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SAFE OPERATION

Most backhoe equipment accidents can be avoided by following simple safety precautions.
These safety precautions, if followed at all times, will help you operate your backhoe safely.

BEFORE OPERATING BACKHOE

1. Allow only trained personnel to operate or service this equipment. Read and understand all precautions in this manual before service or operation.
   Also read all precautions found in the tractor and loader manuals.
2. For safe operation, check the mounting bolts for tightness and that the mount levers are in the right position before operation.
3. Never operate tractor with backhoe attached and loader removed.
4. Check for buried material such as electrical, telephone, gas and water lines. When in doubt, contact local utility companies for their buried location prior to operating the backhoe.
5. Replace any safety decal that becomes damaged, lost or illegible. Also renew all decals when repainting.

OPERATING THE BACKHOE

1. Do not allow anyone other than the operator on the unit while in operation or transport.
2. Use care when operating on slopes to avoid tip-over. Travel at a speed compatible with safe operation, especially when operating on uneven terrain, crossing ditches or while turning.
3. Operate the backhoe from the backhoe operator's seat only.
4. When using on slopes, one stabilizer may be lower than the other. Use extreme care during excavation as risk of tip-over will increase.
5. To reduce the risk of tip-over on a slope, place the spoil to the high side of the excavation.
6. Do not dig under the stabilizer or tractor, especially in soft or sandy conditions. Take extra precaution in wet or thawing ground.
   These conditions can become unstable and may collapse under the weight of the machine and may cause tip over.
7. Never operate the machine or any equipment while under the influence of alcohol or other drugs, or while fatigued.
8. When leaving the machine unattended, be sure to lower the backhoe to the ground. Set the parking brake, then shut the engine off and remove the key.

SAFETY FOR CHILDREN

Tragic accidents can occur if the operator is not alert to the presence of children. Children are generally attracted to machines and the work being done. Never assume children will remain where you last saw them.

1. Keep children out of the operating area and under the watchful eye of another responsible adult.
2. Be alert and turn the machine off if children enter the work area.
3. Before and when backing, look behind and down for small children.
4. Never carry children while operating the machine. They may fall off and be seriously injured or interfere with safe operation of the machine.
5. Never allow children to play on the machine or attachment even when turned off.
6. Never allow children to operate the machine even under adult supervision.
7. Use extra care when approaching blind corners, shrubs, trees, or other obstructions that might hide children from sight.

DRIVING THE TRACTOR ON THE ROAD

1. Raise and center the boom, close the dipperstick, curl the bucket and engage the boom and swing locks before transporting the machine.
2. Check the local codes or regulations that may apply to tractor / loader / backhoe operation on public streets or highways, before transporting or traveling. Use SMV emblem and warning flashers as required.
   (SMV: Slow Moving Vehicle)

SERVICING THE BACKHOE

1. Before disconnecting hydraulic lines, relieve all hydraulic pressure.
2. Always use personal protection devices such as safety goggles and ear protection when servicing or repairing the machine.
3. Lower the backhoe to the ground and shut the engine off before servicing.
4. When servicing or repairing pins in cylinder ends, bucket, etc., always use a brass drift and hammer. Failure to do so could result in injury from flying metal fragments.
5. To avoid serious personal injury, keep clear of working area of the backhoe.
6. When servicing or checking underneath, do not get under the machine while it is being held with only the bucket, backhoe or stabilizers. Securely support with jackstands.
7. For your safety, do not work under any hydraulically supported machine elements. They can settle, suddenly leak down, or be accidentally lowered.
8. Escaping hydraulic fluid under pressure can have sufficient force to penetrate the skin, causing serious personal injury. Before applying pressure to the system, be sure that all connections are tight and that lines, pipes and hoses are not damaged. Fluid escaping from a very small hole can be almost invisible. Do not use hands to search for suspected leaks, use a piece of cardboard or wood. If injured by escaping fluid, see a doctor at once. Serious infection or allergic reaction will develop if proper medical treatment is not administered immediately.
9. Do not tamper with any backhoe control valve relief pressure setting. The relief valve pressure is preset at the factory. Changing the setting can cause overloading of the backhoe and the tractor, and serious personal injury or death may result.
10. Do not modify the backhoe for any reason. Modifying the backhoe can cause an unstable condition of the tractor / loader / backhoe combination and serious personal injury or death may result.

DANGER, WARNING AND CAUTION LABELS

(1) Part No. 75597-7528-0

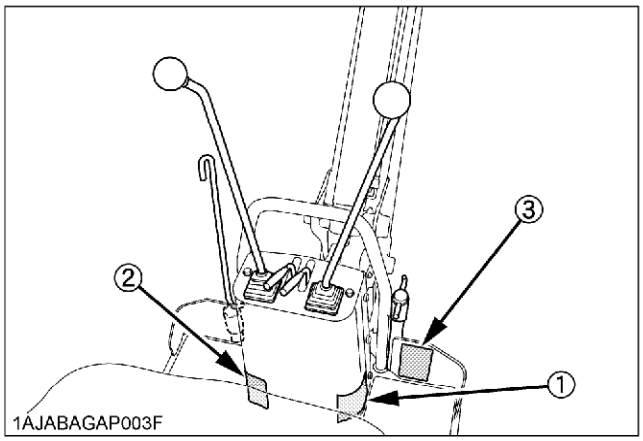
1AJABAAAP064A

(2) Part No. 7K501-7529-0

1AJABAEAP028A

(3) Part No. 75595-7524-0

1AJABAAAP067A



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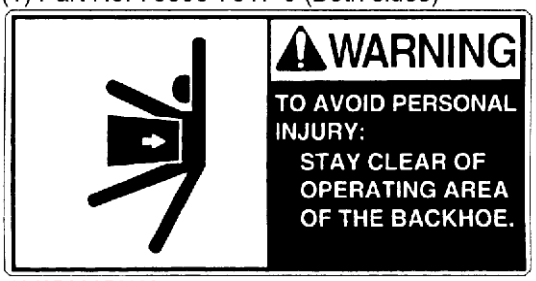
(1) Part No. 75595-7517-0 (Both sides)



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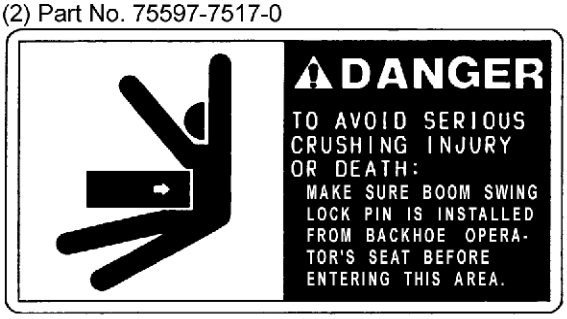

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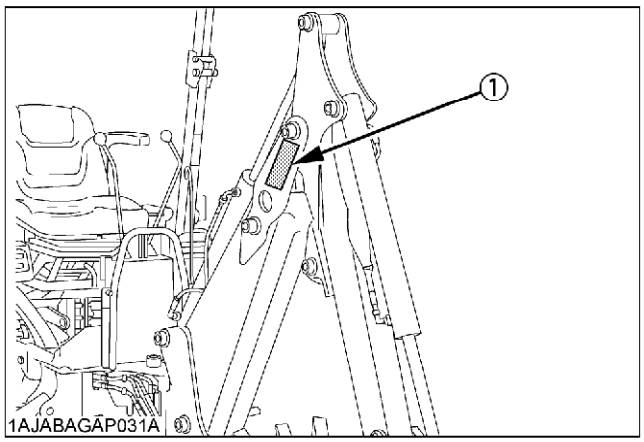
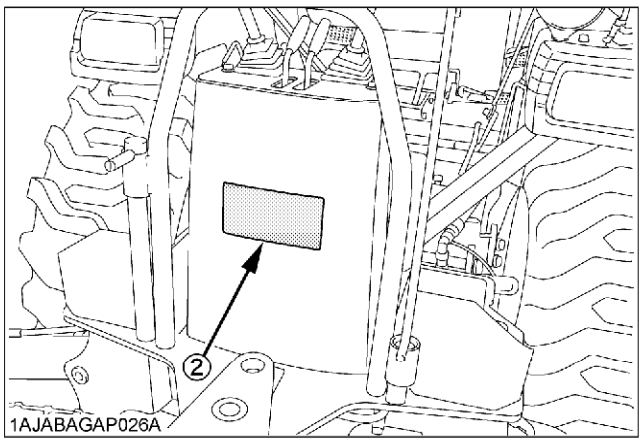




CARE OF DANGER, WARNING AND CAUTION LABELS

1. Keep danger, warning and caution labels clean and free from obstructing material.
2. Clean danger, warning and caution labels with soap and water, dry with a soft cloth.
3. Replace damaged or missing danger, warning and caution labels with new labels from your local KUBOTA Dealer.
4. If a component with danger, warning and caution label(s) affixed is replaced with new part, make sure new label(s) is (are) attached in the same location(s) as the replaced component.
5. Mount new danger, warning and caution labels by applying on a clean dry surface and pressing any bubbles to outside edge.

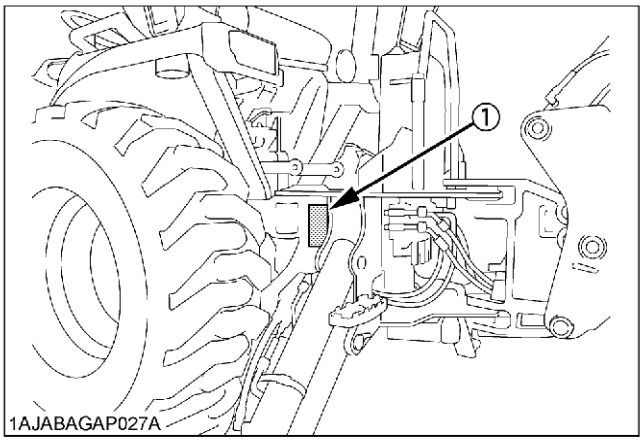
SERVICING OF BACKHOE

Your dealer is interested in your new backhoe and has the desire to help you get the most value from it. After reading this manual thoroughly, you will find that you can do some of the regular maintenance yourself.
However, when in need of parts or major service, be sure to see your KUBOTA Dealer.
For service, contact the KUBOTA Dealership from which you purchased your backhoe or your local KUBOTA Dealer.
When in need of parts, be prepared to give your dealer the backhoe model and serial number.
Locate the serial number now and record it in the space provided.

The reference to left hand and right hand used in this manual refers to the position when seated in the operator's seat at backhoe position and facing rearward of the tractor.

