position "B", the engine and all electrical devices in the vehicle are turned off.

- **ACC** (C)

  When the key switch is turned to the position "C," power is supplied to the tail lamps. Therefore, when depressing the brake pedal with the switch in this position, the tail lamps come on.

- **ON** (D)

  This position "D" corresponds to the position "ON." In this position, the engine oil pressure warning lamp and battery charge warning lamp on the instrument cluster come on and the preheating operation is automatically started.(These lamps go off as soon as the engine is started) The automatic preheating operation is informed by illumination of the preheat indicator on the instrument cluster. In cold weather, preheat the engine sufficiently until the preheat indicator goes off (approx. 8 seconds).

- **Start** (E)

  The position "E" is to start the engine. To start the engine, depress the clutch pedal. As soon as the engine is started, release the key immediately. Then, the key switch is returned to the position "D".

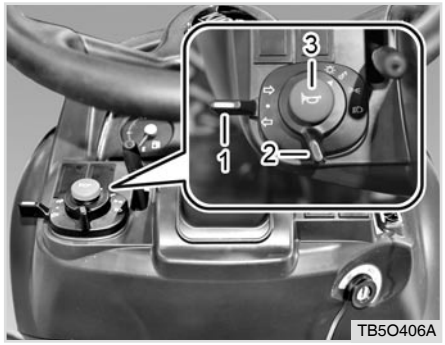
NOTE

- The ignition key is directional and can be inserted in one direction. Also, be careful not to leave the tractor unattended with the key in the tractor.
- The horn, turn signal lamp, and hazard lamp can be operated without the key inserted.

⚠ CAUTION

- **Stop the engine immediately if the oil pressure warning lamp does not go off after the engine is started. The engine may be severely damaged.**
- **If the battery charge warning lamp does not go off after the engine is started, check the electrical systems, such as the alternator, for faults. Continuing to use the engine under this condition can discharge the battery or damage other electrical devices.**

COMBINATION SWITCH

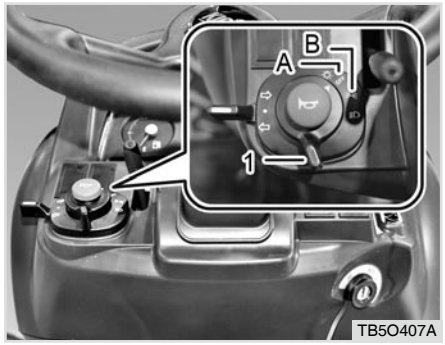


(1) Turn Signal Light Switch
(2) Head Light Switch
(3) Horn Switch

The combination switch consists of the head light, turn signal light, and horn switches. Its function by its position is as follows:

- OFF: Head light and tail light OFF
- : Low beam and tail light ON
- : Turn signal light and tail light ON

HEAD LIGHT SWITCH



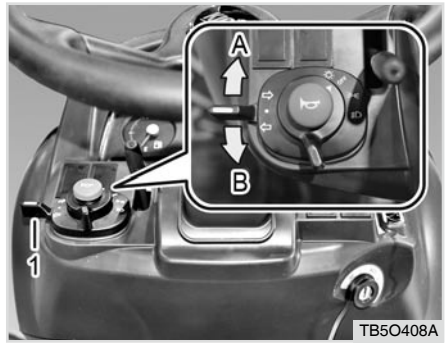
(1) Head Light Switch
(A) OFF *(B) Head Light ON*

The head light switch can be operated only while the key switch is in "ON " position. Turning the head light switch to the position "B" turns on the instrument panel illumination and head lights.

WARNING

- ***Driving with high beam head light disturbs the approaching vehicle's visibility for safe driving. Use the high beam head lights only if necessary.***

TURN SIGNAL LIGHT SWITCH



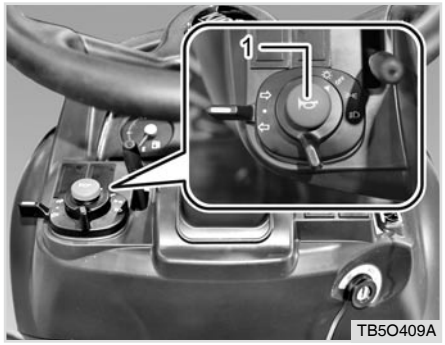
(1) Turn Signal Light Switch
(A) Right Turn *(B) Left Turn*

The turn signal lights are used when turning the vehicle left or right. Pulling the lever up blinks the right turn signal light while pushing the lever down blinks the left turn signal light.

NOTE

- The turn signal light lever is not the self-return type. Therefore, make sure to return the lever manually after turning the vehicle.
- The turn signal lamps can be operated without the key inserted.

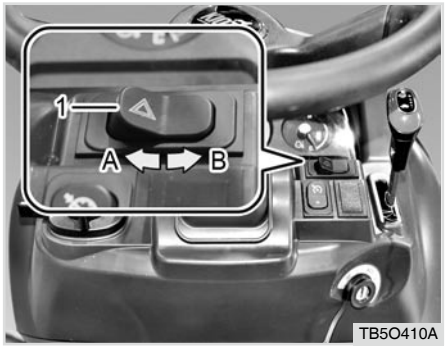
HORN SWITCH



(1) Horn Switch

The horn switch can be operated without the key inserted. Pressing this switch sounds the horn.

HAZARD LAMP SWITCH



(1) Hazard Lamp Switch
(A) ON (B) OFF

This switch can be used to warn other vehicles when malfunction occurs in the tractor while driving on a public road. Pressing this switch up blinks the hazard lamp and returning it turns off the lamp. The turn signal lights cannot be operated while this switch is pressed up to operate the hazard lamps.

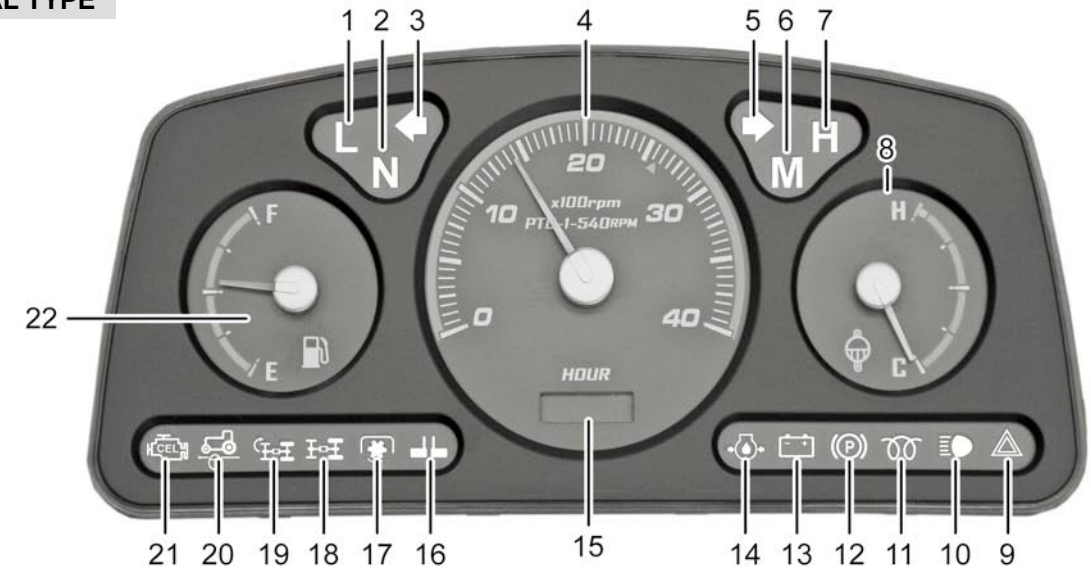
⚠ CAUTION

- **If the hazard lamps are turned on for an extended period of time while the engine is stopped, the battery can be discharged. Therefore, use them only in emergency.**
- **The hazard lamp can be operated without the key inserted.**

INSTRUMENT PANEL
VIEW

Symbols on the instrument panel come on when the key switch is turned to the "ON" position.

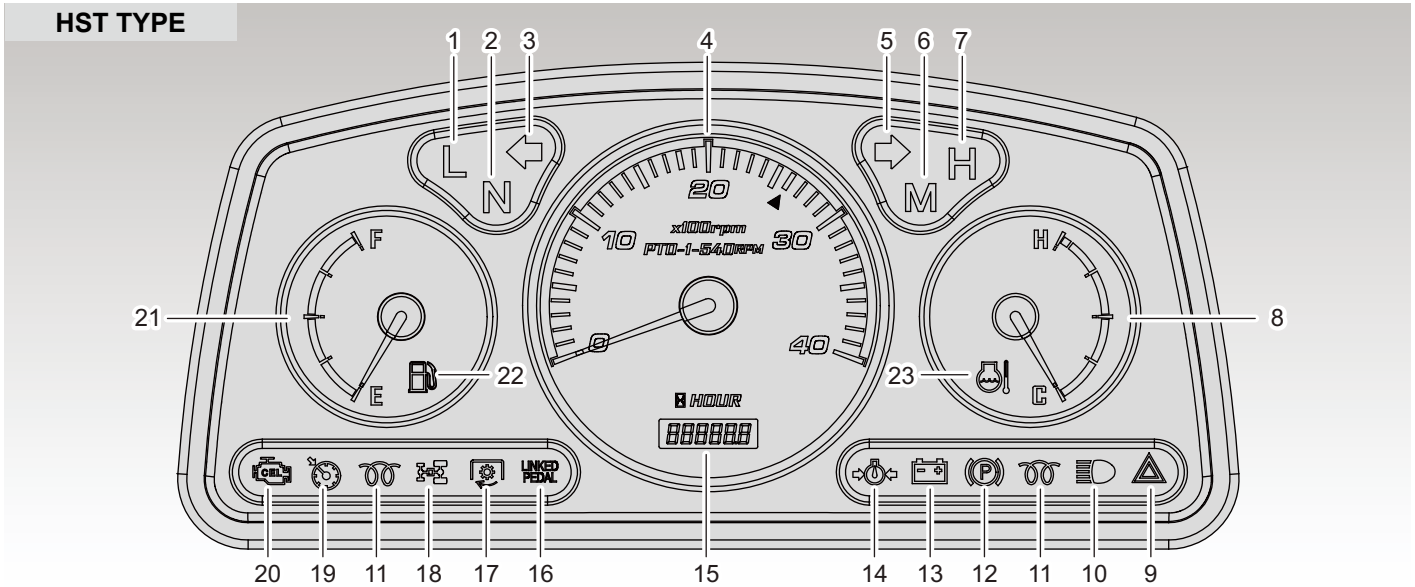
MANUAL TYPE



M56O449B

(1) Low Speed Indicator
(2) Neutral Indicator
(3) Turn Signal Light (LH)
(4) Tachometer
(5) Turn Signal Light (RH)
(6) Mid Speed Indicator
(7) High Speed Indicator
(8) Coolant Temperature Gauge
(9) Hazard Lamp
(10) High Beam Indicator
(11) Glow Plug Indicator
(12) Parking Brake Indicator
(13) Battery Charge Warning Lamp
(14) Engine Oil Pressure Warning Lamp
(15) Hour Meter
(16) Brake (One Side) Lamp
(17) PTO Indicator
(18) 4WD Engaged Indicator
(19) Quick Turn Lamp
(20) Cruise Indicator
(21) Engine Check Warning Lamp
(22) Fuel Gauge

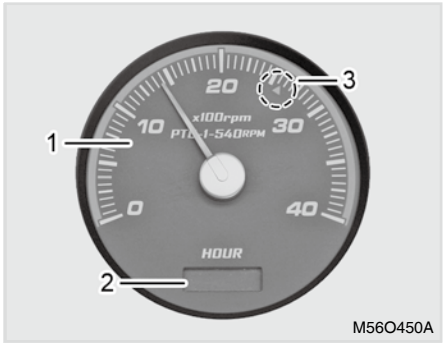
HST TYPE



TB5O433A

(1) Low Speed Indicator
(2) Neutral Indicator
(3) Turn Signal Light (LH)
(4) Tachometer
(5) Turn Signal Light (RH)
(6) Mid Speed Indicator
(7) High Speed Indicator
(8) Coolant Temperature Gauge
(9) Hazard Lamp
(10) High Beam Indicator
(11) Glow Plug Indicator
(12) Parking Brake Indicator
(13) Battery Charge Warning Lamp
(14) Engine Oil Pressure Warning Lamp
(15) Hour Meter
(16) Linked Pedal Lamp
(17) PTO Indicator
(18) 4WD Engaged Indicator
(19) HST Cruise Lamp
(20) Engine Check Warning Lamp
(21) Fuel Gauge
(22) Low Fuel Level Warning Lamp
(23) Coolant Temperature Warning Lamp

TACHOMETER / HOUR METER INDICATOR

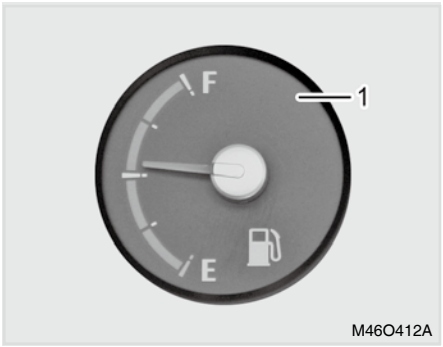


(1) Tachometer
(2) Hour Meter Indicator
(3) Rated Engine Speed

It indicates the engine rpm that can drive 540 rpm of PTO speed. For speedy and effective work, adjust the work load so that the engine rpm is close to this mark "▲".

The hour meter does not operate if the engine is stopped even though the key switch is in the "ON" position.

FUEL GAUGE



(1) Fuel Gauge
E: Empty *F: Full*

This indicates the remaining fuel level after the key switch is turned to the "ON" position.

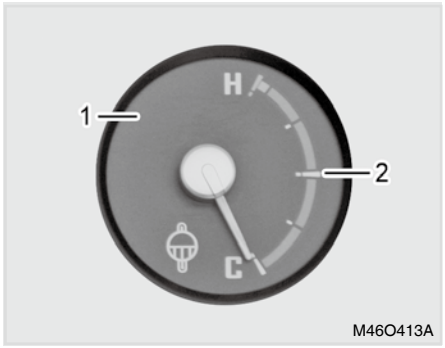
- F: Fuel is fully filled.
- E: Replenish the fuel tank.

If driving is continued with the needle below the position "E", air may enter the fuel supply system. In this case, "Bleed" the system.(For detailed instructions, refer to "Bleeding fuel system" in the chapter "Service")

NOTE

- Make sure to use only correct fuel as the engine can be damaged if unqualified fuel is used.
- Use fuel for winter season in cold weather to start the engine easier.
- The gauge needle can move on a hill or curve as fuel slopes in the tank.

ENGINE COOLANT TEMPERATURE GAUGE



(1) Coolant Temperature Gauge
(2) Normal Driving Range
C: Cold H: Hot

This gauge indicates the coolant temperature after the key switch is turned to the "ON" position.

• C: Coolant is cold.

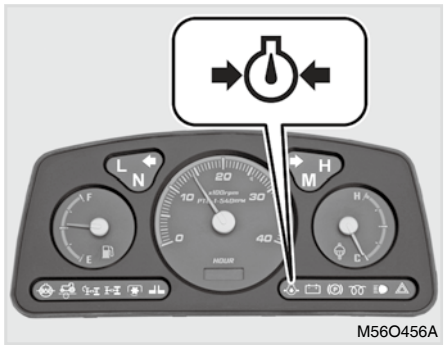
• H: Coolant is hot.

The range marked in "2" in the figure indicates the normal engine temperature.(Normal driving range)

⚠ CAUTION

- **Make sure to control the work load so that the needle is not in the red zone.**
- **If the needle stays in the red zone with buzzer, do not stop the engine immediately. Instead, reduce the work load to cool down the engine before stopping the engine.**
- **Make sure to keep the front grill clean so that air is sucked through it freely for fast cooling.**

ENGINE OIL PRESSURE WARNING LAMP



This lamp comes on when the engine oil pressure or oil level is low.

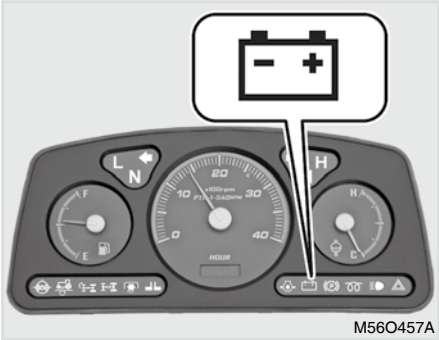
This lamp is turned On when the starting switch is turned On before starting the engine but turned Off after starting the engine. If this lamp comes with buzzer on while driving, stop the engine immediately and check the engine oil level.

If this lamp comes on even with the specified engine oil level, have the tractor checked by your local **KIOTI** dealer or workshop immediately.

⚠ CAUTION

- **If the oil level is below the specified range, the engine can seize.**
- **The engine can be severely damaged if driving or operating the tractor with the engine oil warning lamp "ON".**

BATTERY CHARGING LAMP



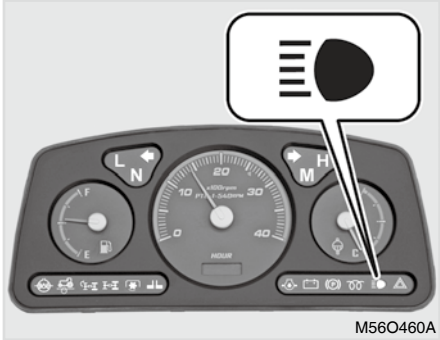
M56O457A

This lamp is turned On when the starting switch is turned On before starting the engine, but turned Off after starting the engine.

⚠ CAUTION

- **If this warning lamp comes on while driving, the charging system, such as the alternator, is malfunctioning. Therefore, turn off all electrical devices and have the tractor checked by your local KIOTI Dealer as soon as possible.**

HEAD LIGHT HIGH BEAM INDICATOR

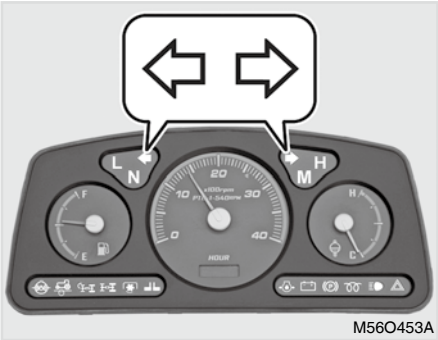


M56O460A

This lamp comes on in blue when the high beam head light is switched on.

Driving with high beam head light disturbs an approaching vehicle's visibility. For safe driving, use the high beam head light only if necessary.

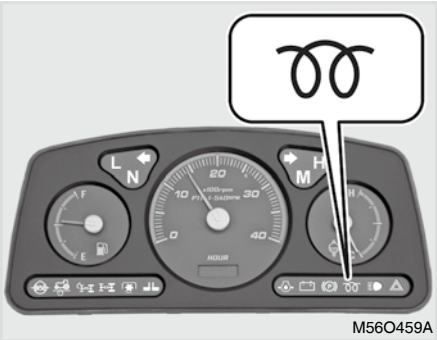
TURN SIGNAL LAMP



M56O453A

Operating the turn signal lamp switch turns on the corresponding lamp in green.

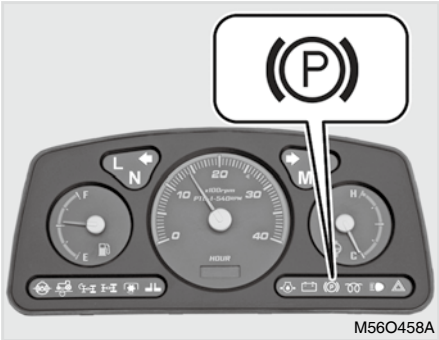
GLOW PLUG INDICATOR



M56O459A

This indicates the operating condition of the preheat system. When the key switch is turned to the "ON" position, this indicator comes on for approx. 8 seconds. It is recommended to start the engine as soon as this indicator goes off for best starting performance. This indicator may not turn on if the engine is warm. In this case, the engine can be started without the preheat operation.

PARKING BRAKE WARNING LAMP



M56O458A

When the parking brake is actuated, the lamp lights "ON".

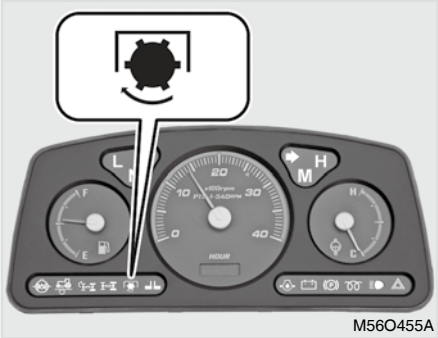
⚠ CAUTION

- **If this indicator is "ON" even with the parking brake released, have the tractor checked by your local KIOTI dealer or workshop immediately.**

ENGINE CHECK WARNING LAMP

This warning lamp comes on when any major electric device or engine fuel system is malfunctioning. When this warning lamp is illuminated, make sure to stop the engine immediately and have the engine checked.

PTO INDICATOR (IF EQUIPPED)

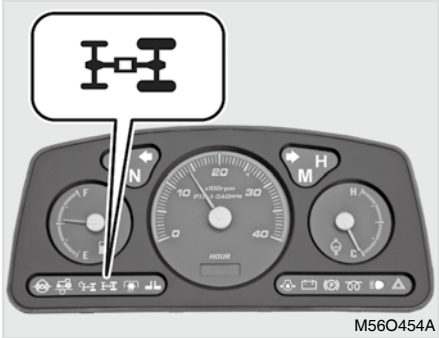


This indicator shows the PTO engagement condition. When the PTO is engaged, this indicator comes on. When the PTO clutch is disengaged, this indicator goes off.

⚠ CAUTION

- **Set the PTO switch to the "OFF" position in order to start the engine.**

4WD ENGAGED INDICATOR (IF EQUIPPED)

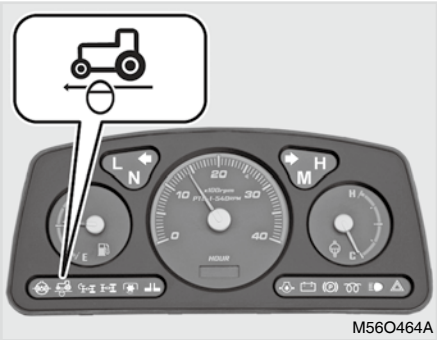


This comes on to indicate 4WD engagement.

⚠ CAUTION

- **The durability of the axle can be deteriorated if only one brake pedal is depressed while the 4WD is activated.**

CRUISE LAMP (OPTIONAL)



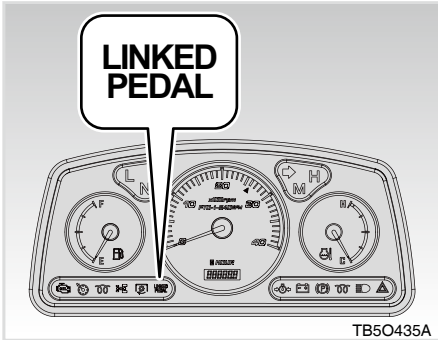
1. Operating condition

   Turn on the cruise switch during driving. Then, the cruise lamp comes on.

2. Deactivation condition

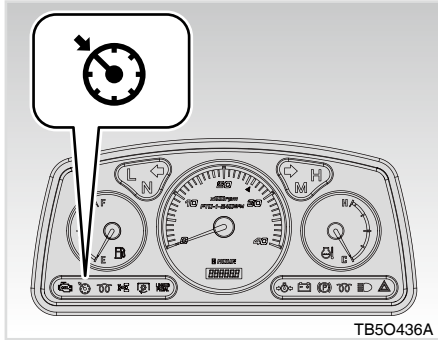
   When pressing the brake pedal or turning off the cruise switch, the cruise lamp goes off.

LINKED PEDAL LAMP (HST ONLY)



The lamp comes on when the synchronization switch or lever is connected.

HST CRUISE LAMP (HST ONLY)



To activate the cruise control function, set the desired speed and press the switch to the “ON” position.

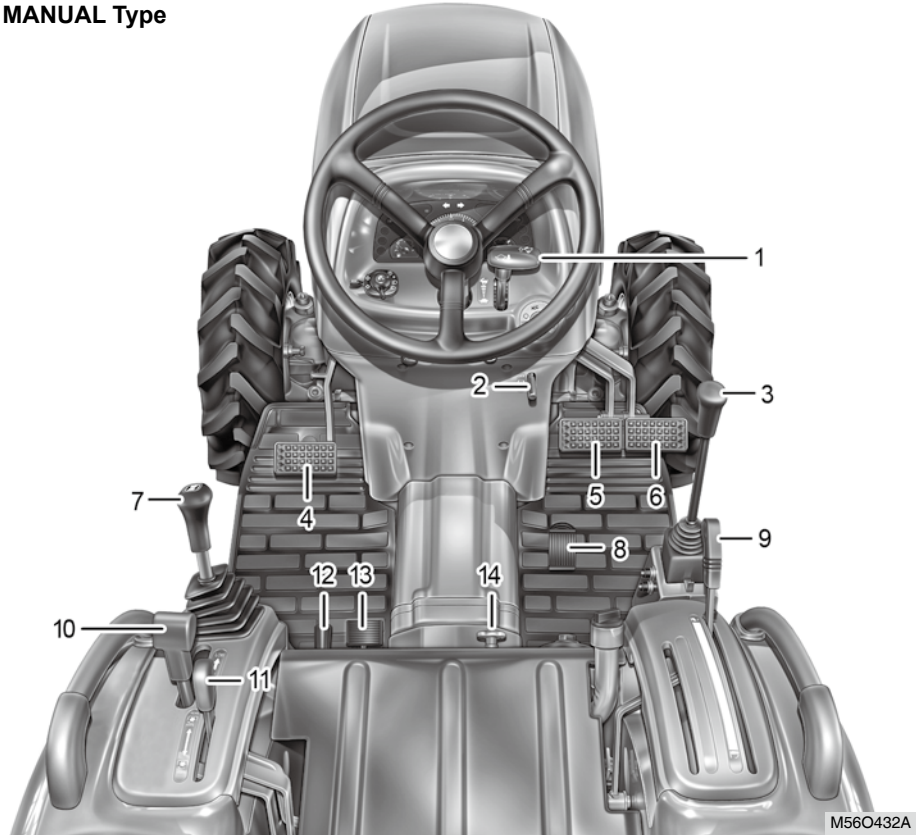
In this case, the HST cruise lamp comes on the cluster meter.

