## SAFE OPERATION

# PRECAUTIONS OF THE TRACTOR

Careful operation is your best insurance against an accident.

Read and understand this manual carefully before operating the tractor.

All operators, no matter how much they have experience, should read this and other related manuals before operating the tractor or any implement attached to it. It is the owner's obligation to instruct all operators in safe operation.

# 1. Precautions before operating the tractor

Know your equipment and its limitations.

Read this entire manual before starting and operating the tractor.

### 1.1 General precautions

- Pay special attention to the safety labels on the tractor.
- Do not operate the tractor or any implement attached to the tractor while under the influence of alcohol, medication, controlled substances, or while you are fatigued.
- Carefully check the vicinity of the tractor before operating it or any implement attached to it. Do not allow any bystander around or near the tractor during operating it.
- Before allowing other people to use your tractor, explain them how to operate it and have them read this manual before operating it.
- Never wear loose, torn, or bulky clothing around the tractor. Loose, torn, or bulky clothing may catch on moving parts or controls, leading to the risk of an accident. Use additional safety items: hard hat, safety boots or shoes, eye and hearing protection, gloves, and so on, as appropriate or required.
- Do not allow passengers to ride on any part of the tractor at anytime. The operator must remain in the operator's seat during operating the tractor.
- Check the brakes, clutch, linkage pins, and other mechanical parts for improper adjustment and wear. Replace worn or damaged parts promptly. Check the tightness of all nuts and bolts regularly. For further details, see 4. Checking the wheel bolt torque on page 124.
- Keep your tractor clean. Buildups of dirt, grease, and trash may contribute to fires and lead to personal injury.

- Use only implements meeting the specifications listed under IMPLEMENT LIMITATION TABLES on page 40, or implements approved by KUBOTA.
- Use proper weights on the front or rear of the tractor to reduce the risk of upsets. When using the front loader, put an implement or ballast on the 3point hitch to improve stability. Follow the safe operating procedures specified in the implement or attachment manual.
- Do not modify the tractor. Unauthorized modification may affect the function of the tractor, which may result in personal injury.

### 1.2 Precautions for CAB and ROPS

KUBOTA recommends the use of a CAB or roll-overprotective-structures (ROPS), and seat belt in almost all applications. Combination of a CAB or ROPS and seat belt will reduce the risk of serious injury or death if the tractor should be upset.

- Check for overhead clearance which may interfere with a CAB or ROPS.
- Set the parking brake and stop the engine. Remove any obstructions which may prevent raising or folding the ROPS. Do not allow any bystander. Always perform functions of CAB or ROPS from a stable position at the rear of the tractor. Hold the top of the ROPS securely when raising or folding it. Make sure that all pins are installed and locked.
- If the CAB or ROPS is loosened or removed for any reason, make sure that all parts are reinstalled correctly before operating the tractor.
- Never modify or repair any structural member of a CAB or ROPS because welding, bending, drilling, grinding, or cutting it may weaken the structure.
- If any structural member of the CAB or ROPS is damaged, replace the entire structure at your local KUBOTA Dealer.
- If the tractor is equipped with a foldable ROPS, you
  may fold down it temporarily only when absolutely
  necessary to fold down it for areas with constraints
  on height.
  - There is no protection of operator provided by the ROPS in the folded position. For operator safety, you should place the ROPS in the upright and locked position and fasten the seat belt for all other operations.
- Always use the seat belt if the tractor is equipped with a CAB or ROPS.
  - Do not use the seat belt if a foldable ROPS is down or there is no ROPS. Check the seat belt regularly and replace if frayed or damaged.

- When operating another implement on a hillside, be sure to remove the loader to reduce the risk of rollover.
- Carry the boom of the loader at a low position during transport. Be able to see over the bucket.
- · Allow for the length of the loader when turning it.

# 3. Precautions after operating the loader

- When loader work is complete and parking or storing, follow the following procedures before leaving the operator's seat of the tractor.
  - 1. Choose flat, hard ground.
  - 2. Lower the boom of the loader to the ground.
  - 3. Stop the engine.
  - 4. Set the brakes.
  - 5. Remove the starter key.
- Make sure that the detached loader is on stands and on a hard, level surface.
- Before disconnecting the hydraulic lines, relieve all hydraulic pressure by moving the controls.
- Do not remove the loader from the tractor without an approved bucket attached.