KUBOTA BACKHOE

Model	BH65
Serial Number	
Date of Purchase	
Name of Dealer (To be filled in by purchaser)	



(1) Serial number

SPECIFICATIONS

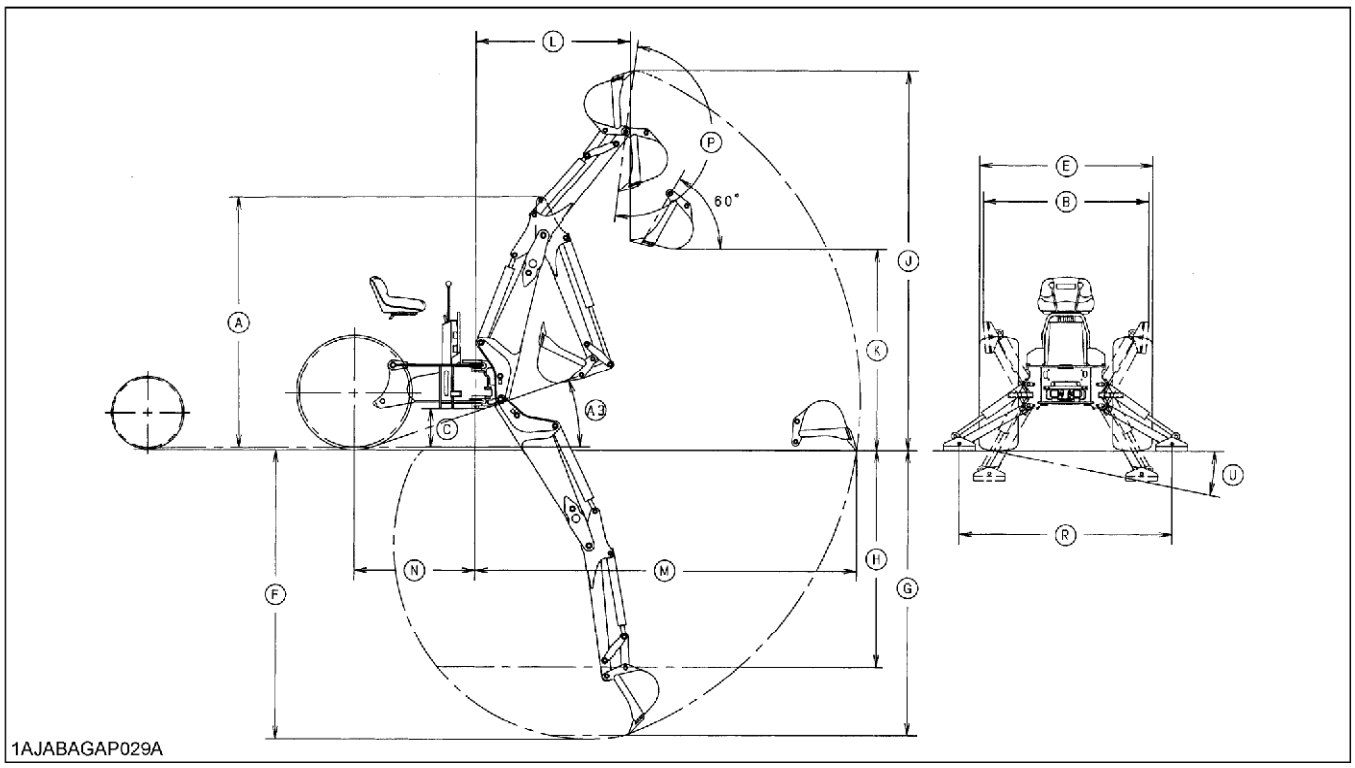
BACKHOE SPECIFICATIONS

■Dimensions

Item		BH65
Transport height	(A)	1850 mm (72.8 in.)
Stabilizer spread-transport	(B)	1280 mm (50.4 in.)
Ground clearance	(C)	294 mm (11.6 in.)
Overall width	(E)	1260 mm (49.6 in.)
Maximum digging depth	(F)	2034 mm (80.1 in)
Digging depth, 2 ft. flat bottom	(G)	2001 mm (78.8 in.)
Digging depth, 8 ft. flat bottom	(H)	1432 mm (56.4 in.)
Operating height, fully raised	(J)	2677 mm (105.4 in)
Loading height (at 60 deg.)	(K)	1637 mm (64.5 in.)
Loading reach	(L)	1009 mm (39.7 in.)
Reach from swing pivot	(M)	2767 mm (108.9 in.)
Swing pivot to rear axle center line	(N)	797 mm (31.4 in.)
Bucket rotation	(P)	171 deg.
Stabilizer spread-operating	(R)	1854 mm (73.0 in.)
Angle of departure per SAE J1234	(A3)	19.0 deg.
Leveling angle	(U)	11.8 deg.
Swing arc		150 deg.

NOTE :

- The specifications are taken with KUBOTA B2320, B2620, B2920 tractor. (Tire size: Front 23 x 8.50-12, Rear 12-16.5)



■Specifications

Digging force (Per SAE J49)

With bucket cylinder	11500 N (2585 lbf)
With dipperstick cylinder	7500 N (1687 lbf)

Cycle Time (seconds)

Boom cylinder, extend	4.5
Boom cylinder, retract	3.0
Swing cylinder, from 70 degrees to center	1.3
Dipperstick cylinder, extend	4.7
Dipperstick cylinder, retract	3.5
Bucket cylinder, extend	2.9
Bucket cylinder, retract	2.0
Stabilizer cylinder, max. height to ground	2.5
Stabilizer cylinder, ground to max. height	1.9

Hydraulic cylinders

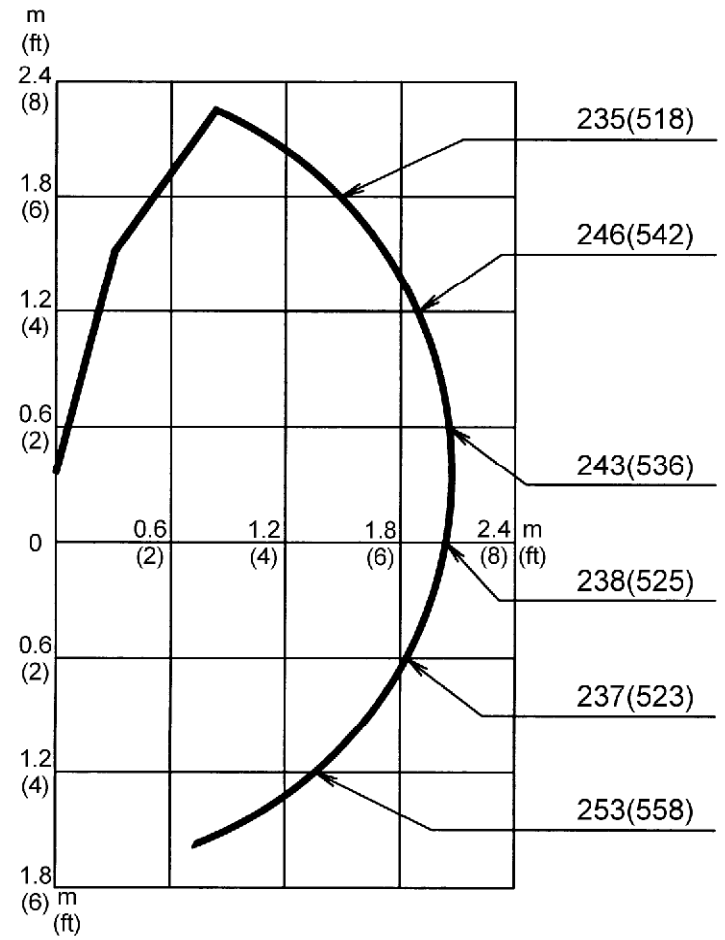
	Boom cm (in.)	Dipperstick cm (in.)	Bucket cm (in.)	Stabilizer cm (in.)	Swing cm (in.)
Rod diameter	3.0 (1.18)	3.0 (1.18)	3.0 (1.18)	2.5 (0.98)	3.0 (1.18)
Cylinder bore	6.0 (2.36)	6.0 (2.36)	5.0 (1.97)	6.0 (2.36)	6.0 (2.36)

Bucket Alternatives (Option)

	Width cm (in.)	SAE Struck Capacity m^3 (cu-ft)	SAE Heaped Capacity m^3 (cu-ft)	Number of Teeth	Weight kg (lbs)
Trenching 10"	25.4 (10)	0.017 (0.60)	0.021 (0.74)	3	29 (64)
Trenching 12"	30.5 (12)	0.022 (0.77)	0.027 (0.95)	3	32 (71)
Trenching 16"	40.6 (16)	0.031 (1.09)	0.039 (1.38)	4	38 (84)

■Lift Capacity (Per SAE J31)

Lift capacities shown are 87% of maximum lift force, according to SAE definition.



RATED LIFT CAPACITY (OVER END) - kg (lbs)

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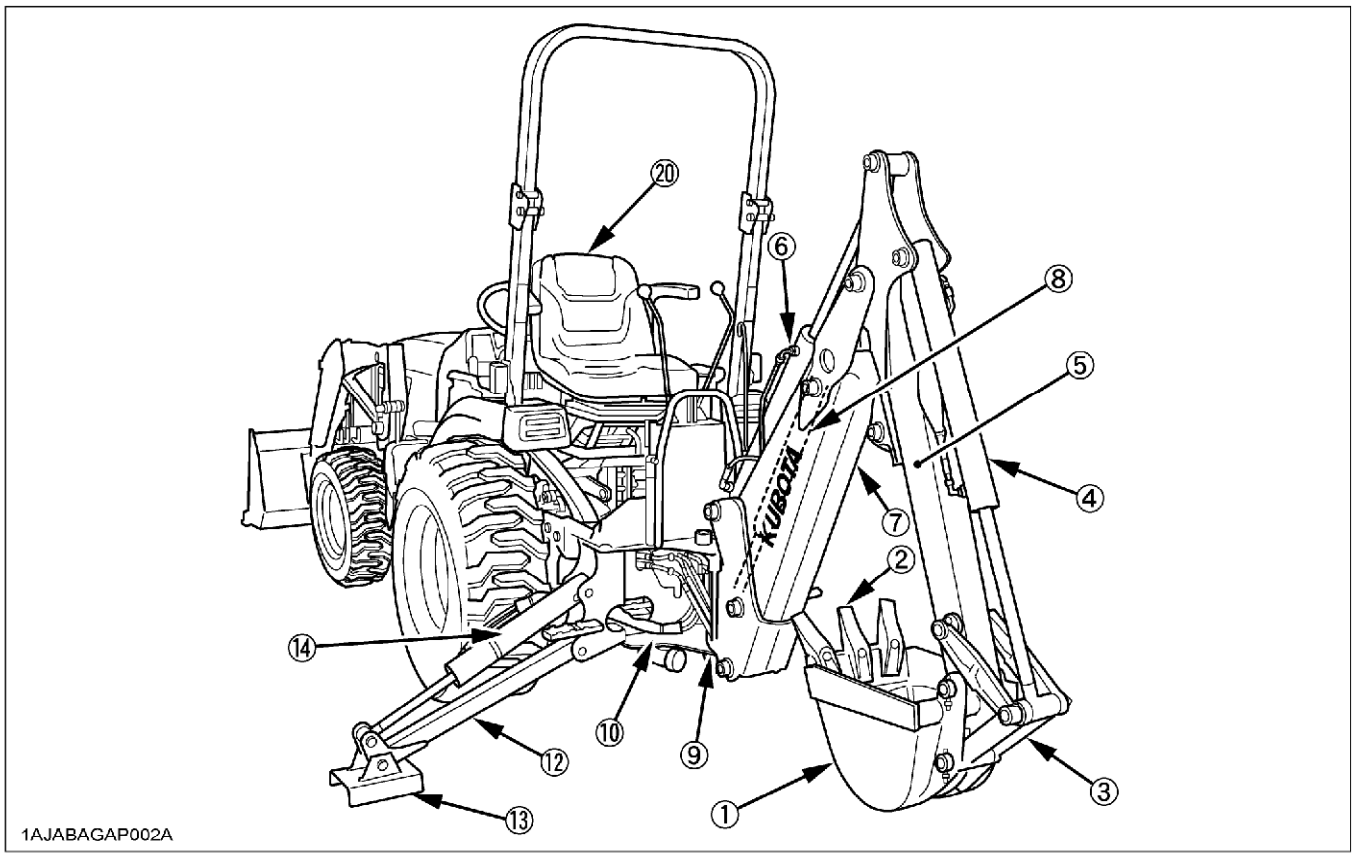
BACKHOE TERMINOLOGY