Depress the HST pedal to increase the driving speed in order to accelerate at a constant speed. To deactivate the cruise function, depress the brake pedal or press the switch to the “OFF” position.

The cruise function is not activated during reverse.

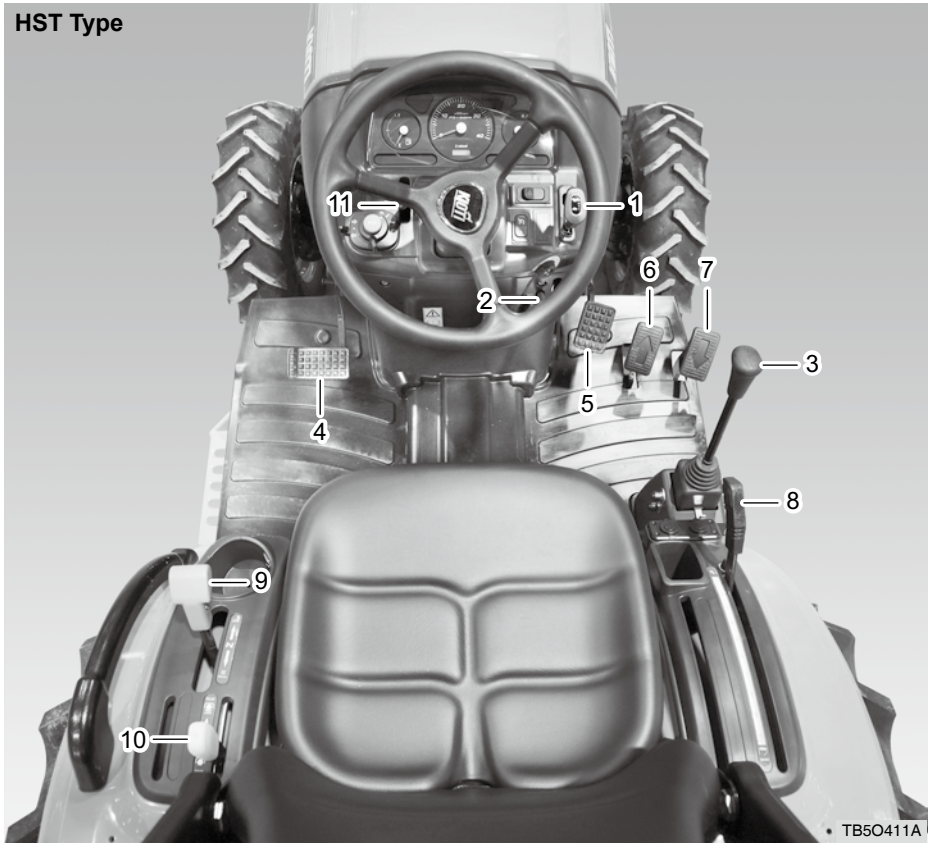
OPERATING THE CONTROLS

MANUAL Type



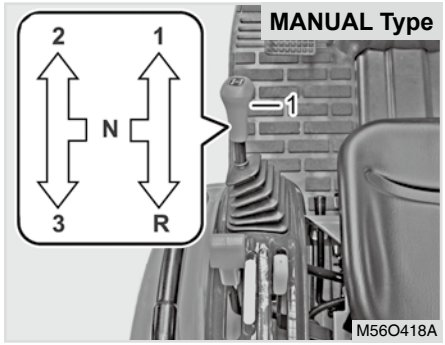
(1) Hand Throttle Lever
(2) Parking Brake Lever
(3) Joy-stick Lever
(4) Clutch Pedal
(5) Brake Pedal (L)
(6) Brake Pedal (R)
(7) Main Shift Lever
(8) Accelerator Pedal
(9) Position Control Lever
(10) Range Shift Lever
(11) Rear PTO Change Lever
(12) Front Wheel Drive Lever
(13) Differential Lock Pedal
(14) 3 point hitch lowering speed knob

HST Type



(1) Hand Throttle Lever
(2) Parking Brake Lever
(3) Joy-stick Lever
(4) Clutch Pedal
(5) Brake Pedal
(6) HST Pedal (Forward)
(7) HST Pedal (Reverse)
(8) Position Control Lever
(9) Range Shift Lever
(10) Rear PTO Change Lever
(11) Tilt Lever

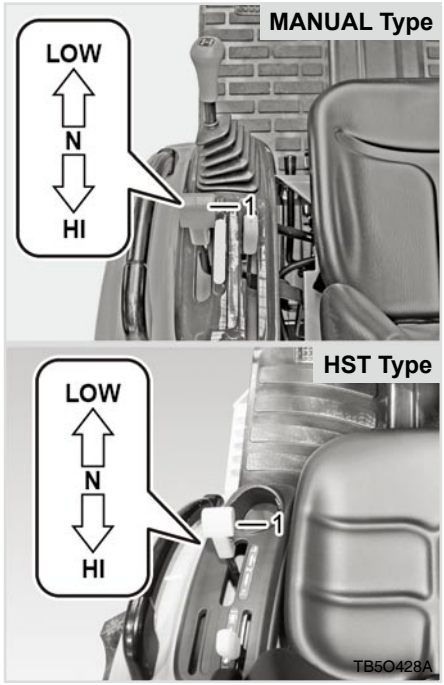
MAIN SHIFT LEVER



(1) Main Shift Lever

The transmission consists of 3 forward speeds, 1 reverse speed and 2 range speeds. Therefore, 6 forward speeds and 2 reverse speeds can be selected in total as desired.

RANGE SHIFT LEVER



(1) Range Shift Lever

FOR MANUAL TYPE

The range shift lever can be shifted between two positions: "HI" and "LOW". Make sure to shift the lever with the vehicle stationary by depressing the clutch pedal. If it is hard to shift the lever or abnormal noise is produced during shifting, depress the clutch pedal and try again.

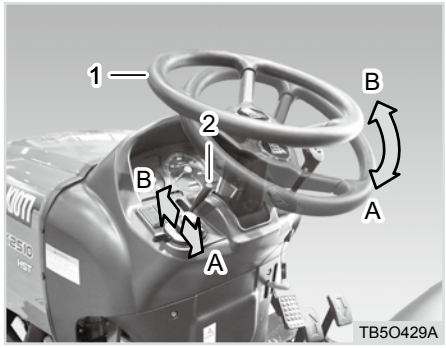
FOR HST TYPE

When you shift the range lever to Hi or Low, after stopping the machine and then shift to the Hi or Low.

⚠ CAUTION

- **Make sure to shift the range gear shift lever with the clutch pedal depressed and the tractor stationary.**
- **When the lever is in the "HI" position, increased driving speed can lead to a dangerous situation. Make sure to put the lever in the "LOW" position when driving backwards.**
- **The tractor is not braked by depressing the brake pedal without depressing the clutch pedal at a low speed as rotational force of the axle has a major effect at a low speed. Therefore, disengage the clutch before depressing the brake pedal to stop the tractor.**
- **To shift the lever, depress the clutch pedal fully.**

STEERING WHEEL ADJUSTMENT



(1) Steering Wheel *(2) Tilt Lever*
(A) Down *(B) Up*

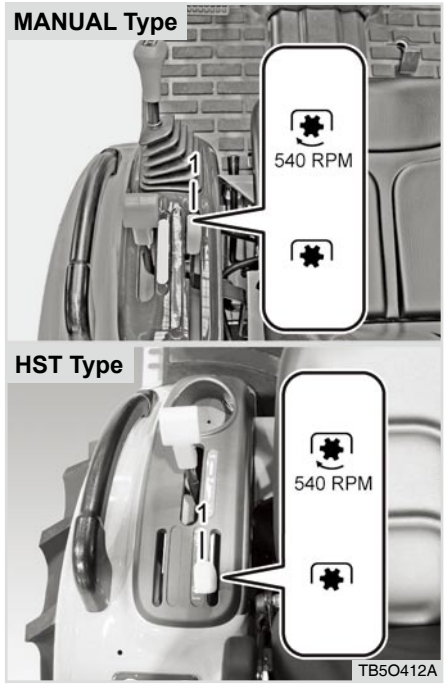
The vertical angle of the steering wheel can be adjusted as desired.

Pull up the tilt lever, adjust the steering wheel position and push down the tilt lever to fix the wheel.

⚠ CAUTION

- **Never adjust the steering wheel position during driving. Otherwise, A personal injury can occur.**

PTO CHANGE LEVER



(1) PTO Change Lever
: OFF *: ON*

1. The tractor has a 540 rpm speed position.
2. PTO shifting needs clutch operation. Press the clutch pedal down completely to stop the tractor movement and any PTO driven equipment movement before shifting the PTO gear shift lever.

(rpm)

Engine Speed min^{-1}	2,646
Shaft	6-Spline
PTO Speed min^{-1}	540

⚠ CAUTION

To prevent injuries:

- **When connecting, disconnecting or cleaning any PTO driven equipment, stop all rotating parts, stop the engine and disengage the PTO.**

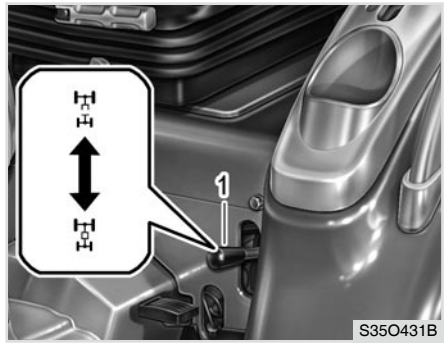
⊕ IMPORTANT

- **Never rest your foot on the clutch pedal during driving. The clutch disc can be rapidly worn.**
- **Depress the clutch pedal fully during shifting. Otherwise, the life of the shift gear can be reduced.**

NOTE

- There is a mark for 540 RPM on the speedometer.

FRONT WHEEL DRIVE LEVER



(1) Front Wheel Drive Lever

: Engaged *: Disengaged*

The front wheel drive should always be engaged when the tractor is stopped. Shift the lever to the "ON" position to engage the front wheel.

⚠ CAUTION

To avoid personal injury:

- **You should not engage your front wheel drive while traveling at road speeds. This can cause your tractor to stop quickly, and unexpectedly.**

4

CLUTCH PEDAL

IMPORTANT

- **Depress the clutch pedal before moving the front wheel drive lever.**
- **Tires can be worn rapidly if using the front wheel drive on a paved road.**

THE FRONT WHEEL DRIVE CAN BE USEFUL IN THE FOLLOWING CONDITIONS:

1. Working in wet field, towing a trailer or using the loader.
2. Working on sand.
3. Working on firm ground where the rotary tiller should push the tractor forward.

(1) Clutch Pedal

Make sure to depress the clutch pedal to its end. To start off smoothly, put the main and range shift levers into the proper positions and release the clutch pedal slowly.

The clutch pedal should be used to cut off engine power when starting the engine, shifting and stopping. When starting the engine and moving the main shift lever, move the lever to the desired position with the clutch pedal fully depressed.

When stopping, depress the clutch pedal and then depress the brake pedal to slow down the vehicle. Then, move the main shift lever or shuttle lever to the neutral position to stop the tractor completely.

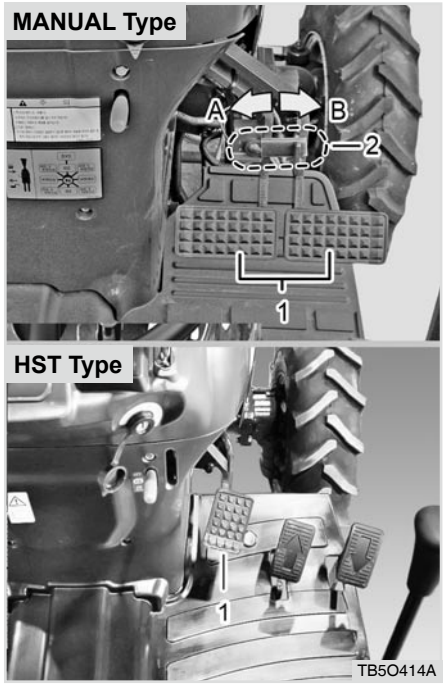
HOW TO USE

- The tractor can be moved little by little by controlling the clutch pedal minutely.
- To start off smoothly, release the clutch pedal slowly. To cut off power, depress the clutch pedal rapidly to its end.

WARNING

- ***Interconnect the left and right brake pedals to avoid rollover or crash during driving or moving in or out of a field.***
- ***Do not use only one brake pedal while the 4 wheel drive is activated. The life of the axle can be shortened.***

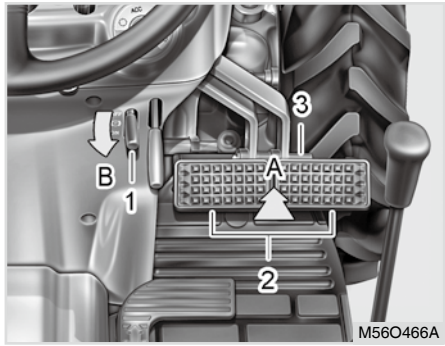
BRAKE PEDAL



(1) Brake Pedal *(2) Pedal Interlock*
(A) Unlock *(B) Lock*

1. Make sure to link the left and right brake pedals as shown in the figure while driving on a road. The tractor can roll over if depressing only one brake pedal at a high speed.
2. To make a sharp turn in a work field, disengage the left and right brake pedals to use one brake pedal. Unlock the brake lock, and then turn the steering wheel while depressing the brake pedal on the turning side.

PARKING BRAKE LEVER



(1) Foot Parking Brake Lever
(2) Brake Pedal *(3) Pedal Interlock*
(A) Depressing *(B) Pressing Down*

⚠ CAUTION

To avoid personal injury:

- **Always set the parking brake and stop the engine before leaving the tractor seat.**
- **When parking the vehicle on a hill, position the shift lever in low forward (1st gear) for uphill and low reverse (1st gear) for downhill. Set the parking brake and chock the wheels.**

⚠ CAUTION

HST TYPE

- **Leaving transmission in gear with the engine stopped will not prevent tractor from rolling. Park on level ground whenever possible.**
- **Always lock the parking brake.**

1. When parking, be sure to set the parking brake.

   To set the parking brake:

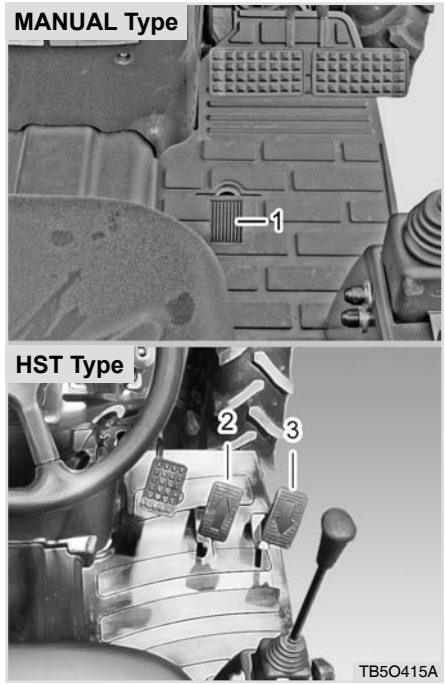
   1) Interlock the brake pedals.
   2) Depress the brake pedals.
   3) latch the brake pedals with the parking brake lever.

IMPORTANT

- **To prevent damage to the parking brake lever, make sure that brake pedals are fully depressed before pulling the parking brake lever up.**

2. Before getting off the tractor, disengage the PTO, lower all implements, place all control levers in their neutral positions, set the parking brake, stop the engine and remove the key.

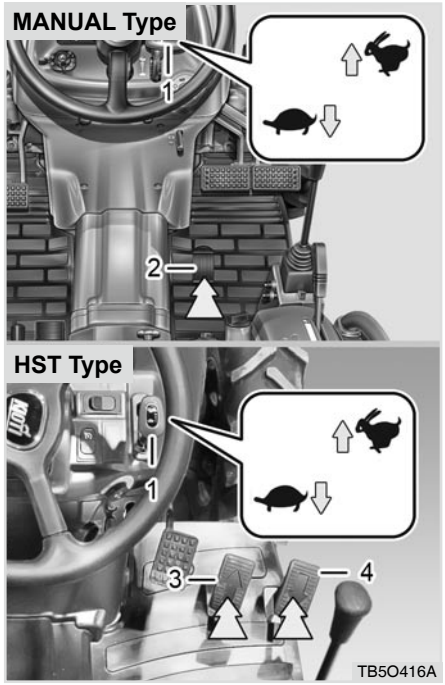
ACCELERATOR PEDAL



(1) Accelerator Pedal
(2) Forward Driving Pedal
(3) HST Pedal (Reverse)

The foot throttle is mainly used during driving on a road while the hand throttle lever is mainly used in work field.

HAND THROTTLE LEVER



(1) Hand Throttle Lever
(2) Accelerator Pedal
(2) Forward Driving Pedal
(3) Reverse Driving Pedal
: Slow *: Fast*

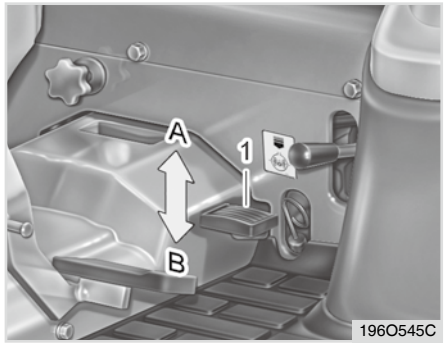
The hand throttle lever is to control the engine rpm. The engine accelerates to its full speed by pushing the hand throttle lever (position) completely out while pulling the lever (position) decelerates the engine.

The hand throttle lever is mainly used while working in a field.

⚠ CAUTION

- **Using the accelerator lever during driving can lead to an accident as it becomes hard to decelerate the tractor rapidly.**

DIFFERENTIAL LOCK PEDAL



(1) Differential Lock Pedal
(A) Release to DISENGAGE
(B) Depress to ENGAGE

The differential lock is to secure the differential system and keep the wheel rotation on both sides the same in order to enhance the traction of the rear axle.

Depressing the pedal engages the differential lock while releasing the pedal disengages the differential lock.

Use this system under the following conditions:

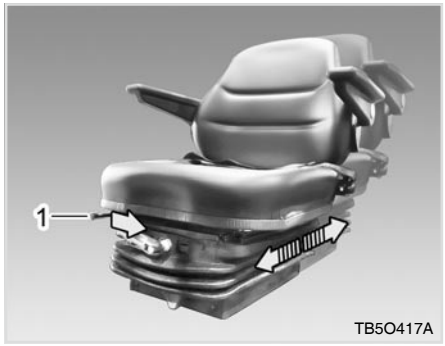
1. When any wheel slips and the tractor does not move in the field.
2. When it is hard to escape a soft or muddy field.

⚠ CAUTION

- **The differential lock should be engaged only while the driving clutch is engaged. If the differential lock pedal does not move when depressing it, try to depress it again after releasing it.**
- **When engaging the differential lock, reduce the engine speed. After engaging it, accelerate the tractor.**
- **Make sure to set the steering wheel in the straight ahead position while the differential lock is in use. Otherwise, the differential system can be damaged.**

SEAT ADJUSTMENT

SEAT SLIDING



(1) Seat Adjustment Lever

To adjust the seat position, pull the lever (1) to left under the front of the seat, slide the seat to the desired position, and then release the lever.

Make sure that the seat is firmly fixed by moving it gently after adjustment.

⚠ CAUTION

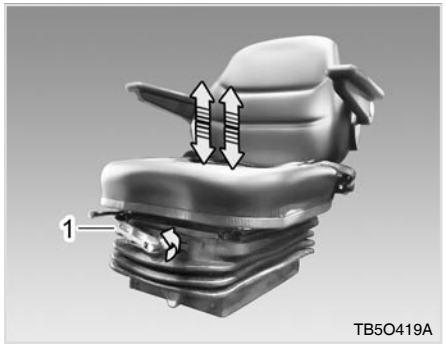
- **Do not put a hand between the seat and the slides when adjusting the seat position. You can get injured unexpectedly.**

SEAT HEIGHT

(1) Seat Height Lever

The seat height can be adjusted to adapt the seat to the driver's height. Turning the lever (1) on the front bottom of the seat clockwise raises the seat, while turning it counterclockwise lowers the seat.

CUSHION STRENGTH ADJUSTMENT



(1) Cushion Adjustment Lever

The seat cushion can be adjusted according to the weight of the driver.

Turning the cushion adjustment lever counterclockwise to the 50 kg position makes the cushion lighter, and turning the lever clockwise to the 120 kg position makes the cushion heavier.

SEAT BELT

(1) Seat Belt

The seat belt is self-retracting type. Make sure to fasten the seat belt before driving.

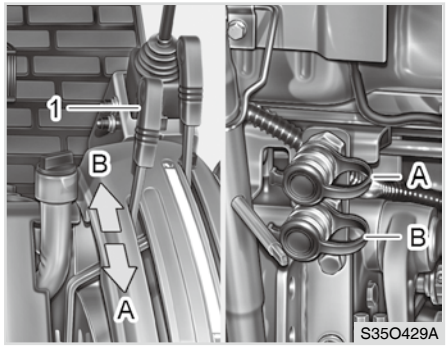
⚠ WARNING

- ***Always fasten the seat belt properly when the tractor has ROPS. Otherwise, never wear the seat belt.***
- ***Make sure that the seat belt is not twisted. It cannot work properly, leading to a dangerous situation.***

⚠ WARNING

- ***Be extra careful not to let any part of your body under the tractor or an implement when lowering an implement.***

DOUBLE ACTING LEVER (IF EQUIPPED)



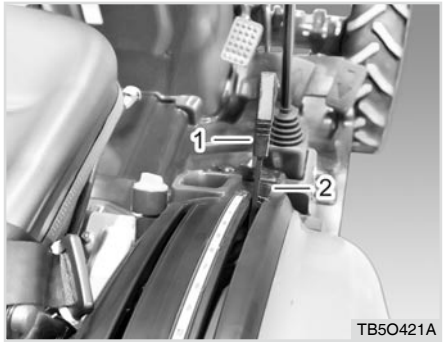
(1) Double Acting Valve 1 & Lever 1
(A) Port A (B) Port B

This lever is used to control a auxiliary hydraulic implement installed on rear.

Pushing the lever supplies the port A with hydraulic pressure while pulling it supplies the port B with hydraulic pressure.

For detailed information, see "Operation" in Chapter 5.

IMPLEMENT LOWERING LIMIT CONTROL



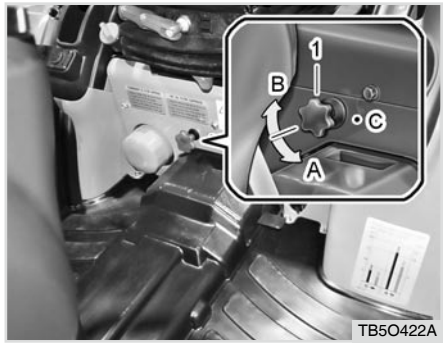
(1) Hydraulic Control Lever
(2) Lock Bolt

The implement lowering limit can be changed and adjusted by shifting the locker.

LOWER LIMIT

The lower limit can be adjusted by moving the position of the locker. Shifting the locker backward raises the lower limit and shifting the locker forward lowers the lower limit.

3-POINT HITCH LOWERING SPEED



(1) 3-Point Lowering Speed Knob
(A) FAST (B) SLOW
(C) LOCK

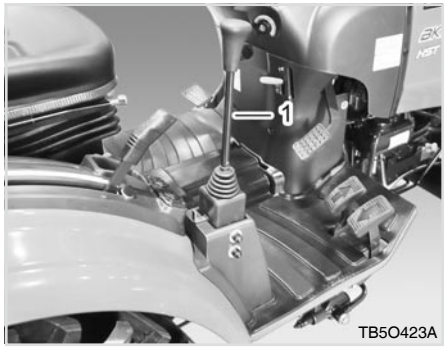
The lowering speed of the 3-point hitch can be controlled by adjusting the 3-point lowering speed knob.

⚠ CAUTION

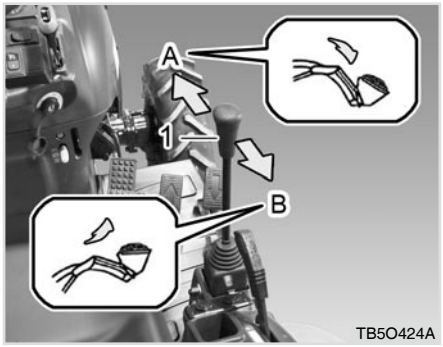
To avoid personal injury:

- **Fast lowering speed may cause damage or injury. Lowering speed of implement should be adjusted to two or more seconds.**

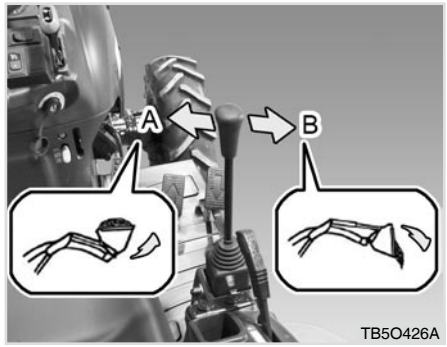
JOYSTICK LEVER



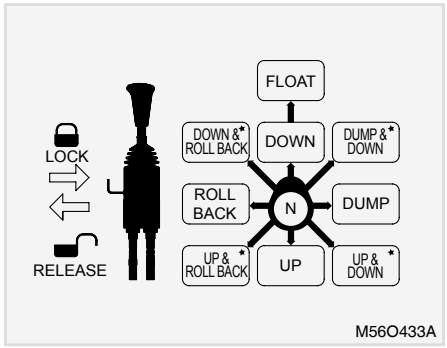
(1) Joystick Lever



(A) Boom Down (B) Boom Up



(A) Bucket Roll Back
(B) Bucket Dump



1. Up and down of boom

   Pulling the joystick lever back (B) lifts the boom of the loader while pushing it forward (A) lowers the loader boom.