# 4. Precautions for servicing the loader

- Always wear the safety goggles when servicing or repairing the machine.
- Do not modify the loader. Unauthorized modification may affect the function of the loader, which may result in personal injury.
- Do not use the loader as a work platform or a jack to support the tractor for servicing or maintenance.
   Securely support the tractor or any machine elements with stands or suitable blocking before working underneath.
  - For your safety, do not work under any hydraulically supported devices. Hydraulically supported devices can settle, suddenly leak down, or be accidentally lowered.
- Escaping the hydraulic oil under pressure can obtain sufficient force to penetrate the skin, causing serious personal injury. Do not use hands to search for suspected leaks. If injured by escaping fluid, obtain medical treatment immediately.
- Do not tamper with the setting of the relief valve. The relief valve is pre-set at the factory. Changing the setting of the relief valve can cause overloading of the loader and tractor which may result in serious personal injury.
- When servicing or replacing the pins in cylinder ends, bucket, and so on, always use a brass drift and hammer. Otherwise injury from flying metal fragments could result.

# PRECAUTIONS OF THE BACKHOE

Most accidents of the backhoe equipment can be avoided by simple safety precautions.

Safety precautions of the backhoe, if you follow at all times, will help you operate your backhoe safely.

# 1. Precautions before operating the backhoe

- Read and understand all precautions in this manual before service or operation. Allow only trained personnel to operate or service the backhoe.
- It is the owner's responsibility to make sure that anyone who will operate the backhoe reads this manual first and becomes familiar with the safeoperation of the backhoe.
- For safe operation of the backhoe, check the mounting-bolts for tightness and check that the mount levers are in the right position before operation the backhoe.
- Never operate the tractor with the backhoe attached and the loader removed.
- Check for buried material such as electrical lines, telephone lines, gas lines, and water lines. When in doubt about buried material, contact local utility companies for their buried location prior to operating the backhoe.
- Replace any safety decal that becomes damaged, lost, or illegible. Also renew all decals when repainting.

# 2. Precautions for operating the backhoe

- Do not allow anyone other than the operator on the unit of the backhoe while in operation or transport.
- Keep all person and animals away from swing area of backhoe.
- Pay attention to the backhoe when operating it on slopes to avoid tipping-over of the machine. Travel at a speed compatible with safe operation, especially when operating the machine on uneven terrain, crossing ditches, or while turning.
- Operate the backhoe from the backhoe operator's seat only.
- When using the backhoe on slopes, one stabilizer may be lower than the other. Pay extreme attention to the backhoe during excavation because the risk of tipping-over of the machine will increase.
- To reduce the risk of tipping-over of the machine on a slope, place the spoil to the high side of the excavation.
- Do not dig under the stabilizer or the tractor, especially in soft or sandy condition. Take extra precaution in wet or thawing ground.

### SAFETY LABELS

## 1. Safety labels of the tractor

(1) Part No. K2871-6548-1

## **AWARNING**

### TO AVOID PERSONAL INJURY OR DEATH:

- Read and understand the operator's manual before operation.
   Before starting the engine, make sure that everyone is at
- a safe distance from the tractor and that the PTO is OFF.
- 3. Do not allow passengers on the tractor at any time.4. Before allowing other people to use the tractor, have them read the operator's manual.
- 5. Check the tightness of all nuts and bolts regularly.6. Keep all shields in place and stay away from all moving parts.
- 7. Slow down for turns, or rough roads.

1AGAJBMAP0460

(2) Part No. K1272-6585-2 Diesel fuel No fire only

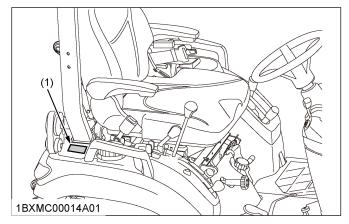


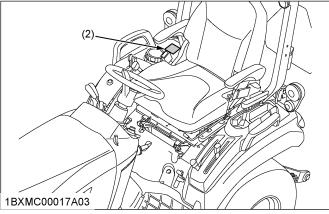
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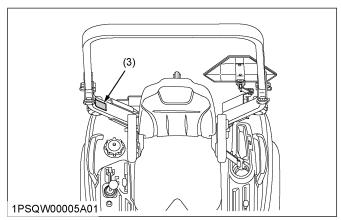
### (3) Part No. K2591-6557-2



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## 2. Safety labels of the loader

(1) Part No. 7J061-5645-1

# WARNING

### TO AVOID PERSONAL INJURY:

- Observe safety precautions in loader and tractor Operator's Manual.
   Operate the loader from tractor seat only.
   Keep children, others and livestock away when operating loader and tractor.
   Avoid holes, loose ground, and rocks which may cause tractor / loader to tip.
- tractor / loader to tip.
  Make sure approved bucket is attached before removing
- loader from tractor.
  When parking or storing, choose flat and hard ground. Lower the bucket to the ground, set brakes and remove key before leaving
- tractor.
  Before disconnecting hydraulic lines, relieve all hydraulic pressure.

