FORWARD

Thank you for choosing MECHRON 2200SW/2200SA/2200ST, the **KIOTI** utility vehicle.

KIOTI is committed to provide the best quality products .
It is strongly recommended for **KIOTI** customer to read this owner's manual thoroughly before using MECHRON 2200SW/2200SA/2200ST as the manual contains a lot of valuable information, such as safe driving guide, explanation for operations, maintenance interval, simple maintenance guide, trouble shootings and etc.

If you have any question about the product or manual, please feel free to contact **KIOTI**.
KIOTI is always trying to deliver ultimate satisfaction and safety to customers.

< NOTE >

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

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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** vehicle. Below is a list of the universal symbols and their meanings.

Fuel-Level low

Parking Brake

Battery Charging Condition

Engine Oil-Pressure

Turn Signal

Differential Lock

Hazard Warning Lights

Headlight-Low Beam

Headlight-High Beam

Four-Wheel Drive-ON

Preheat

N Neutral Position

H High speed travel light

L Low speed travel light

R Reverse travel light

SAFETY PRECAUTIONS

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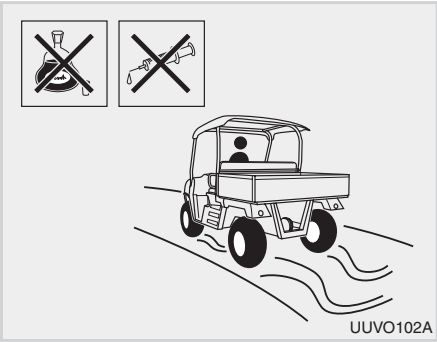
PRECAUTIONS BEFORE OPERATION

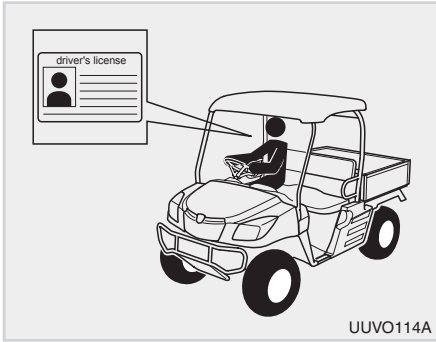
GENERAL PRECAUTIONS

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.

T66O101A

1. It is recommended that you read and understand this entire manual before operation of your new vehicle. Failure to do so could result in accidents or injury.
2. Only persons who are properly trained should be allowed to operate the vehicle.
3. Read and follow all warning labels and decals affixed to the vehicle.
4. Replace any missing or damaged decals as soon as it is practical. A list of decals is shown on page 1-19~22.
5. Keep safety decals clean of dirt and debris.


UUVO102A



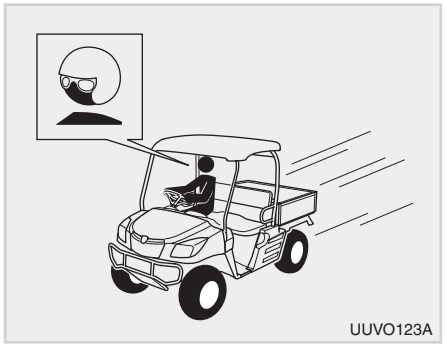
UUVO114A

UUVO115A

6. Never operate this vehicle or any other agricultural equipment while under the influence of alcohol, drugs or while fatigued.
7. While working in cooperation with other vehicles always communicate your intentions.
8. This vehicle should be driven only by a driver with a valid driver's license.
9. Never let anyone under 5 years of age ride in the vehicle. If it is unavoidable, such child should be secured with special restraints which are not available with this vehicle. Both driver and passengers should wear their seat belts at all times.

UUVO116A

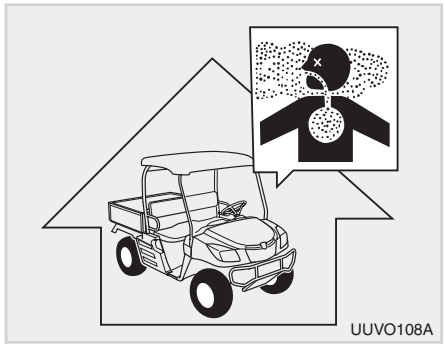
10. Never allow anyone to operate this vehicle unless person has read this manual and all decals thoroughly.


UUVO123A

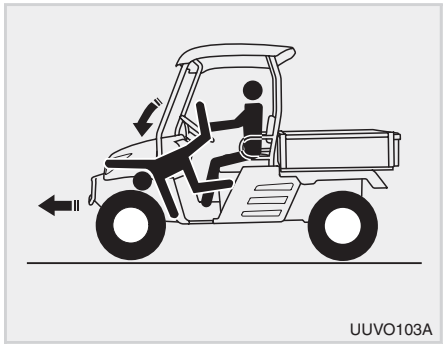
11. It is recommended to wear a helmet whenever driving this vehicle in an aggressive manner. Eye protection is recommended at all times.

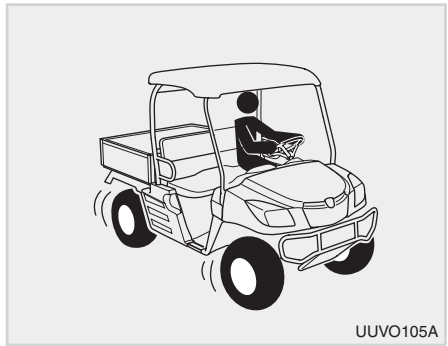
PRECAUTIONS DURING OPERATION

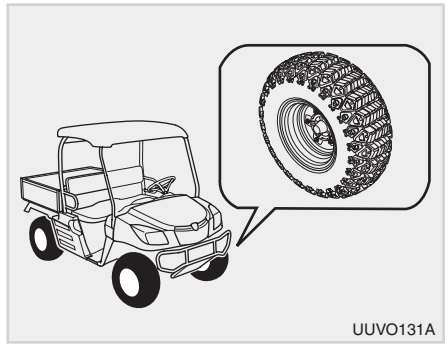
WHEN STARTING THE ENGINE


UUVO108A

1. Do not operate your vehicle in an enclosed building without the proper ventilation. Inhalation of carbon monoxide can cause serious injury or death.

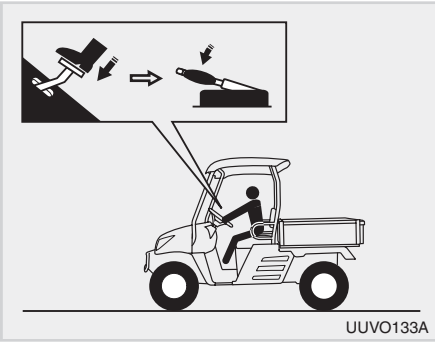

UUVO103A


UUVO105A

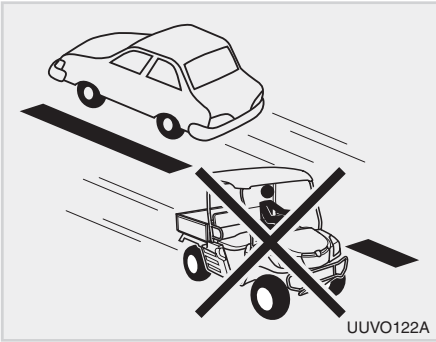

UUVO131A

2. When starting the vehicle make sure your path is clear of people to avoid accidents caused by sudden movements.
3. Before starting your vehicle you should make sure that all shift levers are in the neutral position and parking brake is applied.
4. Never start the engine while not seated.
5. Keep bystanders away from the vehicle while in operation.
6. Be sure to scrape off mud or soil from your shoes before riding in the vehicle.
7. Make sure that wheel nuts have been tightened to the specified torque.
8. Always check the tire pressure before start engine. For more information about tire pressure, see chapter 4.
9. Make sure that all pressure lines are tight before starting the vehicle.

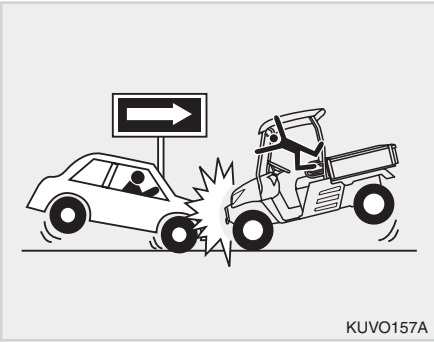
WHEN DRIVING THE VEHICLE


UUVO133A

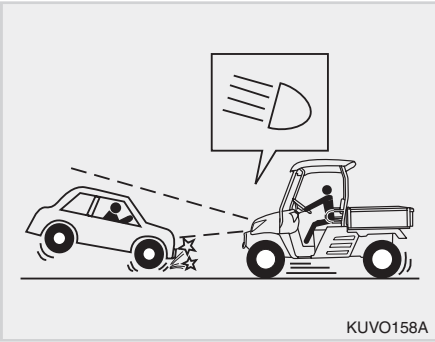
10. Always activate the brake pedal before releasing the park brake.


UUVO122A

1. In some countries or states, it is illegal to drive a UTV on public roads. Be aware of traffic laws before driving.


KUVO157A

2. When driving on a public road, make sure to install the "Safety lamp kit" supplied by **KIOTI** and observe the applicable regulations and laws. If the vehicle is not equipped with the "Safety lamp kit", there will be no brake lamps, turn signal lamps and tail lamps on the vehicle. In this condition, it is very dangerous to drive on a public road.

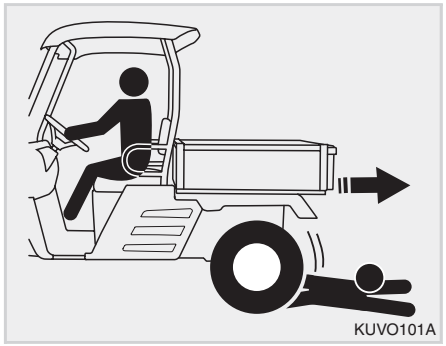

KUVO158A

UUVO112A

UUVO125A

3. While turning the headlights on, dim them when meeting another vehicle.
4. Always slow the vehicle before turning. Turning at high speed may tip the vehicle over or cause a loss of control.
5. Drive at speeds that allow you to maintain control at all times.
6. Do not apply the differential lock while traveling at road speeds. As the vehicle may run out of control.
7. Do not use 4WD while traveling at road speeds in a normal road condition.
8. Avoid sudden movements of the steering wheel as this can cause a loss of control of the vehicle. This risk is especially great when traveling at road speeds.

KUVO162A


KUVO101A

KUVO109A

9. When working in groups, always let the others know what you are going to do before you do it.
10. Do not operate near ditches, holes, embankments, or other terrain features which may collapse under the vehicle's weight. The risk of vehicle upset is even higher when the ground is loose or wet.
11. Watch where you are going at all times so that you are able to avoid obstacles that can cause injury or damage to your vehicle.
12. Before making reverse movements with your vehicle, you should always check to see that the path is clear.
13. For your safety **ROPS** with a seat belt is recommended for all applications.

UUVO109A

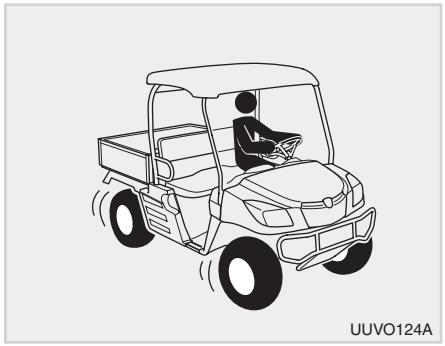
14. Watch front and rear to avoid obstacles at row ends, near trees and around other obstructions.

UUVO110A

15. Never try to get on or off a moving vehicle.

UUVO121A

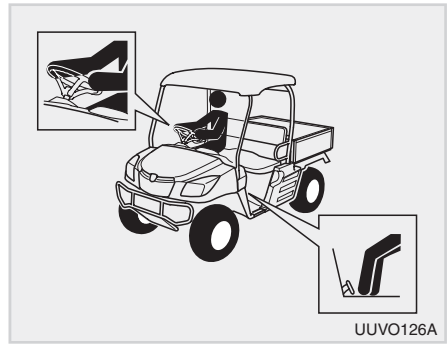
16. To minimize the risk of a rollover, crash, be especially careful when obstacles and slopes are ahead and when braking on hills or during turns.


UUVO124A

17. Never drive the vehicle at excessive speeds. Always travel at speed proper for the terrain, visibility and operating conditions.

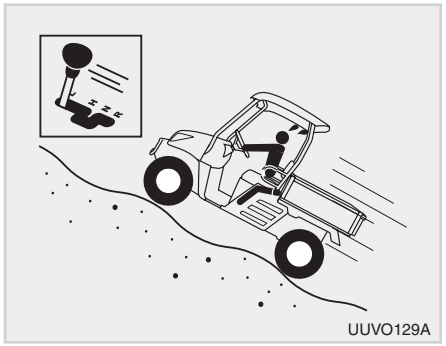
UUVO125A

18. Never attempt abrupt wheelies, jumps or other stunts.


UUVO126A

19. Always keep your both hands on the steering wheel and your both feet on the floor of the vehicle during operation.
20. Always keep arms and legs inside the cab frame while the vehicle is in motion.

UUVO111A


UUVO129A

KUVO166A

21. Never drive in excessively rough, slippery or loose terrain.
22. Never operate on excessively steep hills, relying on this vehicle's or your abilities. Practice on smaller hills before attempting larger hills.
23. Always follow proper procedures for climbing hills as described in this manual. Check the terrain carefully before attempting to climb any hill. Never climb hills with excessively slippery or loose surfaces. Never open the throttle suddenly or make sudden gear changes. Never go over the top of any hill at high speed.
24. When driving on a road inclined vertically or sideward, make sure to drive at a low speed. Otherwise, the vehicle can roll over, leading to a serious accident.
25. Driving with excessive load on a slope can lead to overturn.

UUVO110A

UUVO130A

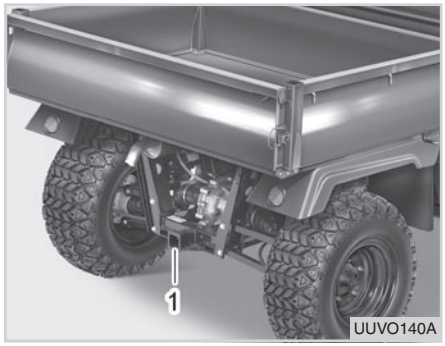
UUVO132A

26. Always be careful of skidding or sliding. On slippery surfaces such as ice, travel slowly and exercise caution to reduce the chance of skidding or sliding out of control.

27 Never operate your vehicle in fast-flowing water or in water deeper than that specified in this manual. Wet brakes may have reduced stopping ability. Test your brakes after leaving water. If necessary, apply them lightly several times to let friction dry out the pads.

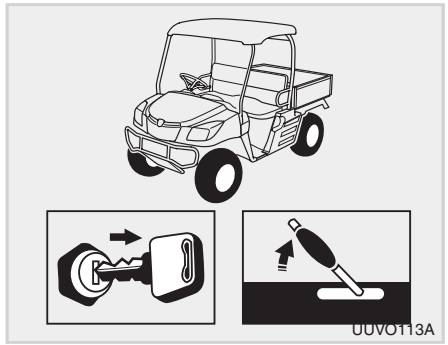
28. Never exceed the stated load capacity for this vehicle. Cargo should be properly distributed and securely attached. Reduce speed and follow the instructions in this manual for hauling cargo or pulling a trailer. Allow a greater distance for braking.

WHEN PARKING THE VEHICLE



(1) Rear hitch receiver

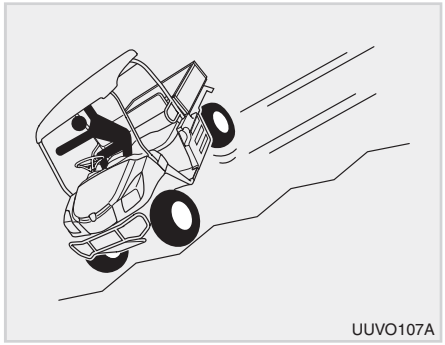
29. Pull only from the rear hitch receiver. Pulling from any other location can cause the damage of vehicle.



1. Place all control levers in the neutral position, set the parking brake, stop the engine.

2. Always remove the ignition key when the vehicle is not in use to prevent unauthorized use or accidental starting.
3. Never leave the vehicle without setting the parking brake and shutting off the vehicle.

SAFETY PRECAUTIONS DURING SERVICING


UUVO107A

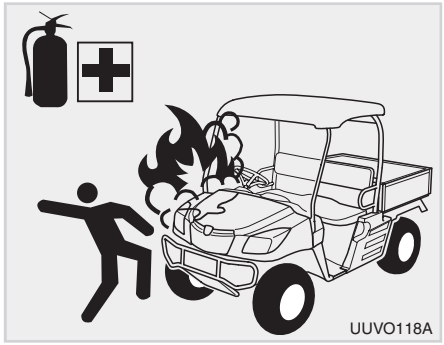
4. Never park on a slope with only the transmission engaged. The vehicle may roll down, leading to an accident.
5. If it is unavoidable to park on a slope and leave the vehicle, apply the parking brake and chock the wheels.
6. Never park the vehicle on a steep slope. A serious accident can occur.

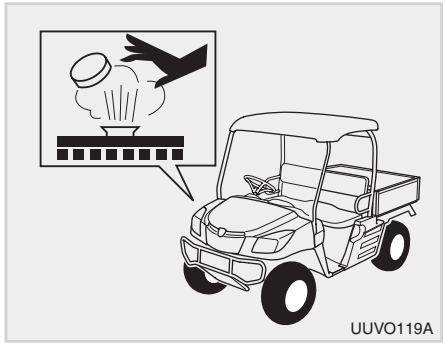
KUVO127A

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

UUVO117A

2. Do not smoke while working around the battery or when refueling your vehicle. 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.

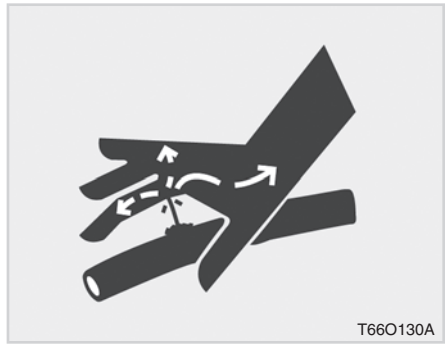




3. You must always stop the engine before refueling the vehicle. Avoid overfilling the vehicle or spilling the fuel.
4. It is recommended to keep a first aid kit and fire extinguisher handy at all times.
5. Do not remove the radiator cap while the coolant is hot. When cool, slowly rotate the cap to the first stop and allow sufficient time for excess pressure to escape. After all the pressure is released remove the cap completely. If your vehicle is equipped with a coolant recovery tank, add coolant there rather than to the radiator.
6. Allow the vehicle time to cool off before servicing any part that may have become hot while the vehicle was running.

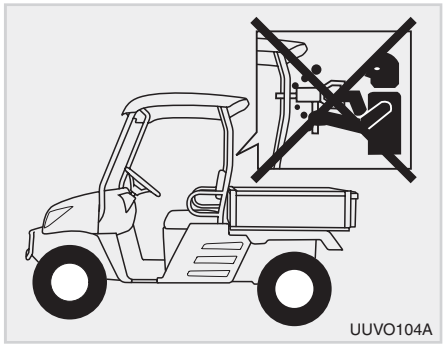
UUVO120A

UUVO135A


T66O130A

7. When working with your vehicles electrical components, you must first disconnect the battery cables.
8. To ensure that there are no accidents from sparks you must first disconnect the negative battery cable.
9. For jump starting a dead battery, read and follow all of the instructions. (Page 5-11)
10. Tire mounting should be done by qualified professionals, with the proper equipment.
11. 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.
12. Securely support the vehicle when changing wheels.
13. Fluid escaping from pinholes may be invisible. 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.


UUVO104A

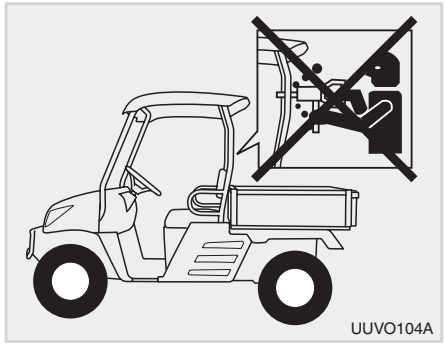
UUVO139A

14. No alterations should be made to your **KIOTI** vehicle.

15. 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 the engine oil, transmission oil, fuel, coolant, filters and battery.

SAFETY PRECAUTIONS WHEN USING THE ROPS



(1) ROPS

1. ROPS (Roll Over Protective Structure) is equipped to protect driver and passengers when the vehicle is rolled over. Always fasten your seat belt.

   Failure to fasten your seat belt can invalidate ROPS.

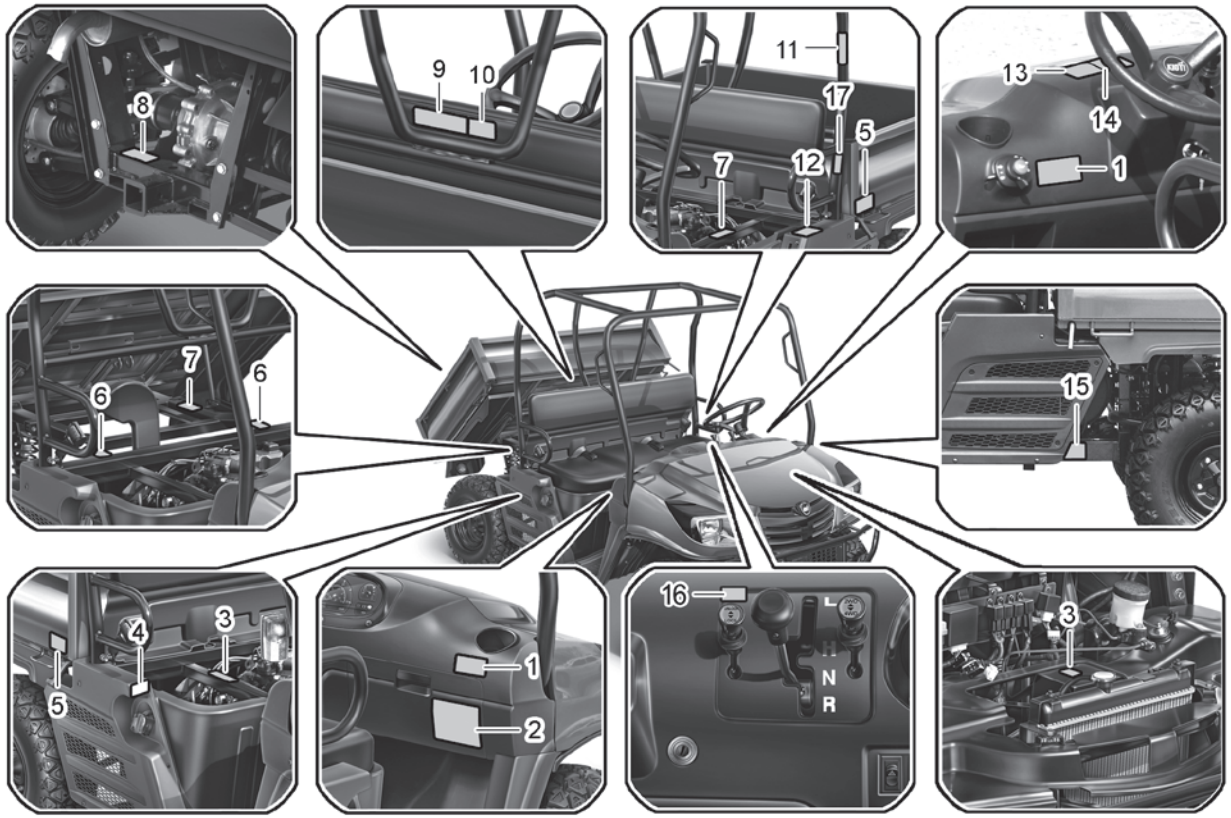
IMPORTANT

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

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.

SAFETY DECAL
MOUNTING LOCATION

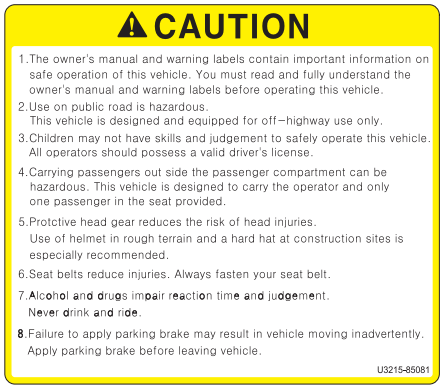


UUVO142B

DECALS

(1) Part No. : U3215-85011

(2) Part No. : U3215-85081



(3) Part No. : T4625-52351

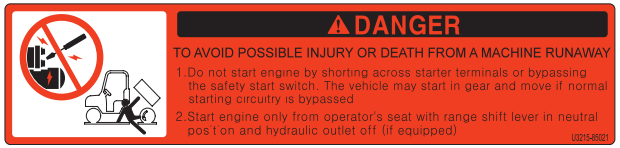
(4) Part No. : T2615-54112

(5) Part No. : U3215-85101

(6) Part No. : U3215-85071

(7) Part No. : T4625-52361

(9) Part No. : U3215-85021

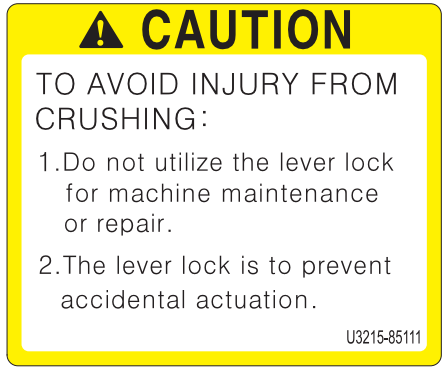


(11) Part No. : U3215-85041

(8) Part No. : U3215-85091

(10) Part No. : U3215-85031

(12) Part No. : U3215-85111



(13) Part No. : U3215-85051

⚠ CAUTION

TO AVOID PERSONAL INJURY:

Do not operate the vehicle with the front hood open.

Impaired visibility of the operator may cause loss of vehicle control.

Latch the hood securely before operating the vehicle

U3215-85051

(14) Part No. : U3215-85061

⚠ CAUTION

Shifting incorrectly can damage transmission.

Shift only when:

- Engine is at slow idle
- Vehicle is completely stopped.

U3215-85061

(15) Part No. : U3215-85121

⚠ WARNING

Negative frame ground. Can cause severe injury.
Do not contact positive (+)battery post or cable to frame.
Disconnect negative (−)battery cable first.