2. Roll back & dump

   "Roll back" means that the bucket scoops up. To operate this function, move the joystick lever to the left (A). "Dump" means that the bucket dumps. To operate this function, move the joystick lever to the right (B).

4

3. Float

The floating function is activated when the joystick lever is pushed one position further to forward from the down position. When the lever is in this position, the boom moves up and down freely along the surface of the ground as the hydraulic line is opened from the valve to the boom cylinder. This function is useful when removing soft objects on hard ground (for example, when removing snow or sand on paved road.

⚠ WARNING

- ***If moving the lever to the floating position while the boom is up in the air, the boom can fall freely and lead to an accident.***

4. Down & roll back

Moving the joystick toward the front left position diagonally lowers the boom and rolls back the bucket simultaneously. However, the operation time may not be shortened much since the boom is lowered first and then the bucket is rolled back later due to unbalanced hydraulic pressure in the hydraulic circuit.

5. Down & dump

Moving the joystick toward the front right position diagonally lowers the boom and dumps the bucket simultaneously. However, these two operations may not be performed simultaneously due to unbalanced hydraulic pressure in the hydraulic circuit

6. Up & roll back

Moving the joystick toward the rear left position diagonally raises the boom and rolls back the bucket. However, these two operations may not be performed simultaneously due to unbalanced hydraulic pressure in the hydraulic circuit.

7. Up & dump

Moving the joystick toward the rear right position diagonally raises the boom and dumps the bucket. However, the bucket dumping operation is carried out first and then the boom is lifted next due to imbalance of hydraulic pressure in the hydraulic circuit, resulting in no dramatic speedup of operation.

8. Locking & Unlocking joystick

Pressing the joystick lock lever in, locks the joystick, while pulling it outward, unlocks the joystick as shown in the figure.

⚠ WARNING

- ***Do not leave the tractor with the boom off the ground in any circumstances. If it is neces-sary, lock the joystick.***
- ***When the joystick lever is not in use, lock it since the implement can fall down if the lever is operated accidently.***

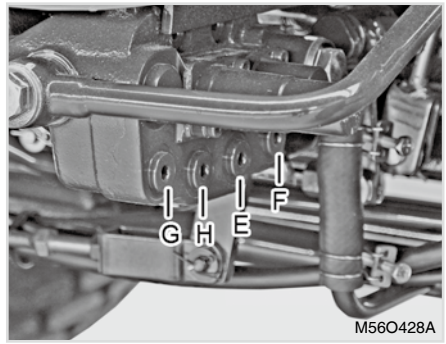
IMPORTANT

- **If the boom or bucket is not operating properly, lower the bucket onto the ground, stop the engine and move the joystick lever to remove all hydraulic pressure in the system. Then, check all the hydraulic connections and reconnect them correctly.**
- **Before connecting or disconnecting the hydraulic hose coupling from the loader, lower the boom onto the ground, stop the engine, and move the joystick lever front and back, left and right for several times to remove residual pressure in the hydraulic hose.**

WARNING

- ***Pressurized diesel fuel or hydraulic fluid may be sprayed on your skin or eyes, leading to a severe injury or even death.***
- ***To check leakage, use a board and wear protective gloves and goggles.***
- ***If your eyes come into contact with the hydraulic fluid, seek medical attention immediately.***
- ***Never try to disconnect the tube and quick coupler while the tractor and implement are in operation. Release the pressure by operating the lever after the engine is stopped.***

JOYSTICK VALVE



G: Boom Up
H: Boom Down
E: Bucket Up (Roll back)
F: Bucket Down (Dump)

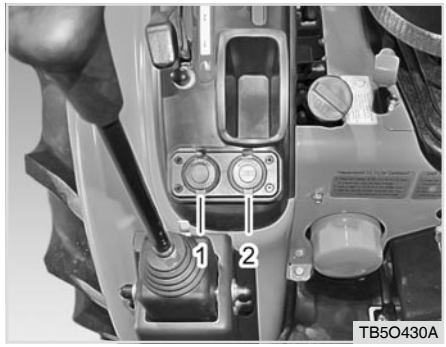
NOTE

- Hoses and couplers for installation of the loader are supplied together with the loader.

PORT	DIRECTION	FUNCTION
E		Bucket Up
F		Bucket Down
G		Boom Up
H		Boom Down

ACCESSORIES

POWER SOCKET & USB CHARGE



(1) Power Socket
(2) Rechargeable USB Port

The power socket (1) can be used as a power source. It is operable only when the ignition switch is in the "ON" position.

An external device can be charged through the USB charging port (2) on the side.

⚠ CAUTION

- **Always keep the cover closed when the device is not in use. If moisture enters, there is a risk of electric shock or damage to the device.**

TOOLBOX

(1) Toolbox

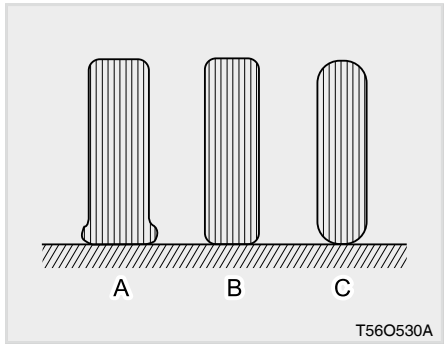
The toolbox for repairing the tractor is on the left side of the driver's seat.

CUP HOLDER AND STORAGE

(1) Cup Holder
(2) Cell Phone Storage

The cup holder is on the left side of the driver's seat and the cell phone storage is on the right side of the driver's seat.

TIRES, WHEELS AND BALLAST



(A) Insufficient *(B) Standard*
(C) Excessive

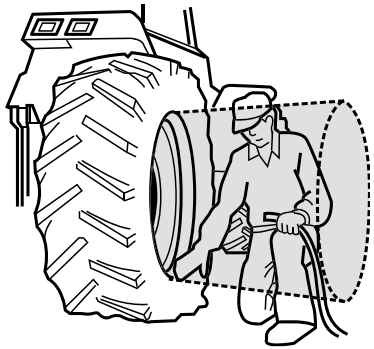
Though the tire pressure is factory-set to the prescribed level, it naturally drops slowly in the course of time. Thus, check it everyday and inflate as necessary.

⚠ WARNING

- ***Do not use tires larger or smaller than specified.***

⚠ WARNING

- ***Do not disassemble or assemble the tire. If it is necessary to disassemble/assemble the tire, let a qualified service person perform the work.***



T46W030A

⚠ WARNING

- ***The tire rims can fall out of the tires. Therefore, stay out of their way when checking or inflating tires.***

INFLATION PRESSURE

Always maintain the proper tire inflation pressure. Make sure the tire pressure does not exceed the pressure recommended in the manual.

Class	Tire Sizes	Inflation Pressure
Front	7-12, 6PR	225 kPa (2.3 kgf/cm², 32.7 psi)
Rear	11.2-16, 6PR	216 kPa (2.2 kgf/cm², 31.3 psi)

NOTE

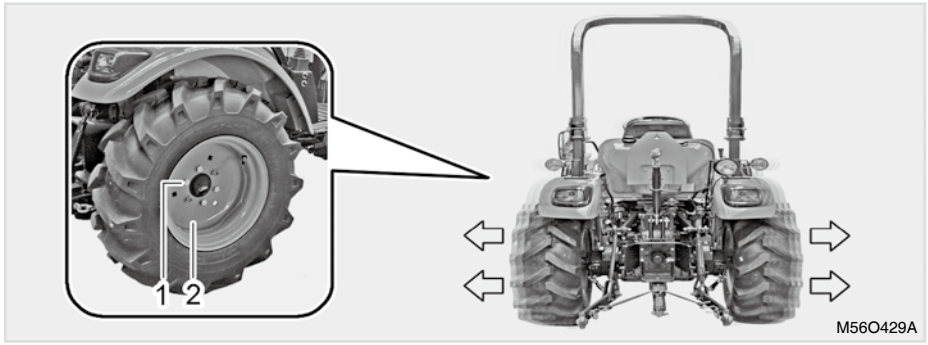
- Keep the front tire pressure to maximum when using the front end loader or front suitcase weights.
- If tires with a different size from the ones already in use are installed, contact the **KIOTI** dealer for the front/rear wheel speed ratio. Improper front/rear wheel speed ratio can result in excessive wear of the tires, and can cause damage to the front axle and transmission.

T46W031A

WARNING

- ***Do not weld or apply heat to the tire rim or disc. The tire can explode due to the rapidly increased pressure in the tire.***
- ***Check tires for inflation pressure, damage, deformation, and excessive wear on lug and damage of rim and disc. Also check if wheel bolts, rim bolts, and nuts are loose.***

TREAD



(1) Bolt (2) Rim

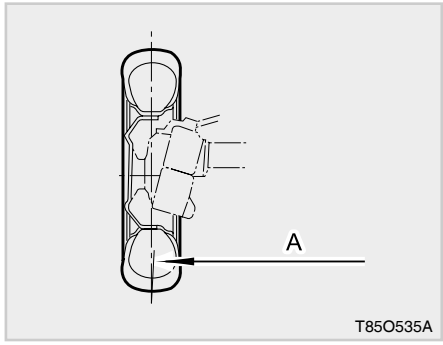
The rear axle tread width is adjustable by changing the installation of the tire (together with rim) to the disk, to suit the type or condition of work.

⚠ WARNING

Never operate tractor with a loose rim, wheel, or axle.

- ***Always tighten nuts or bolts to the specified torque.***
- ***Make sure to frequently check that all these parts are firmly tightened.***
- ***Make sure to perform inspection daily.***

FRONT WHEEL



(A) Tread

Front tread can not be adjusted. If it is necessary to adjust it, contact your local **KIOTI** Dealer.

If it is damaged by unapproved modification, it will not be covered by warranty.

⊕ IMPORTANT

- **Do not rotate the front wheel disc to have wider wheel width.**

Tire	Distance
7-12	38.9 in. (989 mm)

Item		Tightening Torque
Front	Wheel Bolt & Wheel Nut	77.42 ~ 90.16 N·m 56.88 ~ 66.24 lbf-ft 7.9 ~ 9.2 kgf.m
Rear	Wheel Bolt & Wheel Nut	196 ~ 294 N·m 144 ~ 216 lbf-ft 20.0 ~ 23.0 kgf.m

⚠ WARNING

- ***Use tires approved by KIOTI only.***
- ***Assemble the tire as shown in the figure.***
- ***Contact your local KIOTI Dealer if it is necessary to change the tire specification or installation method.***

REAR WHEEL

(1) Tightening torque: 20.0 ~ 23.0 kgf·m

Rear wheel tread width can be adjusted as shown with the standard equipment tires.

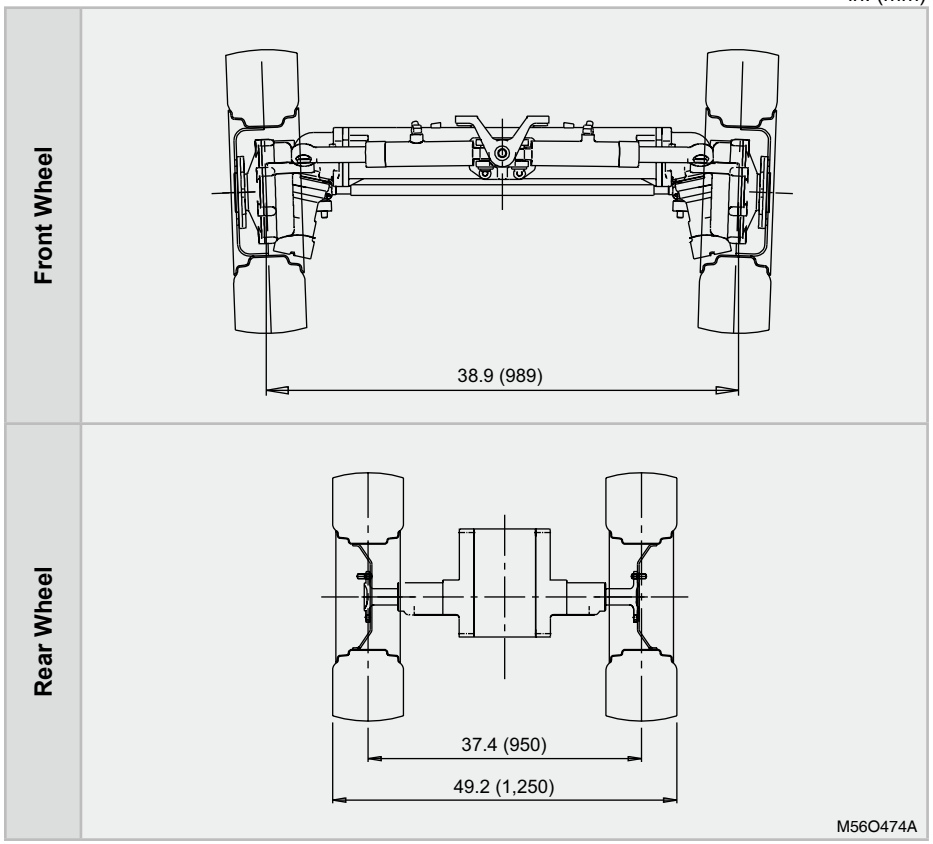
For the rear wheels, switch them to adjust their treads.

⊕ IMPORTANT

- **Always attach tires as shown in the drawings.**
- **If not attached as illustrated, transmission parts may be damaged.**
- **When re-fitting or adjusting a wheel, tighten the bolts to the following torques then re-check after driving the tractor 200m (200 yards) and thereafter according to service interval.(See "MAINTENANCE" section)**

FRONT / REAR TIRE TREAD

in. (mm)



ADDITIONAL WEIGHT

ADDITIONAL FRONT WEIGHT

(1) Front Weight *(2) Rear Weight*

If a heavy implement is installed at the rear or when towing a heavy trailer, the front wheels may be lifted. Add sufficient weight to keep steerability and to prevent rollover.

If sufficient weight, such as front loader, is applied to the front wheels, remove the extra front weight.

If the front tires are excessively loaded and it becomes hard to steer the tractor, the tires can be worn faster and the durability of the front axle can be deteriorated.

Max. load
17 kg x 4 EA

⚠ CAUTION

- **When attaching or detaching a weight, make sure to check the tire's inflation pressure and adjust it as necessary.**
- **Additional weight might be needed for transporting heavy implements.**
- **Reduce the speed regardless of additional weight when driving on a bumpy or rough road with the implement lifted. The tractor can roll over.**

⊕ IMPORTANT

- **Attach only required amount of weight.**
- **Otherwise, the life of the axle or wheel can be shortened.**

ADDITIONAL REAR WEIGHT

Weight should be added to the rear wheels only if it is needed to improve traction or stability. The amount of weight should directly correspond to the job at hand and should be removed when not needed.

The weight should be added to the rear wheel weights.

REAR WHEEL WEIGHTS (OPTION)

The rear wheel weights can be attached to the rear wheel. See your implement owner's manual for the proper amount of weight or consult your local **KIOTI** dealer.

Max. load
20 kg x 2 EA

⊕ IMPORTANT

- **Do not overload tires.**
- **Add no more weight than indicated in chart.**

MEMO

PRE-OPERATION CHECK

It is a good practice to know the condition of your tractor before you start it. You should do a routine inspection before each use.

⚠ CAUTION

- **Park the tractor on the level ground, stop the engine, and apply the parking brake before checking or repairing it.**
- **Refer to "DAILY CHECKING ITEMS" in the section 7 "MAINTENANCE" for pre-operation check.**
- **Be sure to read and understand the information titled as "DANGER", "WARNING", and "CAUTION" thoroughly for safe operation.**

CHECK ITEMS

- Walk around inspection.
- Engine oil level.
- Transmission oil level.
- Coolant level.
- Clean the front grill and radiator screen.
- Air cleaner element.
- Brake pedal free play.
- All dash gauges and indicators.
- Head lights, tail lights, and working lights.
- Accessible wiring harness for any damage.
- Seat belt and cabin for damage.
- All "DANGER" and "WARNING" decals.
- Fuel level.
- Tire pressure and wheel bolt tightness condition.
- 3-point hitch and securing pins.

For detailed information, refer to "Maintenance schedule chart" in chapter 7.

INITIAL OPERATION

Driving a new tractor at a high speed or under heavy load can affect its durability.

Make sure to run the tractor at the proper work load and speed for the initial operation of 10 to 20 hours.

TIPS FOR BREAKING-IN

1. Start the engine and idle the engine at a low speed for 3 to 4 minutes in advance.
2. Increase the idling time in cold weather.
3. Do not drive the tractor at the maximum speed on a road.
4. Never apply excessive load during work.
5. Idle the engine at a low speed for 2 to 3 minutes before stopping it.

OPERATING THE ENGINE
STARTING THE ENGINE

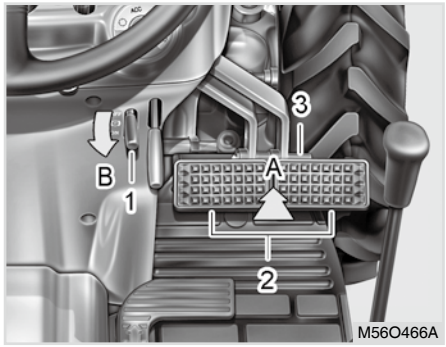
⚠ WARNING

To avoid accidents:

- ***Be sure to read and understand the warning and caution decals on the tractor thoroughly.***
- ***Run the engine only in a well-ventilated area, or you can be suffocated by exhaust gas.***
- ***Never start the engine unless you are on the driver's seat.***
- ***The tractor can abruptly start, resulting in an injury or accident.***

IMPORTANT

- **Use of a starting aid can cause serious damage and will not be covered under warranty**
- **Never try to start the engine for over 10 seconds consecutively to protect the start motor and battery from damage.**

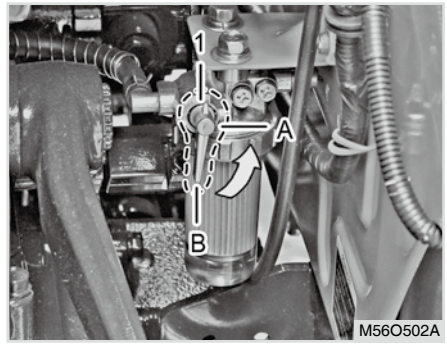


(1) Foot Parking Brake Lever
(2) Brake Pedal *(3) Pedal Interlock*
(A) Depressing *(B) Pressing Down*

1. Make sure there is no obstacle around the tractor.
2. Make sure the parking brake is set.

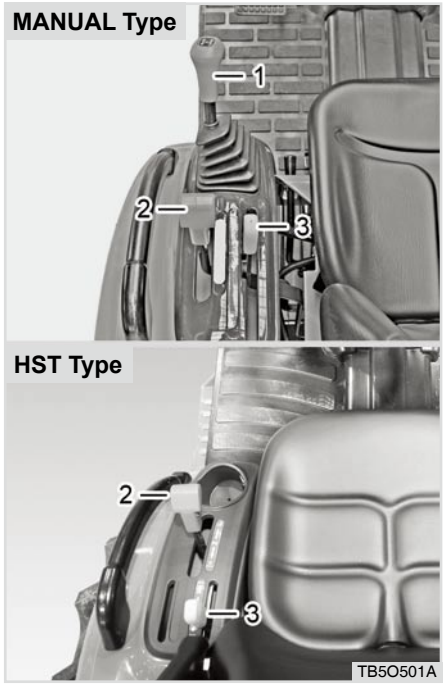
NOTE

- When the parking brake is engaged, the parking brake lamp on the instrument cluster illuminates. When released, the parking brake lamp is turned off.



(1) Fuel Cock
(A) Close *(B) Open*

3. Make sure the fuel shut off lever is in the open position.

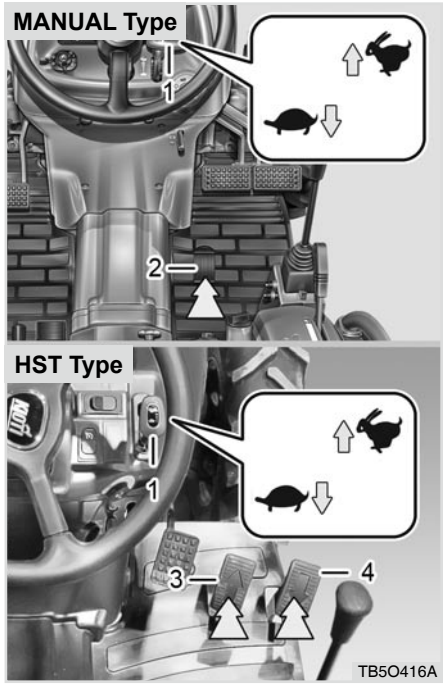


(1) Main Shift Lever (2) Range Shift Lever
(3) PTO Change Lever

4. Place the PTO shift lever to the "Neutral" position.

5. Put the main shift lever to the "Neutral" position.

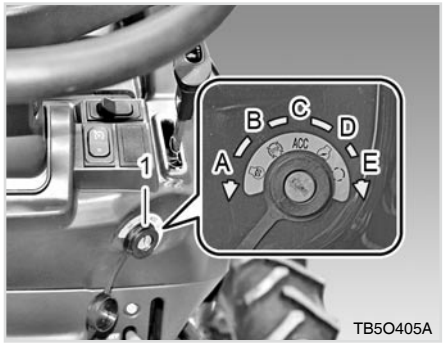
6. Set the range shift lever (HIGH-MID-LOW) to the "Neutral" position.



(1) Hand Throttle Lever
(2) Accelerator Pedal
(2) Forward Driving Pedal
(3) Reverse Driving Pedal

: Slow *: Fast*

7. Place the hand throttle lever to the mid speed position.
8. Depress the clutch pedal. (The engine cannot be started unless the range shift lever is in the "Neutral" position)



(1) Key switch (A) Pre-heat (B) OFF
(C) ACC (D) ON (E) Start

9. Insert the key into the key switch and turn it to the "ON" position and maintain it until the preheat lamp is turned off (approx. 8 sec.).

OPERATING PRINCIPLE OF AUTO PREHEATING SYSTEM

The glow plug lamp comes on for 8 seconds and then goes off when the key switch is turned to the "Start" or "Stop" position. The engine should be started within 5 seconds after the glow plug lamp goes off.

After the engine is started, post-heat is performed for 15 seconds with the key switch in the "ON" position.

If the coolant temperature exceed 30°C, preheating and post-heating operations are not activated as well as the preheat indicator. In this case, the engine can be started immediately without preheating.

The after-heating is a function to keep the glow plugs activated for approx. 15 seconds after the engine is started in order to enhance the engine combustion performance and to reduce harmful emissions right after engine start.

⚠ WARNING

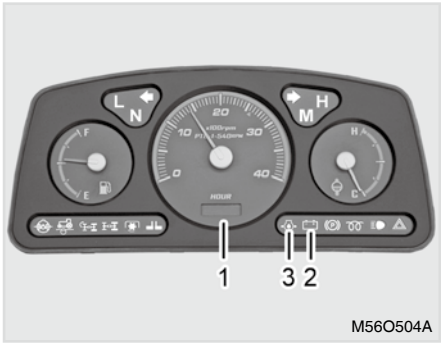
- ***Never operate the start motor for more than 10 consecutive seconds as it consumes an excess of battery power. If the engine cannot be started within 10 seconds, wait for 30 seconds and try again.***

10. When the engine is started, release the key. Then, the key is automatically turned back to the "ON" position.

⚠ WARNING

- ***Never try to crank while the engine is running.***

11. Warm up the engine for 3 to 4 minutes (10 minutes in winter) after releasing the clutch pedal.



(1) Instrument Panel
(2) Charge Warning Lamp
(3) Engine Oil Pressure Warning Lamp

12. Check to see that all the warning lamps on the instrument cluster turn "OFF". If any lamp remains on, immediately stop the engine and determine the cause.

CHECKING WARNING LAMPS

1. If the oil pressure warning lamp (3) does not go off in 4 to 5 seconds after the engine is started, stop the engine immediately and check the engine oil level. If the engine oil level is correct, contact your local **KIOTI** Dealer.

⚠ WARNING

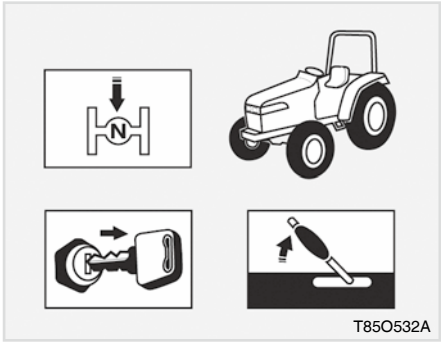
- ***The engine can be severely damaged if it is ran with the oil pressure warning lamp ON.***

2. If the charge warning lamp (2) does not go off in 4 to 5 seconds after the engine is properly started, it means that the battery is not being charged. Have the charging system, such as the battery and alternator, inspected.
3. Refer to "Instrument panel" in chapter 4 for detailed information about other indicators and lamps.

STOPPING THE ENGINE

⚠ WARNING

- ***If driving the tractor for an extended period of time with the charge warning lamp ON, the battery can be discharged and the tractor's electrical system can be damaged.***



1. Make sure to reduce the engine rpm before stopping the engine.
2. Depress the clutch pedal and put all shift levers in the neutral position.
3. Run the engine at the idle speed for approx. 2 to 3 minutes, and then turn the key switch to the "OFF" position to stop the engine.
4. Remove the ignition key.

⚠ WARNING

- ***Never touch the muffler or hot covers until they are cooled down after running the engine or driving the tractor.***

IMPORTANT

- **Turn off all the electrical devices and remove the ignition key before leaving the tractor.**
- **Do not leave the tractor outside unattended. It can be stolen as the key used for all KIOTI tractors are the same in shape.**
- **The horn, turn signal lamp and hazard lamp can be operated without the key inserted. Therefore, using these components without the engine started can discharge the battery.**

WARMING UP

It is recommended always to warm up the engine before driving in order to maintain the durability of the engine. Before warming up the engine, make sure that each part in the engine is properly lubricated and each hydraulic part is in a perfect condition in order to prevent malfunction in the engine as well as the hydraulic system.