1AIABAHAP019G

(2) Part No. 7J246-5641-1



# OR DEATH CAUSED BY ROLLOVERS:

- OLLOVERS:

  ROPS and a fastened seat belt are strongly recommended in almost all applications. Foldable ROPS should be in upright and locked position if equipped.

  Adjust rear wheels to the widest setting that is suitable for the work.
- Add recommended wheel ballast and rear weight for
- Danias and fear weight for stability. DO NOT drive on steep slopes or unstable surfaces. Carry loader arms at low position during transport. Move and turn tractor at slow speeds.

1AIABAHAP017A

#### (3) Part No. 7J246-5643-1



ALLING LOADS:
Load on raised bucket or fork
can fall or roll back onto
operator causing serious
injury or death.
Use approved clamping and
/ or guard attachments for
handling large, loose or
shiftable loads such as bales,
posts, sheets of plywood etc.
Carry loads as low as possible.

1AIABAHAP016A

(4) Part No. 7J246-5642-1



1AIABAHAP018A

(5) Part No. 7J246-5644-2



- raised loader or bucket.

  2. DO NOT use loader as jack for servicing.

  3. DO NOT use loader as a
- work platform.
- NEVER connect chain, cable or rope to loader bucket while operating loader.

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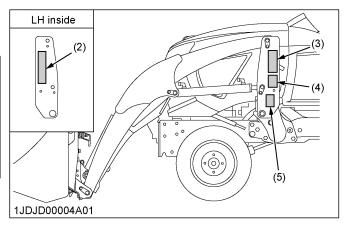
#### (6) Part No. 7J061-5649-1

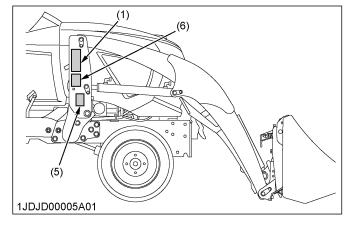
## **▲** WARNING

### TO AVOID INJURY FROM CRUSHING:

Do not utilize the valve lock for machine maintenance or repair.
 The valve lock is to prevent accidental actuation when implement is not in use or during transport.

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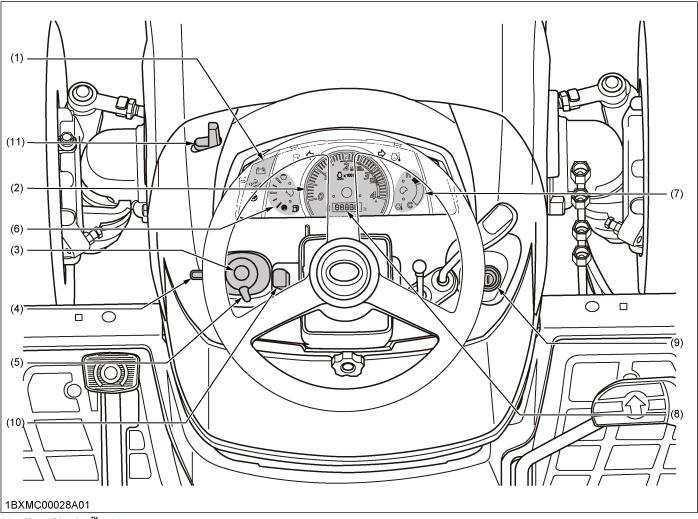




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# **INSTRUMENT PANEL AND CONTROLS**

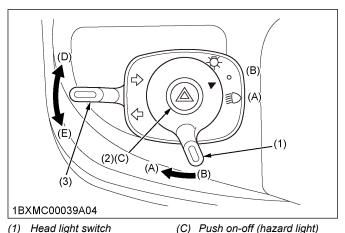
## **INSTRUMENT PANEL, SWITCHES, AND HAND CONTROLS**



- (1) Easy Checker<sup>™</sup>...69
- (2) Tachometer...71
- (3) Hazard light switch...45
- (4) Turn signal light switch...45
- (5) Head light switch...45
- (6) Fuel gauge...70
- (7) Coolant temperature gauge...70
- (8) Hour meter...71
- (9) Key switch...45
- (10) Tilt lever...45
- (11) Hood open lever...46

#### **OPERATING THE TRACTOR**

3. Select positions of the light switches. See 3. Head light switch on page 45, 4. Hazard light switch on page 45, and 5. Turn signal light switch on page 45.