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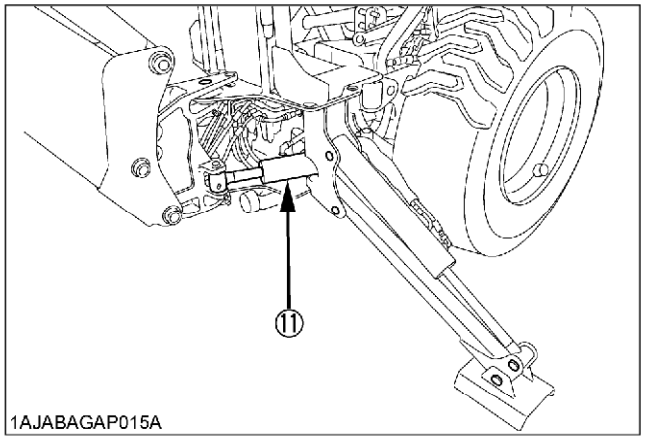

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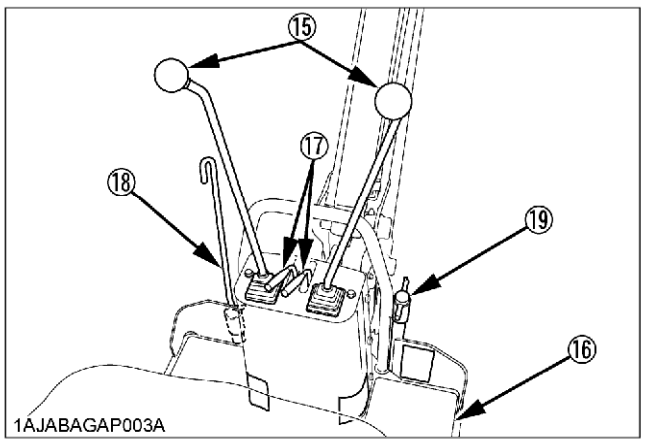

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(1) Backhoe bucket
(2) Bucket teeth
(3) Link, bucket
(4) Cylinder, bucket
(5) Dipperstick
(6) Cylinder, dipperstick
(7) Boom
(8) Cylinder, boom
(9) Swing frame
(10) Main frame
(11) Cylinder, swing
(12) Stabilizer
(13) Stabilizer pad
(14) Cylinder, stabilizer
(15) Joystick control
(16) Step
(17) Stabilizer control
(18) Swing lock pin
(19) Boom lock pin
(20) Seat

PRE-OPERATING INSTRUCTIONS

PRE-OPERATION CHECKS

Prior to starting the engine, make pre-operation checks according to " MAINTENANCE ".

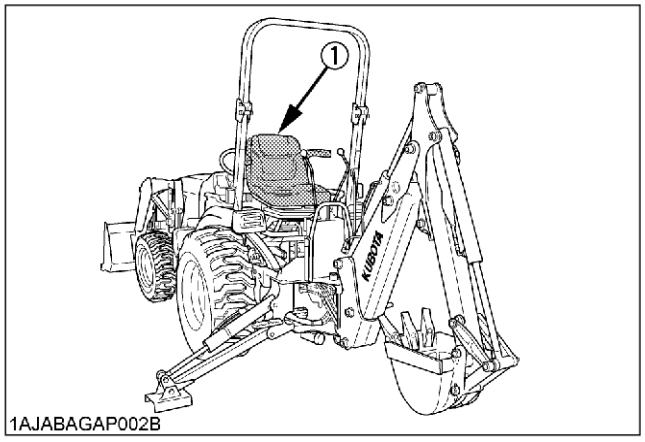
CAUTION

To avoid personal injury:

- **Read " SAFE OPERATION " section in the front of this manual.**
- **Read the warning and caution labels located on the backhoe.**
- **Make sure the swing lock pin is set before entering or exiting the backhoe operator area.**

OPERATOR'S SEAT

Operator's seat for the B2320, B2620, B2920 tractor can be used to operate loader and backhoe. See "REVERSING THE SEAT" section for the detail to turn the seat around for backhoe operation.



(1) Operator's seat (backhoe position)

BALLAST

WARNING

To avoid serious personal injury or death:

- **Never remove loader to ensure tractor stability at all times.**

IMPORTANT :

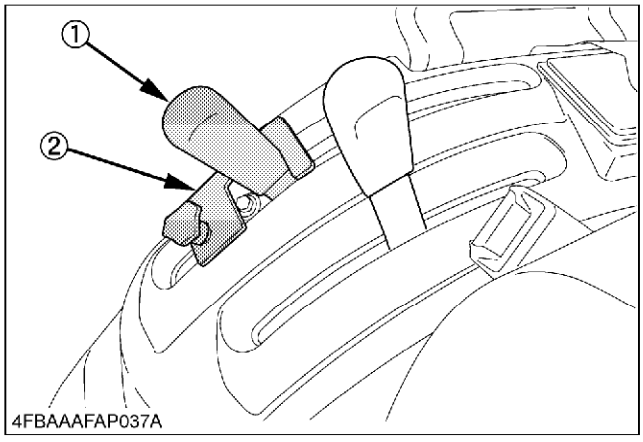
- Do not add liquid ballast or any other weights to the front tires.
- While BH65 backhoe is installed on the tractor, liquid ballast in the rear tires should be removed.

OPERATION

1. BH65 backhoe is approved for use on:
   - B2320, B2620 and B2920 tractors with foldable ROPS, LA304 or LA364 Loader and applicable backhoe mount Kit only.
2. The BH65 backhoe can not be mounted on a tractor together with mid mount mower.
3. When using other implements with backhoe removed, mount the 3-point linkage to the tractor.
4. It is necessary to have the backhoe detached when using rear remotes, the 3-point hitch or any other valves that are downstream of the backhoe valve. Failure to do this may cause the exceeding allowable back pressure to break the seal or case of the backhoe valve.
5. Removal and reinstallation of backhoe sub frame should be performed by your KUBOTA dealer.
6. Save the loader sub frame and the 3-point linkage components which are removed.

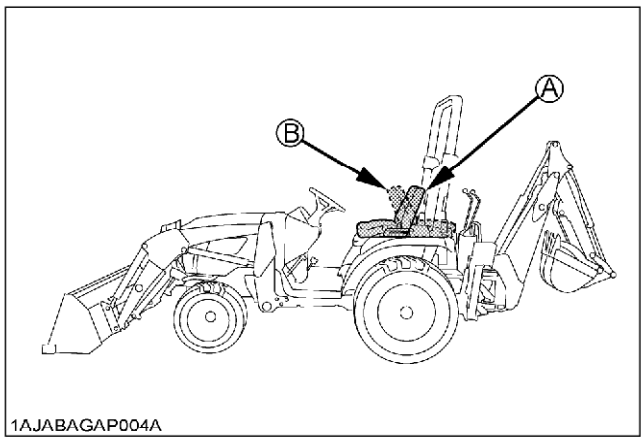
IMPORTANT :

- Backhoe must be removed when using any rear remote valve, 3-point hitch, or any hydraulic component that is downstream of the backhoe valve. Failure to follow this instruction will result in valve damage.
- When backhoe is attached make sure to properly secure the hydraulic control lever in the "DOWN" locked position. Accidental operation of the hydraulic control lever will result in valve damage.



(1) Hydraulic control lever
(2) Lever stopper

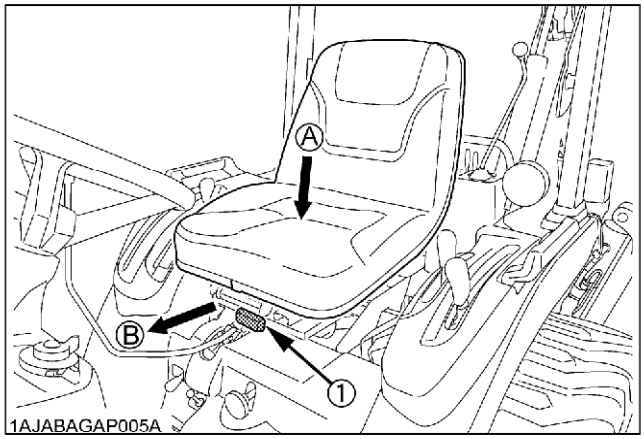
REVERSING THE SEAT



(A) "TRACTOR DRIVING POSITION"
(B) "BACKHOE POSITION"

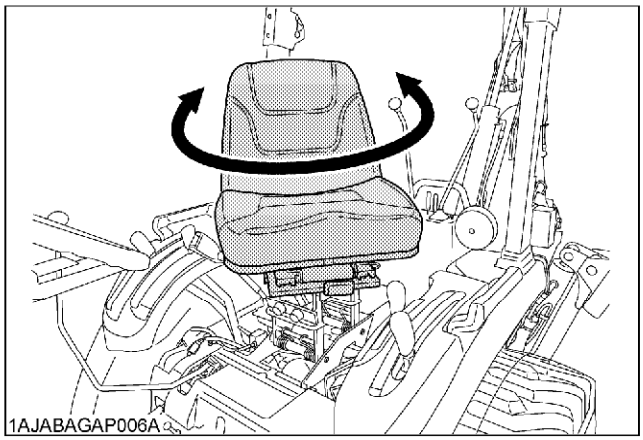
The seat is reversible for backhoe operation. Follow the procedure below to turn the seat around.

1. Pull the lever forward as shown in the illustration to release the seat lock while pushing the seat.

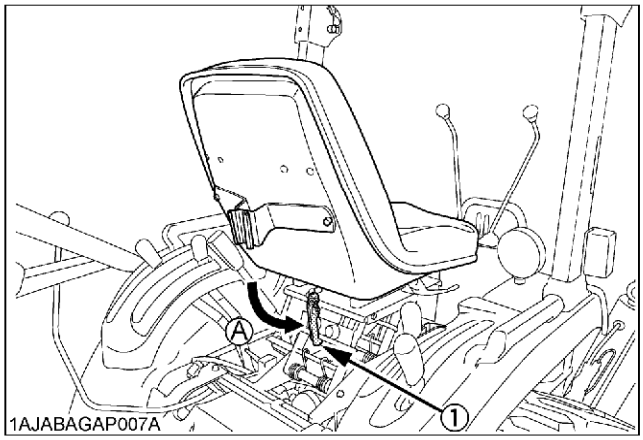


(1) Seat lock lever *(A) "PUSH"* *(B) "RELEASE"*

2. Raise the seat on top.
3. Turn the seat around rearward and push it down for backhoe operation.
   The seat is automatically locked at the backhoe position.



4. After reversing the operator's seat, be sure to check to see that the seat is properly locked.

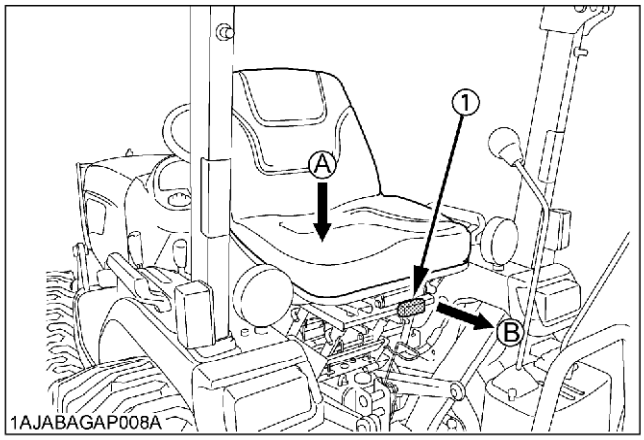


(1) Seat lock *(A) "LOCK"*

IMPORTANT :

- Turn the seat at the top position to avoid damaging the seat locking mechanism and hitting the range gear shift lever.
- See "Operator's Seat" section when using seat in driving position.

5. For tractor driving position, pull the lever backward while pushing the seat, and follow the reverse procedure mentioned above.