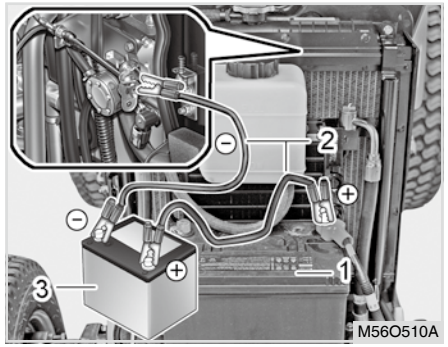
HOW TO WARM UP ENGINE

1. Start the engine and run it at a low speed and without a load for approx. 3 to 4 minutes.
2. In cold weather, increase the warm up time to 10 minutes.
3. If it is very cold, warm up the engine for approx. 15 minutes.
4. The engine throttle can be open to 50 % in order to shorten the warming up time.
5. The engine is sufficiently warmed up when the temperature gauge on the instrument panel indicates 1/2 of the normal temperature range, regardless of the warming-up time.
6. Do not increase the work load rapidly after starting work.
7. Run the engine without load for approx. 2 to 3 minutes before shutting down the engine.

⚠ WARNING

- ***Warming up the engine excessively increases fuel consumption and affects the durability of the tractor negatively.***
- ***Never leave the tractor unattended while warming up. It can cause fire and an accident.***

JUMP STARTING

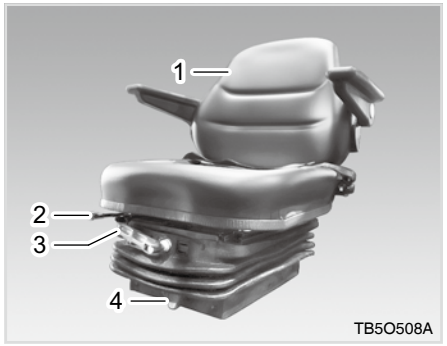


(1) Dead Battery (2) Jumper Cables
(3) Helper Battery

If the battery is discharged and the engine cannot be started, it is possible to start the engine by connecting the discharged battery to a battery from another tractor or another battery.

1. Check that the rated voltage of the discharged battery is same as the voltage of the other tractor or vehicle for jump start (specification for this tractor: 12 V).
2. Check the length of the jumper cable and position another tractor near the tractor with the discharged battery. Then, put all the shift levers in the neutral position, apply the parking brake, and stop the engine.
3. Wear protective glasses and gloves and open the hoods of both tractors. Remove the battery terminal cover as necessary.
4. Connect the alligator clips on both ends of the red positive cable to the positive terminals of both batteries.
5. Connect one clip of the black negative cable to the negative terminal of the normal battery and the other clip to the tractor body with the discharged battery. Make sure to connect the clip to the body part without paint.
6. Start the engine of the tractor with the normal battery.
7. Start the engine of the tractor with the discharged battery.
8. Disconnect the black cable first from the negative battery terminals of both of the tractors.
9. Disconnect the red cable.
10. Run the engine for at least 30 minutes to charge the discharged battery.
11. If the battery is discharged again, replace it or check the charging system, such as the alternator.

OPERATING THE TRACTOR
DRIVING



(1) Seat
(2) Seat Adjustment Lever (Sliding)
(3) Seat Adjustment Lever (Cushion Weight)
(4) Seat Height Adjustment Lever

1. Adjust the seat and fasten the seat belt.

⚠ WARNING

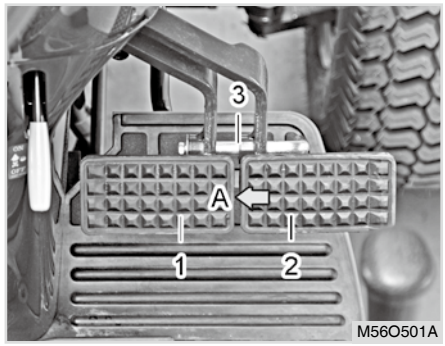
- ***Check if the seat is securely locked after the seat adjustment.***
- ***Do not adjust the seat while driving. The seat may move suddenly causing the loss of control of the tractor.***

(1) Seat Belt

2. Wear the seat belt.

⚠ WARNING

- ***Always wear the seat belt when cap is installed.***
- ***The seat belt should go around your pelvis or as low as possible, not your waist or abdomen. Otherwise, the seat belt cannot protect you properly.***
- ***Do not wear the seat belt if the ROPS is not installed or folded down.***

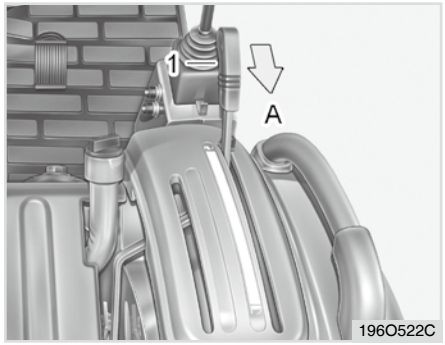


(1) Brake Pedal (L) *(2) Brake Pedal (R)*
(3) Pedal Interlock
(A) Depressing

3. Make sure both brake pedals are interlocked.

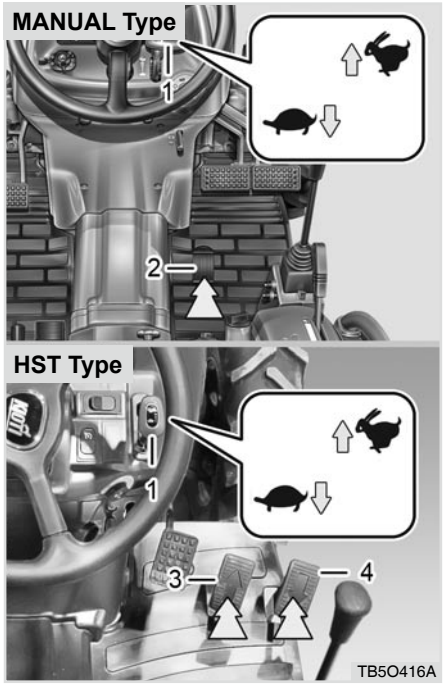
⚠ WARNING

- ***If depressing only one brake pedal at a high speed, the tractor can lose its balance and be overturned.***



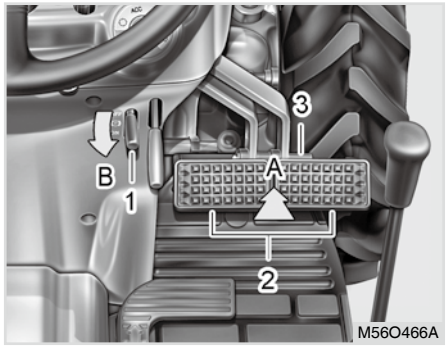
(1) Position Control Lever
(A) Lifting

4. When an implement is attached to the tractor, pull the position control lever to the rear side of the tractor to lift the implement.



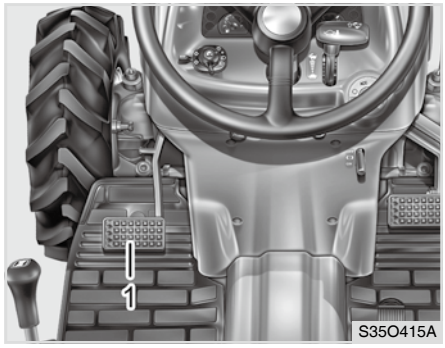
(1) Hand Throttle Lever
(2) Accelerator Pedal
(2) Forward Driving Pedal
(3) Reverse Driving Pedal
: Slow *: Fast*

5. Increase slowly the engine RPM from idle speed to medium speed.



(1) Foot Parking Brake Lever
(2) Brake Pedal *(3) Pedal Interlock*
(A) Depressing *(B) Pressing Down*

6. Release the parking brake.



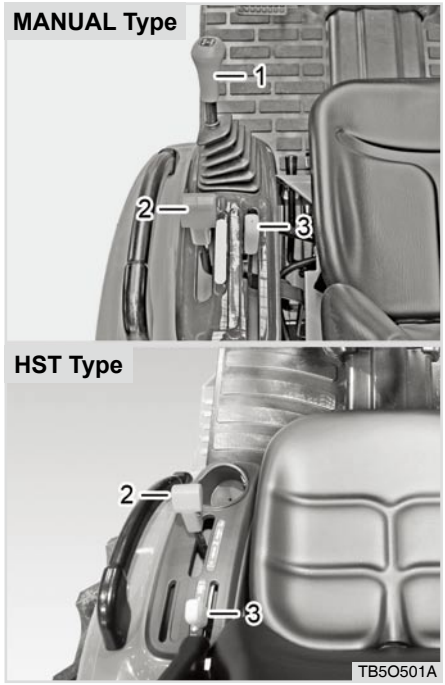
(1) Clutch Pedal

7. Depress the clutch pedal fully.

⚠ CAUTION

To avoid accidents:

- **Do not release the clutch pedal abruptly. The tractor may start off abruptly, resulting in rollover.**



(1) Main Shift Lever
(2) Range Shift Lever
(3) PTO Change Lever

8. Change the main shift lever, range shift lever and shuttle lever to the position you want.

9. The tractor starts to move if you release the clutch pedal slowly. HST type depress the forward pedal or backward pedal according to the desired.

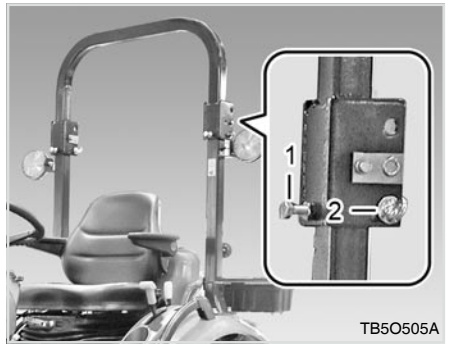
⚠ CAUTION

- **Never rest your foot on the clutch pedal during driving. The clutch disc can be rapidly worn.**
- **Make sure to operate the clutch fast when disengaging it and slowly when engaging it.**
- **Do not change the tractor speed abruptly for safe driving.**

⚠ CAUTION

- **When driving on a slope or loading or unloading the tractor to a transporting vehicle, reduce the speed in advance so that there is no need to shift the gear in the middle of the slope. Also, do not put your hand on the shift lever while driving on a slope. The tractor may roll down the slop due to the disengaged gear which is very dangerous.**

FOLDING THE ROPS

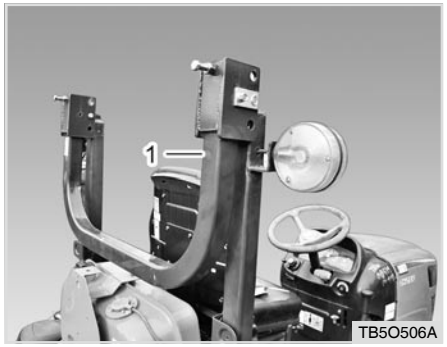


(1) Grip Bolt *(2) Set Pin*

1. Pull the set pin forward.

⚠ CAUTION

- **You should always stop the engine, remove the key and set the parking brake before raising or folding the ROPS.**
- **Always perform such tasks from a safe and stable position at the rear of the tractor.**
- **It is very dangerous to drive with the ROPS folded. Fold the ROPS only when there is absolutely no possibility for roll over. If the situation changes, unfold the ROPS immediately.**



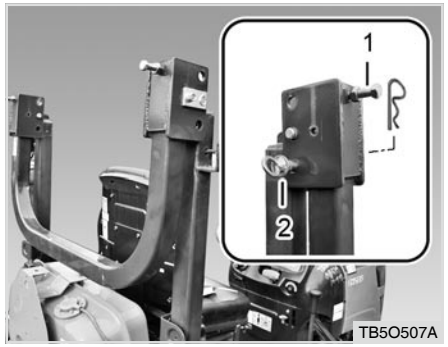
(1) ROPS

2. Fold the **ROPS**.

⚠ CAUTION

To avoid personal injury:

- **Hold the ROPS tightly with both hands and fold the ROPS slowly and carefully.**



(1) Grip Bolt *(2) Set Pin*

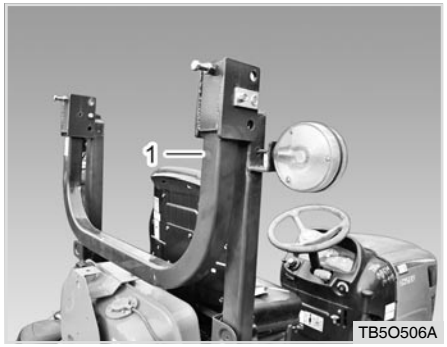
3. Align it to the groove and pull the set pin to release it.

⚠ CAUTION

To avoid accidents:

- **Make sure the pins are properly installed and secured.**

RAISING THE ROPS TO UPRIGHT POSITION



(1) ROPS

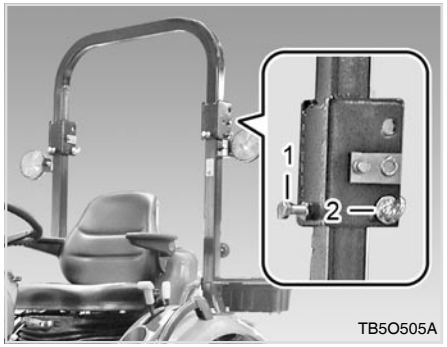
⚠ CAUTION

To avoid accidents:

- **Make sure to set the ROPS upright and fasten the seat belt during work.**

  If it is necessary to work with it folded, do not fasten the seat belt.

  It can be dangerous in case of tractor rollover.

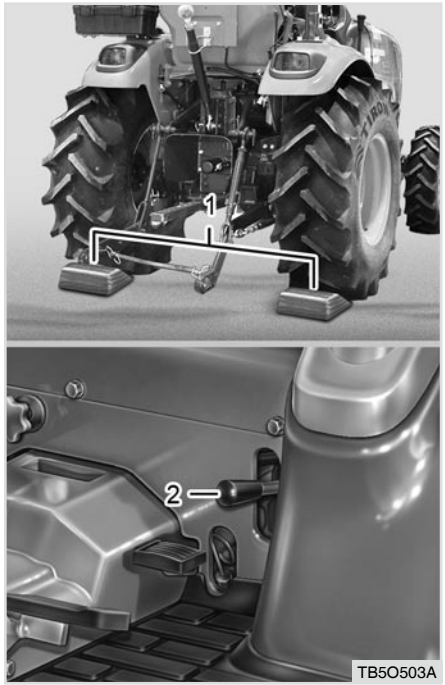


(1) Grip Bolt *(2) Set Pin*

1. Pull the set pin forward.
2. Raise **ROPS** to the upright position.
3. Align it to the groove and pull the set pin to release it.
4. Fix the **ROPS** with the grip bolt.

PARKING

PARKING BRAKE LEVER



(1) Chocks *(2) Parking Brake Lever*

1. Depress the brake pedal and pull the parking brake lever to lock it.
2. When parking the tractor make sure to stop the PTO, lower all implements to the ground and turn off the engine.
3. If it is unavoidable to leave the tractor with the engine running, set all shift levers in the "Neutral" position and apply the parking brake firmly.
4. If it is unavoidable to park the vehicle on a slope with the engine running, make sure to keep the above instructions and chock four wheels (1).

⚠ WARNING

- ***If applying the parking brake with the one-side brakes disconnected from each other, braking force is applied to only one wheel so full braking performance cannot be expected, leading to a possible accident.***
- ***The brake disc can be worn rapidly if driven with the parking brake applied.***
- ***Never park the tractor on a steep slope in any circumstance. A severe accident can occur.***

IMPORTANT

- **The tractor may move slowly with the engine running, even though the main and shuttle shift levers are in the neutral position. This is normal and is due to the fluid friction in the transmission. This symptom can occur easily when the engine rpm is high, the low speed gear is selected by the range shift lever, and the viscosity of the transmission fluid is high due to low temperature. To prevent this symptom, make sure to apply the parking brake.**
- **Get off the tractor after checking that the tractor is completely stopped and the parking brake is firmly applied.**
- **Do not park the tractor on tall grass or hay. If grass or hay contacts with the muffler, it can catch fire.**

TURNING

You should turn slowly by reducing vehicle speed.

WARNING

To prevent accidents due to loss of steering control:

- **If you turn at high speed, the tractor can over turn.**
- **Never use the differential lock system while turning at high or low speeds. A serious accident can occur.**

DRIVING ON SLOPES

1. Please drive according to the conditions of the slope, at safe speed so that the engine is not under heavy load if possible.
2. Make sure to shift to the lower gear in order to prevent the engine from stalling on an uphill.
3. On the downhill slope, drive at low speed.

IMPORTANT

- **For a heavy load job, such as front end loader operation, use low speed of the range shift lever.**

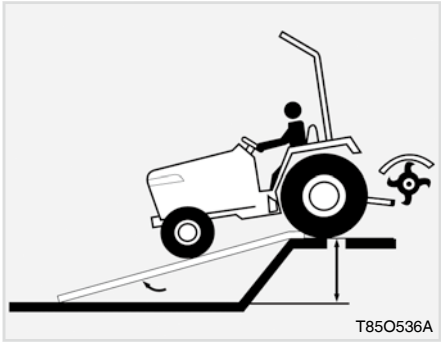
WARNING

- ***Make sure the brake pedals are interlocked and differential lock pedal are released.***

⚠ WARNING

- ***Do not disengage the clutch or put the shift lever in the neutral position on a steep slope. Otherwise, the tractor may become inoperable. Before entering a steep slope, move the shift lever down to a proper gear and never try to move the shift lever on a slope. A serious accident can occur.***

PRECAUTIONS WHEN COMING IN AND OUT OF WORK FIELD



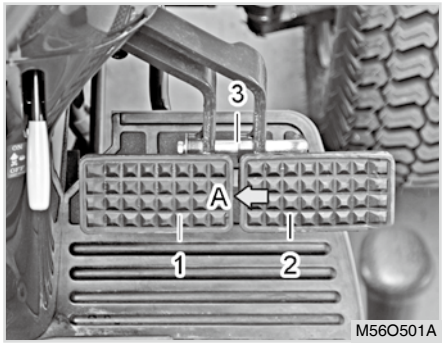
1. Make sure that the left and right pedals are interlocked.
2. Go in and out of the cultivated land at a right angle.
3. Enter and exit the field by driving the tractor at a right angle of the bank.
4. When going up, lower the implement not to let the front wheel rise. Raise the implement as soon as the front and rear wheels are over the bank.
5. It is recommended to use the 4WD and drive backward when moving onto a bank.

PRECAUTIONS WHILE DRIVING ON THE ROAD

(1) Turn Signal Light

1. When you change driving direction on the road, let the other car know your direction with turn signal lights.
2. Do not use high beam headlights when another vehicle is approaching from the opposite direction so as not to interrupt the other driver' s view.
3. Always interlock the left and right brake pedal while driving on public roads.

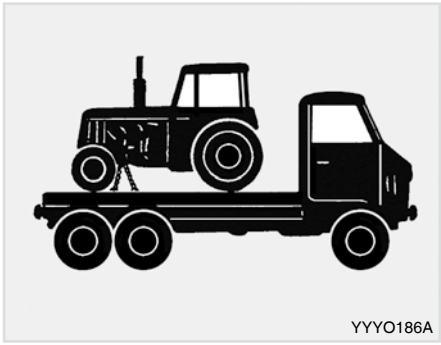
LOADING AND UNLOADING



(1) Brake Pedal (L) *(2) Brake Pedal (R)*
(3) Pedal Interlock
(A) Depressing

⚠ WARNING

- ***If the tractor breaks down while driving on the road, move it to a safe place with flasher lights blinking. If not, it can cause personal injury.***
- ***When you are driving on the road, observe all local traffic and safety regulations. Only the operator should ride on the tractor unless a passenger seat is installed.***



1. When you load the tractor, load it by driving backward.
2. If the engine stalls out halfway, step on the brake pedal at once, and then release the pedal slowly to reach the road. After that, start the engine to try to load again.

⚠ WARNING

- ***When transporting the tractor with a truck, fix the tractor firmly onto the truck and be aware of the height of the loaded tractor to avoid hitting the ceiling of a tunnel or the bottom of a bridge.***
- ***Make sure to follow this instruction as such accidents frequently happen.***

5

PRECAUTIONS WHEN USING POWER STEERING

(1) Power Steering Handle

1. The power steering function is activated only while the engine is running. However, the steering wheel becomes slightly difficult when the engine is running at a low speed.

   The steering wheel can be operated but becomes very difficult when the engine is stopped.
2. If you operate the steering wheel with the tractor loaded, using an implement or loader, the steering wheel operation can be somewhat difficult. Operate the steering while tractor is in motion.
3. When a loader is mounted, adjust the air pressure of the front wheel to its maximum specification and mount weight or implement on the 3 point hitch of the tractor, and remove the front weight to make the front and rear balance more stable for safe working.
4. When turning the steering wheel to its end, the operating sound of the safety valve (relief valve) can be heard. Do not continue to operate the steering wheel to a maximum right or left turn when you hear the relief valve.(OK for a short period of time). The temperature of the hydraulic fluid may rise, causing malfunctions.

⚠ WARNING

- ***When driving on a road with an implement attached to the rear of the tractor, the contact of the front wheels becomes poor, resulting in poor steerability. In this case, attach a proper front weight and drive at a low speed.***
- ***If a malfunction occurs while driving on a road, stop the tractor in a safe place and service it. If it is not possible to move the tractor, turn on the hazard lights and set a warning triangle behind the tractor. Otherwise, a rear end accident may occur.***
- ***The center of gravity of the tractor is higher compared to other common vehicles, so the possibility of a roll-over accident is very high. Be extra careful when driving on a lateral slope, bumpy road, road with puddles, and narrow road. Make sure to set the ROPS in its original position (straight up position) and fasten the seat belt.***

NOTE

The power steering system in this tractor is a load reaction, full hydraulic type.

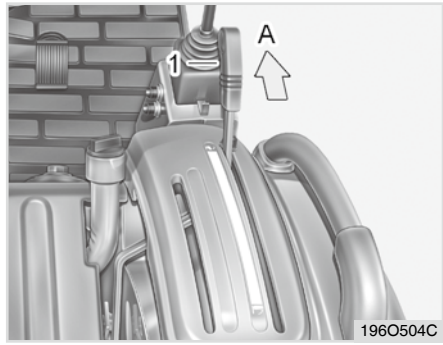
- The full hydraulic system means that power necessary for power steering is transferred by hydraulic fluid only and therefore mechanical devices, such as racks and pinions, are not installed to the tractor. Therefore, the angle of the **KIOTI** emblem on the center of the steering wheel may differ occasionally, which is normal.
- The load reaction type means that the reaction force or impact applied to the front axle is transferred to the steering wheel. Therefore, the steering wheel can be returned to its straightforward position from the turning position.

WARNING

- ***If stopping the engine while driving, the steering performance can become deteriorated due to loss of hydraulic power, resulting in a severe accident. Never stop the engine while driving.***
- ***Always grip the steering wheel using both hands while driving.***

3-POINT HITCH CONTROL SYSTEM

POSITION CONTROL



(1) Position Control Lever
(A) Lowering

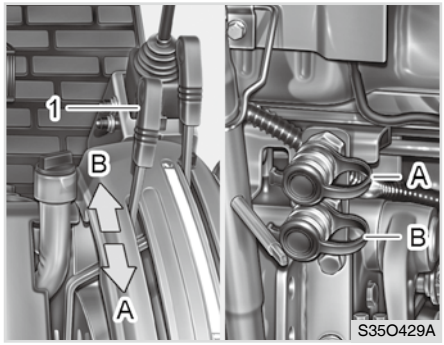
1. The position control lever is used to lift or lower the lifting arm (lower link) of the 3-point hitch.
2. Pushing the lever forward lowers the lower link while pulling the lever backward lifts the lower link.
3. The height of the lower link is precisely controlled proportional to the position of the lever.
4. The lower link is lifted by the hydraulic energy of the tractor while

it is lowered by potential energy of its own weight. Therefore, the implement cannot be lowered by the hydraulic pressure.

5. Therefore, the implement attached to the lower link may be lifted by protrusion on the ground when it is lowered to the ground. This is know as FLOATING.

REMOTE HYDRAULICS

DOUBLE ACTING VALVE



(1) Double Acting Valve Lever
(A) Port A (B) Port B

KIOTI supplies two types of the double acting valves by region: self-return type and detent type.

- For the self-return type double acting lever, it returns to its original position to block the hydraulic fluid when it is pushed/pulled and then released. However, this type of double acting valve lever should be pulled or pushed continuously for operation which is suitable for an implement with a short operating time, such as the hydraulic cylinder.

DOUBLE ACTING LEVER

Pressure ⇨ Returning ⇦

Lever 1		Push	Pull
Valve 1 port	A	Out ⇨	In ⇦
	B	In ⇦	Out ⇨

	Coupler Size
Port A, B	PT 1 / 2

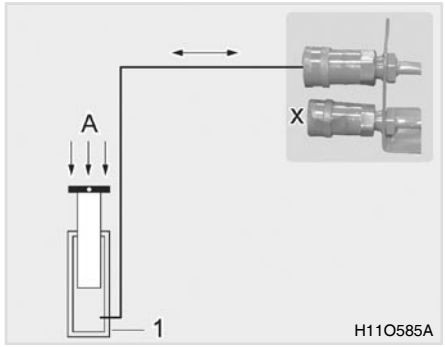
IMPORTANT

- **Put the detent valve operating lever into the neutral position when the hydraulic implement is not in use. If the detent valve is kept in the operating position for an extended period of time, the relief valve is kept open and the temperature of the hydraulic fluid rises, leading to damage of various hydraulic parts, such as the oil seals and O-rings.**

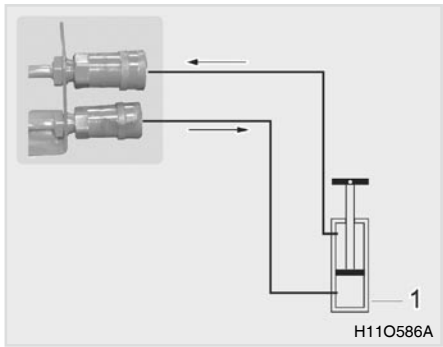
IMPORTANT

- **When the detent valve is in operation, unnecessary load is applied to the engine. Therefore, the engine power decreases significantly, and noise and vibration by opening of the relief valve increase.**
- **It is hard to start the engine while the detent valve is in operation. This is especially true in winter and exhaust gas increases even after the engine is started.**

SINGLE ACTING AND DOUBLE ACTING CYLINDER



(1) Single Acting Cylinder
(A) External Load



(2) Double Acting Cylinder

This tractor is equipped with the remote control valve of the double acting type. However, this valve can also be used in the single acting type hydraulic cylinder.