U3215-85121

(16) Part No. : U3215-85131

⚠ WARNING

TO AVOID PERSONAL INJURY FROM LOSS OF STEERING CONTROL:

Do not lock differential or turn with differential locked while operating machine at high speed or on slopes

U3215-85131

(17) Part No. : U3215-85161

⚠ NOTICE

THIS ROPS IS TESTED IN ACCORDANCE WITH SAE J2194 METHOD

MAXIMUM VEHICLE MASS INCLUDING CARGO DECK AND PERMANENT ATTACHMENTS IS 850kg(1874 lbs)

U3215 - 85161

Trade Name :
MEC2200

ROPS P/Number :
U3215−2610

CAUTIONS FOR DECAL MAINTENANCE

Safety decals are attached to the vehicle 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 as 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 vehicle.**

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

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PRECAUTIONS BEFORE OPERATION

VEHICLE IDENTIFICATION NUMBER..... 2-2

VEHICLE SERIAL NUMBER..... 2-2

ENGINE SERIAL NUMBER.....2-2

2

2

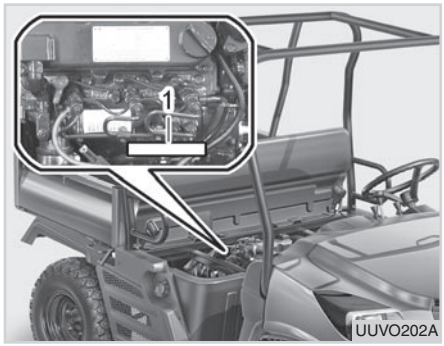
VEHICLE IDENTIFICATION NUMBER

VEHICLE SERIAL NUMBER

(1) Vehicle Serial Number

This vehicle serial number is located on the structure frame where the battery is installed.

ENGINE SERIAL NUMBER



(1) Engine Serial Number

The engine serial number is stamped on the engine cylinder block where the injection pump is installed.

Have the vehicle serial number and engine serial number with you when ordering parts or asking for service information.

Fill in the following boxes with appropriate information as the vehicle serial number and engine serial number should be submitted to the dealer during service.

- **Vehicle Serial No.**

- **Engine Serial No.**

- **Date of Purchase**

To be filled in by purchaser

3

3

SPECIFICATION 3-2

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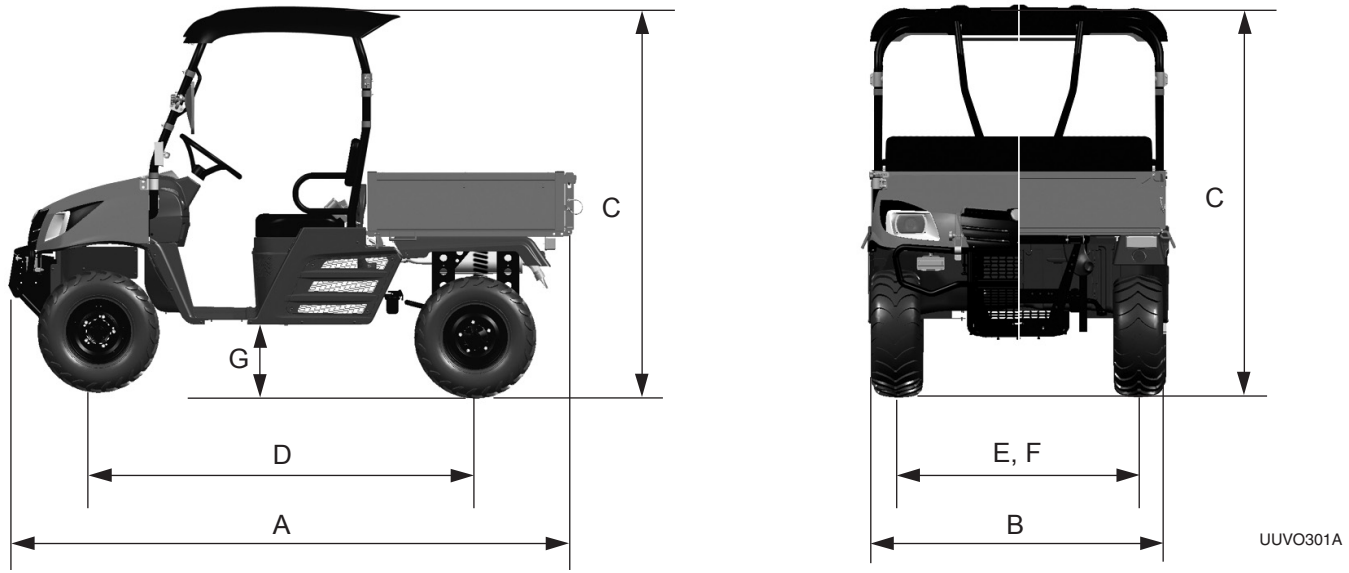
GENERAL SPECIFICATIONS.....3-3
OPTION LIST AND FEATURES.....3-5

SPECIFICATION
EXTERIOR DIMENSIONS



in. (mm)

Overall length (A)	Overall width (B)	Overall height (C)	Wheel base (D)	Front wheel tread (E)	Rear wheel tread (F)	Ground clearance (G)
112.3 (2,852)	60.7 (1,543)	76.4 (1,940)	76.4 (1,940)	49.7 (1,262)	48.3 (1,228)	12 (304)

GENERAL SPECIFICATIONS

ITEMS			MECHRON 2200SW	MECHRON 2200SA	MECHRON 2200ST	REMARKS
Engine	Model		3C100LWU	←	←	
	Number of cylinders		3	←	←	
	Total displacement	cc	1,007	←	←	
	Fuel		Diesel	←	←	
	Gross	KW/HP	16.40/22	←	←	
	Rated speed	rpm	2,800	←	←	
Capacity	Engine oil	U.S.Gal.(L)	0.85 (3.2)	←	←	
	Fuel tank	U.S.Gal.(L)	7.40 (28.0)	←	←	
	Gear box oil	U.S.Gal.(L)	0.24 (0.9)	←	←	
	Front differential case oil	U.S.Gal.(L)	0.16 (0.6)	←	←	
	Rear differential case oil	U.S.Gal.(L)	0.21 (0.8)	←	←	
	Coolant	U.S.Gal.(L)	1.66 (6.3)	←	←	
Driving unit	Main shift		CVT (Continuous Variable Transmission with belt)	←	←	
	Range shift		High/Low/Neutral /Reverse	←	←	
	Max. speed	M/h(Km/h)	25 (40)	←	←	If equipped with standard tires at maximum engine speed
	Brake		Hydraulic dry type with caliper disc	←	←	
Suspension	Front suspension		MacPherson Strut	←	←	
	Rear suspension		Double A-arm (Independent)	←	←	
	Steering type		Rack & pinion	←	←	

ITEMS			MECHRON 2200SW	MECHRON 2200SA	MECHRON 2200ST	REMARKS
Tire	Front wheel		25 x 10-12(Worksite)	← (Mud)	25 x 10-12(Turf)	
	Rear wheel		25 x 11-12(Worksite)	← (Mud)	25 x 10-12(Turf)	
Cargo bed	Dimension (L x W x D)	in.(mm)	38.5 x 56.2 x 11.5 (978 x1,427 x 293)	←	←	
	Load capacity	lbs(kg)	1,102 (500)	←	←	
Min. turning radius		ft(m)	13 (3.96)	←	←	
Gross Weight		lbs(kg)	1,830 (830)	←	←	
Trailer pulling capacity		lbs(kg)	1,300 (590)	←	←	
Payload capacity		lbs(kg)	1,600 (726)	←	←	
Others	Seat		Bench for 3 persons	←	←	
	Cargo dumping		Manual (Hydraulic: optional)	←	←	
	Brush guard		Standard	←	←	
	ROPS		Standard	←	←	
	Instrument cluster		Standard	←	←	Tachometer, fuel gauge, odometer
	Winch mount		Standard	←	←	Mounting bolts on brush guard
	Combination switch		Standard	←	←	For lamps and horn

※ Notes: Some option kits are installed as a standard in a certain country.

OPTION LIST AND FEATURES

ITEM	DESCRIPTION	REMARKS
Sun Canopy Kit	Plastic moulding canopy	
Safety Lamp Kit	Horn, brake lights , Turn signal lamps, Hazard switch	Strongly recommended for public road driving
Rear View Mirror Kit	Convex rear view mirror	Strongly recommended for public road driving
Fog Lamp Kit	Fog lamps, switch	
Rear Screen Kit	Protection for rear area for operator	Highly recommended for worksite using with cargo
Headrest Kit	Height adjustable with 2 steps	
Working Lamp Kit	2 Lamps	Add on to the sun canopy
Bed Extension Kit	Cargo bed extension kit in height made by metal pipes	
License Plate Kit	For mounting vehicle license plate	
Hydraulic Dumping Kit	Hydraulic cargo dumping kit with hydraulic pump, oil tank, cylinder, valve, hoses and control lever	
Remote Hydraulic Kit	Remote hydraulic valve, cylinder, hoses, control lever,	Add on to hydraulic dumping kit
Hydraulic Hose Extension Kit	2 Extension Hoses	
Hand Throttle Kit	Hand throttle lever and cable	Recommended when using remote hydraulic kit
Front Hitch Receiver Kit	2 inch square type	Remove lower screen of brush guard for installation
Skid Plates Kit	To protect important components underside vehicle	Highly recommended for recrational driving
Windshield Kit	Acrylic windshield kit	
Suspension Dust Guard Kit	Rear and front suspension guard	Recommended to protect CV joints
Muffler Spark Arrester Kit	To prevent wild fire by collecting exhaust sparks	Install at the end of exhaust pipe
All Terrain Tires	Factory option	
Turf Tires	Factory option	

※ Notes: Some option kits are not available at the time of printing. The specifications are subject to change without notice.
Some option kits are installed as a standard in a certain country.

MEMO

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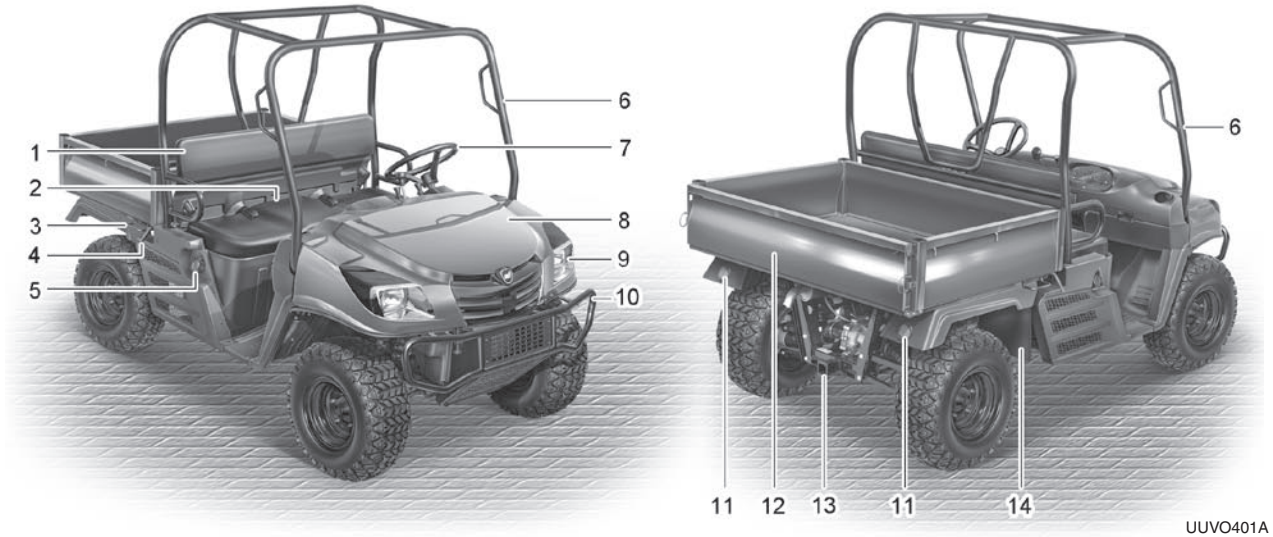
EXTERIOR VIEW

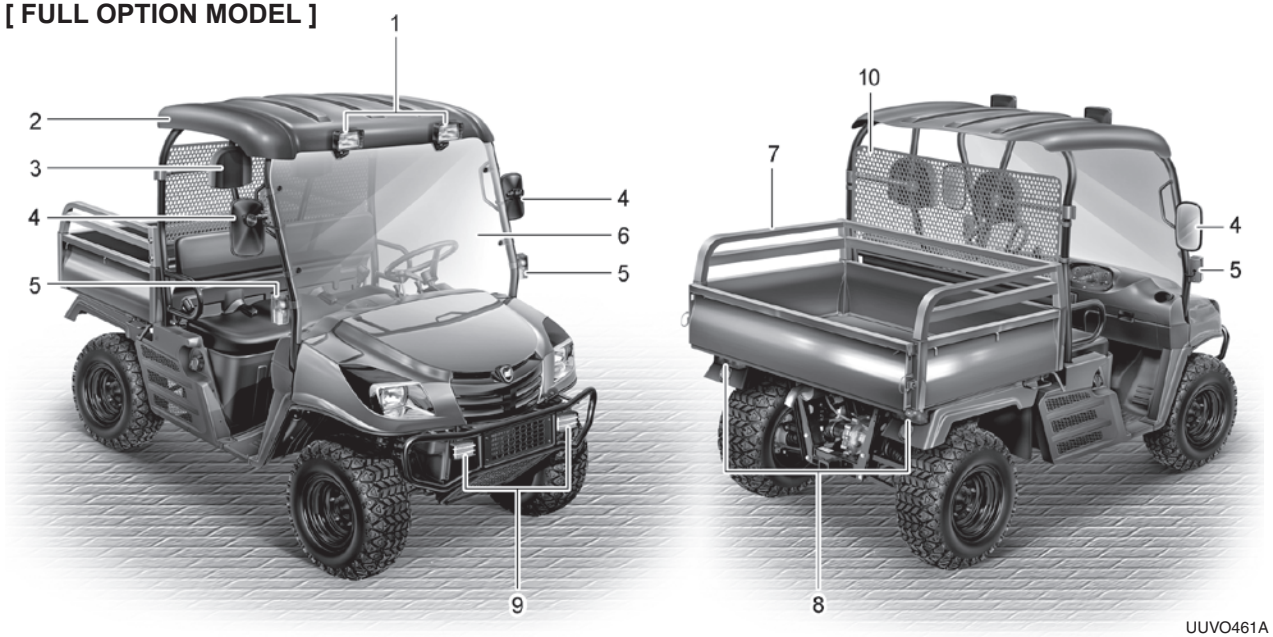
[STANDARD MODEL]



(1) Seat Back
(2) Seat
(3) Dumping Handle
(4) Dumping Latch
(5) Fuel Tank Cap
(6) ROPS
(7) Steering Handle
(8) Hood
(9) Headlamp
(10) Brush Guard
(11) Rear Reflex Reflector
(12) Cargo Bed
(13) Rear Hitch Receiver
(14) Rear Wheel Mudguard

EXTERIOR VIEW

[FULL OPTION MODEL]

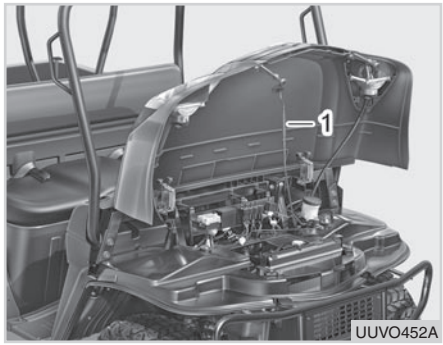


UUVO461A

(1) Front Working Lamp
(2) Sun Canopy
(3) Head Rest
(4) Rear View Mirror
(5) Front Turn Signal Lamp
(6) Windshield
(7) Cargo Bed Extension
(8) Tail Lamp
(9) Fog Lamp
(10) Rear Screen

HOOD

(1) Hood (A) Hook



(1) Hood Support

The hood has two rubber hooks to secure itself into the place. Always check that they are firmly engaged.

⚠ WARNING

- ***Make sure that the hood is firmly closed and engaged before driving. If not, it may open during driving, resulting in an accident.***

⚠ CAUTION

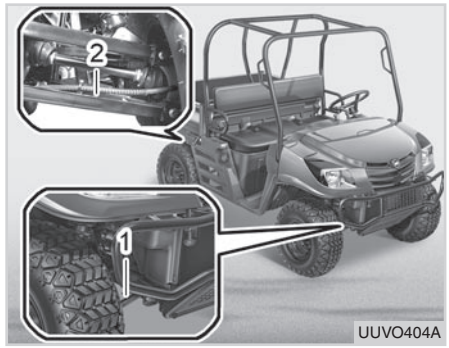
- **Make sure that there is nothing around or between the vehicle and the hood before closing the hood.**

ELECTRIC COOLING FAN MOTOR

The fan motor runs when the coolant temperature raises over 80℃ and stops when the coolant temperature drops below 75℃. The 5℃ gap between two points is to prevent continual “ON” and “OFF” operation of fan motor. The fan motor can run even when the engine is stopped if the key is in “ON” position and the coolant is still hot.

To prevent engine failure, the fan motor keeps running even if there is any short-circuit or disconnected wire on the temperature signal circuit.

SUSPENSION



(1) Front Axle (2) Rear Axle

The Mcpherson strut type suspension for front wheel and adjustable dual A-arm (wishbone) type suspension for rear wheel provide smoothest ride off road, empty or at full load.

HEADLAMP

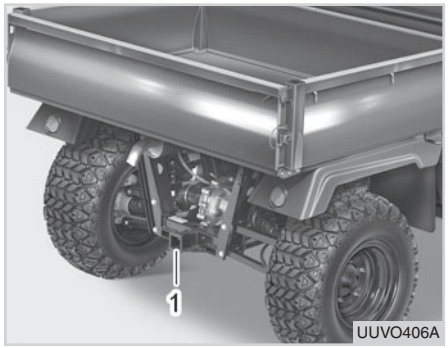
(1) Headlamp (LH) (2) Headlamp (RH)

The headlamps consist of Halogen lamps for high beam and low beam. Their reflective mirrors are chrome-plated and have black bezel covers, featuring refined design.

⚠ WARNING

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

REAR HITCH RECEIVER



(1) Rear Hitch Receiver

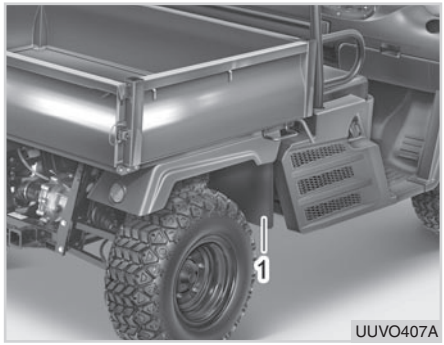
This vehicle is equipped with the rear hitch receiver as standard.

The rear hitch receiver is a 2-inch square boss type and is used to install a trailer or 3-point hitch implement. Make sure to observe the following precautions in order to prevent injuries and damage to properties.

⚠ WARNING

- ***Never drive this vehicle with a person in the trailer or cargo bed.***
- ***Do not apply vertical load for more than 59 Kg (130 lbs) onto the towing bracket.***
- ***When towing, do not exceed the driving speed of 16 km/h (10 mph).***
- ***Remember that the stopping distance becomes longer while towing a trailer.***
- ***When towing a trailer, make sure the gross weight of the trailer, including cargo weight, does not exceed 590 kg (1,300 lbs).***
- ***When connecting a trailer, attach it only to the trailer hitch bracket.***
- ***Never connect a trailer to any point other than the specified. Otherwise, you can lose control of the vehicle during driving, resulting in a possible accident.***

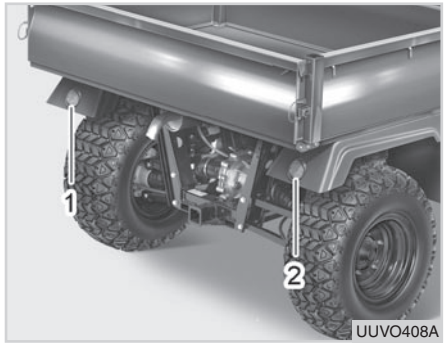
REAR WHEEL MUDGUARD



(1) Rear Wheel Mudguard

The rear wheel mudguard is installed under the cargo bed.

REFLEX REFLECTOR



(1) Reflex Reflector (LH)
(2) Reflex Reflector (RH)

Two round reflectors are installed on the rear wheel fender.

SAFETY LAMP KIT (OPTIONAL)

⚠ CAUTION

- **Always check that the reflex reflector are clean before driving. Driving with the dirty reflective mirrors, especially in a cloudy weather or at night, can cause an accident.**
- **It is recommended to install the safety lamp kit (optional) if driving on a paved road or at night frequently.**
- **In some counties and states, it is illegal to drive UTV in the public road. Be aware the traffic law before driving.**

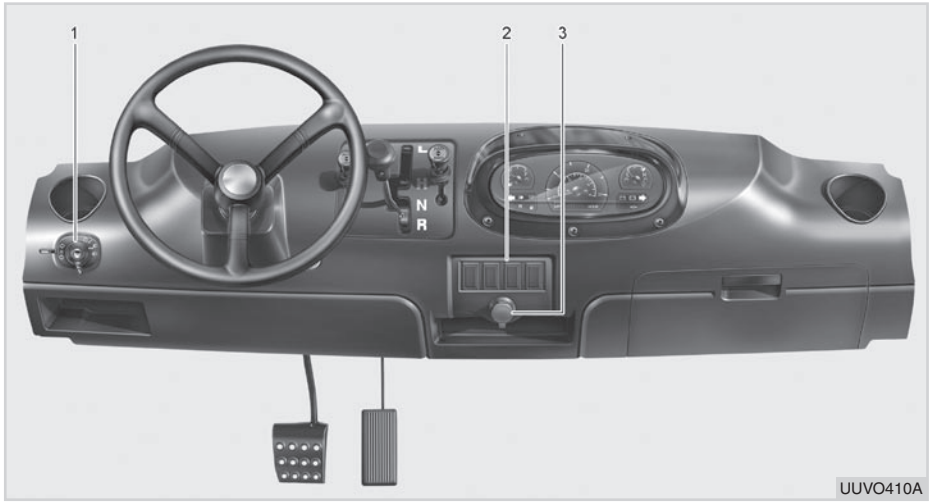
(1) Brake Lamp & Tail Lamp
(2) Turn Signal Lamp & Hazard Lamps

The brake lamps, turn signal lamps, horn and hazard switch are supplied as the "safety lamp kit" (optional). It is strongly recommended to install this if you drive on a paved road or at night frequently.

NOTE

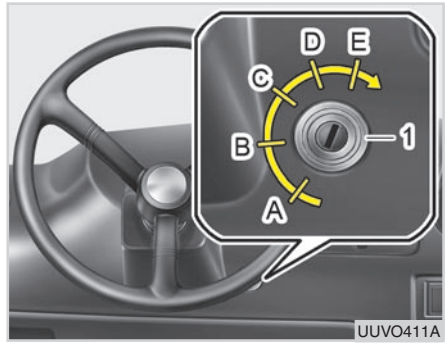
- There is no separate switches for the turn signal lamps and horn as these can be operated by the combination switch (standard).

SWITCHES



(1) Combination Switch
(2) Spare Switch Panel
(3) 12V Power Outlet

KEY SWITCH



(1) Key switch *(A) Stop* *(B) ACC*
(C) ON *(D) Heat* *(E) Start*

There are five positions for the ignition key switch as follow. The key can be removed from the key switch only if it is in the "OFF" position.

- **(A)**
  When the key switch is in position “A”, the engine and all electrical devices in the vehicle stop except horn, hazard lamps and turn signal.

4

- ACC (**B**)

  When the key switch is turned to the position “B”, only electrical power outlet and brake lights can be operated.

- **(C)**

  The position “C” indicates the “ON” position. As soon as the key switch is turned to this position, the oil pressure warning lamp and battery charge warning lamp comes on (These become off after the engine is started). The preheat operation is automatically started. The automatic preheat operation is indicated by the glow plug indicator. Make sure to preheat the engine until the glow plug indicator goes off (approx. 9 seconds) in cold weather.

- **(D)**

  The position “D” indicates the “manual preheat” position, which is not used in normal conditions. This position is a self-return type, so the key should be held there while using. This position can be used in very cold weather to preheat the engine manually for extra period of time. Using this position for more than 30 seconds consecutively can reduce the preheat system’s life.

- **(E)**

  The position “E” indicates the “Start”. In order to start the engine, the shift lever should be in the neutral position. As soon as the engine is started, release the key then the key switch is returned to the position “C”.

NOTE

- The automatic preheating system is not activated and the preheating indicator doesn’t come on when the engine temperature is 30℃ or higher. In this case, strut the engine right away without preheating.

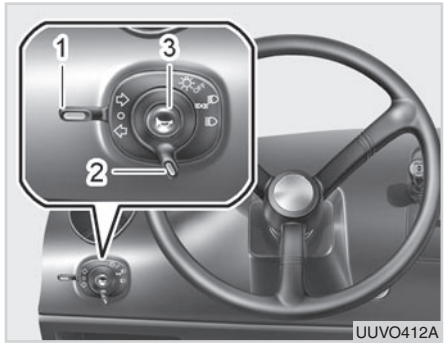
⚠ CAUTION

- **Stop the engine immediately if the oil pressure warning lamp does not go off after the engine is started. The engine can be seriously 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 damage. Continuing to use the engine under this condition can discharge the battery or damage other electrical devices.**
- **By leaving the vehicle with the key in the ignition switch, an unauthorized person can operate the vehicle and cause a serious accident and even death. Make sure to keep the key with you when leaving the vehicle.**

NOTE

- The ignition key is not directional and can be inserted in any direction. Also, be careful not to leave the tractor unattended as the same key is used for all **KIOTI** vehicles. It can be stolen.

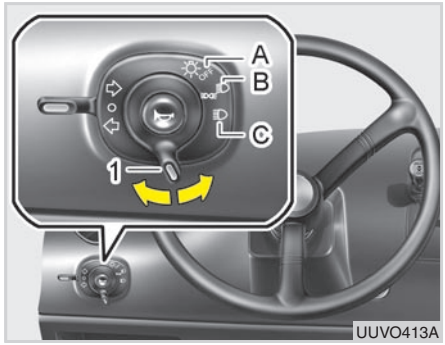
COMBINATION SWITCH



(1) Turn Signal Lamp Switch
(2) Headlamp Switch
(3) Horn Switch

The combination switch consists of the head light, turn signal light, and horn switches.

HEADLAMP SWITCH



(1) Headlamp Switch
(A) OFF : Headlamps Off
(B) : Low Beam ON
(C) : High Beam ON

The headlamp switch can be operated while the key switch is in the "ON" position then head lights, tail lights (if equipped) and dash lights come on.