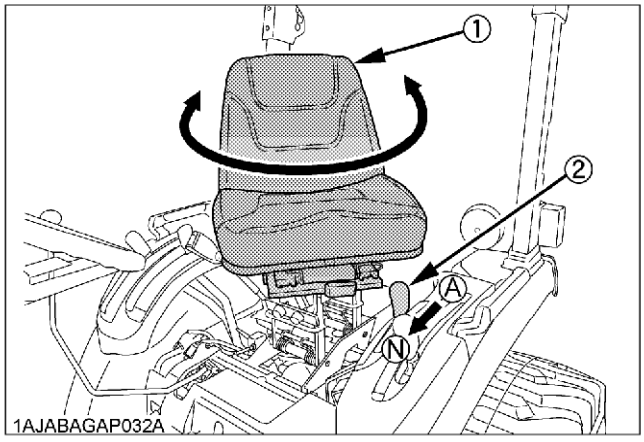


(1) Seat lock lever
(A) "PUSH"
(B) "RELEASE"

◆ **Stationary PTO**

To park the tractor and use the PTO system (for chipper or pump, for example), start the PTO system in the following steps.

1. Apply the parking brakes and place blocks at the tires.
2. Make sure the shift levers are at NEUTRAL, and start the engine.
3. Set the PTO gear shift lever to "Rear PTO 1st" position.
4. Set the engine speed to provide recommended rear PTO speed.
5. Unlock the seat lock lever, stand up and raise the seat.



(1) Seat
(2) PTO gear shift lever
(A) Rear PTO "1st"
Mid PTO "OFF"
(N) "NEUTRAL POSITION"

6. Turn the seat around rearward and lock the seat at backhoe position.

OPERATING INSTRUCTIONS

OPERATING SPEED

CAUTION

To avoid personal injury:

- **Use care when operating on slopes to avoid tip-over. Travel at speed compatible with safe operation, especially when operating in uneven terrain, crossing ditches or while turning.**

1. This backhoe can be operated at any engine speed from about 75% of rated rpm to factory rated rpm. The backhoe is most efficient at rated engine speed. However, in special digging conditions, 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.
2. When operating in temperature below 0 ℃ (32 ℉), run the tractor engine below about 50% of rated rpm until the oil temperature exceeds 0 ℃ (32 ℉).

BACKHOE CONTROLS

CAUTION

To avoid personal injury:

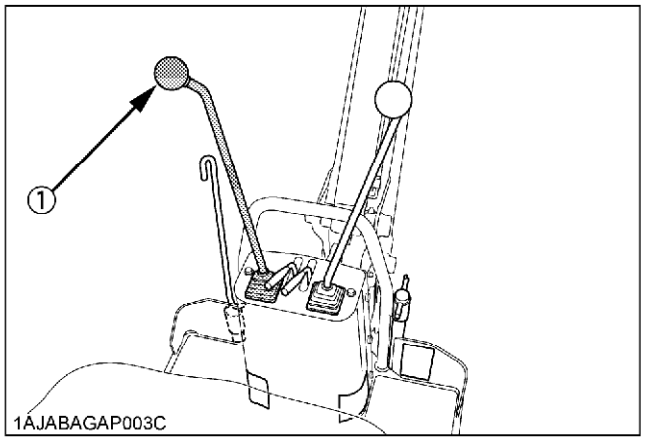
- **For all excavation work, operate the backhoe from the backhoe operator's seat only.**
- **Do not tamper with any backhoe control valve relief pressure setting.**
  The relief valve is preset at the factory. Changing the setting can cause overloading of the backhoe and the tractor and serious personal injury may result.

The backhoe is controlled by using the two lever "joystick" system. 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
(2) Dipperstick and bucket lever
(3) Stabilizer control lever, left
(4) Stabilizer control lever, right

■Boom & Swing Lever

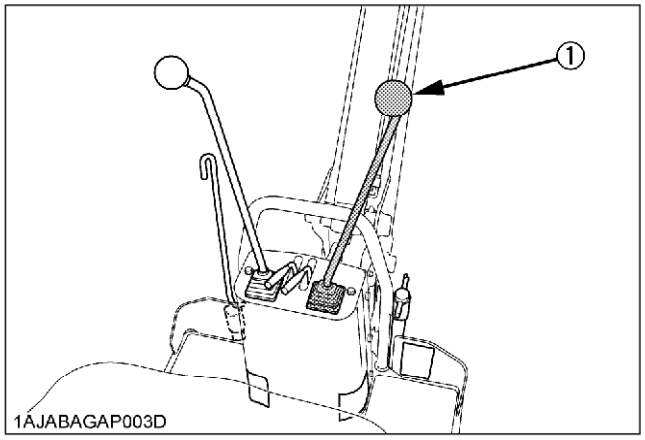
Pushing the lever forward will lower the boom, and pulling it back will raise it.
Movement of the lever to the left will swing the bucket to the left, and right lever movement will swing to the right.
By moving the lever out of the plus "+" position; into an "X" relationship, it is possible to raise or lower and swing at the same time.



(1) Boom and swing lever

■Dipperstick & Bucket Lever

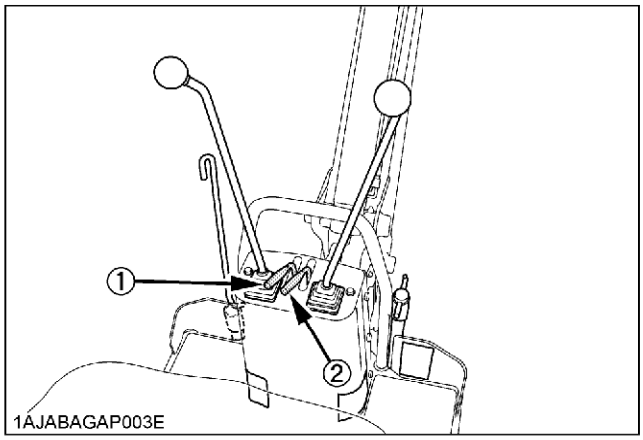
Pushing the lever forward will crowd out the dipperstick and the bucket and pulling it back will crowd them in. Lever movement to the left will curl the bucket to fill it, and right lever movement will dump the bucket.
Again, movement into an "X" relationship will crowd in and fill the bucket, or crowd out and dump the bucket.
With experience, the combination of both "joystick" levers will allow lift, swing, crowd out and spoil dumping, all in one smooth movement, or lowering, swing, crowd in and bucket filling with reverse movement.



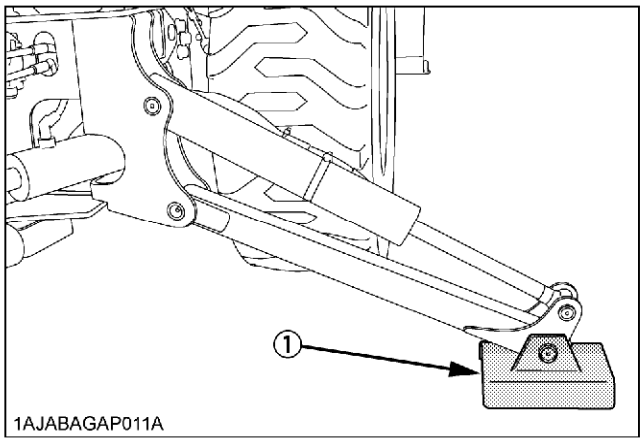
(1) Dipperstick and bucket lever

■Stabilizer Control Levers

Moving the levers downward will lower the stabilizers, and upward lever movement will raise them.



(1) Stabilizer control lever, left
(2) Stabilizer control lever, right



(1) Stabilizer pad

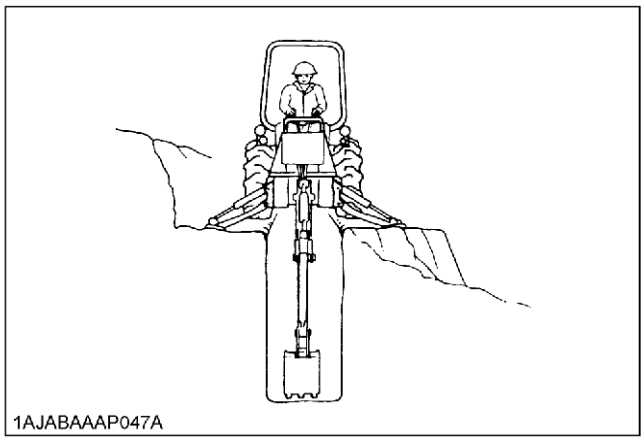
PLACING THE STABILIZERS

CAUTION

To avoid personal injury:

- **When working on slopes, one stabilizer may be lower than the other. Use extreme care during excavation as risk of overturn will increase.**
- **When digging on a hillside, always dump the bucket on the uphill side of excavation.**
- **To reduce the risk of overturn on a slope, place the spoil to the high side of the excavation.**

1. Lower the stabilizers and remove the weight of the backhoe from the rear wheels. However, one or both rear tires should remain in light contact with the ground. This will give the backhoe the widest possible stance and the lowest center of gravity.
   If the rear wheels are raised too high, digging depth will be reduced and undue stress will be exerted on the backhoe frame components.
   If the slope is unusually steep, cut a level surface with the loader and pile the spoil on the downhill side. Backdrag and pack the spoil so it will support the stabilizer on the low side. This procedure is recommended when a wall, tree line or other obstruction prevents placing backhoe spoil on the high side of the excavation.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2. The loader bucket should be lowered to give the backhoe unit a "tri-pod" stance. With the loader bucket in ground contact, front tire bounce will not be a factor in overall control. When possible, the loader bucket cutting edge should be lowered vertically into the ground surface. This will assist the stabilizers, not allowing the unit to shift, while excavating. However, on a slope, the bottom of the bucket should be used, and only the side that contacts the uneven terrain. Too much loader down pressure, on a slope, will restrict the unit from being correctly leveled and will place an undue twist through the loader bucket and lift arms.

GENERAL BACKHOE OPERATION

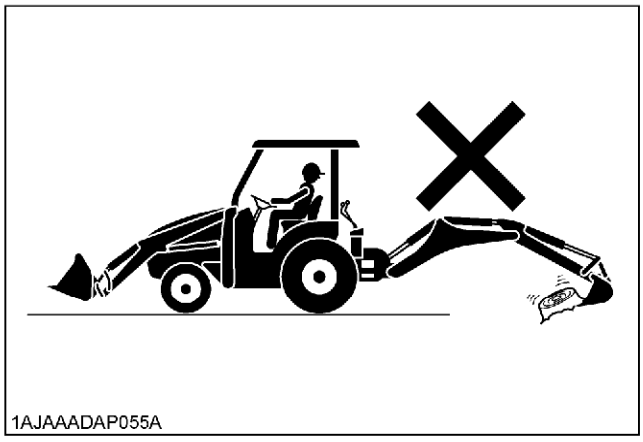
CAUTION

To avoid personal injury:

- **Do not dig under the stabilizer or tractor, especially in soft or sandy conditions.**
  Take extra precaution in wet or thawing ground. These conditions can become unstable very quickly and may collapse under the weight of the machine and may tip over.
- **Use care for buried material such as electrical, telephone, gas and water lines. When in doubt, contact local utility companies for their buried location.**

IMPORTANT :