1. Connect one end of the hydraulic port to the single acting cylinder as shown in the figure. The hydraulic pressure is properly supplied to the cylinder. However, when the hydraulic pressure is released, the cylinder is contracted only if there is outer force, such as potential energy.
2. To contract the cylinder, operate the lever to the opposite direction of the expansion. Then, the hydraulic fluid is supplied from the hydraulic pump to the hydraulic port which is not connected, and the pressure rises as the port is blocked. However, this pressure is released as the relief valve opens.
3. When the cylinder is contracted, the hydraulic fluid returned from

the cylinder is drained to the transmission through the draining circuit as the operating lever is operated to the opposite direction from the expansion position.

IMPORTANT

- **It is recommended to use the double acting cylinder instead of the single acting cylinder if the implement will be operated frequently and continuously. If using the single acting cylinder too frequently or for an extended period of time, the hydraulic fluid can be overheated, resulting in deterioration of the hydraulic parts' durability as the main relief valve opens at cylinder contraction.**

CONNECTING AND DISCONNECTING IMPLEMENT

CONNECTION

1. Make sure to stop the engine before connecting implements.
2. Move the double acting valve lever forward and backward for 4 to 5 times to release the pressure in the hydraulic line of the tractor. Otherwise, it is hard to connect the couplers, and hydraulic fluid can be sprayed from the line and get in to your eyes while connecting them.
3. Remove any foreign material around the male and female couplers. If foreign material enters the hydraulic components, it can lead to malfunction of the system.
4. Open the dust-proof cover of the female coupler of the tractor and insert the male coupler of the implement. A clicking sound is heard when the couplers are engaged.
5. Pull the hydraulic hose of the implement to check that the couplers are properly connected.
6. Start the engine and check the operating status and leakage.

DISCONNECTION

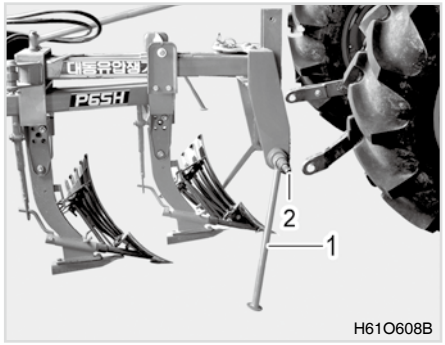
1. Make sure to stop the engine before disconnecting implements.
2. Release any residual pressure in the hydraulic hoses of the implement and tractor by operating the double acting valve lever 4 to 5 times.
3. Remove any foreign material around the couplers.
4. Lower the implement on the ground or remove any external load applied to the implement. Disconnecting hoses while outer load is applied to the implement is very difficult and dangerous due to the pressurized fluid in the hose.
5. Remove the male coupler by pushing the female coupler boss backward.
6. Close the dust-proof cover of the female coupler. Wrap the male coupler of the implement with a plastic bag to prevent contamination.

⚠ WARNING

- ***Never connect or disconnect the implement hydraulic hose while the pressure in it is not released or the engine is running. It is hard to connect and disconnect the hose and hydraulic fluid can be sprayed from the hose, and get into your eyes or skin.***
- ***Stop the engine and wear protective glasses and gloves before work.***

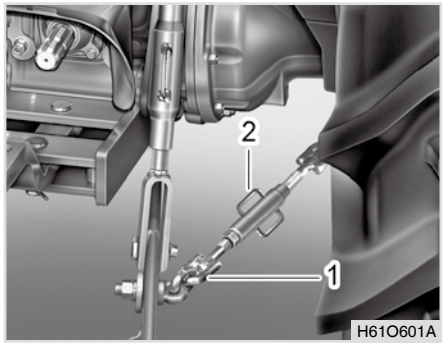
MEMO

REMOVAL AND INSTALLATION OF 3-POINT HITCH IMPLEMENT (WITH PTO SHAFT)



(1) Implement Support
(2) Implement Pin

1. Place implement on the level ground.
2. Drive the tractor backward to move as close as possible to an implement (approx. 5 cm). Then, adjust the height of the lower link to be parallel to the pins of the implement.
3. Put all the shift levers in the neutral position.

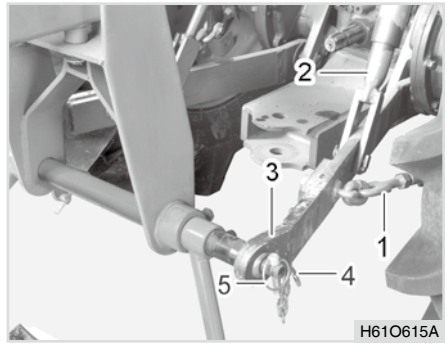


(1) Check Link *(2) Turn Buckle*

4. Lengthen the chain by turning the check link turn buckle.

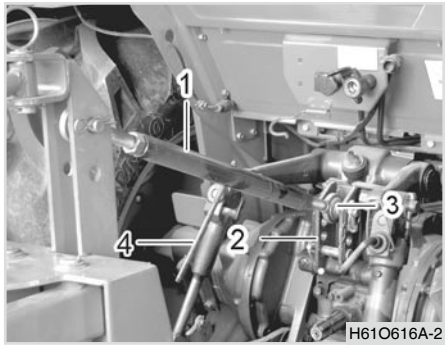
IMPORTANT

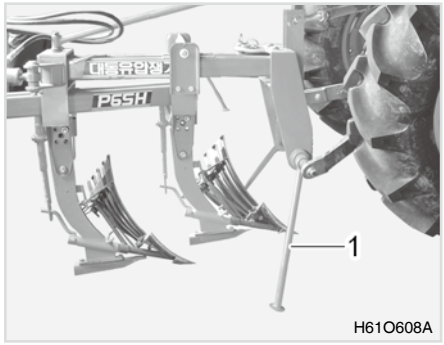
- **When attaching or detaching an implement, be sure to loosen the left and right check chains to utilize the lower link ball assembly effectively.**



(1) Turn Buckle *(2) Lift Rod (RH)*
(3) Lower Link *(4) Implement Pin*
(5) Lynch Pin

5. First install the left lower link to the implement pin and insert lynch pin into the hole and turn the ring to hold implement pin securely.
6. Install the right lower link to the implement pin and insert lynch pin into the hole and turn the ring to hold implement pin securely .





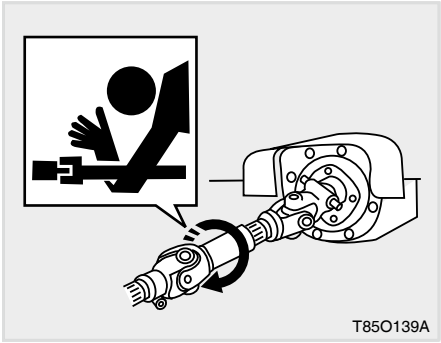
7. Install the top link to the top link hole of the implement. Loosen the lock nuts of top link and turn the top link handle to adjust the length of it as needed. Align the pin holes for top link and top link hole on the implement to insert the set pin. Insert the snap pin into the set pin hole securely to hold the set pin.
8. Raise up the implement by position control of tractor. Remove the implement support as needed. Align the implement by adjusting the length of the check chains on both sides. Tighten the lock nuts on the check chain securely.
9. Adjust the tip angle of implement by adjusting the length of top link. Tighten the top link lock nuts securely.

IMPORTANT

- **When selecting a universal joint, make sure to consult your local dealer.**
- **When deciding the length of the universal joint, make sure that it is not too short to fall out with an implement at the highest position and that it is not too long to interfere with other parts with an implement at the lowest position.**
- **Slide the joint front and back to make sure that the lock pin of the universal joint is seated into the groove of the PTO shaft.**

10. Adjust the balance of implement by adjusting the length of lift rod (RH). Tighten the turn buckle lock nut of lift rod (RH) securely afterward.

6


T85O139A

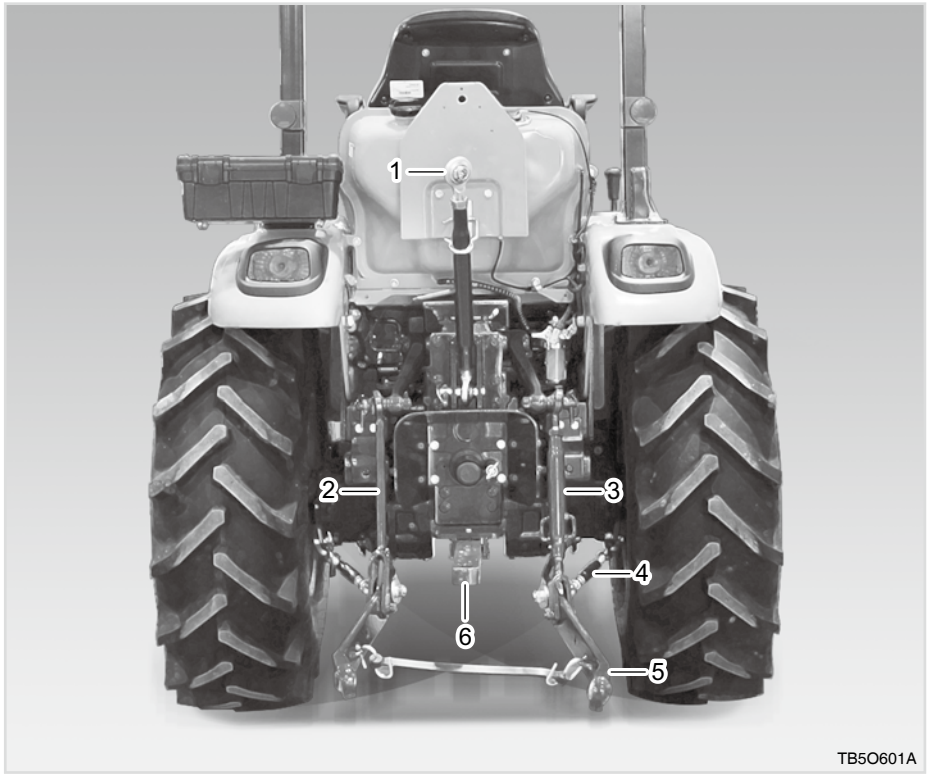
⚠ WARNING

- ***Before driving an implement through the PTO, always make sure that all bystanders are well away from the tractor.***
- ***When using the PTO drive with a stationary tractor, always make sure that the gears are in neutral and that the parking brake is applied.***

⚠ WARNING

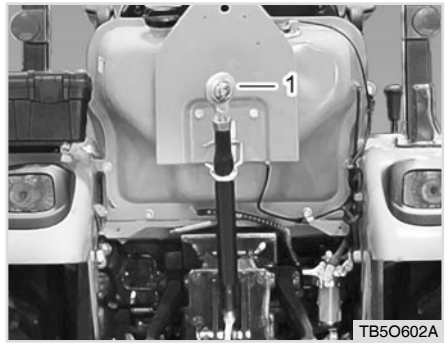
- ***Make sure that the PTO safety cover is in its position before driving the PTO shaft.***
- ***The tractor PTO and PTO shaft should not be interfered by any surrounding parts.***
- ***Never go close to the rotating PTO or tractor PTO shaft. A severe accident can happen.***

OPERATION TIP FOR 3-POINT HITCH ELEMENTS



(1) Top Link
(2) Lift Rod (L)
(3) Lift Rod (R)
(4) Check Link
(5) Lower Link
(6) Draw Bar

ADJUSTMENT OF TOP LINK



(1) Top Link

1. Install the top link to the desired hole, install the set pin and lynch pin securely.
2. Tighten the lock nut on the top link securely after adjusting top link length.

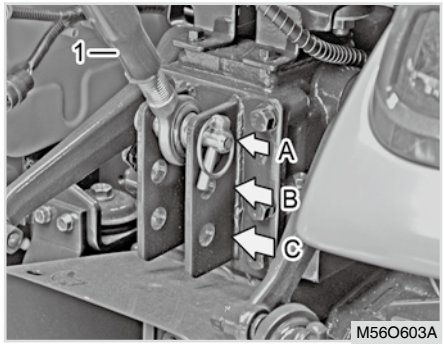
⚠ WARNING

- ***Stop the engine and lower the attachment on the ground prior to disconnecting the lift rod from the lower link. Check that the attachment for proper supporting and there's pressure remained in the hydraulic system to remove the lift rod holding the pin. To eliminate the remained pressure, move the hydraulic adjusting lever back and forth several times.***

NOTE

- When there is no implement attached, fix the lower link to the check link (LH/RH) so that it does not contact with the rear wheel.
- Secure the top link to the storage hook.

PRECAUTION FOR INSTALLING / HOW TO USE TOP LINK HOLES



(1) Top Link

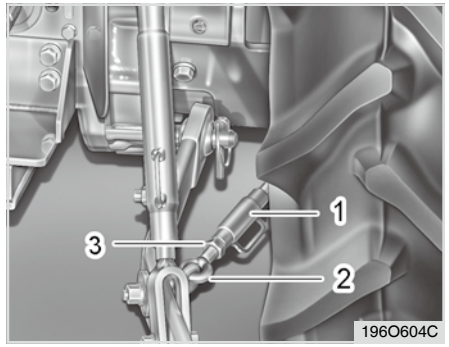
When attaching an implement, connect it according to its position:

1. Adjust an angle of the implements to the desired position by shortening or lengthening the top link.
2. Adjusting top length varies according to the type of implements used.

⚠ CAUTION

- **A plate describing how to attach the implement is placed on the standard implement of our company.**

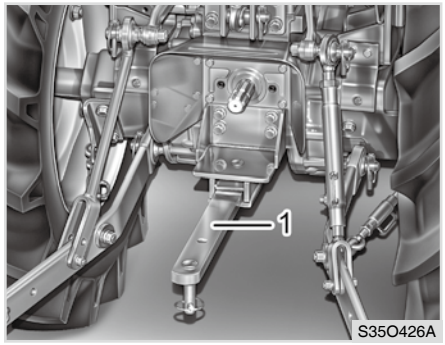
ADJUSTMENT OF CHECK LINK



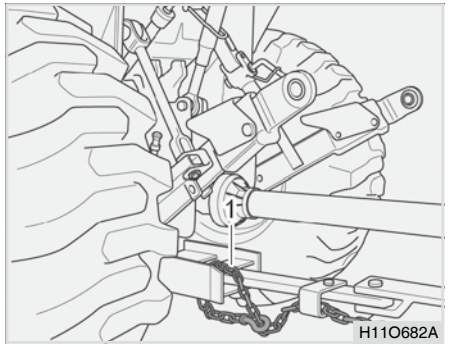
(1) Turn-buckle (2) Check Link
(3) Lock Pin

1. Adjust the check link to control horizontal sway of the implement. It is also used to set the implement on the back of the tractor in center.
2. To adjust the check link, pull out the pin and adjust it until the desired transverse moving distance is obtained.

DRAW BAR AND TRAILER



(1) Draw Bar



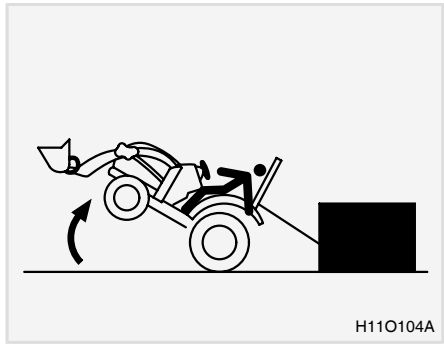
(1) Safety Chain

⚠ WARNING

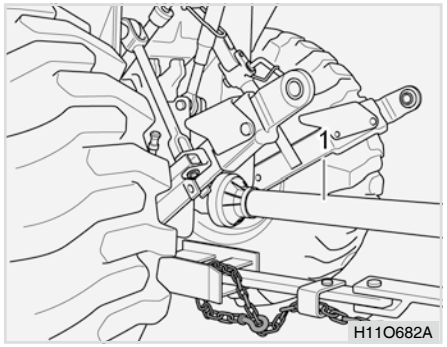
- ***Never use any other part for pulling except draw bar. Pulling with top link, ROPS and etc. will cause a fatal accident.***
- ***Be sure to install the auxiliary safety chain when installing a trailer.***

The draw bar is used to pull an implement, such as a trailer. This tractor is equipped with a fine draw bar. Make sure to check the max. towing weight of the trailer and max. vertical load that can be applied to the draw bar.

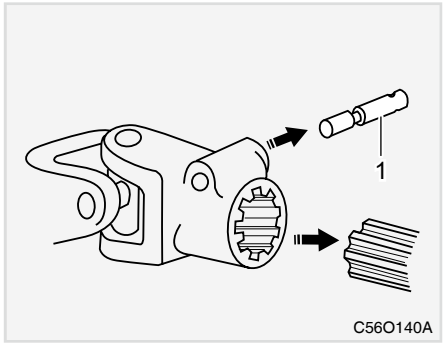
Max. Trailer Weight (Trailer + Loaded Weight)	2,000 kg
Vertical load on the draw bar	250 kg



INSTALLING PTO SHAFT



(1) PTO Shaft

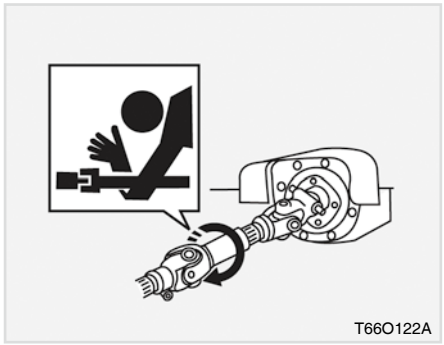


(1) Lock Pin

⚠ WARNING

- ***Make sure that the PTO safety cover is in its position before driving the PTO shaft.***
- ***The tractor PTO and PTO shaft should not be interfered by any surrounding parts.***
- ***Never go close to the rotating PTO or tractor PTO shaft. A severe accident can happen.***

1. Consult your local **KIOTI** Dealer for selection of the PTO Shaft.
2. When selecting a PTO Shaft, make sure that it is not too short to come off of the female and male shafts at the highest position or too long to impact its female and male shafts at the lowest position.
3. Move the joint back and forth to check that its lock pin is properly seated to the groove of the PTO shaft.



HANDLING LOADER

(1) Loader Mounting Bracket
(2) Boom Cylinder
(3) Boom
(4) Bucket Cylinder
(5) Bucket

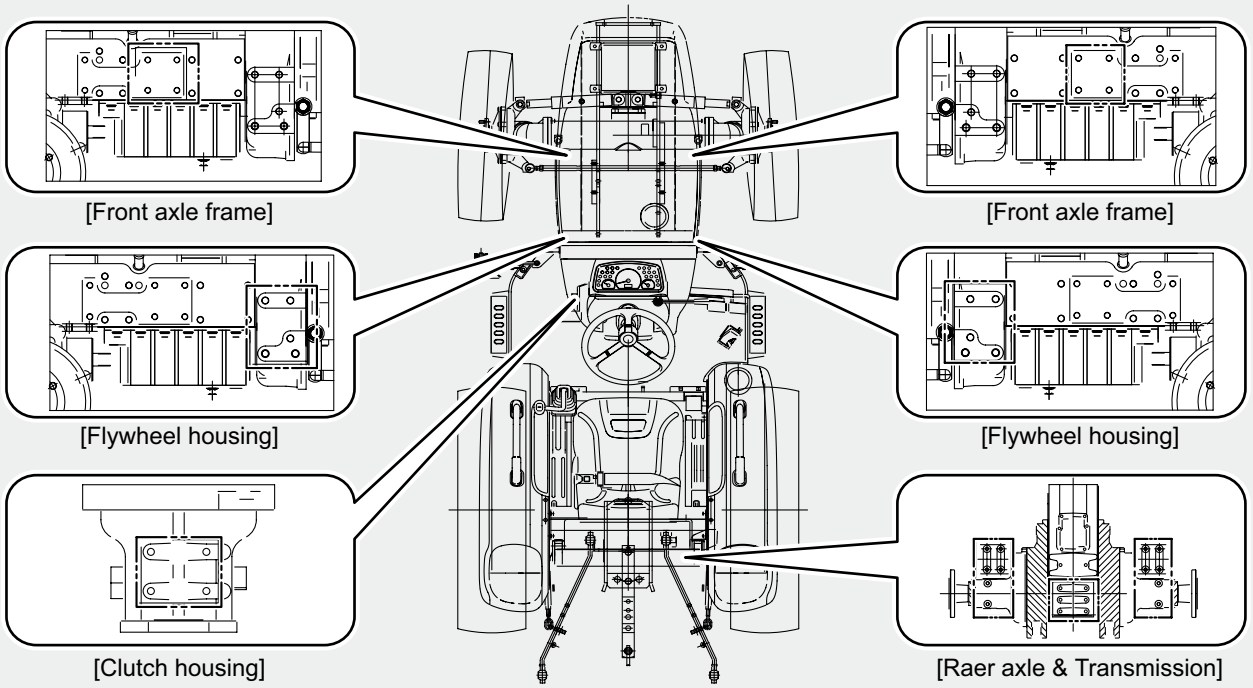
TB3O603A

For detailed information about installation and use of the front loader, refer to the separate manual of the loader.

IMPORTANT

- **Check the transmission fluid level and add fluid as necessary after installing an attachment or implement related to the hydraulic fluid, such as a loader or backhoe, and driving the tractor for a test.**

ATTACHMENT POINTS FOR FRONT END LOADER



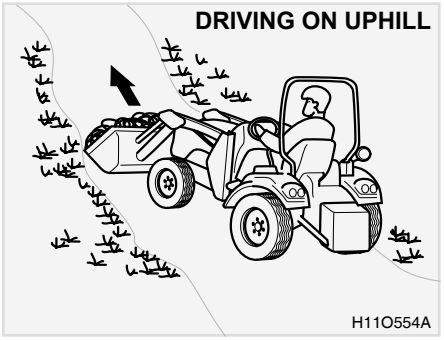
⚠ WARNING

- ***When you do install the front loader, certainly mount the bolt for mounting bracket at indicated point.***

DRIVING ON SLOPE

WHEN LOADED BUCKET AND REAR BALLAST ARE INSTALLED

DRIVING ON UPHILL



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When driving uphill with a loaded bucket and rear ballast installed, keep the higher end of the tractor heavier. In other words, drive forward on uphill and backward on downhill.

⚠ WARNING

To avoid injuries:

- ***Keep the loader arm as low as possible when driving on a slope.***

DRIVING ON DOWNHILL

H11O555A

WHEN UNLOADED BUCKET AND REAR BALLAST ARE INSTALLED

DRIVING ON UPHILL

H11O556A

DRIVING ON DOWNHILL

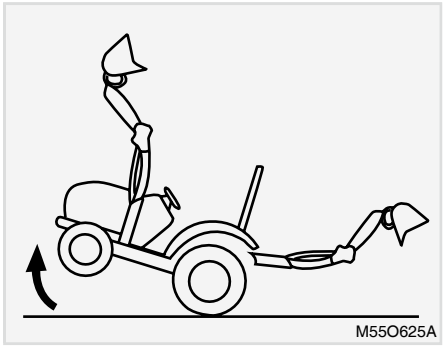
H11O557A

When driving on downhill with an empty bucket and rear ballast installed, keep the rear ballast toward the higher level of the ground. In other words, drive backward on uphill and forward on downhill.

Use the 4WD to increase friction when driving on a slope with a loaded bucket and rear ballast installed.

Set the bucket and implement high on a rough surface so that they are not caught by obstacles.

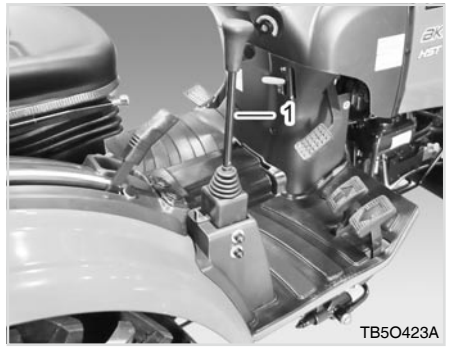
PARKING WITH LOADER INSTALLED



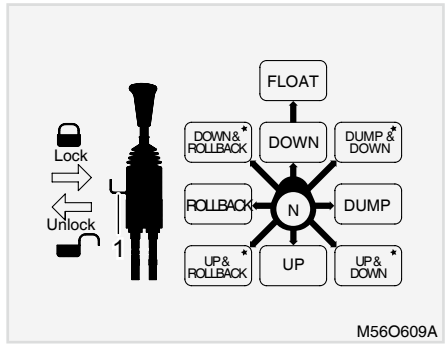
When parking the tractor which is equipped with a loader or backhoe, make sure that the loader or the boom of the backhoe is lowered on the ground.

Otherwise, the tractor can become unstable, leading to an unexpected accident, such as roll over.

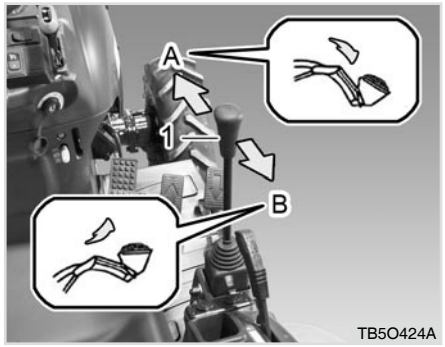
JOYSTICK LEVER



(1) Joystick Lever



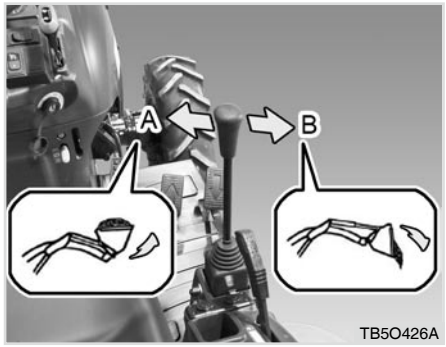
(1) Joystick Lock Lever



(1) Joystick Lever
(A) Boom Down (B) Boom Up

1. Up and down of boom

   Pulling the joystick lever back (B) lifts the boom of the loader while pushing it forward (A) lowers the loader boom.