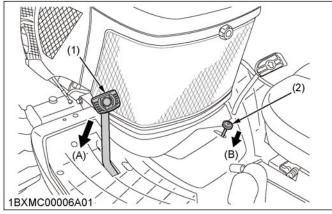
- (1) Head light switch
- Hazard light switch
- (3) Turn signal light switch
- On (head light) (A)
- (B) Off (head light)
- 4. Check the brake pedal.
  - a. Depress the brake pedal.
  - b. Depress the parking brake lock pedal.
  - Release the brake pedal.

Make sure to latch the brake pedal with the parking brake lock pedal. Use both right and left feet for the

(D) Right turn

(E) Left turn

See 3. Brake pedal and parking brake lock pedal on page 48 and "To set the parking brake" in 3.1 How to use the parking brake on page 48.



- Brake pedal
- Parking brake lock pedal
- Depress
- Push down parking brake lock pedal while depressing brake pedal
- 5. Start the engine.

See STARTING THE ENGINE on page 57.



### WARNING

To avoid serious injury or death:

Read and understand "Safe operation" in this manual.

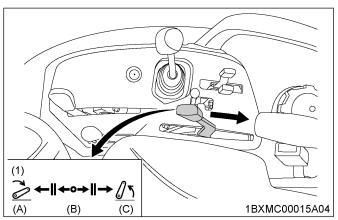
- Read and understand the safety labels located on the tractor.
- · To avoid the danger of exhaust-fumepoisoning, do not operate the engine in a closed building without proper ventilation.
- · Never start the engine while standing on ground. Start the engine only from the operator's seat.
- Follow the rule to set all shift levers to the neutral positions and to place the PTO lever in the off position before starting the engine.

See 2. Precautions for operating the tractor on page 8, 3. Precautions for parking the tractor on page 10, and 6. Precautions for servicing the tractor on page

6. Raise the Implement.

Move the hydraulic control lever rearward (the raised (up)  $\sqrt[n]{\eta}$  position).

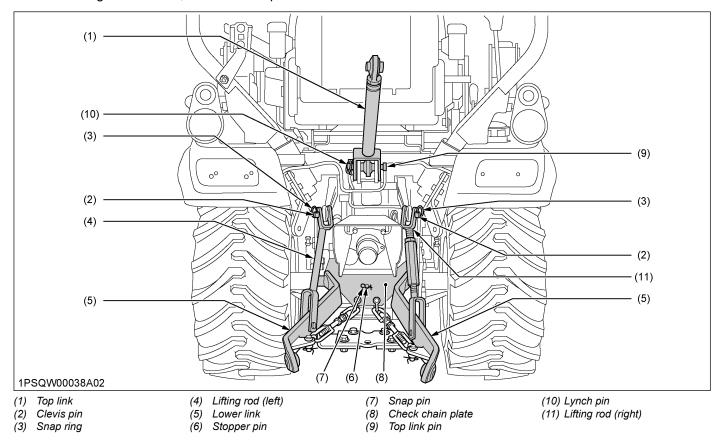
See 1. Hydraulic control on page 84.



- Hydraulic control lever
- (A) Lowered (B) Neutral position
- (C) Raised

### 1. How to use the 3-point hitch

When installing the backhoe, remove the 3-point hitch.

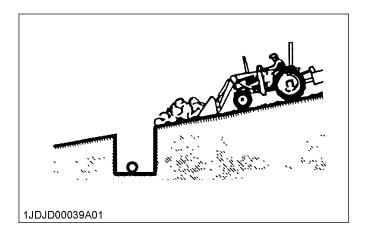


### Removing the 3-point hitch

- 1. Remove the lynch pin and the top link pin. Then remove the top link.
- 2. Remove the snap ring and the clevis pin. Then remove the left and right lifting rod.
- 3. Remove the snap pin and the stopper pin. Then remove the check chain plate and lower links.