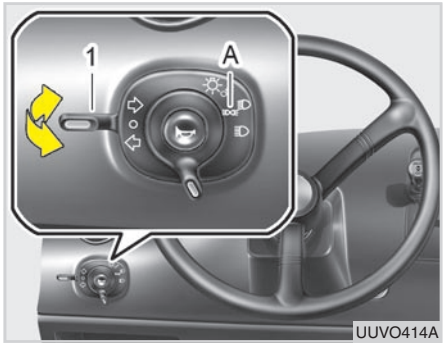
Turning on the headlamps for an extended period of time with the engine off can discharge the battery.

4

⚠ WARNING

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

TURN SIGNAL LAMP SWITCH



(1) Turn Signal Lamp Switch
(A) ⇦⇨ : Turn signal lamps On

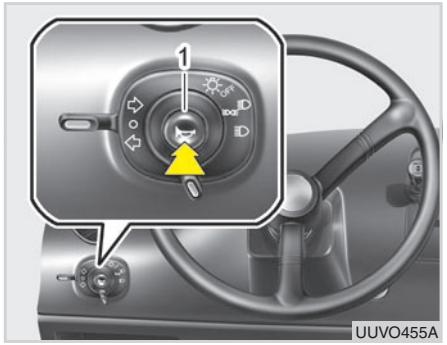
Pulling the lever up blinks the right turn signal lamp while pushing the lever down blinks the left turn signal lamp.

The turn signal lamp switch is to operate the turn signal lamps, which is included in the "Safety lamp kit" as an option. Check if the safety lamp kit is installed before using this switch.

NOTE

- The turn signal lamp lever is not the self-return type. Therefore, make sure to return the lever manually after turning the vehicle.
- The turn signal lamps and flasher can be operated even with the key switch in the "OFF" position. Leaving the turn signal lamps flashing with the key switch in the "OFF" position can discharge the battery.
- It is recommended to install the "safety lamp kit" (optional) if driving on the public road or at night frequently.

HORN SWITCH



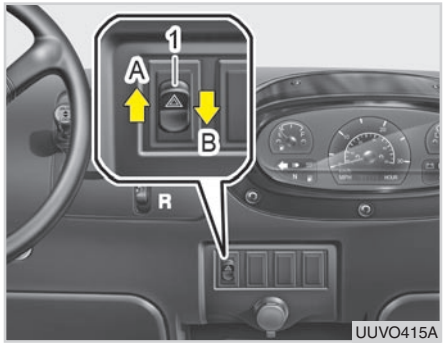
(1) Horn Switch

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

NOTE

- This horn switch can be operated when the optional horn which is included in optional "safety lamp kit" is installed in the vehicle. Make sure to check if your vehicle is equipped with the horn before using this switch.

HAZARD LAMP SWITCH (OPTIONAL)



(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.

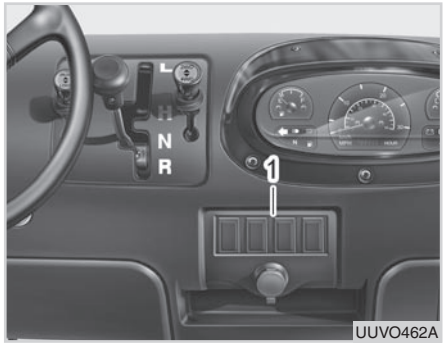
This switch is also included in optional “safety lamp kit”.

CAUTION

- **The hazard lamp can be operated without the key inserted.**
- **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.**

4

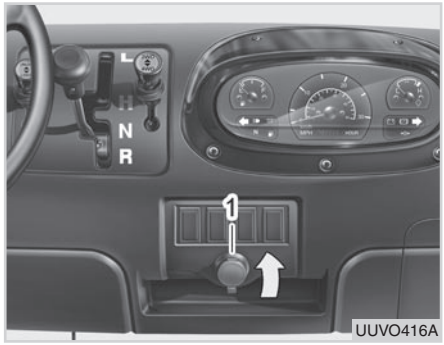
SPARE SWITCH PANEL



(1) Spare Switch Panel

The spare switch panel is prepared in case that the owner wants to install the switches for the optional hazard warning lamp, working lamps, wiper and other implements. If no switch is installed to this panel, a plastic plug is installed instead.

12V POWER OUTLET



(1) 12V Power Outlet

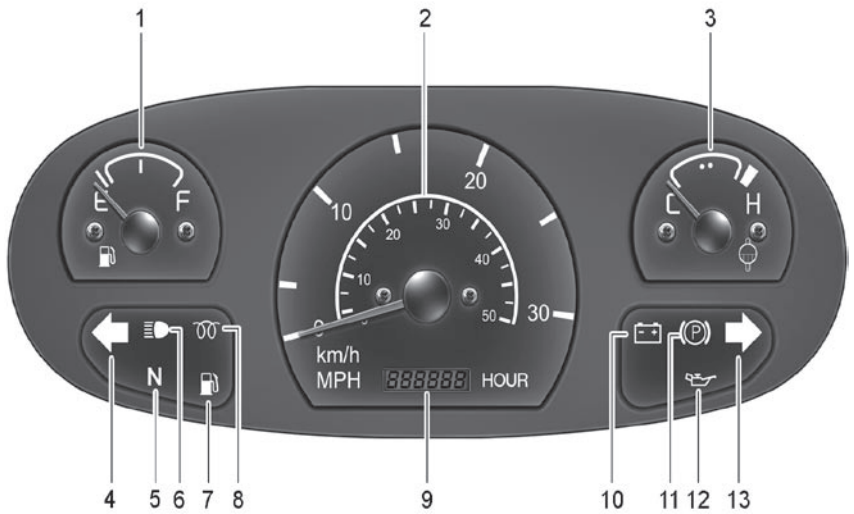
This 12 V power outlet operates with the key in the “ACC” or "ON" position.

Using the power outlet for an extended period of time with the engine off or connecting an electric device with its capacity over the limit into the power outlet can discharge the battery.

⚠ WARNING

- ***Do not wear a headphone to listen to the radio or music during driving.***
- ***Use only D.C. electric devices with its capacity of 12V 10A or less.***
- ***Never use an electric heater. It can cause a fire.***

INSTRUMENT PANEL



UUVO417A

(1) Fuel Gauge
(2) Speedometer
(3) Coolant Temperature Gauge
(4) Turn Signal Indicator (LH)
(5) Neutral Indicator
(6) High Beam Indicator
(7) Lower Fuel Level Warning Indicator
(8) Preheating Indicator
(9) Hourmeter
(10) Battery Charge Warning Lamp
(11) Parking Brake Indicator
(12) Engine Oil Pressure Warning Lamp
(13) Turn Signal Indicator (RH)

SPEEDOMETER / HOURMETER

UUVO418A

(1) Speedometer *(2) Hourmeter*

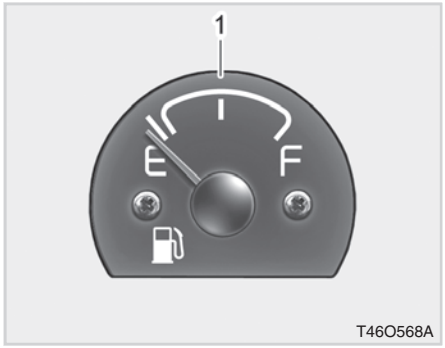
The speedmeter operates correctly when the specified tires with the correct inflation pressure are installed. Refer to the chapter "Maintenance" for the correct tire inflation pressure.

The hourmeter indicates the total usage time of the vehicle in digits.

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

Check the hourmeter to service the vehicle at the correct interval.

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 completely filled.

E : Replenish the fuel tank.

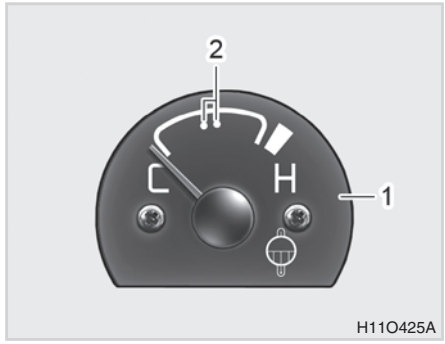
If driving is continued with the needle below the position "E", the warning lamp of out of fuel() turns on. In case of running out of fuel, it may be hard to restart the engine even after replenish the fuel tank with fuel.

This is due to air entered into the fuel supply system. In this case, the system should be bled. (For details, refer to page 7-19 "Bleeding fuel system" in the chapter "Maintenance".)

NOTE

- Make sure to use only genuine 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.

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

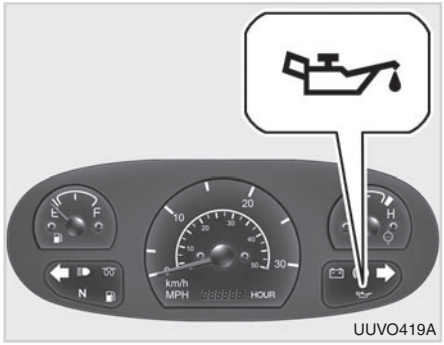
If the needle is in the "H" zone during driving, it indicates the engine is overheated.

Stop the vehicle or operation for a while without stopping the engine until the engine is cooled down. If the engine temperature does not drop, open the hood and check if the radiator fan is operating. If the fan is not operating, stop the engine and have your vehicle checked by your dealer.

⚠ CAUTION

- **Make sure to control the work load so that the pointer is not in the red zone.**
- **If the pointer stays in the red zone, 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.**
- **Never open the radiator cap when it is hot. You can get burnt badly.**

ENGINE OIL PRESSURE WARNING LAMP



UUVO419A

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

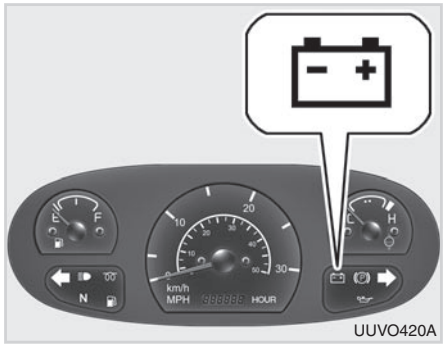
This lamp comes on when initially turning the key switch to the "ON" position. It goes off as soon as the engine is started. If this lamp comes on while driving, stop the engine immediately and check the engine oil level.

If this lamp comes on even with the specified engine oil level, have your vehicle 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 vehicle with the engine oil warning lamp ON.**

BATTERY CHARGING LAMP



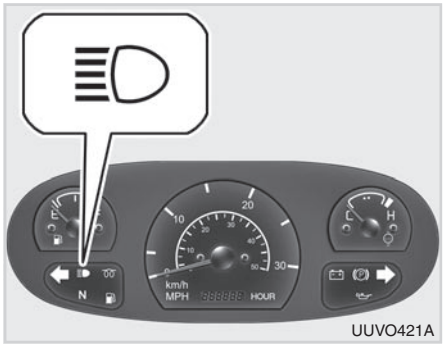
UUVO420A

This lamp is turned On when the key 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 or workshop as soon as possible.**

HEAD LIGHT HIGH BEAM LAMP

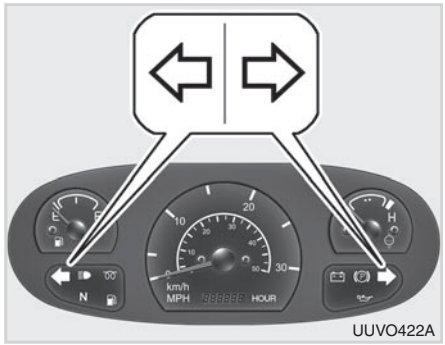


UUVO421A

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



UUVO422A

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

They operate when the optional "safety lamp kit" is installed.

GLOW PLUG INDICATOR

UUVO423A

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. 9 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 INDICATOR

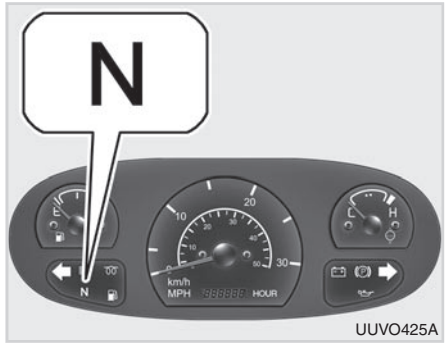
UUVO424A

This lamp comes on in red when the parking brake is engaged.

⚠ CAUTION

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

NEUTRAL INDICATOR



UUVO425A

If the shift lever is in neutral position, this lamp turns in green.

Engine can be started only when this lamp is ON.

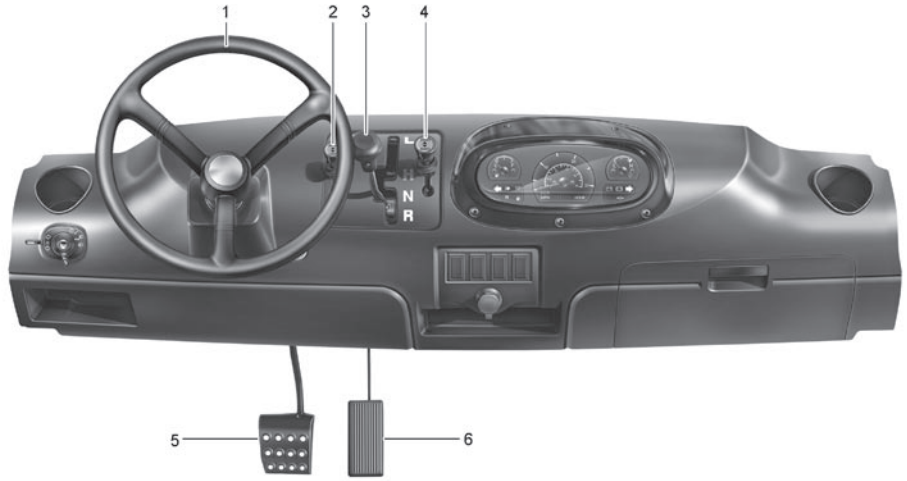
LOWER FUEL LEVEL WARNING INDICATOR

UUVO426A

This lamp comes on when the fuel tank is approaching empty. When it comes on, you should add fuel as soon as possible. Driving with the this lamp on or with the fuel level below “E” can cause the engine to misfire and damage the engine parts.

If the air enters into the fuel system refer to maintenance chapter page 7-18 for "Bleeding fuel line".

CONTROLS



UUVO427A

(1) Steering Wheel
(2) Differential Lock Lever
(3) Shift Lever
(4) 2WD/4WD Shift Lever
(5) Brake Pedal
(6) Accelerator Pedal

SHIFT LEVER

(1) Shift lever
H: High speed *L: Low speed*
N: Neutral *R: Reverse*

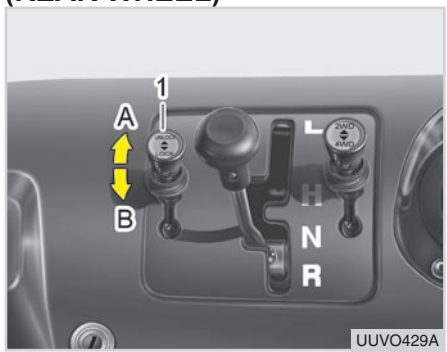
The shift lever has four positions; "H" (High speed), "L" (Low speed), "N" (Neutral) and "R" (Reverse).

This vehicle is equipped with the in-line type shift lever system for convenient control. Also, there is a stopper between the "H" and "N" positions to ensure safe shift between the forward and reverse operation.

IMPORTANT

- **This vehicle is equipped with a CVT (Continuous Variable Transmission).**
- **Make sure to stop the vehicle before moving the shift lever into the "H", "L" or "R" position. Shifting during driving can damage parts in the gearbox.**
- **Shift the lever into the "L" (Low speed) position when driving on a hill or a bumpy area so that the vehicle can utilize more power and enhance durability of the CVT belt and pulley.**

DIFFERENTIAL LOCK LEVER (REAR WHEEL)



(1) Differential Lock Lever
(A) Upper Position: Unlock
(B) Lower Position: Lock

On hard firm ground, the differential system should be unlocked to secure safe turning.

When the wheel on one side is on a slippery surface, such as mud or icy road, the wheels on a slippery surface lose traction and rotate fast while the wheel on a normal surface do not rotate, resulting in the vehicle stuck into its position. In order

to prevent this situation, this vehicle is equipped with the differential lock system.

[Differential lock system]

The differential lock system is to connect the wheel on the left and right mechanically to rotate them at the same speed regardless of friction applied to them even on a slippery or bumpy road for better traction.

⚠ CAUTION

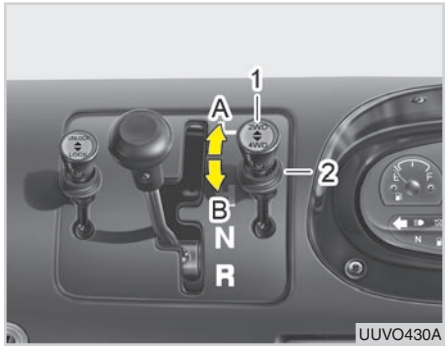
- **The differential lock lever should be placed back into the "Unlock" position after placing it into the "Lock" position to drive on a bumpy road or to free the vehicle. If the diff. lock is often used unnecessarily or used on a normal road continuously, gears related to the axles can be damaged or worn.**
- **Make sure to set the steering wheel in the straight ahead position and drive at a low speed while the differential lock lever is in the "Lock" position. Otherwise, you can lose control of the vehicle or damage the differential system, resulting in an accident.**
- **Make sure to move the differential lock lever to the "unlock" position while the vehicle is stationary. Moving the lever during driving can affect the life of the differential system.**

LSD Differential Lock (Front Wheel)

The LSD (Limited Slip Device) is installed on the front axle.

LSD diff. lock system automatically adjust the wheel rotation speed difference on both wheel so that helps to distribute the traction force evenly to both wheels even if the road friction condition on both wheel is extreamely different. It acts like a automatic diff. lock system.

2WD/4WD SHIFT LEVER



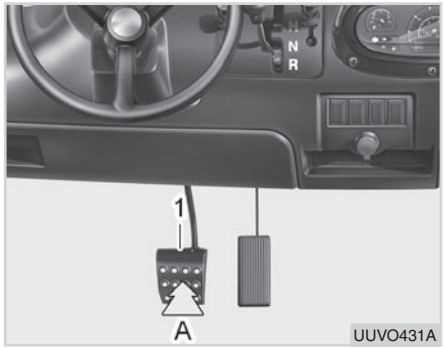
(1) 2WD/4WD Shift Lever (2) Lock
(A) 2WD Position (B) 4WD Position

The 2WD/4WD shift lever is equipped with a lock which should be pulled up by a finger in order to operate the lever. (So does diff. lock lever)

The 4WD should be used only on a slippery surface, bumpy road or steep slope that is lack of friction. The 2WD should be used in a normal condition.

The gears in the vehicle can be stressed and steerability can be deteriorated if using the 4WD unnecessarily.

BRAKE PEDAL



(1) Brake Pedal (A) Depress

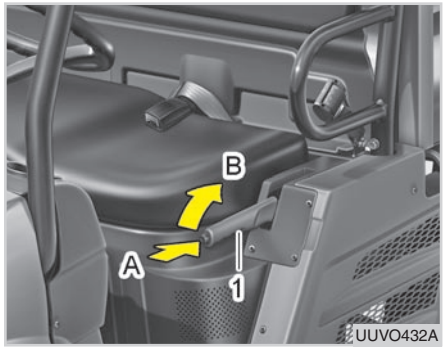
The brake pedal is located on the left of the accelerator pedal. Depress the brake pedal slowly to stop the vehicle or reduce the driving speed.

Make sure to depress the brake pedal before entering a downhill condition to prevent the vehicle from rolling down.

IMPORTANT

- **Depress the brake pedal lightly for several times to dry the brake disc after driving over water or driving out of a muddy pit so that the brake is properly operated when it is needed.**

PARKING BRAKE LEVER



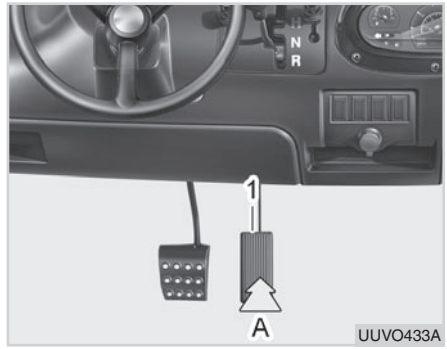
(1) Parking Brake Lever
(A) Down to release with pushing
(B) Pull up to set button.

The parking brake lever is similar to the one installed to cars. Make sure that the parking brake is released before driving.

⚠ WARNING

- ***An unauthorized person or child can move or operate the vehicle. Therefore, make sure to apply the parking brake and carry the key with you when leaving the vehicle.***
- ***This vehicle is equipped with the CVT (Continuous Variable Transmission). Therefore, the vehicle may roll down a slope if the parking brake is not engaged even though the shift lever is in the "H", "L" or "R" position. Make sure to apply the parking brake before leaving your vehicle.***

ACCELERATOR PEDAL



(1) Accelerator Pedal (A) Depress

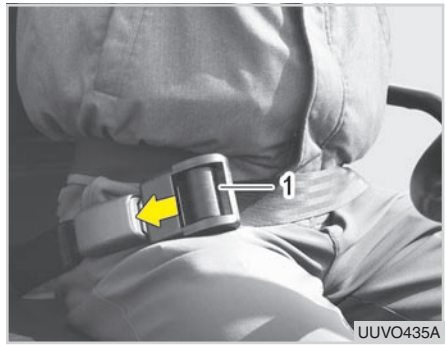
The accelerator pedal is located on the right of the brake pedal. Make sure not to depress the brake pedal instead of the accelerator pedal and vice versa by mistake.

SEAT

(1) Seat Cushion (2) Seat Back

This seat is a bench type and can accommodate up to 3 persons, including a driver. The seat cushion and seatback can be separated. Removing the seat cushion can access to the engine compartment.

SEAT BELT



(1) Seat Belt

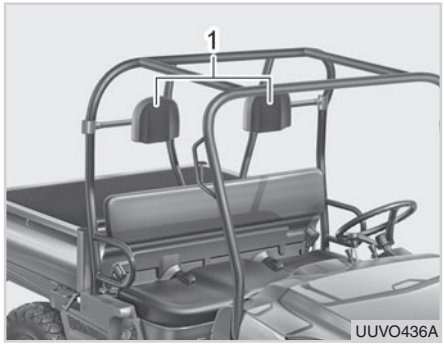
The seat belts for a driver and passenger are retractable 2-point lap belts while the center seat belt is a non-retractable 2-point lap belt.

1. Make sure the seat belt is not twisted and insert the latch plate into the buckle until a clicking sound is heard.
2. Press the red button to un-buckle.

⚠ WARNING

- ***As the safety belt can reduce or prevent injuries in an accident, make sure to wear the seat belt during driving. Also, be sure the seat belt is not twisted as the seat belt may not protect an occupant properly, leading to an accident.***
- ***Fasten the seat belt firmly when seated in the vehicle.***
- ***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.***
- ***Children under age 5 should never be on this vehicle.***

HEADREST (OPTIONAL)



(1) Adjustable Headrest

The headrest can be installed on the driver and passenger positions on the rear frame.

It height of headrest can be adjustable with two steps.

ROPS

(1) ROPS

The **ROPS** (Roll Over Protective Structure) is a unit made of robust metal tubes in order to protect the driver and occupants in an accident. The **ROPS** installed in **KIOTI**'s vehicles complies with various regulations (OSHA, OECD, EEC, ASAE, etc.).

⚠ WARNING

- ***Make sure to fasten the seat belt during driving. The ROPS cannot protect you if not wearing the seat belt.***

⚠ WARNING

- ***The ROPS is to protect you in a rollover accident, not to protect you from falling objects. Never drive in a dangerous or construction area that may have falling objects. Occupants can be seriously injured.***

NOTE

- **ROPS**: Roll Over Protective Structure
- **FOPS**: Falling Object Protective Structure (installed mainly to construction machinery)

OUTSIDE REARVIEW MIRROR (OPTIONAL)

(1) Outside Rearview Mirror

The vehicle can be equipped with the convex outside rearview mirror on the driver and passenger sides as an option.

⚠ WARNING

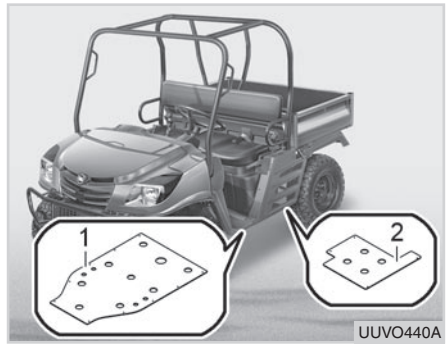
- ***Objects seen in the convex mirror are closer than they appear. Therefore, avoid abrupt operation or lane change in order to prevent collision.***
- ***Use turn signal lights (if equipped) or hand signal when turning or changing lane.***

BRUSH GUARD

(1) Brush Guard

The brush guard is made of strong metal tubes to protect the headlamps and radiator. It has a winch installation hole so that the WARN ® winch can be installed to the vehicle.

SKID PLATES (OPTIONAL)



(1) Skid Plate 1 (2) Skid Plate 2

The skid plates can be equipped as an option to protect the driving shaft, gearbox, and battery engine components underside the vehicle.

SUN CANOPY (OPTIONAL)

(1) Sun Canopy

The sun canopy is available for this vehicle as an option. This is to improve the driver's comfort in rain or sunlight. Also, its curved design adds luxury to the vehicle exterior.

⚠ CAUTION

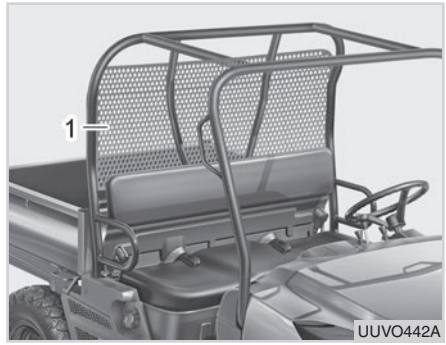
- **When entering a garage, make sure that the vehicle does not hit the ceiling or entrance of the garage.**

WINDSHIELD (OPTIONAL)

(1) Windshield

The transparent optional acrylic windshield is to block wind from the front.

REAR SCREEN (OPTIONAL)



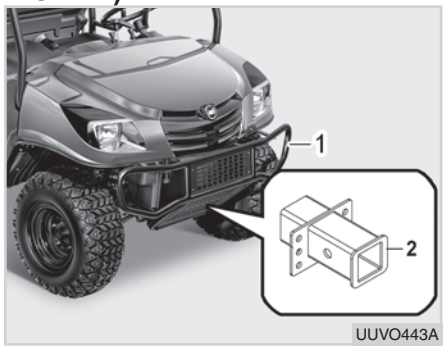
(1) Rear Screen

The rear screen helps protect the passengers and driver against the falling objects from cargo to rider`s head by abrupt braking.