(A) Bucket Roll Back (B) Bucket Dump

2. Roll back & dump

   "Roll back" means that the bucket scoops up. To operate this function, move the joystick lever to the left (A). "Dump" means that the bucket dumps. To operate this function, move the joystick lever to the right (B).

3. Float

   The floating function is activated when the joystick lever is pushed one position further to forward from the down position. When the lever is in this position, the boom moves up and down freely along the surface of the ground as the hydraulic line is opened from the valve to the boom cylinder. This function is useful when removing soft objects on hard ground (for example, when removing snow or sand on paved road.

⚠ WARNING

- ***If moving the lever to the floating position while the boom is up in the air, the boom can fall freely and lead to an accident.***

4. Down & roll back

   The boom can be lowered and the bucket can be rolled back at same time by operating the joystick lever to the front left position (10 o'clock position). However, the operation

time may not be shortened much since the boom is lowered first and then the bucket is rolled back later due to unbalanced hydraulic pressure in the hydraulic circuit.

5. Down & dump

The boom can be lowered and the bucket can dump at same time by operating the joystick lever to the front right position (2 o'clock position). However, these two operations may not be performed simultaneously due to unbalanced hydraulic pressure in the hydraulic circuit.

6. Up & roll back

The boom can be lifted and the bucket can scoop up at same time by operating the joystick lever to the rear left position (7 o'clock position). However, these two operations may not be performed simultaneously due to unbalanced hydraulic pressure in the hydraulic circuit.

7. Up & dump

The boom can be lifted and the bucket can dump at same time by operating the joystick lever to the rear right position (5 o'clock position). However, the operation time may not be shortened much since the bucket dumps first and then the boom is lifted later due to the unbalanced hydraulic pressure in the hydraulic circuit.

8. Locking/unlocking joystick

Pressing the joystick lock lever in, locks the joystick, while pulling it outward, unlocks the joystick as shown in the figure.

⚠ WARNING

- ***Do not leave the tractor with the boom off the ground in any circumstances. If it is necessary, lock the joystick.***
- ***When the joystick lever is not in use, lock it since the implement can fall down if the lever is operated accidently.***

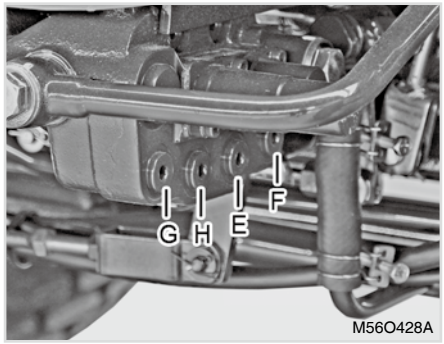
IMPORTANT

- **If the boom or bucket is not operating properly, lower the bucket onto the ground, stop the engine and move the joystick lever to remove all hydraulic pressure in the system. Then, check all the hydraulic connections and reconnect them correctly.**
- **Before connecting or disconnecting the hydraulic hose coupling from the loader, lower the boom onto the ground, stop the engine, and move the joystick lever front and back, left and right for several times to remove residual pressure in the hydraulic hose.**

JOYSTICK VALVE PORT

⚠ WARNING

- ***Pressurized diesel fuel or hydraulic fluid may be sprayed on your skin or eyes, leading to a severe injury or even death.***
- ***To check leakage, use a board and wear protective gloves and goggles.***
- ***If your eyes come into contact with the hydraulic fluid, seek medical attention immediately.***
- ***Never try to disconnect the tube and quick coupler while the tractor and implement are in operation. Release the pressure by operating the lever after the engine is stopped.***



(E) Bucket Up *(F) Bucket Down*
(G) Boom Up *(H) Boom Down*

PORT	DIRECTION	FUNCTION
E		Bucket Up
F		Bucket Down
G		Boom Up
H		Boom Down

MEMO

7

MAINTENANCE CHECK LIST
DAILY CHECK CHART

SERVICE SCHEDULE		MAINTENANCE CODES
ITEM	SERVICE REQUIRED	
Engine Oil	Check the oil level and add as needed. Do not overfill.	E
Hydraulic (Trans / Diff.) Fluid	Check level and add as needed.	D, N
Engine Air Filter and Air Intake System	Check for leaks and damaged components. Do not use compressed air to clean elements.	T
Engine Cooling System	Clean debris from oil cooler, radiator screen and grills. Check coolant level cold, add premixed coolant as needed.	F, G, AD, AE
Seat Belt	Check the condition of seat belt and mounting hardware. Repair or replace as needed.	K
Tires	Check for wear, damaged tires and ensure for proper sized tires and correct air pressure.	4 - 31
Parking Brake	Check operation and adjust if required.	4 - 22
Clean Pedals	Clean brake pedals, travel control pedal, clutch pedal and footrest area.	H
General Items	Check for loose or broken parts, damaged operator cab, instrument operation, loose wheel nuts / bolts, oil leaks and damaged or missing signs (decals).	Q, AG, AH, AM
PTO	Inspect the splines. Replaced damaged or missing shields and guards.	4 - 19
Three-point Linkage	Check operation and condition of pins, links and bars.	6 - 5
Loader (If Equipped)	Check mounting hardware for loose or broken parts.	

※ For detailed information about maintenance codes, refer to the corresponding section in each chapter.

MAINTENANCE SCHEDULE CHART

NO.	Item \ Maintenance Interval				Run Hour										Run Age		Remarks		Maintenance codes
					10	50	100	200	250	400	600	800	1500	3000	1 Year	2 Year			
1	Engine oil & Filter	Change	DI / IDI			⊙			○						○				L
			CRDI	Tier2 or 3					○						○				
				Tier4						○					○				
		Check					○												D
2	Transmission oil filter	Replace				⊙		○											M
3	HST oil filter	Replace				⊙		○											M
4	Transmission fluid	Change								○									M
	Transmission fluid level	Check			⊙														D
5	Front axle oil	Change								○									N
	Front axle oil level	Check			⊙														
6	Front axle pivot	Adjust									○								AB
7	Engine start system	Check				○													
8	Greasing	Apply				○													P
9	Wheel bolt torque	Check				○													Q
10	Battery condition	Check					○										*3		W

※ Tier2 or 3 - Without DPF, Tier4 - With DPF
※ DI: Direct Injection / IDI: In Direct Injection / CRDI: Common Rail Direct Injection

NO.	Item	Maintenance Interval	Run Hour										Run Age		Remarks		Maintenance codes
			10	50	100	200	250	400	600	800	1500	3000	1 Year	2 Year			
11	Air cleaner element	Check	⊙														T, AF
		Clean			○										*1	#	
		Replace				○							○		*2	#	
12	Fuel filter element	Replace				○										#	R
13	Fan belt, Air-con belt	Adjust			○										*3		V
14	Clutch pedal free play	Adjust		⊙	○												H
15	Brake pedal free play	Adjust		⊙	○												O
16	Radiator hose and clamp	Check				○											Z
		Replace												○			
17	Radiator grill	Clean	⊙														
18	Power steering hose and oil line	Check				○											AA
		Replace												○			
19	Fuel line	Check			○											#	U
		Replace												○			
20	Intake air line	Check				○											X
		Replace												○	*3		

NO.	Item	Maintenance Interval	Run Hour										Run Age		Remarks		Maintenance codes
			10	50	100	200	250	400	600	800	1500	3000	1 Year	2 Year			
21	Toe-in	Adjust				○											Y
22	Engine valve clearance	Adjust								○							AC
23	Fuel injection nozzle injection pressure	Check									○					#	
24	Injection pump	Check										○				#	
25	Cooling system	Clean												○			G
26	Coolant	Replace												○			AE
	Coolant level	Check	⊙														
27	Air-con filter	Replace											○				
28	Fuel system	Check													*3		C, S
29	Fuse	Replace													*3		AG, AH
30	Light bulb	Replace													*3		AI
31	Seat belt	Check	○														
32	Tire pressure & damage	Check	○														
33	Parking brake	Check	○														
34	PTO cover	Check	○														

NO.	Item / Maintenance Interval		Run Hour										Run Age		Remarks		Maintenance codes
			10	50	100	200	250	400	600	800	1500	3000	1 Year	2 Year			
35	3-point hitch & drawbar	Check	○														
36	Pin fastening	Check	○														

IMPORTANT

- **⊙ must be done after the first 10 or 50 hours of operation.**
  - *** 1 Air cleaner should be cleaned more often in dusty conditions than in normal condition.**
  - *** 2 Every year or every 6 times of cleaning.** *** 3 Replace only if necessary.**
- **The items listed above (# marked) are registered as emission related critical parts by KIOTI in U.S. EPA exhaust emission standard non-road emission regulation. As the engine owner, you are responsible for the performance of the required maintenance on the above instruction.**

LUBRICANTS

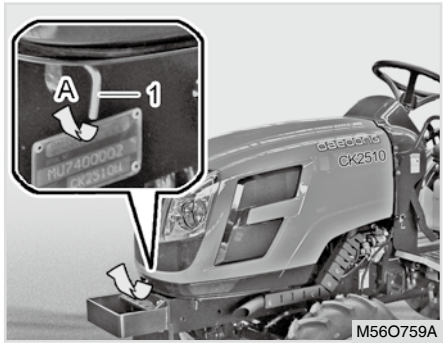
To prevent serious equipment damage, use only genuine **KIOTI** fluids, oils and greases, or equivalents.

No.	Section	Capacity [U.S.gal. (L)]		Lubricants
		MANUAL	HST	
1	Fuel	6.6 (25)		Ultra-low sulfur diesel (Sulfur content: 15 ppm or less)
2	Coolant	2.06 (7.8)		An anti freezing solution (Ethylene glycol) + Pure water (50:50)
3	Engine oil	1.53 (5.8)		Tier2 or 3 (Without DPF) - API CH grade above Tier4 (With DPF)- API CJ grade above Oil Viscosity : SAE 15W40
4	Transmission oil	6.20 (23.5)	5.42 (20.5)	Daedong : UTF 55 Shell : Donax-TD, Exxonmobil : Mobilfluid 424 Exxon Hydraul 560 BP : Tractran UTH
5	Front axle oil	0.8 (3.0)		SAE 90 gear oil or better, or same as T/M oil
6	Apply grease • Front axle support • Brake pedal • Brake lever • Top link holder • Control lever	A little as needed		SAE Multi purpose type grease

⚠ WARNING

- ***Check the oil level regularly. Correct the oil level, if needed, before operating.***
- ***Always check and add oil with the tractor on a flat, level surface.***

MAINTENANCE CODE
HOW TO OPEN THE HOOD (A)



(1) Opening Knob
(A) Pull

1. The hood can be opened by pulling down or the handle loosen or the lower right hand side of tractor.
   Push down ward or bonnet to release latch.
2. To close the hood, press its front down until it is locked in its position.
3. Do not apply excessive force to the handle to fix it. The hood can be damaged.

(1) Hood

NOTE

- Never open the hood while the engine is running.

CAUTION

- **If noise is heard from the hood during driving, check the rubber molding and replace it if damaged.**

CHECKING AND ADDING FUEL (C)

(1) Fuel Tank Cap

The fuel tank is installed in the middle of the tractor body. Make sure to use high-quality diesel fuel.

Fuel Tank Capacity
6.6 U.S.gal. (25 L)

7

1. Turn the key switch to "ON", check the amount of fuel by fuel gauge.
2. If the needle on the fuel gauge is close to "E" or the fuel level is low, open the fuel tank filler cap and add fuel.
3. After adding the fuel, close the fuel tank filler cap.

⚠ CAUTION

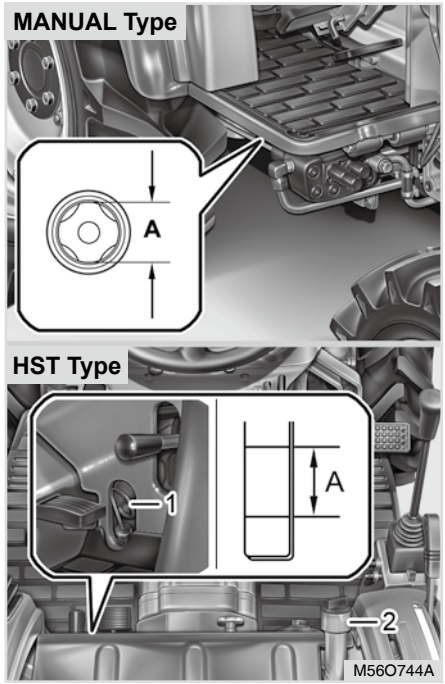
To avoid personal injury:

- **Do not smoke while refueling.**
- **Add the fuel in a well-ventilated area.**
- **Be sure to stop the engine before refueling.**
- **Dirt or sand contained in fuel may cause the fuel injection pump to malfunction, use a strainer when refuelling.**

⊕ IMPORTANT

- **Do not permit dirt or trash to get into the fuel system.**
- **Be careful not to let the fuel tank become empty, otherwise air will enter the fuel system, necessitating bleeding before next engine start.**
- **Be careful not to spill during refueling. If a spill occurs, wipe it off at once, or it may cause a fire.**
- **To prevent condensation (water) accumulation in the fuel tank, fill the tank before parking overnight.**
- **If unit is not used for a long time, make sure the fuel viscosity is suitable for the cold weather.**

CHECKING TRANSMISSION FLUID LEVEL (D)



(1) Gauge *(2) Oil Filler Plug*
(A) Oil level is acceptable within range

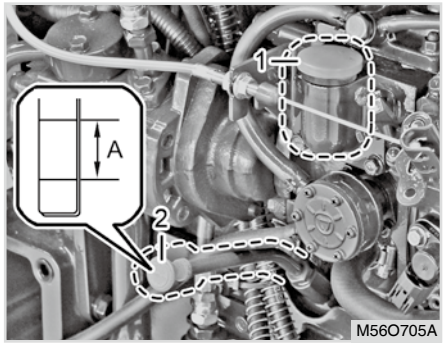
1. Park the machine on a flat surface, lower the implement.

2. Depress the brake pedals and apply the parking brake.
3. Set all shift levers into the neutral position.
4. Stop the engine.
5. If the oil level is too low, add some new oil so that the level is within the allowable range.(See "LUBRICANTS" in Maintenance Section)

IMPORTANT

- **If oil level is low, do not run engine.**
- **Never add the oil over the upper limit.**

CHECKING ENGINE OIL LEVEL (E)



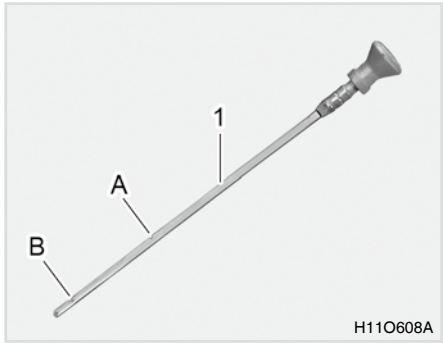
(1) Engine Oil Filler Cap
(2) Oil Dipstick
(A) Oil level is acceptable within this range

1. Check the engine oil daily.
2. Park the tractor on level ground and lower the implement.
3. If the engine was just running, wait for approx. 5 minutes before checking the oil level.

CAUTION

To avoid personal injury:

- **Be sure to stop the engine before checking the oil level.**



(1) Oil Dipstick
(A) Upper Limit *(B) Lower Limit*

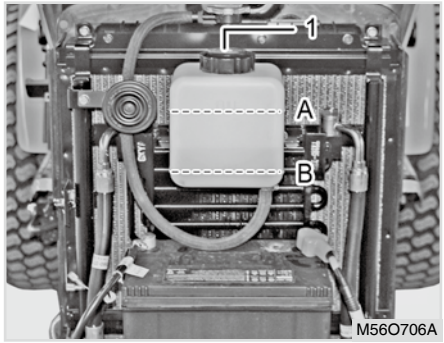
4. Pull out the oil dipstick, clean it, and then insert it into its original position. Then, pull it out again and check if the oil level is within the specified range.
5. If the oil level is too low, add some new oil so that the level is within the allowable range.

7

IMPORTANT

- **When using oil of different maker or viscosity from the previous one, remove all of the old oil. Never mix two different types of oil.**
- **Do not start the engine when the oil level is below the lower limit.**
- **Wipe the oil dipstick with a clean cloth or tissue. If foreign material enters the oil sump, it can lead to malfunction of the engine.**
- **Never add the oil over the upper limit.**

CHECKING COOLANT LEVEL (F)

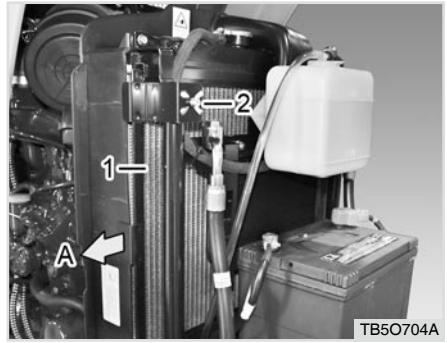


(1) Reservoir Tank
(A) FULL *(B) LOW*

1. Check to see that the coolant level is between the "FULL" and "LOW" marks of reservoir tank.
2. When the coolant level drops due to evaporation, add water only up to the middle of the range.

   In case of leakage, add anti-freeze and water in the specified mixing ratio up to the middle of the range.
3. The tractor is furnished in the factory with a mixture of anti-freeze (ethylene glycol) and water in a ratio of 50:50 which is suitable in any season.

CLEANING GRILL, RADIATOR SCREEN (G)



(1) Radiator Screen *(2) Clip*
(A) Detach

1. Check front grill and side screens to be sure they are clean of debris.
2. Lift out the radiator screen and remove all the foreign material.

CAUTION

To avoid accidents:

- **Be sure to stop the engine before removing the screen.**

IMPORTANT

- **Bonnet Grill and screen must be clean from debris to prevent engine from overheating and to allow good air intake for the air cleaner.**

CHECKING BRAKE AND CLUTCH PEDALS (H)

1. The brake and clutch pedals should be inspected for free travel, and smooth operation.
2. You should adjust these pedals if an incorrect measurement is found.(See maintenance code "O" and "R" in this chapter)

NOTE

- When depressing the brake pedals separated, both of the brake pedals should be moved down to the same depth.

CHECKING GAUGES, METER AND EASY CHECKER (I)

1. Inspect the instrument panel for broken gauge(s), meter(s) and Easy Checker lamps.
2. Replace if broken.

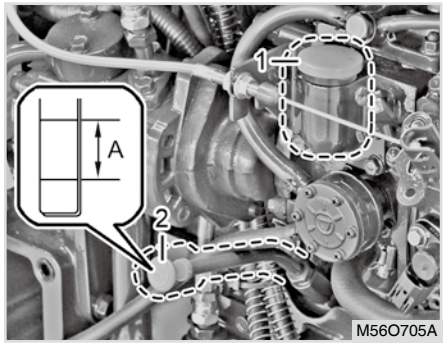
CHECKING HEAD LIGHT, HAZARD LIGHT ETC. (J)

1. Inspect the lights for broken bulbs and lenses.
2. Replace if broken.

CHECKING SEAT BELT AND CABIN (K)

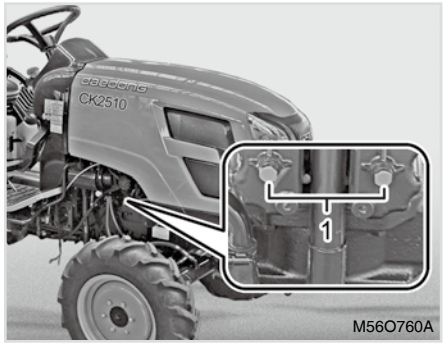
1. Always check condition of seat belt and cabin attaching hardware before operating tractor.
2. Replace if damaged.

CHANGING ENGINE OIL AND REPLACING FILTER (L)



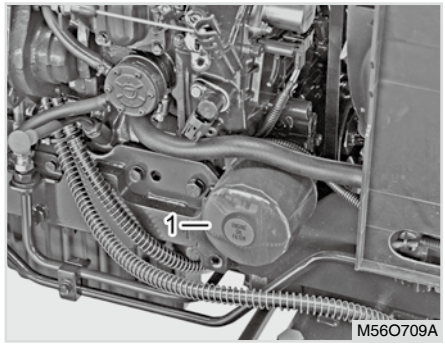
(1) Engine Oil Filler Cap
(2) Oil Dipstick
(A) Oil level is acceptable within this range

1. Park the tractor on level ground and start the engine to warm it up.



(1) Drain Plug

2. Stop the engine, apply the parking brake and place the container under the tractor.
3. Take off engine oil filler cap to allow easy draining for engine oil. Remove the drain plugs at the bottom of the engine and drain the oil completely. All the used oil can be drained out easily when the engine is still warm. Be sure to install the drain plugs(X2) to the oil pan securely.



(1) Engine Oil Filter

4. Remove the oil filter behind the cooling fan on the right side of the engine.
5. Screw in a new filter firmly with a hand for every 150-hour of use after applying a thin film of oil to its O-ring and tighten the oil filter to the specified torque.
6. Add the engine oil to the specified level.

Oil Capacity (Including Filter)
1.53 U.S.gal. (5.8 L)

7. Run the start motor for approx. 10 seconds to deliver oil to each part.
8. Run the engine for approx. 5 minutes to deliver oil to each part. Stop the engine if the oil warning lamp still comes on.(It is normal that the oil warning lamp is off while the engine running)
9. Check the engine oil level again with the oil dipstick. If the level is low, add more oil.

⚠ WARNING

- ***The engine oil is very hot while the engine is running or right after the engine is stopped. Be careful not to be burned.***
- ***Avoid oil contact while changing or adding engine oil and wear eye protection to prevent eye contact.***
- ***Prolonged and repeated contact with the engine oil may cause skin disorders and skin cancer. If skin contact is made, wash thoroughly with soap or hand cleaner as soon as possible.***
- ***Keep the used oil out of reach of children.***

⚠ CAUTION

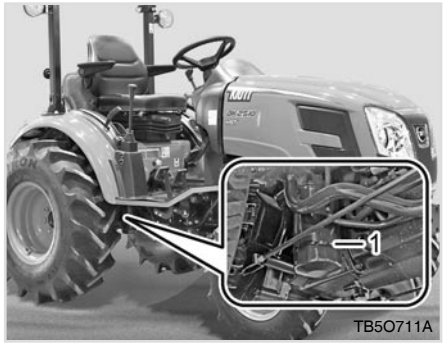
To avoid personal injury:

- **To avoid personal injury, be sure to stop the engine before changing the oil or replacing the filter.**
- **Check the engine oil level before every operation of the tractor. If the engine oil is insufficient, the engine can be damaged, and this is not covered by warranty. Be sure to add engine oil when its level is below the lower mark of the oil dipstick.**
- **Do not dispose of used oil and oil filter into drainage and other places not designated by regulations. Observe applicable regulations when disposing used oil and filters.**

IMPORTANT

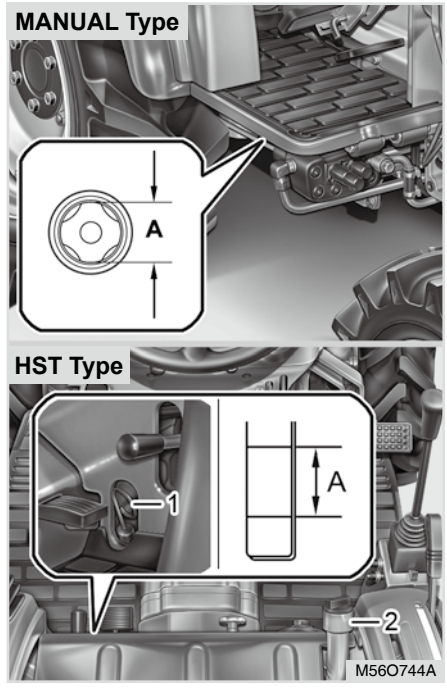
- **Use only specified engine oil and KIOTI genuine filter to insure smooth operation and durability of the engine.**

REPLACING TRANSMISSION FLUID AND FILTER (M)



(1) Oil Filter Cartridge

(1) Drain Plug



(1) Gauge *(2) Oil Filler Plug*
(A) Oil level is acceptable within range

The transmission fluid should be changed if it is contaminated or after the transmission is serviced or every 400 hours of operation. When changing the transmission fluid, make sure to change the fluid filter. However, replace the filter only at initial 50 hours and every 200 hours of operation afterward.

1. Park the tractor on level ground and start the engine to warm it up.
2. Stop the engine, apply the parking brake and wait until the oil cools down.
3. To drain the used fluid, place the oil container under the transmission case and remove the drain plug to drain used fluid. If the fluid does not flow out freely, unscrew the air bleeding plug on the side of the hydraulic cylinder on the left of the top link bracket to facilitate drainage. Reinstall the drain plugs securely afterward.
4. Unscrew the fluid filter from the rear right section on the tractor using a filter wrench.

5. Apply a thin film of clean oil onto the O-ring of a new filter.
6. Tighten the filter firmly until it contacts the mounting surface. Tighten the filter a half turn further by hand.
7. Add fluid to the specified level.
8. Run the engine for a few minutes and then stop it to check the leakage and fluid level and add fluid as needed.