### Installing the 3-point hitch

1. Follow the reverse of the procedure of "Removing the 3-point hitch".



# 10. Precautions for handling large heavy objects



### **DANGER**

To avoid personal injury or death:

- Handling large, heavy objects can be dangerous due to the following reasons.
  - Danger of rolling the tractor over
  - Danger of upending the tractor
  - Danger of the object rolling or sliding down the loader boom onto the operator
- If you must handle large, heavy objects, protect yourself by the following methods.
  - Not lifting the load higher than necessary to clear the ground when the tractor is moving
  - Adding the rear ballast to the tractor to compensate for the load
  - Not lifting large objects with equipment which does not equip an anti-rollback device
  - Moving the machine slowly and carefully
  - Avoiding rough terrain
  - Keeping the transport distance as short as possible and carry the load as low as possible during transport
  - Confirming that the loader and the bucket are at proper height and have stopped moving before transport

## **VALVE LOCK**

The control valve is equipped with a feature of the valve lock.



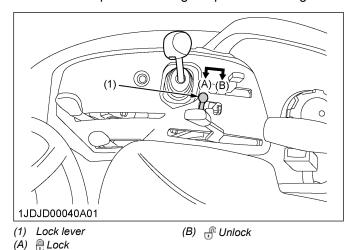
### **WARNING**

To avoid personal injury or death from crushing:

• Do not utilize the valve lock for machine maintenance or repair.

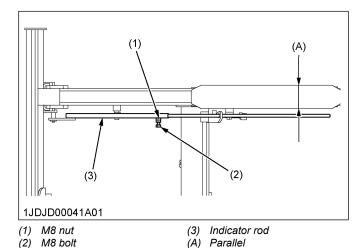
 The valve lock is to prevent accidental actuation when implement is not in use or during transport.

The control valve is locked in the **lock** not position. The lock is not intended and will not prevent a leak down of the implement during the period of storage.



# BUCKET LEVEL INDICATOR (IF EQUIPPED)

Depending on the front attachment, loosen the lock bolt of the indicator rod and readjust the length of the indicator rod.



#### **IMPORTANT:**

 Fix the engine-indicator-rod in parallel with the boom, so that the end of the engine-indicatorrod does not hit the hood when opening and closing the hood.

## OPERATING THE BACKHOE

# ENGINE SPEED WHEN OPERATING THE BACKHOE

# **A** WARNING

To avoid serious injury or death:

- Use care when operating the backhoe on slopes to avoid tip over. Travel at speed compatible with safe operation, especially when operating the backhoe in uneven terrain, crossing ditches, or while turning.
- You can operate this backhoe at any engine speed in the following rated rpm. The backhoe is most efficient at rated engine speed.

However, in special digging condition, for optimal fuel economy, or in residential neighborhood where noise may be a consideration, the engine speed can be lowered to about 75% of rated rpm.

 When operating the backhoe in the air temperature below the following temperature, run the tractor engine below about 50% of rated rpm until the oil temperature exceeds the following temperature.

Temperature 0 °C (32 °F)
--------------------------

## **CONTROLS OF THE BACKHOE**

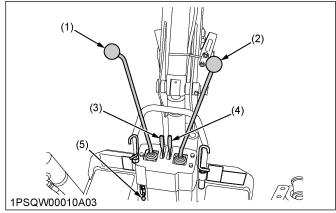
You can control the backhoe using the two-lever-joystick-system.

## **WARNING**

To avoid serious injury or death:

- For all excavation work, operate the backhoe from the operator's seat of the backhoe only.
- Do not tamper with any backhoe-control-valverelief-pressure-setting.
  - The relief valve is preset at the factory. Changing the setting of the relief valve can cause overloading of the backhoe and the tractor and serious personal injury may result.
- Put the boom-and-swing-lock-lever into the lock position when the backhoe is not in use or during transport.

The left lever controls the boom and swing circuits, and the right lever controls the dipperstick and bucket circuits. The further the levers are moved from **neutral**, the faster the component will move. Learn the feature of the controls for smooth and precise component movement.

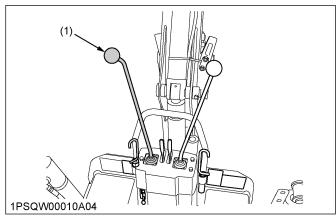


- (1) Boom and swing lever
- 4) Stabilizer control lever, right
- (2) Dipperstick and bucket lever (5)
- (5) Boom and swing lock lever
- (3) Stabilizer control lever, left

## 1. Boom and swing lever

- Pushing the boom-and-swing-lever forward will lower the boom.
- Pulling the boom-and-swing-lever back will raise the boom.
- Moving the boom-and-swing-lever to the left will swing the bucket to the left.
- Moving the boom-and-swing-lever to the right will swing the bucket to the right.