- Do not use the tractor to pull out tree stumps with the boom dipper extended and the bucket in its crowded position.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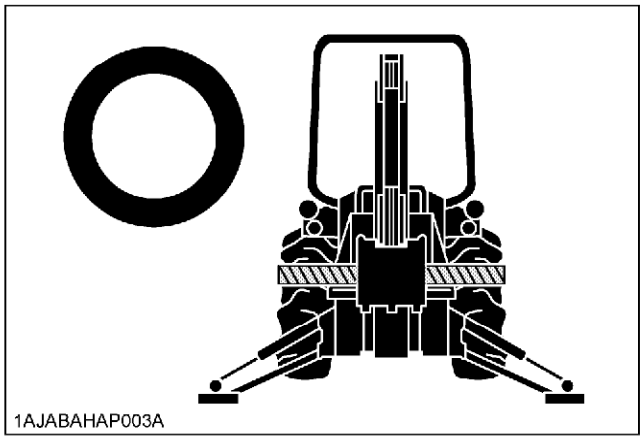
- In work using the mechanical thumb, do not handle long objects (objects longer than the width of the machine).
  Objects held by the mechanical thumb will hit the machine and other objects, which can damage the machine and others.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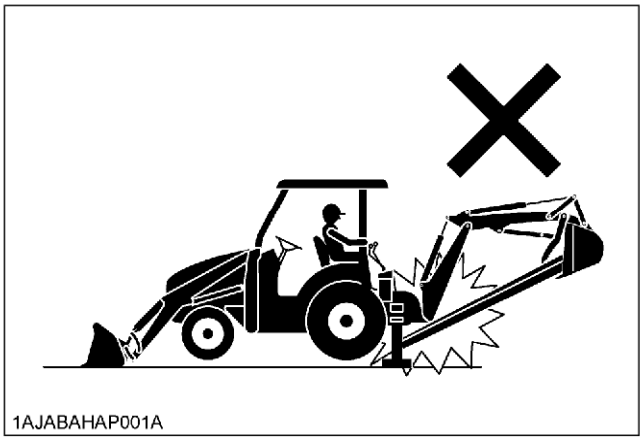
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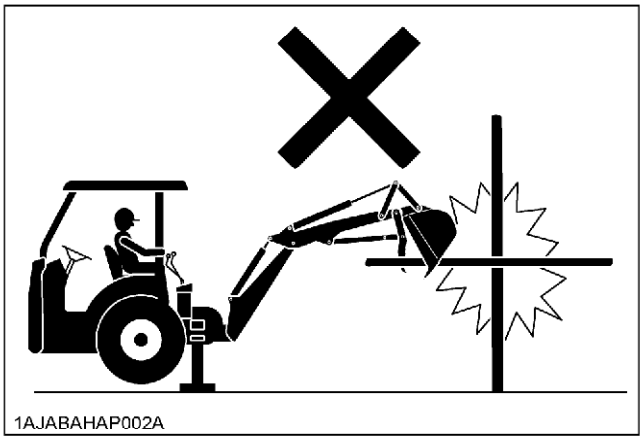
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■Dipperstick Digging

Lower the bucket to the ground, the same as with bucket digging, then curl until the bucket teeth are flat on the ground.

Using only the crowd cylinder, retract the dipperstick, dragging the bucket through the trench until it is approximately half full. Begin to curl the bucket in while continuing to crowd in, until the bucket is completely full. Raise and swing the boom and dump the bucket in the spoil area on the high side of the trench or excavation.

■Spoil Pile Location

CAUTION

To avoid personal injury:

- **Do not place spoil close to the edge of the excavation where its weight could cause a cave-in.**

Carefully preplan the location for the spoil that will be removed from the excavation. The location will vary depending on the excavation being dug.

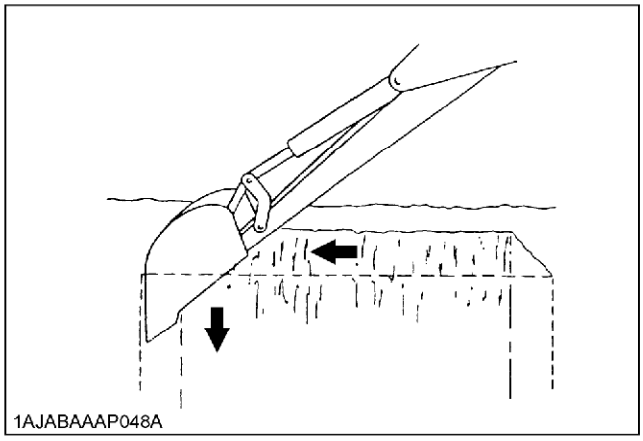
The height of spoil pile can be controlled without moving the tractor. Approach the pile with the backhoe bucket full and ready to empty. Instead of dumping on top, lower the full bucket into the top of the pile. Begin dumping and crowding out at the same time. As the bucket opens and dumps, the bottom of the bucket will push the top of the pile off and behind its location, safely away from the excavation.

■Straight Wall or Cemetery Digging

Strip the top soil off the ground, within the confines of the straight hole or grave to be dug. Clean out as much material, within the same confines, as possible with normal digging methods.

Finish the far wall by crowding out while forcing the bucket down with the boom.

Curl the bucket out to keep the bottom of the bucket vertical while making the down cut.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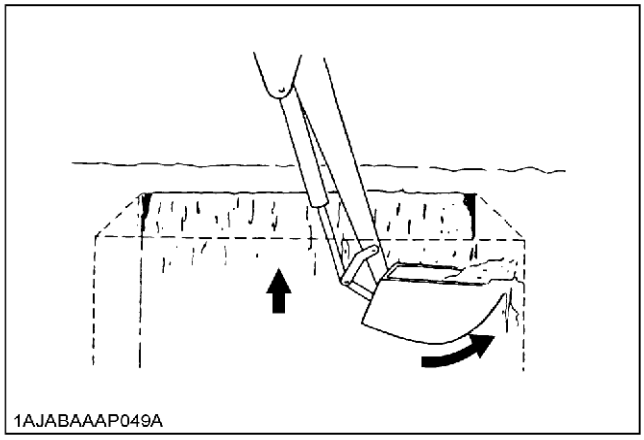
To finish the near wall, raise the boom while crowding in. The bucket will have to be curled in to keep the cutting edge horizontal with the wall during the up cut.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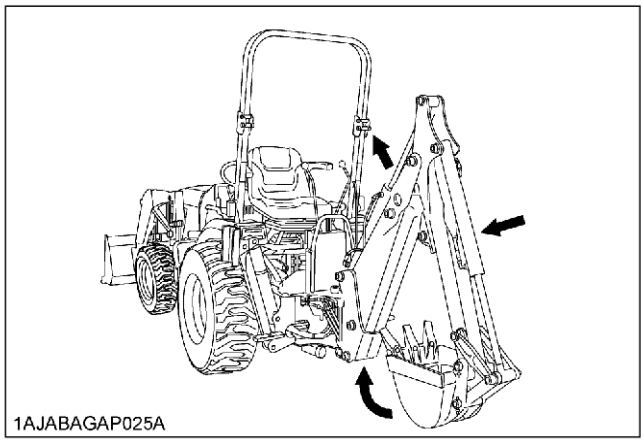
When finishing straight wall, or digging graves, in sandy soil, use a platform under the rear tires and stabilizers. The platform distributes the backhoe load over a large area and lessens the possibility of a cave-in.

TRANSPORTING

CAUTION

To avoid personal injury:

- **Before transporting the machine, raise and center the boom, close the dipperstick, curl the bucket and engage the boom and swing locks.**
- **Always securely fasten the tractor / loader / backhoe, with chains and chain binders, to transport vehicle.**
  Determine and note the load height of the backhoe, for underpass clearance, before transporting.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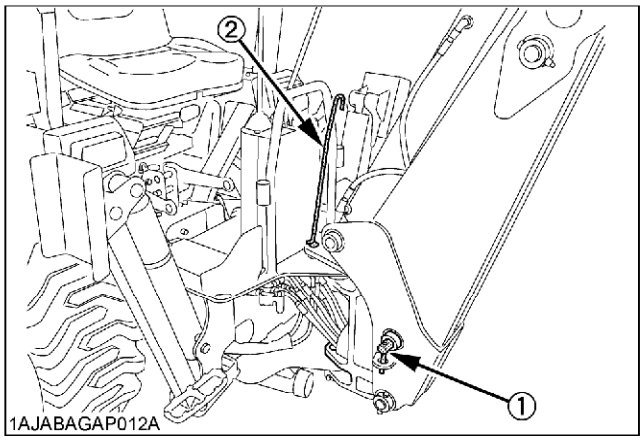
■Driving to the Job-site

When driving or transporting from one job-site to another, or when using the loader such as stockpiling and backfilling, always engage the boom and swing locks.



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(1) Boom lock pin
(2) Swing lock pin

■Trailer Transporting

When loading or off-loading the machine on or from trailer / truck, use strong, secure ramps long enough to provide a low angle to the transport vehicle.

After loading the machine, release the boom lock, lower the backhoe bucket to the bed of the transport vehicle, lower the loader bucket, set the parking brake of the tractor, shut the engine off and then remove the key.

Check the local codes or regulations that may apply to tractor / loader / backhoe operation on public streets or highways, before transporting or traveling. Use SMV emblem and warning flashers as required.

(SMV: Slow Moving Vehicle)

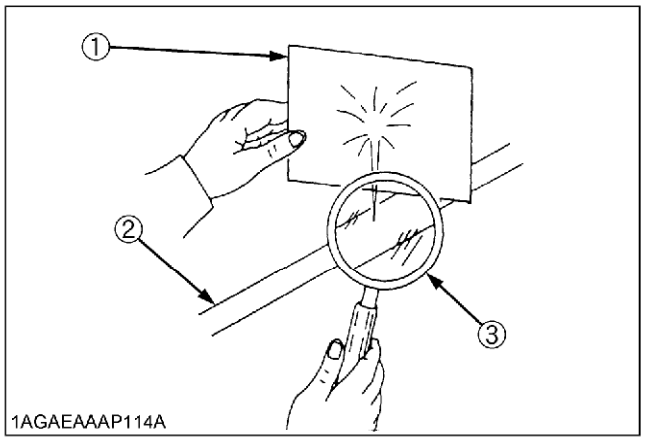
MAINTENANCE

DAILY CHECKS

CAUTION

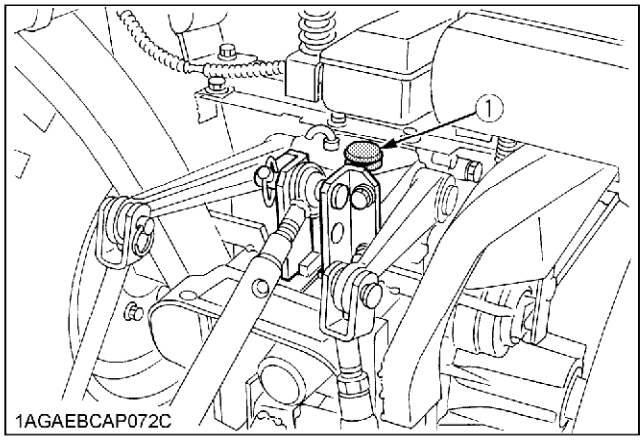
To avoid personal injury:

- **Never make any repairs, service or adjustments when the hydraulic system is under pressure, when the engine is running or when any backhoe cylinder is under load.**
- **Escaping hydraulic fluid under pressure can have sufficient force to penetrate skin, causing serious personal injury.**
  Before disconnecting lines, be sure to relieve all pressure. Before applying pressure to system, be sure all connections are tight and that lines, pipes and hoses are not damaged. Fluid escaping from a very small hole can be almost invisible. Do not use hands to search for suspected leak, use a piece of cardboard or wood. If injured by escaping fluid, see a doctor at once.
  Serious infection or allergic reaction will develop if proper medical treatment is not administered immediately.