Oil Capacity	
MANUAL	6.20 U.S.gal. (23.5 L)
HST	5.42 U.S.gal. (20.5 L)

9. Make sure that the transmission fluid does not leak through the seal.

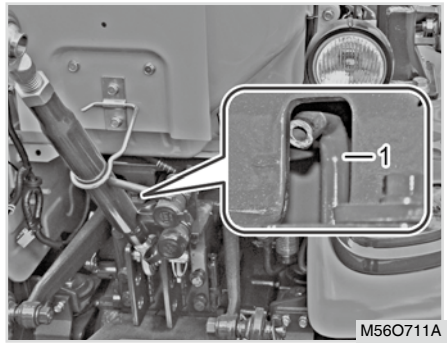
⚠ CAUTION

To avoid personal injury:

- **Be sure to stop the engine before changing the fluid or replacing the filter.**
- **Cool down the fluid sufficiently. You can get burned by hot fluid.**

IMPORTANT

- **To prevent serious damage to the hydraulic system, use only a KIOTI genuine filter.**
- **Do not operate the tractor with heavy load right after changing the transmission fluid. Run the engine at medium speed for a few minutes to prevent damage to the hydraulic system.**

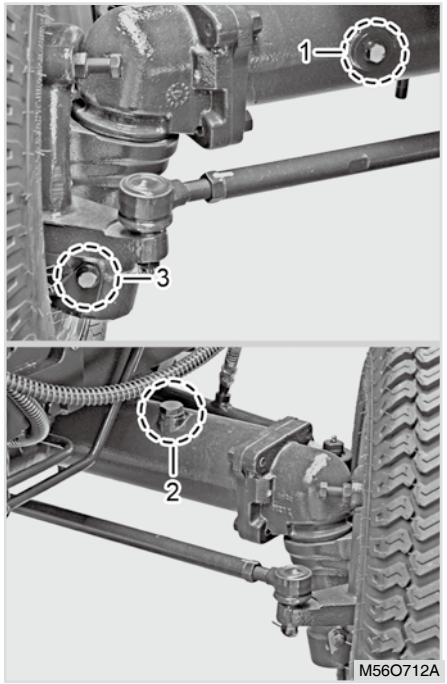


(1) Air Bleeding Pipe

IMPORTANT

- **When adding the fluid, the air bleeds automatically by oil pressure from air bleeding pipe.**

INSPECTION FRONT AXLE CASE OIL (N)



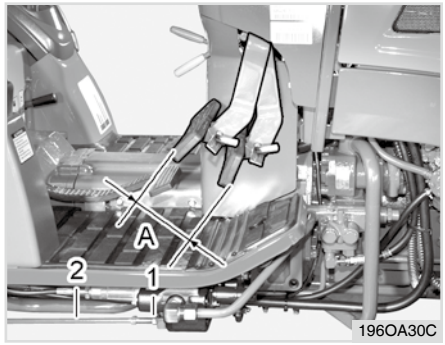
(1) Check Plug *(2) Oil Filler Plug*
(3) Drain Plug

1. To drain the used oil, remove the right and left drain plugs and filling plug at the front axle case and drain the oil completely into the oil pan.
2. After draining reinstall the drain plugs.
3. Remove the oil level check plug on the left of the front axle.
4. Add new oil to the specified level of the check plug through the oil filler.(Refer to "Lubrication" in the chapter "Service")
5. Tighten the oil filler plug after replenishment.
6. Check the oil level in 15 minutes and add oil as necessary.

Oil Capacity
0.8 U.S.gal. (3.0 L)

ADJUSTING BRAKE PEDAL (O)

PROPER BRAKE PEDAL FREE PLAY



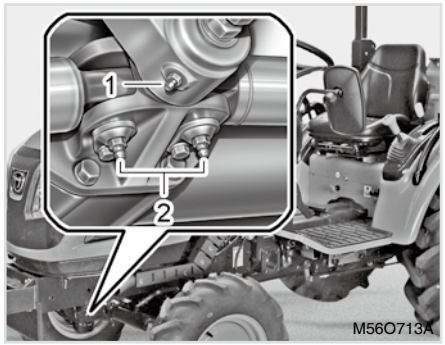
(1) Brake Rod *(2) Turn Buckle*
(A) Free Play

1. Depress each brake pedal to measure its free play.
2. If the difference between the measured values is over the specified range, adjust the pedals to the standard using the bolts.
   - Tighten the mounting nuts firmly after adjustment.

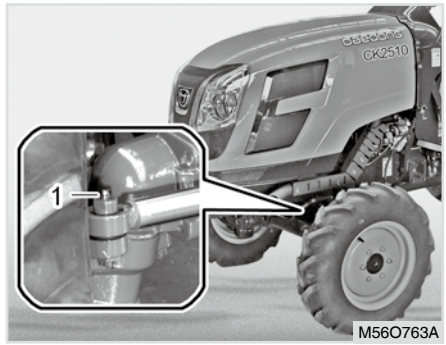
Proper brake pedal free play (A)
1.0~1.5 in. (25 ~ 40 mm) on the pedal

LUBRICATING GREASE LOCATIONS (P)

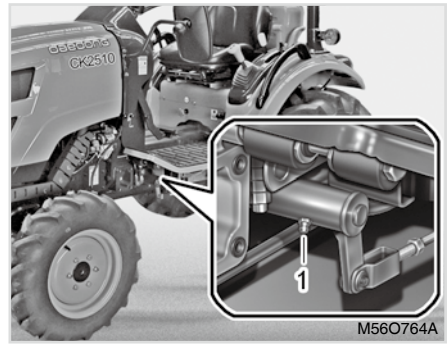
Apply high-quality multi-purpose grease onto the positions in the figure at every 100 hours of operation or whenever necessary.



(1) Front Bracket
(2) Steering Cylinder Support Pin Nipple (LH/RH)

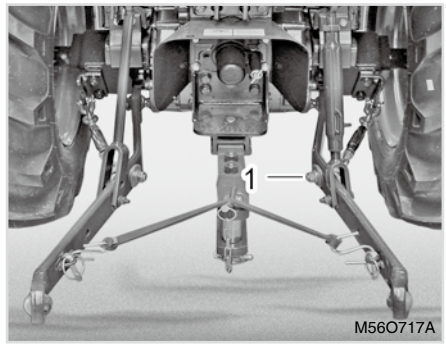


(1) Steering cylinder end nipple (LH/RH)



(1) Brake Lever (LH/RH)

(1) Rear Bracket



(1) Lift Rod (LH/RH)

CHECKING WHEEL BOLT/NUT TORQUE (Q)

(1) Front Wheel Bolt / Nut
(2) Rear Wheel Bolt / Nut

Check wheel bolts and nuts regularly especially when new. If they are loose, tighten them as follows.

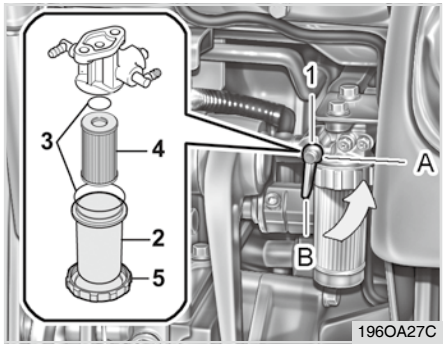
⚠ CAUTION

To avoid personal injury:

- **Never operate tractor with a loose rim, wheel, or axle.**
- **Any time bolts and nuts are loosened, retighten to specified torque.**
- **Check all bolts and nuts frequently and keep them tight.**

Item		Tightening Torque
Front	Wheel Bolt & Wheel Nut	77.42 ~ 90.16 N·m 56.88 ~ 66.24 lbf-ft 7.9 ~ 9.2 kgf.m
Rear	Wheel Bolt & Wheel Nut	196 ~ 294 N·m 144 ~ 216 lbf-ft 20.0 ~ 23.0 kgf.m

CHECKING FUEL FILTER (R)



(1) Fuel Cock *(2) Fuel Filter Head*
(3) O-Ring *(4) Filter Element*
(5) Screw Ring
(A) Close *(B) Open*

The fuel filter is installed under right rear fender.

1. Close the fuel cock and clean ther area around the filter bowl.
2. Remove the filter after disengaging the ring and removing the filter bowl.
3. After cleaning you should reassemble the new filter element, making sure that it is free from dust and dirt. Assure that all O-rings are in place.
4. Bleed the fuel system.(Refer to the instructions for bleeding the fuel system in the inspection section)

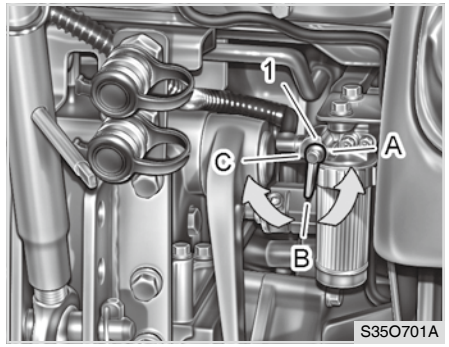
⚠ CAUTION

- **Make sure that no foreign materials enter the fuel system.**
- **Before disconnecting any connection, clean the area around it and cover all openings properly.**

IMPORTANT

- **If dust and dirt enters the fuel system, the fuel pump and injection nozzles are subject to premature wear. To prevent this, be sure to clean the fuel filter bowl and element periodically.**

BLEEDING FUEL SYSTEM (S)



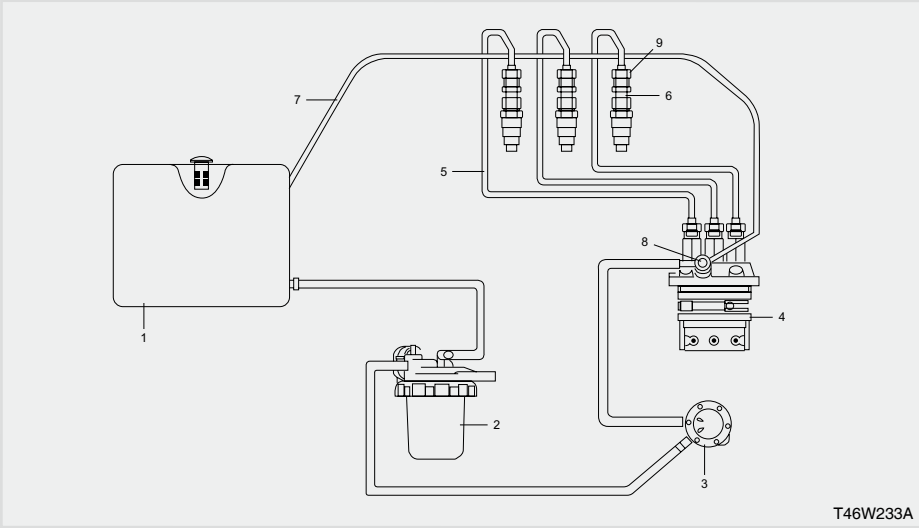
(1) Fuel Cock
(A) Close *(B) Open*
(C) Air Bleeding

Make sure to bleed the system under the following conditions:

1. When the fuel filter or line is removed.
2. When the tank is completely empty
3. When the tractor is not in use for an extended period of time.

Bleeding procedure is as follows:

1. Make sure that the amount of fuel in the fuel tank is sufficient.



(1) Fuel Tank
(2) Fuel Filter
(3) Fuel Injection Pump
(4) Injection Pump
(5) Injection Pipe
(6) Injection Nozzle
(7) Fuel Overflow Pipe
(8) Bleeding Bolt
(9) Nozzle Holder Nut

2. If there is air in the fuel filter, turn the filter cock lever to the air side and turn the ignition key to turn the start motor. Then, the air in the filter port is discharged through the bleeding hose as shown in the figure.
3. When the amount of the fuel in the fuel filter port goes over 3/4 level, stop cranking the engine and turn the cock lever in the figure to the "ON" (open) position.

⚠ CAUTION

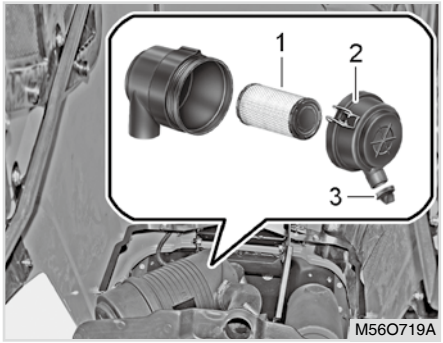
- **Do not operate the start motor for more than 10 seconds continuously. Instead, operate it several times for 10 seconds each time.**

NOTE

- It is not necessary to bleed the system if filling the tank with fuel before installing the fuel port.

4. Unscrew the bleeding bolt as illustrated and crank the engine to bleed the system.
5. If the engine still cannot be started even after performing the above step. Loosen the injection lines and crank the engine to bleed.
6. When air bubbles are not seen anymore in the drained fuel, tighten the loose parts and start the engine.

REPLACING AIR CLEANER PRIMARY ELEMENT (T)



(1) Filter *(2) Cap*
(3) Evacuator Valve

1. The air cleaner uses a dry element. Never apply oil.
2. Dust should not accumulate in the dust cap or element. Remove and clean the dust cap and the element every week. If the tractor is operated in extremely dusty conditions, daily inspection is required.
3. When cleaning the element, refer to the instructions that follow.
4. The filter should be replaced every year or after cleaning for 6 times, whichever comes first.

To clean the element, use only clean dry compressed air on the inside of the element. Air pressure at the nozzle must not exceed 29 psi (2 kgf/cm²). Maintain reasonable distance between the nozzle and the filter.

IMPORTANT

- **The air cleaner will only fulfill its function if it is correctly and regularly maintained. A poorly maintained air cleaner will mean loss of power, excessive fuel consumption and a reduction in engine life.**
- **Do not run the engine with filter element removed.**

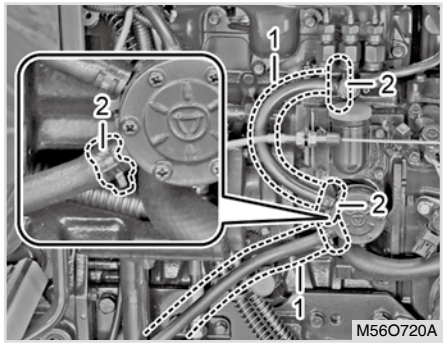
IMPORTANT

- **Be sure to refit the cap with the arrow ↑ (on the rear of cover) upright. If the cap is improperly fitted, evacuator valve will not function and dust will adhere to the element.**

EVACUATOR VALVE

Open the evacuator valve gap by fingers once a week under ordinary conditions or daily when used in dusty conditions to get rid of large particles of dust and dirt.

CHECKING FUEL LINES (U)



(1) Fuel Pipe *(2) Tightening Band*

Although checking the fuel pipe connection is recommended every 100 service hours, it should be done every 6 months if operation does not exceed 100 hours in 6 months.

1. If the hose clamps are loose, apply a slight coat of lubricant onto the threads and securely tighten it.
2. The fuel pipe is made of rubber and ages regardless of period of service. Change the fuel pipe together with the hose clamps every two years and securely tighten.
3. If the fuel pipes and hose clamps are found damaged or deteriorated earlier than two years, then change them immediately.
4. After the fuel pipe and hose clamps have been changed, bleed the fuel system.

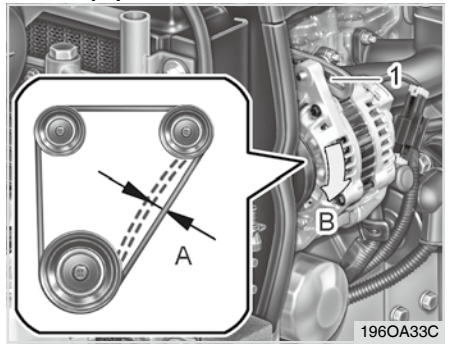
⚠ WARNING

- ***Stop the engine when checking the items above.***
- ***The fuel pipes are subject to wear and aging. Failure to perform periodic inspections may lead to a fuel leak. Fuel leaking on a hot engine could cause a fire.***

IMPORTANT

- **When changing fuel pipes, be careful not to allow dust or dirt to enter the fuel system.**
- **Contaminations in the fuel system could damage the fuel system or injection pump. Pay extra caution to the fuel pump to prevent dust from entering it.**

ADJUSTING FAN BELT TENSION (V)



(1) Adjusting Bolt
(A) Adjusting Belt Tension *(B) Pull*

In order to extend the fan belt's lifetime, the tension of the belt should be correctly adjusted if it slips. The belt tension should be inspected regularly according to the following procedure:

1. Stop the engine and apply the parking brake.
2. Open the hood and remove the left side cover.
3. Remove the mounting bolts and adjusting bolt of the alternator.

4. In order to set the belt tight, move the upper part of the alternator backward.
5. Apply moderate thumb pressure to the belt between pulleys.

Belt deflection for proper fan belt tension (A)
A deflection between 0.28 ~ 0.35 in. (7 ~ 9 mm) when the belt is pressed in the middle of the span.

6. If tension is incorrect, loosen the alternator mounting bolt and hinge bolt. Pull the alternator outward using a pry bar to reach the proper belt tension.
7. Replace the fan belt if it is damaged, cracked or worn.

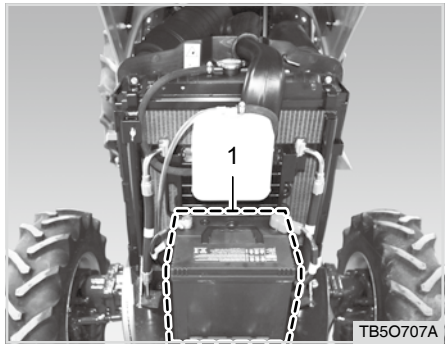
⚠ CAUTION

To avoid personal injury:

- **Be sure to stop the engine before checking belt tension.**

BATTERY (W)

PRECAUTIONS FOR HANDLING



(1) Battery

Mishandling the battery shortens the service life and adds to maintenance costs. If the battery is insufficiently charged, the headlights may dim and the engine is hard to start. It is important to inspect the battery periodically.

1. The battery cable should always be clean and firmly connected. When installing a new or used battery, clean its terminals.
2. Check the battery and cable for damage and corrosion.
3. Apply grease to the terminals and cable end in order to prevent corrosion.

⚠ WARNING

- ***The battery gas can explode. Do not expose the battery to flames or sparks. It may cause a fire.***
- ***The battery fluid contains sulfuric acid that can burn you. Do not allow the battery fluid to contact your eyes, skin, or painted surfaces. If you accidentally get it in your eyes or on your skin, flush with water and contact your doctor.***
- ***Be sure to wear eye protection while working on the battery. The battery fluid can hurt your eyes.***
- ***Use only the battery with the specified voltage. Otherwise, it may cause a fire.***

CHARGING

1. To slow charge the battery, connect the battery positive terminal to the charger positive terminal and the negative to the negative, and then recharge in the standard fashion.
2. Boost charging is only for emergencies. It will partially charge the battery at a high rate and in a short time. Failure to do this will shorten the battery's service life.
3. When the battery is discharged and should be replaced, replace it with a new one with same specification and capacity.

Battery type	Volts (v)	Capacity
12V 80AH	12	80AH

⚠ CAUTION

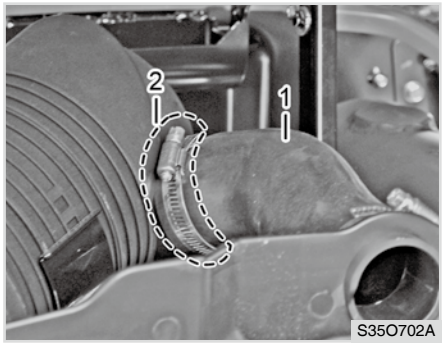
- **The charge warning lamp comes on if the charging system is defective. If it comes on while driving, have the system checked or repaired by your local KIOTI Dealer.**
- **Keep the battery fully charged. If the battery fluid concentration is too low during the winter season, the battery may be frozen.**
- **Do not start the engine when the battery is frozen. Try to warm it up first.**
- **If the battery is not securely installed, the battery case and electrolytes could be damaged by vibration. To prevent the battery acid from contacting the terminals, apply grease around the battery terminals and connections.**
- **Never check the charge status of the battery by placing a metal object across the posts. Use a voltmeter or hydrometer.**

DIRECTION FOR STORAGE

1. When storing the tractor for a long period, remove the battery from tractor, store in a dry place out of direct sunlight.
2. The battery self discharges while it is stored.

   Recharge it once every two months in hot seasons and once every month in cold seasons.

CHECKING INTAKE AIR LINE (X)

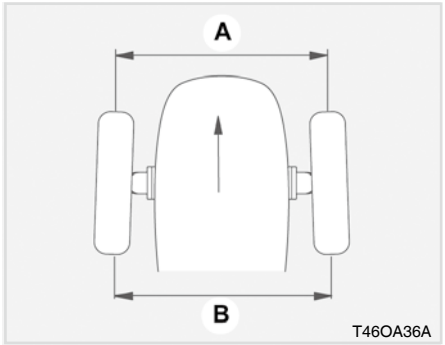


(1) Air Line Hose

1. If the hose clamps are loose , tighten clamps securely.
2. If the hoses and clamps are damaged, you must replace them at once. Failure to do so could lead to engine damage.

ADJUSTING TOE-IN (Y)

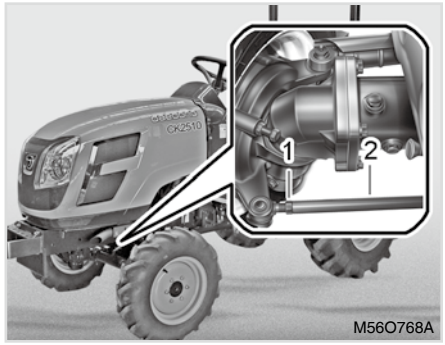
ADJUSTING PROCEDURE



(A) Wheel - to - wheel distance at front
(B) Wheel - to - wheel distance at rear

1. Park tractor on a flat surface
2. Turn steering wheel so front wheels are pointed straight ahead.
3. Lower the implement, lock the parking brake and stop the engine.
4. Measure distance between tire beads (center) at front of tire and hub height.
5. Measure distance between tire beads at the rear of tire and hub height.
6. Front distance should be 2~8 mm less than rear distance. If not, adjust the tie rod length.

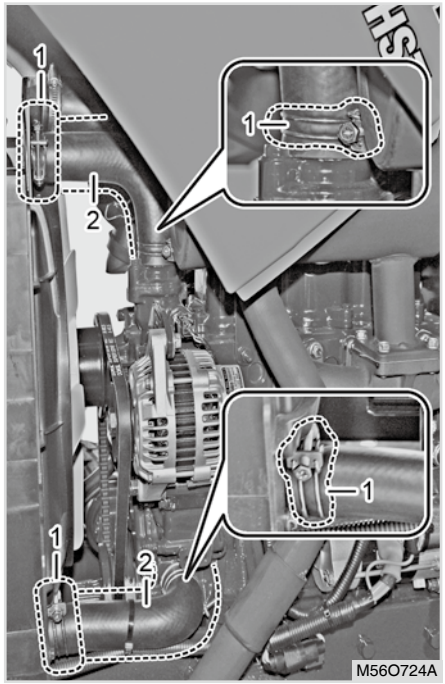
READJUSTMENT



(1) Tie Rod Lock Nut *(2) Tie Rod*

1. Loosen the lock nut and turn the turnbuckle to adjust the rod length until the proper toe-in measurement is obtained.
2. Check the toe-in value after the tie rod is adjusted.
3. Adjust it again if necessary.

CHECKING RADIATOR HOSE AND CLAMP (Z)



(1) Clamp *(2) Hose*

Check to ensure the radiator hoses are free from damage and are tightened properly every 200 hours or every 6 months, whichever comes first.

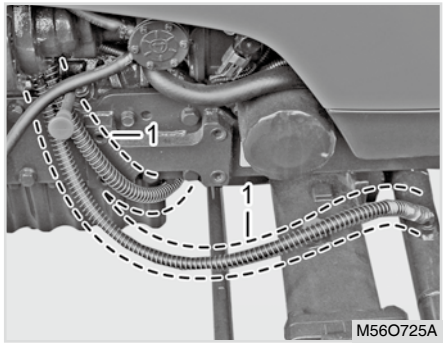
1. If the hose clamps are loose or water leaks from hose, tighten clamps securely.
2. If the radiator hoses are swollen, hardened, cracked, or otherwise damaged, you must replace the hoses. Failure to do so could lead to coolant loss and engine damage.

PRECAUTION AT OVERHEATING

Take the following actions in the event the coolant temperature reaches the boiling point, what is called "Over-heating".

1. Stop the machine in a safe place and keep the engine idling.
2. After 5 minutes of unloaded idling, shut the engine down.
3. Keep yourself away from the tractor for another 10 minutes or until steam has stopped blowing out of the engine.
4. Make sure that there is not danger and repair the cause of the overheating according to the manual's instruction.

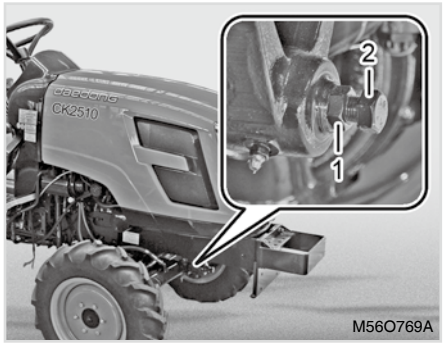
POWER STEERING LINE (AA)



(1) Power Steering Oil Line

1. Check to see that all hydraulic lines and hose fittings are tight and undamaged.
2. If damage is found you should replace the hose at once.

ADJUSTING FRONT AXLE PIVOT (AB)



(1) Lock Nut *(2) Adjusting Bolt*

If the front axle pivot pin adjustment is not correct, front wheel vibration can occur causing vibration in the steering wheel

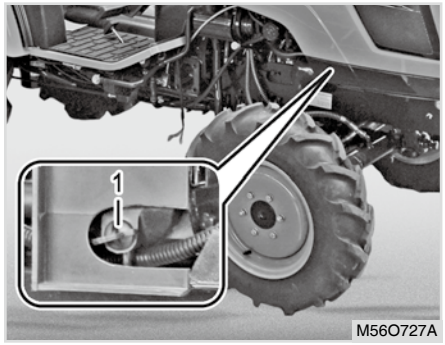
ADJUSTING PROCEDURE

Loosen the lock nut, tighten the adjusting screw all the way, and then loosen the screw by 1/6 turn. Retighten the lock nut.

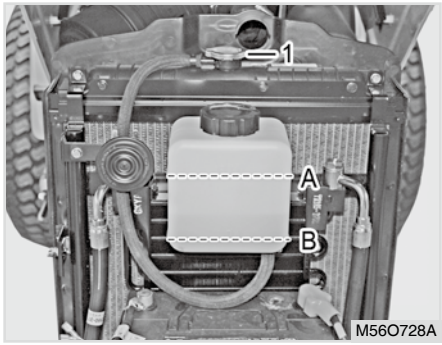
ADJUSTING ENGINE VALVE CLEARANCE (AC)

This service should be performed by your authorized **KIOTI** dealer.