By moving the boom-and-swing-lever out of the **plus** "+" position and into an "X" relationship, it is possible to raise or lower the boom and swing the bucket at the same time.



(1) Boom and swing lever

Consult your KUBOTA Dealer regarding maintenance, diagnosis, and repair.

### 12. Checking the movable parts

 If any of the movable parts, such as levers and pedals, is not smoothly moved because of rust or sticky material, remove the rust or the sticky material, and apply oil or grease on the relevant spot.

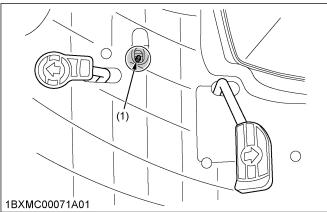
Do not force the movable parts into motion. Otherwise, the machine may get damaged.

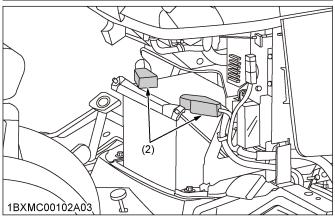
# SERVICE OF THE TRACTOR EVERY 50 HOURS

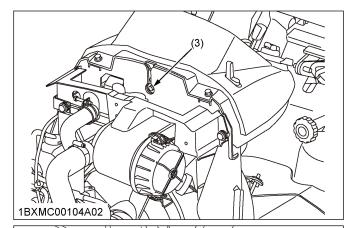
## 1. Lubricate fittings with grease

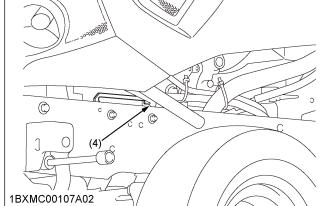
Apply a small amount of multipurpose grease to the following points every 50 hours.

If you operated the machine in extremely wet and muddy conditions, lubricate grease fittings more often. Apply grease between rod and hole.









(2) Battery terminals

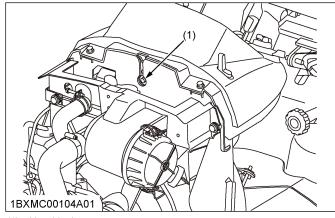
control pedal

(4) Hood guide

Hood lock

### Apply grease between stays.

Grease fitting for the speed



(1) Hood lock

## 2. Checking the engine start system



### WARNING

To avoid serious injury or death:

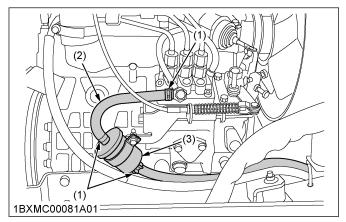
- Do not allow anyone near the tractor while testing.
- If the tractor does not pass the test, do not operate the tractor.

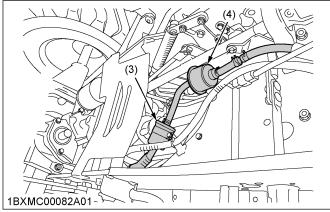
#### **IMPORTANT:**

 When the fuel line is disconnected for maintenance or repair, plug both ends of the fuel line with a clean plug of suitable size to prevent dust and dirt from entering. You must take particular care of the fuel lines in order to avoid dust and dirt getting into the fuel system. Entrance of dust and dirt causes malfunction of the fuel pump.

The fuel line is made of rubber and ages regardless of service period.

- 1. Inspect the fuel lines.
- 2. After inspection, if the fuel lines and clamps are found damaged or deteriorated, replace them.
- 3. Check the fuel filter. If the fuel filter is clogged by debris or contaminated by water, replace it.





- (1) Pipe clamps
- (2) Fuel line
- (3) Fuel filter

#### NOTE:

 If the fuel line is removed, be sure to properly bleed the fuel system.

(4) Fuel pump

See 1. Bleeding the fuel system on page 137.

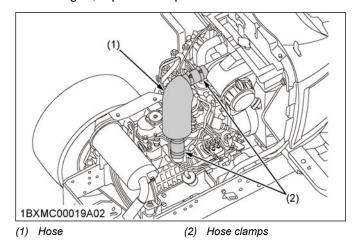
## 4. Checking the intake air line



### WARNING

To avoid serious injury or death:

- Stop the engine and remove the key before checking the intake air line.
- 1. Check to see that the hose and the hose clamps are tight and not damaged.
- 2. If the hose and the clamps are found worn or damaged, replace or repair them at once.



# 5. Checking the engine breather hose

 Consult your local KUBOTA Dealer for checking the engine breather hose.