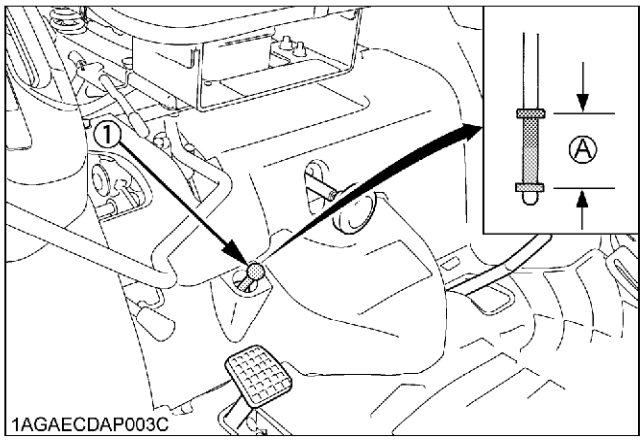


(1) Cardboard
(2) Hydraulic line
(3) Magnifying glass

1. The backhoe is run by the tractor hydraulic system. Daily before operation, check the tractor hydraulic level. If low, replenish the oil as described in the tractor operator's manual. Also check the filter screen and change the hydraulic fluid as recommended in the tractor operator's manual.

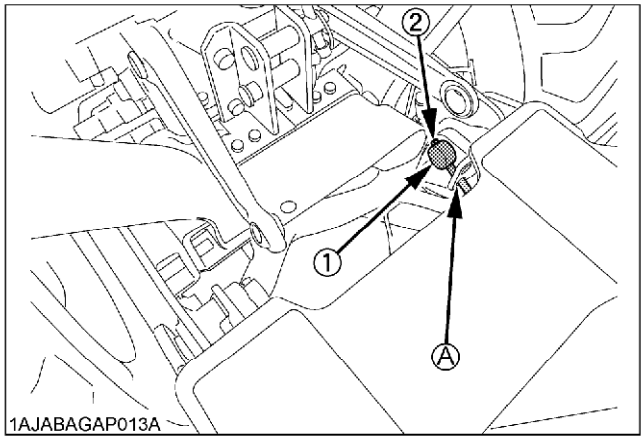


(1) Oil inlet



(1) Dipstick *(A) Oil level is acceptable within this range*

2. Check all hardware before daily operation. Tighten hardware to torque values as specified in the "General torque specification".
3. With the engine off and the bucket on the ground, inspect all hoses for cuts or wear. Check for signs of leaks and make sure all fittings are tight.
4. For safe operation, check that the mounting pin slide bar is inserted into the lower hole of the main frame before operation.



(1) Mounting pin
(2) Slide bar
(A) "Lower hole"

EVERY 50 HOURS

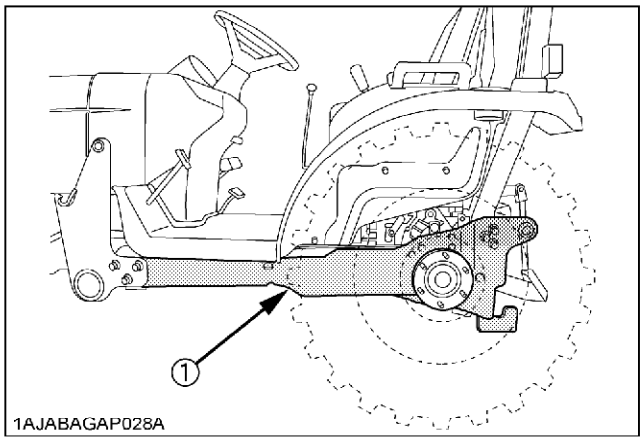
■Checking Sub Frame Bolt Torque

CAUTION

To avoid personal injury:

- **Never operate backhoe and front loader with a loose sub frame.**
- **Any time bolts and nuts are loosened, retighten to specified torque.**
- **Check all bolts and nuts frequently and keep them tight.**

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

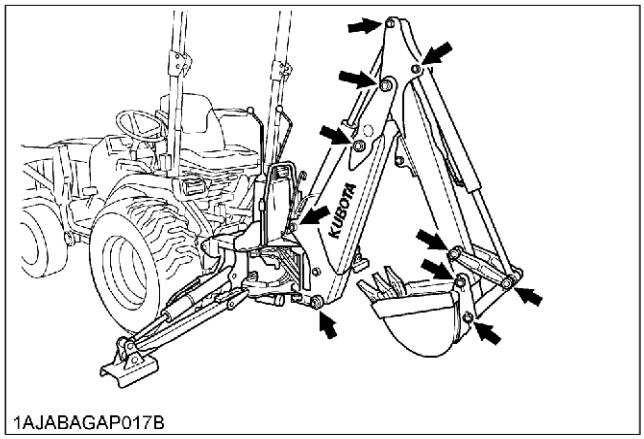


(1) Sub frame

M16 bolt and nut
Tightening torque: 196 to 225 N-m (20.0 to 23.0 kgf-m, 145 to 166 ft-lbs)
M12 bolt
Tightening torque: 77.5 to 90.2 N-m (7.9 to 9.2 kgf-m, 57.1 to 66.5 ft-lbs)

LUBRICATION

Lubricate all grease fittings every 10 hours of operation. High quality grease designated "extreme pressure" and containing Molybdenum disulfide is recommended. This grease may specify "Moly Ep" on it's label.



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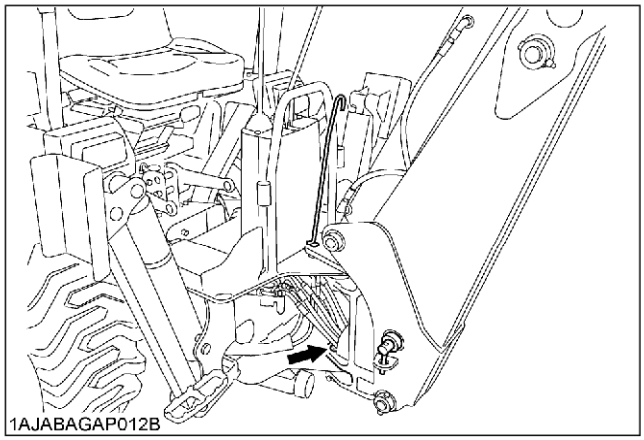
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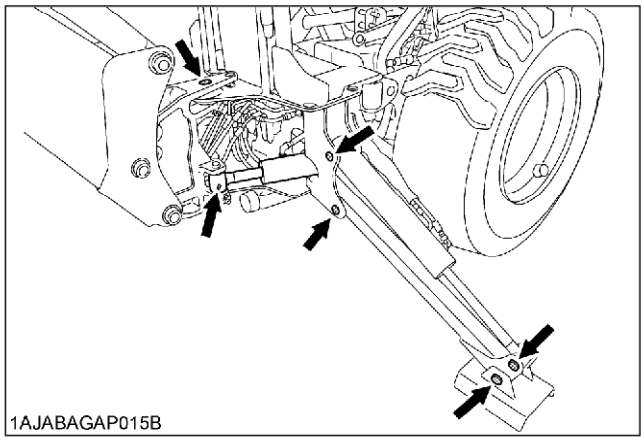
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TIRE INFLATION

Ensure the tractor tires are properly inflated. Refer to the tractor operator's manual for optional tires.

■Inflation Pressure

	Tire size	Inflation pressure
Rear	9.5 - 16, 6PR	140kPa(1.4kgf/cm^2, 20psi)
	9.5 - 18, 6PR	160kPa(1.6kgf/cm^2, 23psi)
	315/75D - 15, 4PR	100kPa(1.0kgf/cm^2, 14psi)
	11.2 - 16, 4PR	130kPa(1.3kgf/cm^2, 18psi)
	12 - 16.5, 4PR	270kPa(2.7kgf/cm^2, 40psi)
	31x13.5 - 15, 4PR	140kPa(1.4kgf/cm^2, 20psi)
	31x15.5 - 15, 4PR	140kPa(1.4kgf/cm^2, 20psi)
	33x12.5 - 15, 4PR	140kPa(1.4kgf/cm^2, 20psi)
Front	6 - 12, 4PR	200kPa(2.0kgf/cm^2, 28psi)
	7 - 12, 4PR	170kPa(1.7kgf/cm^2, 24psi)
	21x8.00 - 10, 4PR	160kPa(1.6kgf/cm^2, 23psi)
	22x8.50 - 12, 4PR	160kPa(1.6kgf/cm^2, 23psi)
	23x8.50 - 12Turf, 4PR	150kPa(1.5kgf/cm^2, 22psi)
	23x8.50 - 12Ind., 4PR	250kPa(2.5kgf/cm^2, 35psi)
	24x8.50 - 12, 4PR	160kPa(1.6kgf/cm^2, 23psi)

BUCKET SERVICE

CAUTION

To avoid personal injury:

- **When servicing or repairing pins in cylinder ends, bucket, etc., always use a brass drift and hammer. Failure to do so could result in injury from flying metal fragments.**

■Changing the Backhoe Bucket

Changing the backhoe bucket becomes necessary as the type of job to be accomplished changes. In most backhoe operations, this is a common occurrence.

By using the following instructions, this job will be quick and easy. Always select a smooth level area to change buckets.

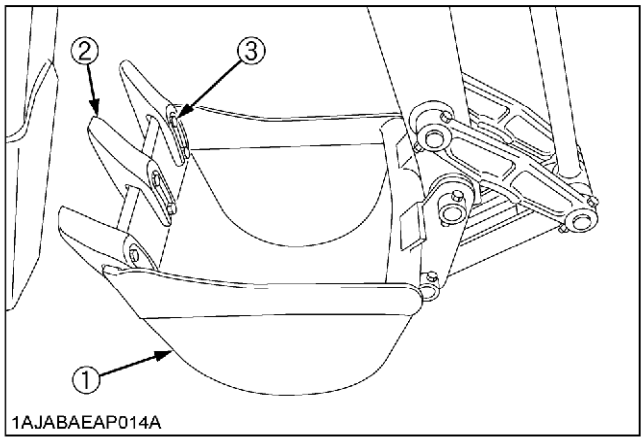
Place the bucket to be installed on its bottom, near the backhoe dipperstick and the bucket to be removed.

Position the bucket to be removed, hydraulically, into this "natural" position, just touching the ground.

■Changing the Bucket Teeth

The bucket teeth are locked with bolts on the bucket. Even though the teeth are heat-treated and hard, they will eventually need replacement. As the teeth become worn, the resistance of digging will increase. When the teeth are worn, install new teeth using new bolts.

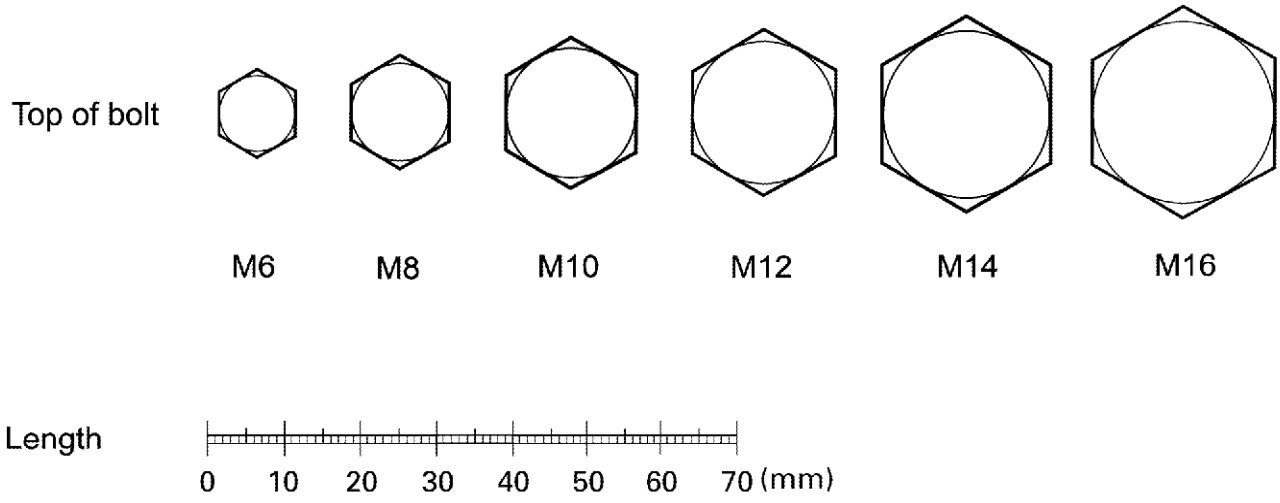
Bucket teeth may be removed and stored when drainage work is required. This type of work may not require trenching teeth.