⚠ WARNING

- ***Do not pile up cargo over the height of the side frame of the cargo bed. The driver and passengers can be seriously injured by cargo in case of abrupt braking.***
- ***Make sure to secure cargo with ropes even though the vehicle is equipped with the rear screen.***
- ***Wearing helmet for a riders is highly recommended especially when there is no rear screen installed.***

FRONT HITCH RECEIVER (OPTIONAL)

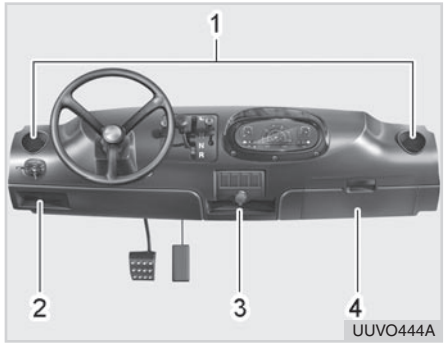


(1) Brush Guard (2) Front Hitch Receiver

The front hitch receiver is a 2-inch square boss type and can be installed on the lower side of the brush guard.

Remove the lower grill of brush guard to install the front hitch receiver.

CUP HOLDERS AND STORAGE BOXES

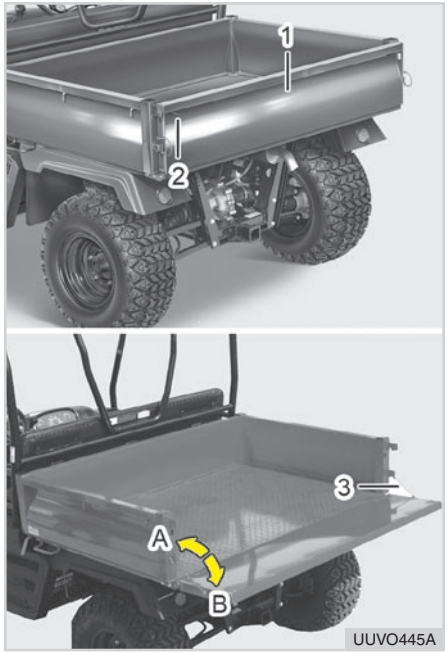


(1) Cup Holders (2) Glovebox (Driver Side)
(3) Glovebox (Center)
(4) Glovebox (Passenger Side)

There are 2 cup holders, 1 for the driver and 1 for the passenger.

There is no lid on the glovebox on the driver side and center while there is a lid for the glovebox on the passenger side.

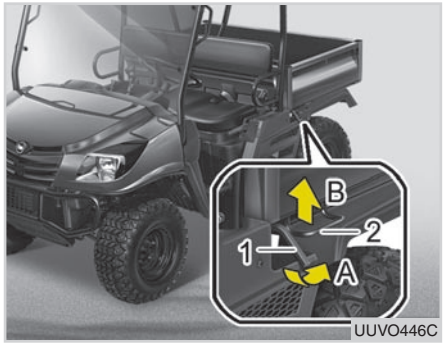
CARGO BED



(1) Door (2) Latch Handle (3) Wire Rope
(A) Close (B) Open

To open the back door of the cargo bed, rotate and pull the handles on the both sides simultaneously. Also, make sure the latch handles are securely locked after closing the back door.

CARGO BED CONTROL LEVER (MANUAL MODEL)



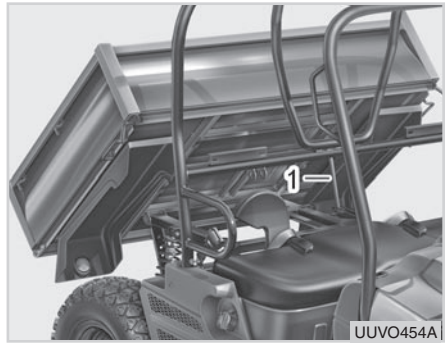
(1) Dumping Latch (2) Dumping Handle
(A) Turn (B) Pull Up

To raise the cargo bed, pull up the handle with one hand while turning the dumping latch lever with the other hand. Take your hand off the handle after the support rod is set into the lock groove securely.

⚠ CAUTION

- **Never drive your vehicle with the cargo weight over the specified max. load limit.**

Max. load: 500 Kg (1,102 lbs)



(1) Cargo Bed Support

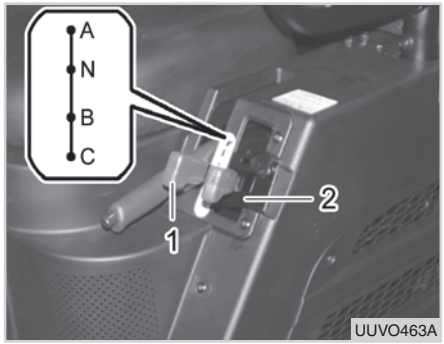
⚠ WARNING

- ***Never let anyone ride on the cargo bed during driving. He/she can fall off the bed and be seriously injured.***
- ***It is dangerous to drive with the cargo bed raised. Make sure to lower the cargo bed to its original position and engage the latch before driving.***

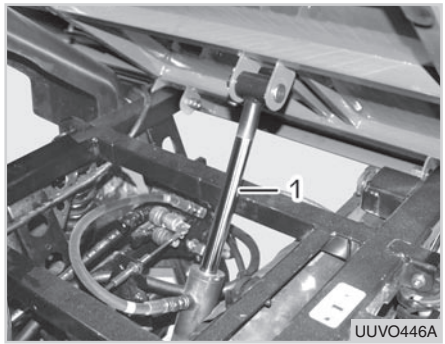
⚠ WARNING

- ***When raising or lowering the cargo bed, be careful not to let any part of your body, such as a hand or foot, stay between the cargo bed and cab frame. Grip only the handle to prevent injuries.***

CARGO BED CONTROL LEVER (HYDRAULIC MODEL)



(1) Hydraulic Lever
(2) Lever Lock Bracket
(A) Up
(B) Down
(C) Floating



(1) Hydraulic Cylinder

To operate the duping lever, remove the lever lock bracket then pull the lever to dump or raise the cargo bed and push the lever to stow or down the cargo bed.

Always lock the lever with the lever lock bracket after using dumping lever.

To raise the cargo bed while the engine is not running, put the duping lever to “Floating” position and raise the cargo bed manually.

⚠ CAUTION

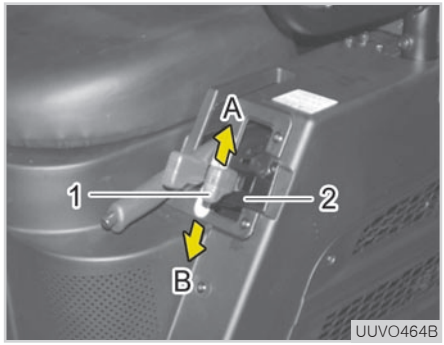
- **Never drive your vehicle with the cargo weight over the specified max. load limit.**

Max. load: 500 Kg (1,102 lbs)

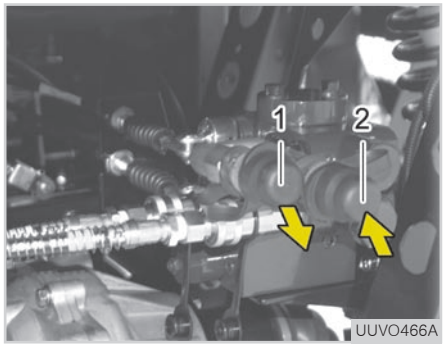
⚠ WARNING

- ***Always lock the lever with the lever lock bracket while not operating the lever or driving.***
- ***Never let anyone ride on the cargo bed during driving. He/she can fall off the bed and be seriously injured.***
- ***It is dangerous to drive with the cargo bed raised. Make sure to lower the cargo bed to its original position and engage the latch before driving.***
- ***When raising or lowering the cargo bed, be careful not to let any part of your body, such as a hand or foot, stay between the cargo bed and cab frame. Grip only the handle to prevent injuries.***

REMOTE HYDRAULIC LEVER (IF EQUIPPED)



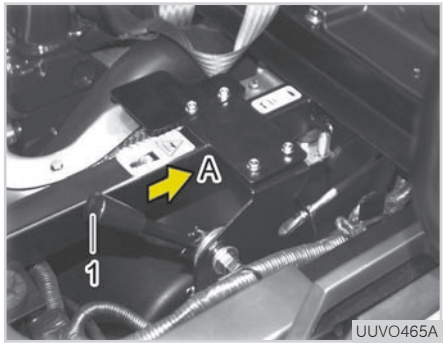
(1) Remote hydraulic lever (2) Lock Bracket
(A) Pull to ON (B) Return To OFF



(1) Out Port (2) In Port
(A) IN (B) OUT

Use this lever to operate the hydraulic implement or hydraulic motor which is attached to the hydraulic couplers on the rear. Un-lock the lever lock bracket and pull the lever up to operate the implement or hydraulic motor. Return the lever to stop operating implement or hydraulic motor. As the valve is ON-OFF style, the cylinder of implement can be retracted by the gravity or out-force when the lever is OFF position.

HAND THROTTLE LEVER (IF EQUIPPED)



(1) Remote Hydraulic Lever
(A) PULLING

Use this hand throttle lever to raise up the engine RPM while using remote hydraulic.

Be sure to return the hand throttle lever to its lowest position after using.

⚠ WARNING

- ***Make sure that the hand throttle lever is in its lowest position before driving the vehicle. Otherwise, the vehicle may take off abruptly and cause a fatal accident.***

CARGO BED EXTENSION (OPTIONAL)

(1) Cargo Bed Extender

The cargo bed extender is made of metal tubes and can be attached to the sides of the cargo bed to load bigger objects.

⚠ CAUTION

- **Never exceed the specified max. load limit even with the cargo bed extender installed.**

Max. load: 500 Kg (1,102 lbs)

WORKING LAMP (OPTIONAL)

(1) Front Working Lamp (RH)
(2) Front Working Lamp (LH)

Two halogen working lamps can be installed to the vehicle.

⚠ WARNING

- ***Driving on a road with the working lamps ON can disturb visibility of other drivers, leading an accident and collision.***

FUEL TANK

(1) Fuel Tank

The fuel tank is installed under the right side of the cargo bed and its capacity is 7.4 gallons (28 liters). Since this vehicle is equipped with the diesel engine make sure to fill the fuel tank with clean diesel fuel for optimal performance.

Make sure to keep the following safety precautions when fueling.

1. Make sure that the fuel to be filled into the tank is diesel fuel.
2. Avoid using electrical devices, such as a cellular phone, during fueling.
3. The fuel is highly flammable and even explosive in certain conditions. Make sure to stop the engine and remove the key before fueling.
4. Never smoke while fueling. Add fuel in a well-ventilated area and keep away from spark and flame.
5. Do not fill the tank with fuel up to the top. The fuel can expand by heat, resulting in leakage through the bleeding hole in the fuel tank filler cap.
6. Make sure to close the tank filler cap firmly after fueling. If fuel overflows, wipe it with a rag immediately.

FUEL REQUIREMENTS

Make sure to use high quality diesel fuel for durability and performance of the engine. The cetane number of the fuel should be at least 40 (ASTM D975) in any circumstance. It is recommended to use fuel with higher cetane number when driving in cold weather or at an altitude of 1,500 m (5,000 ft) or above.

It is recommended to use diesel fuel with high cetane number in order to enhance power and starting of the engine in a cold weather.

⚠ CAUTION

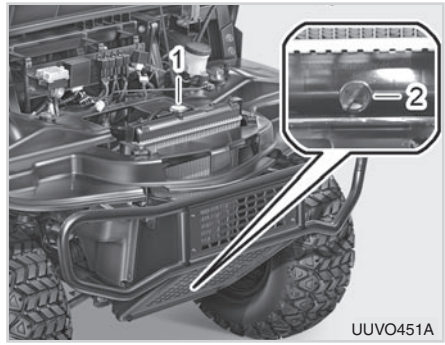
- **Adding gasoline or kerosene to the fuel tank can damage the fuel system severely.**

ENGINE INSPECTION

(1) Inspection Shield

It is possible to inspect the engine for most items by removing the seat cushion and raising the cargo bed. For engine oil level check, just remove the inspection shield on the lower section of the seat.

COOLANT, BRAKE FLUID AND ELECTRICAL DEVICES



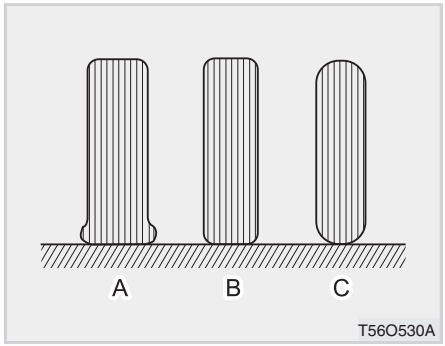
(1) Radiator Cap *(2) Drain Plug*

The coolant, radiator cooling fan and brake fluid can be checked by opening the hood.

Also, various relays and controls for electrical devices can be checked in this location.

The coolant reservoir tank can be inspected without opening hood, right behind the right front wheel.

TIRE

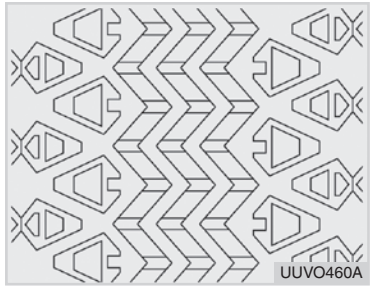


(A) Insufficient (B) Standard
(C) Excessive

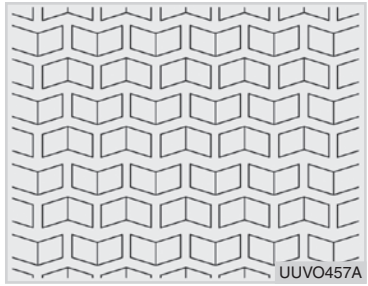
Though the tire inflation pressure is factory-set to the prescribed level, it naturally drops slowly in the course of time. Thus, check it everyday and inflate as necessary.

TIRE TREAD PATTERNS

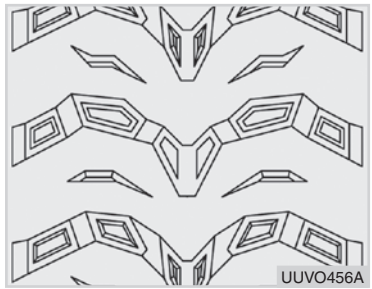
STANDARD TIRE FOR WORKSITE

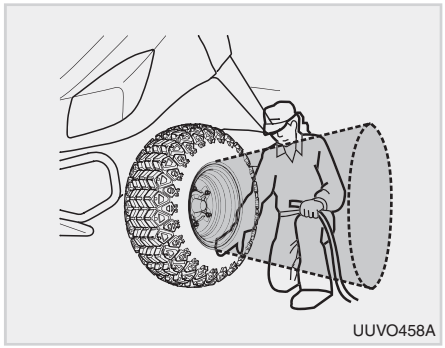


TURF



ALL TERRAIN (RECREATIONAL)

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⚠ WARNING

- ***Do not use tires larger or smaller than specified.***
- ***Do not disassemble or assemble the tire. If it is necessary to disassemble/assemble the tire, let a qualified service person perform the work.***
- ***The tire rims can fall out of the tires. Therefore, stay out of its way when checking or inflating tires.***

1. Always check the tire inflation pressure before driving. It is possible to check the inflation pressure roughly by checking the tires visually and tapping them (refer to the figure above).
2. Check if the wheel nuts are firmly tightened and tighten them as necessary before driving. Driving with loose wheel nuts can lead to a serious accident.

PROPER INFLATION PRESSURE

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

Item		Type	Inflation pressure	Wheel nut torque	Remarks
Front wheel	Work site	25x10-12(6PR)	12 PSI	4.0~4.6 kgf.m 28.9~33.3 lb.ft	Standard
	All terrain	25x10-12(4PR)	12 PSI	4.0~4.6 kgf.m 28.9~33.3 lb.ft	Option
	Turf	25x10-12(4PR)	12 PSI	4.0~4.6 kgf.m 28.9~33.3 lb.ft	Option
Rear wheel	Work site	25x11-12(6PR)	18 PSI	4.0~4.6 kgf.m 28.9~33.3 lb.ft	Standard
	All terrain	25x11-12(6PR)	18 PSI	4.0~4.6 kgf.m 28.9~33.3 lb.ft	Option
	Turf	25x11-12(6PR)	18 PSI	4.0~4.6 kgf.m 28.9~33.3 lb.ft	Option

NOTE

- If tires with a different size from the ones specified 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.

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⚠ 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 extended wear on lug and damage of the rim and disc. Also, check if the wheel bolts, rim bolts, and nuts are loose.***

OPERATION

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5

PRE-OPERATION
DAILY INSPECTION

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

⚠ CAUTION

- **Stop the vehicle on level ground, stop the engine and apply the parking brake before checking or servicing the vehicle.**
- **For refueling, refer to the chapter "Maintenance."**
- **Read information titled as "Danger", "Warning", and "Caution" thoroughly for the safe operation.**

CHECK ITEM

- Check the engine oil level.
- Check the engine coolant level.
- Clean the radiator grille.
- Check the air cleaner filter.
- Check the brake pedal.
- Check the gauges and indicators on the instrument panel.
- Check the headlamps and turn signal lamps.
- Check the fuel level.
- Visually check the tire inflation pressure and wheel nut tightness.

For more information, refer to the chapter "Maintenance."

OPERATING THE ENGINE
STARTING THE ENGINE

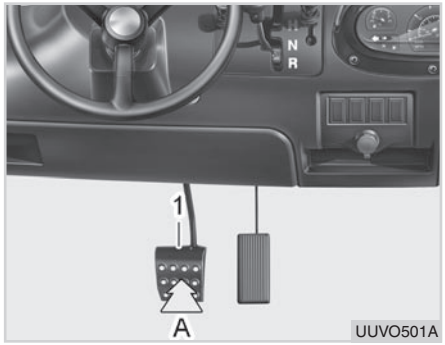
⚠ WARNING

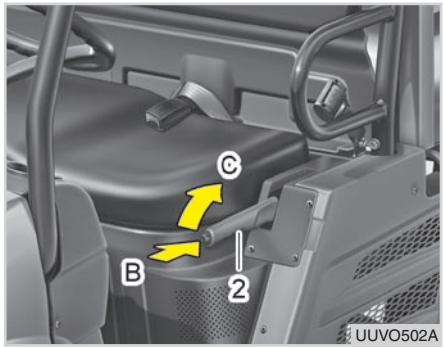
To avoid accidents:

- ***Be sure to read and understand the warning and caution decals on the vehicle 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 vehicle can abruptly start off, resulting in an injury or accident.***

IMPORTANT

- **Using an additive so the engine will start more easily can damage the engine. And it will not be covered by warranty.**
- **To protect the start motor and battery from damage, never try to start the engine for over 10 seconds consecutively.**



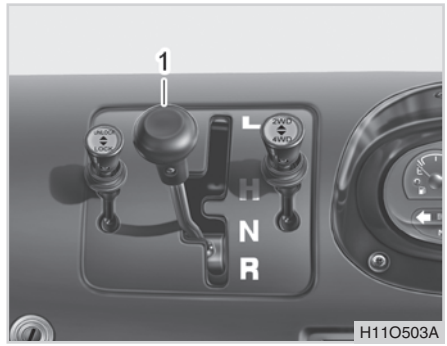


(1) Brake Pedal
(2) Parking Brake
(A) Depressing
(B) Push
(C) Pull

1. Make sure there is no obstacle around the vehicle.
2. Make sure to fasten your seat belt on the driver's seat and apply the parking brake firmly.

NOTE

- The parking brake indicator on the instrument panel comes on while the parking brake is engaged. It goes off when the parking brake is released.
- The buzzer sounds when operating the shift lever without releasing the parking brake. Make sure to release the parking brake before starting off. Failure to do so could reduce the life of the parking brake disk.

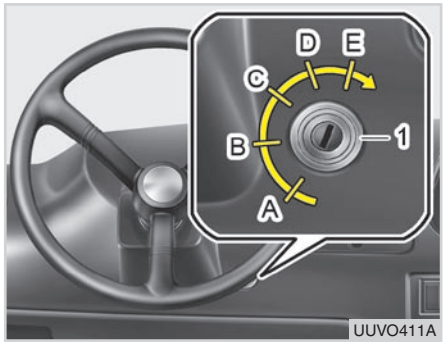


(1) Shift Lever

3. Check that the shift lever is in the "N" (Neutral) position.

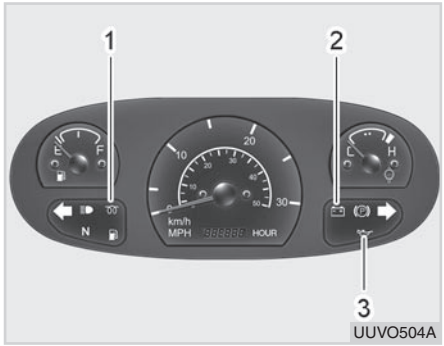
NOTE

- The vehicle is equipped with the safety switch for starting at the "N" position. Therefore, the engine can be started only when the shift lever is in the "N" position.



(1) Key Switch (A) Stop (B) ACC
(C) ON (D) Heat (E) Start

4. Insert the key into the key switch and turn it to the "ON" position.



(1) Glow Plug Indicator
(2) Battery Charge Warning Lamp
(3) Oil Pressure Warning Lamp

5. Check that the following lamps are turned ON.
   - Charge warning lamp
   - Oil pressure warning lamp
   - Glow plug indicator (9 sec.)
6. Turn the key to the "START" position as soon as the glow plug indicator goes off.

⚠ WARNING

- ***Never operate the start motor for 10 consecutive seconds as it consumes a lot of battery power. If the engine cannot be started within 10 seconds, wait for 30 seconds and try again.***
- ***When trying to start the engine again, make sure that the flywheel is stopped in advance.***
- ***Do not turn the key switch to the "START" position while the engine is running.***

7. When the engine is started, release the key. The key switch is automatically returned to the "ON" position.
8. After the engine is started, let the engine run for approx. 3 to 4 minutes (10 minutes in cold weather) to warm up the engine. (Refer to "Warming up" page 5-10 for details)

9. Check to see that all the warning lamps on the instrument cluster turn "OFF". If any lamp remains ON, immediately stop the engine, and contact your local **KIOTI** dealer for assistance.

IMPORTANT

- It is not recommended to operate the vehicle full speed or excessive load when new. Doing so can harm the overall service life of the vehicle.
  Break in the vehicle by driving with light work loads or at a maximum of 3/4 throttle for the first 20 hours.

CHECKING WARNING LAMPS AFTER STARTING ENGINE

1. If the oil pressure warning lamp does not go off in 4 to 5 seconds after the engine is properly started, stop the engine immediately and check the engine oil level. If the engine oil level is within safe operating limits, contact your local **KIOTI** Dealer.

WARNING

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

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

WARNING

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

OPERATING PRINCIPLE OF PREHEAT SYSTEM

1. When the key switch is turned to the “ON” position, the glow plug indicator comes on for 9 seconds and then goes off . The engine should be started within 3 seconds after the glow plug indicator goes off.
2. After the engine is started, post-heat is performed without any indicating lamp on. The post-heating function keeps the glow plugs activated for approx. 20 seconds after the engine is started in order to enhance the engine combustion performance and reduce harmful emissions right after engine starts.
3. The preheat/post-heat function and glow plug indicator do not operate when the coolant temperature is 30℃ (86°F) or higher. In this case, the engine can be started without the preheat operation.
4. In case extra preheating is needed, hold the key in ( )position . Do not preheat more than 30 seconds.

STOPPING THE ENGINE

1. Make sure to reduce the engine rpm before stopping the engine.
2. Put the shift lever in the neutral position.
3. Apply the parking brake.
4. Run the engine at idle speed for approx. 2 to 3 minutes, and then turn the key switch to the “OFF” position to stop the engine.
5. Remove the ignition key.

⚠ WARNING

- ***Never touch the muffler or heat shield until the engine is sufficiently cooled down. Failure to do so could result in serious injury on burns.***

⚠ CAUTION

- **Apply the parking brake and remove the key from the key switch before leaving your vehicle. An unauthorized person or child can move or operate the vehicle, resulting in an injury or accident.**
- **This vehicle is equipped with a CVT (Continuous Variable Transmission). Therefore, the vehicle may roll down a slope if the parking brake is not engaged even though the shift lever is in the "H", "L" or "R" position.**

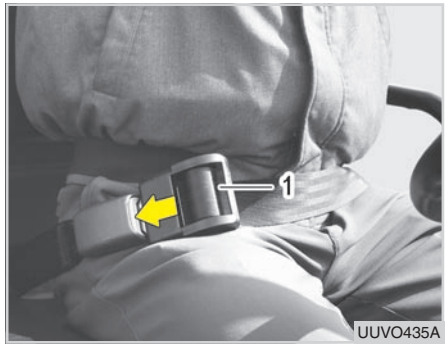
IMPORTANT

- **If the vehicle is operated for an extended period of time, idle the engine at low speed for 2 to 3 minutes in order to cool down the engine before shutdown.**

OPERATING THE VEHICLE
HOW TO DRIVE

IMPORTANT

- **When leaving the vehicle, make sure to remove the key after turning off all the electrical systems.**
- **Also, be careful not to leave the utility vehicle unattended as the same key is used for all KIOTI vehicles. It can be stolen.**
- **The horn, turn signal lamps and hazard warning lamps can be operated without the key in the key switch. Therefore, special care must be taken to prevent the battery from discharging.**



(1) Seat Belt

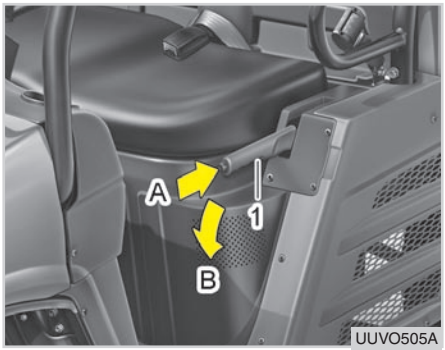
1. Sit down on the seat and fasten the seat belt.

WARNING

- ***Fasten the seat belt firmly when you are seated in the vehicle.***
- ***The seat belt can reduce or prevent injuries in an accident. Make sure to wear the seat belt during driving. Also, be sure the seat belt is not twisted. A twisted or improperly fastened seat belt may not protect an occupant properly, in an accident.***
- ***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.***
- ***Children under age 16 or who doesn't have a driver's license should not drive this vehicle.***
- ***Childrem under age 5 should not ride on this vehicle even in the passanger seat.***

(1) Shift Lever

2. Start the engine after checking that the shift lever is in the neutral position.



(1) Parking Brake
(A) Push *(B) Release*

3. Release the parking brake.

(1) Shift Lever *H: High Speed*
L: Low Speed *N: Neutral*
R: Reverse

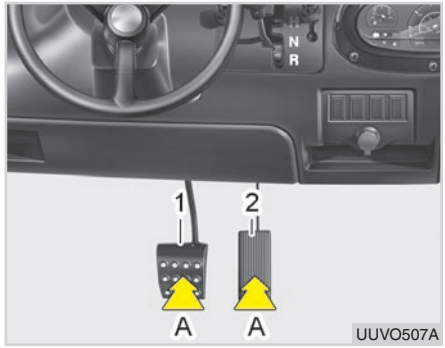
4. Place the shift lever to the "H" (High speed) or "L" (Low speed).
5. Depress the accelerator pedal gradually to start off the vehicle.
6. The 4WD system can be used as necessary.