# SERVICE OF THE TRACTOR EVERY 4 YEAR

# 1. Replacing the radiator hose (water pipes)

See 1. Checking the radiator hoses and the hose clamps on page 135.

## **GENERAL TORQUE SPECIFICATION**

### American standard cap screws with UNC or UNF threads

SAE grade No.	GR5 ⇔ or GR8 ⇔
1/4	7.2 lbf · ft to 8.6 lbf · ft 9.8 to 11.7 N · m 1.0 kgf · m to 1.2 kgf · m
5/16	14 lbf · ft to 17 lbf · ft 19 to 23.1 N · m 1.9 kgf · m to 2.4 kgf · m
3/8	25 lbf · ft to 30 lbf · ft 33.9 to 40.7 N · m 3.5 kgf · m to 4.2 kgf · m
1/4	7.2 lbf · ft to 8.6 lbf · ft 9.8 to 11.7 N · m 1.0 kgf · m to 1.2 kgf · m
1/2	65 lbf · ft to 78 lbf · ft 88.1 to 105.8 N · m 9.0 kgf · m to 10.8 kgf · m
9/16	90 lbf·ft to 108 lbf·ft 122 to 146.4 N·m 12.4 kgf·m to 14.9 kgf·m
5/8	130 lbf · ft to 156 lbf · ft 176.3 to 211.5 N · m 18.0 kgf · m to 21.6 kgf · m

### **Metric cap screws**

Property class	8.8 Approx. SAE GR5 (8.8)
M6	7.2 lbf · ft to 8.3 lbf · ft 9.8 to 11.2 N · m 1.0 kgf · m to 1.1 kgf · m
M8	17.4 lbf · ft to 20.2 lbf · ft 23.6 to 27.4 N · m 2.4 kgf · m to 2.8 kgf · m
M10	35.5 lbf · ft to 41.2 lbf · ft 48.1 to 55.8 N · m 4.9 kgf · m to 5.7 kgf · m
M12	57.2 lbf · ft to 66.5 lbf · ft 77.5 to 90.1 N · m 7.9 kgf · m to 9.2 kgf · m
M14	91.2 lbf ·ft to 108 lbf ·ft 124 to 147 N · m 12.6 kgf · m to 15.0 kgf · m
M16	145 lbf ·ft to 166 lbf ·ft 196 to 225 N · m 20.0 kgf · m to 23.0 kgf · m

# REINSTALLING THE LOADER

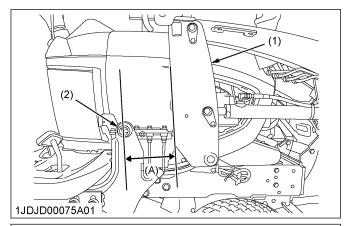
## **HOW TO REINSTALL THE** LOADER

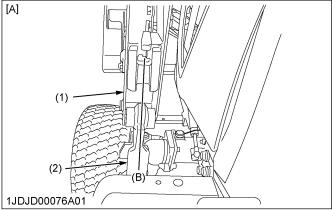


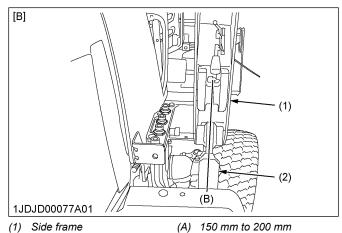
### **WARNING**

To avoid personal injury or death:

- · When starting the engine and operating the loader-control-valve, always sit in the operator's seat.
- 1. Slowly drive the tractor between the side frames of the loader until the rear portion of both side frames touches the main frames as shown in the following figures.

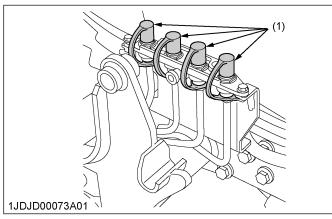






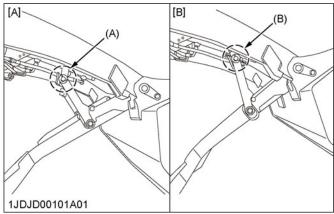
- Main frame
- (B) Center of side frames

- [A] LH
- [B] RH
- 2. Stop the engine and unfasten the seat belt.
- 3. Remove the protective cap.



(1) Protective caps

Move the loader-control-lever to the **dump** position, and check to see if the stands are folded as specified.