(1) Bucket
(2) Bucket teeth
(3) Bolt

■General torque specification

American standard screws, bolts and nuts with UNC or UNF threads				Metric cap screws 8.8		
SAE grade No.		SAE GR.5	SAE GR.8	property class		8.8 Approx. SAE GR 5
1/4	(N-m) (kgf-m) (ft-lbs)	11.7 to 15.8 1.19 to 1.61 8.6 to 11.6	16.3 to 19.8 1.66 to 2.02 12.0 to 14.6	M6	(N-m) (kgf-m) (ft-lbs)	9.8 to 11.2 1.0 to 1.1 7.2 to 8.3
5/16	(N-m) (kgf-m) (ft-lbs)	23.1 to 27.8 2.35 to 2.83 17.0 to 20.5	32.5 to 39.3 3.31 to 4.01 24.0 to 29.0	M8	(N-m) (kgf-m) (ft-lbs)	23.6 to 27.4 2.4 to 2.8 17.4 to 20.2
3/8	(N-m) (kgf-m) (ft-lbs)	47.5 to 57.0 4.84 to 5.81 35.0 to 42.0	61.0 to 73.2 6.22 to 7.46 45.0 to 54.0	M10	(N-m) (kgf-m) (ft-lbs)	48.1 to 55.8 4.9 to 5.7 35.5 to 41.2
1/2	(N-m) (kgf-m) (ft-lbs)	108.5 to 130.2 11.06 to 13.28 80.0 to 96.0	149.2 to 179.0 15.21 to 18.25 110.0 to 132.0	M12	(N-m) (kgf-m) (ft-lbs)	77.5 to 90.1 7.9 to 9.2 57.2 to 66.5
9/16	(N-m) (kgf-m) (ft-lbs)	149.2 to 179.0 15.21 to 18.25 110.0 to 132.0	217.0 to 260.4 22.13 to 26.55 160.0 to 192.0	M14	(N-m) (kgf-m) (ft-lbs)	124 to 147 12.6 to 15.0 91.5 to 108.4
5/8	(N-m) (kgf-m) (ft-lbs)	203.4 to 244.1 20.74 to 24.89 150.0 to 180.0	298.3 to 358.0 30.42 to 36.51 220.0 to 264.0	M16	(N-m) (kgf-m) (ft-lbs)	196 to 225 20.0 to 23.0 145 to 166



REMOVING THE BACKHOE

REMOVAL OF THE BACKHOE

CAUTION

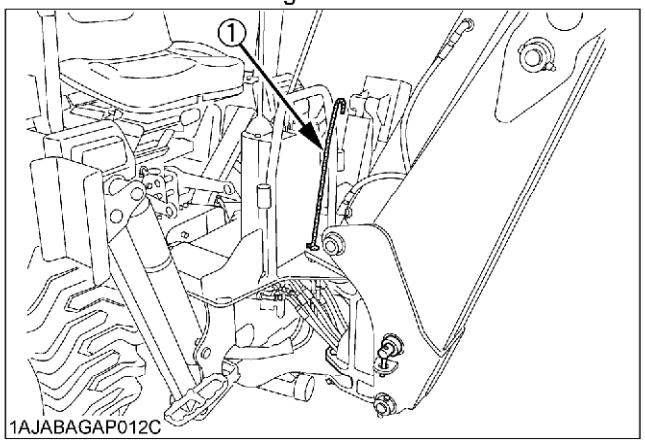
To avoid personal injury:

- **When starting the engine, always sit in the tractor operator's seat.**
- **When getting off the tractor, make sure that PTO lever is off and range gear shift lever is in neutral. Then set the parking brake.**
- **Keep hands, feet and body from between tractor and backhoe. Never allow any part of body under the machine.**
- **When leaving the backhoe operator's seat, fully lower the boom to the ground.**
- **When removing the backhoe set the swing lock pin.**

IMPORTANT :

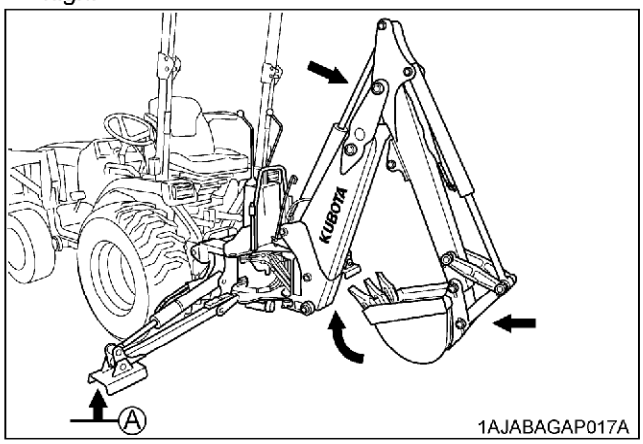
- When removing the backhoe, set the engine speed low idle.
- For removing the backhoe, locate the tractor / loader / backhoe on a flat level and hard surface, preferably concrete.
  If the surface is soft, place a board on the ground for the bucket and stabilizers.

1. Set the swing lock pin to prevent the pivoting of the boom before removing the backhoe.



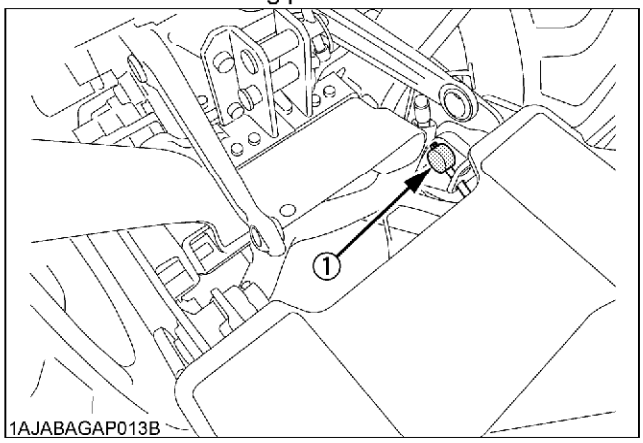
(1) Swing lock pin

2. Stand beside the rear tire, fully close the dipperstick, curl the bucket and lower the boom until the back of bucket contacts the ground.
3. Keep the stabilizer pads at about 381 mm (15.0 in.) high.



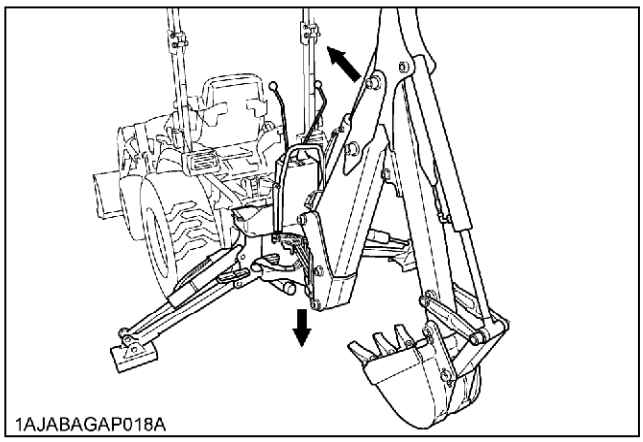
(A) 381 mm (15.0 in.)

4. Raise the rear wheels slightly with the boom and remove the mounting pins.

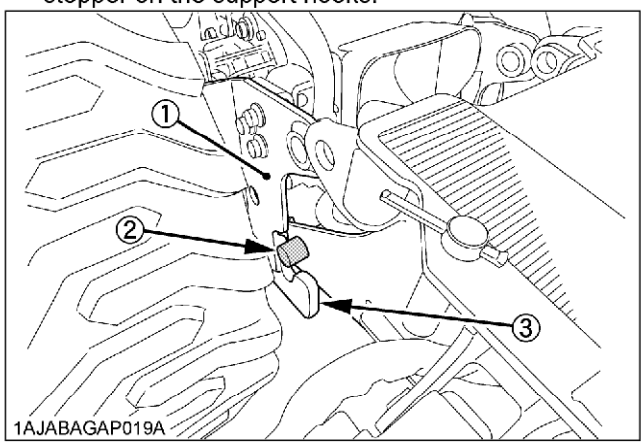


(1) Mounting pin

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 the guide stopper on the support hooks.

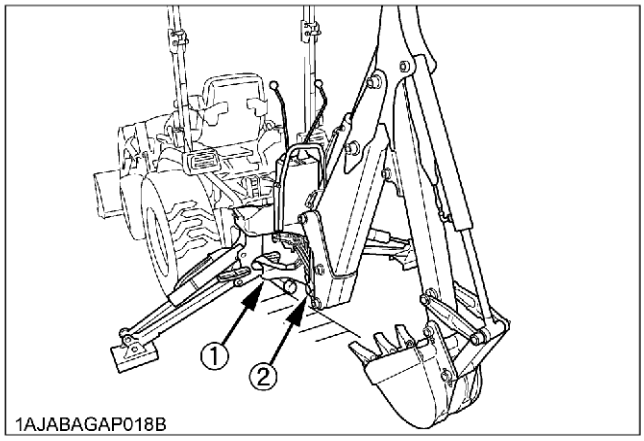


(1) Guide stop
(2) Mount bar
(3) Support hook

7. Move the tractor forward from the backhoe about 8 inches.

IMPORTANT :
- Be careful not to damage or break the hoses when moving the tractor.

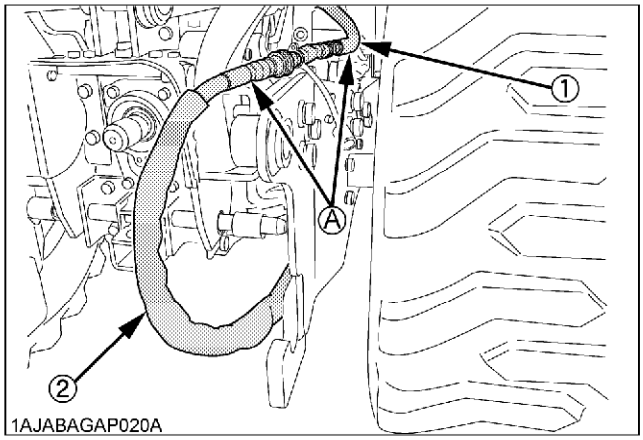
8. Lower the main frame and swing frame onto the ground by operating the boom and stabilizer control levers.



(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 backhoe hydraulic control levers in all directions.
11. Disconnect hydraulic hoses in the following manner:
    (1) Disconnect the return hose from the tractor.
    (2) Connect tractor's outlet hose to the coupler of inlet hose.

NOTE :
- Failure to reconnect the hose can result in severe damage to Hydraulic Pump and seals.
  Do not start tractor with hose disconnected.