⚠ CAUTION

- **Avoid abrupt acceleration or braking for safe driving.**
- **When driving on a steep hill or loading or unloading the vehicle from the transportation vehicle, set the shift lever into the "L" position or the 4WD/2WD lever into the "4WD" position in advance.**
- **Practice starting and stopping the vehicle with the pedals and levers until getting used to these controls.**
- **Place the shift lever into the "L" position when driving on a soft or bumpy surface or carrying a heavy load.**

IMPORTANT

- **Do not shift the gear when the vehicle is moving or the engine is running at a high idling speed. To stop the vehicle, depress the brake pedal, and then move the shift lever.**
- **Shifting at a high idling speed can wear the gears.**



(1) Brake Pedal (2) Accelerator Pedal
(A) Depressed

7. To stop the vehicle, release the accelerator pedal and depress the brake pedal.

WARMING UP

It is recommended always to warm up the engine before driving in order to maintain the durability of the engine and prevent malfunction of the engine.

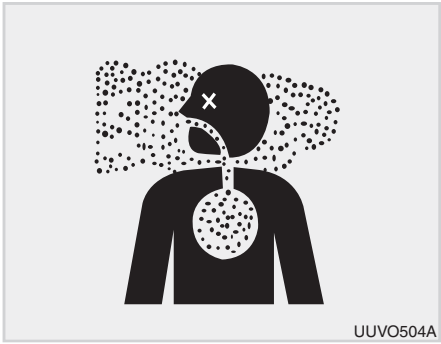
Warming up the engine can ensure that each part in the engine is properly lubricated and each hydraulic part is in a perfect condition in order to prevent malfunction in the engine as well as the hydraulic system.

HOW TO WARM UP ENGINE

1. Start the engine and run it at a low speed and without load for approx. 3 to 4 minutes.
2. In cold weather, increase the warming 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 for 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 1/4 of the normal temperature range, regardless of the warming-up time.
6. Do not increase the work load or driving speed rapidly after starting work.
7. Run the engine without load or idle for approx. 2 to 3 minutes before stopping the engine after work.

⚠ WARNING

- ***Warming up the engine excessively increases fuel consumption and affects the durability of the vehicle negatively.***
- ***Never warm up the engine and leave the vehicle for an extended period of time. It can cause fire and an accident.***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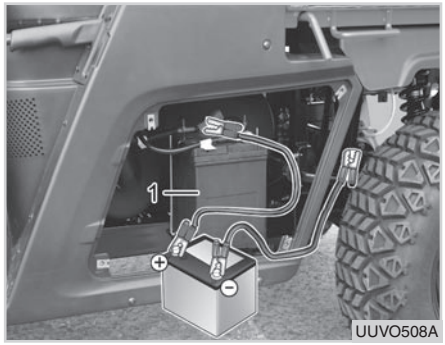
⚠ CAUTION

- **Avoid running the engine in an enclosed area. Inhaling emissions can harm your health.**
- **If it is unavoidable to run the engine in an enclosed area, make sure to ventilate the area properly and take proper actions to avoid inhaling emissions.**

JUMP START



(1) 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 vehicle or other extra battery.

1. Check that the voltage of the discharged battery is the same as the voltage of the other vehicle for jump start (specification for this vehicle: 12 V).
2. Check the length of the jumper cables and position another vehicle near the vehicle with the discharged battery. Then, put the shift lever in the neutral position, apply the parking brake, and stop the engine.
3. Wear protective glasses and gloves and open the battery cover of both vehicles. 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 vehicle body with the discharged battery. Make sure to connect the clip to the body part without paint.
6. Start the engine of the vehicle with the normal battery.
7. Start the engine of the vehicle with the discharged battery.
8. Disconnect the black cable from the negative battery terminals of both of the vehicles.
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.

STOPPING

Depress the brake pedal to control the driving speed.

1. Release the accelerator pedal completely.
2. Depress the brake pedal evenly and firmly.

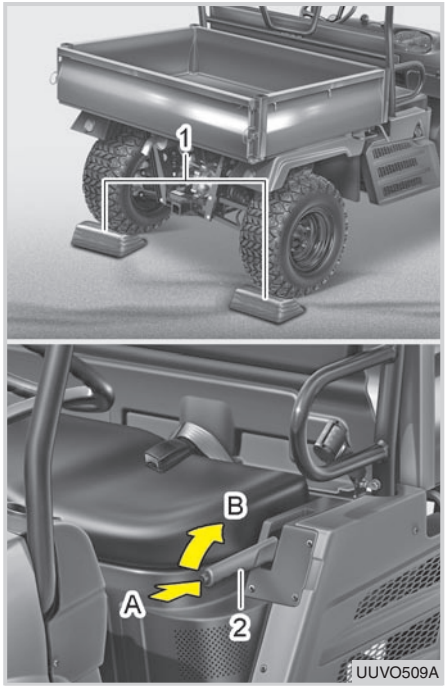
⚠ WARNING

- ***The stopping distance increases when loaded with cargo or towing a trailer. In this case, drive at a low speed and always consider the actual stopping distance.***

NOTE

- This vehicle does not have an engine brake function. Always check the brake function before operating the vehicle.
- This vehicle is equipped with the parking brake system and main brake system separately for safety. The parking brake should be used in an emergency, such as brake pedal failure.
- Never depress the accelerator and brake pedals simultaneously.

PARKING



(1) Chock *(2) Parking Brake Lever*
(A) Push *(B) Pull*

When parking, make sure to pull up the parking brake fully.

The parking brake in the vehicle is equipped with separate disc and pad in order to enhance safety. Make sure to use the parking brake in emergencies, such as brake pedal malfunction, during driving.

⚠ WARNING

- ***Never park on a slope with only the transmission engaged. The vehicle may roll down, leading to an accident.***
- ***If it is unavoidable to park on a slope and leave the vehicle, apply the parking brake and chock the wheels.***
- ***Never park the vehicle on a steep slope. A serious accident can occur.***

SHIFTING

This vehicle is equipped with the CVT (Continuous Variable Transmission) and the shifting operation is automatic according to the accelerator pedal operation and outer load condition.

Make sure to move the shift lever to the "H", "L" or "R" position when the vehicle is stationary. In order to stop the vehicle, release the accelerator pedal and depress the brake pedal as necessary.

⚠ WARNING

- ***If moving the shift lever to the "H", "L" or "R" position while the vehicle is moving or the accelerator pedal is depressed, the internal gears related to the shifting operation can be* severely damaged.**

DRIVING ON SLIPPERY SURFACES

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It is possible that the vehicle can skid with its rear side sliding to one side when driving on a muddy, icy or slippery road. Therefore, when driving in this circumstance, observe the following:

1. Slow down before you enter a slippery area.
2. Before entering a slippery area, move the shift lever to the "L" position and 2WD/4WD lever to the "4WD" position as necessary.
3. Avoid abrupt acceleration and turning during driving on a slippery road.
4. If the vehicle cannot move forward due to spinning wheels, stop the vehicle, engage the differential lock lever and then try again.

⚠ WARNING

- ***Abrupt braking or acceleration in the 2WD operation on a slippery surface can make the rear wheels slide to one side, resulting in the vehicle skidding. Make sure to use the 4WD in advance in this case.***
- ***When the vehicle starts to skid with the rear wheels spinning, release the accelerator or brake pedal and turn the steering wheel to the spinning direction immediately.***
- ***If it is necessary to brake the vehicle abruptly on an icy or slippery road, depress the brake pedal for several times.***

⚠ WARNING

- ***It is recommended to use the 4WD on a slippery road. Using the 4WD can increase the driving force of the wheels as well as the braking performance on a slippery road. Also, it reduces a chance of the vehicle skidding at abrupt braking.***
- ***It is a best measure to drive at a low speed with the 4WD and low gear position selected on a slippery surface. Otherwise, the vehicle can roll over or collide.***

TURNING

Before entering a curved road, slow down your speed. Turning at a high speed can lead the vehicle off the course, resulting in a severe accident.

Be careful not to lose balance during turning. The driver and all occupants should wear the seat belts. If the differential lock system is used during turning on a normal road with sufficient friction, the durability of the internal gears related to the differential system can be damaged. Also, there is a high chance that the vehicle can over turn due to poor steerability.

If cargo is loaded onto the cargo bed too high, the center of gravity of the vehicle gets high and the centrifugal force increases when turning. Therefore, drive slower when turning.

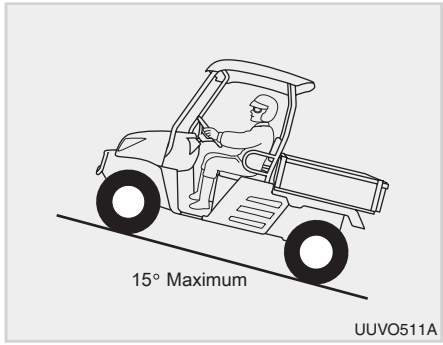
⚠ WARNING

To prevent an accident due to loss of steering control:

- ***If turning at a high speed, the vehicle can turn over.***
- ***Never use the differential lock system when turning at a high speed and even at a low speed. A serious accident can occur.***

DRIVING ON SLOPE

UPHILL AND DOWNHILL



1. Move the shift lever into the "L" position before driving uphill. Also, select the 4WD as necessary depending on road surface conditions.
2. Avoid driving on a slope of 15° or more. Drive the vehicle at a low speed so that the engine is not applied with excessive load.

3. It is hard to steer the vehicle and the front section of the vehicle can be lifted off the ground when driving on a slope with excessive cargo loaded in the vehicle. In the worst case, the vehicle may roll over down the hill. Therefore, avoid carrying excessive load when driving on a slope and drive backward uphill if necessary.
4. This vehicle is equipped with the CVT (Continuous Variable Transmission), there is no engine brake function. Therefore, make sure to depress the brake pedal to reduce the speed when driving downhill.
5. Never drive backward downhill with cargo loaded. The vehicle can roll over.

HILL INCLINED SIDEWARD

1. When driving on a road inclined sideward, be extra careful not to let the vehicle overturn sideward.
2. The best measure to prevent overturn on a road inclined sideward is driving at a low speed.
3. Never drive on a road inclined sideward for 12° or more.
4. If starting to lose balance while driving forward on a road inclined sideward, turn the steering wheel to the downhill direction to gain control of the vehicle again.
5. Be extra careful when driving with cargo loaded.

⚠ WARNING

- ***When driving on a road inclined vertically or sideward, make sure to drive at a low speed. Otherwise, the vehicle can roll over, leading to a serious accident.***
- ***Driving with excessive load on a slope can lead to overturn.***
- ***Always wear the seatbelt and safety gears, such as a helmet, when driving on a slope.***

DRIVING IN FOREST

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1. Drive at a low speed when driving in a mountainous area or through a forest.
2. Wear protective gear, such as a helmet to avoid an injury by branches.
3. Be sure to wear the seat belt to minimize a chance of injury by collision with a tree or rock.

DRIVING THROUGH WATER

UUV513A

This vehicle can go through water as high as the floor of the vehicle.

Make sure to check the depth of water before entering. When driving through deep water, the wheels may lose traction so that you cannot control the vehicle, leading to an accident. Make sure to observe the specified water depth limit.

Never drive through swift water flow even though its depth is below the height of the vehicle floor.

Consider the following when driving through water:

1. Check the depth and speed of water or water flow before entering it.
2. Avoid a steep path when driving through water.
3. Be careful not to hit a rock or obstacle and drive at a low speed.
4. Drive slowly with 4WD.
5. After driving through water, depress the brake pedal several times to dry the brake disc for normal brake operation.

⚠ WARNING

- ***Driving through water without knowing depth, speed and bottom condition of waterflow is very dangerous and can lead to a drowning accident.***
- ***If driving on a slope or at a high speed with the brake wet after driving through water, the brake system may not function properly, leading to an accident.***

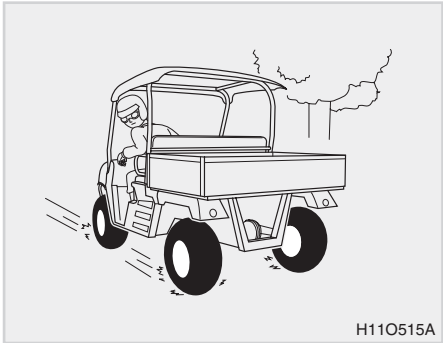
DRIVING BACKWARD

⚠ CAUTION

- **Salty water corrodes paint and exterior parts of the vehicle. Make sure to wash the vehicle thoroughly with tap water.**
- **If any part is corroded by salty (sea) water, it may not be covered by warranty.**

NOTE

- It is required to service the vehicle after driving through water. Pay special attention to the engine oil, transmission fluid, front/rear differential gear cases and grease fittings.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Consider the following when driving backward:

1. Drive backward at a low speed. To stop the vehicle, depress the brake pedal gently.
2. Avoid abrupt turning and driving down the slope backward.
3. Never depress the accelerator pedal abruptly and pay close attention to the surroundings before driving backward.

⚠ WARNING

- ***If precautions are not taken during driving backward, a serious accident can occur. Check if there is any obstacle or person behind the vehicle before driving backward. Also, keep the speed slow.***

DRIVING ON ROAD

Observe the following when driving on a road:

1. It is recommended to attach the "Safety lamp kit" (optional) from **KIOTI** when driving on a public road.
2. If the vehicle is equipped with the turn signal lamps, use them during driving. If not, inform other drivers of your intended direction with hand signals.
3. It is strongly recommended to install the "Safety lamp kit" when driving on a road at night.
4. Use the low beam when driving at night. Otherwise, the headlamps can disturb the approaching vehicle's visibility.

⚠ WARNING

- ***When driving on a road, make sure to install the "Safety lamp kit" supplied by KIOTI and observe the applicable regulations and laws. If the vehicle is not equipped with the "Safety lamp kit", there will be no brake lamps, turn signal lamps and tail lamps on the vehicle. In this condition, it is very dangerous to drive on a road.***
- ***In some countries or states, it is illegal to drive a UTV on public roads. Be aware of traffic laws before driving.***

TRANSPORTING CARGO

1. Distribute cargo evenly onto the cargo bed when driving.
2. For the vehicle without the hydraulic dump kit (optional), it is hard to raise the cargo bed if the load is concentrated to the front side of the vehicle.
3. The max. load limit for the vehicle is 500 kg (1100 lbs). Make sure to keep under this specified limit. Otherwise, steerability and braking performance are degraded and you may lose control of the vehicle, leading to a severe accident.
4. Load cargo only up to half of the load limit when driving on a steep, bumpy or slippery road.
5. When loading wide or long objects, secure them with ropes firmly. The vehicle should be equipped with the rear screen (option) so that such objects do not hit the back of the driver.

6. When loading heavy material, such as sand and earth, distribute it evenly in the cargo bed and do not pile it over the side frame of the cargo bed.
7. Wet sand weighs at least twice as much as dry sand. Therefore, load sand less if it is wet.
8. Make sure to distribute cargo evenly in the cargo bed. Otherwise, the vehicle can overturn.

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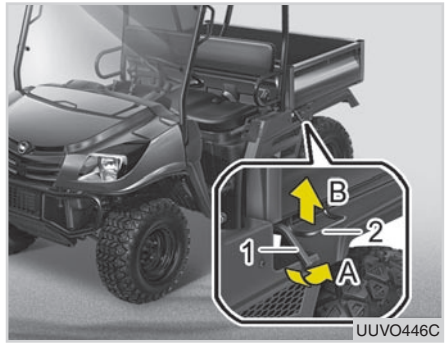
9. Never let anyone ride on the cargo bed. It can lead to a serious accident.
10. The brake system is applied with excessive load when driving on a slope with excessive cargo. Therefore, load only up to half of the specified load limit when driving on a slope.
11. If an object, such as a rock, is loaded, but not secured onto the cargo bed, driving on a slope, abrupt starting-off or abrupt braking can damage the cargo bed parts and lead to an accident due to the object rolling on the cargo bed. Make sure to secure any cargo firmly.

⚠ WARNING

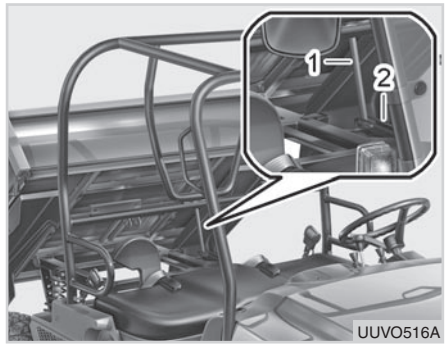
- ***If loading cargo excessively or unevenly, you can lose steerability and braking control, resulting in a severe accident. Make sure to keep under the specified load limit and observe relevant regulations.***
- ***Avoid overspeed driving, abrupt acceleration and abrupt starting-off in order to prevent accidents when the vehicle is loaded.***
- ***Make sure to secure cargo firmly so that it does not hit the driver. Install the rear screen (optional) if necessary.***

UNLOADING (MANUAL MODEL)

1. Open the tailgate with both hands. Be careful as the tailgate can open abruptly due to cargo on the cargo bed.
2. To raise the cargo bed, pull up the handle with one hand while turning the latch lever with the other hand.
3. Never apply excessive force to raise the cargo bed as you may get injured. In this case, unload some cargo on the front with a shovel or other tools, before trying again.

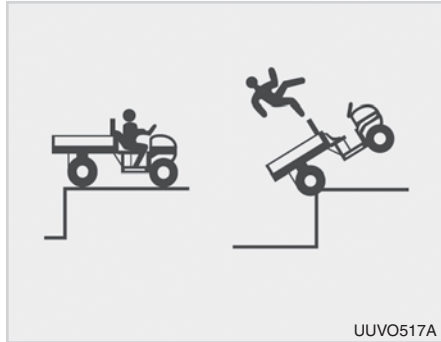


(1) Duping Ratchet *(2) Duping Handle*
(A) Turn *(B) Pull Up*



(1) Cargo Support *(A) Support Groove*

4. After raising the cargo bed, make sure support is latched in the groove (A) firmly.
5. Never drive the vehicle with the cargo bed raised. If the support rod comes off the groove by vibration, the cargo bed will fall, leading to an accident.
6. To lower the cargo bed, place the support rod off the groove and lower the cargo bed slowly.
7. The hydraulic dump kit can be used as an option. This kit is ideal for vehicles which carry heavy loads often.

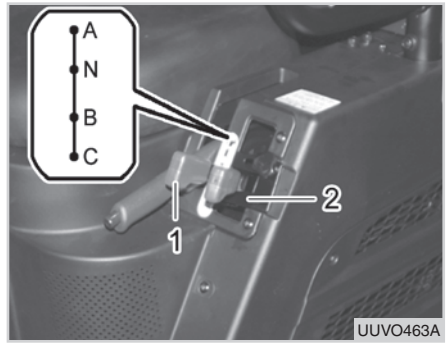


⚠ WARNING

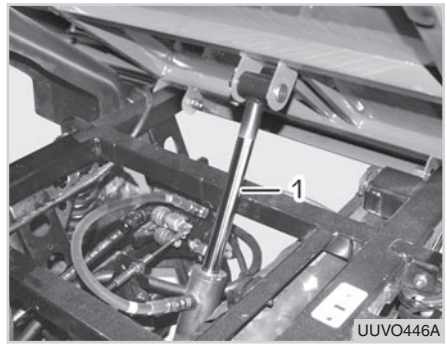
- ***Make sure to check the ground condition before driving backwards to unload.***
- ***Apply the parking brake firmly before unloading.***
- ***Never drive the vehicle with the cargo bed raised. The cargo bed can fall accidentally, resulting in an accident.***

UNLOADING (IF THE DUMPING KIT IS INSTALLED)

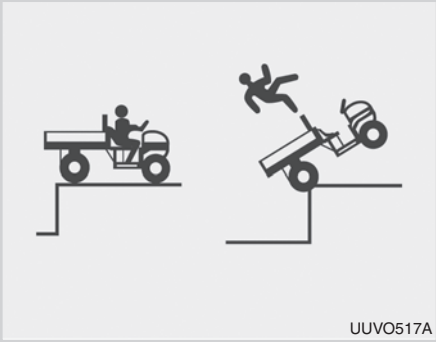
1. Open the tailgate first before dumping the cargo bed.
2. Pull the duping lever slowly after removing lever lock bracket.
3. After duping the cargo, push the duping lever back to lower down the cargo bed.



(1) Hydraulic Lever *(2) Lever Lock Bracket*
(A) Up *(B) Down*
(C) Floating



(1) Hydraulic Cylinder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⚠ WARNING

- ***Make sure to check the ground condition before driving backwards to unload.***
- ***Apply the parking brake firmly before unloading.***
- ***Never drive the vehicle with the cargo bed raised. The cargo bed can fall accidentally, resulting in an accident.***

⚠ WARNING

- ***A part of your body may get between the vehicle body and cargo bed or your waist can get injured while raising or lowering the cargo bed. Never apply excessive force to raise the bed and pay special attention to install the support rod properly.***

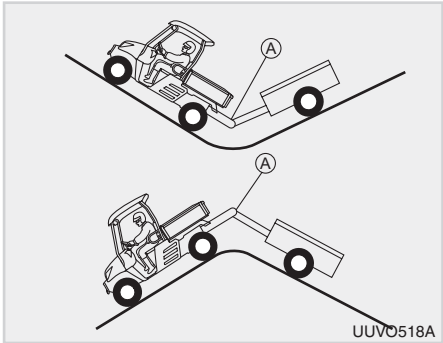
TOWING TRAILER

This vehicle is equipped with a 2-inch square hitch receiver in the back as standard. Be careful of the following when towing a trailer

1. This vehicle can tow a trailer and cargo with their weight of up to 590 kg (1300 lbs). You can lose control of the vehicle, leading to an accident if towing more than specified.
2. The max. vertical load applicable to the tow hitch is 59 kg (130 lbs) which is 10% of the total towing load limit. If this specification is not met, the vehicle can turn over backward.
3. It is very hard to drive backward with a trailer connected. Keep the speed low.

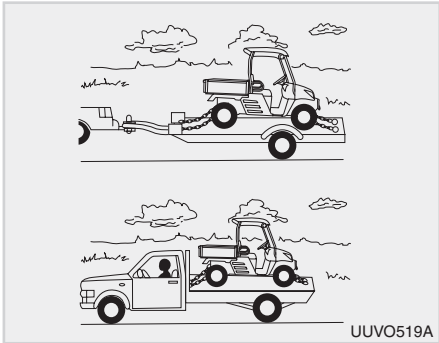
[Tips for driving backward with trailer]

If a trailer is about to go out of a correct course during driving backward, turn the steering wheel to the direction which the trailer goes then the trailer returns to its original course.



4. When driving over an excessively concave or convex surface, excessive stress is applied to the hitch connection. A ball-type hitch (A) is recommended in this case.

TRANSPORTING



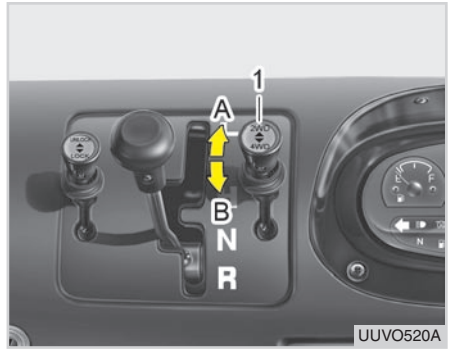
1. Check the width of the cargo bed of a transporting vehicle or trailer.
2. Set ramps to the transporting vehicle firmly.
3. It is recommended to drive backward onto the transporting vehicle to drive out of it more easily later.
4. Make sure to set the shift lever to the "L" position and the 2WD/4WD lever in the "4WD" position.

5. After getting onto the transporting vehicle, apply the parking brake firmly and secure the vehicle onto the body frame or bracket of the transporting vehicle with chains or belts.
6. When transporting the vehicle on a road, set applicable decals to keep local regulations.
7. Always keep the total height in mind so that the vehicle top does not hit under a bridge or the top of a tunnel.

⚠ WARNING

- ***Make sure to secure the vehicle firmly during transportation.***
- ***The canopy, windshield or other components, which can be accidentally removed by wind during transportation, should be removed in advance before transportation and transported separately.***
- ***The above precautions should be kept in order to avoid a serious accident* during transportation.**

4WD OPERATION



(1) 2WD/4WD Shift Lever
(A) 2WD (B) 4WD

The rear wheels are driven in the 2WD mode while all the wheels are driven in the 4WD mode. Keep the following instructions to use the 4WD correctly:

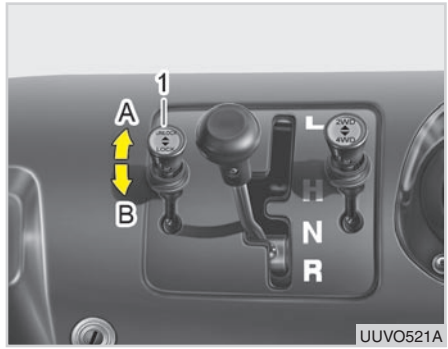
1. It is recommended to use the 4WD when driving on a slippery, muddy or icy road, driving through water or driving to load or unload the vehicle to the transporting vehicle.

2. When moving the 2WD/4WD lever, push up the detent knob with a finger and then move the lever.
3. To operate the shift lever, depress the brake pedal and stop the vehicle completely. It is hard to shift when the vehicle is moving or the engine is running at a high idling speed. Moreover, abnormal noise may occur and parts related to the shifting operation can be damaged.
4. Move the 2WD/4WD lever back to the "2WD" position as soon as the 4WD is not necessary. Prolonged use of the 4WD in a normal condition can increase the fuel consumption and decrease the durability of parts related to the power transfer system. It also affects the steering performance negatively.
5. In some cases, it may be hard to move the 2WD/4WD shift lever out of the "4WD" position. This is because parts related to the shifting operation are firmly engaged. These parts can be released easily by changing the driving direction (forward or backward).

⚠ WARNING

- ***Never try to shift the gear while the vehicle is moving or the engine is running at a high speed. The power transfer system can be severely damaged and an accident can occur.***

DIFFERENTIAL LOCK OPERATION



(1) Differential Lock Lever
(A) Unlock (B) Lock

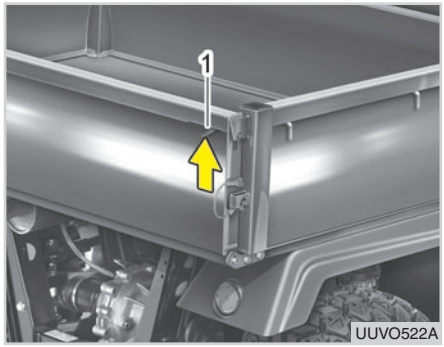
On hard firm ground, the differential system should be unlocked to secure safe turning.