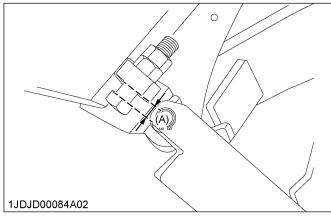
- [A] Good
- [B] No good
- (A) Encircled part gets folded backward into position
- (B) Encircled part gets stretched forward into position

### **IMPORTANT:**

 Keep the engine off and move the bucket to the dump position.

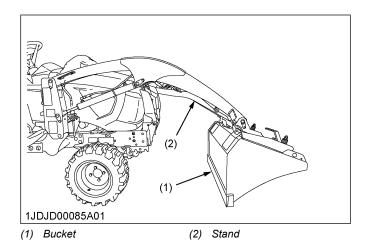
#### NOTE:

 If either of the links gets stuck in the wrong position, move the bucket back to the full roll back position and extend the adjusting bolt at the wrong side by the following length.

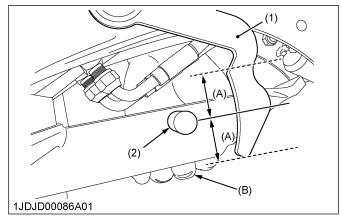


(A) Extend by 1 mm to 2 mm

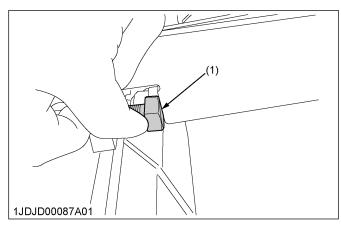
- 7. Fasten the seat belt, and start the engine.
- 8. Move the loader-control-lever to the **dump** position until the hydraulic pressure gets relieved.
- 9. Lower the boom to put the bucket on the ground and stop the engine.



10. Lift the stand on the right side of the loader up to the position by hand shown in the following figure.



- (1) Stand hook
- (B) Hold up by hand
- (2) Stand pin
- (A) Almost the same length
- 11. Reposition the adjusting bolt until it touches the stand.



(1) Adjusting bolt

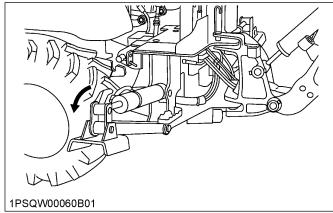
#### NOTE:

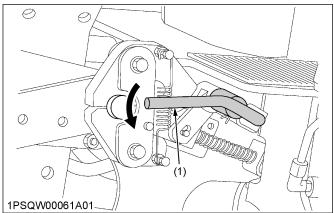
- The position of the adjusting bolt is provisional and may be roughly set for now.
- 12. Adjust the adjusting bolt in the same way as for the stand on the left side of the loader.

#### REMOVING THE BACKHOE

4. Lower the boom, and raise the rear wheels slightly off the ground.

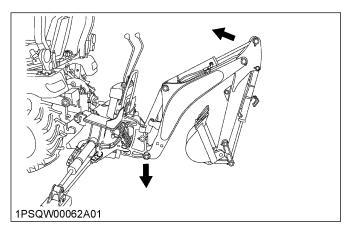
While the mounting levers are pulled, the mounting pins of the main frame may turn in both directions. When the mounting pins come to the release position, push the levers in the holding hole to release the mounting pins.



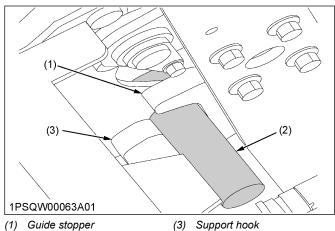


Mounting lever

5. Slowly raise the boom to disengage the backhoe from the tractor.



6. Raise the backhoe by operating the stabilizers to the lowering direction until the mount bars hit to the guide stopper on the support hooks.



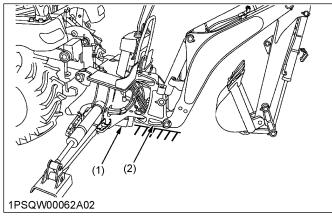
(2) Mount bar

7. Move the tractor forward from the backhoe to the following value.

Distance between the tractor and the backhoe	About 203 mm (8.0 in.)
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#### **IMPORTANT:**

- · Be careful not to damage or break the hoses when moving the tractor.
- 8. Lower the main frame and the swing frame onto the ground by operating the boom and the stabilizercontrol-levers.



(1) Main frame

(2) Swing frame

- 9. Shut off the engine and set the parking brake.
- 10. Slowly release all hydraulic pressure by moving the hydraulic control levers of the backhoe in all directions.