FLUSH COOLING SYSTEM AND CHANGING COOLANT (AD)



(1) Drain Cock



(1) Reservoir Tank *(2) Radiator cap*
(A) FULL *(B) LOW*

1. Stop the engine and let it cool.
2. To drain coolant, remove the drain plug from the radiator and turn the radiator cap to the 1st notch to release pressure in the radiator. Then, remove the cap completely.
3. After all coolant is drained, close the drain cock.
4. Fill with clean water and anti-freeze.
5. Install the radiator cap securely.
6. Add coolant to the reservoir tank to the "FULL" level.
7. Start and operate the engine for few minutes.
8. Stop engine and let cool.
9. Check coolant level of reservoir tank and radiator. Add coolant if necessary.

Coolant capacity
2.06 U.S.gal. (7.8 L)

⚠ CAUTION

To avoid accidents:

- **Do not remove the radiator cap while the coolant is hot. You can be burned by hot steam. Make sure to remove it after the coolant is cooled down enough.**
- **Even though the coolant is cooled down, turn the cap to its first stop and then wait until it is depressurized before removing the cap completely.**

ANTI-FREEZE

IMPORTANT

- **Do not start engine without coolant.**
- **Use clean, fresh water and anti-freeze to fill the radiator and reservoir tank.**
- **When the anti-freeze is mixed with water, the anti-freeze mixing ratio must be no less than 50% mixture of water and anti-freeze.**
- **Securely tighten radiator cap. If the cap is loose or improperly fitted, water may leak out and the engine could overheat.**
- **If the radiator cap has to be removed, follow the caution above and securely retighten the cap.**
- **If the coolant leaks, contact your local KIOTI Dealer.**

This tractor is filled with 50% of ethylene glycol at factory.

If the anti-freeze has been replaced by tap water later on, the coolant can freeze, leading to damage to the cylinder and radiator when the ambient temperature is below zero (32 °F).

Therefore, make sure to change water into anti-freeze before winter season comes.

When changing the anti-freeze with one of another type, flush the cooling system several times and contact a professional for the mixture ratio.

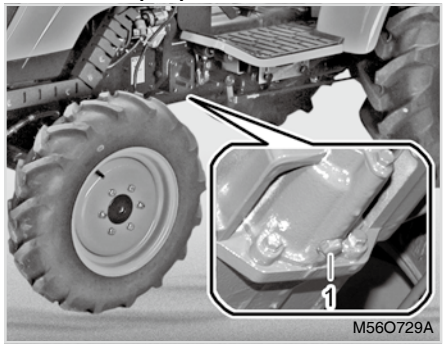
Vol. % Anti-freeze	Freezing Point °C	Boiling Point* °C
40	-24	106
50	-37	108

* At 760 mmHg pressure (atmospheric). A higher boiling point is obtained by using a radiator pressure cap.

NOTE

- The temperatures shown on the left are industry standards that necessitate a minimum glycol content in the concentrated anti-freeze.
- When the coolant level drops due to evaporation, add water only. In case of leakage, add anti-freeze and water in the specified mixing ratio.
- Anti-freeze absorbs moisture. Keep unused anti-freeze in a tightly sealed container.
- Do not use radiator cleaning agents when anti-freeze has been added to the cooling water.(Anti-freeze contains an anti-corrosive agent, which will react with the radiator cleaning agent forming sludge which will affect the engine parts)

DRAINING WATER FROM CLUTCH HOUSING (AF)



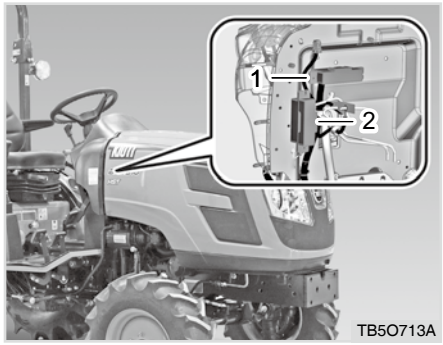
(1) Plug

1. There is a plug under the clutch housing.
2. Drain the water completely and install the plug. Drain the water into a container and dispose of it in a proper manner for environment protection.
3. Make sure to install the plug and not to damage the clutch severely.

IMPORTANT

- **If you forget to install the plug, the clutch can be damaged. Foreign material can enter through the open drain hole.**

REPLACING FUSE (AG)

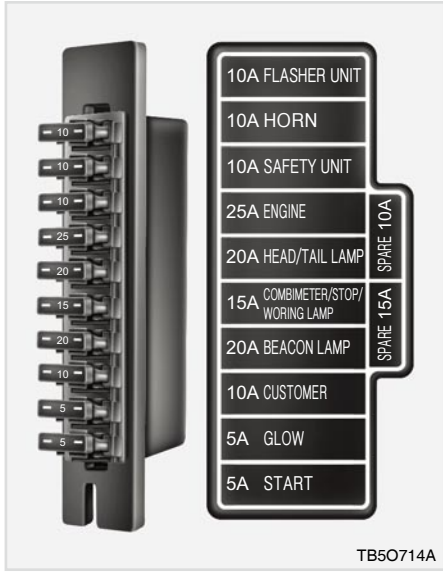


(1) Fuse Box 1 (2) Fuse Box 2

Fuses protect the tractor electrical system from potential damage.

A blown fuse indicates that there is an overload or short somewhere in the electrical system. If a fuse is blown, find and remove the fault.

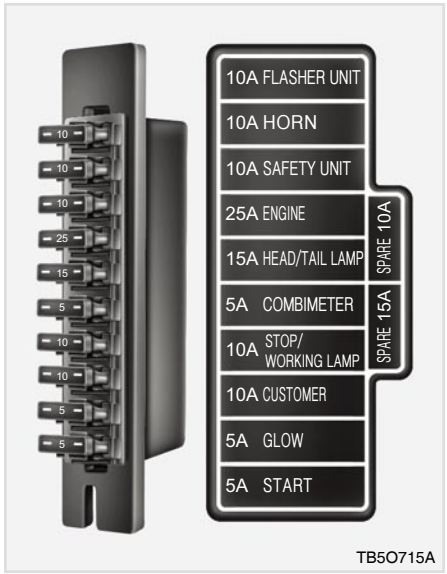
[FUSE BOX 1 - MANUAL TYPE]



There are marks for the fuse capacity and location on the cover of the fuse panel. Replace the fuse according to the following procedure:

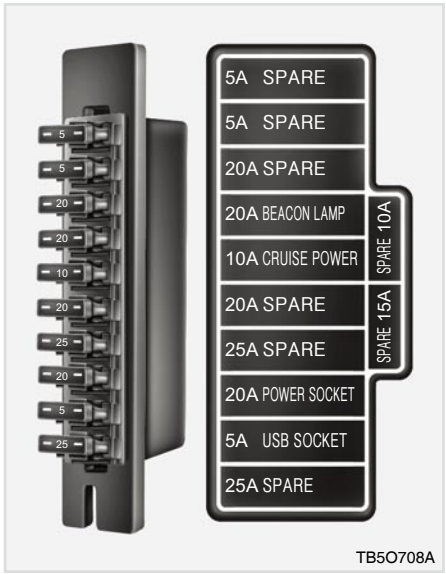
1. Turn the key switch to the "OFF" position and turn off all the electrical devices.

[FUSE BOX 1 - HST TYPE]

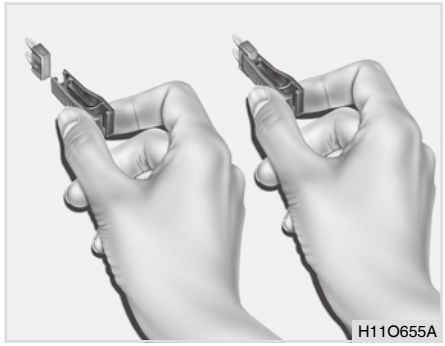


2. Open the fuse box cover and check the fuse in question using fuse tongs.

[FUSE BOX 2]



3. If the fuse is blown, replace it with a new fuse with same capacity. Make sure it is firmly installed.
4. Install the fuse box cover.



⚠ WARNING

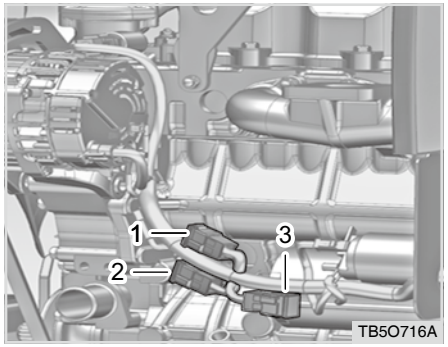
- ***Never use a fuse with the capacity higher than specified on the fuse box cover.***
- ***If using a faulty fuse, steel wire, or foil, the electrical device can be damaged or even catch a fire.***

7

SLOW BLOW FUSE (AH)

NOTE

- If the replaced fuse is blown soon, it is probable that the wiring system is faulty. In this case, contact your local **KIOTI** Dealer.
- If the fusible link, relay or other electrical component is faulty, contact your local **KIOTI** Dealer.



(1) Slow Blow Fuse (40A)
(2) Slow Blow Fuse (40A)
(3) Slow Blow Fuse (60A)

The slow blow fuse is to protect the electric wiring. If it is blown, find and repair the cause and replace it with a new genuine **KIOTI** part.

No.	Slow blow fuse	
1	Heater Fuse	40A
2	Power Fuse	40A
3	Main Fuse	60A

IMPORTANT

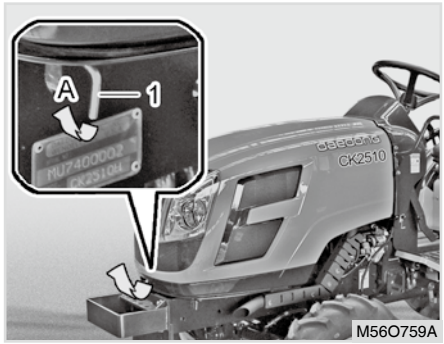
- **Using a non-approved slow-blow fuse can damage electrical systems in the tractor severely.**
- **Refer to the chapter "Troubleshooting" in this manual or contact your local KIOTI Dealer for specific information dealing with electrical problems.**

BULB REPLACEMENT (AI)

The bulb and capacity used in this tractor are listed in the below table.

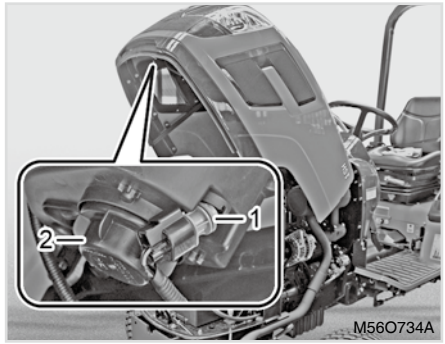
No.	Bulb		Capacity
1	Head Lamp		55W
2	Position Lamp (Front)		5W
3	Stop Lamp		21W
4	Work Lamp / Rear Lamp		21W / 5W
5	Cluster Indicator	Charging Warning Light	3.4W
		Others	1.7W

HEAD LAMP



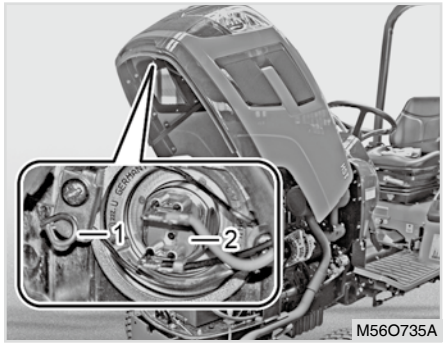
(1) Opening Knob
(A) Pull

1. Turn the key switch to the "OFF" position and open the hood.



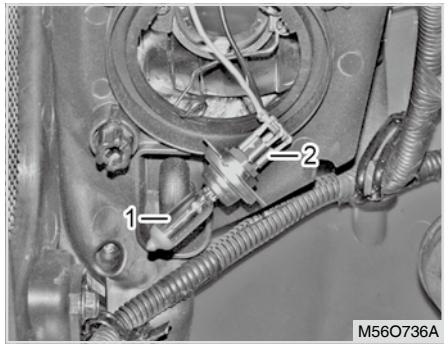
(1) Connector *(2) Cap*

2. Turn the cap counterclockwise to remove it.



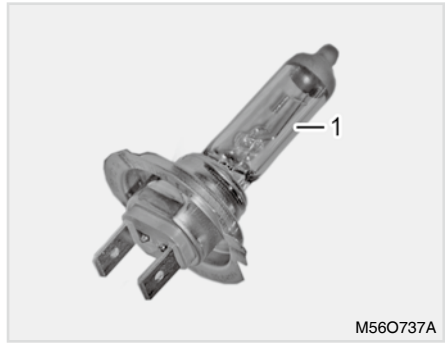
(1) Spring (2) Bulb assembly

3. Press the spring on the left to release and remove the bulb assembly.



(1) Bulb (2) Wiring

4. Hold the bulb and disconnect it from the wiring.



(1) Bulb

5. Replace the bulb with a new bulb and install it in the reverse order of removal.

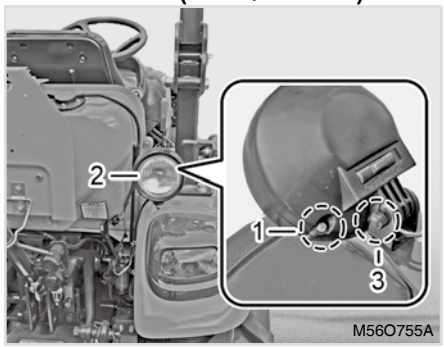
⚠ WARNING

- ***If using a bulb other than the specified one, the lamp can be damaged and the tractor can even catch fire.***
- ***Make sure to use bulbs with the specified capacity.***

⚠ CAUTION

- **Make sure to use a KIOTI genuine bulb. Using a non-recommended bulb can cause a fire.**
- **The headlamps can temporarily be fogged due to rain or car wash. This is because of the temperature difference between the inside and outside of the lamp, which is normal.**

WORK LAMP (IF EQUIPPED)

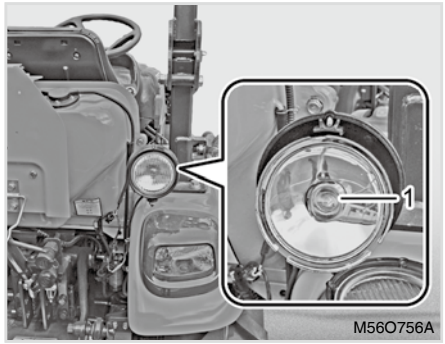


(1) Lens mounting bolt (M6: 3 EA)
(2) Work Lamp (3) Mounting nut

1. Unscrew the mounting nut of the work lamp to lower the lamp toward the front.
2. Unscrew the lens mounting bolts (3 EA) to remove the lens.

⊕ IMPORTANT

- **If a finger print, foreign material or moisture is on the bulb glass, the life of the bulb can be shortened and the bulb can be blown. Make sure to clean the bulb with soft rag.**



(1) Bulb

3. With the bulb pressed in, turn it counterclockwise to remove it. Replace it with a new one.

7

TURN SIGNAL LAMP

(1) Turn signal lamp lens

1. Unscrew the turn signal lamp lens mounting bolt to remove the lens.

⚠ CAUTION

- **Do not touch the bulb if it is still illuminated or right after it is turned off. You can be burned by the hot bulb.**
- **For some bulbs which require delicate handling or work process, contact your local KIOTI Dealer.**

⚠ CAUTION

- **Do not touch the illuminating glass part of the halogen bulb. The bulb life can be shortened by finger prints, dust and moisture, or the bulb even can be broken. Clean it with soft cloth.**
- **The halogen bulb contains compressed gas, so it can explode if dropping or scratching it. Therefore, never use a bulb if it is scratched or was dropped.**
- **When separating the cover by prying it off with a screwdriver, be careful not to damage it.**
- **Before replacing a bulb, make sure to put the key switch and the switch for the corresponding bulb to the "OFF" position.**
- **Install a new bulb with the same capacity after removing the installed bulb.**

8

TRACTOR STORAGE

DAILY STORAGE

1. Keep the tractor clean when it is stored. Make sure to wash it after work.
2. Store it indoors if possible. If it should be kept outside, cover it.

⚠ WARNING

- ***When operating the tractor in an enclosed area, ventilate the area to release exhaust gas to the outside. The exhaust gas is colorless and not visible, but is harmful.***

3. Remove the battery from the tractor in winter and store it indoors.
4. Make sure that anti-freeze(50:50) is filled enough in radiator in order to prevent the radiator from freezing.
5. Remove the ignition key and store it separately.

LONG-TERM STORAGE

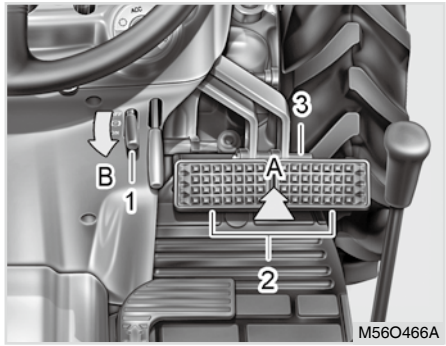
Follow the instructions below if the tractor is not to be used for a long period of time. This is to operate the tractor again with minimum preparation after long-term storage. Repeat this procedure if the tractor hasn't been used for one year.

IMPORTANT

- **If the tractor is not used for an extended period of time, follow the instructions below to prevent corrosion and performance deterioration of the tractor while it is stored.**

1. Check the bolts and nuts for looseness, tighten if necessary.
2. Apply grease to tractor areas where bare metal will rust also to pivot areas.
3. Detach the weights from the tractor body.
4. Inflate the tires to a pressure a little higher than usual.
5. Change the engine oil and run the engine to circulate oil throughout the engine parts for about 5 minutes.
6. With all implements lowered to the ground, coat any exposed area such as hydraulic cylinder piston rods with grease.
7. Remove the battery from the tractor. Store the battery following the battery storage procedures.(See direction for storage in every 100hours in periodic service section)
8. Keep the tractor in a dry place where the tractor is sheltered from rain. Cover the tractor.
9. Store the tractor in a place out of direct sunlight and heat. If it is unavoidable to keep it outside, cover it with a waterproof cover. Lift the tractor with a jack and place blocks under its front and rear axles. Also, keep direct sunlight and heat away from the tires.

10. Clean the engine components as well as the tractor.
11. Add grease to all the grease fitting.
12. Worn or damaged parts should be replaced.
13. If a loader or implement is attached, lower it onto level ground.
14. Apply grease to the exposed section of the cylinder rod.
15. Flush the cooling system and make sure that the anti-freeze (50:50) is filled enough in the radiator.
16. Replace all oil and filters.
17. Replace the air cleaner filter.
18. Chock the frame in order to remove the weight from the tires.
19. Set all control systems neutral.
20. Plug any open exhaust pipes.
21. Attach a tag onto the tractor to inform the storage condition of the tractor.



(1) Foot Parking Brake Lever
(2) Brake Pedal *(3) Pedal Interlock*
(A) Depressing *(B) Pressing Down*

22. Interlock the brake pedals and apply the parking brake.

⚠ CAUTION

To avoid injury:

- **Never clean the tractor body while the engine is running.**
- **Never run the engine in an enclosed area without proper ventilation system in order to prevent poisoning by exhaust gas.**
- **When storing the tractor, remove the key from the switch and store it separately in order to prevent an unauthorized person from operating the tractor and being injured.**

IMPORTANT

- **When washing the tractor, be sure to stop the engine. Allow sufficient time for the engine to cool before washing.**
- **Cover the tractor after the muffler and the engine have cooled down.**

8

USING TRACTOR AFTER STORAGE

1. Check the tire air pressure and inflate the tires if they are low.
2. Install a fully charged battery.
3. Check the fan belt tension.
4. Check all fluid levels.

   (Engine oil, transmission/hydraulic oil, engine coolant and any attached implements)
5. Remove grease from the exposed cylinder rods.
6. Apply grease to the lubrication points.
7. Depress the clutch pedal and undo the latch hook.
8. Get onto the tractor and start the engine.
9. Check if the instrument panel and all parts operate correctly while running the engine for a few minutes.
10. Drive the tractor outside and check if it is operating properly. Park the tractor outside and idle engine for at least 5 minutes. Stop the engine and visually inspect the tractor. Check if there is leakage.
11. Start the engine, release the parking brake, and check the brake condition while driving forward. Adjust the brake pedals if necessary.
12. Stop the engine and check for leakage. Repair any part as required.

⚠ CAUTION

- **Unless the battery is removed from the vehicle, make sure to disconnect the negative battery cable. Cables can be damaged by animals, leading to a fire.**

USAGE AND DISPOSAL

In order to protect the environment, comply with the followings.

1. When changing the oil or coolant by yourself, be careful not to spill it. Dispose of used oil and coolant properly according to the applicable regulations.
2. Never leave or discard the expired tractor or implement without discretion on your own, but contact your local **KIOTI** Dealer to dispose it according to the regulations.
3. Avoid working under high load as it can cause excessive exhaust gas, which is harmful to the environment.

9

This troubleshooting chart summarizes simple service items for users who are familiar with mechanical systems.
For more detailed service items, contact your local **KIOTI** Dealer.

ENGINE TROUBLESHOOTING

CAUSE		COUNTERMEASURES
1. When engine is difficult to start	• Fuel is thick and doesn't flow.	• Check the fuel tank and fuel filter.
		• Remove water, dirt and other impurities.
		• All fuel will be filtered by the filter, if there should be water of other foreign material on the filter, replace the filter.
	• Air or water mixed in fuel system.	• If air is in the fuel filter or injection lines, the fuel pump will not work properly.
		• To attain proper fuel injection pressure, check carefully for loosened fuel cap nut, etc.
		• Loosen air vent screw over fuel filter and fuel injection pump to eliminate all the air in the fuel system.
	• Thick carbon deposits on orifice of injection nozzle.	• This is caused when water or dirt is mixed in the fuel. Clean the nozzle injection piece, being careful not to damage the orifice.
		• Check to see if nozzle is working properly or not, if not, install a new nozzle.
	• Valve clearance is wrong	• Valve out of adjustment.(Cold engine) • Contact **KIOTI** dealer.
	• Engine oil become thick in cold weather and engine cranks slow.	• Change grade of oil according to the weather.(Temperature)

CAUSE		COUNTERMEASURES
1. When engine is difficult to start	• Start motor does not rotate when key switch is turned	• Depress the clutch pedal unless depressed.(Manual type)
		• If the switch or start motor is faulty, have it repaired in a workshop.
		• If any terminal is loose or corroded, clean or fix it.
2. When output is insufficient	• Valve out of adjustment	• Valve out of adjustment • Contact **KIOTI** dealer.
	• Air cleaner is dirty	• Clean or replace the element at every 100 to 200 hours of operation.
	• Fuel injection pressure is wrong	• Adjust it to 150 to 160 kgf/cm² or replace the injection nozzle.
3. When color of exhaust is specially bad	• Fuel is of extremely poor quality	• Select good quality fuel. Temperature — Fuel type - Above 14°F (-10°C) — NO.2 Diesel - Below 14°F (-10°C) — NO.1 Diesel
	• Nozzle is bad	• If necessary, replace with new nozzle.

※ If you do not find the cause of trouble, consult your **KIOTI** dealer for assistance.

TRACTOR TROUBLESHOOTING

CAUSE		COUNTERMEASURES
1. When tractor does not move while engine is running	• Shift lever is in neutral position	• Check the shift levers.
	• Parking brake is applied	• Release the parking brake.
2. Clutch is not operating properly	• Clutch slips (idles)	• Contact **KIOTI** dealer.
		• Contact **KIOTI** dealer.
		• Contact **KIOTI** dealer.
	• Clutch cannot be disengaged	• Contact **KIOTI** dealer.
		• Contact **KIOTI** dealer.
3. Brake is not operating properly	• Brake does not operate or only one brake pedal operates	• The brake pedal play is excessive. Adjust the play.
		• The brake lining is worn or stuck. Have it replaced in a workshop.
	• Brake pedal does not return properly	• The brake return spring is damaged. Replace it.
		• Grease is insufficient on each mating surface. Remove rust and apply grease.
4. Steering wheel is not operating properly	• Steering wheel is heavy or vibrate	• The toe-in is incorrect. Adjust it again.
		• The tire inflation pressure is incorrect. Inflate the left and right tires into the specified pressure.
		• Each connection is loose. Re-tighten each connection and replace the part.
	• Steering wheel play is excessive	• The steering wheel shaft is worn. Have it repaired in a workshop. Metal parts are worn. Have them repaired in a workshop. Each connection has play. Tighten the connection again.

CAUSE		COUNTERMEASURES
5. Hydraulic system is faulty	• Oil is leaked from pipe or hose	• The pipe clamp is loose. Re-tighten it.
		• The pipe is cracked. Have it repaired in a workshop.
	• 3-point hitch cannot be lowered	• The valve and cylinder is damaged. Contact **KIOTI** dealer.
	• 3-point hitch cannot be lifted	• The transmission fluid is insufficient. Add it to the specified level.
		• There is air in the intake pipe. Bleed the pipe.
		• The oil filter is clogged. Replace it.
		• The hydraulic filter, valve and cylinder are malfunctioning. Contact **KIOTI** dealer.
	• 3-point hitch vibrates by itself	• Each sensor malfunctioning, Contact **KIOTI** dealer.
		• Select the highest top link hole.
6. Electric system is faulty	• Headlamps cannot be turned on or are dim.	• The fuse is blown. Check the wiring and replace the fuse.
		• The bulb is blown. Replace it
		• The ground and terminal wirings are poorly contacted. Check and clean them.
		• The battery electrolyte level is low. Charge the battery.

CAUSE		COUNTERMEASURES
6. Electric system is faulty	• Battery cannot be charged	• Check the battery and alternator.
	• Horn does not sound	• The horn switch is faulty. Replace or see **KIOTI** dealer.
		• The wiring is faulty. Replace or See **KIOTI** dealer.
		• The horn is damaged. Repair or replace it.
	• Turn signal lamps do not blink	• The bulb is blown. Replace it.
		• The blinking device is faulty. Repair or replace it.
		• The ground and terminal wirings are poorly contacted. Check and clean them.
	• Work lamps do not come on	• The bulb is blown. Replace it.
		• The ground and terminal wirings are poorly connected. Check and clean them.

※ If you do not find the cause of trouble, consult your dealer for assistance.

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⚠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.

For more information go to
www.P65warnings.ca.gov
/diesel

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