When the wheel on one side is on a slippery surface, such as mud or icy road, the wheels on a slippery surface lose traction and rotate fast while the wheel on a normal surface do not rotate, resulting in the vehicle stuck into its position. In order to prevent this situation, this vehicle is equipped with the differential lock system.

[Differential lock system]

The differential lock system is to connect the wheel on the left and right mechanically to rotate them at the same speed regardless of friction applied to them even on a slippery or bumpy road for better traction.

TAILGATE (BACK DOOR)



(1) Latch Lever

(1) Gate

1. When opening the tailgate, it can open abruptly due to cargo on the cargo bed. Therefore, support the upper side of it with both hands when pushing the latch lever.
2. Keep your feet as far as possible as any object can fall off the cargo bed when the tailgate opens abruptly.

MEMO

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ESSENTIAL REPLACEMENT PART 6-2

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ELECTRIC PARTS 6-3

ESSENTIAL REPLACEMENT PART

OIL AND FLUID

UUVO601A

U.S.Gal.(L)

NO	ITEM	SPECIFICATION	CAPACITY
1	Engine Oil	SAE 15W40	8.45 (3.0)
2	Gear Box	DAEDONG UTF55	0.23 (0.9)
3	Front Differ.	Exxonmobil Mobilfluid 424	0.16 (0.6)
4	Rear Differ.	Exxonmobil Hydraulic 560 Shell:Donax TD	0.21(0.8)
5	Grease	SAE multifunc-tional	A little
6	Anti-freeze	Ethylene glycol and water (50:50)	1.66 (6.3)
7	Brake Oil	DOT 3	-

There are various types of oil and fluids used in this vehicle for the operation, lubrication, cooling and anti-corrosion of the vehicle.

If any oil or fluid is insufficient, degraded or contaminated, it can cause incorrect operation and seizure, resulting in damage of the vehicle.

In order to protect the vehicle properly and keep it in a perfect condition, make sure to refill or change the oil and fluid specified in accordance with the maintenance intervals. Refer to chapter 7 "Maintenance".

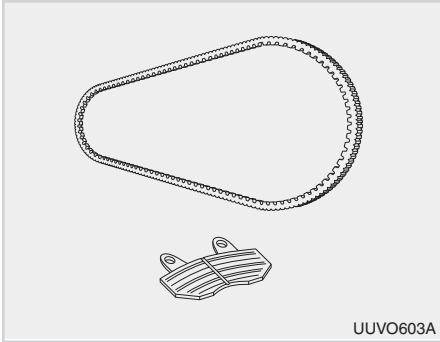
FILTERS

UUVO602A

The various filters and air cleaner are consumables to filter foreign materials from oil and air. Make sure to check or replace these parts when changing oil.

N0	PART NO	DESCRIPTION	QTY
1	E5205-32091	Engine Oil Filter	1
2	84612-4316-0	Fuel Filter Element	1
3	T2350-11641	Air Filter	1

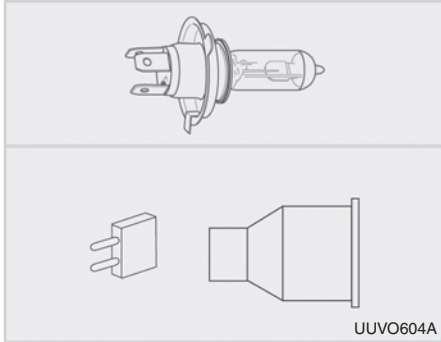
BELTS AND RUBBER PARTS



Rubber belts, hoses and boots get tender and cracked as they age. continuos use of a belt, hose or boot in poor condition can result in pact failure, causing a serious problem to the vehicle. Make sure to replace such parts at the specified intervals in order to prevent accidents.

N0	PART NO	DESCRIPTION	QTY
1	E5760-72532	Fan Belt	1
2	U3215-29081	CVT Belt	1
3	U3215-40001001	Brake pad	8

ELECTRIC PARTS



N0	PART NO	DESCRIPTION	QTY
1	2350-69571	Headlight Bulb	1
2	52794-42421	Slow Blow Fuse	1
3	T2185-33651	Fuse 5A	3
4	T4260-33631	Fuse 10A	3
5	35820-7556-1	Fuse 15A	4
6	36919-5665-0	Fuse 20A	2
7	36919-5666-1	Fuse 25A	2

MEMO

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MAINTENANCE CHECK LIST
DAILY CHECK CHART

SERVICE SCHEDULE		MAINTENANCE CODES
ITEM	SERVICE REQUIRED	
Engine Cooling System	Clean debris from radiator, screen and grills. Check coolant level in the reservoir tank.	O, P ,Q
Seat Belt	Check the condition of seat belt and mounting hardware.	
Tires	Check for wear, damaged tires and air pressure. Check wheel hub nuts are tightened.	
Parking Brake condition	Check operation and adjust if required.	AA
Brake condition	Check operation and adjust if required.	
Clean Pedals	Clean brake pedals, travel control pedal, and footrest area.	Y
General Items	Check for loose or broken parts, instrument operation, oil leaks and damaged or missing signs (decals).	AE, AF, AG, AH

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

MAINTENANCE INTERVAL TABLE

※ ⦿: Just once initially, ○: In every interval

NO	CHECK ITEM / INTERVAL		RUN HOUR							RUN AGE		MAINTENANCE CODES
			10	50	100	200	400	800	1000	1YEAR	2YEAR	
1	Engine oil and filter	Replace		⦿	○							F
2	Fuel filter	Replace				○						L
3	Fuel line and hose connection	Check	⦿		○							M
4	Fuel tank and its filler cap	Check			○							L, M
5	Air cleaner filter	Check			○							H
		Replace								○		
6	Air intake hose connection and filter body anti-dust valve	Check	⦿		○							I
7	Valve clearance	Check							○			
8	Injection nozzle	Check							○			N
9	Spark arrester	Check				○						R
10	Coolant	Replace									○	P
11	Cooling system (radiator grill, coolant hose, cooling fan)	Check	⦿			○						O, P, Q
12	CVT belt	Check				○						J
		Replace						○				
13	CVT pulley and system	Check					○					J. K
14	Gearbox and front/rear axle oil	Check	⦿			○						S, T, U
		Replace					○					

※ ⦿: Just once initially, ○: In every interval

NO	CHECK ITEM / INTERVAL		RUN HOUR							RUN AGE		MAINTENANCE CODES
			10	50	100	200	400	800	1000	1YEAR	2YEAR	
15	Hydraulic oil (if equipped with hydraulic kit)	Replace		⦿			○					S
16	Pump, cylinder, levers, oil tank and hoses related to hydraulic kit (if equipped)	Check					○					
17	Brake fluid level	Check	⦿		○							X
18	Front/rear wheel and parking brake pads	Check				○						AA, AC
19	Suspension mounting bushing play and mounting rubber	Check				○						AC
20	Leakage from shock absorber	Check					○					AC
21	Wheel hub bearing clearance	Check							○			
22	Wheel hub bolt tightness	Check	⦿			○						
23	Other bolt tightness	Check				○						
24	Battery	Check				○						AD
25	Steering rack and pinion, ball joint	Check					○					W
26	Drive shaft and CV boots	Check		○								
27	ROPS and safety belt	Check	⦿			○						
28	Greasing drive shaft	Check			○							D

LUBRICANTS

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

NO.	ITEM	Capacity [U.S. gal (L)]	LUBRICANTS
1	Fuel	7.4 (28.0)	Diesel fuel
2	Coolant	1.7 (6.3)	Antifreezing solution (Ethylene glycol) + Pure water (50:50)
3	Engine oil	0.9 (3.2)	SAE 15W40
4	Gear Box Oil	0.24 (0.9)	DAEDONG UTF55 Exxonmobil Mobilfluid 424 Exxonmobil Hydraulic 560 Shell:Donax TD
5	Front differential case oil	0.16 (0.6)	
6	Rear differential case oil	0.2(0.8)	
7	Grease • Rear axle drive shaft • Front wheel hubstrut	Small amount	NLGI grade NO.2 or equivalent
8	Optional hydraulic tank oil for dumping kit and remote hydraulic kit	4.76 (18)	**KIOTI** tractor oil UTF55 or equivalent: -Exxon: Mobil fluid 423 or 424, Exxon Hydraul 550 -Shell: DONAX-TD
9	Brake Fluid	-	DOT3

⚠ WARNING

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

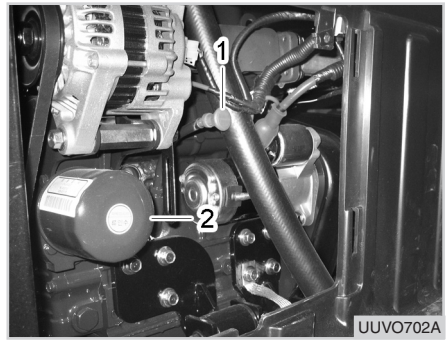
DAILY INSPECTION
ACCESS FOR SERVICE

This vehicle is designed so that it is easy to access the inspection points for service. Most of regular services can be performed by opening the inspection shield under the seat, seat and cargo bed.

OPENING INSPECTION SHIELD (A)

(1) Inspection shield

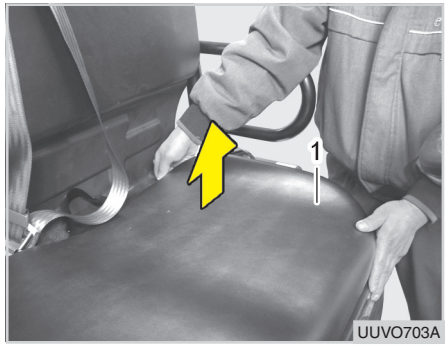
To check the engine oil, unscrew the mounting bolts of the inspection shield under the seat and then open the inspection shield.



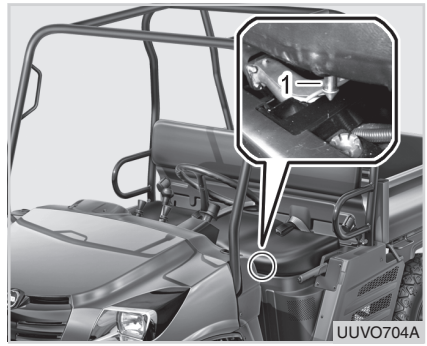
(1) Engine oil dipstick (2) Oil filter

It is possible to check the engine oil dipstick, oil filter, fan belt tension, start motor power connection, etc. after opening the inspection shield.

OPENING SEAT CUSHION (B)



(1) Seat



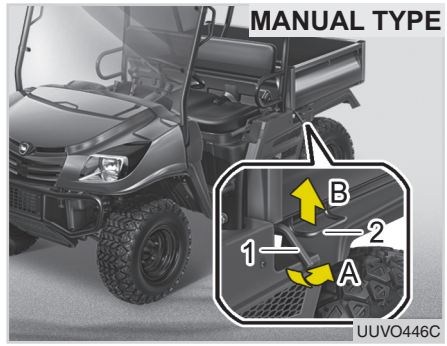
(1) Pin

To open the seat cushion, lift its rear side slightly and then raise both sides with both hands as shown in the figure.

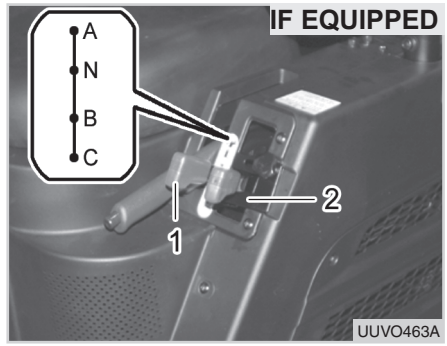
To close the seat cushion, align the pins under the cushion with the holes and then push down the cushion gently.

Most of the engine services, including engine oil change and head cover repair, can be performed by opening the seat cushion.

RAISING CARGO BED (C)

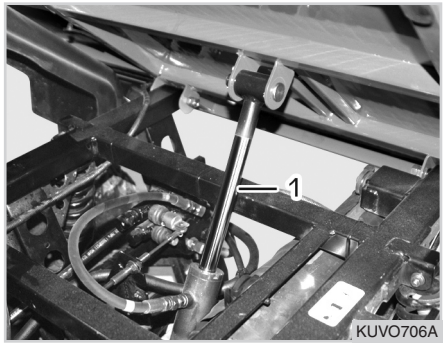


(1) Ratchet lever
(2) Lever Lock Bracket
(A) Up
(B) Down



(1) Hydraulic Lever
(2) Lever Lock Bracket
(A) Up
(B) Down
(C) Floating

APPLYING GREASE (D)



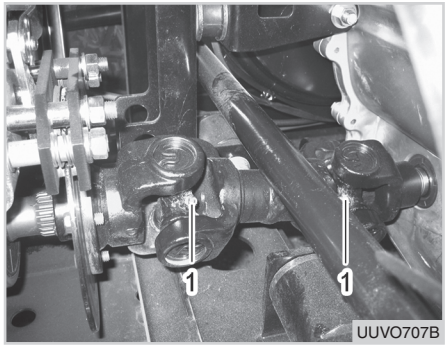
(1) Hydraulic Cylinder

It is possible to check the gearbox oil, CVT, muffler, air filter, fuel strainer, parking brake pad for wear and play, shift lever cable and differential lock cable play by raising the cargo bed.

Also, most of the service items can be inspected by lifting the cargo bed and removing the seat cushion.

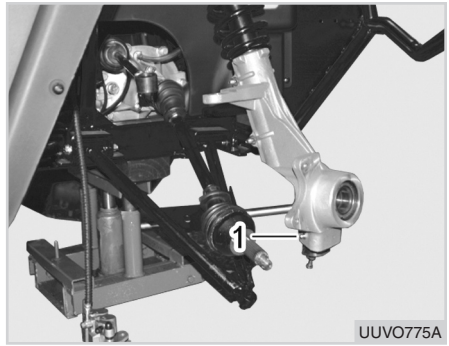
⚠ CAUTION

- **Be sure to lock the dumping lever and remote hydraulic lever with lever lock bracket while driving the vehicle.**



(1) Grease fitting (Rear axle drive shaft)

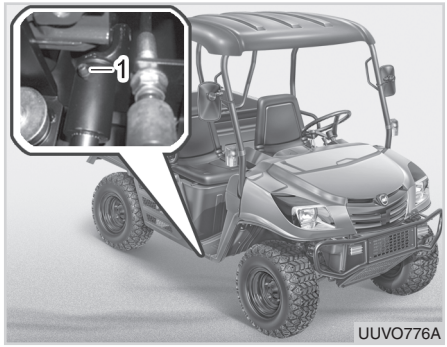
There are four greasing points. Two of them are located on both ends of the universal joint which connects the gearbox and rear axle. Raise the cargo bed and then apply grease to the greasing points. It is recommended to use NLGI grade No. 2 grease.



(1) Grease fitting (Front wheel hubstrut)

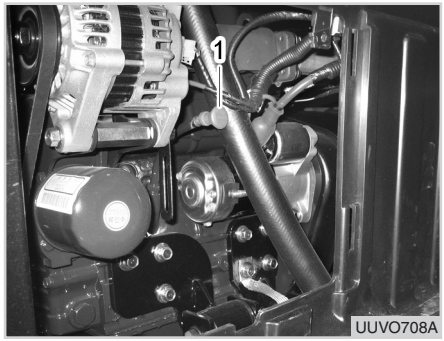
The other two are located on the front wheel knuckle. Remove the front wheels to give grease.

CHECKING ENGINE OIL LEVEL (E)



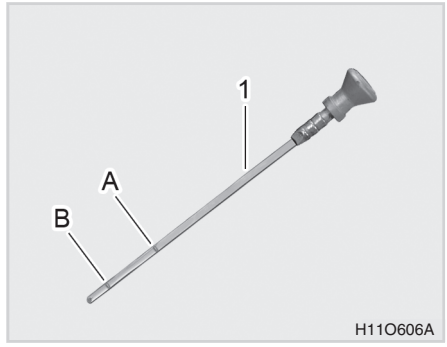
(1) Grease Fitting(Front Axle Drive Shaft Around Gear Box)

It is located on the spline area of front axle drive shaft around the gear box. Raise up the cargo bet to feed the grease to this fitting.



(1) Oil dipstick

1. Park the vehicle on level ground and apply the parking brake firmly.
2. Stop the engine and wait at least for 5 minutes.
3. Unscrew the mounting bolts of the inspection shield from under the seat cushion.
4. Pull out the engine oil dipstick and wipe it clean.
5. Insert the dipstick into the end, and then pull it out to check the engine oil level.



(1) Oil dipstick
(A) MAX limit *(B) MIN limit*

6. If the oil level is below the MIN limit, add some oil. If the oil level is above the MAX limit, drain some oil through the drain plug.
7. Insert the dipstick to its end and close the inspection shield.

CHANGING ENGINE OIL AND FILTER (F)

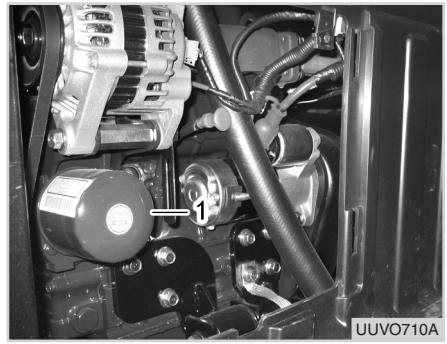
IMPORTANT

- **The engine oil should be checked regularly. Driving without sufficient engine oil can lead to severe engine damage.**
- **It is recommended to inspect the engine when it is cold before starting it.**
- **The oil level should always be between the MAX and MIN limits.**
- **Be sure to stop the engine to prevent an accident when checking the engine oil or refueling.**

1. Warm up the engine oil by operating the engine for approx. 10 minutes or driving the vehicle.
2. Park the vehicle on level ground, stop the engine and apply the parking brake firmly.
3. Remove the inspection shield and seat cushion.

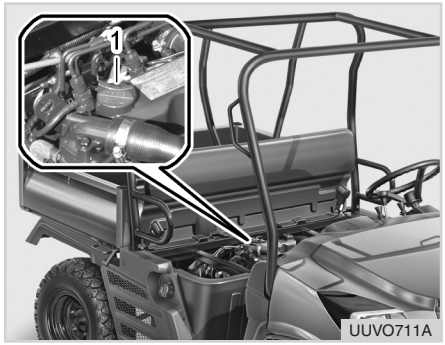
(1) Drain plug

4. Place a container under the drain plug and remove the drain plug to drain the oil to the container. Be careful as the engine oil may be hot.



(1) Oil filter

5. Remove the oil filter through the inspection shield and discard it.
6. Apply a thin film of oil to the rubber O-ring of a new oil filter. Then, install it by tightening it firmly to its end by hand.
7. Install the drain plug firmly.



(1) Filler Cap

8. Open the filler cap and slowly add new oil.
9. The engine oil capacity for this vehicle is as follow.

Oil Capacity	0.85 U.S.gal. (3.2 L)

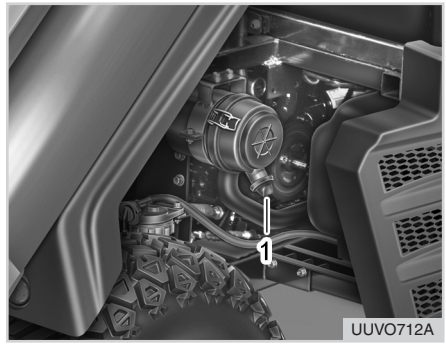
10. Install the filler cap.
11. Start the engine and run it at a low speed without load. Then, check if any oil has leaked.
12. Stop the engine and wait for approx. 5 minutes. Then, check the oil level and add oil as necessary.
13. Install the seat cushion and inspection shield to their original positions.

IMPORTANT

- **Do not overfill the oil. Overfilled oil applies excessive stress to the crankshaft, leading to serious malfunction.**
- **Trying to drain the oil while it is hot may cause serious skin burn.**

DUST VALVE (G)

It is necessary to remove dust from the anti-dust valve of the air filter frequently.



(1) Anti-dust valve

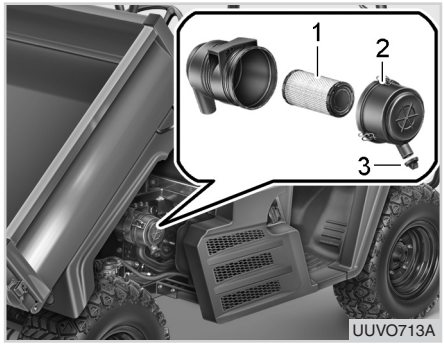
1. Park the vehicle on level ground and apply the parking brake firmly.
2. Stop the engine and raise the cargo bed. (In case the hydraulic dumping kit is installed, raise the car go bed before stopping the engine.)
3. Press the corner of the anti-dust valve to remove foreign materials accumulated inside as shown in the figure.

4. Check if the anti-dust valve is torn or damaged and replace it as necessary.

IMPORTANT

- **Do not operate the engine without the anti-dust valve or air filter. The engine can be damaged.**

REPLACING AIR FILTER (H)

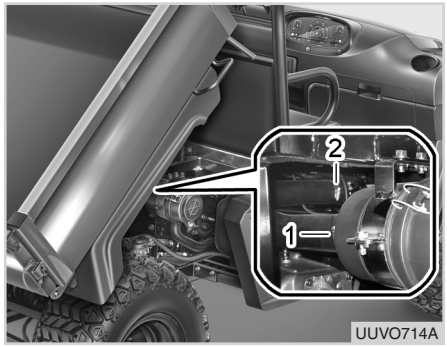


(1) Filter (2) Cap
(3) Evacuator Valve

1. Park the vehicle on level ground and apply the parking brake firmly.
2. Stop the engine and raise the cargo bed.
3. Open the cover of the air filter canister to replace the filter.
4. Make sure to fit the filter to the center of the canister.
5. Install the canister cover after checking that the anti-dust valve is facing downward without any gap.

CHECKING AIR HOSE AND CLAMP(I)

If there is a tiny gap caused by a loose connecting clamp on the air hose, air without passing through the air filter could enter the system for a long period of time, resulting in shortening the service life of the engine. Carry out the check according to the service intervals in this manual as follows.



(1) Clamp 1 *(2) Clamp 2*

1. Park the vehicle on level ground and apply the parking brake firmly.
2. Stop the engine, remove the seat cushion and raise the cargo bed. (In case the hydraulic dumping kit is installed, raise the car go bed before stopping the engine.)
3. Check if the clamps (1 and 2) are loose. If so, tighten them.
4. Check if there is tiny cracks or flaws on the rubber hose and replace it if necessary.

CHECKING CVT BELT (J)

It is not easy to inspect the CVT on your own. It is recommended to have it inspected by your **KIOTI** Dealer.

1. Park the vehicle on level ground and apply the parking brake firmly.

(1) Side cover

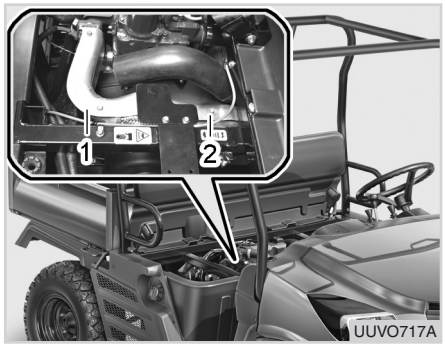
2. Stop the engine, remove the seat cushion and remove the side cover on the left of the vehicle.

(1) Battery

3. Remove the battery.

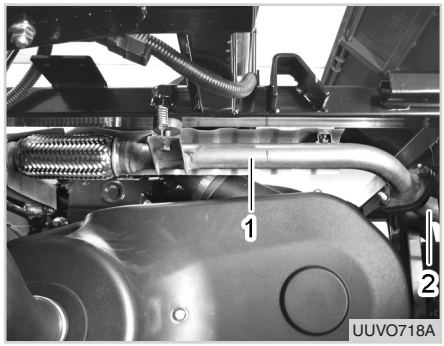
⚠ WARNING

- **You can get burnt by touching hot parts, such as the muffler. Wait until hot parts are cooled down after stopping the engine.**



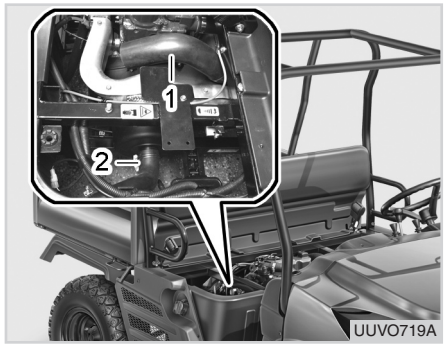
(1) Heat shield cover 1
(2) Heat shield cover 2

4. Remove the heat shield covers (1 and 2).



(1) Exhaust pipe *(2) Muffler*

5. Remove the exhaust pipe, but leave the muffler in place.

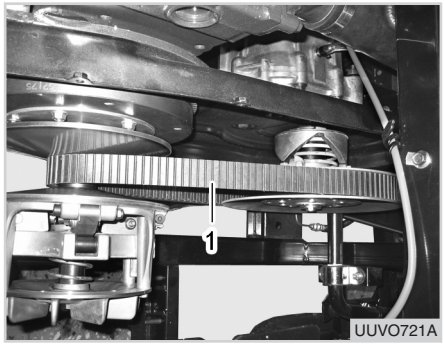


(1) Air hose 1 *(2) Air hose 2*

6. Remove the air hoses (1 and 2) from the CVT cover.

(1) CTV cover

7. Remove the CVT cover.



(1) CTV belt

8. Measure the width of the CVT belt. Replace it with a new one if it has been used for more than 800 hours or its width is 1 in. (25 mm) or less. For replacement, contact your **KIOTI** Dealer.

NOTE

- The width of a new belt is 30 mm (1.18 in.). Its max. speed reduction ratio is 3.55 while its min. speed reduction ratio is 0.68. Assuming that its width is reduced to 1 in. due to wear, the speed reduction ratio would be 3.22 and 0.76 respectively. Therefore, the maximum speed would be reduced by 10% and the max. torque at a low speed would be reduced by 9%.

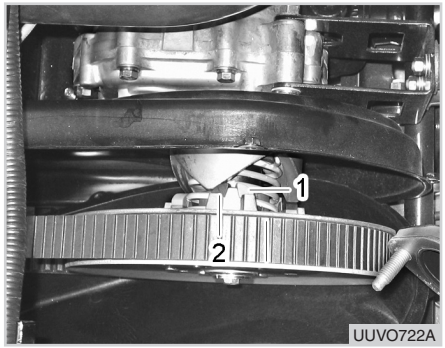
9. If foreign materials are caught in the components such as the CVT belt or CVT pulley or there is dust inside the CVT cover, clean thoroughly with vaccum cleaner and reassemble them.