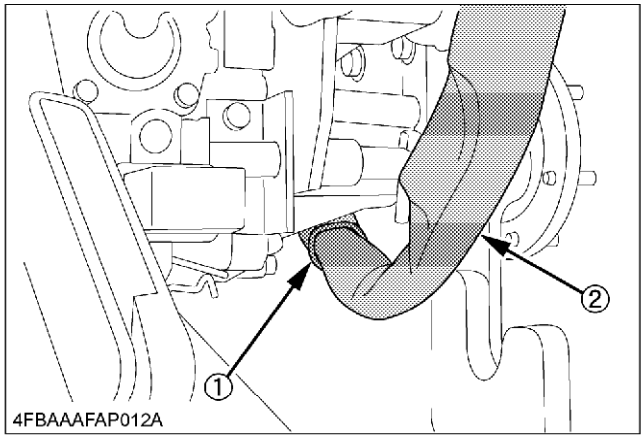


(1) Inlet tube (tractor) *(A) To be connected*
(2) Outlet hose (tractor)

12. Restart the engine.
    Then drive the tractor / loader slowly away from the backhoe.
13. Shut off the engine and remove the key from the tractor. Set the parking brake.

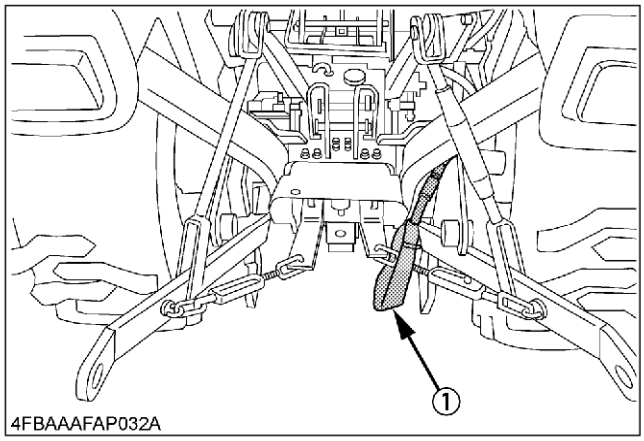
NOTE :
- The entire three point hitch can now be reinstalled on the tractor for use with other rear mount implements.
- Be sure that there is sufficient ballast in the rear tires and an implement is attached to the three point hitch before using the loader with backhoe removed.

IMPORTANT :
- Pass the outlet hose (tractor) through the hose guide.



(1) Hose guide
(2) Outlet hose (tractor)

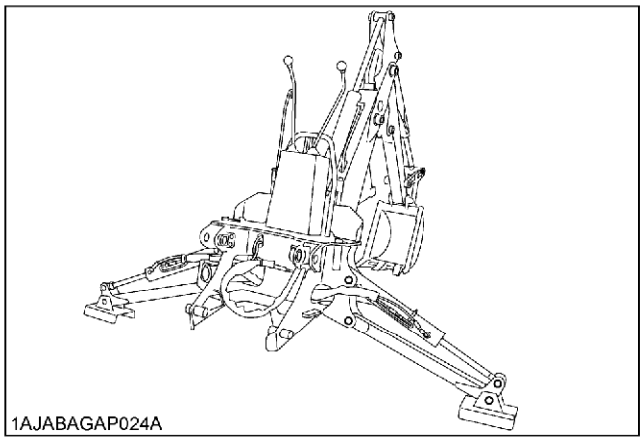
◆ **Pass the hydraulic hose as shown below when installing the three point hitch.**



(1) Hydraulic hose

STORAGE OF THE BACKHOE

1. Store the backhoe in a dry place.
2. Apply a coat of grease to all exposed cylinder rods to prevent rusting.
3. If the backhoe is being stored outside, cover the backhoe with suitable weather cover. This will keep moisture, dirt and other airborne debris from getting into the system.
4. Repair or replace any worn, damaged or missing parts.



IMPORTANT :
- When storing the backhoe, install the dust caps onto the backhoe's hydraulic nipples to prevent contamination.

REINSTALLING THE BACKHOE

WARNING

To avoid personal injury or death:

- **When starting the engine, always sit in the operator's seat.**
- **When getting off the tractor, make sure that PTO lever is off and range gear shift lever is in neutral. Set the parking brake.**
- **Keep hands, feet and body from between tractor and backhoe. Never allow any part of body under the machine.**

CAUTION

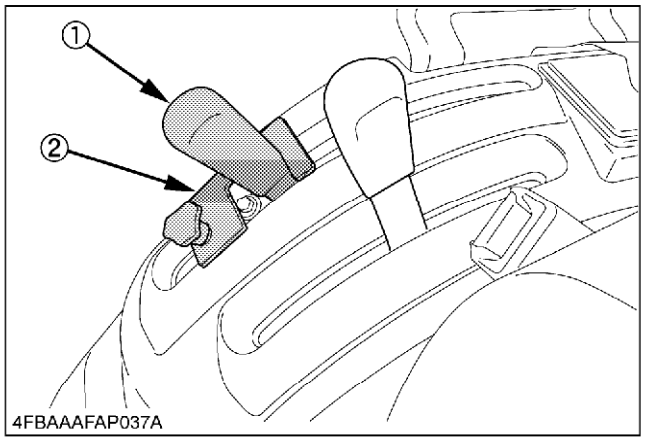
To avoid personal injury:

- **Make sure the tractor PTO is disengaged.**

IMPORTANT :

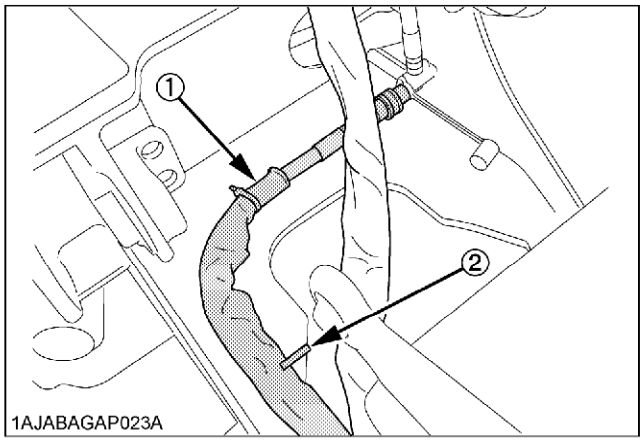
- When reinstalling the backhoe, set the engine speed to low idle.

1. Remove the 3-point hitch and / or drawbar. (if equipped)
2. Lower the hydraulic control lever and push the lift arms in "LOWEST" position.
   Fix the hydraulic control lever to the "DOWN" position by the lever stopper.



(1) Hydraulic control lever
(2) Lever stopper

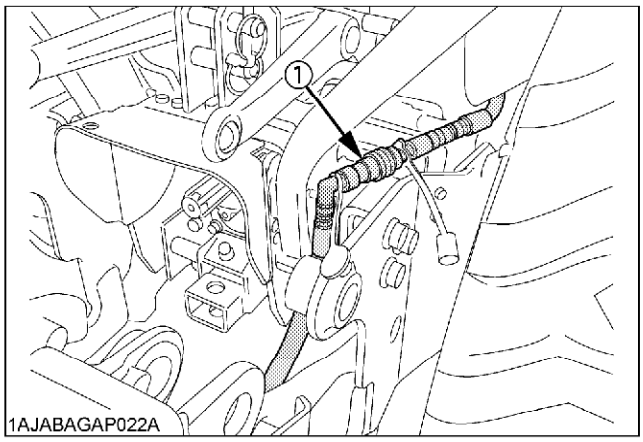
3. Make sure the swing lock pin is installed.
4. Slowly back the tractor / loader, centering to the backhoe main frame.
   Stop the tractor 10 to 12 inches away from the backhoe.
5. Shut the engine off and set the parking brake.
6. Connect the return and outlet hoses of the backhoe to the outlet hose and return pipe of the tractor.



(1) Outlet hose
(2) Hose guide

IMPORTANT :

- Pass the outlet hose (tractor) through the hose guide.



(1) Return hose

IMPORTANT :

- Make sure both hoses are firmly connected before starting the engine.

7. Restart the engine.

WARNING

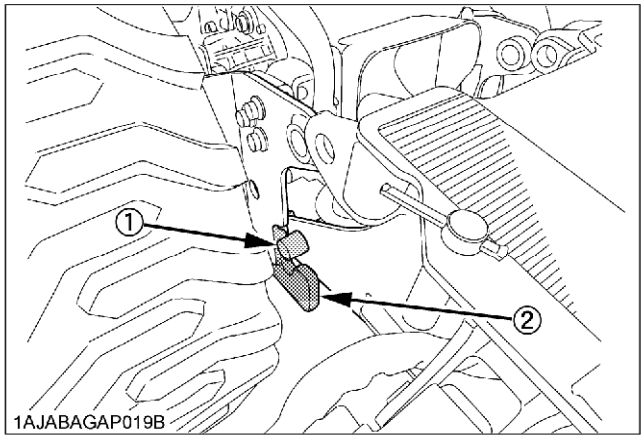
To avoid personal injury or death:

- **Do not move the joystick control lever to the swing position.**

8. Stand beside the rear tire. Move the boom to fully raised position and raise the backhoe by operating the stabilizers until the mount bars on the backhoe main frame are slightly higher than the tractor main frame support hooks.

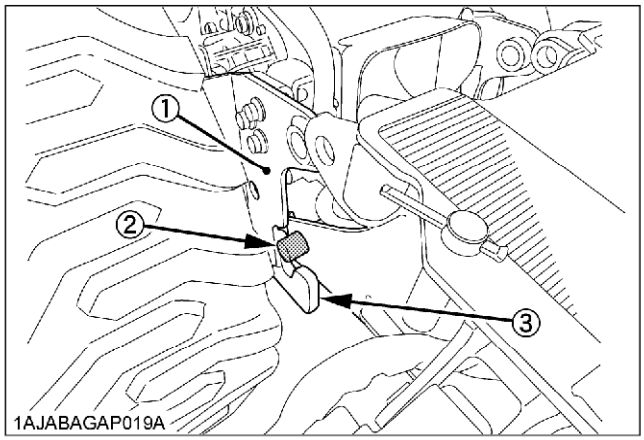
NOTE :
- If the support hooks are not parallel to the mount bars, adjust with the stabilizers.

9. Move the tractor backward until the support hooks on the tractor main frame are just beneath the mount bar on the backhoe main frame.



(1) Mount bar
(2) Support hook

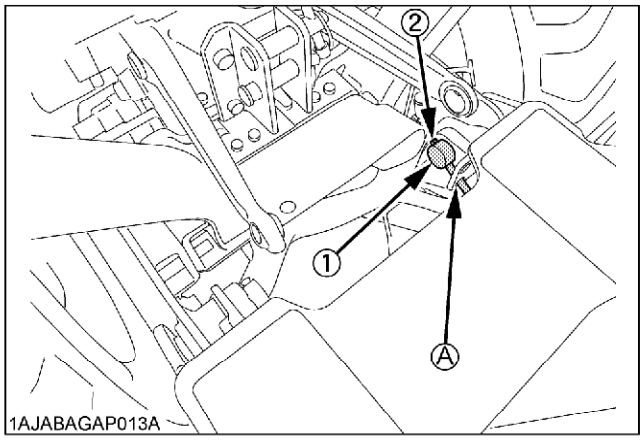
10. Lower the mount bar onto the support hooks by operating the stabilizer and boom control levers.



(1) Guide stop
(2) Mount bar
(3) Support hook

11. Move the boom slowly to the lowering position, and engage the guide plates of the main frame to the bosses of sub frame. Then raise the rear wheels slightly by operating the boom to the lowering direction.

12. Shut off the engine. Reinstall the mounting pins, and insert the slide bar of the mounting pins to the lower hole of the main frame.



(1) Mounting pin
(2) Slide bar
(A) "Lower hole"

NOTE :
- Move the tractor / loader / backhoe to an open area and cycle all backhoe functions. This will check their operation and flow oil back through the system, filtering it and refilling each circuit. Check the hydraulic oil level before putting the backhoe into full operation. See "MAINTENANCE" section of the tractor operator's manual for oil type and correct level.