IMPORTANT

- **Never apply grease, oil, or similar fluids on the surface of the belt and pulley.**

CHECKING CVT DRIVEN PULLEY CLUTCH BUTTONS(K)

1. Remove the relevant parts such as the CVT cover by following the same procedure as for the CVT belt service (see "Checking CVT belt").



(1) Clutch button 1 *(2) Clutch button 2*

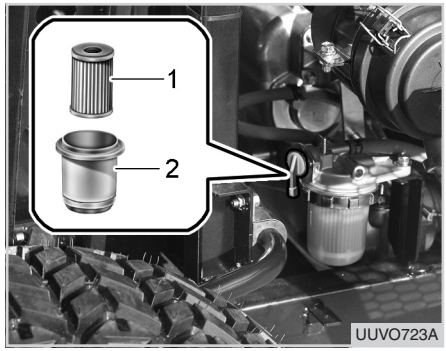
2. Check the CVT driven pulley clutch buttons (1 and 2) for wear.
3. If they should need replacement due to excessive wear, contact **KIOTI** Dealer.
4. If foreign materials are caught in the components such as the CVT belt or CVT pulley or there is dust inside the CVT cover, clean thoroughly with vacuum cleaner and reassemble them.

CHECKING FUEL FILTER(L)

NOTE

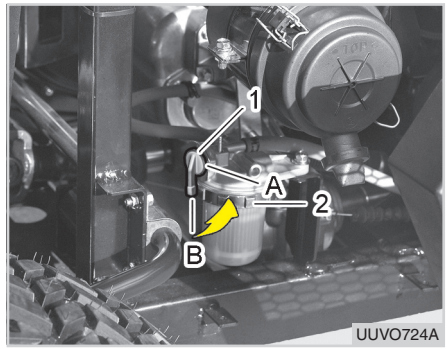
- It is recommended to start servicing after filling the fuel tank to its top for easy bleeding, as it might be needed to bleed the fuel line after servicing the fuel system.

1. Park the vehicle on level ground and apply the parking brake firmly.
2. Stop the engine and raise the cargo bed, making sure support is latched. (In case the hydraulic dumping kit is installed, raise the car go bed before stopping the engine.)



(1) Fuel Filter *(2) Filter Bowl*

3. Check for any water or foreign materials on the bottom of the fuel filter cup.



(1) Fuel cock *(2) Ring screw*
(A) OFF *(B) Open*

4. If water is filled up to the bottom of the filter or replacement interval for the fuel filter (200 hours) has been expired, turn the fuel cock to the OFF position and then turn the ring screw to remove the cup and filter.

7

5. Remove any water or foreign materials or replace the filter as necessary. At this time, be careful not to let any foreign materials enter the strainer.
6. Install the filter cup to its original position after checking that the filter, spring and O-ring are located in their proper positions. You can bleed more easily by assembling the filter cup after filling clean fuel to two thirds of its level.
7. Turn the fuel cock to the AIR side and crank for several seconds until the filter cup is filled.
8. Check for leakage by turning the cock to the ON position and starting the engine when the fuel is filled up to 80% of the filter cup.
9. If engine cannot be started, this could be due to air in the fuel line. Bleed the fuel line, referring to "Bleeding fuel line".

BLEEDING FUEL LINE (M)

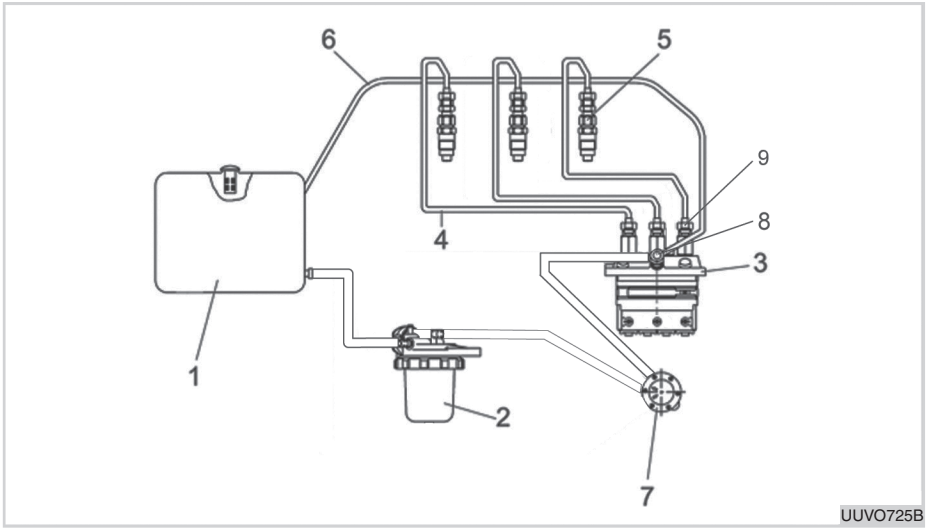
The fuel line for the **KIOTI** engine is designed to be bled automatically. If the engine still cannot be started even after 4~5 times of cranking, bleed as followed:

Do not crank the engine for more than 5 seconds continuously at a time to protect the start motor and battery.

NOTE

- It is recommended to start servicing after filling the fuel tank to its top for easy bleeding, as it might be needed to bleed the fuel line after servicing the fuel system.

1. Park the vehicle on level ground and apply the parking brake firmly.
2. Stop the engine, raise the cargo bed, and then remove the seat cushion.
3. Make sure that the fuel is sufficient in the fuel tank. If necessary, fill the fuel tank with fuel.
4. If there is air in the fuel strainer, turn its fuel cock to the AIR side and wait for a moment. When the fuel tank is fully filled, the fuel strainer can be filled with fuel by natural pressure.
5. Turn the fuel cock to the ON position when the fuel strainer is no longer filled with fuel.



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

6. Unscrew the bleeding bolt (1) slightly and crank the engine. Check that air comes out of the gap.
7. When air bubbles are not seen any more in the drained fuel, screw the bleeding bolt and try to start the engine 2~3 times again.
8. If the engine still cannot be started, unscrew the nozzle holder nuts (9) of the No. 1 and 3 cylinders and crank the engine to check that air comes out.
9. When air bubbles are not seen any more in the drained fuel, tighten the nuts and start the engine.
10. Check for oil leakage after starting the engine.

CHECKING INJECTION NOZZLE AND FUEL INJECTION PUMP (N)

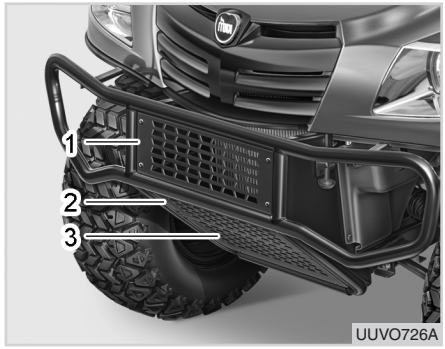
The injection nozzle and injection pump can be inspected only by a qualified service personnel. For detailed information, contact your **KIOTI** Dealer.

IMPORTANT

- **Modifying sealed parts in the fuel system, such as the flow limit bolt and engine rpm limit bolt, is strictly prohibited by the emission regulations. If such regulations are not followed, it will not be covered by warrant and will void any warranty.**

CLEANING RADIATOR CORE (O)

1. Park the vehicle on level ground and apply the parking brake firmly.
2. Stop the engine, open the hood and support it.



(1) Brush guard (High) (3) Brush guard (Low)
(2) Brush guard (Middle)

3. Remove the three grilles from the brush guard.

(1) Radiator

4. Spray compressed air or water to the radiator from its inside toward outside to remove any foreign materials stuck in the radiator core.

⚠ WARNING

- ***Do not remove the radiator cap while the engine is hot. You can get burnt by hot steam. Make sure to remove it after the engine and radiator have cooled down enough.***

⊕ IMPORTANT

- **Driving with the radiator core clogged by foreign materials can deteriorate heat radiation performance, resulting in the overheated engine.**
- **If the distorted or clogged area of the radiator core is over 30% of its total area, it is recommended to replace it with a new one. For replacement, contact your KIOTI Dealer.**

CHECKING COOLANT IN AUXILIARY COOLANT TANK (P)

When the coolant in the radiator expands by heat, it overflows into the auxiliary coolant tank. On the other hand, when the coolant temperature in the radiator decreases, the radiator is depressurized and the coolant in the auxiliary coolant tank flows to the radiator to keep the amount of the coolant in the radiator consistent. Perform the following steps to check the auxiliary coolant tank.

(1) Auxiliary coolant tank
(A) MAX limit (B) MIN limit

1. Park the vehicle on level ground and apply the parking brake firmly.
2. Check the coolant level through the sight glass of the auxiliary coolant tank. It is located on the inner side of the right front wheels well.
3. If the engine is hot, the coolant level may be higher than normal. In this case, run the engine at a low speed without a load until the coolant in the radiator is cooled down and the coolant in the auxiliary coolant tank flows to the radiator.
4. When the coolant is cooled down sufficiently, add water an antifreeze mix to the auxiliary coolant tank so that the coolant level is between the MAX and MIN limits.
5. If the coolant level decreases continuously, have your vehicle inspected by your **KIOTI** Dealer.

IMPORTANT

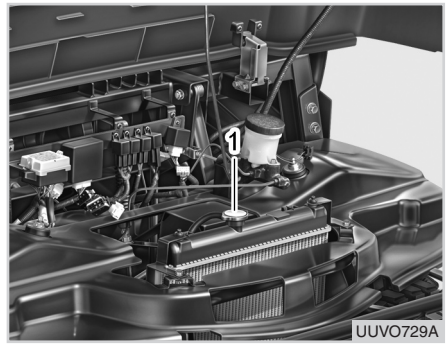
- **If you have to keep adding water to the auxiliary coolant tank, the coolant becomes diluted and the radiator can burst in cold weather. Contact your KIOTI Dealer to find the cause and have fixed.**

CHANGING COOLANT (Q)

WARNING

- ***Do not remove the radiator cap while the engine is hot. You can get burnt by hot steam. Make sure to remove it after the engine and radiator have cooled down enough.***

1. Park the vehicle on level ground and apply the parking brake firmly.
2. Stop the engine and let the engine cooled down sufficiently.
3. Open the hood.



(1) Radiator Cap

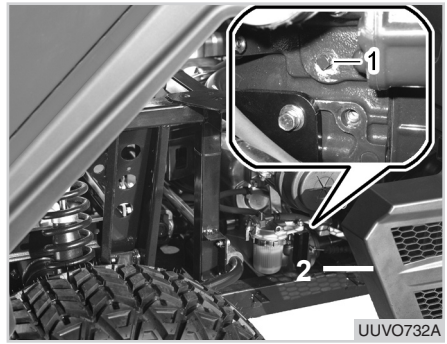
4. After confirming the radiator cap is not hot, unscrew it counterclockwise slowly pressing it down. Unscrew it in several steps to remove any inner pressure safely.
5. Remove the cap after the inner pressure is removed.

(1) Brush guard (upper)
(2) Brush guard (middle)
(3) Brush guard (lower)

6. Remove the lowest grille from the brush guard.

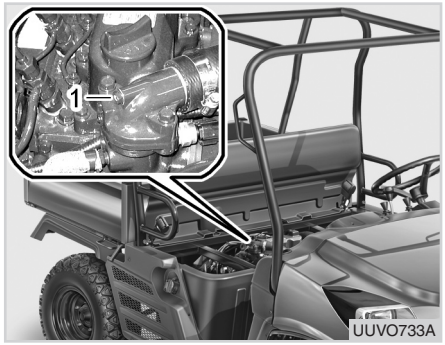
(1) Coolant Drain Plug Of Radiator

7. Place a container with wide opening under the vehicle and open the drain plug to drain the coolant.



(1) Engine Coolant Drain Plug
(2) Engine Oil Filter

8. Now drain the coolant from the engine by removing the engine coolant drain plug.



(1) Air Bleeder Bolt

9. Loosen the air bleeder bolt for fast drain.
10. Disconnect the hose from the bottom of the auxiliary coolant tank to drain the coolant in it.
11. Flush the cooling system with clean water 2 to 3 times as necessary until clean water is present.
12. Reconnect the hose to the auxiliary coolant tank.
13. Make sure to install the drain plugs for radiator and engine before filling new coolant.
14. Fill the tank with water and anti-freeze (Ethylene glycol) in ratio of 50:50.
15. Fill slowly the new coolant through radiator filler with bleeding air out from the air bleeder bolt loosened.
16. Squeeze the coolant rubber hoses several time before tightening the bleeder bolt to make sure no air left in hoses.
17. Make sure every plugs and caps for cooling by system is inplaced firmly.
18. Test run the engine to find any leakage.
19. The coolant mixture ratio may differ by local climate. Therefore, contact your **KIOTI** Dealer for the correct mixture ratio.

Coolant Capacity	1.7 U.S Gal. (6.3 L) Water+Ethylene glycol 50:50

20. If a different type of anti-freeze is to be used, fill the cooling system with clean water, run the engine for approx. 5 minutes and drain the water. Repeat this 2 to 3 times before adding new anti-freeze.

CHECKING SPARK ARRESTER OF EXHAUST PIPE (IF EQUIPPED) (R)

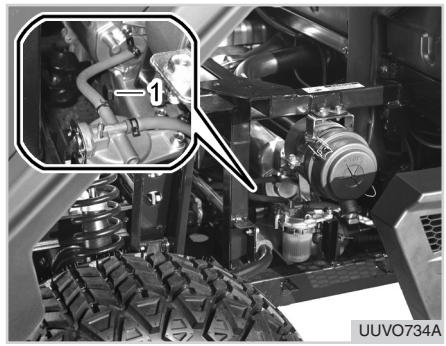
1. Park the vehicle on level ground and apply the parking brake firmly.
2. Stop the engine and let the engine cooled down sufficiently.
3. Loosen the fixing bolt and then remove the spark arrester.
4. Apply WD-40 or equivalent to the inner side and blow any residual with compressed air. Do not blow with compressed air too closely, or the filter can be damaged.
5. If the filter is damaged, replace the spark arrester with a new one.

⚠ WARNING

- ***You can get burnt by touching hot parts, such as the muffler. Wait until hot parts have cooled down after stopping the engine.***

CHECKING AND CHANGING GEARBOX OIL (S)

1. Park the vehicle on level ground and apply the parking brake firmly.
2. Stop the engine and let the engine cooled down sufficiently.
3. Raise the cargo bed and support it with the support rod.

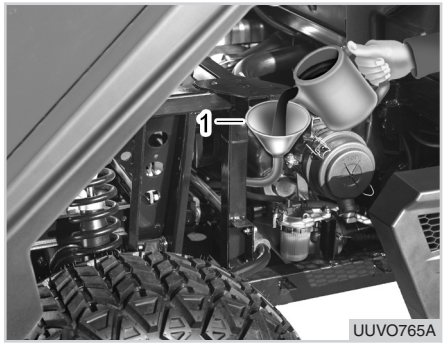


(1) Filler plug

4. Clean around filler plug, then remove the filler plug.
5. Check that the gearbox surface is not hot. Then, check the oil level and condition with a finger bent slightly. If you cannot reach the oil, it means the oil level is low. Add oil as needed to fill.
6. If the color or viscosity of the oil is not normal or it is at the oil change interval, change the oil.

(1) Drain plug

7. To change oil, place a container with wide opening under the drain plug. Then, remove the drain plug.
8. After draining all the oil, install the drain plug firmly.
9. When adding new oil, add it through a long hose into the fill plug location. Fill till oil starts to spill out of filler plug hole.



(1) Funnel

Oil Capacity	0.2 U.S Gal. (0.9 L)

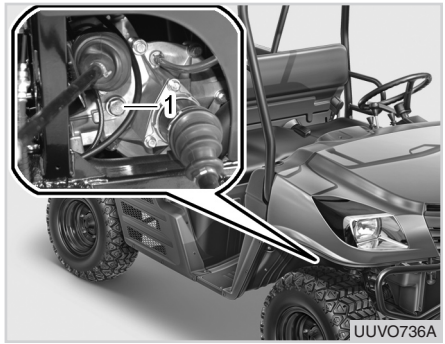
10. Check the oil level by performing the step 5 in the previous page. If the oil level is normal, install the filler plug.
11. Wipe the gearbox and is surrounding with a rag thoroughly.
12. Test drive the vehicle for 5 to 10 minutes to check for leakage.

⚠ WARNING

- ***You can get burnt badly by hot oil. Make sure to work on it after it is sufficiently cooled down.***

CHECKING AND CHANGING FRONT AXLE OIL (T)

1. Park the vehicle on level ground and apply the parking brake firmly.
2. Stop the engine and let the engine cooled down sufficiently.
3. Raise the hood and support it with the support rod



(1) Filler Plug

4. Clean around filler plug, then remove the filler plug.
5. Check that the differential case surface is not hot. Then, check the oil level and condition with a finger bent slightly. If you cannot reach the oil, it means the oil level is low. Add oil as needed.

6. If the color or viscosity of the oil is not normal or it is at the oil change interval, change the oil.

(1) Drain Plug

7. To change oil, place a container with wide opening under the drain plug. Then, remove the drain plug.
8. After draining all the oil, install the drain plug firmly.

(1) Funnel

9. When adding new oil, add it through a long hose into the filler plug location. Fill till oil starts to spill out of filler plug hole.

Oil Capacity	0.16 U.S Gal. (0.6 L)

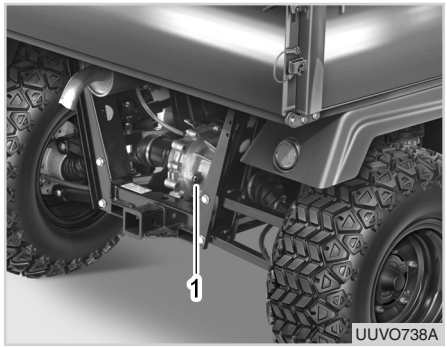
10. Check the oil level by performing the step 5 in the previous page. If the oil level is normal, install the filler plug.
11. Wipe the differential case and its surrounding with a rag thoroughly.
12. Test drive the vehicle for 5 to 10 minutes to check for leakage.

⚠ WARNING

- ***You can get burnt badly by hot oil. Make sure to work on it after it is sufficiently cooled down.***

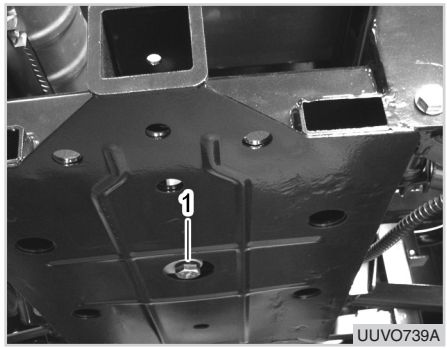
CHECKING AND CHANGING REAR AXLE OIL (U)

1. Park the vehicle on level ground and apply the parking brake firmly.
2. Stop the engine and let the engine cooled down sufficiently.



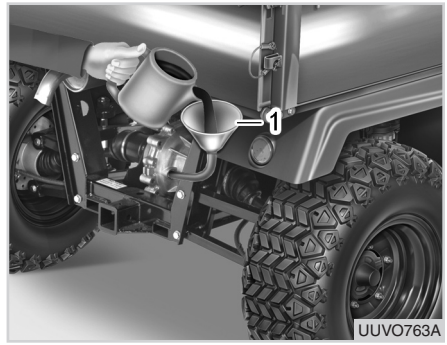
(1) Filler Plug

3. Clean around filler plug, then remove the filler plug.
4. Check that the differential case surface is not hot. Then, check the oil level and condition with a finger bent slightly. If you cannot reach the oil, it means the oil level is low. Add some oil.
5. If the color or viscosity of the oil is not normal or it is at the oil change interval, change the oil.



(1) Drain Plug

6. To change oil, place a container with wide opening under the drain plug. Then, remove the drain plug.
7. After draining all the oil, install the drain plug firmly.



(1) Funnel

8. When adding new oil, add it through a long hose into the fill plug location. Fill till oil starts to spill out of filler plug hole.

Oil Capacity	0.21 U.S Gal. (0.8 L)

9. Check the oil level by performing the step 4 in the previous page. If the oil level is normal, install the filler plug.

10. Wipe the differential case and its surrounding with a rag thoroughly.
11. Test drive the vehicle for 5 to 10 minutes to check for leakage.

⚠ WARNING

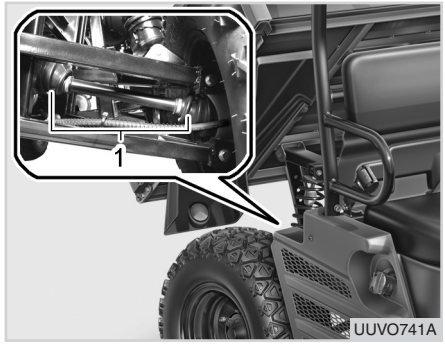
- ***You can get burnt badly by hot oil. Make sure to work on it after it is sufficiently cooled down.***

CHECKING DRIVE SHAFT AND CV BOOTS (V)

1. Park the vehicle on level ground and apply the parking brake firmly.
2. Stop the engine.

(1) Cv Boots (Front Wheel)

3. Check if the CV boots of the drive shaft for the front wheels are torn or have a sign of leakage.

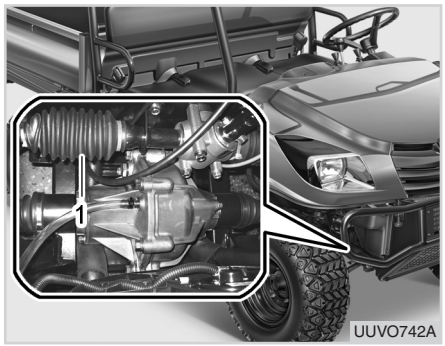


(1) Cv Boots (Rear Wheel)

4. Check if the CV boots of the drive shaft for the rear wheels are torn or have a sign of leakage.
5. If the CV boots should be replaced, contact your **KIOTI** Dealer.

CHECKING STEERING RACK BOOTS AND BALL JOINT (W)

1. Park the vehicle on level ground and apply the parking brake firmly.
2. Stop the engine.
3. Open the hood and support it.



(1) Steering Rack Boot

4. Check the steering rack boots, to see if torn or have a sign of leakage.

(1) Tie Rod End

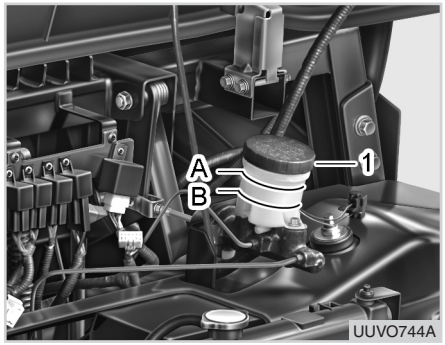
5. Turn steering wheel fully to the right and inspect the boots of the tie rod end and nut, then turn wheel fully to the left and inspect boot of the tie rod end and nut.
6. If the above components should be replaced, contact your **KIOTI** Dealer.

IMPORTANT

- **The components related to the steering operation directly affect your safety. If a condition of such components is in doubt, contact your KIOTI Dealer immediately.**

CHECKING BRAKE FLUID (X)

1. Park the vehicle on level ground and apply the parking brake firmly.
2. Stop the engine, open the hood and support the hood.



(1) Brake Fluid Tank
(A) MAX Limit (B) MIN Limit

3. Clean the brake fluid tank and its surrounding thoroughly.
4. Check the brake fluid level is between the MAX and MIN limits.
5. If the level is below or close to the MIN limit, fill the tank with the brake fluid to the MAX limit.

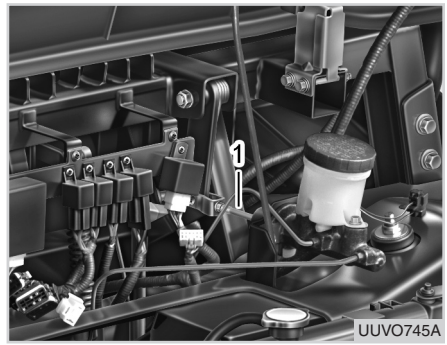
Brake fluid	DOT 3

6. If the brake fluid is severely contaminated or insufficient, contact your **KIOTI** Dealer.

CHECKING BRAKE PEDAL FREE PLAY (Y)

The master cylinder rod of the vehicle is adjusted so that the brake pedal free play is 0.59 ~ 0.79 in. (15 ~ 20 mm) at factory. If the free play of the brake pedal should be adjusted, perform the following steps.

1. Park the vehicle on level ground and apply the parking brake firmly.
2. Stop the engine, open the hood and support the hood.



(1) Master Cylinder Rod

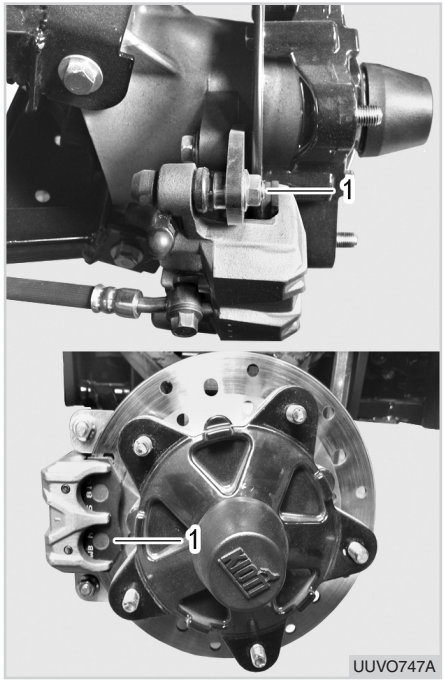
3. Measure the free play of the brake pedal. According to the measurement, adjust the length of the master cylinder rod(1).

CHECKING BRAKE PAD (Z)

1. Park the vehicle on level ground and apply the parking brake firmly.

(1) Wheel Nut

2. Unscrew the nuts of the wheel to be checked only 1 turn.
3. Lift the vehicle with a hydraulic jack and then support the vehicle with the safety stand. Then, lower the hydraulic jack so that the vehicle chassis sits on the stand.
4. Unscrew the wheel nuts completely to remove the wheel.



(1) Brake Pad

5. If any of the brake pads on either side of the disc is too thin, close to 0.04 in. (1 mm), both pads for that disc as well as the pads for the wheel on the other side should be replaced.
6. Check the brake pads on the other axle, using the same procedure.
7. Check if the brake disc is abnormally worn.
8. If the brake pads should be replaced with new ones or abnormal wear is found on the disc, contact your **KIOTI** Dealer.
9. When reinstalling the wheel after inspection, tighten the wheel nuts firmly.

⚠ WARNING

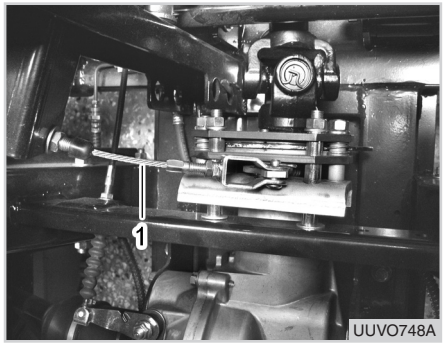
- ***Driving with loose wheel nuts is very dangerous and can lead to overturn and collision. Make sure that they are firmly tightened.***

CHECKING PARKING BRAKE (AA)

NOTE

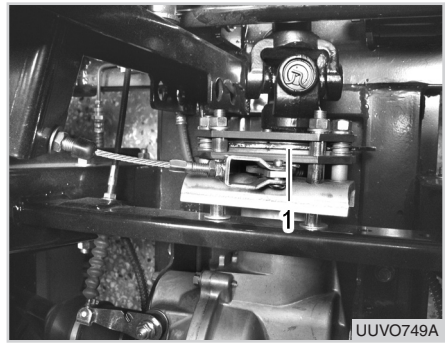
- The vehicle should be stopped on a slope (up to 10 degrees) when the parking brake is fully applied. With cargo loaded. When driving the vehicle downhill without depressing the accelerator pedal, there should be no friction resistance. In order to keep the parking brake in the best condition, check the parking brake with the following procedure.

1. Park the vehicle on level ground and apply the parking brake firmly.
2. Stop the engine, raise the cargo bed and support it with the support rod (In case the hydraulic dumping kit is installed, raise the car go bed before stopping the engine.).



(1) Parking Brake Cable

3. Adjust the length of the parking brake cable. Test the cable according to the procedures described previously and then adjust its length as necessary.



(1) Disc Pad

4. Measure the thickness of the pads on the sides of the parking brake disc If any of the pads are close to 0.04 in. (1 mm), both pads should be replaced.
5. After replacing the pads, test the parking brake and adjust the cable length accordingly.
6. Check if the parking brake disc is not worn abnormally.

7. If the parking brake pads should be replaced with new ones or abnormal wear is found on the disc, contact your **KIOTI** Dealer.

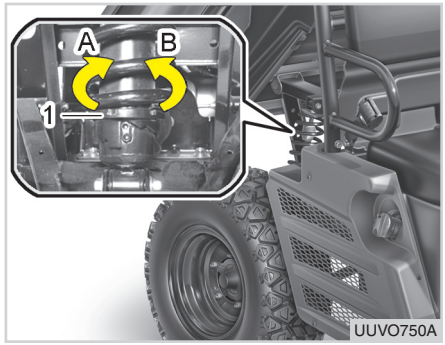
ADJUSTING SUSPENSION (AB)

The rear suspension equipped on this vehicle is adjustable, to allow for ride quality and weight hauling. To adjust the suspension, perform the following steps:

1. Park the vehicle on level ground and apply the parking brake firmly.

(1) Wheel Nut

2. Unscrew the nuts of one of the rear wheels only 1 turn.
3. Lift the vehicle with a hydraulic jack and then support the vehicle with the safety stand. Then, lower the hydraulic jack so that the vehicle chassis sits on the stand.
4. Unscrew the wheel nuts completely to remove the wheel.



(1) Hole

5. Fit a special service tool to the hole and turn it to adjust the spring load and stroke.

NOTE

A direction(soft): suitable for driving mountainous area frequently.
B direction(hard): suitable for transporting cargo frequently.

6. After adjustment, install the wheel and tighten the wheel nuts firmly.

⚠ WARNING

- ***Driving with loose wheel nuts is very dangerous and can lead to overturn and collision. Make sure that the nuts are firmly tightened.***

CHECKING SUSPENSION SHOCK ABSORBER (AC)

If the shock absorber is malfunctioning, your riding comfort can be harmed. In this case, check the shock absorber as follows

1. Park the vehicle on level ground and apply the parking brake firmly.
2. Stop the engine.

(1) Shock Absorber

3. Check for any sign of oil leakage on the shock absorbers for the front and rear wheels and their surrounding.
4. If the shock absorbers should be replaced, contact your distributor/ **KIOTI** Dealer.

BATTERY (SEALED) (AD)

INSPECTION

Never open or service the battery and never add electrolyte to the battery. Doing so will not be covered by your warranty. Therefore, when checking the battery, observe the following:

1. Keep the battery and its terminals clean.
2. Connect the battery cables firmly.
3. Make sure the battery vent hole is not clogged.
4. Fit the battery to the vehicle body firmly.

REPLACEMENT

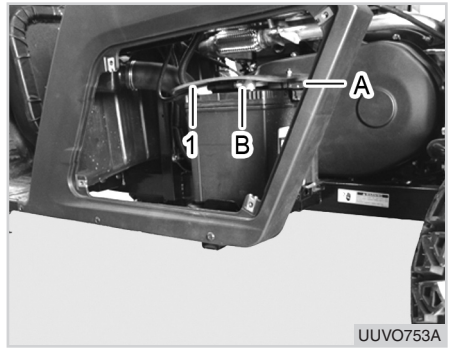
IMPORTANT

- **The battery discharges naturally if the vehicle is stored for an extended period of time. When storing the vehicle for a long period of time, run the engine for approx. 30 minutes monthly to charge the battery. Never leave the vehicle with the engine running.**

1. Park the vehicle on level ground and apply the parking brake firmly.
2. Stop the engine.

(1) Side Cover

3. Remove the side cover (LH).



(1) Battery Cover
(A) Positive (+) Cable (B) Negative (-) Cable

4. Remove the battery cover and disconnect the negative battery cable.
5. Disconnect the positive battery cable.
6. Remove the battery mounting bracket.
7. When connecting cables, connect the positive cable first, and then the negative cable.

⚠ CALIFORNIA BATTERY WARNING

- *The battery terminals and cables contains lead. The body accumulates lead which can cause cancer. Make sure to wash your hands after handling these parts.*

⚠ WARNING

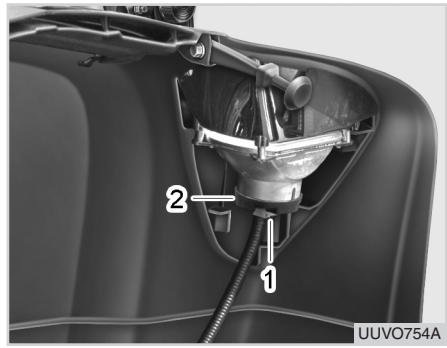
- *The battery has acid that can burn your skin.*
- *Make sure to wear protective glasses and gloves.*
- *Wear long sleeves to protect your skin.*
- *If you accidentally inhaled acid, see your doctor immediately.*
- *If acid got in your eyes, flush with water for 15 to 30 minutes and get medical attention immediately.*
- *If acid got on your skin, flush with water immediately and see your doctor.*

⚠ WARNING

- *The battery gas is dangerous enough to cause explosion.*
- *Do not smoke near the battery.*
- *Do not leave the battery near flame or spark.*
- *Do not touch the both terminals of the battery with a metal object simultaneously.*
- *When disconnecting the battery, disconnect the negative battery cable first.*
- *When connecting the battery, connect the positive battery cable first.*

REPLACING HEADLAMP BULB (AE)

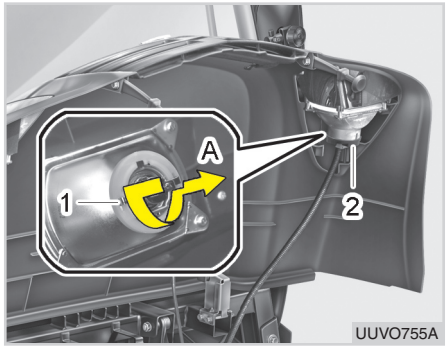
1. Park the vehicle on level ground and apply the parking brake firmly.
2. Stop the engine, open the hood and support the hood.



(1) Connector (2) Rubber Cover

3. Remove the rubber cover. Then, remove the mounting screws with a phillip's head screwdriver.

7

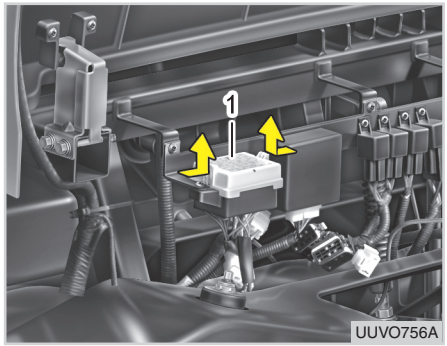


(1) Bulb *(2) Rubber Cover*
(A) Pull Out

4. Hold and pull the socket section to pull out the bulb.
5. When installing a new bulb, be careful not to touch its glass. Durability of a bulb can be deteriorated.
6. Tighten the mounting screws and install the rubber cover firmly.

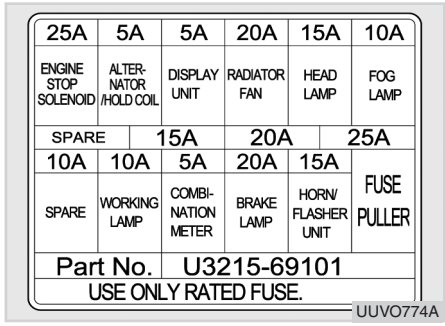
CHECKING AND REPLACING FUSE (AF)

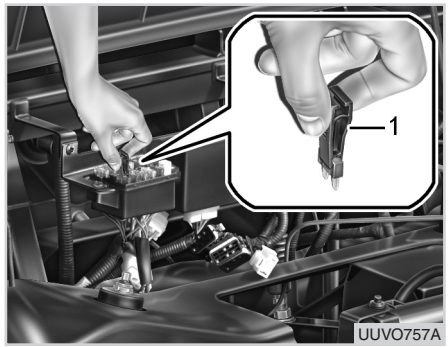
1. Park the vehicle on level ground and apply the parking brake firmly.
2. Stop the engine, open the hood and support the hood.



(1) Fuse Box

3. Open the fuse box cover. There are spare fuses and fuse tongs in the center of the box.

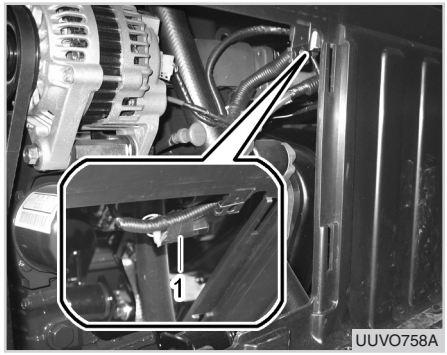




(1) Fuse Tong

4. Check or replace the fuse with the fuse tongs.
5. If fuses are blown repeatedly, contact your **KIOTI** Dealer.

MAIN FUSE (SLOW-BLOW FUSE) (AG)



(1) Slow-blow Fuse

If the start motor and all electrical devices do not operate at all when turning the key the switch to the "START" position, the first thing to inspect is the main fuse.

1. Remove the engine inspection shield.
2. Check if the yellow slow blow fuse installed to the positive start motor cable is blown.
3. Remove the tape and replace the fuse with a new one if necessary.
4. Wrap the fuse with insulation tape after replacement. Make sure that the inspection shield is visible.
5. If this fuse is repeatedly blown, contact your **KIOTI** Dealer.

ALIGNING WHEEL AND CHECKING WHEEL NUT (AH)

1. Park the vehicle on level ground and apply the parking brake firmly.

(1) Wheel nut

2. Unscrew the nuts on the wheel to be replaced for only 1 turn.
3. Lift the vehicle with a hydraulic jack and then support the vehicle with the safety stand. Then, lower the hydraulic jack so that the vehicle chassis sits on the stand.
4. Unscrew the wheel nuts completely to remove the wheel.
5. After reinstalling the wheel after inspection, tighten the wheel nuts firmly.

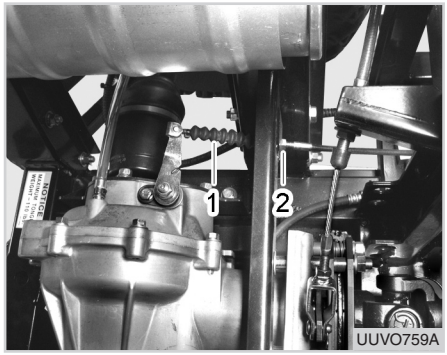
⚠ WARNING

- ***Driving with loose wheel nuts is very dangerous and can lead to overturn and collision. Make sure that they are firmly tightened.***

IMPORTANT

- **The tire inflation pressure and wheel nut tightness should be inspected daily.**

CHECKING DIFFERENTIAL LOCK CABLE (AI)



(1) Differential Lock Cable (2) Nut

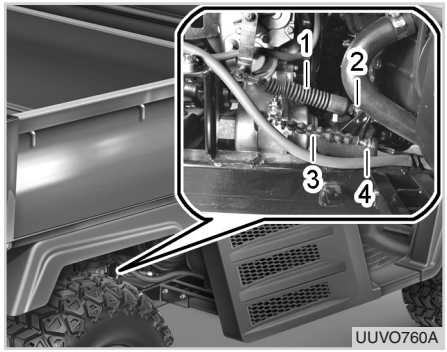
1. Park the vehicle on level ground and apply the parking brake firmly.
2. Stop the engine, raise the cargo bed and support it with the support rod. (In case the hydraulic dumping kit is installed, raise the car go bed before stopping the engine.)

⚠ WARNING

- ***You can get burnt by touching hot parts, such as the muffler. Make sure the vehicle is not hot before starting servicing.***

3. Unscrew the nut and adjust the cable length.
4. To check the differential lock operation, lift the rear axle with a jack so that the rear wheels are off the ground.
5. Set the differential lock lever to the "Lock" position and rotate one of the wheels manually. It is normal that the other wheel rotates in the same direction.
6. Set the differential lock lever to the "Unlock" position and rotate one of the wheels manually. It is normal that the other wheel rotates in the opposite direction.

CHECKING SHIFT AND 4WD CABLES (AJ)



(1) Shift Cable *(2) Nut 1*
(3) 4WD Cable *(4) Nut 2*

1. Park the vehicle on level ground and apply the parking brake firmly.
2. Stop the engine, raise the cargo bed and support it.

⚠ WARNING

- ***You can get burnt by touching hot parts, such as the muffler. Make sure the vehicle is not hot before starting servicing.***

3. Unscrew nut 1 and adjust the length of the shift cable.
4. Unscrew nut 3 and adjust the 4WD cable.
5. To check 4WD operation, lift the front and rear axles completely off the ground and support with jack stands.
6. Start the engine and move the 2WD/4WD lever to "4WD" and "2WD" positions to check rotation of each wheel.

⚠ WARNING

- ***Make sure that no one, especially children, near the vehicle.***

USING BIODIESEL (AK)

1. It is allowed to use 5% biodiesel fuel. If biodiesel fuel of higher ratio is used, the engine can be damaged and this will not be covered by warranty.
2. The biodiesel fuel should meet ASTM D6751, EN14214 and equivalent standards.
3. For details about biodiesel use, contact your **KIOTI** Dealer.

ADJUSTING BELT TENSION (AL)

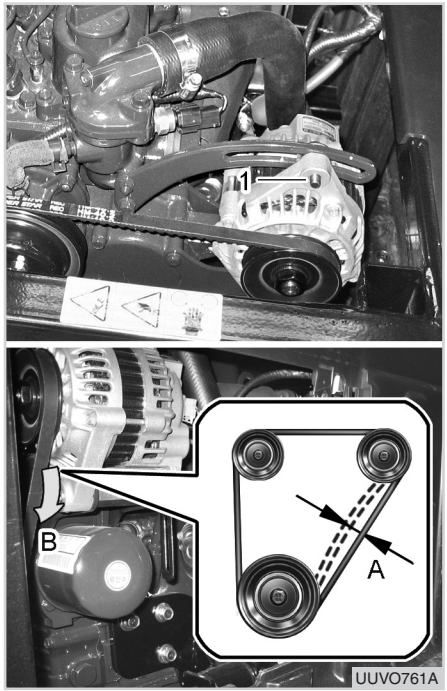
The engine belt drives the alternator and coolant pump. If the tension of this belt is below the specification, the alternator efficiency decreases, resulting in insufficient battery charge level and low coolant circulation efficiency.

If the tension of this belt is too high, it wears rapidly and service life of the coolant pump bearing is shortened.

NOTE

- In this vehicle, the electric fan is not installed to the engine, but to the radiator under the hood.

1. Park the vehicle on level ground and apply the parking brake firmly.
2. Stop the engine and remove the engine inspection shield and seat cushion



(1) Adjusting Bolt (A) Belt Tension

3. Loosen the adjusting bolt on the top of the alternator as well as the hinge bolt on the bottom of the alternator.
4. Leverage the alternator toward the outside.
5. Fix the upper adjusting bolt and push down the section A of the belt to measure the tension.

Standard belt tension (A)	1 in. (25 mm) when pressing center of belt

6. If necessary, loosen the adjusting bolt and make adjustment. Then, measure the tension again.
7. After adjustment, tighten the hinge bolt firmly. Check the adjusting bolt is tightened as well.

⚠ WARNING

- ***If getting too close to rotating parts, such as the belt, during the engine is running, your clothes or part of your body can be caught.***

WASHING (AM)

It is recommended to wash your vehicle with water of moderate pressure and with or without soap. When washing your vehicle in a car wash, make sure high-pressure water is not directly sprayed to the following components:

IMPORTANT

- **Never spray high-pressure water to the radiator core, spark arrester, various warning decals, air cleaner inlet, CVT cover air inlet and outlet, key switch, instrument panel, air breather of gearbox and differential case, CV boots and steering rack boots, alternator, various wiring connections, electric sensors and switches.**

PROTECTING PLASTIC AND PAINTED SURFACE(AO)

Do not wipe any plastic parts if they are not washed.

Spraying insecticide can damage the plastic and painted surface. Never spray insecticide near the vehicle.

Do not spill the brake fluid on the vehicle parts. It can damage the painted surface. If the brake fluid is spilled, wipe it immediately.

Never spill fuel on the vehicle components. It can damage the surface. If it is spilled, wipe it immediately.

MEMO

daedong KIOTI

STROAGE AND DISPOSAL

VEHICLE STORAGE 8-2

DAILY STORAGE 8-2
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DISPOSAL 8-4

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VEHICLE STORAGE

DAILY STORAGE

1. Keep the vehicle 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 vehicle 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.***
- ***In an area that exhaust gas can come in contact with a flame or spark, do not store the vehicle with fuel in its fuel tank. Cool down the engine sufficiently before covering the vehicle with a protective cover.***

3. Remove the battery from the vehicle in winter and store it indoors.
4. Add anti-freeze to the vehicle in winter season 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 vehicle is not to be used for a long period of time. This is to operate the vehicle again with minimum preparation after long-term storage.

⊕ IMPORTANT

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

1. Check the bolts and nuts for looseness, and tighten if necessary.
2. Apply grease to areas where bare metal can rust.
3. Repair worn or damaged parts. Replace parts as necessary.
4. Inflate the tires to a pressure a little higher than usual.
5. Remove the battery from the vehicle. Store the battery according to the applicable storage instructions.
6. Keep the vehicle in a dry place where the vehicle is sheltered from rain. Cover the vehicle.
7. The vehicle should be stored in an enclosed area to avoid direct sunlight or heat. Make sure the tires are not exposed to sunlight and heat directly.
8. Keep the vehicle, including the engine components, clean.
9. Apply grease to every grease fitting as needed.
10. Apply grease to the exposed cylinder rod (if equipped with the dumping kit).
11. Check the coolant condition. If necessary, drain and flush it, and then refill with anti-freeze and water. **KIOTI** recommends a 50/50 mix.
12. Set the shift lever to the neutral position.
13. Attach a tag onto the vehicle to inform the storage condition of the vehicle.

14. If the machine is being operated with Bio-diesel, drain the bio-diesel and fill the standard diesel to run the engine for more than 30 minutes before the long term storage. (More than 90 days)

IMPORTANT

- **When cleaning the vehicle, be sure to stop the engine. Allow sufficient time for the engine to cool before cleaning.**
- **Cover the vehicle after the muffler and engine is cooled down.**
- **The battery should be recharged every 90 days while it is stored.**
- **Store the vehicle in a dry and protected place. If the vehicle should be kept outside, cover it with a water-proof cover.**

USING VEHICLE AFTER LONG-TERM STORAGE

1. Check the tire inflation pressure and inflate the tires if they are low.
2. Install the battery to the vehicle. Check that the battery is fully charged before installation.
3. Check the tension of the fan belt.
4. Check all fluid levels, including the engine oil, gearbox oil, front/rear differential case oil, engine coolant and brake fluid.
5. Remove grease from the exposed cylinder rod.
6. Apply grease to the lubrication points, and grease fitting as needed.
7. Check if the instrument cluster and all parts operate correctly while running the engine for a few minutes.
8. Drive the vehicle outside and test the vehicle's brake operation, shift operation, high-speed, low-speed and reverse driving, and parking brake operation for normal operation.
9. Stop the engine and check for oil leakage. Repair the vehicle as necessary.

⚠ CAUTION

- **If the battery is not to be removed, disconnect its negative terminal at least. The wiring can be gnawed by rodents, leading to a fire.**

DISPOSAL

In order to protect the environment, use and dispose of the vehicle keeping the following in mind:

1. When changing the oil or coolant by yourself, be careful not to spill it and dispose used oil and coolant properly according to the applicable regulations.
2. Never leave or discard the expired vehicle, but contact your local KIOTI Dealer to dispose it according to the regulations.

TROUBLESHOOTING

VEHICLE TROUBLESHOOTING 9-2

9

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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.

VEHICLE TROUBLESHOOTING

Problem	Check item	Maintenance code
1. Start motor cannot run or run at low speed	• Blown main fuse (slow-blow fuse: near start motor cable)	AG
	• Loose battery cable	AD
	• Discharged battery (alternator malfunction)	AD
	• Key switch malfunction, Hard to start the engine	
2. Engine is hard to start (with start motor running)	• Insufficient preheating	
	• Malfunctioning electrical parts related to preheat operation such, as pre-heat relay, controller	
	• Extra manual preheating is required in extremely cold weather	
	• Insufficient fuel	
	• Air in fuel line, loose fuel line clamp or pinched fuel line	
	• Water or foreign material in fuel	
	• Clogged fuel filter or fuel hose, blocked fuel filter valve	L, M
	• Gelled fuel in extremely cold temperature (fuel for winter not used)	L, M

Problem	Check item	Maintenance code
2. Engine is hard to start (with start motor running)	• Fuel with low cetane used	
	• No operation of solenoid valve	
	• Injection pump malfunctioning	
	• Too high viscosity of engine oil (improper type of oil)	
	• Incorrect injection of injection nozzle or carbon accumulated onto it	N
	• Improper valve clearance	
3. Engine power is insufficient (knocking, vibration, smoke)	• Excessive engine oil (overfilling, water or hydraulic oil mixed with engine oil)	
	• Overheated engine	
	• Restricted fuel supply (clogged filter, water in fuel, loose fuel line, etc.)	M,L
	• Improper fuel, low cetane	
	• Clogged air cleaner	H
	• Improper injection timing	

Problem	Check item	Maintenance code
3. Engine power is insufficient (knocking, vibration, smoke)	• Poor injection nozzle condition or carbon accumulated onto it	
	• Improper valve clearance	
4. Engine is overheated	• Clogged radiator grille and core	O
	• Insufficient or leaking coolant (loose hose connection)	Q
	• Broken cooling fan	
	• Defected temperature sensor	
	• Improper mixing ratio of antifreeze	
	• Defected radiator cap	
	• Improper bleeding after coolant change	Q
	• Faulty cooling fan motor or switch	
	• Aged or faulty water pump	
	• Air in coolant line	Q
	• Thermostat malfunction	

Problem	Check item	Maintenance code
4. Engine is overheated	• Insufficient engine oil	
5. Engine stops abruptly during operation	• Insufficient fuel or clogged filter and hose	H
	• Air in fuel line or contaminated fuel	
	• Seizure due to overheated engine	
5. Engine stops abruptly during operation	• Engine oil leakage	Q
	• Coolant leakage	Q
	• Faulty solenoid	
	• Injection pump malfunctioning	
6. Electrical device is malfunctioning (parts related to preheat, starting, illumination, horn, etc.)	• Blown fuse	AF, AG
	• Improperly connected wiring	
	• Faulty relay and controller (in engine compartment)	
	• Discharged battery	
7. Battery is discharged	• Key switch left in the "ON" position	

Problem	Check item	Maintenance code
7. Battery is discharged	• Electrical devices (headlamps, work lamps, turn signal lamps, etc) left "ON"	
	• Natural discharge due to no operation for a long period of time	
	• No charging due to faulty alternator, faulty alternator wiring connection	
	• Frequent repetition of engine start and stop (lack of time to charge)	
	• Excessive electricity use from external device (additionally attached device, such as implement)	
	• Prolonged cranking in severe condition	
	• Expired battery	
8. Vehicle cannot be driven	• Parking brake not released	AA
	• Shift lever not shifted.	AJ
	• Faulty CVT belt	J, K
9. Poor shift operation (HI-LO, 4WD)	• Improperly adjusted shift cable	AJ
	• Improperly adjusted 4WD cable	AJ
10. Vehicle cannot escape a pit or rough road	• Faulty 4WD shift operation	AJ

Problem	Check item	Maintenance code
10. Vehicle cannot escape a pit or rough road	• Differential lock system malfunction (improperly adjusted differential lock cable)	AI
11. Power is insufficient to drive uphill	• Shift lever not in "L" position	
	• 4WD not used	
	• Worn CVT belt	J, K
12. Vehicle cannot reach its max. speed	• Worn CVT belt	J, K
	• Improperly adjusted accelerator pedal cable (engine cannot reach its full speed)	
13. Braking force is insufficient	• Wet brake	
	• Insufficient brake fluid	X
	• Air in brake line	X
	• Excessively worn brake pad	Y, Z
14. Vehicle pulls to one side when braking	• Wet brake pads on one side	
	• Excessively worn brake pads one side	Z
	• Air in brake line	X

Problem	Check item	Maintenance code
15. Parking brake is malfunc tioning (vehicle rolls down on slope)	• Improperly adjusted parking brake cable	AA
	• Worn parking brake pad	AA
16. Steering wheel feels heavy	• Insufficient inflation pressure of front tires	
	• Insufficient lubrication and contamination due to torn steering rack boots	W
17. Steering wheel is not operated smoothly	• Faulty steering knuckle	W
	• Improperly adjusted toe-in	
	• Excessive steering wheel play	
18. Hydraulic pressure is faulty (if equipped with dumping kit or auxiliary hydraulic kit)	• Lack of Hydraulic fluid in hydraulic tank	
	• Improper hydraulic oil used	
	• Faulty valve and pump	

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

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